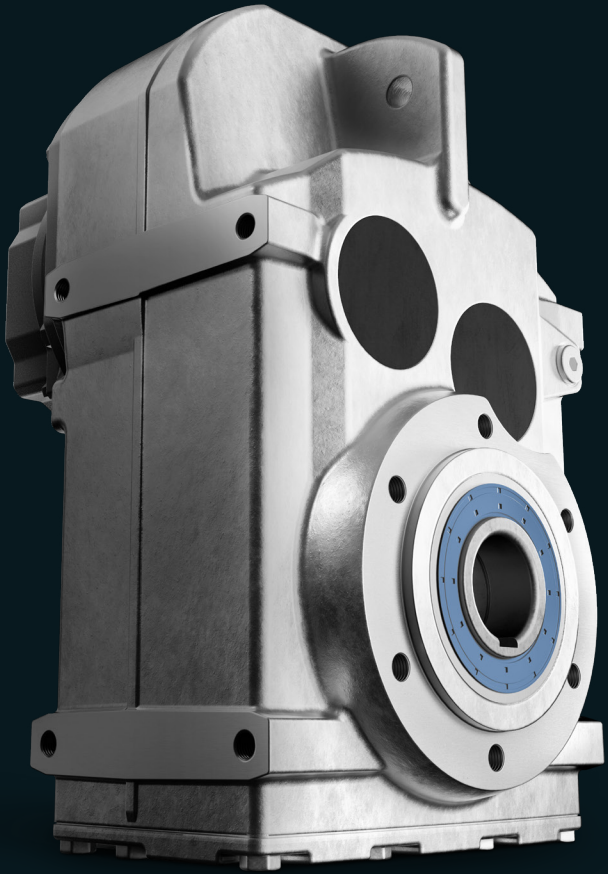


INNOMOTICS



Catalog D 50.11 | Edition 04/2024

Innomotics Moves! **SG Gearboxes with Adapter**

Mounting of IEC, NEMA and Servo Motors

innomotics.com/geared-motors

The Siemens Businesses **Large Drives Applications** and **Low Voltage Motors** have been transferred to **Innomotics**. The brand change from Siemens to Innomotics is ongoing.

Siemens' or Innomotics' legal information, trademarks or logos contained in product related documents **do not necessarily represent the actual branding** used for the products. Any technical product information remains valid **independently of the brand**.

Orders received as of **August 1, 2024**, will be confirmed exclusively with the product mark **"Innomotics"** regarding the concerned products and services.

Independent of the order date, all ordered products or services with **delivery** dates from **April 1, 2025**, will be delivered with the product mark "Innomotics".

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INNOMOTICS

A Siemens Business

INNOMOTICS

Catalog
D 50.11

Edition
April 2024

Innomotics SG Gearboxes with adapter

innomotics.com/geared-motors

Dear Customer,

We are happy to present the edition of Catalog D 50.11 - April 2024.

The catalog provides a comprehensive overview of the 2KJ3 Innomotics SG Gearboxes series with adapters.

The products listed in this catalog are also included in SiePortal.

Please contact your local Innomotics office if you want to obtain more information.

Current information about Innomotics SG Standard Geared Motors is available on the internet at www.innomotics.com/geared-motors

We hope that you will often use our Catalog D 50.11 - April 2024 as a selection and ordering reference document, and wish you every success with our products and solutions.

With kind regards,

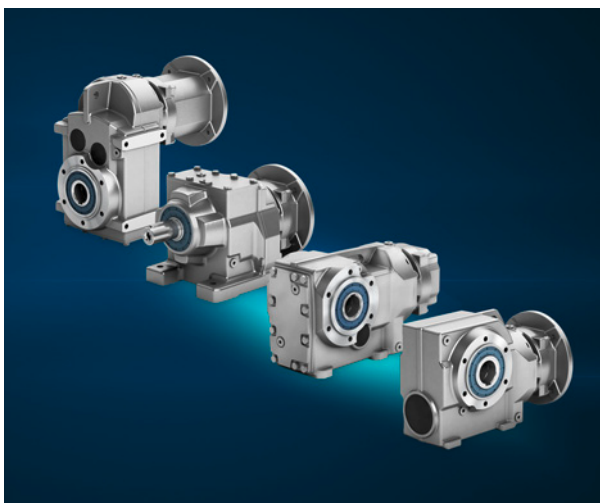


Martin Prescher
Head of Product Portfolio Management
Innomotics GmbH, Geared Motors

Innomotics SG

Gearboxes with adapter

Innomotics Moves!



Catalog D 50.11 · April 2024

Supersedes:
Catalog D 50.11 · 2023

Refer to SiePortal for current updates of this catalog:
<https://sieportal.siemens.com>

Please contact your local Innomotics branch.

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The products and systems described in this catalog are manufactured/distributed under application of following certified management system in accordance with EN ISO 9001, EN ISO 14001, EN ISO 45001 (Certified Registration No. DE-409908 QM08, UM15, OHS18). The certificate is recognized by all IQNet countries.

Digitalization in drive technology

From the digital world to the real world

[siemens.com/digital-drives](https://www.siemens.com/digital-drives)

Increase your transparency and productivity by digitalizing your drive technology

Many drives are used in the manufacturing and process industries. They produce lots of data anyway – why not use them to increase the availability and productivity of machines and plants?

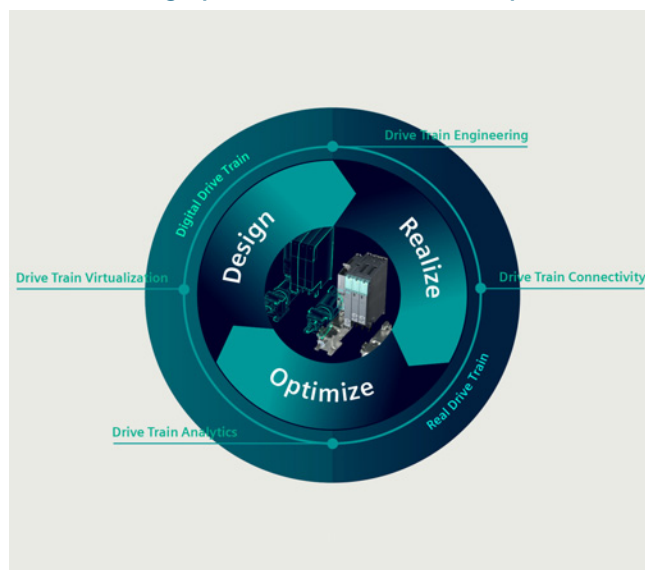
Drive technology offers the ideal entry point into the world of digitalization – for plant and machine builders as well as for users.

The digitalization portfolio for the drive train spans over the complete life cycle – from the design phase to realization and optimization – in the digital and the real world.

Our portfolio contains drive simulation solutions and efficient engineering tools, comprehensive connectivity that allows drives to be easily linked to the relevant platforms as well as smart analytics (e.g. cloud and edge apps) and drive system services.

These solutions enable you to gain a better understanding of processes, states and utilization. The health status of the drive train can be monitored and analyzing drive data enables an early detection of anomalies and reduces downtimes. This way, availability and productivity of machines and plants can be increased and the actual maintenance demand can be identified. Furthermore, data-based business models and service offerings are facilitated.

Our digitalization portfolio covers all phases of the life cycle: from the design phase to realization and optimization. It covers the digital and the real drive train.



Design: By creating a digital twin of the drives, machine builders can shorten their time-to-market since they can design, simulate and optimize their machine before ordering any material or products. Together with other tools from the engineering box, simulation can also speed up the engineering phase of drives and entire machines, for example by virtual commissioning of the PLC.

Realize: Once the machine is in operation, the drives can be connected to other platforms, for example to the cloud and Industrial Edge. This creates transparency in terms of what is going on inside the drive train, e.g. with regard to the actual current, torque and speed.

Optimize: To understand the collected data, our drive train analytics portfolio provides algorithms and analysis tools to unlock the potential of the data and turn the gained transparency into insights and valuable knowledge. These insights can then again be used in the design phase of the next life cycle, thus closing the loop.

Benefits of drive train digitalization

Machine builders



Availability



Increase the availability of your machines

Speed



Shorten time-to-market

Business models



Develop new service and business models

Machine operators



Productivity



Increase the productivity of your production

Flexibility



Increase the flexibility of your production

Efficiency



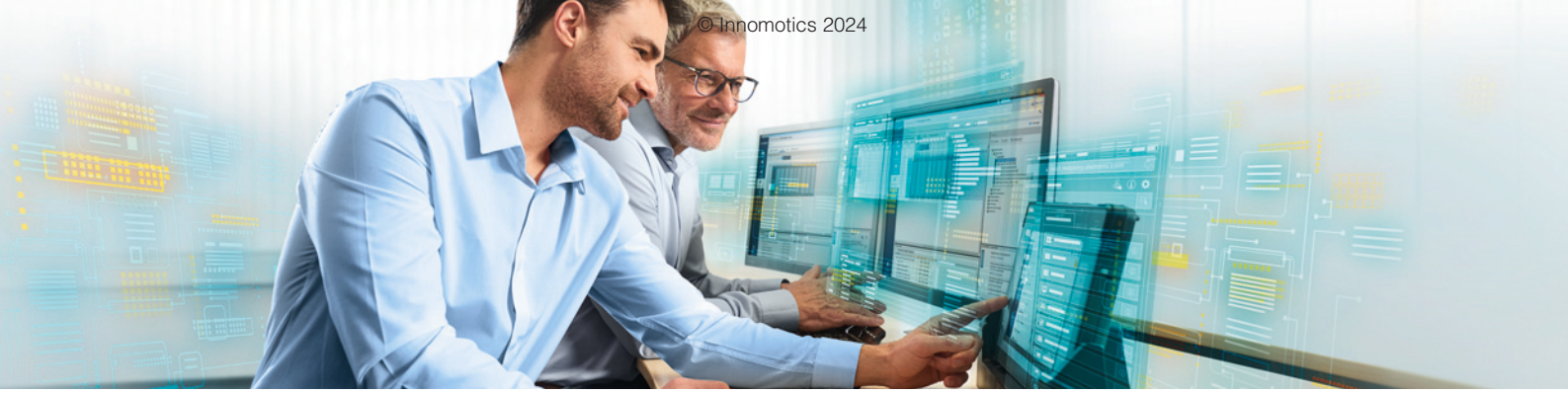
Identify potential for optimization

Benefits for machine and plant builders

- Increased availability of machines and plants – thanks to digital options for checking and implementing design improvements and comprehensive monitoring of drive systems
- Shorter time-to-market and faster development times – thanks to practical software tools and a continuous database for concurrent development processes as well as virtual simulations, tests, and commissioning of machines and plants
- New options for future service and business models – ranging from customized application solutions and digital services to contractually guaranteed availabilities of machines and plants

Benefits for machine and plant operators

- Increased availability and productivity of production, fewer unscheduled downtimes – through the early detection of deviations and emerging risks thanks to digital drive monitoring
- More flexible production down to batch size 1 – through more effective use of knowledge from existing production lines thanks to transparent utilization, states, locations, and capacities down to the drive level
- Identification of potential for optimization to make production faster, better, and more efficient thanks to data-based transparency – for example, for faster modifications, simpler quality control, and the early prediction of maintenance demand as well as demand-oriented maintenance



TIA Selection Tool – quick, easy, smart configuration

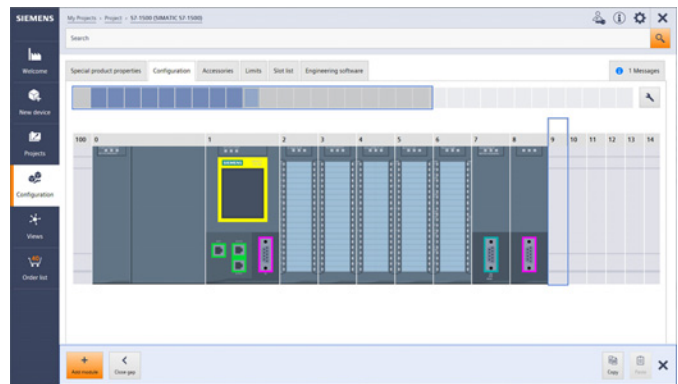
For you to get the most out of our portfolio quickly and easily.

Do you always need the optimum configuration for planning your project?

For your application we offer the TIA Selection Tool to support all project planners, beginners and experts alike.

No detailed portfolio knowledge is necessary.

TIA Selection Tool is available for download as a free desktop version or a cloud variant.



Your Advantages

Quick

- Configure a complete project with just a few entries – without a manual, without special knowledge
- Import and export of hardware configuration to TIA Portal or other systems
- Ideal visualization of the projects to be configured

Easy

- Tool download either as desktop version or web-based cloud version
- Technically always up-to-date about product portfolio and innovative approaches
- Highly flexible, secure, cross-team work in the cloud
- Direct ordering in SiePortal

Smart

- Smart selection wizard for error-free configuration and ordering
- Configuration options can be tested and simulated in advance
- Library for archiving sample configurations

The TIA Selection Tool is a completely paperless solution.

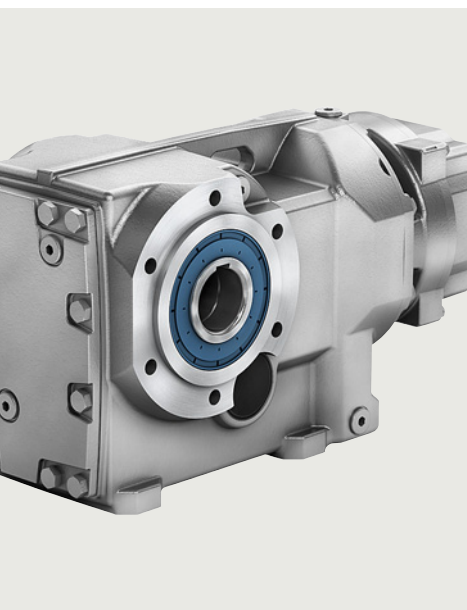
Download it now:

www.siemens.com/tst

For more
information,
scan the
QR code



Introduction



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Introduction

Orientation

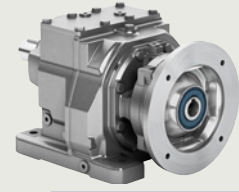
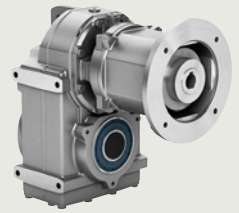
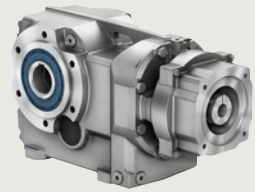
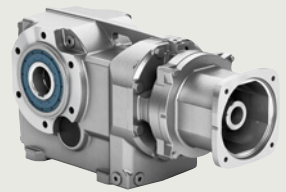
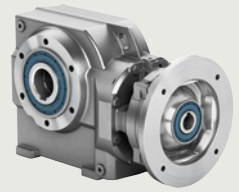
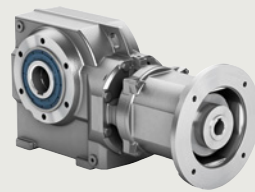
1

Gearboxes with adapter

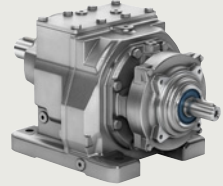
Overview

With directly mounted, highly efficient low voltage motors, Innomatics SG gearboxes with adapter offer a broad spectrum of geared motors for the most common drive applications.

Gearboxes of size 19 and larger can be supplied with a variety of adapters which allow the attachment of various motor ranges in order to meet the requirements of special applications.

| Adapters | Gearboxes | Low voltage motors | Fields of application |
|---|---|---|--|
| Adapters for mounting an IEC motor | | | |
| K4 Short adapter with plug-in connection | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes Z, D and E • Parallel shaft gearboxes FZ and FD • Bevel gearboxes B and K • Helical worm gearbox C • Worm gearbox S | <ul style="list-style-type: none"> • Innomatics GP/SD low-voltage motors • Innomatics XP explosion-protected motors | <ul style="list-style-type: none"> • Universal solution • Short design |
| K2 Coupling adapter with flexible coupling | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | <ul style="list-style-type: none"> • Innomatics GP/SD low-voltage motors • Innomatics XP explosion-protected motors | <ul style="list-style-type: none"> • Rugged solution • Harsher environmental conditions • Torsionally flexible cam coupling |
| Adapters for mounting a servo motor | | | |
| KS Coupling adapter with flexible coupling exclusively for mounting defined Siemens servo motors | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | <ul style="list-style-type: none"> • SIMOTICS S-1FK2 • SIMOTICS S-1FK7 • SIMOTICS S-1FT7 • SIMOTICS M-1PH8 (1PH808 and 1PH810) • SIMOTICS S-1FL6 | <ul style="list-style-type: none"> • Square shape • Version for motor shafts without feather key • Compact design • Zero-backlash coupling |
| K8 Coupling adapter with flexible coupling for mounting a servo motor from the SIMOTICS M-1PH8 range | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | <ul style="list-style-type: none"> • SIMOTICS M-1PH8 (from 1PH813) | <ul style="list-style-type: none"> • Square or round shape • Version for motor shafts with feather key • Zero-backlash coupling |
| Adapters for mounting a NEMA motor | | | |
| K5 Short adapter with plug-in connection | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | <ul style="list-style-type: none"> • NEMA motors | <ul style="list-style-type: none"> • Universal solution • Short design |
| K3 Coupling adapter with flexible coupling | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | <ul style="list-style-type: none"> • NEMA motors | <ul style="list-style-type: none"> • Rugged solution • Harsher environmental conditions • Torsionally flexible cam coupling |

Overview

| Adapters | Gearboxes | Low voltage motors | Fields of application |
|---|--|--------------------|---|
| Adapters with free input shaft | | | |
| A/AZ | | | |
|  | <ul style="list-style-type: none"> • Helical gearboxes • Parallel shaft gearboxes • Bevel gearboxes • Helical worm gearboxes | - | <ul style="list-style-type: none"> • Flexible solutions for mounting on motors via <ul style="list-style-type: none"> - Belt pulleys, - chain wheels, or - couplings • Adapter AZ with centering and threaded hole • Adapter A without centering and without threaded hole |

Torque classes

Innomatics SG gearboxes are classified according to fixed torque steps. Within a torque class, for the various gearbox types, almost the same output torques are achieved.

| Helical gearboxes Z and D (2-stage and 3-stage) | | | | | | | | | | | | | | | |
|---|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|-------|-------|
| Size | | - | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 |
| Maximum output torque | Nm | - | 100 | 140 | 200 | 320 | 450 | 600 | 840 | 1680 | 3100 | 5000 | 8000 | 14000 | 19000 |
| Helical gearbox E (1-stage) | | | | | | | | | | | | | | | |
| Size | | - | - | - | 39 | 49 | - | 69 | - | 89 | 109 | 129 | 149 | - | - |
| Maximum output torque | Nm | - | - | - | 65 | 108 | - | 205 | - | 365 | 565 | 800 | 1490 | - | - |
| Parallel shaft gearboxes FZ and FD (2-stage and 3-stage) | | | | | | | | | | | | | | | |
| Size | | - | - | 29 | 39 | - | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 |
| Maximum output torque | Nm | - | - | 150 | 290 | - | 480 | 600 | 1000 | 1850 | 3100 | 4850 | 8000 | 13600 | 19000 |
| Bevel gearbox B (2-stage) | | | | | | | | | | | | | | | |
| Size | | - | 19 | 29 | 39 | - | 49 | - | - | - | - | - | - | - | - |
| Maximum output torque | Nm | - | 50 | 110 | 250 | - | 450 | - | - | - | - | - | - | - | - |
| Bevel gearbox K (3-stage) | | | | | | | | | | | | | | | |
| Size | | - | - | - | 39 | - | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 |
| Maximum output torque | Nm | - | - | - | 220 | - | 420 | 600 | 820 | 1600 | 2900 | 4400 | 8000 | 13000 | 19500 |
| Helical worm gearbox C (2-stage) | | | | | | | | | | | | | | | |
| Size | | - | - | 29 | 39 | - | 49 | 69 | - | 89 | - | - | - | - | - |
| Maximum output torque | Nm | - | - | 110 | 235 | - | 400 | 675 | - | 1450 | - | - | - | - | - |
| Worm gearbox S (1-stage) | | | | | | | | | | | | | | | |
| Size | | 09 | 19 | 29 | - | - | - | - | - | - | - | - | - | - | - |
| Maximum output torque | Nm | 28 | 44 | 79 | - | - | - | - | - | - | - | - | - | - | - |

Introduction

Orientation

1

Gearboxes with adapter

Benefits

High energy efficiency for a fast return on investment

When developing Innomatics SG gearboxes, significant emphasis was placed on achieving the highest possible energy efficiency.

Using the plug-on pinion principle in the first gearbox stage, higher transmission ratios are achieved when compared to gearboxes with slip-on pinion.

This means that frequently instead of 3-stage gearboxes with an efficiency of approx. 94 %, 2-stage helical and parallel shaft gearboxes with a high efficiency of ≥ 96 % can be used.

2-stage bevel gearboxes B have a mechanical efficiency of ≥ 96 %. With a range of transmission ratios from $i = 3.5$ to 60, they have been specifically designed to address the requirements in conveyor technology.

Extremely compact and low weight for easy handling in the machine or system in the smallest space

An integrated end shield instead of an adapter plate and end shield reduces the weight and space required in your machine or system.

In addition, interfaces and sealing joints are reduced as a result of the integrated end shield.

With the bevel gearboxes, the length was able to be significantly reduced through an optimized bearing design.

Helical gearboxes Z/D19 to Z/D39 (200 Nm), parallel shaft gearboxes F29 (150 Nm), bevel gearboxes B19 to B49 (450 Nm), and helical worm gearboxes C29 and C39A (235 Nm) have an aluminum gearbox housing.

Harmoniously coordinated modular system to provide the optimum solution for your particular drive task

The fine size graduations of Innomatics SG gearboxes provide you the optimum drive for every application regarding gearbox type, rated output torque and transmission ratio.

When developing Innomatics SG gearboxes, significant emphasis was placed on achieving well-balanced gearbox properties:

- Maximum output torque
- Permissible radial force
- Output shaft diameter
- Bearing service life
- Housing stiffness
- Gearing reliability (fatigue endurable)
- Shaft strength (fatigue endurable)

Fine ratio stages to always obtain the output speed required

With their wide range of transmission ratios, from very low up to very high, Innomatics SG gearboxes provide the necessary flexibility for your drive application.

As a result of the wide ratio range, 4-pole induction motors can be mainly used – the most cost-effective solution.

Further, the gearboxes are quieter as a result of the lower circumferential velocity of the first gearbox stage.

Intelligent sealing concept for a high degree of maintenance friendliness

An optimally coordinated sealing concept is available for the Innomatics SG gearbox output shaft to address the various application areas and ambient conditions.

Gearbox sizes 19 and 29 are lubricated for life.

All Innomatics SG gearboxes with venting have as standard a pressure breather valve.

Modular adapters for connection to many different motor models

The modular adapters available for Innomatics SG gearboxes allow the attachment of numerous different motor models from the motor spectrum.

The following types of motor can be mounted:

- Standard IEC motors
- Synchronous servo motors
- Asynchronous servo motors
- Explosion-protected motors

Innomatics SG Drive Train

Flexible combinations of Innomatics motors and gearboxes with adapters can be configured in the TIA Selection Tool.

In addition to the separate order of the gearbox-adapter unit and the motor, it is also possible to order assembled gearbox-adapter-motor combinations.

The order can directly be placed thanks to the direct connection of the TIA Selection Tool to SiePortal.

You can find additional information about the TIA Selection Tool at:

www.siemens.com/tia-selection-tool

Configuration

Siemens Product Configurator (SPC)

The Siemens Product Configurator (SPC) supports you when configuring the optimum drive technology products for a number of applications – from gearboxes, motors, converters as well as the associated options and components through to controllers, software licenses and connection systems.

The SPC can be used on the internet without requiring any installation. The SPC can be found in SiePortal at the following address:

www.siemens.com/spc

TIA Selection Tool

Selection guide and configurator for automation technology

Error-free configuration without expert knowledge through intelligent configurators and selection wizards. Desktop and cloud versions enable cross-team collaboration with maximum flexibility.

More information about the TIA Selection Tool is provided at:

www.siemens.com/tia-selection-tool

STARTER commissioning tool

The STARTER commissioning tool allows menu-prompted commissioning, optimization and diagnostics. Apart from the SINAMICS drives, STARTER is also suitable for MICROMASTER 4 devices.

Additional information about the STARTER commissioning tool is available on the internet at:

www.siemens.com/starter

SINAMICS Startdrive commissioning tool

SINAMICS Startdrive is a tool for configuring, commissioning and diagnosing the SINAMICS converter family and is integrated into TIA Portal (V15.1 or higher).

The SINAMICS Startdrive Basic commissioning tool is available for free on the internet at:

www.siemens.com/startdrive

More information

The latest technical documentation (catalogs, dimensional drawings, certificates, manuals and operating instructions as well as further technical specifications) are available on the internet at:

www.innomatics.com/geared-motors

and

www.siemens.com/spc

Introduction

Guidelines for selection and ordering

1

Article number code

Overview

The article number comprises a combination of digits and letters. To obtain a better overview, the article number is split up into three, hyphenated blocks.

Example:

2KJ3105-1EA04-0AS1+D01

The first block (data positions 1 to 7) designates the gearbox type; the second (data positions 8 to 12) designates the output shaft and the adapter type and size; and additional design characteristics are coded in the third block (data positions 13 to 16).

Structure of the Article No.

| Data position of Article No. | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | - | 8 | 9 | 10 | 11 | 12 | - | 13 | 14 | 15 | 16 | - | Z |
|------------------------------------|--|---|---|---|---|---|---|---|---|---|---|----|----|----|---|----|----|----|----|---|---|
| Innomotics SG geared motors | | | | | | | | | | | | | | | | | | | | | |
| 1st to 5th position: | Helical gearbox E, 1-stage | 2 | K | J | 3 | 0 | | | | | | | | | | | | | | | |
| Digit, letter, | Helical gearbox Z, 2-stage | 2 | K | J | 3 | 1 | | | | | | | | | | | | | | | |
| letter, digit, digit | Helical gearbox D, 3-stage | 2 | K | J | 3 | 2 | | | | | | | | | | | | | | | |
| | Parallel shaft gearbox FZ, 2-stage | 2 | K | J | 3 | 3 | | | | | | | | | | | | | | | |
| | Parallel shaft gearbox FD, 3-stage | 2 | K | J | 3 | 4 | | | | | | | | | | | | | | | |
| | Bevel gearbox B, 2-stage | 2 | K | J | 3 | 5 | | | | | | | | | | | | | | | |
| | Bevel gearbox K, 3-stage | 2 | K | J | 3 | 5 | | | | | | | | | | | | | | | |
| | Helical worm gearbox C, 2-stage | 2 | K | J | 3 | 6 | | | | | | | | | | | | | | | |
| | Worm gearbox S, 1-stage | 2 | K | J | 3 | 7 | | | | | | | | | | | | | | | |
| 6th to 7th position: | Gearbox size | | | | | | | | | | | | | | | | | | | | |
| Digit, digit | | | | | | | | | | | | | | | | | | | | | |
| 8th position: | Output shaft | | | | | | | | - | | | | | | | | | | | | |
| Digit | | | | | | | | | | | | | | | | | | | | | |
| 9th position: | Motor size | | | | | | | | | | | | | | | | | | | | |
| Letter, letter | | | | | | | | | | | | | | | | | | | | | |
| 10th position: | Performance indicator (customs tariff number) for gearbox without motor | | | | | | | | | | | | A | | | | | | | | |
| Letter | | | | | | | | | | | | | | | | | | | | | |
| 11th position: | Delivery without motor | | | | | | | | | | | | | | | | | | | 0 | |
| Letter | | | | | | | | | | | | | | | | | | | | | |
| 12th position: | Short adapter K4 with plug-in connection for mounting an IEC motor | | | | | | | | | | | | | | | | | | | | 4 |
| Digit, digit | Coupling adapter K2 with flexible coupling for mounting an IEC motor | | | | | | | | | | | | | | | | | | | | 2 |
| | Coupling adapter KS exclusively for mounting defined Siemens servo motors | | | | | | | | | | | | | | | | | | | | 1 |
| | Coupling adapter K8 for mounting a servo motor from the SIMOTICS M-1PH8 range | | | | | | | | | | | | | | | | | | | | 8 |
| | Short adapter K5 with plug-in connection for mounting a NEMA motor | | | | | | | | | | | | | | | | | | | | 5 |
| | Coupling adapter K3 with flexible coupling for mounting a NEMA motor | | | | | | | | | | | | | | | | | | | | 3 |
| | Adapter A / AZ * with free input shaft | | | | | | | | | | | | | | | | | | | | 9 |
| 13th position: | Frequency, voltage | | | | | | | | | | | | | | | | | | | | 0 |
| Digit | | | | | | | | | | | | | | | | | | | | | |
| 14th position: | Foot-mounted design | | | | | | | | | | | | | | | | | | | | A |
| Letter | Foot/flange-mounted design | | | | | | | | | | | | | | | | | | | | B |
| | Torque arm bevel gearbox K | | | | | | | | | | | | | | | | | | | | C |
| | Torque arm parallel shaft gearbox F, bevel gearbox B helical worm gearbox C worm gearbox S | | | | | | | | | | | | | | | | | | | | D |
| | Flange-mounted design | | | | | | | | | | | | | | | | | | | | F |
| | Housing flange design | | | | | | | | | | | | | | | | | | | | H |
| 15th to 16th position: | Transmission ratio | | | | | | | | | | | | | | | | | | | | |
| Letter, digit | | | | | | | | | | | | | | | | | | | | | |
| Special designs | | | | | | | | | | | | | | | | | | | | | |
| Coded | Order code required | | | | | | | | | | | | | | | | | | | | - |
| Non-coded | Plain text required | | | | | | | | | | | | | | | | | | | | Z |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Overview

Additional order codes

| Information | Input speed in continuous operation | Input power Rated motor power |
|-------------------------------------|---|---------------------------------------|
| when ordering | rpm | kW |
| Order code | Y00 | Y00 |
| Plain text specification | Y00:*AND@input speed* | Y00:*ANL@input power* |
| Example of plain text specification | Y00:*AND@1450* (input speed 1 450 rpm) | Y00:*ANL@1.5* (input power 1.5 kW) |
| Information required | ATEX version | ATEX version |

Ordering example

A helical geared motor is required:

- Gearbox type, size Z59
- Adapter type and size K4-90
- Input power 1.5 kW
- Input speed 1500
- Output speed 49, transmission ratio $i = 28.89$
- Solid shaft V35 x 70
- Mounting position M1

This results in the following Article No. with order codes

| Data position of Article No. | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | - | 8 | 9 | 10 | 11 | 12 | - | 13 | 14 | 15 | 16 | - | Z | + | Order codes | Plain text specification | | |
|------------------------------|--------------------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|---|----|----|----|----|---|---|---|-------------|--------------------------|-----|-----------------------------|
| Selection criteria | Requirements | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox type, gearbox size | Helical gearbox Z, size 59 | 2 | K | J | 3 | 1 | 0 | 5 | - | ■ | . | . | ■ | ■ | - | ■ | ■ | ■ | ■ | - | ■ | + | . | + | . | |
| Output shaft | Solid shaft V35 x 70 | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | | | | | | | | | | | | | | | | |
| Adapter size | Size 90 | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | | | | | | | | | | | | | | |
| Gearbox without motor | | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | | | | | | | | | | | | | |
| Adapter type | K4 for mounting a standard IEC motor | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | | | | | | | | | | | | |
| Voltage | Not relevant | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | - | 0 | | | | | | | | | | |
| Mounting type | Foot-mounted design | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | - | 0 | A | | | | | | | | | |
| Transmission ratio | $i = 28.89$ | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | - | 0 | A | S | 1 | | | | | | | |
| Mounting position | M1 | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | - | 0 | A | S | 1 | - | Z | + | D01 | | | |
| Input power, input speed | 1.5 kW, 1500 rpm | 2 | K | J | 3 | 1 | 0 | 5 | - | 1 | E | A | 0 | 4 | - | 0 | A | S | 1 | - | Z | + | D01 | + | Y00 | Y00:*ANL@1.5* *AND@1500* |

Introduction

Guidelines for selection and ordering

Type designation

Type designation of the gearboxes

The type designation is a meaningful name for Innomatics SG geared motors. It provides information about the fundamental design of the geared motor and about its main technical features.

| Example of type designation of the gearbox: | | F | D | A | F | S | W | 89 | - | Z | 39 |
|---|---|-----|---|---|---|---|---|----|---|------------|-----------|
| Gearbox type | Helical gearbox | - | | | | | | | | | |
| | Cooling tower gearbox, 1-stage | EKF | | | | | | | | | |
| | Cooling tower gearbox, 2-stage | ZKF | | | | | | | | | |
| | Parallel shaft gearbox | F | | | | | | | | | |
| | Bevel gearbox, 2-stage | B | | | | | | | | | |
| | Bevel gearbox, 3-stage | K | | | | | | | | | |
| | Helical worm gearbox | C | | | | | | | | | |
| | Worm gearbox | S | | | | | | | | | |
| Gearbox stages | 1-stage (for helical gearbox only) | | E | | | | | | | | |
| | 2-stage | | Z | | | | | | | | |
| | 3-stage | | D | | | | | | | | |
| Type | | | | | | | | | | | |
| Shaft | Solid shaft | | | - | | | | | | | |
| | Hollow shaft | | | A | | | | | | | |
| | Plug-in shaft | | | E | | | | | | | |
| Mounting | Foot-mounted design | | | | - | | | | | | |
| | Foot/flange-mounted design | | | | B | | | | | | |
| | Flange-mounted design | | | | F | | | | | | |
| | Housing flange design | | | | Z | | | | | | |
| | Torque arm | | | | D | | | | | | |
| Connection | Feather key / without feather key | | | | | - | | | | | |
| | Shrink disk | | | | | S | | | | | |
| | Splined shaft | | | | | T | | | | | |
| | ShaftMount assembly system | | | | | R | | | | | |
| Special features | Reduced-backlash version | | | | | | W | | | | |
| Gearbox size | Helical gearbox, 1-stage | | | | | | | | | 39 ... 149 | |
| | Helical gearbox, 2-stage/3-stage | | | | | | | | | 19 ... 189 | |
| | Cooling tower gearbox, 1-stage | | | | | | | | | 89 ... 149 | |
| | Cooling tower gearbox, 2-stage | | | | | | | | | 89 ... 189 | |
| | Parallel shaft gearbox, 2-stage/3-stage | | | | | | | | | 29 ... 189 | |
| | Bevel gearbox, 2-stage | | | | | | | | | 19 ... 49 | |
| | Bevel gearbox, 3-stage | | | | | | | | | 39 ... 189 | |
| | Helical worm gearbox, 2-stage | | | | | | | | | 29 ... 89 | |
| | Worm gearbox, 1-stage | | | | | | | | | 09 ... 29 | |
| Gearbox type - intermediate gearbox | | | | | | | | | | | |
| Gearbox type | Helical gearbox | | | | | | | | | - | |
| Gearbox stages intermediate gearbox | 2-stage | | | | | | | | | Z | |
| | 3-stage | | | | | | | | | D | |
| Gearbox size | Helical gearbox, 2-stage/3-stage | | | | | | | | | | 19 ... 69 |

Type designation of the adapters

| Example of type designation for gearbox with adapter: | | F | D | A | F | S | W | 89 | - | K4 | X | (132) | - | 1 |
|---|--|---|---|---|---|---|---|----|---|----|---|-------|------------|---|
| Gearboxes | | | | | | | | | | | | | | |
| Adapters | | | | | | | | | | | | | | |
| Adapter type | Short adapter with plug-in connection for mounting an IEC motor | | | | | | | | | K4 | | | | |
| | Coupling adapter with flexible coupling for mounting an IEC motor | | | | | | | | | K2 | | | | |
| | Coupling adapter exclusively for mounting defined Siemens servo motors | | | | | | | | | KS | | | | |
| | Coupling adapter for mounting a servo motor from the SIMOTICS M-1PH8 range | | | | | | | | | K8 | | | | |
| | Short adapter with plug-in connection for mounting a NEMA motor | | | | | | | | | K5 | | | | |
| | Coupling adapter with flexible coupling for mounting a NEMA motor | | | | | | | | | K3 | | | | |
| | Adapter A with free output shaft | | | | | | | | | A | | | | |
| | Adapter A with free output shaft and centering | | | | | | | | | AZ | | | | |
| Special features | Backstop | | | | | | | | | | X | | | |
| Motor size | Mountable motor size | | | | | | | | | | | | 63 ... 315 | |
| Explosion protection | ATEX version | | | | | | | | | | | | | 1 |

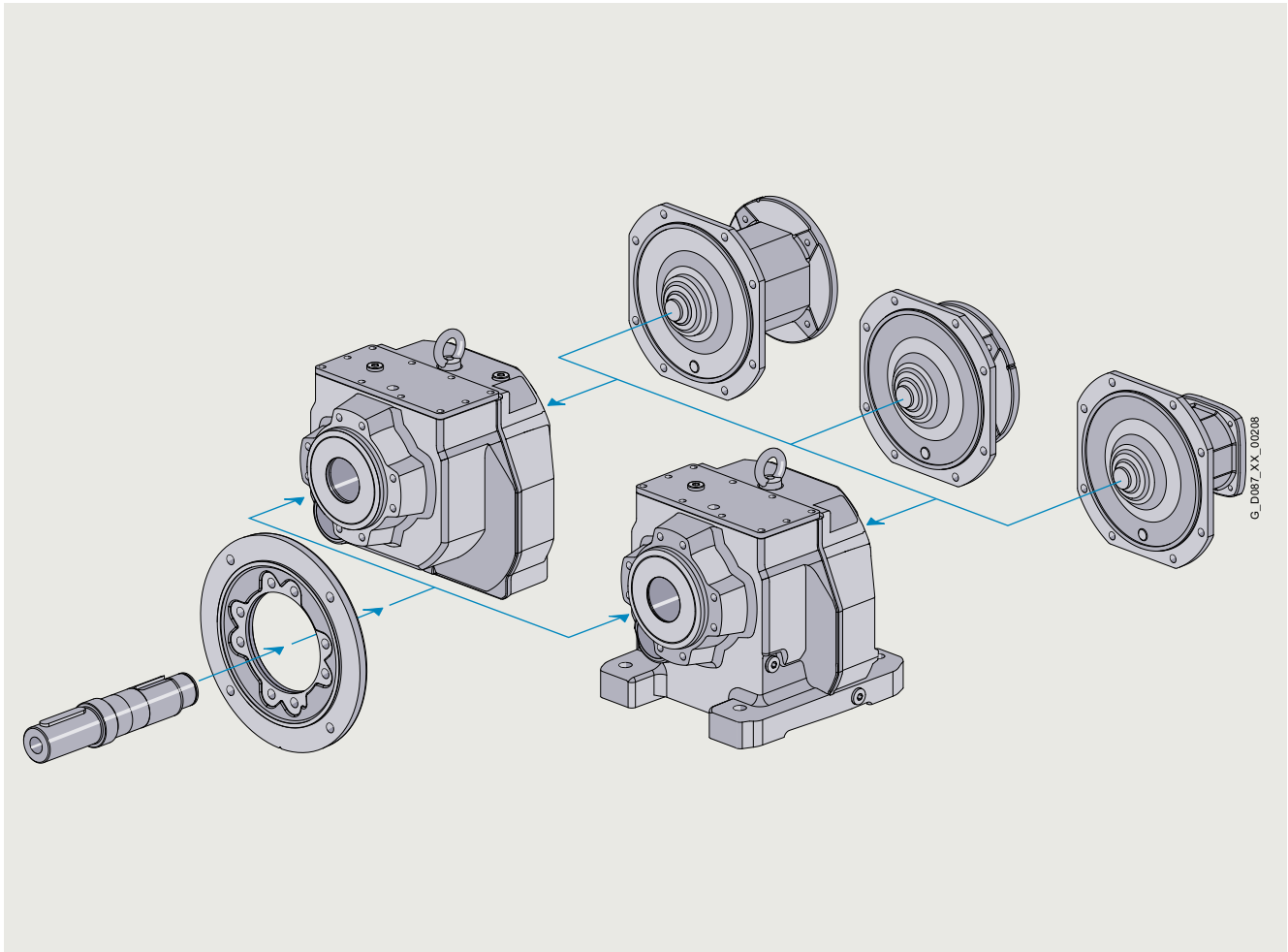
Overview
Helical gearbox


Fig. 1/1 Modular system, helical gearbox

Innomatics SG helical gearboxes are available in the following versions for mounting in any position:

- 2 or 3 stages
- 1 stage for high output speeds
- 4 to 6 stages for especially low output speeds
- Foot-mounted design
- Flange-mounted design
- Flange-mounted design with VLplus and XLplus reinforced bearing systems
- Design with integrated housing flange
- Combined foot/flange-mounted design (sizes 29 to 89)
- Solid shaft design with and without feather key

Typical applications

Helical gearboxes are used where there is sufficient axial space and efficient and low-cost drives are required:

- Roller conveyors, belt conveyors, chain conveyors
- Pumping systems
- Fan systems
- Water/wastewater systems
- Agitators
- Cooling tower drives

Introduction

Guidelines for selection and ordering

1

Designs

Overview

Parallel shaft gearbox

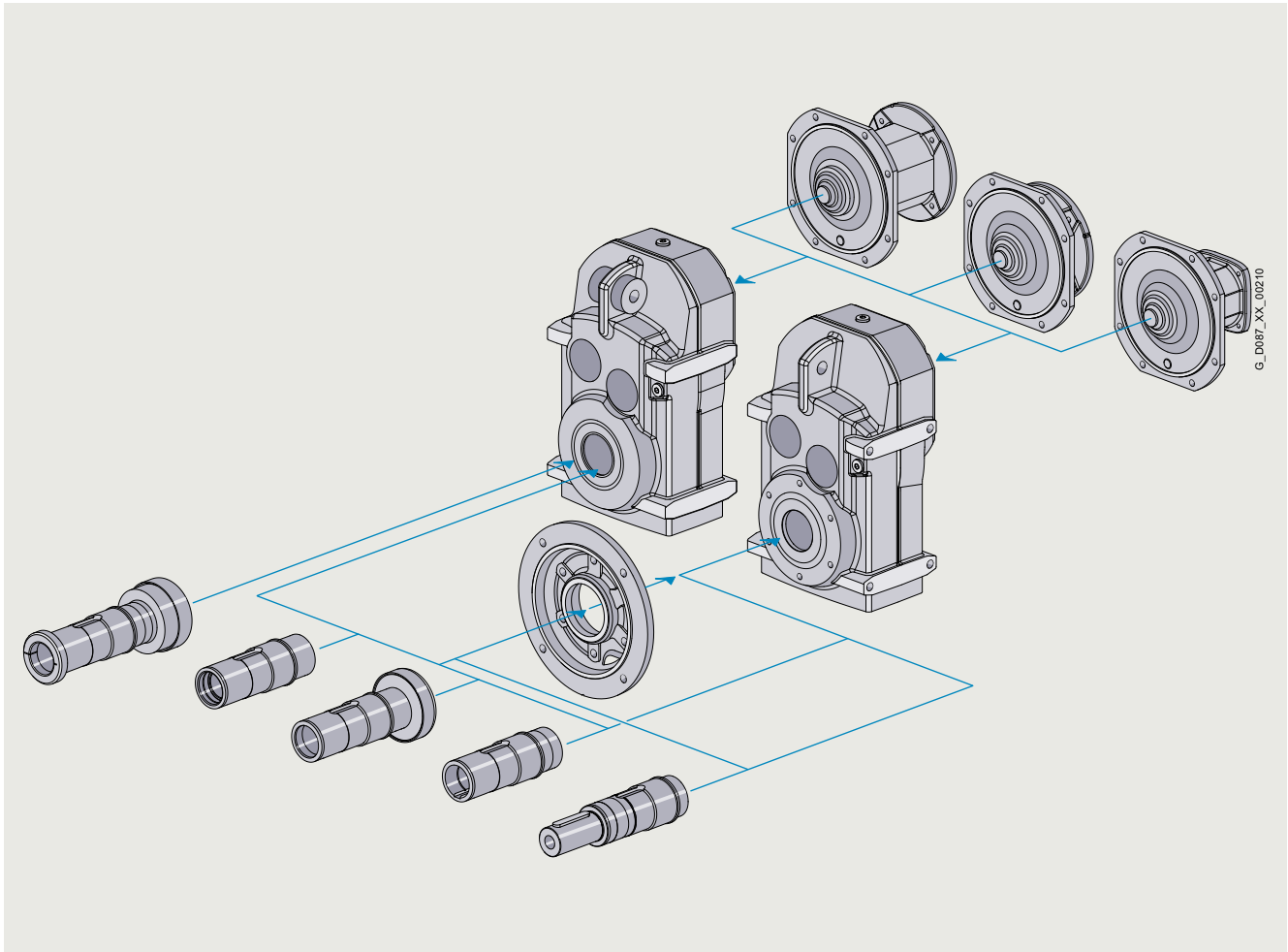


Fig. 1/2 Modular system, parallel shaft gearbox

Innomotics SG parallel shaft gearboxes are available in the following versions for mounting in any position:

- 2 or 3 stages
- 4 to 6 stages for especially low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Flange-mounted design with VLplus reinforced bearing system
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key

Typical applications

The parallel shaft gearboxes are mainly used in applications where compact geared motors are required which are fitted to the drive shaft of the machine:

- Chain conveyors, belt & bucket elevators, belt conveyors, roller conveyors
- Screw conveyors
- Pumping systems
- Fan systems
- Agitators
- Extruders
- Cooling tower drives

Overview

Bevel gearbox B

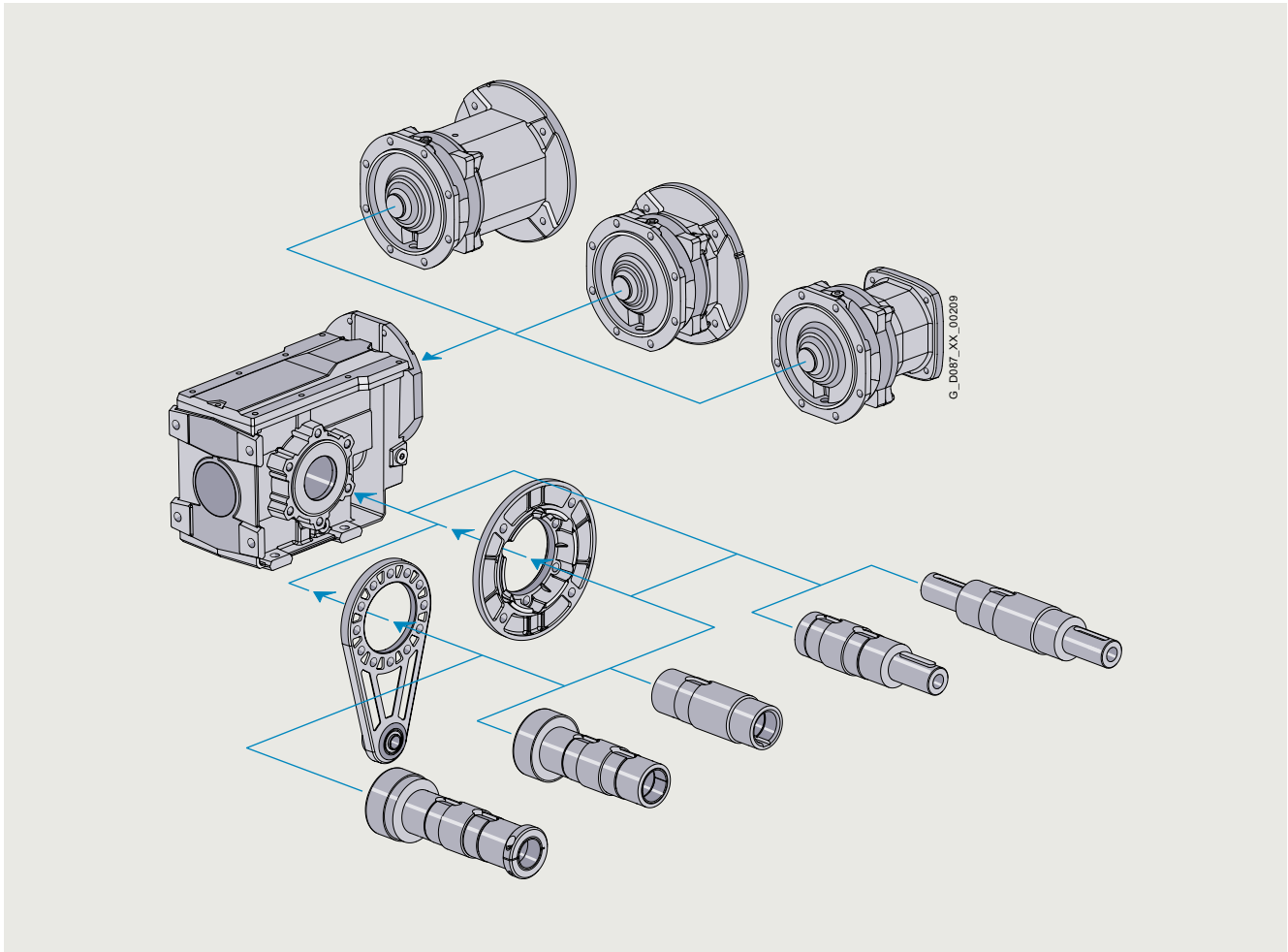


Fig. 1/3 Modular system, bevel gearbox B

Innomotics SG bevel gearboxes B are available in the following versions for mounting in any position:

- 2 stages
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

For 2-stage bevel gearboxes B, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 2-stage right-angle gear units with maximum efficiency are used when there is little axial space available:

- Airport industry
- Automotive industry (electric overhead conveyors)
- General conveyor technology (general cargo and bulk goods)
- Agitators
- Cooling tower drives

Introduction

Guidelines for selection and ordering

Designs

Overview

Bevel gearbox K

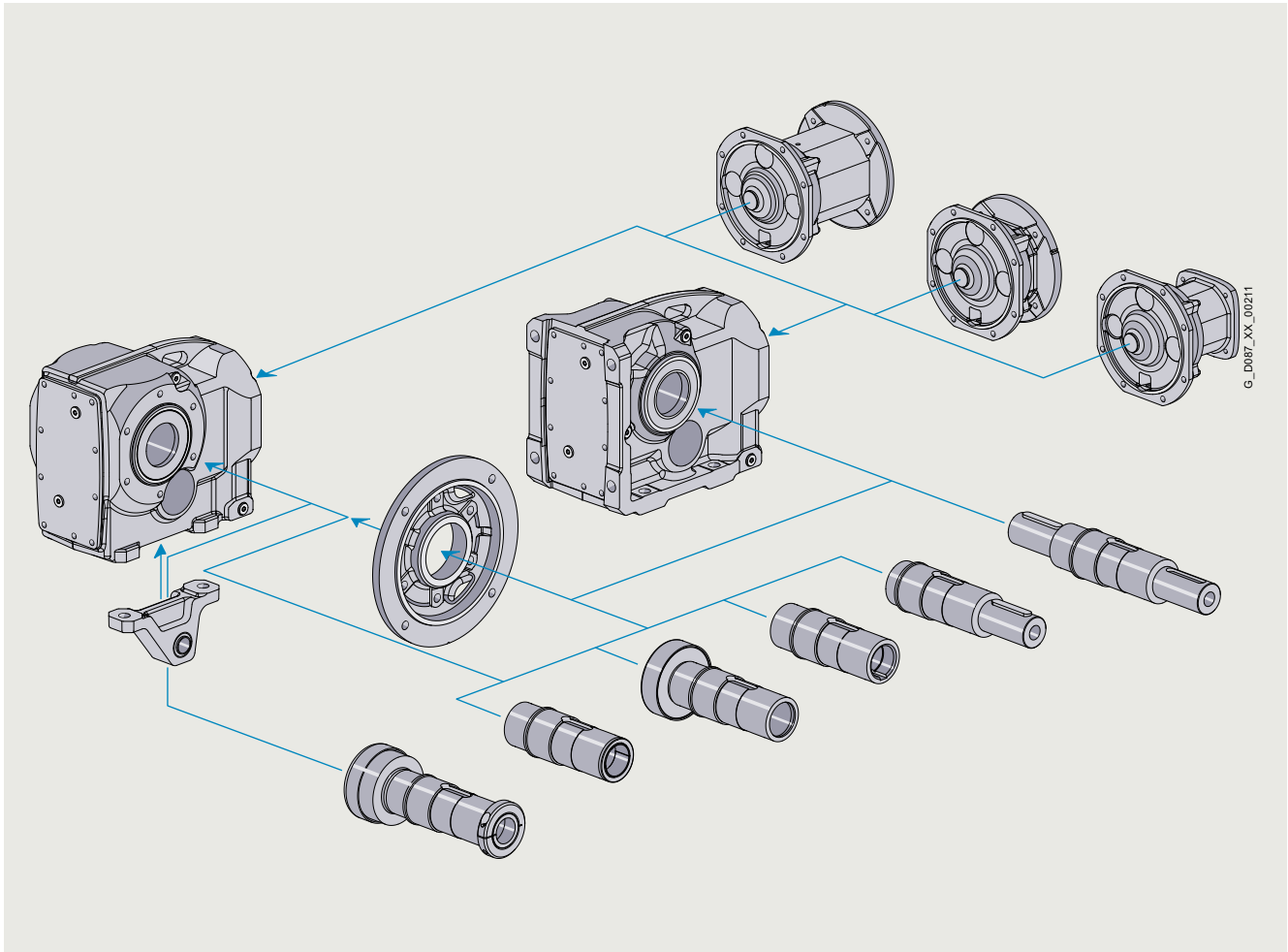


Fig. 1/4 Modular system, bevel gearbox K

Innomatics SG bevel gearboxes K are available in the following versions for mounting in any position:

- 3 stages
- 5 or 6 stages for very low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Flange-mounted design with VLplus reinforced bearing system
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

Typical applications

The 3-stage right-angle gear units with high efficiency are used when there is little axial space available:

- Automotive industry (electric overhead conveyors)
- General conveyor technology (general cargo and bulk goods), pallet conveyor, belt conveyor, chain conveyor
- Hoisting gear
- Drives in storage and retrieval machines
- Agitators
- Cooling tower drives

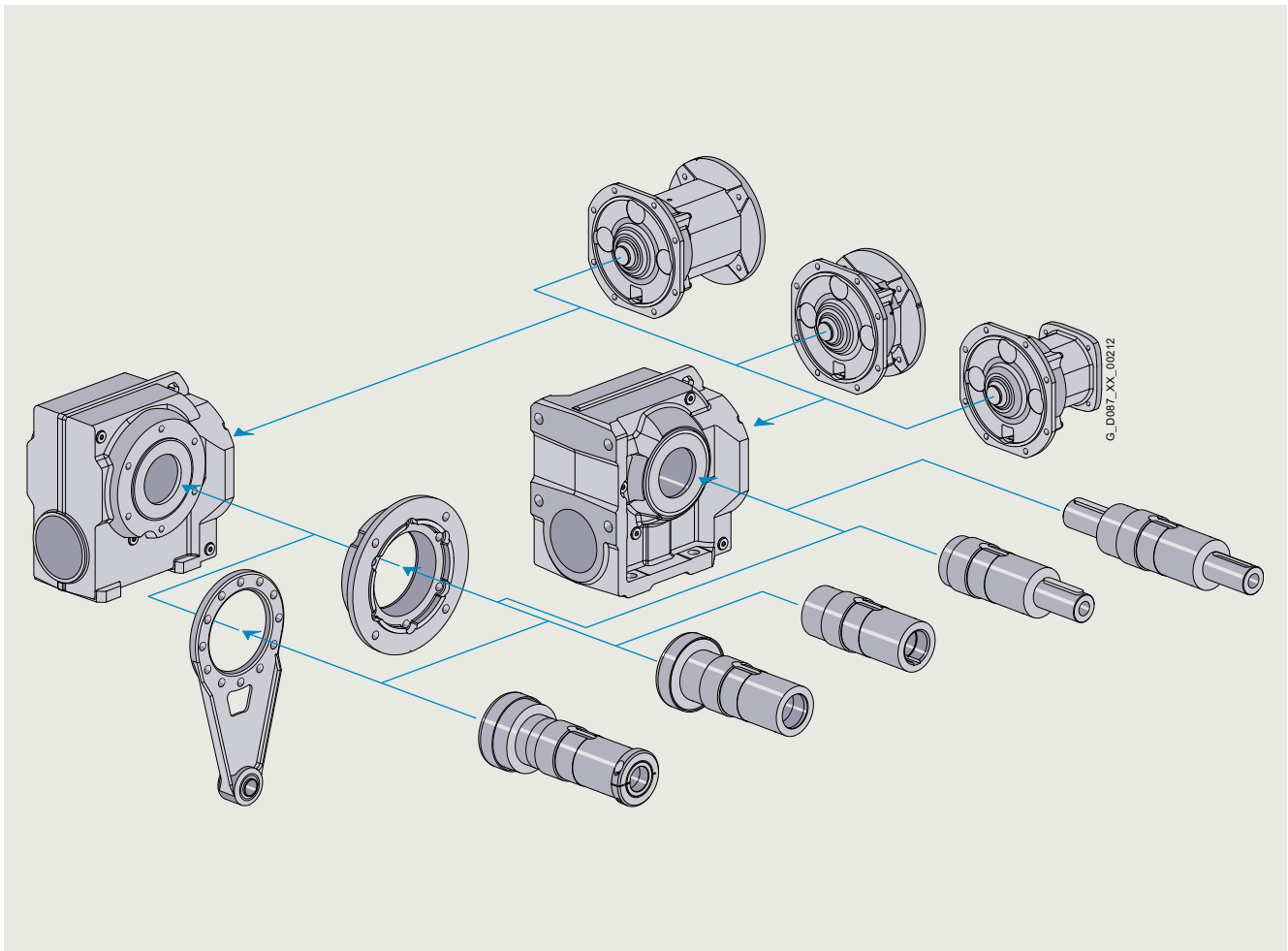
Overview
Helical worm gearbox


Fig. 1/5 Modular system, helical worm gearbox

Innomotics SG helical worm gearboxes are available in the following versions for mounting in any position:

- 2 stages
- 4 or 5 stages for especially low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

For helical worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 2-stage helical worm gearboxes are used when compact and smooth-running right-angle gear units are required.

- Conveyor technology
- Rotary tables
- Drives in stage/theater applications

Introduction

Guidelines for selection and ordering

Designs

Overview

Worm gearbox

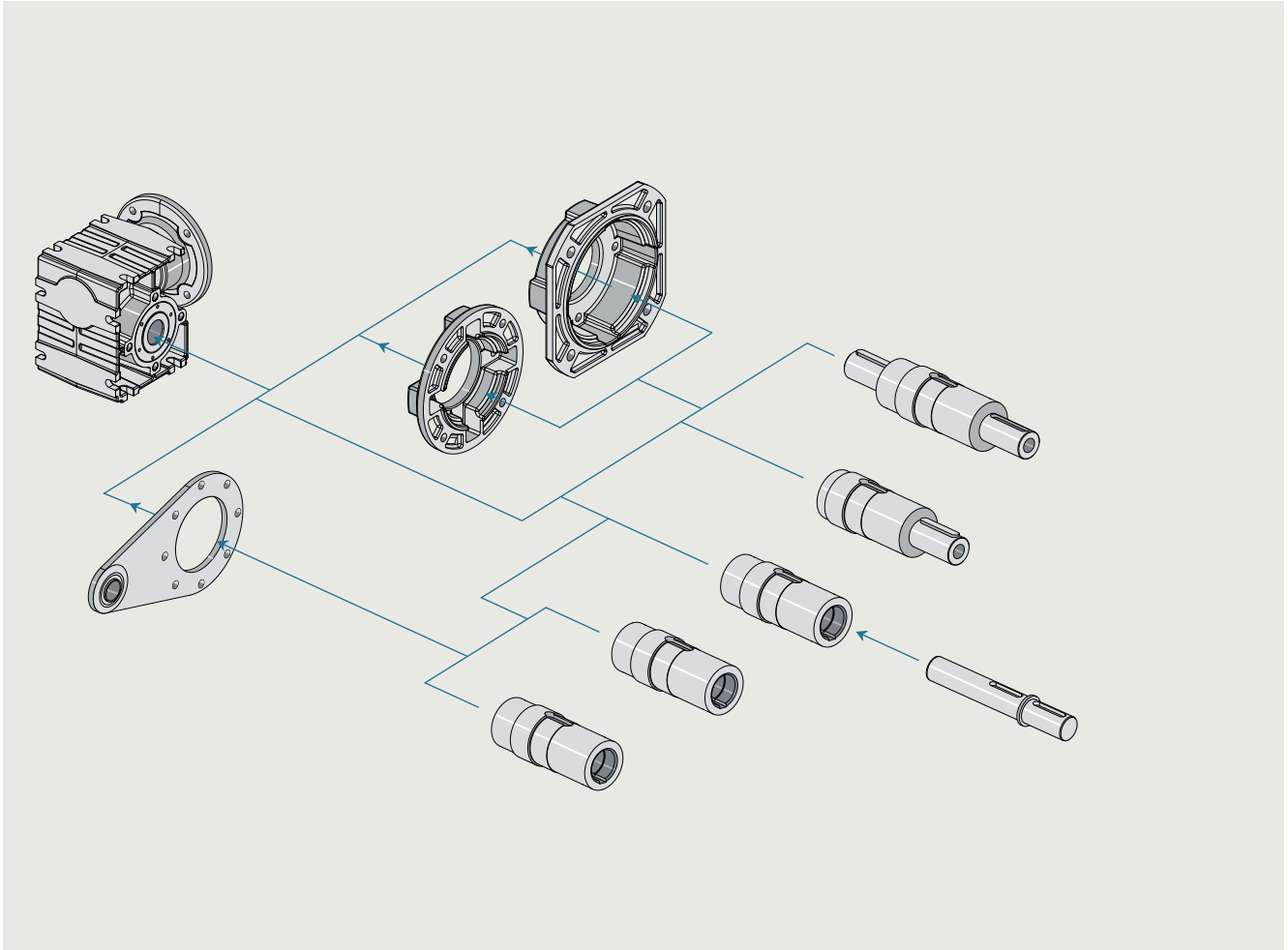


Fig. 1/6 Modular system, worm gearbox

Innomotics SG worm gearboxes are available in the following versions for mounting in any position:

- 1 stage
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Solid shaft design with feather key (at one end or both ends)
- Hollow shaft design with feather key
- Hollow shaft design with plug-in shaft

For worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 1-stage worm gearboxes are mainly used in tight spaces where a low-cost and smooth-running drive is required:

- Small conveyor belts
- Rotary tables
- Corner transfer conveyors
- Agitators
- Drives in stage/theater applications

Introduction

Guidelines for selection and ordering

Notes on dimensional drawings

1

Overview

Shaft heights

DIN 747 shaft heights for machines

| Shaft height mm | Tolerance mm |
|--------------------|-----------------|
| ≤ 250 | -0.5 |
| > 250 | -1 |

Note:

For foot-mounted gearboxes, the mounted motor can extend below the mounting surface of the gearbox.

Shaft extensions

DIN 748-1 cylindrical shaft extensions

Diameter tolerance:

| Diameter mm | Tolerance mm |
|----------------|-----------------|
| ≤ 50 | ISO k6 |
| > 50 | ISO m6 |

Centering holes according to DIN 332, form DR:

| Diameter mm | Thread size |
|----------------|-------------|
| > 16 ... 21 | M6 |
| > 21 ... 24 | M8 |
| > 24 ... 30 | M10 |
| > 30 ... 38 | M12 |
| > 38 ... 50 | M16 |
| > 50 ... 85 | M20 |
| > 85 ... 130 | M24 |
| > 130 | M30 |

Undercut acc. to DIN 509:

| Diameter mm | Undercut acc. to DIN 509 | Suggested construction, minimum hollow on mating piece mm |
|----------------|-----------------------------|---|
| > 16 ... 18 | E1.0x0.2 | 0.9 x 45 ° |
| > 18 ... 50 | E1.2x0.2 | 1.1 x 45 ° |
| > 50 ... 80 | E1.6x0.3 | 1.4 x 45 ° |
| > 80 ... 125 | E2.5x0.4 | 2.2 x 45 ° |

Hollow shafts

Hollow shaft with feather key

Diameter tolerance Ø: ISO H7 measured using a mandrel gauge

Feather keys: acc. to DIN 6885-1 (high form)

Hollow shafts with shrink disk

Diameter tolerance Ø: ISO H7 with mandrel gauge, measured in the area of the shrink disk seat. Hub seat, output side equipped with journal bearing sleeve.

Minimum requirement for the design of the customer shaft:

- Elastic limit $Re \geq 360 \text{ N/mm}^2$
- Module of elasticity, approx. 206 kN/mm^2
- Without tapped hole on the face
- Customer shaft must not be in contact with shaft shoulder

Hollow shafts with splines

Splines according to DIN 5480

Hollow shafts for the ShaftMount assembly system

The diameters of the taper bushing and the bronze bushing are designed to hold a customer shaft with tolerance h11.

Minimum requirement for the design of the customer shaft:

- Bright steel drawn EN 10278 (tolerance Ø: ISO h11)
- Elastic limit $Re \geq 360 \text{ N/mm}^2$
- Module of elasticity, approx. 206 kN/mm^2
- Straightness less than 0.5 mm/m

Note:

Deviation from the specified straightness will cause radial runout of the customer's shaft. Customer shafts with minor radial runout ensure optimum operating conditions for geared motors. This has a positive impact on the service life of the drive train.

Flanges

Centering edge tolerance:

| Outer flange diameter mm | Tolerance mm |
|-----------------------------|-----------------|
| ≤ 300 | ISO j6 |
| > 350 | ISO h6 |

Vent valves

The gearboxes are shown in the dimensional drawings with screw plugs.

If venting is required, then depending on the type of construction, an activated vent valve is installed.

The contour dimension can slightly change as a result.

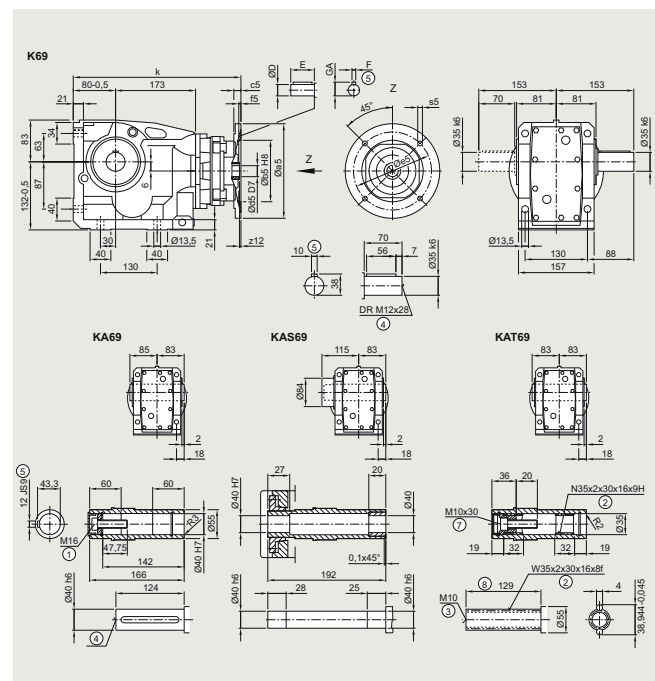


Fig. 1/7 Example, dimensional drawing

Explosion protection as per ATEX

Innomotics SG gearboxes are available for operation in hazardous environments. The explosion-proof versions of the helical, parallel shaft, bevel, helical worm and worm gearboxes comply with Directive 2014/34/EU (ATEX) which came into force on April 20, 2016.

The gearboxes are approved for use in zones 1 and 2 (gases) and zones 21 and 22 (dust).

| Ex atmosphere/Zone | | Category | Frequency | Innomotics SG gearbox available |
|--------------------|----------|----------|---------------------------|---------------------------------|
| G (gas and steam) | D (dust) | | | |
| 0 | 20 | 1 | Continuously or long-term | no |
| 1 | 21 | 2 | Infrequently | yes |
| 2 | 22 | 3 | Rarely or briefly | yes |

Use in explosive atmosphere G (gases) is permissible for temperature classes T1 to T4. With use in explosive atmosphere D (dust), it must be noted that the maximum permissible temperature for the gearbox is 120 °C.

An oil level sensor can be integrated for monitoring in inaccessible areas.

Versions of Innomotics SG gearboxes

| Explosion protection designation | Zone | | | | Order code |
|----------------------------------|------|---|----|----|------------|
| | 1 | 2 | 21 | 22 | |
| Ex II 2G Ex h IIC T4 Gb | ✓ | ✓ | ✓ | ✓ | K70 |
| Ex II 2D Ex h IIIC T120 °C Db | | | | | |
| Ex II 2G Ex h IIB T4 Gb | ✓ | ✓ | ✓ | ✓ | K80 |
| Ex II 2D Ex h IIIB T120 °C Db | | | | | |
| Ex II 3G Ex h IIB T4 Gc | | ✓ | | ✓ | K81 |
| Ex II 3D Ex h IIIB T120 °C Dc | | | | | |
| Ex II 3G Ex h IIC T4 Gc | | ✓ | | ✓ | K82 |
| Ex II 3D Ex h IIIC T120 °C Dc | | | | | |

Adapter types K2, K3, K4, K5 and KS are available for ATEX-compliant gearboxes.

The following ATEX variants of motors can therefore be selected:

- Flameproof motors (Ex db)
- Increased safety (Ex eb)
- Non-sparking design (Ex ec)
- Motors with dust explosion protection (Ex tb/tc)

You can select the motors using the [SPC](http://www.siemens.com/spc): www.siemens.com/spc

EU directives

WEEE directive

Recycling and disposal of Innomotics SG geared motors

EU directive 2012/19/EU governs the disposal of used electrical and electronic devices that are placed on the market in the EU. Since August 15, 2018, geared motors have also been subject to EU directive 2012/19/EU and are marked accordingly:



Information on proper disposal is provided in the latest operating instructions of the geared motors.

European RoHS directive

Innomotics SG geared motors comply with the stipulations set up in the directive 2011/65/EU and "The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012" regarding the restriction of the use of certain hazardous substances.

Introduction

General technical specifications

Noise

Geared motor noise

Innomotics SG geared motors have noise levels below the permissible noise levels defined for gearboxes in VDI Guideline 2159 and for motors in IEC 60034-9.

When used in conjunction with gearboxes, the motor noise values L_{pFA} or L_{WA} increase on average by 3 to 5 dB (A).

The circumferential velocity of the motor pinion has a significant influence on the additional gearbox noise level. This is the reason that higher speeds or low transmission ratios result in higher noise.

Here, Innomatics SG geared motors provide a decisive advantage, as the motor plug-on pinion allows transmission ratios of up to 12 in the input stage.

| Code | Description | Unit |
|-----------|--|--------|
| L_{pFA} | AA-weighted measuring-surface sound-pressure level | dB (A) |
| L_{WA} | Sound power level | dB (A) |

Direction of rotation

Overview

Note:

For bevel gearboxes B and K, helical worm gearboxes C, and worm gearboxes S, the direction of rotation must be specified when viewing the output side A or B.

| Direction of rotation | Abbreviation | Description | Additional identification code -Z with order code 2KJ3... -.....-.....-Z | Order code |
|-------------------------|--------------|--|---|------------|
| Clockwise | CW | Clockwise direction of rotation (when viewing the input/output shaft) | | K18 |
| Counterclockwise | CCW | Counterclockwise direction of rotation (when viewing the input/output shaft) | | K19 |

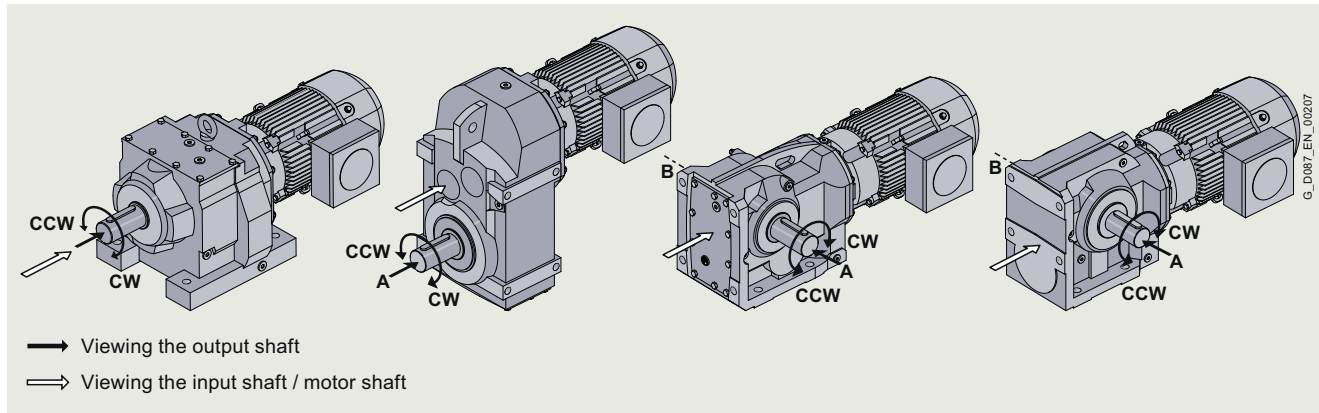
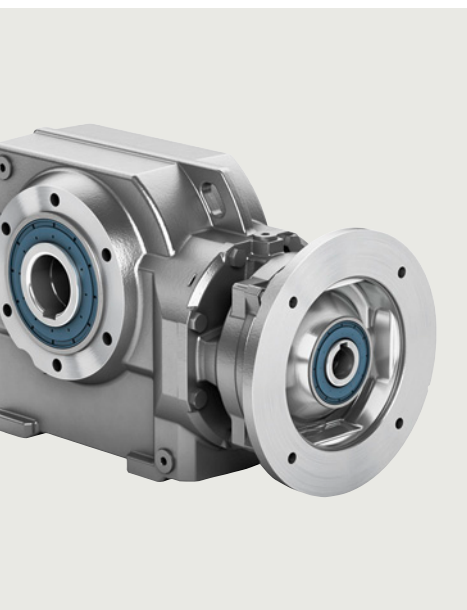


Fig. 1/8 Definition of the direction of rotation

Direction of rotation, input to output

| Gearbox type | Size | Gearbox stages | Output side | Direction of rotation | |
|--------------|------------|----------------|-------------|-----------------------|--------------|
| | | | | Input shaft | Output shaft |
| Z | 19 ... 189 | 2 | - | CW | CW |
| D | 19 ... 189 | 3 | - | CW | CCW |
| E | 39 ... 189 | 1 | - | CW | CCW |
| FZ | 29 ... 189 | 2 | - | CW | CW |
| FD | 29 ... 189 | 3 | - | CW | CCW |
| B | 19 ... 49 | 2 | A | CW | CW |
| | | | B | CW | CCW |
| K | 39 ... 189 | 3 | A | CW | CCW |
| | | | B | CW | CCW |
| C | 29 ... 89 | 2 | A | CW | CW |
| | | | B | CW | CCW |
| S | 09 ... 29 | 1 | A | CW | CCW |
| | | | B | CW | CW |

Configuring guide



| | |
|-------------|---|
| 2/2 | Determining the drive data |
| 2/2 | Configuring sequence |
| 2/3 | Checklist |
| 2/4 | Configuring a gearbox |
| 2/4 | Standards |
| 2/4 | Gearbox efficiency |
| 2/4 | <ul style="list-style-type: none"> • Helical, parallel shaft and bevel gearboxes |
| 2/4 | <ul style="list-style-type: none"> • Helical worm and worm gearboxes |
| 2/4 | <ul style="list-style-type: none"> • Self-locking with worm gearboxes |
| 2/4 | <ul style="list-style-type: none"> • Efficiency optimization |
| 2/4 | <ul style="list-style-type: none"> • Splashing losses |
| 2/5 | Service factor |
| 2/5 | <ul style="list-style-type: none"> • Service factor |
| 2/5 | <ul style="list-style-type: none"> • Determining the required service factor |
| 2/5 | <ul style="list-style-type: none"> • Determining the service factor for a driven machine |
| 2/5 | <ul style="list-style-type: none"> • Mass acceleration factor |
| 2/6 | <ul style="list-style-type: none"> • Determining the service factor for the ambient temperature |
| 2/6 | <ul style="list-style-type: none"> • Determining the service factor for short-time duty |
| 2/7 | Required torque |
| 2/7 | Input speed |
| 2/8 | Gearbox fastening |
| 2/9 | Shaft load and bearing service life |
| 2/9 | <ul style="list-style-type: none"> • Available radial force |
| 2/9 | <ul style="list-style-type: none"> • Additional factor C for the transmission element type |
| 2/9 | <ul style="list-style-type: none"> • Additional factor T for the ambient temperature |
| 2/9 | <ul style="list-style-type: none"> • Permissible radial force |
| 2/9 | <ul style="list-style-type: none"> • Permissible axial force |
| 2/9 | <ul style="list-style-type: none"> • Higher permissible radial and axial force |
| 2/10 | <ul style="list-style-type: none"> • Definition of the point of application of radial and axial forces |
| 2/10 | <ul style="list-style-type: none"> • Radial force conversion for out of center force application point |
| 2/11 | Permissible torque for ShaftMount assembly system |
| 2/12 | Configuring the adapter |
| 2/12 | Maximum input speed |
| 2/12 | Permissible input torque |
| 2/12 | Permissible loading by built-in motor |

Configuring guide

Determining the drive data

Configuring sequence

Overview

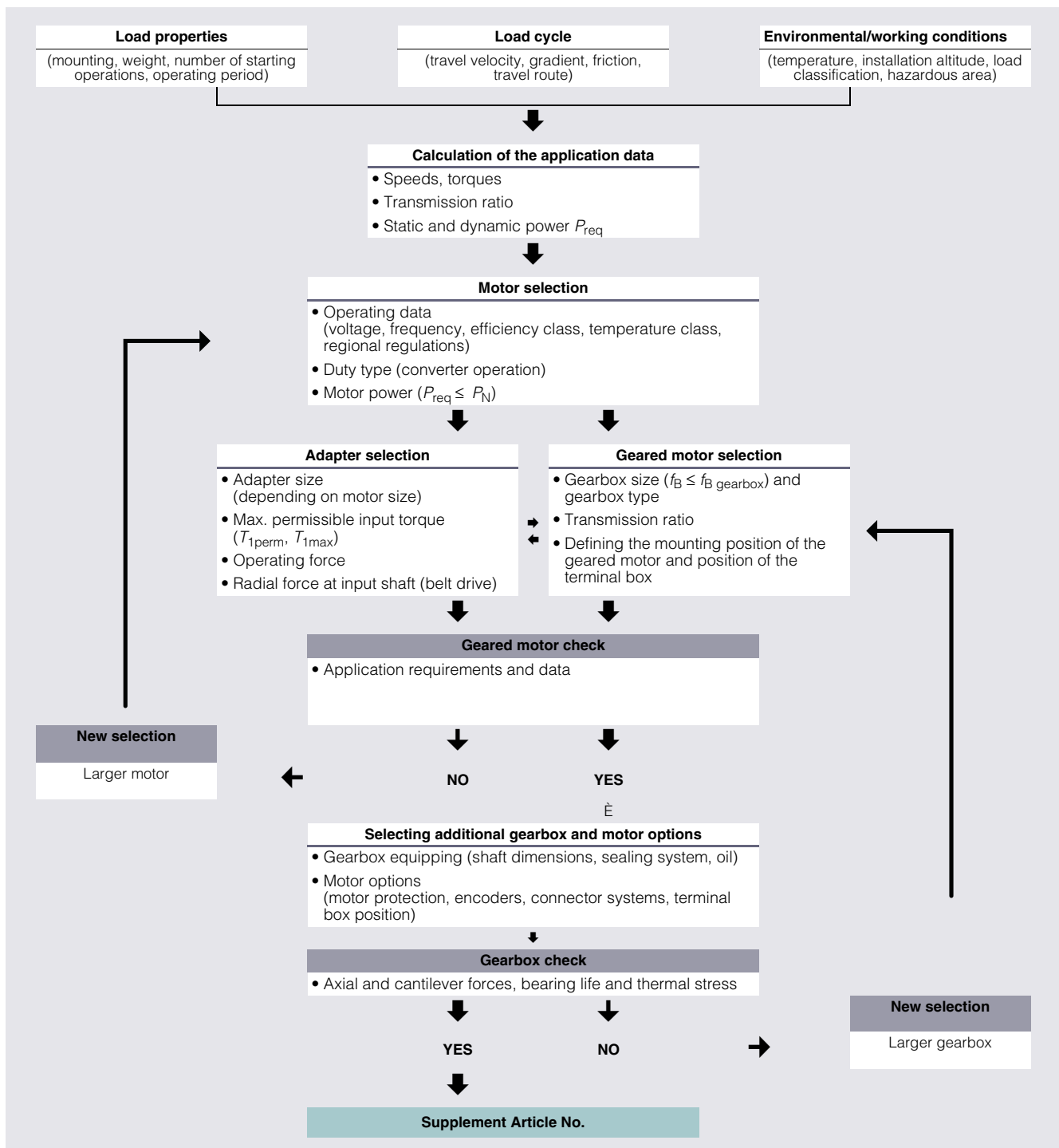
General configuring notes are provided for the standard versions in this catalog.

Innomotics SG gearboxes permit individual solutions to be created for a wide range of drive applications. In order to select the correct drive, initially specific data for the application must be known or determined.

For drives operating under special conditions, e.g. frequent reversing, short-time or intermittent duty, abnormal temperatures, reversal braking, extreme cantilever forces at the gearbox output shaft, etc. please contact your Innomatics contact person with all of your technical questions.

More information is available on the internet at:
www.innomotics.com/geared-motors

The flow diagram schematically shows how to select and dimension a geared motor using a traction drive as example. However, the specific requirements and boundary conditions associated with the application in question must always be taken into account.



| General | | Basic version and load data | | |
|--|----------------------------------|---|---|---|
| General | Gearbox type: | <input type="checkbox"/> Helical gearbox <input type="checkbox"/> Parallel shaft gearbox <input type="checkbox"/> Bevel gearbox <input type="checkbox"/> Helical worm gearbox <input type="checkbox"/> Worm gearbox | | |
| | Power rating: | _____ kW | | |
| | Output speed: | _____ rpm | Output torque: _____ Nm | |
| | Service factor: | _____ | | |
| | Starting operations/hour: | _____ s/h | | |
| | Line voltage: | _____ V | | |
| | Line frequency: | <input type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz <input type="checkbox"/> For converter operation <input type="checkbox"/> Maximum frequency | _____ Hz | |
| | Operating period/day: | <input type="checkbox"/> 8 hours <input type="checkbox"/> 16 hours <input type="checkbox"/> 24 hours | | |
| | Environmental conditions | | | |
| | Explosion protection: | <input type="checkbox"/> EU directive 2014/34/EU (ATEX) <input type="checkbox"/> Category 2 <input type="checkbox"/> Category 3 | <input type="checkbox"/> Ex atmosphere gas <input type="checkbox"/> IIB / <input type="checkbox"/> IIC explosion group Temperature class T_____ | <input type="checkbox"/> Ex atmosphere dust <input type="checkbox"/> IIIB / <input type="checkbox"/> IIIC explosion group Max. surface temperature _____ °C |
| Installation altitude: | _____ m | <input type="checkbox"/> Outdoor operation <input type="checkbox"/> Increased environmental stress | | |
| Air humidity: | _____ % | <input type="checkbox"/> Normal environm. stress <input type="checkbox"/> Aggressive environmental stress | | |
| Temperature: | from _____ to _____ °C | | | |
| Brief description of the system: (e.g. sector, conveyor system, etc.) | _____ | | | |

| Gearbox | | Mounting and mounting position | | |
|---|----------------------------------|---|-------|--|
| Gearbox | Mounting position: | <input type="checkbox"/> M1 <input type="checkbox"/> M2 <input type="checkbox"/> M3 <input type="checkbox"/> M4 <input type="checkbox"/> M5 <input type="checkbox"/> M6 <input type="checkbox"/> Special mounting position | | |
| | | Rotation angle: | _____ | |
| | Mounting type: | <input type="checkbox"/> Foot-mounted design <input type="checkbox"/> Flange-mounted design <input type="checkbox"/> Housing flange design <input type="checkbox"/> Shaft-mounted design <input type="checkbox"/> Foot/flange-mounted design | | |
| | Shafts | | | |
| | Design: | <input type="checkbox"/> Solid shaft with/without feather key <input type="checkbox"/> Hollow shaft with feather key <input type="checkbox"/> Hollow shaft with shrink disk <input type="checkbox"/> Hollow shaft with splines <input type="checkbox"/> ShaftMount assembly system | | |
| | Shaft dimensions: (d x l) | _____ x _____ | mm | |
| Other options: (e.g. axial/radial force) | _____ | | | |

| Adapter | | Basic version (motor connection) | | |
|---------|---------------------------------------|--|--|--|
| Adapter | Adapter type: | <input type="checkbox"/> K4 (IEC) <input type="checkbox"/> K2* (IEC) <input type="checkbox"/> KS (for servo motors) <input type="checkbox"/> K8 (for 1PH8) <input type="checkbox"/> K5 (NEMA) <input type="checkbox"/> K3* (NEMA) * selectable with backstop <input type="checkbox"/> A/AZ (free input shaft) | | |
| | Motor mounting | | | |
| | Article No. motor: | _____ | | |
| | Other options: (e.g. backstop) | _____ | | |

| General options | | Surface treatment | |
|-----------------|----------------------------|---|--|
| General options | Surface protection: | <input type="checkbox"/> C1 <input type="checkbox"/> C2 <input type="checkbox"/> C3 <input type="checkbox"/> C4 <input type="checkbox"/> C5 <input type="checkbox"/> unpainted <input type="checkbox"/> C2 primed <input type="checkbox"/> C4 primed <input type="checkbox"/> RAL color: _____ | |
| | Other options: | _____ | |

Configuring guide

Configuring a gearbox

2

Standards

| DIN/ISO | |
|-----------------|---------------------------|
| DIN 743 | Output shafts |
| ISO 281, ISO 76 | Bearings |
| DIN 7190 | Interference fits |
| DIN 6892 | Parallel key connection |
| DIN 3990 | Cylindrical gear toothing |
| DIN 3991 | Bevel gear toothing |
| DIN 3996 | Worm gear toothing |

Calculation to AGMA available on request.

Gearbox efficiency

The efficiency of the gearbox is determined in part by the gear teeth, the rolling bearing friction, and the shaft seal friction.

Helical, parallel shaft and bevel gearboxes

Innomotics SG helical, parallel shaft, and bevel geared motors are extremely efficient. Generally, efficiencies of 96 % (2-stage) and 94 % (3-stage) can be assumed. These gearbox types can be operated with energy-efficient motors to create an excellent solution.

Helical worm and worm gearboxes

The first stage of the helical worm gearbox is designed as a helical stage. With the optimally tuned transmission ratios of the worm stage, the best possible overall efficiency is achieved, which is considerably higher than that of worm gearboxes alone.

Precise efficiency data can be found in the tables in chapter "Helical worm gearboxes".

Owing to the high degrees of efficiency, the Innomatics SG helical worm gearboxes are not self-locking.

Running-in period

The tooth flanks on new helical worm and worm gearboxes will not yet be fully smoothed, meaning that the friction angle will be greater and efficiency lower during the running-in period. The higher the transmission ratio, the more pronounced the effect.

The running-in process should take approximately 24 hours of operation at full load. In most cases, the catalog values will then be reached.

Self-locking with worm gearboxes

In respect of restoring torques on worm gearboxes, the efficiency is considerably reduced in comparison to standard efficiency. The restoring efficiency can be calculated as follows: $\eta' = 2 - 1/\eta$. At a standard efficiency of $\eta \leq 0.5$, worm gearboxes are usually self-locking, which is determined by the particular lead angle of the worm gear teeth.

Self-locking only occurs with certain combinations of Innomatics SG gearboxes and is not always of benefit, as the associated loss of efficiency is then relatively high, which in turn requires increased motor power.

A worm gearbox is "self-locking while stationary" (static self-locking), if it is not possible to start from stationary when the worm wheel is driving.

A worm gearbox is "self-braking while running" (dynamic self-locking), if it is not possible to continue running when the worm wheel is driving while the gearbox is running – that is, if the running gearbox comes to a stop while the worm wheel is driving.

Shocks can neutralize self-locking.

A self-locking gearbox is, therefore, no substitute for a brake or backstop. If you want to use the self-locking braking effect for a technical purpose, please contact us.

Efficiency optimization

As a result of the large range of transmission ratios, in many cases, instead of a 3-stage gearbox, a 2-stage gearbox can be used.

This means that the efficiency is improved by approximately 2 % when compared to conventional drives.

Further, the efficiency can be improved by optimizing the mounting position and the input speed.

Splashing losses

For certain gearbox types of construction, the first stage can be completely immersed in the gearbox oil. In the case of large gearboxes with a high input speed, particularly with vertical mounting positions, this may lead to increased splashing losses, which cannot be neglected.

If you wish to use gearboxes such as these, then please contact Innomatics. If at all possible, you should choose horizontal types of construction in order to keep splashing losses to a minimum.

Service factor

The service factor f_B is a safety factor for the gearboxes that takes the operating conditions of the drive into account.

The following applies to selecting a suitable drive:

$$f_B \geq f_{Breq}$$

The gearbox size or rated gearbox torque and the resulting service factor are not standardized and depend on the manufacturer.

Service factor (f_B)

The service factor is calculated from the drive data you selected and can be obtained from them SPC.

Determining the required service factor (f_{Breq})

In standard operation, i.e. with a uniform load provided by the driven machine, small masses to be accelerated, and a low number of switching operations, the service factor of $f_{Breq} = 1$ can be selected.

For operating conditions that deviate from this, the required service factor must be calculated by the following formulas.

For helical, parallel shaft and bevel gearboxes

$$f_{Breq} = f_{B1} \cdot f_{BT}$$

For helical worm and worm gearboxes

$$f_{Breq} = f_{B1} \cdot f_{B2} \cdot f_{BT}$$

Determining the service factor for a driven machine (f_{B1})

The service factor of the driven machine f_{B1} is determined from the load classification, switching frequency, and operating period per day.

Load groups of driven machines

| Load classification | Mass acceleration factor (m_{BF}) | Driven machine (examples) |
|-----------------------------------|---------------------------------------|--|
| I Almost shock-free | ≤ 0.3 | Electric generators, belt conveyors, apron conveyors, screw conveyors, lightweight elevators, electric hoists, machine tool feed drives, turbo blowers, centrifugal compressors, mixers and agitators when mixing materials with uniform density |
| II Moderate shock loads | ≤ 3 | Machine tool main drives, heavy elevators, slewing gear, cranes, shaft ventilators, mixers and agitators when mixing materials with non-uniform densities, reciprocating pumps with multiple cylinders, metering pumps |
| III Heavy shock loads | ≤ 10 | Punching presses, shears, rubber kneaders, machinery used in rolling mills and the iron and steel industry, mechanical shovels, heavy centrifuges, heavyweight metering pumps, rotary drilling rigs, briquetting presses, pug mills |

Mass acceleration factor (m_{BF})

The mass acceleration factor m_{BF} is calculated as follows:

$$m_{BF} = \frac{J_X}{(J_{mot} + J_B + J_Z)}$$

All external moments of inertia are moments of inertia of the driven machine and the gearbox, which are to be reduced to the motor speed.

The calculation is made using the following formula:

$$J_X = J_2 \cdot \left(\frac{n_2}{n_1}\right)^2 = \frac{J_2}{(i)^2}$$

In most cases the relatively insignificant moment of inertia of the gearbox can be ignored.

The mass acceleration factor m_{BF} is calculated as follows with reference to the gearbox and the adapter:

$$m_{BF} = \frac{J_X + J_G + J_{AD}}{(J_{mot} + J_B + J_Z)}$$

| Code | Description | Unit |
|------------|---|------------------|
| f_B | Service factor | - |
| f_{B1} | Service factor "driven machine" | - |
| f_{B2} | Service factor "short-time duty" | - |
| f_{Breq} | Required service factor | - |
| f_{BT} | Service factor "ambient temperature" | - |
| i | Transmission ratio | - |
| J_2 | Moment of inertia of the load referred to the output speed of the gearbox | kgm ² |
| J_{AD} | Moment of inertia of the adapter referred to the input speed | kgm ² |
| J_B | Moment of inertia of the brake | kgm ² |
| J_G | Moment of inertia of the gearbox referred to the input speed | kgm ² |
| J_{mot} | Moment of inertia of the motor | kgm ² |
| J_X | Moment of inertia of the load referred to the input speed | kgm ² |
| J_Z | Additional moment of inertia of a high inertia fan | kgm ² |
| m_{BF} | Mass acceleration factor | - |
| n_1 | Input speed of the gearbox | rpm |
| n_2 | Output speed of the gearbox | rpm |

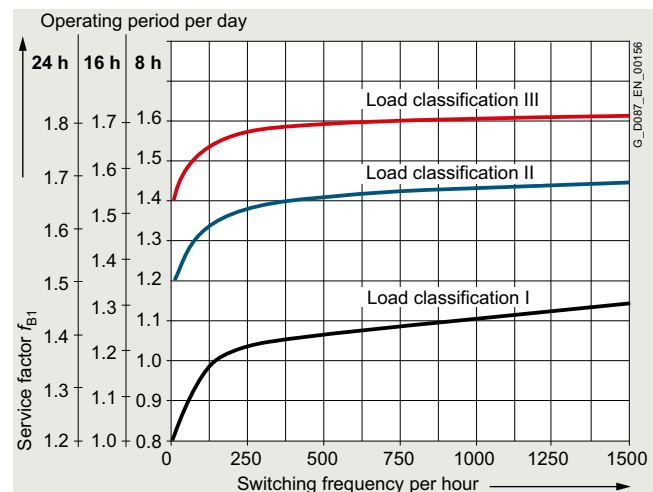


Fig. 2/1 Service factor f_{B1}

Configuring guide

Configuring a gearbox

Service factor

Determining the service factor for the ambient temperature (f_{BT})

If the drive warms up to an operating temperature above -20 °C at max. 70 % load, $f_{BT} = 1$ can be set.

For helical, parallel shaft and bevel gearboxes

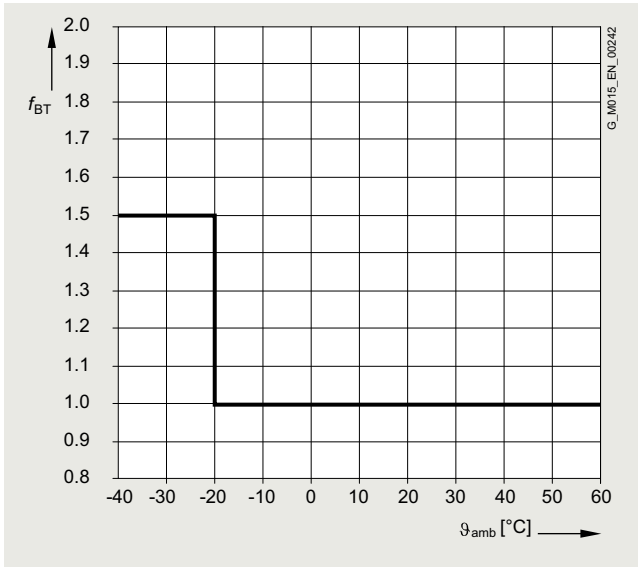


Fig. 2/2 Service factor "ambient temperature"

For helical worm and worm gearboxes

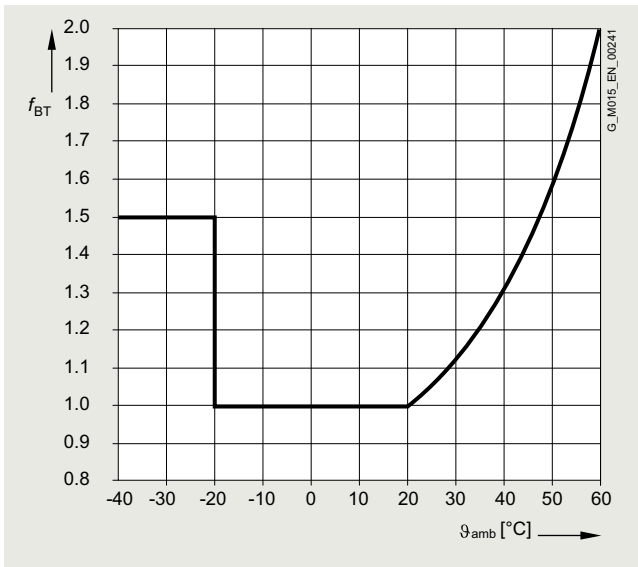


Fig. 2/3 Service factor "ambient temperature" for worm gearboxes

Determining the service factor for short-time duty (f_{B2})

For helical worm and worm gearboxes

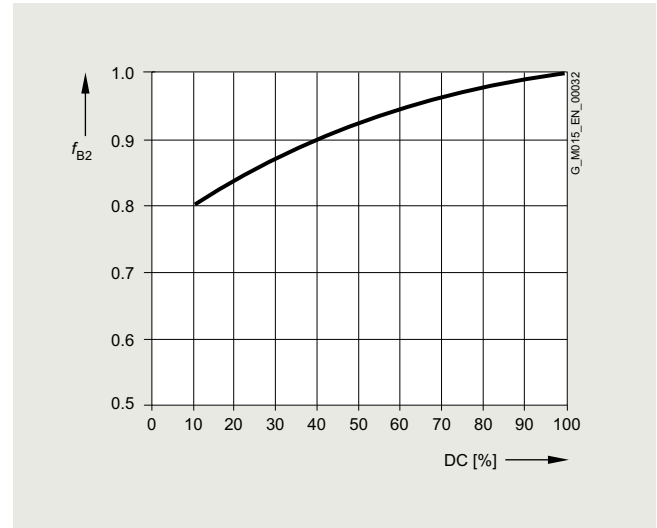


Fig. 2/4 Service factor "short-time duty"

Note:

When selecting and dimensioning drives with the following special application conditions, please contact Innomatics:

- Frequent reversing
- Short time and intermittent operation
- Abnormal temperatures
- Reversal braking
- Extreme and/or circulating radial forces at the gearbox output shaft
- Fluctuating loads

Required torque

Once the load situation (drive data) and the service factor have been clarified, then the required output torque can be determined.

$$T_2 = \frac{P_{\text{mot}} \cdot 9550}{n_1 / (i \cdot \eta)} = \frac{P_{\text{mot}} \cdot 9550}{n_2} \cdot \eta$$

The maximum output torque T_{2N} of the gearbox must not be exceeded. For this purpose, it must be checked that the maximum motor torque $T_{1\text{max}}$ is below the resulting output torque of the gearbox:

$$T_{1\text{max}} \leq \frac{T_{2N}}{i \cdot \eta}$$

This test is particularly important for small service factors $f_B < 1$, gearboxes with high transmission ratios and tandem gearboxes.

| Code | Description | Unit |
|-------------------|--|------|
| η | Gearbox efficiency | % |
| i | Transmission ratio | - |
| n_1 | Input speed of the gearbox | rpm |
| n_2 | Output speed of the gearbox | rpm |
| P_{mot} | Motor power | kW |
| $T_{1\text{max}}$ | Maximum permissible motor torque | Nm |
| T_2 | Required output torque of the driven machine | Nm |
| T_{2N} | Maximum output torque of the gearbox | Nm |

Input speed

For an identical power and output speed, in the selection tables 4-pole geared motors have priority over 6-pole motors.

As a result of the very wide range of transmission ratios of Innomatics SG gearboxes, it is hardly necessary to use motors with other pole numbers. In addition to the good availability worldwide, 4-pole motors generally offer the optimum solution regarding price, length, noise level and service life.

Further, from the modular system, motors with other pole numbers can be mounted. As a consequence, the following special combinations can be implemented:

- Extremely high output speeds (2-pole motors)
- Extremely low output speeds (8-pole motors)
- Lower noise solutions (6-pole or 8-pole motors)

For converter operation, the gearboxes are driven at variable speeds.

When configuring the system, we recommend that the maximum input speed in continuous operation is maintained, wherever possible, at 1500 rpm.

At higher motor speeds above 1500 rpm you will generally experience higher than average noise levels and a lower than average bearing service life. This depends to a large extent on the transmission ratio and gearbox size in question. Furthermore, higher speeds additionally influence the thermal properties, the service life of the shaft sealing rings and service intervals of the gearbox.

Tandem gearboxes

An additional helical gearbox is mounted in front of the main gearbox on tandem gearboxes, allowing the gear to generate very low output speeds.

The Innomatics SG product portfolio includes four-stage, five-stage and six-stage gearboxes.

When a gearbox version with low output speeds is selected, additional checks may need to be carried out when the gearbox is configured.

Checking the maximum motor power

The maximum motor power P_N connected to the gearbox must be reduced according to the maximum output torque at the gearbox T_{2N} . For this purpose, the maximum permissible motor torque $T_{1\text{max}}$ must be calculated and the relevant motor current value then determined.

Protective measures

The following precautions must be taken in order to ensure that the continuous current consumption of the motor never exceeds the calculated maximum motor torque $T_{1\text{max}}$:

- Line operation:
Set the tripping current of the motor circuit breaker to this current value.
- Converter operation:
Limit the output current of the converter according to the calculated motor current.

Brake motors

The braking torque T_{br} must be limited according to the maximum permissible motor torque $T_{1\text{max}}$ for tandem geared motors with a brake.

In this case, the maximum permissible braking torque corresponds to twice the value of the motor torque. Please contact Innomatics for advice about higher switching frequencies.

$$T_{\text{brmax}} = 2 \times T_{1\text{max}}$$

Preventing gearbox blockage

Tandem gearboxes must be protected against blockage at the output end. Blockage can result in indeterminable torques and shaft loads and cause irreparable damage to the gearbox. If the risk of blockage cannot be eliminated, you can install friction clutches, for example.

| Code | Description | Unit |
|--------------------|--------------------------------------|------|
| P_N | Rated motor power | kW |
| $T_{1\text{max}}$ | Maximum permissible motor torque | Nm |
| T_{2N} | Maximum output torque of the gearbox | Nm |
| T_{brmax} | Maximum braking torque | Nm |

Configuring guide

Configuring a gearbox

Gearbox fastening

Gearboxes and geared motors are normally secured by bolts of grade 8.8.

When the largest possible motor size is attached to the gearbox and with a higher load classification, elevated levels of vibration and/or smaller service factors, further measures need to be taken for flange-mounted designs of gearboxes and geared motors.

Recommended bolt quality for DZ/ZZ and DF/ZF:

Helical gearboxes DZ/ZZ and DF/ZF with the smallest available output flanges must be bolted to the mounting surface with bolts of grade 10.9 (see table).

| Gearbox type | | Flange | Strength class of bolt/nut |
|--------------|----------|--------|----------------------------|
| DZ/ZZ29 | DF/ZF29 | A120 | 10.9 ¹⁾ |
| DZ/ZZ39 | DF/ZF39 | A120 | 10.9 ¹⁾ |
| DZ/ZZ49 | DF/ZF49 | A140 | 10.9 |
| DZ/ZZ59 | DF/ZF59 | A160 | 10.9 |
| DZ/ZZ69 | DF/ZF69 | A200 | 10.9 |
| DZ/ZZ79 | DF/ZF79 | A250 | 10.9 |
| DZ/ZZ89 | DF/ZF89 | A300 | 10.9 |
| DZ/ZZ109 | DF/ZF109 | A350 | 10.9 |
| DZ/ZZ129 | DF/ZF129 | A350 | 10.9 |
| DZ/ZZ149 | DF/ZF149 | A450 | 10.9 |
| DZ/ZZ169 | DF/ZF169 | A450 | 10.9 |
| DZ/ZZ189 | DF/ZF189 | A550 | 10.9 |

¹⁾ Use suitable washers underneath the bolt head

Recommended bolt quality for FF/FAF and KF/KAF:

Parallel shaft gearboxes FF/FAF and bevel gearboxes KF/KAF in combination with larger motors must be bolted to the mounting surface with bolts of grade 10.9 (see table).

| Gearbox type | | Flange | Motor size | | | | | | | | | | | | | | |
|--------------|-----------|--------|------------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|--|
| | | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| FF/FAF39 | KF/KAF39 | A160 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | | | | | | | | | | |
| FF/FAF49 | KF/KAF49 | A200 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | | | | | | | | | |
| FF/FAF69 | KF/KAF69 | A250 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | | | | | | | | |
| FF/FAF79 | KF/KAF79 | A250 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | | | | | | | | |
| FF/FAF89 | KF/KAF89 | A300 | | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | 10.9 | | | | | | | |
| FF/FAF109 | KF/KAF109 | A350 | | | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | | | | | | |
| FF/FAF129 | KF/KAF129 | A450 | | | | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | | | | | |
| FF/FAF149 | KF/KAF149 | A450 | | | | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | 10.9 | | |
| FF/FAF169 | KF/KAF169 | A550 | | | | | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | 10.9 | 10.9 | 10.9 | | |
| FF/FAF189 | KF/KAF189 | A660 | | | | | | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 | 10.9 | |

We recommend that you consider the following possibilities:

- Selection of a larger output flange
- Use of bolts of grade 10.9
- Use of an anaerobic adhesive to improve the friction lock between the gearbox and the mounting surface

Shaft load and bearing service life

Available radial force

The radial forces either come from the driven machine (mixer, hoisting gear) or they are caused by the transmission elements.

The available radial force F_{Ravail} at the output shaft is obtained as follows:

- The required geared motor output torque T_2
- Average diameter of the mounted transmission element d_0
- Transmission element type, e.g. chain wheel
- Ambient temperature

The transmission element type determines the additional factor C (see table).

The ambient temperature determines the additional factor T .

$$F_{Ravail} = 2000 \cdot \frac{T_2}{d_0} \cdot C \cdot T$$

Additional factor C for the transmission element type

| Transmission element | Explanation | Additional factor C |
|----------------------|-----------------------|---------------------|
| Gear wheel | > 17 teeth | 1.00 |
| | ≤ 17 teeth | 1.15 |
| Chain wheel | ≥ 20 teeth | 1.00 |
| | 14 ... 19 teeth | 1.25 |
| | ≤ 13 teeth | 1.40 |
| Toothed belts | Preloading force | 1.50 |
| V-belts | Preloading force | 2.00 |
| Flat belts | Preloading force | 2.50 |
| Agitator/mixer | Rotating radial force | 2.50 |

Additional factor T for ambient temperature

| Temperature range | Low-temperature factor T |
|-------------------|--------------------------|
| -20 °C ... +60 °C | 1.0 |
| -21 °C ... -40 °C | 1.5 |

Permissible radial force

The permissible radial force F_{R2} is determined by the required bearing service life, among other things. The nominal service life L_{h10} is determined in accordance with ISO 281. Normally, calculating the nominal bearing service life is completely adequate.

The bearing service life can be calculated for special operating conditions and in special cases on request, based on the modified service life L_{na} .

The selection tables specify the permissible radial force F_{R2} for the output shafts of the foot-mounted design with solid shaft "1" (see shaft designs from page 9/46). These table values refer to the force application point at the center of the shaft extension and are minimum values, which apply under the most unfavorable conditions (force application angle, mounting position, direction of rotation).

If the values in the table are not sufficient, or if other gearbox designs are being used, then please contact Innomatics.

Permissible axial force

If no radial force is present, then max. 50 % of the permissible radial force can be applied as a permissible axial force F_{ax} (tension or compression).

Higher permissible radial and axial force

The permissible radial force load can be increased, taking the force application angles α and the direction of rotation into account. Installing reinforced bearings also means that higher loads are permitted on the output shaft.

If higher radial or axial forces or combined loads comprising radial and axial forces occur, then please contact Innomatics.

Note:

Bevel gearboxes B and K and helical worm gearboxes C in type of construction M1 with foot mounting on the face side: A maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

Helical geared motors ZB and DB in foot/flange-mounted designs:

When transmitting torque through the flange surface, a maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

Variables for defining shaft load and bearing service life

| Code | Description | Unit |
|---------------|---|------|
| α | Force application angle | ° |
| a | Gearbox constant | kNmm |
| b, d, l, y, z | Gearbox constants | mm |
| C | Additional factor to calculate the radial force | - |
| d_0 | Average diameter of the mounted transmission element | mm |
| F_{ax} | Permissible axial force | N |
| F_x | Permissible radial force from out of center force application point | N |
| F_{xperm1} | Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder | N |
| F_{xperm2} | Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder | N |
| F_{Ravail} | Available radial force from the mounted transmission element | N |
| F_{R2} | Permissible radial force at the center of shaft extension (l/2) | N |
| L_{h10} | Nominal service life | h |
| L_{na} | Modified service life | h |
| T | Additional factor for ambient temperature | - |
| T_2 | Geared motor output torque | Nm |
| x | Distance from the shaft shoulder up to the point where force is applied | mm |

Configuring guide

Configuring a gearbox

Shaft load and bearing service life

Definition of the point of application of radial and axial forces

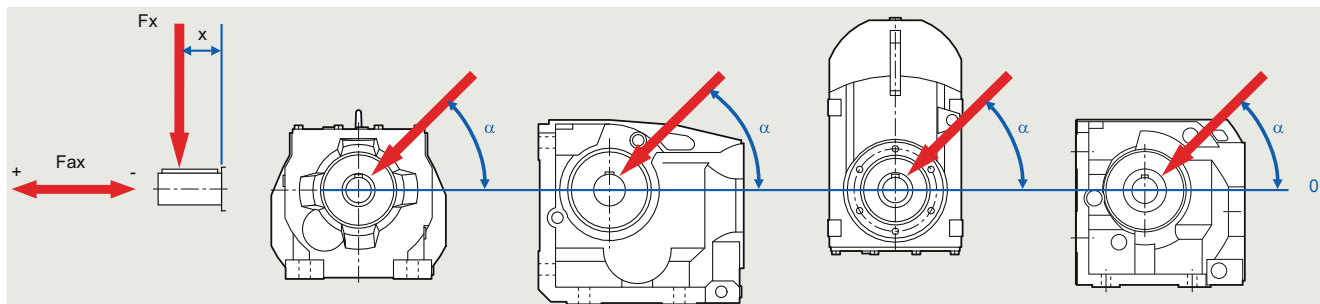


Fig. 2/5 Diagram showing force application point

Radial force conversion for out of center force application point

If the force is not applied at the center of the shaft extension, the permissible radial force must be calculated using the following formula:

The lower value of F_{xperm1} (bearing service life) and F_{xperm2} (strength) is the permissible radial force. The calculation is applicable without axial force.

Permissible radial force according to the bearing service life

$$F_{xperm1} = F_{R2} \cdot \frac{y}{(z + x)}$$

Permissible radial force according to the shaft strength

$$F_{xperm2} = \frac{a}{(b + x)}$$

Gearbox constants for calculating the radial force

| Gearbox size | Constants | | a kNmm | b mm | d mm | l mm |
|----------------------------------|-----------|---------|-----------|---------|---------|---------|
| | y mm | z mm | | | | |
| Helical gearboxes Z and D | | | | | | |
| 29 | 104 | 79 | 137 | 12 | 25 | 50 |
| 39 | 116 | 91 | 109 | 0 | 25 | 50 |
| 49 | 138 | 108 | 260 | 15 | 30 | 60 |
| 59 | 143.5 | 108.5 | 414 | 19 | 35 | 70 |
| 69 | 169 | 134 | 385 | 0 | 35 | 70 |
| 79 | 172.5 | 132.5 | 536 | 0 | 40 | 80 |
| 89 | 212.5 | 162.5 | 929 | 0 | 50 | 100 |
| 109 | 250 | 190 | 1212 | 0 | 60 | 120 |
| 129 | 297 | 227 | 2051 | 0 | 70 | 140 |
| 149 | 319 | 234 | 4930 | 0 | 90 | 170 |
| 169 | 398 | 293 | 7350 | 0 | 110 | 210 |
| 189 | 469 | 364 | 11235 | 0 | 120 | 210 |
| Parallel shaft gearbox F | | | | | | |
| 29 | 108.5 | 83.5 | 159 | 0 | 25 | 50 |
| 39 | 123.5 | 98.5 | 146 | 0 | 25 | 50 |
| 49 | 154.5 | 124.5 | 239 | 0 | 30 | 60 |
| 69 | 175 | 140 | 378 | 0 | 35 | 70 |
| 79 | 191 | 151 | 544 | 0 | 40 | 80 |
| 89 | 226 | 176 | 884 | 0 | 50 | 100 |
| 109 | 256 | 196 | 1500 | 0 | 60 | 120 |
| 129 | 324 | 254 | 2625 | 0 | 70 | 140 |
| 149 | 385 | 300 | 5525 | 0 | 90 | 170 |
| 169 | 459.5 | 354.4 | 7728 | 0 | 110 | 210 |
| 189 | 538 | 433 | 11655 | 0 | 120 | 210 |
| Bevel gearbox B | | | | | | |
| 29 | 117 | 97 | 83 | 0 | 20 | 40 |
| 39 | 143.5 | 113.5 | 209 | 0 | 30 | 60 |
| 49 | 175 | 140 | 392 | 0 | 35 | 70 |

Shaft load and bearing service life

Gearbox constants for calculating the radial force

| Gearbox size | Constants | | | | | |
|-------------------------------|-----------|---------|-----------|---------|---------|---------|
| | y mm | z mm | a kNmm | b mm | d mm | l mm |
| Bevel gearbox K | | | | | | |
| 39 | 123.5 | 98.5 | 152 | 0 | 25 | 50 |
| 49 | 154.5 | 124.5 | 235 | 0 | 30 | 60 |
| 69 | 175 | 140 | 378 | 0 | 35 | 70 |
| 79 | 191 | 151 | 556 | 0 | 40 | 80 |
| 89 | 226 | 176 | 916 | 0 | 50 | 100 |
| 109 | 256 | 196 | 1470 | 0 | 60 | 120 |
| 129 | 324 | 254 | 2800 | 0 | 70 | 140 |
| 149 | 385 | 300 | 5525 | 0 | 90 | 170 |
| 169 | 459.5 | 354.5 | 7350 | 0 | 110 | 210 |
| 189 | 538 | 433 | 10920 | 0 | 120 | 210 |
| Helical worm gearbox C | | | | | | |
| 29 | 117.5 | 97.5 | 84 | 0 | 20 | 40 |
| 39 | 123.5 | 98.5 | 157 | 0 | 25 | 50 |
| 49 | 154.5 | 124.5 | 236 | 0 | 30 | 60 |
| 69 | 171.5 | 136.5 | 410 | 0 | 35 | 70 |
| 89 | 220.0 | 175.0 | 736 | 0 | 45 | 90 |
| Worm gearbox S | | | | | | |
| 09 | 83.5 | 63.5 | 36 | 0 | 16 | 40 |
| 19 | 98.0 | 78.0 | 76 | 0 | 20 | 40 |
| 29 | 120.5 | 100.5 | 72 | 0 | 20 | 40 |

Permissible torque for ShaftMount assembly system

It is important to note that the maximum permissible torque is dependent on the selected machine shaft diameter.

| Diameter of customer shaft | Max. permissible torque T_2 | | | | | |
|----------------------------|-------------------------------|-----|-----|-----|------|------|
| | Nm | | | | | |
| | 29 | 39 | 49 | 69 | 79 | 89 |
| Metric shafts | | | | | | |
| 20 | 115 | | | | | |
| 25 | 150 | 205 | | | | |
| 30 | | 290 | 375 | | | |
| 35 | | | 480 | 460 | 840 | |
| 40 | | | | 600 | 1000 | 1110 |
| 50 | | | | | | 1750 |
| Imperial shafts | | | | | | |
| 0.75" | 100 | | | | | |
| 1" | 150 | 205 | | | | |
| 1.1875" | | 290 | 375 | | | |
| 1.25" | | 290 | 415 | | | |
| 1.375" | | | 480 | 460 | 840 | |
| 1.4375" | | | 480 | 500 | 915 | |
| 1.5" | | | | 545 | 1000 | |
| 1.625" | | | | 600 | 1000 | 1180 |
| 1.75" | | | | | | 1375 |
| 1.9375" | | | | | | 1680 |
| 2" | | | | | | 1750 |

Configuring guide

Configuring the adapter

2

Maximum input speed

Unless otherwise specified, Innomatics SG gearboxes can be operated at a motor speed of up to 4500 rpm for brief periods. Since the speed is rarely constant with high-speed applications, it is necessary to determine a root-mean-square speed as a basis for further calculations.

We recommend that 4-pole motors are mounted in order to achieve optimum gearbox service life. Higher input speeds can have an effect on bearing service life and the thermal properties of the gearbox.

See section "Input speed", page 2/7.

Permissible input torque

The adapters are primarily designed for 4-pole standard three-phase AC motors. Considerably higher torques, which are above the maximum permissible input torque, may occur with special motors.

First of all, the continuous torque of the motor T_{1mot} and the permissible input torque of the adapter T_{1perm} must be checked, along with the maximum torques (starting, breakdown, and braking).

$$T_{1perm} > T_{1mot}$$

Higher input torques are permitted for brief periods provided that they do not exceed 2.5 times the permissible input torque.

The permissible input torques of the adapters can be found in [chapter 8 "Adapters"](#).

Variables for the input torque

| Code | Description | Unit |
|-------------|---|------|
| T_{1mot} | Continuous torque of the motor | Nm |
| T_{1perm} | Permissible input torque of the adapter | Nm |

Permissible loading by built-in motor

When a motor is mounted using an adapter, the dimensions of the final unit can be relatively long. In such cases, the maximum permissible operating force F_M must be checked.

The operating force comprises the net weight of the mounted motor plus any acceleration and deceleration forces.

The maximum permissible operating force F_M must not be exceeded!

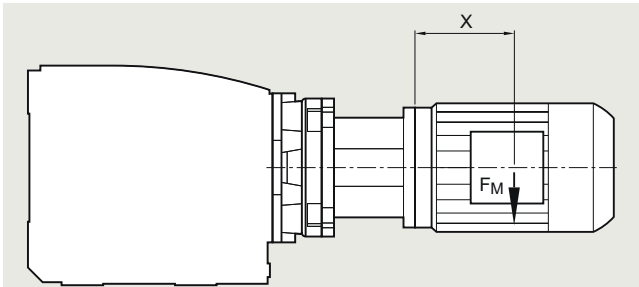


Fig. 2/6 Maximum permissible operating force

Variables for the maximum motor length

| Code | Description | Unit |
|------------|--|------|
| X | Distance from center of gravity | mm |
| F_M | Maximum permissible operating force from mounted motor | N |
| F_{Mred} | Reduced maximum permissible operating force from mounted motor | N |

When the distance from the center of gravity is increased, the permissible operating force from the mounted motor F_M must be reduced according to a linear function.

Example:

Distance from center of gravity > X

Motor size = 90

Distance from center of gravity = 150

$$F_{Mred} = F_M \times \frac{115}{150}$$

Maximum permissible operating force from mounted motor

| Gearbox type | IEC NEMA | Adapter size | | | | | | | | | | | | | | | | | | |
|--------------|-------------|--------------|--------|------------|--------|--|-----|-----|------|------|------|-------|------|------|------|------|------|------|-------|-------|
| | | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | |
| D.Z. | E. | F. | K. | B. | C. | X [mm] | 80 | 80 | 115 | 115 | 145 | 145 | 190 | 250 | 300 | 300 | 400 | 400 | 470 | |
| | | | | | | Maximum permissible operating force from mounted motor F_M [N] | | | | | | | | | | | | | | |
| 19 | | | | 19 | | | 315 | | | | | | | | | | | | | |
| 29 | | 29 | | 29 | 29 | | 315 | 315 | 305 | 305 | | | | | | | | | | |
| 39 | 39 | 39 | 39 | 39 | 39A | | 340 | 630 | 650 | 650 | 720 | O. R. | | | | | | | | |
| 49; 59; 69 | 49; 69 | 49; 69 | 49; 79 | 49; 69; 79 | 49; 69 | | 340 | 720 | 705 | 705 | 1490 | 1690 | 1480 | | | | | | | |
| 79 | | 79 | 89 | | 89 | | | 720 | 1070 | 1160 | 1590 | 2320 | 2570 | 2740 | | | | | | |
| 89 | 89 | 89 | 109 | | | | | | 1050 | 1440 | 2260 | 2540 | 3140 | 2920 | 2920 | | | | | |
| 109 | 109 | 109 | 129 | | | | | | | 1560 | 2240 | 2530 | 3850 | 5230 | 4500 | 3720 | 6380 | | | |
| 129 | 129 | 129 | 149 | | | | | | | 1540 | 2220 | 2500 | 4490 | 5230 | 4500 | 3720 | 6980 | 6200 | | |
| 149 | 149 | 149 | 169 | | | | | | | | 2210 | 2490 | 4480 | 5230 | 4500 | 3720 | 7100 | 6880 | 11400 | |
| 169; 189 | | 169; 189 | | | | | | | | | | 2450 | 4420 | 5230 | 4500 | 3720 | 7100 | 6880 | 11400 | 15000 |

O. R. On request

Permissible radial force for adapter A/AZ

The permissible radial forces on the input shaft of the adapter A/AZ depend on various factors.

The ALVIS Web Gear Calculation tool can be used for a more detailed check.

| Adapter size | d1 mm | l1 mm | Permissible radial force F_{RAperm} l 1/2 with 0.5x1 N |
|---------------------|----------|----------|--|
| Adapter A/AZ | | | |
| 80 | 19 | 40 | Use the calculation tool ALVIS Web Gear Calculation |
| 90 | 24 | 50 | |
| 100 | 28 | 60 | |
| 112 | 28 | 60 | |
| 132 | 38 | 80 | |
| 160 | 42 | 110 | |
| 180 | 48 | 110 | |
| 200 | 55 | 110 | |
| 225 | 55 | 110 | |
| 250 | 55 | 110 | |

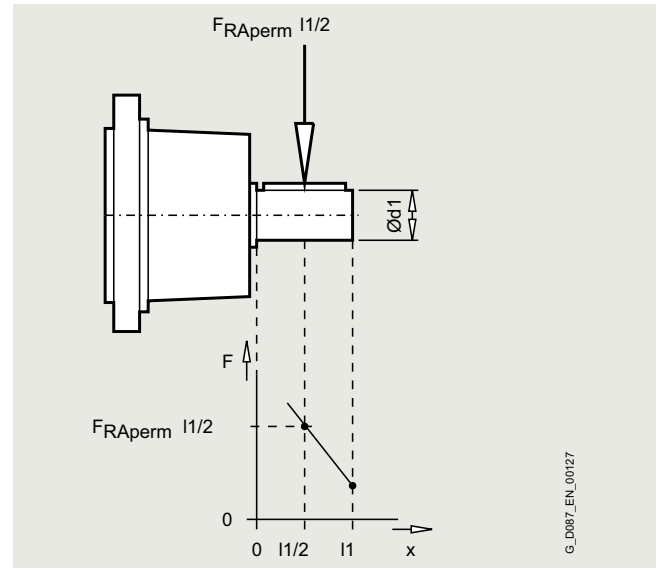


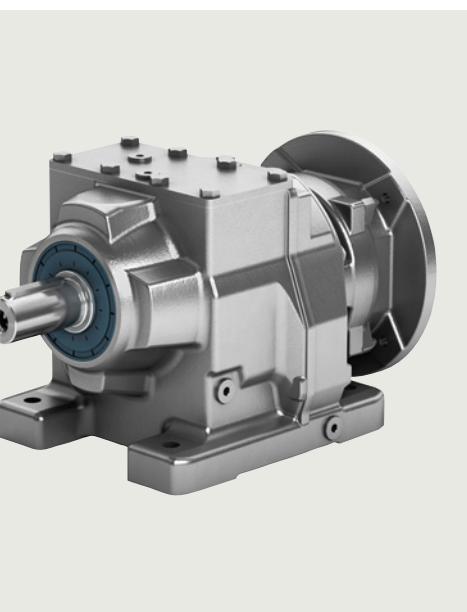
Fig. 2/7 Permissible radial force for adapter A/AZ

Configuring guide

Notes

2

Helical gearboxes



| | |
|-------------|---|
| 3/2 | Orientation |
| 3/4 | Transmission ratios and torques |
| 3/4 | Selection and ordering data |
| 3/28 | Transmission ratios and torques for high speeds |
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| 3/35 | Selection and ordering data |
| 3/53 | Dimensions |
| 3/53 | Overview |
| | <u>Adapter K4 for mounting an IEC motor</u> |
| 3/58 | Helical gearbox Z./D.29 |
| 3/62 | Helical gearbox Z./D.39 |
| 3/66 | Helical gearbox Z./D.49 |
| 3/69 | Helical gearbox Z./D.59 |
| 3/72 | Helical gearbox Z./D.69 |
| 3/75 | Helical gearbox Z./D.79 |
| 3/78 | Helical gearbox Z./D.89 |
| 3/83 | Helical gearbox Z./D.109 |
| 3/88 | Helical gearbox Z./D.129 |
| 3/93 | Helical gearbox Z./D.149 |
| 3/97 | Helical gearbox Z./D.169 |
| 3/101 | Helical gearbox Z./D.189 |
| 3/103 | Helical gearbox E.39 |
| 3/106 | Helical gearbox E.49 |
| 3/109 | Helical gearbox E.69 |
| 3/112 | Helical gearbox E.89 |
| 3/115 | Helical gearbox E.109 |
| 3/118 | Helical gearbox E.129 |
| 3/121 | Helical gearbox E.149 |
| | <u>Adapter K2 for mounting an IEC motor</u> |
| 3/124 | Helical gearbox Z./D.29 to Z./D.189 |
| 3/126 | Helical gearbox E.39 to E.149 |
| | <u>KS adapter exclusively for mounting defined Siemens servo motors</u> |
| 3/128 | Helical gearbox Z./D.19 |
| 3/131 | Helical gearbox Z./D.29 |
| 3/135 | Helical gearbox Z./D.39 |
| 3/139 | Helical gearbox Z./D.49 |
| 3/142 | Helical gearbox Z./D.59 |
| 3/145 | Helical gearbox Z./D.69 |
| 3/148 | Helical gearbox Z./D.79 |
| 3/151 | Helical gearbox Z./D.89 |
| 3/156 | Helical gearbox Z./D.109 |
| 3/161 | Helical gearbox Z./D.129 |
| 3/166 | Helical gearbox Z./D.149 |
| 3/170 | Helical gearbox Z./D.169 |
| 3/174 | Helical gearbox Z./D.189 |
| 3/176 | Helical gearbox E.39 |
| 3/179 | Helical gearbox E.49 |
| 3/182 | Helical gearbox E.69 |
| 3/185 | Helical gearbox E.89 |
| 3/188 | Helical gearbox E.109 |
| 3/191 | Helical gearbox E.129 |
| 3/194 | Helical gearbox E.149 |

| | |
|-------|--|
| | Dimensions |
| | <u>Adapter K8 for mounting a servo motor</u> |
| 3/197 | Helical gearbox Z./D.89 to Z./D.189 |
| 3/197 | Helical gearbox E.89 to E.149 |
| | <u>Adapter K5 for mounting a NEMA motor</u> |
| 3/198 | Helical gearbox Z./D.29 to Z./D.189 |
| 3/199 | Helical gearbox E.39 to E.149 |
| | <u>Adapter K3 for mounting a NEMA motor</u> |
| 3/201 | Helical gearbox Z./D.29 to Z./D.189 |
| 3/202 | Helical gearbox E.39 to E.149 |
| | <u>Adapter A with free output shaft</u> |
| 3/204 | Helical gearbox Z./D.29 to Z./D.189 |
| 3/205 | Helical gearbox E.39 to E.149 |
| | <u>Adapter AZ with free output shaft and centering</u> |
| 3/207 | Helical gearbox Z./D.29 to Z./D.189 |
| 3/208 | Helical gearbox E.39 to E.149 |
| 3/210 | Helical tandem gearbox with adapter K4 |
| 3/211 | Helical tandem gearbox with adapter K2 |
| 3/212 | Helical tandem gearbox with KS adapter |
| 3/214 | Helical tandem gearbox with adapter K5 |
| 3/215 | Helical tandem gearbox with adapter K3 |
| 3/216 | Helical tandem gearbox with adapter A |
| 3/217 | Helical tandem gearbox with adapter AZ |
| 3/218 | Inner contour of the flange design |

Helical gearboxes

Orientation

3

Innomotics SG helical gearboxes Z and D

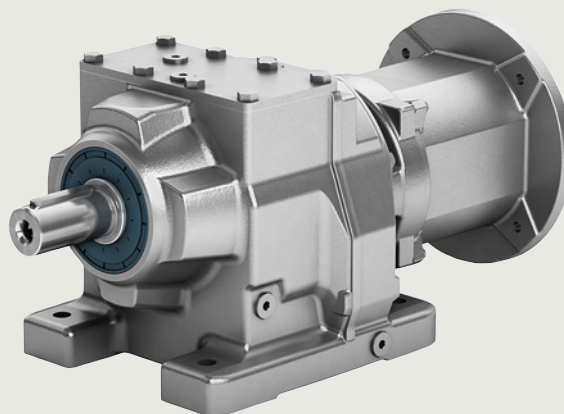


Fig. 3/1 Helical geared motor Z and D

Innomotics SG helical gearbox E

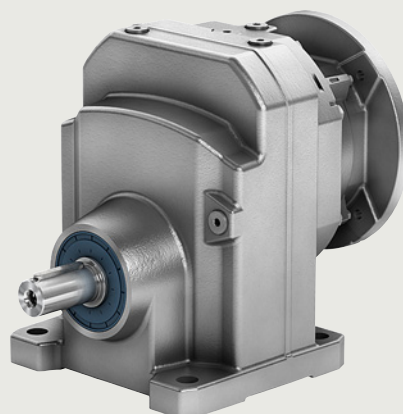


Fig. 3/2 Helical geared motor E

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|--|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i | P_1 kW |
| Z19 ... Z189 (2-stage) | 13 | 100 ... 19000 | 3.4 ... 57 | 55 |
| D19 ... D189 (3-stage) | 13 | 100 ... 19000 | 36 ... 328 | 55 |
| E39 ... E149 (1-stage) | 7 | 30 ... 1490 | 1.29 ... 9.79 | 55 |
| D.29-Z19 ... D.189-D69 (4-stage to 6-stage) | 12 | 140 ... 19000 | 325 ... 27816 | 7.5 |

Innomotics SG helical gearboxes are available in the following versions:

Gearbox stages

- 2-stage or 3-stage helical gearboxes
- 1-stage helical gearboxes for high output speeds
- 4-stage to 6-stage helical gearboxes for very low output speeds

Designs

- Foot-mounted design
- Flange-mounted design with or without VLplus and XLplus reinforced bearing systems
- Design with integrated housing flange
- Combined foot/flange-mounted design
- Cooling tower design

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-------------|-------|----------|----------|-------------|----------------|------------|---------|-----|-----|-----|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | KS | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | 3.2 | 5.2 | 6.2 | | 10.2 | |
| | | | | | kgm^2 | | | 4.1 | | | | | |
| | | | | | | | | 4.2 | | | | | |
| D.19 | | | | | | | | | | | | | |
| 184.86 | 7.8 | 100 | 1650 | 13.1 | 0.02 | 50468/273 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ Q1 |
| 163.69 | 8.9 | 100 | 1650 | 13.2 | 0.03 | 74481/455 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ P1 |
| 142.23 | 10 | 100 | 1650 | 13.2 | 0.04 | 64713/455 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ N1 |
| 129.30 | 11 | 100 | 1650 | 13.2 | 0.04 | 11766/91 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ M1 |
| 110.02 | 13 | 100 | 1650 | 13.2 | 0.06 | 50061/455 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ L1 |
| 100.02 | 14 | 100 | 1650 | 13.2 | 0.07 | 9102/91 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ K1 |
| 87.21 | 17 | 100 | 1650 | 13.3 | 0.08 | 1221/14 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ J1 |
| 78.07 | 19 | 100 | 1650 | 13.3 | 0.11 | 7104/91 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ H1 |
| 69.32 | 21 | 100 | 1650 | 13.3 | 0.13 | 12617/182 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ G1 |
| 63.99 | 23 | 100 | 1650 | 13.3 | 0.16 | 75702/1183 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ F1 |
| 55.59 | 26 | 100 | 1650 | 13.4 | 0.17 | 35409/637 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ E1 |
| 48.30 | 30 | 100 | 1650 | 13.3 | 0.18 | 21978/455 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ D1 |
| 43.61 | 33 | 100 | 1650 | 13.3 | 0.22 | 1221/28 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ C1 |
| 41.04 | 35 | 100 | 1650 | 13.3 | 0.26 | 4884/119 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ B1 |
| 35.78 | 41 | 100 | 1650 | 13.4 | 0.29 | 3256/91 | ✓ | | | | | | 2KJ3201 - ■ ■ A0 ■ - 0 ■ A1 |
| Z.19 | | | | | | | | | | | | | |
| 34.97 | 41 | 100 | 1650 | 12.6 | 0.02 | 1364/39 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ W1 |
| 30.97 | 47 | 100 | 1650 | 13.2 | 0.03 | 2013/65 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ V1 |
| 26.91 | 54 | 100 | 1650 | 13.3 | 0.04 | 1749/65 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ U1 |
| 24.46 | 59 | 100 | 1650 | 13.3 | 0.05 | 318/13 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ T1 |
| 20.82 | 70 | 100 | 1650 | 13.5 | 0.06 | 1353/65 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ S1 |
| 18.92 | 77 | 100 | 1790 | 13.5 | 0.08 | 246/13 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ R1 |
| 16.50 | 88 | 99 | 1900 | 13.7 | 0.09 | 33/2 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ Q1 |
| 14.77 | 98 | 95 | 1870 | 13.8 | 0.12 | 192/13 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ P1 |
| 13.12 | 111 | 91 | 1830 | 13.9 | 0.15 | 341/26 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ N1 |
| 12.11 | 120 | 88 | 1810 | 13.9 | 0.18 | 2046/169 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ M1 |
| 10.52 | 138 | 82 | 1760 | 14.3 | 0.20 | 957/91 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ L1 |
| 9.14 | 159 | 78 | 1710 | 13.9 | 0.21 | 594/65 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ K1 |
| 8.25 | 176 | 74 | 1670 | 14.1 | 0.27 | 33/4 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ J1 |
| 7.76 | 187 | 73 | 1650 | 14.1 | 0.32 | 132/17 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ H1 |
| 6.77 | 214 | 68 | 1600 | 14.5 | 0.36 | 88/13 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ G1 |
| 6.25 | 232 | 56 | 1460 | 20.3 | 0.19 | 1705/273 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ F1 |
| 5.43 | 267 | 53 | 1420 | 21.0 | 0.22 | 1595/294 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ E1 |
| 4.71 | 308 | 49 | 1380 | 20.3 | 0.22 | 33/7 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ D1 |
| 4.26 | 340 | 47 | 1350 | 20.7 | 0.29 | 715/168 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ C1 |
| 4.01 | 362 | 46 | 1330 | 20.7 | 0.32 | 1430/357 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ B1 |
| 3.49 | 415 | 43 | 1290 | 21.5 | 0.39 | 220/63 | ✓ | | | | | | 2KJ3101 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | |
| Adapter size | KS | A | E | H | K | M | | | | | | 1 |
| | | B | F | J | | N | | | | | | |
| | | C | | | | | | | | | | |
| | | D | | | | | | | | | | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | |

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | | | Article No. | | |
|---------------|-------|----------|----------|-------------|-----------|-----------|--|-------------|-----|-----|-----|-----------------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-------------|-------------------------------------|--|
| <i>i</i> | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| D.29 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 217.89 | 6.7 | 140 | 3710 | 10.7 | 0.02 | 7626/35 | | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ Q1 | |
| 192.93 | 7.5 | 140 | 3710 | 10.8 | 0.03 | 67527/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ P1 | |
| 167.63 | 8.7 | 140 | 3710 | 10.8 | 0.04 | 58671/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ N1 | |
| 152.39 | 9.5 | 140 | 3710 | 10.8 | 0.05 | 58671/385 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ M1 | |
| 129.68 | 11 | 140 | 3710 | 10.9 | 0.06 | 45387/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ L1 | |
| 117.89 | 12 | 140 | 3710 | 10.9 | 0.08 | 45387/385 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ K1 | |
| 102.79 | 14 | 140 | 3710 | 10.9 | 0.09 | 14391/140 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ J1 | |
| 92.01 | 16 | 140 | 3710 | 10.9 | 0.12 | 35424/385 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ H1 | |
| 81.71 | 18 | 140 | 3710 | 10.9 | 0.14 | 11439/140 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ G1 | |
| 75.42 | 19 | 140 | 3710 | 10.9 | 0.17 | 34317/455 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ F1 | |
| 65.52 | 22 | 140 | 3710 | 11.0 | 0.19 | 32103/490 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ E1 | |
| 56.93 | 25 | 140 | 3710 | 10.9 | 0.19 | 9963/175 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ D1 | |
| 51.40 | 28 | 140 | 3710 | 11.0 | 0.25 | 14391/280 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ C1 | |
| 48.37 | 30 | 140 | 3710 | 11.0 | 0.29 | 28782/595 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ B1 | |
| 42.17 | 34 | 140 | 3710 | 11.0 | 0.33 | 1476/35 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3202 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|----------|----------|--|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | | C | | D | | E | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

3

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|-------------|-------|----------|----------|----------------------|-----------|----------|---------|-----|----|-----|-----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-------------|-------------------------------------|--|---------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| Z.29 | | | | | | | | | | | | | | | | | | | | | | | | |
| 41.40 | 35 | 140 | 3710 | 10.8 | 0.04 | 207/5 | ✓ | ✓ | | | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 A2 |
| 36.72 | 39 | 140 | 3670 | 10.8 | 0.05 | 918/25 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 X1 |
| 31.86 | 46 | 140 | 3330 | 10.9 | 0.06 | 1593/50 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 W1 |
| 28.96 | 50 | 140 | 3110 | 10.9 | 0.07 | 1593/55 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 V1 |
| 24.84 | 58 | 140 | 2770 | 11.0 | 0.09 | 621/25 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 U1 |
| 22.58 | 64 | 140 | 2570 | 11.0 | 0.11 | 1242/55 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3102 - A0 - 0 T1 |
| 19.80 | 73 | 140 | 2300 | 11.2 | 0.13 | 99/5 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 S1 |
| 17.67 | 82 | 140 | 2070 | 11.3 | 0.15 | 972/55 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 R1 |
| 15.75 | 92 | 140 | 1850 | 11.4 | 0.18 | 63/4 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 Q1 |
| 14.54 | 100 | 120 | 2240 | 11.4 | 0.23 | 189/13 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 P1 |
| 12.73 | 114 | 140 | 1470 | 11.6 | 0.26 | 891/70 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 N1 |
| 11.16 | 130 | 140 | 1250 | 11.9 | 0.27 | 279/25 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 M1 |
| 10.12 | 143 | 140 | 1090 | 12.1 | 0.34 | 81/8 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 L1 |
| 9.53 | 152 | 140 | 1000 | 12.1 | 0.40 | 162/17 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 K1 |
| 8.40 | 173 | 138 | 855 | 11.7 | 0.45 | 42/5 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 J1 |
| 7.29 | 199 | 130 | 860 | 11.9 | 0.60 | 729/100 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 H1 |
| 6.92 | 210 | 75 | 1900 | 17.4 | 0.29 | 90/13 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 G1 |
| 6.06 | 239 | 100 | 945 | 17.9 | 0.34 | 297/49 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 F1 |
| 5.31 | 273 | 91 | 1050 | 18.6 | 0.37 | 186/35 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 E1 |
| 4.82 | 301 | 86 | 1080 | 18.9 | 0.46 | 135/28 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 D1 |
| 4.54 | 319 | 84 | 1070 | 18.9 | 0.54 | 540/119 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 C1 |
| 4.00 | 362 | 76 | 1160 | 18.2 | 0.63 | 4/1 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 B1 |
| 3.47 | 418 | 70 | 1240 | 18.5 | 0.84 | 243/70 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3102 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version
 2) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | |
| Adapter size | see page 9/46 | | | | | | | | | | | | | | | | |
| K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | 4 | |
| K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| KS | A | | E | H | K | M | | | | | | | | | 1 | | |
| | B | | F | J | N | | | | | | | | | | | | |
| | C | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | C | D | E | | | | 8 | | |
| K5 | A | | B | C | | D | E | F | | G | H | | | | 5 | | |
| K3 | A | | B | C | | D | E | F | | | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

3

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | |
|---------|----------------|-----------------|-----------------|-----------------|------------------|-----------------|---------|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------------|-----|--|-------------------------------------|--|--|--|
| i | n ₂ | T _{2N} | F _{R2} | φ ¹⁾ | J _G | R _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | (Article No. supplement, see below) | | | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | |
| | | | | | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | |

D.39

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-----|-----|------|-----|------|-------------|---|---|---|---|-----------------|---------------------------------|--|--|--|--|--|--|--|--|--|--|---------------------------|
| 235.29 | 6.2 | 200 | 4370 | 8.1 | 0.03 | 179998/765 | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ R1 |
| 208.69 | 6.9 | 200 | 4370 | 8.2 | 0.05 | 15652/75 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ Q1 |
| 181.07 | 8 | 200 | 4370 | 8.2 | 0.05 | 230867/1275 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ P1 |
| 164.61 | 8.8 | 200 | 4370 | 8.2 | 0.07 | 461734/2805 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ N1 |
| 141.17 | 10 | 200 | 4370 | 8.2 | 0.08 | 179998/1275 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ M1 |
| 128.34 | 11 | 200 | 4370 | 8.2 | 0.10 | 359996/2805 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ L1 |
| 112.53 | 13 | 200 | 4370 | 8.2 | 0.12 | 86086/765 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ K1 |
| 100.44 | 14 | 200 | 4370 | 8.3 | 0.15 | 93912/935 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ J1 |
| 89.51 | 16 | 200 | 4370 | 8.3 | 0.17 | 27391/306 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ H1 |
| 82.63 | 18 | 200 | 4370 | 8.3 | 0.21 | 4214/51 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ G1 |
| 72.34 | 20 | 200 | 4370 | 8.3 | 0.25 | 6149/85 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ F1 |
| 63.43 | 23 | 200 | 4370 | 8.4 | 0.23 | 242606/3825 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ E1 |
| 57.54 | 25 | 200 | 4370 | 8.4 | 0.33 | 3913/68 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ D1 |
| 54.16 | 27 | 200 | 4370 | 8.4 | 0.39 | 15652/289 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ C1 |
| 47.74 | 30 | 200 | 4350 | 8.3 | 0.43 | 109564/2295 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ B1 |
| 41.43 | 35 | 200 | 3920 | 8.4 | 0.58 | 35217/850 | ✓ | ✓ | ✓ | ✓ | √ ²⁾ | √ ²⁾ / ₃₎ | | | | | | | | | | | 2KJ3203 - ■ A0 ■ - 0 ■ A1 |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ
- 3) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|-------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|----------|----------|--|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | | | 1 | |
| | | B | | | F | J | | N | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | E | | | | | | | | | | 8 | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | | |

Adapter type

Gearbox mounting type **A, B, F or H** [see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

3

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-------------|-----|-------------------------------------|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| | | | | | | | KS | | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |

D.49

| Ratio | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | Article No. |
|--------|-------|----------|----------|-------------|-------|-----------|----|----|----|----|----|-----|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|---|
| 280.89 | 5.2 | 320 | 5780 | 7.3 | 0.06 | 60673/216 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ S1 |
| 249.76 | 5.8 | 320 | 5780 | 7.3 | 0.07 | 29971/120 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ R1 |
| 219.30 | 6.6 | 320 | 5780 | 7.4 | 0.08 | 2193/10 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ Q1 |
| 199.36 | 7.3 | 320 | 5780 | 7.4 | 0.10 | 2193/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ P1 |
| 170.57 | 8.5 | 320 | 5780 | 7.4 | 0.12 | 5117/30 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ N1 |
| 155.06 | 9.4 | 320 | 5780 | 7.4 | 0.14 | 5117/33 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ M1 |
| 137.06 | 11 | 320 | 5780 | 7.4 | 0.17 | 2193/16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ L1 |
| 124.60 | 12 | 320 | 5780 | 7.4 | 0.22 | 10965/88 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ K1 |
| 109.14 | 13 | 320 | 5780 | 7.4 | 0.25 | 31433/288 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ J1 |
| 100.75 | 14 | 320 | 5780 | 7.4 | 0.31 | 31433/312 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ H1 |
| 89.20 | 16 | 320 | 5780 | 7.4 | 0.37 | 29971/336 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ G1 |
| 74.24 | 20 | 320 | 5780 | 7.5 | 0.50 | 9503/128 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ F1 |
| 69.88 | 21 | 320 | 5780 | 7.5 | 0.58 | 559/8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ E1 |
| 62.61 | 23 | 320 | 5780 | 7.5 | 0.65 | 27047/432 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ D1 |
| 53.30 | 27 | 320 | 5780 | 7.5 | 0.85 | 5117/96 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ C1 |
| 45.69 | 32 | 320 | 5780 | 7.6 | 1.12 | 731/16 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ B1 |
| 39.34 | 37 | 320 | 5540 | 7.6 | 1.43 | 22661/576 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3204 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | 4 | 2 | 1 | 8 | 5 | 3 | 9 | | | | | | | |
|------------------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|--|--|--|--|--|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | see page 9/46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | | | | | | | | |
| | | | B | | F | J | | N | | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | C | | D | | E | | | | | | | | | | | | | | | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | | | | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | | | | | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | | | | | |
|-------------|-------|----------|----------|-------------|-----------|----------|--|---------|----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-------------|-----|-----|--|--|-------------------------------------|--|--|
| <i>i</i> | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | | | | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | |
| Z.49 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52.14 | 28 | 320 | 5900 | 7.0 | 0.17 | 4171/80 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3104 - A0 - 0 B2 | | |
| 47.40 | 31 | 320 | 5780 | 7.0 | 0.21 | 4171/88 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3104 - A0 - 0 A2 | | |
| 40.31 | 36 | 320 | 5650 | 7.1 | 0.25 | 645/16 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3104 - A0 - 0 X1 | | |
| 36.65 | 40 | 320 | 5220 | 7.1 | 0.31 | 3225/88 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3104 - A0 - 0 W1 | | |
| 32.70 | 44 | 320 | 5520 | 7.1 | 0.36 | 3139/96 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3104 - A0 - 0 V1 | | |
| 29.32 | 49 | 320 | 5280 | 7.2 | 0.43 | 645/22 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3104 - A0 - 0 U1 | | |
| 26.43 | 55 | 320 | 5060 | 7.2 | 0.50 | 2537/96 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3104 - A0 - 0 T1 | | |
| 24.39 | 59 | 320 | 4890 | 7.2 | 0.59 | 2537/104 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3104 - A0 - 0 S1 | | |
| 22.27 | 65 | 320 | 4710 | 7.2 | 0.71 | 1247/56 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 R1 | | |
| 18.48 | 78 | 320 | 4350 | 7.4 | 0.90 | 2365/128 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 Q1 | | |
| 17.39 | 83 | 320 | 4230 | 7.4 | 1.03 | 2365/136 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 P1 | | |
| 16.42 | 88 | 320 | 4130 | 7.4 | 1.17 | 2365/144 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 N1 | | |
| 13.98 | 104 | 320 | 3850 | 7.5 | 1.44 | 559/40 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 M1 | | |
| 11.97 | 121 | 320 | 3590 | 7.5 | 1.76 | 2107/176 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 L1 | | |
| 10.53 | 138 | 320 | 3390 | 7.5 | 2.10 | 2021/192 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 K1 | | |
| 8.88 | 163 | 320 | 3130 | 7.8 | 2.70 | 817/92 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 J1 | | |
| 7.74 | 187 | 320 | 3100 | 8.0 | 3.60 | 387/50 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 H1 | | |
| 7.64 | 190 | 295 | 3000 | 11.8 | 1.18 | 649/85 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 G1 | | |
| 7.21 | 201 | 290 | 2980 | 11.8 | 1.34 | 649/90 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 F1 | | |
| 6.14 | 236 | 265 | 2940 | 12.2 | 1.67 | 767/125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 E1 | | |
| 5.26 | 276 | 245 | 2880 | 12.2 | 2.10 | 2891/550 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 D1 | | |
| 4.62 | 314 | 225 | 2820 | 12.2 | 2.60 | 2773/600 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 C1 | | |
| 3.90 | 372 | 205 | 2740 | 12.2 | 3.30 | 2242/575 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 B1 | | |
| 3.40 | 426 | 191 | 2210 | 12.2 | 4.40 | 2124/625 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3104 - A0 - 0 A1 | | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | C | | D | | E | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | 9 | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | |
|-------------|-------|----------|----------|-------------|-----------|-----------|---------|----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|---------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| D.59 | | | | | | | | | | | | | | | | | | | | | | | |
| 307.02 | 4.7 | 450 | 7660 | 6.8 | 0.06 | 66317/216 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3205 - A0 - 0 S1 | |
| 272.99 | 5.3 | 450 | 7660 | 6.8 | 0.07 | 32759/120 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3205 - A0 - 0 R1 |
| 239.70 | 6 | 450 | 7660 | 6.8 | 0.08 | 2397/10 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3205 - A0 - 0 Q1 |
| 217.91 | 6.7 | 450 | 7660 | 6.8 | 0.10 | 2397/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3205 - A0 - 0 P1 |
| 186.43 | 7.8 | 450 | 7660 | 6.9 | 0.12 | 5593/30 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3205 - A0 - 0 N1 |
| 169.48 | 8.6 | 450 | 7660 | 6.9 | 0.14 | 5593/33 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3205 - A0 - 0 M1 |
| 149.81 | 9.7 | 450 | 7660 | 6.9 | 0.17 | 2397/16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3205 - A0 - 0 L1 |
| 136.19 | 11 | 450 | 7660 | 6.9 | 0.22 | 11985/88 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3205 - A0 - 0 K1 |
| 119.30 | 12 | 450 | 7660 | 6.9 | 0.26 | 34357/288 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3205 - A0 - 0 J1 |
| 110.12 | 13 | 450 | 7660 | 6.9 | 0.31 | 34357/312 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3205 - A0 - 0 H1 |
| 97.50 | 15 | 450 | 7660 | 6.9 | 0.37 | 32759/336 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 G1 |
| 81.15 | 18 | 450 | 7660 | 7.0 | 0.50 | 10387/128 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 F1 |
| 76.38 | 19 | 450 | 7660 | 7.0 | 0.59 | 611/8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 E1 |
| 68.43 | 21 | 450 | 7660 | 7.0 | 0.65 | 29563/432 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 D1 |
| 58.26 | 25 | 450 | 7660 | 7.0 | 0.85 | 5593/96 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 C1 |
| 49.94 | 29 | 450 | 7660 | 7.1 | 1.12 | 799/16 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 B1 |
| 43.00 | 34 | 450 | 7230 | 7.1 | 1.44 | 24769/576 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3205 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|--------------|-----------------------|------------------------|------------------------|-----------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | φ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| Z.59 | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| 56.99 | 25 | 450 | 7660 | 6.5 | 0.18 | 4559/80 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3105 - A0 - 0 A2 |
| 51.81 | 28 | 450 | 7660 | 6.5 | 0.21 | 4559/88 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3105 - A0 - 0 X1 |
| 44.06 | 33 | 450 | 7310 | 6.6 | 0.26 | 705/16 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3105 - A0 - 0 W1 |
| 40.06 | 36 | 450 | 7020 | 6.6 | 0.32 | 3525/88 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3105 - A0 - 0 V1 |
| 35.74 | 41 | 450 | 6690 | 6.6 | 0.37 | 3431/96 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3105 - A0 - 0 U1 |
| 32.05 | 45 | 450 | 6180 | 6.7 | 0.44 | 705/22 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3105 - A0 - 0 T1 |
| 28.89 | 50 | 450 | 5690 | 6.7 | 0.52 | 2773/96 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3105 - A0 - 0 S1 |
| 26.66 | 54 | 450 | 5330 | 6.7 | 0.62 | 2773/104 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3105 - A0 - 0 R1 |
| 24.34 | 60 | 450 | 4930 | 6.7 | 0.73 | 1363/56 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 Q1 |
| 20.20 | 72 | 450 | 5230 | 6.9 | 0.94 | 2585/128 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 P1 |
| 19.01 | 76 | 450 | 5090 | 6.9 | 1.08 | 2585/136 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 N1 |
| 17.95 | 81 | 450 | 4960 | 6.9 | 1.23 | 2585/144 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 M1 |
| 15.27 | 95 | 450 | 4600 | 7.0 | 1.51 | 611/40 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 L1 |
| 13.09 | 111 | 450 | 4280 | 7.2 | 1.85 | 2303/176 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 K1 |
| 11.51 | 126 | 450 | 4030 | 7.3 | 2.30 | 2209/192 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 J1 |
| 9.71 | 149 | 450 | 3710 | 7.5 | 2.90 | 893/92 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 H1 |
| 8.46 | 171 | 450 | 3600 | 8.0 | 3.90 | 423/50 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 G1 |
| 8.07 | 180 | 410 | 3500 | 10.6 | 1.45 | 121/15 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 F1 |
| 6.86 | 211 | 410 | 3480 | 11.0 | 1.81 | 858/125 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 E1 |
| 5.88 | 247 | 410 | 3440 | 11.3 | 2.30 | 147/25 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 D1 |
| 5.17 | 280 | 410 | 2210 | 11.6 | 2.80 | 517/100 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 C1 |
| 4.36 | 333 | 405 | 2650 | 12.0 | 3.60 | 2508/575 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 B1 |
| 3.80 | 382 | 405 | 2920 | 13.4 | 4.90 | 2376/625 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3105 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---------------|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | see page 9/46 | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | 2 |
| | KS | A | | E | H | K | M | | | | | | | | | 1 |
| | | B | | F | J | N | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | 8 | |
| | K5 | A | | B | C | | D | E | F | | G | H | | | 5 | |
| | K3 | A | | B | C | | D | E | F | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | see page 9/40 | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | | | |
|---------|-------|----------|----------|-------------|------------------|----------|--|---------|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------------|-----|--|--|-----|--|--|--|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | | |
| | | | | | kgm ² | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | 813 | | | | 816 | | | | 818 | | | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | 320 | 360 | | | | | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | |

D.69

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-----|-----|-------|-----|------|-----------|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------------|---------------------|
| 328.49 | 4.4 | 600 | 11000 | 6.5 | 0.06 | 62084/189 | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 S1 | |
| 292.08 | 5.0 | 600 | 11000 | 6.5 | 0.07 | 30668/105 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 R1 |
| 256.46 | 5.7 | 600 | 11000 | 6.6 | 0.08 | 8976/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 Q1 |
| 233.14 | 6.2 | 600 | 11000 | 6.6 | 0.10 | 1632/7 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 P1 |
| 199.47 | 7.3 | 600 | 11000 | 6.6 | 0.12 | 2992/15 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 N1 |
| 181.33 | 8 | 600 | 11000 | 6.6 | 0.14 | 544/3 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 M1 |
| 160.29 | 9 | 600 | 11000 | 6.6 | 0.17 | 1122/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 L1 |
| 145.71 | 10 | 600 | 11000 | 6.6 | 0.22 | 1020/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 K1 |
| 127.63 | 11 | 600 | 11000 | 6.6 | 0.26 | 8041/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 J1 |
| 117.82 | 12 | 600 | 11000 | 6.6 | 0.31 | 32164/273 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 H1 |
| 104.31 | 14 | 600 | 11000 | 6.6 | 0.37 | 15334/147 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 G1 |
| 86.82 | 17 | 600 | 11000 | 6.7 | 0.50 | 2431/28 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 F1 |
| 81.71 | 18 | 600 | 11000 | 6.7 | 0.59 | 572/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 E1 |
| 73.22 | 20 | 600 | 11000 | 6.7 | 0.66 | 13838/189 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 D1 |
| 62.33 | 23 | 600 | 11000 | 6.7 | 0.86 | 187/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 C1 |
| 53.43 | 27 | 600 | 11000 | 6.7 | 1.14 | 374/7 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 B1 |
| 46.01 | 32 | 600 | 11000 | 6.7 | 1.46 | 5797/126 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | | 2KJ3206 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | | C | D | E | | | | | | | | | | | | | | | | | 8 |
| | K5 | | A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | | | | | | 5 |
| | K3 | | A | B | C | D | E | F | | | | | | | | | | | | | | | | | | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B



Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | |
|--------------|-------|----------|----------|----------------------|-----------|----------|---------|----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|-----|-----|-----|-------------|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| Z.69 | | | | | | | | | | | | | | | | | | | | | | | |
| 60.97 | 24 | 600 | 11000 | 6.2 | 0.18 | 2134/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ A2 | |
| 55.43 | 26 | 600 | 11000 | 6.2 | 0.22 | 388/7 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ X1 | |
| 47.14 | 31 | 600 | 11000 | 6.3 | 0.28 | 330/7 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ W1 | |
| 42.86 | 34 | 600 | 11000 | 6.3 | 0.34 | 300/7 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ V1 | |
| 38.24 | 38 | 600 | 11000 | 6.4 | 0.39 | 803/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ U1 | |
| 34.29 | 42 | 600 | 11000 | 6.4 | 0.47 | 240/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ T1 | |
| 30.90 | 47 | 600 | 10400 | 6.4 | 0.56 | 649/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ S1 | |
| 28.53 | 51 | 600 | 9860 | 6.4 | 0.66 | 2596/91 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ R1 | |
| 26.04 | 56 | 600 | 9200 | 6.5 | 0.79 | 1276/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ Q1 | |
| 21.61 | 67 | 600 | 7910 | 6.6 | 1.01 | 605/28 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ P1 | |
| 20.34 | 71 | 600 | 7510 | 6.6 | 1.16 | 2420/119 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ N1 | |
| 19.21 | 75 | 600 | 7140 | 6.6 | 1.32 | 1210/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ M1 | |
| 16.34 | 89 | 600 | 9850 | 6.7 | 1.64 | 572/35 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ L1 | |
| 14.00 | 104 | 600 | 9260 | 6.8 | 2.00 | 14/1 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ K1 | |
| 12.31 | 118 | 600 | 8790 | 7.0 | 2.50 | 517/42 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ J1 | |
| 10.39 | 140 | 600 | 8200 | 7.1 | 3.20 | 1672/161 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ H1 | |
| 9.05 | 160 | 591 | 7920 | 7.7 | 4.30 | 1584/175 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ G1 | |
| 8.50 | 171 | 446 | 8000 | 10.0 | 1.67 | 1760/207 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ F1 | |
| 7.23 | 201 | 447 | 7540 | 10.3 | 2.10 | 832/115 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ E1 | |
| 6.20 | 234 | 445 | 7290 | 10.6 | 2.70 | 1568/253 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ D1 | |
| 5.45 | 266 | 429 | 7090 | 10.9 | 3.40 | 376/69 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ C1 | |
| 4.60 | 315 | 446 | 6810 | 11.3 | 4.40 | 2432/529 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ B1 | |
| 4.01 | 362 | 445 | 5440 | 11.6 | 5.80 | 2304/575 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3106 - ■ A0 ■ - 0 ■ A1 | |

¹⁾ Only in conjunction with reduced-backlash version
²⁾ Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|
| Shaft design | 1 or 9 | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | | |
| Adapter size | K4 | | | | | | | | | | | | | | | | 4 |
| | K2 | | | | | | | | | | | | | | | | 2 |
| | KS | | | | | | | | | | | | | | | | 1 |
| | | | A | | E | H | K | M | | | | | | | | | |
| | | | B | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | 5 |
| | K3 | | A | | B | C | | D | E | F | | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | |
|-------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|--|---------|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|--|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ° | 10 ⁻⁴ | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | | | |
| | | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| D.79 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 330.23 | 4.4 | 840 | 13400 | 6.1 | 0.17 | 369861/1120 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3207 - A0 - 0 S1 | |
| 300.21 | 4.8 | 840 | 13400 | 6.1 | 0.20 | 369861/1232 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3207 - A0 - 0 R1 | |
| 255.33 | 5.7 | 840 | 13400 | 6.2 | 0.25 | 57195/224 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3207 - A0 - 0 Q1 | |
| 232.12 | 6.2 | 840 | 13400 | 6.2 | 0.30 | 285975/1232 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3207 - A0 - 0 P1 | |
| 207.10 | 7 | 840 | 13400 | 6.2 | 0.35 | 92783/448 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3207 - A0 - 0 N1 | |
| 185.70 | 7.8 | 840 | 13400 | 6.2 | 0.42 | 57195/308 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3207 - A0 - 0 M1 | |
| 167.39 | 8.7 | 840 | 13400 | 6.2 | 0.49 | 74989/448 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3207 - A0 - 0 L1 | |
| 154.51 | 9.4 | 840 | 13400 | 6.2 | 0.58 | 224967/1456 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3207 - A0 - 0 K1 | |
| 141.04 | 10 | 840 | 13400 | 6.2 | 0.69 | 110577/784 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 J1 | |
| 117.03 | 12 | 840 | 13400 | 6.2 | 0.87 | 209715/1792 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 H1 | |
| 110.14 | 13 | 840 | 13400 | 6.2 | 1.00 | 209715/1904 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 G1 | |
| 104.03 | 14 | 840 | 13400 | 6.2 | 1.14 | 69905/672 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 F1 | |
| 88.52 | 16 | 840 | 13400 | 6.2 | 1.39 | 49569/560 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 E1 | |
| 75.83 | 19 | 840 | 13400 | 6.2 | 1.69 | 26691/352 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 D1 | |
| 66.67 | 22 | 840 | 13400 | 6.2 | 2.10 | 59737/896 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 C1 | |
| 56.25 | 26 | 840 | 13400 | 6.2 | 2.60 | 72447/1288 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 B1 | |
| 49.02 | 30 | 840 | 12600 | 6.2 | 3.50 | 34317/700 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3207 - A0 - 0 A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---------------|---|---|---|---|--|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | see page 9/46 | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | 4 | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | 2 | | | |
| | KS | | A | | | E | H | | K | M | | | | | | | 1 | | | |
| | | | B | | | F | J | | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | 8 | | | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | 5 | | | | | |
| K3 | | A | | B | C | | D | E | F | | | | | | 3 | | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | 9 | | | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | see page 9/40 | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | |
|-------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----|------|-----------------|-----|-----|-----|-----|-----|-------------|-------------------------------------|---------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| Z.79 | | | | | | | | | | | | | | | | | | | | | | | |
| 54.47 | 27 | 840 | 13400 | 6.1 | 0.43 | 3813/70 | | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ A2 | |
| 49.52 | 29 | 840 | 12600 | 6.1 | 0.53 | 3813/77 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ X1 |
| 44.42 | 33 | 840 | 11700 | 6.2 | 0.73 | 533/12 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ W1 |
| 39.94 | 36 | 840 | 10900 | 6.2 | 0.83 | 3075/77 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ V1 |
| 36.12 | 40 | 840 | 10100 | 6.2 | 0.92 | 1517/42 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ U1 |
| 33.34 | 43 | 840 | 13400 | 6.2 | 1.08 | 3034/91 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ T1 |
| 30.54 | 47 | 840 | 13400 | 6.3 | 1.41 | 2993/98 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ S1 |
| 25.62 | 57 | 840 | 13300 | 6.0 | 1.52 | 205/8 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ R1 |
| 24.12 | 60 | 840 | 13000 | 6.0 | 1.73 | 410/17 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ Q1 |
| 22.13 | 66 | 840 | 12600 | 6.1 | 1.90 | 1394/63 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ P1 |
| 19.33 | 75 | 840 | 11900 | 6.1 | 2.7 | 1353/70 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ N1 |
| 17.31 | 84 | 840 | 11400 | 6.2 | 3.3 | 2665/154 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ M1 |
| 15.13 | 96 | 840 | 10800 | 6.3 | 3.9 | 1271/84 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ L1 |
| 12.99 | 112 | 840 | 10100 | 6.3 | 4.3 | 2091/161 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ K1 |
| 11.48 | 126 | 840 | 9640 | 6.7 | 5.5 | 287/25 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ J1 |
| 9.76 | 149 | 815 | 9080 | 6.9 | 7.0 | 205/21 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ H1 |
| 8.37 | 173 | 790 | 8580 | 7.1 | 9.3 | 410/49 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ G1 |
| 8.19 | 177 | 715 | 8460 | 9.2 | 4.0 | 3965/484 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ F1 |
| 7.16 | 203 | 730 | 8030 | 9.4 | 4.8 | 1891/264 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ E1 |
| 6.15 | 236 | 715 | 7850 | 9.6 | 5.4 | 3111/506 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ D1 |
| 5.43 | 267 | 685 | 7690 | 10.5 | 6.9 | 2989/550 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ C1 |
| 4.62 | 314 | 775 | 7460 | 10.9 | 9.1 | 305/66 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ B1 |
| 3.96 | 366 | 775 | 3730 | 11.3 | 12.0 | 305/77 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3107 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|--|---|--|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 |
| | KS | A | | E | H | K | M | | | | | | | | | | | | 1 | | |
| | | B | | F | J | N | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | | D | | E | | | | | | 8 |
| | K5 | A | | B | C | | D | E | F | | G | H | | | | | | | 5 | | |
| | K3 | A | | B | C | | D | E | F | | | | | | | | 3 | | | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | |
| | | | | | | | KS | | | | | | | | | | | | | | | |
| | | | | | | | | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |

D.89

| | | | | | | | | | | | | | | | | | | | | | | |
|--------|-----|------|-------|-----|------|-------------|--|--|---|---|---|---|---|---|--|--|--|--|--|--|--|---------------------|
| 311.60 | 4.7 | 1680 | 18500 | 5.7 | 0.41 | 132432/425 | | | ✓ | ✓ | | | | | | | | | | | | 2KJ3208 - A0 - 0 S1 |
| 283.28 | 5.1 | 1680 | 18500 | 5.7 | 0.50 | 264864/935 | | | ✓ | ✓ | | | | | | | | | | | | 2KJ3208 - A0 - 0 R1 |
| 254.09 | 5.7 | 1680 | 18500 | 5.7 | 0.70 | 64792/255 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3208 - A0 - 0 Q1 |
| 228.45 | 6.3 | 1680 | 18500 | 5.7 | 0.79 | 42720/187 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3208 - A0 - 0 P1 |
| 206.62 | 7 | 1680 | 18500 | 5.7 | 0.87 | 52688/255 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3208 - A0 - 0 N1 |
| 190.73 | 7.6 | 1680 | 18500 | 5.7 | 1.03 | 210752/1105 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3208 - A0 - 0 M1 |
| 174.71 | 8.3 | 1680 | 18500 | 5.7 | 1.35 | 103952/595 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 L1 |
| 146.59 | 9.9 | 1680 | 18500 | 5.7 | 1.43 | 2492/17 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 K1 |
| 137.97 | 11 | 1680 | 18500 | 5.7 | 1.63 | 39872/289 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 J1 |
| 126.58 | 11 | 1680 | 18500 | 5.7 | 1.78 | 5696/45 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 H1 |
| 110.57 | 13 | 1680 | 18500 | 5.7 | 2.5 | 46992/425 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 G1 |
| 98.99 | 15 | 1680 | 18500 | 5.7 | 3.1 | 18512/187 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 F1 |
| 86.56 | 17 | 1680 | 18500 | 5.7 | 3.7 | 22072/255 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 E1 |
| 74.30 | 20 | 1680 | 18500 | 5.7 | 4.0 | 8544/115 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 D1 |
| 65.67 | 22 | 1680 | 18500 | 5.7 | 5.0 | 139552/2125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 C1 |
| 55.84 | 26 | 1680 | 18500 | 5.7 | 6.4 | 2848/51 | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 B1 |
| 47.87 | 30 | 1680 | 18500 | 5.7 | 8.5 | 5696/119 | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3208 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | Article No. | | | | | | |
|--------------|-------|----------|----------|-------------|-----------|----------|---------|----|----|----|----|-----|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------------------------------|---------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ° | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | |
| Z.89 | | | | | | | | | | | | | | | | | | | | | | | |
| 57.36 | 25 | 1680 | 18500 | 5.4 | 1.34 | 2581/45 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ A2 |
| 51.78 | 28 | 1680 | 18500 | 5.4 | 1.46 | 2848/55 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ X1 |
| 46.97 | 31 | 1680 | 18500 | 5.4 | 1.71 | 1691/36 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ W1 |
| 43.36 | 33 | 1680 | 18500 | 5.4 | 2.0 | 1691/39 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ V1 |
| 39.41 | 37 | 1680 | 18500 | 5.5 | 2.3 | 2759/70 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ U1 |
| 33.38 | 43 | 1680 | 18500 | 5.5 | 2.8 | 267/8 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ T1 |
| 31.41 | 46 | 1680 | 18500 | 5.5 | 2.8 | 534/17 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ S1 |
| 29.01 | 50 | 1680 | 18500 | 5.6 | 4.3 | 3916/135 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ R1 |
| 25.81 | 56 | 1680 | 18500 | 5.6 | 5.3 | 2581/100 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ Q1 |
| 22.92 | 63 | 1680 | 17400 | 5.6 | 6.4 | 1513/66 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ P1 |
| 20.52 | 71 | 1680 | 16000 | 5.7 | 6.4 | 7387/360 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ N1 |
| 17.54 | 83 | 1680 | 14200 | 5.7 | 7.5 | 6052/345 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ M1 |
| 15.66 | 93 | 1680 | 12900 | 6.0 | 9.5 | 1958/125 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ L1 |
| 13.84 | 105 | 1680 | 11500 | 6.1 | 11 | 623/45 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ K1 |
| 12.15 | 119 | 1630 | 10700 | 5.9 | 15 | 3827/315 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ J1 |
| 10.58 | 137 | 1590 | 10700 | 6.0 | 19 | 3649/345 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ H1 |
| 9.04 | 160 | 1560 | 11900 | 6.1 | 24 | 2848/315 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ G1 |
| 7.74 | 187 | 1530 | 12700 | 6.3 | 30 | 178/23 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ F1 |
| 6.89 | 210 | 1050 | 10100 | 8.6 | 12 | 62/9 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ E1 |
| 6.05 | 240 | 1060 | 10900 | 8.8 | 17 | 2666/441 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ D1 |
| 5.26 | 276 | 1060 | 11600 | 9.0 | 21 | 2542/483 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ C1 |
| 4.50 | 322 | 1060 | 11500 | 9.3 | 28 | 1984/441 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ B1 |
| 3.85 | 377 | 1060 | 11100 | 9.7 | 35 | 620/161 | | | | | | | | | | | | | | | | | 2KJ3108 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|
| Shaft design | 1 or 9 | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | | |
| Adapter size | K4 | | | | | | | | | | | | | | | | 4 |
| | K2 | | | | | | | | | | | | | | | | 2 |
| | KS | | | | | | | | | | | | | | | | 1 |
| | K8 | | | | | | | | | | | | | | | | 8 |
| | K5 | | | | | | | | | | | | | | | | 5 |
| | K3 | | | | | | | | | | | | | | | | 3 |
| | A/AZ* | | | | | | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques



Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------------|------|-----|-----|-------------------------------------|-----|-----|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | (Article No. supplement, see below) | | | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | |
| | | | | | | | K5 | | | | | | | | | 3.1 | 5.1 | | 6.1 | 8.1 | | 10.1 | | | | | | | |
| | | | | | | | K3 | | | | | | | | | 3.2 | 5.2 | | 6.2 | 10.2 | | | | | | | | | |
| | | | | | | | A/AZ | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | | | | | 813 | 816 | | 818 | | | | | |
| | | | | | | | K5 | 56 | 140 | | 180 | | | | 210 | 250 | 280 | 320 | | 360 | | | | | | | | | |
| | | | | | | | K3 | 56 | 140 | | 180 | | | | 210 | 250 | 280 | | | | | | | | | | | | |
| | | | | | | | A/AZ | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | |

D.109

| Article No. | i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | | | | | | | | | | | | | | Article No. supplement | | | | |
|-------------|-----|-------|----------|----------|-------------|-------------|----------|--|--|--|-----------------|-----------------|---|---|---|--|--|--|--|--|--|------------------------|--|--|--|---|
| 348.88 | 4.2 | 3100 | 20200 | 5.5 | 1.27 | 263755/756 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ T1 |
| 314.98 | 4.6 | 3100 | 20200 | 5.5 | 1.36 | 72760/231 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ S1 |
| 285.72 | 5.1 | 3100 | 20200 | 5.5 | 1.60 | 864025/3024 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ R1 |
| 263.74 | 5.5 | 3100 | 20200 | 5.5 | 1.88 | 864025/3276 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ Q1 |
| 239.75 | 6 | 3100 | 20200 | 5.5 | 2.1 | 281945/1176 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ P1 |
| 203.01 | 7.1 | 3100 | 20200 | 5.5 | 2.6 | 45475/224 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ N1 |
| 191.07 | 7.6 | 3100 | 20200 | 5.5 | 2.6 | 2675/14 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ M1 |
| 176.45 | 8.2 | 3100 | 20200 | 5.6 | 4.0 | 100045/567 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ L1 |
| 157.00 | 9.2 | 3100 | 20200 | 5.6 | 5.0 | 52751/336 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ K1 |
| 139.44 | 10 | 3100 | 20200 | 5.6 | 5.9 | 773075/5544 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ J1 |
| 124.82 | 12 | 3100 | 20200 | 5.6 | 5.8 | 754885/6048 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ H1 |
| 106.70 | 14 | 3100 | 20200 | 5.6 | 6.7 | 154615/1449 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ G1 |
| 95.28 | 15 | 3100 | 20200 | 5.6 | 8.5 | 20009/210 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ F1 |
| 84.21 | 17 | 3100 | 20200 | 5.6 | 9.6 | 9095/108 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ E1 |
| 73.90 | 20 | 3100 | 20200 | 5.6 | 13 | 391085/5292 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ D1 |
| 64.34 | 23 | 3100 | 20200 | 5.6 | 16 | 372895/5796 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ C1 |
| 55.00 | 26 | 3090 | 20200 | 5.6 | 20 | 72760/1323 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ B1 |
| 47.08 | 31 | 2930 | 20200 | 5.7 | 25 | 45475/966 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3210 - ■ ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---------------|---|--|--|--|--|---|---|--|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | see page 9/46 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 | | | |
| | KS | A | | E | H | K | M | | | | | | | | | | | | | | 1 | | | |
| | | B | | F | J | N | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | | | 8 | | | | |
| | K5 | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | | | |
| K3 | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | | | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | 9 | | | | |

Adapter type
 Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | |
|--------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|----|-----------------|-----------------|-----|-----|-----|-----|-----|-----------------|-----|-----|-------------|-----|-------------------------------------|---------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | | | | | | | |
| | | | | | | | K5 | | | | | | | | | | | | | | | | |
| | | | | | | | K3 | | | | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | | | | | | | | | | | | | | |
| Z.109 | | | | | | | | | | | | | | | | | | | | | | | |
| 51.17 | 28 | 3100 | 20200 | 5.4 | 4.7 | 5015/98 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 X1 |
| 43.64 | 33 | 3100 | 20200 | 5.4 | 6.0 | 9775/224 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 W1 |
| 41.07 | 35 | 3100 | 20200 | 5.4 | 6.8 | 575/14 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 V1 |
| 38.12 | 38 | 3100 | 20200 | 5.4 | 7.4 | 9605/252 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 U1 |
| 33.70 | 43 | 3100 | 20200 | 5.4 | 9.0 | 1887/56 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 T1 |
| 30.08 | 48 | 3100 | 20000 | 5.5 | 11 | 9265/308 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 S1 |
| 27.07 | 54 | 3040 | 19300 | 5.5 | 13 | 9095/336 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 R1 |
| 23.49 | 62 | 2920 | 18400 | 5.5 | 15 | 7565/322 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3110 - A0 - 0 Q1 |
| 21.13 | 69 | 2830 | 17900 | 5.7 | 18 | 1479/70 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3110 - A0 - 0 P1 |
| 18.47 | 79 | 2720 | 17100 | 5.8 | 21 | 6205/336 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3110 - A0 - 0 N1 |
| 16.48 | 88 | 2630 | 16600 | 5.8 | 25 | 1615/98 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 M1 |
| 14.52 | 100 | 2570 | 15900 | 5.9 | 30 | 4675/322 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 L1 |
| 12.72 | 114 | 2510 | 15100 | 6.0 | 37 | 1870/147 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 K1 |
| 11.09 | 131 | 2460 | 14400 | 6.1 | 44 | 255/23 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 J1 |
| 10.12 | 143 | 2430 | 13900 | 6.1 | 51 | 425/42 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 H1 |
| 8.71 | 166 | 2380 | 13200 | 6.3 | 64 | 2805/322 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 G1 |
| 8.41 | 172 | 2290 | 12800 | 8.6 | 29 | 589/70 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 F1 |
| 7.41 | 196 | 2280 | 12300 | 8.7 | 34 | 341/46 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 E1 |
| 6.50 | 223 | 2280 | 12300 | 8.8 | 42 | 682/105 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 D1 |
| 5.66 | 256 | 2290 | 12200 | 9.0 | 51 | 651/115 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 C1 |
| 5.17 | 280 | 2280 | 12200 | 9.1 | 60 | 31/6 | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 B1 |
| 4.45 | 326 | 2150 | 12000 | 9.4 | 75 | 1023/230 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3110 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/46 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | 4 | | | | | | | | |
| | K2 | D E F G H J K L M N P Q | | | | | | | | | | | | 2 | | | | | | | | |
| | KS | A | | | | | | | | | | | | 1 | | | | | | | | |
| | | B | E | H | K | M | | | | | | | | | | | | | | | | |
| | C | F | J | N | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | | | C | D | E | 8 | | | | | | | |
| K5 | | | | | | | | | | | | A | B | C | D | E | F | G | H | 5 | | |
| K3 | | | | | | | | | | | | A | B | C | D | E | F | | | 3 | | |
| A/AZ* | | | | | | | | | | | | D | E | F | G | H | J | K | L | M | N | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | |
|---------|-------|----------|----------|----------|-----------|----------|---------|-----|----|-----|-----|-----|-----|-----|-----|------|-----|-------------|-----|-----|-----|-------------------------------------|--|--|
| i | n_2 | T_{2N} | F_{R2} | ϕ^1 | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | | | | | | | | | | | | | | | | |
| | | | | | | | | 3.1 | | | | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | 3.2 | | | | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | | | 813 | 816 | 818 | | | |
| | | | | | | | K5 | 56 | | | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | |
| | | | | | | | K3 | 56 | | | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | |

3

D.129

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-----|------|-------|-----|-----|-------------|--|--|--|--|-----------------|-----------------|---|---|---|---|--|--|--|--|--|--|---|
| 373.00 | 3.9 | 5000 | 27000 | 6.4 | 3.3 | 523481/1404 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ S1 |
| 344.17 | 4.2 | 5000 | 27000 | 6.4 | 3.9 | 523481/1521 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ R1 |
| 316.90 | 4.6 | 5000 | 27000 | 6.4 | 4.5 | 259541/819 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ Q1 |
| 270.24 | 5.4 | 5000 | 27000 | 6.4 | 5.6 | 505885/1872 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ P1 |
| 254.34 | 5.7 | 5000 | 27000 | 6.4 | 6.4 | 505885/1989 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ N1 |
| 236.03 | 6.1 | 5000 | 27000 | 6.4 | 6.9 | 497087/2106 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ M1 |
| 208.67 | 6.9 | 5000 | 27000 | 6.4 | 8.4 | 162763/780 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ L1 |
| 186.28 | 7.8 | 5000 | 27000 | 6.4 | 9.9 | 479491/2574 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ K1 |
| 167.63 | 8.7 | 5000 | 27000 | 6.4 | 12 | 470693/2808 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ J1 |
| 145.49 | 10 | 5000 | 27000 | 6.4 | 14 | 391511/2691 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ H1 |
| 130.84 | 11 | 5000 | 27000 | 6.4 | 16 | 127571/975 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ G1 |
| 114.36 | 13 | 5000 | 27000 | 6.5 | 19 | 321127/2808 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ F1 |
| 102.05 | 14 | 5000 | 27000 | 6.5 | 23 | 83581/819 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ E1 |
| 89.91 | 16 | 5000 | 27000 | 6.5 | 27 | 241945/2691 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ D1 |
| 78.78 | 18 | 5000 | 27000 | 6.5 | 31 | 193556/2457 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ C1 |
| 68.66 | 21 | 5000 | 27000 | 6.5 | 37 | 61586/897 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ B1 |
| 62.66 | 23 | 5000 | 27000 | 6.5 | 44 | 21995/351 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3211 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|-----------|-----------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------|---|---|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | see page 9/46 | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | | |
| | | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 | |
| | | | KS | A B C D | | E | H | K | M | | | | | | | | | 1 | | |
| | K8 | | | | | | | | | C | D | E | | | | 8 | | | | |
| | | K5 | A | B | C | D | E | F | G | H | | | | | 5 | | | | | |
| | | | K3 | A | B | C | D | E | F | | | | | 3 | | | | | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | |
|--------------|-------|----------|----------|-------------|-----------|-------------|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| D.149 | | | | | | | | | | | | | | | | | | | | | | |
| 328.38 | 4.4 | 8000 | 51200 | 5.5 | 7.1 | 321813/980 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ W1 |
| 281.04 | 5.2 | 8000 | 51200 | 5.5 | 9 | 157383/560 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ V1 |
| 264.51 | 5.5 | 8000 | 51200 | 5.5 | 10 | 157383/595 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ U1 |
| 247.95 | 5.8 | 8000 | 51200 | 5.5 | 11 | 4959/20 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ T1 |
| 219.80 | 6.6 | 8000 | 51200 | 5.5 | 14 | 307719/1400 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ S1 |
| 195.24 | 7.4 | 8000 | 51200 | 5.5 | 16 | 75168/385 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ R1 |
| 176.18 | 8.2 | 8000 | 51200 | 5.5 | 19 | 7047/40 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ Q1 |
| 156.11 | 9.3 | 8000 | 51200 | 5.5 | 23 | 251343/1610 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ P1 |
| 138.26 | 10 | 8000 | 51200 | 5.5 | 26 | 241947/1750 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3212 - ■ A0 ■ - 0 ■ N1 |
| 123.04 | 12 | 8000 | 51200 | 5.5 | 31 | 8613/70 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3212 - ■ A0 ■ - 0 ■ M1 |
| 110.26 | 13 | 8000 | 51200 | 5.5 | 37 | 54027/490 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3212 - ■ A0 ■ - 0 ■ L1 |
| 97.75 | 15 | 8000 | 51200 | 5.5 | 43 | 157383/1610 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3212 - ■ A0 ■ - 0 ■ K1 |
| 86.29 | 17 | 8000 | 51200 | 5.5 | 52 | 21141/245 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ J1 |
| 75.87 | 19 | 8000 | 51200 | 5.5 | 63 | 61074/805 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ H1 |
| 68.71 | 21 | 8000 | 51200 | 5.6 | 70 | 33669/490 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ G1 |
| 59.82 | 24 | 8000 | 51200 | 5.6 | 85 | 96309/1610 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ F1 |
| 49.05 | 30 | 8000 | 47700 | 5.6 | 110 | 44631/910 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ E1 |
| 43.51 | 33 | 8000 | 45700 | 5.8 | 72 | 55042/1265 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ D1 |
| 39.41 | 37 | 8000 | 44000 | 5.8 | 82 | 91031/2310 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ C1 |
| 34.31 | 42 | 8000 | 41800 | 5.8 | 101 | 86797/2530 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ B1 |
| 28.13 | 52 | 8000 | 38700 | 5.9 | 133 | 40223/1430 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3212 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|---|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 | |
| | KS | | A | | E | H | J | K | M | | | | | | | | | | | 1 | | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | 5 | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Helical gearboxes

Transmission ratios and torques

3

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | | | | |
|--------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|--|-------------|----|-----|-----|-----|-----------------|-----------------|------|-----|-----|-----|-----|-----|-----|-------------|--|--|--|-------------------------------------|--|--|-----|---------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | (Article No. supplement, see below) | | | | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | | | | | | | | | | | | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 816 | | | | | | | | | 818 | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | 320 | 360 | | | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | |
| Z.149 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 56.64 | 26 | 8000 | 50300 | 5.2 | 19 | 4814/85 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ W1 |
| 52.84 | 27 | 7710 | 49500 | 5.2 | 21 | 2378/45 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ V1 |
| 46.98 | 31 | 7570 | 47600 | 5.2 | 25 | 2349/50 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ U1 |
| 42.18 | 34 | 7660 | 45600 | 5.2 | 30 | 464/11 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ T1 |
| 38.18 | 38 | 7550 | 44100 | 5.2 | 35 | 2291/60 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ S1 |
| 33.54 | 43 | 8000 | 41400 | 5.2 | 43 | 3857/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ R1 |
| 30.39 | 48 | 8000 | 39900 | 5.2 | 50 | 3799/125 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ Q1 |
| 27.07 | 54 | 8000 | 38100 | 5.3 | 59 | 406/15 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ P1 |
| 24.30 | 60 | 8000 | 36600 | 5.3 | 70 | 2552/105 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ N1 |
| 21.69 | 67 | 8000 | 35000 | 5.3 | 81 | 2494/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ M1 |
| 19.33 | 75 | 8000 | 33400 | 5.4 | 96 | 58/3 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ L1 |
| 17.15 | 85 | 8000 | 31900 | 5.4 | 113 | 1972/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ K1 |
| 15.74 | 92 | 8000 | 30800 | 5.4 | 127 | 551/35 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ J1 |
| 13.87 | 105 | 8000 | 29200 | 5.5 | 150 | 319/23 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ H1 |
| 11.38 | 127 | 8000 | 28700 | 5.5 | 203 | 1479/130 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ G1 |
| 9.98 | 145 | 8000 | 28300 | 5.6 | 227 | 1247/125 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ F1 |
| 7.80 | 186 | 8000 | 27500 | 5.9 | 360 | 39/5 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ E1 |
| 7.27 | 199 | 4880 | 27500 | 7.5 | 173 | 836/115 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ D1 |
| 5.96 | 243 | 4870 | 26600 | 7.7 | 237 | 1938/325 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ C1 |
| 5.23 | 277 | 4870 | 26000 | 7.7 | 273 | 3268/625 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ B1 |
| 4.09 | 355 | 4870 | 24700 | 7.7 | 432 | 2964/725 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3112 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|--|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | 2 | |
| | KS | | A | | E | H | J | K | M | | | | | | | | | | | 1 | |
| | | | B | | F | J | | N | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 | | | |
| K3 | | A | | B | C | | D | E | F | | | | | | 3 | | | | | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | | | | |
|---------------|-------|----------|----------|-------------|-----------|---------------|---------|-----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|--|--|--|--|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | | 816 | | 818 | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | |
| D.169 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 327.18 | 4.4 | 14000 | 70100 | 5.0 | 18 | 472768 / 1445 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ V1 | |
| 305.28 | 4.7 | 14000 | 70100 | 5.0 | 19 | 233536 / 765 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ U1 | |
| 271.40 | 5.3 | 14000 | 70100 | 5.0 | 23 | 115344 / 425 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ T1 | |
| 243.68 | 6.0 | 14000 | 70100 | 5.0 | 28 | 45568 / 187 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ S1 | |
| 220.58 | 6.6 | 14000 | 70100 | 5.0 | 33 | 56248 / 255 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ R1 | |
| 193.75 | 7.5 | 14000 | 70100 | 5.0 | 40 | 378784 / 1955 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ Q1 | |
| 175.57 | 8.3 | 14000 | 70100 | 5.0 | 46 | 373088 / 2125 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ P1 | |
| 156.36 | 9.3 | 14000 | 70100 | 5.0 | 54 | 39872 / 255 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ N1 | |
| 140.41 | 10 | 14000 | 70100 | 5.0 | 64 | 250624 / 1785 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ M1 | |
| 125.28 | 12 | 14000 | 70100 | 5.0 | 74 | 244928 / 1955 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ L1 | |
| 111.69 | 13 | 14000 | 70100 | 5.0 | 85 | 5696 / 51 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ K1 | |
| 99.06 | 15 | 14000 | 70100 | 5.0 | 101 | 11392 / 115 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ J1 | |
| 90.94 | 16 | 14000 | 70100 | 5.0 | 112 | 54112 / 595 | | | | | | | √ ²⁾ | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ H1 | |
| 80.12 | 18 | 14000 | 70100 | 5.0 | 132 | 31328 / 391 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ G1 | |
| 65.72 | 22 | 14000 | 70100 | 5.1 | 176 | 4272 / 65 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ F1 | |
| 57.63 | 25 | 14000 | 70100 | 5.1 | 193 | 122464 / 2125 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ E1 | |
| 45.06 | 32 | 14000 | 70100 | 5.1 | 301 | 111072 / 2465 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ D1 | |
| 41.43 | 35 | 14000 | 70100 | 5.2 | 200 | 134657 / 3250 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ C1 | |
| 36.33 | 40 | 14000 | 70500 | 5.2 | 225 | 340603 / 9375 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ B1 | |
| 28.41 | 51 | 14000 | 69200 | 5.3 | 353 | 102973 / 3625 | | | | | | | | √ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3213 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | A | | | E | H | J | K | M | | | | | | | | | | | | | | 1 |
| | | B | | | F | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | E | | | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques

3

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | | |
|--------------|-------|----------|----------|-------------|-----------|-----------|--|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | | | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| Z.169 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36.55 | 40 | 12100 | 70800 | 4.7 | 79 | 13706/375 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3113 - ■ A0 ■ - 0 ■ Q1 | | |
| 32.88 | 44 | 14000 | 68200 | 4.7 | 94 | 11837/360 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | 2KJ3113 - ■ A0 ■ - 0 ■ P1 | | |
| 29.38 | 49 | 14000 | 65300 | 4.8 | 109 | 9256/315 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3113 - ■ A0 ■ - 0 ■ N1 | | |
| 26.57 | 55 | 14000 | 62900 | 4.8 | 131 | 9167/345 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3113 - ■ A0 ■ - 0 ■ M1 | | |
| 23.45 | 62 | 14000 | 60200 | 4.8 | 154 | 7387/315 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3113 - ■ A0 ■ - 0 ■ L1 | | |
| 20.90 | 69 | 14000 | 59400 | 4.8 | 183 | 2403/115 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ K1 | | |
| 18.93 | 77 | 14000 | 58600 | 4.8 | 203 | 5963/315 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ J1 | | |
| 17.03 | 85 | 14000 | 57800 | 4.8 | 245 | 1958/115 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ H1 | | |
| 14.15 | 102 | 14000 | 56100 | 4.8 | 308 | 2759/195 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ G1 | | |
| 12.58 | 115 | 13900 | 54900 | 4.8 | 377 | 4717/375 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ F1 | | |
| 10.03 | 145 | 13900 | 52600 | 5.1 | 521 | 4361/435 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ E1 | | |
| 7.98 | 182 | 13800 | 50100 | 5.3 | 689 | 1157/145 | | | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ D1 | | |
| 7.37 | 197 | 7960 | 49100 | 7.0 | 409 | 848/115 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ C1 | | |
| 5.88 | 247 | 7900 | 46700 | 7.1 | 571 | 3920/667 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ B1 | | |
| 4.68 | 310 | 7820 | 44200 | 7.3 | 768 | 3120/667 | | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3113 - ■ A0 ■ - 0 ■ A1 | | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | |
|------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/46 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | 2 |
| | KS | A | | E | H | J | K | M | | | | | | | 1 |
| | | B | | F | | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | 8 | |
| K5 | A | | B | C | | D | E | F | | G | H | | 5 | | |
| K3 | A | | B | C | | D | E | F | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | 9 | | |
| Adapter type | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Helical gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |

D.189

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-----|-------|--------|-----|-----|-------------|--|--|--|--|--|--|-----------------|-----------------|---|---|---|---|---|--|--|--|---------------------|
| 313.63 | 4.6 | 19000 | 107000 | 4.7 | 36 | 533169/1700 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3214 - A0 - 0 T1 |
| 280.59 | 5.2 | 19000 | 107000 | 4.7 | 43 | 262353/935 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3214 - A0 - 0 S1 |
| 253.06 | 5.7 | 19000 | 107000 | 4.7 | 49 | 172081/680 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3214 - A0 - 0 R1 |
| 223.66 | 6.5 | 19000 | 107000 | 4.7 | 61 | 87451/391 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3214 - A0 - 0 Q1 |
| 204.44 | 7.1 | 19000 | 107000 | 4.7 | 71 | 434434/2125 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3214 - A0 - 0 P1 |
| 183.92 | 7.9 | 19000 | 107000 | 4.7 | 84 | 375193/2040 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | 2KJ3214 - A0 - 0 N1 |
| 164.36 | 8.8 | 19000 | 107000 | 4.7 | 98 | 41912/255 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3214 - A0 - 0 M1 |
| 148.63 | 9.8 | 19000 | 107000 | 4.7 | 116 | 290563/1955 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3214 - A0 - 0 L1 |
| 131.17 | 11 | 19000 | 107000 | 4.7 | 136 | 33449/255 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 K1 |
| 116.88 | 12 | 19000 | 107000 | 4.7 | 160 | 228501/1955 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 J1 |
| 105.89 | 14 | 19000 | 107000 | 4.7 | 175 | 27001/255 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 H1 |
| 95.24 | 15 | 19000 | 107000 | 4.7 | 210 | 186186/1955 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 G1 |
| 79.14 | 18 | 19000 | 107000 | 4.7 | 257 | 6727/85 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 F1 |
| 70.36 | 21 | 19000 | 107000 | 4.7 | 314 | 149513/2125 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 E1 |
| 56.08 | 26 | 19000 | 107000 | 4.7 | 421 | 138229/2465 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3214 - A0 - 0 D1 |
| 44.63 | 32 | 19000 | 107000 | 4.8 | 531 | 110019/2465 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3214 - A0 - 0 C1 |
| 36.67 | 40 | 19000 | 104200 | 4.8 | 475 | 10633/290 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3214 - A0 - 0 B1 |
| 29.18 | 50 | 19000 | 97800 | 4.8 | 617 | 8463/290 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3214 - A0 - 0 A1 |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | | | | 1 |
| | | B | | | F | J | N | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | C | | D | | E | | | | | 8 | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | 5 | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|--------------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | | | | | | | | | | | | | | | |
| | | | | | | | | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| Z.189 | | | | | | | | | | | | | | | | | | | | | | | |
| 34.25 | 42 | 19000 | 101700 | 4.5 | 140 | 3596/105 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3114 - ■ A0 ■ - 0 ■ L1 | |
| 30.73 | 47 | 19000 | 97900 | 4.5 | 166 | 3534/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3114 - ■ A0 ■ - 0 ■ K1 | |
| 27.46 | 53 | 19000 | 94100 | 4.6 | 199 | 961/35 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3114 - ■ A0 ■ - 0 ■ J1 | |
| 24.53 | 59 | 19000 | 90400 | 4.6 | 236 | 2821/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3114 - ■ A0 ■ - 0 ■ H1 | |
| 22.44 | 65 | 19000 | 87500 | 4.6 | 262 | 2356/105 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ G1 | |
| 19.95 | 73 | 19000 | 83900 | 4.6 | 314 | 2294/115 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ F1 | |
| 16.93 | 86 | 19000 | 79000 | 4.6 | 400 | 2201/130 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ E1 | |
| 14.63 | 99 | 19000 | 74900 | 4.7 | 481 | 1829/125 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ D1 | |
| 11.97 | 121 | 19000 | 72500 | 4.8 | 666 | 1736/145 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ C1 | |
| 9.83 | 148 | 18800 | 70100 | 4.8 | 875 | 1426/145 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ B1 | |
| 7.65 | 190 | 16000 | 66800 | 4.8 | 1283 | 1147/150 | | | | | | | | | | | | | | ✓ | ✓ | 2KJ3114 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | |
|------------------------|---------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | 2 |
| | KS | A | | E | H | K | M | | | | | | | | | 1 |
| | | B | | F | J | N | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | |
| K8 | | | | | | | | C | | D | | E | | 8 | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | 9 | | |

Adapter type
 Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | | Article No. | | | |
|-------------|-------|----------|----------|-------------|-----------|----------|---------|-----|-----|-----|-----------------|-------------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-------------|--|-------------------------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | |
| | | | | | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | | |
| | | | | | | | K5 | 56 | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | | | |
| | | | | | | | K3 | 56 | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | |
| E.39 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.22 | 157 | 30 | 3000 | - | 0.001 | 83/9 | ✓ | ✓ | | | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ S1 | |
| 8.20 | 177 | 34 | 3000 | - | 0.001 | 41/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ R1 | |
| 7.20 | 201 | 40 | 3000 | - | 0.003 | 36/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ Q1 | |
| 6.55 | 221 | 40 | 3000 | - | 0.004 | 72/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ P1 | |
| 5.60 | 259 | 40 | 3000 | - | 0.007 | 28/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ N1 | |
| 5.09 | 285 | 40 | 3000 | - | 0.01 | 56/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ M1 | |
| 4.50 | 322 | 48 | 3000 | - | 0.02 | 9/2 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ L1 | |
| 4.09 | 355 | 48 | 3000 | - | 0.02 | 45/11 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ K1 | |
| 3.58 | 405 | 58 | 2550 | - | 0.03 | 43/12 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ J1 | |
| 3.31 | 438 | 58 | 2400 | - | 0.05 | 43/13 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ H1 | |
| 2.93 | 495 | 65 | 1620 | - | 0.07 | 41/14 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ G1 | |
| 2.44 | 594 | 65 | 1200 | - | 0.13 | 39/16 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ F1 | |
| 2.29 | 633 | 66 | 1330 | - | 0.16 | 39/17 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ E1 | |
| 2.06 | 704 | 66 | 1370 | - | 0.19 | 37/18 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ D1 | |
| 1.75 | 829 | 66 | 1490 | - | 0.29 | 7/4 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ C1 | |
| 1.50 | 967 | 61 | 1560 | - | 0.45 | 3/2 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ B1 | |
| 1.29 | 1124 | 54 | 1600 | - | 0.64 | 31/24 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | 2KJ3001 - ■ ■ A0 ■ - 0 ■ ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------------------|--|--|----------|----------|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | see page 9/46 | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | 4 | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | 1 | | | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | C | | D | | E | | | | | | 8 | | |
| K5 | | | | A | | B | C | | D | E | F | | G | H | | | | | | 5 | | |
| K3 | | | | A | | B | C | | D | E | F | | | | | | | | | | | 3 |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | | |

Adapter type

Gearbox mounting type **A, B, F or H** [see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|----------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------------|--|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | kgm ² | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |

| E.49 | | | | | | | | | | | | | | | | | | | | | Article No. | | | |
|-------------|------|-----|------|---|-------|-------|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|--|-------------|--|--|---------------------------|
| 9.70 | 149 | 86 | 4000 | - | 0.003 | 97/10 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ S1 |
| 8.82 | 164 | 108 | 4000 | - | 0.004 | 97/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ R1 |
| 7.50 | 193 | 107 | 4000 | - | 0.007 | 15/2 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ Q1 |
| 6.82 | 213 | 104 | 4000 | - | 0.01 | 75/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ P1 |
| 6.08 | 238 | 104 | 4000 | - | 0.02 | 73/12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ N1 |
| 5.45 | 266 | 103 | 4000 | - | 0.02 | 60/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ M1 |
| 4.92 | 295 | 102 | 4000 | - | 0.03 | 59/12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ L1 |
| 4.54 | 319 | 102 | 4000 | - | 0.05 | 59/13 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ K1 |
| 4.14 | 350 | 102 | 4000 | - | 0.09 | 29/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ J1 |
| 3.44 | 422 | 101 | 3510 | - | 0.15 | 55/16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ H1 |
| 3.24 | 448 | 101 | 3350 | - | 0.19 | 55/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ G1 |
| 3.06 | 474 | 101 | 3200 | - | 0.23 | 55/18 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ F1 |
| 2.60 | 558 | 102 | 2540 | - | 0.36 | 13/5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ E1 |
| 2.23 | 650 | 102 | 1930 | - | 0.55 | 49/22 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ D1 |
| 1.96 | 740 | 103 | 1420 | - | 0.78 | 47/24 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ C1 |
| 1.65 | 879 | 103 | 975 | - | 1.1 | 38/23 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ B1 |
| 1.44 | 1007 | 102 | 1140 | - | 1.81 | 36/25 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | 2KJ3002 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | E | | | | | 8 |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 | |
| K3 | | A | | B | C | | D | E | F | | | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|----------|-----------------------|------------------------|------------------------|----------------------|--------------------------------------|------------------------|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------------|--|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |

E.69

| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | Article No. | |
|----------|-----------------------|------------------------|------------------------|--------|-----------------------|------------------------|----|----|----|----|----|-----|-----|-----------------|-----|-----|-----|-----|-----|-----|-----|---------------------------|---------------------------|
| 9.30 | 156 | 120 | 6100 | - | 0.007 | 93/10 | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ S1 | |
| 8.45 | 172 | 105 | 6100 | - | 0.01 | 93/11 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ R1 |
| 7.58 | 191 | 205 | 6100 | - | 0.02 | 91/12 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ Q1 |
| 6.82 | 213 | 170 | 6100 | - | 0.02 | 75/11 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ P1 |
| 6.17 | 235 | 205 | 6100 | - | 0.03 | 37/6 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ N1 |
| 5.69 | 255 | 165 | 6100 | - | 0.05 | 74/13 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ M1 |
| 5.21 | 278 | 200 | 6100 | - | 0.09 | 73/14 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ L1 |
| 4.38 | 331 | 200 | 6100 | - | 0.15 | 35/8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ K1 |
| 4.12 | 352 | 165 | 6100 | - | 0.19 | 70/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ J1 |
| 3.78 | 384 | 200 | 6100 | - | 0.23 | 34/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ H1 |
| 3.30 | 439 | 200 | 6100 | - | 0.36 | 33/10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ G1 |
| 2.95 | 492 | 200 | 5680 | - | 0.55 | 65/22 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ F1 |
| 2.58 | 562 | 197 | 5120 | - | 0.78 | 31/12 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ E1 |
| 2.22 | 653 | 196 | 4500 | - | 1.10 | 51/23 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ D1 |
| 1.96 | 740 | 196 | 4050 | - | 1.81 | 49/25 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ C1 |
| 1.67 | 868 | 196 | 4130 | - | 2.6 | 5/3 | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ B1 |
| 1.43 | 1014 | 195 | 4170 | - | 3.7 | 10/7 | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3003 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | 4 |
| | K2 | | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | 2 |
| | KS | A | | | | E | H | K | M | | | | | | | | 1 | | | | |
| | | B | | | | F | J | N | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | C | D | E | | | | | | | | 8 | |
| K5 | A | | | B | C | D | | | E | F | G | | | H | | | | | 5 | | |
| K3 | A | | | B | C | D | | | E | F | | | | | 3 | | | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | | | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|-------------|-----------------------|------------------------|------------------------|----------------------|--------------------------------------|------------------------|---------|----|-----|----|-----|-----|-----|------|-----------------|-----|-----|-----|-----|-----|-------------|--|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| E.89 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.67 | 150 | 280 | 8000 | - | 0.02 | 29/3 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ T1 |
| 8.73 | 166 | 280 | 8000 | - | 0.02 | 96/11 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ S1 |
| 7.92 | 183 | 280 | 8000 | - | 0.03 | 95/12 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ R1 |
| 7.31 | 198 | 260 | 8000 | - | 0.05 | 95/13 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ Q1 |
| 6.64 | 218 | 260 | 8000 | - | 0.09 | 93/14 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ P1 |
| 5.62 | 258 | 320 | 8000 | - | 0.15 | 45/8 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ N1 |
| 5.29 | 274 | 210 | 8000 | - | 0.19 | 90/17 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ M1 |
| 4.89 | 297 | 360 | 8000 | - | 0.23 | 44/9 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ L1 |
| 4.35 | 333 | 360 | 8000 | - | 0.36 | 87/20 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ K1 |
| 3.86 | 376 | 360 | 7520 | - | 0.55 | 85/22 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ J1 |
| 3.46 | 419 | 365 | 6830 | - | 0.78 | 83/24 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ H1 |
| 2.96 | 490 | 360 | 6030 | - | 1.1 | 68/23 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ G1 |
| 2.64 | 549 | 360 | 5410 | - | 1.81 | 66/25 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ F1 |
| 2.33 | 622 | 360 | 5260 | - | 2.6 | 7/3 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ E1 |
| 2.05 | 707 | 360 | 5430 | - | 3.7 | 43/21 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ D1 |
| 1.78 | 815 | 365 | 5550 | - | 5.4 | 41/23 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ C1 |
| 1.52 | 954 | 360 | 5580 | - | 7.6 | 32/21 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ B1 |
| 1.3 | 1115 | 360 | 5580 | - | 11 | 30/23 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3004 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | C | | D | E | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 |
| | K3 | | A | | B | C | | D | E | F | | | | | | 3 | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|--------------|-----------------------|------------------------|------------------------|----------------------|--------------------------------------|------------------------|---------|----|-----|-----------------|-----------------|-----|-----|------|-----|-----|-----|-----------------|-----|-----|-------------|---------------------------|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| E.109 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.19 | 202 | 565 | 10500 | - | 0.15 | 115/16 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ Q1 | | |
| 6.76 | 214 | 565 | 10500 | - | 0.19 | 115/17 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ P1 | | |
| 6.28 | 231 | 565 | 10500 | - | 0.23 | 113/18 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ N1 | | |
| 5.55 | 261 | 560 | 10500 | - | 0.36 | 111/20 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ M1 | | |
| 4.95 | 293 | 560 | 10500 | - | 0.55 | 109/22 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ L1 | | |
| 4.46 | 325 | 560 | 10500 | - | 0.78 | 107/24 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ K1 | | |
| 3.87 | 375 | 555 | 10000 | - | 1.10 | 89/23 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ J1 | | |
| 3.48 | 417 | 550 | 9390 | - | 1.81 | 87/25 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ H1 | | |
| 3.04 | 477 | 545 | 8440 | - | 2.6 | 73/24 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3005 - ■ A0 ■ - 0 ■ G1 | | |
| 2.71 | 535 | 545 | 7670 | - | 3.7 | 19/7 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ F1 | | |
| 2.39 | 607 | 540 | 6850 | - | 5.4 | 55/23 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ E1 | | |
| 2.10 | 690 | 535 | 5980 | - | 7.8 | 44/21 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ D1 | | |
| 1.83 | 792 | 530 | 5060 | - | 11 | 42/23 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ C1 | | |
| 1.67 | 868 | 530 | 5170 | - | 14 | 5/3 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ B1 | | |
| 1.43 | 1014 | 465 | 5420 | - | 21 | 33/23 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3005 - ■ A0 ■ - 0 ■ A1 | | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 | | |
| | KS | | A | | | E | H | K | M | | | | | | | | | 1 | | |
| | | | B | | | F | J | | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | | E | | | | 8 | | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | 3 | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | | | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

3

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|--------------|-----------------------|------------------------|------------------------|----------------------|--------------------------------------|------------------------|---------|----|-----|-----------------|-----------------|-----|-----|------|-----|-----|-----|-----|-----------------|-----|-------------|--|---------------------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| E.129 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.79 | 148 | 665 | 13500 | - | 0.09 | 137/14 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ T1 | |
| 8.38 | 173 | 665 | 13500 | - | 0.15 | 67/8 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ S1 | |
| 7.88 | 184 | 665 | 13500 | - | 0.19 | 134/17 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ R1 | |
| 7.39 | 196 | 800 | 13500 | - | 0.23 | 133/18 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ Q1 | |
| 6.55 | 221 | 800 | 13100 | - | 0.36 | 131/20 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ P1 | |
| 5.82 | 249 | 800 | 12500 | - | 0.55 | 64/11 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ N1 | |
| 5.25 | 276 | 795 | 12000 | - | 0.78 | 21/4 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ M1 | |
| 4.65 | 312 | 795 | 11100 | - | 1.10 | 107/23 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ L1 | |
| 4.12 | 352 | 785 | 10200 | - | 1.81 | 103/25 | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ K1 | |
| 3.67 | 395 | 780 | 9380 | - | 2.6 | 11/3 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ J1 | |
| 3.29 | 441 | 780 | 8570 | - | 3.7 | 23/7 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ H1 | |
| 2.91 | 498 | 770 | 7780 | - | 5.4 | 67/23 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3006 - ■ A0 ■ - 0 ■ G1 | |
| 2.57 | 564 | 765 | 6880 | - | 9.5 | 18/7 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ F1 | |
| 2.26 | 642 | 760 | 5930 | - | 14 | 52/23 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ E1 | |
| 2.05 | 707 | 765 | 5450 | - | 18 | 43/21 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ D1 | |
| 1.78 | 815 | 760 | 5830 | - | 25 | 41/23 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ C1 | |
| 1.46 | 993 | 755 | 6190 | - | 40 | 19/13 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ B1 | |
| 1.24 | 1169 | 745 | 6350 | - | 66 | 31/25 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | 2KJ3006 - ■ A0 ■ - 0 ■ A1 | |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | see page 9/46 | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 |
| | K2 | | | | D | E | F | G | H | J | K | L | M | N | P | Q | | 2 |
| | KS | | | A | | | E | H | K | | | | | | | | | 1 |
| | | | | B | | | F | J | | | | | | | | | | |
| | | | | C | | | | | | | | | | | | | | |
| | | | | D | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | D | E | | | | | 8 |
| K5 | | | | A | B | C | D | E | F | G | H | | | | | 5 | | |
| K3 | | | | A | B | C | D | E | F | | | | | 3 | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for high speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | |
|--------------|-------|----------|----------|-------------|----------------|----------|---------|----|-----|-----|-----|-----------------|-----------------|------|-----|-----|-----|-----|-----|-----|-------------|--|-----------------------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| E.149 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.76 | 149 | 1200 | 16000 | - | 0.17 | 166/17 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ S1 | |
| 9.11 | 159 | 1260 | 16000 | - | 0.22 | 82/9 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ R1 | |
| 8.10 | 179 | 1330 | 15200 | - | 0.33 | 81/10 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ Q1 | |
| 7.27 | 199 | 1350 | 14300 | - | 0.5 | 80/11 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ P1 | |
| 6.58 | 220 | 1330 | 13500 | - | 0.69 | 79/12 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ N1 | |
| 5.78 | 251 | 1490 | 10800 | - | 1.08 | 133/23 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ M1 | |
| 5.24 | 277 | 1490 | 9900 | - | 1.58 | 131/25 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ L1 | |
| 4.67 | 310 | 1480 | 8900 | - | 2.3 | 14/3 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ K1 | |
| 4.19 | 346 | 1480 | 7940 | - | 4.0 | 88/21 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ J1 | |
| 3.74 | 388 | 1480 | 6890 | - | 4.6 | 86/23 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ H1 | |
| 3.33 | 435 | 1480 | 5850 | - | 6.7 | 10/3 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ G1 | |
| 2.96 | 490 | 1460 | 4950 | - | 9.6 | 68/23 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ F1 | |
| 2.71 | 535 | 1460 | 4140 | - | 12 | 19/7 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ E1 | |
| 2.39 | 607 | 1460 | 3530 | - | 18 | 55/23 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ D1 | |
| 1.96 | 740 | 1470 | 4840 | - | 9.6 | 51/26 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ C1 | |
| 1.72 | 843 | 1460 | 5130 | - | 42 | 43/25 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ B1 | |
| 1.34 | 1082 | 1280 | 5810 | - | 119 | 39/29 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3007 - ■ ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | 2 | |
| | KS | A | | E | H | K | M | | | | | | | | | | 1 | |
| | | B | | F | J | N | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | E | | | | | 8 |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 | |
| K3 | | A | | B | C | | D | E | F | | | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|----------------------|--|-----------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| D.29-Z19 | | | | | | | | | | | | | |
| 8025 | 0.18 | 140 | 3710 | - | 0.08 | 1966032/245 | ✓ | | | | | | 2KJ3221 - ■ A0 ■ - 0 ■ C1 |
| 7183 | 0.20 | 140 | 3710 | - | 0.11 | 251652096/35035 | ✓ | | | | | | 2KJ3221 - ■ A0 ■ - 0 ■ B1 |
| 6379 | 0.23 | 140 | 3710 | - | 0.13 | 20315664/3185 | ✓ | | | | | | 2KJ3221 - ■ A0 ■ - 0 ■ A1 |
| Z.29-D19 | | | | | | | | | | | | | |
| 5890 | 0.25 | 140 | 3710 | - | 0.02 | 13399254/2275 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ P1 |
| 5215 | 0.28 | 140 | 3710 | - | 0.03 | 118648233/22750 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ N1 |
| 4531 | 0.32 | 140 | 3710 | - | 0.04 | 103087809/22750 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ M1 |
| 4119 | 0.35 | 140 | 3710 | - | 0.04 | 9371619/2275 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ L1 |
| 3505 | 0.41 | 140 | 3710 | - | 0.06 | 79747173/22750 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ K1 |
| 3187 | 0.45 | 140 | 3710 | - | 0.07 | 7249743/2275 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ J1 |
| 2779 | 0.52 | 140 | 3710 | - | 0.08 | 1945053/700 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ H1 |
| 2487 | 0.58 | 140 | 3710 | - | 0.11 | 5658336/2275 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ G1 |
| 2209 | 0.66 | 140 | 3710 | - | 0.13 | 20098881/9100 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ F1 |
| 2039 | 0.71 | 140 | 3710 | - | 0.16 | 60296643/29575 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ E1 |
| 1771 | 0.82 | 140 | 3710 | - | 0.17 | 56406537/31850 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ D1 |
| 1539 | 0.94 | 140 | 3710 | - | 0.18 | 17505477/11375 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ C1 |
| 1389 | 1.0 | 140 | 3710 | - | 0.22 | 1945053/1400 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ B1 |
| 1308 | 1.1 | 140 | 3710 | - | 0.26 | 3890106/2975 | ✓ | | | | | | 2KJ3121 - ■ A0 ■ - 0 ■ A1 |
| Z.29-Z19 | | | | | | | | | | | | | |
| 1114 | 1.3 | 140 | 3710 | - | 0.02 | 362142/325 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ P1 |
| 987 | 1.5 | 140 | 3710 | - | 0.03 | 3206709/3250 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ N1 |
| 857 | 1.7 | 140 | 3710 | - | 0.04 | 2786157/3250 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ M1 |
| 779 | 1.9 | 140 | 3710 | - | 0.05 | 253287/325 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ L1 |
| 663 | 2.2 | 140 | 3710 | - | 0.07 | 2155329/3250 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ K1 |
| 603 | 2.4 | 140 | 3710 | - | 0.08 | 195939/325 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ J1 |
| 526 | 2.8 | 140 | 3710 | - | 0.09 | 52569/100 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ H1 |
| 471 | 3.1 | 140 | 3710 | - | 0.12 | 152928/325 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ G1 |
| 418 | 3.5 | 140 | 3710 | - | 0.15 | 543213/1300 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ F1 |
| 386 | 3.8 | 140 | 3710 | - | 0.18 | 1629639/4225 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ E1 |
| 335.06 | 4.3 | 140 | 3710 | - | 0.20 | 1524501/4550 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ D1 |
| 291.15 | 5.0 | 140 | 3710 | - | 0.21 | 473121/1625 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ C1 |
| 262.85 | 5.5 | 140 | 3710 | - | 0.27 | 52569/200 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ B1 |
| 247.38 | 5.9 | 140 | 3710 | - | 0.32 | 105138/425 | ✓ | | | | | | 2KJ3120 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | |
|------------------------|--------------|------------------|--------|--------|---|--------|
| Shaft design | 1 or 9 | see page 9/46 | | | | |
| Adapter size | KS | A B C D | E F | H J | K | M N |
| Adapter type | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | |

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|----------------------|---|------------|---------|-----|-----|-----|-----|-------------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10 ⁻⁴ kgm ² | R_{ex} | KS | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | (Article No. supplement, see below) |
| - | | | | | | | | 3.2 | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | |
| | | | | | | | | 4.2 | | | | | |
| D.39-D19 | | | | | | | | | | | | | |
| 8760 | 0.17 | 200 | 4370 | - | 0.08 | 744588/85 | ✓ | | | | | | 2KJ3223 - ■ A0 ■ - 0 ■ A1 |
| Z.39-D19 | | | | | | | | | | | | | |
| 8075 | 0.18 | 200 | 4370 | - | 0.02 | 201872/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ P1 |
| 7150 | 0.2 | 200 | 4370 | - | 0.03 | 893772/125 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ N1 |
| 6212 | 0.23 | 200 | 4370 | - | 0.04 | 776556/125 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ M1 |
| 5648 | 0.26 | 200 | 4370 | - | 0.04 | 141192/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ L1 |
| 4806 | 0.3 | 200 | 4370 | - | 0.06 | 600732/125 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ K1 |
| 4369 | 0.33 | 200 | 4370 | - | 0.07 | 109224/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ J1 |
| 3810 | 0.38 | 200 | 4370 | - | 0.08 | 95238/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ H1 |
| 3410 | 0.43 | 200 | 4370 | - | 0.11 | 85248/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ G1 |
| 3028 | 0.48 | 200 | 4370 | - | 0.13 | 75702/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ F1 |
| 2795 | 0.52 | 200 | 4370 | - | 0.16 | 908424/325 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ E1 |
| 2428 | 0.6 | 200 | 4370 | - | 0.17 | 424908/175 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ D1 |
| 2110 | 0.69 | 200 | 4370 | - | 0.18 | 263736/125 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ C1 |
| 1905 | 0.76 | 200 | 4370 | - | 0.22 | 47619/25 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ B1 |
| 1793 | 0.81 | 200 | 4370 | - | 0.26 | 761904/425 | ✓ | | | | | | 2KJ3123 - ■ A0 ■ - 0 ■ A1 |
| Z.39-Z19 | | | | | | | | | | | | | |
| 1528 | 0.95 | 200 | 4370 | - | 0.02 | 38192/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ S1 |
| 1353 | 1.1 | 200 | 4370 | - | 0.03 | 169092/125 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ R1 |
| 1175 | 1.2 | 200 | 4370 | - | 0.04 | 146916/125 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ Q1 |
| 1068 | 1.4 | 200 | 4370 | - | 0.05 | 26712/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ P1 |
| 909 | 1.6 | 200 | 4370 | - | 0.07 | 113652/125 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ N1 |
| 827 | 1.8 | 200 | 4370 | - | 0.08 | 20664/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ M1 |
| 721 | 2.0 | 200 | 4370 | - | 0.09 | 18018/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ L1 |
| 645 | 2.2 | 200 | 4370 | - | 0.12 | 16128/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ K1 |
| 573 | 2.5 | 200 | 4370 | - | 0.15 | 14322/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ J1 |
| 529 | 2.7 | 200 | 4370 | - | 0.18 | 171864/325 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ H1 |
| 459 | 3.2 | 200 | 4370 | - | 0.20 | 11484/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ G1 |
| 399 | 3.6 | 200 | 4370 | - | 0.21 | 49896/125 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ F1 |
| 360 | 4.0 | 200 | 4370 | - | 0.27 | 9009/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ E1 |
| 339.16 | 4.3 | 200 | 4370 | - | 0.32 | 144144/425 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ D1 |
| 295.68 | 4.9 | 200 | 4370 | - | 0.36 | 7392/25 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ C1 |
| 272.80 | 5.3 | 200 | 4370 | - | 0.19 | 1364/5 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ B1 |
| 236.97 | 6.1 | 200 | 4370 | - | 0.22 | 8294/35 | ✓ | | | | | | 2KJ3122 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | | |
|------------------------|--------------|--|--|---------------|---|---|---|---|---|--|--|--|--|
| Shaft design | 1 or 9 | | | see page 9/46 | | | | | | | | | |
| Adapter size | KS | | | A | E | H | K | M | 1 | | | | |
| | | | | B | F | J | | N | | | | | |
| | | | | C | | | | | | | | | |
| | | | | D | | | | | | | | | |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | see page 9/40 | | | | | | | | | |

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|----------------------|---|-----------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10 ⁻⁴ kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| D.49-D19 | | | | | | | | | | | | | |
| 13709 | 0.11 | 320 | 5780 | - | 0.06 | 9980343/728 | ✓ | | | | | | 2KJ3225 - ■ A0 ■ - 0 ■ D1 |
| 12463 | 0.12 | 320 | 5780 | - | 0.07 | 49901715/4004 | ✓ | | | | | | 2KJ3225 - ■ A0 ■ - 0 ■ C1 |
| 10867 | 0.13 | 320 | 5780 | - | 0.08 | 1217115/112 | ✓ | | | | | | 2KJ3225 - ■ A0 ■ - 0 ■ B1 |
| 9727 | 0.15 | 320 | 5780 | - | 0.11 | 9736920/1001 | ✓ | | | | | | 2KJ3225 - ■ A0 ■ - 0 ■ A1 |
| Z.49-D19 | | | | | | | | | | | | | |
| 9638 | 0.15 | 320 | 5900 | - | 0.02 | 52625507/5460 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ P1 |
| 8535 | 0.17 | 320 | 5900 | - | 0.03 | 310660251/36400 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ N1 |
| 7415 | 0.20 | 320 | 5900 | - | 0.04 | 269917923/36400 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ M1 |
| 6741 | 0.22 | 320 | 5900 | - | 0.04 | 24537993/3640 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ L1 |
| 5736 | 0.25 | 320 | 5900 | - | 0.06 | 208804431/36400 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ K1 |
| 5215 | 0.28 | 320 | 5900 | - | 0.07 | 18982221/3640 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ J1 |
| 4547 | 0.32 | 320 | 5900 | - | 0.08 | 5092791/1120 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ H1 |
| 4070 | 0.36 | 320 | 5900 | - | 0.11 | 1851924/455 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ G1 |
| 3614 | 0.40 | 320 | 5900 | - | 0.13 | 52625507/14560 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ F1 |
| 3336 | 0.43 | 320 | 5900 | - | 0.16 | 157876521/47320 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ E1 |
| 2898 | 0.50 | 320 | 5900 | - | 0.17 | 147690939/50960 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ D1 |
| 2518 | 0.58 | 320 | 5900 | - | 0.18 | 45835119/18200 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ C1 |
| 2274 | 0.64 | 320 | 5900 | - | 0.22 | 5092791/2240 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ B1 |
| 2140 | 0.68 | 320 | 5900 | - | 0.26 | 5092791/2380 | ✓ | | | | | | 2KJ3125 - ■ A0 ■ - 0 ■ A1 |
| Z.49-Z19 | | | | | | | | | | | | | |
| 1823 | 0.80 | 320 | 5900 | - | 0.02 | 1422311/780 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ S1 |
| 1615 | 0.90 | 320 | 5900 | - | 0.03 | 8396223/5200 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ R1 |
| 1403 | 1.0 | 320 | 5900 | - | 0.04 | 7295079/5200 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ Q1 |
| 1275 | 1.1 | 320 | 5900 | - | 0.05 | 663189/520 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ P1 |
| 1085 | 1.3 | 320 | 5900 | - | 0.07 | 5643363/5200 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ N1 |
| 987 | 1.5 | 320 | 5900 | - | 0.08 | 513033/520 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ M1 |
| 860 | 1.7 | 320 | 5900 | - | 0.09 | 137643/160 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ L1 |
| 770 | 1.9 | 320 | 5900 | - | 0.12 | 50052/65 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ K1 |
| 684 | 2.1 | 320 | 5900 | - | 0.15 | 1422311/2080 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ J1 |
| 631 | 2.3 | 320 | 5900 | - | 0.18 | 4266933/6760 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ H1 |
| 548 | 2.6 | 320 | 5900 | - | 0.20 | 3991647/7280 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ G1 |
| 476 | 3.0 | 320 | 5900 | - | 0.21 | 1238787/2600 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ F1 |
| 430 | 3.4 | 320 | 5900 | - | 0.27 | 137643/320 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ E1 |
| 405 | 3.6 | 320 | 5900 | - | 0.32 | 137643/340 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ D1 |
| 353 | 4.1 | 320 | 5900 | - | 0.36 | 45881/130 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ C1 |
| 325.62 | 4.5 | 320 | 5900 | - | 0.19 | 1422311/4368 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ B1 |
| 282.85 | 5.1 | 320 | 5900 | - | 0.22 | 1330549/4704 | ✓ | | | | | | 2KJ3124 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

Article No. supplement

| | | |
|-----------------------|--------------|-----------------------|
| Shaft design | 1 or 9 | see page 9/46 |
| Adapter size | KS | A B C D E F H J K M N |
| Adapter type | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 |

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-----------------|-------|----------|----------|----------------------|-----------|----------------|---------|-----|-----|-----|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | KS | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | 3.2 | 5.2 | 6.2 | | 10.2 | |
| | | | | | kgm^2 | | | 4.1 | | | | | |
| | | | | | | | | 4.2 | | | | | |
| D.59-D19 | | | | | | | | | | | | | |
| 14985 | 0.10 | 450 | 7660 | - | 0.06 | 10908747/728 | ✓ | | | | | | 2KJ3227 - ■ A0 ■ - 0 ■ D1 |
| 13622 | 0.11 | 450 | 7660 | - | 0.07 | 54543735/4004 | ✓ | | | | | | 2KJ3227 - ■ A0 ■ - 0 ■ C1 |
| 11878 | 0.12 | 450 | 7660 | - | 0.08 | 1330335/112 | ✓ | | | | | | 2KJ3227 - ■ A0 ■ - 0 ■ B1 |
| 10632 | 0.14 | 450 | 7660 | - | 0.11 | 10642680/1001 | ✓ | | | | | | 2KJ3227 - ■ A0 ■ - 0 ■ A1 |
| D.59-D19 | | | | | | | | | | | | | |
| 739 | 2.0 | 450 | 7660 | - | 0.22 | 579275/784 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ J1 |
| 642 | 2.3 | 450 | 7660 | - | 0.23 | 35955/56 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ H1 |
| 580 | 2.5 | 450 | 7660 | - | 0.30 | 259675/448 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ G1 |
| 546 | 2.7 | 450 | 7660 | - | 0.35 | 15275/28 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ F1 |
| 507 | 2.9 | 450 | 7660 | - | 0.20 | 1362295/2688 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ E1 |
| 440 | 3.3 | 450 | 7660 | - | 0.23 | 16567265/37632 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ D1 |
| 383 | 3.8 | 450 | 7660 | - | 0.24 | 342771/896 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ C1 |
| 345.36 | 4.2 | 450 | 7660 | - | 0.31 | 7426705/21504 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ B1 |
| 325.05 | 4.5 | 450 | 7660 | - | 0.37 | 436865/1344 | ✓ | | | | | | 2KJ3226 - ■ A0 ■ - 0 ■ A1 |
| Z.59-D19 | | | | | | | | | | | | | |
| 9577 | 0.15 | 450 | 7660 | - | 0.02 | 5229173/546 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ P1 |
| 8480 | 0.17 | 450 | 7660 | - | 0.03 | 30868989/3640 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ N1 |
| 7368 | 0.20 | 450 | 7660 | - | 0.04 | 26820597/3640 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ M1 |
| 6698 | 0.22 | 450 | 7660 | - | 0.04 | 26820597/4004 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ L1 |
| 5700 | 0.25 | 450 | 7660 | - | 0.06 | 20748009/3640 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ K1 |
| 5182 | 0.28 | 450 | 7660 | - | 0.07 | 20748009/4004 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ J1 |
| 4518 | 0.32 | 450 | 7660 | - | 0.08 | 506049/112 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ H1 |
| 4044 | 0.36 | 450 | 7660 | - | 0.11 | 4048392/1001 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ G1 |
| 3591 | 0.40 | 450 | 7660 | - | 0.13 | 5229173/1456 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ F1 |
| 3315 | 0.44 | 450 | 7660 | - | 0.16 | 15687519/4732 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ E1 |
| 2880 | 0.50 | 450 | 7660 | - | 0.17 | 14675421/5096 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ D1 |
| 2502 | 0.58 | 450 | 7660 | - | 0.18 | 4554441/1820 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ C1 |
| 2259 | 0.64 | 450 | 7660 | - | 0.22 | 506049/224 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ B1 |
| 2126 | 0.68 | 450 | 7660 | - | 0.26 | 506049/238 | ✓ | | | | | | 2KJ3127 - ■ A0 ■ - 0 ■ A1 |
| Z.59-Z19 | | | | | | | | | | | | | |
| 1812 | 0.80 | 450 | 7660 | - | 0.02 | 141329/78 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ G1 |
| 1604 | 0.90 | 450 | 7660 | - | 0.03 | 834297/520 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ F1 |
| 1394 | 1.0 | 450 | 7660 | - | 0.04 | 724881/520 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ E1 |
| 1267 | 1.1 | 450 | 7660 | - | 0.05 | 724881/572 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ D1 |
| 1078 | 1.3 | 450 | 7660 | - | 0.07 | 560757/520 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ C1 |
| 980 | 1.5 | 450 | 7660 | - | 0.08 | 560757/572 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ B1 |
| 855 | 1.7 | 450 | 7660 | - | 0.09 | 13677/16 | ✓ | | | | | | 2KJ3126 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | | |
|------------------------|--------------|--|--|---------------|---|---|---|---|---|--|--|--|--|
| Shaft design | 1 or 9 | | | see page 9/46 | | | | | | | | | |
| Adapter size | KS | | | A | E | H | K | M | 1 | | | | |
| | | | | B | F | J | | N | | | | | |
| | | | | C | | | | | | | | | |
| | | | | D | | | | | | | | | |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | see page 9/40 | | | | | | | | | |

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|----------------------|--|---------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| D.69-D19 | | | | | | | | | | | | | |
| 14575 | 0.10 | 600 | 11000 | - | 0.07 | 9284040/637 | ✓ | | | | | | 2KJ3230 - ■ A0 ■ - 0 ■ C1 |
| 12708 | 0.11 | 600 | 11000 | - | 0.08 | 622710/49 | ✓ | | | | | | 2KJ3230 - ■ A0 ■ - 0 ■ B1 |
| 11375 | 0.13 | 600 | 11000 | - | 0.11 | 7246080/637 | ✓ | | | | | | 2KJ3230 - ■ A0 ■ - 0 ■ A1 |
| D.69-Z19 | | | | | | | | | | | | | |
| 1532 | 0.95 | 600 | 11000 | - | 0.20 | 976140/637 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ Q1 |
| 1332 | 1.1 | 600 | 11000 | - | 0.21 | 121176/91 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ P1 |
| 1202 | 1.2 | 600 | 11000 | - | 0.27 | 8415/7 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ N1 |
| 1131 | 1.3 | 600 | 11000 | - | 0.32 | 7920/7 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ M1 |
| 986 | 1.5 | 600 | 11000 | - | 0.37 | 89760/91 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ L1 |
| 910 | 1.6 | 600 | 11000 | - | 0.19 | 579700/637 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ K1 |
| 791 | 1.8 | 600 | 11000 | - | 0.22 | 271150/343 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ J1 |
| 687 | 2.1 | 600 | 11000 | - | 0.23 | 33660/49 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ H1 |
| 620 | 2.3 | 600 | 11000 | - | 0.30 | 60775/98 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ G1 |
| 584 | 2.5 | 600 | 11000 | - | 0.35 | 28600/49 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ F1 |
| 542 | 2.7 | 600 | 11000 | - | 0.20 | 318835/588 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ E1 |
| 471 | 3.1 | 600 | 11000 | - | 0.23 | 3877445/8232 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ D1 |
| 409 | 3.5 | 600 | 11000 | - | 0.24 | 80223/196 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ C1 |
| 370 | 3.9 | 600 | 11000 | - | 0.31 | 1738165/4704 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ B1 |
| 347.77 | 4.2 | 600 | 11000 | - | 0.37 | 102245/294 | ✓ | | | | | | 2KJ3228 - ■ A0 ■ - 0 ■ A1 |
| Z.69-D19 | | | | | | | | | | | | | |
| 10247 | 0.14 | 600 | 11000 | - | 0.02 | 19581584/1911 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ Q1 |
| 9073 | 0.16 | 600 | 11000 | - | 0.03 | 28898628/3185 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ P1 |
| 7883 | 0.18 | 600 | 11000 | - | 0.04 | 25108644/3185 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ N1 |
| 7167 | 0.2 | 600 | 11000 | - | 0.04 | 4565208/637 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ M1 |
| 6098 | 0.24 | 600 | 11000 | - | 0.06 | 19423668/3185 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ L1 |
| 5544 | 0.26 | 600 | 11000 | - | 0.07 | 3531576/637 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ K1 |
| 4834 | 0.3 | 600 | 11000 | - | 0.08 | 236874/49 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ J1 |
| 4327 | 0.34 | 600 | 11000 | - | 0.11 | 2756352/637 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ H1 |
| 3843 | 0.38 | 600 | 11000 | - | 0.13 | 2447698/637 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ G1 |
| 3547 | 0.41 | 600 | 11000 | - | 0.16 | 29372376/8281 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ F1 |
| 3081 | 0.47 | 600 | 11000 | - | 0.17 | 13738692/4459 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ E1 |
| 2677 | 0.54 | 600 | 11000 | - | 0.18 | 8527464/3185 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ D1 |
| 2417 | 0.6 | 600 | 11000 | - | 0.22 | 118437/49 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ C1 |
| 2275 | 0.64 | 600 | 11000 | - | 0.26 | 1894992/833 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ B1 |
| 1983 | 0.73 | 600 | 11000 | - | 0.29 | 1263328/637 | ✓ | | | | | | 2KJ3130 - ■ A0 ■ - 0 ■ A1 |
| Z.69-Z19 | | | | | | | | | | | | | |
| 1939 | 0.75 | 600 | 11000 | - | 0.02 | 529232/273 | ✓ | | | | | | 2KJ3128 - ■ A0 ■ - 0 ■ B1 |
| 1717 | 0.84 | 600 | 11000 | - | 0.03 | 781044/455 | ✓ | | | | | | 2KJ3128 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

Article No. supplement

| | | |
|-----------------------|--------------|-----------------------|
| Shaft design | 1 or 9 | see page 9/46 |
| Adapter size | KS | A B C D E F H J K M N |
| Adapter type | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 |

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | | |
|-----------------|-------|----------|----------|-------------|-------------------------------|-----------------|---------|----|-----|-----|-----------------|-----------------|-----------------|------|-------------|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) | |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | 140 | 180 | | 210 | 250 | | | |
| | | | | | | | K3 | | 56 | 140 | 180 | | 210 | 250 | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| D.79-D39 | | | | | | | | | | | | | | | | | |
| 15344 | 0.09 | 840 | 13400 | - | 0.21 | 5738565/374 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3232 - ■ ■ A0 ■ - 0 ■ D1 | |
| 13434 | 0.11 | 840 | 13400 | - | 0.25 | 6394401/476 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3232 - ■ ■ A0 ■ - 0 ■ C1 | |
| 11778 | 0.12 | 840 | 13400 | - | 0.23 | 22025159/1870 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3232 - ■ ■ A0 ■ - 0 ■ B1 | |
| 10686 | 0.14 | 840 | 13400 | - | 0.33 | 31972005/2992 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3232 - ■ ■ A0 ■ - 0 ■ A1 | |
| Z.79-D39 | | | | | | | | | | | | | | | | | |
| 10451 | 0.14 | 840 | 13400 | - | 0.03 | 47969467/4590 | ✓ | ✓ | | | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ R1 | |
| 9269 | 0.16 | 840 | 13400 | - | 0.05 | 2085629/225 | ✓ | ✓ | | | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ Q1 | |
| 8043 | 0.18 | 840 | 13400 | - | 0.05 | 123052111/15300 | ✓ | ✓ | | | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ P1 | |
| 7311 | 0.20 | 840 | 13400 | - | 0.07 | 123052111/16830 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ N1 | |
| 6271 | 0.23 | 840 | 13400 | - | 0.08 | 47969467/7650 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ M1 | |
| 5700 | 0.25 | 840 | 13400 | - | 0.10 | 47969467/8415 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ L1 | |
| 4998 | 0.29 | 840 | 13400 | - | 0.12 | 22941919/4590 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ K1 | |
| 4461 | 0.33 | 840 | 13400 | - | 0.15 | 4171258/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ J1 | |
| 3976 | 0.36 | 840 | 13400 | - | 0.17 | 14599403/3672 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ H1 | |
| 3670 | 0.40 | 840 | 13400 | - | 0.21 | 1123031/306 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ G1 | |
| 3213 | 0.45 | 840 | 13400 | - | 0.25 | 3277417/1020 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ F1 | |
| 2817 | 0.51 | 840 | 13400 | - | 0.23 | 64654499/22950 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ E1 | |
| 2556 | 0.57 | 840 | 13400 | - | 0.33 | 2085629/816 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ D1 | |
| 2406 | 0.60 | 840 | 13400 | - | 0.39 | 2085629/867 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ C1 | |
| 2120 | 0.68 | 840 | 13400 | - | 0.43 | 14599403/6885 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ B1 | |
| 1840 | 0.79 | 840 | 13400 | - | 0.58 | 6256887/3400 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3132 - ■ ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------|---|---------------|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | | see page 9/46 | | | | | | | | | |
| Adapter size | K4 | | B | C | D | E | F | G | H | J | 4 | |
| | K2 | | | | D | E | F | G | H | J | 2 | |
| | KS | | A | | | E | H | K | M | | | 1 |
| | | | B | | | F | J | | N | | | |
| | | | C | | | | | | | | | |
| | | D | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | 5 | |
| | K3 | | A | | B | C | | D | E | | 3 | |
| | A/AZ* | | | | D | E | F | G | H | J | 9 | |

Adapter type

Gearbox mounting type

A, B, F or H

see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-----------------|------------------------------|------------------------------|-----------------------------|----------------------|---|-----------------------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | ϕ ¹⁾ | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>P</i> _{ex} - | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| Z.79-Z39 | | | | | | | | | | | | | | | | |
| 2485 | 0.58 | 840 | 13400 | - | 0.06 | 4025749/1620 | ✓ | ✓ | | | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ T1 |
| 2210 | 0.66 | 840 | 13400 | - | 0.07 | 1988623/900 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ S1 |
| 1940 | 0.75 | 840 | 13400 | - | 0.08 | 48503/25 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ R1 |
| 1764 | 0.82 | 840 | 13400 | - | 0.10 | 97006/55 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ Q1 |
| 1509 | 0.96 | 840 | 13400 | - | 0.12 | 339521/225 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ P1 |
| 1372 | 1.1 | 840 | 13400 | - | 0.14 | 679042/495 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ N1 |
| 1213 | 1.2 | 840 | 13400 | - | 0.17 | 48503/40 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ M1 |
| 1102 | 1.3 | 840 | 13400 | - | 0.22 | 48503/44 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ L1 |
| 966 | 1.5 | 840 | 13400 | - | 0.26 | 2085629/2160 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ K1 |
| 891 | 1.6 | 840 | 13400 | - | 0.31 | 160433/180 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ J1 |
| 789 | 1.8 | 840 | 13400 | - | 0.36 | 284089/360 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ H1 |
| 657 | 2.2 | 840 | 13400 | - | 0.48 | 630539/960 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ G1 |
| 618 | 2.3 | 840 | 13400 | - | 0.56 | 630539/1020 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ F1 |
| 554 | 2.6 | 840 | 13400 | - | 0.61 | 1794611/3240 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ E1 |
| 472 | 3.1 | 840 | 13400 | - | 0.79 | 339521/720 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ D1 |
| 455 | 3.2 | 840 | 13400 | - | 0.36 | 21853/48 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ C1 |
| 379 | 3.8 | 840 | 13400 | - | 0.48 | 48503/128 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ B1 |
| 357 | 4.1 | 840 | 13400 | - | 0.56 | 48503/136 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3131 - ■ ■ A0 ■ - 0 ■ A1 |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ
- 3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | | see page 9/46 | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | 4 | |
| | K2 | | | D | E | F | G | H | J | | 2 | |
| | KS | | A | | E | H | K | M | | | | 1 |
| | | | B | | F | J | | N | | | | |
| | | | C | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | 5 | |
| | K3 | | A | | B | C | | D | E | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | 9 | | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|----------------------|--|-------------------|---------|----|-----|-----|-----|-----------------|-------------------------------|-----|-------------|-------------------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | - | - | - | - | - | - | K2 | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.89-D39 | | | | | | | | | | | | | | | | |
| 16496 | 0.09 | 1680 | 18500 | - | 0.12 | 214526312/13005 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3234 - ■ ■ A0 ■ - 0 ■ B1 |
| 14723 | 0.1 | 1680 | 18500 | - | 0.15 | 234028704/15895 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3234 - ■ ■ A0 ■ - 0 ■ A1 |
| D.89-Z39 | | | | | | | | | | | | | | | | |
| 715 | 2.0 | 1680 | 18500 | - | 0.63 | 6987123/9775 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ H1 |
| 673 | 2.2 | 1680 | 18500 | - | 0.73 | 111793968/166175 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ G1 |
| 603 | 2.4 | 1680 | 18500 | - | 0.83 | 17676824/29325 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ F1 |
| 513 | 2.8 | 1680 | 18500 | - | 1.09 | 5016396/9775 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ E1 |
| 480 | 3.0 | 1680 | 18500 | - | 0.66 | 1270386/2645 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ D1 |
| 452 | 3.2 | 1680 | 18500 | - | 0.77 | 20326176/44965 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ C1 |
| 405 | 3.6 | 1680 | 18500 | - | 0.87 | 3213968/7935 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ B1 |
| 345 | 4.2 | 1680 | 18500 | - | 1.15 | 912072/2645 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3233 - ■ ■ A0 ■ - 0 ■ A1 |
| Z.89-D39 | | | | | | | | | | | | | | | | |
| 13495 | 0.11 | 1680 | 18500 | - | 0.03 | 464574838/34425 | | ✓ | ✓ | | | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ N1 |
| 11970 | 0.12 | 1680 | 18500 | - | 0.05 | 40397812/3375 | | ✓ | ✓ | | | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ M1 |
| 10385 | 0.14 | 1680 | 18500 | - | 0.05 | 595867727/57375 | | ✓ | ✓ | | | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ L1 |
| 9441 | 0.15 | 1680 | 18500 | - | 0.07 | 1191735454/126225 | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ K1 |
| 8097 | 0.18 | 1680 | 18500 | - | 0.08 | 464574838/57375 | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ J1 |
| 7361 | 0.20 | 1680 | 18500 | - | 0.1 | 929149676/126225 | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ H1 |
| 6454 | 0.22 | 1680 | 18500 | - | 0.12 | 222187966/34425 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ G1 |
| 5761 | 0.25 | 1680 | 18500 | - | 0.15 | 80795624/14025 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ F1 |
| 5134 | 0.28 | 1680 | 18500 | - | 0.17 | 70696171/13770 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ E1 |
| 4739 | 0.31 | 1680 | 18500 | - | 0.21 | 10876334/2295 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ D1 |
| 4149 | 0.35 | 1680 | 18500 | - | 0.25 | 15870569/3825 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ C1 |
| 3638 | 0.40 | 1680 | 18500 | - | 0.23 | 626166086/172125 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ B1 |
| 3300 | 0.44 | 1680 | 18500 | - | 0.33 | 10099453/3060 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3134 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

³⁾ Only available for KS adapter

Article No. supplement

| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---------------|---|---|---|---|---|--|--|--|--|---|
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | |
| | | C | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | |
| Adapter type | K5 | A | | B | C | | D | E | | | | | | 5 |
| | K3 | A | | B | C | | D | E | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | | | | | 9 |
| Gearbox mounting type | A, B, F or H | | | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | Article No. |
|------------------|------------------------------|------------------------------|-----------------------------|----------------------|---|------------------------|---------|----|-----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------------------------|-------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | ϕ ¹⁾ | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>P</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) | |
| - | | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| Z.89-Z39 | | | | | | | | | | | | | | | | | |
| 3209 | 0.45 | 1680 | 18500 | - | 0.06 | 19494293/6075 | ✓ | ✓ | | | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ N1 | |
| 2853 | 0.51 | 1680 | 18500 | - | 0.07 | 9629711/3375 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ M1 | |
| 2505 | 0.58 | 1680 | 18500 | - | 0.08 | 939484/375 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ .L1 | |
| 2278 | 0.64 | 1680 | 18500 | - | 0.10 | 1878968/825 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ K1 | |
| 1949 | 0.74 | 1680 | 18500 | - | 0.12 | 6576388/3375 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ J1 | |
| 1771 | 0.82 | 1680 | 18500 | - | 0.14 | 13152776/7425 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3133 - ■ ■ A0 ■ - 0 ■ H1 | |
| 1566 | 0.93 | 1680 | 18500 | - | 0.17 | 234871/150 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ G1 | |
| 1423 | 1.0 | 1680 | 18500 | - | 0.22 | 234871/165 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ F1 | |
| 1247 | 1.2 | 1680 | 18500 | - | 0.26 | 10099453/8100 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ E1 | |
| 1151 | 1.3 | 1680 | 18500 | - | 0.31 | 776881/675 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ D1 | |
| 1019 | 1.4 | 1680 | 18500 | - | 0.36 | 1375673/1350 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ C1 | |
| 848 | 1.7 | 1680 | 18500 | - | 0.48 | 3053323/3600 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ B1 | |
| 798 | 1.8 | 1680 | 18500 | - | 0.56 | 3053323/3825 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3133 - ■ ■ A0 ■ - 0 ■ A1 | |
| D.109-D39 | | | | | | | | | | | | | | | | | |
| 19321 | 0.08 | 3100 | 20200 | - | 0.05 | 59992439/3105 | ✓ | ✓ | | | | | | | | 2KJ3236 - ■ ■ A0 ■ - 0 ■ T1 | |
| 17565 | 0.08 | 3100 | 20200 | - | 0.07 | 119984878/6831 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3236 - ■ ■ A0 ■ - 0 ■ S1 | |
| 15064 | 0.1 | 3100 | 20200 | - | 0.08 | 2033642/135 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3236 - ■ ■ A0 ■ - 0 ■ R1 | |
| 13695 | 0.11 | 3100 | 20200 | - | 0.10 | 4067284/297 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3236 - ■ ■ A0 ■ - 0 ■ Q1 | |
| 12008 | 0.12 | 3100 | 20200 | - | 0.12 | 22370062/1863 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ P1 | |
| 10717 | 0.14 | 3100 | 20200 | - | 0.15 | 8134568/759 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ N1 | |
| 9551 | 0.15 | 3100 | 20200 | - | 0.18 | 35588735/3726 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ M1 | |
| 8817 | 0.16 | 3100 | 20200 | - | 0.21 | 5475190/621 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ L1 | |
| 7719 | 0.19 | 3100 | 20200 | - | 0.25 | 11185031/1449 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ K1 | |
| 6768 | 0.21 | 3100 | 20200 | - | 0.23 | 63042902/9315 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ J1 | |
| 6140 | 0.24 | 3100 | 20200 | - | 0.33 | 5084105/828 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | 2KJ3236 - ■ ■ A0 ■ - 0 ■ H1 | |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ
- 3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/46 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | 4 | |
| | K2 | | | D | E | F | G | H | J | 2 | |
| | KS | A | | | E | H | K | M | | | 1 |
| | | B | | | F | J | | N | | | |
| | | C | | | | | | | | | |
| | | D | | | | | | | | | |
| K5 | A | | B | C | | | D | E | | 5 | |
| K3 | A | | B | C | | | D | E | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | 9 | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | Article No. |
|------------------|-------|----------|----------|----------------------|-------------------------------|------------------|---------|----|-----|----|-----------------|-----------------|-----------------|------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.109-Z39 | | | | | | | | | | | | | | | | |
| 5970 | 0.24 | 3100 | 20200 | - | 0.06 | 33365917/5589 | ✓ | ✓ | | | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ A2 |
| 5308 | 0.27 | 3100 | 20200 | - | 0.07 | 16481959/3105 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ X1 |
| 4661 | 0.31 | 3100 | 20200 | - | 0.09 | 1607996/345 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ W1 |
| 4237 | 0.34 | 3100 | 20200 | - | 0.10 | 3215992/759 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ V1 |
| 3625 | 0.4 | 3100 | 20200 | - | 0.12 | 11255972/3105 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ U1 |
| 3296 | 0.44 | 3100 | 20200 | - | 0.15 | 22511944/6831 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ T1 |
| 2913 | 0.5 | 3100 | 20200 | - | 0.17 | 401999/138 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ S1 |
| 2648 | 0.55 | 3100 | 20200 | - | 0.23 | 2009995/759 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ R1 |
| 2320 | 0.62 | 3100 | 20200 | - | 0.27 | 17285957/7452 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ Q1 |
| 2141 | 0.68 | 3100 | 20200 | - | 0.32 | 1329689/621 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ P1 |
| 1896 | 0.76 | 3100 | 20200 | - | 0.38 | 16481959/8694 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ N1 |
| 1578 | 0.92 | 3100 | 20200 | - | 0.50 | 5225987/3312 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ M1 |
| 1485 | 0.98 | 3100 | 20200 | - | 0.59 | 307411/207 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ L1 |
| 1331 | 1.1 | 3100 | 20200 | - | 0.64 | 14873963/11178 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ K1 |
| 1133 | 1.3 | 3100 | 20200 | - | 0.84 | 2813993/2484 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ J1 |
| 971 | 1.5 | 3100 | 20200 | - | 1.10 | 401999/414 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ H1 |
| 836 | 1.7 | 3100 | 20200 | - | 1.40 | 12461969/14904 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ G1 |
| 690 | 2.1 | 3100 | 20200 | - | 0.73 | 122609695/177744 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ F1 |
| 649 | 2.2 | 3100 | 20200 | - | 0.84 | 7212335/11109 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ E1 |
| 582 | 2.5 | 3100 | 20200 | - | 0.96 | 348966055/599886 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ D1 |
| 495 | 2.9 | 3100 | 20200 | - | 1.28 | 9431515/19044 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ C1 |
| 424 | 3.4 | 3100 | 20200 | - | 1.69 | 9431515/22218 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ B1 |
| 366 | 4 | 3100 | 20200 | - | 2.20 | 292376965/799848 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3235 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

³⁾ Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|--|--|---------------|---|
| Shaft design | 1 or 9 | see page 9/46 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | |
| | | | C | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | |
| K5 | | A | | B | C | | D | E | | | | | | | 5 | |
| K3 | | A | | B | C | | D | E | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|------------------|-------|----------|----------|----------------------|-------------------------------|--------------------|---------|----|-----|-----|-----|-----|-----------------|-------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.129-D49 | | | | | | | | | | | | | | | | |
| 19506 | 0.07 | 5000 | 27000 | - | 0.12 | 1643206859/84240 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3238 - ■ A0 ■ - 0 ■ L1 |
| 17733 | 0.08 | 5000 | 27000 | - | 0.14 | 1643206859/92664 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3238 - ■ A0 ■ - 0 ■ K1 |
| 15675 | 0.09 | 5000 | 27000 | - | 0.17 | 234743837/14976 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3238 - ■ A0 ■ - 0 ■ J1 |
| 14250 | 0.1 | 5000 | 27000 | - | 0.22 | 1173719185/82368 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3238 - ■ A0 ■ - 0 ■ H1 |
| 12482 | 0.12 | 5000 | 27000 | - | 0.26 | 10093984991/808704 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3238 - ■ A0 ■ - 0 ■ G1 |
| 11522 | 0.13 | 5000 | 27000 | - | 0.31 | 10093984991/876096 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3238 - ■ A0 ■ - 0 ■ F1 |
| 10201 | 0.14 | 5000 | 27000 | - | 0.37 | 9624497317/943488 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3238 - ■ A0 ■ - 0 ■ E1 |
| 8490 | 0.17 | 5000 | 27000 | - | 0.50 | 234743837/27648 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3238 - ■ A0 ■ - 0 ■ D1 |
| 7991 | 0.18 | 5000 | 27000 | - | 0.59 | 13808461/1728 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3238 - ■ A0 ■ - 0 ■ C1 |
| 7160 | 0.2 | 5000 | 27000 | - | 0.65 | 8685521969/1213056 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3238 - ■ A0 ■ - 0 ■ B1 |
| 6096 | 0.24 | 5000 | 27000 | - | 0.85 | 1643206859/269568 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3238 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---------------|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | | see page 9/46 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | | 5 |
| K3 | A | | B | C | | D | E | | | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | see page 9/40 | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | Article No. |
|------------------|-------|----------|----------|-------------|-------------------------------|-------------------|---------|----|-----|----|-----|-----|-----------------|------|-----|-------------------------------------|-------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) | |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| D.129-Z49 | | | | | | | | | | | | | | | | | |
| 5963 | 0.24 | 5000 | 27000 | - | 0.18 | 1339420717/224640 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ B2 | |
| 5420 | 0.27 | 5000 | 27000 | - | 0.21 | 1339420717/247104 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ A2 | |
| 4610 | 0.31 | 5000 | 27000 | - | 0.27 | 69042305/14976 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ X1 | |
| 4191 | 0.35 | 5000 | 27000 | - | 0.32 | 345211525/82368 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ W1 | |
| 3739 | 0.39 | 5000 | 27000 | - | 0.37 | 1008017653/269568 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ V1 | |
| 3353 | 0.43 | 5000 | 27000 | - | 0.45 | 69042305/20592 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ U1 | |
| 3022 | 0.48 | 5000 | 27000 | - | 0.53 | 814699199/269568 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ T1 | |
| 2790 | 0.52 | 5000 | 27000 | - | 0.63 | 814699199/292032 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ S1 | |
| 2547 | 0.57 | 5000 | 27000 | - | 0.74 | 400445369/157248 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ R1 | |
| 2113 | 0.69 | 5000 | 27000 | - | 0.95 | 759465355/359424 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ Q1 | |
| 1989 | 0.73 | 5000 | 27000 | - | 1.09 | 759465355/381888 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ P1 | |
| 1878 | 0.77 | 5000 | 27000 | - | 1.24 | 759465355/404352 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ N1 | |
| 1598 | 0.91 | 5000 | 27000 | - | 1.53 | 13808461/8640 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ M1 | |
| 1369 | 1.1 | 5000 | 27000 | - | 1.89 | 676614589/494208 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ L1 | |
| 1204 | 1.2 | 5000 | 27000 | - | 2.3 | 648997667/539136 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ K1 | |
| 1016 | 1.4 | 5000 | 27000 | - | 2.9 | 262360759/258336 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ J1 | |
| 885 | 1.6 | 5000 | 27000 | - | 3.9 | 13808461/15600 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ H1 | |
| 873 | 1.7 | 5000 | 27000 | - | 1.51 | 208411423/238680 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ G1 | |
| 825 | 1.8 | 5000 | 27000 | - | 1.71 | 208411423/252720 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ F1 | |
| 702 | 2.1 | 5000 | 27000 | - | 2.2 | 18946493/27000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ E1 | |
| 601 | 2.4 | 5000 | 27000 | - | 2.8 | 928378157/1544400 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ D1 | |
| 529 | 2.7 | 5000 | 27000 | - | 3.4 | 890485171/1684800 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ C1 | |
| 446 | 3.3 | 5000 | 27000 | - | 4.5 | 359983367/807300 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ B1 | |
| 389 | 3.7 | 5000 | 27000 | - | 6 | 18946493/48750 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3237 - ■ ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|----------------------------|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 see page 9/46 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | | 5 |
| K3 | | | A | | B | C | | D | E | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | Article No. |
|------------------|-------|----------|----------|----------------------|-------------------------------|-----------------|---------|----|-----|----|-----|-----|-----------------|------|-----|-------------------------------------|-------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) | |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| D.149-D49 | | | | | | | | | | | | | | | | | |
| 24180 | 0.06 | 8000 | 51200 | - | 0.08 | 118481211/4900 | ✓ | ✓ | | | | | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ N1 | |
| 21982 | 0.07 | 8000 | 51200 | - | 0.10 | 118481211/5390 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ M1 | |
| 18807 | 0.08 | 8000 | 51200 | - | 0.12 | 13164579/700 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ L1 | |
| 17097 | 0.08 | 8000 | 51200 | - | 0.14 | 13164579/770 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ K1 | |
| 15112 | 0.10 | 8000 | 51200 | - | 0.17 | 118481211/7840 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ J1 | |
| 13739 | 0.11 | 8000 | 51200 | - | 0.22 | 118481211/8624 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ H1 | |
| 12034 | 0.12 | 8000 | 51200 | - | 0.26 | 188692299/15680 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ G1 | |
| 11108 | 0.13 | 8000 | 51200 | - | 0.31 | 566076897/50960 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ F1 | |
| 9835 | 0.15 | 8000 | 51200 | - | 0.37 | 539747739/54880 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ E1 | |
| 8186 | 0.18 | 8000 | 51200 | - | 0.50 | 513418581/62720 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ D1 | |
| 7704 | 0.19 | 8000 | 51200 | - | 0.59 | 30201093/3920 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ C1 | |
| 6903 | 0.21 | 8000 | 51200 | - | 0.66 | 54121047/7840 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ B1 | |
| 5877 | 0.25 | 8000 | 51200 | - | 0.86 | 13164579/2240 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3241 - ■ ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|--|---------------|--|--|--|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | see page 9/46 | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | |
| K3 | | A | | B | C | | D | E | | | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | see page 9/40 | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|----------------------|-------------------------------|-----------------|---------|----|-----|----|-----|-----|-----------------|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.149-Z49 | | | | | | | | | | | | | | | | |
| 5749 | 0.25 | 8000 | 51200 | - | 0.18 | 225346617/39200 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ B2 |
| 5226 | 0.28 | 8000 | 51200 | - | 0.22 | 225346617/43120 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ A2 |
| 4445 | 0.33 | 8000 | 51200 | - | 0.28 | 6969483/1568 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ X1 |
| 4041 | 0.36 | 8000 | 51200 | - | 0.34 | 34847415/8624 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ W1 |
| 3605 | 0.4 | 8000 | 51200 | - | 0.39 | 56530251/15680 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ V1 |
| 3233 | 0.45 | 8000 | 51200 | - | 0.47 | 6969483/2156 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ U1 |
| 2914 | 0.5 | 8000 | 51200 | - | 0.55 | 45688833/15680 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ T1 |
| 2690 | 0.54 | 8000 | 51200 | - | 0.66 | 137066499/50960 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ S1 |
| 2455 | 0.59 | 8000 | 51200 | - | 0.78 | 67371669/27440 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ R1 |
| 2037 | 0.71 | 8000 | 51200 | - | 1.0 | 25554771/12544 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ Q1 |
| 1917 | 0.76 | 8000 | 51200 | - | 1.16 | 25554771/13328 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ P1 |
| 1811 | 0.80 | 8000 | 51200 | - | 1.31 | 2839419/1568 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ N1 |
| 1541 | 0.94 | 8000 | 51200 | - | 1.62 | 30201093/19600 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ M1 |
| 1320 | 1.1 | 8000 | 51200 | - | 2.0 | 2323161/1760 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ L1 |
| 1161 | 1.2 | 8000 | 51200 | - | 2.5 | 36396189/31360 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ K1 |
| 979 | 1.5 | 8000 | 51200 | - | 3.2 | 1919133/1960 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ J1 |
| 853 | 1.7 | 8000 | 51200 | - | 4.2 | 20908449/24500 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ H1 |
| 842 | 1.7 | 8000 | 51200 | - | 1.81 | 35063523/41650 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ G1 |
| 795 | 1.8 | 8000 | 51200 | - | 2.0 | 3895947/4900 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ F1 |
| 677 | 2.1 | 8000 | 51200 | - | 2.6 | 41438709/61250 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ E1 |
| 580 | 2.5 | 8000 | 51200 | - | 3.4 | 3187593/5500 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ D1 |
| 510 | 2.8 | 8000 | 51200 | - | 4.3 | 49938957/98000 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ C1 |
| 430 | 3.4 | 8000 | 51200 | - | 5.7 | 2633229/6125 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ B1 |
| 375 | 3.9 | 8000 | 51200 | - | 7.5 | 57376674/153125 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3240 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | |
|------------------------|---------------|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | |
| Adapter size | see page 9/46 | | | | | | | | | |
| K4 | B | C | D | E | F | G | H | J | | 4 |
| | K2 | | D | E | F | G | H | J | | 2 |
| | KS | A | E | H | K | M | | | | 1 |
| | | B | F | J | N | | | | | |
| K5 | A | B | C | D | E | | | | 5 | |
| K3 | A | B | C | D | E | | | | 3 | |
| A/AZ* | D | | E | F | G | H | J | | 9 | |
| Adapter type | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | |
| see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|----------------------|-----------|----------------|---------|----|-----|-----|-----|-----|-----------------|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | kgm^2 | | KS | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.169-D69 | | | | | | | | | | | | | | | | |
| 23323 | 0.06 | 14000 | 70100 | - | 0.08 | 28571136/1225 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ N1 |
| 21203 | 0.07 | 14000 | 70100 | - | 0.10 | 5194752/245 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ M1 |
| 18140 | 0.08 | 14000 | 70100 | - | 0.12 | 9523712/525 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ L1 |
| 16491 | 0.09 | 14000 | 70100 | - | 0.15 | 1731584/105 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ K1 |
| 14577 | 0.10 | 14000 | 70100 | - | 0.17 | 3571392/245 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ J1 |
| 13252 | 0.11 | 14000 | 70100 | - | 0.23 | 649344/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ H1 |
| 11608 | 0.12 | 14000 | 70100 | - | 0.26 | 25594976/2205 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ G1 |
| 10715 | 0.14 | 14000 | 70100 | - | 0.32 | 102379904/9555 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ F1 |
| 9487 | 0.15 | 14000 | 70100 | - | 0.39 | 48809024/5145 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ E1 |
| 7896 | 0.18 | 14000 | 70100 | - | 0.52 | 1934504/245 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ D1 |
| 7431 | 0.2 | 14000 | 70100 | - | 0.61 | 30952064/4165 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ C1 |
| 6659 | 0.22 | 14000 | 70100 | - | 0.68 | 44047168/6615 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ B1 |
| 5669 | 0.26 | 14000 | 70100 | - | 0.89 | 595232/105 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3243 - ■ ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | see page 9/46 | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | 4 | |
| | K2 | | | D | E | F | G | H | J | 2 | |
| | KS | A | | | E | H | K | M | | | 1 |
| | | B | | | F | J | | N | | | |
| | | C | | | | | | | | | |
| | | D | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | 5 | |
| K3 | A | | B | C | | D | E | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | | 9 | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-------------------|-------|----------|----------|----------------------|-------------------------------|------------------|---------|----|-----|-----|-----|-----|-----------------|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.169-Z.69 | | | | | | | | | | | | | | | | |
| 5545 | 0.26 | 14000 | 70100 | - | 0.21 | 115475008/20825 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ A2 |
| 5041 | 0.29 | 14000 | 70100 | - | 0.26 | 20995456/4165 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ X1 |
| 4287 | 0.34 | 14000 | 70100 | - | 0.33 | 3571392/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ W1 |
| 3898 | 0.37 | 14000 | 70100 | - | 0.40 | 3246720/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ V1 |
| 3478 | 0.42 | 14000 | 70100 | - | 0.47 | 43451936/12495 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ U1 |
| 3118 | 0.47 | 14000 | 70100 | - | 0.57 | 2597376/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ T1 |
| 2811 | 0.52 | 14000 | 70100 | - | 0.67 | 35118688/12495 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ S1 |
| 2594 | 0.56 | 14000 | 70100 | - | 0.8 | 140474752/54145 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ R1 |
| 2368 | 0.61 | 14000 | 70100 | - | 0.95 | 69046912/29155 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ Q1 |
| 1965 | 0.74 | 14000 | 70100 | - | 1.25 | 1636888/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ P1 |
| 1849 | 0.78 | 14000 | 70100 | - | 1.44 | 26190208/14161 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ N1 |
| 1747 | 0.83 | 14000 | 70100 | - | 1.62 | 13095104/7497 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ M1 |
| 1486 | 0.98 | 14000 | 70100 | - | 2.1 | 30952064/20825 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ L1 |
| 1273 | 1.1 | 14000 | 70100 | - | 2.6 | 108224/85 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ K1 |
| 1119 | 1.3 | 14000 | 70100 | - | 3.2 | 13987952/12495 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ J1 |
| 944 | 1.5 | 14000 | 70100 | - | 4.2 | 90475264/95795 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ H1 |
| 823 | 1.8 | 14000 | 70100 | - | 5.7 | 85713408/104125 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ G1 |
| 773 | 1.9 | 14000 | 70100 | - | 3.2 | 19047424/24633 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ F1 |
| 658 | 2.2 | 14000 | 70100 | - | 4.3 | 45021184/68425 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ E1 |
| 564 | 2.6 | 14000 | 70100 | - | 5.6 | 12121088/21505 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ D1 |
| 496 | 2.9 | 14000 | 70100 | - | 7.1 | 20346112/41055 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ C1 |
| 418 | 3.5 | 14000 | 70100 | - | 9.7 | 131600384/314755 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ B1 |
| 364 | 4.0 | 14000 | 70100 | - | 13 | 124674048/342125 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3242 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|---------------|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | |
| Adapter size | see page 9/46 | | | | | | | | | | | | | | | | |
| | K4 | B | C | D | E | F | G | H | J | | | | | | | | 4 |
| | K2 | D | | | E | F | G | H | J | | | | | | | | 2 |
| | KS | A | | E | H | K | M | | | | | | | | | 1 | |
| | | B | | F | J | N | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | 5 | |
| | K3 | A | | B | C | | D | E | | | | | | | | 3 | |
| | A/AZ* | D | | | E | F | G | H | J | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | | |
| | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|----------------------|-------------------------------|---------------|---------|----|-----|-----|-----|-----|-----------------|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.189-D69 | | | | | | | | | | | | | | | | |
| 27816 | 0.05 | 19000 | 107000 | - | 0.07 | 15994264/575 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ P1 |
| 24424 | 0.06 | 19000 | 107000 | - | 0.09 | 14043744/575 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ N1 |
| 22204 | 0.07 | 19000 | 107000 | - | 0.11 | 2553408/115 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ M1 |
| 18996 | 0.08 | 19000 | 107000 | - | 0.12 | 10922912/575 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ L1 |
| 17269 | 0.08 | 19000 | 107000 | - | 0.15 | 1985984/115 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ K1 |
| 15265 | 0.09 | 19000 | 107000 | - | 0.18 | 1755468/115 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ J1 |
| 13877 | 0.1 | 19000 | 107000 | - | 0.23 | 319176/23 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ H1 |
| 12155 | 0.12 | 19000 | 107000 | - | 0.27 | 4193618/345 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ G1 |
| 11220 | 0.13 | 19000 | 107000 | - | 0.32 | 1290344/115 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ F1 |
| 9934 | 0.15 | 19000 | 107000 | - | 0.39 | 7997132/805 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ E1 |
| 8269 | 0.18 | 19000 | 107000 | - | 0.53 | 1901757/230 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ D1 |
| 7782 | 0.19 | 19000 | 107000 | - | 0.62 | 15214056/1955 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ C1 |
| 6973 | 0.21 | 19000 | 107000 | - | 0.69 | 7216924/1035 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ B1 |
| 5936 | 0.24 | 19000 | 107000 | - | 0.91 | 682682/115 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3245 - ■ ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | |
|------------------------|----------------------------|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/46 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | 4 | |
| | K2 | | | D | E | F | G | H | J | 2 | |
| | KS | | A | | E | H | K | M | | | 1 |
| | | | B | | F | J | | N | | | |
| | | | C | | | | | | | | |
| | | D | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | 5 | |
| | K3 | | A | | B | C | | D | E | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | 9 | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Helical gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|----------------------|-------------------------------|-------------------|---------|----|-----|-----|-----|-----|-----------------|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement → below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| D.189-Z69 | | | | | | | | | | | | | | | | |
| 5807 | 0.25 | 19000 | 107000 | - | 0.24 | 56760132/9775 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3244 - A0 - 0 A2 |
| 5279 | 0.27 | 19000 | 107000 | - | 0.29 | 10320024/1955 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3244 - A0 - 0 X1 |
| 4490 | 0.32 | 19000 | 107000 | - | 0.37 | 1755468/391 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3244 - A0 - 0 W1 |
| 4082 | 0.36 | 19000 | 107000 | - | 0.45 | 1595880/391 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3244 - A0 - 0 V1 |
| 3642 | 0.4 | 19000 | 107000 | - | 0.53 | 7119398/1955 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3244 - A0 - 0 U1 |
| 3265 | 0.44 | 19000 | 107000 | - | 0.64 | 1276704/391 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3244 - A0 - 0 T1 |
| 2943 | 0.49 | 19000 | 107000 | - | 0.77 | 5754034/1955 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3244 - A0 - 0 S1 |
| 2717 | 0.53 | 19000 | 107000 | - | 0.91 | 5311416/1955 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3244 - A0 - 0 R1 |
| 2480 | 0.58 | 19000 | 107000 | - | 1.08 | 33939048/13685 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 Q1 |
| 2058 | 0.7 | 19000 | 107000 | - | 1.45 | 1609179/782 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 P1 |
| 1937 | 0.75 | 19000 | 107000 | - | 1.65 | 12873432/6647 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 N1 |
| 1829 | 0.79 | 19000 | 107000 | - | 1.87 | 2145572/1173 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 M1 |
| 1556 | 0.93 | 19000 | 107000 | - | 2.4 | 15214056/9775 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 L1 |
| 1333 | 1.1 | 19000 | 107000 | - | 3.1 | 2606604/1955 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 K1 |
| 1172 | 1.2 | 19000 | 107000 | - | 3.8 | 2291861/1955 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 J1 |
| 989 | 1.5 | 19000 | 107000 | - | 5.1 | 44471856/44965 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 H1 |
| 862 | 1.7 | 19000 | 107000 | - | 6.8 | 42131232/48875 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 G1 |
| 810 | 1.8 | 19000 | 107000 | - | 4.5 | 21845824/26979 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 F1 |
| 689 | 2.1 | 19000 | 107000 | - | 6 | 154906752/224825 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 E1 |
| 590 | 2.5 | 19000 | 107000 | - | 8 | 26539968/44965 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 D1 |
| 519 | 2.8 | 19000 | 107000 | - | 10 | 23335312/44965 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 C1 |
| 438 | 3.3 | 19000 | 107000 | - | 14 | 452804352/1034195 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 B1 |
| 382 | 3.8 | 19000 | 107000 | - | 18 | 428972544/1124125 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3244 - A0 - 0 A1 |

¹⁾ Only in conjunction with reduced-backlash version

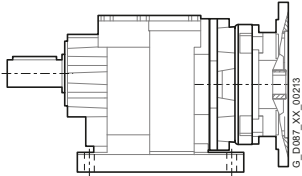
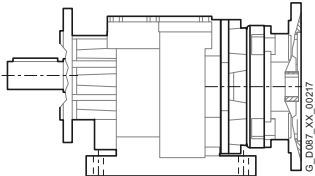

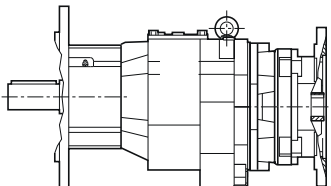
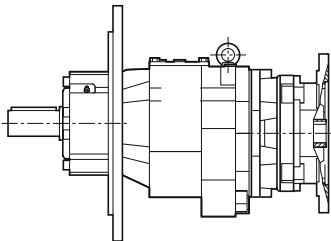
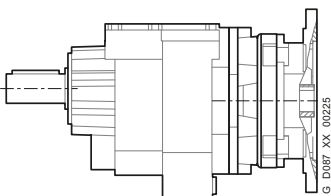
²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | |
|------------------------|---------------|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | |
| Adapter size | see page 9/46 | | | | | | | | | |
| | K4 | B | C | D | E | F | G | H | J | 4 |
| | K2 | | | D | E | F | G | H | J | 2 |
| | KS | A | | | E | H | K | M | | 1 |
| | | B | | | F | J | | N | | |
| | | C | | | | | | | | |
| | | D | | | | | | | | |
| | K5 | A | | B | C | | D | E | | 5 |
| | K3 | A | | B | C | | D | E | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | 9 |
| Adapter type | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | |
| | see page 9/40 | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Overview

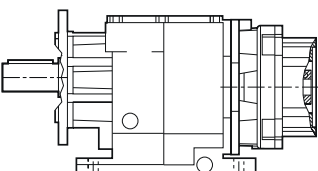
Information about dimensional drawings can be found in chapter "Introduction" on page 1/16.

| Design | Size | Dimensional drawing, see page |
|---|----------|-------------------------------|
| Helical gearboxes Z and D with adapter K4 | | |
| Foot-mounted design | | |
|  | Z/D29 | 3/58 |
| | Z/D39 | 3/62 |
| | Z/D49 | 3/66 |
| | Z/D59 | 3/69 |
| | Z/D69 | 3/72 |
| | Z/D79 | 3/75 |
| | Z/D89 | 3/78 |
| | Z/D109 | 3/83 |
| | Z/D129 | 3/88 |
| | Z/D149 | 3/93 |
| | Z/D169 | 3/97 |
| | Z/D189 | 3/101 |
| Foot/flange-mounted design | | |
|  | ZB/DB29 | 3/59 |
| | ZB/DB39 | 3/63 |
| | ZB/DB49 | 3/66 |
| | ZB/DB59 | 3/69 |
| | ZB/DB69 | 3/72 |
| | ZB/DB79 | 3/75 |
| | ZB/DB89 | 3/78 |
| Flange-mounted design | | |
|  | ZF/DF29 | 3/60 |
| | ZF/DF39 | 3/64 |
| | ZF/DF49 | 3/67 |
| | ZF/DF59 | 3/70 |
| | ZF/DF69 | 3/73 |
| | ZF/DF79 | 3/76 |
| | ZF/DF89 | 3/79 |
| | ZF/DF109 | 3/84 |
| | ZF/DF129 | 3/89 |
| | ZF/DF149 | 3/94 |
| ZF/DF169 | 3/98 | |
| ZF/DF189 | 3/102 | |
| Flange-mounted design with VLplus reinforced bearing system | | |
|  | ZF/DF89 | 3/80 |
| | ZF/DF109 | 3/85 |
| | ZF/DF129 | 3/90 |
| | ZF/DF149 | 3/95 |
| | ZF/DF169 | 3/99 |
| Flange-mounted design with XLplus reinforced bearing system | | |
|  | ZF/DF89 | 3/81 |
| | ZF/DF109 | 3/86 |
| | ZF/DF129 | 3/91 |
| | ZF/DF149 | 3/96 |
| | ZF/DF169 | 3/100 |
| Housing flange design | | |
|  | ZZ/DZ29 | 3/61 |
| | ZZ/DZ39 | 3/65 |
| | ZZ/DZ49 | 3/68 |
| | ZZ/DZ59 | 3/71 |
| | ZZ/DZ69 | 3/74 |
| | ZZ/DZ79 | 3/77 |
| | ZZ/DZ89 | 3/79 |
| | ZZ/DZ109 | 3/84 |
| | ZZ/DZ129 | 3/89 |

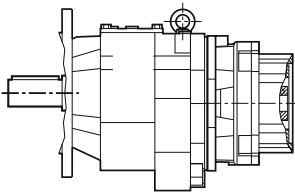
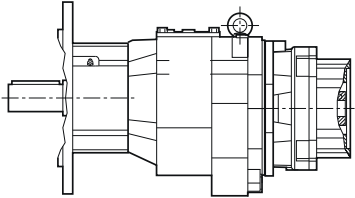
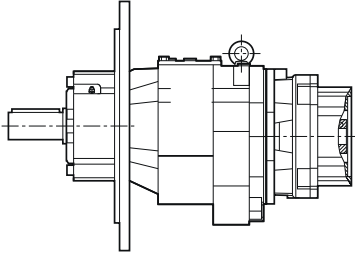
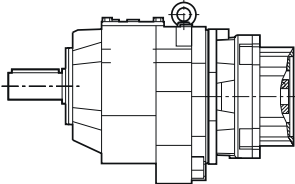
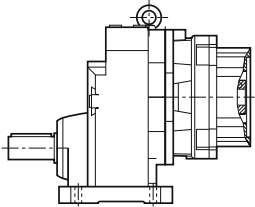
Helical gearboxes

Dimensional drawings

Overview

| Design | Size | Dimensional drawing, see page |
|---|----------------------|-------------------------------|
| Helical gearbox E with adapter K4 | | |
| <i>Foot-mounted design</i> | | |
|  | E39 | 3/103 |
| | E49 | 3/106 |
| | E69 | 3/109 |
| | E89 | 3/112 |
| | E109 | 3/115 |
| | E129 | 3/118 |
| | E149 | 3/121 |
| <i>Flange-mounted design</i> | | |
|  | EF39 | 3/104 |
| | EF49 | 3/107 |
| | EF69 | 3/110 |
| | EF89 | 3/113 |
| | EF109 | 3/116 |
| | EF129 | 3/119 |
| | EF149 | 3/122 |
| <i>Housing flange design</i> | | |
|  | EZ39 | 3/105 |
| | EZ49 | 3/108 |
| | EZ69 | 3/111 |
| | EZ89 | 3/114 |
| | EZ109 | 3/117 |
| | EZ129 | 3/120 |
| | EZ149 | 3/123 |
| Helical gearbox with adapter K2 | | |
|  | Z./D.29 ... Z./D.189 | 3/124 ... 3/126 |
| | E.39 ... E.149 | 3/126 ... 3/127 |
| Helical gearboxes Z and D with KS adapter | | |
| <i>Foot-mounted design</i> | | |
|  | Z/D19 | 3/128 |
| | Z/D29 | 3/131 |
| | Z/D39 | 3/135 |
| | Z/D49 | 3/139 |
| | Z/D59 | 3/142 |
| | Z/D69 | 3/145 |
| | Z/D79 | 3/148 |
| | Z/D89 | 3/151 |
| | Z/D109 | 3/156 |
| | Z/D129 | 3/161 |
| | Z/D149 | 3/166 |
| | Z/D169 | 3/170 |
| | Z/D189 | 3/174 |
| <i>Foot/flange-mounted design</i> | | |
|  | ZB/DB29 | 3/132 |
| | ZB/DB39 | 3/136 |
| | ZB/DB49 | 3/139 |
| | ZB/DB59 | 3/142 |
| | ZB/DB69 | 3/145 |
| | ZB/DB79 | 3/148 |
| | ZB/DB89 | 3/151 |

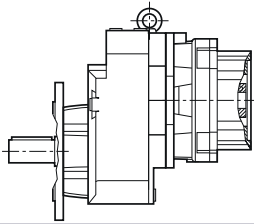
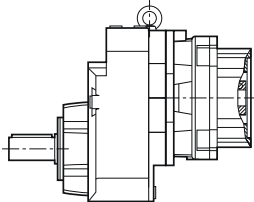
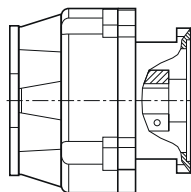
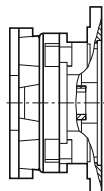
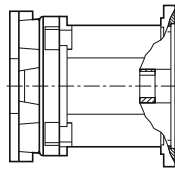
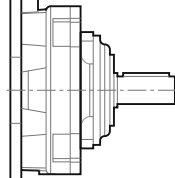
Overview

| Design | Size | Dimensional drawing, see page |
|---|----------|-------------------------------|
| Helical gearboxes Z and D with KS adapter | | |
| <i>Flange-mounted design</i> | | |
|  | ZF/DF19 | 3/129 |
| | ZF/DF29 | 3/133 |
| | ZF/DF39 | 3/137 |
| | ZF/DF49 | 3/140 |
| | ZF/DF59 | 3/143 |
| | ZF/DF69 | 3/146 |
| | ZF/DF79 | 3/149 |
| | ZF/DF89 | 3/152 |
| | ZF/DF109 | 3/157 |
| | ZF/DF129 | 3/162 |
| | ZF/DF149 | 3/167 |
| ZF/DF169 | 3/171 | |
| ZF/DF189 | 3/175 | |
| <i>Flange-mounted design with VLplus reinforced bearing system</i> | | |
|  | ZF/DF89 | 3/153 |
| | ZF/DF109 | 3/158 |
| | ZF/DF129 | 3/163 |
| | ZF/DF149 | 3/168 |
| | ZF/DF169 | 3/172 |
| <i>Flange-mounted design with XLplus reinforced bearing system</i> | | |
|  | ZF/DF89 | 3/154 |
| | ZF/DF109 | 3/159 |
| | ZF/DF129 | 3/164 |
| | ZF/DF149 | 3/169 |
| | ZF/DF169 | 3/173 |
| <i>Housing flange design</i> | | |
|  | ZZ/DZ19 | 3/130 |
| | ZZ/DZ29 | 3/134 |
| | ZZ/DZ39 | 3/138 |
| | ZZ/DZ49 | 3/141 |
| | ZZ/DZ59 | 3/144 |
| | ZZ/DZ69 | 3/147 |
| | ZZ/DZ79 | 3/150 |
| | ZZ/DZ89 | 3/155 |
| | ZZ/DZ109 | 3/160 |
| | ZZ/DZ129 | 3/165 |
| Helical gearbox E with KS adapter | | |
| <i>Foot-mounted design</i> | | |
|  | E39 | 3/176 |
| | E49 | 3/179 |
| | E69 | 3/182 |
| | E89 | 3/185 |
| | E109 | 3/188 |
| | E129 | 3/191 |
| | E149 | 3/194 |

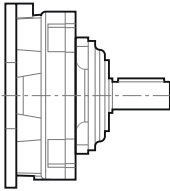
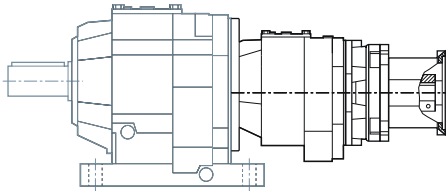
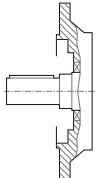
Helical gearboxes

Dimensional drawings

Overview

| Design | Size | Dimensional drawing, see page |
|---|----------------------|-------------------------------|
| Helical gearbox E with KS adapter | | |
| <i>Flange-mounted design</i> | | |
|  | EF39 | 3/177 |
| | EF49 | 3/180 |
| | EF69 | 3/183 |
| | EF89 | 3/186 |
| | EF109 | 3/189 |
| | EF129 | 3/192 |
| | EF149 | 3/195 |
| <i>Housing flange design</i> | | |
|  | EZ39 | 3/178 |
| | EZ49 | 3/181 |
| | EZ69 | 3/184 |
| | EZ89 | 3/187 |
| | EZ109 | 3/190 |
| | EZ129 | 3/193 |
| | EZ149 | 3/196 |
| Helical gearbox with adapter K8 | | |
|  | Z./D.89 ... Z./D.189 | 3/197 |
| | E.89 ... E.149 | |
| Helical gearbox with adapter K5 | | |
|  | Z./D.29 ... Z./D.189 | 3/198 ... 3/199 |
| | E.39 ... E.149 | 3/199 ... 3/200 |
| Helical gearbox with adapter K3 | | |
|  | Z./D.29 ... Z./D.189 | 3/201 ... 3/202 |
| | E.39 ... E.149 | 3/202 ... 3/203 |
| Helical gearbox with adapter A | | |
|  | Z./D.29 ... Z./D.189 | 3/204 ... 3/205 |
| | E.39 ... E.149 | 3/205 ... 3/206 |

Overview

| Design | Size | Dimensional drawing, see page | |
|--|------------------------------------|-------------------------------|-----------------|
| Helical gearbox with adapter AZ | | | |
|  | Z./D.29 ... Z./D.189 | 3/207 ... 3/208 | |
| | E.39 ... E.149 | 3/208 ... 3/209 | |
| Helical tandem gearbox with adapter | | | |
|  | - K4 | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/210 |
| | - K2 | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/211 |
| | - KS | Z./D.29-Z/D19 ... D.189-Z/D69 | 3/212 ... 3/213 |
| | - K5 | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/214 |
| | - K3 | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/215 |
| | - A | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/216 |
| | - AZ | Z./D.79-Z/D39 ... D.189-Z/D69 | 3/217 |
| Additional versions and options | | | |
|  | Inner contour of the flange design | 3/218 | |

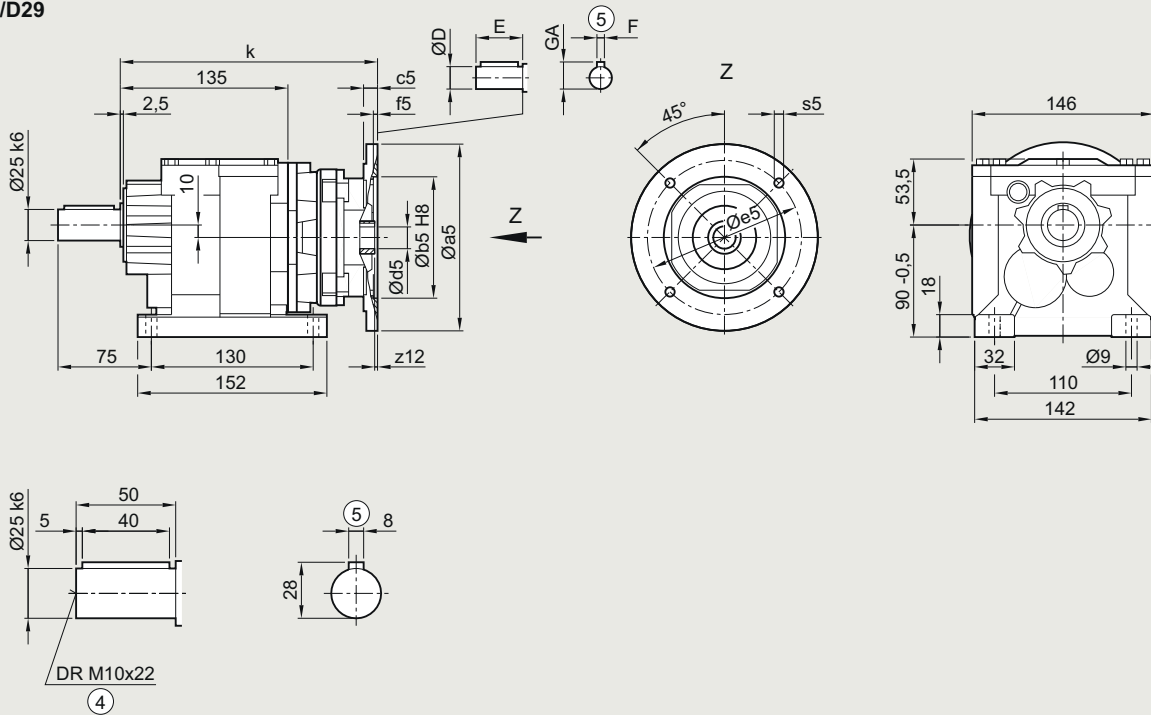
Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

Z/D29 gearbox in a foot-mounted design

Z/D29

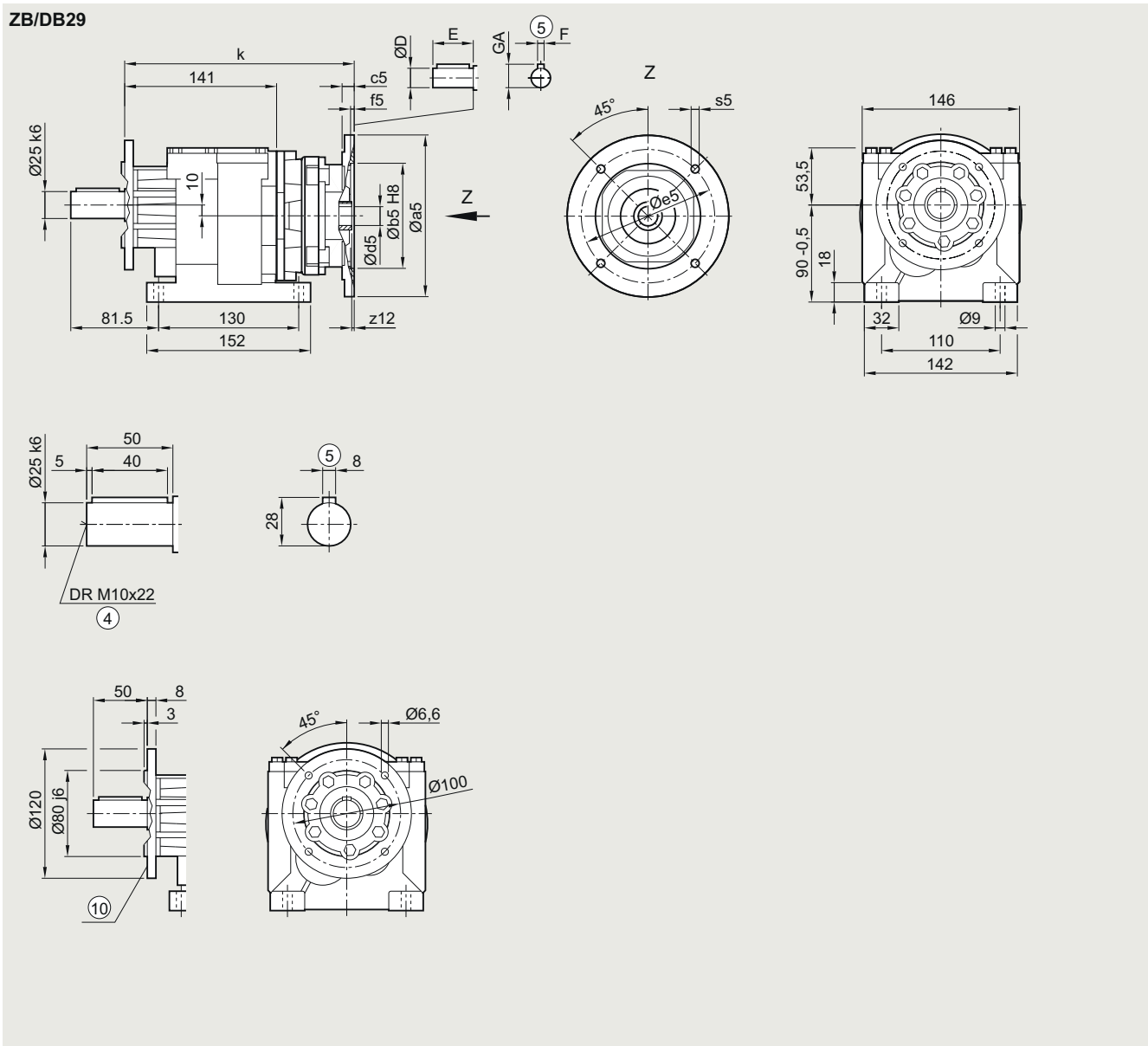


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 212.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 212.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 240.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 240.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZB/DB29 gearbox in a foot/flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 218.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 218.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 246.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 246.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

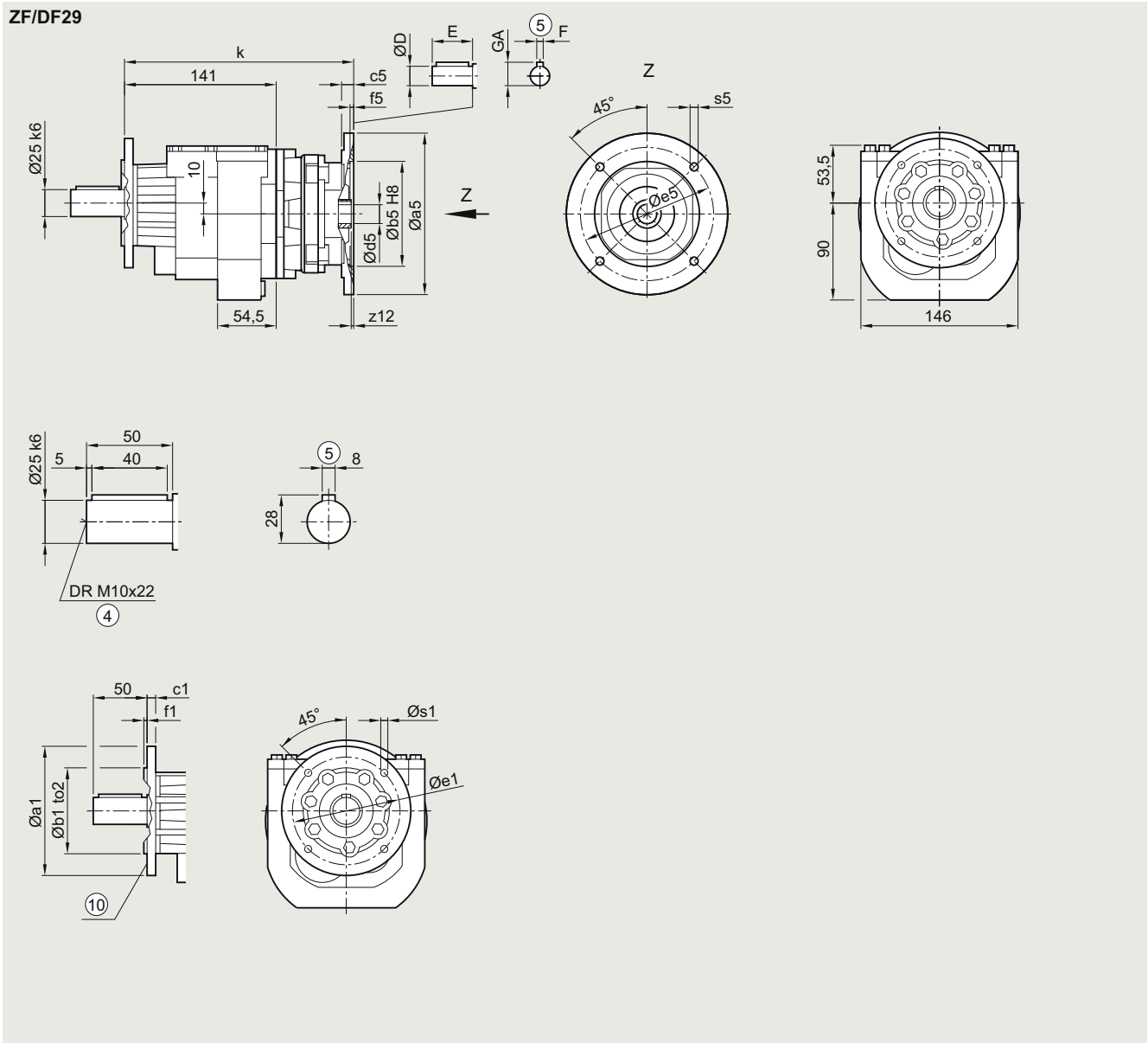
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF29 gearbox in a flange-mounted design



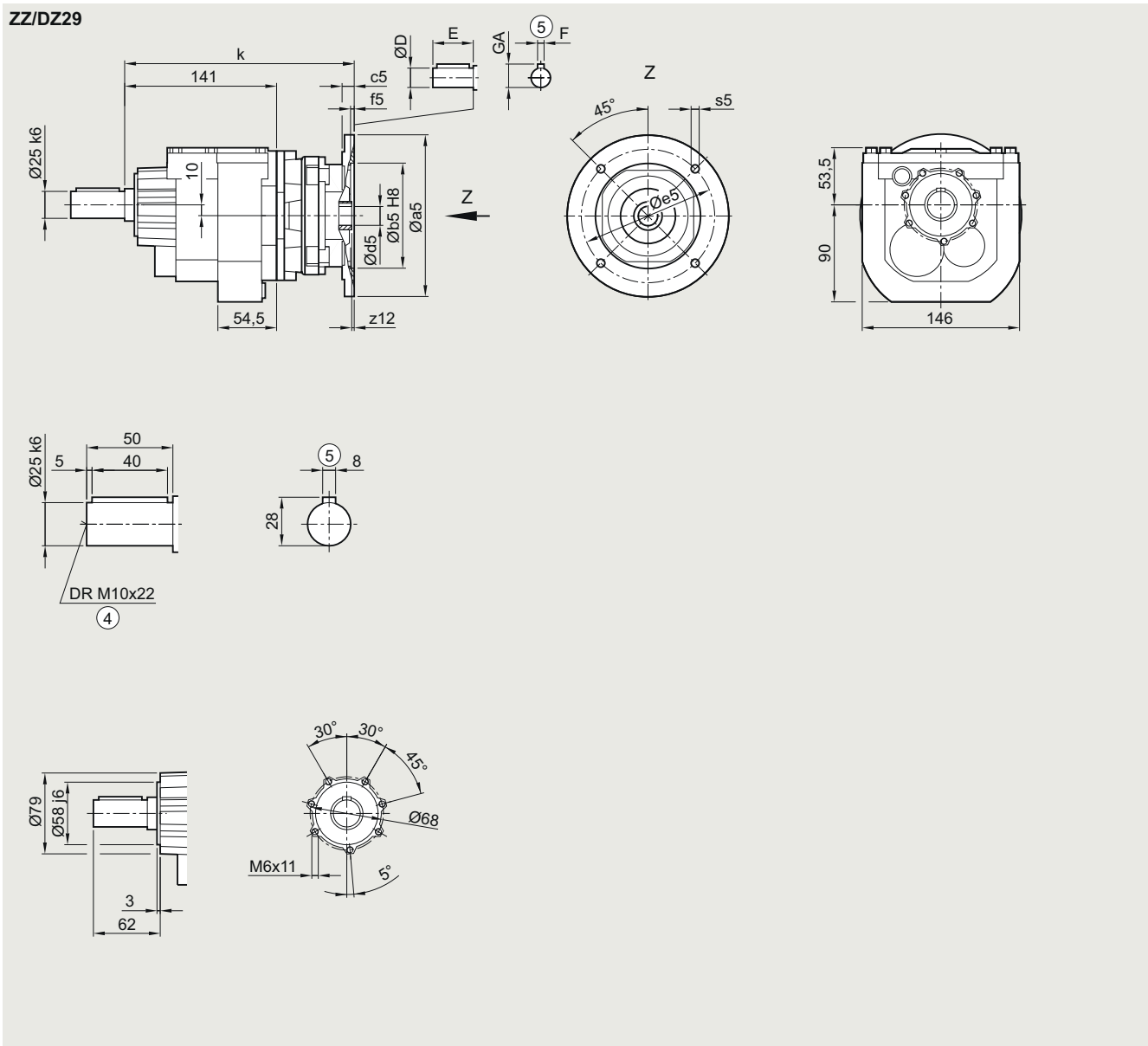
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|------|----|---|------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | | | |
| | 140 | 95 | j6 | 9 | 115 | 3.0 | 9.0 | | | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 218.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 218.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 246.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 246.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ29 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 218.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 218.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 246.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 246.5 |

④ DIN 332

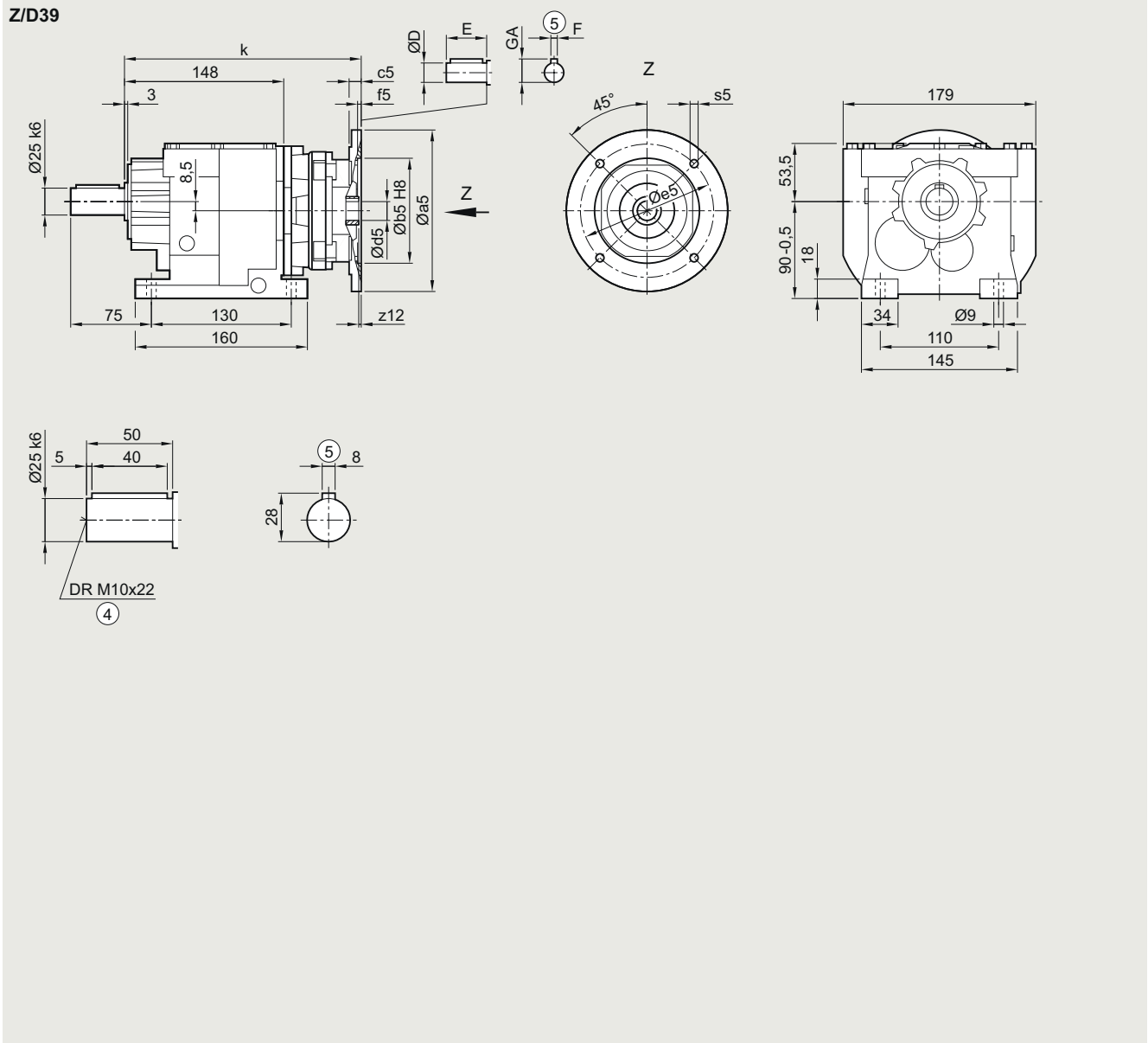
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

Z/D39 gearbox in a foot-mounted design

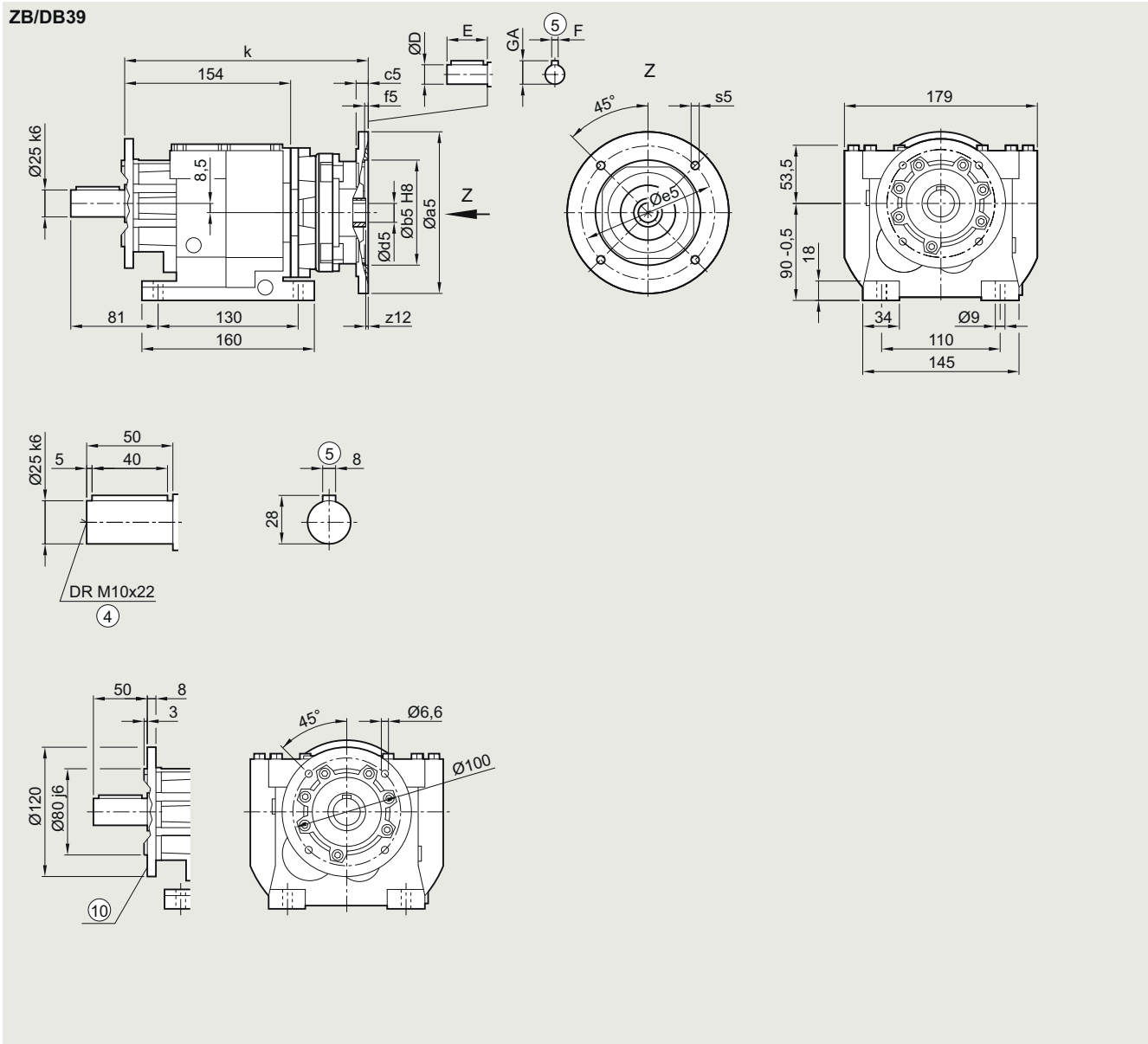


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 225.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 225.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 253.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 253.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 308.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZB/DB39 gearbox in a foot/flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 231.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 259.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 259.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 314.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

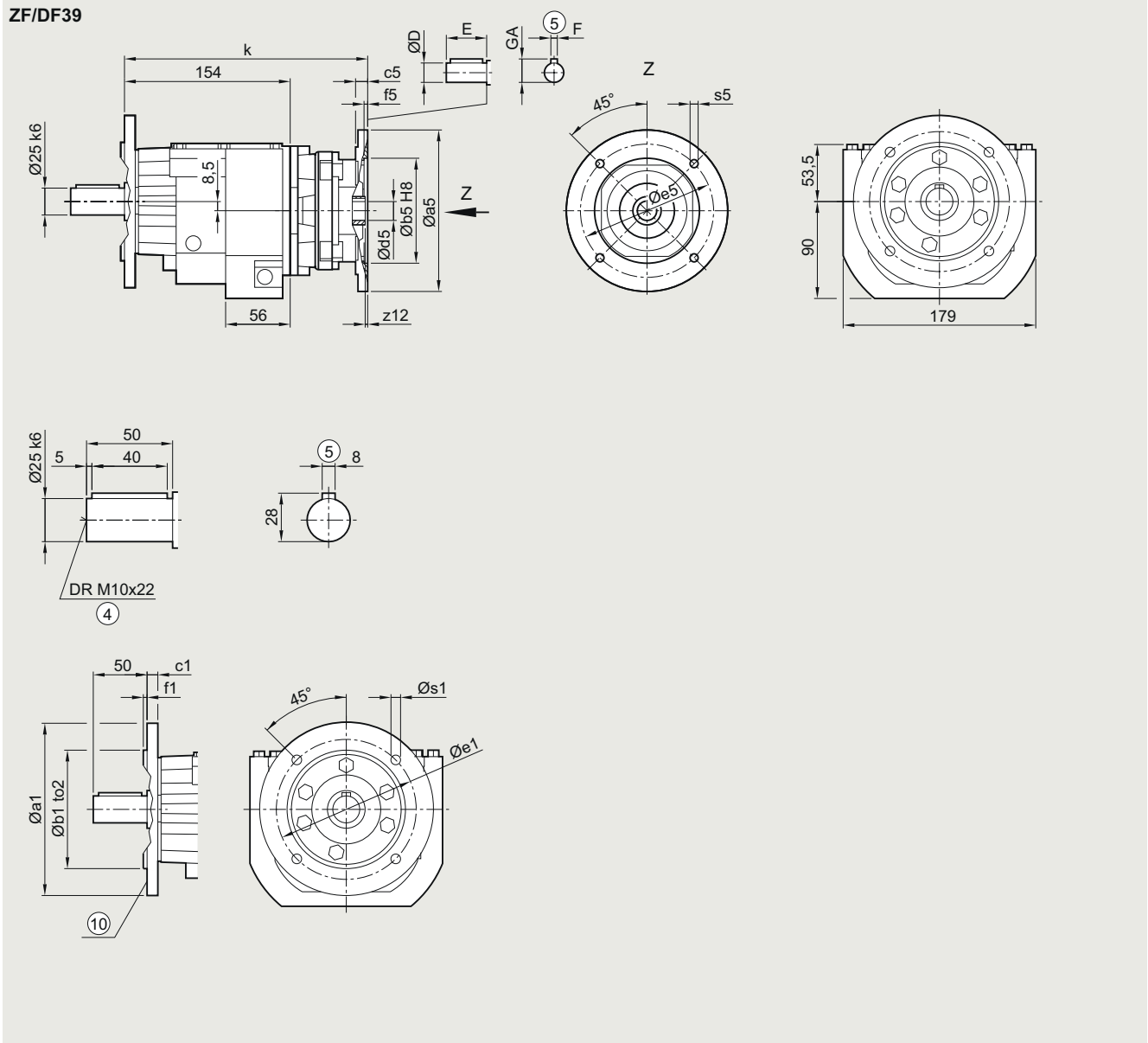
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF39 gearbox in a flange-mounted design



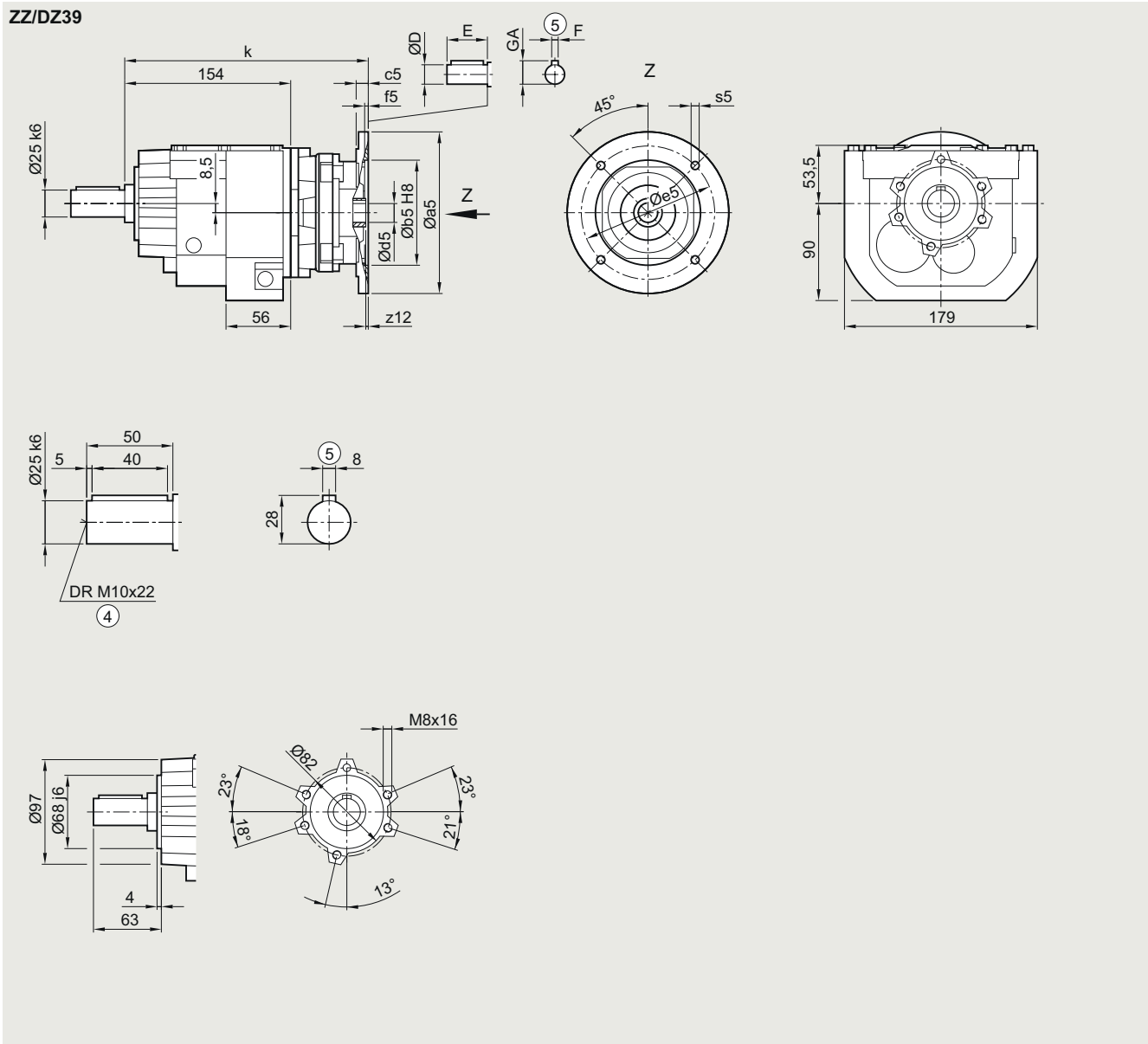
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|-----|------|------|----|---|------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 231.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 259.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 259.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 314.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ39 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 231.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 259.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 259.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 314.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

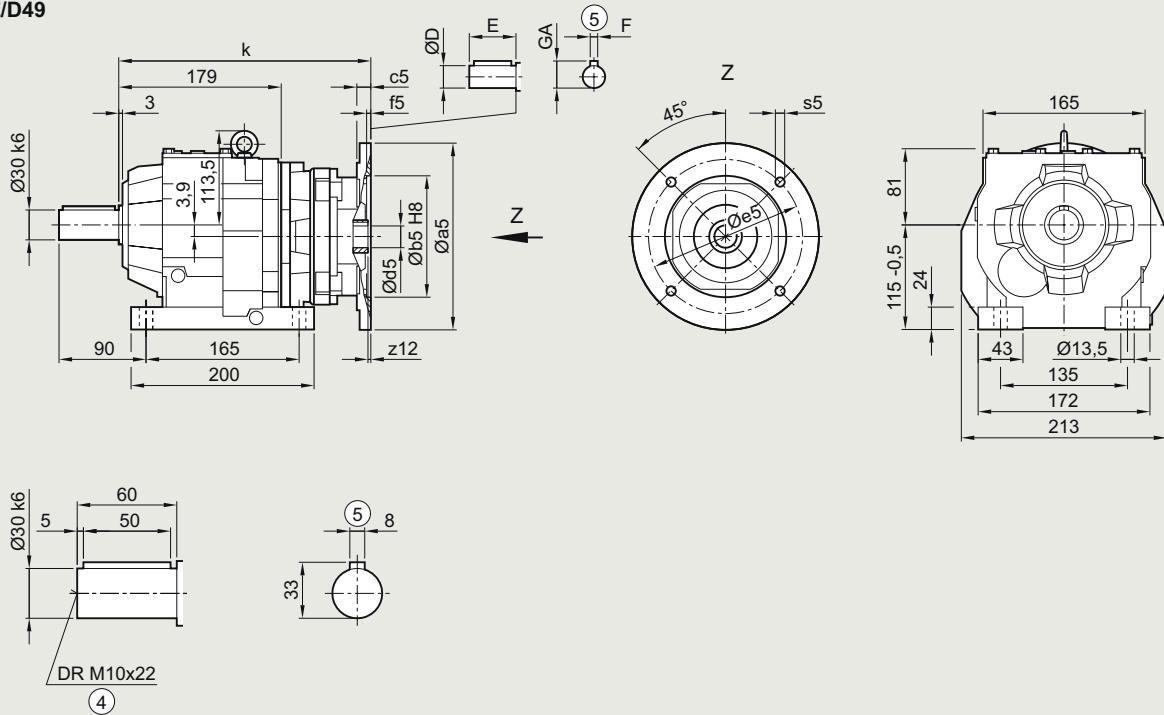
Helical gearboxes

Dimensional drawings

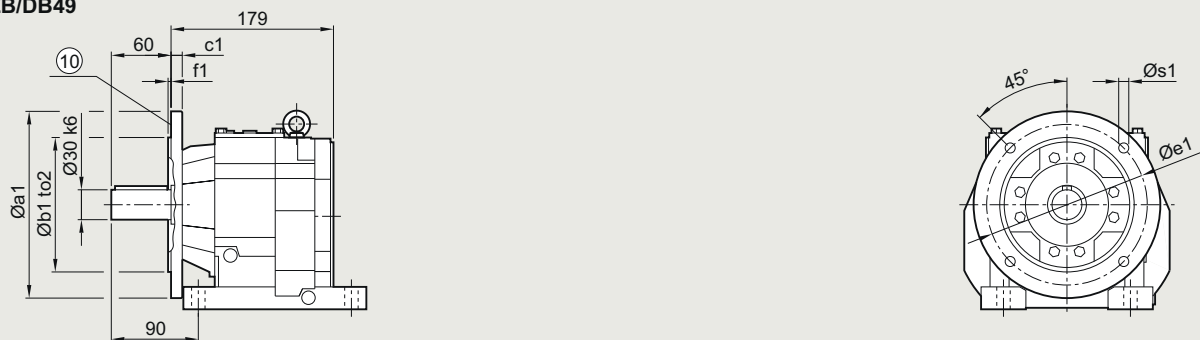
Adapter K4 for mounting an IEC motor

Z/D49 and ZB/DB49 gearboxes in a foot and foot/flange-mounted design

Z/D49



ZB/DB49



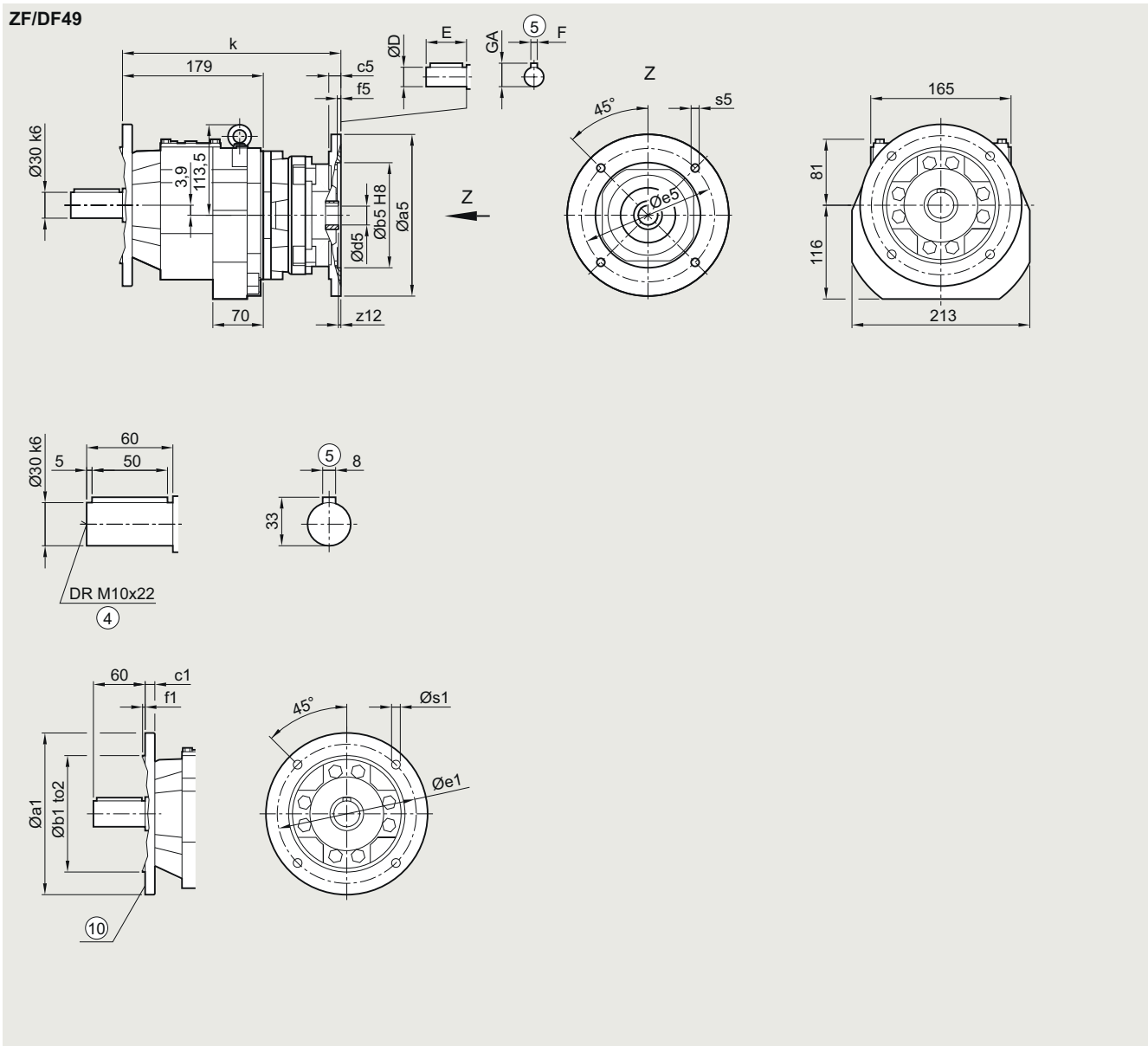
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|-----|------|----|----|------|-------|
| | 140 | 95 | j6 | 10 | 115 | 3.0 | 9.0 | | | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF49 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|----|----|------|-------|
| | 140 | 95 | j6 | 10 | 115 | 3.0 | 9.0 | | | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

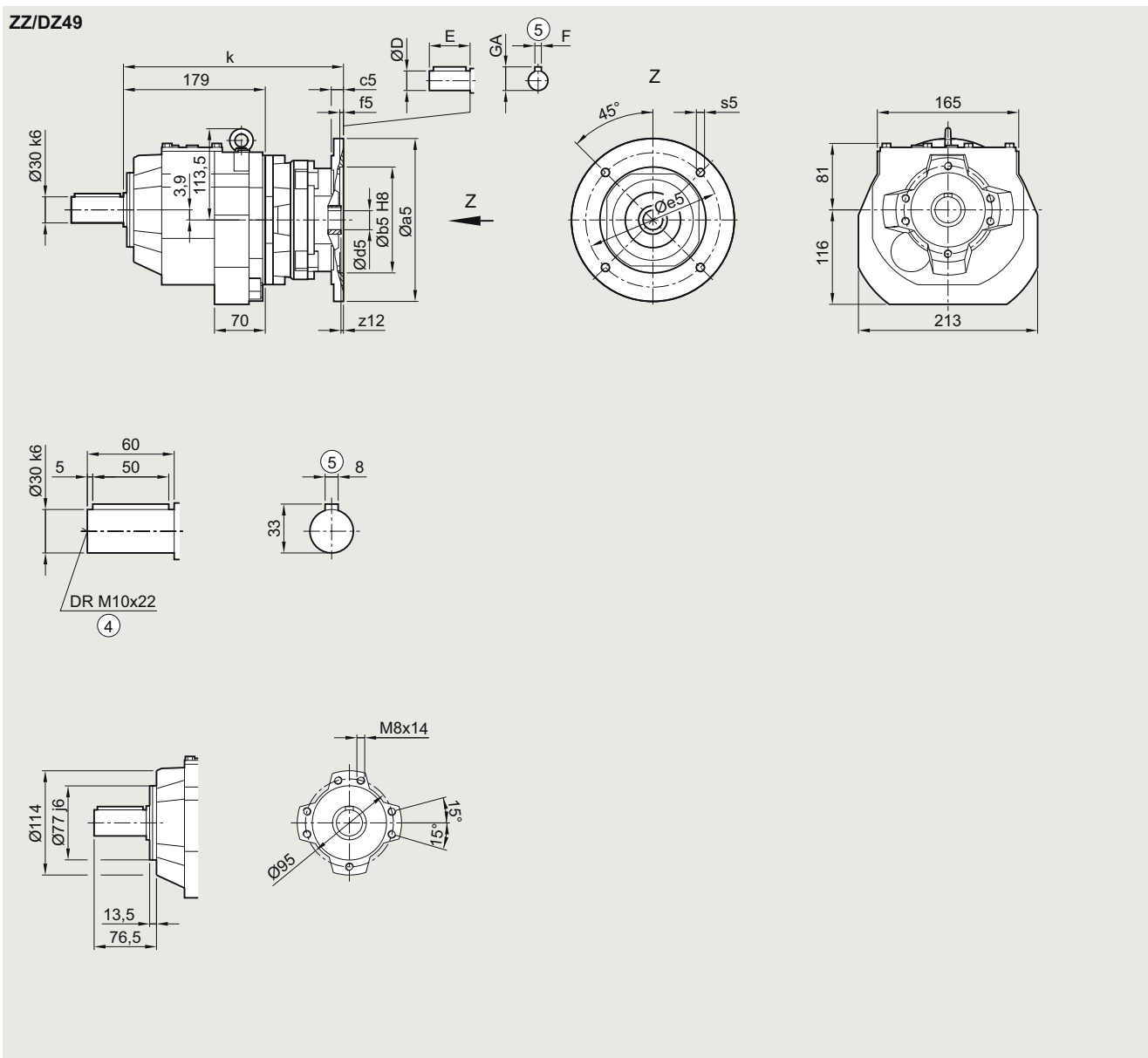
⑩ For inner contour, see page 3/218

Helical gearboxes
Dimensional drawings

Adapter K4 for mounting an IEC motor

ZZ/DZ49 gearbox in a housing flange design

3



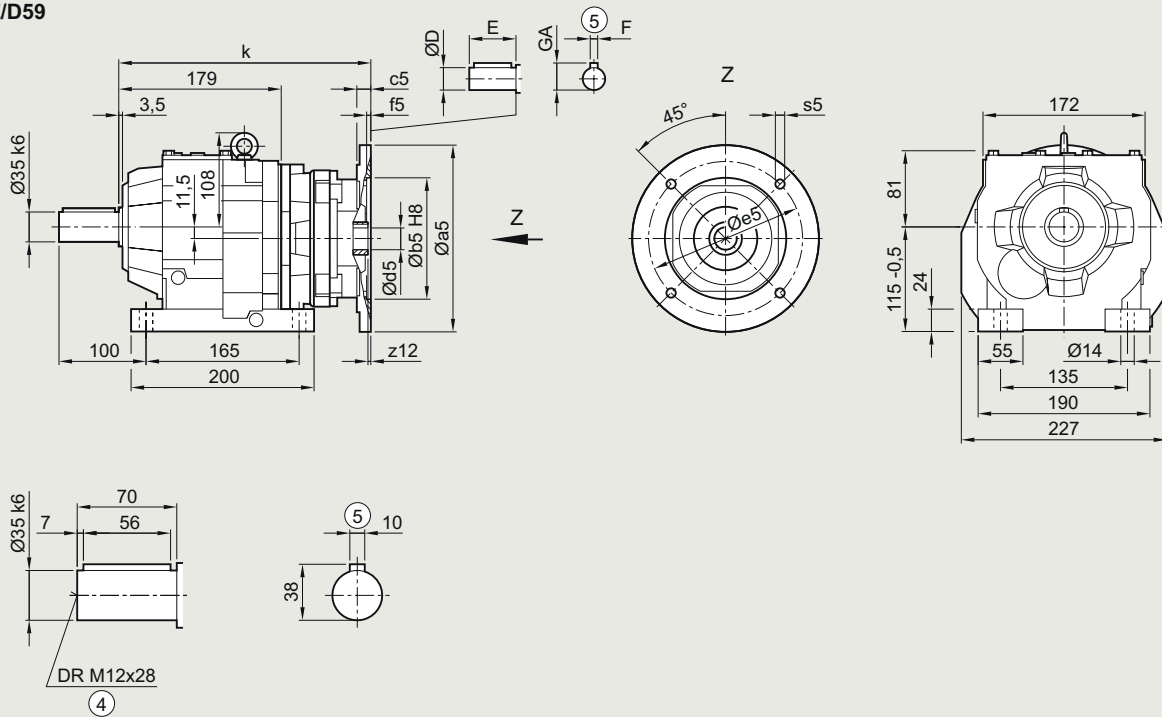
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

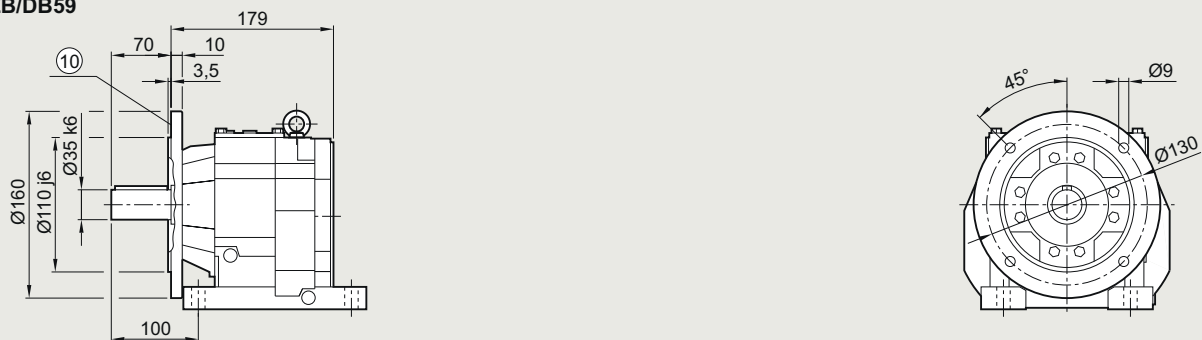
⑤ Feather key/keyway DIN 6885

Z/D59 and ZB/DB59 gearboxes in a foot and foot/flange-mounted design

Z/D59



ZB/DB59



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

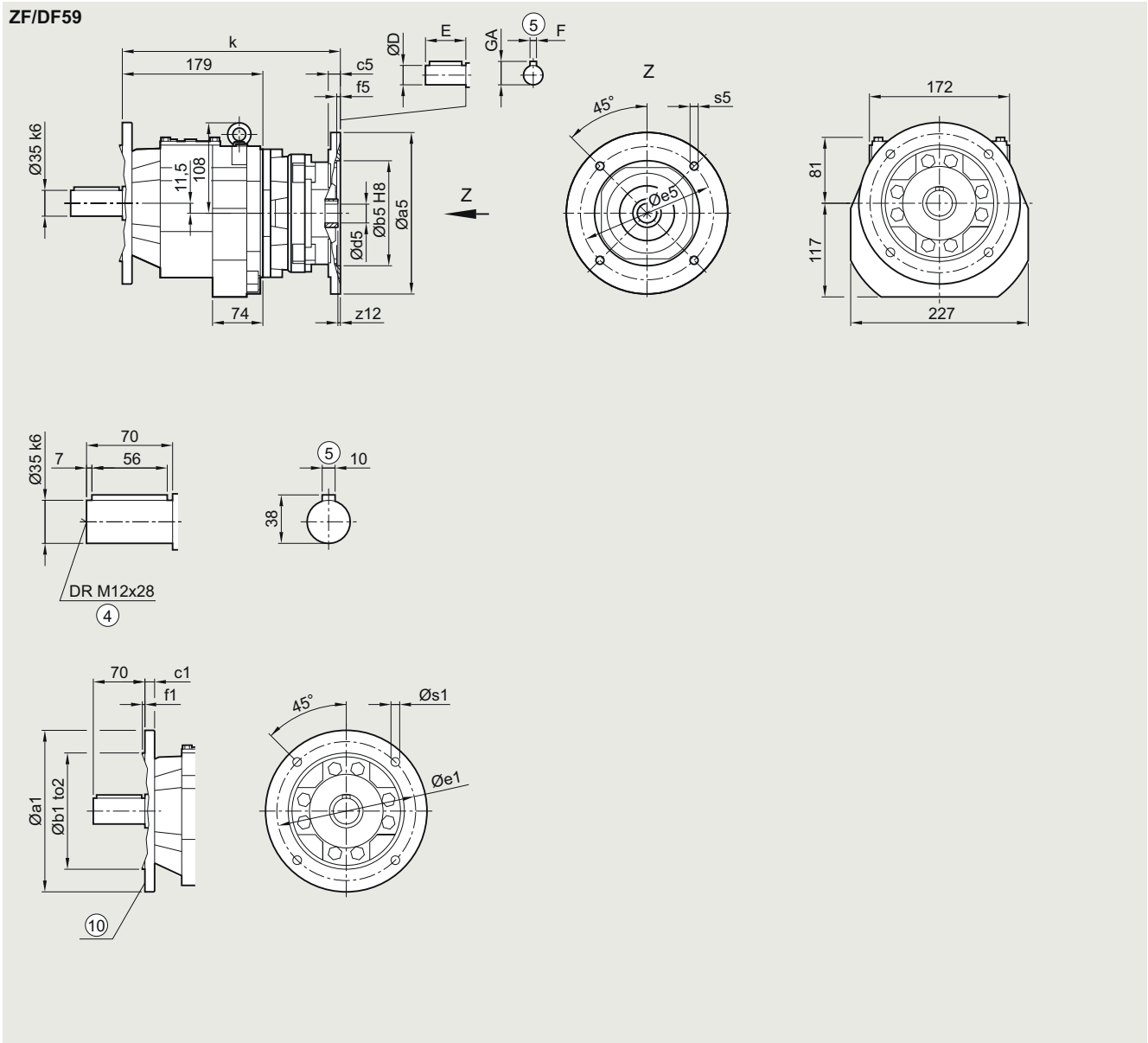
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF59 gearbox in a flange-mounted design



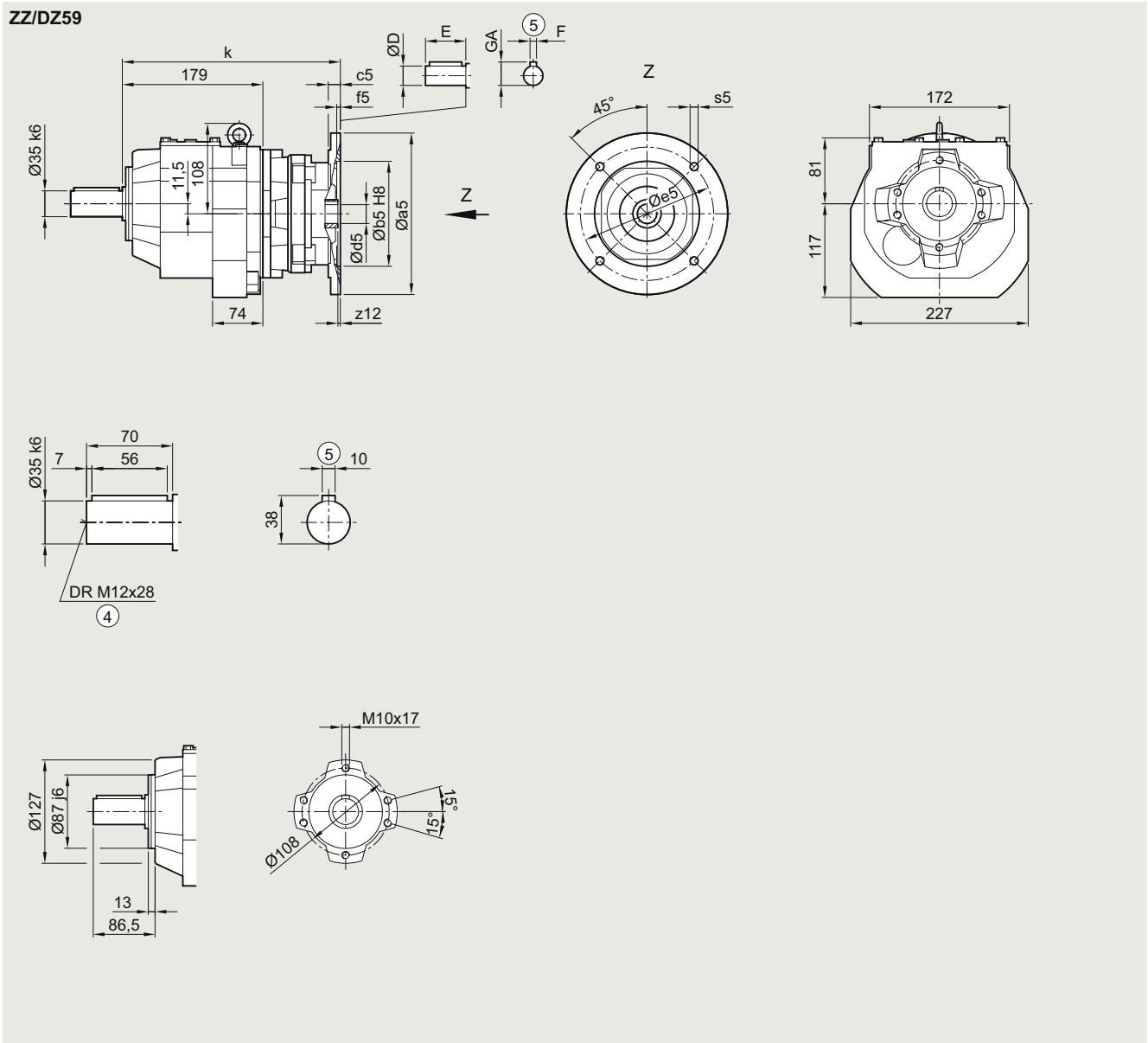
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|----|----|------|-------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ59 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 247.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 247.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 275.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 275.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 329.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 347.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

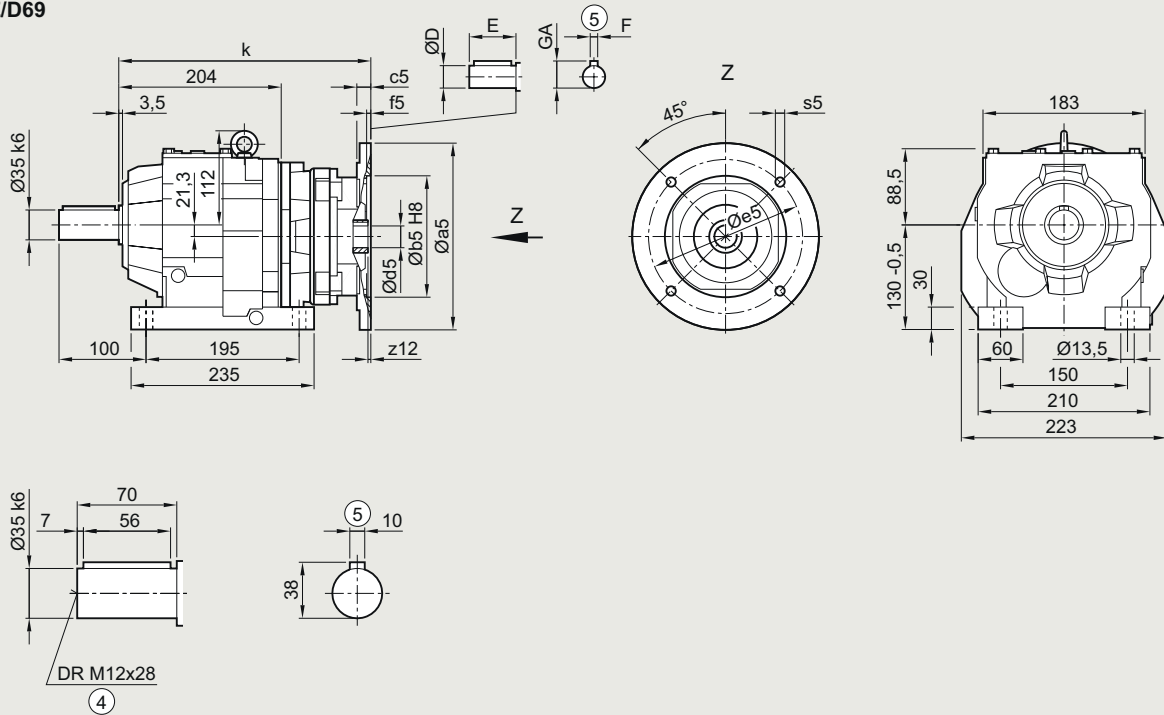
Helical gearboxes

Dimensional drawings

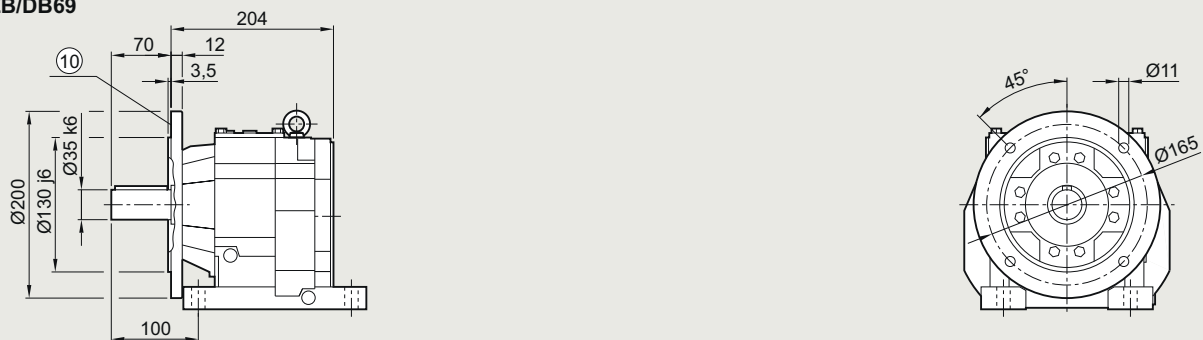
Adapter K4 for mounting an IEC motor

Z/D69 and ZB/DB69 gearboxes in a foot and foot/flange-mounted design

Z/D69



ZB/DB69



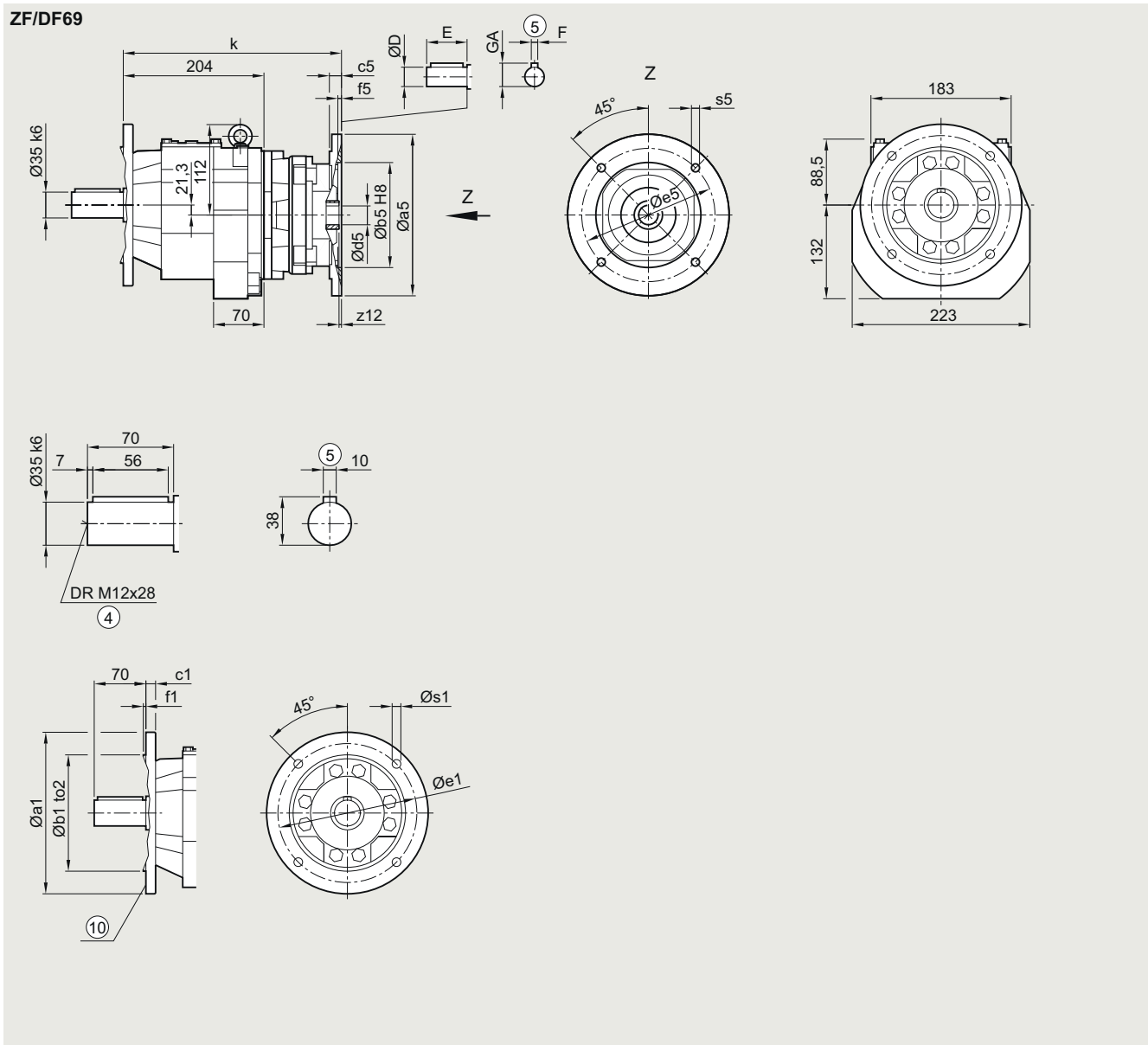
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 272.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 272.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 300.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 300.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 372.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF69 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|----|----|------|-------|
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 272.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 272.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 300.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 300.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 372.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

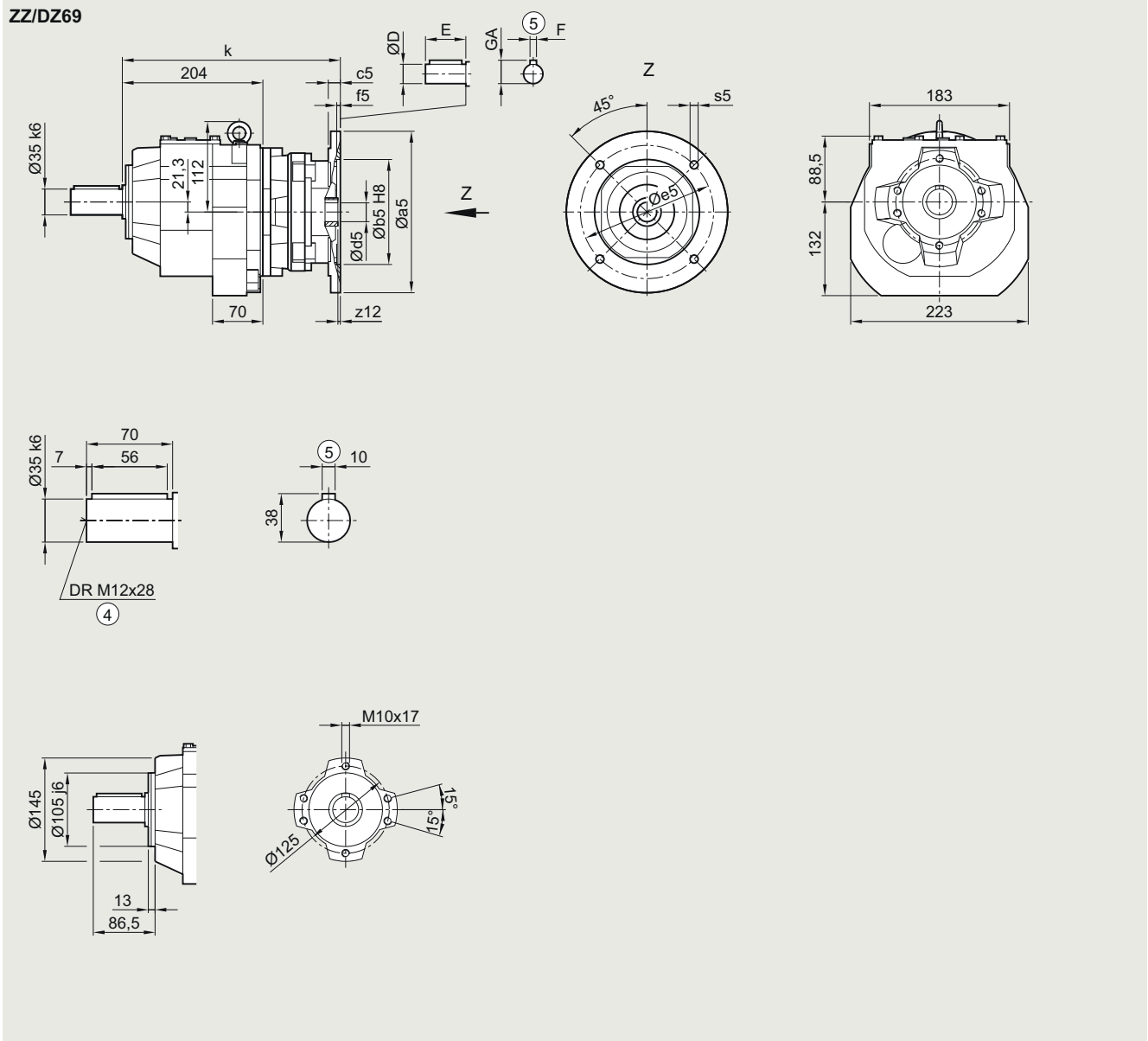
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZZ/DZ69 gearbox in a housing flange design



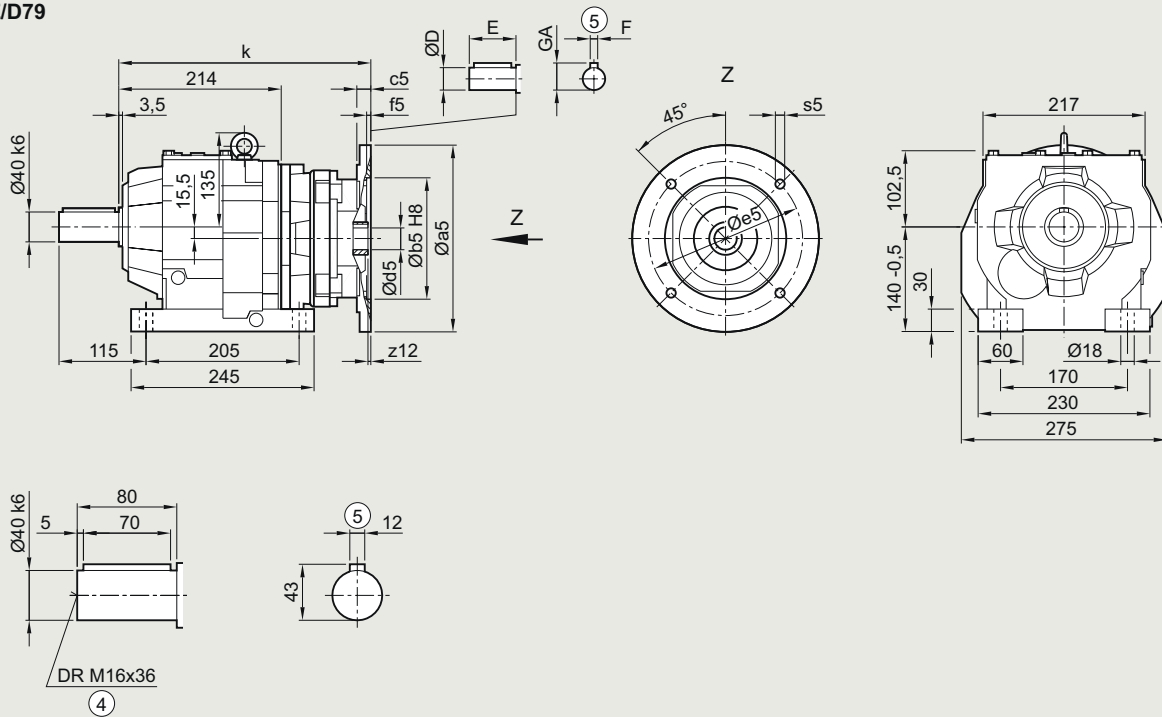
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 272.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 272.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 300.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 300.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 354.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 372.0 |

④ DIN 332

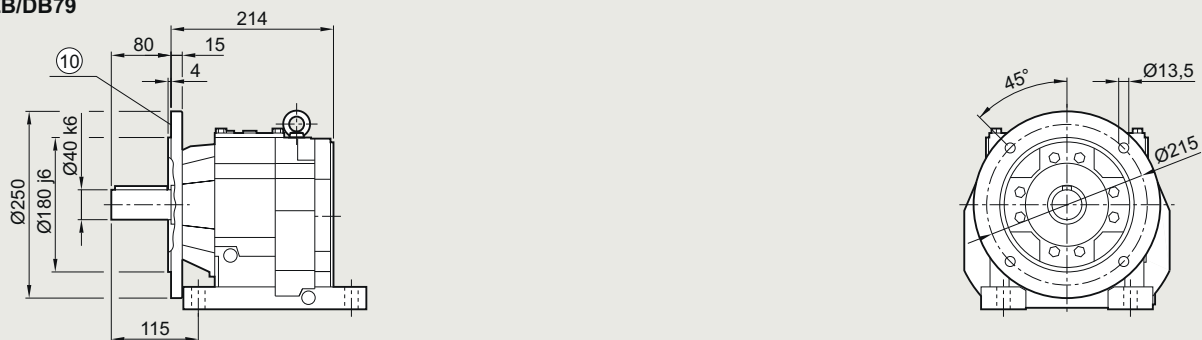
⑤ Feather key/keyway DIN 6885

Z/D79 and ZB/DB79 gearboxes in a foot and foot/flange-mounted design

Z/D79



ZB/DB79



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 280.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 304.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 304.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 376.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 406.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

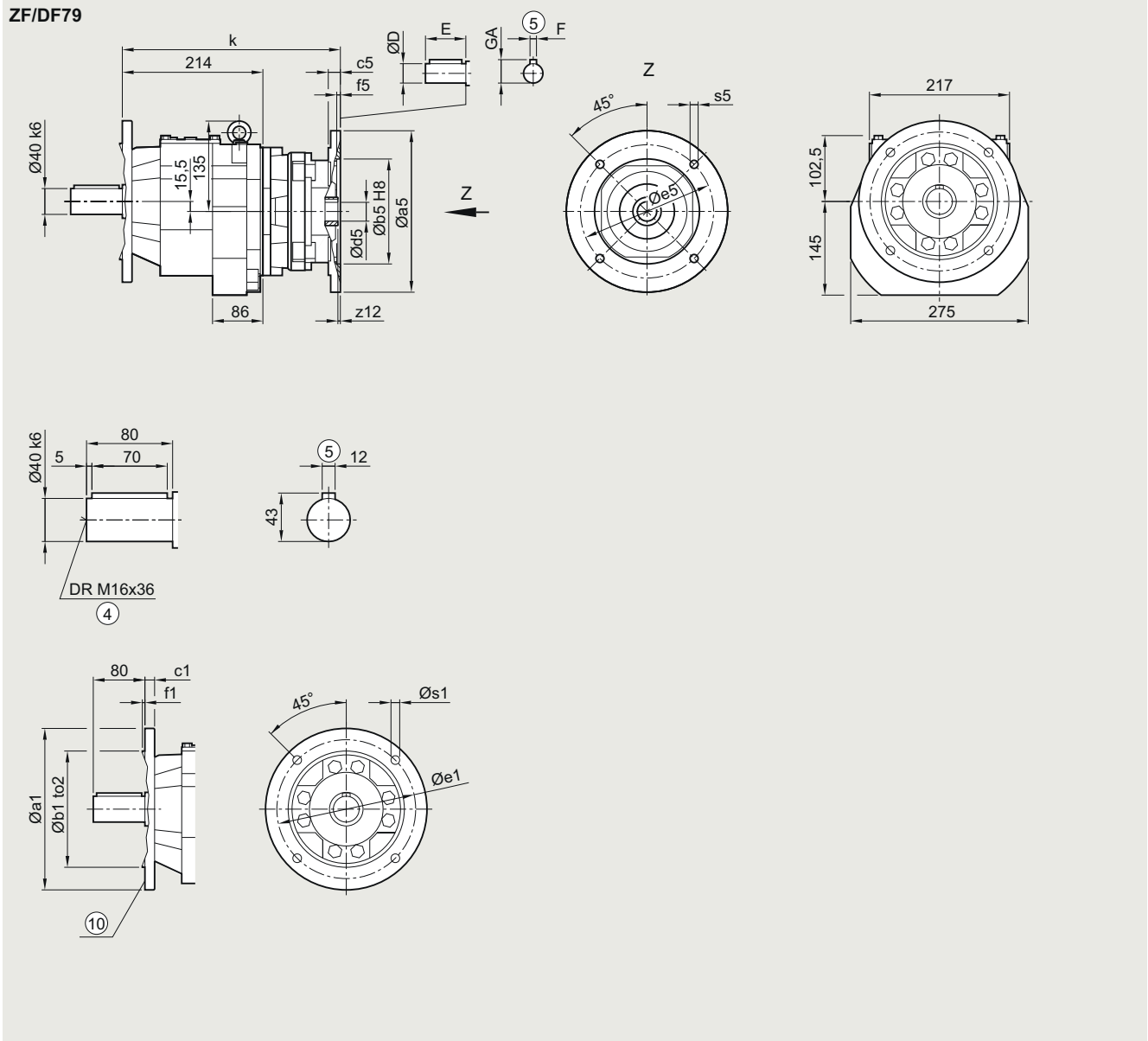
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF79 gearbox in a flange-mounted design



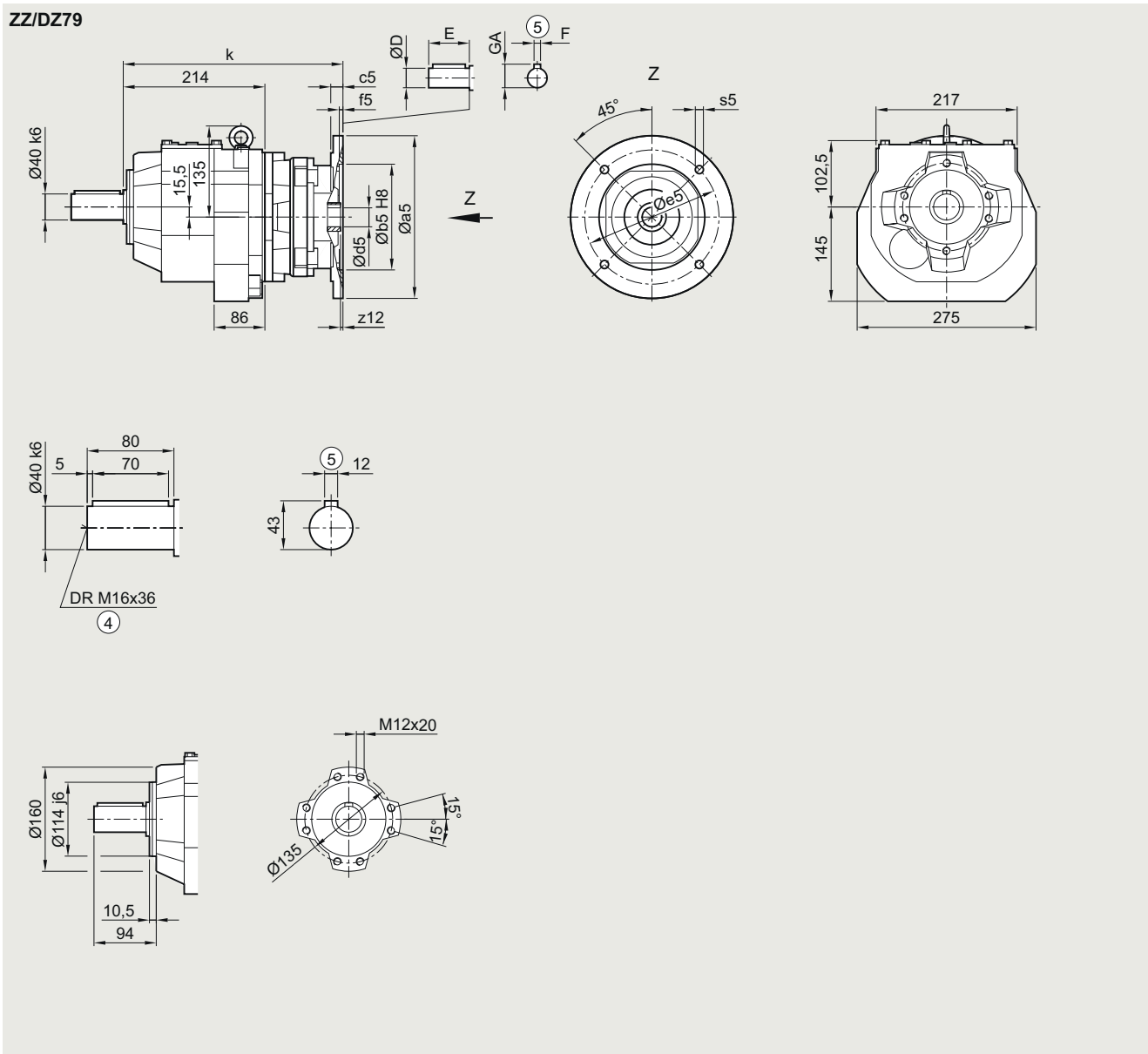
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | | | |
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | | | |
| | 350 | 250 | j6 | 16 | 300 | 5.0 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 280.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 304.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 304.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 376.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 406.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ79 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 280.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 304.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 304.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 358.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 376.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 406.0 |

④ DIN 332

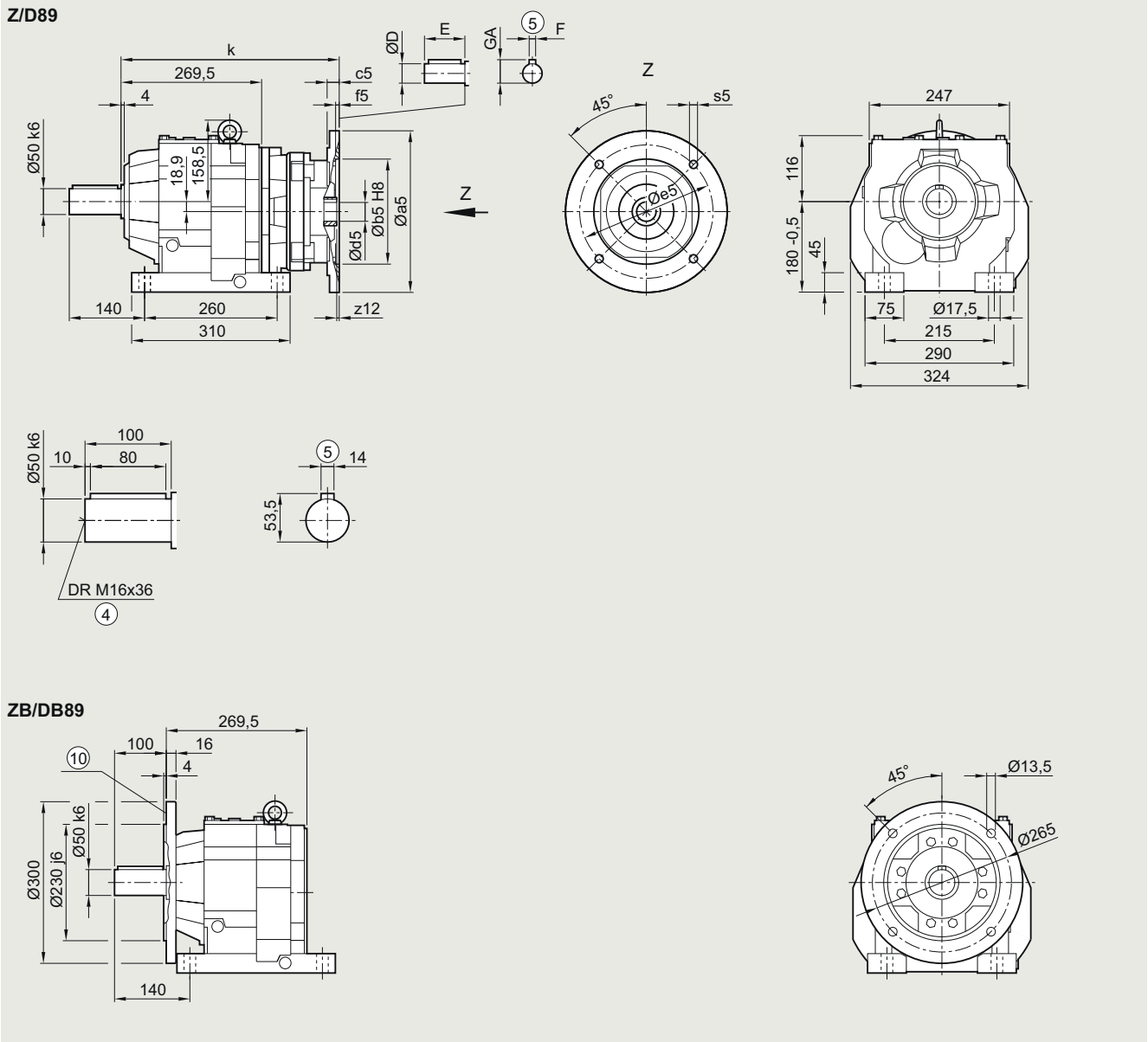
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

Z/D89 and ZB/DB89 gearboxes in a foot and foot/flange-mounted design



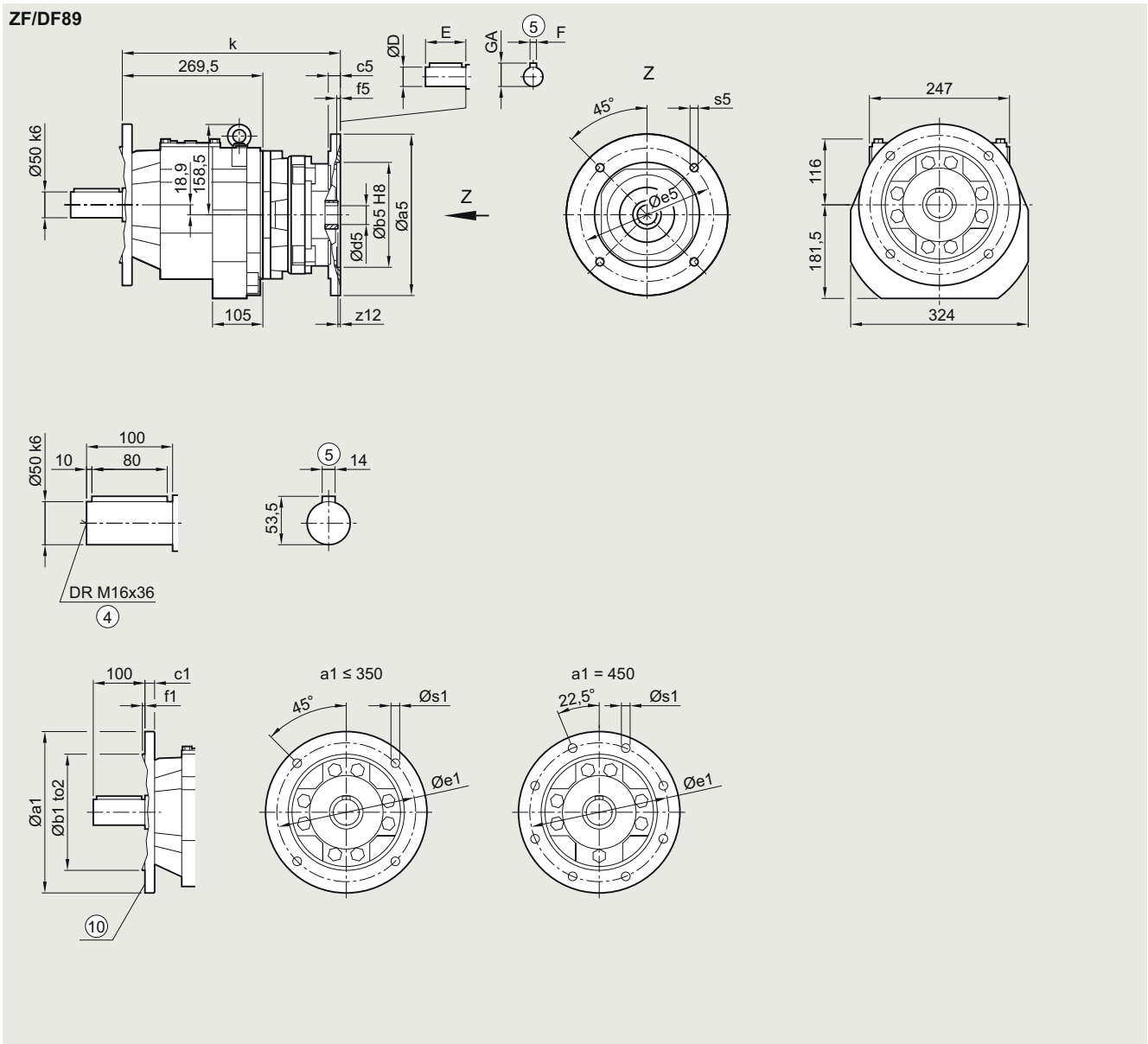
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 346.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 346.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 414.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 444.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 444.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF89 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|-----|------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 346.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 346.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 414.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 444.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 444.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

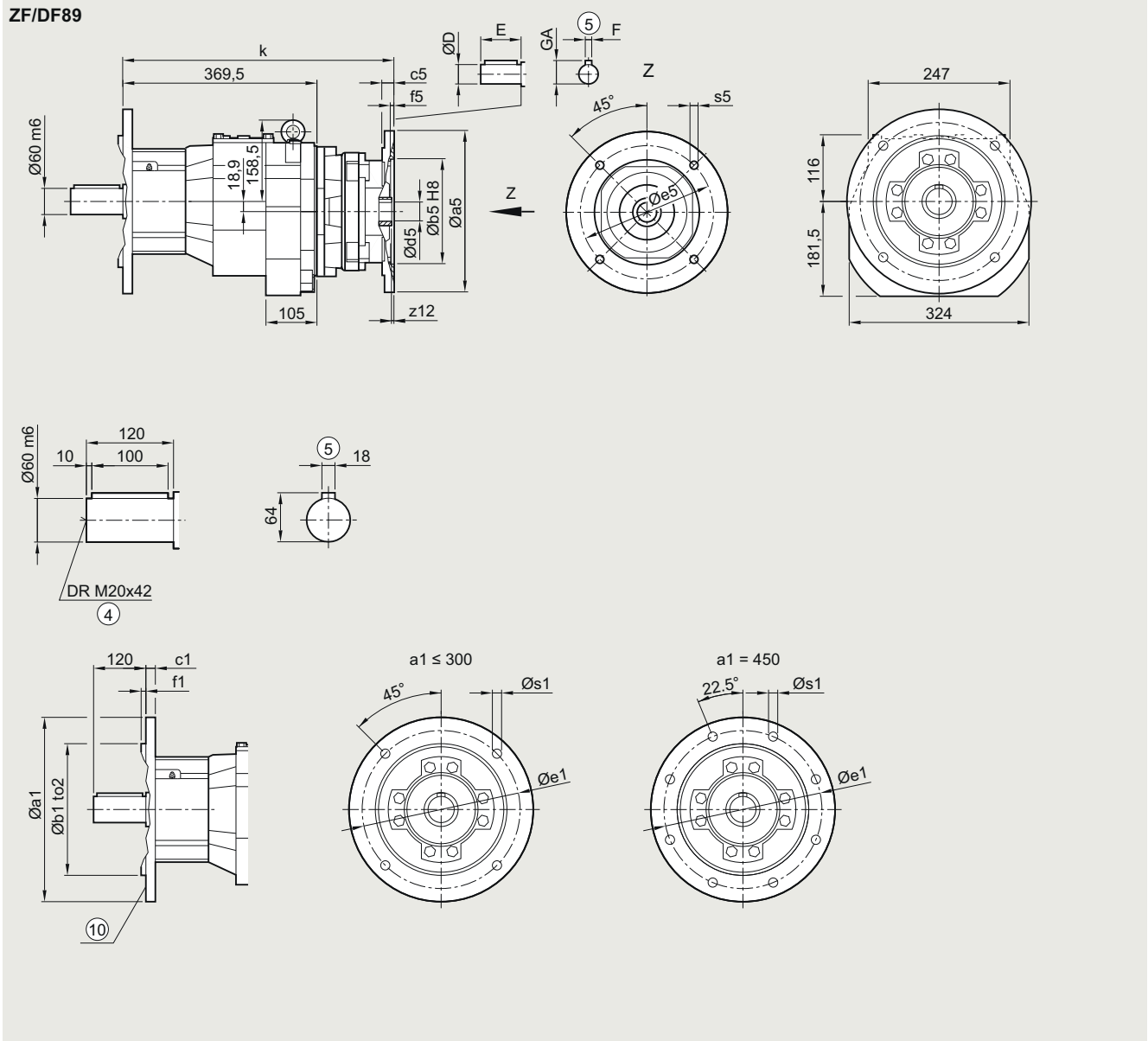
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



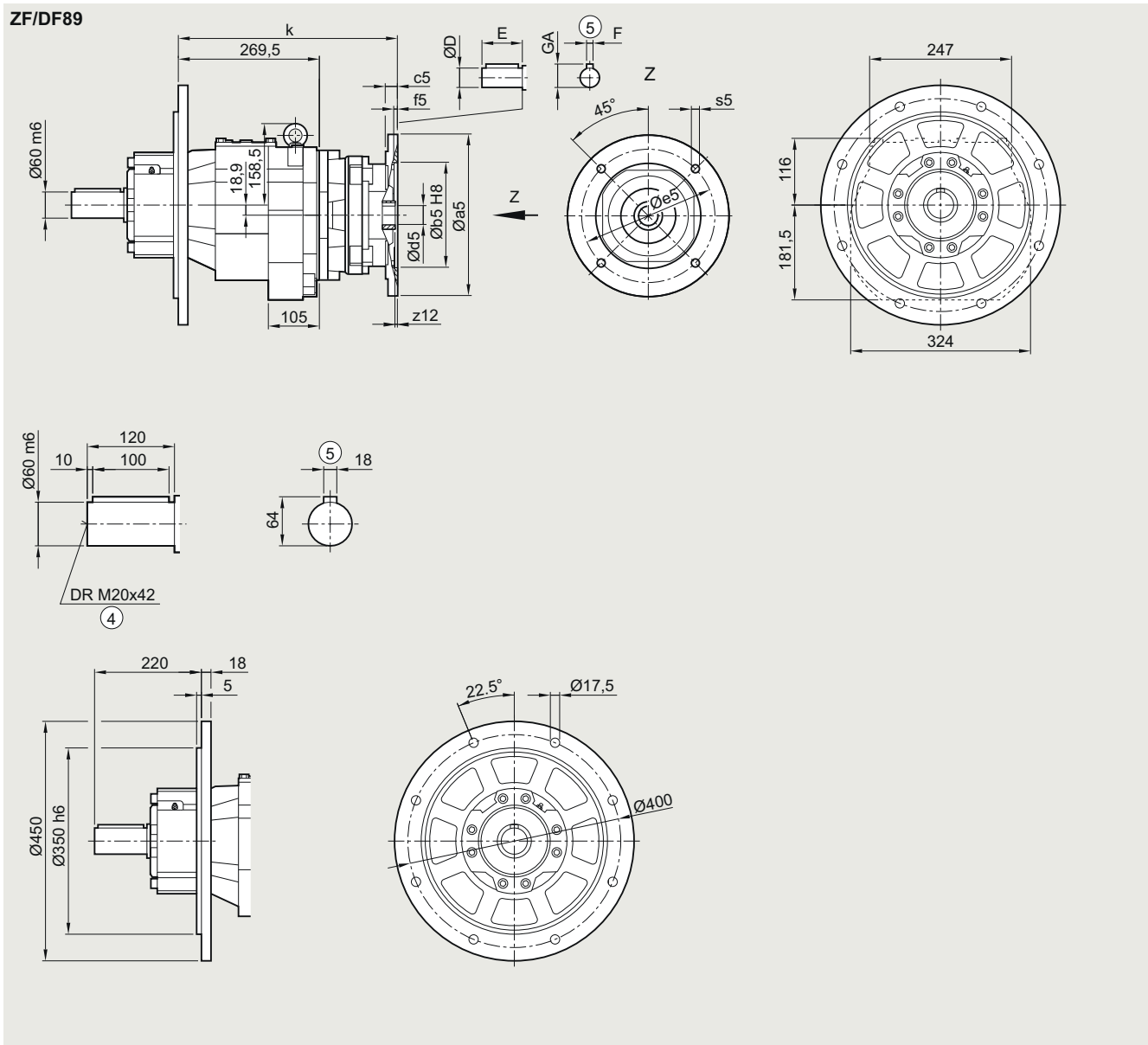
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|-----|------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 346.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 346.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 414.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 444.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 444.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF89 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 346.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 346.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 414.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 444.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 444.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

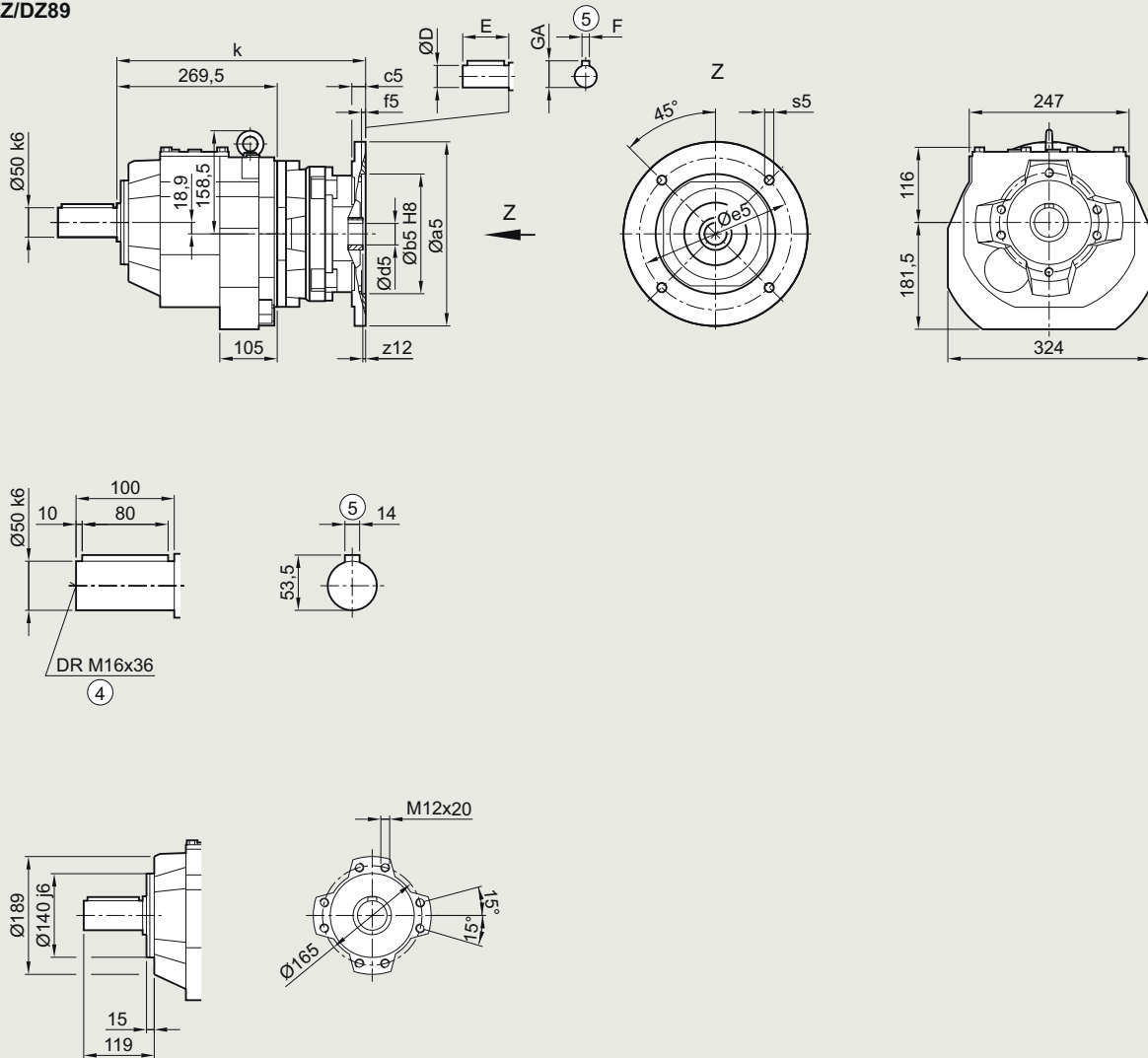
Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZZ/DZ89 gearbox in a housing flange design

ZZ/DZ89

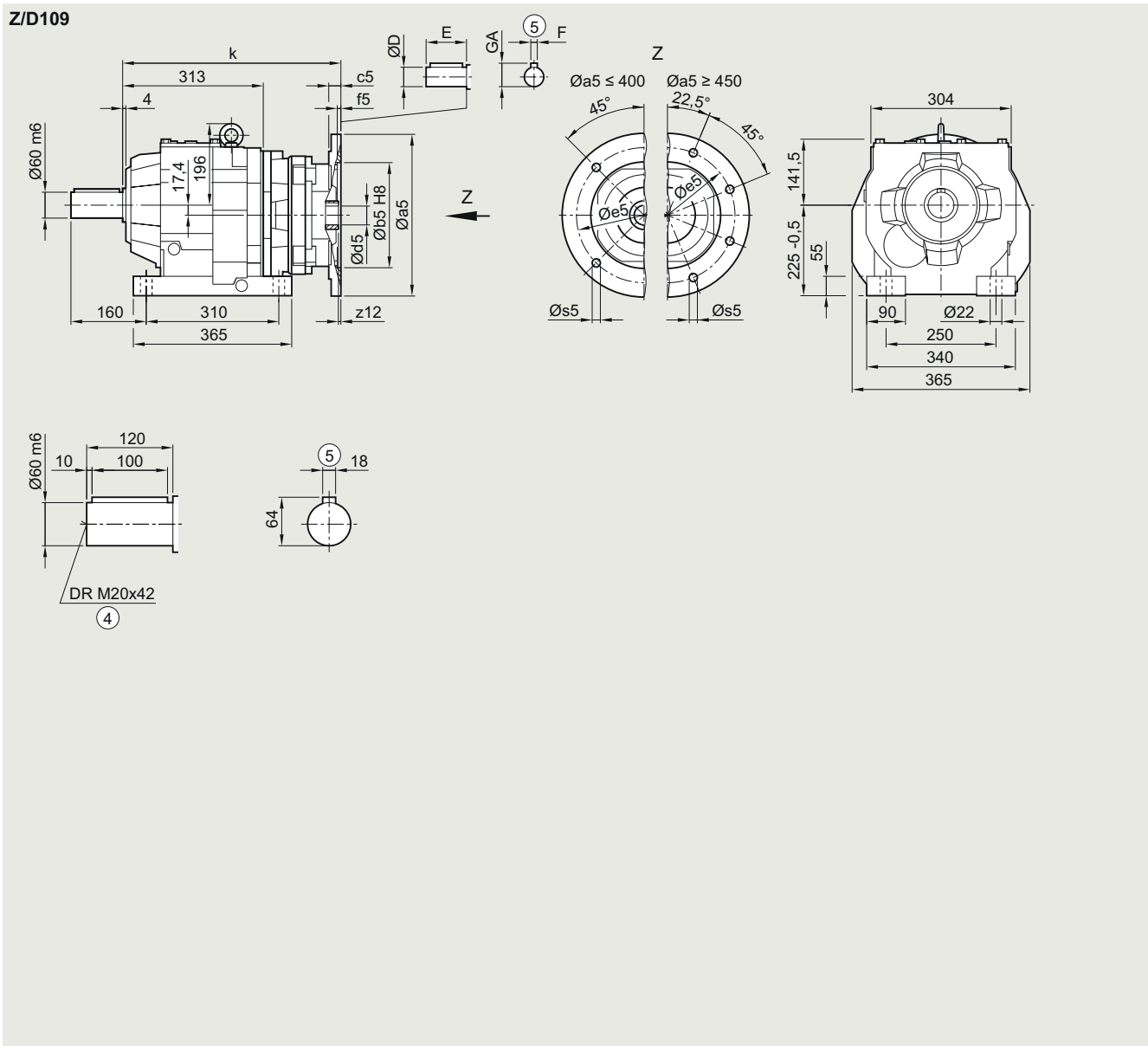


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 21.5 | 346.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 346.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 397.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 414.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 444.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 444.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D109 gearbox in a foot-mounted design



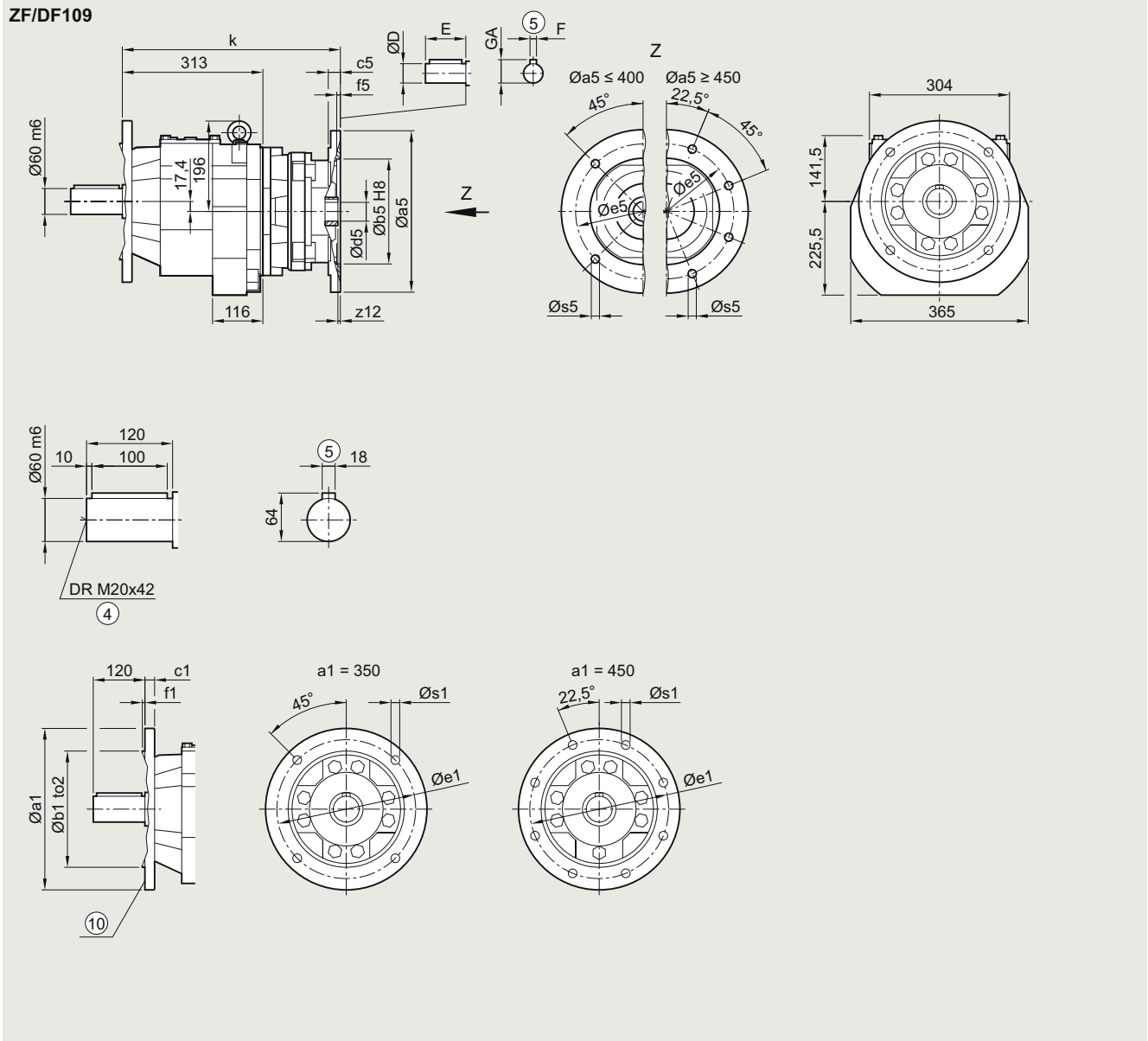
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 383.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 449.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 479.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 479.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 519.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 526.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor**ZF/DF109 gearbox in a flange-mounted design**

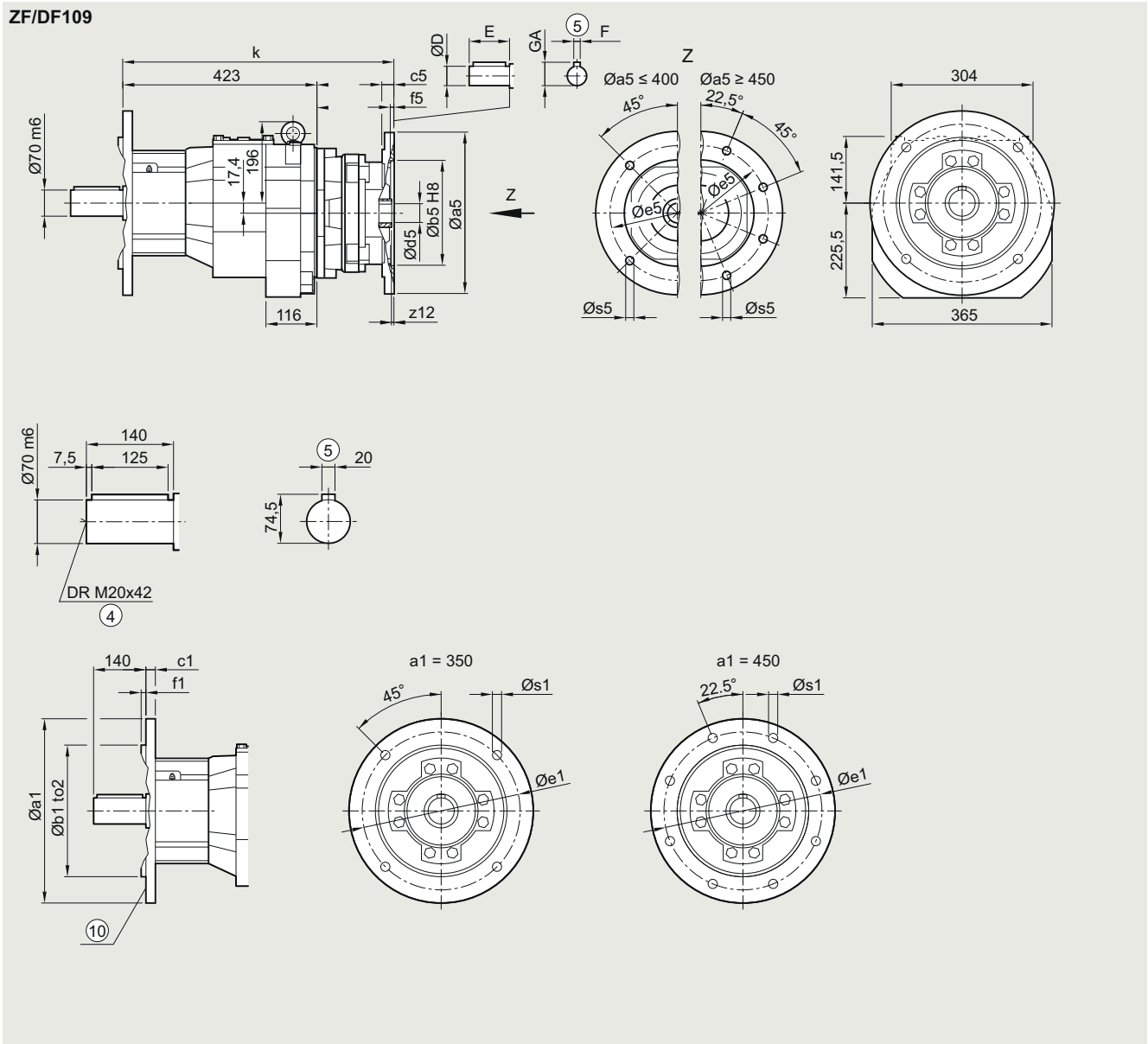
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 383.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 449.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 479.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 479.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 519.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 526.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



3

| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 383.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 449.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 479.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 479.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 519.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 526.0 |

④ DIN 332

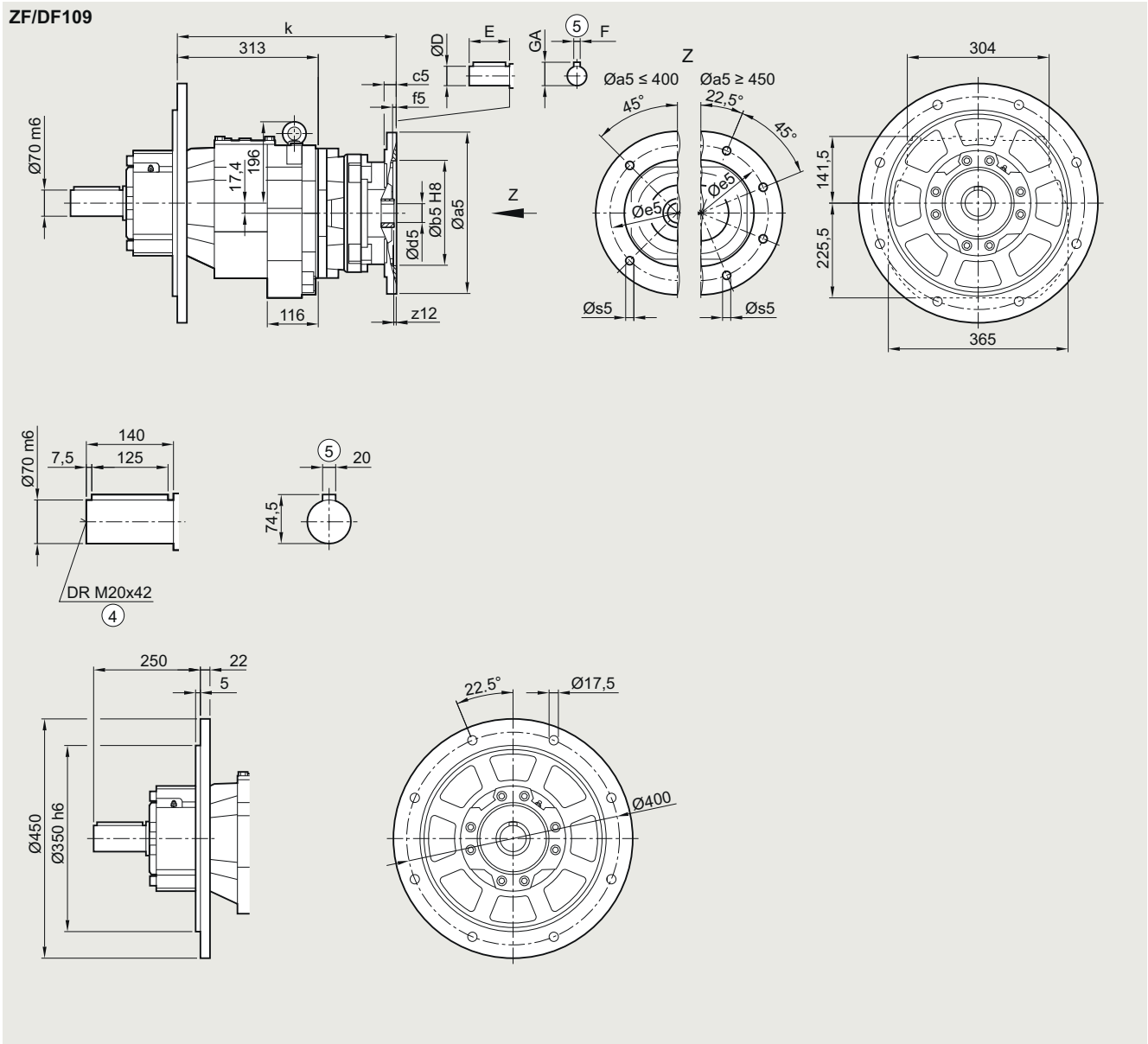
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF109 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)

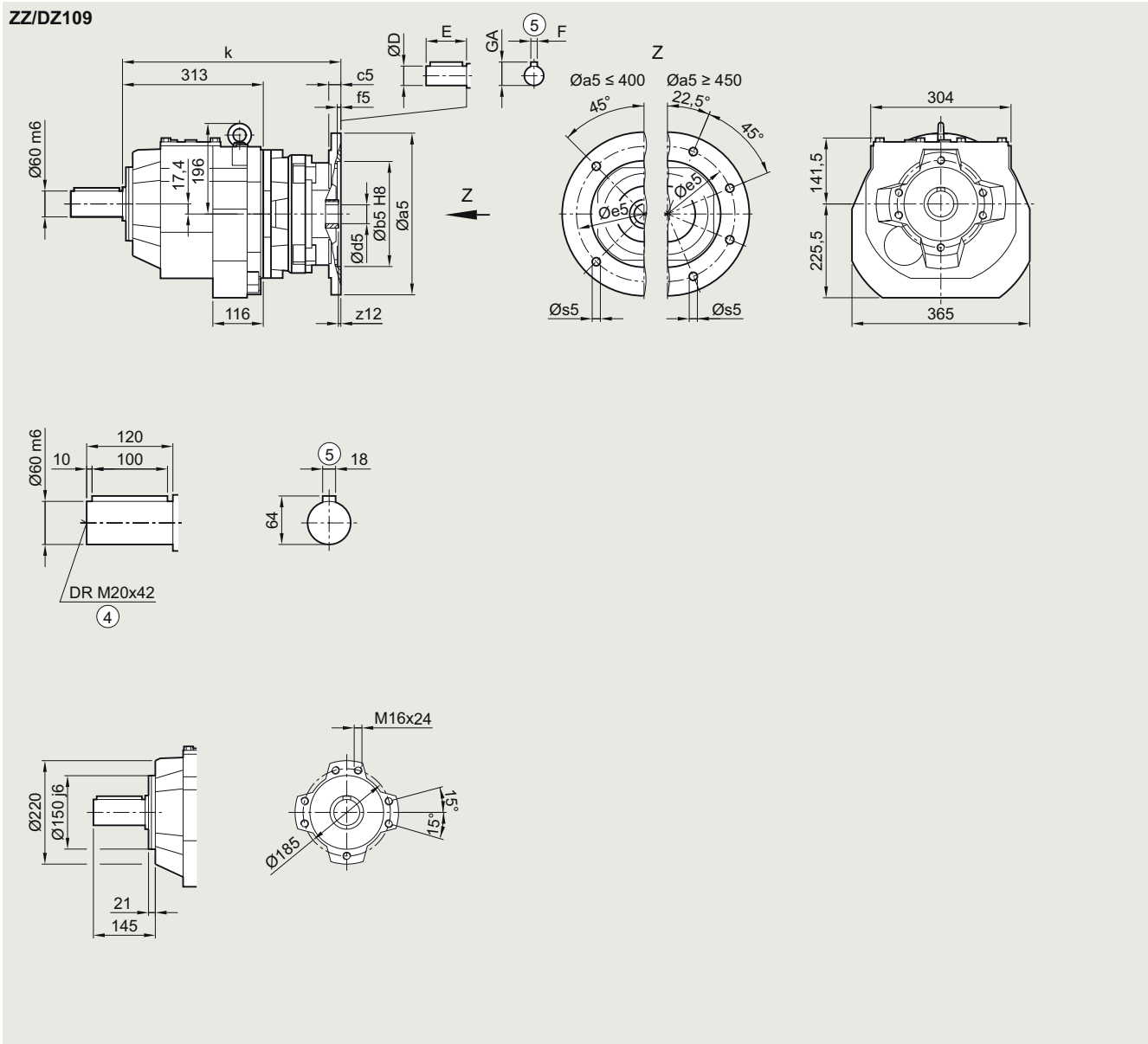


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 383.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 449.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 479.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 479.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 519.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 526.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZZ/DZ109 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 383.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 431.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 449.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 479.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 479.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 519.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 526.0 |

④ DIN 332

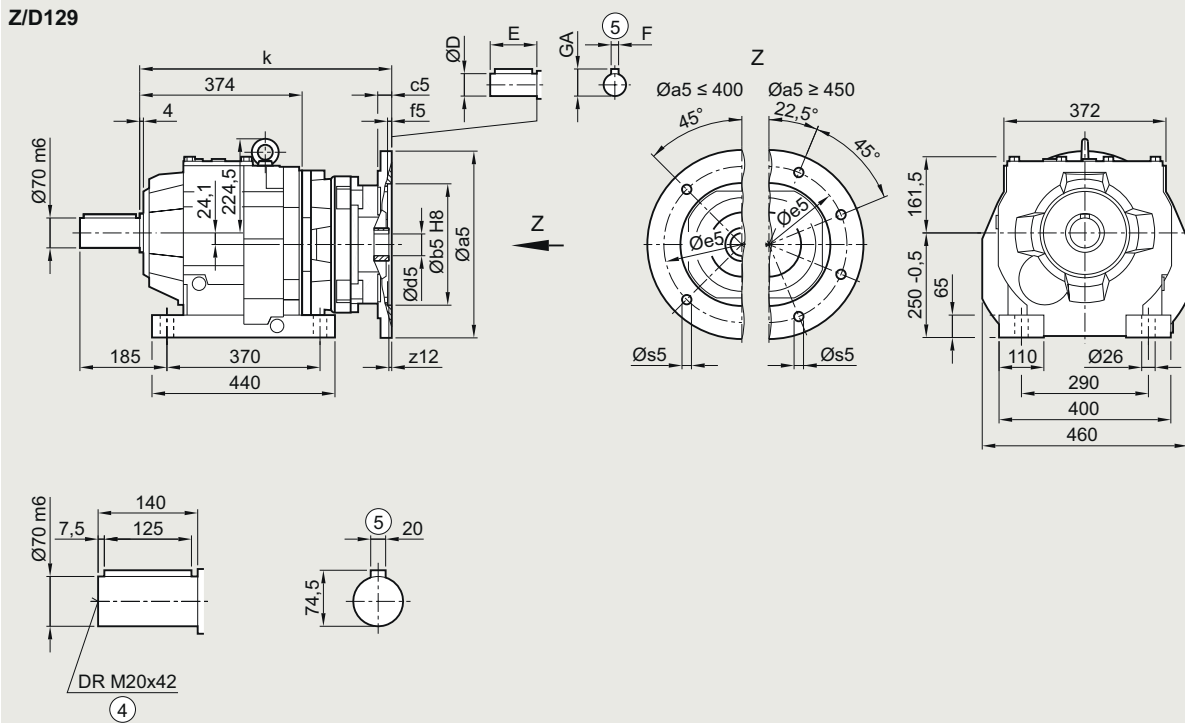
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

Z/D129 gearbox in a foot-mounted design

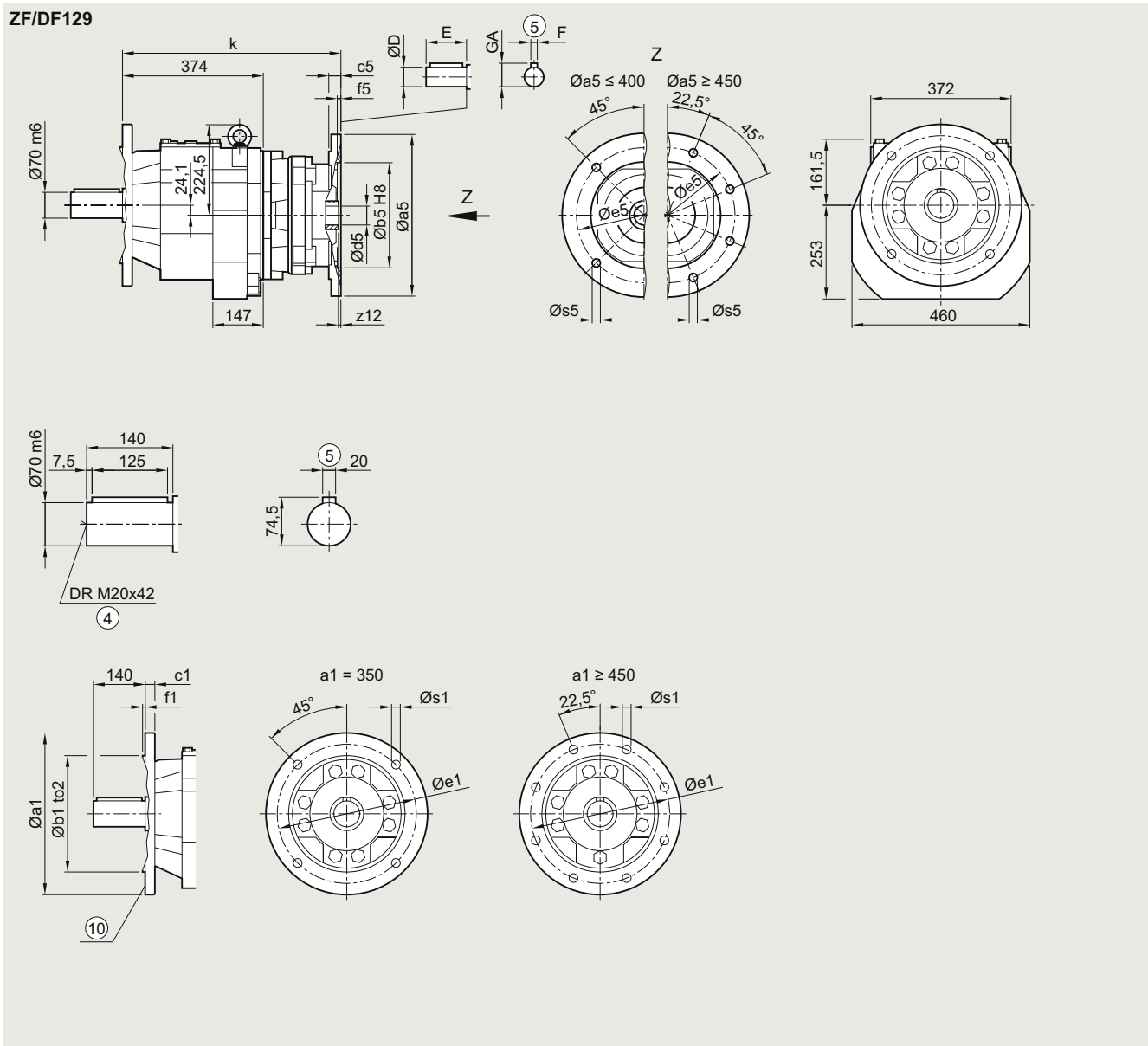


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 437 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 499 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 529 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 529 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 569.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 582 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 576 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF129 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|----|------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17.5 |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17.5 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 437 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 499 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 529 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 529 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 569.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 582 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 576 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

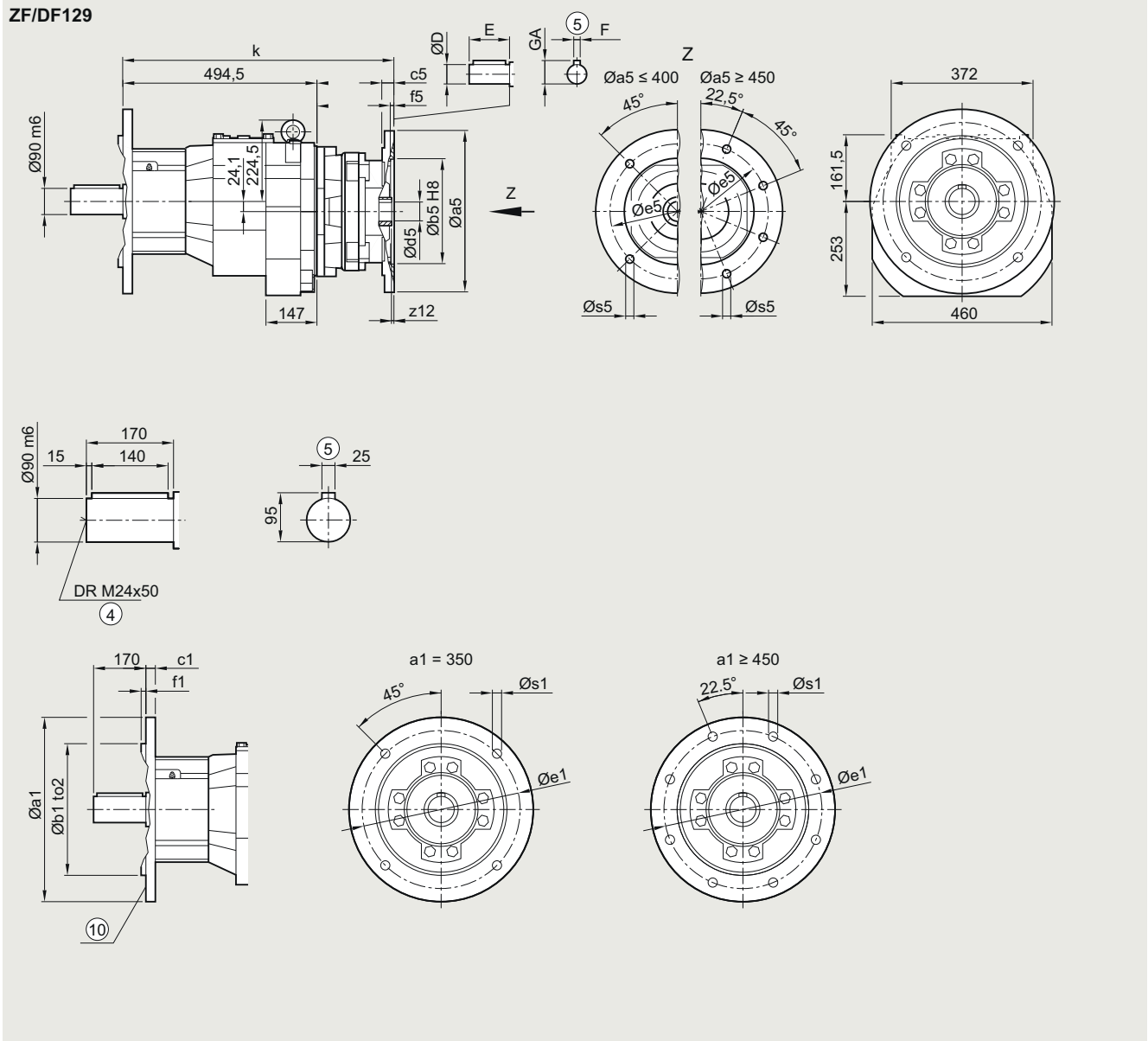
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



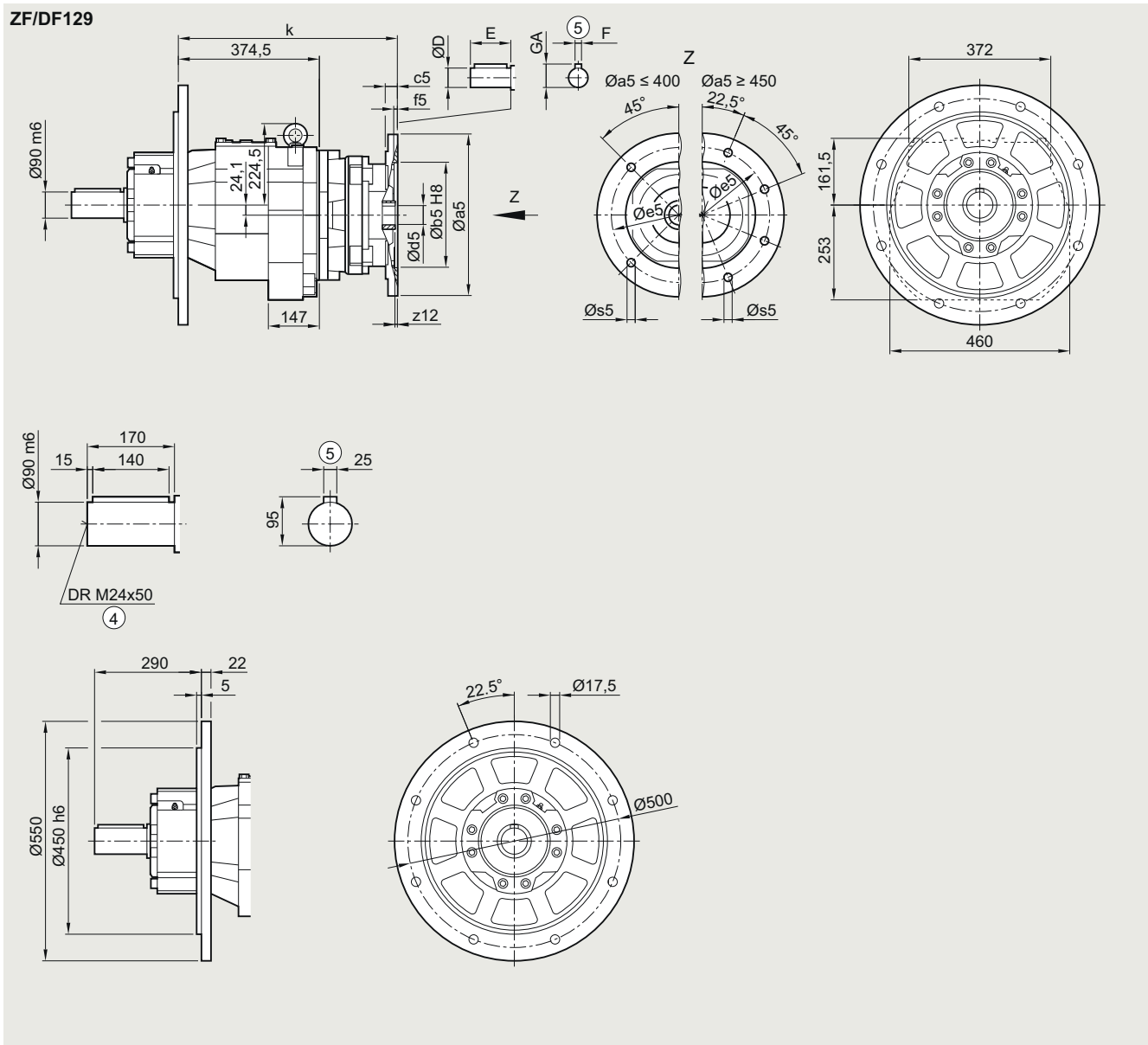
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17.5 | | | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 437 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 499 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 529 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 529 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 569.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 582 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 576 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF129 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 437 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 499 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 529 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 529 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 569.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 582 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 576 |

④ DIN 332

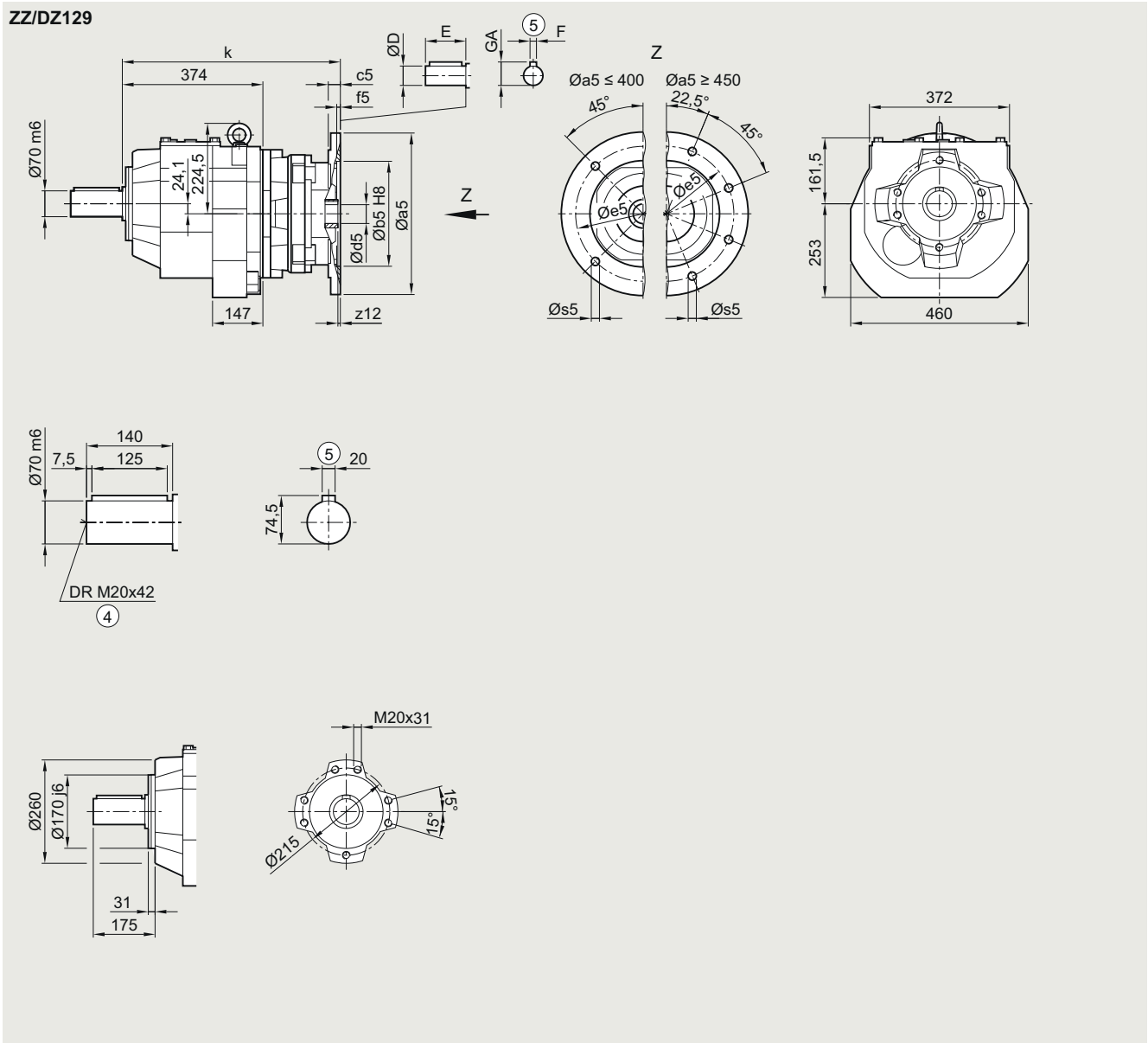
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZZ/DZ129 gearbox in a housing flange design

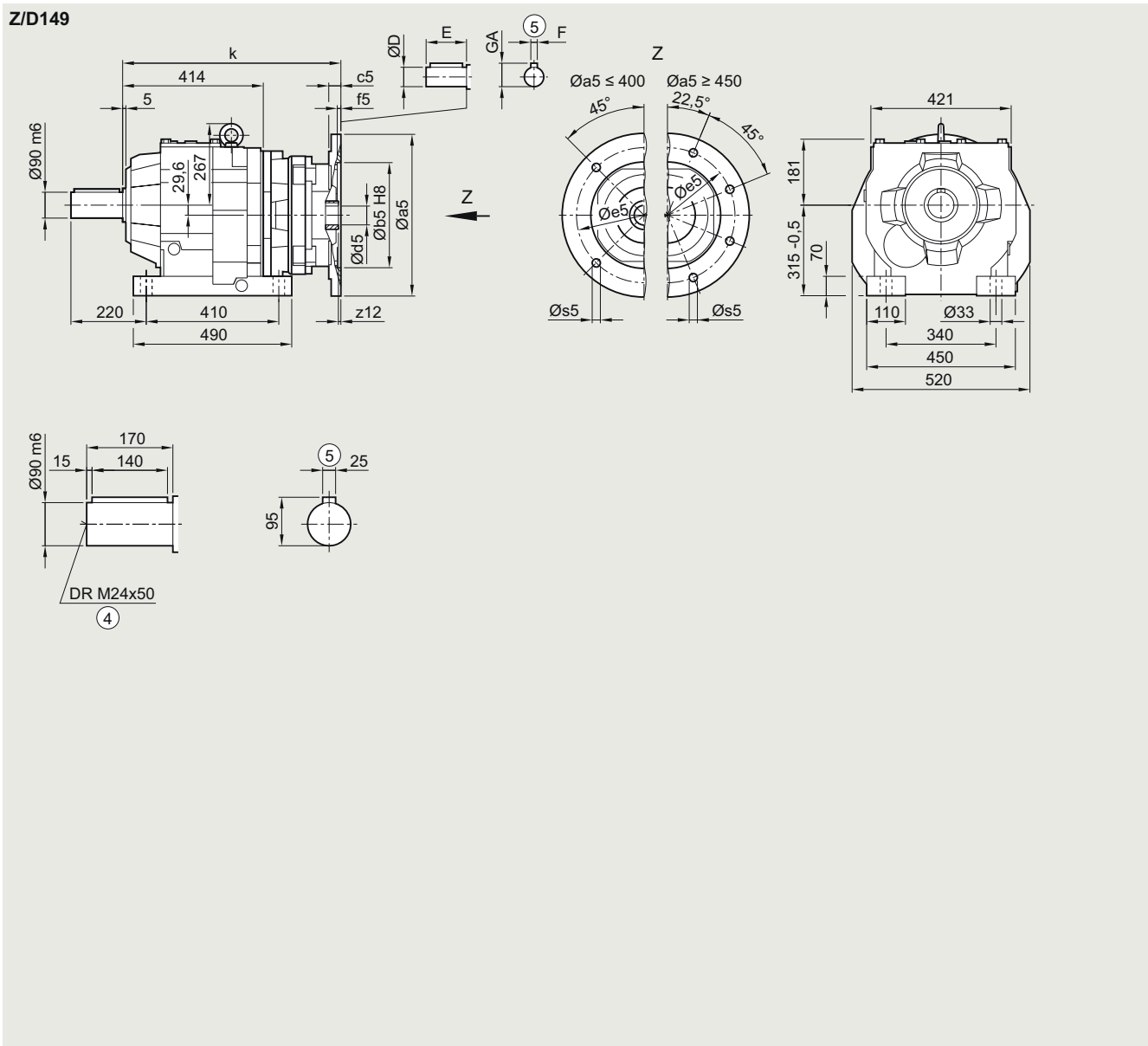


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 437 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 483.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 499 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 529 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 529 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 569.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 582 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 576 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 532.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 562.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 562.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 603.0 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 609.5 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 644.0 |

④ DIN 332

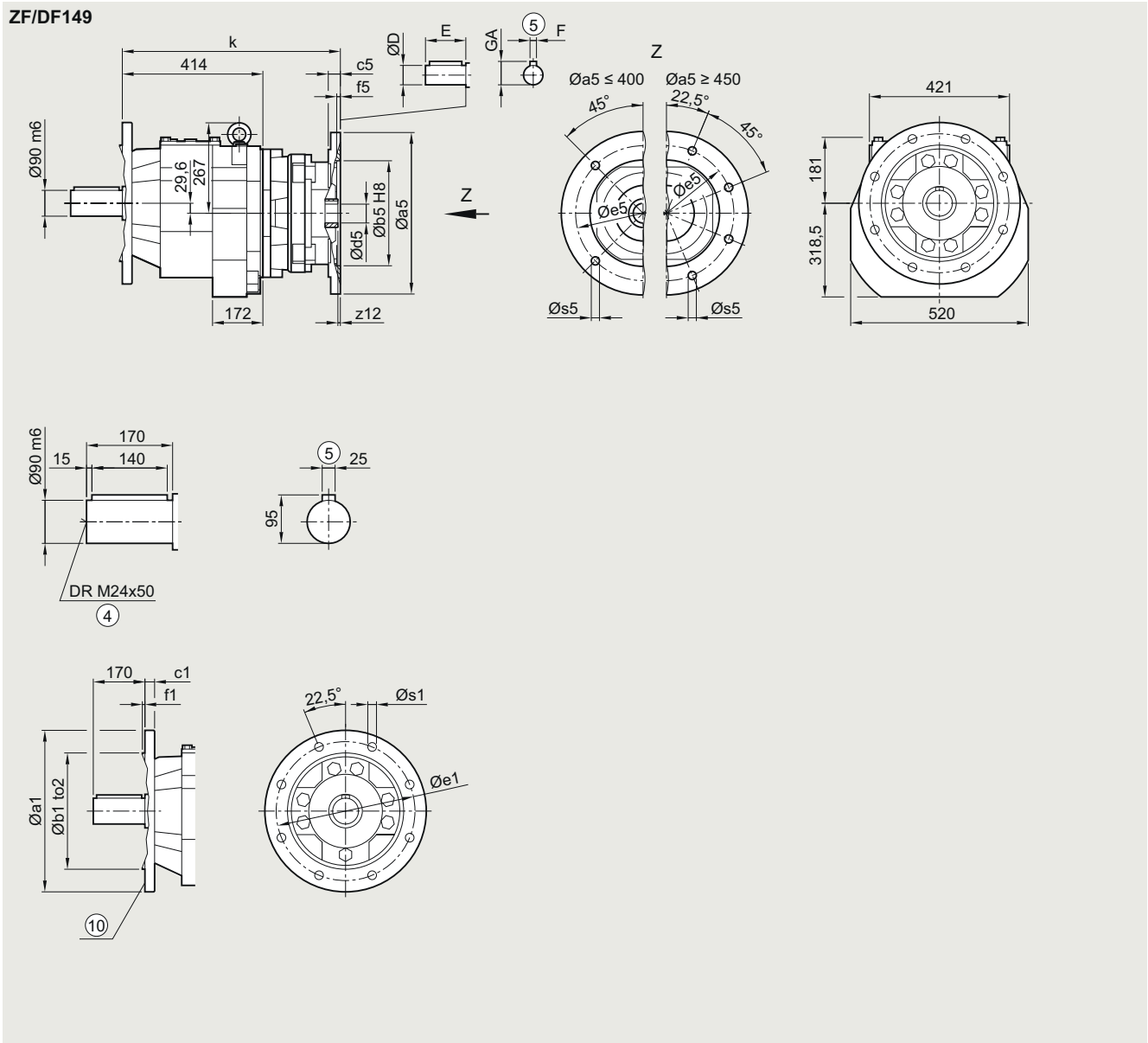
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF149 gearbox in a flange-mounted design



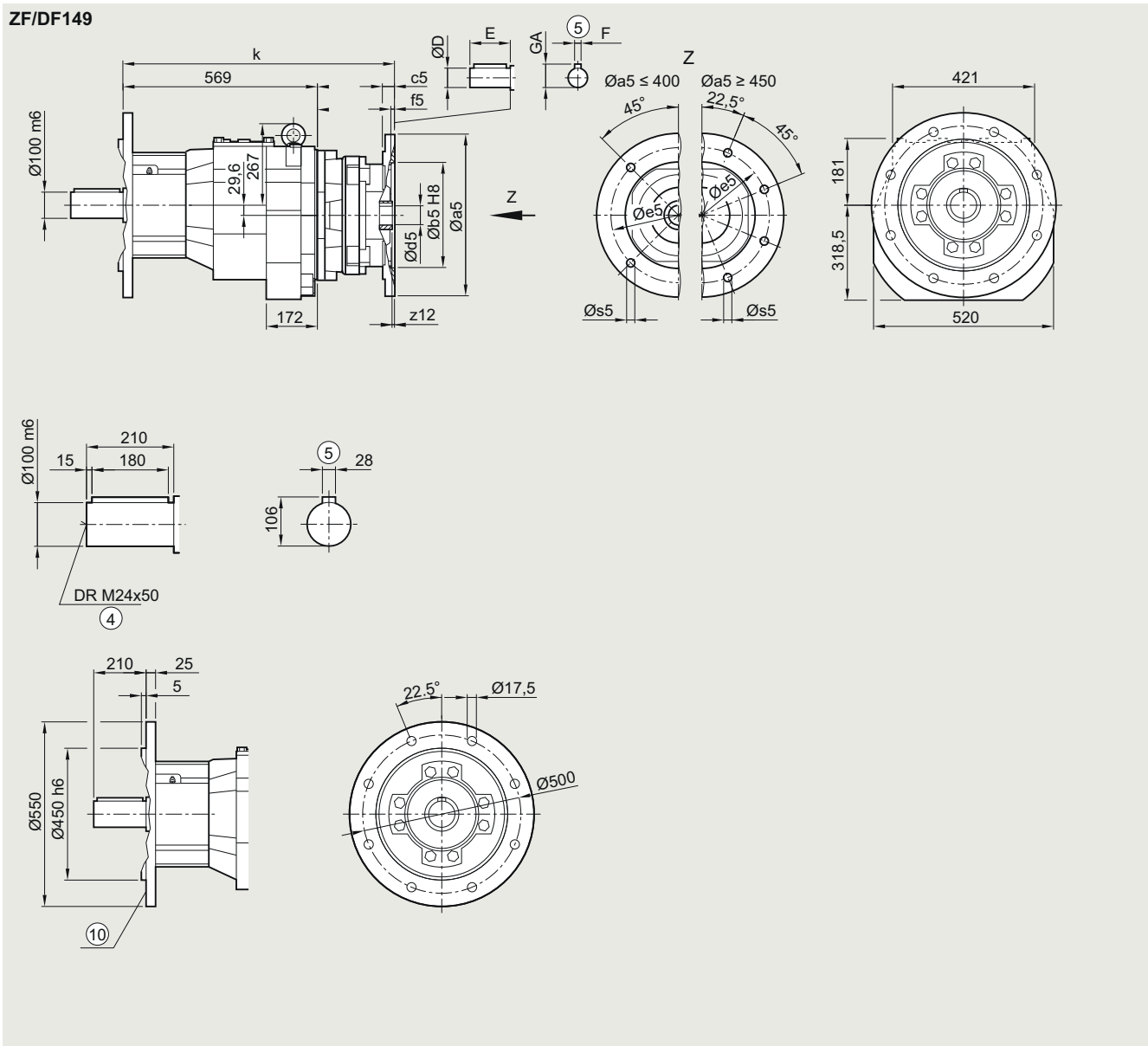
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 532.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 562.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 562.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 603.0 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 609.5 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 644.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 532.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 562.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 562.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 603.0 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 609.5 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 644.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

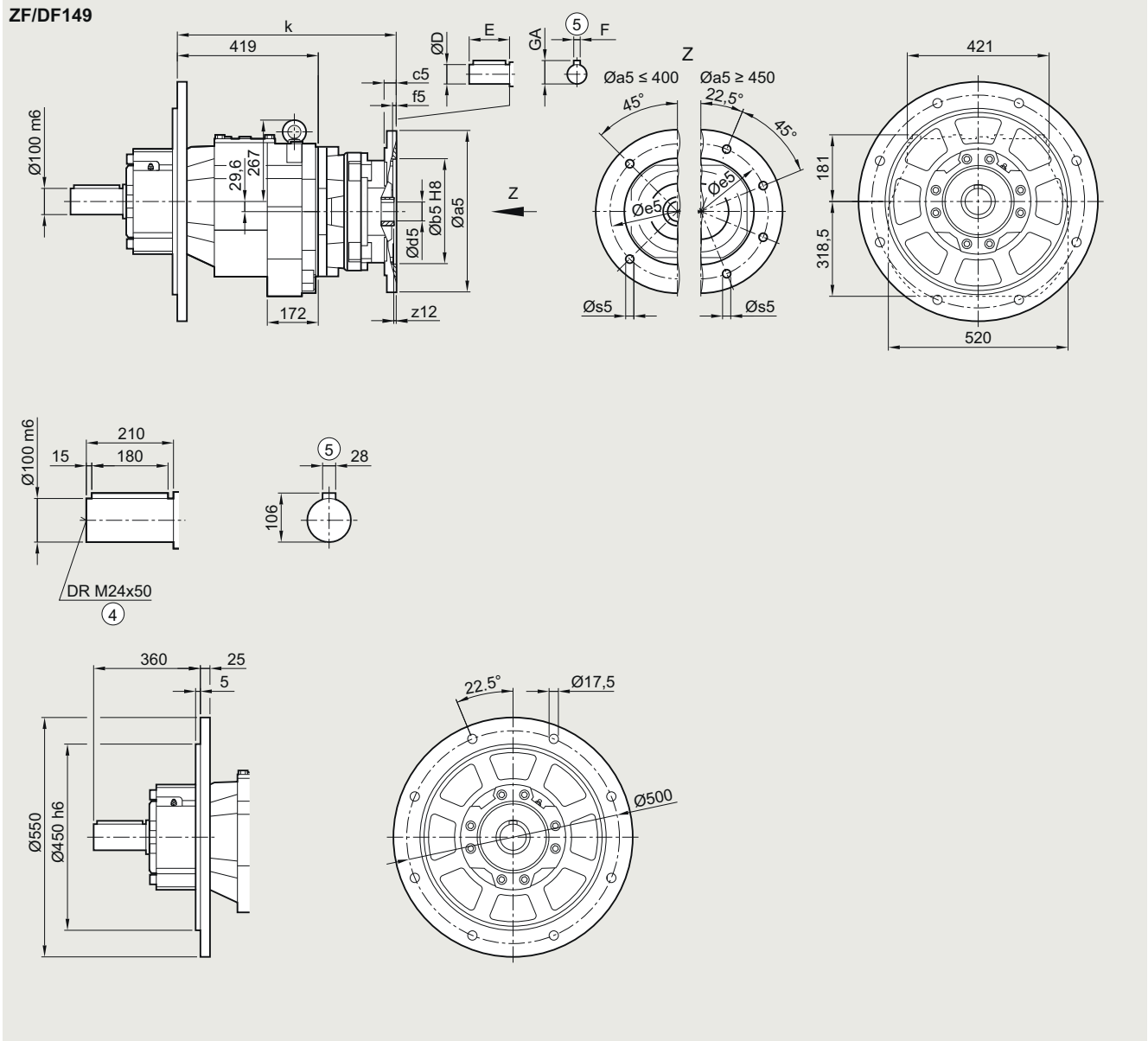
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF149 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



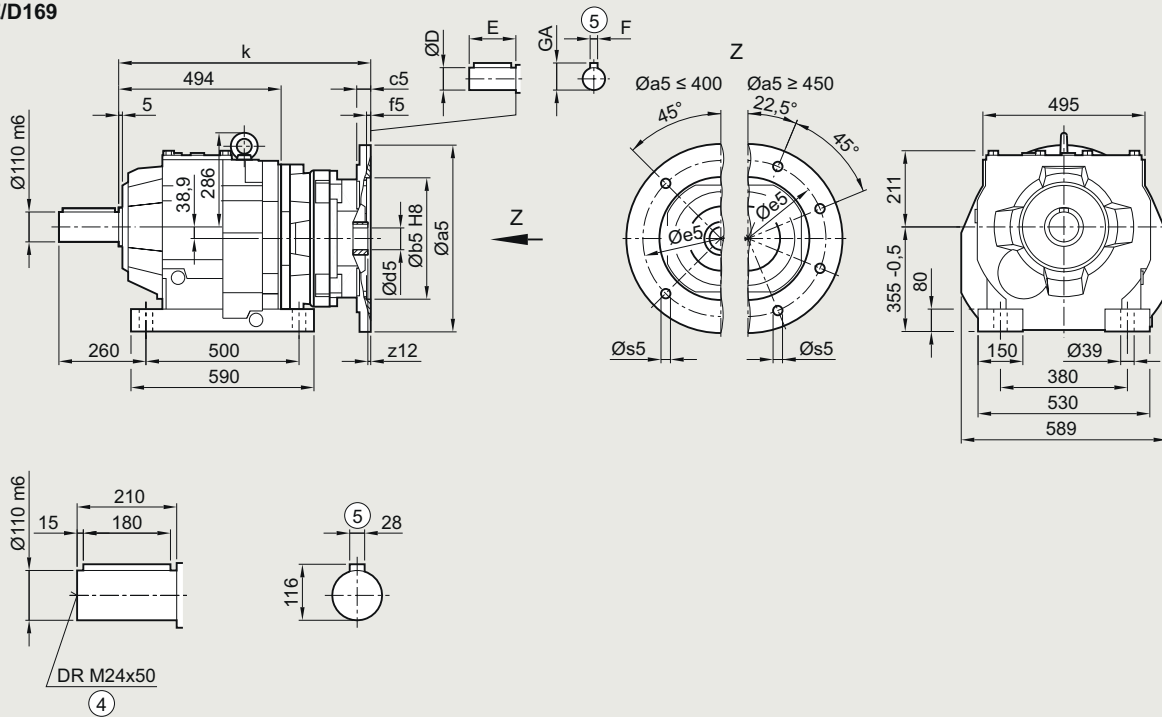
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 522.0 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 532.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 562.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 562.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 603.0 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 609.5 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 644.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D169 gearbox in a foot-mounted design

Z/D169



3

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 589.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 599.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 629.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 629.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 669.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 675.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 705.5 |

④ DIN 332

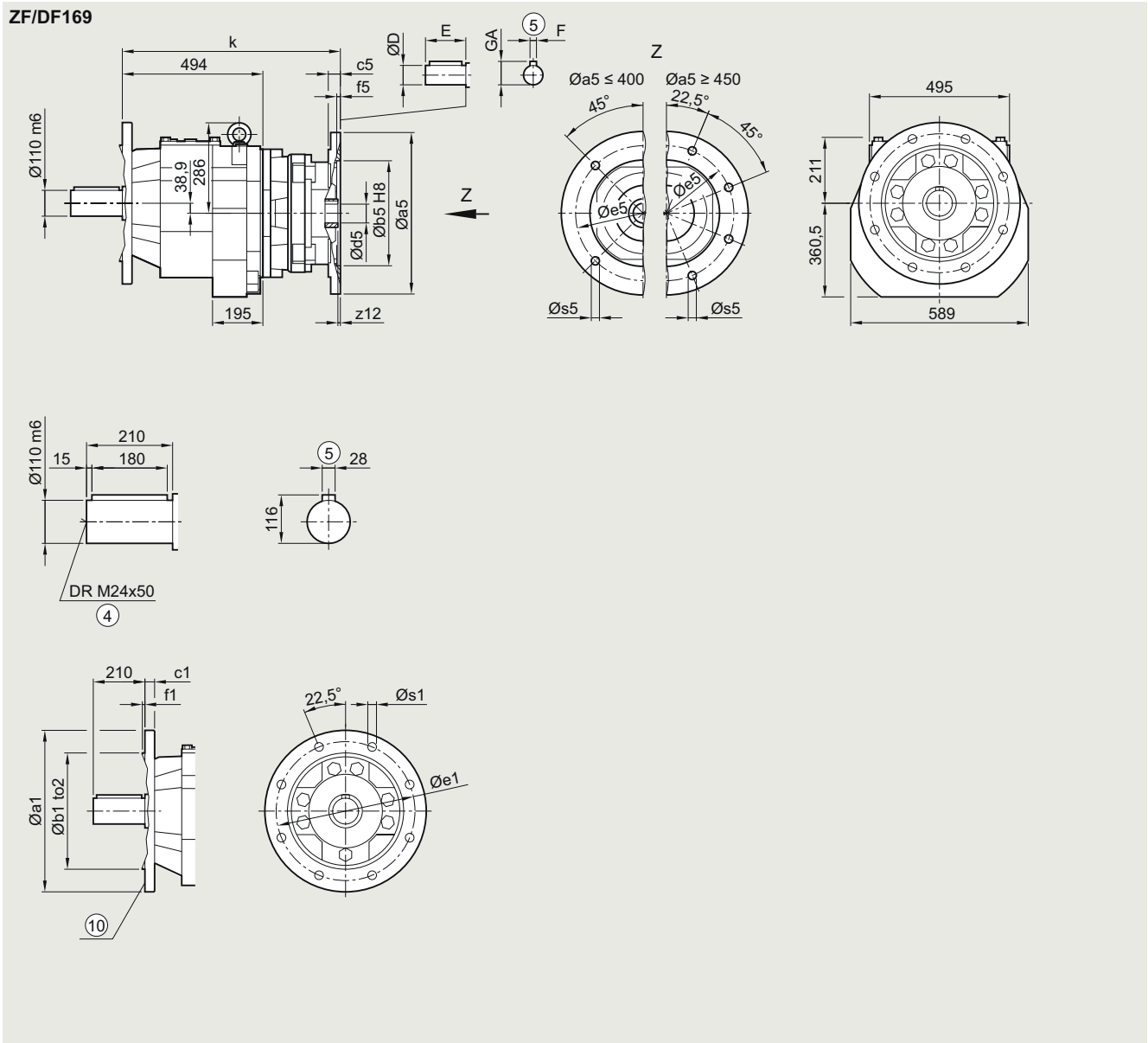
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF169 gearbox in a flange-mounted design



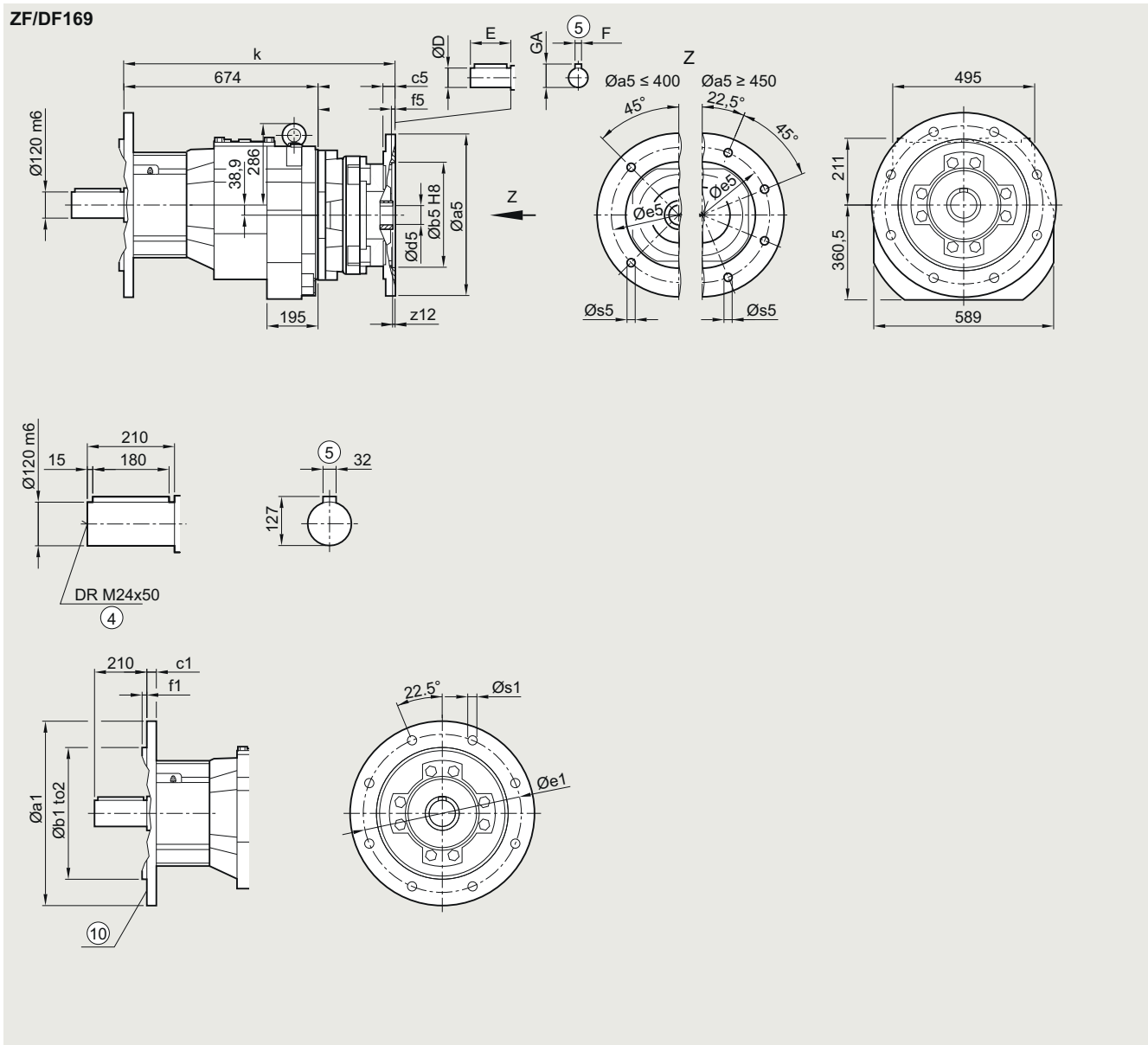
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|----|-----|--------|------|------|-----|----|------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | | | |
| | 660 | 550 | h6 | 25 | 600 | 6 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 589.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 599.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 629.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 629.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 669.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 675.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 705.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|----|-----|--------|------|------|-----|----|------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | | | |
| | 660 | 550 | h6 | 25 | 600 | 6 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 589.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 599.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 629.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 629.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 669.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 675.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 705.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

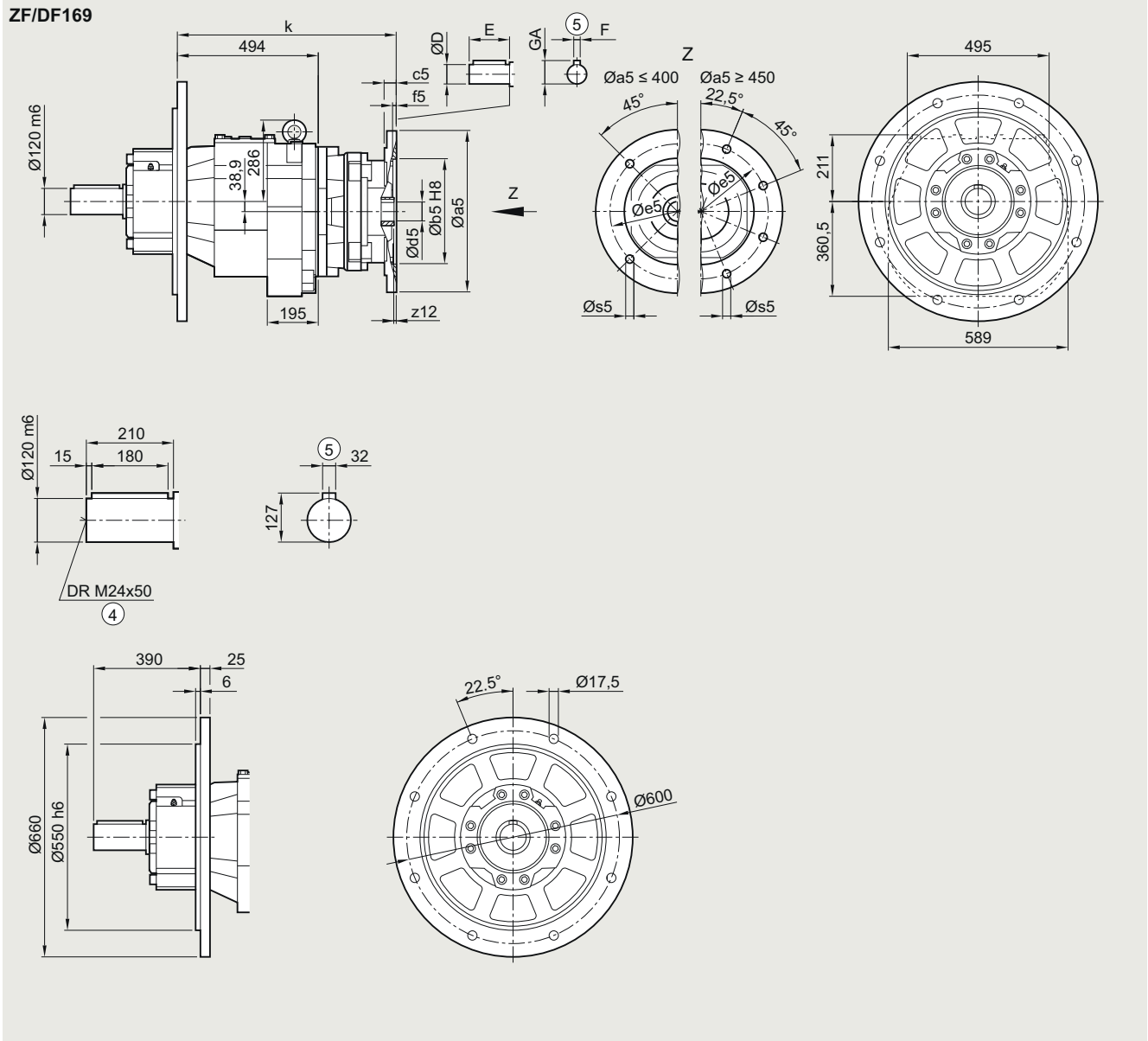
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF169 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)

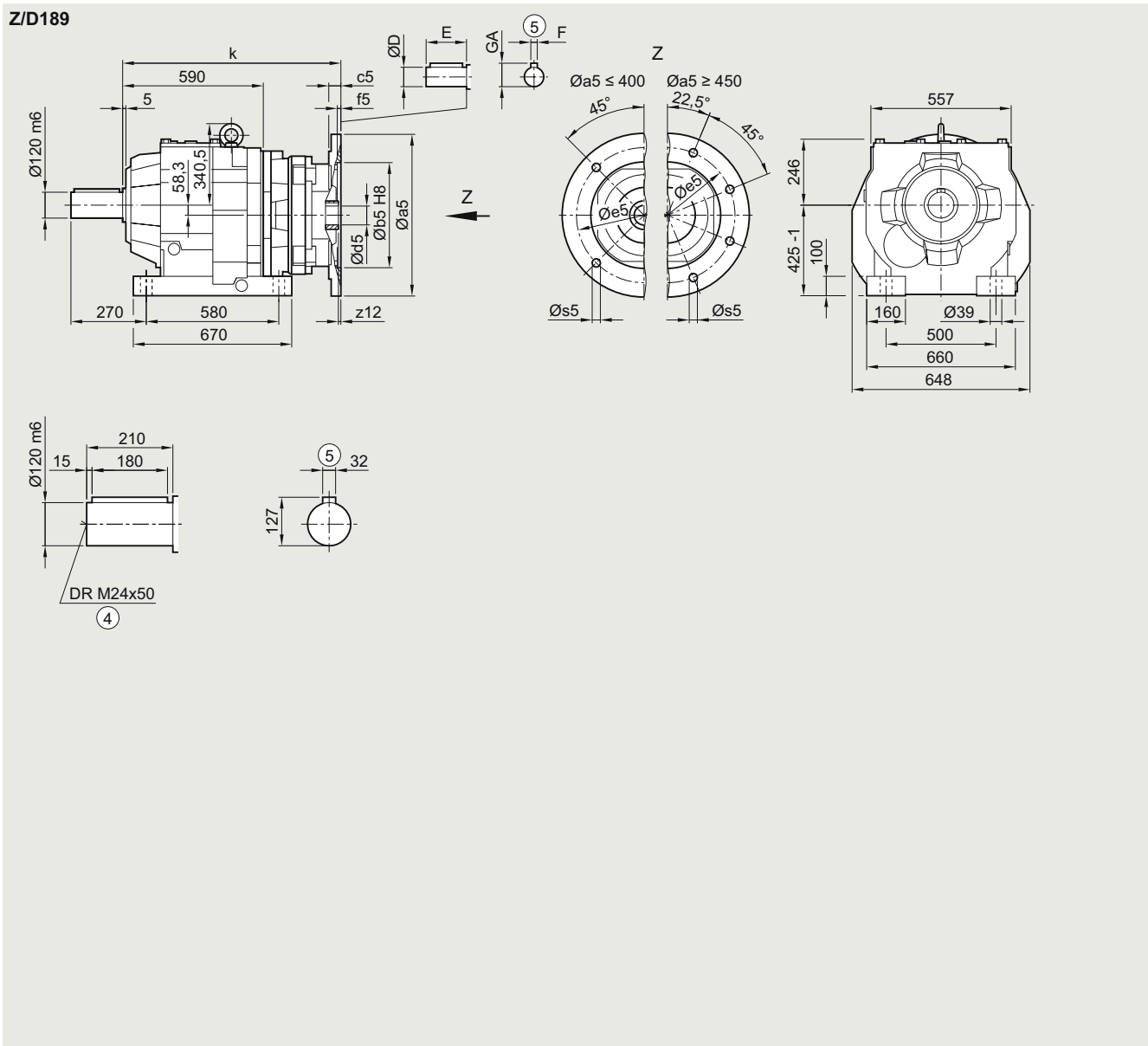


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 589.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 599.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 629.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 629.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 669.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 675.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 705.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D189 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 685.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 695.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 725.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 725.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 765.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 771.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 801.5 |

④ DIN 332

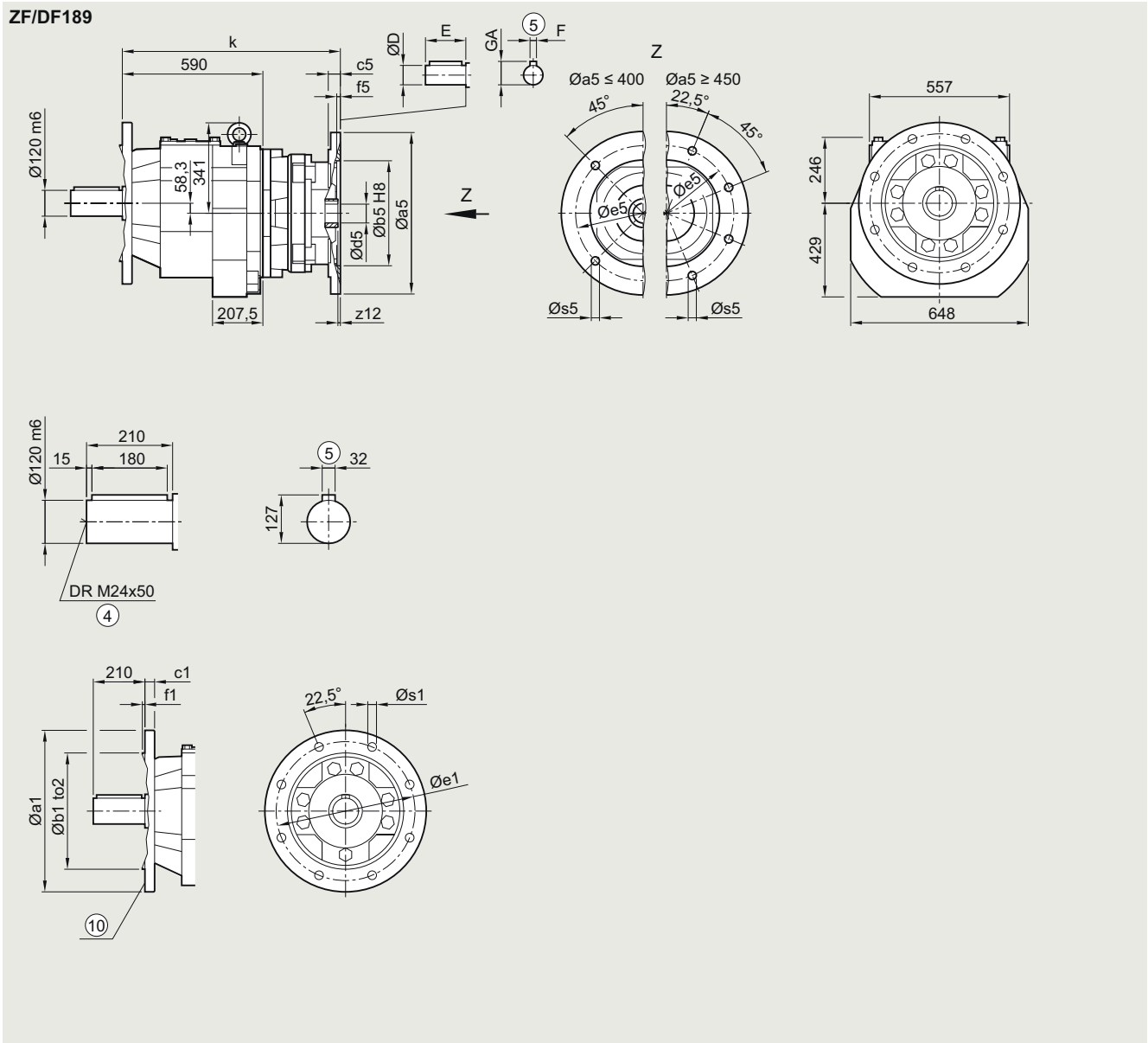
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

ZF/DF189 gearbox in a flange-mounted design



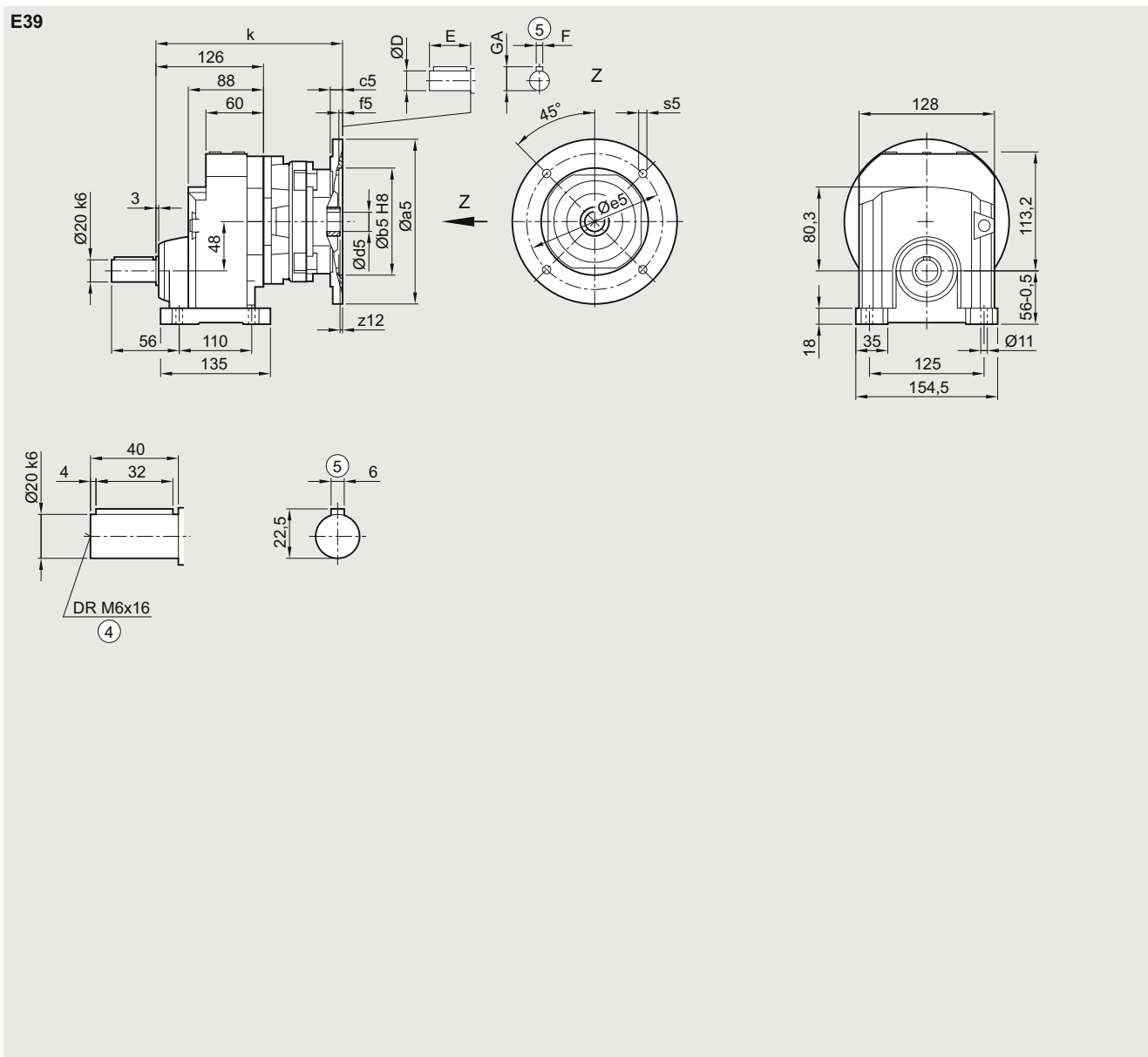
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|----|-----|--------|------|------|-----|----|------|-------|
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | | | |
| | 660 | 550 | h6 | 28 | 600 | 6 | 22.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 112 | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 685.5 |
| 132 | 300 | 230 | 12 | 5 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 695.5 |
| 160 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 725.5 |
| 180 | 350 | 250 | 15 | 6 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 725.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 765.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 771.0 |
| 250 | 550 | 450 | 20 | 6 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 801.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

E39 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 203.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 203.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 231.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 231.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |

④ DIN 332

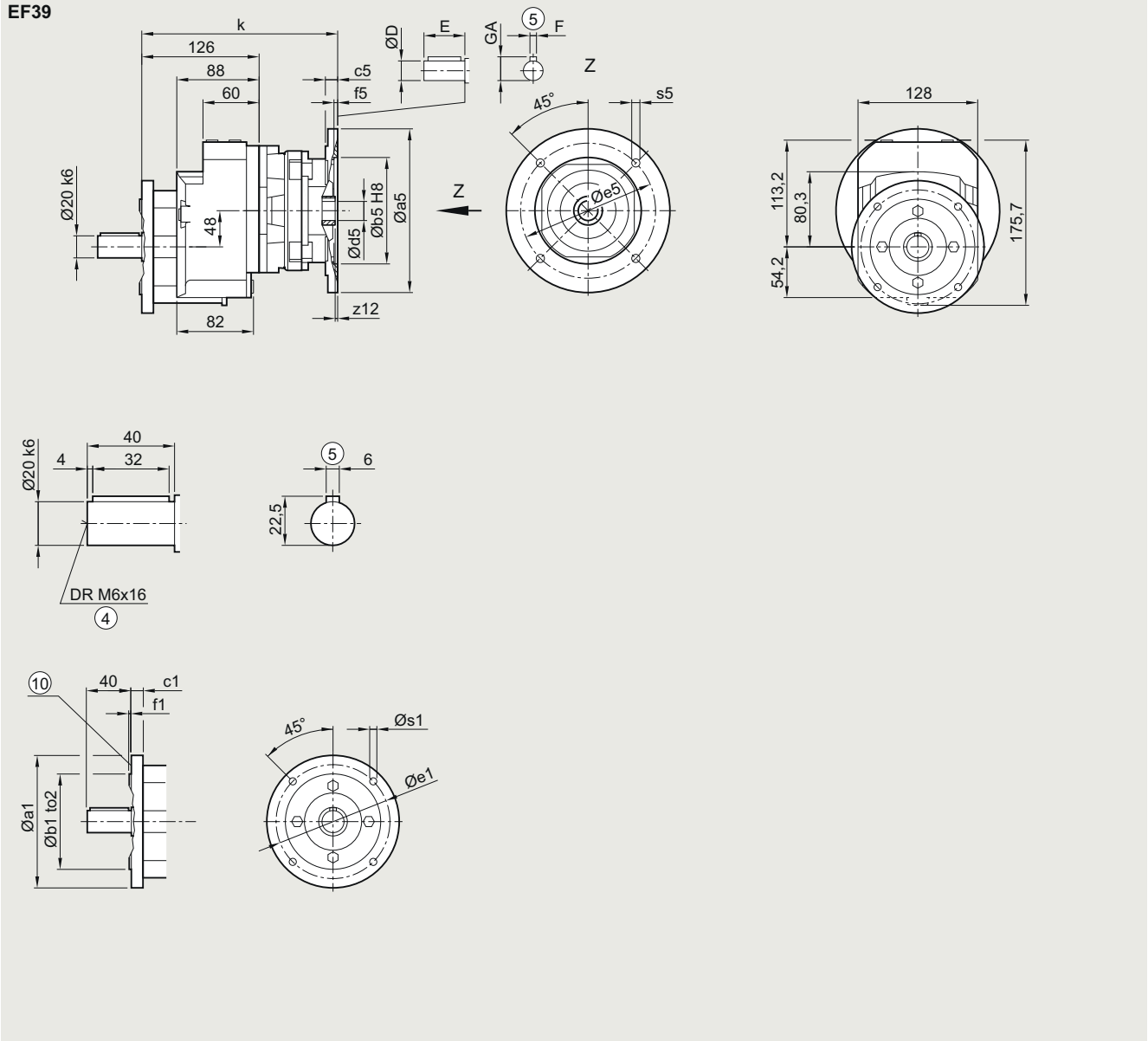
⑤ Feather key/keyway DIN 6885

Helical gearboxes
Dimensional drawings

Adapter K4 for mounting an IEC motor

EF39 gearbox in a flange-mounted design

3



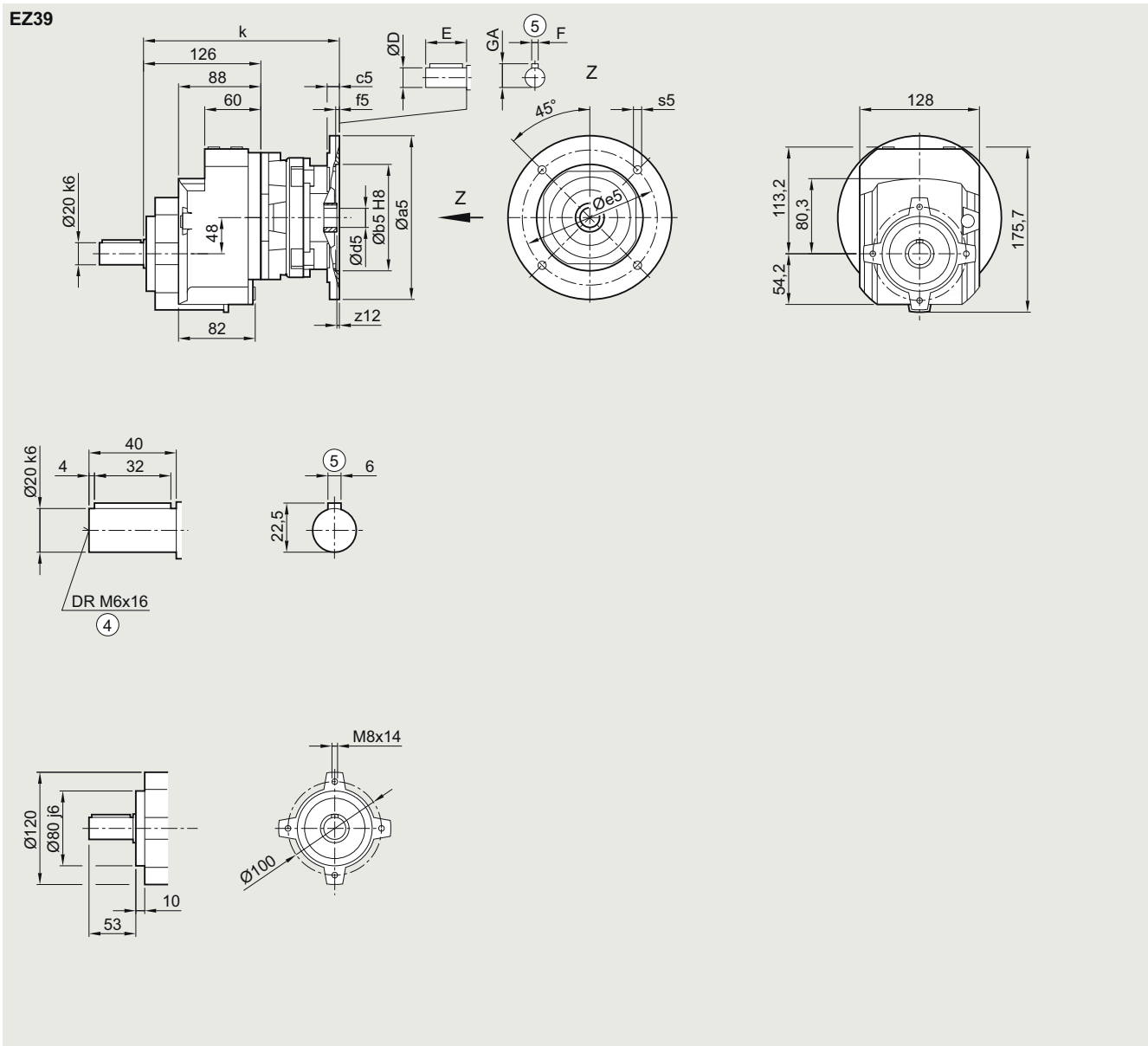
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|-----|------|------|----|---|------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.8 | | | | | |
| | 140 | 95 | j6 | 7 | 115 | 3.0 | 9.0 | | | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 203.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 203.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 231.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 231.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

EZ39 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 203.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 203.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 231.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 231.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 286.0 |

④ DIN 332

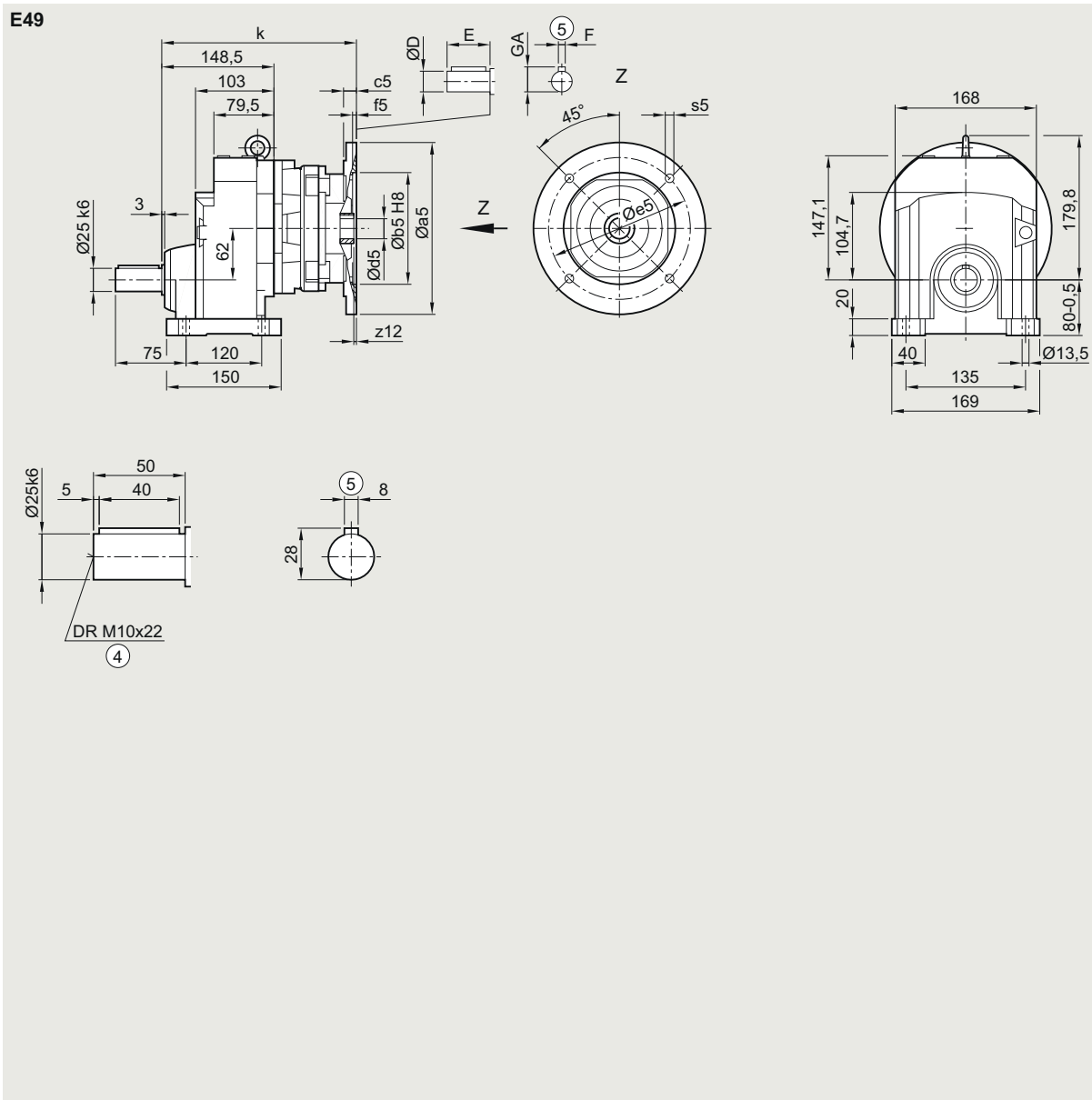
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

E49 gearbox in a foot-mounted design

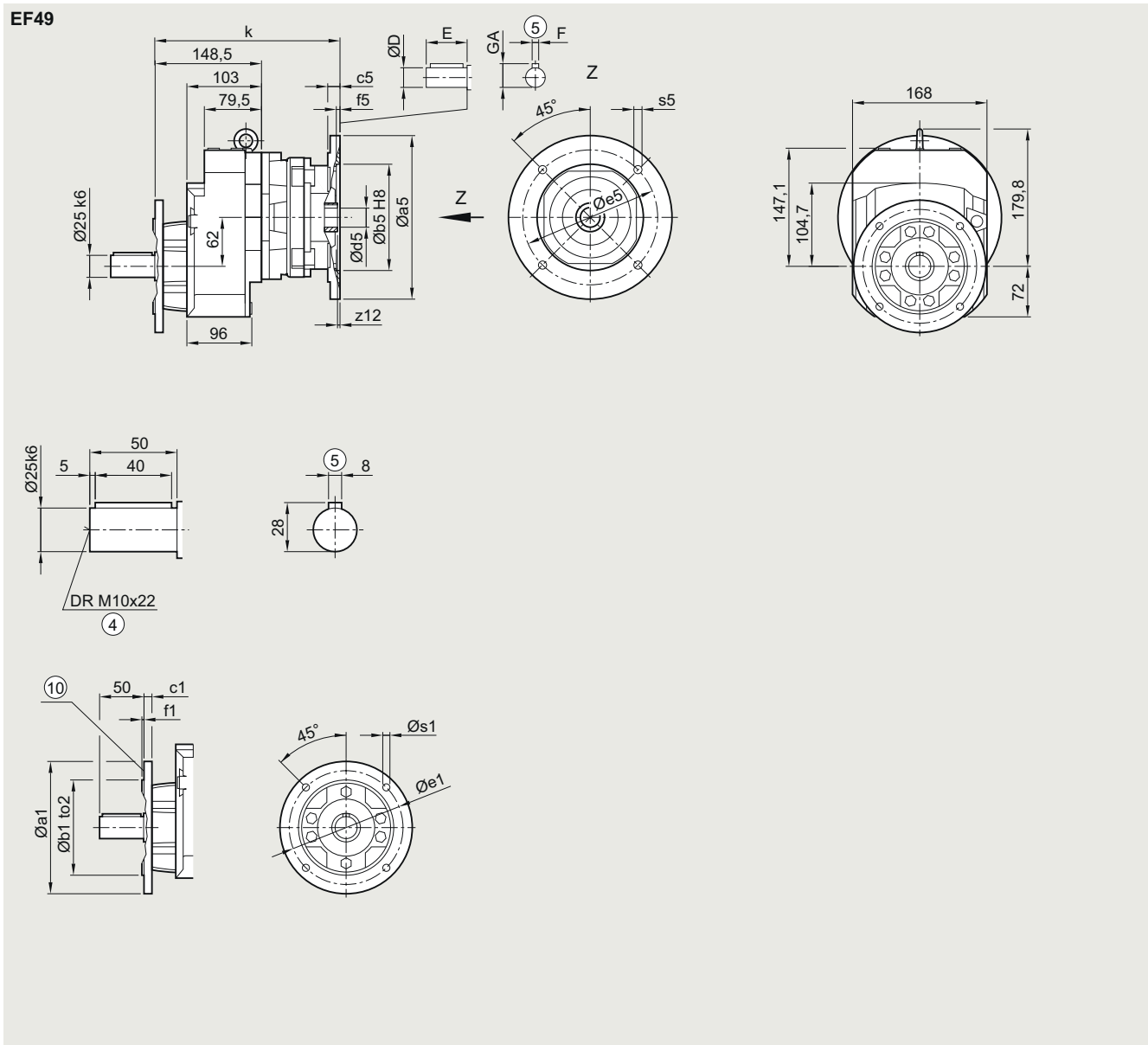


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 216.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 216.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 244.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 244.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 316.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF49 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|-----|------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 216.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 216.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 244.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 244.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 316.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

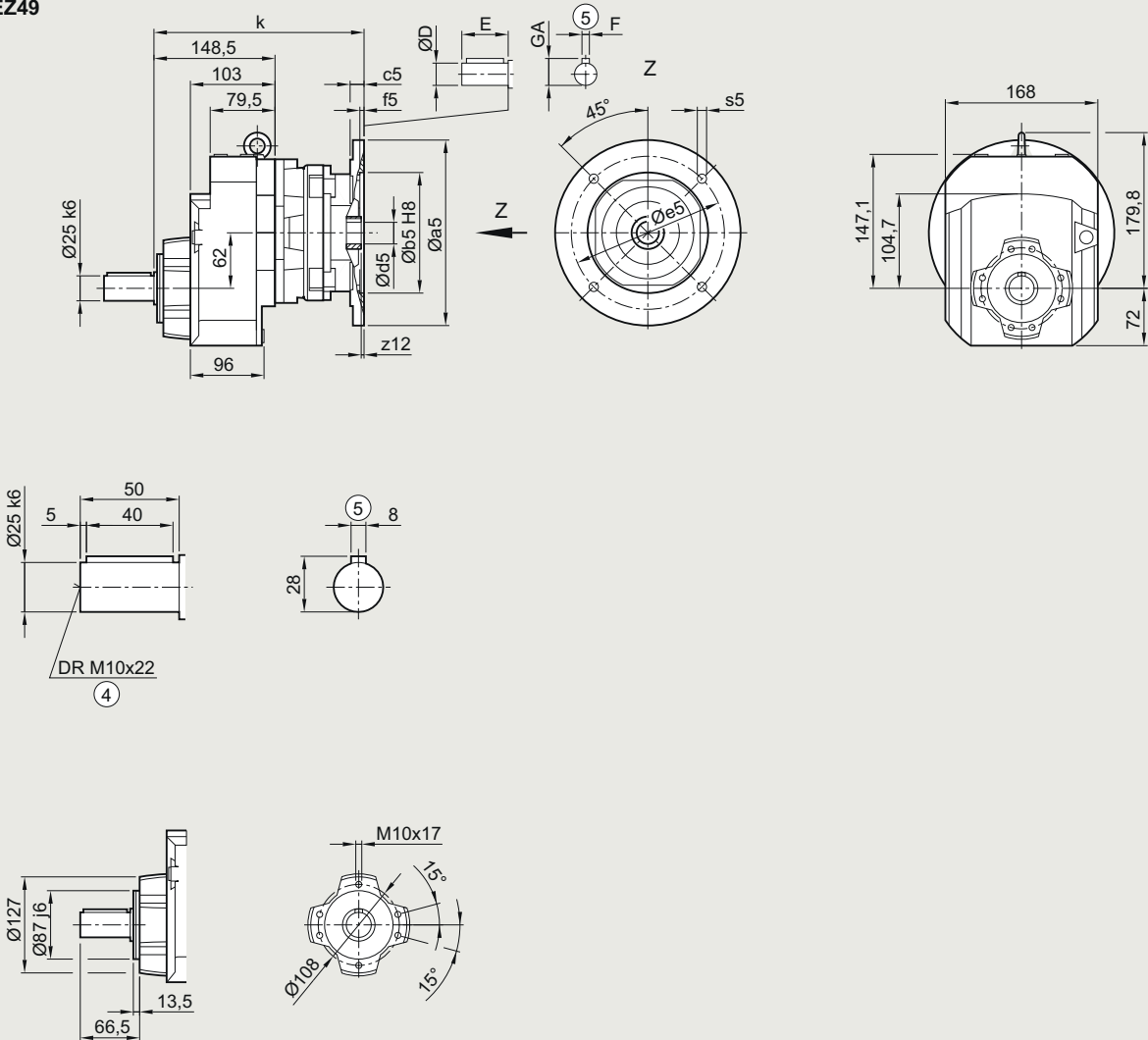
Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EZ49 gearbox in a housing flange design

EZ49

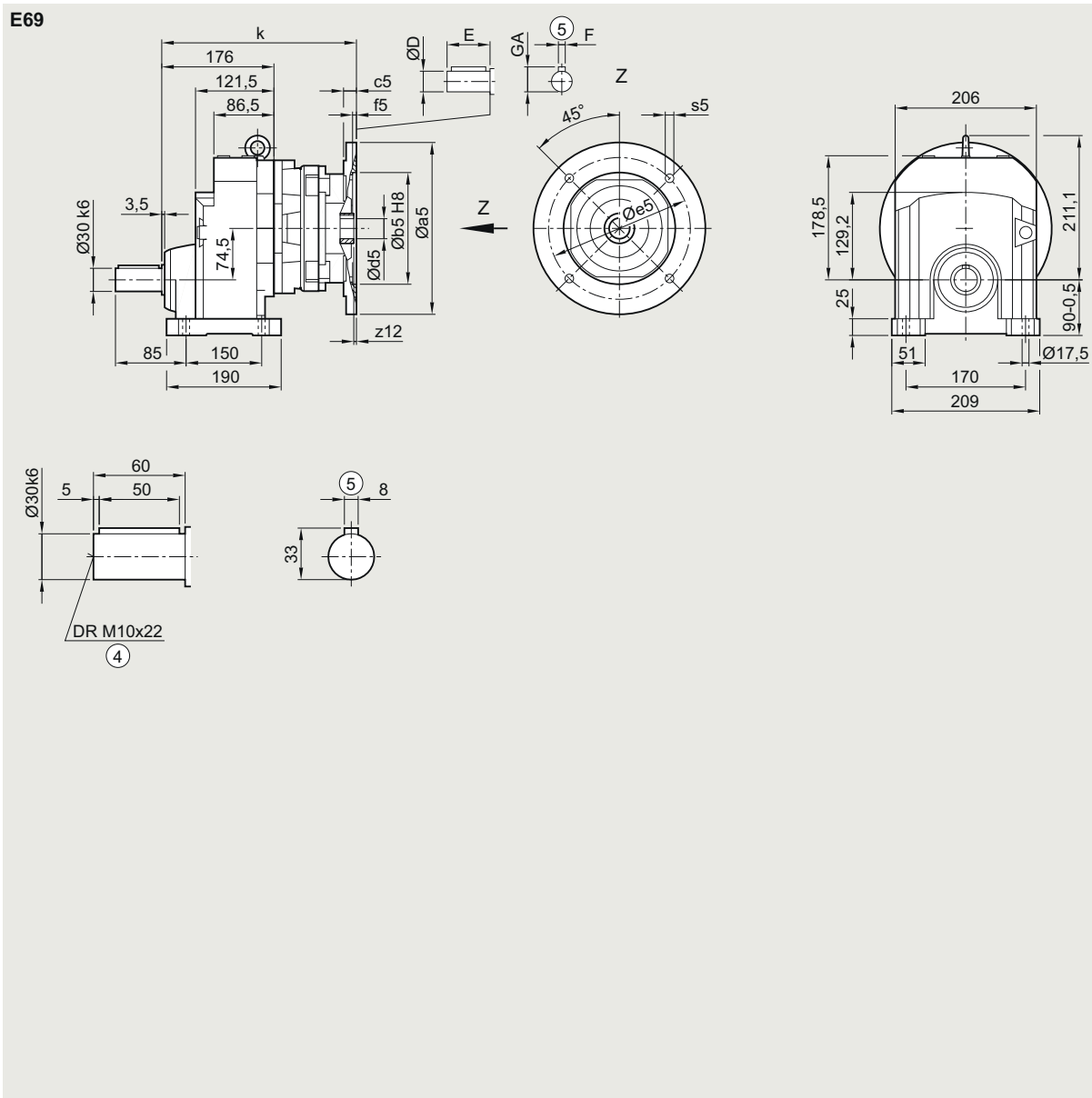


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 216.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 216.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 244.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 244.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 316.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E69 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 242.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 266.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 266.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 338.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 368.0 |

④ DIN 332

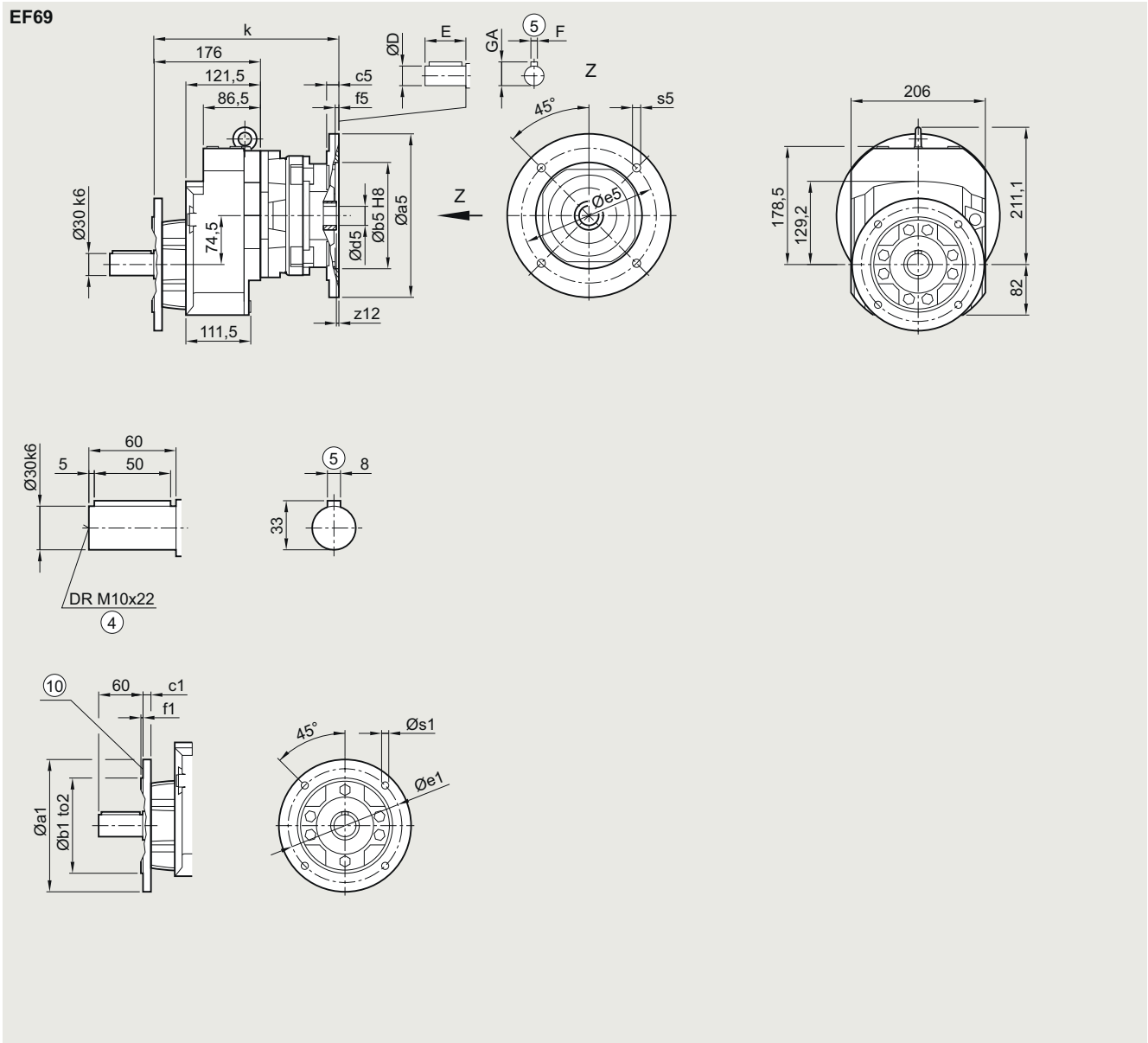
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EF69 gearbox in a flange-mounted design



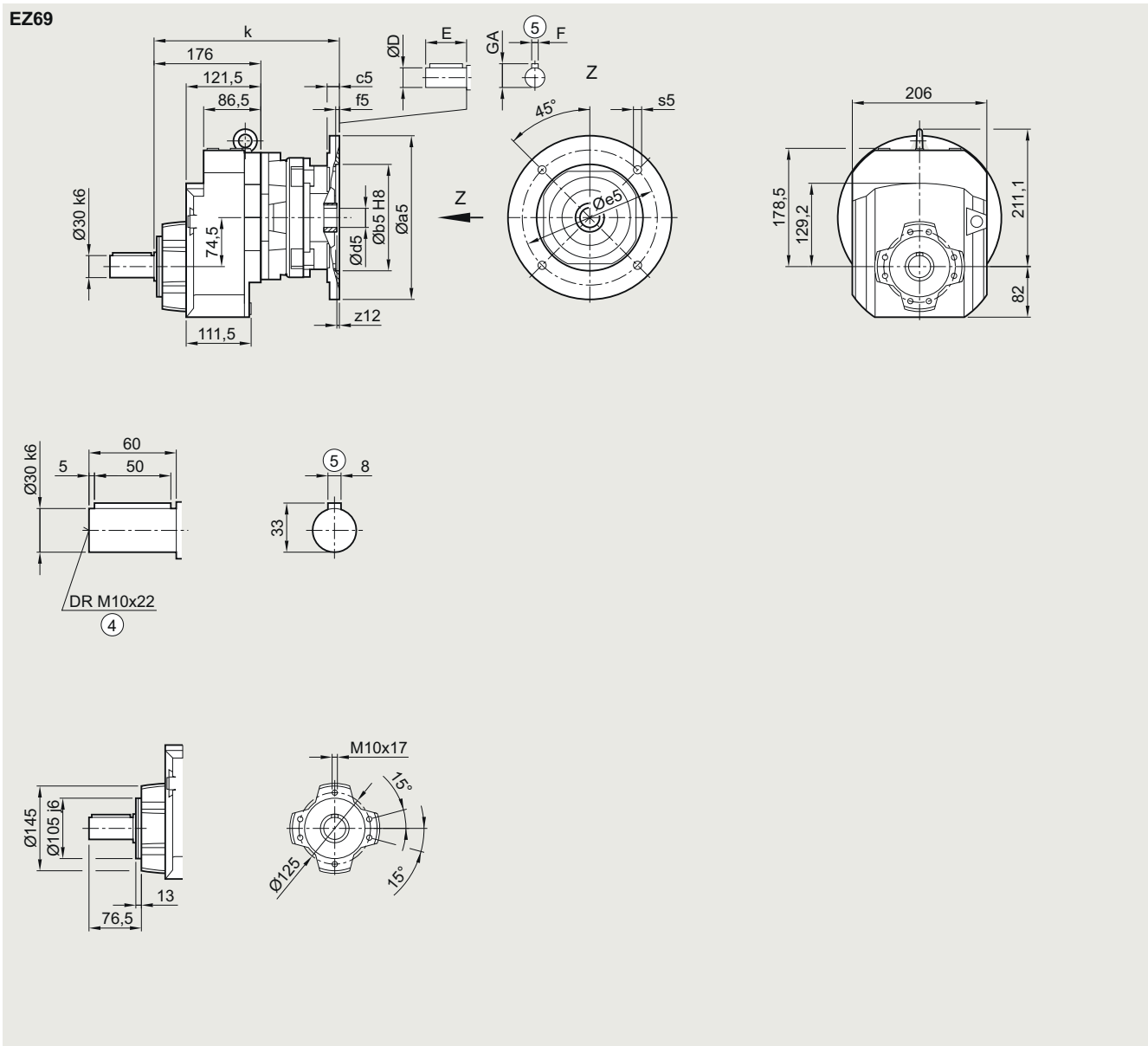
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 242.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 266.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 266.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 338.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 368.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

EZ69 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 242.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 266.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 266.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 320.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 338.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 368.0 |

④ DIN 332

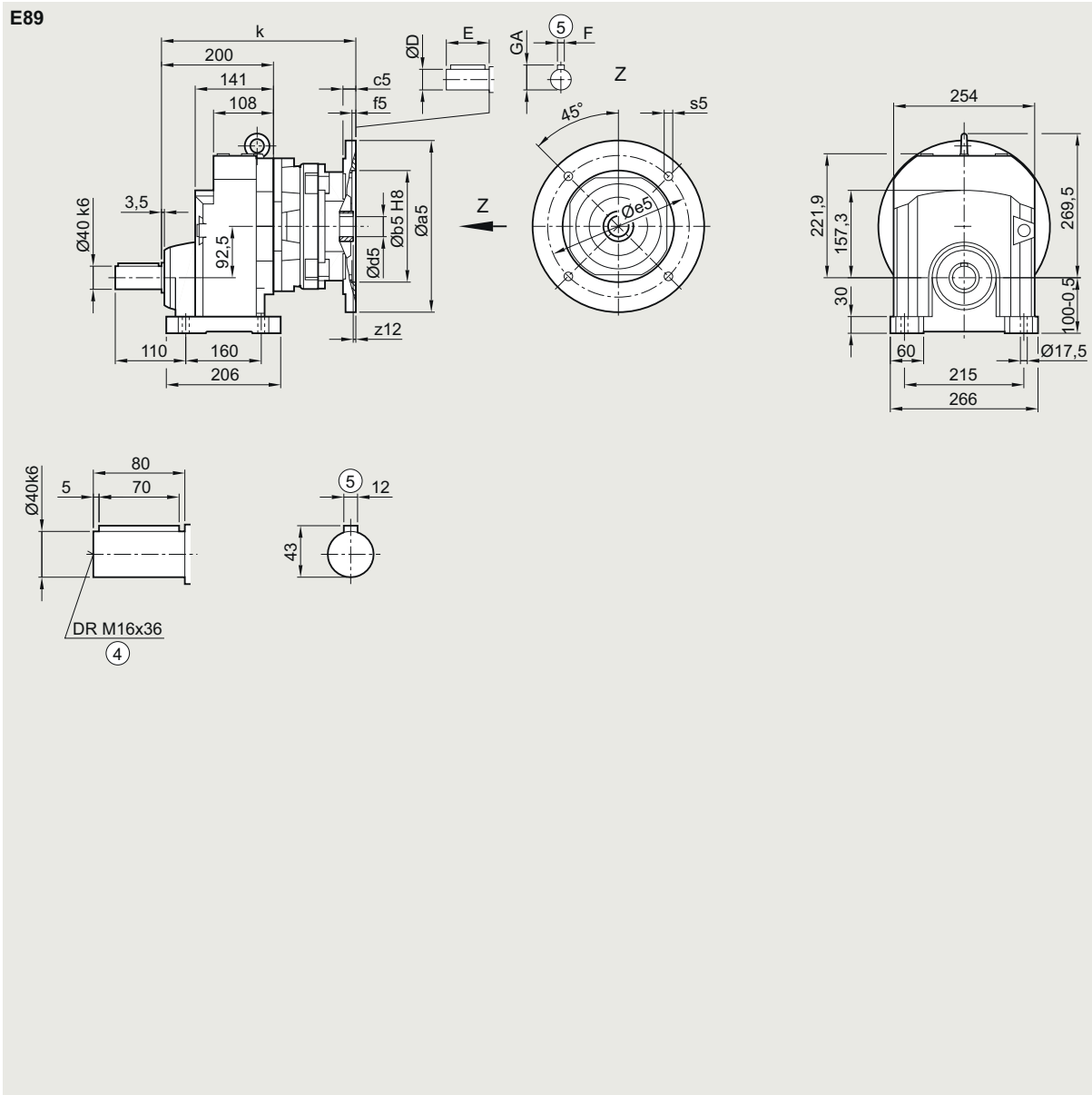
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

E89 gearbox in a foot-mounted design

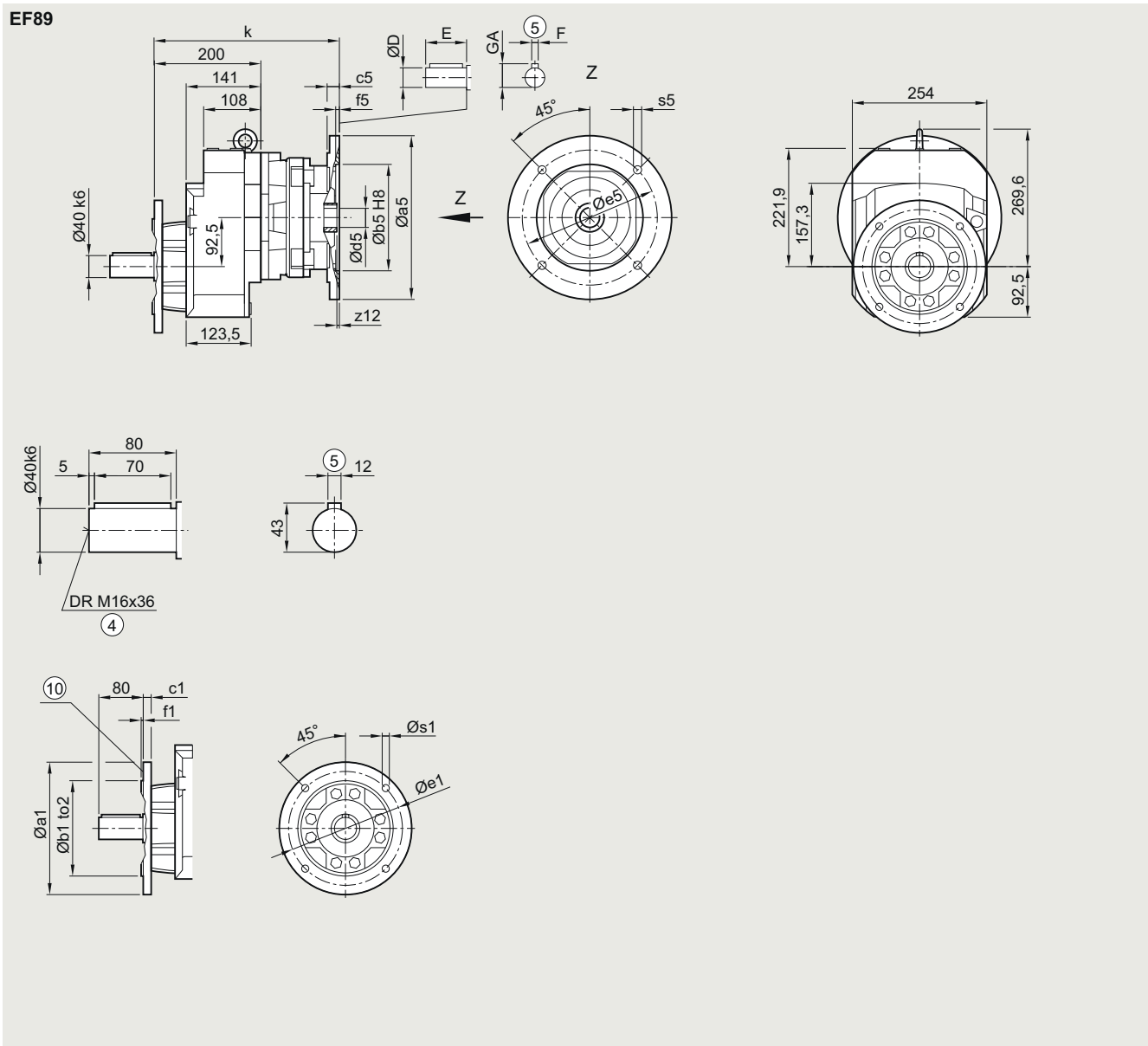


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 277.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 277.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 345.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 375.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 375.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF89 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | | | |
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | | | |
| | 350 | 250 | j6 | 16 | 300 | 5.0 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 277.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 277.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 345.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 375.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 375.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

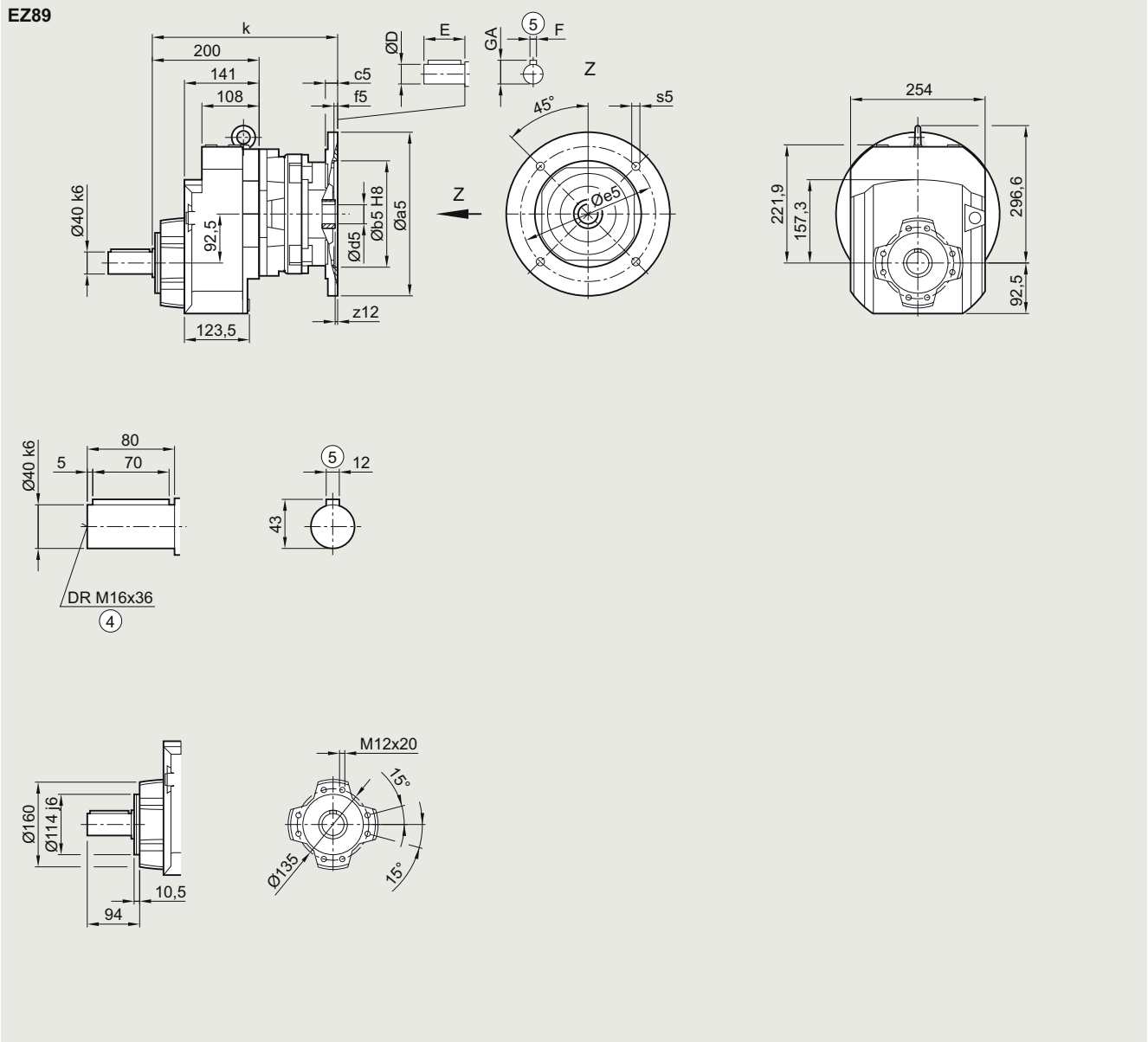
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EZ89 gearbox in a housing flange design

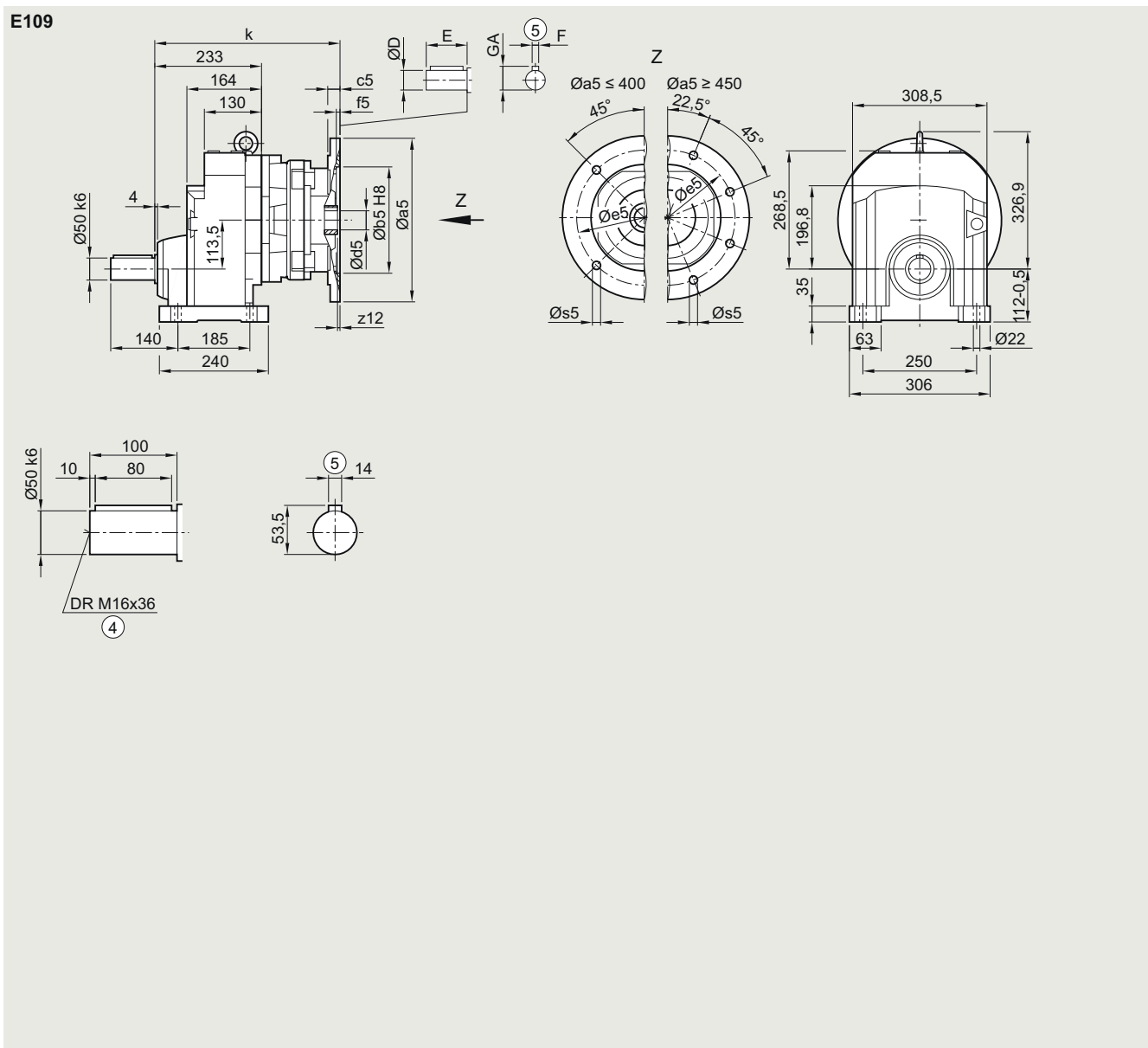


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 277.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 277.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 345.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 375.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 375.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E109 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 303.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 369.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 399.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 399.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 439.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 446.0 |

④ DIN 332

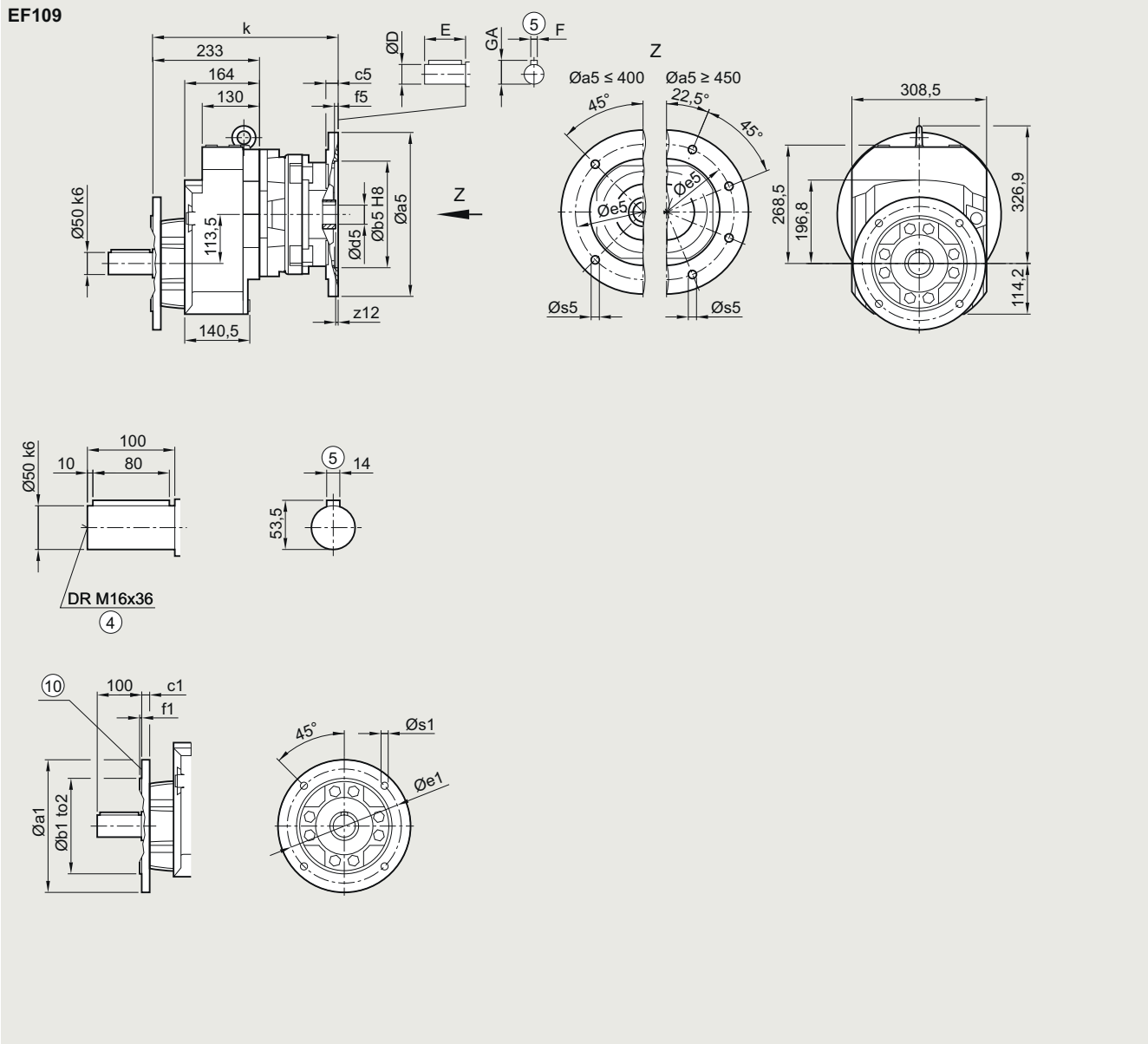
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EF109 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|-----|------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 |

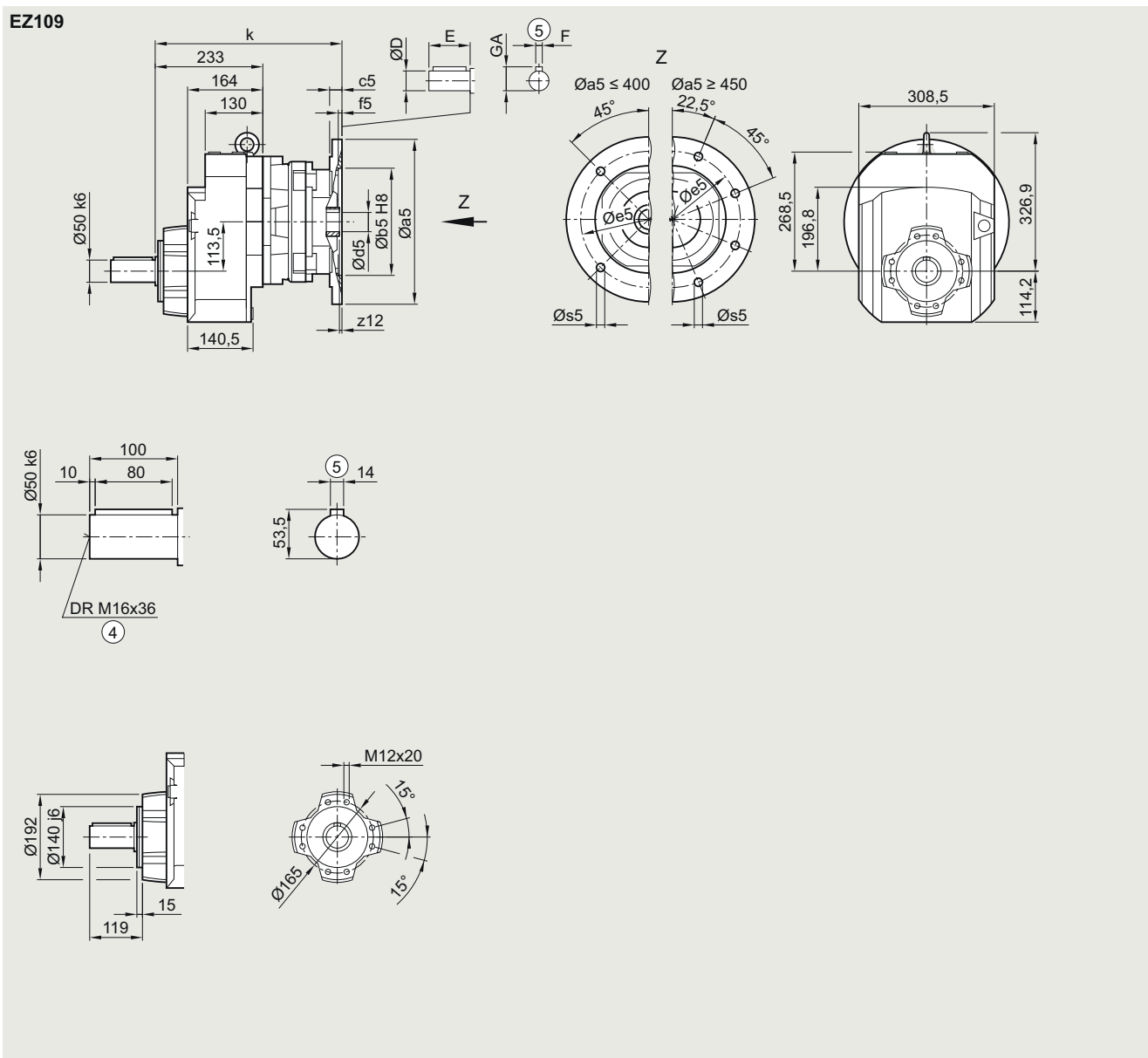
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 303.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 369.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 399.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 399.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 439.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 446.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

EZ109 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 303.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 351.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 369.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 399.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 399.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 439.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 446.0 |

④ DIN 332

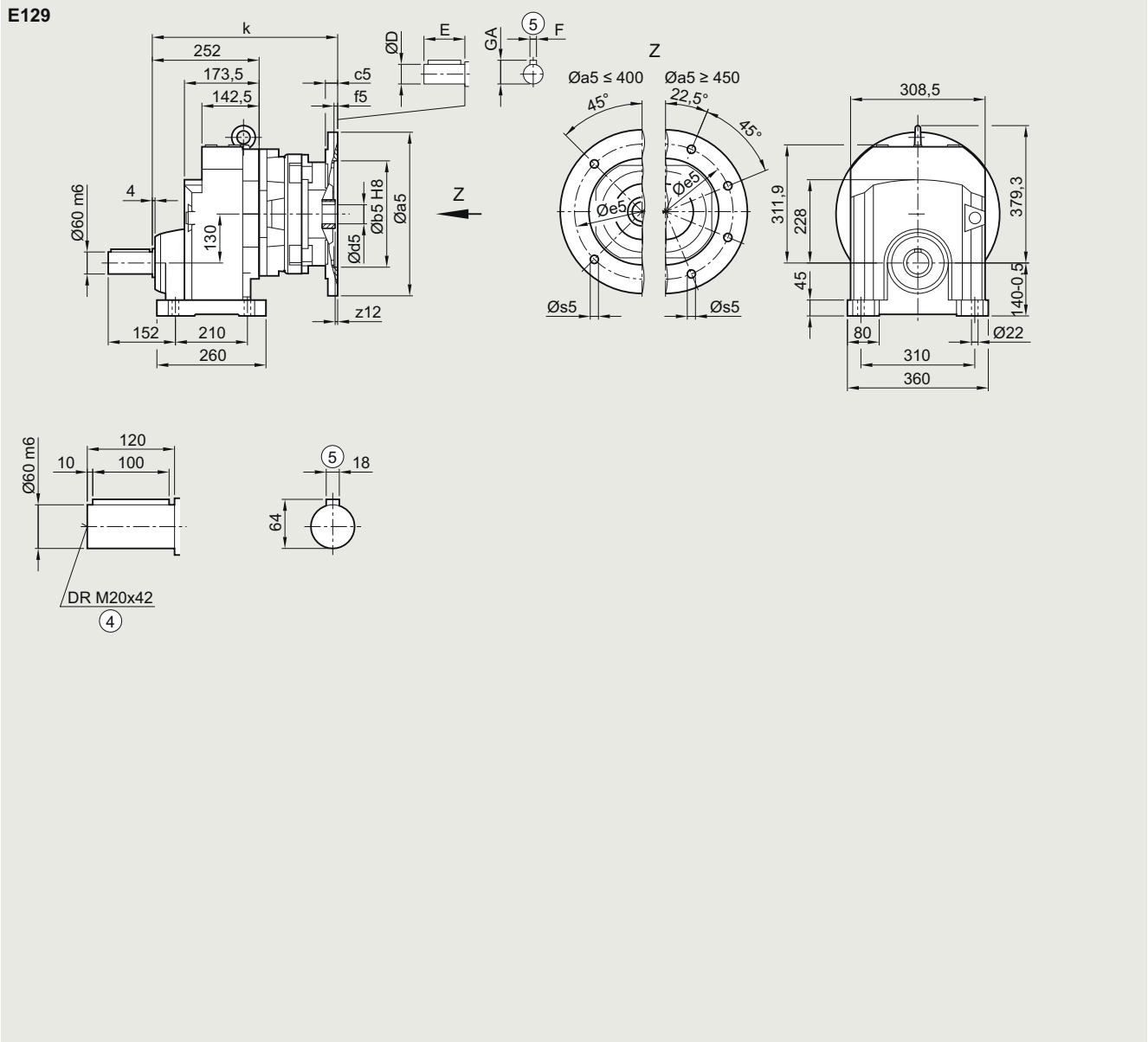
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

E129 gearbox in a foot-mounted design

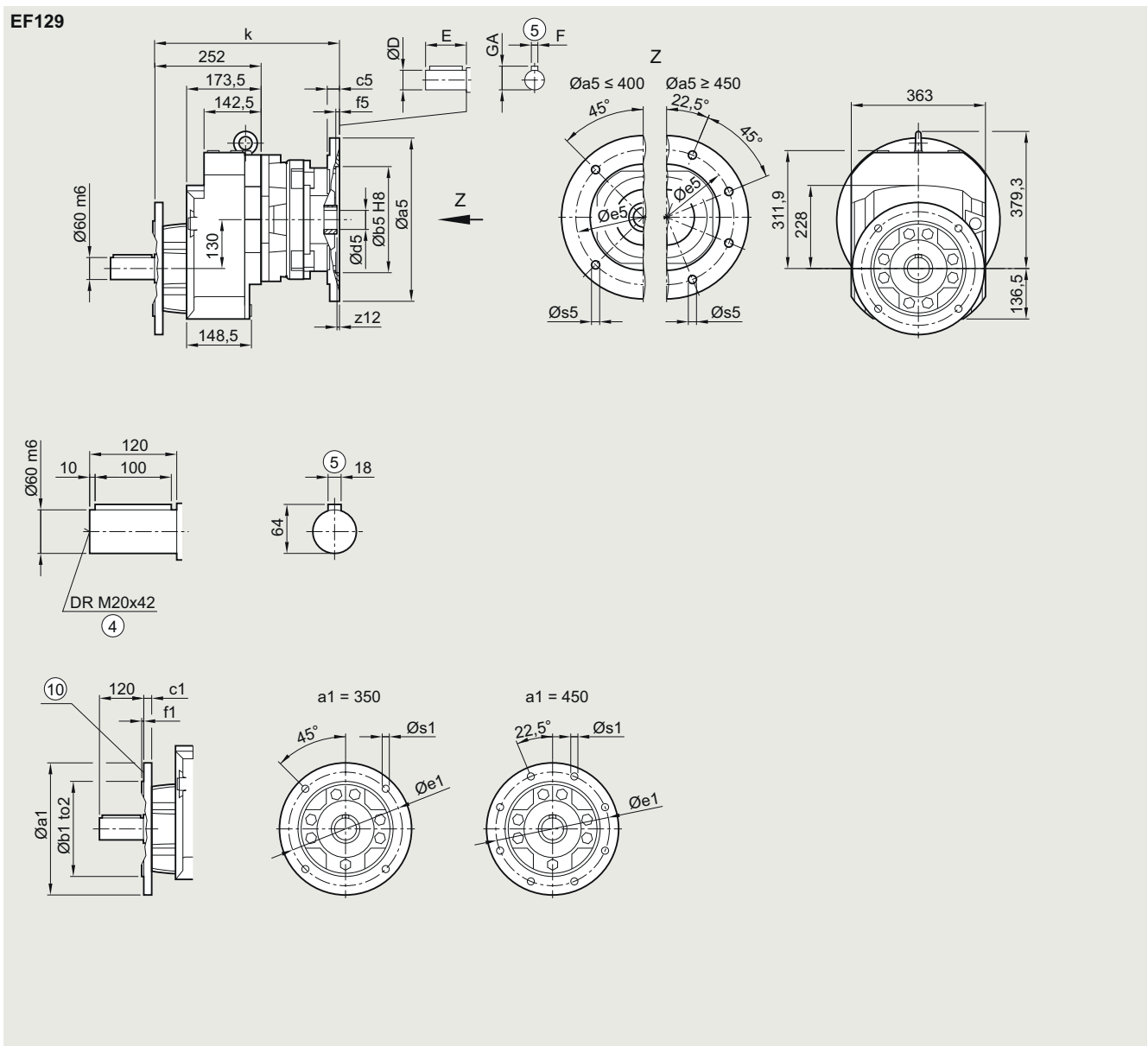


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 315.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 377.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 407.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 407.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 447.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 454.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 488.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF129 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|--------|------|------|-----|----|------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 315.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 377.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 407.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 407.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 447.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 454.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 488.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

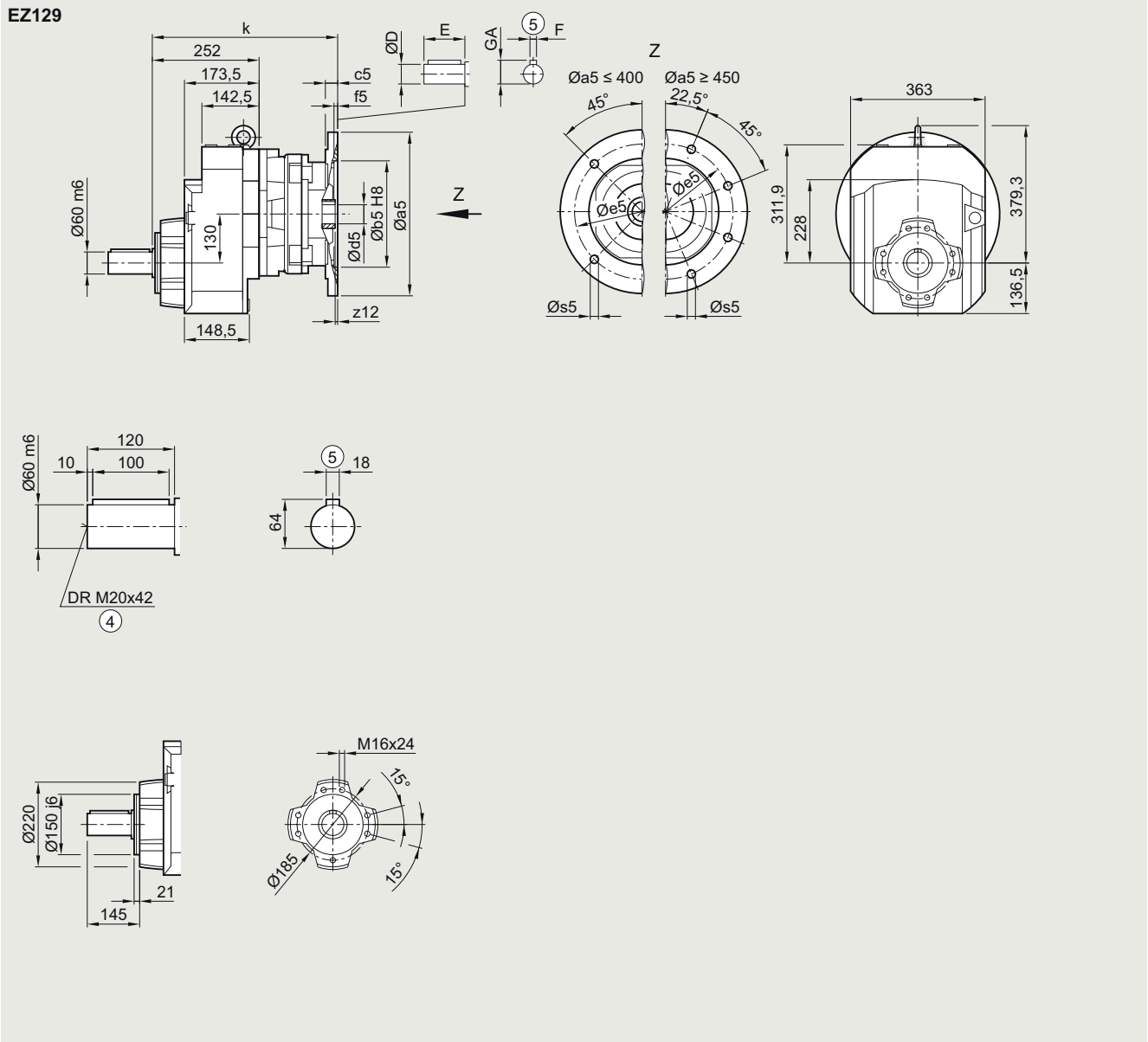
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EZ129 gearbox in a housing flange design

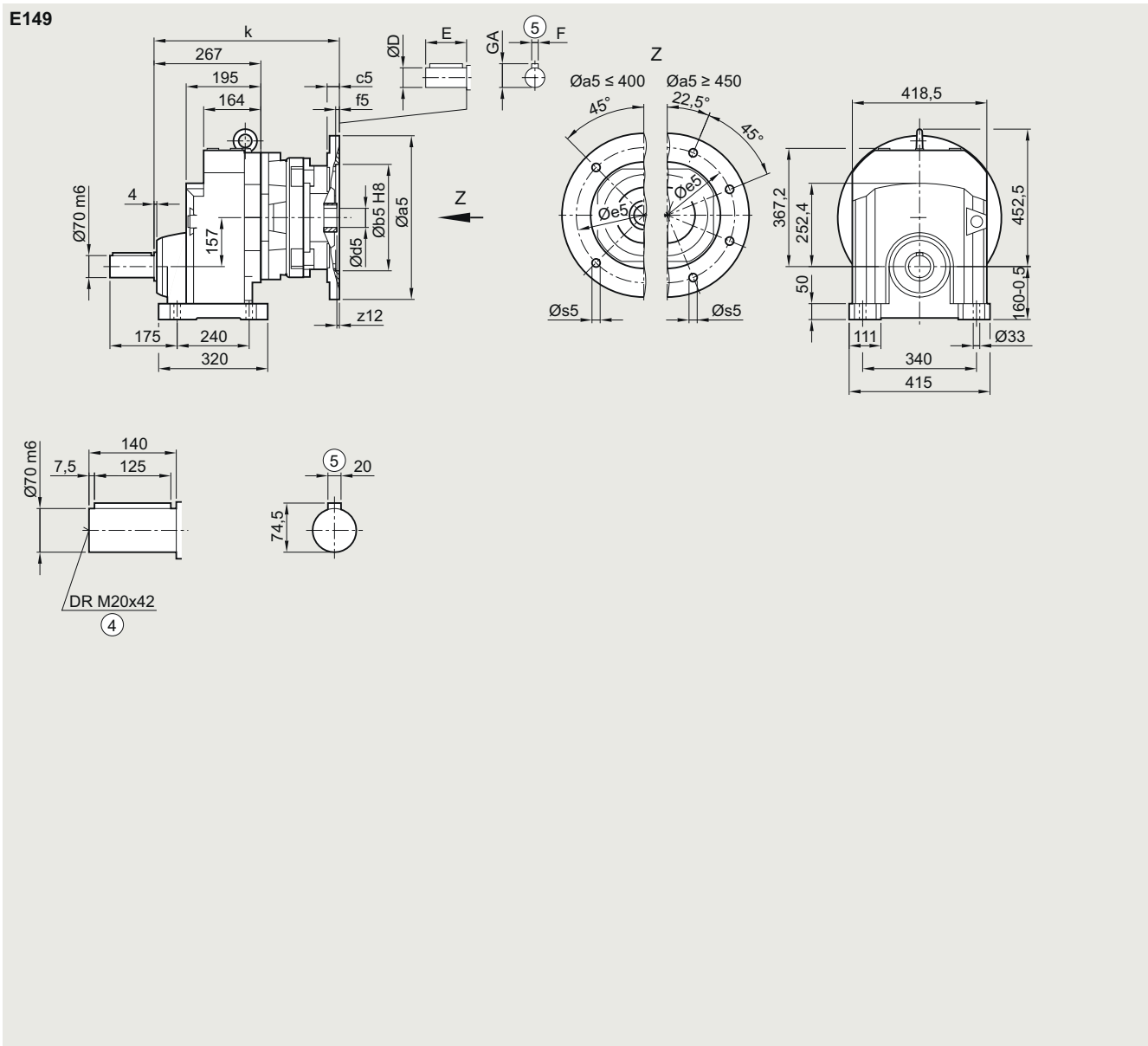


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 315.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 377.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 407.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 407.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 447.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 454.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 488.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 385.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 415.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 415.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 456.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 462.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 497.0 |

④ DIN 332

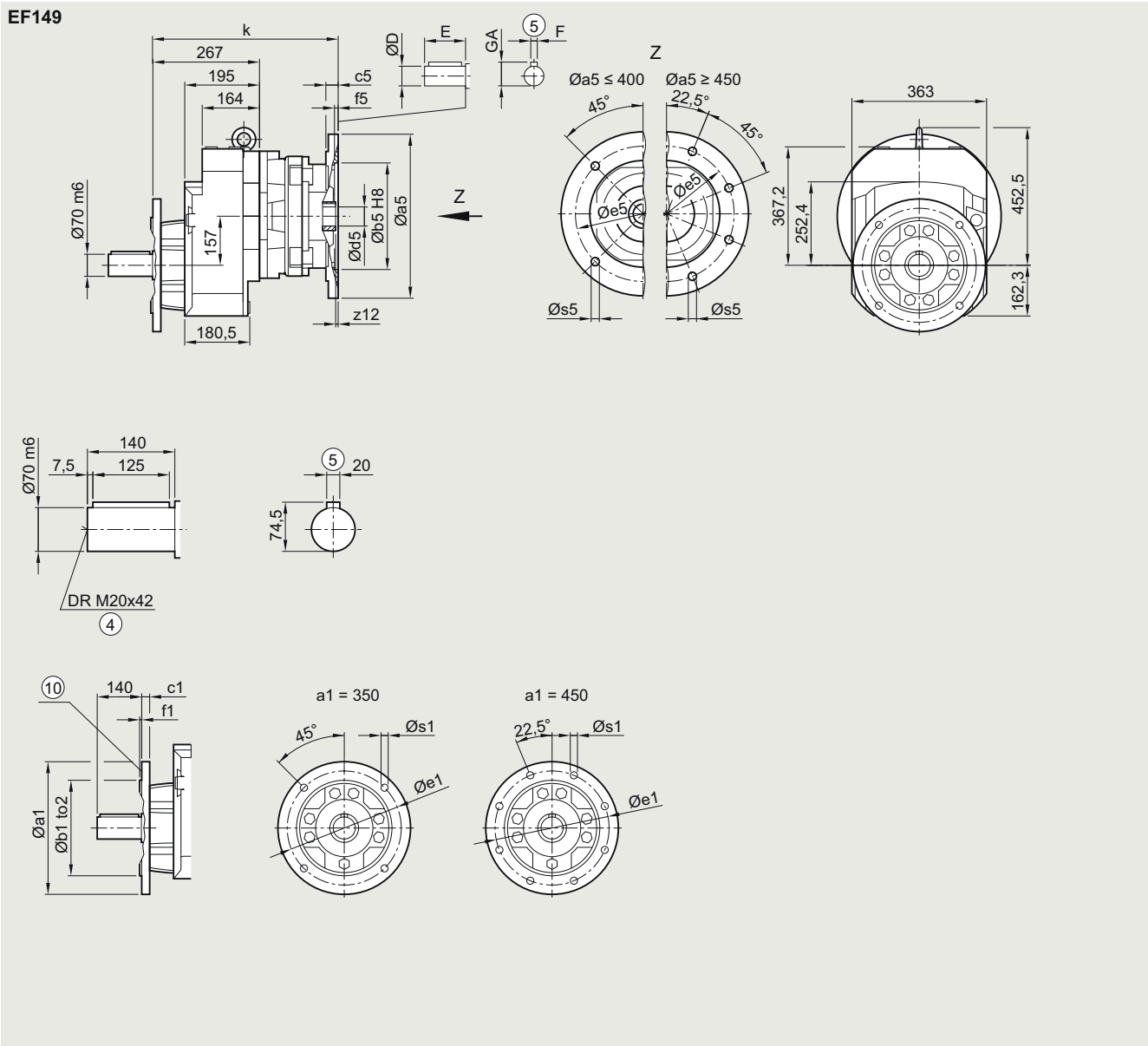
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

EF149 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|----|------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17.5 |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17.5 |

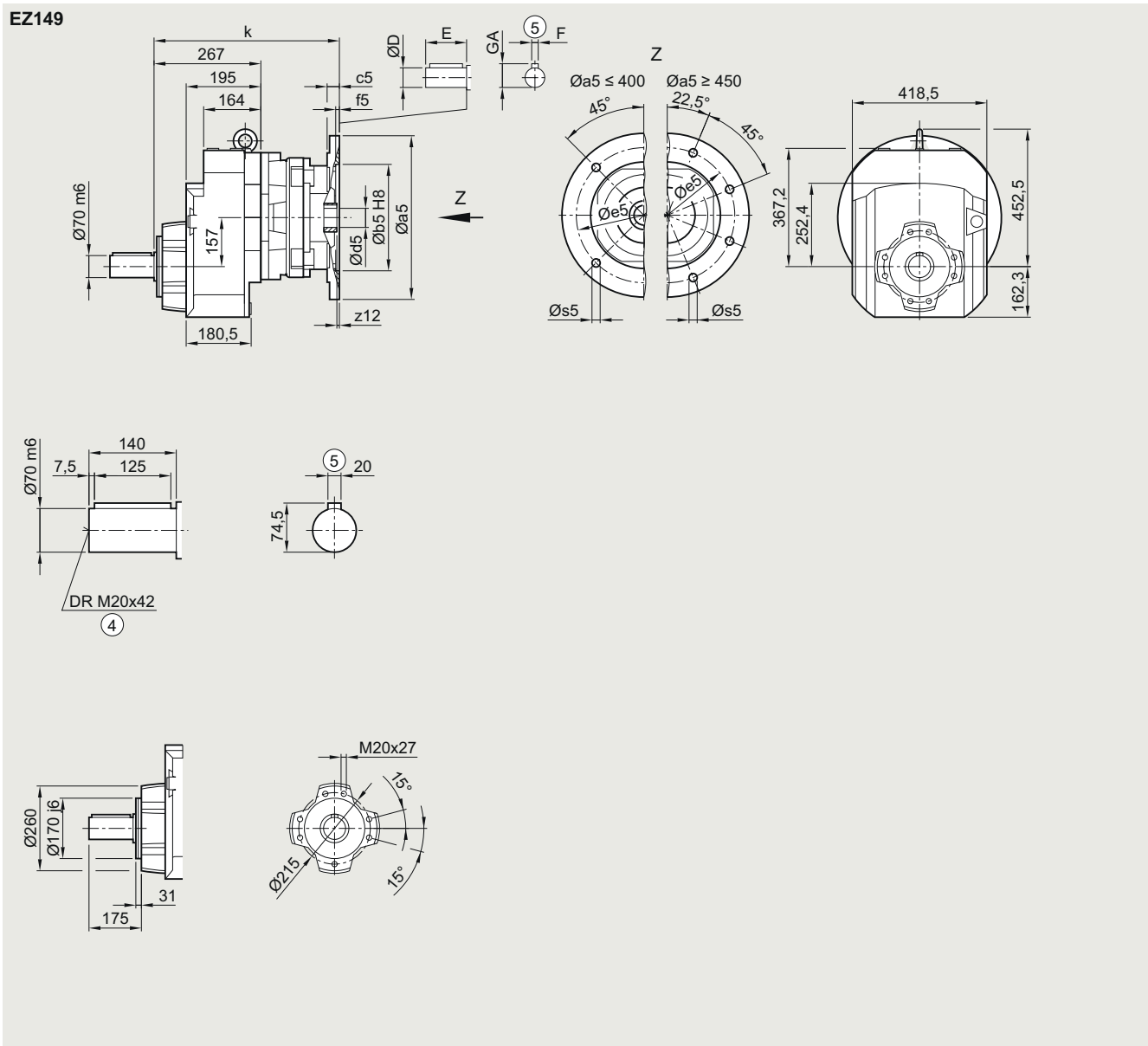
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 385.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 415.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 415.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 456.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 462.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 497.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

EZ149 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 375.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 385.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 415.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 415.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 456.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 462.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 497.0 |

④ DIN 332

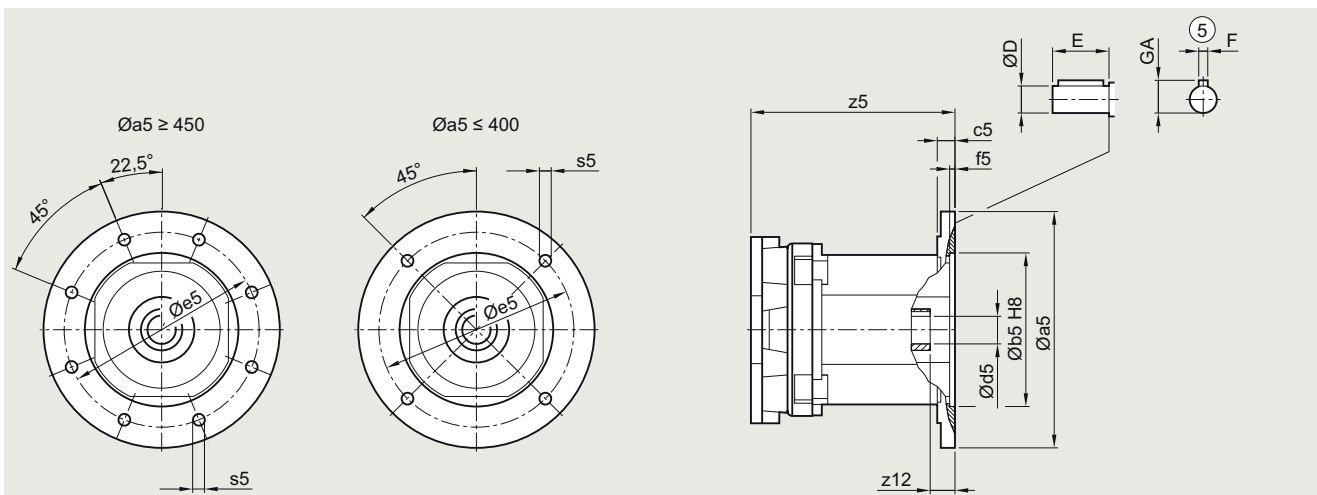
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

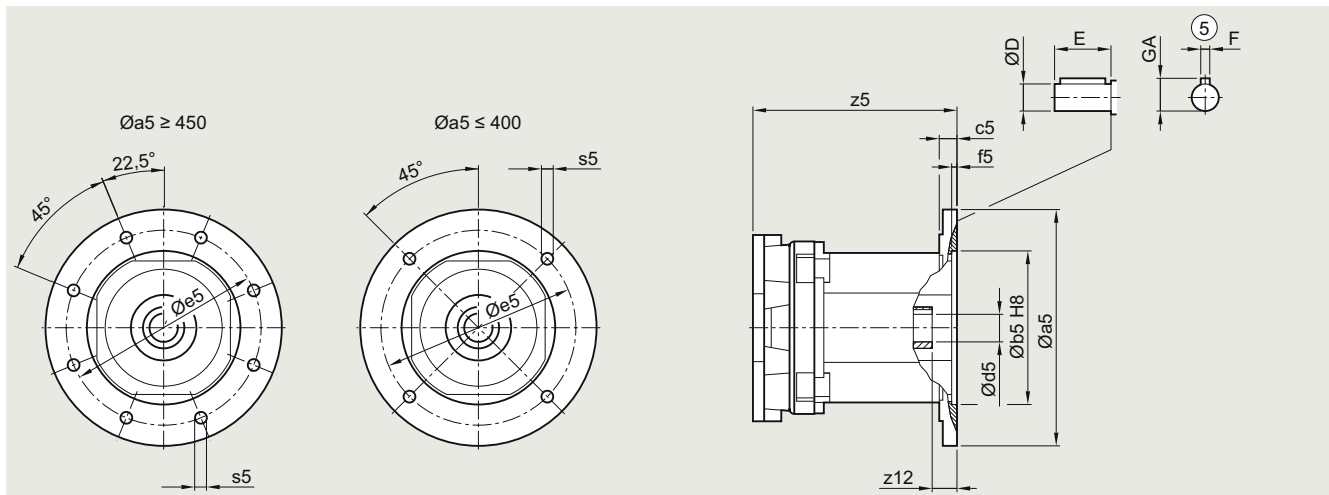
Z./D.29 to Z./D.89 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-----|----|-----|-----|-----|-----|------|-----|----|------|-------|
| Z./D.29 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| Z./D.39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245.0 |
| Z./D.49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| Z./D.59 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| Z./D.69 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| Z./D.79 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 182.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 182.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 307.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 352.5 |
| Z./D.89 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 169.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 169.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 290.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 335.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 335.5 |

© Feather key/keyway DIN 6885

Z./D.109 to Z./D.169 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| Z./D.109 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 162.5 |
| 100 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 112 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 132 | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 281.5 |
| 160 | 350 | 250 | 25 | 6 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 326.5 |
| 180 | 350 | 250 | 25 | 6 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 326.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 371.5 |
| 225 | 450 | 350 | 50 | 6 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 419.0 |
| Z./D.129 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 155.5 |
| 100 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 112 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 132 | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 270.5 |
| 160 | 350 | 250 | 25 | 6 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 315.5 |
| 180 | 350 | 250 | 25 | 6 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 315.5 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 360.5 |
| 225 | 450 | 350 | 50 | 6 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 408.0 |
| 250 | 550 | 450 | 27 | 6 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 445.5 |
| Z./D.149 | | | | | | | | | | | | |
| 100 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 112 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 132 | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 264.0 |
| 160 | 350 | 250 | 25 | 6 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 309.0 |
| 180 | 350 | 250 | 25 | 6 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 309.0 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| 225 | 450 | 350 | 50 | 6 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 401.5 |
| 250 | 550 | 450 | 27 | 6 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 439.0 |
| 280 | 550 | 450 | 27 | 6 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 314.5 |
| Z./D.169 | | | | | | | | | | | | |
| 112 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 180.5 |
| 132 | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 251.0 |
| 160 | 350 | 250 | 25 | 6 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 296.0 |
| 180 | 350 | 250 | 25 | 6 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 296.0 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 340.5 |
| 225 | 450 | 350 | 50 | 6 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 387.0 |
| 250 | 550 | 450 | 27 | 6 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 420.5 |
| 280 | 550 | 450 | 27 | 6 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 297.5 |

① Feather key/keyway DIN 6885

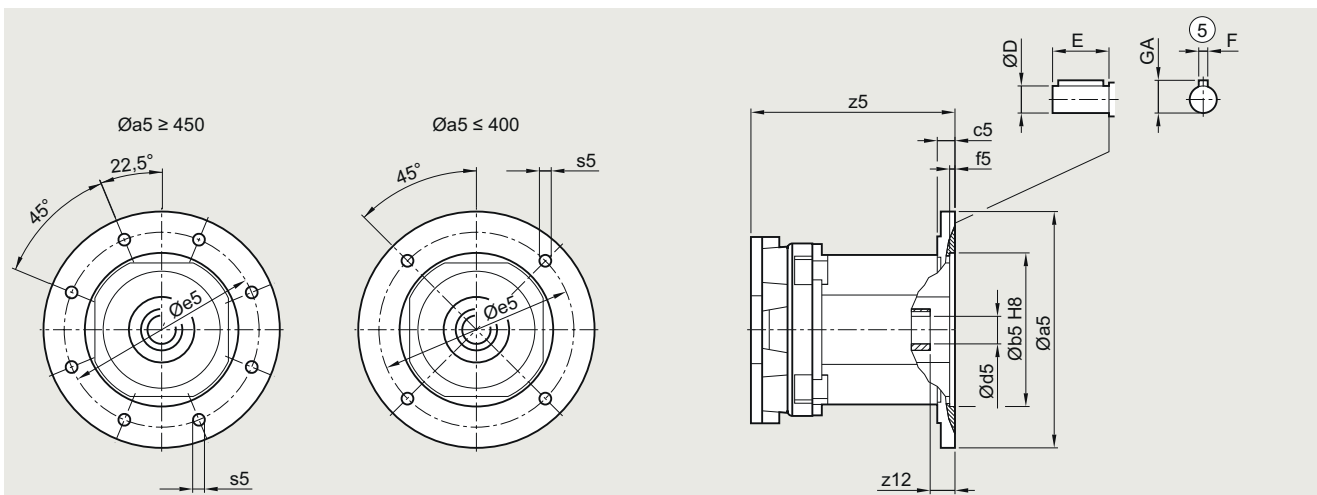
() Dimension in brackets for 2-pole motor

Helical gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

Z./D.189 and E.39 to E.89 gearboxes

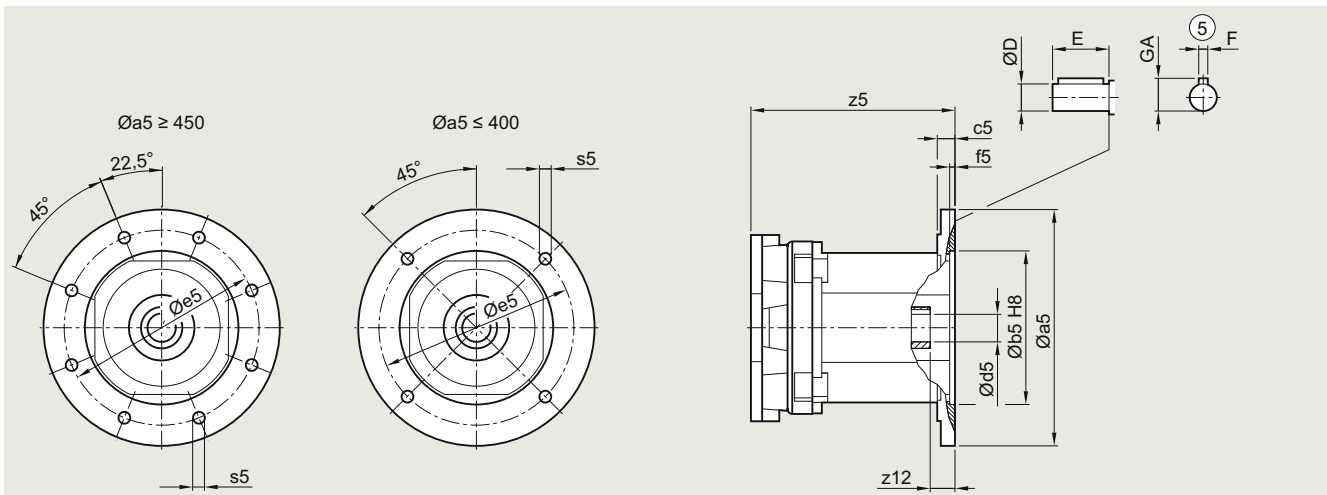


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| Z./D.189 | | | | | | | | | | | | |
| 112 | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 180.5 |
| 132 | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 251.0 |
| 160 | 350 | 250 | 25 | 6 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 296.0 |
| 180 | 350 | 250 | 25 | 6 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 296.0 |
| 200 | 400 | 300 | 20 | 6 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 340.5 |
| 225 | 450 | 350 | 50 | 6 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 387.0 |
| 250 | 550 | 450 | 27 | 6 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 420.5 |
| 280 | 550 | 450 | 27 | 6 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 297.5 |
| 315 | 660 | 550 | 33 | 8 | 600 | M20 | 33.5 | 80 (65) | 170 (140) | 22 (18) | 85.0 (69.0) | 321.5 |
| E.39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245.0 |
| E.49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| E.69 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 182.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 182.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 307.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 352.5 |
| E.89 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 169.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 169.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 290.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 335.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 335.5 |

⑤ Feather key/keyway DIN 6885

() Dimension in brackets for 2-pole motor

E.109 to E.149 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| E.109 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 162.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 281.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 326.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 326.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 371.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64 (59.0) | 419.0 |
| E.129 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 155.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 270.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 315.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 315.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 360.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64 (59.0) | 408.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 | 140 | 18 | 69.0 | 445.5 |
| E.149 | | | | | | | | | | | | |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 264.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 309.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 309.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64 (59.0) | 401.5 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 | 140 | 18 | 69.0 | 439.0 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 314.5 |

Ⓞ Feather key/keyway DIN 6885

() Dimension in brackets for 2-pole motor

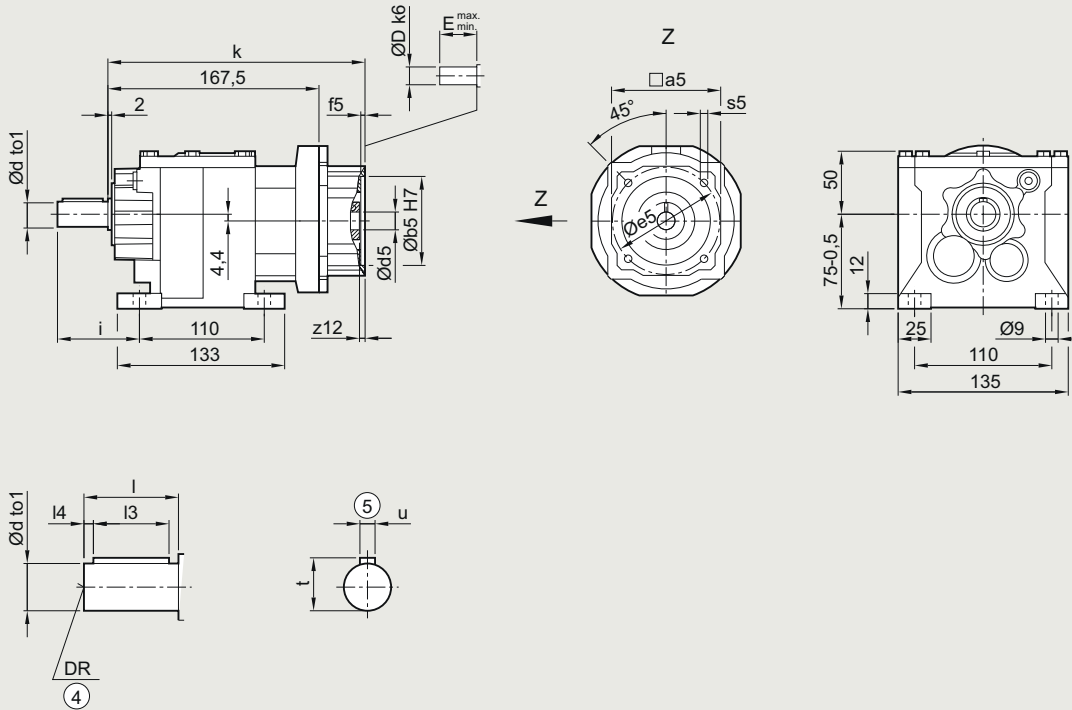
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

Z/D19 gearbox in a foot-mounted design

Z/D19

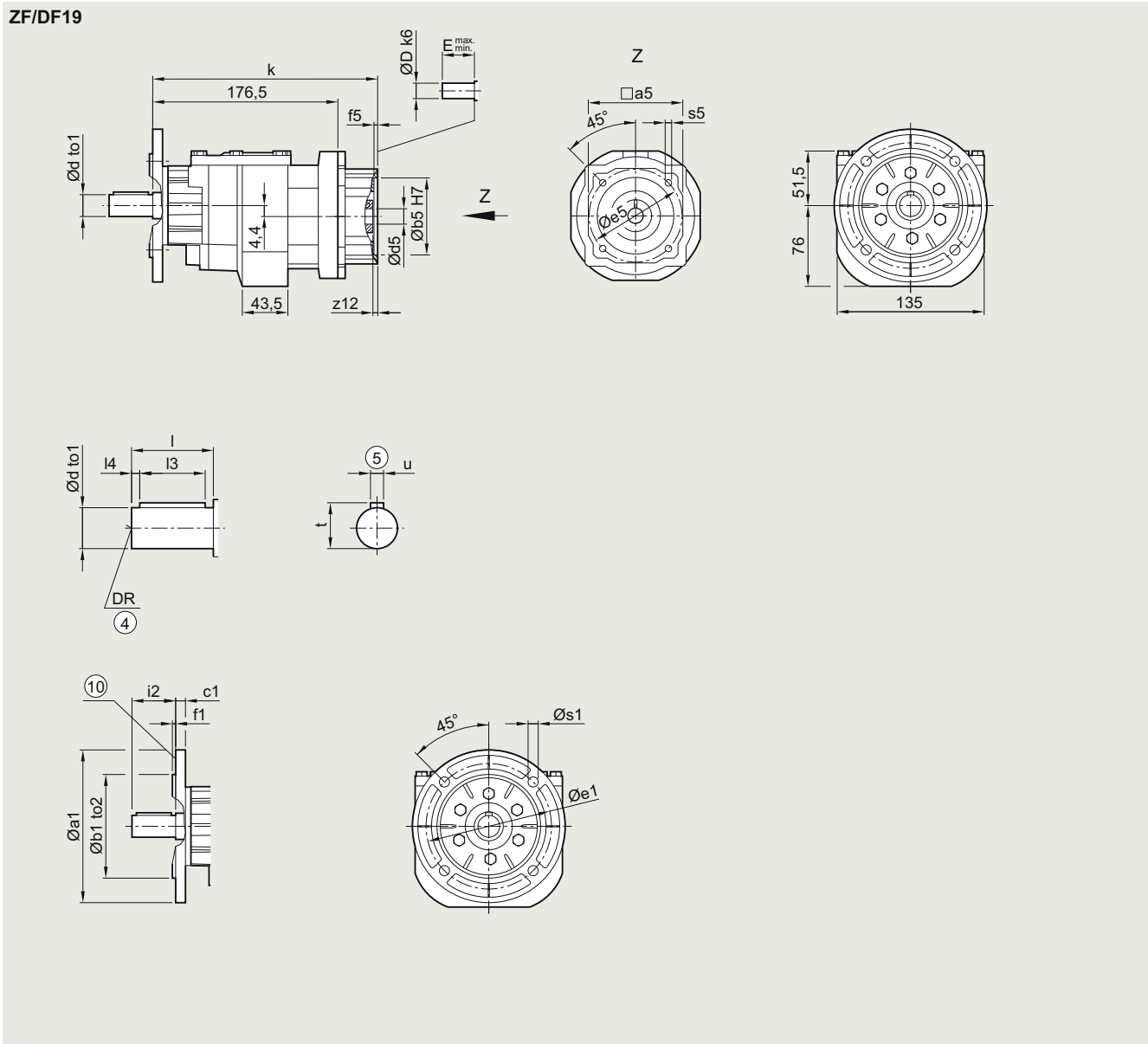


| Shaft | d | to1 | l | l3 | l4 | t | u | i | DR | |
|---------|----|-----|-----|-----|--------|------|------|-------------------|-------------------|-------|
| | 16 | k6 | 28 | 22 | 3 | 18.0 | 5 | 46 | M5 | |
| | 16 | k6 | 40 | 32 | 4 | 18.0 | 5 | 58 | M8 | |
| | 20 | k6 | 40 | 32 | 4 | 22.5 | 6 | 58 | M6x16 | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 208.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 208.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF19 gearbox in a flange-mounted design



| Shaft | d | to1 | l | l3 | l4 | t | u | i2 | DR | |
|---------|-----|-----|-----|-----|--------|------|------|-------------------|-------------------|-------|
| | 16 | k6 | 28 | 22 | 3 | 18.0 | 5 | 28 | M5 | |
| | 16 | k6 | 40 | 32 | 4 | 18.0 | 5 | 40 | M8 | |
| | 20 | k6 | 40 | 32 | 4 | 22.5 | 6 | 40 | M6x16 | |
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | |
| | 140 | 95 | j6 | 9 | 115 | 3.0 | 9.0 | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 217 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 217 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

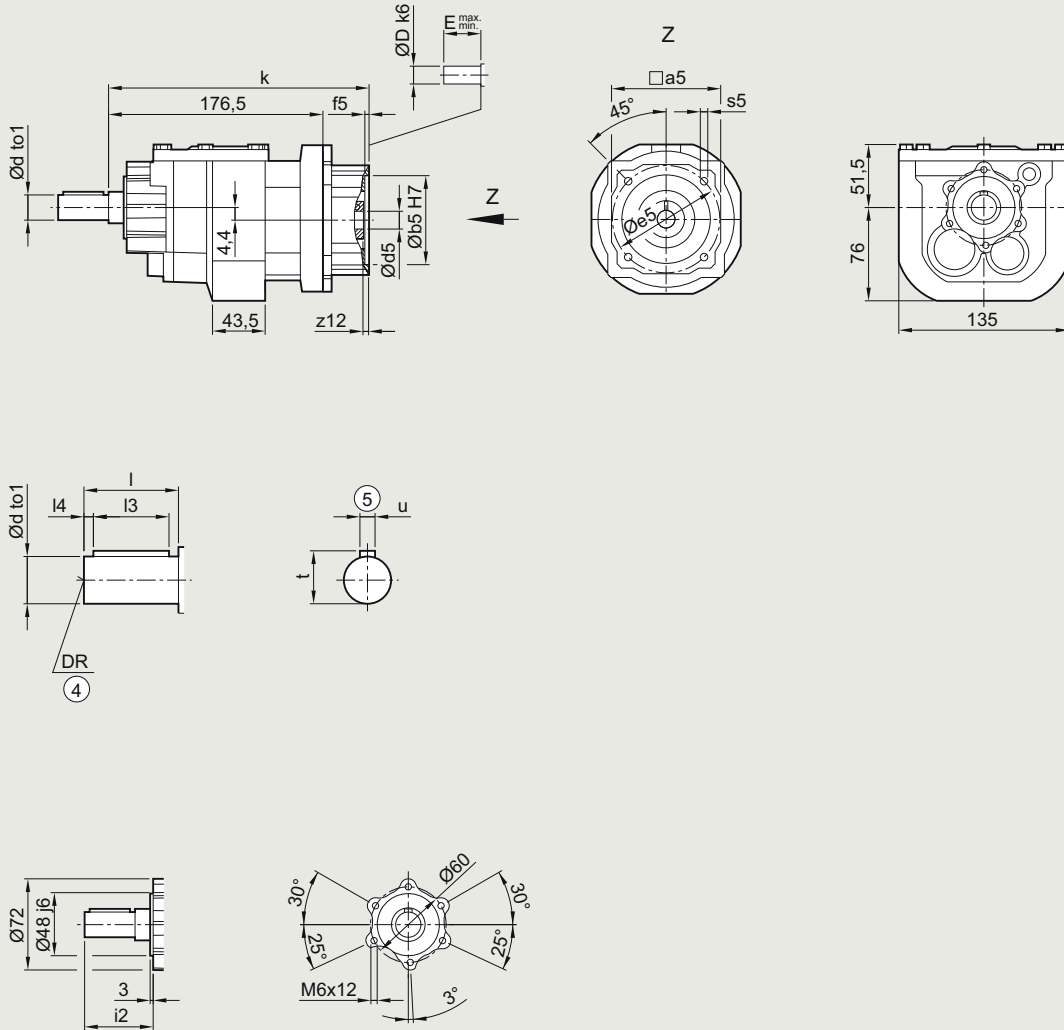
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ19 gearbox in a housing flange design

ZZ/DZ19

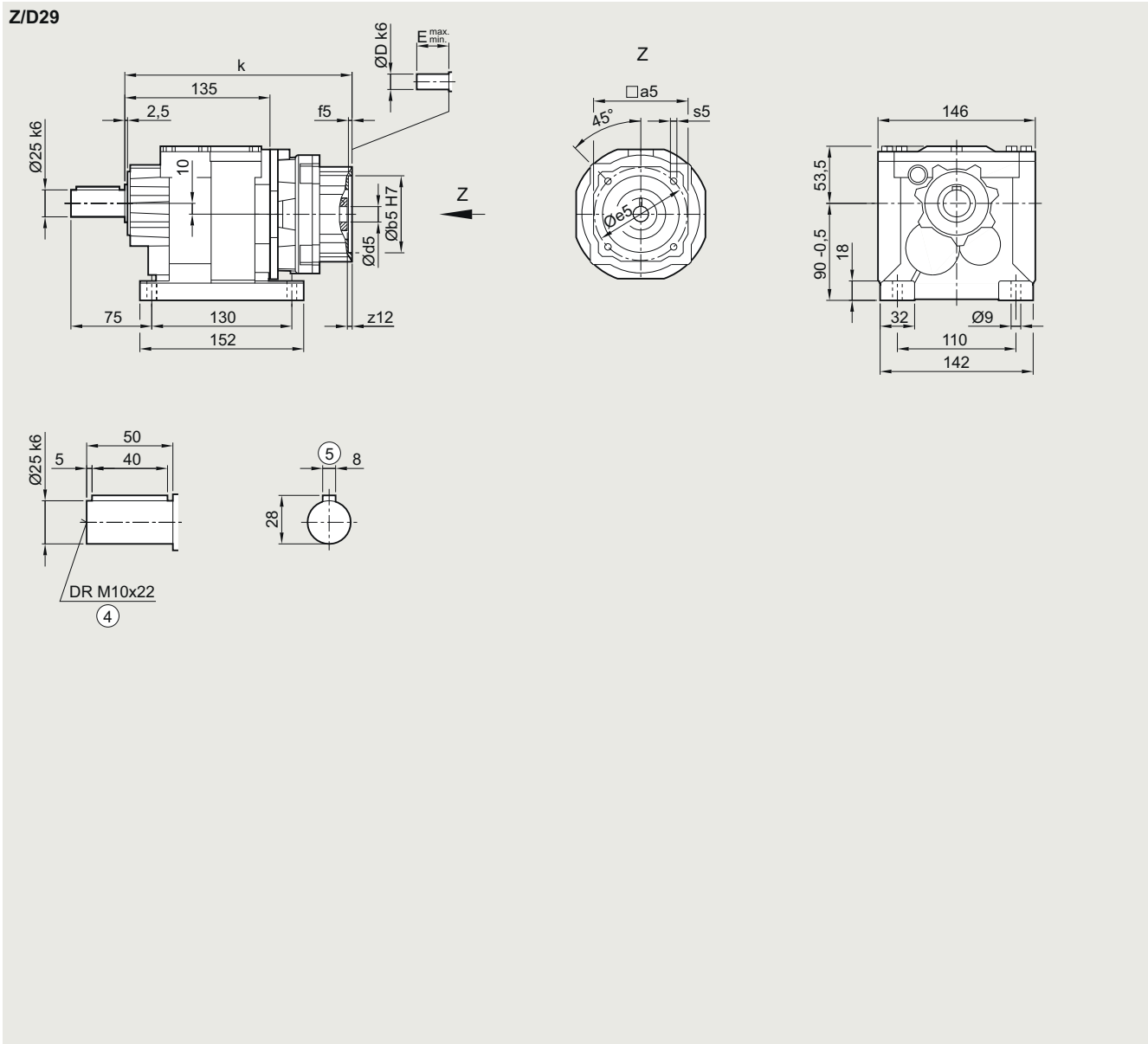


| Shaft | d | to1 | l | i3 | i4 | t | u | i2 | DR | |
|---------|----|-----|-----|-----|--------|------|------|-------------------|-------------------|-------|
| | 16 | k6 | 28 | 22 | 3 | 18.0 | 5 | 42 | M5 | |
| | 16 | k6 | 40 | 32 | 4 | 18.0 | 5 | 54 | M8 | |
| | 20 | k6 | 40 | 32 | 4 | 22.5 | 6 | 54 | M6x16 | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 217 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 217 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D29 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 217 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 217 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 229.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 245.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 245.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 270.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 270.5 |

④ DIN 332

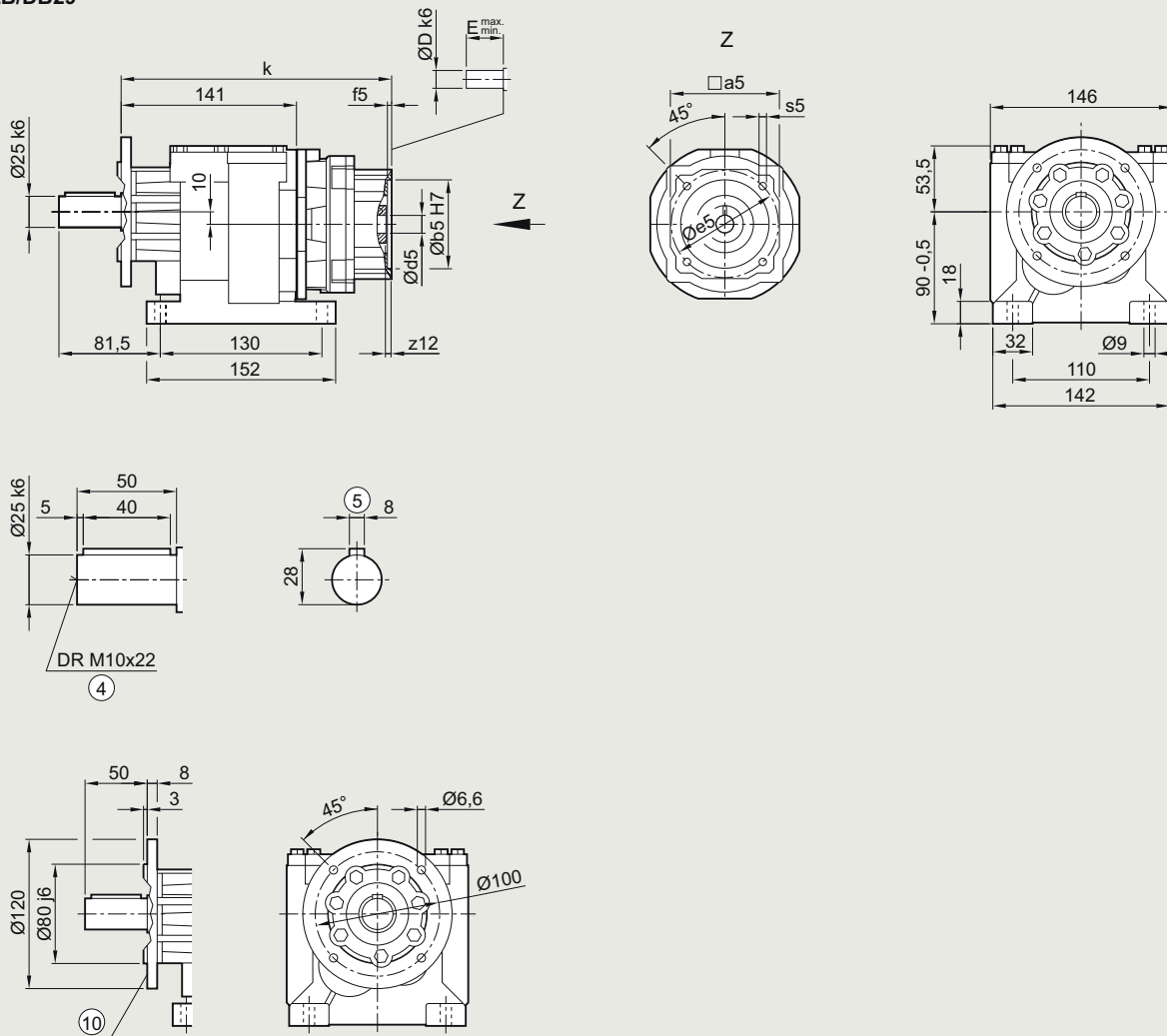
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZB/DB29 gearbox in a foot/flange-mounted design

ZB/DB29

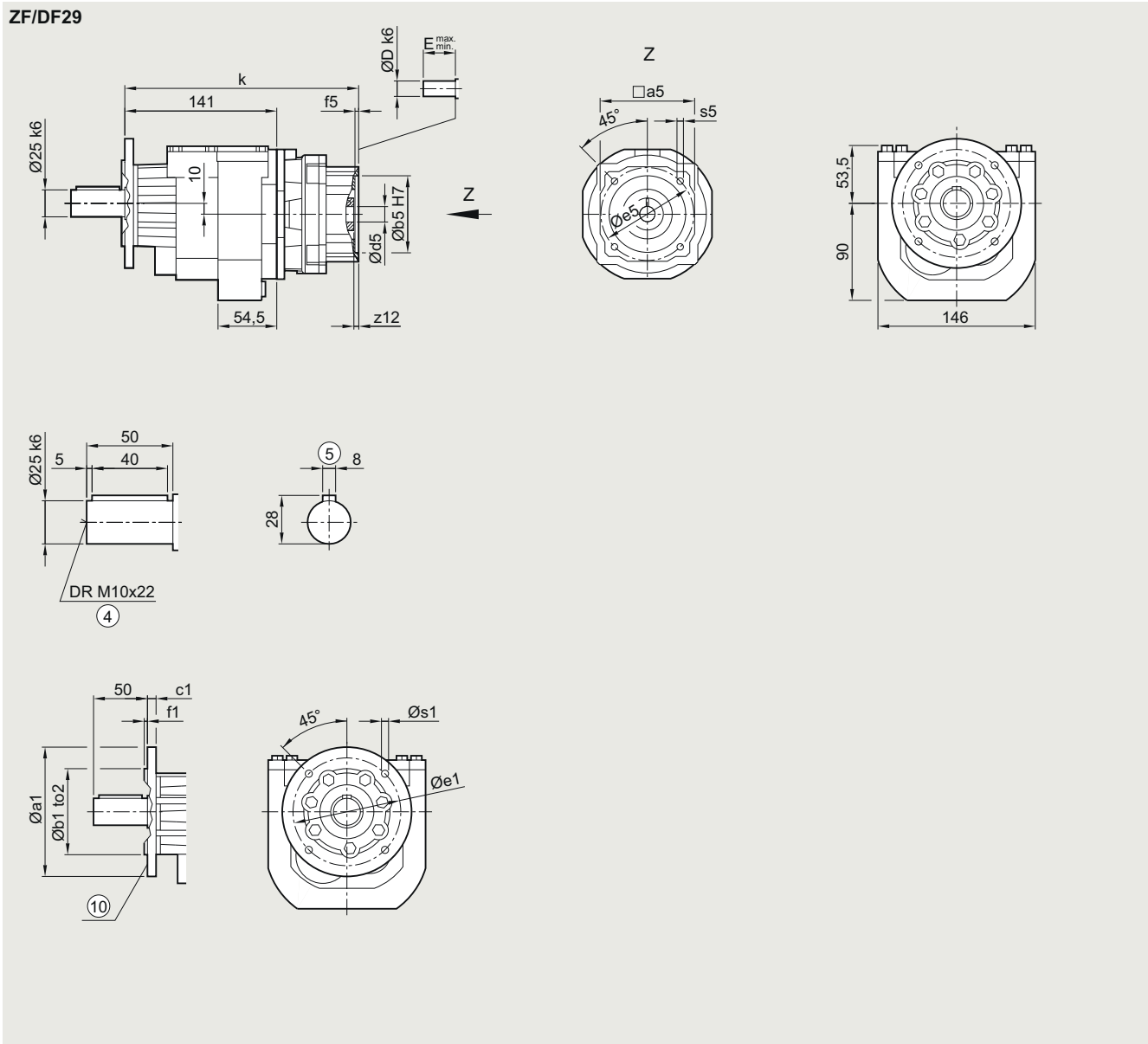
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 223 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 223 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 251.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 251.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 276.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 276.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF29 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | |
| | 140 | 95 | j6 | 9 | 115 | 3.0 | 9.0 | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 223 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 223 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 251.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 251.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 276.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 276.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

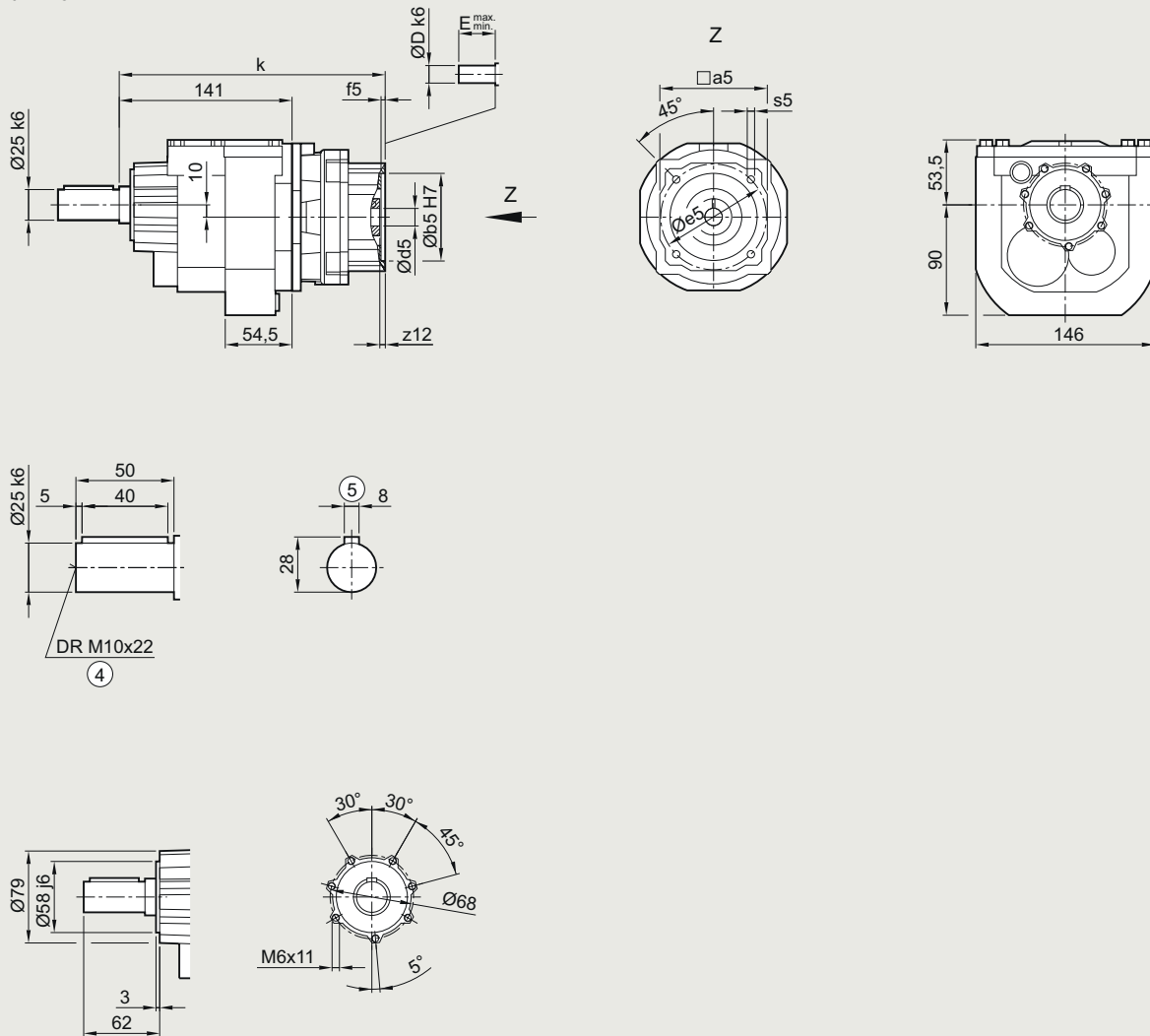
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ29 gearbox in a housing flange design

ZZ/DZ29

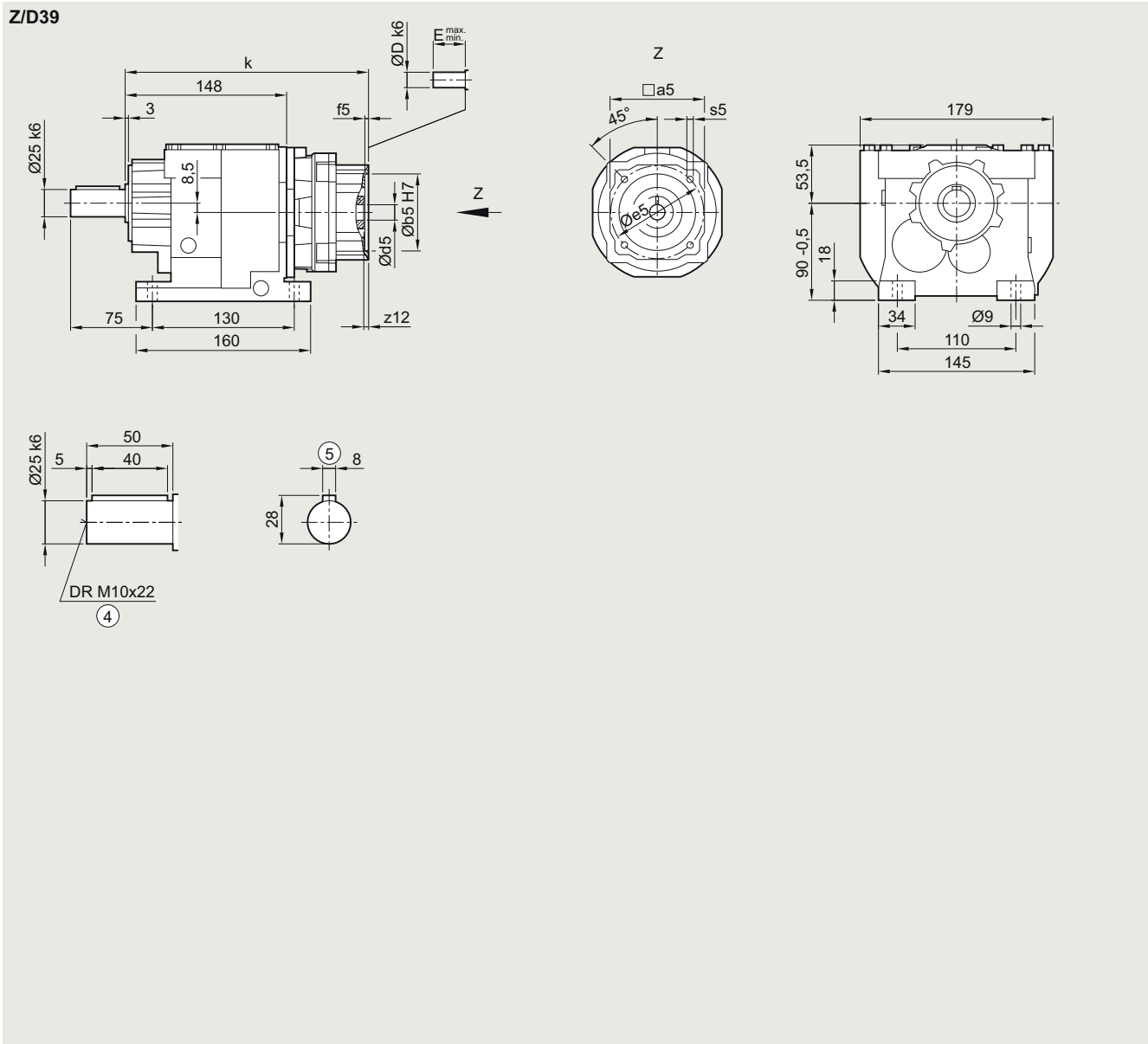


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 223 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 223 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 235.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 251.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 251.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 276.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 276.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D39 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 230 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 230 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 242.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 242.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 258.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 258.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 283.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 283.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 296 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

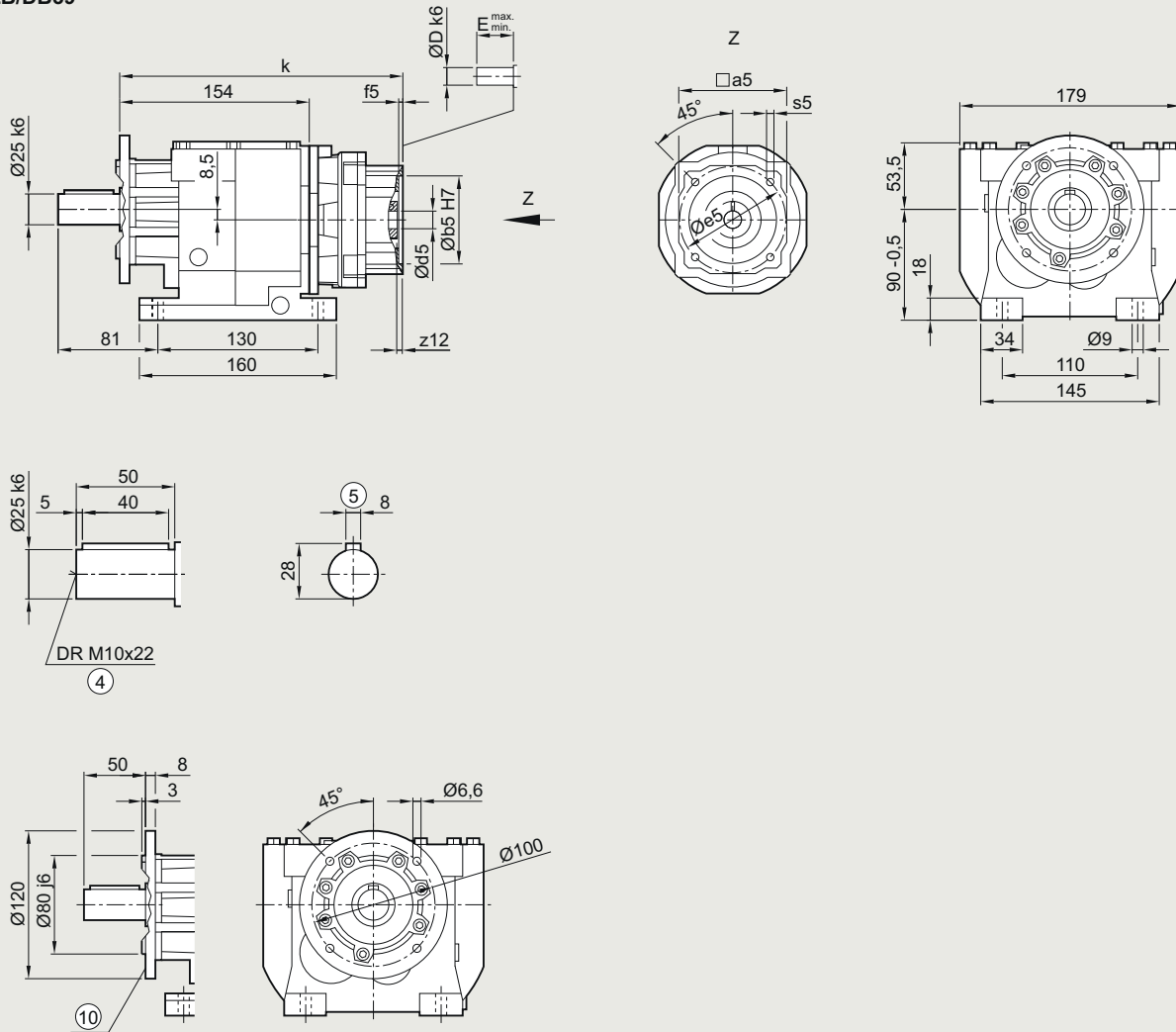
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZB/DB39 gearbox in a foot/flange-mounted design

ZB/DB39



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 236 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 236 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 302 |

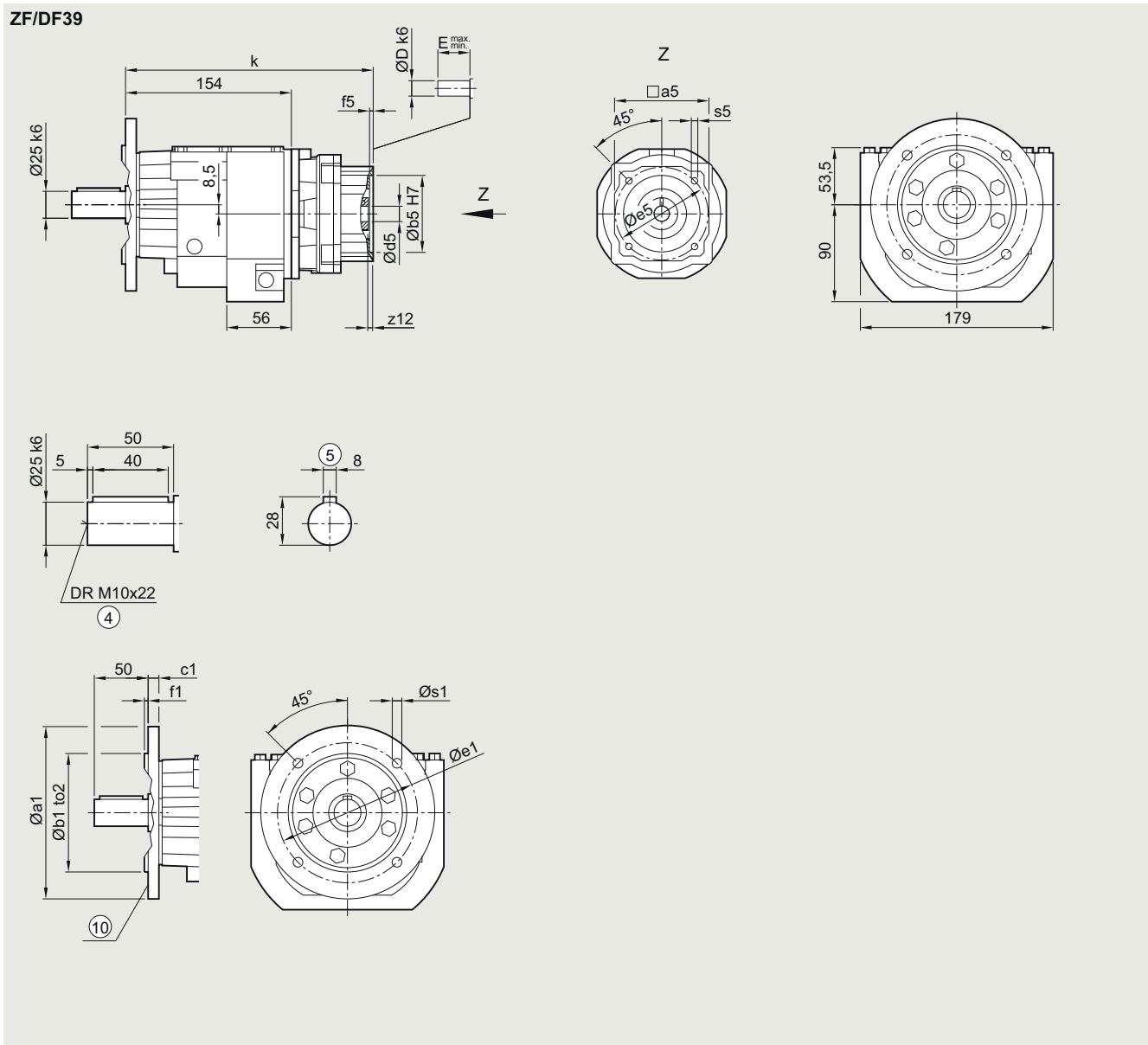
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF39 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 236 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 236 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 302 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

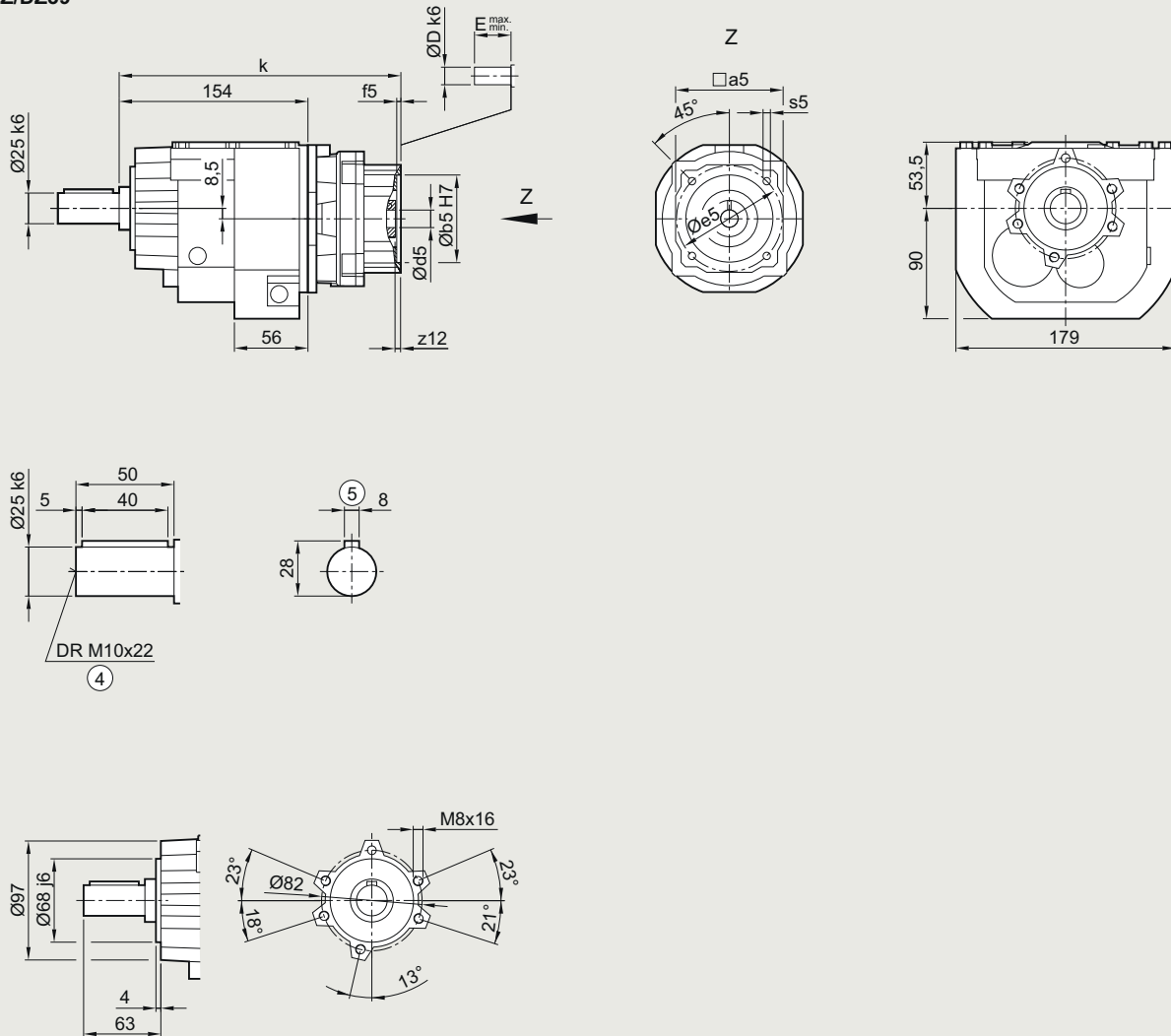
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ39 gearbox in a housing flange design

ZZ/DZ39



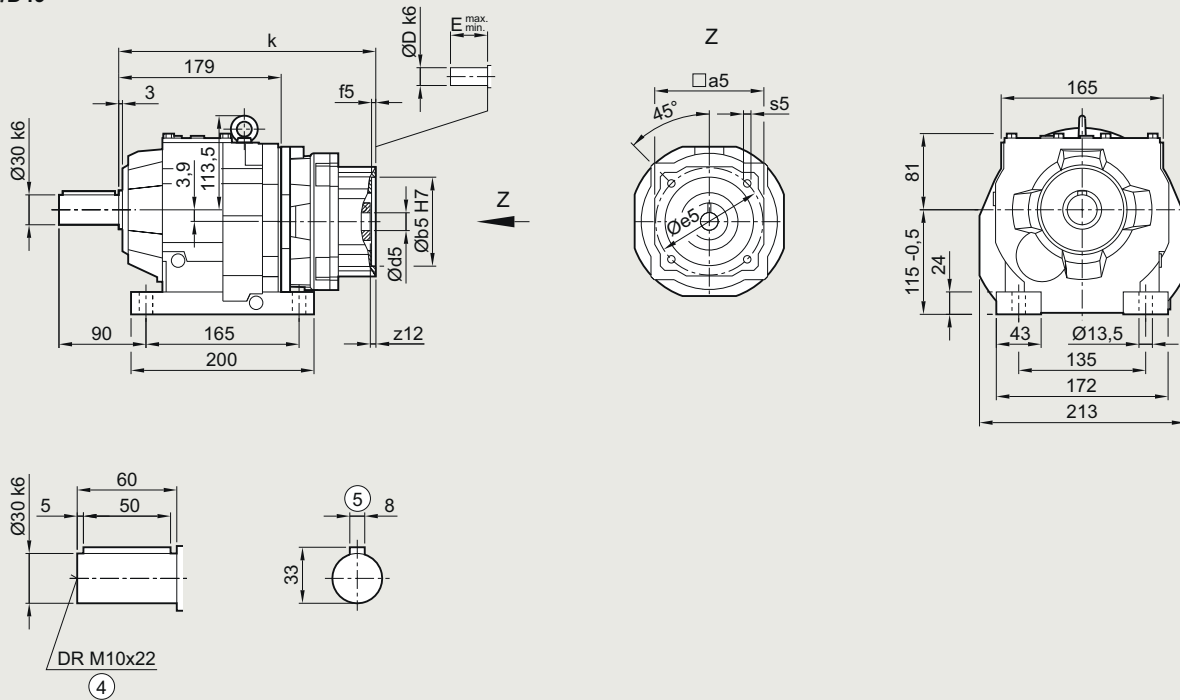
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 236 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 236 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 302 |

④ DIN 332

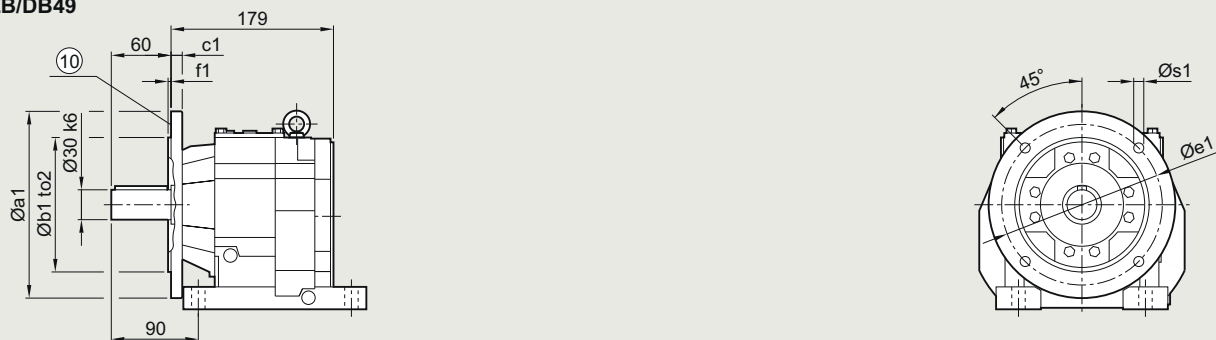
⑤ Feather key/keyway DIN 6885

Z/D49 and ZB/DB49 gearboxes in a foot and foot/flange-mounted design

Z/D49



ZB/DB49



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 140 | 95 | j6 | 10 | 115 | 3.0 | 9.0 | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

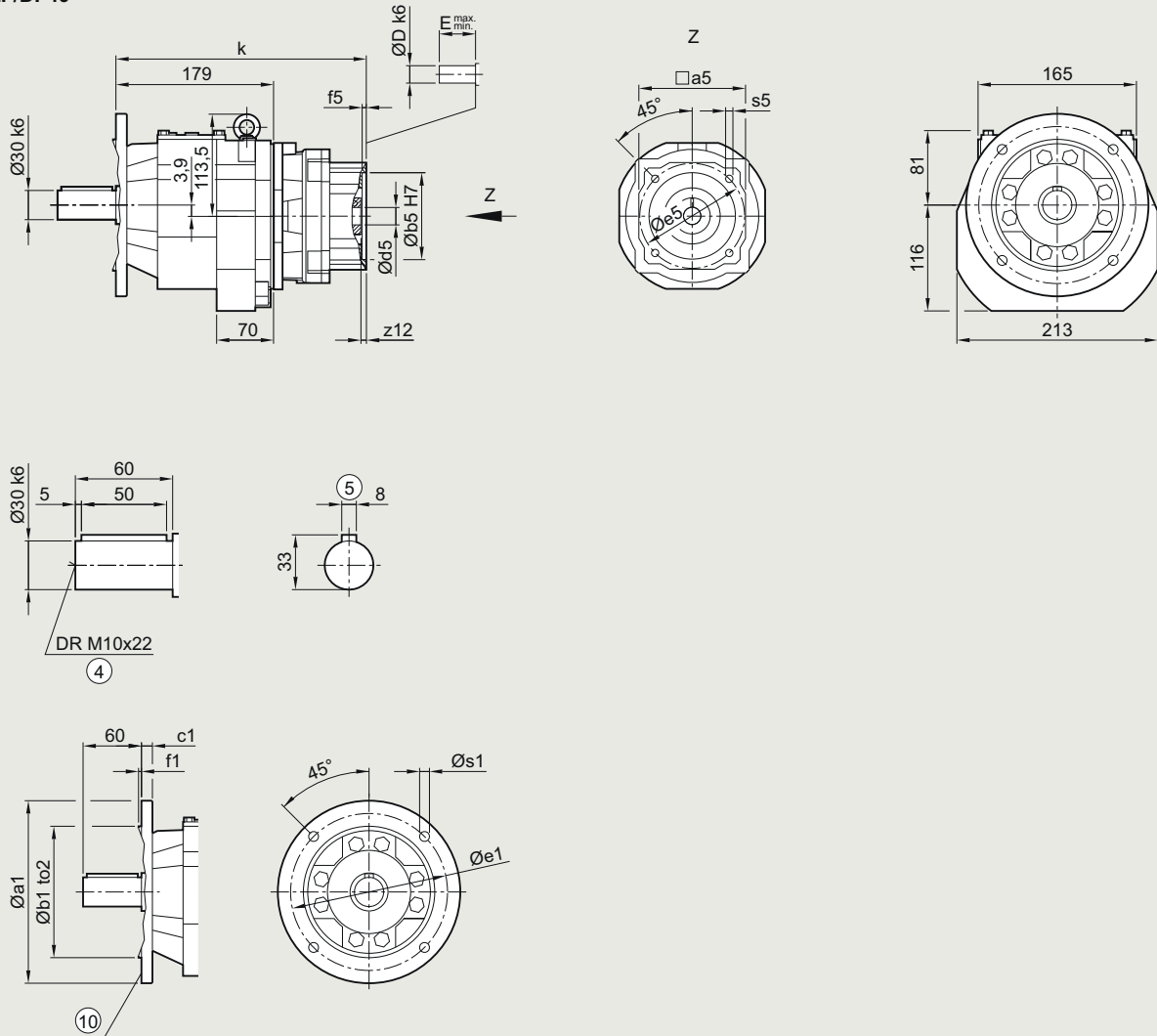
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF49 gearbox in a flange-mounted design

ZF/DF49



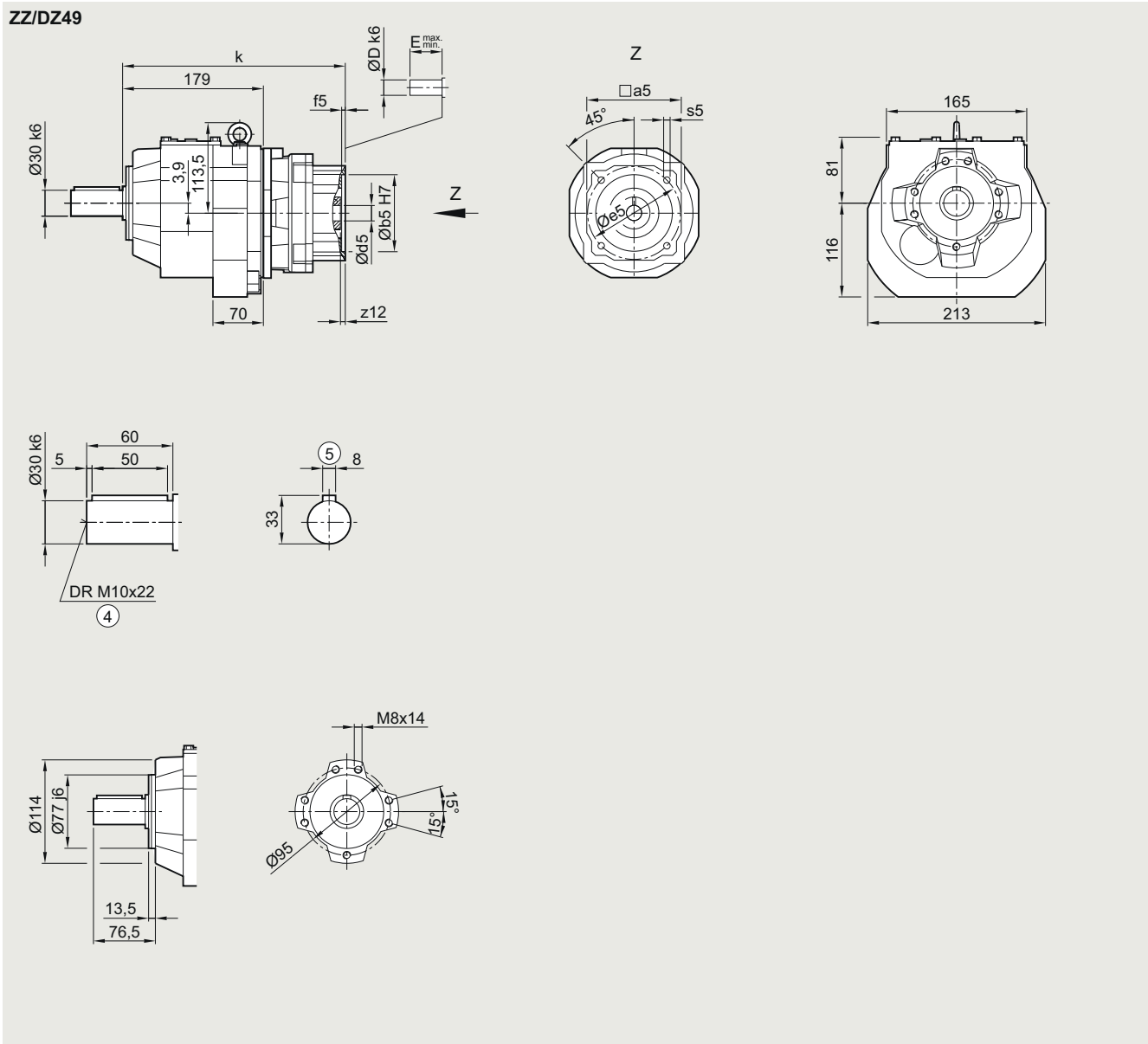
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 140 | 95 | j6 | 10 | 115 | 3.0 | 9.0 | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ49 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

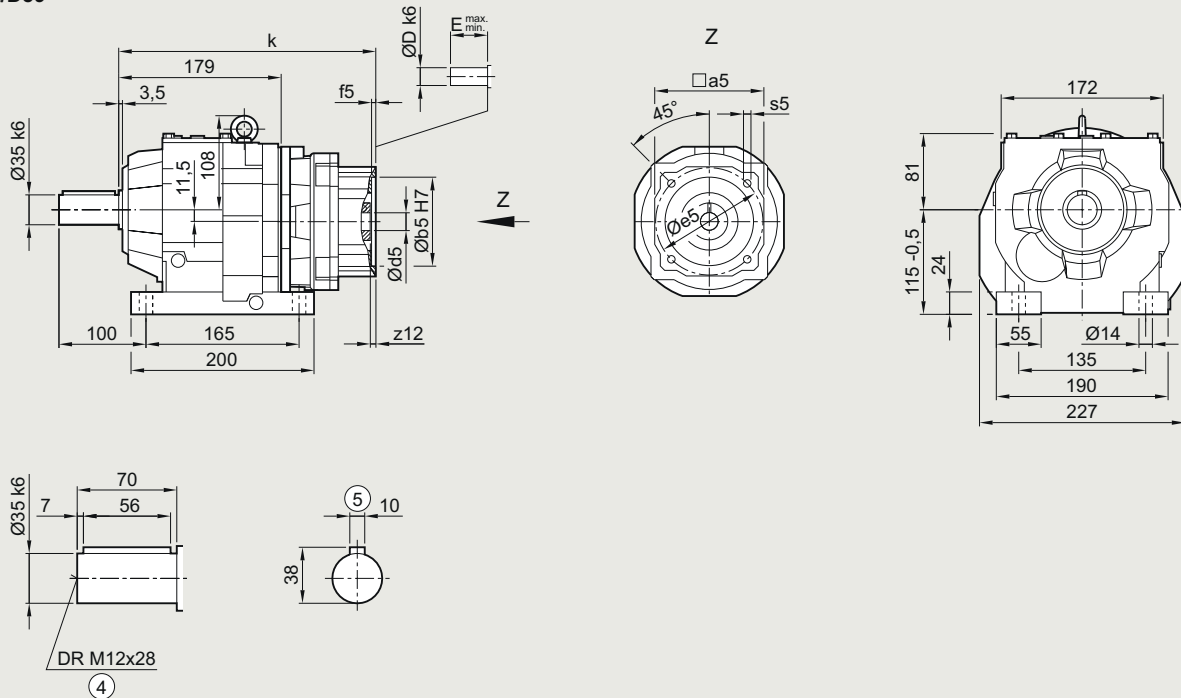
Helical gearboxes

Dimensional drawings

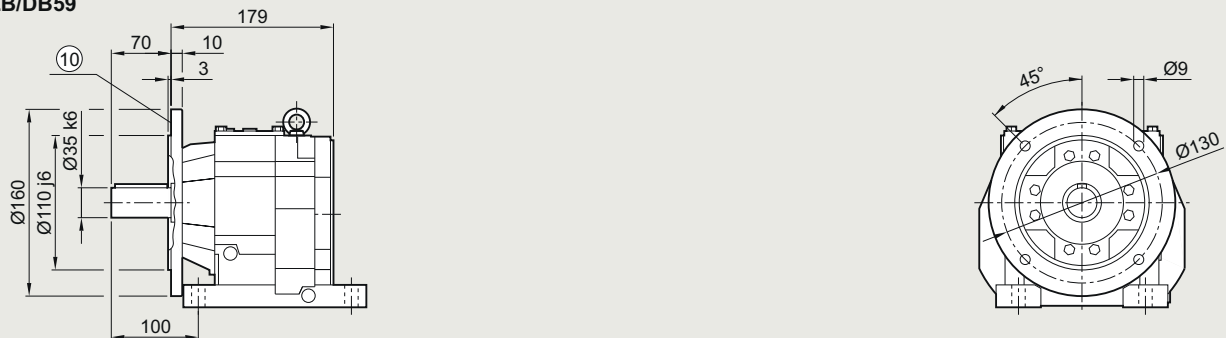
KS adapter exclusively for mounting defined Siemens servo motors

Z/D59 and ZB/DB59 gearboxes in a foot and foot/flange-mounted design

Z/D59



ZB/DB59



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

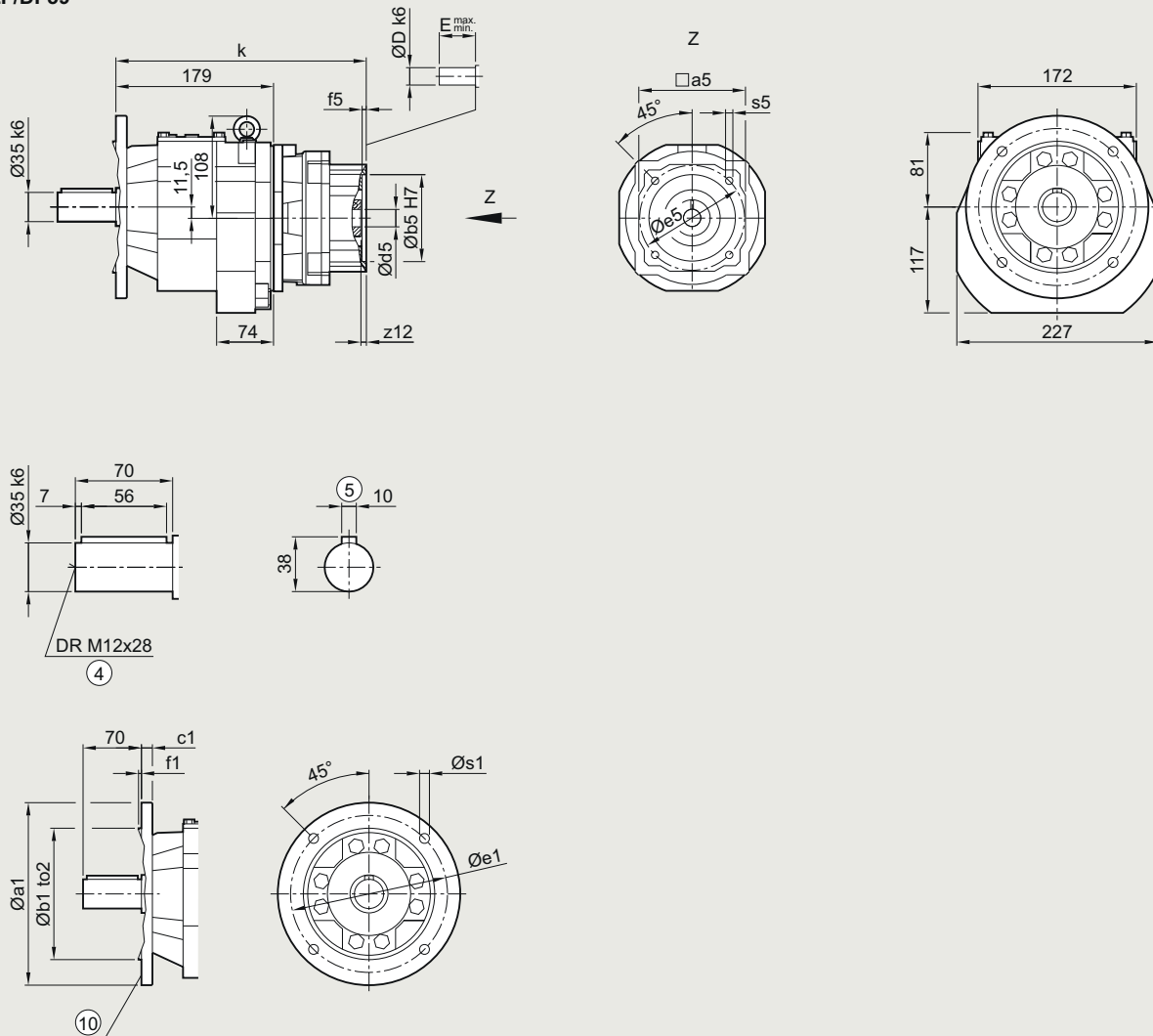
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF59 gearbox in a flange-mounted design

ZF/DF59



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

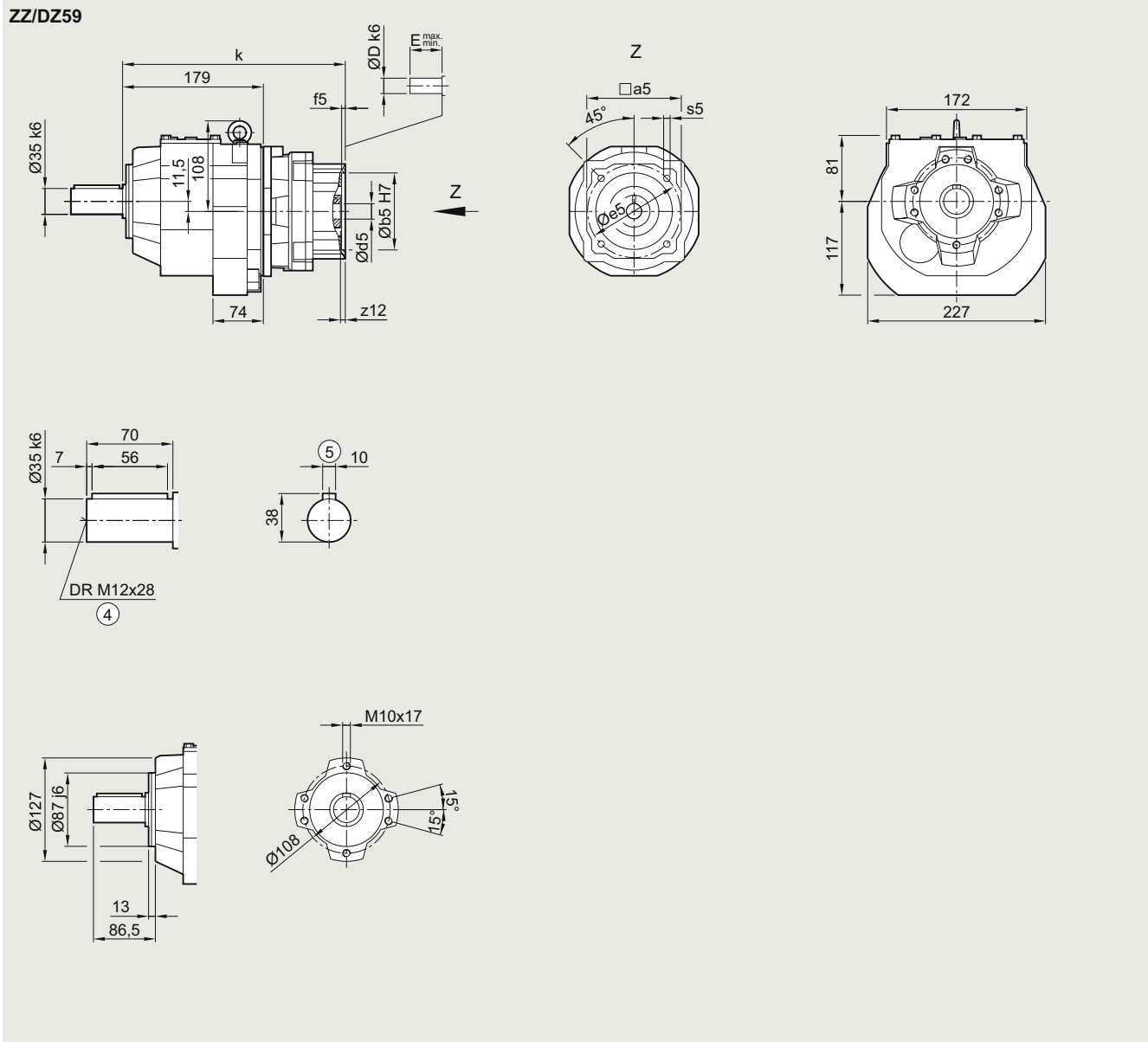
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ59 gearbox in a housing flange design



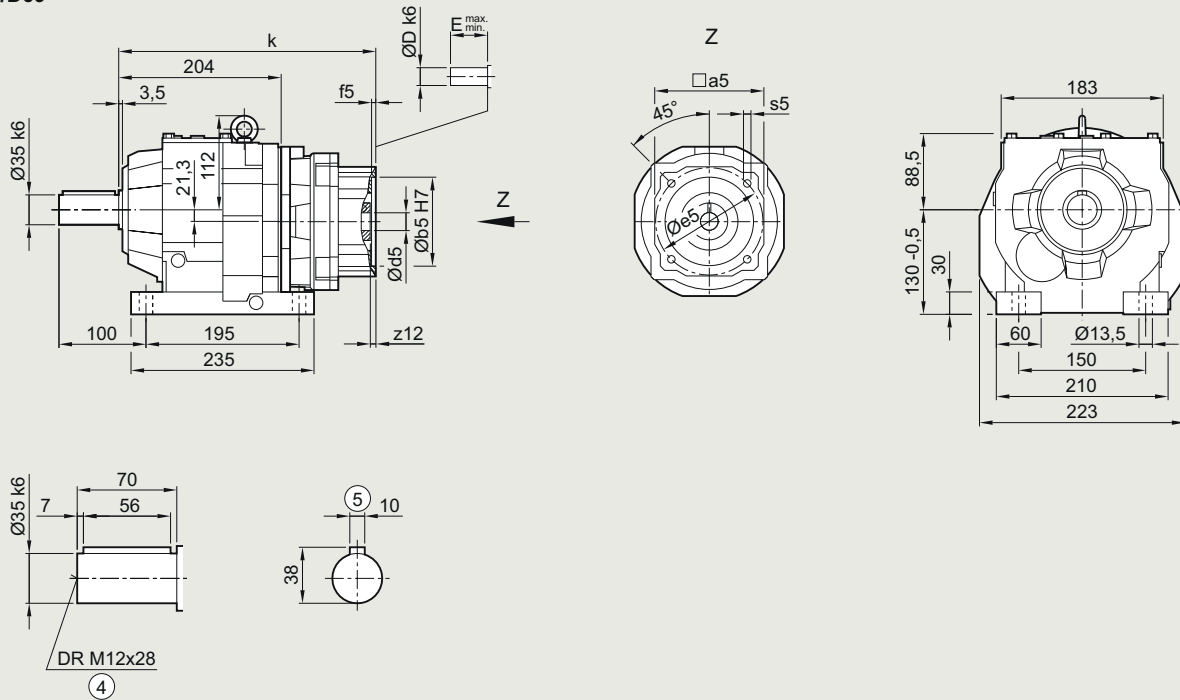
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 251.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 251.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 264 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 280 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 280 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 305 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 305 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 317.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 353.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 353.5 |

④ DIN 332

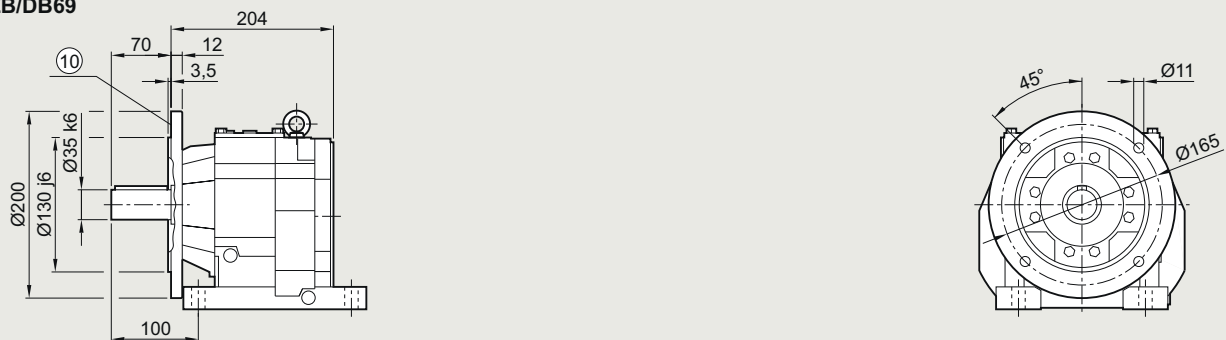
⑤ Feather key/keyway DIN 6885

Z/D69 and ZB/DB69 gearboxes in a foot and foot/flange-mounted design

Z/D69



ZB/DB69



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 276.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 276.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 305 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 305 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 330 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 330 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 342.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 378.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 378.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

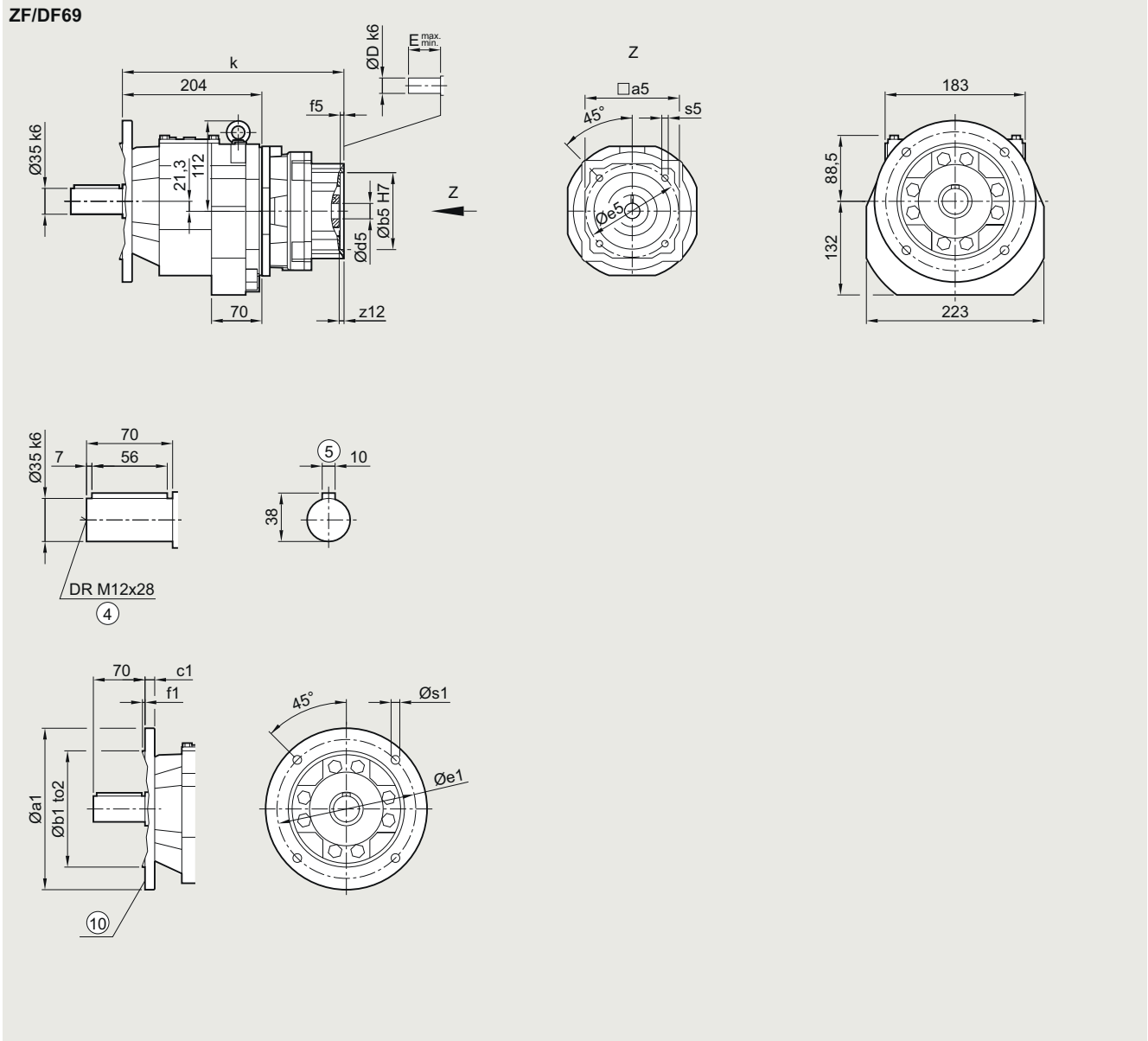
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF69 gearbox in a flange-mounted design



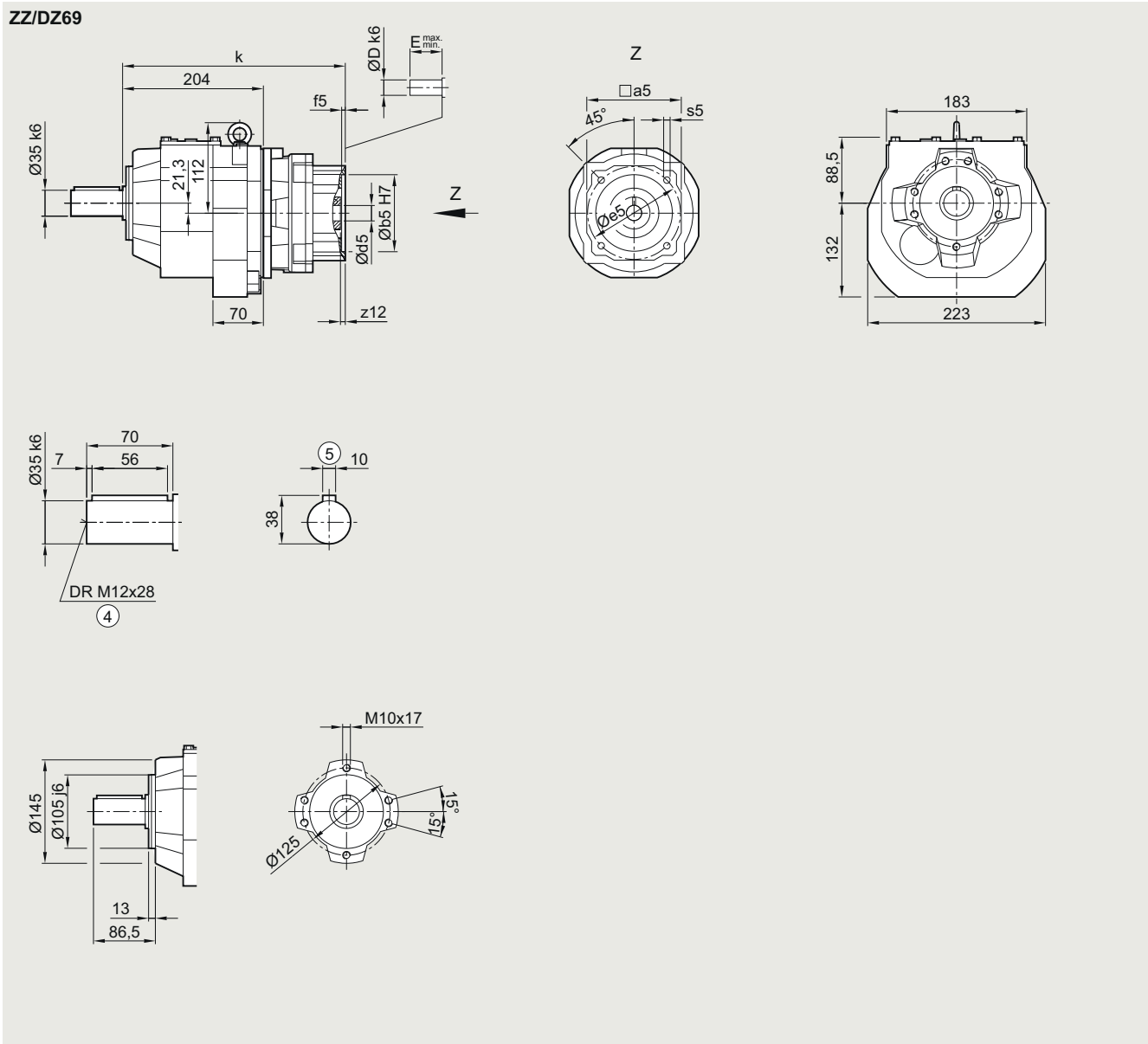
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 276.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 276.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 305 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 305 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 330 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 330 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 342.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 378.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 378.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZZ/DZ69 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 276.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 276.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 289 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 305 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 305 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 330 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 330 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 342.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 378.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 378.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

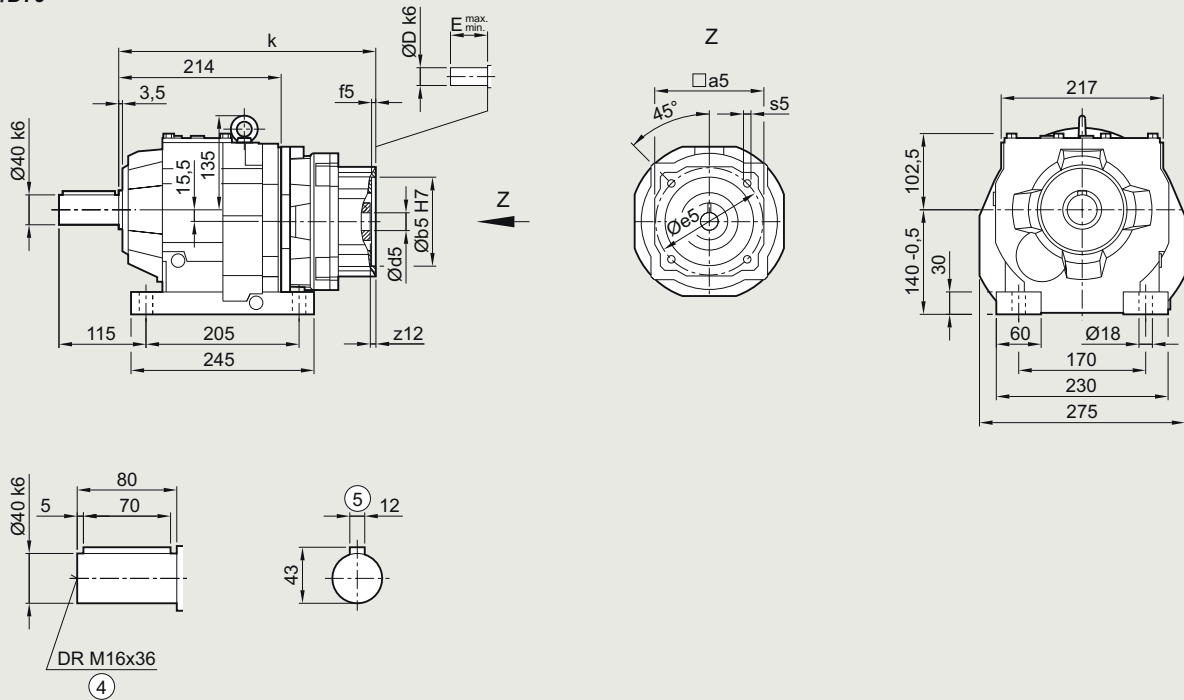
Helical gearboxes

Dimensional drawings

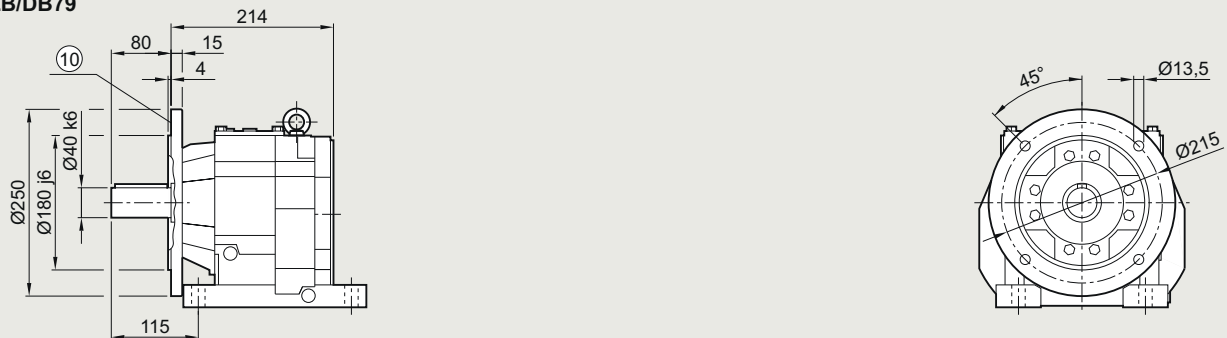
KS adapter exclusively for mounting defined Siemens servo motors

Z/D79 and ZB/DB79 gearboxes in a foot and foot/flange-mounted design

Z/D79



ZB/DB79



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 284.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 284.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 309 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 309 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 334 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 334 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 346.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 382.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 382.5 |

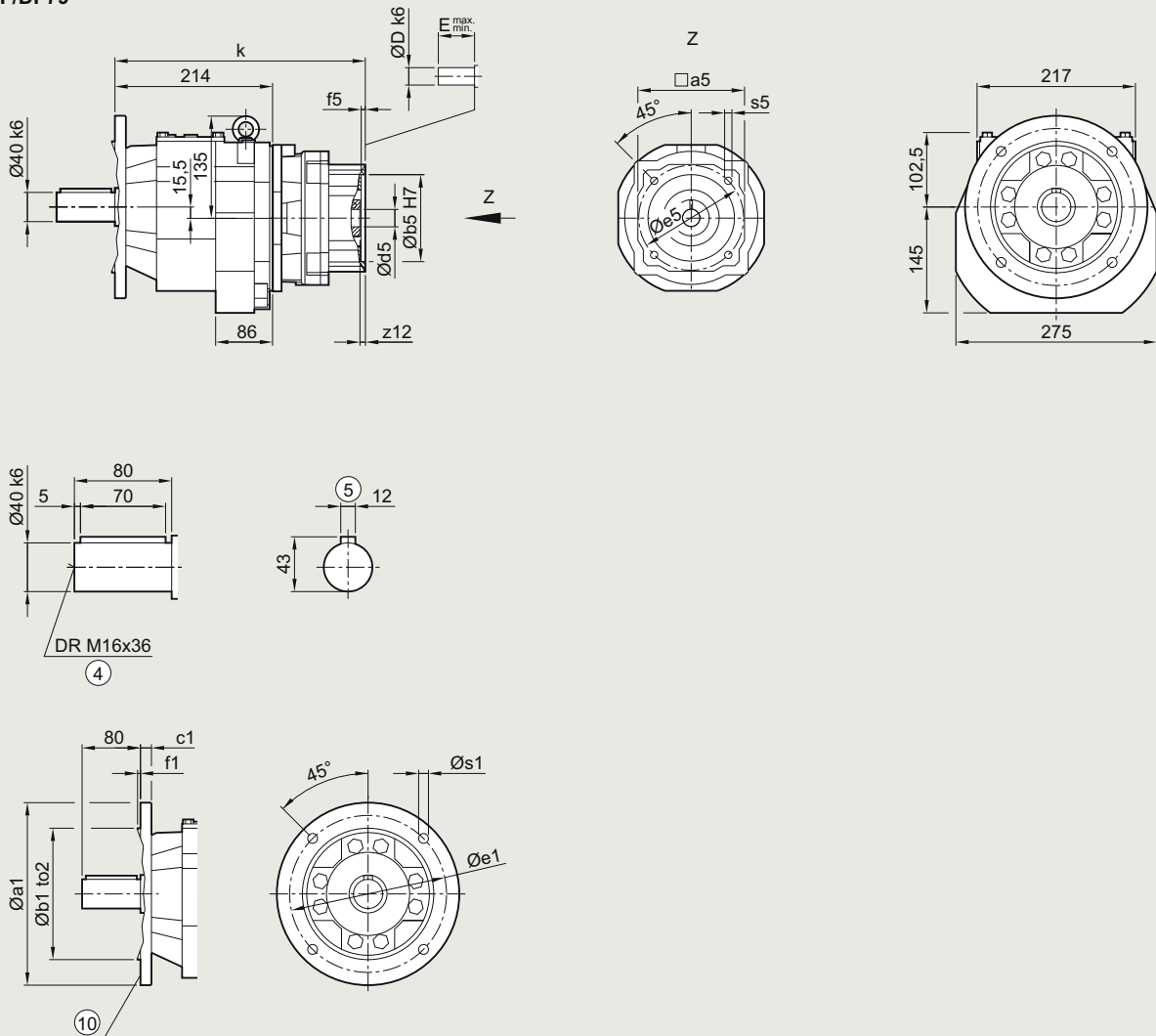
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF79 gearbox in a flange-mounted design

ZF/DF79



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | |
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | |
| | 350 | 250 | j6 | 16 | 300 | 5.0 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 284.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 284.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 309 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 309 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 334 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 334 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 346.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 382.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 382.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

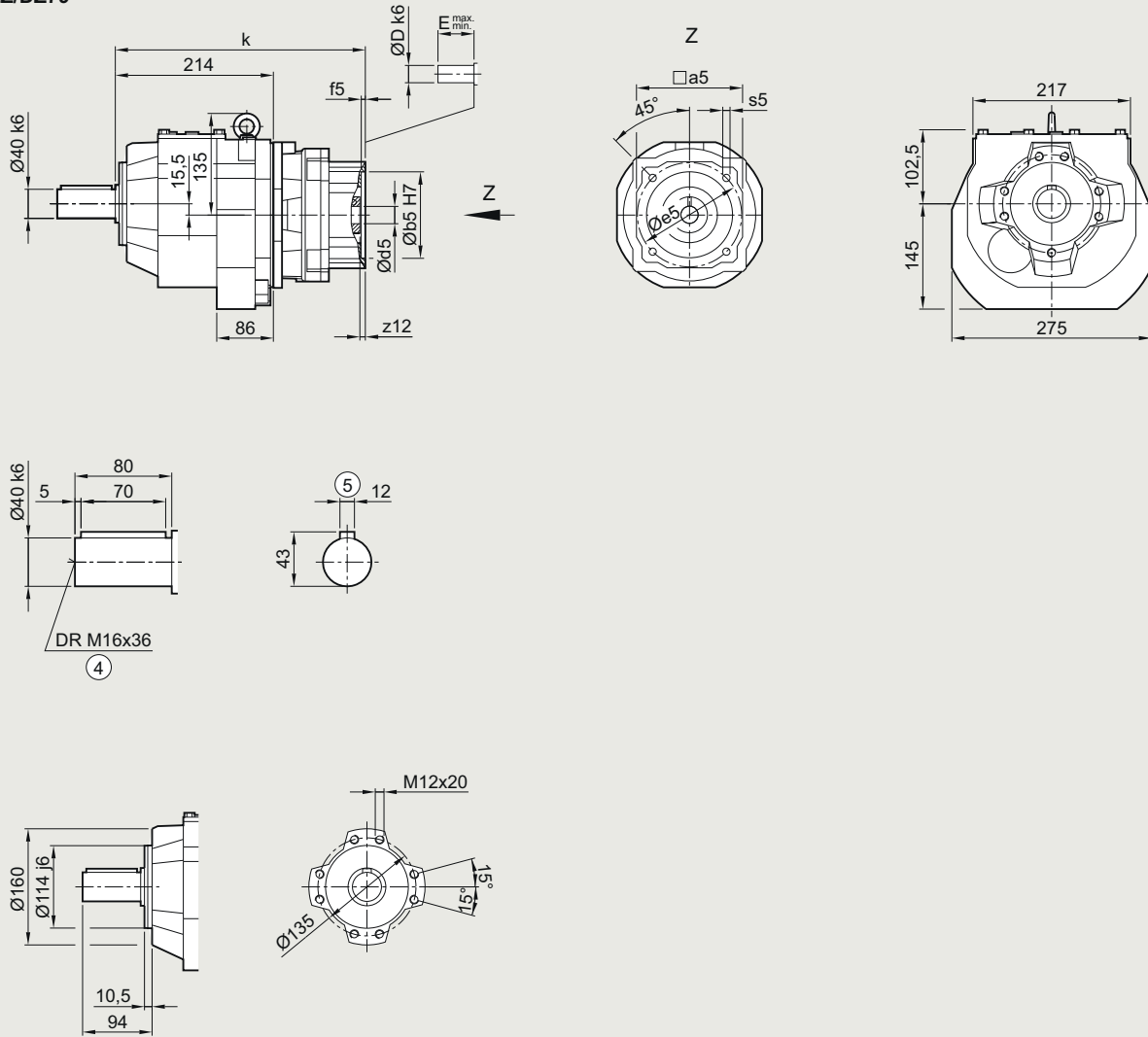
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ79 gearbox in a housing flange design

ZZ/DZ79



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 284.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 284.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 297 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 309 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 309 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 334 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 334 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 346.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 382.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 382.5 |

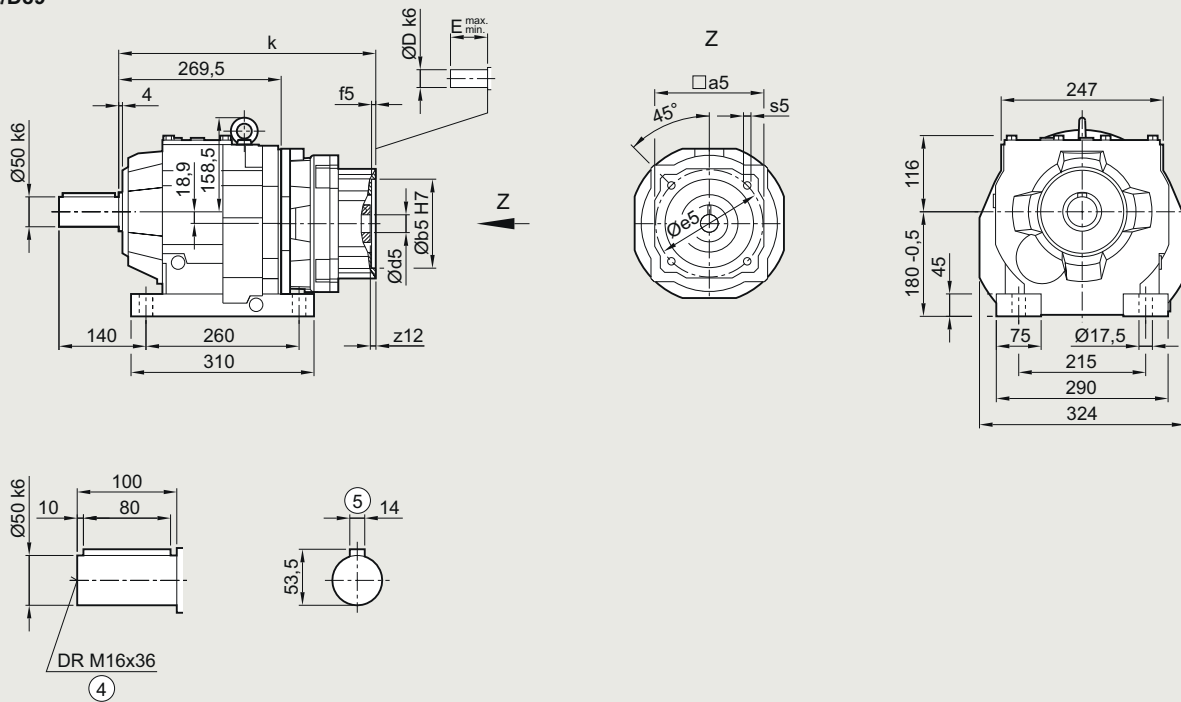
④ DIN 332

⑤ Feather key/keyway DIN 6885

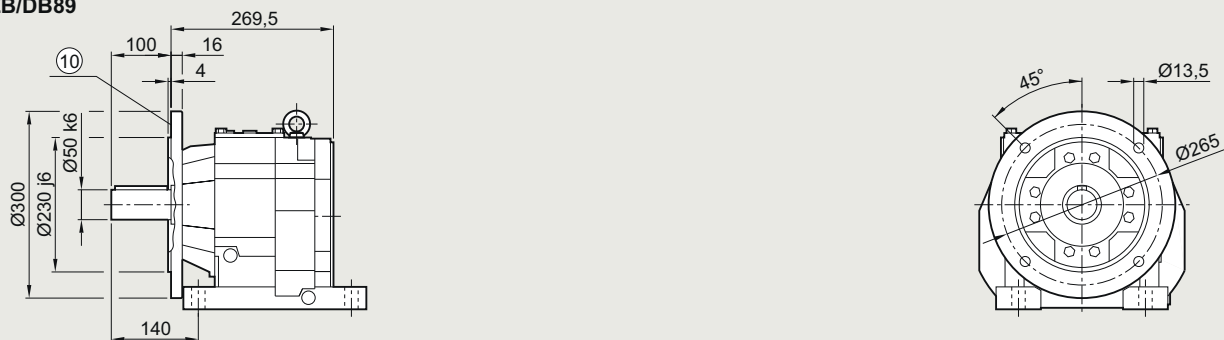
KS adapter exclusively for mounting defined Siemens servo motors

Z/D89 and ZB/DB89 gearboxes in a foot and foot/flange-mounted design

Z/D89



ZB/DB89



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 351.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 351.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 385 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 421 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 421 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

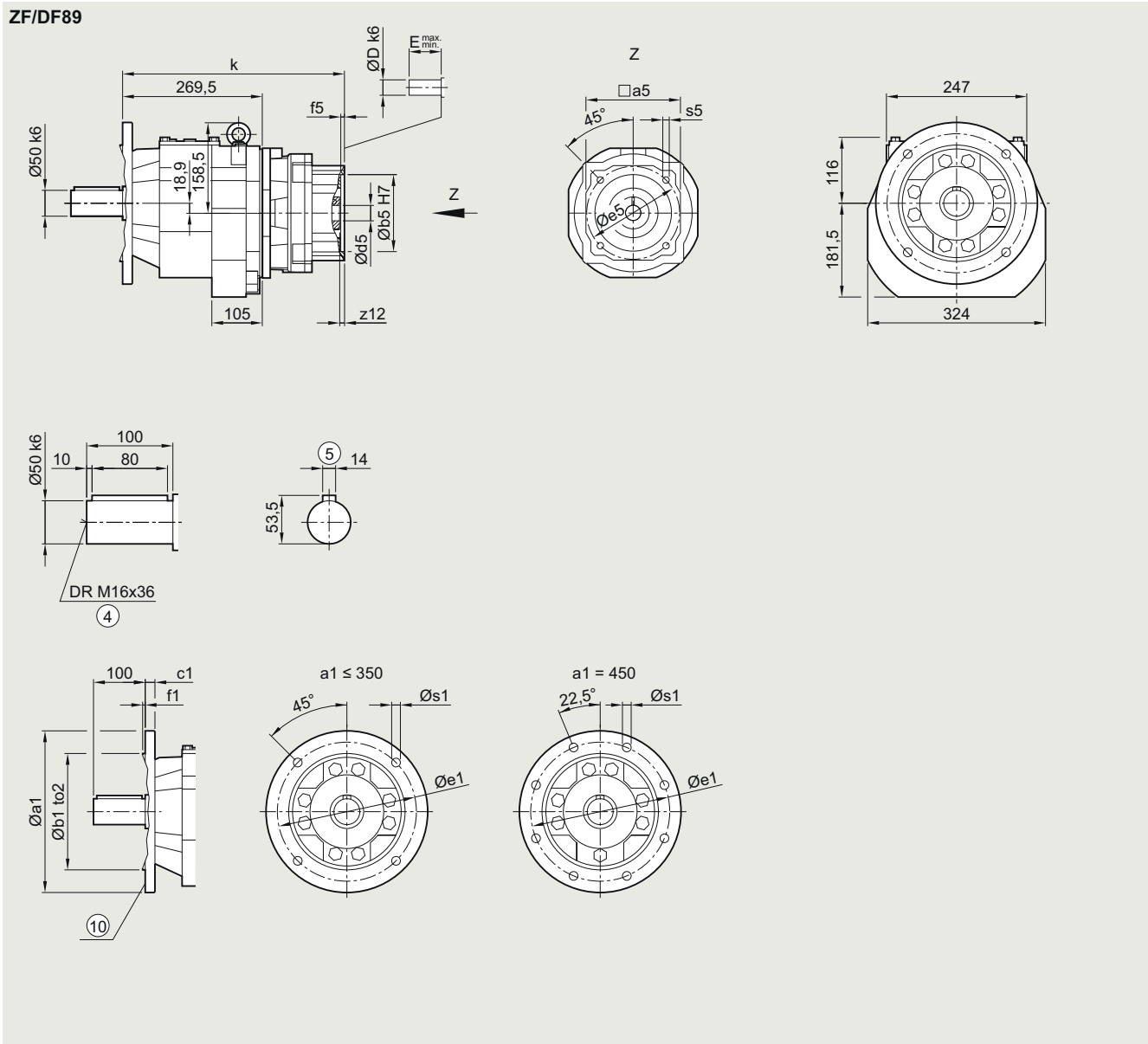
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF89 gearbox in a flange-mounted design



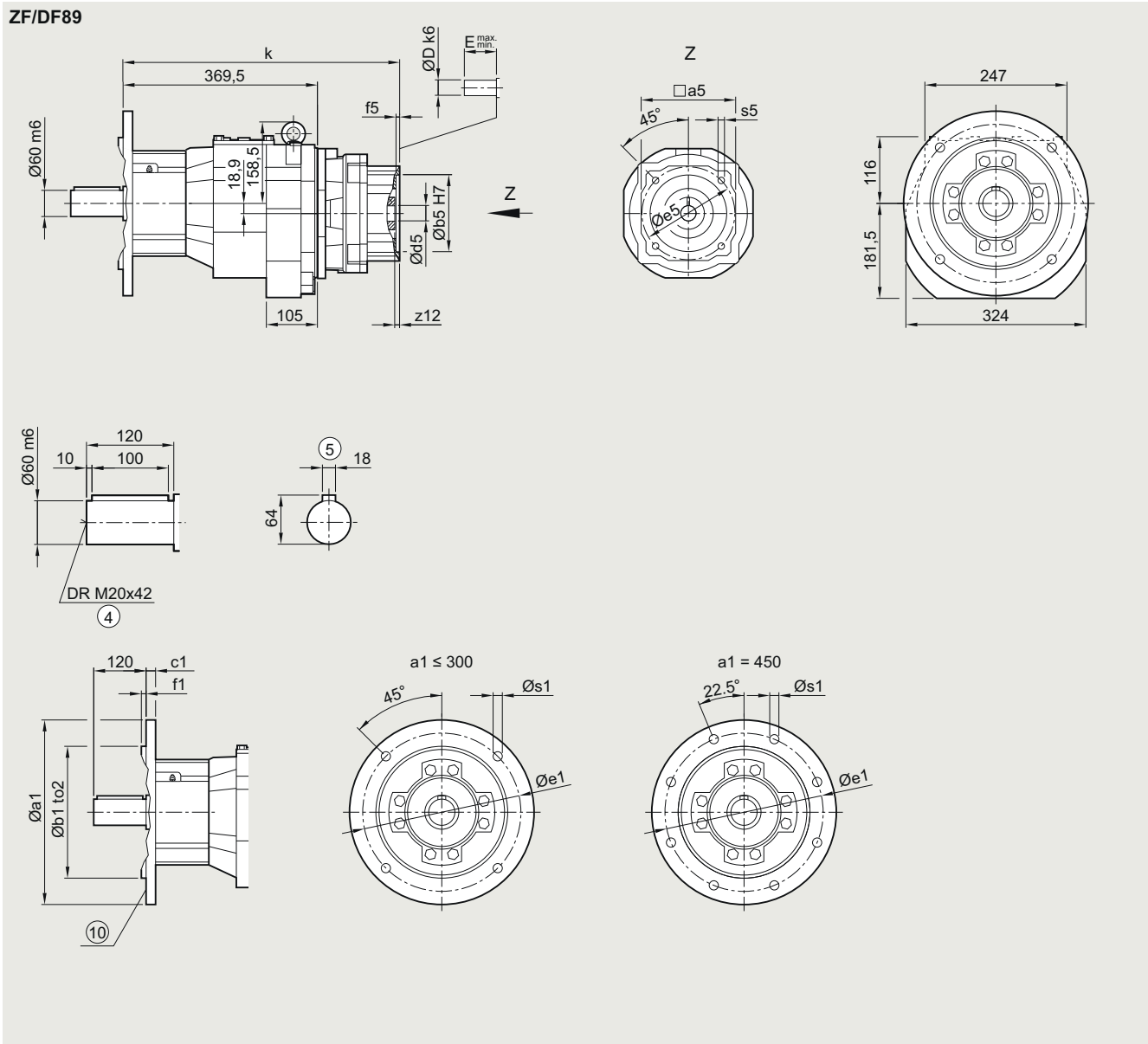
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 | | | |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 351.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 351.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 385 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 421 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 421 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 | | | |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 451.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 451.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 472.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 472.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 485 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 521 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 521 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

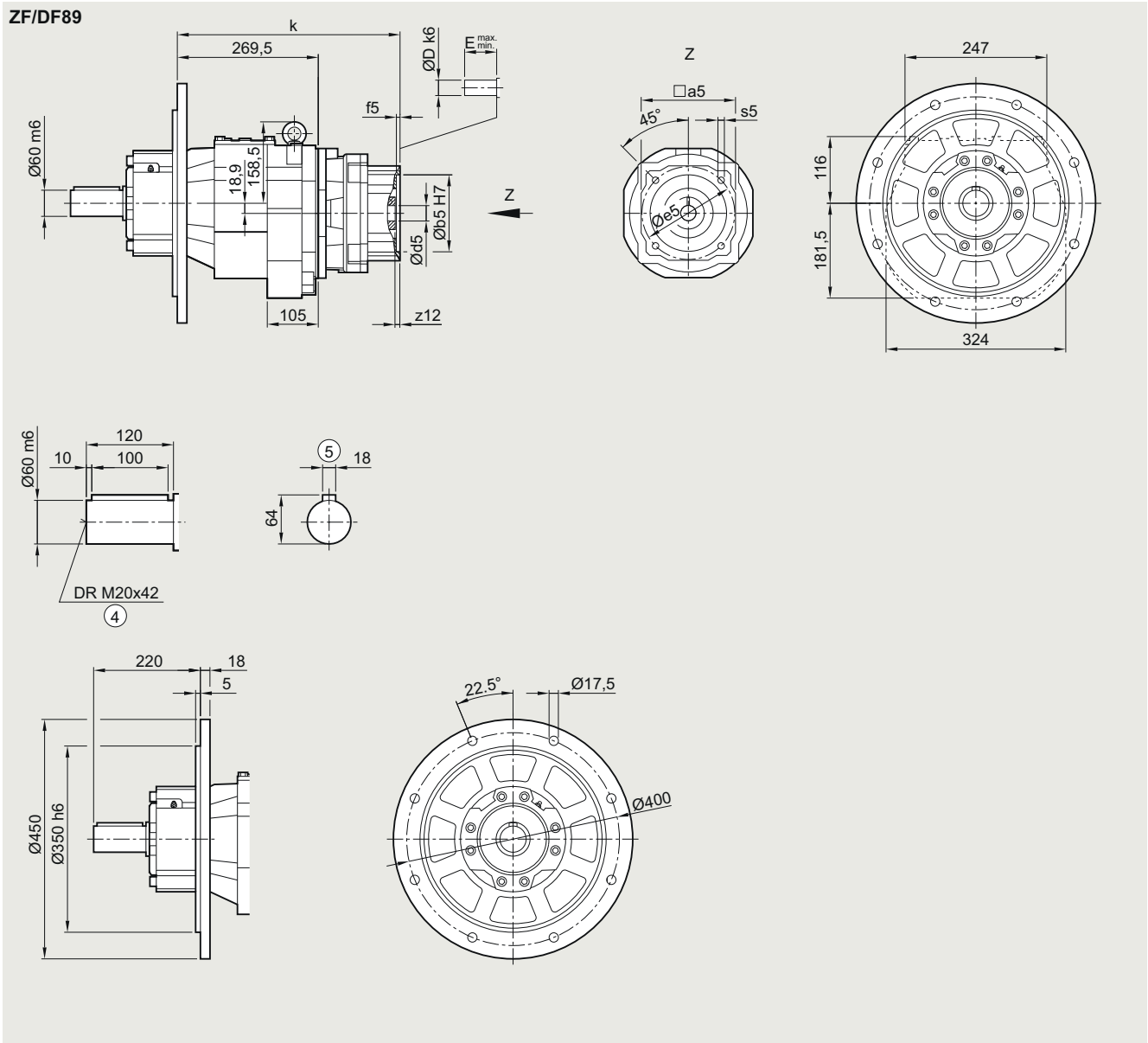
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF89 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)

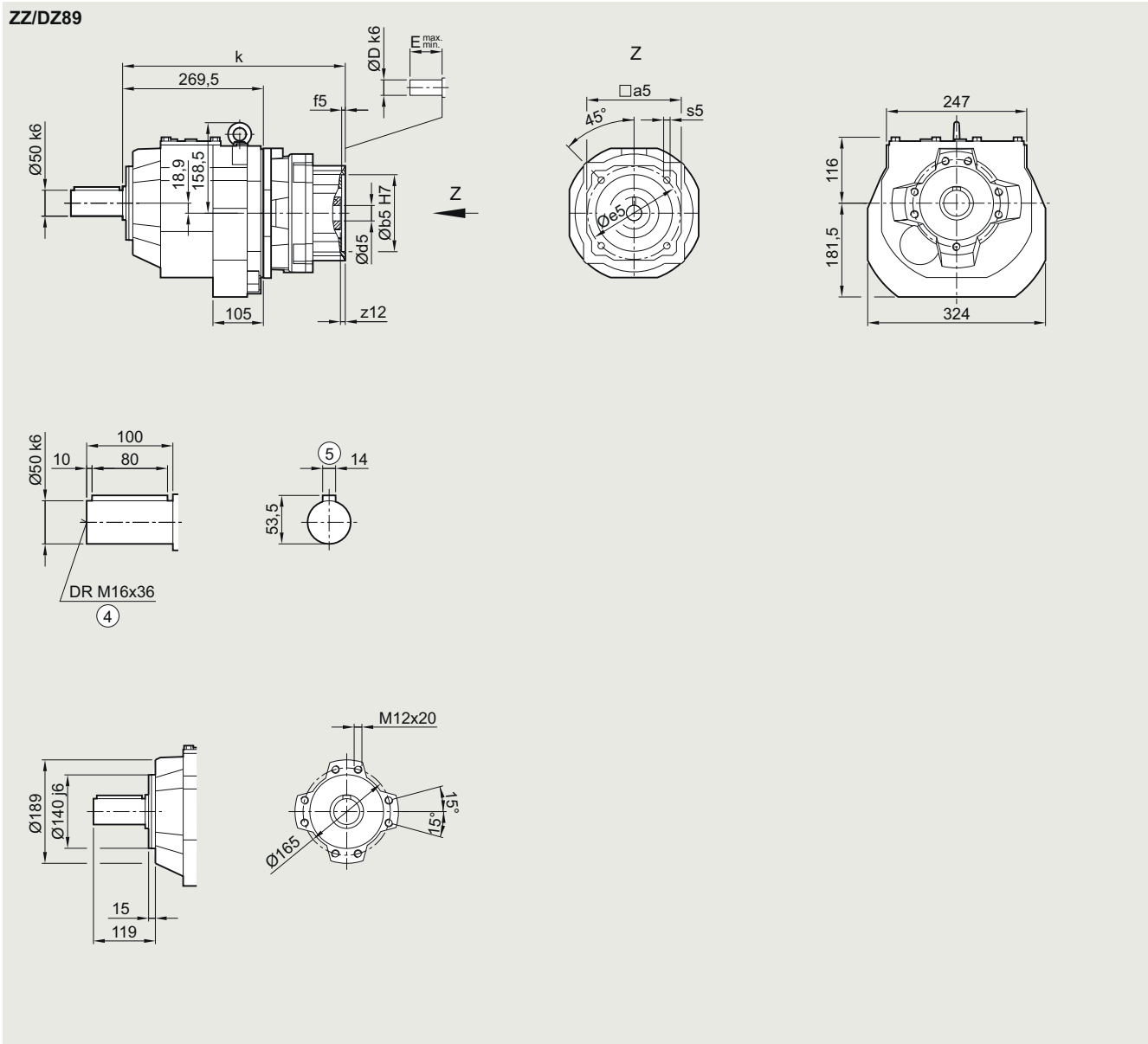


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 351.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 351.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 385 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 421 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 421 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZZ/DZ89 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 351.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 351.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 385 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 421 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 421 |

④ DIN 332

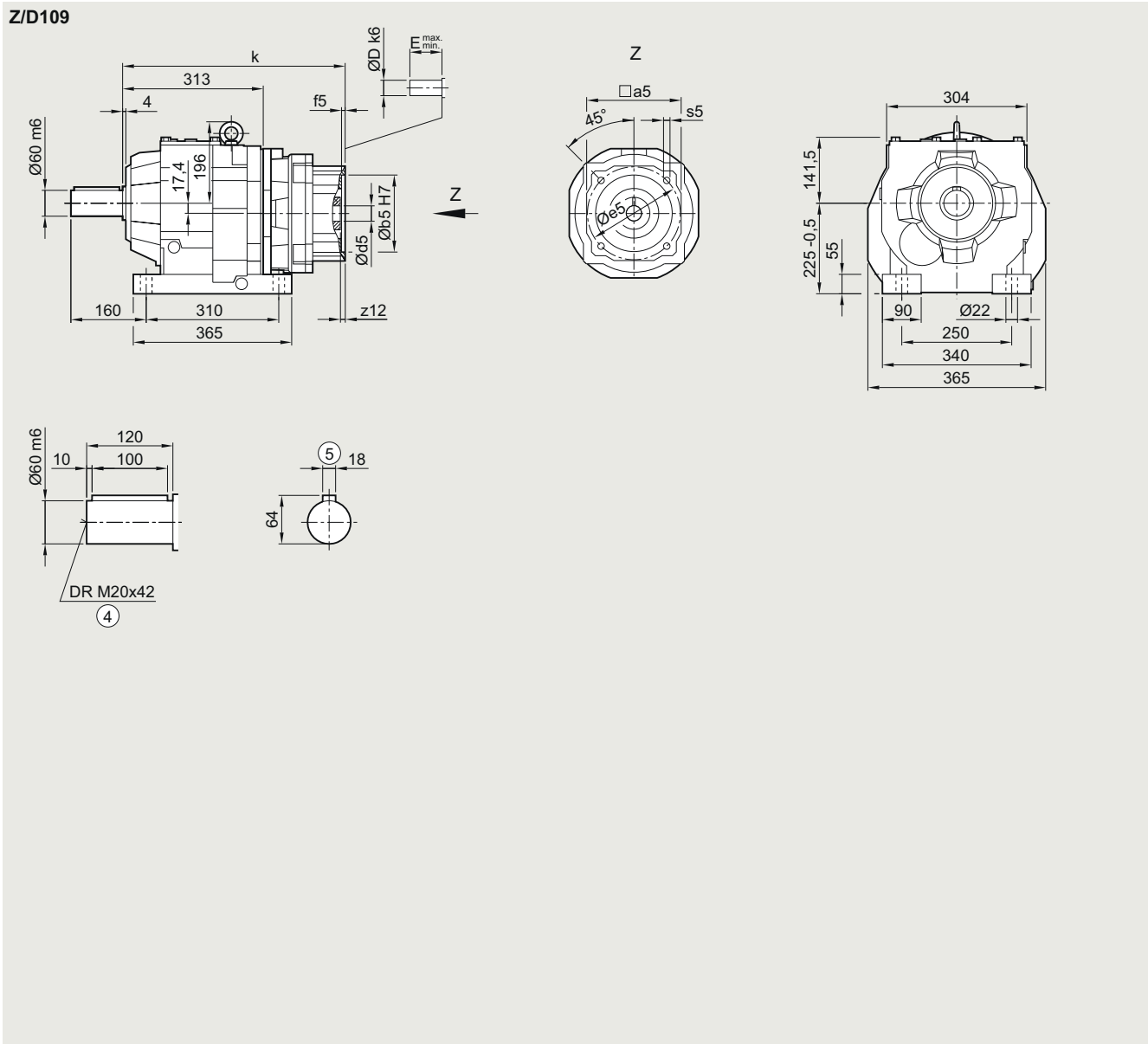
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

Z/D109 gearbox in a foot-mounted design

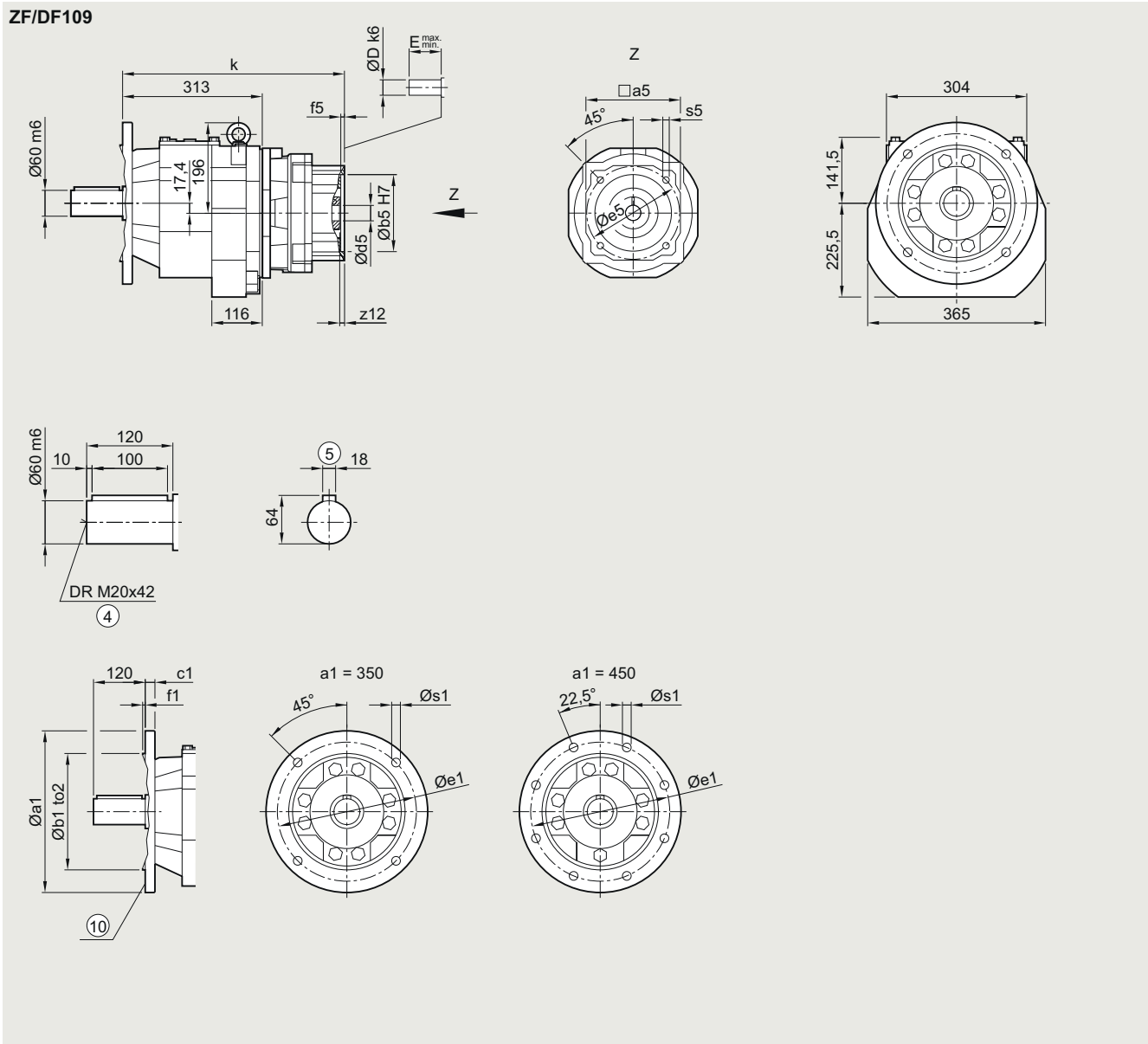


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 388 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 388 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 407 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 407 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 419.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 455.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 455.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF109 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 388 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 388 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 407 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 407 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 419.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 455.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 455.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

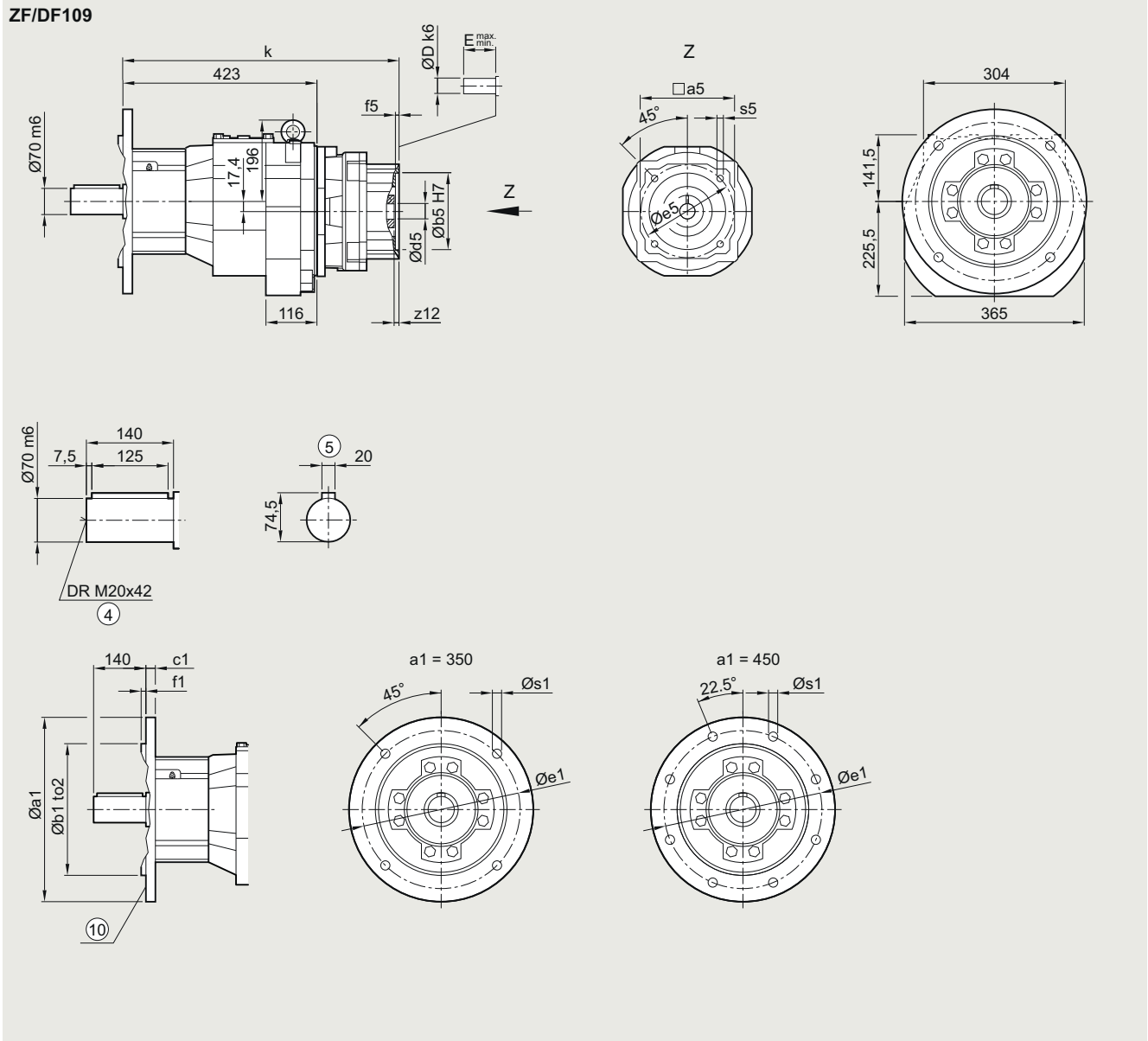
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|------------------|------------------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E_{min} | E_{max} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 498 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 498 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 517 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 517 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 529.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 565.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 565.5 |

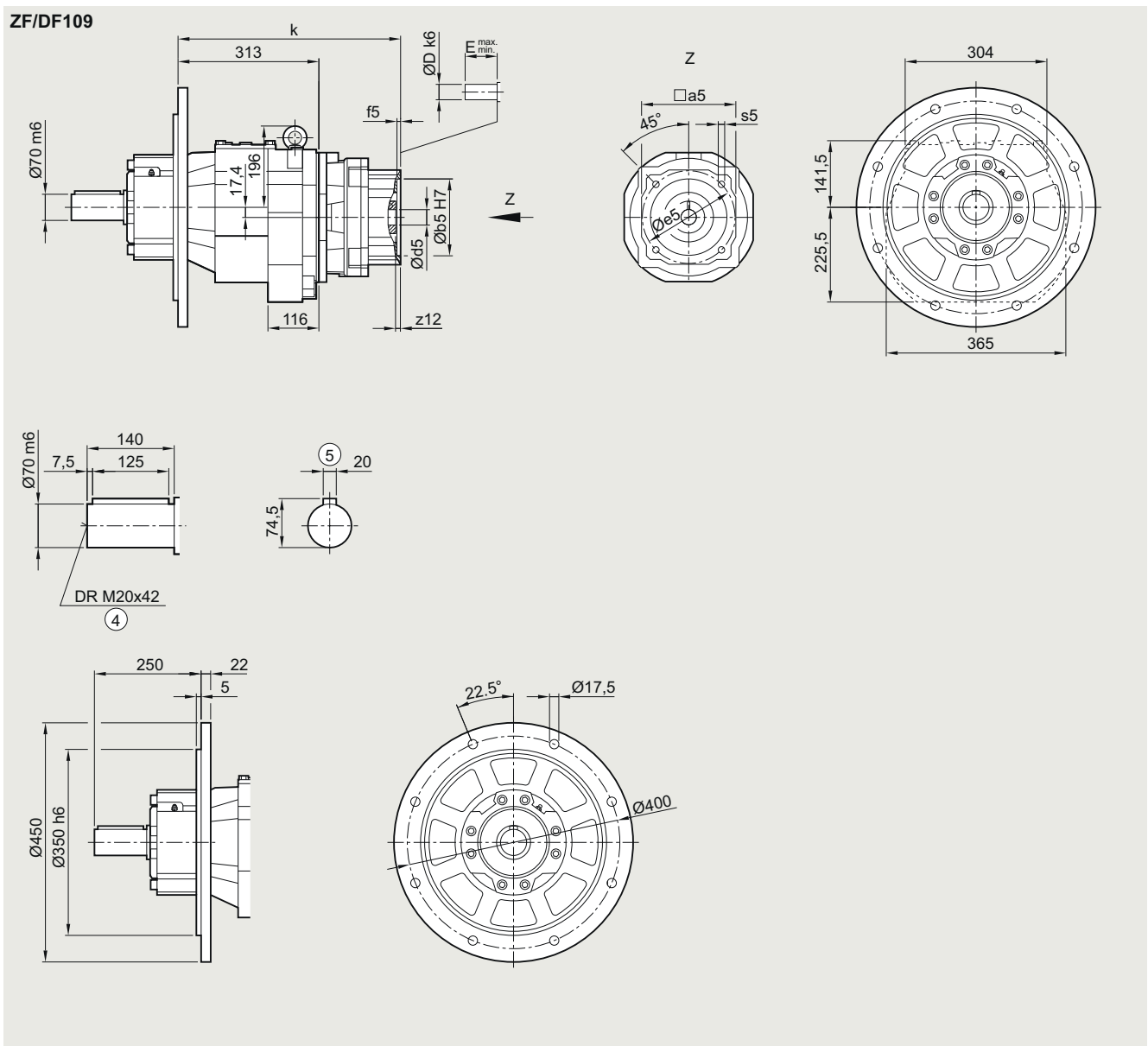
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF109 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



3

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 388 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 388 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 407 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 407 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 419.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 455.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 455.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

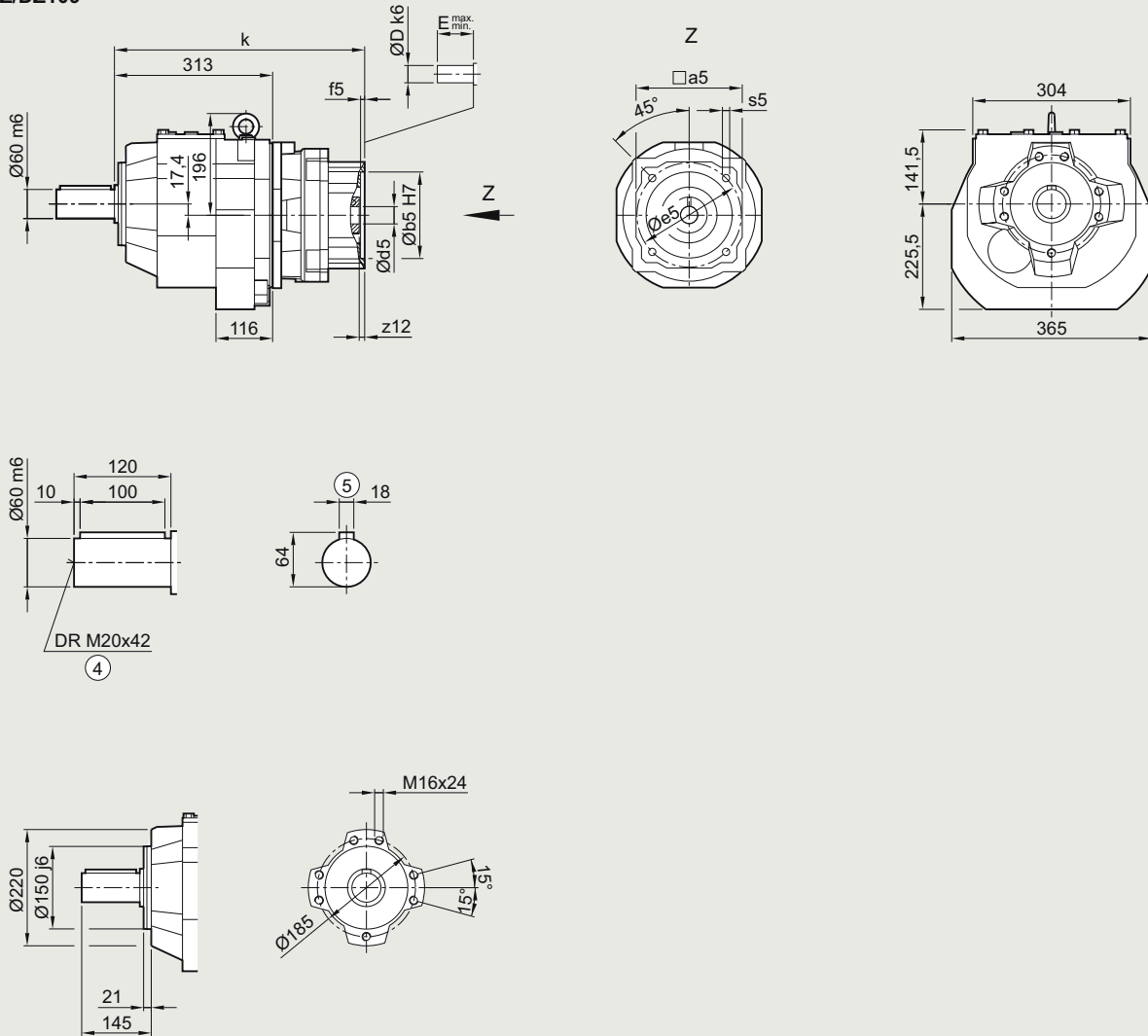
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZZ/DZ109 gearbox in a housing flange design

ZZ/DZ109

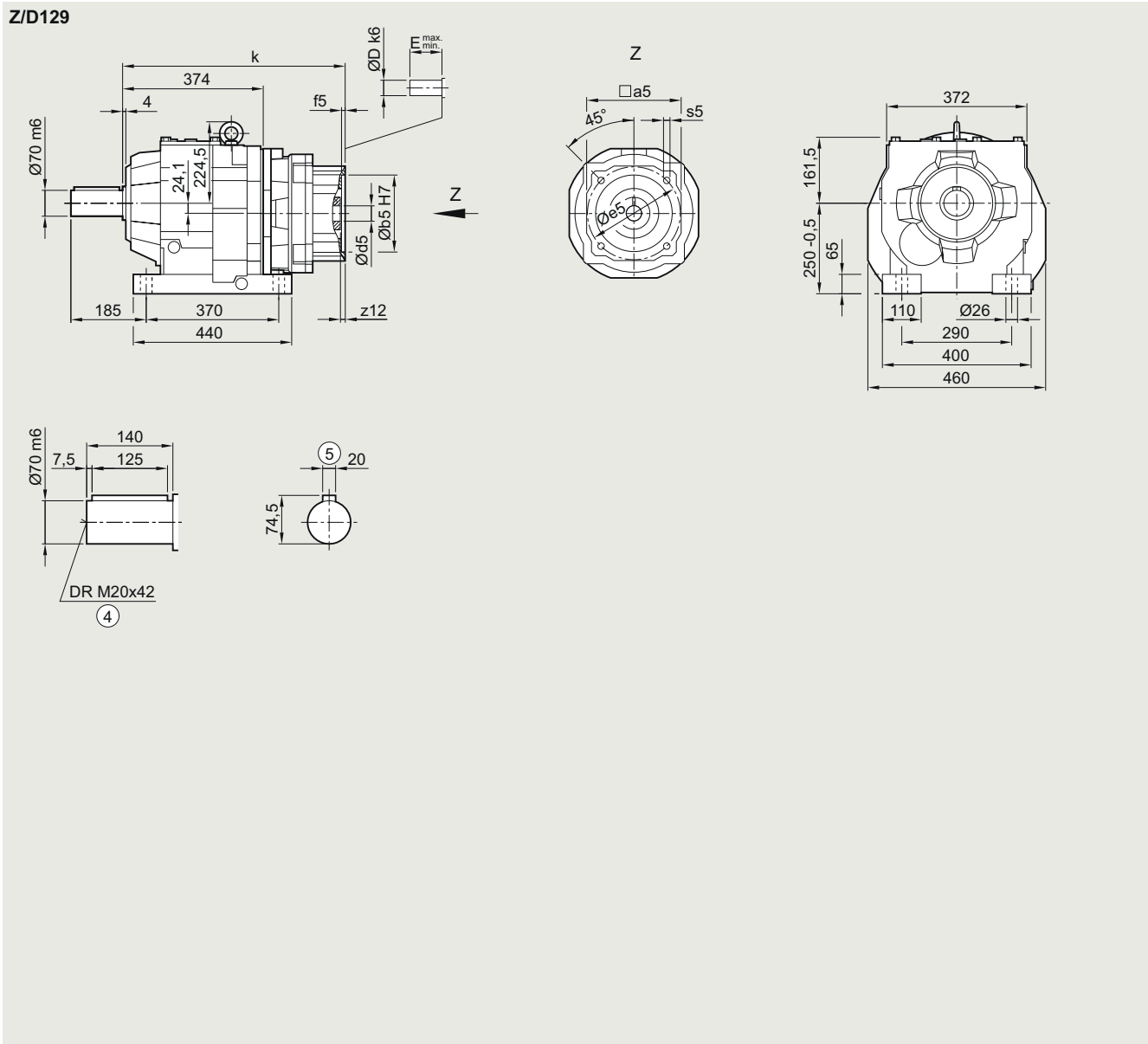


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 388 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 388 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 407 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 407 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 419.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 455.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 455.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z/D129 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 442 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 442 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 459 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 459 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 471.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 505.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 505.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

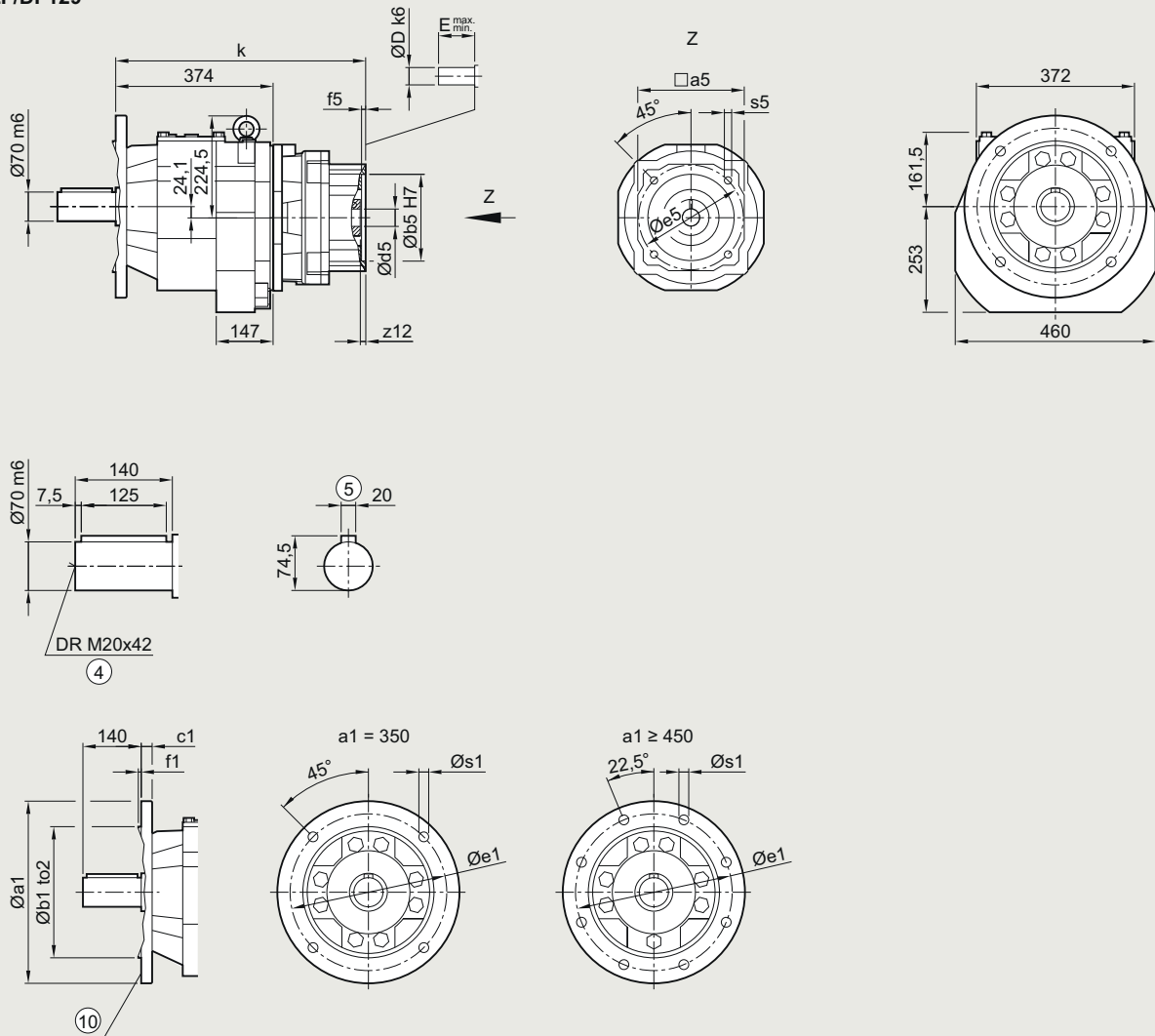
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF129 gearbox in a flange-mounted design

ZF/DF129



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17.5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 442 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 442 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 459 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 459 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 471.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 505.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 505.5 |

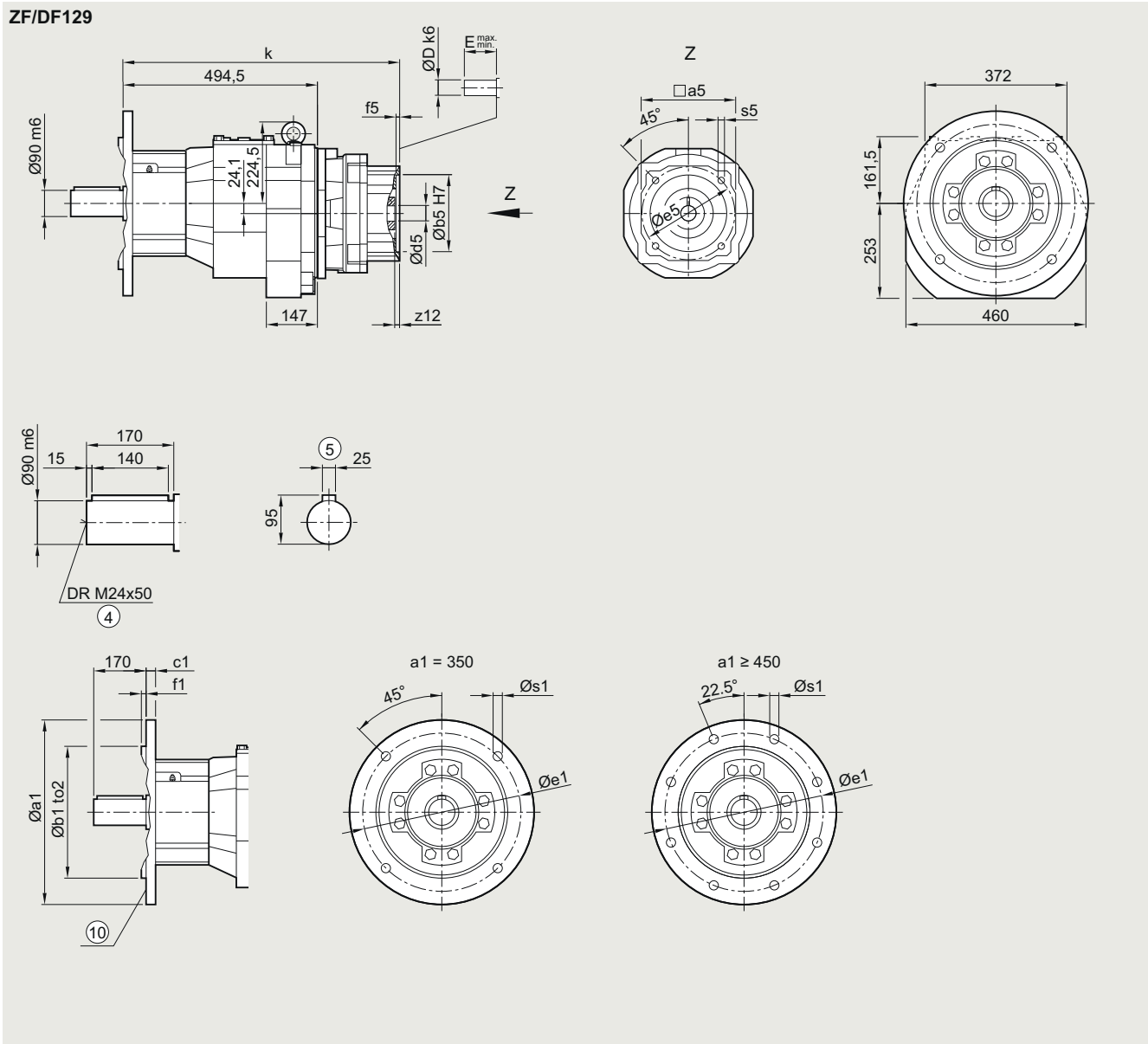
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|------------------|------------------|-------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17.5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E_{min} | E_{max} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 562.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 562.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 579.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 579.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 592 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 626 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 626 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

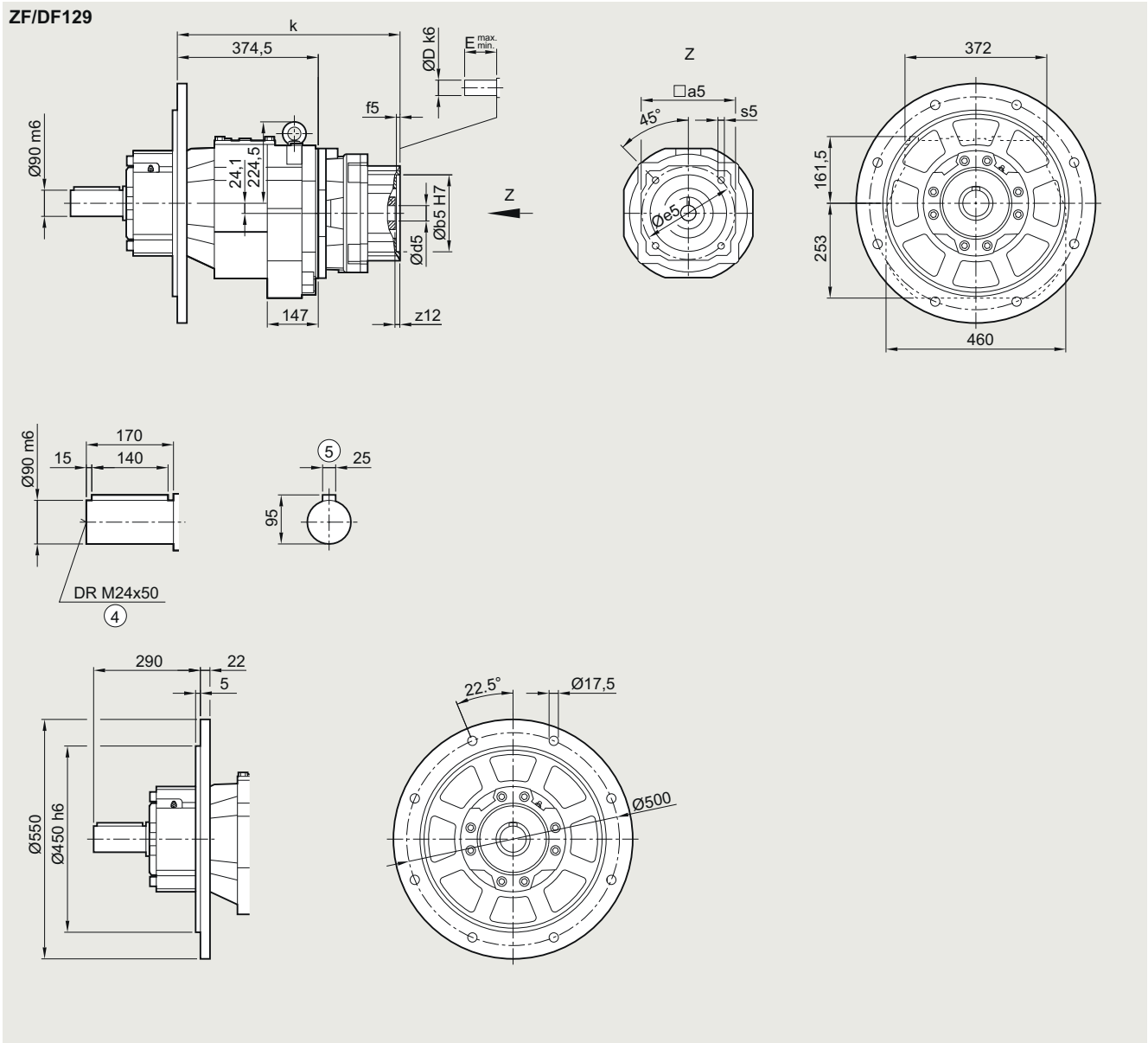
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF129 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)

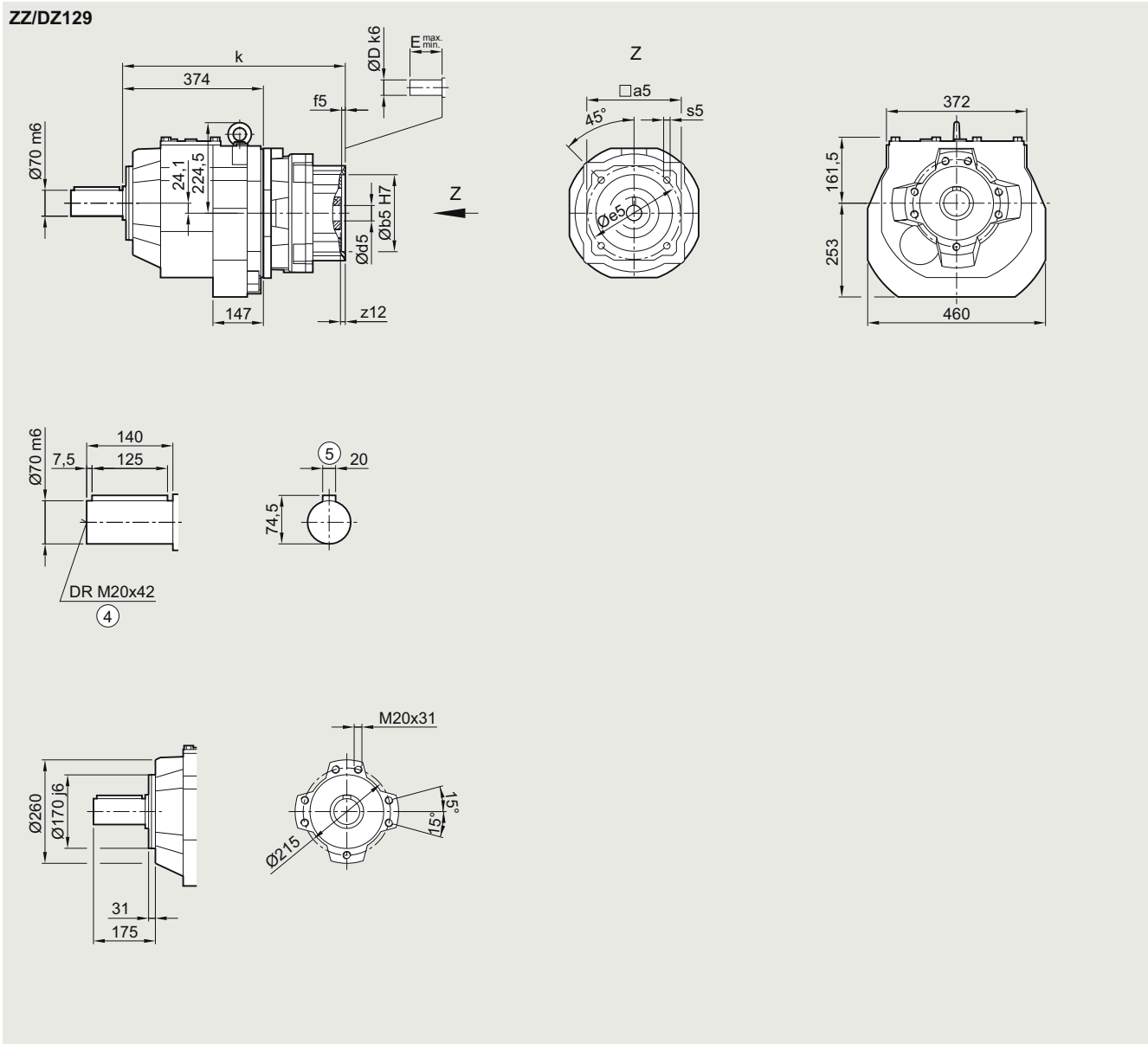


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 442 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 442 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 459 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 459 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 471.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 505.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 505.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZZ/DZ129 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 442 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 442 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 459 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 459 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 471.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 505.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 505.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

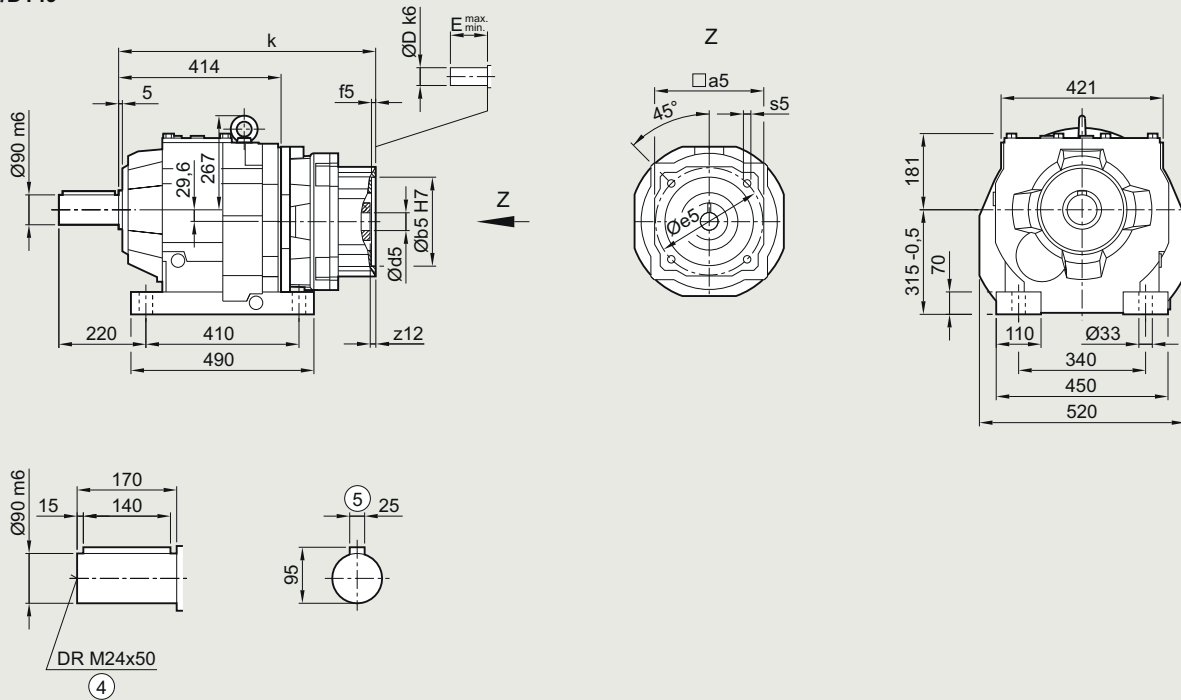
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

Z/D149 gearbox in a foot-mounted design

Z/D149

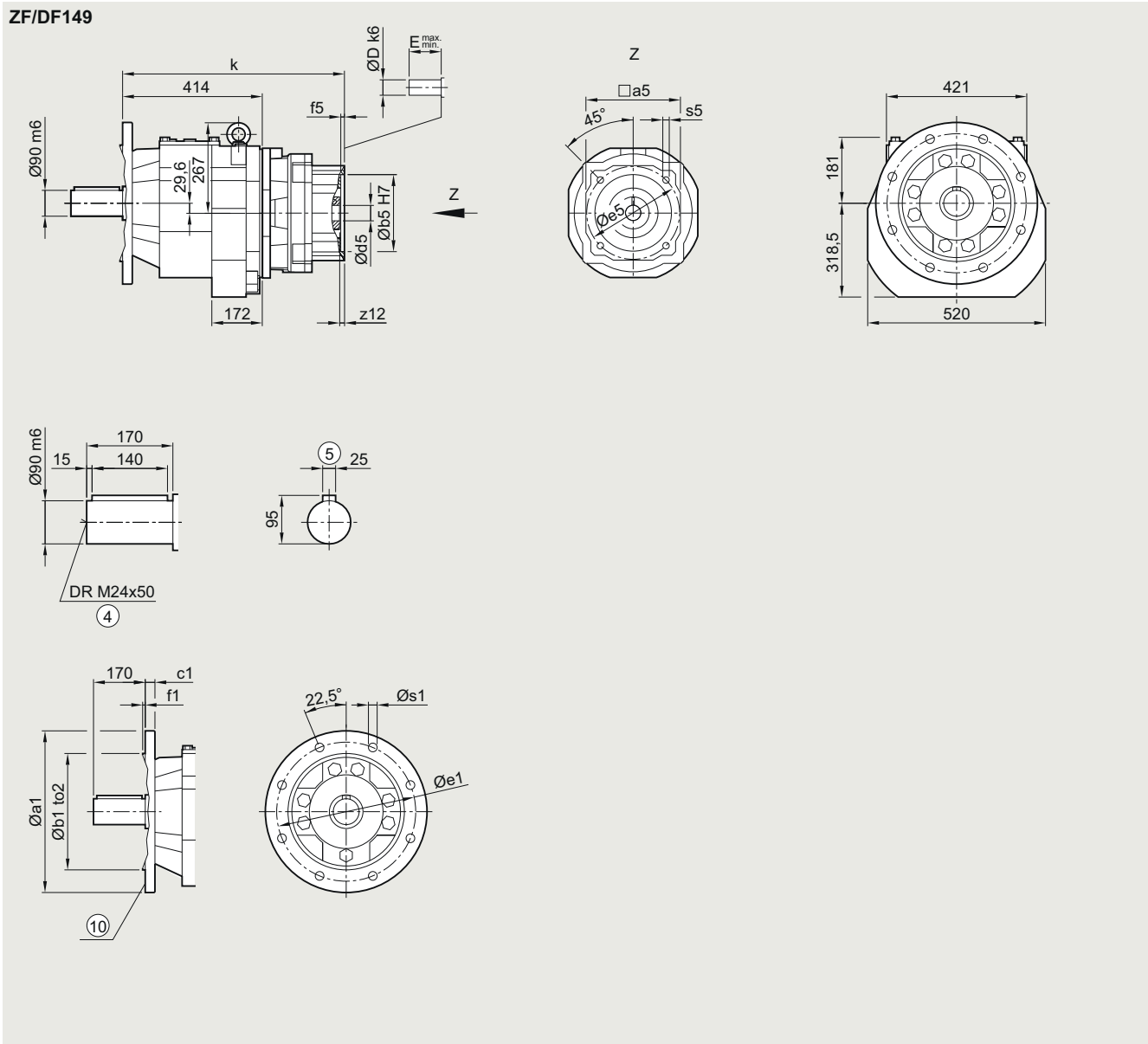


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 497.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 497.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 510 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 539 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 539 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF149 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|------------------|------------------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E_{min} | E_{max} | k |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 497.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 497.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 510 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 539 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 539 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

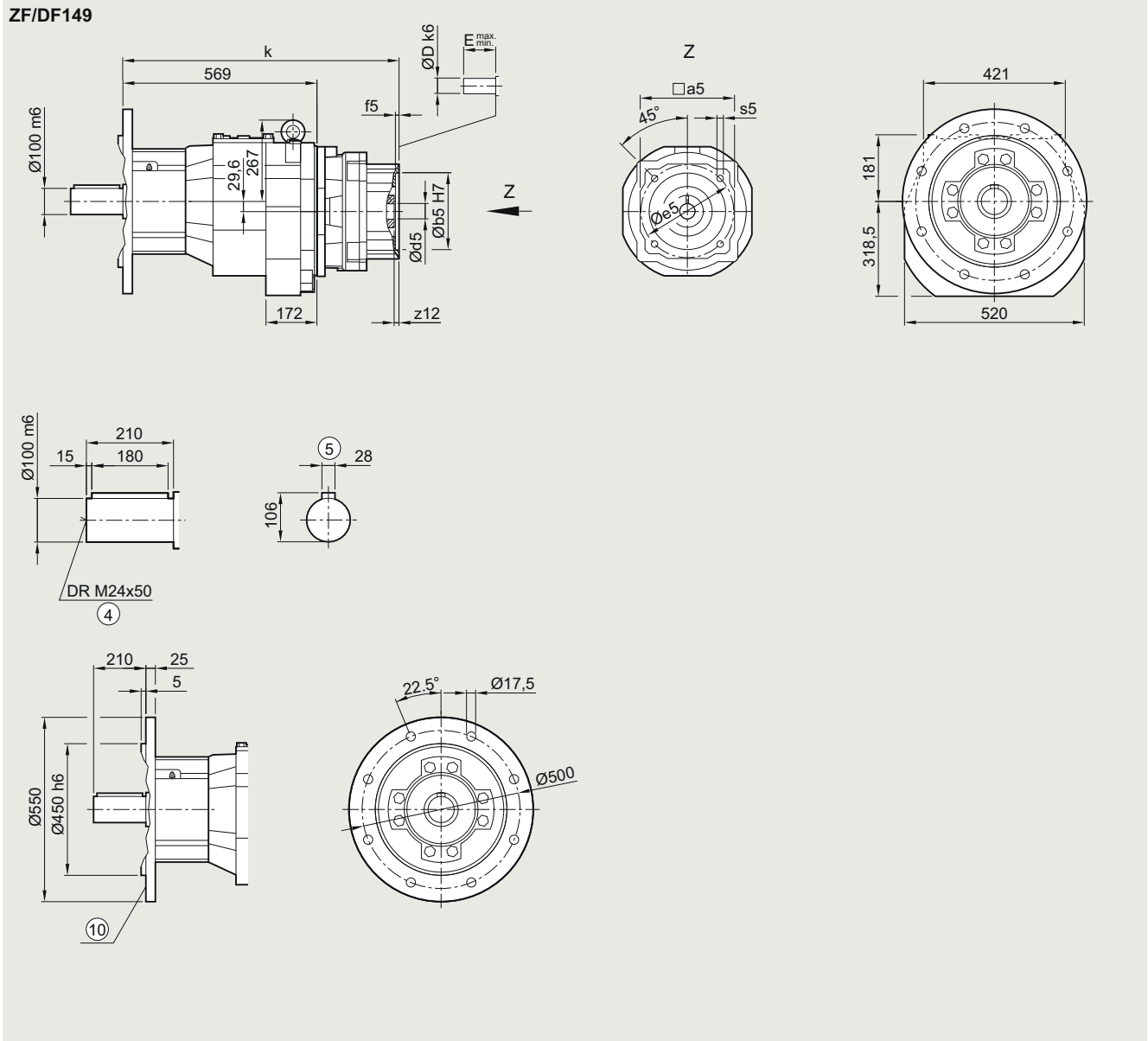
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



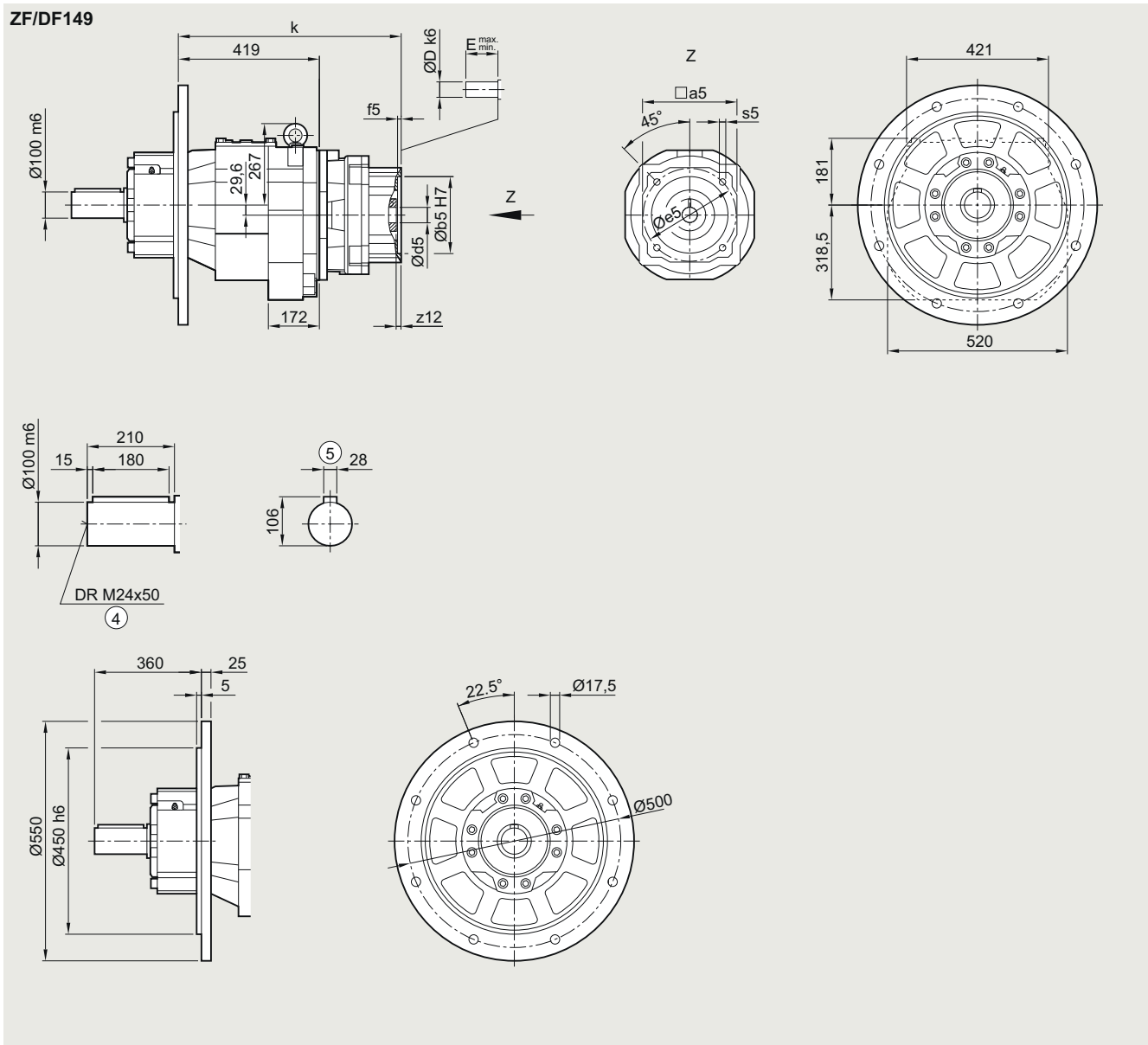
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 652.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 652.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 665 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 694 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 694 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

ZF/DF149 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 497.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 497.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 510 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 539 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 539 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

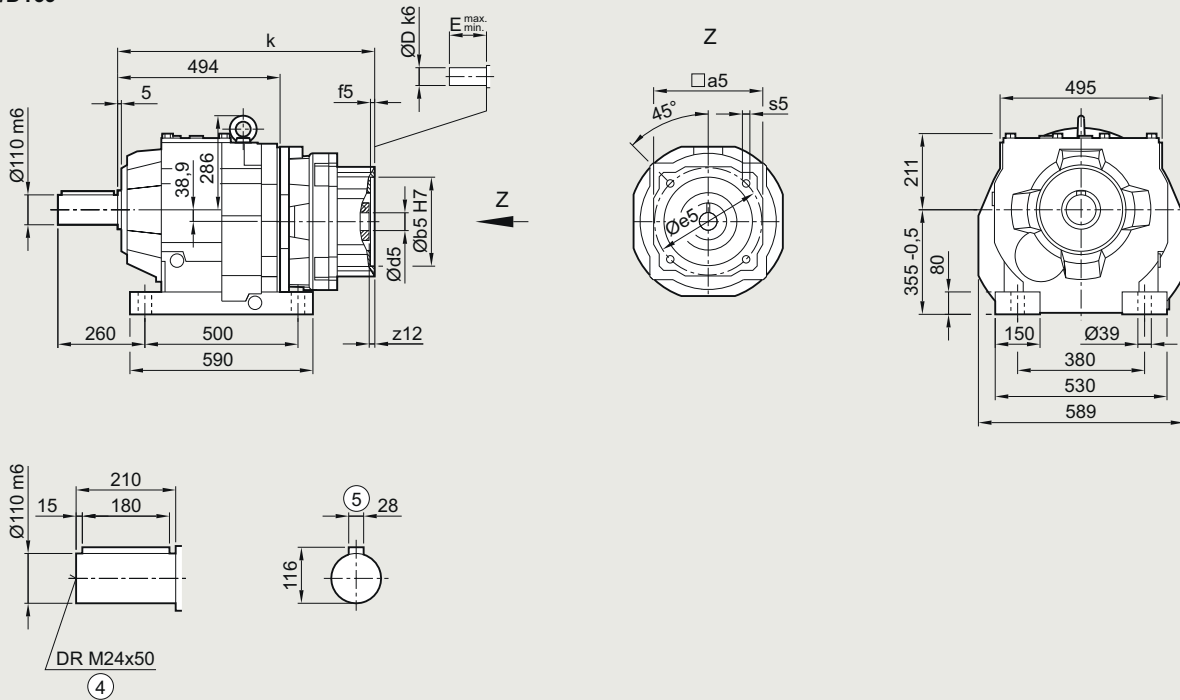
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

Z/D169 gearbox in a foot-mounted design

Z/D169

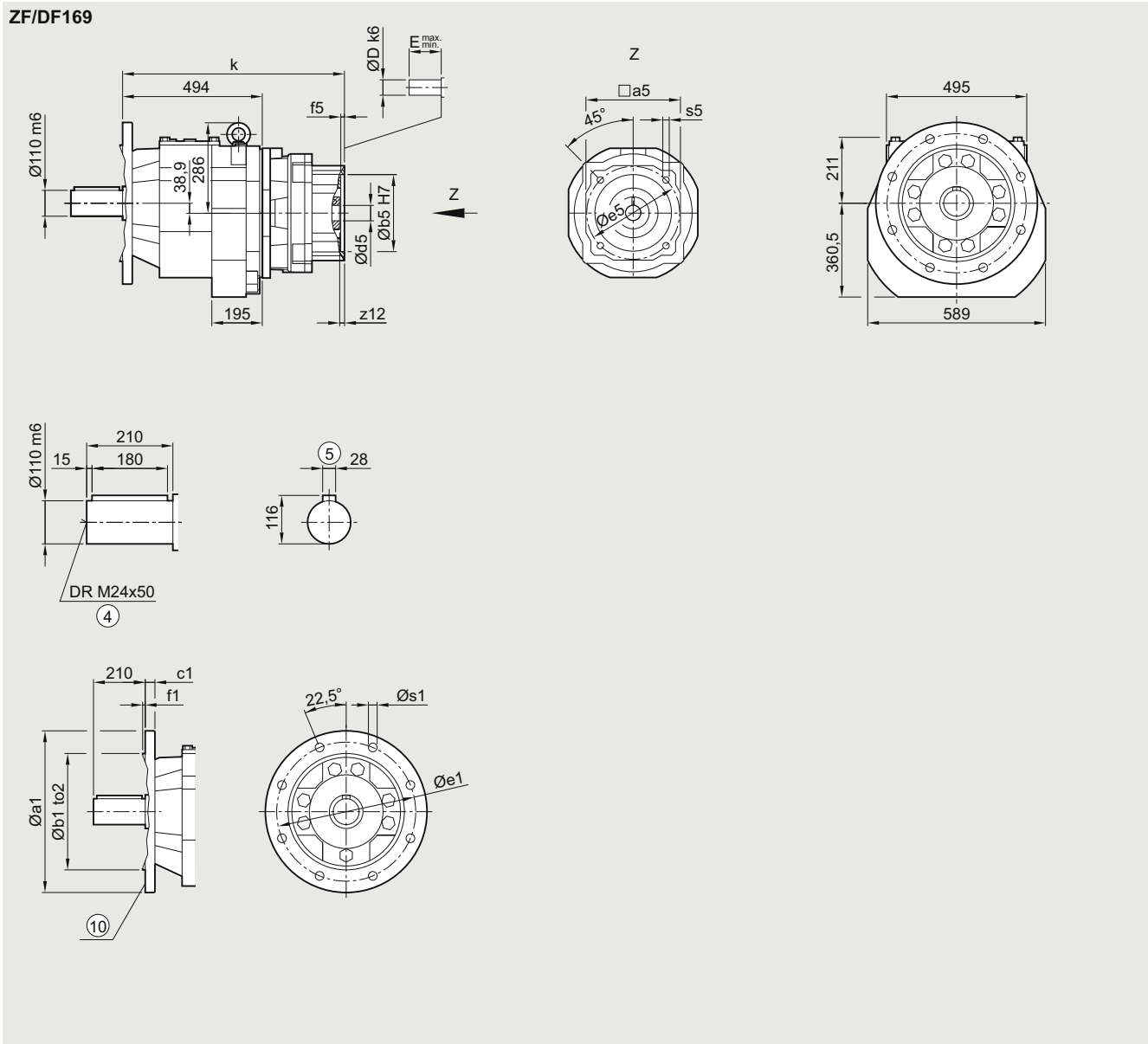


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 577.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 606 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 606 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF169 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|------------------|------------------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | |
| | 660 | 550 | h6 | 25 | 600 | 6 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E_{min} | E_{max} | k |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 577.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 606 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 606 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

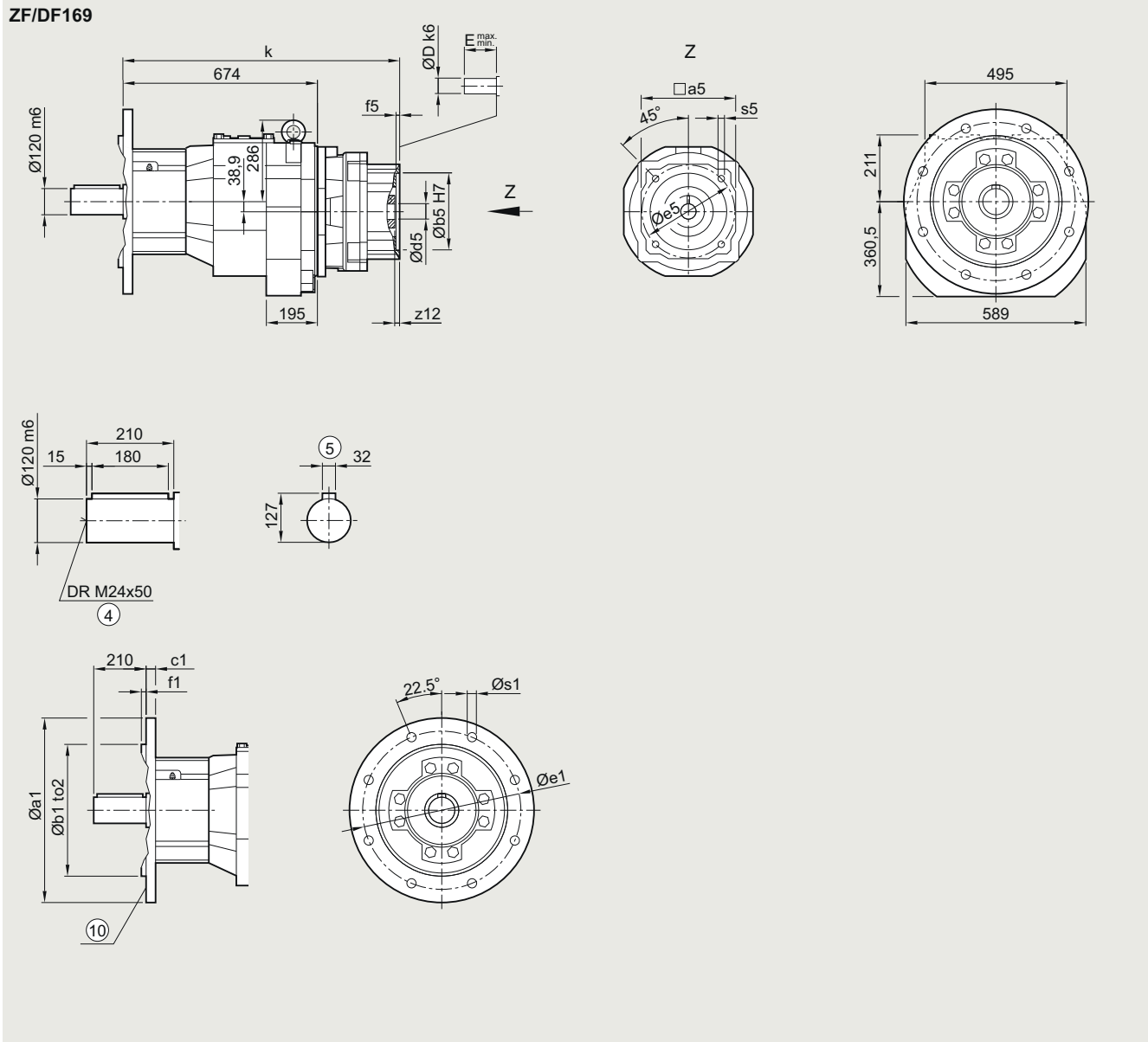
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | |
| | 660 | 550 | h6 | 25 | 600 | 6 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | $E_{\text{min.}}$ | $E_{\text{max.}}$ | k |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 757.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 786 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 786 |

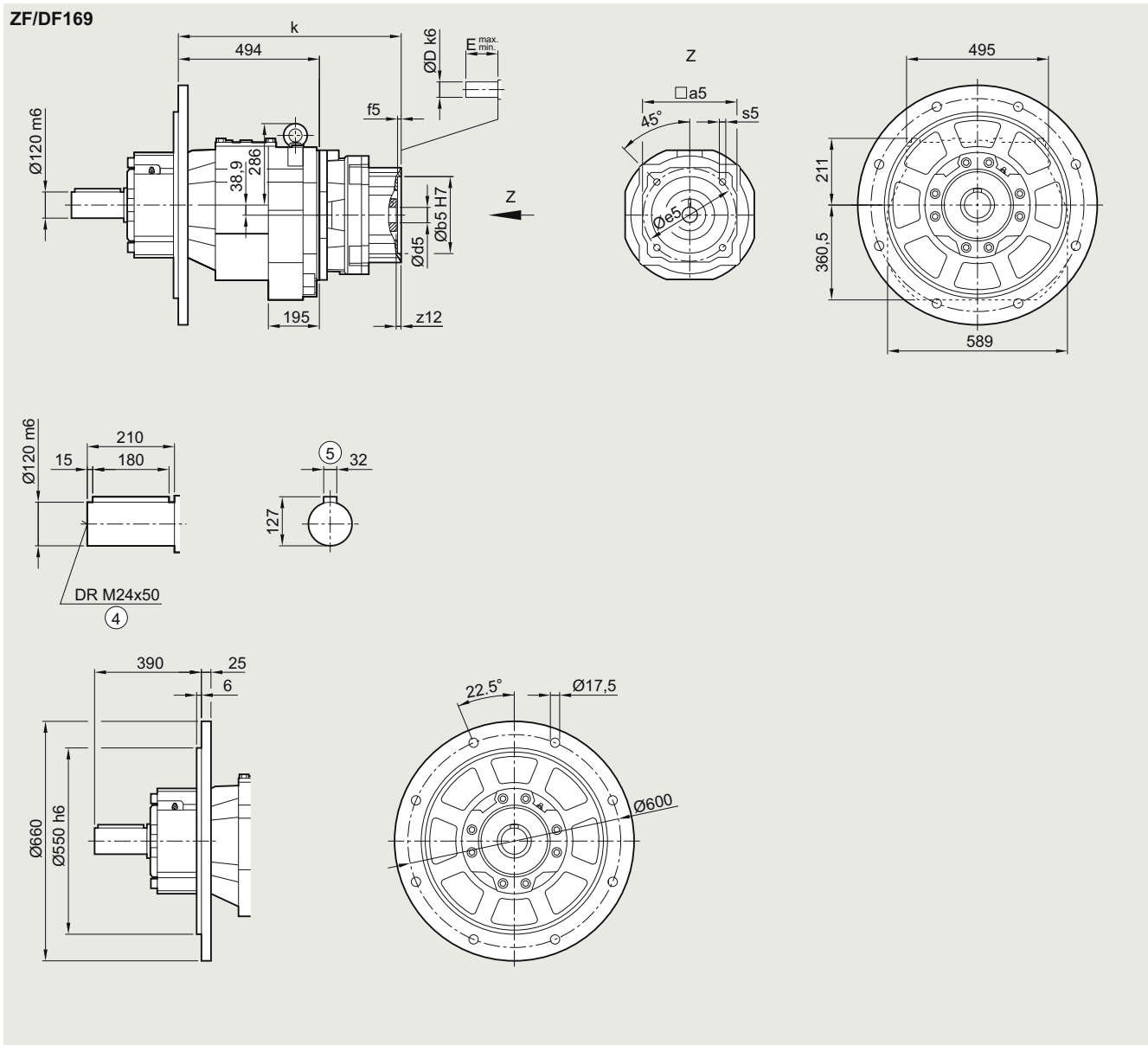
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

ZF/DF169 gearbox in a flange-mounted design with XLplus reinforced bearing system (G31)



3

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | $E_{\text{min.}}$ | $E_{\text{max.}}$ | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 577.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 606 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 606 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

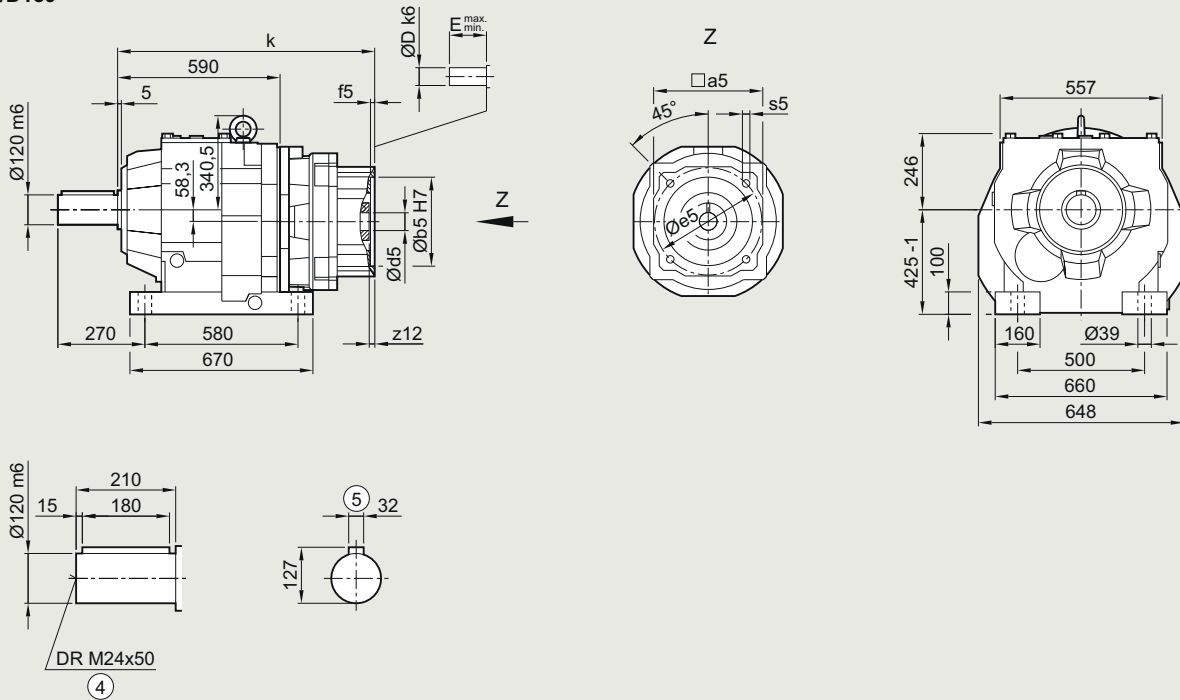
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

Z/D189 gearbox in a foot-mounted design

Z/D189

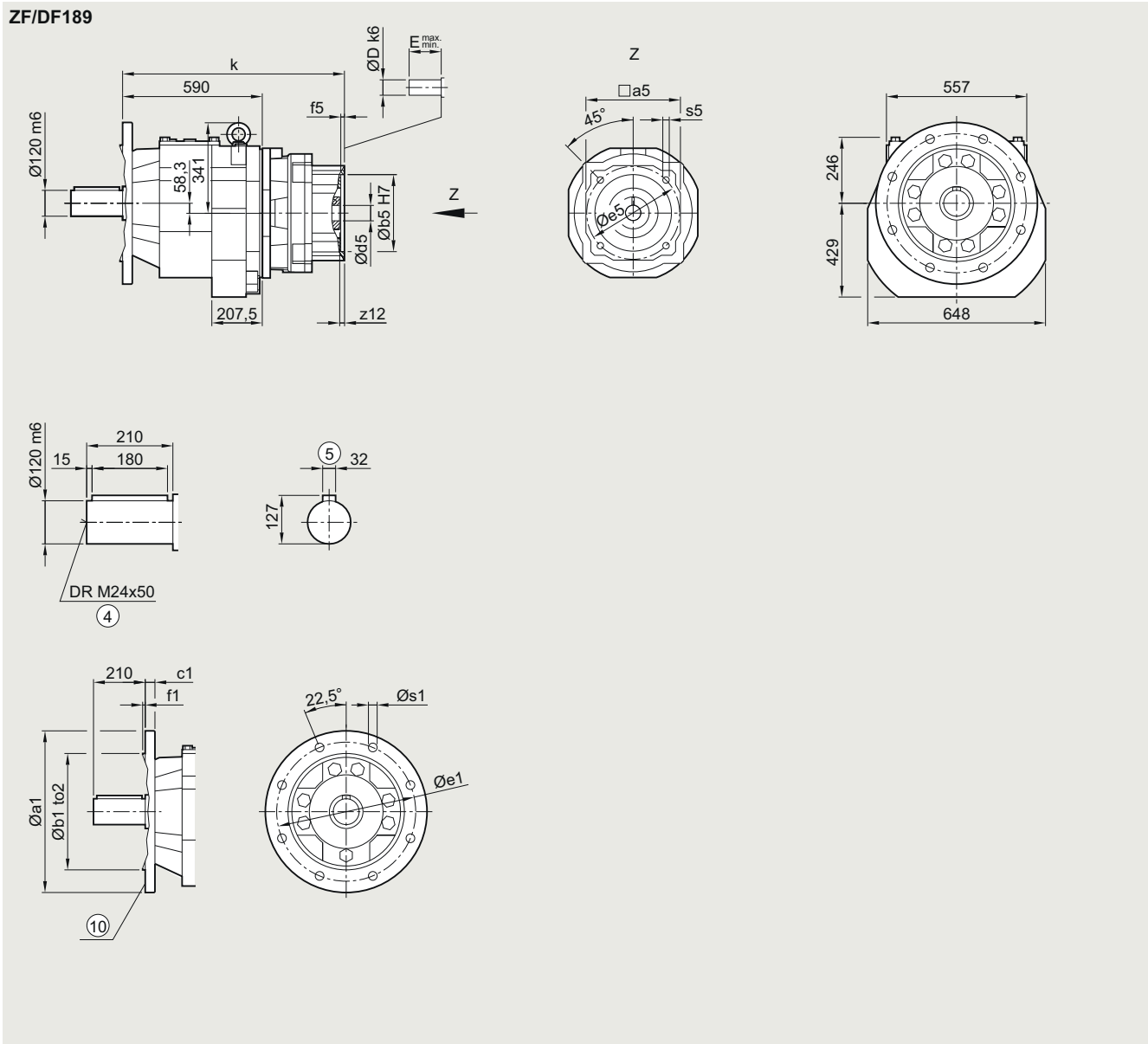


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 673.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 702 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 702 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ZF/DF189 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 550 | 450 | h6 | 25 | 500 | 5 | 17.5 | | | |
| | 660 | 550 | h6 | 28 | 600 | 6 | 22.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 673.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 702 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 702 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

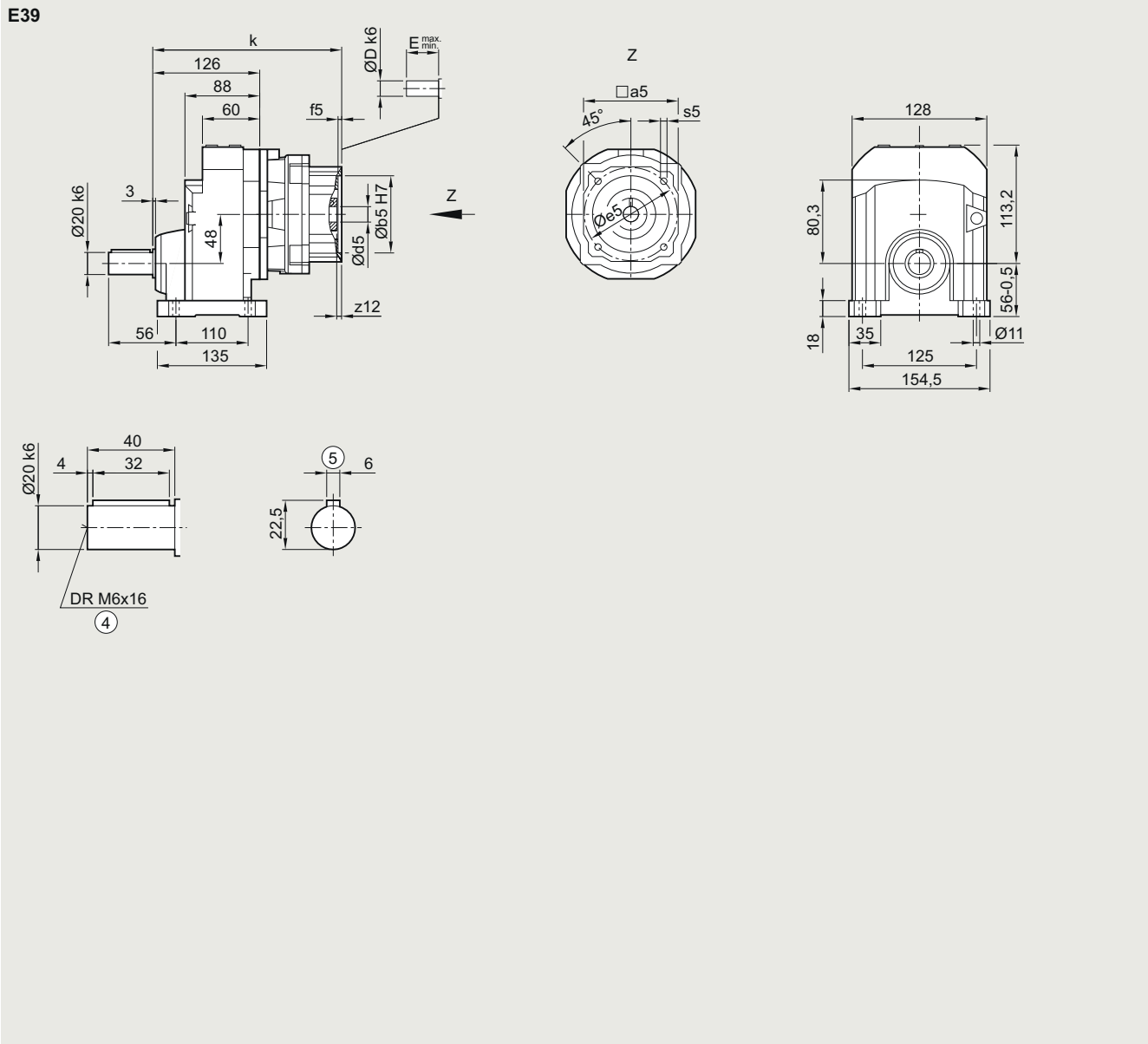
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

E39 gearbox in a foot-mounted design

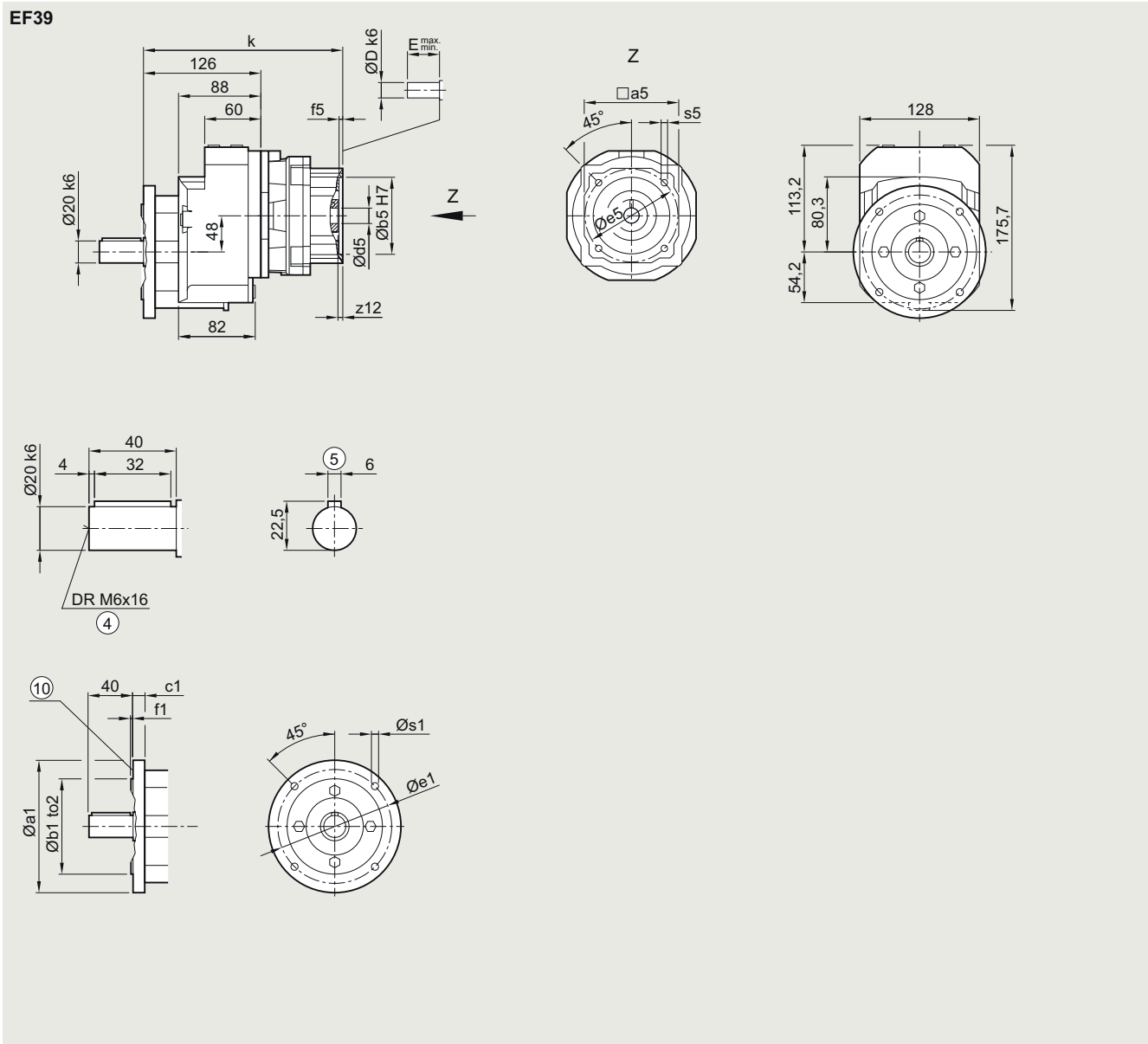


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 208 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 208 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 236.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 236.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 261.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 261.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 274 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF39 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.8 | | | |
| | 140 | 95 | j6 | 7 | 115 | 3.0 | 9.0 | | | |
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 208 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 208 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 236.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 236.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 261.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 261.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 274 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

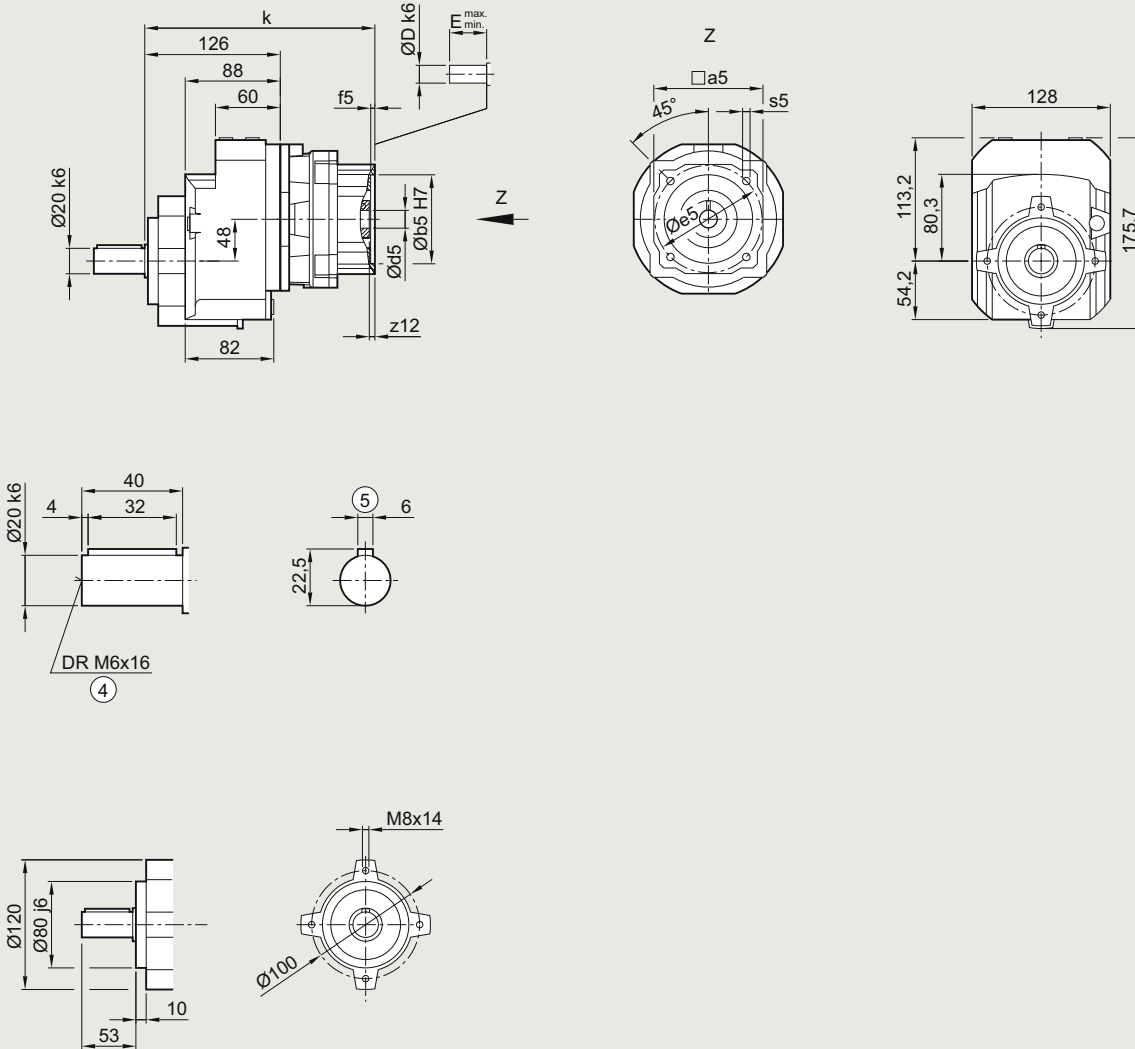
Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EZ39 gearbox in a housing flange design

EZ39



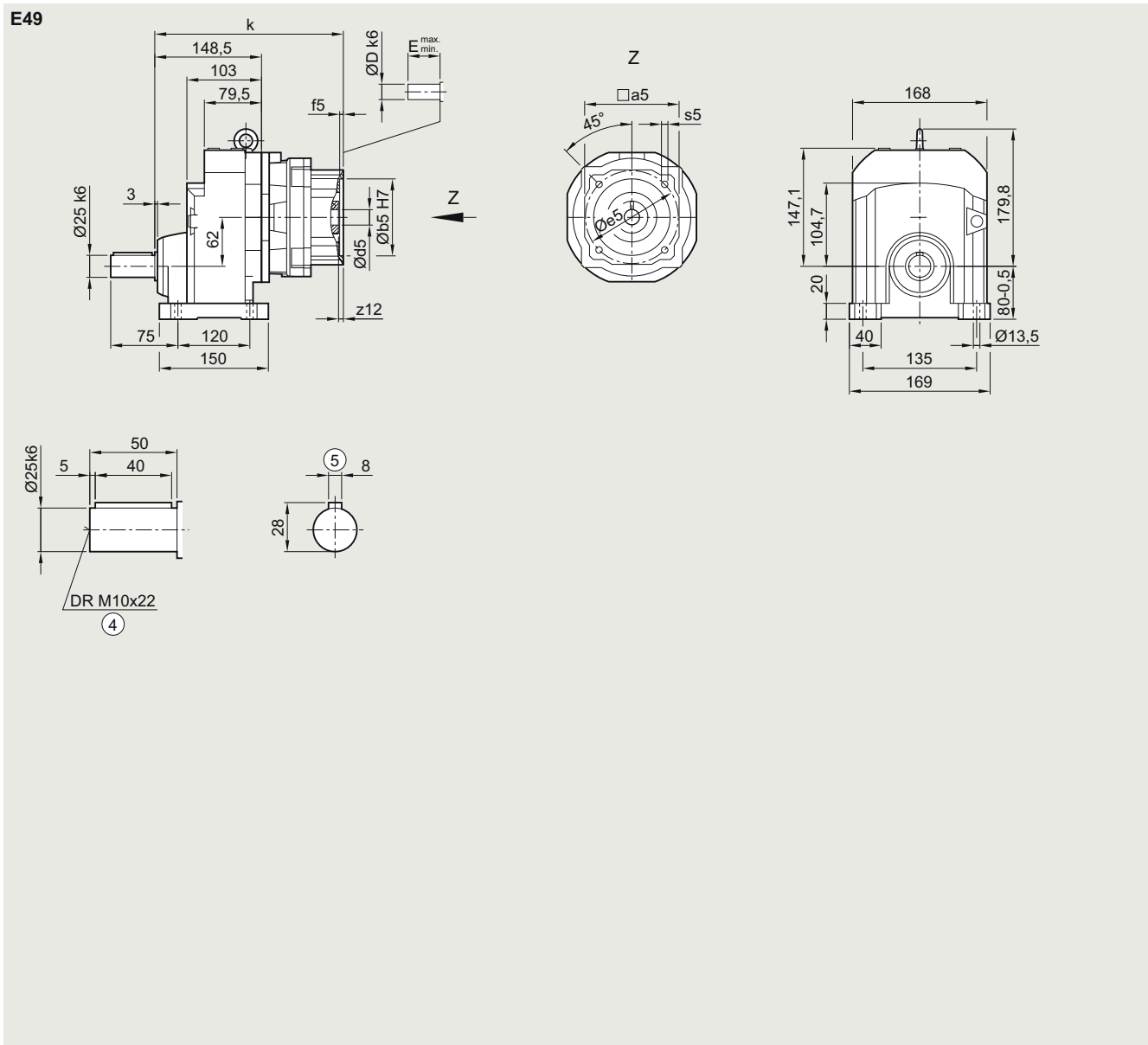
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 208 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 208 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 220.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 236.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 236.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 261.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 261.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 274 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

KS adapter exclusively for mounting defined Siemens servo motors

E49 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 249.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 249.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 274.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 274.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323 |

④ DIN 332

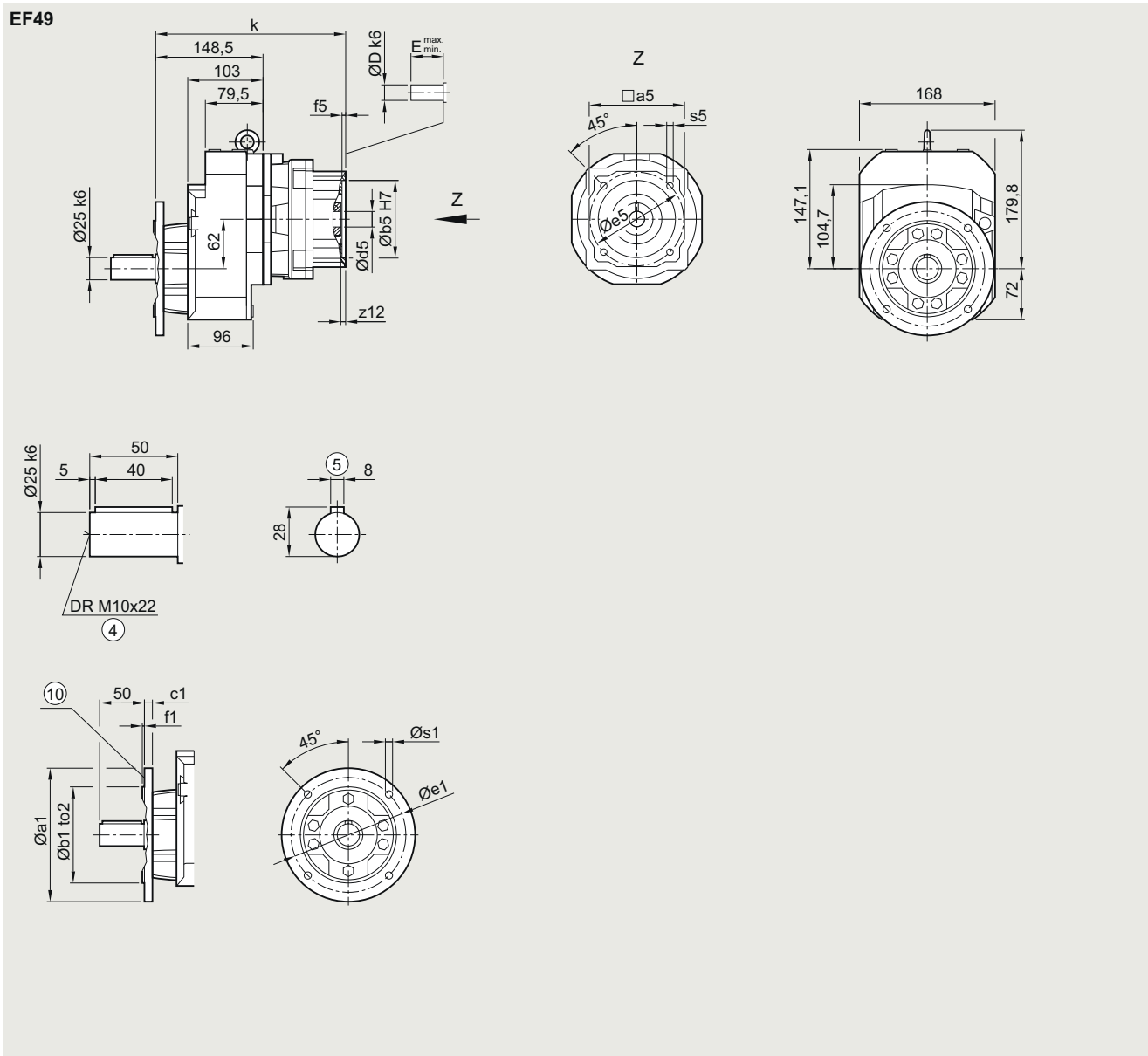
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EF49 gearbox in a flange-mounted design



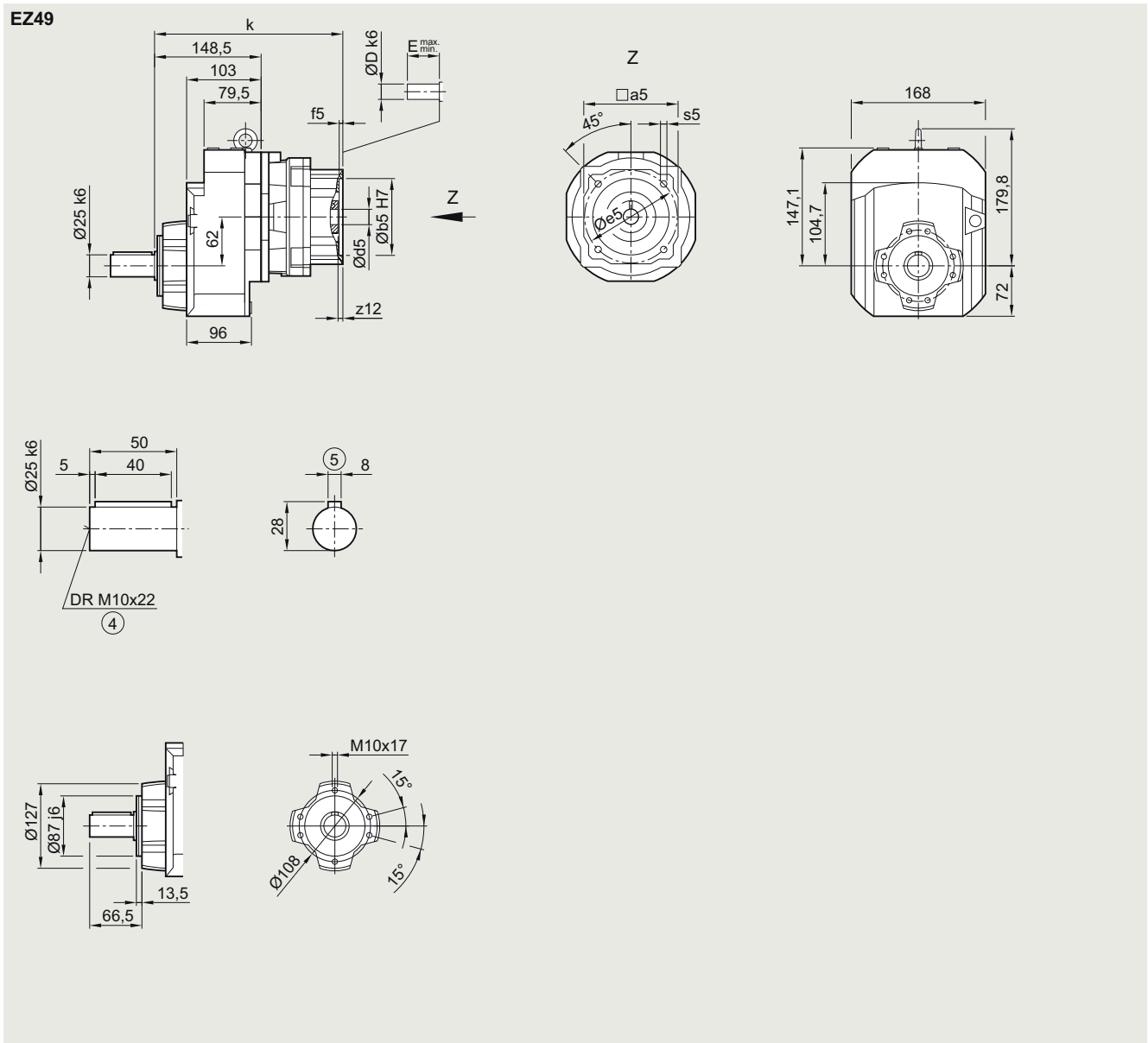
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 249.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 249.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 274.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 274.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

EZ49 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 233.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 249.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 249.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 274.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 274.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323 |

④ DIN 332

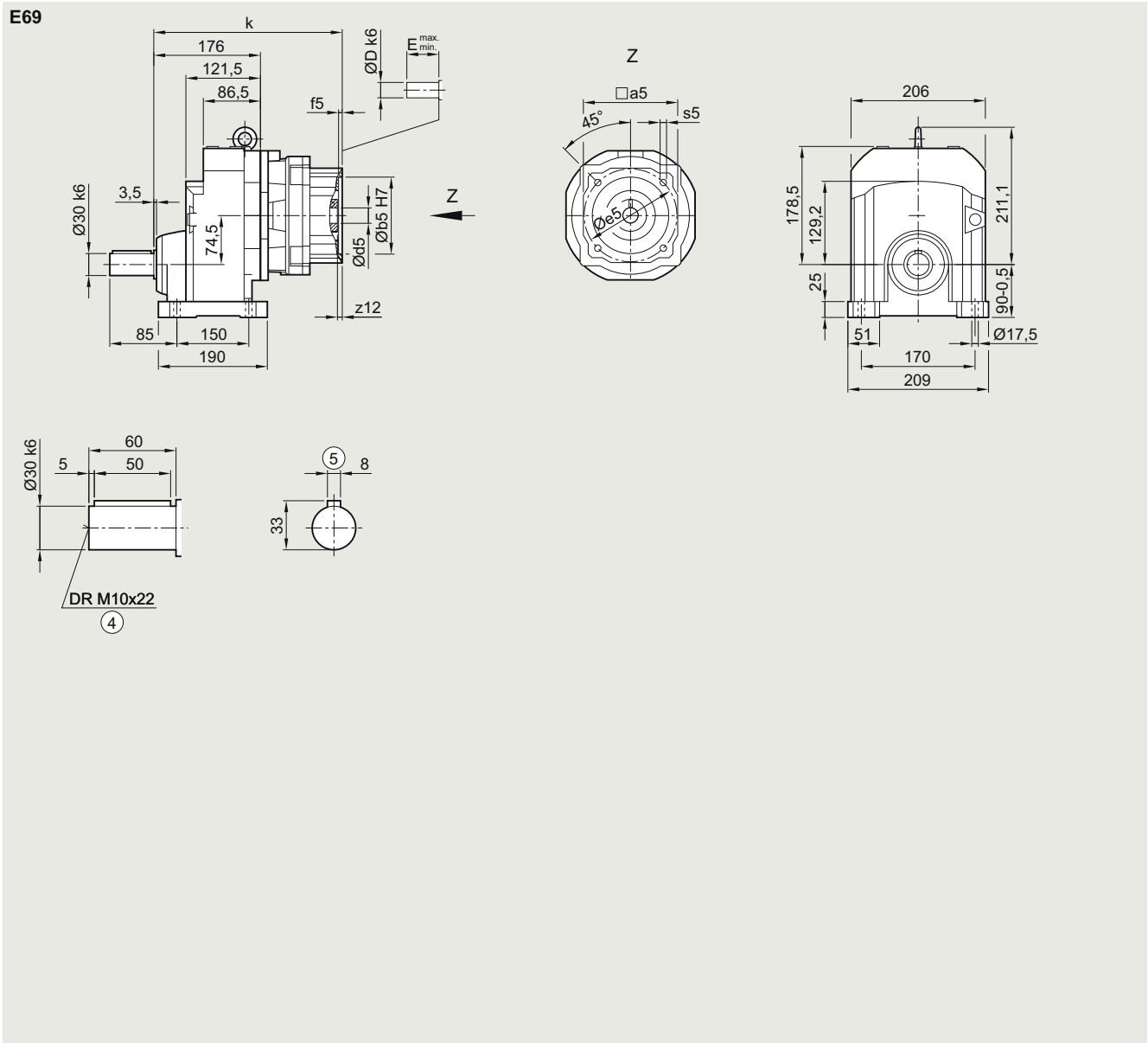
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

E69 gearbox in a foot-mounted design

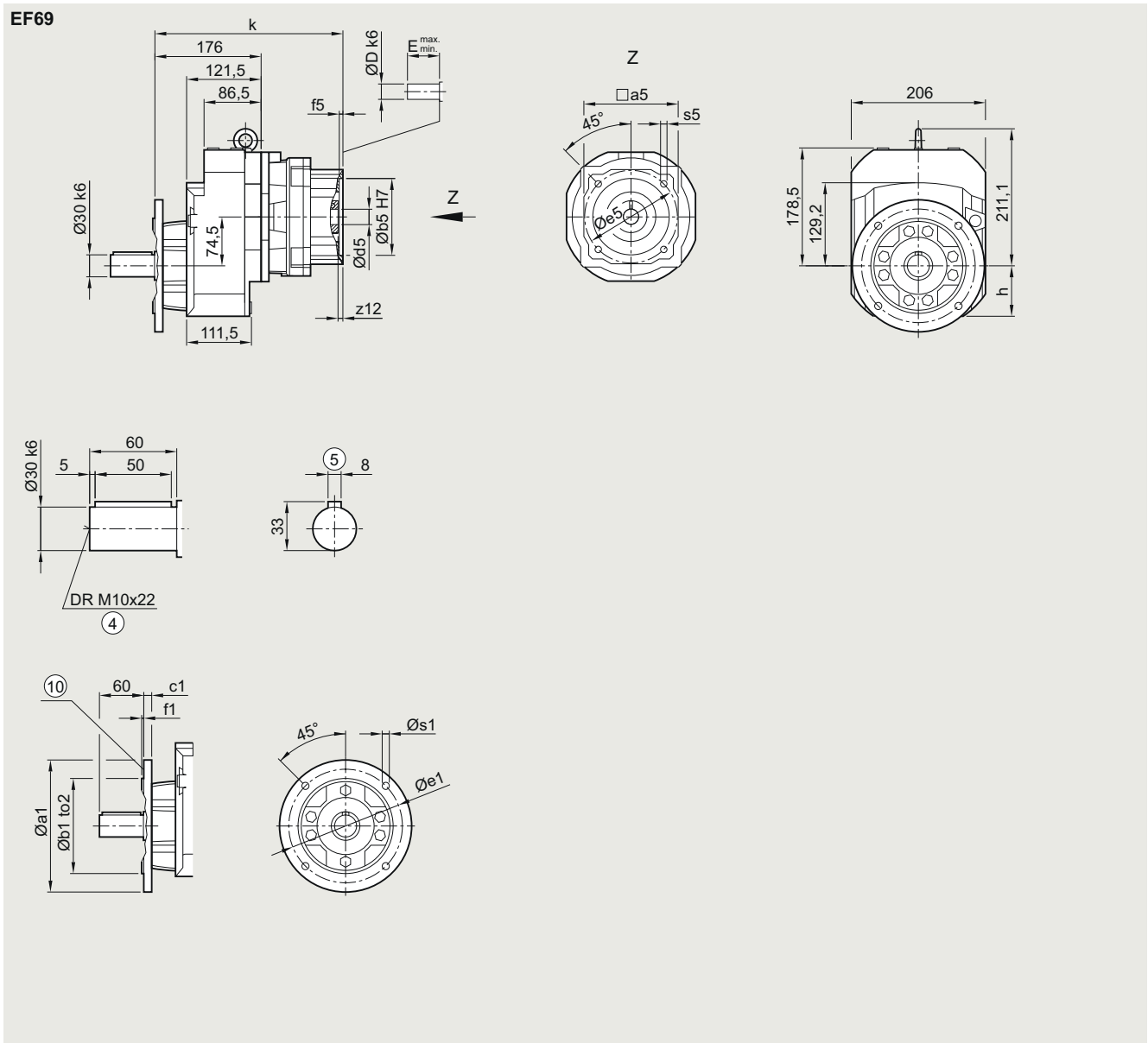


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 246.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 246.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 271 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 271 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 296 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 296 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 308.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 344.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 344.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF69 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 |
|--------|-----|-----|-----|----|-----|-----|------|
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 |
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 |

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 246.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 246.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 271 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 271 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 296 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 296 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 308.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 344.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 344.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

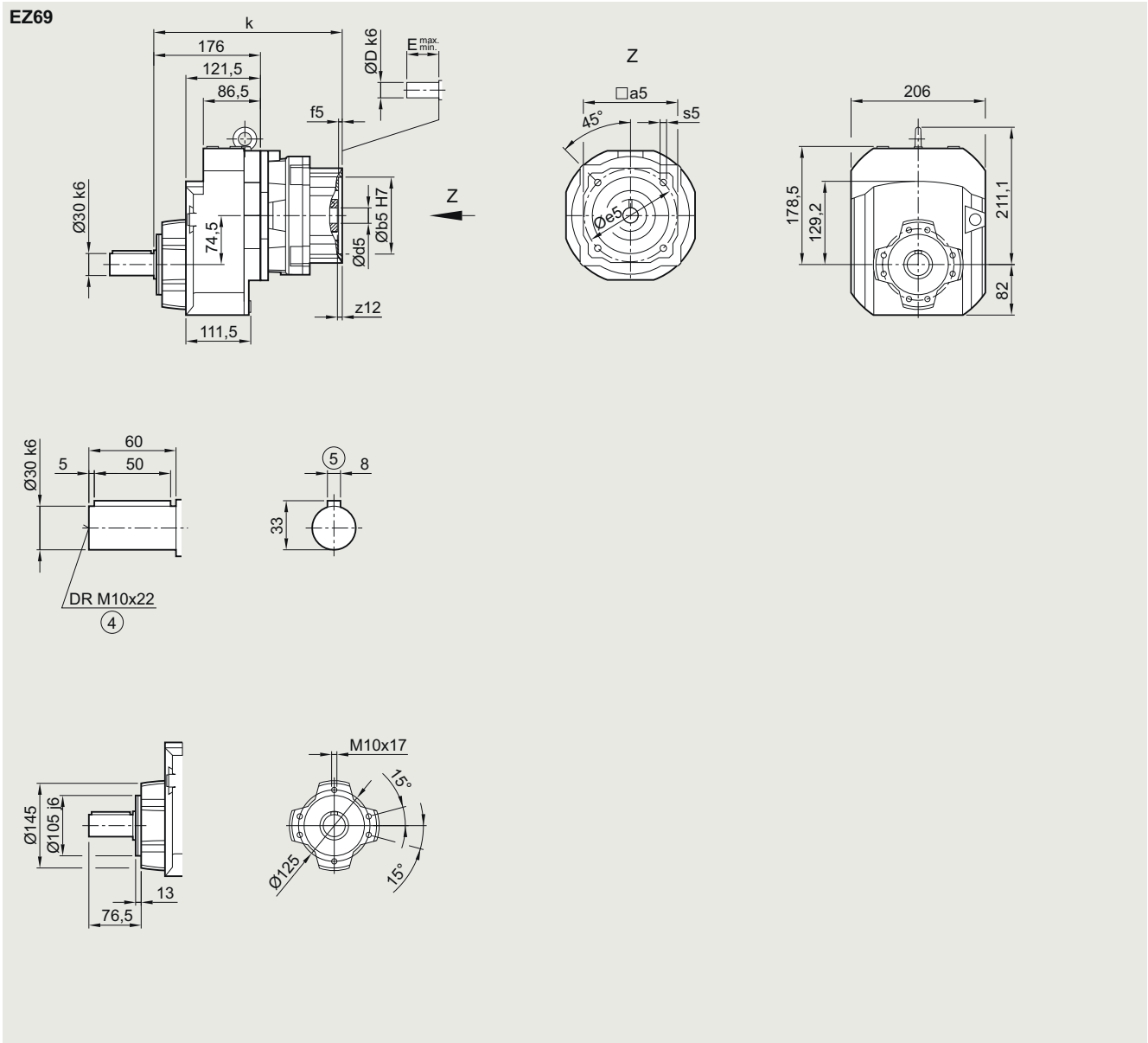
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EZ69 gearbox in a housing flange design

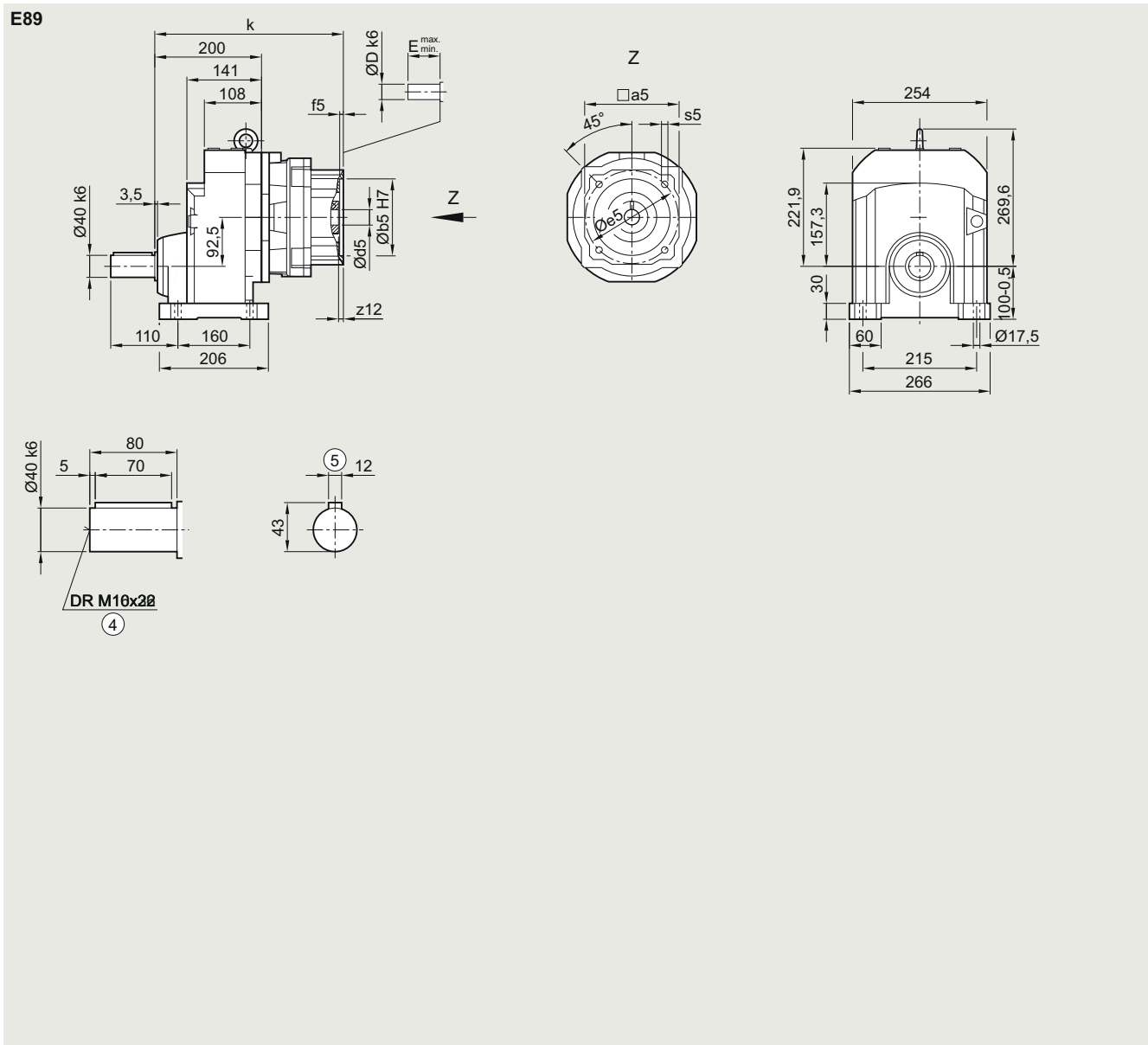


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 246.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 246.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 259 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 271 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 271 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 296 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 296 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 308.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 344.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 344.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E89 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 303 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 303 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351.5 |

④ DIN 332

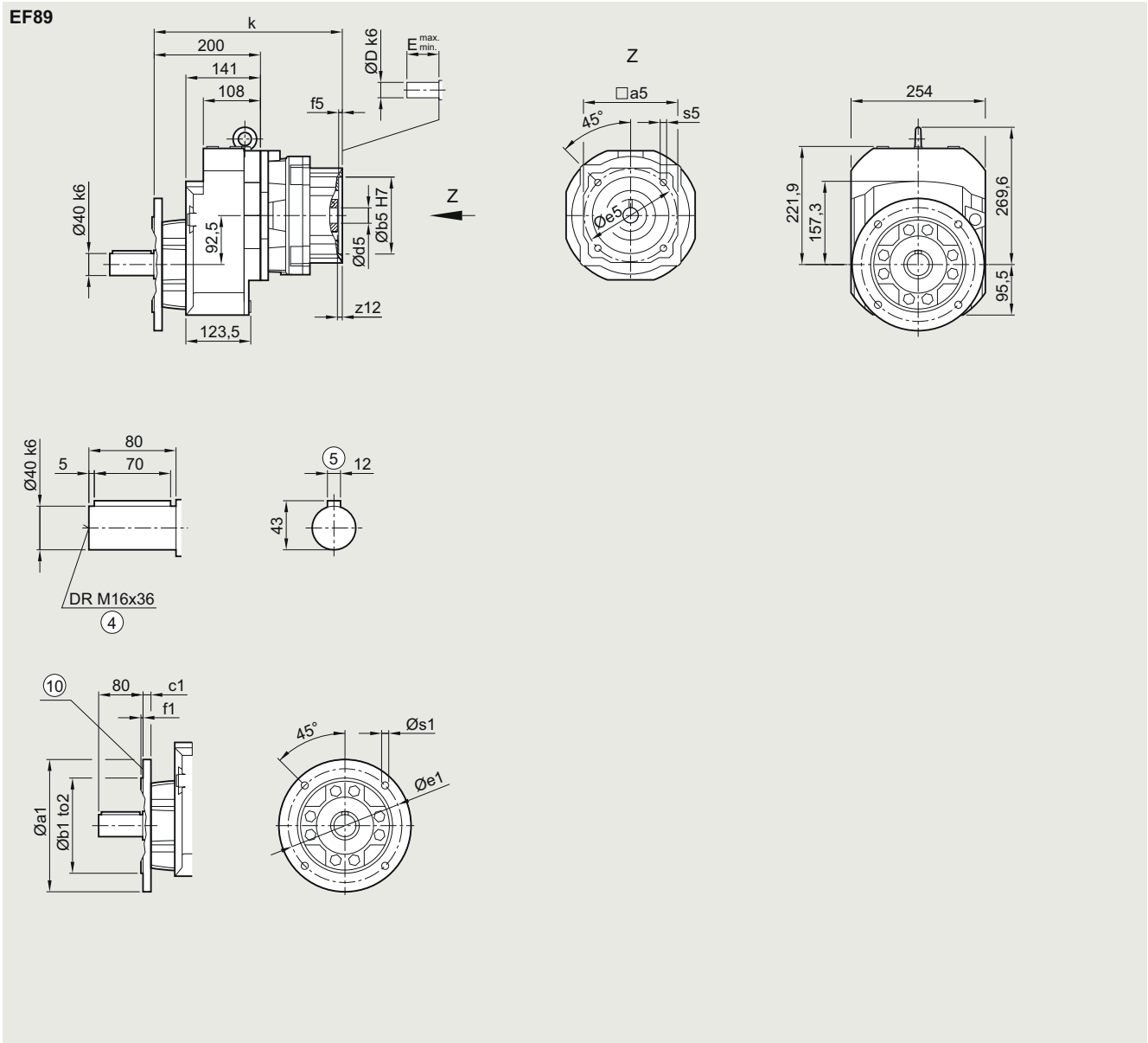
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EF89 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 250 | 180 | j6 | 15 | 215 | 4.0 | 13.5 | | | |
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | |
| | 350 | 250 | j6 | 16 | 300 | 5.0 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 303 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 303 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351.5 |

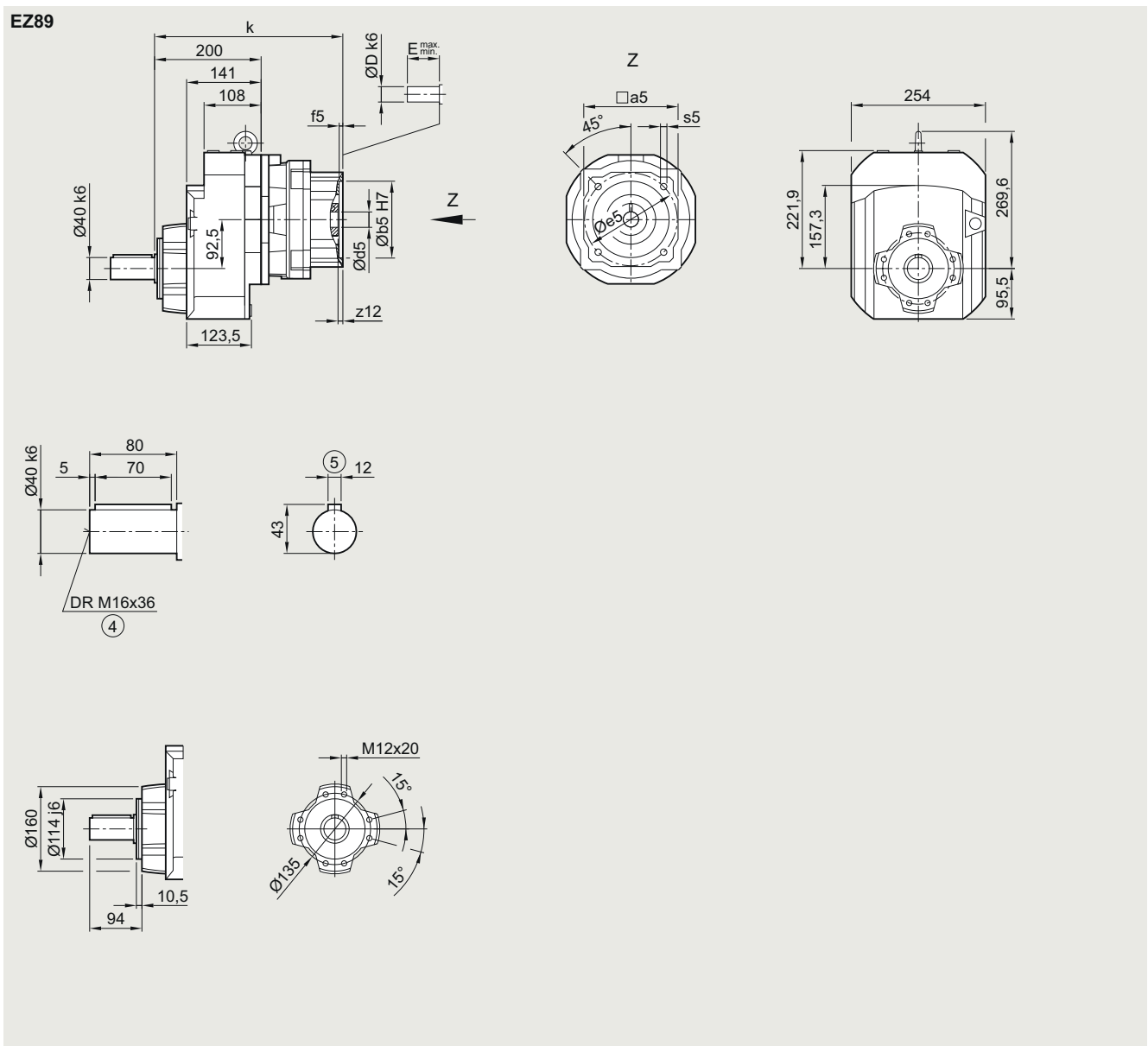
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

EZ89 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 303 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 303 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351.5 |

④ DIN 332

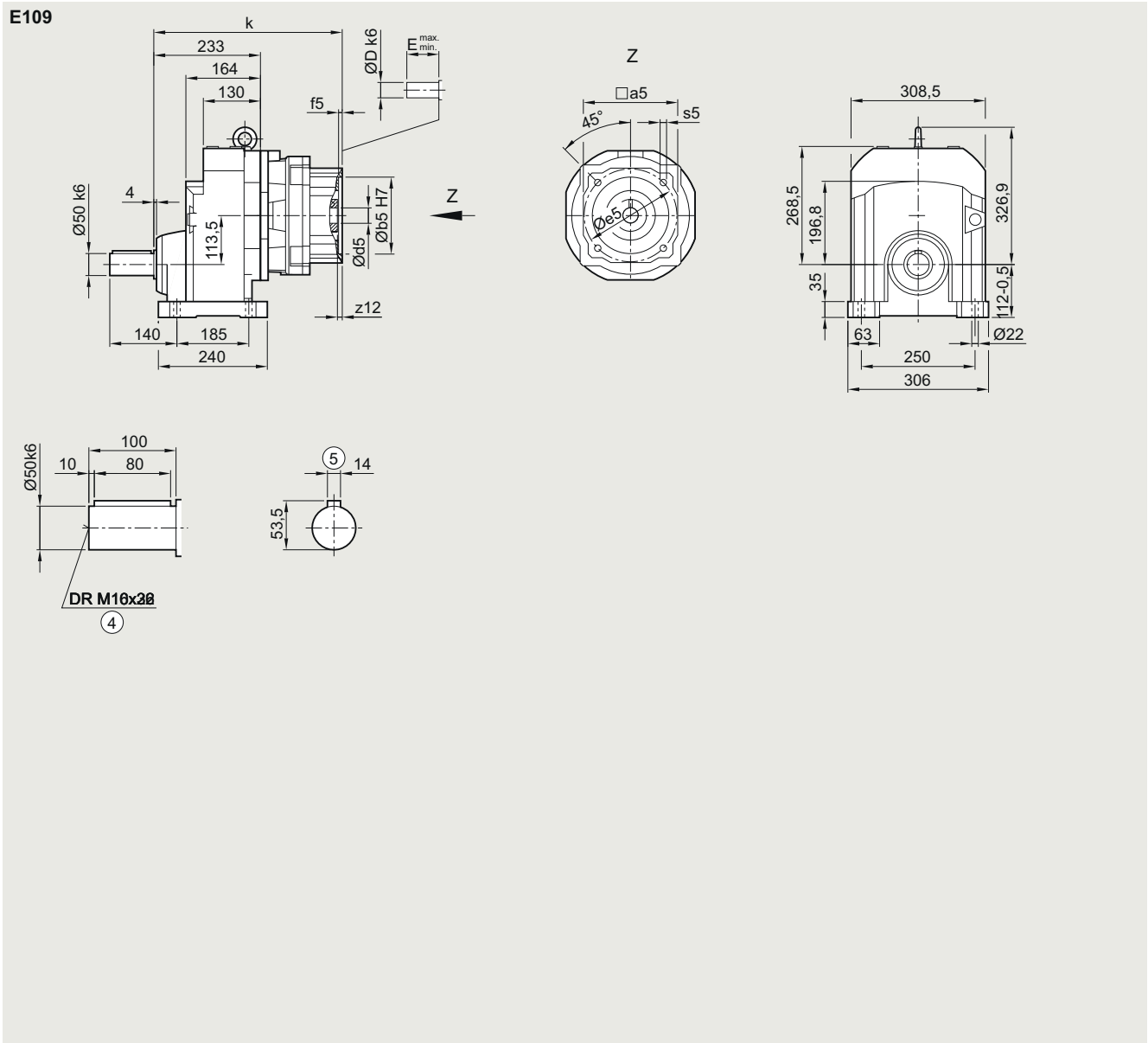
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

E109 gearbox in a foot-mounted design

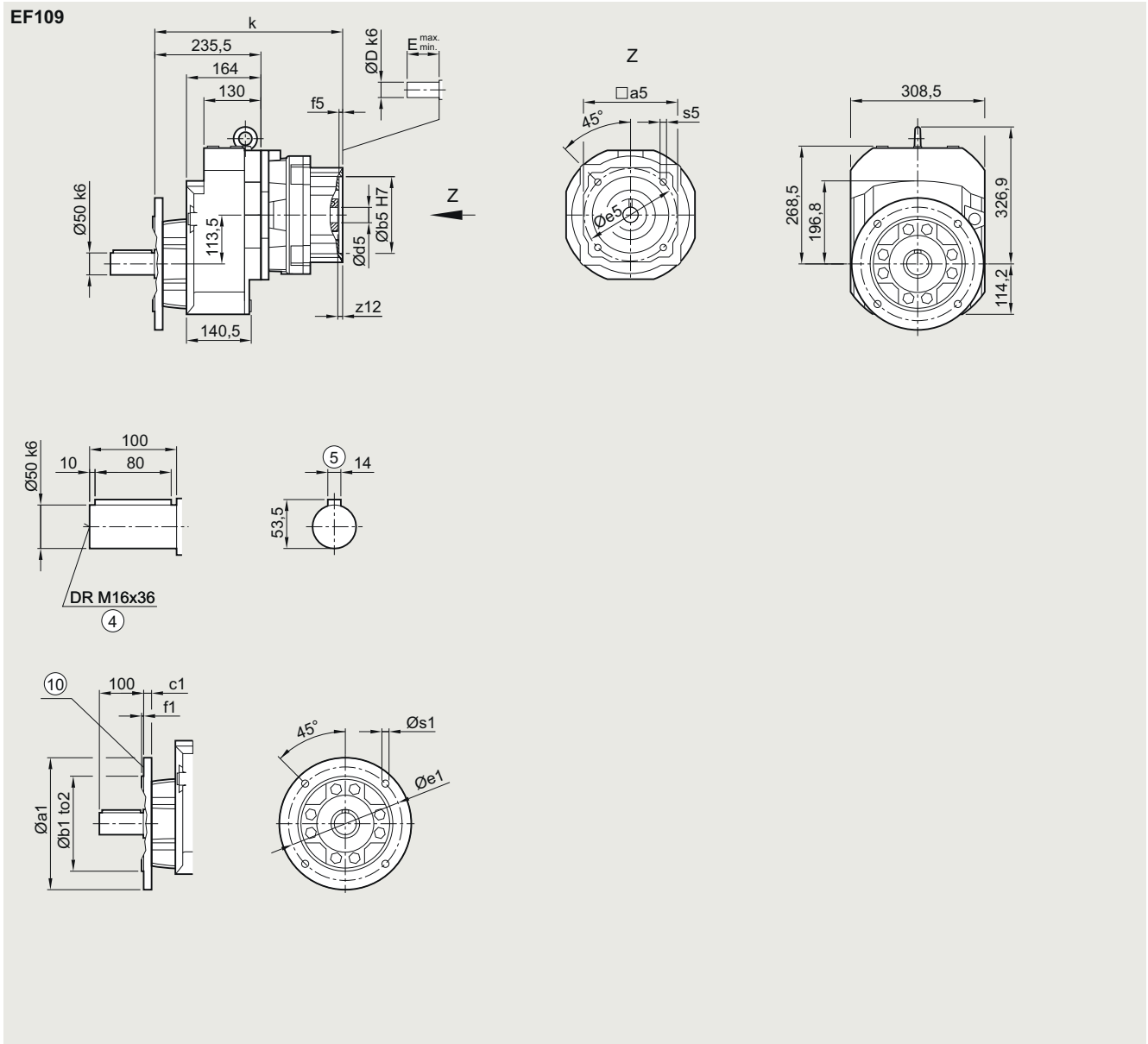


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 327 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 327 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 339.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 375.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 375.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

EF109 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 300 | 230 | j6 | 16 | 265 | 4.0 | 13.5 | | | |
| | 350 | 250 | j6 | 18 | 300 | 5.0 | 17.5 | | | |
| | 450 | 350 | h6 | 18 | 400 | 5.0 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 327 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 327 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 339.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 375.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 375.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

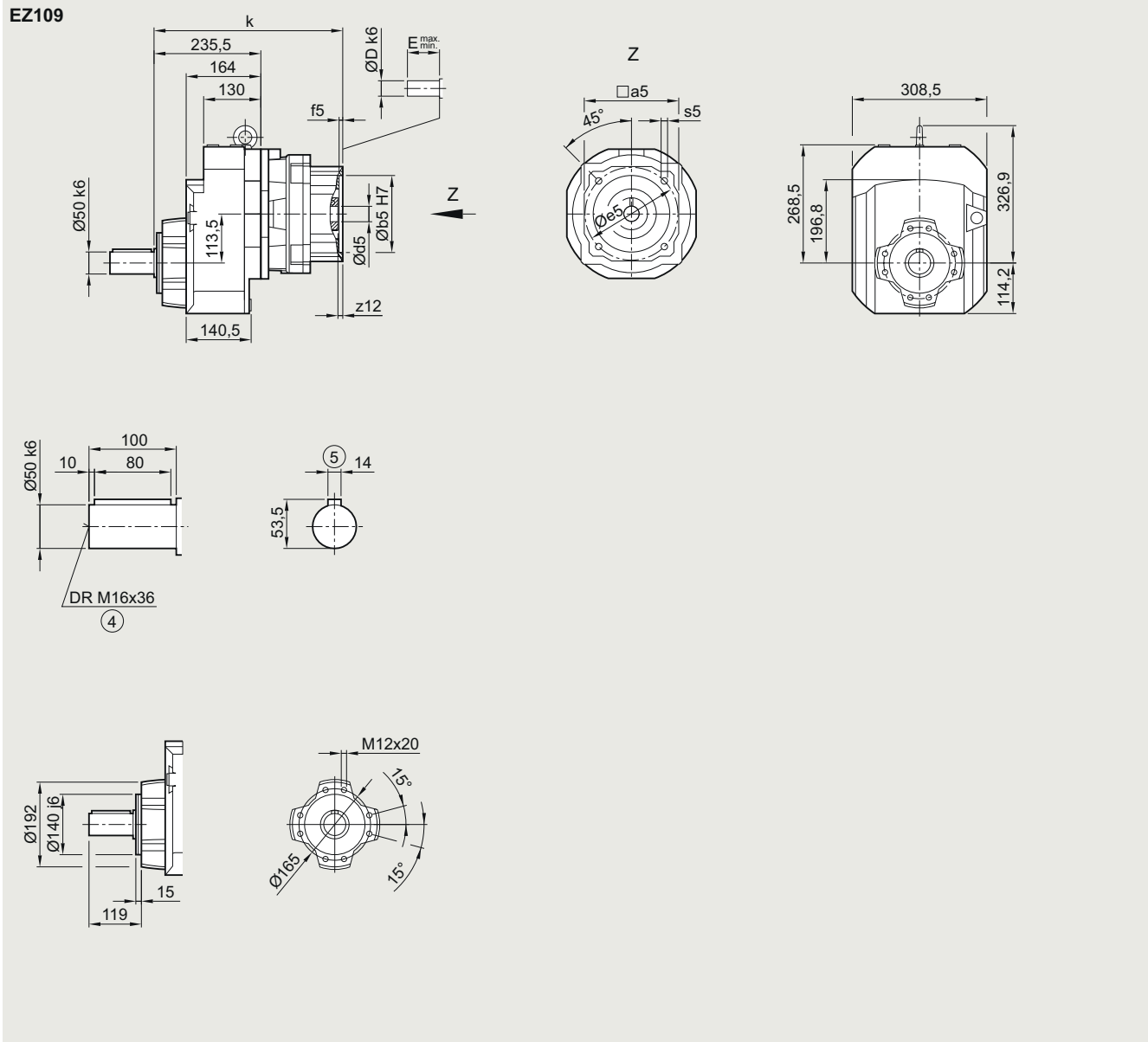
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

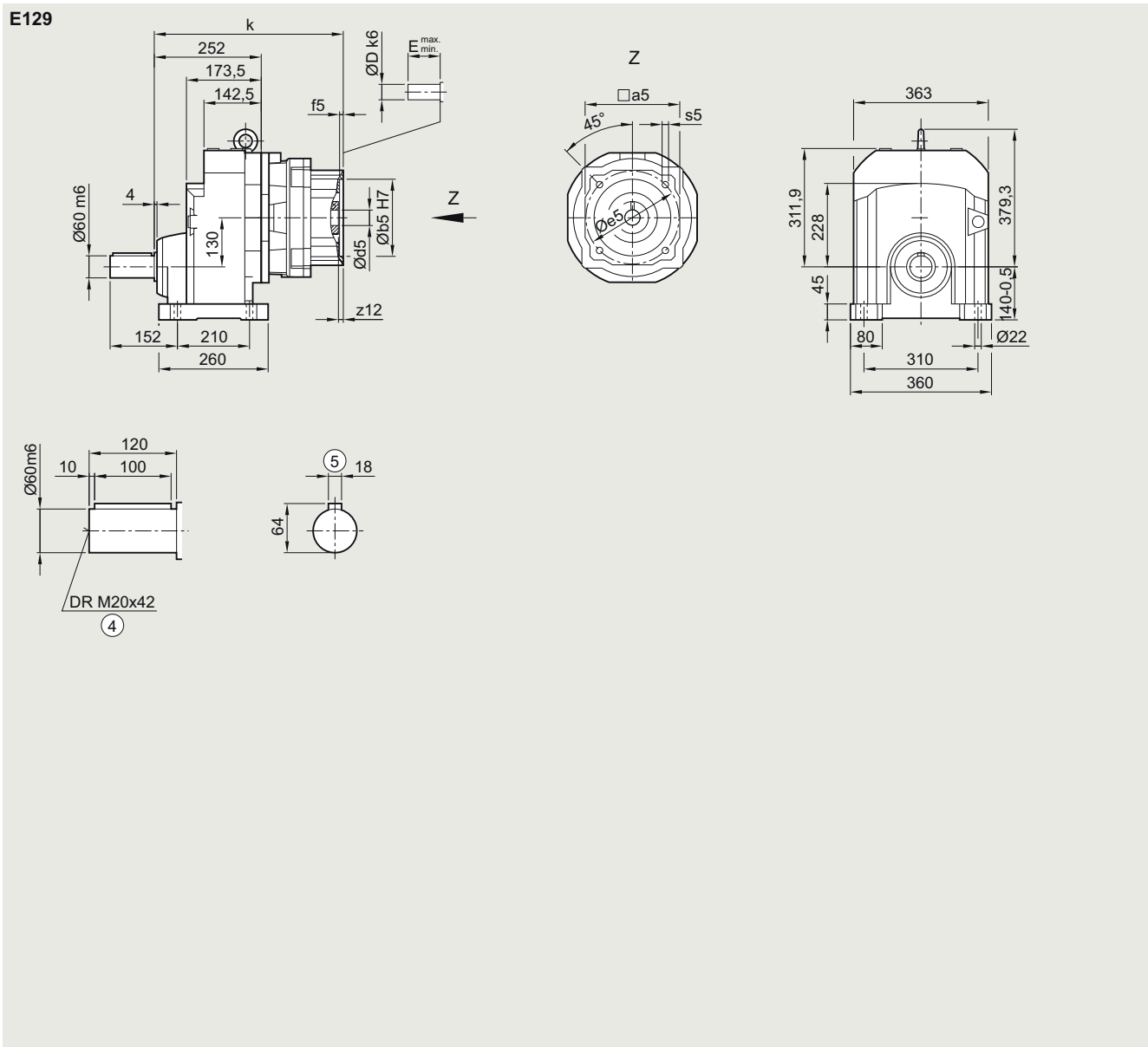
EZ109 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 327 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 327 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 339.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 375.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 375.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E129 gearbox in a foot-mounted design


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 320 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 320 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 337 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 337 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 383.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 383.5 |

④ DIN 332

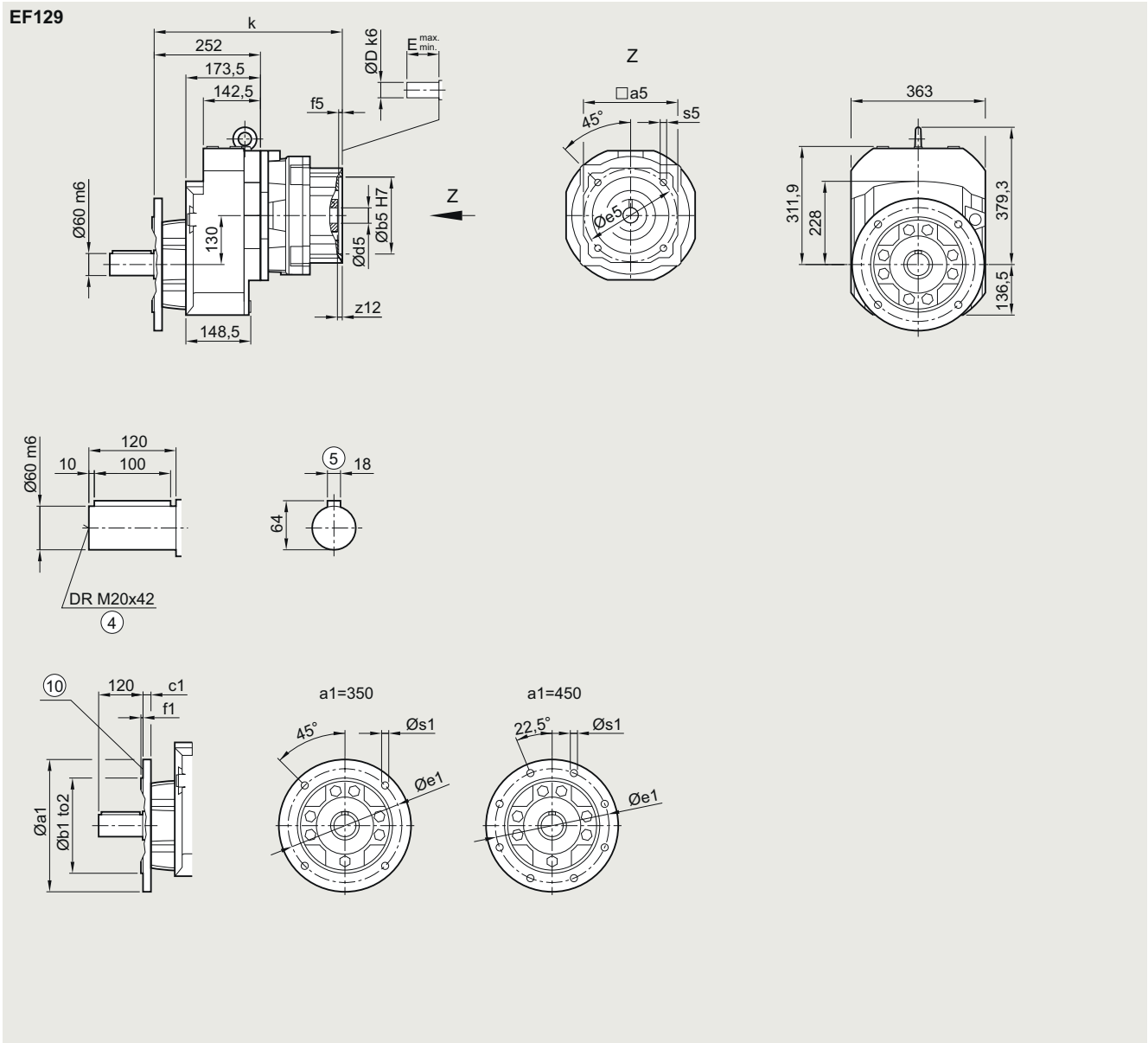
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EF129 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 350 | 250 | h6 | 18 | 300 | 5 | 17.5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17.5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 320 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 320 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 337 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 337 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 383.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 383.5 |

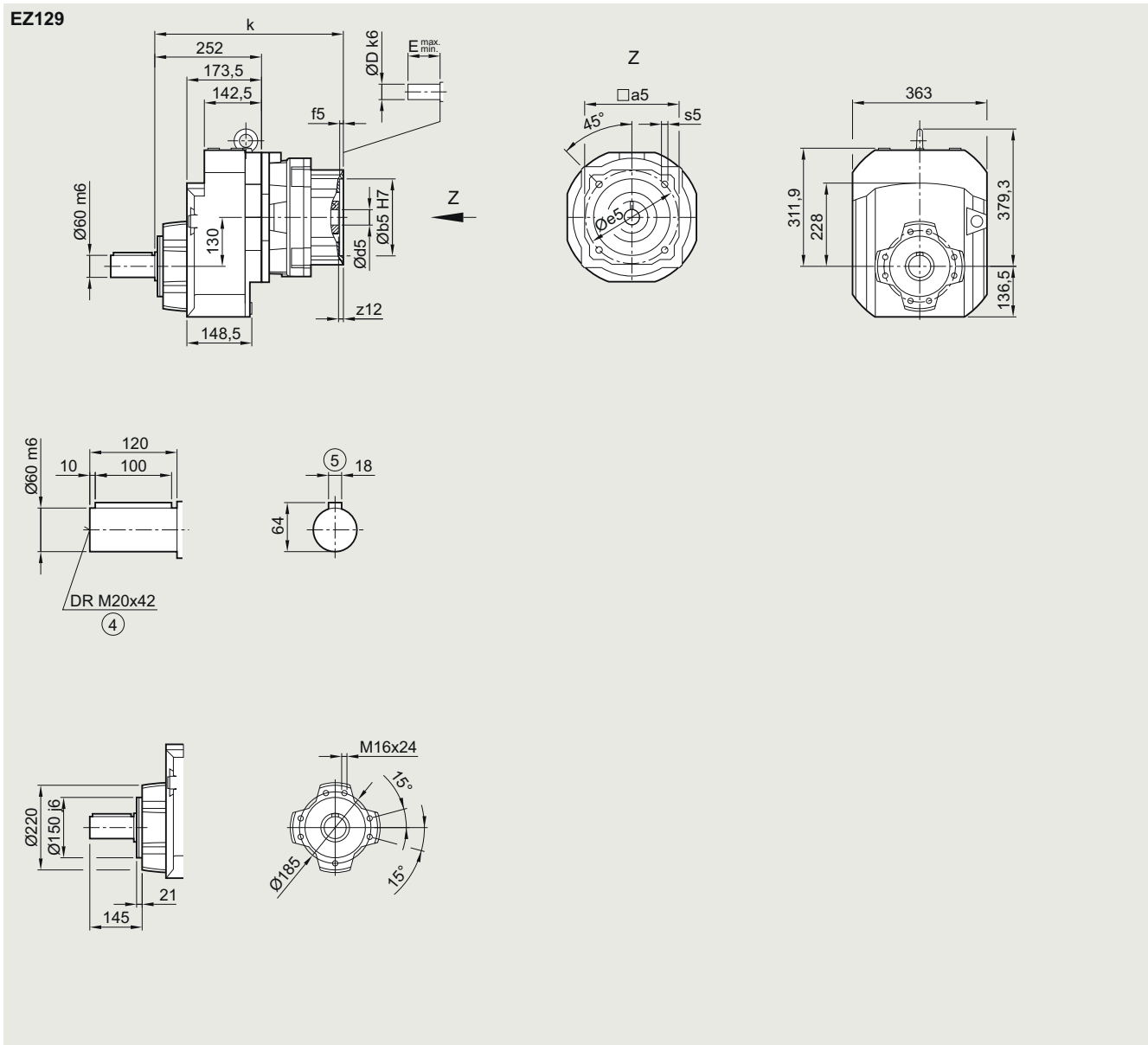
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 3/218

KS adapter exclusively for mounting defined Siemens servo motors

EZ129 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 320 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 320 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 337 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 337 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 383.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 383.5 |

④ DIN 332

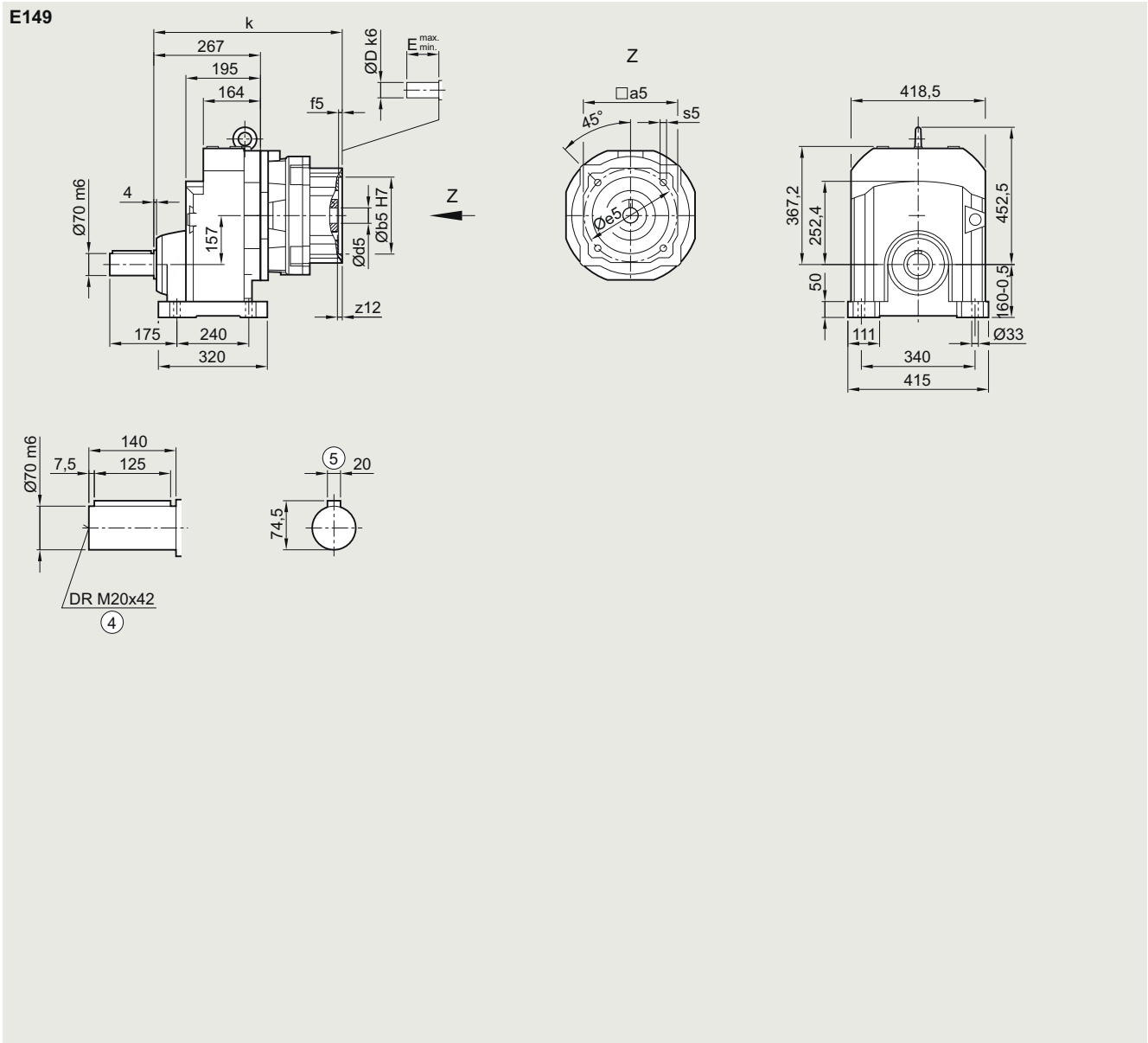
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

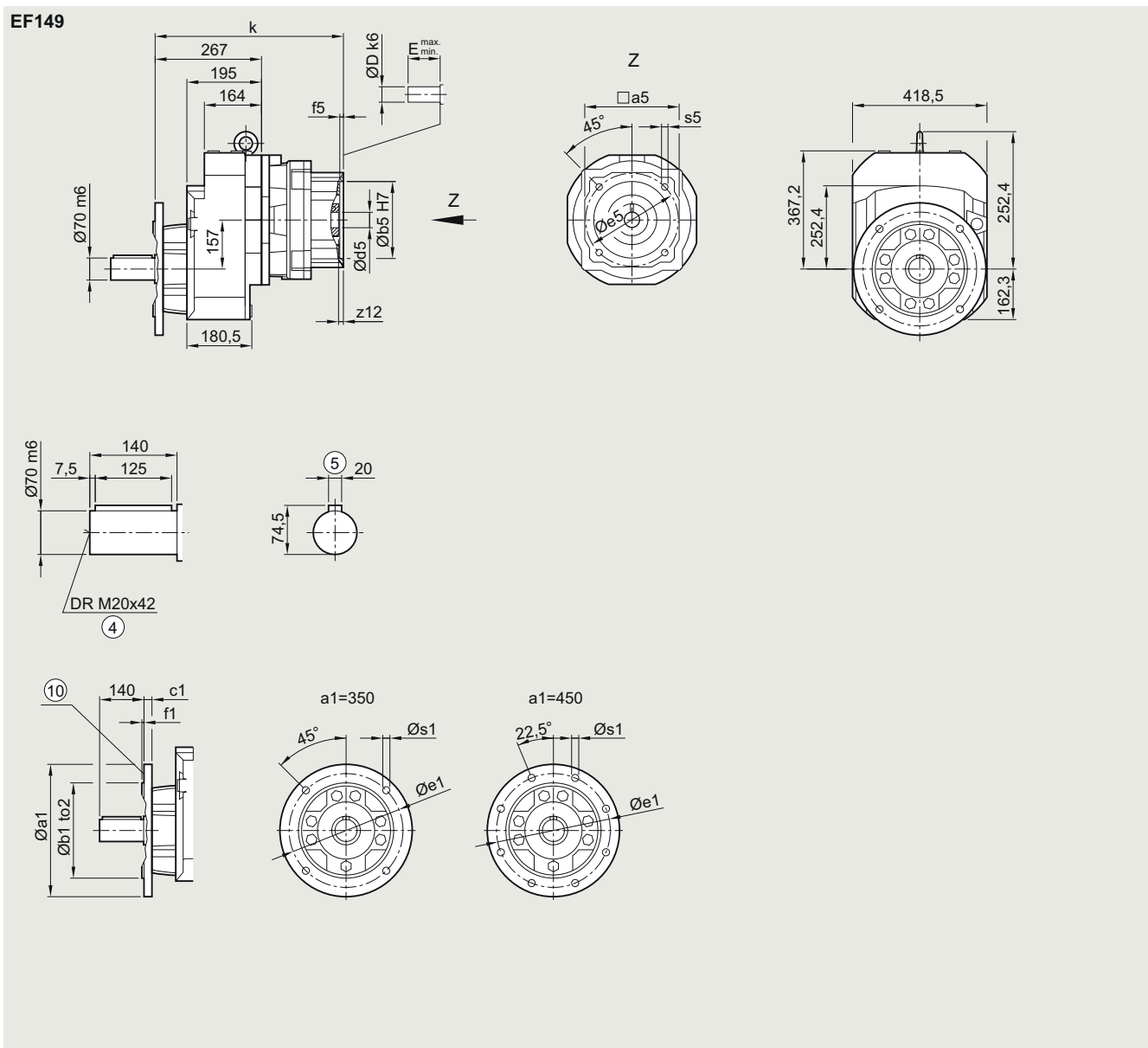
E149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 350.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 350.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 363 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 392 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 392 |

KS adapter exclusively for mounting defined Siemens servo motors

EF149 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 350 | 250 | h6 | 20 | 300 | 5 | 17,5 | | | |
| | 450 | 350 | h6 | 22 | 400 | 5 | 17,5 | | | |
| | 550 | 450 | h6 | 22 | 500 | 5 | 17,5 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 350.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 350.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 363 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 392 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 392 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

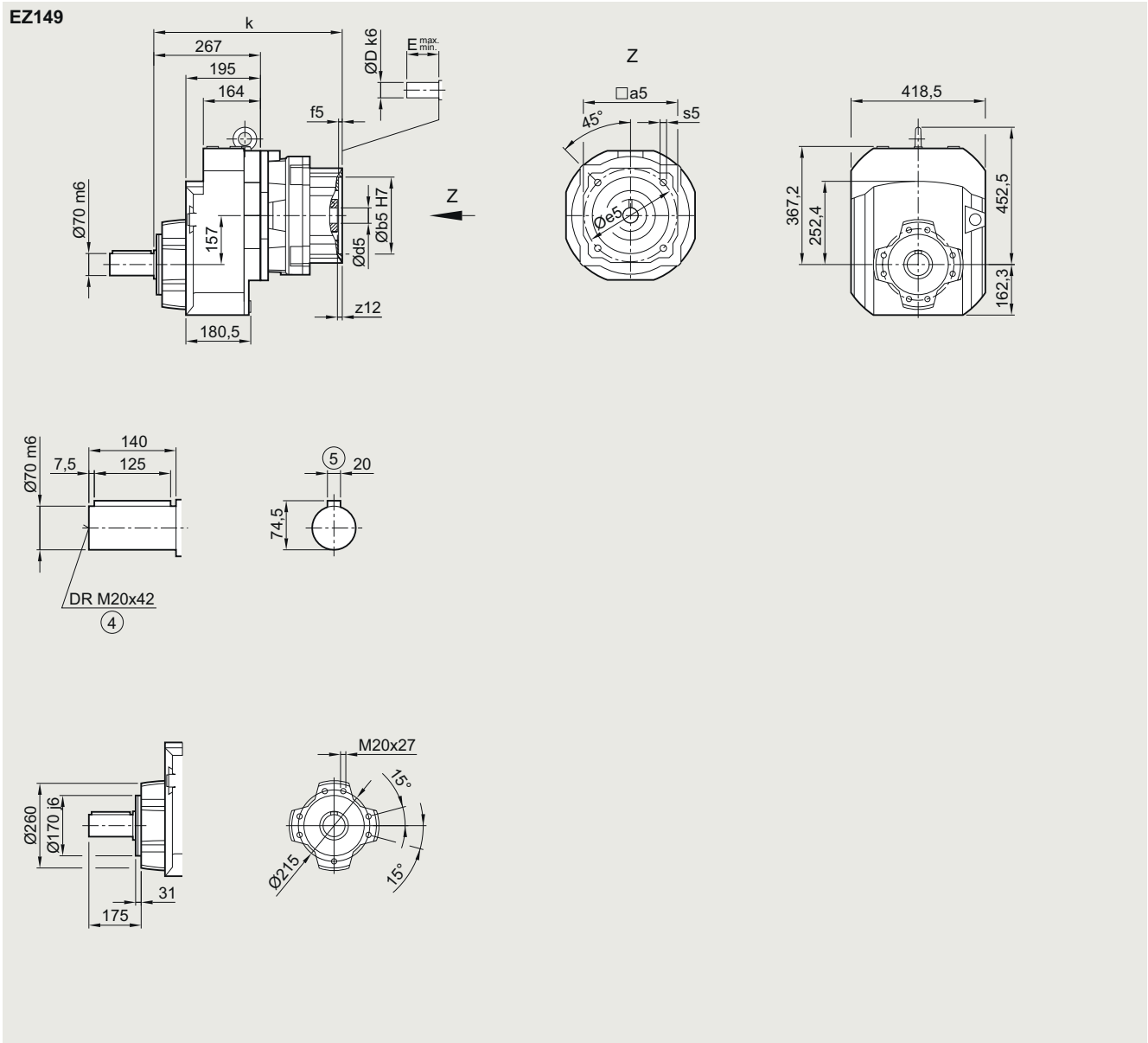
⑩ For inner contour, see page 3/218

Helical gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

EZ149 gearbox in a housing flange design

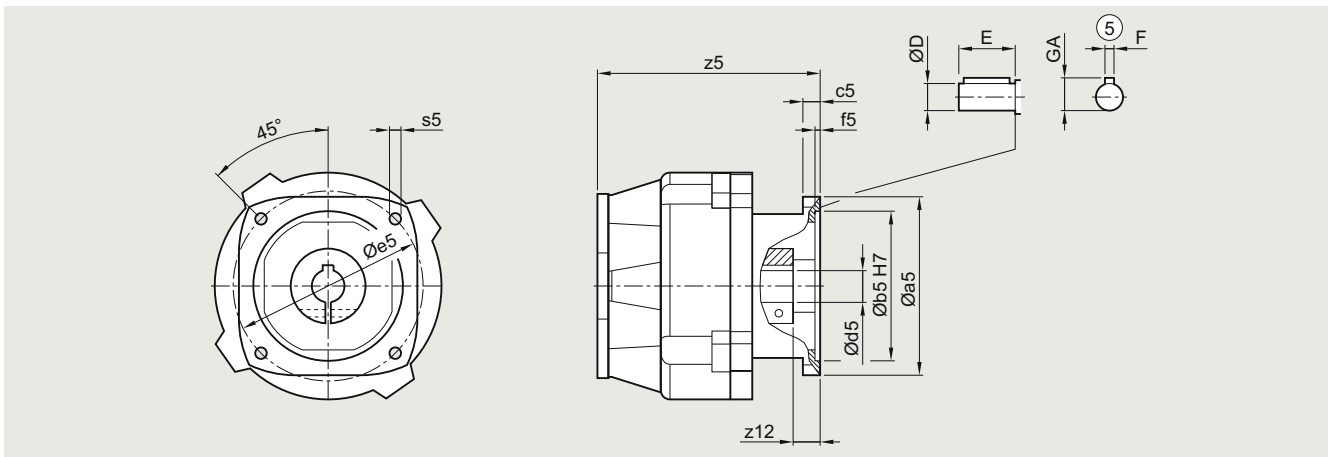


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 350.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 350.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 363 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 392 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 392 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z./D.89 to Z./D.189 and E.89 to E.149 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-------|-----|------|------|-----|--------|------|------|-----|----|------|-------|
| Z./D.89 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 317.5 |
| Z./D.109 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 308.5 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 365.0 |
| Z./D.129 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 297.5 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| Z./D.149 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 291.0 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 347.5 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 336.5 |
| Z./D.169 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 278.0 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 333.0 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 319.5 |
| Z./D.189 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25.0 | 6.0 | 300 | M16 | 60 | 48 | 110 | 14 | 51.5 | 278.0 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 333.0 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 319.5 |
| E.89 | | | | | | | | | | | | |
| 813 | 260 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 317.5 |
| E.109 | | | | | | | | | | | | |
| 813 | 260 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 308.5 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 365.0 |
| E.129 | | | | | | | | | | | | |
| 813 | 260 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 297.5 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 354.0 |
| E.149 | | | | | | | | | | | | |
| 813 | 260 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 291.0 |
| 816 | 314 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 347.5 |

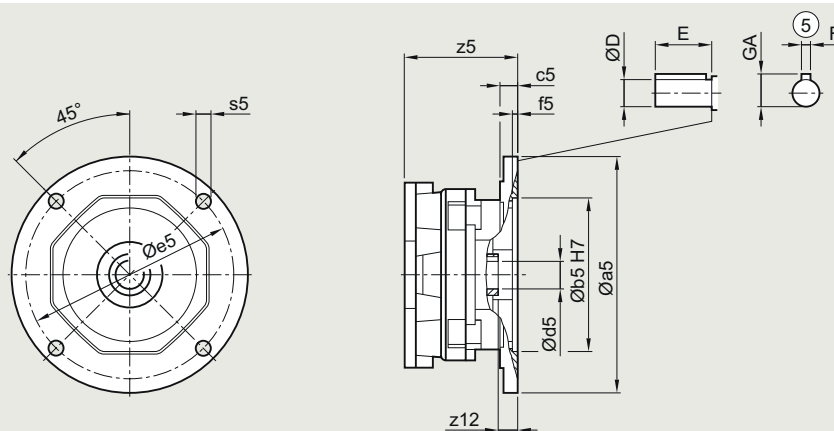
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K5 for mounting a NEMA motor

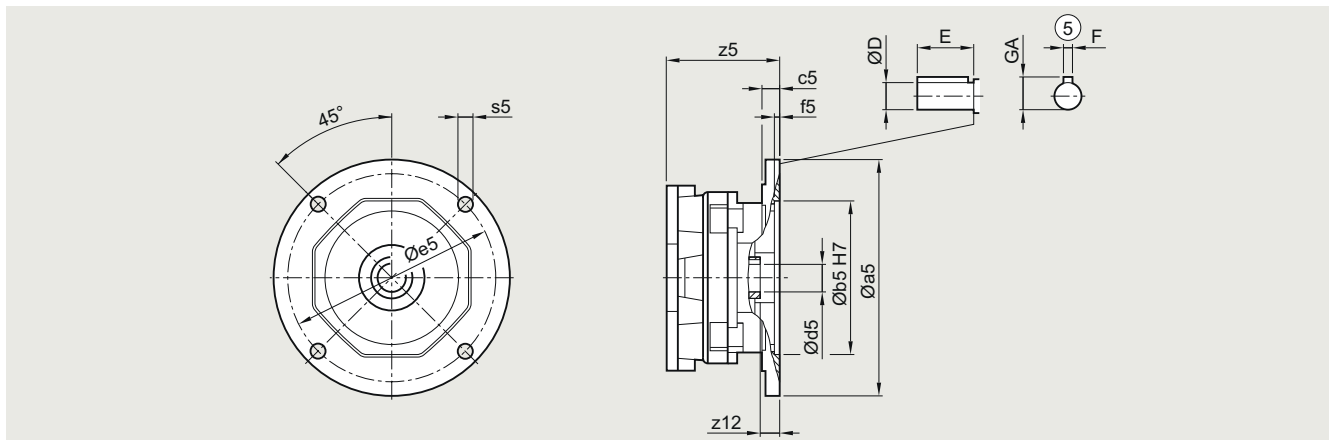
Z./D.29 to Z./D.109 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-------|------|-----|-------|------|------|--------|---------|-------|--------|-------|
| Z./D.29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| Z./D.39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| Z./D.49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| Z./D.59 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| Z./D.69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| Z./D.79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 103.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 103.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 185.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 201.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 201.0 |
| Z./D.89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 90.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 168.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 184.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 184.0 |
| Z./D.109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 83.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 159.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 175.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 175.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.2 | 22.0 | 47.625 | 117.602 | 12.7 | 53.111 | 188.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.7 | 59.563 | 264.5 |

⑤ Feather key/keyway DIN 6885

Z./D.129 to Z./D.189 and E.39 to E.49 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| Z./D.129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 76.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 150.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 164.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 164.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.2 | 22.0 | 47.625 | 117.602 | 12.7 | 53.111 | 177.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.7 | 59.563 | 253.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 278.0 |
| Z./D.149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 148.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 157.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 157.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.2 | 22.0 | 47.625 | 117.602 | 12.7 | 53.111 | 170.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.7 | 59.563 | 247.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 271.5 |
| Z./D.169 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 144.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 144.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.2 | 22.0 | 47.625 | 117.602 | 12.7 | 53.111 | 157.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.7 | 59.563 | 232.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 253.0 |
| Z./D.189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.6 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 144.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 144.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.2 | 22.0 | 47.625 | 117.602 | 12.7 | 53.111 | 157.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.7 | 59.563 | 232.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 253.0 |
| E.39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| E.49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |

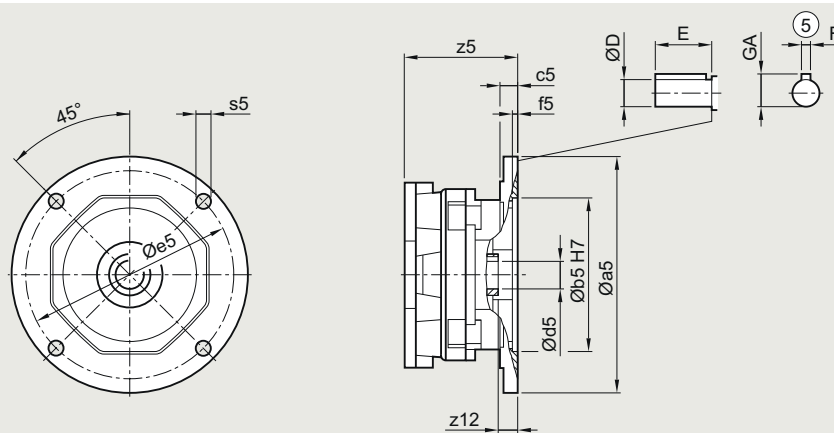
© Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter K5 for mounting a NEMA motor

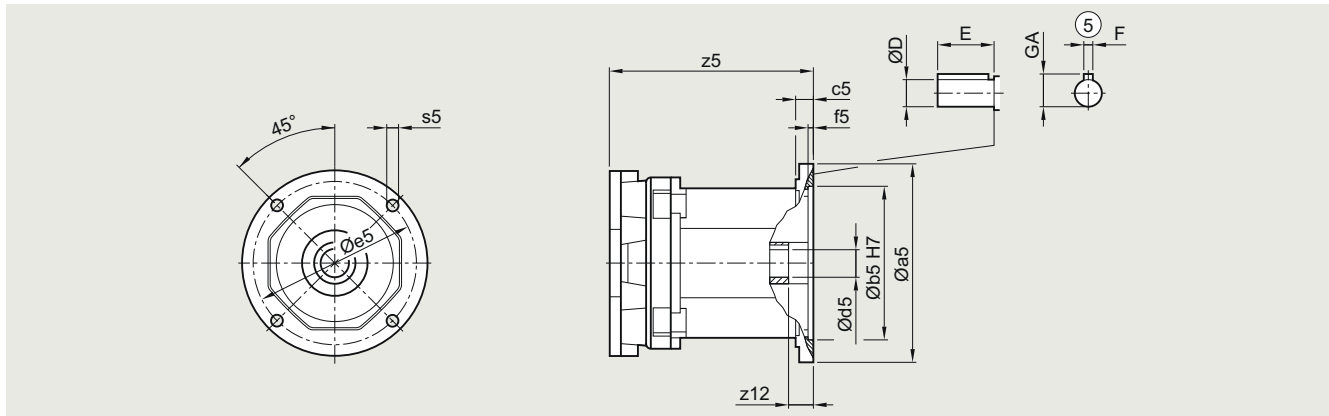
E.69 to E.149 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------|------|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| E.69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 15.875 | 47.752 | 4.763 | 17.895 | 103.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 103.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 185.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 201.0 |
| 250 | 226a | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 201.0 |
| E.89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 90.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 168.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 184.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 184.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.700 | 53.111 | 197.0 |
| E.109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 83.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 159.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 175.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 175.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.700 | 53.111 | 188.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17 | 32.5 | 53.975 | 133.350 | 12.700 | 59.563 | 264.5 |
| E.129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11 | 16.0 | 22.225 | 57.150 | 4.763 | 24.346 | 76.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 150.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 164.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 164.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.700 | 53.111 | 177.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17 | 32.5 | 53.975 | 133.350 | 12.700 | 59.563 | 253.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 278.0 |
| E.149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26.0 | 28.575 | 69.850 | 6.350 | 31.394 | 148.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 34.925 | 85.850 | 7.938 | 38.443 | 157.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12.0 | 41.275 | 101.600 | 9.525 | 45.491 | 157.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.700 | 53.111 | 170.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17 | 32.5 | 53.975 | 133.350 | 12.700 | 59.563 | 247.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 271.5 |

Ⓢ Feather key/keyway DIN 6885

Z./D.29 to Z./D.109 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-------|------|-----|-------|------|------|--------|---------|-------|--------|-------|
| Z./D.29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 257.0 |
| Z./D.39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| Z./D.49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| Z./D.59 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| Z./D.69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| Z./D.79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 185.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 185.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 241.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 312.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 342.0 |
| Z./D.89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 172.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 224.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 295.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 325.0 |
| Z./D.109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 165.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 215.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 286.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 316.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 334.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 76.5 | 53.975 | 133.35 | 12.7 | 59.563 | 411.5 |

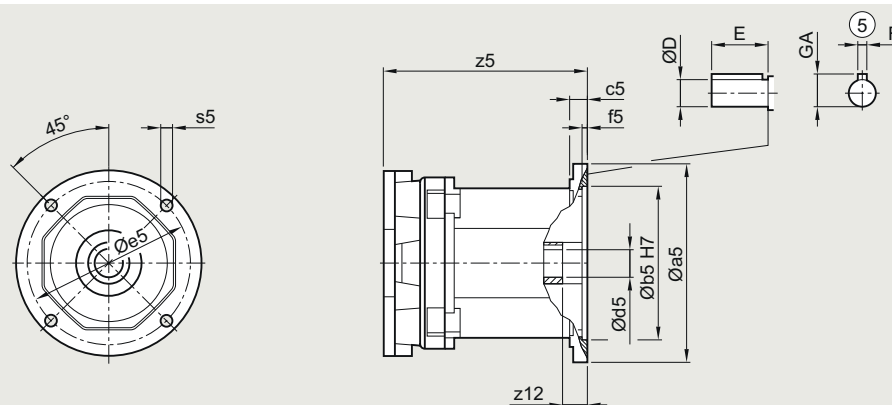
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Helical gearboxes

Dimensional drawings

Adapter K3 for mounting a NEMA motor

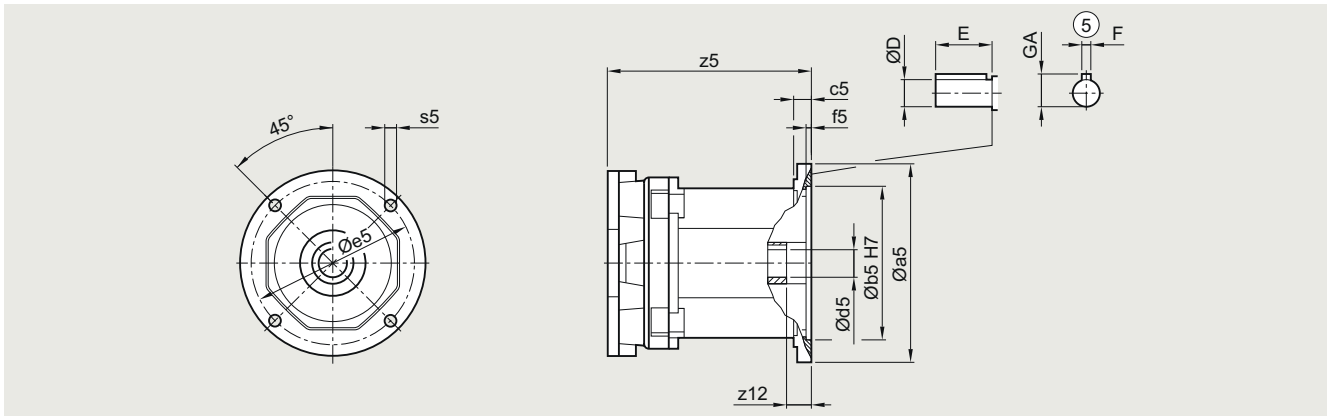
Z./D.129 to Z./D.189 and E.39 to E.89 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------|-----|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| Z./D.129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 158.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 206.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 275.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 305.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 323.0 |
| Z./D.149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 205.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 268.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 298.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 316.5 |
| Z./D.169 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 255.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 285.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 303.5 |
| Z./D.189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 255.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 285.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 303.5 |
| E.39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| E.49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| E.69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 185.5 |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 185.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 241.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 312.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 342.0 |
| E.89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 172.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 224.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 295.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 325.0 |

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E.109 to E.149 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------|-----|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| E.109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 165.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 215.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 286.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 316.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 334.0 |
| E.129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 158.5 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 206.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 275.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 305.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 323.0 |
| E.149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 205.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 268.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 298.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.700 | 53.111 | 316.5 |

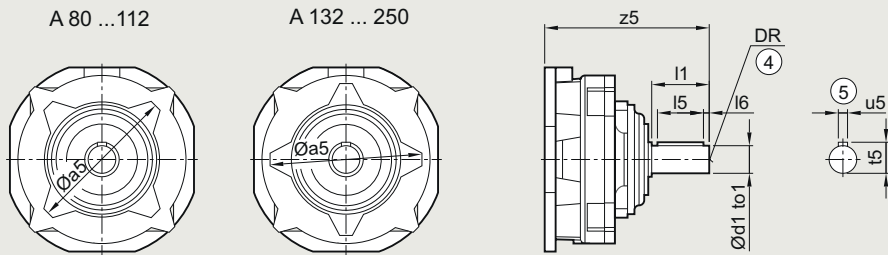
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Helical gearboxes

Dimensional drawings

Adapter A with free output shaft

Z./D.29 to Z./D.129 gearboxes

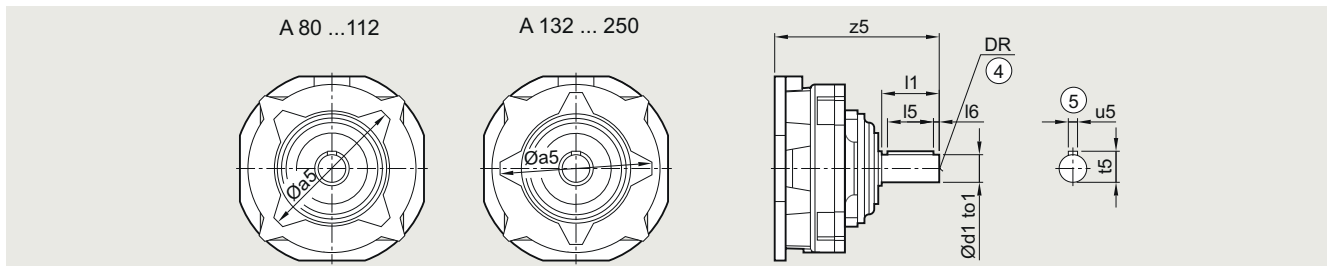


| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|-----------------|-------|----|-----|-----|----|----|----|------|--------|-------|
| Z./D.29 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 153.5 |
| Z./D.39 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 153.5 |
| Z./D.49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| Z./D.59 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| Z./D.69 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| Z./D.79 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 128 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 138 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 205 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 205 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 255 |
| Z./D.89 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 115 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 125 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 188 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 188 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 238 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 290 |
| Z./D.109 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 179 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 229 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 281 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 281 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 317.5 |
| Z./D.129 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 170 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 218 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 270 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 270 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 306.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 306.5 |

© DIN 332

© Feather key/keyway DIN 6885

Z./D.149 to Z./D.189 and E.39 to E.109 gearboxes



| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|-----------------|-------|----|-----|-----|----|----|----|------|--------|-------|
| Z./D.149 | | | | | | | | | | |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 211.5 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 263.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 263.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 300 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 300 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 300 |
| Z./D.169 | | | | | | | | | | |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 250.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 250.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 286.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 286.5 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 286.5 |
| Z./D.189 | | | | | | | | | | |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 250.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 250.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 286.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 286.5 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 286.5 |
| E.39 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 153.5 |
| E.49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 211 |
| E.69 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 128 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 138 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 205 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 205 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 255 |
| E.89 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 115 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 125 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 188 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 188 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 238 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 290 |
| E.109 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 179 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 229 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 281 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 281 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 317.5 |

④ DIN 332

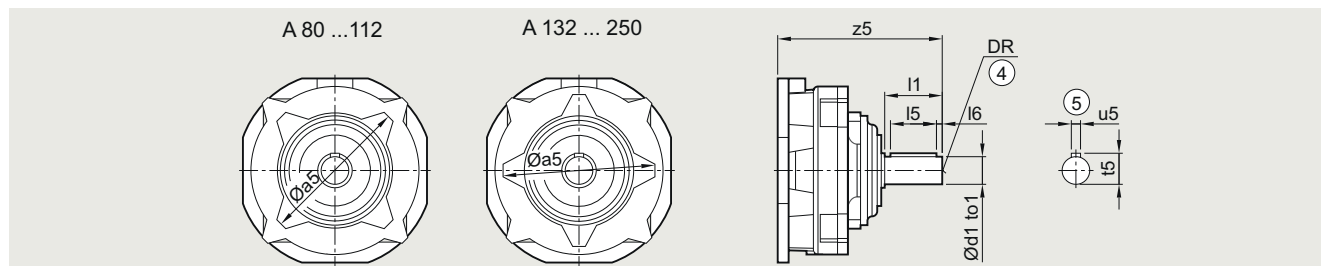
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter A with free output shaft

E.129 to E.149 gearboxes

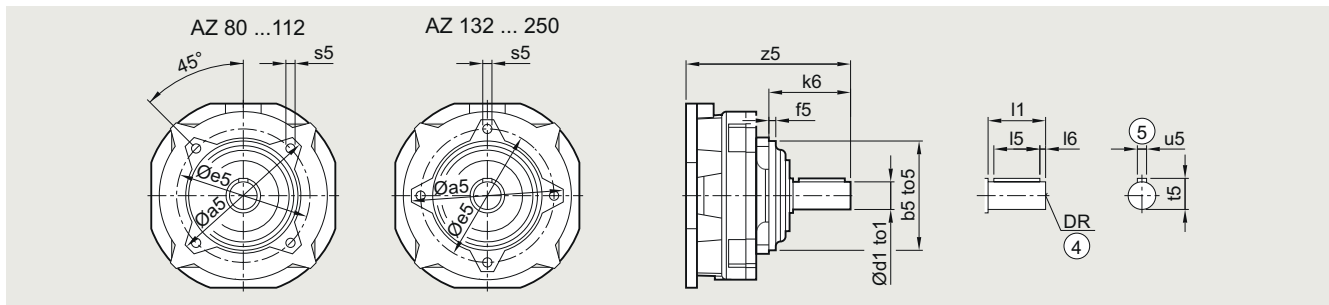


| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|--------------|-------|----|-----|-----|----|----|----|------|--------|-------|
| E.129 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 170 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 218 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 270 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 270 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 306.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 306.5 |
| E.149 | | | | | | | | | | |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 211.5 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 263.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 263.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 300 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 300 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 300 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Z./D.29 to Z./D.129 gearboxes



| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|-----------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|--------|-------|-------|
| Z./D.29 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 153.5 |
| Z./D.39 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 153.5 |
| Z./D.49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| Z./D.59 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| Z./D.69 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| Z./D.79 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 128 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 138 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 205 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 205 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 255 |
| Z./D.89 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 115 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 125 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 188 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 188 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 238 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 290 |
| Z./D.109 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 179 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 229 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 281 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 281 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 317.5 |
| Z./D.129 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 170 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 218 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 270 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 270 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 306.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 306.5 |

④ DIN 332

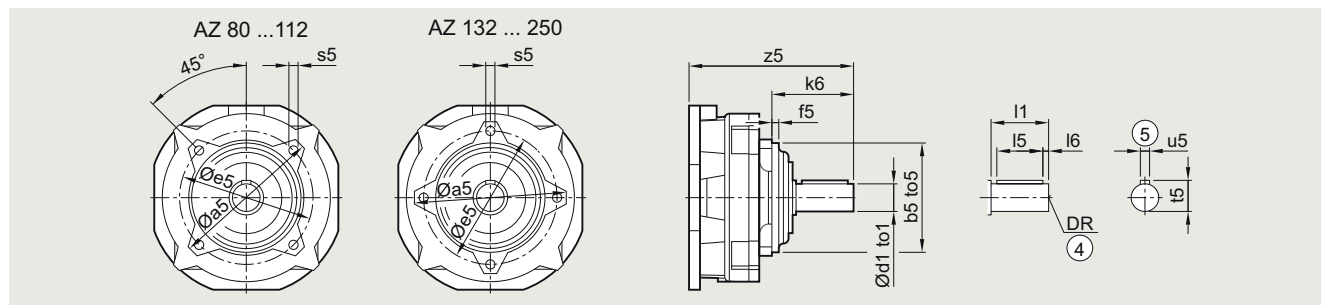
④ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Adapter AZ with free output shaft and centering

Z./D.149 to Z./D.189 and E.39 to E.89 gearboxes

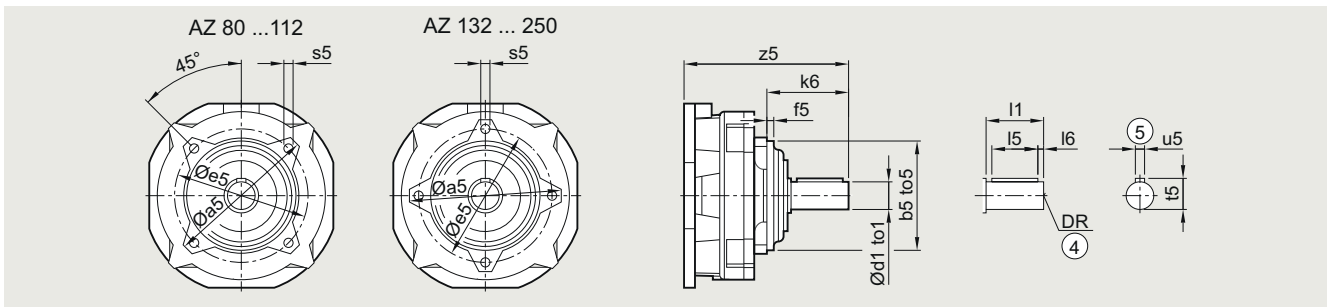


| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|-----------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|--------|-------|-------|
| Z./D.149 | | | | | | | | | | | | | | | | |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 211.5 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 263.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 263.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 300 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 300 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 134 | 300 |
| Z./D.169 | | | | | | | | | | | | | | | | |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 250.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 250.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 286.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 286.5 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 134 | 286.5 |
| Z./D.189 | | | | | | | | | | | | | | | | |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 250.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 250.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 286.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 286.5 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 286.5 |
| E.39 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 153.5 |
| E.49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 211 |
| E.69 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 128 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 138 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 205 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 205 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 255 |
| E.89 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | DR M6 | 61 | 115 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | DR M8 | 71 | 125 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 188 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 188 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 238 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 290 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

E.109 to E.149 gearboxes



| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|--------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|--------|-------|-------|
| E.109 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 179 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 229 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 281 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 281 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 317.5 |
| E.129 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | DR M10 | 70.5 | 170 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 218 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 270 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 270 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 306.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 306.5 |
| E.149 | | | | | | | | | | | | | | | | |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | DR M12 | 98.5 | 211.5 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | DR M16 | 150.5 | 263.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | DR M16 | 150.5 | 263.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 300 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR M20 | 134 | 300 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | DR_M20 | 134 | 300 |

④ DIN 332

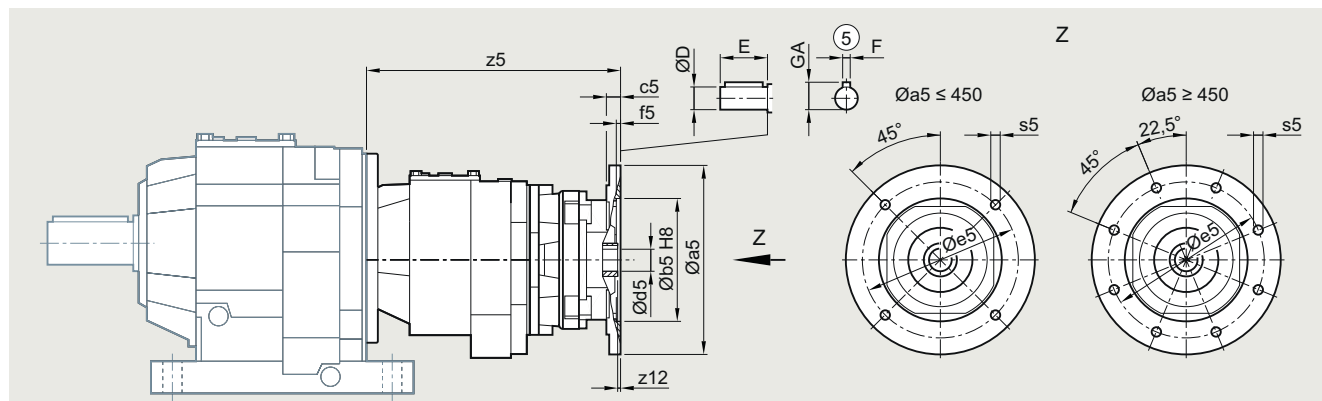
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Tandem gearbox with adapter K4 for mounting an IEC motor

Helical tandem gearbox with adapter K4

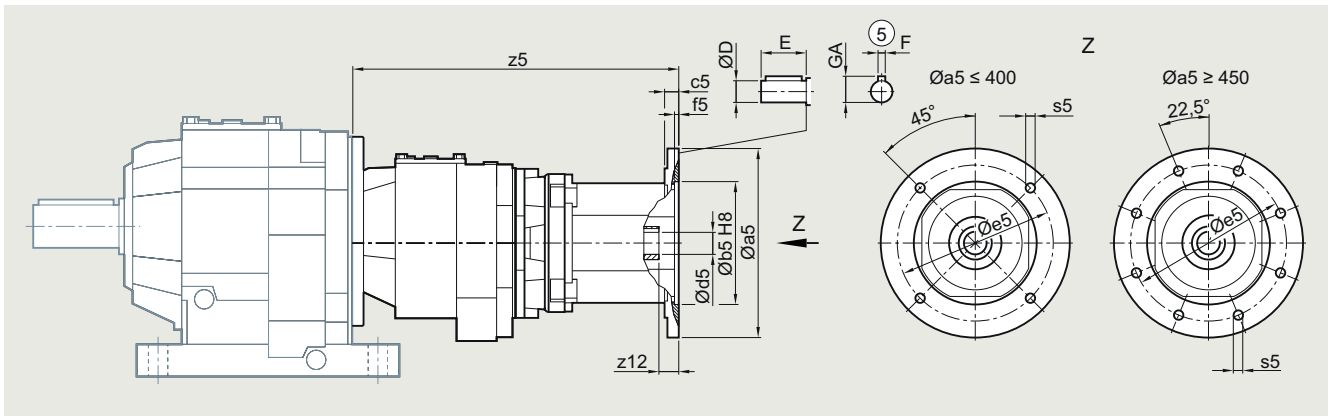


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|----------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| Z./D.79-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 257 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 285 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 285 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 339.5 |
| Z./D.89-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 240 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 240 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 268 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 268 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 322.5 |
| D.109-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 231 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 259 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 259 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 313.5 |
| D.129-Z/D49 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 260 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 260 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 288 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 288 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| D.149-Z/D49 | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 360 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 249.5 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 249.5 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 277.5 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 277.5 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |
| D.169-Z/D69 | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |
| | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 349.5 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 275 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 275 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 303 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 303 |
| D.189-Z/D69 | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 375 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 275 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 275 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 303 |
| D.189-Z/D69 | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 303 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 375 |

⊗ Feather key/keyway DIN 6885

Tandem gearbox with adapter K2 for mounting an IEC motor

Helical tandem gearbox with adapter K2



3

| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|----------|-----|-----|----|-----|-----|-----|-----|------|----|----|------|-------|
| Z./D.79-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 377.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 377.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 424.5 |
| Z./D.89-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 360.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 360.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 407.5 |
| D.109-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 351.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 351.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 398.5 |
| D.129-Z/D49 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 380.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 380.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 505.5 |
| D.149-Z/D49 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 370 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 370 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 495 |
| D.169-Z/D69 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 395.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 395.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 520.5 |
| D.189-Z/D69 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 395.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 395.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 520.5 |

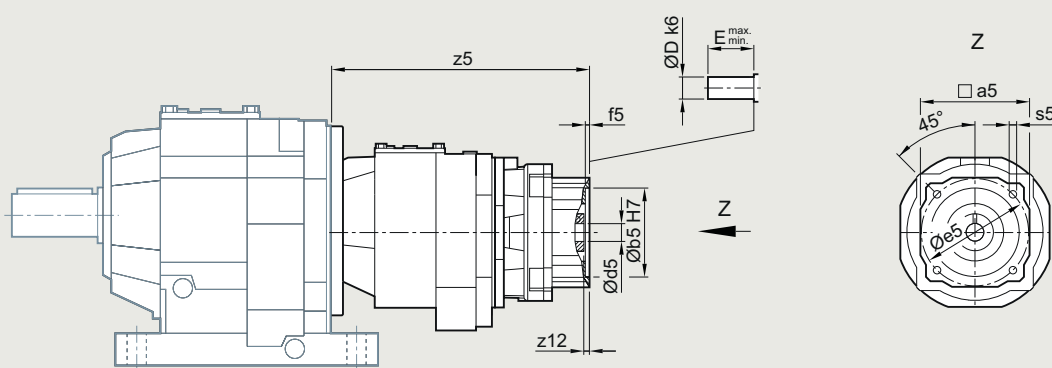
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

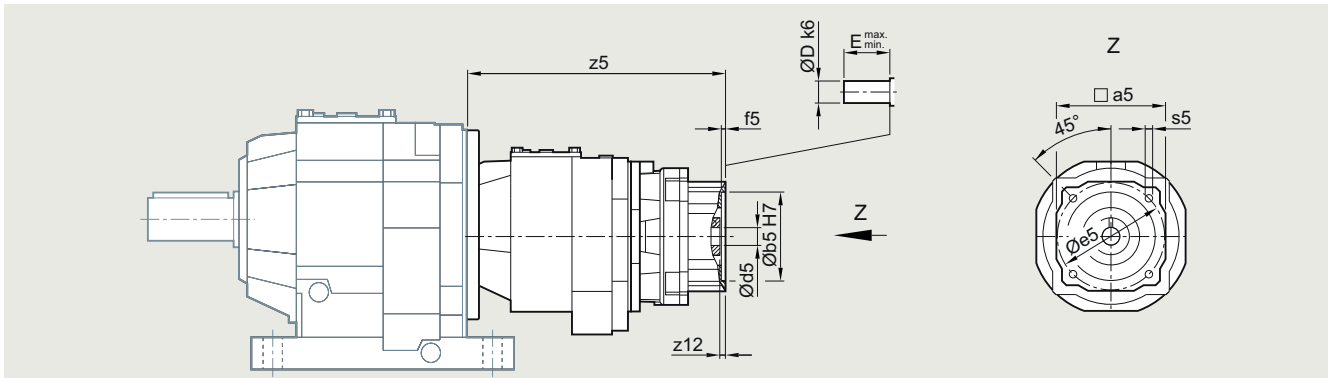
Helical tandem gearbox with KS adapter



| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|---------------|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| Z./D.29-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| Z./D.39-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| Z./D.49-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| Z./D.59-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| Z./D.69-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| Z./D.79-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 261.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 261.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 327.5 |
| Z./D.89-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 244.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 244.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 273 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 273 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 298 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 298 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 310.5 |
| D.109-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 235.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 235.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 301.5 |

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Helical tandem gearbox with KS adapter



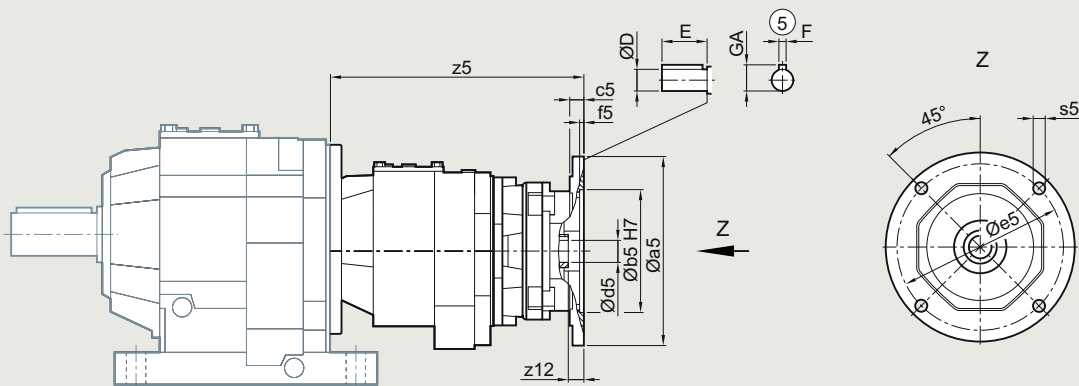
| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|-------------|---------|-------|-----|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| D.129-Z/D49 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 264.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 264.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 293 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 293 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 318 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 318 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 330.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 366.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 366.5 | |
| D.149-Z/D49 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 254 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 254 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282.5 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282.5 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 307.5 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 307.5 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 320 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 356 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 356 | |
| D.169-Z/D69 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 279.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 279.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 345.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 381.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 381.5 | |
| D.189-Z/D69 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 279.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 279.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 345.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 381.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 381.5 | |

Helical gearboxes

Dimensional drawings

Tandem gearbox with adapter K5 for mounting NEMA motors

Helical tandem gearbox with adapter K5

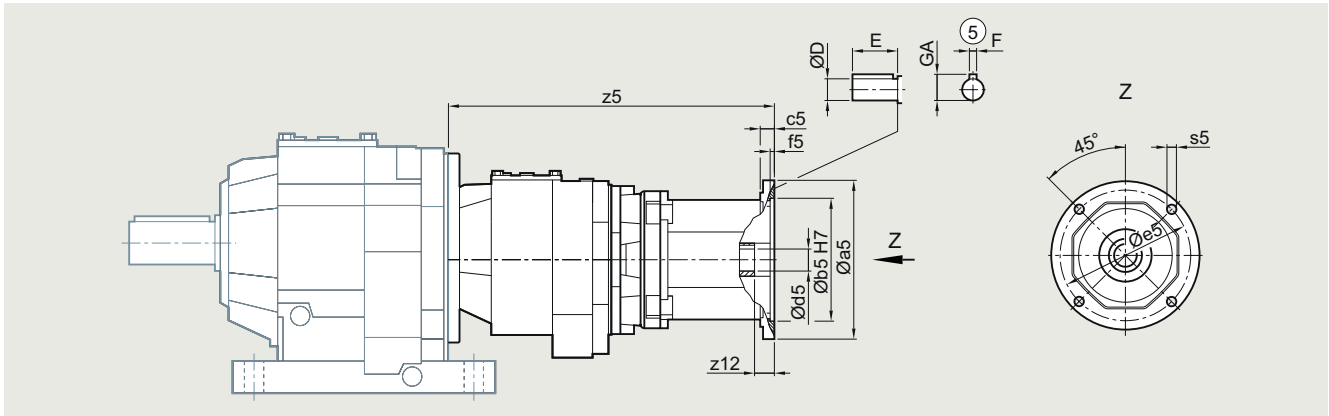


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|----------|-----|-------|----|-----|-------|------|-----|--------|--------|-------|--------|-------|
| Z./D.79-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 298 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 298 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 380 |
| Z./D.89-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 281 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 281 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 363 |
| D.109-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 272 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 272 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 354 |
| D.129-Z/D49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 301 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 301 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 383 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 399 |
| D.149-Z/D49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 290.5 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 290.5 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 372.5 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 388.5 |
| D.169-Z/D69 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 316 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 316 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 398 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 414 |
| D.189-Z/D69 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 316 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 316 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 398 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 414 |

⊕ Feather key/keyway DIN 6885

Tandem gearbox with adapter K3 for mounting NEMA motors

Helical tandem gearbox with adapter K3



3

| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|----------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| Z./D.79-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 380.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 380.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 436.5 |
| Z./D.89-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 363.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 363.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 419.5 |
| D.109-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 354.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 354.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.350 | 31.394 | 410.5 |
| D.129-Z/D49 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 383.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 383.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 439.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 510 |
| D.149-Z/D49 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 373 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 373 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 429 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 499.5 |
| D.169-Z/D69 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 398.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 398.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 454.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 525 |
| D.189-Z/D69 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 398.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.150 | 4.763 | 24.346 | 398.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.850 | 6.350 | 31.394 | 454.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 525 |

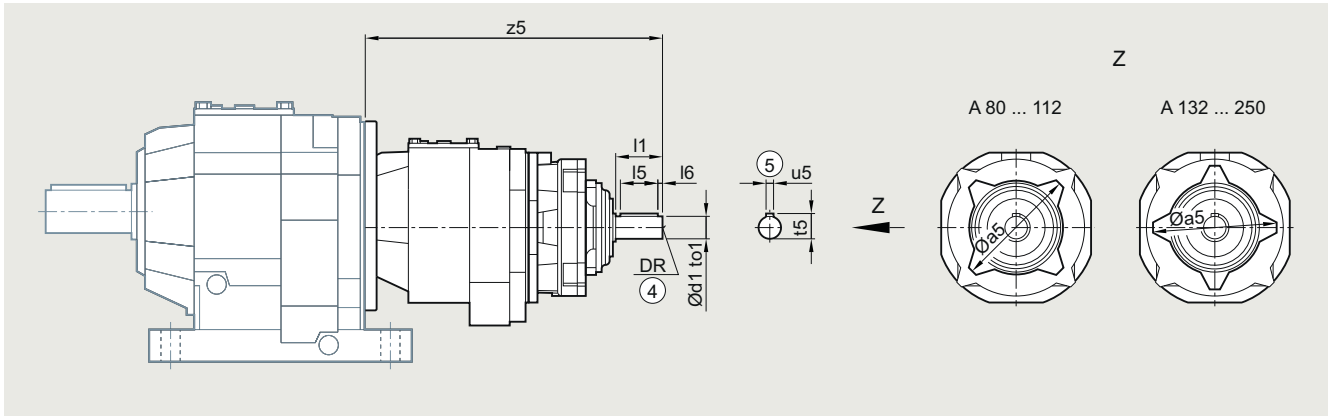
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Tandem gearbox with adapter A with free output shaft

Helical tandem gearbox with adapter A



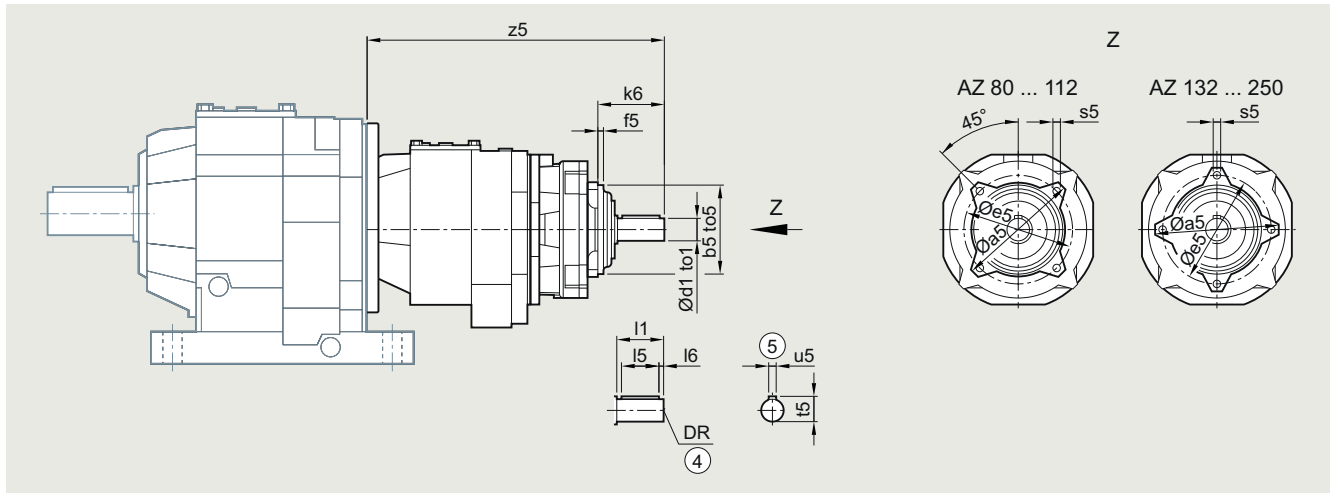
| Gearbox | Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|---------------|---------|-----|----|-----|----|----|----|----|------|--------|-------|
| Z./D.79-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 323 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 333 |
| Z./D.89-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 306 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 316 |
| D.109-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 297 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 307 |
| D.129-Z/D49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 326 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 336 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| D.149-Z/D49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 315.5 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 325.5 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| D.169-Z/D69 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 341 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 351 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| D.189-Z/D69 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 341 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 351 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Tandem gearbox with adapter AZ with free output shaft and centering

Helical tandem gearbox with adapter AZ



| Gearbox | Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|---------------|----------|-----|-----|-----|-----|----|--------|----|-----|----|----|----|----|------|--------|------|-------|
| Z./D.79-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 323 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 333 |
| Z./D.89-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 306 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 316 |
| D.109-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 297 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 307 |
| D.129-Z/D49 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 326 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 336 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| D.149-Z/D49 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 315.5 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 325.5 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| D.169-Z/D69 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 341 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 351 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| D.189-Z/D69 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 341 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 351 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |

④ DIN 332

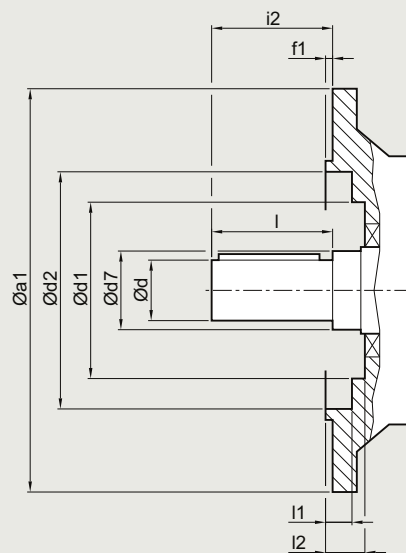
⑤ Feather key/keyway DIN 6885

Helical gearboxes

Dimensional drawings

Inner contour of the flange design

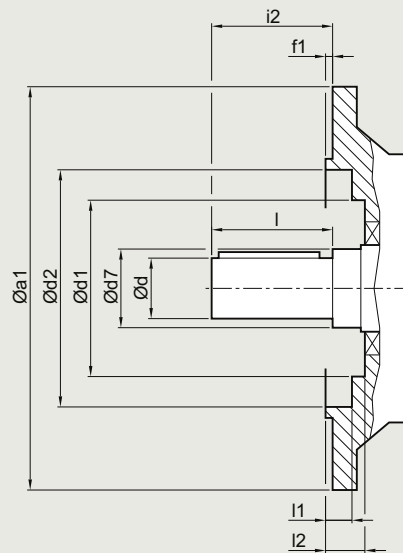
Notes regarding the design of the customer's interface.



| Gearbox | a1 | d | d7 | d1 ZF/DF | d1 ZB/DB | d2 | f1 | i2 | l | l1 ZF/DF | l1 ZB/DB | l2 |
|---------------------------------------|-----|-----|-----|-------------|-------------|-------|-----|-----|-----|-------------|-------------|------|
| Helical gearbox ZF/DF or ZB/DB | | | | | | | | | | | | |
| ZF/DF29, ZB/DB29 | 120 | 25 | 30 | 56.0 | 56.0 | 72.0 | 3.0 | 50 | 50 | 2.0 | 2.0 | 8 |
| ZF/DF29 | 140 | 25 | 30 | 56.0 | - | 87.0 | 3.5 | 50 | 50 | 2.0 | - | 7 |
| | 160 | 25 | 30 | 56.0 | - | 102.0 | 3.5 | 50 | 50 | 2.0 | - | 7.5 |
| ZF/DF39, ZB/DB39 | 120 | 25 | 35 | 69.0 | 66.0 | 72.0 | 3.0 | 50 | 50 | 4.0 | 4.0 | 9 |
| ZF/DF39 | 160 | 25 | 35 | 66.5 | - | 102.0 | 3.5 | 50 | 50 | 1.5 | - | 6.5 |
| | 200 | 25 | 35 | 66.5 | - | 120.0 | 3.5 | 50 | 50 | 1.5 | - | 6.5 |
| ZF/DF49, ZB/DB49 | 140 | 30 | 35 | 79.0 | 79.0 | 84.5 | 3.0 | 60 | 60 | 4.0 | 4.0 | 9.5 |
| ZF/DF49 | 160 | 30 | 35 | 79.0 | - | 94.5 | 3.5 | 60 | 60 | 5.5 | - | 11 |
| | 200 | 30 | 35 | 79.0 | - | 121.0 | 3.5 | 60 | 60 | 4.5 | - | 10 |
| ZF/DF59, ZB/DB59 | 160 | 35 | 40 | 88.0 | 88.0 | 94.5 | 3.5 | 70 | 70 | 4.5 | 4.5 | 11 |
| ZF/DF59 | 200 | 35 | 40 | 88.0 | - | 115.0 | 3.5 | 70 | 70 | 4.5 | - | 9 |
| | 250 | 35 | 40 | 88.0 | - | 168.0 | 4.0 | 70 | 70 | 4.0 | - | 10.5 |
| ZF/DF69, ZB/DB69 | 200 | 35 | 47 | 105.0 | 105.0 | 115.0 | 3.5 | 70 | 70 | 4.5 | 4.5 | 11 |
| ZF/DF69 | 250 | 35 | 47 | 105.0 | - | 168.0 | 4.0 | 70 | 70 | 4.0 | - | 10.5 |
| ZF/DF79, ZB/DB79 | 250 | 40 | 52 | 113.0 | 114.5 | 168.0 | 4.0 | 80 | 80 | 0.5 | 2.5 | 7.5 |
| ZF/DF79 | 300 | 40 | 52 | 113.0 | - | 217.0 | 4.0 | 80 | 80 | 0.5 | - | 7.5 |
| | 350 | 40 | 52 | 113.0 | - | 238.0 | 5.0 | 80 | 80 | 0.5 | - | 8.5 |
| ZF/DF89, ZB/DB89 | 300 | 50 | 62 | 143.0 | 143.0 | 218.0 | 4.0 | 100 | 100 | 1.5 | 1.5 | 8 |
| ZF/DF89 | 350 | 50 | 62 | 143.0 | - | 238.0 | 5.0 | 100 | 100 | 2.5 | - | 9 |
| | 450 | 50 | 62 | 143.0 | - | 334.0 | 5.0 | 100 | 100 | 0.5 | - | 9 |
| ZF/DF109 | 350 | 60 | 65 | 157.0 | - | 236.0 | 5.0 | 120 | 120 | 2.0 | - | 9 |
| | 450 | 60 | 65 | 168.0 | - | 335.0 | 5.0 | 120 | 120 | 0 | - | 9 |
| ZF/DF129 | 350 | 70 | 75 | 180.0 | - | 236.0 | 5.0 | 140 | 140 | 7.5 | - | 9 |
| | 450 | 70 | 75 | 180.0 | - | 330.0 | 5.0 | 140 | 140 | 7.5 | - | 9 |
| | 550 | 70 | 75 | 180.0 | - | 428.0 | 5.0 | 140 | 140 | 5.0 | - | 9 |
| ZF/DF149 | 450 | 90 | 100 | 225 | - | 330.0 | 5.0 | 170 | 170 | 2.5 | - | 10 |
| | 550 | 90 | 100 | 225 | - | 430.0 | 5.0 | 170 | 170 | 2.5 | - | 10 |
| ZF/DF169 | 450 | 110 | 120 | 235 | - | 330.0 | 5 | 210 | 210 | 0.5 | - | 10 |
| | 550 | 110 | 120 | 235 | - | 430.0 | 5 | 210 | 210 | 0.5 | - | 10 |
| | 660 | 110 | 120 | 235 | - | 530.0 | 6.0 | 210 | 210 | 0 | - | 11 |
| ZF/DF189 | 550 | 120 | 140 | 274 | - | 430.0 | 5 | 210 | 210 | 0 | - | 10 |
| | 660 | 120 | 140 | 274 | - | 530.0 | 6 | 210 | 210 | 1 | - | 11 |

Inner contour of the flange design

Notes regarding the design of the customer's interface.



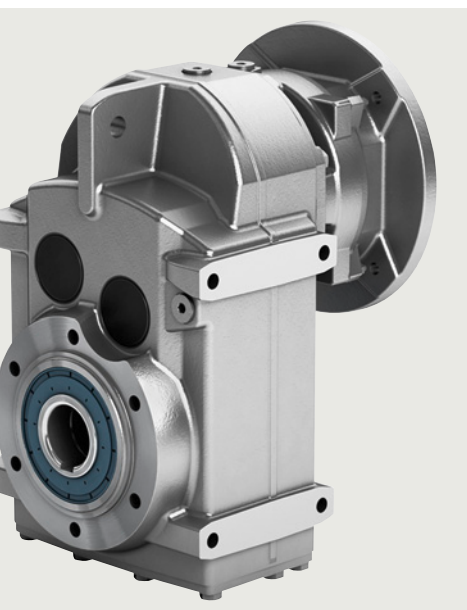
| Gearbox | a1 | d | d7 | d1 | d2 | f1 | i2 | l | l1 | l2 |
|--|-----|-----|-----|-----|-------|-----|-----|-----|-----|------|
| ZF/DF helical gearbox with VLplus reinforced bearing system (G30) | | | | | | | | | | |
| ZF/DF89 | 300 | 60 | 70 | 143 | 218 | 4.0 | 120 | 120 | 1.5 | 8 |
| | 350 | 60 | 70 | 143 | 238 | 5.0 | 120 | 120 | 2.5 | 9 |
| | 450 | 60 | 70 | 143 | 334 | 5.0 | 120 | 120 | 0.5 | 9 |
| ZF/DF109 | 350 | 70 | 75 | 157 | 236 | 5.0 | 140 | 140 | 2.0 | 9 |
| | 450 | 70 | 75 | 168 | 335 | 5.0 | 140 | 140 | 0 | 9 |
| ZF/DF129 | 350 | 90 | 95 | 180 | 236 | 5.0 | 170 | 170 | 7.5 | 10 |
| | 450 | 90 | 95 | 180 | 330 | 5.0 | 170 | 170 | 7.5 | 10 |
| | 550 | 90 | 95 | 180 | 428 | 5.0 | 170 | 170 | 5.0 | 10 |
| ZF/DF149 | 550 | 100 | 120 | 225 | 430 | 5.0 | 210 | 210 | 5.5 | 11 |
| ZF/DF169 | 450 | 120 | 140 | 235 | 330 | 5.0 | 210 | 210 | 0.5 | 10 |
| | 550 | 120 | 140 | 235 | 430 | 5.0 | 210 | 210 | 0.5 | 10 |
| | 660 | 120 | 140 | 235 | 530 | 6.0 | 210 | 210 | 0 | 11 |
| Helical gearbox EF | | | | | | | | | | |
| EF39 | 120 | 20 | 35 | - | 72 | 3 | 40 | 40 | 6 | - |
| | 140 | 20 | 35 | - | 80 | 3 | 40 | 40 | 6 | - |
| | 160 | 20 | 35 | 87 | 100 | 3.5 | 40 | 40 | 5.5 | 6.5 |
| | 200 | 20 | 35 | 87 | 121 | 3.5 | 40 | 40 | 5.5 | 6.5 |
| EF49 | 160 | 25 | 40 | 88 | 94.5 | 3.5 | 50 | 50 | 4.5 | 11 |
| | 200 | 25 | 40 | 88 | 115.0 | 3.5 | 50 | 50 | 4.5 | 9 |
| | 250 | 25 | 40 | 88 | 168.0 | 4.0 | 50 | 50 | 4.0 | 10.5 |
| EF69 | 200 | 30 | 40 | 105 | 115.0 | 3.5 | 60 | 60 | 4.5 | 11 |
| | 250 | 30 | 40 | 105 | 168.0 | 4.0 | 60 | 60 | 4.0 | 10.5 |
| EF89 | 250 | 40 | 45 | 113 | 168.0 | 4.0 | 80 | 80 | 0.5 | 7.5 |
| | 300 | 40 | 45 | 113 | 217.0 | 4.0 | 80 | 80 | 0.5 | 7.5 |
| | 350 | 40 | 45 | 113 | 238.0 | 5.0 | 80 | 80 | 0.5 | 8.5 |
| | 450 | 40 | 45 | 113 | 338.0 | 5.0 | 80 | 80 | 0.5 | 8.5 |
| EF109 | 300 | 50 | 55 | 143 | 218.0 | 4.0 | 100 | 100 | 1.5 | 8 |
| | 350 | 50 | 55 | 143 | 238.0 | 5.0 | 100 | 100 | 2.5 | 9 |
| | 450 | 50 | 55 | 143 | 334.0 | 5.0 | 100 | 100 | 0.5 | 9 |
| | 550 | 50 | 55 | 143 | 434.0 | 5.0 | 100 | 100 | 0.5 | 9 |
| EF129 | 350 | 60 | 65 | 157 | 236.0 | 5.0 | 120 | 120 | 2.0 | 9 |
| | 450 | 60 | 65 | 168 | 335.0 | 5.0 | 120 | 120 | 0 | 9 |
| EF149 | 350 | 70 | 75 | 180 | 236.0 | 5.0 | 140 | 140 | 7.5 | 9 |
| | 450 | 70 | 75 | 180 | 330.0 | 5.0 | 140 | 140 | 7.5 | 9 |
| | 550 | 70 | 75 | 180 | 428.0 | 5.0 | 140 | 140 | 5.0 | 9 |

Helical gearboxes

Notes

3

Parallel shaft gearboxes



| | |
|-------------|---|
| 4/2 | Orientation |
| 4/3 | Transmission ratios and torques |
| 4/3 | Selection and ordering data |
| 4/25 | Transmission ratios and torques for very low speeds |
| 4/25 | Selection and ordering data |
| 4/42 | Dimensional drawings |
| 4/42 | Overview |
| | <u>Adapter K4 for mounting an IEC motor</u> |
| 4/49 | Parallel shaft gearbox FD../FZ..29 |
| 4/53 | Parallel shaft gearbox FD../FZ..39 |
| 4/57 | Parallel shaft gearbox FD../FZ..49 |
| 4/61 | Parallel shaft gearbox FD../FZ..69 |
| 4/65 | Parallel shaft gearbox FD../FZ..79 |
| 4/70 | Parallel shaft gearbox FD../FZ..89 |
| 4/75 | Parallel shaft gearbox FD../FZ..109 |
| 4/80 | Parallel shaft gearbox FD../FZ..129 |
| 4/85 | Parallel shaft gearbox FD../FZ..149 |
| 4/90 | Parallel shaft gearbox FD../FZ..169 |
| 4/94 | Parallel shaft gearbox FD../FZ..189 |
| | <u>Adapter K2 for mounting an IEC motor</u> |
| 4/95 | FD../FZ..29 to FD../FZ..189 |
| | <u>KS adapter exclusively for mounting defined Siemens servo motors</u> |
| 4/101 | Parallel shaft gearbox FD../FZ..29 |
| 4/105 | Parallel shaft gearbox FD../FZ..39 |
| 4/109 | Parallel shaft gearbox FD../FZ..49 |
| 4/113 | Parallel shaft gearbox FD../FZ..69 |
| 4/117 | Parallel shaft gearbox FD../FZ..79 |
| 4/122 | Parallel shaft gearbox FD../FZ..89 |
| 4/127 | Parallel shaft gearbox FD../FZ..109 |
| 4/132 | Parallel shaft gearbox FD../FZ..129 |
| 4/137 | Parallel shaft gearbox FD../FZ..149 |
| 4/142 | Parallel shaft gearbox FD../FZ..169 |
| 4/146 | Parallel shaft gearbox FD../FZ..189 |
| | <u>Adapter K8 for mounting a servo motor</u> |
| 4/147 | FD../FZ..89 to FD../FZ..189 |
| | <u>Adapter K5 for mounting a NEMA motor</u> |
| 4/148 | FD../FZ..29 to FD../FZ..189 |
| | <u>Adapter K3 for mounting a NEMA motor</u> |
| 4/150 | FD../FZ..29 to FD../FZ..189 |
| | <u>Adapter A with free output shaft</u> |
| 4/152 | FD../FZ..29 to FD../FZ..189 |
| | <u>Adapter AZ with free output shaft and centering</u> |
| 4/154 | FD../FZ..29 to FD../FZ..189 |

| | |
|-------------|---|
| 4/42 | Dimensional drawings |
| 4/156 | Parallel shaft tandem gearbox with adapter K4 |
| 4/158 | Parallel shaft tandem gearbox with adapter K2 |
| 4/159 | Parallel shaft tandem gearbox with KS adapter |
| 4/162 | Parallel shaft tandem gearbox with adapter K5 |
| 4/163 | Parallel shaft tandem gearbox with adapter K3 |
| 4/164 | Parallel shaft tandem gearbox with adapter A |
| 4/165 | Parallel shaft tandem gearbox with adapter AZ |
| 4/166 | ShaftMount assembly system |
| 4/167 | Protective covers |
| 4/169 | Inner contour of the flange design |

Parallel shaft gearboxes

Orientation

Innomotics SG parallel shaft gearbox F

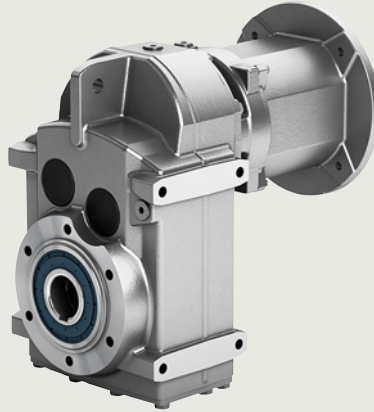


Fig. 4/1 Parallel shaft gearbox F

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|---|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i - | P_1 kW |
| FZ29 ... FZ189 (2-stage) | 11 | 150 ... 19000 | 3.5 ... 70 | 55 |
| FD29 ... FD189 (3-stage) | 11 | 150 ... 19000 | 32 ... 413 | 55 |
| FZ.29-Z19 ... FD.189-D69 (4- to 6-stage) | 11 | 150 ... 19000 | 274 ... 29900 | 7.5 |

Innomotics SG parallel shaft gearboxes are available in the following versions:

Gearbox stages

- 2-stage or 3-stage parallel shaft gearboxes
- 4-stage to 6-stage parallel shaft gearboxes for very low output speeds

Designs

- Shaft-mounted design
- Flange-mounted design with or without VLplus reinforced bearing systems
- Design with integrated housing flange
- Foot-mounted design

Mounting

- Hollow shaft with feather key
- Hollow shaft with splined shaft
- Hollow shaft with shrink disk
- Hollow shaft with ShaftMount assembly system
- Solid shaft with and without feather key

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | | | |
|--------------|-------|----------|----------|-------------|-----------|-----------|---------|----|-----|-----|-----|-----------------|-----|------|-----|-----|-----|-----|-----|-------------|-----|--|--|--|--|--|--|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | |
| FD.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 298.58 | 4.9 | 150 | 5220 | 7.9 | 0.02 | 94054/315 | | ✓ | ✓ | | | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ Q1 |
| 264.39 | 5.5 | 150 | 5220 | 8.0 | 0.03 | 92537/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ P1 |
| 229.72 | 6.3 | 150 | 5220 | 8.0 | 0.04 | 80401/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ N1 |
| 208.83 | 6.9 | 150 | 5220 | 8.0 | 0.05 | 80401/385 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ M1 |
| 177.71 | 8.2 | 150 | 5220 | 8.0 | 0.06 | 62197/350 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ L1 |
| 161.55 | 9 | 150 | 5220 | 8.0 | 0.08 | 62197/385 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ K1 |
| 140.86 | 10 | 150 | 5220 | 8.0 | 0.09 | 19721/140 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ J1 |
| 126.09 | 11 | 150 | 5220 | 8.0 | 0.12 | 48544/385 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ H1 |
| 111.97 | 13 | 150 | 5220 | 8.0 | 0.14 | 47027/420 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ G1 |
| 103.36 | 14 | 150 | 5220 | 8.0 | 0.17 | 47027/455 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ F1 |
| 89.78 | 16 | 150 | 5220 | 8.1 | 0.19 | 43993/490 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ E1 |
| 78.02 | 19 | 150 | 5220 | 8.0 | 0.19 | 13653/175 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ D1 |
| 70.43 | 21 | 150 | 5220 | 8.1 | 0.25 | 19721/280 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ C1 |
| 66.29 | 22 | 150 | 5220 | 8.1 | 0.29 | 39442/595 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ B1 |
| 57.79 | 25 | 150 | 5220 | 8.1 | 0.33 | 6068/105 | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3401 - ■ A 0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Only available for KS adapter

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | 2 | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | 1 | |
| | | B | | | F | J | N | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | | D | | E | | | | | | 8 |
| | K5 | A | | B | C | | D | E | F | | G | H | | | | | | | 5 | | |
| | K3 | A | | B | C | | D | E | F | | | | | | | | | | 3 | | |
| | A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | |
|--------------|-------|----------|----------|-------------|-----------|----------|---------|-----|-----|-----|-----------------|-----|-----|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|---------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| FZ.29 | | | | | | | | | | | | | | | | | | | | | | | | |
| 56.73 | 26 | 150 | 5220 | 7.6 | 0.04 | 851/15 | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ C2 | |
| 50.32 | 29 | 150 | 5220 | 8.0 | 0.05 | 1258/25 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ B2 | |
| 43.66 | 33 | 150 | 5220 | 8.0 | 0.06 | 2183/50 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ A2 | |
| 39.69 | 37 | 150 | 5220 | 8.0 | 0.08 | 2183/55 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ X1 | |
| 34.04 | 43 | 150 | 4910 | 8.1 | 0.10 | 851/25 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ W1 | |
| 30.95 | 47 | 150 | 4720 | 8.1 | 0.12 | 1702/55 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ V1 | |
| 27.13 | 53 | 150 | 4460 | 8.2 | 0.14 | 407/15 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ U1 | |
| 24.22 | 60 | 150 | 4250 | 8.3 | 0.17 | 1332/55 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ T1 | |
| 21.58 | 67 | 150 | 4040 | 8.4 | 0.20 | 259/12 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ S1 | |
| 19.92 | 73 | 150 | 3910 | 8.4 | 0.24 | 259/13 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ R1 | |
| 17.44 | 83 | 150 | 3680 | 8.6 | 0.28 | 1221/70 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ Q1 | |
| 15.29 | 95 | 150 | 3470 | 8.8 | 0.30 | 1147/75 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ P1 | |
| 13.88 | 104 | 150 | 3320 | 8.9 | 0.38 | 111/8 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ N1 | |
| 13.06 | 111 | 150 | 3230 | 8.9 | 0.44 | 222/17 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ M1 | |
| 11.51 | 126 | 143 | 3100 | 8.6 | 0.50 | 518/45 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ L1 | |
| 9.99 | 145 | 136 | 2960 | 8.8 | 0.67 | 999/100 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ K1 | |
| 9.69 | 150 | 143 | 2660 | 13.8 | 0.26 | 2664/275 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ J1 | |
| 8.63 | 168 | 130 | 2640 | 14.0 | 0.32 | 259/30 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ H1 | |
| 7.97 | 182 | 120 | 2630 | 14.0 | 0.38 | 518/65 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ G1 | |
| 6.98 | 208 | 123 | 2440 | 14.5 | 0.46 | 1221/175 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ F1 | |
| 6.12 | 237 | 114 | 2370 | 15.0 | 0.53 | 2294/375 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ E1 | |
| 5.55 | 261 | 108 | 2320 | 15.3 | 0.66 | 111/20 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ D1 | |
| 5.22 | 278 | 106 | 2300 | 15.3 | 0.76 | 444/85 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ C1 | |
| 4.60 | 315 | 97 | 2280 | 15.3 | 0.92 | 1036/225 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ B1 | |
| 4.00 | 362 | 91 | 2250 | 15.0 | 1.21 | 999/250 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | 2KJ3301 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|----------|--|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | C | | D | E | | | | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 | |
| | A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

Adapter type

Gearbox mounting type **A, F, H or D**

see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----------------|-----------------|-----------------|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FD.39 | | | | | | | | | | | | | | | | | | | | | | |
| 274.26 | 5.3 | 290 | 5820 | 6.9 | 0.04 | 32637/119 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ R1 |
| 243.26 | 6 | 290 | 5820 | 7.0 | 0.05 | 8514/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ Q1 |
| 211.06 | 6.9 | 290 | 5820 | 7.0 | 0.06 | 251163/1190 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ P1 |
| 191.87 | 7.6 | 290 | 5820 | 7.0 | 0.07 | 22833/119 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ N1 |
| 164.56 | 8.8 | 290 | 5820 | 7.0 | 0.09 | 97911/595 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ M1 |
| 149.60 | 9.7 | 290 | 5820 | 7.0 | 0.11 | 17802/119 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ L1 |
| 131.17 | 11 | 290 | 5820 | 7.0 | 0.12 | 15609/119 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ K1 |
| 117.08 | 12 | 290 | 5820 | 7.0 | 0.15 | 13932/119 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ J1 |
| 104.34 | 14 | 290 | 5820 | 7.0 | 0.18 | 7095/68 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ H1 |
| 96.31 | 15 | 290 | 5820 | 7.0 | 0.21 | 21285/221 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ G1 |
| 84.32 | 17 | 290 | 5820 | 7.1 | 0.25 | 140481/1666 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ F1 |
| 73.93 | 20 | 290 | 5820 | 7.1 | 0.24 | 43989/595 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ E1 |
| 67.07 | 22 | 290 | 5820 | 7.2 | 0.34 | 63855/952 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ D1 |
| 63.13 | 23 | 290 | 5820 | 7.2 | 0.40 | 127710/2023 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ C1 |
| 55.65 | 26 | 290 | 5820 | 7.2 | 0.44 | 946/17 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ B1 |
| 48.29 | 30 | 290 | 5820 | 7.2 | 0.59 | 114939/2380 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | 2KJ3402 - ■ A0 ■ - 0 ■ A1 |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ
- 3) Only available for KS adapter

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 | |
| | KS | | A | | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | | F | J | | N | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | D | E | | | | | | | | | | 8 | |
| | K5 | | A | B | C | | D | E | F | | G | H | | | | | | | | | | | 5 | |
| | K3 | | A | B | C | | D | E | F | | | | | | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | |
|--------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----------------|-----------------|-----------------|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|---------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| FZ.39 | | | | | | | | | | | | | | | | | | | | | | | |
| 65.21 | 22 | 290 | 6040 | 6.3 | 0.06 | 913/14 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3302 - A0 - 0 B2 | |
| 57.99 | 25 | 230 | 6000 | 6.6 | 0.08 | 4059/70 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3302 - A0 - 0 A2 |
| 50.91 | 28 | 240 | 5950 | 6.6 | 0.09 | 1782/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3302 - A0 - 0 X1 |
| 46.29 | 31 | 255 | 5820 | 6.6 | 0.11 | 324/7 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3302 - A0 - 0 W1 |
| 39.60 | 37 | 290 | 5950 | 6.7 | 0.13 | 198/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3302 - A0 - 0 V1 |
| 36.00 | 40 | 255 | 5480 | 6.7 | 0.16 | 36/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3302 - A0 - 0 U1 |
| 31.82 | 46 | 285 | 5320 | 6.8 | 0.19 | 891/28 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 T1 |
| 28.93 | 50 | 275 | 5080 | 6.8 | 0.26 | 405/14 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 S1 |
| 25.34 | 57 | 265 | 4930 | 6.9 | 0.30 | 1419/56 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 R1 |
| 23.39 | 62 | 260 | 4730 | 6.9 | 0.36 | 4257/182 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 Q1 |
| 20.71 | 70 | 250 | 4730 | 7.0 | 0.42 | 4059/196 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 P1 |
| 17.24 | 84 | 235 | 4450 | 7.2 | 0.57 | 3861/224 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 N1 |
| 16.22 | 89 | 230 | 4360 | 7.2 | 0.66 | 3861/238 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 M1 |
| 14.54 | 100 | 220 | 4220 | 7.3 | 0.74 | 407/28 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 L1 |
| 12.38 | 117 | 210 | 3990 | 7.5 | 0.97 | 99/8 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 K1 |
| 10.61 | 137 | 199 | 3790 | 7.7 | 1.28 | 297/28 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 J1 |
| 9.13 | 159 | 189 | 3610 | 7.9 | 1.65 | 1023/112 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 H1 |
| 8.10 | 179 | 167 | 3430 | 12.1 | 0.70 | 3403/420 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 G1 |
| 6.74 | 215 | 152 | 3270 | 12.5 | 0.96 | 1079/160 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 F1 |
| 6.35 | 228 | 149 | 3200 | 12.5 | 1.11 | 1079/170 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 E1 |
| 5.69 | 255 | 140 | 3120 | 12.9 | 1.29 | 3071/540 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 D1 |
| 4.84 | 300 | 128 | 3000 | 13.4 | 1.73 | 581/120 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 C1 |
| 4.15 | 349 | 118 | 2950 | 13.9 | 2.30 | 83/20 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 B1 |
| 3.57 | 406 | 108 | 2890 | 14.5 | 3.00 | 2573/720 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | 2KJ3302 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | C | | D | E | | | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FD.49 | | | | | | | | | | | | | | | | | | | | | | | |
| 330.98 | 4.4 | 480 | 7960 | 6.2 | 0.06 | 26809/81 | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ S1 |
| 294.29 | 4.9 | 480 | 7960 | 6.3 | 0.07 | 13243/45 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ R1 |
| 258.40 | 5.6 | 480 | 7960 | 6.3 | 0.08 | 1292/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ Q1 |
| 234.91 | 6.2 | 480 | 7960 | 6.3 | 0.10 | 2584/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ P1 |
| 200.98 | 7.2 | 480 | 7960 | 6.3 | 0.12 | 9044/45 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ N1 |
| 182.71 | 7.9 | 480 | 7960 | 6.3 | 0.14 | 18088/99 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ M1 |
| 161.50 | 9 | 480 | 7960 | 6.3 | 0.17 | 323/2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ L1 |
| 146.82 | 9.9 | 480 | 7960 | 6.3 | 0.22 | 1615/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ K1 |
| 128.60 | 11 | 480 | 7960 | 6.3 | 0.26 | 13889/108 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ J1 |
| 118.71 | 12 | 480 | 7960 | 6.3 | 0.31 | 13889/117 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ H1 |
| 105.10 | 14 | 480 | 7960 | 6.4 | 0.37 | 13243/126 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ G1 |
| 87.48 | 17 | 480 | 7960 | 6.4 | 0.50 | 4199/48 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ F1 |
| 82.33 | 18 | 480 | 7960 | 6.4 | 0.59 | 247/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ E1 |
| 73.77 | 20 | 480 | 7630 | 6.4 | 0.66 | 11951/162 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ D1 |
| 62.81 | 23 | 480 | 7070 | 6.4 | 0.86 | 2261/36 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ C1 |
| 53.83 | 27 | 480 | 6560 | 6.5 | 1.13 | 323/6 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ B1 |
| 46.36 | 31 | 480 | 6080 | 6.5 | 1.46 | 10013/216 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3403 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|----------|--|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | 1 | | | |
| | | | B | | F | J | N | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | C | D | E | | | | | | 8 | | | |
| | K8 | | | | | | | | | C | D | E | | | | | | 8 | | | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | | 5 | | | | |
| | K3 | A | B | C | D | E | F | | | | | | | | 3 | | | | | | |
| | A/AZ* | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|--|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-------------|-----|--|--|--|--|--|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | | | | |
| | | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | | | | |
| | | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | |

| FZ.49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----|-----|------|------|------|----------|--|---|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------|
| 61.43 | 24 | 480 | 6990 | 6.0 | 0.18 | 1843/30 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ X1 |
| 55.85 | 26 | 480 | 6680 | 6.0 | 0.22 | 1843/33 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ W1 |
| 47.50 | 31 | 480 | 6160 | 6.0 | 0.27 | 95/2 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ V1 |
| 43.18 | 34 | 480 | 5870 | 6.0 | 0.33 | 475/11 | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ U1 |
| 38.53 | 38 | 480 | 5530 | 6.1 | 0.39 | 1387/36 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ T1 |
| 34.55 | 42 | 480 | 5220 | 6.1 | 0.47 | 380/11 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ S1 |
| 31.14 | 47 | 480 | 4940 | 6.2 | 0.55 | 1121/36 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ R1 |
| 28.74 | 50 | 480 | 4730 | 6.1 | 0.65 | 1121/39 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ Q1 |
| 26.24 | 55 | 480 | 4490 | 6.2 | 0.77 | 551/21 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ P1 |
| 21.77 | 67 | 480 | 4030 | 6.3 | 0.99 | 1045/48 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ N1 |
| 20.49 | 71 | 480 | 3890 | 6.3 | 1.15 | 1045/51 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ M1 |
| 19.35 | 75 | 480 | 3750 | 6.3 | 1.30 | 1045/54 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ L1 |
| 16.47 | 88 | 480 | 3390 | 6.4 | 1.61 | 247/15 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ K1 |
| 14.11 | 103 | 480 | 3060 | 6.6 | 1.99 | 931/66 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ J1 |
| 12.40 | 117 | 480 | 3010 | 6.7 | 2.50 | 893/72 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ H1 |
| 10.46 | 139 | 480 | 3140 | 6.8 | 3.10 | 722/69 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ G1 |
| 9.12 | 159 | 480 | 3210 | 7.4 | 4.20 | 228/25 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ F1 |
| 8.40 | 173 | 450 | 3010 | 9.3 | 2.20 | 42/5 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ E1 |
| 7.20 | 201 | 450 | 3070 | 9.6 | 2.80 | 1029/143 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ D1 |
| 6.33 | 229 | 430 | 3090 | 9.9 | 3.50 | 329/52 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ C1 |
| 5.34 | 272 | 400 | 3080 | 10.2 | 4.60 | 1596/299 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ B1 |
| 4.65 | 312 | 375 | 3060 | 11.3 | 6.10 | 1512/325 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | 2KJ3303 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | D | E | | | | 8 | |
| K5 | | A | | B | C | | D | E | F | | G | H | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | | A, F, H or D | | see page 9/40 | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-------|----------|----------|-------------|-----------|-----------|---------|-----|-----|-----|-----|-----|-----------------|------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | 4.1 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| FD.69 | | | | | | | | | | | | | | | | | | | | | | | |
| 348.40 | 4.2 | 600 | 10800 | 6.0 | 0.06 | 28220/81 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ S1 | |
| 309.78 | 4.7 | 600 | 10800 | 6.0 | 0.07 | 2788/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ R1 | |
| 272.00 | 5.3 | 600 | 10800 | 6.0 | 0.08 | 272/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ Q1 | |
| 247.27 | 5.9 | 600 | 10800 | 6.0 | 0.10 | 2720/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ P1 | |
| 211.56 | 6.9 | 600 | 10800 | 6.0 | 0.12 | 1904/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ N1 | |
| 192.32 | 7.5 | 600 | 10800 | 6.0 | 0.14 | 19040/99 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ M1 | |
| 170.00 | 8.5 | 600 | 10800 | 6.1 | 0.17 | 170/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ L1 | |
| 154.55 | 9.4 | 600 | 10800 | 6.1 | 0.22 | 1700/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ K1 | |
| 135.37 | 11 | 600 | 10800 | 6.1 | 0.26 | 3655/27 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ J1 | |
| 124.96 | 12 | 600 | 10800 | 6.1 | 0.31 | 14620/117 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ H1 | |
| 110.63 | 13 | 600 | 10800 | 6.1 | 0.38 | 6970/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ G1 | |
| 92.08 | 16 | 600 | 10800 | 6.1 | 0.51 | 1105/12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ F1 | |
| 86.67 | 17 | 600 | 10800 | 6.1 | 0.60 | 260/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ E1 | |
| 77.65 | 19 | 600 | 10400 | 6.2 | 0.66 | 6290/81 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ D1 | |
| 66.11 | 22 | 600 | 9720 | 6.2 | 0.87 | 595/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ C1 | |
| 56.67 | 26 | 600 | 9050 | 6.2 | 1.15 | 170/3 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ B1 | |
| 48.80 | 30 | 600 | 8430 | 6.2 | 1.47 | 2635/54 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3404 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|--|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | | | | | 8 | | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |

FZ.69

| | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----|-----|------|-----|------|----------|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|--|--|---------------------|---------------------|
| 64.67 | 22 | 600 | 9620 | 5.7 | 0.19 | 194/3 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3304 - A0 - 0 X1 | |
| 58.79 | 25 | 600 | 9210 | 5.7 | 0.23 | 1940/33 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3304 - A0 - 0 W1 |
| 50.00 | 29 | 600 | 8530 | 5.8 | 0.29 | 50/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3304 - A0 - 0 V1 |
| 45.45 | 32 | 600 | 8140 | 5.8 | 0.35 | 500/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3304 - A0 - 0 U1 |
| 40.56 | 36 | 600 | 7700 | 5.8 | 0.41 | 365/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3304 - A0 - 0 T1 |
| 36.36 | 40 | 600 | 7290 | 5.9 | 0.49 | 400/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3304 - A0 - 0 S1 |
| 32.78 | 44 | 600 | 6920 | 5.9 | 0.58 | 295/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3304 - A0 - 0 R1 |
| 30.26 | 48 | 600 | 6640 | 5.9 | 0.69 | 1180/39 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3304 - A0 - 0 Q1 |
| 27.62 | 52 | 600 | 6330 | 5.9 | 0.83 | 580/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 P1 |
| 22.92 | 63 | 600 | 5720 | 6.0 | 1.07 | 275/12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 N1 |
| 21.57 | 67 | 600 | 5540 | 6.0 | 1.23 | 1100/51 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 M1 |
| 20.37 | 71 | 600 | 5360 | 6.0 | 1.39 | 550/27 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 L1 |
| 17.33 | 84 | 600 | 4890 | 6.2 | 1.74 | 52/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 K1 |
| 14.85 | 98 | 600 | 4450 | 6.2 | 2.20 | 490/33 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 J1 |
| 13.06 | 111 | 600 | 4110 | 6.2 | 2.70 | 235/18 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 H1 |
| 11.01 | 132 | 600 | 4040 | 6.2 | 3.50 | 760/69 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 G1 |
| 9.60 | 151 | 600 | 4140 | 6.2 | 4.60 | 48/5 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 F1 |
| 8.90 | 163 | 475 | 4040 | 8.9 | 2.40 | 89/10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 E1 |
| 7.62 | 190 | 465 | 4100 | 8.9 | 3.10 | 4361/572 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 D1 |
| 6.70 | 216 | 440 | 4120 | 8.9 | 3.90 | 4183/624 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 C1 |
| 5.66 | 256 | 410 | 4110 | 8.9 | 5.10 | 1691/299 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 B1 |
| 4.93 | 294 | 385 | 4070 | 8.9 | 6.80 | 1602/325 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | 2KJ3304 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | E | | | | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----|------|-----------------|-----|-----|-------------|-----|-----|-----|-------------------------------------|---------------------------|---------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| FD.79 | | | | | | | | | | | | | | | | | | | | | | | | |
| 357.00 | 4.1 | 1000 | 13600 | 5.6 | 0.17 | 57133/160 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ S1 | |
| 324.62 | 4.5 | 1000 | 13600 | 5.6 | 0.20 | 57133/176 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ R1 |
| 276.09 | 5.3 | 1000 | 13600 | 5.6 | 0.25 | 8835/32 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ Q1 |
| 250.99 | 5.8 | 1000 | 13600 | 5.6 | 0.30 | 44175/176 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ P1 |
| 223.94 | 6.5 | 1000 | 13600 | 5.6 | 0.35 | 42997/192 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ N1 |
| 200.80 | 7.2 | 1000 | 13600 | 5.6 | 0.42 | 8835/44 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ M1 |
| 180.99 | 8 | 1000 | 13600 | 5.6 | 0.49 | 34751/192 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ L1 |
| 167.07 | 8.7 | 1000 | 13600 | 5.6 | 0.58 | 34751/208 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ K1 |
| 152.51 | 9.5 | 1000 | 13600 | 5.6 | 0.69 | 17081/112 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ J1 |
| 126.54 | 11 | 1000 | 13600 | 5.7 | 0.87 | 32395/256 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ H1 |
| 119.10 | 12 | 1000 | 13600 | 5.7 | 1.01 | 32395/272 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ G1 |
| 112.48 | 13 | 1000 | 13600 | 5.7 | 1.15 | 32395/288 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ F1 |
| 95.71 | 15 | 1000 | 13600 | 5.7 | 1.39 | 7657/80 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ E1 |
| 81.99 | 18 | 1000 | 13600 | 5.7 | 1.70 | 28861/352 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ D1 |
| 72.09 | 20 | 1000 | 13600 | 5.7 | 2.10 | 27683/384 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ C1 |
| 60.82 | 24 | 1000 | 13600 | 5.7 | 2.60 | 11191/184 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ B1 |
| 53.01 | 27 | 1000 | 13600 | 5.8 | 3.50 | 5301/100 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3405 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | | D | | E | | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 | |
| K3 | | A | | B | C | | D | E | F | | | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | | |
|---------------|-------|----------|----------|-------------|-----------|-------------|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| FD.89 | | | | | | | | | | | | | | | | | | | | | | | | |
| 335.30 | 4.3 | 1850 | 17400 | 5.1 | 0.42 | 370512/1105 | | | ✓ | ✓ | | | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ S1 | |
| 304.82 | 4.8 | 1850 | 17400 | 5.1 | 0.51 | 741024/2431 | | | ✓ | ✓ | | | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ R1 | |
| 273.41 | 5.3 | 1850 | 17400 | 5.1 | 0.71 | 4648/17 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ Q1 | |
| 245.82 | 5.9 | 1850 | 17400 | 5.1 | 0.79 | 597600/2431 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ P1 | |
| 222.33 | 6.5 | 1850 | 17400 | 5.1 | 0.88 | 49136/221 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ N1 | |
| 205.23 | 7.1 | 1850 | 17400 | 5.1 | 1.03 | 589632/2873 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ M1 | |
| 188.00 | 7.7 | 1850 | 17400 | 5.1 | 1.35 | 290832/1547 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ L1 | |
| 157.74 | 9.2 | 1850 | 17400 | 5.1 | 1.43 | 34860/221 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ K1 | |
| 148.46 | 9.8 | 1850 | 17400 | 5.1 | 1.64 | 557760/3757 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ J1 | |
| 136.21 | 11 | 1850 | 17400 | 5.1 | 1.79 | 5312/39 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ H1 | |
| 118.98 | 12 | 1850 | 17400 | 5.1 | 2.6 | 131472/1105 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ G1 | |
| 106.52 | 14 | 1850 | 17400 | 5.1 | 3.1 | 19920/187 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ F1 | |
| 93.14 | 16 | 1850 | 17400 | 5.1 | 3.7 | 20584/221 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ E1 | |
| 79.95 | 18 | 1850 | 17400 | 5.2 | 4.0 | 23904/299 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ D1 | |
| 70.67 | 21 | 1850 | 17400 | 5.2 | 5.1 | 390432/5525 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ C1 | |
| 60.09 | 24 | 1850 | 17400 | 5.3 | 6.5 | 13280/221 | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ B1 | |
| 51.51 | 28 | 1850 | 17400 | 5.3 | 8.5 | 79680/1547 | | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3406 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | E | | | | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 9 |

Adapter type

Gearbox mounting type **A, F, H or D** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |

FZ.89

| | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----|------|-------|-----|------|----------|--|--|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|---------------------|
| 61.72 | 23 | 1850 | 17400 | 4.8 | 1.38 | 2407/39 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3306 - A0 - 0 B2 |
| 55.72 | 26 | 1850 | 17400 | 4.8 | 1.51 | 7968/143 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3306 - A0 - 0 A2 |
| 50.54 | 29 | 1850 | 17400 | 4.8 | 1.77 | 7885/156 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3306 - A0 - 0 X1 |
| 46.66 | 31 | 1850 | 17400 | 4.8 | 2.1 | 7885/169 | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3306 - A0 - 0 W1 |
| 42.41 | 34 | 1850 | 17400 | 4.9 | 2.4 | 7719/182 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 V1 |
| 35.91 | 40 | 1850 | 17400 | 4.9 | 2.9 | 3735/104 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 U1 |
| 33.80 | 43 | 1850 | 17400 | 4.9 | 3.0 | 7470/221 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 T1 |
| 31.21 | 46 | 1850 | 17400 | 5.0 | 4.5 | 3652/117 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 S1 |
| 27.77 | 52 | 1850 | 17400 | 5.0 | 5.5 | 7221/260 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 R1 |
| 24.67 | 59 | 1850 | 17400 | 5.0 | 6.7 | 7055/286 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 Q1 |
| 22.08 | 66 | 1850 | 17400 | 5.1 | 6.7 | 6889/312 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 P1 |
| 18.88 | 77 | 1850 | 17200 | 5.1 | 7.9 | 5644/299 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3306 - A0 - 0 N1 |
| 16.86 | 86 | 1850 | 16400 | 5.4 | 10 | 5478/325 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 M1 |
| 14.90 | 97 | 1850 | 15500 | 5.5 | 12 | 581/39 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 L1 |
| 13.07 | 111 | 1850 | 14600 | 5.3 | 16 | 3569/273 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 K1 |
| 11.38 | 127 | 1850 | 14600 | 5.3 | 20 | 3403/299 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 J1 |
| 9.73 | 149 | 1850 | 14600 | 5.5 | 26 | 2656/273 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 H1 |
| 8.33 | 174 | 1740 | 14500 | 5.6 | 33 | 2490/299 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 G1 |
| 7.60 | 191 | 1100 | 14100 | 9.0 | 14 | 4752/625 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 F1 |
| 6.72 | 216 | 1110 | 14000 | 9.2 | 17 | 168/25 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 E1 |
| 5.90 | 246 | 1110 | 13800 | 9.2 | 23 | 1032/175 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 D1 |
| 5.13 | 283 | 1110 | 13600 | 9.2 | 28 | 2952/575 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 C1 |
| 4.39 | 330 | 1060 | 13300 | 9.2 | 39 | 768/175 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 B1 |
| 3.76 | 386 | 985 | 12900 | 9.5 | 50 | 432/115 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | 2KJ3306 - A0 - 0 A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | 1 | | | | | |
| | | | B | | F | J | N | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | C | D | E | | | | | | 8 | | | | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | 5 | | | | | |
| | K3 | A | B | C | D | E | F | | | | | | | 3 | | | | | | | |
| | A/AZ* | | D | E | F | G | H | J | K | L | M | N | | | | | 9 | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----------------|-----------------|-----|------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|--|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| FD.109 | | | | | | | | | | | | | | | | | | | | | | | |
| 410.00 | 3.5 | 3100 | 25000 | 6.5 | 1.27 | 332021/810 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ T1 | |
| 370.00 | 3.9 | 3100 | 25000 | 6.5 | 1.37 | 183184/495 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ S1 | |
| 335.70 | 4.3 | 3100 | 25000 | 6.5 | 1.61 | 217531/648 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ R1 | |
| 309.87 | 4.7 | 3100 | 25000 | 6.5 | 1.89 | 217531/702 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ Q1 | |
| 281.68 | 5.1 | 3100 | 25000 | 6.5 | 2.2 | 354919/1260 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ P1 | |
| 238.52 | 6.1 | 3100 | 25000 | 6.5 | 2.6 | 11449/48 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ N1 | |
| 224.49 | 6.5 | 3100 | 25000 | 6.5 | 2.6 | 11449/51 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ M1 | |
| 207.31 | 7 | 3100 | 25000 | 6.5 | 4.0 | 251878/1215 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ L1 | |
| 184.46 | 7.9 | 3100 | 25000 | 6.5 | 5.0 | 332021/1800 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ K1 | |
| 163.83 | 8.9 | 3100 | 25000 | 6.5 | 5.9 | 194633/1188 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ J1 | |
| 146.65 | 9.9 | 3100 | 25000 | 6.5 | 5.9 | 950267/6480 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ H1 | |
| 125.37 | 12 | 3100 | 25000 | 6.5 | 6.7 | 389266/3105 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ G1 | |
| 111.95 | 13 | 3100 | 25000 | 6.5 | 8.6 | 125939/1125 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ F1 | |
| 98.94 | 15 | 3100 | 25000 | 6.5 | 9.6 | 80143/810 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ E1 | |
| 86.83 | 17 | 3100 | 25000 | 6.5 | 14 | 492307/5670 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ D1 | |
| 75.59 | 19 | 3100 | 25000 | 6.5 | 16 | 469409/6210 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ C1 | |
| 64.62 | 22 | 3100 | 25000 | 6.5 | 21 | 183184/2835 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ B1 | |
| 55.31 | 26 | 3100 | 25000 | 6.5 | 25 | 11449/207 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3407 - ■ A0 ■ - 0 ■ A1 | |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | | | |
| | K2 | | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 | | |
| | KS | A | | | | E | H | K | M | | | | | | | | 1 | | | | |
| | | B | | | | F | J | N | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | C | D | E | | | | | | 8 | | | | |
| K5 | A | B | C | D | E | F | G | H | | | | | | | 5 | | | | | | |
| K3 | A | B | C | D | E | F | | | | | | 3 | | | | | | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | |
|---------|-------|----------|----------|----------|-----------|----------|--|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ^1 | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | kgm^2 | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | | 816 | | 818 | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |

FZ.109

| Ratio | i | n_2 | T_{2N} | F_{R2} | ϕ | J_G | R_{ex} | Adapter | | | | | | | | | | | | | | | Article No. |
|-------|-----|-------|----------|----------|--------|-----------|----------|---------|--|--|--|--|--|-----------------|-----------------|---|---|---|---|-----------------|--|--|---------------------------|
| 70.74 | 20 | 3100 | 25000 | 4.6 | 3.6 | 12733/180 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ B2 |
| 65.30 | 22 | 3100 | 25000 | 4.6 | 4.3 | 12733/195 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ A2 |
| 60.12 | 24 | 3100 | 25000 | 4.6 | 4.9 | 6313/105 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ X1 |
| 51.27 | 28 | 3100 | 25000 | 4.6 | 6.3 | 2461/48 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ W1 |
| 48.25 | 30 | 3100 | 25000 | 4.6 | 7.1 | 2461/51 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ V1 |
| 44.78 | 32 | 3100 | 25000 | 4.6 | 7.8 | 12091/270 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ U1 |
| 39.59 | 37 | 3100 | 25000 | 4.6 | 9.5 | 3959/100 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ T1 |
| 35.34 | 41 | 3100 | 24700 | 4.7 | 11 | 11663/330 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ S1 |
| 31.80 | 46 | 3100 | 23600 | 4.7 | 13 | 11449/360 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ R1 |
| 27.60 | 53 | 3100 | 22200 | 4.7 | 16 | 9523/345 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3307 - ■ A0 ■ - 0 ■ Q1 |
| 24.82 | 58 | 3100 | 21200 | 4.9 | 19 | 3103/125 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3307 - ■ A0 ■ - 0 ■ P1 |
| 21.70 | 67 | 3100 | 19900 | 5.0 | 23 | 7811/360 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3307 - ■ A0 ■ - 0 ■ N1 |
| 19.36 | 75 | 3100 | 18900 | 5.0 | 27 | 2033/105 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ M1 |
| 17.06 | 85 | 3100 | 17800 | 5.0 | 33 | 1177/69 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ L1 |
| 14.95 | 97 | 3100 | 16700 | 5.1 | 40 | 4708/315 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ K1 |
| 13.03 | 111 | 3100 | 15600 | 5.2 | 48 | 1498/115 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ J1 |
| 11.89 | 122 | 3060 | 15600 | 5.2 | 56 | 107/9 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ H1 |
| 10.23 | 142 | 2880 | 15900 | 5.3 | 70 | 1177/115 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ G1 |
| 9.02 | 161 | 2090 | 16100 | 7.6 | 36 | 1767/196 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ F1 |
| 7.94 | 183 | 2000 | 15800 | 7.8 | 44 | 5115/644 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ E1 |
| 6.96 | 208 | 1900 | 15700 | 7.9 | 54 | 341/49 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ D1 |
| 6.07 | 239 | 1800 | 15600 | 8.1 | 68 | 279/46 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ C1 |
| 5.54 | 262 | 1730 | 15400 | 8.2 | 79 | 155/28 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ B1 |
| 4.77 | 304 | 1620 | 15200 | 8.4 | 102 | 3069/644 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3307 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| Shaft design | see page 9/47 | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|---|--|---|
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | 1 | | | |
| | | | B | | F | J | N | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | D | E | | | | | | | | | | 8 |
| | K5 | | A | B | C | | D | E | F | G | H | | | | | | | | | | 5 |
| | K3 | | A | B | C | | D | E | F | | | | | | | | | | 3 | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | |

Adapter type

Gearbox mounting type **A, F, H or D** [see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | |
|---------------|-------|----------|----------|----------|------------------|-----------|--|---------|-----|----|-----|-----------------|-----------------|------|-----|-----|-----|-----|-----|-------------|-----|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ^1 | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ° | 10 ⁻⁴ | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | |
| | | | | | kgm ² | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | 816 | | | 818 | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FD.129 | | | | | | | | | | | | | | | | | | | | | | | |
| 413.00 | 3.5 | 4850 | 37200 | 5.5 | 3.3 | 9911/24 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ T1 |
| 381.00 | 3.8 | 4850 | 37200 | 5.5 | 3.9 | 9911/26 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ S1 |
| 351.00 | 4.1 | 4850 | 37200 | 5.5 | 4.5 | 34397/98 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ R1 |
| 299.31 | 4.8 | 4850 | 37200 | 5.5 | 5.6 | 67045/224 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ Q1 |
| 281.70 | 5.1 | 4850 | 37200 | 5.5 | 6.4 | 67045/238 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ P1 |
| 261.42 | 5.5 | 4850 | 37200 | 5.5 | 6.9 | 65879/252 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ N1 |
| 231.12 | 6.3 | 4850 | 37200 | 5.5 | 8.4 | 64713/280 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ M1 |
| 206.32 | 7 | 4850 | 37200 | 5.5 | 10 | 5777/28 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ L1 |
| 185.66 | 7.8 | 4850 | 37200 | 5.5 | 12 | 62381/336 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ K1 |
| 161.14 | 9 | 4850 | 37200 | 5.5 | 14 | 51887/322 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ J1 |
| 144.92 | 10 | 4850 | 37200 | 5.5 | 16 | 50721/350 | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ H1 |
| 126.66 | 11 | 4850 | 37200 | 5.5 | 19 | 42559/336 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ G1 |
| 113.03 | 13 | 4850 | 37200 | 5.5 | 23 | 11077/98 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ F1 |
| 99.58 | 15 | 4850 | 37200 | 5.5 | 27 | 32065/322 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ E1 |
| 87.25 | 17 | 4850 | 37200 | 5.5 | 32 | 12826/147 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ D1 |
| 76.04 | 19 | 4850 | 37200 | 5.5 | 37 | 1749/23 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ C1 |
| 69.40 | 21 | 4850 | 37200 | 5.5 | 44 | 2915/42 | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ B1 |
| 59.75 | 24 | 4850 | 37200 | 5.5 | 53 | 19239/322 | | | | | | | | ✓ | ✓ | | | | | | | | 2KJ3408 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | | | | 1 |
| | | B | | | F | J | N | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | | | | | | | 8 |
| K5 | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | 5 | |
| K3 | A | | B | C | | D | E | F | | | | | | | | | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | |
|----------|-----------------------|------------------------|------------------------|-----------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | φ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |

FZ.129

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|-----|------|-------|-----|-----|-----------|--|--|--|--|-----------------|-----------------|---|---|---|---|---|-----------------|-----------------|--|--|--|---------------------------|---------------------------|
| 69.20 | 21 | 4850 | 37200 | 5.1 | 7.7 | 13563/196 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ A2 | |
| 59.22 | 24 | 4850 | 37200 | 5.1 | 9.7 | 6633/112 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ X1 |
| 55.74 | 26 | 4850 | 37200 | 5.1 | 11 | 6633/119 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ W1 |
| 52.25 | 28 | 4850 | 36600 | 5.1 | 12 | 209/4 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ V1 |
| 46.32 | 31 | 4850 | 34800 | 5.1 | 15 | 12969/280 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ U1 |
| 41.14 | 35 | 4850 | 33100 | 5.1 | 18 | 288/7 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ T1 |
| 37.12 | 39 | 4850 | 31700 | 5.1 | 21 | 297/8 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ S1 |
| 32.90 | 44 | 4850 | 30100 | 5.2 | 26 | 10593/322 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ R1 |
| 29.13 | 50 | 4850 | 28500 | 5.3 | 29 | 10197/350 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ Q1 |
| 25.93 | 56 | 4850 | 27100 | 5.3 | 35 | 363/14 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ P1 |
| 23.23 | 62 | 4850 | 25800 | 5.3 | 41 | 2277/98 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ N1 |
| 20.60 | 70 | 4850 | 24400 | 5.3 | 49 | 6633/322 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ M1 |
| 18.18 | 80 | 4850 | 23000 | 5.4 | 60 | 891/49 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ L1 |
| 15.99 | 91 | 4800 | 21700 | 5.4 | 73 | 2574/161 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ K1 |
| 14.48 | 100 | 4690 | 21000 | 5.5 | 83 | 1419/98 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ J1 |
| 12.61 | 115 | 4530 | 20100 | 5.5 | 101 | 4059/322 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ H1 |
| 10.34 | 140 | 4320 | 20400 | 5.5 | 135 | 1881/182 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ G1 |
| 9.80 | 148 | 3630 | 19600 | 8.1 | 64 | 2479/253 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ F1 |
| 8.65 | 168 | 3640 | 19700 | 8.1 | 79 | 666/77 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ E1 |
| 7.60 | 191 | 3620 | 19800 | 8.1 | 97 | 1924/253 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ D1 |
| 6.89 | 210 | 3630 | 19700 | 8.2 | 112 | 1591/231 | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ C1 |
| 6.00 | 242 | 3640 | 19600 | 8.3 | 140 | 1517/253 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ B1 |
| 4.92 | 295 | 3030 | 19300 | 8.5 | 192 | 703/143 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3308 - ■ A0 ■ - 0 ■ A1 |

- 1) Only in conjunction with reduced-backlash version
- 2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|----------|----------|--|----------|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 |
| | KS | | A | | | E | H | K | M | | | | | | | | 1 | | | | |
| | | | B | | | F | J | N | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | | 8 | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | 5 | | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | 3 | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | kgm ² | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FD.149 | | | | | | | | | | | | | | | | | | | | | | |
| 377.00 | 3.8 | 8000 | 65000 | 4.8 | 7.1 | 18495/49 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ W1 |
| 323.04 | 4.5 | 8000 | 65000 | 4.8 | 9 | 9045/28 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ V1 |
| 304.03 | 4.8 | 8000 | 65000 | 4.8 | 10 | 36180/119 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ U1 |
| 285.00 | 5.1 | 8000 | 65000 | 4.8 | 11 | 285/1 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ T1 |
| 252.64 | 5.7 | 8000 | 65000 | 4.8 | 14 | 3537/14 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ S1 |
| 224.42 | 6.5 | 8000 | 65000 | 4.8 | 16 | 17280/77 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ R1 |
| 202.50 | 7.2 | 8000 | 65000 | 4.8 | 19 | 405/2 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ Q1 |
| 179.44 | 8.1 | 8000 | 65000 | 4.8 | 23 | 28890/161 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ P1 |
| 158.91 | 9.1 | 8000 | 65000 | 4.8 | 26 | 5562/35 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3410 - ■ A0 ■ - 0 ■ N1 |
| 141.43 | 10 | 8000 | 65000 | 4.8 | 31 | 990/7 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3410 - ■ A0 ■ - 0 ■ M1 |
| 126.73 | 11 | 8000 | 65000 | 4.8 | 37 | 6210/49 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3410 - ■ A0 ■ - 0 ■ L1 |
| 112.36 | 13 | 8000 | 63600 | 4.8 | 43 | 18090/161 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3410 - ■ A0 ■ - 0 ■ K1 |
| 99.18 | 15 | 8000 | 60700 | 4.8 | 53 | 4860/49 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ J1 |
| 87.20 | 17 | 8000 | 57700 | 4.8 | 63 | 14040/161 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ H1 |
| 78.98 | 18 | 8000 | 54800 | 4.8 | 71 | 3870/49 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ G1 |
| 68.76 | 21 | 8000 | 52600 | 4.9 | 85 | 11070/161 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ F1 |
| 56.37 | 26 | 8000 | 49600 | 4.9 | 111 | 5130/91 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ E1 |
| 50.01 | 29 | 8000 | 45600 | 5.2 | 73 | 37960/759 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ D1 |
| 45.30 | 32 | 8000 | 43300 | 5.2 | 83 | 31390/693 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ C1 |
| 39.43 | 37 | 7970 | 41400 | 5.2 | 102 | 29930/759 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ B1 |
| 32.33 | 45 | 7510 | 39000 | 5.2 | 135 | 13870/429 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3410 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|----------|----------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 9 | |

Adapter type
 Gearbox mounting type **A, F, H or D** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|---------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FZ.149 | | | | | | | | | | | | | | | | | | | | | | | |
| 48.48 | 30 | 8000 | 42700 | 4.6 | 31 | 1600/33 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3310 - ■ A0 ■ - 0 ■ T1 |
| 43.89 | 33 | 8000 | 40800 | 4.6 | 36 | 395/9 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3310 - ■ A0 ■ - 0 ■ S1 |
| 38.55 | 38 | 8000 | 38500 | 4.6 | 44 | 2660/69 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3310 - ■ A0 ■ - 0 ■ R1 |
| 34.93 | 42 | 8000 | 36800 | 4.6 | 51 | 524/15 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | 2KJ3310 - ■ A0 ■ - 0 ■ Q1 |
| 31.11 | 47 | 8000 | 34900 | 4.7 | 60 | 280/9 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3310 - ■ A0 ■ - 0 ■ P1 |
| 27.94 | 52 | 8000 | 33100 | 4.7 | 72 | 1760/63 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3310 - ■ A0 ■ - 0 ■ N1 |
| 24.93 | 58 | 8000 | 31300 | 4.7 | 84 | 1720/69 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3310 - ■ A0 ■ - 0 ■ M1 |
| 22.22 | 65 | 8000 | 29600 | 4.7 | 98 | 200/9 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ L1 |
| 19.71 | 74 | 8000 | 27800 | 4.7 | 117 | 1360/69 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ K1 |
| 18.10 | 80 | 8000 | 26600 | 4.8 | 132 | 380/21 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ J1 |
| 15.94 | 91 | 8000 | 24900 | 4.8 | 156 | 1100/69 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ H1 |
| 13.08 | 111 | 7620 | 23200 | 4.9 | 212 | 170/13 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ G1 |
| 11.47 | 126 | 7320 | 23700 | 4.9 | 241 | 172/15 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ F1 |
| 8.97 | 162 | 6770 | 24500 | 6.2 | 379 | 260/29 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ E1 |
| 8.09 | 179 | 5690 | 23900 | 6.2 | 200 | 2420/299 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ D1 |
| 6.64 | 218 | 5690 | 24000 | 6.3 | 277 | 1122/169 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ C1 |
| 5.82 | 249 | 5680 | 24000 | 6.6 | 325 | 1892/325 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ B1 |
| 4.55 | 319 | 5650 | 23600 | 7.3 | 517 | 132/29 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3310 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|--|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | | |
| | K2 | | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 |
| | KS | A | | | | E | H | K | M | | | | | | | | 1 | | | | | |
| | | B | | | | F | J | N | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | C | D | E | | | | | | | 8 | | | | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | 5 | | | | | | |
| | K3 | A | B | C | D | E | F | | | | | | | 3 | | | | | | | | |
| | A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | | | |
|---------------|-------|----------|----------|----------|-----------|------------|--|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ^1 | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | | | 816 | | | 818 | | |
| | | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | |
| | | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | |
| | | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |
| FD.169 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 368.00 | 3.9 | 13600 | 73500 | 4.4 | 18 | 106240/289 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ V1 |
| 343.01 | 4.2 | 13600 | 73500 | 4.4 | 19 | 52480/153 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ U1 |
| 304.94 | 4.8 | 13600 | 73500 | 4.4 | 24 | 5184/17 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ T1 |
| 273.80 | 5.3 | 13600 | 73500 | 4.4 | 28 | 51200/187 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ S1 |
| 247.84 | 5.9 | 13600 | 73500 | 4.4 | 33 | 12640/51 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ R1 |
| 217.70 | 6.7 | 13600 | 73500 | 4.4 | 40 | 85120/391 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ Q1 |
| 197.27 | 7.4 | 13600 | 73500 | 4.4 | 46 | 16768/85 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ P1 |
| 175.69 | 8.3 | 13600 | 73500 | 4.4 | 54 | 8960/51 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ N1 |
| 157.76 | 9.2 | 13600 | 73500 | 4.4 | 64 | 56320/357 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ M1 |
| 140.77 | 10 | 13600 | 73500 | 4.4 | 74 | 55040/391 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ L1 |
| 125.49 | 12 | 13600 | 73500 | 4.4 | 86 | 6400/51 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ K1 |
| 111.30 | 13 | 13600 | 73500 | 4.4 | 101 | 2560/23 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ J1 |
| 102.18 | 14 | 13600 | 73500 | 4.4 | 113 | 12160/119 | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ H1 |
| 90.03 | 16 | 13600 | 73500 | 4.4 | 132 | 35200/391 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ G1 |
| 73.85 | 20 | 13600 | 71200 | 4.5 | 176 | 960/13 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ F1 |
| 64.75 | 22 | 13600 | 67400 | 4.5 | 194 | 5504/85 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ E1 |
| 50.63 | 29 | 13600 | 60600 | 4.5 | 302 | 24960/493 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ D1 |
| 46.55 | 31 | 13600 | 58300 | 4.7 | 201 | 3026/65 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ C1 |
| 40.82 | 36 | 13600 | 55000 | 4.7 | 226 | 15308/375 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ B1 |
| 31.92 | 45 | 13600 | 53400 | 4.8 | 355 | 4628/145 | | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3411 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|--|--|--|----------|----------|----------|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | 2 |
| | KS | | A | | | E | H | K | M | | | | | | | | | | | | | | | | | | | 1 |
| | | | B | | | F | J | N | | | | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | C | D | E | | | | | | | | | | | | | | 8 | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| FZ.169 | | | | | | | | | | | | | | | | | | | | | | |
| 44.93 | 32 | 12400 | 59900 | 4.2 | 68 | 3100/69 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | 2KJ3311 - ■ A0 ■ - 0 ■ S1 |
| 41.07 | 35 | 13600 | 55100 | 4.3 | 80 | 616/15 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | 2KJ3311 - ■ A0 ■ - 0 ■ R1 |
| 36.94 | 39 | 13600 | 52500 | 4.3 | 95 | 665/18 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | 2KJ3311 - ■ A0 ■ - 0 ■ Q1 |
| 33.02 | 44 | 13600 | 49800 | 4.4 | 111 | 2080/63 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3311 - ■ A0 ■ - 0 ■ P1 |
| 29.86 | 49 | 13600 | 47500 | 4.4 | 133 | 2060/69 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3311 - ■ A0 ■ - 0 ■ N1 |
| 26.35 | 55 | 13600 | 44700 | 4.4 | 157 | 1660/63 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ M1 |
| 23.48 | 62 | 13600 | 42200 | 4.4 | 186 | 540/23 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ L1 |
| 21.27 | 68 | 13600 | 42300 | 4.3 | 206 | 1340/63 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ K1 |
| 19.13 | 76 | 13600 | 42800 | 4.3 | 249 | 440/23 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ J1 |
| 15.90 | 91 | 13500 | 43200 | 4.4 | 314 | 620/39 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ H1 |
| 14.13 | 103 | 12900 | 43200 | 4.4 | 386 | 212/15 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ G1 |
| 11.26 | 129 | 11700 | 42800 | 4.6 | 534 | 980/87 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ F1 |
| 8.97 | 162 | 10400 | 41900 | 4.8 | 710 | 260/29 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ E1 |
| 8.07 | 180 | 8350 | 39300 | 5.9 | 396 | 1364/169 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ D1 |
| 7.18 | 202 | 8310 | 38900 | 5.9 | 489 | 2332/325 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ C1 |
| 5.72 | 253 | 8210 | 37800 | 6.4 | 697 | 2156/377 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ B1 |
| 4.55 | 319 | 7300 | 36400 | 6.8 | 967 | 132/29 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3311 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | see page 9/47 | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|--|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 | | | |
| | KS | A | | | E | H | K | M | | | | | | | | | | 1 | | | |
| | | B | | | F | J | N | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | | C | D | E | | | | | 8 | | | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | 5 | | | | | | |
| | K3 | A | B | C | D | E | F | | | | | | 3 | | | | | | | | |
| | A/AZ* | | D | E | F | G | H | J | K | L | M | N | | | | 9 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | |
| | | | | | kgm ² | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| FD.189 | | | | | | | | | | | | | | | | | | | | | | | |
| 347.35 | 4.2 | 19000 | 110900 | 4.1 | 36 | 590499/1700 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ T1 |
| 310.76 | 4.7 | 19000 | 110900 | 4.1 | 43 | 290563/935 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ S1 |
| 280.27 | 5.2 | 19000 | 110900 | 4.1 | 49 | 571753/2040 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ R1 |
| 247.71 | 5.9 | 19000 | 110900 | 4.1 | 61 | 290563/1173 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | | | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ Q1 |
| 226.42 | 6.4 | 19000 | 110900 | 4.1 | 71 | 1443442/6375 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ P1 |
| 203.69 | 7.1 | 19000 | 110900 | 4.1 | 84 | 1246609/6120 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ N1 |
| 182.03 | 8 | 19000 | 110900 | 4.1 | 98 | 139256/765 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ M1 |
| 164.61 | 8.8 | 19000 | 110900 | 4.1 | 117 | 965419/5865 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ L1 |
| 145.28 | 10 | 19000 | 110900 | 4.1 | 136 | 111137/765 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ K1 |
| 129.45 | 11 | 19000 | 110900 | 4.1 | 160 | 253071/1955 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ J1 |
| 117.27 | 12 | 19000 | 110900 | 4.1 | 175 | 89713/765 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ H1 |
| 105.48 | 14 | 19000 | 110900 | 4.1 | 210 | 206206/1955 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ G1 |
| 87.65 | 17 | 19000 | 108200 | 4.1 | 258 | 22351/255 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ F1 |
| 77.92 | 19 | 19000 | 103200 | 4.1 | 314 | 496769/6375 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ E1 |
| 62.11 | 23 | 19000 | 94000 | 4.2 | 422 | 459277/7395 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ D1 |
| 49.43 | 29 | 19000 | 85400 | 4.2 | 533 | 121849/2465 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ C1 |
| 40.61 | 36 | 19000 | 78400 | 4.4 | 478 | 35329/870 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3412 - ■ A0 ■ - 0 ■ B1 |
| 32.32 | 45 | 19000 | 70800 | 4.4 | 621 | 9373/290 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3412 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | 5 |
| | K3 | | A | | B | C | | D | E | F | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | Article No. | | | | | |
|---------------|-------|----------|----------|-------------|-----------|-----------|---------|-----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-------------|-----|-----|-----|-------------------------------------|---------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| FZ.189 | | | | | | | | | | | | | | | | | | | | | | | |
| 37.93 | 38 | 19000 | 76100 | 4.0 | 143 | 11948/315 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3312 - ■ A0 ■ - 0 ■ L1 |
| 34.03 | 43 | 19000 | 72500 | 4.1 | 169 | 3914/115 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3312 - ■ A0 ■ - 0 ■ K1 |
| 30.41 | 48 | 19000 | 68900 | 4.1 | 202 | 3193/105 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3312 - ■ A0 ■ - 0 ■ J1 |
| 27.17 | 53 | 19000 | 65400 | 4.1 | 241 | 9373/345 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3312 - ■ A0 ■ - 0 ■ H1 |
| 24.85 | 58 | 19000 | 62700 | 4.1 | 269 | 7828/315 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ G1 |
| 22.09 | 66 | 19000 | 59300 | 4.1 | 321 | 7622/345 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ F1 |
| 18.75 | 77 | 19000 | 54700 | 4.2 | 410 | 7313/390 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ E1 |
| 16.21 | 89 | 19000 | 50800 | 4.2 | 495 | 6077/375 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ D1 |
| 13.26 | 109 | 17600 | 48700 | 4.3 | 687 | 5768/435 | | | | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ C1 |
| 10.89 | 133 | 16300 | 50000 | 4.4 | 906 | 4738/435 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ B1 |
| 8.47 | 171 | 14700 | 50400 | 4.8 | 1333 | 3811/450 | | | | | | | | | | | | | ✓ | ✓ | ✓ | | 2KJ3312 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|----------|----------|----------|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | 1 | |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter type | K8 | | | | | | | | | C | | D | | E | | | | | | | | | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | 3 | |
| | A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | 9 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|------------------|--------------|----------------|---------------|----------------------|----------------------------------|----------------|---------|-----|-----|-----|-----|-------------|-------------------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm^2 | R_{ex} | KS | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | (Article No. supplement, see below) |
| - | - | - | - | - | - | - | | 3.2 | 5.2 | 6.2 | 8.2 | 10.2 | |
| | | | | | | | | 4.1 | | | | | |
| | | | | | | | | 4.2 | | | | | |
| FZ.29-D19 | | | | | | | | | | | | | |
| 8237 | 0.18 | 150 | 5220 | - | 0.03 | 93697098/11375 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ P1 |
| 7157 | 0.20 | 150 | 5220 | - | 0.04 | 81408954/11375 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ N1 |
| 6506 | 0.22 | 150 | 5220 | - | 0.04 | 14801628/2275 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ M1 |
| 5536 | 0.26 | 150 | 5220 | - | 0.06 | 62976738/11375 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ L1 |
| 5033 | 0.29 | 150 | 5220 | - | 0.07 | 11450316/2275 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ K1 |
| 4389 | 0.33 | 150 | 5220 | - | 0.08 | 768009/175 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ J1 |
| 3928 | 0.37 | 150 | 5220 | - | 0.11 | 8936832/2275 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ H1 |
| 3488 | 0.42 | 150 | 5220 | - | 0.13 | 7936093/2275 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ G1 |
| 3220 | 0.45 | 150 | 5220 | - | 0.16 | 95233116/29575 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ F1 |
| 2797 | 0.52 | 150 | 5220 | - | 0.17 | 44544522/15925 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ E1 |
| 2431 | 0.60 | 150 | 5220 | - | 0.18 | 27648324/11375 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ D1 |
| 2194 | 0.66 | 150 | 5220 | - | 0.22 | 768009/350 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ C1 |
| 2065 | 0.70 | 150 | 5220 | - | 0.26 | 361416/175 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ B1 |
| 1800 | 0.81 | 150 | 5220 | - | 0.29 | 4096048/2275 | ✓ | | | | | | 2KJ3321 - ■ A0 ■ - 0 ■ A1 |
| FZ.29-Z19 | | | | | | | | | | | | | |
| 1760 | 0.82 | 150 | 5220 | - | 0.02 | 1715912/975 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ R1 |
| 1558 | 0.93 | 150 | 5220 | - | 0.03 | 2532354/1625 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ Q1 |
| 1354 | 1.1 | 150 | 5220 | - | 0.04 | 2200242/1625 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ P1 |
| 1231 | 1.2 | 150 | 5220 | - | 0.05 | 400044/325 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ N1 |
| 1047 | 1.4 | 150 | 5220 | - | 0.07 | 1702074/1625 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ M1 |
| 952 | 1.5 | 150 | 5220 | - | 0.08 | 309468/325 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ L1 |
| 830 | 1.7 | 150 | 5220 | - | 0.09 | 20757/25 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ K1 |
| 743 | 2 | 150 | 5220 | - | 0.12 | 241536/325 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ J1 |
| 660 | 2.2 | 150 | 5220 | - | 0.15 | 214489/325 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ H1 |
| 609 | 2.4 | 150 | 5220 | - | 0.18 | 2573868/4225 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ G1 |
| 529 | 2.7 | 150 | 5220 | - | 0.2 | 1203906/2275 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ F1 |
| 460 | 3.2 | 150 | 5220 | - | 0.21 | 747252/1625 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ E1 |
| 415 | 3.5 | 150 | 5220 | - | 0.27 | 20757/50 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ D1 |
| 391 | 3.7 | 150 | 5220 | - | 0.32 | 9768/25 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ C1 |
| 340.63 | 4.3 | 150 | 5220 | - | 0.36 | 110704/325 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ B1 |
| 314.27 | 4.6 | 150 | 5220 | - | 0.19 | 428978/1365 | ✓ | | | | | | 2KJ3320 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | | | |
|------------------------|--------------|--|--|--|--|---------------|---|---|---|---|---|--|--|--|
| Shaft design | 1 or 9 | | | | | see page 9/47 | | | | | | | | |
| Adapter size | KS | | | | | A | E | H | K | M | 1 | | | |
| | | | | | | B | F | J | | N | | | | |
| | | | | | | C | | | | | | | | |
| | | | | | | D | | | | | | | | |
| Adapter type | | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | | | | | see page 9/40 | | | | | | | | |

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) |
|------------------|--------------|----------------|---------------|----------------------|--|-----------------|---------|--------------------------|------------|------------|------------|--|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10 ⁻⁴ kgm ² | R_{ex} | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 8.2 | |
| FZ.39-D19 | | | | | | | | | | | | |
| 8247 | 0.18 | 230 | 6040 | - | 0.04 | 262670067/31850 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ N1 |
| 7497 | 0.19 | 230 | 6040 | - | 0.04 | 23879097/3185 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ M1 |
| 6380 | 0.23 | 230 | 6040 | - | 0.06 | 203197599/31850 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ L1 |
| 5800 | 0.25 | 230 | 6040 | - | 0.07 | 18472509/3185 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ K1 |
| 5057 | 0.29 | 230 | 6040 | - | 0.08 | 4956039/980 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ J1 |
| 4527 | 0.32 | 230 | 6040 | - | 0.11 | 14417568/3185 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ H1 |
| 4020 | 0.36 | 230 | 6040 | - | 0.13 | 51212403/12740 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ G1 |
| 3711 | 0.39 | 230 | 6040 | - | 0.16 | 153637209/41405 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ F1 |
| 3223 | 0.45 | 230 | 6040 | - | 0.17 | 143725131/44590 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ E1 |
| 2801 | 0.52 | 230 | 6040 | - | 0.18 | 44604351/15925 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ D1 |
| 2529 | 0.57 | 230 | 6040 | - | 0.22 | 4956039/1960 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ C1 |
| 2380 | 0.61 | 230 | 6040 | - | 0.26 | 9912078/4165 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ B1 |
| 2075 | 0.7 | 230 | 6040 | - | 0.29 | 6608052/3185 | ✓ | | | | | 2KJ3323 - ■ ■ A0 ■ - 0 ■ A1 |
| FZ.39-Z19 | | | | | | | | | | | | |
| 2028 | 0.71 | 230 | 6040 | - | 0.02 | 922746/455 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ T1 |
| 1796 | 0.81 | 230 | 6040 | - | 0.03 | 8170767/4550 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ S1 |
| 1560 | 0.93 | 230 | 6040 | - | 0.04 | 7099191/4550 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ R1 |
| 1418 | 1.0 | 230 | 6040 | - | 0.05 | 645381/455 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ Q1 |
| 1207 | 1.2 | 230 | 6040 | - | 0.07 | 5491827/4550 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ P1 |
| 1097 | 1.3 | 230 | 6040 | - | 0.08 | 499257/455 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ N1 |
| 957 | 1.5 | 230 | 6040 | - | 0.09 | 133947/140 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ M1 |
| 856 | 1.7 | 230 | 6040 | - | 0.12 | 389664/455 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ L1 |
| 761 | 1.9 | 230 | 6040 | - | 0.15 | 1384119/1820 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ K1 |
| 702 | 2.1 | 230 | 6040 | - | 0.18 | 4152357/5915 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ J1 |
| 610 | 2.4 | 230 | 6040 | - | 0.2 | 3884463/6370 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ H1 |
| 530 | 2.7 | 230 | 6040 | - | 0.21 | 1205523/2275 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ G1 |
| 478 | 3.0 | 230 | 6040 | - | 0.27 | 133947/280 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ F1 |
| 450 | 3.2 | 230 | 6040 | - | 0.32 | 267894/595 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ E1 |
| 393 | 3.7 | 230 | 6040 | - | 0.36 | 178596/455 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ D1 |
| 362 | 4.0 | 230 | 6040 | - | 0.19 | 461373/1274 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ C1 |
| 314.58 | 4.6 | 230 | 6040 | - | 0.22 | 431607/1372 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ B1 |
| 273.36 | 5.3 | 230 | 6040 | - | 0.23 | 133947/490 | ✓ | | | | | 2KJ3322 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|--|--|--|--|---------------|---|---|---|---|---|--|
| Shaft design | 1 or 9 | | | | | see page 9/47 | | | | | | |
| Adapter size | KS | | | | | A | E | H | K | M | 1 | |
| | | | | | | B | F | J | | N | | |
| | | | | | | C | | | | | | |
| | | | | | | D | | | | | | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | | | | | see page 9/40 | | | | | | |

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) |
|------------------|--------------|----------------|---------------|----------------------|-------------------------------------|---------------|---------|--------------------------|------------|------------|------------|--|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 8.2 | |
| FD.49-D19 | | | | | | | | | | | | |
| 14685 | 0.10 | 480 | 7960 | - | 0.07 | 14699730/1001 | ✓ | | | | | 2KJ3425 - ■ A0 ■ - 0 ■ C1 |
| 12805 | 0.11 | 480 | 7960 | - | 0.08 | 179265/14 | ✓ | | | | | 2KJ3425 - ■ A0 ■ - 0 ■ B1 |
| 11461 | 0.13 | 480 | 7960 | - | 0.11 | 11472960/1001 | ✓ | | | | | 2KJ3425 - ■ A0 ■ - 0 ■ A1 |
| FD.49-Z19 | | | | | | | | | | | | |
| 752 | 1.9 | 480 | 7960 | - | 0.21 | 3762/5 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ J1 |
| 679 | 2.1 | 480 | 7960 | - | 0.28 | 2717/4 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ H1 |
| 639 | 2.3 | 480 | 7960 | - | 0.32 | 10868/17 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ G1 |
| 557 | 2.6 | 480 | 7960 | - | 0.37 | 1672/3 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ F1 |
| 514 | 2.8 | 480 | 7960 | - | 0.20 | 32395/63 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ E1 |
| 447 | 3.2 | 480 | 7960 | - | 0.23 | 393965/882 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ D1 |
| 388 | 3.7 | 480 | 7960 | - | 0.25 | 2717/7 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ C1 |
| 350 | 4.1 | 480 | 7960 | - | 0.32 | 176605/504 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ B1 |
| 329.79 | 4.4 | 480 | 7960 | - | 0.37 | 353210/1071 | ✓ | | | | | 2KJ3424 - ■ A0 ■ - 0 ■ A1 |
| FZ.49-D19 | | | | | | | | | | | | |
| 11357 | 0.13 | 480 | 7960 | - | 0.02 | 46506262/4095 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ Q1 |
| 10056 | 0.14 | 480 | 7960 | - | 0.03 | 45756161/4550 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ P1 |
| 8737 | 0.17 | 480 | 7960 | - | 0.04 | 39755353/4550 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ N1 |
| 7943 | 0.18 | 480 | 7960 | - | 0.04 | 3614123/455 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ M1 |
| 6759 | 0.21 | 480 | 7960 | - | 0.06 | 30754141/4550 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ L1 |
| 6145 | 0.24 | 480 | 7960 | - | 0.07 | 2795831/455 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ K1 |
| 5358 | 0.27 | 480 | 7960 | - | 0.08 | 750101/140 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ J1 |
| 4796 | 0.3 | 480 | 7960 | - | 0.11 | 2182112/455 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ H1 |
| 4259 | 0.34 | 480 | 7960 | - | 0.13 | 23253131/5460 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ G1 |
| 3931 | 0.37 | 480 | 7960 | - | 0.16 | 23253131/5915 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ F1 |
| 3415 | 0.42 | 480 | 7960 | - | 0.17 | 21752929/6370 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ E1 |
| 2967 | 0.49 | 480 | 7960 | - | 0.18 | 6750909/2275 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ D1 |
| 2679 | 0.54 | 480 | 7960 | - | 0.22 | 750101/280 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ C1 |
| 2521 | 0.58 | 480 | 7960 | - | 0.26 | 1500202/595 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ B1 |
| 2198 | 0.66 | 480 | 7960 | - | 0.29 | 3000404/1365 | ✓ | | | | | 2KJ3325 - ■ A0 ■ - 0 ■ A1 |
| FZ.49-Z19 | | | | | | | | | | | | |
| 2149 | 0.67 | 480 | 7960 | - | 0.02 | 1256926/585 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ J1 |
| 1903 | 0.76 | 480 | 7960 | - | 0.03 | 1236653/650 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ H1 |
| 1653 | 0.88 | 480 | 7960 | - | 0.04 | 1074469/650 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ G1 |
| 1503 | 0.96 | 480 | 7960 | - | 0.05 | 97679/65 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ F1 |
| 1279 | 1.1 | 480 | 7960 | - | 0.07 | 831193/650 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ E1 |
| 1163 | 1.2 | 480 | 7960 | - | 0.08 | 75563/65 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ D1 |
| 1014 | 1.4 | 480 | 7960 | - | 0.09 | 20273/20 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ C1 |
| 907 | 1.6 | 480 | 7960 | - | 0.13 | 58976/65 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ B1 |
| 806 | 1.8 | 480 | 7960 | - | 0.15 | 628463/780 | ✓ | | | | | 2KJ3324 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | | |
|------------------------|--------------|--|---------------|---|---|---|---|--|--|--|--|--|---|
| Shaft design | 1 or 9 | | see page 9/47 | | | | | | | | | | |
| Adapter size | KS | | A | E | H | K | M | | | | | | 1 |
| | | | B | F | J | | N | | | | | | |
| | | | C | | | | | | | | | | |
| | | | D | | | | | | | | | | |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | | see page 9/40 | | | | | | | | | | |

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) | |
|------------------|--------------|----------------|---------------|----------------------|-------------------------------------|---------------|---------|--------------------------|------------|------------|------------|--|---------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 8.2 | | 10.1 10.2 |
| FD.69-D19 | | | | | | | | | | | | | |
| 13479 | 0.11 | 600 | 10800 | - | 0.08 | 94350/7 | ✓ | | | | | | 2KJ3427 - ■ A0 ■ - 0 ■ B1 |
| 12065 | 0.12 | 600 | 10800 | - | 0.11 | 12076800/1001 | ✓ | | | | | | 2KJ3427 - ■ A0 ■ - 0 ■ A1 |
| FD.69-Z19 | | | | | | | | | | | | | |
| 1200 | 1.2 | 600 | 10800 | - | 0.32 | 1200/1 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ M1 |
| 1046 | 1.4 | 600 | 10800 | - | 0.37 | 13600/13 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ L1 |
| 965 | 1.5 | 600 | 10800 | - | 0.19 | 263500/273 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ K1 |
| 838 | 1.7 | 600 | 10800 | - | 0.22 | 123250/147 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ J1 |
| 729 | 2.0 | 600 | 10800 | - | 0.23 | 5100/7 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ H1 |
| 658 | 2.2 | 600 | 10800 | - | 0.30 | 27625/42 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ G1 |
| 619 | 2.3 | 600 | 10800 | - | 0.35 | 13000/21 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ F1 |
| 587 | 2.5 | 600 | 10800 | - | 0.37 | 1760/3 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ E1 |
| 541 | 2.7 | 600 | 10800 | - | 0.20 | 34100/63 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ D1 |
| 470 | 3.1 | 600 | 10800 | - | 0.23 | 207350/441 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ C1 |
| 409 | 3.5 | 600 | 10800 | - | 0.25 | 2860/7 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ B1 |
| 369 | 3.9 | 600 | 10800 | - | 0.32 | 46475/126 | ✓ | | | | | | 2KJ3426 - ■ A0 ■ - 0 ■ A1 |
| FZ.69-D19 | | | | | | | | | | | | | |
| 11955 | 0.12 | 600 | 10800 | - | 0.02 | 9790792/819 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ Q1 |
| 10586 | 0.14 | 600 | 10800 | - | 0.03 | 4816438/455 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ P1 |
| 9197 | 0.16 | 600 | 10800 | - | 0.04 | 4184774/455 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ N1 |
| 8361 | 0.17 | 600 | 10800 | - | 0.04 | 760868/91 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ M1 |
| 7115 | 0.20 | 600 | 10800 | - | 0.06 | 3237278/455 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ L1 |
| 6468 | 0.22 | 600 | 10800 | - | 0.07 | 588596/91 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ K1 |
| 5640 | 0.26 | 600 | 10800 | - | 0.08 | 39479/7 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ J1 |
| 5048 | 0.29 | 600 | 10800 | - | 0.11 | 459392/91 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ H1 |
| 4483 | 0.32 | 600 | 10800 | - | 0.13 | 1223849/273 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ G1 |
| 4138 | 0.35 | 600 | 10800 | - | 0.16 | 4895396/1183 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ F1 |
| 3595 | 0.4 | 600 | 10800 | - | 0.17 | 2289782/637 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ E1 |
| 3124 | 0.46 | 600 | 10800 | - | 0.18 | 1421244/455 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ D1 |
| 2820 | 0.51 | 600 | 10800 | - | 0.22 | 39479/14 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ C1 |
| 2654 | 0.55 | 600 | 10800 | - | 0.26 | 315832/119 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ B1 |
| 2314 | 0.63 | 600 | 10800 | - | 0.29 | 631664/273 | ✓ | | | | | | 2KJ3327 - ■ A0 ■ - 0 ■ A1 |
| FZ.69-Z19 | | | | | | | | | | | | | |
| 2262 | 0.64 | 600 | 10800 | - | 0.02 | 264616/117 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ F1 |
| 2003 | 0.72 | 600 | 10800 | - | 0.03 | 130174/65 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ E1 |
| 1740 | 0.83 | 600 | 10800 | - | 0.04 | 113102/65 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ D1 |
| 1582 | 0.92 | 600 | 10800 | - | 0.05 | 20564/13 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ C1 |
| 1346 | 1.1 | 600 | 10800 | - | 0.07 | 87494/65 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ B1 |
| 1224 | 1.2 | 600 | 10800 | - | 0.08 | 15908/13 | ✓ | | | | | | 2KJ3326 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|--|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | |
| Adapter size | KS | A | E | H | K | M | 1 | |
| | | B | F | J | | N | | |
| | | C | | | | | | |
| | | D | | | | | | |
| Adapter type | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | |

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|-------------|-------------------------|-----------------|---------|-----|----|-----|-----------------|-------------------------------|------|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.79-D39 | | | | | | | | | | | | | | | | |
| 17865 | 0.08 | 1000 | 13600 | - | 0.08 | 583103521/32640 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3430 - ■ A0 ■ - 0 ■ E1 |
| 16241 | 0.09 | 1000 | 13600 | - | 0.10 | 53009411/3264 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3430 - ■ A0 ■ - 0 ■ D1 |
| 14240 | 0.10 | 1000 | 13600 | - | 0.12 | 278875597/19584 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3430 - ■ A0 ■ - 0 ■ C1 |
| 12710 | 0.11 | 1000 | 13600 | - | 0.15 | 6914271/544 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3430 - ■ A0 ■ - 0 ■ B1 |
| 11327 | 0.13 | 1000 | 13600 | - | 0.17 | 887331445/78336 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3430 - ■ A0 ■ - 0 ■ A1 |
| FZ.79-D39 | | | | | | | | | | | | | | | | |
| 11301 | 0.13 | 1000 | 13600 | - | 0.03 | 155608271/13770 | ✓ | ✓ | | | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ N1 |
| 10023 | 0.14 | 1000 | 13600 | - | 0.05 | 6765577/675 | ✓ | ✓ | | | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ M1 |
| 8696 | 0.17 | 1000 | 13600 | - | 0.05 | 399169043/45900 | ✓ | ✓ | | | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ L1 |
| 7906 | 0.18 | 1000 | 13600 | - | 0.07 | 399169043/50490 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ K1 |
| 6780 | 0.21 | 1000 | 13600 | - | 0.08 | 155608271/22950 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ J1 |
| 6164 | 0.24 | 1000 | 13600 | - | 0.10 | 155608271/25245 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3330 - ■ A0 ■ - 0 ■ H1 |
| 5405 | 0.27 | 1000 | 13600 | - | 0.12 | 74421347/13770 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ G1 |
| 4824 | 0.30 | 1000 | 13600 | - | 0.15 | 13531154/2805 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ F1 |
| 4299 | 0.34 | 1000 | 13600 | - | 0.17 | 47359039/11016 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ E1 |
| 3968 | 0.37 | 1000 | 13600 | - | 0.21 | 3643003/918 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ D1 |
| 3474 | 0.42 | 1000 | 13600 | - | 0.25 | 10631621/3060 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ C1 |
| 3046 | 0.48 | 1000 | 13600 | - | 0.23 | 209732887/68850 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ B1 |
| 2764 | 0.52 | 1000 | 13600 | - | 0.33 | 6765577/2448 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3330 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | 5 |
| K3 | A | | B | C | | D | E | | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | | |
|------------------|-------|----------|----------|----------------------|-------------------------|---------------|---------|----|-----|----|-----------------|-----------------|-----------------|------|-------------|-------------------------------------|---------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| FZ.79-Z39 | | | | | | | | | | | | | | | | | |
| 2687 | 0.54 | 1000 | 13600 | - | 0.06 | 13059137/4860 | ✓ | ✓ | | | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ S2 |
| 2389 | 0.61 | 1000 | 13600 | - | 0.07 | 6450899/2700 | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ R1 |
| 2098 | 0.69 | 1000 | 13600 | - | 0.08 | 157339/75 | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ Q1 |
| 1907 | 0.76 | 1000 | 13600 | - | 0.10 | 314678/165 | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ P1 |
| 1632 | 0.89 | 1000 | 13600 | - | 0.12 | 1101373/675 | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ N1 |
| 1483 | 0.98 | 1000 | 13600 | - | 0.14 | 2202746/1485 | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3328 - ■ A0 ■ - 0 ■ M1 |
| 1311 | 1.1 | 1000 | 13600 | - | 0.17 | 157339/120 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ L1 |
| 1192 | 1.2 | 1000 | 13600 | - | 0.22 | 157339/132 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ K1 |
| 1044 | 1.4 | 1000 | 13600 | - | 0.26 | 6765577/6480 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ J1 |
| 964 | 1.5 | 1000 | 13600 | - | 0.31 | 520429/540 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ H1 |
| 853 | 1.7 | 1000 | 13600 | - | 0.36 | 921557/1080 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ G1 |
| 710 | 2.0 | 1000 | 13600 | - | 0.48 | 2045407/2880 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ F1 |
| 668 | 2.2 | 1000 | 13600 | - | 0.56 | 2045407/3060 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ E1 |
| 599 | 2.4 | 1000 | 13600 | - | 0.61 | 5821543/9720 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ D1 |
| 510 | 2.8 | 1000 | 13600 | - | 0.79 | 1101373/2160 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ C1 |
| 437 | 3.3 | 1000 | 13600 | - | 1.03 | 157339/360 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ B1 |
| 376 | 3.9 | 1000 | 13600 | - | 1.31 | 4877509/12960 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | 2KJ3328 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | N | | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | 5 |
| K3 | A | | B | C | | D | E | | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | | |
|------------------|-------|----------|----------|-------------|-------------------------|----------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| FD.89-D39 | | | | | | | | | | | | | | | | | |
| 17750 | 0.08 | 1850 | 17400 | - | 0.12 | 15389528/867 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3432 - ■ A0 ■ - 0 ■ B1 | |
| 15843 | 0.09 | 1850 | 17400 | - | 0.15 | 50365728/3179 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3432 - ■ A0 ■ - 0 ■ A1 | |
| FD.89-Z39 | | | | | | | | | | | | | | | | | |
| 648 | 2.2 | 1850 | 17400 | - | 0.75 | 47389680/73117 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3431 - ■ A0 ■ - 0 ■ E1 | |
| 581 | 2.5 | 1850 | 17400 | - | 0.85 | 7493240/12903 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3431 - ■ A0 ■ - 0 ■ D1 | |
| 494 | 2.9 | 1850 | 17400 | - | 1.12 | 2126460/4301 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3431 - ■ A0 ■ - 0 ■ C1 | |
| 424 | 3.4 | 1850 | 17400 | - | 1.48 | 1822680/4301 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3431 - ■ A0 ■ - 0 ■ B1 | |
| 365 | 4 | 1850 | 17400 | - | 1.91 | 1569530/4301 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3431 - ■ A0 ■ - 0 ■ A1 | |
| FZ.89-D39 | | | | | | | | | | | | | | | | | |
| 14522 | 0.1 | 1850 | 17400 | - | 0.03 | 33327322/2295 | ✓ | ✓ | | | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ N1 | |
| 12880 | 0.11 | 1850 | 17400 | - | 0.05 | 2898028/225 | ✓ | ✓ | | | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ M1 | |
| 11175 | 0.13 | 1850 | 17400 | - | 0.05 | 42745913/3825 | ✓ | ✓ | | | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ L1 | |
| 10159 | 0.14 | 1850 | 17400 | - | 0.07 | 85491826/8415 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ K1 | |
| 8713 | 0.17 | 1850 | 17400 | - | 0.08 | 33327322/3825 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ J1 | |
| 7921 | 0.18 | 1850 | 17400 | - | 0.10 | 66654644/8415 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3332 - ■ A0 ■ - 0 ■ H1 | |
| 6945 | 0.21 | 1850 | 17400 | - | 0.12 | 15939154/2295 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ G1 | |
| 6299 | 0.23 | 1850 | 17400 | - | 0.15 | 5796056/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ F1 | |
| 5525 | 0.26 | 1850 | 17400 | - | 0.17 | 5071549/918 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ E1 | |
| 5100 | 0.28 | 1850 | 17400 | - | 0.21 | 10143098/1989 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ D1 | |
| 4465 | 0.32 | 1850 | 17400 | - | 0.25 | 1138511/255 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ C1 | |
| 3915 | 0.37 | 1850 | 17400 | - | 0.23 | 44919434/11475 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ B1 | |
| 3552 | 0.41 | 1850 | 17400 | - | 0.33 | 724507/204 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3332 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|--|---|---|
| Shaft design | 1 or 9 | see page 9/47 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | 2 |
| | KS | A | | | E | H | K | M | | | | 1 |
| | | B | | | F | J | | N | | | | |
| | | C | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | 5 |
| K3 | A | | B | C | | D | E | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | 9 | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-------------------|-------|----------|----------|-------------|-------------------------|--------------------|---------|-----|----|-----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | 3.1 | | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FZ.89-Z39 | | | | | | | | | | | | | | | | |
| 3453 | 0.42 | 1850 | 17400 | - | 0.06 | 1398467/405 | ✓ | ✓ | | | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ P1 |
| 3070 | 0.47 | 1850 | 17400 | - | 0.07 | 690809/225 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ N1 |
| 2696 | 0.54 | 1850 | 17400 | - | 0.08 | 67396/25 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ M1 |
| 2451 | 0.59 | 1850 | 17400 | - | 0.10 | 134792/55 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ L1 |
| 2097 | 0.69 | 1850 | 17400 | - | 0.12 | 471772/225 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ K1 |
| 1906 | 0.76 | 1850 | 17400 | - | 0.14 | 943544/495 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3331 - ■ A0 ■ - 0 ■ J1 |
| 1685 | 0.86 | 1850 | 17400 | - | 0.17 | 16849/10 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ H1 |
| 1532 | 0.95 | 1850 | 17400 | - | 0.22 | 16849/11 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ G1 |
| 1342 | 1.1 | 1850 | 17400 | - | 0.26 | 724507/540 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ F1 |
| 1238 | 1.2 | 1850 | 17400 | - | 0.31 | 724507/585 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ E1 |
| 1097 | 1.3 | 1850 | 17400 | - | 0.36 | 98687/90 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ D1 |
| 913 | 1.6 | 1850 | 17400 | - | 0.48 | 219037/240 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ C1 |
| 859 | 1.7 | 1850 | 17400 | - | 0.56 | 219037/255 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ B1 |
| 770 | 1.9 | 1850 | 17400 | - | 0.61 | 623413/810 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3331 - ■ A0 ■ - 0 ■ A1 |
| FD.109-D39 | | | | | | | | | | | | | | | | |
| 22701 | 0.06 | 3100 | 25000 | - | 0.05 | 5286392566/232875 | ✓ | ✓ | | | | | | | | 2KJ3434 - ■ A0 ■ - 0 ■ L1 |
| 20637 | 0.07 | 3100 | 25000 | - | 0.07 | 10572785132/512325 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3434 - ■ A0 ■ - 0 ■ K1 |
| 17699 | 0.08 | 3100 | 25000 | - | 0.08 | 179199748/10125 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3434 - ■ A0 ■ - 0 ■ J1 |
| 16090 | 0.09 | 3100 | 25000 | - | 0.10 | 358399496/22275 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3434 - ■ A0 ■ - 0 ■ H1 |
| 14108 | 0.10 | 3100 | 25000 | - | 0.12 | 1971197228/139725 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ G1 |
| 12592 | 0.12 | 3100 | 25000 | - | 0.15 | 716798992/56925 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ F1 |
| 11222 | 0.13 | 3100 | 25000 | - | 0.18 | 313599559/27945 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ E1 |
| 10359 | 0.14 | 3100 | 25000 | - | 0.21 | 96492172/9315 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ D1 |
| 9069 | 0.16 | 3100 | 25000 | - | 0.25 | 140799802/15525 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ C1 |
| 7952 | 0.18 | 3100 | 25000 | - | 0.23 | 5555192188/698625 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ B1 |
| 7214 | 0.2 | 3100 | 25000 | - | 0.33 | 44799937/6210 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3434 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|---|--|--|--|--|--|--|--|--|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | see page 9/47 | | | | | | | | | | | | | | | | | | | | | | | |
| | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | | | | | | | | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | | | | | | | | |
| | KS | | A | | E | H | K | M | | | | | | | | 1 | | | | | | | | |
| | | | B | | F | J | | N | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | | | | | | | | |
| | K3 | | A | | B | C | | D | E | | | | | | | 3 | | | | | | | | |
| | A/AZ* | | | | D | E | F | G | H | J | | | | | | 9 | | | | | | | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | | | | | | | | | |
| | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-------------------|-------|----------|----------|-------------|-------------------------|-------------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.109-Z39 | | | | | | | | | | | | | | | | |
| 7014 | 0.21 | 3100 | 25000 | - | 0.06 | 2940126098/419175 | ✓ | ✓ | | | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ A2 |
| 6237 | 0.23 | 3100 | 25000 | - | 0.07 | 1452351446/232875 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ X1 |
| 5476 | 0.26 | 3100 | 25000 | - | 0.09 | 141692824/25875 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ W1 |
| 4978 | 0.29 | 3100 | 25000 | - | 0.10 | 283385648/56925 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ V1 |
| 4259 | 0.34 | 3100 | 25000 | - | 0.12 | 991849768/232875 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ U1 |
| 3872 | 0.37 | 3100 | 25000 | - | 0.15 | 1983699536/512325 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3433 - ■ A0 ■ - 0 ■ T1 |
| 3423 | 0.42 | 3100 | 25000 | - | 0.17 | 17711603/5175 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ S1 |
| 3111 | 0.47 | 3100 | 25000 | - | 0.23 | 35423206/11385 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ R1 |
| 2725 | 0.53 | 3100 | 25000 | - | 0.27 | 761598929/279450 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ Q1 |
| 2516 | 0.58 | 3100 | 25000 | - | 0.32 | 117169066/46575 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ P1 |
| 2227 | 0.65 | 3100 | 25000 | - | 0.38 | 103739389/46575 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ N1 |
| 1854 | 0.78 | 3100 | 25000 | - | 0.50 | 230250839/124200 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ M1 |
| 1745 | 0.83 | 3100 | 25000 | - | 0.59 | 27088334/15525 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ L1 |
| 1563 | 0.93 | 3100 | 25000 | - | 0.64 | 655329311/419175 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ K1 |
| 1331 | 1.1 | 3100 | 25000 | - | 0.84 | 123981221/93150 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ J1 |
| 1141 | 1.3 | 3100 | 25000 | - | 1.10 | 17711603/15525 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ H1 |
| 982 | 1.5 | 3100 | 25000 | - | 1.40 | 549059693/558900 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ G1 |
| 810 | 1.8 | 3100 | 25000 | - | 0.73 | 154343969/190440 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ F1 |
| 763 | 1.9 | 3100 | 25000 | - | 0.84 | 18158114/23805 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ E1 |
| 683 | 2.1 | 3100 | 25000 | - | 0.96 | 439286681/642735 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ D1 |
| 582 | 2.5 | 3100 | 25000 | - | 1.28 | 83108291/142830 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ C1 |
| 499 | 2.9 | 3100 | 25000 | - | 1.70 | 11872613/23805 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ B1 |
| 429 | 3.4 | 3100 | 25000 | - | 2.20 | 368051003/856980 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3433 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 see page 9/47 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | 5 | |
| | K3 | A | | B | C | | D | E | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|-------------------|-------|----------|----------|-------------|-------------------------|-------------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.129-D49 | | | | | | | | | | | | | | | | |
| 27777 | 0.05 | 4850 | 37200 | - | 0.08 | 31110629/1120 | ✓ | ✓ | | | | | | | | 2KJ3436 - ■ A0 ■ - 0 ■ N1 |
| 25252 | 0.06 | 4850 | 37200 | - | 0.10 | 2828239/112 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3436 - ■ A0 ■ - 0 ■ M1 |
| 21605 | 0.07 | 4850 | 37200 | - | 0.12 | 31110629/1440 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3436 - ■ A0 ■ - 0 ■ L1 |
| 19641 | 0.07 | 4850 | 37200 | - | 0.14 | 2828239/144 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3436 - ■ A0 ■ - 0 ■ K1 |
| 17361 | 0.08 | 4850 | 37200 | - | 0.17 | 31110629/1792 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3436 - ■ A0 ■ - 0 ■ J1 |
| 15783 | 0.09 | 4850 | 37200 | - | 0.22 | 14141195/896 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3436 - ■ A0 ■ - 0 ■ H1 |
| 13824 | 0.10 | 4850 | 37200 | - | 0.26 | 1337757047/96768 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3436 - ■ A0 ■ - 0 ■ G1 |
| 12761 | 0.11 | 4850 | 37200 | - | 0.31 | 1337757047/104832 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3436 - ■ A0 ■ - 0 ■ F1 |
| 11298 | 0.13 | 4850 | 37200 | - | 0.37 | 1275535789/112896 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3436 - ■ A0 ■ - 0 ■ E1 |
| 9404 | 0.15 | 4850 | 37200 | - | 0.50 | 404438177/43008 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3436 - ■ A0 ■ - 0 ■ D1 |
| 8851 | 0.16 | 4850 | 37200 | - | 0.59 | 23790481/2688 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3436 - ■ A0 ■ - 0 ■ C1 |
| 7930 | 0.18 | 4850 | 37200 | - | 0.65 | 1151093273/145152 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3436 - ■ A0 ■ - 0 ■ B1 |
| 6751 | 0.21 | 4850 | 37200 | - | 0.85 | 31110629/4608 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3436 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---------------|---|--|--|--|--|--|---|---|--|--|
| Shaft design | 1 or 9 | | | | | | | see page 9/47 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | | |
| | KS | | A | | | E | H | K | M | | | | | | | 1 | | |
| | | | B | | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | | | | | | | 3 | | | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | | | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|-------------------|-------|----------|----------|-------------|-------------------------|------------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.129-Z49 | | | | | | | | | | | | | | | | |
| 6604 | 0.22 | 4850 | 37200 | - | 0.18 | 177513589/26880 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3435 - ■ A0 ■ - 0 ■ B2 |
| 6004 | 0.24 | 4850 | 37200 | - | 0.21 | 16137599/2688 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3435 - ■ A0 ■ - 0 ■ A2 |
| 5106 | 0.28 | 4850 | 37200 | - | 0.27 | 9150185/1792 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3435 - ■ A0 ■ - 0 ■ X1 |
| 4642 | 0.31 | 4850 | 37200 | - | 0.32 | 4159175/896 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3435 - ■ A0 ■ - 0 ■ W1 |
| 4142 | 0.35 | 4850 | 37200 | - | 0.38 | 133592701/32256 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3435 - ■ A0 ■ - 0 ■ V1 |
| 3714 | 0.39 | 4850 | 37200 | - | 0.45 | 831835/224 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3435 - ■ A0 ■ - 0 ■ U1 |
| 3347 | 0.43 | 4850 | 37200 | - | 0.53 | 107972183/32256 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3435 - ■ A0 ■ - 0 ■ T1 |
| 3090 | 0.47 | 4850 | 37200 | - | 0.63 | 107972183/34944 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3435 - ■ A0 ■ - 0 ■ S1 |
| 2821 | 0.51 | 4850 | 37200 | - | 0.75 | 53071073/18816 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ R1 |
| 2340 | 0.62 | 4850 | 37200 | - | 0.95 | 100652035/43008 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ Q1 |
| 2203 | 0.66 | 4850 | 37200 | - | 1.10 | 100652035/45696 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ P1 |
| 2080 | 0.70 | 4850 | 37200 | - | 1.25 | 100652035/48384 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ N1 |
| 1770 | 0.82 | 4850 | 37200 | - | 1.53 | 23790481/13440 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ M1 |
| 1516 | 0.96 | 4850 | 37200 | - | 1.89 | 1164569/768 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ L1 |
| 1333 | 1.1 | 4850 | 37200 | - | 2.3 | 86011739/64512 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ K1 |
| 1125 | 1.3 | 4850 | 37200 | - | 2.9 | 34770703/30912 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ J1 |
| 980 | 1.5 | 4850 | 37200 | - | 3.9 | 5490111/5600 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ H1 |
| 967 | 1.5 | 4850 | 37200 | - | 1.51 | 27620791/28560 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ G1 |
| 913 | 1.6 | 4850 | 37200 | - | 1.71 | 27620791/30240 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ F1 |
| 777 | 1.9 | 4850 | 37200 | - | 2.2 | 32642753/42000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ E1 |
| 666 | 2.2 | 4850 | 37200 | - | 2.8 | 1597897/2400 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ D1 |
| 585 | 2.5 | 4850 | 37200 | - | 3.5 | 118016107/201600 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ C1 |
| 494 | 2.9 | 4850 | 37200 | - | 4.5 | 47708639/96600 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ B1 |
| 430 | 3.4 | 4850 | 37200 | - | 6.0 | 7532943/17500 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3435 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---------------|---|--|--|--|--|--|---|---|--|--|
| Shaft design | 1 or 9 | | | | | | | see page 9/47 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | | |
| | KS | | A | | E | H | K | M | | | | | | | | 1 | | |
| | | | B | | F | J | | N | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | 5 | | | |
| | K3 | | A | | B | C | | D | E | | | | | | 3 | | | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | 9 | | | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|-------------------|-------|----------|----------|----------------------|-------------------------|---------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.149-D49 | | | | | | | | | | | | | | | | |
| 27793 | 0.05 | 8000 | 65000 | - | 0.08 | 1361853/49 | ✓ | ✓ | | | | | | | | 2KJ3438 - ■ A0 ■ - 0 ■ N1 |
| 25266 | 0.06 | 8000 | 65000 | - | 0.10 | 13618530/539 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3438 - ■ A0 ■ - 0 ■ M1 |
| 21617 | 0.07 | 8000 | 65000 | - | 0.12 | 151317/7 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3438 - ■ A0 ■ - 0 ■ L1 |
| 19652 | 0.07 | 8000 | 65000 | - | 0.14 | 1513170/77 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3438 - ■ A0 ■ - 0 ■ K1 |
| 17371 | 0.08 | 8000 | 65000 | - | 0.17 | 6809265/392 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3438 - ■ A0 ■ - 0 ■ J1 |
| 15791 | 0.09 | 8000 | 65000 | - | 0.22 | 34046325/2156 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3438 - ■ A0 ■ - 0 ■ H1 |
| 13832 | 0.10 | 8000 | 65000 | - | 0.26 | 10844385/784 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3438 - ■ A0 ■ - 0 ■ G1 |
| 12768 | 0.11 | 8000 | 65000 | - | 0.31 | 32533155/2548 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3438 - ■ A0 ■ - 0 ■ F1 |
| 11305 | 0.13 | 8000 | 65000 | - | 0.37 | 31019985/2744 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3438 - ■ A0 ■ - 0 ■ E1 |
| 9409 | 0.15 | 8000 | 65000 | - | 0.50 | 29506815/3136 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3438 - ■ A0 ■ - 0 ■ D1 |
| 8856 | 0.16 | 8000 | 65000 | - | 0.59 | 1735695/196 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3438 - ■ A0 ■ - 0 ■ C1 |
| 7935 | 0.18 | 8000 | 65000 | - | 0.66 | 3110405/392 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3438 - ■ A0 ■ - 0 ■ B1 |
| 6755 | 0.21 | 8000 | 65000 | - | 0.86 | 756585/112 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3438 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---------------|---|--|--|--|--|--|---|---|--|--|
| Shaft design | 1 or 9 | | | | | | | see page 9/47 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | | |
| | KS | | A | | | E | H | K | M | | | | | | | 1 | | |
| | | | B | | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | | | | | | | 3 | | | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | | | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-------------------|-------|----------|----------|-------------|-------------------------|---------------|---------|----|-----|----|-----|-----|-----|-----------------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.149-Z49 | | | | | | | | | | | | | | | | |
| 6608 | 0.22 | 8000 | 65000 | - | 0.18 | 2590191/392 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3437 - ■ A0 ■ - 0 ■ B2 |
| 6007 | 0.24 | 8000 | 65000 | - | 0.22 | 12950955/2156 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3437 - ■ A0 ■ - 0 ■ A2 |
| 5109 | 0.28 | 8000 | 65000 | - | 0.28 | 2002725/392 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3437 - ■ A0 ■ - 0 ■ X1 |
| 4545 | 0.32 | 8000 | 65000 | - | 0.34 | 10013625/2156 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3437 - ■ A0 ■ - 0 ■ W1 |
| 4144 | 0.35 | 8000 | 65000 | - | 0.39 | 3248865/784 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3437 - ■ A0 ■ - 0 ■ V1 |
| 3716 | 0.39 | 8000 | 65000 | - | 0.47 | 2002725/539 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3437 - ■ A0 ■ - 0 ■ U1 |
| 3349 | 0.43 | 8000 | 65000 | - | 0.55 | 2625795/784 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3437 - ■ A0 ■ - 0 ■ T1 |
| 3092 | 0.47 | 8000 | 65000 | - | 0.66 | 7877385/2548 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3437 - ■ A0 ■ - 0 ■ S1 |
| 2822 | 0.51 | 8000 | 65000 | - | 0.78 | 3871935/1372 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ R1 |
| 2342 | 0.62 | 8000 | 65000 | - | 1.0 | 7343325/3136 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ Q1 |
| 2204 | 0.66 | 8000 | 65000 | - | 1.16 | 7343325/3332 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ P1 |
| 2081 | 0.70 | 8000 | 65000 | - | 1.31 | 815925/392 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ N1 |
| 1771 | 0.82 | 8000 | 65000 | - | 1.62 | 347139/196 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ M1 |
| 1517 | 0.96 | 8000 | 65000 | - | 2.0 | 133515/88 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ L1 |
| 1334 | 1.1 | 8000 | 65000 | - | 2.5 | 2091735/1568 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ K1 |
| 1125 | 1.3 | 8000 | 65000 | - | 3.2 | 110295/98 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ J1 |
| 981 | 1.5 | 8000 | 65000 | - | 4.2 | 240327/245 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ H1 |
| 968 | 1.5 | 8000 | 65000 | - | 1.81 | 806058/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ G1 |
| 914 | 1.6 | 8000 | 65000 | - | 2.0 | 44781/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ F1 |
| 778 | 1.9 | 8000 | 65000 | - | 2.6 | 952614/1225 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ E1 |
| 666 | 2.2 | 8000 | 65000 | - | 3.4 | 36639/55 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ D1 |
| 586 | 2.5 | 8000 | 65000 | - | 4.3 | 574011/980 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ C1 |
| 494 | 2.9 | 8000 | 65000 | - | 5.7 | 121068/245 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ B1 |
| 431 | 3.4 | 8000 | 65000 | - | 7.5 | 2638008/6125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3437 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---------------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | see page 9/47 |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 |
| | K3 | | A | | B | C | | D | E | | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | see page 9/40 |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|-------------------|-------|----------|----------|----------------------|-------------------------|---------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.169-D69 | | | | | | | | | | | | | | | | |
| 29846 | 0.05 | 13600 | 73500 | - | 0.07 | 4387328/147 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3441 - ■ A0 ■ - 0 ■ P1 |
| 26206 | 0.06 | 13600 | 73500 | - | 0.08 | 1284096/49 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3441 - ■ A0 ■ - 0 ■ N1 |
| 23824 | 0.06 | 13600 | 73500 | - | 0.10 | 1167360/49 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3441 - ■ A0 ■ - 0 ■ M1 |
| 20382 | 0.07 | 13600 | 73500 | - | 0.12 | 428032/21 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3441 - ■ A0 ■ - 0 ■ L1 |
| 18530 | 0.08 | 13600 | 73500 | - | 0.15 | 389120/21 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3441 - ■ A0 ■ - 0 ■ K1 |
| 16379 | 0.09 | 13600 | 73500 | - | 0.17 | 802560/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3441 - ■ A0 ■ - 0 ■ J1 |
| 14890 | 0.10 | 13600 | 73500 | - | 0.23 | 729600/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3441 - ■ A0 ■ - 0 ■ H1 |
| 13042 | 0.11 | 13600 | 73500 | - | 0.26 | 5751680/441 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3441 - ■ A0 ■ - 0 ■ G1 |
| 12039 | 0.12 | 13600 | 73500 | - | 0.32 | 23006720/1911 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3441 - ■ A0 ■ - 0 ■ F1 |
| 10659 | 0.14 | 13600 | 73500 | - | 0.39 | 10968320/1029 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3441 - ■ A0 ■ - 0 ■ E1 |
| 8872 | 0.16 | 13600 | 73500 | - | 0.52 | 434720/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3441 - ■ A0 ■ - 0 ■ D1 |
| 8350 | 0.17 | 13600 | 73500 | - | 0.61 | 6955520/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3441 - ■ A0 ■ - 0 ■ C1 |
| 7482 | 0.19 | 13600 | 73500 | - | 0.68 | 9898240/1323 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3441 - ■ A0 ■ - 0 ■ B1 |
| 6370 | 0.23 | 13600 | 73500 | - | 0.89 | 133760/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3441 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | see page 9/47 | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | 4 | |
| | K2 | | | D | E | F | G | H | J | 2 | |
| | KS | | A | | E | H | K | M | | | 1 |
| | | | B | | F | J | | N | | | |
| | | | C | | | | | | | | |
| | | | D | | | | | | | | |
| | K5 | | A | | B | C | | D | E | 5 | |
| K3 | | A | | B | C | | D | E | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | 9 | | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. (Article No. supplement, see below) | |
|-------------------|--------------|----------------|---------------|----------------------|----------------------------------|----------------|---------|----|-----|----|-----|-----|-----|------|--|---------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm^2 | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | | 160 |
| - | | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | K3 | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.169-Z69 | | | | | | | | | | | | | | | | |
| 6230 | 0.23 | 13600 | 73500 | - | 0.21 | 5189888/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3440 - ■ A0 ■ - 0 ■ A2 |
| 5664 | 0.26 | 13600 | 73500 | - | 0.26 | 4718080/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3440 - ■ A0 ■ - 0 ■ X1 |
| 4817 | 0.30 | 13600 | 73500 | - | 0.33 | 4012800/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3440 - ■ A0 ■ - 0 ■ W1 |
| 4379 | 0.33 | 13600 | 73500 | - | 0.40 | 3648000/833 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3440 - ■ A0 ■ - 0 ■ V1 |
| 3907 | 0.37 | 13600 | 73500 | - | 0.47 | 9764480/2499 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3440 - ■ A0 ■ - 0 ■ U1 |
| 3503 | 0.41 | 13600 | 73500 | - | 0.57 | 2918400/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3440 - ■ A0 ■ - 0 ■ T1 |
| 3158 | 0.46 | 13600 | 73500 | - | 0.67 | 7891840/2499 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3440 - ■ A0 ■ - 0 ■ S1 |
| 2915 | 0.50 | 13600 | 73500 | - | 0.80 | 31567360/10829 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3440 - ■ A0 ■ - 0 ■ R1 |
| 2661 | 0.54 | 13600 | 73500 | - | 0.95 | 15516160/5831 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ Q1 |
| 2208 | 0.66 | 13600 | 73500 | - | 1.25 | 1839200/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ P1 |
| 2078 | 0.70 | 13600 | 73500 | - | 1.44 | 29427200/14161 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ N1 |
| 1963 | 0.74 | 13600 | 73500 | - | 1.63 | 14713600/7497 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ M1 |
| 1670 | 0.87 | 13600 | 73500 | - | 2.1 | 1391104/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ L1 |
| 1431 | 1.0 | 13600 | 73500 | - | 2.6 | 24320/17 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ K1 |
| 1258 | 1.2 | 13600 | 73500 | - | 3.2 | 3143360/2499 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ J1 |
| 1061 | 1.4 | 13600 | 73500 | - | 4.2 | 20331520/19159 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ H1 |
| 925 | 1.6 | 13600 | 73500 | - | 5.7 | 3852288/4165 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ G1 |
| 869 | 1.7 | 13600 | 73500 | - | 3.2 | 21401600/24633 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ F1 |
| 739 | 2.0 | 13600 | 73500 | - | 4.3 | 2023424/2737 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ E1 |
| 633 | 2.3 | 13600 | 73500 | - | 5.6 | 2723840/4301 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ D1 |
| 557 | 2.6 | 13600 | 73500 | - | 7.1 | 4572160/8211 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ C1 |
| 470 | 3.1 | 13600 | 73500 | - | 9.7 | 29573120/62951 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ B1 |
| 409 | 3.5 | 13600 | 73500 | - | 13 | 5603328/13685 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 2KJ3440 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 see page 9/47 | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | |
| | | | C | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | Article No. | | |
|-------------------|-------|----------|----------|----------------------|-------------------------|---------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm^2 | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| FD.189-D69 | | | | | | | | | | | | | | | | |
| 27341 | 0.05 | 19000 | 110900 | - | 0.10 | 2870816/105 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3443 - ■ A0 ■ - 0 ■ M1 |
| 23392 | 0.06 | 19000 | 110900 | - | 0.12 | 15789488/675 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3443 - ■ A0 ■ - 0 ■ L1 |
| 21265 | 0.07 | 19000 | 110900 | - | 0.15 | 2870816/135 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3443 - ■ A0 ■ - 0 ■ K1 |
| 18797 | 0.08 | 19000 | 110900 | - | 0.17 | 1973686/105 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3443 - ■ A0 ■ - 0 ■ J1 |
| 17088 | 0.08 | 19000 | 110900 | - | 0.23 | 358852/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3443 - ■ A0 ■ - 0 ■ H1 |
| 14968 | 0.10 | 19000 | 110900 | - | 0.27 | 42434249/2835 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3443 - ■ A0 ■ - 0 ■ G1 |
| 13817 | 0.10 | 19000 | 110900 | - | 0.32 | 13056692/945 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3443 - ■ A0 ■ - 0 ■ F1 |
| 12233 | 0.12 | 19000 | 110900 | - | 0.39 | 80921126/6615 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3443 - ■ A0 ■ - 0 ■ E1 |
| 10182 | 0.14 | 19000 | 110900 | - | 0.53 | 12828959/1260 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3443 - ■ A0 ■ - 0 ■ D1 |
| 9583 | 0.15 | 19000 | 110900 | - | 0.62 | 51315836/5355 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3443 - ■ A0 ■ - 0 ■ C1 |
| 8586 | 0.17 | 19000 | 110900 | - | 0.69 | 73026382/8505 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3443 - ■ A0 ■ - 0 ■ B1 |
| 7310 | 0.20 | 19000 | 110900 | - | 0.90 | 986843/135 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3443 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---------------|---|--|--|--|--|--|---|---|--|--|
| Shaft design | 1 or 9 | | | | | | | see page 9/47 | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | | |
| | KS | | A | | E | H | K | M | | | | | | | | 1 | | |
| | | | B | | F | J | | N | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | | | | | | | 3 | | | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | | | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | see page 9/40 | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | Article No. |
|-------------------|-----------------------|------------------------|------------------------|----------------------|-----------------------------------|------------------------|---------|----|-----|----|-----|-----|-----|-----------------|-----|-------------------------------------|-------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| FD.189-Z69 | | | | | | | | | | | | | | | | | |
| 7150 | 0.20 | 19000 | 110900 | - | 0.23 | 191447542/26775 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3442 - ■ A0 ■ - 0 ■ C2 | |
| 6500 | 0.22 | 19000 | 110900 | - | 0.28 | 34808644/5355 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3442 - ■ A0 ■ - 0 ■ B2 | |
| 5529 | 0.26 | 19000 | 110900 | - | 0.35 | 1973686/357 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3442 - ■ A0 ■ - 0 ■ A2 | |
| 5026 | 0.29 | 19000 | 110900 | - | 0.43 | 1794260/357 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3442 - ■ A0 ■ - 0 ■ X1 | |
| 4484 | 0.32 | 19000 | 110900 | - | 0.51 | 72039539/16065 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3442 - ■ A0 ■ - 0 ■ W1 | |
| 4021 | 0.36 | 19000 | 110900 | - | 0.62 | 1435408/357 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3442 - ■ A0 ■ - 0 ■ V1 | |
| 3624 | 0.40 | 19000 | 110900 | - | 0.73 | 58223737/16065 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3442 - ■ A0 ■ - 0 ■ U1 | |
| 3345 | 0.43 | 19000 | 110900 | - | 0.87 | 17914996/5355 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3442 - ■ A0 ■ - 0 ■ T1 | |
| 3054 | 0.47 | 19000 | 110900 | - | 1.04 | 114473788/37485 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ S1 | |
| 2534 | 0.57 | 19000 | 110900 | - | 1.38 | 10855273/4284 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ R1 | |
| 2385 | 0.61 | 19000 | 110900 | - | 1.57 | 43421092/18207 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ Q1 | |
| 2252 | 0.64 | 19000 | 110900 | - | 1.78 | 21710546/9639 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ P1 | |
| 1917 | 0.76 | 19000 | 110900 | - | 2.3 | 51315836/26775 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ N1 | |
| 1642 | 0.88 | 19000 | 110900 | - | 2.9 | 1255982/765 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ M1 | |
| 1444 | 1.0 | 19000 | 110900 | - | 3.6 | 46381621/32130 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ L1 | |
| 1218 | 1.2 | 19000 | 110900 | - | 4.8 | 150000136/123165 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ K1 | |
| 1061 | 1.4 | 19000 | 110900 | - | 6.4 | 15789488/14875 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ J1 | |
| 997 | 1.5 | 19000 | 110900 | - | 4.0 | 31578976/31671 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ H1 | |
| 848 | 1.7 | 19000 | 110900 | - | 5.4 | 74641216/87975 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ G1 | |
| 727 | 2.0 | 19000 | 110900 | - | 7.1 | 140669984/193545 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ F1 | |
| 639 | 2.3 | 19000 | 110900 | - | 9.1 | 33732088/52785 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ E1 | |
| 539 | 2.7 | 19000 | 110900 | - | 12 | 218182016/404685 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ D1 | |
| 478 | 3.0 | 19000 | 110900 | - | 12 | 8403976/17595 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ C1 | |
| 403 | 3.6 | 19000 | 110900 | - | 16 | 54357632/134895 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ B1 | |
| 351 | 4.1 | 19000 | 110900 | - | 21 | 17165568/48875 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3442 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version
 2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|--|---------------|--|--|--|--|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | see page 9/47 | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | see page 9/40 | | | | | | |

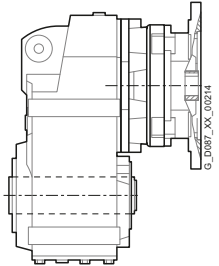
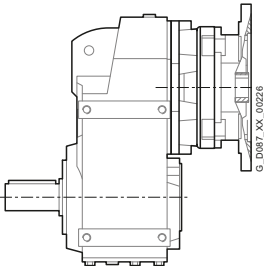
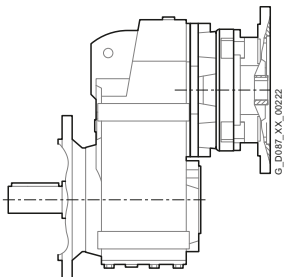
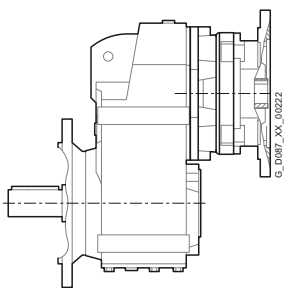
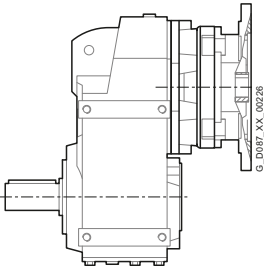
* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Parallel shaft gearboxes

Dimensional drawings

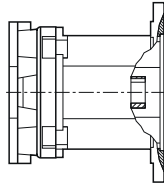
Overview

Information about dimensional drawings can be found in chapter "Introduction" on page 1/16.

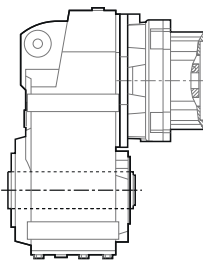
| Design | Size | Dimensional drawing on page |
|---|----------------|-----------------------------|
| Parallel shaft gearbox with adapter K4 | | |
| Shaft-mounted design | | |
|  | FZAD./FDAD.29 | 4/46 |
| | FZAD./FDAD.39 | 4/50 |
| | FZAD./FDAD.49 | 4/54 |
| | FZAD./FDAD.69 | 4/58 |
| | FZAD./FDAD.79 | 4/62 |
| | FZAD./FDAD.89 | 4/66 |
| | FZAD./FDAD.109 | 4/71 |
| | FZAD./FDAD.129 | 4/76 |
| | FZAD./FDAD.149 | 4/81 |
| | FZAD./FDAD.169 | 4/86 |
| FZAD./FDAD.189 | 4/91 | |
| Housing flange design | | |
|  | FZ.Z./FDZ.29 | 4/47 |
| | FZ.Z./FDZ.39 | 4/51 |
| | FZ.Z./FDZ.49 | 4/55 |
| | FZ.Z./FDZ.69 | 4/59 |
| | FZ.Z./FDZ.79 | 4/63 |
| | FZ.Z./FDZ.89 | 4/67 |
| | FZ.Z./FDZ.109 | 4/72 |
| | FZ.Z./FDZ.129 | 4/77 |
| | FZ.Z./FDZ.149 | 4/82 |
| | FZ.Z./FDZ.169 | 4/87 |
| FZ.Z./FDZ.189 | 4/92 | |
| Flange-mounted design | | |
|  | FZ.F./FD.F.29 | 4/48 |
| | FZ.F./FD.F.39 | 4/52 |
| | FZ.F./FD.F.49 | 4/56 |
| | FZ.F./FD.F.69 | 4/60 |
| | FZ.F./FD.F.79 | 4/64 |
| | FZ.F./FD.F.89 | 4/68 |
| | FZ.F./FD.F.109 | 4/73 |
| | FZ.F./FD.F.129 | 4/78 |
| | FZ.F./FD.F.149 | 4/83 |
| | FZ.F./FD.F.169 | 4/88 |
| FZ.F./FD.F.189 | 4/93 | |
| Flange-mounted design with VLplus reinforced bearing system | | |
|  | FZ.F./FD.F.89 | 4/69 |
| | FZ.F./FD.F.109 | 4/74 |
| | FZ.F./FD.F.129 | 4/79 |
| | FZ.F./FD.F.149 | 4/84 |
| | FZ.F./FD.F.169 | 4/89 |
| Foot-mounted design | | |
|  | FZ../FD..29 | 4/49 |
| | FZ../FD..39 | 4/53 |
| | FZ../FD..49 | 4/57 |
| | FZ../FD..69 | 4/61 |
| | FZ../FD..79 | 4/65 |
| | FZ../FD..89 | 4/70 |
| | FZ../FD..109 | 4/75 |
| | FZ../FD..129 | 4/80 |
| | FZ../FD..149 | 4/85 |
| | FZ../FD..169 | 4/90 |
| FZ../FD..189 | 4/94 | |

Overview

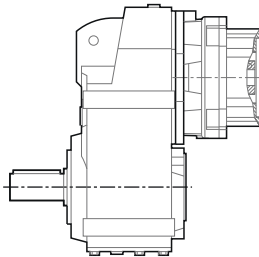
| Design | Size | Dimensional drawing on page |
|--|------------------------------|-----------------------------|
| Parallel shaft gearbox with adapter K2 | FZ../FD..29 ... FZ../FD..189 | 4/95 |



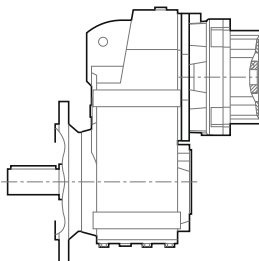
| Parallel shaft gearbox with KS adapter | Size | Dimensional drawing on page |
|--|----------------|-----------------------------|
| <i>Shaft-mounted design</i> | FZAD./FDAD.29 | 4/98 |
| | FZAD./FDAD.39 | 4/102 |
| | FZAD./FDAD.49 | 4/106 |
| | FZAD./FDAD.69 | 4/110 |
| | FZAD./FDAD.79 | 4/114 |
| | FZAD./FDAD.89 | 4/118 |
| | FZAD./FDAD.109 | 4/123 |
| | FZAD./FDAD.129 | 4/128 |
| | FZAD./FDAD.149 | 4/133 |
| | FZAD./FDAD.169 | 4/138 |
| | FZAD./FDAD.189 | 4/143 |



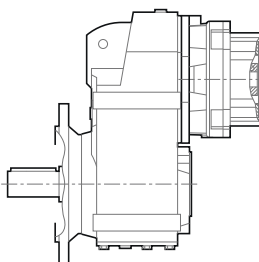
| <i>Housing flange design</i> | Size | Dimensional drawing on page |
|------------------------------|---------------|-----------------------------|
| | FZ.Z./FDZ.29 | 4/99 |
| | FZ.Z./FDZ.39 | 4/103 |
| | FZ.Z./FDZ.49 | 4/107 |
| | FZ.Z./FDZ.69 | 4/111 |
| | FZ.Z./FDZ.79 | 4/115 |
| | FZ.Z./FDZ.89 | 4/119 |
| | FZ.Z./FDZ.109 | 4/124 |
| | FZ.Z./FDZ.129 | 4/129 |
| | FZ.Z./FDZ.149 | 4/134 |
| | FZ.Z./FDZ.169 | 4/139 |
| | FZ.Z./FDZ.189 | 4/144 |



| <i>Flange-mounted design</i> | Size | Dimensional drawing on page |
|------------------------------|----------------|-----------------------------|
| | FZ.F./FD.F.29 | 4/100 |
| | FZ.F./FD.F.39 | 4/104 |
| | FZ.F./FD.F.49 | 4/108 |
| | FZ.F./FD.F.69 | 4/112 |
| | FZ.F./FD.F.79 | 4/116 |
| | FZ.F./FD.F.89 | 4/120 |
| | FZ.F./FD.F.109 | 4/125 |
| | FZ.F./FD.F.129 | 4/130 |
| | FZ.F./FD.F.149 | 4/135 |
| | FZ.F./FD.F.169 | 4/140 |
| | FZ.F./FD.F.189 | 4/145 |



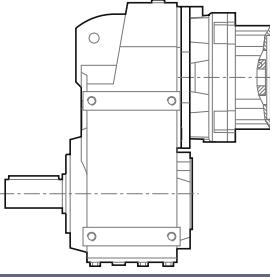
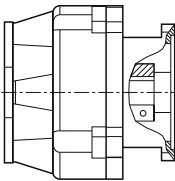
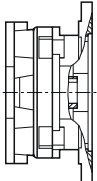
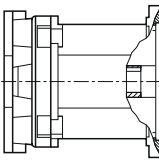
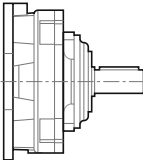
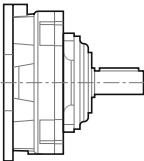
| <i>Flange-mounted design with VLplus reinforced bearing system</i> | Size | Dimensional drawing on page |
|--|----------------|-----------------------------|
| | FZ.F./FD.F.89 | 4/121 |
| | FZ.F./FD.F.109 | 4/126 |
| | FZ.F./FD.F.129 | 4/131 |
| | FZ.F./FD.F.149 | 4/136 |
| | FZ.F./FD.F.169 | 4/141 |



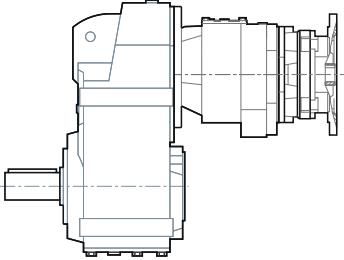
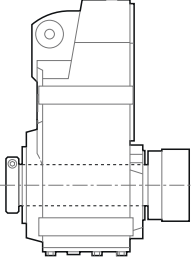
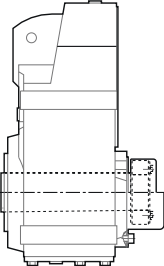
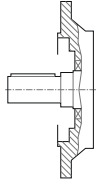
Parallel shaft gearboxes

Dimensional drawings

Overview

| Design | Gearbox type | Dimensional drawing on page |
|---|------------------------------|-----------------------------|
| Parallel shaft gearbox with KS adapter | | |
| <i>Foot-mounted design</i> | | |
|  | FZ../FD..29 | 4/101 |
| | FZ../FD..39 | 4/105 |
| | FZ../FD..49 | 4/109 |
| | FZ../FD..69 | 4/113 |
| | FZ../FD..79 | 4/117 |
| | FZ../FD..89 | 4/122 |
| | FZ../FD..109 | 4/127 |
| | FZ../FD..129 | 4/132 |
| | FZ../FD..149 | 4/137 |
| | FZ../FD..169 | 4/142 |
| FZ../FD..189 | 4/146 | |
| Parallel shaft gearbox with adapter K8 | | |
|  | FZ../FD..89 ... FZ../FD..189 | 4/147 |
| Parallel shaft gearbox with adapter K5 | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/148 |
| Parallel shaft gearbox with adapter K3 | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/150 |
| Parallel shaft gearbox with adapter A | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/152 |
| Parallel shaft gearbox with adapter AZ | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/154 |

Overview

| Design | Size | Dimensional drawing on page | |
|---|------------------------------|----------------------------------|-------|
| Parallel shaft tandem gearboxes with adapter | | | |
|  | - K4 | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/156 |
| | - K2 | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/158 |
| | - KS | FZ./FD.29-Z/D19 ... FD.189-Z/D69 | 4/159 |
| | - K5 | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/162 |
| | - K3 | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/163 |
| | - A | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/164 |
| | - AZ | FZ./FD.79-Z/D39 ... FD.189-Z/D69 | 4/165 |
| Additional versions and options | | | |
| ShaftMount assembly system | | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/166 | |
| | | | |
| Protective covers | | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/167 | |
| | | | |
| Inner contour of the flange design | | | |
|  | FZ../FD..29 ... FZ../FD..189 | 4/169 | |
| | | | |

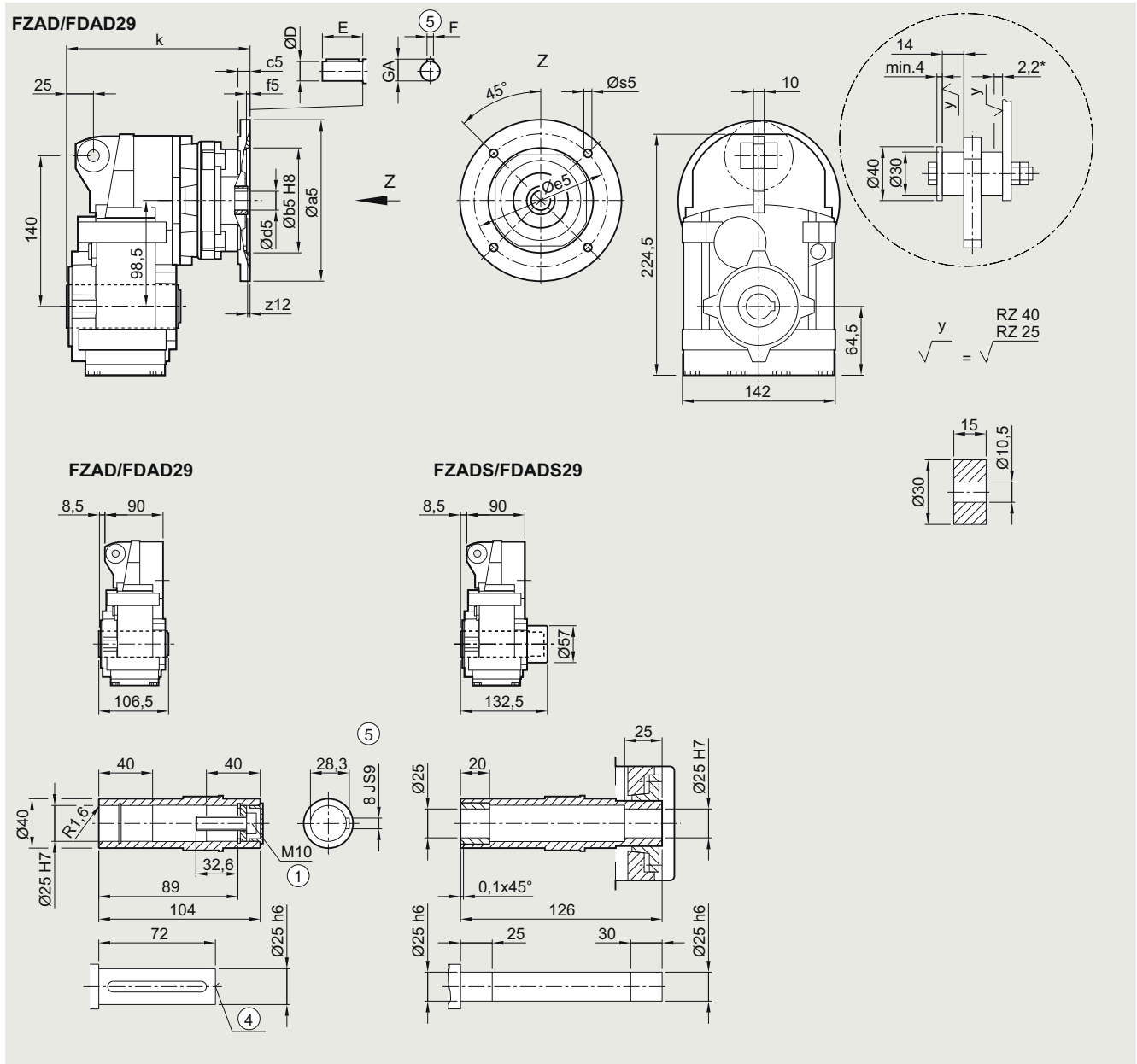
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.29 gearbox in a shaft-mounted design

4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 177.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 177.0 |
| 80 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 205.0 |
| 90 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 205.0 |

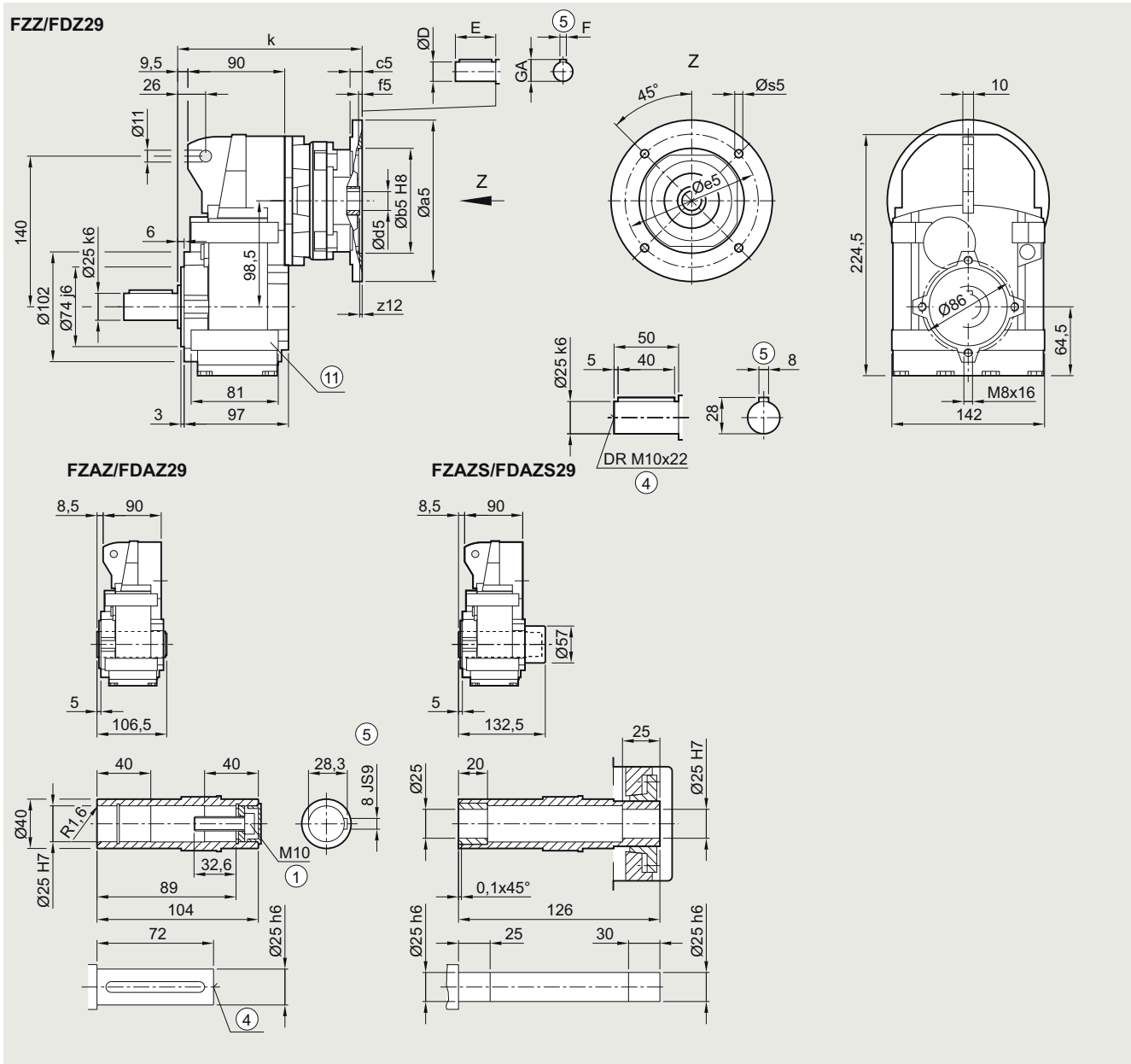
① ISO 4017

④ DIN 332

⑤ Feather key/keyway DIN 6885

¹⁾ FDADS/FZADS not possible

* Spring compression at max. torque

FD.Z./FZ.Z.29 gearbox in a housing flange design


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 177.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 177.0 |
| 80 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 205.0 |
| 90 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 205.0 |

① ISO 4017

④ DIN 332

⑤ Feather key/keyway DIN 6885¹⁾ FDADS/FZADS not possible

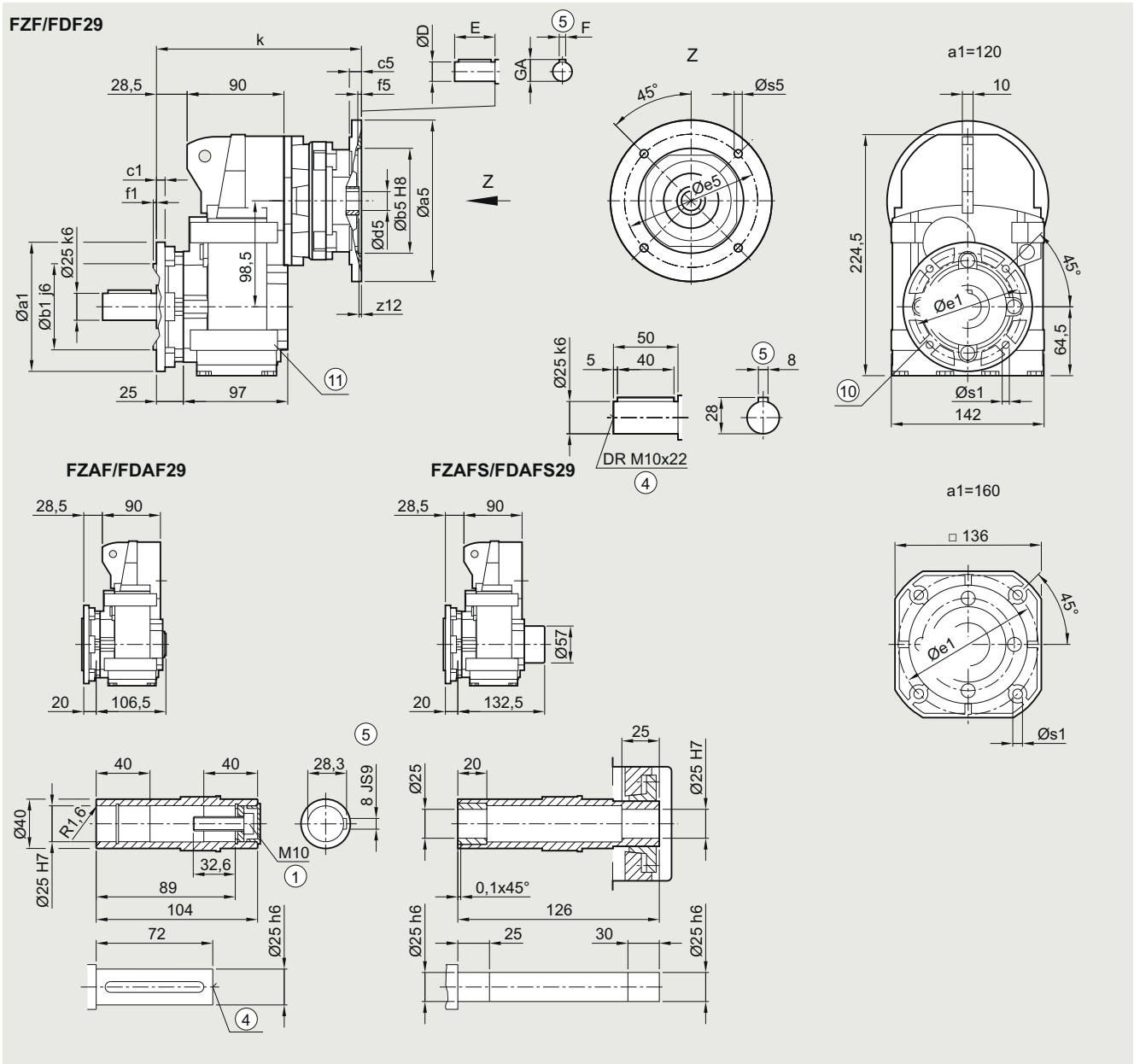
⑩ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.29 gearbox in a flange-mounted design

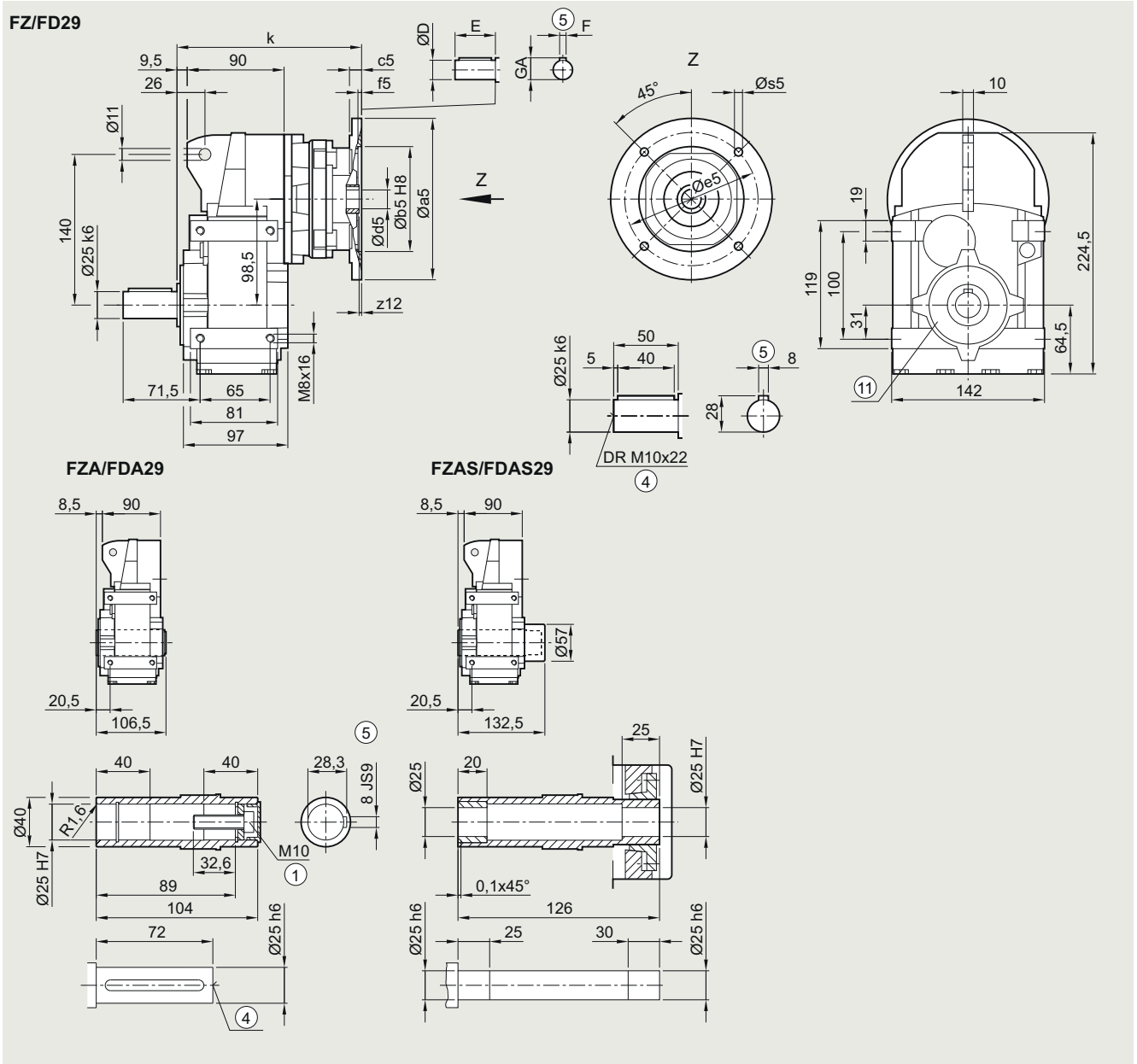


| Flange | a1 | b1 | c1 | e1 | f1 | s1 | | | | | | |
|------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| | 120 | 80 | 8 | 100 | 3.0 | 6.6 | | | | | | |
| | 160 | 110 | 9 | 130 | 3.5 | 9.0 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 196.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 196.0 |
| 80 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 224.0 |
| 90 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 224.0 |

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

¹⁾ FDADS/FZADS not possible

FD../FZ..29 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 177.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 177.0 |
| 80 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 205.0 |
| 90 ¹⁾ | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 205.0 |

① ISO 4017

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for housing flange design

¹⁾ FDADS/FZADS not possible

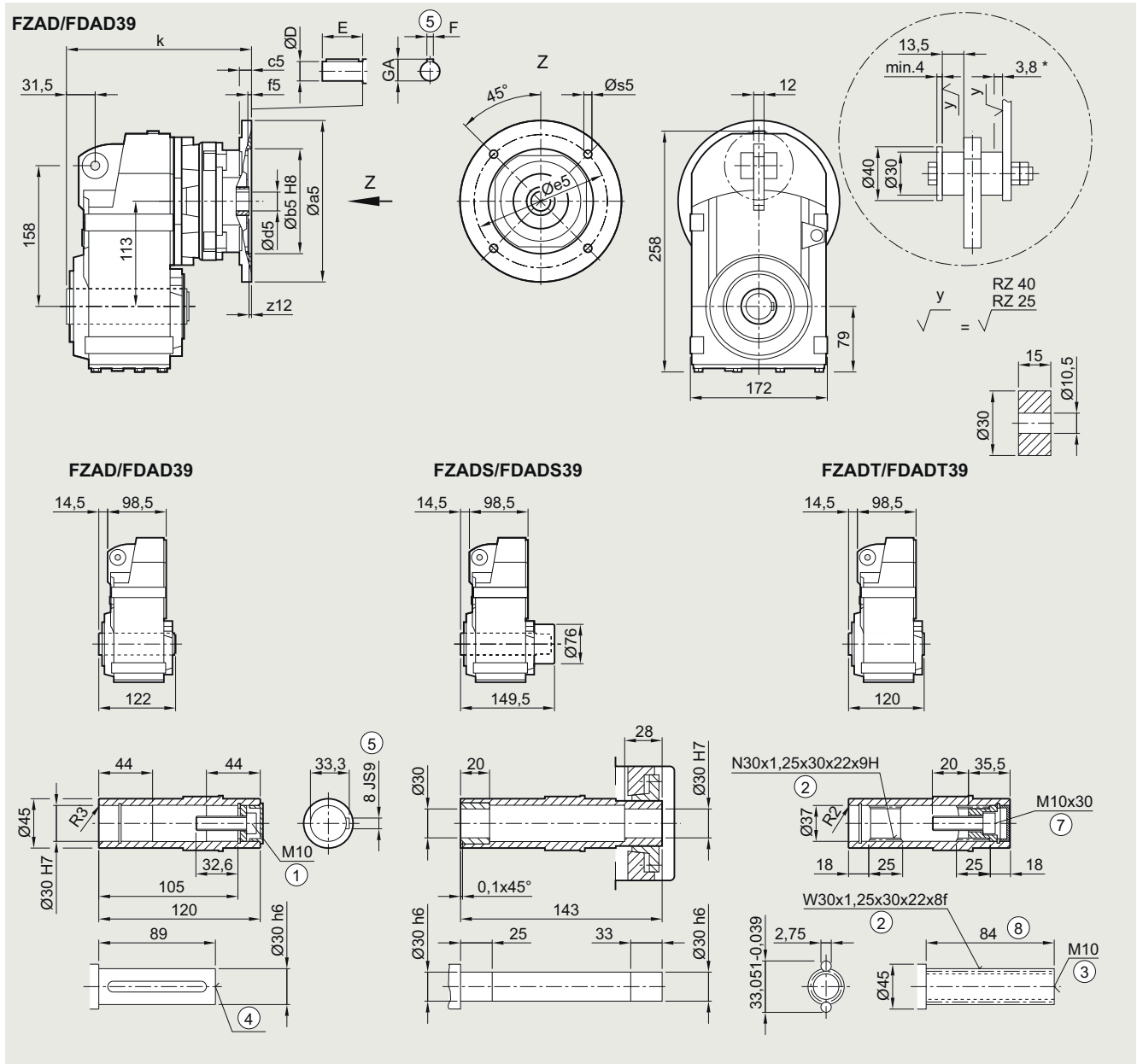
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.39 gearbox in a shaft-mounted design

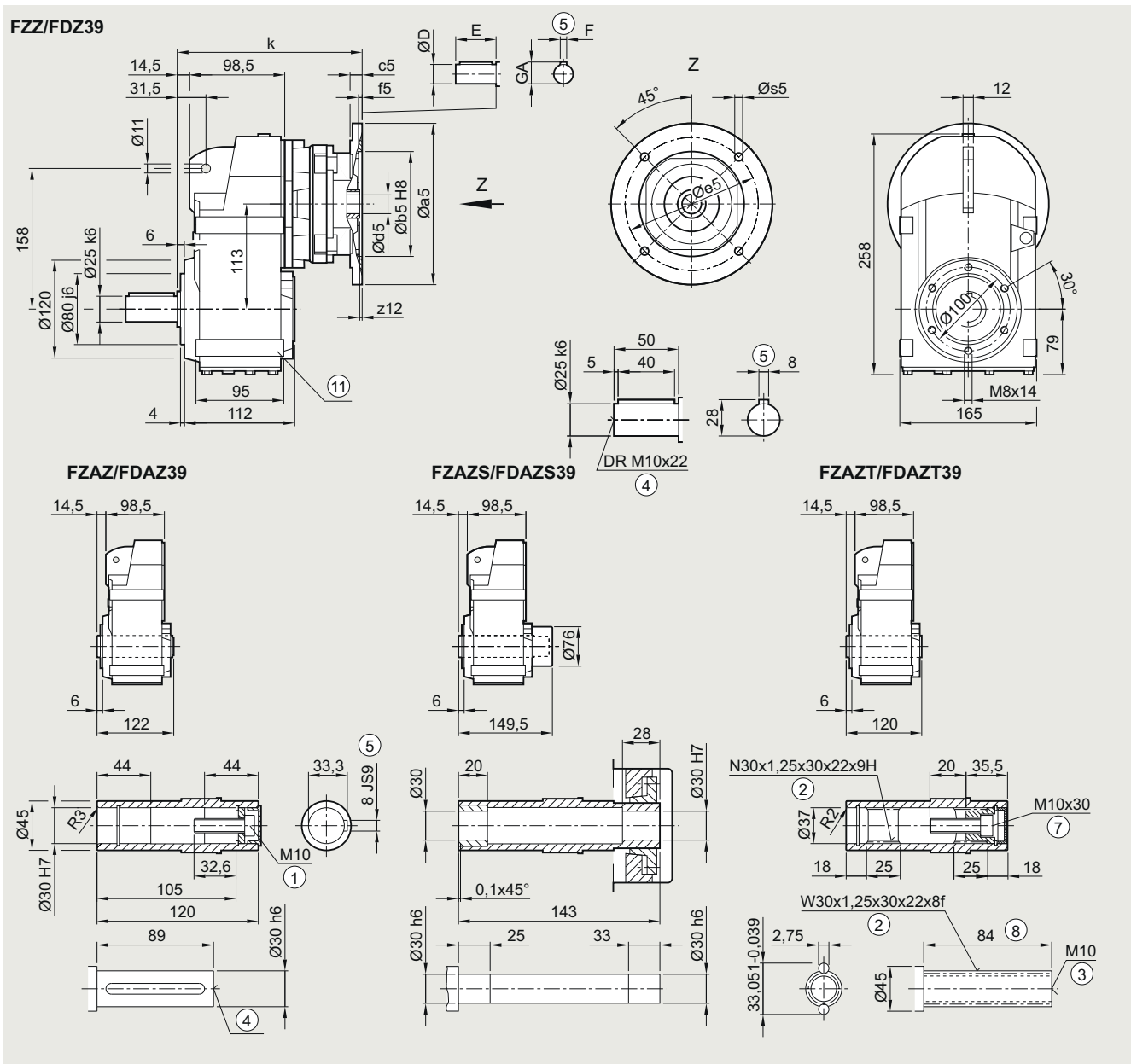
4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 190.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 190.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 218.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 218.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 273.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
 * Spring compression at max. torque 1) FDADS/FZADS not possible

FD.Z./FZ.Z.39 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 190.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 190.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 218.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 218.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 273.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design

1) FDADS/FZADS not possible

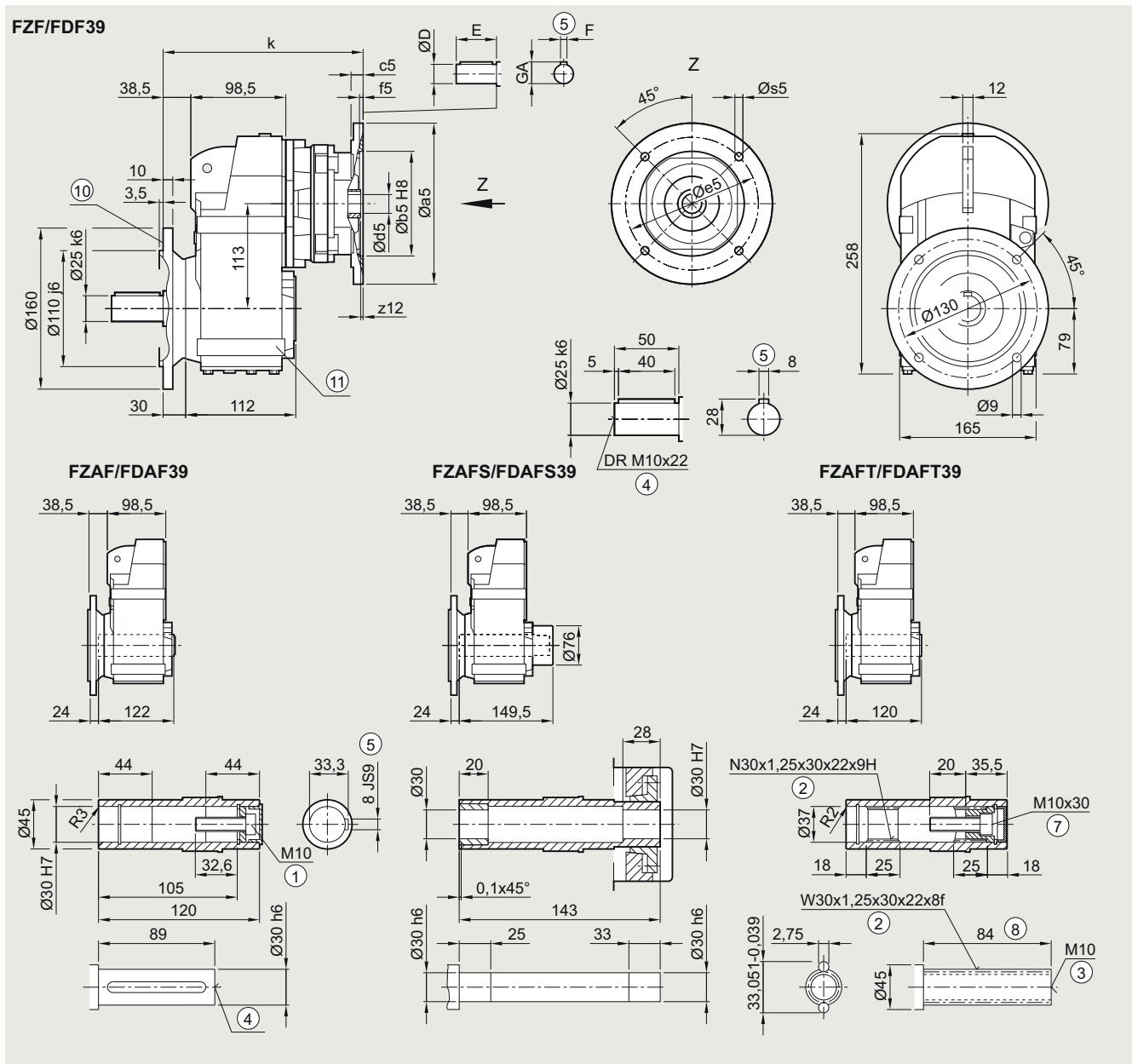
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.39 in a flange-mounted design

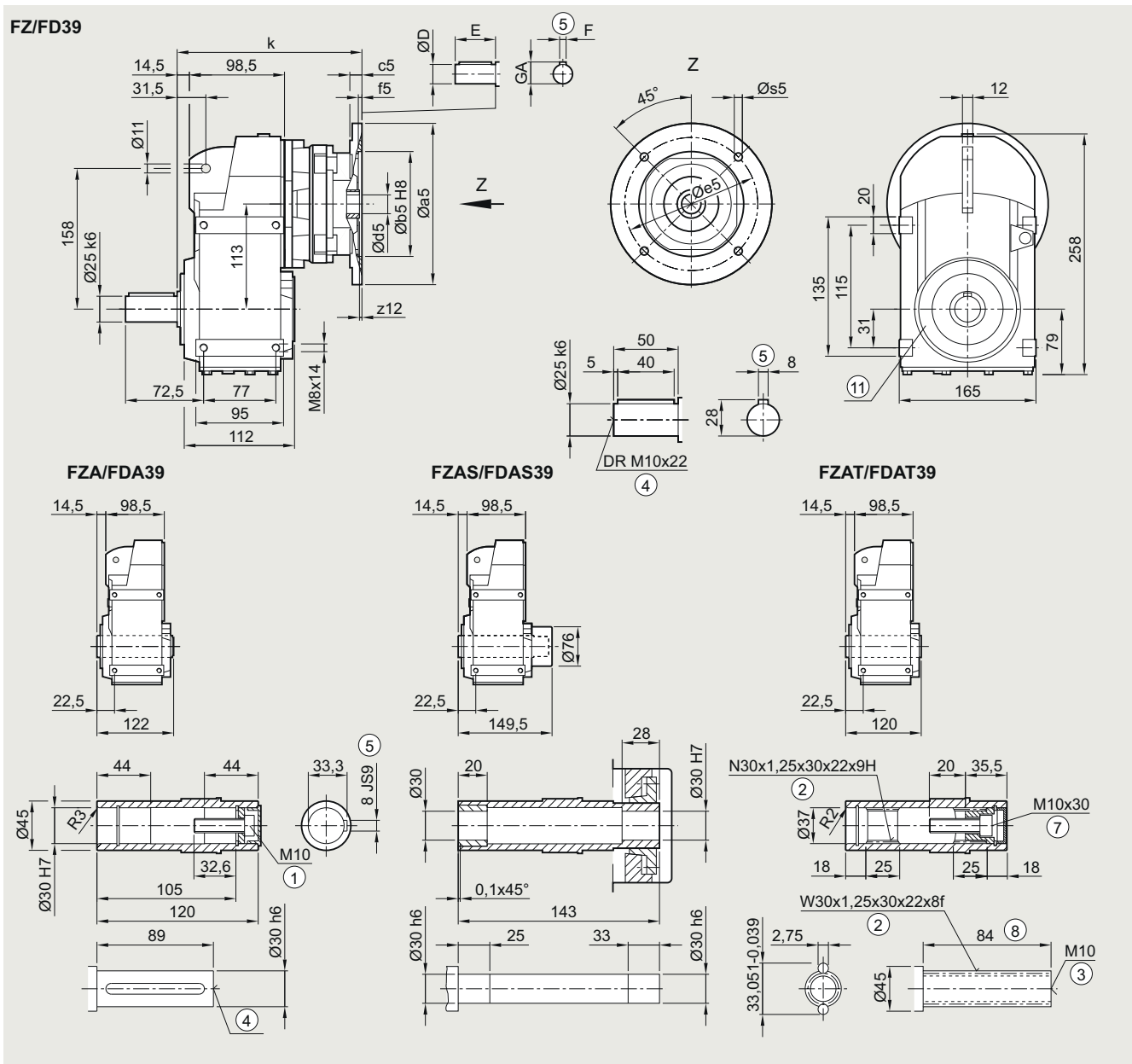
4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11.0 | 23 | 4 | 12.5 | 214.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14.0 | 30 | 5 | 16.0 | 214.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19.0 | 40 | 6 | 12.5 | 242.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24.0 | 50 | 8 | 27.0 | 242.5 |
| 100 1) | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 297.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

FD../FZ..39 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 190.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 190.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 218.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 218.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 273.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

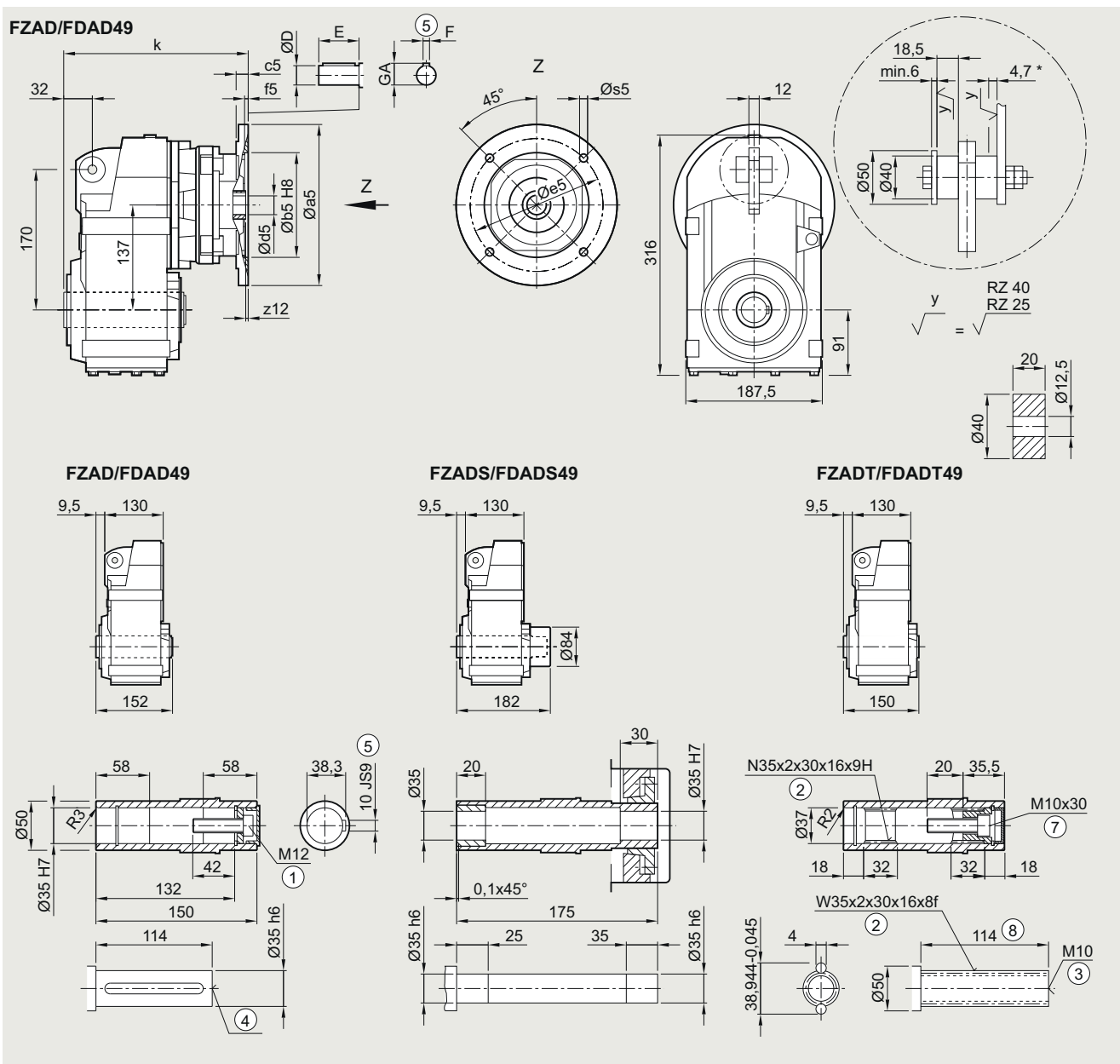
¹⁾ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.49 gearbox in a shaft-mounted design



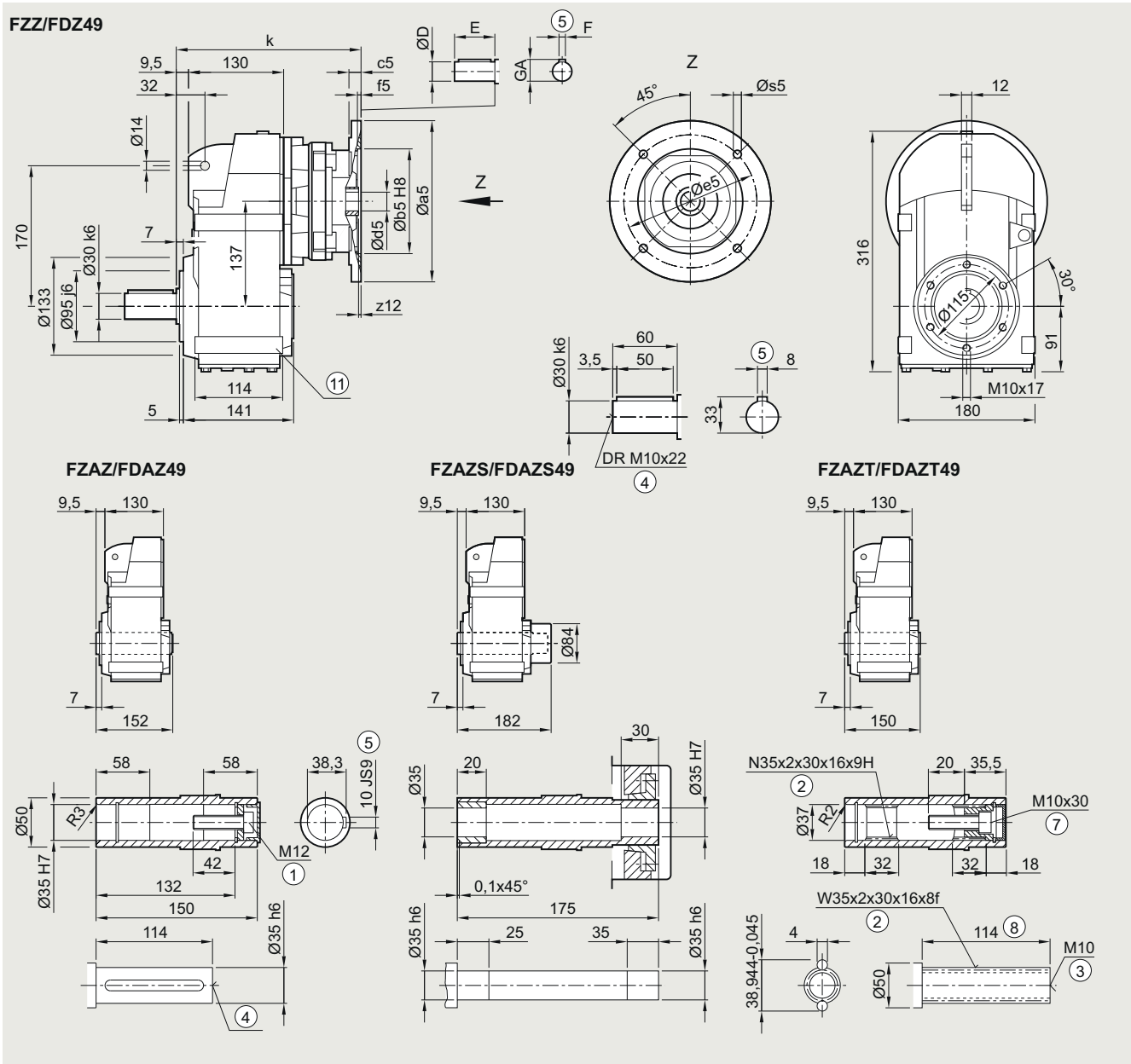
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 207.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 207.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 235.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 235.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 307.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

FD.Z./FZ.Z.49 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 207.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 207.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 235.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 235.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 307.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design ⑪ FDADS/FZADS not possible

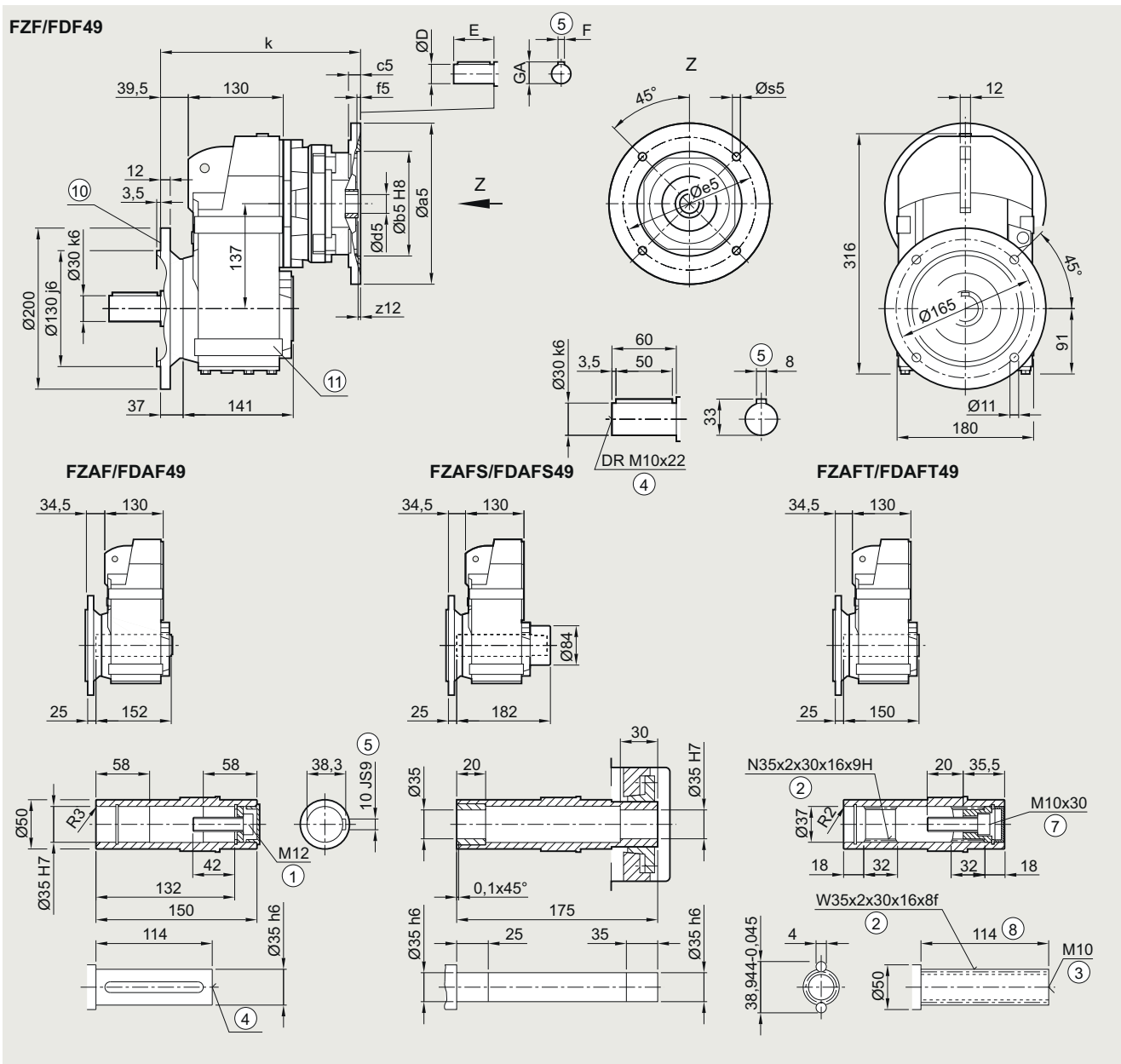
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.49 gearbox in a flange-mounted design

4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11.0 | 23 | 4 | 12.5 | 237.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14.0 | 30 | 5 | 16.0 | 237.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19.0 | 40 | 6 | 12.5 | 265.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24.0 | 50 | 8 | 27.0 | 265.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 320.0 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 320.0 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38.0 | 80 | 10 | 41.0 | 337.5 |

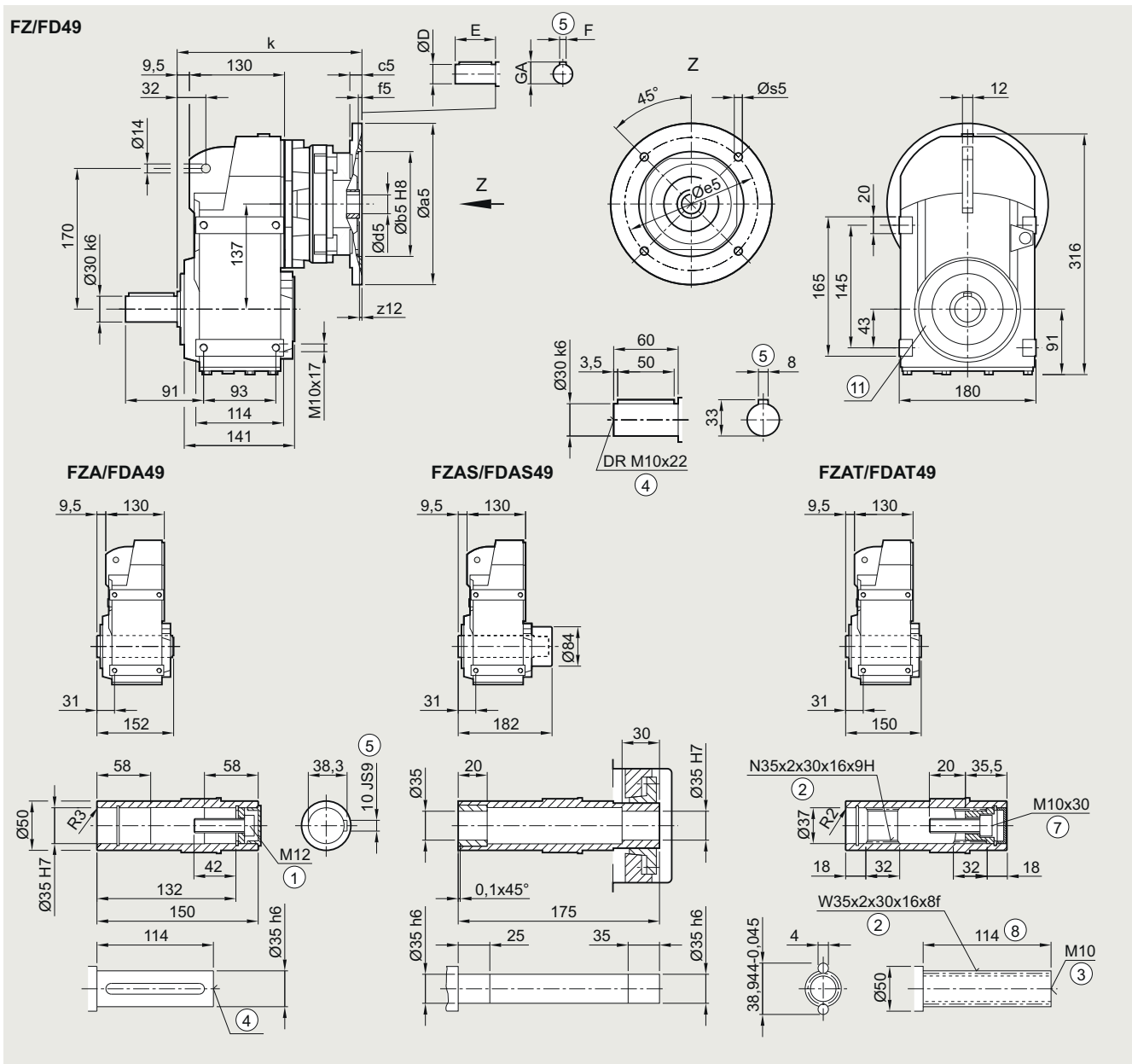
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑥ Without locating shoulder +1 mm ⑦ ISO 4762
 ⑧ For inner contour, see page 4/169 ⑨ Use bores only for foot-mounted design ⑩ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD../FZ..49 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 207.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 207.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 235.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 235.5 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 290.0 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 307.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

1) FDADS/FZADS not possible

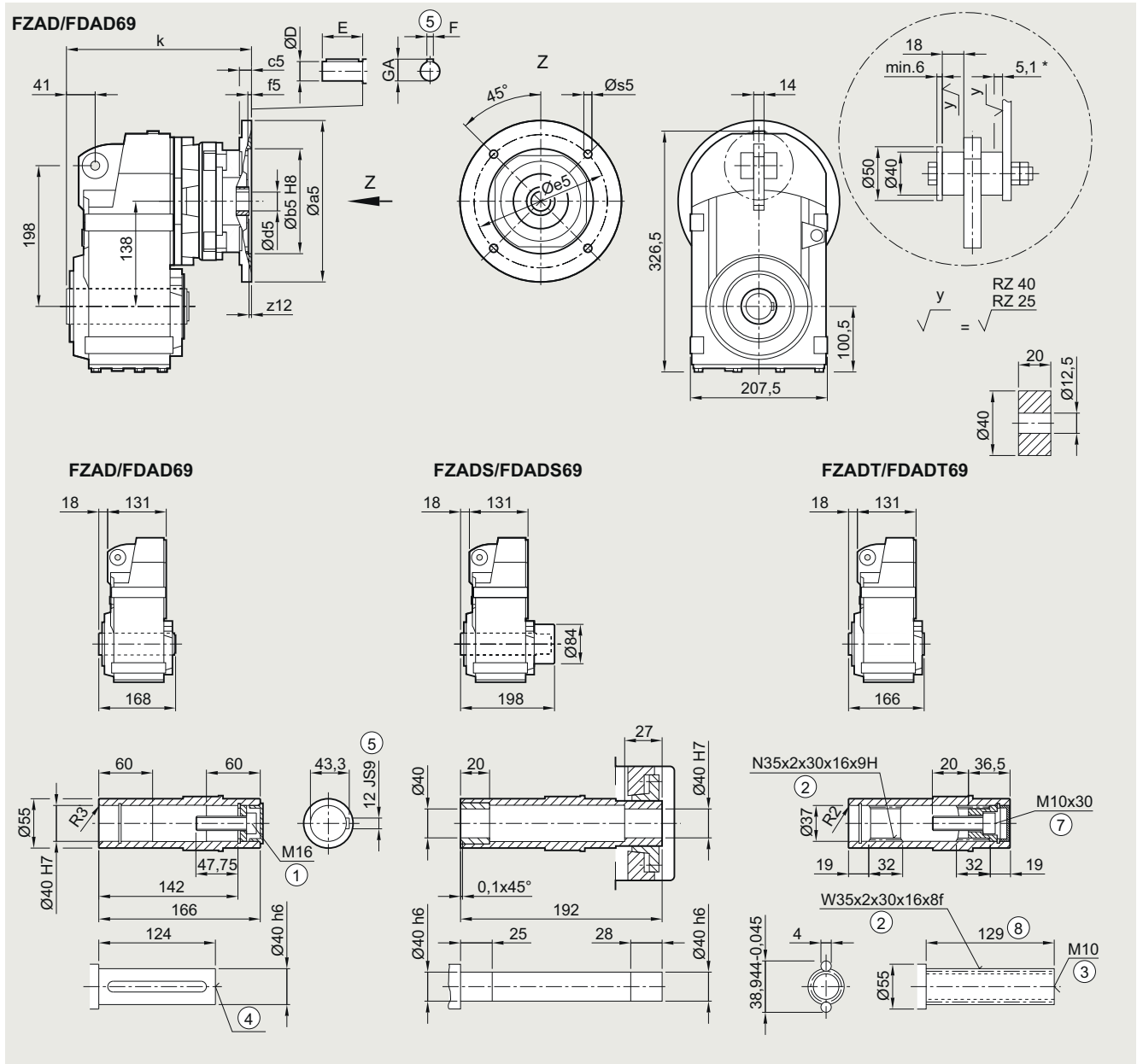
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.69 gearbox in a shaft-mounted design

4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 217.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 217.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 245.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 245.0 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 317.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

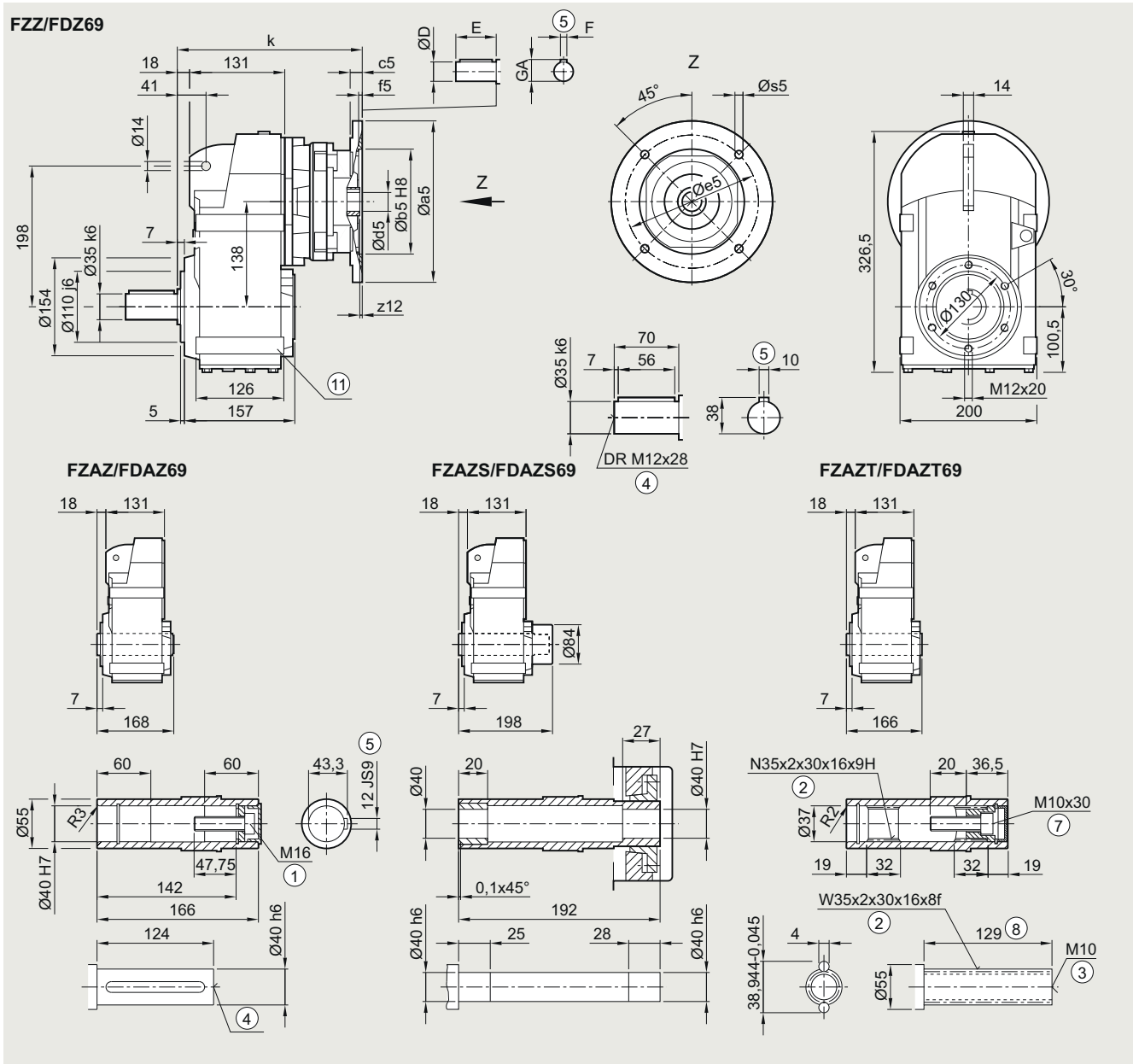
¹⁾ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.Z./FZ.Z.69 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 217.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 217.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 245.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 245.0 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 317.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

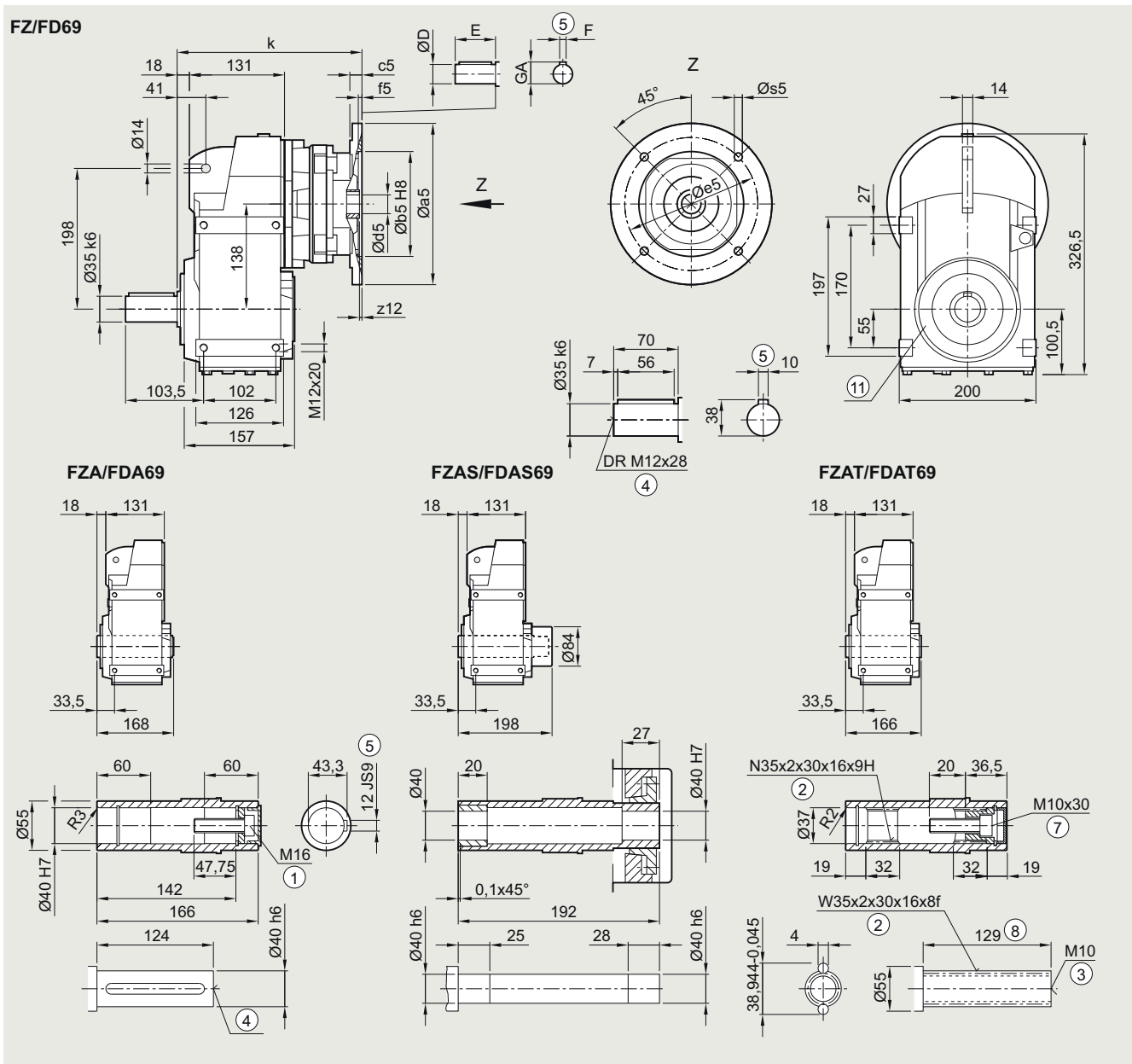
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder + 1 mm ⑧ Use bores only for foot-mounted design

⑨ FDADS/FZADS not possible

FD../FZ..69 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 217.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 217.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 245.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 245.0 |
| 100 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 112 ¹⁾ | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 299.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 317.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

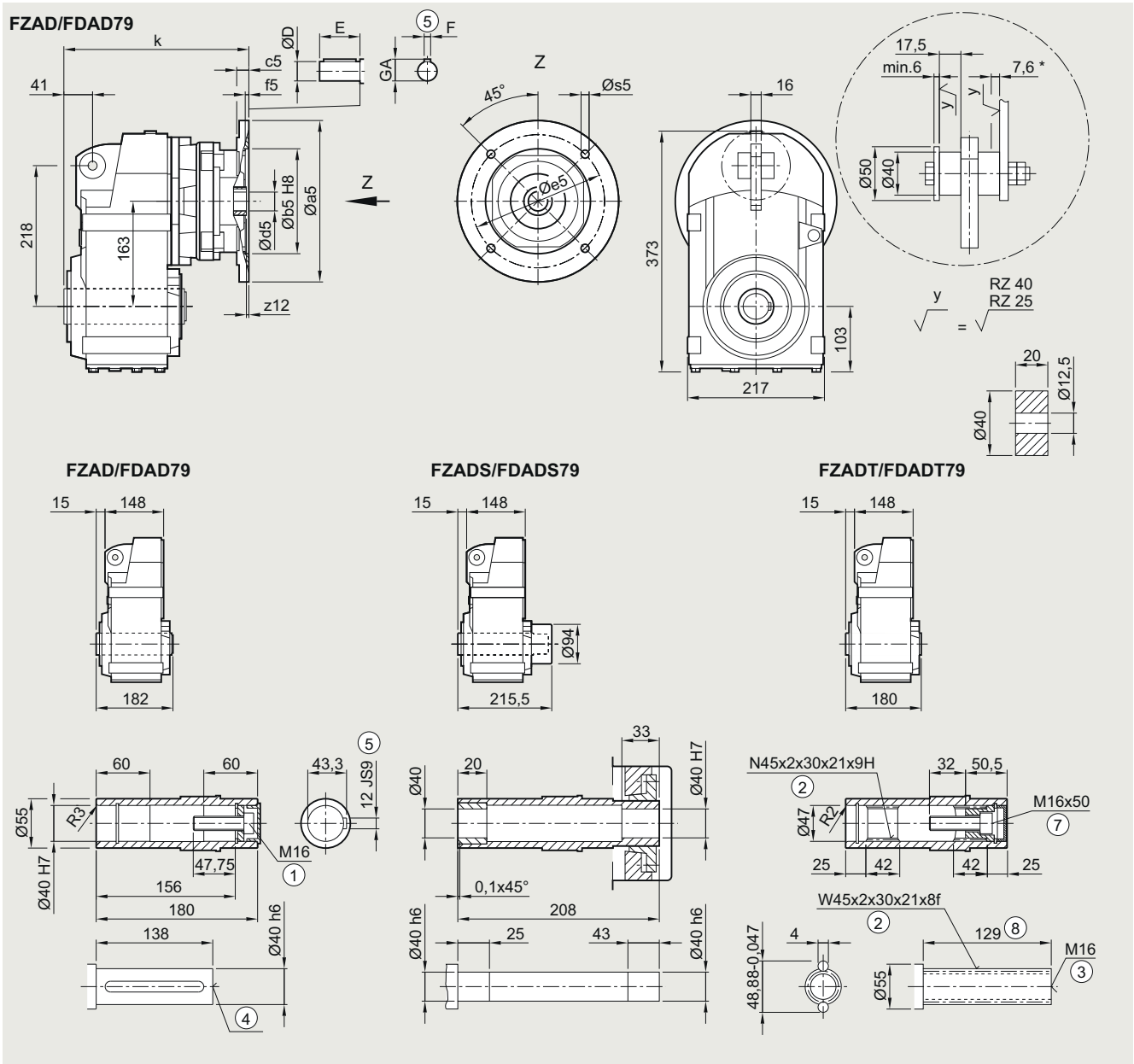
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.79 gearbox in a shaft-mounted design



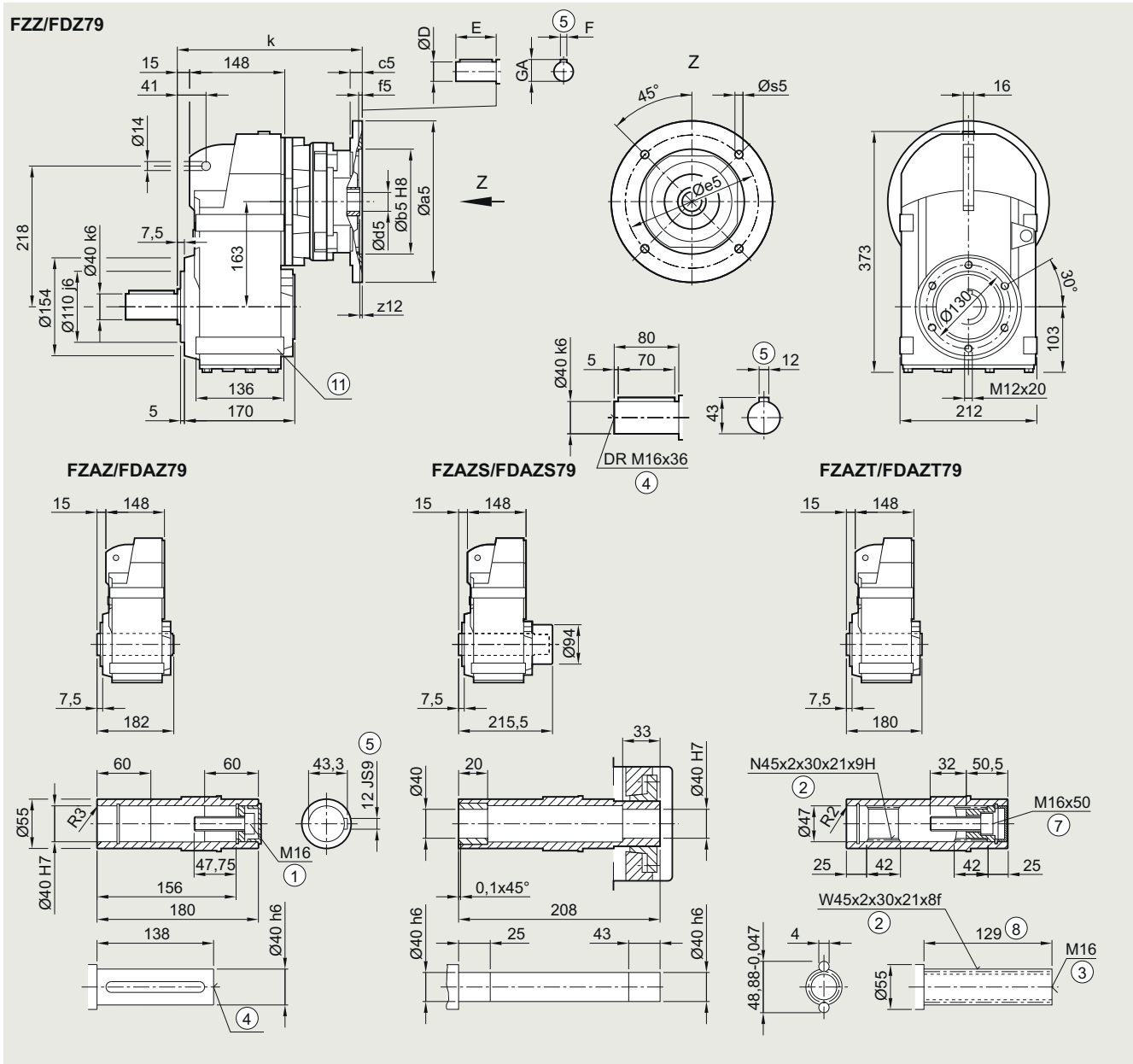
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 229.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 253.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 253.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 325.0 |
| 160 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 355.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

FD.Z./FZ.Z.79 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 229.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 253.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 253.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 325.0 |
| 160 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 355.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder + 1 mm ⑧ Use bores only for foot-mounted design

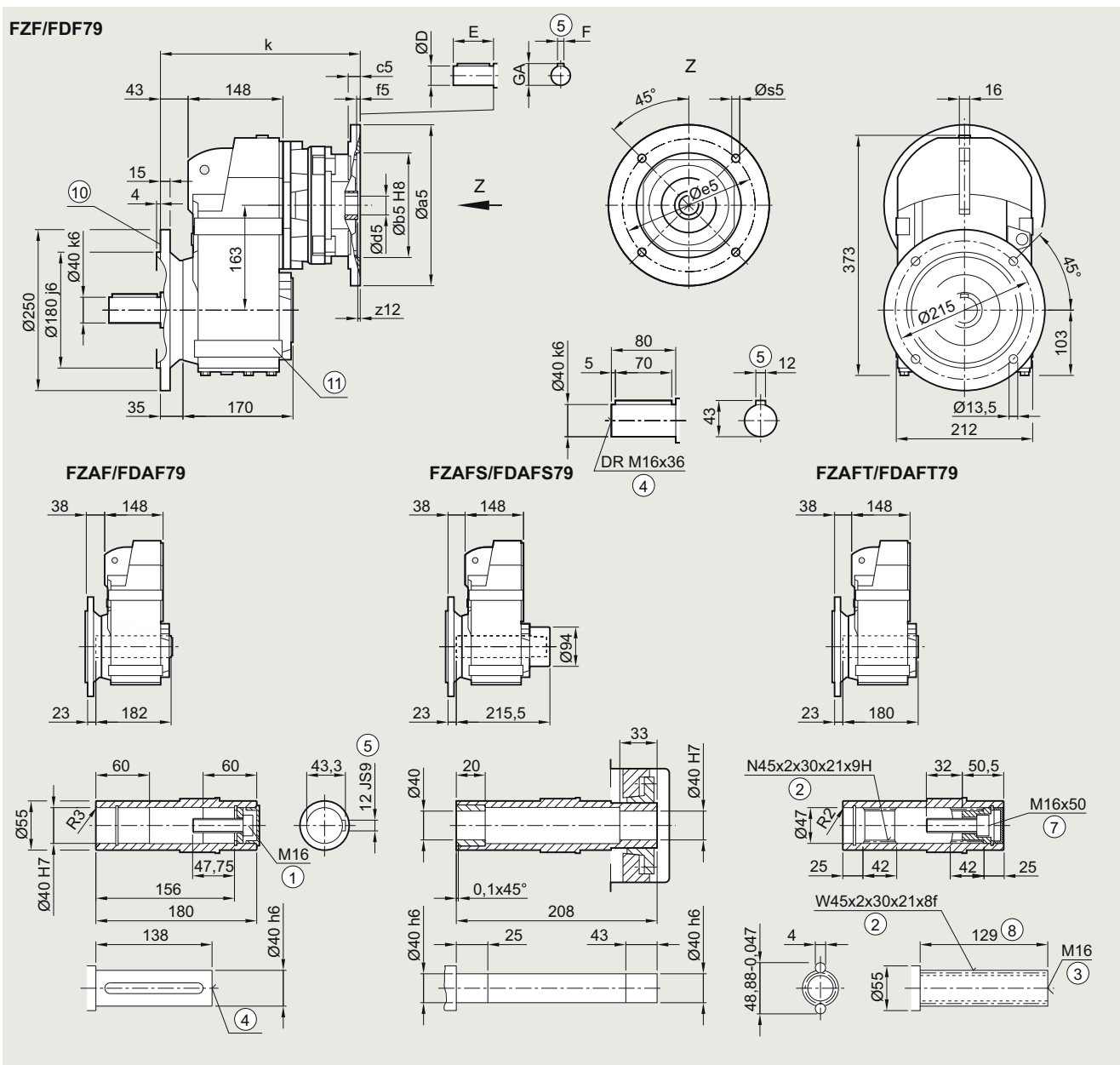
⑨ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

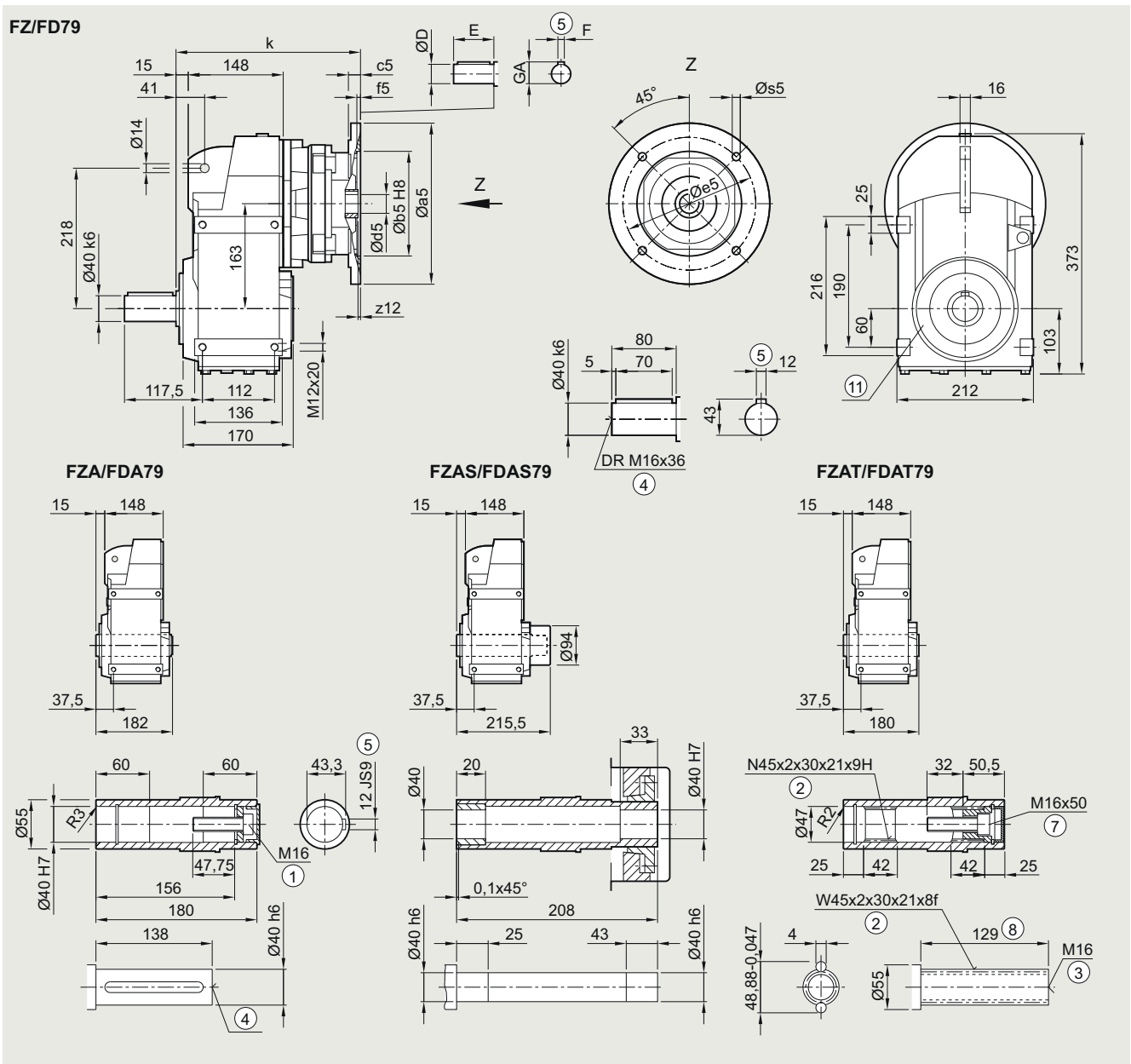
FD.F./FZ.F.79 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14.0 | 30 | 5 | 16.0 | 257.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19.0 | 40 | 6 | 12.5 | 281.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24.0 | 50 | 8 | 27.0 | 281.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 335.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 335.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38.0 | 80 | 10 | 41.0 | 353.0 |
| 160 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42.0 | 110 | 12 | 45.0 | 383.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder + 1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

FD../FZ..79 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 229.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 253.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 253.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 307.5 |
| 132 ¹⁾ | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 325.0 |
| 160 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 355.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

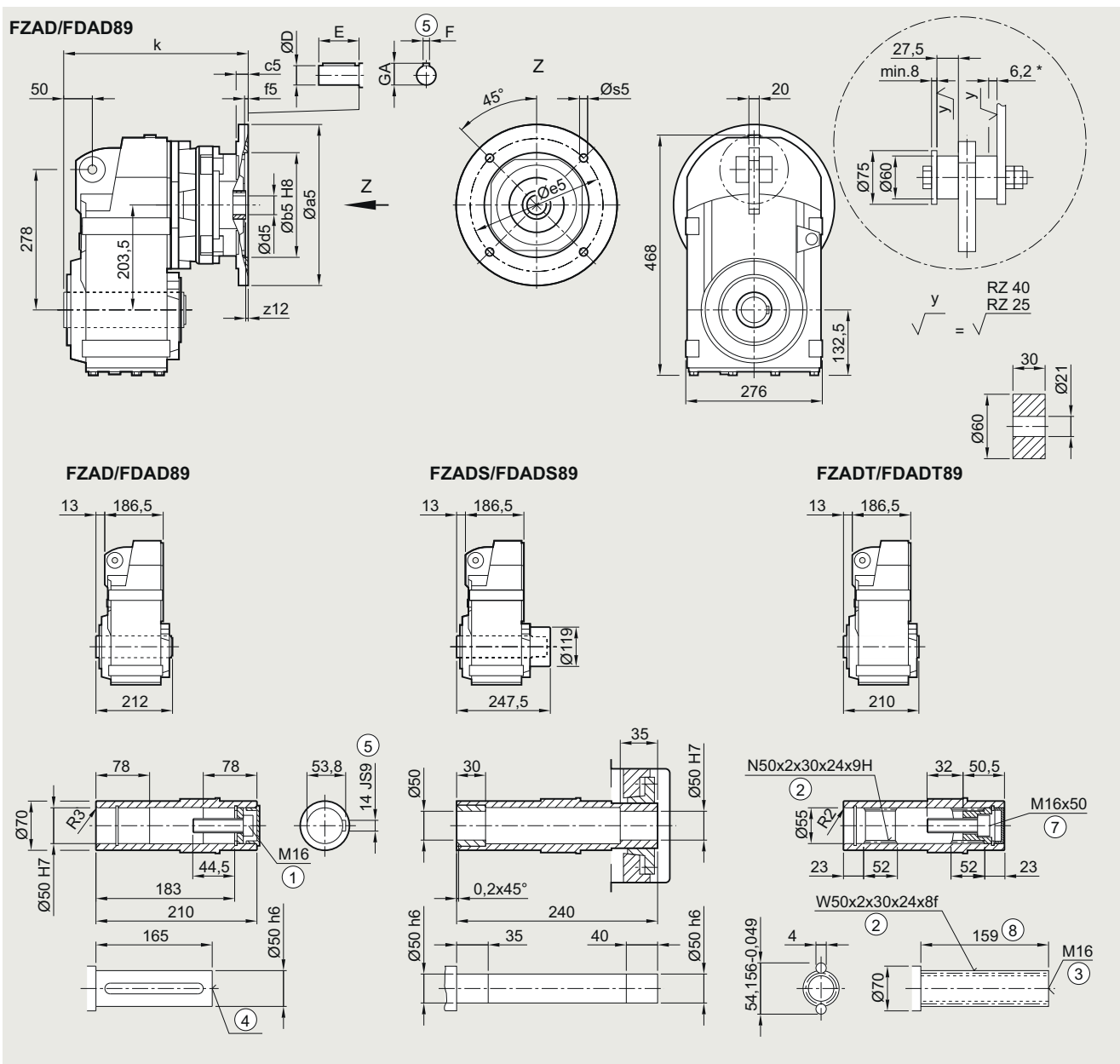
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.89 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 276.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 276.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 344.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 374.5 |
| 180 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 374.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

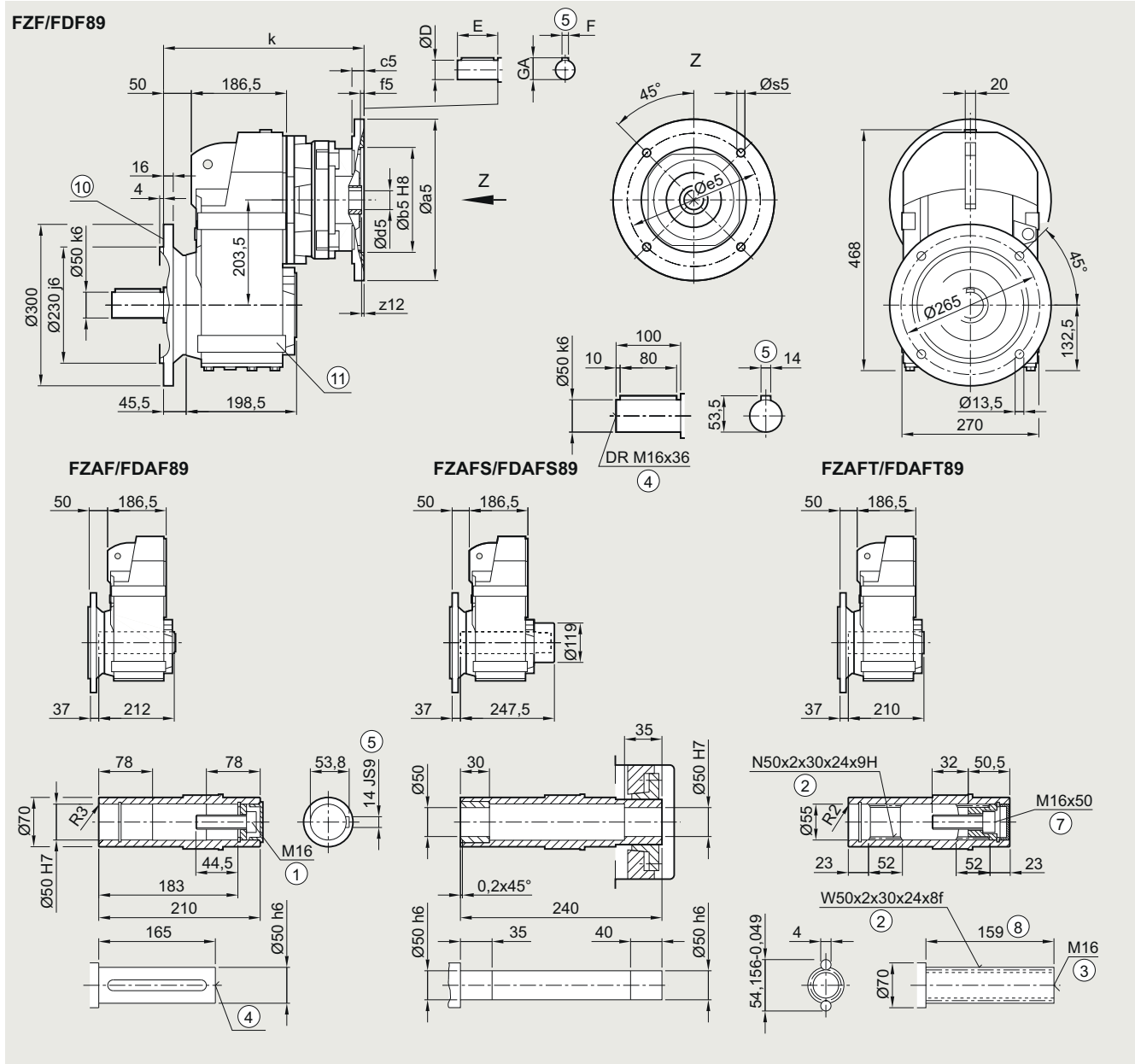
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.89 gearbox in a flange-mounted design

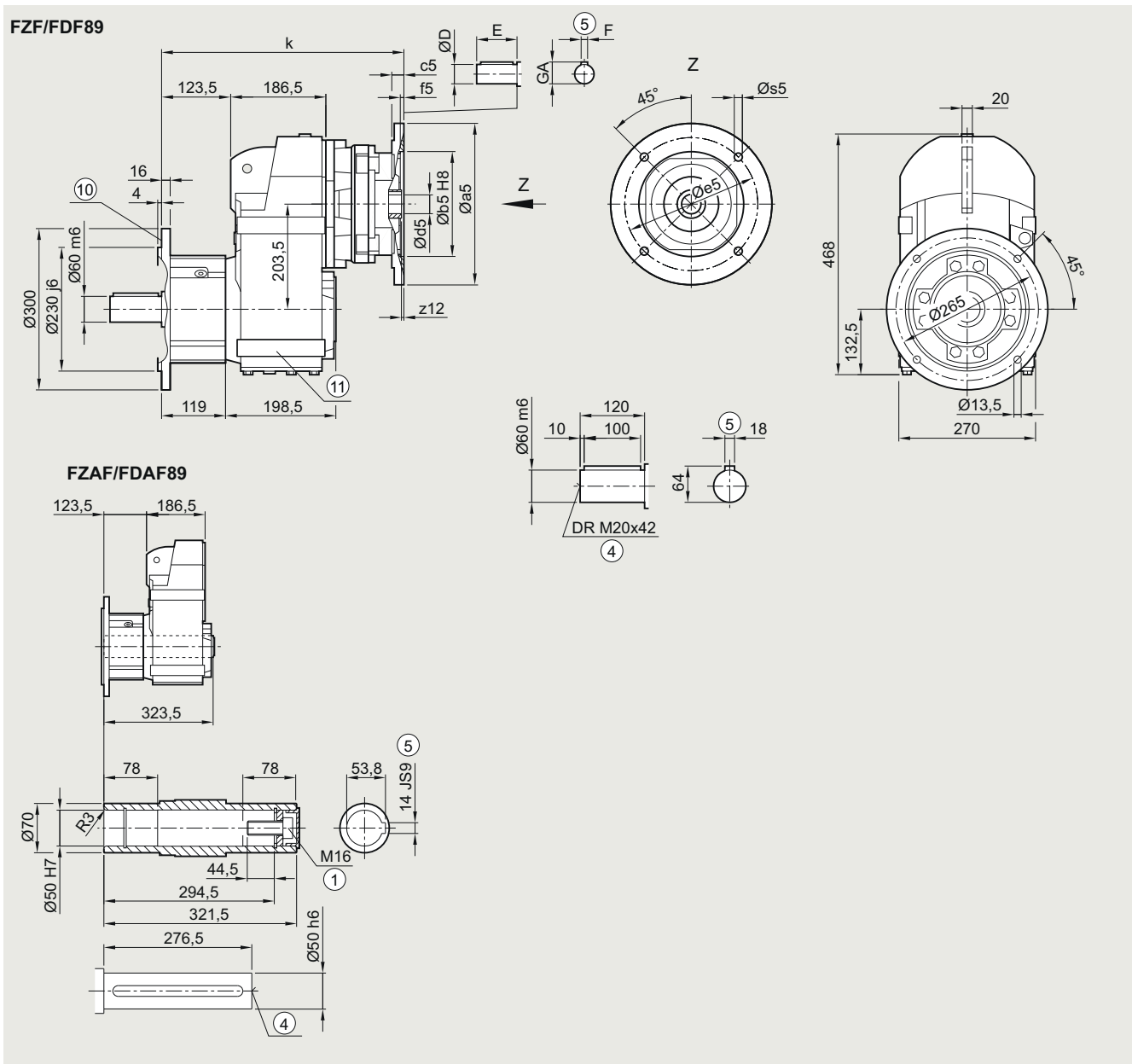
4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19.0 | 40 | 6 | 12.5 | 313.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24.0 | 50 | 8 | 27.0 | 313.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 364.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 364.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38.0 | 80 | 10 | 41.0 | 381.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42.0 | 110 | 12 | 45.0 | 411.5 |
| 180 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48.0 | 110 | 14 | 51.5 | 411.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

FD.F./FZ.F.89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19.0 | 40 | 6 | 12.5 | 387.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24.0 | 50 | 8 | 27.0 | 387.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 437.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28.0 | 60 | 8 | 31.0 | 437.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38.0 | 80 | 10 | 41.0 | 455.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42.0 | 110 | 12 | 45.0 | 485.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48.0 | 110 | 14 | 51.5 | 485.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑥ For inner contour, see page 4/169

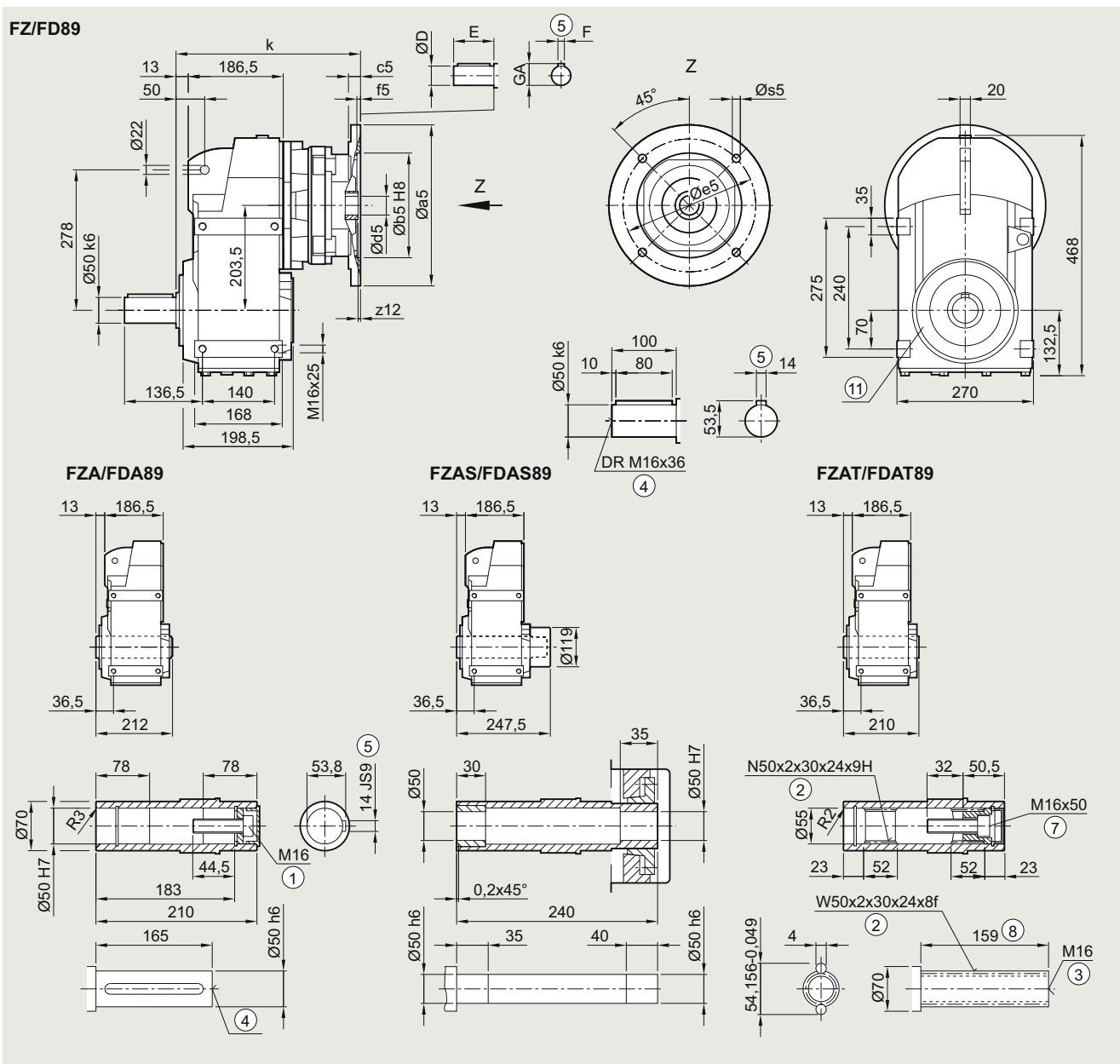
⑦ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD../FZ..89 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 276.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 276.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 327.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 344.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 374.5 |
| 180 ¹⁾ | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 374.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

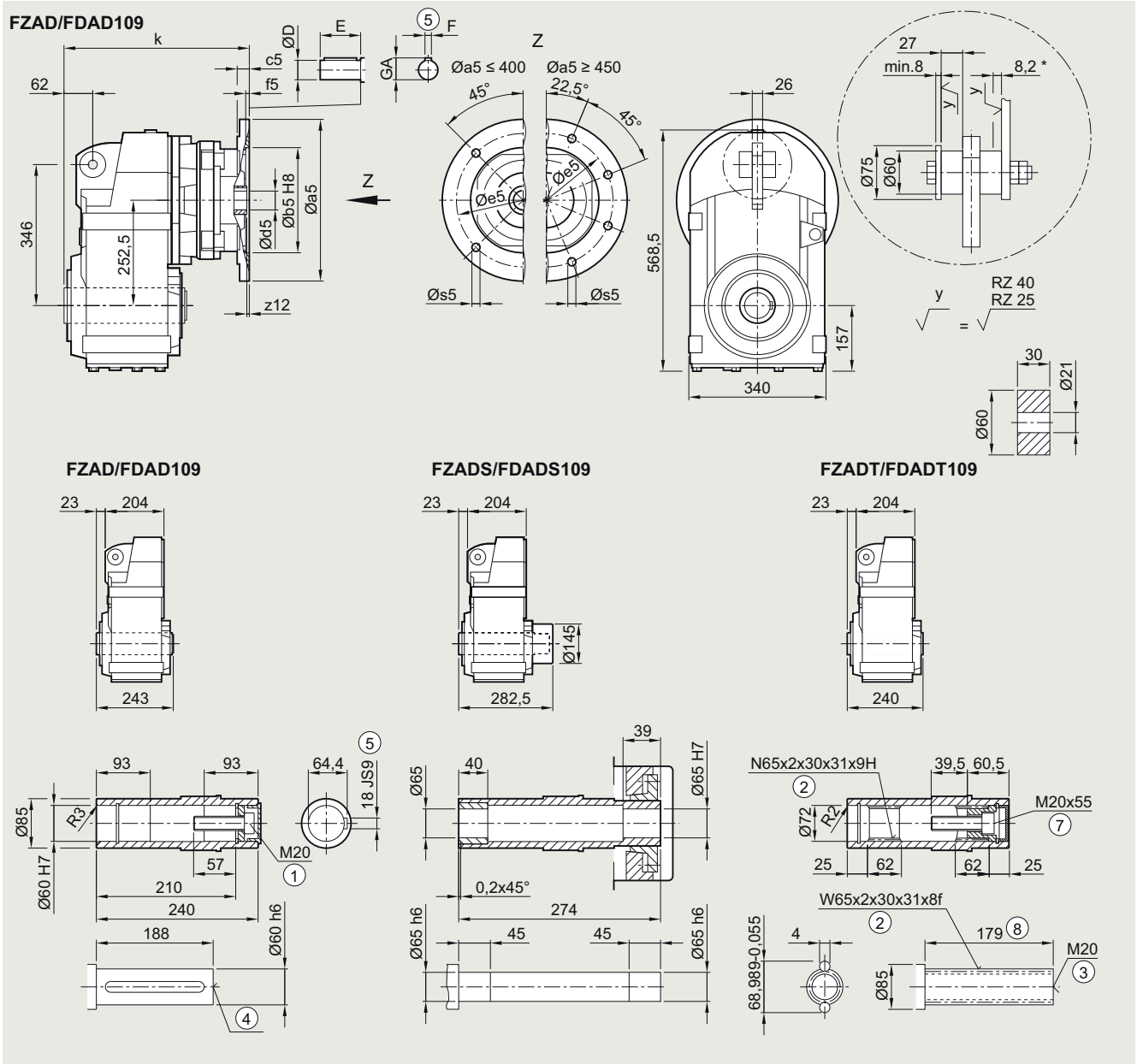
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm

⑩ Use bores only for housing flange design

1) FDADS/FZADS not possible

FDAD./FZAD.109 gearbox in a shaft-mounted design


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 297.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 363.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 393.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 393.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 433.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 440.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

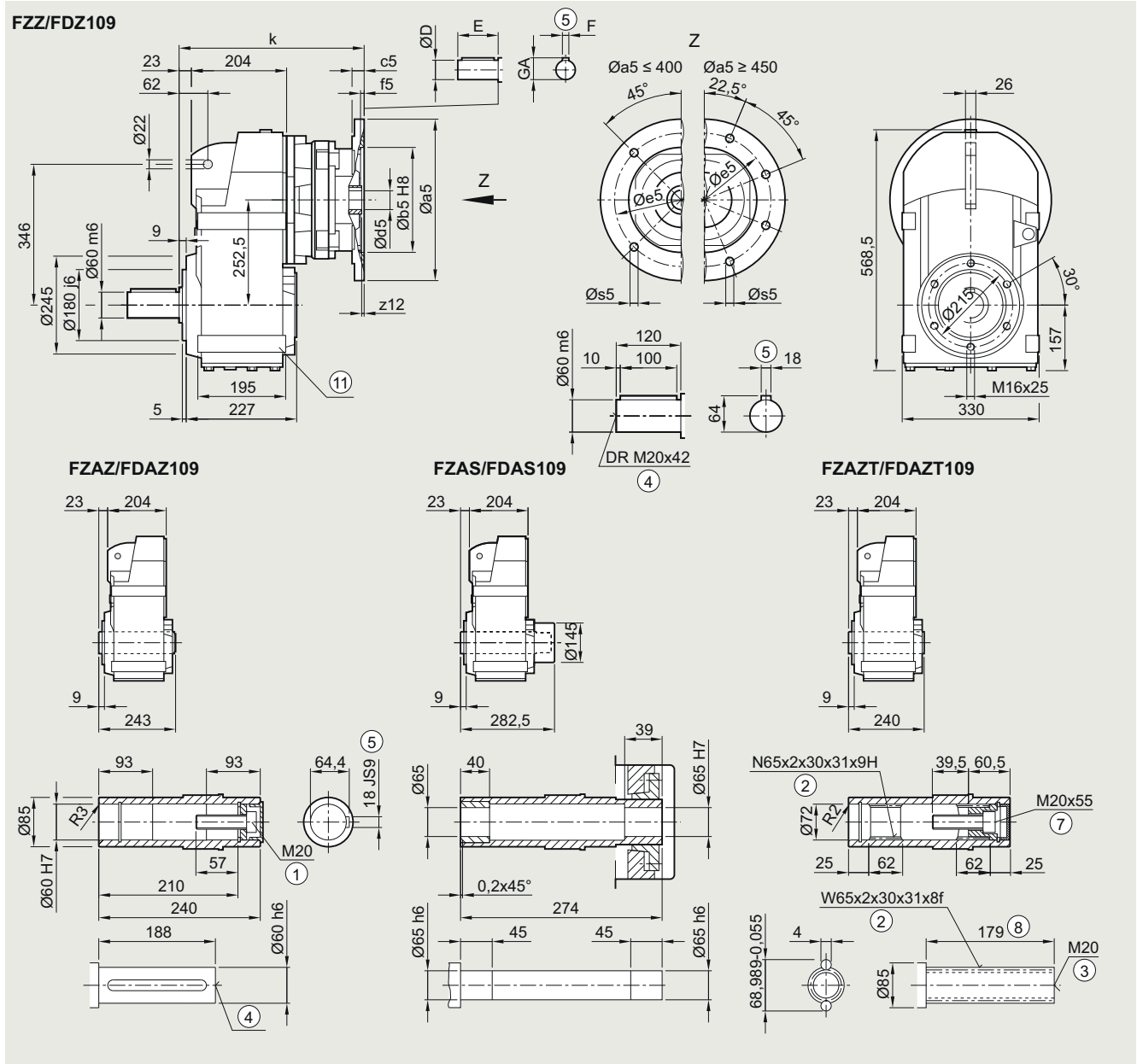
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.Z./FZ.Z.109 gearbox in a housing flange design

4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 297.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 363.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 393.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 393.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 433.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 440.0 |

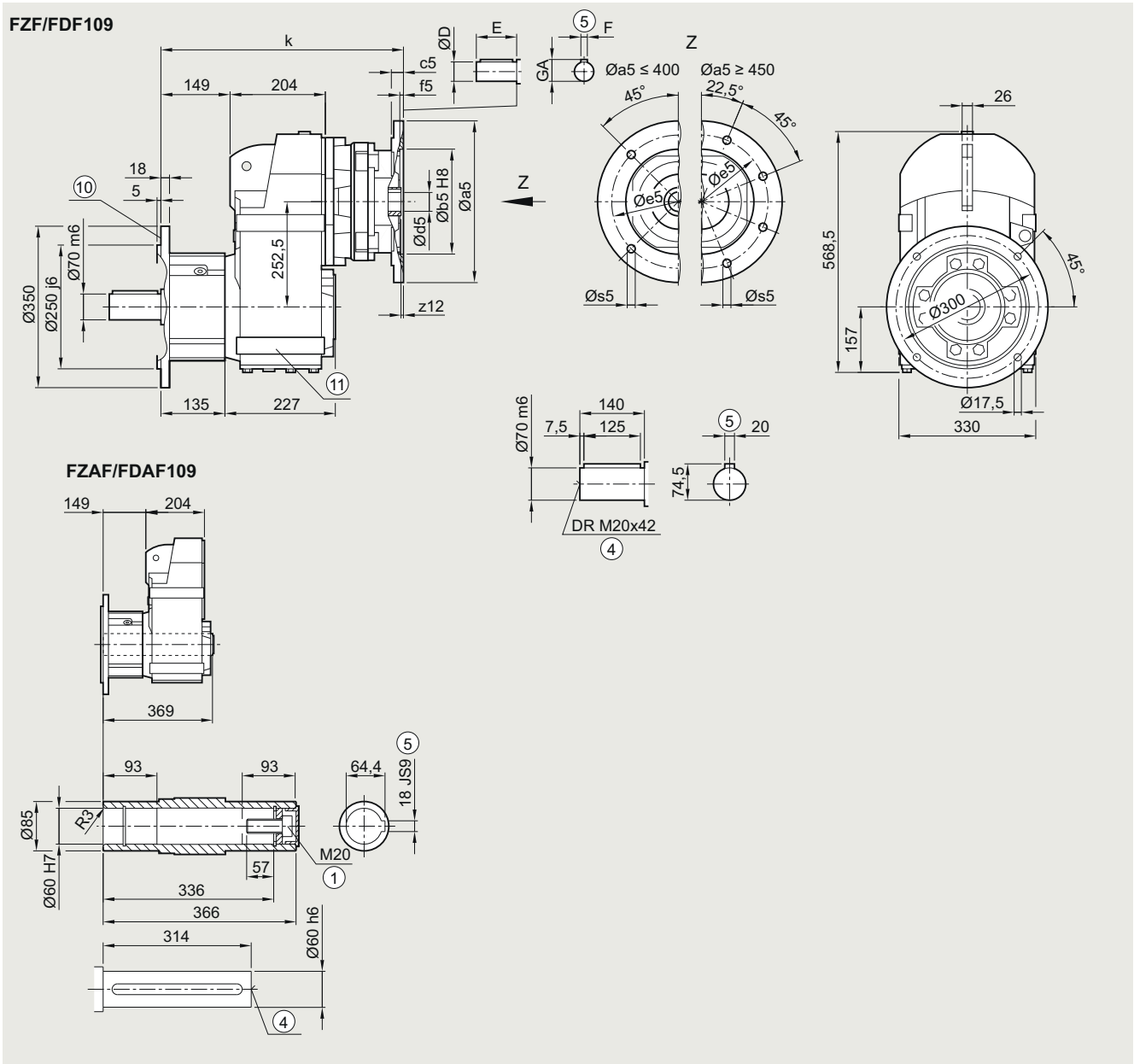
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑥ ISO 4762 ⑦ Without locating shoulder +1 mm ⑧ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 423.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 471.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 471.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 489.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 519.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 519.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 559.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 566.0 |

① ISO 4014

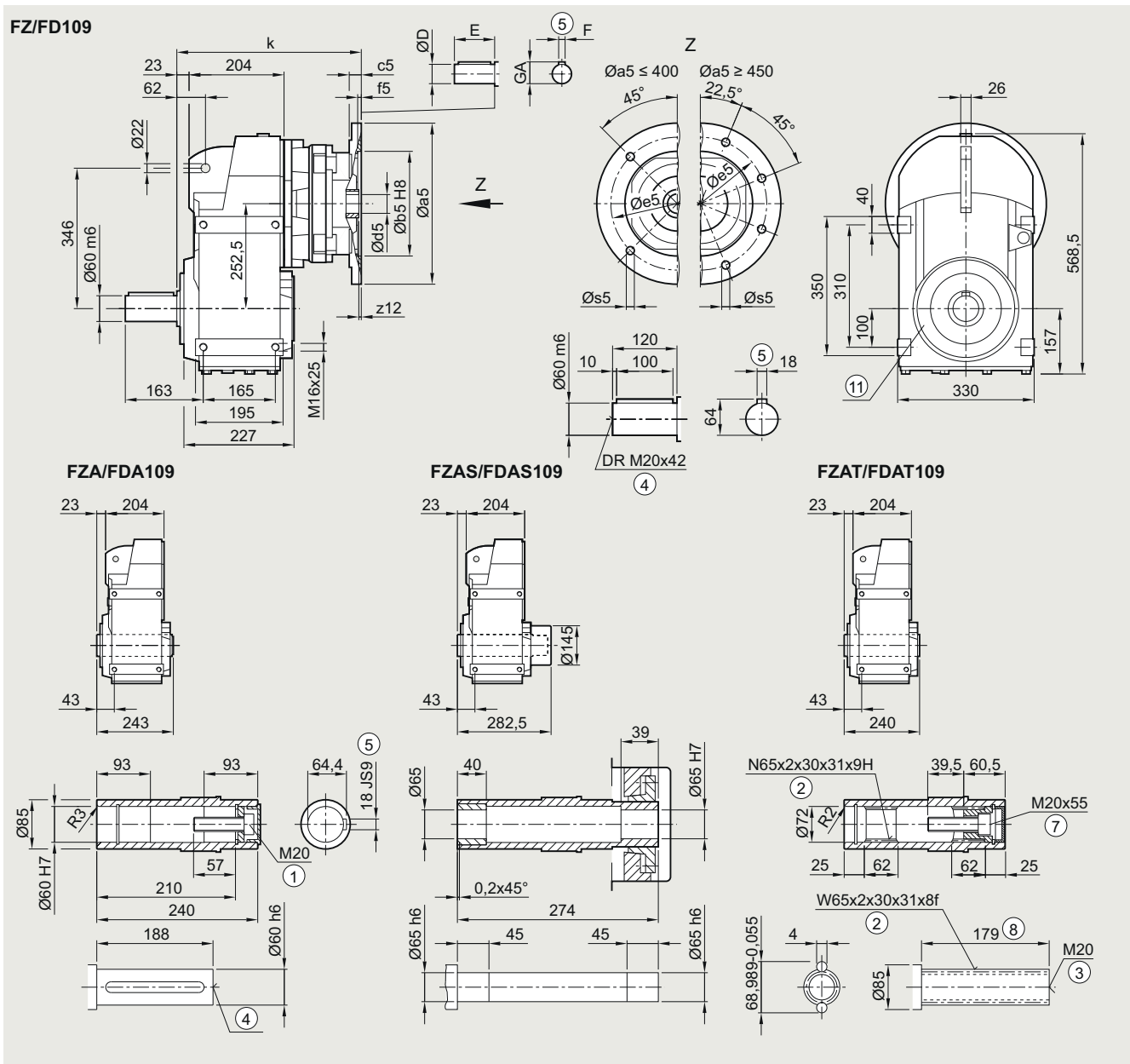
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

FD./FZ..109 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 297.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 345.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 363.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 393.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 393.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 433.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 440.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

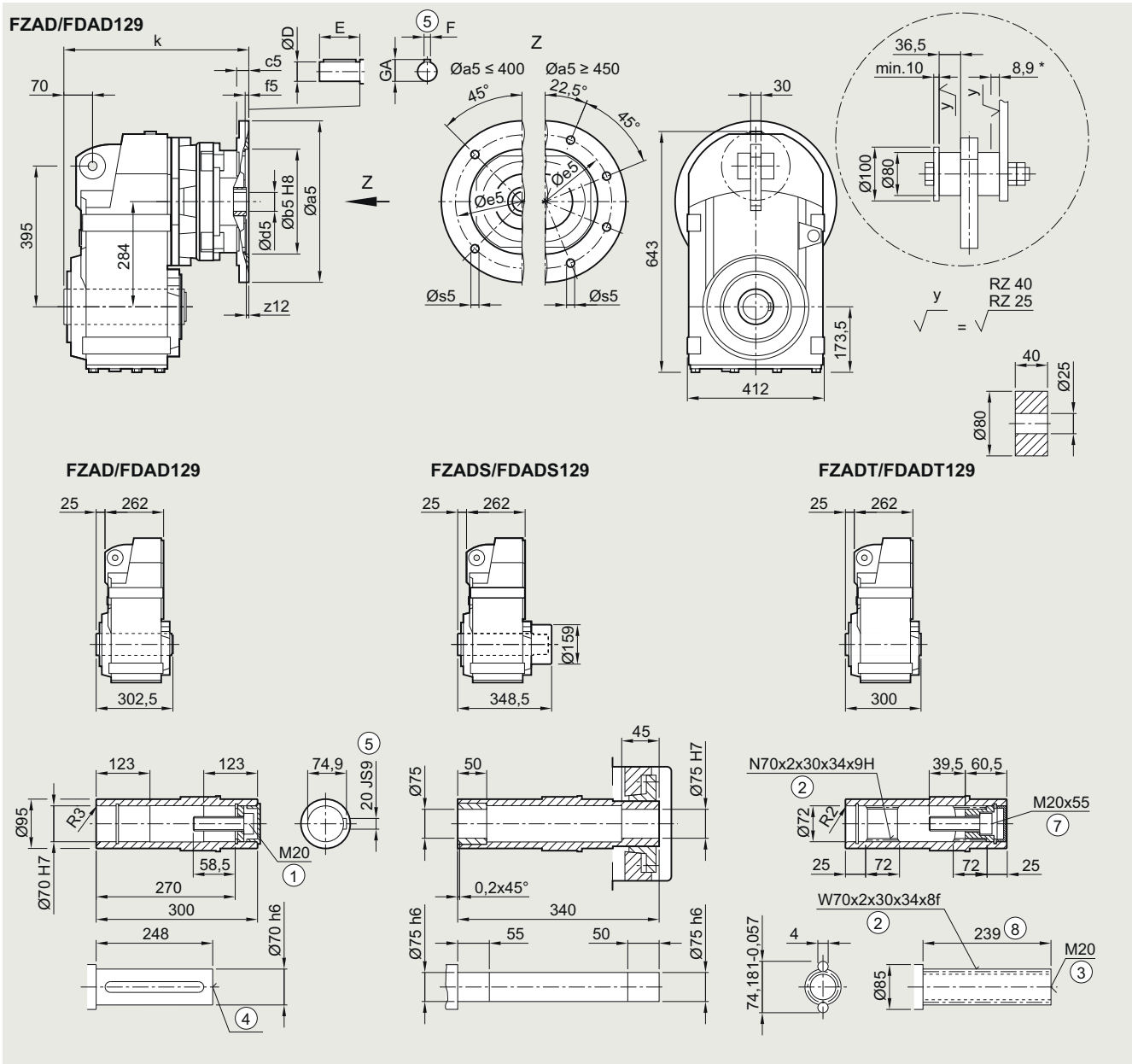
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.129 gearbox in a shaft-mounted design

4



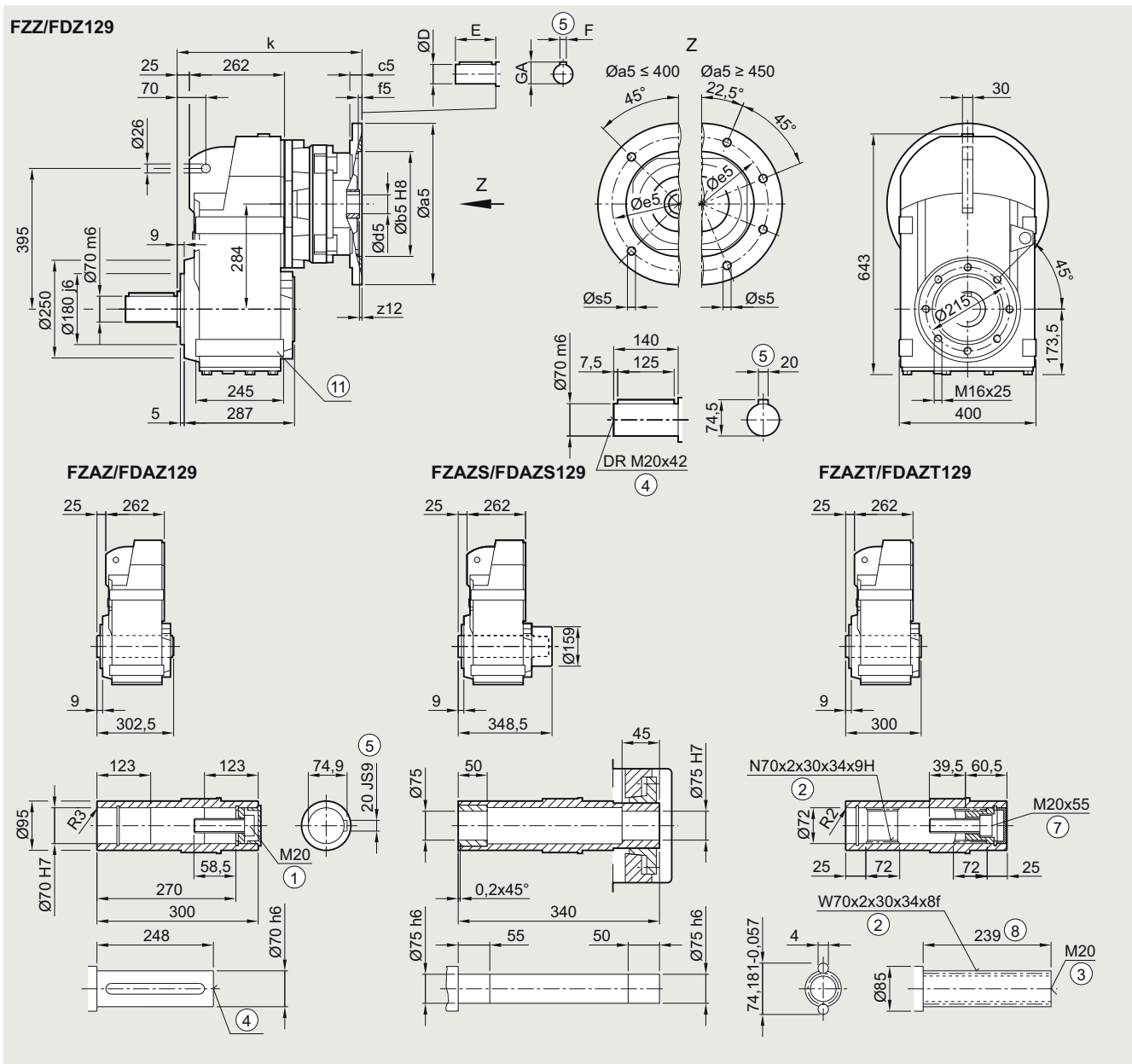
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 350.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 412.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 442.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 442.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 482.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 489.0 |
| 250 ¹⁾ | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 523.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

FD.Z./FZ.Z.129 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 350.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 412.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 442.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 442.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 482.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 489.0 |
| 250 ¹⁾ | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 523.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder + 1 mm ⑧ Use bores only for foot-mounted design

⑨ FDADS/FZADS not possible

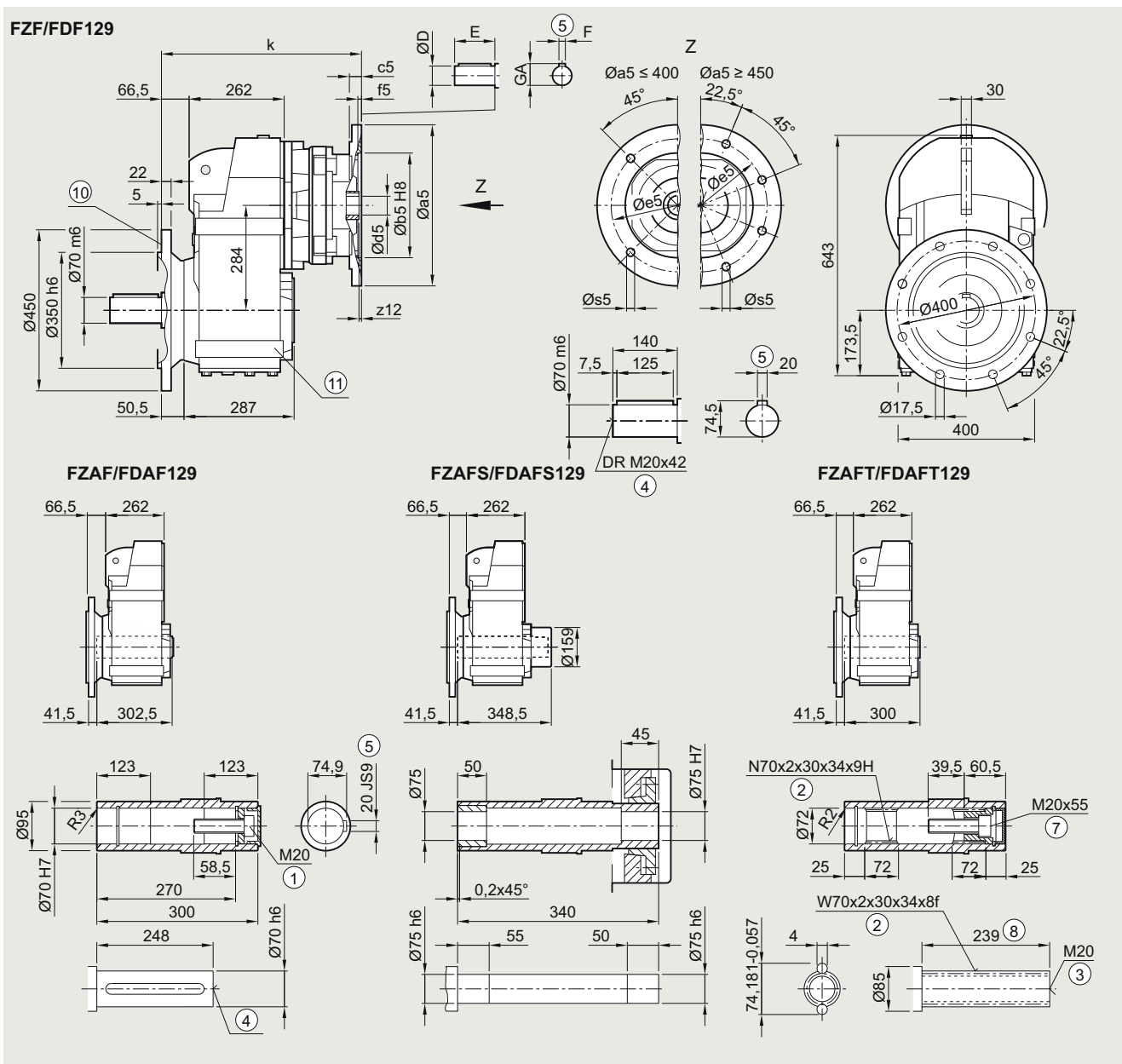
Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.129 gearbox in a flange-mounted design

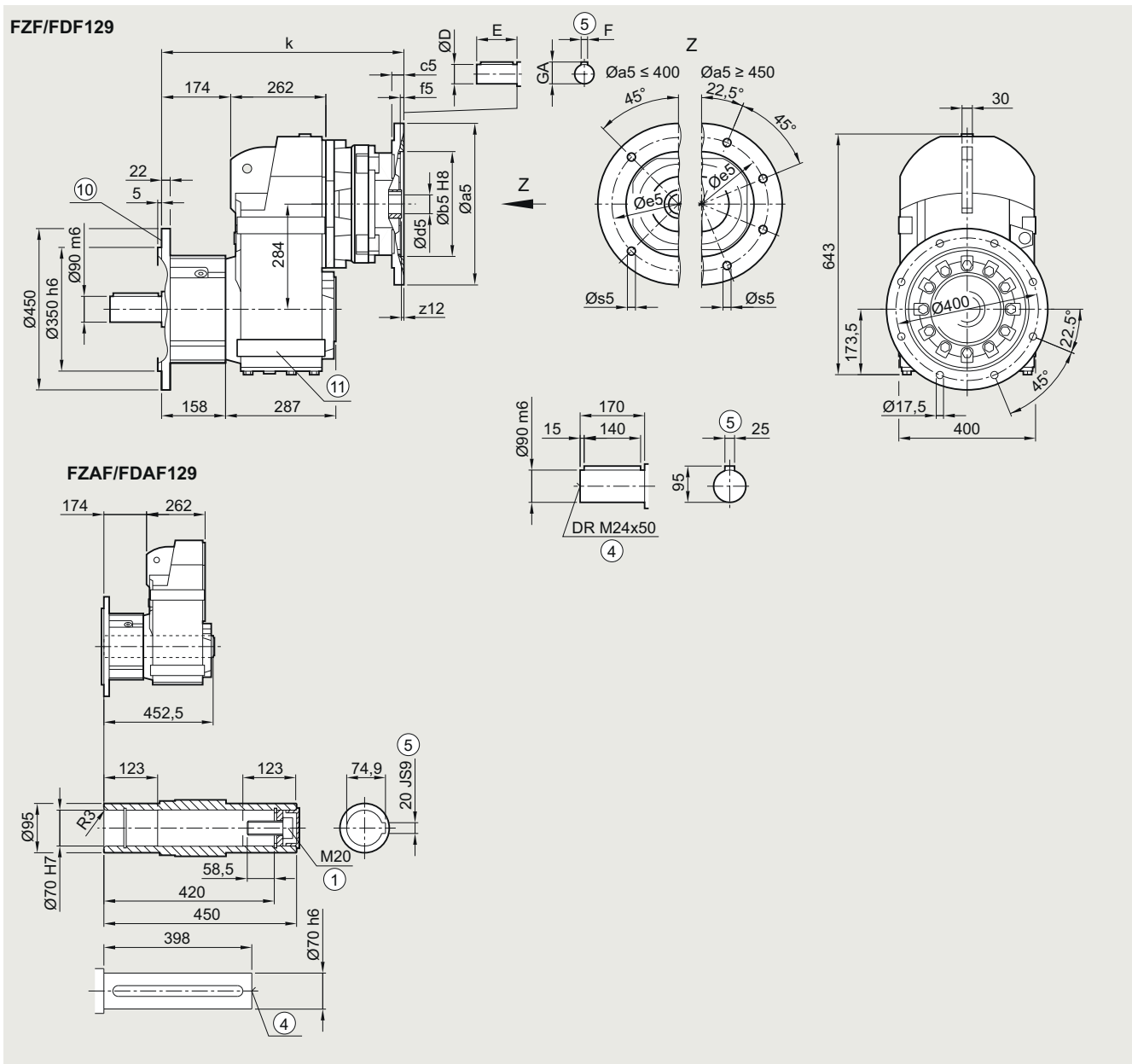
4



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 391.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 438.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 438.0 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 453.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 483.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 483.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 524.0 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 530.5 |
| 250 ¹⁾ | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 565.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

FD.F./FZ.F.129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 499.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 545.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 545.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 561.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 591.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 591.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 631.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 638.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 672.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 4/169

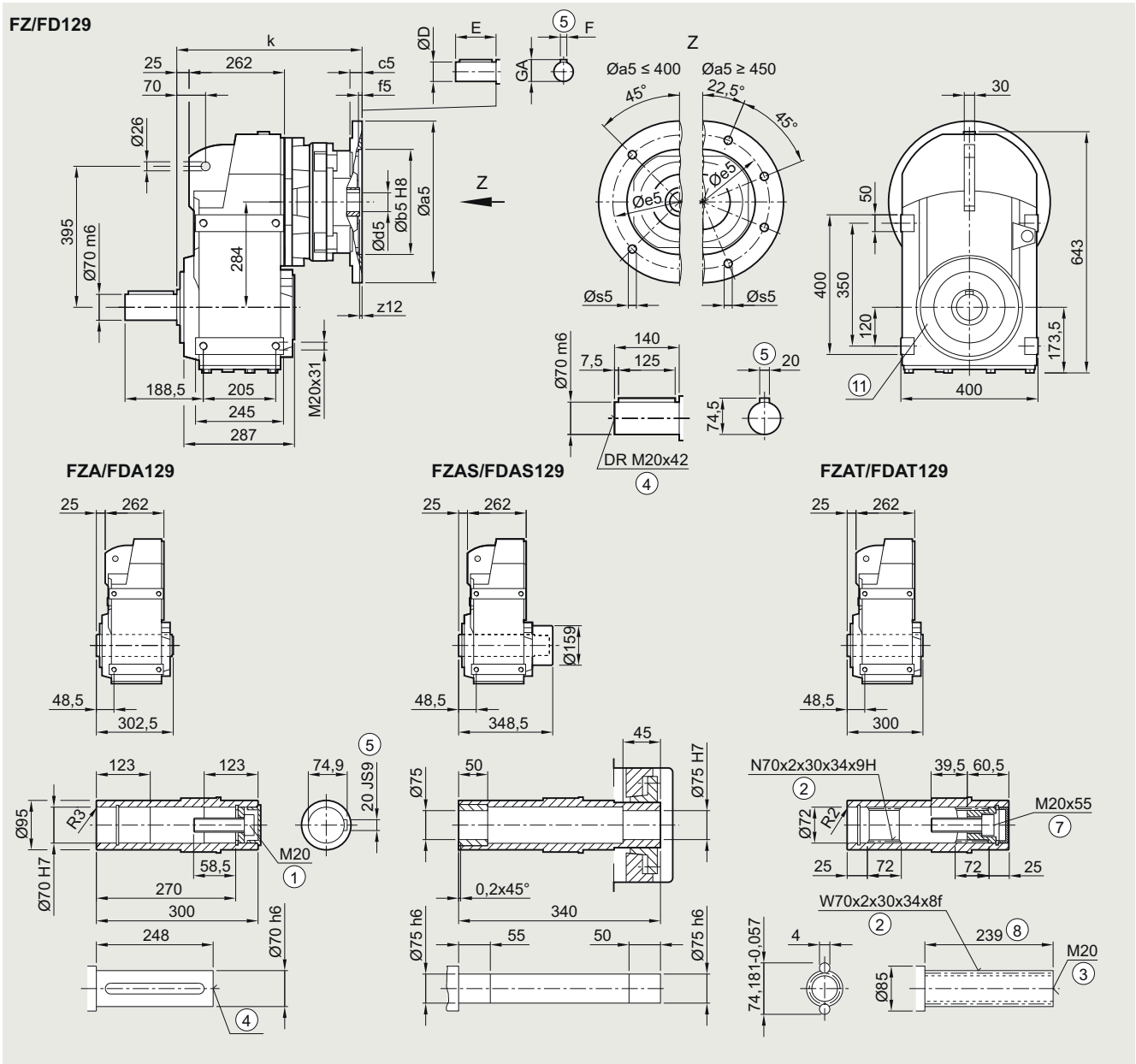
⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD../FZ..129 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|-------------------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 350.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 396.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 412.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 442.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 442.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 482.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 489.0 |
| 250 ¹⁾ | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 523.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

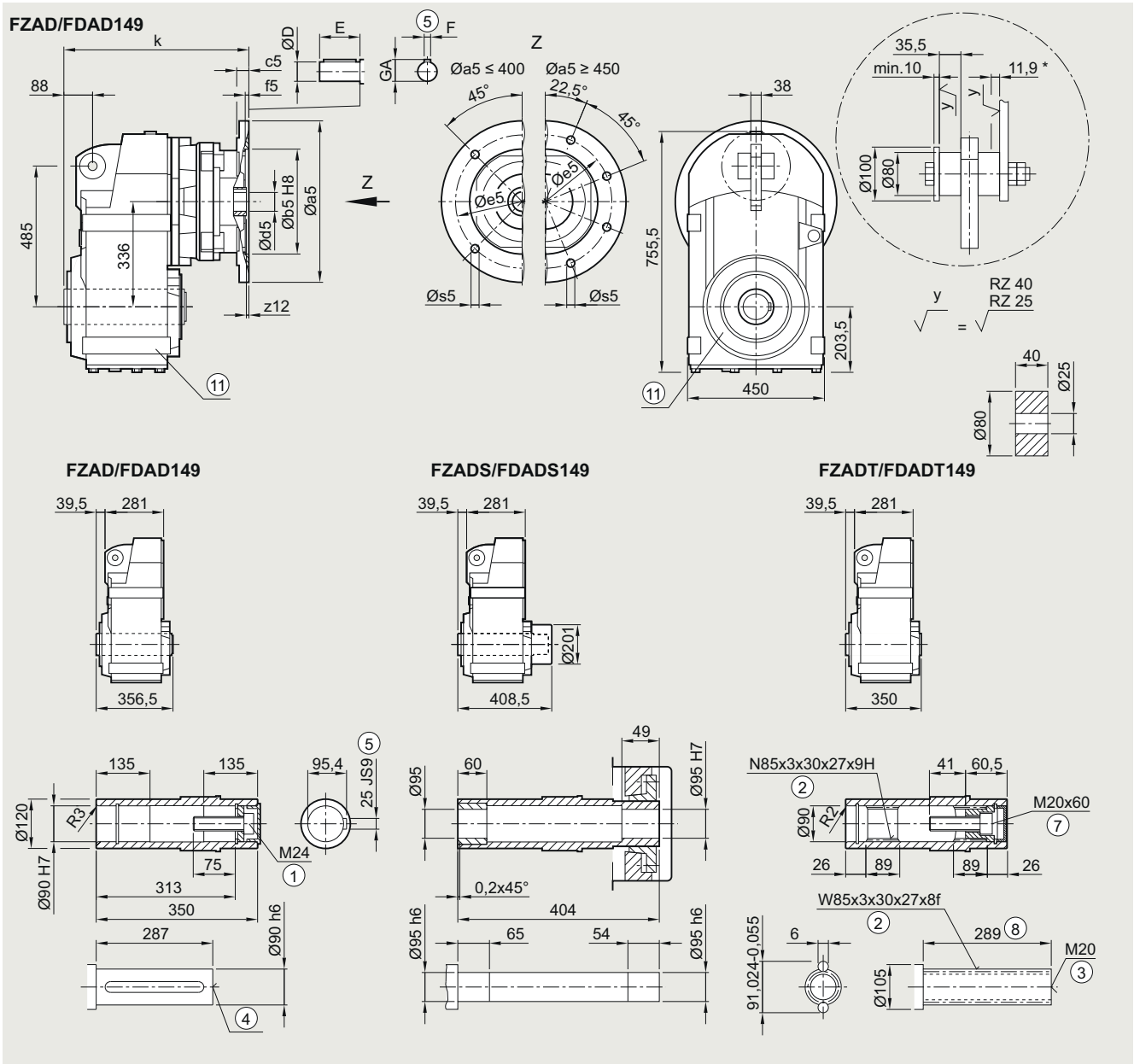
⑥ ISO 4762

⑦ Without locating shoulder + 1 mm

⑧ Use bores only for housing flange design

⑨ FDADS/FZADS not possible

FDAD./FZAD.149 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 439.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 469.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 469.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 509.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 516.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 550.5 |

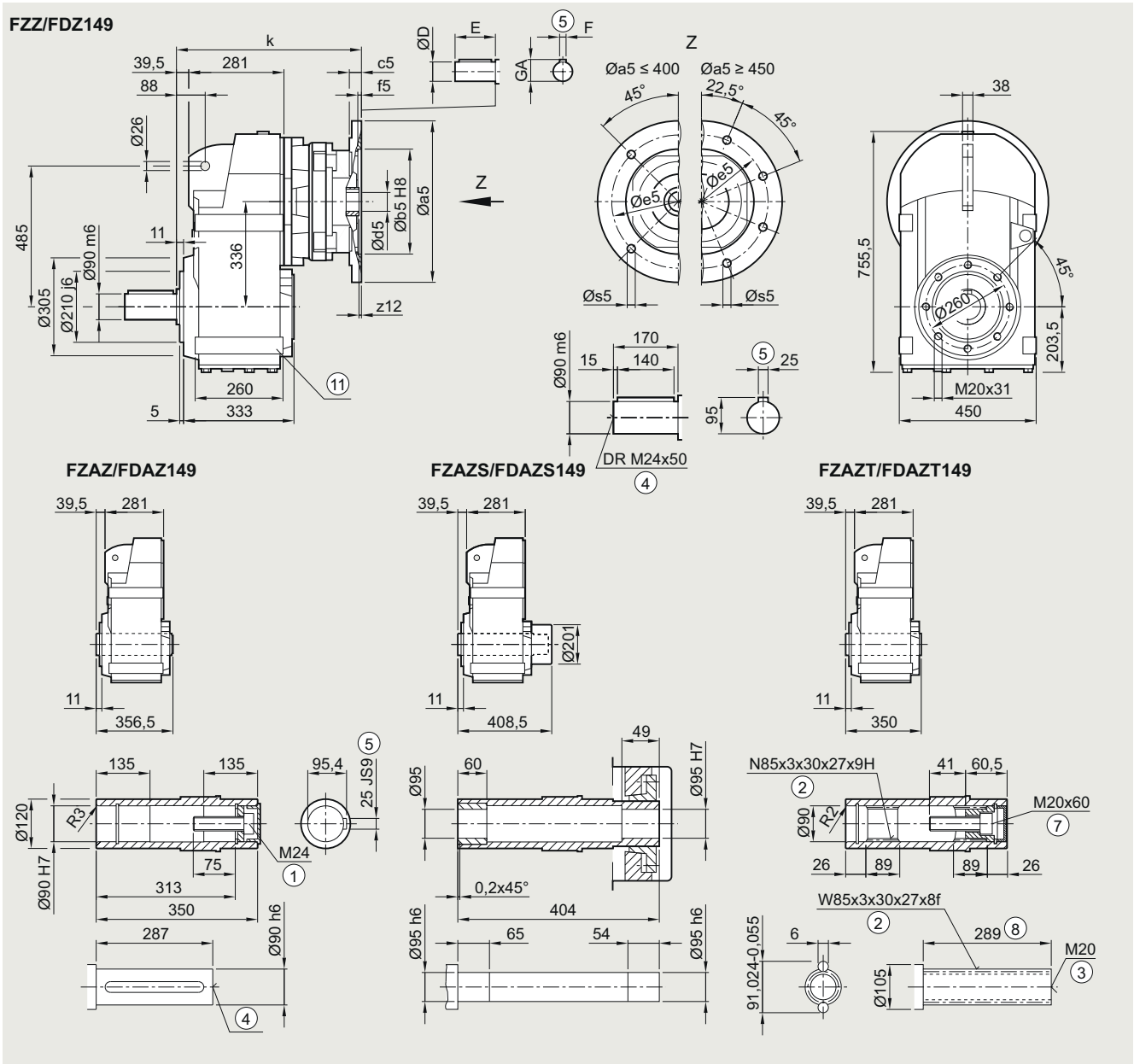
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
* Spring compression at max. torque ⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.Z./FZ.Z.149 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 439.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 469.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 469.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 509.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 516.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 550.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

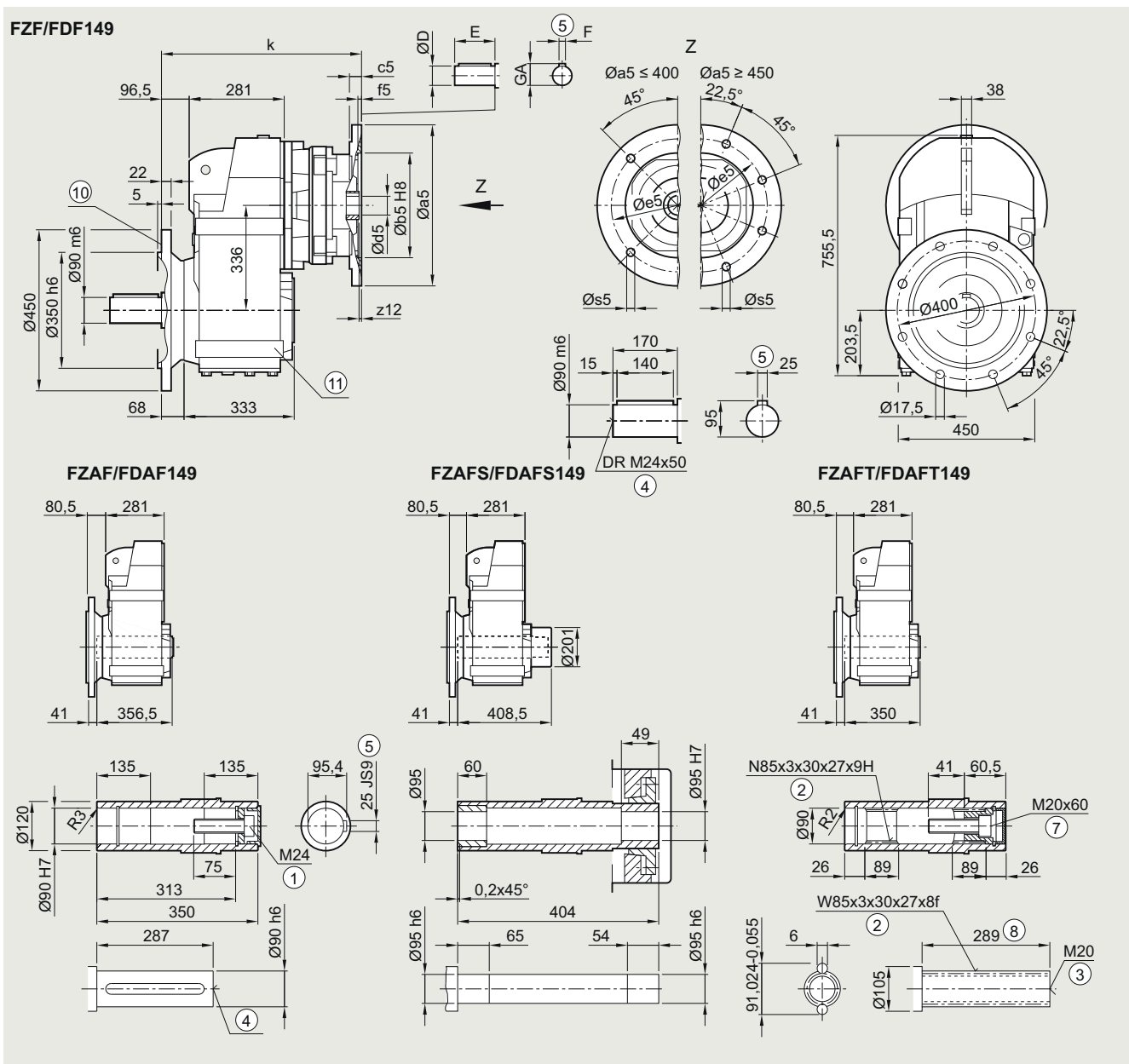
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

FD.F./FZ.F.149 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 485.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 485.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 496.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 526.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 526.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 566.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 573.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 607.5 |

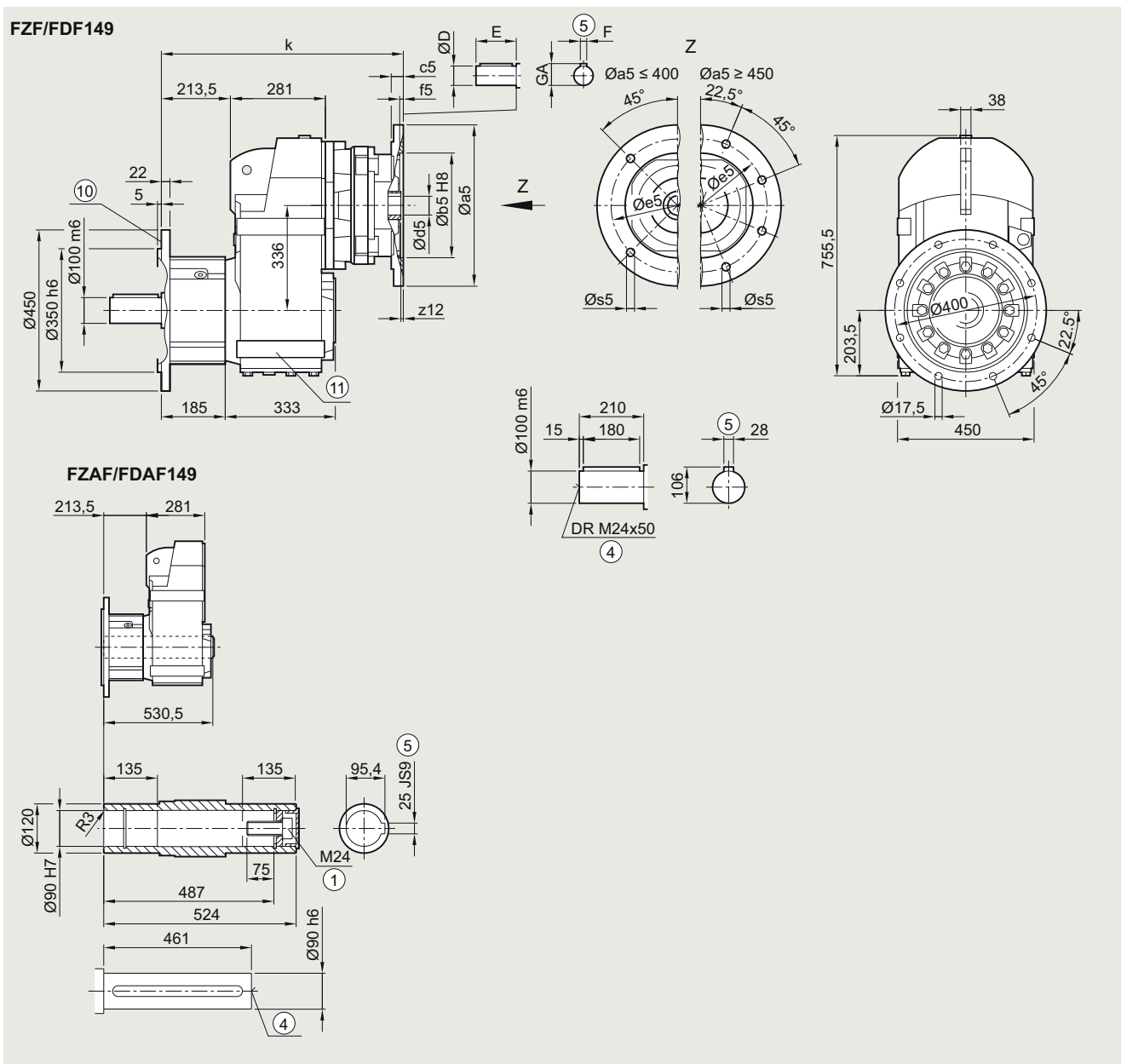
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.F./FZ.F.149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 602.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 602.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 613.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 643.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 643.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 683.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 690.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 724.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 4/169

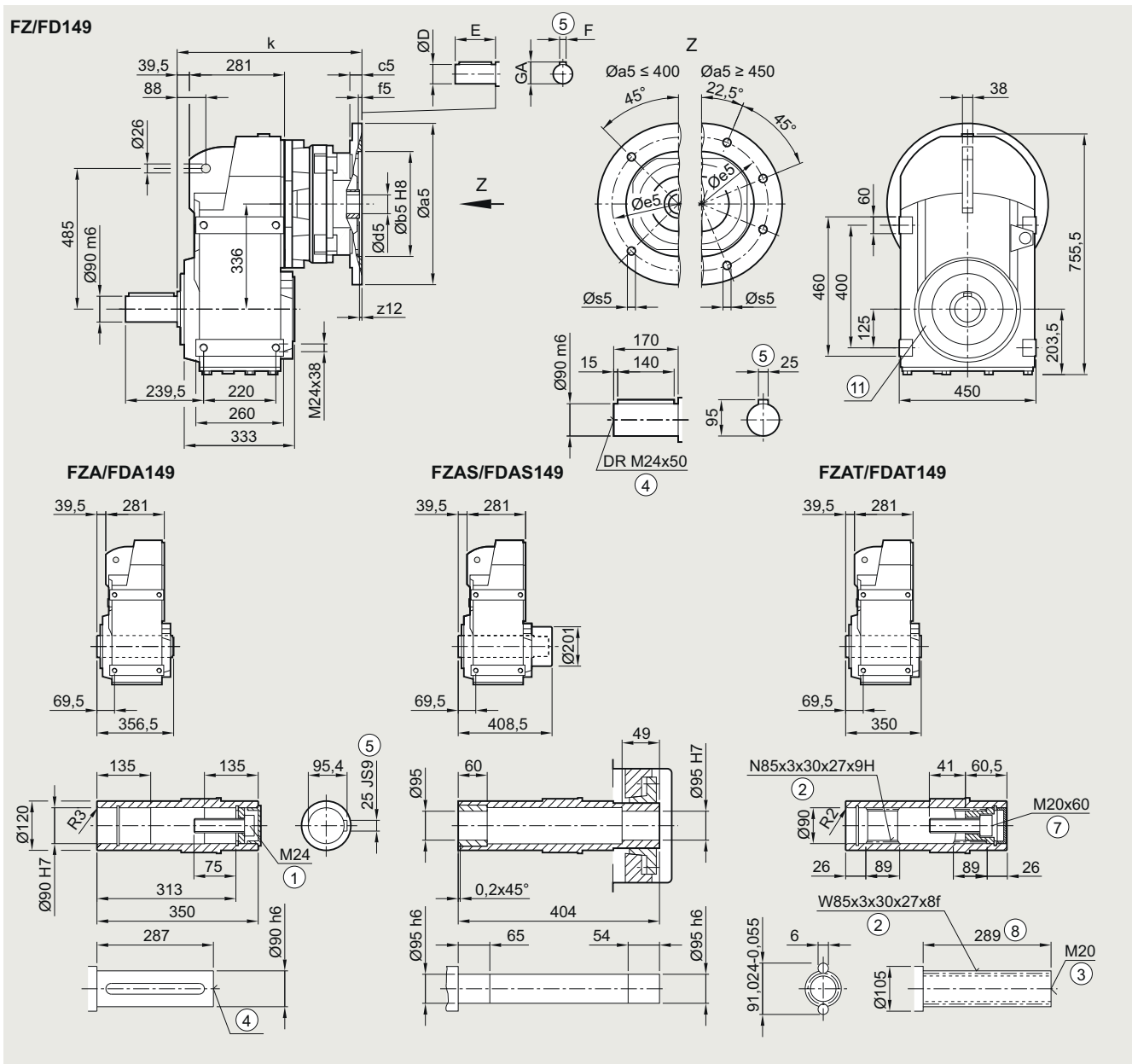
⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD./FZ..149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 428.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 439.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 469.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 469.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 509.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 516.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 550.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

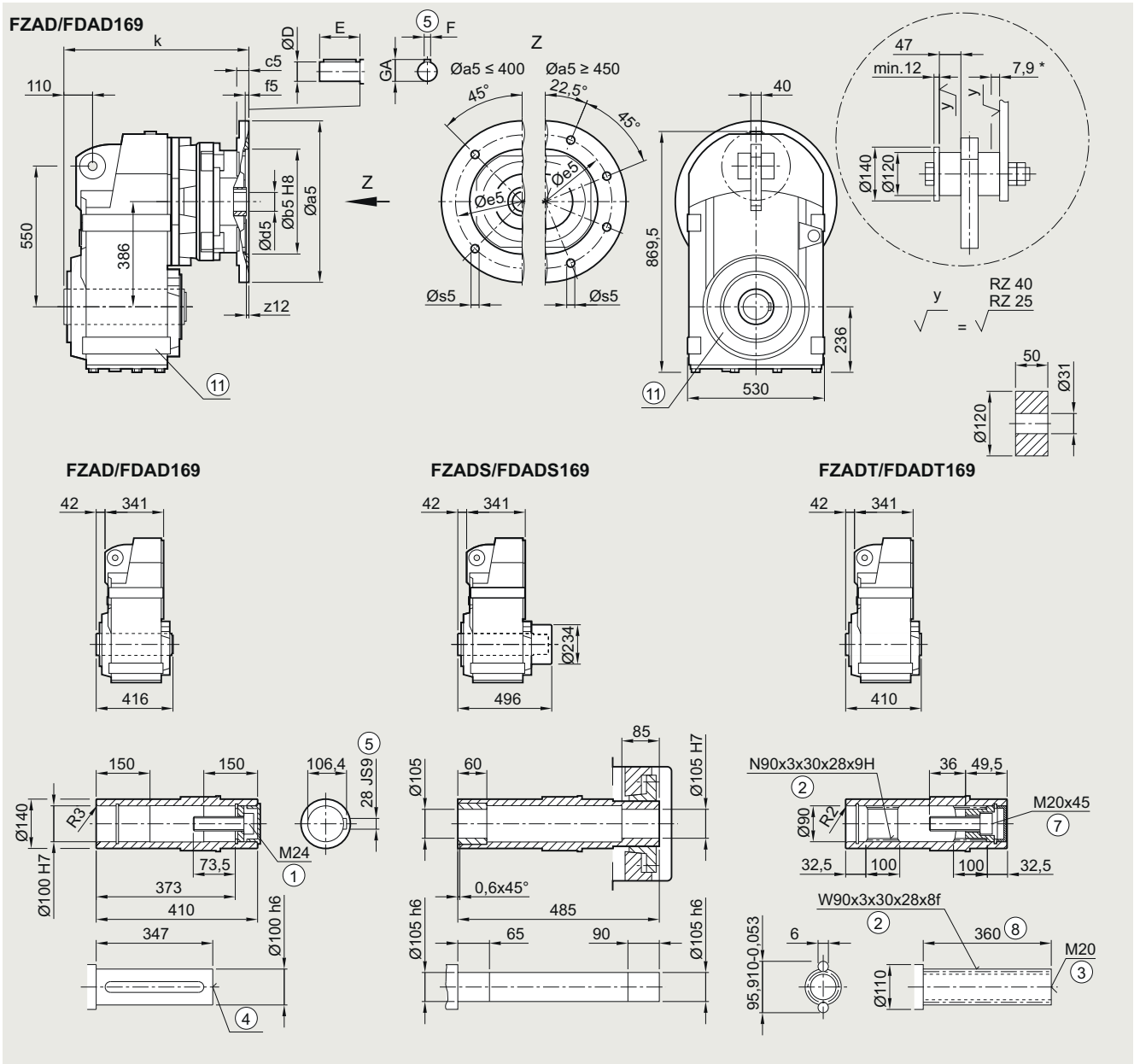
⑨ Use bores only for housing flange design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FDAD./FZAD.169 gearbox in a shaft-mounted design



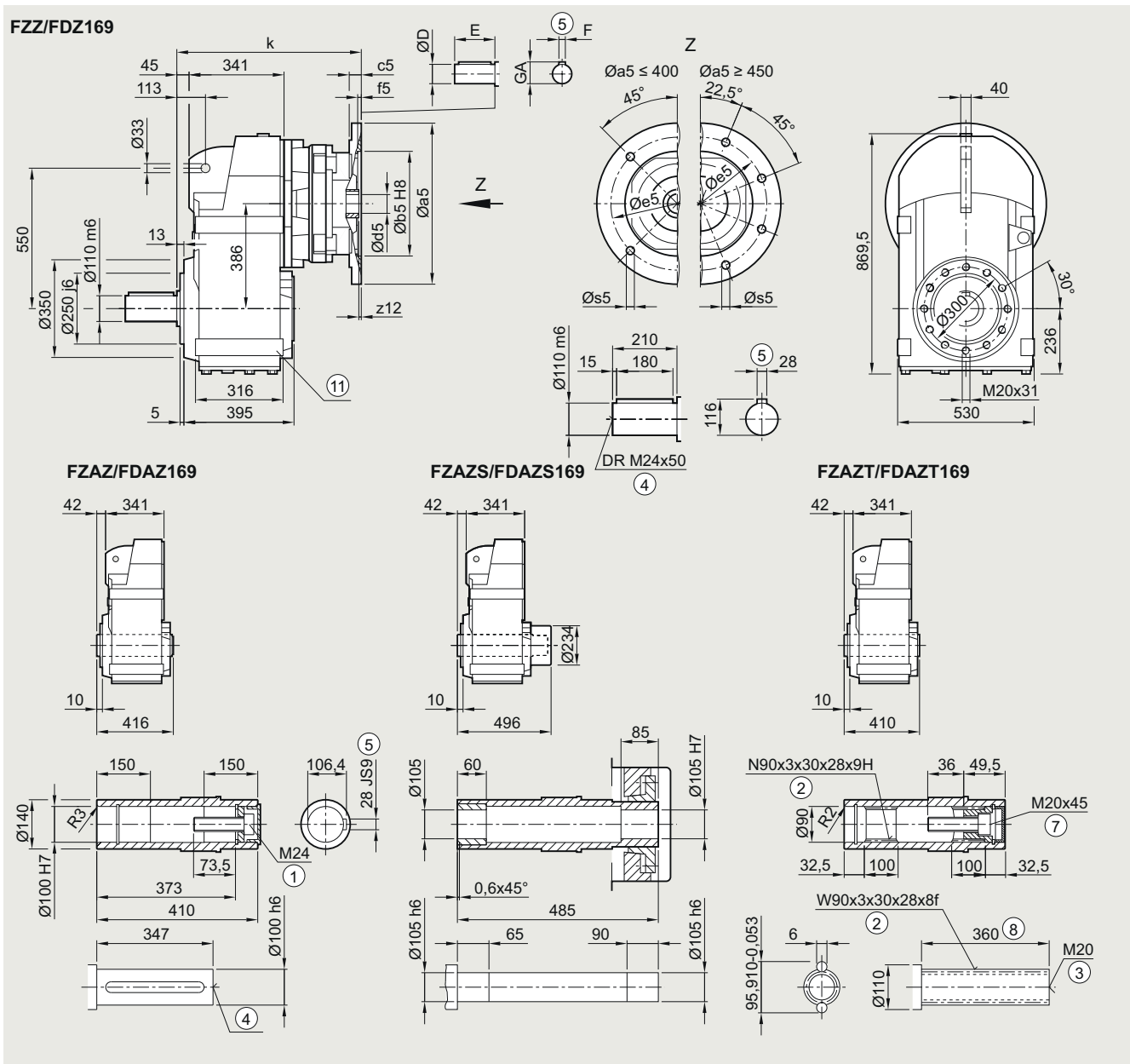
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 481.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 491.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 521.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 521.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 561.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 567.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 597.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

FD.Z./FZ.Z.169 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 481.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 491.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 521.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 521.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 561.5 |
| 225 | 450 | 350 | 20 | 6 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 567.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 597.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

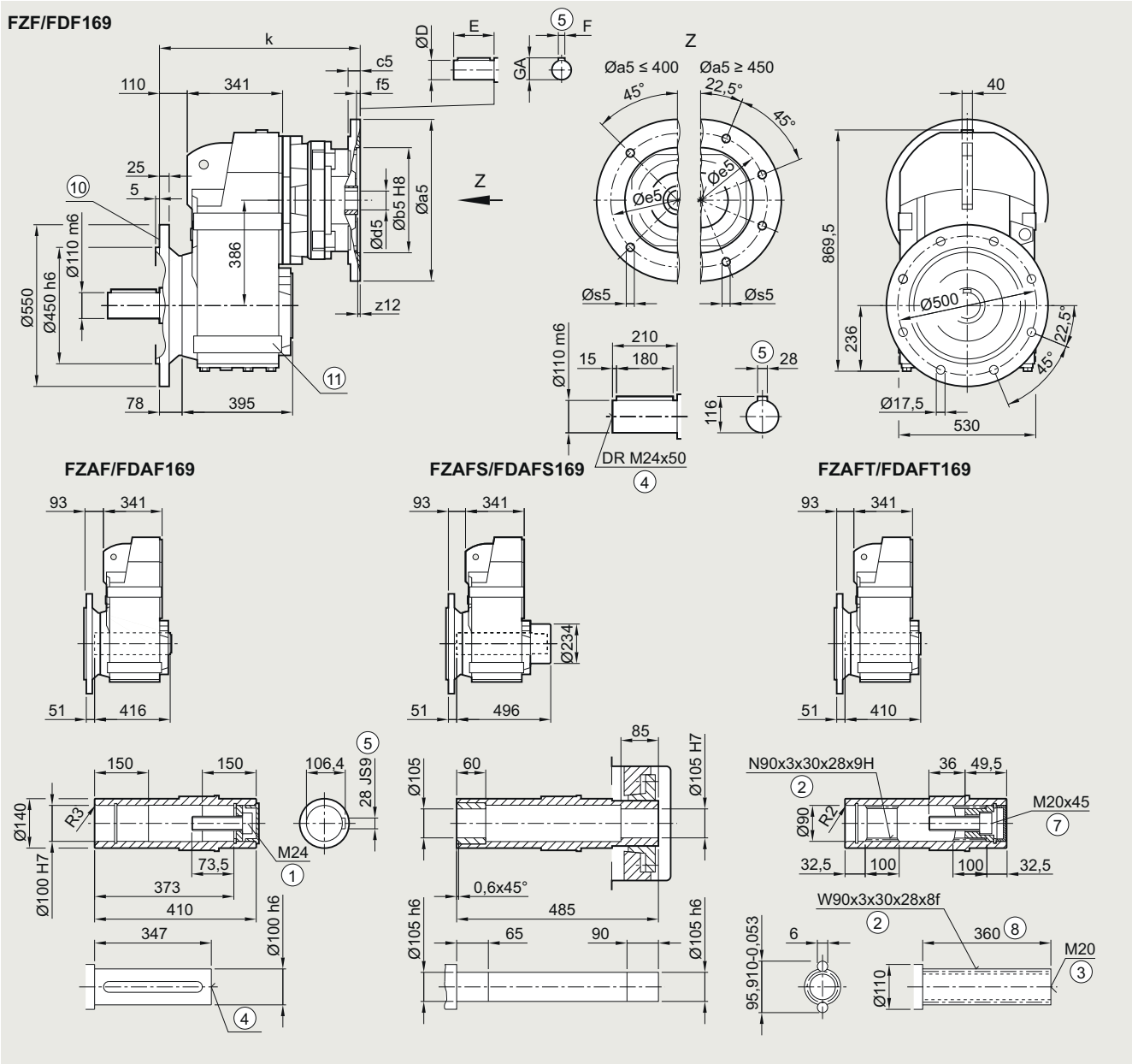
⑩ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FZ.F./FZ.F.169 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 546.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 556.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 586.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 586.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 626.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 632.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 662.5 |

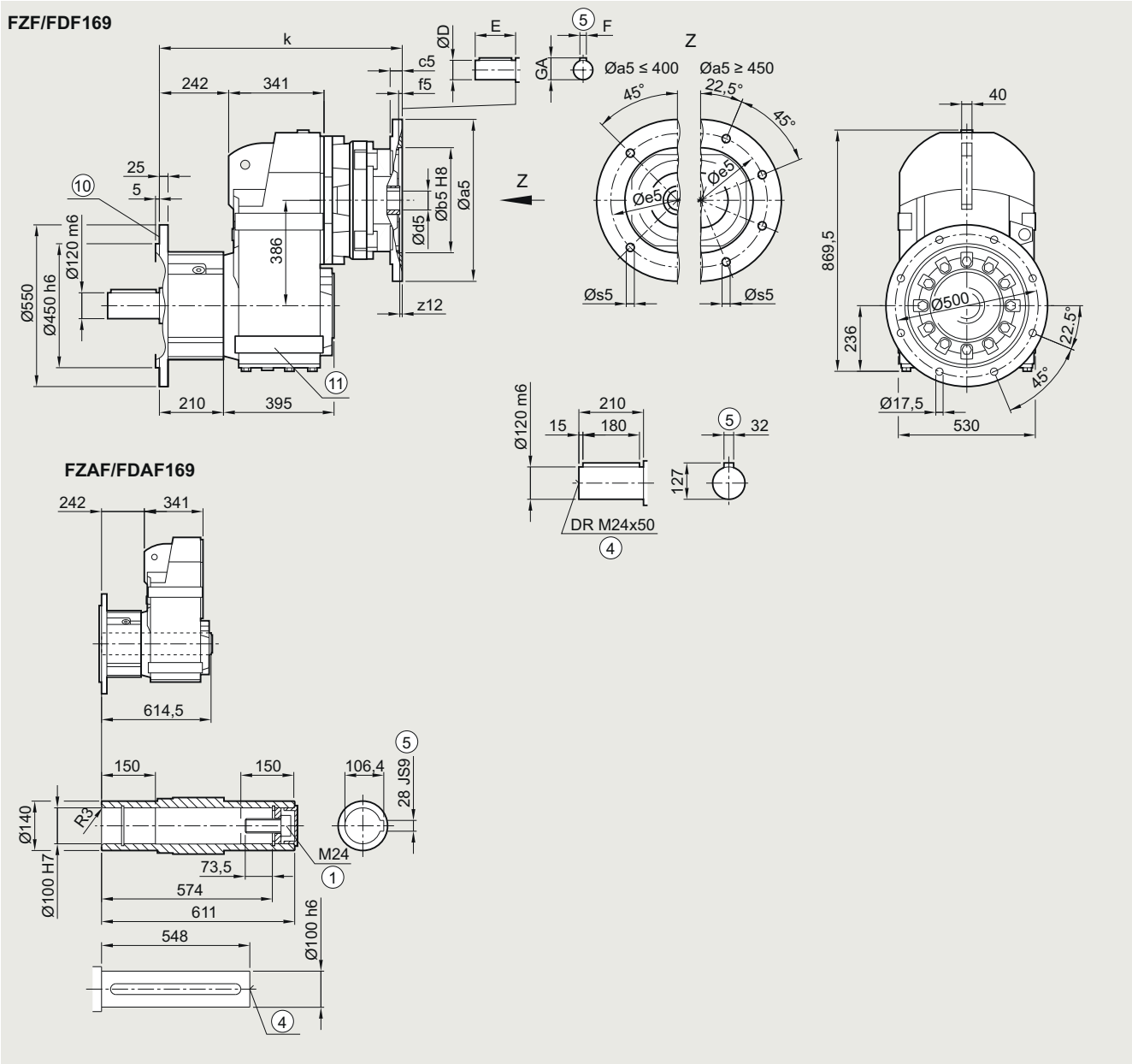
① ISO 4014
② ISO 4762

③ DIN 332-D
④ Without locating shoulder +1 mm

⑤ DIN 332
⑥ For inner contour, see page 4/169

⑦ Feather key/keyway DIN 6885
⑧ Use bores only for foot-mounted design

FD.F./FZ.F.169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 678.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 688.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 718.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 718.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 758.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 764.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 794.5 |

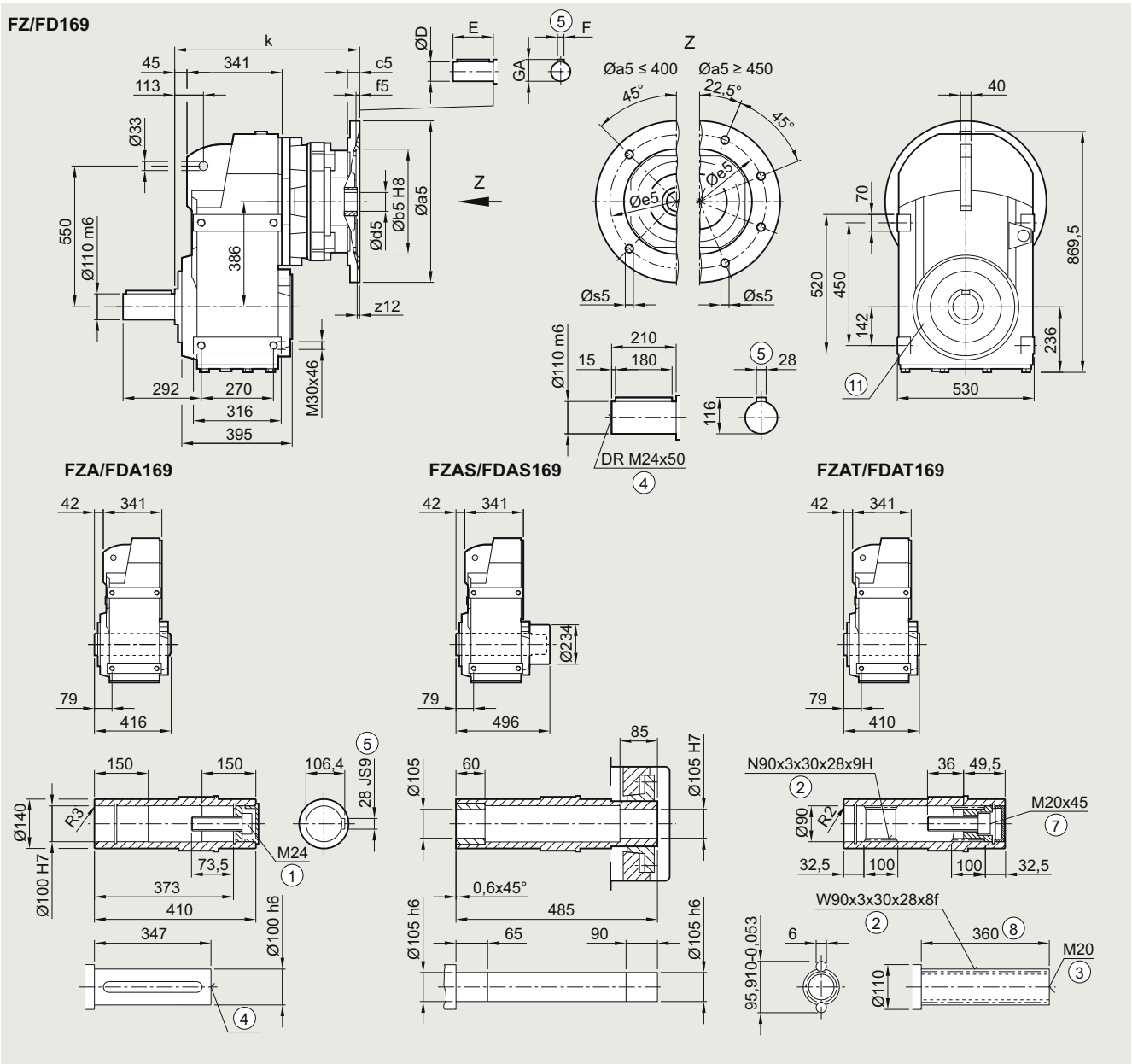
① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD../FZ..169 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 481.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 491.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 521.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 521.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 561.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 567.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 597.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

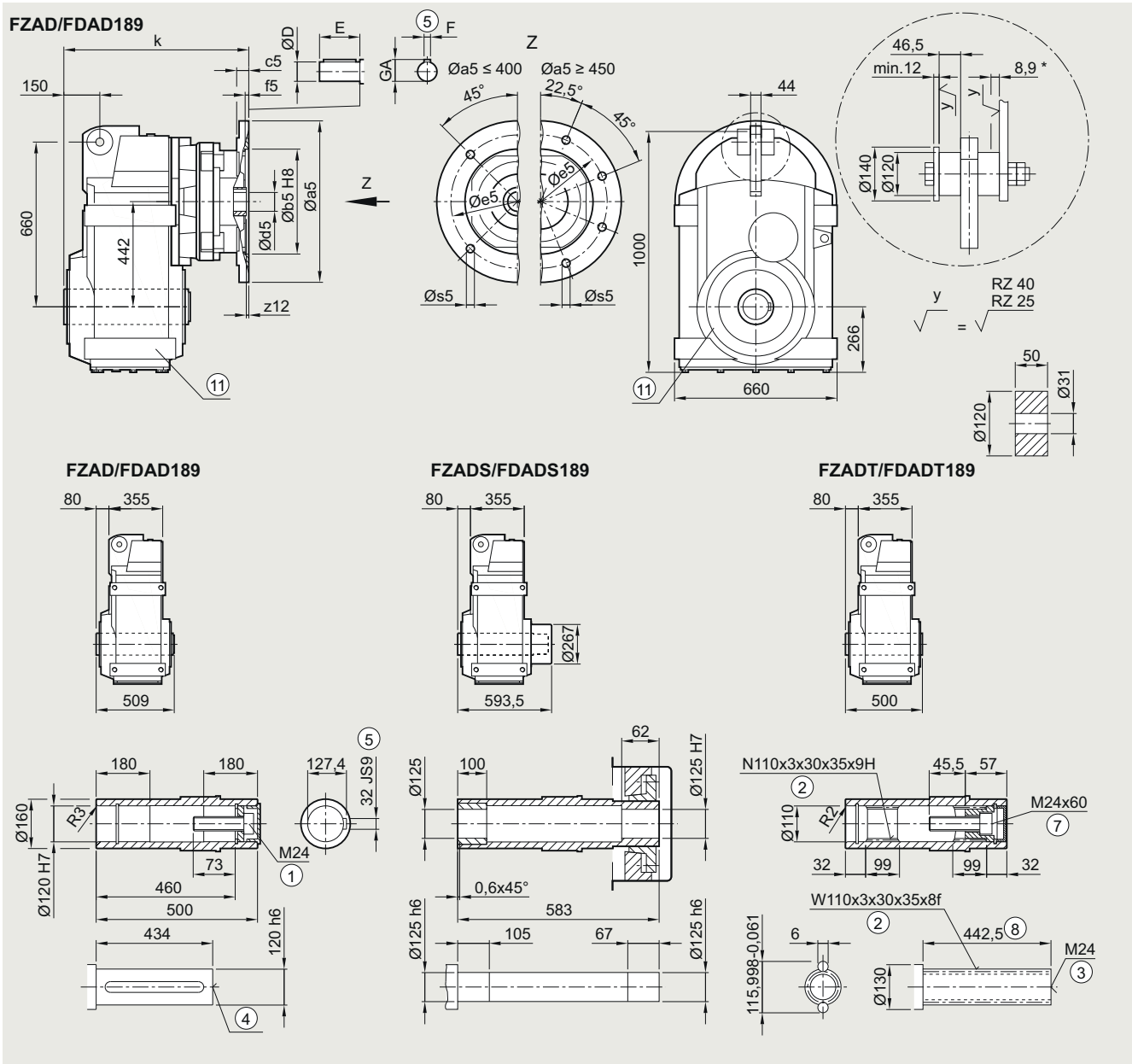
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

FDAD./FZAD.189 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 530.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 540.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 570.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 570.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 610.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 616.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 646.5 |

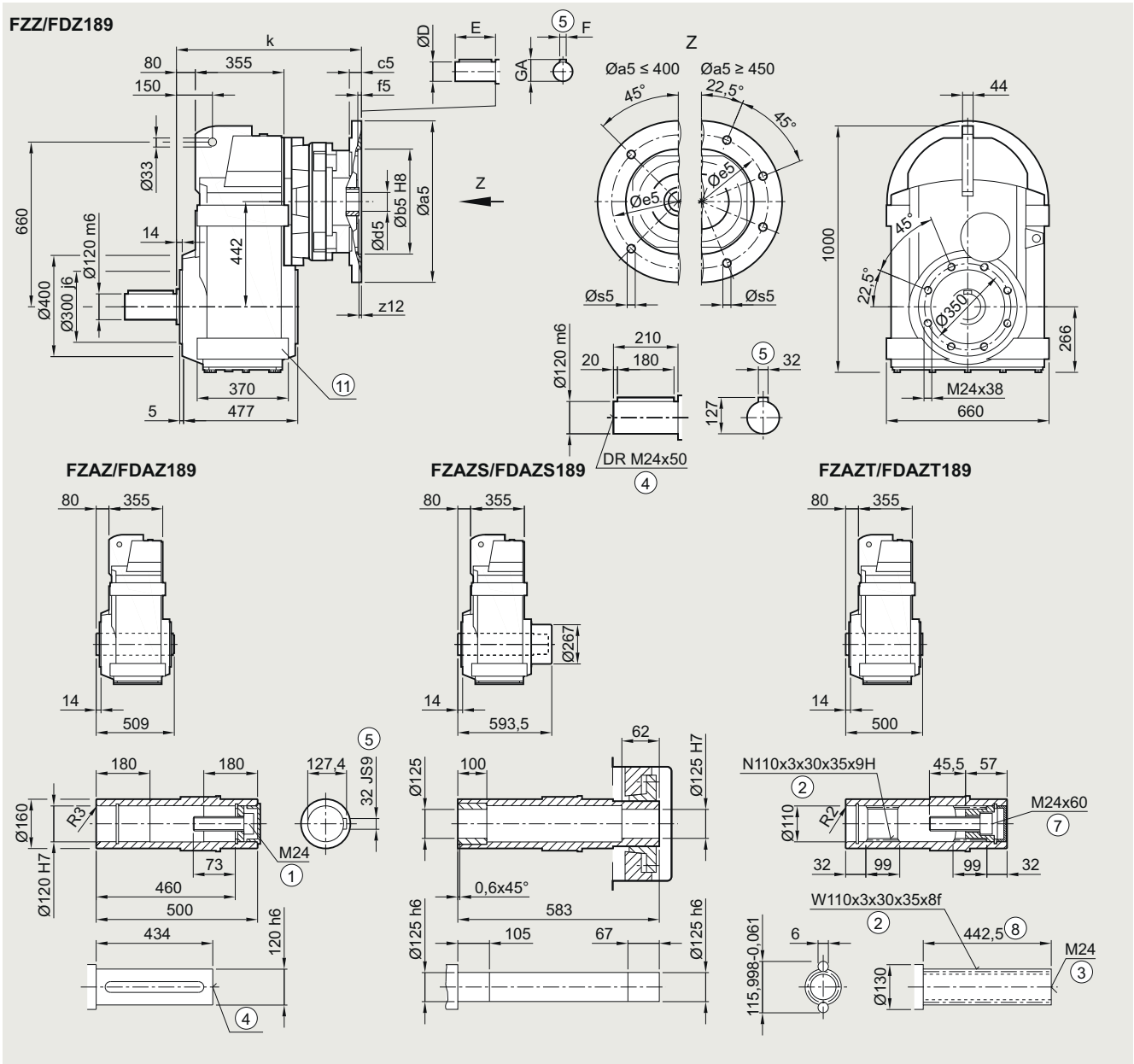
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
* Spring compression at max. torque ⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FD.Z./FZ.Z.189 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 530.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 540.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 570.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 570.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 610.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 616.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 646.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

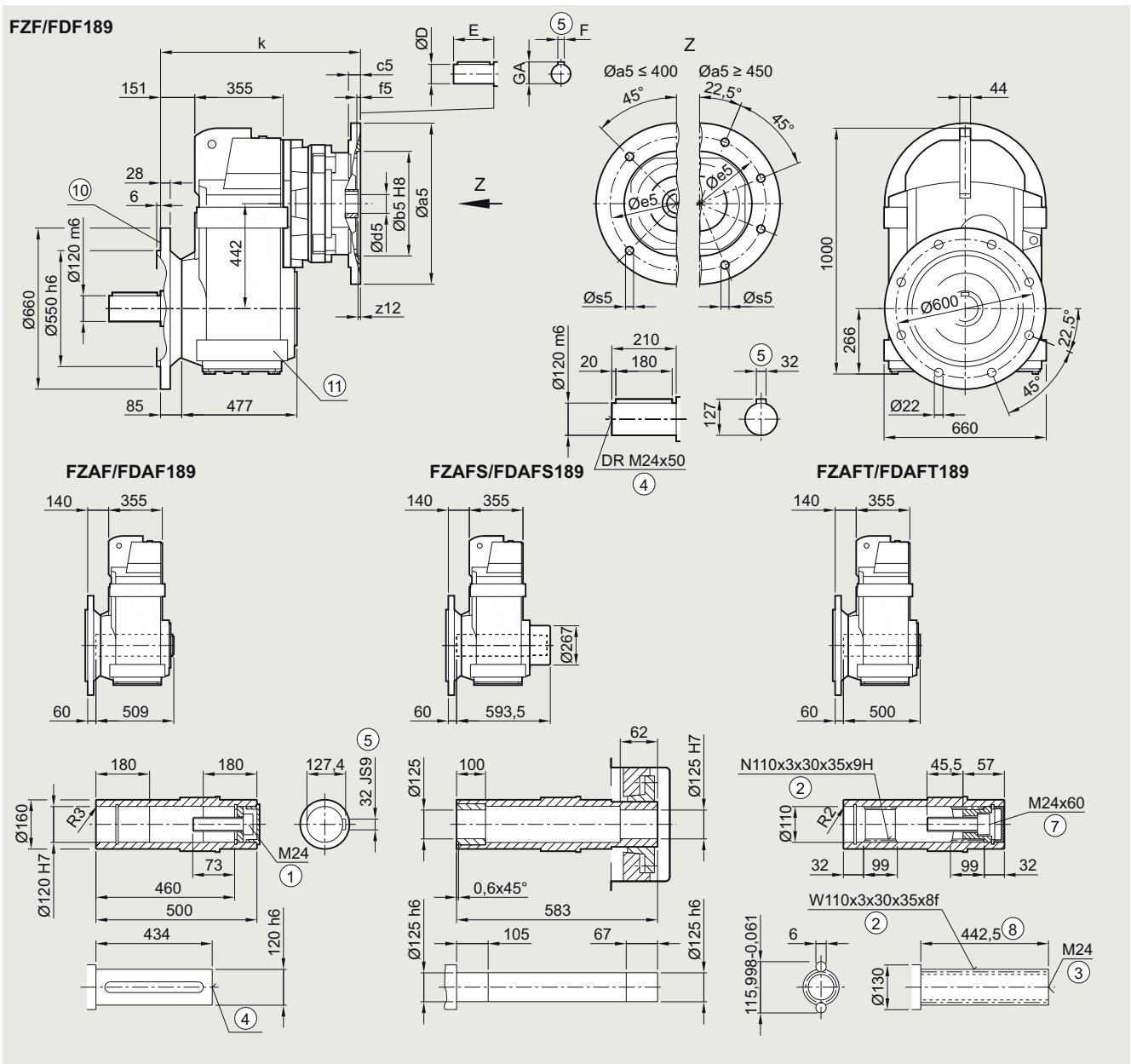
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

FD.F./FZ.F.189 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 601.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 611.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 641.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 641.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 681.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 687.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 717.5 |

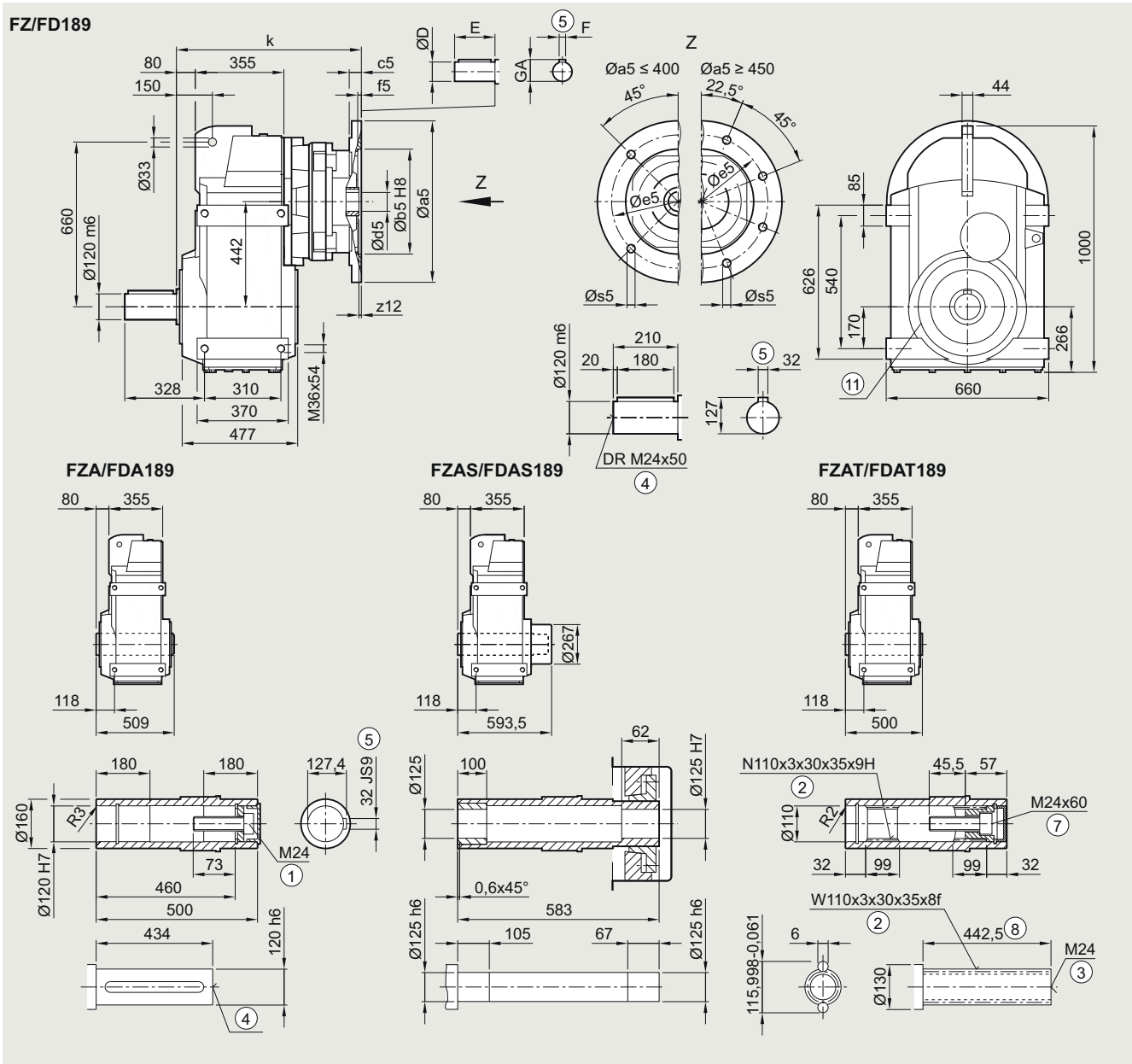
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

FZ./FZ..189 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 530.5 |
| 132 | 300 | 230 | 12 | 5.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 540.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 570.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 570.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 610.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 616.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 646.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

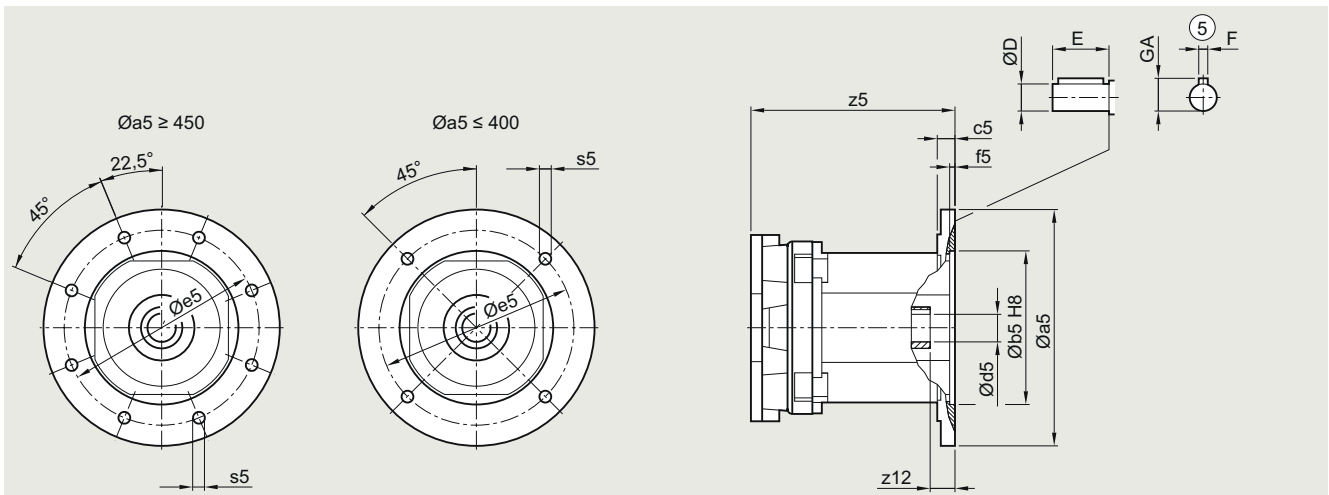
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

FD.../FZ...29 to FD.../FZ...79 gearboxes



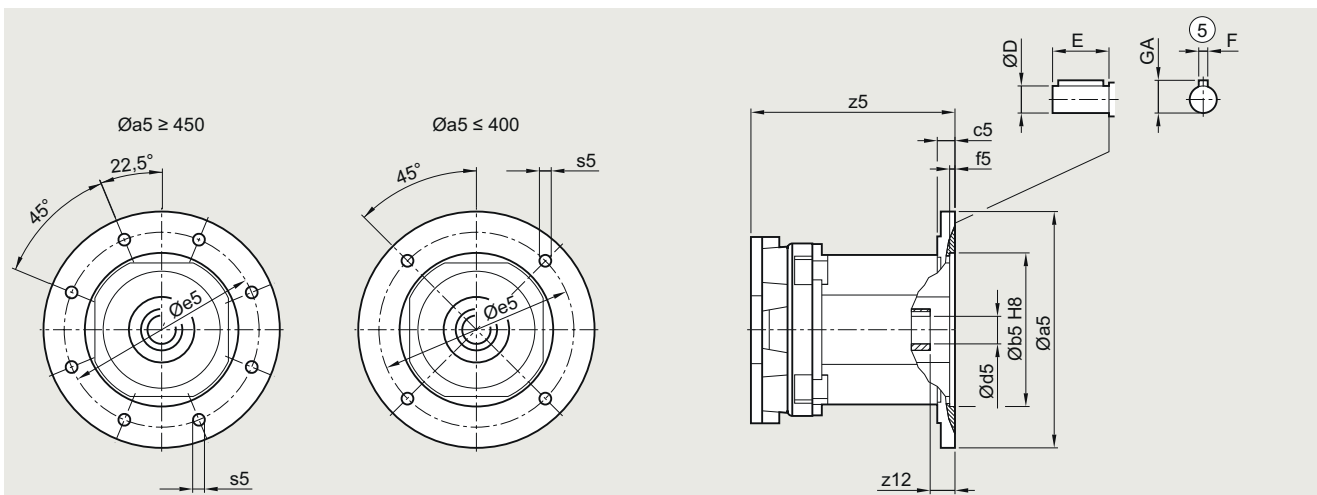
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------------|-----|-----|----|-----|-----|-----|-----|------|-----|----|------|-------|
| FZ.../FD...29 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| FZ.../FD...39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245.0 |
| FZ.../FD...49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| FZ.../FD...69 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| FZ.../FD...79 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 182.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 182.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 307.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 352.5 |

Parallel shaft gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

FD.../FZ...89 to FD.../FZ...129 gearboxes

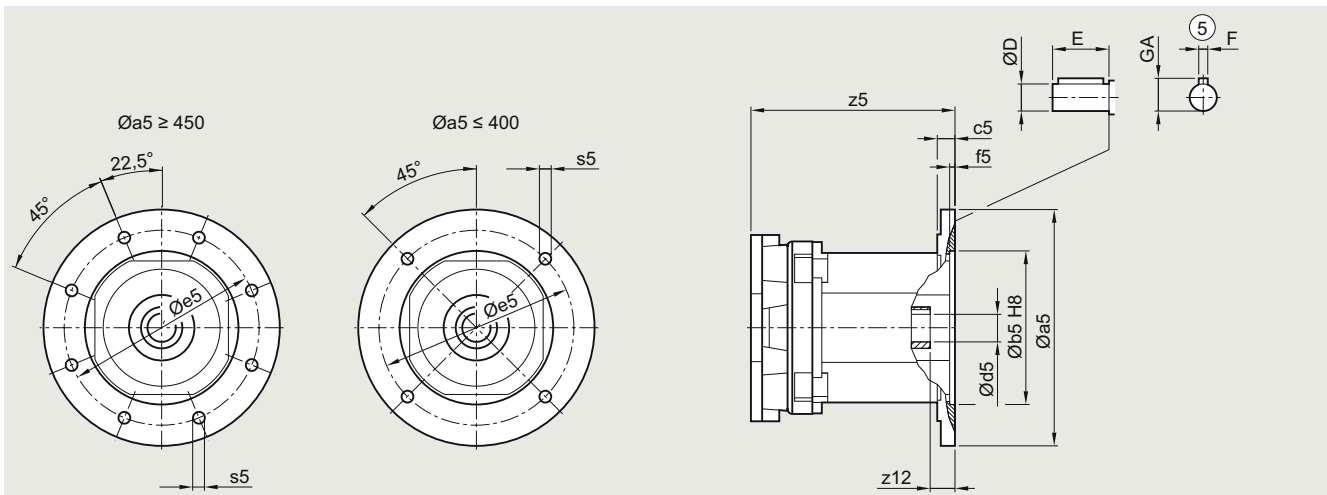


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| FZ.../FD...89 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 169.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 169.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 290.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 335.5 |
| FZ.../FD...109 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 162.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 281.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 326.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 326.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 371.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 419.0 |
| FZ.../FD...129 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 155.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 270.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 315.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 315.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 360.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 408.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 445.5 |

© Feather key/keyway DIN 6885

() Dimension in brackets for 2-pole motor

FD.../FZ...149 to FD.../FZ...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| FD.../FD...149 | | | | | | | | | | | | |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 264.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 309.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 309.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 401.5 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 439.0 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 314.5 |
| FZ.../FD...169 | | | | | | | | | | | | |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 180.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 251.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 296.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 296.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 340.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 387.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 420.5 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 297.5 |
| FZ.../FD...189 | | | | | | | | | | | | |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 180.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 251.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 296.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 296.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 340.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 387.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 420.5 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 297.5 |
| 315 | 660 | 550 | 33 | 8.0 | 600 | M20 | 33.5 | 80 (65) | 170 (140) | 22 (18) | 85.0 (69.0) | 321.5 |

① Feather key/keyway DIN 6885

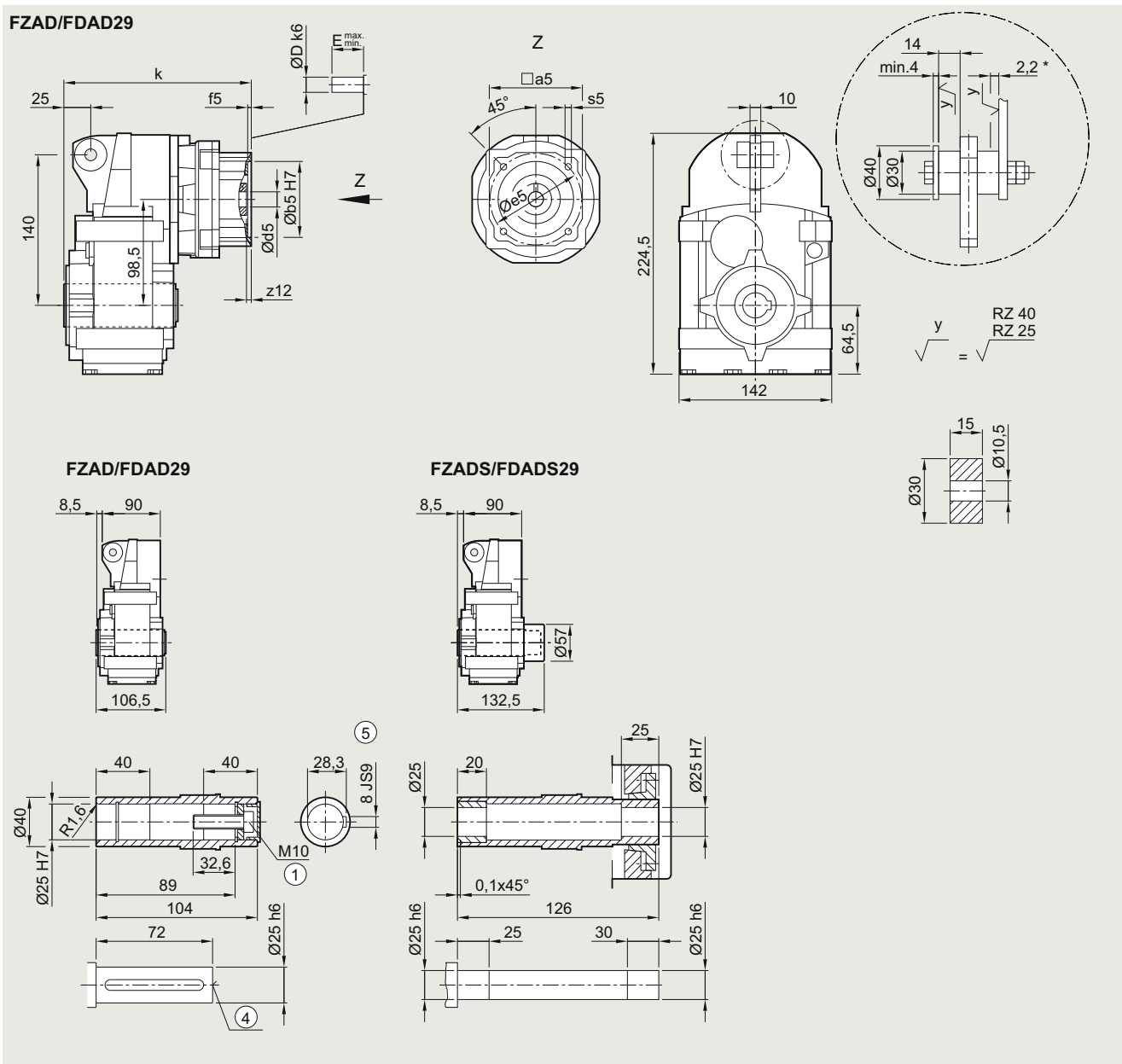
() Dimension in brackets for 2-pole motor

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.29 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 181.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 181.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS5.1 ¹⁾ | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 210 |
| KS5.2 ¹⁾ | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 210 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 235 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 235 |

① ISO 4017

② DIN 332

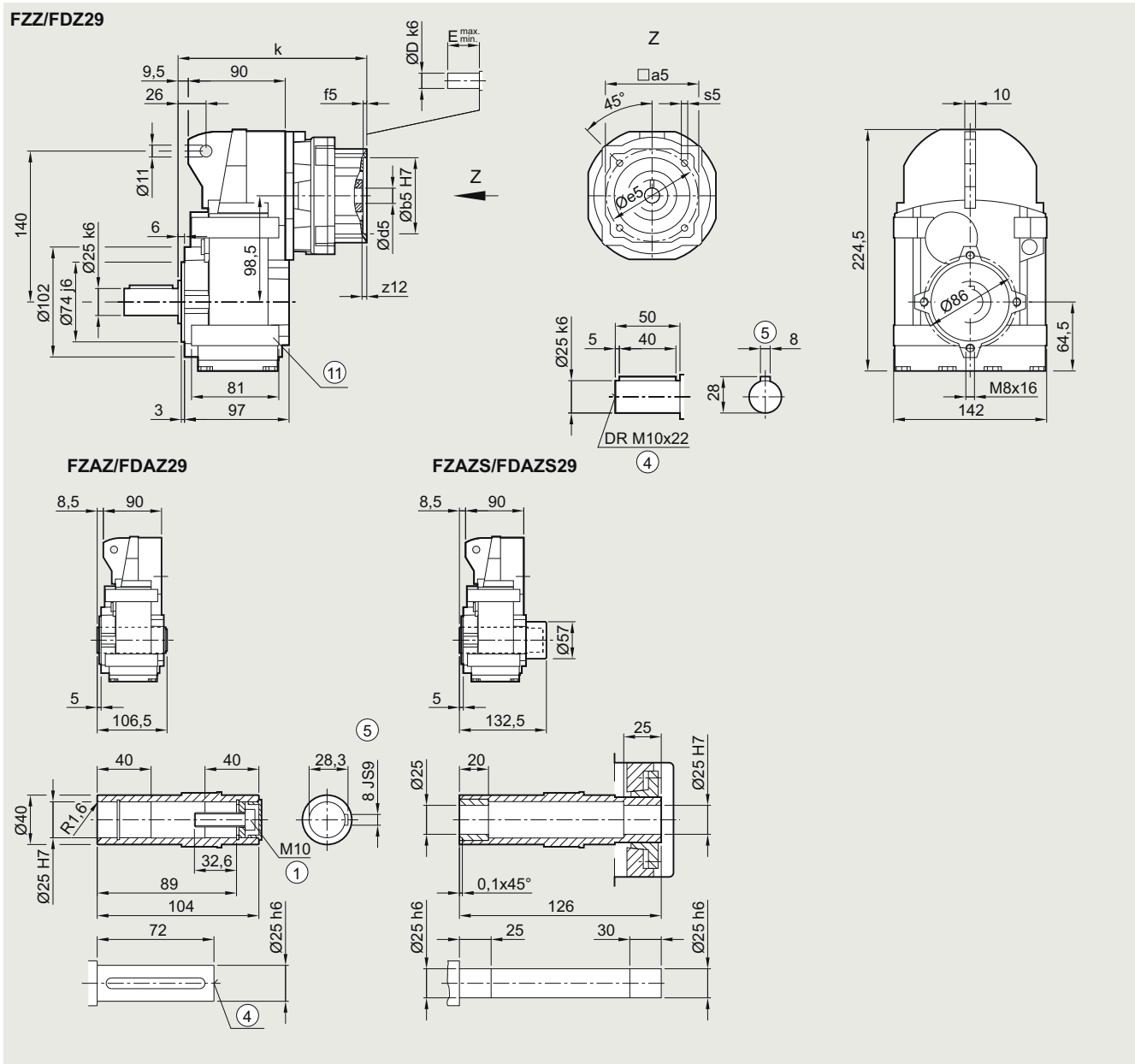
③ Feather key/keyway DIN 6885

1) FDADS/FZADS not possible

* Spring compression at max. torque

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.29 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 181.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 181.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS5.1 ¹⁾ | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 210 |
| KS5.2 ¹⁾ | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 210 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 235 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 235 |

① ISO 4017

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

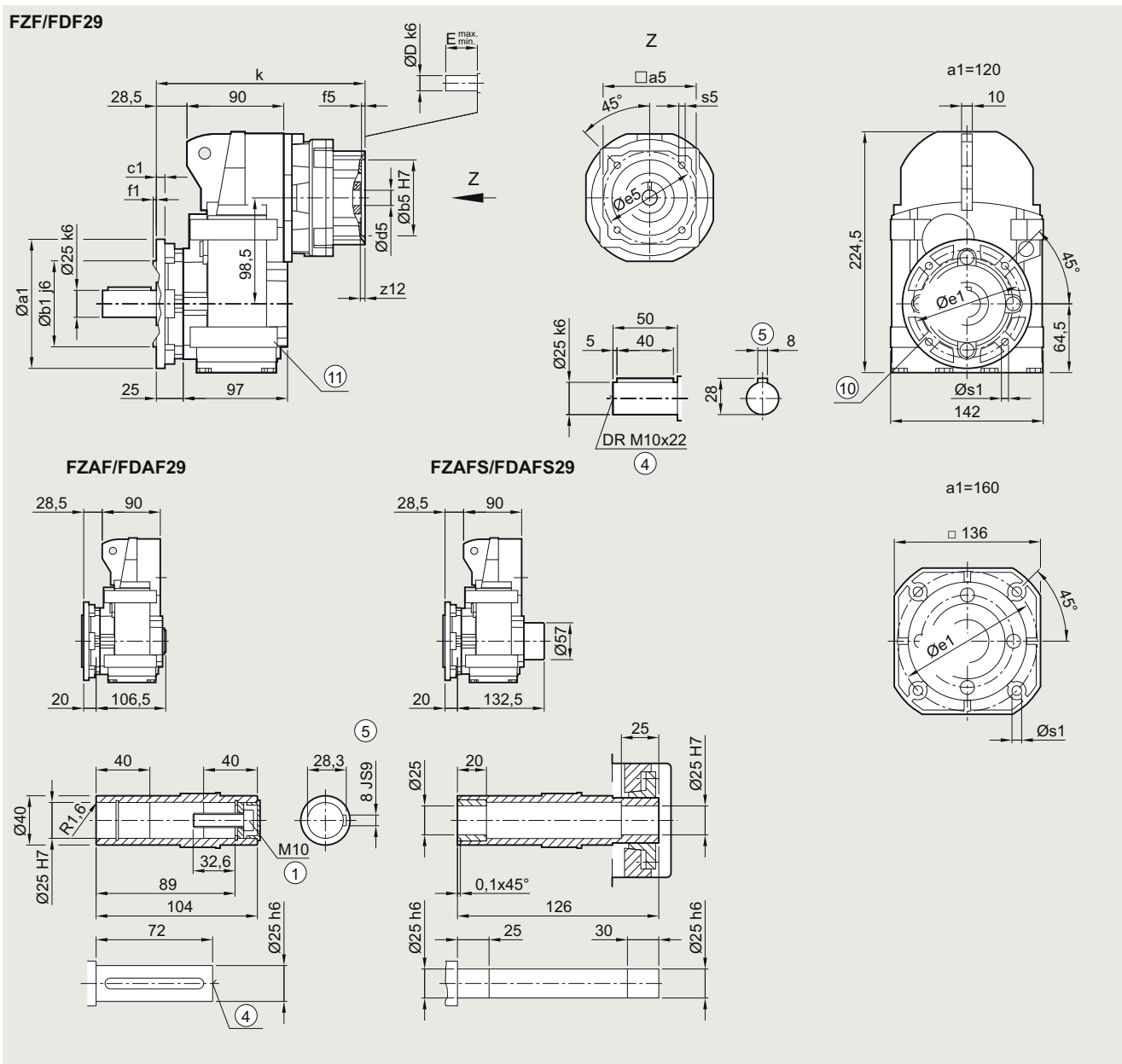
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.29 gearbox in a flange-mounted design

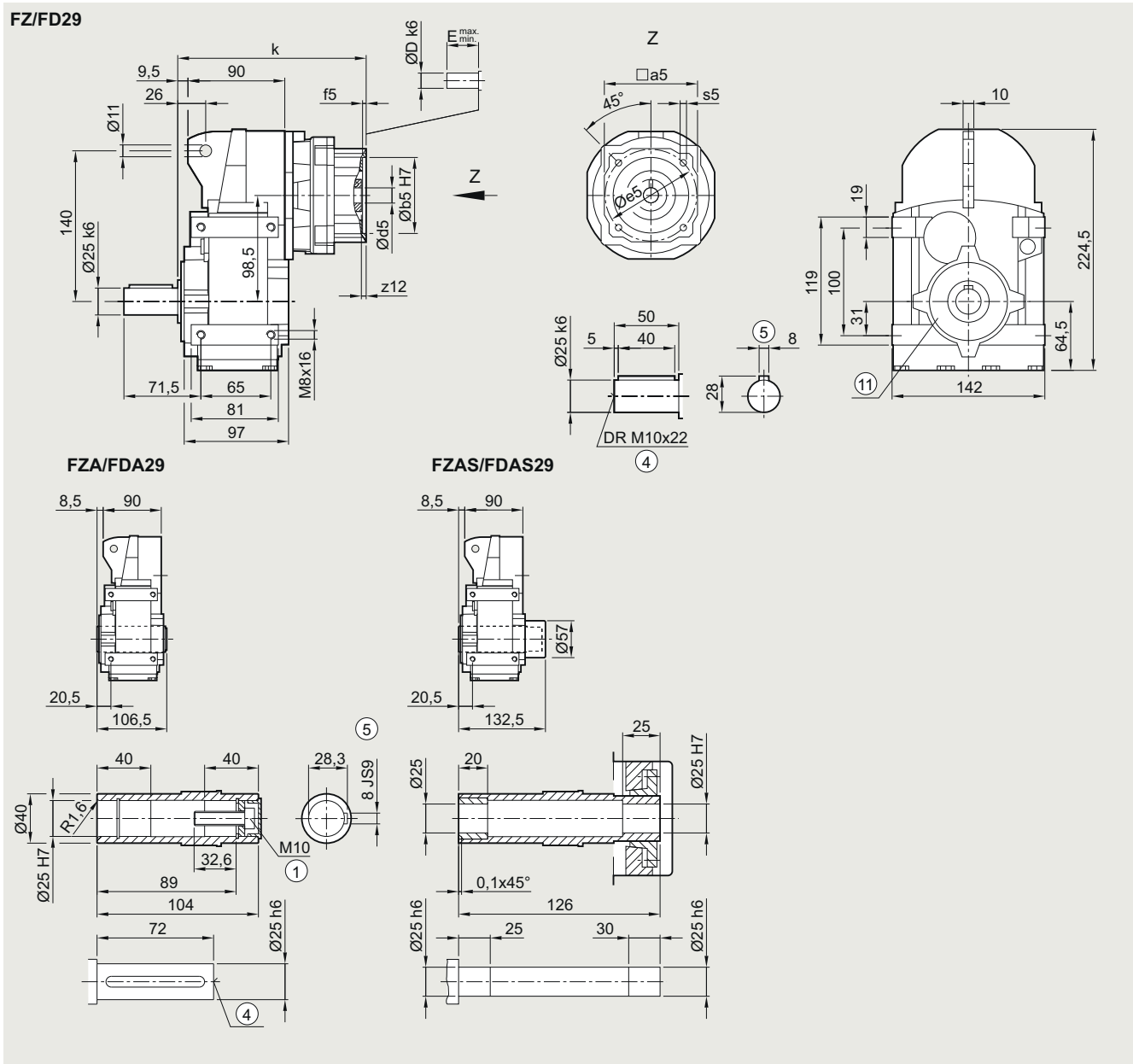


| Flange | a1 | b1 | c1 | e1 | f1 | s1 | | | | |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | 8 | 100 | 3.0 | 6.6 | | | | |
| | 160 | 110 | 9 | 130 | 3.5 | 9.0 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 200.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 200.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 213 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 213 |
| KS5.1 ¹⁾ | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 229 |
| KS5.2 ¹⁾ | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 229 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 254 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 254 |

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

¹⁾ FDADS/FZADS not possible

FD../FZ..29 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 181.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 181.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 194 |
| KS5.1 ¹⁾ | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 210 |
| KS5.2 ¹⁾ | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 210 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 235 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 235 |

① ISO 4017

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for housing flange design

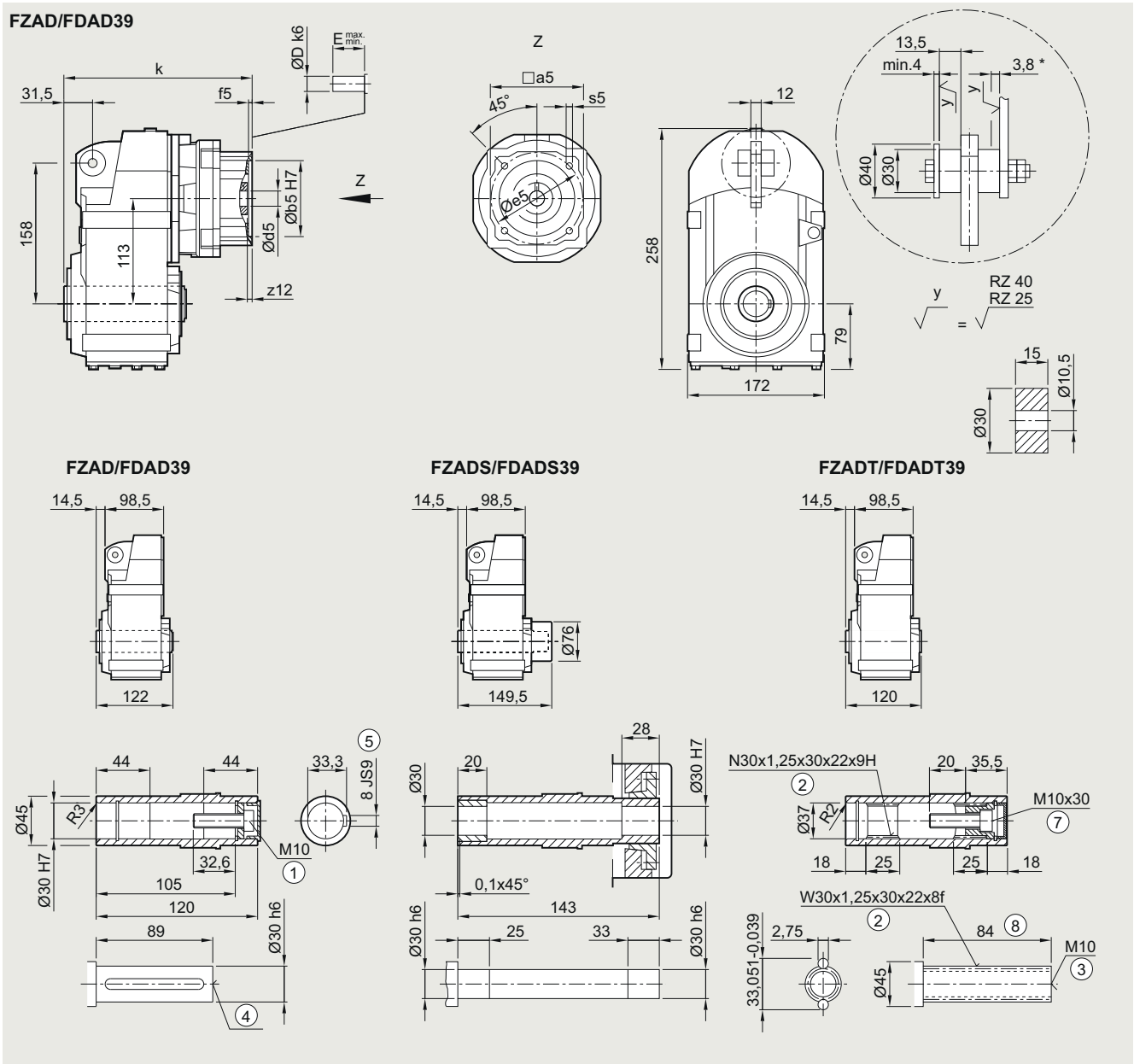
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.39 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 195 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 195 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 223.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 223.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 248.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 248.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 261 |

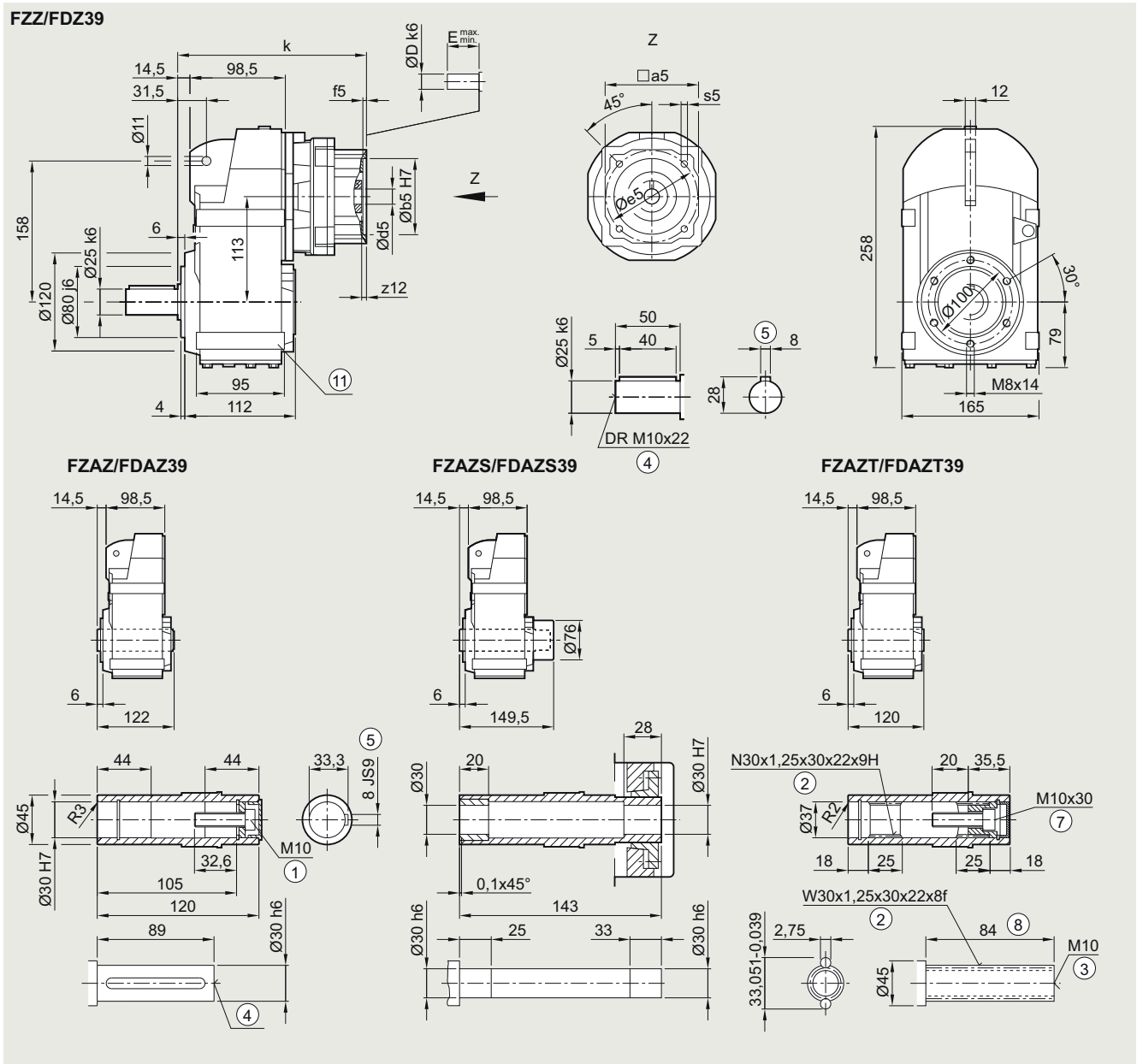
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑥ ISO 4762 ⑦ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.39 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 195 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 195 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 223.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 223.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 248.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 248.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 261 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design

①) FDADS/FZADS not possible

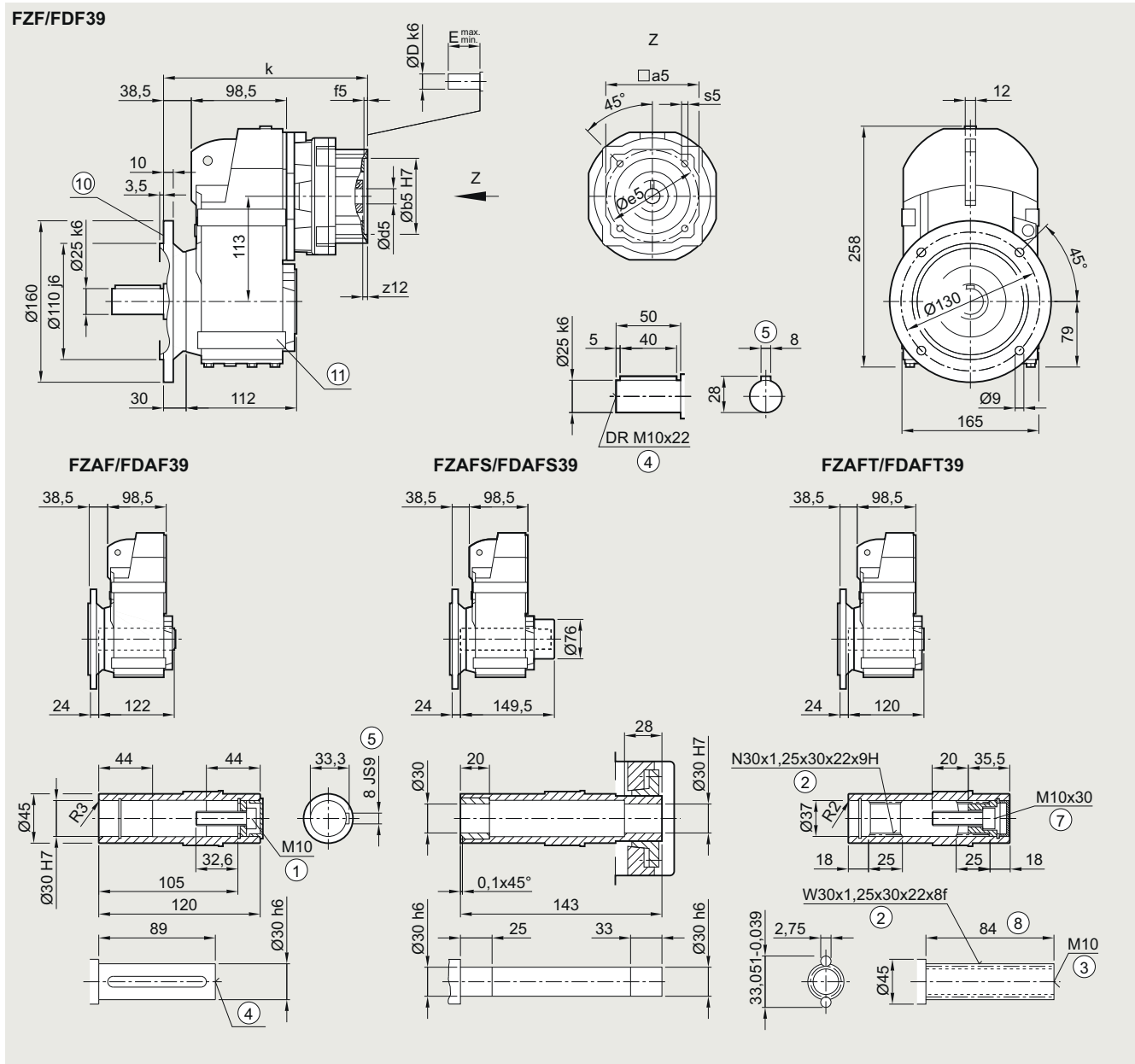
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.39 gearbox in a flange-mounted design

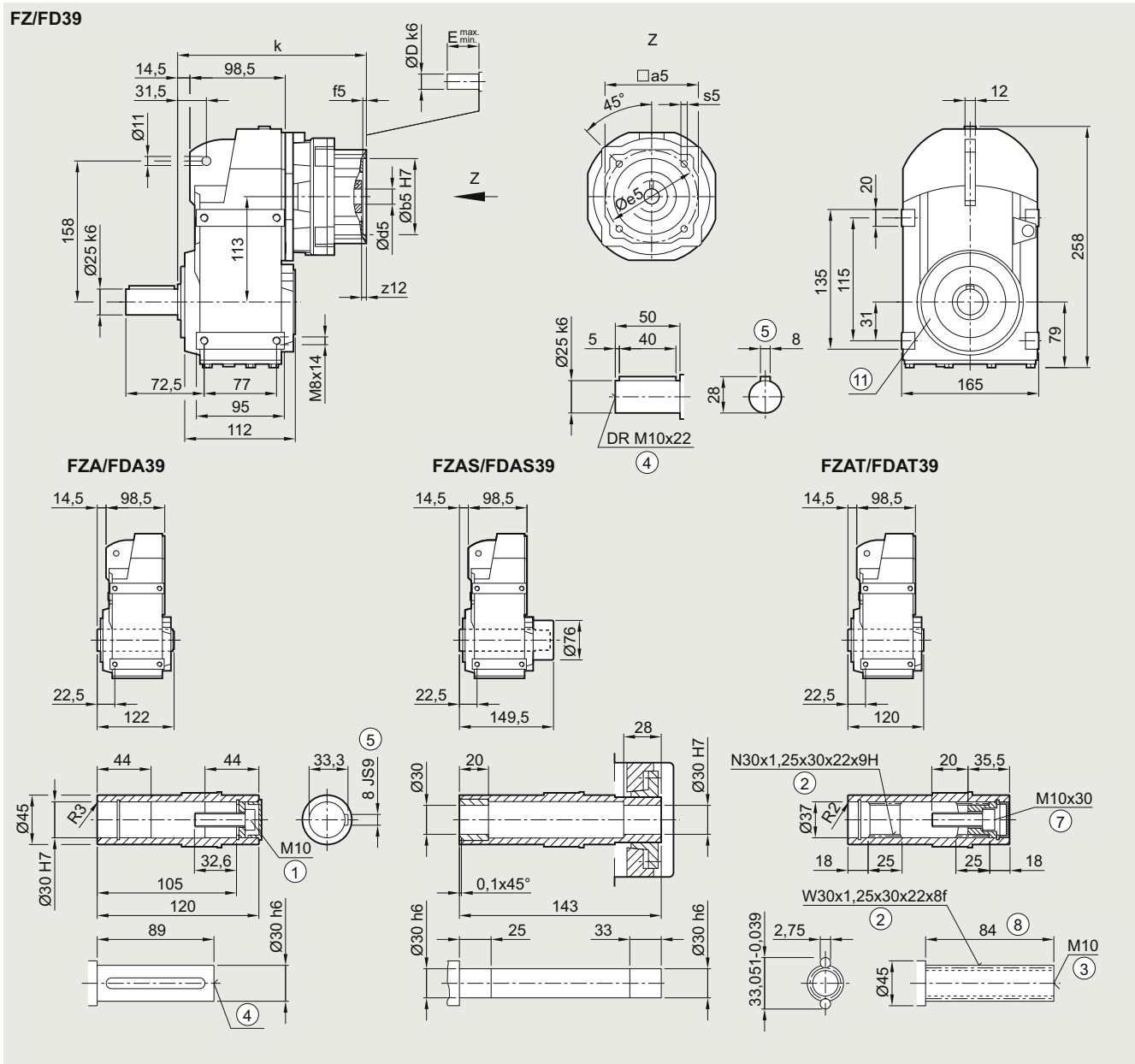
4



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 247.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 247.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 272.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 272.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 285 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

FD../FZ..39 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------------------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 195 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 195 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 207.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 223.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 223.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 248.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 248.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 261 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

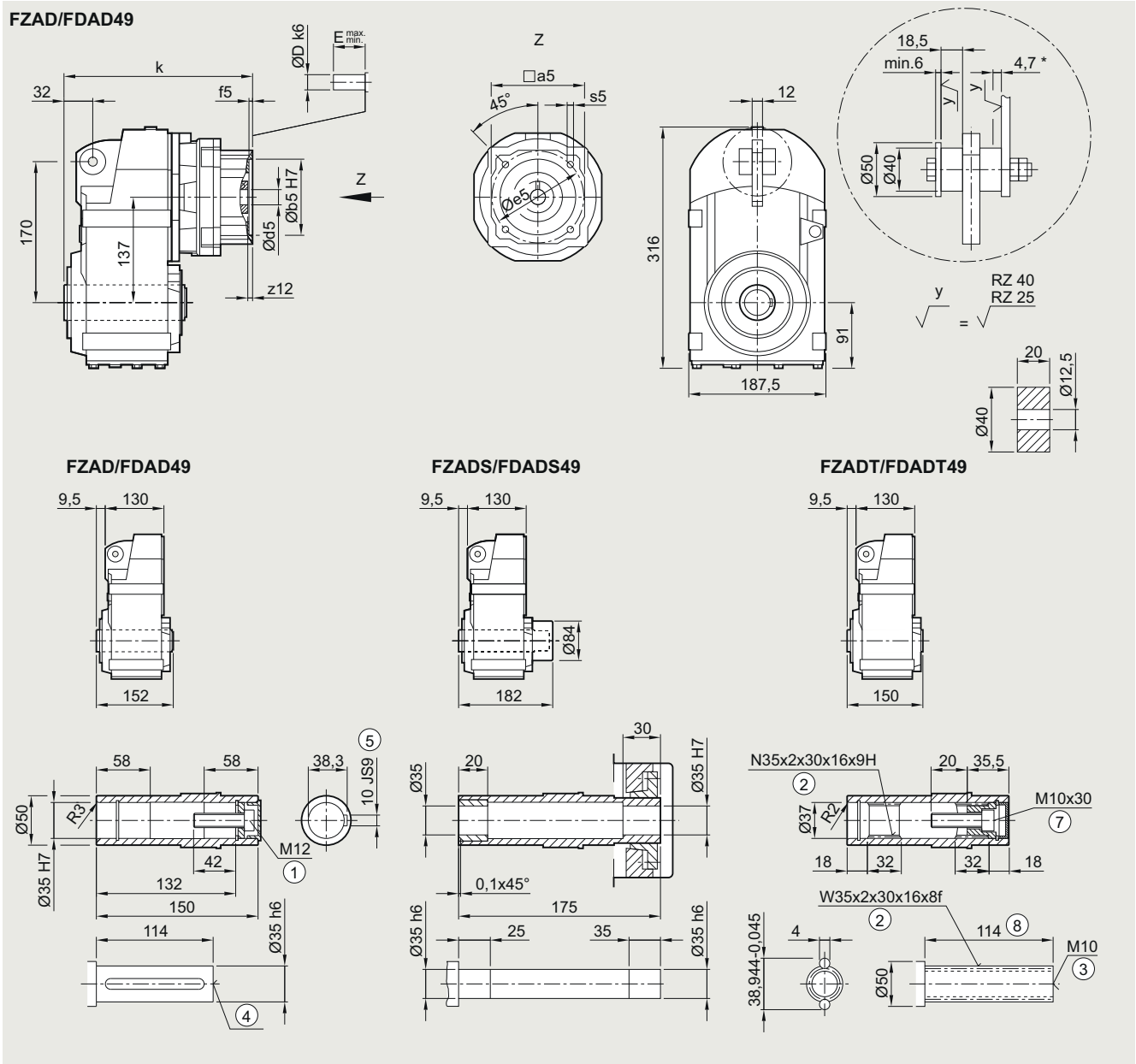
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.49 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 212 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 212 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 240.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 240.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 265.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 265.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 278 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 314 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 314 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

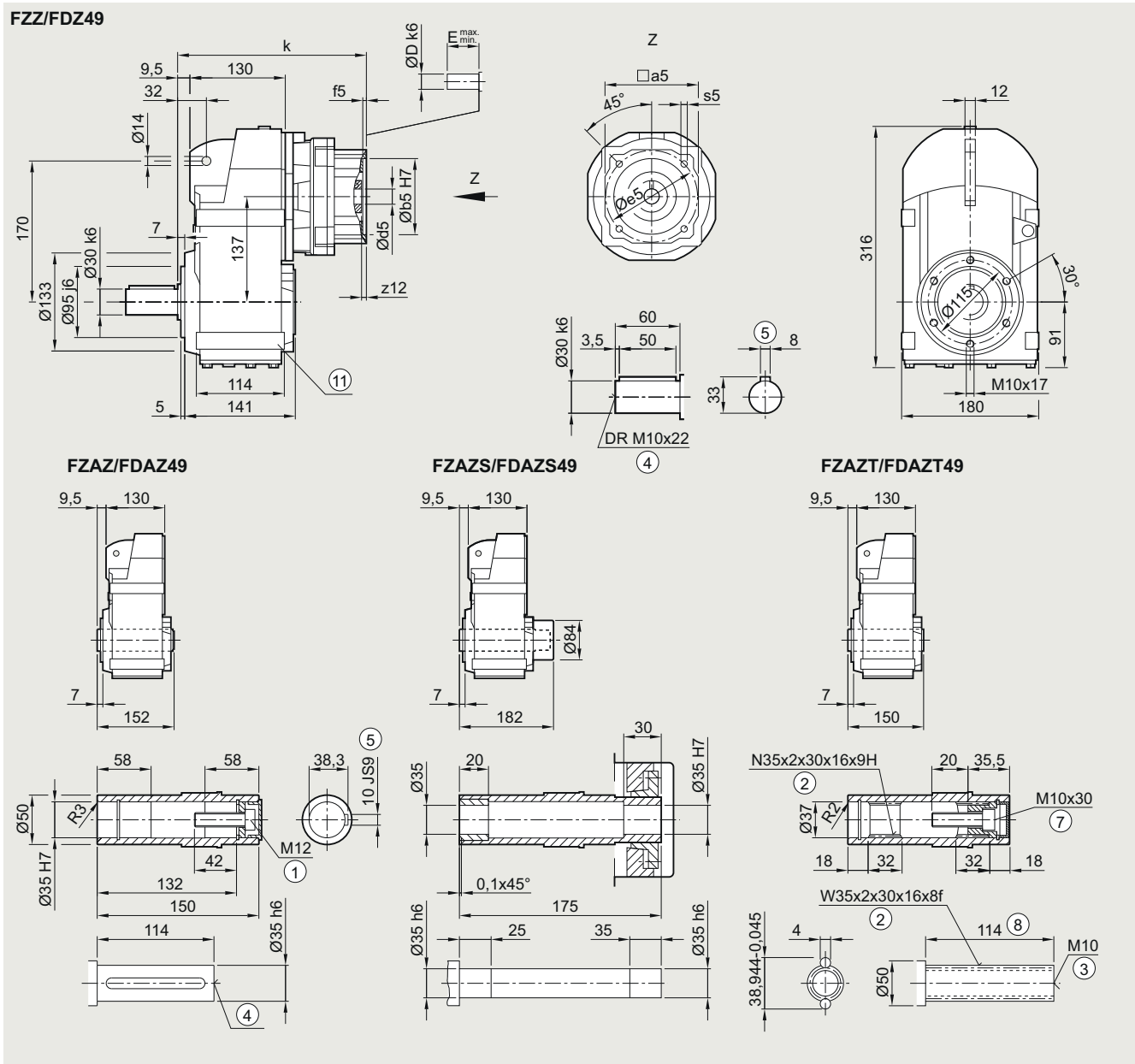
¹⁾ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.49 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 212 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 212 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 240.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 240.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 265.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 265.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 278 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 314 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 314 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design

1) FDADS/FZADS not possible

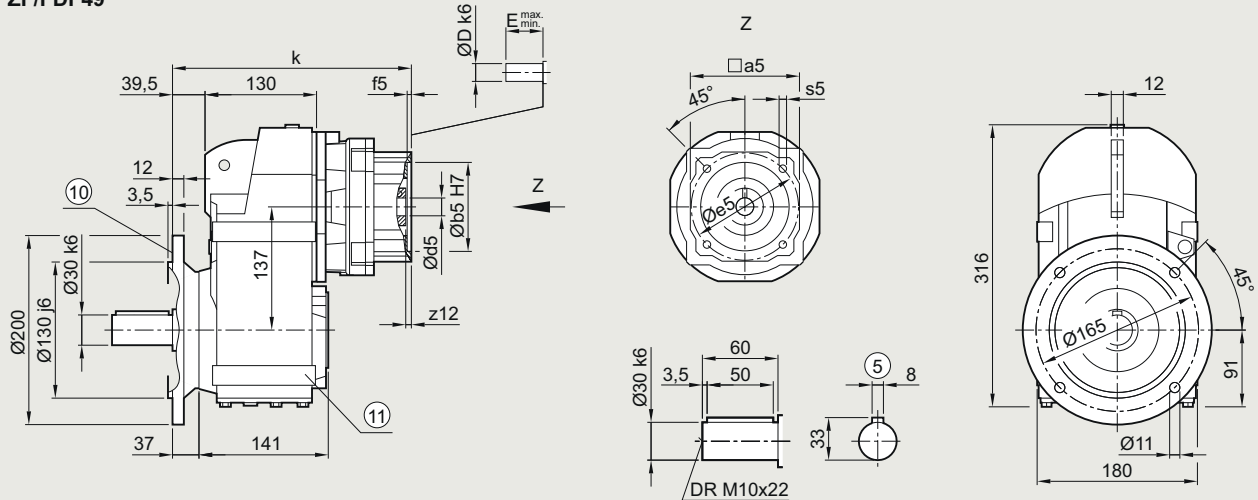
Parallel shaft gearboxes

Dimensional drawings

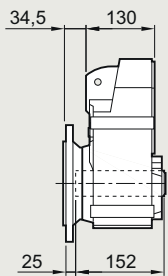
KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.49 gearbox in a flange-mounted design

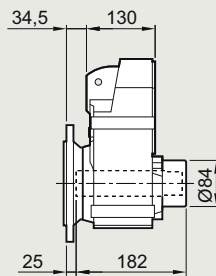
FZF/FDF49



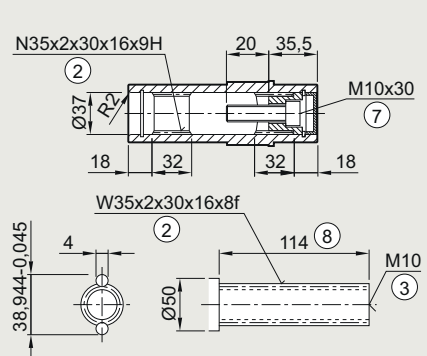
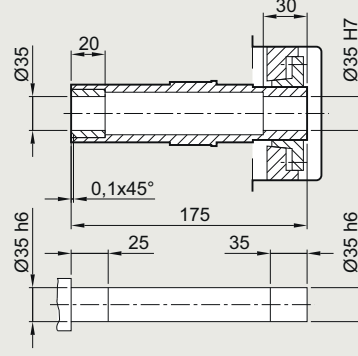
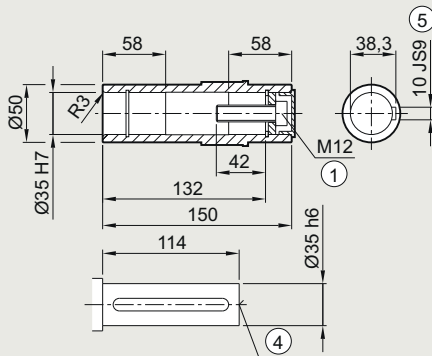
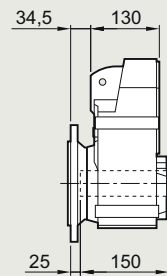
FZAF/FDAF49



FZAFS/FDAFS49



FZAFt/FDAFT49



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 242 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 242 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 254.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 254.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 270.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 270.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 295.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 295.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 308 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 339 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 339 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

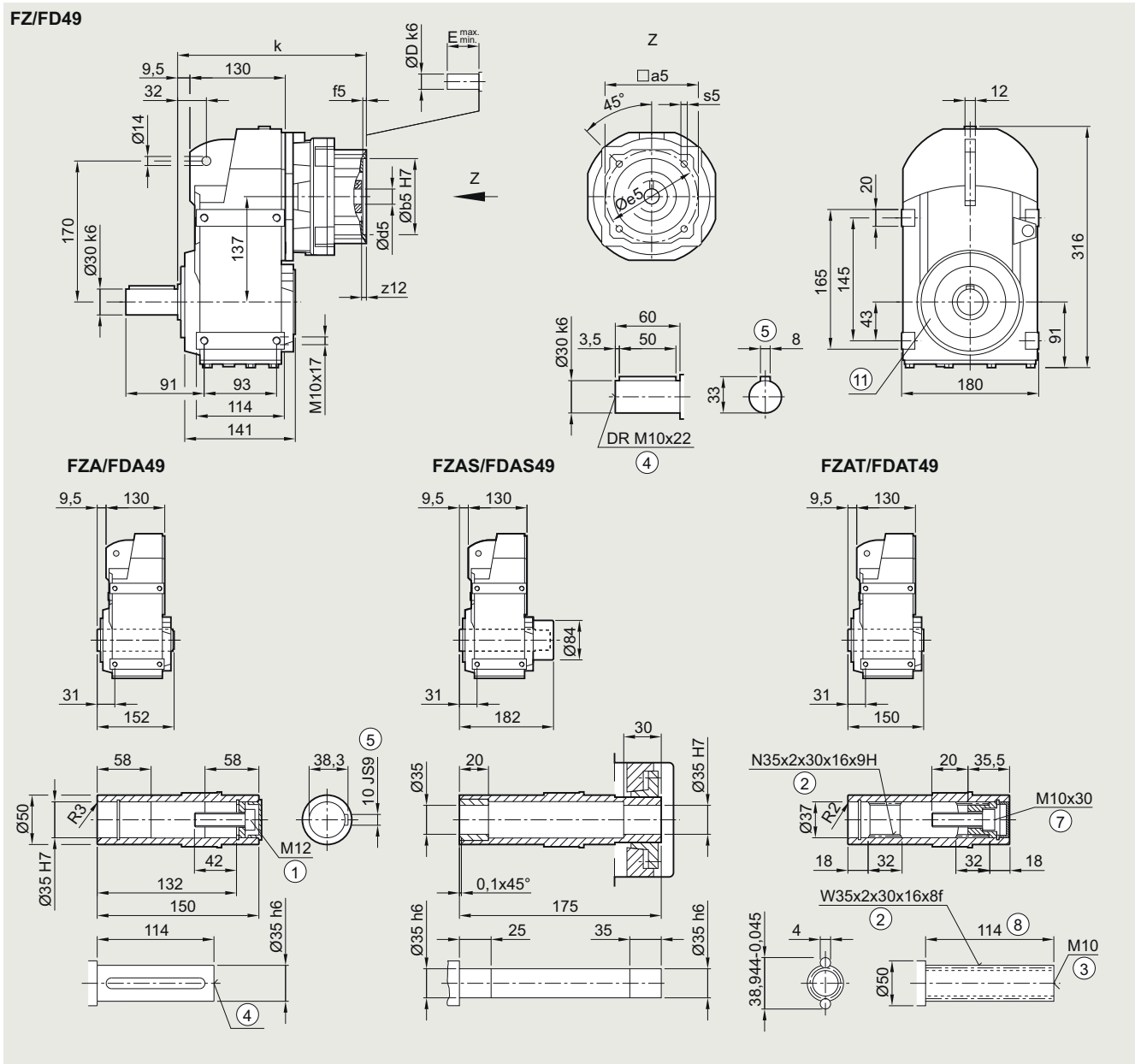
¹⁾ FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..49 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 212 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 212 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 224.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 240.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 240.5 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 265.5 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 265.5 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 278 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 314 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 314 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

1) FDADS/FZADS not possible

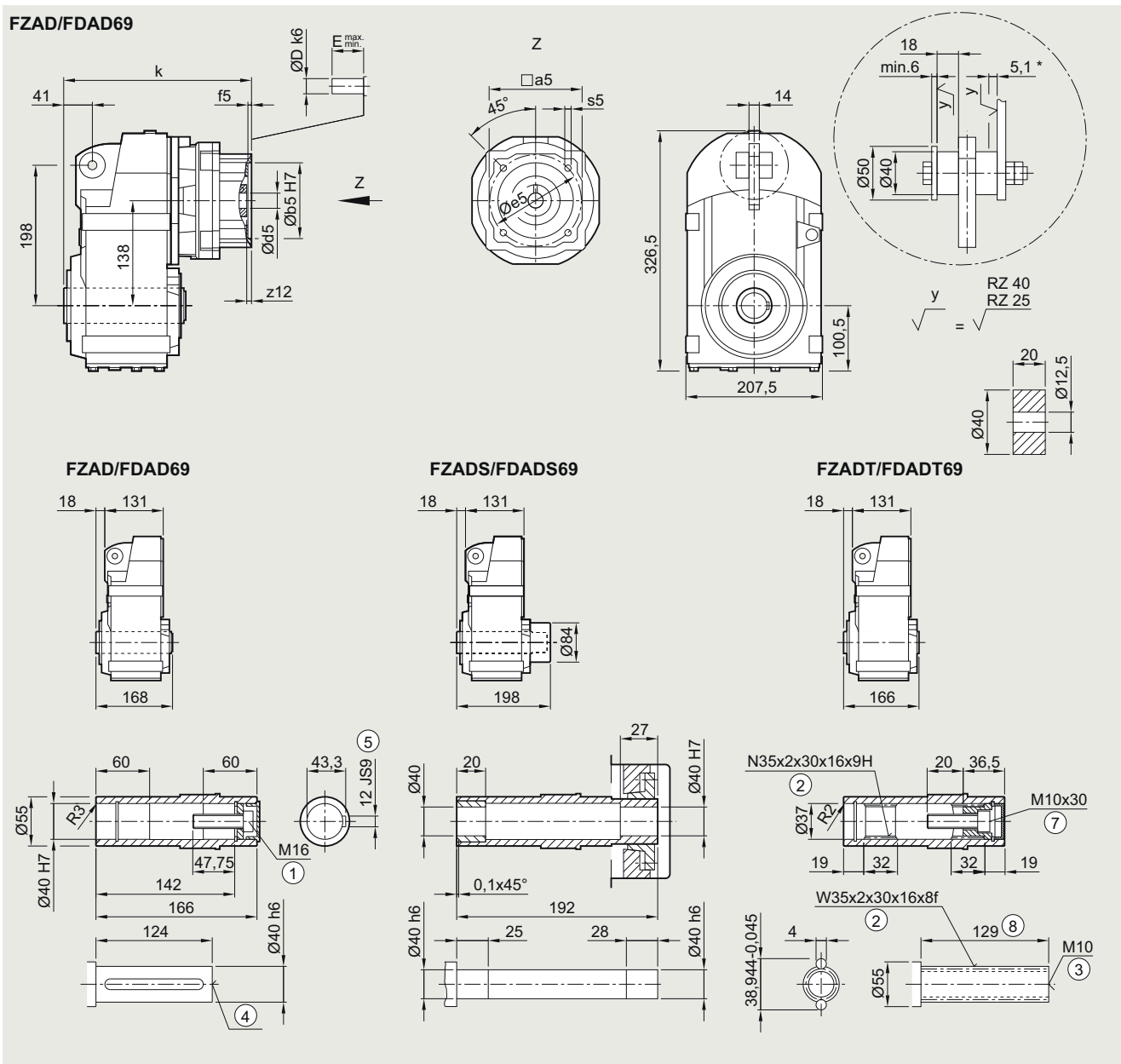
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.69 gearbox in a shaft-mounted design

4



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 250 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 250 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 275 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 275 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323.5 |

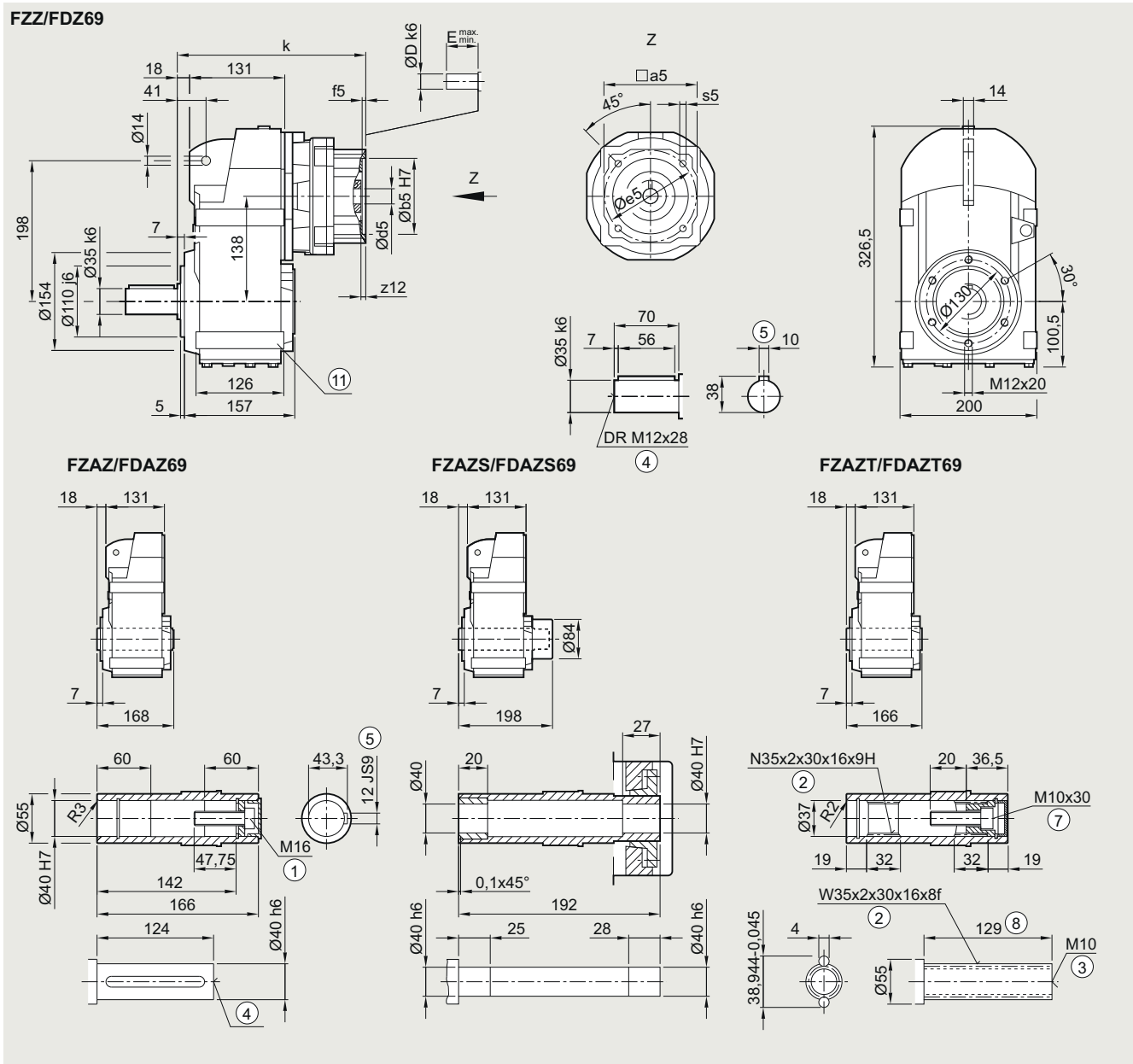
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.69 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 250 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 250 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 275 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 275 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design

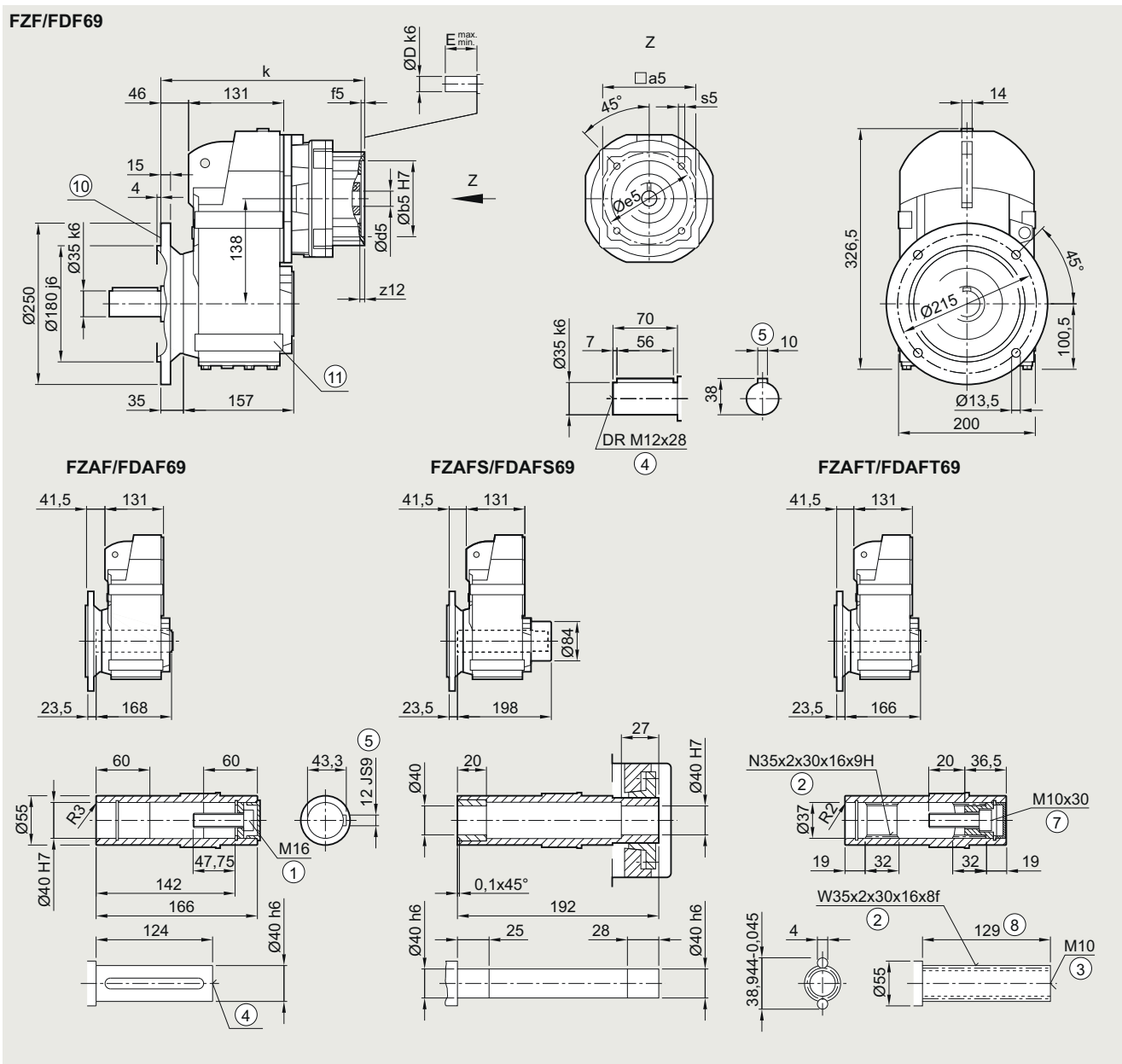
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.69 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 249.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 249.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 262 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 262 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 278 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 278 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 303 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 303 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 347 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 347 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

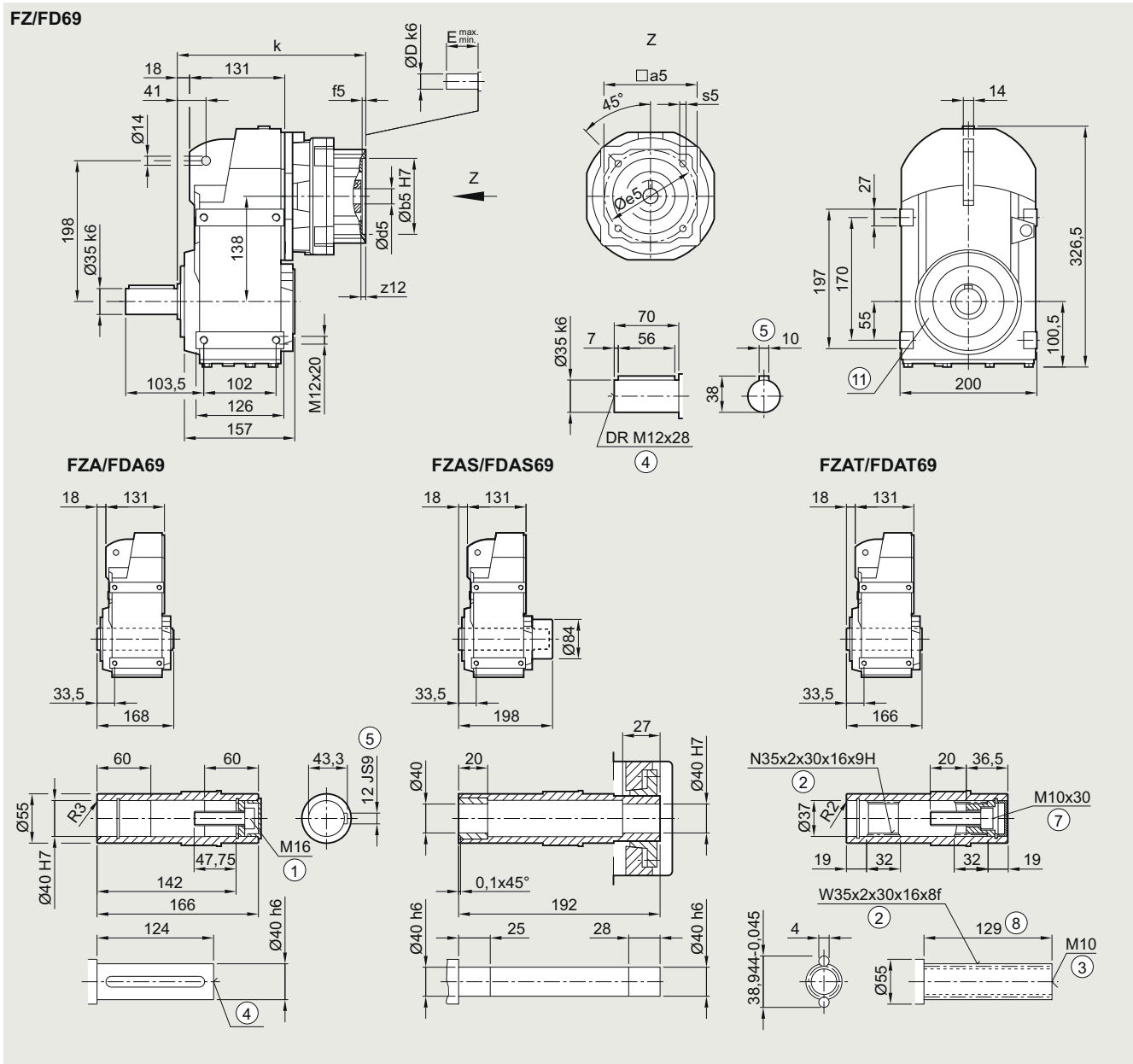
⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

1) FDADS/FZADS not possible

KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..69 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 221.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 221.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 234 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 250 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 250 |
| KS6.1 ¹⁾ | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 275 |
| KS6.2 ¹⁾ | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 275 |
| KS8.1 ¹⁾ | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 287.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 323.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 323.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

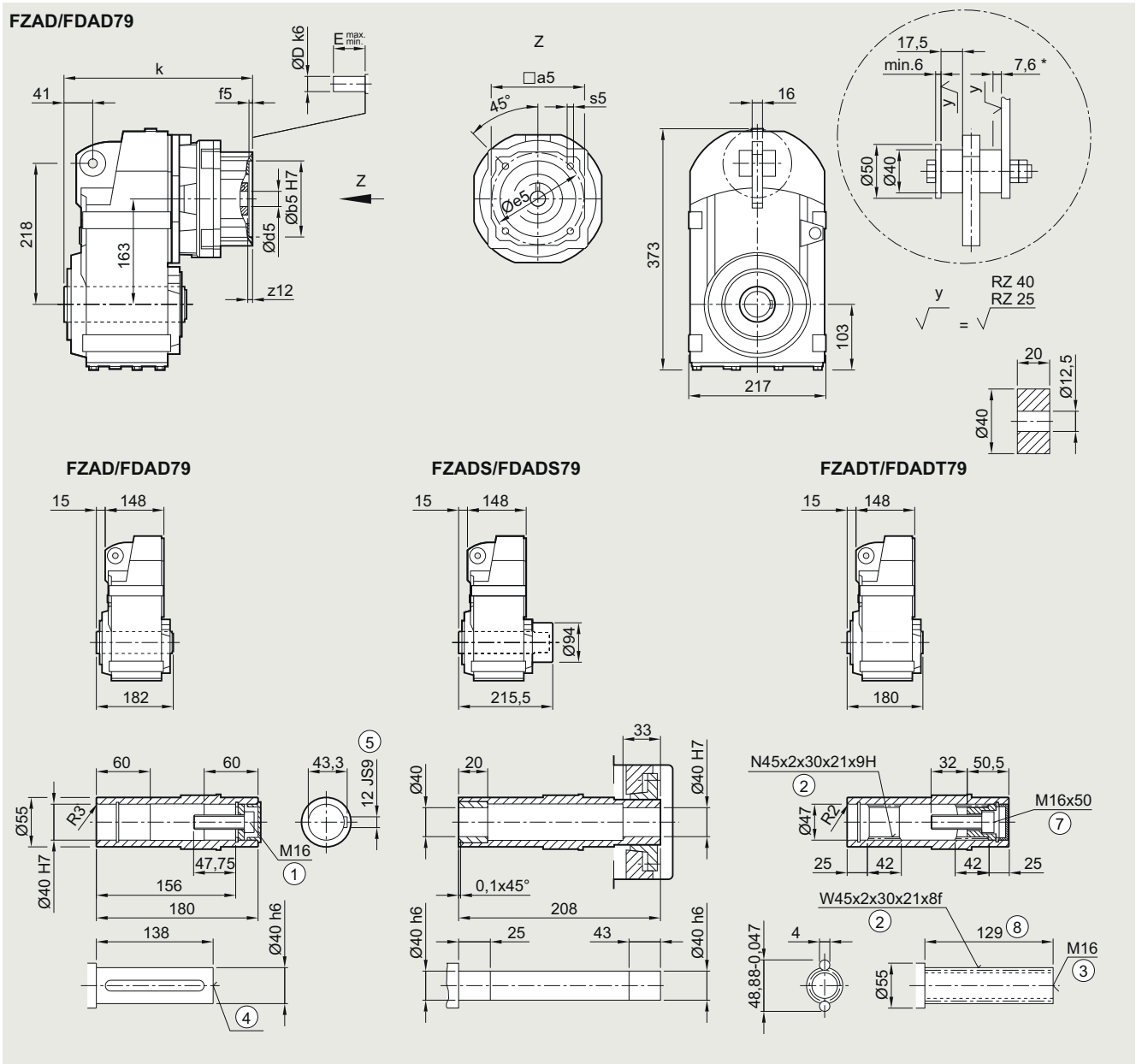
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.79 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 233.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 233.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 258 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 258 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 283 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 283 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 295.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 331.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 331.5 |

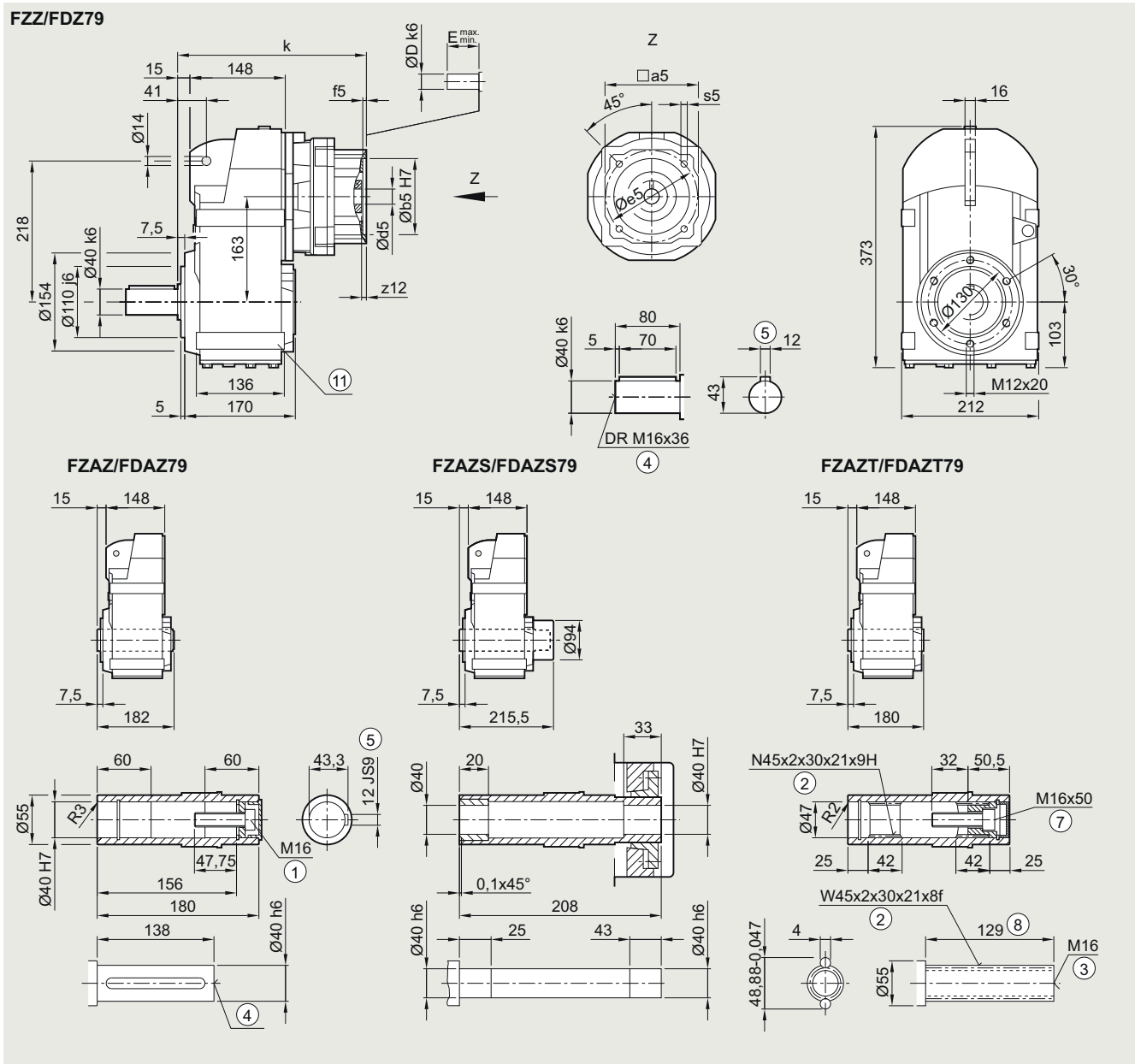
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

¹⁾ FDADS/FZADS not possible

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.79 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 233.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 233.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 258 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 258 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 283 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 283 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 295.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 331.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 331.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for foot-mounted design

①) FDADS/FZADS not possible

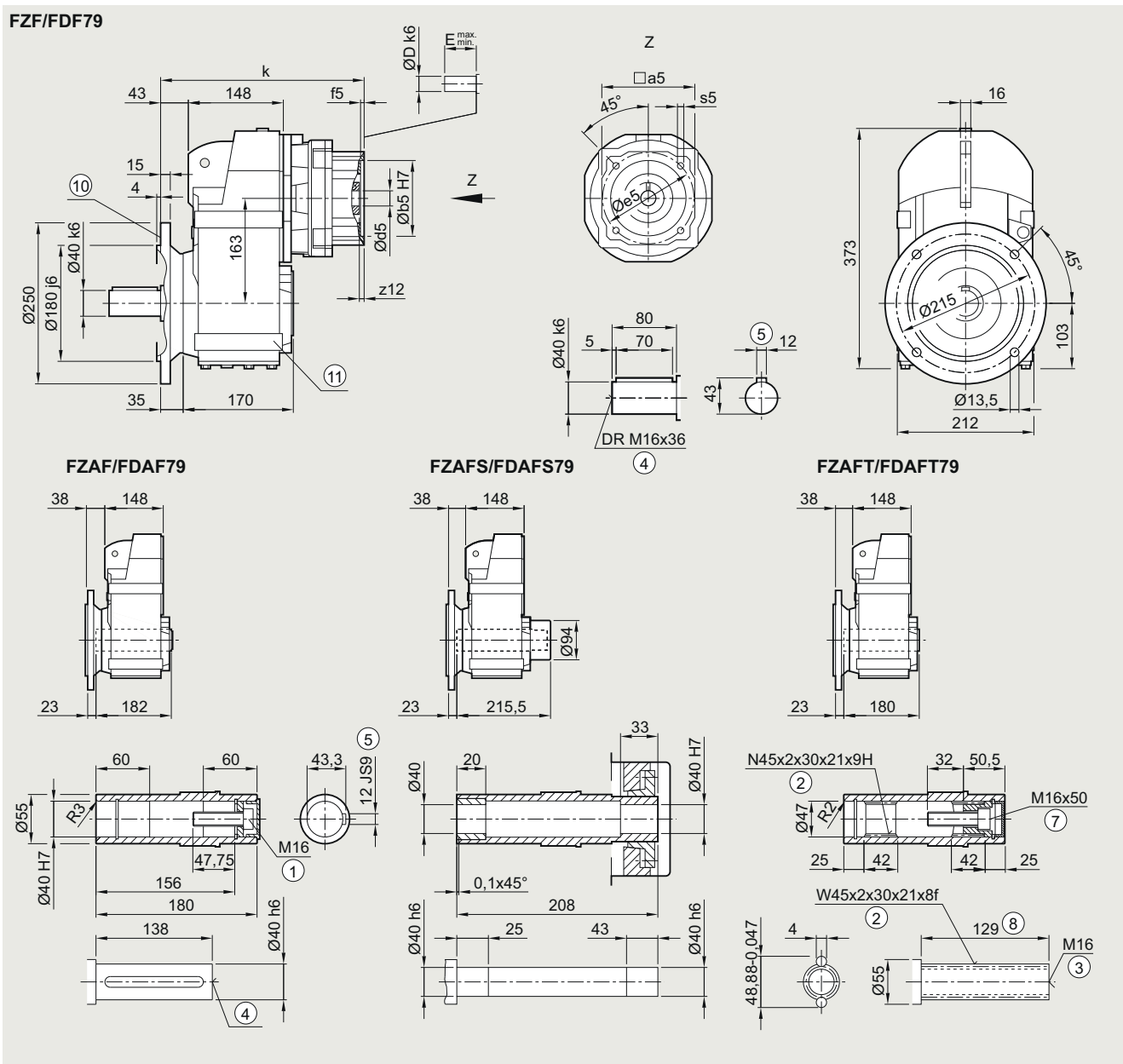
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FZ.F./FZ.F.79 gearbox in a flange-mounted design

4

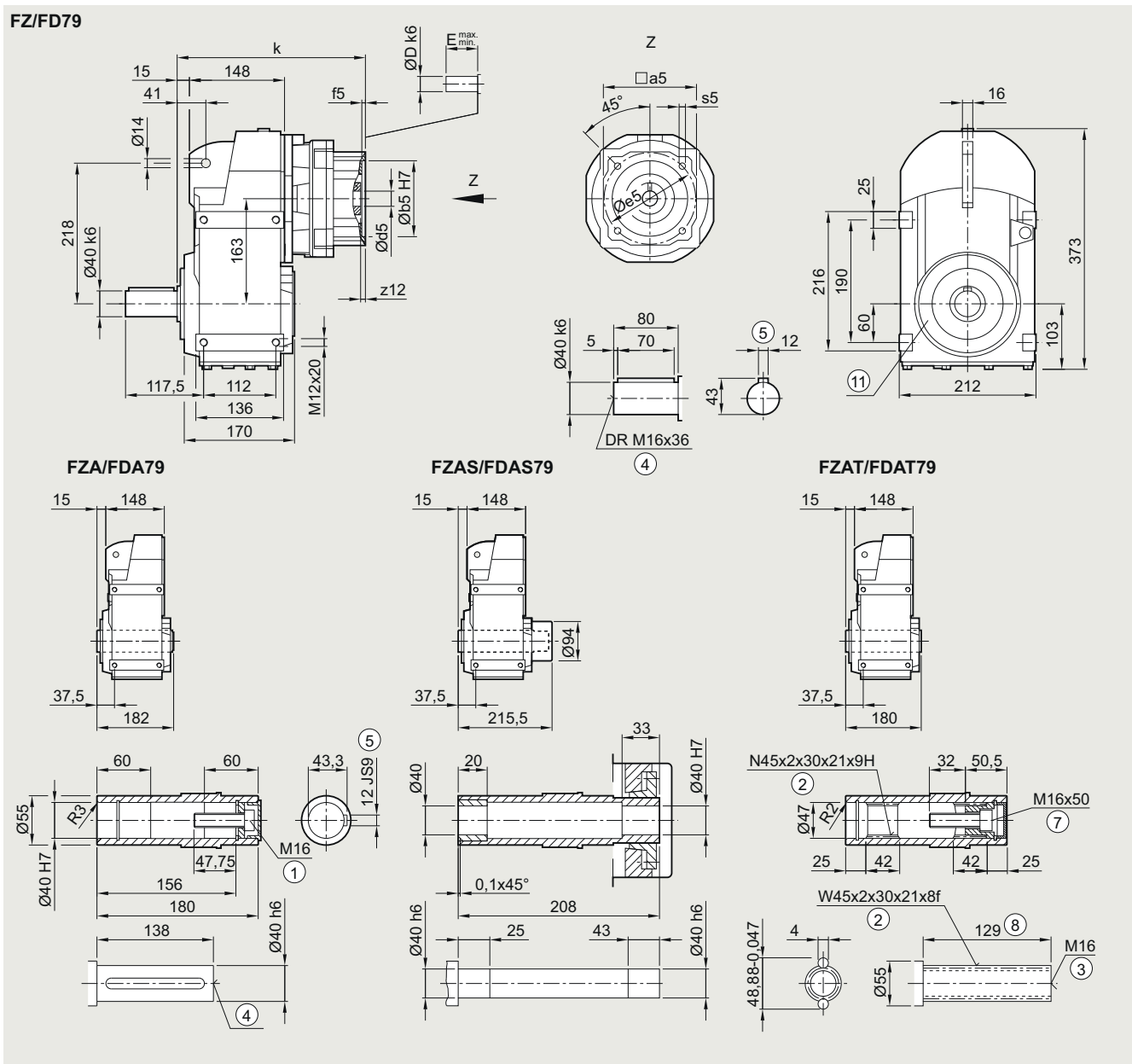


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 261 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 261 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 273.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 273.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 285.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 285.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 310.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 310.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 323 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 359 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 359 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762
 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design 1) FDADS/FZADS not possible

KS adapter exclusively for mounting defined Siemens servo motors

FZ./FZ..79 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|----------------------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 233.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 233.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 246 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 258 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 258 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 283 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 283 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 295.5 |
| KS10.1 ¹⁾ | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 331.5 |
| KS10.2 ¹⁾ | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 331.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ Use bores only for housing flange design

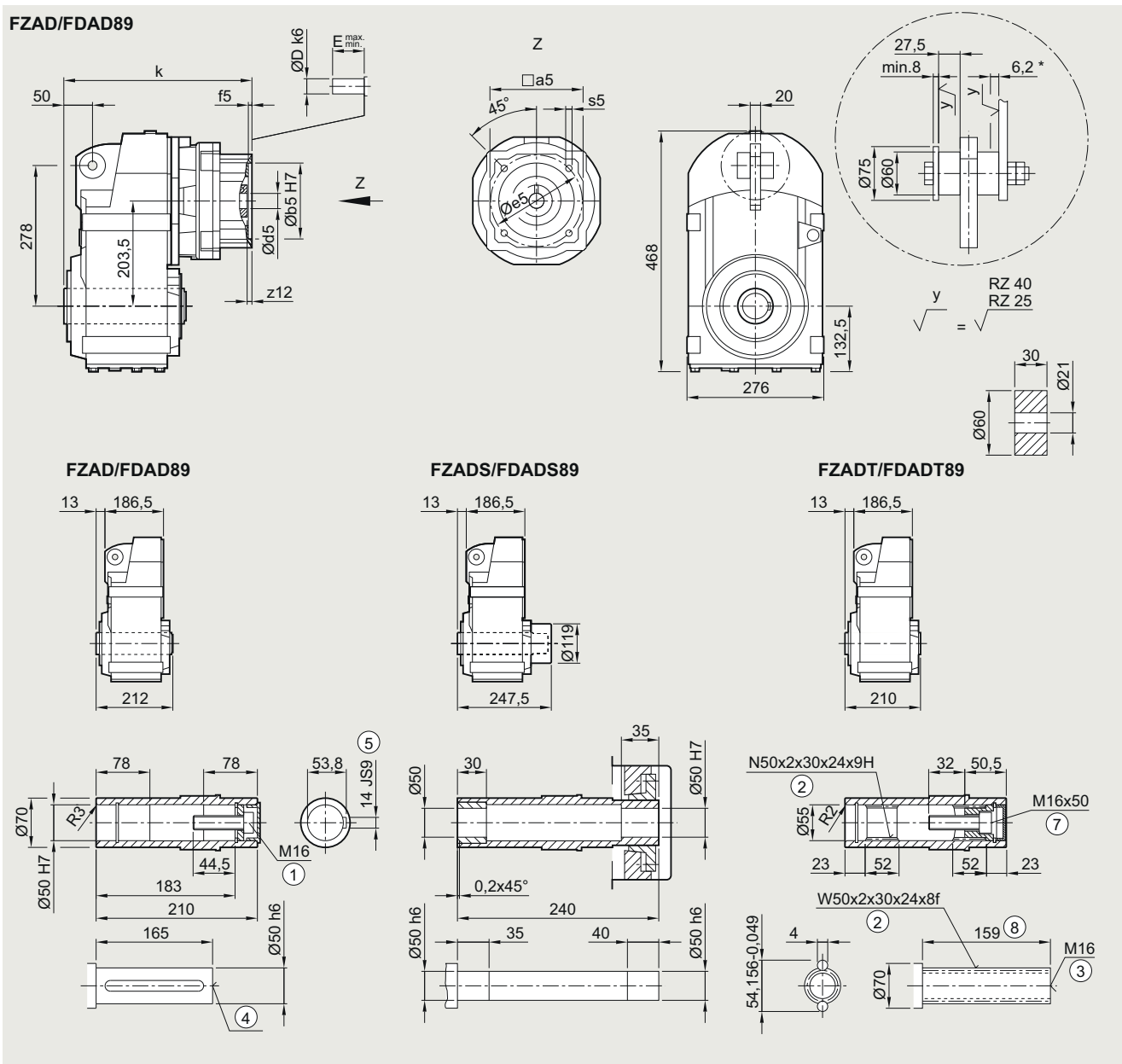
1) FDADS/FZADS not possible

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.89 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 281.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 281.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 302.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 302.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

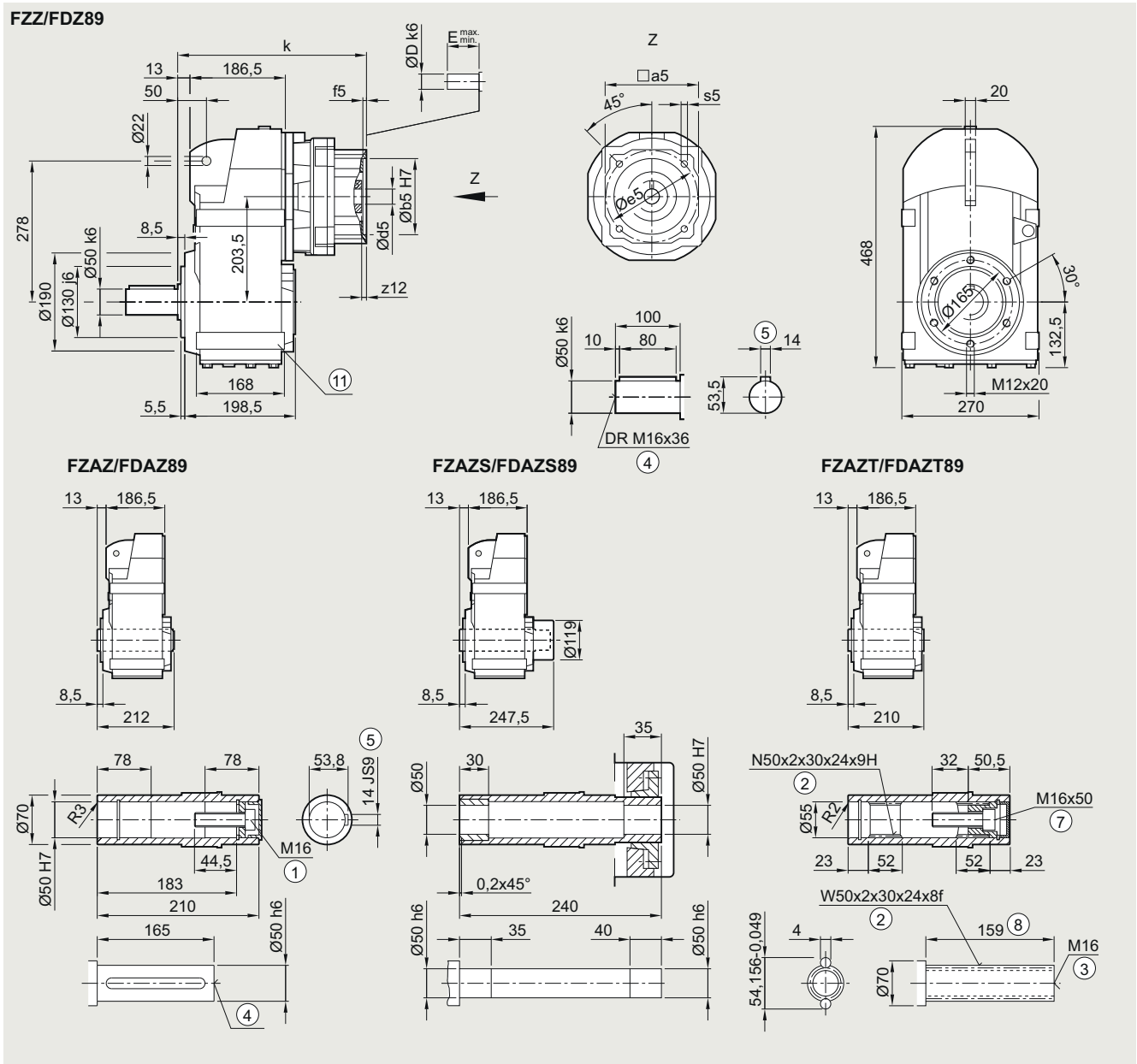
* Spring compression at max. torque

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.89 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 281.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 281.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 302.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 302.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

Ⓜ Use bores only for foot-mounted design

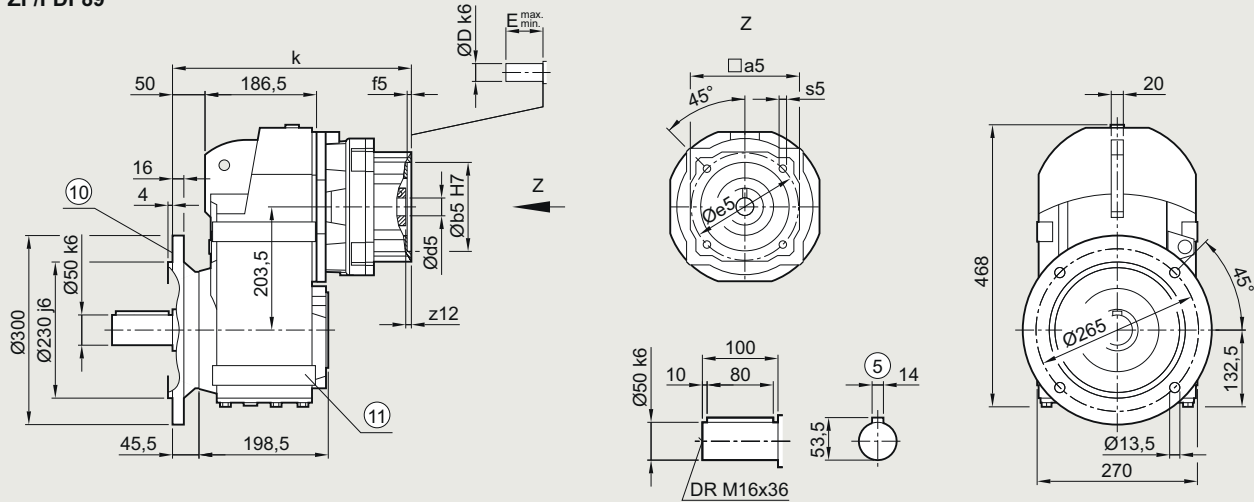
Parallel shaft gearboxes

Dimensional drawings

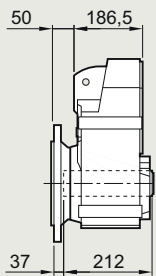
KS adapter exclusively for mounting defined Siemens servo motors

FZ.F./FZ.F.89 gearbox in a flange-mounted design

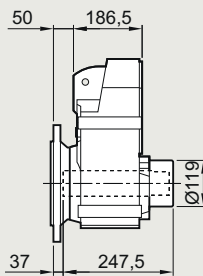
FZF/FDF89



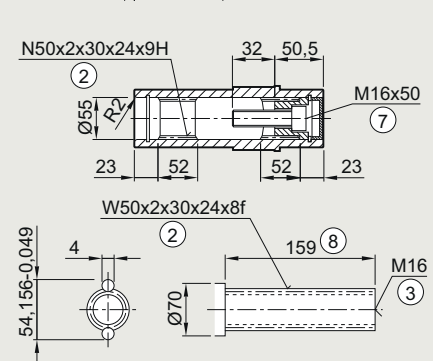
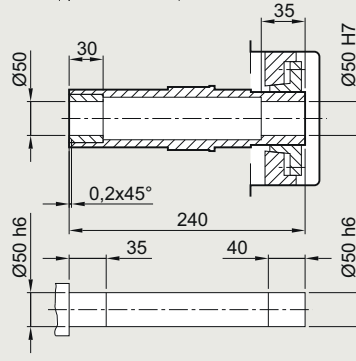
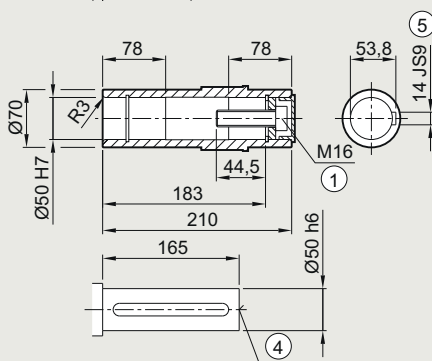
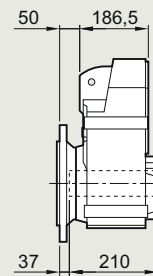
FZAF/FDAF89



FZAFS/FDAFS89



FZAFT/FDAFT89



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 318.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 318.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 339.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 339.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 352 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 388 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 388 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

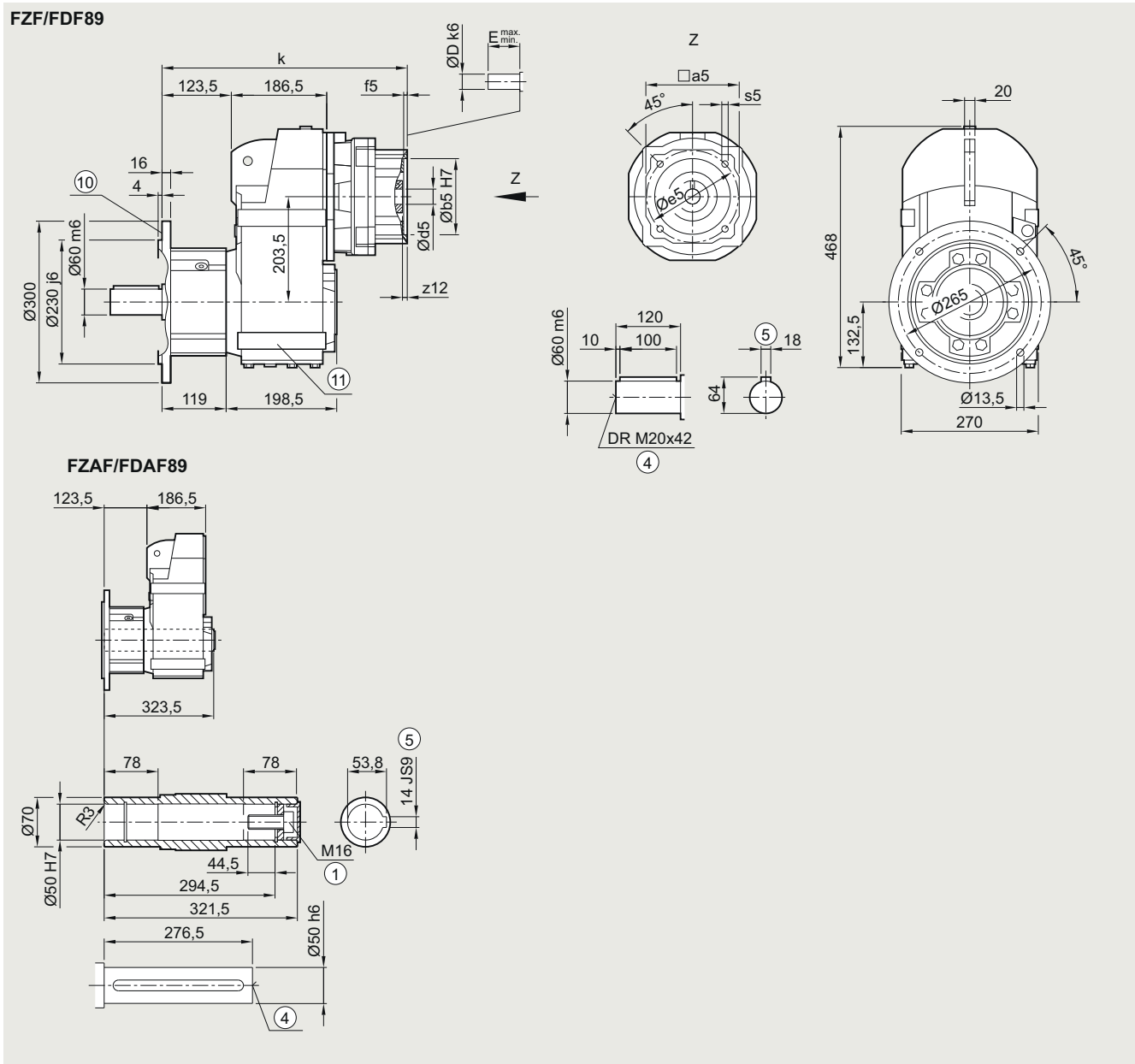
⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 392 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 392 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 413 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 413 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 425.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 461.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 461.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

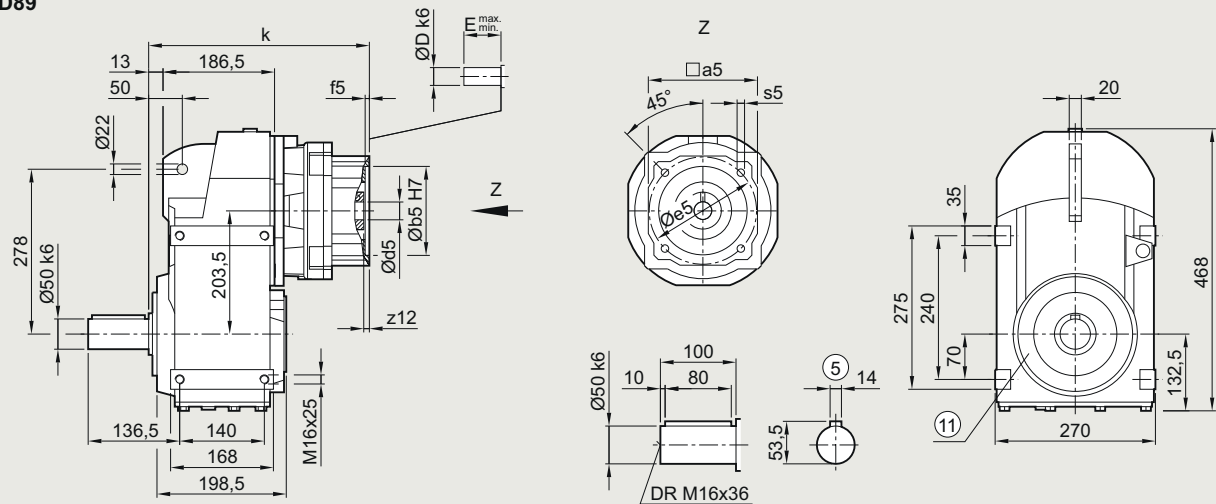
Parallel shaft gearboxes

Dimensional drawings

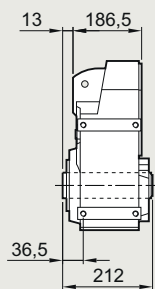
KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..89 gearbox in a foot-mounted design

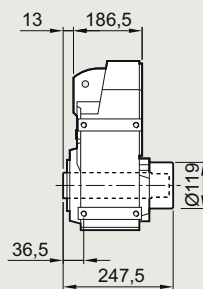
FZ/FD89



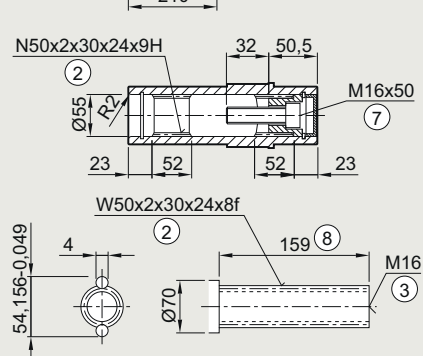
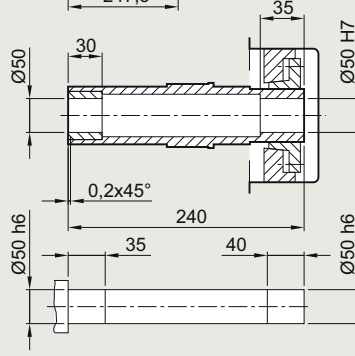
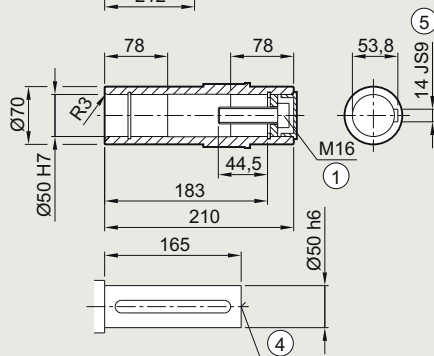
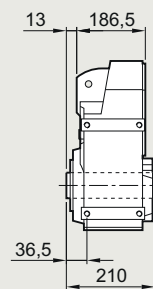
FZA/FDA89



FZAS/FDAS89



FZAT/FDAT89



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 281.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 281.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 302.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 302.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 315 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 351 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 351 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

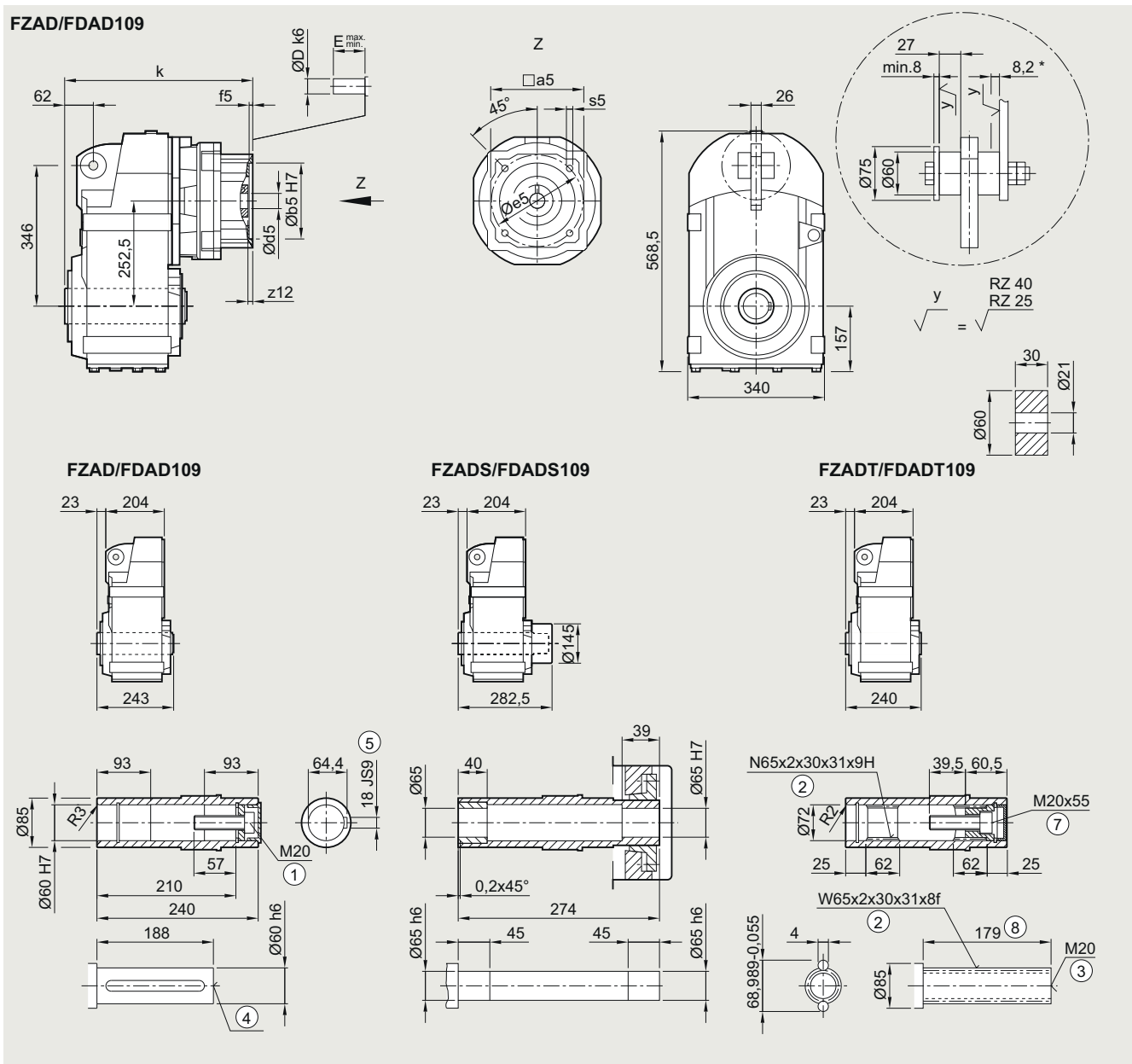
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.109 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 302 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 302 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 321 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 321 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 333.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 369.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 369.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

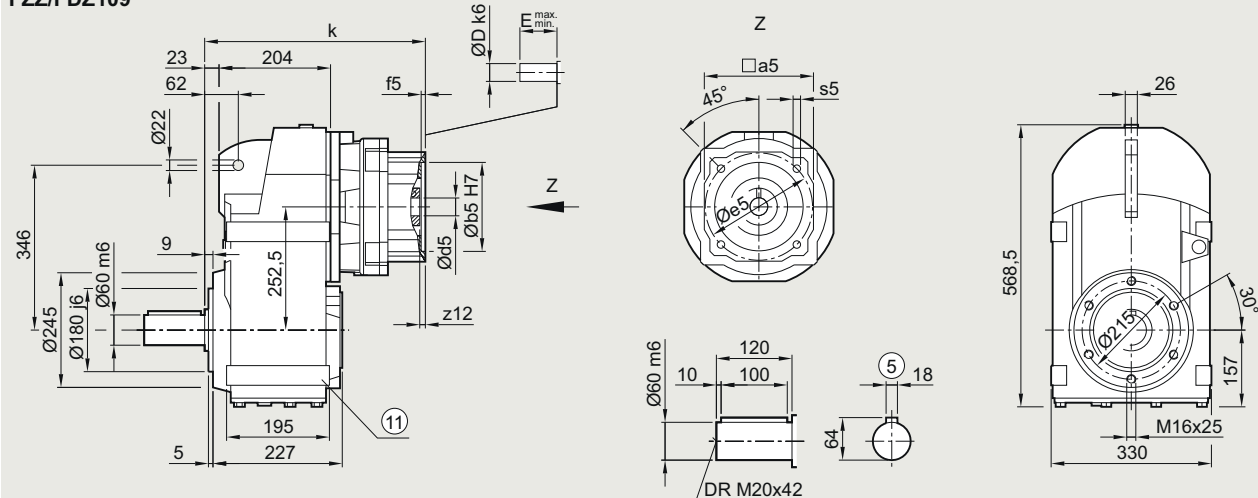
Parallel shaft gearboxes

Dimensional drawings

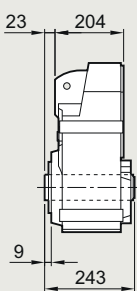
KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.109 gearbox in a housing flange design

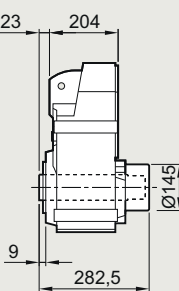
FZZ/FDZ109



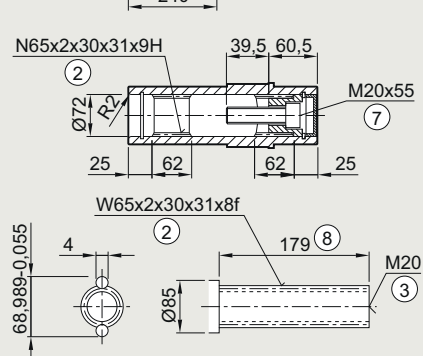
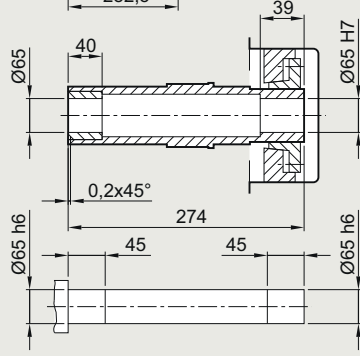
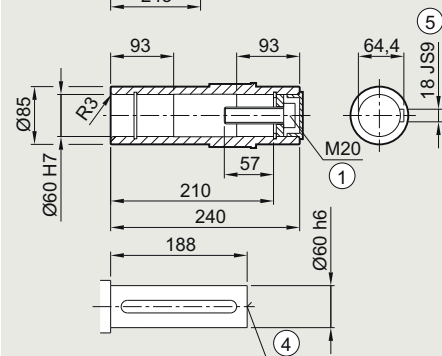
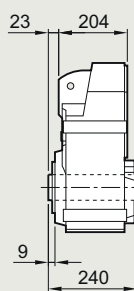
FZAZ/FDAZ109



FZAZS/FDAZS109



FZAZT/FDAZT109



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 302 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 302 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 321 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 321 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 333.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 369.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 369.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

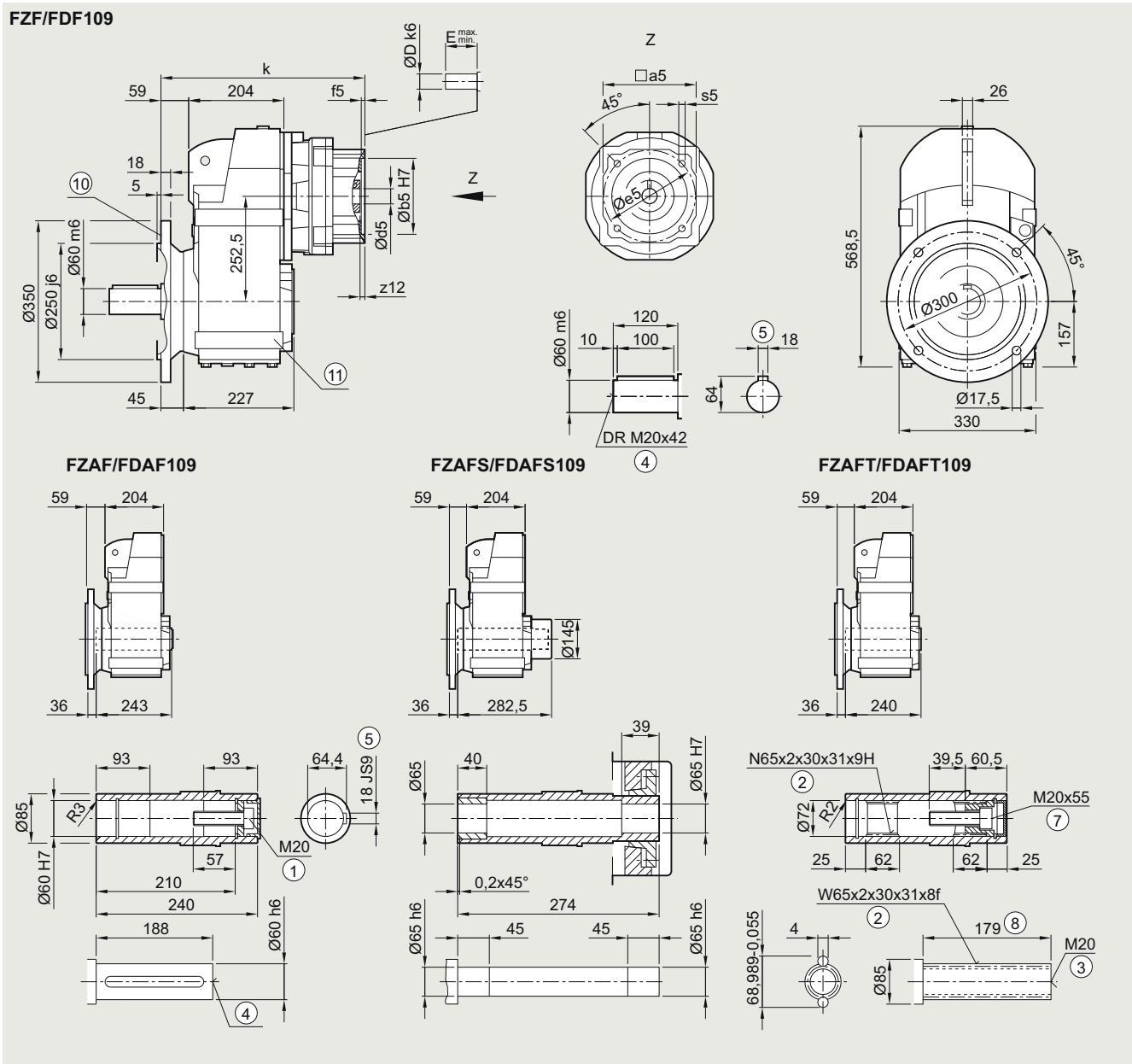
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

FZ.F./FZ.F.109 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 338 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 338 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 357 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 357 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 369.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 405.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 405.5 |

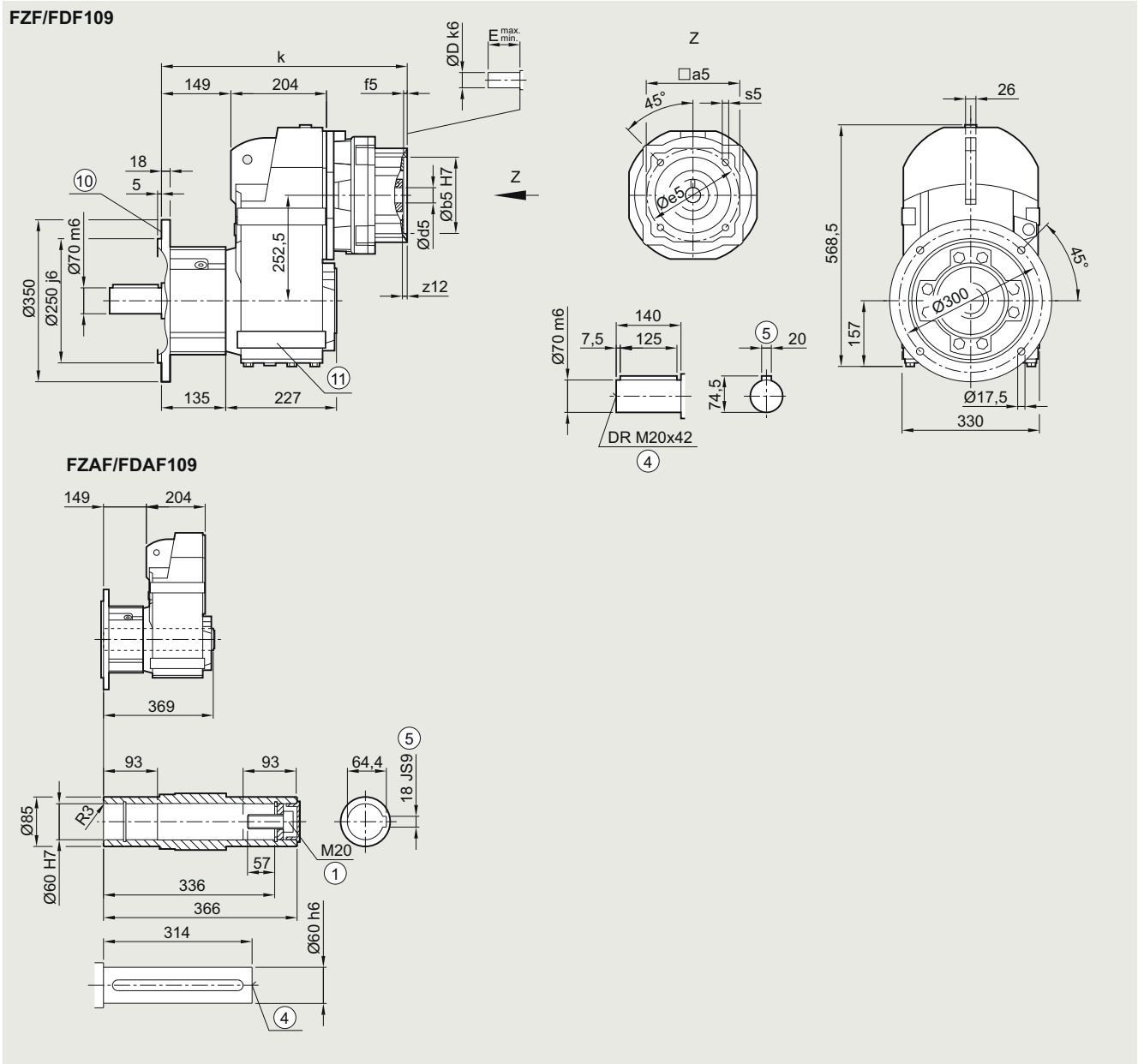
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FZ.F./FZ.F.109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 428 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 428 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 447 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 447 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 459.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 495.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 495.5 |

① ISO 4014

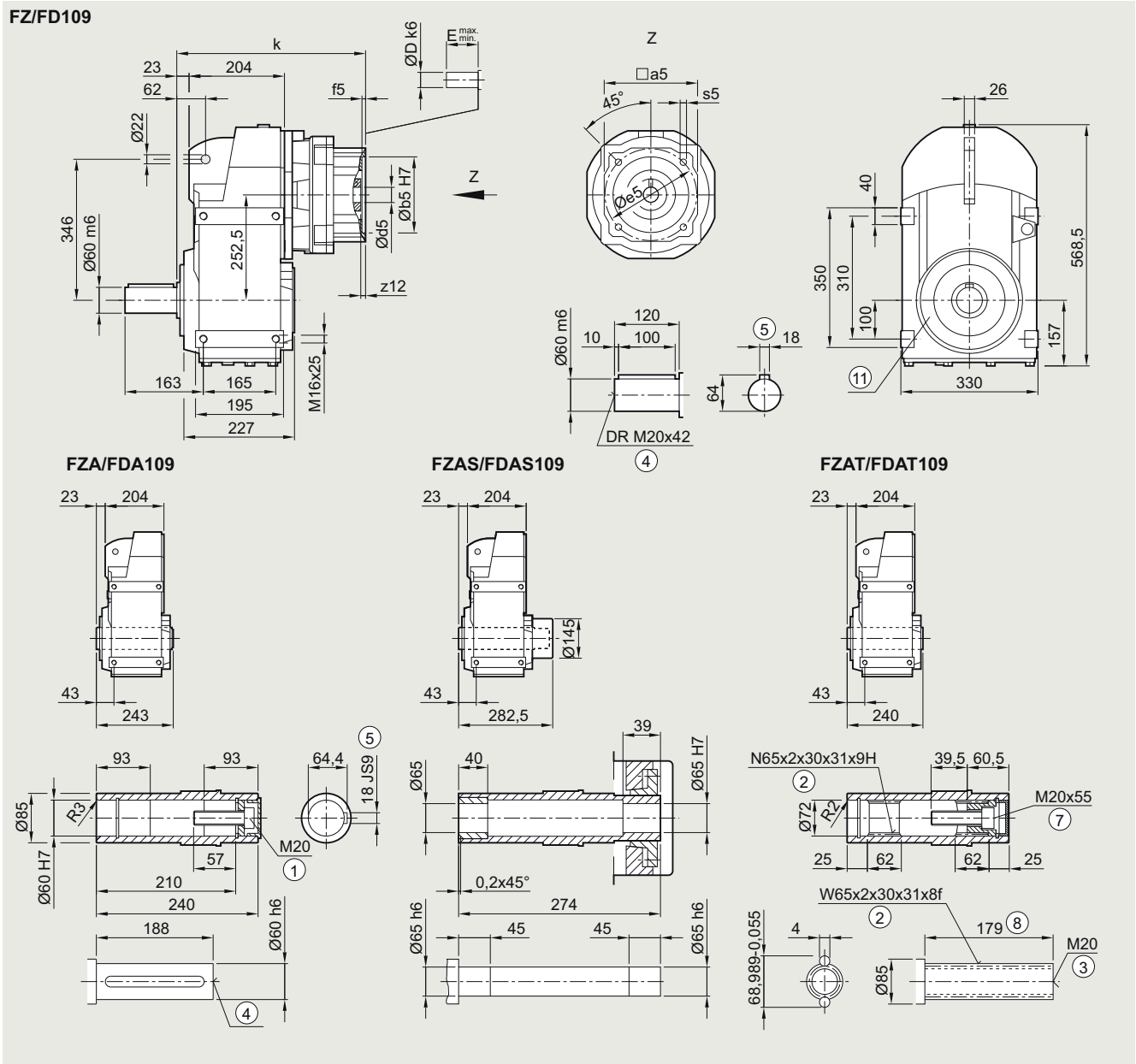
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

FD./FZ..109 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 302 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 302 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 321 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 321 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 333.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 369.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 369.5 |

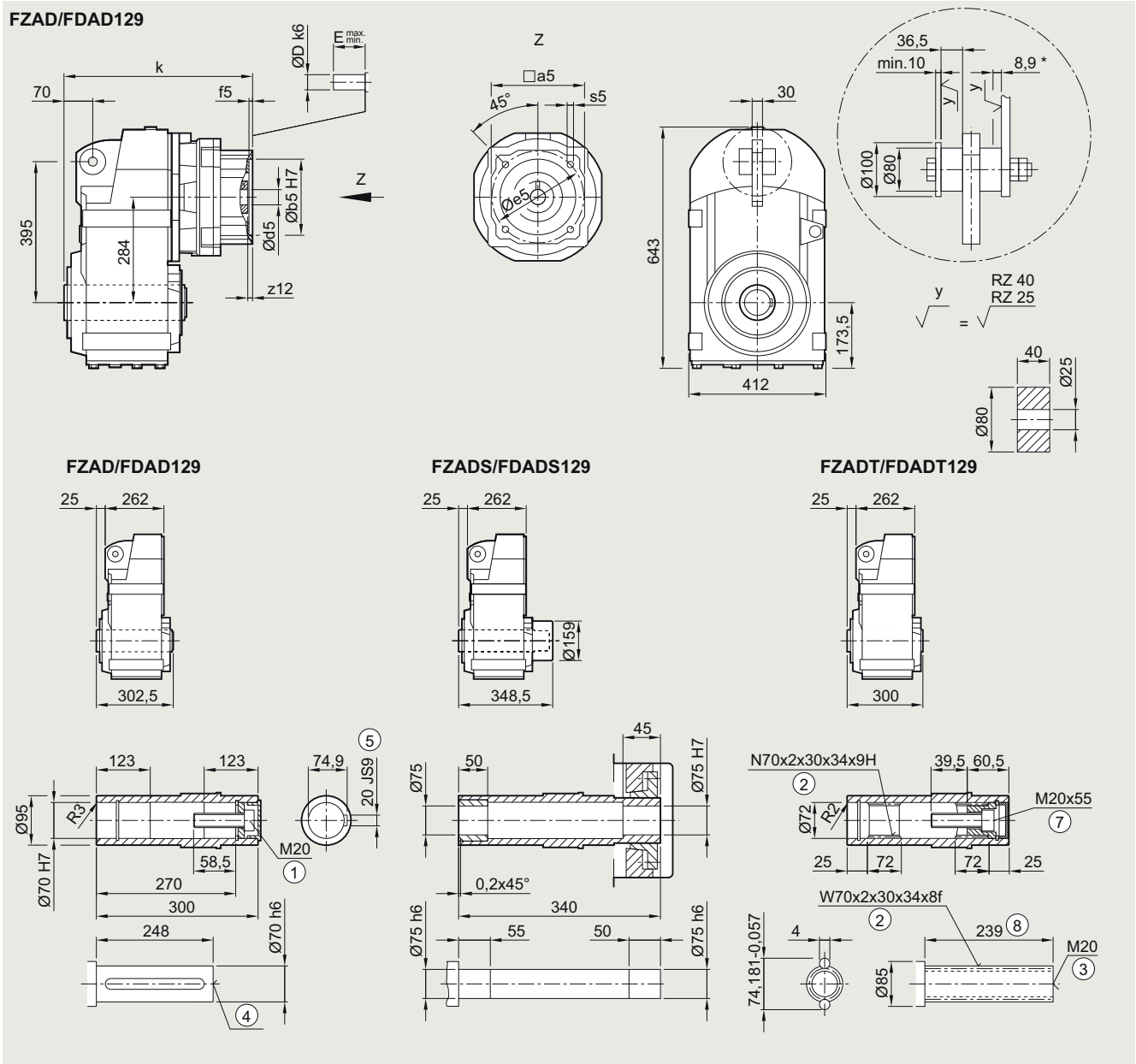
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332
 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for housing flange design

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.129 gearbox in a shaft-mounted design



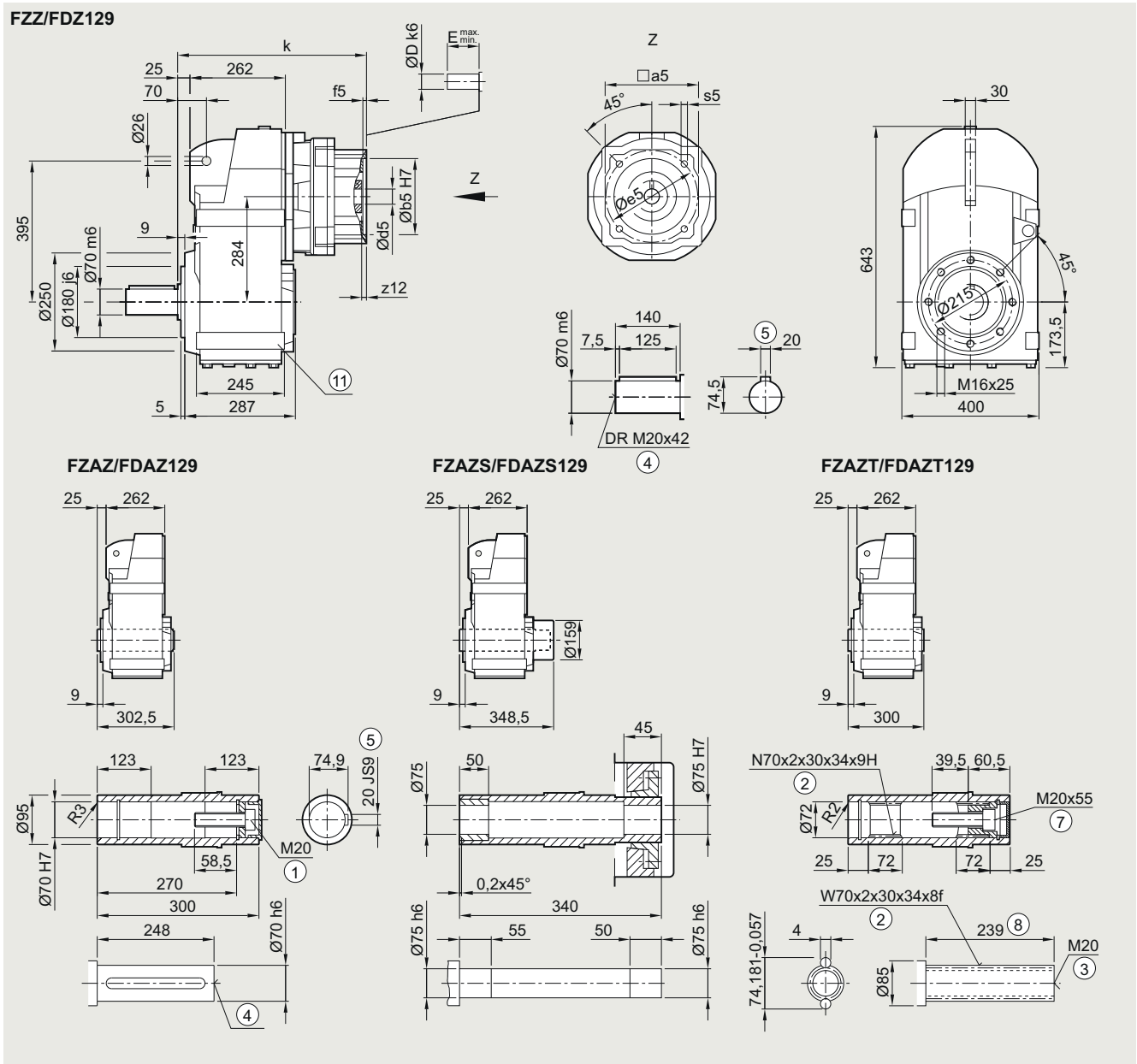
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 355 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 355 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 384.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 418.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 418.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.129 gearbox in a housing flange design



4

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 355 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 355 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 384.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 418.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 418.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

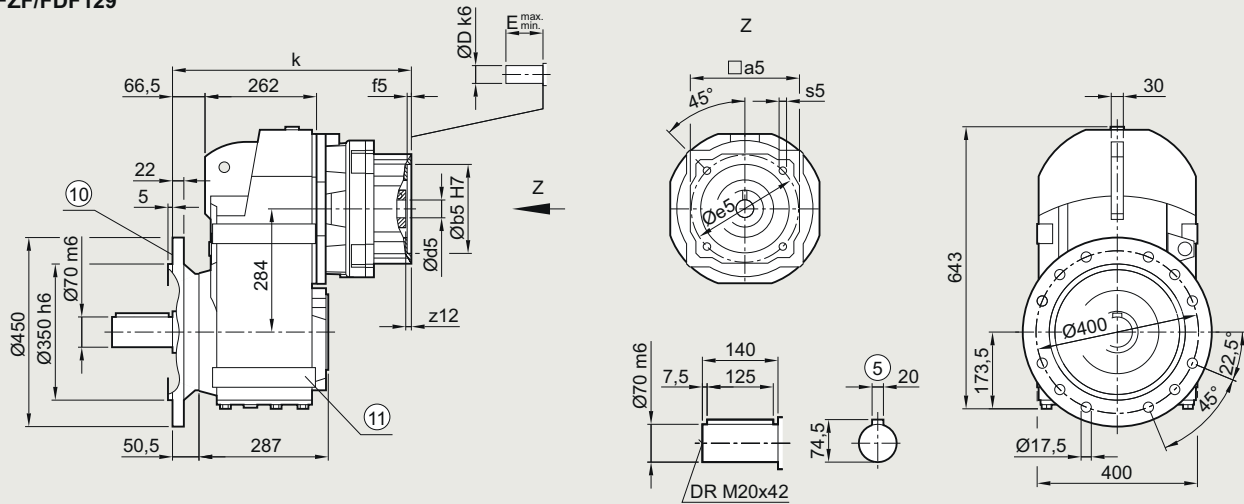
Parallel shaft gearboxes

Dimensional drawings

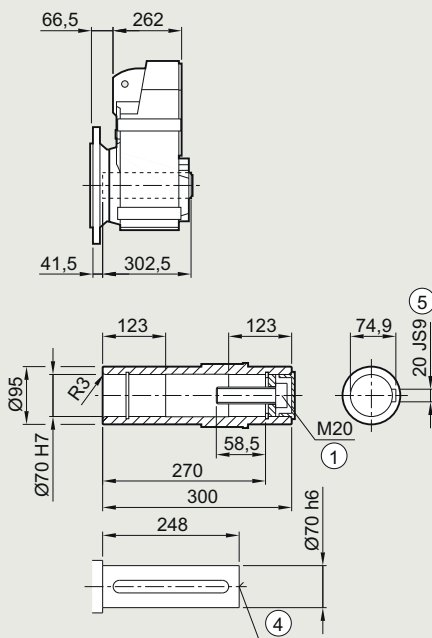
KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.129 gearbox in a flange-mounted design

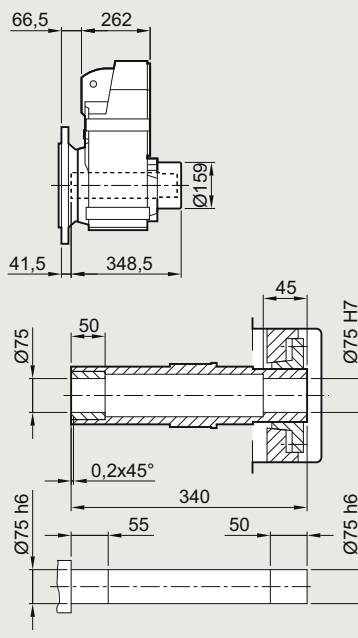
FZF/FDF129



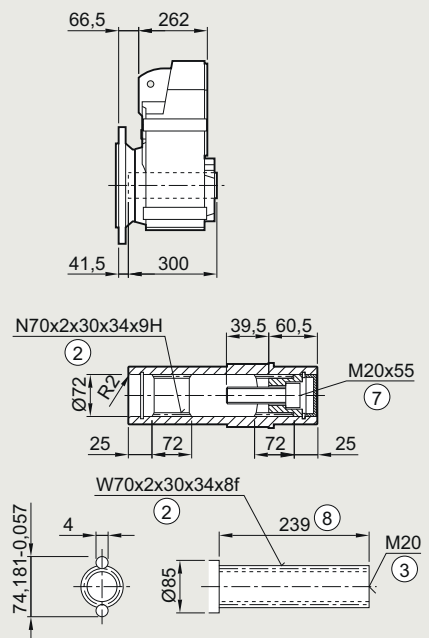
FZAF/FDAF129



FZAFS/FDAFS129



FZAFT/FDAFT129



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 396.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 396.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 413.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 413.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 426 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 460 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 460 |

① ISO 4014
② ISO 4762

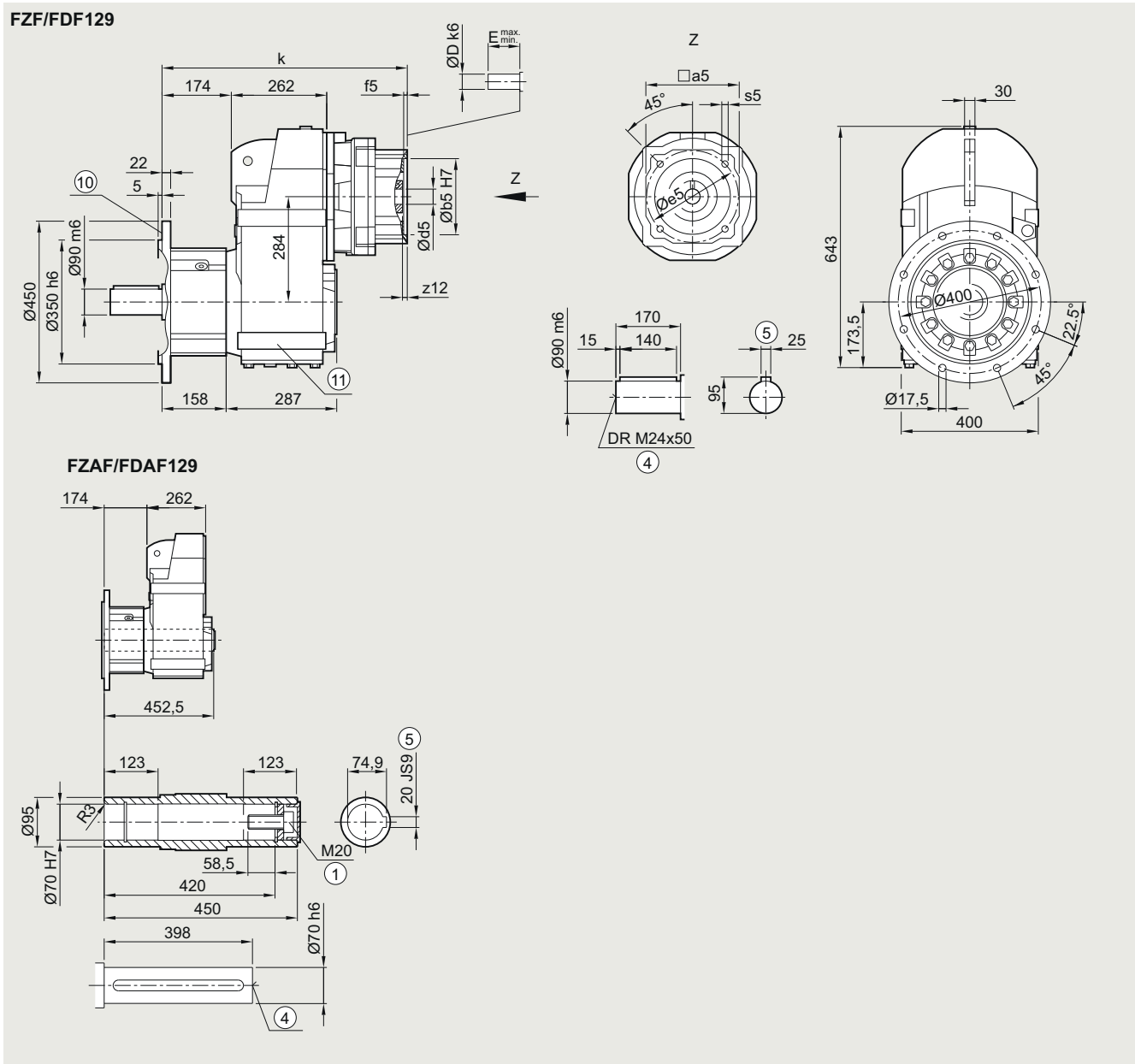
③ DIN 332-D
④ Without locating shoulder +1 mm

④ DIN 332
⑩ For inner contour, see page 4/169

⑤ Feather key/keyway DIN 6885
⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 504 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 504 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 521 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 521 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 533.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 567.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 567.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑥ For inner contour, see page 4/169 ⑦ Use bores only for foot-mounted design

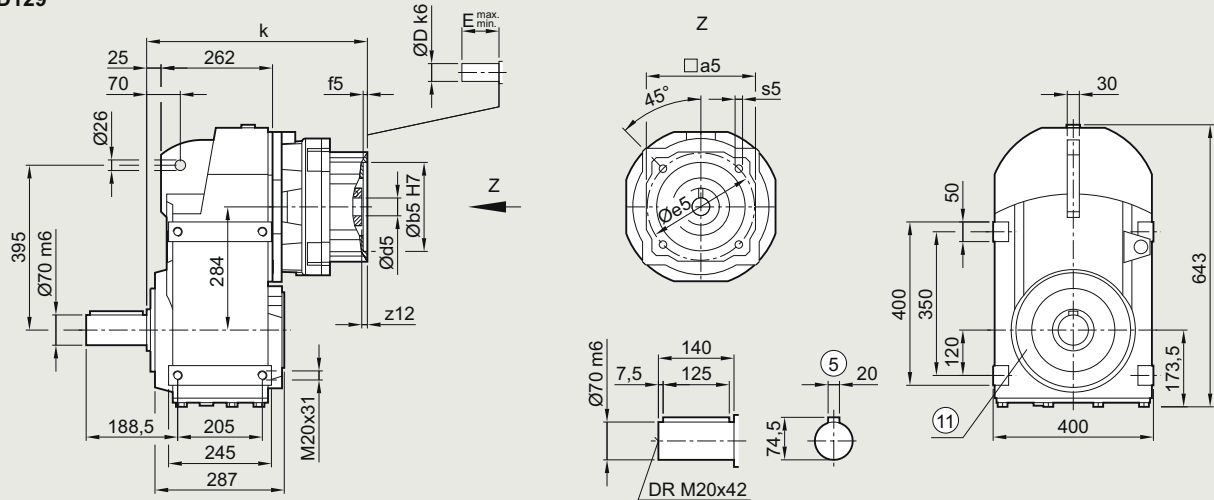
Parallel shaft gearboxes

Dimensional drawings

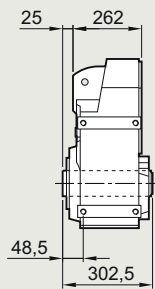
KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..129 gearbox in a foot-mounted design

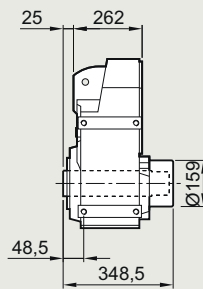
FZ/FD129



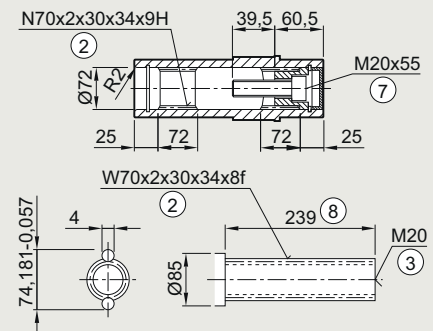
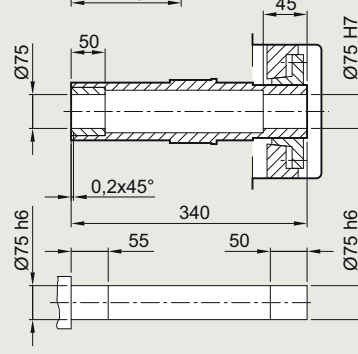
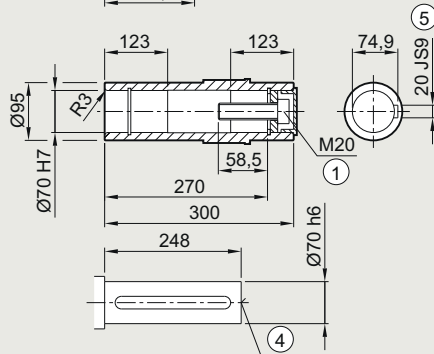
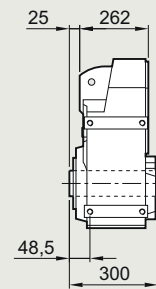
FZA/FDA129



FZAS/FDAS129



FZAT/FDAT129



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 355 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 355 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 372 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 372 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 384.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 418.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 418.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

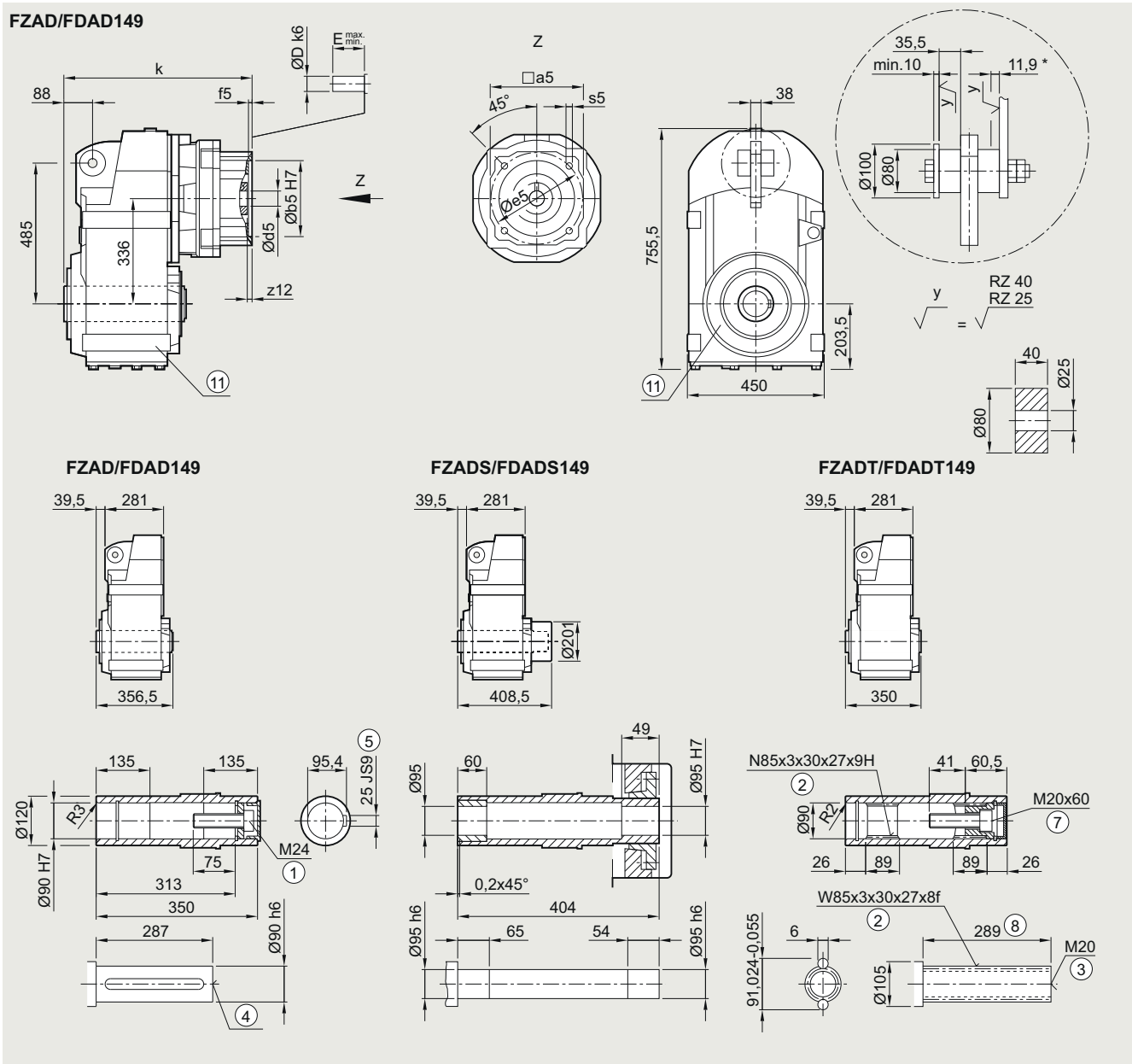
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

FZAD./FZAD.149 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 404 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 404 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 416.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 445.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 445.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
* Spring compression at max. torque ⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

Parallel shaft gearboxes

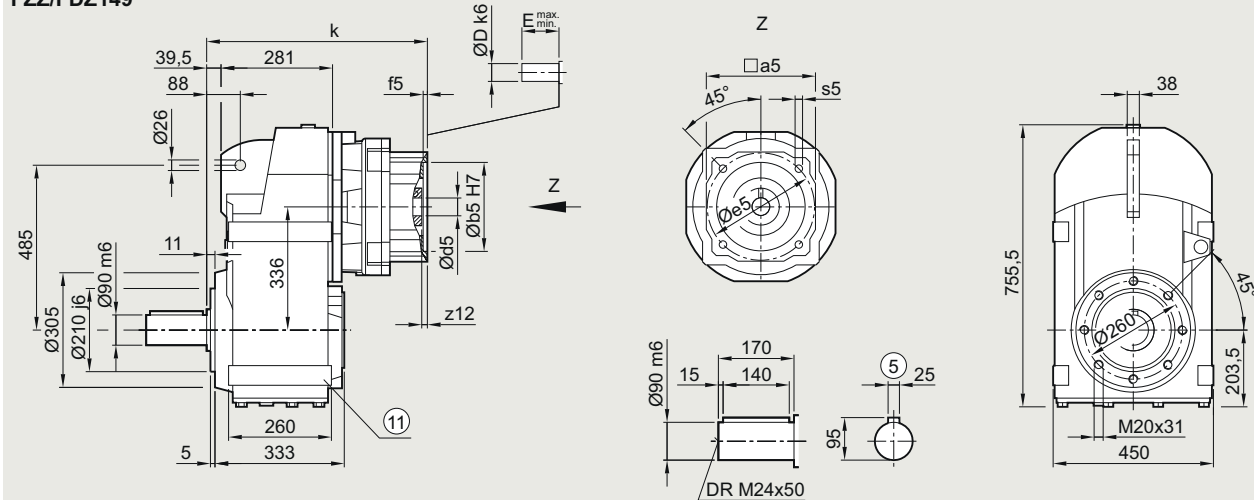
Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

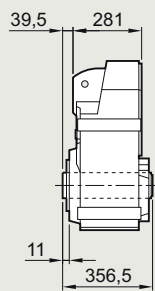
FD.Z./FZ.Z.149 gearbox in a housing flange design

4

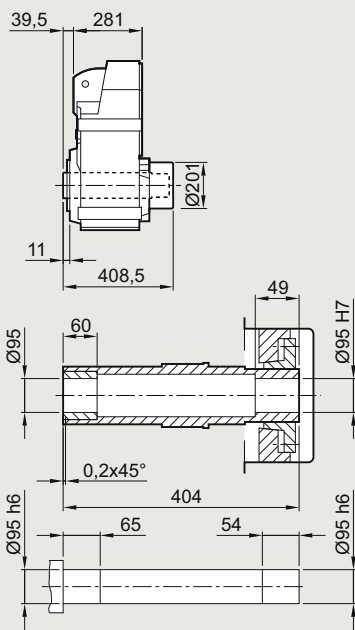
FZZ/FDZ149



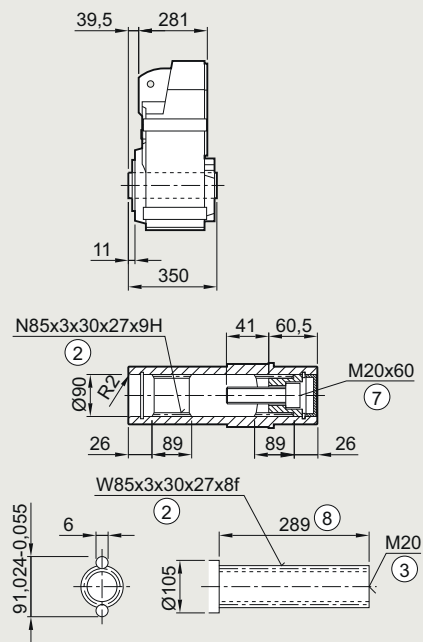
FZAZ/FDAZ149



FZAZS/FDAZS149



FZAZT/FDAZT149



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 404 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 404 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 416.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 445.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 445.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

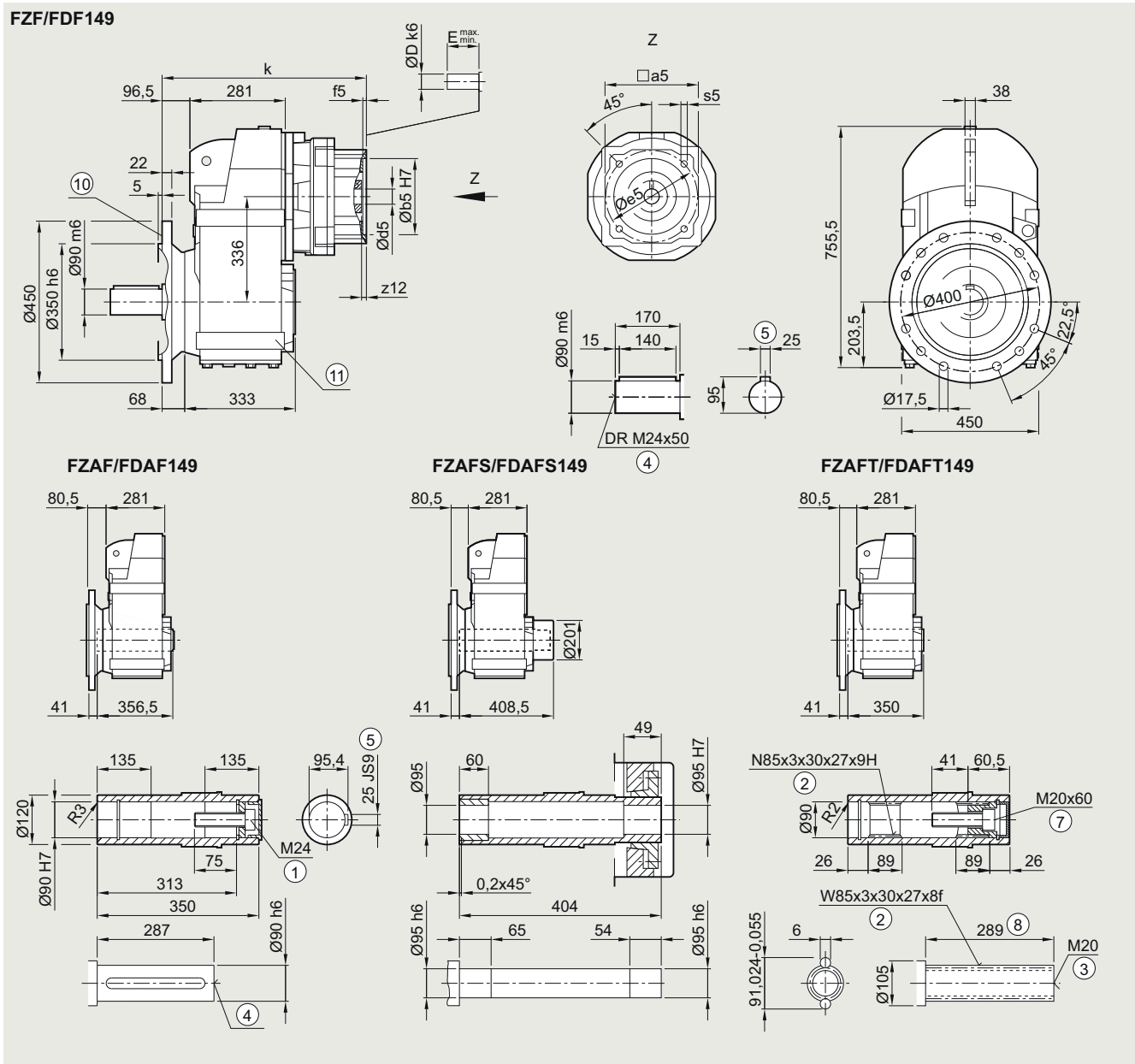
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.149 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 461 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 461 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 473.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 502.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 502.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 4/169

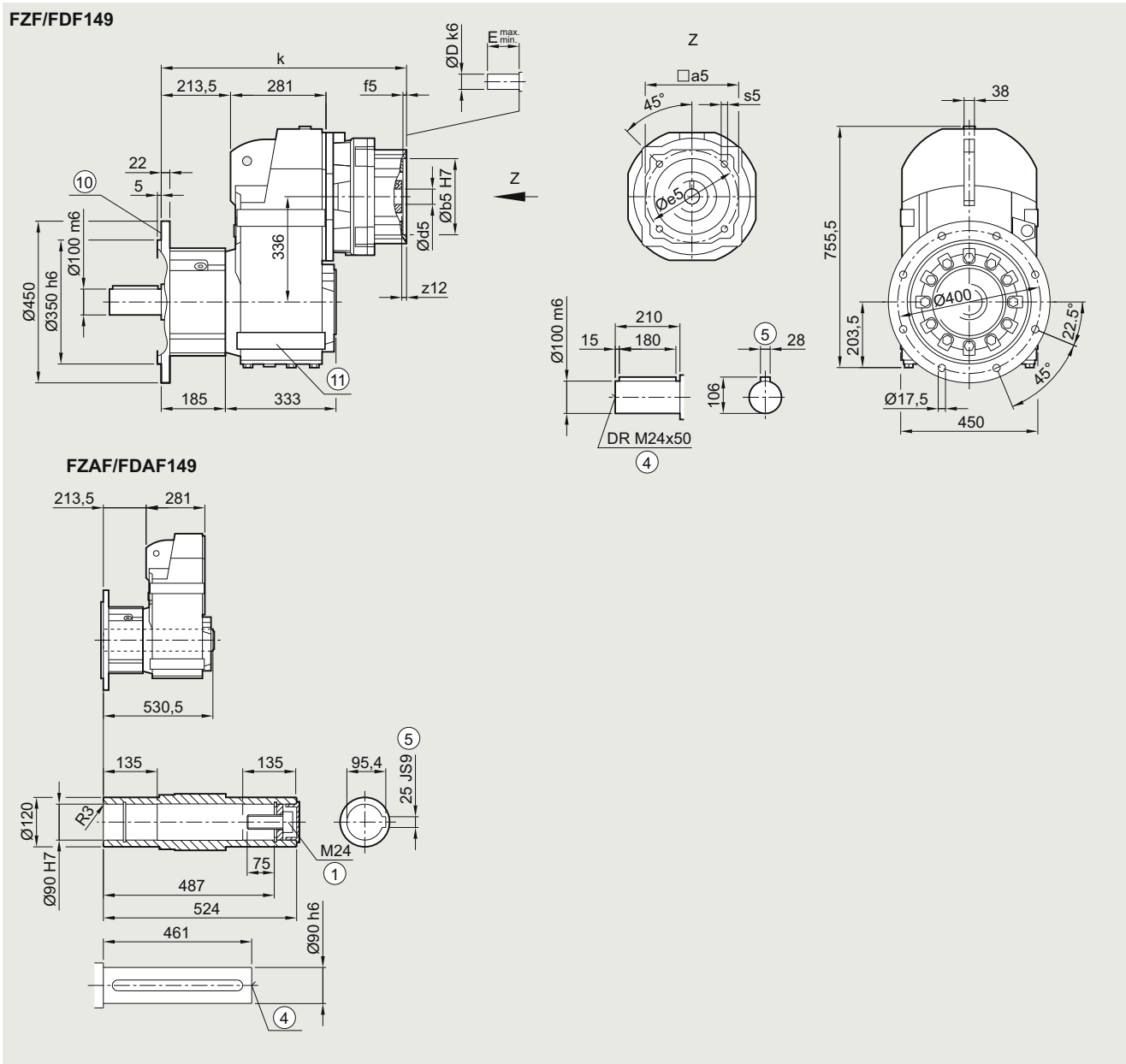
⑪ Use bores only for foot-mounted design

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 578 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 578 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 590.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 619.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 619.5 |

① ISO 4014

④ DIN 332

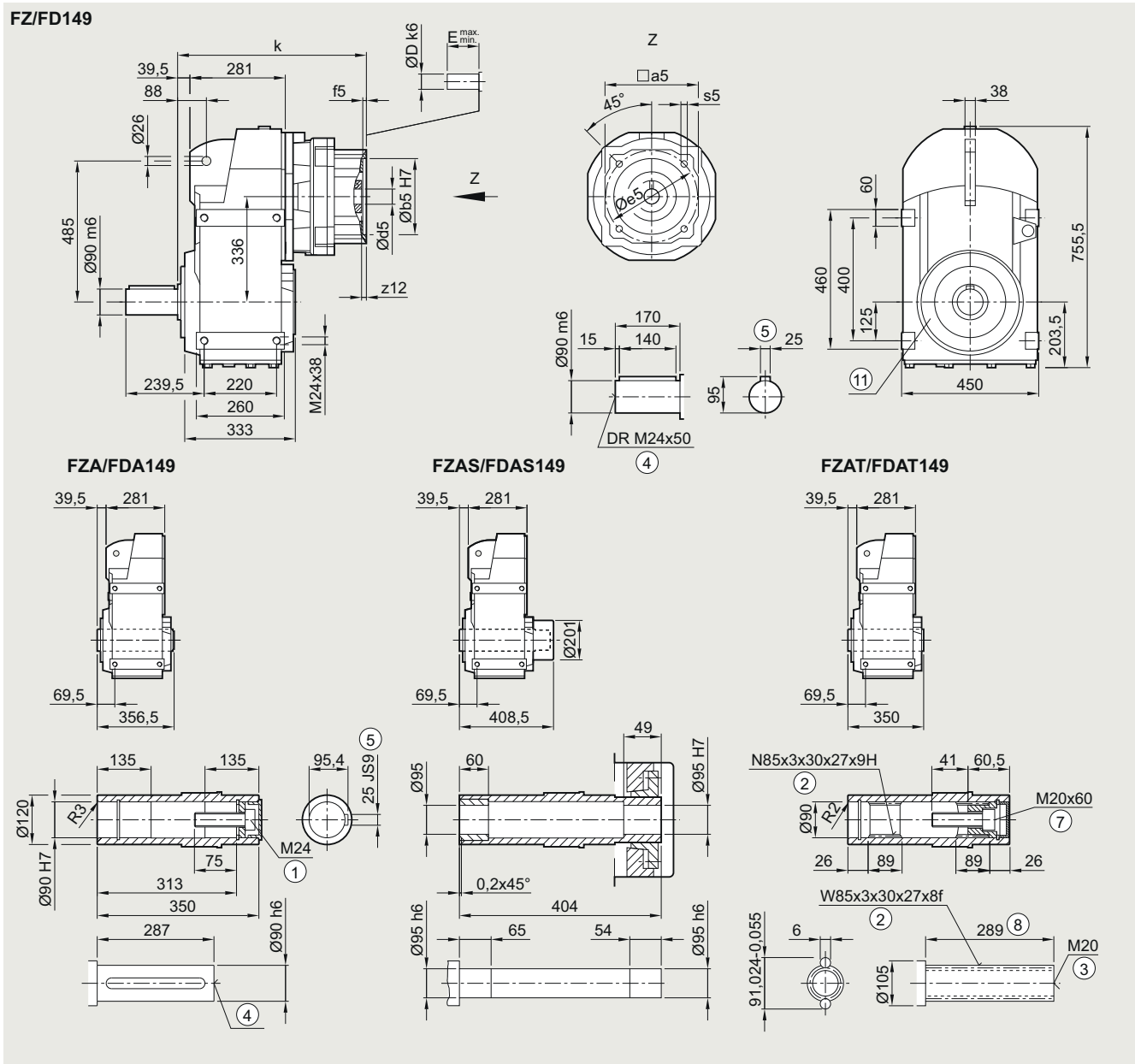
⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

FZ./FZ..149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 404 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 404 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 416.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 445.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 445.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

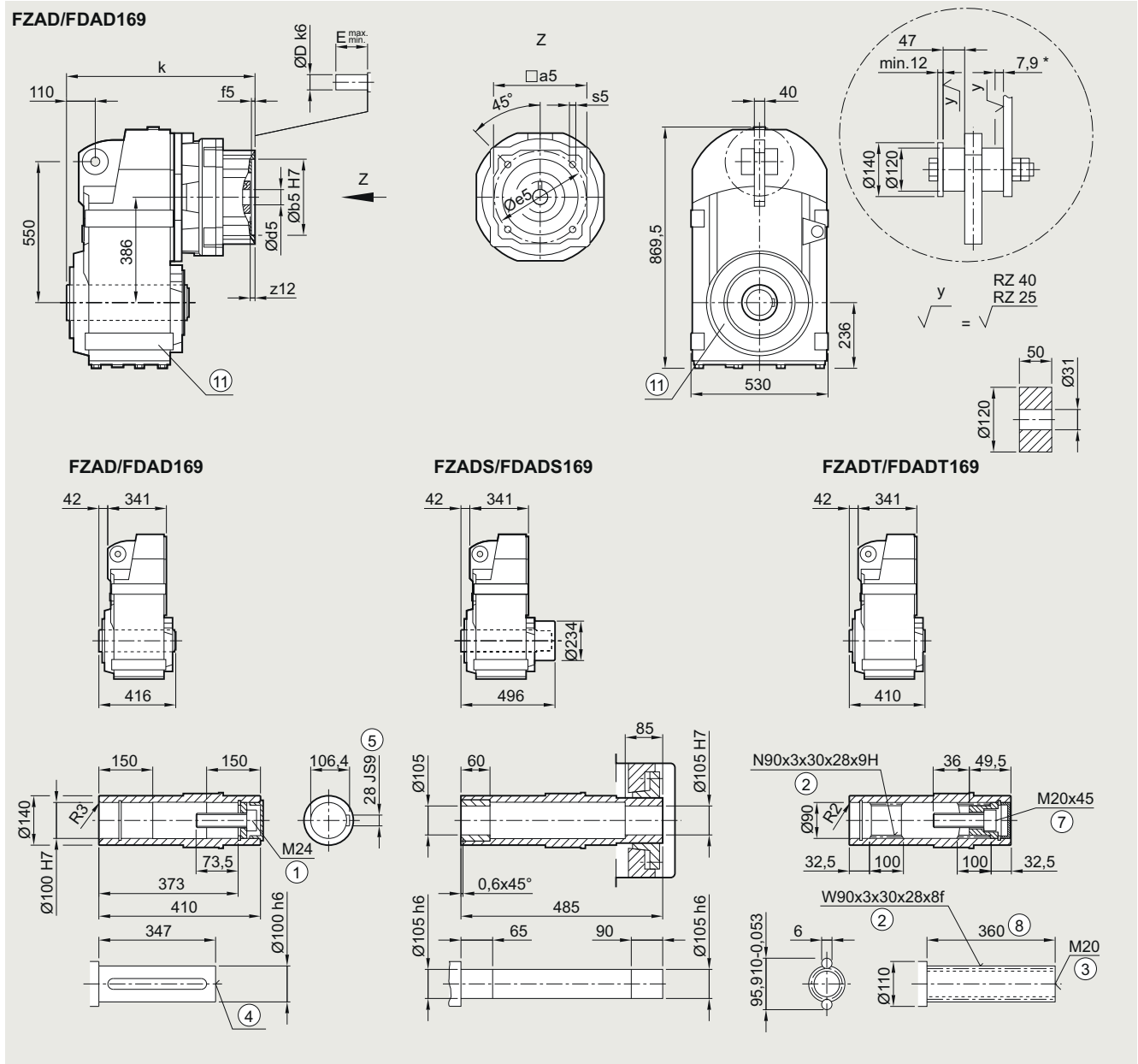
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FDAD./FZAD.169 gearbox in a shaft-mounted design

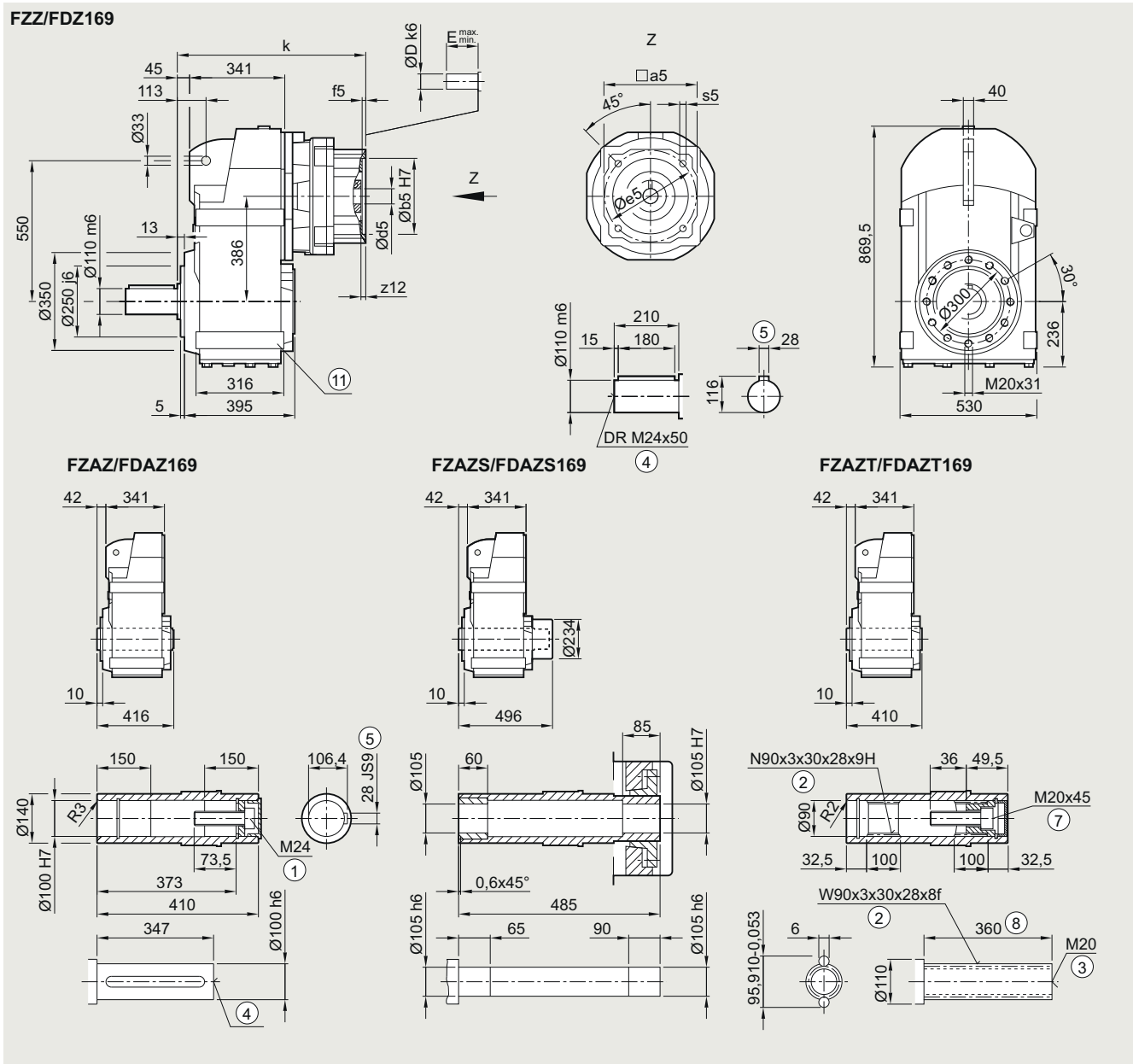
4



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 469.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 498 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 498 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
 * Spring compression at max. torque ⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

FZ.Z./FZ.Z.169 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 469.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 498 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 498 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332
- ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for foot-mounted design

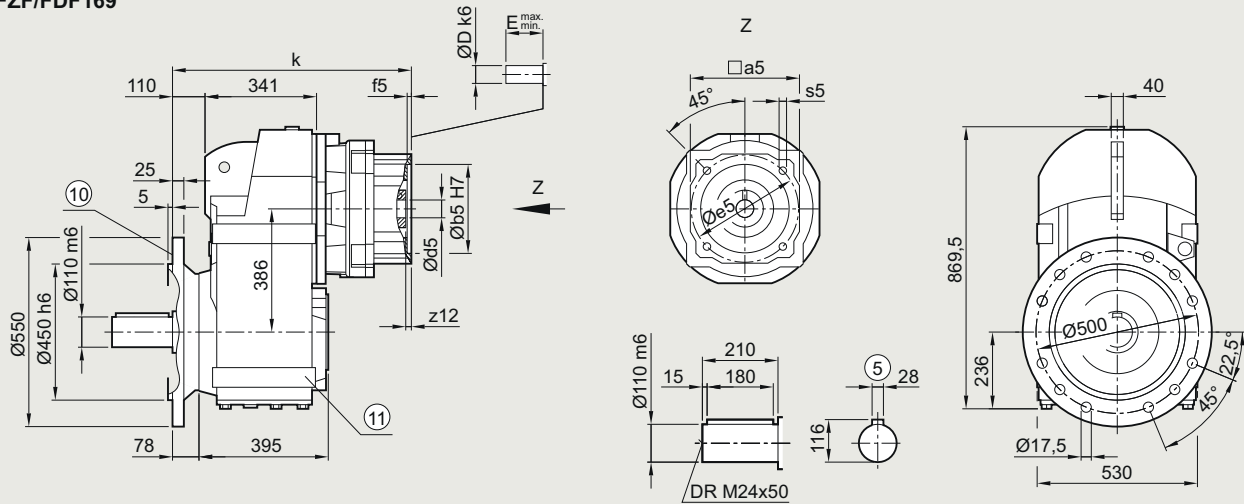
Parallel shaft gearboxes

Dimensional drawings

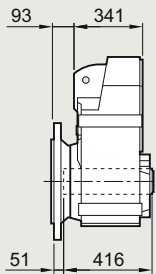
KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.169 gearbox in a flange-mounted design

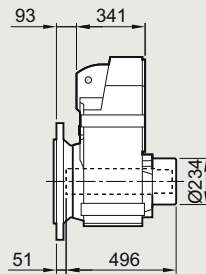
FZF/FDF169



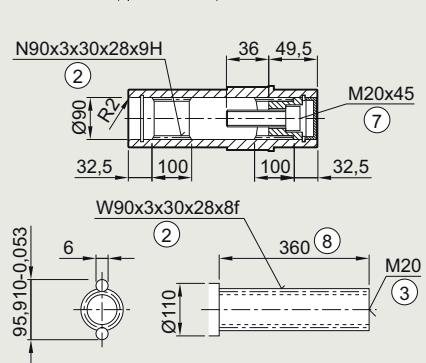
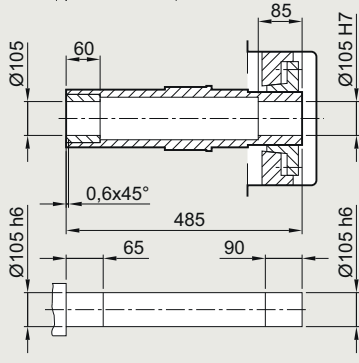
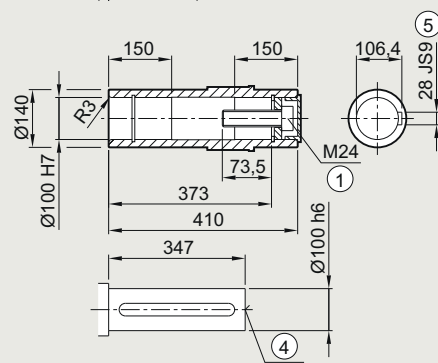
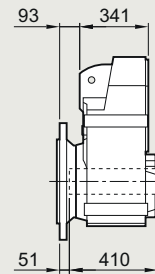
FZAF/FDAF169



FZAFS/FDAFS169



FZAFS/FDAFS169



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 534.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 563 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 563 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

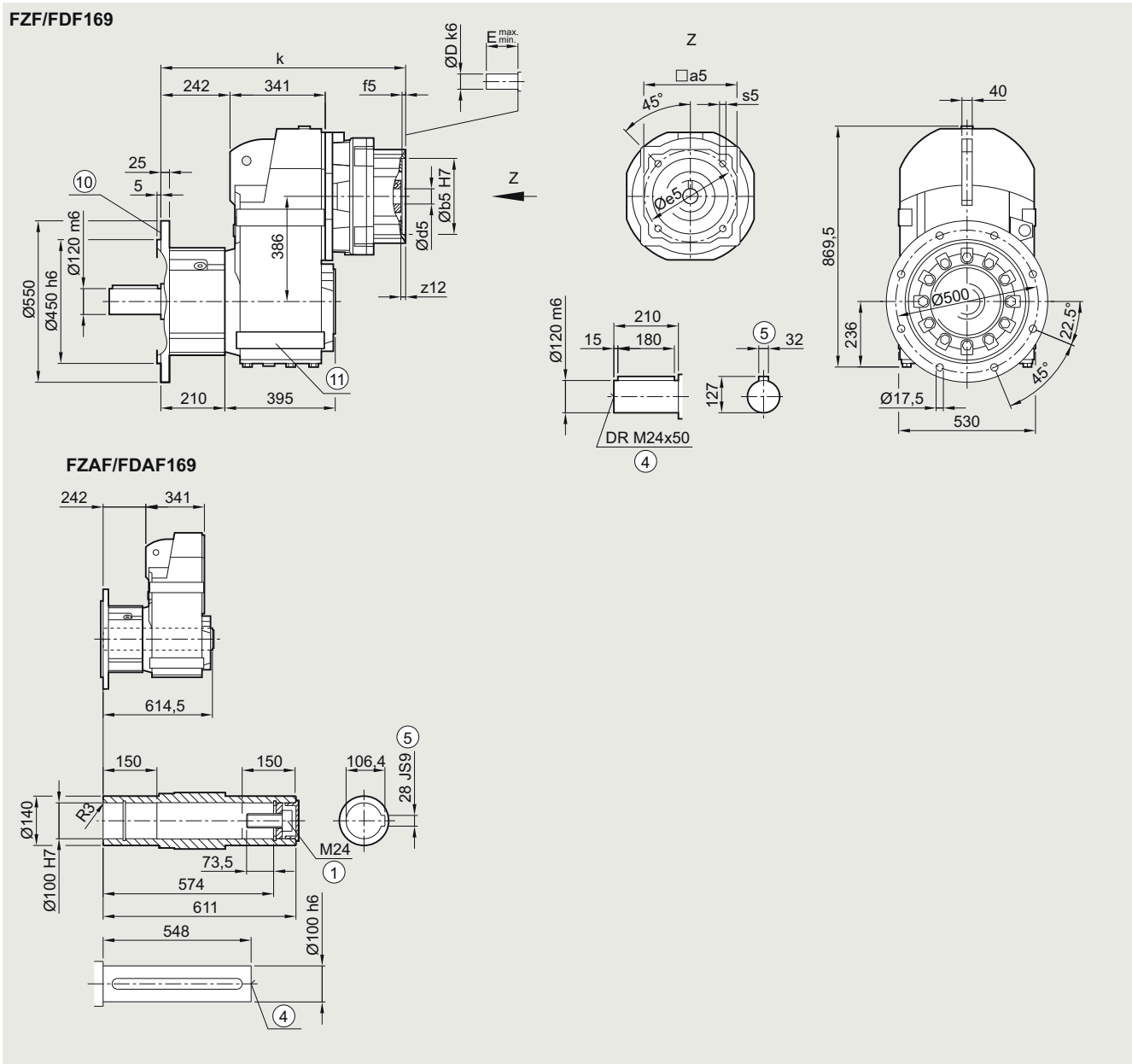
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 4/169

⑪ Use bores only for foot-mounted design

FZ.F./FZ.F.169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 666.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 695 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 695 |

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

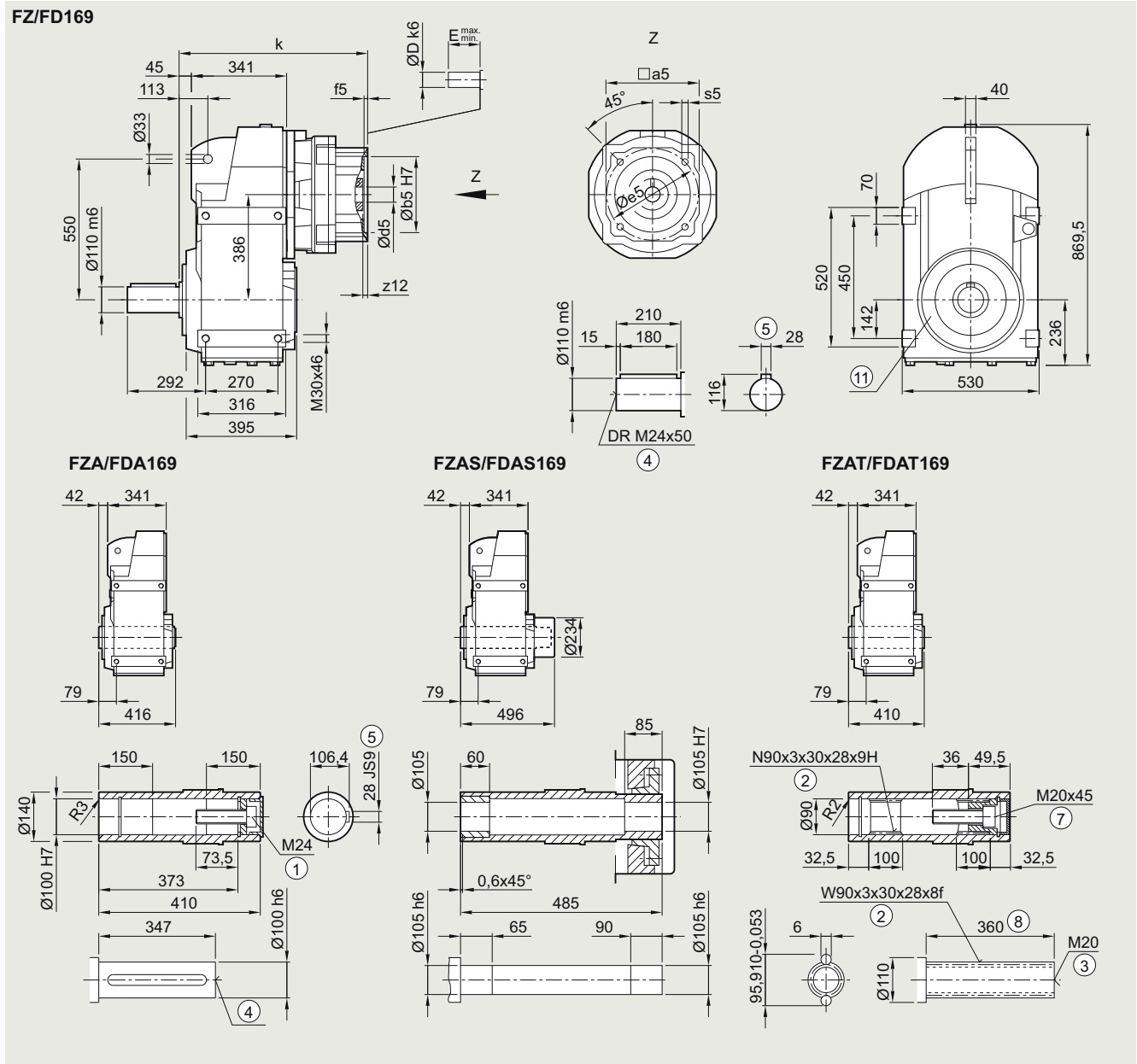
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..169 gearbox in a foot-mounted design

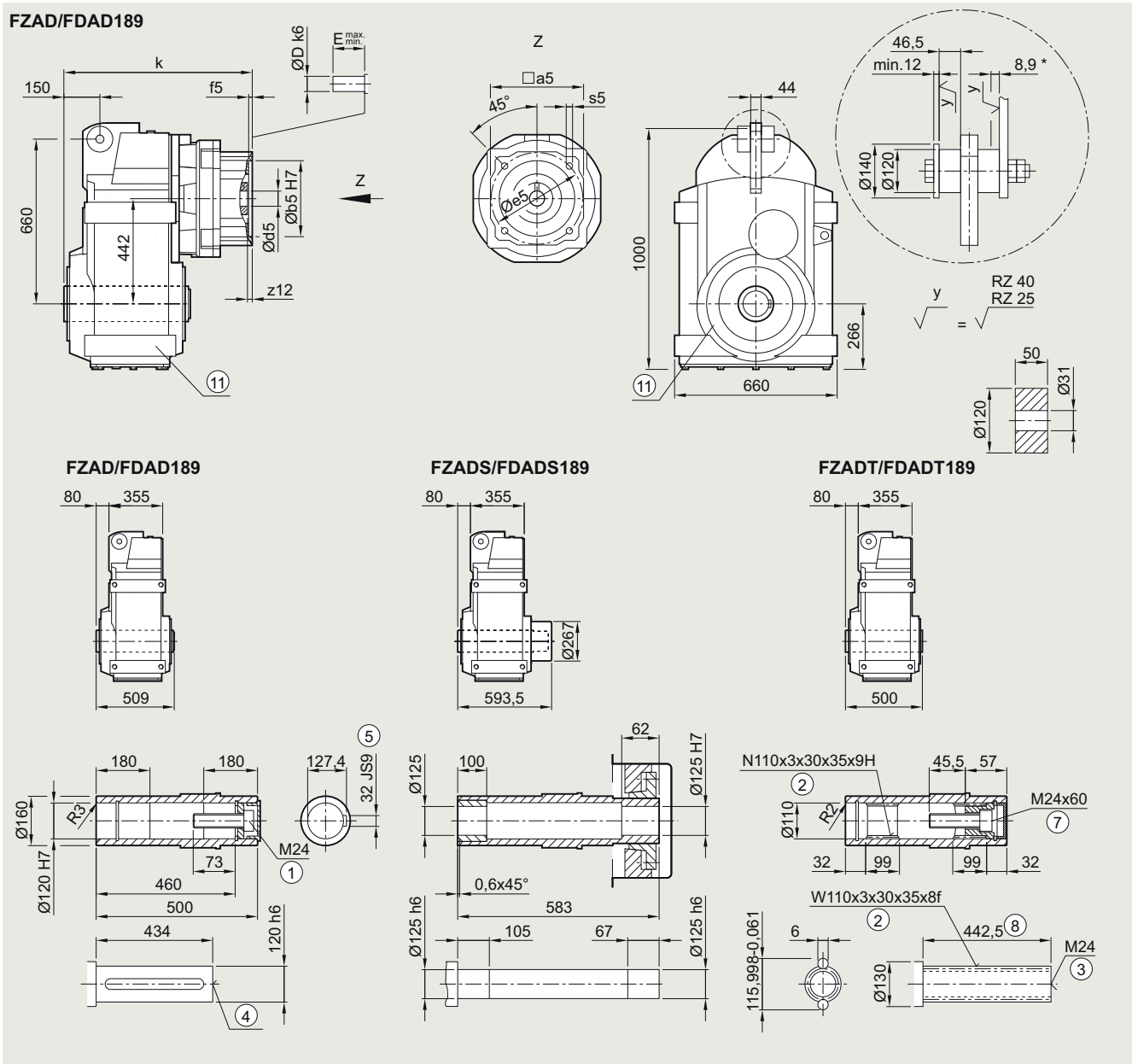
4



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 469.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 498 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 498 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332
 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for housing flange design

FZAD./FZAD.189 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 518.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 547 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 547 |

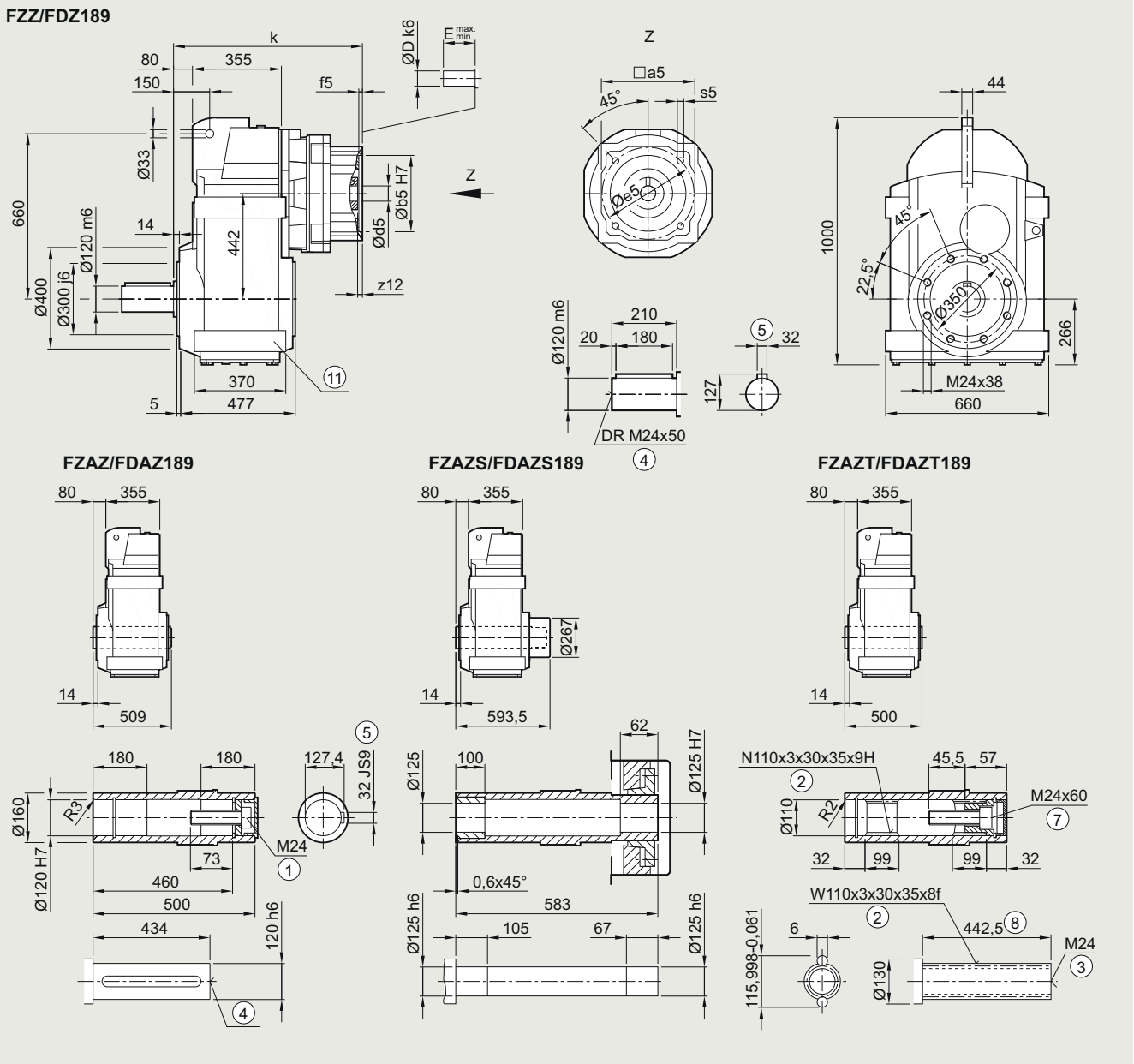
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
* Spring compression at max. torque ⑩ Use bores only for foot-mounted, flange-mounted or housing flange design

Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD.Z./FZ.Z.189 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 518.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 547 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 547 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

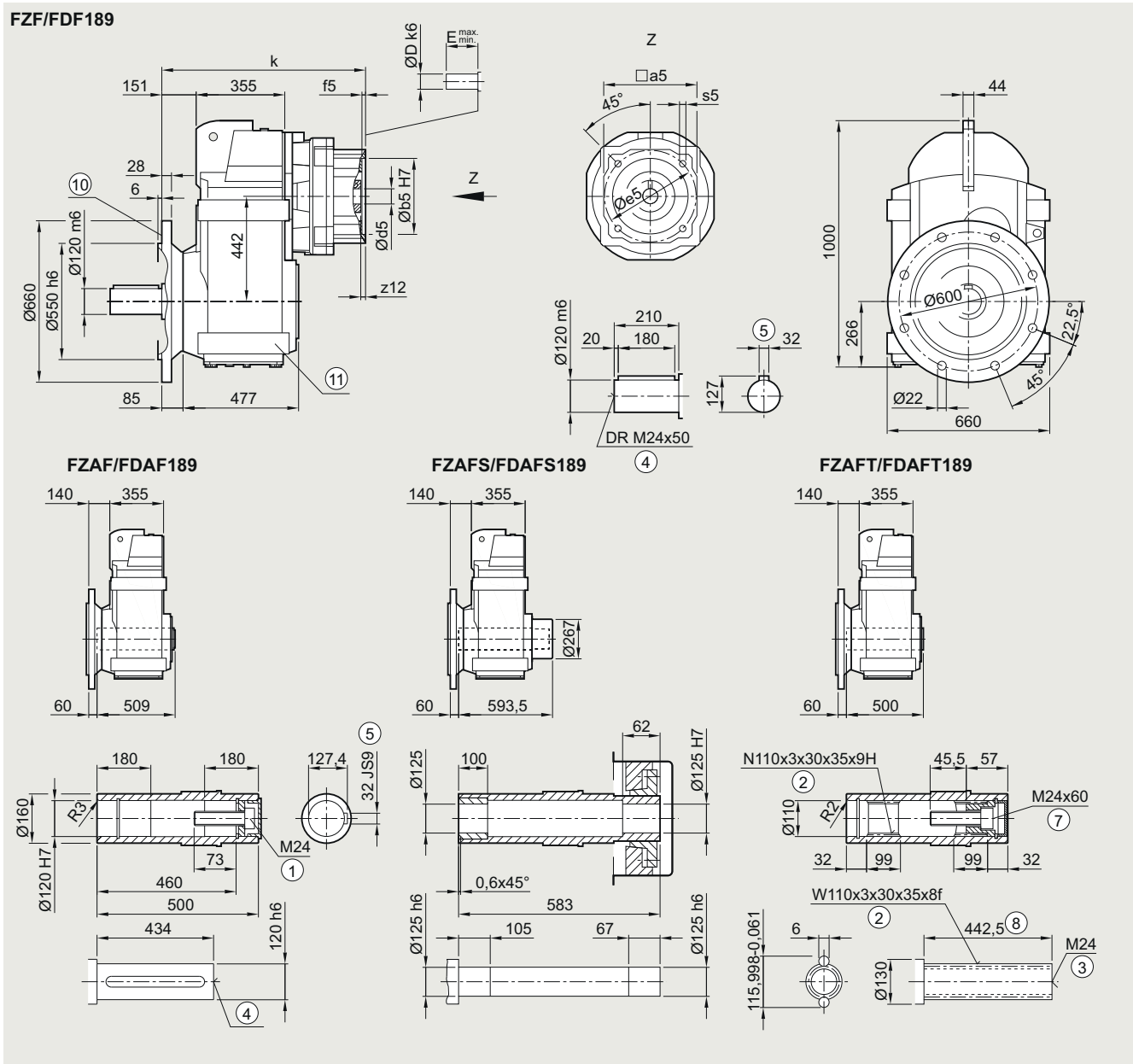
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

FD.F./FZ.F.189 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 589.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 618 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 618 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 4/169 ⑪ Use bores only for foot-mounted design

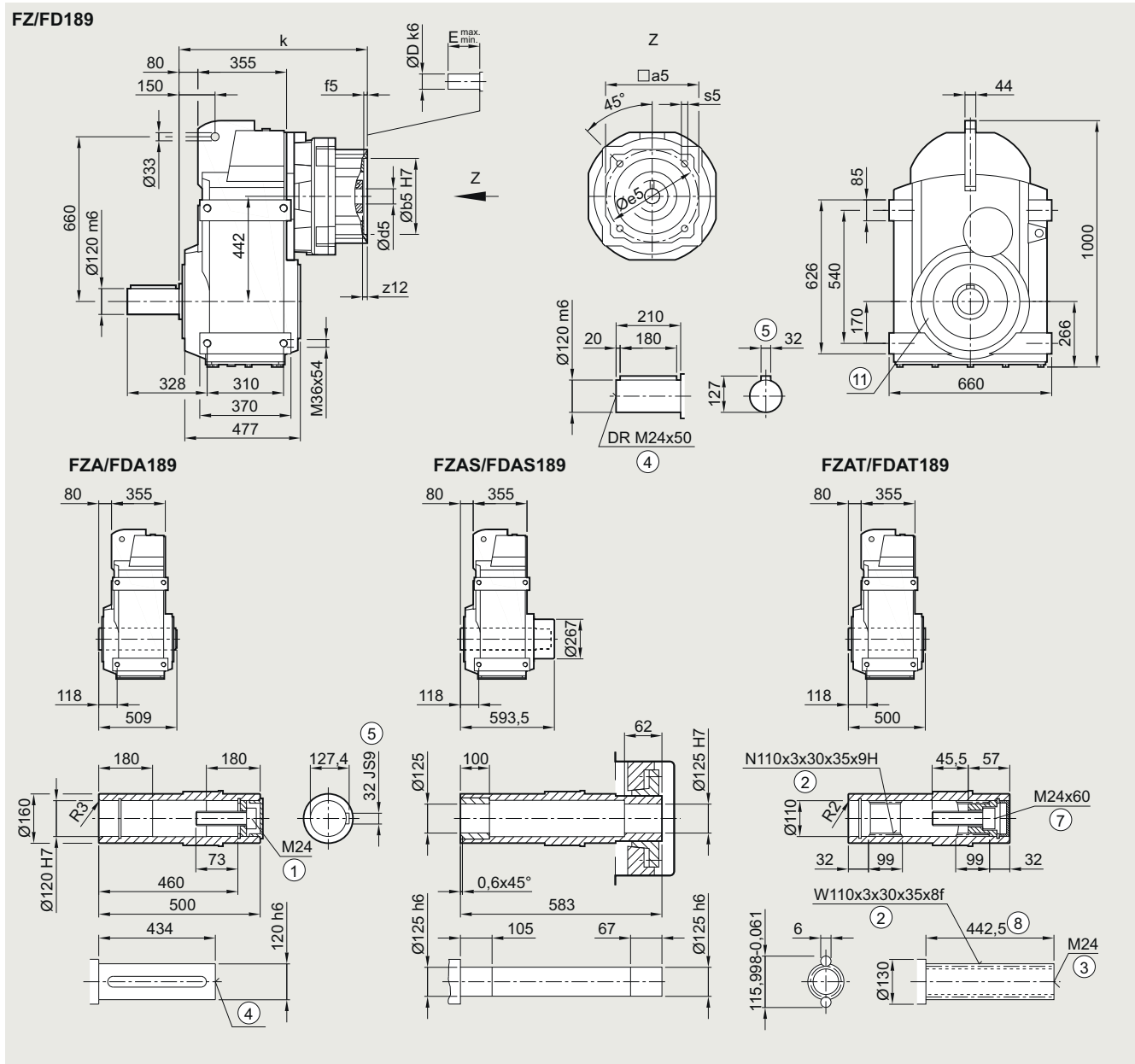
Parallel shaft gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

FD../FZ..189 gearbox in a foot-mounted design

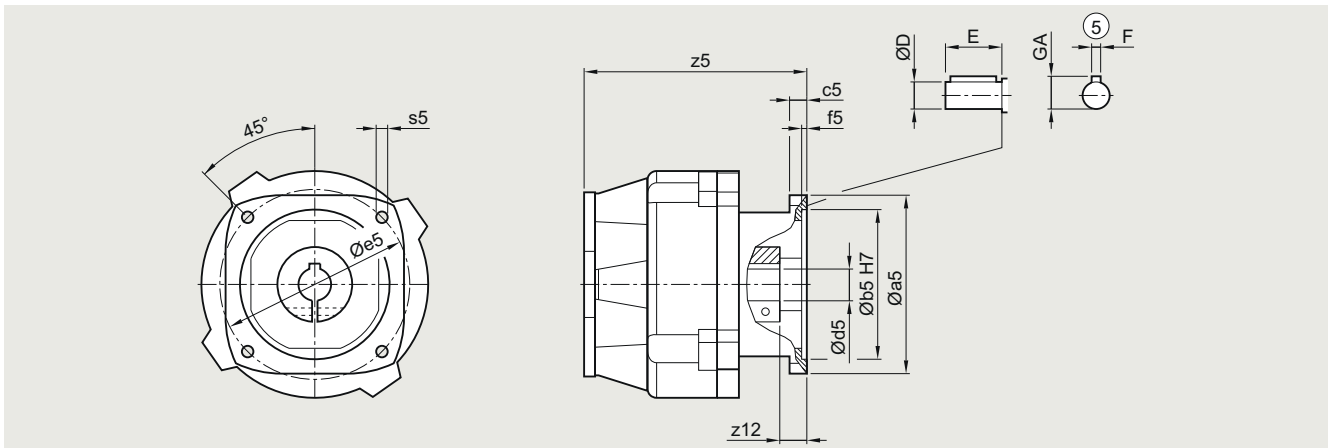
4



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 518.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 547 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 547 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332
- ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for housing flange design

FD.../FZ...89 to FD.../FZ...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------------|-------|-----|------|------|-----|--------|------|------|-----|----|------|-------|
| FZ.../FD...89 | | | | | | | | | | | | |
| 813 | 260 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 317.5 |
| FZ.../FD...109 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 308.5 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 365.0 |
| FZ.../FD...129 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 297.5 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 354.0 |
| FZ.../FD...149 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 291.0 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 347.5 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 336.5 |
| FZ.../FD...169 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 278.0 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 333.0 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 319.5 |
| FZ.../FD...189 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 278.0 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 333.0 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69 | 319.5 |

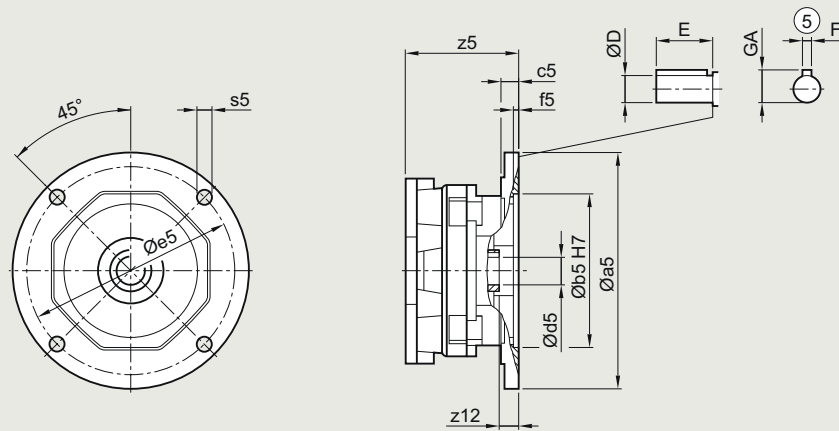
© Feather key/keyway DIN 6885

Parallel shaft gearboxes

Dimensional drawings

Adapter K5 for mounting a NEMA motor

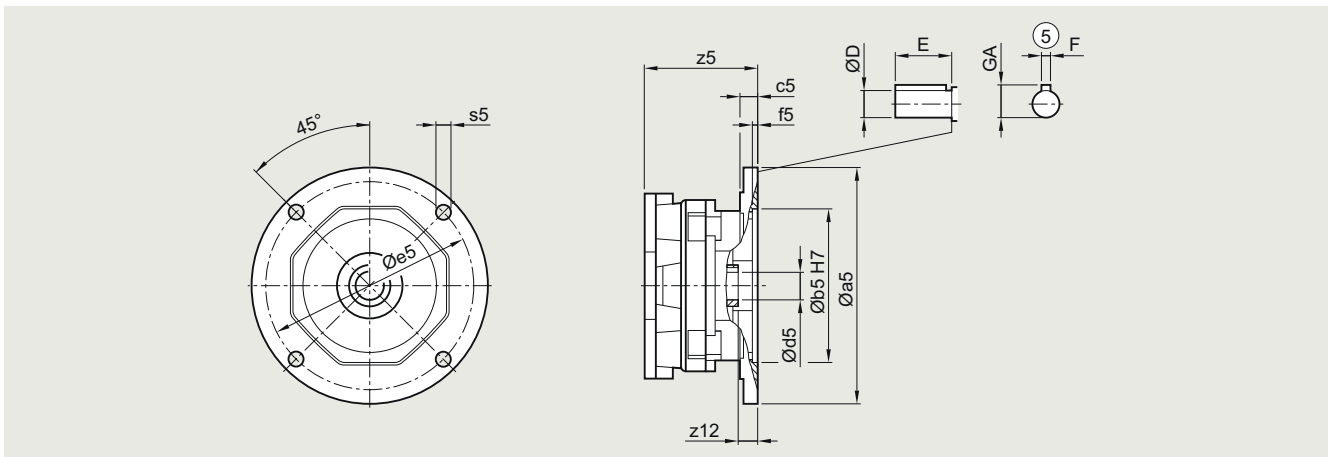
FD.../FZ...29 to FD.../FZ...89 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------------|-----|-------|----|-----|-------|------|-----|--------|---------|-------|--------|-------|
| FZ.../FD...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| FD.../FZ...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| FZ.../FD...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| FZ.../FD...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| FZ.../FD...79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 103.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 103.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 185.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 201.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 201.0 |
| FZ.../FD...89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 90.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 168.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 184.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 184.0 |

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FD.../FZ...109 to FD.../FZ...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------------|-----|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| FZ.../FD...109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 83.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 159.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 175.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 175.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.70 | 53.111 | 188.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.70 | 59.563 | 264.5 |
| FZ.../FD...129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15.0 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 76.0 |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 150.0 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 164.0 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 164.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.70 | 53.111 | 177.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.70 | 59.563 | 253.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 278.0 |
| FZ.../FD...149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 148.5 |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 157.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 157.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.70 | 53.111 | 170.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.70 | 59.563 | 247.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 271.5 |
| FZ.../FD...169 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 144.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 144.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.70 | 53.111 | 157.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.70 | 59.563 | 232.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 253.0 |
| FZ.../FD...189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 144.5 |
| 250 | 226 | 215.9 | 22.0 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 144.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22.0 | 47.625 | 117.602 | 12.70 | 53.111 | 157.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.70 | 59.563 | 232.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 253.0 |

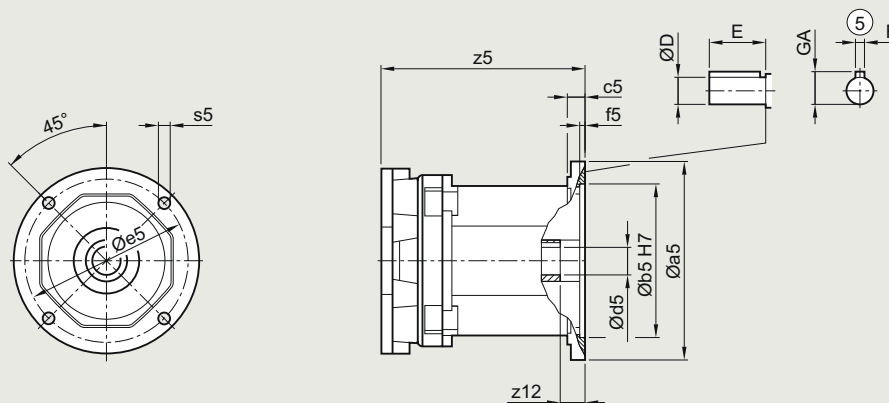
© Feather key/keyway DIN 6885

Parallel shaft gearboxes

Dimensional drawings

Adapter K3 for mounting a NEMA motor

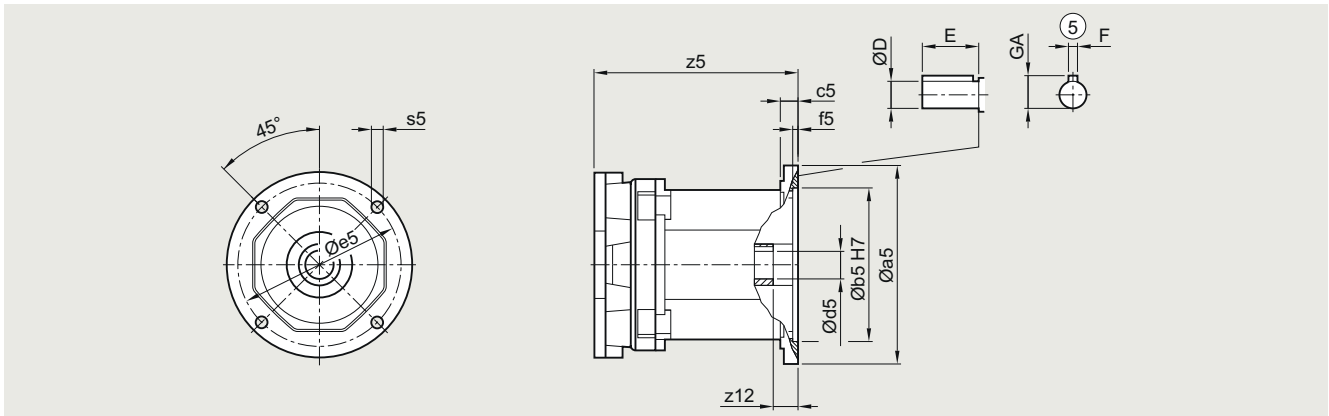
FD.../FZ...29 to FD.../FZ...89 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------------|-----|-------|----|-----|-------|------|------|--------|---------|-------|--------|-------|
| FZ.../FD...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| FZ.../FD...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| FZ.../FD...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| FZ.../FD...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| FZ.../FD...79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 185.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 185.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 241.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 312.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 50.0 | 41.275 | 101.600 | 9.525 | 45.491 | 342.0 |
| FZ.../FD...89 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 172.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 224.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 295.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 325.0 |

Ⓢ Feather key/keyway DIN 6885

FD.../FZ...109 to FD.../FZ...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-----------------------|-----|-------|------|-----|-------|------|------|--------|---------|-------|--------|-------|
| FZ.../FD...109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 172.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 224.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 295.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 325.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 334.0 |
| FZ.../FD...129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 158.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 206.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 275.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 302.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 323.0 |
| FZ.../FD...149 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 205.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 268.5 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 298.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 316.5 |
| FZ.../FD...169 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 255.5 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 285.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 303.5 |
| FZ.../FD...189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 255.5 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 285.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 303.5 |

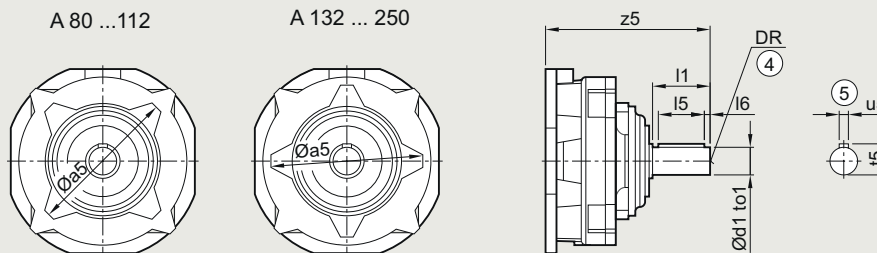
© Feather key/keyway DIN 6885

Parallel shaft gearboxes

Dimensional drawings

Adapter A with free output shaft

FD.../FZ...29 to FD.../FZ...89 gearboxes

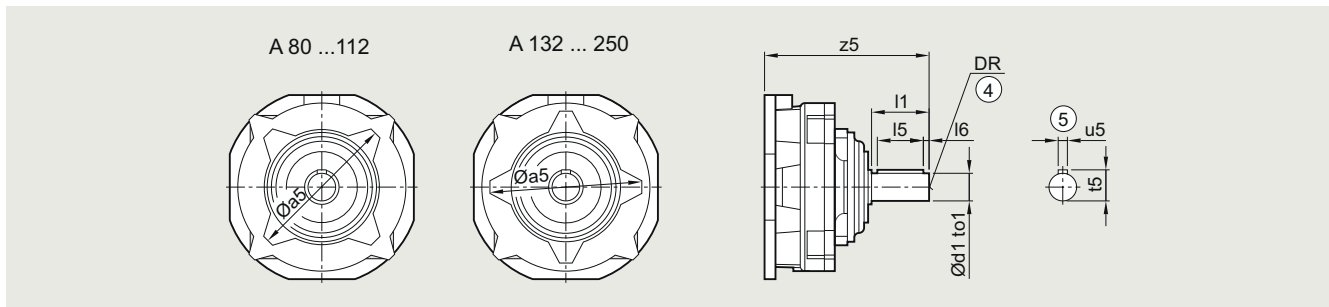


| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|----------------------|-------|----|-----|-----|----|----|----|------|-----|-------|
| FZ.../FD...29 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 153.5 |
| FZ.../FD...39 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 153.5 |
| FZ.../FD...49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| FZ.../FD...69 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| FZ.../FD...79 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 128 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 138 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 205 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 205 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 255 |
| FZ.../FD...89 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 115 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 125 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 188 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 188 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 238 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 290 |

⑤ Feather key/keyway DIN 6885

④ DIN 332

FD.../FZ...109 to FD.../FZ...189 gearboxes



| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|-----------------------|-------|----|-----|-----|----|----|----|------|-----|-------|
| FZ.../FD...109 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 179 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 229 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 281 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 281 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 317.5 |
| FZ.../FD...129 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 170 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 218 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 270 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 270 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 306.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 306.5 |
| FZ.../FD...149 | | | | | | | | | | |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 211.5 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 263.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 263.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| FZ.../FD...169 | | | | | | | | | | |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 250.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 250.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| FZ.../FD...189 | | | | | | | | | | |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 250.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 250.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |

⑤ Feather key/keyway DIN 6885

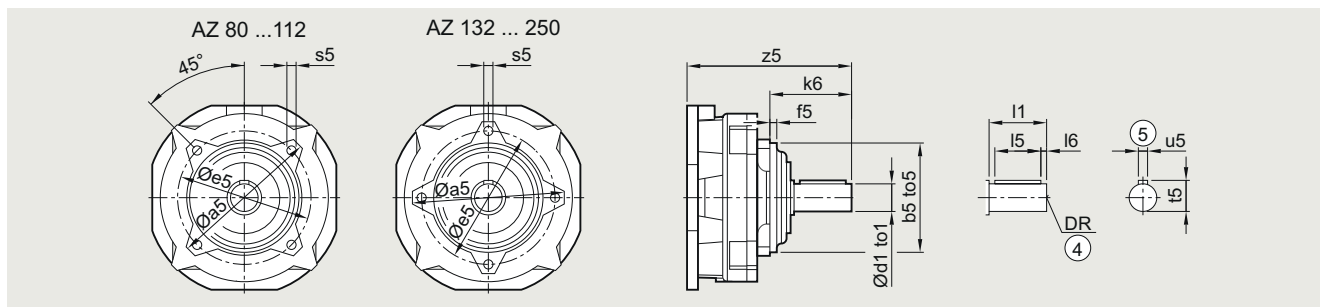
④ DIN 332

Parallel shaft gearboxes

Dimensional drawings

Adapter AZ with free output shaft and centering

FD.../FZ...29 to FD.../FZ...89 gearboxes

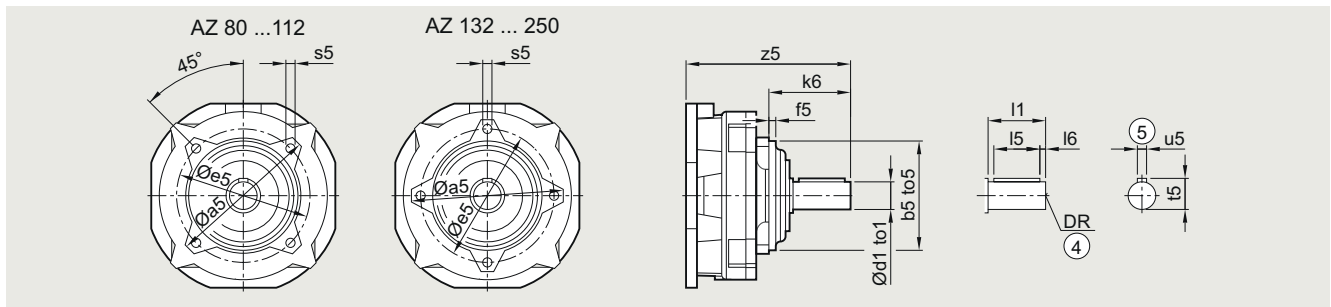


| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|----------------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|-----|-------|-------|
| FZ.../FD...29 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 153.5 |
| FZ.../FD...39 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 153.5 |
| FZ.../FD...49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| FZ.../FD...69 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| FZ.../FD...79 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 128 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 138 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 205 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 205 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 255 |
| FZ.../FD...89 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 115 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 125 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 188 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 188 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 238 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 290 |

⑤ Feather key/keyway DIN 6885

④ DIN 332

FD.../FZ...109 to FD.../FZ...189 gearboxes



| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|-----------------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|-----|-------|-------|
| FZ.../FD...109 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 179 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 229 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 281 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 281 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 317.5 |
| FZ.../FD...129 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 170 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 218 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 270 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 270 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 306.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 306.5 |
| FZ.../FD...149 | | | | | | | | | | | | | | | | |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 211.5 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 263.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 263.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| FZ.../FD...169 | | | | | | | | | | | | | | | | |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 250.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 250.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| FZ.../FD...189 | | | | | | | | | | | | | | | | |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 250.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 250.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |

⑤ Feather key/keyway DIN 6885

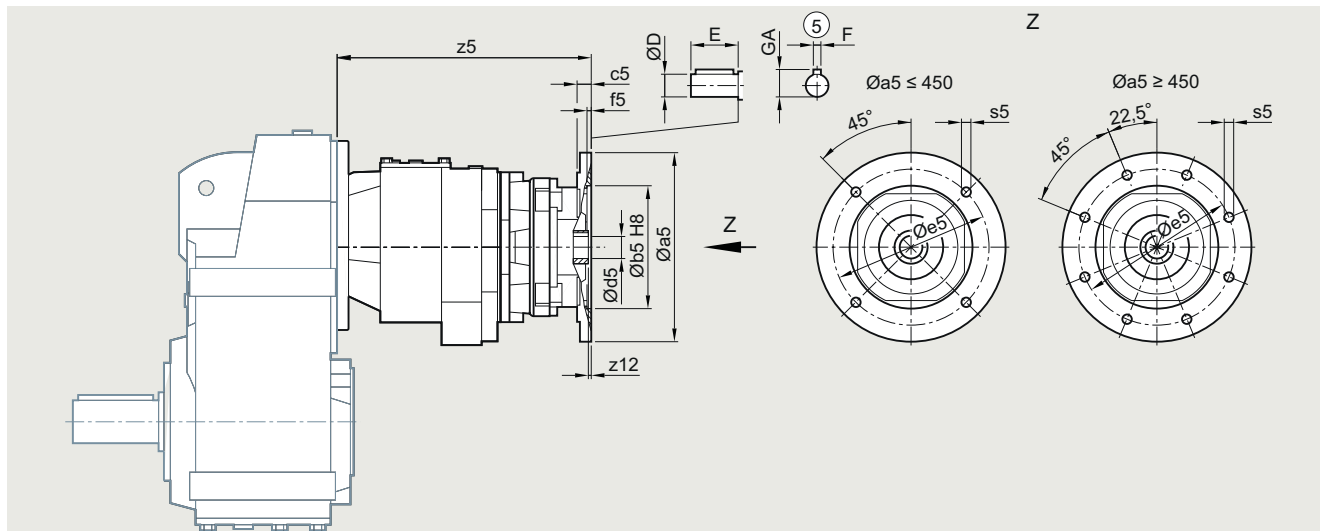
④ DIN 332

Parallel shaft gearboxes

Dimensional drawings

Tandem gearbox with adapter K4 for mounting an IEC motor

Parallel shaft tandem gearbox with adapter K4

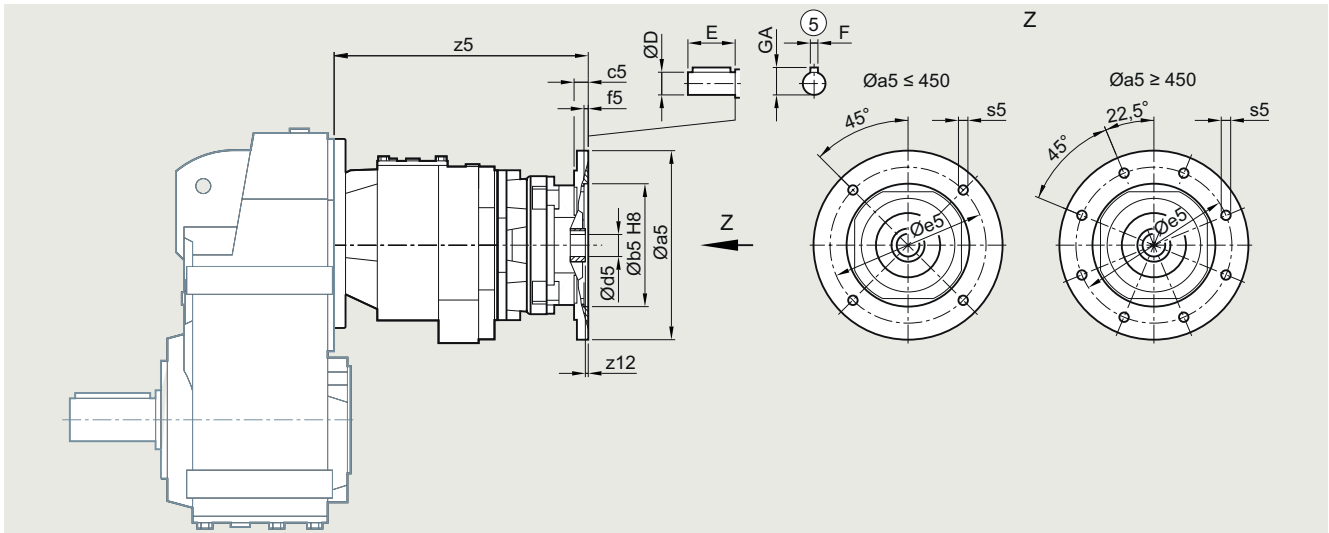


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------------|----------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| FZ../FD../79-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 257 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 285 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 285 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 339.5 |
| FZ../FD../89-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 240 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 240 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 268 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 268 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 322.5 |
| FD../109-Z/D39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 231 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 259 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 259 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 313.5 |
| FD../129-Z/D49 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 260 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 260 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 288 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 288 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| FD../149-Z/D49 | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 360 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 249.5 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 249.5 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 277.5 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 277.5 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |

⑤ Feather key/keyway DIN 6885

Tandem gearbox with adapter K4 for mounting an IEC motor

Parallel shaft tandem gearbox with adapter K4



| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|----------|-----|-----|----|-----|--------|--------|-----|------|----|----|------|-------|
| FD..169-Z/D69 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 275 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 275 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 303 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 303 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| FD..189-Z/D69 | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 375 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 275 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 275 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 303 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 303 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 375 | |

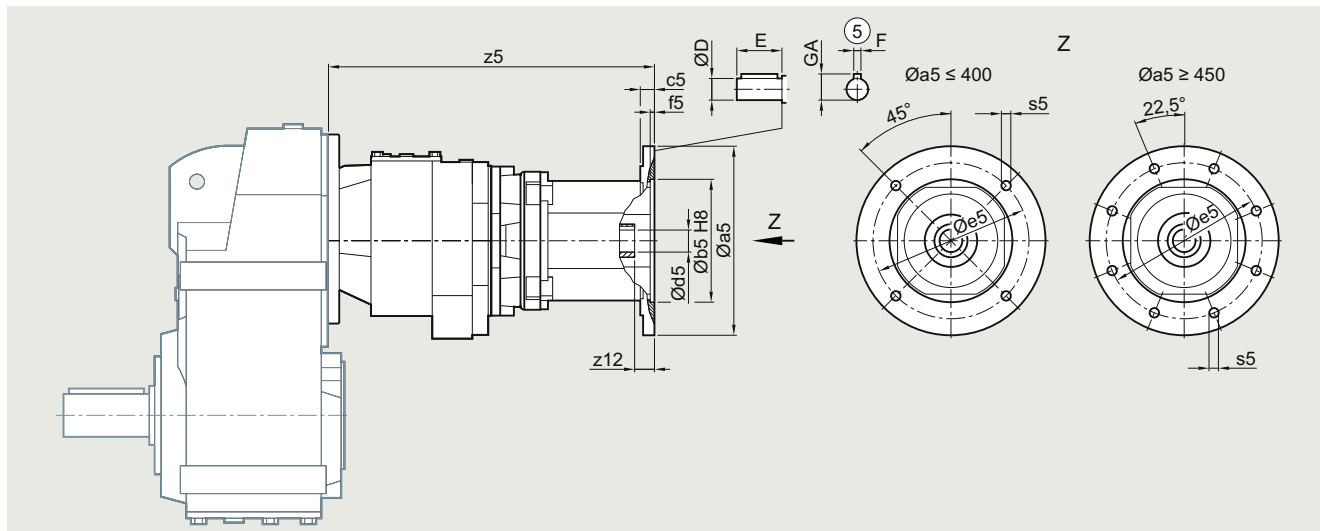
⑤ Feather key/keyway DIN 6885

Parallel shaft gearboxes

Dimensional drawings

Tandem gearbox with adapter K2 for mounting an IEC motor

Parallel shaft tandem gearbox with adapter K2

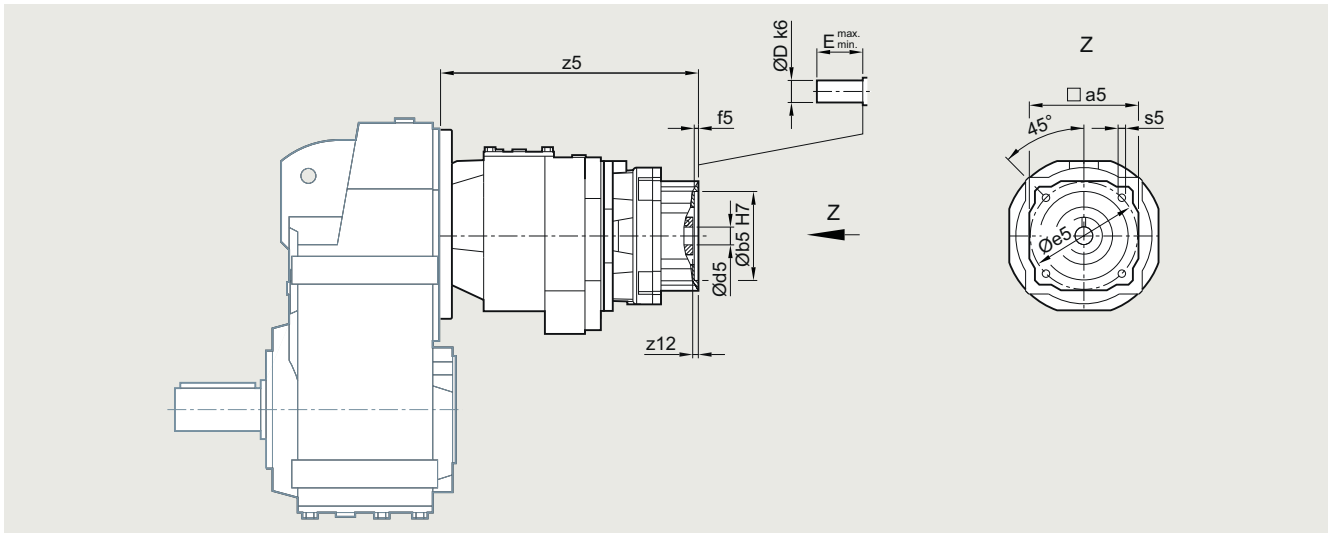


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------------|----------|-----|-----|----|-----|-----|-----|-----|------|----|----|------|-------|
| FZ../FD../79-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 377.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 377.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 424.5 |
| FZ../FD../89-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 360.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 360.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 407.5 |
| FD../109-Z/D39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 351.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 351.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 398.5 |
| FD../129-Z/D49 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 380.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 380.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| FD../149-Z/D49 | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 505.5 |
| | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 370.0 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 370.0 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417.0 |
| FD../169-Z/D69 | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417.0 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 495.0 |
| | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 395.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 395.5 |
| FD../189-Z/D69 | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 520.5 |
| | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 395.5 |
| FD../189-Z/D69 | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 395.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 520.5 |

⑤ Feather key/keyway DIN 6885

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Parallel shaft tandem gearbox with KS adapter



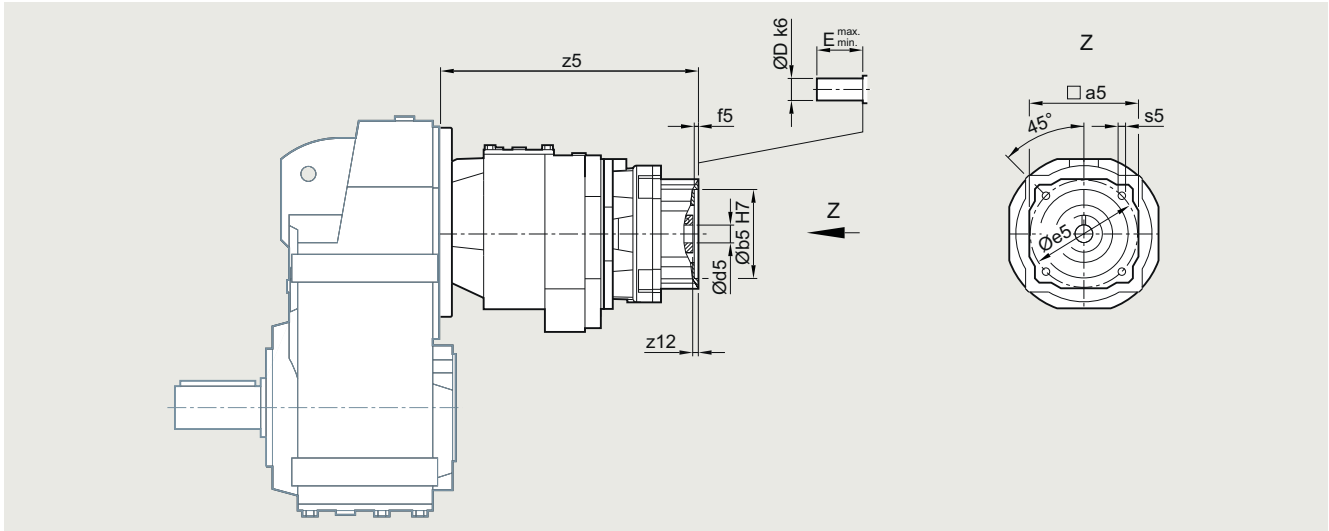
| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|--------------------|---------|-----|-----|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| FZ../FD../29-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| FZ../FD../39-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| FZ../FD../49-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| FZ../FD../69-Z/D19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| FZ../FD../79-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 261.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 261.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315 |
| FZ../FD../89-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 244.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 244.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 273 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 273 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 298 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 298 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 327.5 | |

Parallel shaft gearboxes

Dimensional drawings

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Parallel shaft tandem gearbox with KS adapter

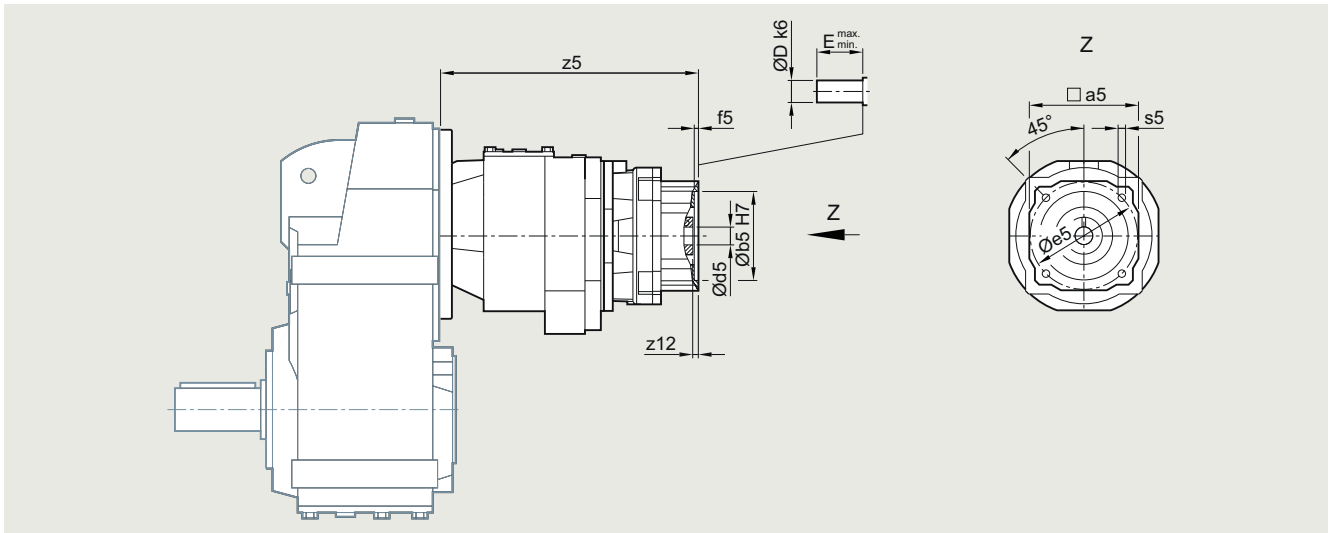


4

| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|---------------|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| FD..109-Z/D39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 235.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 235.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289 |
| FD..129-Z/D49 | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 301.5 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 264.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 264.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 293 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 293 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 318 |
| FD..149-Z/D49 | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 318 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 330.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 366.5 |
| | KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 366.5 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 254 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 254 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| FD..149-Z/D49 | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282.5 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282.5 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 307.5 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 307.5 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 320 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 356 |
| | KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 356 |

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Parallel shaft tandem gearbox with KS adapter



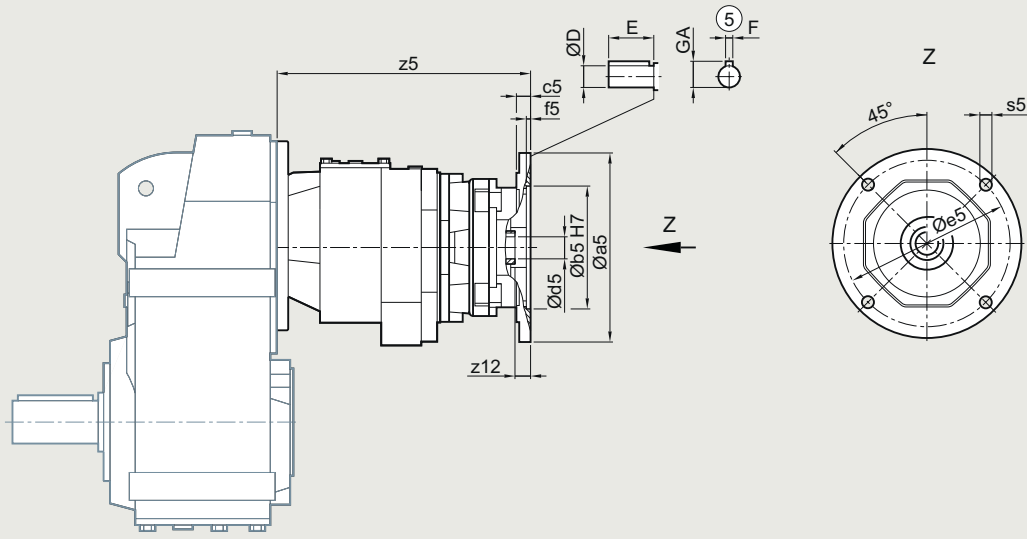
| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|---------------|---------|-------|-----|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| FD.169-Z/D69 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 279.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 279.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 345.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 381.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 381.5 | |
| FD..189-Z/D69 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 279.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 279.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 345.5 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 381.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 381.5 | |

Parallel shaft gearboxes

Dimensional drawings

Tandem gearbox with adapter K5 for mounting NEMA motors

Parallel shaft tandem gearbox with adapter K5

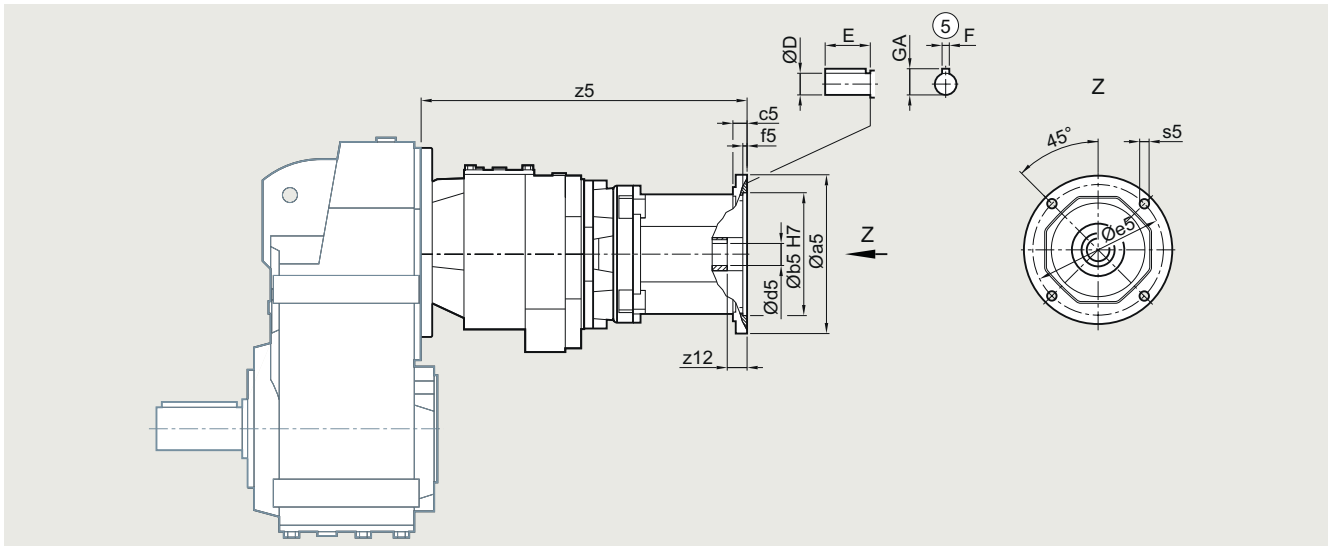


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------------|----------|-----|-------|----|-----|-------|------|-----|--------|--------|-------|--------|-------|
| FZ../FD../79-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 298 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 298 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 380 |
| FZ../FD../89-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 281 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 281 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 363 |
| FD../109-Z/D39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 272 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 272 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 354 |
| FD../129-Z/D49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 301 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 301 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 383 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.85 | 7.938 | 38.443 | 399 |
| FD../149-Z/D49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 290.5 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 290.5 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 372.5 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.85 | 7.938 | 38.443 | 388.5 |
| FD../169-Z/D69 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 316 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 316 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 398 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.85 | 7.938 | 38.443 | 414 |
| FD../189-Z/D69 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 316 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 316 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.85 | 6.35 | 31.394 | 398 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.85 | 7.938 | 38.443 | 414 |

⊗ Feather key/keyway DIN 6885

Tandem gearbox with adapter K3 for mounting NEMA motors

Parallel shaft tandem gearbox with adapter K3



| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|--------------------|----------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| FZ../FD../79-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 380.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 380.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 436.5 |
| FZ../FD../89-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 363.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 363.5 |
| FD../109-Z/D39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 354.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 354.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 410.5 |
| FD../129-Z/D49 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 383.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 383.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 439.5 |
| FD../149-Z/D49 | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 510 |
| | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 373 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 373 |
| FD../169-Z/D69 | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 429 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 499.5 |
| | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 398.5 |
| FD../189-Z/D69 | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 398.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 454.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 525 |
| FD../189-Z/D69 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 398.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 398.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 454.5 |
| FD../189-Z/D69 | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 525 |

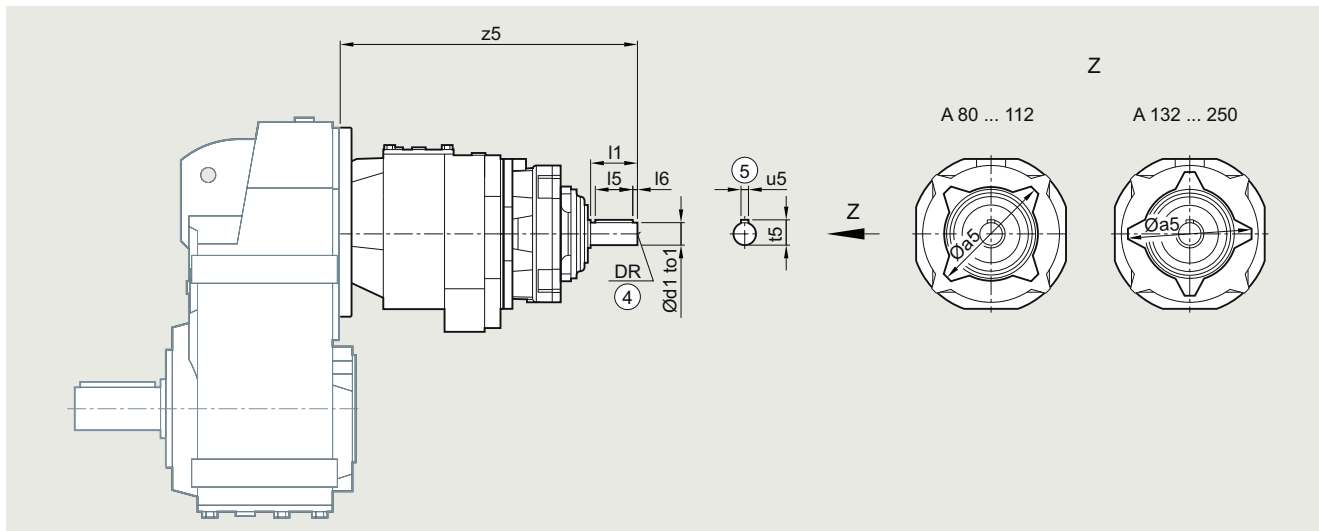
⑤ Feather key/keyway DIN 6885

Parallel shaft gearboxes

Dimensional drawings

Tandem gearbox with adapter A with free output shaft

Parallel shaft tandem gearbox with adapter A



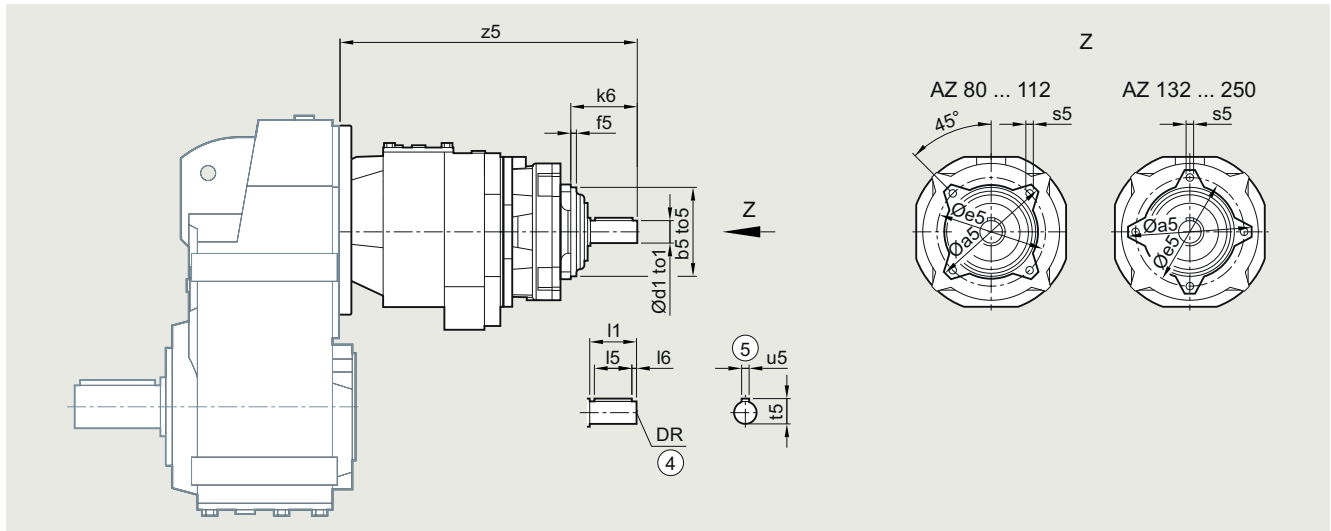
| Gearbox | Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|--------------------|---------|-----|----|-----|----|----|----|----|------|--------|-------|
| FZ../FD../79-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 323 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 333 |
| FZ../FD../89-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 306 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 316 |
| FD../109-Z/D39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 297 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 307 |
| FD../129-Z/D49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 326 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 336 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| FD../149-Z/D49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 315.5 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 325.5 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| FD../169-Z/D69 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 341 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 351 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| FD../189-Z/D69 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 341 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 351 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |

⑤ Feather key/keyway DIN 6885

④ DIN 332

Tandem gearbox with adapter AZ with free output shaft and centering

Parallel shaft tandem gearbox with adapter AZ



| Gearbox | Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|--------------------|----------|-----|-----|-----|-----|--------|--------|----|-----|----|----|----|----|--------|--------|------|-------|
| FZ../FD../79-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 323 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 333 |
| FZ../FD../89-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 306 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 316 |
| FD../109-Z/D39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 297 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 307 |
| FD../129-Z/D49 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 326 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 336 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| FD../149-Z/D49 | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 315.5 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 325.5 |
| FD../169-Z/D69 | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 341 |
| FD../189-Z/D69 | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 351 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| FD../189-Z/D69 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 341 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 351 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 | |

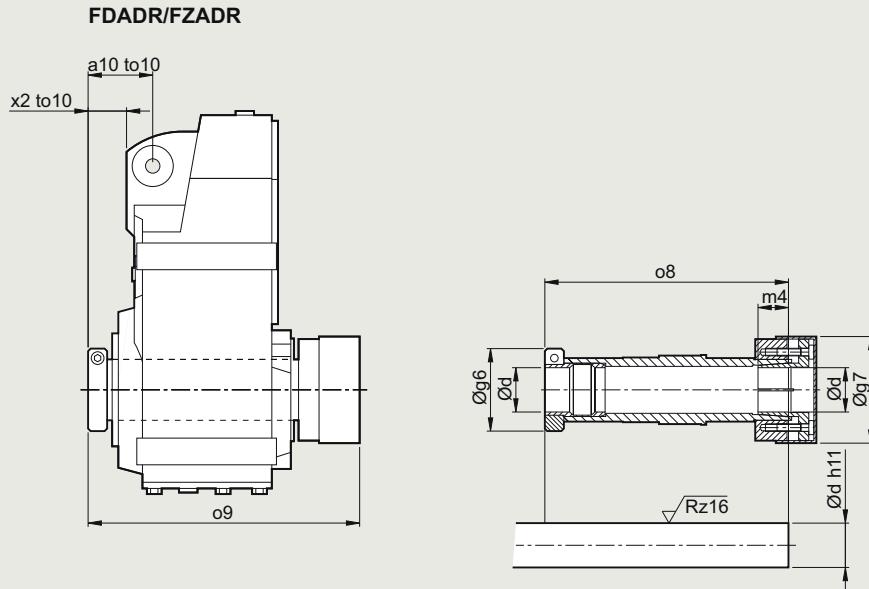
⑤ Feather key/keyway DIN 6885

④ DIN 332

Parallel shaft gearboxes

Dimensional drawings

ShaftMount assembly system



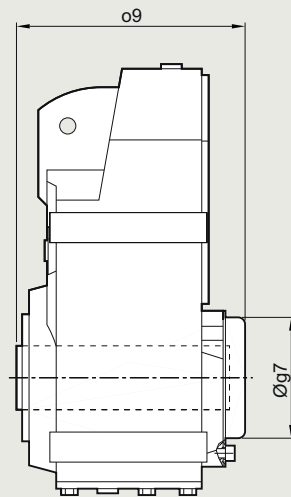
Note mounting tolerance to10 when positioning the torque arm.

| d | g6 | g7 | m4 | o8 | o9 | a10 | to10 | x2 |
|-----------------------|------|-----|------|-------|-----|------|------|------|
| FDADR/FZADR29 | | | | | | | | |
| 25 | 58.5 | 56 | 18.5 | 140.5 | 161 | 40.0 | +2.1 | 23.5 |
| 20 | | | | | | | +0.6 | |
| 1" | | | | | | | | |
| 0.75" | | | | | | | | |
| FDADR/FZADR39 | | | | | | | | |
| 30 | 62.0 | 76 | 22 | 160.5 | 181 | 46.5 | +2.2 | 29.5 |
| 25 | | | | | | | +0.7 | |
| 1.25" | | | | | | | | |
| 1.1875" | | | | | | | | |
| 1" | | | | | | | | |
| FDADR/FZADR49 | | | | | | | | |
| 35 | 65.0 | 84 | 24 | 192.0 | 214 | 47.0 | +2.6 | 24.5 |
| 30 | | | | | | | +0.8 | |
| 1.375" | | | | | | | | |
| 1.4375" | | | | | | | | |
| 1.25" | | | | | | | | |
| 1.1875" | | | | | | | | |
| FDADR/FZADR.69 | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 217.5 | 240 | 59.5 | +2.5 | 37.0 |
| 35 | | | | | | | +0.7 | |
| 1.5" | | | | | | | | |
| 1.625" | | | | | | | | |
| 1.4375" | | | | | | | | |
| 1.375" | | | | | | | | |
| FDADR/FZADR79 | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 232.0 | 259 | 60.0 | +3.2 | 34.0 |
| 35 | | | | | | | +1.4 | |
| 1.5" | | | | | | | | |
| 1.625" | | | | | | | | |
| 1.4375" | | | | | | | | |
| 1.375" | | | | | | | | |
| FDADR/FZADR89 | | | | | | | | |
| 50 | 89.0 | 114 | 32 | 264.0 | 295 | 69.0 | +3.4 | 32.0 |
| 40 | | | | | | | +1.5 | |
| 2" | | | | | | | | |
| 1.9375" | | | | | | | | |
| 1.75" | | | | | | | | |
| 1.625" | | | | | | | | |

Protective covers

Protective cover for hollow shaft

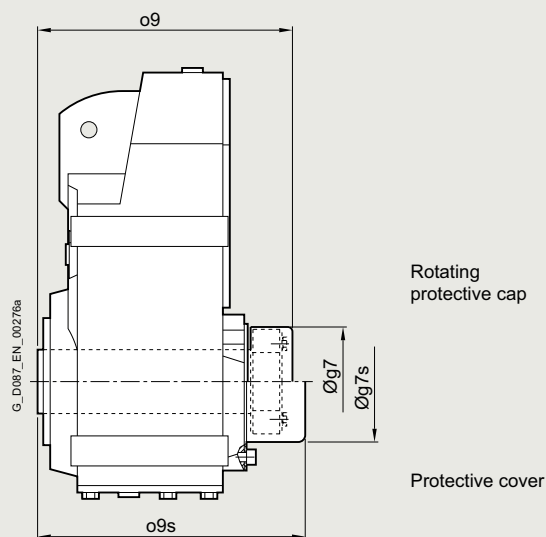
F.A, F.AF, F.AZ, F.AD



| Gearbox type | F.A..29 | F.A..39 | F.A..49 | F.A..69 | F.A..79 | F.A..89 | F.A..109 | F.A..129 | F.A..149 | F.A..169 | F.A..189 |
|-------------------------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| Protective cover | | | | | | | | | | | |
| g7 | 67.0 | 82.5 | 80.0 | 99.0 | 99.0 | 137.0 | 187.0 | 187.0 | 218.0 | 257.5 | 309.5 |
| o9 | 120.5 | 134.0 | 177.0 | 179.0 | 192.5 | 232.5 | 281.5 | 348.0 | 425.0 | 520.0 | 623.5 |

Protective cover for hollow shaft with shrink disk

F.AS, F.AFS, F.AZS, F.ADS



| Gearbox type | F.A..29 | F.A..39 | F.A..49 | F.A..69 | F.A..79 | F.A..89 | F.A..109 | F.A..129 | F.A..149 | F.A..169 | F.A..189 |
|---|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| Rotating protective cap with shrink disk version | | | | | | | | | | | |
| max. motor size that can be mounted | 80 | 90 | 100 | 100 | 132 | 160 | 200 | 225 | 250 | 250 | 250 |
| g7 | 57.0 | 76.0 | 84.0 | 84.0 | 94.0 | 119.0 | 145.0 | 159.0 | 201.0 | 234.0 | 267.0 |
| o9 | 132.5 | 149.5 | 182.0 | 198.0 | 215.5 | 247.5 | 282.5 | 348.5 | 408.5 | 496.0 | 593.5 |
| Protective cover | | | | | | | | | | | |
| max. motor size that can be mounted | 71 | 80 | 100 | 100 | 112 | 132 | 200 | 225 | 250 | 250 | 250 |
| g7s | 58.0 | 82.5 | 86.0 | 99.0 | 99.0 | 137.0 | 187.0 | 187.0 | 218.0 | 257.5 | 309.5 |
| o9s | 135.5 | 170.0 | 198.0 | 210.0 | 223.5 | 284.5 | 308.5 | 375.0 | 425.0 | 520.0 | 623.5 |

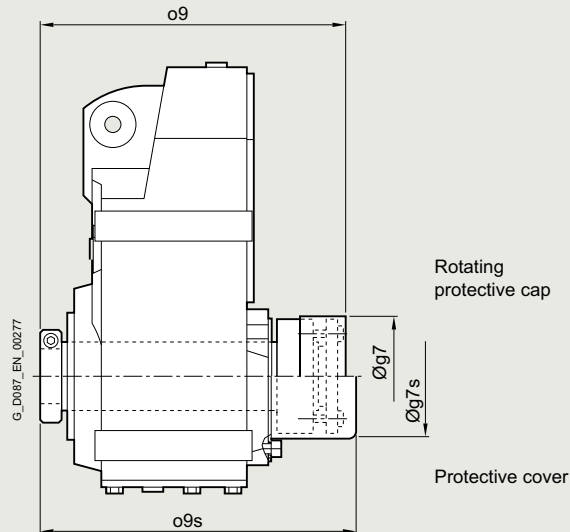
Parallel shaft gearboxes

Dimensional drawings

Protective covers

Protective cover for hollow shaft with ShaftMount assembly system

F.ADR

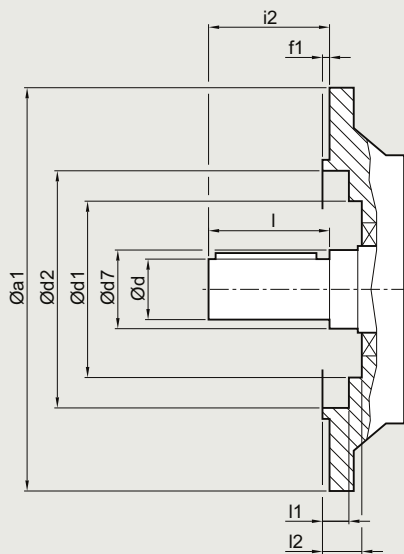


| Gearbox type | F.ADR29 | F.ADR39 | F.ADR49 | F.ADR69 | F.ADR79 | F.ADR89 |
|-------------------------------------|---------|---------|---------|---------|---------|---------|
| Rotating protective cap | | | | | | |
| max. motor size that can be mounted | 80 | 90 | 100 | 100 | 132 | 160 |
| g7 | 56.0 | 76.0 | 84.0 | 94.0 | 94.0 | 114.0 |
| o9 | 161.0 | 181.0 | 214.0 | 240.0 | 259.0 | 295.0 |
| Protective cover | | | | | | |
| max. motor size that can be mounted | 71 | 80 | 100 | 100 | 112 | 132 |
| g7s | 58.0 | 82.5 | 86.0 | 99.0 | 99.0 | 137.0 |
| o9s | 164.0 | 184.0 | 219.0 | 249.5 | 263.5 | 303.5 |

Inner contour of the flange design

Notes regarding the design of the customer's interface for the solid shaft design

FDf/FZF



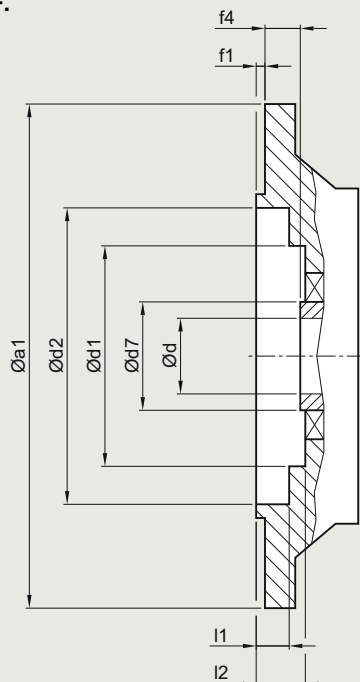
| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | i2 | l | l1 | l2 |
|--------------|-----|-----|-----|----|-----|-----|-----|-----|------|----|
| FDf/FZF29 | 120 | 25 | 40 | - | 70 | 3.0 | 40 | 40 | 24.0 | - |
| FDf/FZF39 | 160 | 25 | 30 | - | 100 | 3.5 | 50 | 50 | 5.0 | - |
| FDf/FZF49 | 200 | 30 | 35 | - | 118 | 3.5 | 60 | 60 | 5.5 | - |
| FDf/FZF69 | 250 | 35 | 45 | - | 165 | 4.0 | 70 | 70 | 6.5 | - |
| FDf/FZF79 | 250 | 40 | 55 | - | 165 | 4.0 | 80 | 80 | 6.5 | - |
| FDf/FZF89 | 300 | 50 | 55 | - | 165 | 4.0 | 100 | 100 | 8.0 | - |
| FDf/FZF109 | 350 | 60 | 65 | - | 235 | 5.0 | 120 | 120 | 9.0 | - |
| FDf/FZF129 | 450 | 70 | 75 | - | 336 | 5.0 | 140 | 140 | 9.0 | - |
| FDf/FZF149 | 450 | 90 | 100 | - | 336 | 5.0 | 170 | 170 | 10.0 | - |
| FDf/FZF169 | 550 | 110 | 120 | - | 427 | 5.0 | 210 | 210 | 10.0 | - |
| FDf/FZF189 | 660 | 120 | 160 | - | 517 | 6.0 | 210 | 210 | 11.0 | - |

With VLplus reinforced bearing system (G30)

| | | | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|------|----|
| FDf/FZF89 | 300 | 60 | 70 | 143 | 218 | 4.0 | 120 | 120 | 1.5 | 8 |
| FDf/FZF109 | 350 | 70 | 85 | 190 | 234 | 5.0 | 140 | 140 | 2.0 | 4 |
| FDf/FZF129 | 450 | 90 | 95 | - | 336 | 5.0 | 170 | 170 | 16.5 | - |
| FDf/FZF149 | 450 | 100 | 120 | 225 | 336 | 5.0 | 210 | 210 | 10.5 | 11 |
| FDf/FZF169 | 550 | 120 | 140 | - | 426 | 5.0 | 210 | 210 | 19.5 | - |

Notes regarding the design of the customer's interface for the hollow shaft design

FDAF./FZAF.



| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | f4 | l1 | l2 |
|----------------|-----|-----|-----|-----|-----|-----|------|------|------|
| FDAF./FZAF.29 | 120 | 25 | 40 | - | 70 | 3.0 | 20.0 | 24.0 | - |
| FDAF./FZAF.39 | 160 | 30 | 45 | 80 | 102 | 3.5 | 24.0 | 2.0 | 29.5 |
| FDAF./FZAF.49 | 200 | 35 | 50 | 90 | 120 | 3.5 | 25.0 | 4.0 | 30.5 |
| FDAF./FZAF.69 | 250 | 40 | 55 | 104 | 165 | 4.0 | 23.5 | 2.0 | 29.5 |
| FDAF./FZAF.79 | 250 | 40 | 55 | 104 | 165 | 4.0 | 23.0 | 2.0 | 29.5 |
| FDAF./FZAF.89 | 300 | 50 | 70 | 135 | 215 | 4.0 | 37.0 | 2.0 | 44.5 |
| FDAF./FZAF.109 | 350 | 60 | 85 | 184 | 210 | 5.0 | 36.0 | 13.0 | 45.0 |
| FDAF./FZAF.129 | 450 | 70 | 95 | 184 | 336 | 5.0 | 41.5 | 16.5 | 48.5 |
| FDAF./FZAF.149 | 450 | 90 | 120 | 214 | 330 | 5.0 | 41.0 | 10.5 | 50.0 |
| FDAF./FZAF.169 | 550 | 100 | 140 | 254 | 426 | 5.0 | 56.0 | 14.5 | 56.0 |
| FDAF./FZAF.189 | 660 | 120 | 160 | 306 | 518 | 6.0 | 66.0 | 6.0 | 62.0 |

With VLplus reinforced bearing system (G30)

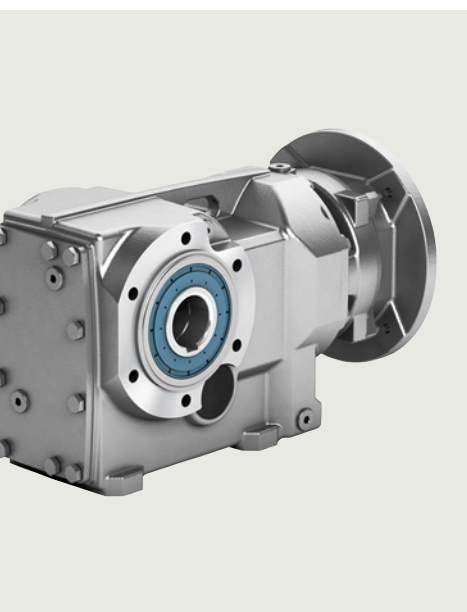
| | | | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|---|------|----|
| FDAF./FZAF.89 | 300 | 50 | 70 | 143 | 218 | 4.0 | 0 | 1.5 | 8 |
| FDAF./FZAF.109 | 350 | 60 | 85 | 190 | 234 | 5.0 | 0 | 2.0 | 4 |
| FDAF./FZAF.129 | 450 | 70 | 95 | - | 336 | 5.0 | 0 | 16.5 | - |
| FDAF./FZAF.149 | 450 | 90 | 120 | 225 | 330 | 5.0 | 0 | 10.5 | 11 |
| FDAF./FZAF.169 | 550 | 100 | 140 | - | 426 | 5.0 | 0 | 14.5 | - |

Parallel shaft gearboxes

Notizen

4

Bevel gearboxes



| | | | |
|-------------|---|-------------|--------------------------------------|
| 5/2 | Orientation | 5/31 | Dimensional drawings |
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| 5/18 | Selection and ordering data | 5/169 | Bevel tandem gearbox with adapter K5 |
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| 5/39 | Bevel gearbox B.39 | 5/175 | Protective cover for hollow shaft |
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| 5/51 | Bevel gearbox K.49 | | |
| 5/55 | Bevel gearbox K.69 | | |
| 5/59 | Bevel gearbox K.79 | | |
| 5/63 | Bevel gearbox K.89 | | |
| 5/68 | Bevel gearbox K.109 | | |
| 5/73 | Bevel gearbox K.129 | | |
| 5/78 | Bevel gearbox K.149 | | |
| 5/83 | Bevel gearbox K.169 | | |
| 5/88 | Bevel gearbox K.189 | | |
| | <u>Adapter K2 for mounting an IEC motor</u> | | |
| 5/92 | B..29 to B..49 and K..39 to K..189 | | |
| | <u>KS adapter exclusively for mounting defined Siemens servo motors</u> | | |
| 5/95 | Bevel gearbox B.19 | | |
| 5/99 | Bevel gearbox B.29 | | |
| 5/103 | Bevel gearbox B.39 | | |
| 5/107 | Bevel gearbox B.49 | | |
| 5/111 | Bevel gearbox K.39 | | |
| 5/115 | Bevel gearbox K.49 | | |
| 5/119 | Bevel gearbox K.69 | | |
| 5/123 | Bevel gearbox K.79 | | |
| 5/127 | Bevel gearbox K.89 | | |
| 5/132 | Bevel gearbox K.109 | | |
| 5/137 | Bevel gearbox K.129 | | |
| 5/142 | Bevel gearbox K.149 | | |
| 5/147 | Bevel gearbox K.169 | | |
| 5/152 | Bevel gearbox K.189 | | |
| | <u>Adapter K8 for mounting a servo motor</u> | | |
| 5/156 | K..109 to K..189 | | |
| | <u>Adapter K5 for mounting a NEMA motor</u> | | |
| 5/157 | B..29 to B..49 and K..39 to K..189 | | |
| | <u>Adapter K3 for mounting a NEMA motor</u> | | |
| 5/159 | B..29 to B..49 and K..39 to K..189 | | |
| | <u>Adapter A with free output shaft</u> | | |
| 5/161 | B..29 to B..49 and K..39 to K..189 | | |
| | <u>Adapter AZ with free output shaft and centering</u> | | |
| 5/163 | B..29 to B..49 and K..39 to K..189 | | |

Bevel gearboxes

Orientation

Innomotics SG bevel gearbox B

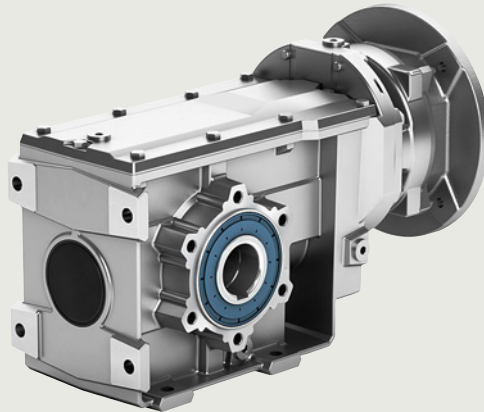


Fig. 5/1 Bevel gearbox B

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|-----------------------|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i - | P_1 kW |
| B19 ... B49 (2-stage) | 4 | 50 ... 450 | 3.5 ... 59 | 7.5 |

Innomotics SG bevel gearbox K

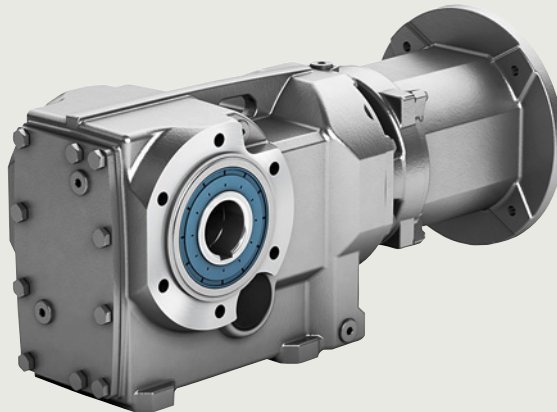


Fig. 5/2 Bevel gearbox K

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|------------------------|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i - | P_1 kW |
| K39 ... K189 (3-stage) | 10 | 150 ... 19500 | 5.7 ... 237 | 200 |

Innomotics SG bevel gearboxes are available in the following versions:

Transmission stages

- 2-stage or 3-stage bevel gearboxes
- 5-stage or 6-stage bevel gearboxes for very low output speeds

Designs

- Shaft-mounted design
- Flange-mounted design with or without VLplus reinforced bearing systems
- Design with integrated housing flange
- Foot-mounted design

Mounting

- Hollow shaft with feather key
- Hollow shaft with splined shaft
- Hollow shaft with shrink disk
- Hollow shaft with ShaftMount assembly system
- Solid shaft with and without feather key

For 2-stage bevel gearboxes B, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. | |
|--------------|-------|----------|----------|----------------------|-----------|----------|---------|-----|-----|-----|-----|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | KS | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | | 3.2 | 5.2 | 6.2 | | 10.2 | |
| | | | | | kgm^2 | | | 4.1 | | | | | |
| | | | | | | | | 4.2 | | | | | |
| B.19 | | | | | | | | | | | | | |
| 42.10 | 34 | 50 | 3880 | 13.0 | 0.02 | 3410/81 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ A2 |
| 37.28 | 39 | 50 | 3700 | 13.5 | 0.03 | 671/18 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ X1 |
| 32.39 | 45 | 50 | 3510 | 13.6 | 0.04 | 583/18 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ W1 |
| 29.44 | 49 | 50 | 3380 | 13.6 | 0.04 | 265/9 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ V1 |
| 25.06 | 58 | 50 | 3170 | 13.7 | 0.06 | 451/18 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ U1 |
| 22.78 | 64 | 50 | 3050 | 13.7 | 0.08 | 205/9 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ T1 |
| 19.86 | 73 | 50 | 2890 | 13.9 | 0.09 | 715/36 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ S1 |
| 17.78 | 82 | 50 | 2770 | 14.0 | 0.12 | 160/9 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ R1 |
| 15.79 | 92 | 50 | 2640 | 14.1 | 0.14 | 1705/108 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ Q1 |
| 14.57 | 100 | 50 | 2550 | 14.1 | 0.17 | 1705/117 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ P1 |
| 12.66 | 115 | 50 | 2410 | 14.4 | 0.19 | 1595/126 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ N1 |
| 11.00 | 132 | 50 | 2270 | 14.1 | 0.19 | 11/1 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ M1 |
| 9.93 | 146 | 50 | 2190 | 14.2 | 0.25 | 715/72 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ L1 |
| 9.35 | 155 | 50 | 2160 | 14.2 | 0.29 | 1430/153 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ K1 |
| 8.15 | 178 | 47 | 2110 | 14.6 | 0.33 | 220/27 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ J1 |
| 7.87 | 184 | 38 | 2160 | 21.4 | 0.14 | 1472/187 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ H1 |
| 6.99 | 207 | 38 | 2100 | 21.7 | 0.17 | 713/102 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ G1 |
| 6.45 | 225 | 39 | 2060 | 21.6 | 0.20 | 1426/221 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ F1 |
| 5.61 | 258 | 37 | 1990 | 22.3 | 0.22 | 667/119 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ E1 |
| 4.87 | 298 | 35 | 1930 | 21.6 | 0.24 | 414/85 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ D1 |
| 4.40 | 330 | 34 | 1880 | 22.0 | 0.32 | 299/68 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ C1 |
| 4.14 | 350 | 33 | 1850 | 22.0 | 0.37 | 1196/289 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ B1 |
| 3.61 | 402 | 31 | 1780 | 22.8 | 0.43 | 184/51 | ✓ | | | | | | 2KJ3500 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

Article No. supplement

| | | | | | | | | | | | | | |
|-----------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | |
| Adapter size | KS | A | E | H | K | M | N | 1 | | | | | |
| | | B | F | J | | | | | | | | | |
| | | C | G | | | | | | | | | | |
| | | D | | | | | | | | | | | |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | |

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | | | | |
|----------|-----------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-------------|-----|-----|--|--|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | |

B.29

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|-----|-----|------|------|------|----------|---|---|---|---|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------|
| 46.85 | 31 | 110 | 4130 | 10.6 | 0.04 | 1265/27 | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ B2 |
| 41.56 | 35 | 110 | 4130 | 11.0 | 0.05 | 374/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ A2 |
| 36.06 | 40 | 110 | 4130 | 11.1 | 0.06 | 649/18 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ X1 |
| 32.78 | 44 | 110 | 4130 | 11.1 | 0.07 | 295/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ W1 |
| 28.11 | 52 | 110 | 4130 | 11.2 | 0.09 | 253/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ V1 |
| 25.56 | 57 | 110 | 4130 | 11.2 | 0.11 | 230/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ U1 |
| 22.41 | 65 | 110 | 4130 | 11.4 | 0.13 | 605/27 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ T1 |
| 20.00 | 72 | 110 | 4130 | 11.4 | 0.16 | 20/1 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ S1 |
| 17.82 | 81 | 110 | 4130 | 11.5 | 0.19 | 1925/108 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ R1 |
| 16.45 | 88 | 110 | 4130 | 11.5 | 0.23 | 1925/117 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ Q1 |
| 14.40 | 101 | 110 | 4020 | 11.7 | 0.28 | 605/42 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ P1 |
| 12.63 | 115 | 110 | 3800 | 12.0 | 0.27 | 341/27 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ N1 |
| 11.46 | 127 | 110 | 3650 | 12.1 | 0.38 | 275/24 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ M1 |
| 10.78 | 135 | 110 | 3560 | 12.1 | 0.44 | 550/51 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ L1 |
| 9.51 | 152 | 110 | 3370 | 11.8 | 0.50 | 770/81 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ K1 |
| 8.25 | 176 | 110 | 3160 | 12.0 | 0.67 | 33/4 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ J1 |
| 7.84 | 185 | 75 | 3350 | 16.5 | 0.41 | 345/44 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ H1 |
| 7.38 | 196 | 75 | 3260 | 16.5 | 0.48 | 1380/187 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ G1 |
| 6.51 | 223 | 75 | 3100 | 16.1 | 0.54 | 644/99 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ F1 |
| 5.65 | 257 | 75 | 2920 | 16.3 | 0.73 | 621/110 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ E1 |
| 5.07 | 286 | 74 | 2900 | 18.9 | 0.60 | 345/68 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ D1 |
| 4.78 | 303 | 74 | 2830 | 18.9 | 0.70 | 1380/289 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ C1 |
| 4.21 | 344 | 74 | 2680 | 18.2 | 0.82 | 644/153 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ B1 |
| 3.65 | 397 | 73 | 2550 | 18.6 | 1.10 | 621/170 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | 2KJ3501 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|-------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | | | 1 |
| | | B | | | F | J | N | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | E | | | | | 8 | |
| | K5 | A | | B | C | | D | E | F | | G | H | | | | | 5 | |
| K3 | A | | B | C | | D | E | F | | | | | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | | | | | | | | | | | | | | |
|--------------|-------|----------|----------|----------------------|-----------|----------|-------------|-----|----|-----|-----------------|-----------------|-----------------|-----------------|-----|-----|-----|-----|-----|-------------|-----|-----|--|--|-----|--|--|--|--|--|--|--|-------------------------------------|--|---------------------------|---------------------------|--|--|--|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | | | (Article No. supplement, see below) | | | | | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | kgm^2 | | KS | 3.1 | | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | 813 | 816 | | | 818 | | | | | | | | | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | | | | | | | | | |
| B.39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 56.36 | 26 | 250 | 6980 | 8.5 | 0.06 | 4565/81 | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ A2 | | | | |
| 50.11 | 29 | 210 | 6980 | 8.8 | 0.08 | 451/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ X1 | | | |
| 44.00 | 33 | 250 | 6980 | 8.9 | 0.09 | 44/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ W1 | | | |
| 40.00 | 36 | 230 | 6980 | 8.9 | 0.11 | 40/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ V1 | | | |
| 34.22 | 42 | 250 | 6980 | 8.9 | 0.13 | 308/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ U1 | | | |
| 31.11 | 47 | 250 | 6980 | 8.9 | 0.16 | 280/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ T1 | | | |
| 27.50 | 53 | 250 | 6980 | 9.0 | 0.20 | 55/2 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ S1 | | | |
| 25.00 | 58 | 250 | 6980 | 9.0 | 0.26 | 25/1 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ R1 | | | |
| 21.90 | 66 | 250 | 6720 | 9.2 | 0.30 | 2365/108 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ Q1 | | | |
| 20.21 | 72 | 250 | 6490 | 9.2 | 0.36 | 2365/117 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ P1 | | | |
| 17.90 | 81 | 250 | 6160 | 9.3 | 0.43 | 2255/126 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ N1 | | | |
| 14.90 | 97 | 250 | 5680 | 9.5 | 0.58 | 715/48 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ M1 | | | |
| 14.02 | 103 | 250 | 5520 | 9.5 | 0.67 | 715/51 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ L1 | | | |
| 12.56 | 115 | 250 | 5260 | 9.6 | 0.75 | 2035/162 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ K1 | | | |
| 10.69 | 136 | 240 | 4960 | 9.8 | 0.98 | 385/36 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ J1 | | | |
| 9.17 | 158 | 230 | 4690 | 10.1 | 1.29 | 55/6 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ H1 | | | |
| 7.89 | 184 | 220 | 4550 | 10.3 | 1.66 | 1705/216 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ G1 | | | |
| 6.60 | 220 | 200 | 4590 | 15.1 | 0.94 | 897/136 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ F1 | | | |
| 6.21 | 233 | 200 | 4550 | 15.1 | 1.08 | 1794/289 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ E1 | | | |
| 5.56 | 261 | 200 | 4460 | 15.5 | 1.26 | 851/153 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ D1 | | | |
| 4.74 | 306 | 200 | 4330 | 16.0 | 1.69 | 161/34 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ C1 | | | |
| 4.06 | 357 | 200 | 4190 | 16.5 | 2.30 | 69/17 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ B1 | | | |
| 3.50 | 414 | 192 | 4050 | 17.1 | 3.00 | 713/204 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | ✓ ²⁾ | | | | | | | | | | | | | | | | | | | | | | 2KJ3502 - ■ A0 ■ - 0 ■ A1 | | | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|---|---|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | 2 | |
| | KS | A | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 1 | |
| | | A | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 1 | |
| | K8 | | | | | | | | | | | | | C | D | E | | | | | | | | | | | | 8 |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | | | | | | | 5 | | | | | | |
| | K3 | A | B | C | D | E | F | | | | | | | | | | | | | | 3 | | | | | | | |
| | A/AZ* | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | 9 | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | | | | | | | | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|----|-----|-----|-----|------|-----|-----|-----|-----|-----|-------------|--|--|--|--|--|--|--|--|-------------------------------------|--|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | (Article No. supplement, see below) | | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | 3.2 | | 5.2 | 6.2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K5 | | 4.1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K3 | | 4.2 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | | |

| B.49 | | | | | | | | | | | | | | | | | | | | Article No. | | | | | | | | | |
|-------|-----|-----|------|------|------|----------|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|-------------|--|--|--|--|--|--|--|--|---------------------|
| 59.28 | 24 | 450 | 9510 | 8.3 | 0.19 | 1067/18 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 C2 |
| 53.89 | 27 | 450 | 9120 | 8.3 | 0.23 | 485/9 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 B2 |
| 45.83 | 32 | 450 | 8480 | 8.3 | 0.28 | 275/6 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 A2 |
| 41.67 | 35 | 450 | 8120 | 8.3 | 0.34 | 125/3 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 X1 |
| 37.18 | 39 | 450 | 7710 | 8.4 | 0.40 | 4015/108 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 W1 |
| 33.33 | 44 | 450 | 7320 | 8.4 | 0.48 | 100/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 V1 |
| 30.05 | 48 | 450 | 6970 | 8.4 | 0.56 | 3245/108 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 U1 |
| 27.74 | 52 | 450 | 6710 | 8.4 | 0.67 | 3245/117 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 T1 |
| 25.32 | 57 | 450 | 6420 | 8.5 | 0.80 | 1595/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 S1 |
| 21.01 | 69 | 450 | 5850 | 8.6 | 1.03 | 3025/144 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 R1 |
| 19.77 | 73 | 450 | 5670 | 8.6 | 1.18 | 3025/153 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 Q1 |
| 18.67 | 78 | 450 | 5510 | 8.6 | 1.34 | 3025/162 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 P1 |
| 15.89 | 91 | 450 | 5060 | 8.7 | 1.66 | 143/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 N1 |
| 13.61 | 107 | 450 | 4660 | 8.9 | 2.10 | 245/18 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 M1 |
| 11.97 | 121 | 450 | 4340 | 9.0 | 2.50 | 2585/216 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 L1 |
| 10.10 | 144 | 450 | 3930 | 9.2 | 3.30 | 2090/207 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 K1 |
| 8.80 | 165 | 450 | 3620 | 9.7 | 4.40 | 44/5 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 J1 |
| 8.29 | 175 | 330 | 4540 | 14.1 | 1.52 | 2255/272 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 H1 |
| 7.80 | 186 | 330 | 4410 | 14.1 | 1.74 | 2255/289 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 G1 |
| 7.37 | 197 | 330 | 4290 | 14.1 | 1.97 | 2255/306 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 F1 |
| 6.27 | 231 | 330 | 3970 | 14.4 | 2.50 | 533/85 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 E1 |
| 5.37 | 270 | 330 | 3700 | 14.8 | 3.30 | 2009/374 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 D1 |
| 4.72 | 307 | 330 | 3690 | 15.1 | 4.10 | 1927/408 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 C1 |
| 3.98 | 364 | 330 | 3660 | 15.6 | 5.40 | 1558/391 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 B1 |
| 3.47 | 418 | 325 | 3610 | 17.0 | 7.20 | 1476/425 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | | 2KJ3503 - A0 - 0 A1 |

¹⁾ Only in conjunction with reduced-backlash version
²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|--|--|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | 2 | | | | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | 1 | | | |
| | | B | | | F | J | | N | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | | D | | E | | | | | 8 | | | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | 5 | | | | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | 3 | | | | | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | 9 | | | | | |

Adapter type
Gearbox mounting type A, B, F or H see page 9/40

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | | | |
|----------|-----------------------|------------------------|-------------------------|-----------------|-----------------------|------------------------|---------|----|----|----|-----------------|-----------------|-----------------|-----|-----|-----|-----|-----|-----|--|-------------|--|--|--|--|--|--|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{FR2} | φ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | kgm ² | | KS | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K5 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K3 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | | | | | | | | | | | | | | | | | | | |
| K.39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 157.32 | 9.2 | 220 | 6080 | 7.3 | 0.04 | 3933/25 | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ J2 |
| 139.54 | 10 | 220 | 6080 | 7.4 | 0.05 | 17442/125 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ H2 |
| 121.07 | 12 | 220 | 6080 | 7.4 | 0.06 | 30267/250 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ G2 |
| 110.06 | 13 | 220 | 6080 | 7.4 | 0.07 | 30267/275 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ F2 |
| 94.39 | 15 | 220 | 6080 | 7.4 | 0.09 | 11799/125 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ E2 |
| 85.81 | 17 | 220 | 6080 | 7.4 | 0.11 | 23598/275 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ D2 |
| 75.24 | 19 | 220 | 6080 | 7.5 | 0.12 | 1881/25 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ C2 |
| 67.16 | 22 | 220 | 6080 | 7.5 | 0.15 | 18468/275 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ B2 |
| 59.85 | 24 | 220 | 6080 | 7.5 | 0.18 | 1197/20 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ A2 |
| 55.25 | 26 | 220 | 6080 | 7.5 | 0.22 | 3591/65 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ X1 |
| 48.37 | 30 | 220 | 6080 | 7.6 | 0.26 | 16929/350 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ W1 |
| 42.41 | 34 | 220 | 5790 | 7.7 | 0.24 | 5301/125 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ V1 |
| 38.47 | 38 | 220 | 5540 | 7.7 | 0.34 | 1539/40 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ U1 |
| 36.21 | 40 | 220 | 5390 | 7.7 | 0.40 | 3078/85 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ T1 |
| 31.92 | 45 | 220 | 5080 | 7.6 | 0.44 | 798/25 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ S1 |
| 27.70 | 52 | 220 | 4760 | 7.7 | 0.60 | 13851/500 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ R1 |
| 26.89 | 54 | 220 | 4690 | 9.2 | 0.26 | 6804/253 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ Q1 |
| 23.97 | 60 | 220 | 4440 | 9.3 | 0.32 | 2205/92 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ P1 |
| 22.12 | 66 | 220 | 4270 | 9.3 | 0.38 | 6615/299 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ N1 |
| 19.37 | 75 | 220 | 4000 | 9.4 | 0.47 | 891/46 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ M1 |
| 16.98 | 85 | 220 | 3740 | 9.6 | 0.51 | 1953/115 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ L1 |
| 15.41 | 94 | 220 | 3560 | 9.7 | 0.67 | 2835/184 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ K1 |
| 14.50 | 100 | 220 | 3450 | 9.7 | 0.78 | 5670/391 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | | | | | | | | | | | | | 2KJ3504 - ■ A0 - 0 ■ J1 |

- ¹⁾ Only in conjunction with reduced-backlash version
- ²⁾ Not available for adapter A/AZ
- ³⁾ Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | 4 |
| | KS | | A | | E | H | K | M | | | | | | | | | | | | | | | | | | | | | 1 |
| | | | B | | F | J | N | | | | | | | | | | | | | | | | | | | | | | |
| | | | C | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | D | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | K8 | | | | | | | | | | | | C | D | E | | | | | | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | 9 | |

Adapter type
 Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | | | | |
|--------------|-------|----------|----------|-------------|-----------|----------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-----|-----|-----|-----|-----|-----|-------------|--|--|--|--|--|-------------------------------------|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | (Article No. supplement, see below) | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | | 813 | | 816 | | 818 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | |
| K.39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.78 | 113 | 220 | 3220 | 9.7 | 0.92 | 294/23 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ H1 | | |
| 11.09 | 131 | 220 | 2990 | 9.8 | 1.24 | 5103/460 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ G1 | | |
| 10.04 | 144 | 184 | 2880 | 14.7 | 0.55 | 231/23 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ F1 | | |
| 8.81 | 165 | 183 | 2790 | 15.1 | 0.62 | 3038/345 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ E1 | | |
| 7.99 | 181 | 175 | 2810 | 15.3 | 0.80 | 735/92 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ D1 | | |
| 7.52 | 193 | 171 | 2810 | 15.3 | 0.92 | 2940/391 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ C1 | | |
| 6.63 | 219 | 161 | 2820 | 15.3 | 1.11 | 1372/207 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ B1 | | |
| 5.75 | 252 | 150 | 2810 | 15.4 | 1.49 | 1323/230 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | | | | | | | | | | | | 2KJ3504 - ■ ■ A0 ■ - 0 ■ A1 | | |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|----------|----------|----------|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | 4 | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | | 2 | | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | | B | | | F | J | N | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K8 | | | | | | | | | | C | | D | | E | | | | | | | | | | | | | | | 8 | | | |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | | | | | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | 9 | | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. (Article No. supplement, see below) | |
|-------------|------------------------------|------------------------------|-----------------------------|----------------------|---|------------------------|---------|-----|-----|----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|-----|--|---------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | ϕ ¹⁾ | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | | 315 |
| - | | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | 4.1 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |
| K.49 | | | | | | | | | | | | | | | | | | | | | | |
| 200.25 | 7.2 | 420 | 7820 | 6.7 | 0.06 | 12616/63 | ✓ | ✓ | | | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ J2 |
| 178.06 | 8.1 | 420 | 7820 | 6.8 | 0.07 | 6232/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ H2 |
| 156.34 | 9.3 | 420 | 7820 | 6.8 | 0.08 | 5472/35 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ G2 |
| 142.13 | 10 | 420 | 7820 | 6.8 | 0.10 | 10944/77 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ F2 |
| 121.60 | 12 | 420 | 7820 | 6.8 | 0.12 | 608/5 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ E2 |
| 110.55 | 13 | 420 | 7820 | 6.8 | 0.14 | 1216/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ D2 |
| 97.71 | 15 | 420 | 7710 | 6.8 | 0.17 | 684/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ C2 |
| 88.83 | 16 | 420 | 7370 | 6.8 | 0.22 | 6840/77 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ B2 |
| 77.81 | 19 | 420 | 6910 | 6.9 | 0.25 | 1634/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ A2 |
| 71.82 | 20 | 420 | 6640 | 6.9 | 0.30 | 6536/91 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ X1 |
| 63.59 | 23 | 420 | 6250 | 6.9 | 0.37 | 3116/49 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ W1 |
| 52.93 | 27 | 420 | 5680 | 7.0 | 0.50 | 741/14 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ V1 |
| 49.82 | 29 | 420 | 5500 | 7.0 | 0.58 | 5928/119 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ U1 |
| 44.63 | 32 | 420 | 5190 | 7.0 | 0.65 | 2812/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ T1 |
| 38.00 | 38 | 420 | 4740 | 7.1 | 0.84 | 38/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ S1 |
| 32.57 | 45 | 420 | 4340 | 7.1 | 1.11 | 228/7 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ R1 |
| 28.05 | 52 | 420 | 3970 | 7.2 | 1.43 | 589/21 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ Q1 |
| 26.30 | 55 | 420 | 3820 | 8.6 | 0.52 | 55040/2093 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ P1 |
| 23.28 | 62 | 420 | 3540 | 8.7 | 0.65 | 26240/1127 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ N1 |
| 19.38 | 75 | 420 | 3130 | 8.8 | 0.90 | 3120/161 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ M1 |
| 18.24 | 79 | 420 | 3000 | 8.8 | 1.03 | 49920/2737 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ L1 |
| 16.34 | 89 | 420 | 2780 | 9.0 | 1.21 | 23680/1449 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ K1 |
| 13.91 | 104 | 420 | 2880 | 9.1 | 1.62 | 320/23 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ J1 |
| 11.93 | 122 | 420 | 3000 | 9.3 | 2.20 | 1920/161 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ H1 |
| 10.27 | 141 | 415 | 3080 | 9.5 | 2.90 | 4960/483 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ G1 |
| 9.75 | 149 | 275 | 2960 | 14.2 | 1.03 | 39/4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ F1 |
| 9.18 | 158 | 270 | 2980 | 14.2 | 1.19 | 156/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ E1 |
| 8.22 | 176 | 255 | 3010 | 14.5 | 1.40 | 74/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ D1 |
| 7.00 | 207 | 240 | 3030 | 14.8 | 1.88 | 7/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ C1 |
| 6.00 | 242 | 225 | 3020 | 15.2 | 2.50 | 6/1 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ B1 |
| 5.17 | 280 | 210 | 2990 | 15.4 | 3.30 | 31/6 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3505 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|--|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | 4 |
| Adapter size | K4 | see page 9/49 | | | | | | | | | | | | | 2 |
| | K2 | B | C | D | E | F | G | H | J | K | L | M | N | | |
| KS | | D | E | F | G | H | J | K | L | M | N | P | Q | | |
| | | A | | E | H | K | M | | | | | | | | |
| | | B | | F | J | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | |
| K8 | | | | | | | | C | D | E | | | | | 8 |
| K5 | | A | | B | C | | D | E | F | G | H | | | | 5 |
| K3 | | A | | B | C | | D | E | F | | | | | | 3 |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | 9 |

Adapter type

Gearbox mounting type **A, B, F or H** [see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. | | |
|---------------|-----------------------|------------------------|-------------------------|----------------------|-----------------------|------------------------|---------|----|----|----|----|-----|-----|-----------------|-----|-----|-----|-----|-----|-------------|-----|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{FR2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | KS | | | | | | | | | | | | | | | |
| 196.59 | 7.4 | 600 | 10800 | 6.4 | 0.17 | 14744/75 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ H2 |
| 178.72 | 8.1 | 600 | 10800 | 6.4 | 0.20 | 29488/165 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ G2 |
| 152.00 | 9.5 | 600 | 10800 | 6.4 | 0.25 | 152/1 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ F2 |
| 138.18 | 10 | 600 | 10800 | 6.4 | 0.30 | 1520/11 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ E2 |
| 123.29 | 12 | 600 | 10800 | 6.4 | 0.35 | 5548/45 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ D2 |
| 110.55 | 13 | 600 | 10800 | 6.4 | 0.42 | 1216/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ C2 |
| 99.64 | 15 | 600 | 10800 | 6.4 | 0.49 | 4484/45 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ B2 |
| 91.98 | 16 | 600 | 10600 | 6.4 | 0.58 | 17936/195 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ A2 |
| 83.96 | 17 | 600 | 10100 | 6.4 | 0.69 | 8816/105 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ X1 |
| 69.67 | 21 | 600 | 9300 | 6.5 | 0.87 | 209/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ W1 |
| 65.57 | 22 | 600 | 9030 | 6.5 | 1.01 | 3344/51 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ V1 |
| 61.93 | 23 | 600 | 8770 | 6.5 | 1.15 | 1672/27 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ U1 |
| 52.69 | 28 | 600 | 8090 | 6.5 | 1.40 | 3952/75 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ T1 |
| 45.14 | 32 | 600 | 7470 | 6.5 | 1.70 | 7448/165 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ S1 |
| 39.69 | 37 | 600 | 6980 | 6.5 | 2.10 | 1786/45 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ R1 |
| 33.48 | 43 | 580 | 6500 | 6.5 | 2.60 | 11552/345 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ Q1 |
| 29.18 | 50 | 555 | 6200 | 6.5 | 3.50 | 3648/125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ P1 |
| 26.05 | 56 | 600 | 5500 | 7.8 | 1.25 | 3751/144 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ N1 |
| 24.52 | 59 | 595 | 5340 | 7.8 | 1.44 | 3751/153 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ M1 |
| 23.15 | 63 | 585 | 5230 | 7.8 | 1.63 | 3751/162 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ L1 |
| 19.70 | 74 | 555 | 4950 | 8.0 | 2.10 | 4433/225 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ K1 |
| 16.88 | 86 | 530 | 4680 | 8.0 | 2.60 | 1519/90 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ J1 |
| 14.84 | 98 | 515 | 4430 | 8.0 | 3.30 | 16027/1080 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ H1 |
| 12.52 | 116 | 490 | 4170 | 8.0 | 4.30 | 12958/1035 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ G1 |
| 10.91 | 133 | 470 | 3960 | 8.0 | 5.70 | 1364/125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ F1 |
| 9.34 | 155 | 370 | 3640 | 13.0 | 2.40 | 3224/345 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ E1 |
| 8.01 | 181 | 365 | 3330 | 13.0 | 3.10 | 6076/759 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ D1 |
| 7.04 | 206 | 365 | 3210 | 13.0 | 3.90 | 1457/207 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ C1 |
| 5.94 | 244 | 345 | 3350 | 13.0 | 5.10 | 9424/1587 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ B1 |
| 5.18 | 280 | 330 | 3420 | 13.0 | 6.80 | 2976/575 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3507 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | |
|------------------------|--------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/49 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | 2 |
| | KS | A | | | E | F | H | K | M | | | | | | 1 |
| | | B | | | F | J | | | | | | | | | |
| | | C | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | |
| | K8 | | | | | | | | | C | | D | E | 8 | |
| K5 | | A | | B | C | | D | E | F | | G | H | 5 | | |
| K3 | | A | | B | C | | D | E | F | | | | 3 | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | 9 | | |

Adapter type

Gearbox mounting type **A, B, F or H**

[see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | | | | | | | | | | | | | |
|---------|-------|----------|----------|-------------|-----------|----------|--|---------|----|----|-----|-----|-----|-----|------|-----|-----|-----|-----|-------------|-----|-----|--|--|-----|--|--|--|--|--|--|-------------------------------------|--|--|--|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | (Article No. supplement, see below) | | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | | | | | | | | |
| | | | | | | | | K5 | | | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | KS | | | | 3.1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | 3.2 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | | 813 | | | 816 | | | | 818 | | | | | | | | | | |
| | | | | | | | | K5 | | 56 | 140 | 180 | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | | | | | | | | | |
| | | | | | | | | K3 | | 56 | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | | | | | | | |

| K.79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-----|-----|-------|------|------|------------|---|---|---|---|---|---|---|---|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------|
| 244.25 | 5.9 | 820 | 13900 | 5.7 | 0.17 | 175861/720 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ J2 |
| 222.05 | 6.5 | 820 | 13900 | 5.7 | 0.20 | 175861/792 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ H2 |
| 188.85 | 7.7 | 820 | 13900 | 5.7 | 0.25 | 9065/48 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ G2 |
| 171.69 | 8.4 | 820 | 13900 | 5.7 | 0.31 | 45325/264 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ F2 |
| 153.18 | 9.5 | 820 | 13900 | 5.8 | 0.35 | 132349/864 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ E2 |
| 137.35 | 11 | 820 | 13900 | 5.8 | 0.42 | 9065/66 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ D2 |
| 123.80 | 12 | 820 | 13900 | 5.8 | 0.50 | 106967/864 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ C2 |
| 114.28 | 13 | 820 | 13900 | 5.8 | 0.59 | 106967/936 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ B2 |
| 104.32 | 14 | 820 | 13900 | 5.8 | 0.70 | 7511/72 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ A2 |
| 86.56 | 17 | 820 | 13900 | 5.8 | 0.89 | 99715/1152 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ X1 |
| 81.47 | 18 | 820 | 13900 | 5.8 | 1.02 | 99715/1224 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ W1 |
| 76.94 | 19 | 820 | 13900 | 5.8 | 1.16 | 99715/1296 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ V1 |
| 65.47 | 22 | 820 | 13900 | 5.9 | 1.42 | 23569/360 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ U1 |
| 56.08 | 26 | 820 | 13900 | 5.9 | 1.73 | 88837/1584 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ T1 |
| 49.31 | 29 | 820 | 13900 | 5.9 | 2.10 | 85211/1728 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ S1 |
| 41.60 | 35 | 800 | 14000 | 6.0 | 2.70 | 34447/828 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ R1 |
| 36.26 | 40 | 770 | 14000 | 6.1 | 3.60 | 1813/50 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ Q1 |
| 32.78 | 44 | 820 | 13900 | 7.2 | 0.94 | 6293/192 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ P1 |
| 27.20 | 53 | 800 | 14000 | 7.3 | 1.23 | 83545/3072 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ N1 |
| 25.60 | 57 | 785 | 14000 | 7.3 | 1.41 | 83545/3264 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ M1 |
| 24.17 | 60 | 770 | 14000 | 7.3 | 1.60 | 83545/3456 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ L1 |
| 20.57 | 70 | 740 | 14100 | 7.4 | 2.00 | 19747/960 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ K1 |
| 17.62 | 82 | 715 | 13800 | 7.5 | 2.60 | 74431/4224 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ J1 |
| 15.49 | 94 | 695 | 13300 | 7.6 | 3.20 | 71393/4608 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ H1 |
| 13.07 | 111 | 665 | 12600 | 7.8 | 4.20 | 28861/2208 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ G1 |
| 11.39 | 127 | 645 | 12000 | 8.3 | 5.50 | 4557/400 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ F1 |
| 10.51 | 138 | 445 | 12600 | 10.4 | 2.30 | 1209/115 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ E1 |
| 9.01 | 161 | 450 | 11900 | 10.6 | 3.00 | 4557/506 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ D1 |
| 7.92 | 183 | 450 | 11300 | 10.8 | 3.70 | 1457/184 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ C1 |
| 6.68 | 217 | 455 | 10900 | 11.1 | 4.90 | 3534/529 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ B1 |
| 5.82 | 249 | 430 | 10700 | 12.1 | 6.60 | 3348/575 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | | | | | | | 2KJ3508 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version
²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | | | | 2 | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| | | B | | | F | J | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | D | E | | | | | | | | | | | | | | | | | | | | 8 |
| | K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | | | | | | | 5 |
| K3 | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | | | | | 3 | | | | |
| A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | | | | 9 | |

Adapter type
Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | | Article No. (Article No. supplement, see below) | | |
|---------------|--------------|----------------|---------------|-------------|---|-------------|---|---------|----|----|----|----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|--|-----|---------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | $\phi^{1)}$ | J_G 10 ⁻⁴ kgm ² | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | | 315 | |
| - | - | - | - | - | - | - | - | K5 | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | 813 | | 816 | | | 818 | | |
| | | | | | | | | K3 | | | | | | | 210 | 250 | 280 | | 320 | 360 | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | |
| K.89 | | | | | | | | | | | | | | | | | | | | | | | | |
| 231.80 | 6.3 | 1600 | 18100 | 5.6 | 0.42 | 10199/44 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ K2 |
| 210.72 | 6.9 | 1600 | 18100 | 5.6 | 0.51 | 50995/242 | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ J2 |
| 189.01 | 7.7 | 1600 | 18100 | 5.6 | 0.71 | 149695/792 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ H2 |
| 169.94 | 8.5 | 1600 | 18100 | 5.6 | 0.80 | 41125/242 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ G2 |
| 153.70 | 9.4 | 1600 | 18100 | 5.6 | 0.88 | 60865/396 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ F2 |
| 141.88 | 10 | 1600 | 18100 | 5.6 | 1.05 | 60865/429 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ E2 |
| 129.96 | 11 | 1600 | 18100 | 5.6 | 1.37 | 17155/132 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ D2 |
| 109.04 | 13 | 1600 | 18100 | 5.6 | 1.45 | 57575/528 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ C2 |
| 102.63 | 14 | 1600 | 18100 | 5.6 | 1.66 | 57575/561 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ B2 |
| 94.16 | 15 | 1600 | 18100 | 5.6 | 1.81 | 27965/297 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ A2 |
| 82.25 | 18 | 1600 | 18100 | 5.6 | 2.60 | 329/4 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ X1 |
| 73.64 | 20 | 1600 | 18100 | 5.6 | 3.20 | 106925/1452 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ W1 |
| 64.39 | 23 | 1600 | 18100 | 5.6 | 3.70 | 50995/792 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ V1 |
| 55.27 | 26 | 1600 | 18100 | 5.6 | 4.10 | 27965/506 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ U1 |
| 48.85 | 30 | 1600 | 18100 | 5.6 | 5.20 | 16121/330 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ T1 |
| 41.54 | 35 | 1570 | 18100 | 5.6 | 6.60 | 8225/198 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ S1 |
| 39.29 | 37 | 1600 | 18100 | 7.0 | 1.86 | 11315/288 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ R1 |
| 32.96 | 44 | 1600 | 18100 | 7.0 | 2.10 | 37975/1152 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ Q1 |
| 31.03 | 47 | 1600 | 18100 | 7.0 | 2.40 | 37975/1224 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ P1 |
| 28.46 | 51 | 1600 | 18100 | 7.0 | 2.70 | 18445/648 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ N1 |
| 24.86 | 58 | 1600 | 18100 | 7.1 | 3.80 | 2387/96 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ M1 |
| 22.26 | 65 | 1600 | 18100 | 7.1 | 4.70 | 70525/3168 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ L1 |
| 19.46 | 75 | 1560 | 17900 | 7.1 | 5.70 | 33635/1728 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ K1 |
| 16.71 | 87 | 1480 | 17200 | 7.1 | 6.80 | 18445/1104 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ J1 |
| 14.77 | 98 | 1420 | 16600 | 7.1 | 8.60 | 10633/720 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ H1 |
| 12.56 | 115 | 1330 | 16300 | 7.1 | 11.00 | 5425/432 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ G1 |
| 10.76 | 135 | 1250 | 16100 | 7.1 | 15.00 | 775/72 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ F1 |
| 10.51 | 138 | 845 | 16100 | 10.8 | 6.40 | 6727/640 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ E1 |
| 9.02 | 161 | 800 | 15400 | 10.8 | 7.70 | 33201/3680 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ D1 |
| 7.97 | 182 | 770 | 14800 | 10.8 | 9.80 | 31899/4000 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ C1 |
| 6.78 | 214 | 720 | 14500 | 10.8 | 13.00 | 217/32 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ B1 |
| 5.81 | 250 | 675 | 14200 | 10.8 | 17.00 | 93/16 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | 2KJ3510 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | |
|------------------------|--------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 see page 9/49 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | 2 |
| | KS | A | | E | H | J | K | M | | | | | | | 1 |
| | | B | | F | J | | | | | | | | | | |
| | | C | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | | E | 8 | |
| | K5 | | A | | B | C | | D | E | F | | G | H | 5 | |
| | K3 | | A | | B | C | | D | E | F | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | 9 | |

Adapter type

Gearbox mounting type **A, B, F or H**

[see page 9/40](#)

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | |
|--------------|-------|----------|----------|----------------------|------------------|-------------|--|---------|----|-----|----|-----|-----|-----|------|-----|-----------------|-----|-----|-----|-----|-------------|-----|--|--|-------------------------------------|--|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | | K2 | | | | | | | | | | | | | | | | | | | |
| | | | | | kgm ² | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | |
| | | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | |
| | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | 813 | | 816 | | | | 818 | | | | |
| | | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | 320 | 360 | | | | | | |
| | | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | |
| K.109 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216.65 | 6.7 | 2900 | 24500 | 5.6 | 1.27 | 107242/495 | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3511 - A0 - 0 H2 | |
| 195.60 | 7.4 | 2900 | 24500 | 5.6 | 1.37 | 118336/605 | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3511 - A0 - 0 G2 | |
| 177.43 | 8.2 | 2900 | 24500 | 5.6 | 1.61 | 35131/198 | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3511 - A0 - 0 F2 | |
| 163.78 | 8.9 | 2900 | 24500 | 5.6 | 1.9 | 70262/429 | | | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3511 - A0 - 0 E2 | |
| 148.88 | 9.7 | 2900 | 24500 | 5.6 | 2.2 | 57319/385 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3511 - A0 - 0 D2 | |
| 126.07 | 12 | 2900 | 24500 | 5.6 | 2.6 | 5547/44 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 C2 | |
| 118.65 | 12 | 2900 | 24500 | 5.6 | 2.6 | 22188/187 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 B2 | |
| 109.57 | 13 | 2900 | 24500 | 5.6 | 4.1 | 14792/135 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 A2 | |
| 97.49 | 15 | 2900 | 24500 | 5.6 | 5.0 | 53621/550 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 X1 | |
| 86.59 | 17 | 2900 | 24500 | 5.7 | 6.0 | 31433/363 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 W1 | |
| 77.51 | 19 | 2900 | 24500 | 5.7 | 5.9 | 153467/1980 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 V1 | |
| 66.26 | 22 | 2900 | 24500 | 5.7 | 6.8 | 251464/3795 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 U1 | |
| 59.17 | 25 | 2900 | 24500 | 5.8 | 8.6 | 7396/125 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 T1 | |
| 52.29 | 28 | 2900 | 24500 | 5.8 | 9.7 | 25886/495 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 S1 | |
| 45.89 | 32 | 2900 | 24500 | 5.8 | 14 | 159014/3465 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 R1 | |
| 39.95 | 36 | 2820 | 23900 | 5.8 | 17 | 151618/3795 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 Q1 | |
| 34.15 | 42 | 2710 | 22700 | 5.8 | 21 | 118336/3465 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 P1 | |
| 29.23 | 50 | 2620 | 21500 | 5.8 | 27 | 7396/253 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 N1 | |
| 24.98 | 58 | 2380 | 21000 | 6.9 | 9.9 | 163744/6555 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3511 - A0 - 0 M1 | |
| 22.31 | 65 | 2380 | 20000 | 7.1 | 13 | 52976/2375 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 L1 | |
| 19.71 | 74 | 2380 | 18900 | 7.1 | 15 | 16856/855 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 K1 | |
| 17.30 | 84 | 2400 | 17800 | 7.1 | 20 | 14792/855 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 J1 | |
| 15.06 | 96 | 2310 | 17500 | 7.1 | 25 | 98728/6555 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 H1 | |
| 12.87 | 113 | 2200 | 17500 | 7.1 | 33 | 11008/855 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 G1 | |
| 11.02 | 132 | 2100 | 17400 | 7.2 | 43 | 4816/437 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 F1 | |
| 10.45 | 139 | 1260 | 17600 | 10.8 | 17 | 784/75 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 E1 | |
| 9.17 | 158 | 1270 | 16700 | 10.8 | 23 | 688/75 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 D1 | |
| 7.99 | 181 | 1280 | 16300 | 10.8 | 29 | 4592/575 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 C1 | |
| 6.83 | 212 | 1300 | 16000 | 10.8 | 38 | 512/75 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 B1 | |
| 5.84 | 248 | 1300 | 15700 | 11.0 | 49 | 672/115 | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | | | | 2KJ3511 - A0 - 0 A1 | |

¹⁾ Only in conjunction with reduced-backlash version
²⁾ Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | 2 |
| | KS | A | E | H | J | K | M | | | | | | | | | | | | | | | | | | 1 | |
| | | B | F | J | | | | | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | | C | D | E | | | | | | | | | | | 8 | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | 5 | |
| | K3 | A | B | C | D | E | F | | | | | | | | | | | | | | | | | 3 | | |
| | A/AZ* | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | Gearbox | | | | | | | Adapter | | | | | | | | | | | | | Article No. (Article No. supplement, see below) | | |
|---------|---------|--------------|----------------|---------------|----------------------|---|----------|---------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|--|-----|-----|
| | i | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10 ⁻⁴ kgm ² | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | 280 | 315 |
| | | | | | | | | K2 | | | | | | | | | | | | | | | |
| | | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | |
| | | | | | | | | | 4.1 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | 320 | 360 | | | |
| | | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | 280 | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | |

| K.129 | | | | | | | | | | | | | | | Article No. | | | | | | | | | |
|---------------|-----|------|-------|-----|-----|--------------|--|--|--|---|---|---|---|---|-------------|---|---|-----------------|--|--|--|--|--|---------------------|
| 228.30 | 6.4 | 4400 | 37600 | 6.3 | 3.3 | 30821/135 | | | | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3512 - A0 - 0 J2 |
| 210.74 | 6.9 | 4400 | 37600 | 6.3 | 3.9 | 123284/585 | | | | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3512 - A0 - 0 H2 |
| 194.04 | 7.5 | 4400 | 37600 | 6.3 | 4.5 | 8732/45 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 G2 |
| 165.47 | 8.8 | 4400 | 37600 | 6.3 | 5.6 | 5957/36 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 F2 |
| 155.74 | 9.3 | 4400 | 37600 | 6.3 | 6.4 | 23828/153 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 E2 |
| 144.53 | 10 | 4400 | 37600 | 6.3 | 7.0 | 58534/405 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 D2 |
| 127.77 | 11 | 4400 | 37600 | 6.3 | 8.4 | 9583/75 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 C2 |
| 114.06 | 13 | 4400 | 37600 | 6.3 | 10 | 56462/495 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 B2 |
| 102.64 | 14 | 4400 | 37600 | 6.3 | 12 | 27713/270 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 A2 |
| 89.09 | 16 | 4400 | 37600 | 6.3 | 14 | 92204/1035 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3512 - A0 - 0 X1 |
| 80.12 | 18 | 4400 | 37600 | 6.3 | 17 | 30044/375 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3512 - A0 - 0 W1 |
| 70.03 | 21 | 4400 | 37600 | 6.3 | 19 | 18907/270 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3512 - A0 - 0 V1 |
| 62.49 | 23 | 4400 | 36200 | 6.4 | 23 | 2812/45 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 U1 |
| 55.05 | 26 | 4400 | 34300 | 6.4 | 27 | 11396/207 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 T1 |
| 48.24 | 30 | 4400 | 32400 | 6.4 | 33 | 6512/135 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 S1 |
| 42.04 | 34 | 4400 | 30500 | 6.4 | 39 | 14504/345 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 R1 |
| 38.37 | 38 | 4400 | 29200 | 6.9 | 45 | 1036/27 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 Q1 |
| 33.03 | 44 | 4400 | 27300 | 7.0 | 55 | 11396/345 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 P1 |
| 31.55 | 46 | 4400 | 26700 | 7.0 | 23 | 3944/125 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3512 - A0 - 0 N1 |
| 27.58 | 53 | 4400 | 25000 | 7.0 | 27 | 1241/45 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3512 - A0 - 0 M1 |
| 24.61 | 59 | 4400 | 23700 | 7.1 | 33 | 2584/105 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 L1 |
| 21.68 | 67 | 4270 | 22700 | 7.1 | 40 | 1496/69 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 K1 |
| 19.00 | 76 | 4140 | 21700 | 7.1 | 50 | 5984/315 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 J1 |
| 16.56 | 88 | 4020 | 20600 | 7.2 | 62 | 1904/115 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 H1 |
| 15.11 | 96 | 3940 | 20000 | 7.2 | 72 | 136/9 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 G1 |
| 13.01 | 111 | 3810 | 19000 | 7.2 | 91 | 1496/115 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 F1 |
| 11.80 | 123 | 2830 | 21400 | 9.5 | 46 | 119680/10143 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 E1 |
| 10.34 | 140 | 2850 | 20100 | 9.6 | 57 | 95744/9261 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 D1 |
| 9.01 | 161 | 2760 | 19500 | 9.7 | 71 | 4352/483 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 C1 |
| 8.22 | 176 | 2680 | 19500 | 9.8 | 83 | 10880/1323 | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 B1 |
| 7.08 | 205 | 2530 | 19500 | 9.9 | 107 | 23936/3381 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | | 2KJ3512 - A0 - 0 A1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

Article No. supplement

| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | |
|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adapter size | see page 9/49 | | | | | | | | | | | | | | | | | | | |
| | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 4 | | |
| | K2 | | | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | 2 |
| | KS | A | B | C | D | E | F | G | H | J | K | L | M | N | | | | | 1 | |
| | | B | C | D | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | D | E | | | | | 8 | | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | | 5 | | | |
| | K3 | A | B | C | D | E | F | | | | | | | | 3 | | | | | |
| | A/AZ* | | | | | D | E | F | G | H | J | K | L | M | N | | | | | 9 |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | Article No. | | | | |
|---------------|-------|----------|----------|----------------------|-----------|--------------|---------|----|-----|-----|-----------------|-----------------|-----|------|-----|-----|-----|-----------------|-------------|-----|--|--|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | ϕ ¹⁾ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} | - | K2 | | | | | | | | | | | | | | | | |
| | | | | | kgm^2 | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | | | | | | | |
| | | | | | | | | | 4.1 | | | | | | | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | 818 | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | |
| K.149 | | | | | | | | | | | | | | | | | | | | | | | |
| 237.03 | 6.1 | 8000 | 65000 | 5.3 | 7.1 | 83433/352 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 J2 |
| 202.86 | 7.1 | 8000 | 65000 | 5.3 | 9.0 | 285621/1408 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 H2 |
| 190.92 | 7.6 | 8000 | 65000 | 5.3 | 10 | 285621/1496 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 G2 |
| 178.97 | 8.1 | 8000 | 65000 | 5.3 | 11 | 188993/1056 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 F2 |
| 158.65 | 9.1 | 8000 | 65000 | 5.3 | 14 | 558453/3520 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 E2 |
| 140.93 | 10 | 8000 | 64100 | 5.3 | 16 | 17052/121 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 D2 |
| 127.16 | 11 | 8000 | 61400 | 5.3 | 19 | 89523/704 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 C2 |
| 112.68 | 13 | 8000 | 58400 | 5.3 | 23 | 456141/4048 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | 2KJ3513 - A0 - 0 B2 |
| 99.79 | 15 | 8000 | 55600 | 5.4 | 26 | 439089/4400 | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3513 - A0 - 0 A2 |
| 88.81 | 16 | 8000 | 52900 | 5.4 | 31 | 1421/16 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3513 - A0 - 0 X1 |
| 79.59 | 18 | 8000 | 50400 | 5.4 | 37 | 14007/176 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3513 - A0 - 0 W1 |
| 70.56 | 21 | 8000 | 47900 | 5.4 | 43 | 285621/4048 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3513 - A0 - 0 V1 |
| 62.28 | 23 | 8000 | 45300 | 5.4 | 52 | 5481/88 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 U1 |
| 54.76 | 26 | 8000 | 42700 | 5.4 | 63 | 55419/1012 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 T1 |
| 49.60 | 29 | 8000 | 40800 | 5.4 | 70 | 8729/176 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 S1 |
| 43.18 | 34 | 8000 | 38200 | 5.4 | 85 | 174783/4048 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 R1 |
| 35.40 | 41 | 7850 | 35100 | 5.5 | 110 | 80997/2288 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 Q1 |
| 32.33 | 45 | 7760 | 33900 | 6.1 | 49 | 12673/392 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3513 - A0 - 0 P1 |
| 28.66 | 51 | 7630 | 32200 | 6.1 | 59 | 36917/1288 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3513 - A0 - 0 N1 |
| 25.30 | 57 | 7420 | 30900 | 6.1 | 73 | 4959/196 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 M1 |
| 22.25 | 65 | 7210 | 29500 | 6.2 | 89 | 7163/322 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 L1 |
| 20.15 | 72 | 7070 | 28400 | 6.2 | 103 | 23693/1176 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 K1 |
| 17.54 | 83 | 6890 | 28500 | 6.3 | 128 | 22591/1288 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 J1 |
| 14.38 | 101 | 6660 | 29000 | 6.3 | 174 | 10469/728 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 H1 |
| 14.15 | 102 | 4140 | 31100 | 8.0 | 79 | 17328/1225 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 G1 |
| 12.44 | 117 | 4030 | 29800 | 8.0 | 97 | 150176/12075 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 F1 |
| 11.26 | 129 | 3950 | 28800 | 8.1 | 113 | 124184/11025 | | | | | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 E1 |
| 9.81 | 148 | 3850 | 28400 | 8.2 | 141 | 118408/12075 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 D1 |
| 8.04 | 180 | 3720 | 28000 | 8.3 | 194 | 54872/6825 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 C1 |
| 6.82 | 213 | 3630 | 27500 | 8.4 | 266 | 89528/13125 | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | | | 2KJ3513 - A0 - 0 B1 |

¹⁾ Only in conjunction with reduced-backlash version

²⁾ Not available for adapter A/AZ

Article No. supplement

| Shaft design | 1 or 9 | | | | | | | | | | | | | | | | | | | see page 9/49 | | | |
|--------------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|---------------|---|--|--|
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | 4 | | | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | 2 | | |
| | KS | A | | | E | H | K | M | | | | | | | | | | | | | 1 | | |
| | | B | | | F | J | | N | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | C | | D | E | | | | | | | | | 8 | | |
| | K5 | A | | B | C | | D | E | F | | G | H | | | | | | | | | 5 | | |
| | K3 | A | | B | C | | D | E | F | | | | | | | | | | | | 3 | | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | 9 | | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | | Adapter | | | | | | | | | | | | | | | Article No. | | | | | | |
|---------------|-------|----------|----------|-------------|------------------|--------------|--|-------------|----|----|-----|-----|-----------------|-----------------|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-------------|--|-------------------------------------|--|--|--|---------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | (Article No. supplement, see below) | | | | |
| - | rpm | Nm | N | ' | 10^{-4} | - | | K2 | | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | 280 | 315 | | | | | | |
| | | | | | kgm ² | | | KS | | | 3.1 | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | | |
| | | | | | | | | | | | 3.2 | 5.2 | 6.2 | 10.2 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 4.1 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | K8 | | | | | | | | | | 813 | | 816 | | 818 | | | | | | | |
| | | | | | | | | K5 | | | 56 | 140 | 180 | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | | |
| | | | | | | | | K3 | | | 56 | 140 | 180 | | 210 | 250 | 280 | | | | | | | | | | | | |
| | | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | |
| K.169 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 223.30 | 6.5 | 13000 | 70000 | 5.2 | 18 | 273319/1224 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ F2 |
| 208.35 | 7.0 | 13000 | 70000 | 5.2 | 20 | 135013/648 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ E2 |
| 185.23 | 7.8 | 13000 | 70000 | 5.2 | 24 | 29637/160 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ D2 |
| 166.31 | 8.7 | 13000 | 70000 | 5.2 | 28 | 16465/99 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ C2 |
| 150.55 | 9.6 | 13000 | 70000 | 5.2 | 33 | 260147/1728 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ B2 |
| 132.24 | 11 | 13000 | 70000 | 5.2 | 40 | 437969/3312 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ A2 |
| 119.83 | 12 | 13000 | 70000 | 5.2 | 47 | 431383/3600 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ X1 |
| 106.72 | 14 | 13000 | 70000 | 5.2 | 54 | 23051/216 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ W1 |
| 95.83 | 15 | 13000 | 70000 | 5.2 | 65 | 36223/378 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ V1 |
| 85.51 | 17 | 13000 | 70000 | 5.2 | 75 | 141599/1656 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ U1 |
| 76.23 | 19 | 13000 | 70000 | 5.2 | 88 | 16465/216 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ T1 |
| 67.61 | 21 | 13000 | 66900 | 5.3 | 103 | 55981/828 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ S1 |
| 62.07 | 23 | 13000 | 64500 | 5.3 | 114 | 62567/1008 | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ R1 |
| 54.68 | 27 | 13000 | 60900 | 5.3 | 134 | 181115/3312 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ Q1 |
| 44.86 | 32 | 13000 | 55700 | 5.3 | 180 | 55981/1248 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ P1 |
| 39.33 | 37 | 13000 | 52300 | 5.3 | 198 | 141599/3600 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ N1 |
| 30.75 | 47 | 13000 | 46500 | 5.4 | 309 | 42809/1392 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ M1 |
| 29.43 | 49 | 13000 | 45500 | 5.8 | 133 | 25721/874 | | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ L1 |
| 27.02 | 54 | 13000 | 43500 | 5.9 | 151 | 1513/56 | | | | | | | | | ✓ ²⁾ | ✓ ²⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ K1 |
| 23.80 | 61 | 13000 | 40800 | 5.9 | 181 | 83215/3496 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ J1 |
| 19.53 | 74 | 12700 | 40000 | 6.0 | 249 | 77163/3952 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ H1 |
| 17.12 | 85 | 12400 | 40800 | 6.0 | 288 | 65059/3800 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ G1 |
| 13.39 | 108 | 11900 | 41300 | 6.2 | 457 | 59007/4408 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ F1 |
| 12.20 | 119 | 6760 | 38700 | 8.1 | 202 | 143990/11799 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ E1 |
| 10.01 | 145 | 6530 | 37800 | 8.3 | 280 | 22253/2223 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ D1 |
| 8.78 | 165 | 6360 | 37800 | 8.3 | 328 | 112574/12825 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ C1 |
| 6.86 | 211 | 6130 | 37300 | 8.8 | 523 | 34034/4959 | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3514 - ■ A0 ■ - 0 ■ B1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

Article No. supplement

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|--------------|---|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | | | | 2 |
| | KS | A | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | 1 |
| | K8 | | | | | | | | | | | | | | C | D | E | | | | | | | | | | | | 8 | |
| | K5 | A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | | | | | 5 | |
| | K3 | A | B | C | D | E | F | | | | | | | | | | | | | | | | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | | | | 9 | |

Adapter type

Gearbox mounting type **A, B, F or H** see page 9/40* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes
Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | | | | | | | Article No. | | | | | | |
|--------------|-----------------------|------------------------|------------------------|-----------------|-----------------------|------------------------|---------|-----|-----|-----|-----|-----|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-------------|---|-----|---|--|-------------------------------------|--|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | φ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ | - | K2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | | | | | | | | | | | |
| | | | | | | | | 4.1 | | | 5.2 | 6.2 | | 10.2 | | | | | | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | K8 | | | | | | | | | 813 | | 816 | | | | | 818 | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | 320 | 360 | | | | | | | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | 280 | | | | | | | | | | | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 | | | | | | | | | |
| K.189 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 199.51 | 7.3 | 19100 | 104000 | 4.8 | 37 | 186543/935 | | | | | | | √ ²⁾ | √ ²⁾ | √ | | | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ W1 | |
| 178.49 | 8.1 | 19500 | 104000 | 4.8 | 43 | 367164/2057 | | | | | | | √ ²⁾ | √ ²⁾ | √ | | | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ V1 | |
| 160.98 | 9 | 19500 | 104000 | 4.8 | 50 | 60207/374 | | | | | | | √ ²⁾ | √ ²⁾ | √ | | | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ U1 | |
| 142.28 | 10 | 19500 | 104000 | 4.8 | 62 | 611940/4301 | | | | | | | √ ²⁾ | √ ²⁾ | √ | | | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ T1 | |
| 130.05 | 11 | 19500 | 104000 | 4.8 | 73 | 55272/425 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ S1 | |
| 117.00 | 12 | 19500 | 104000 | 4.8 | 86 | 43757/374 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ R1 | |
| 104.56 | 14 | 19500 | 104000 | 4.8 | 100 | 19552/187 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | √ | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ Q1 | |
| 94.55 | 15 | 19500 | 104000 | 4.8 | 119 | 406644/4301 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | √ | | | | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ P1 | |
| 83.44 | 17 | 19500 | 104000 | 4.8 | 140 | 15604/187 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | | | | | 2KJ3515 - ■ A0 ■ - 0 ■ N1 | |
| 74.35 | 20 | 19500 | 104000 | 4.8 | 164 | 319788/4301 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | | | | 2KJ3515 - ■ A0 ■ - 0 ■ M1 | |
| 67.36 | 22 | 19500 | 104000 | 4.8 | 182 | 12596/187 | | | | | | | √ ²⁾ | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | | 2KJ3515 - ■ A0 ■ - 0 ■ L1 | |
| 60.58 | 24 | 19500 | 104000 | 4.8 | 220 | 23688/391 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ K1 | |
| 50.34 | 29 | 19500 | 104000 | 4.8 | 273 | 122388/2431 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ J1 | |
| 44.76 | 32 | 19500 | 99100 | 4.8 | 334 | 209244/4675 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ H1 | |
| 35.67 | 41 | 19500 | 89900 | 4.9 | 455 | 193452/5423 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ G1 | |
| 28.39 | 51 | 19500 | 81300 | 5.0 | 586 | 153972/5423 | | | | | | | | | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ F1 | |
| 25.37 | 57 | 19500 | 77300 | 5.3 | 335 | 11088/437 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ E1 | |
| 21.09 | 69 | 19500 | 70900 | 5.4 | 439 | 5208/247 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ D1 | |
| 18.75 | 77 | 19500 | 67000 | 5.4 | 545 | 8904/475 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ C1 | |
| 14.94 | 97 | 19500 | 60000 | 5.6 | 786 | 8232/551 | | | | | | | | √ ²⁾ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ B1 | |
| 11.89 | 122 | 19500 | 61300 | 5.7 | 1109 | 6552/551 | | | | | | | | | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | | 2KJ3515 - ■ A0 ■ - 0 ■ A1 | |

1) Only in conjunction with reduced-backlash version
2) Not available for adapter A/AZ

| Article No. supplement | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | K | L | M | N | P | Q | | | | | | | | | | | | 2 |
| | KS | A | | | E | H | J | K | M | | | | | | | | | | | | | | | | | | 1 |
| | | B | | | F | J | | | N | | | | | | | | | | | | | | | | | | |
| | | C | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | K8 | | | | | | | | | | C | D | E | | | | | | | | | | | | | | 8 |
| K5 | | A | | B | C | | D | E | F | | G | H | | | | | | | | | | | | | | 5 | |
| K3 | | | A | | B | C | | D | E | F | | | | | | | | | | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | K | L | M | N | | | | | | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) | |
|-----------------|--------------|----------------|---------------|------------------|--|-----------------|---------|--------------------------|------------|------------|-----|--|-----------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | $\phi^{1)}$ ° | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | | 10.1 10.2 |
| K.39-D19 | | | | | | | | | | | | | |
| 6699 | 0.22 | 220 | 6080 | - | 0.11 | 167640192/25025 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ H1 |
| 5949 | 0.24 | 220 | 6080 | - | 0.13 | 13533453/2275 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ G1 |
| 5491 | 0.26 | 220 | 6080 | - | 0.16 | 162401436/29575 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ F1 |
| 4770 | 0.30 | 220 | 6080 | - | 0.17 | 75961962/15925 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ E1 |
| 4145 | 0.35 | 220 | 6080 | - | 0.18 | 47148804/11375 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ D1 |
| 3742 | 0.39 | 220 | 6080 | - | 0.22 | 1309689/350 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ C1 |
| 3522 | 0.41 | 220 | 6080 | - | 0.26 | 10477512/2975 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ B1 |
| 3070 | 0.47 | 220 | 6080 | - | 0.29 | 6985008/2275 | ✓ | | | | | | 2KJ3521 - ■ ■ A0 ■ - 0 ■ A1 |
| K.39-Z19 | | | | | | | | | | | | | |
| 3001 | 0.48 | 220 | 6080 | - | 0.02 | 975384/325 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ E2 |
| 2657 | 0.55 | 220 | 6080 | - | 0.03 | 4318434/1625 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ D2 |
| 2309 | 0.63 | 220 | 6080 | - | 0.04 | 3752082/1625 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ C2 |
| 2099 | 0.69 | 220 | 6080 | - | 0.05 | 7504164/3575 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ B2 |
| 1786 | 0.81 | 220 | 6080 | - | 0.07 | 2902554/162 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ A2 |
| 1624 | 0.89 | 220 | 6080 | - | 0.08 | 5805108/3575 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ X1 |
| 1416 | 1.0 | 220 | 6080 | - | 0.09 | 35397/25 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ W1 |
| 1267 | 1.1 | 220 | 6080 | - | 0.12 | 4530816/3575 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ V1 |
| 1125 | 1.3 | 220 | 6080 | - | 0.15 | 365769/325 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ U1 |
| 1039 | 1.4 | 220 | 6080 | - | 0.18 | 4389228/4225 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ T1 |
| 902 | 1.6 | 220 | 6080 | - | 0.20 | 2053026/2275 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ S1 |
| 784 | 1.8 | 220 | 6080 | - | 0.21 | 1274292/1625 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ R1 |
| 708 | 2.0 | 220 | 6080 | - | 0.27 | 35397/50 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ Q1 |
| 666 | 2.2 | 220 | 6080 | - | 0.32 | 283176/425 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ P1 |
| 581 | 2.5 | 220 | 6080 | - | 0.36 | 188784/325 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ N1 |
| 536 | 2.7 | 220 | 6080 | - | 0.19 | 243846/455 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ M1 |
| 466 | 3.1 | 220 | 6080 | - | 0.22 | 114057/245 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ L1 |
| 405 | 3.6 | 220 | 6080 | - | 0.23 | 70794/175 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ K1 |
| 365 | 4.0 | 220 | 6080 | - | 0.29 | 51129/140 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ J1 |
| 343.72 | 4.2 | 220 | 6080 | - | 0.35 | 204516/595 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ H1 |
| 329.29 | 4.4 | 220 | 6080 | - | 0.32 | 699732/2125 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ G1 |
| 287.07 | 5.1 | 220 | 6080 | - | 0.37 | 466488/1625 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ F1 |
| 264.86 | 5.5 | 220 | 6080 | - | 0.19 | 602547/2275 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ E1 |
| 230.07 | 6.3 | 220 | 6080 | - | 0.22 | 563673/2450 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ D1 |
| 199.92 | 7.3 | 220 | 6080 | - | 0.23 | 174933/875 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ C1 |
| 180.49 | 8.0 | 220 | 6080 | - | 0.30 | 252681/1400 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ B1 |
| 169.87 | 8.5 | 220 | 6080 | - | 0.35 | 505362/2975 | ✓ | | | | | | 2KJ3520 - ■ ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

Article No. supplement

| | | |
|-----------------------|--------------|-------------------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | KS | A B C D E F G H J K M N |
| Adapter type | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 |

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) | |
|-----------------|--------------|----------------|---------------|-------------|--|---------------|---------|--------------------------|------------|------------|-----|--|---------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | $\phi^{1)}$ | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | | 10.1 10.2 |
| K.49-D19 | | | | | | | | | | | | | |
| 9641 | 0.15 | 420 | 7820 | - | 0.08 | 67488/7 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ J1 |
| 8630 | 0.17 | 420 | 7820 | - | 0.11 | 8638464/1001 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ H1 |
| 7663 | 0.19 | 420 | 7820 | - | 0.13 | 697376/91 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ G1 |
| 7074 | 0.20 | 420 | 7820 | - | 0.16 | 8368512/1183 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ F1 |
| 6145 | 0.24 | 420 | 7820 | - | 0.17 | 3914304/637 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ E1 |
| 5340 | 0.27 | 420 | 7820 | - | 0.18 | 2429568/455 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ D1 |
| 4821 | 0.30 | 420 | 7820 | - | 0.22 | 33744/7 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ C1 |
| 4537 | 0.32 | 420 | 7820 | - | 0.26 | 539904/119 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ B1 |
| 3955 | 0.37 | 420 | 7820 | - | 0.29 | 359936/91 | ✓ | | | | | | 2KJ3523 - ■ A0 ■ - 0 ■ A1 |
| K.49-Z19 | | | | | | | | | | | | | |
| 3866 | 0.38 | 420 | 7820 | - | 0.02 | 150784/39 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ G2 |
| 3424 | 0.42 | 420 | 7820 | - | 0.03 | 222528/65 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ F2 |
| 2975 | 0.49 | 420 | 7820 | - | 0.04 | 193344/65 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ E2 |
| 2704 | 0.54 | 420 | 7820 | - | 0.05 | 386688/143 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ D2 |
| 2301 | 0.63 | 420 | 7820 | - | 0.07 | 149568/65 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ C2 |
| 2092 | 0.69 | 420 | 7820 | - | 0.08 | 299136/143 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ B2 |
| 1824 | 0.79 | 420 | 7820 | - | 0.09 | 1824/1 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ A2 |
| 1633 | 0.89 | 420 | 7820 | - | 0.12 | 233472/143 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ W1 |
| 1450 | 1.0 | 420 | 7820 | - | 0.15 | 18848/13 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ V1 |
| 1338 | 1.1 | 420 | 7820 | - | 0.18 | 226176/169 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ U1 |
| 1163 | 1.2 | 420 | 7820 | - | 0.20 | 105792/91 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ T1 |
| 1010 | 1.4 | 420 | 7820 | - | 0.21 | 65664/65 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ S1 |
| 912 | 1.6 | 420 | 7820 | - | 0.27 | 912/1 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ R1 |
| 858 | 1.7 | 420 | 7820 | - | 0.32 | 14592/17 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ Q1 |
| 748 | 1.9 | 420 | 7820 | - | 0.36 | 9728/13 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ P1 |
| 690 | 2.1 | 420 | 7820 | - | 0.19 | 188480/273 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ N1 |
| 600 | 2.4 | 420 | 7820 | - | 0.22 | 88160/147 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ M1 |
| 521 | 2.8 | 420 | 7820 | - | 0.23 | 3648/7 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ L1 |
| 470 | 3.1 | 420 | 7820 | - | 0.30 | 9880/21 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ K1 |
| 443 | 3.3 | 420 | 7820 | - | 0.35 | 158080/357 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ J1 |
| 437 | 3.3 | 420 | 7820 | - | 0.27 | 24453/56 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ H1 |
| 411 | 3.5 | 420 | 7820 | - | 0.32 | 48906/119 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ G1 |
| 358 | 4.1 | 420 | 7820 | - | 0.37 | 2508/7 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ F1 |
| 330.56 | 4.4 | 420 | 7820 | - | 0.20 | 32395/98 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ E1 |
| 287.15 | 5.0 | 420 | 7820 | - | 0.23 | 393965/1372 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ D1 |
| 249.52 | 5.8 | 420 | 7820 | - | 0.24 | 24453/98 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ C1 |
| 225.26 | 6.4 | 420 | 7820 | - | 0.31 | 176605/784 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ B1 |
| 212.01 | 6.8 | 420 | 7820 | - | 0.37 | 176605/833 | ✓ | | | | | | 2KJ3522 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

Article No. supplement

| | | |
|-----------------------|--------------|---------------------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | KS | A B C D E F G H J K M N 1 |
| Adapter type | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 |

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | Article No. (Article No. supplement, see below) | |
|-----------------|--------------|----------------|---------------|----------------------|--|---------------|---------|--------------------------|------------|------------|-----|--|---------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | ϕ ¹⁾ | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | | 10.1 10.2 |
| K.69-D19 | | | | | | | | | | | | | |
| 9641 | 0.15 | 600 | 10800 | - | 0.08 | 67488/7 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ J1 |
| 8630 | 0.17 | 600 | 10800 | - | 0.11 | 8638464/1001 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ H1 |
| 7663 | 0.19 | 600 | 10800 | - | 0.13 | 697376/91 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ G1 |
| 7074 | 0.20 | 600 | 10800 | - | 0.16 | 8368512/1183 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ F1 |
| 6145 | 0.24 | 600 | 10800 | - | 0.17 | 3914304/637 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ E1 |
| 5340 | 0.27 | 600 | 10800 | - | 0.18 | 2429568/455 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ D1 |
| 4821 | 0.30 | 600 | 10800 | - | 0.22 | 33744/7 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ C1 |
| 4537 | 0.32 | 600 | 10800 | - | 0.26 | 539904/119 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ B1 |
| 3955 | 0.37 | 600 | 10800 | - | 0.29 | 359936/91 | ✓ | | | | | | 2KJ3525 - ■ A0 ■ - 0 ■ A1 |
| K.69-Z19 | | | | | | | | | | | | | |
| 3866 | 0.38 | 600 | 10800 | - | 0.02 | 150784/39 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ F2 |
| 3424 | 0.42 | 600 | 10800 | - | 0.03 | 222528/65 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ E2 |
| 2975 | 0.49 | 600 | 10800 | - | 0.04 | 193344/65 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ D2 |
| 2704 | 0.54 | 600 | 10800 | - | 0.05 | 386688/143 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ C2 |
| 2301 | 0.63 | 600 | 10800 | - | 0.07 | 149568/65 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ B2 |
| 2092 | 0.69 | 600 | 10800 | - | 0.08 | 299136/143 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ A2 |
| 1824 | 0.79 | 600 | 10800 | - | 0.10 | 1824/1 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ W1 |
| 1633 | 0.89 | 600 | 10800 | - | 0.13 | 233472/143 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ V1 |
| 1450 | 1.0 | 600 | 10800 | - | 0.15 | 18848/13 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ U1 |
| 1338 | 1.1 | 600 | 10800 | - | 0.18 | 226176/169 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ T1 |
| 1163 | 1.2 | 600 | 10800 | - | 0.21 | 105792/91 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ S1 |
| 1010 | 1.4 | 600 | 10800 | - | 0.21 | 65664/65 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ R1 |
| 912 | 1.6 | 600 | 10800 | - | 0.27 | 912/1 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ Q1 |
| 858 | 1.7 | 600 | 10800 | - | 0.32 | 14592/17 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ P1 |
| 748 | 1.9 | 600 | 10800 | - | 0.37 | 9728/13 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ N1 |
| 690 | 2.1 | 600 | 10800 | - | 0.20 | 188480/273 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ M1 |
| 600 | 2.4 | 600 | 10800 | - | 0.23 | 88160/147 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ L1 |
| 521 | 2.8 | 600 | 10800 | - | 0.24 | 3648/7 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ K1 |
| 470 | 3.1 | 600 | 10800 | - | 0.31 | 9880/21 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ J1 |
| 443 | 3.3 | 600 | 10800 | - | 0.37 | 158080/357 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ H1 |
| 419 | 3.5 | 600 | 10800 | - | 0.38 | 147136/351 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ G1 |
| 387 | 3.7 | 600 | 10800 | - | 0.22 | 2850760/7371 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ F1 |
| 335.96 | 4.3 | 600 | 10800 | - | 0.25 | 1333420/3969 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ E1 |
| 291.94 | 5.0 | 600 | 10800 | - | 0.27 | 18392/63 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ D1 |
| 263.55 | 5.5 | 600 | 10800 | - | 0.35 | 149435/567 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ C1 |
| 248.05 | 5.8 | 600 | 10800 | - | 0.41 | 2390960/9639 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ B1 |
| 216.25 | 6.7 | 600 | 10800 | - | 0.48 | 367840/1701 | ✓ | | | | | | 2KJ3524 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | |
|------------------------|--------------|------------------|-------------|--------|---|--------|---|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | |
| Adapter size | KS | A B C D | E F G | H J | K | M N | 1 | |
| Adapter type | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | |

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | Article No. (Article No. supplement, see below) |
|-----------------|------------------------------|------------------------------|-----------------------------|----------------------|---|-----------------------------|---------|--------------------------|------------|------------|-----|--------------|--|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | ϕ ¹⁾ | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | |
| K.79-D19 | | | | | | | | | | | | | |
| 9522 | 0,15 | 820 | 13900 | - | 0,13 | 1485365/156 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ G1 |
| 8789 | 0,16 | 820 | 13900 | - | 0,16 | 1485365/169 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ F1 |
| 7635 | 0,19 | 820 | 13900 | - | 0,17 | 198505/26 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ E1 |
| 6634 | 0,22 | 820 | 13900 | - | 0,18 | 86247/13 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ D1 |
| 5989 | 0,24 | 820 | 13900 | - | 0,22 | 47915/8 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ C1 |
| 5637 | 0,26 | 820 | 13900 | - | 0,26 | 95830/17 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ B1 |
| 4914 | 0,30 | 820 | 13900 | - | 0,29 | 191660/39 | ✓ | | | | | | 2KJ3527 - ■ A0 ■ - 0 ■ A1 |
| K.79-Z19 | | | | | | | | | | | | | |
| 4804 | 0,30 | 820 | 13900 | - | 0,02 | 562030/117 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ F2 |
| 4254 | 0,34 | 820 | 13900 | - | 0,03 | 110593/26 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ E2 |
| 3696 | 0,39 | 820 | 13900 | - | 0,04 | 96089/26 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ D2 |
| 3360 | 0,43 | 820 | 13900 | - | 0,05 | 480445/143 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ C2 |
| 2859 | 0,51 | 820 | 13900 | - | 0,07 | 74333/26 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ B2 |
| 2599 | 0,56 | 820 | 13900 | - | 0,08 | 371665/143 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ A2 |
| 2266 | 0,64 | 820 | 13900 | - | 0,10 | 9065/4 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ W1 |
| 2029 | 0,71 | 820 | 13900 | - | 0,13 | 290080/143 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ V1 |
| 1801 | 0,81 | 820 | 13900 | - | 0,15 | 281015/156 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ U1 |
| 1663 | 0,87 | 820 | 13900 | - | 0,18 | 281015/169 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ T1 |
| 1444 | 1,0 | 820 | 13900 | - | 0,21 | 37555/26 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ S1 |
| 1255 | 1,2 | 820 | 13900 | - | 0,21 | 16317/13 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ R1 |
| 1133 | 1,3 | 820 | 13900 | - | 0,27 | 9065/8 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ Q1 |
| 1066 | 1,4 | 820 | 13900 | - | 0,32 | 18130/17 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ P1 |
| 930 | 1,6 | 820 | 13900 | - | 0,37 | 36260/39 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ N1 |
| 858 | 1,7 | 820 | 13900 | - | 0,20 | 200725/234 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ M1 |
| 745 | 1,9 | 820 | 13900 | - | 0,23 | 26825/36 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ L1 |
| 648 | 2,2 | 820 | 13900 | - | 0,24 | 1295/2 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ K1 |
| 585 | 2,5 | 820 | 13900 | - | 0,31 | 84175/144 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ J1 |
| 550 | 2,6 | 820 | 13900 | - | 0,37 | 84175/153 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ H1 |
| 521 | 2,8 | 820 | 13900 | - | 0,38 | 1096865/2106 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ G1 |
| 481 | 3,0 | 820 | 13900 | - | 0,22 | 24287725/50544 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ F1 |
| 417 | 3,5 | 820 | 13900 | - | 0,25 | 3245825/7776 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ E1 |
| 363 | 4,0 | 820 | 13900 | - | 0,27 | 156695/432 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ D1 |
| 327,46 | 4,4 | 820 | 13900 | - | 0,35 | 10185175/31104 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ C1 |
| 308,19 | 4,7 | 820 | 13900 | - | 0,41 | 10185175/33048 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ B1 |
| 268,68 | 5,4 | 820 | 13900 | - | 0,48 | 783475/2916 | ✓ | | | | | | 2KJ3526 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|--|--|--|--|--|---------------|---|---|---|---|---|
| Shaft design | 1 or 9 | | | | | | see page 9/49 | | | | | |
| Adapter size | KS | | | | | | A | E | H | K | M | 1 |
| | | | | | | | B | F | J | | N | |
| | | | | | | | C | G | | | | |
| | | | | | | | D | | | | | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | see page 9/40 | | | | | |

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|-----------------|-------|----------|----------|-------------|-------------------------------|-------------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.89-D39 | | | | | | | | | | | | | | | | |
| 9761 | 0.15 | 1600 | 18100 | - | 0.17 | 1577036825/161568 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3530 - ■ A0 ■ - 0 ■ E1 |
| 9010 | 0.16 | 1600 | 18100 | - | 0.21 | 121310525/13464 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3530 - ■ A0 ■ - 0 ■ D1 |
| 7888 | 0.18 | 1600 | 18100 | - | 0.25 | 6436885/816 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3530 - ■ A0 ■ - 0 ■ C1 |
| 6916 | 0.21 | 1600 | 18100 | - | 0.23 | 279360809/40392 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3530 - ■ A0 ■ - 0 ■ B1 |
| 6275 | 0.23 | 1600 | 18100 | - | 0.33 | 225290975/35904 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3530 - ■ A0 ■ - 0 ■ A1 |
| K.89-Z39 | | | | | | | | | | | | | | | | |
| 6101 | 0.24 | 1600 | 18100 | - | 0.06 | 86972795/14256 | ✓ | ✓ | | | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ F2 |
| 5425 | 0.27 | 1600 | 18100 | - | 0.07 | 8592493/1584 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ E2 |
| 4763 | 0.30 | 1600 | 18100 | - | 0.08 | 209573/44 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ D2 |
| 4330 | 0.33 | 1600 | 18100 | - | 0.10 | 1047865/242 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ C2 |
| 3705 | 0.39 | 1600 | 18100 | - | 0.12 | 1467011/396 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ B2 |
| 3368 | 0.43 | 1600 | 18100 | - | 0.14 | 7335055/2178 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3528 - ■ A0 ■ - 0 ■ A2 |
| 2977 | 0.49 | 1600 | 18100 | - | 0.17 | 1047865/352 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ W1 |
| 2706 | 0.54 | 1600 | 18100 | - | 0.22 | 5239325/1936 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ V1 |
| 2370 | 0.61 | 1600 | 18100 | - | 0.26 | 45058195/19008 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ U1 |
| 2188 | 0.66 | 1600 | 18100 | - | 0.31 | 3466015/1584 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ T1 |
| 1937 | 0.75 | 1600 | 18100 | - | 0.36 | 6137495/3168 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ S1 |
| 1612 | 0.90 | 1600 | 18100 | - | 0.48 | 13622245/8448 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ R1 |
| 1518 | 0.96 | 1600 | 18100 | - | 0.56 | 13622245/8976 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ Q1 |
| 1360 | 1.1 | 1600 | 18100 | - | 0.61 | 38771005/28512 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ P1 |
| 1158 | 1.3 | 1600 | 18100 | - | 0.79 | 7335055/6336 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ N1 |
| 992 | 1.5 | 1600 | 18100 | - | 1.04 | 1047865/1056 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ M1 |
| 854 | 1.7 | 1600 | 18100 | - | 1.32 | 32483815/38016 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ L1 |
| 705 | 2.1 | 1600 | 18100 | - | 0.61 | 45656975/64768 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ K1 |
| 663 | 2.2 | 1600 | 18100 | - | 0.70 | 45656975/68816 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ J1 |
| 594 | 2.4 | 1600 | 18100 | - | 0.79 | 129946775/218592 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3528 - ■ A0 ■ - 0 ■ H1 |

1) Only in conjunction with reduced-backlash version

2) Not available for adapter A/AZ

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | 4 |
| | K2 | | | D | E | F | G | H | J | | 2 |
| | KS | | A | | E | H | K | M | | | 1 |
| | | | B | | F | J | | N | | | |
| | | | C | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | 5 |
| K3 | A | | B | C | | D | E | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | 9 |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-----------------------|------------------------|------------------------|----------------------|-----------------------------------|------------------------|---------|----|-----|----|-----------------|-----------------|-----------------|------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.89-Z39 | | | | | | | | | | | | | | | | |
| 506 | 2.9 | 1600 | 18100 | - | 1.04 | 24584525/48576 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ G1 |
| 476 | 3.0 | 1600 | 18100 | - | 0.65 | 84791525/178112 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ F1 |
| 448 | 3.2 | 1600 | 18100 | - | 0.75 | 84791525/189244 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ E1 |
| 401 | 3.6 | 1600 | 18100 | - | 0.85 | 241329725/601128 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ D1 |
| 341.78 | 4.2 | 1600 | 18100 | - | 1.12 | 45656975/133584 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ C1 |
| 292.96 | 4.9 | 1600 | 18100 | - | 1.48 | 6522425/22264 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ B1 |
| 252.27 | 5.7 | 1600 | 18100 | - | 1.92 | 202195175/801504 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3528 - ■ A0 ■ - 0 ■ A1 |
| K.109-D39 | | | | | | | | | | | | | | | | |
| 13352 | 0.11 | 2900 | 24500 | - | 0.12 | 57881096/4335 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ G1 |
| 11918 | 0.12 | 2900 | 24500 | - | 0.15 | 2083719456/174845 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ F1 |
| 10621 | 0.14 | 2900 | 24500 | - | 0.17 | 101291918/9537 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ E1 |
| 9804 | 0.15 | 2900 | 24500 | - | 0.21 | 31166744/3179 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ D1 |
| 8583 | 0.17 | 2900 | 24500 | - | 0.25 | 12403092/1445 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ C1 |
| 7526 | 0.19 | 2900 | 24500 | - | 0.23 | 1794313976/238425 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ B1 |
| 6828 | 0.21 | 2900 | 24500 | - | 0.33 | 21705411/3179 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3532 - ■ A0 ■ - 0 ■ A1 |
| K.109-Z39 | | | | | | | | | | | | | | | | |
| 6638 | 0.22 | 2900 | 24500 | - | 0.06 | 55861988/8415 | ✓ | ✓ | | | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ F2 |
| 5903 | 0.25 | 2900 | 24500 | - | 0.07 | 27594476/4675 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ F2 |
| 5183 | 0.28 | 2900 | 24500 | - | 0.08 | 24229296/4675 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ E2 |
| 4712 | 0.31 | 2900 | 24500 | - | 0.10 | 48458592/10285 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ D2 |
| 4031 | 0.36 | 2900 | 24500 | - | 0.12 | 18845008/4675 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ C2 |
| 3665 | 0.40 | 2900 | 24500 | - | 0.14 | 37690016/10285 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3531 - ■ A0 ■ - 0 ■ B2 |
| 3239 | 0.45 | 2900 | 24500 | - | 0.17 | 3028662/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3531 - ■ A0 ■ - 0 ■ A2 |
| 2945 | 0.49 | 2900 | 24500 | - | 0.23 | 6057324/2057 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3531 - ■ A0 ■ - 0 ■ W1 |
| 2579 | 0.56 | 2900 | 24500 | - | 0.26 | 7235137/2805 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3531 - ■ A0 ■ - 0 ■ V1 |
| 2381 | 0.61 | 2900 | 24500 | - | 0.31 | 2226196/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ | ✓ ³⁾ | | | 2KJ3531 - ■ A0 ■ - 0 ■ U1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for A/AZ adapter
 3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | |
|------------------------|--------------|-------------|---|---|---|---|---|---|---|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | see page 9/49 | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | 4 | |
| | K2 | D E F G H J | | | | | | | | | 2 |
| | KS | A | | E | H | K | M | | | | 1 |
| | | B | | F | J | | N | | | | |
| | | C | | | | | | | | | |
| | | D | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | 5 | |
| K3 | A | | B | C | | D | E | | 3 | | |
| A/AZ* | D E F G H J | | | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|-------------|-------------------------------|------------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.109-Z39 | | | | | | | | | | | | | | | | |
| 2108 | 0.69 | 2900 | 24500 | - | 0.36 | 1971034/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ T1 |
| 1755 | 0.83 | 2900 | 24500 | - | 0.48 | 6562101/3740 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ S1 |
| 1651 | 0.88 | 2900 | 24500 | - | 0.57 | 26248404/15895 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ R1 |
| 1480 | 0.98 | 2900 | 24500 | - | 0.62 | 12451166/8415 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ Q1 |
| 1260 | 1.2 | 2900 | 24500 | - | 0.80 | 1177813/935 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ P1 |
| 1080 | 1.3 | 2900 | 24500 | - | 1.05 | 1009554/935 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ N1 |
| 930 | 1.6 | 2900 | 24500 | - | 1.34 | 5216029/5610 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ M1 |
| 767 | 1.9 | 2900 | 24500 | - | 0.63 | 13196313/17204 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ L1 |
| 722 | 2.0 | 2900 | 24500 | - | 0.73 | 52785252/73117 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ K1 |
| 647 | 2.2 | 2900 | 24500 | - | 0.83 | 8346386/12903 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ J1 |
| 551 | 2.6 | 2900 | 24500 | - | 1.09 | 2368569/4301 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ H1 |
| 519 | 2.8 | 2900 | 24500 | - | 1.40 | 88672493/170775 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ G1 |
| 428 | 3.4 | 2900 | 24500 | - | 0.73 | 24926369/58190 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ F1 |
| 403 | 3.6 | 2900 | 24500 | - | 0.84 | 11730056/29095 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ E1 |
| 361 | 4.0 | 2900 | 24500 | - | 0.97 | 283777124/785565 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ D1 |
| 307.54 | 4.7 | 2900 | 24500 | - | 1.28 | 26843782/87285 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ C1 |
| 263.61 | 5.5 | 2900 | 24500 | - | 1.70 | 7669652/29095 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ B1 |
| 227 | 6.4 | 2900 | 24500 | - | 2.20 | 59439803/261855 | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3531 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for A/AZ adapter

3) Only available for KS adapter

Article No. supplement

| | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | | | |
| C | | | | | | | | | | | | | | | | |
| K5 | A | | B | C | | D | E | | | | | | | | 5 | |
| | K3 | A | | B | C | | D | E | | | | | | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-----------------------|------------------------|------------------------|----------------------|-----------------------------------|------------------------|---------|-----|----|-----|-----------------|-------------------------------|-----|------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | 3.1 | | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | 3.2 | | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | K3 | 56 | | 140 | 180 | | | 210 | 250 | |
| | | | | | | | A/AZ | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| K.129-D39 | | | | | | | | | | | | | | | | |
| 14490 | 0.10 | 4400 | 40000 | - | 0.09 | 2494142287/172125 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3534 - ■ A0 ■ - 0 ■ H1 |
| 13173 | 0.11 | 4400 | 40000 | - | 0.10 | 4988284574/378675 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3534 - ■ A0 ■ - 0 ■ G1 |
| 11550 | 0.13 | 4400 | 40000 | - | 0.12 | 1192850659/103275 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ F1 |
| 10309 | 0.14 | 4400 | 40000 | - | 0.15 | 433763876/42075 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ E1 |
| 9188 | 0.16 | 4400 | 40000 | - | 0.18 | 759086783/82620 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ D1 |
| 8481 | 0.17 | 4400 | 40000 | - | 0.21 | 58391291/6885 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ C1 |
| 7425 | 0.20 | 4400 | 40000 | - | 0.25 | 170407237/22950 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ B1 |
| 6510 | 0.22 | 4400 | 40000 | - | 0.23 | 3361670039/516375 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3534 - ■ A0 ■ - 0 ■ A1 |
| K.129-Z39 | | | | | | | | | | | | | | | | |
| 5743 | 0.25 | 4400 | 37600 | - | 0.06 | 209316289/36450 | ✓ | ✓ | | | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ A2 |
| 5106 | 0.28 | 4400 | 37600 | - | 0.07 | 103397203/20250 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ X1 |
| 4483 | 0.32 | 4400 | 37600 | - | 0.09 | 5043766/1125 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ W1 |
| 4076 | 0.36 | 4400 | 37600 | - | 0.11 | 10087532/2475 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ V1 |
| 3487 | 0.42 | 4400 | 37600 | - | 0.13 | 35306362/10125 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ U1 |
| 3170 | 0.46 | 4400 | 37600 | - | 0.15 | 70612724/22275 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3533 - ■ A0 ■ - 0 ■ T1 |
| 2802 | 0.52 | 4400 | 37600 | - | 0.18 | 2521883/900 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ S1 |
| 2547 | 0.57 | 4400 | 37600 | - | 0.24 | 2521883/990 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ R1 |
| 2231 | 0.65 | 4400 | 37600 | - | 0.28 | 108440969/48600 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ Q1 |
| 2060 | 0.70 | 4400 | 37600 | - | 0.33 | 8341613/4050 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ P1 |
| 1824 | 0.79 | 4400 | 37600 | - | 0.39 | 14771029/8100 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ N1 |
| 1518 | 0.96 | 4400 | 37600 | - | 0.53 | 32784479/21600 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ M1 |
| 1429 | 1.0 | 4400 | 37600 | - | 0.61 | 32784479/22950 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ L1 |
| 1280 | 1.1 | 4400 | 37600 | - | 0.68 | 93309671/72900 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ K1 |
| 1090 | 1.3 | 4400 | 37600 | - | 0.88 | 17653181/16200 | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | | 2KJ3533 - ■ A0 ■ - 0 ■ J1 |

1) Only in conjunction with reduced-backlash version

2) Not available for A/AZ adapter

3) Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|--|---------------|---|
| Shaft design | 1 or 9 | | | | | | | | | | see page 9/49 | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | 4 | |
| | K2 | | | D | E | F | G | H | J | | 2 | |
| | KS | | A | | E | H | K | M | | | | 1 |
| | | | B | | F | J | | N | | | | |
| | | | C | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | 5 | |
| | K3 | | A | | B | C | | D | E | | 3 | |
| A/AZ* | | | D | E | F | G | H | J | | | 9 | |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | see page 9/40 | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|-------------|-------------------------------|-----------------|---------|----|-----|----|-----|-----------------|-------------------------------|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.129-Z39 | | | | | | | | | | | | | | | | |
| 934 | 1.6 | 4400 | 37600 | - | 1.16 | 2521883/2700 | | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ H1 |
| 804 | 1.8 | 4400 | 37600 | - | 1.48 | 78178373/97200 | | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ G1 |
| 664 | 2.2 | 4400 | 37600 | - | 0.85 | 21976409/33120 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ F1 |
| 625 | 2.3 | 4400 | 37600 | - | 0.98 | 21976409/35190 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ E1 |
| 560 | 2.6 | 4400 | 37600 | - | 1.13 | 62548241/111780 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ D1 |
| 476 | 3.0 | 4400 | 37600 | - | 1.51 | 11833451/24840 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ C1 |
| 408 | 3.6 | 4400 | 37600 | - | 2.00 | 1690493/4140 | | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ B1 |
| 352 | 4.1 | 4400 | 37600 | - | 2.60 | 52405283/149040 | | | | ✓ | ✓ | ✓ ²⁾ | ✓ ²⁾ ₃₎ | | | 2KJ3533 - ■ A0 ■ - 0 ■ A1 |
| K.149-D49 | | | | | | | | | | | | | | | | |
| 13575 | 0.11 | 8000 | 65000 | - | 0.12 | 23891273/1760 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3536 - ■ A0 ■ - 0 ■ L1 |
| 12341 | 0.12 | 8000 | 65000 | - | 0.14 | 23891273/1936 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3536 - ■ A0 ■ - 0 ■ K1 |
| 10908 | 0.13 | 8000 | 65000 | - | 0.17 | 30717351/2816 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3536 - ■ A0 ■ - 0 ■ J1 |
| 9917 | 0.15 | 8000 | 65000 | - | 0.22 | 153586755/15488 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3536 - ■ A0 ■ - 0 ■ H1 |
| 8686 | 0.17 | 8000 | 65000 | - | 0.26 | 146760677/16896 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3536 - ■ A0 ■ - 0 ■ G1 |
| 8018 | 0.18 | 8000 | 65000 | - | 0.31 | 146760677/18304 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3536 - ■ A0 ■ - 0 ■ F1 |
| 7099 | 0.20 | 8000 | 65000 | - | 0.37 | 19990657/2816 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3536 - ■ A0 ■ - 0 ■ E1 |
| 5909 | 0.25 | 8000 | 65000 | - | 0.50 | 133108521/22528 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3536 - ■ A0 ■ - 0 ■ D1 |
| 5561 | 0.26 | 8000 | 65000 | - | 0.59 | 7829913/1408 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3536 - ■ A0 ■ - 0 ■ C1 |
| 4983 | 0.29 | 8000 | 65000 | - | 0.66 | 126282443/25344 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3536 - ■ A0 ■ - 0 ■ B1 |
| 4242 | 0.34 | 8000 | 65000 | - | 0.86 | 23891273/5632 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3536 - ■ A0 ■ - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for A/AZ adapter

3) Only available for KS adapter

| Article No. supplement | | see page 9/49 | | | | | | | | | | | | | | |
|------------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | 5 | |
| | K3 | A | | B | C | | D | E | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-----------------------|------------------------|------------------------|----------------------|-----------------------------------|------------------------|---------|----|-----|----|-----|-----|-----------------|------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.149-Z49 | | | | | | | | | | | | | | | | |
| 4149 | 0.35 | 8000 | 65000 | - | 0.18 | 58423197/14080 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3535 - ■ A0 - 0 ■ B2 |
| 3772 | 0.38 | 8000 | 65000 | - | 0.22 | 58423197/15488 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3535 - ■ A0 - 0 ■ A2 |
| 3208 | 0.45 | 8000 | 65000 | - | 0.28 | 9034515/2816 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3535 - ■ A0 - 0 ■ X1 |
| 2917 | 0.5 | 8000 | 65000 | - | 0.34 | 45172575/15488 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3535 - ■ A0 - 0 ■ W1 |
| 2602 | 0.56 | 8000 | 65000 | - | 0.39 | 14655991/5632 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3535 - ■ A0 - 0 ■ V1 |
| 2333 | 0.62 | 8000 | 65000 | - | 0.47 | 9034515/3872 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3535 - ■ A0 - 0 ■ U1 |
| 2103 | 0.69 | 8000 | 65000 | - | 0.55 | 11845253/5632 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3535 - ■ A0 - 0 ■ T1 |
| 1941 | 0.75 | 8000 | 65000 | - | 0.66 | 35535759/18304 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3535 - ■ A0 - 0 ■ S1 |
| 1772 | 0.82 | 8000 | 65000 | - | 0.78 | 2495247/1408 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ R1 |
| 1470 | 0.99 | 8000 | 65000 | - | 1.00 | 3011505/2048 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ Q1 |
| 1384 | 1.0 | 8000 | 65000 | - | 1.16 | 3011505/2176 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ P1 |
| 1307 | 1.1 | 8000 | 65000 | - | 1.31 | 1003835/768 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ N1 |
| 1112 | 1.3 | 8000 | 65000 | - | 1.62 | 7829913/7040 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ M1 |
| 953 | 1.5 | 8000 | 65000 | - | 2.00 | 29512749/30976 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ L1 |
| 838 | 1.7 | 8000 | 65000 | - | 2.50 | 9436049/11264 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ K1 |
| 707 | 2.1 | 8000 | 65000 | - | 3.20 | 497553/704 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ J1 |
| 616 | 2.4 | 8000 | 65000 | - | 4.20 | 5420709/8800 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ H1 |
| 608 | 2.4 | 8000 | 65000 | - | 1.81 | 826413/1360 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ G1 |
| 574 | 2.5 | 8000 | 65000 | - | 2.00 | 275471/480 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ F1 |
| 488 | 3.0 | 8000 | 65000 | - | 2.60 | 10743369/22000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ E1 |
| 418 | 3.5 | 8000 | 65000 | - | 3.40 | 40494237/96800 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ D1 |
| 368 | 3.9 | 8000 | 65000 | - | 4.30 | 12947137/35200 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ C1 |
| 310.31 | 4.7 | 8000 | 65000 | - | 5.70 | 682689/2200 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ B1 |
| 270.46 | 5.4 | 8000 | 65000 | - | 7.50 | 7437717/27500 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3535 - ■ A0 - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version
 2) Not available for A/AZ adapter

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---|--|--|--|--|--|---|---------------|
| Shaft design | 1 or 9 | | | | | | | | | | | | | | | see page 9/49 |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | | | |
| | | | C | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | 5 | |
| | K3 | A | | B | C | | D | E | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | | | | | see page 9/40 |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | | |
|------------------|-----------------------|------------------------|------------------------|----------------------|-----------------------------------|------------------------|---------|----|-----|----|-----|-----|-----------------|-----------------|-------------|-------------------------------------|--|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) | |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | | |
| | | | | | | | | | 4.1 | | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | | |
| K.169-D49 | | | | | | | | | | | | | | | | | |
| 14931 | 0.10 | 13000 | 70000 | - | 0.22 | 315340973/21120 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3538 - A0 - 0 H1 | |
| 13078 | 0.11 | 13000 | 70000 | - | 0.26 | 13559661839/1036800 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3538 - A0 - 0 G1 | |
| 12072 | 0.12 | 13000 | 70000 | - | 0.31 | 13559661839/1123200 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3538 - A0 - 0 F1 | |
| 10689 | 0.14 | 13000 | 70000 | - | 0.38 | 12928979893/1209600 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3538 - A0 - 0 E1 | |
| 8896 | 0.16 | 13000 | 70000 | - | 0.51 | 4099432649/460800 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3538 - A0 - 0 D1 | |
| 8373 | 0.17 | 13000 | 70000 | - | 0.59 | 241143097/28800 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3538 - A0 - 0 C1 | |
| 7502 | 0.19 | 13000 | 70000 | - | 0.66 | 11667616001/1555200 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3538 - A0 - 0 B1 | |
| 6387 | 0.23 | 13000 | 70000 | - | 0.86 | 2207386811/345600 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3538 - A0 - 0 A1 | |
| K.169-Z49 | | | | | | | | | | | | | | | | | |
| 6248 | 0.23 | 13000 | 70000 | - | 0.19 | 1799298493/288000 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3537 - A0 - 0 C2 | |
| 5680 | 0.26 | 13000 | 70000 | - | 0.23 | 1799298493/316800 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3537 - A0 - 0 B2 | |
| 4831 | 0.30 | 13000 | 70000 | - | 0.28 | 18549469/3840 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3537 - A0 - 0 A2 | |
| 4391 | 0.33 | 13000 | 70000 | - | 0.34 | 18549469/4224 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3537 - A0 - 0 X1 | |
| 3918 | 0.37 | 13000 | 70000 | - | 0.40 | 1354111237/345600 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3537 - A0 - 0 W1 | |
| 3513 | 0.41 | 13000 | 70000 | - | 0.48 | 18549469/5280 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3537 - A0 - 0 V1 | |
| 3167 | 0.46 | 13000 | 70000 | - | 0.57 | 1094418671/374400 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3537 - A0 - 0 U1 | |
| 2923 | 0.50 | 13000 | 70000 | - | 0.67 | 1094418671/374400 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3537 - A0 - 0 T1 | |
| 2668 | 0.54 | 13000 | 70000 | - | 0.80 | 537934601/201600 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 S1 | |
| 2214 | 0.65 | 13000 | 70000 | - | 1.03 | 204044159/92160 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 R1 | |
| 2084 | 0.70 | 13000 | 70000 | - | 1.19 | 204044159/97920 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 Q1 | |
| 1968 | 0.74 | 13000 | 70000 | - | 1.35 | 204044159/103680 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 P1 | |
| 1675 | 0.87 | 13000 | 70000 | - | 1.67 | 241143097/144000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 N1 | |
| 1435 | 1.0 | 13000 | 70000 | - | 2.10 | 908923981/633600 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 M1 | |
| 1261 | 1.1 | 13000 | 70000 | - | 2.60 | 871825043/691200 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 L1 | |
| 1064 | 1.4 | 13000 | 70000 | - | 3.30 | 352439911/331200 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 K1 | |
| 927 | 1.6 | 13000 | 70000 | - | 4.40 | 18549469/20000 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 J1 | |
| 915 | 1.6 | 13000 | 70000 | - | 1.98 | 279967567/306000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 H1 | |
| 864 | 1.7 | 13000 | 70000 | - | 2.20 | 279967567/324000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3537 - A0 - 0 G1 | |

1) Only in conjunction with reduced-backlash version

2) Not available for A/AZ adapter

Article No. supplement

| | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | |
| | | | C | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | E | | | | | 5 |
| K3 | | A | | B | C | | D | E | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

5

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-----------------------|------------------------|------------------------|----------------------|--------------------------------------|------------------------|---------|----|-----|----|-----|-----|-----|-----------------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ | <i>T</i> _{2N} | <i>F</i> _{R2} | ϕ ¹⁾ | <i>J</i> _G | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10 ⁻⁴ kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.169-Z49 | | | | | | | | | | | | | | | | |
| 735 | 2.0 | 13000 | 70000 | - | 2.90 | 330870761/450000 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ F1 |
| 630 | 2.3 | 13000 | 70000 | - | 3.80 | 1247128253/1980000 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ E1 |
| 554 | 2.6 | 13000 | 70000 | - | 4.70 | 1196225059/2160000 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ D1 |
| 467 | 3.1 | 13000 | 70000 | - | 6.30 | 483580343/1035000 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ C1 |
| 416 | 3.5 | 13000 | 70000 | - | 6.90 | 25840171/62100 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ B1 |
| 363 | 4.0 | 13000 | 70000 | - | 9.10 | 1360009/3750 | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3537 - ■ A0 - 0 ■ A1 |
| K.189-D69 | | | | | | | | | | | | | | | | |
| 13345 | 0.11 | 19500 | 104000 | - | 0.26 | 840736/63 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3541 - ■ A0 - 0 ■ G1 |
| 12318 | 0.12 | 19500 | 104000 | - | 0.32 | 258688/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3541 - ■ A0 - 0 ■ F1 |
| 10907 | 0.13 | 19500 | 104000 | - | 0.38 | 1603264/147 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3541 - ■ A0 - 0 ■ E1 |
| 9078 | 0.16 | 19500 | 104000 | - | 0.52 | 63544/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3541 - ■ A0 - 0 ■ D1 |
| 8544 | 0.17 | 19500 | 104000 | - | 0.61 | 1016704/119 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3541 - ■ A0 - 0 ■ C1 |
| 7655 | 0.19 | 19500 | 104000 | - | 0.67 | 1446848/189 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3541 - ■ A0 - 0 ■ B1 |
| 6517 | 0.22 | 19500 | 104000 | - | 0.89 | 19552/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | 2KJ3541 - ■ A0 - 0 ■ A1 |

1) Only in conjunction with reduced-backlash version

2) Not available for A/AZ adapter

| Article No. supplement | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|---|---|
| Shaft design | 1 or 9 see page 9/49 | | | | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 | |
| | KS | | A | | | E | H | K | M | | | | | | | | 1 |
| | | | B | | | F | J | | N | | | | | | | | |
| | | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | | |
| K5 | | A | | B | C | | | D | E | | | | | | | 5 | |
| K3 | | A | | B | C | | | D | E | | | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | J | | | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | | | | | | | | | |

* Article No. supplement adapter A: M1A, adapter AZ: M1B

Bevel gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | | Adapter | | | | | | | | Article No. | |
|------------------|-------|----------|----------|-------------|-------------------------------|-----------------|---------|----|-----|----|-----|-----|-----------------|------|-------------|-------------------------------------|
| i | n_2 | T_{2N} | F_{R2} | $\phi^{1)}$ | J_G | R_{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | 160 | (Article No. supplement, see below) |
| - | rpm | Nm | N | ' | 10^{-4} kgm ² | - | K2 | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| | | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | | |
| | | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | | |
| | | | | | | | | | 4.1 | | | | | | | |
| | | | | | | | | | 4.2 | | | | | | | |
| | | | | | | | K5 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | K3 | | 56 | | 140 | 180 | | 210 | 250 | |
| | | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | 160 | |
| K.189-Z69 | | | | | | | | | | | | | | | | |
| 6375 | 0.23 | 19500 | 104000 | - | 0.21 | 3793088/595 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3540 - ■ A0 ■ - 0 ■ C2 |
| 5795 | 0.25 | 19500 | 104000 | - | 0.26 | 7586176/1309 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3540 - ■ A0 ■ - 0 ■ B2 |
| 4929 | 0.29 | 19500 | 104000 | - | 0.32 | 586560/119 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3540 - ■ A0 ■ - 0 ■ A2 |
| 4481 | 0.32 | 19500 | 104000 | - | 0.39 | 5865600/1309 | ✓ | ✓ | ✓ | ✓ | | | | | | 2KJ3540 - ■ A0 ■ - 0 ■ X1 |
| 3998 | 0.36 | 19500 | 104000 | - | 0.46 | 1427296/357 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3540 - ■ A0 ■ - 0 ■ W1 |
| 3585 | 0.40 | 19500 | 104000 | - | 0.56 | 4692480/1309 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3540 - ■ A0 ■ - 0 ■ V1 |
| 3231 | 0.45 | 19500 | 104000 | - | 0.66 | 1153568/357 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3540 - ■ A0 ■ - 0 ■ U1 |
| 2983 | 0.49 | 19500 | 104000 | - | 0.78 | 354944/119 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | 2KJ3540 - ■ A0 ■ - 0 ■ T1 |
| 2723 | 0.53 | 19500 | 104000 | - | 0.93 | 2268032/833 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ S1 |
| 2259 | 0.64 | 19500 | 104000 | - | 1.23 | 268840/119 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ R1 |
| 2126 | 0.68 | 19500 | 104000 | - | 1.41 | 4301440/2023 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ Q1 |
| 2008 | 0.72 | 19500 | 104000 | - | 1.59 | 2150720/1071 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ P1 |
| 1709 | 0.85 | 19500 | 104000 | - | 2.0 | 1016704/595 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ N1 |
| 1464 | 0.99 | 19500 | 104000 | - | 2.5 | 273728/187 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ M1 |
| 1287 | 1.1 | 19500 | 104000 | - | 3.2 | 459472/357 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ L1 |
| 1086 | 1.3 | 19500 | 104000 | - | 4.1 | 2971904/2737 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ K1 |
| 946 | 1.5 | 19500 | 104000 | - | 5.5 | 2815488/2975 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ J1 |
| 889 | 1.6 | 19500 | 104000 | - | 3.1 | 3128320/3519 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ H1 |
| 756 | 1.9 | 19500 | 104000 | - | 4.0 | 16267264/21505 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ G1 |
| 648 | 2.2 | 19500 | 104000 | - | 5.3 | 30657536/47311 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ F1 |
| 570 | 2.5 | 19500 | 104000 | - | 6.7 | 7351552/12903 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ E1 |
| 481 | 3.0 | 19500 | 104000 | - | 9.1 | 47550464/98923 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ D1 |
| 419 | 3.5 | 19500 | 104000 | - | 12 | 45047808/107525 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ C1 |
| 384 | 3.8 | 19500 | 104000 | - | 11 | 37948928/98923 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ B1 |
| 334.36 | 4.3 | 19500 | 104000 | - | 14 | 35951616/107525 | | | ✓ | ✓ | ✓ | ✓ | ✓ ²⁾ | | | 2KJ3540 - ■ A0 ■ - 0 ■ A1 |

¹⁾ Only in conjunction with reduced-backlash version

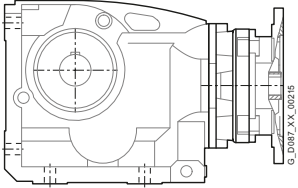
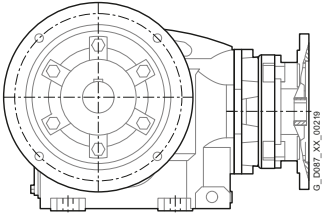
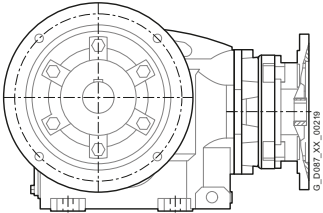
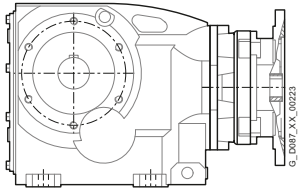
²⁾ Not available for A/AZ adapter

| Article No. supplement | | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---|---|---|---|---|---|---------------|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | | | | | | | | see page 9/49 | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | J | | | | | | | 4 |
| | K2 | | | D | E | F | G | H | J | | | | | | | 2 |
| | KS | A | | | E | H | K | M | | | | | | | | 1 |
| | | B | | | F | J | | N | | | | | | | | |
| | | C | | | | | | | | | | | | | | |
| | | D | | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | E | | | | | | | | 5 |
| | K3 | A | | B | C | | D | E | | | | | | | | 3 |
| | A/AZ* | | | D | E | F | G | H | J | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | see page 9/40 | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Overview

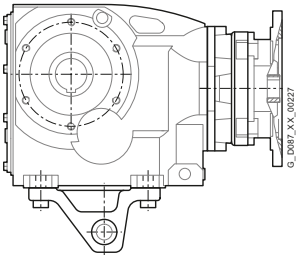
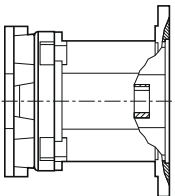
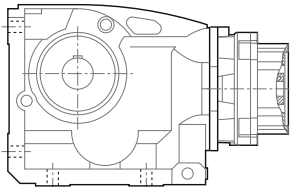
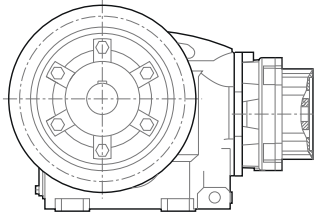
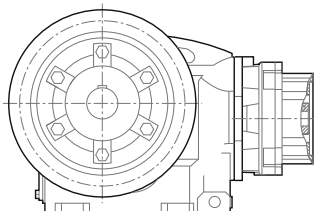
Information about dimensional drawings can be found in chapter "Introduction" [page 1/16](#).

| Design | Size | Dimensional drawing on page |
|---|---------|-----------------------------|
| Bevel gearbox with adapter K4 | | |
| <i>Foot-mounted design</i> | | |
|  | B..29 | 5/35 |
| | B..39 | 5/39 |
| | B..49 | 5/43 |
| | K..39 | 5/47 |
| | K..49 | 5/51 |
| | K..69 | 5/55 |
| | K..79 | 5/59 |
| | K..89 | 5/63 |
| | K..109 | 5/68 |
| | K..129 | 5/73 |
| | K..149 | 5/78 |
| | K..169 | 5/83 |
| | K..189 | 5/88 |
| <i>Flange-mounted design</i> | | |
|  | B.F.29 | 5/36 |
| | B.F.39 | 5/40 |
| | B.F.49 | 5/44 |
| | K.F.39 | 5/48 |
| | K.F.49 | 5/52 |
| | K.F.69 | 5/56 |
| | K.F.79 | 5/60 |
| | K.F.89 | 5/64 |
| | K.F.109 | 5/69 |
| | K.F.129 | 5/74 |
| | K.F.149 | 5/79 |
| | K.F.169 | 5/84 |
| | K.F.189 | 5/89 |
| <i>Flange-mounted design with VLplus reinforced bearing system</i> | | |
|  | K.F.89 | 5/65 |
| | K.F.109 | 5/70 |
| | K.F.129 | 5/75 |
| | K.F.149 | 5/80 |
| | K.F.169 | 5/85 |
| <i>Housing flange design</i> | | |
|  | B.Z.29 | 5/37 |
| | B.Z.39 | 5/41 |
| | B.Z.49 | 5/45 |
| | K.Z.39 | 5/49 |
| | K.Z.49 | 5/53 |
| | K.Z.69 | 5/57 |
| | K.Z.79 | 5/61 |
| | K.Z.89 | 5/66 |
| | K.Z.109 | 5/71 |
| | K.Z.129 | 5/76 |
| | K.Z.149 | 5/81 |
| | K.Z.169 | 5/86 |
| | K.Z.189 | 5/90 |

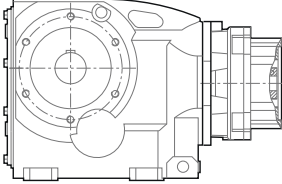
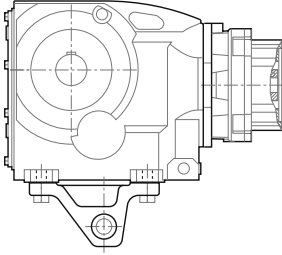
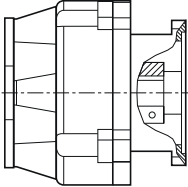
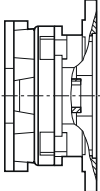
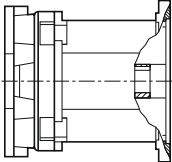
Bevel gearboxes

Dimensional drawings

Overview

| Design | Size | Dimensional drawing on page |
|---|--------------------------------------|-----------------------------|
| Bevel gearbox with adapter K4 | | |
| <i>Shaft-mounted design</i> | | |
|  | BAD.29 | 5/38 |
| | BAD.39 | 5/42 |
| | BAD.49 | 5/46 |
| | KAD.39 | 5/50 |
| | KAD.49 | 5/54 |
| | KAD.69 | 5/58 |
| | KAD.79 | 5/62 |
| | KAD.89 | 5/67 |
| | KAD.109 | 5/72 |
| | KAD.129 | 5/77 |
| | KAD.149 | 5/82 |
| | KAD.169 | 5/87 |
| | KAD.189 | 5/91 |
| | Bevel gearbox with adapter K2 | |
|  | B..29 ... B..49 | 5/92 |
| | K..39 ... K..189 | 5/92 ... 5/94 |
| Bevel gearbox with adapter KS | | |
| <i>Foot-mounted design</i> | | |
|  | B..19 | 5/95 |
| | B..29 | 5/99 |
| | B..39 | 5/103 |
| | B..49 | 5/107 |
| | K..39 | 5/111 |
| | K..49 | 5/115 |
| | K..69 | 5/119 |
| | K..79 | 5/123 |
| | K..89 | 5/127 |
| | K..109 | 5/132 |
| | K..129 | 5/137 |
| | K..149 | 5/142 |
| | K..169 | 5/147 |
| | K..189 | 5/152 |
| <i>Flange-mounted design</i> | | |
|  | B.F.19 | 5/96 |
| | B.F.29 | 5/100 |
| | B.F.39 | 5/104 |
| | B.F.49 | 5/108 |
| | K.F.39 | 5/112 |
| | K.F.49 | 5/116 |
| | K.F.69 | 5/120 |
| | K.F.79 | 5/124 |
| | K.F.89 | 5/128 |
| | K.F.109 | 5/133 |
| | K.F.129 | 5/138 |
| | K.F.149 | 5/143 |
| | K.F.169 | 5/148 |
| | K.F.189 | 5/153 |
| <i>Flange-mounted design with VLplus reinforced bearing system</i> | | |
|  | K.F.89 | 5/129 |
| | K.F.109 | 5/134 |
| | K.F.129 | 5/139 |
| | K.F.149 | 5/144 |
| | K.F.169 | 5/149 |

Overview

| Design | Size | Dimensional drawing on page |
|---|-------------------|-----------------------------|
| Bevel gearbox with adapter KS | | |
| <i>Housing flange design</i> | | |
|  | B.Z.19 | 5/97 |
| | B.Z.29 | 5/101 |
| | B.Z.39 | 5/105 |
| | B.Z.49 | 5/109 |
| | K.Z.39 | 5/113 |
| | K.Z.49 | 5/117 |
| | K.Z.69 | 5/121 |
| | K.Z.79 | 5/125 |
| | K.Z.89 | 5/130 |
| | K.Z.109 | 5/135 |
| | K.Z.129 | 5/140 |
| | K.Z.149 | 5/145 |
| | K.Z.169 | 5/150 |
| | K.Z.189 | 5/154 |
| <i>Shaft-mounted design</i> | | |
|  | BAD.19 | 5/98 |
| | BAD.29 | 5/102 |
| | BAD.39 | 5/106 |
| | BAD.49 | 5/110 |
| | KAD.39 | 5/114 |
| | KAD.49 | 5/118 |
| | KAD.69 | 5/122 |
| | KAD.79 | 5/126 |
| | KAD.89 | 5/131 |
| | KAD.109 | 5/136 |
| | KAD.129 | 5/141 |
| | KAD.149 | 5/146 |
| | KAD.169 | 5/151 |
| | KAD.189 | 5/155 |
| Bevel gearbox with adapter K8 | | |
|  | K..109 ... K..189 | 5/156 |
| Bevel gearbox with adapter K5 | | |
|  | B..29 ... B..49 | 5/157 |
| | K..39 ... K..189 | 5/157 ... 5/158 |
| Bevel gearbox with adapter K3 | | |
|  | B..29 ... B..49 | 5/159 |
| | K..39 ... K..189 | 5/159 ... 5/160 |

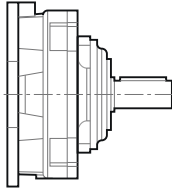
Bevel gearboxes

Dimensional drawings

Overview

| Design | Size | Dimensional drawing on page |
|--------|------|-----------------------------|
|--------|------|-----------------------------|

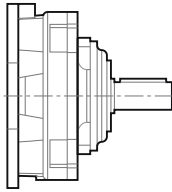
Bevel gearbox with adapter A



B..29 ... B..49
K..39 ... K..189

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5/161 ... 5/162

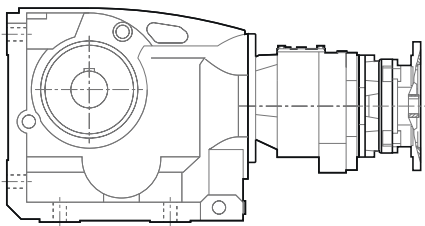
Bevel gearbox with adapter AZ



B..29 ... B..49
K..39 ... K..189

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5/163 ... 5/164

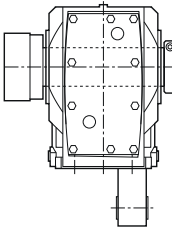
Bevel tandem gearbox



| | | |
|------|----------------------------|-----------------|
| - K4 | K.89-D/Z39 ... K.189-D/Z69 | 5/165 |
| - K2 | K.89-D/Z39 ... K.189-D/Z69 | 5/166 |
| - K5 | K.39-D/Z19 ... K.189-D/Z69 | 5/167 ... 5/167 |
| - K5 | K.89-D/Z39 ... K.189-D/Z69 | 5/169 |
| - K3 | K.89-D/Z39 ... K.189-D/Z69 | 5/170 |
| - A | K.89-D/Z39 ... K.189-D/Z69 | 5/171 |
| - AZ | K.89-D/Z39 ... K.189-D/Z69 | 5/172 |

Additional versions and options

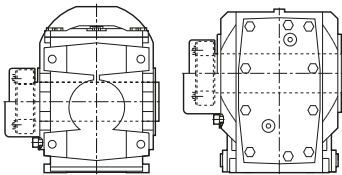
ShaftMount assembly system



BADR29 ... BADR49
KADR39 ... KADR89

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5/173 ... 5/174

Protective covers



BA.29 ... BA.49
KA.39 ... KA.189

5/175 ... 5/176

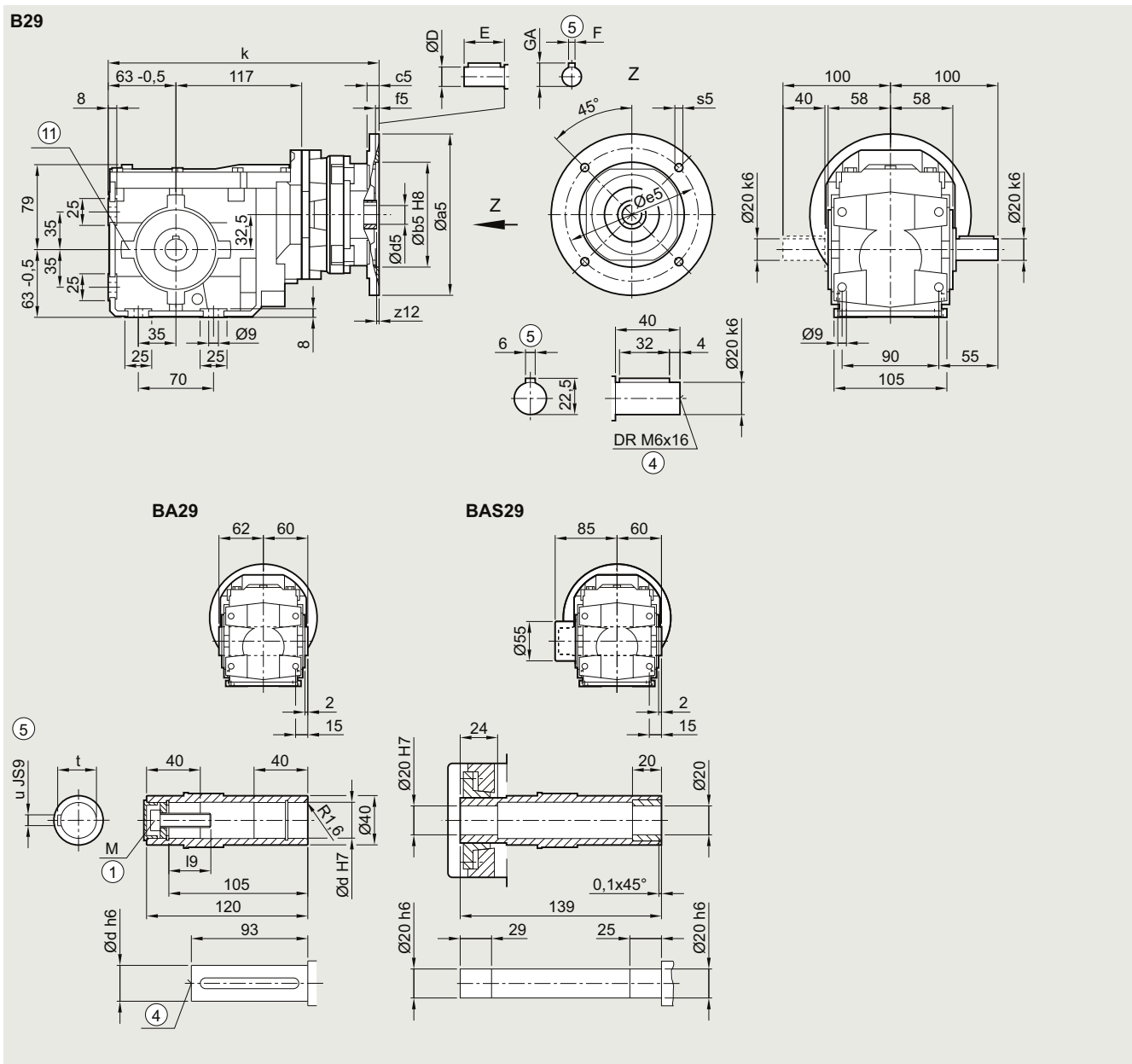
Inner contour of the flange design



B.F.29 ... B.F.49
K.F.39 ... K.F.189

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B..29 gearbox in a foot-mounted design



| Shaft | d | I9 | M | t | u |
|-------|----|------|-----|------|---|
| | 20 | 23.4 | M6 | 22.8 | 6 |
| | 25 | 27.6 | M10 | 28.3 | 8 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 257.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 285.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 285.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

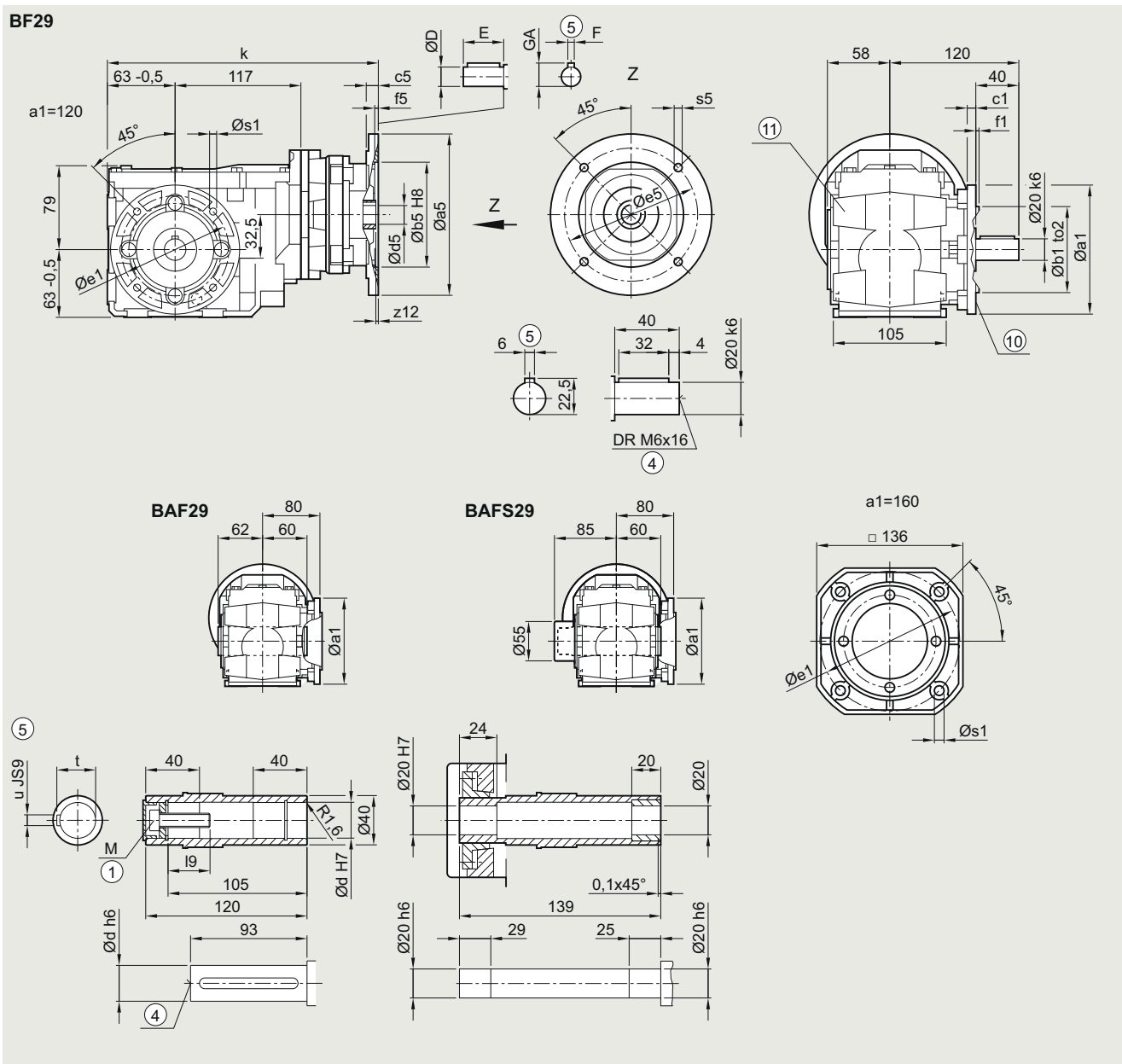
⑩ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

B.F.29 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | | | |
| Shaft | d | i9 | M | t | u | | | | | | | |
| | 20 | 23.4 | M6 | 22.8 | 6 | | | | | | | |
| | 25 | 27.6 | M10 | 28.3 | 8 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 257.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 285.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 285.5 |

① ISO 4014

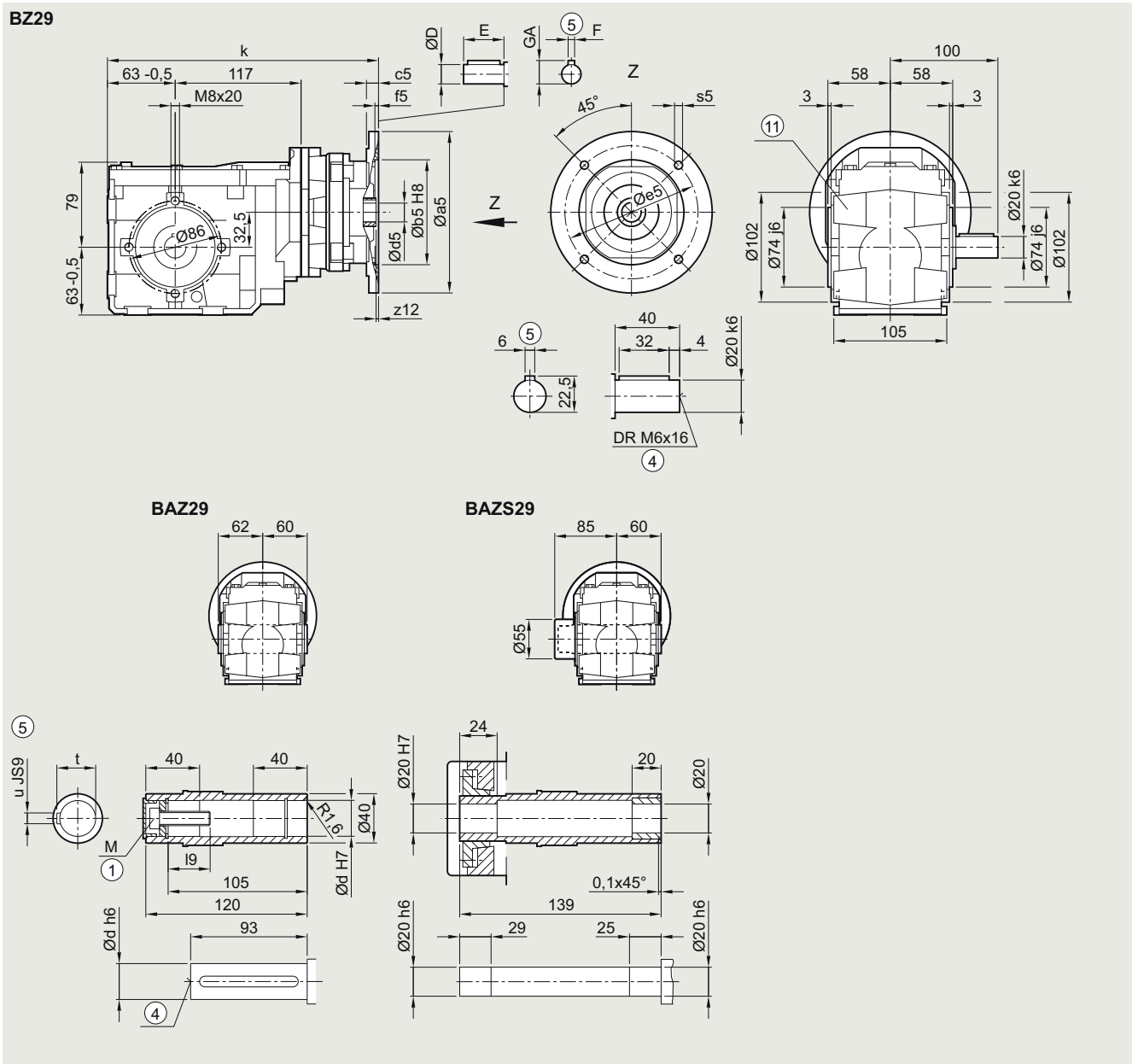
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.29 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u |
|-------|----|------|-----|------|---|
| | 20 | 23.4 | M6 | 22.8 | 6 |
| | 25 | 27.6 | M10 | 28.3 | 8 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 257.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 285.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 285.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

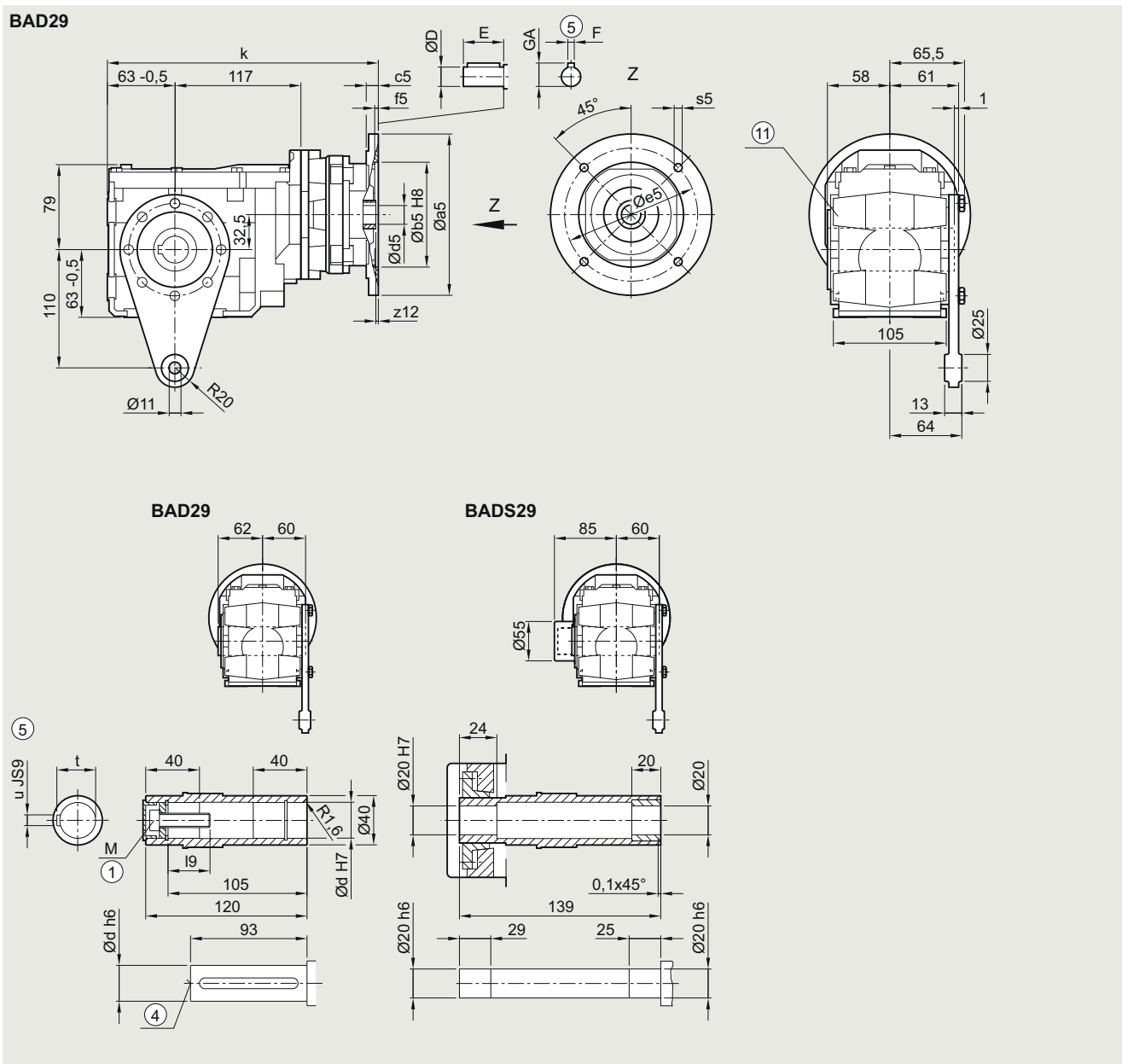
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

BAD.29 gearbox in a shaft-mounted design



| Shaft | d | l9 | M | t | u |
|-------|----|------|-----|------|---|
| | 20 | 23.4 | M6 | 22.8 | 6 |
| | 25 | 27.6 | M10 | 28.3 | 8 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 257.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 285.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 285.5 |

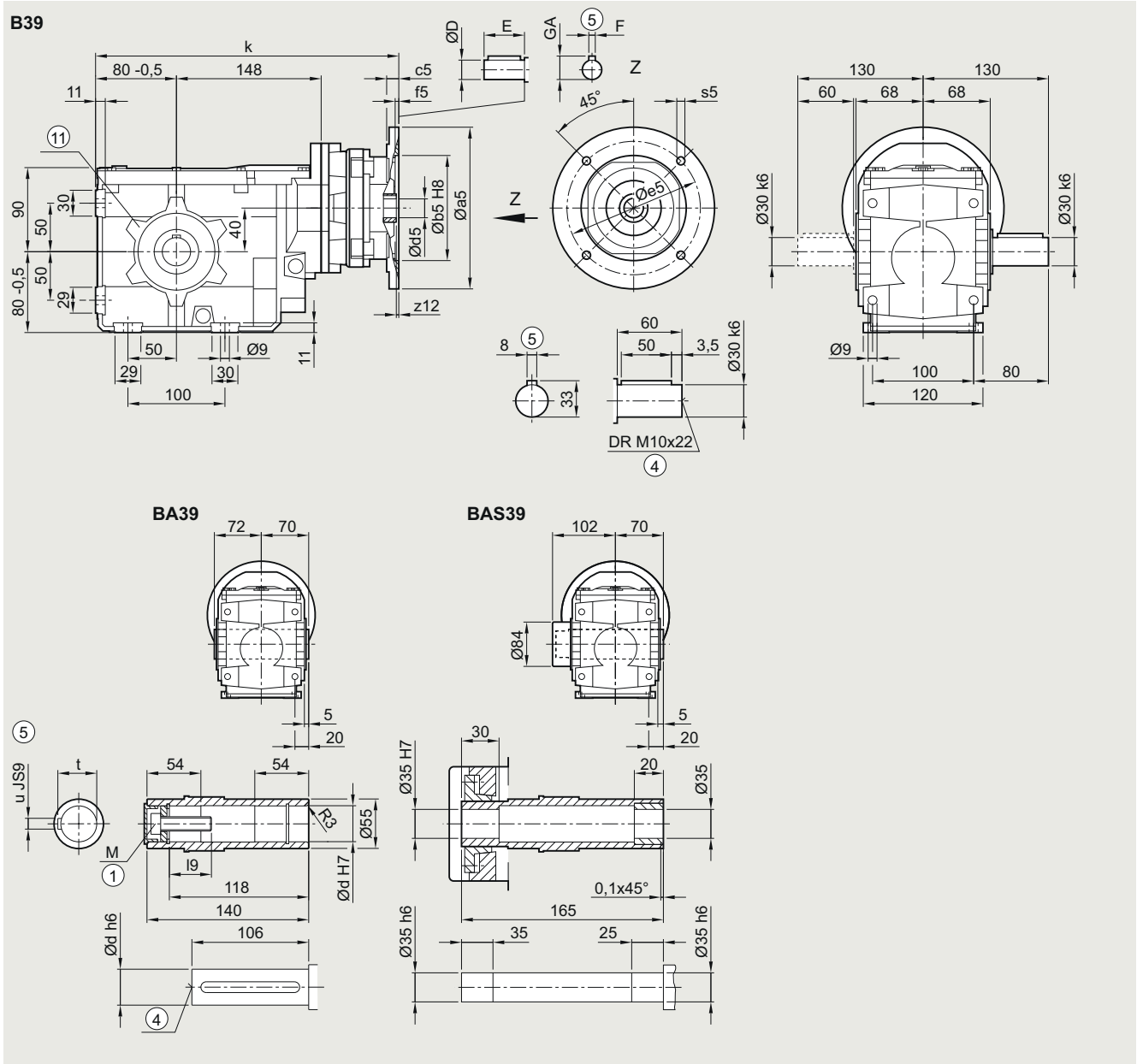
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

B..39 gearbox in a foot-mounted design



5

| Shaft | d | I9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 30 | 32.6 | M10 | 33.3 | 8 | | | | | | | |
| | 35 | 37.0 | M12 | 38.3 | 10 | | | | | | | |
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 305.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 305.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 333.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 333.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 388.0 |

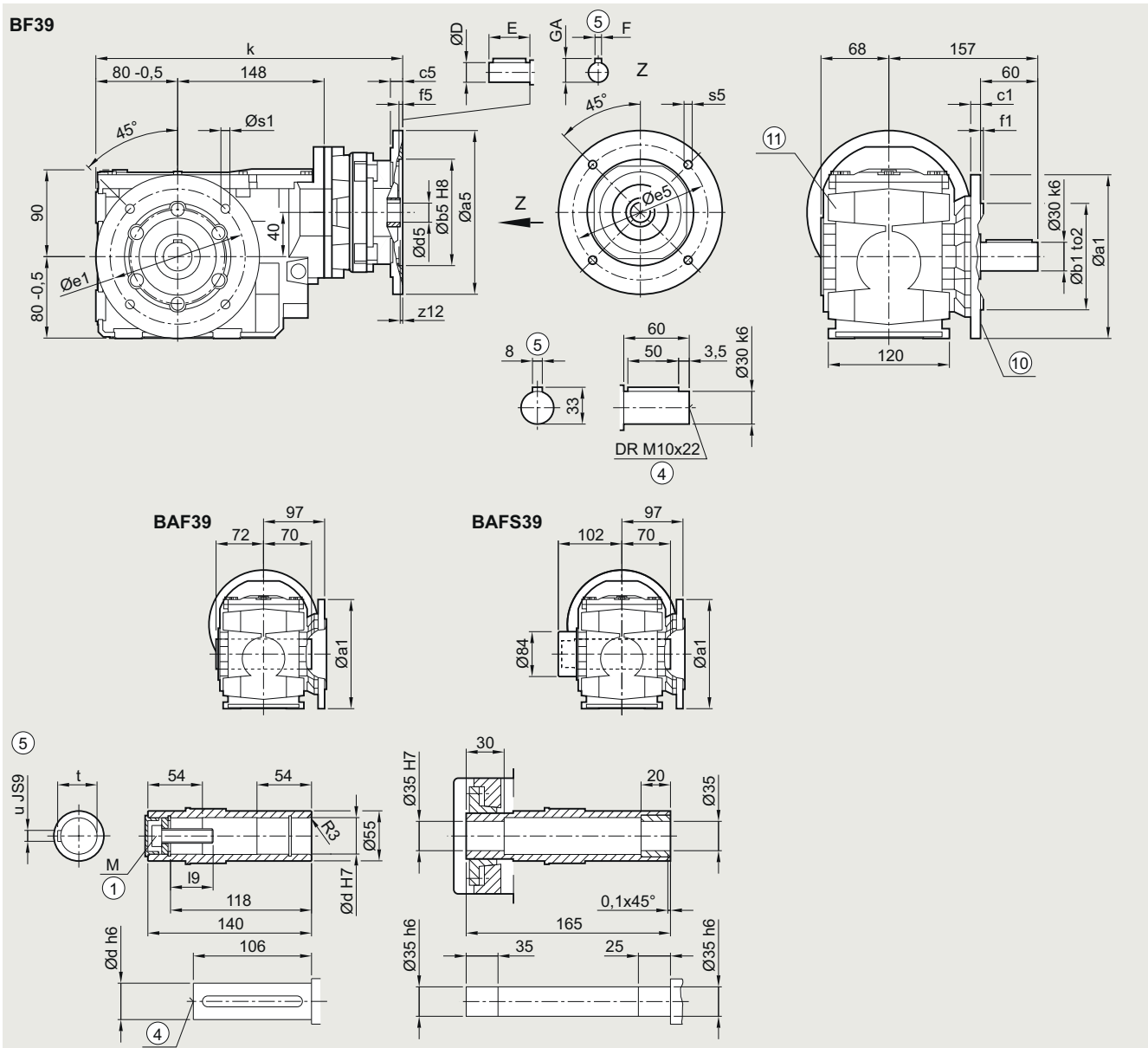
① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

B.F.39 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-------|-----|------|-----|-----|------|------|----|---|------|-------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | | | |
| Shaft | d | l9 | M | t | u | | | | | | | |
| | 30 | 32.6 | M10 | 33.3 | 8 | | | | | | | |
| | 35 | 37.0 | M12 | 38.3 | 10 | | | | | | | |
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 305.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 305.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 333.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 333.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 388.0 |

① ISO 4014

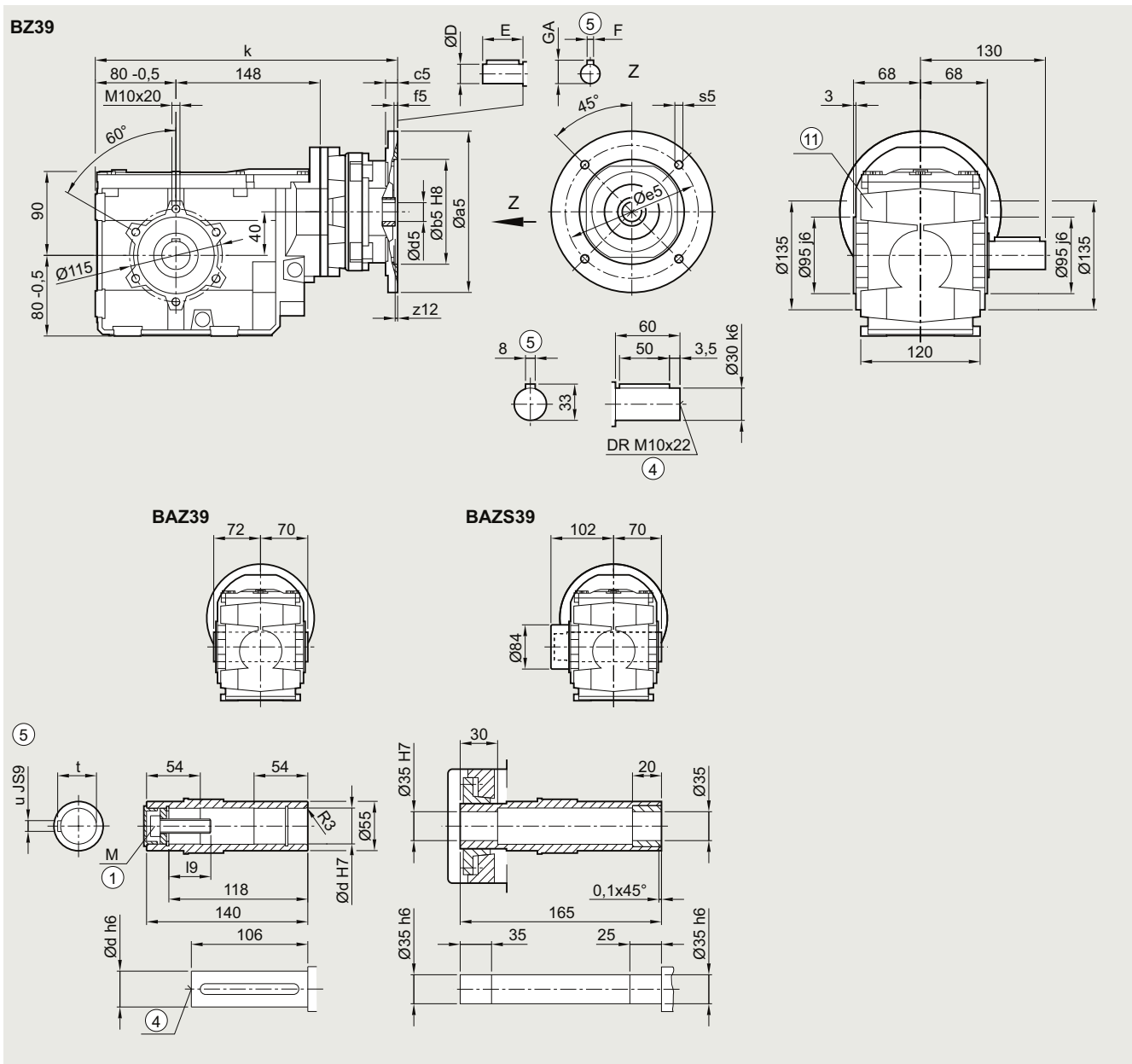
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.39 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u |
|-------|----|-------|-----|------|----|
| | 30 | 32.6 | M10 | 33.3 | 8 |
| | 35 | 37.0 | M12 | 38.3 | 10 |
| | 40 | 47.75 | M16 | 43.3 | 12 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 305.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 305.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 333.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 333.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 388.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

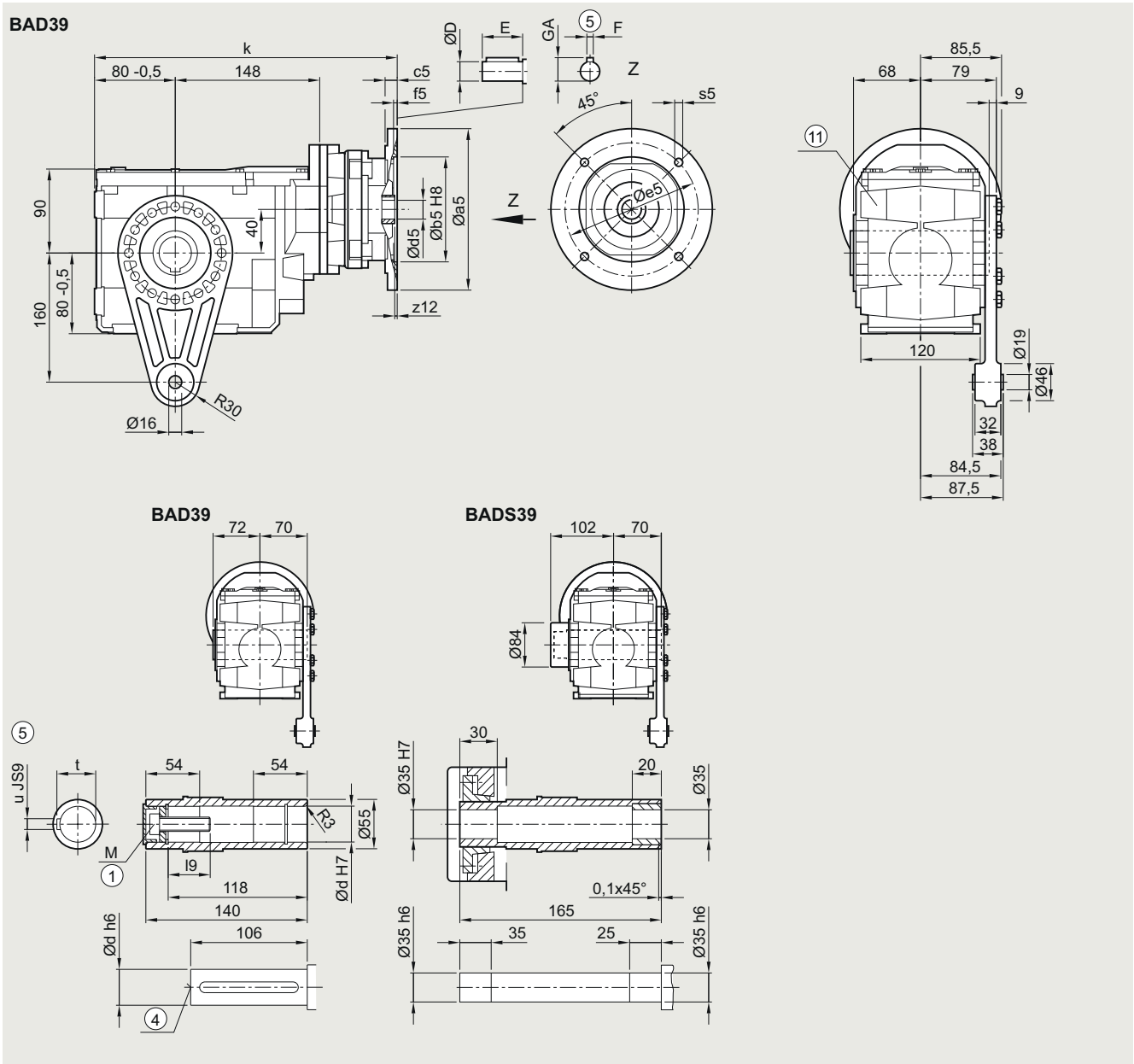
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

BAD.39 gearbox in a shaft-mounted design



| Shaft | d | l9 | M | t | u |
|-------|----|-------|-----|------|----|
| | 30 | 32.6 | M10 | 33.3 | 8 |
| | 35 | 37.0 | M12 | 38.3 | 10 |
| | 40 | 47.75 | M16 | 43.3 | 12 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 305.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 305.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 333.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 333.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 388.0 |

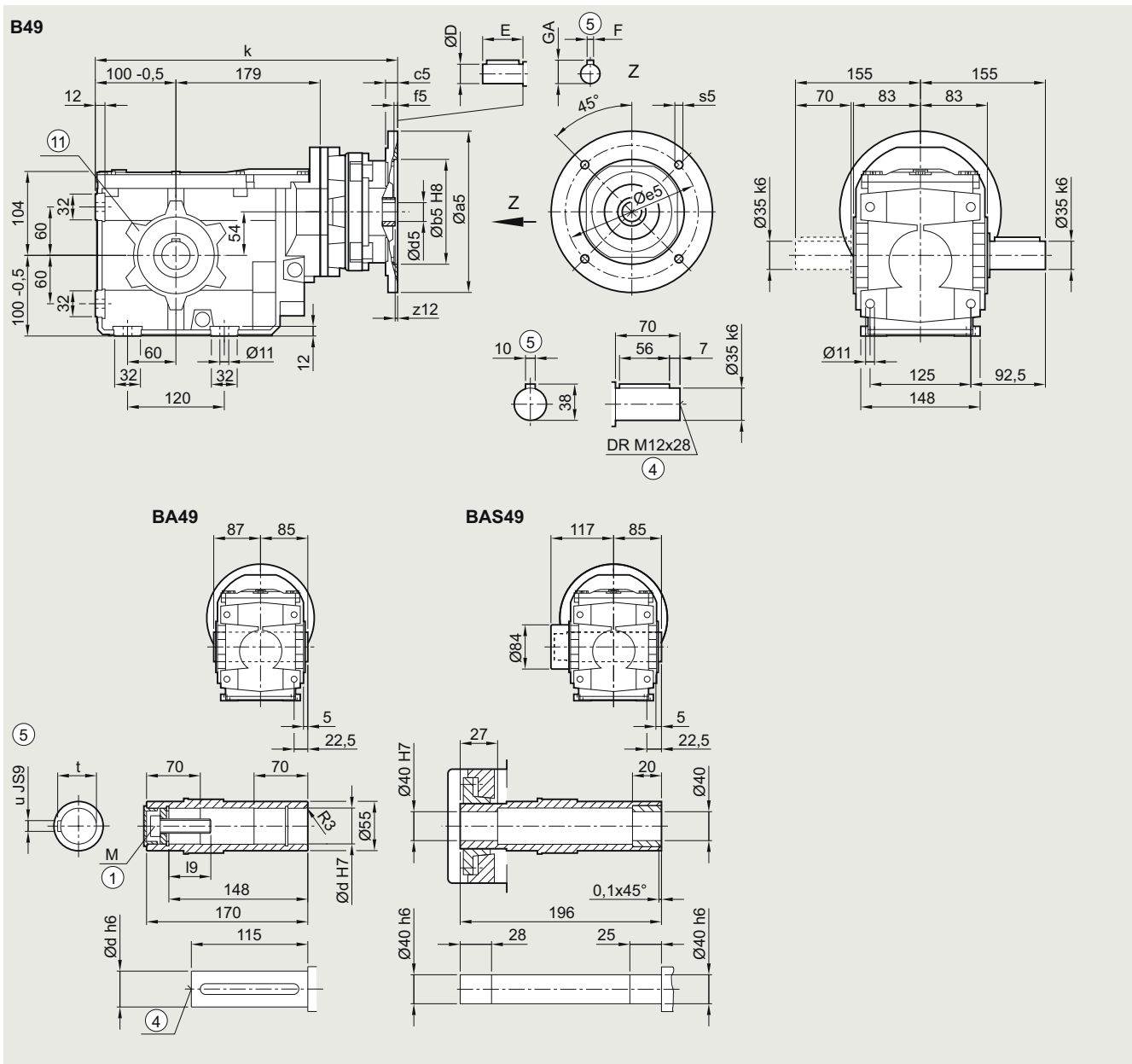
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

B..49 gearbox in a foot-mounted design



| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|--------|-----|------|----|----|------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 347.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 347.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 375.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 375.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 447.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

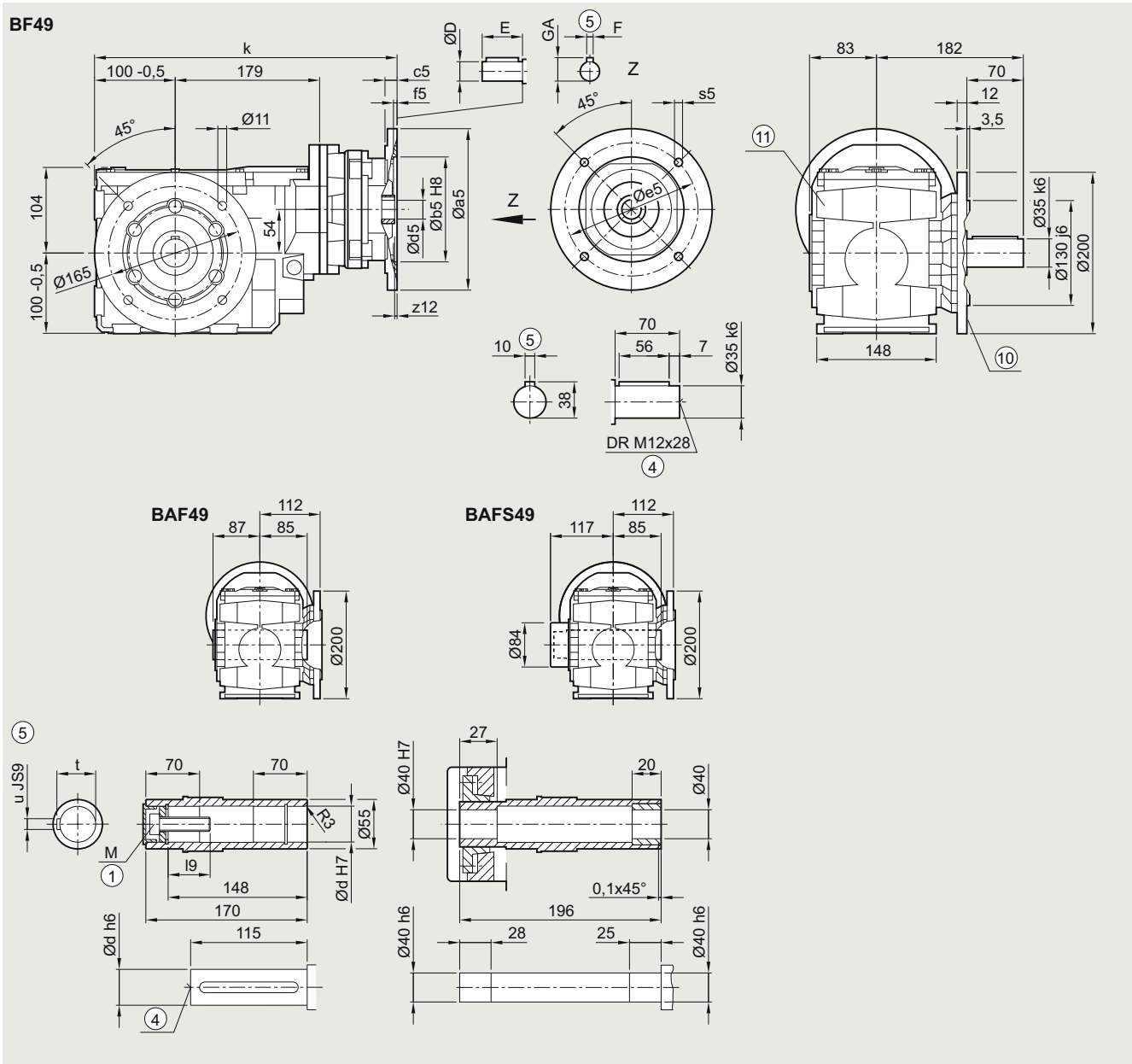
⑩ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

B.F.49 gearbox in a flange-mounted design



| Shaft | d | l9 | M | t | u | | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|--------|------|----|----|----|------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k | |
| | 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 347.0 |
| | 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 347.0 |
| | 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 375.0 |
| | 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 375.0 |
| | 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| | 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| | 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 447.0 |

① ISO 4014

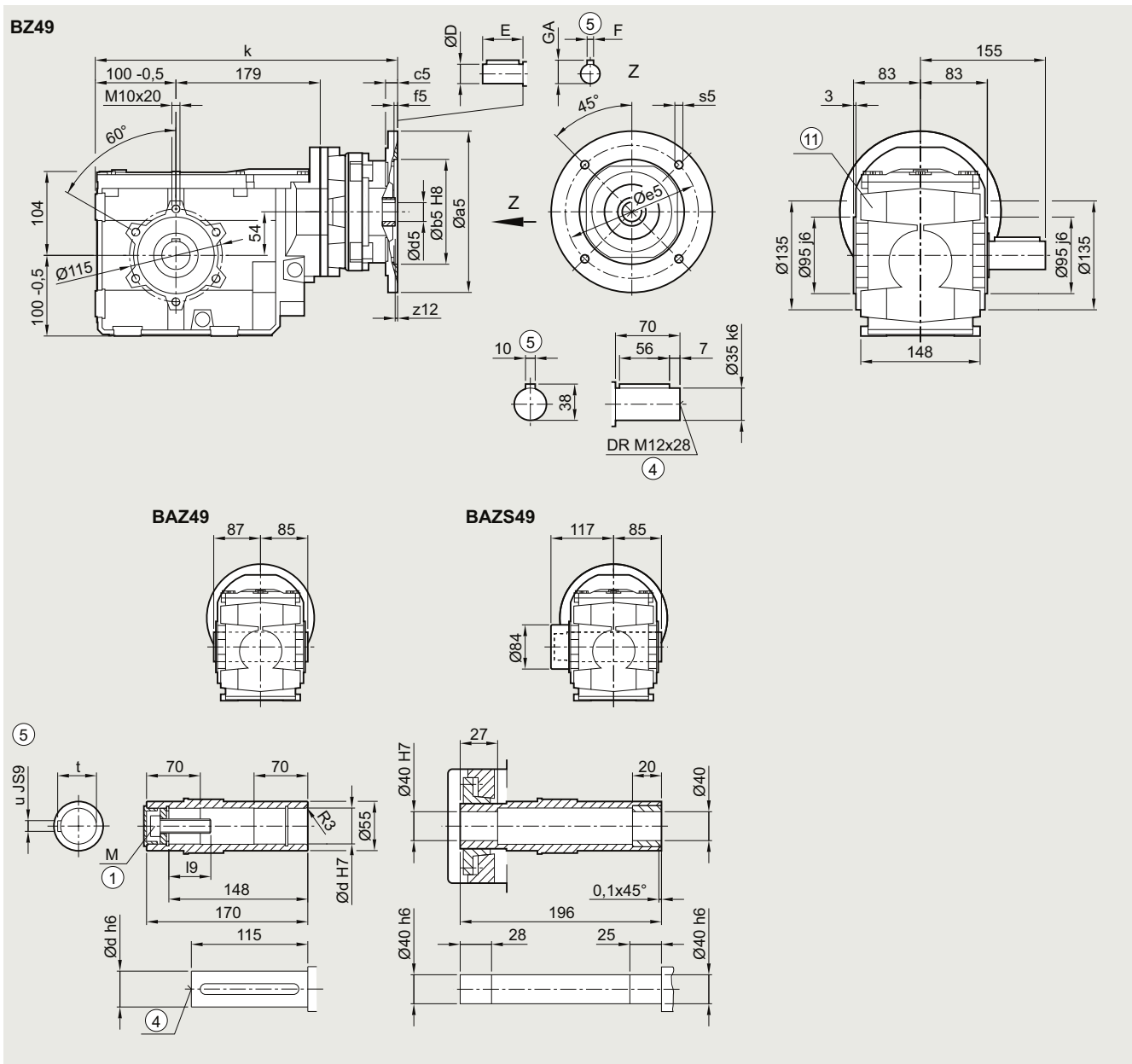
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.49 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u | | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|--------|------|----|----|----|------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k | |
| | 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 347.0 |
| | 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 347.0 |
| | 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 375.0 |
| | 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 375.0 |
| | 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| | 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| | 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 447.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

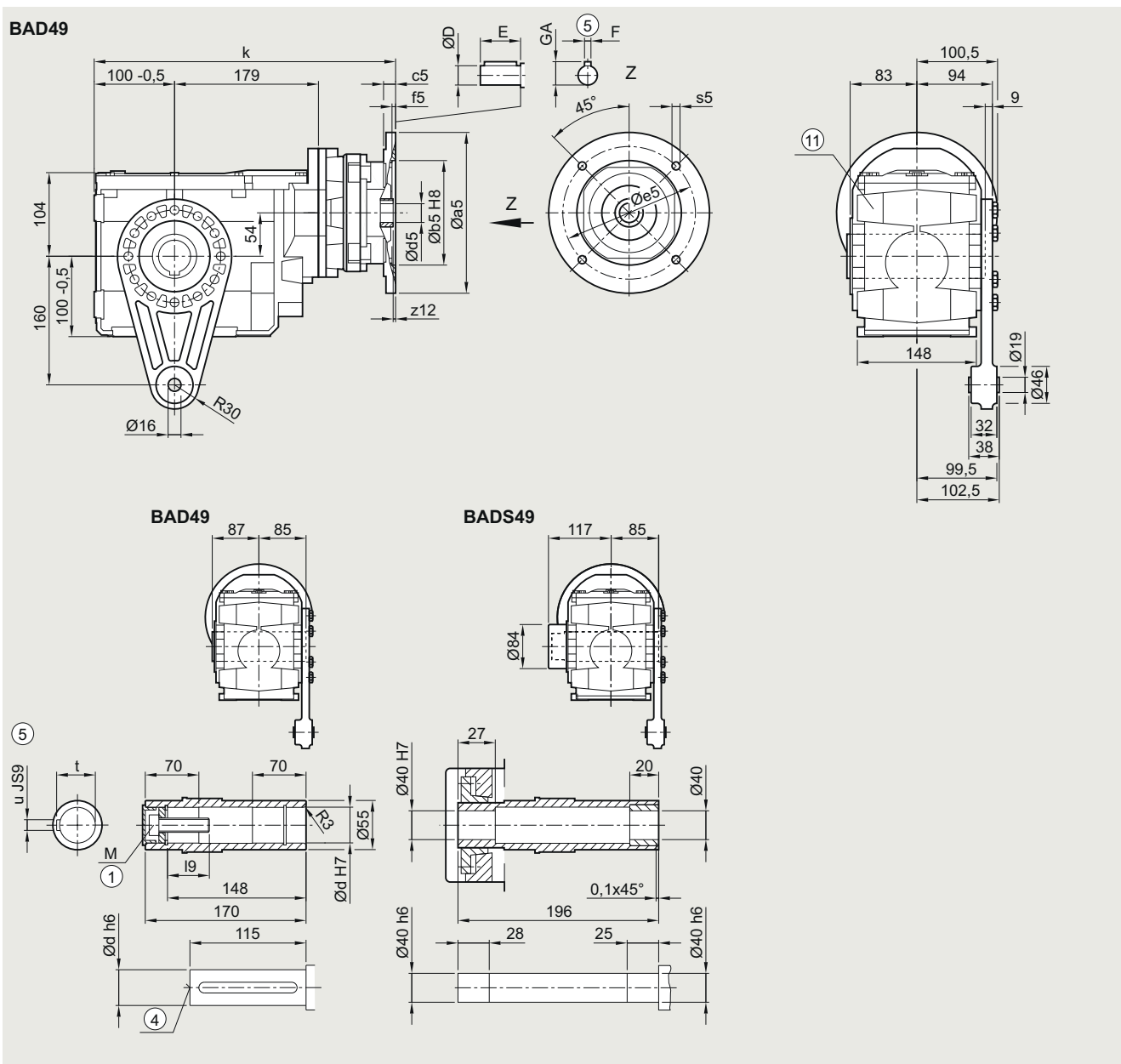
Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

BAD.49 gearbox in a shaft-mounted design

5



| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|--------|-----|------|----|----|------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.0 | 11 | 23 | 4 | 12.5 | 341.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.0 | 14 | 30 | 5 | 16.0 | 341.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 375.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 375.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 429.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 4.0 | 38 | 80 | 10 | 41.0 | 447.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

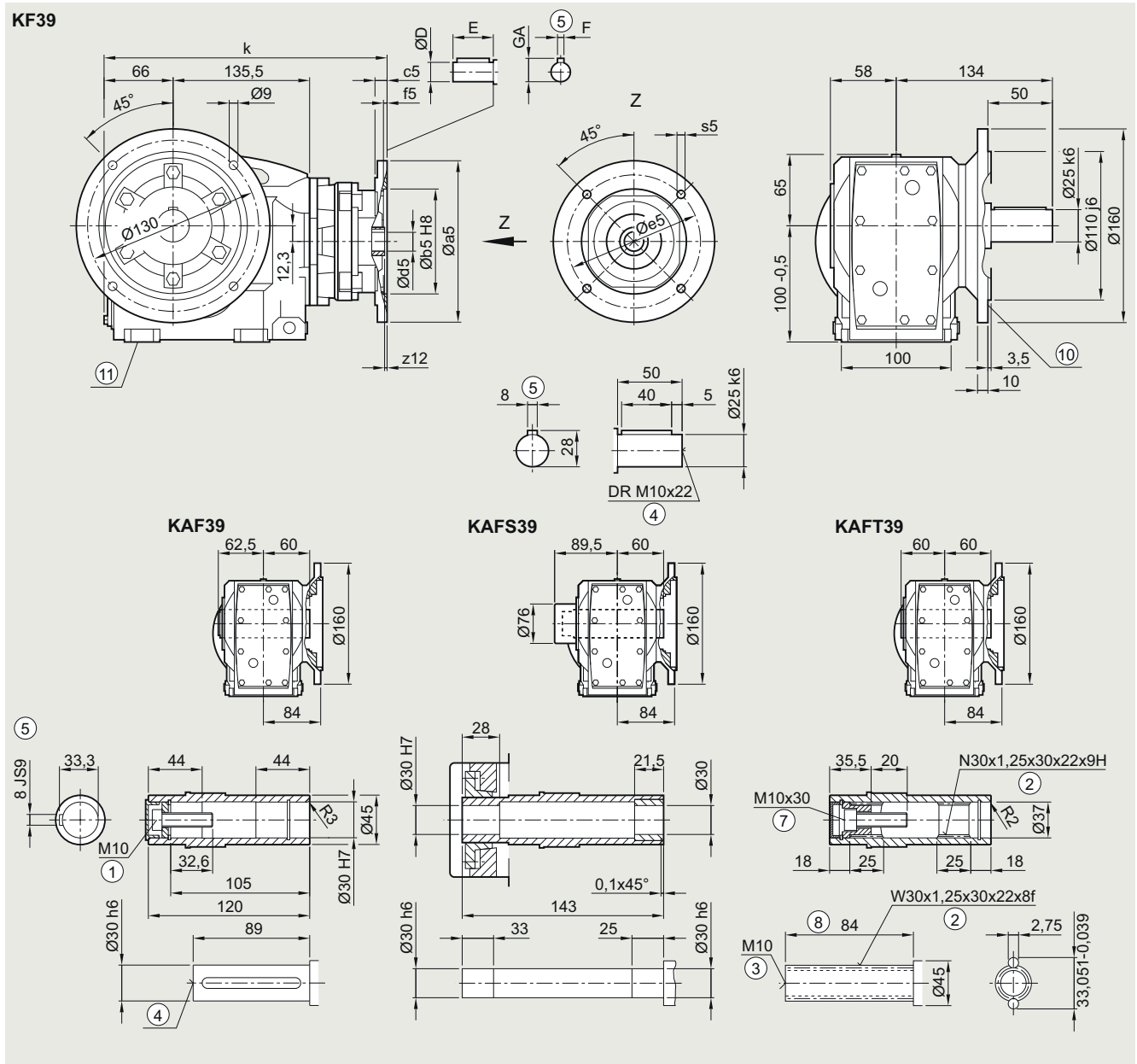
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

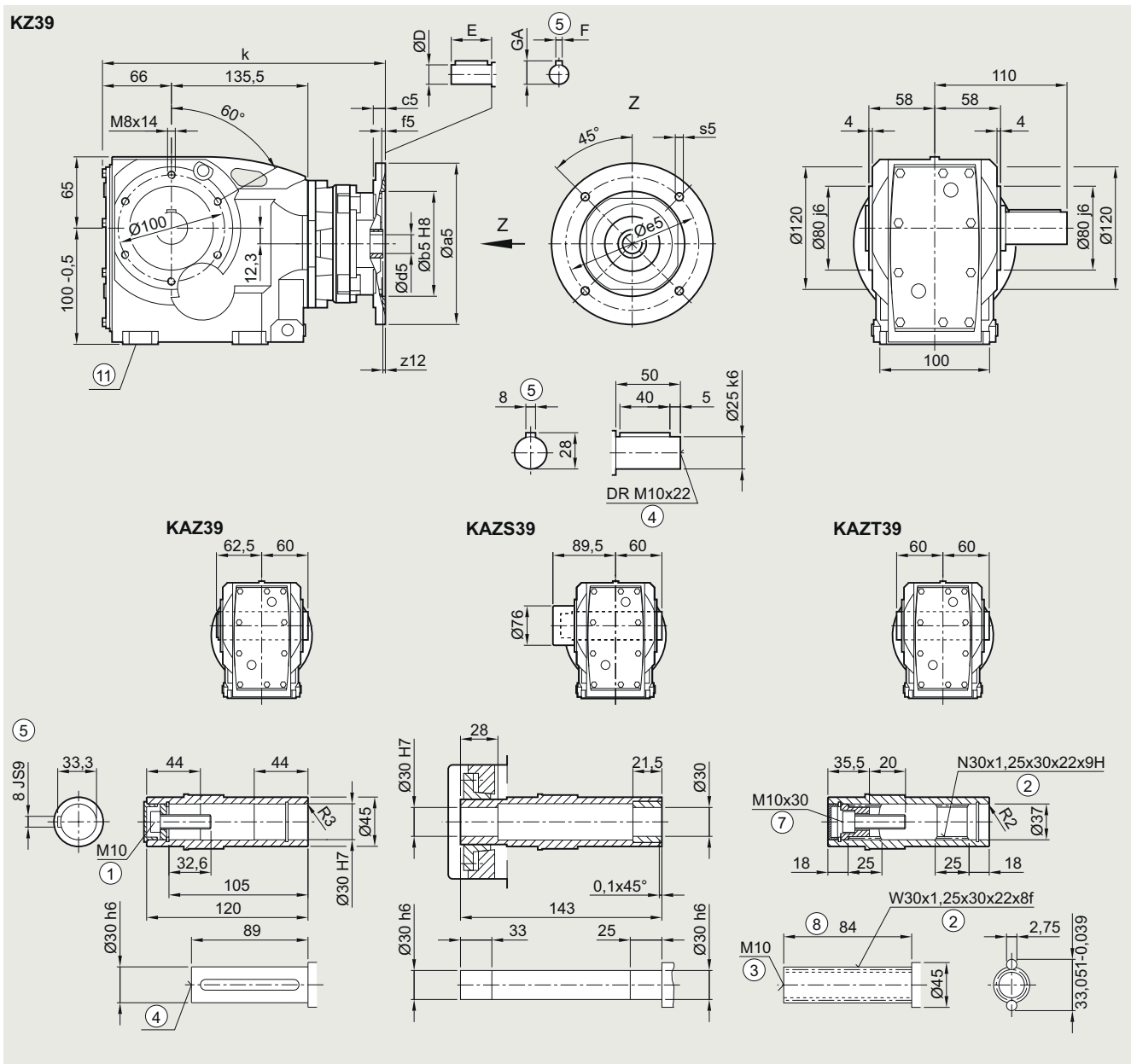
K.F.39 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 278.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 278.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 306.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 306.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑥ ISO 4762 ⑦ Without locating shoulder +1 mm ⑧ For inner contour, see page 5/177 ⑨ Use bores only for foot-mounted design

K.Z.39 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 278.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 278.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 306.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 306.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

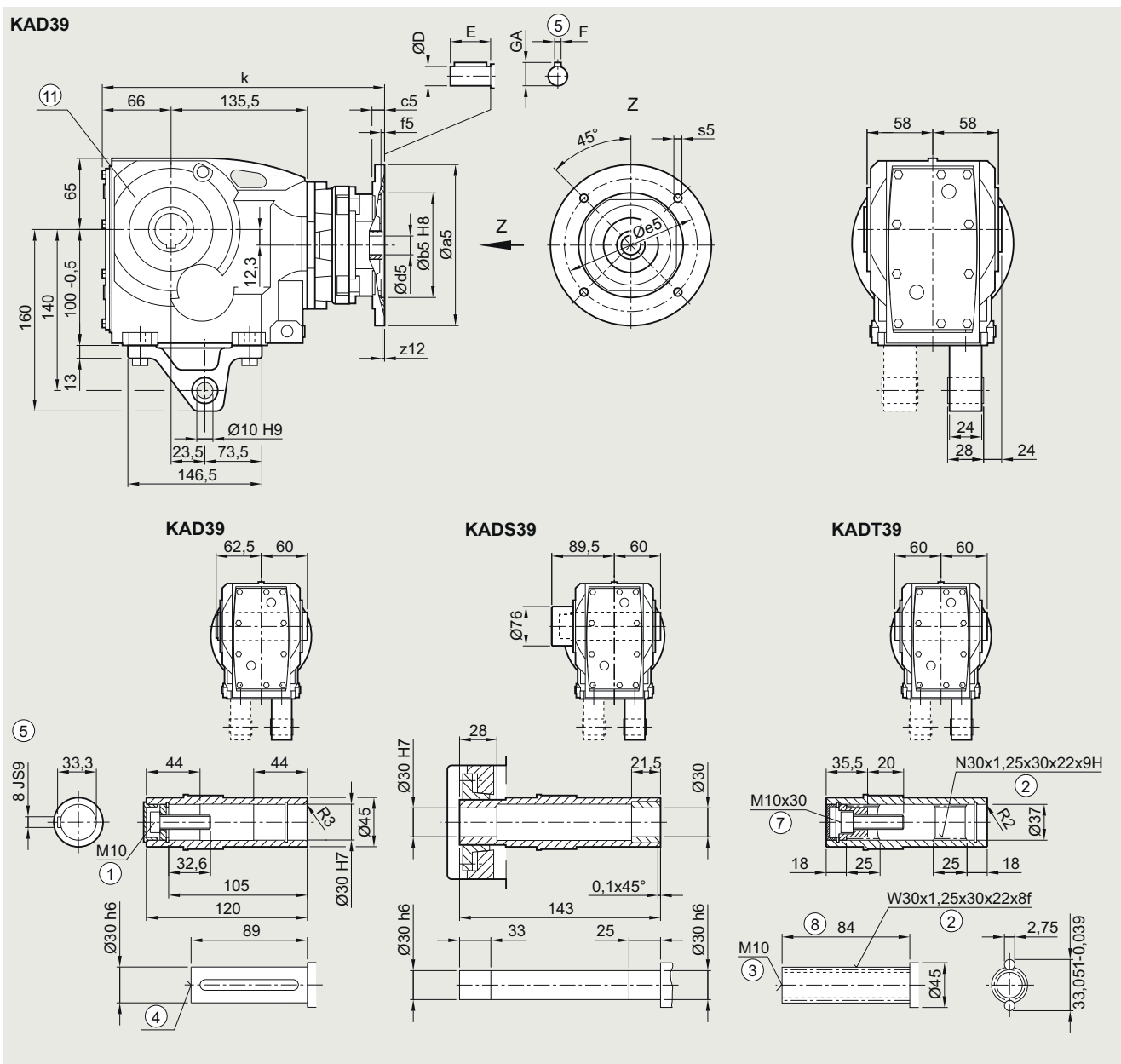
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

KAD.39 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 278.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 278.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 306.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 306.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 361.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

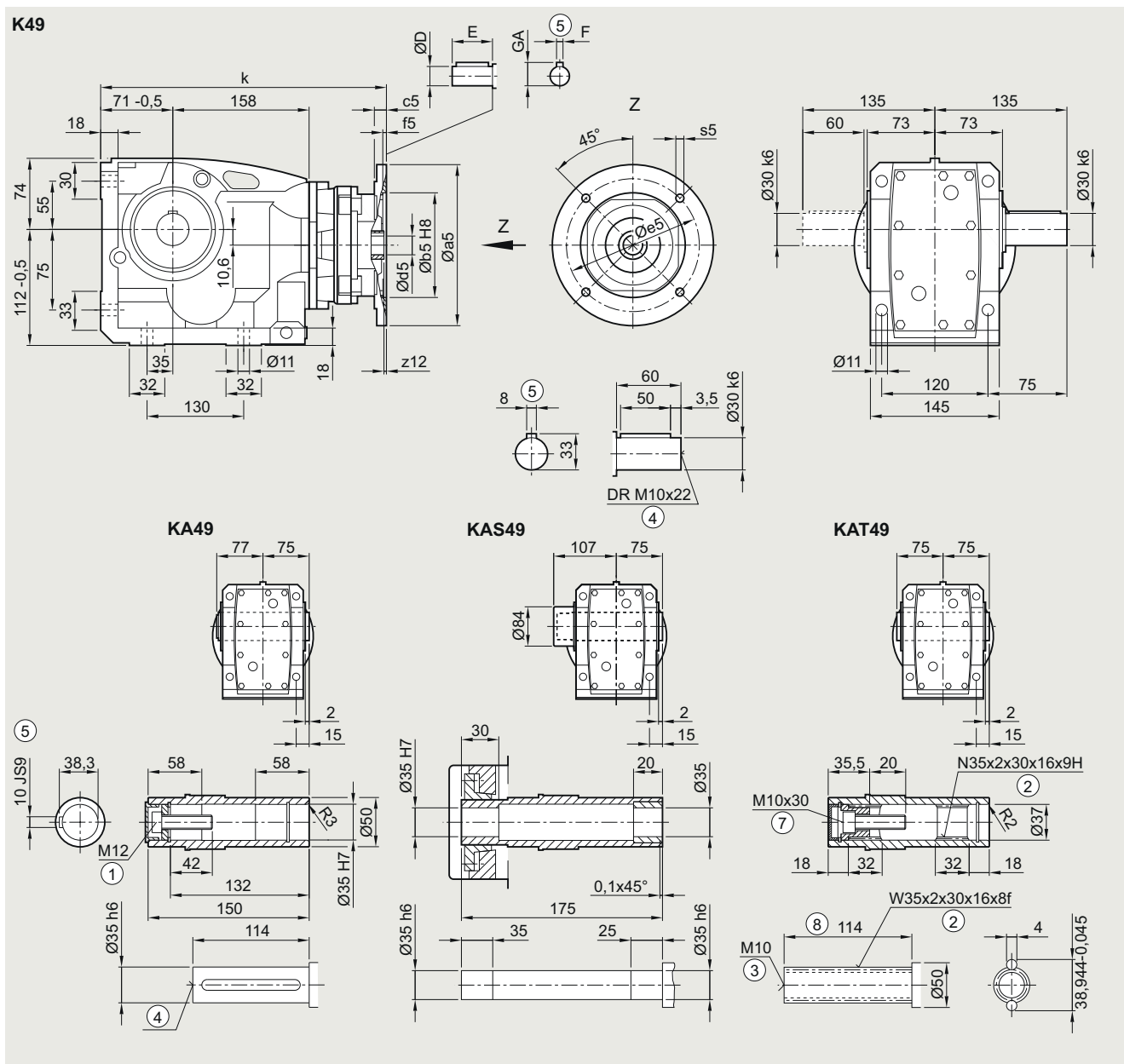
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder +1 mm

⑧ Use bores only for housing flange design

K.49 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 297.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 297.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 325.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 325.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 379.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 379.5 |
| 132 | 300 | 230 | 12 | 6 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 397.0 |

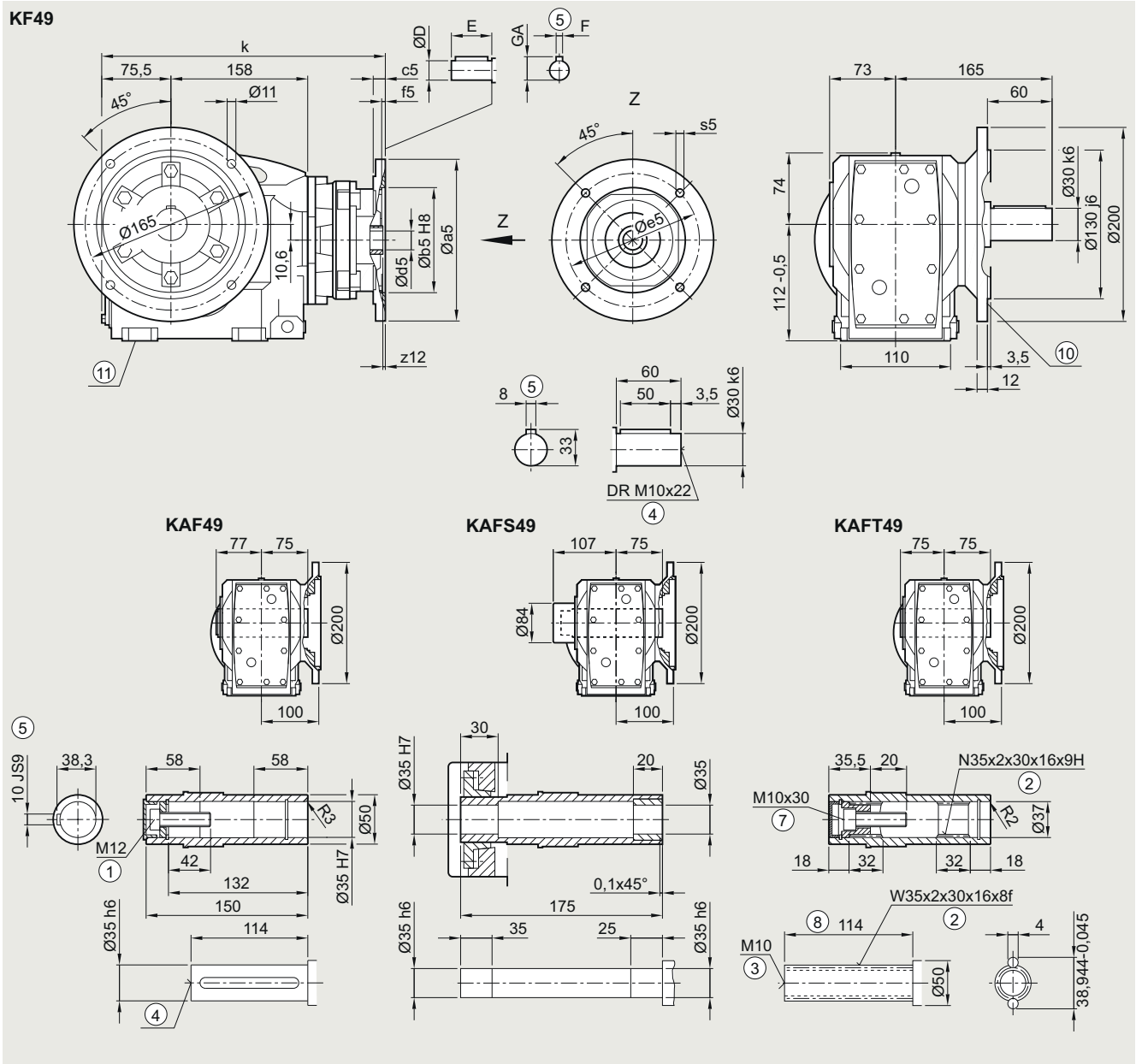
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.49 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 301.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 301.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 329.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 329.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 401.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

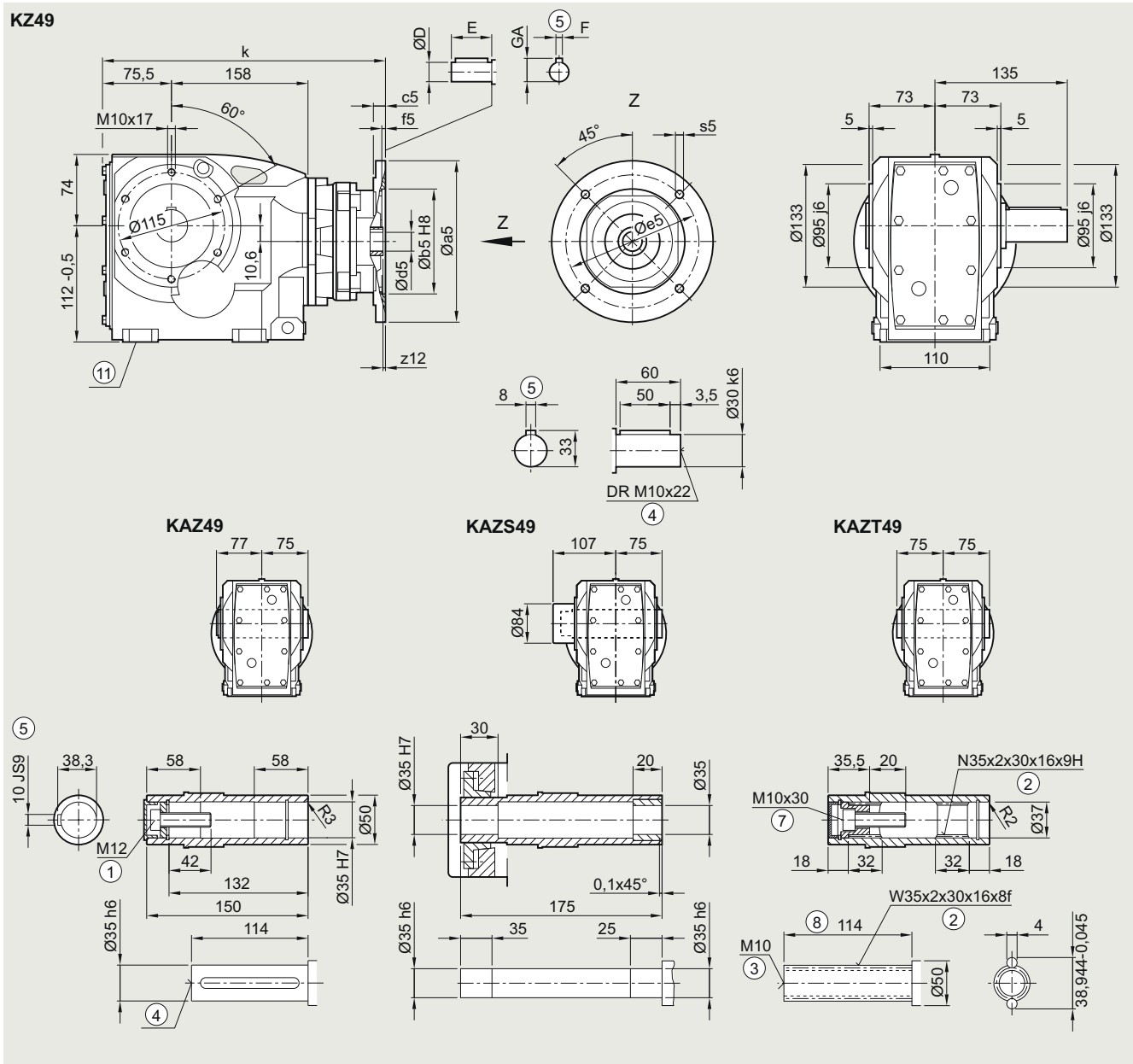
⑥ ISO 4762

⑦ Without locating shoulder +1 mm

⑧ For inner contour, see page 5/177

⑨ Use bores only for foot-mounted design

K.Z.49 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 301.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 301.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 329.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 329.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 401.5 |

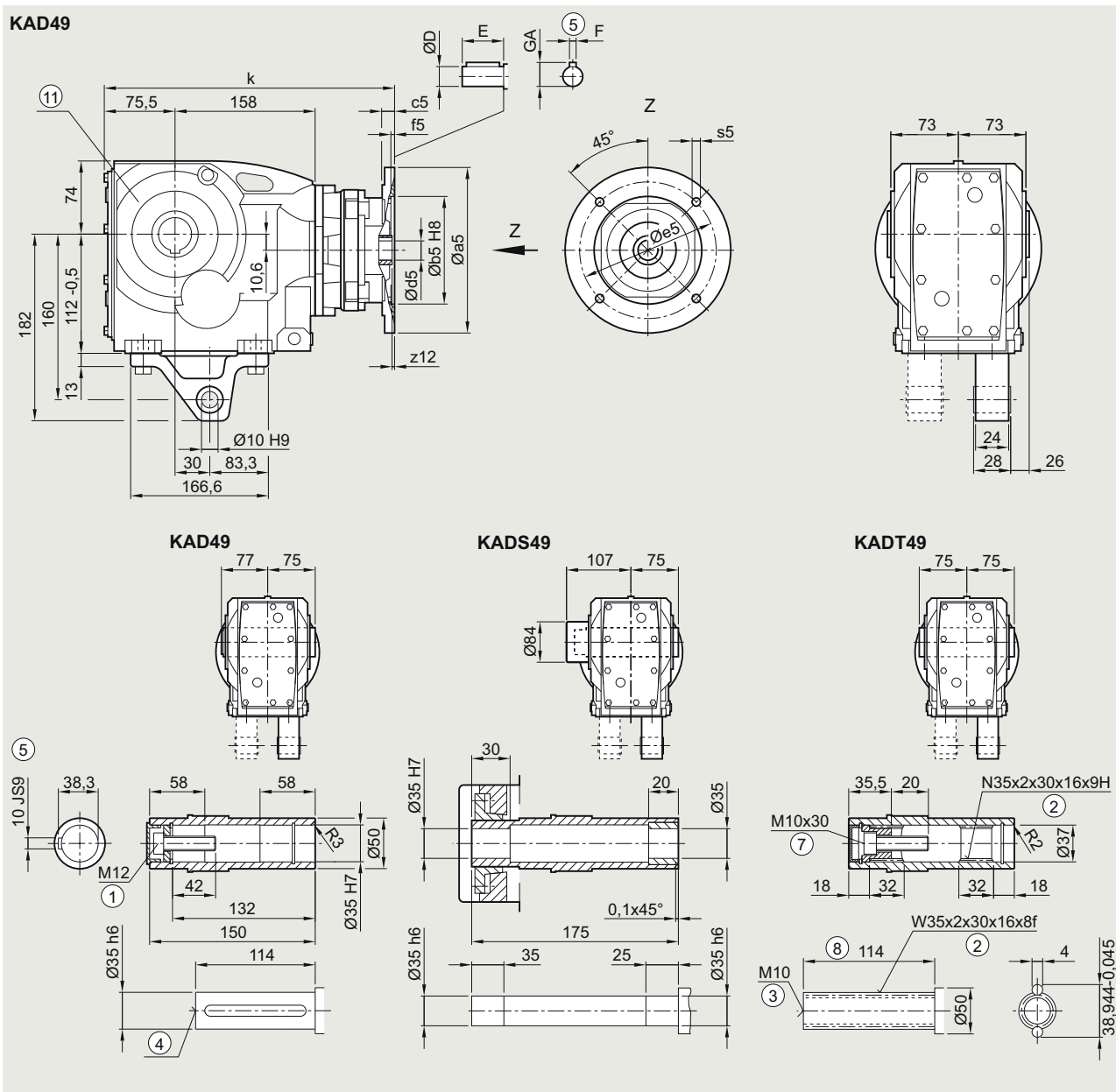
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑥ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

KAD.49 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 301.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 301.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 329.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 329.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 384.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 401.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

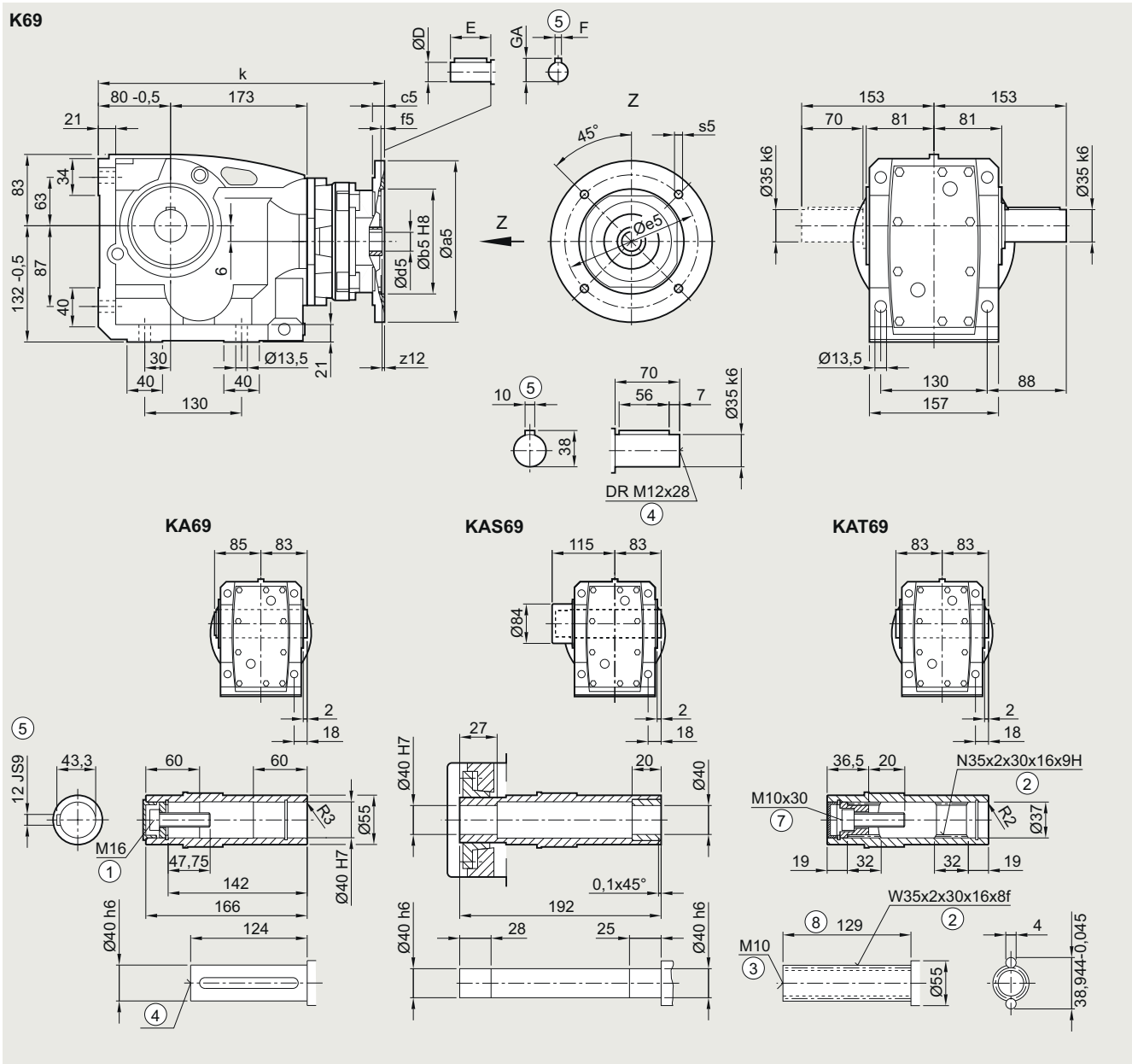
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

K.69 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-------|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115.0 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 321.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130.0 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 321.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 349.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 349.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 403.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 403.5 |
| 132 | 300 | 230 | 12 | 6 | 265.0 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 421.0 |

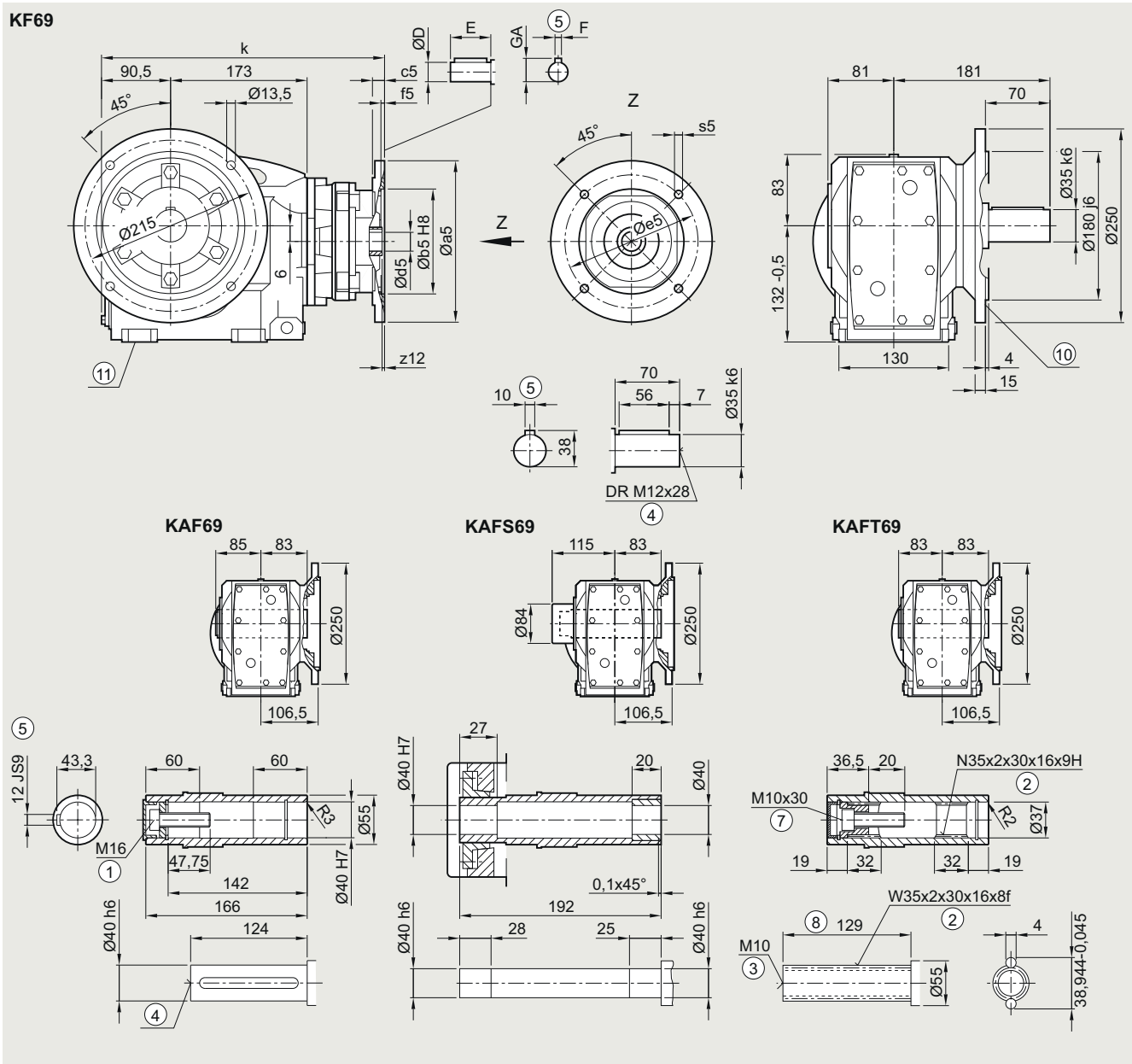
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.69 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 331.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 331.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 359.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 359.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 431.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

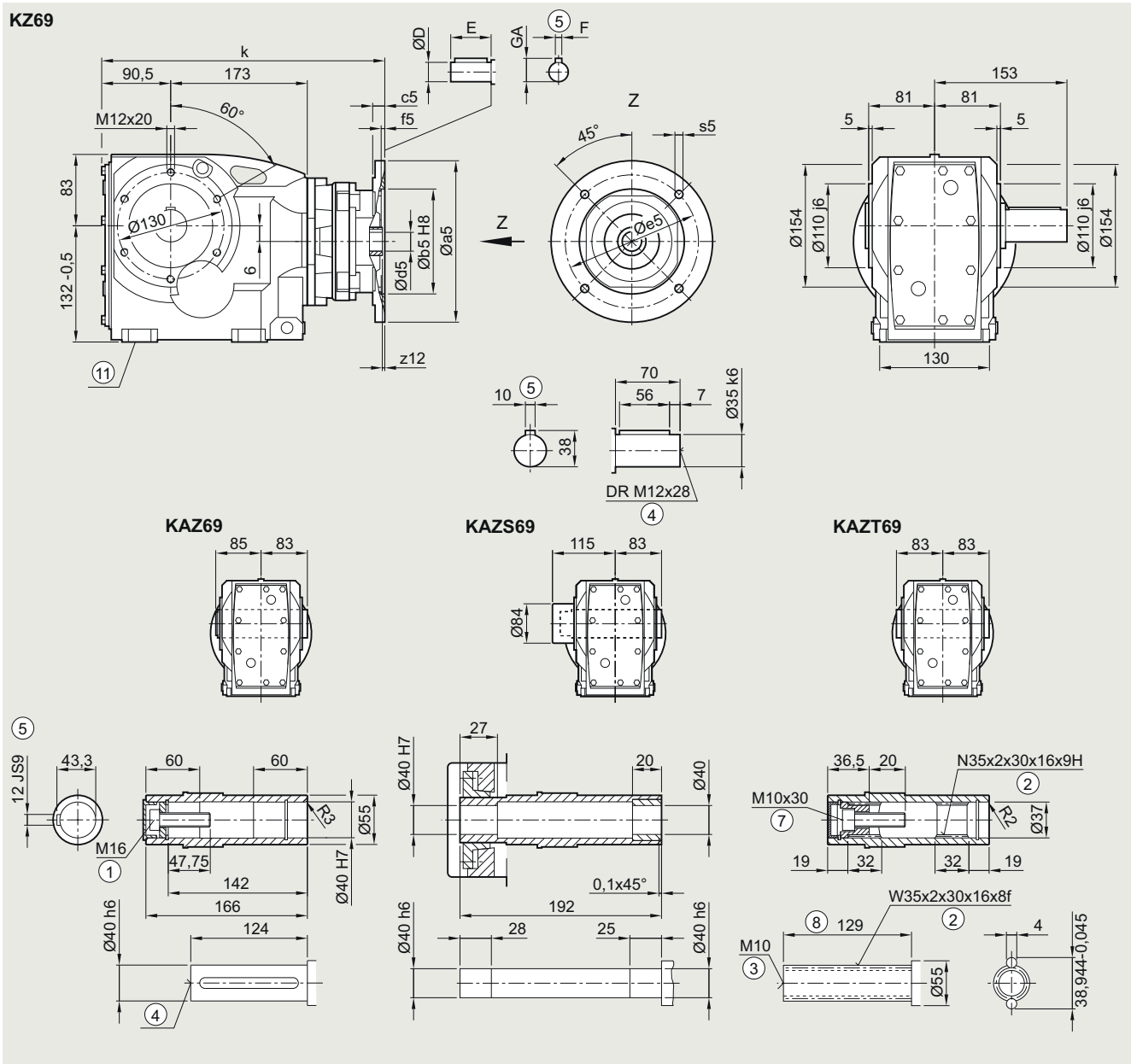
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

K.Z.69 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 331.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 331.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 359.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 359.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 431.5 |

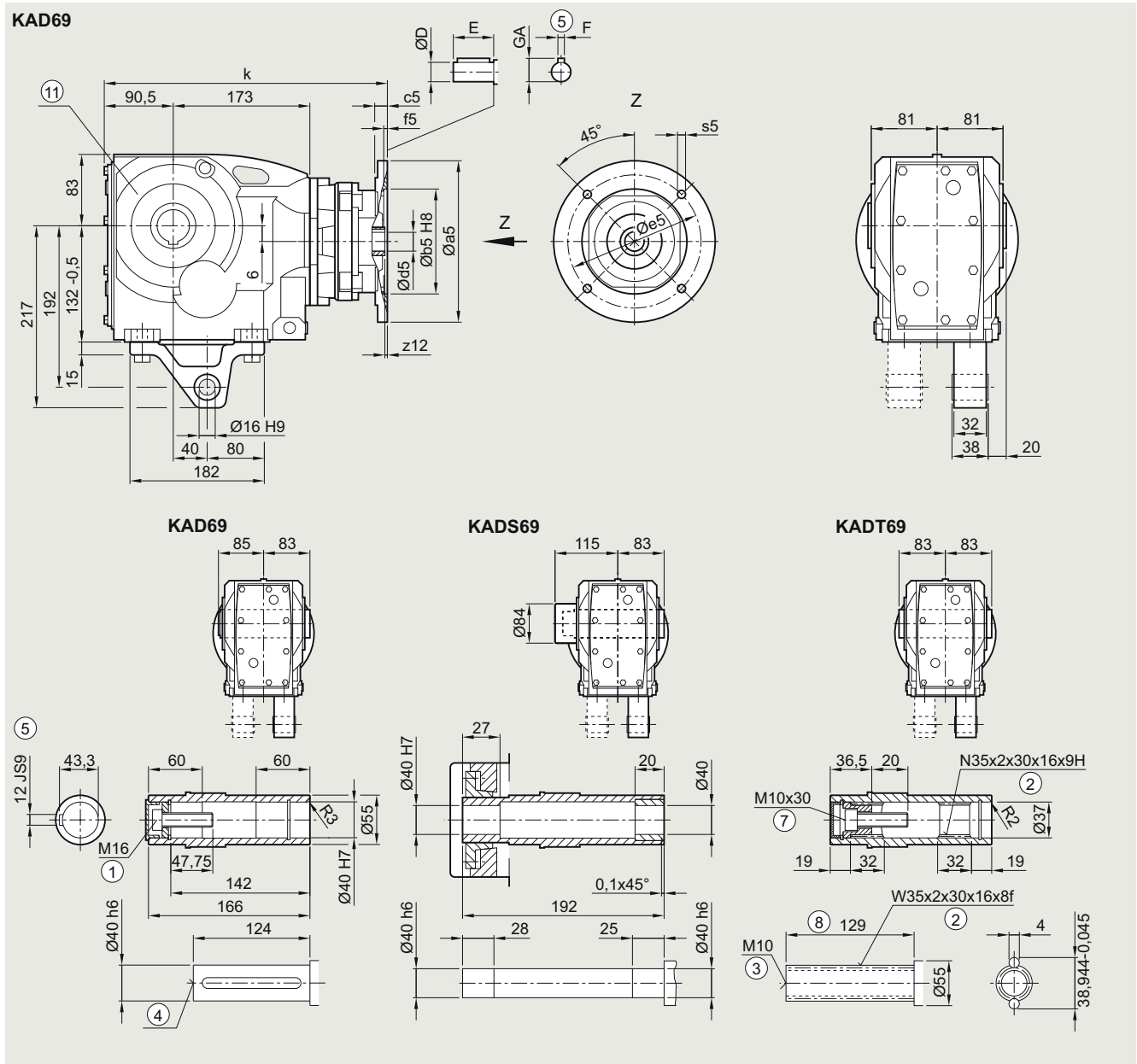
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

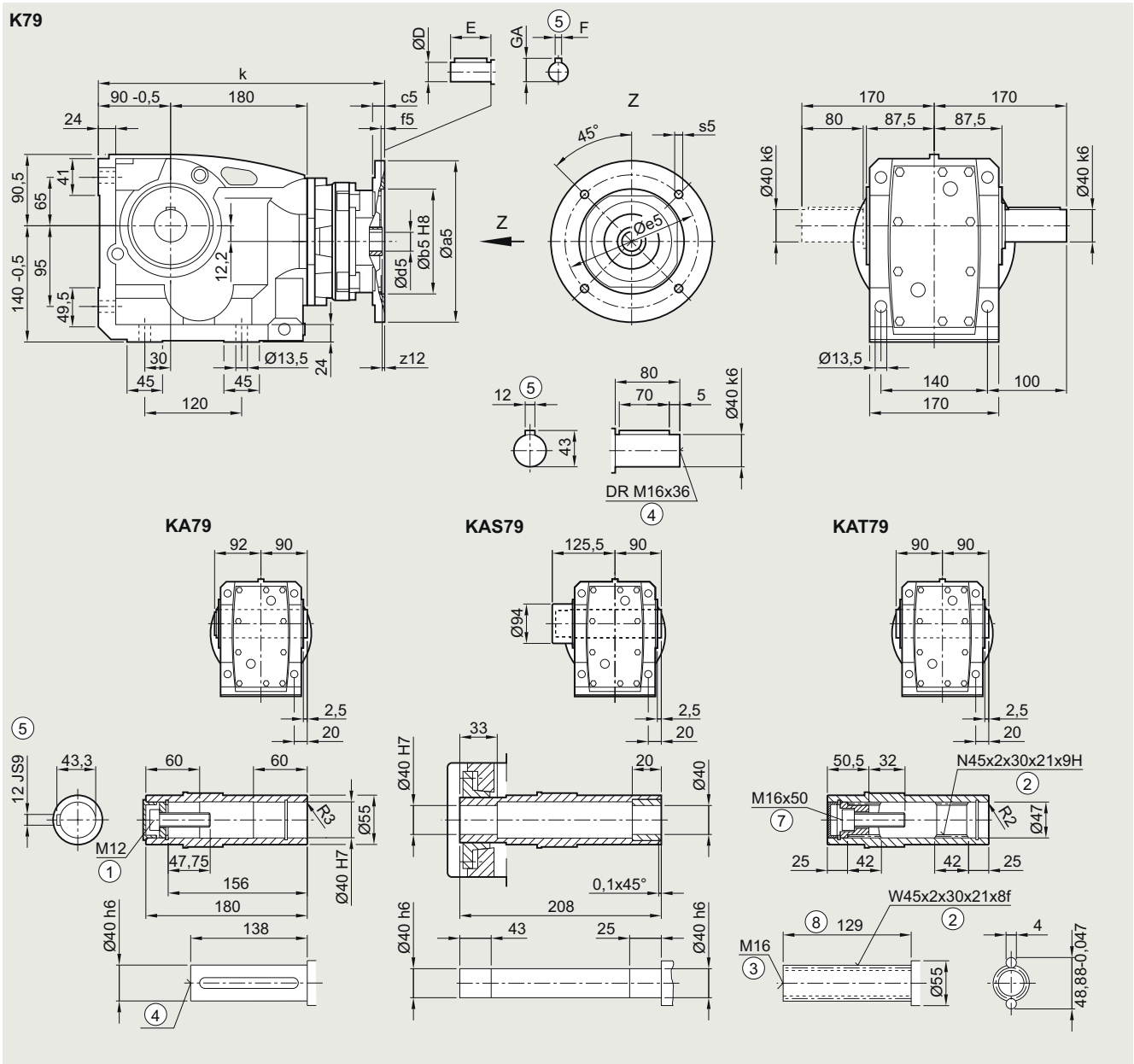
KAD.69 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 331.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 331.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 359.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 359.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 414.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 431.5 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
- ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑥ Use bores only for housing flange design

K.79 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-------|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115.0 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 338.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130.0 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 338.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 366.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 366.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.5 |
| 132 | 300 | 230 | 12 | 6 | 265.0 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 438.0 |

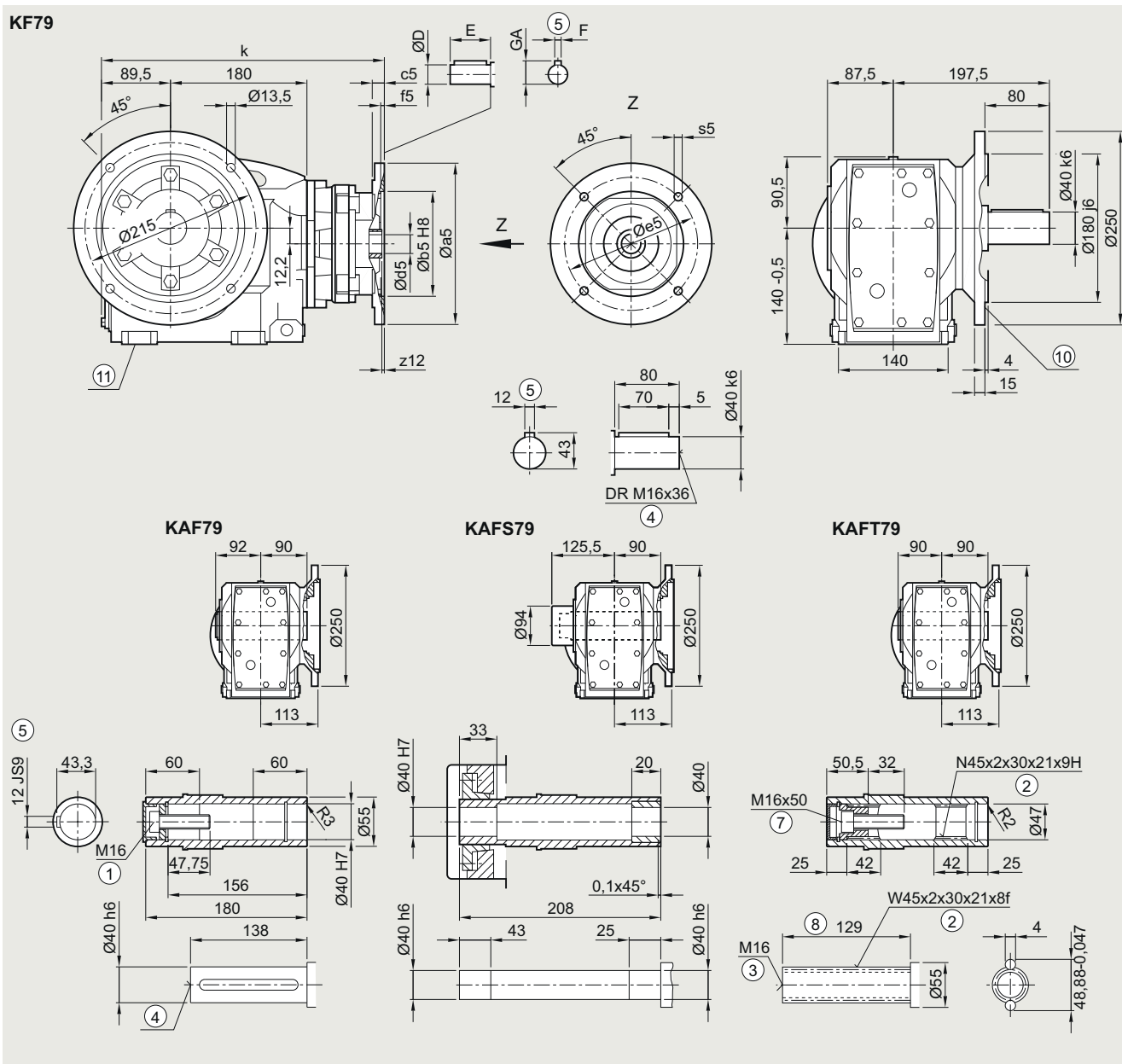
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.79 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 337.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 337.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 365.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 365.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 437.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

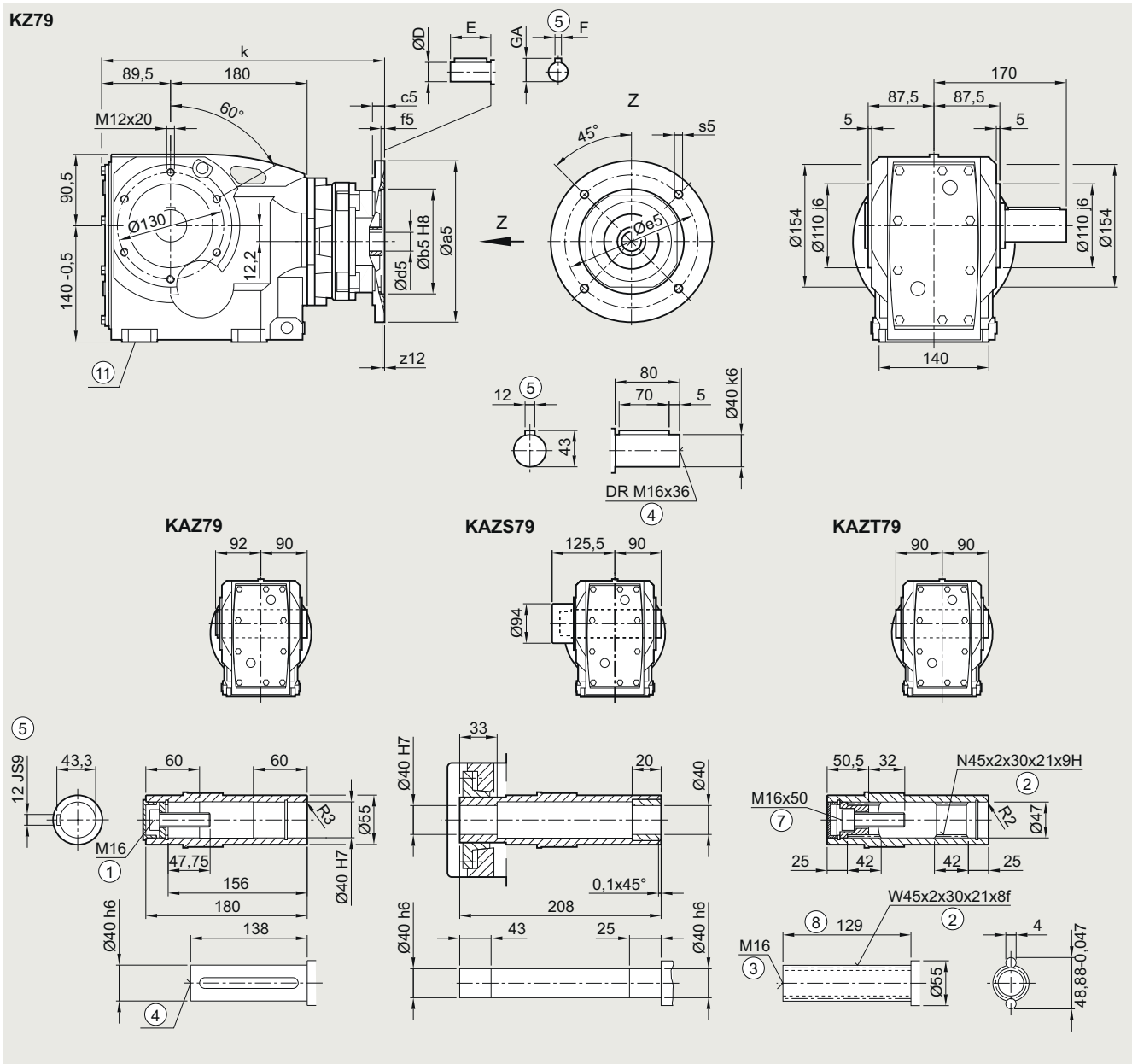
⑥ ISO 4762

⑦ Without locating shoulder +1 mm

⑧ For inner contour, see page 5/177

⑨ Use bores only for foot-mounted design

K.Z.79 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 337.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 337.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 365.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 365.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 437.5 |

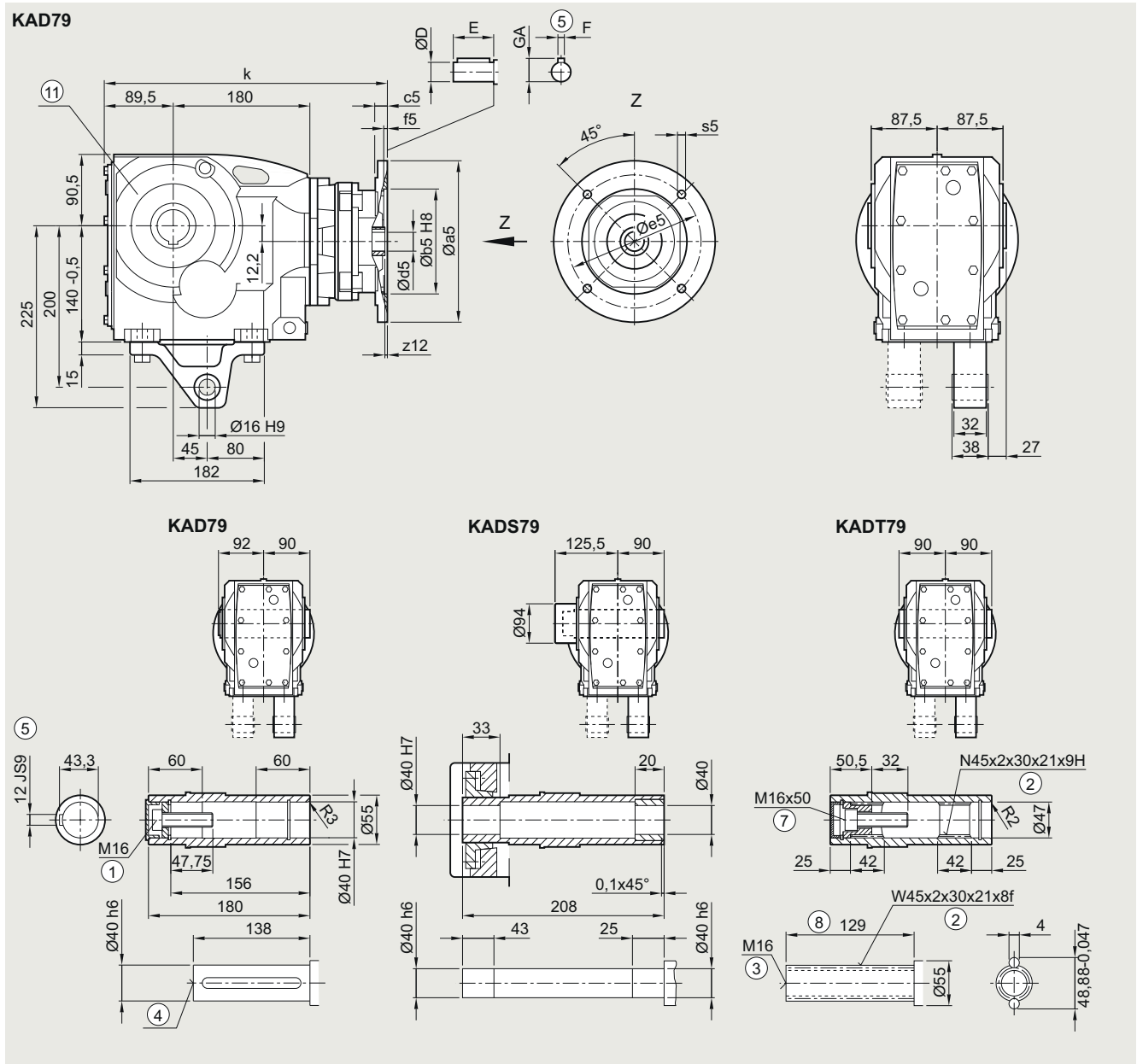
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑥ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

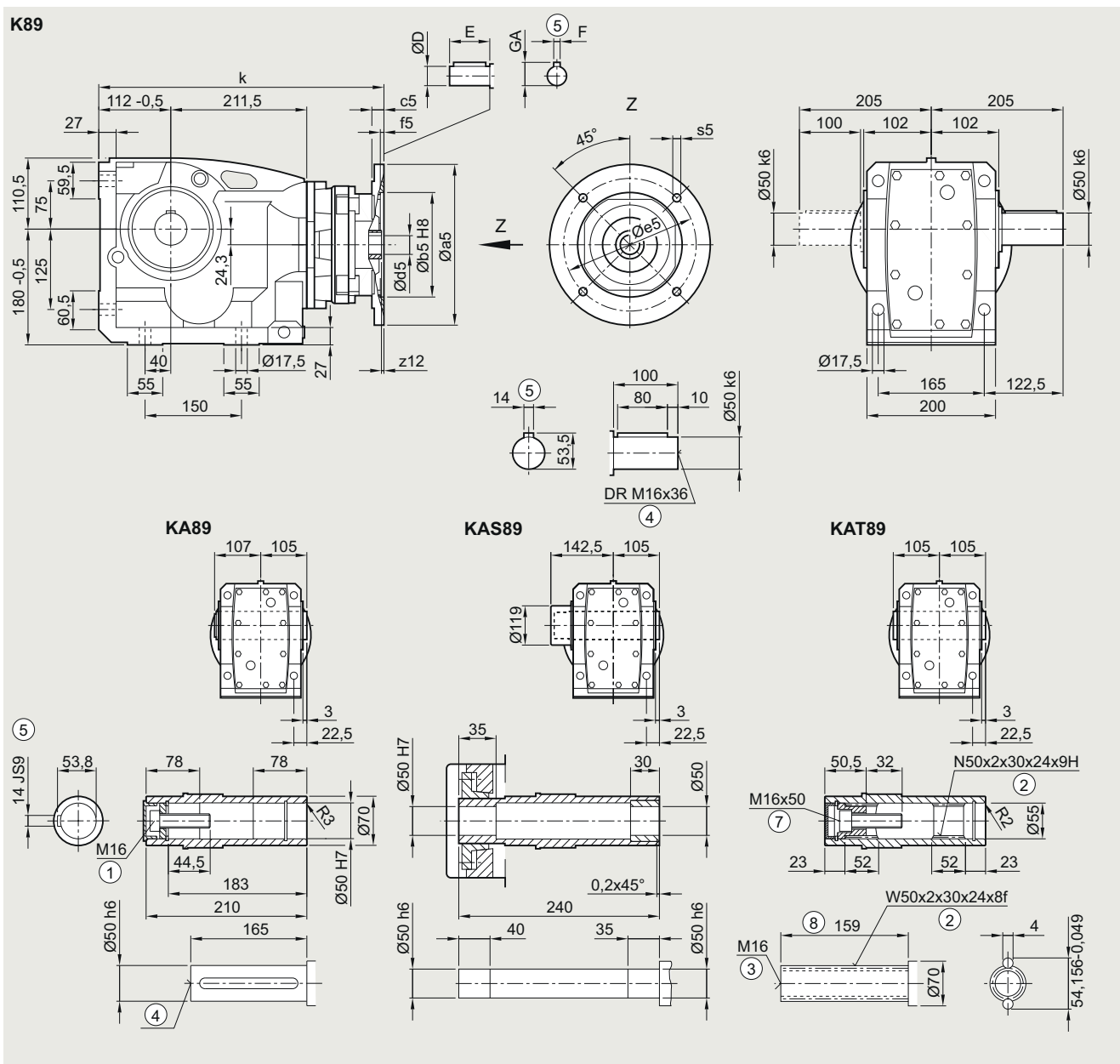
KAD.79 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 337.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 337.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 365.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 365.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 420.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 437.5 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
- ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for housing flange design

K.89 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-------|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130.0 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 389.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 413.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165.0 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 413.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215.0 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215.0 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265.0 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 485.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300.0 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 515.5 |

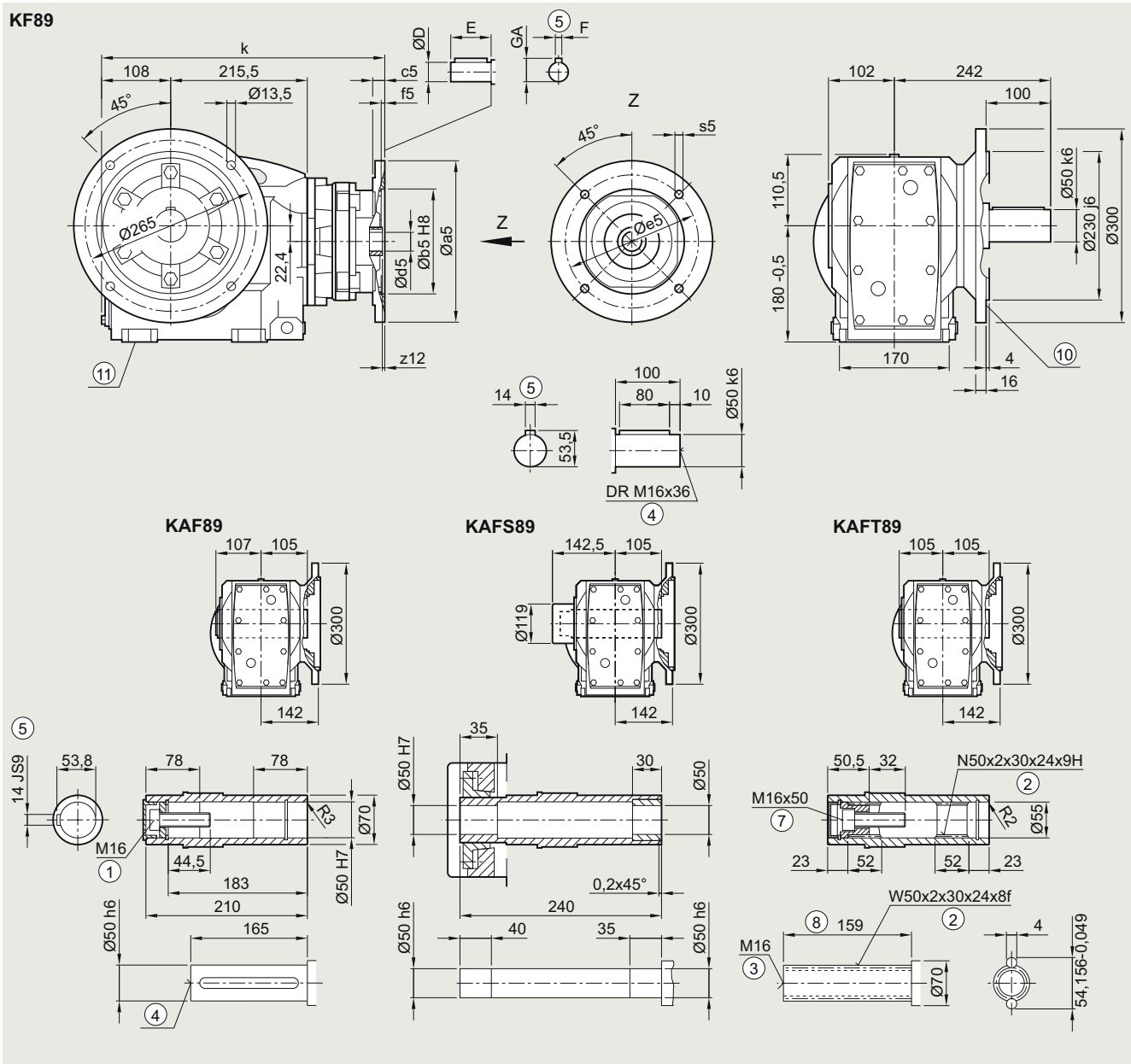
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.89 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 389.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 413.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 413.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 485.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 515.5 |

① ISO 4014
② ISO 4762

③ Without locating shoulder +1 mm

④ DIN 332-D

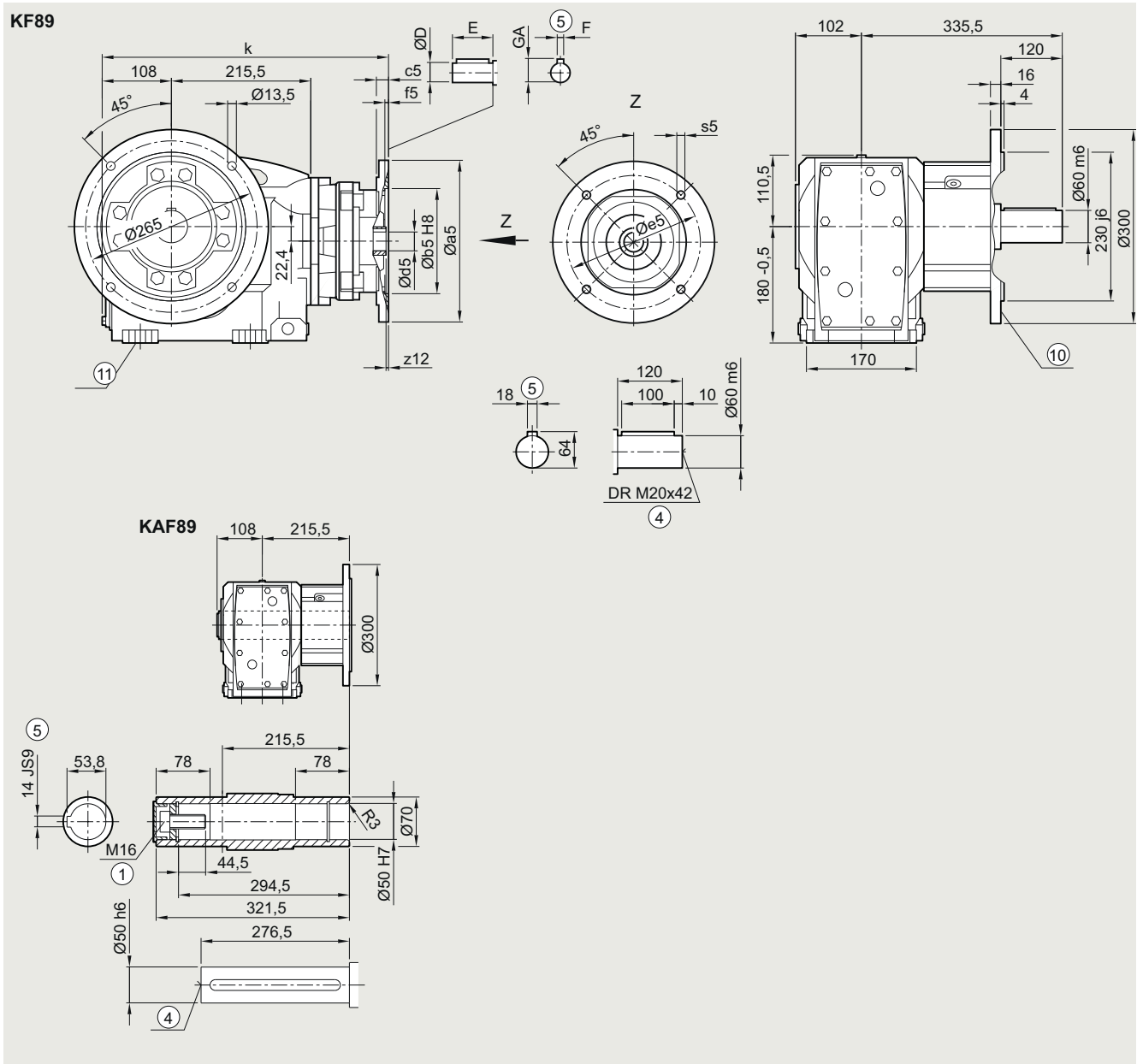
⑤ DIN 332

⑥ Feather key/keyway DIN 6885

⑦ For inner contour, see page 5/177

⑧ Use bores only for foot-mounted design

K.F.89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 389.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 413.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 413.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 485.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 515.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

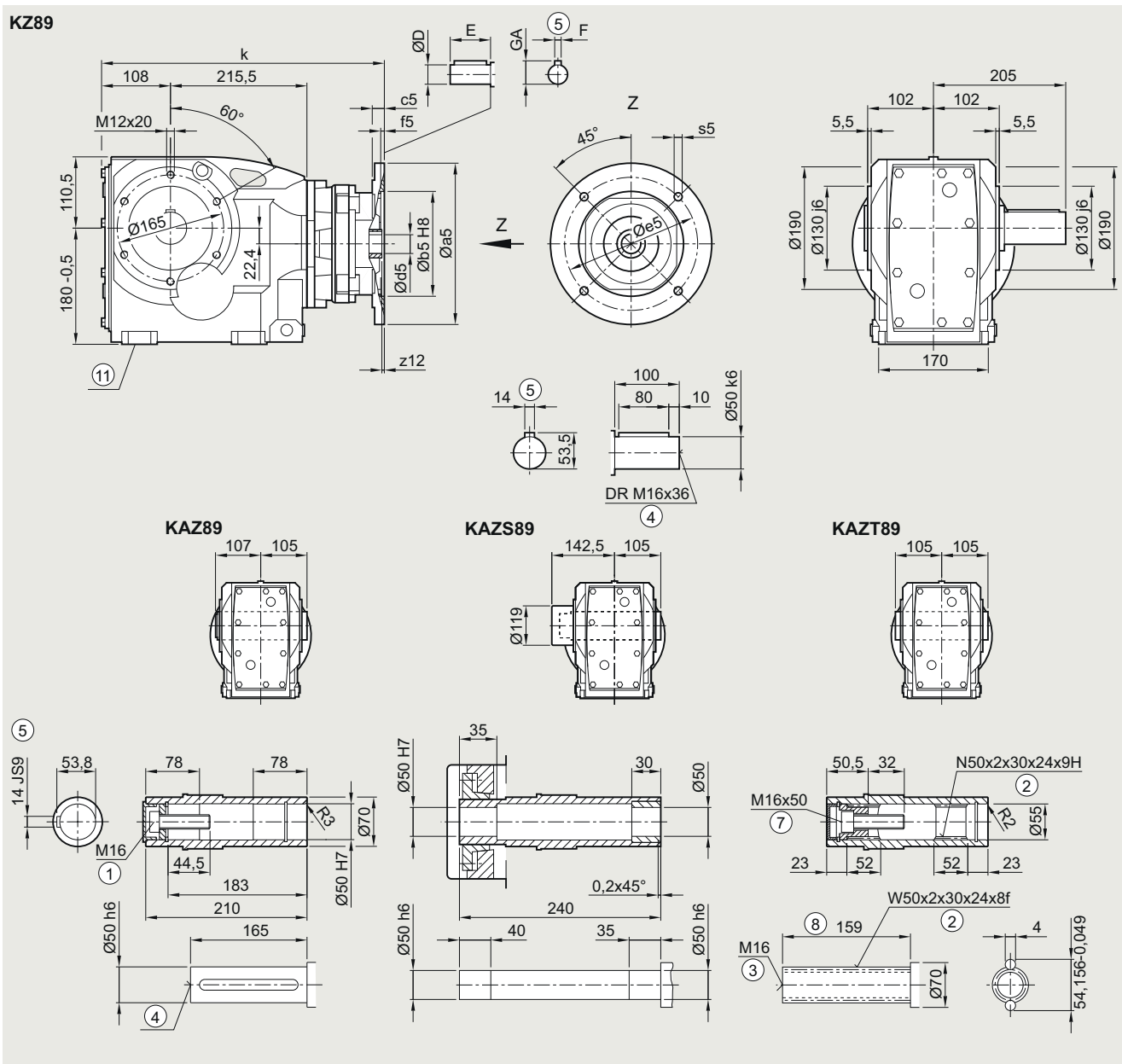
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.Z.89 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 389.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 413.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 413.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 485.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 515.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

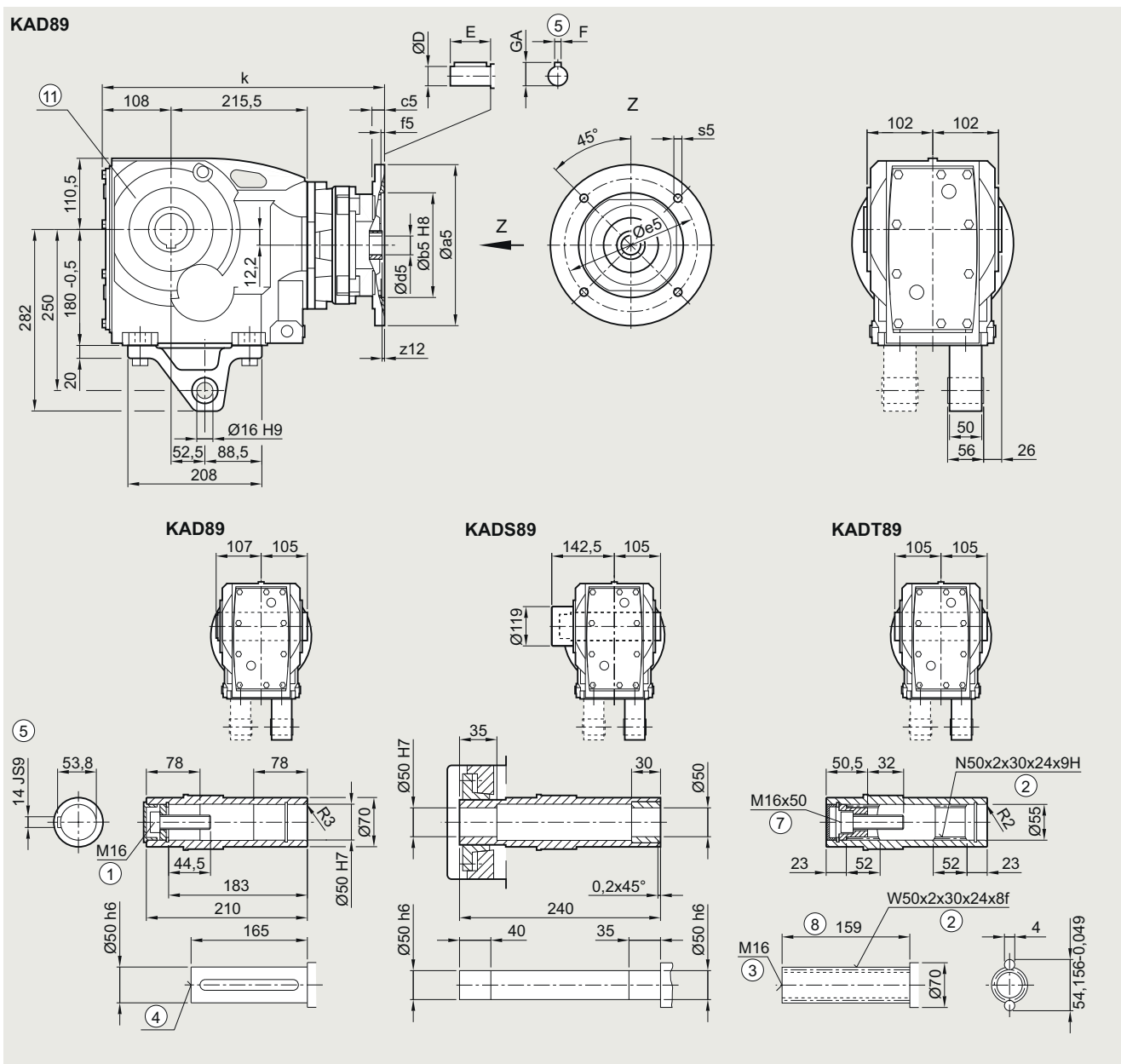
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for foot-mounted design

KAD.89 gearbox in a shaft-mounted design



5

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 389.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 413.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 413.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 468.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 485.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 515.5 |

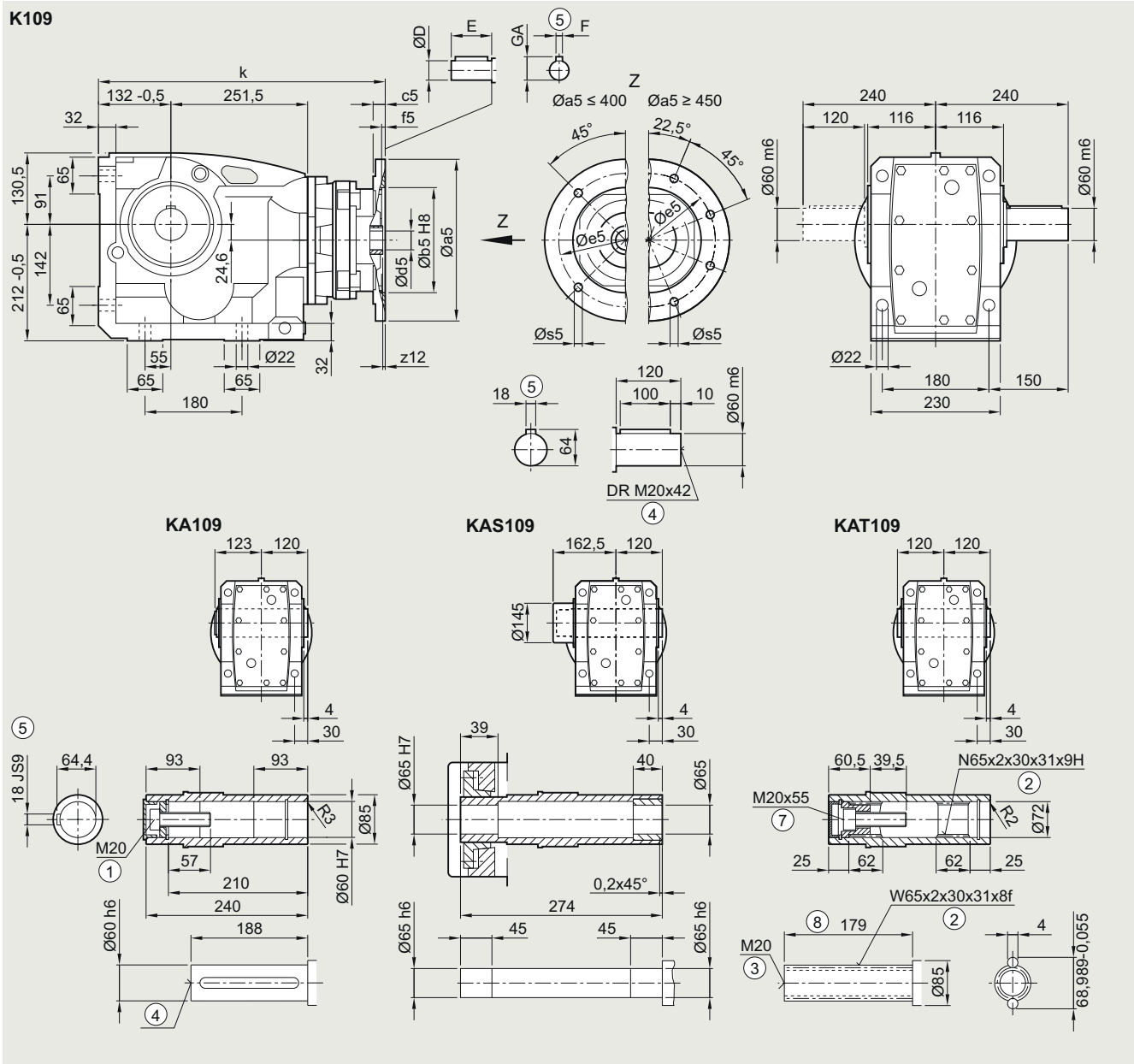
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

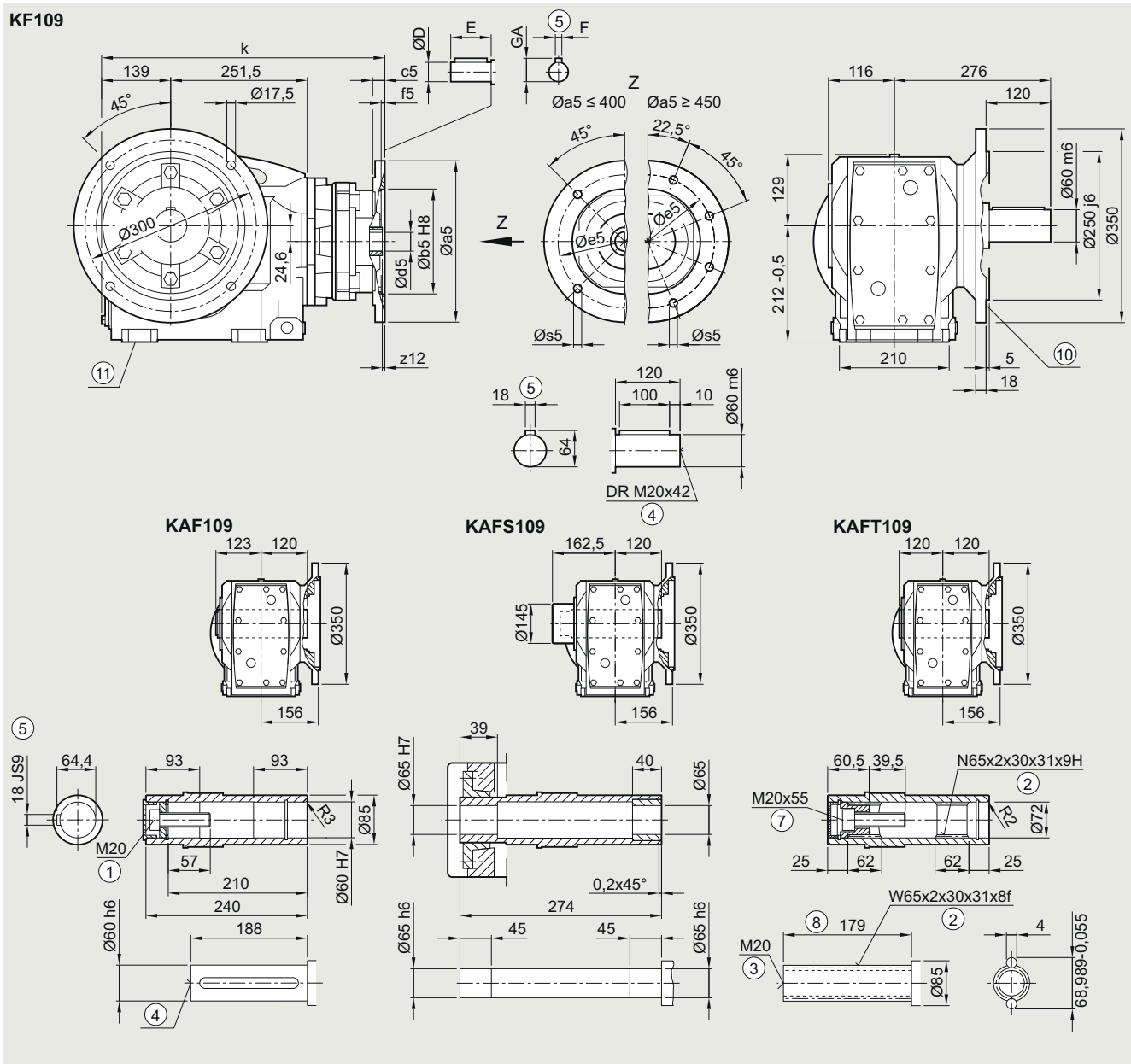
K.109 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 460.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 460.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 511.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 511.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 528.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 558.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 558.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

K.F.109 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 467.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 467.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 535.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 565.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 565.5 |

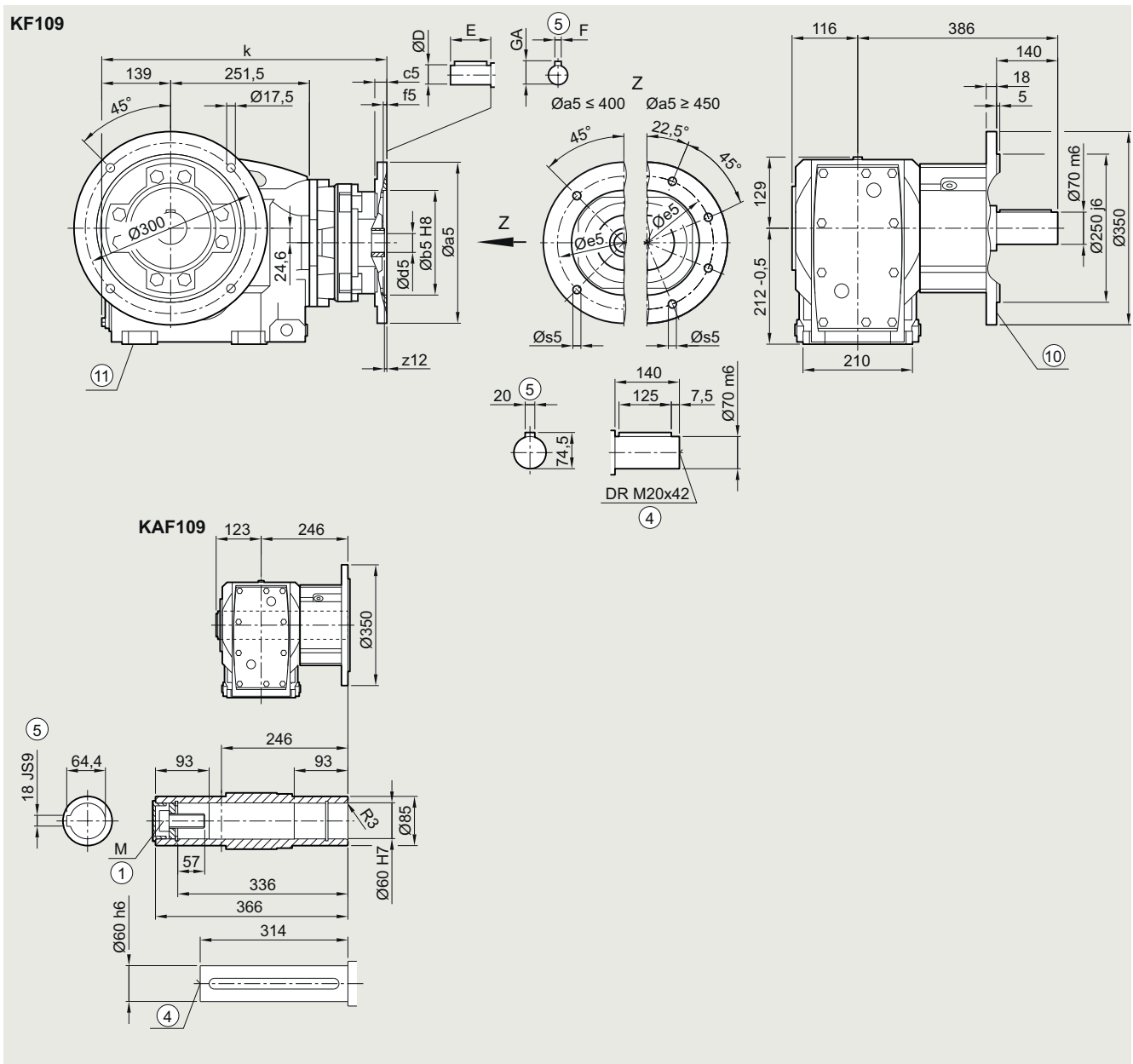
- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
- ⑦ ISO 4762 ⑧ Without locating shoulder + 1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 467.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 467.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 535.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 565.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 565.5 |

① ISO 4014

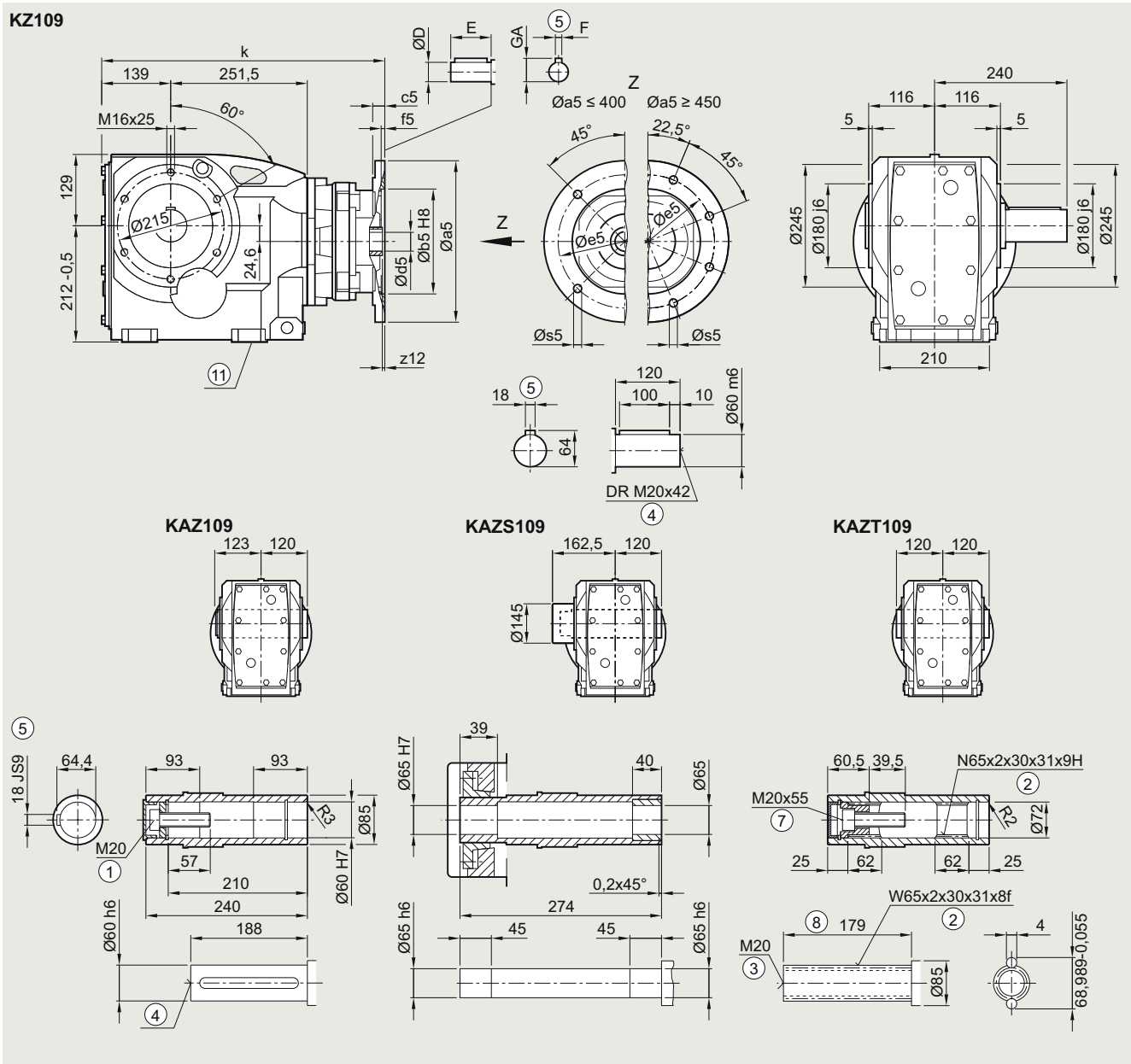
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

⑩ Use bores only for foot-mounted design

K.Z.109 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 467.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 467.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 535.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 565.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 565.5 |

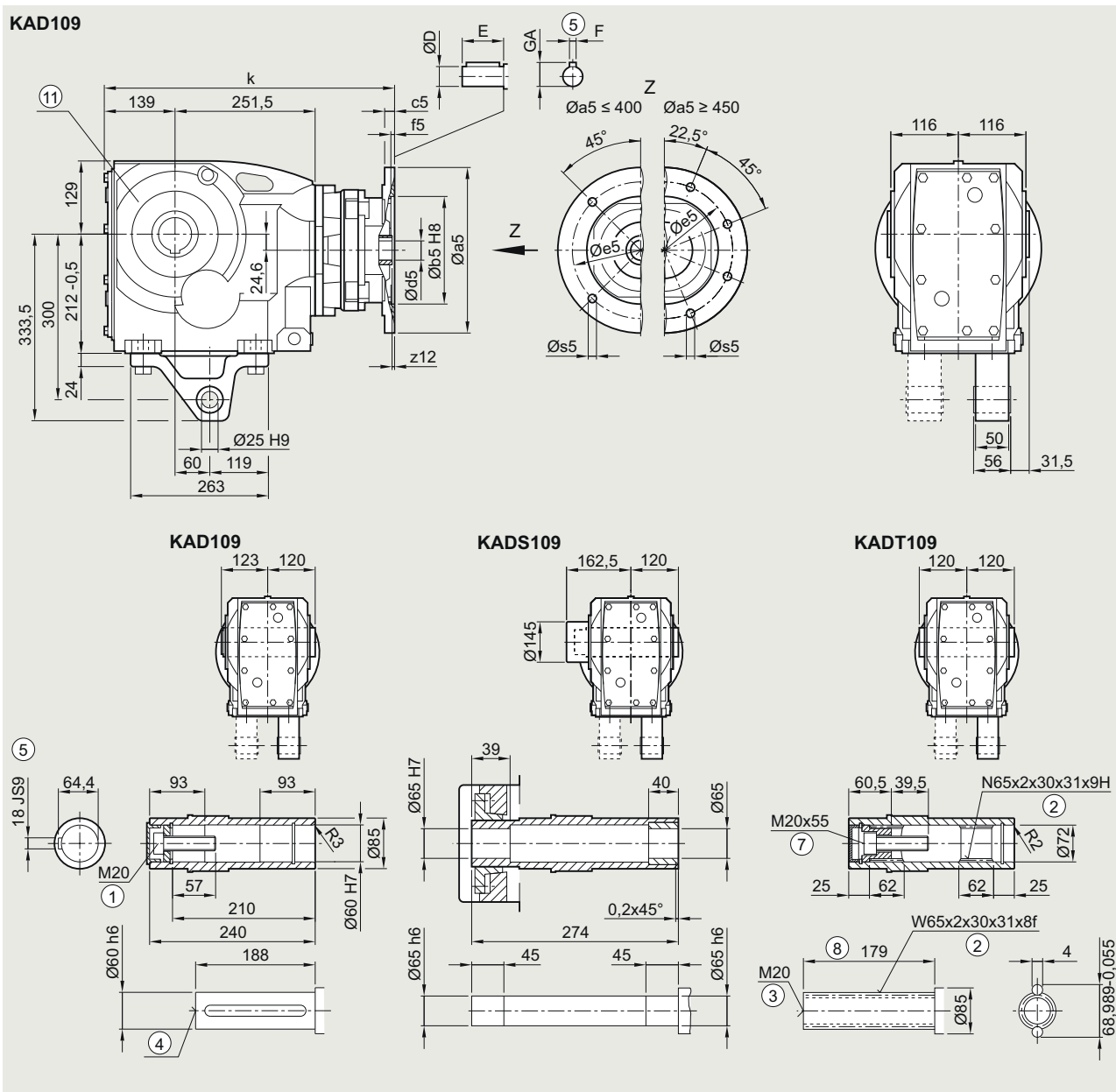
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

KAD.109 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 467.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 467.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 518.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 535.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 565.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 565.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

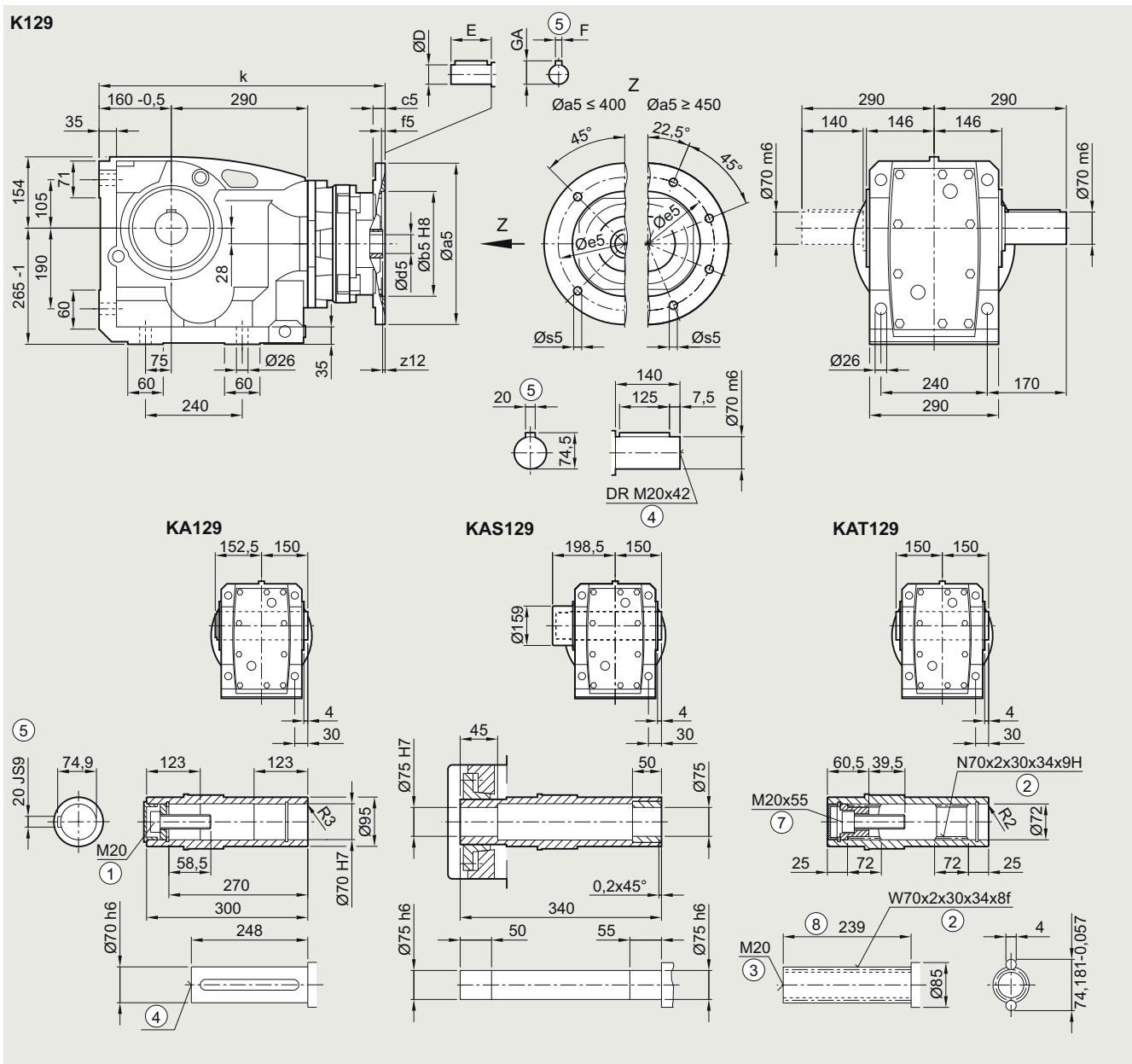
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

K.129 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 520.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 568.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 568.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 586.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 616.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 616.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 656.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 663.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

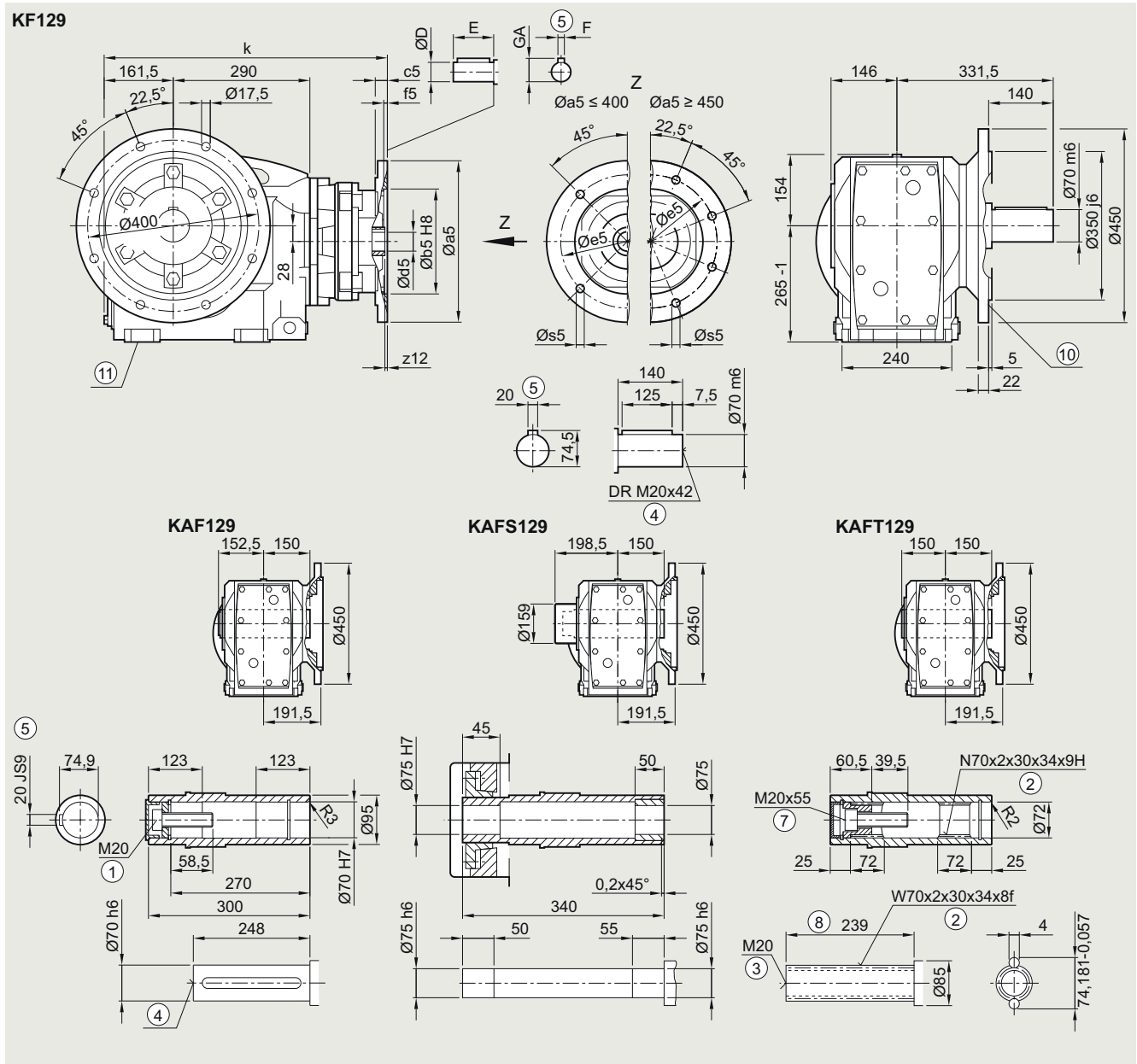
Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.129 gearbox in a flange-mounted design

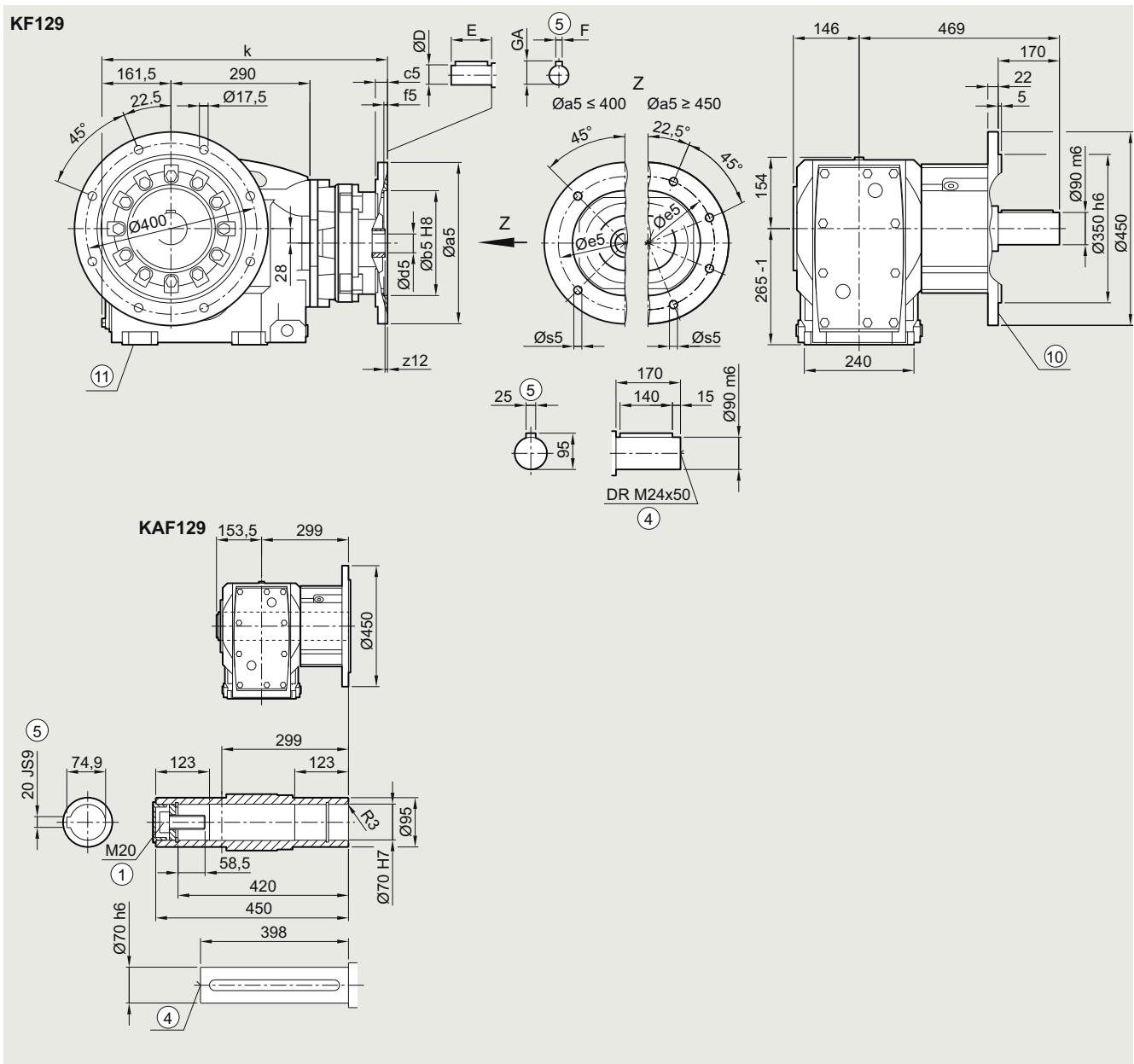
5



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 521.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 587.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 617.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 617.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 658.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 664.5 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑥ ISO 4762 ⑦ Without locating shoulder + 1 mm ⑧ For inner contour, see page 5/177 ⑨ Use bores only for foot-mounted design

K.F.129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 521.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 587.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 617.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 617.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 658.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 664.5 |

① ISO 4014

④ DIN 332

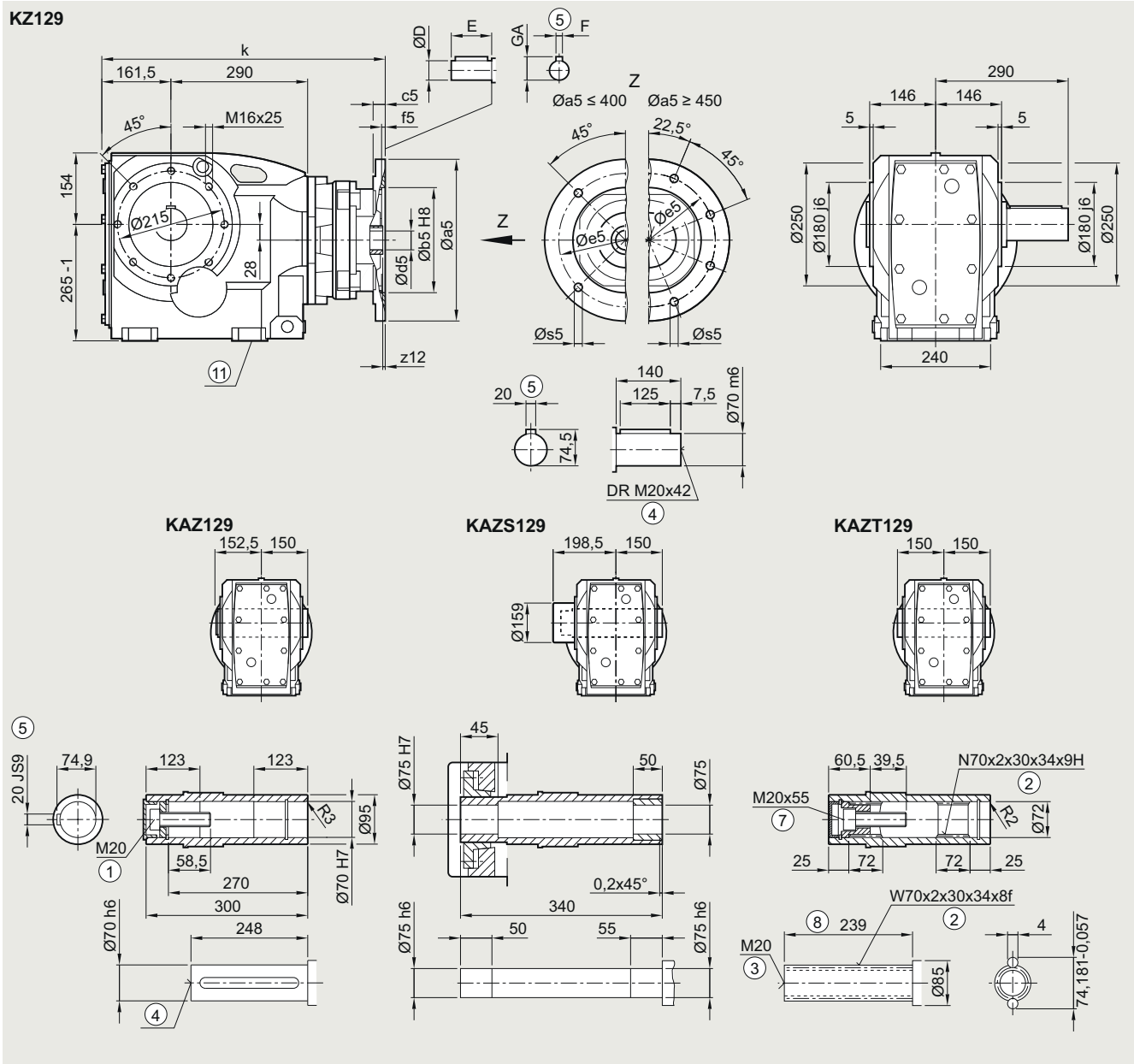
⑤ Feather key/keyway DIN 6885 ⑥ For inner contour, see page 5/177 ⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.Z.129 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 521.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 587.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 617.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 617.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 658.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 664.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

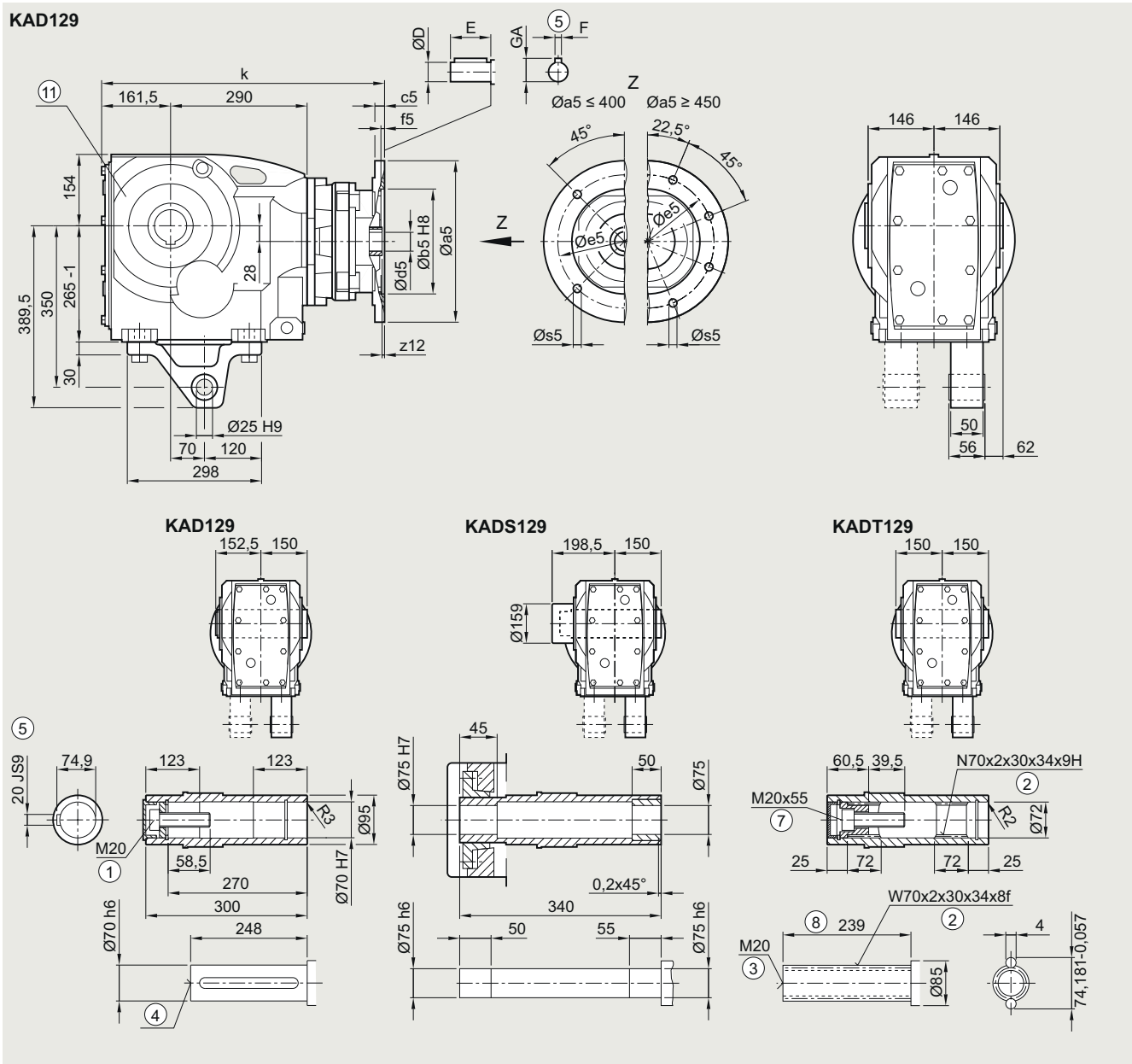
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder +1 mm ⑧ Use bores only for foot-mounted design

KAD.129 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|-----|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 521.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 570.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 587.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 617.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 617.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 658.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 664.5 |

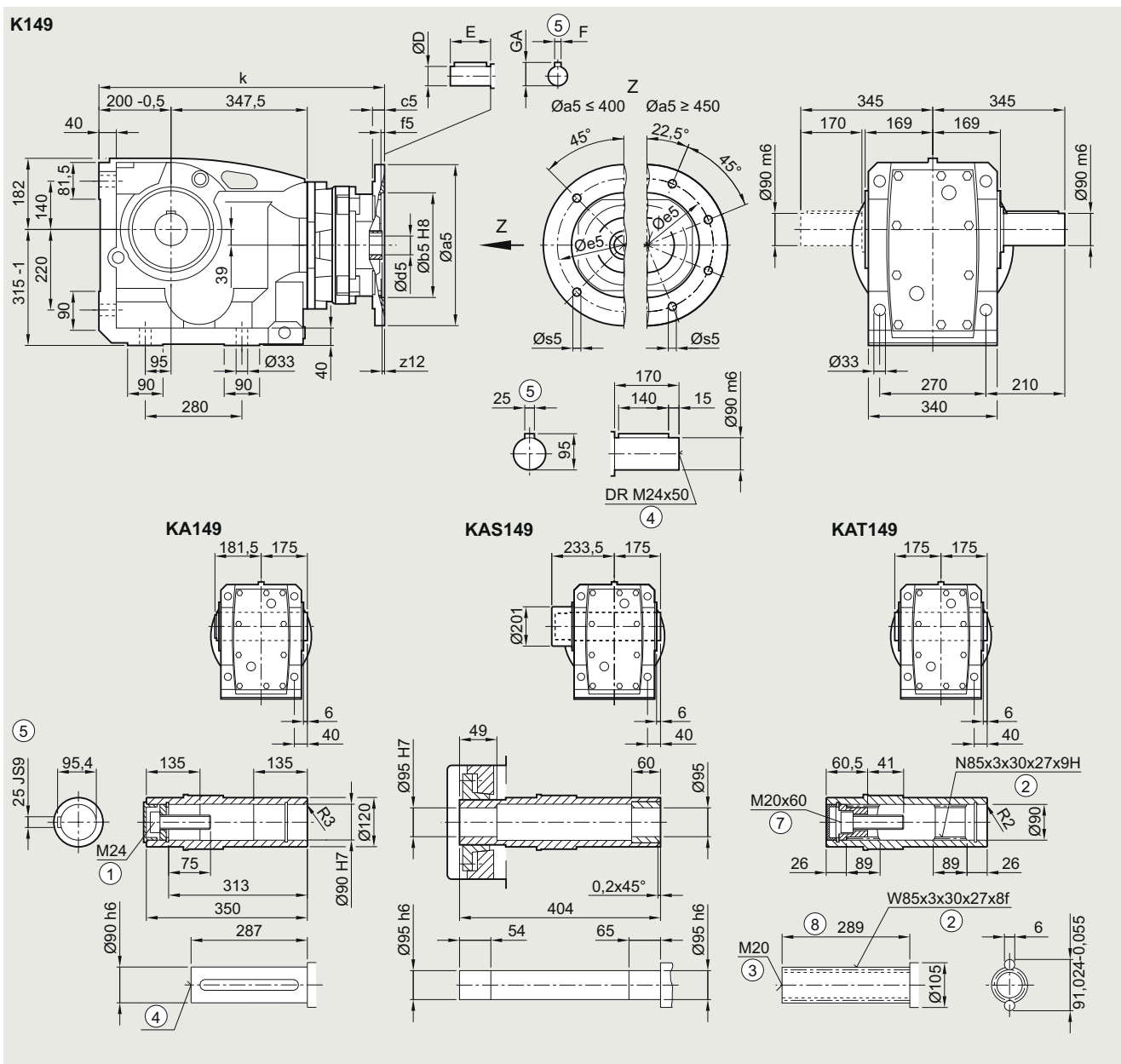
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 610.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 657.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 657.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 672.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 702.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 702.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 743.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 749.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 784.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

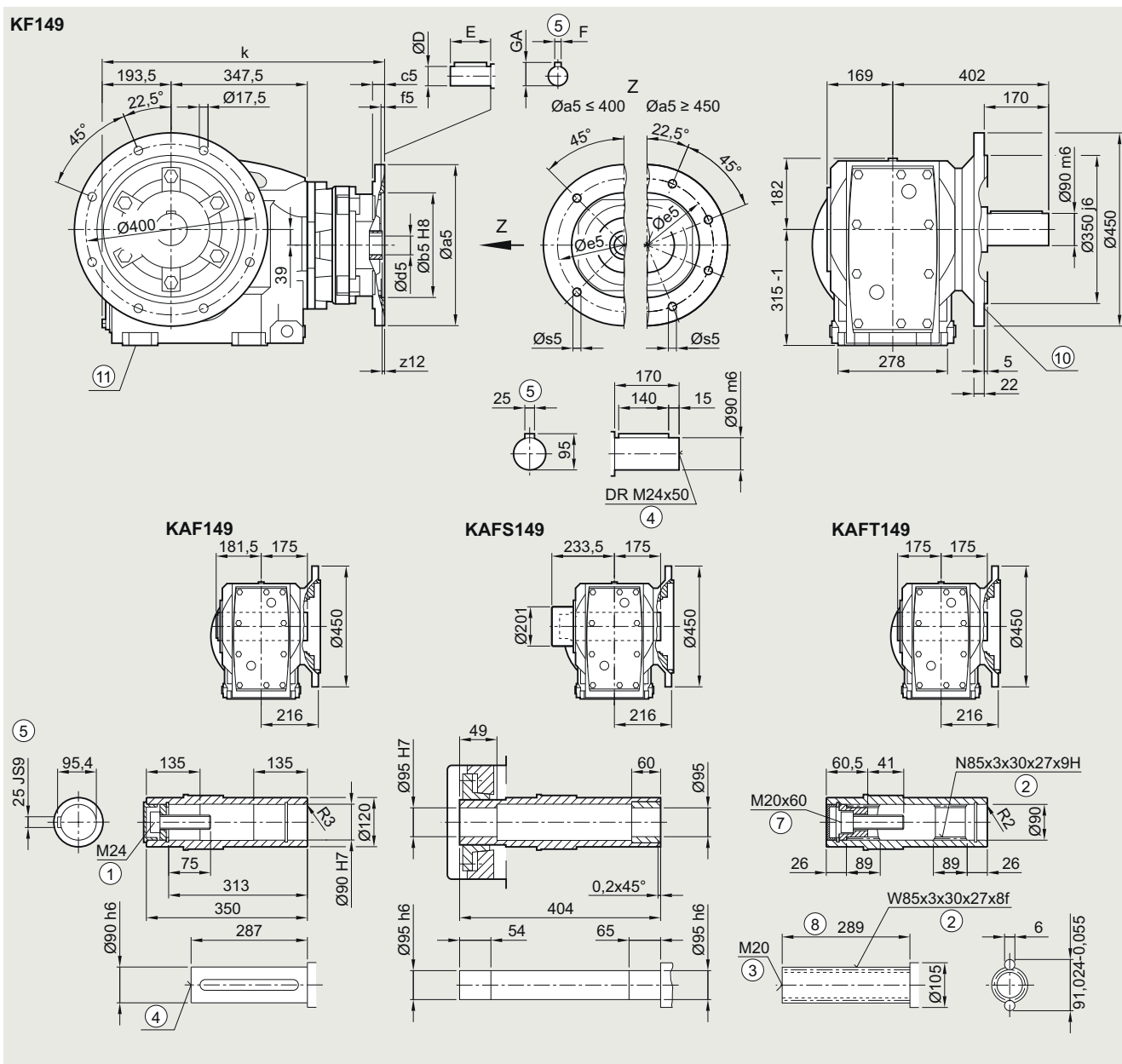
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

K.F.149 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 604.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 666.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 696.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 696.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 736.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 743.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 777.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

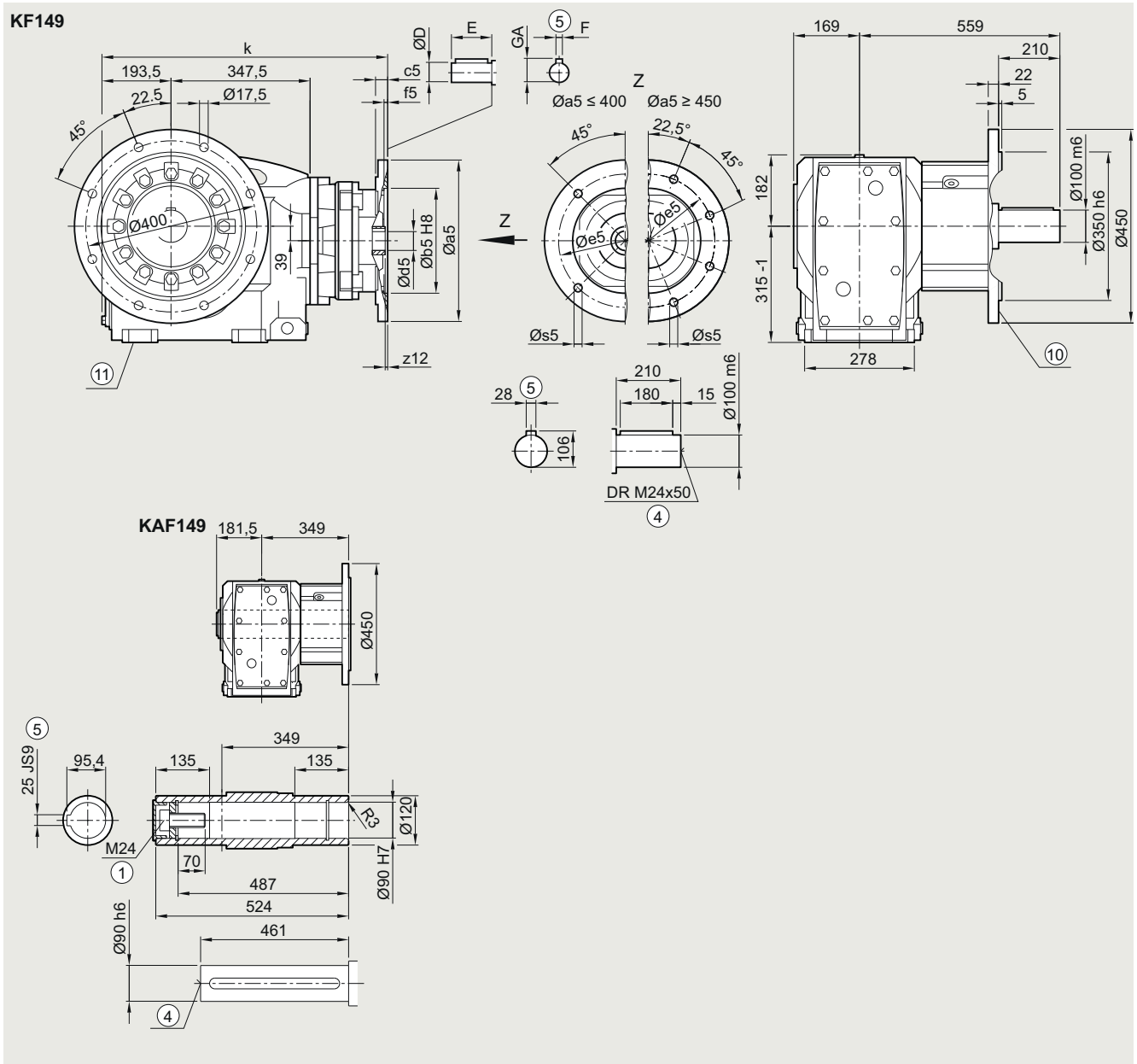
⑦ Without locating shoulder +1 mm ⑧ For inner contour, see page 5/177 ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 604.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 666.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 696.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 696.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 736.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 743.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 777.5 |

① ISO 4014

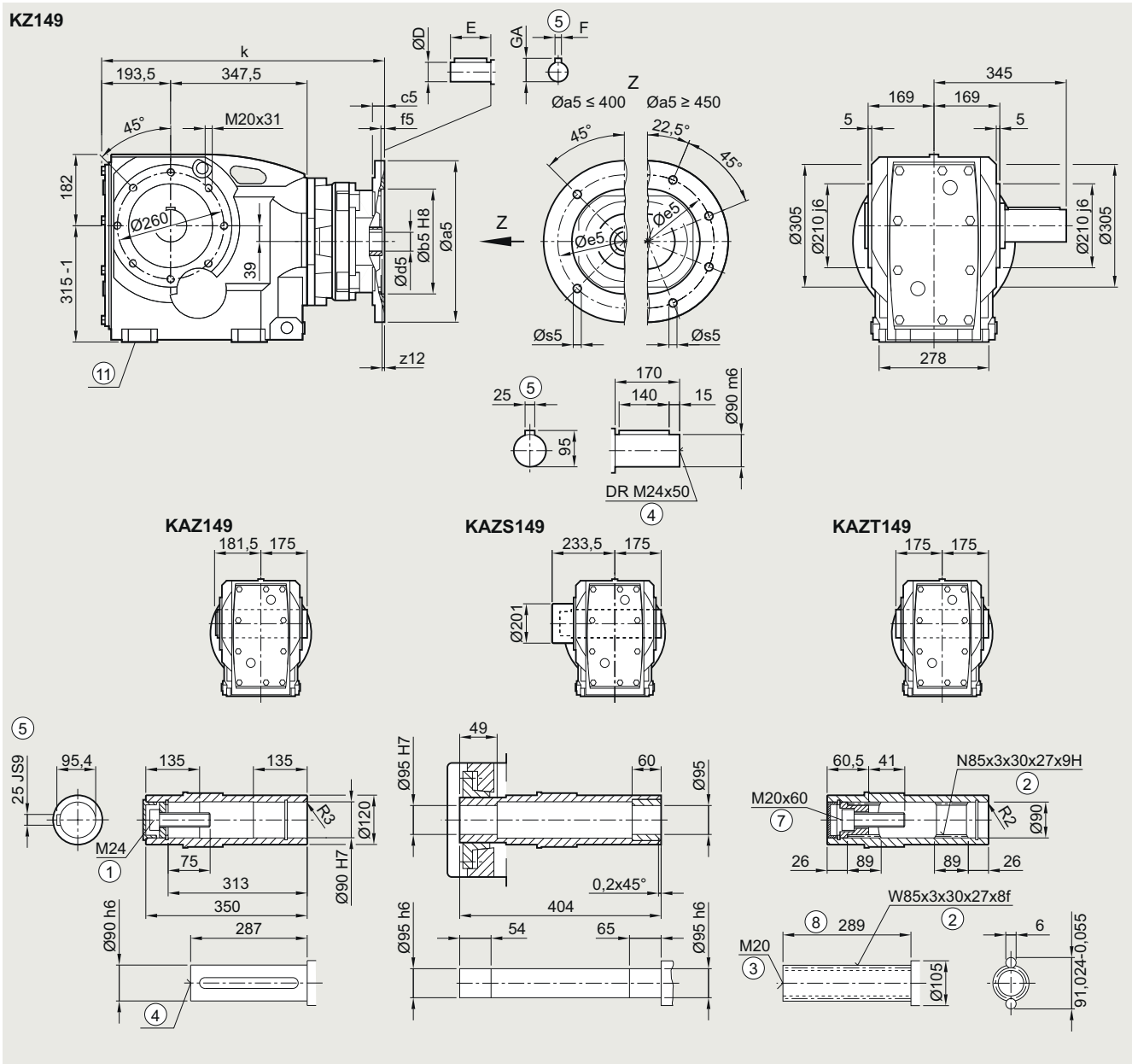
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

⑩ Use bores only for foot-mounted design

K.Z.149 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 604.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 666.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 696.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 696.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 736.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 743.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 777.5 |

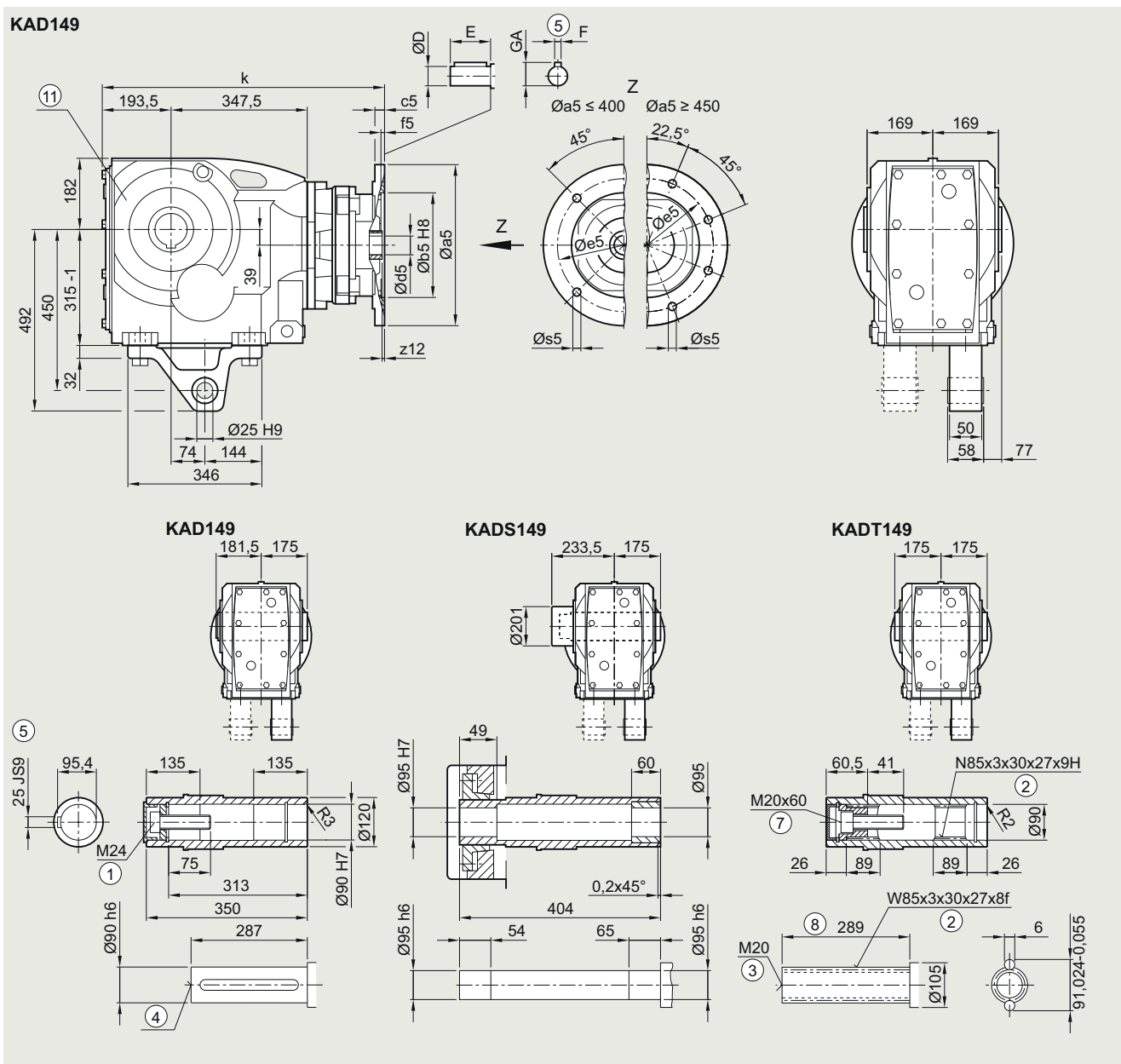
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

KAD.149 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 604.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 650.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 666.0 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 696.0 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 696.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 140 | 16 | 59.0 | 736.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 743.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 777.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

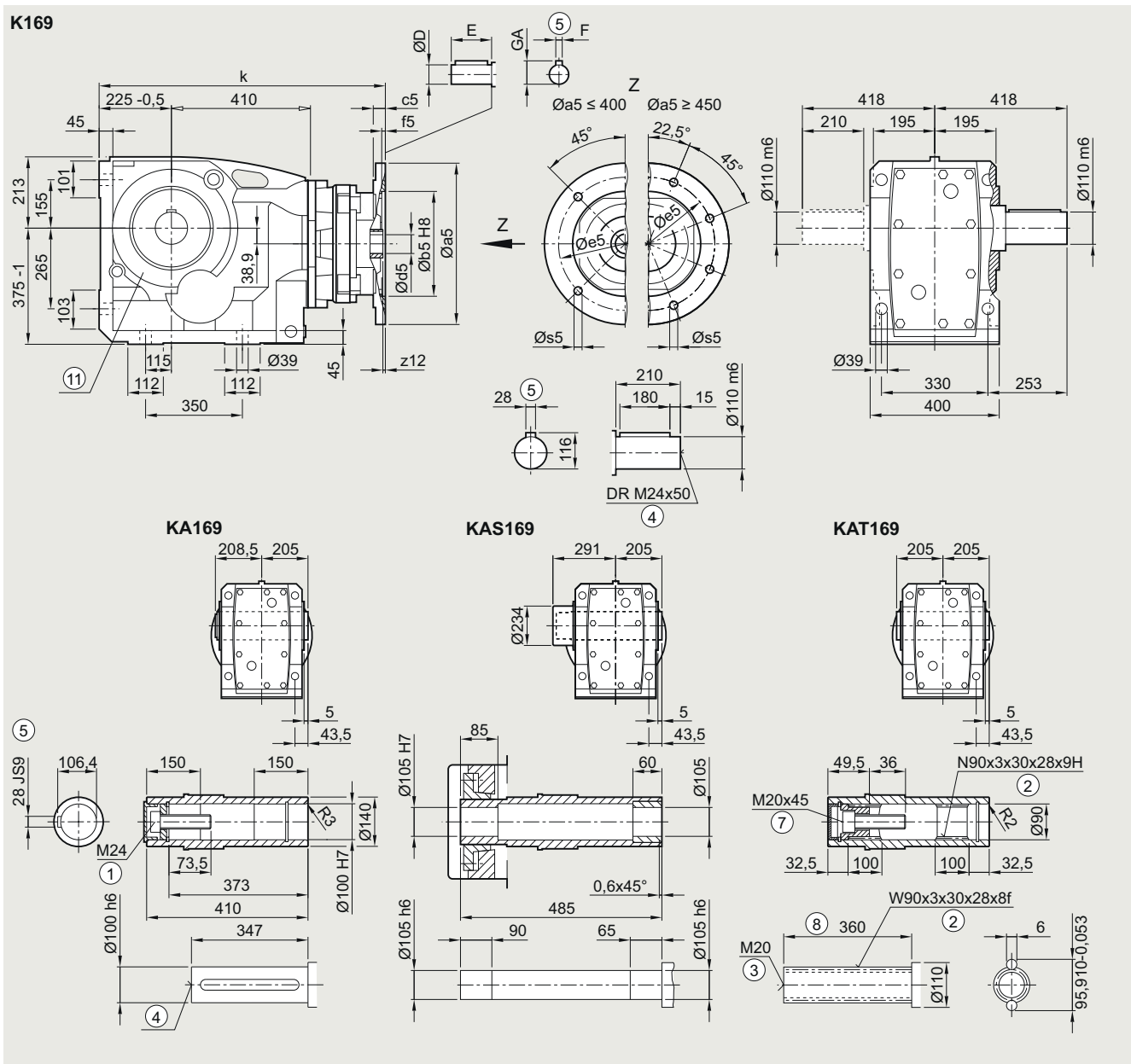
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder +1 mm

⑧ Use bores only for housing flange design

K.169 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 753.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 783.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 783.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 824.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 830.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 865.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder +1 mm

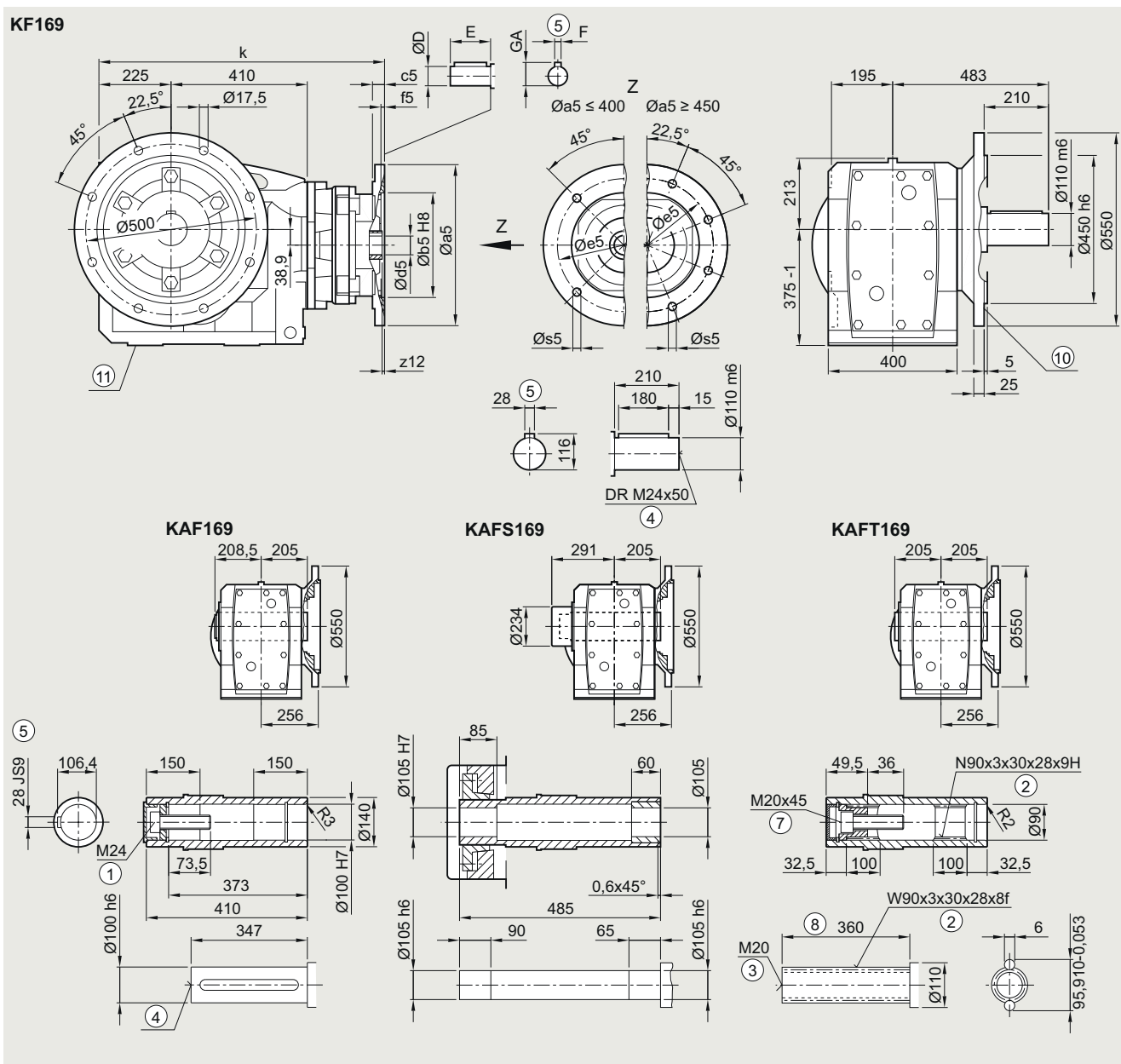
⑧ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.F.169 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 753.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 783.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 783.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 824.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 830.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 865.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

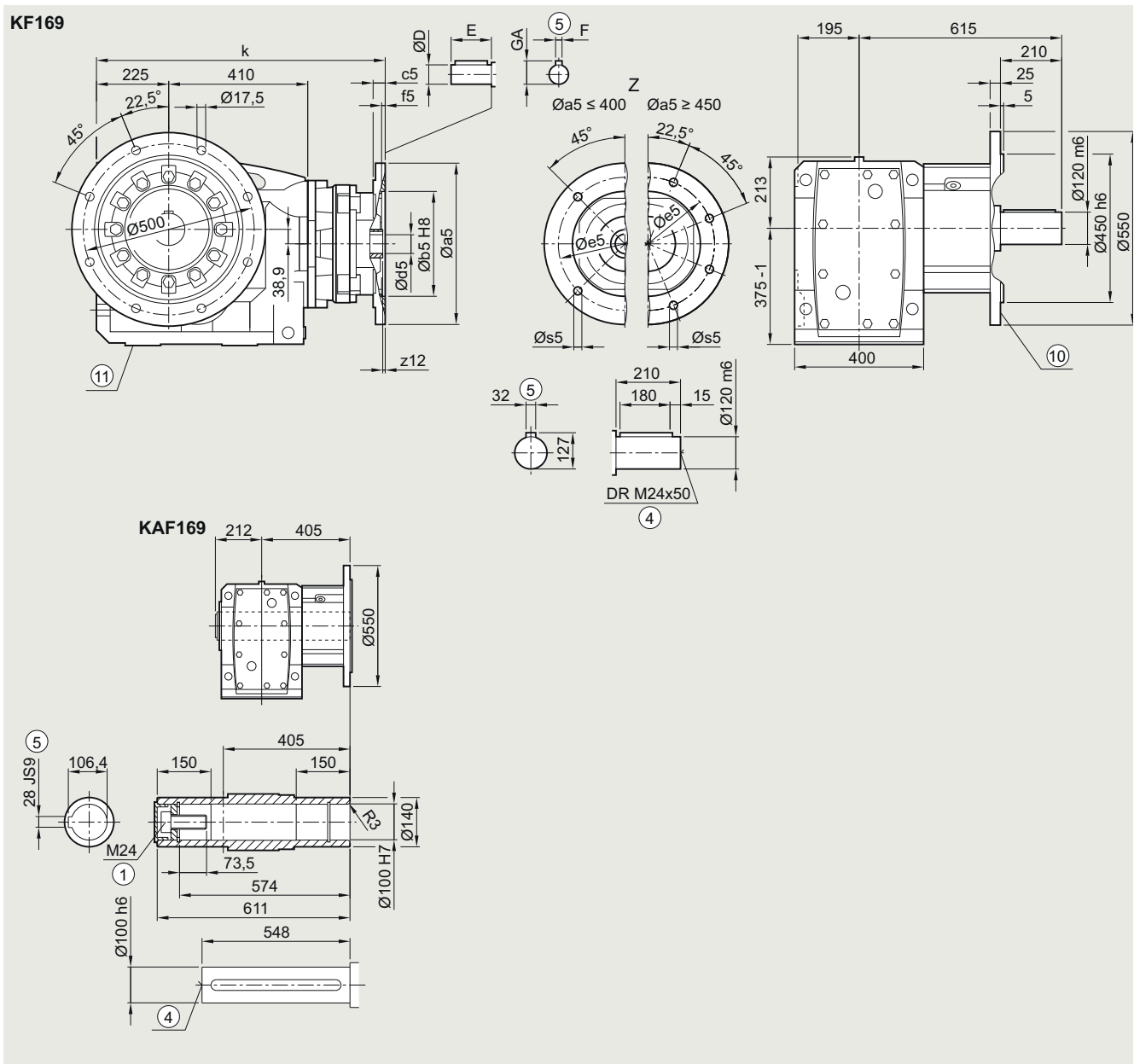
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder + 1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

K.F.169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 753.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 783.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 783.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 824.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 830.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 865.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

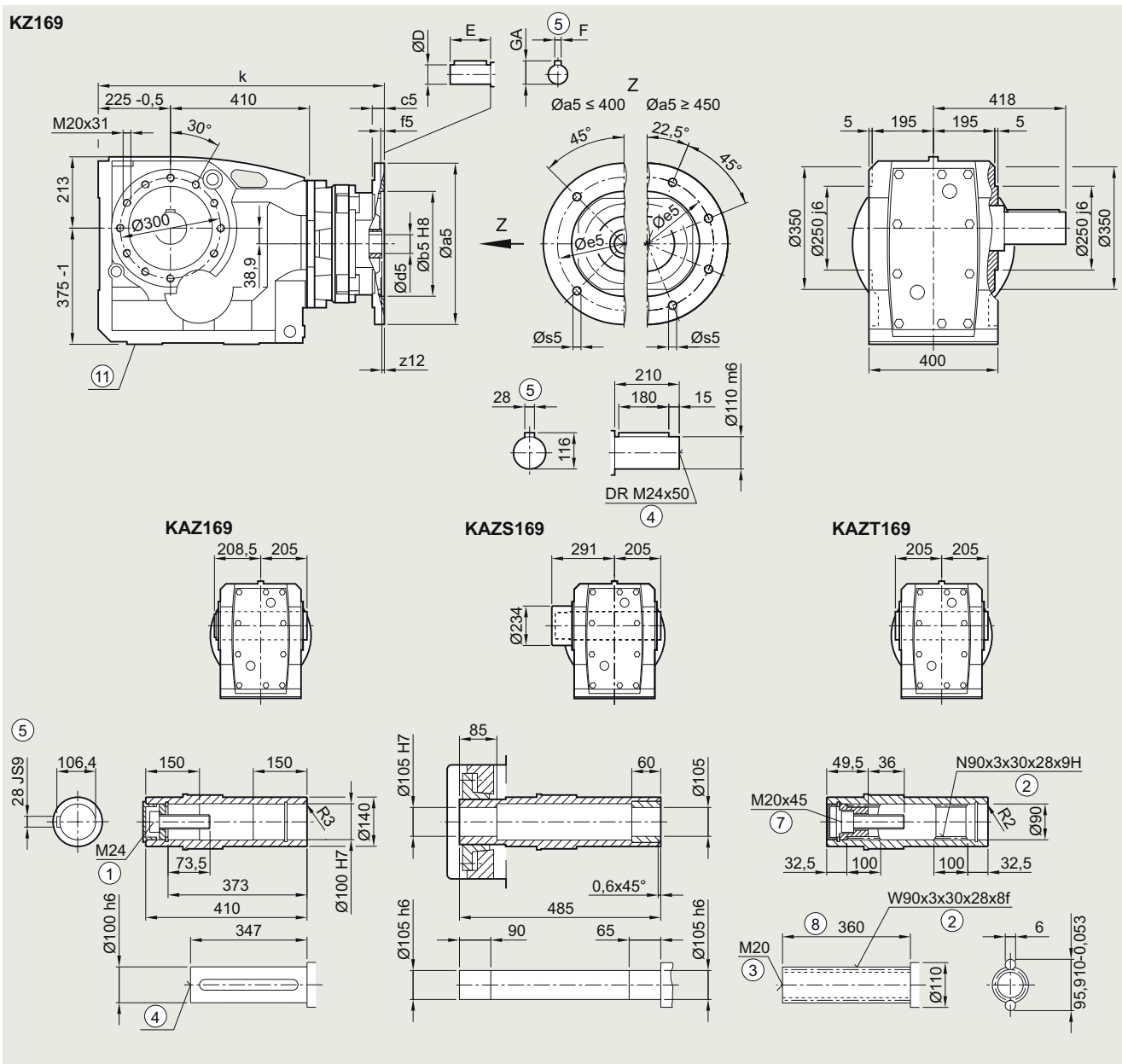
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.Z.169 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 753.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 783.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 783.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 824.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 830.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 865.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

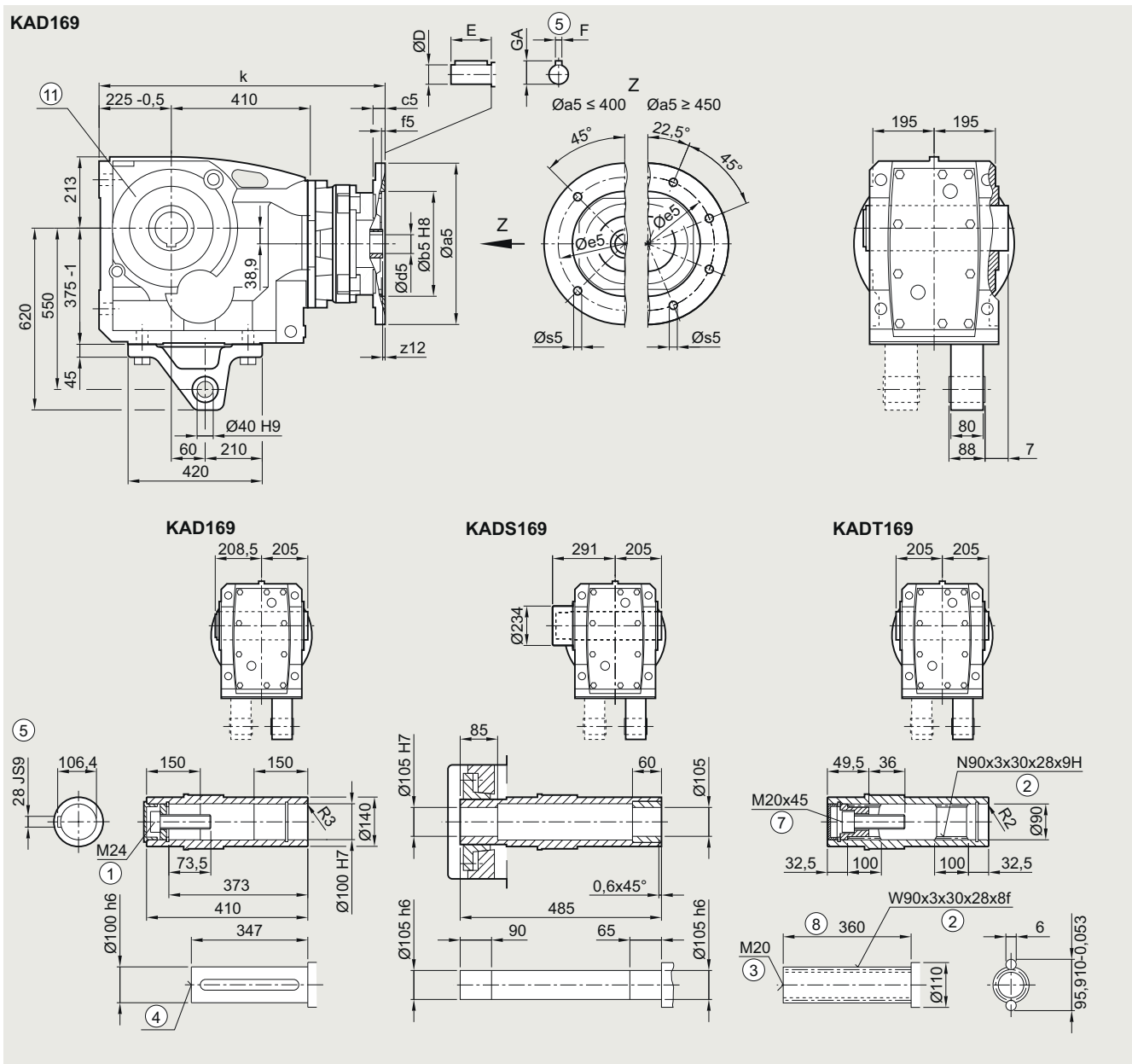
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑩ Use bores only for foot-mounted design

KAD.169 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 743.0 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 753.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 783.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 783.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 824.0 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 830.5 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 865.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

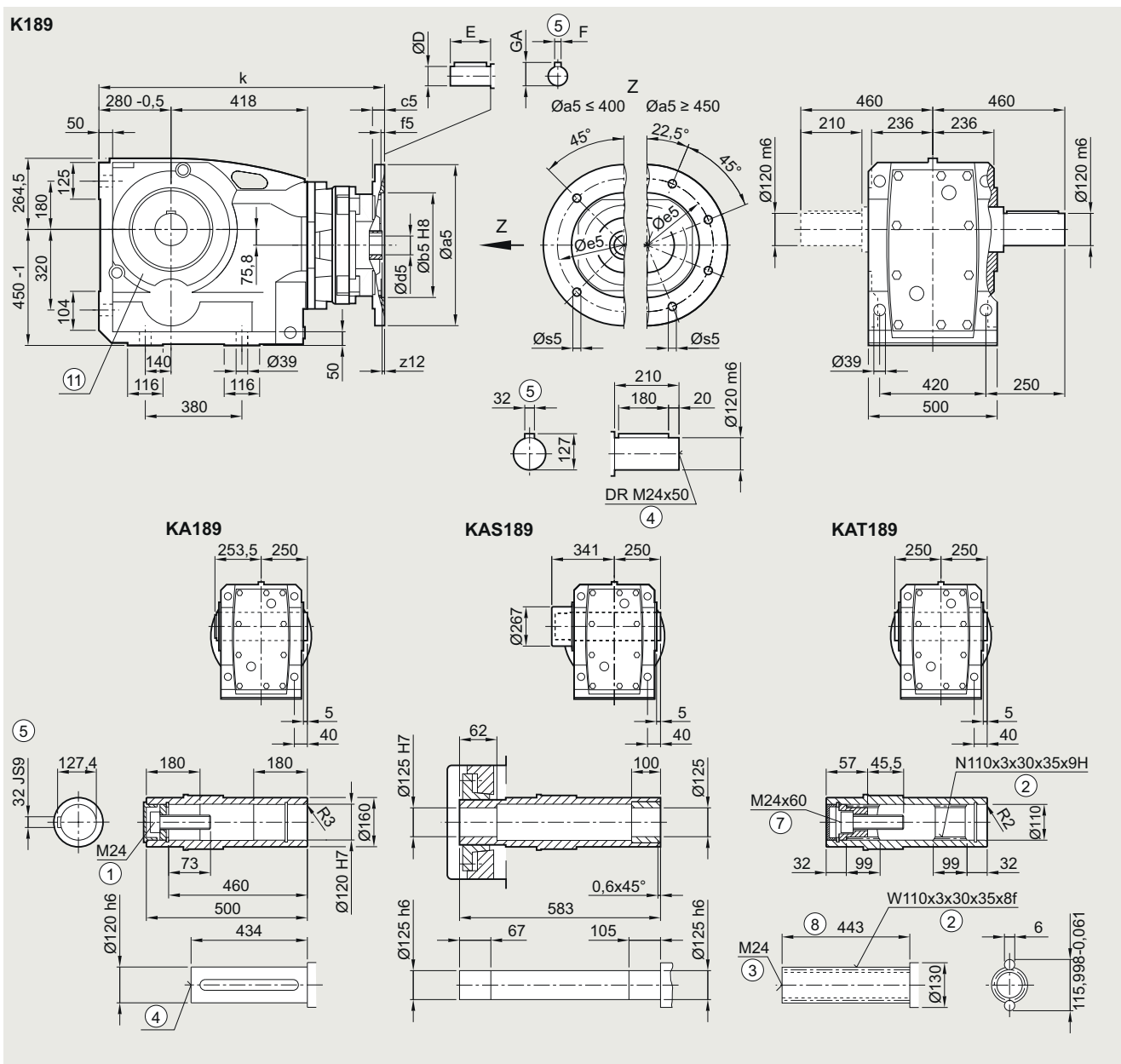
⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.189 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 793.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 803.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 833.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 833.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 873.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 879.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 909.5 |

① ISO 4014
 ⑦ ISO 4762

② DIN 5480
 ⑧ Without locating shoulder +1 mm

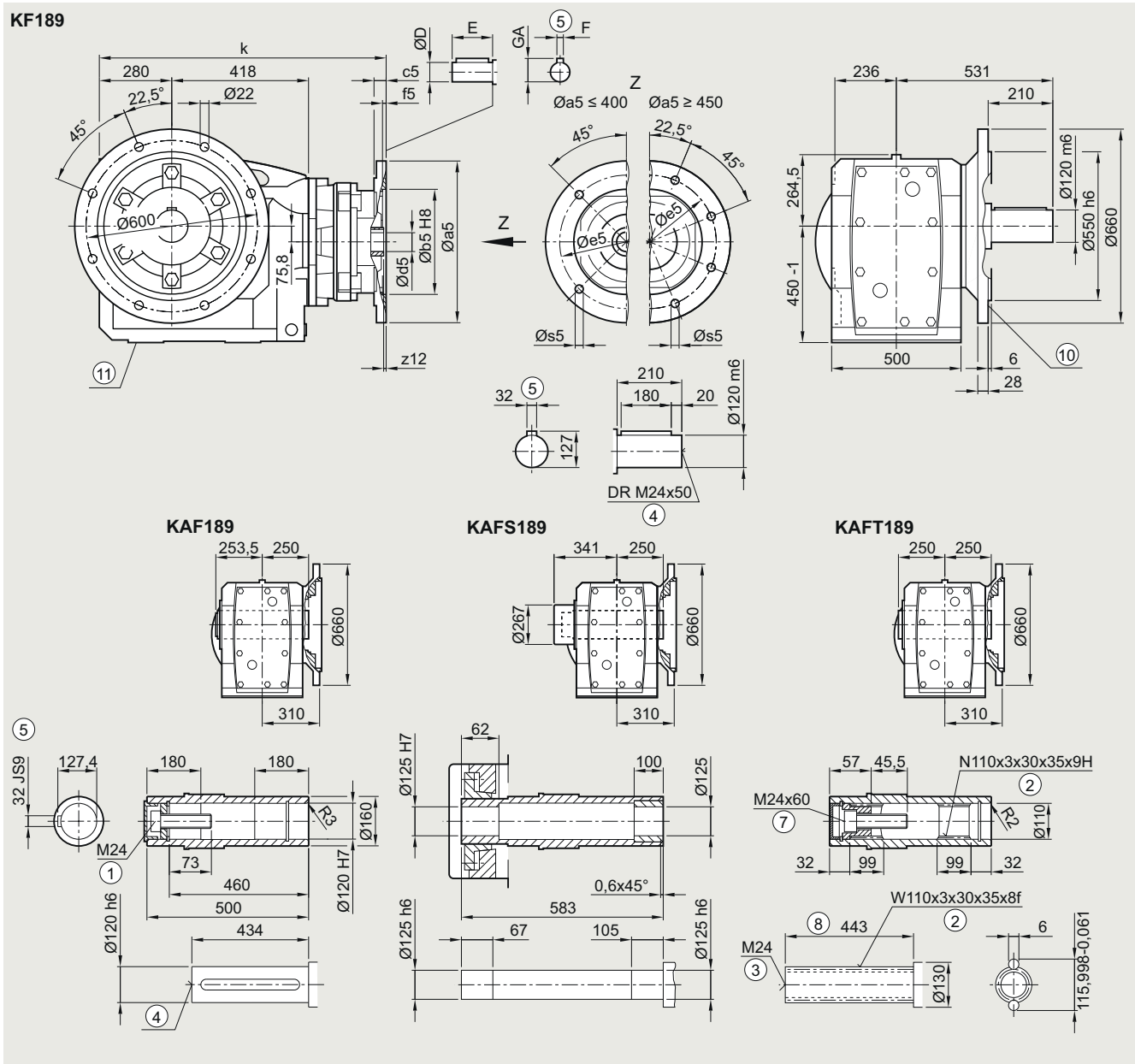
③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑨ Use bores only for housing flange design

K.F.189 gearbox in a flange-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 793.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 803.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 833.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 833.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 873.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 879.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 909.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

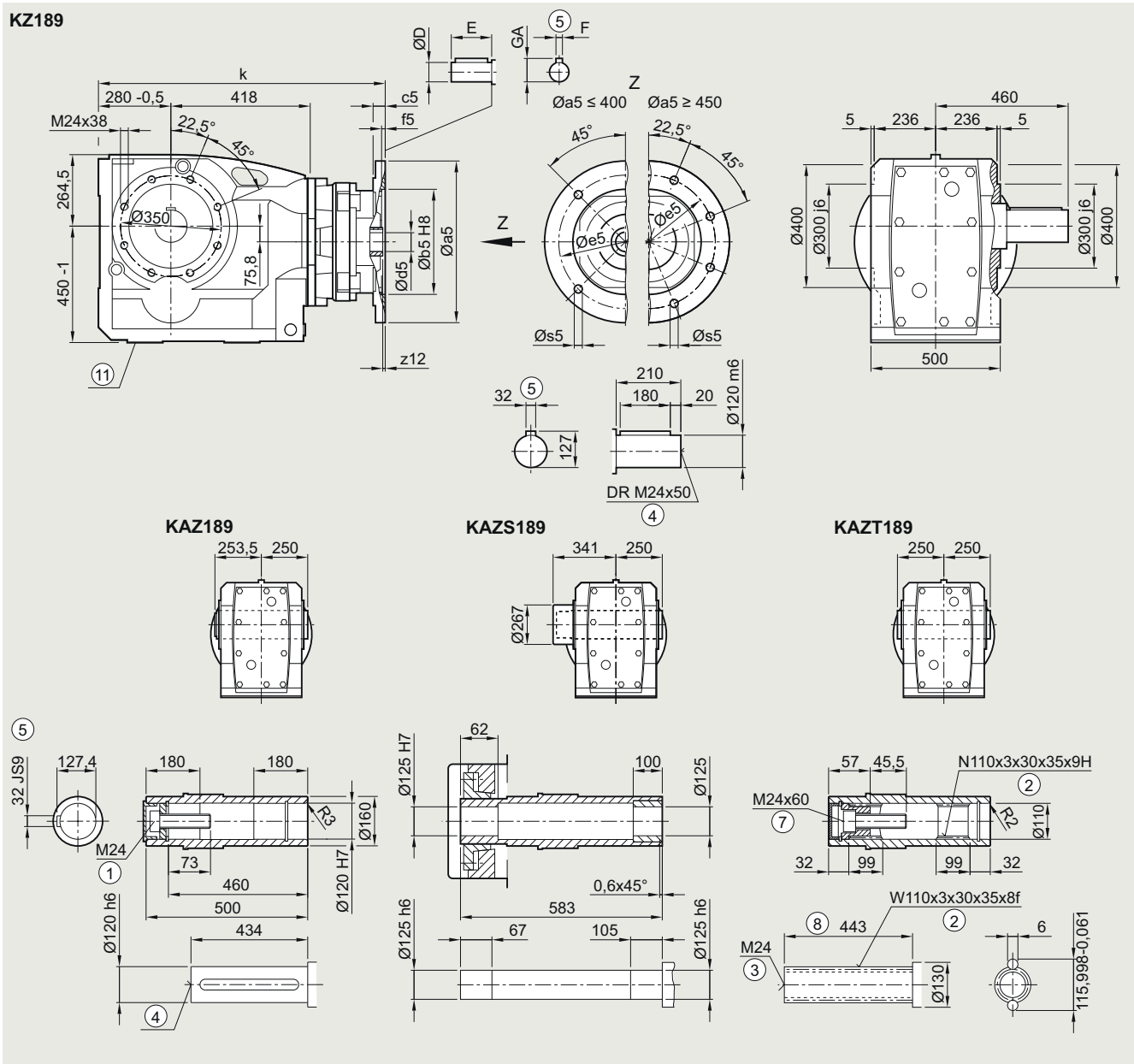
⑦ Without locating shoulder + 1 mm ⑧ For inner contour, see page 5/177 ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

K.Z.189 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 793.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 803.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 833.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 833.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 873.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 879.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 909.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

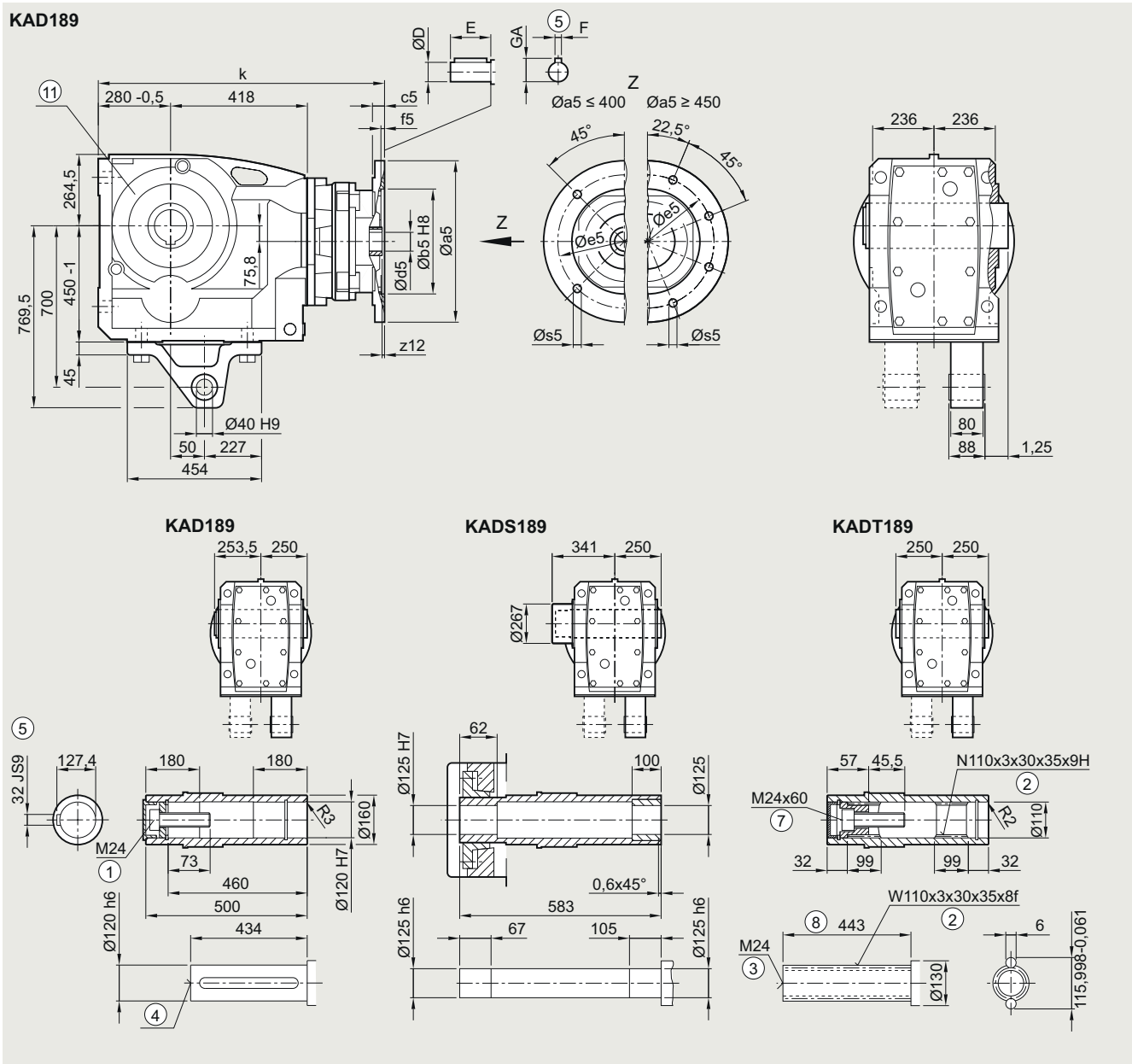
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for foot-mounted design

KAD.189 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|--------|------|------|-----|----|------|-------|
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 793.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 803.5 |
| 160 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 42 | 110 | 12 | 45.0 | 833.5 |
| 180 | 350 | 250 | 15 | 6.0 | 300 | M16x25 | 3.0 | 48 | 110 | 14 | 51.5 | 833.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 7.0 | 55 | 110 | 16 | 59.0 | 873.5 |
| 225 | 450 | 350 | 20 | 6.0 | 400 | M16x29 | 7.0 | 60 | 140 | 18 | 64.0 | 879.0 |
| 250 | 550 | 450 | 20 | 6.0 | 500 | M16x29 | 10.0 | 65 | 140 | 18 | 69.0 | 909.5 |

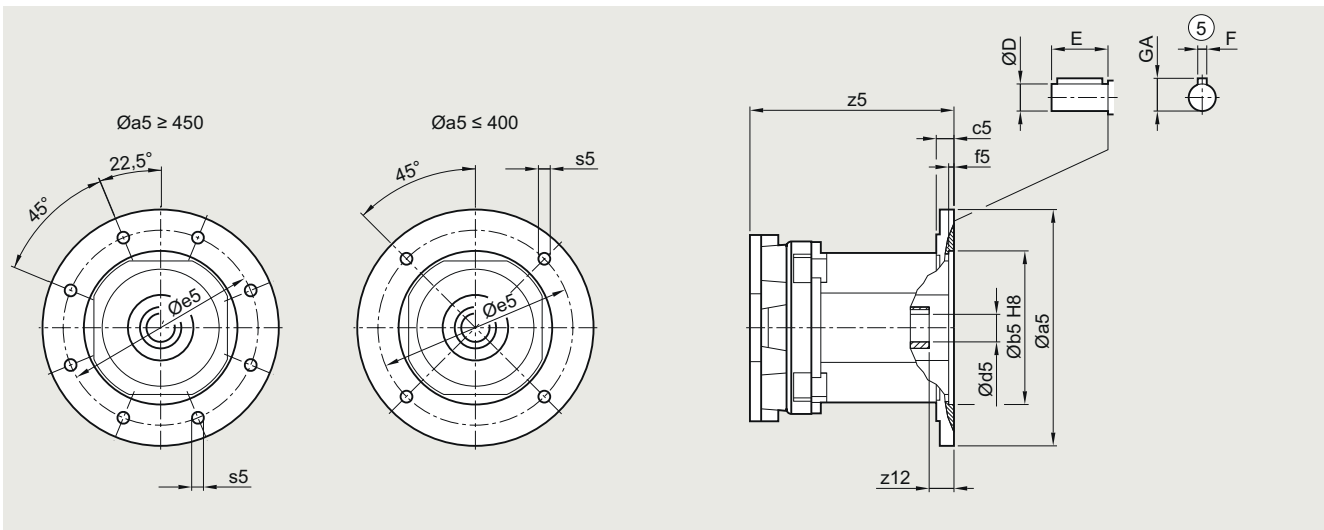
- ① ISO 4014
- ② DIN 5480
- ③ DIN 332-D
- ④ DIN 332
- ⑤ Feather key/keyway DIN 6885
- ⑥ ISO 4762
- ⑦ Without locating shoulder +1 mm
- ⑧ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

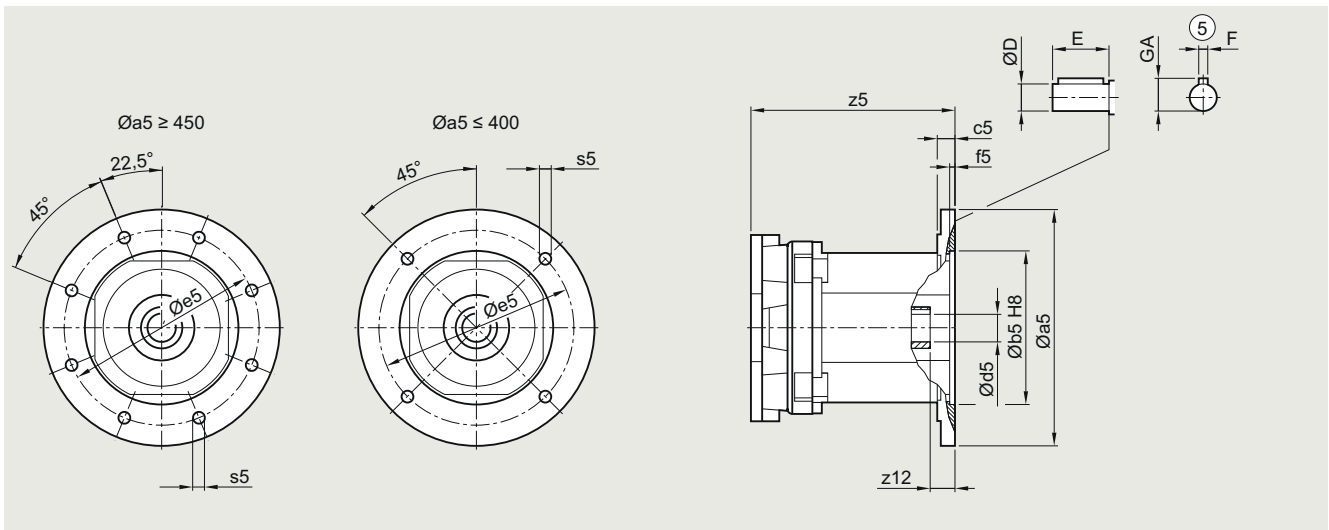
B...29 to B...49 and K...39 to K...69 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|-----|-----|----|-----|-----|-----|-----|------|----|----|------|-------|
| B...29 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| B...39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245.0 |
| B...49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| K...39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198.0 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245.0 |
| K...49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| K...69 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |

© Feather key/keyway DIN 6885

K...79 to K...129 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| K...79 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| K...89 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 182.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 182.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 307.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 352.5 |
| K...109 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 169.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 169.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 212.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 290.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 335.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 335.5 |
| K...129 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 162.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 203.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 281.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 326.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 326.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 371.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 419.0 |

⑤ Feather key/keyway DIN 6885

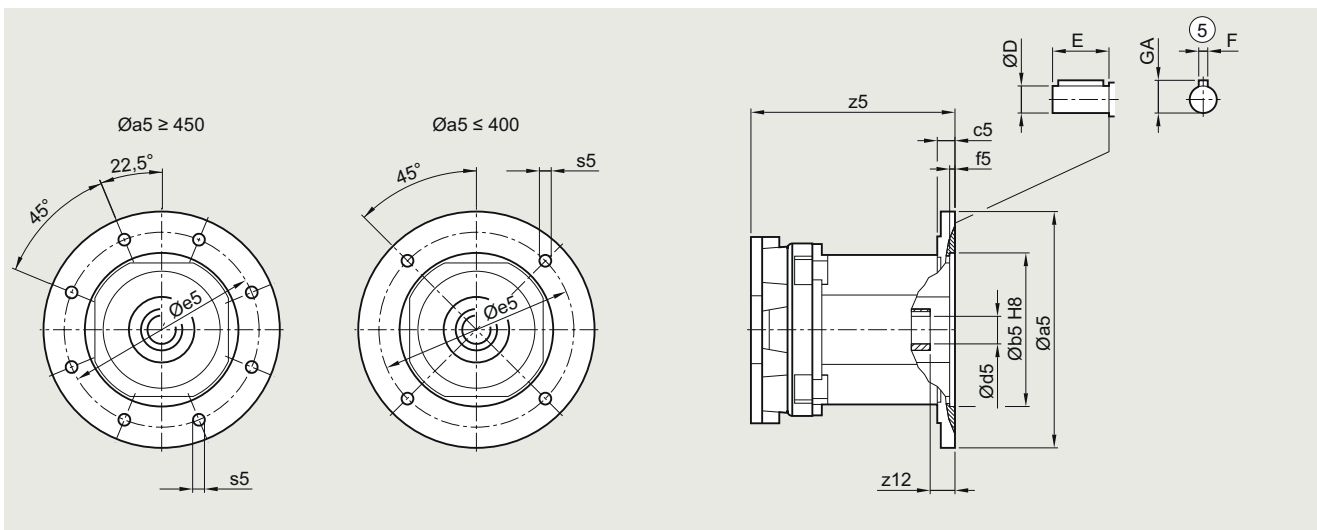
(i) Dimension in brackets for 2-pole motor

Bevel gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

K...149 to K...189 gearboxes

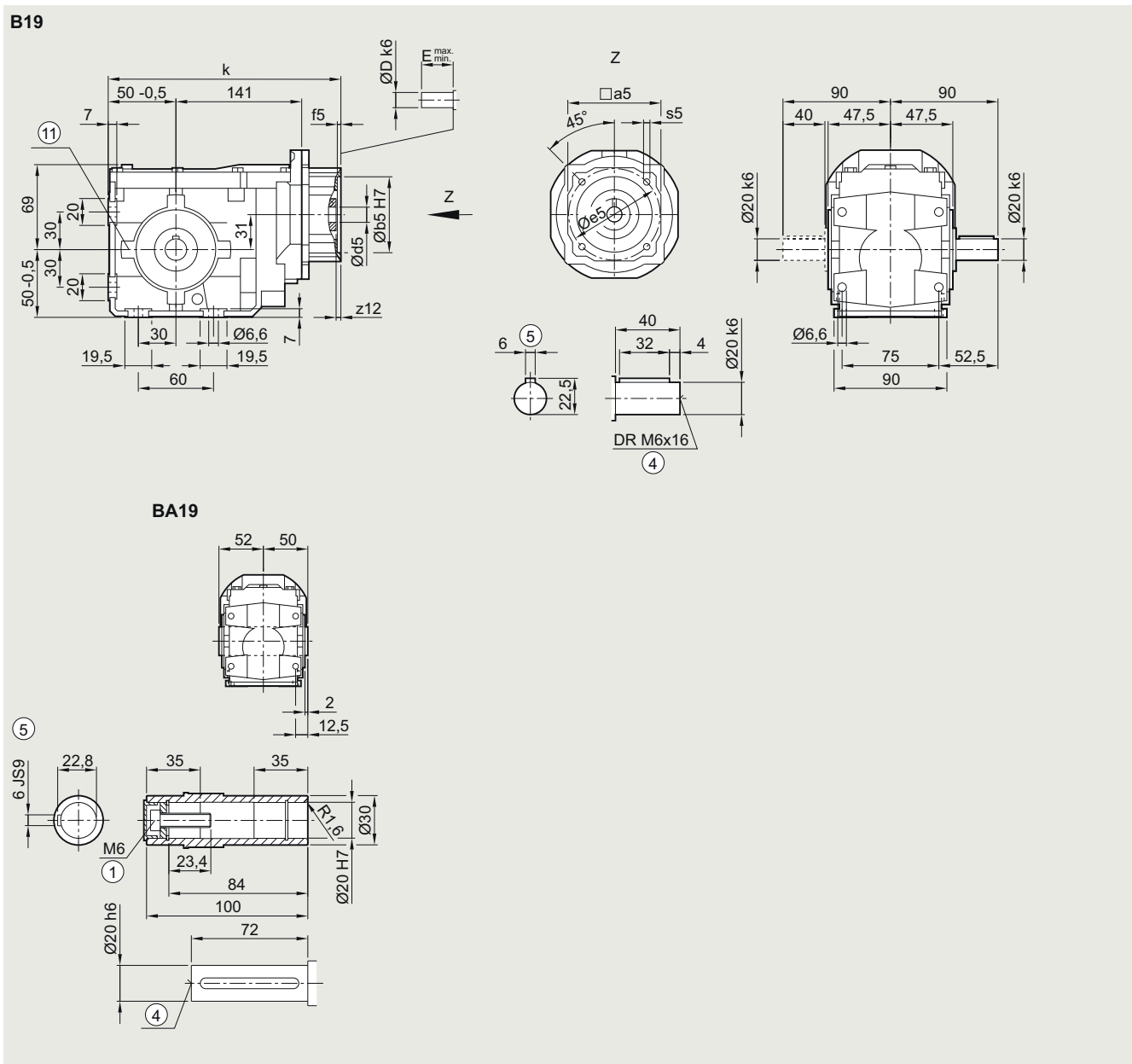


| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-----|----|-----|-----|--------|---------|---------|-----------|---------|-------------|-------|
| K...149 | | | | | | | | | | | | |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 155.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 194.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 270.5 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 315.5 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 315.5 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 360.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 408.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 445.5 |
| K...169 | | | | | | | | | | | | |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 193.0 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 264.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 309.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 309.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 401.5 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 439.0 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69) | 314.5 |
| K...189 | | | | | | | | | | | | |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 180.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 251.0 |
| 160 | 350 | 250 | 25 | 6.0 | 300 | M16 | 66 | 42 | 110 | 12 | 45.0 | 296.0 |
| 180 | 350 | 250 | 25 | 6.0 | 300 | M16 | 59 | 48 | 110 | 14 | 51.5 | 296.0 |
| 200 | 400 | 300 | 20 | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 340.5 |
| 225 | 450 | 350 | 50 | 6.0 | 400 | M16x29 | 84 (36) | 60 (55) | 140 (110) | 18 (16) | 64.0 (59.0) | 387.0 |
| 250 | 550 | 450 | 27 | 6.0 | 500 | M16 | 75 | 65 (60) | 140 | 18 | 69.0 (64.0) | 420.5 |
| 280 | 550 | 450 | 27 | 6.0 | 500 | M16 | 51 | 75 (65) | 140 | 20 (18) | 79.5 (69.0) | 297.5 |
| 315 | 660 | 550 | 33 | 8.0 | 600 | m20 | 33,5 | 80 (65) | 170 (140) | 22 (18) | 85.0 (69.0) | 321.5 |

⑤ Feather key/keyway DIN 6885

() Dimension in brackets for 2-pole motor

B..19 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 231.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 231.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

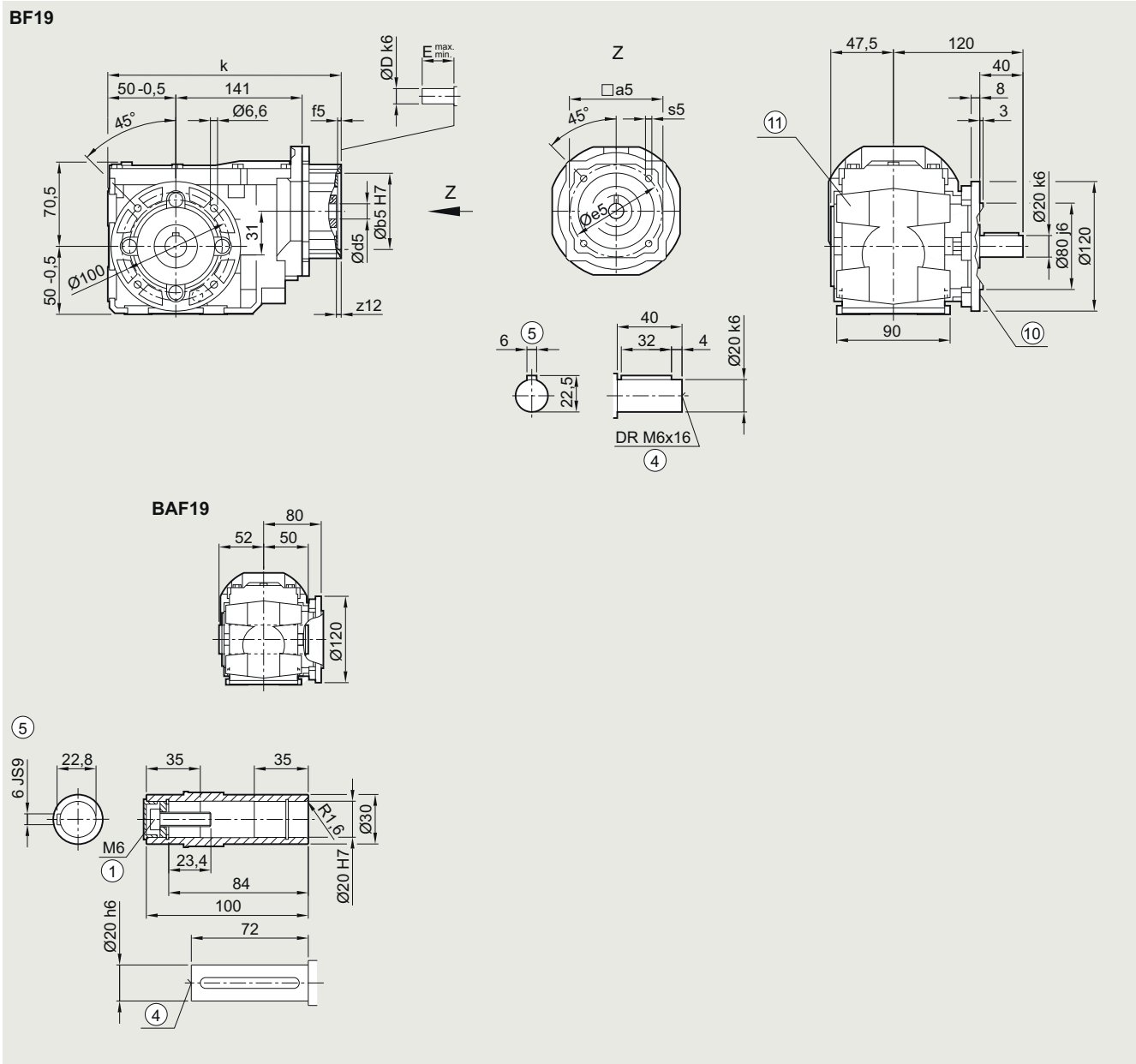
⑩ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

B.F.19 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 231.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 231.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |

① ISO 4014

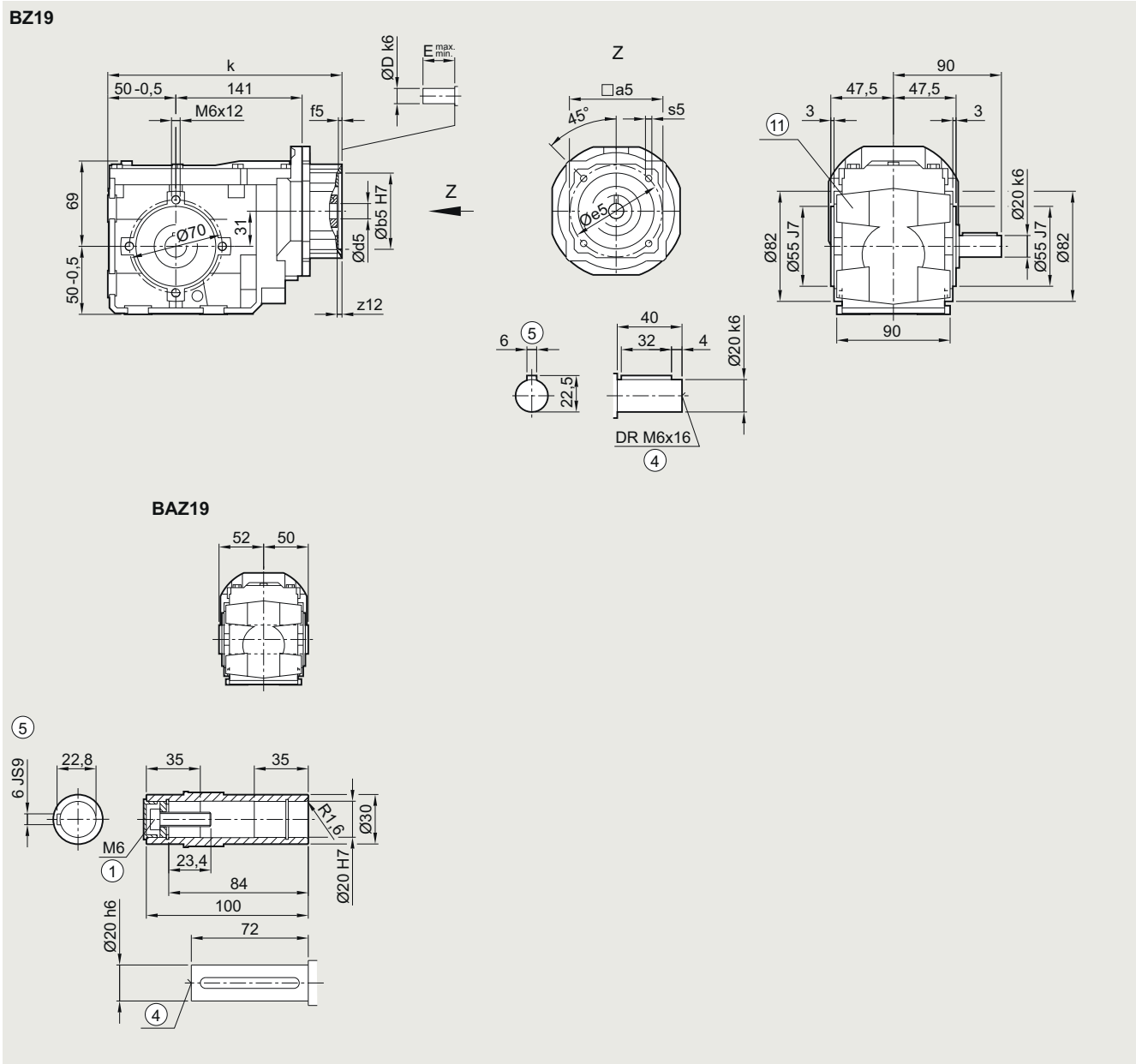
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.19 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 231.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 231.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 244.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

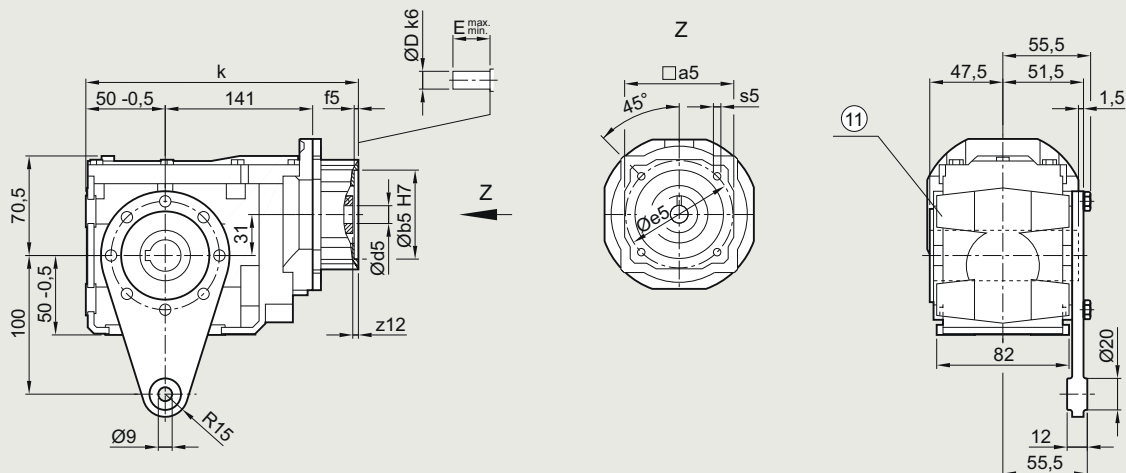
Bevel gearboxes

Dimensional drawings

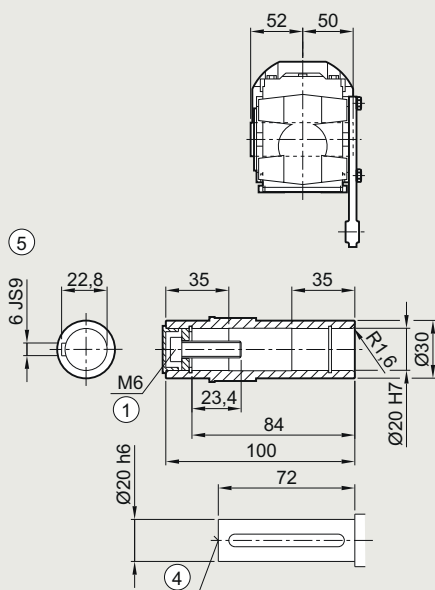
KS adapter exclusively for mounting defined Siemens servo motors

BAD.19 gearbox in a shaft-mounted design

BAD19



BAD19



① ISO 4014

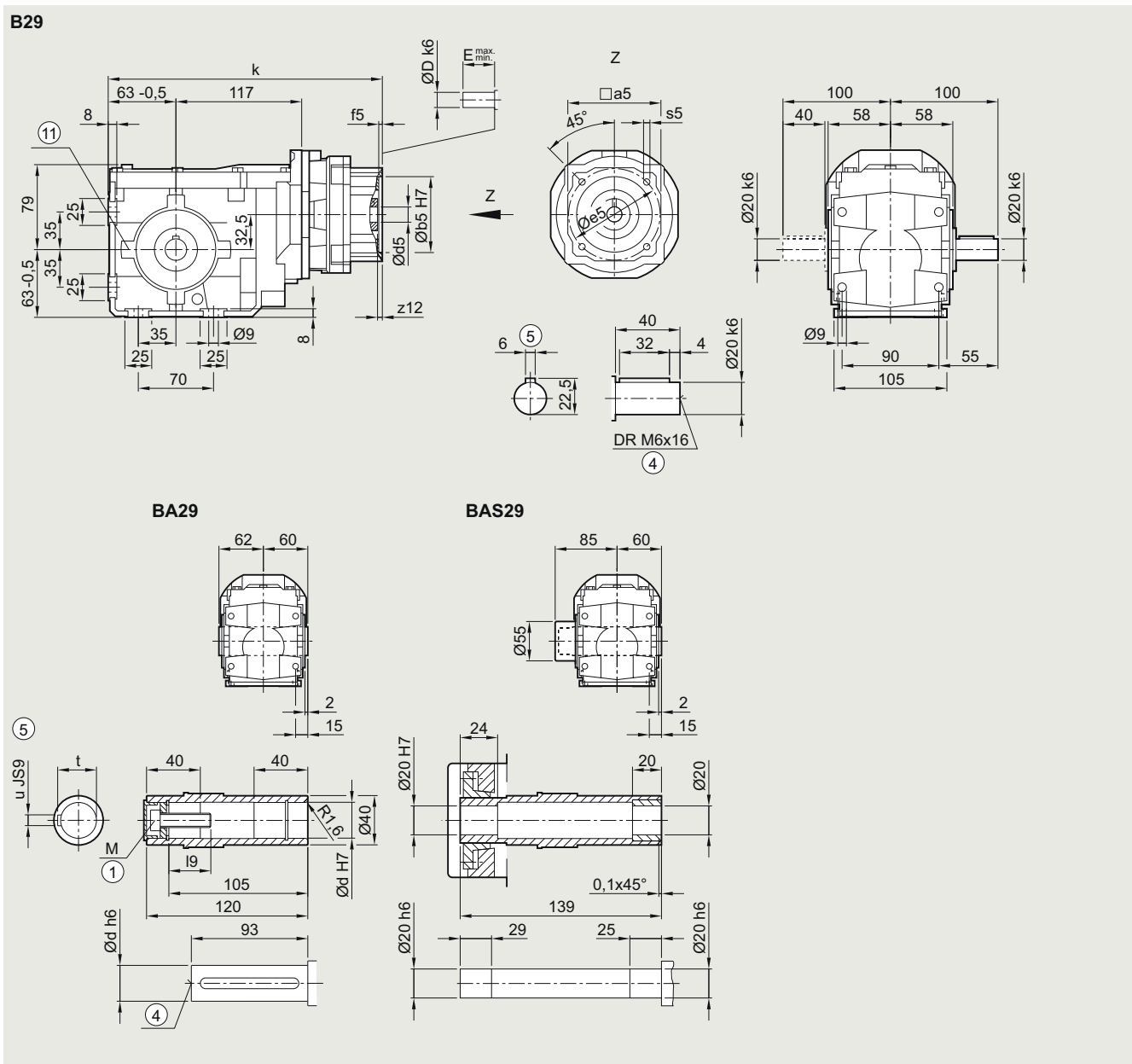
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

B..29 gearbox in a foot-mounted design



| Shaft | d | I9 | M | t | u | | | | | |
|---------|-----|------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 20 | 23.4 | M6 | 22.8 | 6 | | | | | |
| | 25 | 27.6 | M10 | 28.3 | 8 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 262.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 262.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

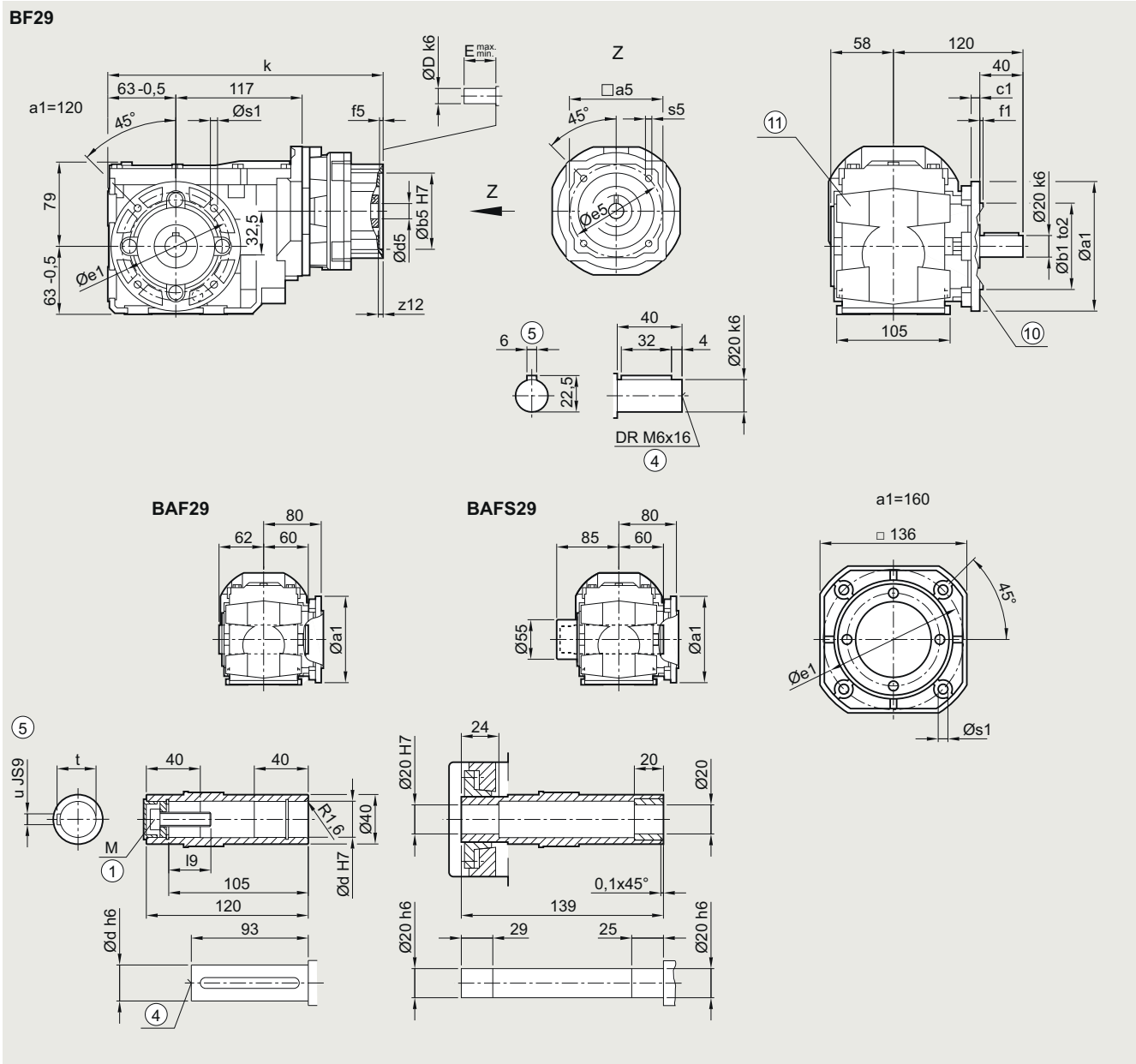
Ⓜ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

B.F.29 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | |
| Shaft | d | l9 | M | t | u | | | | | |
| | 20 | 23.4 | M6 | 22.8 | 6 | | | | | |
| | 25 | 27.6 | M10 | 28.3 | 8 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 262.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 262.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315.5 |

① ISO 4014

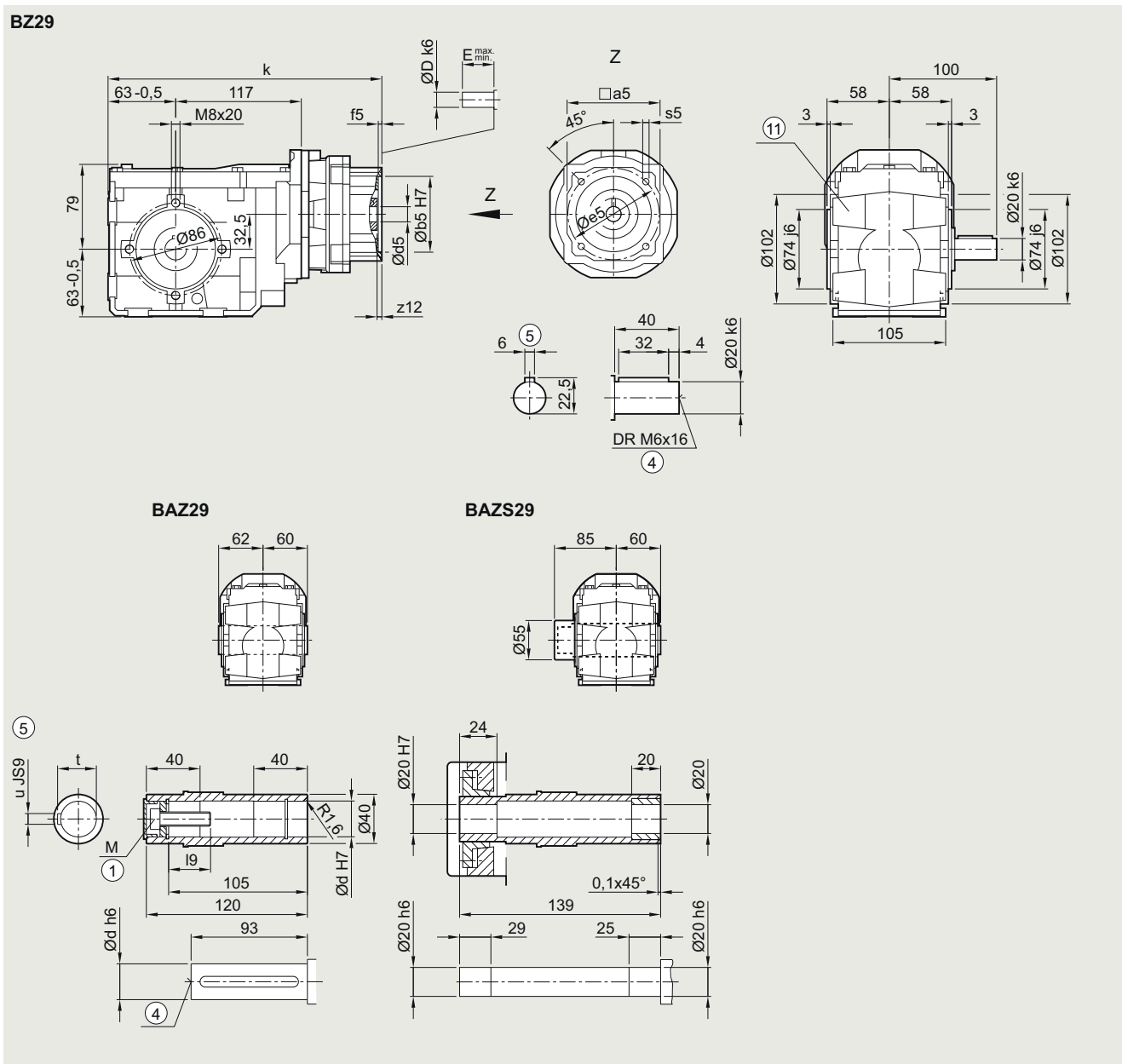
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.29 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 20 | 23.4 | M6 | 22.8 | 6 | | | | | |
| | 25 | 27.6 | M10 | 28.3 | 8 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 262.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 262.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315.5 |

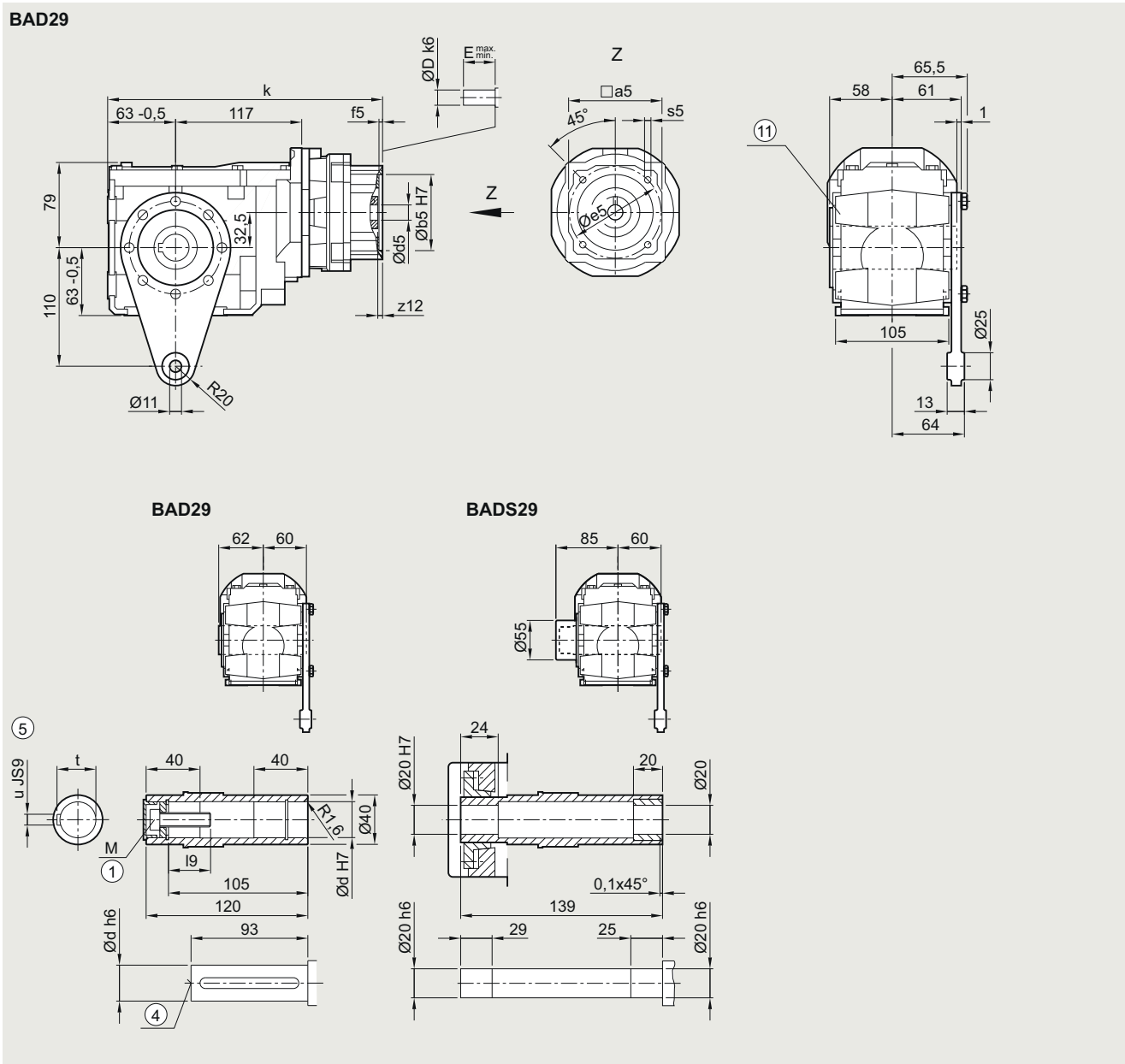
① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

BAD.29 gearbox in a shaft-mounted design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 20 | 23.4 | M6 | 22.8 | 6 | | | | | |
| | 25 | 27.6 | M10 | 28.3 | 8 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 262.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 262.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315.5 |

① ISO 4014

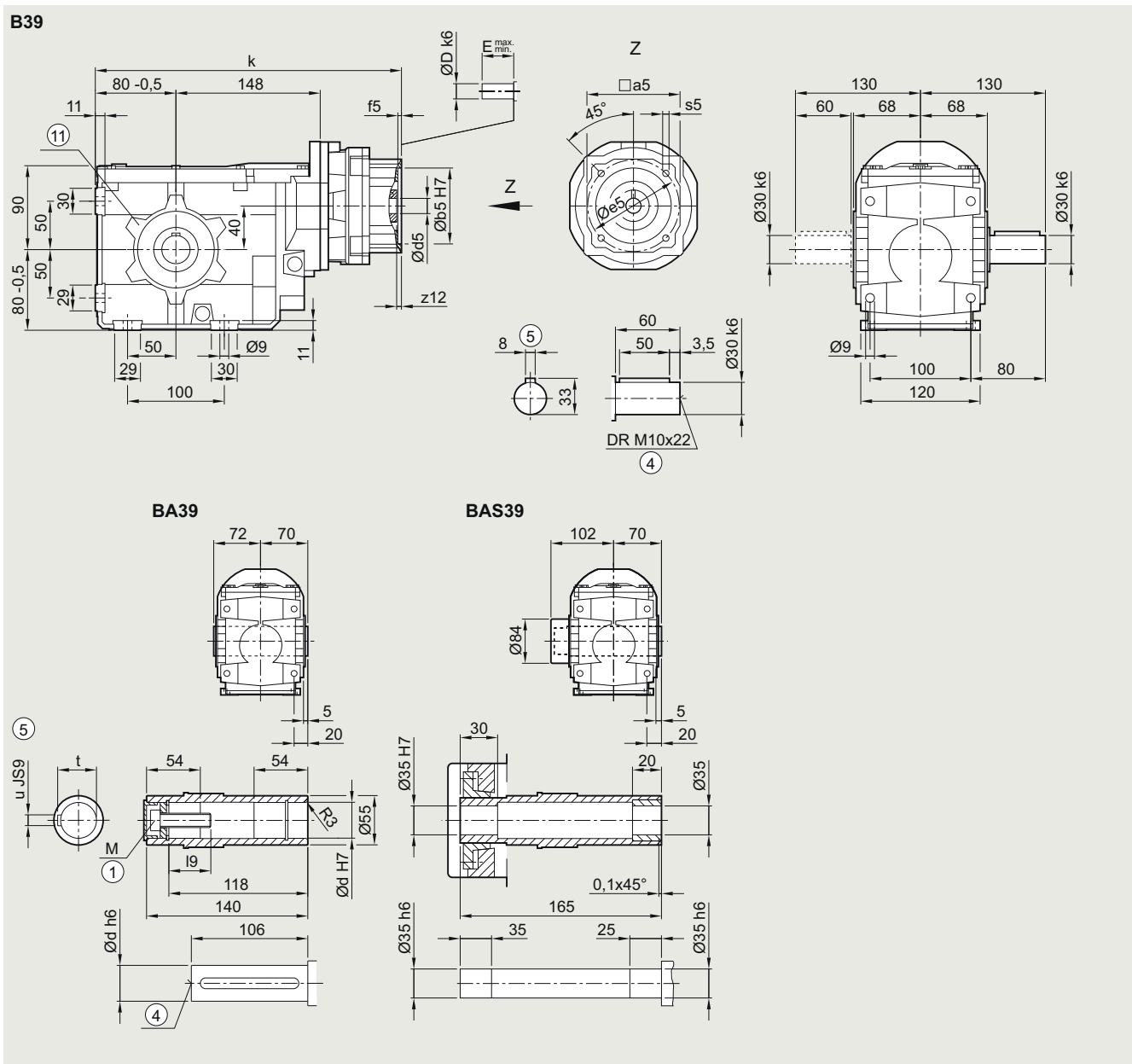
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

B..39 gearbox in a foot-mounted design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | M10 | 33.3 | 8 | | | | | |
| | 35 | 37.0 | M12 | 38.3 | 10 | | | | | |
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 310.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 310.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 338.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 338.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 363.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 363.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 376.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

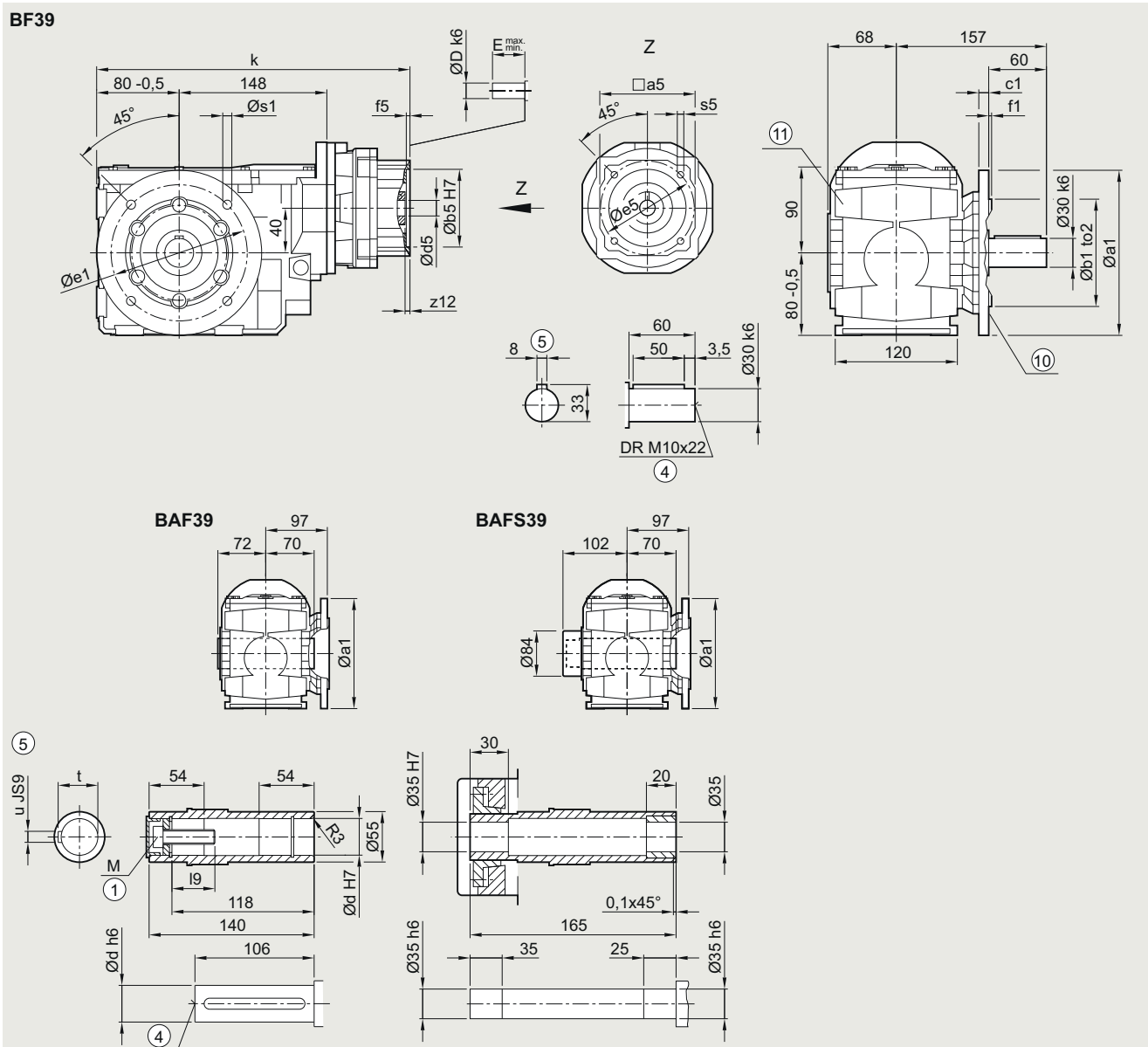
⑩ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

B.F.39 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 160 | 110 | j6 | 10 | 130 | 3.5 | 9.0 | | | |
| | 200 | 130 | j6 | 12 | 165 | 3.5 | 11.0 | | | |
| Shaft | d | l9 | M | t | u | | | | | |
| | 30 | 32.6 | M10 | 33.3 | 8 | | | | | |
| | 35 | 37.0 | M12 | 38.3 | 10 | | | | | |
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 310.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 310.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 338.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 338.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 363.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 363.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 376.0 |

① ISO 4014

④ DIN 332

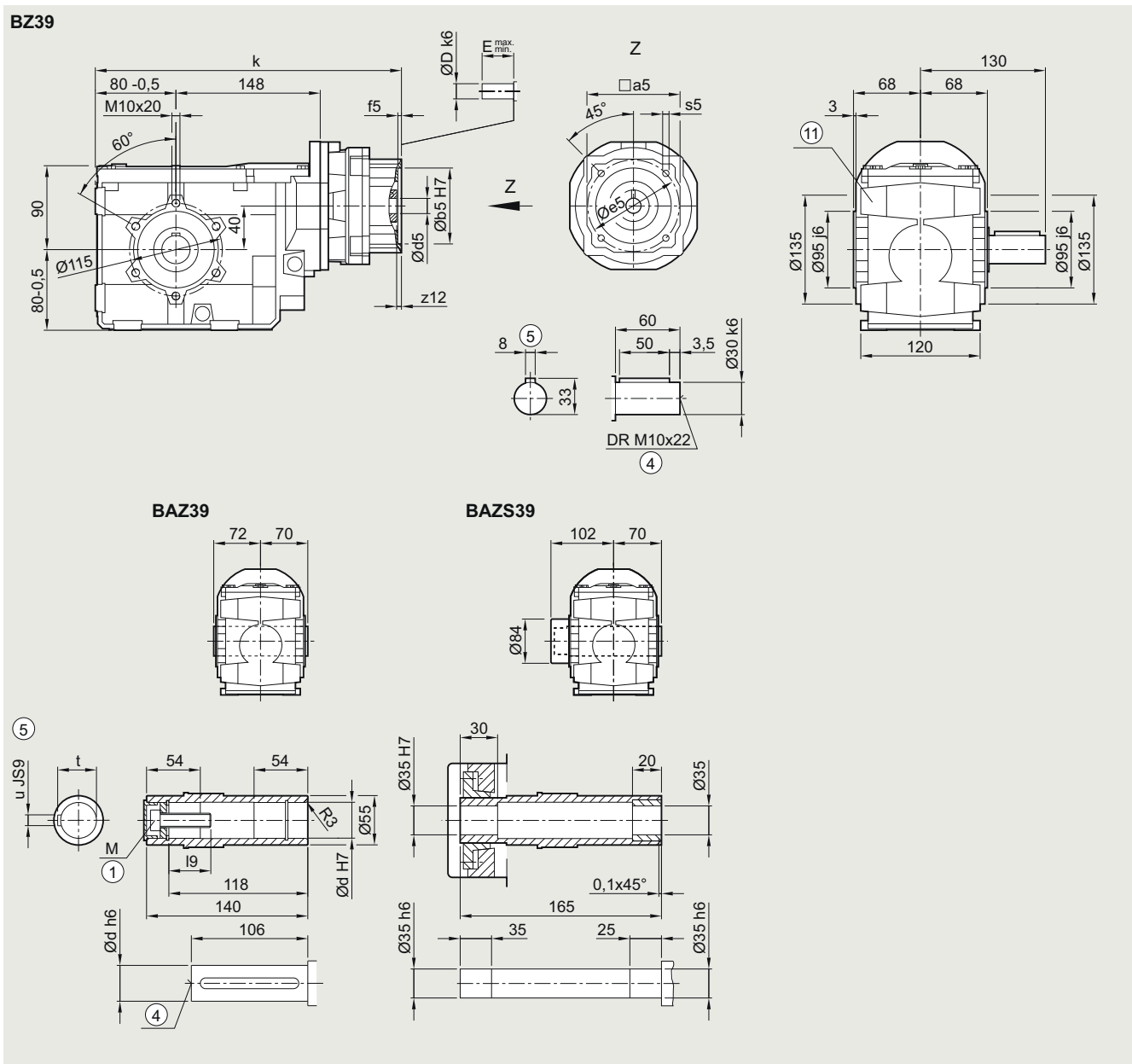
⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

B.Z.39 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | M10 | 33.3 | 8 | | | | | |
| | 35 | 37.0 | M12 | 38.3 | 10 | | | | | |
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 310.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 310.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 338.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 338.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 363.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 363.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 376.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

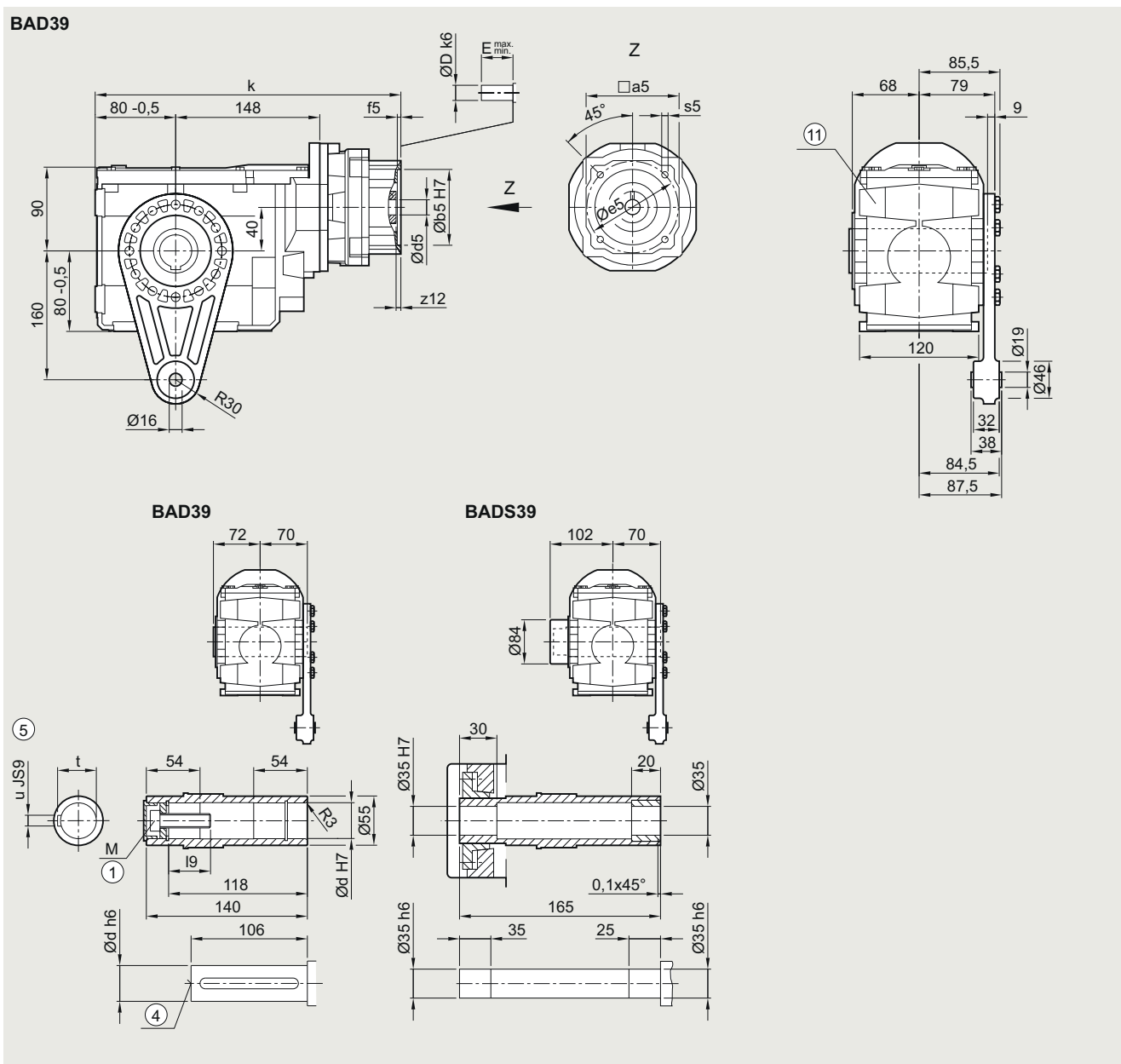
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

BAD.39 gearbox in a shaft-mounted design



| Shaft | d | l9 | M | t | u |
|-------|----|-------|-----|------|----|
| | 30 | 32.6 | M10 | 33.3 | 8 |
| | 35 | 37.0 | M12 | 38.3 | 10 |
| | 40 | 47.75 | M16 | 43.3 | 12 |

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 310.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 310.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 322.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 338.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 338.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 363.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 363.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 376.0 |

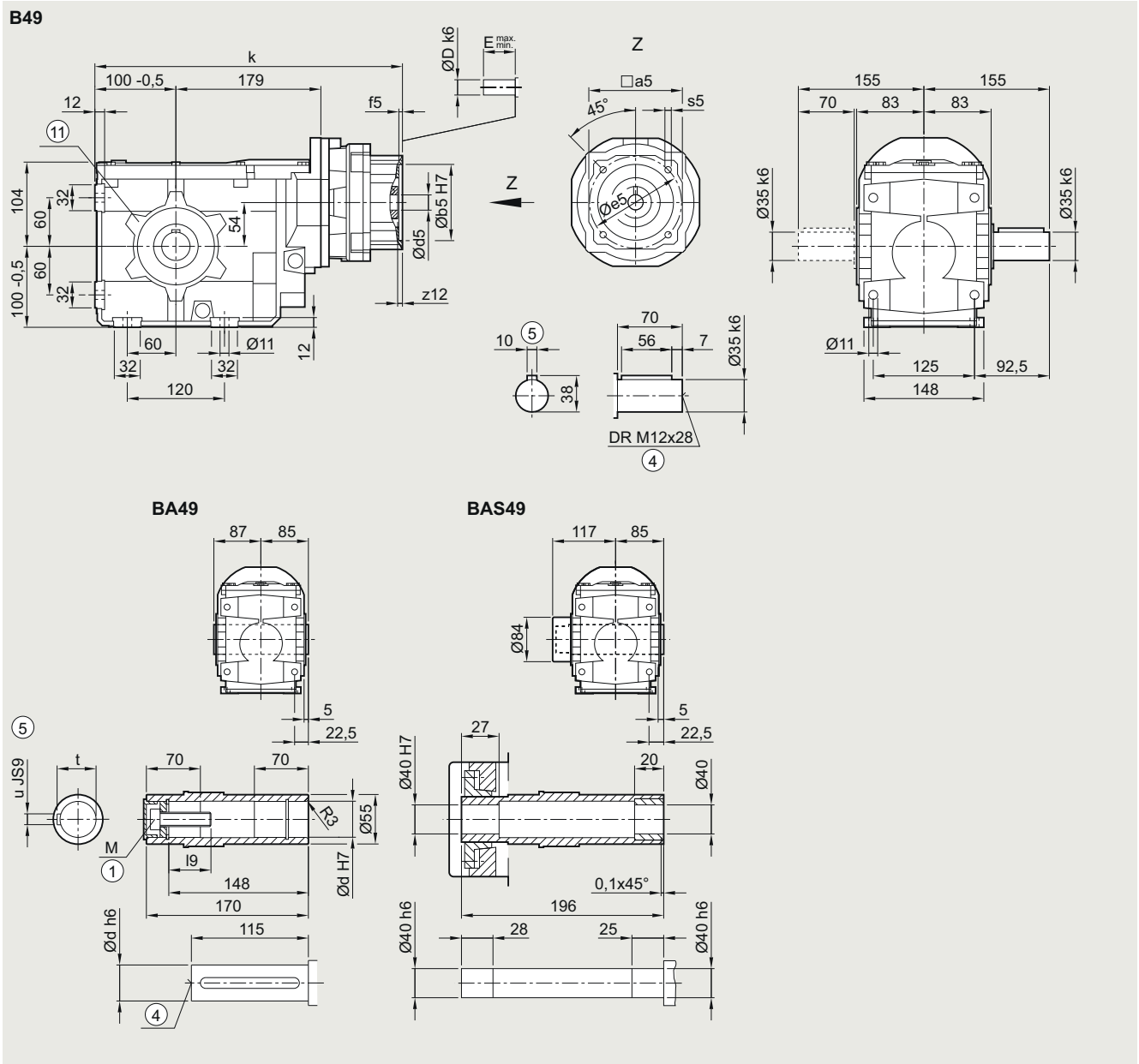
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

B..49 gearbox in a foot-mounted design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 351.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 351.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 380.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 380.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 405.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 405.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 417.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 453.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 453.5 |

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for housing flange design

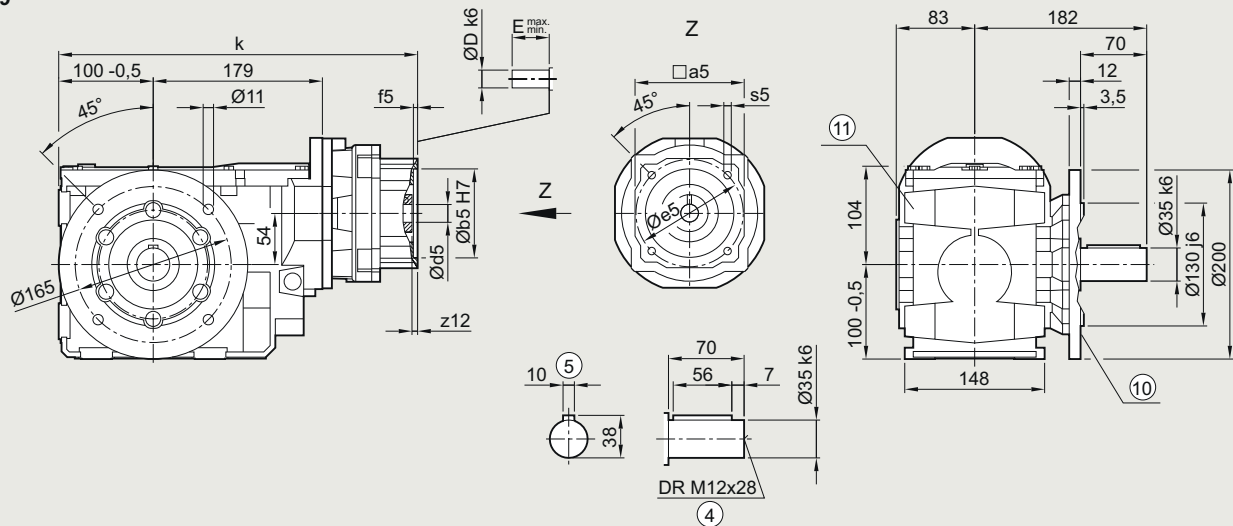
Bevel gearboxes

Dimensional drawings

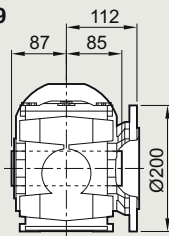
KS adapter exclusively for mounting defined Siemens servo motors

B.F.49 gearbox in a flange-mounted design

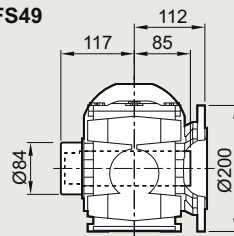
BF49



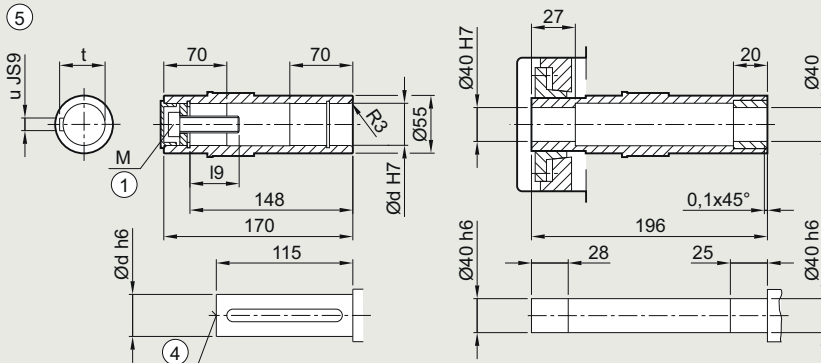
BAF49



BAFS49



⑤



| Shaft | d | i9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 351.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 351.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 380.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 380.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 405.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 405.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 417.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 453.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 453.5 |

① ISO 4014

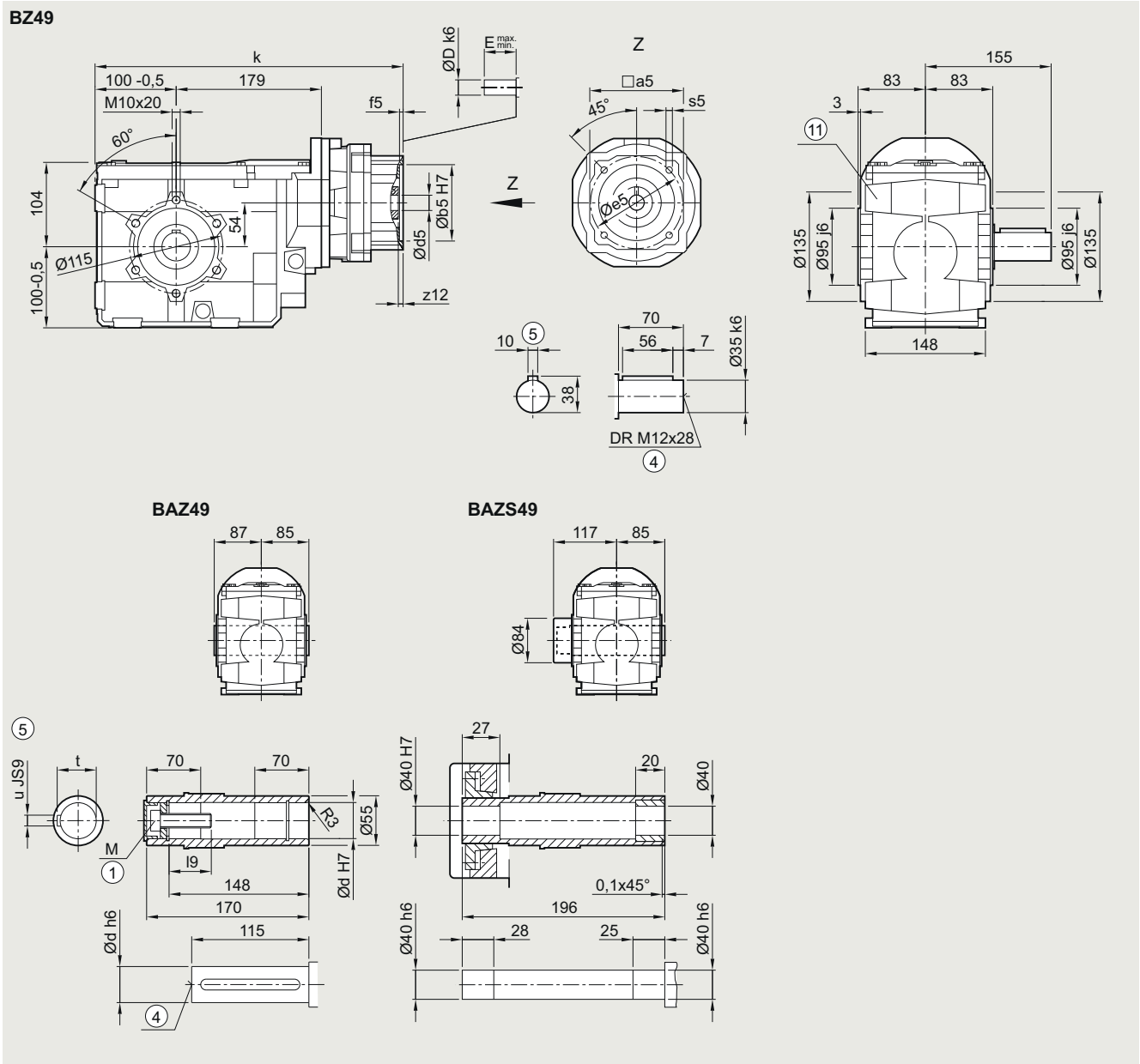
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

B.Z.49 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 35 | 57 | M12 | 38.3 | 10 | | | | | |
| | 40 | 67.75 | M16 | 43.3 | 12 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 351.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 351.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 380.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 380.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 405.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 405.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 417.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 453.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 453.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

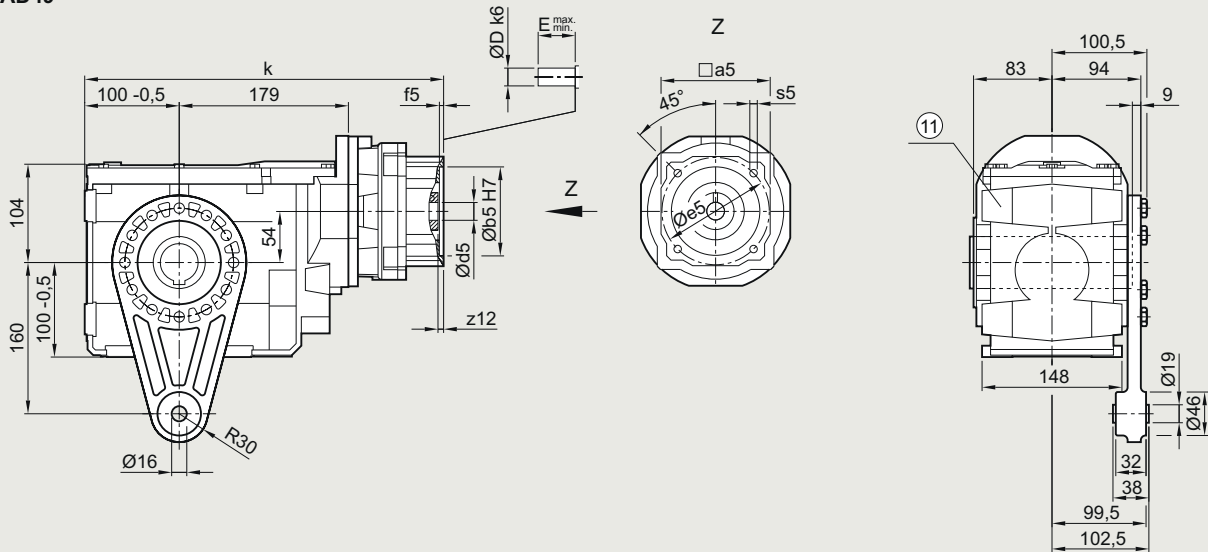
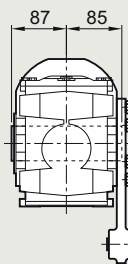
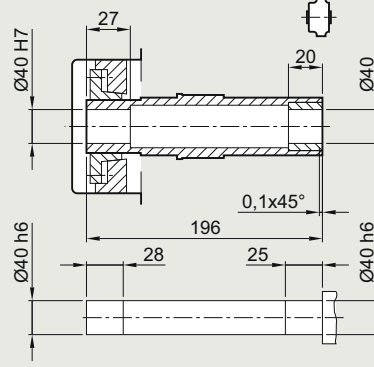
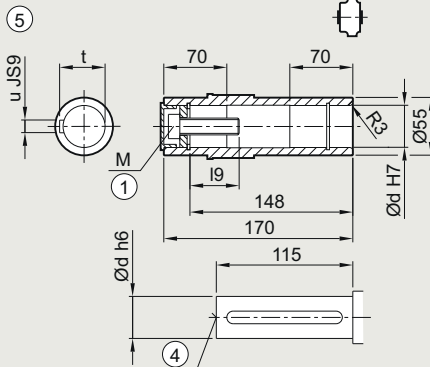
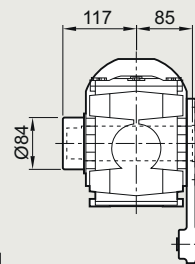
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

BAD.49 gearbox in a shaft-mounted design

BAD49**BAD49****BADS49**

| Shaft | d | | l9 | | M | | t | | u | |
|---------|-----|-------|-----|-------|--------|-----|------|-------------------|-------------------|-------|
| | 35 | 40 | 57 | 67.75 | M12 | M16 | 38.3 | 43.3 | 10 | 12 |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 351.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 351.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 364.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 380.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 380.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 405.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 405.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 417.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 453.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 453.5 |

① ISO 4014

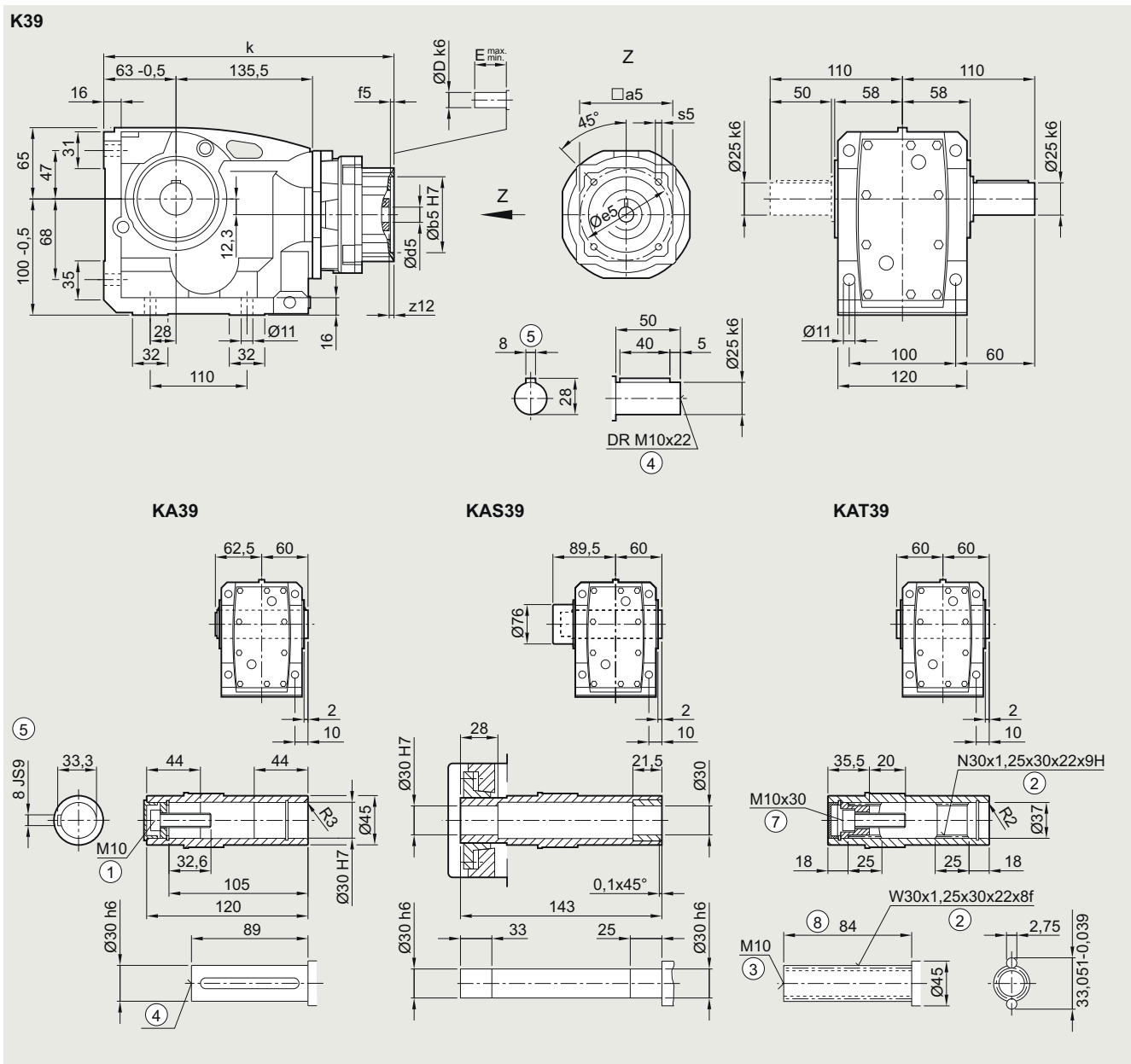
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

K.39 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 280.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 280.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 346.0 |

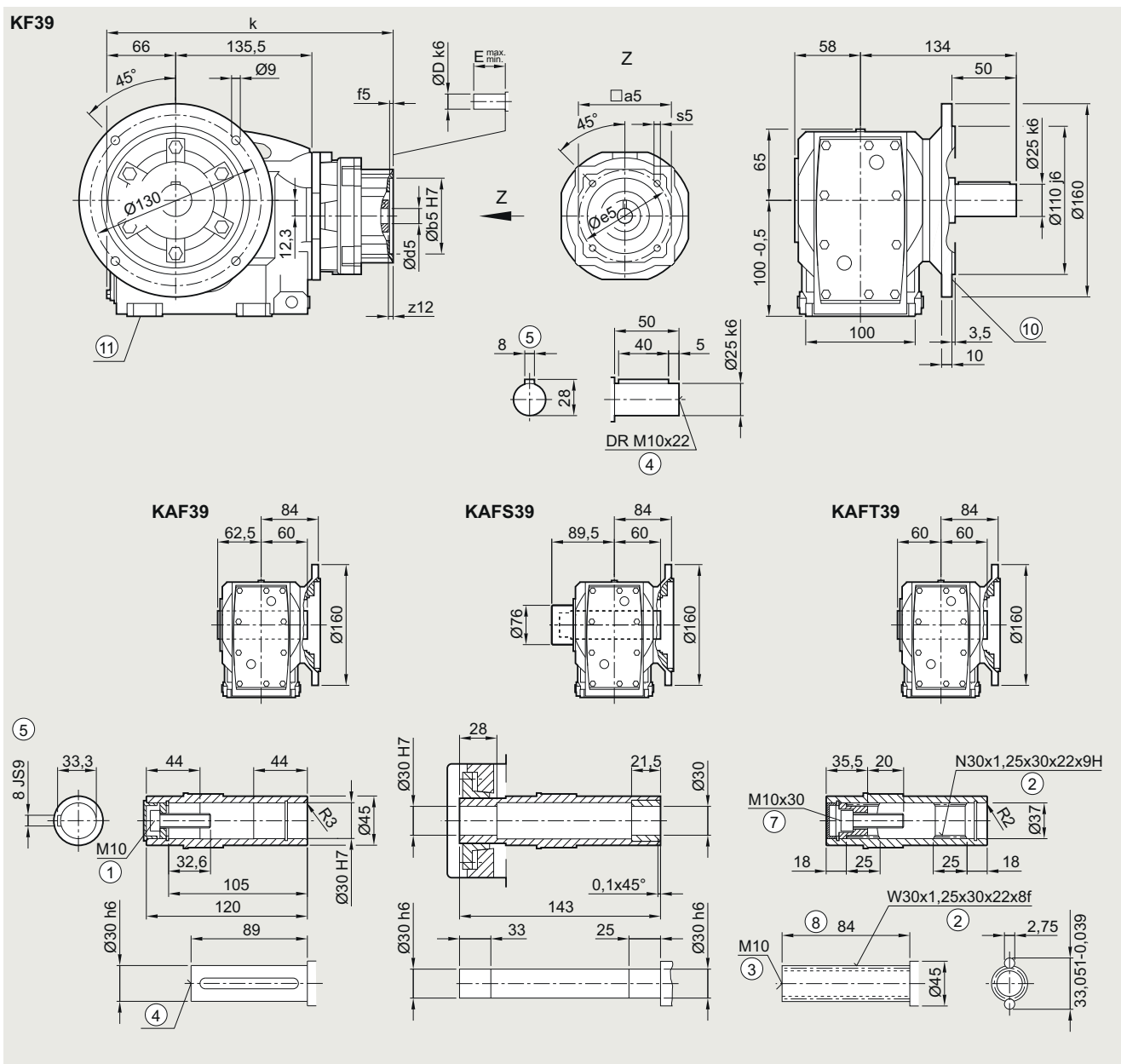
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.39 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 283.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 283.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 311.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 311.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 336.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 336.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

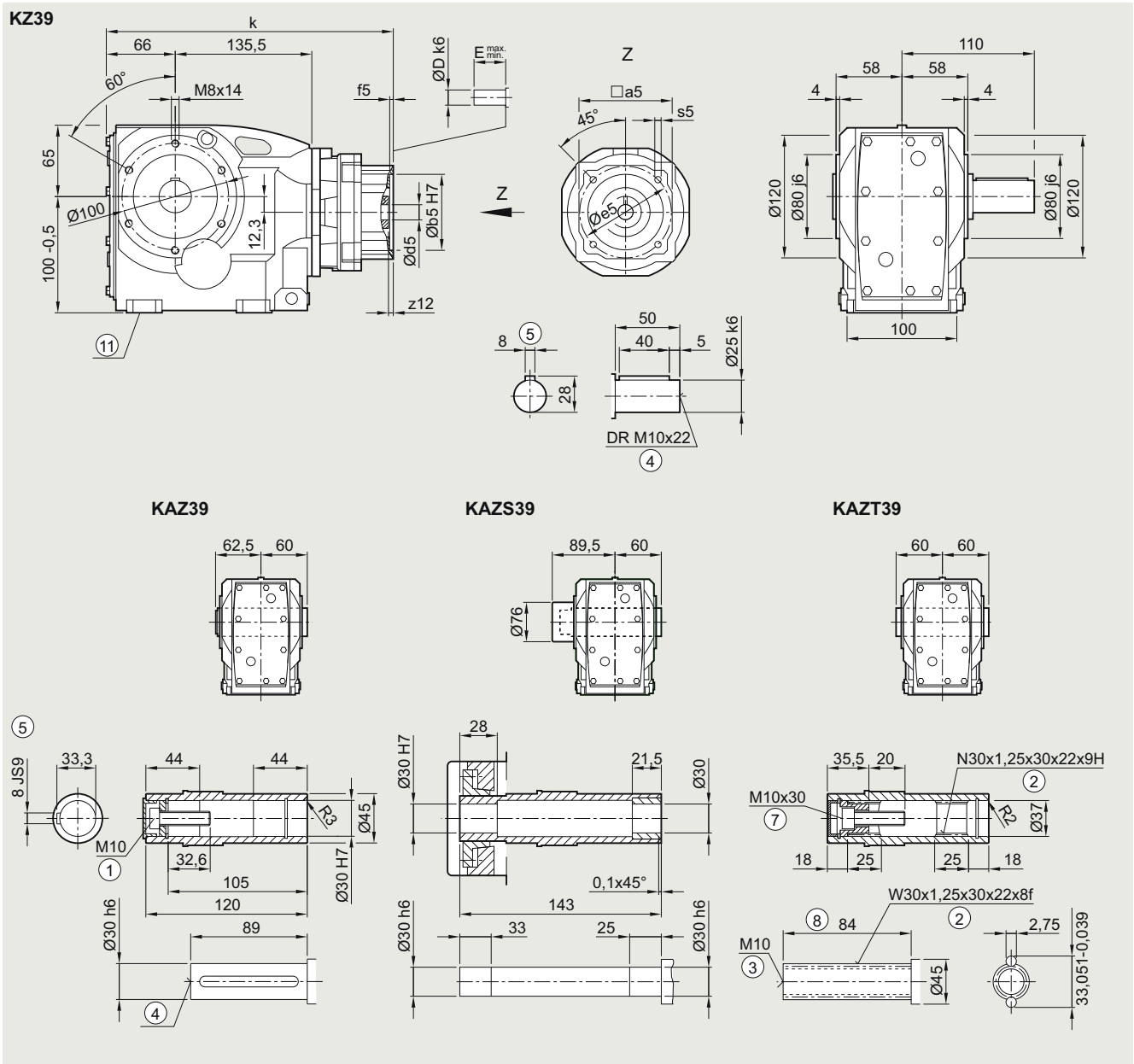
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

K.Z.39 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 283.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 283.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 311.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 311.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 336.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 336.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.0 |

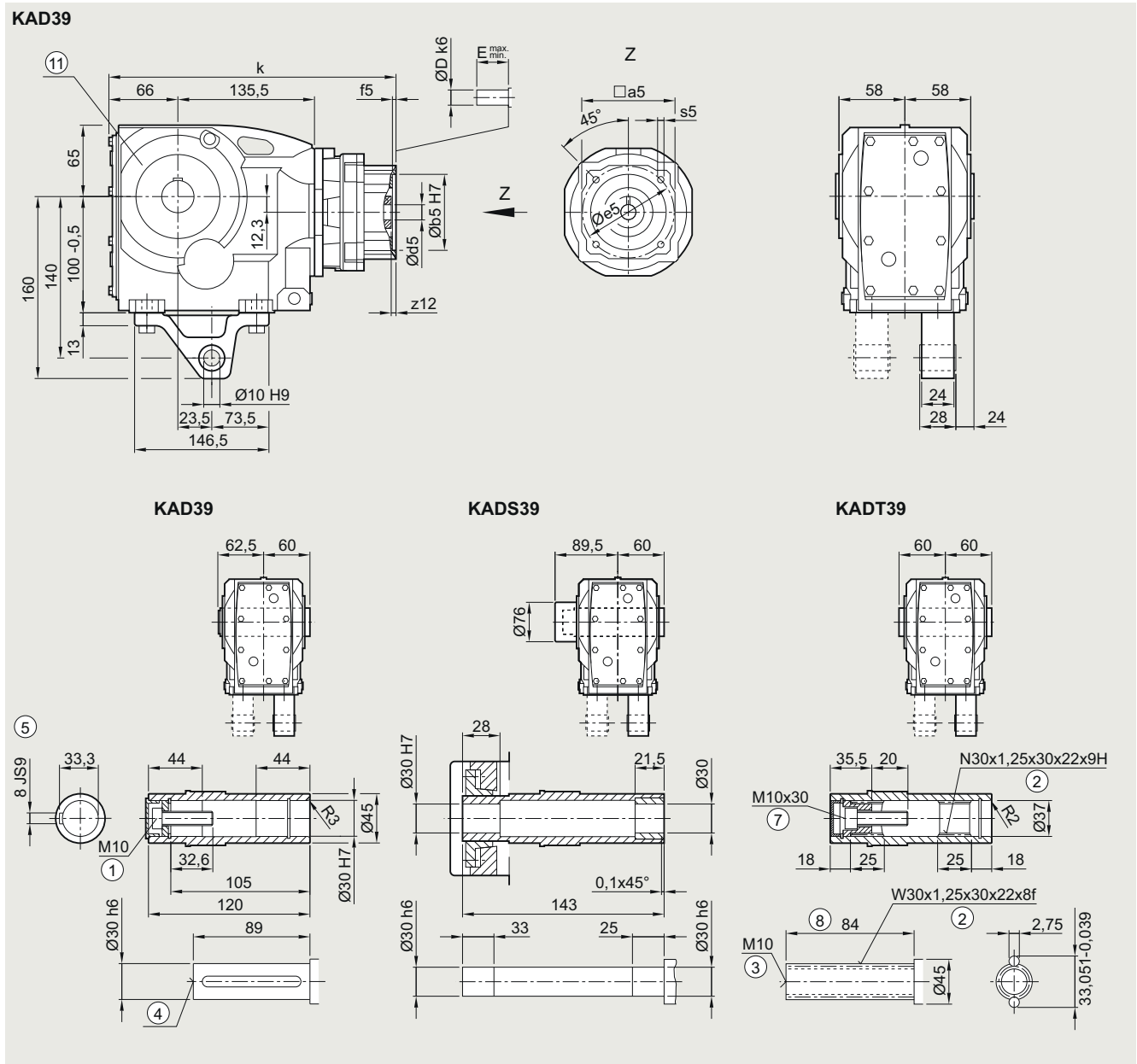
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

KAD.39 gearbox in a shaft-mounted design

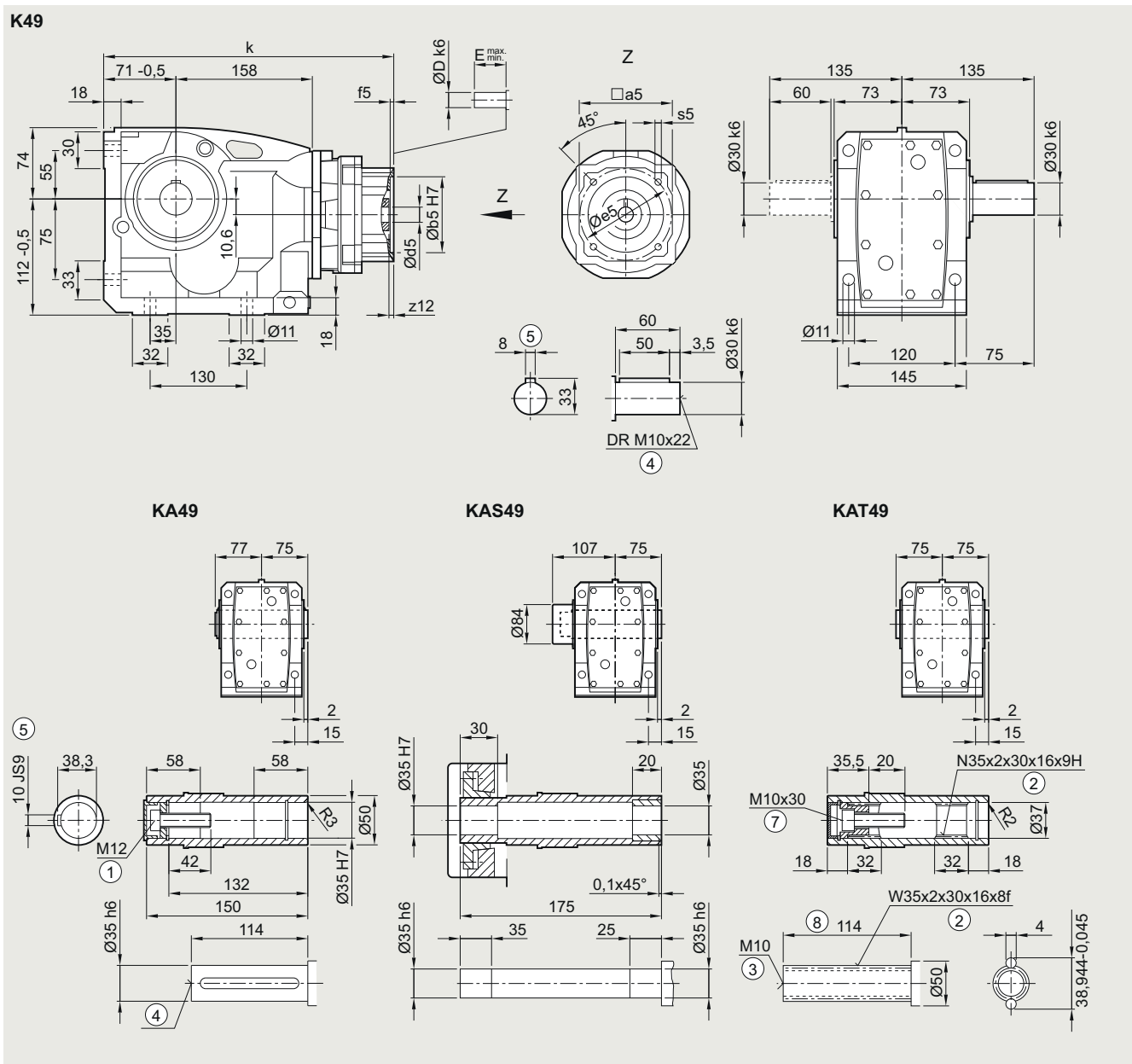


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 283.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 283.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 295.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 311.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 311.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 336.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 336.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 349.0 |

- ① ISO 4014
- ② DIN 5480
- ③ DIN 332-D
- ④ DIN 332
- ⑤ Feather key/keyway DIN 6885
- ⑥ ISO 4762
- ⑦ Without locating shoulder +1 mm
- ⑧ Use bores only for housing flange design

KS adapter exclusively for mounting defined Siemens servo motors

K.49 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 301.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 301.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 314.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 314.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 330.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 330.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 355.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 355.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 367.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 403.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 403.5 |

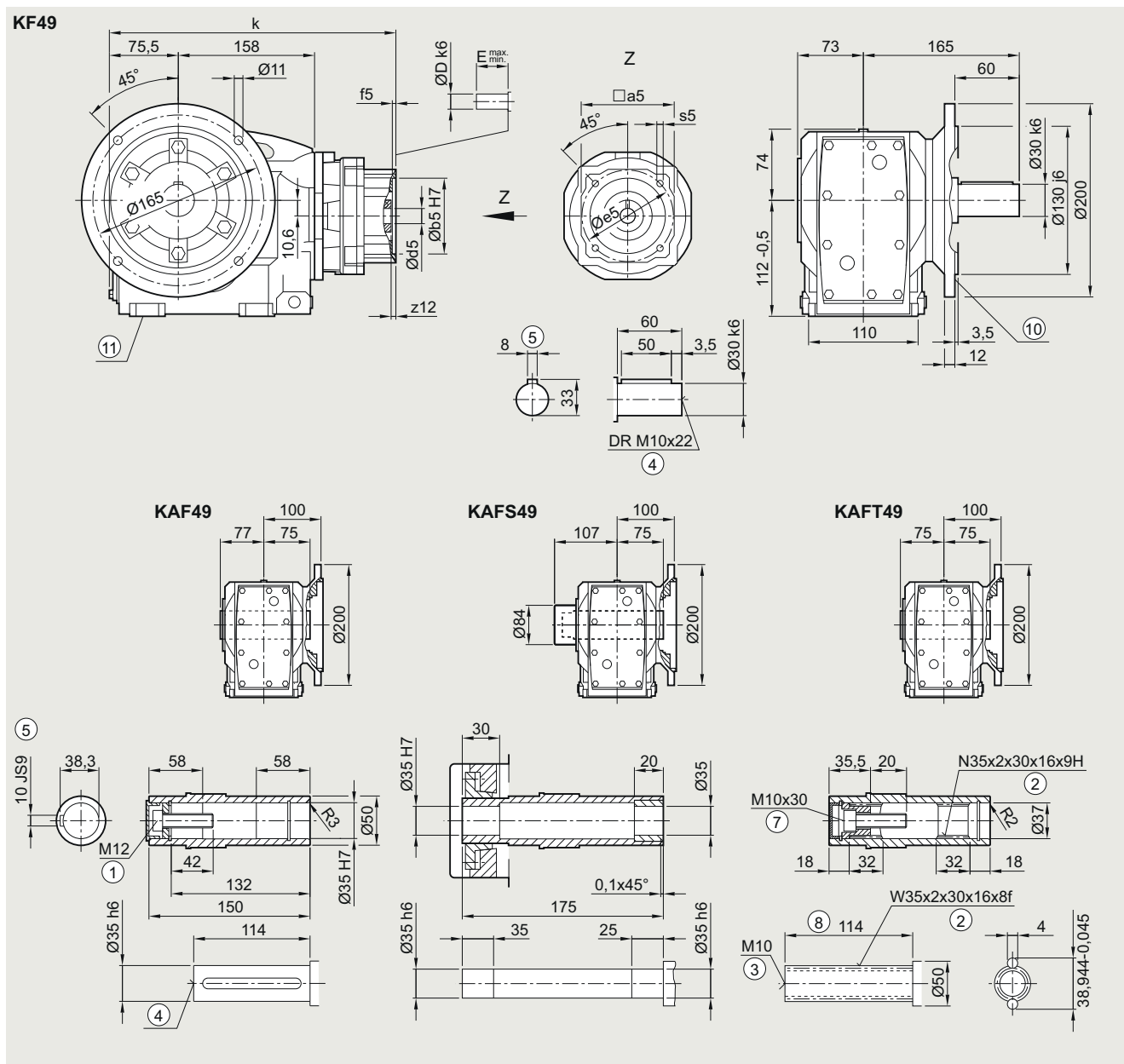
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.49 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 306.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 306.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 334.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 334.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 359.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 359.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 372.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 408.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 408.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

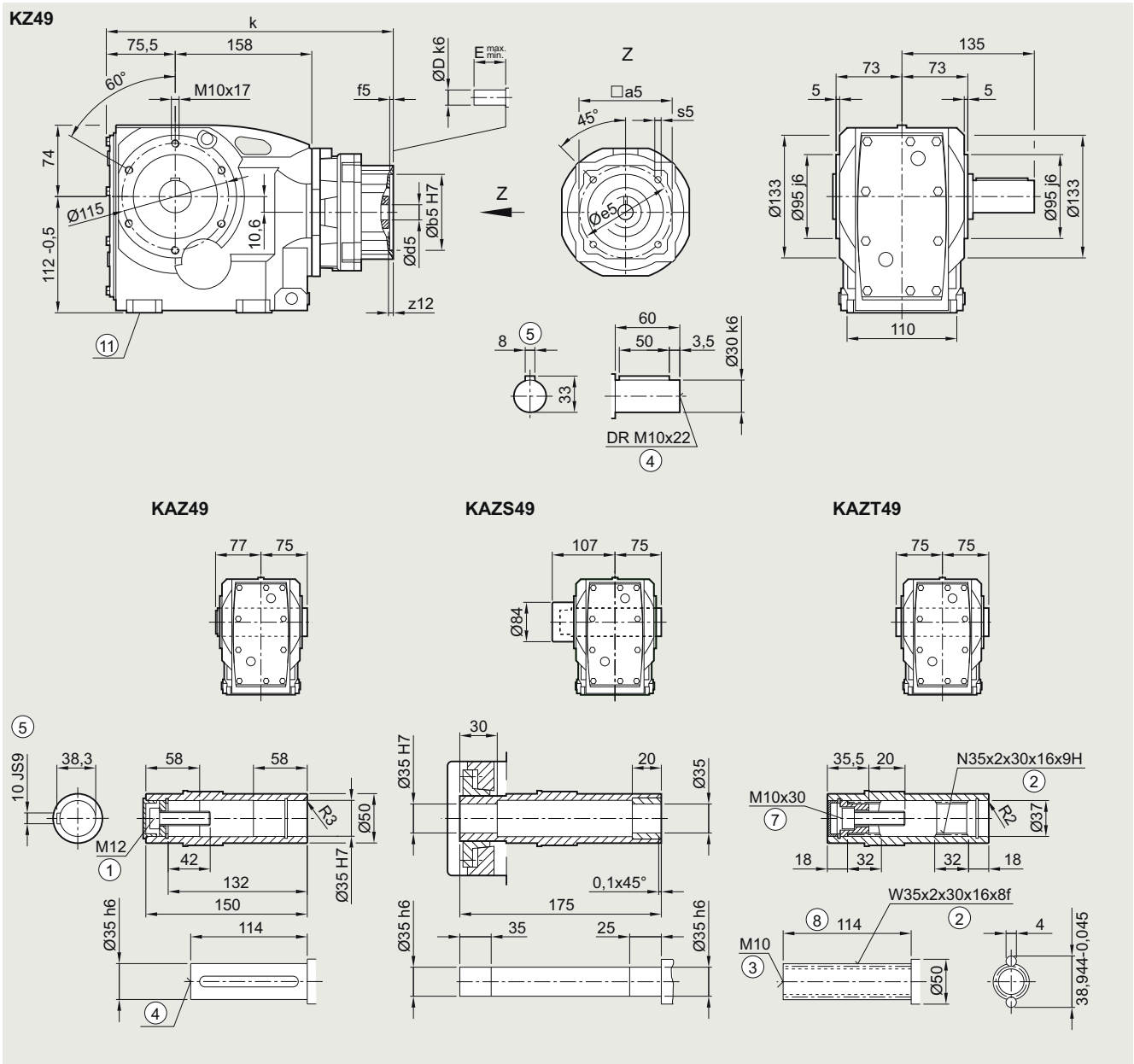
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ For inner contour, see page 5/177

⑩ Use bores only for foot-mounted design

K.Z.49 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 306.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 306.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 334.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 334.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 359.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 359.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 372.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 408.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 408.0 |

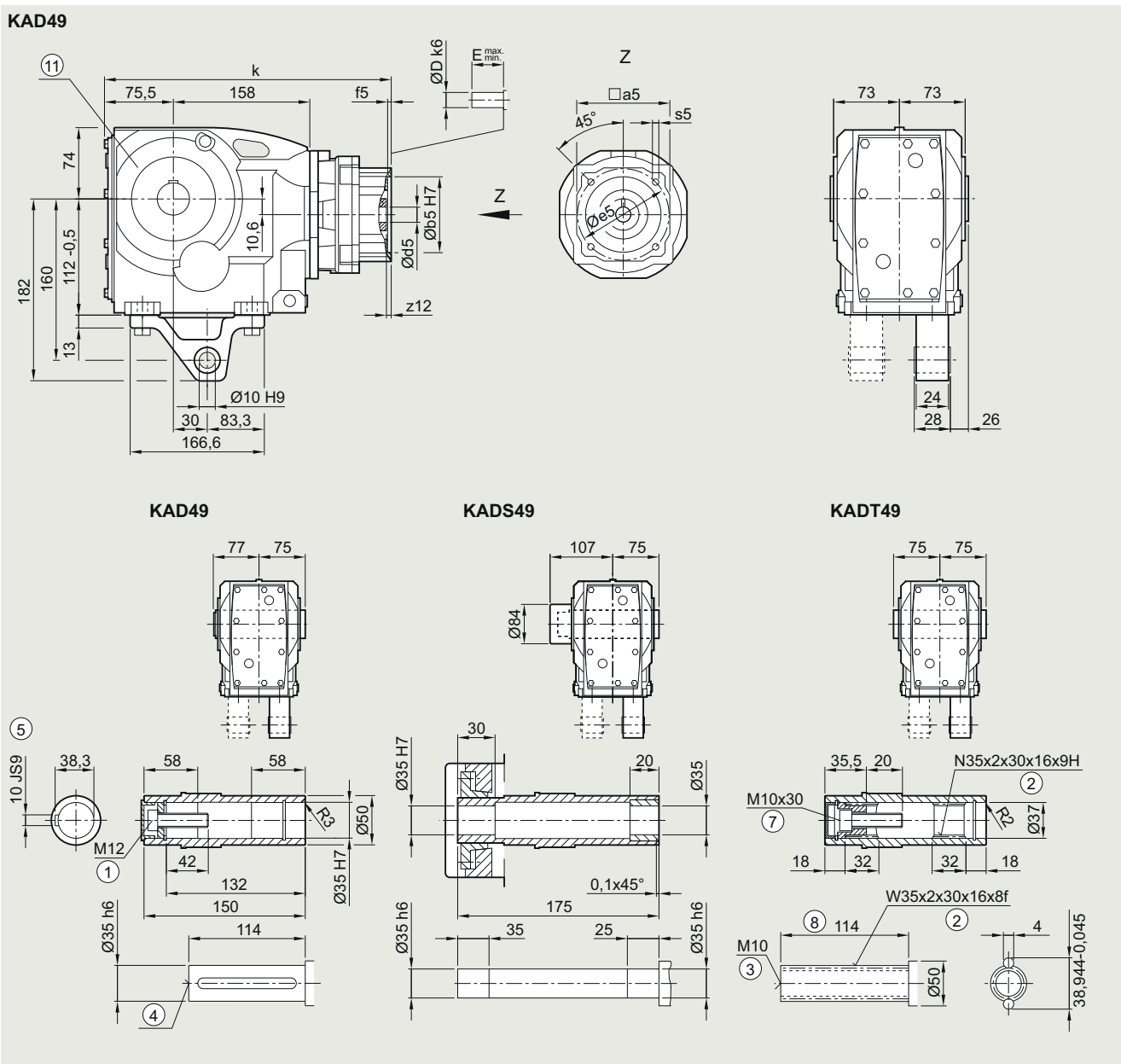
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

KAD.49 gearbox in a shaft-mounted design



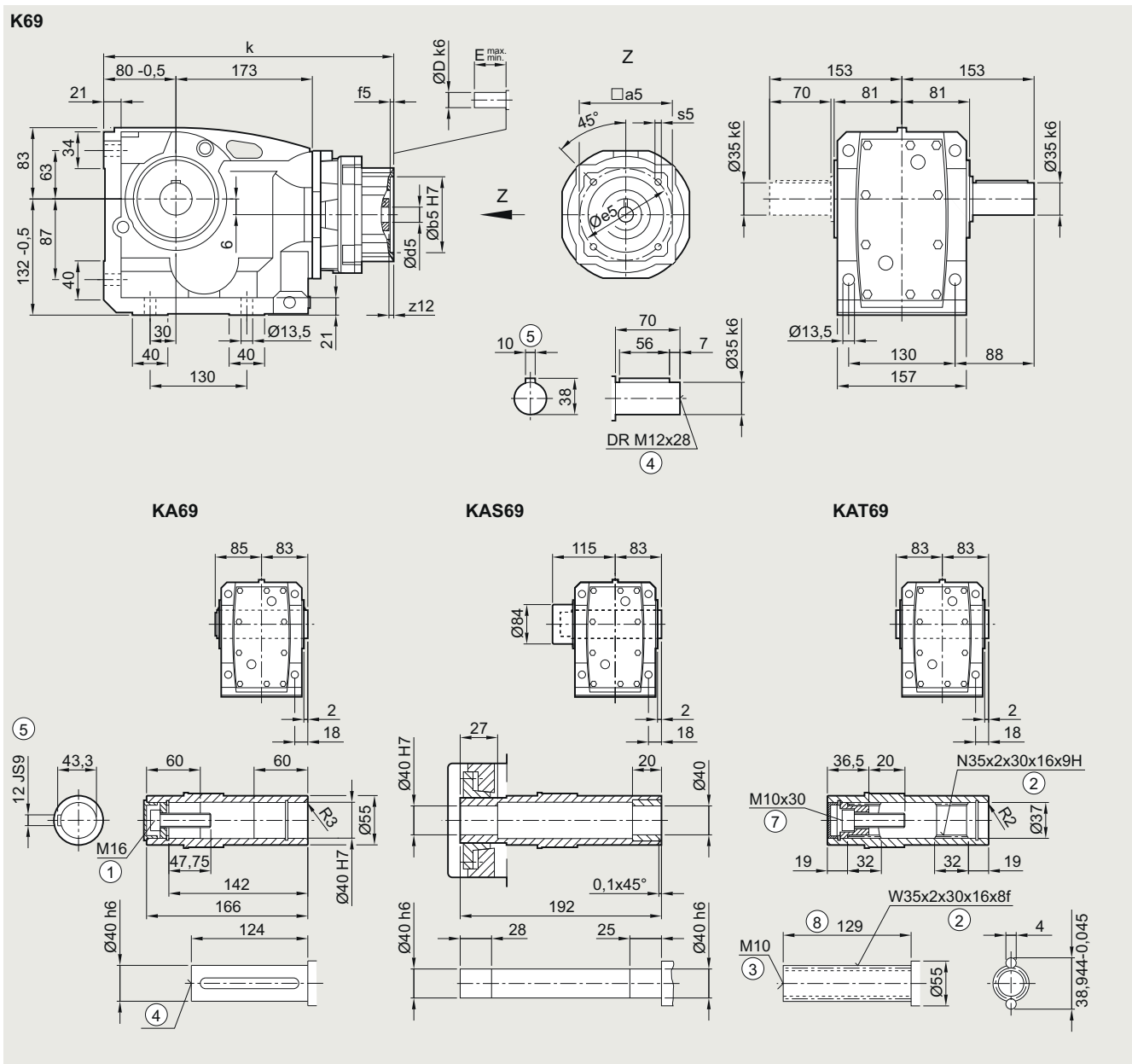
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 306.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 306.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 318.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 334.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 334.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 359.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 359.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 372.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 408.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 408.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for housing flange design

5

KS adapter exclusively for mounting defined Siemens servo motors

K.69 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 325.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 325.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 338.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 338.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 354.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 354.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 379.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 379.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 391.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 427.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 427.5 |

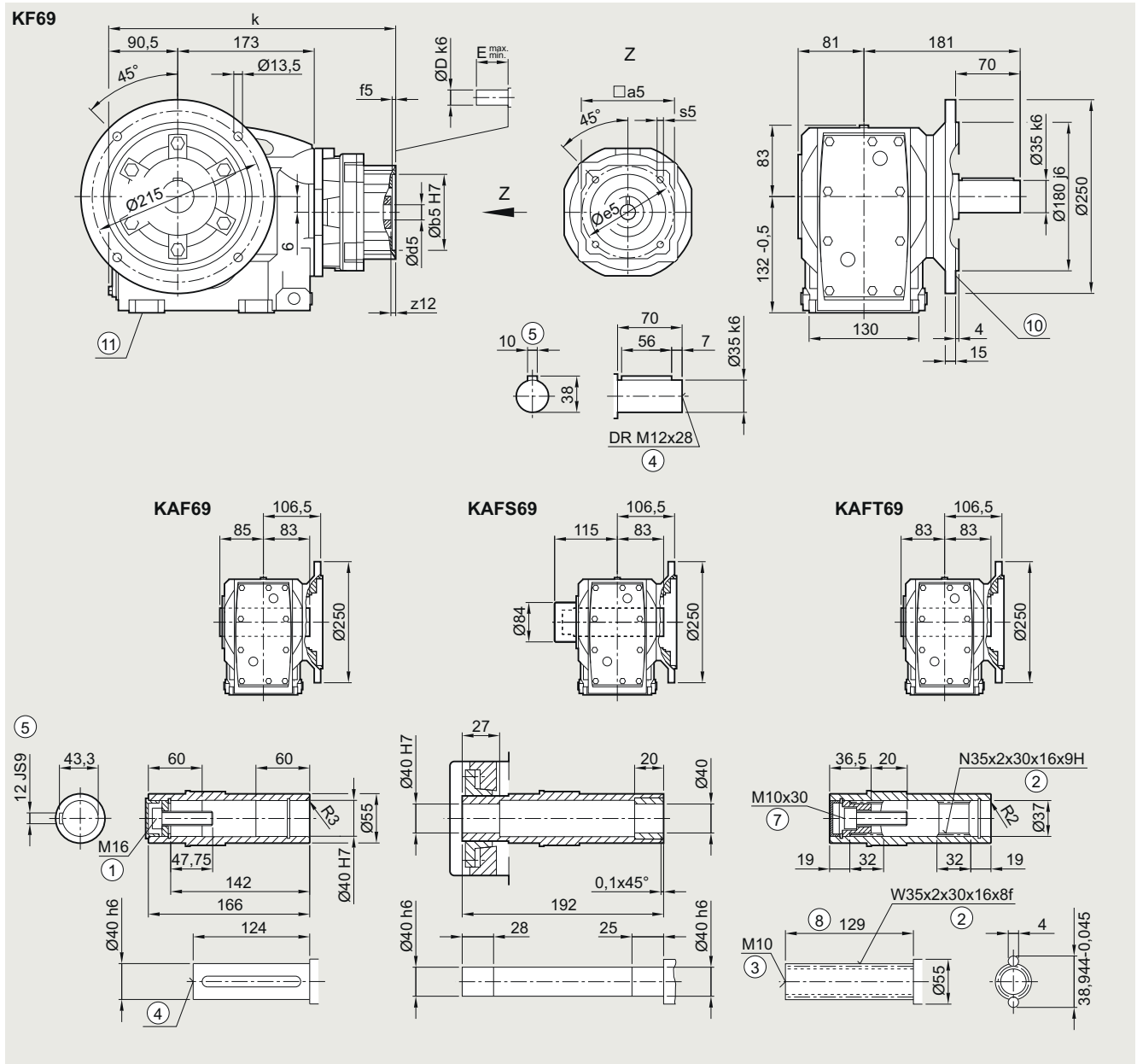
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

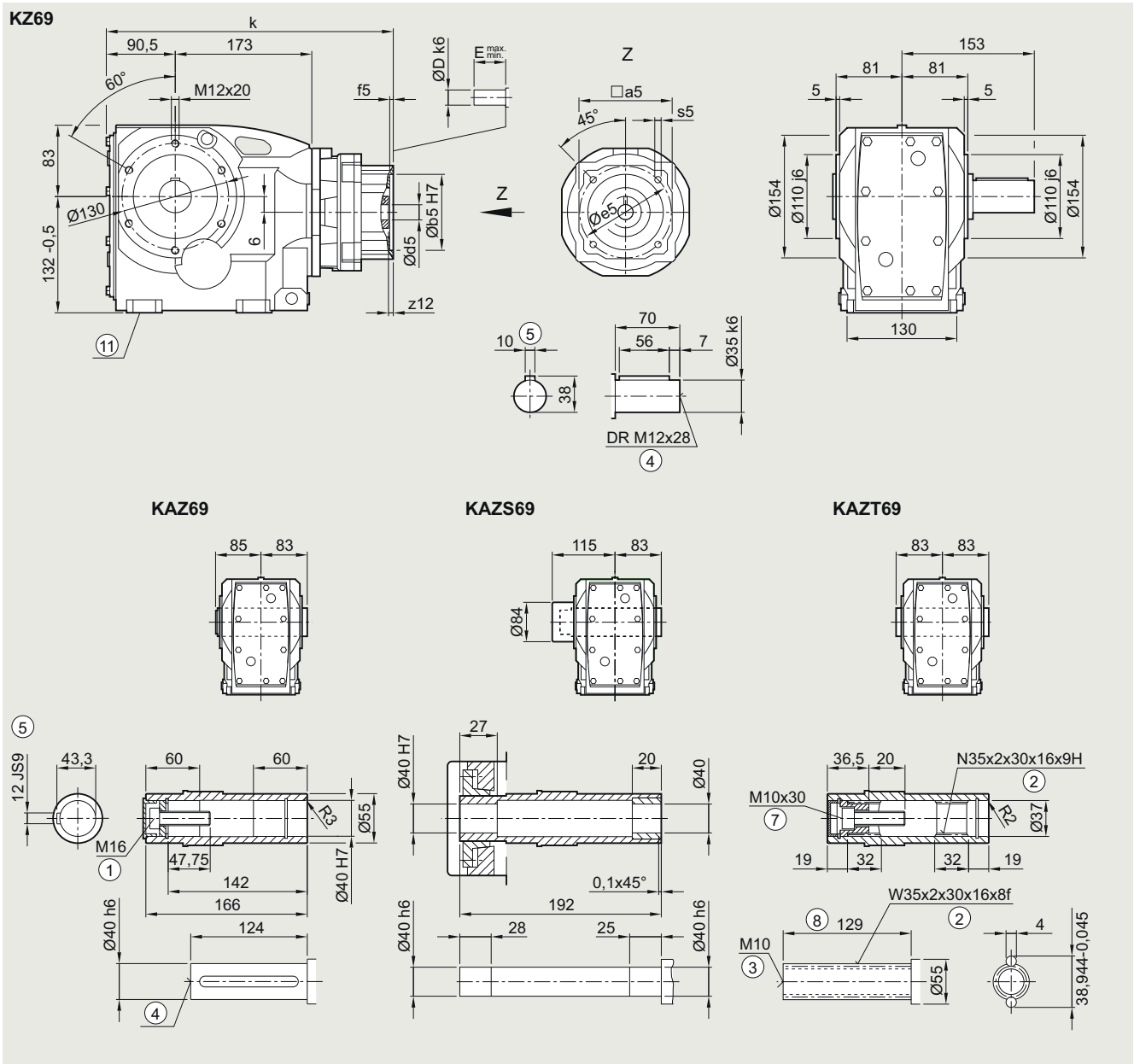
K.F.69 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 336.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 336.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 364.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 364.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 389.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 389.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 402.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 438.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 438.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

K.Z.69 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 336.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 336.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 364.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 364.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 389.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 389.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 402.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 438.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 438.0 |

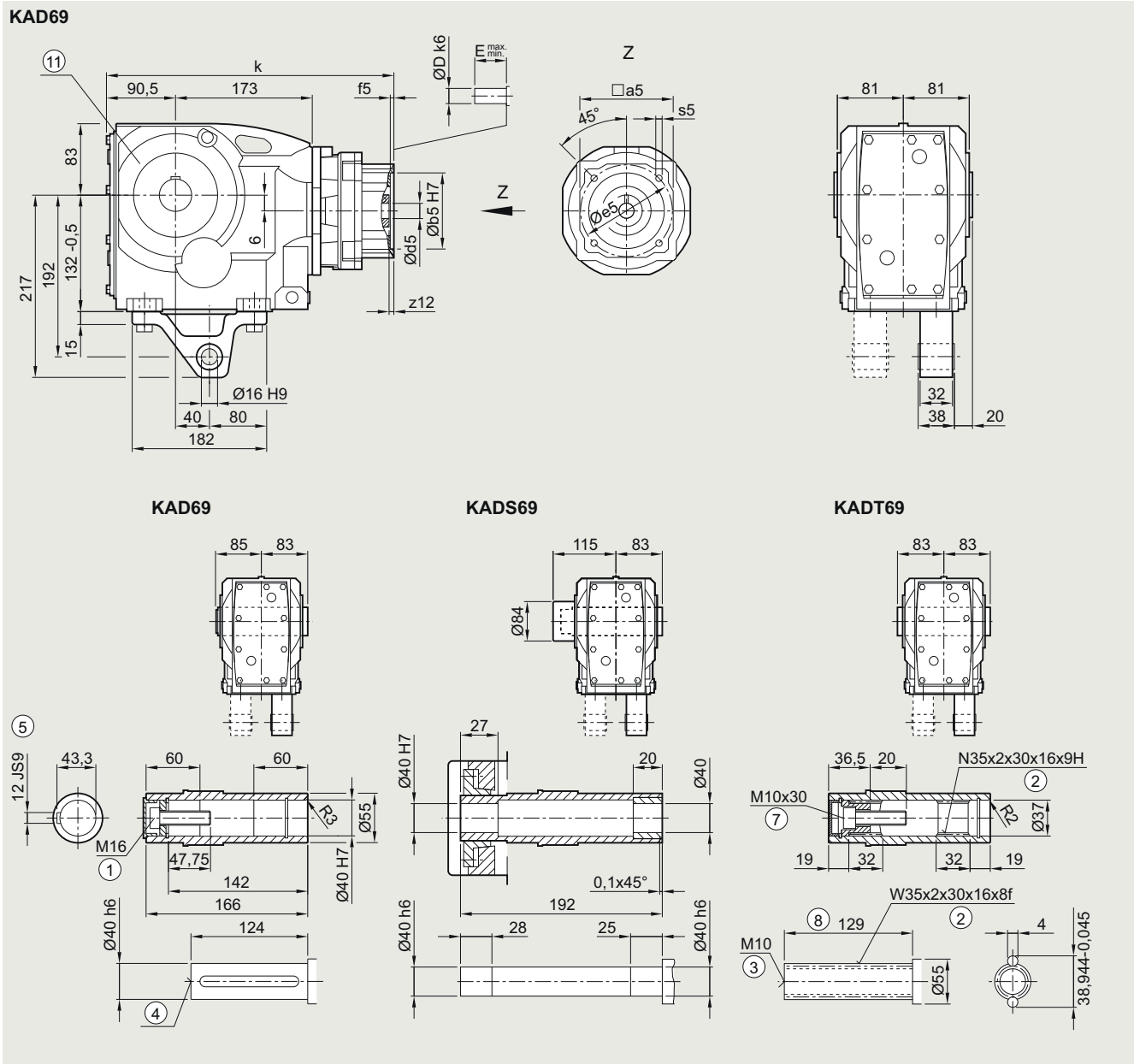
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

KAD.69 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 336.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 336.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 348.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 364.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 364.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 389.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 389.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 402.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 438.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 438.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

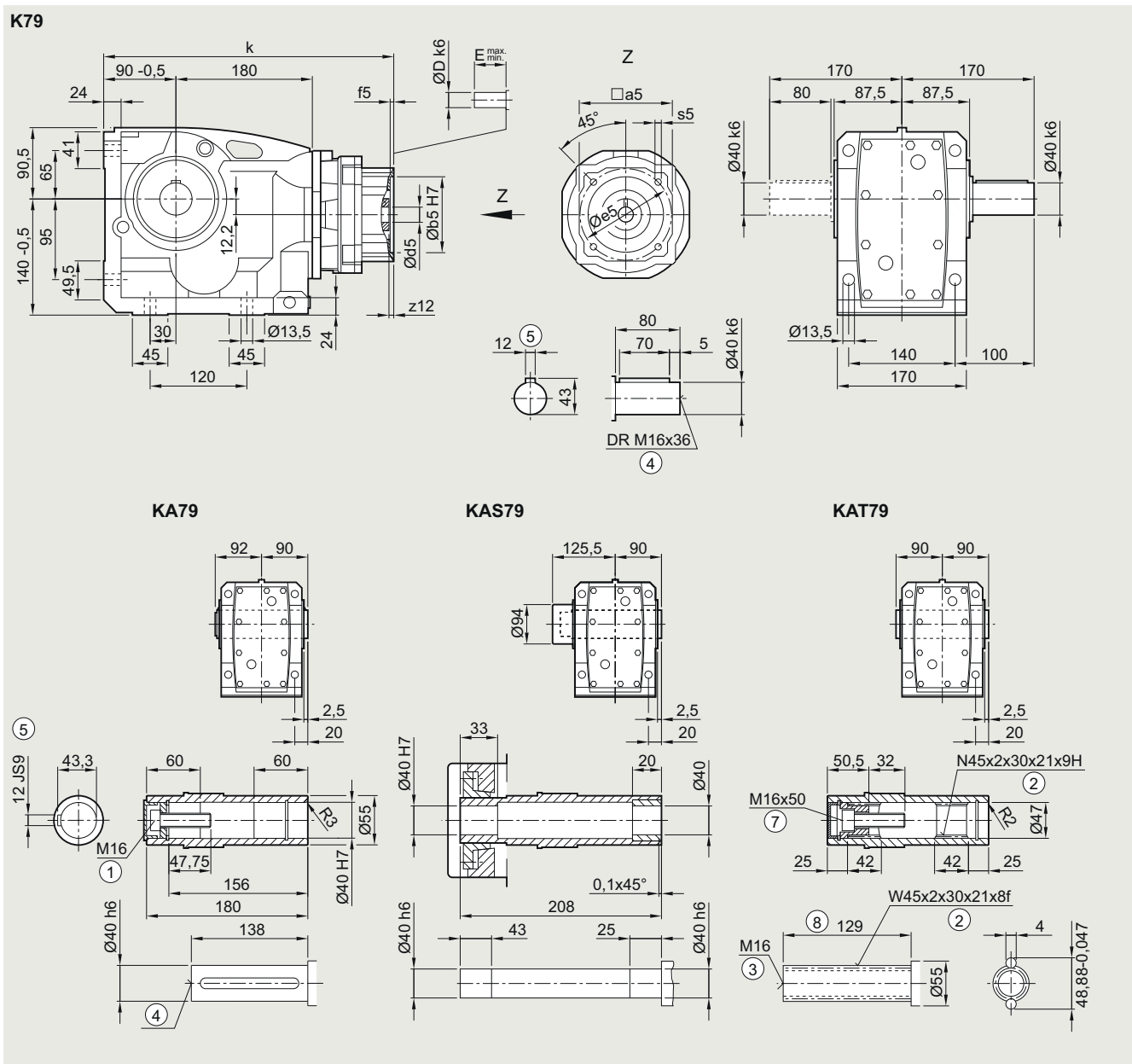
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

KS adapter exclusively for mounting defined Siemens servo motors

K.79 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 342.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 342.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 355.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 355.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 371.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 371.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 396.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 396.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 408.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 444.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 444.5 |

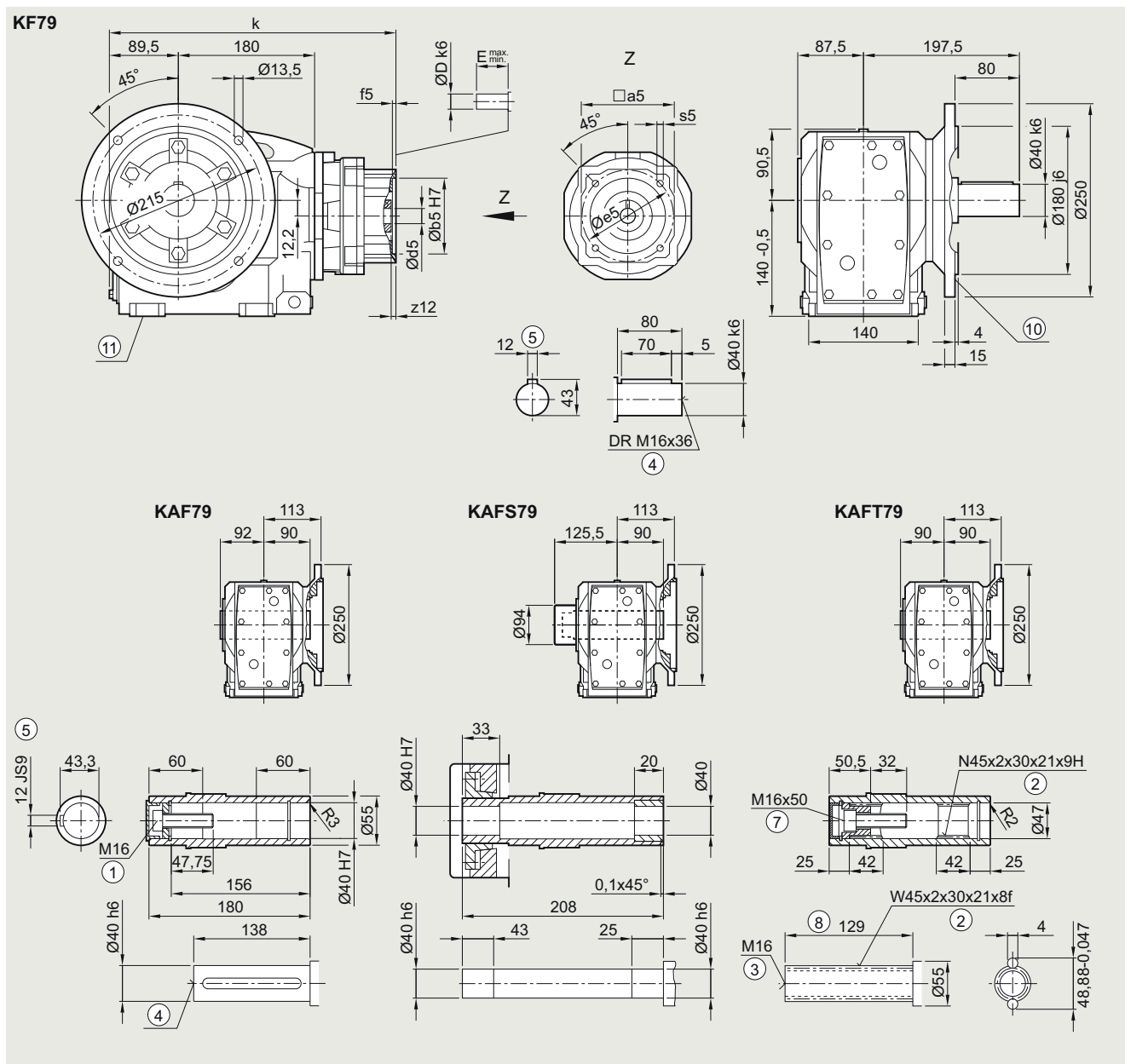
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.79 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 342.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 342.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 370.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 370.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 395.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 395.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 408.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 444.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 444.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

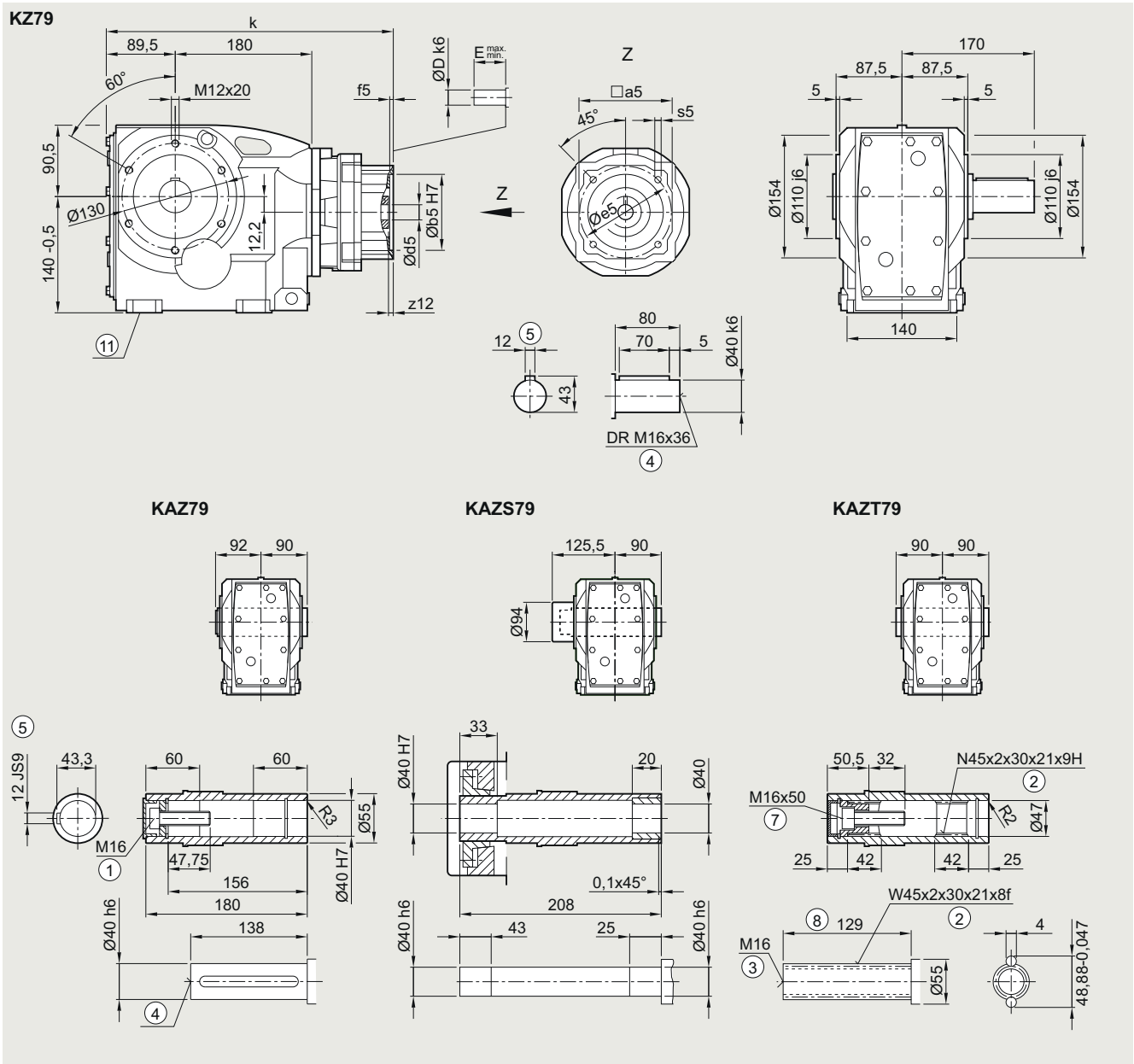
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ For inner contour, see page 5/177

⑩ Use bores only for foot-mounted design

K.Z.79 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 342.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 342.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 370.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 370.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 395.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 395.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 408.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 444.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 444.0 |

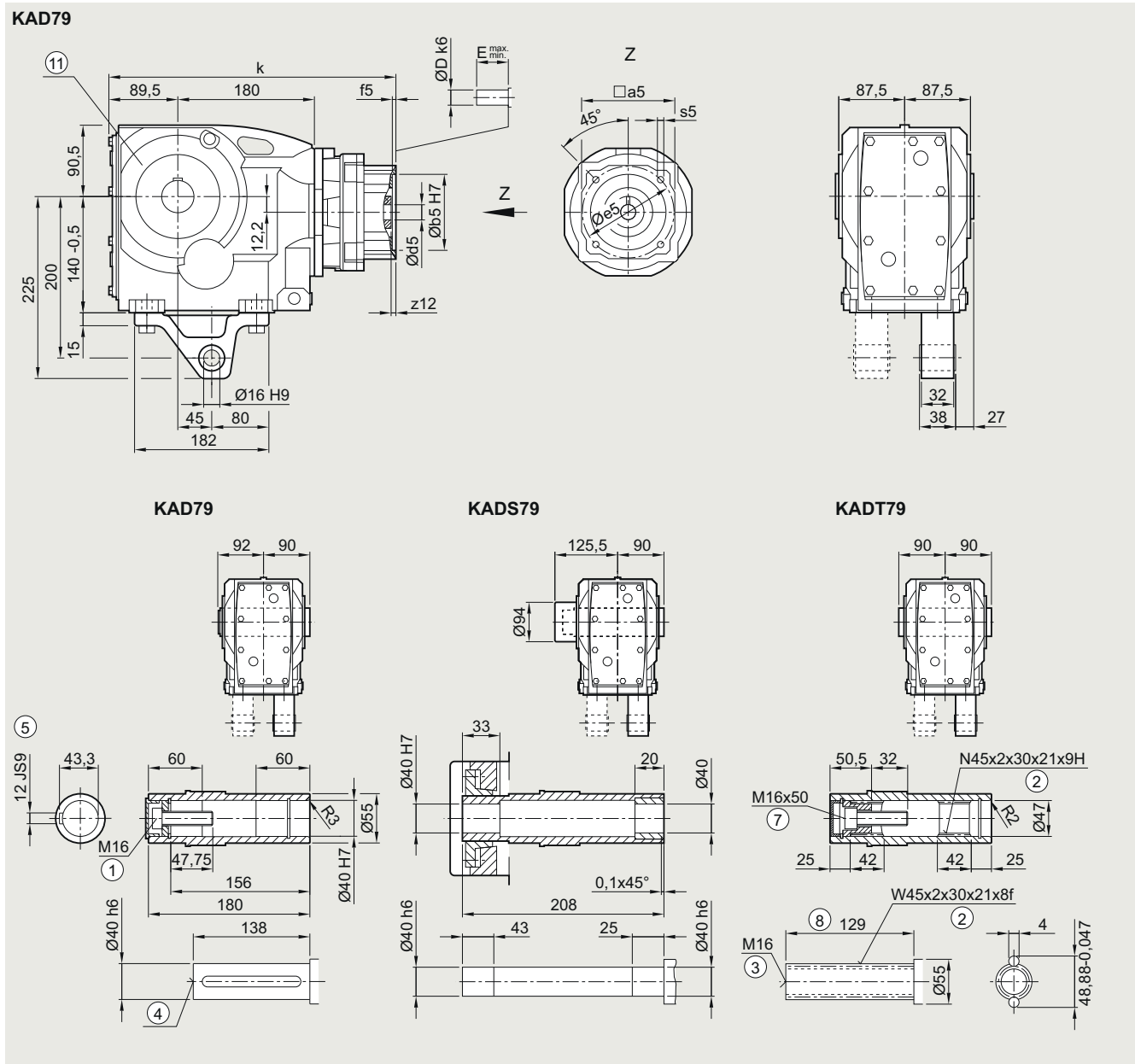
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑥ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

KAD.79 gearbox in a shaft-mounted design

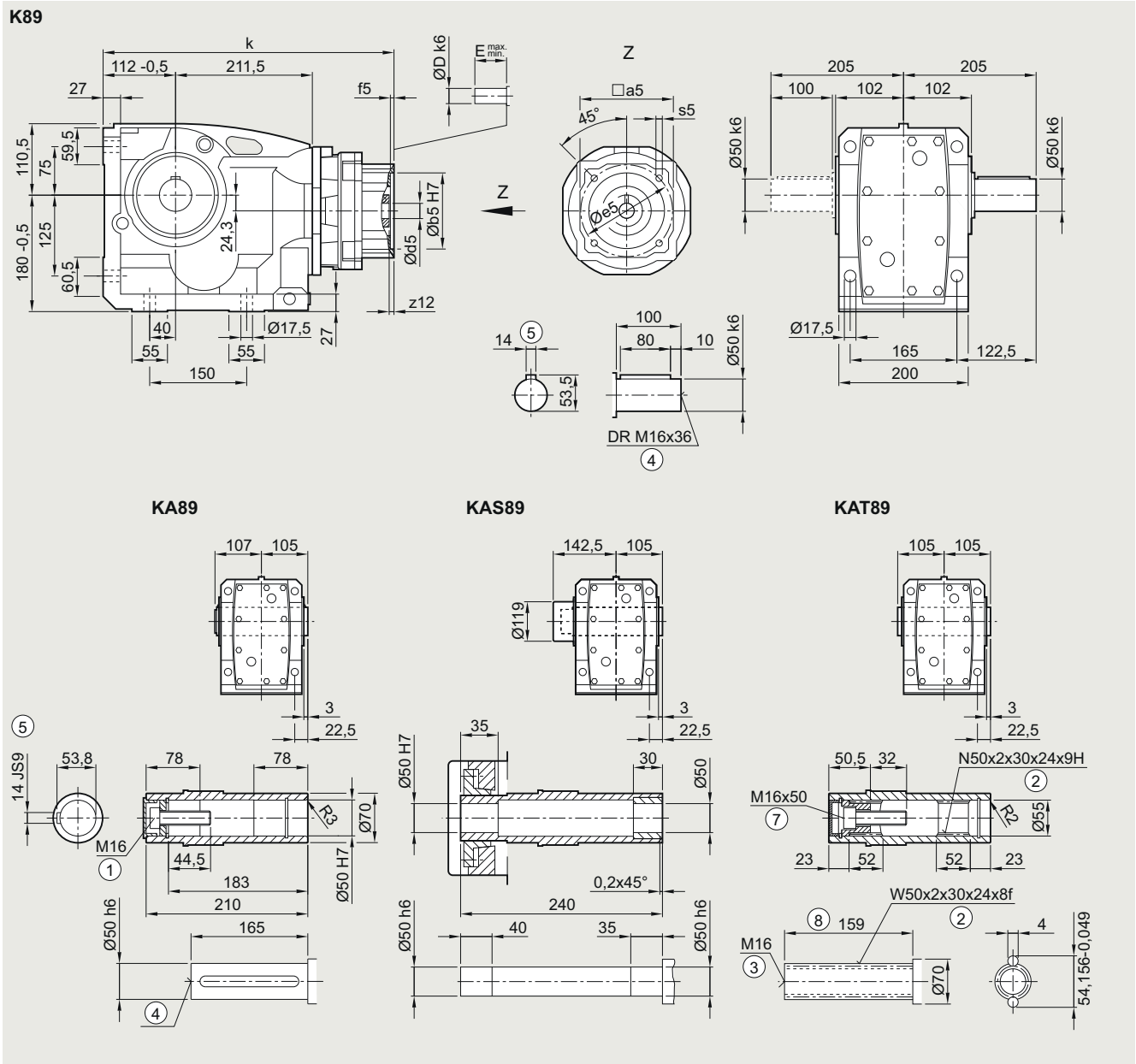


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 342.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 342.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 354.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 370.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 370.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 395.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 395.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 408.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 444.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 444.0 |

- ① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
- ⑥ ISO 4762 ⑦ Without locating shoulder +1 mm ⑧ Use bores only for housing flange design

5

K.89 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 394.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 394.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 418.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 418.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 443.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 443.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 456.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 492.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 492.0 |

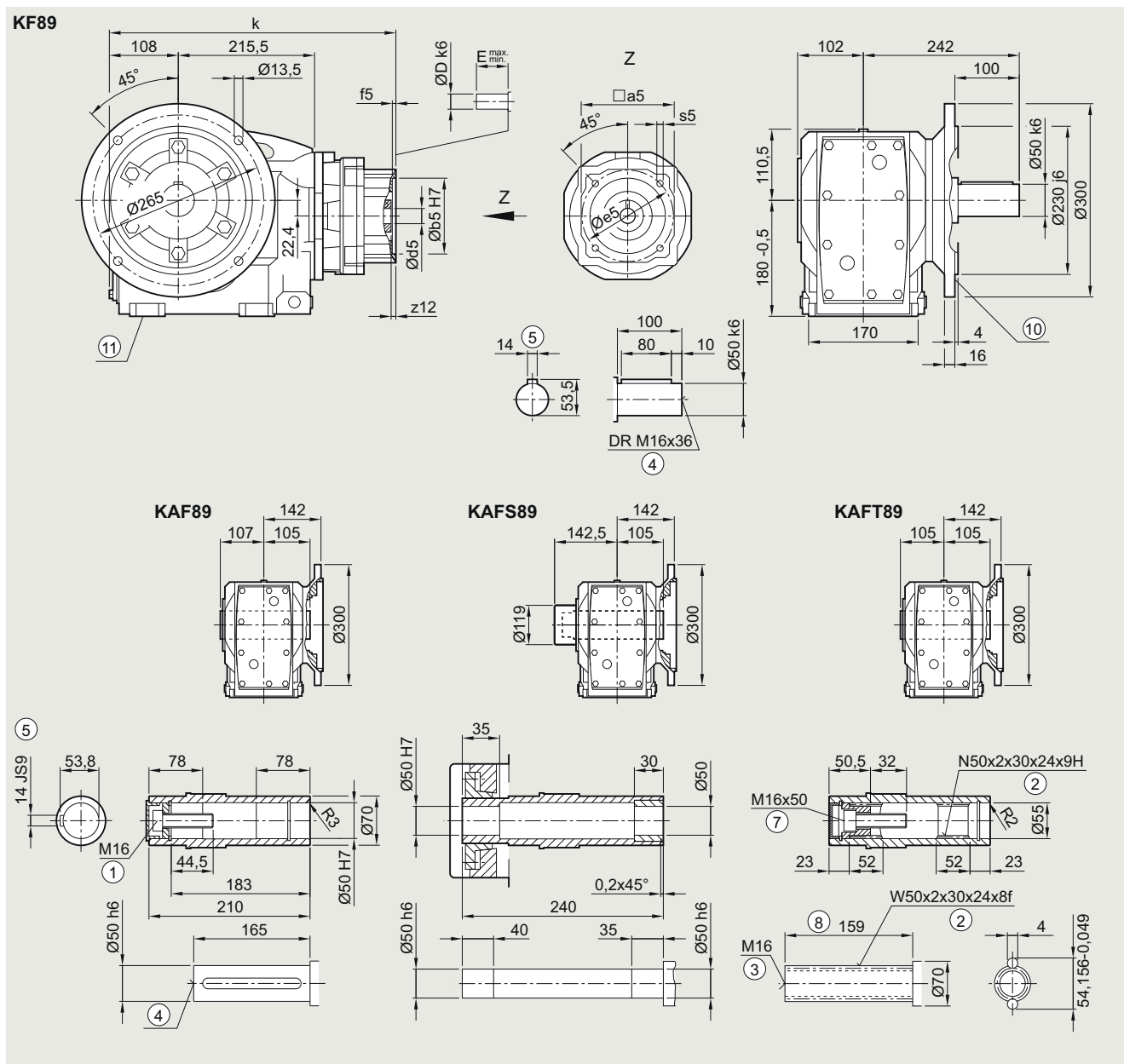
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.89 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 394.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 394.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 418.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 418.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 443.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 443.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 456.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 492.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 492.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

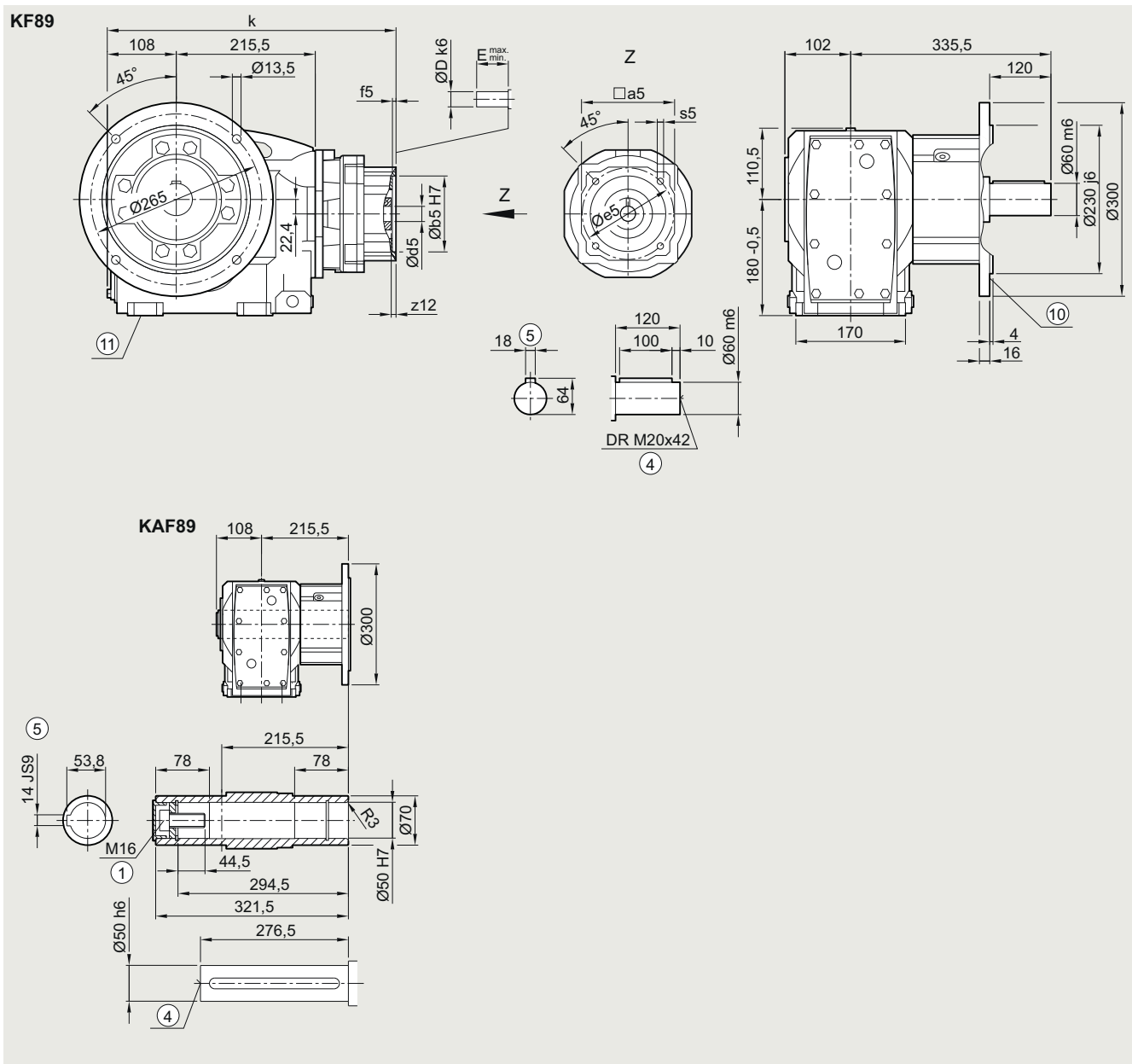
⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

K.F.89 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 394.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 394.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 418.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 418.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 443.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 443.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 456.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 492.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 492.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

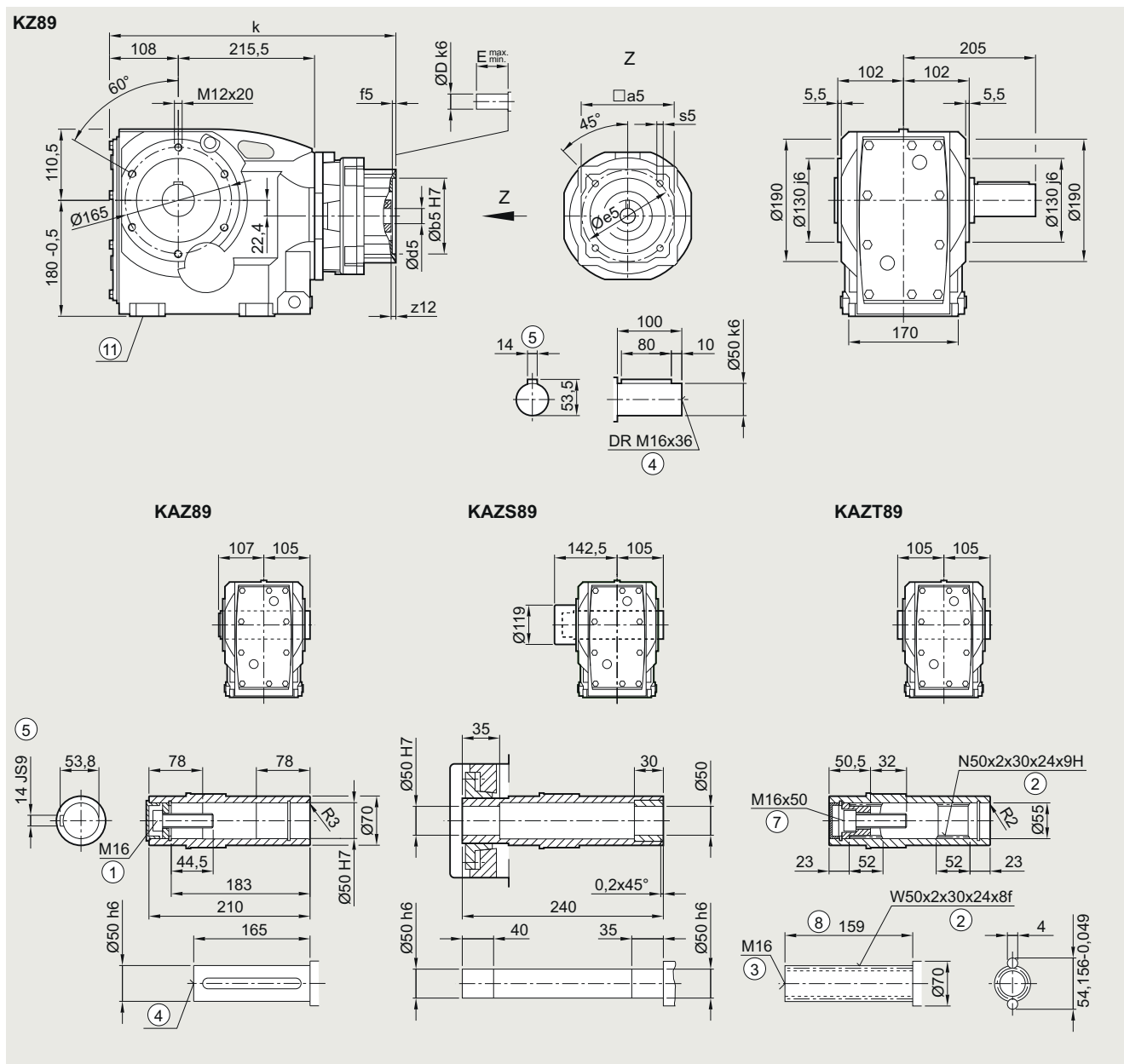
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.Z.89 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 394.0 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 394.0 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 418.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 418.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 443.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 443.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 456.0 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 492.0 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 492.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

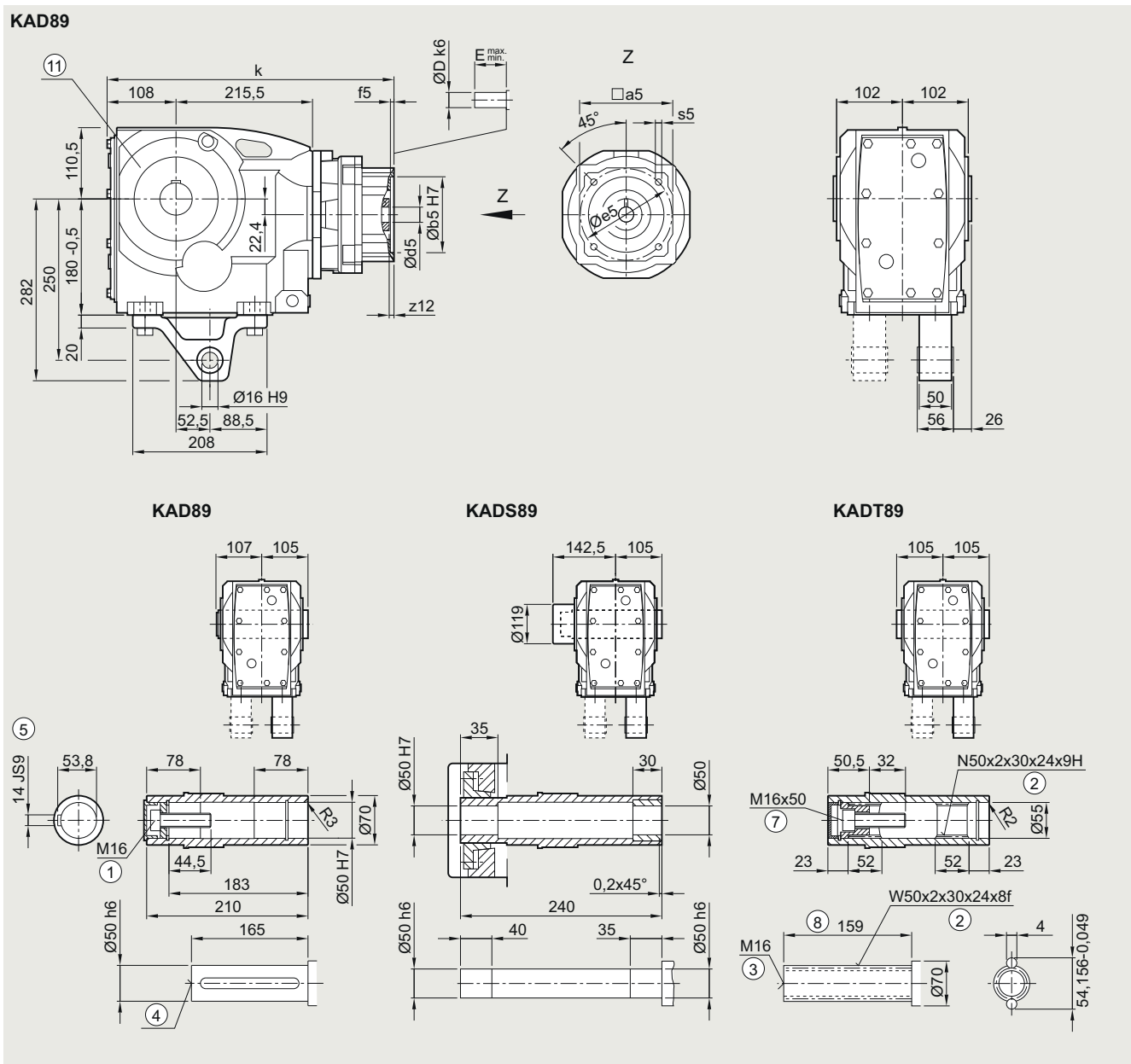
⑥ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

KAD.89 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 406.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 418.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 418.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 443.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 443.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 456.0 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 492.0 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 492.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑦ Without locating shoulder +1 mm

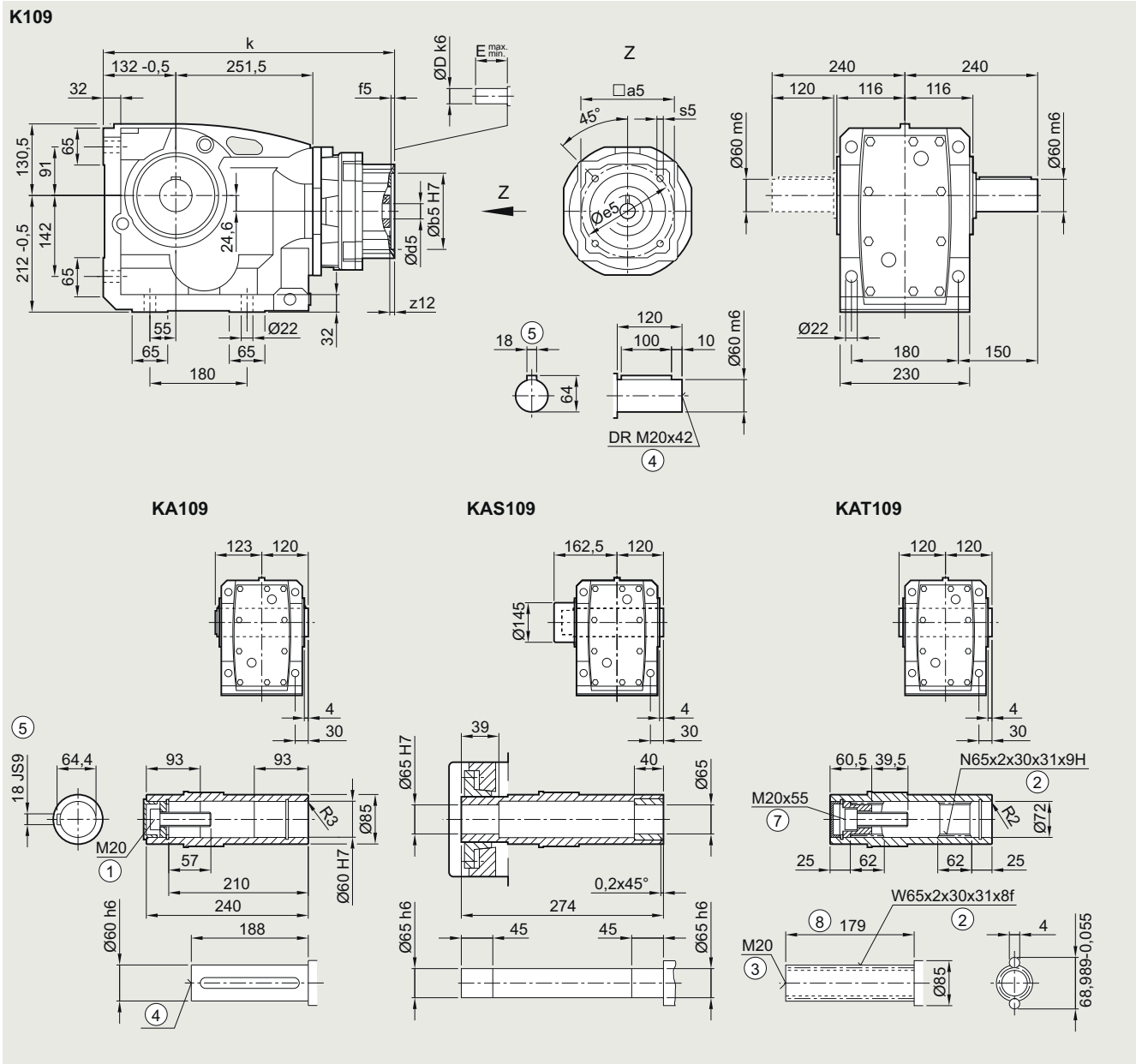
⑧ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

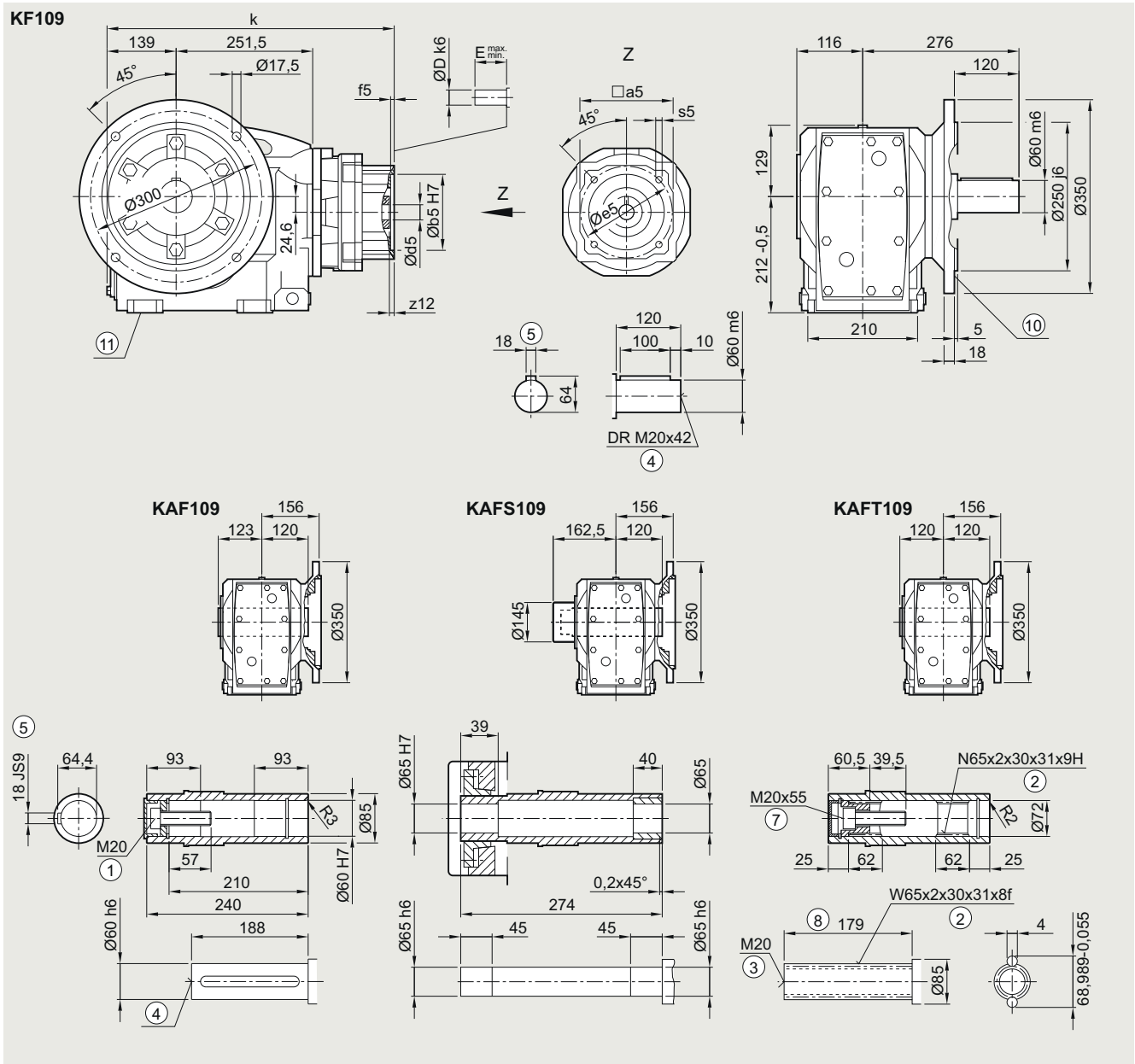
K.109 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 465.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 465.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 486.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 486.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 499.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 535.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 535.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

K.F.109 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 472.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 472.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 493.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 493.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 506.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 542.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 542.0 |

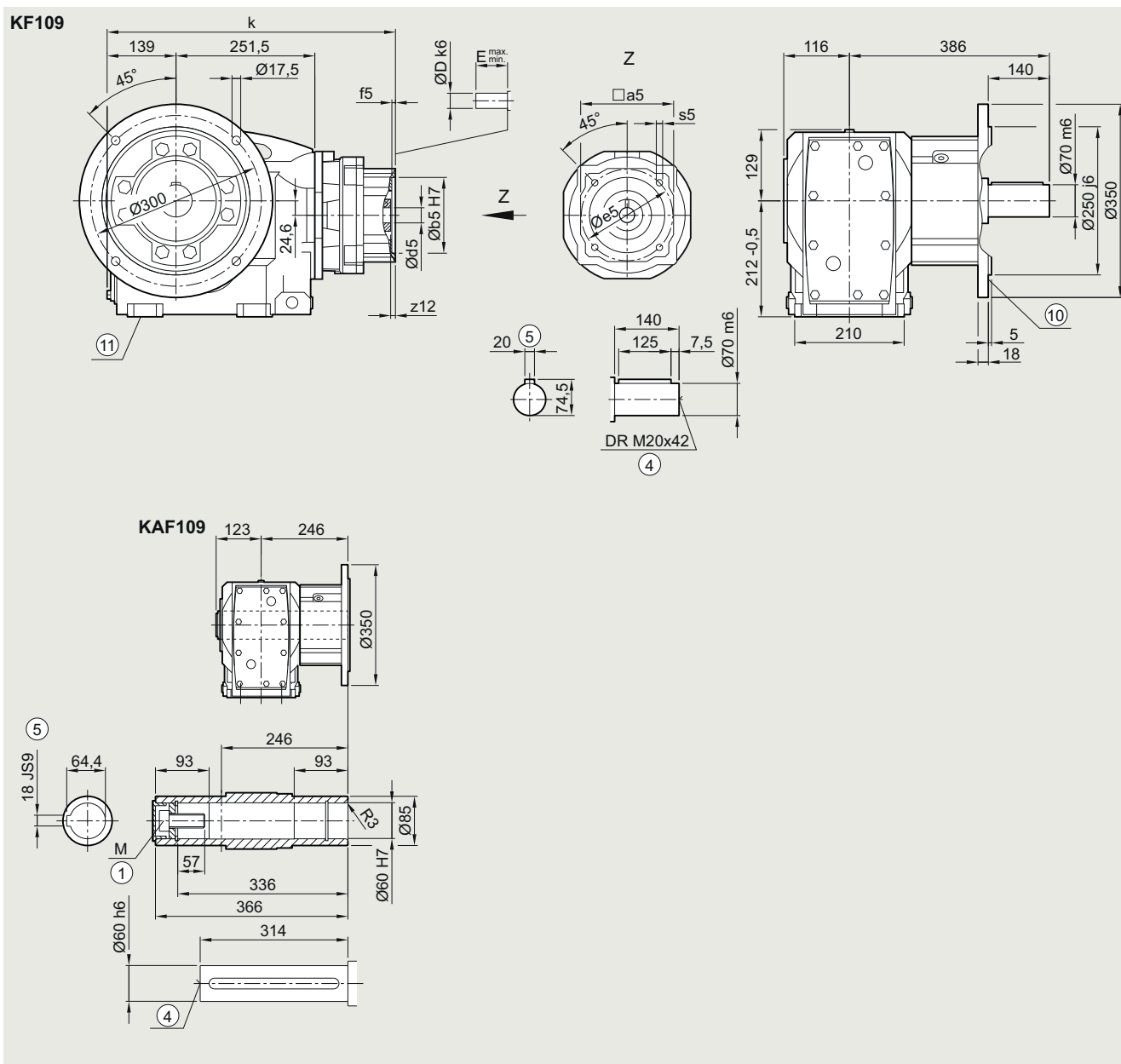
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.109 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 472.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 472.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 493.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 493.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 506.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 542.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 542.0 |

① ISO 4014

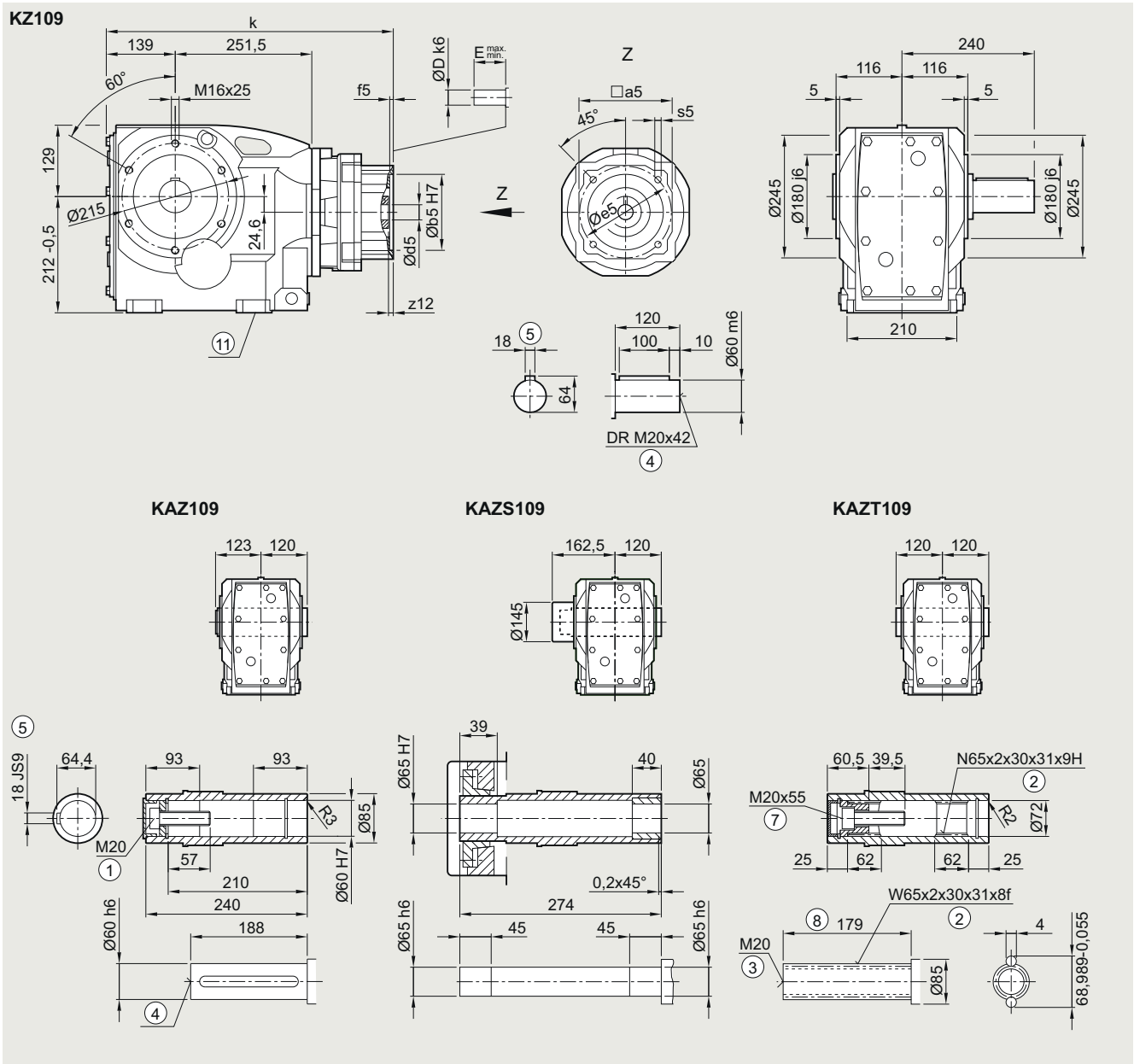
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

K.Z.109 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 472.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 472.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 493.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 493.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 506.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 542.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 542.0 |

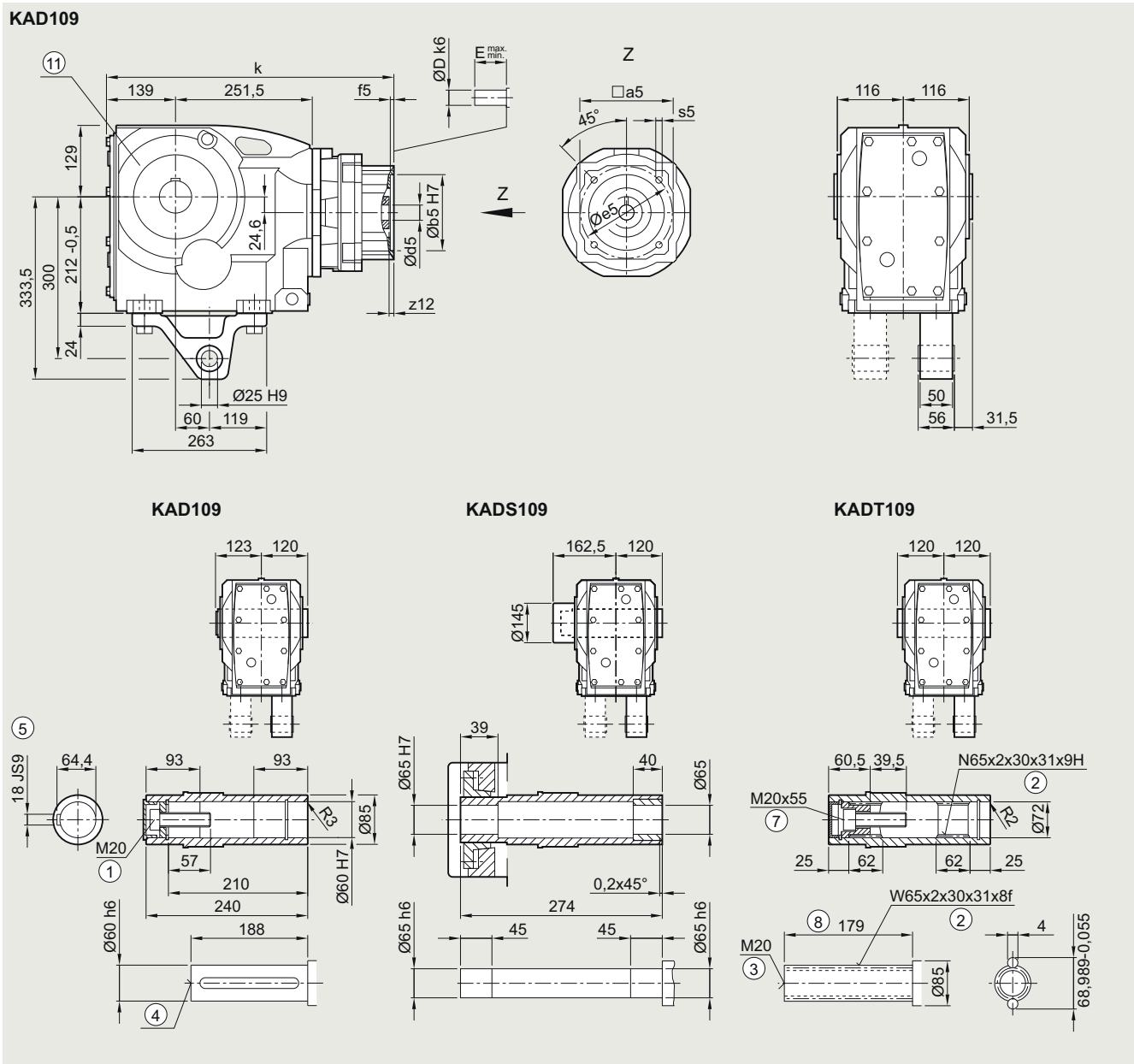
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

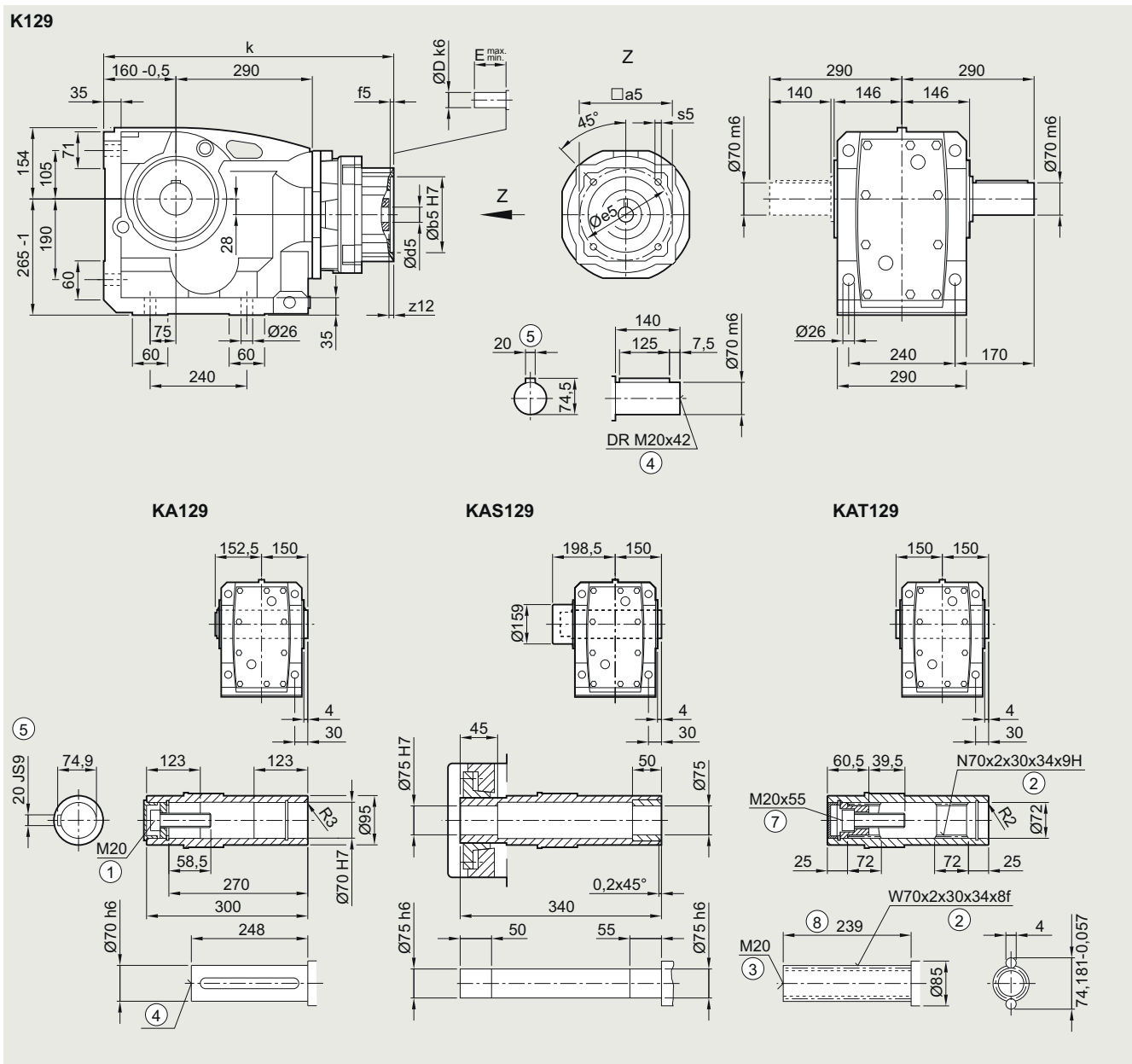
KAD.109 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 472.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 472.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 493.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 493.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 506.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 542.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 542.0 |

KS adapter exclusively for mounting defined Siemens servo motors

K.129 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 525.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 525.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 544.0 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 544.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 556.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 592.5 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 592.5 |

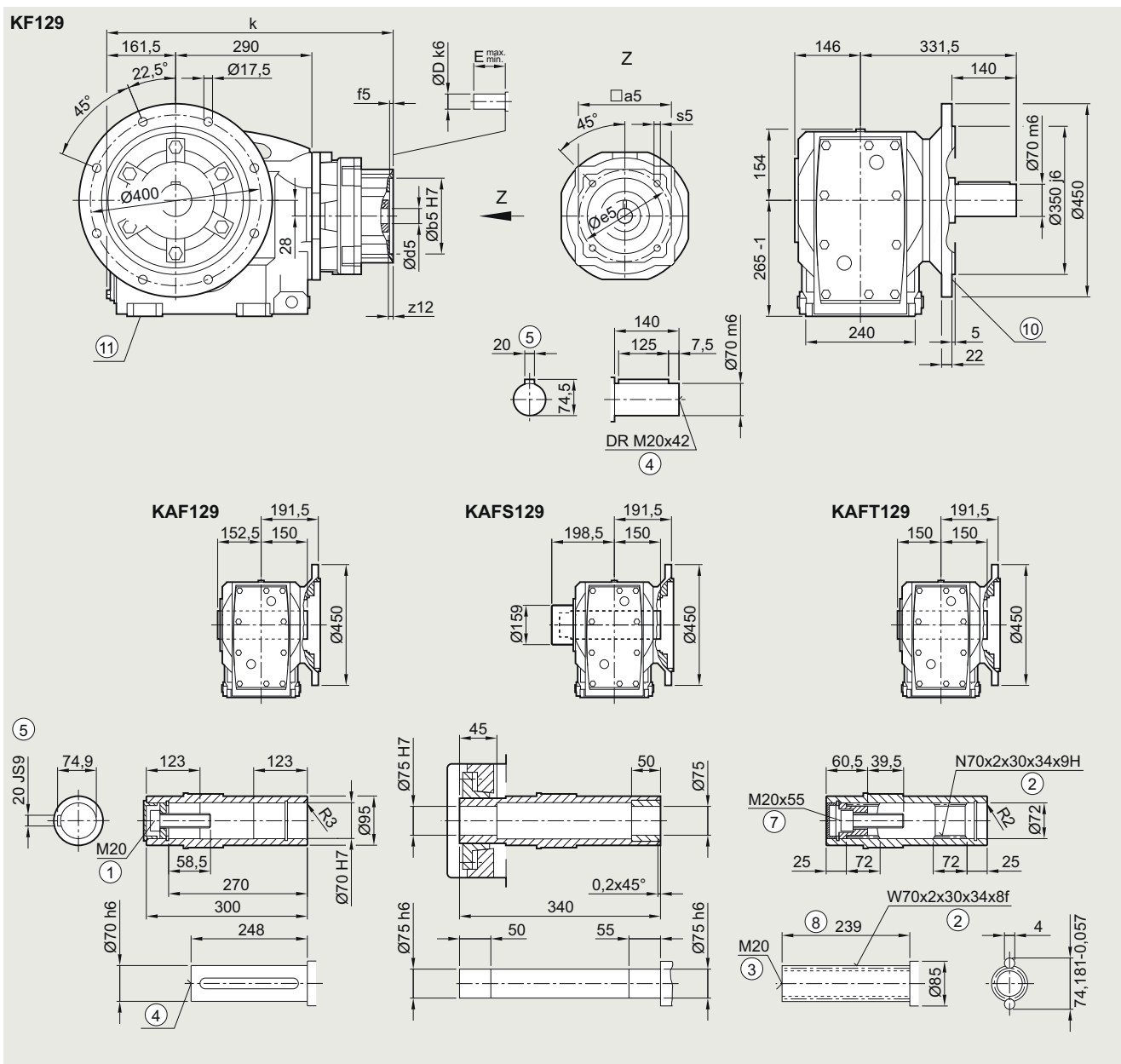
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.129 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 526.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 526.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 545.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 545.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 558.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 594.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 594.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

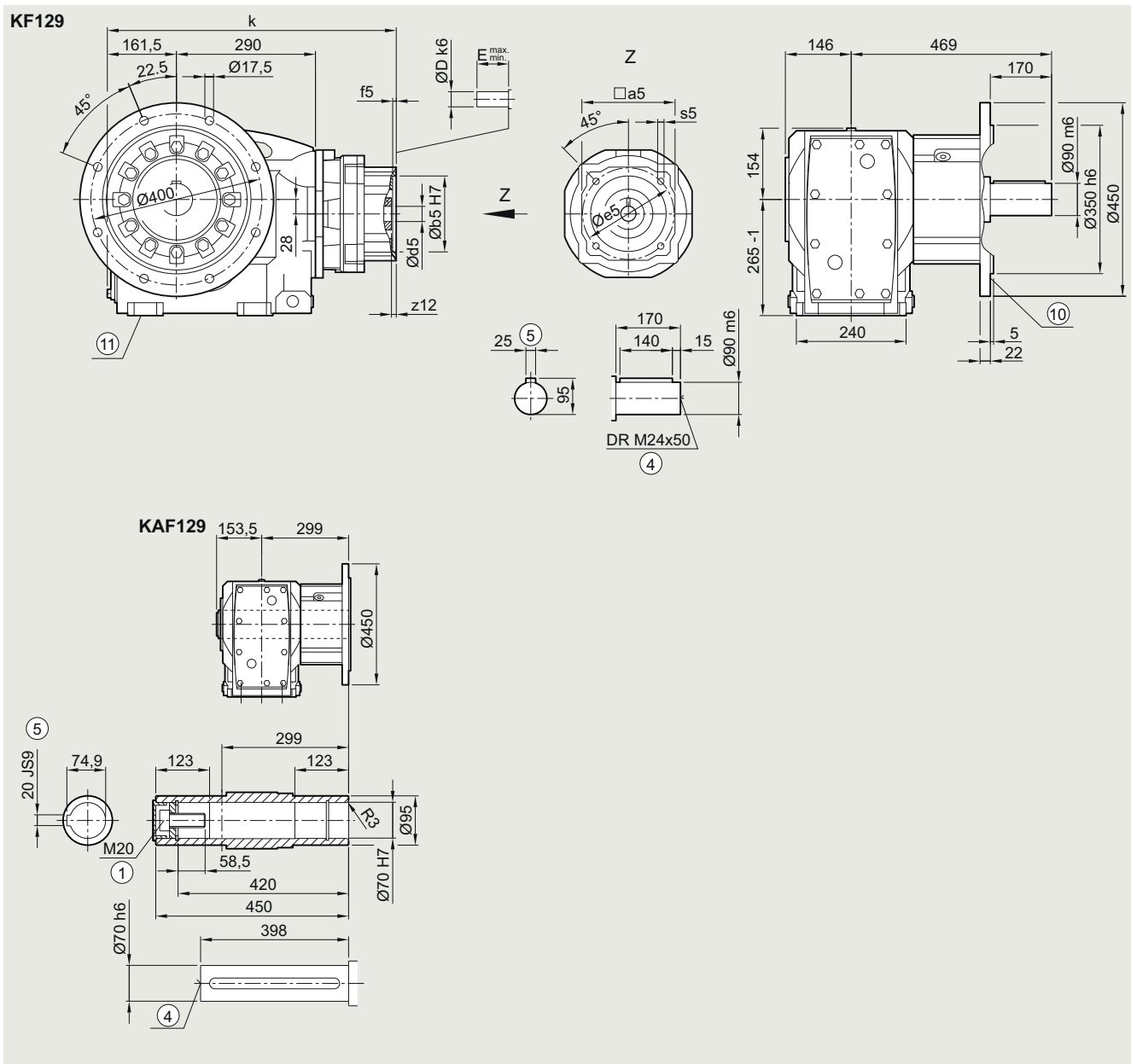
⑧ Without locating shoulder +1 mm

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

K.F.129 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 526.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 526.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 545.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 545.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 558.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 594.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 594.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ For inner contour, see page 5/177

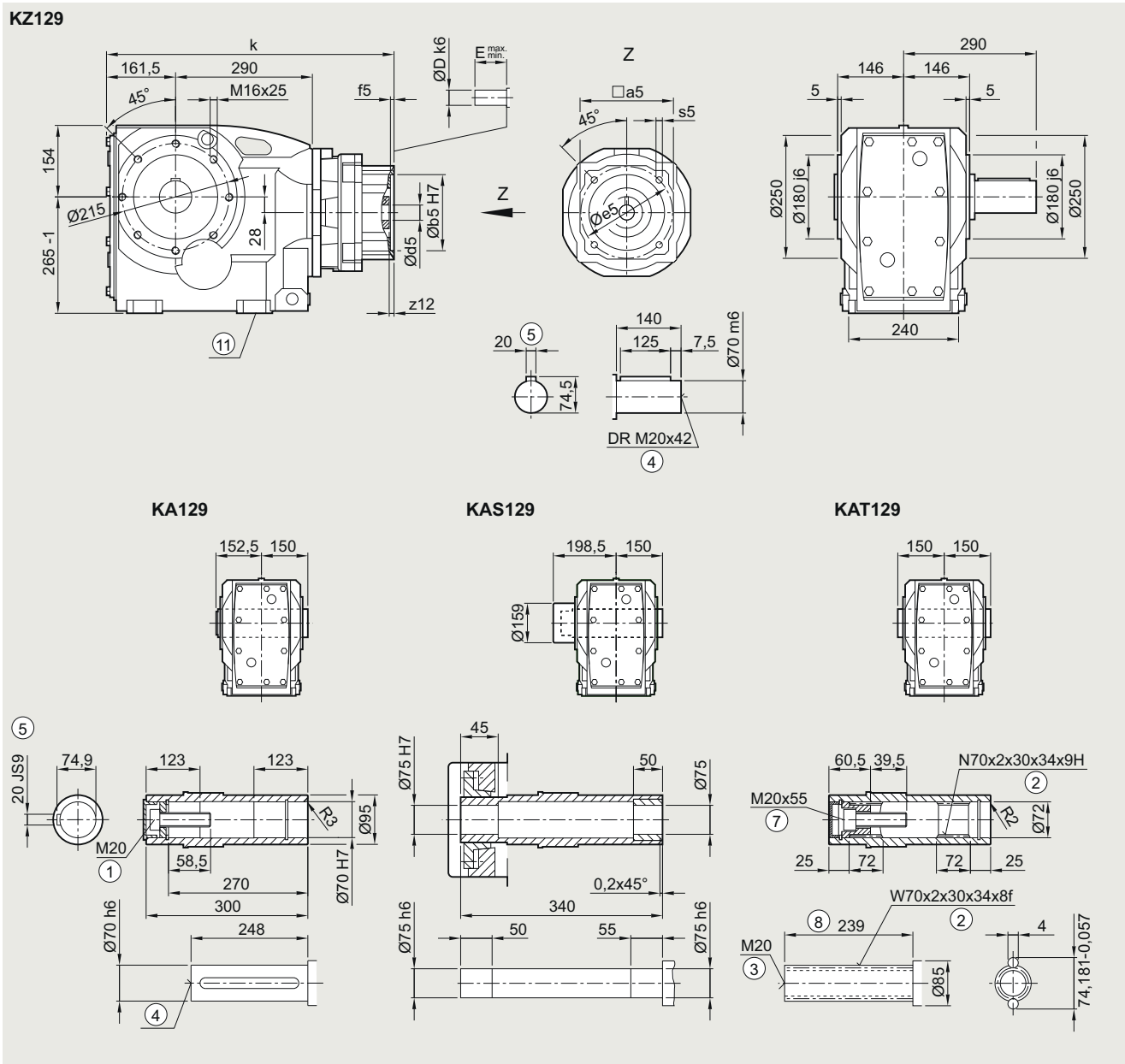
⑩ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.Z.129 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 526.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 526.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 545.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 545.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 558.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 594.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 594.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

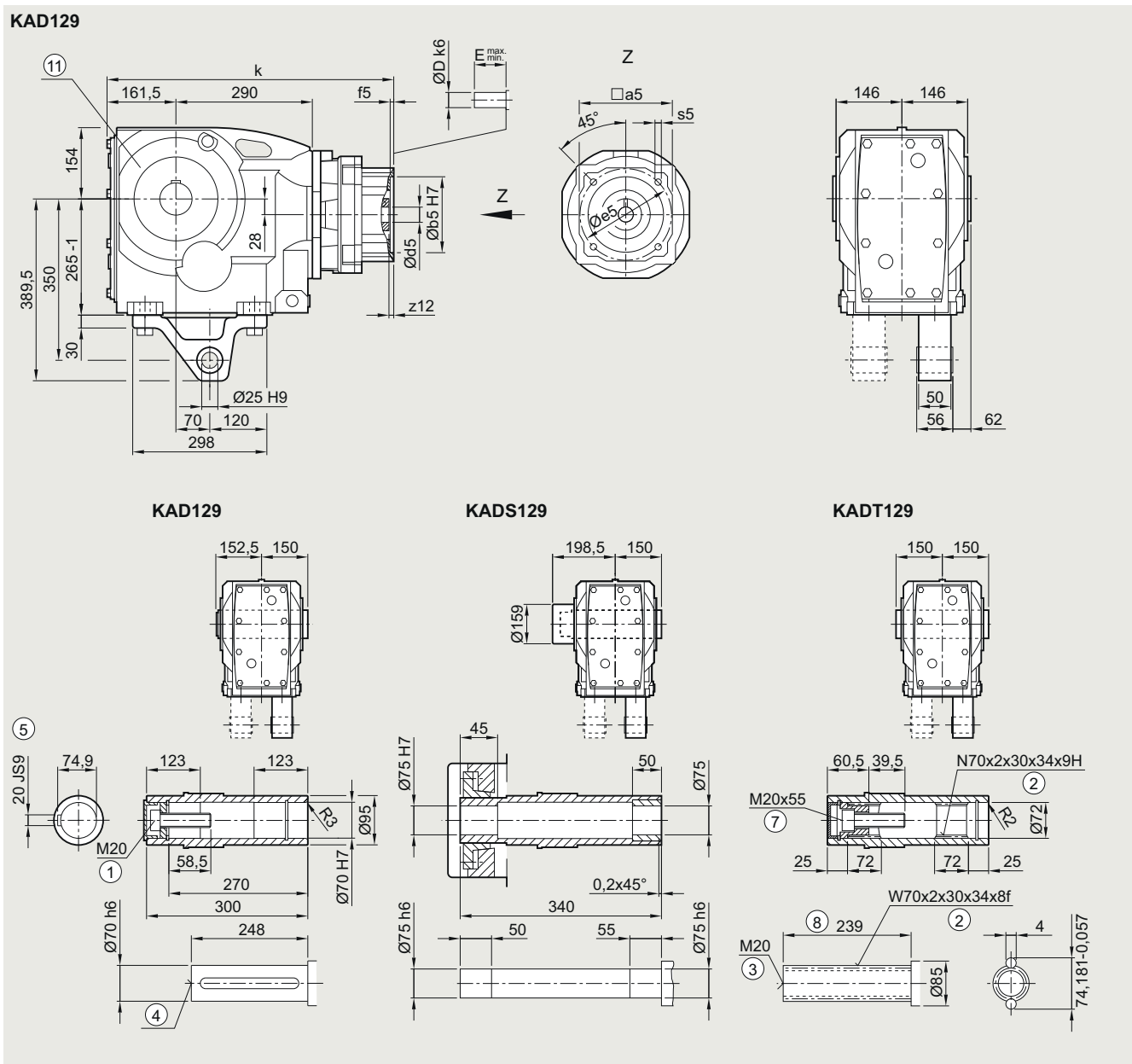
⑤ Feather key/keyway DIN 6885

⑥ ISO 4762

⑧ Without locating shoulder +1 mm ⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

KAD.129 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 526.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 526.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 545.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 545.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 558.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 594.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 594.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

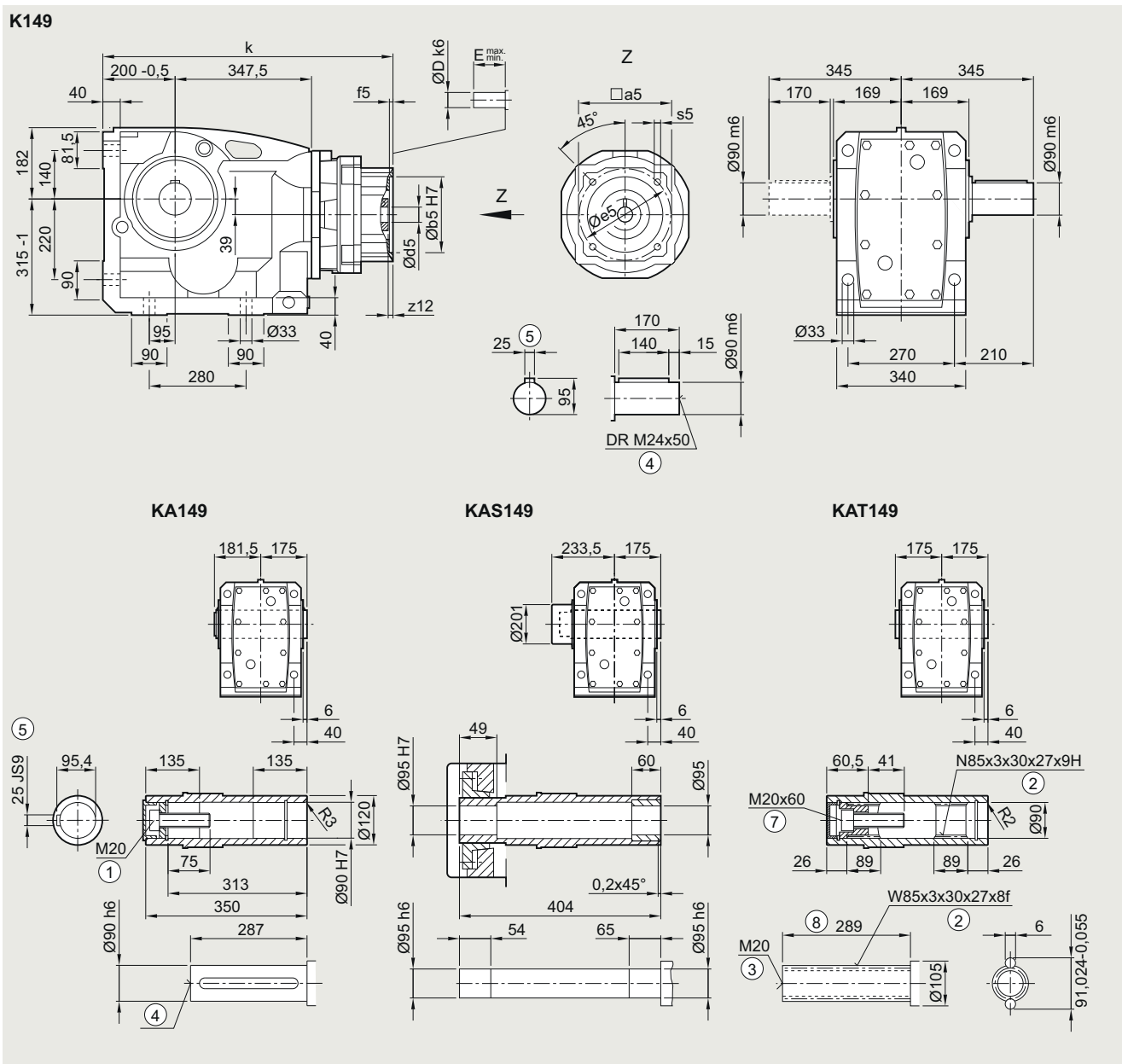
⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.149 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 615.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 615.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 632.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 632.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 645.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 679.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 679.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

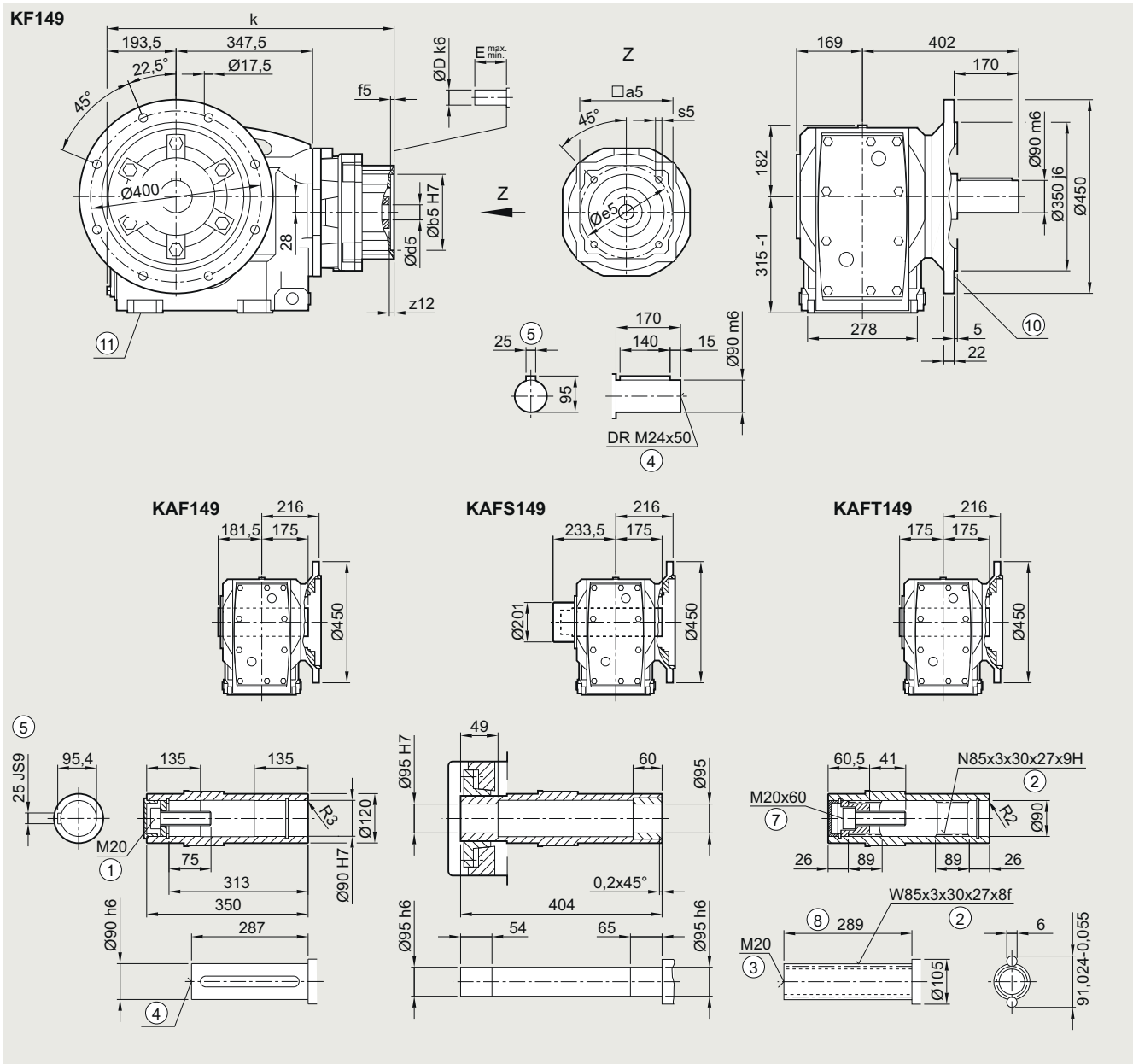
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

K.F.149 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 609.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 609.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 626.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 626.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 638.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 672.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 672.5 |

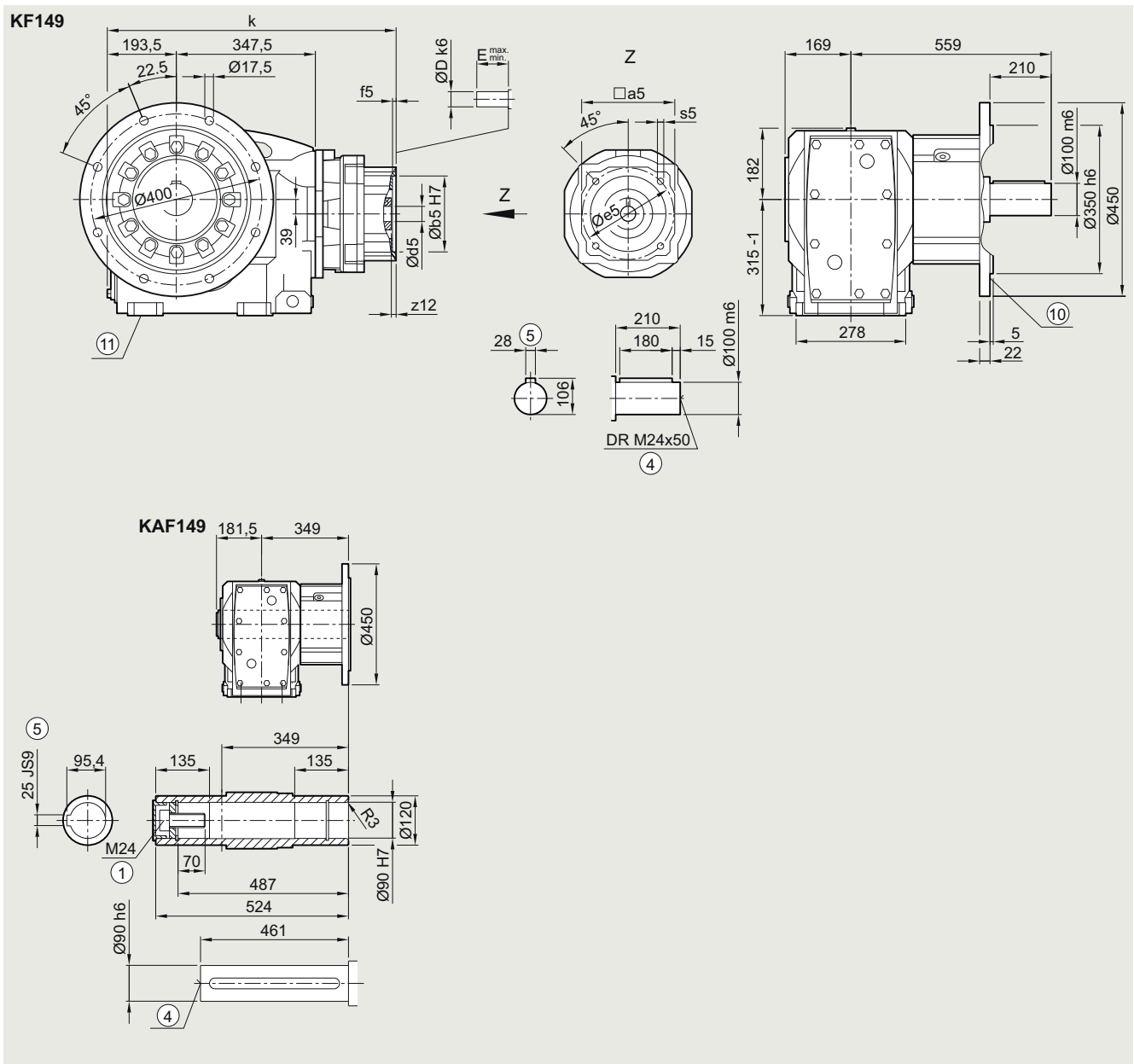
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.149 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 609.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 609.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 626.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 626.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 638.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 672.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 672.5 |

① ISO 4014

④ DIN 332

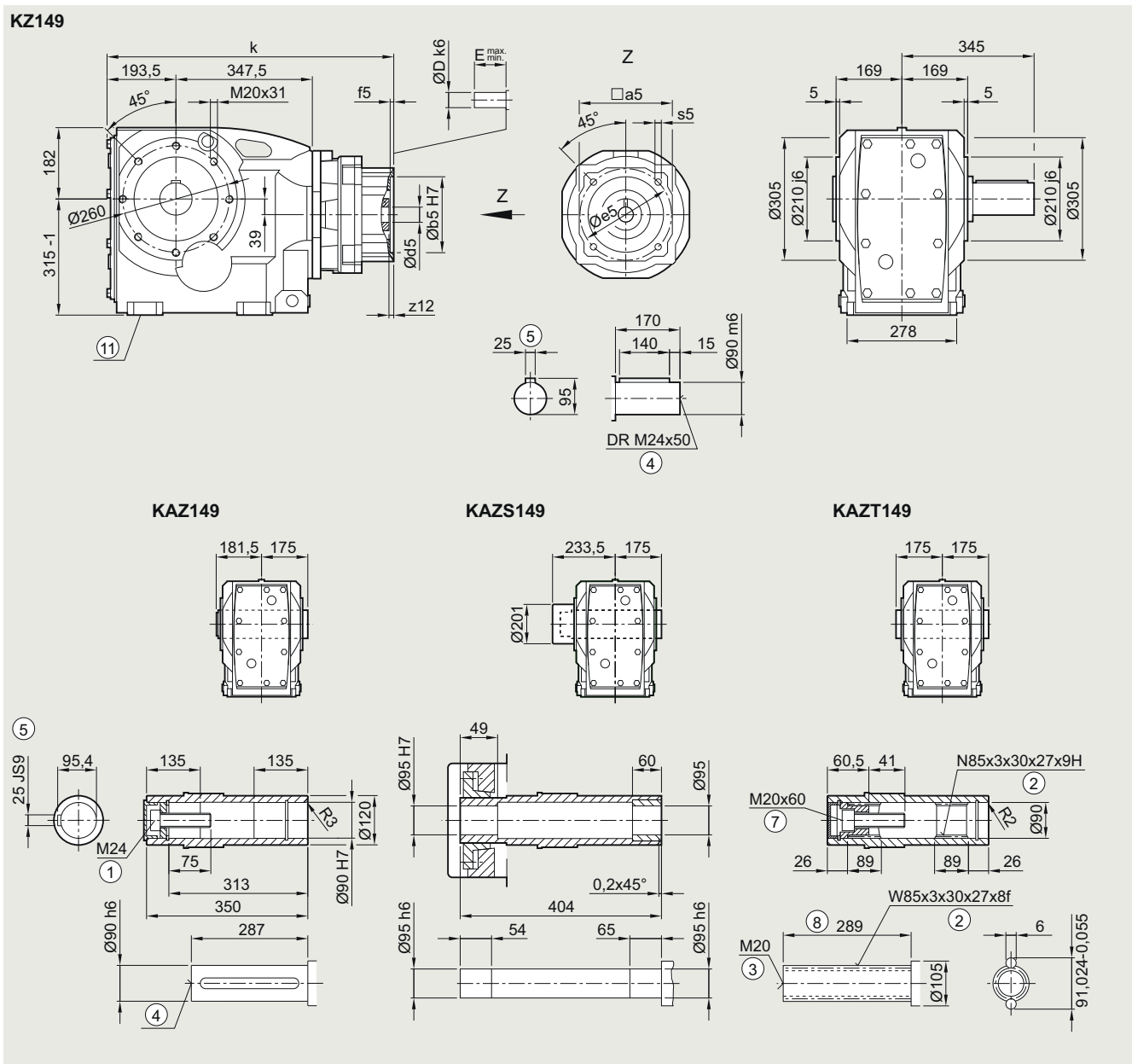
⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

⑪ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

K.Z.149 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 609.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 609.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 626.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 626.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 638.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 672.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 672.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

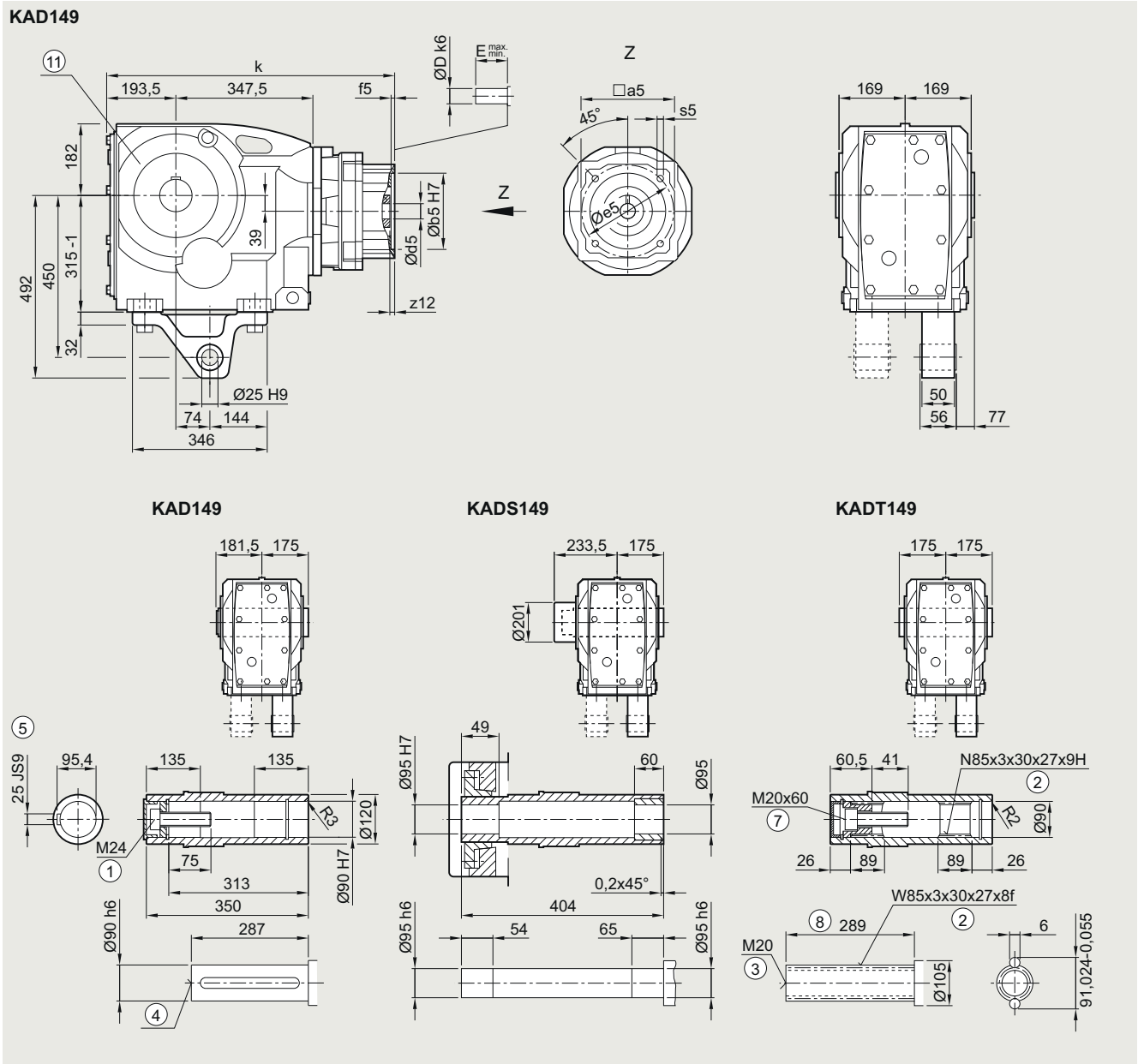
⑨ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

KAD.149 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 609.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 609.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 626.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 626.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 638.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 672.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 672.5 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

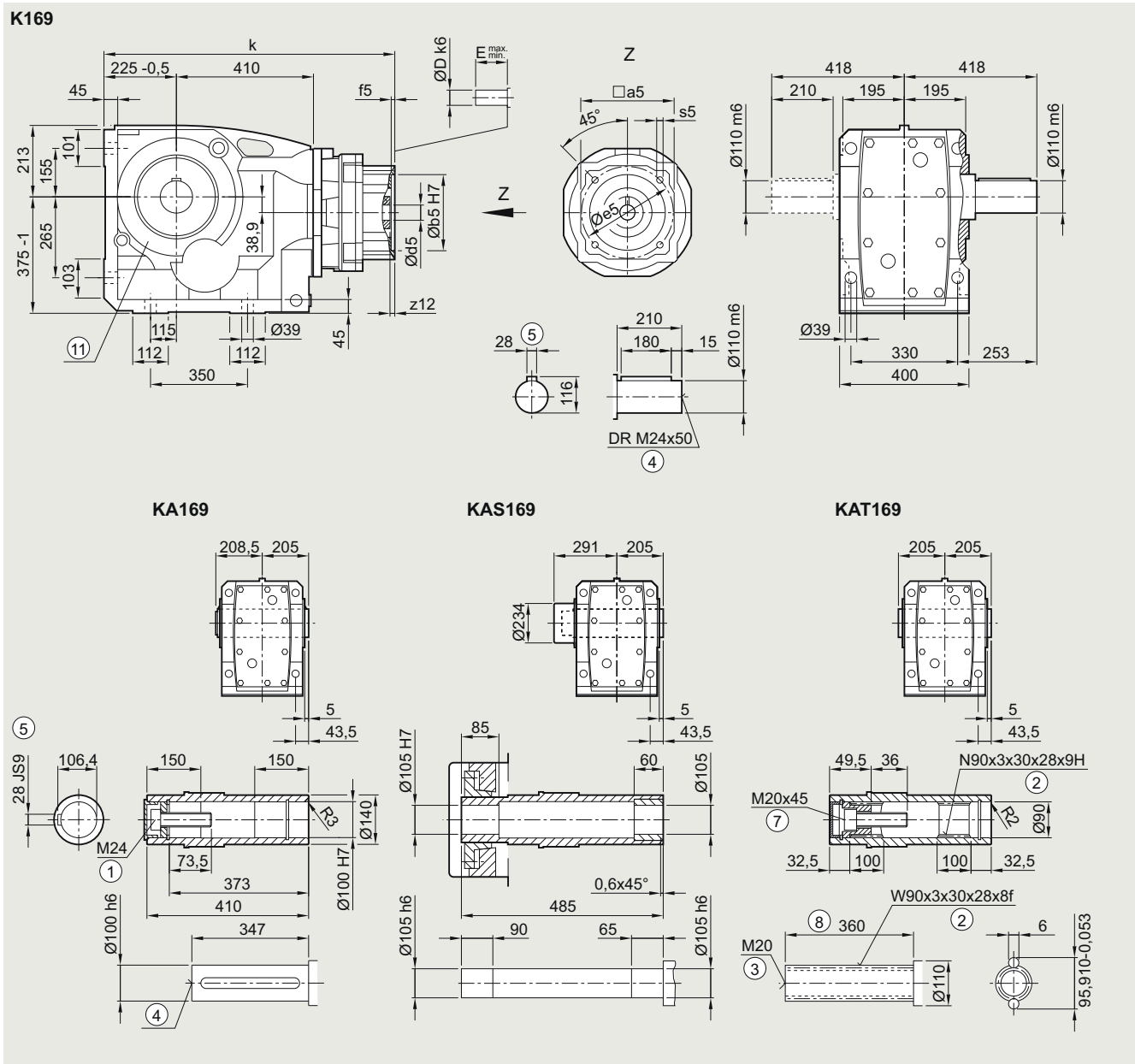
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

KS adapter exclusively for mounting defined Siemens servo motors

K.169 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 718.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 718.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 731.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 760.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 760.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

⑧ Without locating shoulder +1 mm

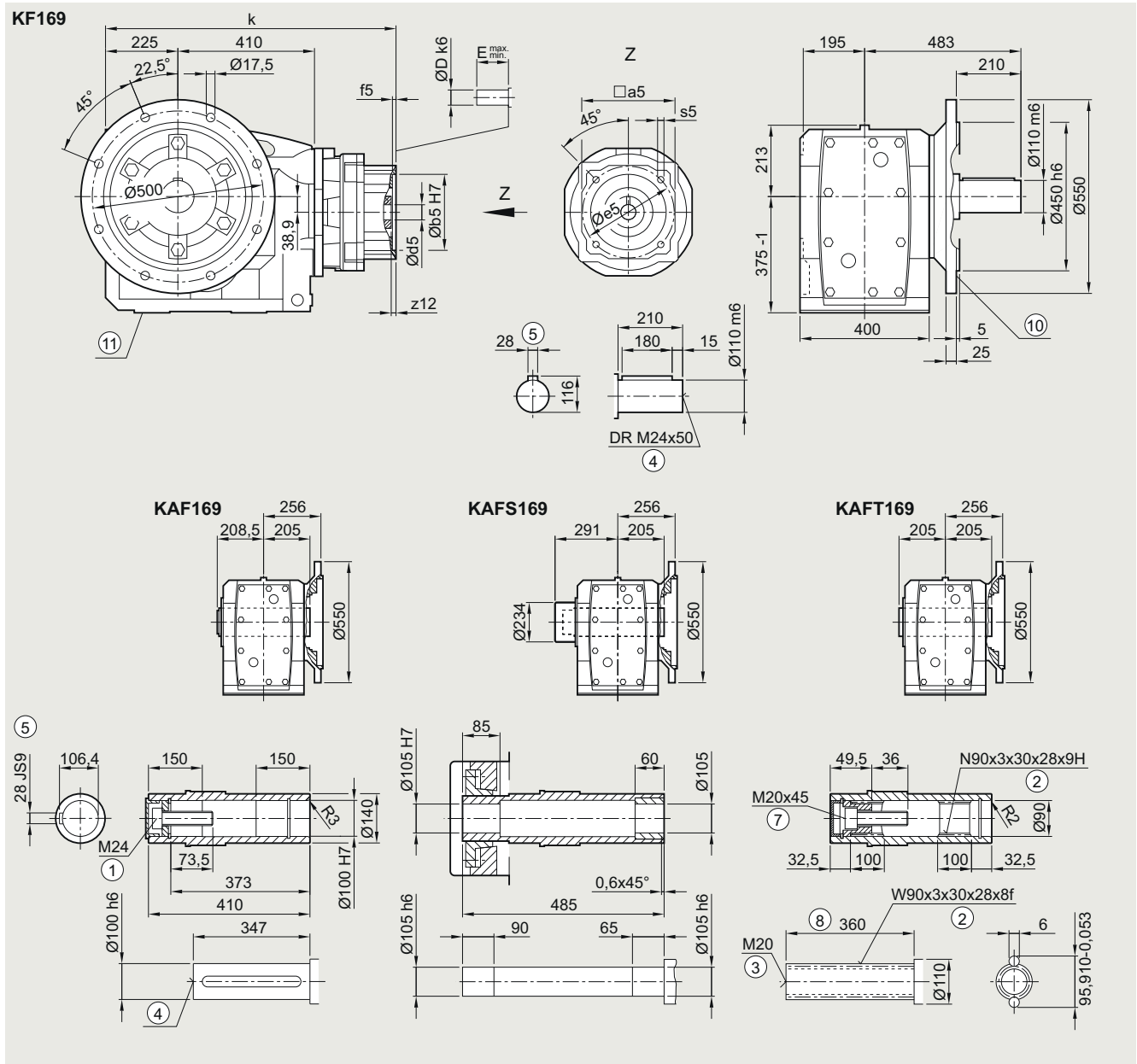
⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.F.169 gearbox in a flange-mounted design



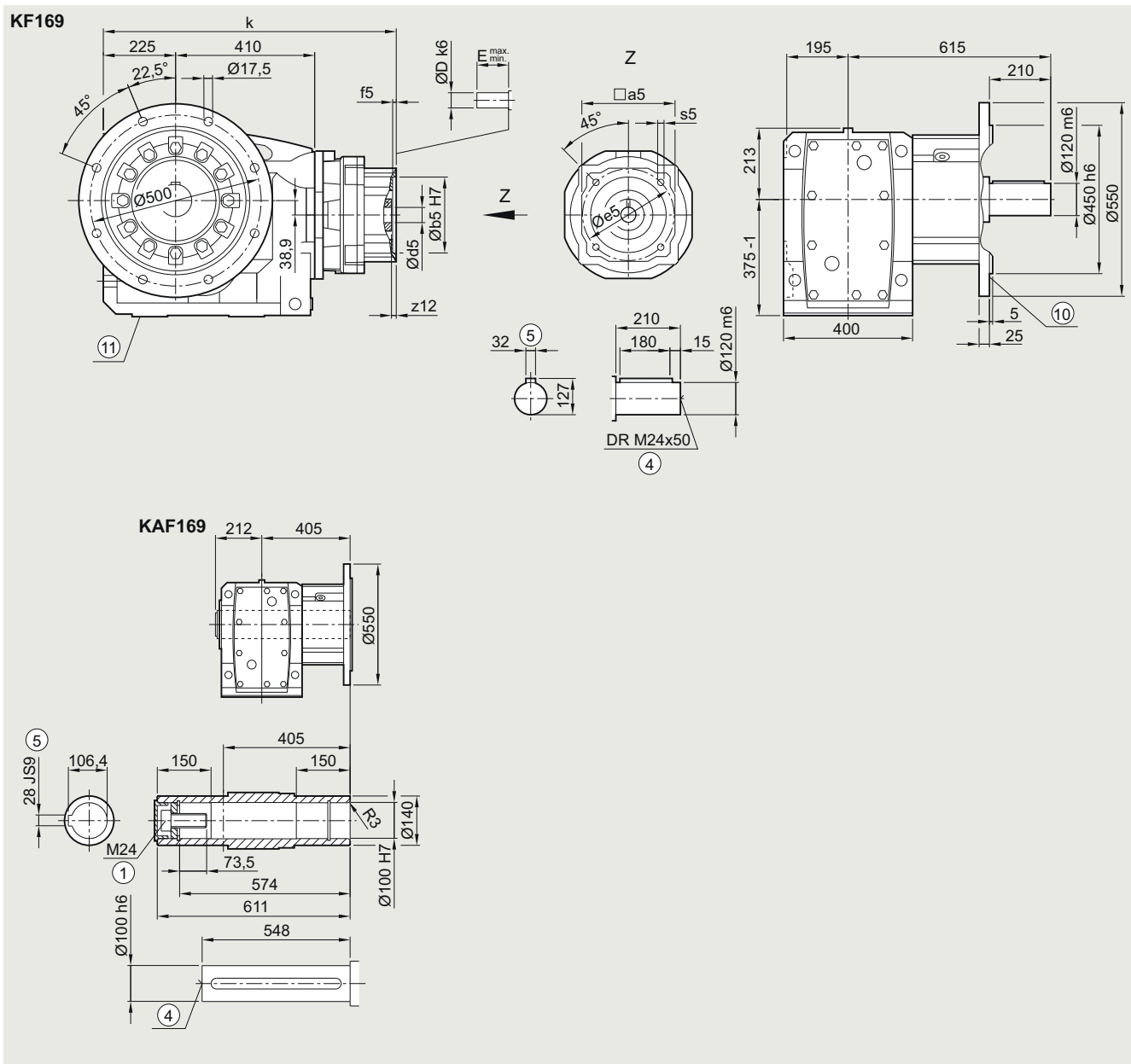
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 718.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 718.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 731.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 760.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 760.0 |

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

5

KS adapter exclusively for mounting defined Siemens servo motors

KF.169 gearbox in a flange-mounted design with VLplus reinforced bearing system (G30)



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 718.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 718.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 731.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 760.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 760.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 5/177

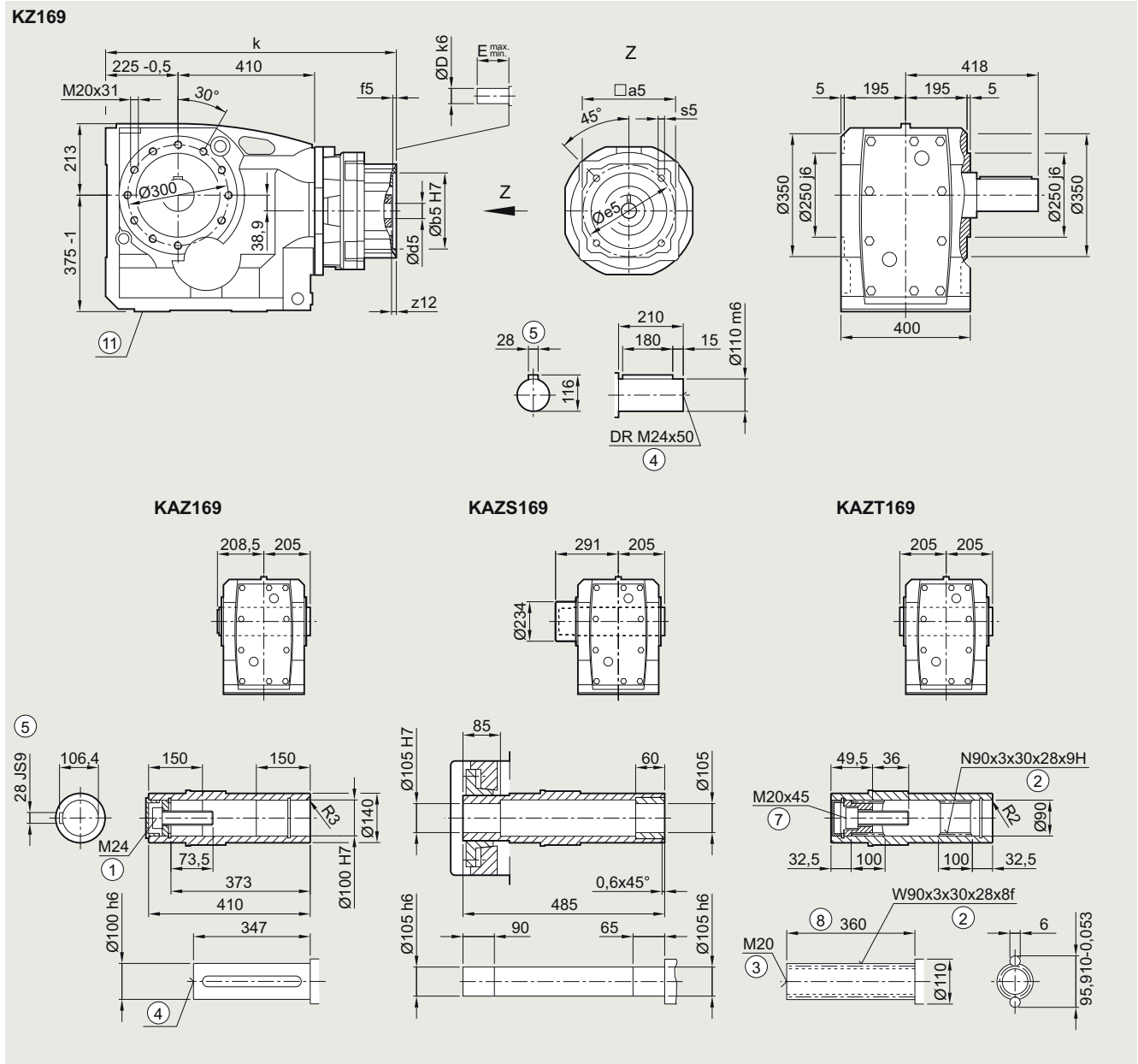
⑪ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

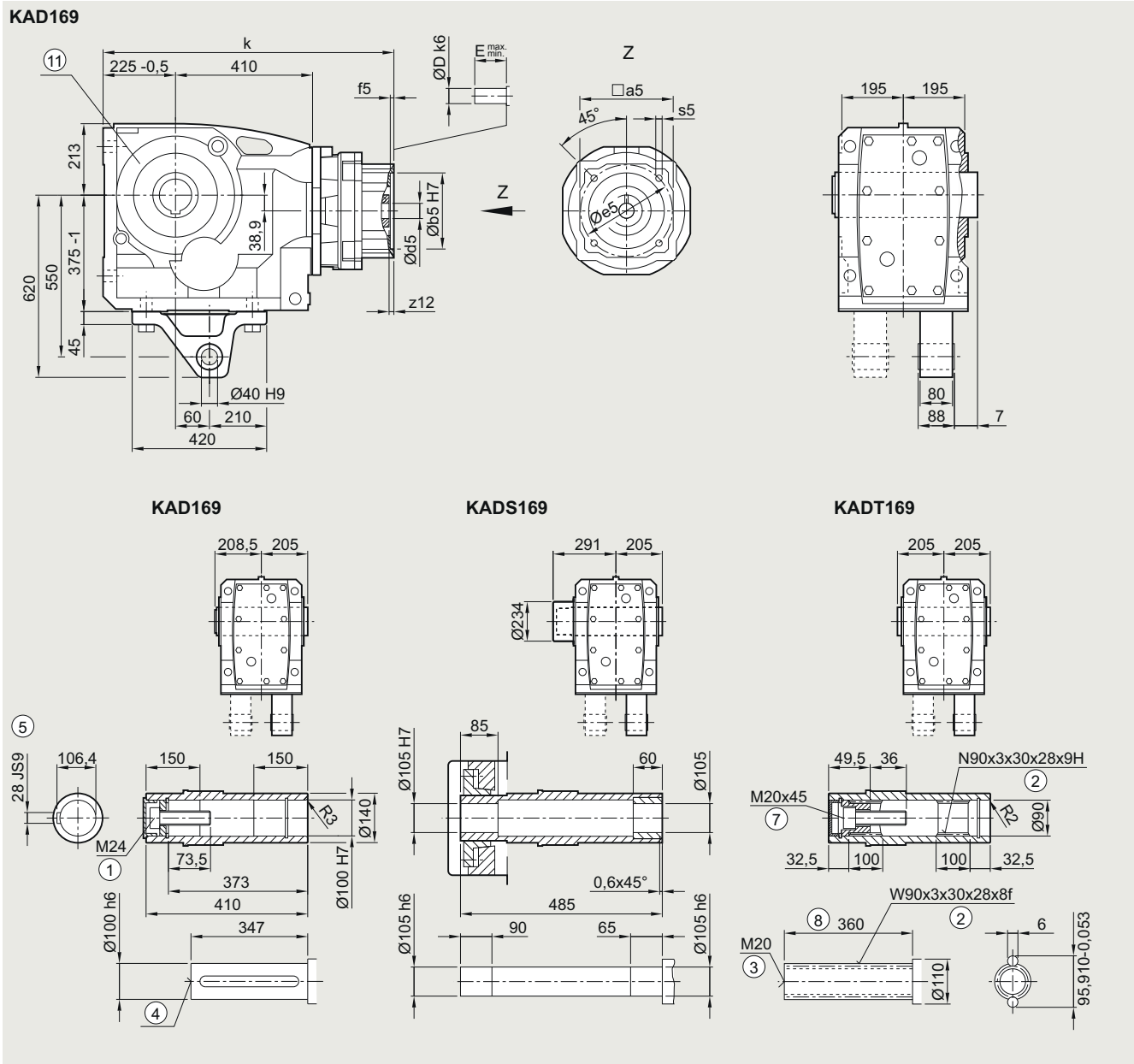
K.Z.169 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 718.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 718.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 731.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 760.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 760.0 |

- ① ISO 4014
- ② DIN 5480
- ③ DIN 332-D
- ④ DIN 332
- ⑤ Feather key/keyway DIN 6885
- ⑥ ISO 4762
- ⑦ Without locating shoulder +1 mm
- ⑧ Use bores only for foot-mounted design

KAD.169 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 718.5 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 718.5 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 731.0 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 760.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 760.0 |

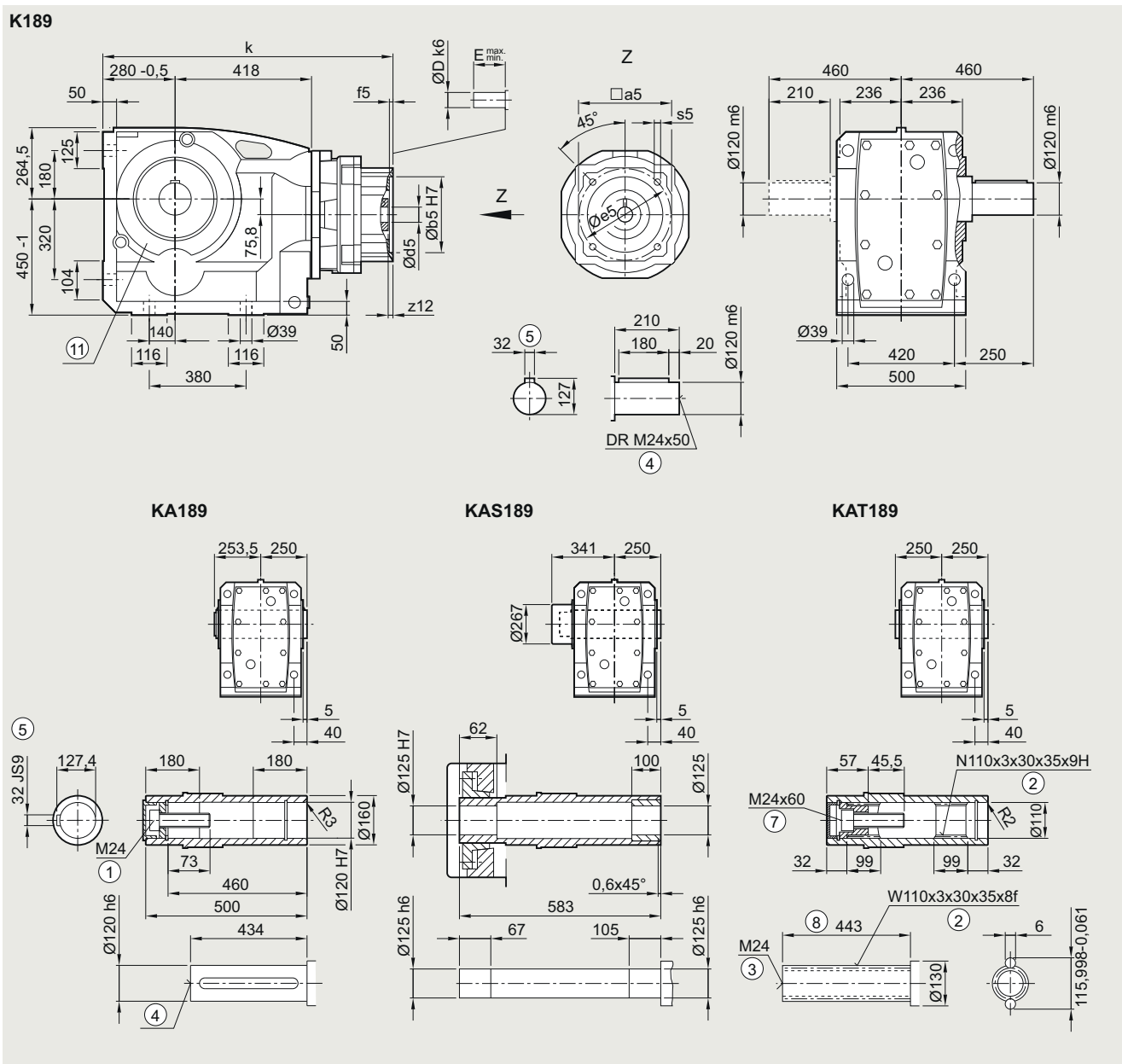
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885
 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm ⑨ Use bores only for housing flange design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.189 gearbox in a foot-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 781.5 |
| KS10.1 | 196 | 180 | 5 | 215 | M12x22 | 5 | 38 | 50 | 80 | 810.0 |
| KS10.2 | 196 | 114.3 | 5 | 200 | M12x22 | 5 | 35 | 50 | 80 | 810.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

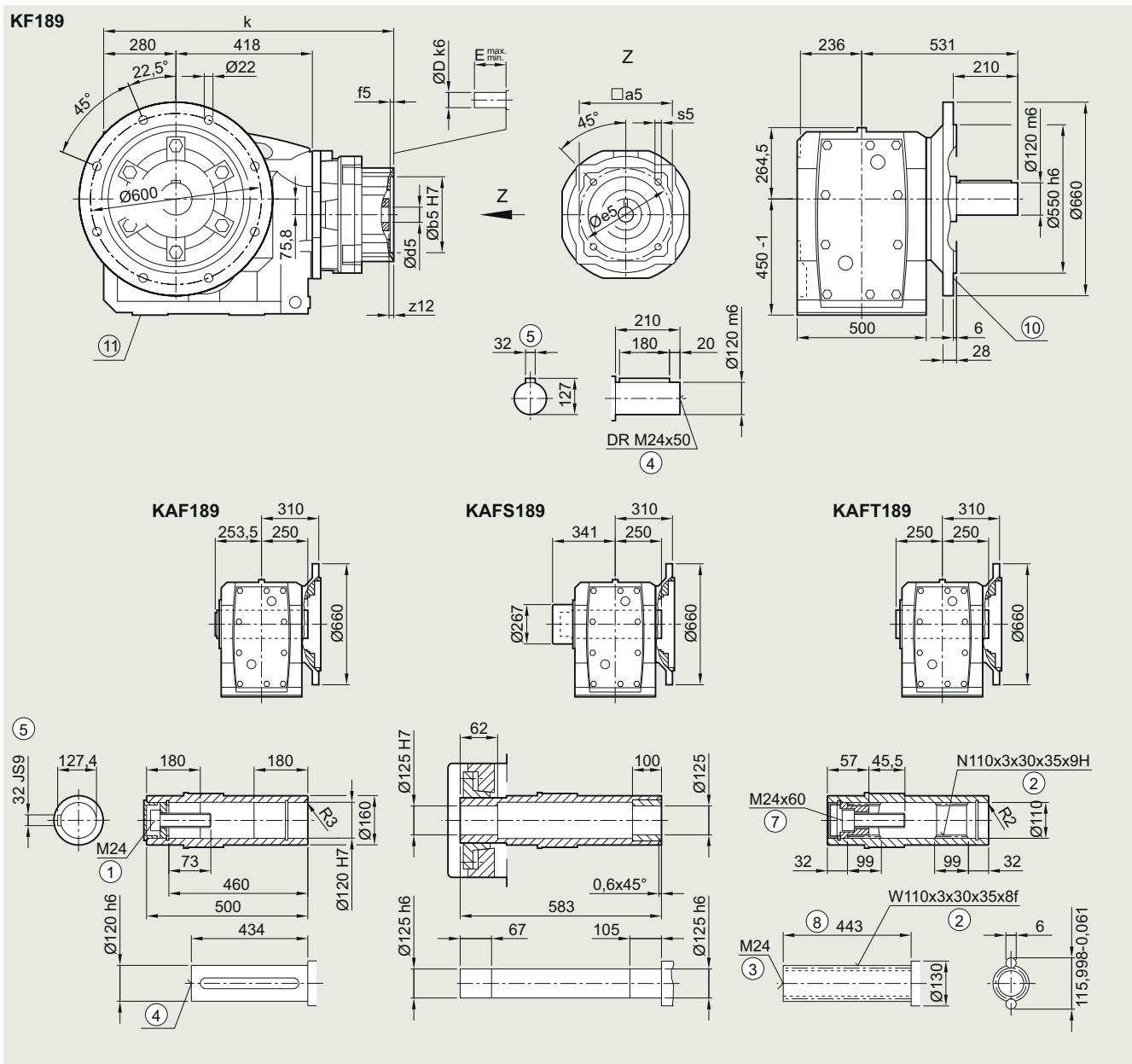
⑦ ISO 4762

⑧ Without locating shoulder +1 mm

⑨ Use bores only for housing flange design

KS adapter exclusively for mounting defined Siemens servo motors

K.F.189 gearbox in a flange-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 781.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 810.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 810.0 |

① ISO 4014

② DIN 5480

③ DIN 332-D

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑦ ISO 4762

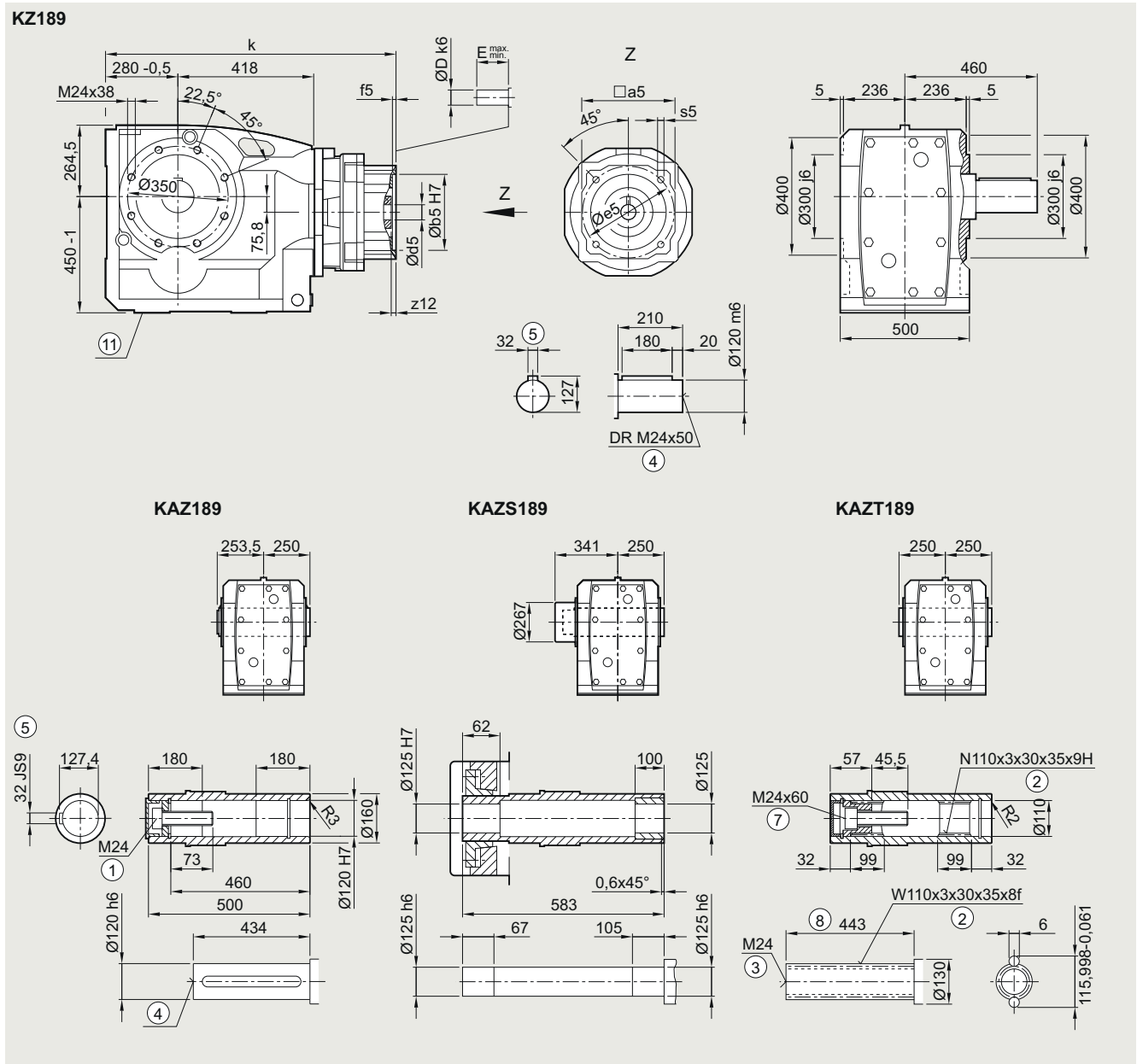
⑧ Without locating shoulder +1 mm ⑩ For inner contour, see page 5/177 ⑪ Use bores only for foot-mounted design

Bevel gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

K.Z.189 gearbox in a housing flange design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 781.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 810.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 810.0 |

① ISO 4014
② ISO 4762

③ DIN 5480
④ Without locating shoulder +1 mm

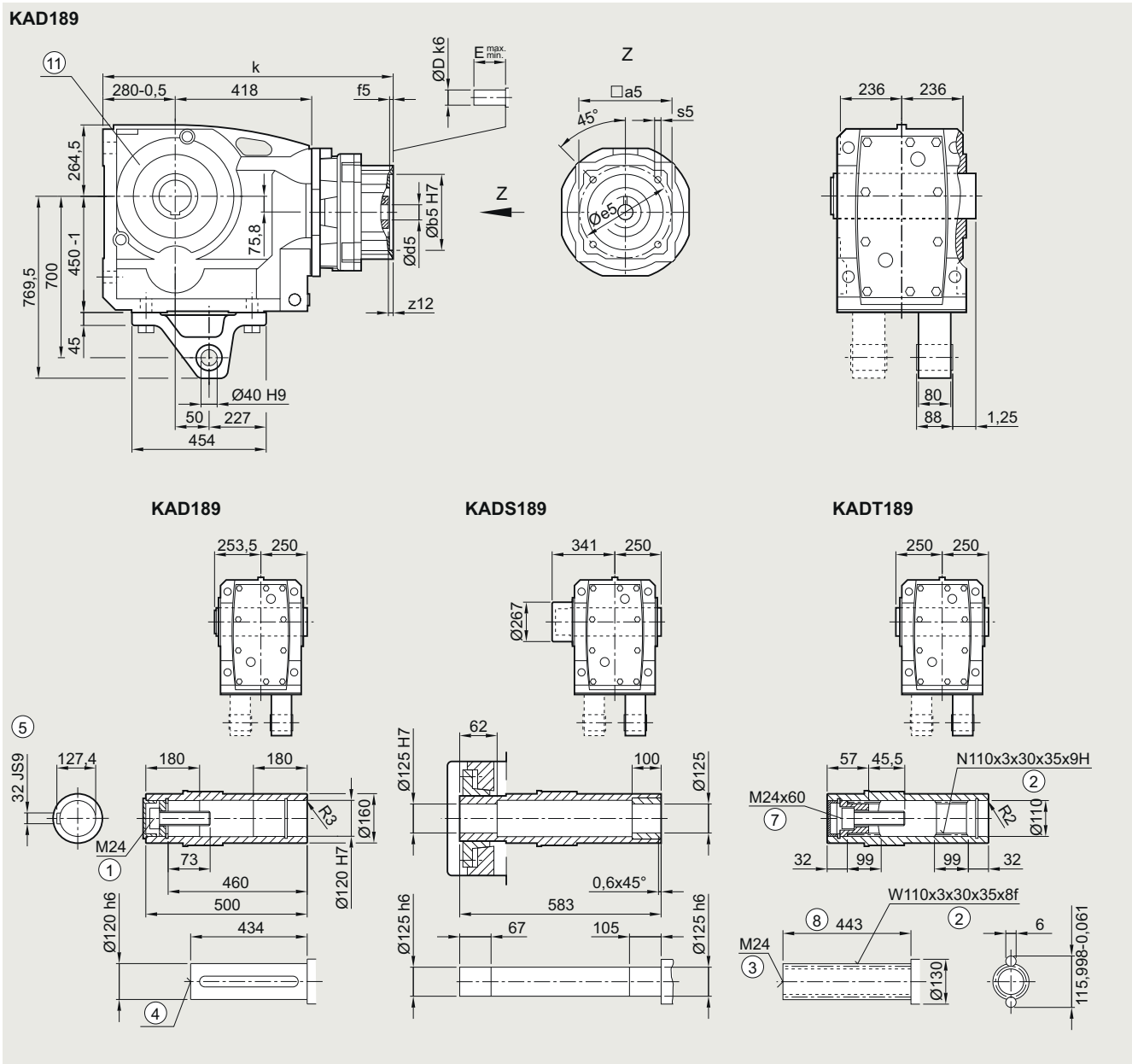
⑤ DIN 332-D

⑥ DIN 332

⑦ Feather key/keyway DIN 6885

⑧ Use bores only for foot-mounted design

KAD.189 gearbox in a shaft-mounted design

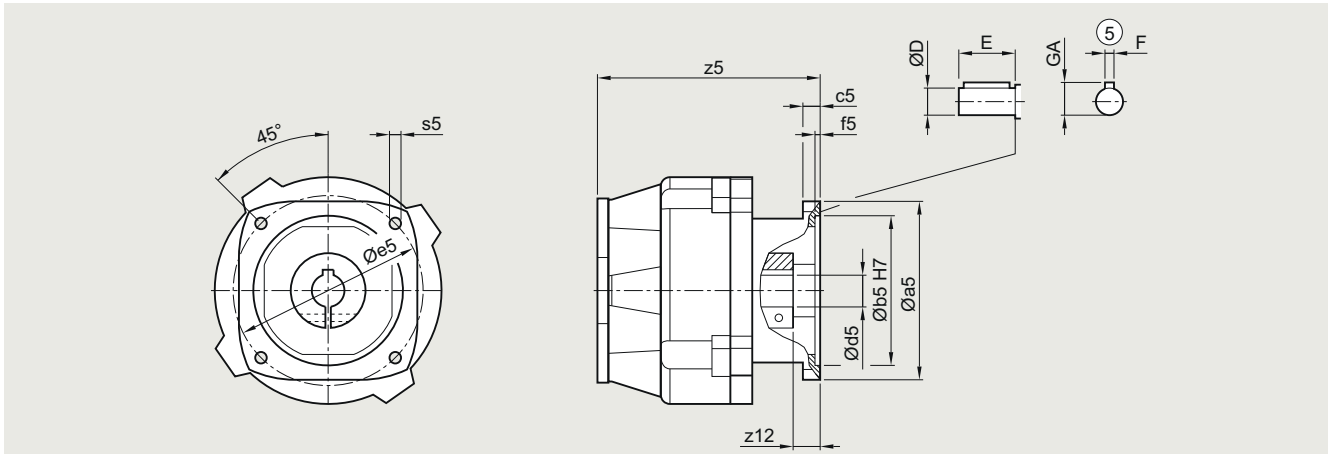


| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 781.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 810.0 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 810.0 |

- ① ISO 4014
- ② DIN 5480
- ③ DIN 332-D
- ④ DIN 332
- ⑤ Feather key/keyway DIN 6885
- ⑥ ISO 4762
- ⑦ Without locating shoulder +1 mm
- ⑧ Use bores only for housing flange design

Bevel gearboxes

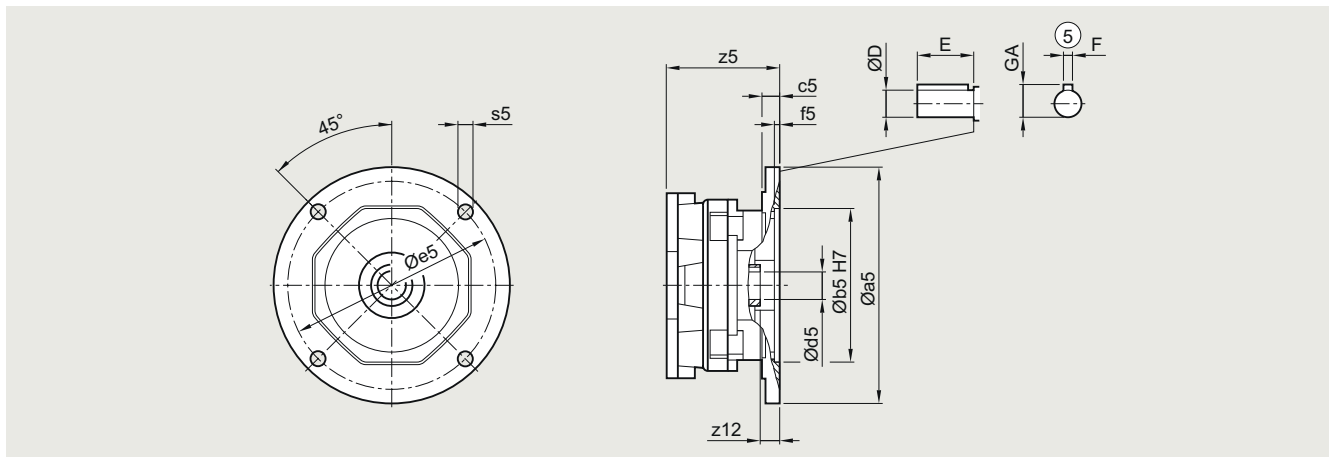
Dimensional drawings

Adapter K8 for mounting a servo motor**K...109 to K...189 gearboxes**

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-------|-----|------|------|-----|--------|------|------|-----|----|------|-------|
| K...109 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 317.5 |
| K...129 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 308.5 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 365.0 |
| K...149 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 297.5 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 354.0 |
| K...169 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 291.0 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60 | 55 | 110 | 16 | 59.0 | 347.5 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73 | 65 | 140 | 18 | 69.0 | 336.5 |
| K...189 | | | | | | | | | | | | |
| 813 | 260.0 | 250 | 25 | 6.0 | 300 | M16 | 60.0 | 48 | 110 | 14 | 51.5 | 278.0 |
| 816 | 314.0 | 300 | - | 6.0 | 350 | M16x29 | 60.0 | 55 | 110 | 16 | 59.0 | 333.0 |
| 818 | 550 | 350 | 22.0 | 12.0 | 400 | M16 | 73.0 | 65 | 140 | 18 | 69.0 | 319.5 |

© Feather key/keyway DIN 6885

B...29 to B...49 and K...39 to K...89 gearboxes



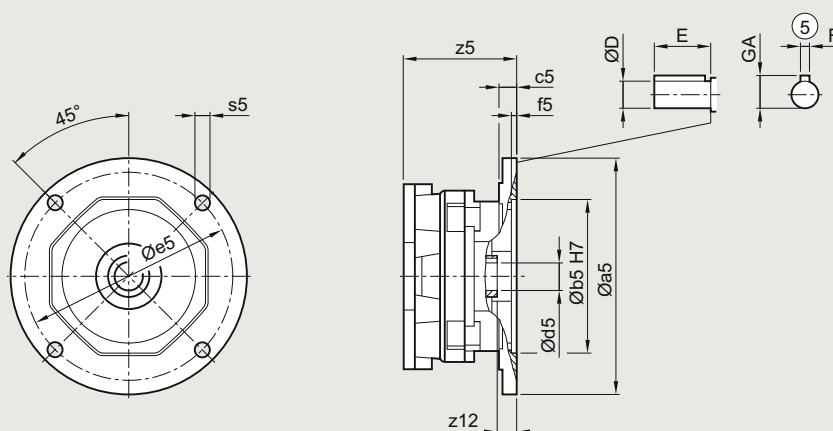
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|-----|-------|----|-----|-------|------|-----|--------|---------|-------|--------|-------|
| B...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| B...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| B...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| K...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| K...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| K...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| K...79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| K...89 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 103.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 103.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 185.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 201.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 201.0 |

Bevel gearboxes

Dimensional drawings

Adapter K5 for mounting a NEMA motor

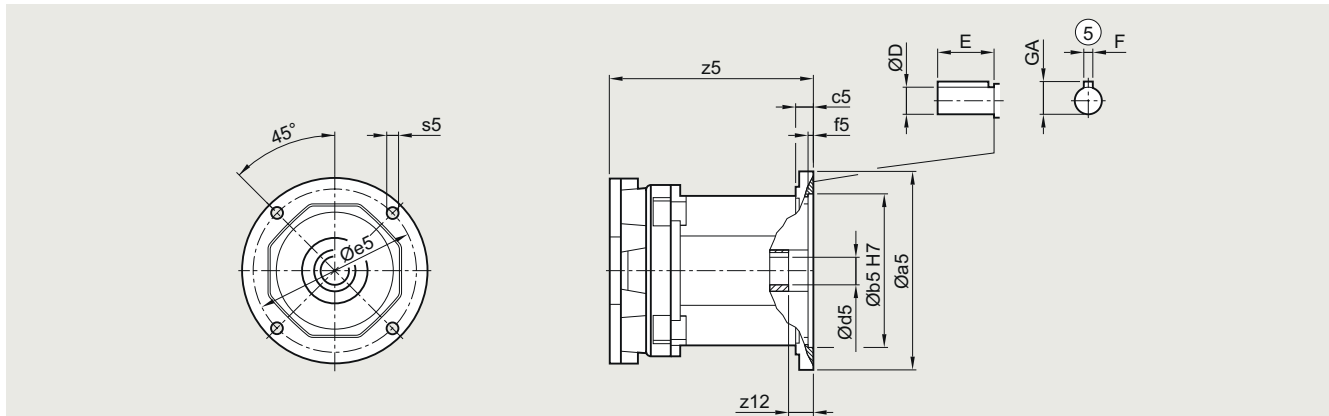
K...109 to K...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-------|------|-----|-------|------|------|--------|---------|--------|--------|-------|
| K...109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 90.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 168.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 184.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 184.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22 | 47.625 | 117.602 | 12.700 | 53.111 | 197.0 |
| K...129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 90.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 168.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 184.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 184.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22 | 47.625 | 117.602 | 12.700 | 53.111 | 197.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.700 | 59.563 | 264.5 |
| K...149 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 76.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 150.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 164.0 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 164.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22 | 47.625 | 117.602 | 12.700 | 53.111 | 177.0 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.350 | 12.700 | 59.563 | 253.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 278.0 |
| K...169 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 148.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 157.5 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 157.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22 | 47.625 | 117.602 | 12.700 | 53.111 | 170.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.700 | 59.563 | 247.0 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 241.5 |
| K...189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 144.5 |
| 250 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 41.275 | 101.600 | 9.525 | 45.491 | 144.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 22 | 47.625 | 117.602 | 12.700 | 53.111 | 157.5 |
| 320 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 32.5 | 53.975 | 133.35 | 12.700 | 59.563 | 232.5 |
| 360 | 340 | 317.5 | 26.5 | 5.5 | 279.4 | 17.0 | 34.5 | 60.325 | 149.352 | 15.875 | 67.208 | 253.0 |

⑤ Feather key/keyway DIN 6885

B...29 to B...49 and K...39 to K...79 gearboxes



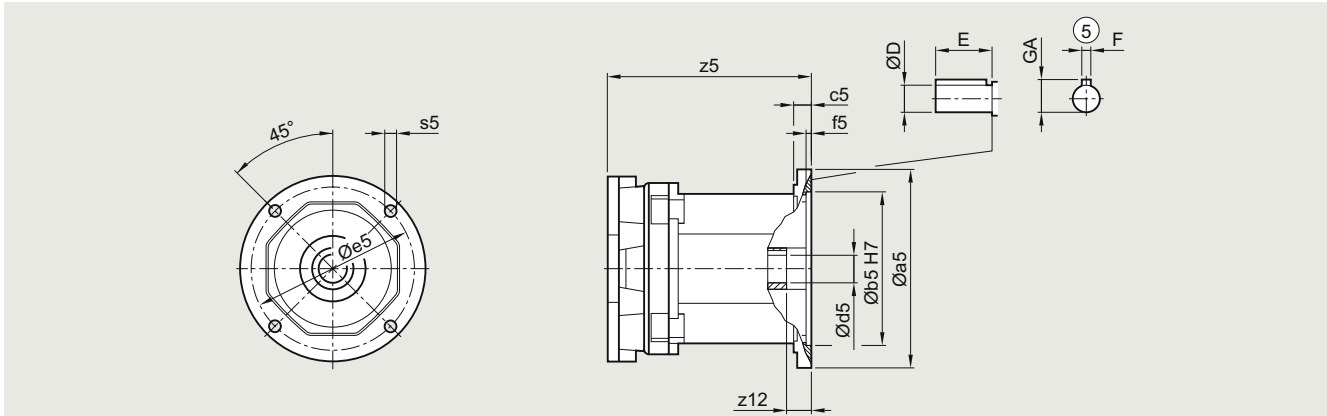
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| B...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| B...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| B...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| K...39 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| K...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| K...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| K...79 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |

Bevel gearboxes

Dimensional drawings

Adapter K3 for mounting a NEMA motor

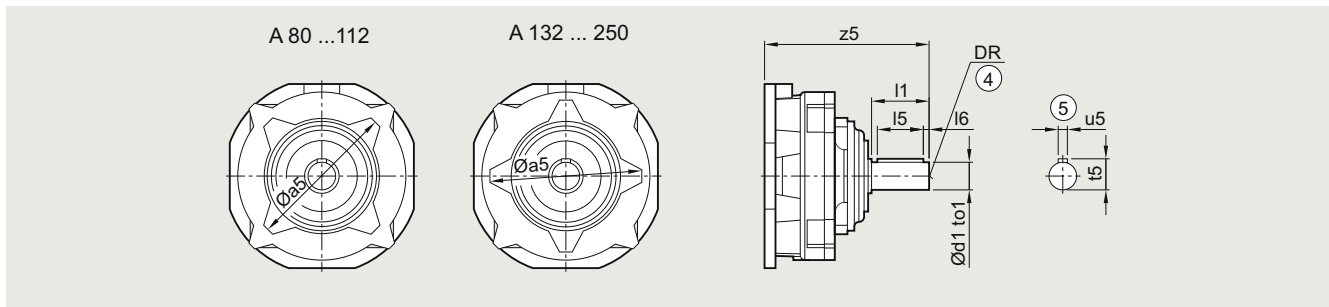
K...89 to K...189 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-------|------|-----|-------|------|------|--------|---------|-------|--------|-------|
| K...89 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 185.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 185.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 241.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 312.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 342.0 |
| K...109 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 172.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 224.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 295.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 325.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 343.0 |
| K...129 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 165.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 215.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 286.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 316.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 334.0 |
| K...149 | | | | | | | | | | | | |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 158.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 206.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 275.0 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 305.0 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 323.0 |
| K...169 | | | | | | | | | | | | |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 205.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 268.5 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 298.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 316.5 |
| K...189 | | | | | | | | | | | | |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 255.5 |
| 250 | 236 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 55.5 | 41.275 | 101.600 | 9.525 | 45.491 | 285.5 |
| 280 | 285 | 266.7 | 24.5 | 5.5 | 228.6 | 13.5 | 66.5 | 47.625 | 117.602 | 12.7 | 53.111 | 303.5 |

⊕ Feather key/keyway DIN 6885

B...29 to B...49 and K...39 to K...89 gearboxes



| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|---------------|-----|----|-----|----|----|----|----|------|-----|-------|
| B...29 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 153.5 |
| B...39 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 153.5 |
| B...49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| K...39 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 153.5 |
| K...49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| K...69 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| K...79 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 144 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 211 |
| K...89 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 128 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 138 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 205 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 205 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 255 |

④ DIN 332

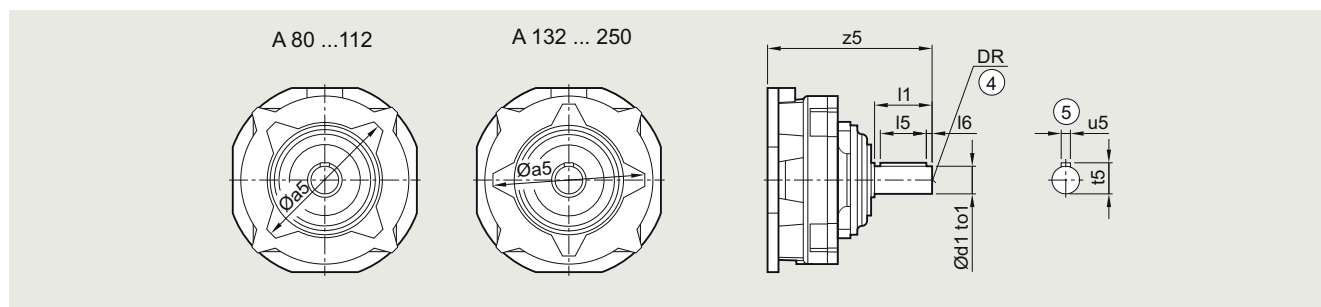
⑤ Feather key/keyway DIN 6885

Bevel gearboxes

Dimensional drawings

Adapter A with free output shaft

K...109 to K...189 gearboxes

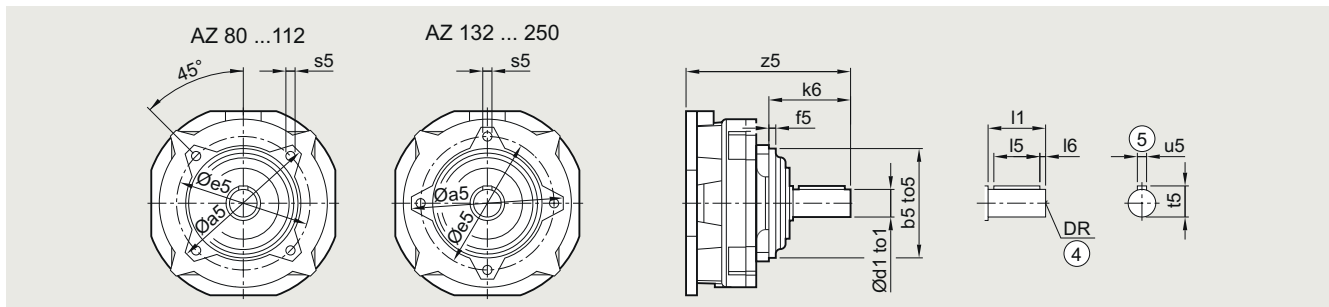


| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|----------------|-------|----|-----|-----|----|----|----|------|-----|-------|
| K...109 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 115 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 125 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 188 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 188 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 238 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 290 |
| K...129 | | | | | | | | | | |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 118 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 179 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 179 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 229 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 281 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 281 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 317.5 |
| K...149 | | | | | | | | | | |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 170 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 218 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 270 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 270 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 306.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 306.5 |
| K...169 | | | | | | | | | | |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 211.5 |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 263.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 263.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 300 |
| K...189 | | | | | | | | | | |
| 160 | 215.3 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 250.5 |
| 180 | 215.3 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 250.5 |
| 200 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 225 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |
| 250 | 266 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 286.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

B...29 to B...49 and K...39 to K...89 gearboxes



| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|---------------|-----|-----|-----|-----|----|--------|----|-----|----|----|----|----|------|-----|------|-------|
| B...29 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 153.5 |
| B...39 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 153.5 |
| B...49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| K...39 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 153.5 |
| K...49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| K...69 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| K...79 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 134 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 144 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 211 |
| K...89 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 128 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 138 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 205 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 205 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 255 |

④ DIN 332

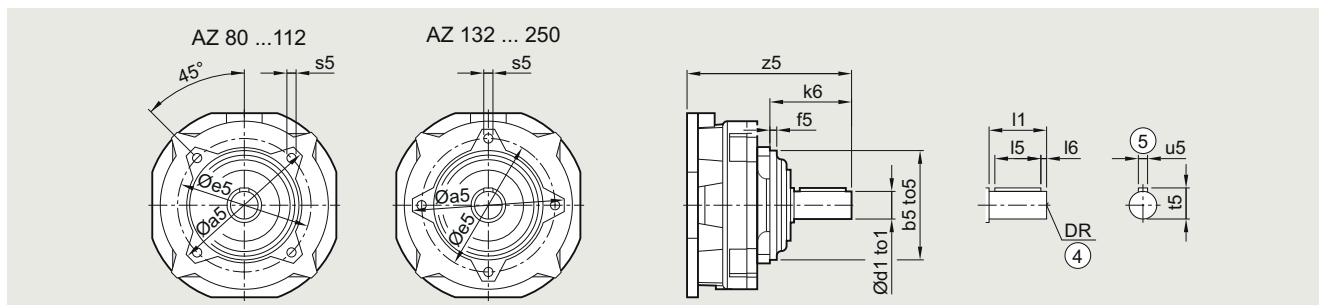
⑤ Feather key/keyway DIN 6885

Bevel gearboxes

Dimensional drawings

Adapter AZ with free output shaft and centering

K...109 to K...189 gearboxes



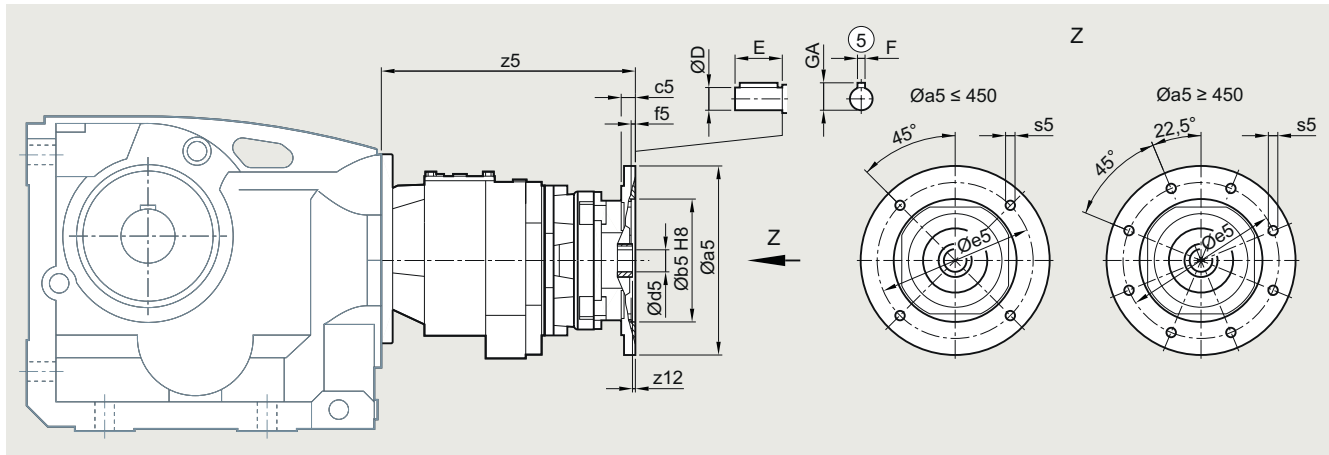
| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|----------------|-------|-----|-----|-----|-----|--------|----|-----|-----|----|----|----|------|-----|-------|-------|
| K...109 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61 | 115 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 125 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 188 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 188 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 238 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 290 |
| K...129 | | | | | | | | | | | | | | | | |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8 | 71 | 118 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 179 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 179 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 229 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 281 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 281 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 317.5 |
| K...149 | | | | | | | | | | | | | | | | |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10 | 70.5 | 170 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 218 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 270 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 270 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 306.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 306.5 |
| K...169 | | | | | | | | | | | | | | | | |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41 | M12 | 98.5 | 211.5 |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 263.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 263.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 300 |
| K...189 | | | | | | | | | | | | | | | | |
| 160 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 42 | k6 | 110 | 90 | 10 | 12 | 45 | M16 | 150.5 | 250.5 |
| 180 | 215.3 | 160 | j6 | 184 | 6.5 | M16x22 | 48 | m6 | 110 | 90 | 10 | 14 | 51.5 | M16 | 150.5 | 250.5 |
| 200 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 225 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |
| 250 | 266 | 195 | j6 | 230 | 6.5 | M16x28 | 55 | m6 | 110 | 90 | 10 | 16 | 59 | M20 | 134 | 286.5 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Tandem gearbox with adapter K4 for mounting an IEC motor

Bevel tandem gearbox with adapter K4



5

| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-------------|----------|-----|-----|----|-----|-----|--------|-----|------|----|----|------|-------|
| K.89-D/Z39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 257 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 285 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 285 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 339.5 |
| K.109-D/Z39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 240 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 240 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 268 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 268 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 322.5 |
| K.129-D/Z39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 231 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 231 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 259 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 259 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 313.5 |
| K.149-D/Z49 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 260 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 260 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 288 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 288 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 342.5 |
| K.169-D/Z49 | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 360 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 249.5 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 249.5 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 277.5 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 277.5 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |
| | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 332 |
| K.189-D/Z69 | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 349.5 |
| | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 275 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16 | 275 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 19 | 40 | 6 | 12.5 | 303 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4 | 24 | 50 | 8 | 27 | 303 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| K.189-D/Z69 | K4-(112) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31 | 357.5 |
| | K4-(132) | 300 | 230 | 12 | 5 | 265 | M12x20 | 3 | 38 | 80 | 10 | 41 | 375 |

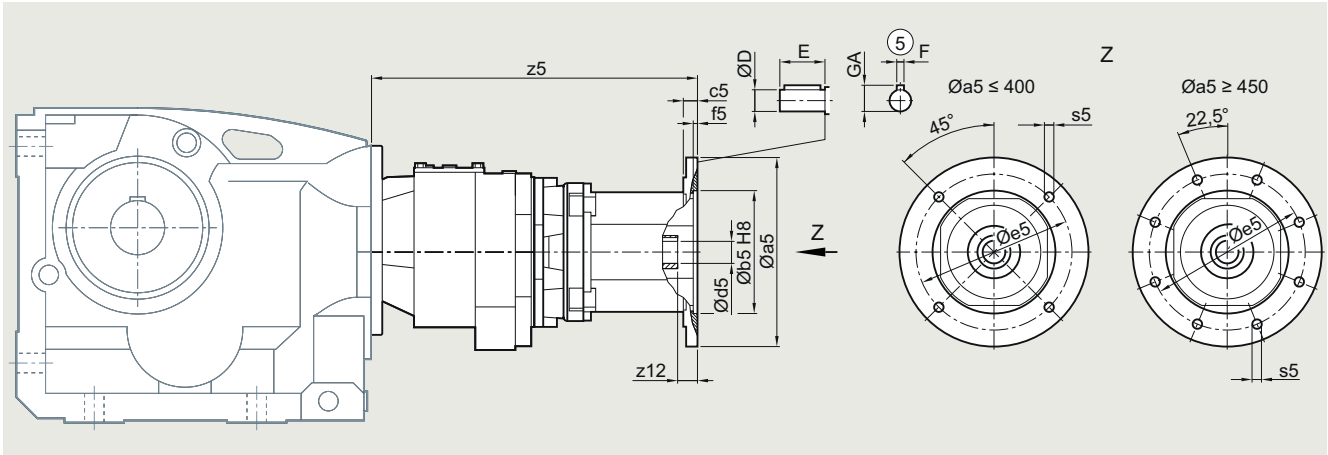
⑤ Feather key/keyway DIN 6885

Bevel gearboxes

Dimensional drawings

Tandem gearbox with adapter K2 for mounting an IEC motor

Bevel tandem gearbox with adapter K2



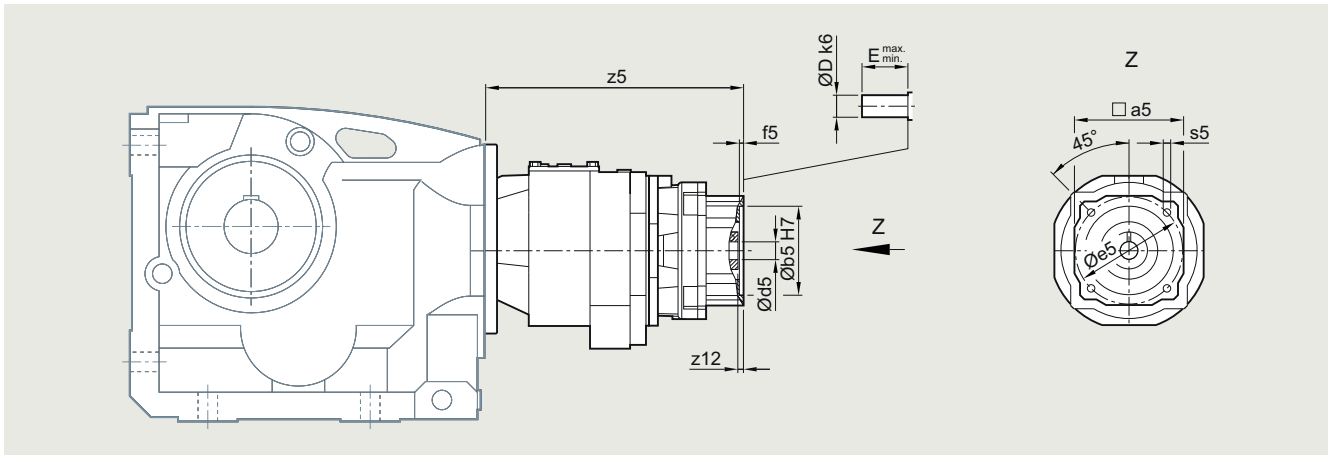
5

| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-------------|----------|-----|-----|----|-----|-----|-----|-----|------|----|----|------|-------|
| K.89-D/Z39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 377.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 377.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 424.5 |
| K.109-D/Z39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 360.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 360.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 407.5 |
| K.129-D/Z39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 351.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 351.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 398.5 |
| K.149-D/Z49 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 380.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 380.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 427.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 505.5 |
| K.169-D/Z49 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 370 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 370 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 417 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 495 |
| K.189-D/Z69 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 395.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27 | 395.5 |
| | K2-(100) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(112) | 250 | 180 | 18 | 5 | 215 | M12 | 30 | 28 | 60 | 8 | 31 | 442.5 |
| | K2-(132) | 300 | 230 | 18 | 5 | 265 | M12 | 45 | 38 | 80 | 10 | 41 | 520.5 |

⑤ Feather key/keyway DIN 6885

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Bevel tandem gearbox with KS adapter



5

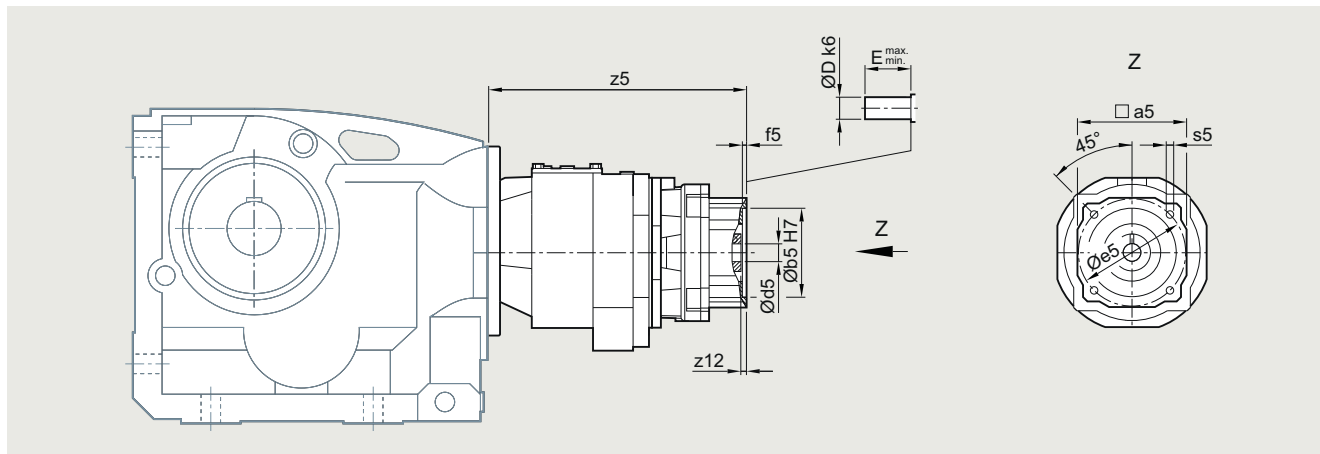
| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|-------------|---------|-----|-----|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| K.39-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| K.49-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| K.69-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| K.79-D/Z39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| K.89-D/Z39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 261.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 261.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315 |
| K.109-D/Z39 | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 327.5 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 244.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 244.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 257 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 273 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 273 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 298 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 298 | |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 310.5 | |

Bevel gearboxes

Dimensional drawings

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

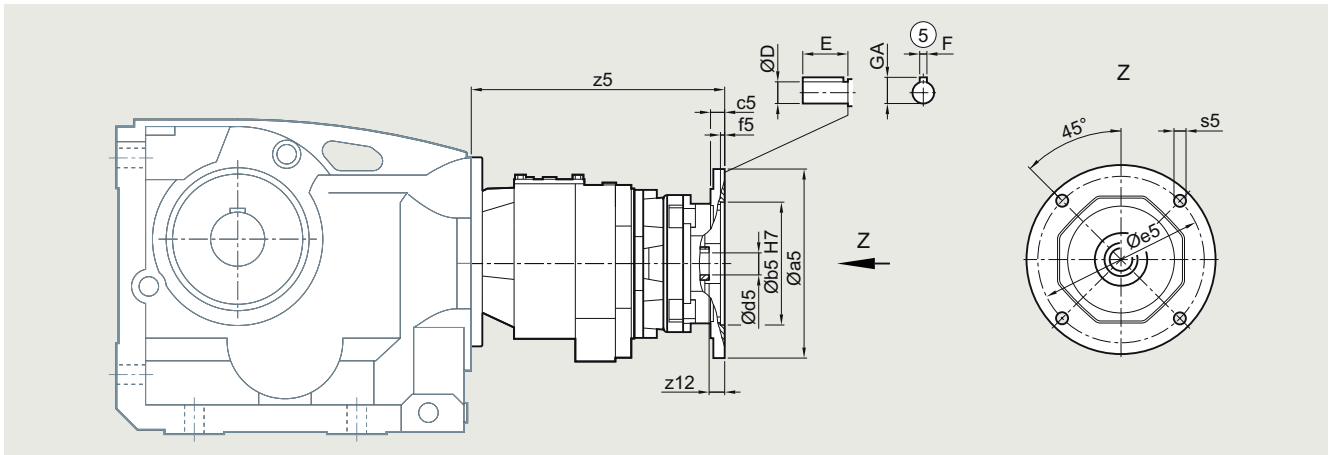
Bevel tandem gearbox with KS adapter



| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|--------------|---------|-------|-------|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| K. 129-D/Z39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 235.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 235.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 248 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 264 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 264 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 289 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 289 |
| K. 149-D/Z49 | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 301.5 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 264.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 264.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 277 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 293 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 293 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 318 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 318 |
| | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 330.5 |
| K. 169-D/Z49 | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 366.5 |
| | KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 366.5 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 254 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 254 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 266.5 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 282.5 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 282.5 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 307.5 |
| | KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 307.5 |
| K. 189-D/Z69 | KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 320 |
| | KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 356 |
| | KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 356 |
| | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 279.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 279.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 292 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 308 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 308 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 333 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 333 | |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 345.5 | |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 381.5 | |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 381.5 | |

Tandem gearbox with adapter K5 for mounting NEMA motors

Bevel tandem gearbox with adapter K5



5

| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-------------|----------|-----|-------|----|-----|-------|------|-----|--------|--------|-------|--------|-------|
| K.89-D/Z39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 298 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.15 | 4.763 | 24.346 | 298 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 380 |
| K.109-D/Z39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 281 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 281 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 363 |
| K.129-D/Z39 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 272 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 272 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 354 |
| K.149-D/Z49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 301 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 301 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 383 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 399 |
| K.169-D/Z49 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 290.5 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 290.5 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 372.5 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 388.5 |
| K.189-D/Z69 | K5-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 316 |
| | K5-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 316 |
| | K5-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 398 |
| | K5-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 414 |

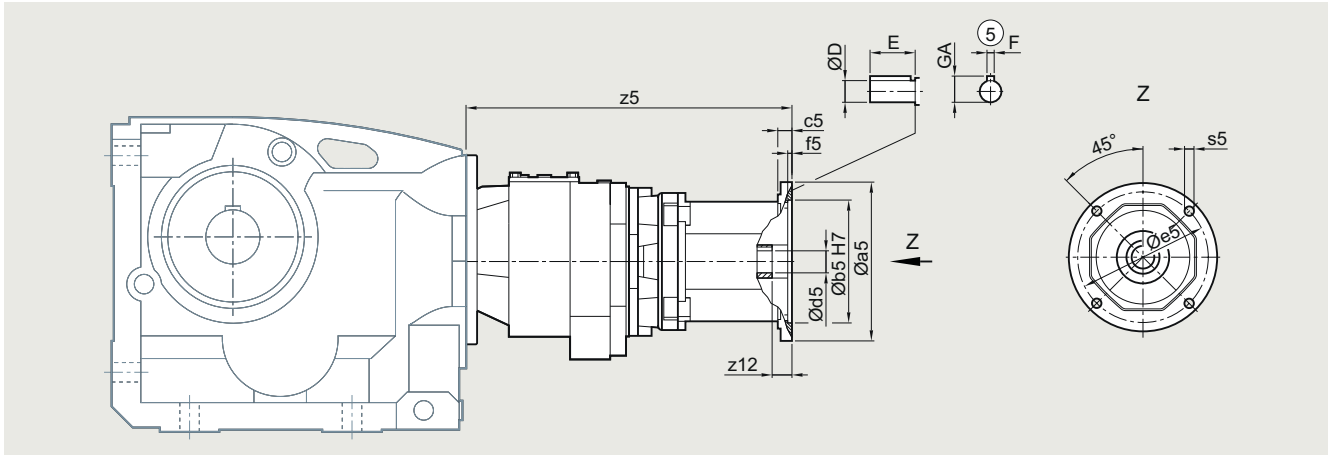
⑤ Feather key/keyway DIN 6885

Bevel gearboxes

Dimensional drawings

Tandem gearbox with adapter K3 for mounting NEMA motors

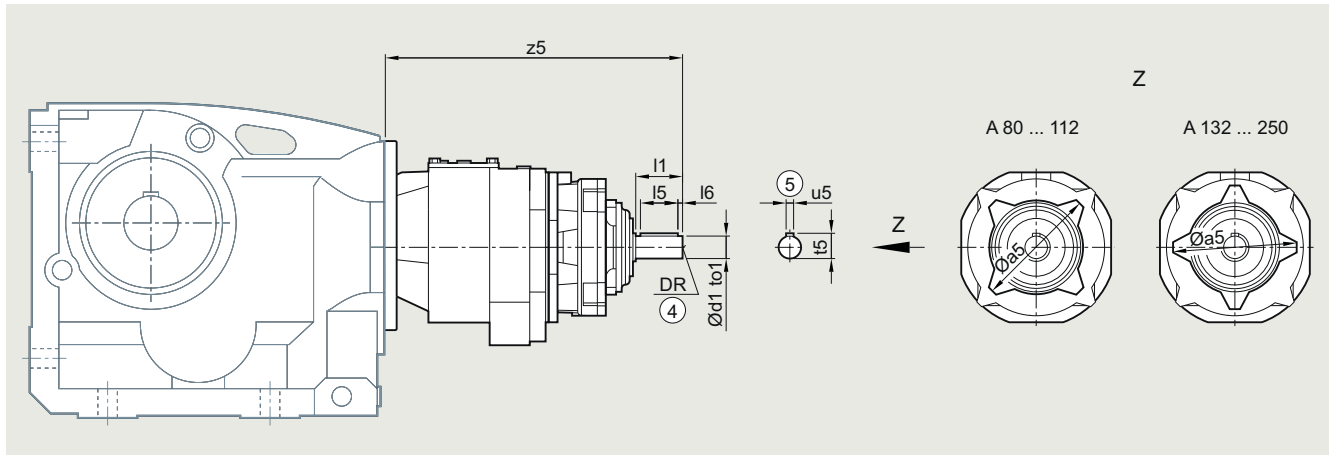
Bevel tandem gearbox with adapter K3



| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|-------------|----------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| K.89-D/Z39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 380.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 380.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 436.5 |
| K.109-D/Z39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 363.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 363.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 419.5 |
| K.129-D/Z39 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 354.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 354.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 410.5 |
| K.149-D/Z49 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 383.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 383.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 439.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 510 |
| K.169-D/Z49 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 373 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 373 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 429 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 499.5 |
| K.189-D/Z69 | K3-(56) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 398.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5 | 149.2 | 11 | 28 | 22.225 | 57.15 | 4.763 | 24.346 | 398.5 |
| | K3-(180) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42 | 28.575 | 69.85 | 6.35 | 31.394 | 454.5 |
| | K3-(210) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.85 | 7.938 | 38.443 | 525 |

⑤ Feather key/keyway DIN 6885

Bevel tandem gearbox with adapter A



| Gearbox | Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|-------------|---------|-----|----|-----|----|----|----|----|------|--------|-------|
| K.89-D/Z39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 323 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 333 |
| K.109-D/Z39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 306 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 316 |
| K.129-D/Z39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 297 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 307 |
| K.149-D/Z49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 326 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 336 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 403 |
| K.169-D/Z49 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 315.5 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 325.5 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 392.5 |
| K.189-D/Z69 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 341 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 351 |
| | A-(100) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |
| | A-(112) | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 418 |

④ DIN 332

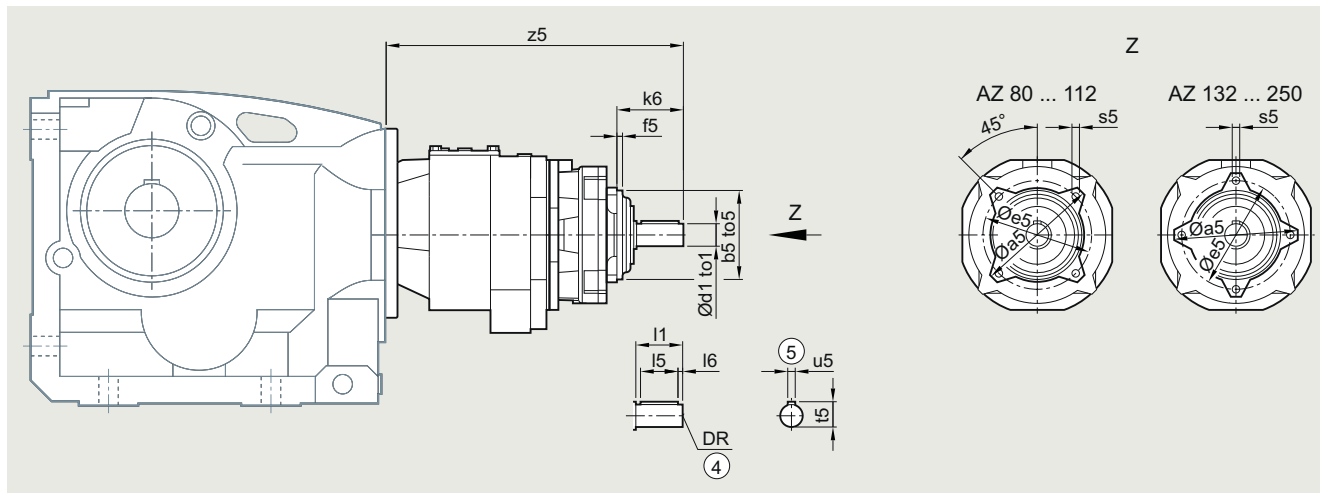
⑤ Feather key/keyway DIN 6885

Bevel gearboxes

Dimensional drawings

Tandem gearbox with adapter AZ with free output shaft and centering

Bevel tandem gearbox with adapter AZ

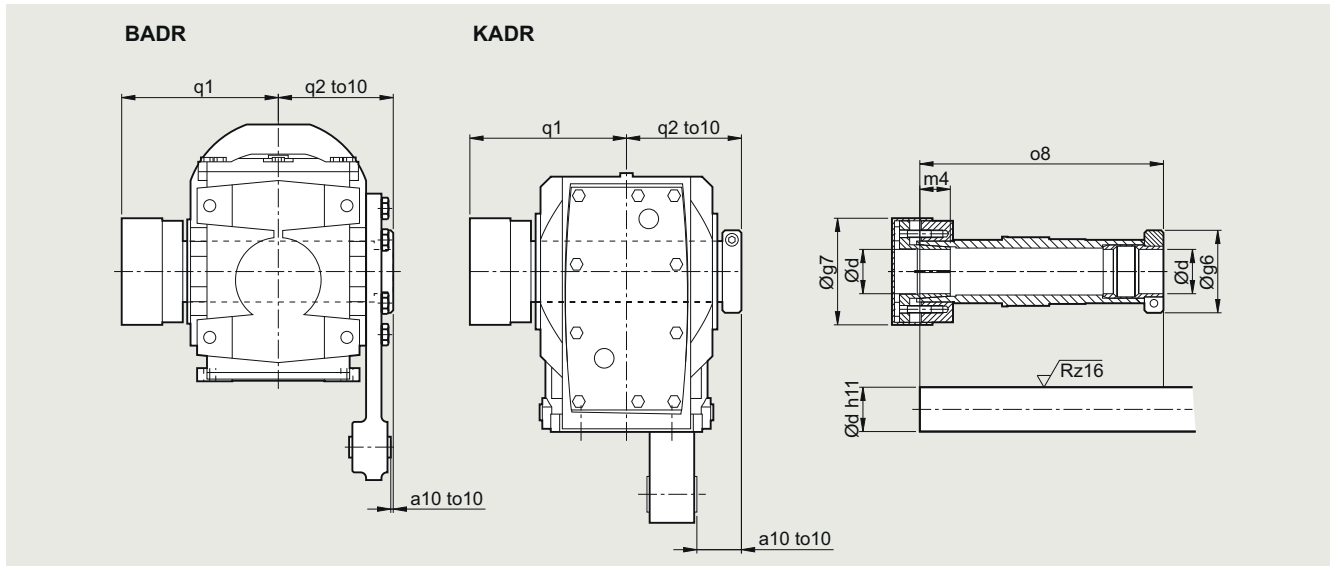


| Gearbox | Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | i5 | i6 | u5 | t5 | DR | k6 | z5 |
|-------------|----------|-----|-----|-----|-----|----|--------|----|-----|----|----|----|----|------|--------|------|-------|
| K.89-D/Z39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 323 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 333 |
| K.109-D/Z39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 306 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 316 |
| K.129-D/Z39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 297 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 307 |
| K.149-D/Z49 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 326 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 336 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 403 |
| K.169-D/Z49 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 315.5 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 325.5 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 392.5 |
| K.189-D/Z69 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61 | 341 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27 | M8x19 | 71 | 351 |
| | AZ-(100) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |
| | AZ-(112) | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31 | M10x22 | 70.5 | 418 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

ShaftMount assembly system



Note mounting tolerance to10 when positioning the torque arm.

| d | g6 | g7 | m4 | o8 | q1 | q2 | a10 | to10 |
|---------------|------|----|------|-------|-----|-----|------|------|
| BADR29 | | | | | | | | |
| 20 | 58.5 | 56 | 18.5 | 151 | 102 | 75 | 11 | +2.1 |
| 1" | | | | | | | | +0.6 |
| 0,75" | | | | | | | | |
| BADR39 | | | | | | | | |
| 30 | 62.0 | 76 | 22 | 180.5 | 116 | 85 | 2.5 | +2.2 |
| 25 | | | | | | | | +0.7 |
| 1,25" | | | | | | | | |
| 1,1875" | | | | | | | | |
| 1" | | | | | | | | |
| BADR49 | | | | | | | | |
| 35 | 65.0 | 84 | 24 | 210.0 | 134 | 100 | -2.5 | +2.6 |
| 30 | | | | | | | | +0.8 |
| 1,375" | | | | | | | | |
| 1,4375" | | | | | | | | |
| 1,25" | | | | | | | | |
| 1,1875" | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 220 | 140 | 104 | 1.5 | |
| 1,625" | | | | | | | | |
| KADR39 | | | | | | | | |
| 30 | 62.0 | 76 | 22 | 160.5 | 106 | 75 | 39 | +2.2 |
| 25 | | | | | | | | +0.7 |
| 1,25" | | | | | | | | |
| 1,1875" | | | | | | | | |
| 1" | | | | | | | | |
| KADR49 | | | | | | | | |
| 35 | 65.0 | 84 | 24 | 192.0 | 124 | 90 | 41 | +2.6 |
| 30 | | | | | | | | +0.8 |
| 1,375" | | | | | | | | |
| 1,4375" | | | | | | | | |
| 1,25" | | | | | | | | |
| 1,1875" | | | | | | | | |

Bevel gearboxes

Dimensional drawings

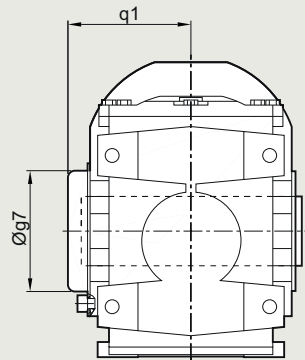
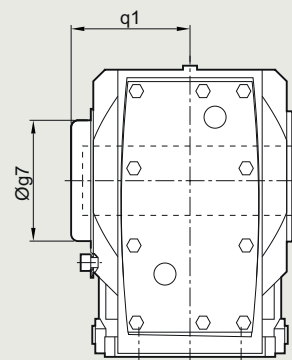
ShaftMount assembly system

| d | g6 | g7 | m4 | o8 | q1 | q2 | a10 | to10 |
|---------------|------|-----|----|-------|-----|-----|-----|------|
| KADR69 | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 217.5 | 138 | 102 | 39 | +2.5 |
| 35 | | | | | | | | +0.7 |
| 1,5" | | | | | | | | |
| 1,625" | | | | | | | | |
| 1,4375" | | | | | | | | |
| 1,375" | | | | | | | | |
| KADR79 | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 232.0 | 150 | 109 | 46 | +3.2 |
| 35 | | | | | | | | +1.4 |
| 1,5" | | | | | | | | |
| 1,625" | | | | | | | | |
| 1,4375" | | | | | | | | |
| 1,375" | | | | | | | | |
| KADR89 | | | | | | | | |
| 50 | 89.0 | 114 | 32 | 264.0 | 171 | 124 | 45 | +3.4 |
| 40 | | | | | | | | +1.5 |
| 2" | | | | | | | | |
| 1,9375" | | | | | | | | |
| 1,75" | | | | | | | | |
| 1,625" | | | | | | | | |

5

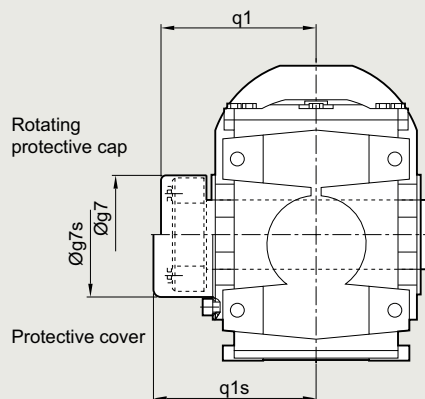
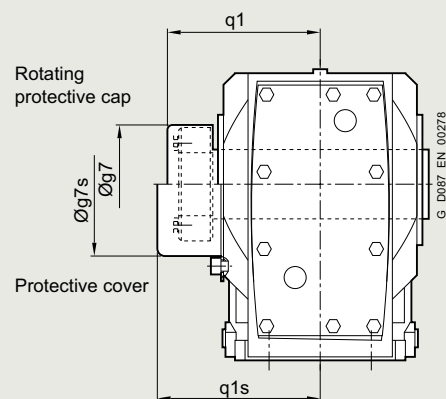
Protective covers

Protective cover for hollow shaft

BA, BAF, BAZ, BAD

KA¹⁾, KAF, KAZ, KAD


| Gearbox type | BA.29 | BA.39 | BA.49 | KA.39 | KA.49 | KA.69 | KA.79 | KA.89 | KA.109 | KA.129 | KA.149 | KA.169 | KA.189 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| Protective cover | | | | | | | | | | | | | |
| g7 | 67.0 | 80.0 | 80.0 | 82.5 | 80.0 | 99.0 | 99.0 | 137.0 | 187.0 | 187.0 | 218.0 | 257.5 | 309.5 |
| q1 | 76.0 | 96.0 | 111.0 | 73.0 | 105.0 | 95.0 | 101.5 | 124.5 | 168.0 | 198.0 | 250.0 | 313.0 | 373.5 |

Protective cover for hollow shaft with shrink disk

BAS, BAFS, BAZS, BADS

KAS¹⁾, KAFS, KAZS, KADS


| Gearbox type | BA..29 | BA..39 | BA..49 | KA..39 | KA..49 | KA..69 | KA..79 | KA..89 | KA..109 | KA..129 | KA..149 | KA..169 | KA..189 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| Rotating protective cap with shrink disk version | | | | | | | | | | | | | |
| g7 | 55 | 84 | 84 | 76.0 | 84 | 84 | 94.0 | 119.0 | 142.0 | 159.0 | 201.0 | 234.0 | 267.0 |
| q1 | 85 | 102 | 117 | 89.5 | 107 | 115 | 125.5 | 142.5 | 162.5 | 198.5 | 233.5 | 291.0 | 343.5 |
| Protective cover | | | | | | | | | | | | | |
| g7s | 58 | 86 | 86 | 82.5 | 86 | 99 | 99.0 | 137.0 | 187.0 | 187.0 | 218.0 | 257.5 | 309.5 |
| q1s | 91 | 119 | 134 | 109.0 | 122 | 126 | 132.5 | 176.5 | 195.0 | 225.0 | 250.0 | 313.0 | 373.5 |

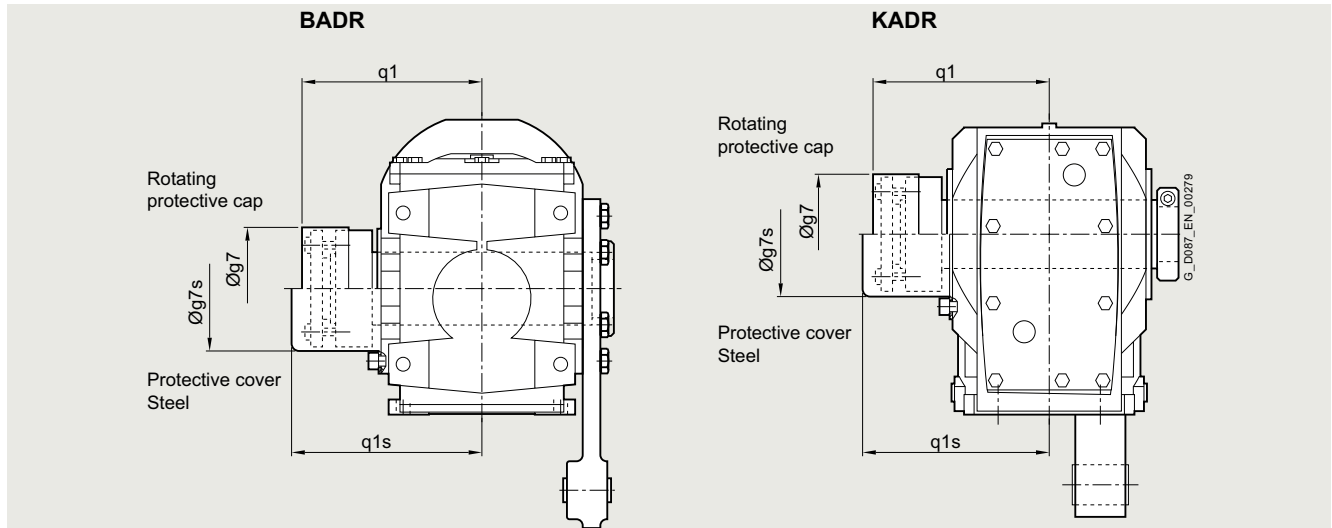
¹⁾ KA/KAS version valid only for gearbox sizes 169 and 189

Bevel gearboxes

Dimensional drawings

Protective covers

Protective cover for hollow shaft with ShaftMount assembly system

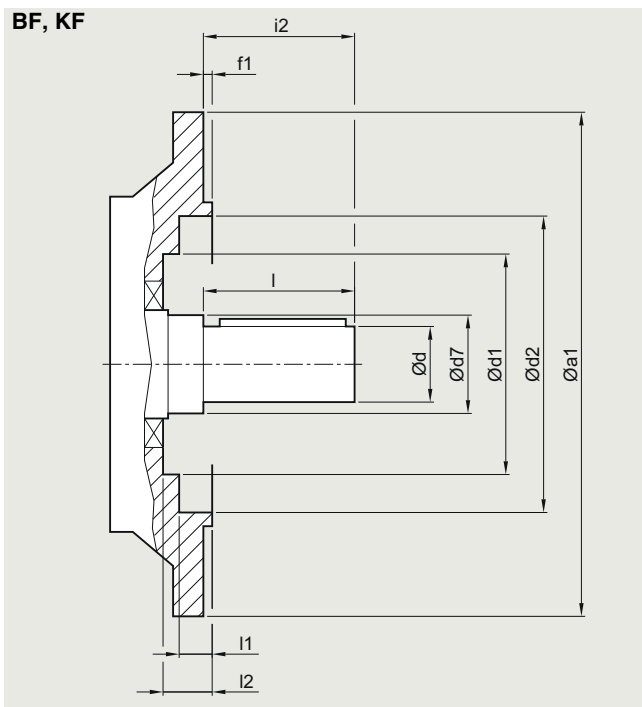


| Gearbox type | BADR29 | BADR39 | BADR49 | KADR39 | KADR49 | KADR69 | KADR79 | KADR89 |
|--------------------------------|--------|--------|-----------|--------|--------|--------|--------|--------|
| Rotating protective cap | | | | | | | | |
| g7 | 56 | 76 | 84 (94) | 76 | 84 | 94 | 94 | 114 |
| q1 | 102 | 116 | 134 (140) | 106 | 124 | 138 | 150 | 171 |
| Protective cover | | | | | | | | |
| g7s | 58 | 86.0 | 86 | 82.5 | 86 | 99 | 99 | 137 |
| q1s | 102 | 119.0 | 138 | 109 | 126 | 145 | 151.5 | 176.5 |

() Dimension in brackets for hollow shaft $d=40$ and $d=1.625''$ (can only be selected with rotating protective cap)

Inner contour of the flange design

Notes regarding the design of the customer's interface for the solid shaft design

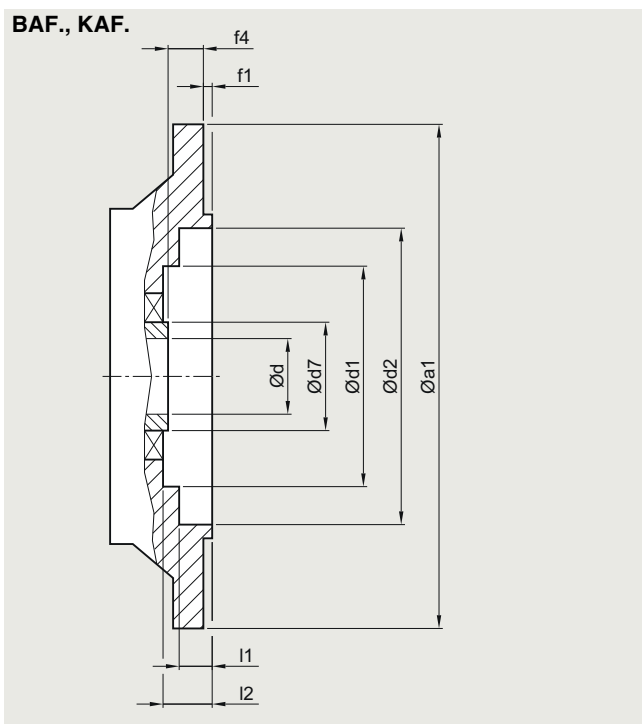


| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | i2 | l | l1 | l2 |
|--------------|-----|-----|-----|----|-----|-----|-----|-----|------|------|
| BF29 | 120 | 20 | 40 | - | 70 | 3.0 | 40 | 40 | 24.0 | - |
| | 160 | 20 | 40 | 70 | 101 | 3.5 | 40 | 40 | 8.5 | 24.5 |
| BF39 | 160 | 30 | 55 | 93 | 100 | 3.5 | 60 | 60 | 11.0 | 31.5 |
| | 200 | 30 | 55 | 93 | 119 | 3.5 | 60 | 60 | 16.0 | 31.5 |
| BF49 | 200 | 35 | 55 | 93 | 119 | 3.5 | 70 | 70 | 16.0 | 31.5 |
| KF39 | 160 | 25 | 30 | - | 100 | 3.5 | 50 | 50 | 5.0 | - |
| KF49 | 200 | 30 | 35 | - | 118 | 3.5 | 60 | 60 | 5.5 | - |
| KF69 | 250 | 35 | 45 | - | 165 | 4.0 | 70 | 70 | 6.5 | - |
| KF79 | 250 | 40 | 55 | - | 165 | 4.0 | 80 | 80 | 6.5 | - |
| KF89 | 300 | 50 | 55 | - | 165 | 4.0 | 100 | 100 | 8.0 | - |
| KF109 | 350 | 60 | 65 | - | 235 | 5.0 | 120 | 120 | 9.0 | - |
| KF129 | 450 | 70 | 75 | - | 336 | 5.0 | 140 | 140 | 9.0 | - |
| KF149 | 450 | 90 | 100 | - | 336 | 5.0 | 170 | 170 | 10.0 | - |
| KF169 | 550 | 110 | 120 | - | 427 | 5.0 | 210 | 210 | 10.0 | - |
| KF189 | 660 | 120 | 160 | - | 517 | 6.0 | 210 | 210 | 11.0 | - |

With VLplus reinforced bearing system (G30)

| | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|----|
| KF89 | 300 | 60 | 70 | 143 | 218 | 4.0 | 120 | 120 | 1.5 | 8 |
| KF109 | 350 | 70 | 85 | 190 | 234 | 5.0 | 140 | 140 | 2.0 | 4 |
| KF129 | 450 | 90 | 95 | - | 336 | 5.0 | 170 | 170 | 16.5 | - |
| KF149 | 450 | 100 | 120 | 225 | 336 | 5.0 | 210 | 210 | 10.5 | 11 |
| KF169 | 550 | 120 | 140 | - | 426 | 5.0 | 210 | 210 | 19.5 | - |

Notes regarding the design of the customer's interface for the hollow shaft design



| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | f4 | l1 | l2 |
|--------------|-----|----------------|-----|-----|-----|-----|------|------|------|
| BAF.29 | 120 | 20/ 25 | 40 | - | 70 | 3.0 | 20.0 | 24.0 | - |
| | 160 | 20 25 | 40 | 70 | 101 | 3.5 | 20.0 | 8.5 | 24.5 |
| BAF.39 | 160 | 30 35 40 | 55 | 93 | 100 | 3.5 | 27.0 | 11.0 | 31.5 |
| | 200 | 30 35 40 | 55 | 93 | 119 | 3.5 | 27.0 | 16.0 | 31.5 |
| BAF.49 | 200 | 35 40 | 55 | 93 | 119 | 3.5 | 27.0 | 16.0 | 31.5 |
| | 200 | 30 | 45 | 80 | 102 | 3.5 | 24.0 | 2.0 | 29.5 |
| KAF.49 | 200 | 35 | 50 | 90 | 120 | 3.5 | 25.0 | 4.0 | 30.5 |
| KAF.69 | 250 | 40 | 55 | 104 | 165 | 4.0 | 23.5 | 2.0 | 29.5 |
| KAF.79 | 250 | 40 | 55 | 104 | 165 | 4.0 | 23.0 | 2.0 | 29.5 |
| KAF.89 | 300 | 50 | 70 | 135 | 215 | 4.0 | 37.0 | 2.0 | 44.5 |
| KAF.109 | 350 | 60 | 85 | 184 | 210 | 5.0 | 36.0 | 13.0 | 45.0 |
| KAF.129 | 450 | 70 | 95 | 184 | 336 | 5.0 | 41.5 | 16.5 | 48.5 |
| KAF.149 | 450 | 90 | 120 | 214 | 219 | 5.0 | 41.0 | 40.0 | 50.0 |
| KAF.169 | 550 | 100 | 140 | 254 | 426 | 5.0 | 56.0 | 14.5 | 56.0 |
| KAF.189 | 660 | 120 | 160 | 306 | 518 | 6.0 | 66.0 | 6.0 | 62.0 |

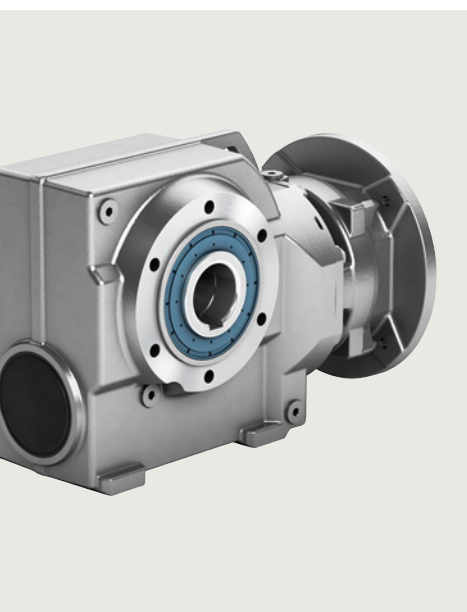
With VLplus reinforced bearing system (G30)

| | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|---|------|----|
| KAF.89 | 300 | 50 | 70 | 143 | 218 | 4.0 | 0 | 1.5 | 8 |
| KAF.109 | 350 | 60 | 85 | 190 | 234 | 5.0 | 0 | 2.0 | 4 |
| KAF.129 | 450 | 70 | 95 | - | 336 | 5.0 | 0 | 16.5 | - |
| KAF.149 | 450 | 90 | 120 | 225 | 330 | 5.0 | 0 | 10.5 | 11 |
| KAF.169 | 550 | 100 | 140 | - | 426 | 5.0 | 0 | 14.5 | - |

Bevel gearboxes

Notes

Helical worm gearboxes



| | | |
|-------------|---|------|
| 6/2 | Orientation | |
| 6/3 | Transmission ratios and torques | |
| 6/3 | Selection and ordering data | |
| 6/8 | Transmission ratios and torques for very low speeds | |
| 6/8 | Selection and ordering data | |
| 6/14 | Efficiencies | |
| 6/14 | Selection and ordering data | |
| 6/24 | Dimensional drawings | |
| 6/24 | Overview | |
| | <u>Adapter K4 for mounting an IEC motor</u> | 6/72 |
| 6/27 | Helical worm gearbox C..29 | |
| 6/31 | Helical worm gearbox C..39 | 6/72 |
| 6/35 | Helical worm gearbox C..49 | |
| 6/39 | Helical worm gearbox C..69 | 6/73 |
| 6/43 | Helical worm gearbox C..89 | |
| | <u>Adapter K42 for mounting an IEC motor C..29 to C..89</u> | 6/74 |
| 6/47 | | |
| | <u>KS adapter exclusively for mounting defined Siemens servo motors</u> | 6/74 |
| 6/48 | Helical worm gearbox C..29 | |
| 6/52 | Helical worm gearbox C..39 | 6/74 |
| 6/56 | Helical worm gearbox C..49 | |
| 6/60 | Helical worm gearbox C..69 | 6/75 |
| 6/64 | Helical worm gearbox C..89 | |
| | <u>Adapter K5 for mounting a NEMA motor C..29 to C..89</u> | 6/75 |
| 6/68 | | |
| | <u>Adapter K3 for mounting a NEMA motor C..29 to C..89</u> | 6/76 |
| 6/69 | | |
| | <u>Adapter A with free output shaft C..29 to C..89</u> | 6/77 |
| 6/70 | | |
| | <u>Adapter AZ with free output shaft and centering C..29 to C..89</u> | 6/78 |
| 6/71 | | |
| | Dimensional drawings | |
| | Helical worm tandem gearbox with adapter K4 | 6/72 |
| | Helical worm tandem gearbox with adapter K2 | 6/72 |
| | Helical worm tandem gearbox with KS adapter | 6/73 |
| | Helical worm tandem gearbox with adapter K5 | 6/74 |
| | Helical worm tandem gearbox with adapter K3 | 6/74 |
| | Helical worm tandem gearbox with adapter A | 6/75 |
| | Helical worm tandem gearbox with adapter AZ | 6/75 |
| | ShaftMount assembly system | 6/76 |
| | Protective cover for hollow shaft | 6/77 |
| | Inner contour of the flange design | 6/78 |

Helical worm gearboxes

Orientation

Innomotics SG helical worm gearbox C

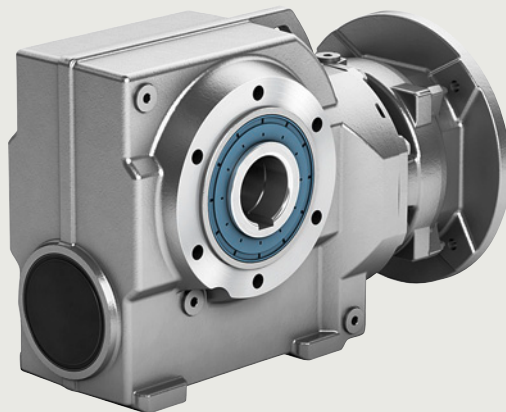


Fig. 6/1 Helical worm gearbox C

6

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|---|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i - | P_1 kW |
| C29 ... C89 (2-stage) | 5 | 82 ... 1450 | 6.48 ... 363 | 7.5 |
| C.29-D/Z19 ... C.89-D/Z39 (4-stage or 5-stage) | 5 | 80 ... 1310 | 270 ... 19000 | 7.5 |

Innomotics SG helical worm gearboxes are available in the following versions:

Transmission stages

- 2-stage helical worm geared motors
- 4-stage or 5-stage helical worm geared motors for very low output speeds

Designs

- Shaft-mounted design
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design

Mounting

- Hollow shaft with feather key
- Hollow shaft with shrink disk
- Hollow shaft with ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

For helical worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Helical worm gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | | Article No. |
|-------------|------------------------------|------------------------------|-----------------------------|--|------------------------|---------|----|-----|----|-----|-----|-----|------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.29 | | | | | | | | | | | | | | |
| 265.20 | 5.5 | 108 | 4140 | 0.05 | 1326/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 6.3 | 108 | 4140 | 0.05 | 2301/10 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 6.9 | 109 | 4130 | 0.07 | 2301/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 8.1 | 110 | 4130 | 0.08 | 897/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 8.9 | 110 | 4130 | 0.10 | 1794/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 10 | 110 | 4130 | 0.11 | 143/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 11 | 110 | 4130 | 0.14 | 1404/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 13 | 110 | 4130 | 0.16 | 455/4 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 14 | 110 | 4130 | 0.20 | 105/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 16 | 110 | 4130 | 0.22 | 1287/14 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 18 | 110 | 4130 | 0.22 | 403/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 20 | 110 | 4130 | 0.28 | 585/8 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 21 | 110 | 4130 | 0.33 | 1170/17 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 24 | 110 | 4130 | 0.36 | 182/3 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 28 | 110 | 4130 | 0.48 | 1053/20 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 29 | 102 | 4170 | 0.05 | 748/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 34 | 103 | 4160 | 0.06 | 649/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 37 | 103 | 4160 | 0.07 | 118/3 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 43 | 104 | 4160 | 0.09 | 506/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 44 | 90 | 4230 | 0.05 | 816/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 51 | 90 | 4230 | 0.06 | 708/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 56 | 91 | 4220 | 0.07 | 1416/55 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 66 | 91 | 4220 | 0.09 | 552/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 72 | 92 | 4200 | 0.11 | 1104/55 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 82 | 92 | 3970 | 0.13 | 88/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 92 | 92 | 3770 | 0.15 | 864/55 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 104 | 93 | 3560 | 0.18 | 14/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 112 | 93 | 3430 | 0.22 | 168/13 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 128 | 94 | 3210 | 0.25 | 396/35 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 146 | 94 | 3020 | 0.26 | 248/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 161 | 91 | 2960 | 0.33 | 9/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 171 | 90 | 2950 | 0.38 | 144/17 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 194 | 86 | 2920 | 0.43 | 112/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 224 | 82 | 2880 | 0.57 | 162/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A1 |



Article No. supplement

| | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|--|--|--|---------------|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | | | | | 4 |
| | K2 | | | D | E | F | G | H | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | 1 |
| | | | B | | F | J | | N | | | | | |
| | | | C | | | | | | | | | | |
| | K5 | | A | | B | C | | D | | | | | 5 |
| K3 | | A | | B | C | | D | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | | | | | 9 |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | | | | | | | | | | see page 9/40 | |

* Article No. supplement Adapter A: M1A, adapter AZ: M1B

Helical worm gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | Article No. | |
|--------------|------------------------------|------------------------------|-----------------------------|--|-----------------------------|---------|----|-----|-----|-----------------|-----|-----|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} - | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | 140 | 180 | | | 210 | |
| | | | | | | K3 | | 56 | 140 | 180 | | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.39A | | | | | | | | | | | | | | |
| 299.00 | 4.8 | 192 | 6180 | 0.04 | 299/1 | ✓ | ✓ | | | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 5.5 | 192 | 6180 | 0.05 | 1326/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 6.3 | 193 | 6180 | 0.06 | 2301/10 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 6.9 | 193 | 6180 | 0.07 | 2301/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 8.1 | 193 | 6180 | 0.09 | 897/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 8.9 | 193 | 6180 | 0.11 | 1794/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 10 | 194 | 6170 | 0.13 | 143/1 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 11 | 194 | 6170 | 0.16 | 1404/11 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 13 | 194 | 6170 | 0.19 | 455/4 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 14 | 194 | 6170 | 0.23 | 105/1 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 16 | 194 | 6170 | 0.27 | 1287/14 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 18 | 194 | 6170 | 0.26 | 403/5 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 20 | 194 | 6170 | 0.36 | 585/8 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 21 | 194 | 6170 | 0.43 | 1170/17 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 24 | 183 | 6210 | 0.47 | 182/3 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 28 | 170 | 6260 | 0.64 | 1053/20 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 29 | 198 | 6160 | 0.06 | 748/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 34 | 199 | 6150 | 0.07 | 649/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 37 | 200 | 6140 | 0.08 | 118/3 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 43 | 200 | 5730 | 0.11 | 506/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 44 | 215 | 5260 | 0.07 | 816/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 51 | 235 | 4680 | 0.08 | 708/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 56 | 235 | 4450 | 0.10 | 1416/55 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 66 | 235 | 4100 | 0.13 | 552/25 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 72 | 235 | 3890 | 0.16 | 1104/55 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 82 | 225 | 3720 | 0.19 | 88/5 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 92 | 215 | 3600 | 0.23 | 864/55 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 104 | 205 | 3490 | 0.28 | 14/1 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 112 | 199 | 3400 | 0.34 | 168/13 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 128 | 189 | 3270 | 0.41 | 396/35 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 146 | 181 | 3130 | 0.44 | 248/25 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 161 | 174 | 3040 | 0.59 | 9/1 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 171 | 170 | 3030 | 0.68 | 144/17 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 194 | 163 | 3050 | 0.81 | 112/15 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 224 | 154 | 3050 | 1.08 | 162/25 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | | | 2KJ3602 - ■ ■ A 0 ■ - 0 ■ A1 |

²⁾ Not available for A/AZ adapter

Article No. supplement

| | | | | | | | | | | | | | | | |
|--------------|--------|---------------|---|---|---|---|---|---|---|--|--|--|---|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | | | | | | 2 | |
| | KS | | A | | | E | H | K | M | | | | | | 1 |
| | | | B | | | F | J | | N | | | | | | |
| | | | C | | | | | | | | | | | | |
| | K5 | | A | | B | C | | D | | | | | | 5 | |
| K3 | | A | | B | C | | D | | | | | | 3 | | |
| A/AZ* | | | | D | E | F | G | H | | | | | | 9 | |

Adapter type

Gearbox mounting type

A, B, F or H

see page 9/40

* Article No. supplement Adapter A: **M1A**, adapter AZ: **M1B**

Helical worm gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | Article No. | |
|-------------|------------------------------|------------------------------|-----------------------------|--|------------------------|---------|----|-----|----|-----|-----|-----|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.49 | | | | | | | | | | | | | | |
| 299.00 | 4.8 | 350 | 8410 | 0.04 | 299/1 | ✓ | ✓ | | | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 5.5 | 350 | 8410 | 0.05 | 1326/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 6.3 | 355 | 8400 | 0.07 | 2301/10 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 6.9 | 355 | 8400 | 0.08 | 2301/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 8.1 | 355 | 8260 | 0.10 | 897/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 8.9 | 355 | 7920 | 0.13 | 1794/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 10 | 355 | 7480 | 0.15 | 143/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 11 | 355 | 7110 | 0.18 | 1404/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 13 | 355 | 6760 | 0.22 | 455/4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 14 | 355 | 6510 | 0.26 | 105/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 16 | 350 | 6160 | 0.32 | 1287/14 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 18 | 330 | 5930 | 0.32 | 403/5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 20 | 315 | 5770 | 0.44 | 585/8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 21 | 305 | 5680 | 0.51 | 1170/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 24 | 285 | 5500 | 0.58 | 182/3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 28 | 265 | 5290 | 0.78 | 1053/20 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 29 | 320 | 4250 | 0.08 | 748/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 34 | 350 | 3680 | 0.10 | 649/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 37 | 400 | 3050 | 0.12 | 118/3 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 43 | 375 | 2940 | 0.15 | 506/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ R1 |
| 30.67 | 47 | 385 | 2660 | 0.19 | 92/3 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 26.89 | 54 | 360 | 2620 | 0.23 | 242/9 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ P1 |
| 24.00 | 60 | 345 | 2540 | 0.28 | 24/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N1 |
| 21.39 | 68 | 330 | 2460 | 0.34 | 385/18 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M1 |
| 19.74 | 73 | 315 | 2450 | 0.41 | 770/39 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.29 | 84 | 300 | 2350 | 0.51 | 121/7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.16 | 96 | 285 | 2270 | 0.56 | 682/45 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J1 |
| 13.75 | 105 | 275 | 2200 | 0.73 | 55/4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.94 | 112 | 270 | 2160 | 0.85 | 220/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.41 | 127 | 255 | 2100 | 1.02 | 308/27 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.90 | 146 | 245 | 1990 | 1.36 | 99/10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 161 | 255 | 1140 | 1.03 | 9/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 171 | 255 | 1290 | 1.18 | 144/17 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 194 | 240 | 1580 | 1.45 | 112/15 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 224 | 230 | 1850 | 1.93 | 162/25 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A1 |

6

Article No. supplement

| | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|--|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | | | | | | 4 |
| | K2 | | | D | E | F | G | H | | | | | | 2 |
| | KS | | A | | E | H | K | M | | | | | | 1 |
| | | | B | | F | J | | N | | | | | | |
| | | | C | | | | | | | | | | | |
| | D | | | | | | | | | | | | | |
| | K5 | A | | B | C | | D | | | | | | 5 | |
| | K3 | A | | B | C | | D | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | |

* Article No. supplement Adapter A: M1A, adapter AZ: M1B

Helical worm gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | Article No. | |
|-------------|------------------------------|------------------------------|-----------------------------|--|------------------------|---------|----|-----|----|-----|-----|-----------------|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.69 | | | | | | | | | | | | | | |
| 360.00 | 4.0 | 675 | 10600 | 0.07 | 1079/3 | ✓ | ✓ | | | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M2 |
| 319.80 | 4.5 | 675 | 10600 | 0.09 | 1599/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L2 |
| 280.80 | 5.2 | 675 | 10600 | 0.11 | 1404/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K2 |
| 255.27 | 5.7 | 675 | 10600 | 0.13 | 2808/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J2 |
| 218.40 | 6.6 | 675 | 10600 | 0.16 | 1092/5 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H2 |
| 198.55 | 7.3 | 675 | 10600 | 0.19 | 2184/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G2 |
| 175.50 | 8.3 | 665 | 10600 | 0.23 | 351/2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F2 |
| 159.55 | 9.1 | 640 | 10700 | 0.30 | 1755/11 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E2 |
| 139.75 | 10 | 590 | 10500 | 0.35 | 559/4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D2 |
| 129.00 | 11 | 565 | 10300 | 0.42 | 129/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C2 |
| 114.21 | 13 | 535 | 9990 | 0.52 | 1599/14 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B2 |
| 102.50 | 14 | 675 | 8310 | 0.10 | 205/2 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A2 |
| 90.00 | 16 | 675 | 7790 | 0.12 | 90/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ X1 |
| 81.82 | 18 | 675 | 7410 | 0.15 | 900/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ W1 |
| 70.00 | 21 | 660 | 6920 | 0.18 | 70/1 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ V1 |
| 63.64 | 23 | 640 | 6700 | 0.22 | 700/11 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ U1 |
| 56.25 | 26 | 610 | 6460 | 0.27 | 225/4 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ T1 |
| 51.14 | 28 | 580 | 6320 | 0.34 | 1125/22 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ S1 |
| 44.79 | 32 | 545 | 6110 | 0.41 | 1075/24 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ R1 |
| 41.35 | 35 | 525 | 5980 | 0.49 | 1075/26 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 36.61 | 40 | 500 | 5770 | 0.61 | 1025/28 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.00 | 48 | 545 | 4560 | 0.46 | 30/1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ N1 |
| 26.28 | 55 | 515 | 4410 | 0.56 | 473/18 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M1 |
| 24.26 | 60 | 500 | 4300 | 0.67 | 946/39 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.48 | 68 | 475 | 4160 | 0.83 | 451/21 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K1 |
| 17.88 | 81 | 440 | 3960 | 1.17 | 143/8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J1 |
| 15.88 | 91 | 360 | 3950 | 0.88 | 1032/65 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H1 |
| 14.06 | 103 | 355 | 3730 | 1.11 | 492/35 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.70 | 124 | 360 | 3310 | 1.56 | 117/10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F1 |
| 11.01 | 132 | 360 | 3180 | 1.79 | 936/85 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.87 | 147 | 360 | 2890 | 2.10 | 148/15 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.40 | 173 | 360 | 3110 | 2.90 | 42/5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.20 | 201 | 360 | 3170 | 3.90 | 36/5 | | | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.20 | 234 | 355 | 3190 | 5.20 | 31/5 | | | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A1 |

¹⁾ Not available for A/AZ adapter

| Article No. supplement | | | | | | | | | |
|------------------------|----------------------------|---|---|---|---|---|---|---|---|
| Shaft design | 1 or 9 | | | | | | | | |
| Adapter size | see page 9/49 | | | | | | | | |
| | K4 | B | C | D | E | F | G | H | 4 |
| | K2 | | | D | E | F | G | H | 2 |
| | KS | | A | | E | H | K | M | 1 |
| | | | B | | F | J | N | | |
| | | | C | | | | | | |
| | | | D | | | | | | |
| | K5 | | A | | B | C | | D | 5 |
| | K3 | | A | | B | C | | D | 3 |
| | A/AZ* | | | D | E | F | G | H | 9 |
| Adapter type | | | | | | | | | |
| Gearbox mounting type | A, B, F or H see page 9/40 | | | | | | | | |

* Article No. supplement Adapter A: **M1A**, adapter AZ: **M1B**

Helical worm gearboxes

Transmission ratios and torques

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | Article No. | |
|-------------|------------------------------|------------------------------|-----------------------------|--|------------------------|---------|----|-----|----|-----|-----|-----|-------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | KS | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.89 | | | | | | | | | | | | | | |
| 363.00 | 4 | 1450 | 16200 | 0.47 | 3627/10 | | ✓ | ✓ | ✓ | | | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ N2 |
| 329.73 | 4.4 | 1450 | 16200 | 0.57 | 3627/11 | | ✓ | ✓ | ✓ | | | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ M2 |
| 295.75 | 4.9 | 1450 | 16200 | 0.78 | 1183/4 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ L2 |
| 265.91 | 5.5 | 1450 | 16200 | 0.89 | 2925/11 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ K2 |
| 240.50 | 6 | 1450 | 16200 | 1.00 | 481/2 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ J2 |
| 222.00 | 6.5 | 1450 | 16200 | 1.18 | 222/1 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ H2 |
| 203.36 | 7.1 | 1450 | 16200 | 1.52 | 2847/14 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ G2 |
| 170.62 | 8.5 | 1360 | 16300 | 1.67 | 1365/8 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ F2 |
| 160.59 | 9 | 1330 | 16300 | 1.91 | 2730/17 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ E2 |
| 147.33 | 9.8 | 1280 | 16300 | 2.10 | 442/3 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ D2 |
| 128.70 | 11 | 1190 | 16300 | 3.00 | 1287/10 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ C2 |
| 115.23 | 13 | 1120 | 15900 | 3.70 | 2535/22 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ B2 |
| 100.75 | 14 | 1050 | 15300 | 4.40 | 403/4 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ A2 |
| 86.48 | 17 | 985 | 14600 | 4.90 | 1989/23 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ X1 |
| 76.44 | 19 | 930 | 14100 | 6.30 | 1911/25 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ W1 |
| 65.00 | 22 | 865 | 13400 | 8.10 | 65/1 | | | | | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ V1 |
| 55.61 | 26 | 1450 | 8630 | 0.89 | 1001/18 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ U1 |
| 50.00 | 29 | 1430 | 8160 | 1.02 | 50/1 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ T1 |
| 45.22 | 32 | 1380 | 7910 | 1.15 | 407/9 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ S1 |
| 41.74 | 35 | 1340 | 7720 | 1.35 | 1628/39 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ R1 |
| 38.24 | 38 | 1300 | 7510 | 1.73 | 803/21 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 32.08 | 45 | 1220 | 7110 | 1.97 | 385/12 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.20 | 48 | 1200 | 6950 | 2.20 | 1540/51 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ N1 |
| 27.70 | 52 | 1140 | 6890 | 2.50 | 748/27 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ M1 |
| 25.03 | 58 | 1090 | 5490 | 2.10 | 876/35 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.00 | 69 | 1070 | 4480 | 2.50 | 21/1 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ K1 |
| 19.76 | 73 | 1120 | 3400 | 2.80 | 336/17 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ J1 |
| 18.13 | 80 | 1110 | 3180 | 3.20 | 272/15 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ H1 |
| 15.84 | 92 | 1110 | 4150 | 4.40 | 396/25 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ G1 |
| 14.18 | 102 | 1070 | 4810 | 5.40 | 156/11 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ F1 |
| 12.40 | 117 | 1010 | 5490 | 6.60 | 62/5 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ E1 |
| 10.64 | 136 | 960 | 5620 | 8.00 | 1224/115 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ D1 |
| 9.41 | 154 | 915 | 5680 | 10.00 | 1176/125 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ C1 |
| 8.00 | 181 | 840 | 5710 | 14.00 | 8/1 | | | | | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.86 | 211 | 720 | 5690 | 18.00 | 48/7 | | | | | ✓ | ✓ | ✓ | | 2KJ3606 - ■ ■ A 0 ■ - 0 ■ A1 |



Article No. supplement

| | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|---|---|---|---|---|---|---|--|--|--|---|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | | | | | 4 | |
| | K2 | | | D | E | F | G | H | | | | | 2 | |
| | KS | | A | | | E | H | K | M | | | | | 1 |
| | | | B | | | F | J | | N | | | | | |
| | | | C | | | | | | | | | | | |
| | K5 | | A | | | B | C | | D | | | | | 5 |
| K3 | | A | | | B | C | | D | | | | | 3 | |
| A/AZ* | | | | D | E | F | G | H | | | | | 9 | |
| Adapter type | | | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | | | |

* Article No. supplement Adapter A: M1A, adapter AZ: M1B

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | Article No. |
|-----------------|------------------------------|------------------------------|-----------------------------|---|-----------------------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| C.29-D19 | | | | | | | | | | | | |
| 9219 | 0.16 | 80 | 4280 | 0.02 | 37750064/4095 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 8163 | 0.18 | 80 | 4280 | 0.03 | 18570596/2275 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ P1 |
| 7092 | 0.20 | 81 | 4270 | 0.04 | 16135108/2275 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ N1 |
| 6448 | 0.22 | 81 | 4270 | 0.04 | 2933656/455 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ M1 |
| 5487 | 0.26 | 82 | 4270 | 0.06 | 12481876/2275 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ L1 |
| 4988 | 0.29 | 82 | 4270 | 0.07 | 2269432/455 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ K1 |
| 4349 | 0.33 | 83 | 4260 | 0.08 | 152218/35 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ J1 |
| 3893 | 0.37 | 84 | 4260 | 0.11 | 1771264/455 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ H1 |
| 3457 | 0.42 | 84 | 4260 | 0.13 | 4718758/1365 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ G1 |
| 3191 | 0.45 | 84 | 4260 | 0.16 | 18875032/5915 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ F1 |
| 2772 | 0.52 | 85 | 4250 | 0.17 | 8828644/3185 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ E1 |
| 2409 | 0.60 | 86 | 4250 | 0.18 | 5479848/2275 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ D1 |
| 2175 | 0.67 | 86 | 4250 | 0.22 | 76109/35 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ C1 |
| 2047 | 0.71 | 86 | 4250 | 0.26 | 71632/35 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ B1 |
| 1784 | 0.81 | 87 | 4240 | 0.29 | 2435488/1365 | ✓ | | | | | | 2KJ3621 - ■ ■ A 0 ■ - 0 ■ A1 |
| C.29-Z19 | | | | | | | | | | | | |
| 1744 | 0.83 | 87 | 4240 | 0.02 | 1020272/585 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ S1 |
| 1544 | 0.94 | 87 | 4240 | 0.03 | 501908/325 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ R1 |
| 1342 | 1.1 | 88 | 4240 | 0.04 | 436084/325 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 1220 | 1.2 | 88 | 4240 | 0.05 | 79288/65 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ P1 |
| 1038 | 1.4 | 89 | 4230 | 0.07 | 337348/325 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ N1 |
| 944 | 1.5 | 90 | 4230 | 0.08 | 61336/65 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ M1 |
| 823 | 1.8 | 90 | 4230 | 0.09 | 4114/5 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ L1 |
| 736 | 2.0 | 91 | 4220 | 0.12 | 47872/65 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ K1 |
| 654 | 2.2 | 91 | 4220 | 0.15 | 127534/195 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ J1 |
| 604 | 2.4 | 91 | 4220 | 0.18 | 510136/845 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ H1 |
| 524 | 2.8 | 92 | 4220 | 0.20 | 238612/455 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ G1 |
| 456 | 3.2 | 93 | 4210 | 0.21 | 148104/325 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ F1 |
| 411 | 3.5 | 93 | 4210 | 0.27 | 2057/5 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ E1 |
| 387 | 3.7 | 93 | 4210 | 0.32 | 1936/5 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ D1 |
| 337.56 | 4.3 | 94 | 4210 | 0.36 | 65824/195 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ C1 |
| 311.44 | 4.7 | 94 | 4210 | 0.19 | 255068/819 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ B1 |
| 270.54 | 5.4 | 95 | 4200 | 0.22 | 119306/441 | ✓ | | | | | | 2KJ3620 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | |
|-----------------------|--------------|-------------------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | KS | A B C D E F H J K M N 1 |
| Adapter type | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 |

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | Article No. |
|------------------|--------------|----------------|---------------|--|---------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| C.39A-D19 | | | | | | | | | | | | |
| 11553 | 0.13 | 160 | 6300 | 0.06 | 150183/13 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ S1 |
| 10502 | 0.14 | 160 | 6300 | 0.07 | 136530/13 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ R1 |
| 9219 | 0.16 | 156 | 6320 | 0.02 | 37750064/4095 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 8163 | 0.18 | 157 | 6310 | 0.03 | 18570596/2275 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ P1 |
| 7092 | 0.20 | 157 | 6310 | 0.04 | 16135108/2275 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ N1 |
| 6448 | 0.22 | 158 | 6310 | 0.04 | 2933656/455 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ M1 |
| 5487 | 0.26 | 159 | 6300 | 0.06 | 12481876/2275 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ L1 |
| 4988 | 0.29 | 159 | 6300 | 0.07 | 2269432/455 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ K1 |
| 4349 | 0.33 | 160 | 6300 | 0.08 | 152218/35 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ J1 |
| 3893 | 0.37 | 161 | 6300 | 0.11 | 1771264/455 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ H1 |
| 3457 | 0.42 | 161 | 6300 | 0.13 | 4718758/1365 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ G1 |
| 3191 | 0.45 | 162 | 6290 | 0.16 | 18875032/5915 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ F1 |
| 2772 | 0.52 | 163 | 6290 | 0.17 | 8828644/3185 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ E1 |
| 2409 | 0.60 | 165 | 6280 | 0.18 | 5479848/2275 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ D1 |
| 2175 | 0.67 | 166 | 6280 | 0.22 | 76109/35 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ C1 |
| 2047 | 0.71 | 167 | 6270 | 0.26 | 71632/35 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ B1 |
| 1784 | 0.81 | 169 | 6270 | 0.29 | 2435488/1365 | ✓ | | | | | | 2KJ3623 - ■ ■ A 0 ■ - 0 ■ A1 |
| C.39A-Z19 | | | | | | | | | | | | |
| 1744 | 0.83 | 169 | 6270 | 0.02 | 1020272/585 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ S1 |
| 1544 | 0.94 | 171 | 6260 | 0.03 | 501908/325 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ R1 |
| 1342 | 1.1 | 173 | 6250 | 0.04 | 436084/325 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 1220 | 1.2 | 173 | 6250 | 0.05 | 79288/65 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ P1 |
| 1038 | 1.4 | 175 | 6240 | 0.07 | 337348/325 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ N1 |
| 944 | 1.5 | 175 | 6240 | 0.08 | 61336/65 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ M1 |
| 823 | 1.8 | 176 | 6240 | 0.09 | 4114/5 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ L1 |
| 736 | 2.0 | 177 | 6240 | 0.12 | 47872/65 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ K1 |
| 654 | 2.2 | 178 | 6230 | 0.15 | 127534/195 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ J1 |
| 604 | 2.4 | 179 | 6230 | 0.18 | 510136/845 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ H1 |
| 524 | 2.8 | 180 | 6230 | 0.20 | 238612/455 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ G1 |
| 456 | 3.2 | 181 | 6220 | 0.21 | 148104/325 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ F1 |
| 411 | 3.5 | 182 | 6220 | 0.27 | 2057/5 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ E1 |
| 387 | 3.7 | 182 | 6220 | 0.32 | 1936/5 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ D1 |
| 337.56 | 4.3 | 183 | 6210 | 0.36 | 65824/195 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ C1 |
| 311.44 | 4.7 | 184 | 6210 | 0.19 | 255068/819 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ B1 |
| 270.54 | 5.4 | 185 | 6210 | 0.22 | 119306/441 | ✓ | | | | | | 2KJ3622 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | |
|-----------------------|--------------|------------------|--------|--------|---|--------|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | |
| Adapter size | KS | A B C D | E F | H J | K | M N | | | | | | 1 |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | |

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | Article No. | |
|-----------------|--------------|----------------|---------------|--|---------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | J_G 10^{-4} kgm ² | R_{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| C.49-D19 | | | | | | | | | | | | |
| 11463 | 0.13 | 270 | 8640 | 0.04 | 2006103/175 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ N1 |
| 10421 | 0.14 | 270 | 8640 | 0.04 | 364746/35 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ M1 |
| 8868 | 0.16 | 270 | 8640 | 0.06 | 1551891/175 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ L1 |
| 8062 | 0.18 | 270 | 8640 | 0.07 | 282162/35 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ K1 |
| 7029 | 0.21 | 275 | 8630 | 0.08 | 492063/70 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ J1 |
| 6292 | 0.23 | 275 | 8630 | 0.11 | 220224/35 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ H1 |
| 5588 | 0.26 | 275 | 8630 | 0.13 | 391127/70 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ G1 |
| 5158 | 0.28 | 275 | 8630 | 0.16 | 2346762/455 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ F1 |
| 4480 | 0.32 | 280 | 8610 | 0.17 | 1097679/245 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ E1 |
| 3893 | 0.37 | 280 | 8730 | 0.18 | 681318/175 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ D1 |
| 3515 | 0.41 | 280 | 8610 | 0.22 | 492063/140 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ C1 |
| 3308 | 0.44 | 285 | 8600 | 0.26 | 1968252/595 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ B1 |
| 2884 | 0.50 | 285 | 8600 | 0.29 | 100936/35 | ✓ | | | | | | 2KJ3625 - ■ ■ A 0 ■ - 0 ■ A1 |
| C.49-Z19 | | | | | | | | | | | | |
| 2819 | 0.51 | 285 | 8600 | 0.02 | 42284/15 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ V1 |
| 2496 | 0.58 | 290 | 8590 | 0.03 | 62403/25 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ U1 |
| 2169 | 0.67 | 295 | 8570 | 0.04 | 54219/25 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ T1 |
| 1972 | 0.74 | 295 | 8570 | 0.05 | 9858/5 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ S1 |
| 1678 | 0.86 | 305 | 8540 | 0.07 | 41943/25 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ R1 |
| 1525 | 0.95 | 305 | 8540 | 0.08 | 7626/5 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 1330 | 1.1 | 315 | 8510 | 0.10 | 13299/10 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ P1 |
| 1190 | 1.2 | 320 | 8500 | 0.13 | 5952/5 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ N1 |
| 1057 | 1.4 | 325 | 8480 | 0.15 | 10571/10 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ M1 |
| 976 | 1.5 | 330 | 8470 | 0.18 | 63426/65 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ L1 |
| 848 | 1.7 | 340 | 8440 | 0.21 | 29667/35 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ K1 |
| 737 | 2.0 | 340 | 8440 | 0.21 | 18414/25 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ J1 |
| 665 | 2.2 | 340 | 8440 | 0.27 | 13299/20 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ H1 |
| 626 | 2.3 | 345 | 8430 | 0.32 | 53196/85 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ G1 |
| 546 | 2.7 | 345 | 8430 | 0.37 | 2728/5 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ F1 |
| 503 | 2.9 | 345 | 8430 | 0.20 | 10571/21 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ E1 |
| 437 | 3.3 | 345 | 8430 | 0.23 | 128557/294 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ D1 |
| 380 | 3.8 | 350 | 8410 | 0.24 | 13299/35 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ C1 |
| 343.03 | 4.2 | 350 | 8410 | 0.31 | 57629/168 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ B1 |
| 322.85 | 4.5 | 350 | 8410 | 0.36 | 115258/357 | ✓ | | | | | | 2KJ3624 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | |
|-----------------------|--------------|------------------|--------|--------|---|--------|---|--|--|--|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | |
| Adapter size | KS | A B C D | E F | H J | K | M N | 1 | | | | |
| Adapter type | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | |

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | Article No. | |
|-----------------|------------------------------|------------------------------|-----------------------------|---|-----------------------------|---------|--------------------------|------------|------------|-----|--------------|-------------------------------------|
| <i>i</i> | <i>n</i> ₂ rpm | <i>T</i> _{2N} Nm | <i>F</i> _{R2} N | <i>J</i> _G 10 ⁻⁴ kgm ² | <i>R</i> _{ex} - | KS | 3.1 3.2 4.1 4.2 | 5.1 5.2 | 6.1 6.2 | 8.1 | 10.1 10.2 | (Article No. supplement, see below) |
| C.69-D19 | | | | | | | | | | | | |
| 18949 | 0.08 | 495 | 11000 | 0.02 | 5172970/273 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 16779 | 0.09 | 495 | 11000 | 0.03 | 3053721/182 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ P1 |
| 14578 | 0.10 | 495 | 11000 | 0.04 | 2653233/182 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ N1 |
| 13253 | 0.11 | 495 | 11000 | 0.04 | 1206015/91 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ M1 |
| 11277 | 0.13 | 500 | 11000 | 0.06 | 2052501/182 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ L1 |
| 10252 | 0.14 | 500 | 11000 | 0.07 | 932955/91 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ K1 |
| 8939 | 0.16 | 500 | 11000 | 0.08 | 250305/28 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ J1 |
| 8002 | 0.18 | 500 | 12200 | 0.11 | 728160/91 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ H1 |
| 7106 | 0.20 | 500 | 11000 | 0.13 | 2586485/364 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ G1 |
| 6559 | 0.22 | 500 | 11000 | 0.16 | 7759455/1183 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ F1 |
| 5698 | 0.25 | 500 | 11000 | 0.17 | 7258845/1274 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ E1 |
| 4951 | 0.29 | 505 | 11000 | 0.18 | 450549/91 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ D1 |
| 4470 | 0.32 | 505 | 11000 | 0.22 | 250305/56 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ C1 |
| 4207 | 0.34 | 505 | 11000 | 0.26 | 500610/119 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ B1 |
| 3667 | 0.40 | 505 | 11000 | 0.29 | 333740/91 | ✓ | | | | | | 2KJ3627 - ■ ■ A 0 ■ - 0 ■ A1 |
| C.69-Z19 | | | | | | | | | | | | |
| 3585 | 0.40 | 505 | 11000 | 0.02 | 139810/39 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ V1 |
| 3174 | 0.46 | 510 | 11000 | 0.03 | 82533/26 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ U1 |
| 2758 | 0.53 | 510 | 11000 | 0.04 | 71709/26 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ T1 |
| 2507 | 0.58 | 515 | 11000 | 0.05 | 32595/13 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ S1 |
| 2134 | 0.68 | 515 | 11000 | 0.07 | 55473/26 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ R1 |
| 1940 | 0.75 | 520 | 11000 | 0.08 | 25215/13 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 1691 | 0.86 | 520 | 11000 | 0.09 | 6765/4 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ P1 |
| 1514 | 0.96 | 525 | 11000 | 0.12 | 19680/13 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ N1 |
| 1344 | 1.1 | 530 | 11000 | 0.15 | 69905/52 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ M1 |
| 1241 | 1.2 | 530 | 11000 | 0.18 | 209715/169 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ L1 |
| 1078 | 1.3 | 535 | 10900 | 0.20 | 196185/182 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ K1 |
| 937 | 1.5 | 540 | 10900 | 0.21 | 12177/13 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ J1 |
| 846 | 1.7 | 545 | 10900 | 0.27 | 6765/8 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ H1 |
| 796 | 1.8 | 550 | 10900 | 0.32 | 13530/17 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ G1 |
| 694 | 2.1 | 555 | 10900 | 0.36 | 9020/13 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ F1 |
| 640 | 2.3 | 560 | 10900 | 0.19 | 349525/546 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ E1 |
| 556 | 2.6 | 570 | 10900 | 0.22 | 326975/588 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ D1 |
| 483 | 3.0 | 580 | 10800 | 0.23 | 6765/14 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ C1 |
| 436 | 3.3 | 585 | 10800 | 0.29 | 146575/336 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ B1 |
| 411 | 3.5 | 590 | 10800 | 0.35 | 146575/357 | ✓ | | | | | | 2KJ3626 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | |
|-----------------------|--------------|------------------|--------|--------|---|--------|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | |
| Adapter size | KS | A B C D | E F | H J | K | M N | | | | | | 1 |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | see page 9/40 | | | | | | | | | | |

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | | Article No. |
|-----------------|--------------|----------------|---------------|--|-----------------|---------|----|-----|----|-----------------|-------------------------------|-----|------|-------------------------------------|
| <i>i</i> | n_2 rpm | T_{2N} Nm | F_{R2} N | J_G 10^{-4} kgm ² | R_{ex} - | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | K3 | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K5 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | | 80 | 90 | 100 | 112 | 132 | |
| C.89-D39 | | | | | | | | | | | | | | |
| 18243 | 0.08 | 850 | 16300 | 0.05 | 93039401/5100 | ✓ | ✓ | | | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ R1 |
| 16585 | 0.09 | 855 | 16300 | 0.07 | 93039401/5610 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 14223 | 0.10 | 860 | 16300 | 0.08 | 36269597/2550 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ P1 |
| 13085 | 0.11 | 1100 | 16300 | 0.03 | 90088999/6885 | ✓ | ✓ | | | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ N1 |
| 11606 | 0.12 | 1100 | 16300 | 0.05 | 7833826/675 | ✓ | ✓ | | | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ M1 |
| 10070 | 0.14 | 1100 | 16300 | 0.05 | 231097867/22950 | ✓ | ✓ | | | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ L1 |
| 9154 | 0.16 | 1100 | 16300 | 0.07 | 21008897/2295 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ K1 |
| 7851 | 0.18 | 1100 | 16300 | 0.08 | 90088999/11475 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ J1 |
| 7137 | 0.20 | 1100 | 16300 | 0.10 | 16379818/2295 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ H1 |
| 6258 | 0.23 | 1110 | 16300 | 0.12 | 43086043/6885 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ G1 |
| 5586 | 0.26 | 1110 | 16300 | 0.15 | 1424332/255 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ F1 |
| 4978 | 0.29 | 1110 | 16300 | 0.17 | 27418391/5508 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ E1 |
| 4595 | 0.32 | 1110 | 16300 | 0.21 | 2109107/459 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ D1 |
| 4023 | 0.36 | 1110 | 16300 | 0.25 | 6155149/1530 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ C1 |
| 3527 | 0.41 | 1120 | 16300 | 0.23 | 121424303/34425 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ B1 |
| 3200 | 0.45 | 1120 | 16300 | 0.33 | 3916913/1224 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ¹⁾ ₂₎ | | | 2KJ3630 - ■ ■ A 0 ■ - 0 ■ A1 |

¹⁾ Not available for A/AZ adapter

²⁾ Only available for KS adapter

| Article No. supplement | | | | | | | | | | | | | | | |
|------------------------|--------------|---|---------------|---|---|---|---|---|--|--|--|--|--|---|--|
| Shaft design | 1 or 9 | | see page 9/49 | | | | | | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | | | | | | 4 | |
| | K2 | | | D | E | F | G | H | | | | | | 2 | |
| | KS | | A | | E | H | K | M | | | | | | 1 | |
| | | | B | | F | J | | N | | | | | | | |
| | | | C | | | | | | | | | | | | |
| | D | | | | | | | | | | | | | | |
| Adapter type | K5 | A | | B | C | | D | | | | | | | 5 | |
| | K3 | A | | B | C | | D | | | | | | | 3 | |
| | A/AZ* | | | D | E | F | G | H | | | | | | 9 | |
| Gearbox mounting type | A, B, F or H | | see page 9/40 | | | | | | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical worm gearboxes

Transmission ratios and torques for very low speeds

Selection and ordering data

| Gearbox | | | | | | Adapter | | | | | | | | Article No. |
|-----------------|--------------|----------------|---------------|--|---------------|---------|----|-----|----|-----------------|--------------------|-----|------|-------------------------------------|
| i | n_2 rpm | T_{2N} Nm | F_{R2} N | J_G 10^{-4} kgm ² | R_{ex} - | K4 | 63 | 71 | 80 | 90 | 100 | 112 | 132 | (Article No. supplement, see below) |
| - | | | | | | K2 | | | 80 | 90 | 100 | 112 | 132 | |
| | | | | | | K5 | | 3.1 | | 5.1 | 6.1 | 8.1 | 10.1 | |
| | | | | | | | | 3.2 | | 5.2 | 6.2 | | 10.2 | |
| | | | | | | | | 4.1 | | | | | | |
| | | | | | | | | 4.2 | | | | | | |
| | | | | | | K3 | | 56 | | 140 | 180 | | 210 | |
| | | | | | | A/AZ | | 56 | | 140 | 180 | | 210 | |
| | | | | | | | | | 80 | 90 | 100 | 112 | 132 | |
| C.89-Z39 | | | | | | | | | | | | | | |
| 3111 | 0.47 | 1120 | 16300 | 0.06 | 7560553/2430 | ✓ | ✓ | | | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ T1 |
| 2766 | 0.52 | 1120 | 16300 | 0.07 | 3734731/1350 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ S1 |
| 2429 | 0.60 | 1130 | 16300 | 0.08 | 182182/75 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ R1 |
| 2208 | 0.66 | 1130 | 16300 | 0.10 | 33124/15 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 1889 | 0.77 | 1140 | 16300 | 0.12 | 1275274/675 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ P1 |
| 1718 | 0.84 | 1150 | 16300 | 0.14 | 231868/135 | ✓ | ✓ | ✓ | ✓ | | | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ N1 |
| 1518 | 0.96 | 1150 | 16300 | 0.17 | 91091/60 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ M1 |
| 1380 | 1.1 | 1160 | 16300 | 0.22 | 8281/6 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ L1 |
| 1209 | 1.2 | 1170 | 16300 | 0.26 | 3916913/3240 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ K1 |
| 1116 | 1.3 | 1170 | 16300 | 0.31 | 303301/270 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ J1 |
| 988 | 1.5 | 1180 | 16300 | 0.36 | 533533/540 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ H1 |
| 822 | 1.8 | 1200 | 16300 | 0.48 | 1184183/1440 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ G1 |
| 774 | 1.9 | 1210 | 16300 | 0.56 | 1184183/1530 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ F1 |
| 693 | 2.1 | 1220 | 16300 | 0.61 | 3370367/4860 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ E1 |
| 590 | 2.5 | 1230 | 16300 | 0.79 | 637637/1080 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ D1 |
| 506 | 2.9 | 1260 | 16300 | 1.03 | 91091/180 | | | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ C1 |
| 436 | 3.3 | 1280 | 16300 | 1.31 | 2823821/6480 | | | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ B1 |
| 360 | 4.0 | 1310 | 16300 | 0.59 | 793793/2208 | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | ✓ ^{1) 2)} | | | 2KJ3628 - ■ ■ A 0 ■ - 0 ■ A1 |

¹⁾ Not available for A/AZ adapter

²⁾ Only available for KS adapter

| Article No. supplement | | | | | | | | | | |
|------------------------|--------------|---|---------------|---|---|---|---|---|---|--|
| Shaft design | 1 or 9 | | see page 9/49 | | | | | | | |
| Adapter size | K4 | B | C | D | E | F | G | H | 4 | |
| | K2 | | | D | E | F | G | H | 2 | |
| | KS | | A | | E | H | K | M | 1 | |
| | | | B | | F | J | | N | | |
| | | | C | | | | | | | |
| | K5 | | A | | B | C | | D | 5 | |
| K3 | | A | | B | C | | D | 3 | | |
| A/AZ* | | | D | E | F | G | H | 9 | | |
| Adapter type | | | | | | | | | | |
| Gearbox mounting type | A, B, F or H | | see page 9/40 | | | | | | | |

* Article No. supplement adapter A: **M1A**, adapter AZ: **M1B**

Helical worm gearboxes

Efficiencies

Selection and ordering data

| i | $n_{\text{mot}} = 2\,800 \text{ rpm}$ | | | | $n_{\text{mot}} = 1\,400 \text{ rpm}$ | | | | $n_{\text{mot}} = 900 \text{ rpm}$ | | | | Article No. |
|---------------|---------------------------------------|----------------|------------------------|-------------|---------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|-------------------------------------|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.29 | | | | | | | | | | | | | |
| 265.20 | 10.6 | 110 | 0.17 | 73 | 5.3 | 108 | 0.09 | 65 | 3.4 | 106 | 0.06 | 59 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 12.2 | 110 | 0.19 | 74 | 6.1 | 108 | 0.10 | 67 | 3.9 | 106 | 0.07 | 61 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 13.4 | 110 | 0.21 | 75 | 6.7 | 109 | 0.11 | 68 | 4.3 | 107 | 0.08 | 62 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 15.6 | 110 | 0.24 | 76 | 7.8 | 109 | 0.13 | 70 | 5.0 | 107 | 0.09 | 64 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 17.2 | 110 | 0.26 | 76 | 8.6 | 110 | 0.14 | 71 | 5.5 | 108 | 0.10 | 65 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 19.6 | 110 | 0.30 | 76 | 9.8 | 110 | 0.16 | 72 | 6.3 | 108 | 0.11 | 67 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 22 | 110 | 0.33 | 76 | 11.0 | 110 | 0.17 | 73 | 7.1 | 109 | 0.12 | 68 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 25 | 110 | 0.38 | 76 | 12.3 | 110 | 0.19 | 74 | 7.9 | 109 | 0.13 | 70 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 27 | 110 | 0.41 | 76 | 13.3 | 110 | 0.21 | 74 | 8.6 | 110 | 0.14 | 70 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 30 | 110 | 0.46 | 76 | 15.2 | 110 | 0.23 | 75 | 9.8 | 110 | 0.16 | 72 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 35 | 105 | 0.51 | 76 | 17.4 | 110 | 0.27 | 75 | 11.2 | 110 | 0.18 | 73 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 38 | 101 | 0.53 | 76 | 19.1 | 110 | 0.29 | 75 | 12.3 | 110 | 0.19 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 41 | 99 | 0.56 | 76 | 20 | 110 | 0.31 | 75 | 13.1 | 110 | 0.21 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 46 | 95 | 0.61 | 75 | 23 | 110 | 0.35 | 76 | 14.8 | 110 | 0.23 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 53 | 90 | 0.67 | 75 | 27 | 110 | 0.41 | 76 | 17.1 | 110 | 0.26 | 75 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 56 | 105 | 0.69 | 90 | 28 | 102 | 0.34 | 87 | 18 | 100 | 0.22 | 84 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 65 | 106 | 0.80 | 90 | 32 | 103 | 0.39 | 88 | 21 | 101 | 0.26 | 86 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 71 | 106 | 0.88 | 90 | 36 | 103 | 0.44 | 89 | 23 | 101 | 0.28 | 86 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 83 | 107 | 1.00 | 90 | 42 | 104 | 0.51 | 89 | 27 | 102 | 0.33 | 87 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 86 | 92 | 0.91 | 92 | 43 | 90 | 0.45 | 90 | 28 | 88 | 0.30 | 87 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 99 | 93 | 1.10 | 92 | 49 | 90 | 0.51 | 90 | 32 | 89 | 0.34 | 88 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 109 | 93 | 1.20 | 92 | 54 | 90 | 0.57 | 91 | 35 | 89 | 0.37 | 89 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 127 | 94 | 1.40 | 92 | 63 | 91 | 0.66 | 91 | 41 | 89 | 0.43 | 89 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 140 | 94 | 1.50 | 92 | 70 | 91 | 0.74 | 91 | 45 | 90 | 0.47 | 90 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 159 | 93 | 1.7* | 92 | 80 | 92 | 0.85 | 92 | 51 | 90 | 0.54 | 90 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 178 | 89 | 1.8* | 92 | 89 | 92 | 0.95 | 92 | 57 | 91 | 0.60 | 91 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 200 | 86 | 2.0* | 92 | 100 | 93 | 1.10 | 92 | 64 | 91 | 0.67 | 91 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 217 | 83 | 2.1* | 92 | 108 | 93 | 1.20 | 92 | 70 | 91 | 0.74 | 91 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 248 | 79 | 2.3* | 92 | 124 | 94 | 1.30 | 92 | 80 | 92 | 0.85 | 91 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 282 | 74 | 2.4* | 91 | 141 | 94 | 1.50 | 92 | 91 | 92 | 0.97 | 91 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 311 | 71 | 2.6* | 92 | 156 | 90 | 1.6* | 92 | 100 | 93 | 1.10 | 92 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 331 | 70 | 2.7* | 91 | 165 | 88 | 1.7* | 92 | 106 | 93 | 1.10 | 92 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 375 | 66 | 2.8* | 91 | 187 | 83 | 1.8* | 92 | 120 | 93 | 1.30 | 92 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 432 | 62 | 3.1* | 91 | 216 | 78 | 1.9* | 92 | 139 | 91 | 1.40 | 92 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | |
|-----------------------|---------------------|-------------------------------|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | |
| Adapter size | K4 | B to H | | | 4 |
| | K2 | D to H | | | 2 |
| | KS | A to N | | | 1 |
| | K5 | A to D | | | 5 |
| | K3 | A to D | | | 3 |
| | A/AZ* | D to H | | | 9 |
| Adapter type | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Selection and ordering data

| i | $n_{\text{mot}} = 700 \text{ rpm}$ | | | | $n_{\text{mot}} = 500 \text{ rpm}$ | | | | $n_{\text{mot}} = 100 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.29 | | | | | | | | | | | | | |
| 265.20 | 2.6 | 104 | <0.06 | 57 | 1.9 | 103 | <0.06 | 54 | 0.38 | 95 | <0.06 | 47 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 3 | 105 | 0.06 | 58 | 2.2 | 104 | <0.06 | 55 | 0.43 | 96 | <0.06 | 48 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 3.3 | 105 | 0.06 | 59 | 2.4 | 104 | <0.06 | 56 | 0.48 | 97 | <0.06 | 48 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 3.9 | 106 | 0.07 | 61 | 2.8 | 105 | <0.06 | 57 | 0.56 | 97 | <0.06 | 48 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 4.3 | 107 | 0.08 | 62 | 3.1 | 105 | 0.06 | 58 | 0.61 | 98 | <0.06 | 48 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 4.9 | 107 | 0.09 | 64 | 3.5 | 106 | 0.07 | 59 | 0.70 | 98 | <0.06 | 48 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 5.5 | 108 | 0.10 | 65 | 3.9 | 106 | 0.07 | 61 | 0.78 | 99 | <0.06 | 49 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 6.2 | 108 | 0.11 | 66 | 4.4 | 107 | 0.08 | 62 | 0.88 | 99 | <0.06 | 49 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 6.7 | 109 | 0.11 | 67 | 4.8 | 107 | 0.09 | 63 | 0.95 | 100 | <0.06 | 49 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 7.6 | 109 | 0.13 | 69 | 5.4 | 108 | 0.09 | 65 | 1.1 | 100 | <0.06 | 50 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 8.7 | 110 | 0.14 | 70 | 6.2 | 108 | 0.11 | 66 | 1.2 | 101 | <0.06 | 50 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 9.6 | 110 | 0.16 | 71 | 6.8 | 109 | 0.12 | 67 | 1.4 | 101 | <0.06 | 51 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 10.2 | 110 | 0.16 | 72 | 7.3 | 109 | 0.12 | 68 | 1.5 | 102 | <0.06 | 51 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 11.5 | 110 | 0.18 | 73 | 8.2 | 110 | 0.14 | 70 | 1.6 | 102 | <0.06 | 52 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 13.3 | 110 | 0.21 | 74 | 9.5 | 110 | 0.15 | 71 | 1.9 | 103 | <0.06 | 53 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 14.0 | 99 | 0.18 | 83 | 10.0 | 98 | 0.13 | 80 | 2.0 | 91 | <0.06 | 73 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 16.2 | 100 | 0.20 | 84 | 11.6 | 98 | 0.15 | 81 | 2.3 | 91 | <0.06 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 17.8 | 100 | 0.22 | 84 | 12.7 | 99 | 0.16 | 82 | 2.5 | 92 | <0.06 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 21 | 101 | 0.26 | 85 | 14.8 | 99 | 0.19 | 83 | 3.0 | 92 | <0.06 | 74 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 21 | 87 | 0.22 | 86 | 15.3 | 86 | 0.17 | 84 | 3.1 | 80 | <0.06 | 77 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 25 | 88 | 0.27 | 87 | 17.7 | 86 | 0.19 | 84 | 3.5 | 80 | <0.06 | 78 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 27 | 88 | 0.29 | 87 | 19.4 | 87 | 0.21 | 85 | 3.9 | 81 | <0.06 | 78 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 32 | 89 | 0.34 | 88 | 23 | 87 | 0.25 | 86 | 4.5 | 81 | <0.06 | 78 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 35 | 89 | 0.37 | 89 | 25 | 88 | 0.27 | 87 | 5.0 | 82 | <0.06 | 79 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 40 | 89 | 0.42 | 89 | 28 | 88 | 0.30 | 87 | 5.7 | 82 | 0.06 | 79 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 45 | 90 | 0.47 | 90 | 32 | 89 | 0.34 | 88 | 6.4 | 83 | 0.07 | 79 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 50 | 90 | 0.53 | 90 | 36 | 89 | 0.38 | 89 | 7.1 | 83 | 0.08 | 80 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 54 | 90 | 0.57 | 90 | 39 | 89 | 0.41 | 89 | 7.7 | 83 | 0.08 | 80 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 62 | 91 | 0.65 | 91 | 44 | 90 | 0.46 | 90 | 8.8 | 84 | 0.10 | 81 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 71 | 91 | 0.75 | 91 | 50 | 90 | 0.53 | 90 | 10.1 | 84 | 0.11 | 81 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 78 | 92 | 0.82 | 91 | 56 | 91 | 0.59 | 91 | 11.1 | 85 | 0.12 | 82 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 83 | 92 | 0.88 | 91 | 59 | 91 | 0.62 | 91 | 11.8 | 85 | 0.13 | 82 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 94 | 93 | 1.00 | 92 | 67 | 91 | 0.71 | 91 | 13.4 | 85 | 0.15 | 83 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 108 | 93 | 1.20 | 92 | 77 | 92 | 0.81 | 91 | 15.4 | 86 | 0.17 | 84 | 2KJ3601 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|---|--|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | |
| Adapter size | K4 | B to H | | | | | 4 | |
| | K2 | D to H | | | | | 2 | |
| | KS | A to N | | | | | 1 | |
| | K5 | A to D | | | | | 5 | |
| | K3 | A to D | | | | | 3 | |
| | A/AZ* | D to H | | | | | 9 | |
| Adapter type | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Helical worm gearboxes

Efficiencies

Selection and ordering data

| i | $n_{\text{mot}} = 2800 \text{ rpm}$ | | | | $n_{\text{mot}} = 1400 \text{ rpm}$ | | | | $n_{\text{mot}} = 900 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|---------------|-------------------------------------|--------------|------------------------|-------------|-------------------------------------|--------------|------------------------|-------------|------------------------------------|--------------|------------------------|-------------|---|
| | n_2 rpm | T_2N Nm | P_{mot} kW | η % | n_2 rpm | T_2N Nm | P_{mot} kW | η % | n_2 rpm | T_2N Nm | P_{mot} kW | η % | |
| C.39A | | | | | | | | | | | | | |
| 299.00 | 9.4 | 194 | 0.27 | 71 | 4.7 | 192 | 0.15 | 64 | 3.0 | 189 | 0.10 | 58 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 10.6 | 194 | 0.30 | 72 | 5.3 | 192 | 0.16 | 66 | 3.4 | 190 | 0.11 | 60 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 12.2 | 194 | 0.34 | 73 | 6.1 | 193 | 0.18 | 68 | 3.9 | 191 | 0.13 | 62 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 13.4 | 194 | 0.38 | 73 | 6.7 | 193 | 0.20 | 68 | 4.3 | 191 | 0.14 | 63 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 15.6 | 194 | 0.44 | 73 | 7.8 | 193 | 0.23 | 70 | 5.0 | 192 | 0.16 | 65 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 17.2 | 194 | 0.48 | 73 | 8.6 | 193 | 0.25 | 71 | 5.5 | 192 | 0.17 | 66 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 19.6 | 194 | 0.55 | 73 | 9.8 | 194 | 0.28 | 71 | 6.3 | 193 | 0.19 | 68 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 22 | 194 | 0.61 | 73 | 11 | 194 | 0.31 | 72 | 7.1 | 193 | 0.21 | 69 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 25 | 181 | 0.66 | 73 | 12.3 | 194 | 0.35 | 72 | 7.9 | 193 | 0.23 | 70 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 27 | 175 | 0.68 | 73 | 13.3 | 194 | 0.37 | 72 | 8.6 | 193 | 0.25 | 70 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 30 | 165 | 0.72 | 72 | 15.2 | 194 | 0.43 | 72 | 9.8 | 194 | 0.28 | 71 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 35 | 157 | 0.80 | 72 | 17.4 | 194 | 0.49 | 73 | 11.2 | 194 | 0.32 | 72 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 38 | 150 | 0.84 | 72 | 19.1 | 189 | 0.52 | 73 | 12.3 | 194 | 0.35 | 72 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 41 | 147 | 0.88 | 72 | 20 | 185 | 0.53 | 73 | 13.1 | 194 | 0.37 | 72 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 46 | 139 | 0.94 | 72 | 23 | 175 | 0.58 | 73 | 14.8 | 194 | 0.41 | 73 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 53 | 131 | 1.00 | 72 | 27 | 166 | 0.65 | 73 | 17.1 | 192 | 0.47 | 73 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 56 | 195 | 1.30 | 89 | 28 | 198 | 0.66 | 89 | 18 | 194 | 0.41 | 89 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 65 | 196 | 1.50 | 89 | 32 | 199 | 0.75 | 89 | 21 | 196 | 0.49 | 89 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 71 | 196 | 1.60 | 89 | 36 | 200 | 0.85 | 89 | 23 | 196 | 0.53 | 89 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 83 | 196 | 1.90 | 89 | 42 | 200 | 1.00 | 89 | 27 | 197 | 0.63 | 89 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 86 | 200 | 2.00 | 91 | 43 | 210 | 1.00 | 91 | 28 | 205 | 0.68 | 90 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 99 | 200 | 2.30 | 91 | 49 | 225 | 1.30 | 91 | 32 | 225 | 0.84 | 90 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 109 | 200 | 2.50 | 91 | 54 | 235 | 1.50 | 91 | 35 | 230 | 0.95 | 90 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 127 | 198 | 2.90 | 91 | 63 | 235 | 1.70 | 91 | 41 | 230 | 1.10 | 91 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 140 | 188 | 3.00 | 91 | 70 | 235 | 1.90 | 91 | 45 | 235 | 1.20 | 91 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 159 | 180 | 3.3* | 91 | 80 | 225 | 2.10 | 92 | 51 | 235 | 1.40 | 91 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 178 | 172 | 3.5* | 91 | 89 | 215 | 2.20 | 91 | 57 | 235 | 1.60 | 91 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 200 | 164 | 3.8* | 91 | 100 | 205 | 2.40 | 91 | 64 | 235 | 1.70 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 217 | 159 | 4.0* | 91 | 108 | 200 | 2.50 | 92 | 70 | 230 | 1.90 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 248 | 152 | 4.3* | 91 | 124 | 192 | 2.70 | 91 | 80 | 220 | 2.00 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 282 | 145 | 4.7* | 91 | 141 | 183 | 3.00 | 91 | 91 | 210 | 2.20 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 311 | 137 | 4.9* | 91 | 156 | 177 | 3.2* | 91 | 100 | 205 | 2.30 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 331 | 129 | 4.9* | 91 | 165 | 173 | 3.3* | 91 | 106 | 200 | 2.40 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 375 | 114 | 4.9* | 91 | 187 | 166 | 3.6* | 91 | 120 | 192 | 2.60 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 432 | 99 | 4.9* | 91 | 216 | 157 | 3.9* | 91 | 139 | 182 | 2.90 | 92 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | |
|-----------------------|---------------------|-------------------------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | K4 | B to H |
| | K2 | D to H |
| | KS | A to N |
| | K5 | A to D |
| | K3 | A to D |
| | A/AZ* | D to H |
| Adapter type | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Selection and ordering data

| i | $n_{\text{mot}} = 700 \text{ rpm}$ | | | | $n_{\text{mot}} = 500 \text{ rpm}$ | | | | $n_{\text{mot}} = 100 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|--------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.39A | | | | | | | | | | | | | |
| 299.00 | 2.3 | 187 | 0.08 | 55 | 1.7 | 184 | 0.06 | 52 | 0.33 | 170 | <0.06 | 44 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 2.6 | 188 | 0.09 | 57 | 1.9 | 185 | 0.07 | 53 | 0.38 | 167 | <0.06 | 44 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 3.0 | 189 | 0.10 | 58 | 2.2 | 186 | 0.08 | 54 | 0.43 | 164 | <0.06 | 44 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 3.3 | 190 | 0.11 | 59 | 2.4 | 187 | 0.09 | 55 | 0.48 | 162 | <0.06 | 44 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 3.9 | 191 | 0.13 | 62 | 2.8 | 188 | 0.10 | 57 | 0.56 | 160 | <0.06 | 45 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 4.3 | 191 | 0.14 | 63 | 3.1 | 189 | 0.11 | 58 | 0.61 | 160 | <0.06 | 45 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 4.9 | 192 | 0.15 | 64 | 3.5 | 190 | 0.12 | 60 | 0.70 | 160 | <0.06 | 46 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 5.5 | 192 | 0.17 | 66 | 3.9 | 191 | 0.13 | 61 | 0.78 | 161 | <0.06 | 46 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 6.2 | 193 | 0.19 | 67 | 4.4 | 191 | 0.14 | 63 | 0.88 | 162 | <0.06 | 47 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 6.7 | 193 | 0.20 | 68 | 4.8 | 192 | 0.15 | 64 | 0.95 | 163 | <0.06 | 47 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 7.6 | 193 | 0.22 | 69 | 5.4 | 192 | 0.17 | 66 | 1.1 | 166 | <0.06 | 48 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 8.7 | 193 | 0.25 | 70 | 6.2 | 193 | 0.19 | 67 | 1.2 | 168 | <0.06 | 49 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 9.6 | 194 | 0.28 | 71 | 6.8 | 193 | 0.20 | 68 | 1.4 | 170 | <0.06 | 49 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 10.2 | 194 | 0.29 | 71 | 7.3 | 193 | 0.21 | 69 | 1.5 | 172 | <0.06 | 50 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 11.5 | 194 | 0.32 | 72 | 8.2 | 193 | 0.24 | 70 | 1.6 | 176 | 0.06 | 51 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 13.3 | 194 | 0.37 | 73 | 9.5 | 194 | 0.27 | 71 | 1.9 | 180 | 0.07 | 53 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 14.0 | 192 | 0.32 | 88 | 10.0 | 190 | 0.23 | 86 | 2.0 | 177 | 0.06 | 66 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 16.2 | 194 | 0.37 | 88 | 11.6 | 191 | 0.27 | 87 | 2.3 | 178 | 0.06 | 67 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 17.8 | 194 | 0.41 | 88 | 12.7 | 192 | 0.29 | 88 | 2.5 | 179 | 0.07 | 68 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 21 | 196 | 0.49 | 89 | 14.8 | 193 | 0.34 | 88 | 3.0 | 180 | 0.08 | 71 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ R1 |
| 32.64 | 21 | 200 | 0.51 | 88 | 15.3 | 197 | 0.37 | 86 | 3.1 | 174 | 0.08 | 76 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 28.32 | 25 | 220 | 0.66 | 89 | 17.7 | 215 | 0.47 | 87 | 3.5 | 192 | 0.09 | 76 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ P1 |
| 25.75 | 27 | 230 | 0.73 | 89 | 19.4 | 225 | 0.53 | 87 | 3.9 | 210 | 0.11 | 77 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ N1 |
| 22.08 | 32 | 230 | 0.86 | 90 | 23 | 225 | 0.62 | 88 | 4.5 | 210 | 0.13 | 77 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ M1 |
| 20.07 | 35 | 230 | 0.94 | 90 | 25 | 230 | 0.68 | 89 | 5.0 | 215 | 0.15 | 78 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.60 | 40 | 230 | 1.10 | 91 | 28 | 230 | 0.76 | 90 | 5.7 | 215 | 0.16 | 79 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.71 | 45 | 235 | 1.20 | 91 | 32 | 230 | 0.86 | 90 | 6.4 | 215 | 0.18 | 79 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ J1 |
| 14.00 | 50 | 235 | 1.40 | 91 | 36 | 230 | 0.97 | 91 | 7.1 | 215 | 0.20 | 80 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.92 | 54 | 235 | 1.50 | 92 | 39 | 230 | 1.10 | 91 | 7.7 | 215 | 0.22 | 81 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.31 | 62 | 235 | 1.70 | 92 | 44 | 235 | 1.20 | 91 | 8.8 | 220 | 0.25 | 82 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.92 | 71 | 230 | 1.90 | 92 | 50 | 235 | 1.40 | 91 | 10.1 | 220 | 0.28 | 83 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 78 | 220 | 2.00 | 92 | 56 | 235 | 1.50 | 92 | 11.1 | 220 | 0.31 | 83 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 83 | 215 | 2.10 | 92 | 59 | 235 | 1.60 | 92 | 11.8 | 220 | 0.33 | 84 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 94 | 205 | 2.30 | 92 | 67 | 230 | 1.80 | 92 | 13.4 | 220 | 0.37 | 85 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 108 | 198 | 2.50 | 92 | 77 | 220 | 2.00 | 92 | 15.4 | 225 | 0.42 | 86 | 2KJ3642 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | |
| Adapter size | K4 | B to H | | | | | | | | | | | 4 |
| | K2 | D to H | | | | | | | | | | | 2 |
| | KS | A to N | | | | | | | | | | | 1 |
| | K5 | A to D | | | | | | | | | | | 5 |
| | K3 | A to D | | | | | | | | | | | 3 |
| | A/AZ* | D to H | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Helical worm gearboxes

Efficiencies

Selection and ordering data

| i | $n_{\text{mot}} = 2800 \text{ rpm}$ | | | | $n_{\text{mot}} = 1400 \text{ rpm}$ | | | | $n_{\text{mot}} = 900 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|-------------------------------------|--------------|------------------------|-------------|-------------------------------------|--------------|------------------------|-------------|------------------------------------|--------------|------------------------|-------------|---|
| | n_2 rpm | T_2N Nm | P_{mot} kW | η % | n_2 rpm | T_2N Nm | P_{mot} kW | η % | n_2 rpm | T_2N Nm | P_{mot} kW | η % | |
| C.49 | | | | | | | | | | | | | |
| 299.00 | 9.4 | 355 | 0.48 | 73 | 4.7 | 350 | 0.26 | 67 | 3.0 | 345 | 0.18 | 61 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 10.6 | 355 | 0.54 | 74 | 5.3 | 350 | 0.29 | 69 | 3.4 | 350 | 0.20 | 63 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 12.2 | 355 | 0.62 | 74 | 6.1 | 350 | 0.32 | 70 | 3.9 | 350 | 0.22 | 65 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 13.4 | 355 | 0.68 | 74 | 6.7 | 355 | 0.35 | 71 | 4.3 | 350 | 0.24 | 66 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 15.6 | 355 | 0.79 | 74 | 7.8 | 355 | 0.40 | 72 | 5.0 | 350 | 0.27 | 68 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 17.2 | 340 | 0.84 | 74 | 8.6 | 355 | 0.44 | 73 | 5.5 | 350 | 0.30 | 69 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 19.6 | 315 | 0.89 | 74 | 9.8 | 355 | 0.50 | 73 | 6.3 | 355 | 0.33 | 70 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 22 | 300 | 0.95 | 73 | 11.0 | 355 | 0.56 | 73 | 7.1 | 355 | 0.37 | 71 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 25 | 285 | 1.00 | 73 | 12.3 | 355 | 0.62 | 74 | 7.9 | 355 | 0.41 | 72 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 27 | 275 | 1.10 | 73 | 13.3 | 350 | 0.66 | 74 | 8.6 | 355 | 0.44 | 72 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 30 | 260 | 1.10 | 73 | 15.2 | 330 | 0.72 | 74 | 9.8 | 355 | 0.50 | 73 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 35 | 250 | 1.30 | 73 | 17.4 | 315 | 0.78 | 74 | 11.2 | 355 | 0.57 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 38 | 240 | 1.30 | 73 | 19.1 | 300 | 0.82 | 74 | 12.3 | 345 | 0.61 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 41 | 230 | 1.40 | 73 | 20 | 295 | 0.84 | 74 | 13.1 | 340 | 0.63 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 46 | 220 | 1.50 | 73 | 23 | 280 | 0.92 | 74 | 14.8 | 320 | 0.68 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 53 | 210 | 1.60 | 73 | 27 | 265 | 1.00 | 74 | 17.1 | 305 | 0.74 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 56 | 310 | 2.10 | 90 | 28 | 310 | 1.00 | 89 | 18 | 305 | 0.66 | 87 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 65 | 340 | 2.60 | 90 | 32 | 340 | 1.30 | 89 | 21 | 335 | 0.85 | 88 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 71 | 335 | 2.80 | 89 | 36 | 395 | 1.70 | 89 | 23 | 395 | 1.10 | 88 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 83 | 315 | 3.10 | 89 | 42 | 365 | 1.80 | 90 | 27 | 365 | 1.20 | 89 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ R1 |
| 30.67 | 91 | 300 | 3.20 | 89 | 46 | 380 | 2.10 | 89 | 29 | 400 | 1.40 | 89 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 26.89 | 104 | 285 | 3.50 | 89 | 52 | 360 | 2.20 | 90 | 33 | 400 | 1.50 | 89 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ P1 |
| 24.00 | 117 | 275 | 3.80 | 89 | 58 | 345 | 2.40 | 90 | 38 | 400 | 1.80 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N1 |
| 21.39 | 131 | 260 | 4.1* | 89 | 65 | 330 | 2.50 | 90 | 42 | 385 | 1.90 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M1 |
| 19.74 | 142 | 255 | 4.3* | 89 | 71 | 320 | 2.70 | 90 | 46 | 370 | 2.00 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.29 | 162 | 240 | 4.6* | 89 | 81 | 305 | 2.90 | 90 | 52 | 355 | 2.20 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.16 | 185 | 230 | 5.1* | 89 | 92 | 290 | 3.20 | 90 | 59 | 335 | 2.30 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J1 |
| 13.75 | 204 | 220 | 5.4* | 89 | 102 | 280 | 3.40 | 90 | 65 | 325 | 2.50 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.94 | 216 | 210 | 5.3* | 89 | 108 | 275 | 3.50 | 90 | 70 | 315 | 2.60 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.41 | 245 | 185 | 5.4* | 89 | 123 | 260 | 3.80 | 90 | 79 | 305 | 2.80 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.90 | 283 | 161 | 5.4* | 89 | 141 | 250 | 4.1* | 89 | 91 | 290 | 3.10 | 90 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 311 | 185 | 6.6* | 91 | 156 | 260 | 4.6* | 92 | 100 | 260 | 3.00 | 92 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 331 | 174 | 6.6* | 91 | 165 | 260 | 4.9* | 92 | 106 | 260 | 3.20 | 92 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 375 | 153 | 6.6* | 91 | 187 | 250 | 5.3* | 92 | 120 | 260 | 3.60 | 92 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 432 | 133 | 6.6* | 91 | 216 | 235 | 5.8* | 92 | 139 | 260 | 4.1* | 92 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | |
| Adapter size | K4 | B to H | | | | | 4 |
| | K2 | D to H | | | | | 2 |
| | KS | A to N | | | | | 1 |
| | K5 | A to D | | | | | 5 |
| | K3 | A to D | | | | | 3 |
| | A/AZ* | D to H | | | | | 9 |
| Adapter type | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Selection and ordering data

| i | $n_{\text{mot}} = 700 \text{ rpm}$ | | | | $n_{\text{mot}} = 500 \text{ rpm}$ | | | | $n_{\text{mot}} = 100 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.49 | | | | | | | | | | | | | |
| 299.00 | 2.3 | 340 | 0.14 | 58 | 1.7 | 315 | 0.10 | 54 | 0.33 | 260 | <0.06 | 45 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N2 |
| 265.20 | 2.6 | 340 | 0.16 | 60 | 1.9 | 315 | 0.11 | 55 | 0.38 | 255 | <0.06 | 45 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M2 |
| 230.10 | 3.0 | 345 | 0.18 | 61 | 2.2 | 320 | 0.13 | 57 | 0.43 | 255 | <0.06 | 45 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L2 |
| 209.18 | 3.3 | 345 | 0.19 | 63 | 2.4 | 320 | 0.14 | 58 | 0.48 | 255 | <0.06 | 45 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K2 |
| 179.40 | 3.9 | 350 | 0.22 | 65 | 2.8 | 330 | 0.16 | 60 | 0.56 | 255 | <0.06 | 46 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J2 |
| 163.09 | 4.3 | 350 | 0.24 | 66 | 3.1 | 330 | 0.18 | 61 | 0.61 | 255 | <0.06 | 46 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H2 |
| 143.00 | 4.9 | 350 | 0.27 | 68 | 3.5 | 340 | 0.20 | 63 | 0.70 | 255 | <0.06 | 47 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G2 |
| 127.64 | 5.5 | 350 | 0.30 | 69 | 3.9 | 350 | 0.22 | 65 | 0.78 | 260 | <0.06 | 47 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F2 |
| 113.75 | 6.2 | 355 | 0.33 | 70 | 4.4 | 350 | 0.25 | 66 | 0.88 | 260 | <0.06 | 48 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E2 |
| 105.00 | 6.7 | 355 | 0.35 | 71 | 4.8 | 350 | 0.26 | 67 | 0.95 | 265 | <0.06 | 49 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D2 |
| 91.93 | 7.6 | 355 | 0.39 | 72 | 5.4 | 350 | 0.29 | 69 | 1.1 | 270 | 0.06 | 50 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C2 |
| 80.60 | 8.7 | 355 | 0.45 | 73 | 6.2 | 355 | 0.33 | 70 | 1.2 | 275 | 0.07 | 51 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B2 |
| 73.12 | 9.6 | 355 | 0.49 | 73 | 6.8 | 355 | 0.36 | 71 | 1.4 | 280 | 0.08 | 52 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A2 |
| 68.82 | 10.2 | 355 | 0.52 | 73 | 7.3 | 355 | 0.38 | 72 | 1.5 | 280 | 0.08 | 52 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ X1 |
| 60.67 | 11.5 | 350 | 0.57 | 74 | 8.2 | 355 | 0.42 | 73 | 1.6 | 285 | 0.09 | 54 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ W1 |
| 52.65 | 13.3 | 330 | 0.63 | 74 | 9.5 | 355 | 0.48 | 73 | 1.9 | 295 | 0.11 | 55 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ V1 |
| 49.87 | 14.0 | 295 | 0.51 | 86 | 10.0 | 285 | 0.37 | 83 | 2.0 | 245 | 0.07 | 71 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ U1 |
| 43.27 | 16.2 | 330 | 0.65 | 87 | 11.6 | 320 | 0.47 | 84 | 2.3 | 275 | 0.09 | 71 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ T1 |
| 39.33 | 17.8 | 390 | 0.83 | 87 | 12.7 | 375 | 0.60 | 85 | 2.5 | 320 | 0.12 | 72 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ S1 |
| 33.73 | 21 | 360 | 0.91 | 88 | 14.8 | 355 | 0.64 | 86 | 3.0 | 300 | 0.13 | 73 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ R1 |
| 30.67 | 23 | 395 | 1.10 | 88 | 16.3 | 385 | 0.77 | 87 | 3.3 | 330 | 0.16 | 73 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 26.89 | 26 | 395 | 1.20 | 89 | 18.6 | 390 | 0.87 | 88 | 3.7 | 330 | 0.17 | 74 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ P1 |
| 24.00 | 29 | 395 | 1.40 | 89 | 21 | 390 | 0.99 | 88 | 4.2 | 335 | 0.20 | 75 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ N1 |
| 21.39 | 33 | 395 | 1.50 | 89 | 23 | 395 | 1.10 | 89 | 4.7 | 340 | 0.22 | 76 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ M1 |
| 19.74 | 35 | 400 | 1.60 | 90 | 25 | 395 | 1.20 | 89 | 5.1 | 340 | 0.24 | 77 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ L1 |
| 17.29 | 40 | 385 | 1.80 | 90 | 29 | 395 | 1.30 | 89 | 5.8 | 345 | 0.27 | 78 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ K1 |
| 15.16 | 46 | 365 | 2.00 | 90 | 33 | 390 | 1.50 | 90 | 6.6 | 345 | 0.30 | 79 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ J1 |
| 13.75 | 51 | 355 | 2.10 | 90 | 36 | 390 | 1.60 | 90 | 7.3 | 345 | 0.33 | 80 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ H1 |
| 12.94 | 54 | 345 | 2.20 | 90 | 39 | 385 | 1.80 | 90 | 7.7 | 350 | 0.35 | 80 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.41 | 61 | 330 | 2.40 | 90 | 44 | 370 | 1.90 | 90 | 8.8 | 355 | 0.40 | 82 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ F1 |
| 9.90 | 71 | 315 | 2.60 | 90 | 51 | 350 | 2.10 | 90 | 10.1 | 360 | 0.46 | 83 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.00 | 78 | 260 | 2.30 | 92 | 56 | 255 | 1.70 | 91 | 11.1 | 235 | 0.33 | 84 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.47 | 83 | 260 | 2.50 | 92 | 59 | 260 | 1.80 | 91 | 11.8 | 240 | 0.35 | 84 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.47 | 94 | 260 | 2.80 | 92 | 67 | 260 | 2.00 | 92 | 13.4 | 240 | 0.40 | 85 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.48 | 108 | 260 | 3.20 | 92 | 77 | 260 | 2.30 | 92 | 15.4 | 245 | 0.46 | 87 | 2KJ3603 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | |
|-----------------------|--------------|---------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | K4 | B to H |
| | K2 | D to H |
| | KS | A to N |
| | K5 | A to D |
| | K3 | A to D |
| | A/AZ* | D to H |
| Adapter type | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Helical worm gearboxes

Efficiencies

Selection and ordering data

| i | $n_{\text{mot}} = 2800 \text{ rpm}$ | | | | $n_{\text{mot}} = 1400 \text{ rpm}$ | | | | $n_{\text{mot}} = 900 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|-------------------------------------|----------------|------------------------|-------------|-------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.69 | | | | | | | | | | | | | |
| 360.00 | 7.8 | 575 | 0.65 | 73 | 3.9 | 680 | 0.40 | 69 | 2.5 | 645 | 0.27 | 63 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M2 |
| 319.80 | 8.8 | 570 | 0.72 | 73 | 4.4 | 680 | 0.45 | 70 | 2.8 | 655 | 0.30 | 65 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L2 |
| 280.80 | 10.0 | 560 | 0.81 | 73 | 5.0 | 680 | 0.50 | 71 | 3.2 | 660 | 0.33 | 66 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K2 |
| 255.27 | 11.0 | 555 | 0.88 | 73 | 5.5 | 680 | 0.55 | 72 | 3.5 | 665 | 0.36 | 67 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J2 |
| 218.40 | 12.8 | 530 | 0.97 | 74 | 6.4 | 655 | 0.60 | 73 | 4.1 | 675 | 0.42 | 70 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H2 |
| 198.55 | 14.1 | 510 | 1.00 | 73 | 7.1 | 635 | 0.65 | 73 | 4.5 | 680 | 0.46 | 70 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G2 |
| 175.50 | 16.0 | 485 | 1.10 | 73 | 8.0 | 610 | 0.70 | 74 | 5.1 | 685 | 0.51 | 72 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F2 |
| 159.55 | 17.5 | 470 | 1.20 | 73 | 8.8 | 590 | 0.74 | 74 | 5.6 | 670 | 0.54 | 72 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E2 |
| 139.75 | 20 | 440 | 1.30 | 73 | 10.0 | 550 | 0.79 | 74 | 6.4 | 630 | 0.58 | 73 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D2 |
| 129.00 | 22 | 425 | 1.30 | 74 | 10.9 | 535 | 0.83 | 74 | 7.0 | 610 | 0.61 | 73 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C2 |
| 114.21 | 25 | 405 | 1.40 | 73 | 12.3 | 510 | 0.89 | 74 | 7.9 | 585 | 0.66 | 74 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B2 |
| 102.50 | 27 | 555 | 1.80 | 87 | 13.7 | 645 | 1.10 | 86 | 8.8 | 625 | 0.69 | 84 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A2 |
| 90.00 | 31 | 555 | 2.10 | 87 | 15.6 | 665 | 1.30 | 86 | 10.0 | 650 | 0.81 | 84 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ X1 |
| 81.82 | 34 | 545 | 2.20 | 87 | 17.1 | 680 | 1.40 | 87 | 11.0 | 775 | 1.10 | 85 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ W1 |
| 70.00 | 40 | 515 | 2.50 | 87 | 20 | 650 | 1.60 | 87 | 12.9 | 680 | 1.10 | 86 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ V1 |
| 63.64 | 44 | 500 | 2.70 | 87 | 22 | 630 | 1.70 | 87 | 14.1 | 720 | 1.20 | 86 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ U1 |
| 56.25 | 50 | 480 | 2.90 | 87 | 25 | 605 | 1.80 | 87 | 16.0 | 695 | 1.30 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ T1 |
| 51.14 | 55 | 455 | 3.00 | 87 | 27 | 575 | 1.90 | 87 | 17.6 | 660 | 1.40 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ S1 |
| 44.79 | 63 | 430 | 3.30 | 87 | 31 | 545 | 2.00 | 87 | 20 | 630 | 1.50 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ R1 |
| 41.35 | 68 | 420 | 3.40 | 87 | 34 | 525 | 2.20 | 87 | 22 | 610 | 1.60 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 36.61 | 76 | 400 | 3.70 | 87 | 38 | 505 | 2.30 | 87 | 25 | 580 | 1.80 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.00 | 93 | 435 | 4.70 | 90 | 47 | 545 | 3.00 | 90 | 30 | 560 | 2.00 | 90 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ N1 |
| 26.28 | 107 | 410 | 5.10 | 90 | 53 | 520 | 3.20 | 90 | 34 | 550 | 2.20 | 90 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M1 |
| 24.26 | 115 | 400 | 5.30 | 90 | 58 | 500 | 3.40 | 90 | 37 | 545 | 2.30 | 91 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.48 | 130 | 380 | 5.8* | 90 | 65 | 480 | 3.60 | 90 | 42 | 540 | 2.60 | 91 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K1 |
| 17.88 | 157 | 355 | 6.5* | 90 | 78 | 450 | 4.10 | 90 | 50 | 520 | 3.00 | 91 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J1 |
| 15.88 | 176 | 365 | 7.3* | 92 | 88 | 365 | 3.70 | 92 | 57 | 365 | 2.40 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H1 |
| 14.06 | 199 | 360 | 8.2* | 92 | 100 | 360 | 4.10 | 92 | 64 | 360 | 2.60 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.70 | 239 | 345 | 9.5* | 92 | 120 | 365 | 5.00 | 92 | 77 | 365 | 3.20 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F1 |
| 11.01 | 254 | 325 | 9.5* | 92 | 127 | 365 | 5.40 | 92 | 82 | 365 | 3.50 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.87 | 284 | 290 | 9.5* | 92 | 142 | 365 | 6.0* | 92 | 91 | 365 | 3.80 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.40 | 333 | 250 | 9.6* | 91 | 167 | 370 | 7.1* | 92 | 107 | 370 | 4.50 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.20 | 389 | 210 | 9.6* | 91 | 194 | 365 | 8.2* | 92 | 125 | 365 | 5.30 | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.20 | 452 | 184 | 9.6* | 91 | 226 | 365 | 9.4* | 92 | 145 | 365 | 6.1* | 92 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | |
| Adapter size | K4 | B to H | | | | | | | | | | 4 |
| | K2 | D to H | | | | | | | | | | 2 |
| | KS | A to N | | | | | | | | | | 1 |
| | K5 | A to D | | | | | | | | | | 5 |
| | K3 | A to D | | | | | | | | | | 3 |
| | A/AZ* | D to H | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | |

* $P_{\text{mot max}} = 1,5 \text{ kW}$

Selection and ordering data

| i | $n_{\text{mot}} = 700 \text{ rpm}$ | | | | $n_{\text{mot}} = 500 \text{ rpm}$ | | | | $n_{\text{mot}} = 100 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|---------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.69 | | | | | | | | | | | | | |
| 360.00 | 1.9 | 610 | 0.20 | 60 | 1.4 | 570 | 0.15 | 55 | 0.28 | 460 | <0.06 | 45 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M2 |
| 319.80 | 2.2 | 620 | 0.23 | 61 | 1.6 | 575 | 0.17 | 57 | 0.31 | 460 | <0.06 | 45 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L2 |
| 280.80 | 2.5 | 625 | 0.26 | 63 | 1.8 | 580 | 0.19 | 58 | 0.36 | 455 | <0.06 | 45 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K2 |
| 255.27 | 2.7 | 635 | 0.28 | 64 | 2.0 | 590 | 0.21 | 59 | 0.39 | 455 | <0.06 | 45 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J2 |
| 218.40 | 3.2 | 645 | 0.33 | 66 | 2.3 | 605 | 0.24 | 62 | 0.46 | 460 | <0.06 | 46 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H2 |
| 198.55 | 3.5 | 650 | 0.35 | 68 | 2.5 | 610 | 0.25 | 63 | 0.50 | 455 | <0.06 | 47 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G2 |
| 175.50 | 4.0 | 665 | 0.40 | 69 | 2.8 | 625 | 0.28 | 65 | 0.57 | 460 | 0.06 | 48 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F2 |
| 159.55 | 4.4 | 670 | 0.44 | 70 | 3.1 | 635 | 0.31 | 66 | 0.63 | 465 | 0.06 | 48 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E2 |
| 139.75 | 5.0 | 670 | 0.49 | 72 | 3.6 | 650 | 0.36 | 68 | 0.72 | 475 | 0.07 | 49 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D2 |
| 129.00 | 5.4 | 655 | 0.51 | 72 | 3.9 | 660 | 0.39 | 69 | 0.78 | 480 | 0.08 | 50 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C2 |
| 114.21 | 6.1 | 630 | 0.55 | 73 | 4.4 | 670 | 0.44 | 71 | 0.88 | 490 | 0.09 | 51 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B2 |
| 102.50 | 6.8 | 610 | 0.54 | 81 | 4.9 | 585 | 0.39 | 78 | 0.98 | 500 | 0.08 | 67 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A2 |
| 90.00 | 7.8 | 635 | 0.63 | 82 | 5.6 | 610 | 0.45 | 79 | 1.1 | 515 | 0.09 | 67 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ X1 |
| 81.82 | 8.6 | 800 | 0.87 | 84 | 6.1 | 775 | 0.62 | 80 | 1.2 | 650 | 0.12 | 68 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ W1 |
| 70.00 | 10.0 | 665 | 0.83 | 84 | 7.1 | 645 | 0.59 | 82 | 1.4 | 540 | 0.12 | 68 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ V1 |
| 63.64 | 11.0 | 775 | 1.00 | 85 | 7.9 | 830 | 0.83 | 83 | 1.6 | 695 | 0.17 | 69 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ U1 |
| 56.25 | 12.4 | 750 | 1.10 | 86 | 8.9 | 810 | 0.90 | 84 | 1.8 | 675 | 0.18 | 70 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ T1 |
| 51.14 | 13.7 | 715 | 1.20 | 86 | 9.8 | 785 | 0.95 | 85 | 2.0 | 750 | 0.22 | 71 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ S1 |
| 44.79 | 15.6 | 680 | 1.30 | 87 | 11.2 | 750 | 1.00 | 86 | 2.2 | 760 | 0.24 | 72 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ R1 |
| 41.35 | 16.9 | 660 | 1.30 | 87 | 12.1 | 730 | 1.10 | 86 | 2.4 | 765 | 0.27 | 72 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 36.61 | 19.1 | 630 | 1.50 | 87 | 13.7 | 700 | 1.20 | 87 | 2.7 | 770 | 0.30 | 73 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.00 | 23 | 560 | 1.50 | 90 | 16.7 | 555 | 1.10 | 89 | 3.3 | 480 | 0.22 | 77 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ N1 |
| 26.28 | 27 | 550 | 1.70 | 90 | 19 | 545 | 1.20 | 90 | 3.8 | 480 | 0.24 | 78 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ M1 |
| 24.26 | 29 | 545 | 1.80 | 90 | 21 | 540 | 1.30 | 90 | 4.1 | 475 | 0.26 | 79 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.48 | 33 | 540 | 2.10 | 91 | 23 | 540 | 1.40 | 90 | 4.7 | 475 | 0.30 | 80 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ K1 |
| 17.88 | 39 | 545 | 2.50 | 91 | 28 | 545 | 1.80 | 91 | 5.6 | 490 | 0.35 | 82 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ J1 |
| 15.88 | 44 | 365 | 1.80 | 92 | 31 | 360 | 1.30 | 91 | 6.3 | 330 | 0.26 | 83 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ H1 |
| 14.06 | 50 | 360 | 2.10 | 92 | 36 | 355 | 1.50 | 92 | 7.1 | 330 | 0.29 | 84 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ G1 |
| 11.70 | 60 | 365 | 2.50 | 92 | 43 | 365 | 1.80 | 92 | 8.5 | 340 | 0.36 | 85 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ F1 |
| 11.01 | 64 | 365 | 2.70 | 92 | 45 | 365 | 1.90 | 92 | 9.1 | 340 | 0.38 | 86 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ E1 |
| 9.87 | 71 | 365 | 3.00 | 92 | 51 | 365 | 2.10 | 92 | 10.1 | 345 | 0.43 | 86 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ D1 |
| 8.40 | 83 | 370 | 3.50 | 92 | 60 | 370 | 2.50 | 92 | 11.9 | 350 | 0.50 | 87 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ C1 |
| 7.20 | 97 | 365 | 4.10 | 92 | 69 | 365 | 2.90 | 92 | 13.9 | 350 | 0.59 | 88 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.20 | 113 | 365 | 4.70 | 92 | 81 | 365 | 3.40 | 92 | 16.1 | 355 | 0.67 | 89 | 2KJ3604 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | |
|-----------------------|---------------------|-------------------------------|
| Shaft design | 1 or 9 | see page 9/49 |
| Adapter size | K4 | B to H |
| | K2 | D to H |
| | KS | A to N |
| | K5 | A to D |
| | K3 | A to D |
| | A/AZ* | D to H |
| Adapter type | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 |

Helical worm gearboxes

Efficiencies

Selection and ordering data

| i | $n_{\text{mot}} = 2800 \text{ rpm}$ | | | | $n_{\text{mot}} = 1400 \text{ rpm}$ | | | | $n_{\text{mot}} = 900 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|-------------------------------------|----------------|------------------------|-------------|-------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.89 | | | | | | | | | | | | | |
| 363.00 | 7.7 | 1180 | 1.30 | 73 | 3.9 | 1460 | 0.83 | 72 | 2.5 | 1430 | 0.55 | 68 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ N2 |
| 329.73 | 8.5 | 1180 | 1.40 | 73 | 4.2 | 1460 | 0.89 | 72 | 2.7 | 1440 | 0.59 | 69 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ M2 |
| 295.75 | 9.5 | 1170 | 1.60 | 73 | 4.7 | 1460 | 0.99 | 73 | 3.0 | 1460 | 0.66 | 70 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ L2 |
| 265.91 | 10.5 | 1170 | 1.80 | 73 | 5.3 | 1460 | 1.10 | 73 | 3.4 | 1470 | 0.74 | 71 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ K2 |
| 240.50 | 11.6 | 1160 | 1.90 | 73 | 5.8 | 1450 | 1.20 | 73 | 3.7 | 1480 | 0.80 | 72 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ J2 |
| 222.00 | 12.6 | 1120 | 2.00 | 73 | 6.3 | 1410 | 1.30 | 73 | 4.1 | 1490 | 0.89 | 72 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ H2 |
| 203.36 | 13.8 | 1090 | 2.20 | 73 | 6.9 | 1370 | 1.40 | 73 | 4.4 | 1500 | 0.95 | 73 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ G2 |
| 170.62 | 16.4 | 1030 | 2.40 | 73 | 8.2 | 1300 | 1.50 | 73 | 5.3 | 1490 | 1.10 | 73 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ F2 |
| 160.59 | 17.4 | 1010 | 2.50 | 73 | 8.7 | 1270 | 1.60 | 73 | 5.6 | 1460 | 1.20 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ E2 |
| 147.33 | 19 | 980 | 2.70 | 73 | 9.5 | 1230 | 1.70 | 74 | 6.1 | 1430 | 1.20 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ D2 |
| 128.70 | 22 | 915 | 2.90 | 73 | 10.9 | 1150 | 1.80 | 73 | 7.0 | 1340 | 1.30 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ C2 |
| 115.23 | 24 | 875 | 3.00 | 73 | 12.1 | 1100 | 1.90 | 74 | 7.8 | 1280 | 1.40 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ B2 |
| 100.75 | 28 | 830 | 3.30 | 73 | 13.9 | 1040 | 2.10 | 74 | 8.9 | 1210 | 1.50 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ A2 |
| 86.48 | 32 | 780 | 3.60 | 73 | 16.2 | 980 | 2.30 | 73 | 10.4 | 1140 | 1.70 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ X1 |
| 76.44 | 37 | 740 | 4.00 | 73 | 18.3 | 935 | 2.40 | 73 | 11.8 | 1080 | 1.80 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ W1 |
| 65.00 | 43 | 695 | 4.30 | 73 | 22 | 875 | 2.80 | 73 | 13.8 | 1010 | 2.00 | 74 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ V1 |
| 55.61 | 50 | 1150 | 6.70 | 90 | 25 | 1450 | 4.20 | 91 | 16.2 | 1550 | 2.90 | 90 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ U1 |
| 50.00 | 56 | 1130 | 7.40 | 90 | 28 | 1430 | 4.60 | 90 | 18.0 | 1560 | 3.30 | 90 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ T1 |
| 45.22 | 62 | 1100 | 7.90 | 90 | 31 | 1380 | 5.00 | 91 | 19.9 | 1560 | 3.60 | 90 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ S1 |
| 41.74 | 67 | 1070 | 8.30 | 90 | 34 | 1350 | 5.30 | 91 | 22 | 1560 | 4.00 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ R1 |
| 38.24 | 73 | 1040 | 8.80 | 90 | 37 | 1310 | 5.60 | 91 | 24 | 1520 | 4.20 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 32.08 | 87 | 985 | 10* | 90 | 44 | 1240 | 6.30 | 91 | 28 | 1440 | 4.70 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.20 | 93 | 950 | 10.3* | 90 | 46 | 1200 | 6.40 | 91 | 30 | 1390 | 4.80 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ N1 |
| 27.70 | 101 | 920 | 10.8* | 90 | 51 | 1160 | 6.90 | 91 | 32 | 1340 | 5.00 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ M1 |
| 25.03 | 112 | 1080 | 13.7* | 93 | 56 | 1090 | 6.90 | 93 | 36 | 1090 | 4.50 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.00 | 133 | 1000 | 15.1* | 93 | 67 | 1080 | 8.20 | 93 | 43 | 1070 | 5.20 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ K1 |
| 19.76 | 142 | 980 | 15.8* | 93 | 71 | 1120 | 9.00 | 93 | 46 | 1120 | 5.80 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ J1 |
| 18.13 | 154 | 950 | 16.6* | 93 | 77 | 1120 | 9.7* | 93 | 50 | 1120 | 6.30 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ H1 |
| 15.84 | 177 | 865 | 17.3* | 93 | 88 | 1140 | 11.3* | 93 | 57 | 1140 | 7.30 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ G1 |
| 14.18 | 197 | 770 | 17.3* | 92 | 99 | 1090 | 12.2* | 93 | 63 | 1150 | 8.20 | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ F1 |
| 12.40 | 226 | 675 | 17.3* | 93 | 113 | 1040 | 13.3* | 93 | 73 | 1140 | 9.5* | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ E1 |
| 10.64 | 263 | 580 | 17.3* | 92 | 132 | 985 | 14.7* | 93 | 85 | 1140 | 10.9* | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ D1 |
| 9.41 | 298 | 510 | 17.4* | 92 | 149 | 940 | 15.9* | 93 | 96 | 1090 | 11.8* | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ C1 |
| 8.00 | 350 | 435 | 17.4* | 92 | 175 | 870 | 17.3* | 93 | 112 | 1030 | 13.1* | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.86 | 408 | 370 | 17.4* | 92 | 204 | 745 | 17.3* | 93 | 131 | 980 | 14.5* | 93 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | |
| Adapter size | K4 | B to H | | | | | | | | | | | 4 |
| | K2 | D to H | | | | | | | | | | | 2 |
| | KS | A to N | | | | | | | | | | | 1 |
| | K5 | A to D | | | | | | | | | | | 5 |
| | K3 | A to D | | | | | | | | | | | 3 |
| | A/AZ* | D to H | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | |

* $P_{\text{mot max}} = 9,2 \text{ kW}$

Selection and ordering data

| i | $n_{\text{mot}} = 700 \text{ rpm}$ | | | | $n_{\text{mot}} = 500 \text{ rpm}$ | | | | $n_{\text{mot}} = 100 \text{ rpm}$ | | | | Article No. (Article No. supplement see below) |
|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|------------------------------------|----------------|------------------------|-------------|---|
| | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | |
| C.89 | | | | | | | | | | | | | |
| 363.00 | 1.9 | 1360 | 0.42 | 64 | 1.4 | 1260 | 0.31 | 60 | 0.28 | 955 | 0.06 | 45 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ N2 |
| 329.73 | 2.1 | 1380 | 0.46 | 66 | 1.5 | 1280 | 0.33 | 61 | 0.30 | 960 | 0.07 | 45 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ M2 |
| 295.75 | 2.4 | 1400 | 0.53 | 67 | 1.7 | 1310 | 0.37 | 62 | 0.34 | 965 | 0.08 | 45 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ L2 |
| 265.91 | 2.6 | 1420 | 0.57 | 68 | 1.9 | 1330 | 0.42 | 64 | 0.38 | 975 | 0.08 | 46 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ K2 |
| 240.50 | 2.9 | 1440 | 0.63 | 70 | 2.1 | 1360 | 0.46 | 66 | 0.42 | 985 | 0.09 | 47 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ J2 |
| 222.00 | 3.2 | 1450 | 0.69 | 70 | 2.3 | 1380 | 0.50 | 67 | 0.45 | 995 | 0.10 | 47 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ H2 |
| 203.36 | 3.4 | 1470 | 0.74 | 71 | 2.5 | 1400 | 0.54 | 68 | 0.49 | 1000 | 0.11 | 48 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ G2 |
| 170.62 | 4.1 | 1490 | 0.89 | 72 | 2.9 | 1440 | 0.63 | 70 | 0.59 | 1030 | 0.13 | 50 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ F2 |
| 160.59 | 4.4 | 1490 | 0.95 | 73 | 3.1 | 1450 | 0.67 | 71 | 0.62 | 1040 | 0.14 | 50 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ E2 |
| 147.33 | 4.8 | 1500 | 1.00 | 73 | 3.4 | 1460 | 0.73 | 71 | 0.68 | 1060 | 0.15 | 51 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ D2 |
| 128.70 | 5.4 | 1450 | 1.10 | 74 | 3.9 | 1480 | 0.84 | 72 | 0.78 | 1090 | 0.17 | 53 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ C2 |
| 115.23 | 6.1 | 1390 | 1.20 | 74 | 4.3 | 1490 | 0.92 | 73 | 0.87 | 1110 | 0.19 | 54 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ B2 |
| 100.75 | 6.9 | 1310 | 1.30 | 74 | 5.0 | 1460 | 1.00 | 74 | 0.99 | 1150 | 0.21 | 56 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ A2 |
| 86.48 | 8.1 | 1230 | 1.40 | 74 | 5.8 | 1380 | 1.10 | 74 | 1.2 | 1190 | 0.26 | 58 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ X1 |
| 76.44 | 9.2 | 1170 | 1.50 | 74 | 6.5 | 1310 | 1.20 | 74 | 1.3 | 1220 | 0.28 | 60 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ W1 |
| 65.00 | 10.8 | 1100 | 1.70 | 74 | 7.7 | 1230 | 1.30 | 74 | 1.5 | 1270 | 0.32 | 62 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ V1 |
| 55.61 | 12.6 | 1540 | 2.30 | 90 | 9.0 | 1510 | 1.60 | 88 | 1.8 | 1290 | 0.33 | 75 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ U1 |
| 50.00 | 14.0 | 1540 | 2.50 | 90 | 10.0 | 1530 | 1.80 | 88 | 2.0 | 1430 | 0.40 | 75 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ T1 |
| 45.22 | 15.5 | 1550 | 2.80 | 90 | 11.1 | 1530 | 2.00 | 89 | 2.2 | 1430 | 0.43 | 76 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ S1 |
| 41.74 | 16.8 | 1550 | 3.00 | 90 | 12.0 | 1540 | 2.20 | 89 | 2.4 | 1450 | 0.48 | 77 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ R1 |
| 38.24 | 18.3 | 1560 | 3.30 | 90 | 13.1 | 1540 | 2.40 | 90 | 2.6 | 1450 | 0.51 | 77 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ Q1 |
| 32.08 | 22 | 1560 | 4.00 | 91 | 15.6 | 1550 | 2.80 | 90 | 3.1 | 1390 | 0.57 | 79 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ P1 |
| 30.20 | 23 | 1510 | 4.00 | 91 | 16.6 | 1550 | 3.00 | 90 | 3.3 | 1460 | 0.64 | 79 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ N1 |
| 27.70 | 25 | 1460 | 4.20 | 91 | 18.1 | 1560 | 3.30 | 91 | 3.6 | 1470 | 0.69 | 80 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ M1 |
| 25.03 | 28 | 1090 | 3.50 | 93 | 20 | 1080 | 2.50 | 92 | 4.0 | 990 | 0.50 | 84 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ L1 |
| 21.00 | 33 | 1070 | 4.00 | 93 | 24 | 1070 | 2.90 | 92 | 4.8 | 985 | 0.59 | 85 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ K1 |
| 19.76 | 35 | 1120 | 4.50 | 93 | 25 | 1120 | 3.20 | 92 | 5.1 | 1030 | 0.65 | 85 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ J1 |
| 18.13 | 39 | 1110 | 4.90 | 93 | 28 | 1110 | 3.50 | 92 | 5.5 | 1030 | 0.70 | 85 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ H1 |
| 15.84 | 44 | 1140 | 5.70 | 93 | 32 | 1130 | 4.10 | 93 | 6.3 | 1050 | 0.81 | 86 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ G1 |
| 14.18 | 49 | 1150 | 6.40 | 93 | 35 | 1140 | 4.50 | 93 | 7.1 | 1070 | 0.92 | 87 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ F1 |
| 12.40 | 56 | 1140 | 7.30 | 93 | 40 | 1140 | 5.20 | 93 | 8.1 | 1080 | 1.00 | 88 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ E1 |
| 10.64 | 66 | 1150 | 8.50 | 93 | 47 | 1140 | 6.10 | 93 | 9.4 | 1090 | 1.20 | 88 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ D1 |
| 9.41 | 74 | 1120 | 9.4* | 93 | 53 | 1120 | 6.70 | 93 | 10.6 | 1070 | 1.30 | 89 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ C1 |
| 8.00 | 88 | 1120 | 11.2* | 93 | 62 | 1130 | 7.90 | 93 | 12.5 | 1090 | 1.60 | 90 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ B1 |
| 6.86 | 102 | 1060 | 12.3* | 93 | 73 | 1110 | 9.20 | 93 | 14.6 | 1090 | 1.80 | 91 | 2KJ3605 - ■ ■ A 0 ■ - 0 ■ A1 |

Article No. supplement

| | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|--|--|--|--|--|--|--|--|--|--|---|
| Shaft design | 1 or 9 | see page 9/49 | | | | | | | | | | | |
| Adapter size | K4 | B to H | | | | | | | | | | | 4 |
| | K2 | D to H | | | | | | | | | | | 2 |
| | KS | A to N | | | | | | | | | | | 1 |
| | K5 | A to D | | | | | | | | | | | 5 |
| | K3 | A to D | | | | | | | | | | | 3 |
| | A/AZ* | D to H | | | | | | | | | | | 9 |
| Adapter type | | | | | | | | | | | | | |
| Gearbox mounting type | A, F, H or D | see page 9/40 | | | | | | | | | | | |

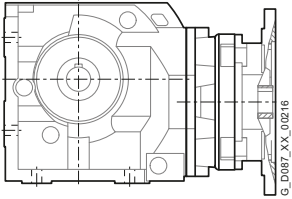
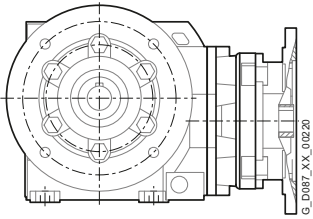
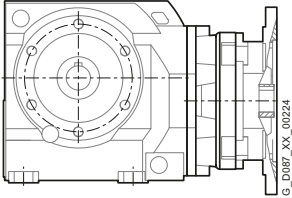
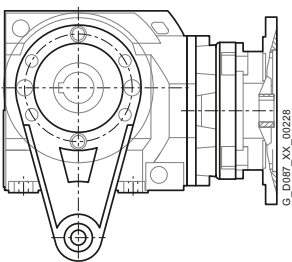
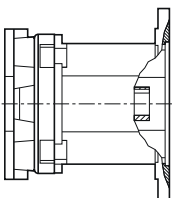
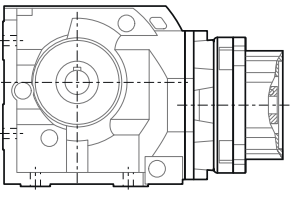
* $P_{\text{mot max}} = 9,2 \text{ kW}$

Helical worm gearboxes

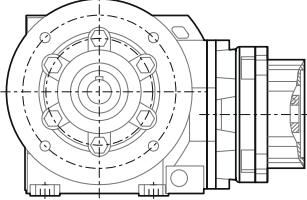
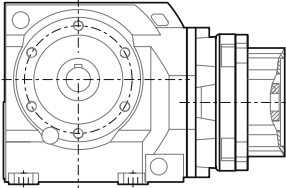
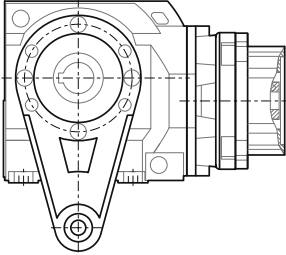
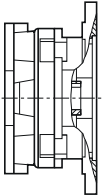
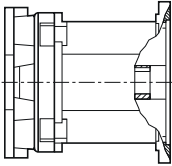
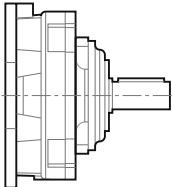
Dimensional drawings

Overview

Information about dimensional drawings can be found in chapter "Introduction" on page 1/16.

| Design | Size | Dimensional drawing on page |
|---|-----------------|-----------------------------|
| Helical worm gearbox with adapter K4 | | |
| <i>Foot-mounted design</i> | | |
|  | C..29 | 6/27 |
| | C..39A | 6/31 |
| | C..49 | 6/35 |
| | C..69 | 6/39 |
| | C..89 | 6/43 |
| <i>Flange-mounted design</i> | | |
|  | C.F.29 | 6/28 |
| | C.F.39A | 6/32 |
| | C.F.49 | 6/36 |
| | C.F.69 | 6/40 |
| | C.F.89 | 6/44 |
| <i>Housing flange design</i> | | |
|  | C.Z.29 | 6/29 |
| | C.Z.39A | 6/33 |
| | C.Z.49 | 6/37 |
| | C.Z.69 | 6/41 |
| | C.Z.89 | 6/45 |
| <i>Shaft-mounted design</i> | | |
|  | CAD.29 | 6/30 |
| | CAD.39A | 6/34 |
| | CAD.49 | 6/38 |
| | CAD.69 | 6/42 |
| | CAD.89 | 6/46 |
| Helical worm gearbox with adapter K2 | | |
|  | C..29 ... C..89 | 6/47 |
| Helical worm gearbox with KS adapter | | |
| <i>Foot-mounted design</i> | | |
|  | C..29 | 6/48 |
| | C..39A | 6/52 |
| | C..49 | 6/56 |
| | C..69 | 6/60 |
| | C..89 | 6/64 |

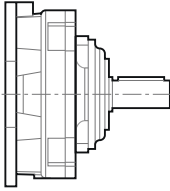
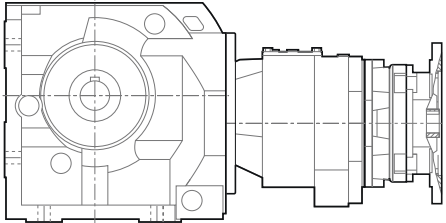
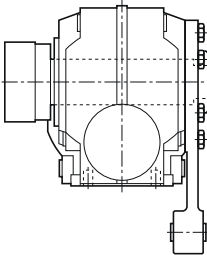
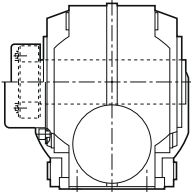

Overview

| Design | Size | Dimensional drawing on page |
|---|-----------------|-----------------------------|
| Helical worm gearbox with KS adapter | | |
| <i>Flange-mounted design</i> | | |
|  | C.F.29 | 6/49 |
| | C.F.39A | 6/53 |
| | C.F.49 | 6/57 |
| | C.F.69 | 6/61 |
| | C.F.89 | 6/65 |
| <i>Housing flange design</i> | | |
|  | C.Z.29 | 6/50 |
| | C.Z.39A | 6/54 |
| | C.Z.49 | 6/58 |
| | C.Z.69 | 6/62 |
| | C.Z.89 | 6/66 |
| <i>Shaft-mounted design</i> | | |
|  | CAD.29 | 6/51 |
| | CAD.39A | 6/55 |
| | CAD.49 | 6/59 |
| | CAD.69 | 6/63 |
| | CAD.89 | 6/67 |
| Helical worm gearbox with adapter K5 | | |
|  | C..29 ... C..89 | 6/68 |
| Helical worm gearbox with adapter K3 | | |
|  | C..29 ... C..89 | 6/69 |
| Helical worm gearbox with adapter A | | |
|  | C..29 ... C..89 | 6/70 |

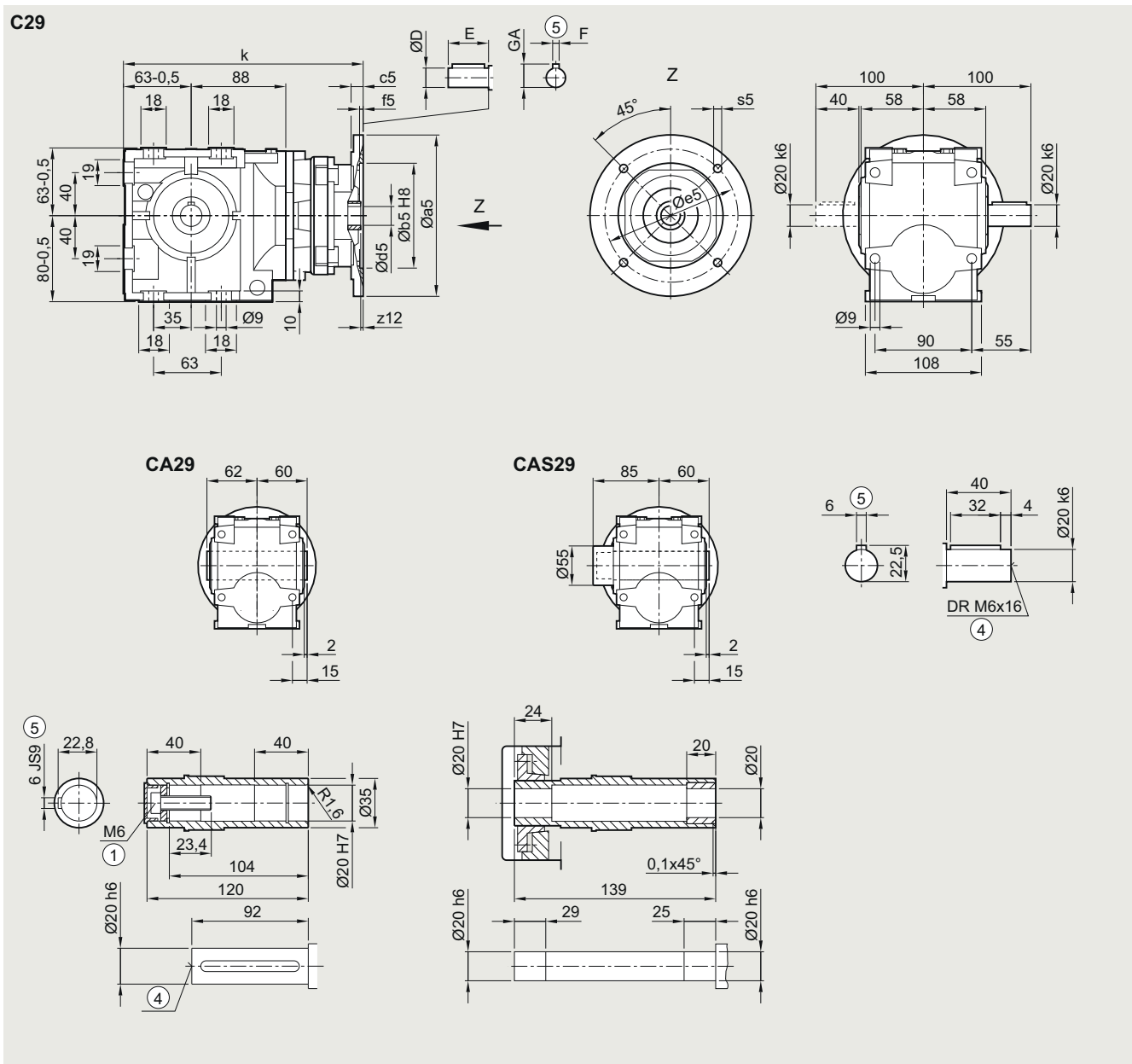
Helical worm gearboxes

Dimensional drawings

Overview

| Design | Size | Dimensional drawing on page |
|---|--|--|
| Helical worm gearbox with adapter AZ | C..29 ... C..89 | 6/71 |
|  | | |
| Helical worm tandem gearbox with adapter | | |
|  | <ul style="list-style-type: none"> - K4 C.89-D/Z39 - K2 C.89-D/Z39 - KS C.29-D/Z19 ... C.89-D/Z39 - K5 C.89-D/Z39 - K3 C.89-D/Z39 - A C.89-D/Z39 - AZ C.89-D/Z39 | <ul style="list-style-type: none"> 6/72 6/72 6/73 6/74 6/74 6/75 6/75 |
| Additional versions and options | | |
| ShaftMount assembly system | CADR29 ... CADR89 | 6/76 |
|  | | |
| Protective covers | CA.29 ... CA.89 | 6/77 |
|  | | |
| Inner contour of the flange design | C.F.29 ... C.F.89 | 6/78 |
|  | | |

C..29 gearbox in a foot-mounted design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 228.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 228.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 256.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 256.5 |

① ISO 4014

④ DIN 332

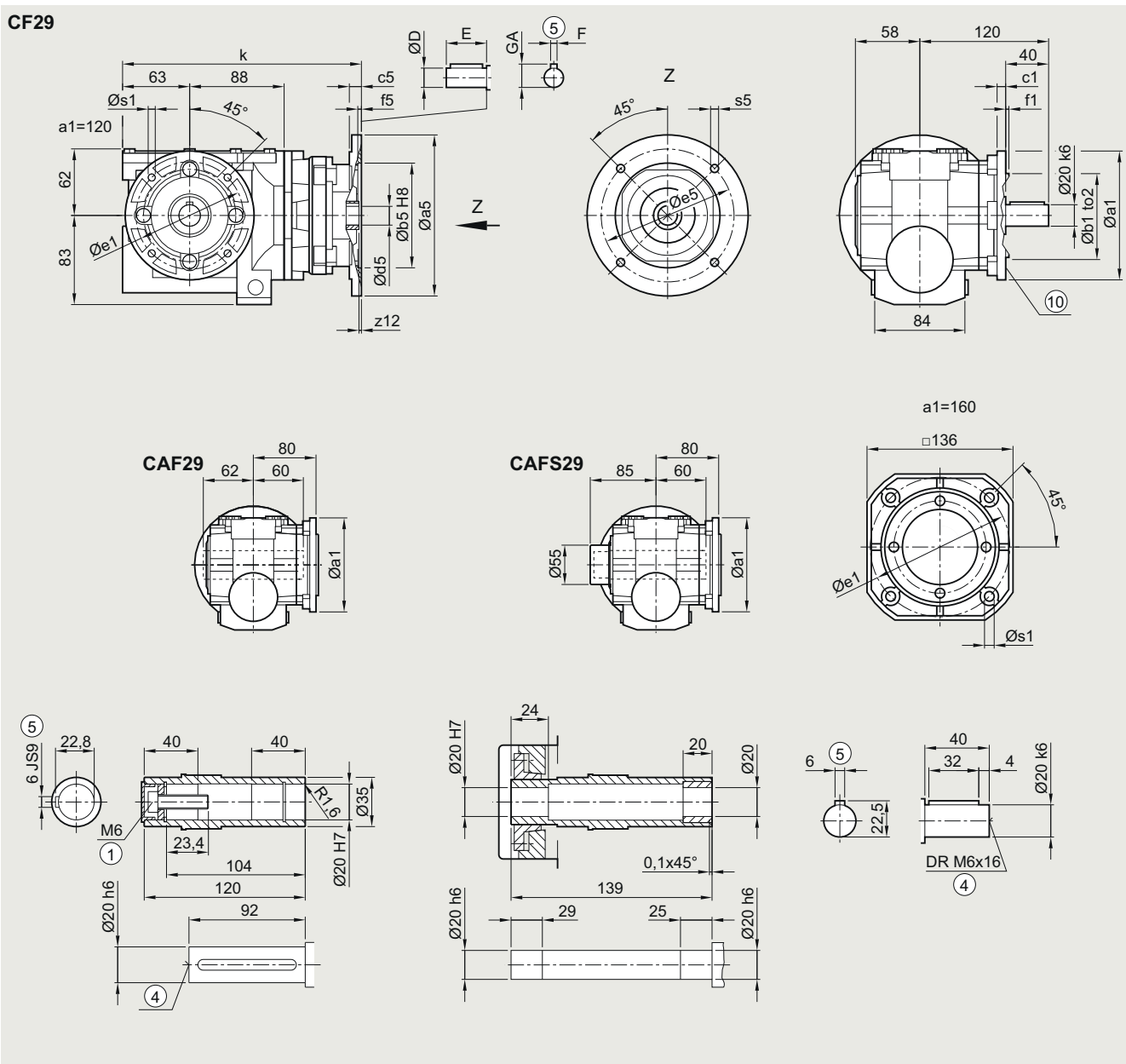
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

C.F.29 gearbox in a flange-mounted design



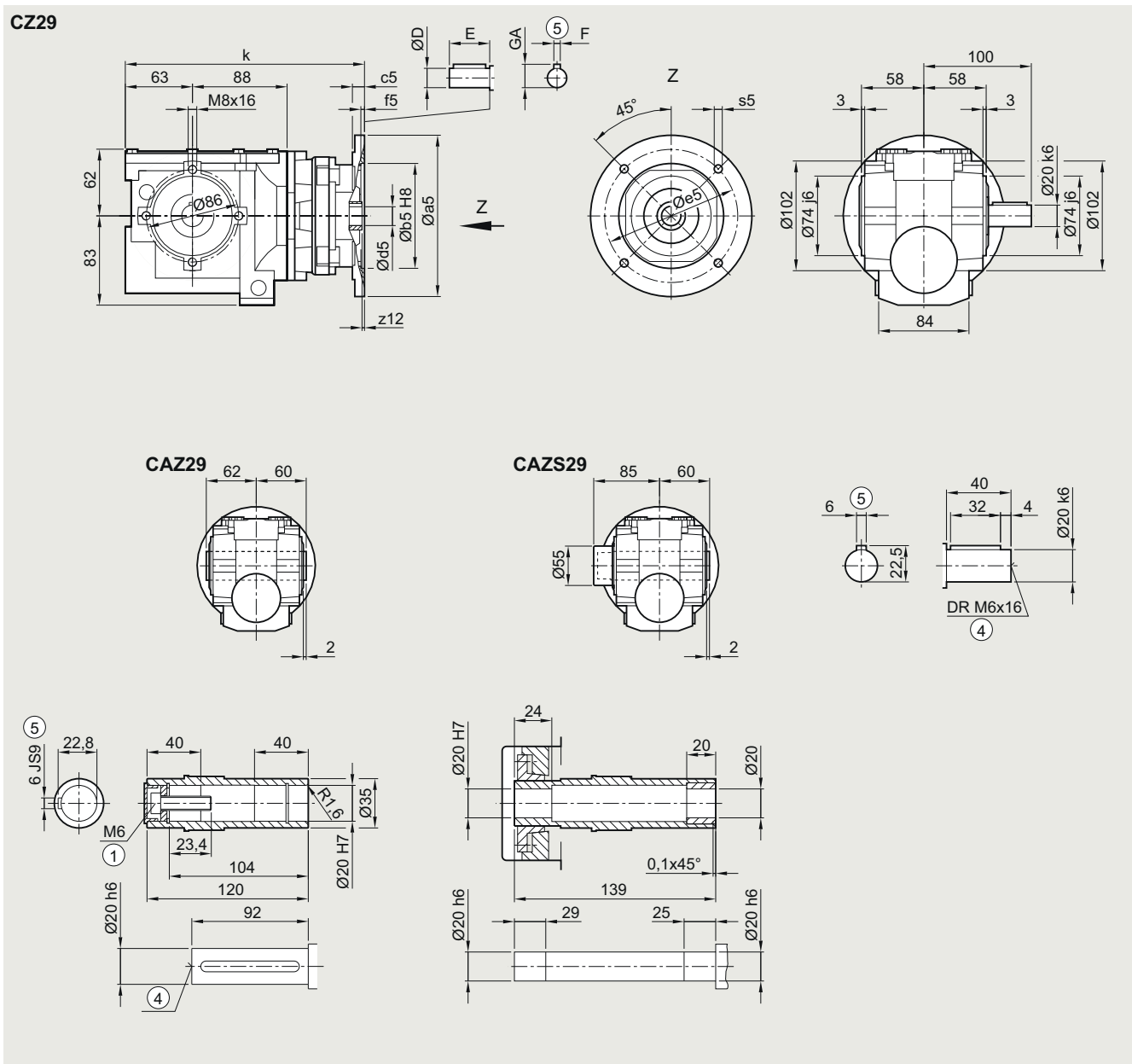
| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|------|----|---|------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 228.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 228.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 256.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 256.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 6/78

C.Z.29 gearbox in a housing flange design



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 228.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 228.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 256.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 256.0 |

① ISO 4014

④ DIN 332

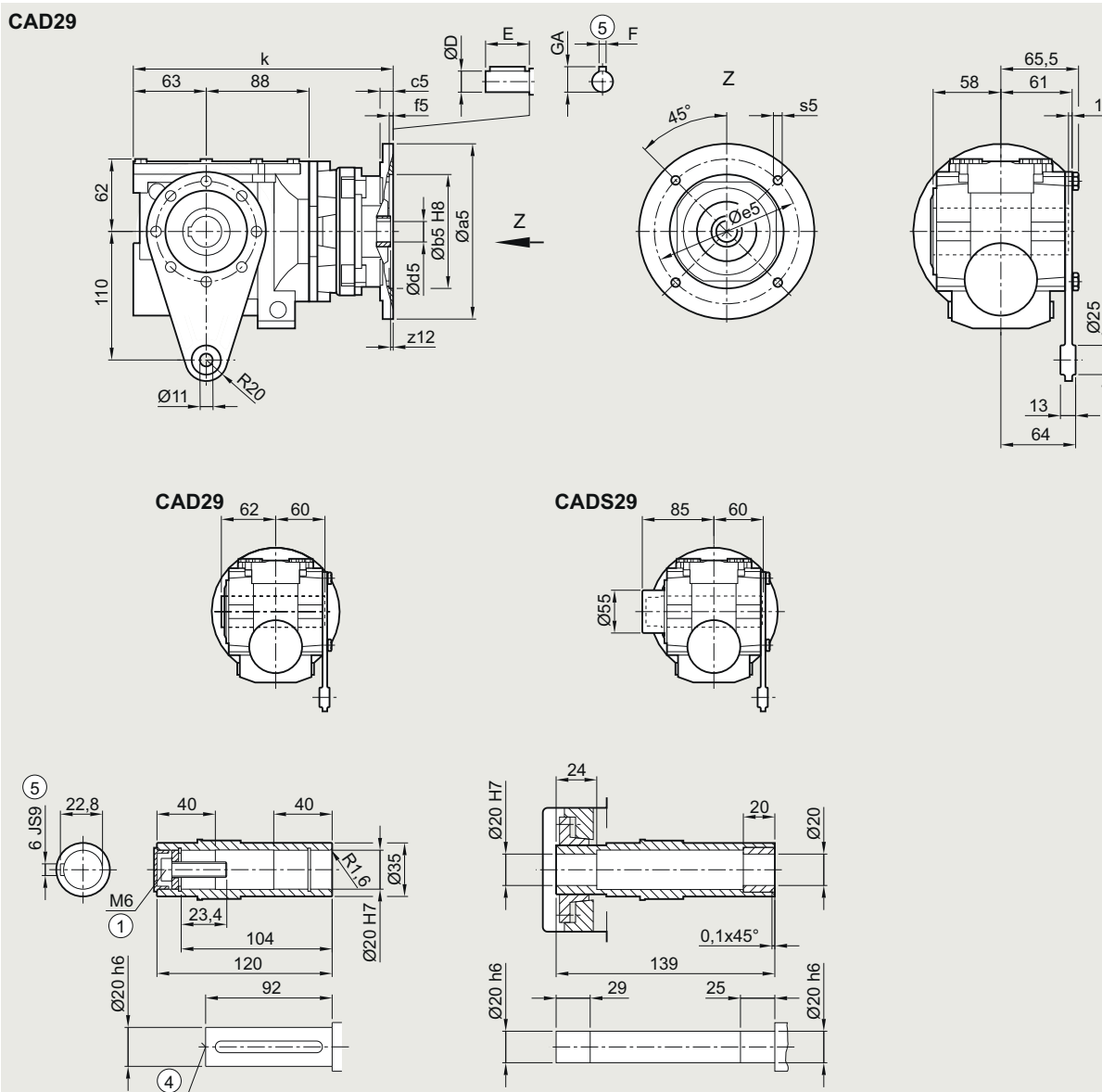
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

CAD.29 gearbox in a shaft-mounted design



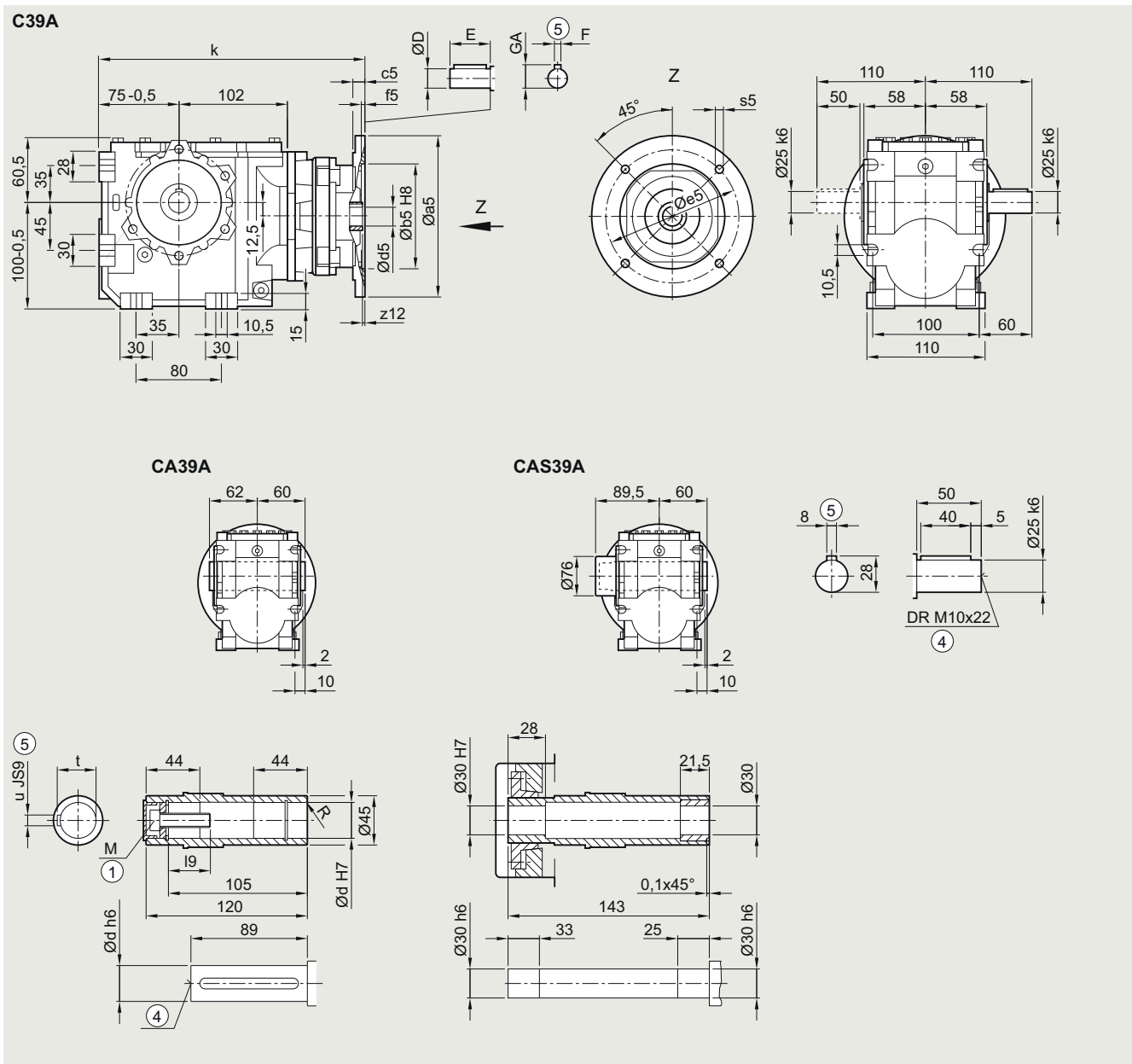
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
|---------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 228.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 228.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 256.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 256.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

C..39A gearbox in a foot-mounted design



| Shaft | d | l9 | M | R | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 254.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 254.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 282.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 282.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 337.0 |

① ISO 4014

④ DIN 332

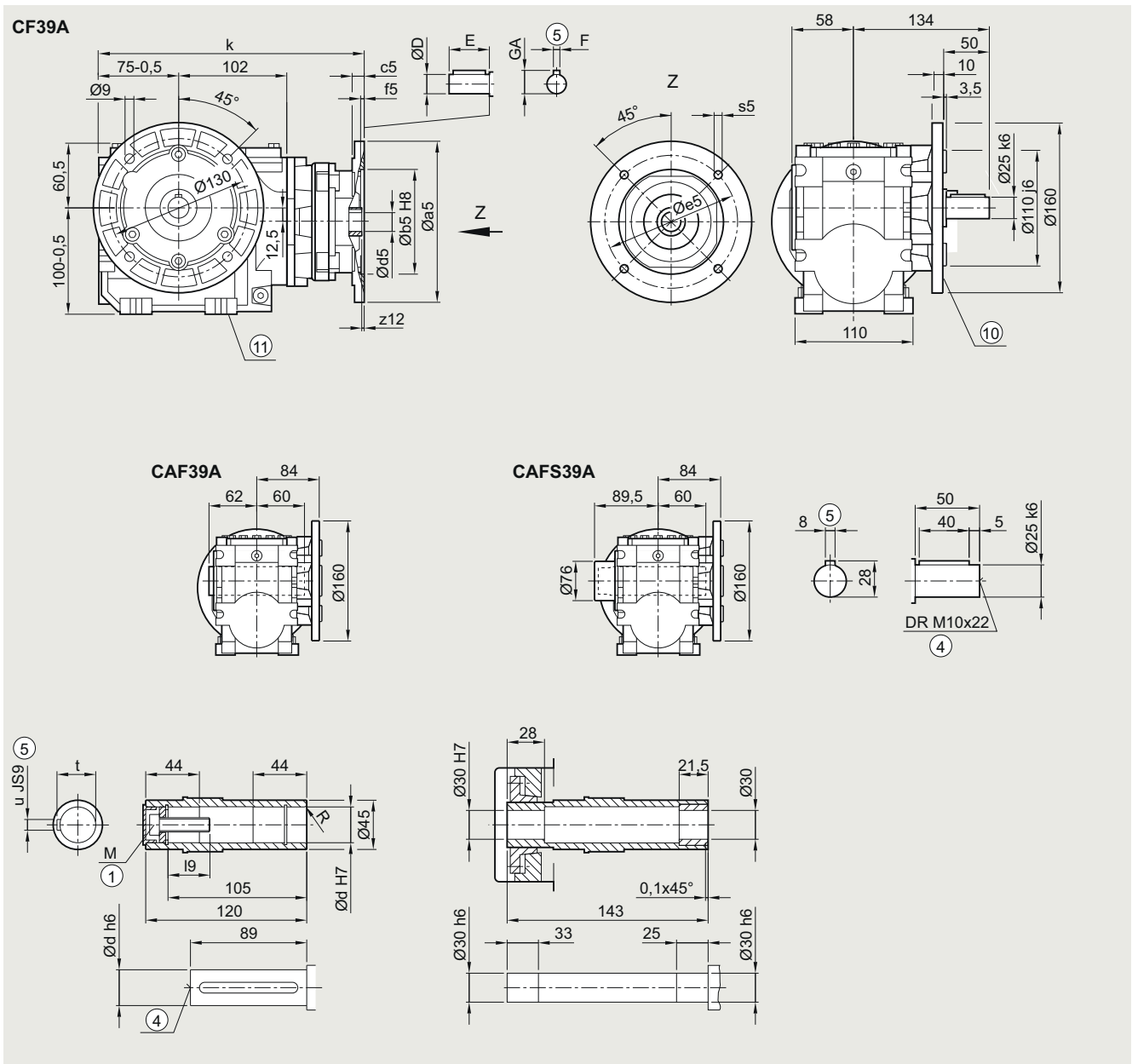
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

C.F.39A gearbox in a flange-mounted design



| Shaft | d | l9 | M | R | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 254.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 254.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 282.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 282.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 337.0 |

① ISO 4014

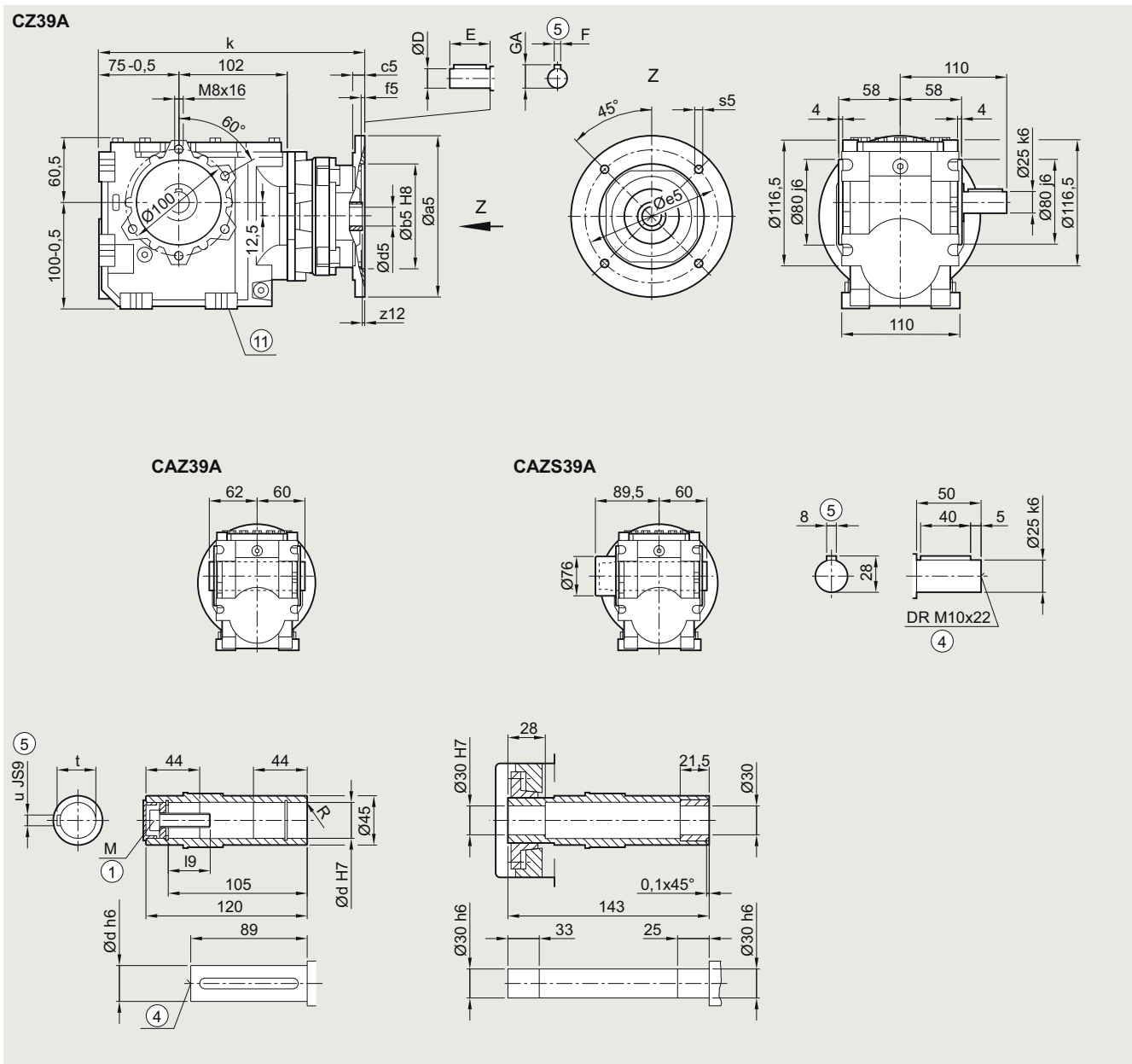
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

⑪ Use bores only for foot-mounted design

C.Z.39A gearbox in a housing flange design



| Shaft | d | l9 | M | R | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 254.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 254.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 282.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 282.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 337.0 |

① ISO 4014

④ DIN 332

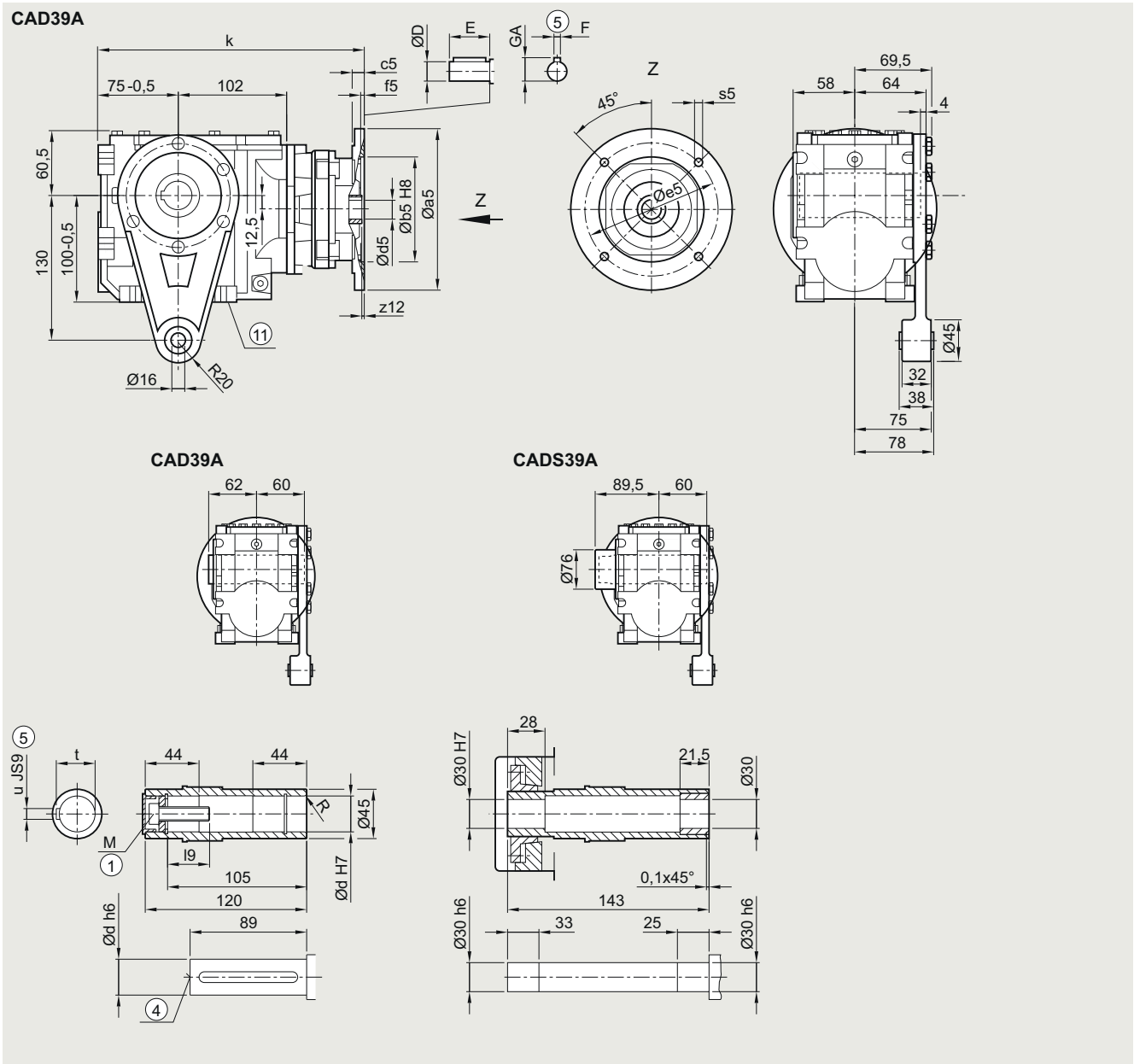
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

CAD.39A gearbox in a shaft-mounted design



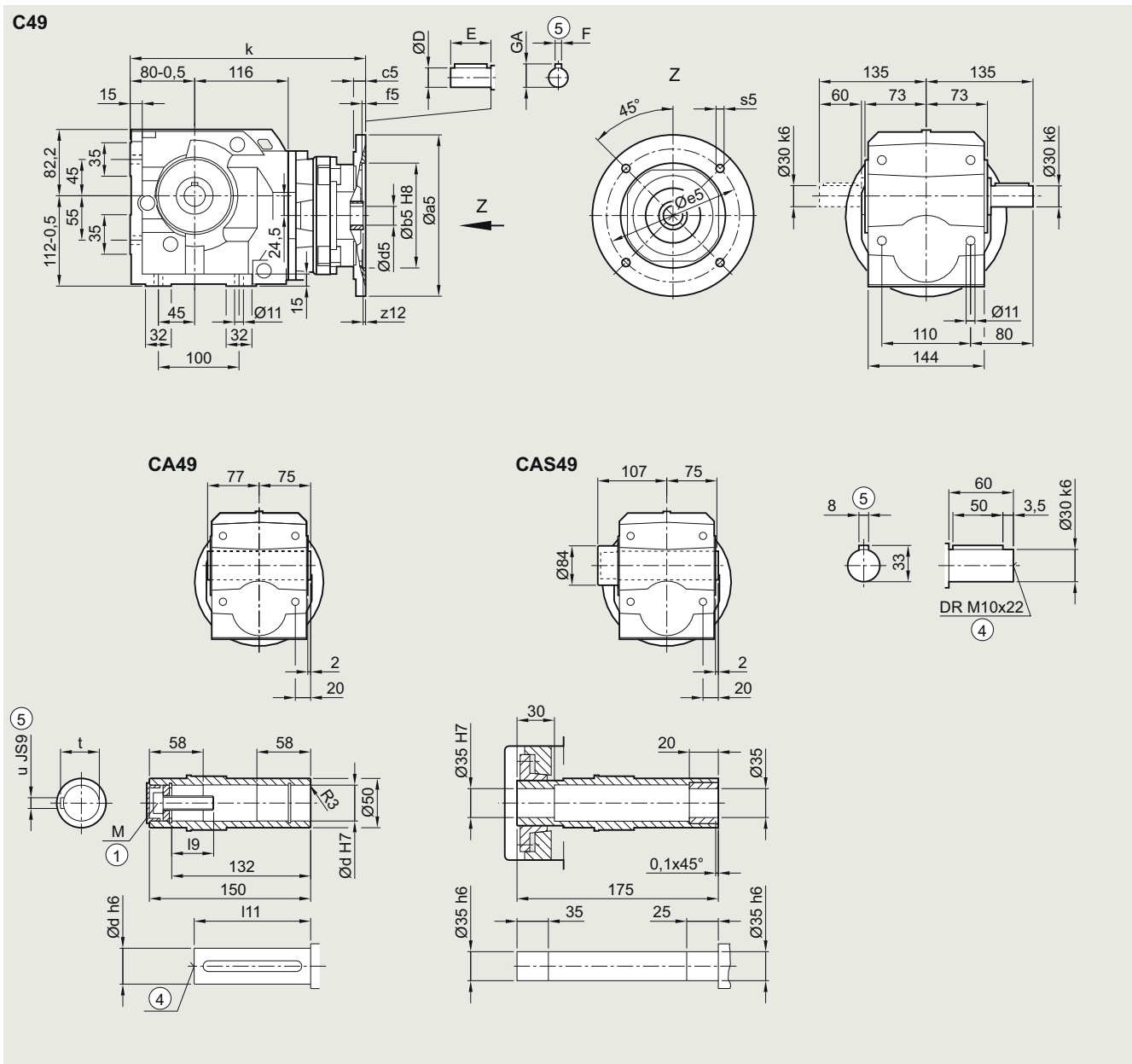
| Shaft | d | l9 | M | R | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 254.5 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 254.5 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 282.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 282.5 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 337.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

C..49 gearbox in a foot-mounted design



| Shaft | d | l9 | l11 | M | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 264.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 264.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 292.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 292.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |

① ISO 4014

④ DIN 332

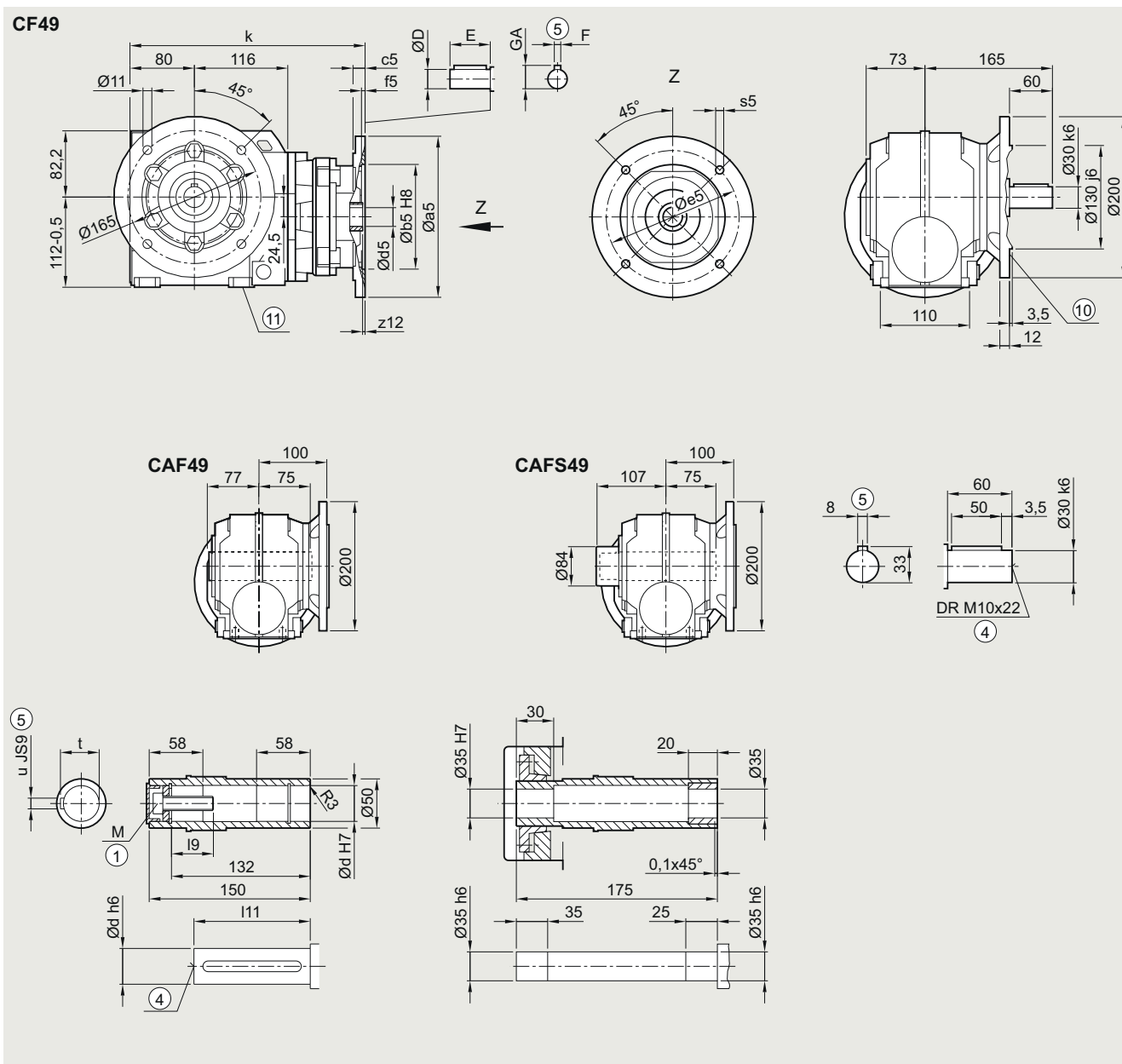
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

C.F.49 gearbox in a flange-mounted design



| Shaft | d | l9 | l11 | M | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 264.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 264.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 292.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 292.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |

① ISO 4014

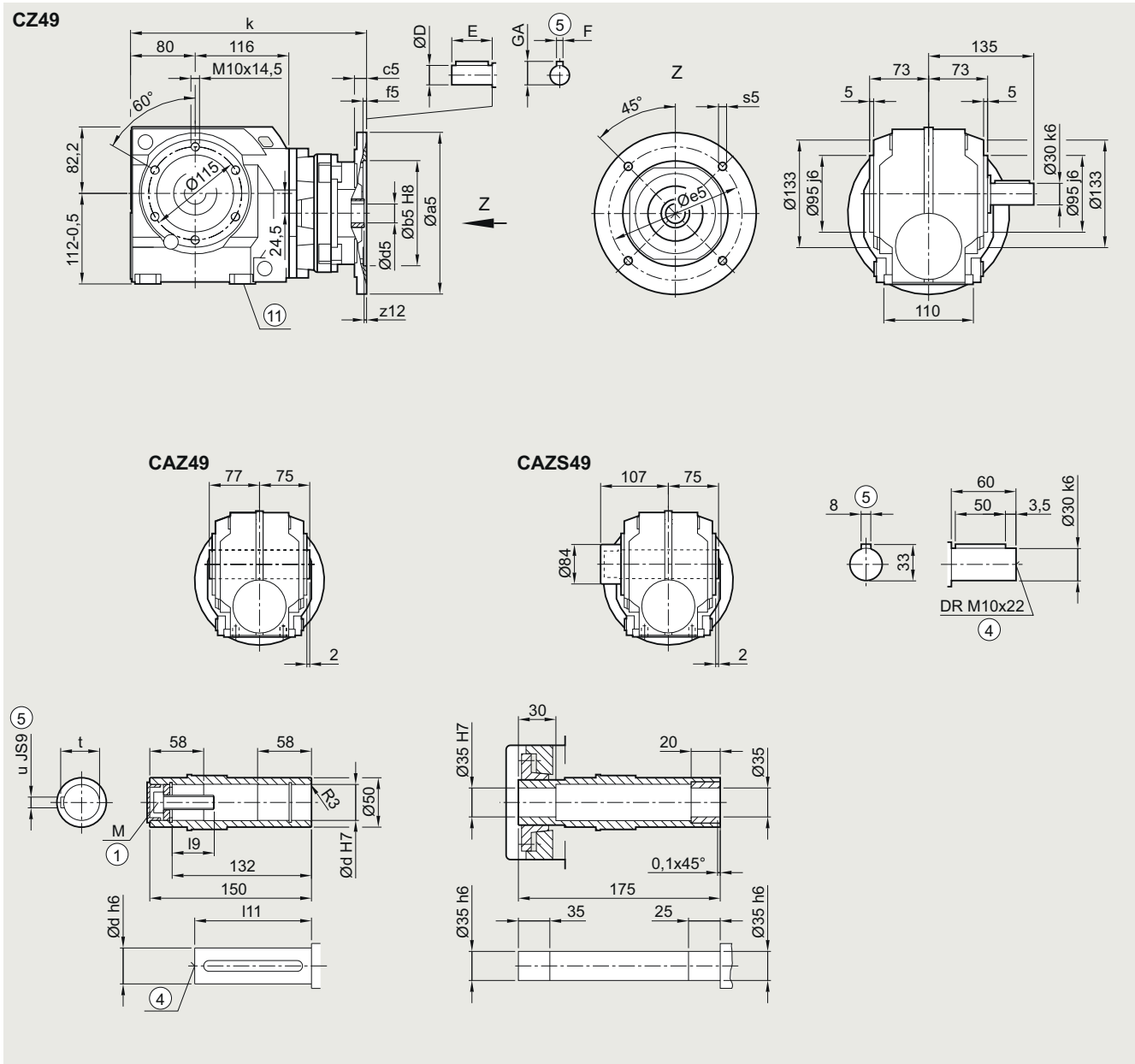
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

⑪ Use bores only for foot-mounted design

C.Z.49 gearbox in a housing flange design



| Shaft | d | l9 | l11 | M | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 264.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 264.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 292.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 292.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |

① ISO 4014

④ DIN 332

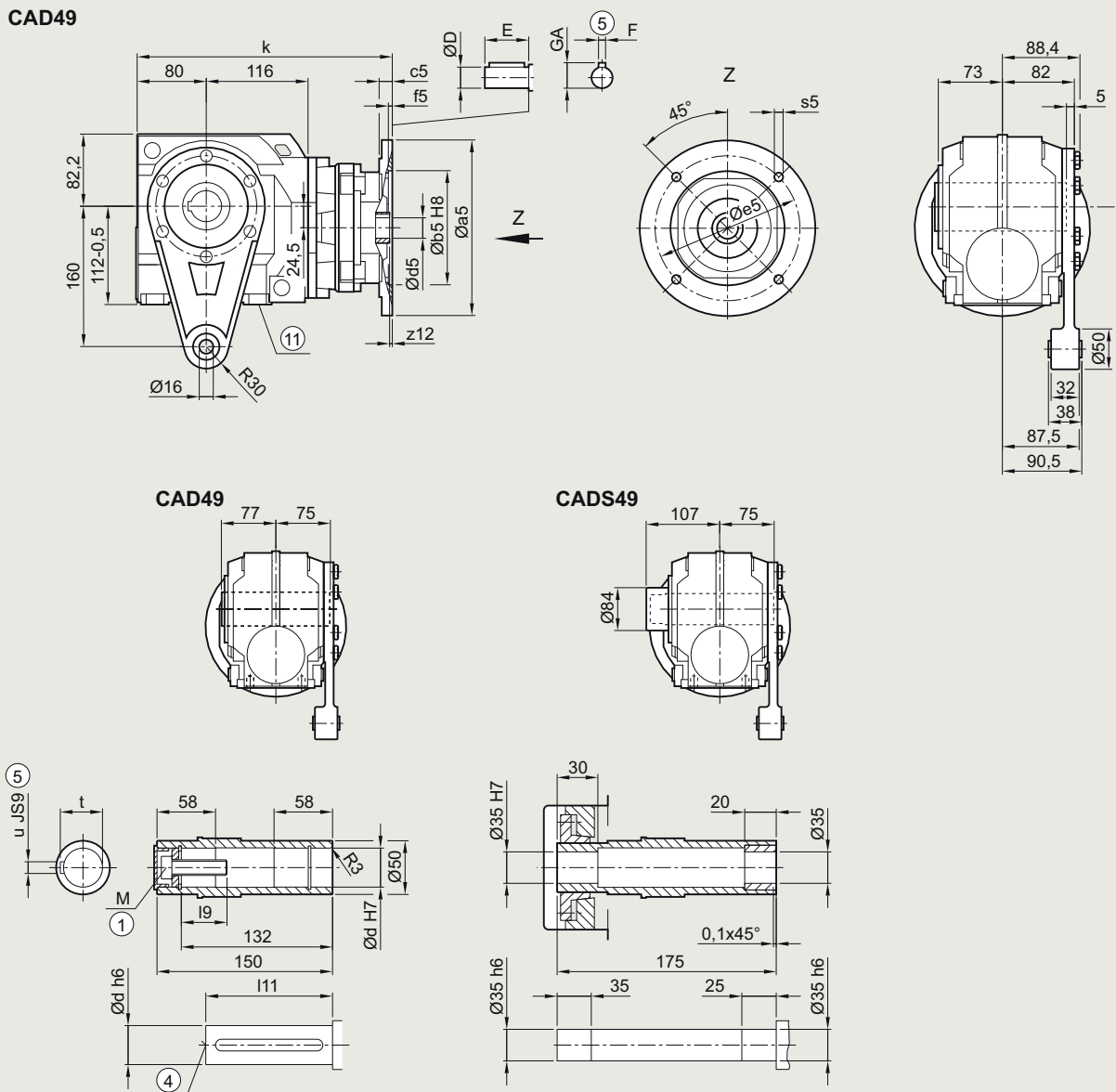
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

CAD.49 gearbox in a shaft-mounted design



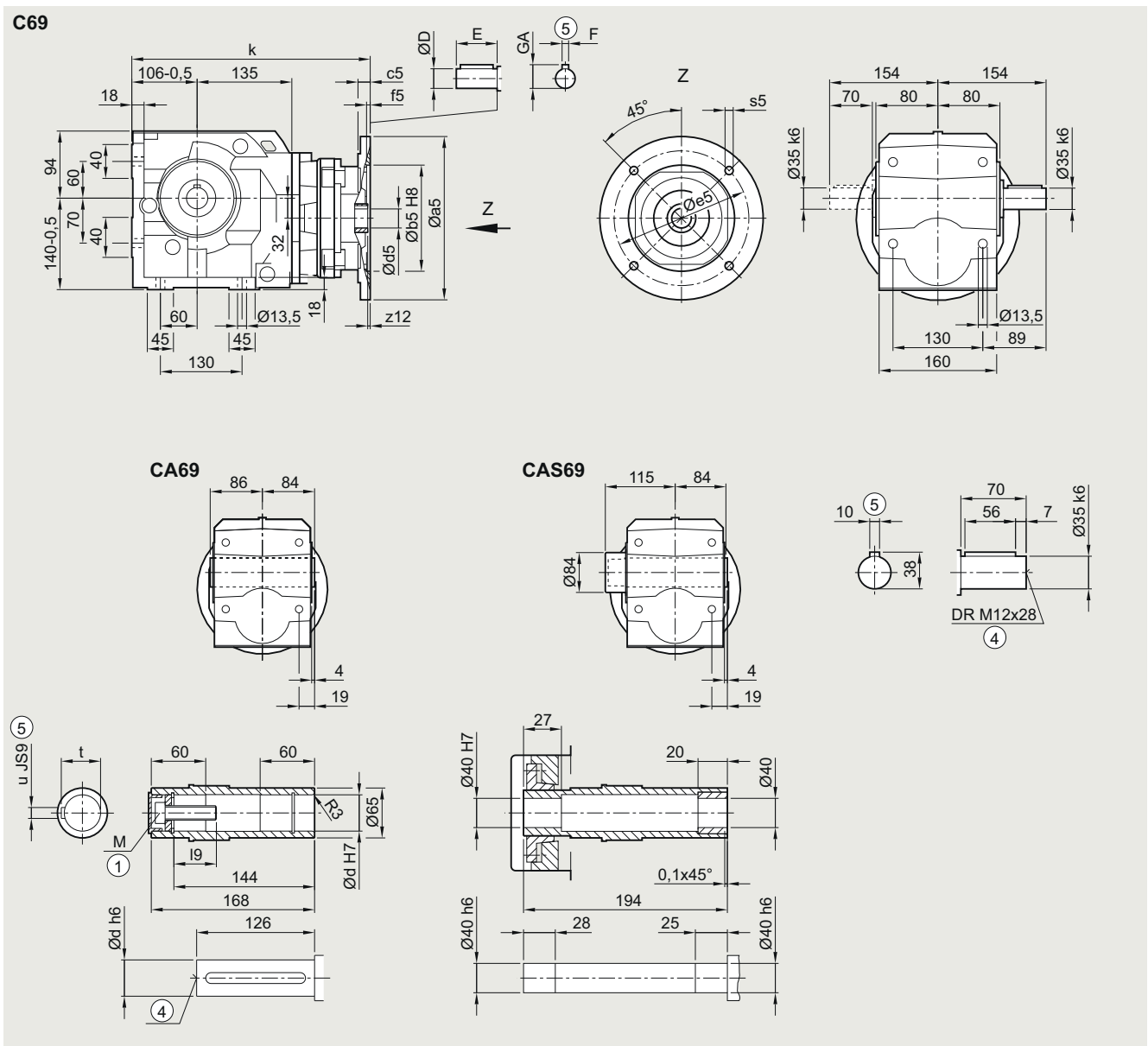
| Shaft | d | l9 | l11 | M | t | u | | | | | | |
|---------|-----|------|-----|-----|------|-----|-----|------|----|---|------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 264.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 264.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 292.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 292.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 346.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

C..69 gearbox in a foot-mounted design



| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 309.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 309.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 337.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 337.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |

① ISO 4014

④ DIN 332

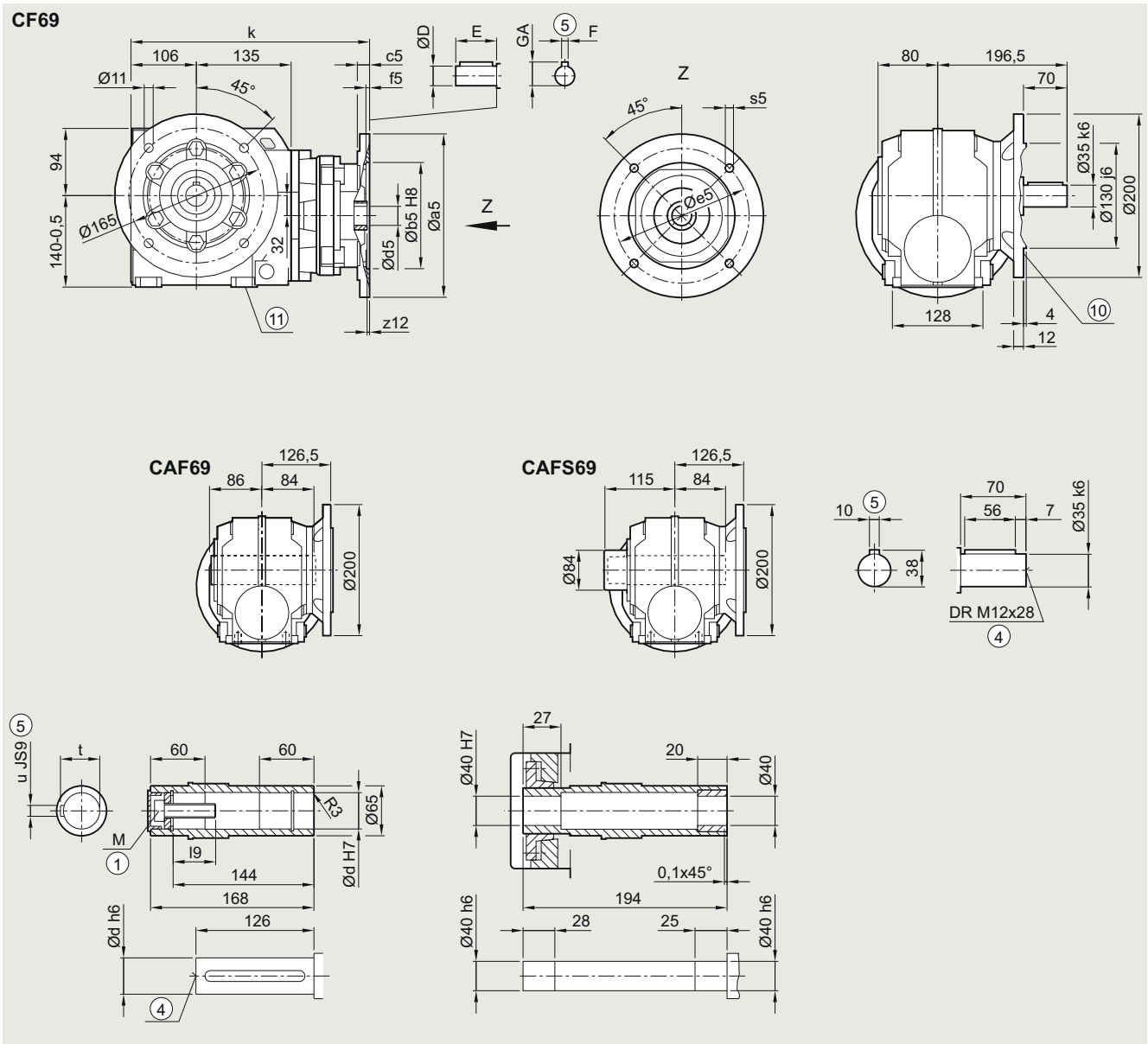
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

C.F.69 gearbox in a flange-mounted design



| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 309.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 309.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 337.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 337.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |

① ISO 4014

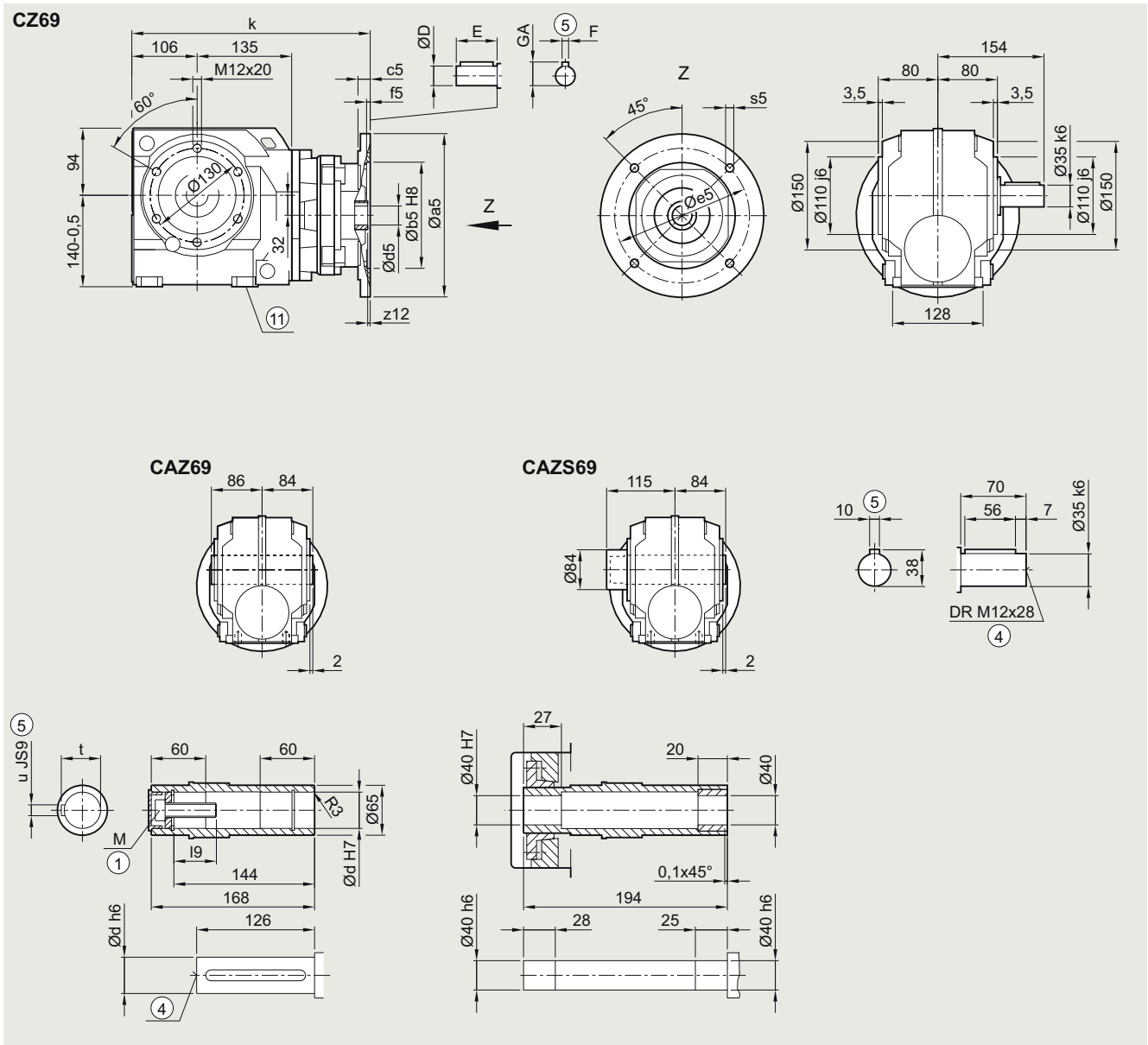
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

⑪ Use bores only for foot-mounted design

C.Z.69 gearbox in a housing flange design



| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 309.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 309.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 337.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 337.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |

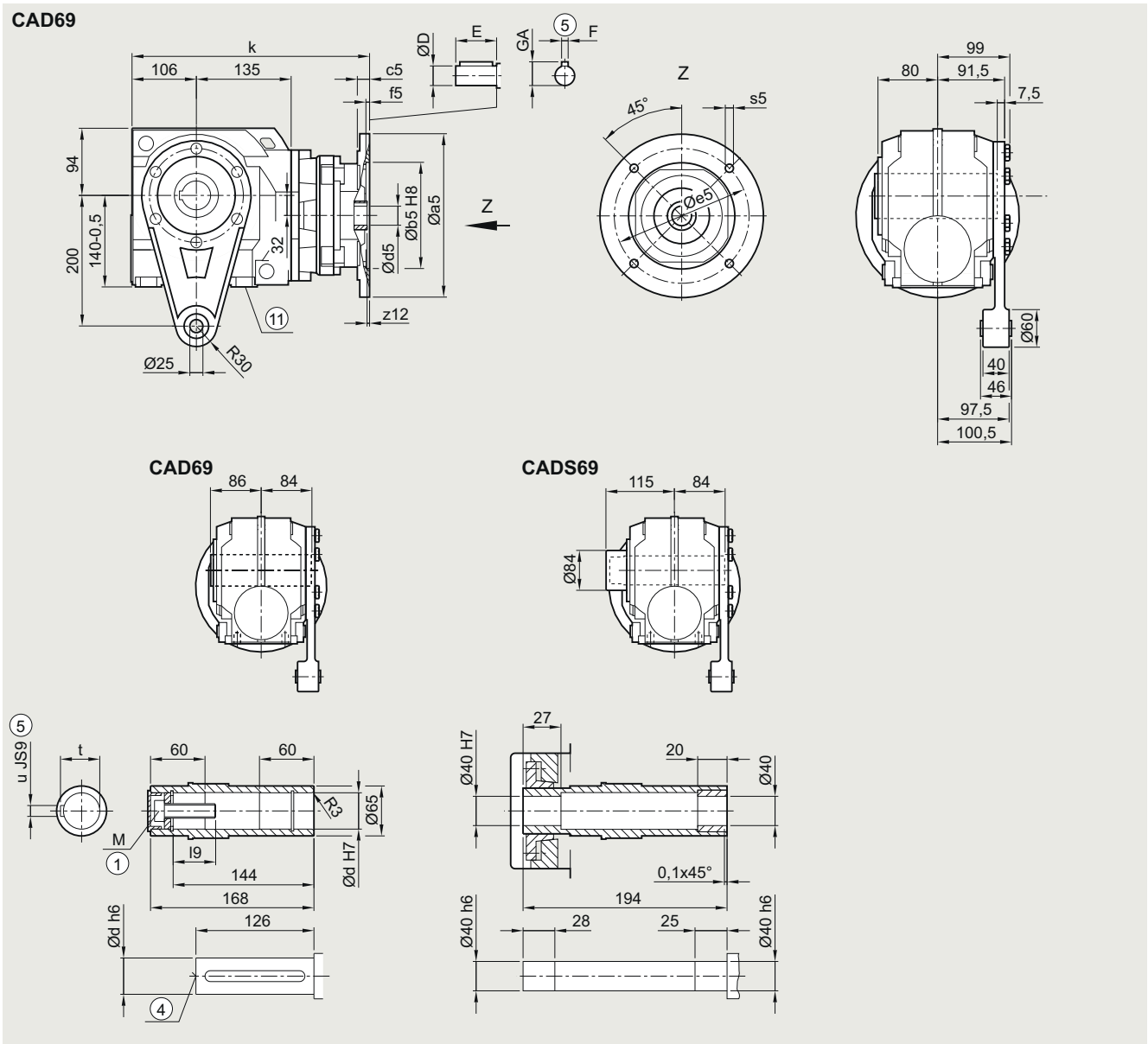
① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

CAD.69 gearbox in a shaft-mounted design



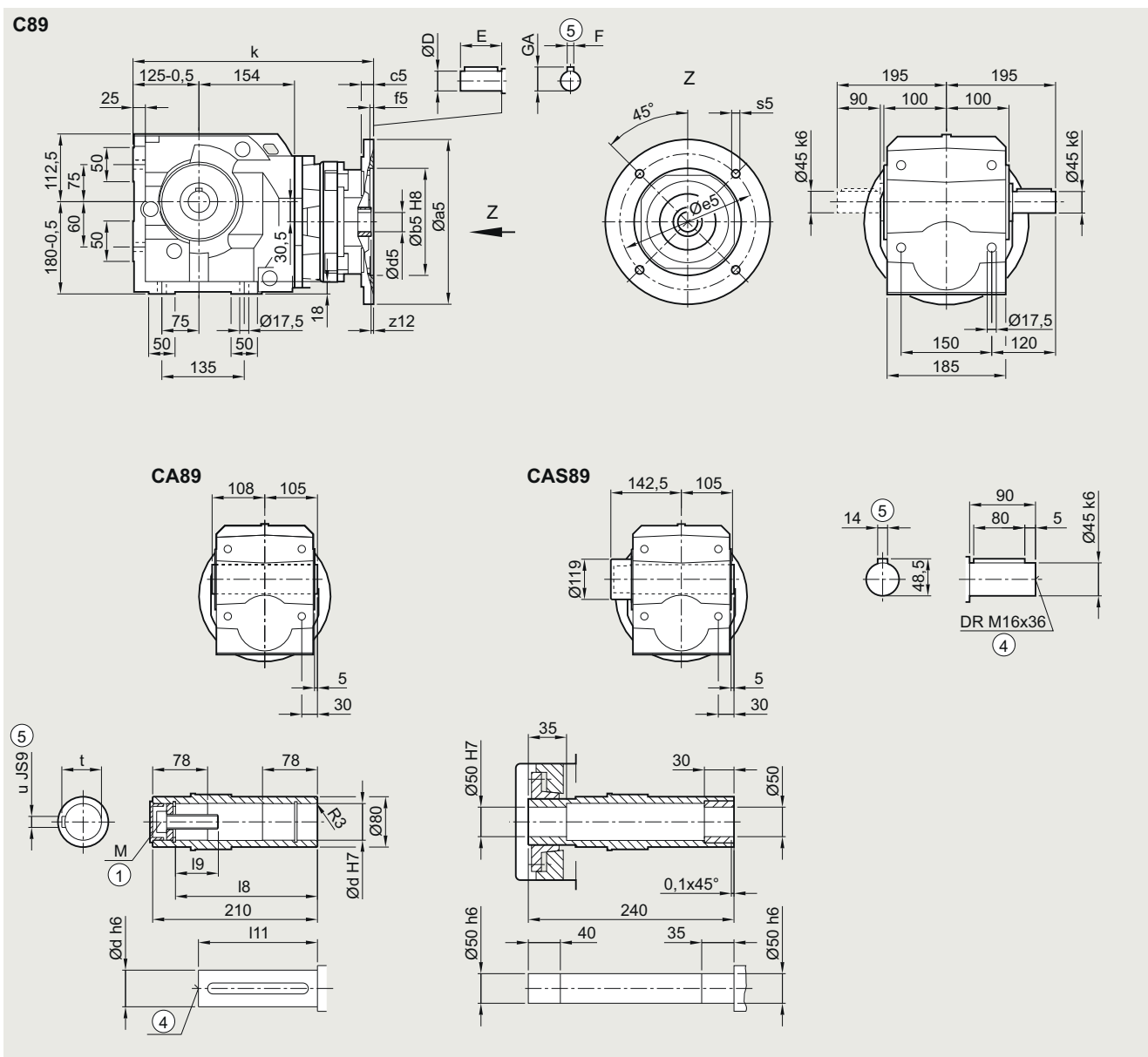
| Shaft | d | l9 | M | t | u | | | | | | | |
|---------|-----|-------|-----|------|-----|-----|-----|------|----|---|------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 63 | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 309.0 |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 309.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 337.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 337.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 391.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

C..89 gearbox in a foot-mounted design



| Shaft | d | l8 | l9 | l11 | M | t | u | | | | | |
|---------|-----|-----|------|-----|-----|--------|-----|------|----|----|------|-------|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 | | | | | |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 345.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 345.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 369.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 441.0 |

① ISO 4014

④ DIN 332

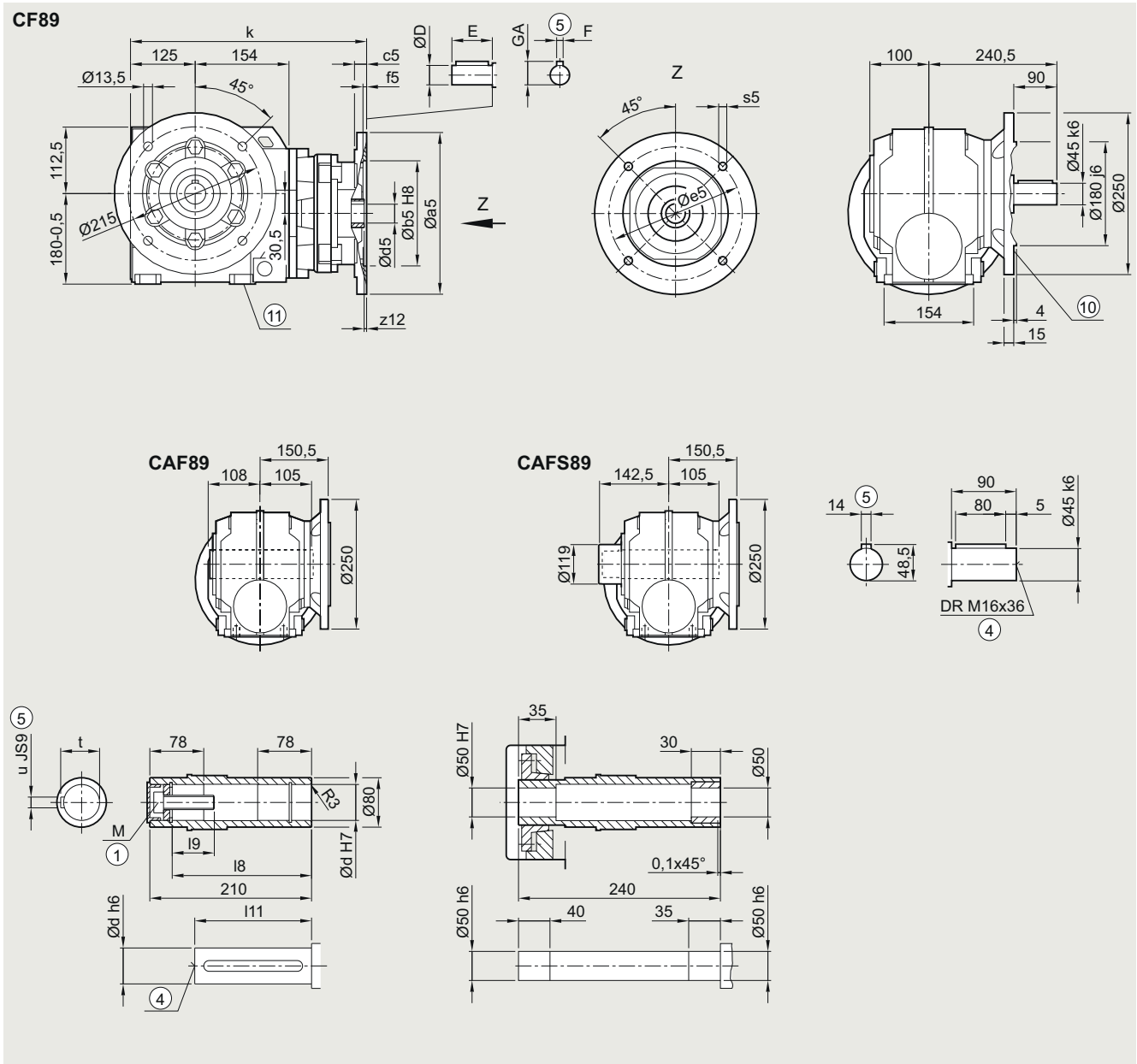
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

C.F.89 gearbox in a flange-mounted design



| Shaft | d | l8 | l9 | l11 | M | t | u | | | | | |
|---------|-----|-----|------|-----|-----|--------|-----|------|----|----|------|-------|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 | | | | | |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 345.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 369.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 369.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 441.0 |

① ISO 4014

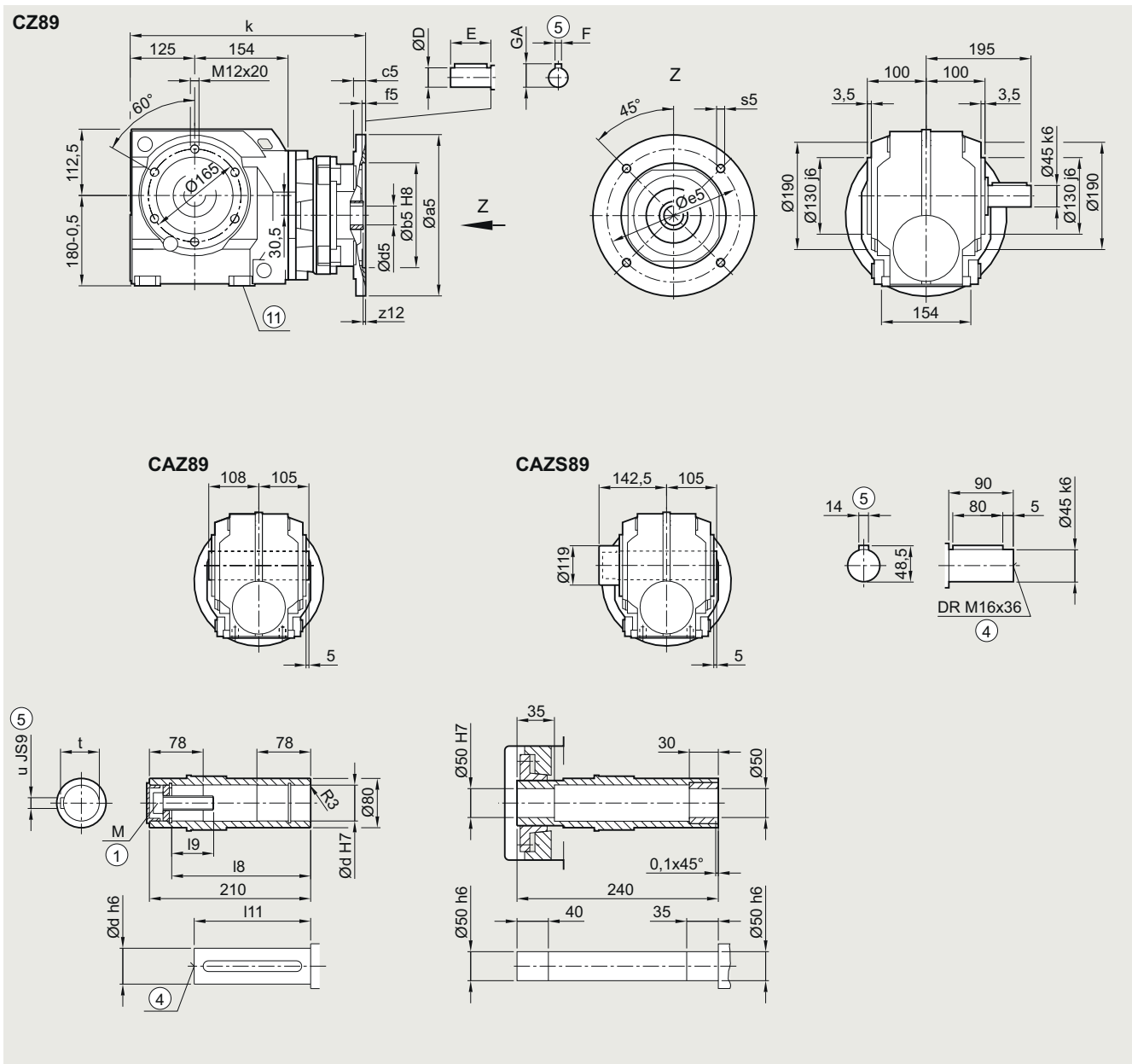
④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/785

⑪ Use bores only for foot-mounted design

C.Z.89 gearbox in a housing flange design



| Shaft | d | l8 | l9 | l11 | M | t | u | | | | | |
|---------|-----|-----|------|-----|-----|--------|-----|------|----|----|------|-------|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 | | | | | |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 345.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 369.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 369.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 441.0 |

① ISO 4014

④ DIN 332

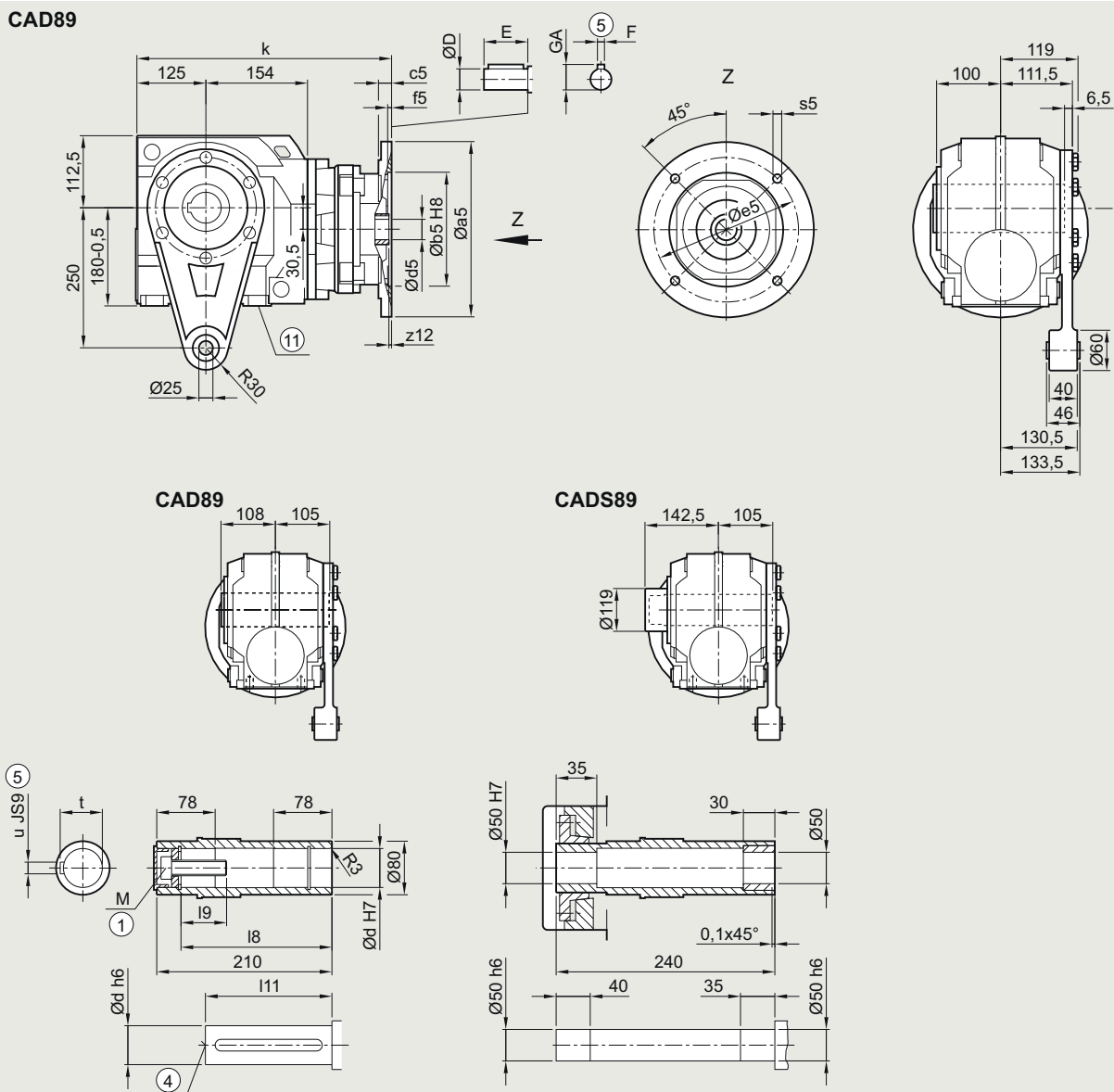
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K4 for mounting an IEC motor

CAD.89 gearbox in a shaft-mounted design



| Shaft | d | l8 | l9 | l11 | M | t | u | | | | | |
|---------|-----|-----|------|-----|-----|--------|-----|------|----|----|------|-------|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 | | | | | |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | k |
| 71 | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 345.0 |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 369.0 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 369.0 |
| 100 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 112 | 250 | 180 | 16 | 5.0 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 423.5 |
| 132 | 300 | 230 | 12 | 6.0 | 265 | M12x20 | 3.0 | 38 | 80 | 10 | 41.0 | 441.0 |

① ISO 4014

④ DIN 332

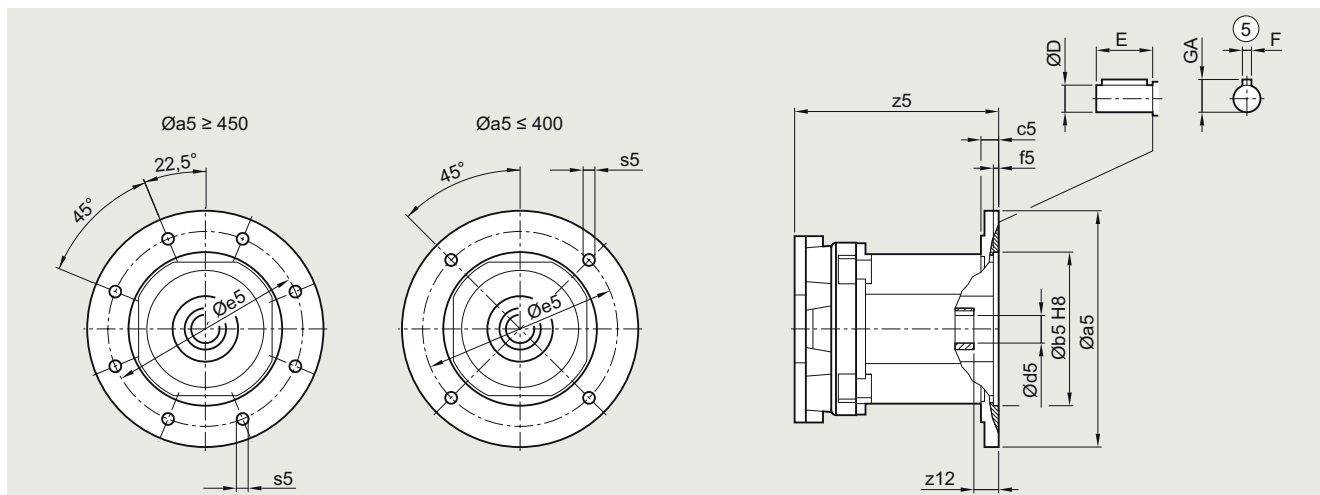
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K2 for mounting an IEC motor

C...29 to C...89 gearboxes



6

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|---------------|-----|-----|----|-----|-----|-----|-----|------|----|----|------|-------|
| C...29 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198 |
| C...39 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 198 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 198 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 245 |
| C...49 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| C...69 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 188.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 188.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 235.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 313.5 |
| C...89 | | | | | | | | | | | | |
| 80 | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 182.5 |
| 90 | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 182.5 |
| 100 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 112 | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 229.5 |
| 132 | 300 | 230 | 18 | 5.0 | 265 | M12 | 45 | 38 | 80 | 10 | 41.0 | 307.5 |

⑤ Feather key/keyway DIN 6885

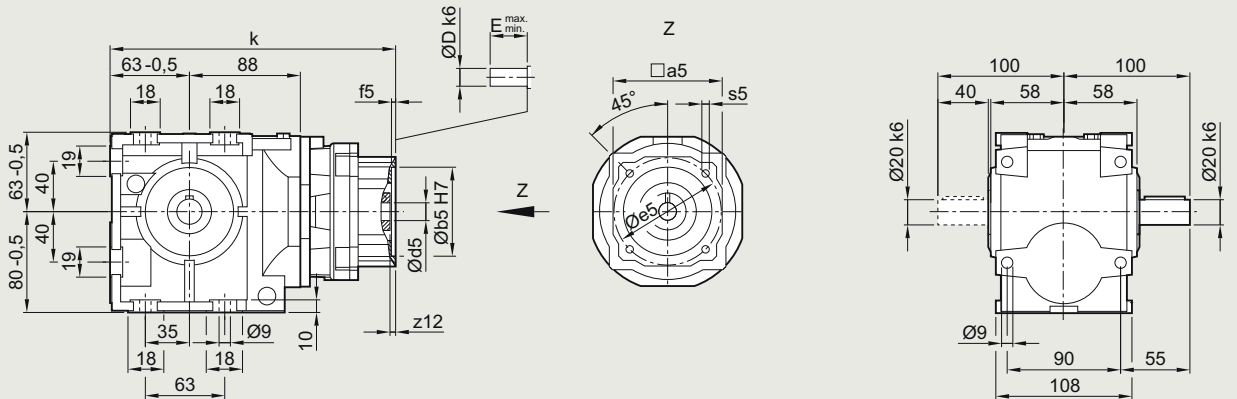
Helical worm gearboxes

Dimensional drawings

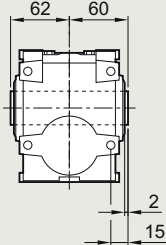
KS adapter exclusively for mounting defined Siemens servo motors

C..29 gearbox in a foot-mounted design

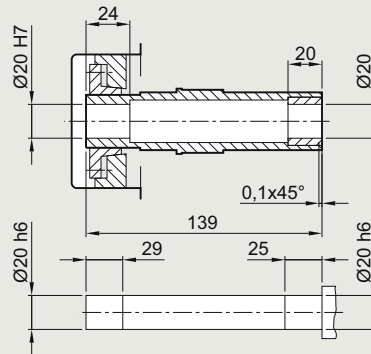
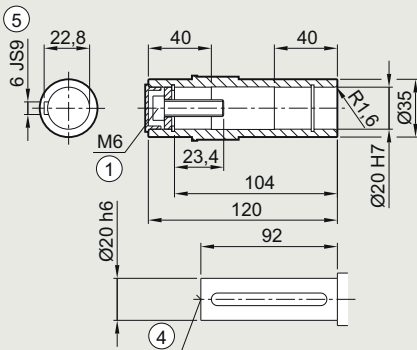
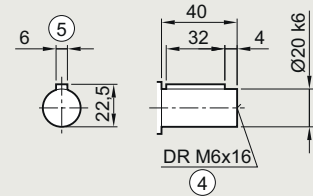
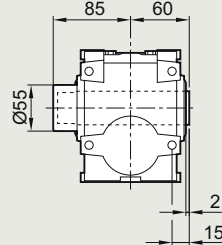
C29



CA29



CAS29



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 233 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 233 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 245.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 245.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 261.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 261.5 |

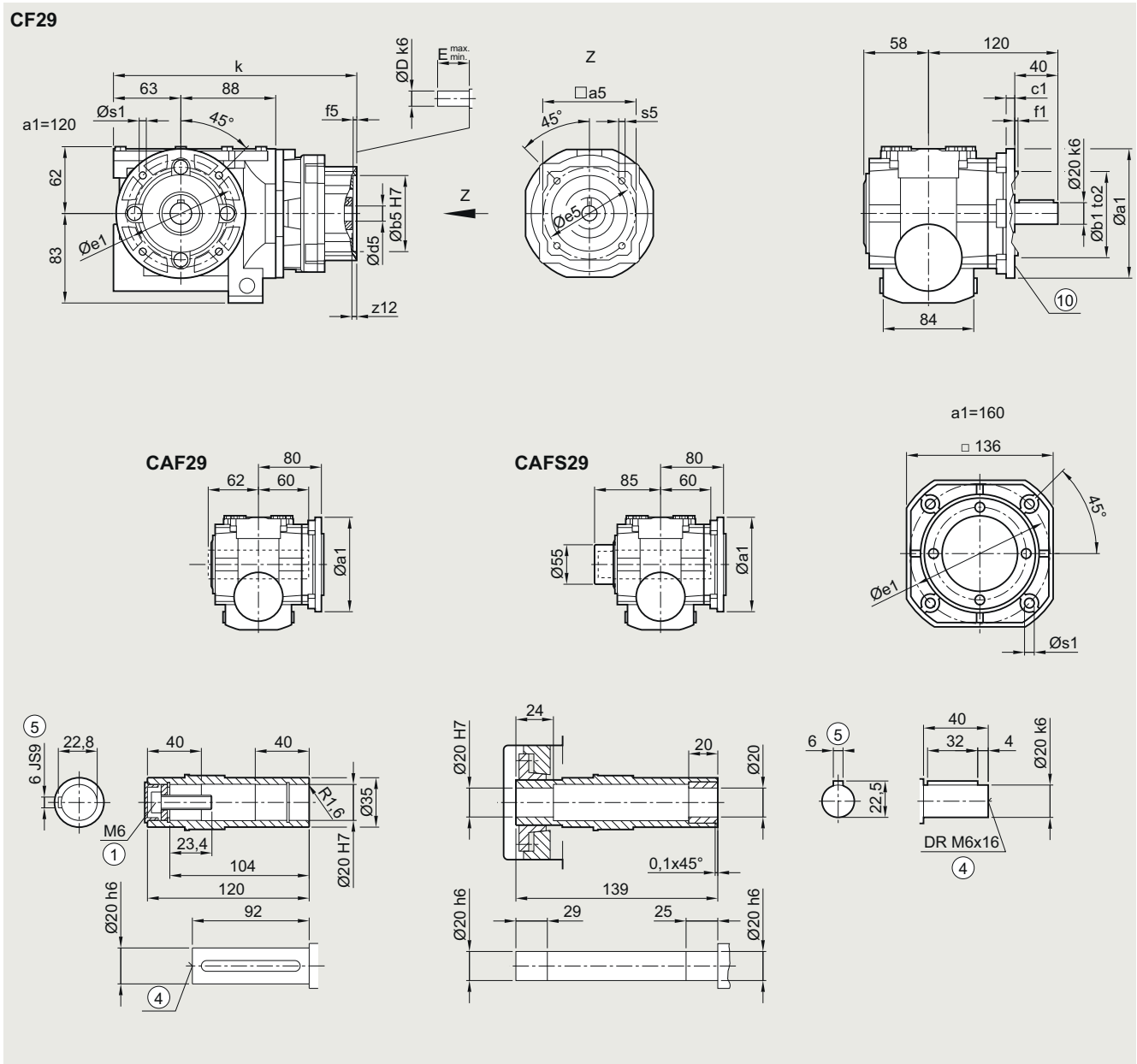
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

KS adapter exclusively for mounting defined Siemens servo motors

C.F.29 gearbox in a flange-mounted design



| Flange | a1 | b1 | to2 | c1 | e1 | f1 | s1 | | | |
|---------|-----|-----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 120 | 80 | j6 | 8 | 100 | 3.0 | 6.6 | | | |
| | 160 | 110 | j6 | 9 | 130 | 3.5 | 9.0 | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 232.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 232.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 261 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 261 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 6/78

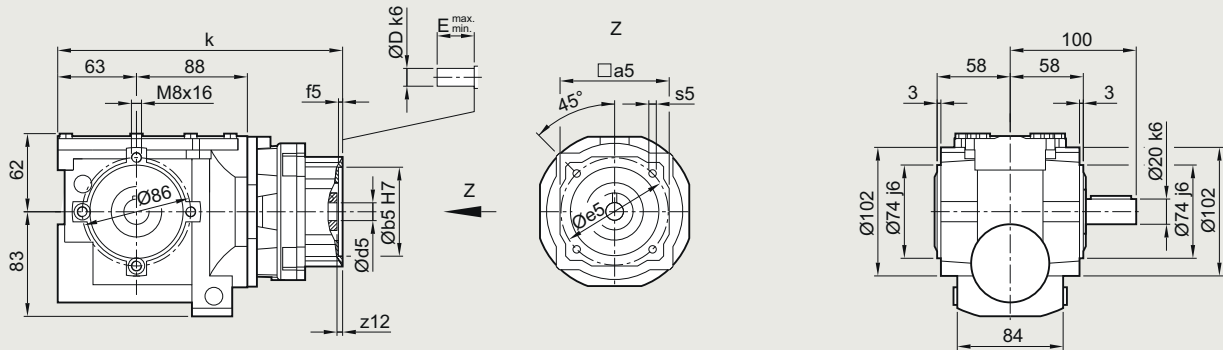
Helical worm gearboxes

Dimensional drawings

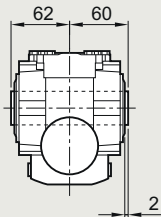
KS adapter exclusively for mounting defined Siemens servo motors

C.Z.29 gearbox in a housing flange design

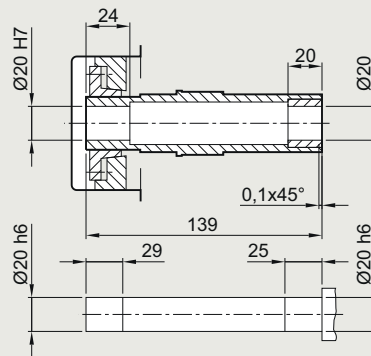
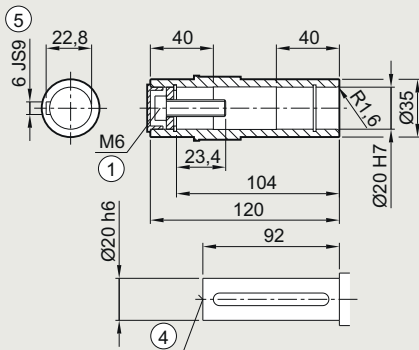
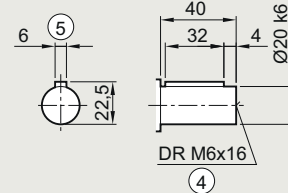
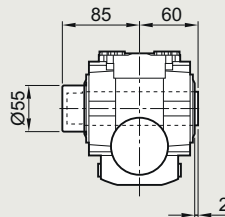
CZ29



CAZ29



CAZS29



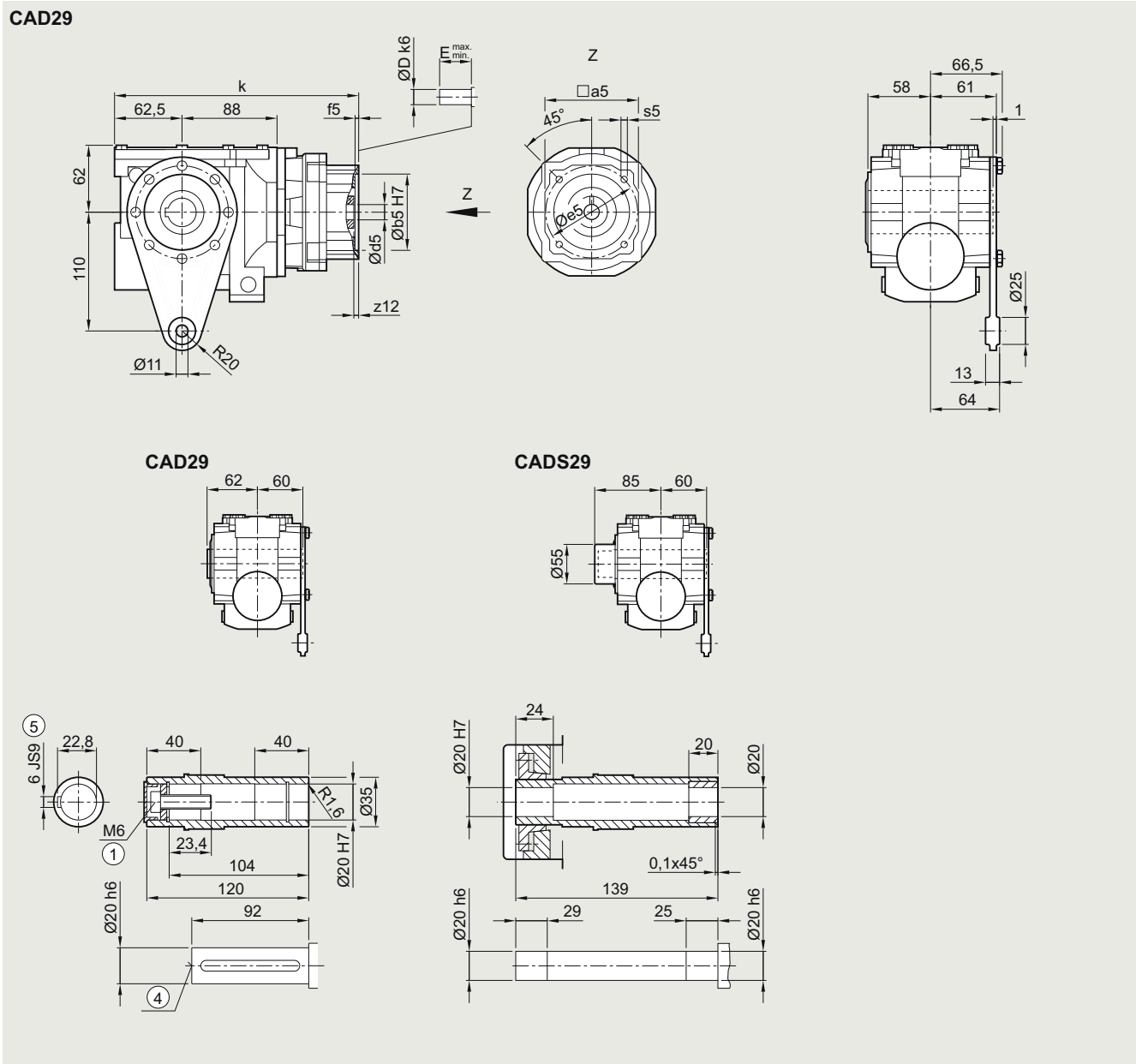
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 232.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 232.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 261 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 261 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

CAD.29 gearbox in a shaft-mounted design



| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|----|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 232.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 232.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 245 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 261 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 261 |

① ISO 4014

④ DIN 332

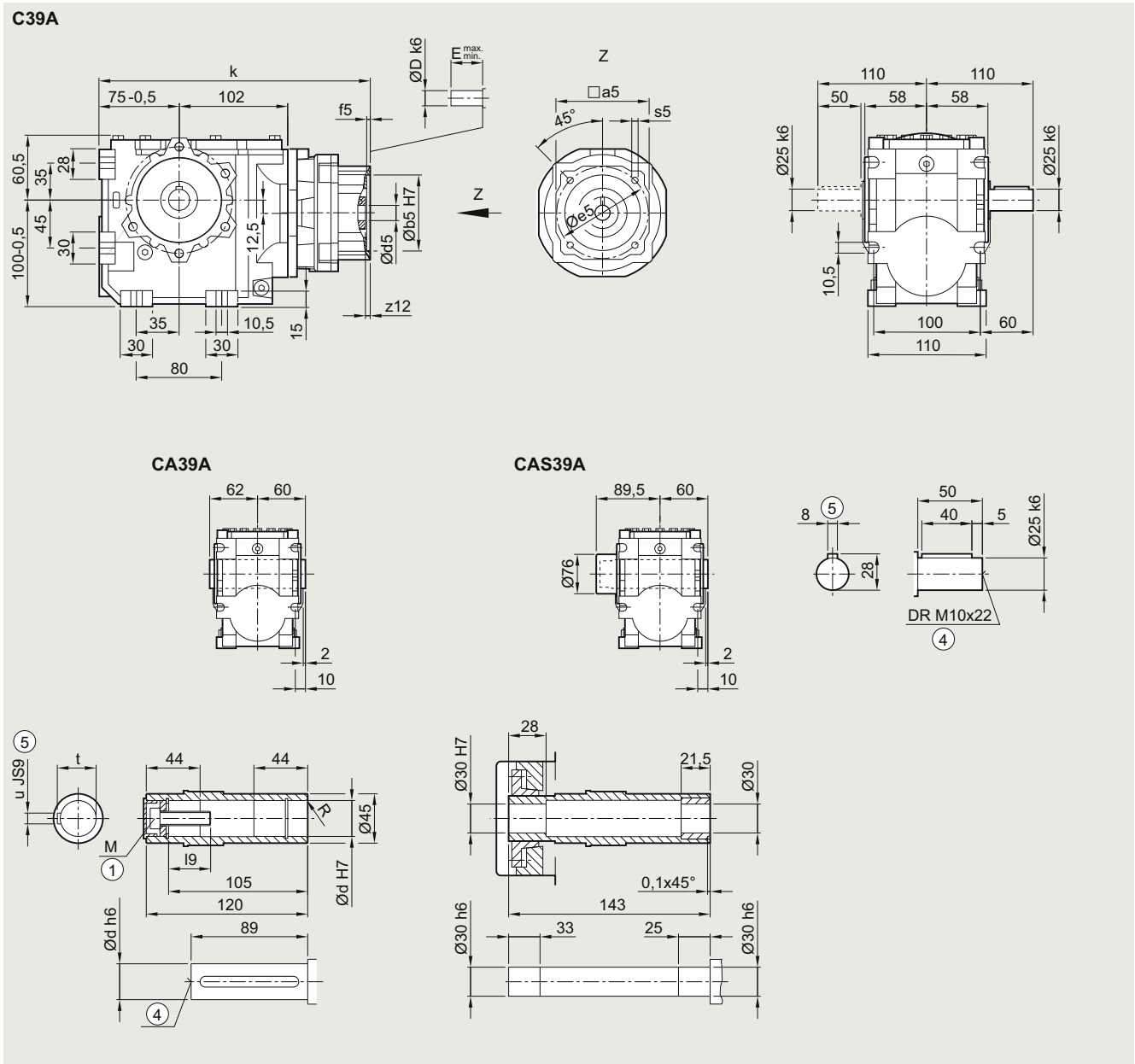
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C..39A gearbox in a foot-mounted design



| Shaft | d | l ₉ | M | R | t | u | | | | |
|---------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|-------------------|-------------------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | |
| Adapter | a ₅ | b ₅ | f ₅ | e ₅ | s ₅ | z ₁₂ | d ₅ /D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 259 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 259 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 287.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 287.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 312.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 312.5 |

① ISO 4014

④ DIN 332

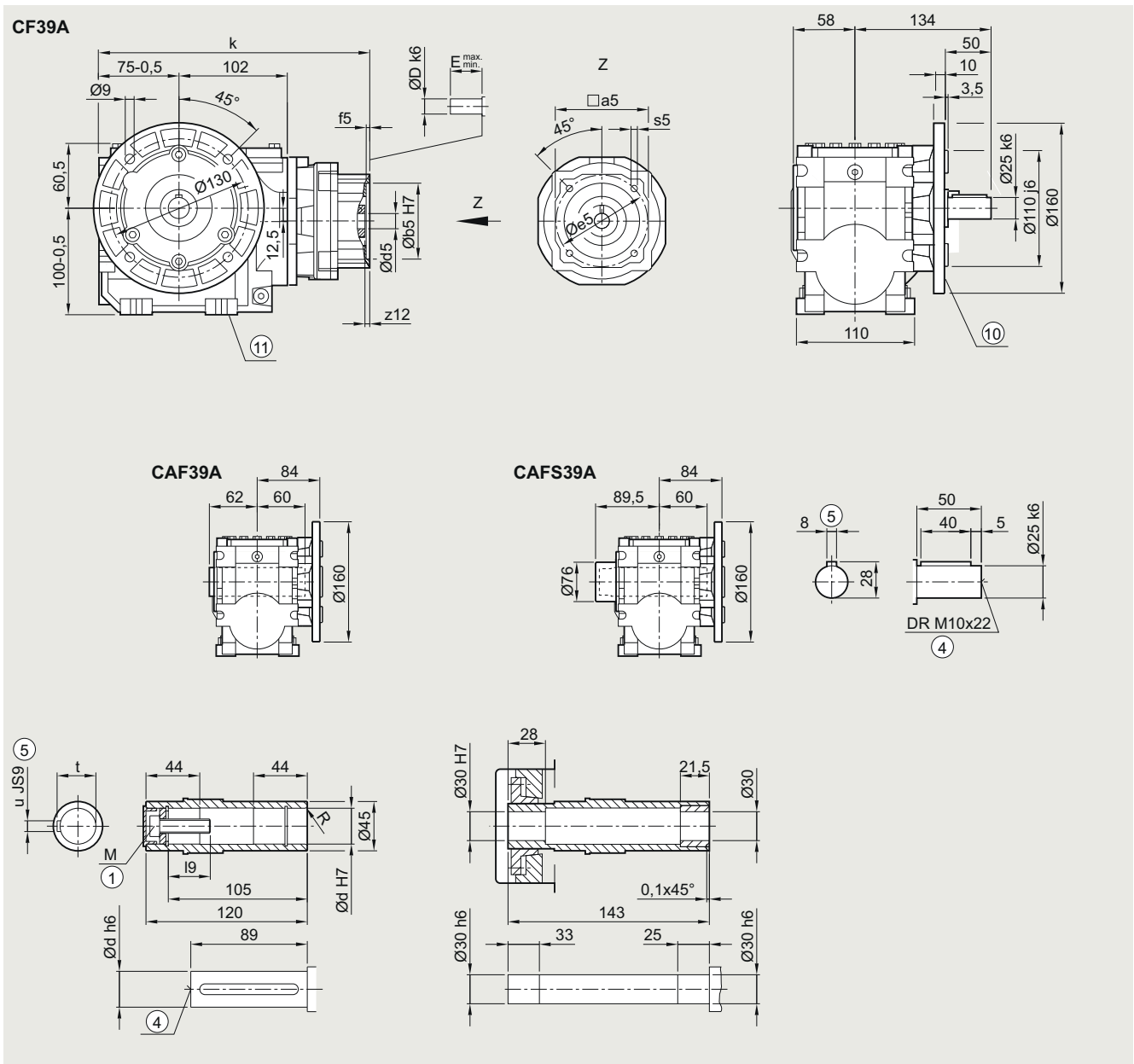
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

CF.39A gearbox in a flange-mounted design



| Shaft | d | l9 | M | R | t | u | | | | |
|---------|-----|------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 259 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 259 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 287.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 287.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 312.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 312.5 |

① ISO 4014

④ DIN 332

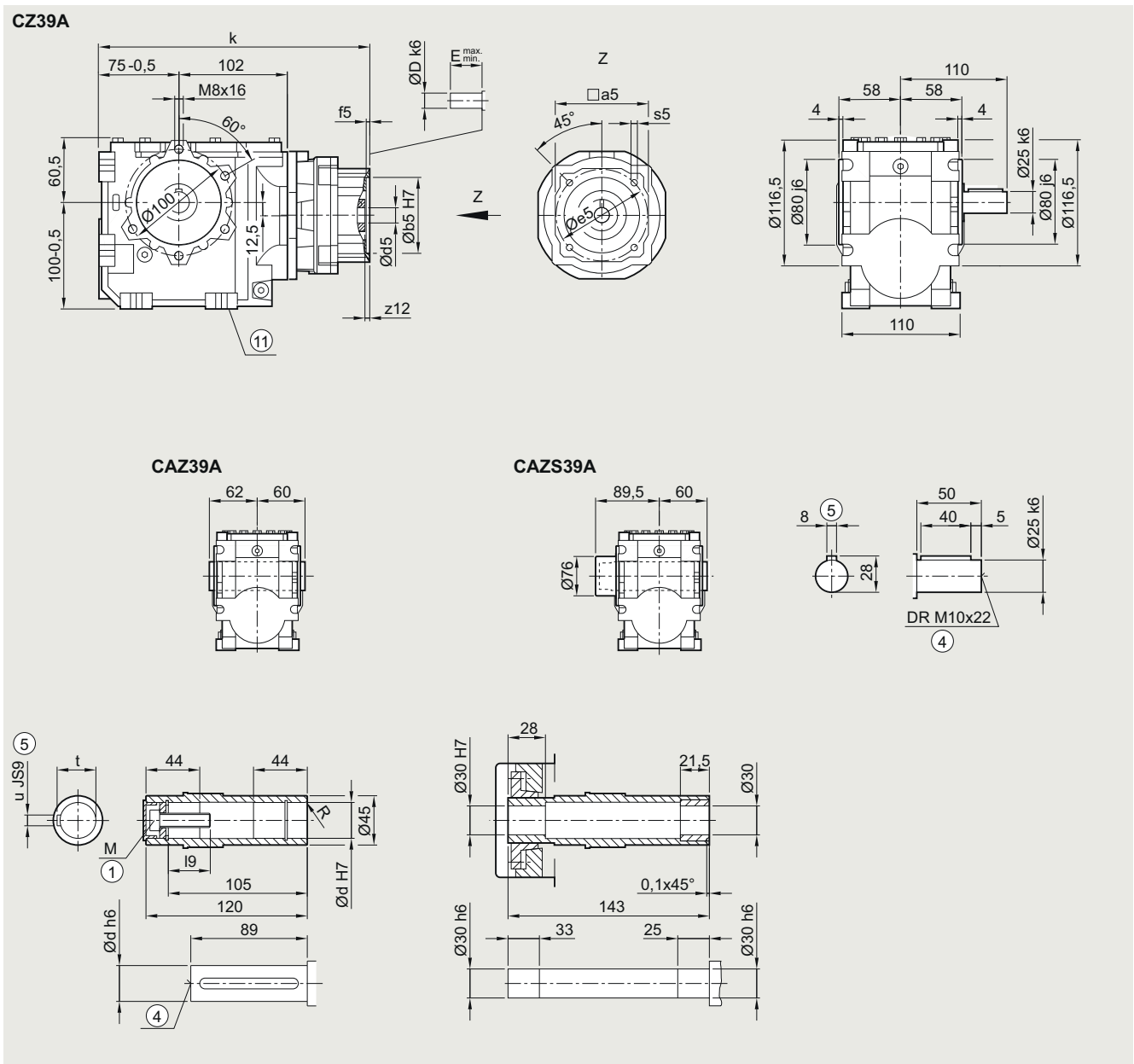
⑤ Feather key/keyway DIN 6885 ⑩ For inner contour, see page 6/78 ⑪ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C.Z.39A gearbox in a housing flange design



| Shaft | d | l9 | M | R | t | u | | | | |
|---------|-----|------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 259 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 259 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 287.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 287.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 312.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 312.5 |

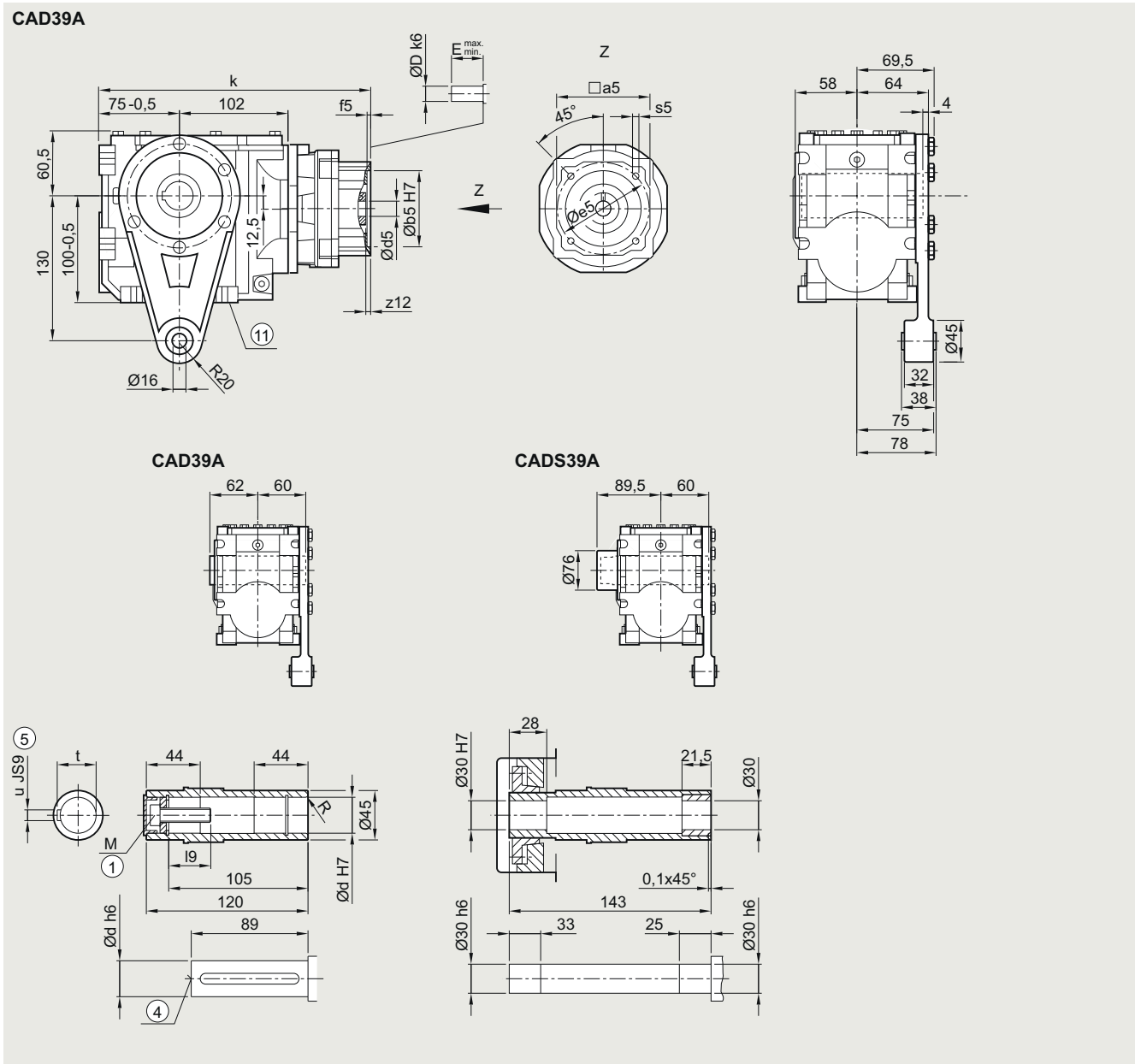
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

CAD.39A gearbox in a shaft-mounted design



| Shaft | d | l9 | M | R | t | u | | | | |
|---------|-----|------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 25 | 32.6 | M10 | 1.6 | 28.3 | 8 | | | | |
| | 30 | 32.6 | M10 | 3.0 | 33.3 | 8 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 259 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 259 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 271.5 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 287.5 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 287.5 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 312.5 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 312.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

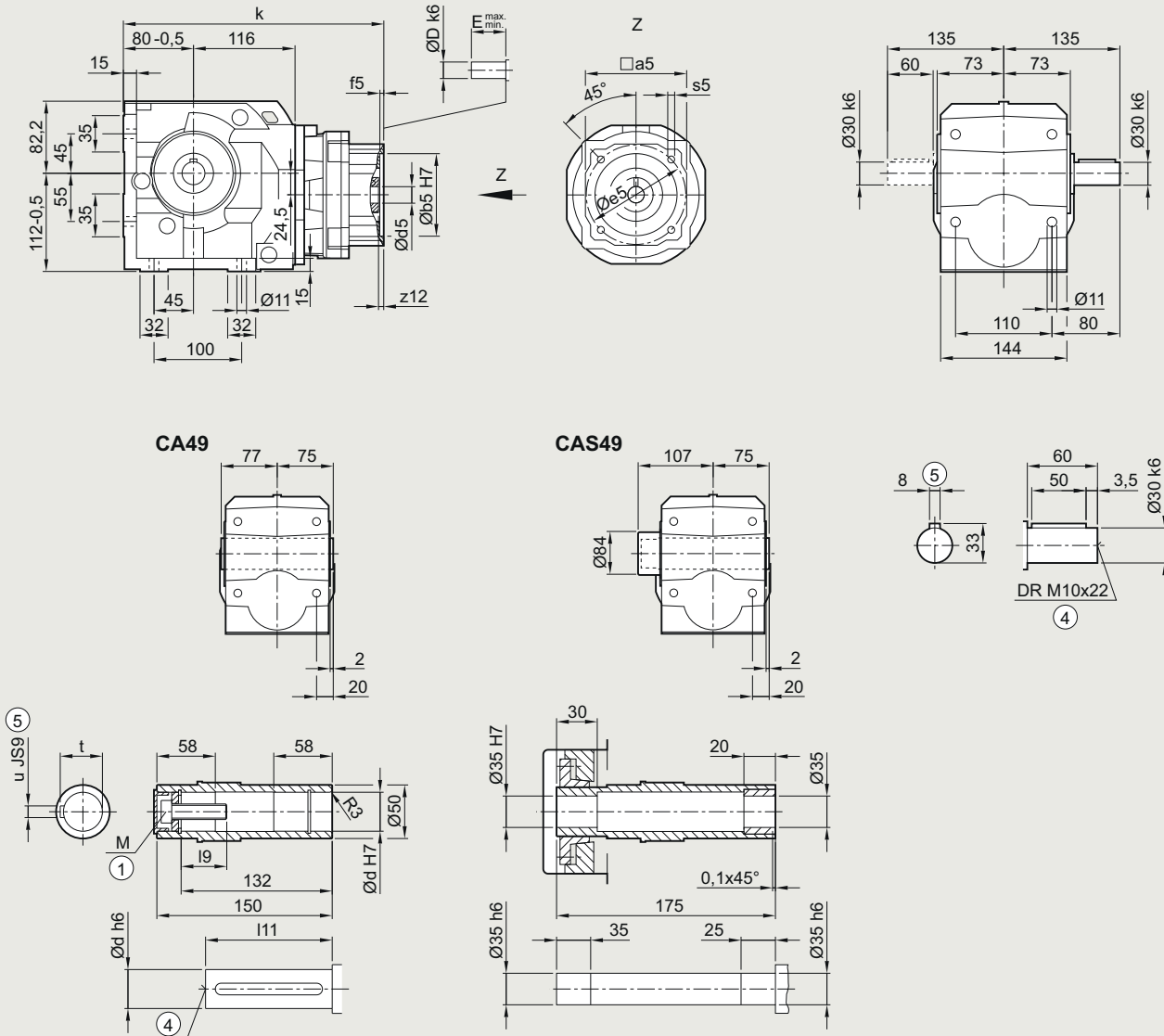
Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C..49 gearbox in a foot-mounted design

C49



| Shaft | d | l9 | l11 | M | t | u | | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 268.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 268.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 297 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 297 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 322 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 322 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 334.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | |

① ISO 4014

② DIN 332

③ Feather key/keyway DIN 6885

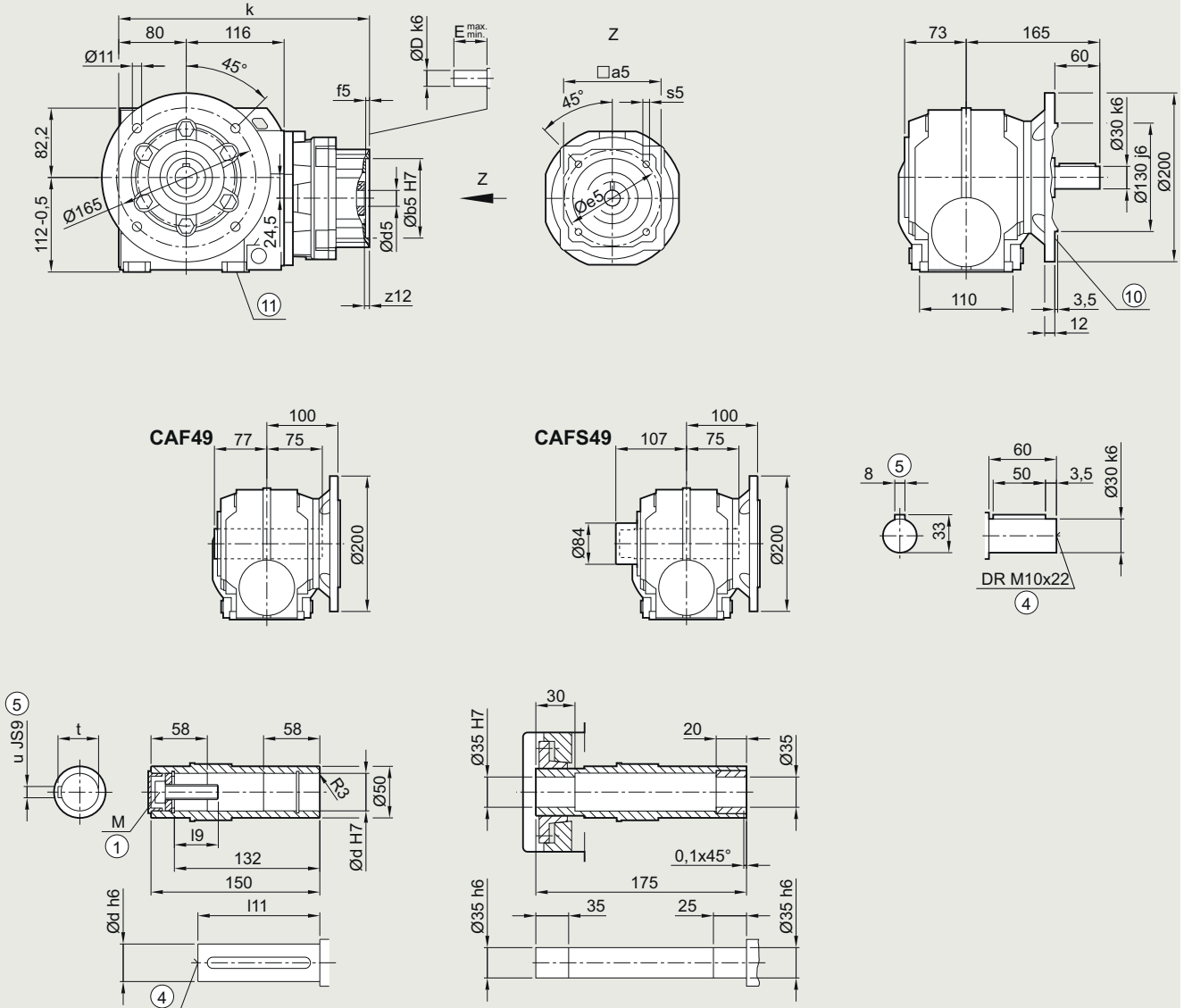
Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C.F.49 gearbox in a flange-mounted design

CF49



| Shaft | d | l9 | l11 | M | t | u | | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 268.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 268.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 297 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 297 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 322 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 322 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 334.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

⑪ Use bores only for foot-mounted design

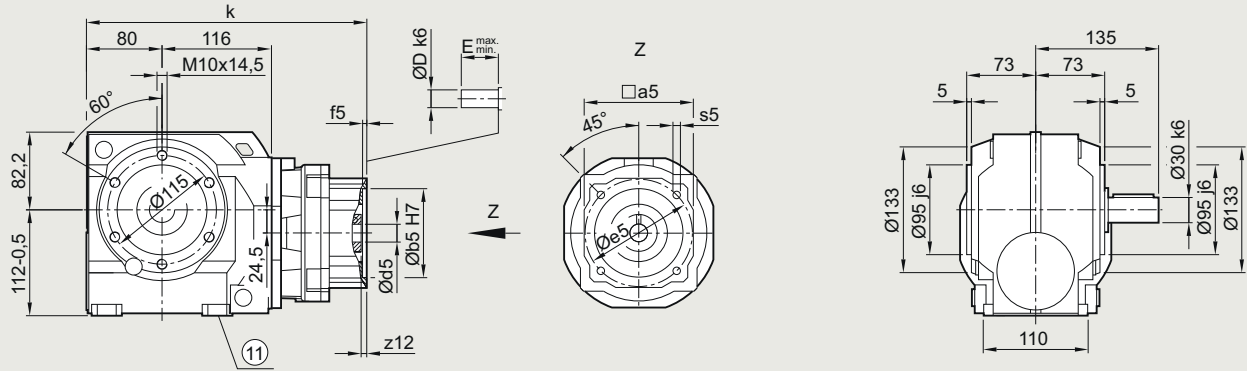
Helical worm gearboxes

Dimensional drawings

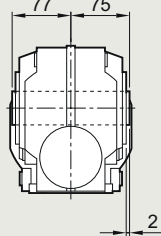
KS adapter exclusively for mounting defined Siemens servo motors

C.Z.49 gearbox in a housing flange design

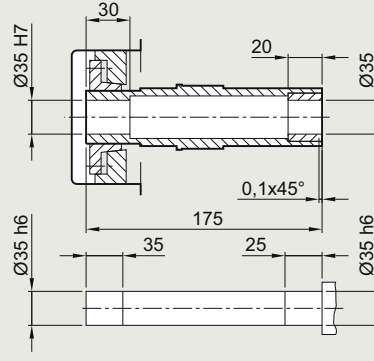
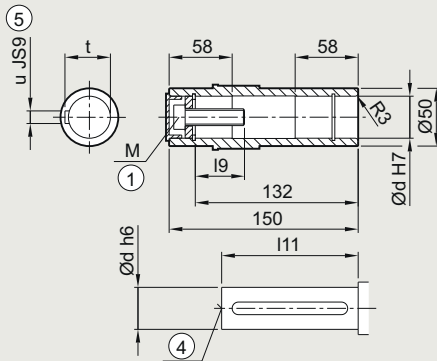
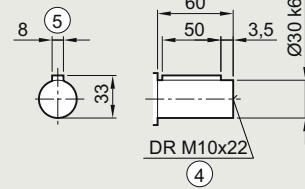
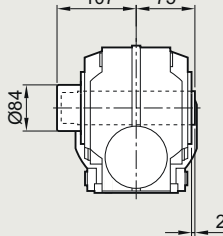
CZ49



CAZ49



CAZS49



| Shaft | d | l9 | l11 | M | t | u | | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 268.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 268.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 297 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 297 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 322 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 322 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 334.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | |

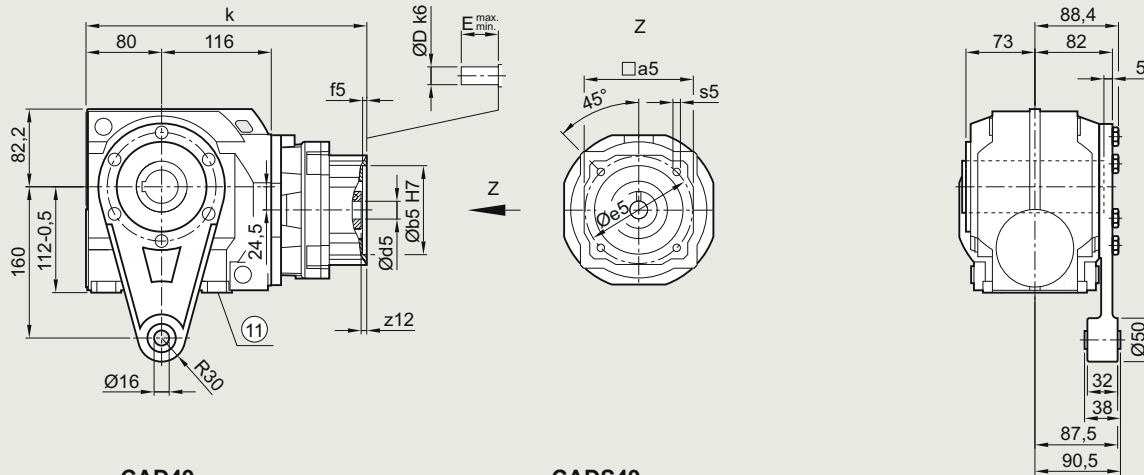
① ISO 4014

④ DIN 332

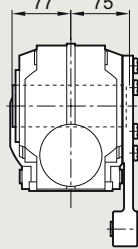
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

CAD.49 gearbox in a shaft-mounted design

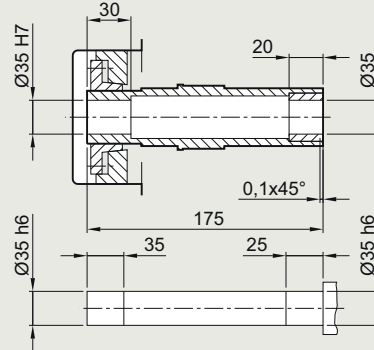
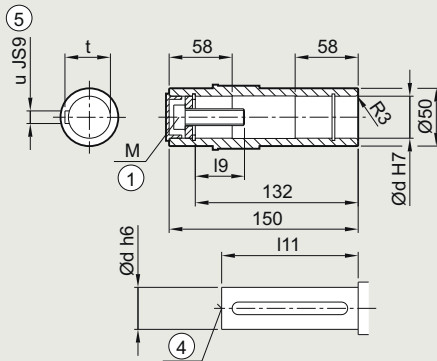
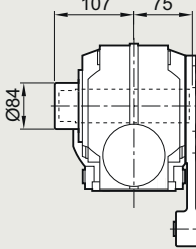
CAD49



CAD49



CADS49



| Shaft | d | l9 | l11 | M | t | u | | | | |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| | 30 | 32.6 | 114 | M10 | 33.3 | 8 | | | | |
| | 35 | 42 | 116 | M12 | 38.3 | 10 | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 268.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 268.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 281 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 297 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 297 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 322 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 322 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 334.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | |

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

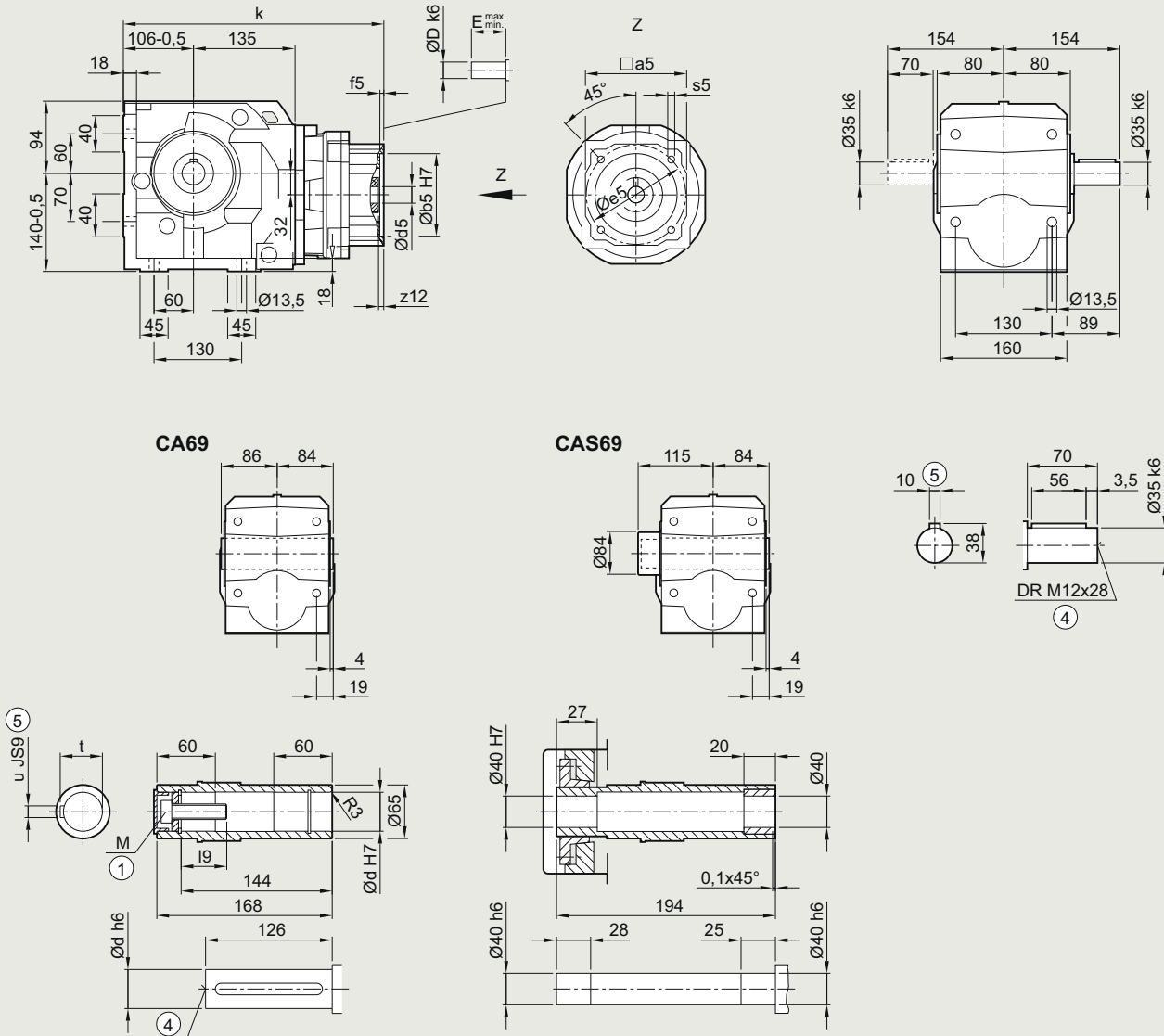
Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C..69 gearbox in a foot-mounted design

C69



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 313.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 313.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 342 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 342 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 367 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 367 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 379.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 415.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 415.5 |

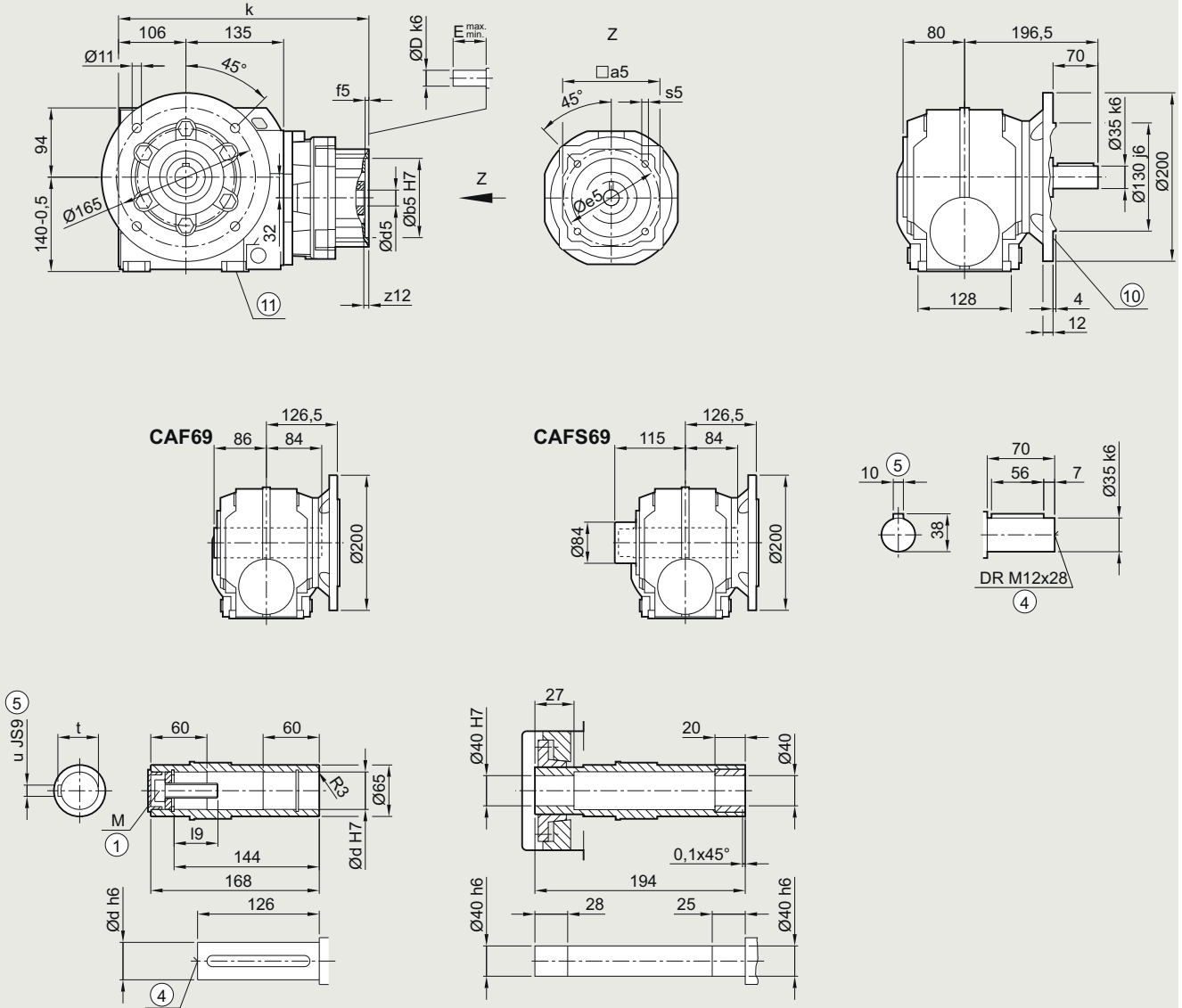
① ISO 4014

② DIN 332

③ Feather key/keyway DIN 6885

C.F.69 gearbox in a flange-mounted design

CF69



| Shaft | d | i9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 313.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 313.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 342 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 342 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 367 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 367 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 379.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 415.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 415.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

⑪ Use bores only for foot-mounted design

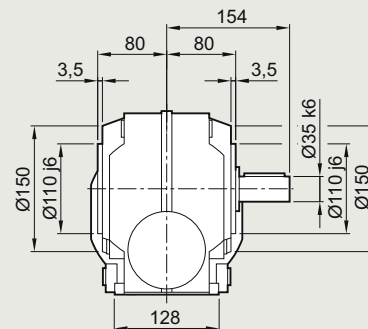
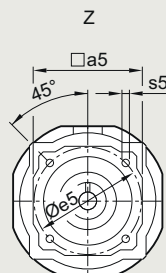
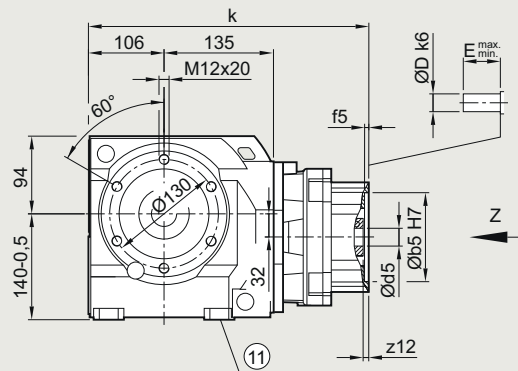
Helical worm gearboxes

Dimensional drawings

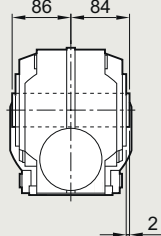
KS adapter exclusively for mounting defined Siemens servo motors

C.Z.69 gearbox in a housing flange design

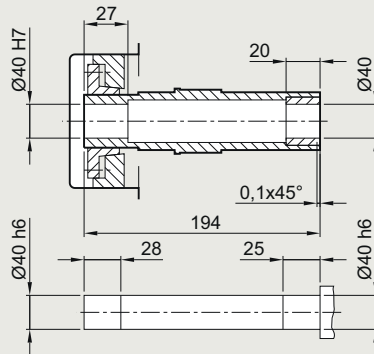
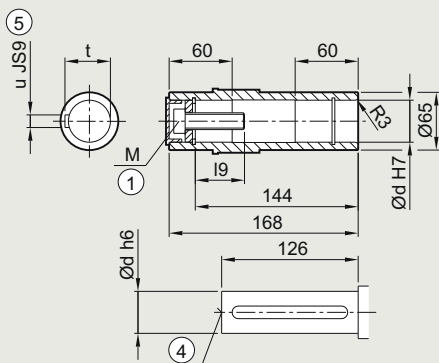
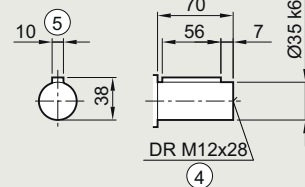
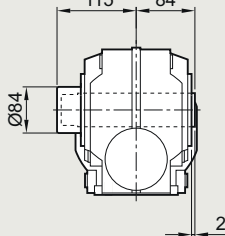
CZ69



CAZ69



CAZS69



| Shaft | d | i9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 313.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 313.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 342 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 342 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 367 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 367 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 379.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 415.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 415.5 |

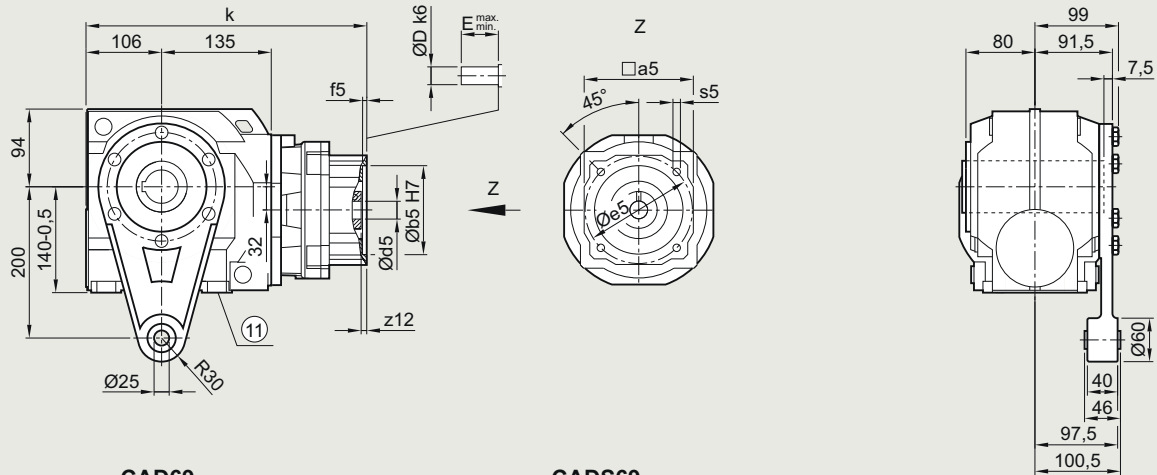
① ISO 4014

④ DIN 332

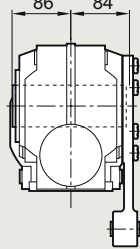
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

CAD.69 gearbox in a shaft-mounted design

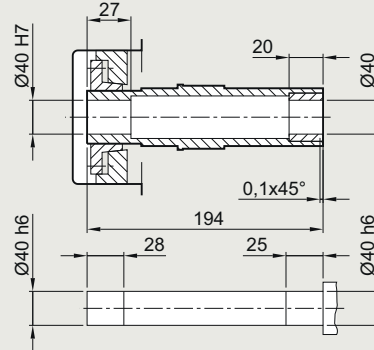
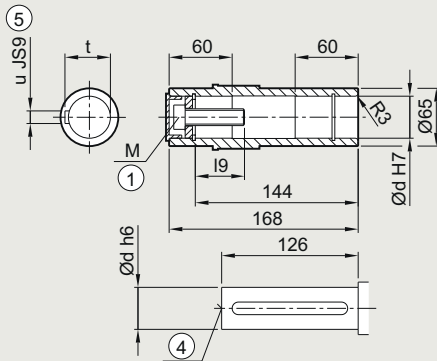
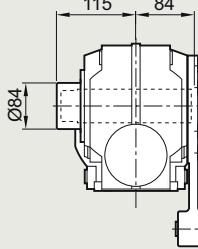
CAD69



CAD69



CADS69



| Shaft | d | l9 | M | t | u | | | | | |
|---------|-----|-------|-----|------|--------|-----|------|-------------------|-------------------|-------|
| | 40 | 47.75 | M16 | 43.3 | 12 | | | | | |
| | 45 | 48.75 | M16 | 48.3 | 14 | | | | | |
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 313.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 313.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 326 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 342 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 342 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 367 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 367 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 379.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 415.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 415.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

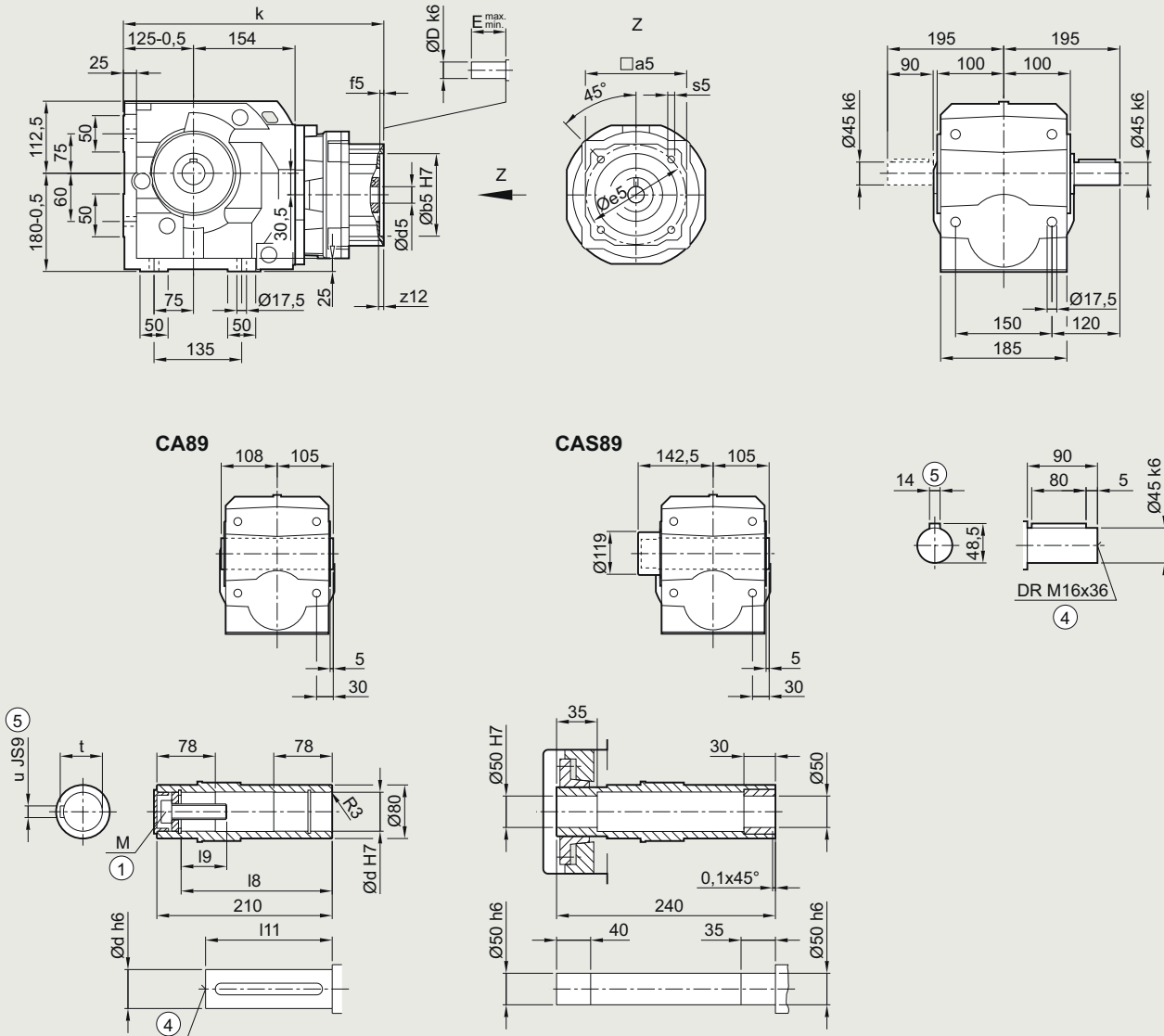
Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C..89 gearbox in a foot-mounted design

C89



| Shaft | d | l8 | l9 | l11 | M | t | u |
|-------|----|-----|------|-----|-----|------|----|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 |

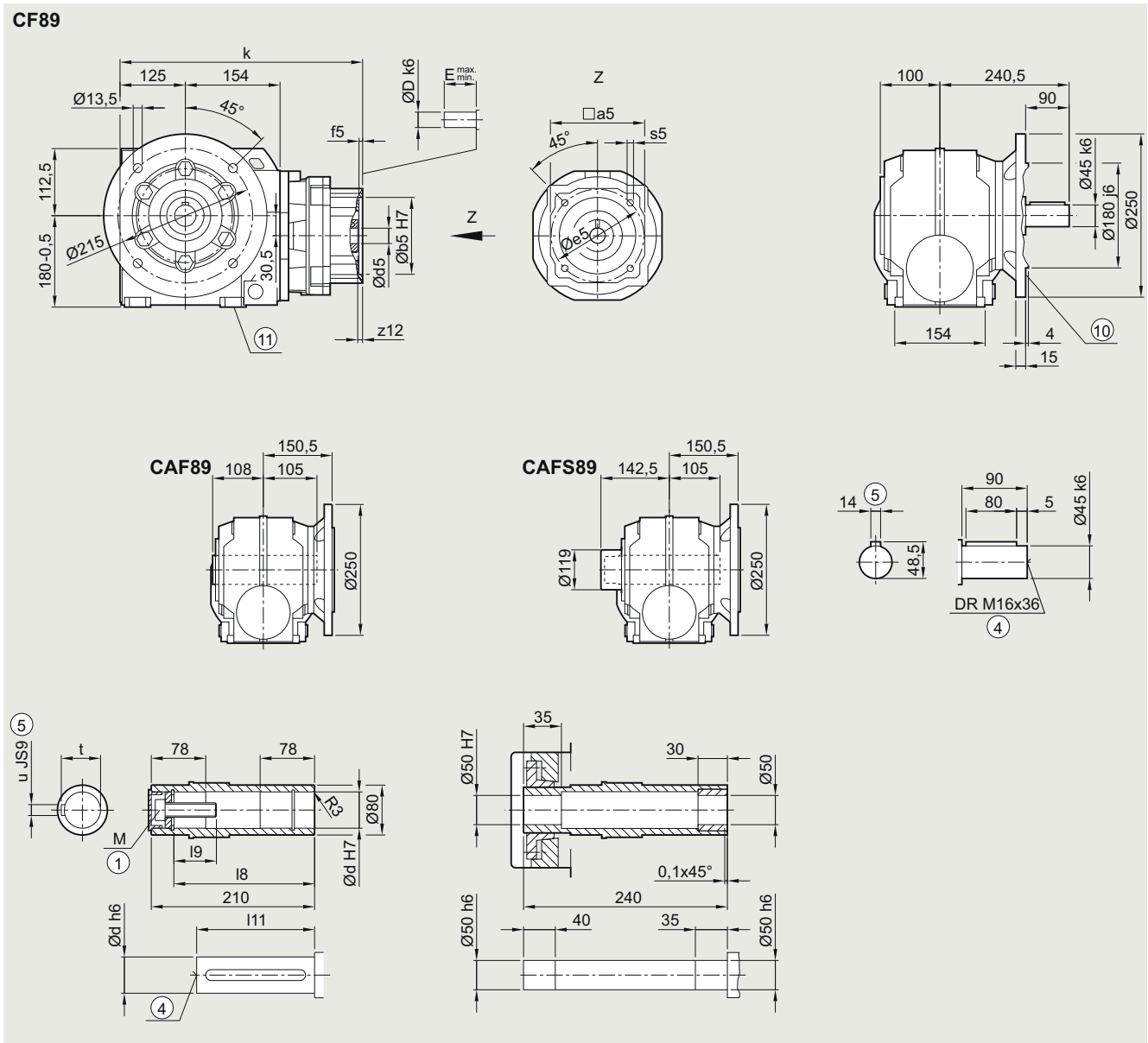
| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 349.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 349.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 374.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 374.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 399.0 |
| KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 399.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 411.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 447.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 447.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

C.F.89 gearbox in a flange-mounted design



| Shaft | d | l8 | l9 | l11 | M | t | u |
|-------|----|-----|------|-----|-----|------|----|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 |

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 349.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 349.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 374.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 374.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 399.0 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 399.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 411.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 447.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 447.5 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑩ For inner contour, see page 6/78

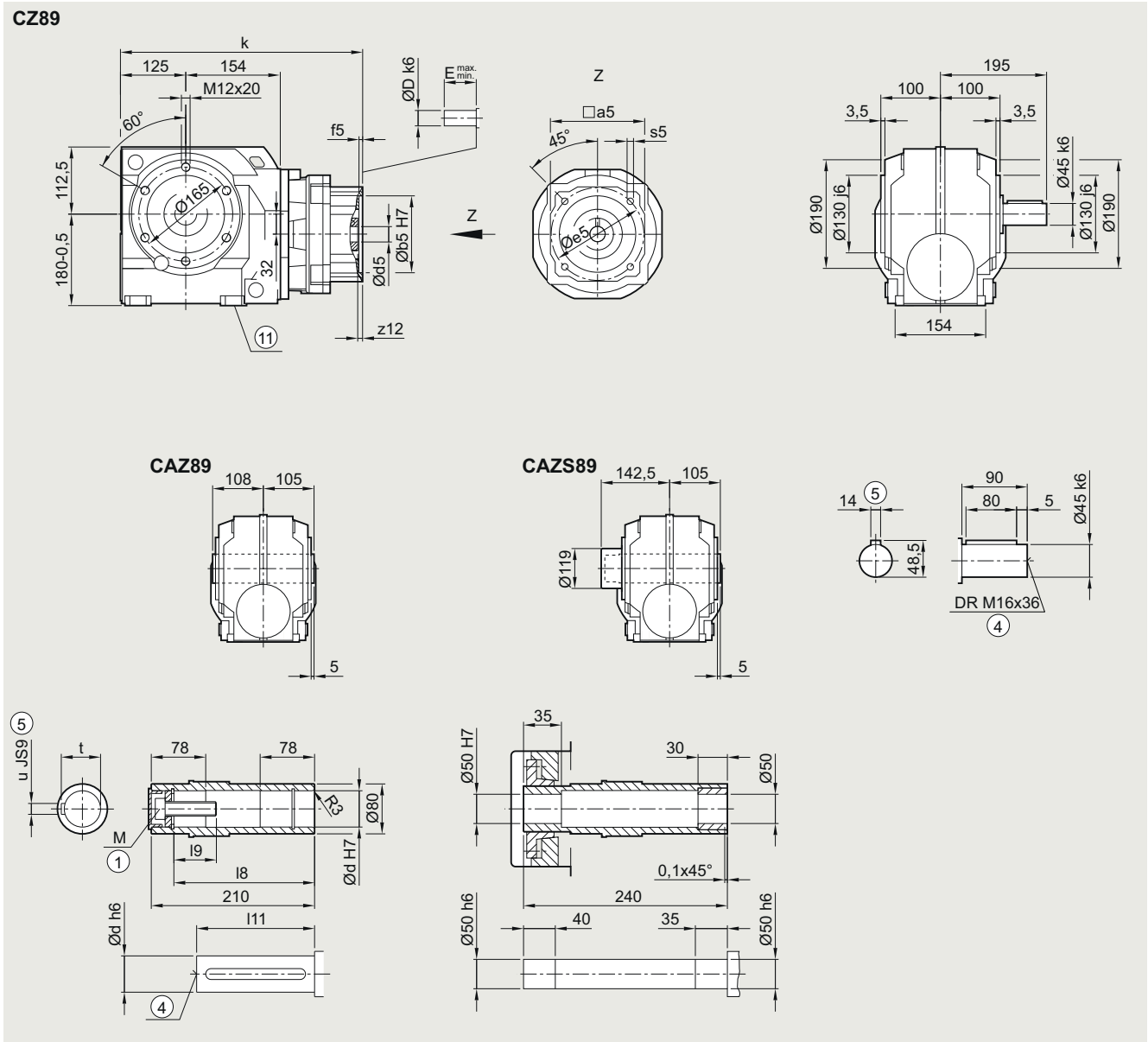
⑪ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

KS adapter exclusively for mounting defined Siemens servo motors

C.Z.89 gearbox in a housing flange design



| Shaft | d | l8 | l9 | l11 | M | t | u |
|-------|----|-----|------|-----|-----|------|----|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 |

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 349.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 349.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 374.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 374.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 399.0 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 399.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 411.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 447.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 447.5 |

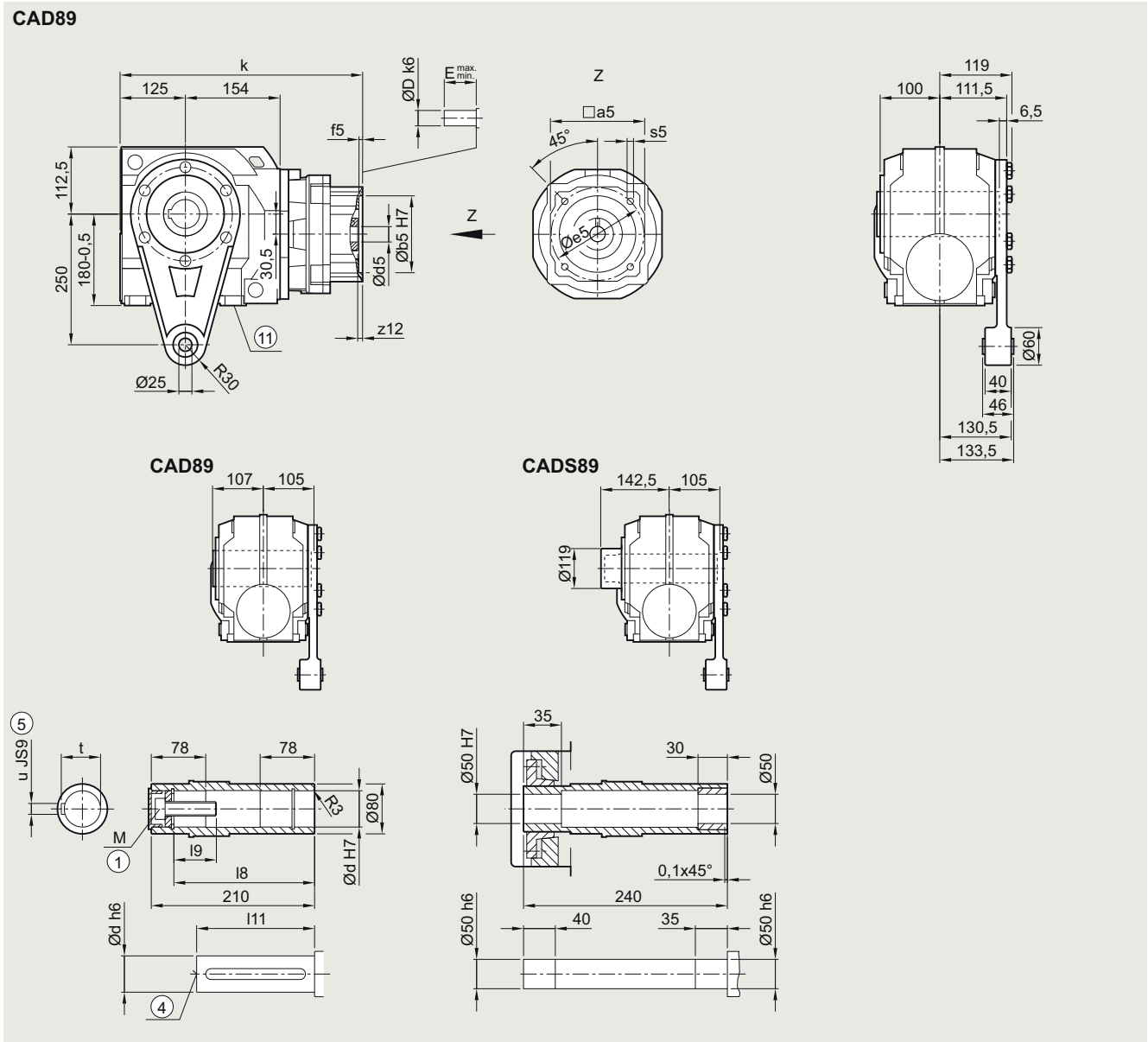
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

KS adapter exclusively for mounting defined Siemens servo motors

CAD.89 gearbox in a shaft-mounted design



| Shaft | d | l8 | l9 | l11 | M | t | u |
|-------|----|-----|------|-----|-----|------|----|
| | 50 | 183 | 44.5 | 165 | M16 | 53.8 | 14 |
| | 60 | 180 | 57 | 158 | M20 | 64.4 | 18 |

| Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | k |
|---------|-----|-------|-----|-----|--------|-----|------|-------------------|-------------------|-------|
| KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 349.5 |
| KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 349.5 |
| KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 362.0 |
| KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 374.0 |
| KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 374.0 |
| KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 399.0 |
| KS6.2 | 130 | 110 | 7 | 145 | M8x15 | 8 | 22 | 40 | 58 | 399.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 411.5 |
| KS10.1 | 196 | 180 | 5.0 | 215 | M12x22 | 5 | 38 | 50 | 80 | 447.5 |
| KS10.2 | 196 | 114.3 | 5.0 | 200 | M12x22 | 5 | 35 | 50 | 80 | 447.5 |

① ISO 4014

④ DIN 332

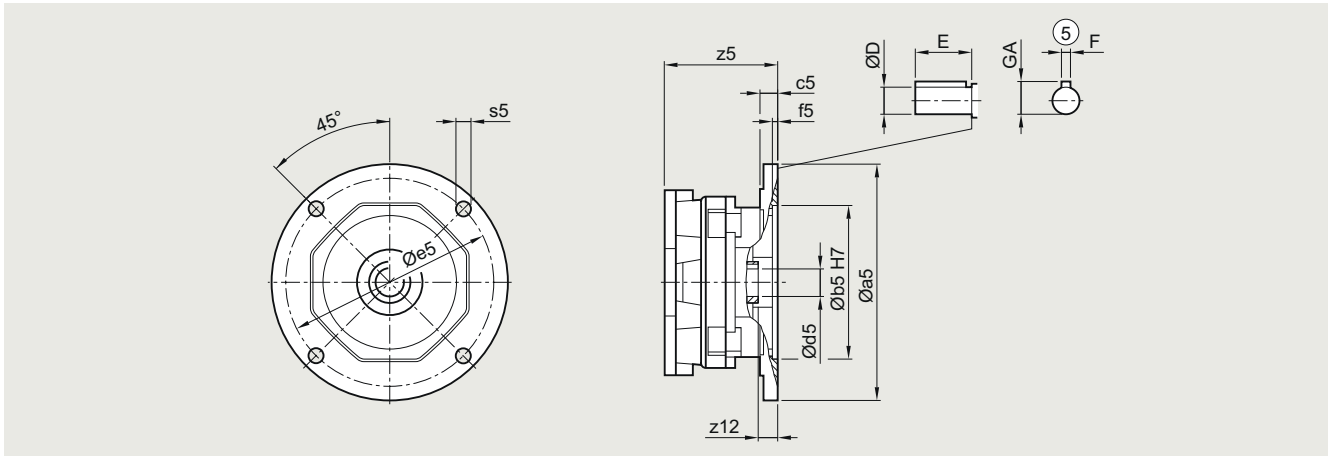
⑤ Feather key/keyway DIN 6885 ⑩ Use bores only for foot-mounted design

Helical worm gearboxes

Dimensional drawings

Adapter K5 for mounting a NEMA motor

C...29 to C...89 gearboxes

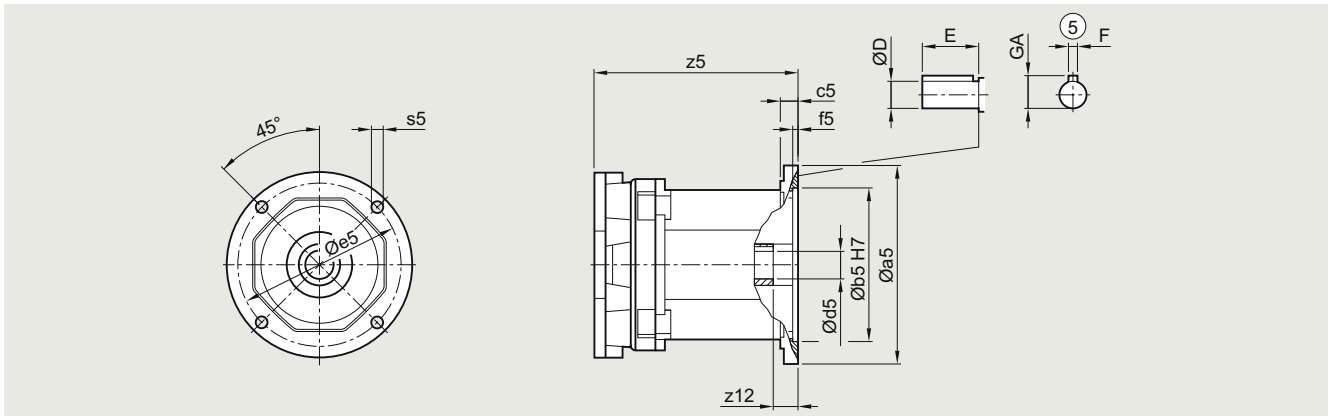


6

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|----------------|-----|-------|----|-----|-------|------|-----|--------|--------|-------|--------|-------|
| C...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| C...39A | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 118.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 118.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 200.5 |
| C...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| C...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 109.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 109.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 191.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 207.0 |
| C...89 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 103.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 103.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 185.0 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 12 | 34.925 | 85.850 | 7.938 | 38.443 | 201.0 |

Ⓢ Feather key/keyway DIN 6885

C...29 to C...89 gearboxes



| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | GA | F | z5 |
|----------------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| C...29 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| C...39A | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 201.0 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 201.0 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 257.0 |
| C...49 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| C...69 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 191.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 191.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 247.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 318.0 |
| C...89 | | | | | | | | | | | | |
| 56 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 185.5 |
| 140 | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 185.5 |
| 180 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 241.5 |
| 210 | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 49.5 | 34.925 | 85.850 | 7.938 | 38.443 | 312.0 |

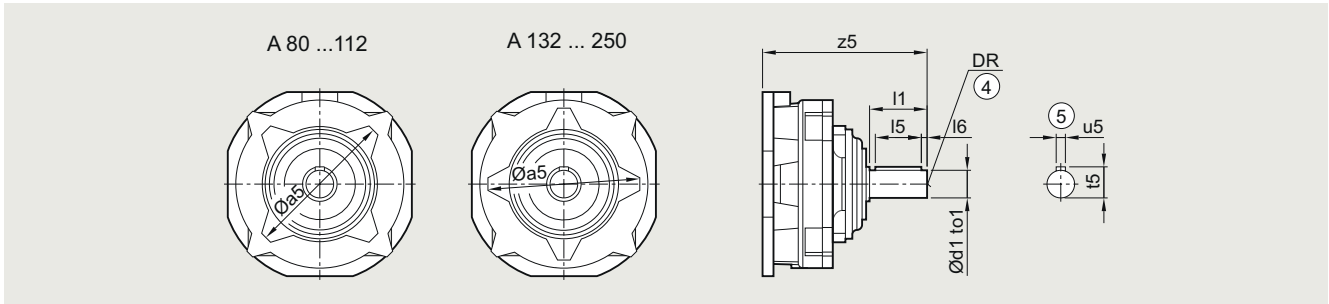
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Adapter A with free output shaft

C...29 to C...89 gearboxes



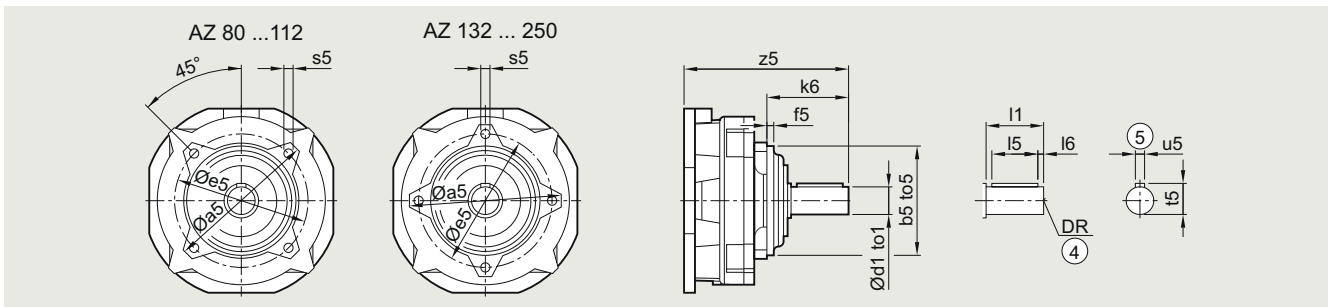
6

| Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|----------------|-----|----|-----|----|----|----|----|------|-----|-------|
| C...29 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 153.5 |
| C...39A | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 143.5 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 153.5 |
| C...49 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134.0 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 144.0 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 211.0 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 211.0 |
| C...69 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 134.0 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 144.0 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 211.0 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 211.0 |
| C...89 | | | | | | | | | | |
| 80 | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 128.0 |
| 90 | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 138.0 |
| 100 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 205.0 |
| 112 | 170 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 205.0 |
| 132 | 215 | 38 | k6 | 80 | 70 | 5 | 10 | 41.0 | M12 | 255.0 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

C...29 to C...89 gearboxes



| Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|----------------|-----|-----|-----|-----|----|--------|----|-----|----|----|----|----|------|-----|------|-------|
| C...29 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61.0 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 71.0 | 153.5 |
| C...39A | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61.0 | 143.5 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 71.0 | 153.5 |
| C...49 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61.0 | 134.0 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 71.0 | 144.0 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 211.0 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 211.0 |
| C...69 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61.0 | 134.0 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 71.0 | 144.0 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 211.0 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 211.0 |
| C...89 | | | | | | | | | | | | | | | | |
| 80 | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6 | 61.0 | 128.0 |
| 90 | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8 | 71.0 | 138.0 |
| 100 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 205.0 |
| 112 | 170 | 120 | j6 | 145 | 6 | M10x17 | 28 | k6 | 60 | 50 | 5 | 8 | 31.0 | M10 | 70.5 | 205.0 |
| 132 | 215 | 160 | j6 | 184 | 6 | M16x22 | 38 | k6 | 80 | 70 | 5 | 10 | 41.0 | M12 | 98.5 | 255.0 |

④ DIN 332

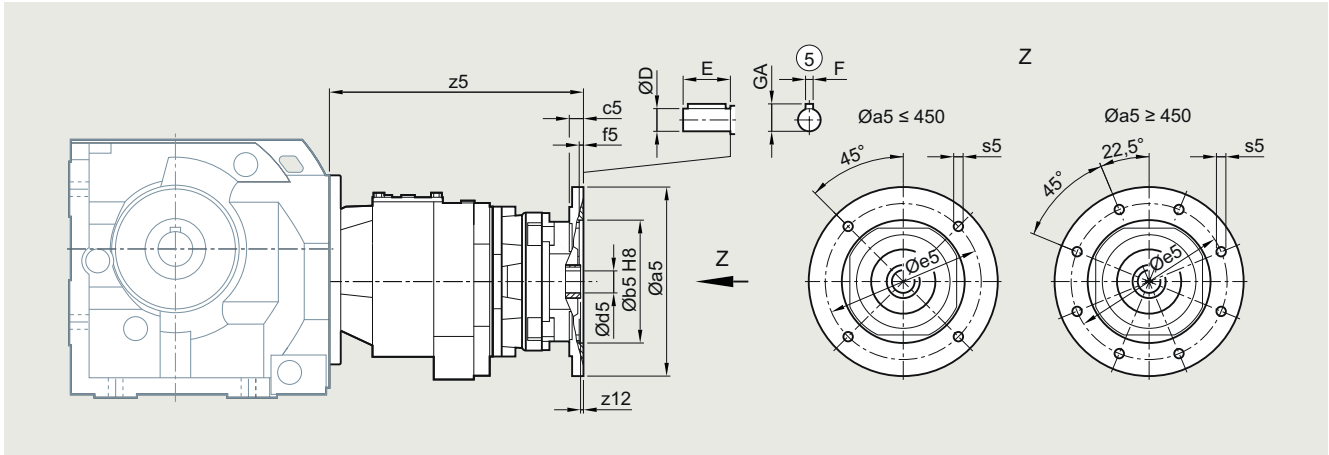
⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

Tandem gearbox with adapter K4 and K2 for mounting an IEC motor

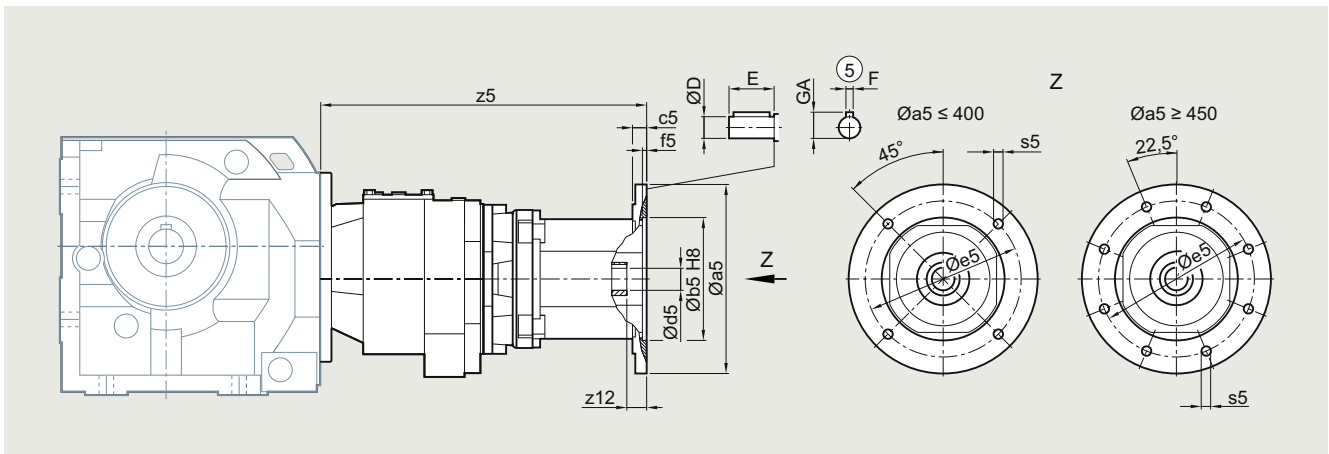
Helical worm tandem gearbox with adapter K4



| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|------------|----------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| C.89-D/Z39 | K4-(63) | 140 | 95 | 12 | 4.5 | 115 | M8 | 2.5 | 11 | 23 | 4 | 12.5 | 257.0 |
| | K4-(71) | 160 | 110 | 12 | 4.5 | 130 | M8 | 2.5 | 14 | 30 | 5 | 16.0 | 257.0 |
| | K4-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 19 | 40 | 6 | 12.5 | 285.0 |
| | K4-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 4.0 | 24 | 50 | 8 | 27.0 | 285.0 |
| | K4-(100) | 250 | 180 | 16 | 5 | 215 | M12 | 7.5 | 28 | 60 | 8 | 31.0 | 339.5 |

⑤ Feather key/keyway DIN 6885

Helical worm tandem gearbox with adapter K2

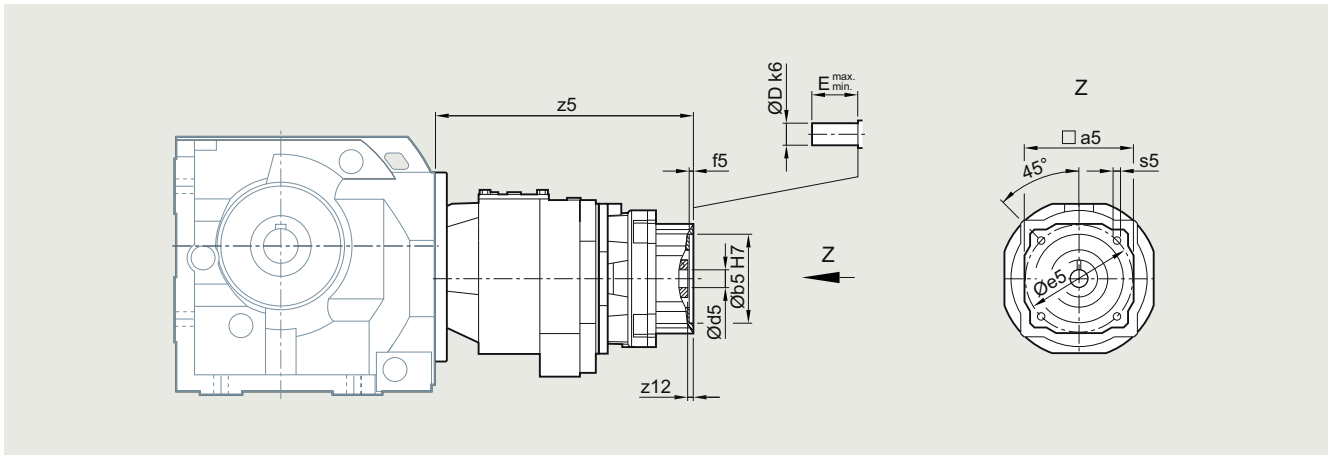


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|------------|----------|-----|-----|----|-----|-----|-----|-----|------|----|---|------|-------|
| C.89-D/Z39 | K2-(80) | 200 | 130 | 15 | 4.5 | 165 | M10 | 15 | 19 | 40 | 6 | 21.5 | 377.5 |
| | K2-(90) | 200 | 130 | 15 | 4.5 | 165 | M10 | 25 | 24 | 50 | 8 | 27.0 | 377.5 |
| | K2-(100) | 250 | 180 | 18 | 5.0 | 215 | M12 | 30 | 28 | 60 | 8 | 31.0 | 424.5 |

⑤ Feather key/keyway DIN 6885

Tandem gearbox with KS adapter exclusively for mounting defined Siemens servo motors

Helical worm tandem gearbox with KS adapter



6

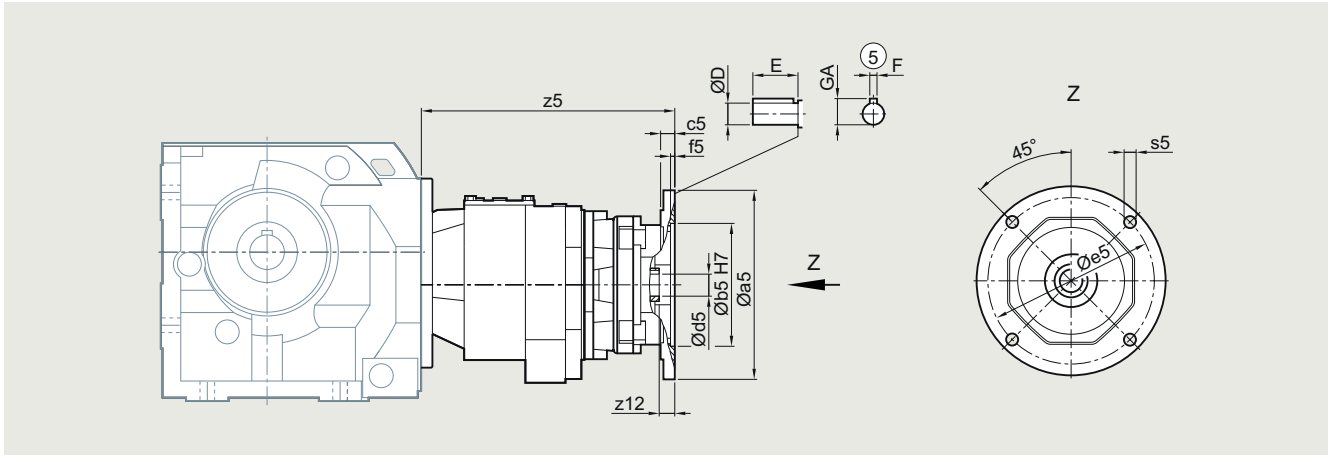
| Gearbox | Adapter | a5 | b5 | f5 | e5 | s5 | z12 | d5/D | E _{min.} | E _{max.} | z5 |
|-------------|---------|-----|-----|-----|--------|--------|-----|------|-------------------|-------------------|-------|
| C.29-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219.0 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219.0 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| C.39A-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 219.0 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 219.0 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 231.5 |
| C.49-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210.0 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210.0 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| C.69-D/Z19 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 210.0 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 210.0 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 222.5 |
| C.89-D/Z39 | KS3.1 | 73 | 50 | 4.5 | 70 | M5x9.5 | 5 | 14 | 25 | 31 | 261.5 |
| | KS3.2 | 73 | 60 | 4.5 | 75 | M6x11 | 5 | 14 | 25 | 31 | 261.5 |
| | KS4.1 | 85 | 70 | 5.5 | 90 | M6x13 | 5 | 19 | 35 | 40 | 274.0 |
| | KS4.2 | 85 | 80 | 5.5 | 100 | M6x13 | 5 | 19 | 35 | 40 | 274.0 |
| | KS5.1 | 117 | 80 | 4.5 | 100 | M6x11 | 5 | 19 | 35 | 45 | 290.0 |
| | KS5.2 | 117 | 95 | 4.5 | 115 | M8x14 | 5 | 19 | 35 | 45 | 290.0 |
| | KS6.1 | 130 | 110 | 4.5 | 130 | M8x15 | 8 | 24 | 40 | 58 | 315.0 |
| | KS6.2 | 130 | 110 | 7.0 | 145 | M8x15 | 8 | 22 | 40 | 58 | 315.0 |
| KS8.1 | 155 | 130 | 4.5 | 165 | M10x14 | 2 | 32 | 40 | 80 | 327.5 | |

Helical worm gearboxes

Dimensional drawings

Tandem gearbox with adapter K5 and K3 for mounting NEMA motors

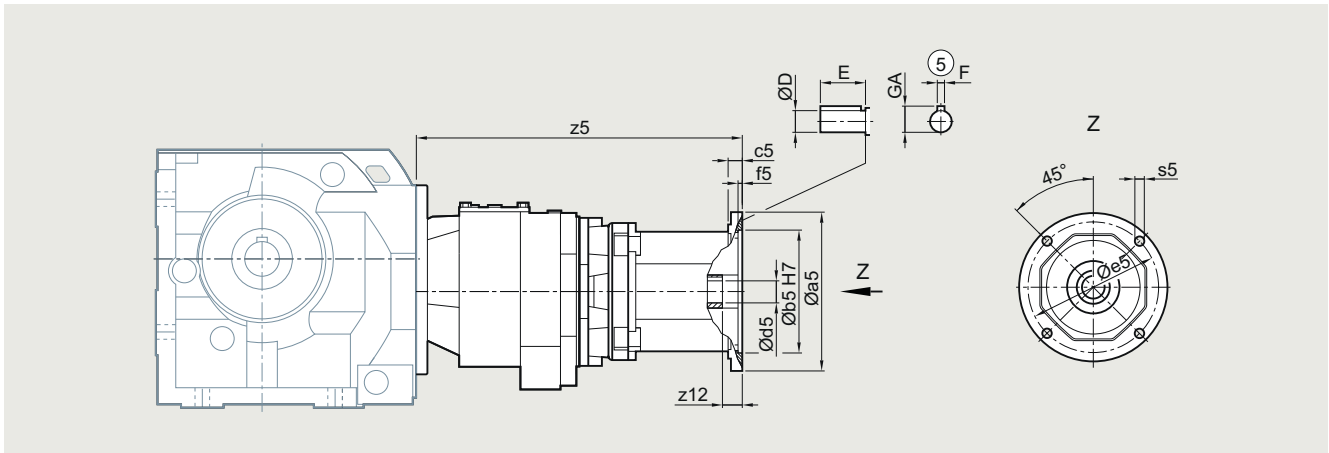
Helical worm tandem gearbox with adapter K5



| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|------------|----------|-----|-------|----|-----|-------|------|-----|--------|--------|-------|--------|-----|
| C.89-D/Z39 | K5-(56) | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 15.875 | 47.752 | 4.763 | 17.895 | 298 |
| | K5-(140) | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 16 | 22.225 | 57.150 | 4.763 | 24.346 | 298 |
| | K5-(160) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 26 | 28.575 | 69.850 | 6.350 | 31.394 | 380 |

⑤ Feather key/keyway DIN 6885

Helical worm tandem gearbox with adapter K3

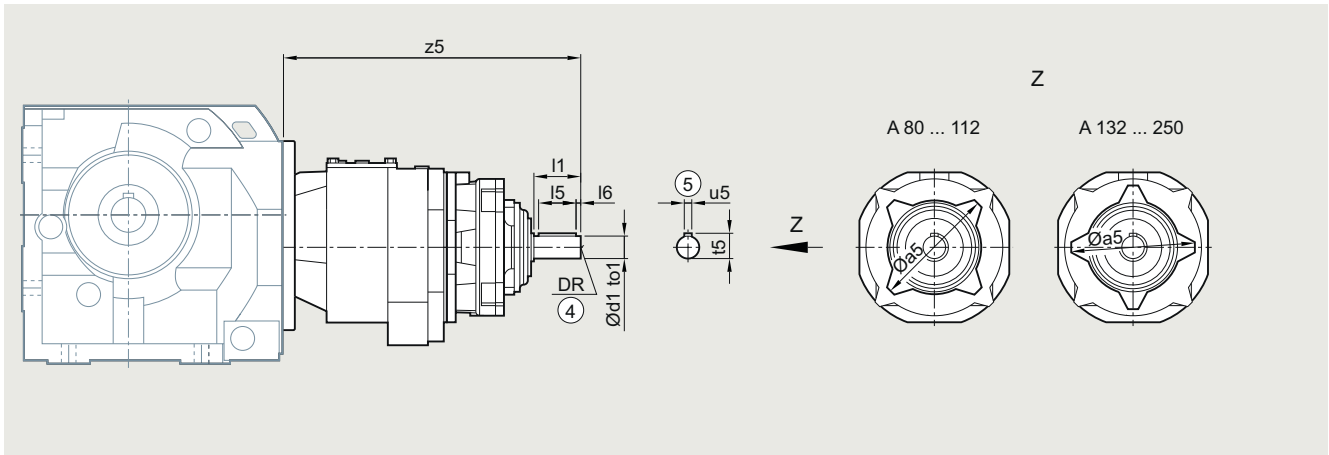


| Gearbox | Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | z5 |
|------------|----------|-----|-------|----|-----|-------|------|------|--------|--------|-------|--------|-------|
| C.89-D/Z39 | K3-(56) | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 27.5 | 15.875 | 47.752 | 4.763 | 17.895 | 380.5 |
| | K3-(140) | 168 | 114.3 | 15 | 5.0 | 149.2 | 11.0 | 28.0 | 22.225 | 57.150 | 4.763 | 24.346 | 380.5 |
| | K3-(160) | 226 | 215.9 | 22 | 5.5 | 184.1 | 13.5 | 42.0 | 28.575 | 69.850 | 6.350 | 31.394 | 436.5 |

⑤ Feather key/keyway DIN 6885

Tandem gearbox with adapter A and AZ with free output shaft

Helical worm tandem gearbox with adapter A

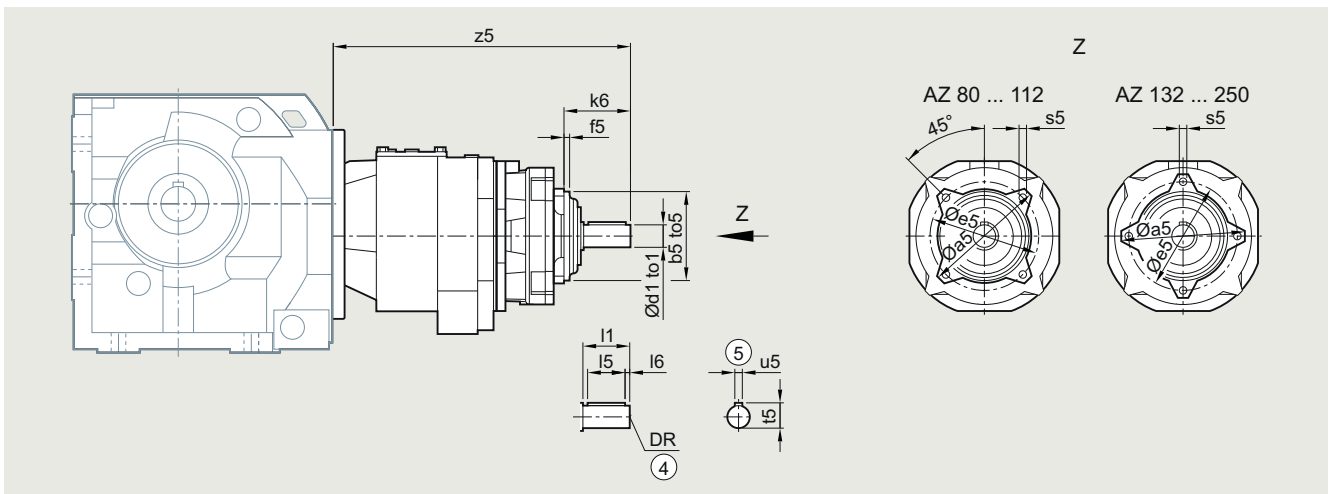


| Gearbox | Adapter | a5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | z5 |
|------------|---------|-----|----|-----|----|----|----|----|------|-------|-----|
| C.89-D/Z39 | A-(80) | 132 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 323 |
| | A-(90) | 132 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8x19 | 333 |

④ DIN 332

⑤ Feather key/keyway DIN 6885

Helical worm tandem gearbox with adapter AZ



| Gearbox | Adapter | a5 | b5 | to5 | e5 | f5 | s5 | d1 | to1 | l1 | l5 | l6 | u5 | t5 | DR | k6 | z5 |
|------------|---------|-----|----|-----|-----|----|-------|----|-----|----|----|----|----|------|-------|------|-----|
| C.89-D/Z39 | AZ-(80) | 132 | 95 | j6 | 116 | 6 | M8x12 | 19 | k6 | 40 | 32 | 4 | 6 | 21.5 | M6x16 | 61.0 | 323 |
| | AZ-(90) | 132 | 95 | j6 | 116 | 6 | M8x12 | 24 | k6 | 50 | 40 | 5 | 8 | 27.0 | M8x19 | 71.0 | 333 |

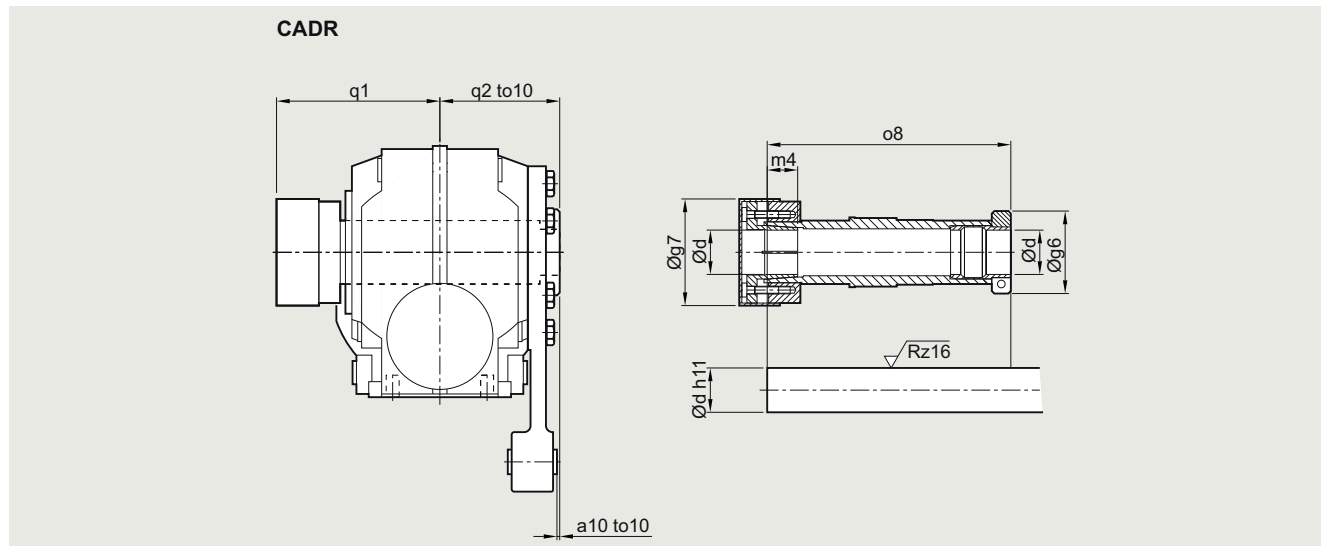
④ DIN 332

⑤ Feather key/keyway DIN 6885

Helical worm gearboxes

Dimensional drawings

ShaftMount assembly system

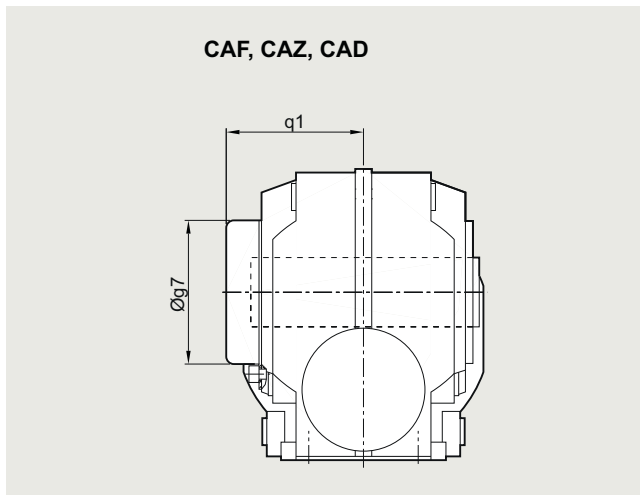


Note mounting tolerance to10 when positioning the torque arm.

| d | g6 | g7 | m4 | o8 | q1 | q2 | a10 | to10 |
|----------------|------|-----|------|-------|-----|-----|-----|------|
| CADR.29 | | | | | | | | |
| 20 | 58.5 | 56 | 18.5 | 151.0 | 102 | 75 | 11 | +2.1 |
| 1" | | | | | | | | +0.6 |
| 0.75" | | | | | | | | |
| CADR39A | | | | | | | | |
| 30 | 62.0 | 76 | 22 | 160.5 | 106 | 75 | 39 | +2.2 |
| 25 | | | | | | | | +0.7 |
| 1.25" | | | | | | | | |
| 1.1875" | | | | | | | | |
| 1" | | | | | | | | |
| CADR49 | | | | | | | | |
| 35 | 65.0 | 84 | 24 | 192.0 | 124 | 90 | 35 | +2.6 |
| 30 | | | | | | | | +0.8 |
| 1.4375" | | | | | | | | |
| 1.375" | | | | | | | | |
| 1.25" | | | | | | | | |
| 1.1875" | | | | | | | | |
| CADR69 | | | | | | | | |
| 40 | 79.5 | 94 | 30 | 217.5 | 138 | 102 | 39 | +2.5 |
| 35 | | | | | | | | +0.7 |
| 1.5" | | | | | | | | |
| 1.4375" | | | | | | | | |
| 1.375" | | | | | | | | |
| 1.625" | | | | | | | | |
| CADR89 | | | | | | | | |
| 50 | 89.0 | 114 | 32 | 264.0 | 171 | 124 | 45 | +3.4 |
| 40 | | | | | | | | +1.5 |
| 2" | | | | | | | | |
| 1.9375" | | | | | | | | |
| 1.75" | | | | | | | | |
| 1.625" | | | | | | | | |

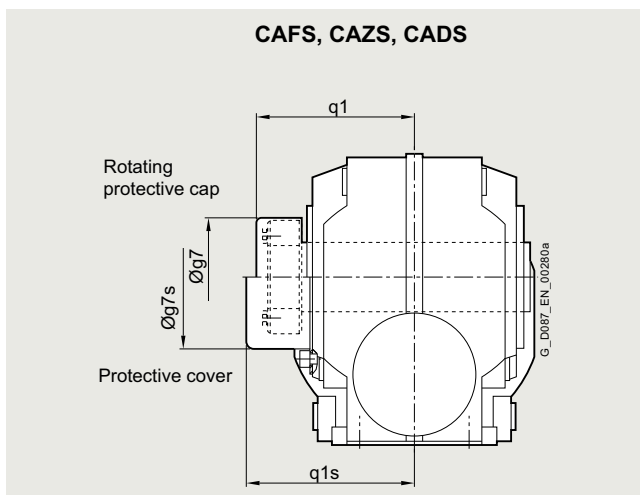
Protective covers

Protective cover for hollow shaft



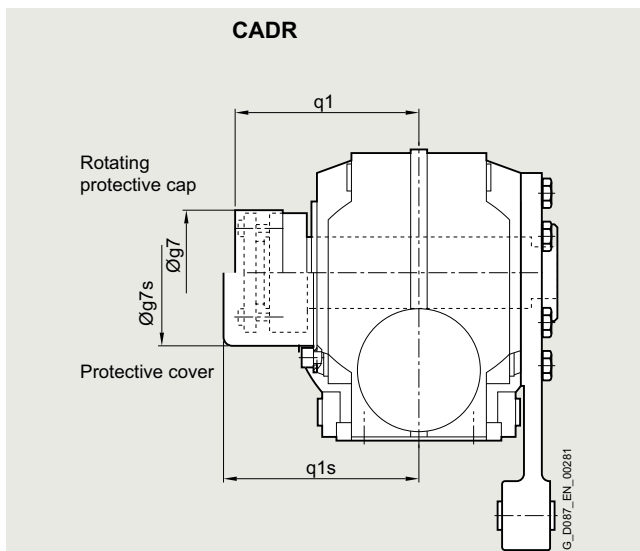
| Gearbox type | CA.29 | CA.39A | CA.49 | CA.69 | CA.89 |
|-------------------------|-------|--------|-------|-------|-------|
| Protective cover | | | | | |
| g7 | 67.0 | 82.5 | 80.0 | 99.0 | 137.0 |
| q1 | 76.0 | 73.0 | 99.0 | 95.5 | 124.5 |

Protective covers for hollow shaft with shrink disk



| Gearbox type | CA.S29 | CA.S39A | CA.S49 | CA.S69 | CA.S89 |
|---|--------|---------|--------|--------|--------|
| Rotating protective cap with shrink disk version | | | | | |
| g7 | 55.0 | 76.0 | 84.0 | 84.0 | 94.0 |
| q1 | 85.0 | 89.5 | 107.0 | 115.0 | 125.5 |
| Protective cover | | | | | |
| g7s | 58.0 | 82.5 | 86.0 | 99.0 | 137.0 |
| q1s | 91.0 | 109.0 | 122.0 | 126.5 | 176.5 |

Protective covers for hollow shaft with ShaftMount assembly system



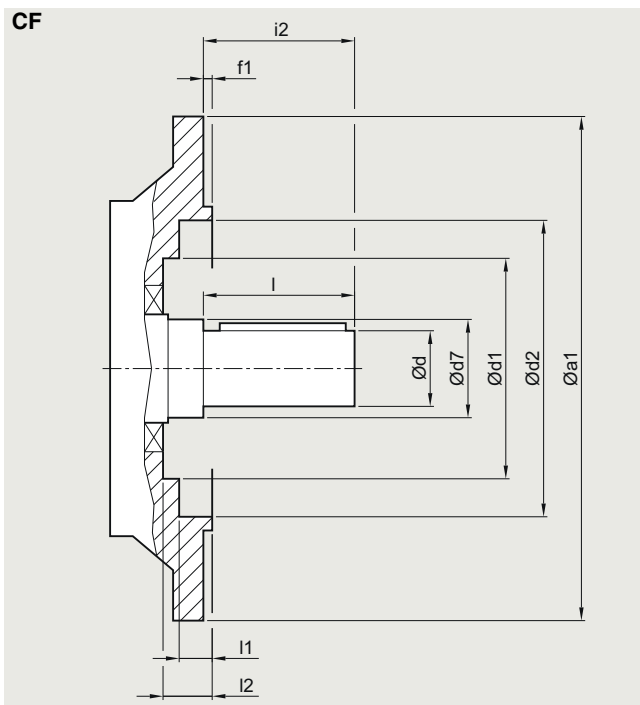
| Gearbox type | CADR29 | CADR39A | CADR49 | CADR69 | CADR89 |
|--------------------------------|--------|---------|--------|--------|--------|
| Rotating protective cap | | | | | |
| g7 | 56.0 | 76.0 | 84.0 | 94.0 | 114.0 |
| q1 | 101.5 | 106.0 | 124.0 | 144.0 | 171.0 |
| Protective cover | | | | | |
| g7s | 58.0 | 82.5 | 86.0 | 99 | 137.0 |
| q1s | 102.0 | 109.0 | 126.0 | 145.5 | 176.5 |

Helical worm gearboxes

Dimensional drawings

Inner contour of the flange design

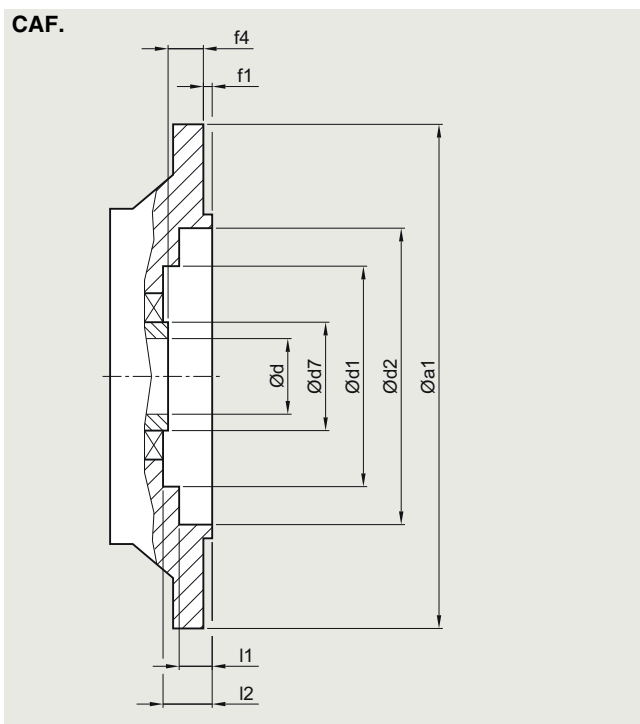
Notes regarding the design of the customer's interface for the solid shaft design



| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | i2 | l | l1 | l2 |
|--------------|-----|----|----|-----|-----|-----|----|----|------|------|
| CF29 | 120 | 20 | 40 | - | 70 | 3.0 | 40 | 40 | 24.0 | - |
| | 160 | | | 70 | 101 | 3.5 | | | 8.5 | 24.5 |
| CF39 | 160 | 25 | 30 | - | 100 | 3.5 | 50 | 50 | 5.0 | - |
| CF49 | 200 | 30 | 35 | - | 118 | 3.5 | 60 | 60 | 5.5 | - |
| CF69 | 200 | 35 | 45 | 105 | 120 | 4.0 | 70 | 70 | 4.5 | 48.0 |
| CF89 | 250 | 45 | 70 | 134 | 165 | 4.0 | 90 | 90 | 6.5 | 53.0 |

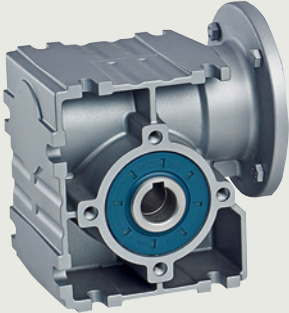
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Notes regarding the design of the customer's interface for the hollow shaft design



| Gearbox type | a1 | d | d7 | d1 | d2 | f1 | f4 | l1 | l2 |
|--------------|-----|-------|----|-----|-----|-----|------|------|------|
| CAF.29 | 120 | 20 | 35 | - | 70 | 3.0 | 23.0 | 24.0 | - |
| | 160 | | | 70 | 101 | 3.5 | | 8.5 | 24.5 |
| CAF.39 | 160 | 25/30 | 45 | 80 | 102 | 3.5 | 24.0 | 2.0 | 29.5 |
| CAF.49 | 200 | 30/35 | 50 | 90 | 120 | 3.5 | 25.0 | 4.0 | 30.5 |
| CAF.69 | 200 | 40/45 | 65 | 105 | 120 | 4.0 | 42.0 | 4.5 | 48.0 |
| CAF.89 | 250 | 50/60 | 80 | 134 | 147 | 4 | 45.5 | 14.0 | 53.0 |

Worm gearboxes



| | |
|-------------------|---|
| 7/2 | Orientation |
| 7/3 7/3 | Transmission ratios and torques Selection and ordering data |
| 7/5 7/5 | General technical specifications Permissible radial force |
| 7/5 7/5 | Dimensional drawings Overview |
| 7/6 | Worm gearbox S..09 |
| 7/10 | Worm gearbox S..19 |
| 7/14 | Worm gearbox S..29 |
| 7/18 | Protective cover for hollow shaft |

Worm gearboxes

Orientation

Innomotics SG worm gearbox S

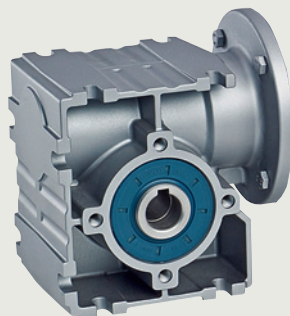


Fig. 7/1 Worm gearbox S

| Gearbox designation | Number of sizes | Maximum output torque | Transmission ratio | Maximum motor power |
|-----------------------|-----------------|-----------------------|--------------------|---------------------|
| | | T_{2N} Nm | i | P_1 kW |
| S09 ... S29 (1-stage) | 3 | 33 ... 116 | 5.0 ... 100 | 0.55 |

Innomotics SG worm gearboxes are available in the following versions for mounting in any position:

Transmission stages

- 1-stage worm gearbox

Designs

- Shaft-mounted design
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design

Mounting

- Hollow shaft with feather key
- Hollow shaft with plug-in shaft
- Solid shaft design with and without feather key (at one end or both ends)

For worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Worm gearboxes

Transmission ratios and torques

Selection and ordering data

| i | Lead angle of the worm γ_m | $n_{mot} = 2800$ rpm | | | | $n_{mot} = 1400$ rpm | | | | Adapter | | | | Article No. |
|-------------|---|----------------------|----------------|-----------------|-------------|----------------------|----------------|-----------------|-------------|---------|----|----|----|----------------------------|
| | | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | K4 | 63 | 71 | 80 | |
| S.09 | | | | | | | | | | | | | | |
| 80 | 2.1 | 35.0 | 18 | 0.14 | 48 | 17.5 | 19 | 0.07 | 47 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ B1 |
| 60 | 2.7 | 46.7 | 22 | 0.20 | 55 | 23.3 | 24 | 0.11 | 52 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ C1 |
| 50 | 3.2 | 56.0 | 21 | 0.21 | 58 | 28.0 | 27 | 0.14 | 56 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ D1 |
| 40 | 3.8 | 70.0 | 21 | 0.24 | 63 | 35.0 | 28 | 0.17 | 61 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ E1 |
| 30 | 4.6 | 93.3 | 20 | 0.29 | 68 | 46.7 | 28 | 0.20 | 67 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ F1 |
| 25 | 5.2 | 112.0 | 20 | 0.33 | 72 | 56.0 | 27 | 0.23 | 70 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ G1 |
| 20 | 7.4 | 140.0 | 21 | 0.40 | 77 | 70.0 | 27 | 0.26 | 75 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ H1 |
| 15 | 9.2 | 186.7 | 20 | 0.48 | 81 | 93.3 | 27 | 0.33 | 80 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ J1 |
| 10 | 14.0 | 280.0 | 20 | 0.68 | 86 | 140.0 | 27 | 0.47 | 85 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ K1 |
| 7 | 19.0 | 400.0 | 19 | 0.89 | 89 | 200.0 | 26 | 0.62 | 88 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ L1 |
| 5 | 25.0 | 560.0 | 19 | 1.22 | 91 | 280.0 | 25 | 0.81 | 91 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ M1 |
| S.19 | | | | | | | | | | | | | | |
| 80 | 3.5 | 35.0 | 33 | 0.22 | 55 | 17.5 | 35 | 0.12 | 54 | ✓ | | | | 2KJ3731 - ■■■ A04 - 0 ■ B1 |
| 60 | 3.5 | 46.7 | 33 | 0.26 | 61 | 23.3 | 44 | 0.18 | 59 | ✓ | | | | 2KJ3731 - ■■■ A04 - 0 ■ C1 |
| 50 | 4.0 | 56.0 | 33 | 0.30 | 64 | 28.0 | 44 | 0.20 | 63 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ D1 |
| 40 | 4.5 | 70.0 | 31 | 0.33 | 68 | 35.0 | 43 | 0.24 | 67 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ E1 |
| 30 | 5.5 | 93.3 | 31 | 0.42 | 73 | 46.7 | 41 | 0.28 | 72 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ F1 |
| 25 | 6.5 | 112.0 | 31 | 0.48 | 76 | 56.0 | 41 | 0.32 | 75 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ G1 |
| 20 | 9.5 | 140.0 | 31 | 0.56 | 81 | 70.0 | 41 | 0.38 | 80 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ H1 |
| 15 | 11.0 | 186.7 | 30 | 0.70 | 84 | 93.3 | 41 | 0.48 | 84 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ J1 |
| 10 | 17.0 | 280.0 | 30 | 1.00 | 88 | 140.0 | 40 | 0.67 | 88 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ K1 |
| 7 | 17.0 | 400.0 | 29 | 1.33 | 91 | 200.0 | 39 | 0.91 | 90 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ L1 |
| 5 | 23.0 | 560.0 | 28 | 1.78 | 92 | 280.0 | 37 | 1.18 | 92 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ M1 |
| S.29 | | | | | | | | | | | | | | |
| 100 | 2.0 | 28.0 | 57 | 0.33 | 50 | 14.0 | 72 | 0.22 | 49 | ✓ | | | | 2KJ3732 - ■■■ A04 - 0 ■ A1 |
| 80 | 2.5 | 35.0 | 57 | 0.39 | 54 | 17.5 | 80 | 0.27 | 54 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ B1 |
| 60 | 3.0 | 46.7 | 57 | 0.46 | 60 | 23.3 | 78 | 0.32 | 59 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ C1 |
| 50 | 3.5 | 56.0 | 55 | 0.50 | 64 | 28.0 | 75 | 0.35 | 63 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ D1 |
| 40 | 4.5 | 70.0 | 55 | 0.59 | 68 | 35.0 | 74 | 0.40 | 68 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ E1 |
| 30 | 5.0 | 93.3 | 53 | 0.71 | 73 | 46.7 | 73 | 0.49 | 73 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ F1 |
| 25 | 6.0 | 112.0 | 53 | 0.82 | 76 | 56.0 | 73 | 0.56 | 76 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ G1 |
| 20 | 8.5 | 140.0 | 53 | 0.96 | 81 | 70.0 | 73 | 0.67 | 80 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ H1 |
| 15 | 10.0 | 186.7 | 53 | 1.23 | 84 | 93.3 | 72 | 0.84 | 84 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ J1 |
| 10 | 15.0 | 280.0 | 53 | 1.77 | 88 | 140.0 | 72 | 1.20 | 88 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ K1 |
| 7 | 15.0 | 400.0 | 53 | 2.44 | 91 | 200.0 | 71 | 1.63 | 91 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ L1 |
| 5 | 21.0 | 560.0 | 51 | 3.22 | 93 | 280.0 | 69 | 2.18 | 93 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ M1 |

Article No. supplement

Shaft design → page 9/49

Adapter size

1 or 9

K4 B C D

Gearbox mounting type → page 9/40

A, D, F or H

Worm gearboxes

Transmission ratios and torques

Selection and ordering data

| i | Lead angle of the worm γ_m | $n_{mot} = 900$ rpm | | | | $n_{mot} = 500$ rpm | | | | Adapter | | | | Article No. |
|-------------|--------------------------------------|---------------------|----------------|-----------------|-------------|---------------------|----------------|-----------------|-------------|---------|----|----|----|----------------------------|
| | | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | n_2 rpm | T_{2N} Nm | P_{mot} kW | η % | K4 | 63 | 71 | 80 | |
| S.09 | | | | | | | | | | | | | | |
| 80 | 2.1 | 11.3 | 19 | 0.05 | 44 | 6.3 | 20 | 0.03 | 40 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ B1 |
| 60 | 2.7 | 15.0 | 24 | 0.08 | 50 | 8.3 | 24 | 0.05 | 45 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ C1 |
| 50 | 3.2 | 18.0 | 27 | 0.10 | 53 | 10.0 | 28 | 0.06 | 49 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ D1 |
| 40 | 3.8 | 22.5 | 31 | 0.13 | 58 | 12.5 | 31 | 0.08 | 54 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ E1 |
| 30 | 4.6 | 30.0 | 32 | 0.16 | 64 | 16.7 | 33 | 0.10 | 60 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ F1 |
| 25 | 5.2 | 36.0 | 32 | 0.18 | 68 | 20.0 | 32 | 0.10 | 64 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ G1 |
| 20 | 7.4 | 45.0 | 31 | 0.20 | 73 | 25.0 | 31 | 0.12 | 70 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ H1 |
| 15 | 9.2 | 60.0 | 33 | 0.27 | 78 | 33.3 | 33 | 0.15 | 75 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ J1 |
| 10 | 14.0 | 90.0 | 32 | 0.36 | 84 | 50.0 | 33 | 0.21 | 81 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ K1 |
| 7 | 19.0 | 128.6 | 31 | 0.48 | 87 | 71.4 | 33 | 0.29 | 85 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ L1 |
| 5 | 25.0 | 180.0 | 30 | 0.63 | 90 | 100.0 | 33 | 0.39 | 88 | ✓ | | | | 2KJ3730 - ■■■ A04 - 0 ■ M1 |
| S.19 | | | | | | | | | | | | | | |
| 80 | 3.5 | 11.3 | 35 | 0.08 | 51 | 6.3 | 36 | 0.05 | 47 | ✓ | | | | 2KJ3731 - ■■■ A04 - 0 ■ B1 |
| 60 | 3.5 | 15.0 | 49 | 0.14 | 57 | 8.3 | 51 | 0.09 | 52 | ✓ | | | | 2KJ3731 - ■■■ A04 - 0 ■ C1 |
| 50 | 4.0 | 18.0 | 51 | 0.16 | 61 | 10.0 | 59 | 0.11 | 56 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ D1 |
| 40 | 4.5 | 22.5 | 51 | 0.18 | 65 | 12.5 | 64 | 0.14 | 61 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ E1 |
| 30 | 5.5 | 30.0 | 50 | 0.22 | 70 | 16.7 | 63 | 0.17 | 66 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ F1 |
| 25 | 6.5 | 36.0 | 49 | 0.25 | 74 | 20.0 | 62 | 0.19 | 70 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ G1 |
| 20 | 9.5 | 45.0 | 50 | 0.30 | 78 | 25.0 | 62 | 0.22 | 75 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ H1 |
| 15 | 11.0 | 60.0 | 50 | 0.38 | 82 | 33.3 | 62 | 0.27 | 79 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ J1 |
| 10 | 17.0 | 90.0 | 49 | 0.53 | 87 | 50.0 | 61 | 0.38 | 85 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ K1 |
| 7 | 17.0 | 128.6 | 47 | 0.70 | 90 | 71.4 | 58 | 0.49 | 88 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ L1 |
| 5 | 23.0 | 180.0 | 44 | 0.91 | 91 | 100.0 | 56 | 0.65 | 90 | ✓ | ✓ | | | 2KJ3731 - ■■■ A04 - 0 ■ M1 |
| S.29 | | | | | | | | | | | | | | |
| 100 | 2.0 | 9.0 | 72 | 0.14 | 47 | 5.0 | 72 | 0.09 | 43 | ✓ | | | | 2KJ3732 - ■■■ A04 - 0 ■ A1 |
| 80 | 2.5 | 11.3 | 92 | 0.21 | 52 | 6.3 | 93 | 0.13 | 48 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ B1 |
| 60 | 3.0 | 15.0 | 93 | 0.26 | 57 | 8.3 | 116 | 0.19 | 53 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ C1 |
| 50 | 3.5 | 18.0 | 90 | 0.28 | 61 | 10.0 | 115 | 0.21 | 57 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ D1 |
| 40 | 4.5 | 22.5 | 90 | 0.32 | 66 | 12.5 | 113 | 0.24 | 62 | ✓ | ✓ | | | 2KJ3732 - ■■■ A04 - 0 ■ E1 |
| 30 | 5.0 | 30.0 | 86 | 0.38 | 72 | 16.7 | 110 | 0.28 | 68 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ F1 |
| 25 | 6.0 | 36.0 | 85 | 0.43 | 75 | 20.0 | 109 | 0.32 | 71 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ G1 |
| 20 | 8.5 | 45.0 | 85 | 0.51 | 79 | 25.0 | 109 | 0.38 | 76 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ H1 |
| 15 | 10.0 | 60.0 | 85 | 0.64 | 83 | 33.3 | 109 | 0.47 | 81 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ J1 |
| 10 | 15.0 | 90.0 | 85 | 0.92 | 87 | 50.0 | 109 | 0.66 | 86 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ K1 |
| 7 | 15.0 | 128.6 | 84 | 1.26 | 90 | 71.4 | 107 | 0.90 | 89 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ L1 |
| 5 | 21.0 | 180.0 | 82 | 1.68 | 92 | 100.0 | 105 | 1.21 | 91 | ✓ | ✓ | ✓ | | 2KJ3732 - ■■■ A04 - 0 ■ M1 |

Article No. supplement

Shaft design → page 9/49

Adapter size

1 or 9

K4 B C D

Gearbox mounting type → page 9/40

A, D, F or H

Worm gearboxes

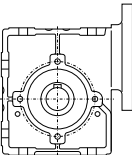
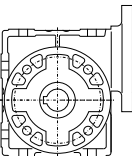
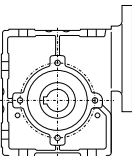
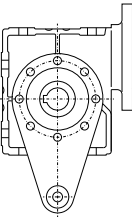
General technical specifications and Dimensional drawings

Permissible radial force F_{Rperm}

| Gearbox type | d mm | l mm | y mm | z mm | a kNmm | F_{Rperm} in N with $x = l/2$ for output speeds n_2 in rpm | | | | | | | |
|--------------|------|------|-------|-------|--------|--|------|------|------|-------|-------|-------|-------|
| | | | | | | ≤ 16 | ≤ 25 | ≤ 40 | ≤ 63 | ≤ 100 | ≤ 160 | ≤ 250 | ≤ 400 |
| S09 | 16 | 40 | 83.5 | 63.5 | 36000 | 1800 | 1800 | 1800 | 1800 | 1800 | 1690 | 1400 | 1120 |
| SF09 | | | 106.0 | 86.0 | | 1800 | 1800 | 1800 | 1800 | 1620 | 1330 | 1100 | 880 |
| S19 | 20 | 40 | 98.0 | 78.0 | 76000 | 3800 | 3800 | 3800 | 3200 | 2650 | 2180 | 1780 | 1420 |
| SF19 | | | 128.0 | 108.0 | | 3200 | 3120 | 2920 | 2450 | 2030 | 1670 | 1360 | 1090 |
| S29 | 20 | 40 | 120.5 | 100.5 | 72000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3290 | 2680 | 2120 |
| SF29 | | | 153.5 | 133.5 | | 3600 | 3600 | 3600 | 3600 | 3150 | 2580 | 2110 | 1660 |

Overview

Information about dimensional drawings can be found in chapter "Introduction" on page 1/16.

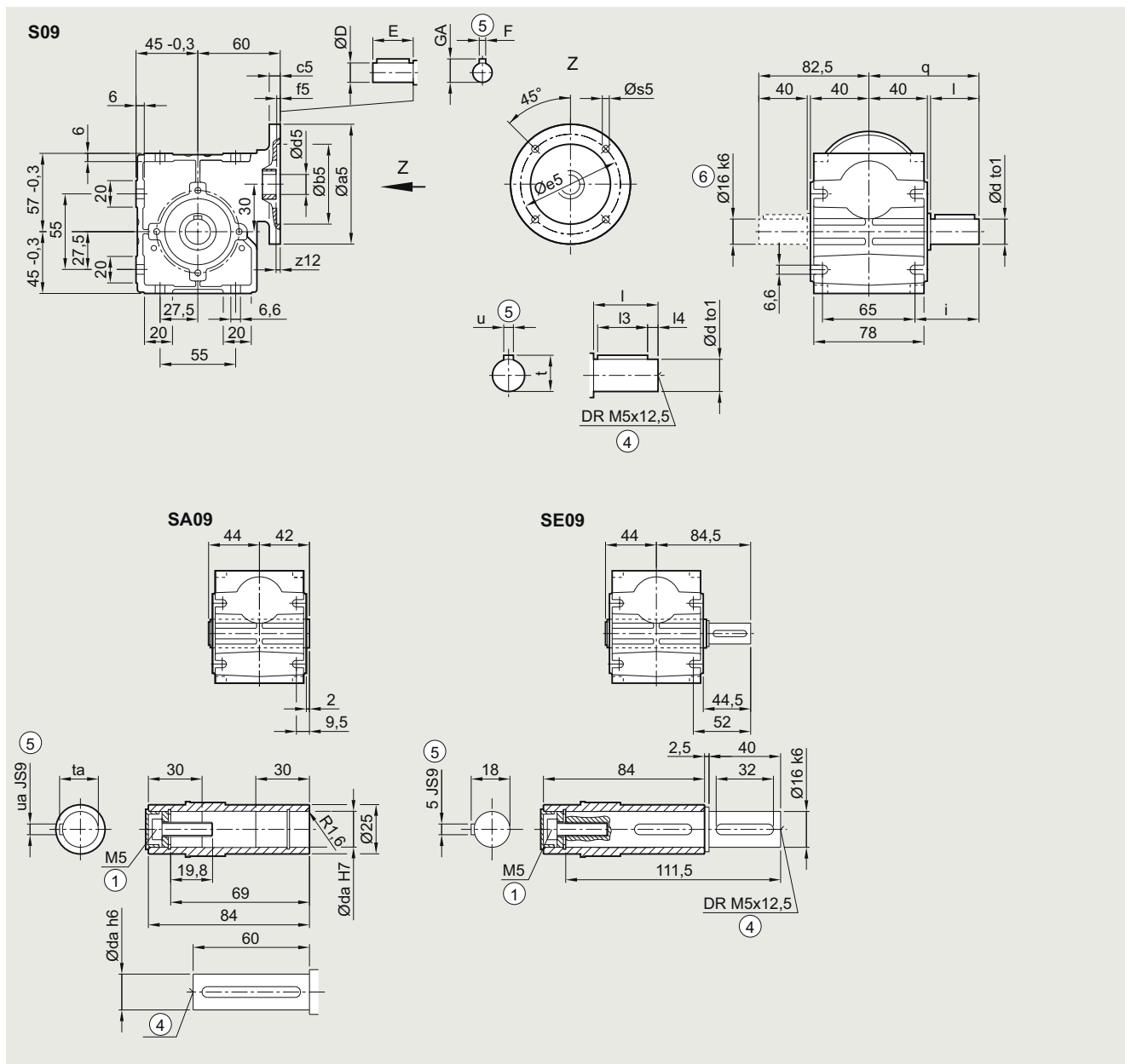
| Design | Size | Dimensional drawing on page |
|---|------------------------------------|-----------------------------|
| Foot-mounted design | | |
|  | S.09 | 7/6 |
| | S.19 | 7/10 |
| | S.29 | 7/14 |
| Flange-mounted design | | |
|  | S.F09 | 7/7 |
| | S.F19 | 7/11 |
| | S.F29 | 7/15 |
| Housing flange design | | |
|  | S.Z09 | 7/8 |
| | S.Z19 | 7/12 |
| | S.Z29 | 7/16 |
| Shaft-mounted design | | |
|  | SAD09 | 7/9 |
| | SAD19 | 7/13 |
| | SAD29 | 7/17 |
| Additional versions and options | | |
| | Protective cover for hollow shafts | 7/18 |

Worm gearboxes

Dimensional drawings

For mounting an IEC motor

S.09 gearbox in a foot-mounted design



| Solid shaft | d | to1 | l | l3 | l4 | u | t | q | i | Hollow shaft | da | ua | ta |
|-------------|----|-----|----|----|----|-----|------|------|----|--------------|------|----|------|
| | 14 | k6 | 30 | 22 | 4 | 5 | 16 | 72.5 | 40 | | 14 | 5 | 16.3 |
| 16 | k6 | 40 | 32 | 4 | 5 | 18 | 82.5 | 50 | 16 | 5 | 18.3 | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | | |
| 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 | | |

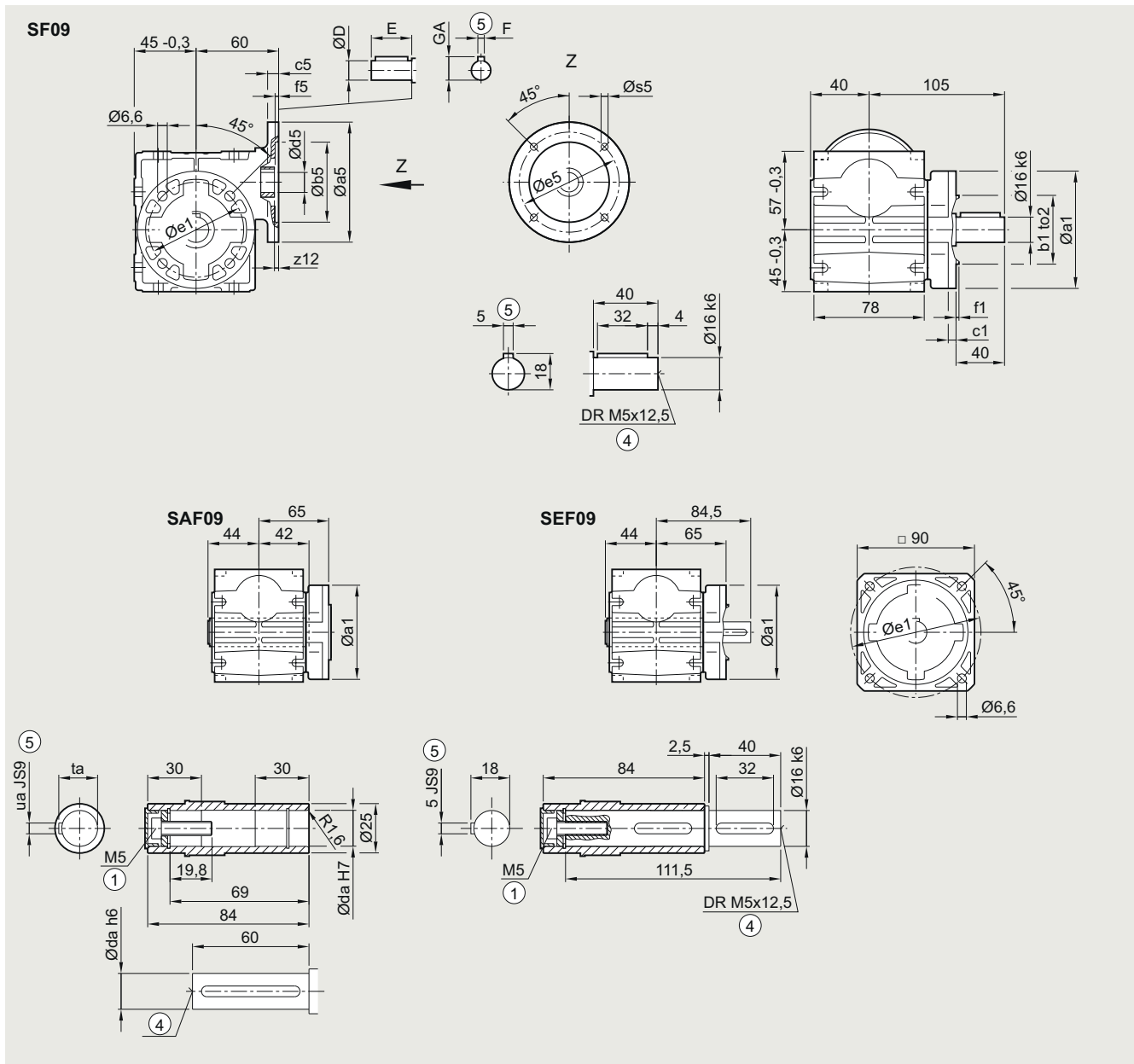
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ Solid shaft with 2nd shaft extension only d16

S.F09 gearbox in a flange-mounted design



| Hollow shaft | da | ua | ta |
|--------------|----|----|------|
| | 14 | 5 | 16.3 |
| | 16 | 5 | 18.3 |

| Flange | a1 | e1 | b1 | to2 | c1 | f1 |
|--------|-----|-----|----|-----|----|-----|
| | 80 | 65 | 50 | j6 | 7 | 2.5 |
| | 120 | 100 | 80 | j6 | 7 | 3.0 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
|---------|----|----|----|----|----|-----|-----|------|----|---|------|
| 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 |

① ISO 4014

④ DIN 332

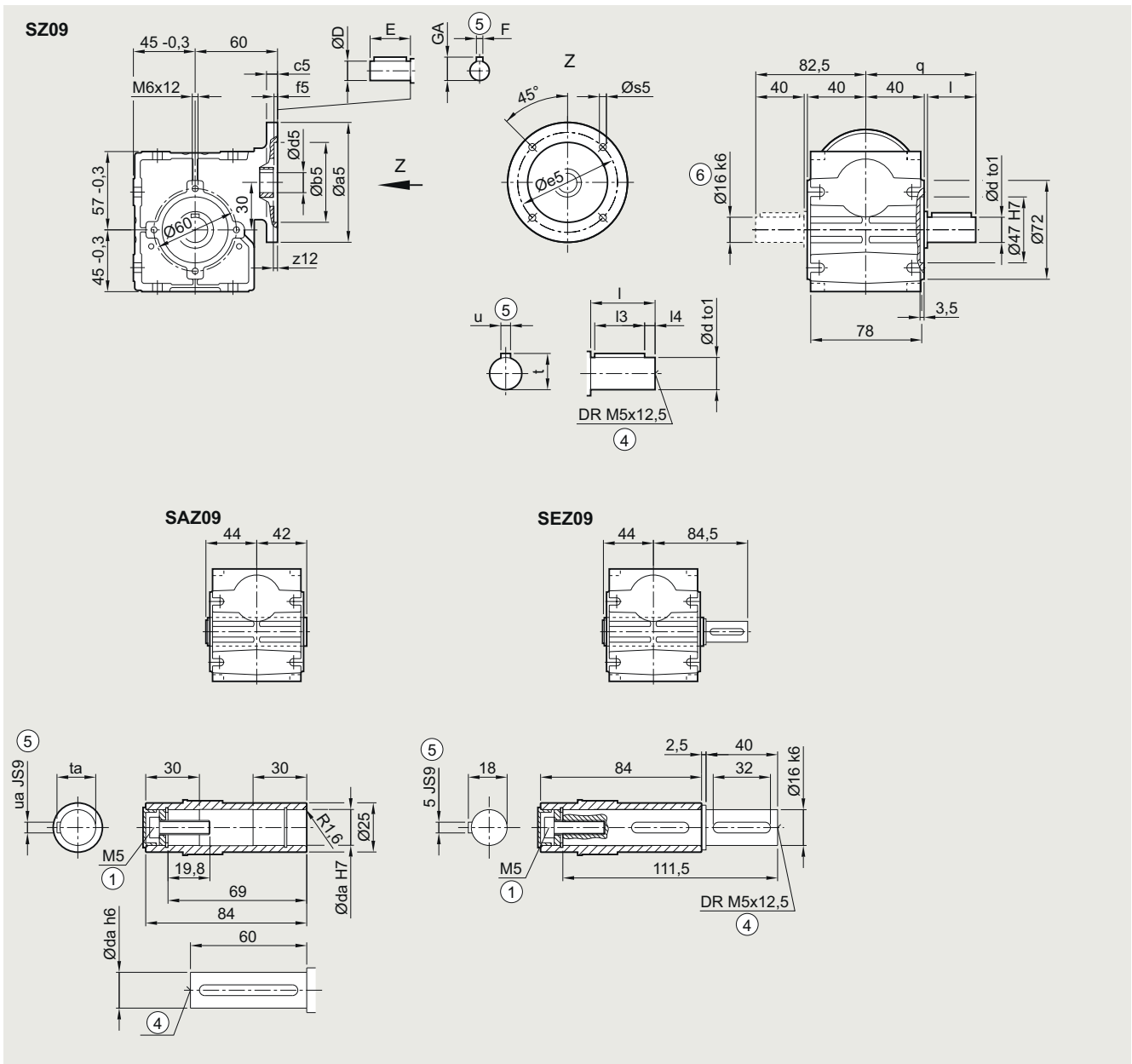
⑤ Feather key/keyway DIN 6885

Worm gearboxes

Dimensional drawings

For mounting an IEC motor

S.Z09 gearbox in a housing flange design



| Solid shaft | d | to1 | l | l3 | l4 | u | t | q | Hollow shaft | da | ua | ta |
|-------------|----|-----|----|----|----|-----|-----|------|--------------|----|------|------|
| | 14 | k6 | 30 | 22 | 4 | 5 | 16 | 72.5 | | 14 | 5 | 16.3 |
| | 16 | k6 | 40 | 32 | 4 | 5 | 18 | 82.5 | | 16 | 5 | 18.3 |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | |
| 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 | |

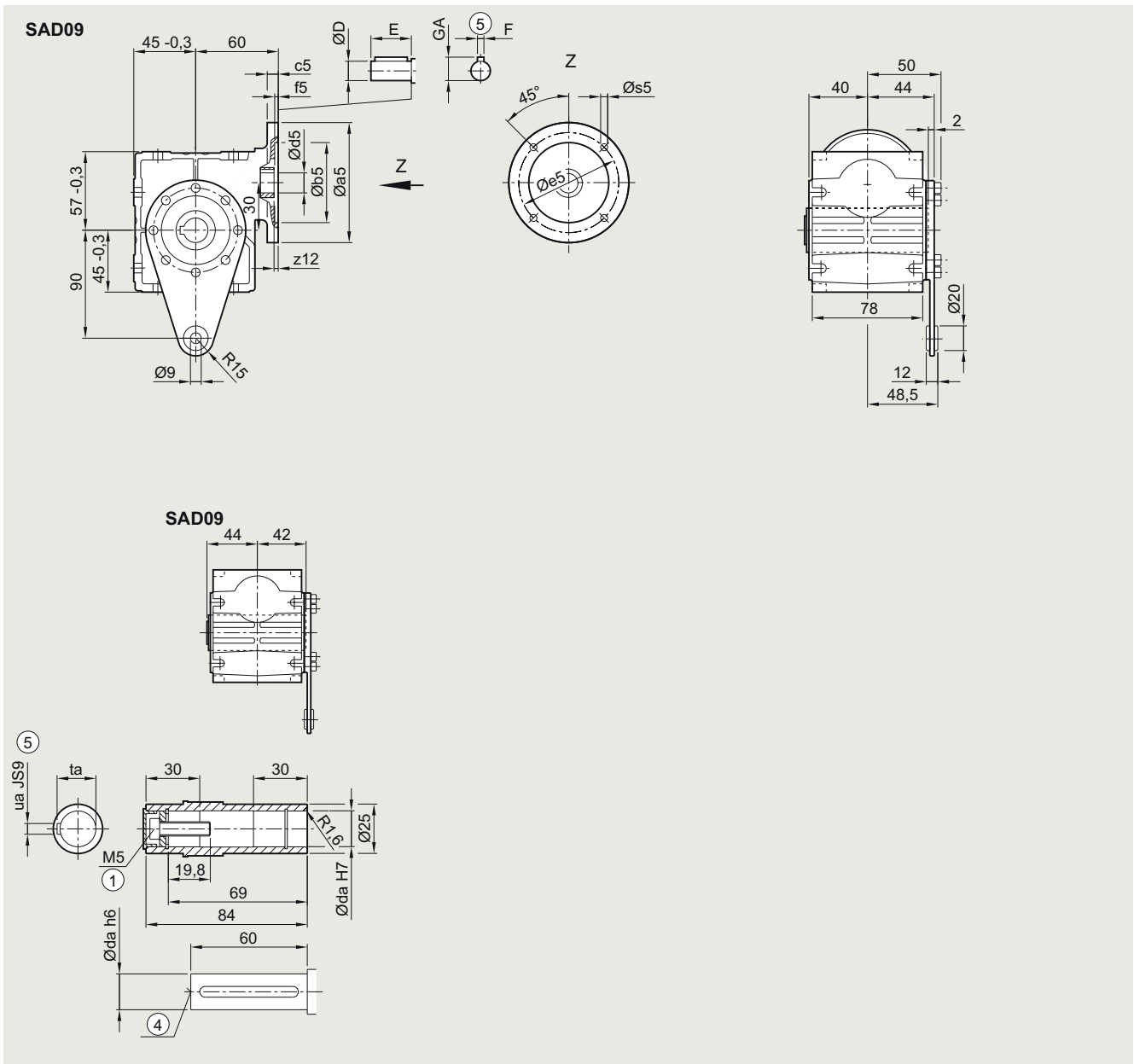
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ Solid shaft with 2nd shaft extension only d16

SAD09 gearbox in a shaft-mounted design



| Hollow shaft | da | ua | ta |
|--------------|----|----|------|
| | 14 | 5 | 16.3 |
| | 16 | 5 | 18.3 |

| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
|---------|----|----|----|----|----|-----|-----|------|----|---|------|
| 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 |

① ISO 4014

④ DIN 332

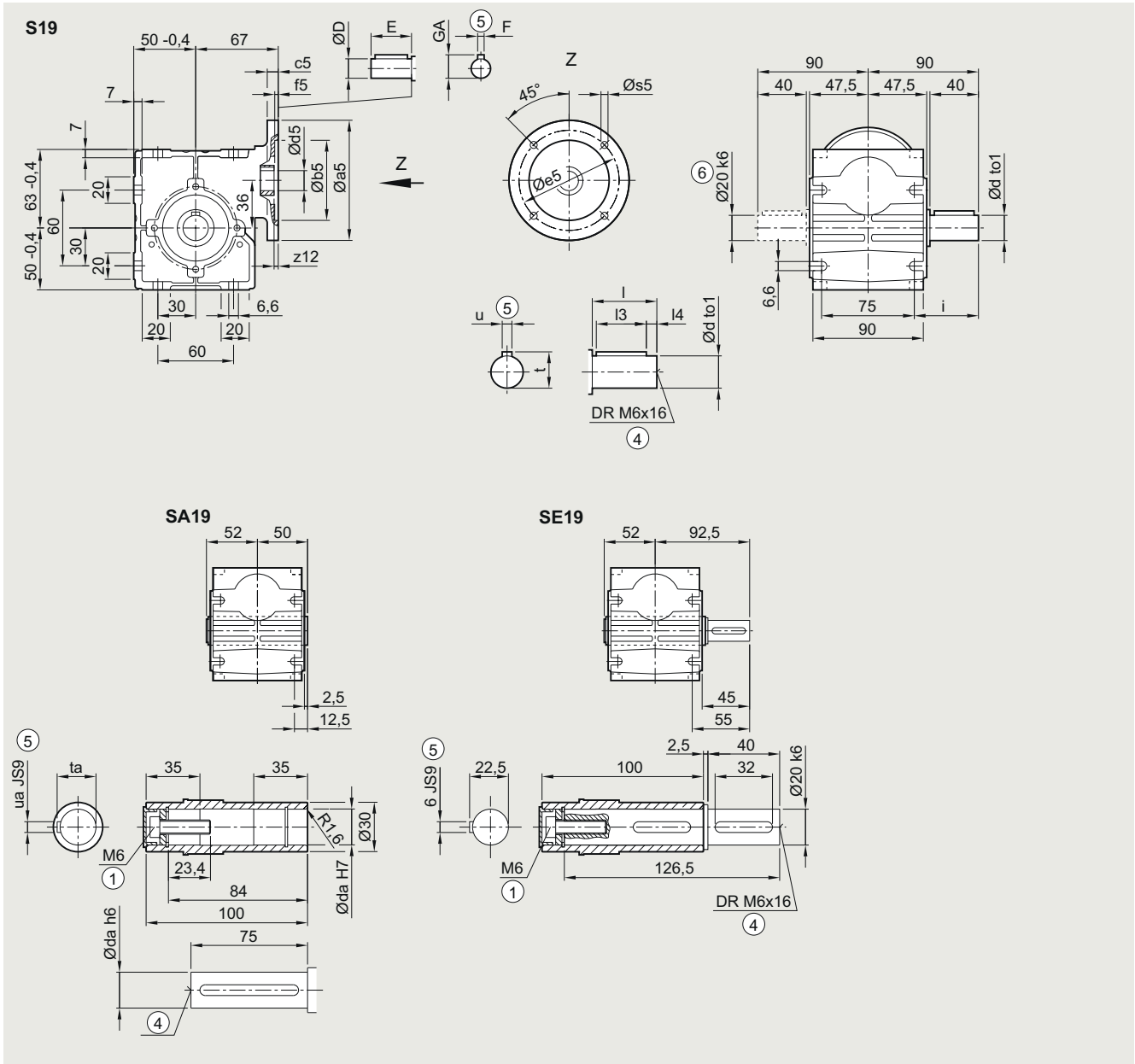
⑤ Feather key/keyway DIN 6885

Worm gearboxes

Dimensional drawings

For mounting an IEC motor

S.19 gearbox in a foot-mounted design



| Solid shaft | d | to1 | l | l3 | l4 | i | u | t | Hollowshaft | da | ua | ta |
|-------------|-----|-----|----|----|------|------|------|------|-------------|------|------|------|
| | 18 | k6 | 40 | 32 | 4 | 52.5 | 6 | 20.5 | | 18 | 6 | 20.8 |
| 20 | k6 | 40 | 32 | 4 | 52.5 | 6 | 22.5 | 20 | 6 | 22.8 | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | |
| | 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 |
| 71 | 105 | 70 | 7 | 3 | 85 | 7.0 | 2 | 14 | 30 | 5 | 16.0 | |

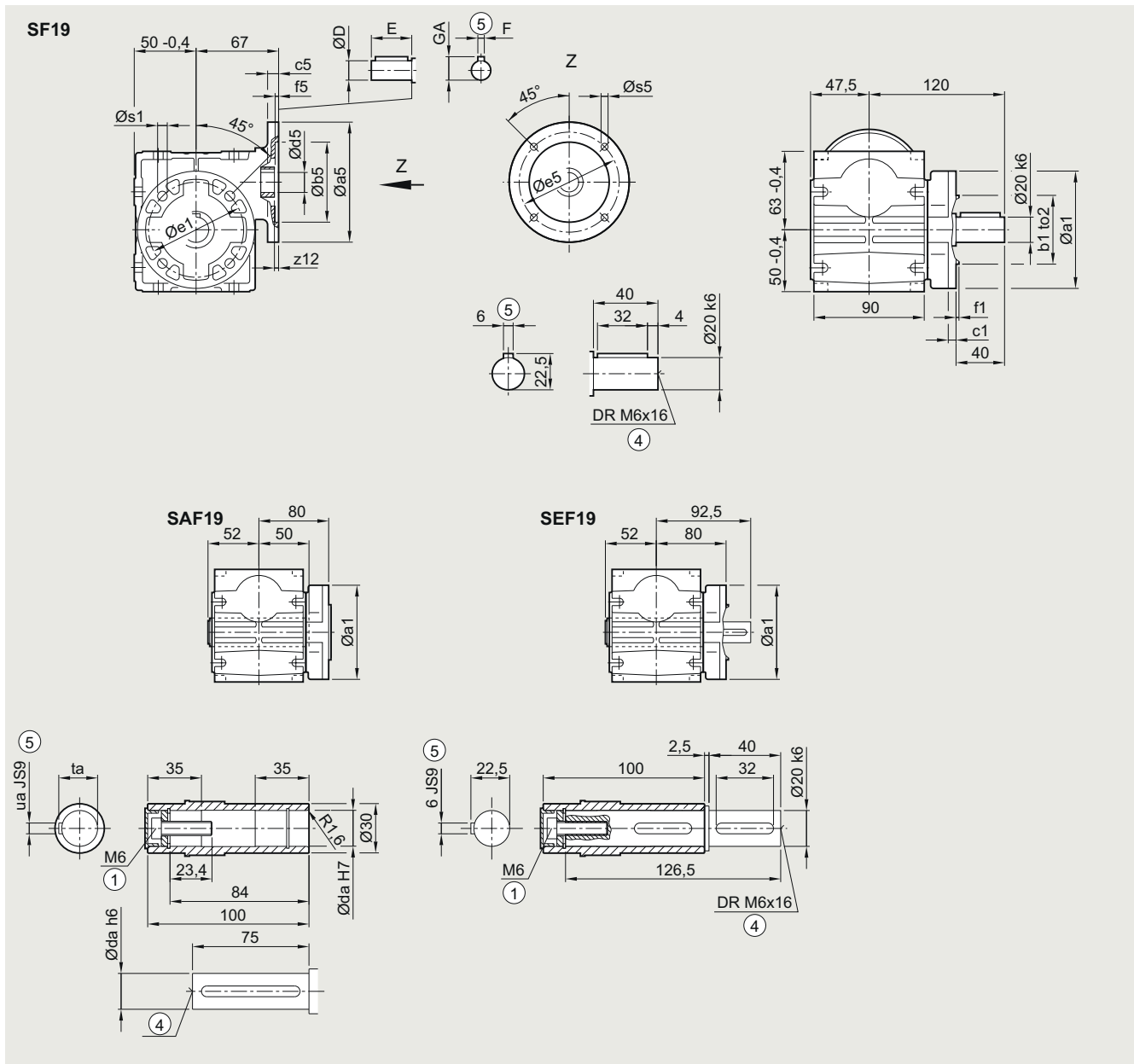
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ Solid shaft with 2nd shaft extension only d20

S.F19 gearbox in a flange-mounted design



| Hollow shaft | da | | ua | | ta | | | | | | | |
|--------------|-----|-----|----|-----|------|------|-----|------|----|----|----|------|
| | | 18 | | 6 | | 20.8 | | | | | | |
| | 20 | | 6 | | 22.8 | | | | | | | |
| Flange | a1 | e1 | b1 | to2 | c1 | f1 | s1 | | | | | |
| | 110 | 87 | 60 | H8 | 8 | 4.0 | 9 | | | | | |
| | 120 | 100 | 80 | j6 | 8 | 3.0 | 6.6 | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | |
| | 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 |
| | 71 | 105 | 70 | 7 | 3 | 85 | 7.0 | 2 | 14 | 30 | 5 | 16.0 |

① ISO 4014

④ DIN 332

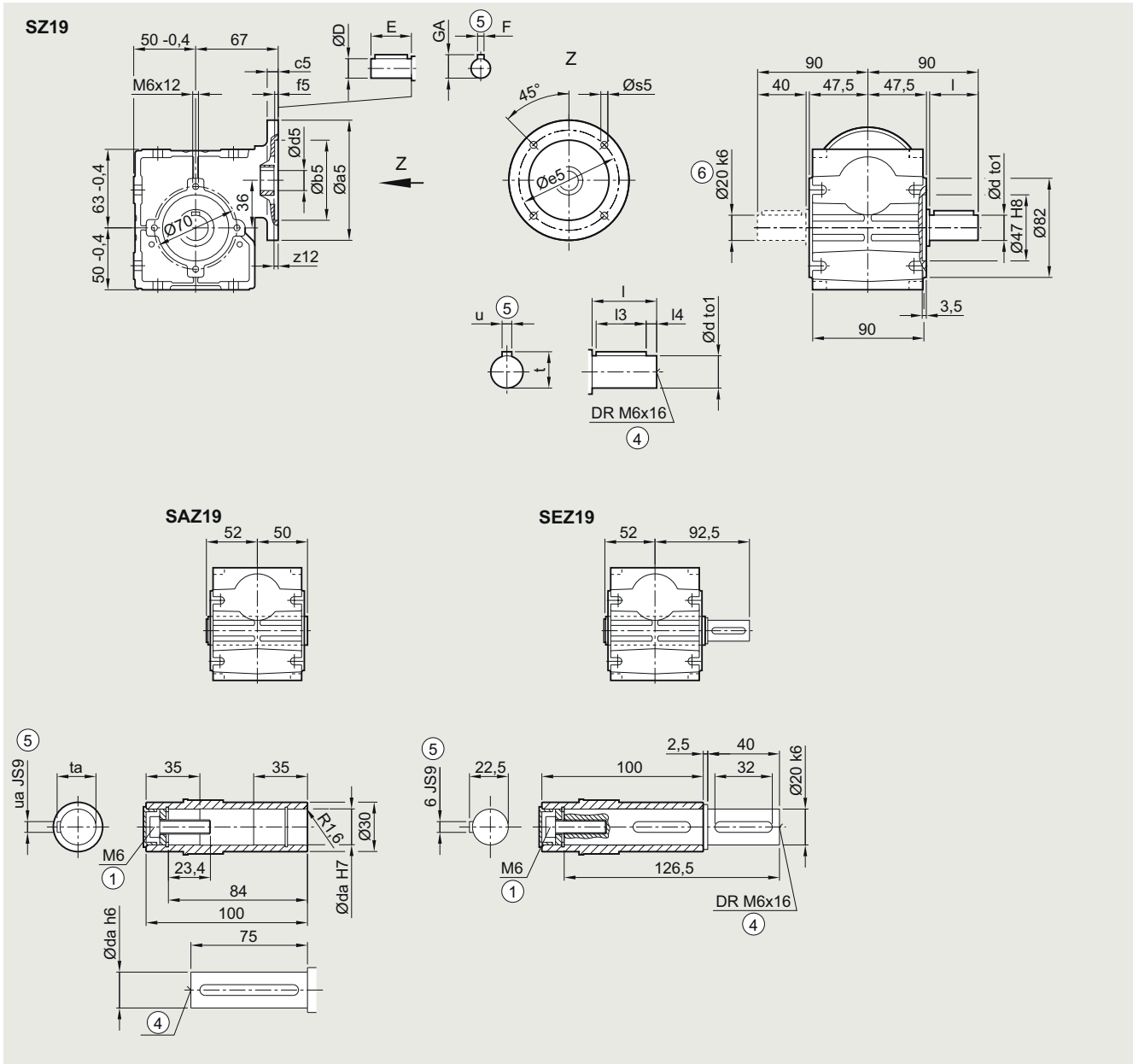
⑤ Feather key/keyway DIN 6885

Worm gearboxes

Dimensional drawings

For mounting an IEC motor

S.Z19 gearbox in a housing flange design



| Solid shaft | d | to1 | l | l3 | l4 | u | t | Hollow shaft | da | ua | ta |
|-------------|-----|-----|----|----|----|------|------|--------------|------|----|------|
| | 18 | k6 | 40 | 31 | 4 | 6 | 20.5 | | 18 | 6 | 20.8 |
| 20 | k6 | 40 | 32 | 4 | 6 | 22.5 | 20 | 6 | 22.8 | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
| | 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 |
| 71 | 105 | 70 | 7 | 3 | 85 | 7.0 | 2 | 14 | 30 | 5 | 16.0 |

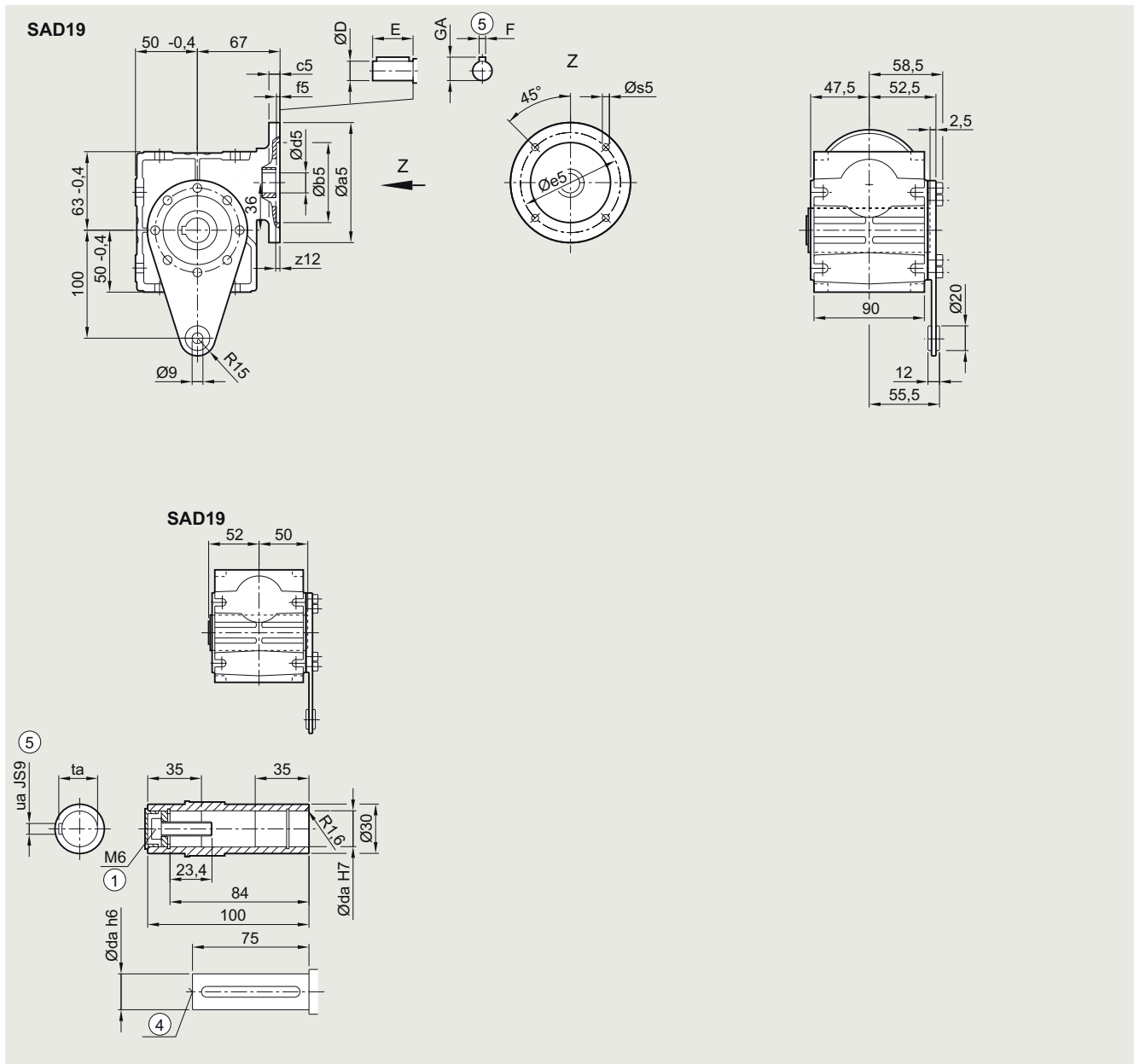
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ Solid shaft with 2nd shaft extension only d20

SAD19 gearbox in a shaft-mounted design



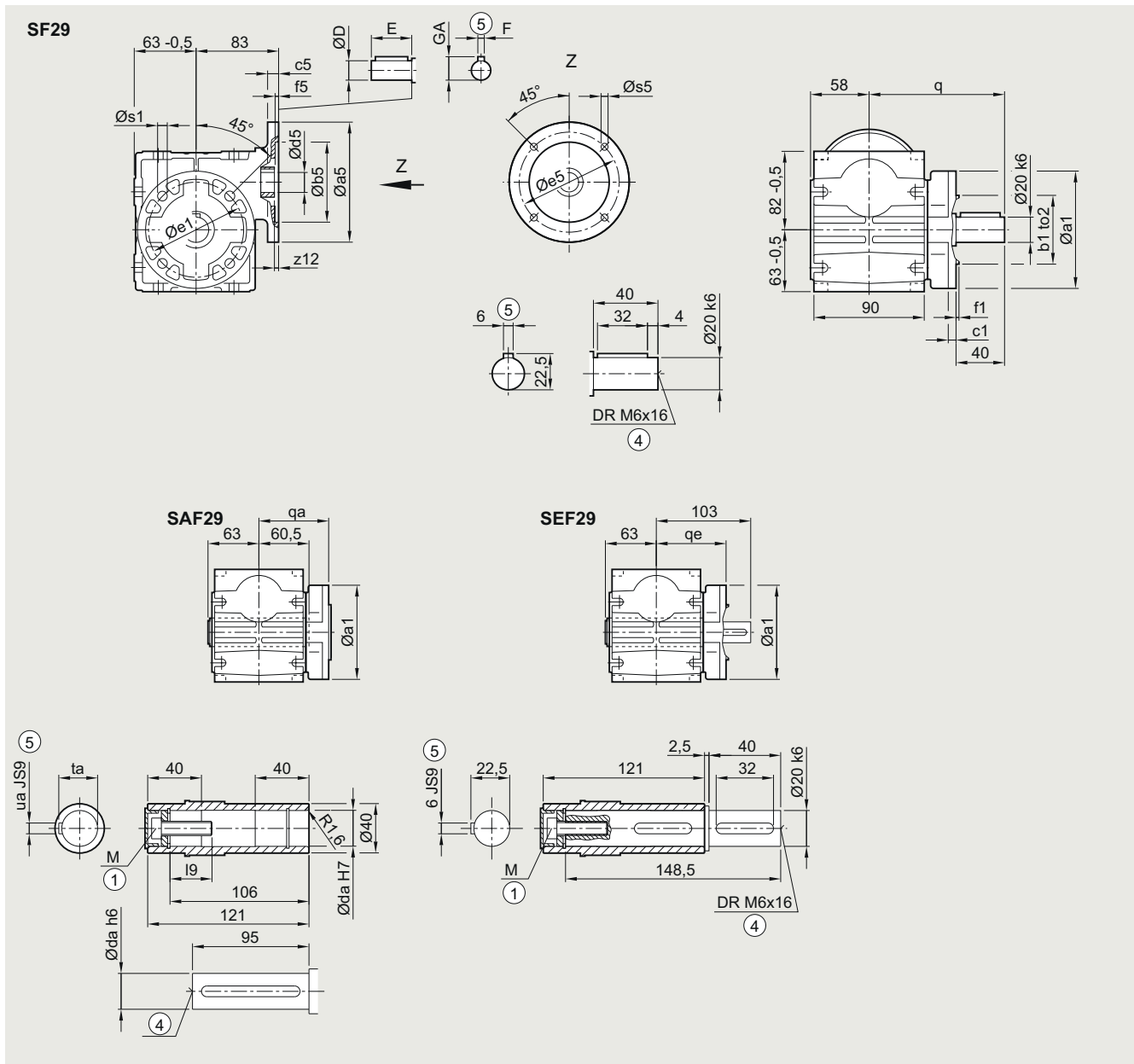
| Hollow shaft | da | ua | ta | | | | | | | | |
|--------------|-----|----|------|----|----|-----|-----|------|----|---|------|
| | 18 | 6 | 20.8 | | | | | | | | |
| | 20 | 6 | 22.8 | | | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
| 63 | 90 | 60 | 7 | 3 | 75 | 5.8 | 2 | 11 | 23 | 4 | 12.5 |
| 71 | 105 | 70 | 7 | 3 | 85 | 7.0 | 2 | 14 | 30 | 5 | 16.0 |

① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

S.F29 gearbox in a flange-mounted design



| Hollow shaft | da | ua | ta | i9 | M | | | | | | |
|--------------|-----|-----|------|------|-----|-----|-----|------|---------|---|------|
| | 20 | 6 | 22.8 | 23.4 | M6 | | | | | | |
| | 25 | 8 | 28.3 | 32.6 | M10 | | | | | | |
| Flange | a1 | e1 | b1 | to2 | c1 | f1 | s1 | q | qa / qe | | |
| | 120 | 100 | 80 | j6 | 8 | 3.0 | 6.6 | 120 | 80 | | |
| | 160 | 130 | 110 | j6 | 8 | 3.5 | 9.0 | 135 | 95 | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
| 63 | 90 | 60 | 8 | 3 | 75 | 5.8 | 6 | 11 | 23 | 4 | 12.5 |
| 71 | 105 | 70 | 8 | 3 | 85 | 7.0 | 6 | 14 | 30 | 5 | 16.0 |
| 80 | 120 | 80 | 8 | 3.5 | 100 | 7.0 | 6 | 19 | 40 | 6 | 21.5 |

① ISO 4014

④ DIN 332

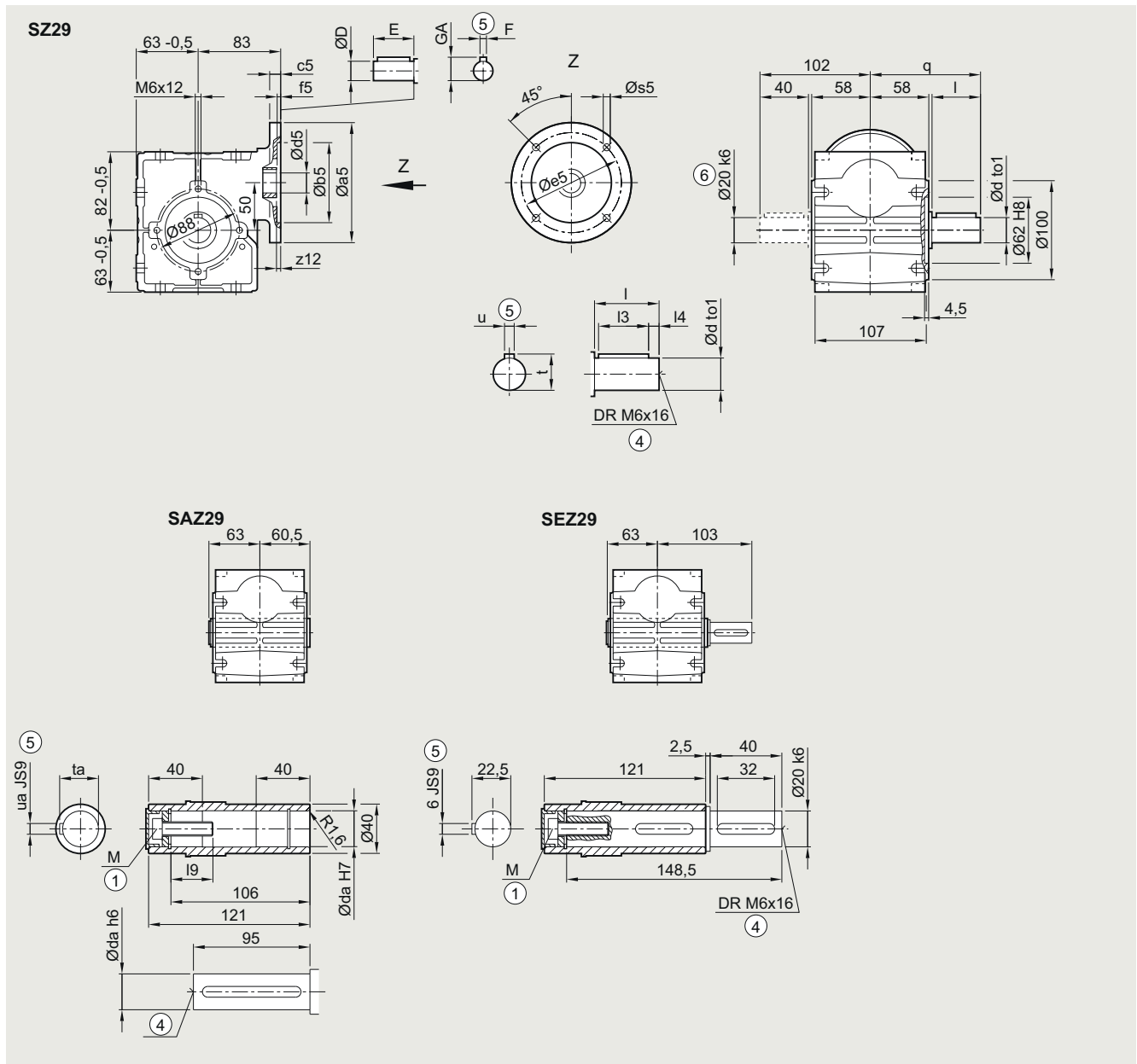
⑤ Feather key/keyway DIN 6885

Worm gearboxes

Dimensional drawings

For mounting an IEC motor

S.Z29 gearbox in a housing flange design



| Solid shaft | d | to1 | l | l3 | l4 | u | t | q | Hollow shaft | da | ua | ta | l9 | M |
|-------------|-----|-----|----|-----|-----|------|------|------|--------------|------|------|------|------|----|
| | 20 | k6 | 40 | 32 | 4 | 6 | 22.5 | 102 | | 20 | 6 | 22.8 | 23.4 | M6 |
| 25 | k6 | 50 | 40 | 5 | 8 | 28.0 | 112 | 25 | 8 | 28.3 | 32.6 | M10 | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA | | | |
| 63 | 90 | 60 | 8 | 3 | 75 | 5.8 | 6 | 11 | 23 | 4 | 12.5 | | | |
| 71 | 105 | 70 | 8 | 3 | 85 | 7.0 | 6 | 14 | 30 | 5 | 16.0 | | | |
| 80 | 120 | 80 | 8 | 3.5 | 100 | 7.0 | 6 | 19 | 40 | 6 | 21.5 | | | |

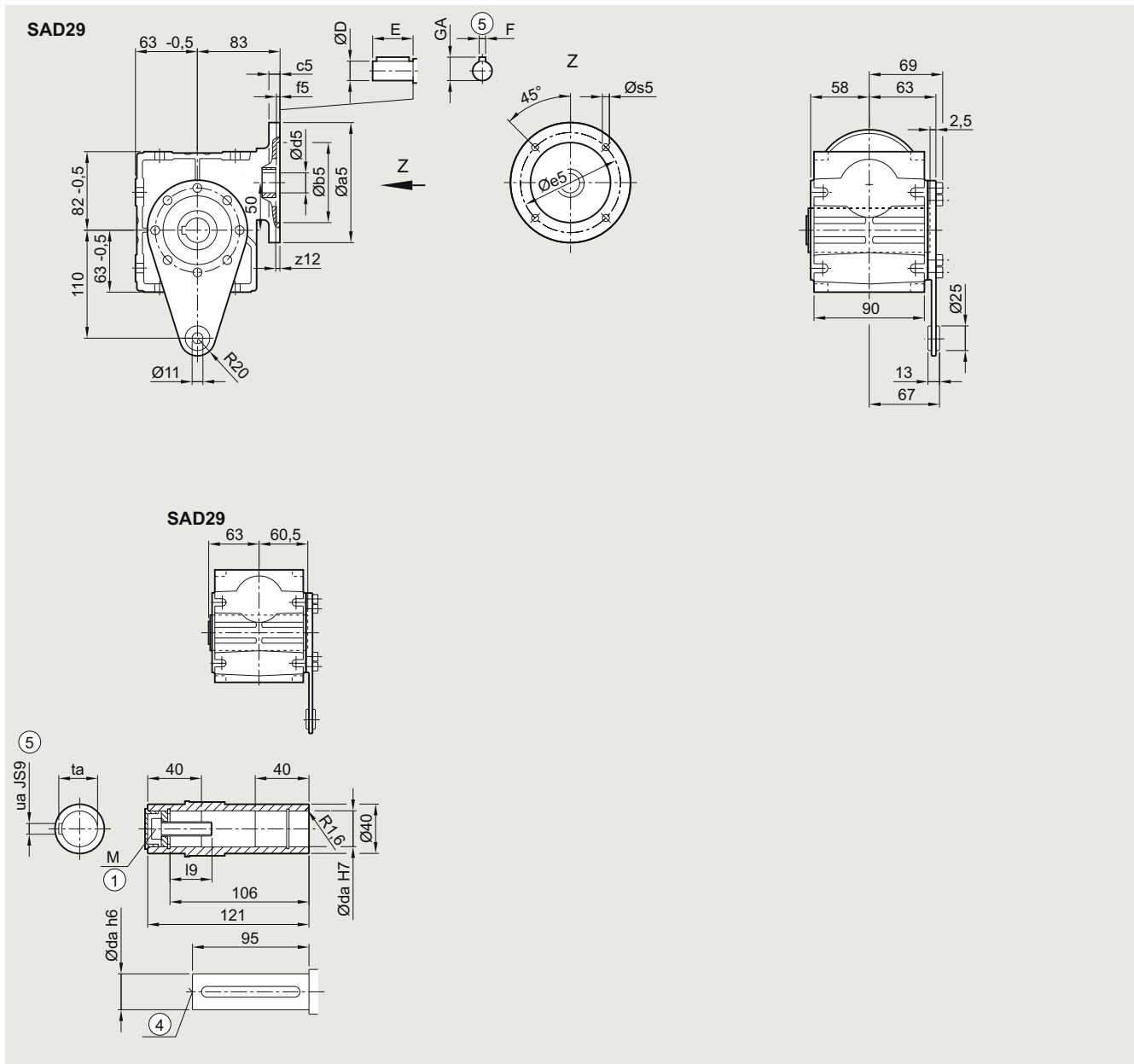
① ISO 4014

④ DIN 332

⑤ Feather key/keyway DIN 6885

⑥ Solid shaft with 2nd shaft extension only d20

SAD29 gearbox in a shaft-mounted design



| Hollow shaft | da | ua | ta | l9 | M | | | | | | |
|--------------|-----|----|------|------|-----|-----|-----|------|----|---|------|
| | 20 | 6 | 22.8 | 23.4 | M6 | | | | | | |
| | 25 | 8 | 28.3 | 32.6 | M10 | | | | | | |
| Adapter | a5 | b5 | c5 | f5 | e5 | s5 | z12 | d5/D | E | F | GA |
| 63 | 90 | 60 | 8 | 3 | 75 | 5.8 | 6 | 11 | 23 | 4 | 12.5 |
| 71 | 105 | 70 | 8 | 3 | 85 | 7.0 | 6 | 14 | 30 | 5 | 16.0 |
| 80 | 120 | 80 | 8 | 3.5 | 100 | 7.0 | 6 | 19 | 40 | 6 | 21.5 |

① ISO 4014

④ DIN 332

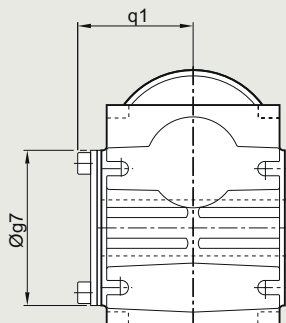
⑤ Feather key/keyway DIN 6885

Worm gearboxes

Dimensional drawings

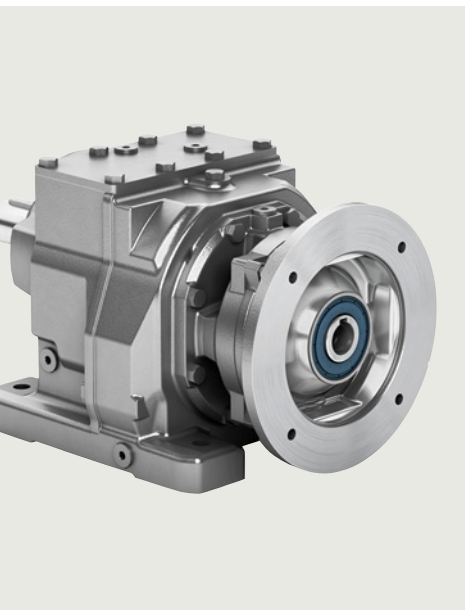
Protective cover for hollow shaft

SA, SAZ, SAF, SE, SEZ



| Gearbox type | S.09 | S.19 | S.29 |
|-------------------------|------|------|------|
| Protective cover | | | |
| g7 | 72 | 82 | 100 |
| q1 | 51 | 59.5 | 70 |

Adapters



8/2

Orientation

8/2 Overview

8/2 Adapters for mounting an IEC motor

8/3 Adapters for mounting defined
SIEMENS servo motors

8/4 Adapters for mounting a NEMA motor

8/5

General technical specifications

8/5 Maximum permissible torques for the
adapters on Innomatics SG gearboxes

8/5 Adapters for mounting an IEC motor

8/3 Adapters for mounting a servo motor

8/5 Adapters for mounting a NEMA motor

8/5 Adapters A/AZ with free output shaft

Adapters

Orientation

Overview

For most applications, it is best to mount the motor so that it is integrated on the gearbox. This provides an optimum solution in terms of a short overall length and the least weight.

Please refer to our catalogue [D 50.1](#) for Innomotics SG geared motors with integrated motor mounting.

The Innomotics SG gearboxes with adapter make it possible to attach IEC and NEMA standard motors and SIEMENS servo motors for special applications, e.g. which require motor versions that are not available as integrated motors.

Adapters for mounting an IEC motor

Short adapter K4

This adapter is designed for mounting IEC motors with B5 flanges for which a very short overall length is required in order to mount the motor.

The adapter is designed to allow the correction of axial alignment errors. The location bearing of the attached motor can be at the D or the ND end.

| Adapter | Article No. in the 12th data position |
|------------------|---------------------------------------|
| Short adapter K4 | 2KJ36... -... -...-Z |

Note:

For applications with high switching frequency and load classification III, we recommend the use of coupling adapter K2.

Coupling adapter K2

The adapter K2 for motors in IEC sizes is suitable for general applications with all load types.

The adapter is designed with a torsionally flexible cam coupling and transmits power in such a way as to damp torsional vibrations.

| Adapter | Article No. in the 12th data position |
|---------------------|---------------------------------------|
| Coupling adapter K2 | 2KJ36... -... -...-Z |

For mounting on 2-pole motors, we offer a smaller shaft diameter as of motor size 225, see [table Available adapter sizes for IEC motors](#).

| 2-pole motors | Additional identification code -Z with order code | Order code |
|------------------------|---|------------|
| Shaft for 2-pole motor | 2KJ3... -...-...-Z | P20 |

Available adapter sizes for IEC motors

We advise you to check the geometric dimensions of the motor flange. The mounting dimensions and tolerances must correspond to EN 50347.

| Adapter type and size | | IEC motor | Diameter | |
|-----------------------|-----|--------------|-----------|-------------|
| K4 | K2 | Shaft height | B5 flange | Motor shaft |
| | | | mm | mm |
| 63 | - | 63 | 140 | 11 |
| 71 | - | 71 | 160 | 14 |
| 80 | 80 | 80 | 200 | 19 |
| 90 | 90 | 90 | 200 | 24 |
| 100 | 100 | 100 | 250 | 28 |
| 112 | 112 | 112 | 250 | 28 |
| 132 | 132 | 132 | 300 | 38 |
| 160 | 160 | 160 | 350 | 42 |
| 180 | 180 | 180 | 350 | 48 |
| 200 | 200 | 200 | 400 | 55 |
| 225 | 225 | 225 | 450 | 60 (55) |
| 250 | 250 | 250 | 550 | 65 (60) |
| - | 280 | 280 | 550 | 75 (65) |
| - | 315 | 315 | 660 | 80 (65) |

() Dimensions in brackets for 2-pole motors

For further selection options and information about the IEC motors, please refer to Catalog D 81.1 and SiePortal.

Adapters for mounting defined SIEMENS servo motors**KS coupling adapter
only for defined SIEMENS servo motors**

This adapter can be used to attach servo motors from the

- SIMOTICS S-1FK2
- SIMOTICS S-1FK7
- SIMOTICS S-1FT7
- SIMOTICS M-1PH8 (1PH808 and 1PH810) as well as
- SIMOTICS S-1FL6

ranges with square flanges to the gearbox. This provides the geared motor with a solid and attractive design.

The adapter is designed with a zero-backlash, torsionally flexible cam coupling and transmits power in such a way as to damp torsional vibrations.

| Adapter | Article No. in the 12th data position |
|---------------------|---------------------------------------|
| KS coupling adapter | 2KJ36...-Z 1 |

**Coupling adapter K8
for mounting a motor from the SIMOTICS M-1PH8 range**

The adapter K8 can be used to attach motors with feather key from the SIMOTICS M-1PH8 (as of 1PH813) range.

The adapter is designed with a torsionally flexible cam coupling and transmits power in such a way as to damp torsional vibrations.

| Adapter | Article No. in the 12th data position |
|---------------------|---------------------------------------|
| Coupling adapter K8 | 2KJ36...-Z 8 |

Note:

The KS adapters are designed for mounting on servo motors with plain shafts (without feather key). For the SINAMICS S-1FT7 motors, the classic flange is available for attaching to the KS adapters:

| Permissible servo motors for KS adapters | Article No.: |
|--|--|
| SIMOTICS S-1FK2 | |
| Plain shaft (without shaft sealing ring) ¹⁾ | 1FK2...-0... |
| SIMOTICS S-1FK7 | |
| Plain shaft | 1FK7...-G 1FK7...-H |
| SIMOTICS S-1FT7 | |
| Flange: | 1FT7...-1-... |
| Classic (compatible with 1FT6/1FK7) | 1FT7...-4-... |
| Plain shaft | 1FT7...-G 1FT7...-H 1FT7...-K 1FT7...-L |
| SIMOTICS M-1PH8 | |
| Plain shaft | 1PH8...-0... |
| SIMOTICS S-1FL6 | |
| Plain shaft | 1FL6...-G 1FL6...-H |

¹⁾ Because of the attachment to the KS adapters, the version with the shaft sealing ring is not required for the 1FK2 motor to comply with degree of protection IP65.

For further selection options and information about the servo motors, please refer to SiePortal.

Available adapter sizes for servo motors

We advise you to check the geometric dimensions of the motor flange.

| Adapter type and size | | Flange dimensions | | | | Motor shaft | | Mountable motors | | | | |
|-----------------------|-----|-------------------|----------|----------|----------|-------------|-------|--------------------|--------|--------|---------|----------|
| KS | K8 | a1 mm | a5 mm | b5 mm | e5 mm | min. mm | max | 1FK2 | 1FK7 | 1FT7 | 1PH8 | 1FL6 |
| KS3.1 | | Ø91 | □73 | 50 | 70 | 14x25 | 14x31 | 1FK2103 1FK2203 | | | | 1FL603LI |
| KS3.2 | | Ø91 | □73 | 60 | 75 | 14x25 | 14x31 | | 1FK703 | 1FT703 | | |
| KS4.1 | | Ø110 | □85 | 70 | 90 | 19x35 | 19x40 | 1FK2104 1FK2204 | | | | 1FL604LI |
| KS4.2 | | Ø110 | □85 | 80 | 100 | 19x35 | 19x40 | | 1FK704 | 1FT704 | | 1FL604HI |
| KS5.1 | | Ø142 | □117 | 80 | 100 | 19x35 | 19x45 | 1FK2205 | 1FK704 | | | |
| KS5.2 | | Ø142 | □117 | 95 | 115 | 19x35 | 19x45 | 1FK2105 | | | | 1FL605LI |
| KS6.1 | | Ø166 | □130 | 110 | 130 | 24x40 | 24x58 | 1FK2106 1FK2206 | 1FK706 | 1FT706 | | |
| KS6.2 | | Ø166 | □130 | 110 | 145 | 22x40 | 22x58 | | | | | 1FL606HI |
| KS8.1 | | Ø202 | □155 | 130 | 165 | 32x40 | 32x80 | 1FK2208 | 1FK708 | 1FT708 | 1PH808 | |
| KS10.1 | | Ø250 | □196 | 180 | 215 | 38x50 | 38x80 | 1FK2210 | 1FK710 | 1FT710 | 1PH810 | |
| KS10.2 | | Ø250 | □196 | 114,3 | 200 | 35x50 | 35x80 | | | | | 1FL609HI |
| | 813 | Ø340 | □260 | 250 | 300 | 48x110 | - | | | | 1PH813. | |
| | 816 | Ø392 | □314 | 300 | 350 | 55x110 | - | | | | 1PH816 | |
| | 818 | Ø550 | Ø550 | 450 | 465 | 65x140 | - | | | | 1PH818 | |

Adapters

Orientation

Adapters for mounting a NEMA motor

The adapters for mounting NEMA motors are designed for NEMA TC flanges and make it easy to attach standard NEMA motors.

Short adapter K5

This adapter is designed for mounting NEMA motors for NEMA TC flanges for which a very short overall length is required in order to mount the motor.

The adapter is designed to allow the correction of axial alignment errors. The location bearing of the attached motor can be at the D or the ND end.

| Adapter | Article No. in the 12th data position |
|------------------|---------------------------------------|
| Short adapter K5 | 2KJ36... -..... ■ -.....-Z 5 |

Note:

For applications with high switching frequency and load classification III, we recommend the use of coupling adapter K3.

Coupling adapter K3

The adapter K3 for motors in NEMA sizes is suitable for general applications with all load types.

The adapter is designed with a torsionally flexible cam coupling and transmits power in such a way as to damp torsional vibrations.

| Adapter | Article No. in the 12th data position |
|---------------------|---------------------------------------|
| Coupling adapter K3 | 2KJ36... -..... ■ -.....-Z 3 |

Available adapter sizes for NEMA motors

We advise you to check the geometric dimensions of the motor flange. The mounting dimensions and tolerances must correspond to NEMA MG1 Part 4.

| Adapter type and size | | NEMA | Flange dimension | Motor shaft |
|-----------------------|-----|----------------------|------------------|-------------|
| K5 | K3 | | Zoll | Zoll |
| 56 | 56 | 56C | 6.61" | 0.625" |
| 140 | 140 | 140TC (143TC, 145TC) | 6.61" | 0.875" |
| 180 | 180 | 180TC (182TC, 184TC) | 8.9" | 1.125" |
| 210 | 210 | 210TC (213TC, 215TC) | 8.9" | 1.375" |
| 250 | 250 | 250TC (254TC, 256TC) | 8.9" | 1.625" |
| 280 | 280 | 280TC (284TC, 286TC) | 11.22" | 1.875" |
| 320 | - | 320TC (324TC, 326TC) | 13.386" | 2.125" |
| 360 | - | 360TC (364TC, 365TC) | 13.386" | 2.375" |

Maximum permissible torques for the adapters on Innomatics SG gearboxes

The permissible drive torques up to T_{1perm} apply to continuous operation. In short-time operation, 2.5 times the value for T_{1perm} is permissible (emergency off operation max. 1000 times).

The permissible drive torque depends on the transmission ratio and the values stated are maximum values.

Adapters for mounting an IEC motor

| Adapter size | Permissible input torque for continuous operation T_{1perm} Nm | Mass inertia of the adapter J 10^{-4} kgm ² |
|-------------------|--|--|
| Adapter K4 | | |
| 63 | 5 | 0.33 |
| 71 | 5 | 0.32 |
| 80 | 13 | 2.5 |
| 90 | 13 | 2.4 |
| 100 | 45 | 6.4 |
| 112 | 47 | 6.4 |
| 132 | 127 | 33 |
| 160 | 153 | 38 |
| 180 | 330 | 36 |
| 200 | 355 | 93 |
| 225 | 415 | 95 |
| 250 | 545 | 137 |
| Adapter K2 | | |
| 80 | 13 | 3.0 |
| 90 | 13 | 3.0 |
| 100 | 45 | 9.0 |
| 112 | 47 | 9.0 |
| 132 | 127 | 36 |
| 160 | 153 | 43 |
| 180 | 330 | 75 |
| 200 | 355 | 124 |
| 225 | 415 | 179 |
| 250 | 545 | 293 |
| 280 | 1530 | 703 |
| 315 | 1700 | 2267 |

Adapters for mounting a servo motor

Unless otherwise specified, Innomatics SG gearboxes can be operated at a motor speed of up to 4500 rpm for brief periods.

| Adapter size | Permissible input torque for continuous operation T_{1perm} Nm | Mass inertia of the adapter J 10^{-4} kgm ² | Maximum permissible speed n_{max} rpm |
|-------------------|--|--|---|
| Adapter KS | | | |
| KS3.1 | 5.1 | 0.30 | 4500 |
| KS3.2 | 5.1 | 0.30 | 4500 |
| KS4.1 | 5.1 | 0.59 | 4500 |
| KS4.2 | 5.1 | 0.59 | 4500 |
| KS5.1 | 16.8 | 1.9 | 4500 |
| KS5.2 | 16.8 | 1.9 | 4500 |
| KS6.1 | 28.6 | 4.5 | 4500 |
| KS6.2 | 25.8 | 4.5 | 4500 |
| KS8.1 | 47.0 | 10 | 4500 |
| KS10.1 | 131 | 29 | 4500 |
| KS10.2 | 121 | 29 | 4500 |
| Adapter K8 | | | |
| 813 | 245 | 73 | 4500 |
| 816 | 355 | 134 | 4500 |
| 818 | 1530 | 703 | 4500 |

For the precise interpretation use the functionality of the [SPC](#).

Adapters for mounting a NEMA motor

| Adapter size | Permissible input torque for continuous operation T_{1perm} Nm | Mass inertia of the adapter J 10^{-4} kgm ² |
|-------------------|--|--|
| Adapter K5 | | |
| 56 | 5 | 0.32 |
| 140 | 13 | 2.4 |
| 180 | 47 | 6.4 |
| 210 | 127 | 33 |
| 250 | 153 | 38 |
| 280 | 330 | 36 |
| 320 | 415 | 95 |
| 360 | 545 | 137 |
| Adapter K3 | | |
| 56 | 5 | 2.9 |
| 140 | 13 | 3 |
| 180 | 47 | 9 |
| 210 | 127 | 36 |
| 250 | 153 | 43 |
| 280 | 330 | 75 |

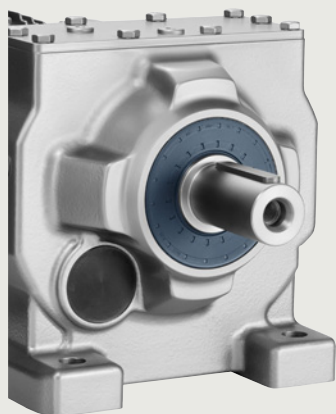
Adapters A/AZ with free output shaft

| Adapter size | Permissible input torque for continuous operation T_{1perm} Nm | Mass inertia of the adapter J 10^{-4} kgm ² |
|---------------------|--|--|
| Adapter A/AZ | | |
| 80 | 19 | 2.2 |
| 90 | 20 | 2.3 |
| 100 | 45 | 8.4 |
| 112 | 47 | 8.4 |
| 132 | 141 | 23 |
| 160 | 153 | 56 |
| 180 | 310 | 59 |
| 200 | 370 | 129 |
| 225 | 445 | 130 |
| 250 | 840 | 144 |

Adapters

Notes

Gearbox options



| | | | |
|------------|---|-------------|---|
| 9/2 | Mounting position | 9/40 | Mounting |
| 9/2 | Overview | | <u>Mounting types</u> |
| | <u>Helical gearboxes Z and D</u> | 9/40 | Overview |
| 9/4 | Foot-mounted design | 9/41 | Flange-mounted designs |
| 9/6 | Foot/flange-mounted design | 9/43 | • Water drain holes at the output flange |
| 9/8 | Flange-mounted design or with housing flange | 9/44 | • Output flange sealing |
| | <u>Helical gearboxes E</u> | 9/44 | Parallel shaft gearboxes F.AD in a shaft-mounted design |
| 9/11 | Foot-mounted design | 9/44 | Bevel gearboxes KAD in a shaft-mounted design |
| 9/12 | Flange-mounted design or with housing flange | 9/44 | Bevel gearboxes BAD in a shaft-mounted design |
| | <u>Parallel shaft gearboxes</u> | 9/44 | Bevel gearboxes CAD in a shaft-mounted design |
| 9/13 | Shaft-mounted design | 9/45 | Helical worm gearboxes CAD in a shaft-mounted design |
| 9/15 | Flange-mounted design or with housing flange | 9/46 | Worm gearboxes SAD in a shaft-mounted design |
| 9/17 | Foot-mounted design | | <u>Shaft designs</u> |
| | <u>Bevel gearboxes B</u> | 9/46 | Selection and ordering data |
| 9/19 | Foot-mounted design | 9/50 | ShaftMount assembly system |
| 9/21 | Housing flange design and shaft-mounted design | 9/50 | Hollow shaft cover |
| 9/23 | Shaft-mounted design | | 9/51 Output shaft bearings |
| | <u>Bevel gearboxes K</u> | 9/51 | Reinforced output shaft bearings |
| 9/25 | Foot-mounted design | | 9/52 Output side accessories |
| 9/26 | Housing flange design and flange-mounted design | | <u>Accessories for VLplus reinforced bearing system</u> |
| 9/27 | Shaft-mounted design | 9/52 | Drywell |
| | <u>Helical worm gearboxes</u> | 9/52 | Grease cartridge |
| 9/28 | Shaft-mounted design | | 9/53 Lubrication and sealing |
| 9/31 | Housing flange design and flange-mounted design | | <u>Overview</u> |
| 9/34 | Foot-mounted design | 9/53 | • Lubrication |
| | <u>Worm gearboxes</u> | 9/53 | • Oil quantities |
| 9/37 | Foot-mounted, flange-mounted, shaft-mounted and housing flange design | 9/53 | • Sealing |
| 9/38 | <u>Tandem gearboxes</u> | 9/53 | Sealing system |
| 9/39 | <u>Special mounting positions</u> | 9/54 | Rolling bearing greases for gearboxes and motors |
| | | 9/54 | Selection |
| | | | 9/56 Venting and oil level control |
| | | | <u>Venting</u> |
| | | 9/56 | Overview |
| | | 9/58 | Pressure breather valve |
| | | 9/59 | Oil expansion unit |
| | | | <u>Oil level control</u> |
| | | 9/61 | Oil level checking screw |
| | | 9/61 | Oil drain |
| | | 9/62 | Pt100 electrical oil temperature monitoring |
| | | 9/63 | Electrical oil level monitoring system |
| | | | 9/64 Special version |
| | | 9/64 | Reduced-backlash version |
| | | 9/64 | Shrink-glued output gearwheel |

Gearbox options

Mounting position

Overview

The mounting position must be specified when you place your order to ensure that the gearbox is supplied with the correct quantity of oil.

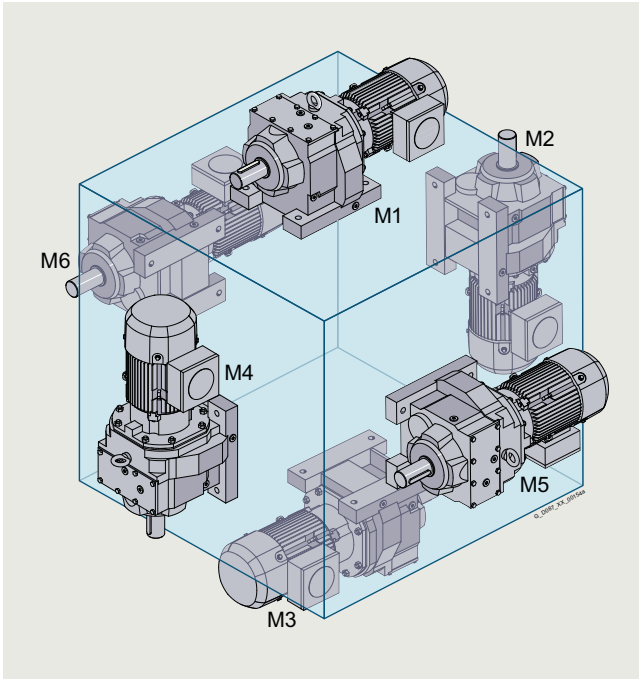


Fig. 9/1 Helical geared motors

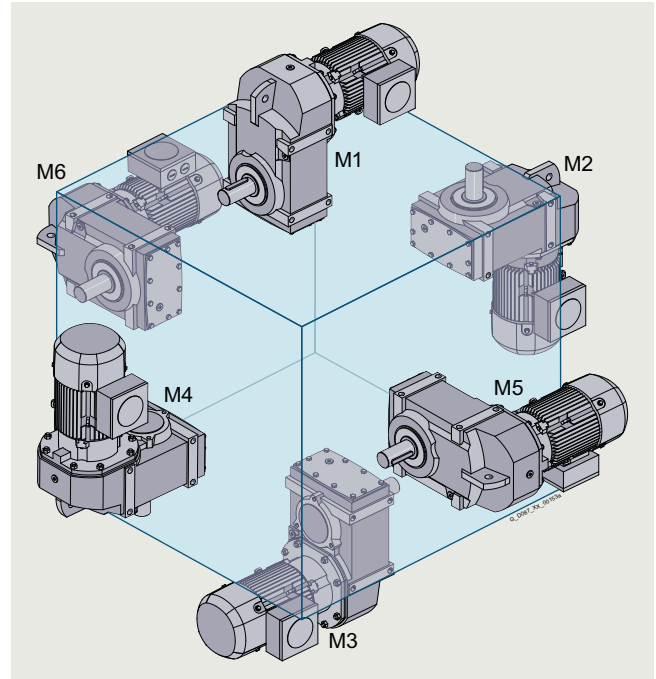


Fig. 9/2 Parallel shaft geared motors

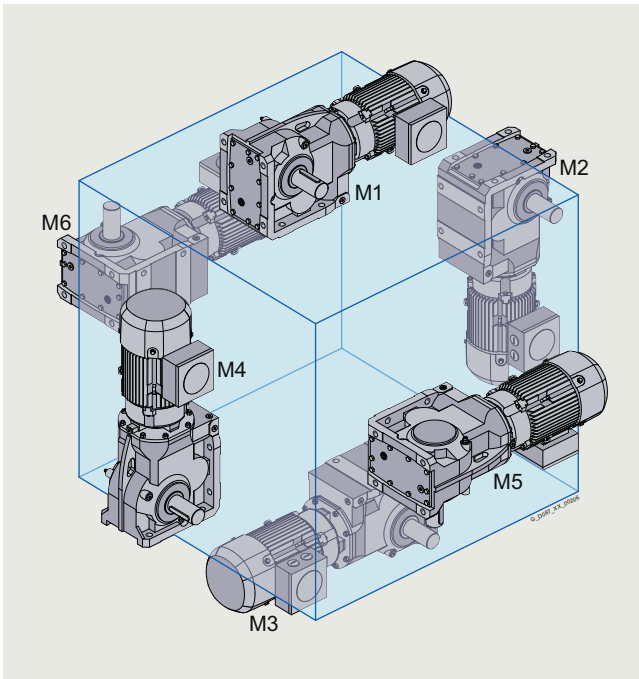


Fig. 9/3 Bevel geared motors

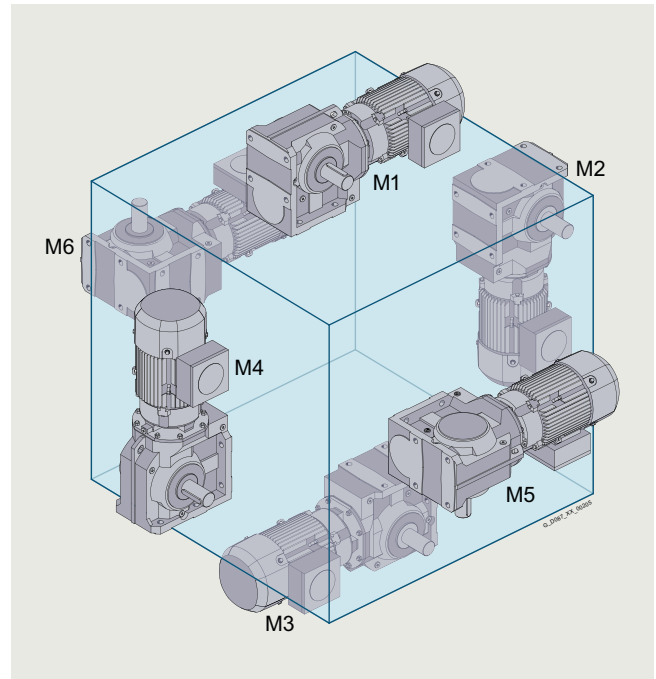


Fig. 9/4 Helical worm geared motors

Overview

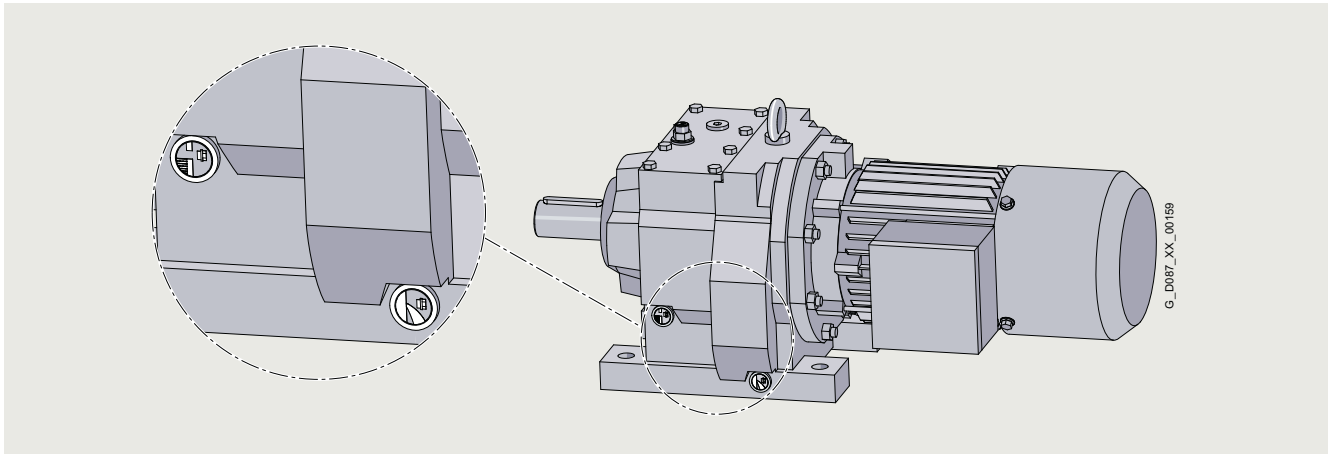


Fig. 9/5 Dimensional drawing from SPC with details

An explanation of the symbols used to represent mounting positions on the following pages

Symbol

Oil valves

| | |
|--|--|
| | Venting |
| | Oil drain |
| | Oil level checking screw |
| | Oil dipstick, optional |
| | Venting main gearbox (applies only to tandem geared motors) |
| | Oil drain main gearbox (applies only to tandem geared motors) |

Supplements

| | |
|---------|---|
| * | On opposite side |
| A, B | Output side A, output side B |
| ① | Oil level checking screw not possible for tandem geared motors |
| ② | 2-stage gearbox |
| ③ | 3-stage gearbox |
| ④ | Oil level checking screw not possible for 3-stage tandem gearbox (main gearbox) |
| ① ... ④ | Terminal box position |

Note:

The SPC can be used to configure Innomatics SG geared motors. This can be used on the internet without requiring any installation.

The SPC can be found in SiePortal at the following address:
www.siemens.com/spc

For the selected mounting position, the 3D images show the exact position of the oil valves.

Gearbox options

Mounting position

Helical gearboxes Z and D

Foot-mounted design

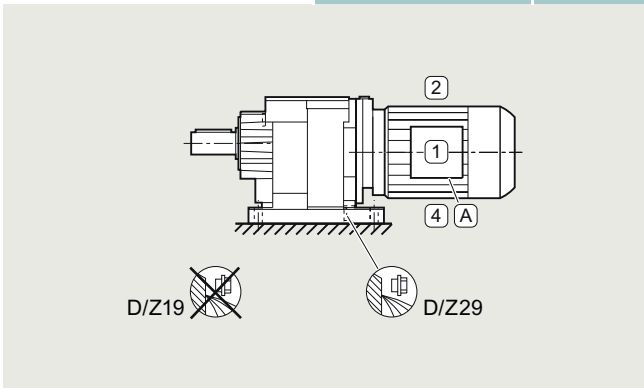
Helical gearboxes Z and D, sizes 19 and 29

Oil valves

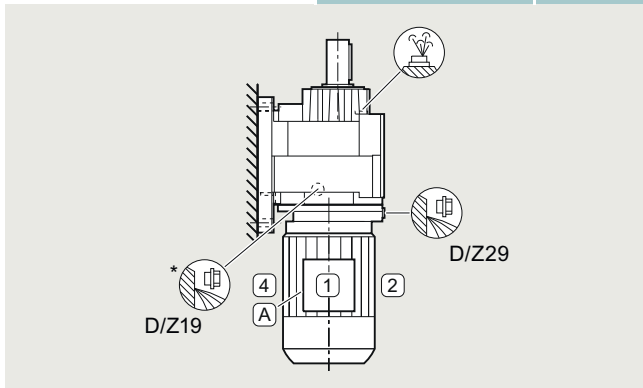
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

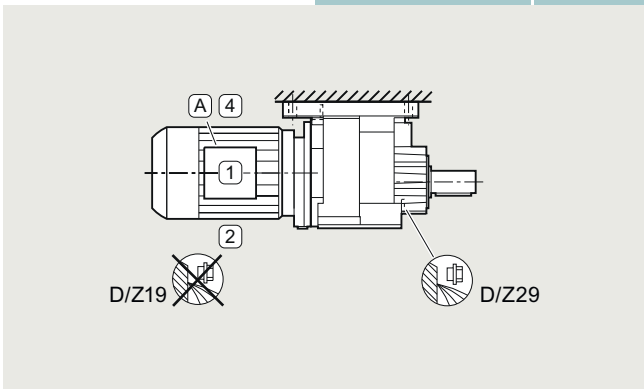
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D01 |



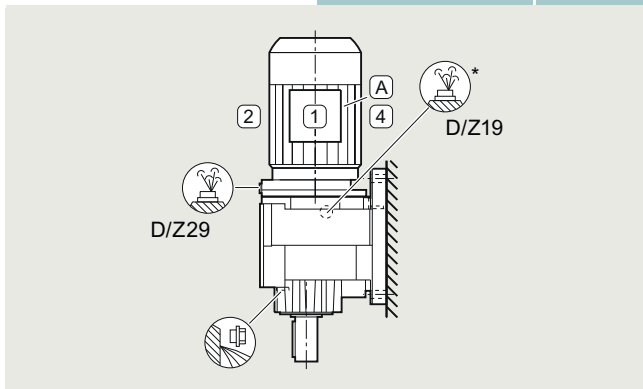
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D02 |



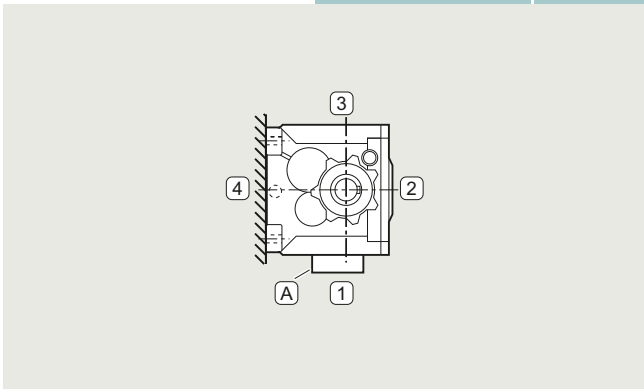
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D03 |



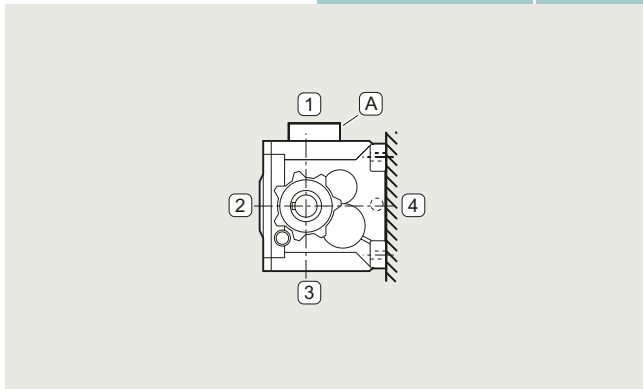
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ31... - - A...-Z 2KJ32... - - A...-Z | D06 |



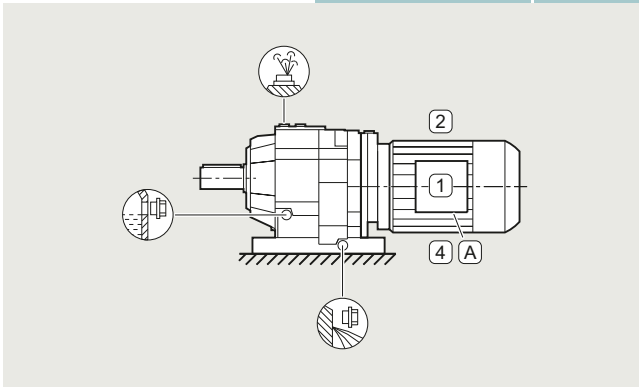
Foot-mounted design

Helical gearboxes Z and D, sizes 39 to 189

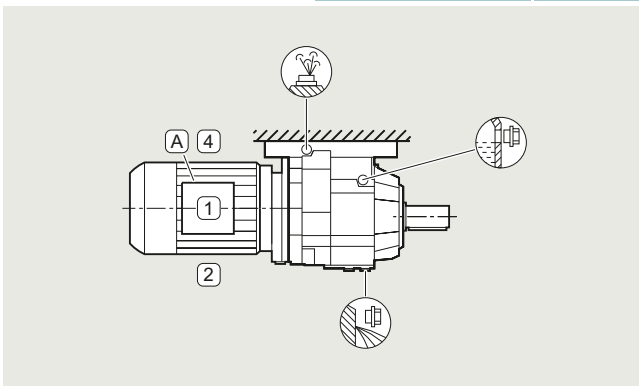
Oil valves

For an explanation of the symbols, see [page 9/3](#).

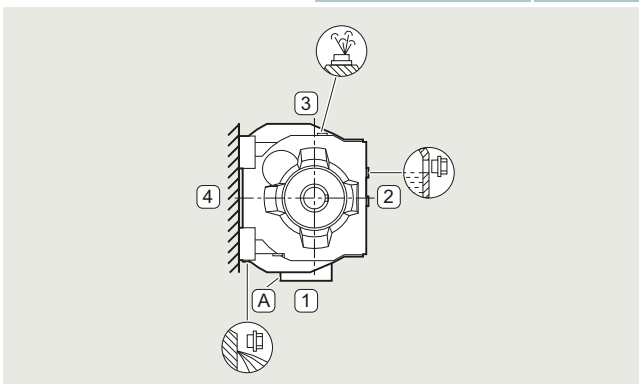
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D01 |



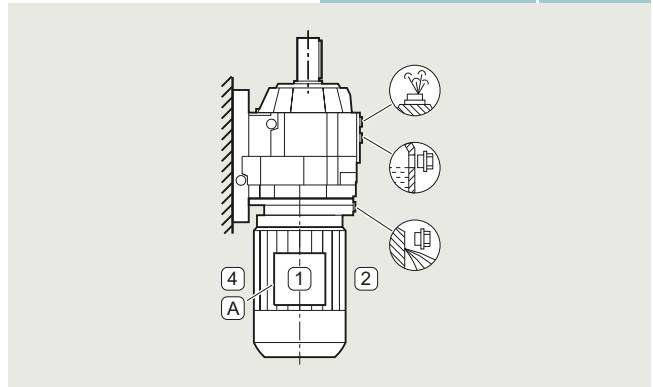
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D03 |



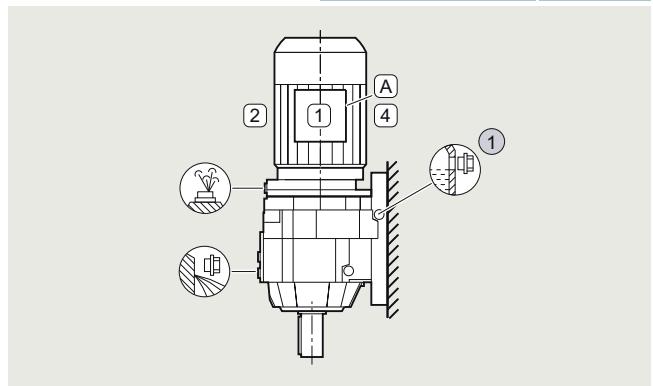
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D05 |



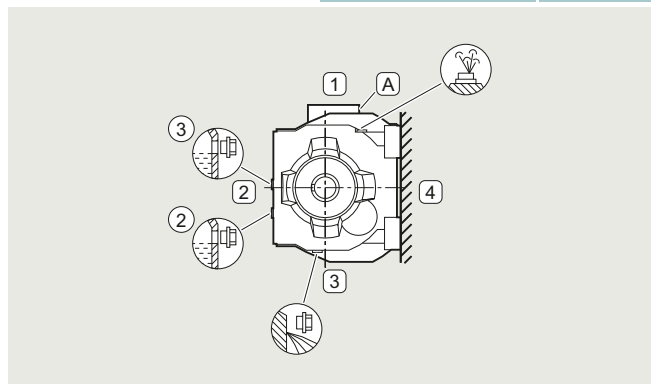
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D02 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ31... - - A..-Z 2KJ32... - - A..-Z | D06 |



Gearbox options

Mounting position

Helical gearboxes Z and D

Foot/flange-mounted design

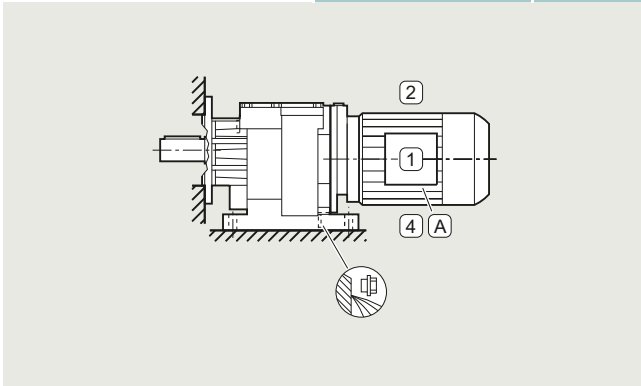
Helical gearboxes ZB and DB, size 29

Oil valves

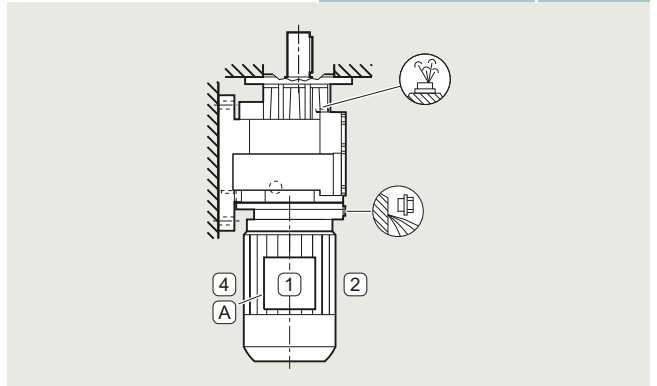
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

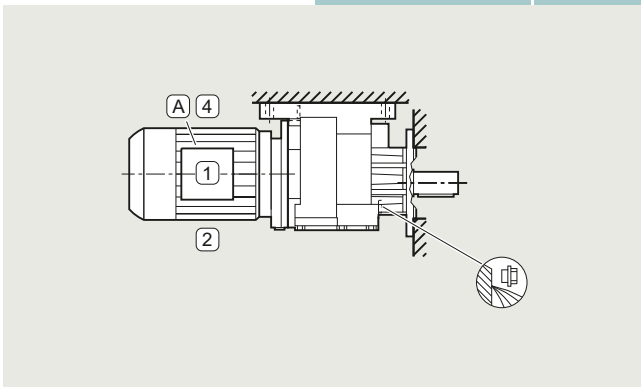
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D01 |



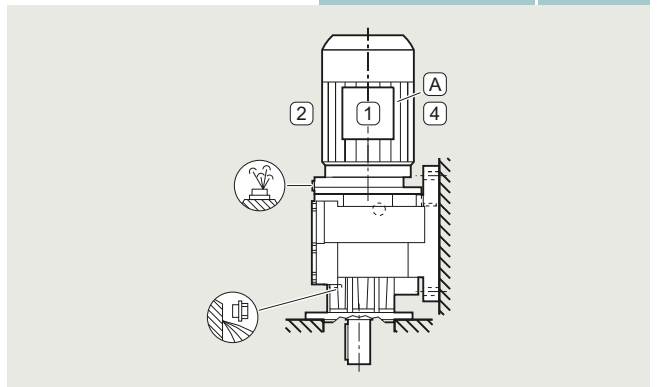
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D02 |



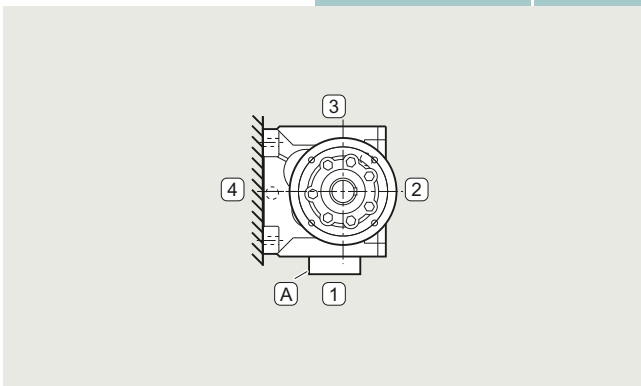
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D03 |



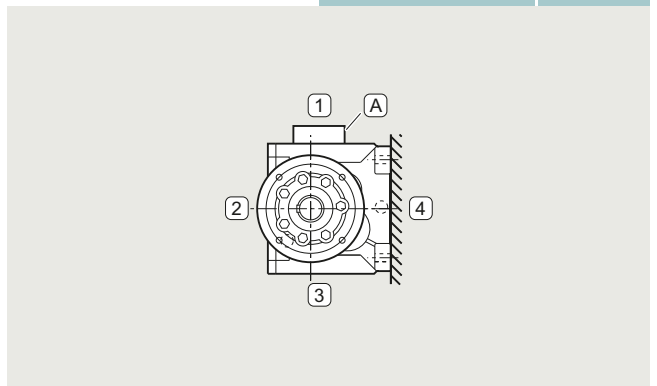
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ3102 - - B...-Z 2KJ3202 - - B...-Z | D06 |



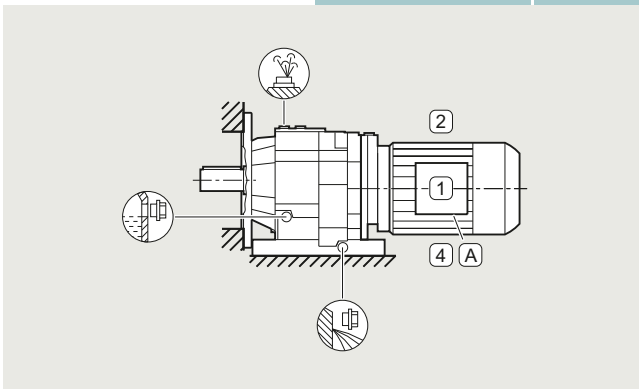
Foot/flange-mounted design

Helical gearboxes ZB and DB, sizes 39 to 89

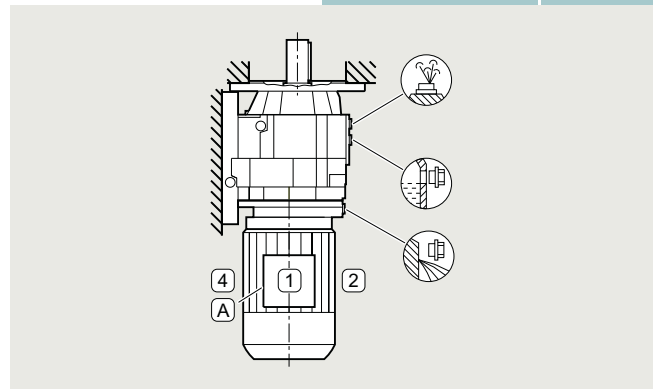
Oil valves

For an explanation of the symbols, see [page 9/3](#).

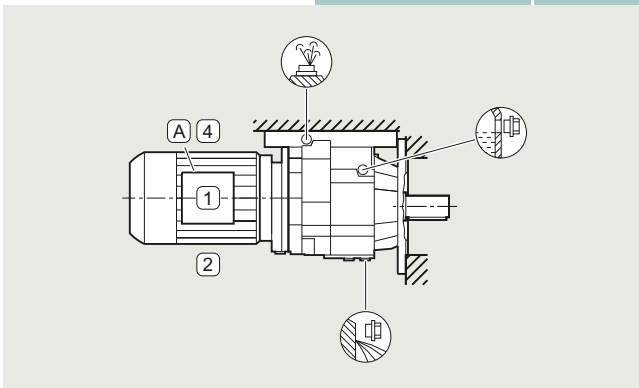
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M1 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D01 |



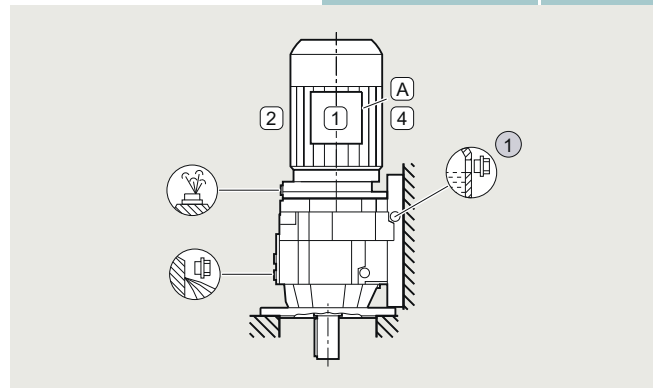
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M2 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D02 |



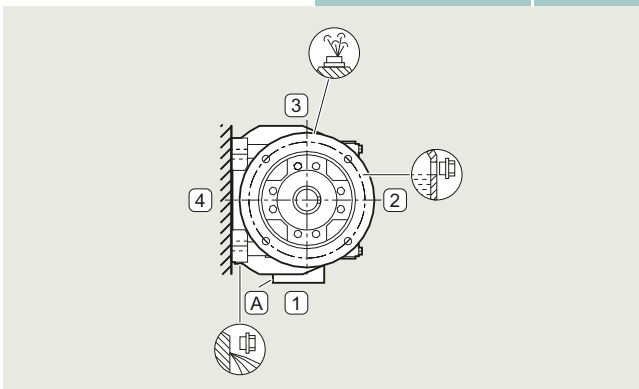
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M3 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D03 |



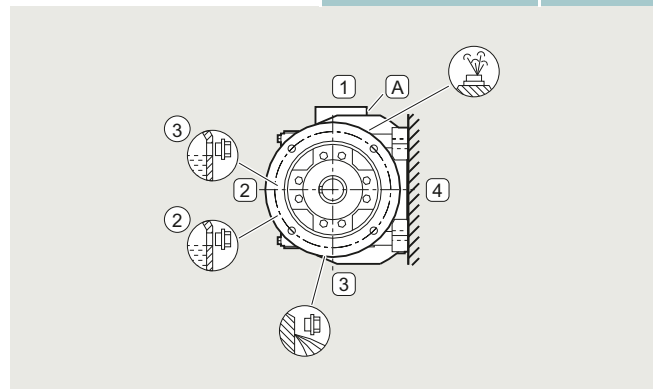
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M4 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M5 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M6 | 2KJ31.. -.....- B..-Z 2KJ32.. -.....- B..-Z | D06 |



Gearbox options

Mounting position

Helical gearboxes Z and D

Flange-mounted design or with housing flange

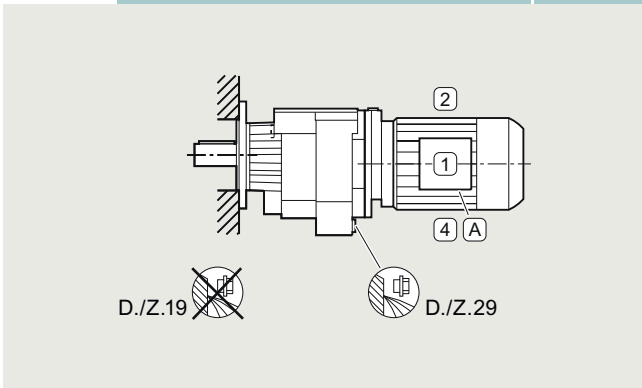
Helical gearboxes ZF and DF or ZZ and DZ, sizes 19 and 29

Oil valves

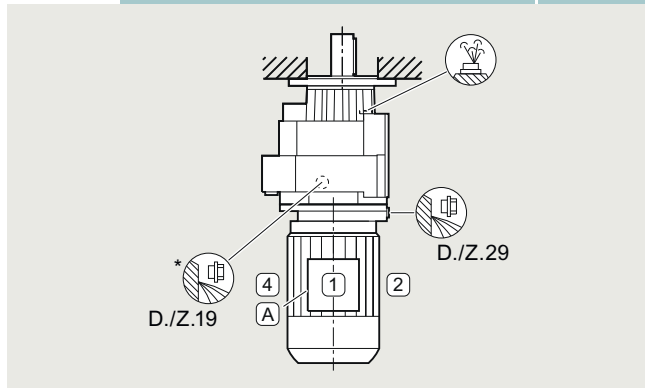
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

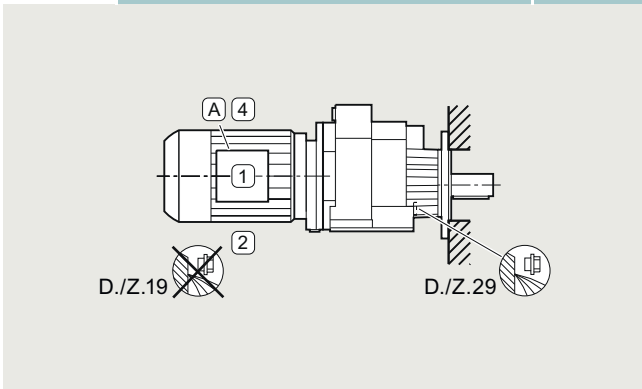
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D01 |



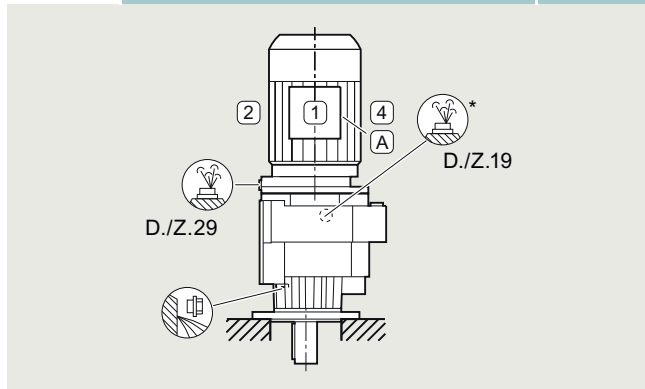
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D02 |



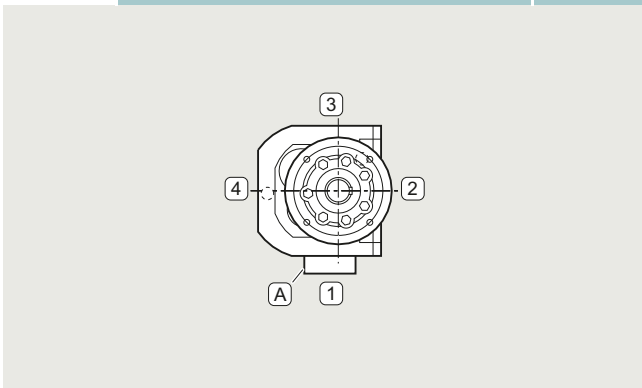
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D03 |



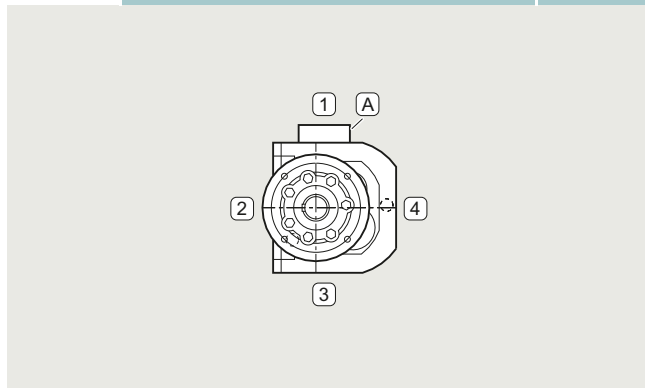
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ31...-.....-F...-Z, 2KJ31...-.....-H...-Z 2KJ32...-.....-F...-Z, 2KJ32...-.....-H...-Z | D06 |



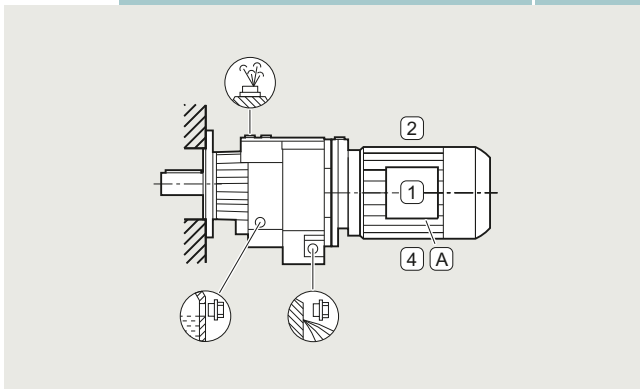
Flange-mounted design or with housing flange

Helical gearboxes ZF and DF or ZZ and DZ, size 39

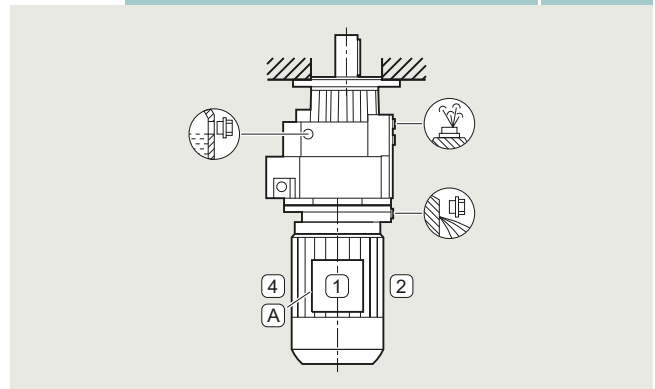
Oil valves

For an explanation of the symbols, see [page 9/3](#).

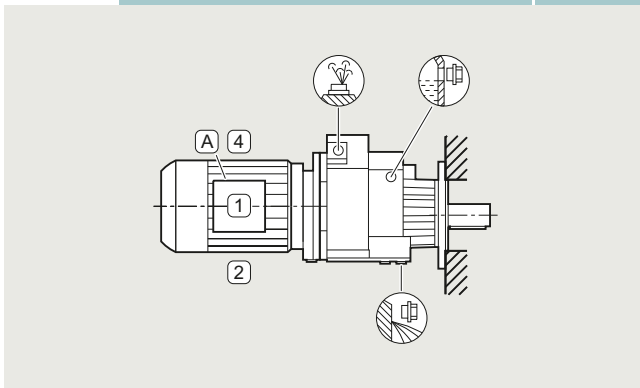
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D01 |



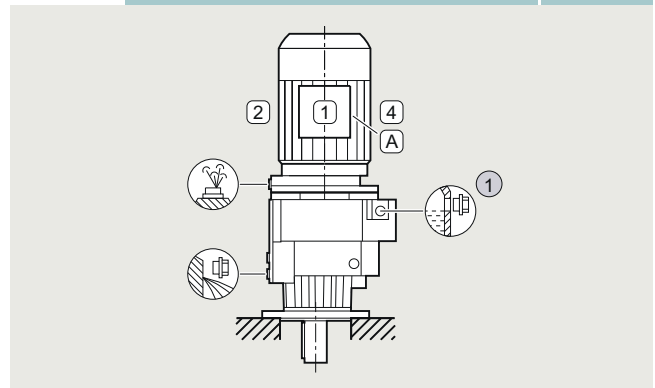
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D02 |



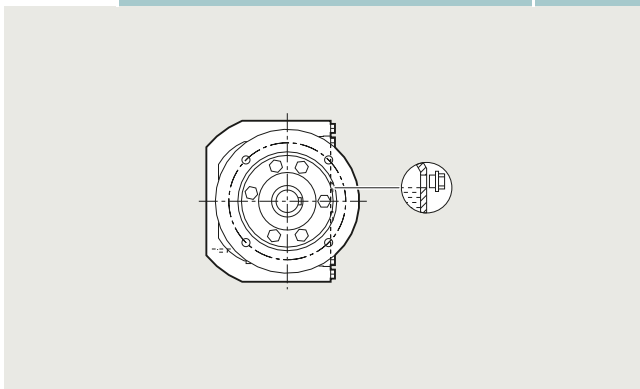
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D03 |



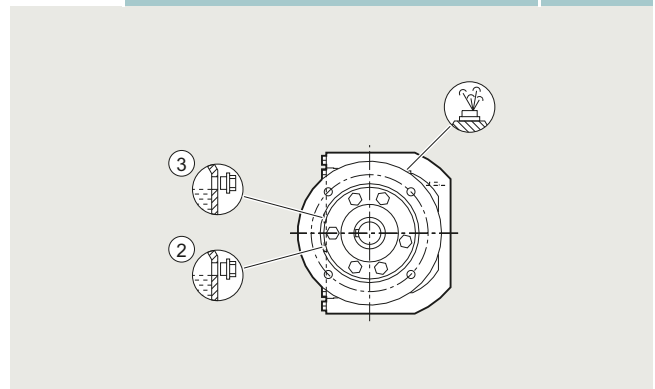
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ3103-.....F..-Z, 2KJ3103-.....H..-Z 2KJ3203-.....F..-Z, 2KJ3203-.....H..-Z | D06 |



Gearbox options

Mounting position

Helical gearboxes Z and D

Flange-mounted design or with housing flange

Helical gearboxes ZF and DF, sizes 49 to 189, or ZZ and DZ, sizes 49 to 129

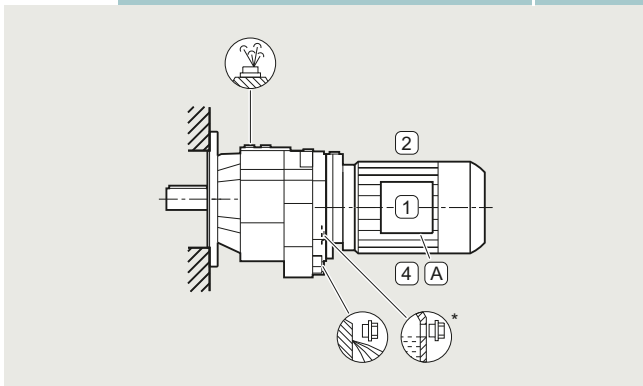
Helical gearboxes ZF and DF with VLplus/XLplus reinforced bearing systems, sizes 89 to 169

Oil valves

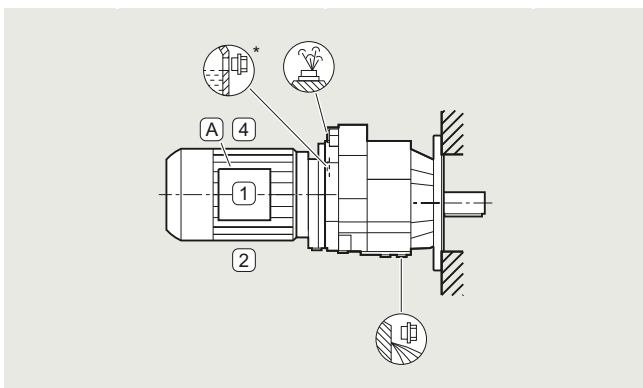
For an explanation of the symbols, see page 9/3.

An oil dipstick is available as an option for 2-stage helical gearboxes ZF89 to ZF189 and ZKF89 to ZKF189 with mounting position M4.

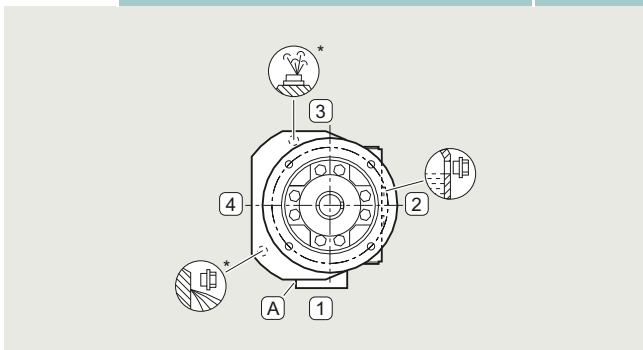
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M1 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D01 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |



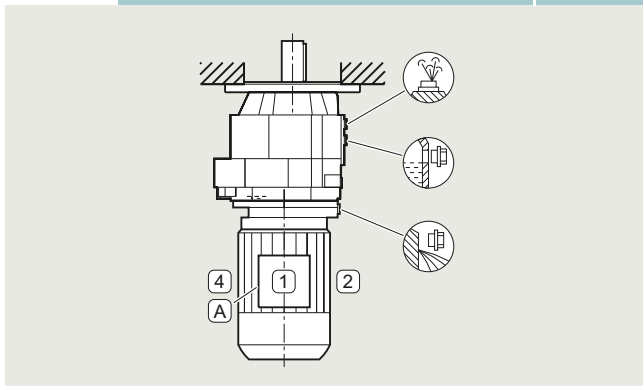
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M3 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D03 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M5 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D05 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |

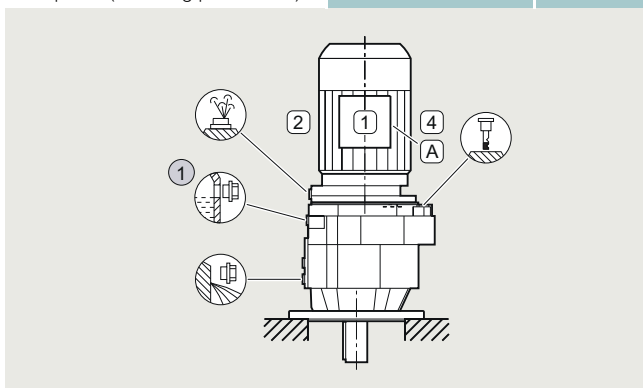


| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M2 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D02 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |

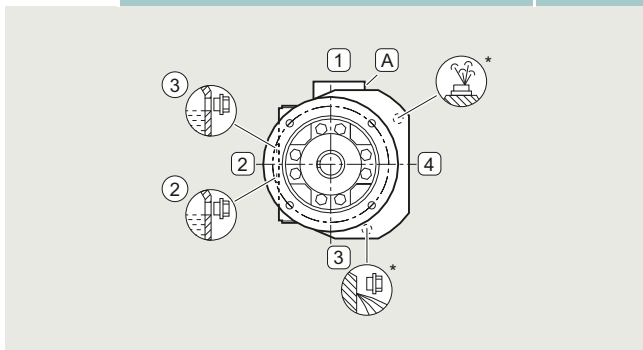


| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M4 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D04 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |

Oil dipstick (mounting position M4) 2KJ31...-Z **G48 + D04**



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M6 | 2KJ31...-F...-Z 2KJ31...-H...-Z | D06 |
| | 2KJ32...-F...-Z 2KJ32...-H...-Z | |



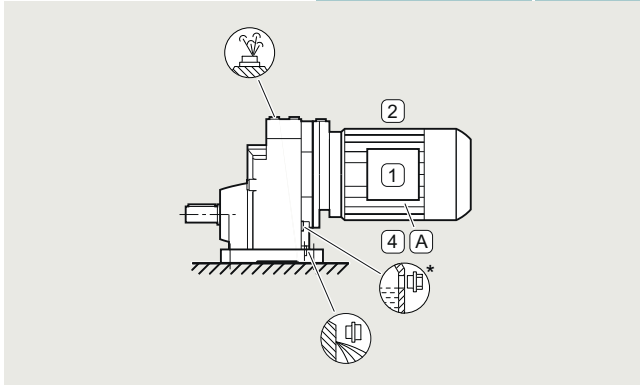
Foot-mounted design

Helical gearboxes E, sizes 39 to 149

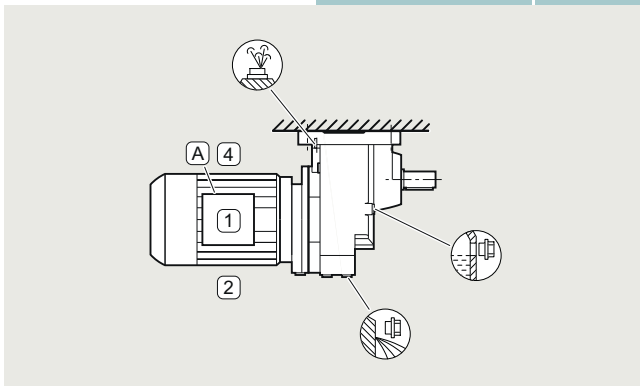
Oil valves

For an explanation of the symbols, see [page 9/3](#).

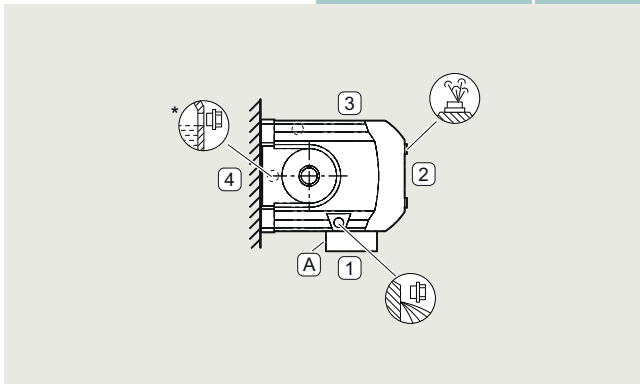
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M1 | 2KJ30... -.....- A..-Z | D01 |



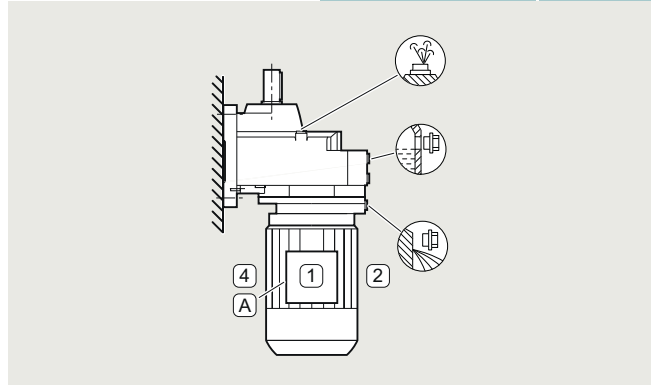
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M3 | 2KJ30... -.....- A..-Z | D03 |



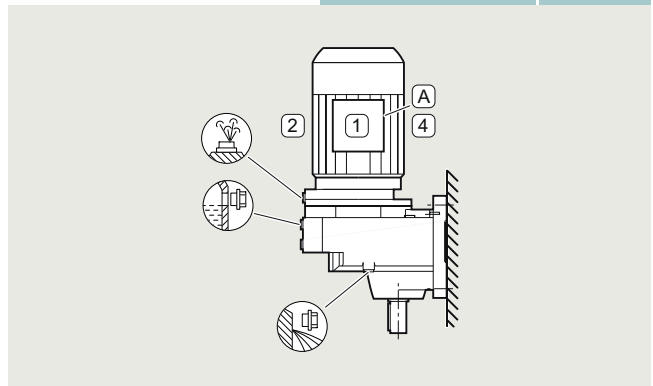
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M5 | 2KJ30... -.....- A..-Z | D05 |



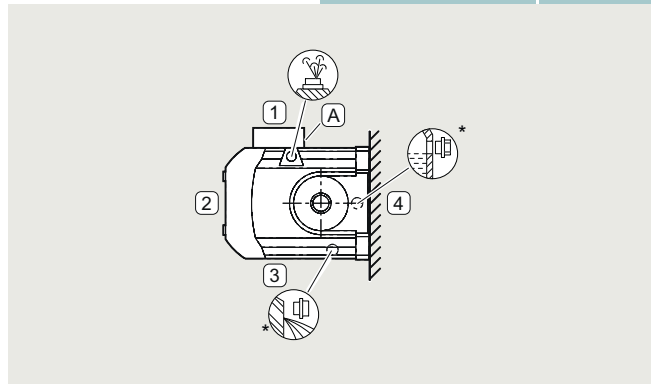
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M2 | 2KJ30... -.....- A..-Z | D02 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M4 | 2KJ30... -.....- A..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M6 | 2KJ30... -.....- A..-Z | D06 |



Gearbox options

Mounting position

Helical gearboxes E

Flange-mounted design or with housing flange

Helical gearboxes EF, sizes 39 to 149 or EZ, size 39 to 149

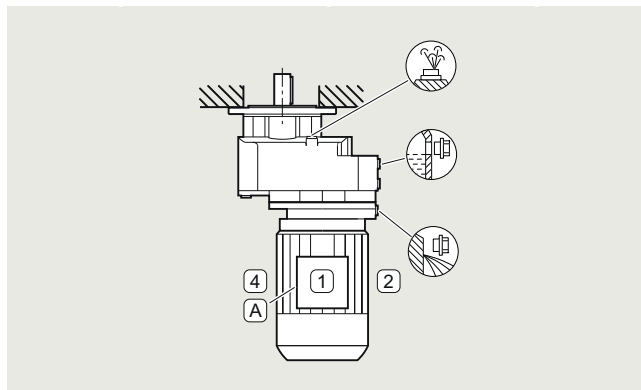
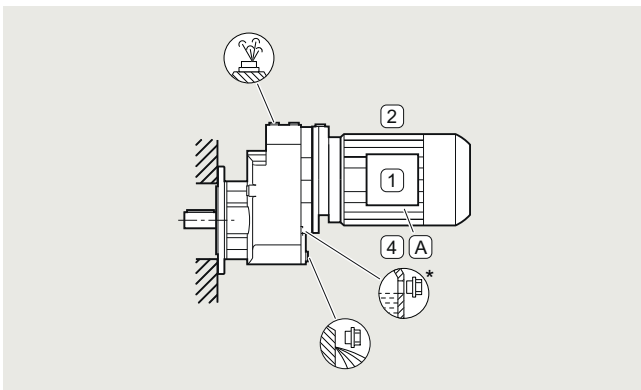
Oil valves

For an explanation of the symbols, see [page 9/3](#).

An oil dipstick is available as an option for 1-stage helical gearboxes EF89 to EF149 and EKF89 to EKF149 with mounting position M4.

| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M1 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D01 |

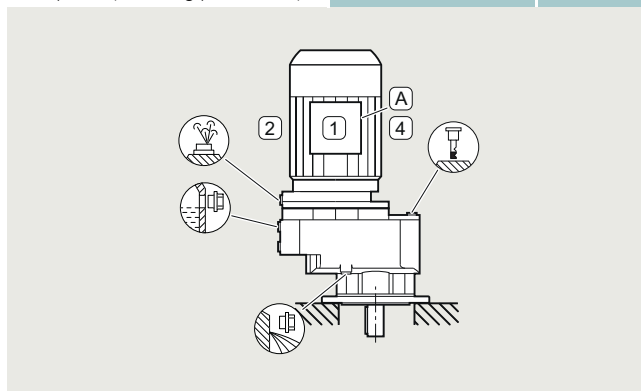
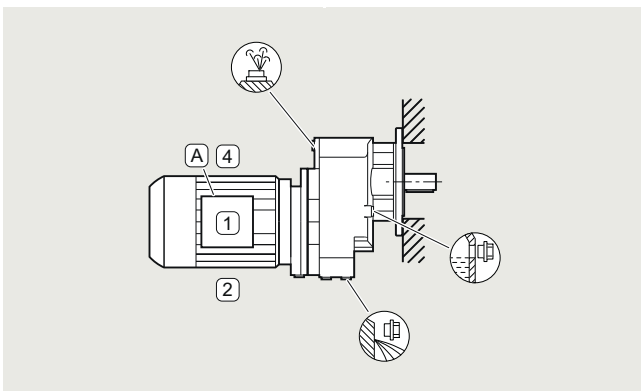
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M2 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D02 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M3 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D03 |

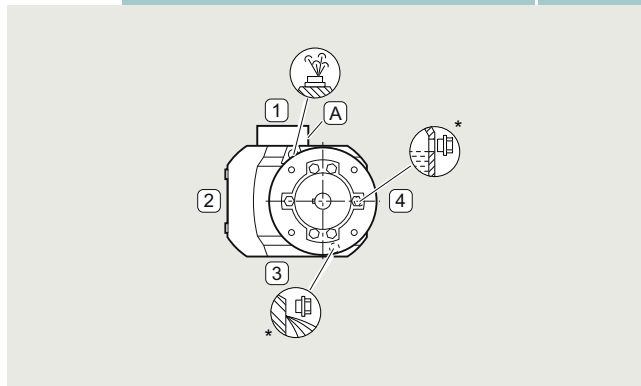
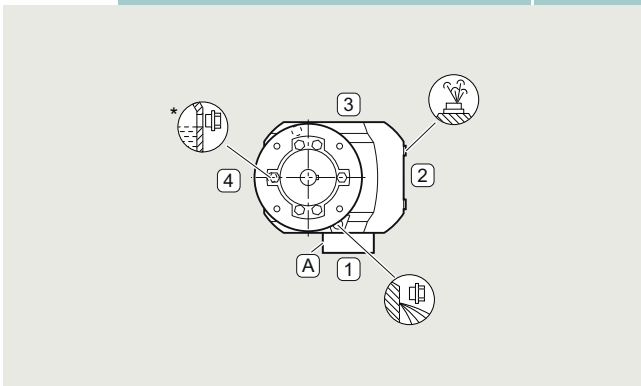
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M4 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D04 |

Oil dipstick (mounting position M4) 2KJ30...-.....-F...-Z **G48 + D04**



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M5 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D05 |

| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|---|------------|
| M6 | 2KJ30...-.....-F...-Z, 2KJ30...-.....-H...-Z | D06 |



Shaft-mounted design

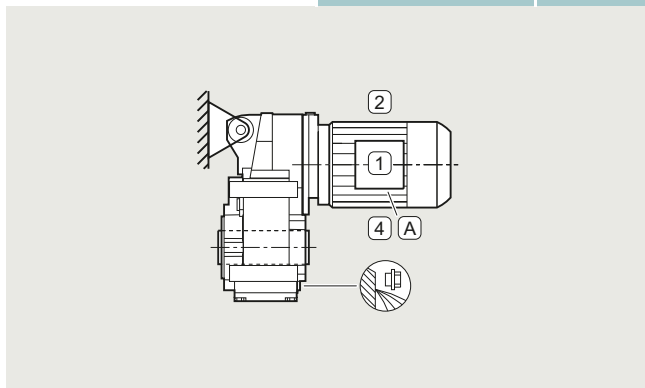
Parallel shaft gearboxes F.AD, size 29

Oil valves

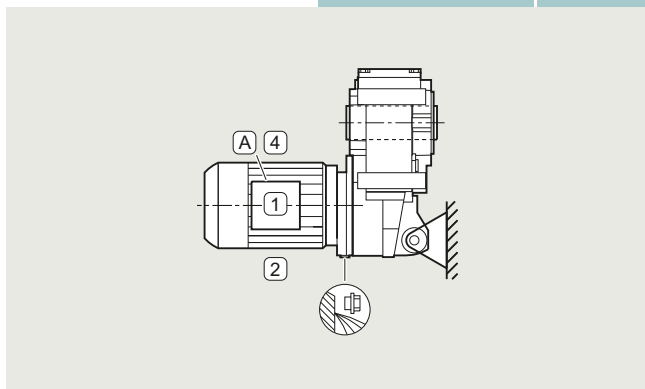
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

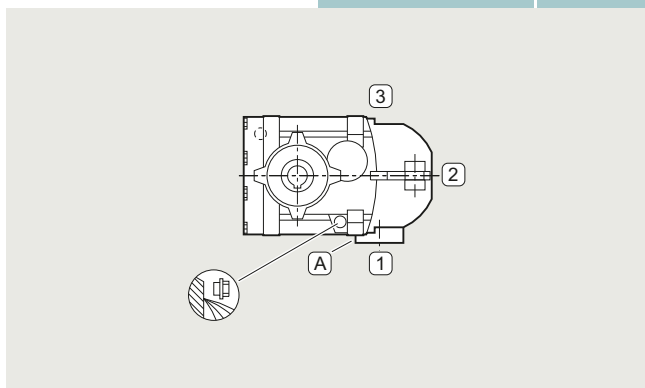
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D01 |



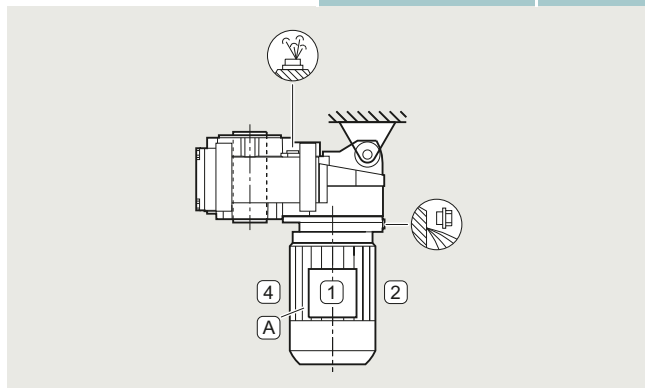
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D03 |



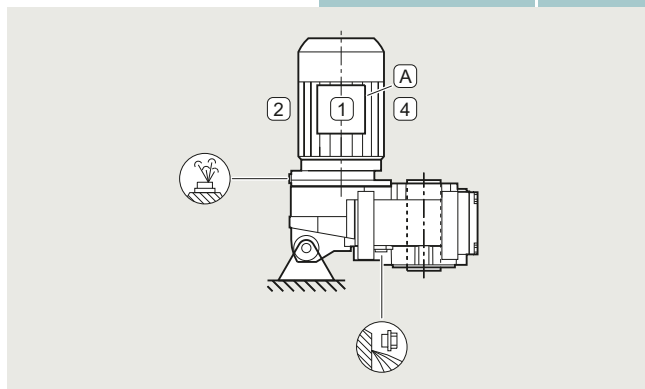
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D05 |



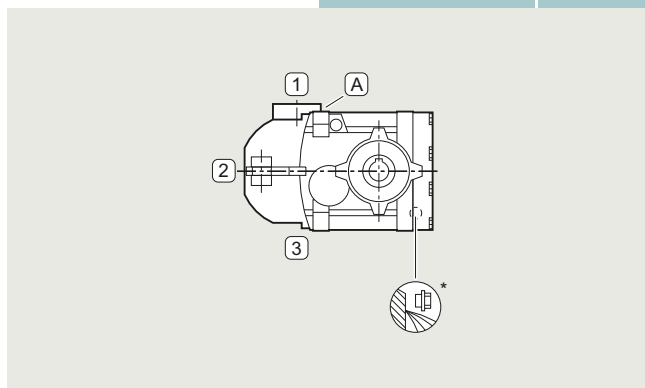
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D02 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ3301 - - D...-Z 2KJ3401 - - D...-Z | D06 |



Gearbox options

Mounting position

Parallel shaft gearboxes

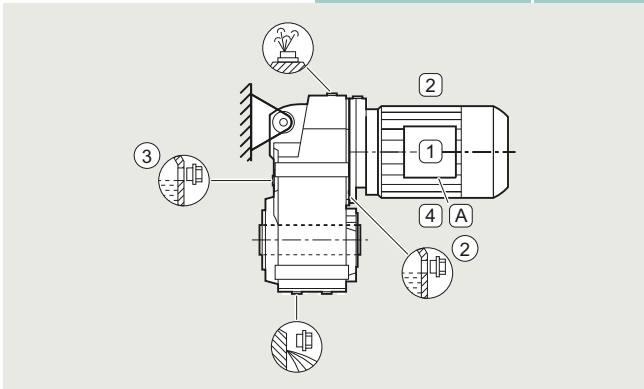
Shaft-mounted design

Parallel shaft gearboxes F.AD, sizes 39 to 189

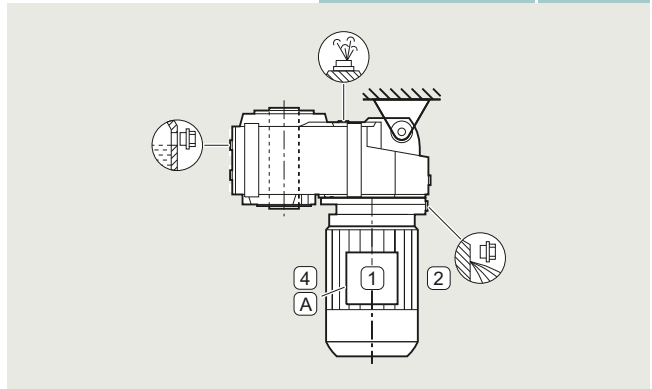
Oil valves

For an explanation of the symbols, see [page 9/3](#).

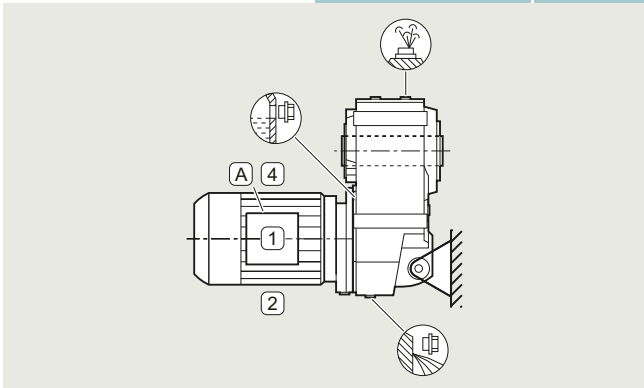
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D01 |



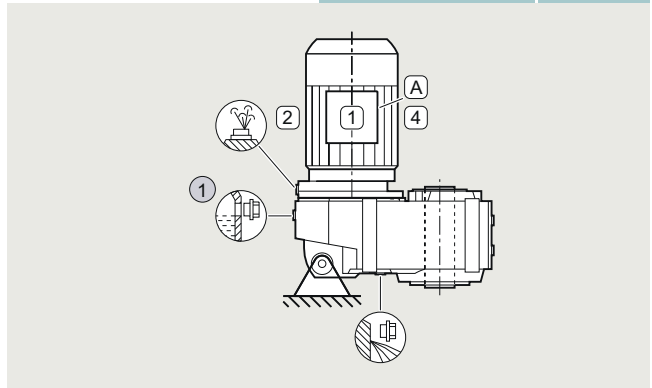
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D02 |



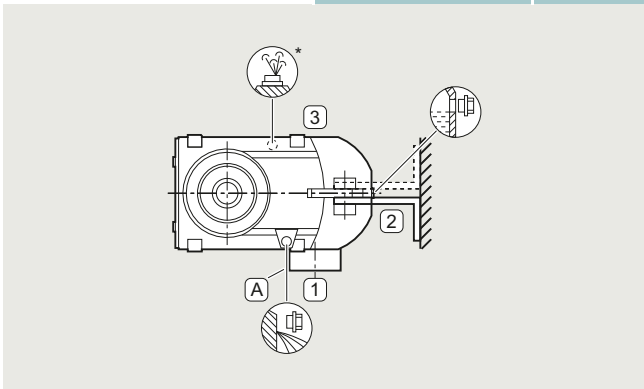
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D03 |



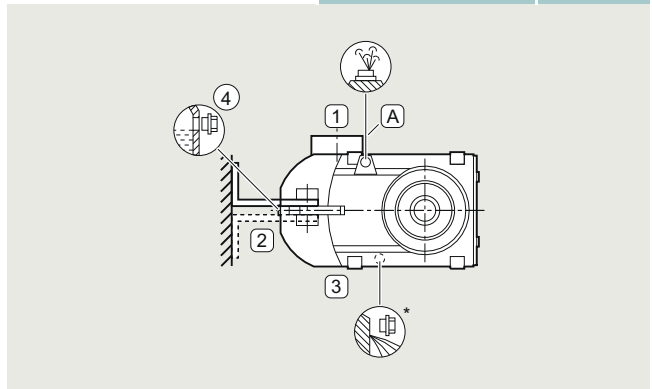
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ33... - - D...-Z 2KJ34... - - D...-Z | D06 |



Flange-mounted design or with housing flange

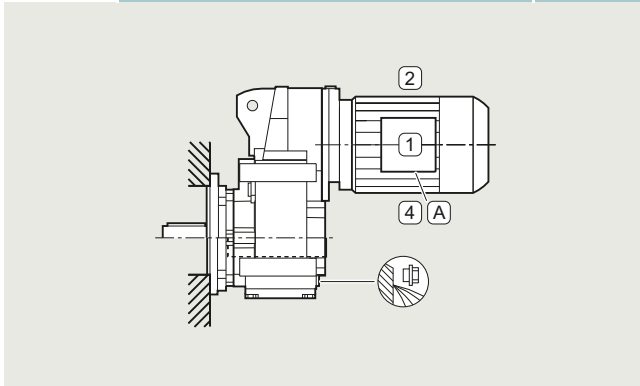
Parallel shaft gearboxes F..F or F..Z, size 29

Oil valves

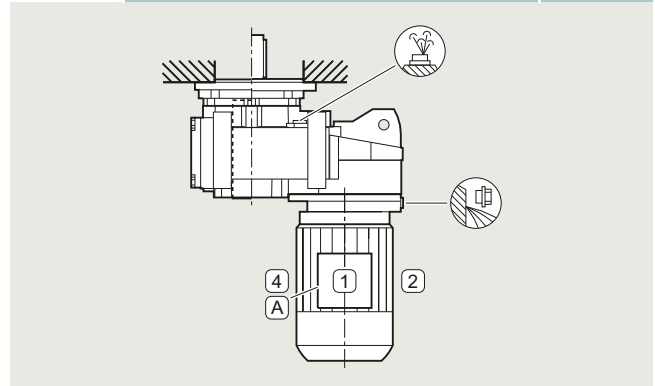
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

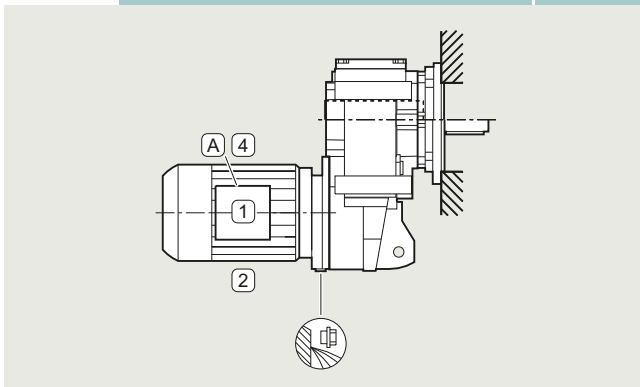
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D01 |



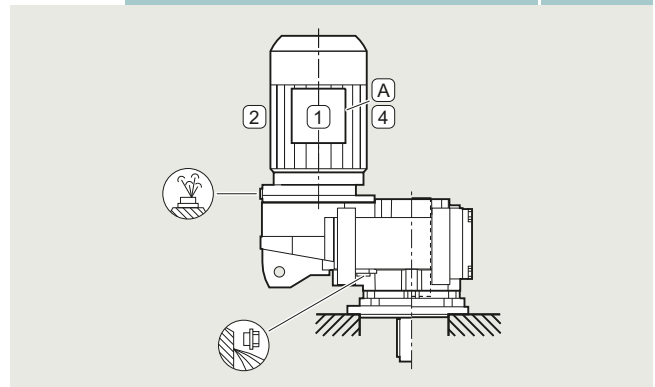
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D02 |



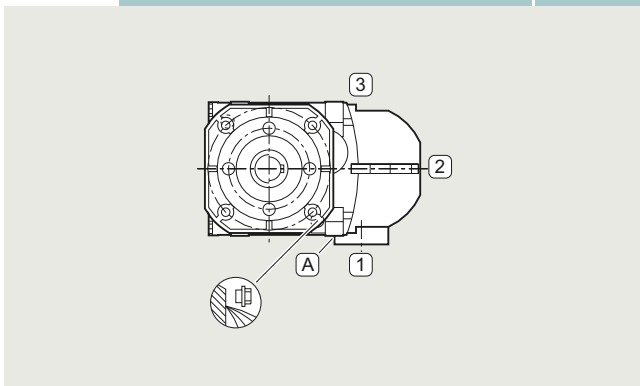
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D03 |



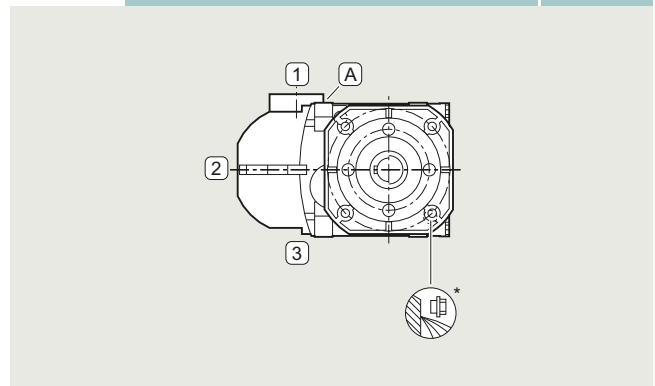
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ3301 - - F..-Z, 2KJ3301 - - H..-Z 2KJ3401 - - F..-Z, 2KJ3401 - - H..-Z | D06 |



Gearbox options

Mounting position

Parallel shaft gearboxes

Flange-mounted design or with housing flange

Parallel shaft gearboxes F..F or F..Z, sizes 39 to 189

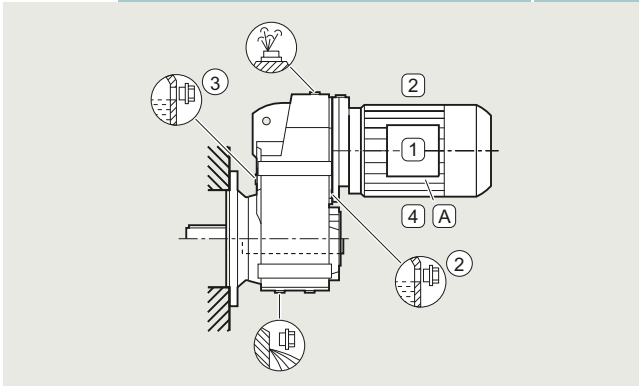
Parallel shaft gearboxes F..F with VLplus reinforced bearing systems, sizes 89 to 169

Oil valves

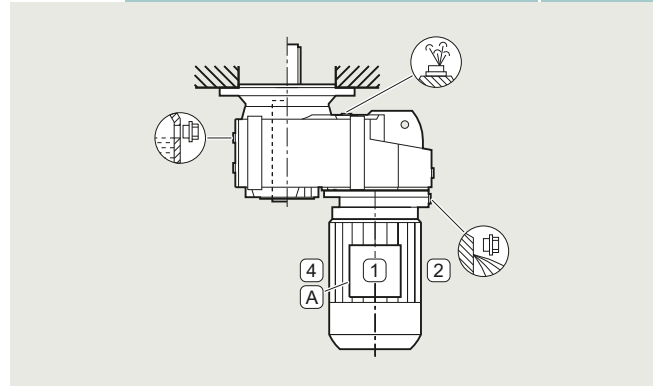
For an explanation of the symbols, see [page 9/3](#).

For parallel shaft gearboxes in flange-mounted or housing flange design, mounting position M1 to M6 is stated without the output side A or B. Output side A is always assumed in these cases.

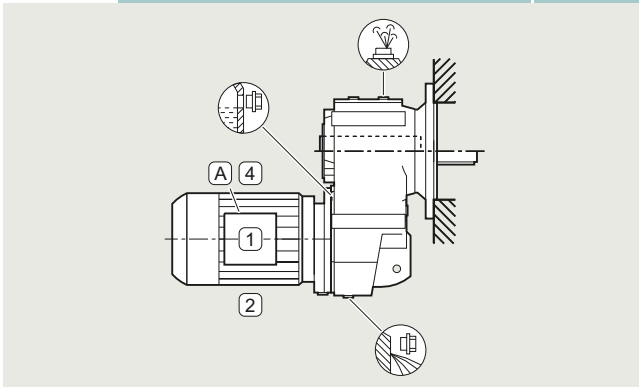
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D01 |



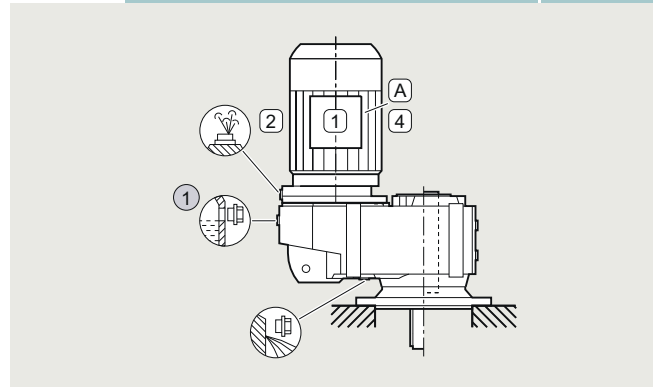
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D02 |



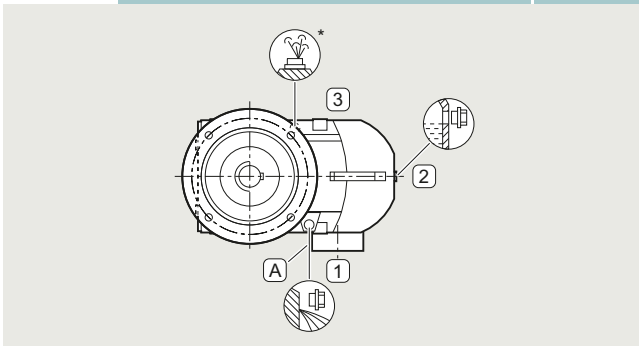
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D03 |



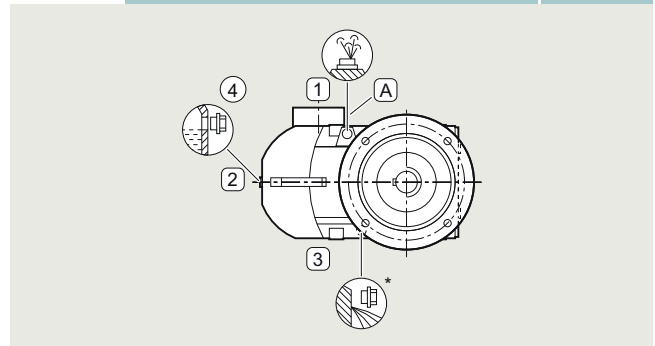
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ33...-.....-F..-Z, 2KJ33...-.....-H..-Z 2KJ34...-.....-F..-Z, 2KJ34...-.....-H..-Z | D06 |



Foot-mounted design

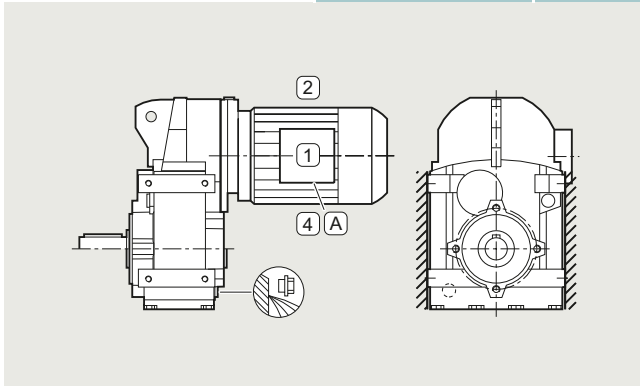
Parallel shaft gearboxes F, size 29

Oil valves

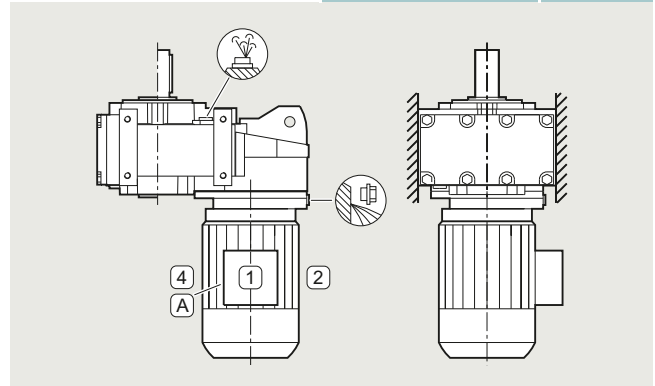
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

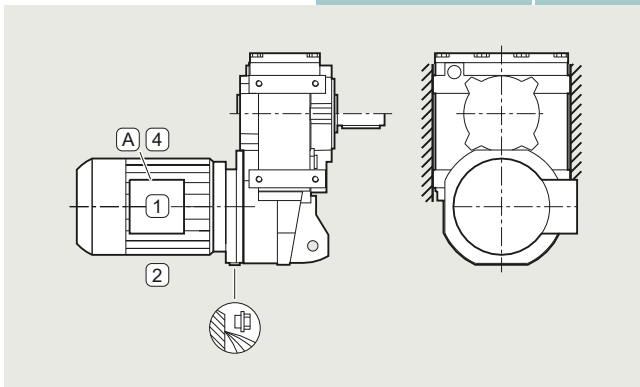
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D01 |



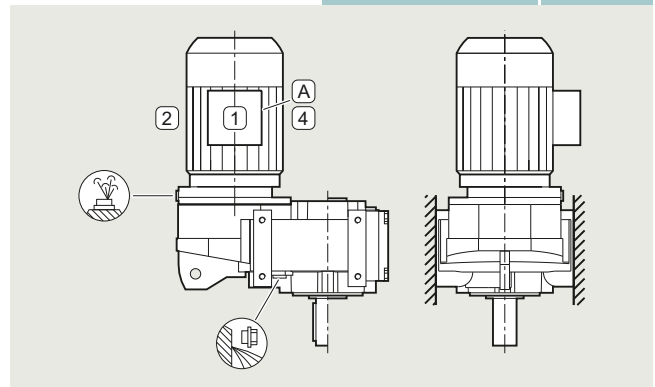
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D02 |



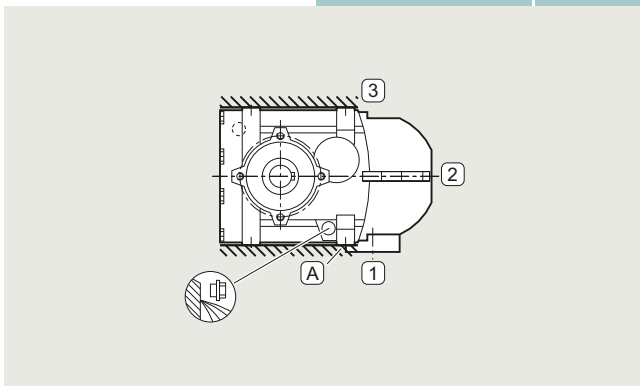
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D03 |



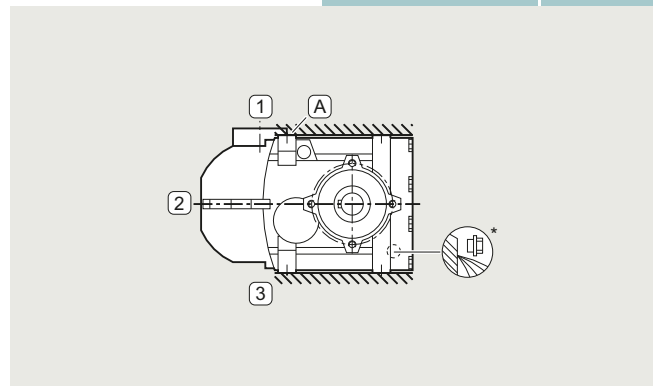
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ3301 - - A...-Z 2KJ3401 - - A...-Z | D06 |



Gearbox options

Mounting position

Parallel shaft gearboxes

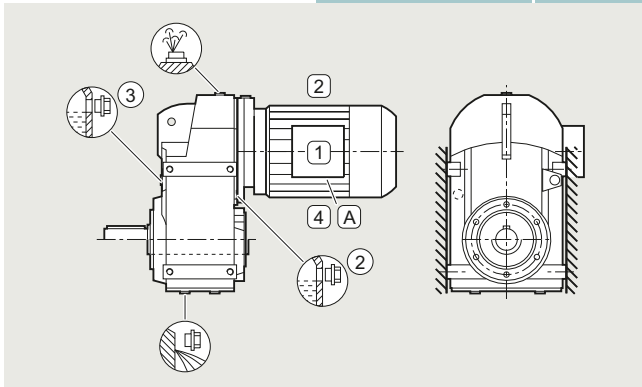
Foot-mounted design

Parallel shaft gearboxes F, sizes 39 to 189

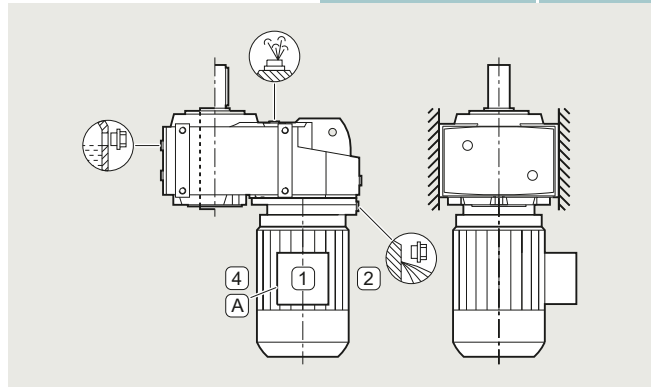
Oil valves

For an explanation of the symbols, see [page 9/3](#).

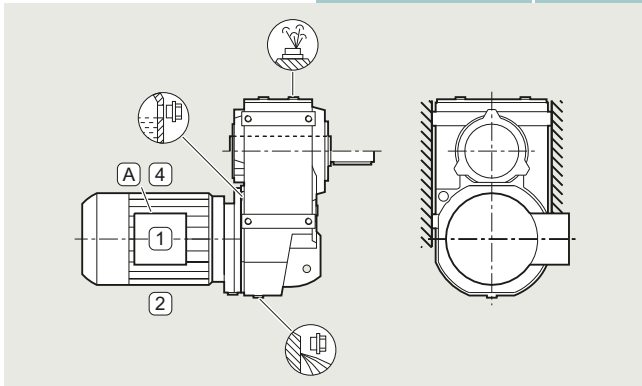
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M1 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D01 |



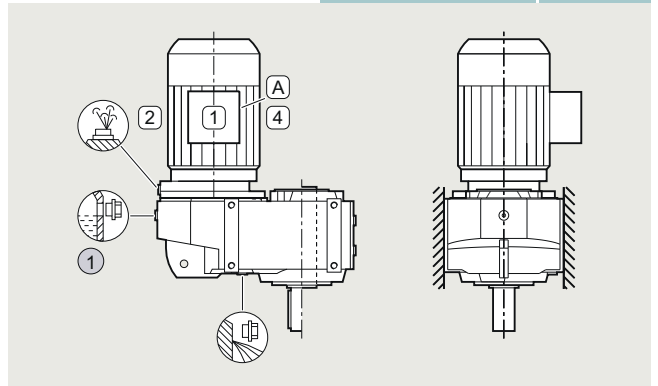
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M2 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D02 |



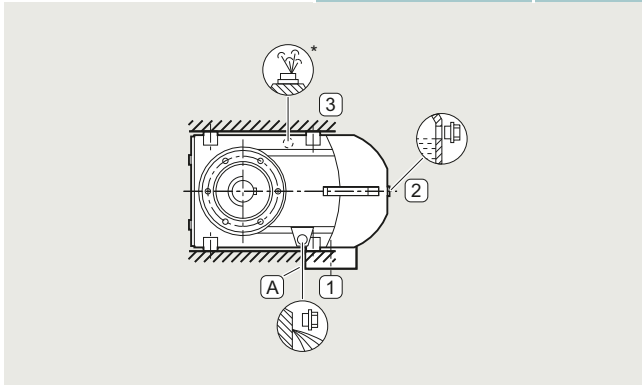
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M3 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D03 |



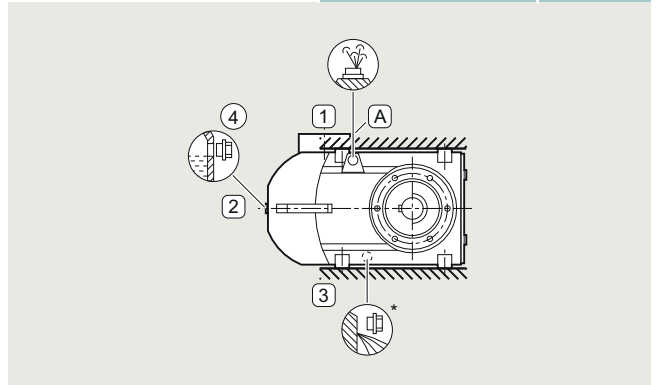
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M4 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D04 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M5 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D05 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------|--|------------|
| M6 | 2KJ33... - - A...-Z 2KJ34... - - A...-Z | D06 |



Foot-mounted design

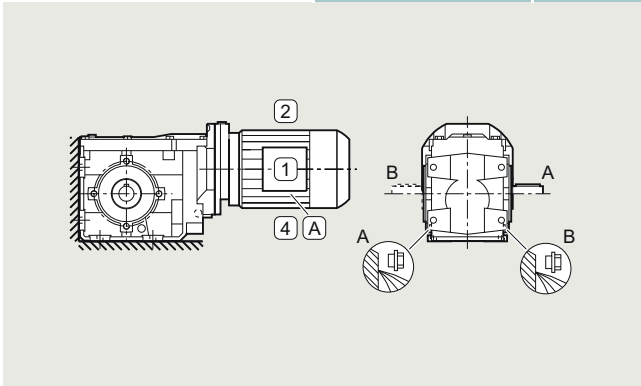
Bevel gearboxes B, size 19 and 29

Oil valves

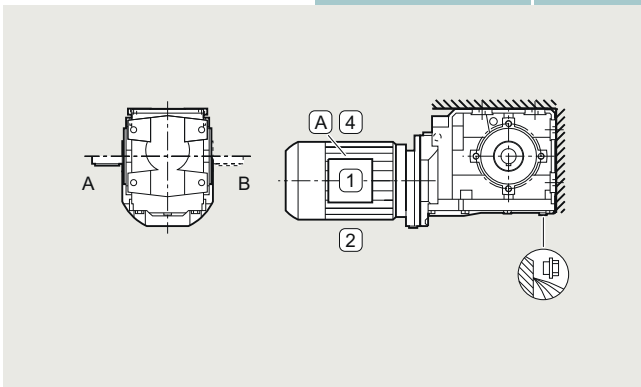
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

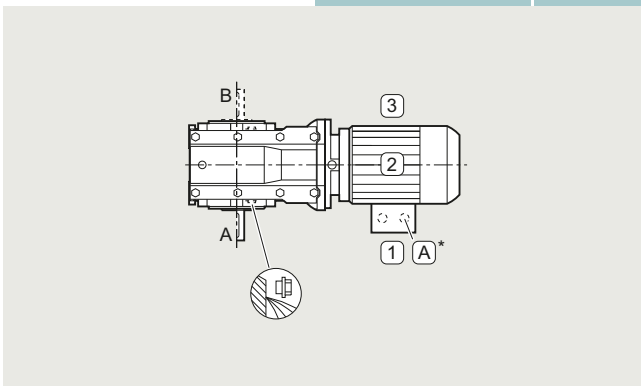
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-.....-A...-Z | D11 |
| M1 output side B | 2KJ35...-.....-A...-Z | D21 |



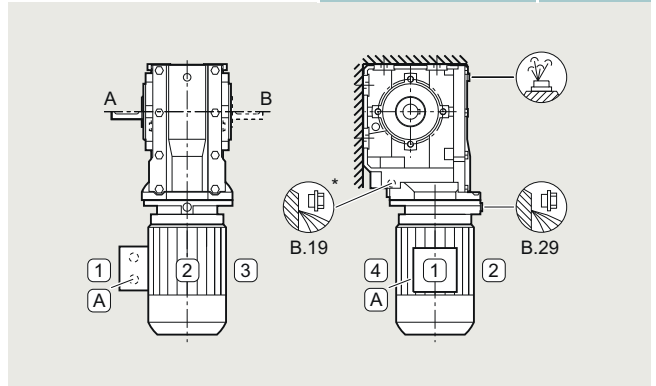
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-.....-A...-Z | D13 |
| M3 output side B | 2KJ35...-.....-A...-Z | D23 |



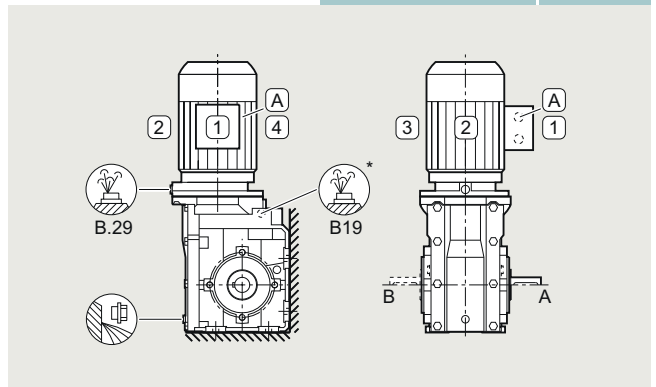
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-.....-A...-Z | D15 |
| M5 output side B | 2KJ35...-.....-A...-Z | D25 |



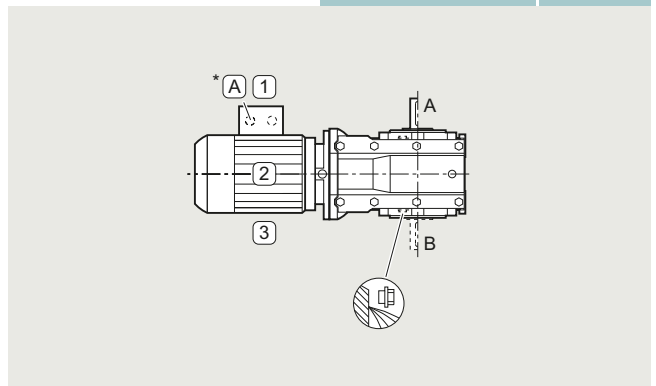
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-.....-A...-Z | D12 |
| M2 output side B | 2KJ35...-.....-A...-Z | D22 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-.....-A...-Z | D14 |
| M4 output side B | 2KJ35...-.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-.....-A...-Z | D16 |
| M6 output side B | 2KJ35...-.....-A...-Z | D26 |



Gearbox options

Mounting position

Bevel gearboxes B

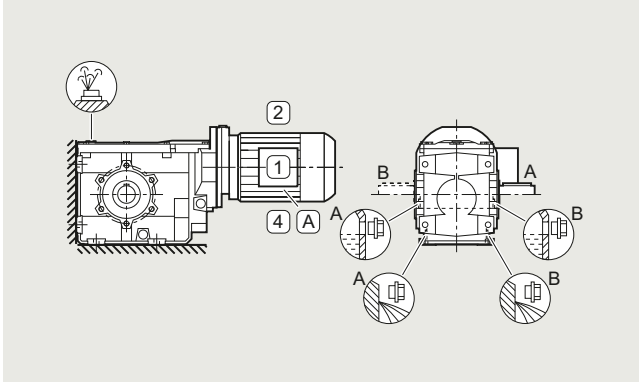
Foot-mounted design

Bevel gearboxes B, sizes 39 and 49

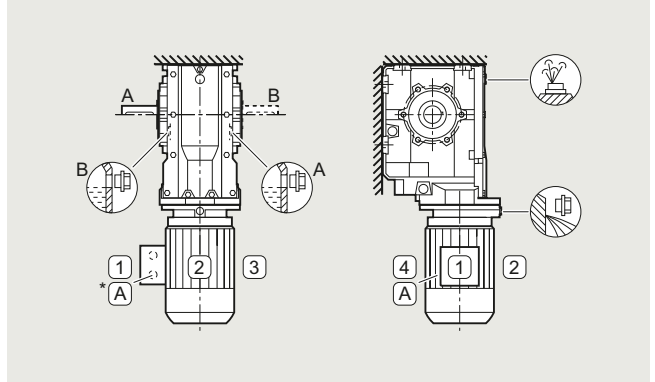
Oil valves

For an explanation of the symbols, see [page 9/3](#).

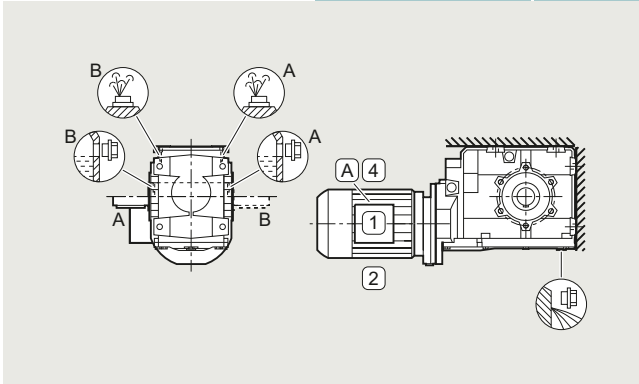
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-.....-A...-Z | D11 |
| M1 output side B | 2KJ35...-.....-A...-Z | D21 |



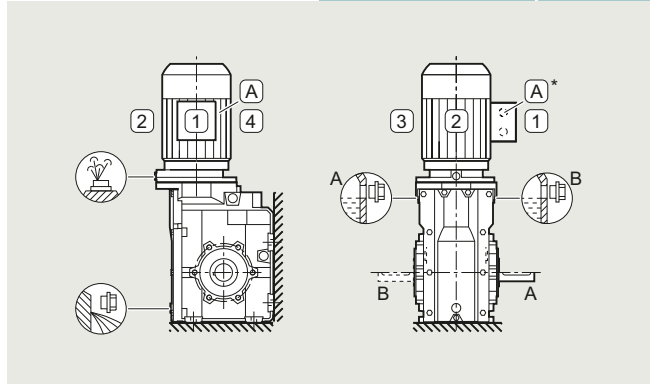
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-.....-A...-Z | D12 |
| M2 output side B | 2KJ35...-.....-A...-Z | D22 |



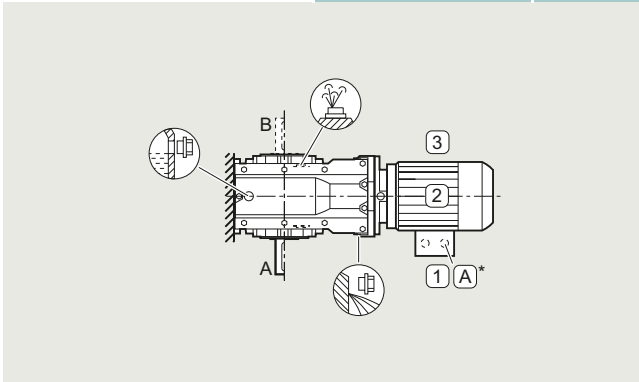
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-.....-A...-Z | D13 |
| M3 output side B | 2KJ35...-.....-A...-Z | D23 |



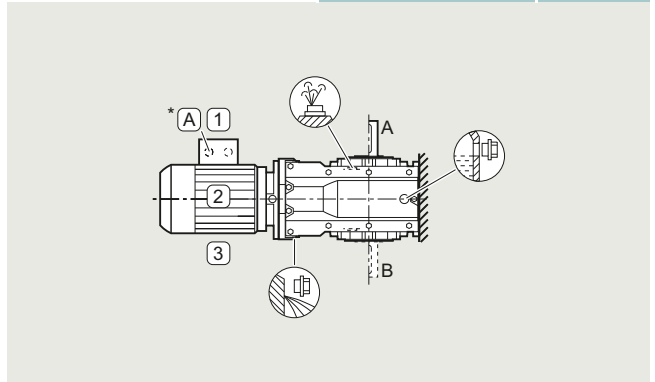
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-.....-A...-Z | D14 |
| M4 output side B | 2KJ35...-.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-.....-A...-Z | D15 |
| M5 output side B | 2KJ35...-.....-A...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-.....-A...-Z | D16 |
| M6 output side B | 2KJ35...-.....-A...-Z | D26 |



Housing flange design and flange-mounted design

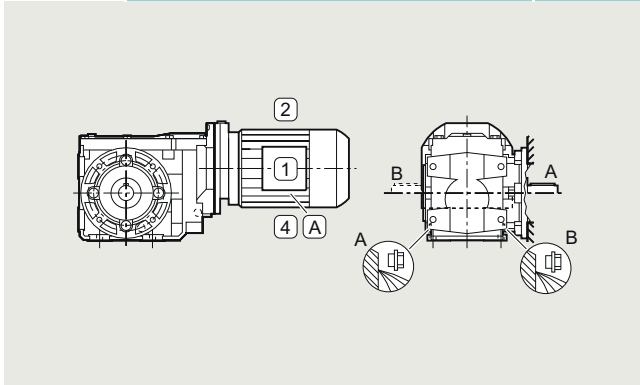
Bevel gearboxes B.Z and B.F, sizes 19 and 29

Oil valves

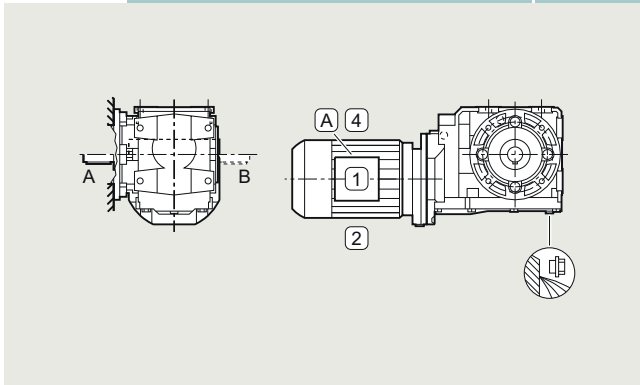
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

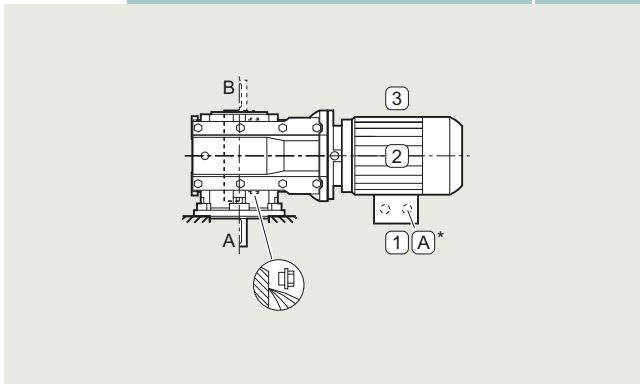
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D11 |
| M1 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D21 |



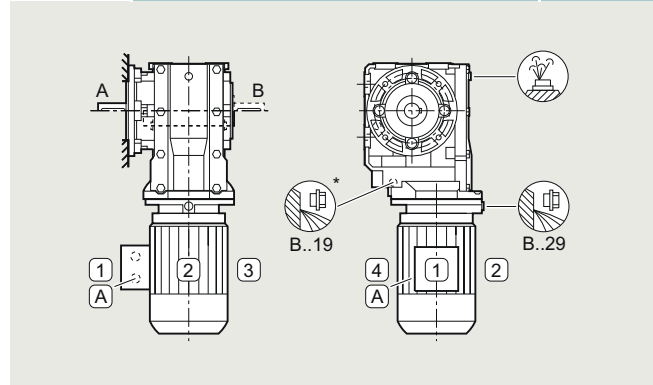
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D13 |
| M3 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D23 |



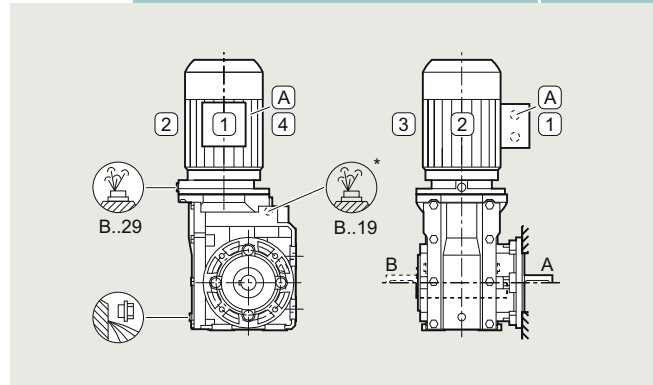
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D15 |
| M5 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D25 |



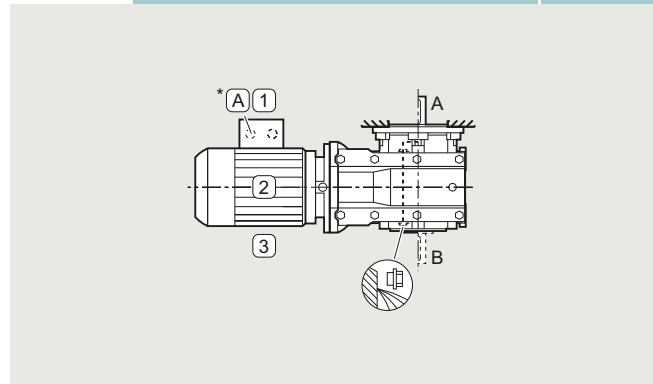
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D12 |
| M2 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D22 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D14 |
| M4 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D24 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D16 |
| M6 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D26 |



Gearbox options

Mounting position

Bevel gearboxes B

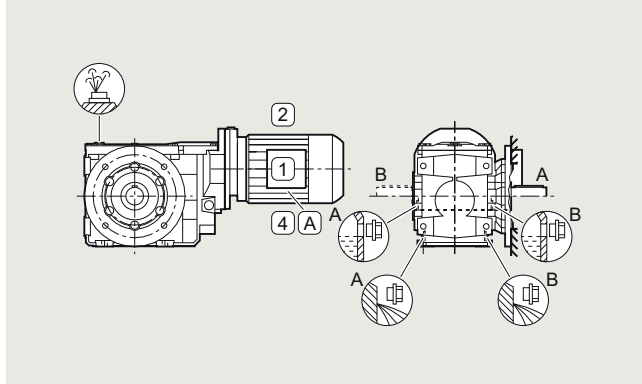
Housing flange design and flange-mounted design

Bevel gearboxes B.Z and B.F, sizes 39 and 49

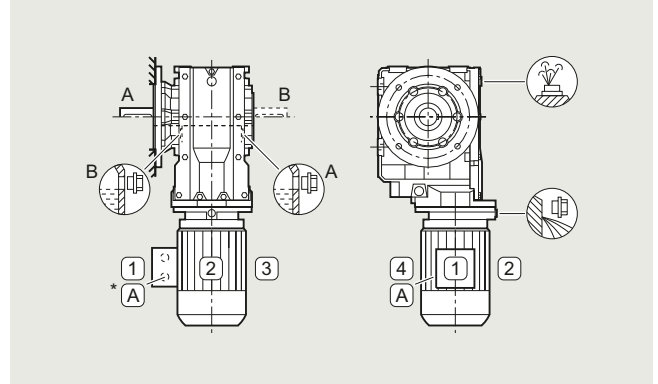
Oil valves

For an explanation of the symbols, see [page 9/3](#).

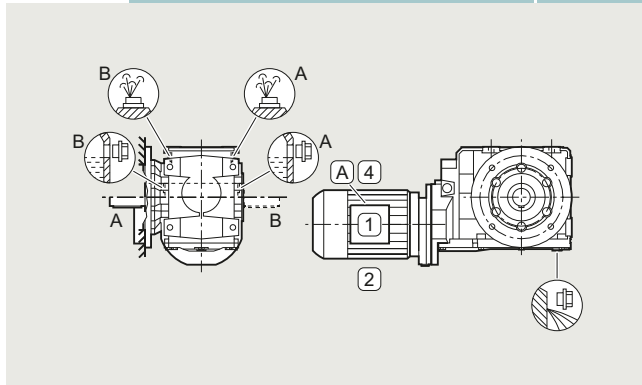
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D11 |
| M1 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D21 |



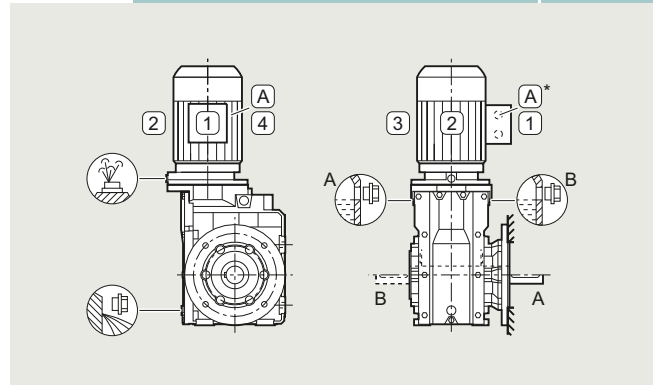
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D12 |
| M2 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D22 |



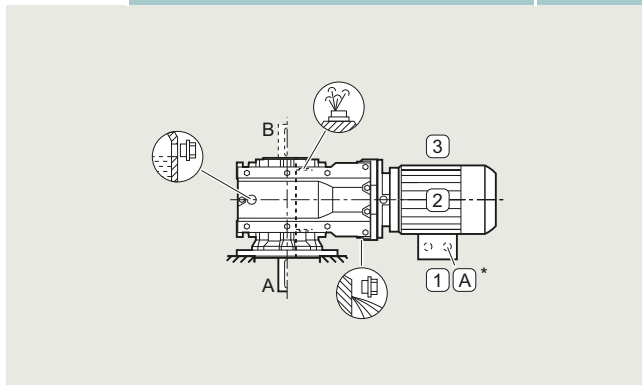
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D13 |
| M3 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D23 |



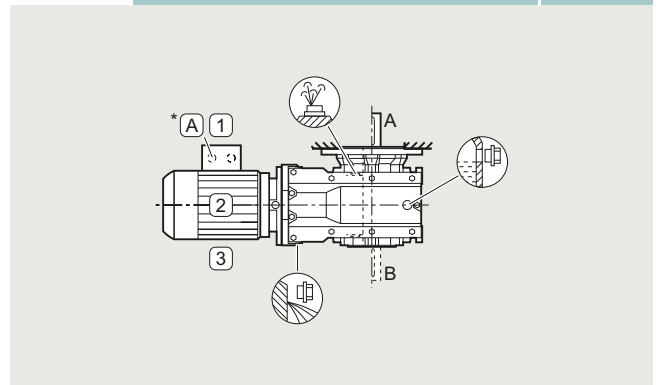
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D14 |
| M4 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D15 |
| M5 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D16 |
| M6 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D26 |



Shaft-mounted design

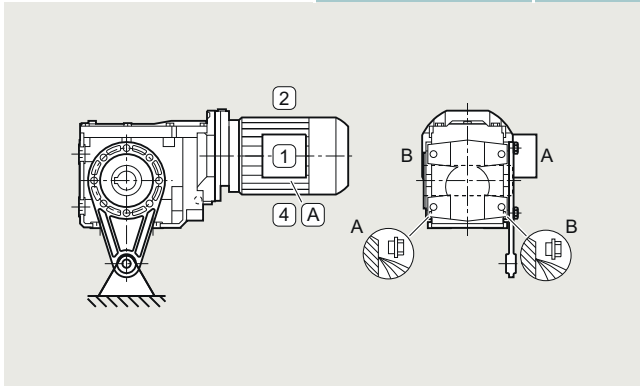
Bevel gearboxes BAD, sizes 19 and 29

Oil valves

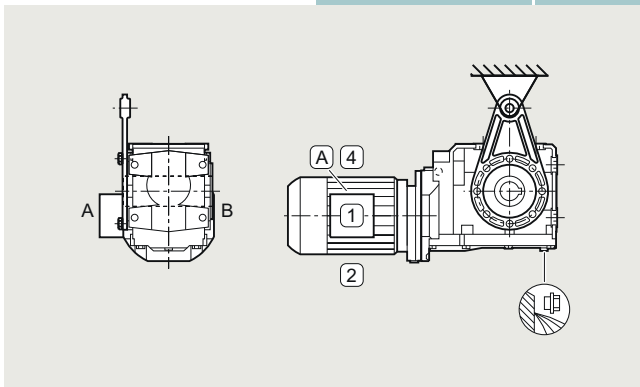
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

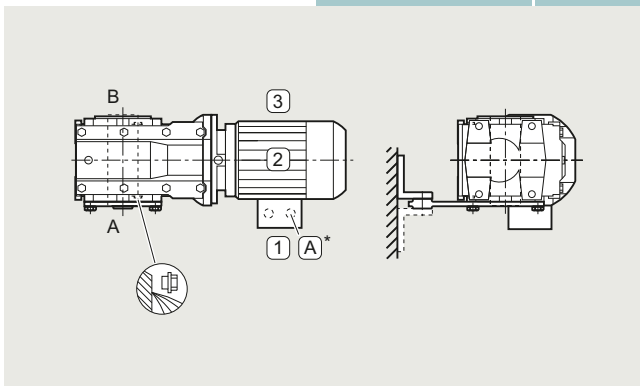
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-.....-D...-Z | D11 |
| M1 output side B | 2KJ35...-.....-D...-Z | D21 |



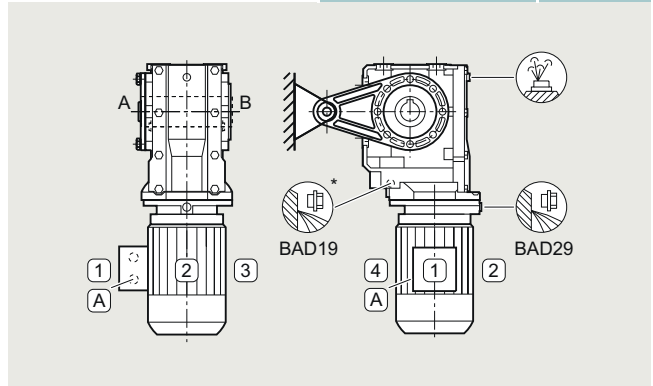
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-.....-D...-Z | D13 |
| M3 output side B | 2KJ35...-.....-D...-Z | D23 |



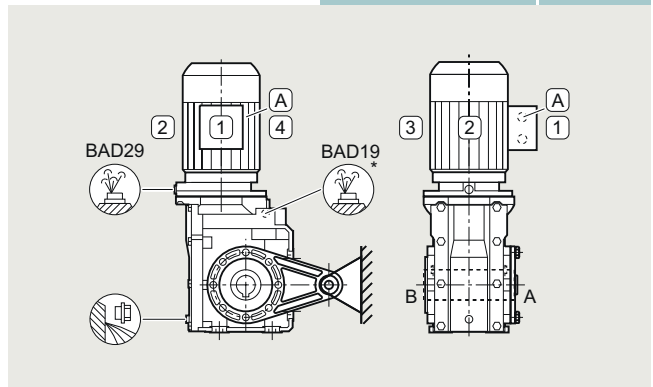
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-.....-D...-Z | D15 |
| M5 output side B | 2KJ35...-.....-D...-Z | D25 |



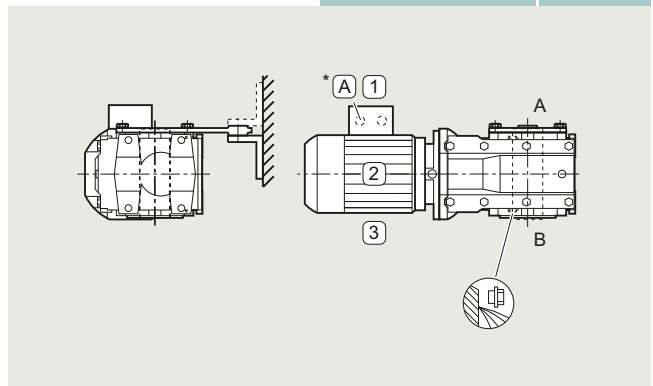
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-.....-D...-Z | D12 |
| M2 output side B | 2KJ35...-.....-D...-Z | D22 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-.....-D...-Z | D14 |
| M4 output side B | 2KJ35...-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-.....-D...-Z | D16 |
| M6 output side B | 2KJ35...-.....-D...-Z | D26 |



Gearbox options

Mounting position

Bevel gearboxes B

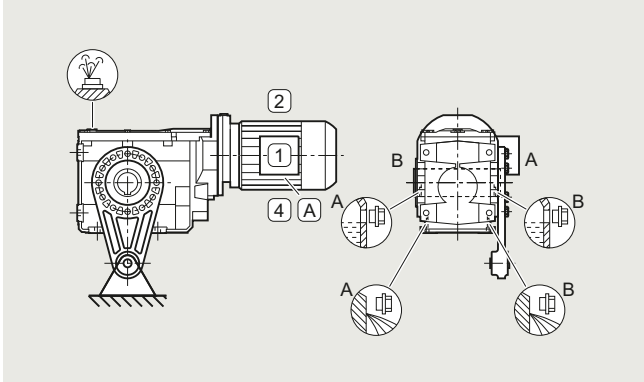
Shaft-mounted design

Bevel gearboxes BAD, sizes 39 and 49

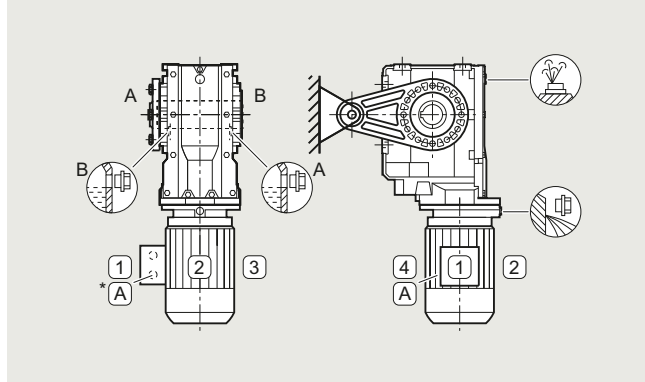
Oil valves

For an explanation of the symbols, see [page 9/3](#).

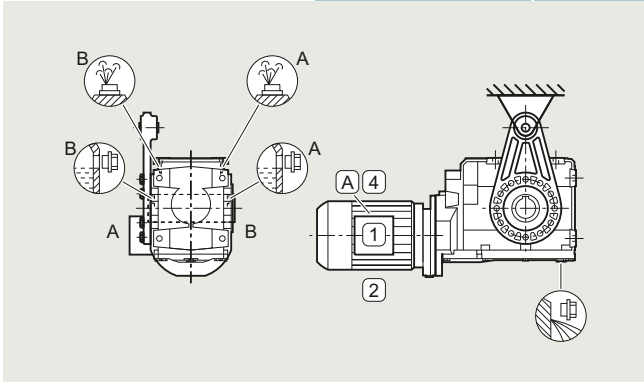
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-.....-D...-Z | D11 |
| M1 output side B | 2KJ35...-.....-D...-Z | D21 |



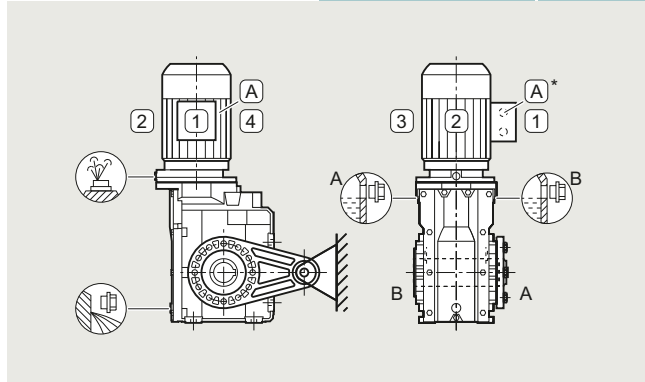
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-.....-D...-Z | D12 |
| M2 output side B | 2KJ35...-.....-D...-Z | D22 |



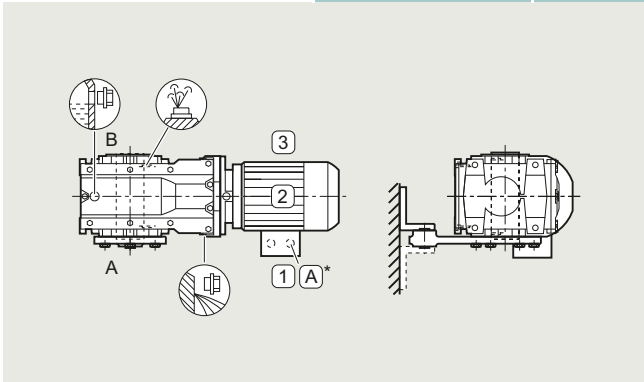
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-.....-D...-Z | D13 |
| M3 output side B | 2KJ35...-.....-D...-Z | D23 |



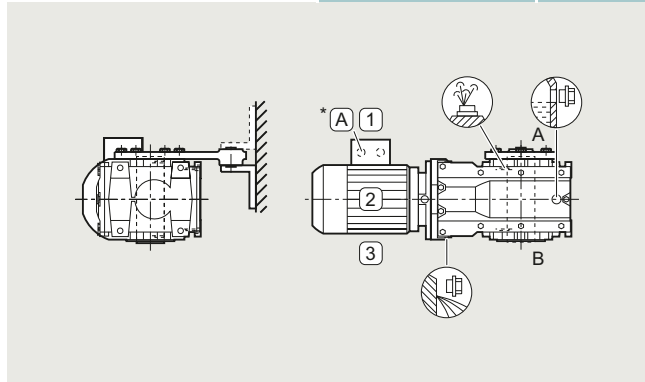
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-.....-D...-Z | D14 |
| M4 output side B | 2KJ35...-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-.....-D...-Z | D15 |
| M5 output side B | 2KJ35...-.....-D...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-.....-D...-Z | D16 |
| M6 output side B | 2KJ35...-.....-D...-Z | D26 |



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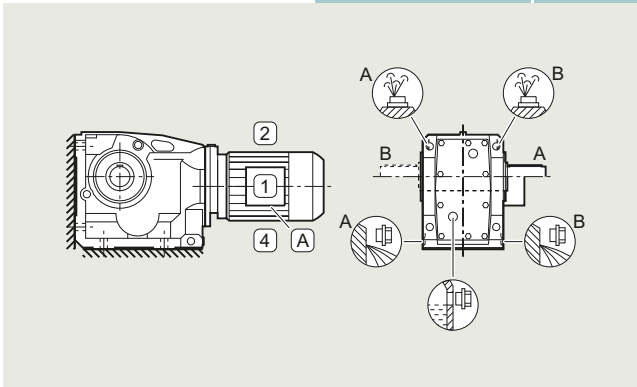
Foot-mounted design

Bevel gearboxes K, sizes 39 to 189

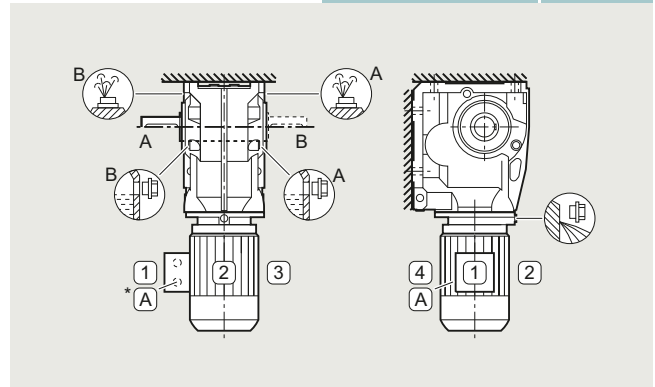
Oil valves

For an explanation of the symbols, see [page 9/3](#).

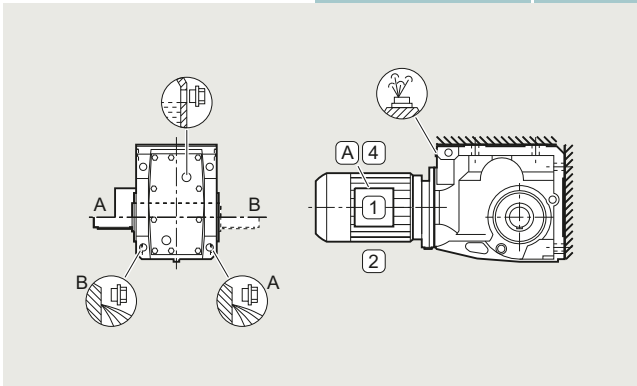
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35... -.....-A...-Z | D11 |
| M1 output side B | 2KJ35... -.....-A...-Z | D21 |



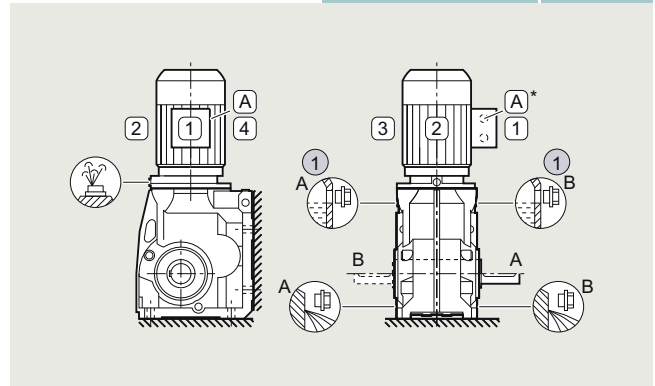
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35... -.....-A...-Z | D12 |
| M2 output side B | 2KJ35... -.....-A...-Z | D22 |



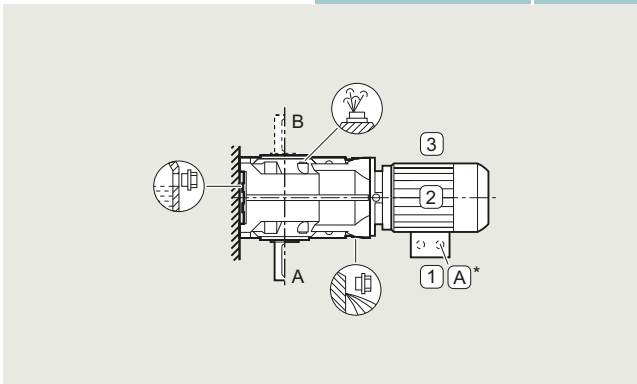
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35... -.....-A...-Z | D13 |
| M3 output side B | 2KJ35... -.....-A...-Z | D23 |



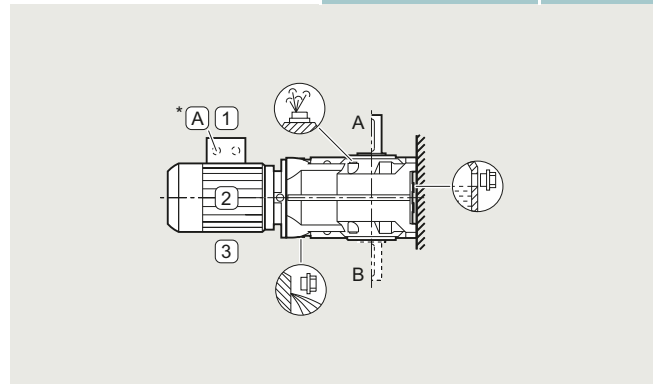
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35... -.....-A...-Z | D14 |
| M4 output side B | 2KJ35... -.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35... -.....-A...-Z | D15 |
| M5 output side B | 2KJ35... -.....-A...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35... -.....-A...-Z | D16 |
| M6 output side B | 2KJ35... -.....-A...-Z | D26 |



Gearbox options

Mounting position

Bevel gearboxes K

Housing flange design and flange-mounted design

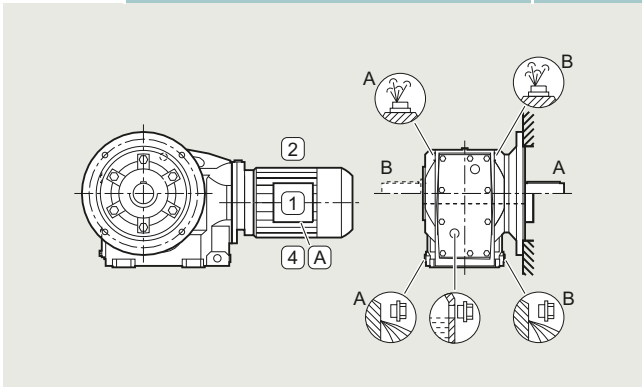
Bevel gearboxes KAZ and K.F, sizes 39 to 189

Bevel gearboxes K.F with VLplus reinforced bearing systems, sizes 89 to 169

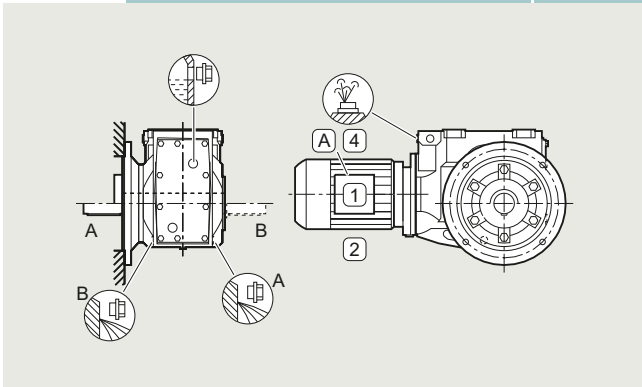
Oil valves

For an explanation of the symbols, see [page 9/3](#).

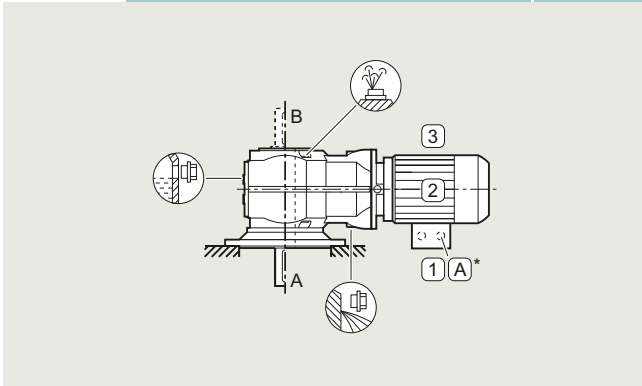
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D11 |
| M1 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D21 |



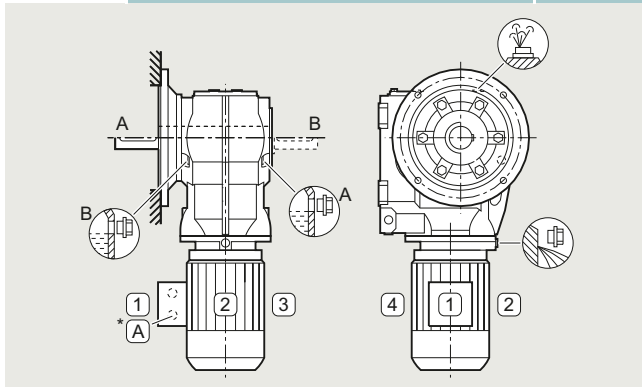
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D13 |
| M3 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D23 |



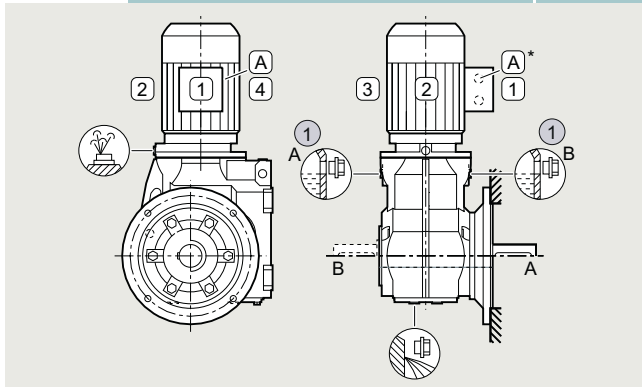
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D15 |
| M5 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D25 |



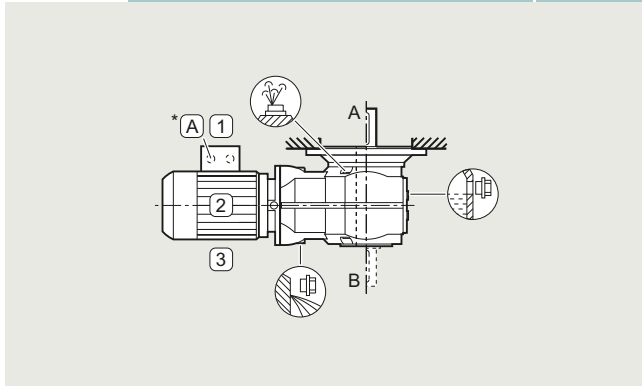
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D12 |
| M2 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D22 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D14 |
| M4 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D24 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D16 |
| M6 output side B | 2KJ35...-F...-Z, 2KJ35...-H...-Z | D26 |



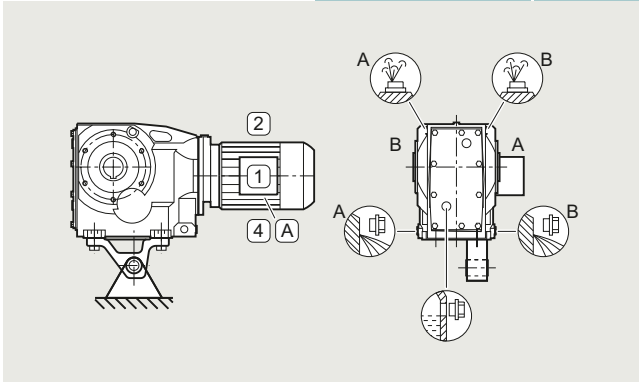
Shaft-mounted design

Bevel gearboxes KAD, sizes 39 to 189

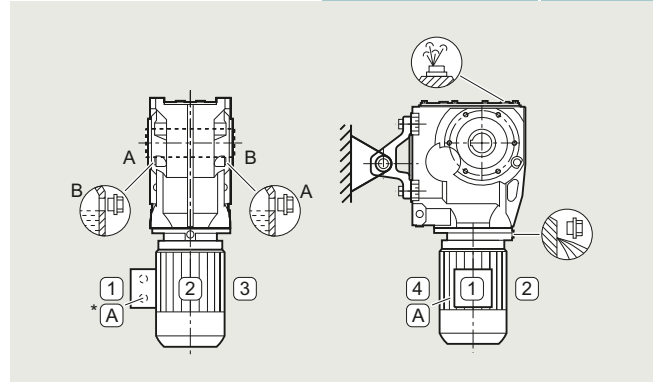
Oil valves

For an explanation of the symbols, see [page 9/3](#).

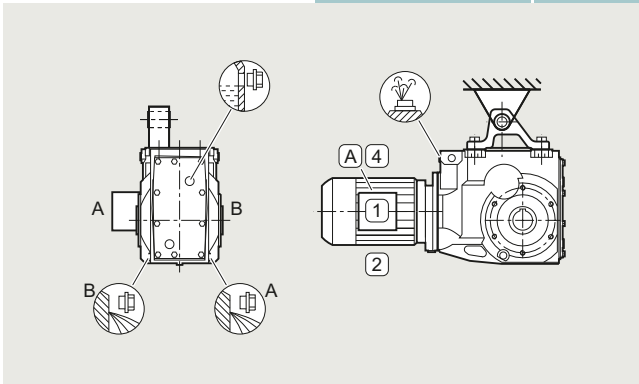
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ35...-.....-D...-Z | D11 |
| M1 output side B | 2KJ35...-.....-D...-Z | D21 |



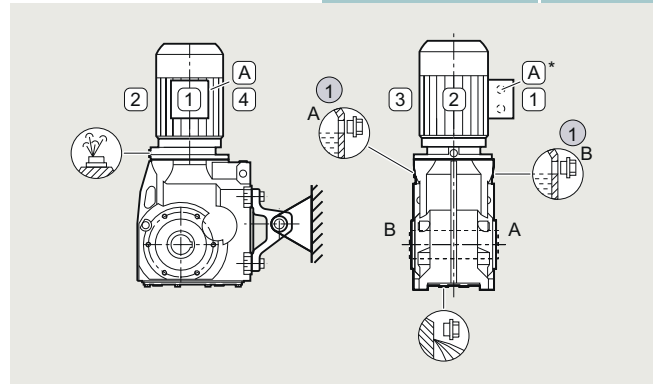
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ35...-.....-D...-Z | D12 |
| M2 output side B | 2KJ35...-.....-D...-Z | D22 |



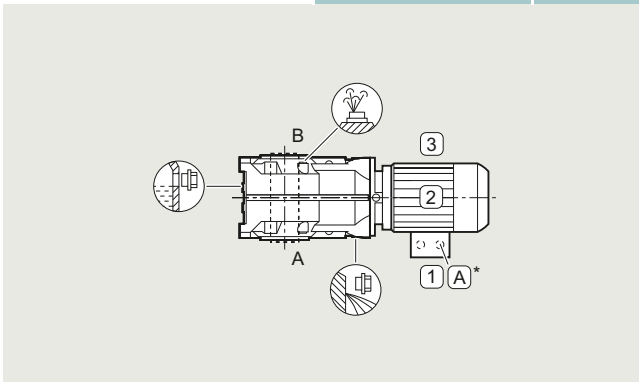
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ35...-.....-D...-Z | D13 |
| M3 output side B | 2KJ35...-.....-D...-Z | D23 |



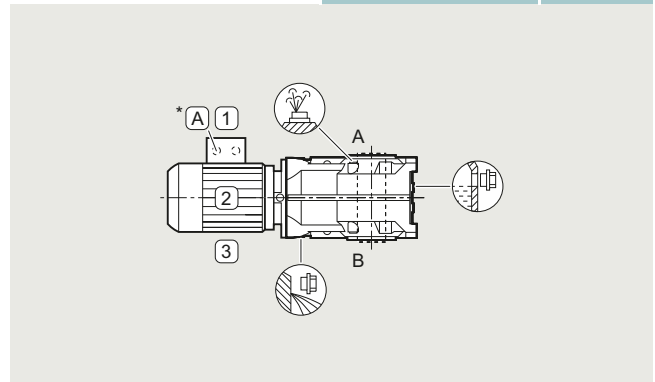
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ35...-.....-D...-Z | D14 |
| M4 output side B | 2KJ35...-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ35...-.....-D...-Z | D15 |
| M5 output side B | 2KJ35...-.....-D...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ35...-.....-D...-Z | D16 |
| M6 output side B | 2KJ35...-.....-D...-Z | D26 |



Gearbox options

Mounting position

Helical worm gearboxes

Shaft-mounted design

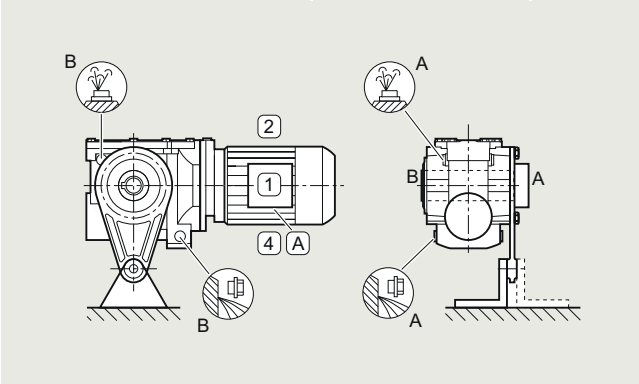
Helical worm gearboxes CAD, size 29

Oil valves

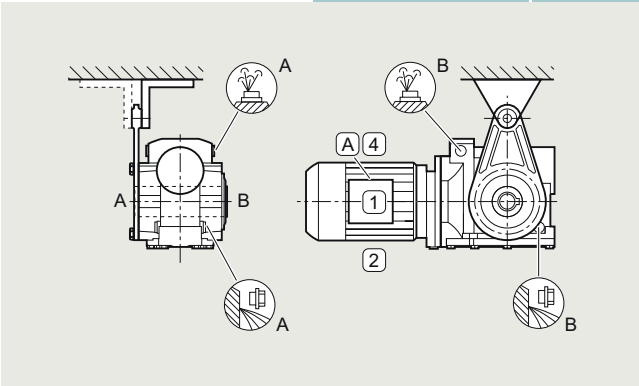
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

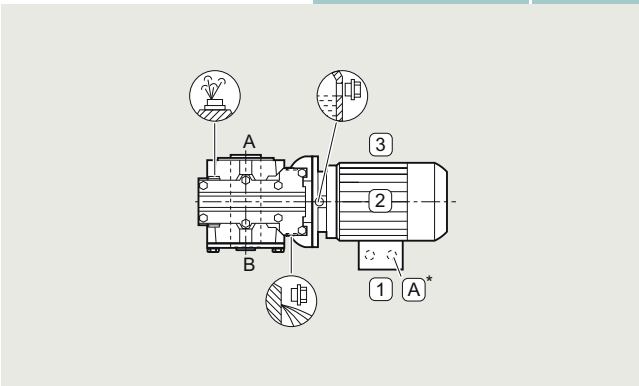
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3601-.....-D...-Z | D11 |
| M1 output side B | 2KJ3601-.....-D...-Z | D21 |



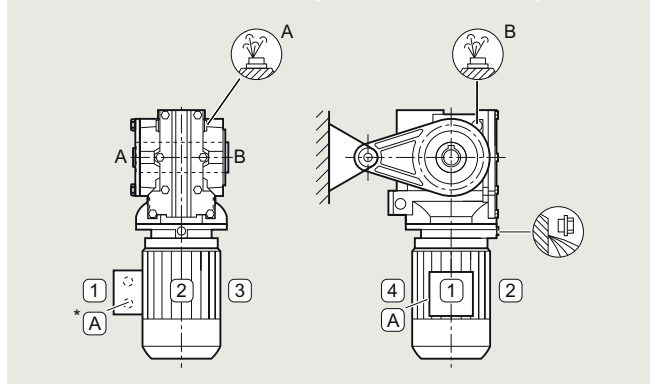
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3601-.....-D...-Z | D13 |
| M3 output side B | 2KJ3601-.....-D...-Z | D23 |



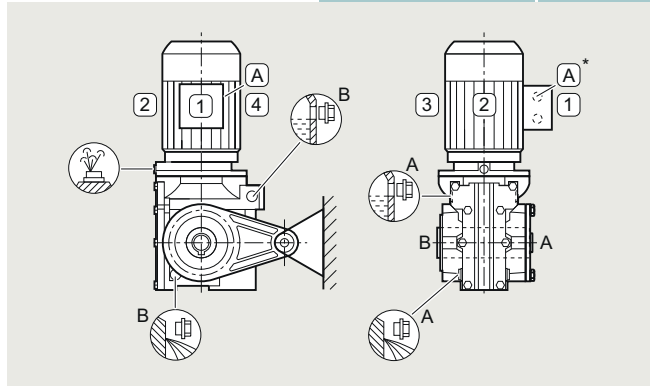
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3601-.....-D...-Z | D15 |
| M5 output side B | 2KJ3601-.....-D...-Z | D25 |



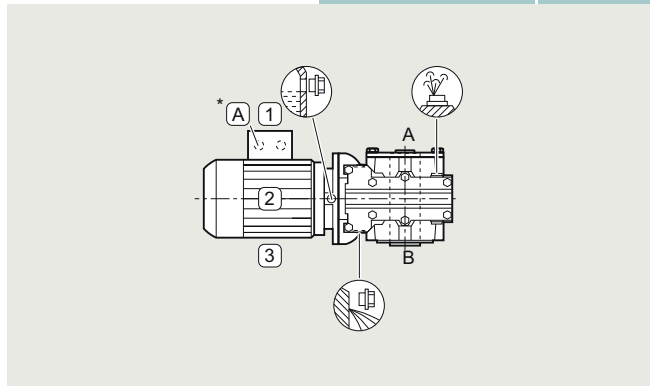
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3601-.....-D...-Z | D12 |
| M2 output side B | 2KJ3601-.....-D...-Z | D22 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3601-.....-D...-Z | D14 |
| M4 output side B | 2KJ3601-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3601-.....-D...-Z | D16 |
| M6 output side B | 2KJ3601-.....-D...-Z | D26 |



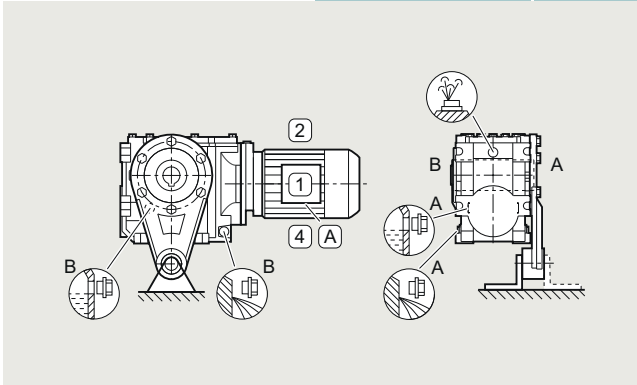
Shaft-mounted design

Helical worm gearboxes CAD, size 39A

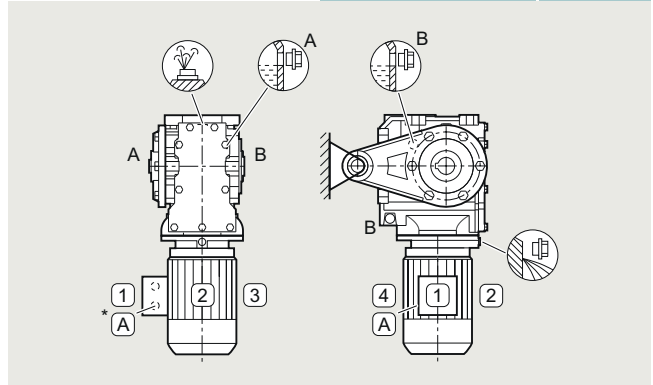
Oil valves

For an explanation of the symbols, see [page 9/3](#).

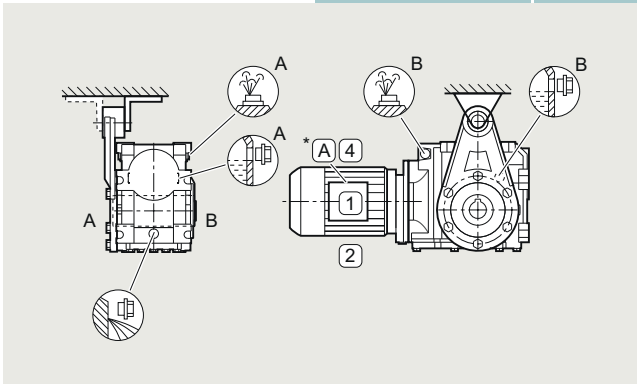
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3642-.....-D...-Z | D11 |
| M1 output side B | 2KJ3642-.....-D...-Z | D21 |



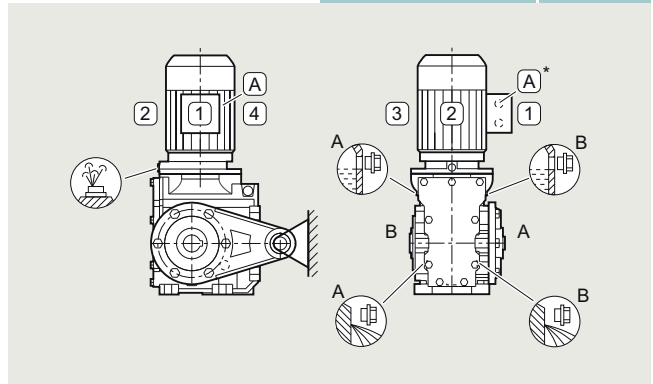
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3642-.....-D...-Z | D12 |
| M2 output side B | 2KJ3642-.....-D...-Z | D22 |



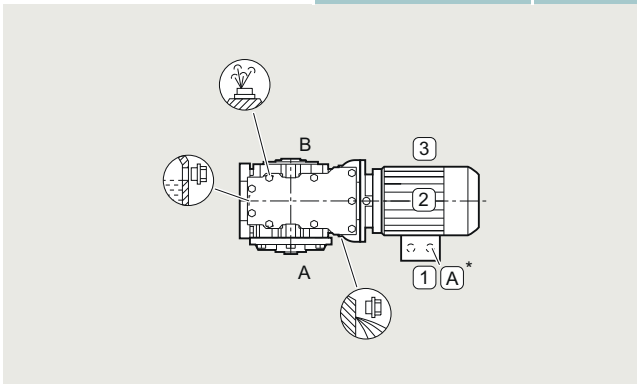
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3642-.....-D...-Z | D13 |
| M3 output side B | 2KJ3642-.....-D...-Z | D23 |



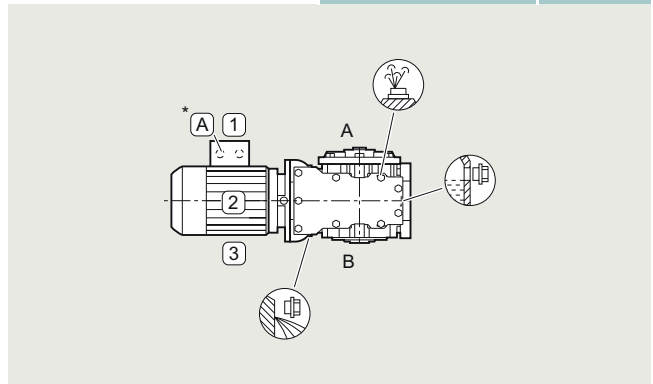
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3642-.....-D...-Z | D14 |
| M4 output side B | 2KJ3642-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3642-.....-D...-Z | D15 |
| M5 output side B | 2KJ3642-.....-D...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3642-.....-D...-Z | D16 |
| M6 output side B | 2KJ3642-.....-D...-Z | D26 |



Gearbox options

Mounting position

Helical worm gearboxes

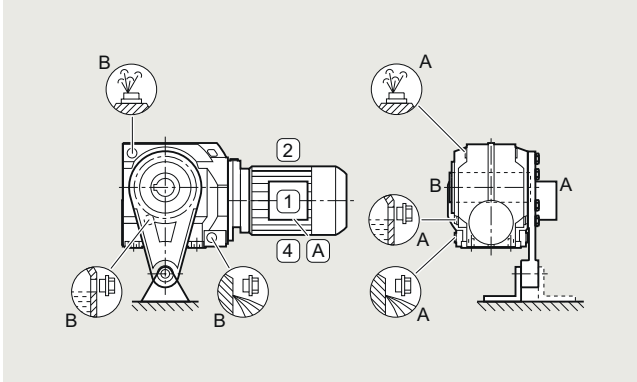
Shaft-mounted design

Helical worm gearboxes CAD, size 49 to 89

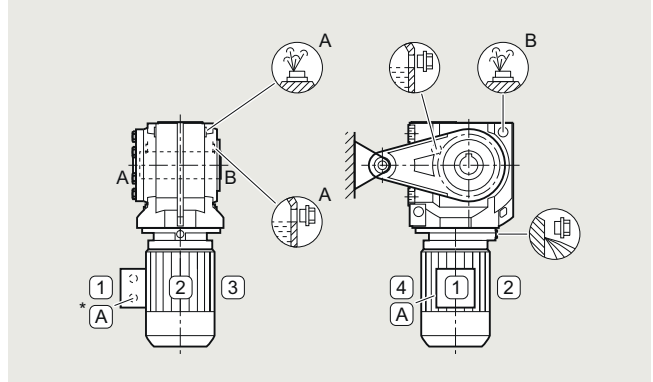
Oil valves

For an explanation of the symbols, see [page 9/3](#).

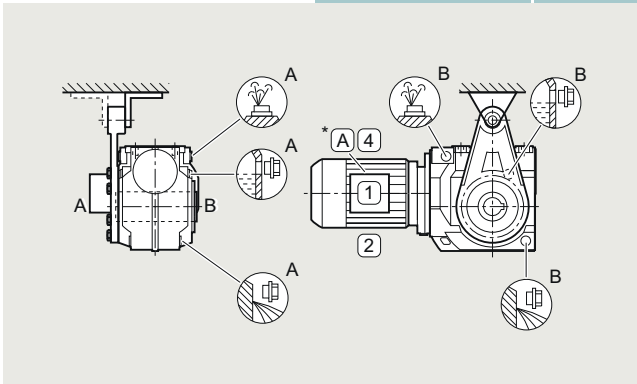
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ360.-.....-D...-Z | D11 |
| M1 output side B | 2KJ360.-.....-D...-Z | D21 |



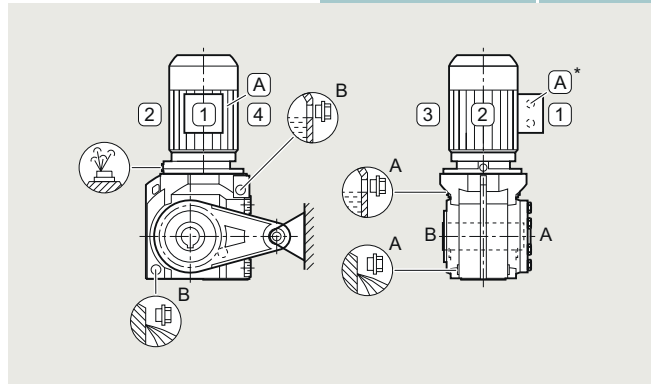
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ360.-.....-D...-Z | D12 |
| M2 output side B | 2KJ360.-.....-D...-Z | D22 |



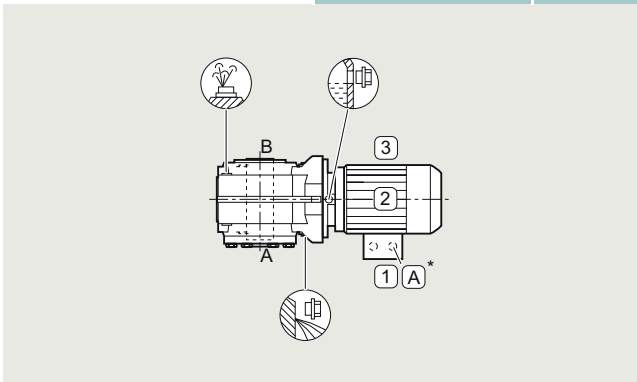
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ360.-.....-D...-Z | D13 |
| M3 output side B | 2KJ360.-.....-D...-Z | D23 |



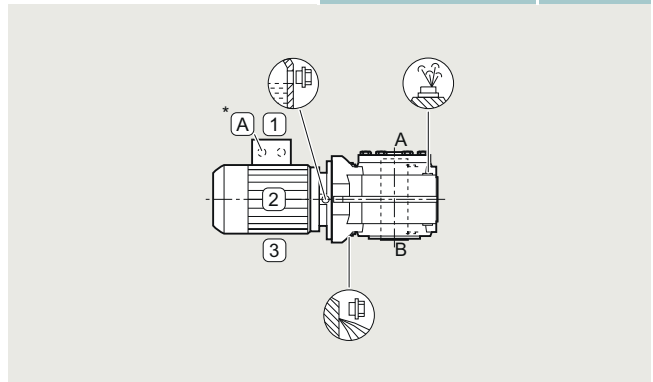
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ360.-.....-D...-Z | D14 |
| M4 output side B | 2KJ360.-.....-D...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ360.-.....-D...-Z | D15 |
| M5 output side B | 2KJ360.-.....-D...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ360.-.....-D...-Z | D16 |
| M6 output side B | 2KJ360.-.....-D...-Z | D26 |



Housing flange design and flange-mounted design

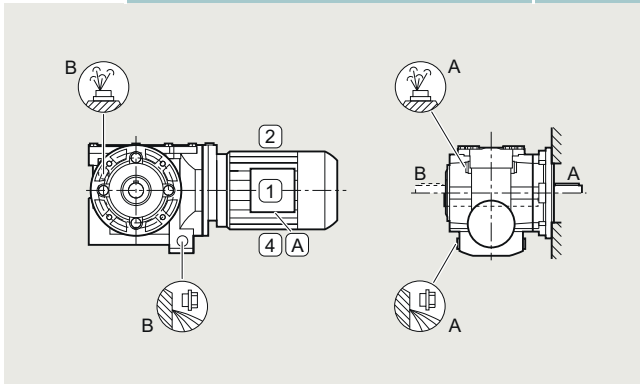
Helical worm gearboxes C.Z and C.F, size 29

Oil valves

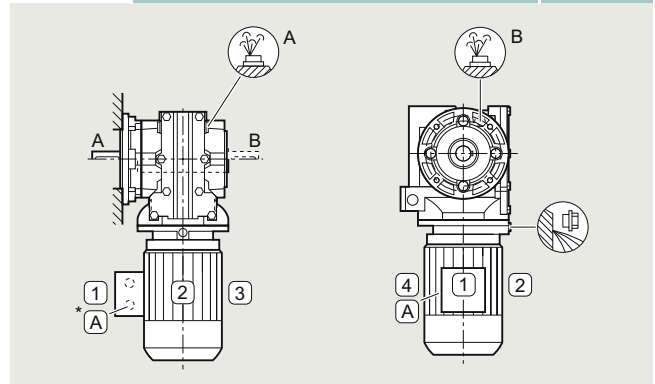
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

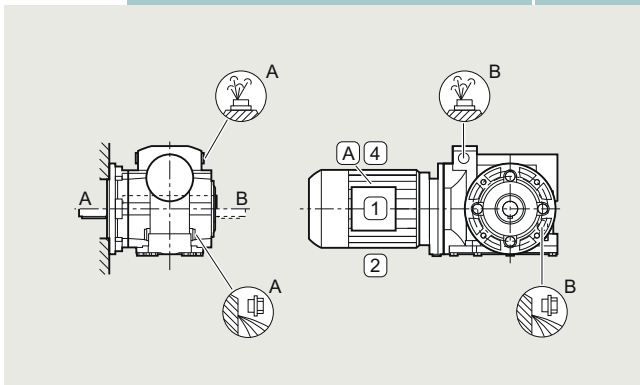
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D11 |
| M1 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D21 |



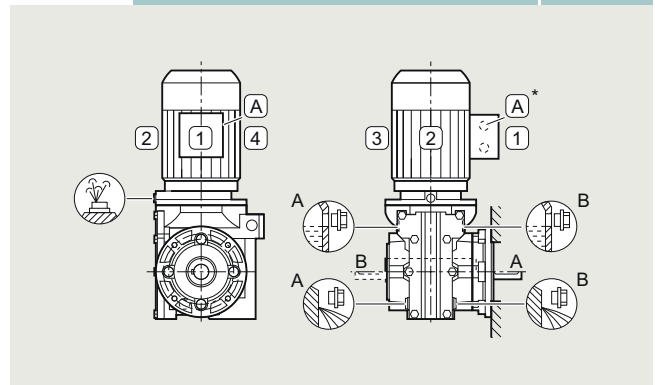
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D12 |
| M2 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D22 |



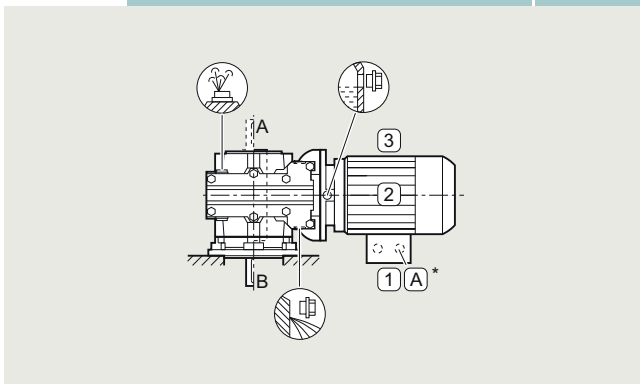
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D13 |
| M3 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D23 |



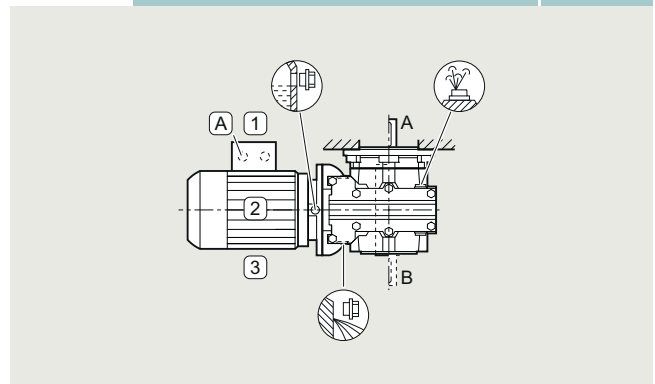
| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D14 |
| M4 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D24 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D15 |
| M5 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D25 |



| Mounting pos. | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D16 |
| M6 output side B | 2KJ3601-.....-F...-Z, 2KJ3601-.....-H...-Z | D26 |



Gearbox options

Mounting position

Helical worm gearboxes

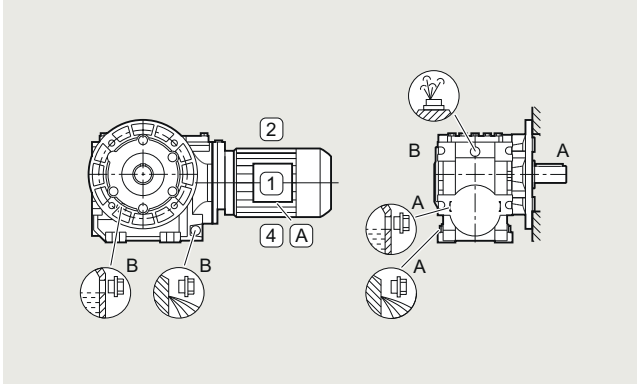
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, size 39A

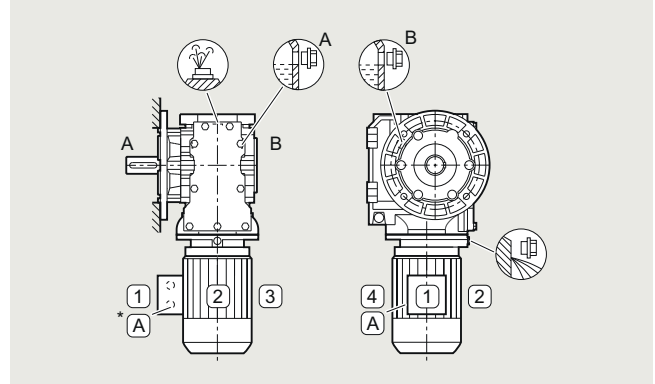
Oil valves

For an explanation of the symbols, see [page 9/3](#).

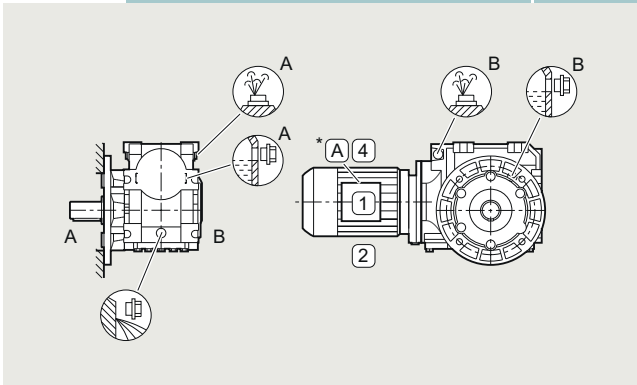
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D11 |
| M1 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D21 |



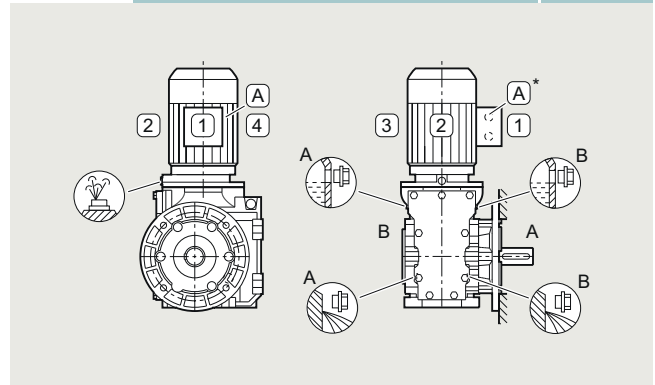
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D12 |
| M2 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D22 |



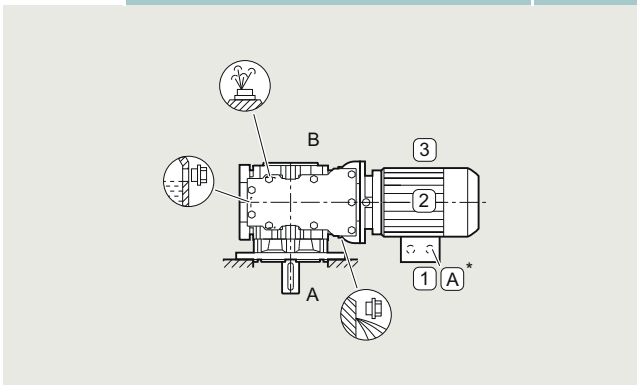
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D13 |
| M3 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D23 |



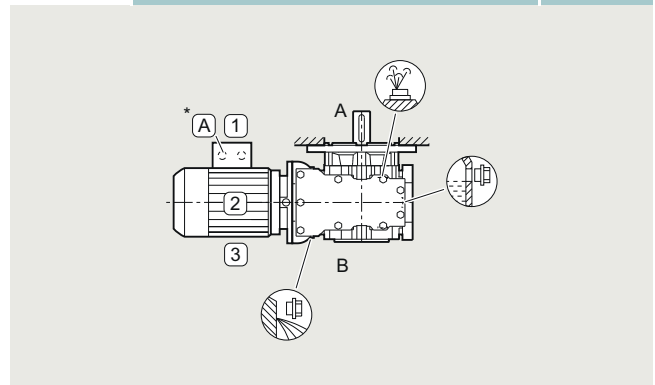
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D14 |
| M4 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D15 |
| M5 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D16 |
| M6 output side B | 2KJ3642-.....-F...-Z, 2KJ3642-.....-H...-Z | D26 |



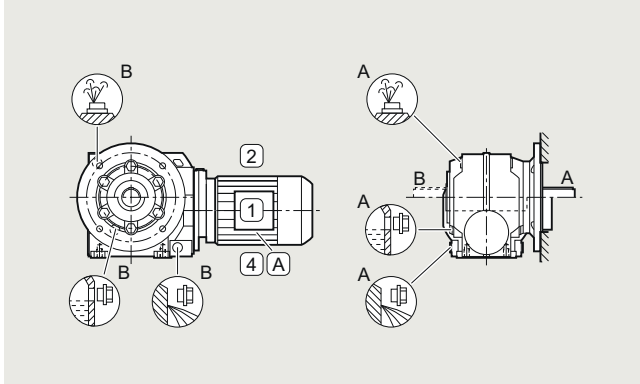
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, size 49 to 89

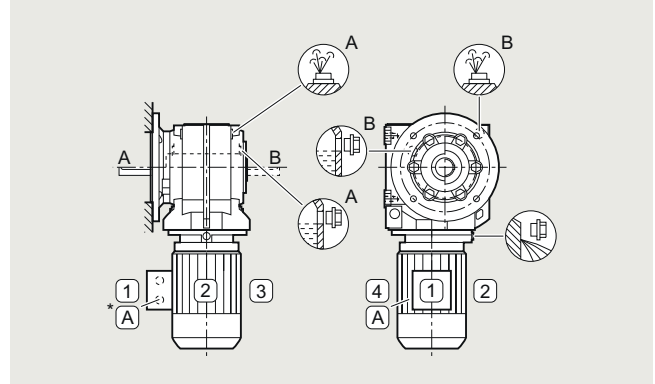
Oil valves

For an explanation of the symbols, see [page 9/3](#).

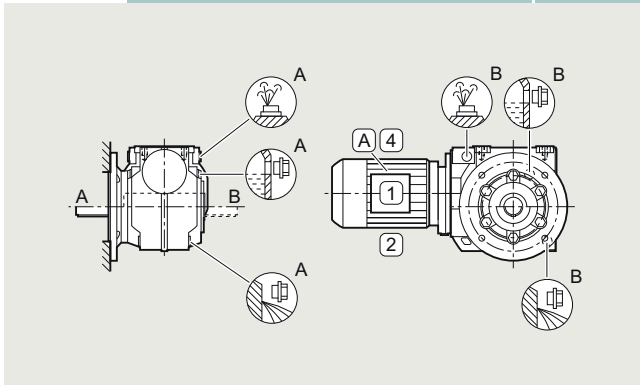
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D11 |
| M1 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D21 |



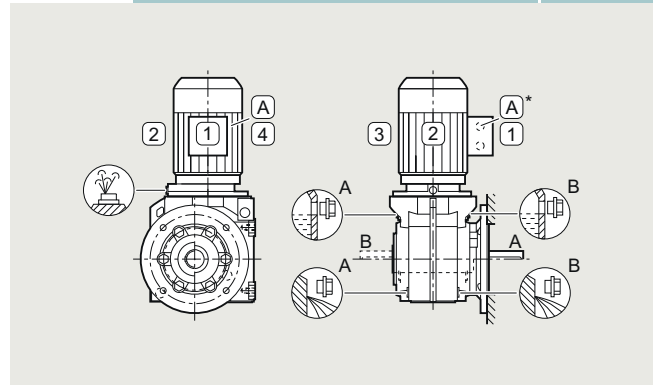
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D12 |
| M2 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D22 |



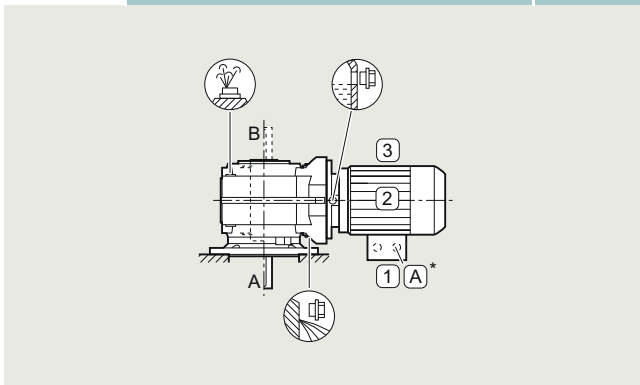
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D13 |
| M3 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D23 |



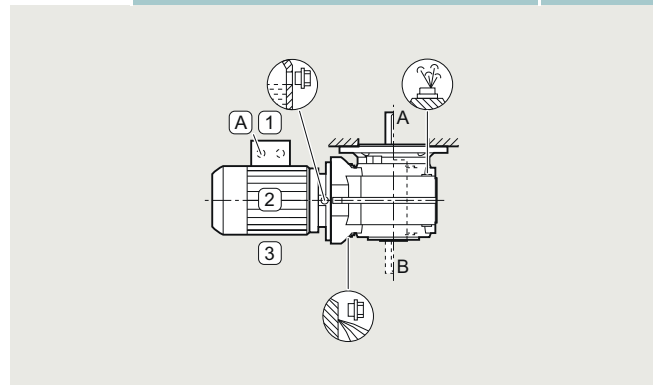
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D14 |
| M4 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D15 |
| M5 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D16 |
| M6 output side B | 2KJ360.-.....-F...-Z, 2KJ360.-.....-H...-Z | D26 |



Gearbox options

Mounting position

Helical worm gearboxes

Foot-mounted design

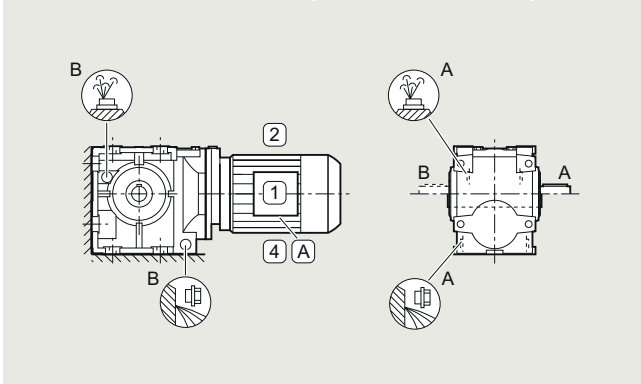
Helical worm gearboxes C, size 29

Oil valves

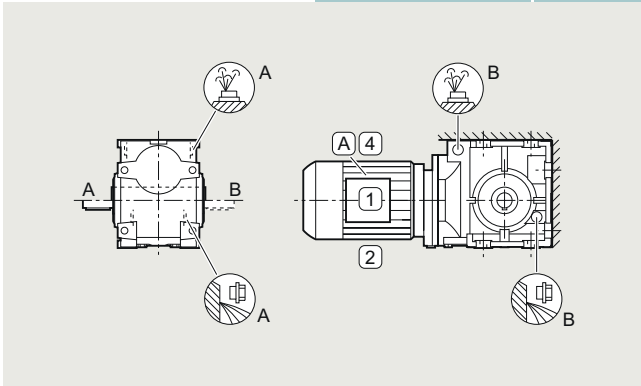
Size 29 is lubricated for life.

For an explanation of the symbols, see [page 9/3](#).

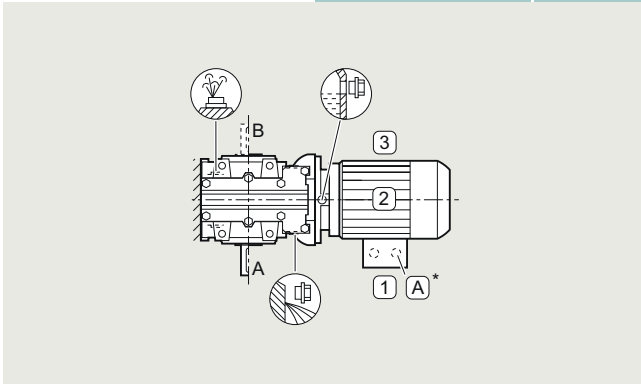
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3601-.....-A...-Z | D11 |
| M1 output side B | 2KJ3601-.....-A...-Z | D21 |



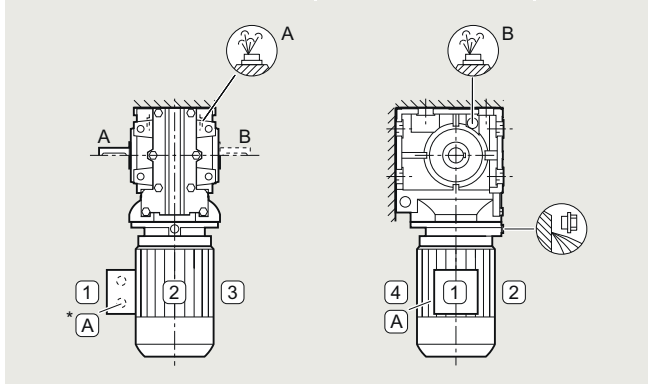
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3601-.....-A...-Z | D13 |
| M3 output side B | 2KJ3601-.....-A...-Z | D23 |



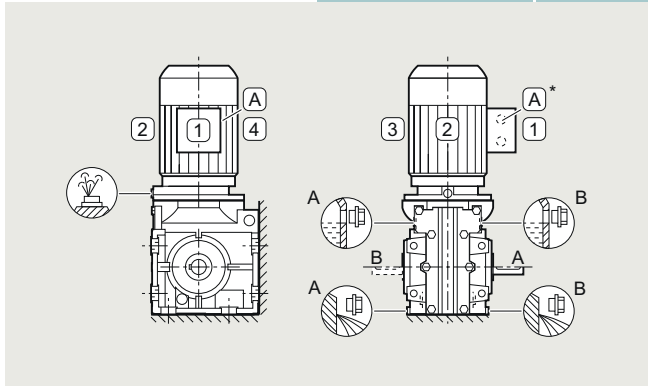
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3601-.....-A...-Z | D15 |
| M5 output side B | 2KJ3601-.....-A...-Z | D25 |



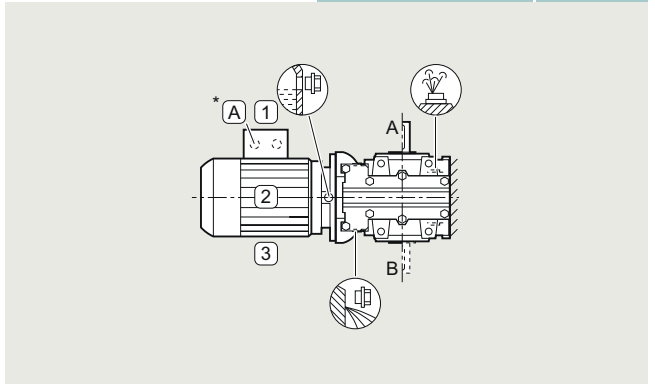
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3601-.....-A...-Z | D12 |
| M2 output side B | 2KJ3601-.....-A...-Z | D22 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3601-.....-A...-Z | D14 |
| M4 output side B | 2KJ3601-.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3601-.....-A...-Z | D16 |
| M6 output side B | 2KJ3601-.....-A...-Z | D26 |



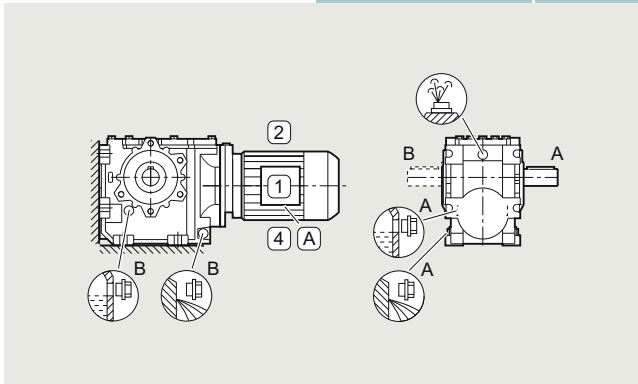
Foot-mounted design

Helical worm gearboxes C, size 39A

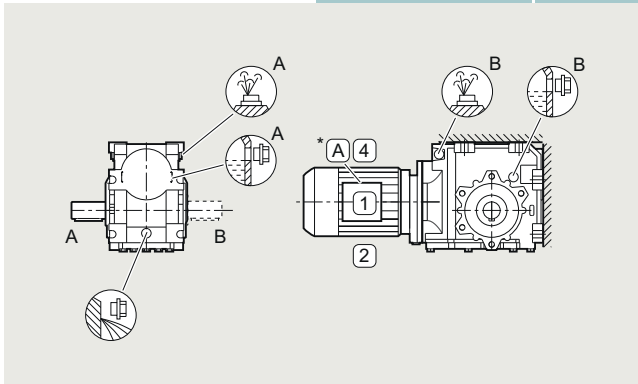
Oil valves

For an explanation of the symbols, see [page 9/3](#).

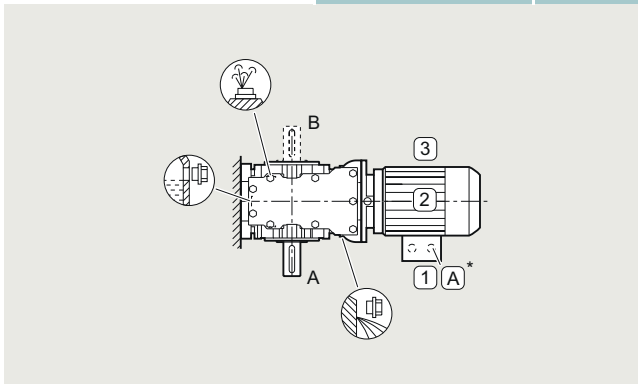
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ3642-.....-A...-Z | D11 |
| M1 output side B | 2KJ3642-.....-A...-Z | D21 |



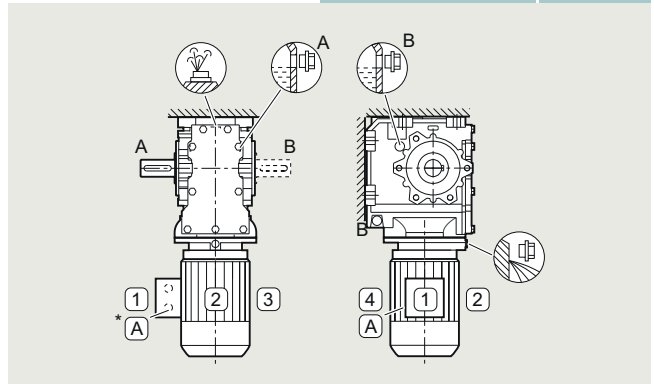
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ3642-.....-A...-Z | D13 |
| M3 output side B | 2KJ3642-.....-A...-Z | D23 |



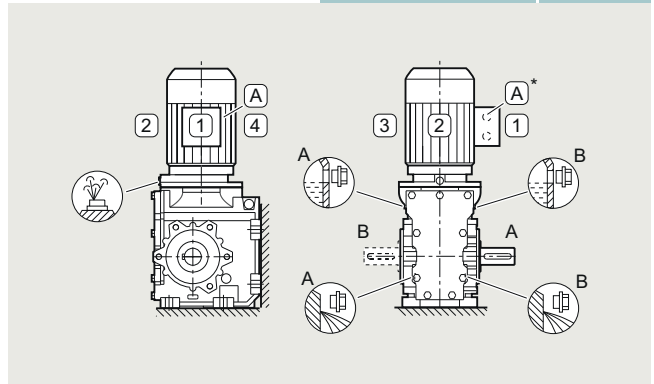
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ3642-.....-A...-Z | D15 |
| M5 output side B | 2KJ3642-.....-A...-Z | D25 |



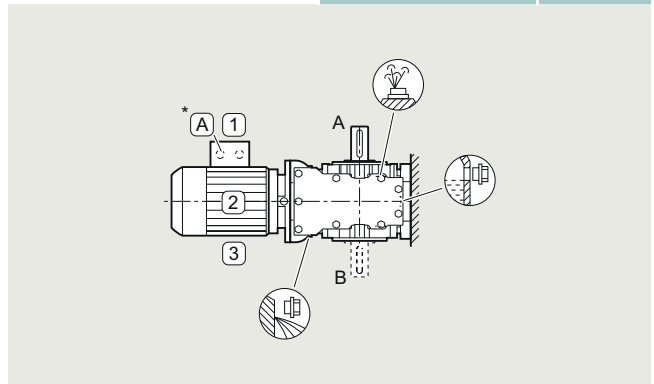
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ3642-.....-A...-Z | D12 |
| M2 output side B | 2KJ3642-.....-A...-Z | D22 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ3642-.....-A...-Z | D14 |
| M4 output side B | 2KJ3642-.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ3642-.....-A...-Z | D16 |
| M6 output side B | 2KJ3642-.....-A...-Z | D26 |



Gearbox options

Mounting position

Helical worm gearboxes

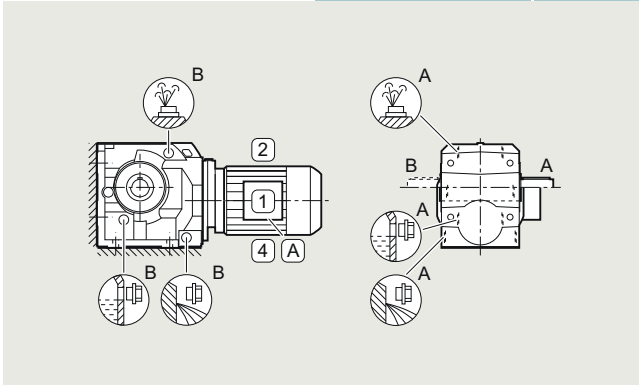
Foot-mounted design

Helical worm gearboxes C, size 49 to 89

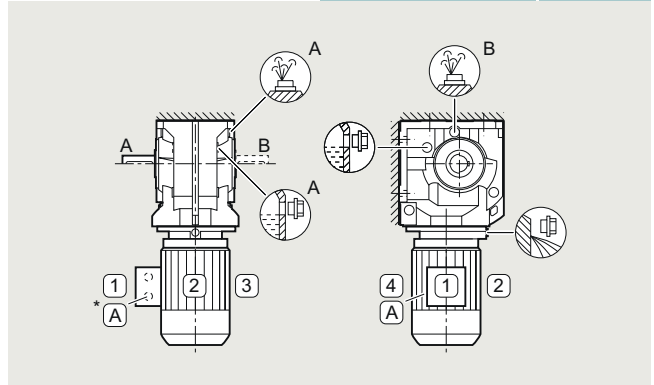
Oil valves

For an explanation of the symbols, see [page 9/3](#).

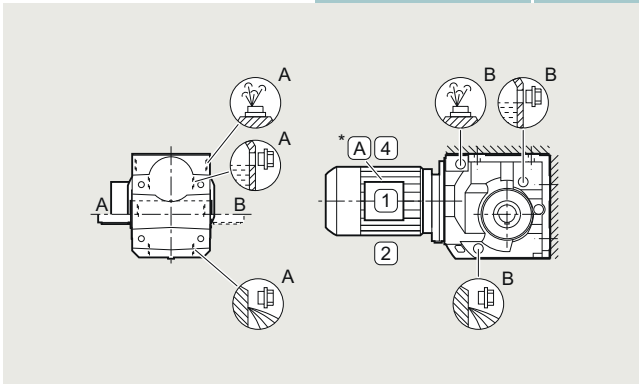
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ360.-.....-A...-Z | D11 |
| M1 output side B | 2KJ360.-.....-A...-Z | D21 |



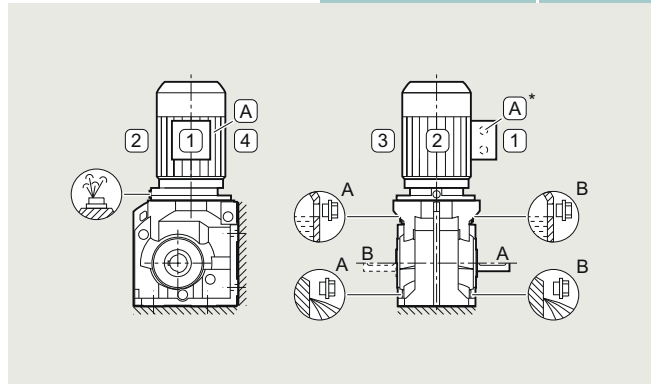
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ360.-.....-A...-Z | D12 |
| M2 output side B | 2KJ360.-.....-A...-Z | D22 |



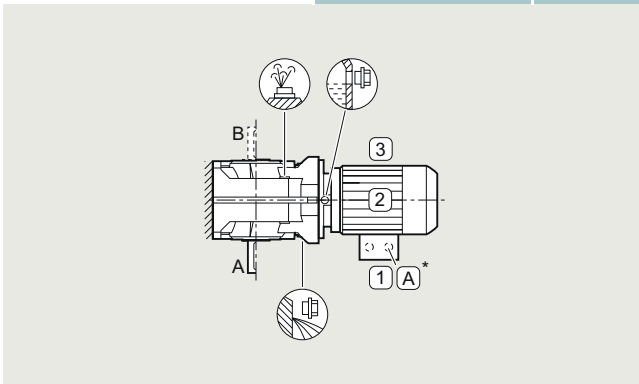
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ360.-.....-A...-Z | D13 |
| M3 output side B | 2KJ360.-.....-A...-Z | D23 |



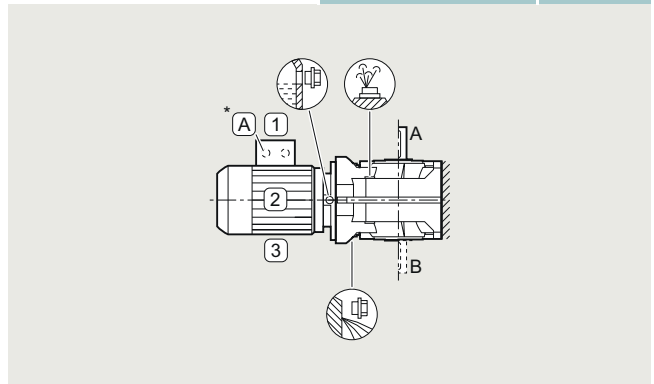
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ360.-.....-A...-Z | D14 |
| M4 output side B | 2KJ360.-.....-A...-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ360.-.....-A...-Z | D15 |
| M5 output side B | 2KJ360.-.....-A...-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ360.-.....-A...-Z | D16 |
| M6 output side B | 2KJ360.-.....-A...-Z | D26 |



Foot-mounted, flange-mounted, shaft-mounted and housing flange design

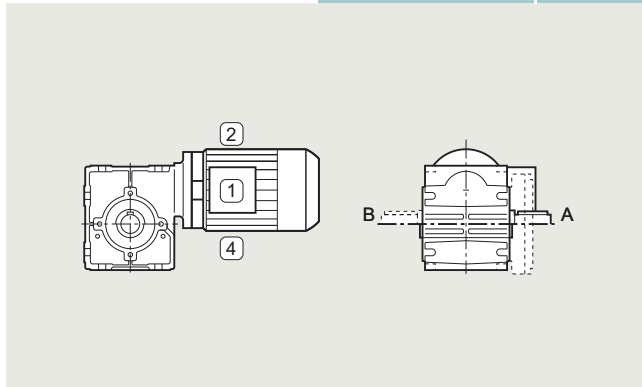
Worm gearboxes S., sizes 09 to 29

Oil valves

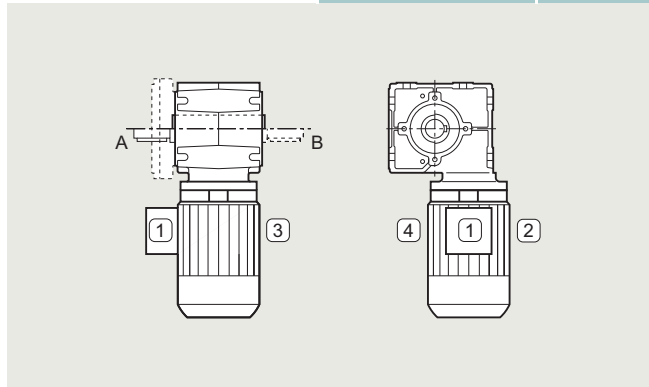
The worm gearboxes S are lubricated for life.
For an explanation of the symbols, see [page 9/3](#).

M0 is a universal mounting position in which the geared motor can be installed in any position.

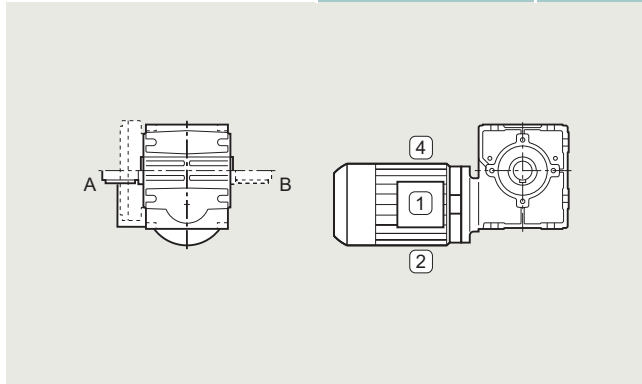
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M1 output side A | 2KJ373.-.....-Z | D11 |
| M1 output side B | 2KJ373.-.....-Z | D21 |



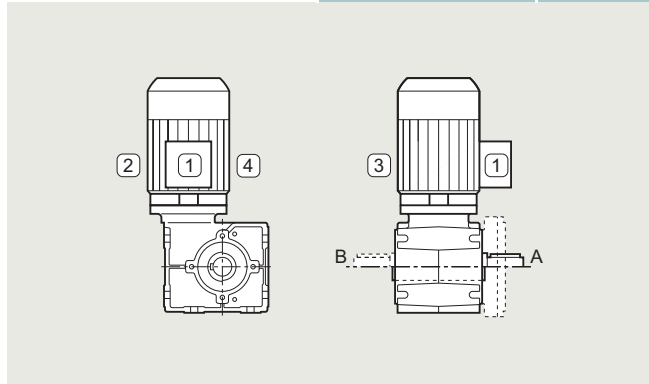
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M2 output side A | 2KJ373.-.....-Z | D12 |
| M2 output side B | 2KJ373.-.....-Z | D22 |



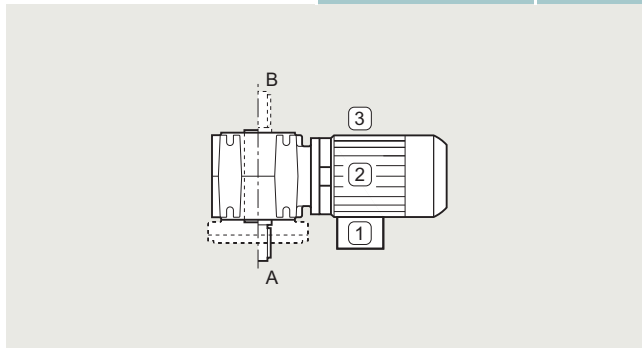
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M3 output side A | 2KJ373.-.....-Z | D13 |
| M3 output side B | 2KJ373.-.....-Z | D23 |



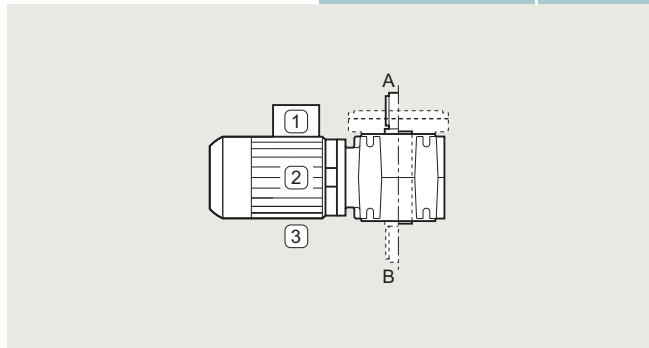
| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M4 output side A | 2KJ373.-.....-Z | D14 |
| M4 output side B | 2KJ373.-.....-Z | D24 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M5 output side A | 2KJ373.-.....-Z | D15 |
| M5 output side B | 2KJ373.-.....-Z | D25 |



| Mounting position | Additional identification code -Z with order code | Order code |
|-------------------------|---|------------|
| M6 output side A | 2KJ373.-.....-Z | D16 |
| M6 output side B | 2KJ373.-.....-Z | D26 |



Gearbox options

Mounting position

Tandem gearboxes

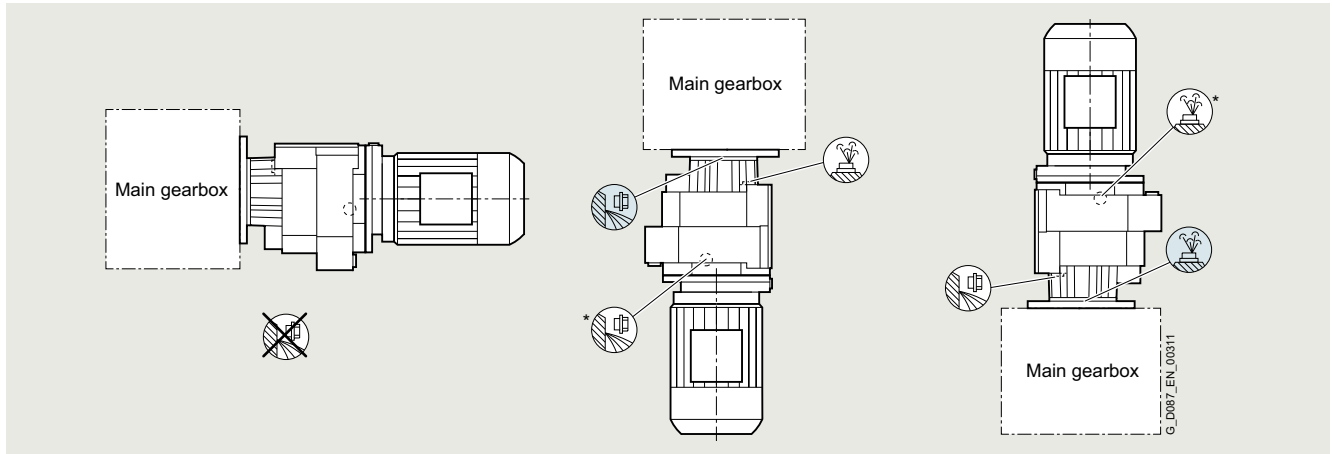
Overview

The tandem gearbox is mounted in the same position as the main gearbox. The diagrams below are only designed to show the position of the oil control valves of the 2nd gearbox.

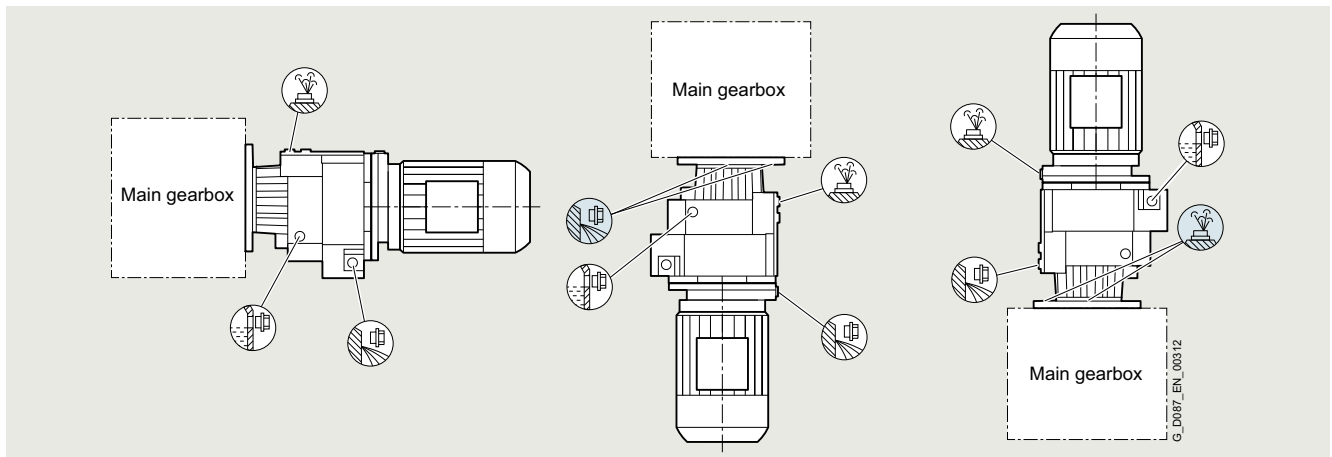
Note:

In a horizontal operating position, the convex face of the housing of the 2nd gearbox generally points vertically downwards. For an explanation of the symbols, see [page 9/3](#).

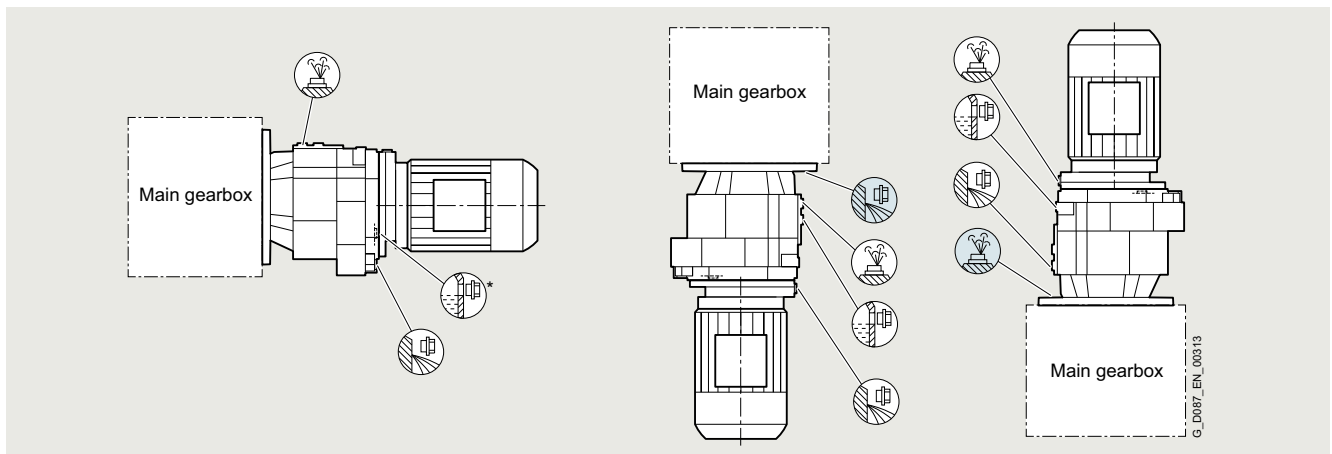
Tandem gearboxes: 2nd gearbox size 19



Tandem gearboxes: 2nd gearbox size 39



Tandem gearboxes: 2nd gearbox sizes 49 to 69



Overview

Apart from the standard types of construction, geared motors can also be supplied in different angled positions.

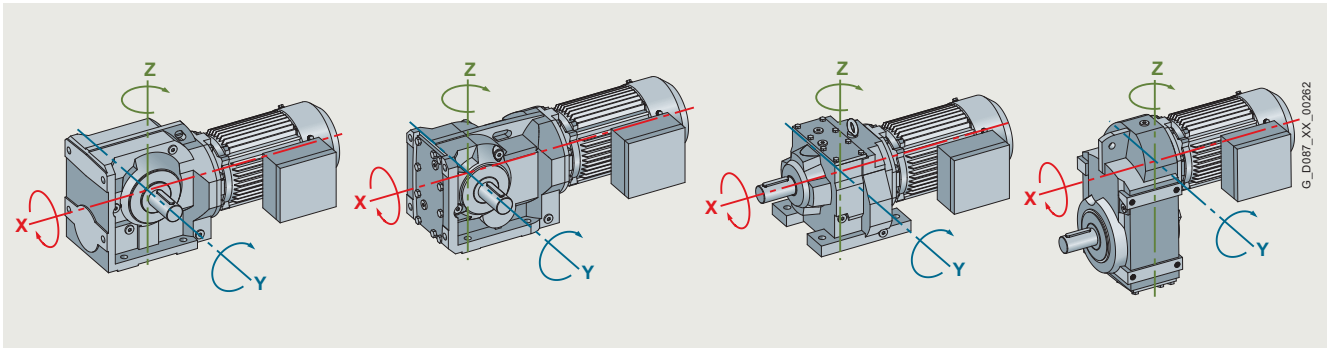


Fig. 9/6 Axes of rotation of the geared motors

| Special mounting position | Additional identification code - Z with order code | Order code | Special mounting position | Additional identification code - Z with order code | Order code | Special mounting position | Additional identification code - Z with order code | Order code |
|---------------------------|--|------------|---------------------------|--|------------|---------------------------|--|------------|
| Y axis | | | X axis | | | Z axis | | |
| Rotation angle 5 ° | | E01 | Rotation angle 5 ° | | E21 | Rotation angle 5 ° | | E41 |
| Rotation angle 10 ° | | E02 | Rotation angle 10 ° | | E22 | Rotation angle 10 ° | | E42 |
| Rotation angle 15 ° | | E03 | Rotation angle 15 ° | | E23 | Rotation angle 15 ° | | E43 |
| Rotation angle 20 ° | | E04 | Rotation angle 20 ° | | E24 | Rotation angle 20 ° | | E44 |
| Rotation angle 25 ° | | E05 | Rotation angle 25 ° | | E25 | Rotation angle 25 ° | | E45 |
| Rotation angle 30 ° | | E06 | Rotation angle 30 ° | | E26 | Rotation angle 30 ° | | E46 |
| Rotation angle 35 ° | | E07 | Rotation angle 35 ° | | E27 | Rotation angle 35 ° | | E47 |
| Rotation angle 40 ° | | E08 | Rotation angle 40 ° | | E28 | Rotation angle 40 ° | | E48 |
| Rotation angle 45 ° | | E09 | Rotation angle 45 ° | | E29 | Rotation angle 45 ° | | E49 |
| Rotation angle 50 ° | | E10 | Rotation angle 50 ° | | E30 | Rotation angle 50 ° | | E50 |
| Rotation angle 55 ° | | E11 | Rotation angle 55 ° | | E31 | Rotation angle 55 ° | | E51 |
| Rotation angle 60 ° | | E12 | Rotation angle 60 ° | | E32 | Rotation angle 60 ° | | E52 |
| Rotation angle 65 ° | | E13 | Rotation angle 65 ° | | E33 | Rotation angle 65 ° | | E53 |
| Rotation angle 70 ° | | E14 | Rotation angle 70 ° | | E34 | Rotation angle 70 ° | | E54 |
| Rotation angle 75 ° | | E15 | Rotation angle 75 ° | | E35 | Rotation angle 75 ° | | E55 |
| Rotation angle 80 ° | | E16 | Rotation angle 80 ° | | E36 | Rotation angle 80 ° | | E56 |
| Rotation angle 85 ° | | E17 | Rotation angle 85 ° | | E37 | Rotation angle 85 ° | | E57 |

Flange-mounted designs

The flange-mounted designs are available with different diameters.

| Gearbox type | Flange diameter mm | | | | | | | | | | | | | Additional identification code -Z with order code | | | |
|------------------------------------|-----------------------|-----|-----|-----|-----|-----|-----|------------------------|------------------------|-----|-----|-----|-----|--|------------------------|------------|------------|
| Helical gearboxes DF and ZF | | | | | | | | | | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ31... -.....-F...-Z | 2KJ32... -.....-F...-Z | Order code | |
| | 120 | 120 | 120 | | | | | | | | | | | | | H02 | |
| | 140 | 140 | | 140 | | | | | | | | | | | | H03 | |
| | 160 | 160 | 160 | 160 | 160 | | | | | | | | | | | H04 | |
| | | | 200 | 200 | 200 | 200 | | | | | | | | | | H05 | |
| | | | | 250 | 250 | 250 | | | | | | | | | | H06 | |
| | | | | | | 300 | 300 | | | | | | | | | H07 | |
| | | | | | | | 350 | 350 | 350 | 350 | | | | | | H08 | |
| | | | | | | | | 450 | 450 | 450 | 450 | 450 | | | | H09 | |
| | | | | | | | | | | 550 | 550 | 550 | 550 | | | H10 | |
| | | | | | | | | | | | | 660 | 660 | | | H11 | |
| <i>Helical gearboxes VLplus</i> | | | | | | | | 300 | | | | | | | | H07 + G30 | |
| | | | | | | | | | 350 | 350 | 350 | | | | | H08 + G30 | |
| | | | | | | | | | | 450 | 450 | | 450 | | | H09 + G30 | |
| | | | | | | | | | | | 550 | 550 | 550 | | | H10 + G30 | |
| | | | | | | | | | | | | | 660 | | | H11 + G30 | |
| <i>Helical gearboxes XLplus</i> | | | | | | | | 450 | 450 | | | | | | | H09 + G31 | |
| | | | | | | | | | | 550 | 550 | | | | | H10 + G31 | |
| | | | | | | | | | | | | | 660 | | | H11 + G31 | |
| Helical gearboxes DB and ZB | | | | | | | | | | | | | | | | | |
| Gearbox size | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 2KJ31... -.....-B...-Z | 2KJ32... -.....-B...-Z | | | | | | | | Order code |
| | 120 | 120 | | | | | | | | | | | | | | H02 | |
| | | | | 140 | | | | | | | | | | | | H03 | |
| | | | | 160 | 160 | | | | | | | | | | | H04 | |
| | | | | | | 200 | | | | | | | | | | H05 | |
| | | | | | | | 250 | | | | | | | | | H06 | |
| | | | | | | | | 300 | 300 | | | | | | | H07 | |
| Helical gearboxes EF | | | | | | | | | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 89 | 109 | 129 | 149 | 2KJ30... -.....-F...-Z | | | | | | | | Order code | |
| | 120 | | | | | | | | | | | | | | | H02 | |
| | 140 | | | | | | | | | | | | | | | H03 | |
| | 160 | 160 | | | | | | | | | | | | | | H04 | |
| | 200 | 200 | 200 | | | | | | | | | | | | | H05 | |
| | | 250 | 250 | 250 | | | | | | | | | | | | H06 | |
| | | | | 300 | 300 | | | | | | | | | | | H07 | |
| | | | | | 350 | 350 | 350 | 350 | | | | | | | | H08 | |
| | | | | | | 450 | 450 | 450 | | | | | | | | H09 | |
| | | | | | | | | 550 | | | | | | | | H10 | |

Gearbox options

Mounting

Mounting types

Flange-mounted designs

| Gearbox type | Flange diameter mm | | | | | | | | | | | Additional identification code -Z with order code | | |
|--|-----------------------|-----|-----|-----|------------|-----|-----|-----|-----|-----|------------------------|--|------------------------|------------|
| Parallel shaft gearboxes F..F | | | | | | | | | | | | | | |
| Gearbox size | 29 | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ33... -.....-F...-Z | 2KJ34... -.....-F...-Z | Order code |
| | 120 | | | | | | | | | | | | | H02 |
| | 160 | 160 | | | | | | | | | | | | H04 |
| | | | 200 | | | | | | | | | | | H05 |
| | | | | 250 | 250 | | | | | | | | | H06 |
| | | | | | | 300 | | | | | | | | H07 |
| | | | | | | | 350 | | | | | | | H08 |
| | | | | | | | | 450 | 450 | | | | | H09 |
| | | | | | | | | | | 550 | | | | H10 |
| | | | | | | | | | | | 660 | | | H11 |
| <i>Parallel shaft gearboxes VLplus</i> | | | | | | | | | | | | | | |
| | | | | | | 300 | | | | | | | | H07 + G30 |
| | | | | | | | 350 | | | | | | | H08 + G30 |
| | | | | | | | | 450 | 450 | | | | | H09 + G30 |
| | | | | | | | | | | 550 | | | | H10 + G30 |
| Bevel gearboxes B.F | | | | | | | | | | | | | | |
| Gearbox size | 19 | | 29 | | 39 | | 49 | | | | | 2KJ35... -.....-F...-Z | Order code | |
| | 120 | | 120 | | | | | | | | | | H02 | |
| | | | 160 | | 160 | | | | | | | | H04 | |
| | | | | | 200 | | 200 | | | | | | H05 | |
| Bevel gearboxes K.F | | | | | | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ35... -.....-F...-Z | Order code | | |
| | 160 | | | | | | | | | | | H04 | | |
| | | 200 | | | | | | | | | | H05 | | |
| | | | 250 | 250 | | | | | | | | H06 | | |
| | | | | | 300 | | | | | | | H07 | | |
| | | | | | | 350 | | | | | | H08 | | |
| | | | | | | | 450 | 450 | | | | H09 | | |
| | | | | | | | | | 550 | | | H10 | | |
| | | | | | | | | | | 660 | | H11 | | |
| <i>Bevel gearboxes VLplus</i> | | | | | | | | | | | | | | |
| | | | | | | 300 | | | | | | | H07 + G30 | |
| | | | | | | | 350 | | | | | | H08 + G30 | |
| | | | | | | | | 450 | 450 | | | | H09 + G30 | |
| | | | | | | | | | | 550 | | | H10 + G30 | |
| Helical worm gearboxes C.F | | | | | | | | | | | | | | |
| Gearbox size | 29 | | 39A | | 49 | | 69 | | 89 | | | 2KJ36... -.....-F...-Z | Order code | |
| | 120 | | | | | | | | | | | | H02 | |
| | 160 | | 160 | | | | | | | | | | H04 | |
| | | | | | 200 | | 200 | | | | | | H05 | |
| | | | | | | | | | 250 | | | | H06 | |
| Worm gearboxes S.F | | | | | | | | | | | | | | |
| Gearbox size | 09 | | 19 | | 29 | | | | | | | 2KJ37... -.....-F...-Z | Order code | |
| | 80 | | 110 | | 120 | | | | | | | | H01 | |
| | 120 / Q90 | | 120 | | 160 / Q136 | | | | | | | | H02 | |

Flange-mounted designs

Water drain holes at the output flange

For gearboxes in a flange-mounted design, water drain holes can be located at the output flange. This is required for mounting position M2 (output shaft facing upwards), if there is a risk that water will collect in the output flange.

| | | |
|--|--|------------|
| Mounting type | Additional identification code -Z with order code | Order code |
| Water drain holes at the output flange | 2KJ3... -.....-F...-Z | G77 |

| Flange diameter mm | Possible for | | | | | | | | | | | | |
|---------------------------|--------------|----|----|----|-----------------|-----------------|-----------------|----|-----|-----|-----|-----|-----|
| Helical gearboxes Z and D | | | | | | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 |
| 120 | | | | | | | | | | | | | |
| 140 | | | | ✓ | | | | | | | | | |
| 160 | | | | ✓ | ✓ ¹⁾ | | | | | | | | |
| 200 | | | | ✓ | ✓ | ✓ ²⁾ | | | | | | | |
| 250 | | | | | ✓ | ✓ | ✓ ¹⁾ | | | | | | |
| 300 | | | | | | | ✓ | ✓ | | | | | |
| 350 | | | | | | | ✓ | ✓ | ✓ | ✓ | | | |
| 450 | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 550 | | | | | | | | | | ✓ | ✓ | ✓ | ✓ |
| 660 | | | | | | | | | | | | ✓ | ✓ |

1) Water drain holes are also possible for foot/flange-mounted designs
2) Water drain holes are only possible for foot/flange-mounted designs

| Helical gearboxes E | | | | | | | | | | | | | |
|---------------------|----|----|----|----|-----|-----|-----|---|--|---|--|--|---|
| Gearbox size | 39 | 49 | 69 | 89 | 109 | 129 | 149 | | | | | | |
| 120 | ✓ | | | | | | | | | | | | |
| 140 | ✓ | | | | | | | | | | | | |
| 160 | ✓ | ✓ | | | | | | | | | | | |
| 200 | ✓ | ✓ | ✓ | | | | | | | | | | |
| 250 | | ✓ | ✓ | ✓ | | | | | | | | | |
| 300 | | | | | ✓ | | | ✓ | | | | | |
| 350 | | | | | | | | ✓ | | ✓ | | | ✓ |
| 450 | | | | | | | | | | ✓ | | | ✓ |

| Parallel shaft gearboxes F | | | | | | | | | | | | | |
|----------------------------|----|----|----|----|----|----|-----|-----|-----|-----|-----|---|--|
| Gearbox size | 29 | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | | |
| 120 | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | |
| 160 | | ✓ | | | | | | | | | | | |
| 200 | | | ✓ | | | | | | | | | | |
| 250 | | | | ✓ | ✓ | | | | | | | | |
| 300 | | | | | | ✓ | | | | | | | |
| 350 | | | | | | | ✓ | | | | | | |
| 450 | | | | | | | | ✓ | ✓ | | | | |
| 550 | | | | | | | | | | ✓ | | | |
| 660 | | | | | | | | | | | | ✓ | |

| Bevel gearboxes K | | | | | | | | | | | | | |
|-------------------|----|----|----|----|----|-----|-----|-----|-----|-----|---|---|--|
| Gearbox size | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | | | |
| 160 | ✓ | | | | | | | | | | | | |
| 200 | | ✓ | | | | | | | | | | | |
| 250 | | | ✓ | ✓ | | | | | | | | | |
| 300 | | | | | ✓ | | | | | | | | |
| 350 | | | | | | ✓ | | | | | | | |
| 450 | | | | | | | ✓ | ✓ | | | | | |
| 550 | | | | | | | | | ✓ | | ✓ | | |
| 660 | | | | | | | | | | | | ✓ | |

Gearbox options

Mounting

Mounting types

Flange-mounted designs

Output flange sealing

The flange sealing option enables you to create a fluid-tight interface between the housing and the output flange. The seal prevents the escape of fluids (e.g. oil or water).

The gearbox in a flange-mounted design can be used when a fluid-tight space at the output is required. Input gears are a typical application.

The flange sealing option must always be ordered for use in

combination with the "water drain holes at the output flange" option.

| | | |
|-----------------------|---|------------|
| Mounting type | Additional identification code -Z with order code | Order code |
| Output flange sealing | 2KJ3... -.....-F...-Z | G78 |

Parallel shaft gearboxes F.A.D. in a shaft-mounted design

The rubber buffers (supplied loose) are used to flexibly support the gearbox on the housing plate provided.

When mounting, the rubber buffers must be pretensioned to the dimension specified in the dimensional drawing.

The elastomer used for support is manufactured out of natural rubber 70° ± 5 Shore A.

| | |
|----------------------|----------------------------------|
| Mounting type | 14th position of the Article No. |
| | 2KJ33... -.....- ■ ...-Z |
| | 2KJ34... -.....- ■ ...-Z |
| Shaft-mounted design | D |

The dimensions of the torque arm can be seen in the dimensional drawings.

Bevel gearboxes KAD. in a shaft-mounted design

The torque arm of bevel gearboxes K is mounted on the underside of the housing. The rubber buffers are used to flexibly support the gearbox on the torque arm.

The elastomer used for support is manufactured out of natural rubber 60° Shore A.

| | |
|----------------------|----------------------------------|
| Mounting type | 14th position of the Article No. |
| | 2KJ35... -.....- ■ ...-Z |
| Shaft-mounted design | C |

The dimensions of the torque arm can be seen in the dimensional drawings.

Bevel gearboxes BAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

| | |
|----------------------|----------------------------------|
| Mounting type | 14th position of the Article No. |
| | 2KJ35... -.....- ■ ...-Z |
| Shaft-mounted design | D |

Shaft-mounted design for sizes 19 and 29

The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.

When ordered, the torque arm is supplied loose.

Shaft-mounted design for sizes 39 and 49

The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

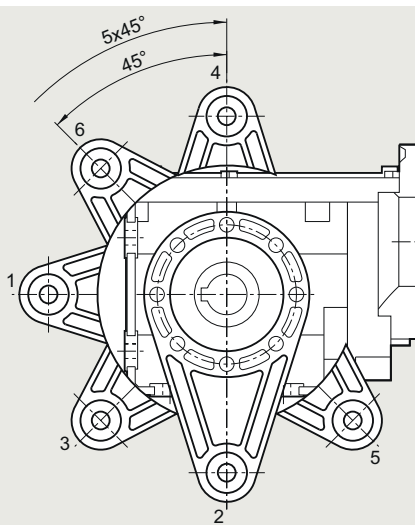


Fig. 9/7 Bevel gearboxes BAD., sizes 19 and 29

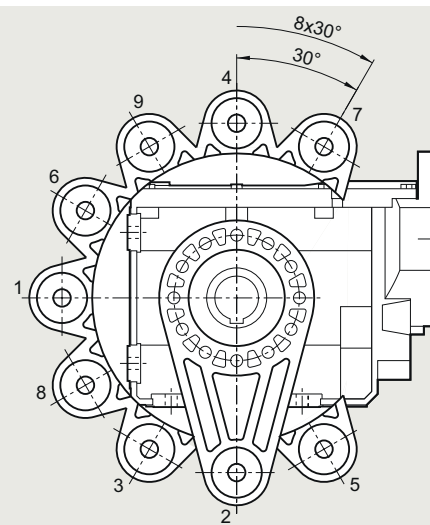


Fig. 9/8 Bevel gearboxes BAD., sizes 39 and 49

Helical worm gearboxes CAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

| | |
|----------------------|--|
| Mounting type | 14th position of the Article No. 2KJ36... -... - D -Z |
| Shaft-mounted design | D |

When ordered, the torque arm is supplied loose.

Shaft-mounted design for size 29

The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.

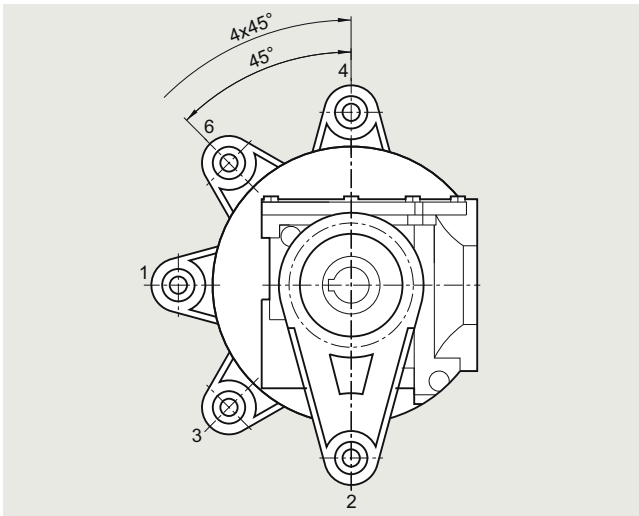


Fig. 9/9 Helical worm gearboxes CAD., size 29

Shaft-mounted design for sizes 39 to 89

The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

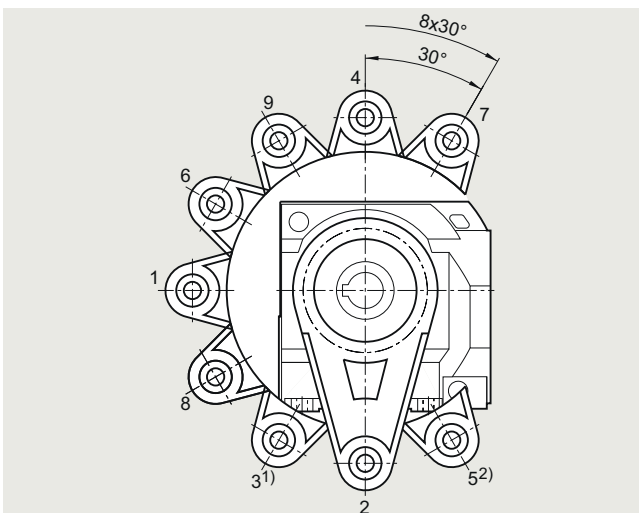


Fig. 9/10 Helical worm gearboxes CAD., Figure 1, sizes 39 to 89

1) Position not possible for sizes CAD.39 and CAD.69

2) Position not possible for size CAD.39

| | | |
|---------------|---|------------|
| Mounting type | Additional identification code -Z with order code 2KJ36... -... - D -Z | Order code |
| Figure 1 | | G09 |
| Figure 2 | | G10 |

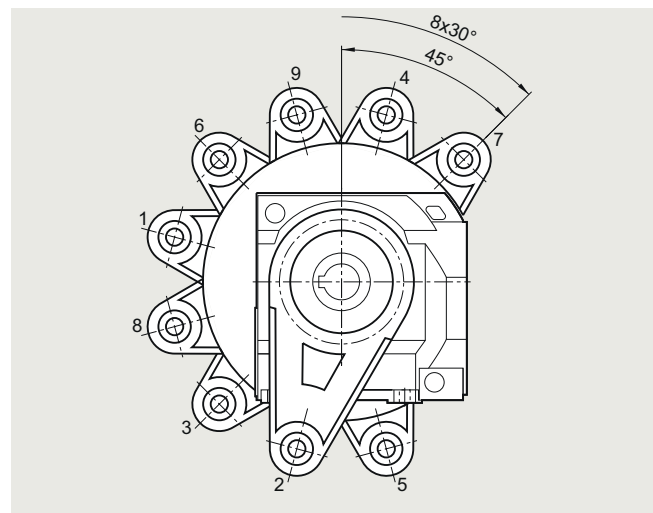


Fig. 9/11 Helical worm gearboxes CAD., Figure 2, sizes 39A to 89

1) Position not possible for sizes CAD.39A and CAD.49

Gearbox options

Mounting

Mounting types

Worm gearboxes SAD in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

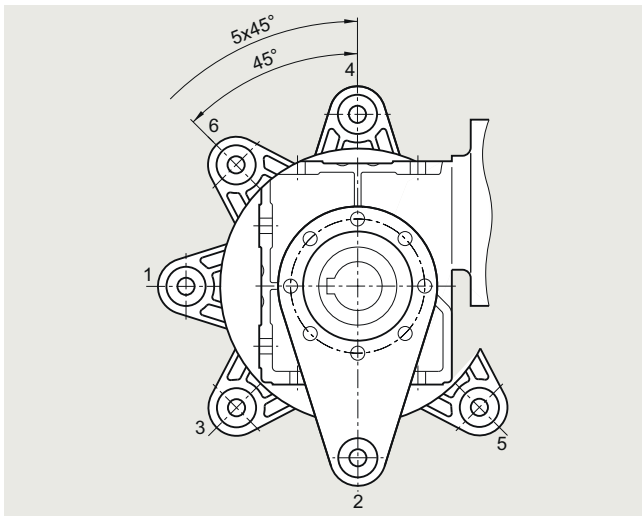


Fig. 9/12 Worm gearbox S in shaft-mounted design

The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.

| | |
|----------------------|----------------------------------|
| Mounting type | 14th position of the Article No. |
| Shaft-mounted design | 2KJ37...-.....-Z |
| | D |

When ordered, the torque arm is supplied loose

Shaft designs

Selection and ordering data

| Shaft design | Dimensions mm | | | | | Ambient temperature range | An order code is required when 9 appears in the 8th position of the Article No. | |
|---|------------------|-----------------|-----------------|-----------------|-----------------|---------------------------|---|------------|
| Helical gearboxes Z and D | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | 59 | | 2KJ31...-Z | Order code |
| Solid shaft | V20 x 40 | V25 x 50 | V25 x 50 | V30 x 60 | V35 x 70 | -40 ... +60 °C | 1 | - |
| | V16 x 28 | | | | V30 x 60 | | 2 | - |
| | V16 x 40 | | V30 x 60 | | V40 x 80 | | 3 | - |
| Solid shaft without feather key | VG20 x 40 | VG25 x 50 | VG25 x 50 | VG30 x 60 | VG35 x 70 | | 9 | H1G |
| Solid shaft, inches | V0.75" x 1.57" | V1" x 1.97" | V1" x 1.97" | V1.25" x 2.36" | V1.375" x 2.76" | | 9 | H6A |
| Gearbox size | 69 | 79 | 89 | 109 | 129 | | 2KJ31...-Z | Order code |
| Solid shaft | V35 x 70 | V40 x 80 | V50 x 100 | V60 x 120 | V70 x 140 | -40 ... +60 °C | 1 | - |
| | | V35 x 70 | | | | | 2 | - |
| | | V50 x 100 | V60 x 120 | | | | 3 | - |
| Solid shaft without feather key ¹⁾ | VG35 x 70 | VG40 x 80 | VG50 x 100 | VG60 x 120 | VG70 x 140 | | 9 | H1G |
| Solid shaft, inches | V1.375" x 2.76" | V1.625" x 3.15" | V2.125" x 3.94" | V2.375" x 4.72" | V2.875" x 5.51" | | 9 | H6A |
| Solid shaft VLplus | | | VM60 x 120 | VM70 x 140 | VM90 x 170 | | 9 | H1C |
| Solid shaft XLplus | | | VM60 x 120 | VM70 x 140 | VM90 x 170 | | 9 | H1C |
| Gearbox size | 149 | 169 | 189 | | | | 2KJ31...-Z | Order code |
| Solid shaft | V90 x 170 | V110 x 210 | V120 x 210 | | | -40 ... +60 °C | 1 | - |
| | | V100 x 210 | | | | | 2 | - |
| | | | | | | | 3 | - |
| Solid shaft without feather key ¹⁾ | VG90 x 170 | | | | | | 9 | H1G |
| Solid shaft, inches | V3.625" x 6.69" | V4.375" x 8.27" | V4.75" x 8.27" | | | | 9 | H6A |
| Solid shaft VLplus | VM100 x 210 | VM120 x 210 | | | | | 9 | H1C |
| Solid shaft XLplus | VM100 x 210 | VM120 x 210 | | | | | 9 | H1C |

¹⁾ Can only be selected in conjunction with foot-mounted or housing flange design.

Selection and ordering data

| Shaft design | Dimensions mm | | | | | Ambient temperature range | An order code is required when 9 appears in the 8th position of the Article No. | | |
|--|------------------------|------------------------|-------------------------|--------------------------|--------------------------|---------------------------|---|-------------|------------|
| Helical gearboxes E | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 89 | 109 | | 2KJ30...-Z | Order code | |
| Solid shaft | V20 x 40 | V25 x 50 | V30 x 60 | V40 x 80 | V50 x 100 | -40 ... +60 °C | 1 | - | |
| Solid shaft, inches | V0.75" x 1.57" | V1" x 1.97" | V1.25" x 2.36" | V1.625" x 3.15" | V2.125" x 3.94" | | 9 | H6A | |
| Gearbox size | 129 | 149 | | | | | 2KJ30...-Z | Order code | |
| Solid shaft | V60 x 120 | V70 x 140 | | | | -40 ... +60 °C | 1 | - | |
| Solid shaft, inches | V2.375" x 4.72" | V2.875" x 5.51" | | | | | 9 | H6A | |
| Parallel shaft gearboxes F | | | | | | | | | |
| Gearbox size | 29 | 39 | 49 | 69 | 79 | 89 | 2KJ33...-Z 2KJ34...-Z | Order code | |
| Solid shaft | V25 x 50 | V25 x 50 V35 x 70 | V30 x 60 V40 x 80 | V35 x 70 V50 x 100 | V40 x 80 | V50 x 100 | -40 ... +60 °C | 1 3 | - |
| Solid shaft without feather key ¹⁾ | VG25 x 50 | VG25 x 50 | VG30 x 60 | VG35 x 70 | VG40 x 80 | VG50 x 100 | | 9 | H1G |
| Solid shaft, both ends ¹⁾²⁾ | | VD25 x 50 | VD30 x 60 | VD35 x 70 | VD40 x 80 | VD50 x 100 | | 9 | H5A |
| Solid shaft, both ends without feather key ¹⁾²⁾ | | | VDG30 x 60 | VDG35 x 70 | VDG40 x 80 | VDG50 x 100 | | 9 | H5B |
| Solid shaft, inches | V1" x 1.97" | V1" x 1.97" | V1.25" x 2.36" | V1.375" x 2.76" | V1.625" x 3.15" | V2" x 3.94" | | 9 | H6A |
| Solid shaft VLplus | | | | | | VM60 x 120 | | 9 | H1C |
| Hollow shaft | H25 | H30 H25 | H35 H30 | H40 | H40 | H50 | | 5 6 | - |
| Hollow shaft, inches | H1" | H1.25" | H1.375" | H1.5" | H1.5" | H2" | | 9 | H7A |
| Hollow shaft VLplus | | | | | | HM50 | | 9 | H2F |
| Hollow shaft with shrink disk | HS25 | HS30 | HS35 | HS40 | HS40 | HS50 | | 9 | H3A |
| ShaftMount assembly system, metric | HF25 HF20 | HF30 HF25 | HF35 HF30 | HF40 HF35 | HF40 HF35 | HF50 HF40 | -20 ... +60 °C | 9 9 | H3G H3H |
| ShaftMount assembly system, imperial dimensions | HF1.0" HF0.75" | HF1.25" HF1.1875" | HF1.375" HF1.4375" | HF1.5" HF1.625" | HF1.5" HF1.625" | HF2.0" HF1.9375" | | 9 9 | H3J H3K |
| | | HF1.0" - | HF1.25" HF1.1875" | HF1.4375" HF1.375" | HF1.4375" HF1.375" | HF1.75" HF1.625" | | 9 9 | H3L H3M |
| Splined hollow shaft | | N30 | N35 | N35 | N45 | N50 | -40 ... +60 °C | 9 | H4A |
| Gearbox size | 109 | 129 | 149 | 169 | 189 | | 2KJ33...-Z 2KJ34...-Z | Order code | |
| Solid shaft | V60 x 120 V80 x 170 | V70 x 140 V90 x 170 | V90 x 170 V100 x 210 | V110 x 210 V120 x 210 | V120 x 210 V140 x 250 | | -40 ... +60 °C | 1 3 | - |
| Solid shaft without feather key ¹⁾ | VG60 x 120 | | | | | | | 9 | H1G |
| Solid shaft, both ends ¹⁾²⁾ | VD60 x 120 | VD70 x 140 | VD90 x 170 | VD110 x 210 | VD120x210 | | | 9 | H5A |
| Solid shaft, both ends without feather key ¹⁾²⁾ | VDG60 x 120 | | | | | | | 9 | H5B |
| Solid shaft, inches | V2.375" x 4.72" | V2.875" x 5.51" | V3.625" x 6.69" | V4.375" x 8.27" | V4.75" x 8.27" | | | 9 | H6A |
| Solid shaft VLplus | VM70 x 140 | VM90 x 170 | VM100 x 210 | VM120 x 210 | | | | 9 | H1C |
| Hollow shaft | H60 | H70 | H90 H80 | H100 H110 | H120 | | -40 ... +60 °C | 5 6 7 | - |
| Hollow shaft, inches | H2.375" | H2.75" | H3.625" | H4" | H4.5" | | | 9 | H7A |
| Hollow shaft VLplus | HM60 | HM70 | HM90 | HM100 | | | | 9 | H2F |
| Hollow shaft with shrink disk | HS65 | HS75 | HS95 HS90 | HS105 | HS125 | | | 9 9 | H3A H3B |
| | HS70 | | | | | | | 9 | H3C |
| Splined hollow shaft | N65 | N70 | N85 | N90 | N110 | | | 9 | H4A |

¹⁾ Can only be selected in conjunction with foot-mounted or housing flange design.

²⁾ Restricted adapter sizes in conjunction with shaft extensions at both ends; for precise dimensioning, use the functionality of the SPC.

Gearbox options

Mounting

Shaft designs

Selection and ordering data

| Shaft design | Dimensions mm | | | | Ambient temperature range | An order code is required when 9 appears in the 8th position of the Article No. | | |
|--|------------------|----------------|-----------------|-----------------|---------------------------|---|------------|-----|
| Bevel gearboxes B | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | | 2KJ35...- ■-Z | Order code | |
| Solid shaft | V20 x 40 | V20 x 40 | V30 x 60 | V35 x 70 | -40 ... +60 °C | 1 | - | |
| Solid shaft without feather key | VG20 x 40 | VG20 x 40 | VG30 x 60 | VG35 x 70 | | 9 | H1G | |
| Solid shaft, both ends ²⁾ | VD20 x 40 | VD20 x 40 | VD30 x 60 | VD35 x 70 | | 9 | H5A | |
| Solid shaft, inches | V0.75" x 1.57" | V0.75" x 1.57" | V1" x 1.97" | V1.375" x 2.76" | | 9 | H6A | |
| Hollow shaft | H20 | H20 | H30 | H40 | | 5 | - | |
| | | H25 | H35 | H35 | 6 | - | | |
| | | | H40 | | 7 | - | | |
| Hollow shaft, inches | H0.75" | H0.75" | H1.25" | H1.5" | 9 | H7A | | |
| Hollow shaft with shrink disk | HS20 | HS20 | HS35 | HS40 | -40 ... +60 °C | 9 | H3A | |
| ShaftMount assembly system, metric | | HF25 | HF30 | HF35 | -20 ... +60 °C | 9 | H3G | |
| | | HF20 | HF25 | HF30 | | 9 | H3H | |
| | | | | HF40 | | 9 | H3P | |
| | | | | | | 9 | H3J | |
| ShaftMount assembly system, imperial dimensions | | HF1.0" | HF1.25" | HF1.375" | | 9 | H3K | |
| | | HF0.75" | HF1.1875" | HF1.4375" | | 9 | H3L | |
| | | | HF1.0" | HF1.25" | | 9 | H3M | |
| | | | | HF1.1875" | | 9 | H3N | |
| | | | | HF1.625" | | 9 | | |
| Bevel gearboxes K | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 79 | 89 | 2KJ35...- ■-Z | Order code | |
| Solid shaft | V25 x 50 | V30 x 60 | V35 x 70 | V40 x 80 | V50 x 100 | -40 ... +60 °C | 1 | - |
| | V35 x 70 | V40 x 80 | | V50 x 100 | | | 3 | - |
| Solid shaft without feather key | VG25 x 50 | VG30 x 60 | VG35 x 70 | VG40 x 80 | VG50 x 100 | 9 | H1G | |
| Solid shaft, both ends ¹⁾ | VD25 x 50 | VD30 x 60 | VD35 x 70 | VD40 x 80 | VD50 x 100 | 9 | H5A | |
| Solid shaft, both ends without feather key ¹⁾ | | VDG30 x 60 | VDG35 x 70 | VDG40 x 80 | VDG50 x 100 | 9 | H5B | |
| Solid shaft, inches | V1" x 1.97" | V1.25" x 2.36" | V1.375" x 2.76" | V1.625" x 3.15" | V2" x 3.94" | 9 | H6A | |
| Solid shaft VLplus | | | | | VM60 x 120 | 9 | H1C | |
| Hollow shaft | H30 | H35 | H40 | H40 | H50 | 5 | - | |
| | H25 | H30 | | | | 6 | - | |
| Hollow shaft, inches | H1.25" | H1.375" | H1.5" | H1.5" | H2" | 9 | H7A | |
| Hollow shaft VLplus | | | | | HM50 | 9 | H2F | |
| Hollow shaft with shrink disk | HS30 | HS35 | HS40 | HS40 | HS50 | 9 | H3A | |
| ShaftMount assembly system, metric | HF30 | HF35 | HF40 | HF40 | HF50 | -20 ... +60 °C | 9 | H3G |
| | HF25 | HF30 | HF35 | HF35 | HF40 | | 9 | H3H |
| ShaftMount assembly system, imperial dimensions | HF1.25" | HF1.375" | HF1.5" | HF1.5" | HF2.0" | | 9 | H3J |
| | HF1.1875" | HF1.4375" | HF1.625" | HF1.625" | HF1.9375" | | 9 | H3K |
| | HF1.0" | HF1.25" | HF1.4375" | HF1.4375" | HF1.75" | | 9 | H3L |
| | | HF1.1875" | HF1.375" | HF1.375" | HF1.625" | | 9 | H3M |
| Splined hollow shaft | N30 | N35 | N35 | N45 | N50 | -40 ... +60 °C | 9 | H4A |

1) Can only be selected in conjunction with foot-mounted or housing flange design.

2) Can only be selected in conjunction with foot-mounted design

Selection and ordering data

| Shaft design | Dimensions mm | | | | | Ambient temperature range | An order code is required when 9 appears in the 8th position of the Article No. | |
|--|------------------------|------------------------|-------------------------|------------------------------------|--|---------------------------|---|-------------|
| Bevel gearboxes K | | | | | | | | |
| Gearbox size | 109 | 129 | 149 | 169 | 189 | | 2KJ35...- ■-Z | Order code |
| Solid shaft | V60 x 120 V80 x 170 | V70 x 140 V90 x 170 | V90 x 170 V100 x 210 | V110 x 210 V120 x 210 | V120 x 210 V140 x 250 | -40 ... +60 °C | 1 3 | - - |
| Solid shaft without feather key | VG60 x 120 | | | | | | 9 | H1G |
| Solid shaft, both ends ¹⁾ | VD60 x 120 | VD70 x 140 | VD90 x 170 | VD110 x 210 | VD120 x 210 | | 9 | H5A |
| Solid shaft, both ends without feather key ¹⁾ | VGD60 x 120 | | | | | | 9 | H5B |
| Solid shaft, inches | V2,375" x 4,72" | V2,875" x 5,51" | V3,625" x 6,69" | V4,375" x 8,27" | V4,75" x 8,27" | | 9 | H6A |
| Solid shaft VLplus | VM70 x 140 | VM90 x 170 | VM100 x 210 | VM120 x 210 | | | 9 | H1C |
| Hollow shaft | H60 | H70 | H90 H80 | H100 | H120 | | 5 6 | - - |
| | | | | H110 | | | 7 | - |
| Hollow shaft, inches | H2,375" | H2,75" | H3,625" | H4" | H4.5" | | 9 | H7A |
| Hollow shaft VLplus | HM60 | HM70 | HM90 | HM100 | | | 9 | H2F |
| Hollow shaft with shrink disk | HS65 | HS75 | HS95 HS90 | HS105 | HS125 | | 9 9 | H3A H3B |
| | HS70 | | | | | | 9 | H3C |
| Splined hollow shaft | N65 | N70 | N85 | N90 | N110 | | 9 | H4A |
| Helical worm gearboxes C | | | | | | | | |
| Gearbox size | 29 | 39A | 49 | 69 | 89 | | 2KJ36...- ■-Z | Order code |
| Solid shaft | V20 x 40 | V25 x 50 | V30 x 60 | V35 x 70 V40 x 80 ¹⁾ | V45 x 90 V50 x 100 ¹⁾ V70 x 140 ¹⁾ | -40 ... +60 °C | 1 2 3 | - - - |
| | | V35 x 70 ¹⁾ | V40 x 80 ¹⁾ | V50 x 100 ¹⁾ | V70 x 140 ¹⁾ | | 9 | H1G |
| Solid shaft without feather key | VG20 x 40 | VG25 x 50 | VG30 x 60 | VG35 x 70 | VG45 x 90 | | 9 | H1G |
| Solid shaft, both ends ¹⁾ | VD20 x 40 | VD25 x 50 | VD30 x 60 | VD35 x 70 | VD45 x 90 | | 9 | H5A |
| Solid shaft, inches | V0.75" x 1.57" | V1" x 1.97" | V1.25" x 2.36" | V1.375" x 2.76" | V1,75" x 3.54" | | 9 | H6A |
| Hollow shaft | H20 | H25 H30 | H30 H35 | H40 H45 | H50 H60 | | 5 6 | - - |
| Hollow shaft, inches | H0.75" | H1.25" | H1.375" | H1.5" | H2" | | 9 | H7A |
| Hollow shaft with shrink disk | HS20 | HS30 | HS35 | HS40 HS50 | HS50 HS60 | | 9 9 | H3A H3C |
| ShaftMount assembly system, metric | HF25 HF20 | HF30 HF25 | HF35 HF30 | HF40 HF35 | HF50 HF40 | -20 ... +60 °C | 9 9 | H3G H3H |
| ShaftMount assembly system, imperial dimensions | HF1.0" HF0.75" | HF1.25" HF1.1875" | HF1.375" HF1.4375" | HF1.5" HF1.625" | HF2.0" HF1.9375" | | 9 9 | H3J H3K |
| | | HF1.0" | HF1.25" HF1.1875" | HF1.4375" HF1.375" | HF1.75" HF1.625" | | 9 9 | H3L H3M |
| Worm gearboxes S | | | | | | | | |
| Gearbox size | 09 | 19 | 29 | | | | 2KJ37...- ■-Z | Order code |
| Solid shaft | V16 x 40 V14 x 30 | V20 x 40 V18 x 40 | V20 x 40 V25 x 50 | | | -20 ... +60 °C | 1 3 | - - |
| Solid shaft, both ends ²⁾ | VD16 x 40 | VD20 x 40 | VD20 x 40 | | | | 9 | H5A |
| Hollow shaft | H16 H14 | H18 H20 | H20 H25 | | | | 5 6 | - - |
| Hollow shaft stainless steel | HX16 | HX20 | HX20 | | | | 9 | H8A |
| Plug-in shaft | VE16 x 40 | VE20 x 40 | VE20 x 40 | | | | 7 | - |

¹⁾ Can only be selected in conjunction with foot-mounted or housing flange design.

²⁾ Can only be selected in conjunction with foot-mounted design

Gearbox options

Mounting

Shaft designs

ShaftMount assembly system

The ShaftMount assembly system offers a low-cost, easy-to-fit alternative to conventional shaft connections for gearboxes in a shaft-mounted design.

Use of the ShaftMount system provides a friction-locked connection of the machine shaft to the hollow shaft in the gearbox.

Components of the ShaftMount assembly system

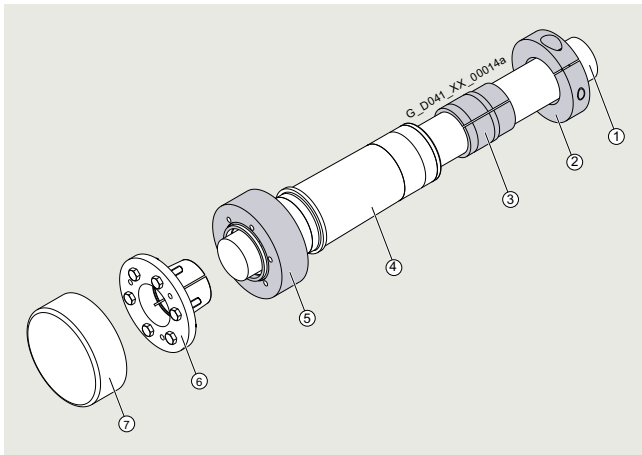


Fig. 9/13 ShaftMount assembly system

- ① Machine shaft
- ② Clamping ring
- ③ Bronze bushing
- ④ Hollow shaft of gearbox
- ⑤ V-ring
- ⑥ Taper bushing
- ⑦ Rotating protective cover

Benefits

Cost reduction

- The drive shaft of the motor can be made of low-cost, drawn shaft material of grade h11 or lower.
- The shaft is cheaper to machine because there is no need to machine the shaft seat and a keyway is not required.

Quick and easy mounting

- Easy to mount and dismantle thanks to adequate clearance between the motor shaft and hollow shaft. The press fit is no made until the taper bushing is inserted.
- The press fit prevents the formation of fretting corrosion. The taper bushing can be removed easily in order to separate the press-fit connection.
- No tight fits need to be overcome when the gearbox is pushed onto the motor shaft.

Variability

- Fast and simple adaptation of the gearbox to different machine shaft diameters. Only the taper and bronze bushing has to be replaced to achieve this.
- Dimensions can be converted easily between metric and-inches.

The ShaftMount assembly system can be supplied for shaft-mounted designs of the parallel shaft, bevel and helical worm gearbox. 2 metric versions and 2 to 4 inch versions are available for all sizes.

Note:

The gearbox is shipped with a ShaftMount hollow shaft. The diameter-specific components are supplied as a separate assembly kit. The unit is supplied with preassembled rotating protective cover. The stationary protective cover can be ordered as an option.

Hollow shaft cover

Sealing cap

The bore of the hollow shaft is sealed using a plastic sealing cap. Gearboxes in size 39 and larger with hollow shaft and shrink disk have a rotating protective cap.

The dimensions of the rotating protective cap can be seen in the dimensional drawings provided in the gearbox chapters.

For safety reasons, stationary protective covers may be required.

The sealing cap is not approved for the ATEX design.

Protective cover

For sizes 29 to 189, a stationary protective cover for the hollow shaft or hollow shaft with shrink disk versions can be selected.

The dimensions of the protective cover can be seen in the separate dimensional drawing provided in the gearbox chapters.

The protective cover is approved for the ATEX design.

Note:

Protective covers made of plastic are generally not painted

| | | |
|---------------------|---|------------|
| Hollow shaft cover | Additional identification code -Z with order code | |
| | 2KJ3... -.....-.....- Z | Order code |
| Protective cover 1) | | G60 |

- 1) The protective cover can be selected from size 169 for bevel gearboxes with foot-mounted design.

Reinforced output shaft bearings

The gearboxes can be supplied with the standard design or with a reinforced output shaft bearing design. The reinforced bearings allow higher radial and combined forces (radial and axial) to be absorbed.

| Design | Possible for | | | | | | | | | | | | | Additional identification code -Z with order code | |
|--|--------------|-----------------|-----------------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|--|------------|
| Helical gearboxes Z and D | | | | | | | | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ31... -.....-Z 2KJ32... -.....-Z | Order code |
| Radially reinforced output shaft bearings | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | G20 |
| VLplus reinforced bearing system ²⁾ | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | G30 |
| XLplus reinforced bearing system ²⁾ | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | G31 |
| Parallel shaft gearboxes F | | | | | | | | | | | | | | | |
| Gearbox size | 29 | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | | | 2KJ33... -.....-Z 2KJ34... -.....-Z | Order code |
| Radially reinforced output shaft bearings | | | ✓ ¹⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | G20 |
| VLplus reinforced bearing system ²⁾ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | G30 |
| Bevel gearboxes K | | | | | | | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | | | | 2KJ35... -.....-Z | Order code |
| Radially reinforced output shaft bearings | | ✓ ¹⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | G20 |
| VLplus reinforced bearing system ²⁾ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | G30 |

¹⁾ Not possible for flange-mounted design with solid shaft (gearbox type FZF, FDF, KF)

²⁾ VLplus and XLplus reinforced bearing systems can only be selected with flange-mounted design.

Gearbox options

Output side accessories

Accessories for VLplus reinforced bearing system

Drywell

To offer increased protection against escaping gear oil in the event of a leakage, the VLplus version can be selected with the Drywell option. Any oil that escapes in the event of a leakage at the oil chamber is captured and conveyed to an indicator.

The indicator is an oil sight glass. As an option, the version with a capacitive sensor is available, which responds in the event of an oil leak.

A disconnecter approved for use in ATEX applications must be provided for explosion-proof (ATEX) gearboxes. This must be installed outside the hazardous area.

The Drywell system can be used at the following ambient temperatures:

- Drywell with oil sight glass -30 to +60 °C
- Drywell with oil sensor -25 to +45 °C
- Drywell with oil sensor ATEX-20 to +40 °C

For different ambient temperatures, please contact Innomatics.

Drywell is available for the following mounting positions:

| Gearbox type | Mounting position |
|--|-------------------|
| Helical gearbox ZF/DF with VLplus | M4 |
| Parallel shaft gearbox ZF/DF with VLplus | M4 |
| Bevel gearbox KF with VLplus | M5-A / M6-B |

| Accessories for VLplus reinforced bearing systems | Additional identification code -Z with order code | Order code |
|---|---|------------|
| | 2KJ3... -.....-.....-Z G30 | |
| Drywell with oil sight glass | | G89 |
| Drywell with oil sensor | | G90 |
| Drywell with oil sensor ATEX | | G91 |
| 24 V Drywell disconnecter | | G88 |

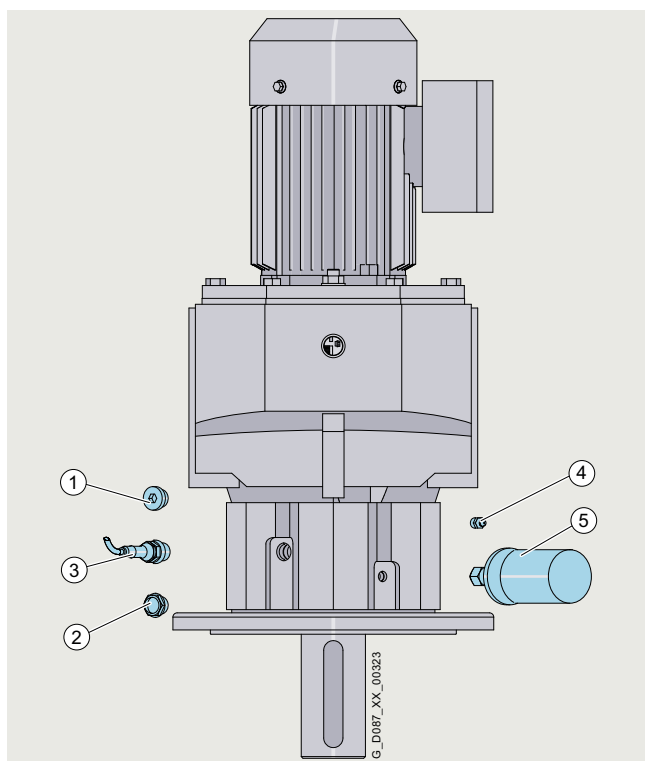


Fig. 9/14 VLplus version with Drywell / grease cartridge

- ① Screw plug (standard)
- ② Drywell with oil sight glass
- ③ Drywell with oil sensor
- ④ Grease nipple / regreasing device (standard)
- ⑤ Grease cartridge / automatic regreasing device

Grease cartridge

The output bearing of the flange must be lubricated regularly. A grease cartridge (automatic regreasing device) can be used for this with the VLplus version.

This ensures a continuous supply and prevents the bearing from being provided with too little or too much grease.

The grease cartridge can be used at ambient temperatures between -20 to +50 °C. For different ambient temperatures, please contact Innomatics.

| Accessories for reinforced bearing VLplus | Additional identification code -Z with order code | Order code |
|---|---|------------|
| | 2KJ3... -.....-.....-Z G30 | |
| Grease cartridge | | G93 |

Overview

Gearboxes can be used for different applications. The following lubricants can be selected to ensure that a gearbox is optimally designed for a specific application.

The temperature rise of the gearbox during operation increases the oil sump temperature. In selecting the oil, pay attention to the upper limit of the recommended oil sump temperature.

To calculate the oil sump temperature, we recommend a thermal calculation or use of electrical oil temperature monitoring Pt100 (order code **G69**).

Note:

- For ambient conditions with a high air humidity and salt-laden air, we recommend that only mineral or PAO oils are used.
- For gearboxes of sizes 169 and 189 with a service factor $f_B < 1.2$, we recommend use of CLP ISO PG oils.
- For gearboxes with CLP ISO PG oils for applications in the USA, the approval must be checked. Alternatively, a different type of oil must be used (e.g. CLP ISO PAO oil).
- When using the gearboxes and geared motors in the extended ambient temperature range (order codes **K92, K96, K97, K98**), a continuous operating state is a prerequisite to ensure sufficient heating of the gearbox and motor lubricants.

Lubrication

The gearboxes are filled in the factory with a high-quality lubricant. Lubricants permitted for the various gearbox types and applications are listed in the lubricant table.

Other oils from various lubricant manufacturers that have been approved by Innomatics can be found on the Internet in the Service and Support pages in the List of approved and recommended gear lubricants NT 7300:

<https://support.automation.siemens.com/WW/view/en/44231658>

Oil quantities

The lubricant quantity depends on the gearbox type, size and mounting position. The corresponding oil quantities are specified in the operating instructions and on the rating plate of the geared motor.

Sealing

The standard models of gearbox are supplied with high-quality radial shaft sealing rings with dust protection lips. This sealing design is reliable for a wide range of applications.

Special application areas and environmental conditions require special radial shaft sealing rings and materials, which are coordinated with the particular gearbox oil and environment. This coordinated sealing system results in a high reliability and availability of the plant.

When compared to standard sealing systems, the maintenance intervals can be extended. This therefore reduces maintenance costs.

Selection of lubricant

| Application | Oil type Designation acc. to DIN 51502 | Perm. oil sump temperature [°C] | Additional identification code -Z with order code | | Ambient temperature [°C] | | Extended ambient temperature range [°C] | | | | |
|---|--|---------------------------------------|--|---------------|-----------------------------|-------------|--|-------------|-------------|-----------------|--|
| | | | 2KJ3... -.....-Z | Order code | - | K95 | K92 | K96 | K97 | K98 | |
| Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K | | | | | | | | | | | |
| | | | | | -15 ... +40 | -20 ... +40 | -20 ... +45 | -25 ... +40 | -30 ... +40 | -40 ... +40 | |
| Standard | CLP ISO VG220 | -15 ... +80 | | K06 | ✓ | | | | | | |
| | CLP ISO PAO VG220 | -30 ... +100 | | K12 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ ¹⁾ | |
| | CLP ISO PAO VG68 | -40 ... +60 | | K13 | | | | ✓ | ✓ | ✓ | |
| | CLP ISO PG VG460 | -25 ... +110 | | K08 | ✓ | ✓ | ✓ | ✓ | | | |
| | CLP ISO PG VG220 | -25 ... +110 | | K07 | ✓ | ✓ | ✓ | ✓ | | | |
| Foodstuff area | CLP ISO H1 VG460 | -25 ... +100 | | K11 | ✓ | ✓ | ✓ | ✓ | | | |
| | CLP ISO H1 VG100 | -30 ... +90 | | K14 | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Biodegrad- able oil | CLP ISO E VG220 | -20 ... +100 | | K10 | ✓ | ✓ | ✓ | | | | |
| Bevel gearboxes B and helical worm gearboxes C | | | | | | | | | | | |
| | | | | | -20 ... +40 | - | -20 ... +45 | -25 ... +40 | -30 ... +40 | -40 ... +40 | |
| Standard | CLP ISO PG VG220 | -25 ... +110 | | K07 | ✓ | | ✓ | ✓ | | | |
| | CLP ISO PAO VG220 | -30 ... +100 | | K12 | ✓ | | ✓ | ✓ | ✓ | ✓ ¹⁾ | |
| | CLP ISO PAO VG460 | -25 ... +110 | | K16 | ✓ | | ✓ | ✓ | | | |
| | CLP ISO PAO VG68 | -40 ... +60 | | K13 | | | | ✓ | ✓ | ✓ | |
| | CLP ISO PG VG460 | -25 ... +110 | | K08 | ✓ | | ✓ | ✓ | | | |
| Foodstuff area | CLP ISO H1 VG460 | -25 ... +100 | | K11 | ✓ | | ✓ | ✓ | | | |
| | CLP ISO H1 VG100 | -30 ... +90 | | K14 | ✓ | | ✓ | ✓ | | | |

¹⁾ To ensure optimum lubrication properties, we recommend preheating the drive up to an operating temperature of above -30 °C.

CLP = mineral oil

CLP PG = polyglycol oil

E = Ester oil, organic oil (bio oil / risk of water pollution, class WGK1)

PAO = Poly-alpha-olefin oil

CLP H1 = physiologically safe oil (USDA-H1 approval)

Gearbox options

Lubrication and sealing

Selection of lubricant

| Application | Oil type Designation acc. to DIN 51502 | Perm. oil sump temperature [°C] | Additional identification code -Z with order code | | Ambient temperature [°C] | Extended ambient temperature range [°C] | | | | |
|-------------------------|--|---------------------------------------|--|---------------|-----------------------------|--|-----|-----|-----|-----|
| | | | 2KJ3... -.....-Z | Order code | | - | K95 | K92 | K96 | K97 |
| Worm gearboxes S | | | | | | | | | | |
| | | | | | -20 ... +40 | | | | | |
| Standard | CLP ISO PG VG220 | -25 ... +110 | | K07 | ✓ | | | | | |
| | CLP ISO PG VG460 | -25 ... +110 | | K08 | ✓ | | | | | |
| Foodstuff area | CLP ISO H1 VG460 | -25 ... +100 | | K11 | ✓ | | | | | |
| | CLP ISO H1 VG100 | -30 ... +90 | | K14 | ✓ | | | | | |

CLP = mineral oil

CLP PG = polyglycol oil

CLP H1 = physiologically safe oil (USDA-H1 approval)

Rolling bearing greases for gearboxes and motors

The rolling bearings of gearboxes and motors are lubricated in the factory with a rolling bearing grease that is coordinated with the selected application area. The quantity of grease between the rolling elements and the space in front of the bearing depends on the operating conditions and the gearbox mounting position. For operation in the selected application areas, it is not necessary to relubricate the rolling bearings.

We recommend that the grease filling of the rolling bearings is also changed when the oil or shaft sealing rings are replaced.

Other greases supplied by different lubricant manufacturers that have been approved by Innomatics are specified in the List of approved and recommended gear lubricants NT 7300.

Sealing system

Overview

| Output shaft sealing | Description | Ambient condition | Additional identification code -Z with order code |
|---|--|--|--|
| | | | 2KJ3... -.....-Z Order code |
| Normal environmental stress | | | |
| Standard seal | High-quality NBR radial shaft sealing ring with dust protection lip. | Environment with low dust and pollution levels with low moisture. | - |
| Longer service life | | | |
| Seal with longer service life | The radial shaft sealing ring with protective lip is designed with an additional seal on the internal gearbox side. The sealing system has a high degree of reliability due to its resistance to impurities in the oil. | Environment with low dust and pollution levels with low moisture. | G23 |
| Longer service life and increased environmental stress | | | |
| Seal for increased environmental stress | This seal is equipped with an additional fiber disk. In addition to the longer service life, it also provides increased protection against higher environmental stress as a result of dust and dirt deposits. As a consequence, the sealing system has a high degree of reliability. For additional environmental stress, e.g. water jets or significant levels of pollution as a result of production materials, please contact your local Innomatics office. | Environments with increased pollution and dust levels as well as low moisture. Typical applications: Production areas with increased pollution and dust, such as wood chips, dusts or granulate as well as occasional spray water. | G24 |
| High temperature-resistant | | | |
| Seal for high temperatures | High-quality FKM radial shaft sealing ring with dust protection lip. | Environment with low dust and pollution levels with low moisture. | G25 |

Sealing system

Selection of seal

| Seal | Perm. oil sump temperature [°C] | Additional identification code -Z with order code | | Ambient temperature [°C] | | Extended ambient temperature range [°C] | | | |
|---|------------------------------------|--|-----------------------------|-----------------------------|-------------|--|-------------|-------------|-------------|
| | | 2KJ3... -.....-Z | Order code | - | K95 | K92 | K96 | K97 | K98 |
| Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K | | | | | | | | | |
| | | | | -15 ... +40 | -20 ... +40 | -20 ... +45 | -25 ... +40 | -30 ... +40 | -40 ... +40 |
| Standard seal | -40 ... +80 | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Seal for a longer service life | -40 ... +100 | | G23 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Seal for increased environmental stress | -40 ... +80 | | G24 ¹⁾ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Seal, high temperature-resistant | -25 ... +110 | | G25 | ✓ | ✓ | ✓ | ✓ | | |
| Bevel gearboxes B and helical worm gearboxes C | | | | | | | | | |
| | | | | -20 ... +40 | | -20 ... +45 | -25 ... +40 | -30 ... +40 | -40 ... +40 |
| Standard | -40 ... +80 | | - | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Seal for a longer service life | -40 ... +100 | | G23 ²⁾ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Seal for increased environmental stress | -40 ... +80 | | G24 ^{1) 2)} | ✓ | | ✓ | | | |
| Seal, high temperature-resistant | -25 ... +110 | | G25 | ✓ | | ✓ | ✓ | | |
| Worm gearboxes S | | | | | | | | | |
| | | | | -20 ... +40 | | | | | |
| Standard seal | -40 ... +80 | | - | ✓ | | | | | |
| Seal, high temperature-resistant | -25 ... +110 | | G25 | ✓ | | | | | |

¹⁾ Not admissible in conjunction with food oils and biodegradable oils.

²⁾ Not possible with bevel gearbox B19

Gearbox options

Venting and oil level control

Venting

Overview

Gearboxes from size 39 for standard mounting positions are supplied as standard with pressure breather valve, oil level control and drain screw.

Gearbox sizes 19 and 29 are supplied ready for operation, lubricated for life, and can be operated in mounting positions M1, M3, M5, and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.

Possible venting and oil level control options

| Design | Possible for | | | | | | | | | | | | | Additional identification code -Z with order code | Technical information | |
|--|--------------|----|----|----|-----|-----|-----|-------------|---------------|-----------|-----|----------------------------|---------------|--|--------------------------|-----------|
| Helical gearboxes Z and D | | | | | | | | | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ31... -Z 2KJ32... -Z | Order code | |
| Lubricated for life | ✓ | ✓ | | | | | | | | | | | | | | |
| Pressure breather valve | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G45 | page 9/58 |
| Pressure breather valve stainless steel | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G49 | page 9/58 |
| Oil expansion unit | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G47 | page 9/59 |
| Oil sight glass with reflector | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G34 | page 9/61 |
| Magnetic oil drain screw | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G53 | page 9/61 |
| Oil drain valve, straight | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G54 | page 9/61 |
| Oil drain valve, angled | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G55 | page 9/61 |
| Oil level sensor | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G37 | page 9/63 |
| Oil level sensor ATEX | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G38 | page 9/63 |
| Pt100 electrical tempera- ture monitoring | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G69 | page 9/62 |
| Helical gearboxes E | | | | | | | | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 89 | 109 | 129 | 149 | 2KJ30... -Z | Order code | | | | | | | |
| Pressure breather valve | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G45 | page 9/58 | | | | | | |
| Pressure breather valve stainless steel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G49 | page 9/58 | | | | | | |
| Oil expansion unit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G47 | page 9/59 | | | | | | |
| Oil sight glass with reflector | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G34 | page 9/61 | | | | | | |
| Magnetic oil drain screw | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G53 | page 9/61 | | | | | | |
| Oil drain valve, straight | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G54 | page 9/61 | | | | | | |
| Oil drain valve, angled | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G55 | page 9/61 | | | | | | |
| Oil level sensor | | | | ✓ | ✓ | ✓ | ✓ | | G37 | page 9/63 | | | | | | |
| Oil level sensor ATEX | | | | ✓ | ✓ | ✓ | ✓ | | G38 | page 9/63 | | | | | | |
| Pt100 electrical tempera- ture monitoring | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G69 | page 9/62 | | | | | | |
| Parallel shaft gearboxes F | | | | | | | | | | | | | | | | |
| Gearbox size | 29 | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ33... -Z 2KJ34... -Z | Order code | | | |
| Lubricated for life | ✓ | | | | | | | | | | | | | | | |
| Pressure breather valve | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G45 | page 9/58 | | |
| Pressure breather valve stainless steel | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G49 | page 9/58 | | |
| Oil expansion unit | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G47 | page 9/59 | | |
| Oil sight glass with reflector | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G34 | page 9/61 | | |
| Magnetic oil drain screw | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G53 | page 9/61 | | |
| Oil drain valve, straight | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G54 | page 9/61 | | |
| Oil drain valve, angled | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G55 | page 9/61 | | |
| Oil level sensor | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G37 | page 9/63 | | |
| Oil level sensor ATEX | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G38 | page 9/63 | | |
| Pt100 electrical tempera- ture monitoring | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G69 | page 9/62 | | |

Overview

Possible venting and oil level control options

| Design | Possible for | | | | | | | | | | Additional identification code -Z with order code | Technical information |
|---|-----------------|------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|--|--------------------------|
| Bevel gearboxes B | | | | | | | | | | | | |
| Gearbox size | 19 | 29 | 39 | 49 | | | | | | | 2KJ35... -.....-Z | Order code |
| Lubricated for life | ✓ | ✓ | | | | | | | | | | - |
| Pressure breather valve | ✓ | ✓ | ✓ | ✓ | | | | | | | | G45 page 9/58 |
| Pressure breather valve stainless steel | ✓ | ✓ | ✓ | ✓ | | | | | | | | G49 page 9/58 |
| Oil expansion unit | | ✓ | ✓ | ✓ | | | | | | | | G47 page 9/59 |
| Oil sight glass with reflector | | | | | | | | ✓ | | | | G34 page 9/61 |
| Oil sight glass with reflector on both sides | | | | | | | | ✓ | | | | G35 page 9/61 |
| Magnetic oil drain screw | | | | | | | ✓ | ✓ | | | | G53 page 9/61 |
| Oil drain valve, straight | | | | | | | ✓ | ✓ | | | | G54 page 9/61 |
| Oil drain valve, angled | | | | | | | ✓ | ✓ | | | | G55 page 9/61 |
| Pt100 electrical tempera- ture monitoring | | | | | | | | ✓ | | | | G69 page 9/62 |
| Bevel gearboxes K | | | | | | | | | | | | |
| Gearbox size | 39 | 49 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | 2KJ35... -.....-Z | Order code |
| Pressure breather valve | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G45 page 9/58 |
| Pressure breather valve stainless steel | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G49 page 9/58 |
| Oil expansion unit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G47 page 9/59 |
| Oil sight glass with reflector | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G34 page 9/61 |
| Oil sight glass with reflector on both sides | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G35 page 9/61 |
| Magnetic oil drain screw | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G53 page 9/61 |
| Oil drain valve, straight | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G54 page 9/61 |
| Oil drain valve, angled | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G55 page 9/61 |
| Oil level sensor | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | G37 page 9/63 |
| Oil level sensor ATEX | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | G38 page 9/63 |
| Pt100 electrical tempera- ture monitoring | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | G69 page 9/62 |
| Helical worm gearboxes C | | | | | | | | | | | | |
| Gearbox size | 29 | 39A | 49 | 69 | 89 | | | | | | 2KJ36... -.....-Z | Order code |
| Lubricated for life | ✓ ¹⁾ | | | | | | | | | | | - |
| Pressure breather valve | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | | | G45 page 9/58 |
| Pressure breather valve stainless steel | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | | | G49 page 9/58 |
| Oil expansion unit | | | ✓ | ✓ | ✓ | | | | ✓ | | | G47 page 9/59 |
| Oil sight glass with reflector | | | | | ✓ | | | | ✓ | | | G34 page 9/61 |
| Oil sight glass with reflector on both sides | | | | | ✓ | | | | ✓ | | | G35 page 9/61 |
| Magnetic oil drain screw | | | ✓ | ✓ | ✓ | | | | ✓ | | | G53 page 9/61 |
| Oil drain valve, straight | | | ✓ | ✓ | ✓ | | | | ✓ | | | G54 page 9/61 |
| Oil drain valve, angled | | | ✓ | ✓ | ✓ | | | | ✓ | | | G55 page 9/61 |
| Pt100 electrical tempera- ture monitoring | | | | | ✓ | | | | ✓ | | | G69 page 9/62 |
| Worm gearboxes S | | | | | | | | | | | | |
| Gearbox size | 09 | 19 | 29 | | | | | | | | 2KJ37... -.....-Z | Order code |
| Lubricated for life | ✓ | ✓ | ✓ | | | | | | | | | - |

¹⁾ Helical worm gearboxes for all mounting positions are equipped with a pressure breather valve.

Gearbox options

Venting and oil level control

Venting

Pressure breather valve

Gearboxes from size 39 are supplied with an installed pressure breather valve; this is suitable for both indoor and outdoor use.

Gearbox sizes 19 and 29 can be operated in mounting positions M1, M3, M5, and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.

A stainless-steel version of the pressure breather valve is also available for use in special ambient conditions.

| | | |
|--|---|------------|
| Venting | Additional identification code -Z with order code 2KJ3... -.....-...- Z | Order code |
| Pressure breather valve | | G45 |
| Pressure breather valve stainless steel | | G49 |

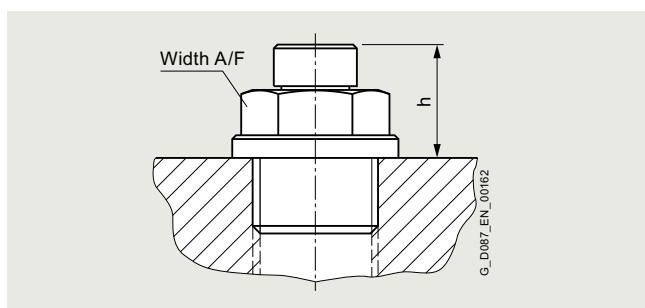


Fig. 9/15 Pressure breather valve

Technical specifications

| Size | Width across flats Width A/F | Thread | Dimension h mm |
|-----------------------------------|---------------------------------|---------|-------------------|
| Helical gearboxes Z and D | | | |
| 19, 29 | 12 | G 1/8 A | 17 |
| 39 | 12 | G 1/8 A | 17 |
| 49 ... 79 | 13 | G 1/4 A | 17 |
| 89 ... 129 | 17 | G 3/8 A | 17 |
| 149 ... 189 | 24 | G 3/4 A | 20 |
| Helical gearboxes E | | | |
| 39 | 12 | G 1/8 A | 17 |
| 49 ... 69 | 13 | G 1/4 A | 17 |
| 89 ... 129 | 17 | G 3/8 A | 17 |
| 149 | 24 | G 3/4 A | 20 |
| Parallel shaft gearboxes F | | | |
| 29 | 12 | G 1/8 A | 17 |
| 39 | 12 | G 1/8 A | 17 |
| 49 ... 79 | 13 | G 1/4 A | 17 |
| 89 ... 129 | 17 | G 3/8 A | 17 |
| 149 ... 189 | 24 | G 3/4 A | 20 |
| Bevel gearboxes B | | | |
| 19, 29 | 12 | G 1/8 A | 17 |
| 39 | 12 | G 1/8 A | 17 |
| 49 | 13 | G 1/4 A | 17 |
| Bevel gearboxes K | | | |
| 39 | 12 | G 1/8 A | 17 |
| 49 ... 89 | 13 | G 1/4 A | 17 |
| 109 ... 129 | 17 | G 3/8 A | 17 |
| 149 ... 189 | 24 | G 3/4 A | 20 |
| Helical worm gearboxes C | | | |
| 29 | 12 | G 1/8 A | 17 |
| 39A | 12 | G 1/8 A | 17 |
| 49 ... 89 | 13 | G 1/4 A | 17 |

Gearbox options

Venting and oil level control

Venting

Oil expansion unit

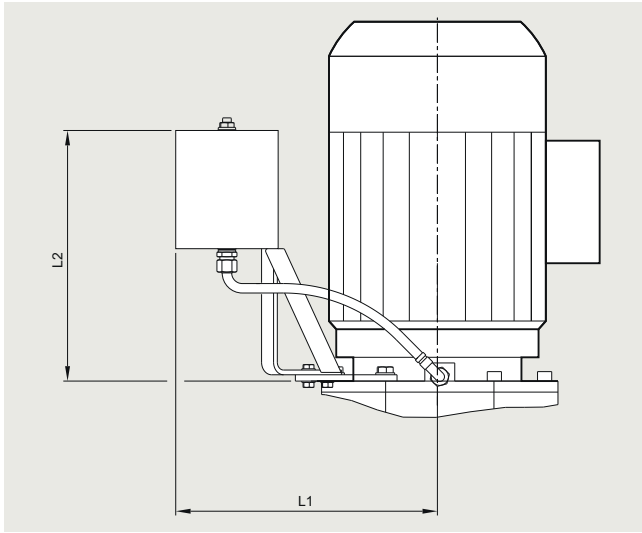


Fig. 9/17 Oil expansion unit type 2

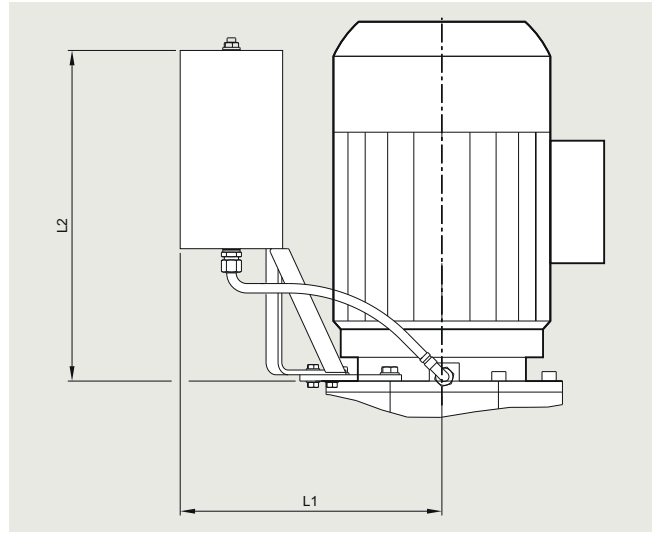


Fig. 9/18 Oil expansion unit type 3

Technical specifications

| Size | Motor size | Typ | Thread | Dimension L1 mm | Dimension L2 mm |
|-----------------------------------|-------------|-----|------------------|--------------------|--------------------|
| Helical gearboxes Z and D | | | | | |
| 109 | 90 ... 225 | 2 | G3/8A | 406 | 334 |
| 129 | 90 ... 250 | 2 | G3/8A | 442 | 334 |
| 149 | 100 ... 250 | 3 | G3/4A | 465 | 505 |
| 169 | 112 ... 250 | 3 | G3/4A | 493 | 505 |
| 189 | 112 ... 250 | 3 | G3/4A | 493 | 505 |
| Helical gearboxes E | | | | | |
| 109 | 90 ... 225 | 2 | G3/8A | 406 | 334 |
| 129 | 90 ... 250 | 2 | G3/8A | 442 | 334 |
| 149 | 100 ... 250 | 3 | G3/4A | 465 | 505 |
| Parallel shaft gearboxes F | | | | | |
| 109 | 90 ... 225 | 2 | G3/8A | 406 | 334 |
| 129 | 90 ... 250 | 2 | G3/8A | 442 | 334 |
| 149 | 100 ... 250 | 3 | G3/4A | 465 | 505 |
| 169 | 112 ... 250 | 3 | G3/4A | 493 | 505 |
| 189 | 112 ... 250 | 3 | G3/4A | 493 | 505 |
| Bevel gearboxes K | | | | | |
| 129 | 90 ... 225 | 2 | G3/8A | 406 | 334 |
| 149 | 90 ... 250 | 2 | G3/4A (G3/8A) | 442 | 334 |
| 169 | 100 ... 250 | 3 | G3/4A | 465 | 505 |
| 189 | 112 ... 250 | 3 | G3/4A | 493 | 505 |

Value in brackets for mounting position M4

Oil level checking screw

For gearboxes from size 49, the oil level is checked using the oil level checking screw. The oil sight glass is available with a reflector for visual monitoring.

The oil sight glass on both sides is also available for the following gearboxes in mounting position M2 and M4:

- Bevel geared motor B49
- Bevel geared motor K49 to K189
- Helical worm geared motor C49 to C89

| | | |
|---|--|------------|
| Oil level control | Additional identification code -Z with order code | Order code |
| | 2KJ3... -.....-...- Z | |
| Oil sight glass with reflector | | G34 |
| Oil sight glass with reflector, on both sides (Not possible for tandem geared motors) | | G35 |

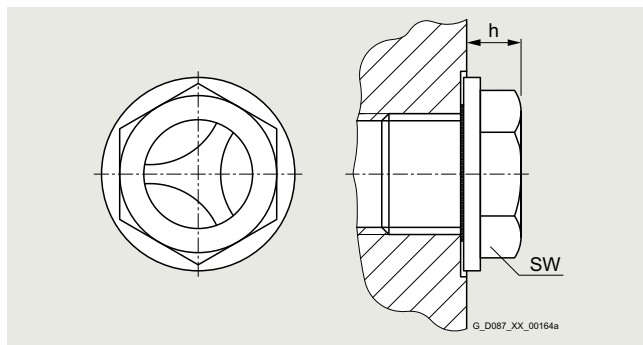


Fig. 9/19 Oil sight glass with reflector

Technical specifications

| Size | Width across flats Width A/F | Thread | Dimension h mm |
|-----------------------------------|---------------------------------|---------|-------------------|
| Helical gearboxes Z and D | | | |
| 49 ... 79 | 16 | G 1/4 A | 10 |
| 89 ... 129 | 19 | G 3/8 A | 9 |
| 149 ... 189 | 24 | G 3/4 A | 10 |
| Helical gearboxes E | | | |
| 49 ... 69 | 16 | G 1/4 A | 10 |
| 89 ... 129 | 19 | G 3/8 A | 9 |
| 149 | 24 | G 3/4 A | 10 |
| Parallel shaft gearboxes F | | | |
| 49 ... 79 | 16 | G 1/4 A | 10 |
| 89 ... 129 | 19 | G 3/8 A | 9 |
| 149 ... 189 | 24 | G 3/4 A | 10 |
| Bevel gearboxes B | | | |
| 49 | 16 | G 1/4 A | 10 |
| Bevel gearboxes K | | | |
| 49 ... 89 | 16 | G 1/4 A | 10 |
| 109 ... 129 | 19 | G 3/8 A | 9 |
| 149 ... 189 | 24 | G 3/4 A | 10 |
| Helical worm gearboxes C | | | |
| 49 ... 89 | 16 | G 1/4 A | 10 |

Oil drain

Magnetic oil drain screw

For gearboxes from size 39, a magnetic oil drain screw is available that is inserted in the oil drain hole. This serves to collect any metal particles in the gearbox oil.

| | | |
|--------------------------|--|------------|
| Oil level control | Additional identification code -Z with order code | Order code |
| | 2KJ3... -.....-...- Z | |
| Magnetic oil drain screw | | G53 |

Oil drain valve

For gearboxes from size 39, an oil drain valve is available in either a straight or angled design.

The oil drain valve is supplied complete with screw plug as kit.

| | | |
|---------------------------|--|------------|
| Oil level control | Additional identification code -Z with order code | Order code |
| | 2KJ3... -.....-...- Z | |
| Oil drain valve, straight | | G54 |
| Oil drain valve, angled | | G55 |

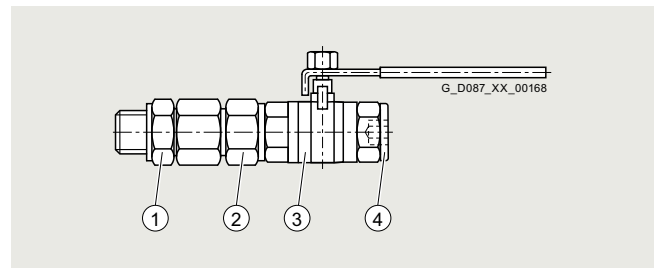


Fig. 9/20 Oil drain valve, straight

- ① Oil drain valve, straight
- ② Screw gland
- ③ Screw gland
- ④ Screw plug

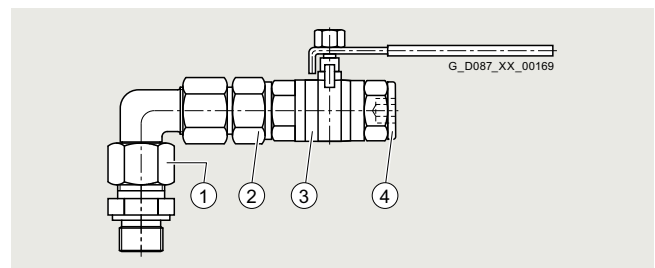


Fig. 9/21 Oil drain valve, angled

- ① Oil drain valve, angled
- ② Screw gland
- ③ Screw gland
- ④ Screw plug

Gearbox options

Venting and oil level control

Oil level control

Pt100 electrical oil temperature monitoring

From size 49, the Pt100 electrical oil temperature monitoring function is available for monitoring the oil temperature in the gearbox.

The Pt100 temperature sensor can be used both in hazardous and non-hazardous areas. In hazardous areas, the sensor may only be operated in conjunction with a disconnecter (temperature transmitter).

Note:

The Pt100 temperature sensor is not available for parallel shaft gearbox FZ/FD49 to FZ/FD79 in mounting position M1.

| | | |
|---|--|--------------------------|
| Oil level control | Additional identification code -Z with order code 2KJ3...-.....-..... -Z | Order code G69 |
| Pt100 electrical temperature monitoring | | |

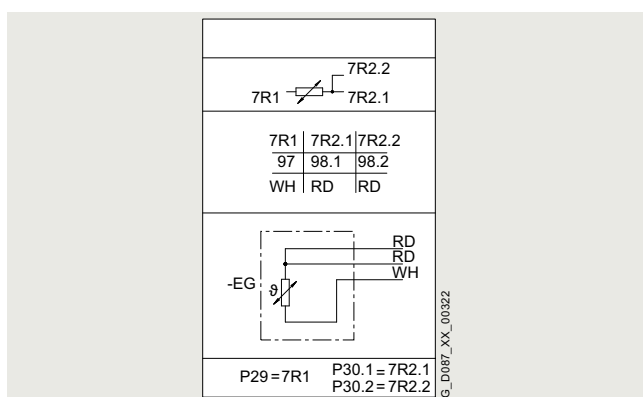


Fig. 9/22 Sensor circuit diagram for Pt100 electrical oil temperature monitoring

Technical specifications

| Pt100 electrical temperature monitoring | |
|---|--|
| Measuring circuit | 1Pt100 in 3-wire circuit |
| Tolerance | Class B ± 0.3 °C at 0 °C according to EN 60751 |
| Connecting cable | Hose cable 1x [3 x AWG 22/7-Cu-silver-plated/PTFE/PTFE, 0.36 mm ²] |
| Recommended measuring current | 0.3 ... 1.0 mA |
| Max. operating current | 25 mA |
| Max. operating voltage | 10 V DC |
| Cable length | 2 000 mm, open ends |
| Degree of protection | IP68 |
| Type of protection | II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db |

Electrical oil level monitoring system

If the area in which the gearbox is installed is difficult to access, the gearbox oil level will need to be monitored remotely by means of a capacitive sensor.

The capacitive sensor is supplied with a 2 m long cable. The oil level can be monitored only when the gearbox is stationary (i.e. monitoring prior to startup).

A disconnecter approved for use in ATEX applications must be provided for explosion-proof (ATEX) gearboxes. This must be installed outside the hazardous area.

The oil level sensor can be used at the following ambient temperatures:

- Oil level sensor -25 to +45 °C
- Oil level sensor ATEX -20 to +40 °C

For different ambient temperatures, please contact Innomatics.

| Oil level control | Additional identification code -Z with order code | Order code |
|------------------------------|--|------------|
| | 2KJ3... -.....-.....- Z | |
| Oil level sensor | | G37 |
| Oil level sensor ATEX design | | G38 |
| 24 V disconnecter | | G40 |

The electrical oil level monitoring system is available for the following gearboxes

| Gearbox size | Mounting position | | | | | |
|-----------------------------------|-------------------|----|----|----|----|----|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| Helical gearboxes Z | | | | | | |
| 89... 169 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 189 | | ✓ | | | ✓ | ✓ |
| Helical gearboxes D | | | | | | |
| 89 | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 109 ... 169 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 189 | | ✓ | | | ✓ | ✓ |
| Helical gearboxes E | | | | | | |
| 89 | ✓ | ✓ | ✓ | ✓ | | |
| 109 | ✓ | ✓ | | ✓ | | |
| 129 ... 149 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Parallel shaft gearboxes F | | | | | | |
| 89 ... 189 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Bevel gearboxes K | | | | | | |
| 109 ... 189 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

The ATEX version of the electrical oil level monitoring system is available for the following gearboxes

| Gearbox size | Mounting position | | | | | |
|-----------------------------------|-------------------|----|----|----|----|----|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| Helical gearboxes Z/ZB | | | | | | |
| 89... 129 | | ✓ | | | ✓ | ✓ |
| 149 | | ✓ | | ✓ | ✓ | ✓ |
| 169 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Helical gearboxes ZF | | | | | | |
| 89 | | ✓ | | | ✓ | ✓ |
| 109 ... 129 | | ✓ | | | ✓ | ✓ |
| 149 | | ✓ | | ✓ | ✓ | ✓ |
| 169 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Helical gearboxes D/DB | | | | | | |
| 89 | | ✓ | | | ✓ | |
| 109 ... 129 | | ✓ | | | ✓ | ✓ |
| 149 | | ✓ | | ✓ | ✓ | |
| 169 | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Helical gearboxes DF | | | | | | |
| 89 | | ✓ | | ✓ | ✓ | |
| 109 ... 129 | | ✓ | | ✓ | ✓ | ✓ |
| 149 | | ✓ | | ✓ | ✓ | |
| 169 | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Helical gearboxes E | | | | | | |
| 89 | | | | ✓ | | |
| 109 | | ✓ | | | | |
| 129 | ✓ | | ✓ | ✓ | | |
| 149 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Parallel shaft gearboxes F | | | | | | |
| 89 ... 129 | | ✓ | | ✓ | ✓ | ✓ |
| 149 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 169 ... 189 | | ✓ | | ✓ | ✓ | ✓ |
| Bevel gearboxes K | | | | | | |
| 109 | ✓ | | ✓ | | ✓ | |
| 129 | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 149 ... 189 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Gearbox options

Special version

Overview

Reduced-backlash version

Gearboxes with reduced backlash are required to perform high-precision positioning tasks and to achieve a high level of control quality. A minimal torsional backlash also has a favorable effect on torque spikes during startup and on load switching in the drive train. With this version, all machine elements in the gearbox that are in the power flow are designed with reduced backlash. As a result, this version also has the option "Shrink-glued output gearwheel".

To ensure that the entire driven machine can be designed with minimum possible backlash, it is advisable to select the solution with integral motor mounting (without adapter), output shafts with shrink disk connection or with smooth shafts (without feather key). In this case, only backlash-free power transmission elements should be used.

The specified torsional backlash in minutes of the angle ['] is based on the maximum rotation angle of the output shaft (no load, max. 1 % of rated output torque) with stationary input shaft.

For the exact values, refer to the torque tables. If no values are specified in the tables, this means that a reduced-backlash version is not available for the specific version.

The dimensions of the reduced-backlash gearboxes are identical to those of the standard versions.

| | | |
|--------------------------|---|------------|
| Special version | Additional identification code -Z with order code | |
| | 2KJ3... -.....-.....- Z | Order code |
| Reduced-backlash version | | G99 |

Shrink-glued output gearwheel

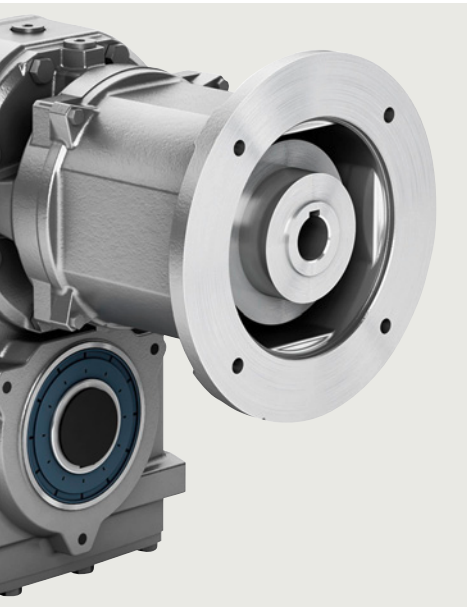
The gearbox output stage is subjected to particular high levels of mechanical stress during rigorous reversing duty or acceleration of high mass moments of inertia. The shrink-glued output gearwheel option ensures the load-bearing capacity of the shaft/hub connection in the event of dynamic load.

| | | |
|-------------------------------|---|------------|
| Special version | Additional identification code -Z with order code | |
| | 2KJ3... -.....-.....- Z | Order code |
| Shrink-glued output gearwheel | | G97 |

Reduced-backlash versions of the following gearboxes are available

| Gearbox | Gearbox size | | | | | | | | | | | | | | |
|----------------------------|---------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|--|
| | 09 | 19 | 29 | 39 | 49 | 59 | 69 | 79 | 89 | 109 | 129 | 149 | 169 | 189 | |
| Helical gearboxes Z and D | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Helical gearboxes E | on request | | | | | | | | | | | | | | |
| Parallel shaft gearboxes F | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Bevel gearboxes B | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | |
| Bevel gearboxes K | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Helical worm gearboxes C | Not available | | | | | | | | | | | | | | |
| Worm gearboxes S | Not available | | | | | | | | | | | | | | |

Adapter options



10/2

Mounted components

10/2 Power transmission

10/2 Backstop

10/2 Slip clutch with proximity switch

Adapter options

Mounted components

Power transmission

Backstop

For applications that only require one permissible direction of rotation, adapters K2 and K3 can be supplied with a backstop. In this case an **X** is added to the adapter code (K2X, K3X).

The advantage of integrating the backstop into the adapter rather than into the motor is that the motor can be dismantled even under full-load conditions.

The backstop is incorporated into the adapter and does not alter the overall dimensions of the unit.

| | | |
|--------------------|--|------------|
| Power transmission | Additional identification code -Z with order code | Order code |
| Backstop (X) | 2KJ3... -.....-.....- Z | A15 |

Design and mode of operation

The backstops have centrifugal sprags and are suitable for use up to a maximum speed of 4500 rpm.

The backstops have been designed to offer a long service life, provided that they are used at a higher speed than the minimum specified in the table. Once this speed is reached and exceeded, the sprags lift off so that the backstop is not subject to wear and is maintenance-free.

Note:

It is necessary to specify the desired direction of rotation of the output shaft when ordering a gearbox with backstop. The direction of rotation is determined by front view of the output shaft.

See also "Direction of rotation", page 1/18.

With bevel and helical worm gearboxes, it is again necessary to specify the side on which the output shaft is located, i.e. either "Output side A" or "Output side B". The output side is defined by specifying the mounting position.

See also "Mounting position", page 9/2.

The backstop is not suitable for ambient temperatures under -25 °C.

Minimum disengage speed of the backstop

| Adapter K2 | | 80 | 90 | 100 | 112 | 132 | 160 | 180 | 200 | 225 | 250 |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Disengage speed | rpm | 820 | 820 | 750 | 750 | 670 | 670 | 670 | 610 | 610 | 610 |
| Maximum torque of the backstop | Nm | 13 | 13 | 45 | 47 | 127 | 153 | 330 | 355 | 415 | 545 |

| Adapter K3 | | 56 | 140 | 180 | 210 | 250 | 280 |
|--------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Disengage speed | rpm | 820 | 820 | 750 | 670 | 670 | 670 |
| Maximum torque of the backstop | Nm | 5 | 13 | 45 | 127 | 153 | 330 |

Slip clutch with proximity switch

Gearboxes with adapter K2 or K3 can be fitted with a slip clutch as an option. The slip clutch creates a friction-locked connection between the motor output shaft and the gearbox input shaft until a set torque value is achieved. Once this torque is exceeded the clutch will slip. Slip clutches are used when there is a risk of the geared motor sustaining damage as a result of stalling.

A slip torque setting for the slip clutch can be specified in plain text.

The slip torque should equal approximately 1.4 to 1.6 times the input torque. The slip torque scatter band ($\pm 20\%$) should be taken into account in the specified slip torque value.

The slip clutch can be used for ambient temperatures between -25 to +60 °C. For different ambient temperatures, please contact Innomatics.

Speed monitoring

In order to prevent uncontrolled slippage of the slip clutch, we recommend the implementation of a speed monitoring system.

Adapters K2 and K3 with slip clutch are equipped with a proximity switch for this purpose.

The proximity switch operates contact-free according to the sampling method and emits one signal per coupling rotation which is evaluated by a speed monitor (not included in the scope of supply).

The signal sequence sent by the proximity switch is compared in the speed monitor with the set setpoint speed. If the speed is below or above the configured setpoint speed, a relay is actuated (depending on the function setting) via an output stage.

The speed monitor and the output stage are not included in the scope of supply.

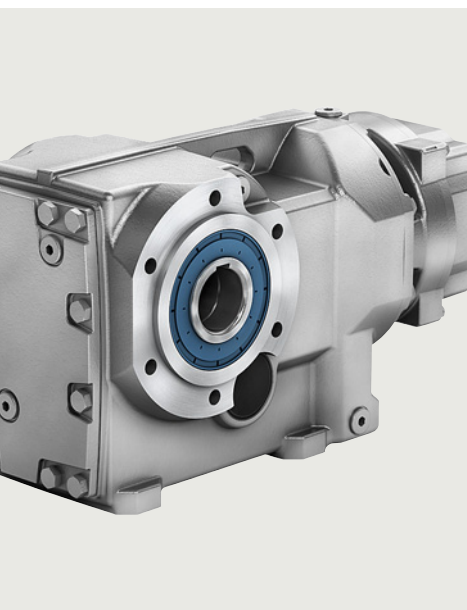
| | | |
|-----------------------------------|--|---------------------|
| Power transmission | Additional identification code -Z with order code | Order code |
| Slip clutch with proximity switch | 2KJ3... -.....-.....- Z | A17 |
| Slip torque setting | | Y00 |
| Plain text: | | Y00*RKD@...* |

(Example: Required slip torque 125 Nm: **Y00*RKD@125***)

Slip torque setting

| Adapter size | Settable slip torque | |
|-------------------|----------------------|------|
| | min. | max. |
| Adapter K2 | | |
| 80 | 1.4 | 9.3 |
| 90 | 3.6 | 18.2 |
| 100 | 8.5 | 48 |
| 112 | 8.5 | 48 |
| 132 | 19 | 95 |
| 160 | 40 | 180 |
| 180 | 100 | 260 |
| 200 | 125 | 360 |
| 225 | 180 | 530 |
| 250 | 225 | 650 |
| Adapter K3 | | |
| 56 | 0.5 | 4.6 |
| 140 | 3.6 | 18.2 |
| 180 | 8.5 | 48 |
| 210 | 19 | 95 |
| 250 | 40 | 180 |
| 280 | 100 | 260 |

General options



| | |
|--------------|--|
| 11/2 | Environmental conditions |
| 11/2 | Ambient temperatures of the gearboxes |
| 11/2 | • Extended ambient temperatures |
| 11/3 | Surface treatment and preservation |
| 11/3 | Surface treatment |
| 11/3 | • Surface pretreatment |
| 11/4 | • Painting flange surfaces |
| 11/5 | • Colors |
| 11/5 | Preservation |
| 11/5 | • Long-term preservation up to 36 months |
| 11/6 | Rating plate |
| 11/6 | Overview |
| 11/6 | Rating plate for helical, parallel shaft, bevel and helical worm gearboxes |
| 11/6 | Rating plate worm gearboxes S |
| 11/7 | Rating plate for ATEX version gearboxes |
| 11/7 | Second rating plate, supplied loose |
| 11/8 | Documentation |
| 11/8 | Safety instruction sheet and operating instructions |
| 11/8 | Test certificates |
| 11/9 | Packaging options |
| 11/9 | Overview |
| 11/10 | Fast track |
| 11/10 | Overview |
| 11/10 | Extension of the liability for defects |
| 11/10 | Overview |

General options

Environmental conditions

Ambient temperatures of the gearboxes

For the Innomatics SG gearboxes, different ambient temperature ranges are available.

| Ambient temperature | Gearbox type | | | | | | Additional identification code -Z with order code | Order code |
|---|--------------------------|---------------------------------|--------------------|--------------------|---------------------------|-------------------|---|-------------------|
| | Helical gearbox Z/D/E | Parallel shaft gearbox FZ/FD | Bevel gearbox K | Bevel gearbox B | Helical worm gearbox C | Worm gearbox S | | |
| Standard ambient temperature range | | | | | | | | |
| -15 °C to +40 °C | ✓ | ✓ | ✓ | - | - | - | - | - |
| -20 °C to +40 °C | ✓ | ✓ | ✓ | - | - | - | - | K95 ¹⁾ |
| -20 °C to +40 °C | - | - | - | ✓ | ✓ | ✓ | - | - |
| Extended ambient temperature range | | | | | | | | |
| -20 °C to +45 °C | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | K92 |
| -25 °C to +40 °C | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | K96 |
| -30 °C to +40 °C | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | K97 |
| -40 °C to +40 °C | ✓ ²⁾ | ✓ ³⁾ | ✓ | - | ✓ ³⁾ | - | - | K98 |

1) For the helical, parallel shaft and bevel gearboxes, an additional standard temperature range is available after selection of a synthetic oil.

2) Can be selected for helical gearboxes Z and D from size 49.

3) Can be selected for parallel shaft and worm gearboxes from size 39.

Extended ambient temperatures

For extended ambient temperatures, the choice of service factor and the shaft load must be considered. Self-heating during continuous duty of the gearboxes and geared motors is taken into account.

The following restrictions must be considered in conjunction with the extended ambient temperature range:

| K92 | More information | K96 | More information | K97 | More information | K98 | More information |
|---|------------------|--|------------------|--|------------------|---|------------------|
| -20 °C to +45 °C | | -25 °C to +40 °C | | -30 °C to +40 °C | | -40 °C to +40 °C | |
| Gearbox options | | Gearbox options | | Gearbox options | | Gearbox options | |
| <ul style="list-style-type: none"> Lubrication and sealing page 9/53 Venting and oil level control page 9/56 Accessories for VLplus reinforced bearing systems page 9/52 | | <ul style="list-style-type: none"> Shaft design page 9/46 Lubrication and sealing page 9/53 Oil level control page 9/56 Accessories for VLplus reinforced bearing system page 9/52 | | <ul style="list-style-type: none"> Shaft design page 9/46 Lubrication and sealing page 9/53 Venting and oil level control page 9/56 Accessories for VLplus reinforced bearing system page 9/52 | | <ul style="list-style-type: none"> Mounting type page 9/40 Shaft design page 9/46 Lubrication and sealing page 9/53 Venting and oil level control page 9/56 Accessories for VLplus reinforced bearing system page 9/52 | |
| Adapter options | | Adapter options | | Adapter options | | Adapter options | |
| - | | - | | <ul style="list-style-type: none"> Slip clutch with proximity switch page 10/2 Backstop page 10/2 | | <ul style="list-style-type: none"> Slip clutch with proximity switch page 10/2 Backstop page 10/2 | |
| General options | | General options | | General options | | General options | |
| - | | <ul style="list-style-type: none"> Surface treatment page 11/3 | | <ul style="list-style-type: none"> Surface treatment page 11/3 | | <ul style="list-style-type: none"> Surface treatment page 11/3 | |
| ATEX | | ATEX | | ATEX | | ATEX | |
| - | | <ul style="list-style-type: none"> Sales regulation according to ATEX-20 | | <ul style="list-style-type: none"> Sales regulation according to ATEX-20 | | <ul style="list-style-type: none"> Sales regulation according to ATEX-20 | |

Surface treatment

To protect the drives against corrosion and external influences, five high-quality paint systems are available in various colors.

The corrosion protection system is designed in accordance with the corrosivity categories of EN ISO 12944-2.

Geared motors, size 49 and higher, are painted in RAL 7016 (anthracite gray) to corrosivity category C1 as standard. This ensures that they are protected against corrosion for indoor use.

Geared motors, sizes 09 to 39 with an aluminum housing, are supplied unpainted as standard.

The shaft extensions and bare surfaces are treated with corrosion protection for 6 months.

Note:

Corrosivity category C1 is not suitable for ambient temperatures under -20 °C.

Parts made of plastic are generally not painted.

Surface pretreatment

For especially demanding applications, the drives can also be pretreated in order to ensure an optimum paint finish even in areas that are hidden or difficult to access.

| | | |
|----------------------|--|--------------------------|
| Surface pretreatment | Additional identification code -Z with order code | Order code L19 |
| Special pretreatment | 2KJ3... -.....-.....- Z | |

| Corrosivity category | Paint system | | | Description | Additional identification code -Z with order code 2KJ3... -.....-.....- Z Order code |
|----------------------|--------------|-------------------|----------|-------------|---|
| | Base coat | Intermediate coat | Top coat | | |

Surface protection

Aluminum gearbox housing¹⁾

| | | | | | |
|--|---|---|-------------------------|--|------------|
| Unpainted (standard) | – | – | – | <ul style="list-style-type: none"> Indoor installation Heated buildings with neutral atmospheres | L00 |
| C1 Normal environmental stress | – | – | 1-component hydro paint | <ul style="list-style-type: none"> Resistant to greases, conditionally resistant to mineral oils, Standard paint | L02 |
| - Layer thickness | – | – | 60 µm | | |

Cast iron gearbox housing²⁾

| | | | | | |
|--|---|---|-------------------------|--|------------|
| C1 Normal environmental stress | – | – | 1-component hydro paint | <ul style="list-style-type: none"> Indoor installation Heated buildings with neutral atmospheres Resistant to greases, conditionally resistant to mineral oils, Standard paint | L02 |
| - Layer thickness | – | – | 60 µm | | |

All geared motors

| | | | | | |
|---|----------------------------------|--------------------------|--------------------------|--|------------|
| C2 Low environmental stress | 2-component epoxy zinc phosphate | – | 2-component polyurethane | <ul style="list-style-type: none"> Indoor and outdoor installation Unheated buildings with condensation, production areas with Atmospheres with little pollution, rural areas Resistant to greases, mineral oils and sulfuric acid (10 %), | L03 |
| - Layer thickness | – | – | 100 µm | | |
| C3 Average environmental stress | 2-component epoxy zinc phosphate | – | 2-component polyurethane | <ul style="list-style-type: none"> Indoor and outdoor installation Production areas with high humidity and some air pollution, e.g. food production areas, dairies, laundries and breweries Urban and industrial atmospheres, moderate contamination from sulfur dioxide, coastal areas with low salt levels Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (10 %) | L04 |
| - Layer thickness | 90 µm | – | 100 µm | | |
| C4 High environmental stress | 2-component epoxy zinc phosphate | – | 2-component polyurethane | <ul style="list-style-type: none"> Indoor and outdoor installation Chemical plants, swimming pools, wastewater treatment plants, electroplating shops, and boathouses above seawater Industrial areas and coastal areas with moderate salt levels Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (10 %) | L20 |
| - Layer thickness | 90 µm | – | 100 µm | | |
| C5 Very high environmental stress | 2-component epoxy zinc phosphate | 2-component polyurethane | 2-component polyurethane | <ul style="list-style-type: none"> Indoor and outdoor installation Buildings/areas with almost constant condensation and high degrees of pollution, e.g. malt factories and aseptic areas Industrial areas with high humidity and aggressive atmosphere, coastal areas and offshore environments with high salt levels Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (20 %) | L05 |
| - Layer thickness | 90 µm | 90 µm | 100 µm | | |

¹⁾ Helical gearboxes D/Z19 to D/Z39, parallel shaft gearboxes F29 and bevel gearboxes B29 and B39

²⁾ The bevel gearbox B49 is supplied painted

General options

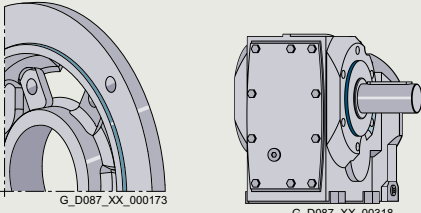
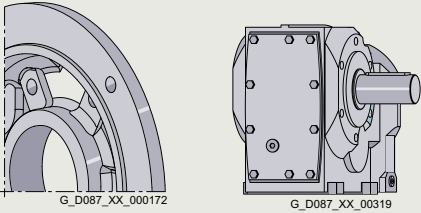
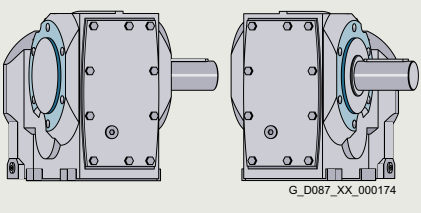
Surface treatment and preservation

Surface treatment

| Corrosivity category | Paint system | | | Description | Additional identification code -Z with order code 2KJ3...-.....-Z Order code |
|----------------------|----------------------------------|-------------------|----------|---|--|
| | Base coat | Intermediate coat | Top coat | | |
| Primer | | | | Ability to be painted | |
| C2 G | 2-component polyurethane | – | – | • 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint | L01 |
| C4 G | 2-component epoxy zinc phosphate | – | – | • 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint | L09 |
| Unpainted | – | – | – | • Plastic paint, synthetic resin paint, oil paint, 2-component polyurethane paint, 2-component epoxy paint | L00 |

Painting flange surfaces

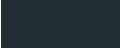




For flange-mounted or housing flange designs, the flange surface and centering are not painted at the selected output end. The versions listed in the table can be optionally selected.

| Design | Possible for | Figure | Additional identification code -Z with order code 2KJ3...-.....-Z Order code |
|--|--|--|--|
| | | | |
| Centering not painted | <ul style="list-style-type: none"> • Flange-mounted design • Housing flange design | <p>Surfaces marked blue are not painted</p>  <p>G_D087_XX_000173 G_D087_XX_00318</p> | L11 |
| Flange completely painted | <ul style="list-style-type: none"> • Flange-mounted design • Housing flange design |  <p>G_D087_XX_000172 G_D087_XX_00319</p> | L12 |
| Centering flange not painted on both sides | <ul style="list-style-type: none"> • Housing flange design for bevel gearbox and helical worm gearbox |  <p>G_D087_XX_000174</p> | L27 |





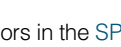
Surface treatment

Colors

In addition to anthracite gray (RAL 7016), you can select from other standard colors.

| RAL color | Designation | Color, example | Additional identification code -Z with order code 2KJ3... -.....-Z | Order code |
|-----------|----------------------------|---|---|------------|
| RAL 7016 | Anthracite gray (standard) |  | | L75 |
| RAL 5015 | Sky blue |  | | L50 |
| RAL 7030 | Stone gray |  | | L55 |
| RAL 7031 | Blue gray |  | | L53 |
| RAL 7012 | Basalt gray |  | | L83 |

Colors for conductive paint finish acc. to ATEX (corrosivity category C2 or higher)

| | | | | |
|----------|-----------------|--|--|------------|
| RAL 7016 | Anthracite gray |  | | L75 |
| RAL 5003 | Sapphire blue |  | | L40 |
| RAL 5015 | Sky blue |  | | L50 |
| RAL 7031 | Blue gray |  | | L53 |
| RAL 9011 | Graphite black |  | | L80 |

You can find additional colors in the [SPC](#).

Note:

For light colors in corrosivity category C1 we recommend selection of surface treatment in the corrosivity category one level higher to ensure adequate and uniform coloring for the geared motor.

Preservation

All gearboxes and geared motors are preserved as standard for 6 months.

Long-term preservation up to 36 months

If the gearboxes are stored for longer than 6 months, then we recommend the "Long-term preservation" option. A VCI corrosion inhibitor (volatile corrosion inhibitor) is added to the gearbox oil.

Until commissioning, it is not permissible that the gearbox is opened, as otherwise the VCI corrosion inhibitor will vaporize. The oil level must be checked before commissioning. Corrosion protection is also applied to the flange contact surfaces and shaft extensions. We recommend that the gearbox is stored in the appropriate mounting position.

Storage conditions

Geared motors, stored in dry, dust free and evenly tempered rooms do not require any special packaging.

In all other areas, the units must be packaged in foil with desiccant and moisture indicator. If required, protection must be provided against mold and insects. The storage location must be vibration- and shock-free. The storage conditions must be regularly checked.

| Preservation | Additional identification code -Z with order code 2KJ3... -.....-Z | Order code |
|--|---|------------|
| Long-term preservation up to 36 months | | K17 |

For information about storage and commissioning please refer to the operating instructions.

General options

Rating plate

Overview

The rating plates on the gearboxes and geared motors are normally manufactured out of coated aluminum foil. They are covered with a special masking film which ensures permanent resistance to UV radiation and media of all kinds (oils, greases, salt water, cleaning agents, etc.).

The adhesive and the material ensure firm adhesion and long-term legibility within the operating temperature range from -40 to +155 °C.

A rating plate is attached to the gear end of gearboxes with an adapter. The attached motors have a separate rating plate.

Rating plate for helical, parallel shaft, bevel and helical worm gearboxes

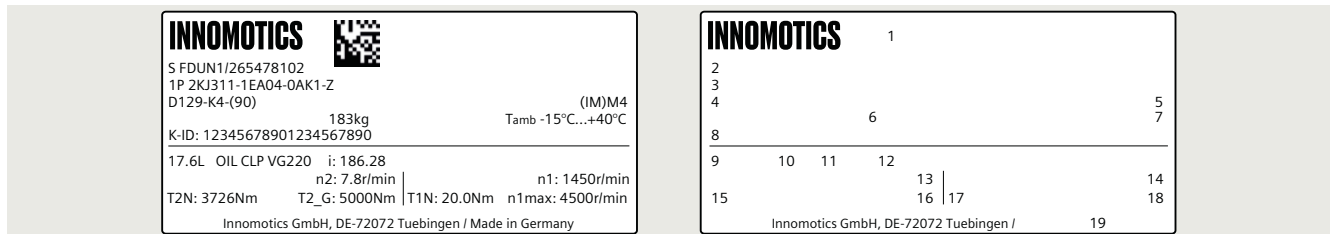


Fig. 11/1 Example, rating plate on helical geared motor

General data

- 1 Data matrix code
- 2 Serial No.
- 3 Article No.
- 4 Type designation
- 5 Mounting position
- 6 Weight m [kg]
- 7 Ambient temperature
- 8 Customer ID
- 9 Oil quantity [l] main gearbox/intermediate gearbox
- 10 Oil type
- 11 Oil viscosity ISO VG class to DIN 51519/ISO 3448

General data

- 12 Total transmission ratio i
- 13 Gearbox input speed n_2 [rpm]
- 14 Reference input speed n_1 [rpm]
- 15 Max. permissible output torque of the gearbox/adaptor combination for continuous duty T_{2N} [Nm]
- 16 Max. permissible output torque of the gearbox without adapter unit for continuous duty T_{2_G} [Nm]
- 17 Max. permissible input torque of the gearbox/adaptor combination for continuous duty T_{1N} [Nm]
- 18 Max. short-term permissible input speed n_{1max} [rpm]
- 19 Country of origin

When ordering a replacement/spare part, always specify the serial No.

Rating plate worm gearboxes S

The worm geared motors S have separate rating plates for the gearbox side and the motor side.

Rating plate on the gearbox side

The rating plate on the gearbox side particularly contains the output data of the worm geared motor S.

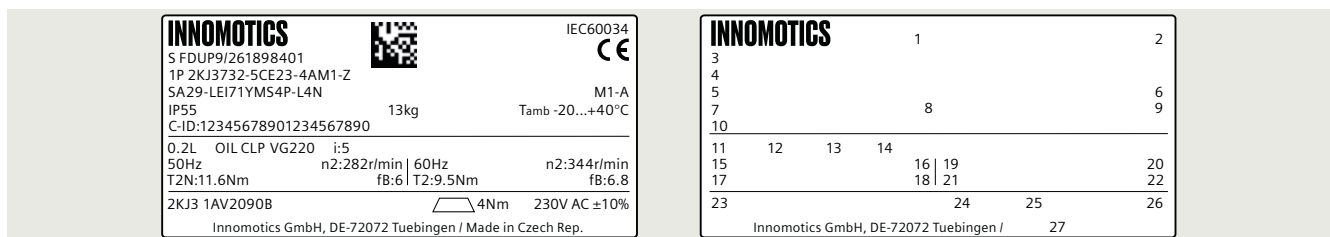


Fig. 11/2 Example of rating plate on gearbox side on worm geared motor S

General data

- 1 Data matrix code
- 2 Applicable standard
- 3 Serial No.
- 4 Article No.
- 5 Type designation
- 6 Mounting position
- 7 Degree of protection acc. to IEC 60034-5 or IEC 60529
- 8 Weight m [kg]
- 9 Ambient temperature
- 10 Customer ID
- 11 Oil quantity [l] main gearbox/intermediate gearbox
- 12 Oil type
- 13 Oil viscosity ISO VG class to DIN 51519/ISO 3448
- 14 Total transmission ratio i

General data

- Frequency 1
- 15 Rated frequency f [Hz]
 - 16 Gearbox output speed n_2 [rpm]
 - 17 Geared motor output torque T_2 [Nm]
 - 18 Service factor f_B
- Frequency 2
- 19 Rated frequency f [Hz]
 - 20 Gearbox output speed n_2 [rpm]
 - 21 Geared motor output torque T_2 [Nm]
 - 22 Service factor f_B
 - 23 Geared motor type
 - 24 Symbols (IEC 60617-2): = brake
 - 25 Rated braking torque T_{br} [Nm]
 - 26 Brake supply voltage U [V]
 - 27 Country of origin

When ordering a replacement/spare part, always specify the serial No.

Rating plate for ATEX version gearboxes





| | | | |
|---|--|--|--|
| INNOMOTICS S FDUR5/266319101 1P 2KJ3102-1EK73-4AJ1-Z Z29-MB90SM4P-L16/20N-1 24kg C-ID: 1234567890 0.2L OIL CLP VG220 i: 8.4 n2: 173r/min T2: 60.9Nm Innomatics GmbH, DE-72072 Tuebingen / Made in Germany | |     M1 II 3G Ex h IIB T4 Gc II 3D Ex h IIB T120°C Dc | INNOMOTICS 1 2 3 4 5 6 7 8 9 10.1 10.2 11 12 13 14 15 16 17 18 20 19 21 Innomatics GmbH, DE-72072 Tuebingen / |
|---|--|--|--|

Fig. 11/3 Example of rating plate for ATEX





| | | | |
|---|--|--|--|
| INNOMOTICS S FDUR5/266319101 1P 2KJ3102-1EK73-4AJ1-Z Z29-MB90SM4P-L16/20N-1 24kg C-ID: 1234567890 0.2L OIL CLP VG220 i: 8.4 n2: 173r/min T2: 60.9Nm Innomatics GmbH, DE-72072 Tuebingen / Made in Germany | |     M1 II 3G Ex h IIB T4 Gc II 3D Ex h IIB T120°C Dc | INNOMOTICS 1 2 3 4 5 6 7 8 9 10.1 10.2 11 12 13 14 15 16 17 18 20 19 21 Innomatics GmbH, DE-72072 Tuebingen / |
|---|--|--|--|

Fig. 11/4 Example of rating plate for ATEX, supplied loose

General data

- 1 Data matrix code
- 2 CE and UKCA marking
- 3 Ex marking
- 4 Serial No.
- 5 Article No.
- 6 Type designation
- 7 Mounting position
- 8 Weight m [kg]
- 9 Ambient temperature
- 10.1 Type of protection gas
- 10.2 Type of protection dust
- 11 Customer ID

General data

- 12 Oil quantity [l] main gearbox/intermediate gearbox
- 13 Oil type
- 14 Oil viscosity ISO VG class to DIN 51519/ISO 3448
- 15 Total transmission ratio i
- 16 Gearbox output speed n_2 [rpm]
- 17 Configured output torque of the gearbox/adaptor combination T_2 [Nm]
- 18 Service factor f_B
- 19 Gearbox input speed n_{1max} [rpm]
- 20 Configured input torque of the gearbox/adaptor combination T_{1max} [Nm]
- 21 Country of origin

When ordering a replacement/spare part, always specify the serial No.

Second rating plate

Second rating plate, supplied loose

For the gearboxes and geared motors, an additional rating plate can be supplied loose.

For worm geared motors the rating plate on the gearbox side is supplied.

| | | |
|-------------------------------------|---|------------|
| Second rating plate | Additional identification code -Z with order code | |
| | 2KJ3... -.....-Z | Order code |
| Second rating plate, supplied loose | | K41 |

General options

Documentation

Safety instruction sheet and operating instructions

The geared motors are shipped with a multi-language safety instruction sheet for each delivery batch.

Every delivery batch of geared motors equipped with explosion-protected motors or functionally safe rotary encoders is delivered with a safety instruction sheet and a set of operating instructions in German and English.

The operating instructions include the following documents:

- Replacement part drawings and lists
- Installation instructions
- Declaration of incorporation of partly completed machinery according to the EC Machinery Directive 2006/42/EC (gearboxes)
- EC Declaration of Conformity according to Directive 2014/35/EU (motors)

The latest versions of the operating instructions, the declaration of incorporation and the declarations of conformity are available in the Industry Online Support:

<https://support.industry.siemens.com/cs/ww/en/ps/13424/man>

Test certificates

On request, the following documents are available by e-mail:

| Additional documentation | The following is checked: | Additional identification code -Z with order code |
|--|--|--|
| Declaration of compliance with the order EN 10204-2.1 and factory test report EN 10204-2.2, geared motor | - | 2KJ3... -.....-.....- Z Order code |
| Factory test report EN 10204-2.2 for material | - | On request |
| Acceptance test certificate EN 10204-3.1 for gearboxes | <ul style="list-style-type: none"> • Output shaft bearings • Input shaft diameter (for gearboxes with input unit A only) • No-load speed • Noise (subjective evaluation) | W11 |
| Acceptance test certificate EN 10204-3.1 for paint finish | <ul style="list-style-type: none"> • Paint film thickness | W12 |

Overview

The geared motors are sent in a box as standard.

For countries that cannot be supplied by truck, geared motors up to frame size 109 are shipped in a cardboard box suitable for sea and air freight - and from frame size 129, in an MC box.

The following packaging options are available.

| Packaging options | Gearbox size | Can be selected for the following countries | Minimum order quantity | Additional identification code -Z with order code | |
|-----------------------------------|--------------|--|--|---|------------|
| | | | | 2KJ3... -.....-.....-Z | Order code |
| Individual packaging | | | | | |
| Box | 19 ... 89 | Albania, Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Serbian Republic, Spain, Sweden, Switzerland, United Kingdom. | - | | W40 |
| Overseas | 19 ... 89 | worldwide | - | | W42 |
| MC box | 129 ... 189 | worldwide | - | | W44 |
| VCI corrosion inhibiting film | 19 ... 189 | Albania, Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Serbian Republic, Spain, Sweden, Switzerland, United Kingdom. | - | | W47 |
| Collective packaging | | | | | |
| Wire-mesh box | 19 ... 109 | Germany | Gearbox size 19: 20 units Gearbox size 29: 20 units Gearbox size 39: 10 units Gearbox size 49: 6 units Gearbox size 59: 5 units Gearbox size 69: 3 units Gearbox size 79: 3 units Gearbox size 89: 2 units Gearbox size 109: 2 units | | W45 |
| Overseas | 19 ... 109 | worldwide | - | | W46 |
| VCI corrosion inhibiting film | 19 ... 109 | Albania, Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Serbian Republic, Spain, Sweden, Switzerland, United Kingdom. | - | | W52 |
| Neutral packaging surface freight | 19 ... 189 | Albania, Austria, Belgium, Bulgaria, Bosnia-Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Serbian Republic, Spain, Sweden, Switzerland, United Kingdom. | - | | W48 |
| Neutral packaging overseas | 19 ... 189 | worldwide | - | | W49 |

General options

Fast track

Overview

For a faster delivery of our Innomotics SG gearboxes outside the standard delivery times we offer a fast track option.

On request, geared motors can be delivered with a shortened delivery time (usually 2 to 5 work days).

The maximum order quantity is 5 units/order. The order must reach your Innomotics sales region by 3:00 p.m. (German local time).

The following product range is available for the fast track option:

- Innomotics SG gearbox sizes 09 to 189
- Innomotics SG adapter K4 sizes 63 to 200
- Innomotics SG adapter K2 sizes 80 to 160
- Innomotics SG adapter K5 sizes 56 to 180
- Innomotics SG KS adapter
- Paint finish in corrosivity category C1 to C3
- Without ATEX design

| | | |
|------------|---|------------|
| Fast track | Additional identification code -Z with order code | Order code |
| Fast track | 2KJ3... -.....-.....- Z | W50 |

Extension of the liability for defects

Overview

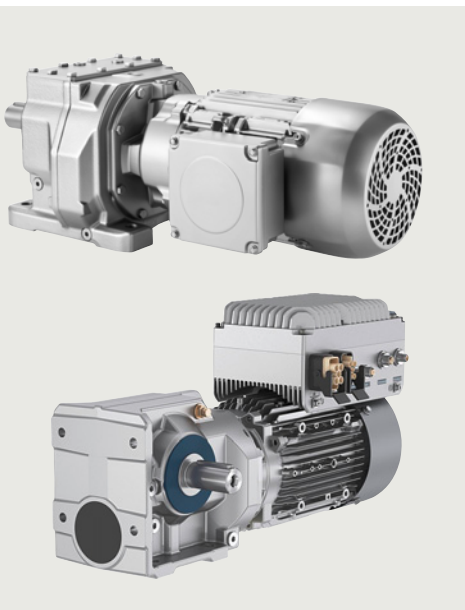
For our Innomotics SG geared motors, we give you the option of extending existing liabilities for defects beyond the standard period of liability.

The standard liability for defects period, as listed in our standard conditions for the supply of services and products, is 12 months.

It is possible to select the extended period of liability for defects in connection with all of the geared motors and their options listed here in the catalog.

| | | |
|---|---|------------|
| Extension of the liability for defects | Additional identification code -Z with order code | Order code |
| Extension of the liability for defects by 12 months to a total of 24 months from delivery | 2KJ3... -.....-.....- Z | W80 |
| Extension of the liability for defects by 24 months to a total of 36 months from delivery | | W82 |

Innomotics Moves!



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Innomotics Geared Motors

12/2

Innomotics SG 2KJ3 geared motors

12/4

Innomotics SG G115D - 2KJ8 distributed drive system

12/2

Innomotics Low Voltage Motors

12/4

Low voltage motors GP and SD low-voltage motors

12/6

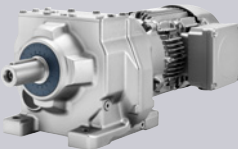
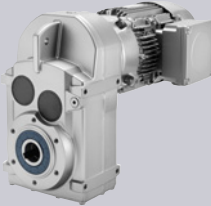
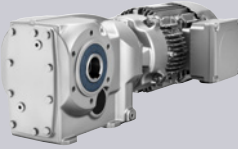
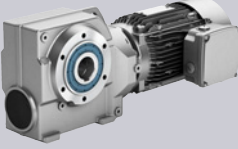
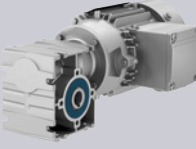

Innomotics XP explosion-protected motors

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Innomotics SG Drive Train

Innomotics Moves!

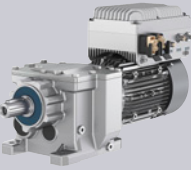

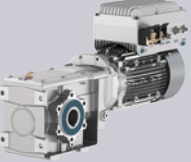

Innomotics Geared Motors

| Geared motors | Features | Degree of protection | Gearbox designation (stages) |
|--|--|----------------------|--|
| Innomotics SG 2KJ3 geared motors | | | |
|  Helical geared motors | 1-stage, 2-stage and 3-stage Solid shaft designs | IP65 | <i>Z19 ... Z189</i> (2-stage) <i>D19 ... D189</i> (3-stage) <i>E39 ... E149</i> (1-stage) |
|  Parallel shaft geared motors | 2-stage and 3-stage Hollow shaft designs Solid shaft designs | IP65 | <i>FZ29 ... FZ189</i> (2-stage) <i>FD29 ... FD189</i> (3-stage) |
|  Bevel geared motors | 2-stage and 3-stage Hollow shaft designs Solid shaft designs | IP65 | <i>B19 ... B49</i> (2-stage) <i>K39 ... K189</i> (3-stage) |
|  Helical worm geared motors | 2-stage Hollow shaft designs Solid shaft designs | IP65 | <i>C29 ... C89</i> (2-stage) |
|  Worm geared motors | 1-stage Hollow shaft designs Solid shaft designs | IP65 | <i>S09 ... S29</i> (2-stage) |
|  Electric-monorail geared motors | 2-stage and 3-stage Hollow shaft designs Solid shaft designs | IP65 | <i>BH.29 ... BH.39</i> (2-stage) <i>KHF49 ... KHF79</i> (3-stage) |

| Gearbox size | Maximum output torque T_{2N} Nm | | | | | Gearbox transmission ratio i | Catalog |
|---|--------------------------------------|-----|------|-------|--------|--------------------------------|---------|
| | 10 | 100 | 1000 | 10000 | 100000 | | |
| 19, 29, 39, 49, 59, 69, 79, 89, 109, 129, 149, 169, 189 | <p>30 19000</p> | | | | | 1.29 ... 373 | D 50.1 |
| 29, 39, 49, 69, 79, 89, 109, 129, 149, 169, 189 | <p>150 19000</p> | | | | | 3.57 ... 413 | |
| 19, 29, 39, 49, 69, 79, 89, 109, 129, 149, 169, 189 | <p>50 19500</p> | | | | | 3.47 ... 244.25 | |
| 29, 39A, 49, 69, 89 | <p>82 1450</p> | | | | | 6.43 ... 363 | |
| 09, 19, 29 | <p>33 116</p> | | | | | 5 ... 100 | |
| 29, 39, 49, 69, 79 | <p>72 820</p> | | | | | 7.23 ... 244.25 | |

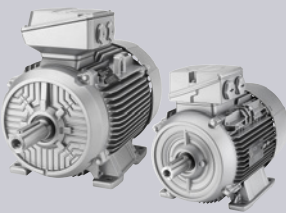

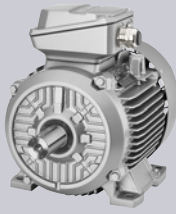
Innomotics Moves!

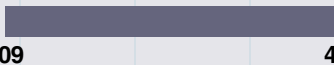
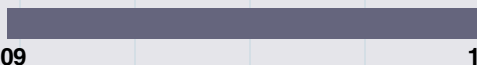
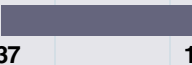
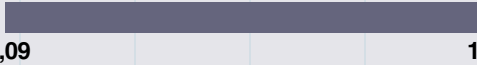
Innomotics Geared Motors

| Geared motors | Features | Degree of protection | Gearbox designation (stages) |
|--|---|----------------------|---|
| Innomotics SG G115D - 2KJ8 distributed drive system | | | |
|  <p>Helical geared motors</p> | <p>1-stage, 2-stage and 3-stage Solid shaft designs</p> | IP65 | <p><i>Z19 ... Z89</i> (2-stage) <i>D19 ... D89</i> (3-stage) <i>E39 ... E89</i> (1-stage)</p> |
|  <p>Parallel shaft geared motors</p> | <p>2-stage and 3-stage Hollow shaft designs Solid shaft designs</p> | IP65 | <p><i>FZ29 ... FZ89</i> (2-stage) <i>FD29 ... FD89</i> (3-stage)</p> |
|  <p>Bevel geared motors</p> | <p>2-stage and 3-stage Hollow shaft designs Solid shaft designs</p> | IP65 | <p><i>B19 ... B49</i> (2-stage) <i>K39 ... K109</i> (3-stage)</p> |
|  <p>Helical worm geared motors</p> | <p>2-stage Hollow shaft designs Solid shaft designs</p> | IP65 | <p><i>C29 ... C89</i> (2-stage)</p> |

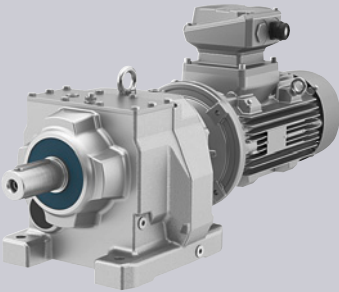
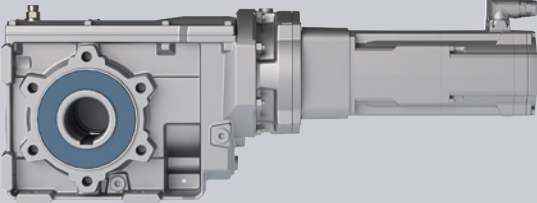
Innomotics Moves!

Innomotics Low Voltage Motors

| Motor type | Features | Degree of protection | Cooling method |
|---|---|----------------------|--|
| Innomotics GP and SD low-voltage motors | | | |
|  <p>Innomotics GP 1LE10 and VSD10 line 1LE10 standard motors Innomotics GP VSD4000 line 1FP10 reluctance motors</p> | <p>For general purpose applications Motors with an aluminum housing</p> | IP55 | Natural cooling/ Forced ventilation |
| <p>Innomotics SD 1LE15, 1LE16, and VSD10 line 1LE15 standard motors Innomotics SD VSD4000 line 1FP15 reluctance motors</p> | <p>For severe duty applications Motors with cast-iron housing</p> | IP55 | Natural cooling |
| Motor type | Features | Type of protection | Cooling method |
| Innomotics XP explosion-protected motors | | | |
|  <p>Innomotics XP 1MB10 explosion-protected motors</p> | <p>Seamless series of explosion-protected motors for gas and dust protection in harsh, hazardous areas Motors with an aluminum housing</p> | Ex tb, Ex tc, Ex ec | Natural cooling |
|  <p>Innomotics XP 1MB15, 1MB16, 1MB5 explosion-protected motors</p> | <p>Seamless series of explosion-protected motors for gas and dust protection in harsh, hazardous areas Motors with cast-iron housing</p> | Ex tb, Ex tc, Ex ec | Natural cooling |

| Shaft height (SH) | Rated power P_N for S1 duty type kW | Rated torque T_N | Catalog |
|--|--|--------------------|---------|
| 63, 71, 80, 90, 100, 112, 132, 160, 180, 200 |  0,09 45 | 0.6 ... 294 Nm | D 81.1 |
| 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450 |  0,09 1000 | 1.0 ... 8100 Nm | |
| Shaft height (SH) | Rated power P_N for S1 duty type kW | Rated torque T_N | Catalog |
| | 0,01 0,1 1 10 100 1000 10000 | | |
| 80, 90, 100, 112, 132, 160 |  0,37 18,5 | 2.5 ... 109 Nm | D 81.1 |
| 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450 |  0,09 1000 | 1.2 ... 8100 Nm | |

Innomotics Moves!

| Innomotics SG Drive Train | Flexible combinations of | | |
|---|---|--|--------------------------|
| | Motors | Innomotics SG gearboxes | Innomotics SG adapters |
|  | Innomotics SG GP/SD low-voltage motors Innomotics SG XP explosion-protected motors | Helical gearbox Parallel shaft gearbox Bevel gearbox Helical worm gearbox | K2 adapter K4 adapter |
|  | Servo motors Siemens SIMOTICS S-1FK2 SIMOTICS S-1FK7 | Helical gearbox Parallel shaft gearbox Bevel gearbox Helical worm gearbox | KS adapter |

Configuration is possible in the TIA Selection Tool.

More information on the TIA Selection Tool can be found at
www.siemens.com/tia-selection-tool

Appendix



| | |
|--------------|--|
| 13/2 | Lists |
| 13/2 | List of order codes |
| 13/5 | List of variables to dimension the drive |
| 13/9 | List of abbreviations |
| 13/10 | Industry Services |
| 13/10 | Overview |
| 13/12 | Conversion tables |

Appendix

Lists

List of order codes

| Order code | Special design Designation | Detailed data Chapter/Page |
|---|---|-------------------------------|
| Adapter power transmission | | |
| A15 | Adapter backstop | 10/2 |
| A17 | Slip clutch with proximity switch | 10/2 |
| Mounting positions | | |
| D01 ... D06 | Mounting positions of the geared motors (helical and parallel shaft gearboxes) | 9/4 ... 9/18 |
| D11 ... D16 and D21 ... D26 | Mounting position of the geared motors (bevel, helical worm and worm gearboxes) | 9/19 ... 9/37 |
| D10 and D20 | Output side A or B worm gearbox | 9/37 |
| Special mounting positions | | |
| E01 ... E17 | Y axis of rotation | 9/39 |
| E21 ... E37 | X axis of rotation | 9/39 |
| E41 ... E57 | Z axis of rotation | 9/39 |
| Shaft-mounted version helical worm gearbox | | |
| G09 | Figure 1 | 9/45 |
| G10 | Figure 2 | 9/45 |
| Output shaft bearings | | |
| G20 | Radially reinforced output shaft bearings | 9/51 |
| G30 | VLplus reinforced bearing system | 9/51 |
| G31 | XLplus reinforced bearing system | 9/51 |
| Output sealing | | |
| G23 | Seal with longer service life | 9/54 |
| G24 | Seal for increased environmental stress | 9/54 |
| G25 | Seal for high temperatures | 9/54 |
| Oil level control | | |
| G34 | Oil sight glass with reflector | 9/61 |
| G35 | Oil sight glass with reflector on both sides | 9/61 |
| G48 | Oil dipstick | 9/10, 9/12 |
| Electrical oil level monitoring system | | |
| G37 | Oil level sensor | 9/63 |
| G38 | Oil level sensor ATEX design | 9/63 |
| G40 | 24 V disconnecter | 9/63 |
| Gearbox venting | | |
| G45 | Pressure breather valve | 9/58 |
| G49 | Pressure breather valve stainless steel | 9/58 |
| G47 | Oil expansion unit | 9/59 ... 9/60 |
| Oil drain | | |
| G53 | Magnetic oil drain screw | 9/61 |
| G54 | Oil drain valve, straight | 9/61 |
| G55 | Oil drain valve, angled | 9/61 |
| Hollow shaft cover | | |
| G60 | Protective cover | 9/50 |
| Electrical oil temperature monitoring | | |
| G69 | Pt100 electrical oil temperature monitoring | 9/62 |
| Water drain holes | | |
| G77 | Water drain holes at the output flange | 9/43 |
| Output flange sealing | | |
| G78 | Output flange sealing | 9/44 |
| Accessories for VLplus reinforced bearing system | | |
| G88 | 24 V Drywell disconnecter | 9/52 |
| G89 | Drywell with oil sight glass | 9/52 |
| G90 | Drywell with oil sensor | 9/52 |
| G91 | Drywell with oil sensor ATEX | 9/52 |
| G93 | Grease cartridge | 9/52 |
| Shrink-glued output gearwheel | | |
| G97 | Shrink-glued output gearwheel | 9/64 |
| Reduced-backlash version | | |
| G99 | Reduced-backlash version | 9/64 |
| Flange diameter | | |
| H01 ... H11 | Flange diameter | 9/41 ... 9/42 |

List of order codes

| Order code | Special design Designation | Detailed data Chapter/Page |
|---|---|-------------------------------|
| Lubricants | | |
| K06 | CLP ISO VG220 | 9/53 ... 9/54 |
| K07 | CLP ISO PG VG220 | 9/53 ... 9/54 |
| K08 | CLP ISO PG VG460 | 9/53 ... 9/54 |
| K10 | CLP ISO E VG220 | 9/53 ... 9/54 |
| K11 | CLP ISO H1 VG460 | 9/53 ... 9/54 |
| K12 | CLP ISO PAO VG220 | 9/53 ... 9/54 |
| K13 | CLP ISO PAO VG68 | 9/53 ... 9/54 |
| K14 | CLP ISO H1 VG100 | 9/53 ... 9/54 |
| K16 | CLP ISO PAO VG460 | 9/53 ... 9/54 |
| Long-term preservation | | |
| K17 | Long-term preservation up to 36 months | 11/5 |
| Direction of rotation of the output shaft (required with backstop) | | |
| K18 | Clockwise | 1/18 |
| K19 | Counterclockwise | 1/18 |
| Rating plate and additional plates | | |
| K41 | Second rating plate, supplied loose | 11/7 |
| ATEX explosion protection designation | | |
| K70 | Ex II 2G Ex h IIC T4 Gb Ex II 2D Ex h IIIC T120 °C Db | 1/17 |
| K80 | Ex II 2G Ex h IIB T4 Gb Ex II 2D Ex h IIIB T120 °C Db | 1/17 |
| K81 | Ex II 3G Ex h IIB T4 Gc Ex II 3D Ex h IIIB T120 °C Dc | 1/17 |
| K82 | Ex II 3G Ex h IIC T4 Gc Ex II 3D Ex h IIIC T120 °C Dc | 1/17 |
| Ambient temperature | | |
| K92 | Ambient temperature -20 °C to +40 °C | 11/2 |
| K95 | Ambient temperature -25 °C to +40 °C | 11/2 |
| K96 | Ambient temperature -30 °C to +40 °C | 11/2 |
| K97 | Ambient temperature -30 °C to +40 °C | 11/2 |
| K98 | Ambient temperature -40 °C to +40 °C | 11/2 |
| Surface treatment | | |
| L00 | Unpainted | 11/4 |
| L01 | Primed according to corrosivity category C2 G | 11/4 |
| L02 | Surface protection for normal environmental stress C1 | 11/3 |
| L03 | Surface protection for low environmental stress C2 | 11/3 |
| L04 | Surface protection for average environmental stress C3 | 11/3 |
| L05 | Surface protection for very high environmental stress C5 | 11/3 |
| L09 | Primed according to corrosivity category C4 G | 11/4 |
| L11 | Centering not painted | 11/4 |
| L12 | Flange completely painted | 11/4 |
| L19 | Special pretreatment | 11/3 |
| L20 | Surface protection for high environmental stress C4 | 11/3 |
| L27 | Centerings not painted on both sides | 11/4 |
| RAL colors | | |
| L50 | RAL 5015 sky blue | 11/5 |
| L53 | RAL 7031 blue gray | 11/5 |
| L55 | RAL 7030 stone gray | 11/5 |
| L75 | RAL 7016 anthracite gray | 11/5 |
| L80 | RAL 9011 graphite black | 11/5 |
| L83 | RAL 7012 basalt gray | 11/5 |
| Documentation | | |
| W11 | Acceptance test certificate EN 10204-3.1 for gearboxes | 11/8 |
| W12 | Acceptance test certificate EN 10204-3.1 for paint finish | 11/8 |
| Fast track | | |
| W50 | Fast track | 11/10 |

Appendix

Lists

List of order codes

| Order code | Special design Designation | Detailed data Chapter/Page |
|---|---|-------------------------------|
| Packaging options | | |
| W40 | Individual packaging carton | 11/9 |
| W42 | Individual packaging overseas | 11/9 |
| W44 | Individual packaging MC box | 11/9 |
| W45 | Collective packaging lattice box | 11/9 |
| W46 | Collective packaging overseas | 11/9 |
| W47 | Individual packaging VCI corrosion inhibiting film | 11/9 |
| W48 | Collective packaging neutral packaging land freight | 11/9 |
| W49 | Collective packaging neutral packaging overseas | 11/9 |
| W52 | Collective packaging VCI corrosion inhibiting film | 11/9 |
| Extension of the liability for defects | | |
| W80 | Extension of the liability for defects by 12 months to a total of 24 months from delivery | 11/10 |
| W82 | Extension of the liability for defects by 24 months to a total of 36 months from delivery | 11/10 |
| Speed monitoring | | |
| Y00 | Slip torque setting | 10/2 |

List of variables to dimension drives

Overview of data to dimension drives

| Code | Description | Unit |
|----------------|---|------------------|
| a | Gearbox constant for calculating the radial force | kNmm |
| α | Force application angle | ° |
| b, d, l, y, z | Gearbox constants | mm |
| C | Additional factor to calculate the radial force | - |
| $\cos \varphi$ | Power factor | - |
| d | Diameter of the input element | mm |
| d_0 | Average diameter of the mounted transmission element | mm |
| DC | Cyclic duration factor | % |
| η | Efficiency | % |
| f | Rated frequency | Hz |
| f_B | Service factor | - |
| f_{B1} | Required service factor | - |
| f_{Btot} | Service factor of the driven machine | - |
| f_{br} | Braking torque correction factor | - |
| f_{limit} | Limit frequency | Hz |
| f_N | Rated motor frequency | Hz |
| F_{ax} | Permissible axial force | N |
| F_G | Force due to weight | N |
| F_r | Radial force at the output shaft | N |
| F_{R2} | Permissible radial force at the center of shaft extension (l/2) | N |
| F_{R2max} | Maximum permissible radial force according to table | N |
| F_{Ravail} | Available radial force from the mounted transmission element | N |
| F_x | Permissible radial force from out of center force application point | N |
| F_{xperm1} | Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder | N |
| F_{xperm2} | Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder | N |
| H | Vertical distance between running wheel axis and center of gravity | mm |
| i | Transmission ratio | - |
| I_A | Starting current | A |
| I_N | Rated current | A |
| J_2 | Moment of inertia referred to the output speed of the gearbox | kgm ² |
| J_{AD} | Moment of inertia of the adapter | kgm ² |
| J_{add} | Additional moment of inertia | kgm ² |
| J_B | Moment of inertia of the brake | kgm ² |
| J_{Bstp} | Moment of inertia of cage and inner ring | kgm ² |
| J_G | Moment of inertia of the gearbox reduced to the input shaft | kgm ² |
| J_{mot} | Moment of inertia of the motor | kgm ² |
| J_x | Moment of inertia of the load referred to the motor shaft | kgm ² |
| J_z | Additional moment of inertia of a high inertia fan | kgm ² |
| k | Factor for taking into account operating conditions | - |
| k_{DC} | Factor for increased power | - |
| k_{FI} | Factor for taking into account the additional moment of inertia | - |
| k_{HT} | Factor for abnormal coolant temperature and installation altitude | - |

| Code | Description | Unit |
|--------------|---|--------|
| k_M | Factor for taking into account the load torque while accelerating | - |
| k_P | Factor for taking into account the required power and duty cycle | - |
| L1 | Distance between running wheels | mm |
| L2 | Horizontal distance between running wheel and center of gravity | mm |
| L3 | Distance between swivel joints | mm |
| L_{h10} | Nominal bearing service life | h |
| L_N | Service life of the brake lining until readjustment | h |
| L_{na} | Modified bearing service life | h |
| L_{nmax} | Service life of the brake lining until replacement | h |
| L_{pIA} | Measuring surface sound pressure level | dB (A) |
| L_{WA} | Sound power level | dB (A) |
| m | Drive weight without any oil | kg |
| m_{AF} | Mass acceleration factor | - |
| m_{Bstp} | Weight of the backstop | kg |
| m_{fan} | Fan weight | kg |
| m_{mot} | Motor weight (without end shield at DE) | kg |
| n_1 | Input speed of the gearbox | rpm |
| n_2 | Output speed of the gearbox | rpm |
| n_{dis} | Disengage speed | rpm |
| n_{br} | Braking speed | rpm |
| n_{max} | Maximum speed | rpm |
| n_N | Rated speed | rpm |
| P_1 | Actual steady-state power of the motor | kW |
| P_{DC} | Power for the new duty cycle | kW |
| P_{req} | Required input power | kW |
| P_{mot} | Motor power | kW |
| P_N | Rated motor power | kW |
| P_{perm} | Permissible motor power | kW |
| P_S | Actual steady-state power of the motor | kW |
| Q_{perm} | Permissible operating energy | J |
| r | Radius of the output element | m |
| R_{ex} | Exact number of teeth ratio | - |
| RWC | Running wheel center | - |
| s_{br} | Braking distance | m |
| s_{gap} | Brake air gap | mm |
| s_{gapmax} | Maximum brake air gap | mm |
| S | Center of gravity | mm |
| t_1 | Application time of the brake | ms |
| t_2 | Disconnection time | ms |
| t_3 | Slipping time | ms |
| t_{11} | Response time | ms |
| t_{12} | Rise time | ms |
| t_{br} | Braking time | s |
| t_R | Duty cycle (decimal) | - |
| t_s | Cycle duration | ms |

Appendix

Lists

List of variables to dimension drives

Overview of data to dimension drives

| Code | Description | Unit |
|-------------------|--|------|
| T | Additional factor for ambient temperature | - |
| T_{1max} | Maximum permissible motor torque | Nm |
| T_2 | Geared motor output torque | Nm |
| T_{2req} | Required output torque of the driven machine | Nm |
| T_{2N} | Maximum output torque of the gearbox | Nm |
| T_A | Acceleration torque of the motor | Nm |
| T_{Bk} | Breakdown torque | Nm |
| T_{br} | Rated braking torque | Nm |
| T_{DC} | Torque for the new duty cycle | Nm |
| T_N | Rated motor torque | Nm |
| T_{req} | Required torque | Nm |
| T_{SP} | Rated backstop torque | Nm |
| T_{St} | Relative starting torque | Nm |
| T_x | Reduced load torque | Nm |
| U | Rated voltage | V |
| v | Travel velocity | m/s |
| W_1 | Friction energy per braking operation | J |
| W_{tot} | Friction energy until the brake lining is replaced | MJ |
| W_V | Friction energy until the brake is readjusted | MJ |
| x | Distance from the shaft shoulder up to the point where force is applied | mm |
| $x1$ | Distance from the shaft shoulder up to the force application point at running wheel center for F_x | mm |
| Z | Switching frequency | 1/h |
| Z_0 | No-load switching frequency, motor without brake | 1/h |
| Z_A | No-load switching frequency, motor with brake | 1/h |
| Z_{perm} | Permissible switching frequency | 1/h |
| ϑ_{amb} | Ambient temperature | °C |

Important drive technology variables

| SI unit Size | Formula symbol | | Unit symbol | | Designation or Conversion factor ¹⁾ |
|-----------------------------|-------------------------|-------------------------|------------------------|--------------------|---|
| | SI | Previously | SI | Previously | |
| Length (distance) | <i>l</i> | <i>L, s</i> | m | m | 1 km = 1 000 m |
| Surface | <i>A</i> | <i>F</i> | m ² | m ² | 1 m ² = 100 dm ² |
| Volume | <i>V</i> | <i>V</i> | m ³ | m ³ | 1 m ³ = 1 000 dm ³ 1 dm ³ = 1 l |
| Plane angle | α, β, γ | α, β, γ | rad | Degrees ° | 1 rad = 1 m/m 1 L = $\pi/2$ rad 1° = $\pi/180$ rad |
| Rotation angle | ϕ | φ | | Degrees ° | 1' = 1°/60; 1'' = 1'/60 |
| Time | | | | | 1 min = 60 s 1 h = 60 min |
| Time period/duration | <i>t</i> | <i>t</i> | s | s | 1 d = 24 h |
| Frequency | <i>f</i> | <i>f</i> | Hz | 1/s | 1 Hz = 1/s |
| Speed | <i>n</i> | <i>n</i> | rpm | rpm | Revolutions per minute |
| Velocity | <i>v</i> | <i>v</i> | m/s | m/s | 1 km/h = $\frac{1}{3.6}$ m/s |
| Acceleration | <i>a</i> | <i>b</i> | m/s ² | m/s ² | g = 9.81 m/s ² |
| Acceleration due to gravity | <i>g</i> | <i>g</i> | | | |
| Angular velocity | ω | Ω | rad/s | 1/s | |
| Angular acceleration | α | ζ | rad/s ² | 1/s ² | |
| Mass | <i>m</i> | <i>m</i> | kg | kg | 1 |
| Density | | <i>d</i> | kg/dm ³ | kg/dm ³ | 10 ³ |
| Force | <i>F</i> | <i>P, K</i> | N | kp | 9.81 |
| Force due to weight | <i>G</i> | <i>G</i> | | | 1 N = 1 kg · 1 m/s ² |
| Pressure | <i>p</i> | <i>p</i> | Pa N/m ² | kp/cm ² | 1 Pa = 1 N/m ² 9.81 · 10 ⁴ |
| Mechanical tension | σ | σ | N/mm ² | kp/mm ² | 9.81 |
| Work | <i>W</i> | <i>A</i> | | kpm | 9.81 |
| Energy | <i>W</i> | <i>E</i> | J | kcal | 4187 |
| Quantity of heat | <i>Q</i> | <i>Q</i> | | | 1 J = 1 Nm = 1 Ws |
| Torque of a force | | <i>M_l</i> | | | 9.81 |
| Torque | <i>T</i> | <i>M_d</i> | Nm | kpm | 1 Nm = 1 J |
| Bending torque | | <i>M_b</i> | | | |
| Power | <i>P</i> | <i>N</i> | W | PS | 735.5 1 W = 1 J/s = 1 Nm/s = $\frac{\text{kgm}^2}{\text{s}^3}$ |
| Moment of inertia | <i>J</i> | θ | kgm ² | kpm ² | 9.81 |

¹⁾ The numerical value of a variable in previously used units multiplied by the conversion rate gives the numerical value of the variable in SI units.

Conversion from kW to hp:

$$1 \text{ kW} = 1,34102 \text{ hp}$$

$$1 \text{ hp} = 0,745700 \text{ kW}$$

$$1 \text{ hp} = 1,01387 \text{ PS}$$

hp = horse power (US)

PS = Pferdestärke (horsepower in German)

Appendix

Lists

List of variables to dimension drives

Important drive technology variables

| SI unit Size | Formula symbol | | Unit symbol | | Designation or Conversion factor ^{*)} |
|------------------------------------|----------------|------------|-------------------|------------|---|
| | SI | Previously | SI | Previously | |
| Dynamic viscosity | η | η | Pa · s | P | 10^{-1} |
| Kinematic viscosity | ν | ν | m ² /s | St | 10^{-4} |
| Electrical current | I | I | A | A | 1 A = 1 W/V = 1 V/Ω |
| Electrical voltage | U | U | V | V | 1 V = 1 W/A |
| Electrical resistance | R | R | W | W | 1 Ω = 1 V/A = 1/S |
| Electrical conductance | G | G | S | S | 1 S = 1/Ω |
| Electrical capacitance | C | C | F | F | 1 F = 1 C/V |
| Electric charge | Q | Q | C | C | 1 C = 1 A · s |
| Inductance | L | L | H | H | 1 H = 1 Vs/A |
| Magnetic flux density Induction | B | B | T | G | 10^4 1 T = 1 Wb/m ² |
| Magnetic field strength | H | H | A/m | A/m | |
| Magnetic flux | ϕ | ϕ | Wb | M | 10^8 1 Wb = 1 V · s |
| Temperature | T(θ) | t | K(°C) | °C | 0 K = -273.15 °C |

^{*)} The numerical value of a variable in previously used units multiplied by the conversion rate gives the numerical value of the variable in SI units.

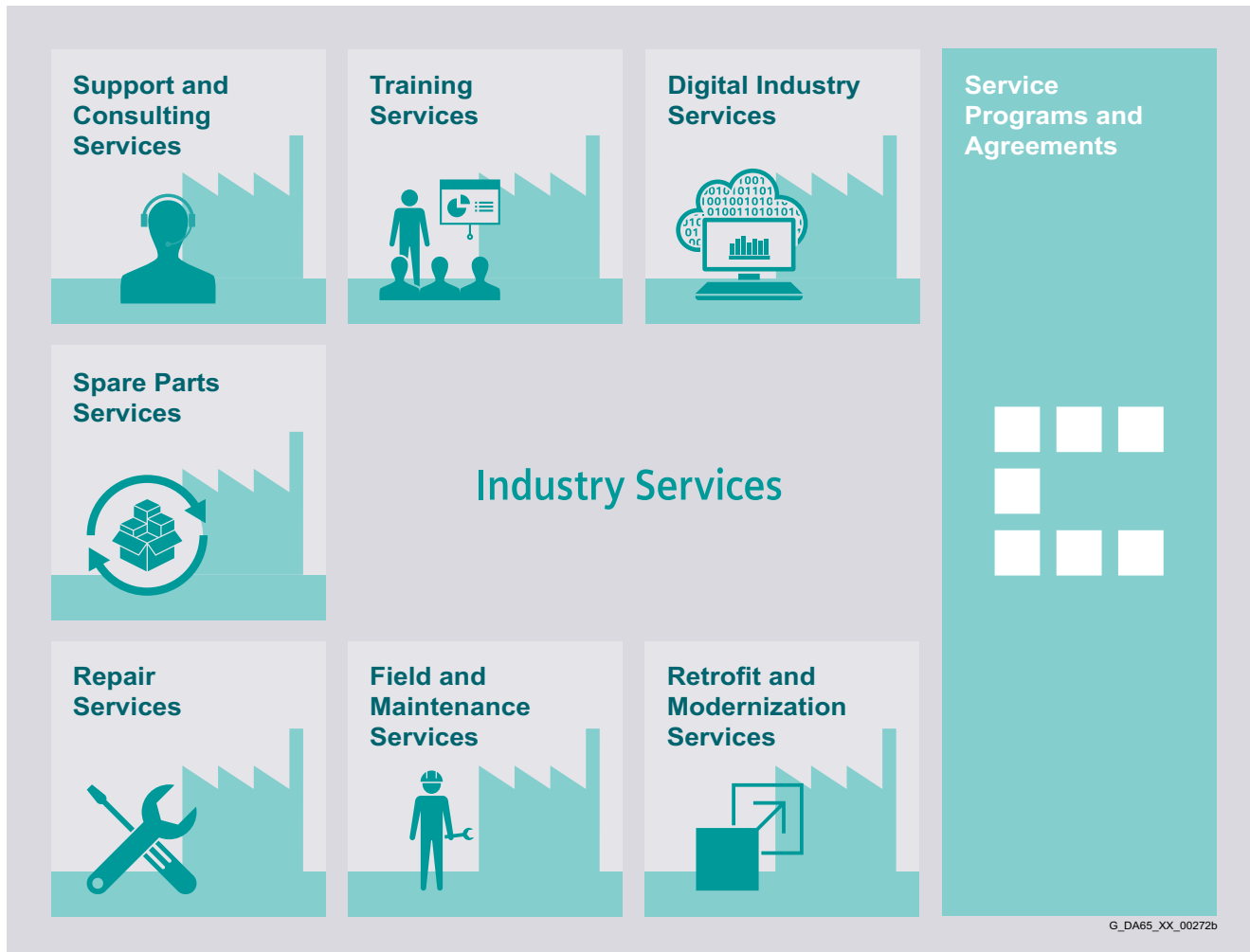
List of abbreviations

| Abbreviation | Meaning | Abbreviation | Meaning |
|--------------|---|------------------|---|
| AC | Alternating Current, three-phase | MODULOG | Modular logistically optimized design (motor) |
| ATEX | Atmosphères explosibles | | |
| | | NAT | Rated response temperature |
| BIS | Bureau of Indian Standards | NDE | Non-drive end |
| | | NEE | NEMA Energy Efficient |
| CAD | Computer-Aided Design | NN | Sea level |
| CCC | China Compulsory Certification | NPT | National Pipe Thread |
| CEL | China Energy Label | | |
| CEMEP | Comité Européen de Constructeurs de Machines Électriques et d'Électronique de Puissance (European sector committee of manufacturers of electrical machines) | PAO | Polyalphaolefine |
| | | PDS | Power Drive System |
| CONT | Continuous duty | PE | Protective Earth, grounding |
| CQC | China Quality Certification Center | PG | Polyglycol |
| CSA | Canadian Standard Association | PTC | Positive Temperature Coefficient |
| CT | Coolant temperature | | |
| | | RoHS | Restriction of hazardous substances |
| DC | Direct Current | SA | Installation altitude |
| DC | Duty cycle | SSI | Simple Sensor Interface |
| DE | Drive end | | |
| DIN | German Institute for Standardization (Deutsches Institut für Normen e. V.) | TIA | Totally Integrated Automation |
| | | TIP | Totally Integrated Power |
| EAC | Eurasian conformity | TR CU | Technical Regulation Customs Union |
| EBPG | Energy-related products directive | TTL | Transistor Transistor Logic |
| EC | European Community | | |
| ECL | Energy Conservation Law of PRC | UL-R | Underwriters Laboratories Inc. -Recognition Mark |
| EER | Energy Efficiency Regulations | | |
| EFF | Efficiency | VDE | Association of Electrical Engineering, Electronics and Information Technology (Verband der Elektrotechnik Elektronik Informationstechnik e. V.) |
| EGE | European Size Unit (Europäische Größeneinheit) | | |
| EISA | Energy Independence and Security Act | VDI | Association of German Engineers (Verein Deutscher Ingenieure) |
| EMC | Electromagnetic compatibility | | |
| EN | European standard | WEEE | Waste electrical and electronic equipment |
| EPAct | Energy Policy Act | WGK | Class, signifying risk of water pollution |
| EU | European Union | Width A/F | Width across flats |
| EuP | Energy Using Products | | |
| | | | |
| FVA | Research Association for Drive Technology (Forschungsvereinigung Antriebstechnik e. V.) | | |
| | | | |
| HF | High frequency | | |
| HTL | High Transistor Logic | | |
| | | | |
| IDS | Integrated Drive Systems | | |
| IE | International Efficiency | | |
| IEC | International Electrotechnical Commission | | |
| IP | International Protection | | |
| ISO | International Organization of Standardization | | |

Appendix

Innomotics Customer Services

Overview



Keep your business running and shape your digital future – with Customer Services for Innomotics

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt.

We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

www.innomotics.com/services

Overview



Support and Consulting Services

Support and Consulting Services

Benefit from our wide range of Support and Consulting Services: Our Innomotics portal offers you comprehensive information, application examples, FAQs and support request options at portal.innomotics.com. This also comprises Technical Support and

Diagnostics, including advice and answers to inquiries about functionality, application and fault clearance.



Digital Industry Services

Digital Services

Two service packages from our digital Inspire IQ range provide you with optimum support for your work. The first package Rapid Response, is all about getting your devices up and running again as quickly as possible. The second, Guided Supervision, is a service package specifically for the challenges of continuous monitoring.



Field and Maintenance Services

Field and Maintenance Services

As part of Field and Maintenance Services, our global network of specialists offers you high-quality maintenance services and optimized commissioning times. Maximize the availability of your systems by offering regular inspections and "health checks" and optimize your production processes.

tion processes.



Service Programs and Agreements

Service Agreements

The Service Agreements give you the opportunity to bundle a variety of services in a single annual or multi-year contract. You can select these individually to match your requirements or fill gaps in your organization's maintenance capacities. Programs and agreements can be contracted on a KPI-based and/or performance-based basis.

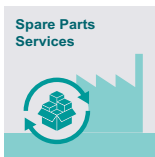


Repair Services

Repair Services

We offer Repair Services with specialized service technicians on site and in regional repair centers to quickly restore the functionality of faulty devices. Extended repair services are also available, including additional diagnostic and repair measures as well as

emergency services.

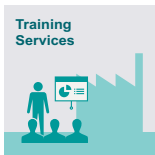


Spare Parts Services

Spare Parts

Spare Parts Services means optimum system availability in two ways: fast delivery of original spare parts for up to ten years, with optimized logistics processes – and preventive spare parts provisioning at the customer's premises through coordinated spare parts packages for

individual products, custom-assembled drive components and entire integrated drive trains.



Training Services

Training Services

Training Services are geared entirely towards offering our know-how as a manufacturer didactically concentrated to the industry and expanding the competence of your employees in handling the entire spectrum of Innomotics products. This ranges from basic skills training

courses to specialized training for advanced technical skills.



Retrofit and Modernization Services

Retrofit and Upgrade Services

Use Retrofit and Upgrade Services to extend the service life of your machines and plants. Optimize the availability, reliability and energy efficiency of your installed motors and drives by retrofitting existing products and systems. Your benefit: Optimized performance, higher productivity and stable production processes with highly available

drives.

Appendix

Conversion tables

Rotary inertia (to convert from A to B, multiply by entry in table)

| A \ B | lb-in ² | lb-ft ² | lb-in-s ² | lb-ft-s ² slug-ft ² | kg-cm ² | kg-cm-s ² | gm-cm ² | gm-cm-s ² | oz-in ² | oz-in-s ² |
|--|------------------------|-----------------------|-----------------------|--|---------------------|------------------------|---------------------|-----------------------|-----------------------|-----------------------|
| lb-in ² | 1 | 6.94×10^{-3} | 2.59×10^{-3} | 2.15×10^{-4} | 2.926 | 2.98×10^{-3} | 2.92×10^3 | 2.984 | 16 | 4.14×10^{-2} |
| lb-ft ² | 144 | 1 | 0.3729 | 3.10×10^{-2} | 421.40 | 0.4297 | 4.21×10^5 | 429.71 | 2304 | 5.967 |
| lb-in-s ² | 386.08 | 2.681 | 1 | 8.33×10^{-2} | 1.129×10^3 | 1.152 | 1.129×10^6 | 1.152×10^3 | 6.177×10^3 | 16 |
| lb-ft-s ² slug-ft ² | 4.63×10^3 | 32.17 | 12 | 1 | 1.35×10^4 | 13.825 | 1.355×10^7 | 1.38×10^4 | 7.41×10^4 | 192 |
| kg-cm ² | 0.3417 | 2.37×10^{-3} | 8.85×10^{-4} | 7.37×10^{-5} | 1 | 1.019×10^{-3} | 1000 | 1.019 | 5.46 | 1.41×10^{-2} |
| kg-cm-s ² | 335.1 | 2.327 | 0.8679 | 7.23×10^{-2} | 980.66 | 1 | 9.8×10^5 | 1000 | 5.36×10^3 | 13.887 |
| gm-cm ² | 3.417×10^{-4} | 2.37×10^{-6} | 8.85×10^{-7} | 7.37×10^{-8} | 1×10^{-3} | 1.01×10^{-6} | 1 | 1.01×10^{-3} | 5.46×10^{-3} | 1.41×10^{-5} |
| gm-cm-s ² | 0.335 | 2.32×10^{-3} | 8.67×10^{-4} | 7.23×10^{-5} | 0.9806 | 1×10^{-3} | 980.6 | 1 | 5.36 | 1.38×10^{-2} |
| oz-in ² | 0.0625 | 4.34×10^{-4} | 1.61×10^{-4} | 1.34×10^{-5} | 0.182 | 1.86×10^{-4} | 182.9 | 0.186 | 1 | 2.59×10^{-3} |
| oz-in-s ² | 24.13 | 0.1675 | 6.25×10^{-2} | 5.20×10^{-3} | 70.615 | 7.20×10^{-2} | 7.09×10^4 | 72.0 | 386.08 | 1 |

Torque (to convert from A to B, multiply by entry in table)

| A \ B | lb-in | lb-ft | oz-in | N-m | kg-cm | kg-m | gm-cm | dyne-cm |
|---------|------------------------|------------------------|------------------------|------------------------|-------------------------|------------------------|------------------------|---------------------|
| lb-in | 1 | 8.333×10^{-2} | 16 | 0.113 | 1.152 | 1.152×10^{-2} | 1.152×10^3 | 1.129×10^6 |
| lb-ft | 12 | 1 | 192 | 1.355 | 13.825 | 0.138 | 1.382×10^4 | 1.355×10^7 |
| oz-in | 6.25×10^{-2} | 5.208×10^{-3} | 1 | 7.061×10^{-3} | 7.200×10^{-2} | 7.200×10^{-4} | 72.007 | 7.061×10^4 |
| N-m | 8.850 | 0.737 | 141.612 | 1 | 10.197 | 0.102 | 1.019×10^4 | 1×10^7 |
| kg-cm | 0.8679 | 7.233×10^{-2} | 13.877 | 9.806×10^{-2} | 1 | 10^{-2} | 1000 | 9.806×10^5 |
| kg-m | 86.796 | 7.233 | 1.388×10^3 | 9.806 | 100 | 1 | 1×10^5 | 9.806×10^7 |
| gm-cm | 8.679×10^{-4} | 7.233×10^{-5} | 1.388×10^{-2} | 9.806×10^{-5} | 1×10^{-3} | 1×10^{-5} | 1 | 980.665 |
| dyne-cm | 8.850×10^{-7} | 7.375×10^{-8} | 1.416×10^{-5} | 10^{-7} | 1.0197×10^{-6} | 1.019×10^{-8} | 1.019×10^{-3} | 1 |

Length (to convert from A to B, multiply by entry in table)

| A \ B | inches | feet | cm | yd | mm | m |
|--------|---------|---------|-------|-----------------------|-------|--------|
| inches | 1 | 0.0833 | 2.54 | 0.028 | 25.4 | 0.0254 |
| feet | 12 | 1 | 30.48 | 0.333 | 304.8 | 0.3048 |
| cm | 0.3937 | 0.03281 | 1 | 1.09×10^{-2} | 10 | 0.01 |
| yd | 36 | 3 | 91.44 | 1 | 914.4 | 0.914 |
| mm | 0.03937 | 0.00328 | 0.1 | 1.09×10^{-3} | 1 | 0.001 |
| m | 39.37 | 3.281 | 100 | 1.09 | 1000 | 1 |

Force (to convert from A to B, multiply by entry in table)

| A \ B | lb | oz | gm | dyne | N |
|-------|------------------------|-----------------------|-------|-----------------------|---------|
| lb | 1 | 16 | 453.6 | 4.448×10^5 | 4.4482 |
| oz | 0.0625 | 1 | 28.35 | 2.780×10^4 | 0.27801 |
| gm | 2.205×10^{-3} | 0.03527 | 1 | 1.02×10^{-3} | N.A. |
| dyne | 2.248×10^{-6} | 3.59×10^{-5} | 980.7 | 1 | 0.00001 |
| N | 0.22481 | 3.5967 | N.A. | 100000 | 1 |

Mass (to convert from A to B, multiply by entry in table)

| A \ B | lb | oz | gm | kg | slug |
|-------|------------------------|------------------------|---------------------|-----------|------------------------|
| lb | 1 | 16 | 453.6 | 0.4536 | 0.0311 |
| oz | 6.25×10^{-2} | 1 | 28.35 | 0.02835 | 1.93×10^{-3} |
| gm | 2.205×10^{-3} | 3.527×10^{-2} | 1 | 10^{-3} | 6.852×10^{-5} |
| kg | 2.205 | 35.27 | 10^3 | 1 | 6.852×10^{-2} |
| slug | 32.17 | 514.8 | 1.459×10^4 | 14.59 | 1 |

Rotation (to convert from A to B, multiply by entry in table)

| A \ B | rpm | rad/s | degrees/s |
|-----------|-------|------------------------|-----------|
| rpm | 1 | 0.105 | 6.0 |
| rad/s | 9.55 | 1 | 57.30 |
| degrees/s | 0.167 | 1.745×10^{-2} | 1 |

Power (to convert from A to B, multiply by entry in table)

| A \ B | hp | Watts |
|------------------|------------------------|------------------------|
| hp (English) | 1 | 745.7 |
| (lb-in) (deg./s) | 2.645×10^{-6} | 1.972×10^{-3} |
| (lb-in) (rpm) | 1.587×10^{-5} | 1.183×10^{-2} |
| (lb-ft) (deg./s) | 3.173×10^{-5} | 2.366×10^{-2} |
| (lb-ft) (rpm) | 1.904×10^{-4} | 0.1420 |
| Watts | 1.341×10^{-3} | 1 |

Conversion tables

Temperature Conversion

| °F | °C | °C | °F |
|---|-------|--------------------------------------|------|
| 0 | -17.8 | -10 | 14 |
| 32 | 0 | 0 | 32 |
| 50 | 10 | 10 | 50 |
| 70 | 21.1 | 20 | 68 |
| 90 | 32.2 | 30 | 86 |
| 98.4 | 37 | 37 | 98.4 |
| 212 | 100 | 100 | 212 |
| subtract 32 and multiply by $\frac{5}{9}$ | | multiply by $\frac{9}{5}$ and add 32 | |

Mechanism Efficiencies

| | |
|-----------------------------|------------|
| Acme-screw with brass nut | ~0.35–0.65 |
| Acme-screw with plastic nut | ~0.50–0.85 |
| Ball-screw | ~0.85–0.95 |
| Chain and sprocket | ~0.95–0.98 |
| Preloaded ball-screw | ~0.75–0.85 |
| Spur or bevel-gears | ~0.90 |
| Timing belts | ~0.96–0.98 |
| Worm gears | ~0.45–0.85 |
| Helical gear (1 reduction) | ~0.92 |

Friction Coefficients

| Materials | μ |
|--------------------------|------------|
| Steel on steel (greased) | ~0.15 |
| Plastic on steel | ~0.15–0.25 |
| Copper on steel | ~0.30 |
| Brass on steel | ~0.35 |
| Aluminum on steel | ~0.45 |
| Steel on steel | ~0.58 |
| Mechanism | μ |
| Ball bushings | <0.001 |
| Linear bearings | <0.001 |
| Dove-tail slides | ~0.2++ |
| Gibb ways | ~0.5++ |

Material Densities

| Material | lb-in ³ | gm-cm ³ |
|---------------------------------|--------------------|--------------------|
| Aluminum | 0.096 | 2.66 |
| Brass | 0.299 | 8.30 |
| Bronze | 0.295 | 8.17 |
| Copper | 0.322 | 8.91 |
| Hard wood | 0.029 | 0.80 |
| Soft wood | 0.018 | 0.48 |
| Plastic | 0.040 | 1.11 |
| Glass | 0.079–0.090 | 2.2–2.5 |
| Titanium | 0.163 | 4.51 |
| Paper | 0.025–0.043 | 0.7–1.2 |
| Polyvinyl chloride | 0.047–0.050 | 1.3–1.4 |
| Rubber | 0.033–0.036 | 0.92–0.99 |
| Silicone rubber, without filler | 0.043 | 1.2 |
| Cast iron, gray | 0.274 | 7.6 |
| Steel | 0.280 | 7.75 |

Wire Gauges¹⁾

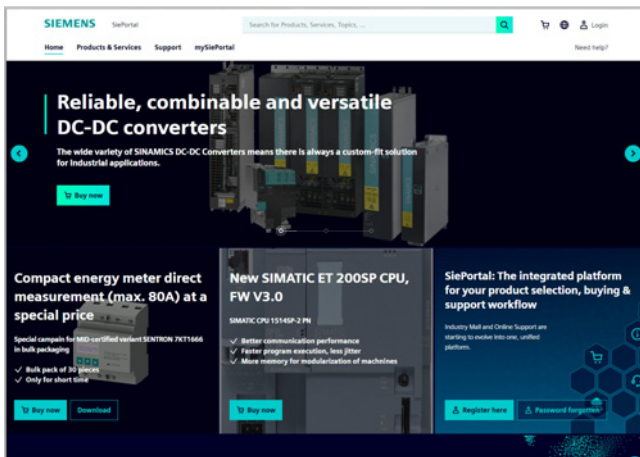
| Cross-section mm ² | Standard Wire Gauge (SWG) | American Wire Gauge (AWG) |
|----------------------------------|------------------------------|------------------------------|
| 0.2 | 25 | 24 |
| 0.3 | 23 | 22 |
| 0.5 | 21 | 20 |
| 0.75 | 20 | 19 |
| 1.0 | 19 | 18 |
| 1.5 | 17 | 16 |
| 2.5 | 15 | 13 |
| 4 | 13 | 11 |
| 6 | 12 | 9 |
| 10 | 9 | 7 |
| 16 | 7 | 6 |
| 25 | 5 | 3 |
| 35 | 3 | 2 |
| 50 | 0 | 1/0 |
| 70 | 000 | 2/0 |
| 95 | 00000 | 3/0 |
| 120 | 0000000 | 4/0 |
| 150 | – | 6/0 |
| 185 | – | 7/0 |

¹⁾ The table shows approximate SWG/AWG sizes nearest to standard metric sizes; the cross-sections do not match exactly.

Appendix

Notes

Selection and ordering at Siemens SiePortal – Ordering products and downloading catalogs



Easy product selection and ordering with SiePortal

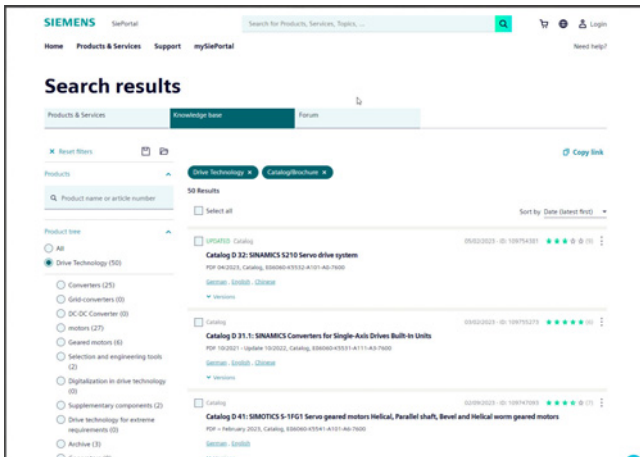
SiePortal > Products & Services

The internet ordering platform of Siemens AG is located in SiePortal. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAX data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

<https://sieportal.siemens.com>



Downloading catalogs

SiePortal > Support > Knowledge base

You can download catalogs and brochures in PDF format from Siemens Industry Online Support without having to register.

The filter box makes it possible to perform targeted searches.

<https://sieportal.siemens.com>

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