SIEMENS

SIMOTICS M-1PH8 Main Motor

Configuration Manual

Preface

Motor description 1

Configuration 2

Mechanical properties of the motors 3

Technical data and characteristics 4

Motor components 5

Cables and connections 6

Information about motor application 7

Dimension drawings 8

Appendix A

05/2012

6SN1197-0AD74-0BP1

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE

indicates that an unintended result or situation can occur if the relevant information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Order number: 6SN1197-0AD74-0BP1
℗ 07/2012 Technical data subject to change

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Preface

Motor documentation

The motor documentation is organized in the following categories:

- General documentation e.g. catalogs
- Manufacturer/service documentation e.g. Operating Instructions and Configuration Manuals

More information

Information on the following topics is available under the link:

- Ordering documentation/overview of documentation
- Additional links to download documents
- Using documentation online (find and search in manuals/information)

http://www.siemens.com/motioncontrol/docu

Please send any questions about the technical documentation (e.g. suggestions for improvement, corrections) to the following e-mail address:

docu.motioncontrol@siemens.com

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The following link provides information on how to create your own individual documentation based on Siemens content, and adapt it for your own machine documentation:

http://www.siemens.com/mdm

Training

The following link provides information on SITRAIN - training from Siemens for products, systems and automation engineering solutions:

http://siemens.com/sitrain

Internet addresses for drive technology

Internet address for motors: http://www.siemens.com/motors

Internet address for products: http://www.siemens.com/motioncontrol

Internet address for SINAMICS: http://www.siemens.com/sinamics

Target group

This documentation is intended for planning, project and commissioning engineers.

Benefits

The Configuration Manual supports you when selecting motors, calculating the drive components, selecting the required accessories as well as when selecting line and motor-side power options.

Standard scope

The scope of the functionality described in this document can differ from the scope of the functionality of the drive that is actually supplied.

- Other functions not described in this documentation might be able to be executed in the drive. However, no claim can be made regarding the availability of these functions when the equipment is first supplied or in the event of servicing.
- The documentation can also contain descriptions of functions that are not available in a particular product version of the drive. The functionalities of the supplied drive should only be taken from the ordering documentation.
- Extensions or changes made by the machine manufacturer are documented by the machine manufacturer.

For reasons of clarity, this documentation does not contain all of the detailed information on all of the product types. This documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

Technical Support

For technical support telephone numbers for different countries, go to:

http://www.siemens.com/automation/service&support

EC Declarations of Conformity

The EC Declaration of Conformity for the EMC Directive can be found on the Internet at

http://support.automation.siemens.com

There – as a search term – enter the number **15257461** or contact your local Siemens office.

Danger and warning information

⚠ DANGER

Commissioning is absolutely prohibited until it has been completely ensured that the machine, in which the components described here are to be installed, is in full compliance with the provisions of the EC Machinery Directive.

Only appropriately qualified personnel may commission the SINAMICS devices and the motors.

These personnel must carefully observe the technical customer documentation associated with this product and have knowledge of and carefully observe the danger and warning notices.

Operational electrical devices and motors have parts and components which are at hazardous voltage levels. All work carried out on the electrical machine system must be carried out at zero voltage.

When the machine or system is operated, hazardous axis movements can occur.

SINAMICS devices with motors can only be connected to the line supply via residual-current operated circuit breakers if it has been verified (in accordance with EN 61800-5-1) that the units are compatible with the particular residual-current operated circuit breaker.

In combination with the drive system, the motors are generally approved for operation on TN and TT systems with **grounded neutral** and on IT systems.

In operation on IT systems, the occurrence of a first fault between an active part and ground must be signaled by a monitoring device. In accordance with IEC 60364-4-41, it is recommended that the first fault be eliminated as quickly as is practically possible.

In systems with a **grounded external conductor**, an isolating transformer with grounded neutral (secondary side) must be connected between the line supply and the drive system to protect the motor insulation from excessive stress. The majority of TT systems have a grounded external conductor, so in this case an isolating transformer must be used.

⚠ WARNING

The successful and safe operation of these devices and motors is dependent on professional transport, storage, installation and mounting as well as careful operator control, service and maintenance.

For special versions of the devices and motors, information and data in the catalogs and quotations additionally apply.

In addition to the danger and warning information/instructions in the technical customer documentation supplied, the applicable domestic, local and plant-specific regulations and requirements must be carefully taken into account.

⚠ CAUTION

The motors can have surface temperatures of over +100° C.

This is the reason that temperature-sensitive components, e.g. cables or electronic components may neither be in contact nor be attached to the motor.

When connecting up cables, please observe that they
– are not damaged
– are not subject to tensile stress
– cannot be touched by rotating components.

CAUTION

Motors should be connected in accordance with the operating instructions. They must not be connected directly to the three-phase supply because this will damage them.

SINAMICS devices and motors are subjected to a voltage test during routine testing. It is not permitted to perform an additional high-voltage test on the motor; such a test can destroy electronic components such as the temperature sensor or encoder.

CAUTION

Motors with a DRIVE-CLiQ interface have an electronic rating plate containing motor and encoder-specific data. For this reason, encoder modules with a DRIVE-CLiQ interface or mounted sensor modules may only be operated on the original motor - and may not be mounted onto other motors or replaced by sensor modules from other motors.

The DRIVE-CLiQ interface has direct contact to components that can be damaged/destroyed by electrostatic discharge (ESDS). Neither hands nor tools that could be electrostatically charged should come into contact with the connections.

Note

When operational and in dry operating rooms, SINAMICS devices with motors fulfill the Low-Voltage Directive.

In the configurations specified in the associated EC Declaration of Conformity, SINAMICS devices with motors fulfill the EMC Directive.

ESDS instructions and electromagnetic fields

⚠ CAUTION

An **e**lectrostatic-**s**ensitive **d**evice (ESDS) is an individual component, integrated circuit, or module that can be damaged by electrostatic fields or discharges.

ESDS regulations for handling boards and equipment:

When handling components that can be destroyed by electrostatic discharge, it must be ensured that personnel, the workstation and packaging are well grounded!

Personnel in ESD zones with conductive floors may only touch electronic components if they are
– grounded through an ESDS bracelet and
– wearing ESDS shoes or ESDS shoe grounding strips.

Electronic boards may only be touched when absolutely necessary.

Electronic boards may not be brought into contact with plastics and articles of clothing manufactured from man-made fibers.

Electronic boards may only be placed on conductive surfaces (table with ESDS surface, conductive ESDS foam rubber, ESDS packing bag, ESDS transport containers).

Electronic boards may not be brought close to data terminals, monitors or television sets. Minimum clearance to screens > 10 cm).

Measurements may only be carried-out on electronic boards and modules if
– the measuring instrument is grounded (e.g. via a protective conductor) or
– before making measurements with a potential-free measuring device, the measuring head is briefly discharged
(e.g. by touching an unpainted blank piece of metal on the control cabinet).

⚠ DANGER

It may be dangerous for people to remain in the immediate proximity of the product – especially for those with pacemakers, implants or similar – due to electric, magnetic and electromagnetic fields (EMF) occurring as a consequence of operation.

The machine/system operator and the people present near the product must observe the relevant guidelines and standards! These are, for example, in the European Economic Area (EEA) the Electromagnetic Fields Directive 2004/40/EC and the standards EN 12198-1 to 12198-3 and in the Federal Republic of Germany the Employer's Liability Insurance Association Regulations for the Prevention of Industrial Accidents BGV 11, with the relevant rule BGR 11 "Electromagnetic Fields".

Then a risk assessment must be carried out for every workplace, activities for reducing dangers and exposure for people decided upon and implemented, as well as determining and observing exposure and danger areas.

Information regarding third-party products

NOTICE
This document contains recommendations relating to third-party products. This involves third-party products whose fundamental suitability is familiar to us. It goes without saying that equivalent products from other manufacturers may be used. Our recommendations are to be seen as helpful information, not as requirements or regulations. We cannot accept any liability for the quality and properties/features of third-party products.

Environmental compatibility

- Environmental aspects during development

  When selecting supplier parts, environmental compatibility was an essential criteria.

  Special emphasis was placed on reducing the envelope dimensions, mass and type variety of metal and plastic parts.

  Effects of paint-wetting impairment substances can be excluded (PWIS test)

- Environmental aspects during production

  Supplier parts and the products are predominantly transported in re-usable packing. Transport for hazardous materials is not required.

  The packing materials themselves essentially comprises paperboard containers that are in compliance with the Packaging Directive 94/62/EC.

  Energy consumption during production was optimized.

  Production has low emission levels.

- Environmental aspects for disposal

  Motors must be disposed of carefully taking into account domestic and local regulations in the normal recycling process or by returning to the manufacturer.

  The following must be taken into account when disposing of the motor:

  Oil according to the regulations for disposing of old oil (e.g. gear oil when a gearbox is mounted)

  Not mixed with solvents, cold cleaning agents of remains of paint

  Components that are to be recycled should be separated according to:

  – Electronics scrap (e.g. encoder electronics, sensor modules)
  – Iron to be recycled
  – Aluminum
  – Non-ferrous metal (gearwheels, motor windings)

Residual risks of power drive systems

When carrying out a risk assessment of the machine in accordance with the EU Machinery Directive, the machine manufacturer must as a minimum consider the following residual risks associated with the control and drive components of a power drive system (PDS).

1. Unintentional movements of driven machine components during commissioning, operation, maintenance, and repairs caused by, for example:
   - Hardware defects and/or software errors in the sensors, controllers, actuators, and connection technology
   - Response times of the controller and drive
   - Operating and/or ambient conditions not within the scope of the specification
   - Parameterization, programming, cabling, and installation errors
   - Use of radio devices / cellular phones in the immediate vicinity of the controller
   - External influences / damage
2. Exceptional temperatures as well as emissions of light, noise, particles, or gas caused by, for example:
   - Component malfunctions
   - Software errors
   - Operating and/or ambient conditions not within the scope of the specification
   - External influences / damage
3. Hazardous shock voltages caused by, for example:
   - Component malfunctions
   - Influence of electrostatic charging
   - Induction of voltages in moving motors
   - Operating and/or ambient conditions not within the scope of the specification
   - Condensation / conductive contamination
   - External influences / damage
4. Electrical, magnetic and electromagnetic fields generated in operation that can pose a risk to people with a pacemaker, implants or metal replacement joints, etc. if they are too close.
5. Release of environmental pollutants or emissions as a result of improper operation of the system and/or failure to dispose of components safely and correctly.

More extensive information concerning the residual risks associated with the PDS is provided in the relevant chapters of the technical user documentation.

Table of contents

Preface **3**

1 Motor description **15**

1.1 Properties 15

1.2 Technical features 18

1.3 Selection and ordering data 21

1.4 Rating plate data 27

1.5 Options 29

2 Configuration **31**

2.1 Configuring software 31
2.1.1 Configuration tool SIZER for SIEMENS Drives 31
2.1.2 STARTER drive/commissioning software 33
2.1.3 SinuCom commissioning tool 34

2.2 Procedure when engineering 34
2.2.1 Specifying the duty cycle 37

3 Mechanical properties of the motors **43**

3.1 Cooling 43
3.1.1 Forced ventilation 43
3.1.2 Water cooling 47
3.1.2.1 Cooling circuit 47
3.1.2.2 Engineering the cooling circuit 50
3.1.2.3 Coolant connection 1PH8 58

3.2 Degree of protection acc. to EN 60034-5 59

3.3 Bearing design and lifetime 61
3.3.1 Drive output types and bearing versions 61
3.3.2 Bearing lifetime 63

3.4 NDE bearings, insulated version (option L27) 66

3.5 Radial and axial forces 68
3.5.1 Radial force 68
3.5.2 Axial force 69
3.5.3 Radial and axial force diagrams 71

3.6 Shaft end 89

3.7 Radial eccentricity, concentricity and axial eccentricity 90

3.8 Balancing process 91

3.9 Vibration severity level 93

3.10 Paint finish 94

4 Technical data and characteristics 95

4.1 Asynchronous motors 95
4.1.1 Technical data 95
4.1.1.1 Explanation of short codes_asynchronous 95
4.1.1.2 Shaft height 80 – forced ventilation 96
4.1.1.3 Shaft height 100 – forced ventilation 96
4.1.1.4 Shaft height 132 – forced ventilation 98
4.1.1.5 Shaft height 160 - forced ventilation 99
4.1.1.6 Shaft height 180 - forced ventilation 100
4.1.1.7 Shaft height 180 - forced ventilation (open-circuit ventilation) 101
4.1.1.8 Shaft height 225 - forced ventilation 102
4.1.1.9 Shaft height 225 - forced ventilation (open-circuit ventilation) 103
4.1.1.10 Shaft height 280 - forced ventilation 104
4.1.1.11 Shaft height 280 - forced ventilation (open-circuit ventilation) 106
4.1.1.12 Overload factors for intermittent duty types (S6) and short-time duty (S2) 107
4.1.1.13 Shaft height 80 - water-cooled 108
4.1.1.14 Shaft height 100 - water-cooled 109
4.1.1.15 Shaft height 132 - water-cooled 110
4.1.1.16 Shaft height 160 - water cooling 111
4.1.1.17 Shaft height 180 - water-cooled 111
4.1.1.18 Shaft height 225 - water-cooled 112
4.1.1.19 Shaft height 280 - water-cooled 114
4.1.1.20 Overload factors for intermittent duty types (S6) and short-time duty (S2) 116
4.1.2 Characteristics forced ventilation 117
4.1.2.1 Shaft height 80 – forced ventilation 117
4.1.2.2 Shaft height 100 – forced ventilation 141
4.1.2.3 Shaft height 132 – forced ventilation 189
4.1.2.4 Shaft height 160 - forced ventilation 231
4.1.2.5 Shaft height 180 - forced ventilation 255
4.1.2.6 Shaft height 180 - forced ventilation (open-circuit ventilation) 285
4.1.2.7 Shaft height 225 - forced ventilation 315
4.1.2.8 Shaft height 225 - forced ventilation (open-circuit ventilation) 360
4.1.2.9 Shaft height 280 - forced ventilation 405
4.1.2.10 Shaft height 280 - forced ventilation (open-circuit ventilation) 465
4.1.3 Characteristics water cooling 510
4.1.3.1 Shaft height 80 - water-cooled 510
4.1.3.2 Shaft height 100 - water-cooled 528
4.1.3.3 Shaft height 132 - water-cooled 558
4.1.3.4 Shaft height 160 - water cooling 582
4.1.3.5 Shaft height 180 - water-cooled 600
4.1.3.6 Shaft height 225 - water-cooled 630
4.1.3.7 Shaft height 280 - water-cooled 675

4.2 Synchronous motors 735
4.2.1 Technical data 735
4.2.1.1 Explanation of short codes_synchronous 735
4.2.1.2 Shaft height 132 – forced ventilation 736
4.2.1.3 Shaft height 160 - forced ventilation 737
4.2.1.4 Shaft height 180 - forced ventilation 737
4.2.1.5 Shaft height 225 - forced ventilation 738
4.2.1.6 Overload factors for intermittent duty types (S6) and short-time duty (S2) 739
4.2.1.7 Shaft height 132 - water-cooled 740

4.2.1.8 Shaft height 160 - water cooling 741
4.2.1.9 Shaft height 180 - water-cooled 742
4.2.1.10 Shaft height 225 - water-cooled 743
4.2.1.11 Overload factors for intermittent duty types (S6) and short-time duty (S2) 744
4.2.2 Characteristics forced ventilation 745
4.2.2.1 Shaft height 132 – forced ventilation 745
4.2.2.2 Shaft height 160 - forced ventilation 772
4.2.2.3 Shaft height 180 - forced ventilation 784
4.2.2.4 Shaft height 225 - forced ventilation 802
4.2.3 Characteristics water cooling 829
4.2.3.1 Shaft height 132 - water-cooled 829
4.2.3.2 Shaft height 160 - water cooling 859
4.2.3.3 Shaft height 180 - water-cooled 877
4.2.3.4 Shaft height 225 - water-cooled 901

5 Motor components 937

5.1 Thermal motor protection 937

5.2 Encoder 939
5.2.1 Encoder overview 939
5.2.2 Encoder connection for motors with a DRIVE-CLiQ interface 940
5.2.3 Encoder connection for motors without DRIVE-CLiQ (12/17-pole) 940
5.2.4 Encoder assignment as a function of maximum permissible speeds 941
5.2.5 Incremental encoder HTL 1024 S/R or HTL 2048 S/R 944
5.2.6 Incremental encoders IC 2048 S/R, IN 512 S/R and IN 256 S/R 945
5.2.7 Absolute encoder AM 2048 S/R 948

5.3 Holding brake (option) 950
5.3.1 Properties 950
5.3.2 Mounted holding brake for SH 80 to SH 160 955
5.3.3 Mounted holding brake for SH 180 and SH 225 964

6 Cables and connections 969

6.1 SINAMICS drive I/O 969

6.2 Power connection 970

6.3 Connecting-up information 983

6.4 Supply data for separately-driven fans 985

6.5 Signal connection 992

7 Information about motor application 995

7.1 Transportation / storage before use 995

7.2 Construction types 995

7.3 Danger and warning information when mounting 996

7.4 Natural frequency when mounted 997

7.5 Mounting and mounting instructions 998

7.6 Misalignment 1000

7.7 Flywheels 1000

7.8 Vibration stressing 1000

7.9 Routing cables in a damp environment ... 1003
7.10 Mounting rotor-supported rotary glands on 1PH8 hollow-shaft motors ... 1004
7.10.1 Introduction ... 1004
7.10.2 Mounting ... 1005
8 Dimension drawings ... 1015
8.1 CAD CREATOR (title below) ... 1015
A Appendix ... 1017
A.1 Description of terms ... 1017
A.2 References ... 1019
Index ... 1021

Motor description

1

1.1 Properties

Overview

The SIMOTICS M-1PH8 motor series, referred to as 1PH8 in the following, is a new motor generation developed for universal implementation in plants and machines with motion control applications. The motors are available as an asynchronous variant as well as a compact synchronous variant with either forced ventilation or water cooling, based on a flexible building block principle.

In comparison to the freely selectable performance of vector and servo control with the SINAMICS S120 drive system, it is possible to select between asynchronous or synchronous variants in the case of the SIMOTICS M-1PH8 motor series.

Thanks to this flexible interplay between converter and motor, it is now even easier to implement applications which involve

- extreme duty cycles,
- short rise times,
- high precision with respect to speed, torque and positioning.

The motors have been designed specifically for use in conjunction with the SINAMICS S120 drive system. Depending on the control requirements, appropriate encoder systems are available for the motors for sensing the motor speed and indirect position.

Encoder systems for C-axis operation are also available for machine tools.

1PH8 motors are available in two different cooling types:

- Forced ventilation
- Water cooling

SH 80 to SH 160 Forced ventilation

SH 80 to SH 160 Water cooling

SH 180 to SH 280 Water cooling

SH 180 to SH 225 Forced ventilation

SH 280
Forced ventilation

Benefits

- Wide power spectrum with low envelope dimensions
- Wide speed control ranges
- High degree of flexibility due to the choice of
  - Asynchronous or synchronous design
  - Forced ventilation or water cooling
  - Solid or hollow shaft
  - Various bearing concepts
  - Different encoder types for speed control and precision positioning
- Outstanding performance characteristics
  - Maximum speeds of up to 20,000 rpm
  - Minimal torque oscillations up to 10 µm
  - Excellent vibration magnitudes
  - High dynamic response (short ramp-up times)
- Low noise emission
- Simple and flexible connection system
- Commissioning with electronic type plate and DRIVE-CLiQ interface

Applications

The 1PH8 three-phase motors are used as industrial drives for machine tools and production machines.

Note

The standard motors are not suitable for use in corrosive atmospheres, atmospheres with a high salt content, or in outdoor applications.

Thanks to integrated technology, 1PH8 motors can be used in conjunction with the SINAMICS S120 drive system in a very wide variety of applications:

- Compact machine tools
- Complex machining centers and lathes
- Milling machines with full enclosure
- High-load milling spindles
- Counterspindles or power tools for turning machines
- Direct power tools with internal cooling
- Main drives in presses and extruders, converting applications
- Rotary axes in the paper and printing industry
- For use in crane systems (power house)
- Flying shears, coilers and winder drives
- Customized machines

1.2 Technical features

The technical features specified in the tables below refer to the basic model of the 1PH8 motor and apply to the asynchronous and synchronous variants.

Depending on the electrical and mechanical configuration, it is possible to add options to the basic model in order to adapt it to a specific drive application (refer to Options, Selection and Ordering data).

Table 1- 1 Forced ventilation

Insulation of the stator winding in accordance with EN 60034–1 (IEC 60034–1)	For an ambient temperature of up to 40° C SH 80 to SH 280 temperature class 180 (H)	
Cooling in accordance with EN 60034-6 (IEC 60034-6)	Forced ventilation SH 80 ... SH 225: Fan mounted axially at NDE SH 280: Fan mounted radially at NDE	
Temperature monitoring	KTY 84 temperature sensor in the stator winding SH 180 ... SH 280: Additional KTY 84 as reserve	
Fan supply voltage (see "Technical data")	SH 80: SH 100... SH 160: SH 180... SH 225: SH 280:	1-ph. 230 VAC, 50/60 Hz, 1-ph. 265 VAC, 60 Hz 3-ph. 400 VAC, 50/60 Hz, 3-ph. 480 VAC, 60 Hz 1-ph. 200 to 277 VAC, 50/60 Hz (EC fan) 3-ph. 400 VAC, 50/60 Hz, 3-ph. 480 VAC 60 Hz
Type in accordance with EN 60034-7 (IEC 60034-7)	SH 80: SH 100... SH 280:	IM B3, IM B5 IM B3, IM B5, IM B35
Degree of protection in accordance with EN 60034-5 (IEC 60034-5)	SH 80 ... SH 280: SH 180... SH 280:	IP55 IP23
Shaft extension on the drive end in accordance with DIN 748-3 (IEC 60034-5)	Plain shaft or feather key, full-key or half-key balancing for feather key	
Shaft and flange accuracy in accordance with DIN 42955 (IEC 60072-1)[1)]	SH 80 ... SH 160 :SH 180 ... SH 280:	Tolerance R (reduced) Tolerance N (normal)
Vibration magnitudes in accordance with Siemens / EN 60034-14 (IEC 60034-14)	SH 80 ... SH 160: SH 180... SH 280:	Level R/A Level A
Sound pressure level in accordance with DIN EN ISO 1680, max. tolerance +3 dB, external fan 50 Hz	SH 80 ... SH 132:	70 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
	SH 160:	73 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
	SH 180 and SH 225:	73 dB at a rated pulse frequency of 2 kHz and a speed range: Forced ventilation (IP55) • SH180 up to 5000 rpm • SH225 up to 3500 rpm Open-circuit ventilation (IP23) • SH180 up to 3000 rpm • SH225 up to 2000 rpm
	SH 280	74 dB at a rated pulse frequency of 2 kHz and a speed range: Up to 3300 rpm Forced ventilation (IP55) • SH280 up to 3300 rpm Open-circuit ventilation (IP23) • SH280 up to 2800 rpm

Bearing versions and maximum speeds	Refer to Section "Mechanical properties of the motors")
Encoder systems, built-in without DRIVE-CLiQ interface	• Absolute encoder EnDat 2048 S/R (AM2048 S/R encoder) • Incremental encoder sin/cos 1 Vpp 2048 S/R with C and D tracks (IC2048 S/R encoder) • Incremental encoder sin/cos 1 Vpp 512 S/R without C and D tracks (encoder IN512 S/R) • Incremental encoder sin/cos 1 Vpp 256 S/R without C and D tracks (encoder IN256 S/R) • Incremental encoder HTL 1024 S/R (encoder HTL1024 S/R) • Incremental encoder HTL 2048 S/R (encoder HTL2048 S/R)
Encoder systems, built-in with DRIVE-CLiQ interface	• Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ) • Incremental encoder, 22-bit, with commutation position (encoder IC22DQ) • Incremental encoder 20-bit without commutation position (encoder IC20DQ) • Incremental encoder 19-bit without commutation position (encoder IC19DQ)
Connection	Connector for signals or DRIVE-CLiQ interface (mating connector not included in scope of supply) SH 80 to SH 132: Terminal box NDE top / power connector SH 160 to SH 225: Terminal box NDE top SH 280: Terminal box NDE right
Rating plate	1 unit attached to motor 1 unit supplied loose in terminal box
Paint finish	Standard paint finish in anthracite RAL 7016
Options	Refer to Options and Selection and Ordering data
Approvals, in accordance with	cURus

1) Radial eccentricity of the shaft extension, concentricity of the centering wheel and axial eccentricity of the mounting flange to the shaft-extension axis.
SH = Shaft Height
S/R = Signal/Revolution
DE = Drive End (motor drive end)
NDE = Non-Drive End (motor fan end)

Table 1- 2 Water cooling

Insulation of the stator winding in accordance with EN 60034–1 (IEC 60034–1)	For a coolant inlet temperature of up to +30° C SH 80 ... SH 280: Temperature class 180 (H)[2)]	
Cooling in accordance with EN 60034-6 (IEC 60034-6)	Water cooling Max. cooling water pressure at inlet: 6 bar cooling water volume/connecting thread at NDE (for further data, see Section "Mechanical properties of the motors")	
Temperature monitoring	KTY 84 temperature sensor in the stator winding SH 180 ... SH 280: Additional KTY 84 as reserve	
Type in accordance with EN 60034-7 (IEC 60034-7)	SH 80: SH 100 ... SH 280:	IM B3, IM B5 IM B3, IM B5, IM B35
Degree of protection in accordance with EN 60034-5 (IEC 60034-5)	SH 80 ... SH 160: SH 180 ... SH 280	IP65 IP55
Shaft extension on the drive end in accordance with DIN 748-3 (IEC 60034-5)	Plain shaft or feather key, full-key or half-key balancing for feather key	
Shaft and flange accuracy in accordance with DIN 42955 (IEC 60072-1)[1)]	SH 80 ... SH 160: SH 180 ... SH 280	Tolerance R (reduced) Tolerance N (normal)
Vibration magnitudes in accordance with Siemens / EN 60034-14 (IEC 60034-14)	SH 80 ... SH 160: SH 180 ... SH 280	Level R/A Level A
Sound pressure level in accordance with DIN EN ISO 1680, max. Tolerance +3 dB	SH 80 ... SH 132:	68 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
	SH 160:	69 dB at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm
	SH 180 and SH 225:	70 dB at a rated pulse frequency of 2 or 4 kHz and speed ranges: • SH 180 up to 5000 rpm • SH 225 up to 4500 rpm
	SH 280:	72 dB at a rated pulse frequency of 2 kHz and a speed range up to 3300 rpm
	(For further data, see Section "Mechanical properties of the motors")	
Bearing versions and maximum speeds	Refer to Section "Mechanical properties of the motors")	
Encoder systems, built-in without DRIVE-CLiQ interface	• Absolute encoder EnDat 2048 S/R (AM2048 S/R encoder) • Incremental encoder sin/cos 1 Vpp 2048 S/R with C and D tracks (IC2048 S/R encoder) • Incremental encoder sin/cos 1 Vpp 512 S/R without C and D tracks (encoder IN512 S/R) • Incremental encoder sin/cos 1 Vpp 256 S/R without C and D tracks (encoder IN256 S/R) • Incremental encoder HTL 1024 S/R (encoder HTL1024 S/R) • Incremental encoder HTL 2048 S/R (encoder HTL2048 S/R)	

Encoder systems, built-in with DRIVE-CLiQ interface	• Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ) • Incremental encoder, 22-bit, with commutation position (encoder IC22DQ) • Incremental encoder 20-bit without commutation position (encoder N20DQ) • Incremental encoder 19-bit without commutation position (encoder N19DQ)
Connection	Connector for signals or DRIVE-CLiQ interface (mating connector not included in scope of supply) SH 80 ... SH 132: Terminal box NDE top / power connector SH 160 ... SH 280: Terminal box NDE top
Rating plate	1 unit attached to motor 1 unit supplied loose in terminal box
Paint finish	Standard paint finish in anthracite RAL 7016
Options	Refer to Options and Selection and Ordering data
Approvals, in accordance with	cURus

1) Radial eccentricity of the shaft extension, concentricity of the centering wheel and axial eccentricity of the mounting flange to the shaft-extension axis.
SH = Shaft Height
S/R = Signal/Revolution
DE = Drive End (motor drive end)
NDE = Non-Drive End (motor fan end)

2) The following motors are designed to conform to temperature class 155 (F) because of the construction version:
1PH8107-1□F2
1PH8138-2□F2
1PH8138-2□G2
1PH8107-1□M2
1PH8164
1PH8166
1PH8168

1.3 Selection and ordering data

The order number supplements specified in the tables below define the logical system for ordering motors in the 1PH8 series and apply to the asynchronous and synchronous variants.

The order number supplements can also be found in catalog PM 21N or NC 61. They correspond to the actual technical selection and ordering data of these catalogs.

Supplementary to the information in PM 21N and NC 61, the technical selection and ordering data are integrated in Section "Technical data and characteristics" of this configuration manual.

Depending on the electrical and mechanical configuration, Z options can be appended to the order number supplements.

Order number supplement for shaft heights 80 to 160

Description	(Data position of the Order No.) 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
	1 P H 8
Shaft height 80	0 8
Shaft height 100	1 0
Shaft height 132	1 3
Shaft height 160	1 6
Overall length	
Asynchronous version	1
Synchronous version (only shaft height 132 and 160)	2
Encoder systems for motors without DRIVE-CLiQ-interface: Without encoder [1]	A
Absolute encoder EnDat 2048 S/R with EnDat interface (encoder AM2048S/R) [2]	E
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) [1] [3]	H
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) [1] [4]	J
Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D track (encoder IC2048S/R) [2]	M
Incremental encoder sin/cos 1 V_{pp} 512 S/R without C and D track (encoder IN512S/R) [1] [5]	T
Incremental encoder sin/cos 1 V_{pp} 256 S/R without C and D track (encoder IN256S/R) [1] [10]	L
Encoder systems for motors with DRIVE-CLiQ-interface: 22 bit absolute encoder single-turn with 12 bit mult-turn (encoder AM22DQ) [2] [12]	F
22 bit incremental encoder with commutation position (encoder IC22DQ) [2] [12]	D
20 bit incremental encoder without commutation position (encoder IN20DQ) [1] [5] [12]	U
19 bit incremental encoder without commutation position (encoder IN19DQ) [1] [10] [12]	V
Windig version, Rated speeds (3 AC 380 V to 480 V): 400 rpm, 500 rpm, 600 rpm	B
1000 rpm, 1150 rpm, 1350 rpm	D
1500 rpm, 1750 rpm, 2000 rpm	F
2000 rpm, 2300 rpm, 2650 rpm	G
2500 rpm, 2800 rpm, 3000 rpm	L
3000 rpm, 3300 rpm, 3600 rpm	M
4500 rpm, 5000 rpm, 5500 rpm	N
Star-delta connection [1] (3 AC 380 V to 480 V): 1500/4000 rpm, 2000/5000 rpm, 2500/6000 rpm	S
Cooling: Forced ventilation DE -> NDE (IP 55 degree of protection)	0
Forced ventilation NDE -> DE (IP 55 degree of protection)	1
Water cooling (IP 65 degree of protection)	2
Type of construction: IM B3 (IM V5, IM V6)	0
IM B5 (IM V1, IM V3) [14]	2
IM B35 (IM V15, IM V35) [6]	3
Shaft extension (DE) Balancing: Plain shaft -	0
Fitted key [11] Full-key	1
Fitted key [11] Half-key	2
Plain hollow shaft [1] [10] -	3
Bearing version: Standard R/A R	B
Standard S/A R	C
Standard [1] SR/A R	D
Performance [7] SPECIAL/B SPEZIAL	L
High Performance [13] SPECIAL/B SPEZIAL	M
Advanced Lifetime [8] S/A R	Q
Power connection: Terminal box top Right DE	A
Terminal box top Left DE	B
Terminal box top NDE Left	C
Power connector top [9] [12] Right DE	E
Power connector top [9] [12] Left DE	F
Power connector top [9] [12] NDE Left	G
Power connector top [9] [12] DE Left	H
Version status	1
Special version (order codes are required for options)	Z

1) Only possible with 8th data position "1" (asynchronous variant)
2) Limited to n_{max} = 12.000 rpm
3) Limited to n_{max} = 9.000 rpm
4) Limited to n_{max} = 4.600 rpm
5) Limited to n_{max} = 15.000 rpm
6) Only possible with shaft heights 100, 132 and 160
7) Only possible with 8th data position "1" (asynchronous variant)
   Shaft height 80: limited to n_{max} = 15.000 rpm
   Shaft height 100: limited to n_{max} = 12.000 rpm
   Shaft height 132: limited to n_{max} = 10.000 rpm
   Shaft height 160: limited to n_{max} = 9.000 min^{-1}; not possible with 12th data position "2" (IM B5)
8) Limited to n_{max} = 5.000 rpm, shaft height 132: n_{max} = 4.500 rpm, shaft height 160: n_{max} = 4.000 rpm
9) For shaft height 100: power connector only possible up to a max. static current of I_0 = 36 A
   For shaft height 132: power connector only possible up to a max. static current of I_0 = 85 A
   For shaft height 160: power connector not possible
10) Only possible with 14th data position: "L", "M" and 9th data position: "L", "V"
11) Not possible with 14th data position: "M"
12) Not possible for motors to star-delta connection (10th data position: "S")
13) Only possible with 8th data position "1" (asynchronous variant)
   Shaft height 80: limited to n_{max} = 20.000 rpm
   Shaft height 100: limited to n_{max} = 18.000 rpm
   Shaft height 132: limited to n_{max} = 15.000 rpm
   Shaft height 160: limited to n_{max} = 10.000 rpm; not possible with 12th data position: "2" (IM B5)
14) Not possible for shaft height 160 and 14th data position: "L", "M"

Figure 1-1 Order number supplement for SH 80 to SH 160

Order number supplement for shaft heights 180 to 280

Description	(Data position of the Order No.) 1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
	1	P	H	8																
Shaft height 180					1	8														
Shaft height 225					2	2														
Shaft height 280 (only asynchronous version with water cooling)					2	8														
Overall length																				
Asynchronous version									1											
Synchronous version									2											
Encoder systems for motors without DRIVE-CLiQ-interface: Without encoder [1]										A										
Absolute encoder EnDat 2048 S/R (encoder AM2048S/R)										E										
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) [1]										H										
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) [1] [4]										J										
Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D track (encoder IC2048S/R)										M										
Encoder systems for motors witht DRIVE-CLiQ-interface: 22 bit absolute encoder single-turn with 12 bit mult-turn (encoder AM22DQ)										F										
22 bit incremental encoder with commutation position (encoder IC22DQ)										D										
Windig version: Rated speeds (3 AC 380 V to 480 V): 400 rpm, 500 rpm, 600 rpm											B									
700 rpm, 800 rpm, 1000 rpm											C									
1000 rpm, 1150 rpm, 1350 rpm											D									
1500 rpm, 1750 rpm, 2000 rpm											F									
2500 rpm, 2900 rpm, 3200 (3400) rpm											L									
Rated speeds (3 AC 690 V) only shaft height 280: 400 rpm, 500 rpm											H									
700 rpm, 800 rpm											K									
1000 rpm, 1150 rpm											U									
1500 rpm, 1750 rpm											W									
Cooling: Forced ventilation, DE-->NDE (IP 55 degree of protection)												0								
Forced ventilation, NDE-->DE (IP 55 degree of protection)												1								
Water cooling (IP 55 degree of protection)												2								
Open-circuit cooling, DE-->NDE (only asynchronous version) (IP 23 degree of protection)												3								
Open-circuit cooling, NDE-->DE (only asynchronous version) (IP 23 degree of protection)												4								
Type of construction: Shaft height 180: IM B3 (IM B6, IM B7, IM B8, IM V6)													0							
IM V5													1							
IM B5 with A450 flange (IM V3) [5]													2							
IM B35 with A450 flange (IM V35)													3							
IM V15 with A450 flange													5							
Shaft height 225: IM B5 with A550 flange (IM V3) [6]													2							
IM B35 with A550 flange (IM V35)													3							
IM V15 with A550 flange													5							
Shaft height 280: IM B3 (IM V6)													0							
IM V5 [9]													1							
IM B5 with A660 flange (IM V3) [7] [9]													2							
IM B35 with A660 flange (IM V35)													3							
IM V15 with A660 flange [9]													5							
Shaft extension (DE) Balancing: Plain shaft -															0					
Fitted key Full-key															1					
Fitted key Half-key															2					
Bearing version: Standard A N																A				
Standard R/A R																B				
Increased radial forces A N																E				
Increased radial forces R/A R																F				
Additonal possible at shaft height 180 and 225:																				
Standard S/A R																C				
Standard[1] SR/A R																D				
Performance[1] [8] SR/A R																L				
Power connection: Terminal box top Right DE																	A			
Terminal box top Left DE																	B			
Terminal box top NDE Right																	C			
Terminal box top DE Right																	D			
Version status																		1		
Special version (order codes are required for options)																				Z

1) Only possible with 8th data position "1" (asynchronous variant)

4) Limited to n_{max} = 4.600 rpm
5) Limited to n_{max} = 3.000 rpm, only possible with 14th data position "L" (Performance)
6) Limited to n_{max} = 2.500 rpm, only possible with 14th data position "L" (Performance)
7) Limited to n_{max} = 2.000 rpm
8) Only possible with shaft height 180: Limited to n_{max} = 7.500 rpm not possible with 12th data position "2" (IM B5) and 11th data position “3“ and “4“ (open-circuit cooling)
Only possible with shaft height 225: Limited to n_{max} = 6.000 rpm, not possible with 12th data position "2" (IM B5) and 11th data position “3“ and “4“ (open-circuit cooling)
9) Only possible with 14th data position "A" or "B" (Standard-storage)

Figure 1-2 Order number supplement for SH 180 to SH 280

Order number supplement for shaft heights 280

Description			(Data position of the Order No.) 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
			1 P H 8
Shaft height 280 (Forced ventilation with Open-circuit cooling)			2 8
Overall length			
Asynchronous version			1
Encoder systems for motors without DRIVE-CLiQ-interface	Without encoder		A
	Absolute encoder EnDat 2048 S/R (encoder AM2048S/R)		E
	Incremental encoder HTL 1024 S/R (encoder HTL1024S/R)		H
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R)		J
	Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D track (encoder IC2048S/R)		M
Encoder systems for motors with DRIVE-CLiQ-interface	22 bit absolute encoder single-turn with 12 bit mult-turn (encoder AM22DQ)		F
	22 bit incremental encoder with commutation position (encoder IC22DQ)		D
Externally mounted encoder systems	Incremental encoder HTL 1024 S/R POG 10 (Baumer-Huebner), prepared for attachment[1]		K
Windig version		Shaft height 280	
	Rated speeds (3 AC 380 V to 480 V)	400 rpm, 500 rpm, 600 rpm	B
		–	Q
		700 rpm, 800 rpm, 1000 rpm	C
		1000 rpm, 1150 rpm, 1350 rpm	D
		1500 rpm, 1750 rpm, 2000 rpm	F
	Rated speeds (3 AC 690 V)	400 rpm, 500 rpm	H
		700 rpm, 800 rpm	K
		1000 rpm, 1150 rpm	U
		–	V
		1500 rpm, 1750 rpm	W
Cooling	Forced ventilation	(IP 55 degree of protection)	1
	Forced ventilation	(Open-circuit cooling IP 23 degree of protection)	4
Type of construction	Shaft height 280		
	IM B3 (IM V6)		0
	IM V5[4]		1
	IM B5 with A660 flange (IM V3)[4]		2
	IM B35 with A660 flange (IM V35)		3
	IM V15 with A660 flange[4]		5
Shaft extension (DE)	Balancing		
Plain shaft	–		0
Fitted key	Full-key		1
Fitted key	Half-key		2
Bearing version	Vibration magnitude acc. to Siemens/EN 60034-14	Shaft and flange accuracy	
Standard	A	N	A
Standard	R/A	R	B
Erhöhte Radialkräfte	A	N	E
Erhöhte Radialkräfte	R/A	R	F

Power connection	Cable entry	Signal connection	External fan (view of DE)	
Terminal box NDE right	Bottom	DE		U
			NDE on top, air inlet of NDE, air flow direction NDE-->DE	–
			NDE on the left, air inlet of NDE, air flow direction NDE-->DE	G00
Terminal box NDE left	Bottom	DE		V
			NDE on top, air inlet of NDE, air flow direction NDE-->DE	–
			NDE on the right, air inlet of NDE, air flow direction NDE-->DE	G02
Terminal box NDE top	Right	DE		W
			NDE on the left, air inlet of NDE, air flow direction NDE-->DE	G00
			NDE on the right, air inlet of NDE, air flow direction NDE-->DE	G02
Terminal box DE top[2]	Right	NDE		X
			NDE on top, air inlet of NDE, air flow direction NDE-->DE[2][3]	–
			NDE on the left, air inlet of NDE, air flow direction NDE-->DE[2]	G00
			NDE on the right, air inlet of NDE, air flow direction NDE-->DE[2]	G02
Version status				1
Special version (order codes are required for options)				Z

1) When placing an order, please also select the options H56 or G80
2) Only possible with 12th data position: "0" (IM B3) and "1" (IM V5)
3) Only possible for assignments with terminal box 1XB7712-P...
4) Only possible with 14th data position: "A" and "B" (Standard bearing)

Figure 1-3 Order designation for SH 280

Order number supplement for shaft heights 80 to 160 + holding brake DE

Description			(Data position of the Order No.) 1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
			1	P	H	8																
Shaft height 80							0	8														
Shaft height 100							1	0														
Shaft height 132							1	3														
Shaft height 160							1	6														
Overall length																						
Asynchronous version with holding brake[1]											3											
Synchronous version (only shaft height 132 and 160)[1]											4											
Encoder systems for motors without DRIVE-CLiQ-interface	Without encoder[2]											A										
	Absolute encoder EnDat 2048 S/R with EnDat interface (encoder AM2048S/R)											E										
	Incremental encoder HTL 1024 S/R (encoder HTL1024S/R)[2]											H										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R)[2]											J										
	Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D track (encoder IC2048S/R)											M										
Encoder systems for motors with DRIVE-CLiQ-interface	22 bit absolute encoder single-turn with 12 bit mult-turn (encoder AM22DQ)[3]											F										
	22 bit incremental encoder with commutation position (encoder IC22DQ)[3]											D										
Windig version																						
Cooling	Forced ventilation DE -> NDE	(IP 55 degree of protection)												0								
	Forced ventilationNDE -> DE	(IP 55 degree of protection)												1								
	Water cooling	(IP 55 degree of protection)[4]												2								
Type of construction																						
	IM B5 (IM V1, IM V3)[5]														2							
	IM B35 (IM V15, IM V35)														3							
Shaft extension (DE)	Balancing																					
Plain shaft	-																0					
Fitted key	Half-key																2					
Bearing version	Vibration magnitude acc. to Siemens/EN 60034-14	Shaft and flange accuracy																				
Standard	A	N																A				
Advanced Lifetime	A	N																P				
Power connection[6]	Cable entry	Signal connection (view of DE)																				
Terminal box top	Right	DE																	A			
Terminal box top	Left	DE																	B			
Terminal box top	NDE	Left																	C			
Power connector top[3][7]	Right	DE																	E			
Power connector top[3][7]	Left	DE																	F			
Power connector top[3][7]	NDE	Left																	G			
Power connector top[3][7]	DE	Left																	H			
Version status																				1		
Brake design:																						
Brake input voltage 1 AC 230 V 50/60 Hz		Holding brake DE																				U60
		Holding brake DE with micro switch																				U61
		Holding brake DE with manual release device																				U62
		Holding brake DE with micro switch and manual release device																				U63
Brake input voltage DC 24 V		Holding brake DE																				U65
		Holding brake DE with micro switch																				U66
		Holding brake DE with manual release device																				U67
		Holding brake DE with micro switch and manual release device																				U68
Impermissible Z options in combination with holding brake DE:		K18, V91																				

1) In addition, the holding brake version must be ordered with a U option
   Shaft height 80: limited to n_{max} = 5.000 rpm
   Shaft height 100: limited to n_{max} = 5.000 rpm
   Shaft height 132: limited to n_{max} = 4.500 rpm
   Shaft height 160: limited to n_{max} = 4.000 rpm
2) Only possible with 8th data position "1" (asynchronous variant)
3) Not possible for motors to star-delta connection (10th data position: "S")
   Note: Only possible as from SINUMERIK V 4.4
4) On account of the holding brake, the degree of protection is limited to IP 55
5) Not possible for shaft height 160
6) The holding brake can only be connected via the brake terminal box (above)
7) Power connector for motor only (not for holding brake):
   For shaft height 100: power connector only possible up to a max. static current of I_0= 36 A
   For shaft height 132: power connector only possible up to a max. static current of I_0 = 85 A
   For shaft height 160: power connector not possible

Figure 1-4 Order designation for SH80 to 160 + holding brake

Order number supplement for shaft heights 180 to 225 + holding brake DE

Description			(Data position of the Order No.) 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
			1 P H 8
Shaft height 180			1 8
Shaft height 225			2 2
Overall length			
Asynchronous version with holding brake[1]			3
Synchronous version with holding brake[1]			4
Encoder systems for motors without DRIVE-CLiQ-interface	Without encode[2]		A
	Absolute encoder EnDat 2048 S/R (Encoder AM2048S/R)		E
	Incremental encoder HTL 1024 S/R (Encoder HTL1024S/R)[2]		H
	Incremental encoder HTL 2048 S/R (Encoder HTL2048S/R)[2]		J
	Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D track(encoder IC2048S/R)		M
Encoder systems for motors with DRIVE-CLiQ-interface	22 bit absolute encoder single-turn with 12 bit multi-turn (encoder AM22DQ)		F
	22 bit inkremental encoder with commutation position (encoder IC22DQ)		D
Windig version			
Cooling	Forced ventilation, DE-->NDE	(IP 55 degree of protection)	0
	Forced ventilation, NDE-->DE	(IP 55 degree of protection)	1
	Water cooling	(IP 55 degree of protection)	2
	open-circuit cooling, NDE-->DE (only asynchronous)	(IP 23 degree of protection)	4
Type of construction	IM B3 (IM B6, IM B7, IM B8, IM V6)		0
Shaft extension (DE)	Balancing		
Fitted key	Half-key		2
Bearing version	Vibration magnitude acc. to Siemens/EN 60034-14	Shaft and flange accuracy	
Standard	A	N	A
Power connection[3]	Cable entry	Signal connection (view of DE)	
Terminal box top	Right	DE	A
Terminal box top	Left	DE	B
Terminal box top	NDE	Right	C
Terminal box top	DE	Right	D
Version status			1
Brake versions: Brake connection voltage 1 AC 230 V 50/60 Hz	Holding brake DE with micro switch and manual release device		U63
Impermissible Z options in combination with holding brake DE: K18, K90, L03			

1) In addition, the holding brake version must be ordered with a U option
Shaft height 180: limited to n_{max} = 3.500 rpm
Shaft height 225: limited to n_{max} = 3.100 rpm
2) Only possible with 8th data position "1" (asynchronous variant)
3) The holding brake can only be connected via the brake terminal box (above)

Figure 1-5 Order designation for SH 180 and 225 + holding brake

See also

Technical features (Page 18)

1.4 Rating plate data

The rating plate (type plate) contains the technical data relevant to the motor.

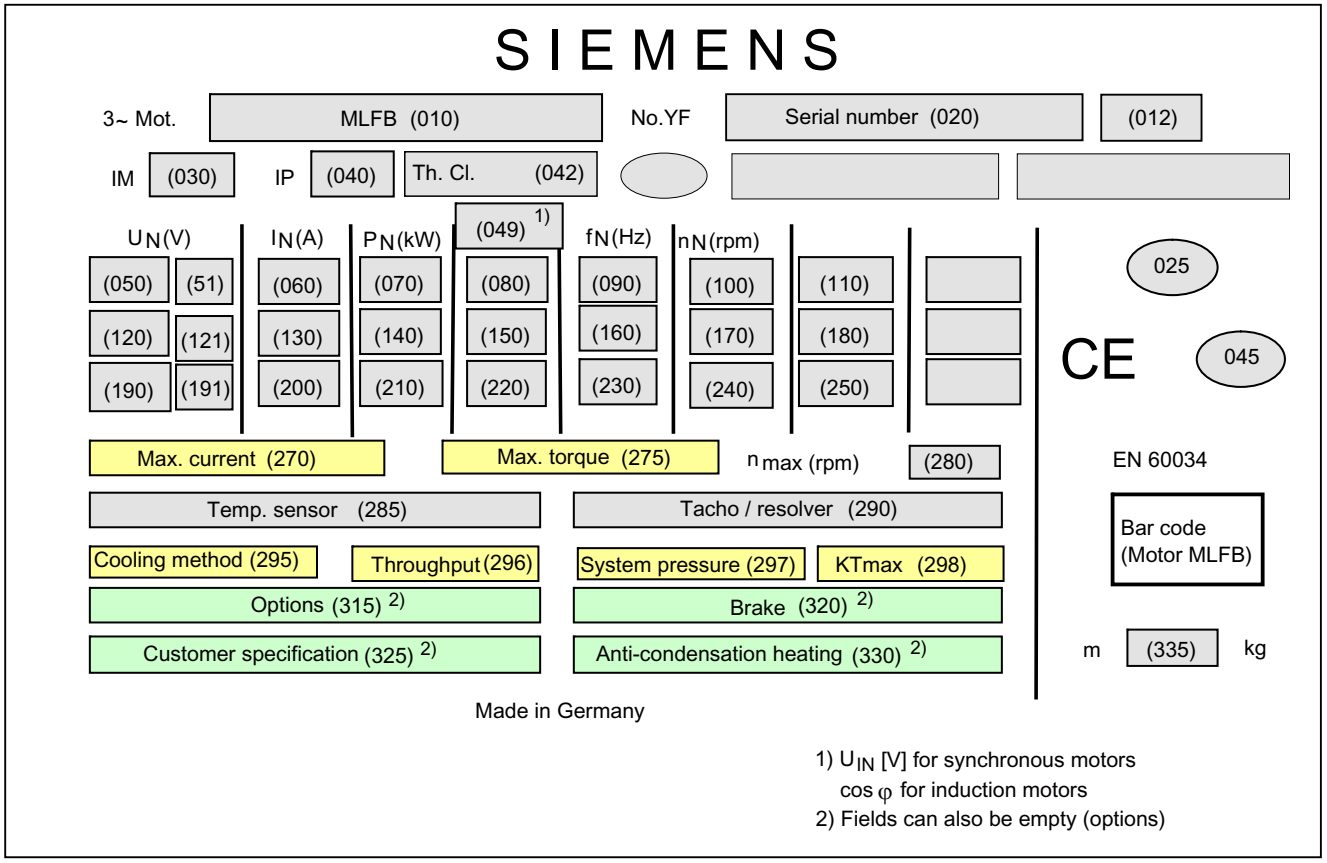


Figure 1-6 Schematic layout of rating plate

Table 1- 3 Elements on the rating plate

No.	Description	No.	Description
010	MLFB	180	Operating mode (2)
012	Consecutive number	185	Code no. 2
020	Identification number	190	Rated voltage V_{rated} (3)
025	UL approval	191	Connection type 3
030	Type of construction	200	Rated current I_{rated} (3)
040	Degree of protection	210	Rated power P_{rated} (3)
042	Insulating material class	220	cos φ (3)
045	Balancing code	230	Rated frequency f_{rated} (3)
049	for synchronous motors: induced voltage at rated speed V_{IN}	240	Rated speed n_{rated} (3)
	for asynchronous motors: cos φ	250	Operating mode (3)
050	Rated voltage V_{rated} (1)	255	Code no. 3
051	Connection type 1	270	Maximum current I_{max} 1)
060	Rated current I_{rated} (1)	275	Maximum torque M_{max} 1)
070	Rated power P_{rated} (1)	280	Maximum speed n_{max}
080	cos φ (1)	285	Temperature sensor
090	Rated frequency f_{rated} (1)	290	Tachometer/resolver
100	Rated speed n_{rated} (1)	295	Cooling method
110	Operating mode (1)	296	Throughput l/min (m^3/s) 1)
115	Code no. 1	297	System pressure
120	Rated voltage V_{rated} (2)	298	Maximum coolant temperature
121	Connection type 2	315	Options (I)
130	Rated current I_{rated} (2)	320	Options (II)
140	Rated power P_{rated} (2)	325	Optional customer information
150	cos φ (2)	330	Anti-condensation heating
160	Rated frequency f_{rated} (2)	335	Weight
170	Rated speed n_{rated} (2)		

1) Currently not labeled on the rating plate

1.5 Options

Codes and option description

Order code	Description of option When ordering a motor with options, -Z should be added to the order number. The order code should also be specified for each additional required option. Order codes must not be repeated in plain text in the order.	For use with motors		
		Shaft height 80 up to 160	Shaft height 180 up to 280	280 only for Forced ventilation (11th data position "1" or "4")
A12	Additional PTC thermistor chain for alarm and tripping (only possible for version with terminal box)	✓	✓	✓
A25	Additional KTY84 temperature sensor as reserve connected to signal terminal strip (only possible for version with terminal box)	✓	Standard	Standard
B02	Test certifikate for ordered motor	✓	Standard	Standard
G00	External fan NDE left (possible if 15th data position is "U", "W" or "X")	–	–	✓
G02	External fan NDE right (possible if 15th data position is "V", "W" or "X")	–	–	✓
G14	With air filter (possible if 11th data position is "1" or "4")	only for sh 132 and sh 160	✓	✓
G80	Mounting of a POG 10 incremental encoder supplied by customer (possible if 9th data position is K)	–	–	✓
H56	Mounting of the POG 10 D 1024 incremental encoder (encoder HTL1024S/R) (possible if 9th data position is K)	–	–	✓
K08	Encoder connector mounted opposite (not possible if 15th data position is "X")	–	✓	✓
K09	Terminal box or power connector NDE right	only for sh 100 [1] up to sh 160	–	–
	Terminal box NDE right, cable entry DE, signal connection top (possible if 15th data position is "A")	–	✓	–
K10	Terminal box or power connector NDE left	only for sh 100 [1] up to sh 160	–	–
	Terminal box NDE left, cable entry DE, signal connection top (possible if 15th data position is "A")	–	✓	–
K16	Second shaft extension (AH 280 d x l: 95 mm x 170 mm) (possible if 9th data position is "A" or "G" and 12th data position is "0" or "3")	–	–	✓
K18	Radial shaft sealing ring DE [2]	✓	✓	–
K40	Regreasing system, DE and NDE	–	only for sh 180 and sh 225	Standard
K45	230 V AC standstill heating	–	–	✓
K69	Tube connection prepared NDE on the right (only possible with forced ventilation, not for G00 or G02)	–	–	✓
K70	Tube connection prepared NDE on the left (only possible with forced ventilation, not for G00 or G02)	–	–	✓
K71	Tube connection prepared NDE on the top (only possible with forced ventilation, not for G00 or G02)	–	–	✓
K80	Axial pipe connection NDE (only possible with forced ventilation)	✓	only for sh 180 and sh 225	option K69, K70, K71
K83	Rotation of terminal box by +90 degrees (possible in combination with options K09 or K10 or 15th data position is "U", "V" or "W")	–	✓	✓
K84	Rotation of terminal box by -90 degrees (possible in combination with options K09 or K10 or 15th data position is "U", "V", "W" or "X")	–	✓	✓
K85	Rotation of terminal box by +180 degrees (possible in combination with options K09 or K10 or 15th data position is "U", "V", "W" or "X")	–	✓	✓
K90	Version with flange size A400 (possible if 12th data position "2", "3" and "5")	–	only for sh 180	–
L00	Replace terminal box (standard) with the next largest terminal box Note dimension implications, see CAD CREATOR.	–	✓	✓
L12	Condensate draining hole	–	Standard for water cooling	only for 11th data position "1"
L27	NDE bearing in insulated version	–	Standard for sh 225/280	Standard
L72	Shaft made of special purpose steel	–	–	✓
L74	Fan in IP65 degree of protection [3]	✓	–	–

1) Not possible with 12th data position "2" (IM B5 type of construction).

2) Only appropriate if oil spray or oil vapor is occasionally deposited on the sealing ring.
Radial shaft sealing ring is not possible with: 14th data position "E", "F" and "L".

3) Regardless of the degree of protection, at high levels of atmospheric pollution, the fan must be cleaned.

4) Not possible for 1PH822 and 1XB7712-P03 terminal box.

✓	Option possible
–	not possible

Codes and option description (continued)

Order code	Description of option When ordering a motor with options, -Z should be added to the order number. The order code should also be specified for each additional required option. Order codes must not be repeated in plain text in the order.	For use with motors		
		Shaft height 80 up to 160	Shaft height 180 up to 280	280 only for Forced ventilation (11th data position "1" or "4")
M83	Additional thread for a setting screw on motor feet (possible if 12th data position is "0" or "3")	–	–	✓
P00	Undrilled cable entry plate	–	✓	not for 1XB7820-P00
P01	Cable entry plate 3 x M63 x 1.5	–	not for 1XB7700-P02 1XB7712-P03	only for 1XB7712-P03
P02	Cable entry plate 3 x M75 x 1.5	–	only for 1XB7712-P03	only for 1XB7712-P01 1XB7712-P03
P03	Cable entry plate 4 x M75 x 1.5	–	–	only for 1XB7712-P01
P04	Cable entry plate 4 x M63 x 1.5	–	only for 1XB7712-P03	only for 1XB7712-P01 1XB7712-P03
U60	Holding brake 230 V	✓	–	–
U61	Holding brake 230 V with micro switch	✓	–	–
U62	Holding brake 230 V with Handlüfthebel	✓	–	–
U63	Holding brake 230 V with micro switch and manual lifting lever	✓	only for AH 180 and AH 225	–
U65	Holding brake DC 24 V	✓	–	–
U66	Holding brake DC 24 V with micro switch	✓	–	–
U67	Holding brake DC 24 V with manual lifting lever	✓	–	–
U68	Holding brake DC 24 V with micro switch and manual lifting lever	✓	–	–
V90	1PH7-compatible shaft extension (d × l: 42 mm × 110 mm (1.65 in × 4.33 in)) (Note reduced radial forces)	only for AH 132	–	–
V91	1FT6-compatible shaft extension (d x l: 48 mm x 82 mm) (1.89 in x 3.23 in))	only for AH 132	–	–
V92	1PH7184-/1PL6184-compatible shaft extension (d x l: 60 mm x 140 mm) (2.36 in x 5.51 in))	–	only for1PH8184	–
Y84	Customer data on the rating plate (max. 30 characters)	✓	✓	✓
–	Paint finish (Anthracite RAL 7016)	Standard	Standard	Standard
X01	Paint finish: Jet black RAL 9005	✓	✓	✓
X02	Paint finish: Cream white RAL 9001	✓	✓	✓
X03	Paint finish: Reseda green RAL 6011	✓	✓	✓
X04	Paint finish: Pebble gray RAL 7032	✓	✓	✓
X05	Paint finish: Sky blue RAL 5015	✓	✓	✓
X06	Paint finish: Light ivory RAL 1015	✓	✓	✓
X08	Paint finish: White aluminum RAL 9006	✓	✓	✓
K24	Primer	Pale green	Red brown	Red brown
K23	Special paint finish worldwide: Primer and paint finish in anthracite RAL 7016	✓	✓	✓
K23 + X..	Special paint finish worldwide: Primer and paint finish can be selected from X01 to X08	✓	✓	✓

✓	Option possible
–	not possible

See also

Selection and ordering data (Page 21)

Configuration 2

2.1 Configuring software

2.1.1 Configuration tool SIZER for SIEMENS Drives

Overview

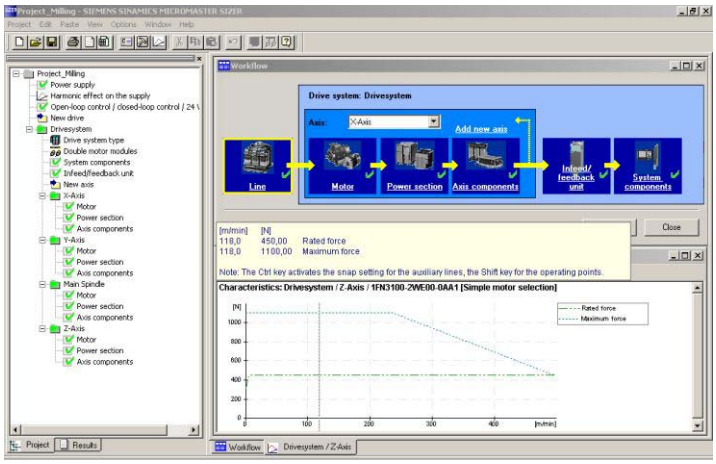


Figure 2-1 SIZER for SIEMENS Drives

The user-friendly configuration of the SINAMICS drive family is carried out using the configuration tool SIZER for SIEMENS Drives. It provides support for the technical planning of the hardware and firmware components required for a drive task. SIZER for SIEMENS Drives covers the full range of operations required to configure a complete drive system, from simple single drives to complex multi-axis applications.

SIZER for SIEMENS Drives supports all the configuration steps in a single workflow:

- Configuring the power supply
- Designing the motor and gearbox, including calculation of mechanical transmission elements
- Configuring the drive components
- Compiling the required accessories
- Selection of the line-side and motor-side power options

When SIZER for SIEMENS Drives was being designed, particular importance was placed on a high degree of usability and a holistic, function-based approach to the drive application. The extensive user navigation makes it easy to use the tool. Status information keeps you continually informed about how engineering is progressing.

The SIZER for SIEMENS Drives user interface is available in German, English, French and Italian. The online help is also available in Japanese and Chinese, each with an English user interface. The drive configuration is saved in a project. In the project, the components and functions used are displayed in a hierarchical tree structure. The project view permits the configuration of drive systems and the copying/inserting/modifying of drives already configured.

The configuration process produces the following results:

- Parts list of components required (Export to Excel)
- Technical specifications of the system
- Characteristics
- Comments on system reactions
- Installation information of the drive and control components
- Energy considerations of the configured drive systems

These results are displayed in a results tree and can be reused for documentation purposes. User support is provided by technological online help, which provides the following information:

- Detailed technical data
- Information about the drive systems and their components
- Decision-making criteria for the selection of components.

Table 2- 1 Order number for SIZER for SIEMENS Drives

Configuration tool	Order number (MLFB) of the DVD
SIZER for SIEMENS Drives German/English	6SL3070-0AA00-0AG0

Minimum system requirements

- PG or PC with Pentium™ III 800 MHz (recommended > 1 GHz)
- 512 MB RAM (1 GB recommended)
- At least 4.1 GB free hard disk space
- In addition, 100 MB free hard disk space on the Windows system drive
- Screen resolution 1024 × 768 pixels (1280 x 1024 pixels recommended)
- Windows™ 7 Professional (32/64-bit), 7 Enterprise (32/64-bit), 7 Ultimate (32/64-bit), 7 Home (32/64-bit), Vista Business, XP Professional SP2, XP Home SP2, XP 64-bit SP2
- Microsoft Internet Explorer 5.5 SP2

2.1.2 STARTER drive/commissioning software

The STARTER commissioning tool offers

- Commissioning
- Optimization
- Diagnostics

Table 2- 2 Order number for STARTER

Commissioning tool	Order number (MLFB) of the DVD
STARTER German, English, French, Italian, Spanish	6SL3072-0AA00-0AG0

Minimum system requirements

- Hardware
  - PG or PC with Pentium III min. 800 MHz (recommended > 1 GHz)
  - 512 MB RAM (1 GB recommended)
  - Screen resolution 1024 × 768 pixels, 16-bit color depth
  - At least 2 GB free hard disk space
- Software
  - Microsoft Windows 2000 SP4
  - Microsoft Windows Server 2003 SP1 and SP2 (PCS7)
  - Microsoft Windows XP Professional SP2 and SP3
  - Microsoft Windows VISTA Business SP1 1)
  - Microsoft Windows VISTA Ultimate SP1 1)
  - Microsoft Internet Explorer V6.0 or higher

1) DCC cannot be used.
STARTER can only be used on these operating systems without the DCC option.

2.1.3 SinuCom commissioning tool

The simple-to-use commissioning software SinuCom is used for the commissioning of SINUMERIK controls in combination with the SINAMICS S120 drives and SIMODRIVE 611 digital.

Table 2- 3 Order number for SinuCom

Commissioning tool	Order number (MLFB) of the DVD
SinuCom German, English, French, Italian, Spanish	6FC5862-2YC00-0YA0

2.2 Procedure when engineering

Motion control

1PH8 motors are optimized for motion control applications. They execute linear or rotary movements within a defined movement cycle. All movements should be optimized in terms of time.

As a result of these considerations, 1PH8 motors must meet the following requirements:

- High dynamic response, i.e. short rise times
- Capable of overload, i.e. a high reserve for accelerating
- Wide control range, i.e. high resolution for precise positioning.

The following table "Configuring procedure" is valid for synchronous and asynchronous motors.

General configuring procedure

The function description of the machine provides the basis when configuring the drive application. The definition of the components is based on physical interdependencies and is usually carried out as follows:

Table 2- 4 Configuring procedure

step	Description of the configuring activity	
1.	Clarification of the type of drive	Refer to the next chapter
2.	Definition of supplementary conditions and integration into an automation system	
3.	Definition of the load, calculation of the maximum load torque and selection of the motor	
4.	Selection of the SINAMICS Motor Module	Refer to catalog
5.	Steps 3 and 4 are repeated for additional axes	
6.	Calculation of the required DC link power and selection of the SINAMICS Line Module	
7.	Selection of the line-side options (main switch, fuses, line filters, etc.)	
8.	Specification of the required control performance and selection of the Control Unit, definition of component cabling	
9.	Definition of other system components (e.g. braking resistors)	
10.	Calculation of the current demand of the 24 V DC supply for the components and specification of the power supplies (SITOP devices, Control Supply Modules)	
11.	Selection of the components for the connection system	
12.	Configuration of the drive line-up components	
13.	Calculation of the required cable cross sections for power supply and motor connections	
14.	Inclusion of mandatory installation clearances	

Clarification of the type of drive

The motor is selected on the basis of the required torque, which is defined by the application, e.g. traveling drives, hoisting drives, test stands, centrifuges, paper and rolling mill drives, feed drives or main spindle drives. Gearboxes to convert motion or to adapt the motor speed and motor torque to the load conditions must also be considered.

As well as the load torque, which is determined by the application, the following mechanical data is among those required to calculate the torque to be provided by the motor:

- Masses to be moved
- Diameter of the drive wheel
- Leadscrew pitch, gear ratios
- Frictional resistance
- Mechanical efficiency
- Traversing paths

- Maximum velocity
- Maximum acceleration and maximum deceleration
- Cycle time

You must decide whether synchronous or asynchronous motors (induction motors) are to be used.

Synchronous motors are the best choice if it is important to have low envelope dimensions, low rotor moment of inertia and therefore maximum dynamic response ("Servo" control type).

Asynchronous motors can be used to increase maximum speeds in the field-weakening range. Asynchronous motors for higher power ratings are also available.

The following factors are especially important when engineering a drive application:

- The ambient temperatures and the installation altitude of the motors and drive components.
- Heat dissipation from the motors through forced ventilation or water cooling

The motor-specific limiting characteristics provide the basis for defining the motors.

These define the torque or power characteristic versus the speed and take into account the motor limits based on the DC-link voltage of the Power Module or Motor Module. The DC-link voltage is in turn dependent on the supply voltage and, in the case of torque drives, on the type of Line Module.

Other constraints apply when integrating the drives into an automation environment such as SINUMERIK or SIMOTION.

The motor is selected based on the load which is specified by the application. Different characteristic curves must be used for different load events.

The following operating scenarios have been defined:

- Duty cycle with constant ON period.
- Duty cycles with varying ON period.
- Free duty cycle.

The objective is to identify characteristic torque and speed operating points, on the basis of which the motor can be selected depending on the particular load.

2.2.1 Specifying the duty cycle

Duty cycles with constant ON period

For duty cycles with constant ON period, there are specific requirements for the torque characteristic curve as a function of the speed, for example:

M = constant, M ~ n^2, M ~ n or P = constant.

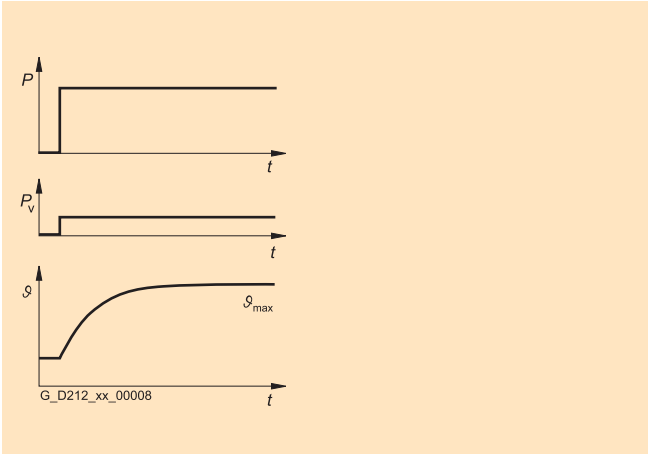


Figure 2-2 S1 duty (continuous operation)

These drives typically operate at a specific operating point. Drives such as these are dimensioned for a base load. The base load torque must lie below the S1 characteristic curve. In the event of transient overloads (e.g. when accelerating) an overload has to be taken into consideration. The overload current must be calculated relative to the required overload torque. The peak torque must lie below the voltage limiting characteristic.

Duty cycles with varying ON period

As well as continuous duty (S1), standard intermittent duty types (S6) are also defined for duty cycles with varying ON periods. This is a mode of operation consisting of a series of similar cycles, each one comprising one time period with a constant load and one idle time. There is no pause.

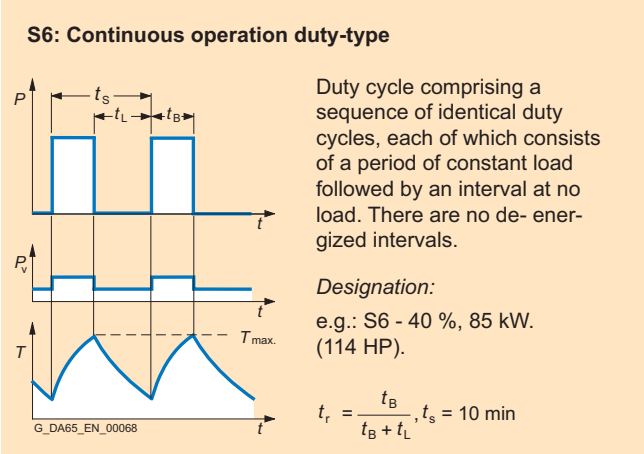


Figure 2-3 S6 duty (continuous duty with intermittent load)

Fixed variables (overload factors) are usually applied for the relative ON period:

- S6 – 60%
- S6 – 40%
- S6 – 25%

The overload factors for the corresponding intermittent duty types (S6) referred to the S1 characteristic (continuous duty) can be found in Chapter 4.

Note

S3 duty

The overload factors for continuous duty with intermittent load (S6) can also be applied for the S3 intermittent duty types (S3-60%, S3-40% or S3-25%) for 1PH8 motors with forced ventilation or water cooling.

Free duty cycle

A duty cycle defines the progress of the motor speed and torque over time.

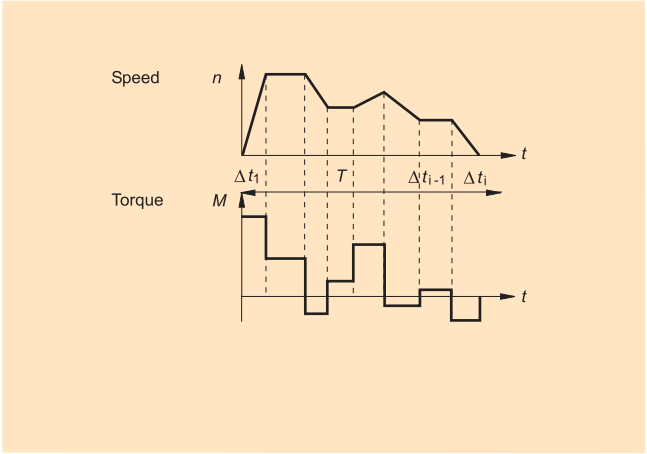


Figure 2-4 Example of a duty cycle

A load torque is specified for each time period. In addition to the load torque, the average load moment of inertia and motor moment of inertia must be taken into account for acceleration. It may be necessary to take into account a frictional torque that opposes the direction of motion.

When a gearbox is mounted:
The gear ratio and gear efficiency must be taken into account when calculating the load and/or accelerating torque to be provided by the motor. A higher gear ratio increases positioning accuracy in terms of encoder resolution. For any given motor encoder resolution, as the gear ratio increases, so does the resolution of the machine position to be detected.

Note

For duty cycles in the field weakening range, the drive system must be engineered using the SIZER engineering tool.

Once the application has been defined and specified, the maximum motor torque is calculated. Generally, the maximum motor torque is required when accelerating. The load torque and the torque required to accelerate the motor are added.

The maximum motor torque is then verified with the limiting characteristic curves of the motors.

The following criteria must be taken into account when selecting the motor:

- The dynamic limits must be adhered to, i.e. all speed-torque points of the relevant load event must lie below the relevant limiting characteristic curve.
- The thermal limits must be adhered to, i.e. the rms motor torque at the average motor speed resulting from the duty cycle must lie below the S1 characteristic curve (continuous duty). The rms value of the motor current within a duty cycle must be less than the rated motor current.
- In the field-weakening range, the permissible motor torque is restricted by the voltage limit characteristic (stability limit).

Note

Rated pulse frequencies

The rated motor data is valid only for 4 kHz (booksize or blocksize motor modules) or 2 kHz (chassis motor module). Operation of the motors with rated pulse frequencies < 2 kHz is not permitted!

Characteristic curves for asynchronous motors

The speed-power diagrams P = f(n) and the speed-torque diagrams M = f(n) for operation with the SINAMICS converter system are described in the motor characteristics (see Section 4).

Depending on the motor variant, the S1 characteristic (continuous operation) is available from standstill to design point with maximum possible thermal torque, or passes through the constant-torque range. The power increases in proportion to speed depending on the available torque.

This is then followed by a constant-power range where the field is weakened (field-weakening range). The field-weakening range is limited by the voltage limit.

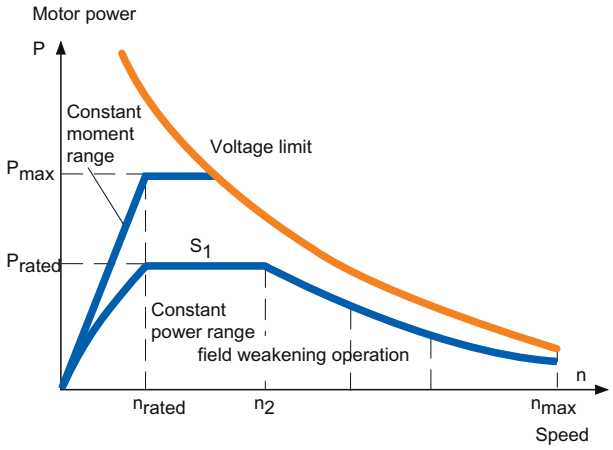


Figure 2-5 Typical speed/power diagram for 1PH8 asynchronous motors

In order that safe, reliable operation is guaranteed even when the line supply voltage fluctuates and the motor parameters vary, a safety margin of at least 10% should always be maintained to the voltage limit at every operating point depending on the type of supply voltage of the Motor Module (inverter) and Infeed Module.

For the configuring of main spindle applications for machine tools, the characteristics for the supply voltage "ALM 400 V" include up to two additional ancillary design points with which extended field-weakening operation can be configured. In this case, the range of constant power starts at the ancillary design point and ends at the associated point n_2. The rest of the characteristic is the same as the S1 characteristic in the diagram.

Asynchronous motors have a high overload capacity in the constant power range. The theoretical curve of the maximum permissible overload capacity is shown as a limit in the characteristic diagrams and corresponds to value P_{max}.

Characteristic curves for synchronous motors

The S1 characteristic (continuous operation) up to design point for synchronous motors is similar to the S1 characteristic for asynchronous motors. The S1 characteristic represents the thermally maximum possible continuous torque that can be produced. The S1 power increases with the speed depending on the available torque up to approximately the rated speed.

This is followed by an area with reduced power characterized by increasing iron and friction losses, as well as the increase of negative field voltage with increasing speed due to the constant field of the synchronous rotor.

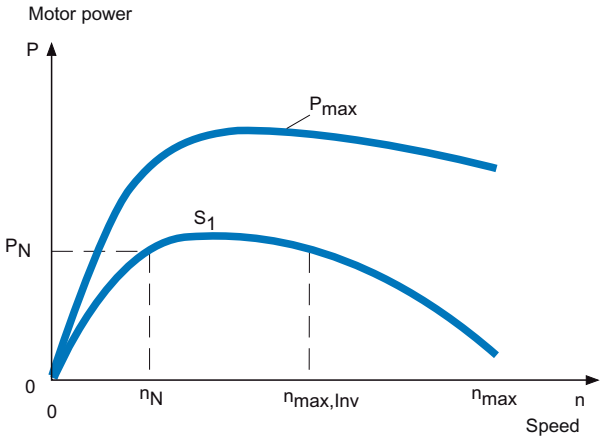


Figure 2-6 Typical speed/power diagram for 1PH8 three-phase synchronous motors

Like those for asynchronous motors, the data sheets for the supply voltage "ALM 400V" include additional ancillary design points for the configuring of main spindle applications for machine tools. These allow an extended speed range to be configured.

The theoretical curve of the maximum permissible overload capacity is shown as a limit in the characteristic diagrams and corresponds to value P_{max}.

Note

Voltage limitation

A SINAMICS Voltage Protection Module (VPM) is required for operation at speeds of $n_{max,Inv}$ and above. Voltage Protection Modules are available for rated currents up to 200 A.

For further information, please refer to the SINAMICS S120 configuration manuals.

Mechanical properties of the motors

3

3.1 Cooling

The following table shows an overview of the available variants of cooling system.

Table 3- 1 Cooling system variants of 1PH8 motors

Shaft height	Motor type	Forced ventilation	Water cooling
80	Asynchronous	✓	✓
100	Asynchronous	✓	✓
132	Asynchronous and synchronous	✓	✓
160	Asynchronous and synchronous	✓	✓
180	Asynchronous and synchronous	✓	✓
225	Asynchronous and synchronous	✓	✓
280	Asynchronous	✓	✓

3.1.1 Forced ventilation

The forced-ventilated motor must be mounted in such a way that it can be properly ventilated. This is especially true when mounting the motors in enclosures. Heated exit air must not be drawn in again. The cooling air must flow in and out without restriction. Accumulated dirt in the cooling ducts should be avoided as this can reduce the cooling airflow.

All catalog data refer to an ambient temperature of 40° C and an installation altitude up to 1000 m above sea level.

⚠ CAUTION
Temperatures of over 100° C can occur on the surface of the motor.

Ambient/coolant temperature

Operation: T = -15° C to +40° C (without restriction)
Under conditions other than those specified above (ambient temperature > 40° C or installation altitude > 1000 m above sea level), the permissible torque/power must be determined from the following table. Ambient temperatures and installation altitudes are rounded off to 5° C or 500 m respectively.

Table 3- 2 Factors for reducing the torque/power acc. to EN 60034-6

Installation altitude above sea level	Ambient temperature in ° C			
	40	45	50	55[1)]
1000	1.00	0.96	0.92	0.87
1500	0.97	0.93	0.89	0.84
2000	0.94	0.90	0.86	0.82
2500	0.90	0.86	0.83	0.78
3000	0.86	0.82	0.79	0.75
3500	0.82	0.79	0.75	0.71
4000	0.77	0.74	0.71	0.67

1) Only permitted for the "NDE" ⇒ "DE" direction of air flow

NOTICE

For ambient temperatures > 55° C, please contact your local Siemens office.

The standard motors are not suitable for use in corrosive atmospheres, atmospheres with a high salt content, or in outdoor applications.

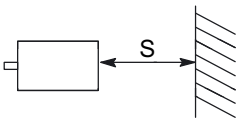
Mounting a fan and minimum clearance to parts and components mounted by the customer

Table 3- 3 Fan mounting

Shaft height [mm]	Fan mounting
80 to 225	NDE axial, can be rotated through 180°
280	NDE radial, can be ordered differently from the mounting type.

The minimum clearance to parts and components mounted by the customer and to the air discharge opening as well as the minimum clearance S between the air intake and air discharge openings and adjacent components must be maintained.

Table 3- 4 Minimum clearances

Shaft height [mm]	Minimum clearance to parts and components mounted by the customer [mm]	Minimum clearance S [mm]	
80	30	30	
100	30	30	
132	60	60	
160	80	80	
180/225	100	300	
280	170	120	

Ventilation data and sound pressure levels

Table 3- 5 Ventilation data and sound pressure levels

Shaft height [mm]	Air flow direction	Degree of protection	Air flow rate, min [m³/s]	Air discharge	Sound pressure level L_{pA} (1 m) Motor + operation on an external fan 50 Hz rated load, tolerance +3 dB [dB]	Pressure drop (Δp) [Pa]
80	NDE → DE	IP55	0.02	Axial	70[1)]	95
	DE → NDE					
100	NDE → DE	IP55	0.04			110
	DE → NDE					
132	NDE → DE	IP55	0.09			140
	DE → NDE					
160	NDE → DE	IP55	0.16		73[1)]	200
	DE → NDE					
180	NDE → DE	IP23	0.21		73[2)]	450
	DE → NDE	IP55	0.17			550
225	NDE → DE	IP23	0.33			600
	DE → NDE	IP55	0.31			650
280	NDE → DE	IP23	0.52	Radial	74[2)]	600
	DE → NDE	IP55	0.42			600

1) At a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm

2) At a rated pulse frequency of 2 kHz and a speed range
   - Forced ventilation (IP55)
     - SH180 up to 5000 rpm
     - SH225 up to 3500 rpm
     - SH280 up to 3300 rpm
   - Open-circuit ventilation (IP23)
     - SH180 up to 3000 rpm
     - SH225 up to 2000 rpm
     - SH280 up to 2800 rpm

Note

Ambient air

If the ambient air is polluted by particles of dust or similar substances, then the preferable air flow direction is NDE → DE.

As of SH132, the motors are optionally available with air flow direction NDE → DE with air filter (option G14).

Cleaning the cooling air ducts

For air-cooled motors, the cooling ducts, through which the ambient air flows, must be regularly cleaned depending on the degree of pollution at the mounting location. These air ducts can be cleaned, e.g. using dry, oil-free compressed air.

Motors with pipe connection

The 1PH8 motors in the forced ventilation version can also be equipped for pipe connection instead of the standard mounted external fan. In this version, the external fan is omitted and replaced by a pipe connection molded part.

The diameter of the pipe connection is based on the standard DIN EN 1506 or EN 13180, whereby pipes and molded parts from basic commercially available ventilation and air-conditioning merchandise are used.

Note

Minimum air flow and pressure drop

Pipes and external fans of suitable type and dimensioning must be installed and connected. The required minimum air flow and the pressure drop at the motor must be taken into account for the design and dimensioning.

Table 3- 6 Diameter, minimum air flow and pressure drop

Shaft height [mm]	Diameter [mm]	Degree of protection	Minimum air flow [m^3/s]	Pressure drop [Pa]
80	150	IP55	0.02	95
100	160	IP55	0.04	110
132	224	IP55	0.09	140
160	280	IP55	0.16	200
180	300	IP23	0.21	450
		IP55	0.17	550
225	350	IP23	0.33	600
		IP55	0.31	650
280	Adapter required	IP23	0.52	600
		IP55	0.42	600

See also

Supply data for separately-driven fans (Page 985)

3.1.2 Water cooling

⚠ WARNING

The equipment must be safely disconnected from the supply before any installation or service work is carried out on the cooling circuit.

Only qualified personnel may design, install and commission the cooling circuit.

3.1.2.1 Cooling circuit

The electrochemical processes that take place in a cooling system must be minimized by choosing the right materials. For this reason, mixed installations, i.e. a combination of different materials, such as copper, brass, iron, or halogenated plastic (PVC hoses and seals), should not be used or limited to the absolutely essential minimum.

A differentiation is made between 3 different cooling circuits:

- Closed cooling circuit
- Semi-open cooling circuit
- Open cooling circuit

Table 3- 7 Description of the various cooling circuits

Definition	Description
Closed cooling circuit	The pressure equalizing tank is closed (oxygen cannot enter the system) and has a pressure relief valve. The coolant is only routed in the motors and converters as well as the components required to dissipate heat.
Semi-open cooling circuit	Oxygen can only enter the cooling system through the pressure equalization tank, otherwise the same as "closed cooling circuit".
Open cooling circuit (tower system)	The coolant is cooled in a tower. In this case, there is intensive oxygen contact.

Note

Cooling circuits

Only closed and semi-open cooling circuits are permissible for motors. Converter systems must be connected before the motors in the cooling circuit.

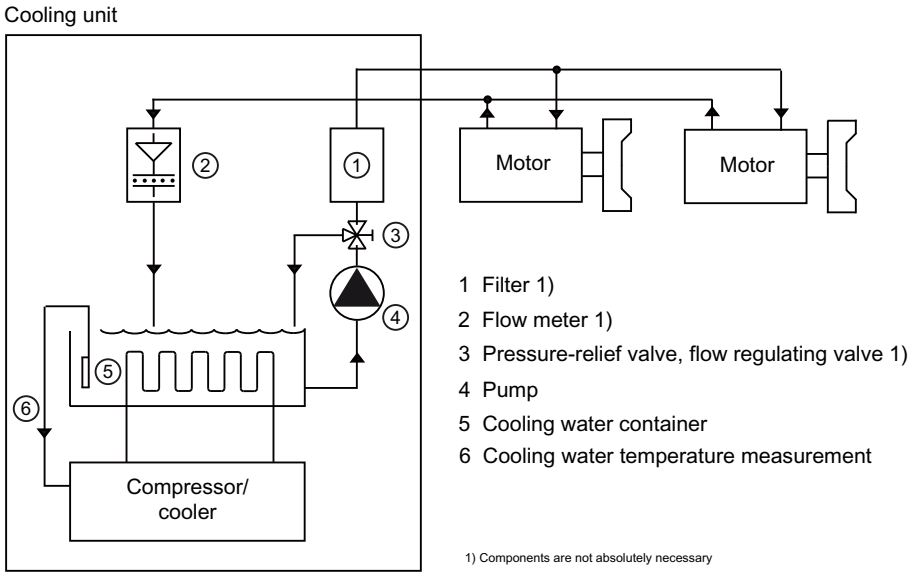


Figure 3-1 Example of a semi-open cooling circuit

Equipotential bonding

All components in the cooling system (motor, heat exchanger, piping system, pump, pressure equalization tank, etc.) must be connected to an equipotential bonding system. This is implemented using a copper bar or finely stranded copper cable with the appropriate cable cross-sections.

NOTICE
Under no circumstances may the cooling water pipes come into contact with live components. There must always be an isolating clearance of > 13 mm! The pipes must be securely mounted and checked for leaks.

Materials used in the motor cooling circuit

The materials used in the cooling circuit must be coordinated with the materials in the motor.

Table 3- 8 Materials used in the cooling circuit of the 1PH8 motor

Shaft height	Bearing shield	Pipes in the stator (designation)
80	Cast iron (EN-GJL-200)	Stainless steel
100	Cast iron (EN-GJL-200)	Stainless steel
132	Cast iron (EN-GJL-200)	Stainless steel
160	Cast iron (EN-GJL-200)	Stainless steel
180	-	Stainless steel (V4A)
225	-	Stainless steel (V4A)
280	-	Stainless steel (V4A)

Materials and components in the cooling circuit

The following table lists a wide variety of materials and components which may or may not be used in a cooling circuit.

Table 3- 9 Materials and components of a cooling circuit

Material	Used as	Description
Zinc	Pipes, valves and fittings	Use is not permitted.
Brass	Pipes, valves and fittings	Can be used in closed circuits with inhibitor.
Copper	Pipes, valves and fittings	Can be used only in closed circuits with inhibitors in which the heat sink and copper component are separated (e.g. connection hose on devices).
Common steel (e.g. St37)	Pipes	Permissible in closed circuits and semi-open circuits with inhibitors or Antifrogen N, check for oxide formation, inspection window recommended.
Cast steel, cast iron	Pipes, motors	Closed circuit and use of strainers and flushback filters. Fe separator for stainless heat sink.
High-alloy steel, Group 1 (V2A)	Pipes, valves and fittings	Can be used for drinking or municipal water with a chloride content up to <250 ppm, suitable according to definition in Section "Coolant definition".
High-alloy steel, Group 2 (V4A)	Pipes, valves and fittings	Can be used for drinking or municipal water with a chloride content up to <500 ppm, suitable according to definition in Section "Coolant definition".
ABS (**A**crylnitrile**B**utadiene**S**tyrene)	Pipes, valves and fittings	Suitable according to the definition in Section "Coolant definition". Suitable for mixing with inhibitor and/or biocide as well as Antifrogen N.
Installation comprising different materials (mixed installation)	Pipes, valves and fittings	Use is not permitted.
PVC	Pipes, valves, fittings and hoses	Use is not permitted.
Hoses		Reduce the use of hoses to a minimum (device connection). Must not be used as the main pipe for the whole system. Recommendation: EPDM hoses with an electrical resistance > 10^9 Ω (e.g. Semperflex FKD supplied from Semperit or DEMITTEL; from PE/EPD, supplied from Telle).
Gaskets	Pipes, valves and fittings	Use of Viton, AFM34, EPDM is recommended.
Hose connections	Transition Hose - pipe	Secure with clips conforming to DIN 2817, available e.g. from the Telle company.

The following recommendation applies in order to achieve an optimum motor heatsink (enclosure) lifetime:

- Engineer a closed cooling circuit with cooling unit manufactured out of stainless steel that dissipates the heat through a water-water heat exchanger.
- All other components such as cooling circuit cables and fittings manufactured out of ABS, stainless steel or general construction steel.

Cooling system manufacturers

BKW Kälte-Wärme-Versorgungstechnik GmbH	http://www.bkw-kuema.de
DELTATHERM Hirmer GmbH	http://www.deltatherm.de
Glen Dimplex Deutschland GmbH	http://www.riedel-cooling.com
Helmut Schimpke und Team Industriekühlanlagen GmbH + Co. KG	http://www.schimpke.org
Hydac System GmbH	http://www.hydac.com
Hyfra Industriekühlanlagen GmbH	http://www.hyfra.de
KKT Kraus Kälte- und Klimatechnik GmbH	http://www.kkt-kraus.de
Pfannenberg GmbH	http://www.pfannenberg.com
Rittal GmbH & Co. KG	http://www.rittal.de

Note

It goes without saying that equivalent products from other manufacturers may be used. Our recommendations are to be seen as helpful information, not as requirements or regulations. We cannot accept any liability for the quality and properties/features of third-party products.

3.1.2.2 Engineering the cooling circuit

Pressure

The operating pressure must be set according to the flow conditions in the supply and return lines of the cooling circuit. The required cooling water flow rate per time unit must be set according to the technical data of the equipment and motors.

The maximum permissible pressure with respect to atmosphere in the heat sink and thus in the cooling circuit must not exceed 0.6 MPa (6 bar) If a pump that can achieve a higher pressure is used, suitable measures must be provided on the system side (e.g. safety valve $p \leq 0.6$ MPa, pressure control etc.) to ensure that the maximum pressure is not exceeded.

The lowest possible differential pressure between the cooling water in the supply and return lines should be selected to allow pumps with a flat characteristic to be used.

An additional flushback filter should be used in the circuit in order to help prevent blockages and corrosion. This allows any material deposits to be flushed out in operation.

Pressure drop in the motor

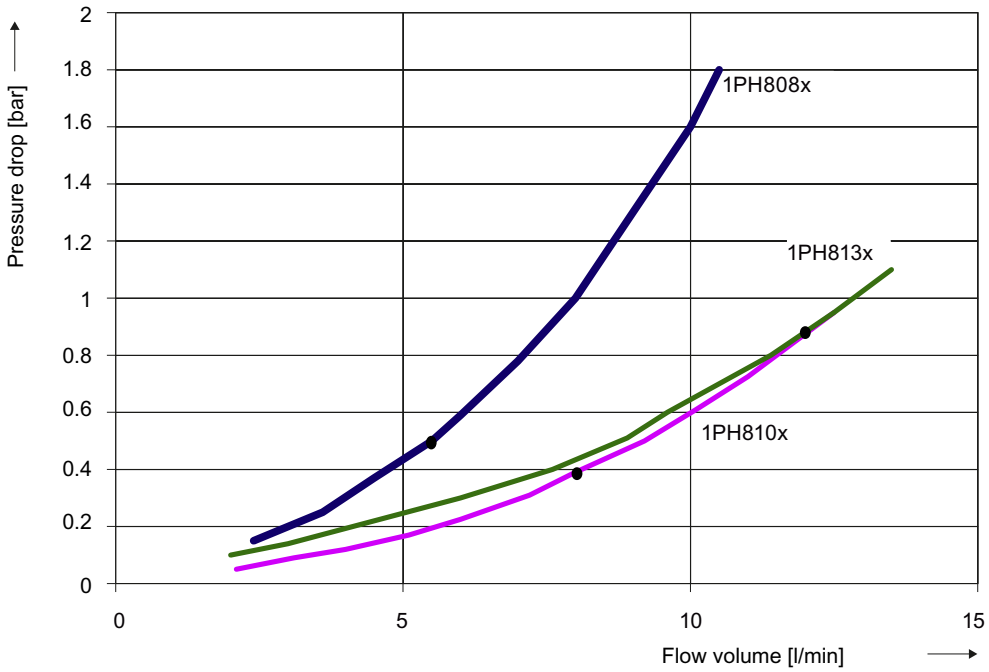


Figure 3-2 Pressure drop in the cooling pipe system, shaft heights 80 to 132

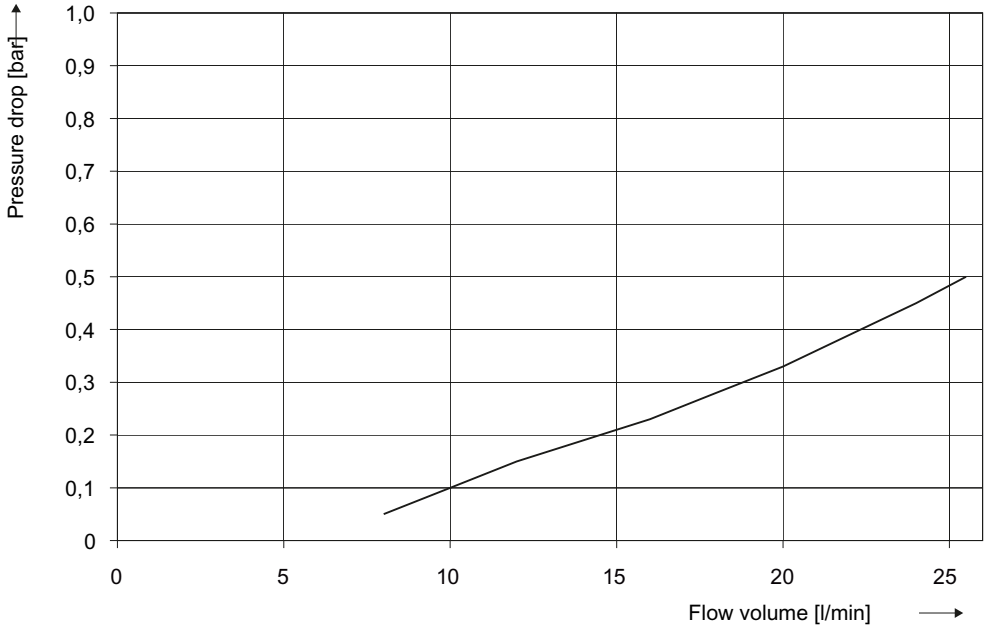


Figure 3-3 Pressure drop in the cooling pipe system, shaft height 160

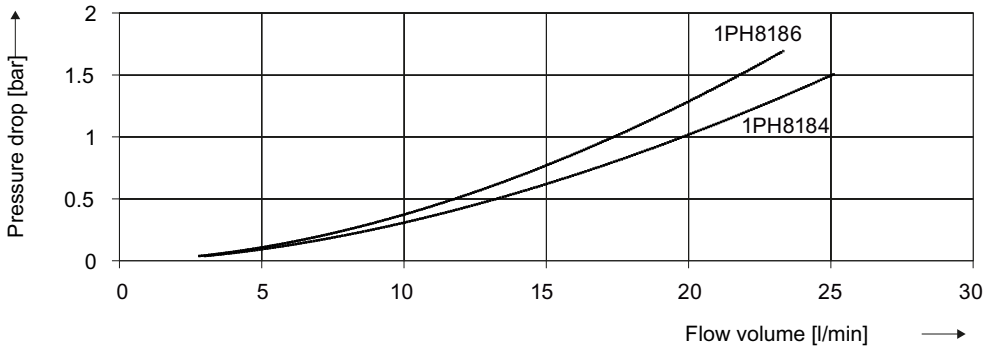


Figure 3-4 Pressure drop in the cooling pipe system, shaft height 180

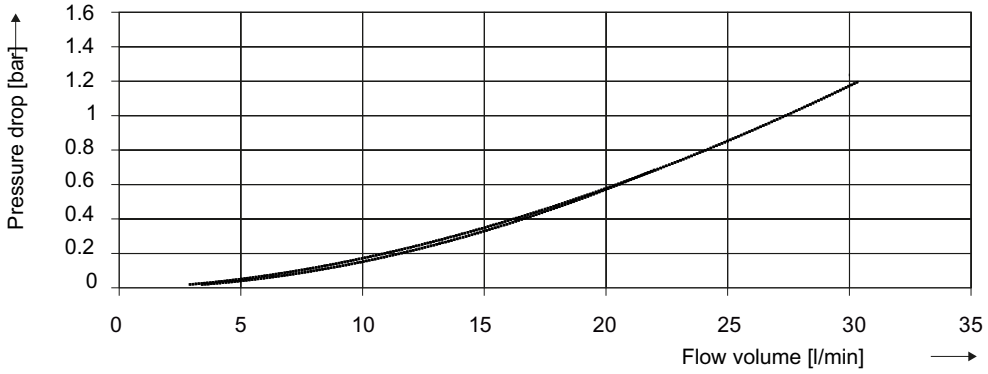


Figure 3-5 Pressure drop in the cooling pipe system, shaft height 225

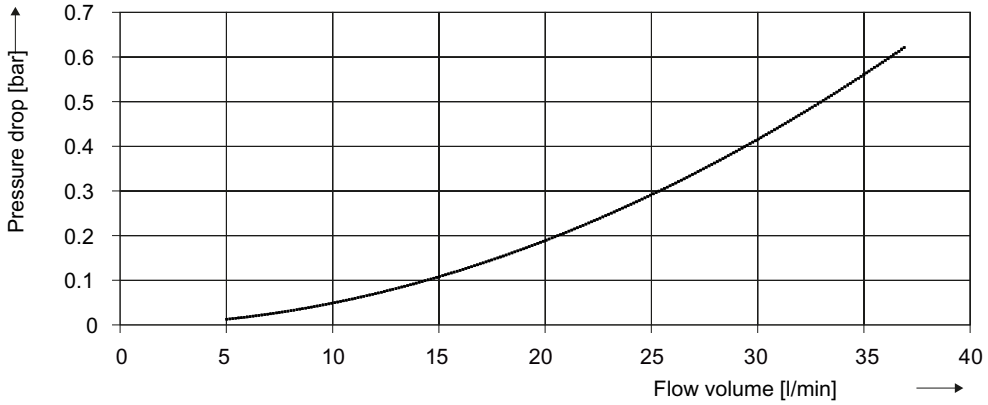


Figure 3-6 Pressure drop in the cooling pipe system, shaft height 280

Note

In order to ensure adequate cooling, the flow volumes must correspond to the minimum values specified in section "Cooling data and sound pressure levels"!

Pressure equalization

If various components are connected up in the cooling circuit, it may be necessary to provide pressure equalization.

Note

Reactor elements must be fitted at the cooling water outlet of the motor or the relevant component!

Avoiding cavitation

During uninterrupted duty, the pressure drop by a converter or motor must not exceed 0.2 MPa (2 bar). Otherwise, the high flow rate results in damage due to cavitation and/or abrasion.

Connecting motors in series

For the following reasons, connecting motors in series can only be conditionally recommended:

- The required flow rates of the motors must be approximately the same (< a factor of 2)
- An increase in the cooling water temperature can result in having to derate the second or third motor if the maximum cooling water inlet temperature is exceeded.

Cooling water inlet temperature

Note

The cooling water inlet temperature must be selected so that condensation does not form on the surface of the motor: $T_{cooling} > T_{ambient} - 5$ K.

Cooling water temperatures which are lower than the ambient temperature tend to result in increased water condensation. The difference between the cooling water inlet temperature and the ambient temperature should therefore not exceed a maximum of 5 K (Kelvin). Furthermore, the inflow of cooling water must be interrupted when the motor is idle for prolonged periods.

The motors are designed for operation up to a cooling water inlet temperature of +30° C, as long as all of the specified motor data is maintained. If the cooling water inlet temperature deviates from this, the continuous torque will change (see the table titled "Derating factors").

Table 3- 10 Derating factors

Installation altitude above sea level [m]	Coolant inlet temperature			
	≤ 30° C	35° C	40° C	45° C
1000	1.00	0.95	0.90	0.84
1500	0.97	0.92	0.87	0.81
2000	0.93	0.88	0.84	0.78
2500	0.91	0.86	0.82	0.76
3000	0.89	0.85	0.80	0.75
3500	0.87	0.83	0.78	0.73
4000	0.85	0.81	0.77	0.71

Cooling data and sound pressure levels

The specified values refer to operation at the rated speed with rated torque. The cooling water temperature must be ≤ 30° C.

Table 3- 11 Cooling data and sound pressure levels

Shaft height	Flow volume, min [l/min]	Pressure drop [bar]	Sound pressure level L_{pA} (1 m) Motor rated load, tolerance +3 dB [dB]	Thread connection at NDE [inches]
80	6	0.6	68 1)	G 1/8
100	8	0.4		G 1/4
132	12	0.9		G 3/8
160	15	0.2	69 1)	G1/2
180 (1PH8184)	15	0.6	70 2)	G 3/8
180 (1PH8186)	15	0.7		G3/8
225 (1PH822.-1) (asynchronous)	20	0.6		G 3/8
225 (1PH822.-2) (synchronous)	25	0.9	70 3)	G 3/8
280	35	0.6	72 3)	G 1/2

1) at a rated pulse frequency of 4 kHz and a speed range up to 5000 rpm

2) at a rated pulse frequency of 2 kHz or 4 kHz and speed ranges for
SH 180 of up to 5000 rpm
SH 225 of up to 4500 rpm

3) at a rated pulse frequency of 2 kHz and speed ranges for
SH 225 of up to 4500 rpm
SH 280 of up to 3300 rpm

Heat loss to be dissipated

The values for the heat loss to be dissipated are specified according to design point in the "Technical tables" in Section 4.

Water specification

- Cooling water quality

  The values specified for the cooling water correspond to the requirements for a closed cooling circuit. Not all of the specified concentrations will occur in the cooling water at the same time.

  A filter can be installed to ensure fault-free operation. The filter pore size must be at least 100 µm.

- Cooling water inlet temperature

The maximum cooling water inlet temperature is 30° C.

- Cooling water specifications

Table 3- 12 Cooling water specifications (SH 80 to 160)

Component	Quality of the water used as coolant for motors with stainless steel pipes + cast iron or steel jacket
pH value	6 ... 9
Total hardness	< 170 ppm
Electrical conductivity	< 500 µS/cm
Chloride ions	< 40 ppm, can be achieved by adding deionized water.
Sulfate ions	< 50 ppm
Nitrate ions	< 50 ppm
Dissolved solids	< 340 ppm
Maximum particle size	< 100 µm
Operating pressure	< max. 6 bar
Pressure drop at V(N)	< 1 bar
Inlet temperature	< 30° C
Minimum cooling water temperature	$T_{cooling\ water} > T_{ambient} - 5$ K
Anti-freeze protection / corrosion protection	20…30%
NALCO 00GE056 inhibitor	0.2…0.25%

Table 3- 13 Cooling water specifications (SH 180 to 280)

Component	Quality of the water used as coolant for motors with stainless steel pipes
pH value	6 ... 9
Total hardness	< 170 ppm
Electrical conductivity	< 2000 µS/cm
Chloride ions	< 250 ppm, can be achieved by adding deionized water.
Sulfate ions	< 240 ppm
Nitrate ions	< 50 ppm
Dissolved solids	< 340 ppm
Maximum particle size	< 100 µm
Operating pressure	< max. 6 bar
Pressure drop at V(N)	< 1 bar
Inlet temperature	< 30° C
Minimum cooling water temperature	$T_{cooling\ water} > T_{ambient} -5$ K
Anti-freeze protection / corrosion protection	20…30%
NALCO 00GE056 inhibitor	0.2…0.25%

Note

Deionized water (for Cooling water specifications tables)

It is recommended to use deionized water with reduced conductivity (5 ... 10 µS/cm) (if required, ask the water utility for the values). According to 98/83/EC, drinking water may contain up to 2500 ppm of chloride!

Manufacturers of chemical additives can provide support when analyzing the water that is available on the plant side.

Note

Inhibitor (for Cooling water specifications tables)

The inhibitor is not required if it ensured that the concentration of Antifrogen N is > 20%.

Derating is required for an anti-freeze protection component of > 30%

Biocide

Closed cooling circuits with soft water are susceptible to microbes. The risk of corrosion caused by microbes is virtually non-existent in chlorinated drinking water systems.

Antifrogen N has a biocidal effect even at the minimum required concentration of > 20 %. No strain of bacteria can survive if >20 % Antifrogen N is added.

The suitability of a biocide depends on the type of microbe. The following types of microbes are encountered in practice:

- Slime-forming bacteria
- Corrosive bacteria
- Iron-depositing bacteria

At least one water analysis per annum is recommended to determine the number of bacterial colonies. Suitable biocides are available from the manufacturer Nalco for example. The manufacturer's recommendations must be followed regarding the concentration and compatibility with any inhibitor used.

NOTICE
Biocides and Antifrogen N must not be mixed.

There are other manufacturers of chemical additives in the market. Equivalent products from other manufacturers may be used. The suitability must be checked by testing.

Other coolants (not water-based)

When using other coolants (e.g. oil, cooling lubricating medium) derating may be required in order that the thermal motor limit is not exceeded. The derating can be determined using the following data at a temperature of 30 °C:

Density	ρ	[kg/m^3]
Specific thermal capacitance	c_ρ	[J/(kg•K)]
Thermal conductivity	λ	[W/(K•m)]
Kinematic viscosity	v	[m^2/s]
Flow rate	V	[rpm]

An inquiry must be set to the manufacturer's plant (Siemens Service Center).

Note

Oil-water mixtures with more than 10% require derating.

Manufacturers of chemical additives

Tyforop Chemie GmbH	http://www.tyfo.de
Clariant Produkte Deutschland GmbH	http://www.antifrogen.de
Cimcool Industrial Products	http://www.cimcool.net
FUCHS PETROLUB AG	http://www.fuchs-oil.com
Hebro chemie GmbH	http://www.hebro-chemie.de
HOUGHTON Deutschland GmbH	http://www.houghton.com
Nalco Deutschland GmbH	http://www.nalco.com
Schweitzer-Chemie GmbH	http://www.schweitzer-chemie.de

NOTICE

It goes without saying that equivalent products from other manufacturers may be used. Our recommendations are to be seen as helpful information, not as requirements or regulations. We cannot accept any liability for the quality and properties/features of third-party products.

Maintenance and service

It is recommended that the filling level and discoloration or cloudiness of the cooling water is checked at least once a year. Furthermore, every year it must be checked that the cooling water still meets the permissible specification.

If the cooling water level has dropped, the loss should be corrected on closed or semi-open circuits with a prepared mixture of deionized water and inhibitor or Antifrogen N.

3.1.2.3 Coolant connection 1PH8

The motor is connected to the cooling circuit by means of two female threads on the rear of the motor. Which one is the inlet and which one is the outlet can be freely connected.

Coolant connection: See table "Cooling data and sound pressure levels"

The units should be connected with hoses to provide mechanical decoupling (refer to the table "Materials and components of a cooling circuit").

Commissioning

When required, before connecting the motors and converters to the cooling circuit, the pipes should be flushed in order to avoid dirt entering the motors and converters.

After the units have been installed in the plant, the coolant circuit must be commissioned before the electrical systems.

3.2 Degree of protection acc. to EN 60034-5

Degree of protection designation

The degree of protection designation in accordance with EN 60034-5 (IEC 60034-5) is described using the letters "IP" and two digits (e.g. IP64).

IP = International Protection
1st digit = protection against ingress of foreign bodies
2nd digit = protection against harmful ingress of water

When assigning motors to a specific degree of protection class, a standardized, brief test procedure is applied. This can deviate significantly from the actual ambient conditions where the motor is installed.

Attention must be paid to providing suitable sealing of the motor shaft for the selected degree of protection for the motor.

NOTICE
Depending on these ambient conditions - such as the chemical properties of dusts or the cooling media used at the installation site - it is only conditionally possible to evaluate the suitability of the motor for the particular environment using the degree of protection (e.g. electrically conductive dusts or aggressive coolant vapors or liquids). In these cases, the motor must be additionally protected using the appropriate measures.

NOTICE
Liquid must be prevented from collecting on the motor shaft as well as jets of oil (or are not permissible at all) - even for versions with radial shaft sealing ring.

Degrees of protection

The degrees of protection which are available for the 1PH8 motor series are listed in the following table.

Table 3- 14 Description of degrees of protection

Motor	Degree of protection	1st code number		2nd code number
		Touch protection	Protection against ingress of solid foreign bodies	
Forced ventilation (open-circuit ventilation)	IP23	Protection against finger contact	Protection against medium-sized, solid foreign bodies above 12 mm ∅	Protection against spray water up to 60° from the vertical
Forced ventilation (surface cooling)	IP55	Full protection against contact	Protection against damaging dust deposits	Splashwater from any direction
Water cooling	IP65	Full protection against contact	Protection against dust	Splashwater from any direction

NOTICE
If the motor is mounted in a humid environment, the power and signal cables must be routed as shown in the following figure.

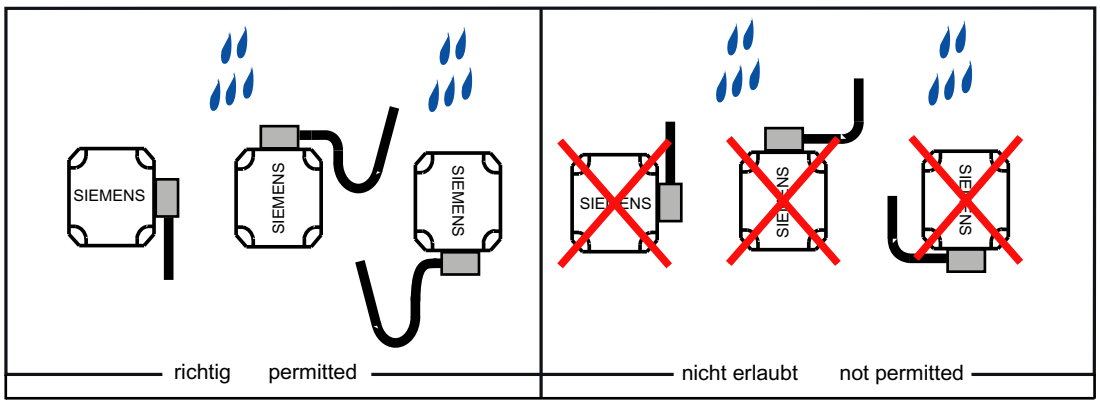


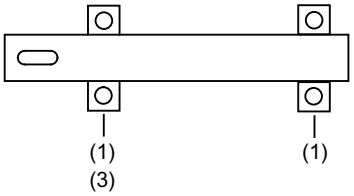
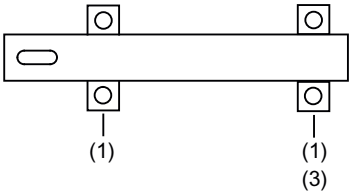
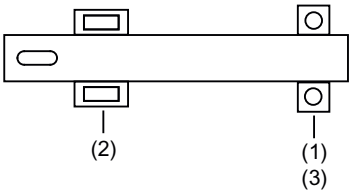
Figure 3-7 Principle of cable routing in a wet/moist environment

3.3 Bearing design and lifetime

3.3.1 Drive output types and bearing versions

1PH8 motors are suitable for coupling output and belt coupling. The bearing versions and their applications are summarized in the following table.

Table 3- 15 Drive output type with the appropriate bearing design

Application	Bearing version	
• Coupling output • Planetary gearboxes, low radial forces	SH 80 to 160 	SH 180 to 280 
• Belt coupling with normal radial force • Pinion output with straight teeth • Belt coupling with increased radial force		SH 180 to 280 

1) Deep-groove ball bearing

2) Cylindrical roller bearing

3) Locating bearing

Bearing version, maximum speed and bearing change intervals

Table 3- 16 Bearing version, maximum speeds and bearing change intervals

Shaft height	Bearing version	Maximum speed	Average operating speed	Stat. bearing lifetime	Recommended bearing change interval t_{LW} [h]	
		n_{max} [rpm]	n_m [rpm]	L_{10h} [h]	Permanent lubrication	Relubrication
80	Standard	10000	≤ 8000	20000	20000	-
	Performance	15000	≤ 11500	12000	12000	-
	High Performance	20000	≤ 13000	12000	12000	-
	Advanced Lifetime	5000	≤ 3500	40000	40000	-
100	Standard	9000	≤ 7000	20000	20000	-
	Performance	12000	≤ 10500	12000	12000	-
	High Performance	18000	≤ 11500	12000	12000	-
	Advanced Lifetime	5000	≤ 3000	40000	40000	-
132	Standard	8000	≤ 6500	20000	20000	-
	Performance	10000	≤ 8500	12000	12000	-
	High Performance	15000	≤ 10000	12000	12000	-
	Advanced Lifetime	4500	≤ 2500	40000	40000	-
160	Standard	6500	≤ 5400	20000	20000	-
	Performance	9000	≤ 7000	12000	12000	-
	High Performance	10000	≤ 8000	12000	12000	-
	Advanced Lifetime	4000	≤ 2300	40000	40000	-
180	Standard	5000 (3000)[2]	≤ 2000	40000 (24000)[1]	20000	40000 (24000)[1]
	Increased radial forces	5000 (3000)[2]	≤2000	20000 (12000)[1]	12000	20000 (12000)[1]
	Performance	7500	≤5000	20000	12000	20000
225	Standard	4500 (2500)[2]	≤1800	40000 (24000)[1]	20000	40000 (24000)[1]
	Increased radial forces	4500 (2500)[2]	≤1800	20000 (12000)[1]	12000	20000 (12000)[1]
	Performance	6000	≤4000	20000	12000	20000
280	Standard	3300 (2000)[2]	≤1500	40000 (24000)[1]	20000	40000 (24000)[1]
	Increased radial forces	3300 (2000)[2]	≤1500	20000 (12000)[1]	12000	20000 (12000)[1]

1) When vertically mounted

2) With type of construction IM V3, B5

$$n_m = \frac{n_1 t_1 + n_2 t_2 + \ldots n_i t_i}{100}$$

NOTICE
The maximum speeds might be reduced on motors with integrated encoder as a result of mechanical conditions or limitations imposed by signal conditioning capacity. The reduced maximum speeds can be found in Table 5-5 ("Encoder types for motors with DRIVE-CLiQ") in Section 5.2.4.

See also

Encoder assignment as a function of maximum permissible speeds (Page 941)

3.3.2 Bearing lifetime

The bearing lifetime is limited by material fatigue (fatigue service life) or lubrication failure (grease service life). The fatigue lifetime (statistical bearing lifetime L_{10h}) is mainly dependent on the mechanical load. The inter-dependency is shown in the radial force/axial force diagrams. The values are determined according to DIN/ISO 281.

The grease lifetime is mainly dependent on the bearing size, speed, temperature as well as the vibrational load.

The grease lifetime can be extended by especially favorable operating conditions (low or average speed, low bearing temperatures, low radial force or vibration load).

A reduction of the grease lifetime can be expected for difficult operating conditions and when motors are mounted vertically.

Lifetime lubrication (without relubrication)

For lifetime lubrication, the grease lifetime is harmonized with the bearing lifetime L_{10h}.

Bearing change interval (t_{LW})

The recommended bearing change intervals are obtained from the inter-dependencies mentioned above for a specific operating point such as:

- Coupling output or belt coupling
- Coolant temperature up to max. +40 °C (forced ventilation)
- Cooling water inlet temperature up to max. +30 °C (water cooling)
- Complying with the permissible radial and axial forces (refer to Chapter "Radial and axial forces")

- Complying with the maximum permissible speeds (refer to Chapter "Technical data and characteristics")
- The bearing change intervals are reduced for unfavorable operating conditions, for example
  - average speed more than the value specified in Table 3-14
  - Vibration and shock load
  - Frequent reversing operation

Note

When replacing the motor bearings, we also recommend that encoders with their own bearings are also replaced.

NOTICE

The increased axial loads imposed on the bearings on vertically mounted motors can reduce the bearing lifetime by almost 50%. This applies to shaft heights 180 to 280 due to the rotor weights.

Relubrication

For motors which can be relubricated at defined relubricating intervals, the bearing lifetime can be extended and/or unfavorable factors such as mounting conditions, speed, bearing size and mechanical load can be compensated (refer to the table "Recommended bearing change intervals").

Depending on the frame size, restrictions have to be taken into account - e.g. vertical mounting/shaft position.

It is possible to relubricate motors, shaft heights 180 and 225. A lubricating nipple is optionally provided, Code K40.

Relubrication intervals

Relubrication intervals are specified:

- on the lubrication plate of the motor
- in the table "Relubrication intervals"

NOTICE

For longer periods of time (e.g. longer than 1 relubrication interval) between shipping and commissioning the motor, the bearings must be lubricated. When relubricating, the shaft must be rotated in order to distribute the grease around the bearings (for additional information, see the Operating Instructions).

The values specified in the table below apply for the same conditions which are described above for bearing change intervals:

Table 3- 17 Relubrication intervals

Shaft height	Bearing version	Relubrication interval in operating hours[4] [h]	Quantity of grease for each relubrication operation[1] [g]	Grease chamber[2] [g]	Possible number of relubrication intervals[3]
180	Standard	7000	15	80	5
	Increased radial forces	4000	20	80	4
	Performance	4000	15	80	5
225	Standard	7000	30	180	6
	Increased radial forces	4000	40	180	4
	Performance	4000	30	180	6
280	Standard	7000	40	400	10
	Increased radial forces	4000	50	400	8

1) Grease quantity for relubrication for normal conditions (ambient temperature up to 40°C, horizontal mounting.

2) Holding capacity of the grease chamber with precise adherence to the grease quantity for each relubrication interval.

3) Calculated number of relubrication intervals; the bearing lifetime is specified according to statistical perspectives in accordance with the L_{10h}definition.

4) Relubrication intervals must be halved for vertically mounted units.

NOTICE

Unfavorable factors such as the effects of mounting/installation, speed or mechanical loads require that the relubricating intervals are appropriately adapted. Situations such as these require special consideration or must be be calculated - and must be engineered according to the limitations and constraints together with the responsible motor plant.

The increased axial loads imposed on the bearings on vertically mounted motors can reduce the bearing lifetime by almost 50%. This applies to shaft heights 180 to 280 due to the rotor weights.

A check which takes into account the relevant boundary conditions must be performed on SH 280 in the relevant motor factory.

3.4 NDE bearings, insulated version (option L27)

Relevant, additional bearing currents

When compared to a pure sinusoidal supply, the pulsed output voltage of a frequency converter results in additional motor bearing currents. The relevant additional bearing currents are:

- Circulating currents
- EDM currents
- Rotor ground currents

Factors that influence bearing currents

Above a certain magnitude, bearing currents result in localized melting at the bearing rings and rolling assemblies as well as lubricant wear. This reduces the bearing lifetime. Essential influencing factors include:

- Motor speed and associated operating time
- Pulse frequency of the frequency converter
- Grounding relationships between the motor and the connected load

Application for option L27

At speeds < 500 rpm, the load due to bearing currents increases significantly. Option L27 is always required if the motor is operated in the speed range between 0 ... 500 rpm for a longer period of time. Without option L27, the total operating time in the speed range 0 ... 500 rpm may be a maximum of 800 h (for an assumed bearing change interval (t_{LW}) of the bearings of 20,000 h.

Table 3- 18 Measures that are required for operation in the speed range < 500 rpm

Shaft height	Bearing change interval (t_{LW}) for lifetime lubrication [h] 1)	Options that are required	Remarks
80 - 160	20000	-	Due to the experience from the field (in practice) no dangers have been identified due to bearing currents
180		L27	Insulated NDE bearings
225		_	Generally insulated NDE bearings
280		_	Generally insulated NDE bearings

1) Definition, refer to the table "Recommended bearing change intervals"

Motor grounding

In order to avoid rotor ground currents, the motor frame should be well grounded - e.g. by using shielded motor cables. The motor cable shield should be connected at both ends through the largest possible surface area.

For specific applications, the grounding of the motor Z_{hg} can be more unfavorable than the grounding of the connected loads Z_{rg}, e.g. for long motor cables and when the motor is mounted in an insulated fashion. In this case, the capacitive discharge (leakage) current of the motor flows from the motor frame through the motor shaft to the connected load and from there to ground.

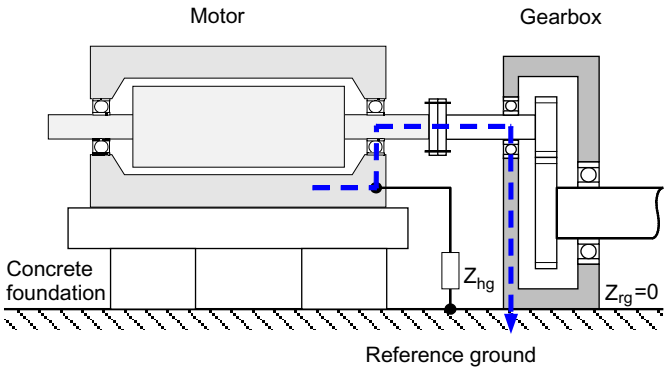


Figure 3-8 Bearing current due to the grounding situation (=rotor ground current)

The rotor ground current should be avoided by using an electrically insulating coupling. If such a coupling cannot be used for mechanical reasons, then the motor frame must be connected to the load through the largest possible surface area. The capacitive discharge (leakage) current then flows from the motor frame to the load and not through the bearings. The connection between the motor frame and load is only effective if it represents an extremely low impedance for the high-frequency discharge (leakage) current. To achieve this, use several flat straps, e.g. grounding straps, metal plates.

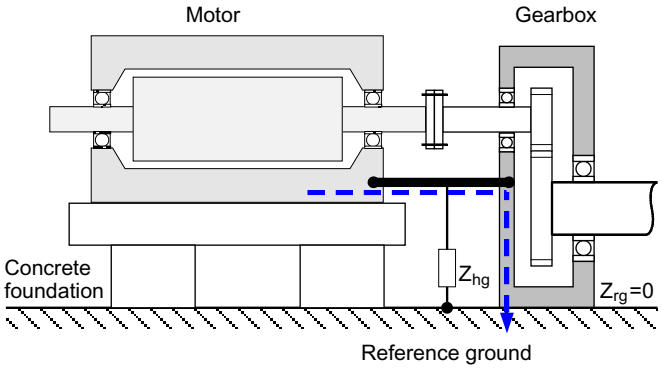


Figure 3-9 Connection between the motor frame and load to avoid rotor ground currents

3.5 Radial and axial forces

3.5.1 Radial force

Specific radial forces may not be exceeded in order to guarantee perfect operation.

For various shaft heights, a minimum force may not be fallen below. This is indicated in the radial force diagrams. The diagrams show the radial force F_R

- at various operating speeds
- as a function of the bearing lifetime

The force diagrams and tables apply to standard shaft ends at the DE. For smaller shaft diameters, only reduced radial forces may be transmitted or none at all.

For force levels going beyond these, please contact your local Siemens office.

⚠ CAUTION

If you use mechanical transmission elements which subject the shaft end to a radial force, you must ensure that the maximum limit values specified in the radial force diagrams are not exceeded.

For bearings with increased radial force only (shaft heights 180 to 280):
For applications with an extremely low radial force load, it must be ensured that the motor shaft is subject to a minimum radial force load as specified in the diagrams. Low radial forces can cause the bearings to roll in an undefined fashion which results in increased bearing wear.

For applications with radial force loads which are less than the specified minimum radial forces (e.g. coupling output), the bearing for increased radial force must not be used. For applications such as these, the motor with standard bearing must be ordered.

CAUTION

Rotating forces

The motor bearings are designed for operation with radial force. Rotating forces from the process or imbalance > Q 2.5 can destroy the bearing seats and must therefore be avoided. These can also occur on coupling drives.

⚠ CAUTION

When using elements which increase the force/torque (e.g. gearboxes, brakes) then it must be ensured that the higher forces are not absorbed through the motor.

Note

The radial forces at the shaft end must be precisely dimensioned according to the guidelines specified by the belt manufacturer. The belt tension must be adjusted using the appropriate measuring equipment.

Calculating the total radial force F_R for belt couplings

If the belt manufacturer has not provided accurate radial force data, then this can be appropriately determined using the following formula:

F_R [N] = c • F_U $\qquad$ F_U [N] = 2 • 10^7 • P / (n • D)

Table 3- 19 Explanation of the formula abbreviations

Formula abbreviations	Unit	Description
c	--	Pre-tensioning factor: The pre-tensioning factor is an experience value provided by the belt manufacturer. It can be assumed as follows: For V belts: c = 1.5 to 2.5 for special plastic belts (flat belts), depending on the load type and belt type c = 2.0 to 2.5
F_U	N	Circumferential force
P	kW	Motor output
n	rpm	Motor speed
D	mm	Diameter of belt pulley

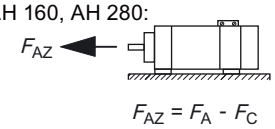
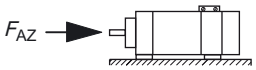
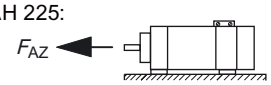
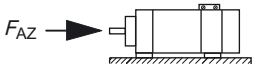
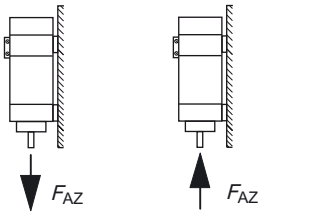
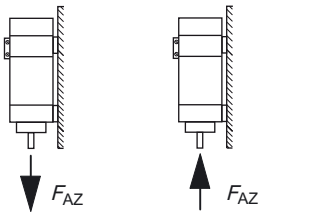
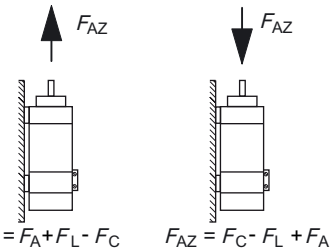
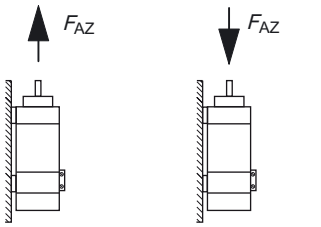
3.5.2 Axial force

The axial force acting on the locating bearings comprises an external axial force (e.g. gearbox with helical gearing, machining forces through the tool), a bearing pre-load force and possibly the force due to the weight of the rotor when the motor is vertically mounted. This results in a maximum axial force that is a function of the direction.

When using, for example, helical toothed wheels as drive element, in addition to the radial force, there is also an axial force on the motor bearings. For axial forces in the direction of the motor, the spring-loading of the bearing can be overcome. This must be prevented as otherwise it could reduce the bearing and encoder service life.

The permissible axial force F_{AZ} in operation depends on the motor mounting position (see table).

Table 3- 20 Calculating the permissible axial force

Horizontal arrangement	Shaft end facing downwards	Shaft end facing upwards
AH 80 - AH 160, AH 280:  $F_{AZ} = F_A - F_C$  $F_{AZ} = F_C + F_A$ AH 180, AH 225:  $F_{AZ} = F_A + F_C$  $F_{AZ} = F_A - F_C$	AH 80 - AH 160, AH 280:  $F_{AZ} = F_A - F_L - F_C$ $F_{AZ} = F_L + F_C + F_A$ AH 180, AH 225:  $F_{AZ} = F_A + F_C - F_L$ $F_{AZ} = F_A - F_C + F_L$	AH 80 - AH 160, AH 280:  $F_{AZ} = F_A + F_L - F_C$ $F_{AZ} = F_C - F_L + F_A$ AH 180, AH 225:  $F_{AZ} = F_A + F_C + F_L$ $F_{AZ} = F_A - F_L - F_C$

F_{AZ}	Permissible axial force in operation
F_A	Permissible axial force as a function of the average operating speed n_m in each case, ignoring the pre-loading force and the force due to the weight of the rotor
F_C	Pre-loading force
F_L	Force due to weight of rotor

3.5.3 Radial and axial force diagrams

Permissible radial forces for SH 80

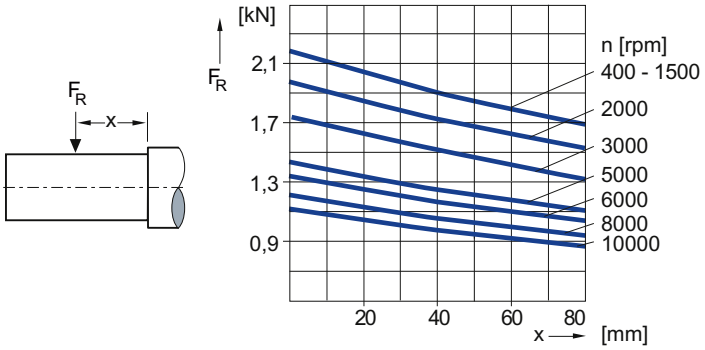


Figure 3-10 SH 80, Standard, 20000 h bearing lifetime

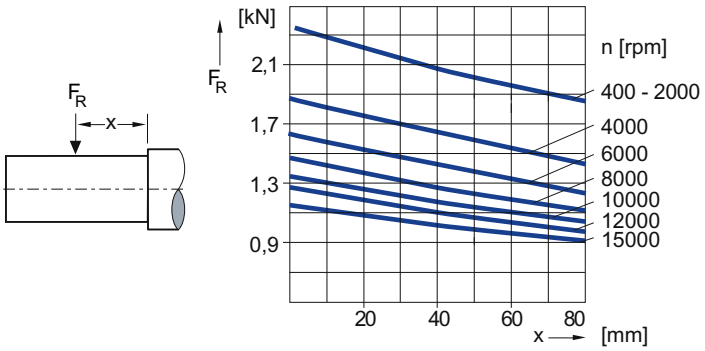


Figure 3-11 SH 80, Performance, High Performance, 12000 h bearing lifetime

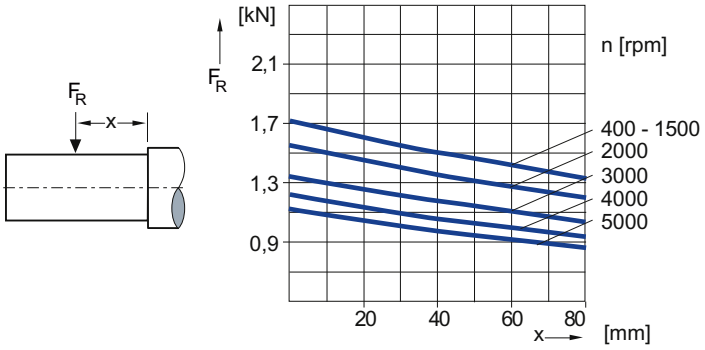


Figure 3-12 SH 80, Advanced Lifetime, 40000 h bearing lifetime

Permissible radial forces for SH 100

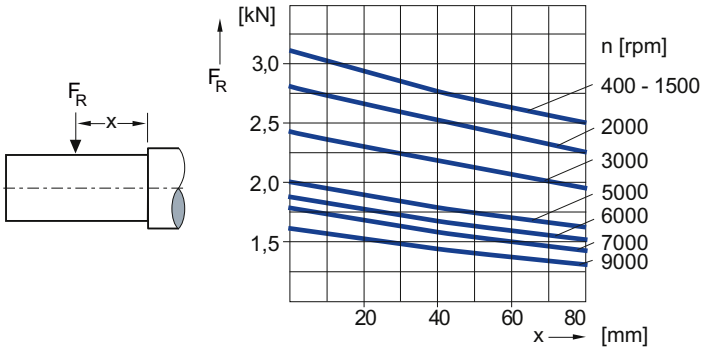


Figure 3-13 SH 100, Standard, 20000 h bearing lifetime

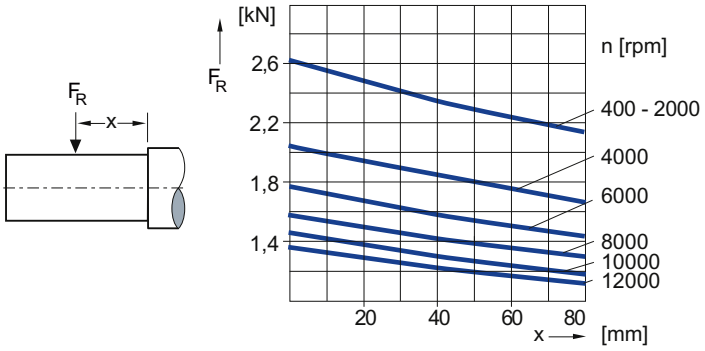


Figure 3-14 SH 100, Performance, 12000 h bearing lifetime

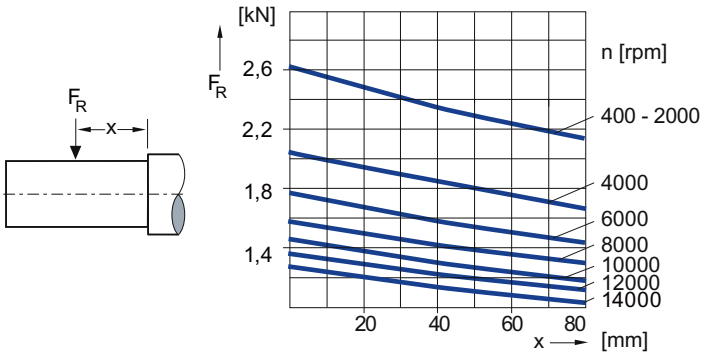


Figure 3-15 SH 100, High Performance, 12000 h bearing lifetime

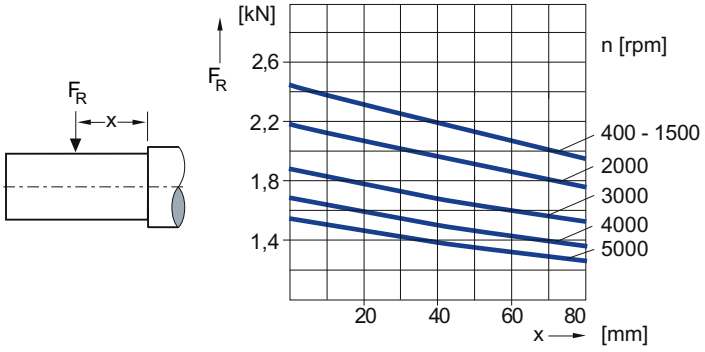


Figure 3-16 SH 100, Advanced Lifetime, 40000 h bearing lifetime

Permissible radial forces for SH 132

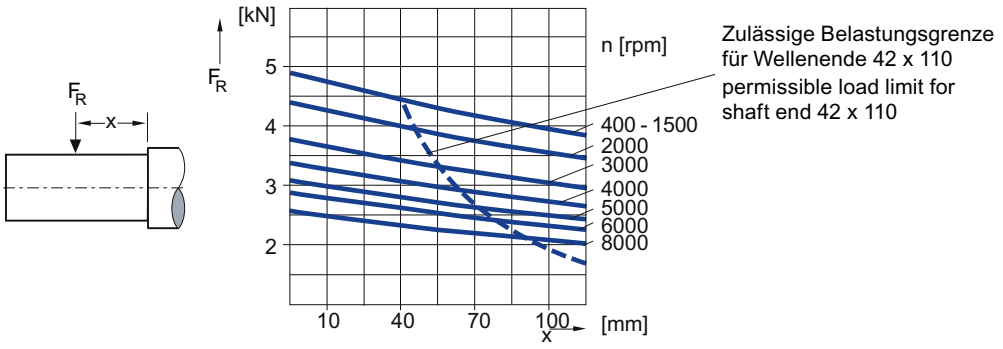


Figure 3-17 SH 132, Standard, 20000 h bearing lifetime

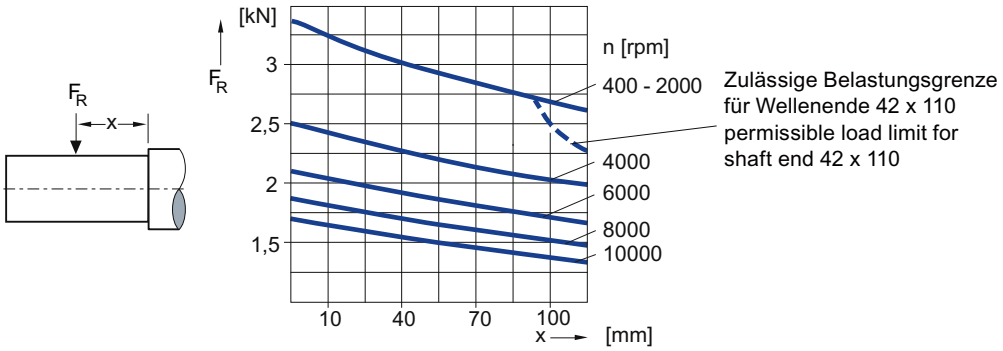


Figure 3-18 SH 132, Performance, 12000 h bearing lifetime

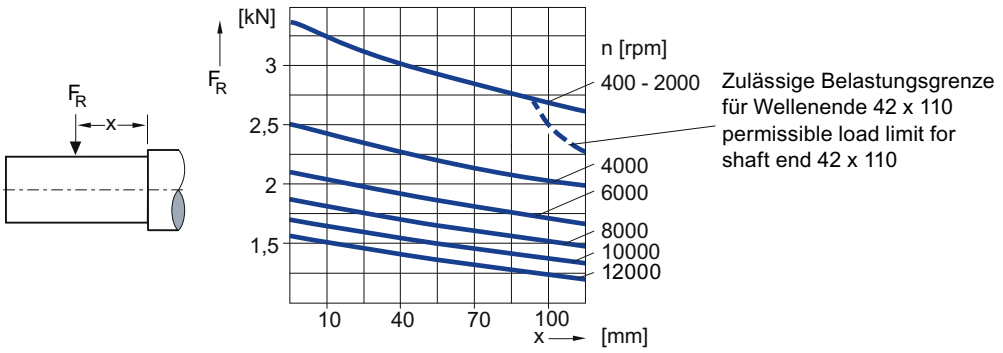


Figure 3-19 SH 132, High Performance, 12000 h bearing lifetime

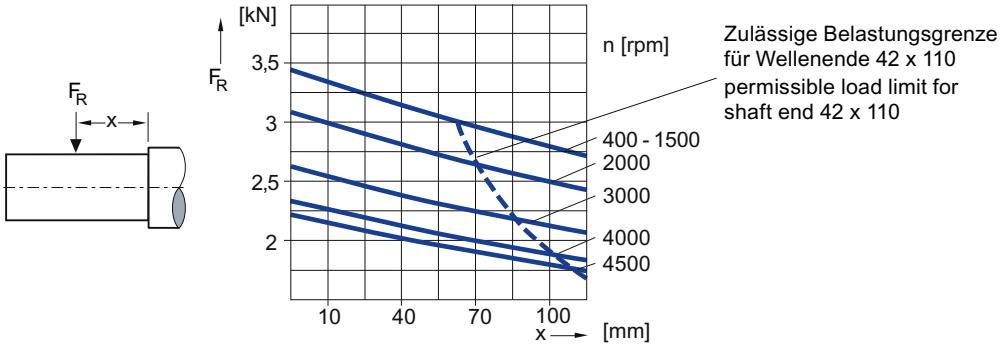


Figure 3-20 SH 132, Advanced Lifetime, 40000 h bearing lifetime

Permissible radial forces for SH 160

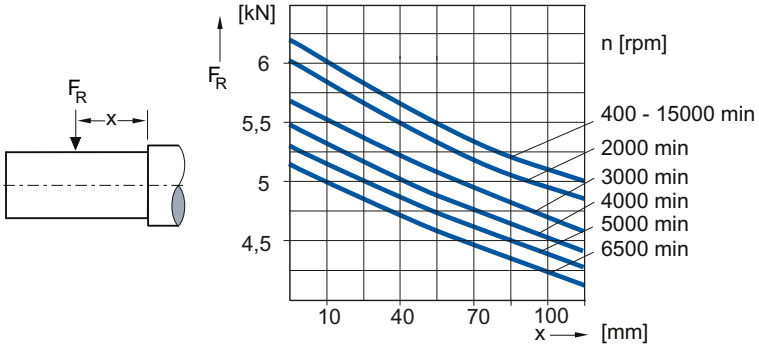


Figure 3-21 SH 160, Standard, 20000 h bearing lifetime

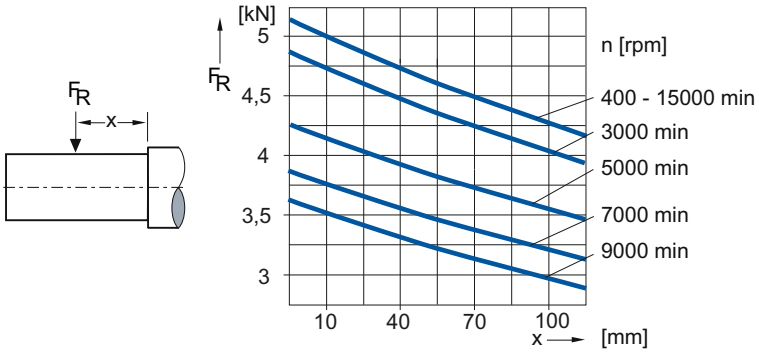


Figure 3-22 SH 160, Performance, 12000 h bearing lifetime

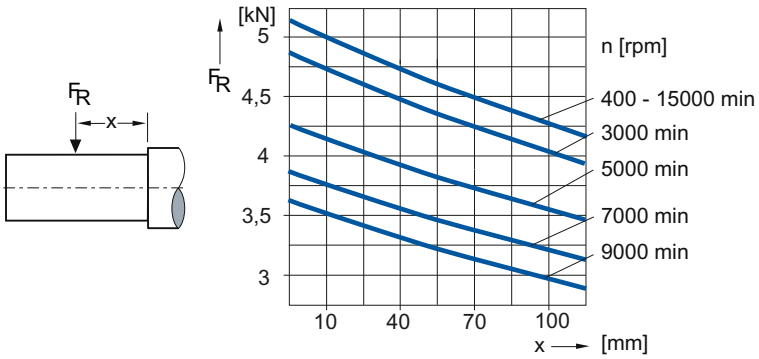


Figure 3-23 SH 160, High Performance, 12000 h bearing lifetime

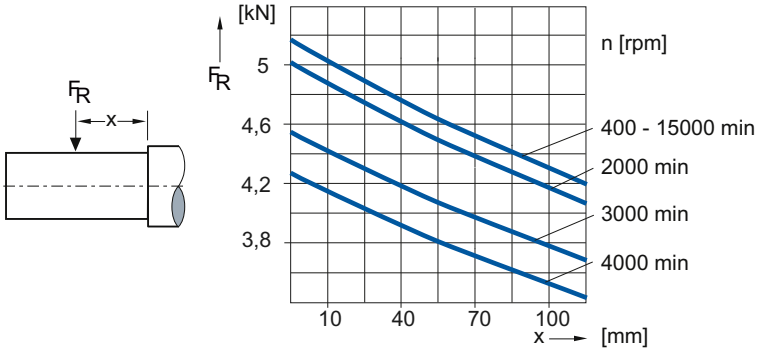


Figure 3-24 SH 160, Advanced Lifetime, 40000 h bearing lifetime

Permissible radial forces for SH 180

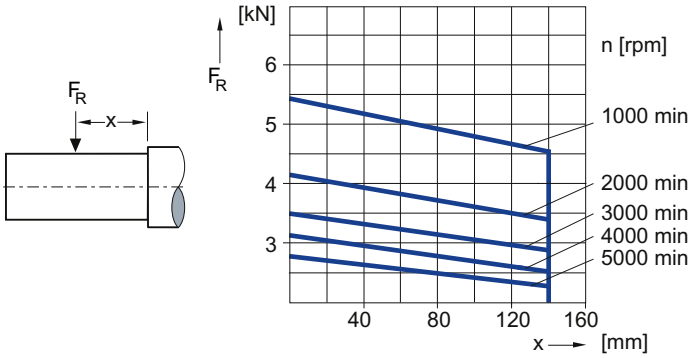


Figure 3-25 SH 180, Standard, 20000 h bearing lifetime

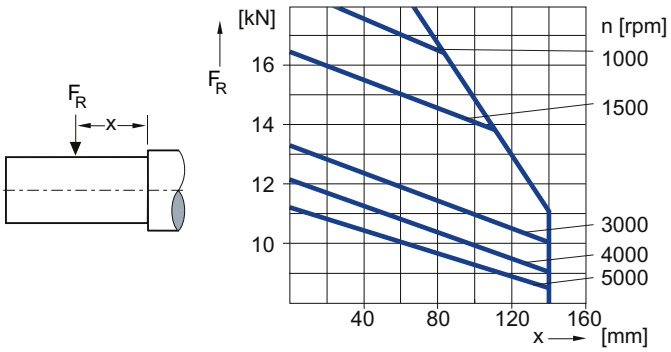


Figure 3-26 SH 180, increased radial force, 12000 h bearing lifetime, minimum radial force: 4 kN

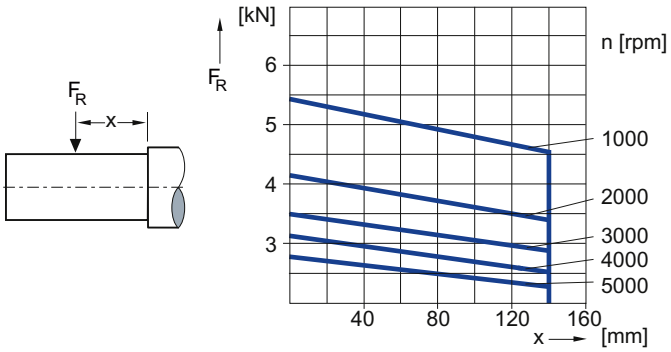


Figure 3-27 SH 180, Performance, 12000 h bearing lifetime

Note

Bearing with increased radial force

The roller bearings used here could sustain damage if they are operated under no load.

Observe the specified minimum radial forces!

Permissible radial forces for SH 225

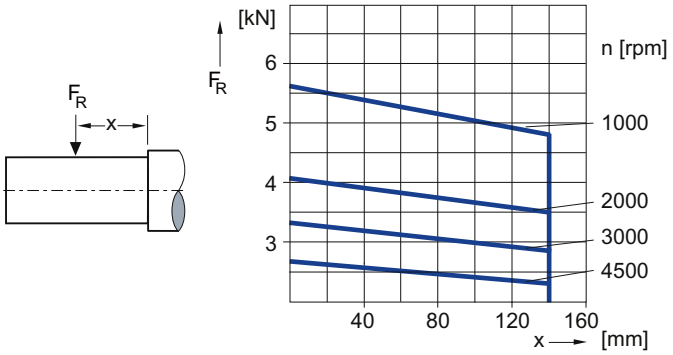


Figure 3-28 SH 225, Standard, 20000 h bearing lifetime

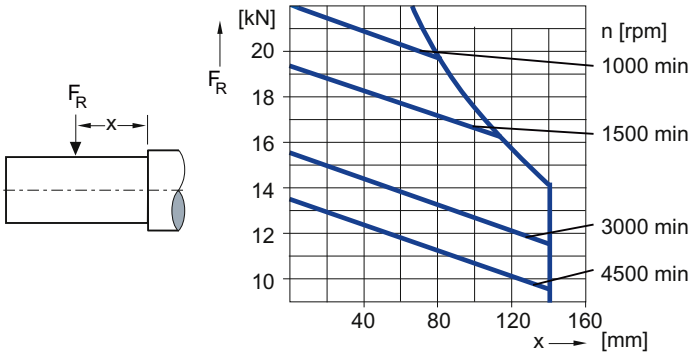


Figure 3-29 SH 225, increased radial force, 12000 h bearing lifetime, minimum radial force: 5 kN

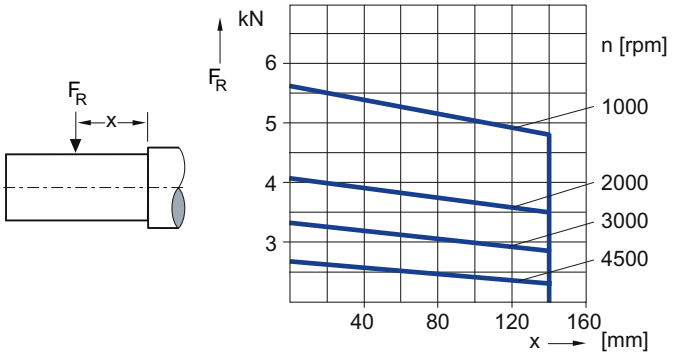


Figure 3-30 SH 225, Performance, 12000 h bearing lifetime

Note

Bearing with increased radial force

The roller bearings used here could sustain damage if they are operated under no load.

Observe the specified minimum radial forces!

Permissible radial forces for SH 280

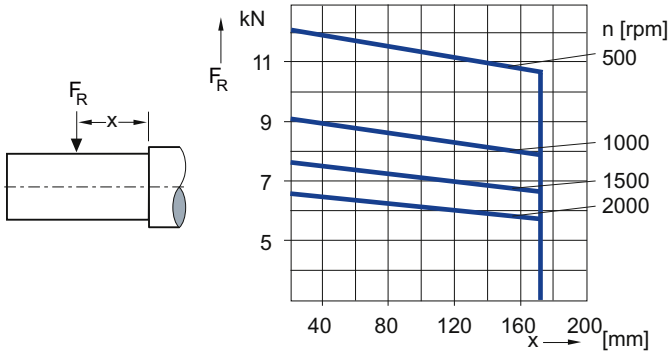


Figure 3-31 SH 280, Standard, 20000 h bearing lifetime

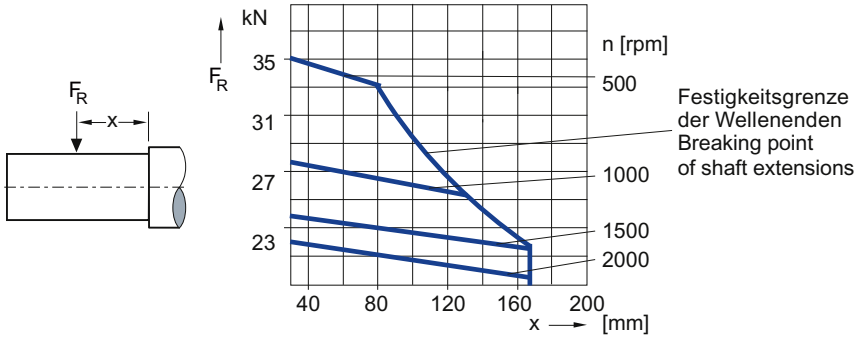


Figure 3-32 SH 280, increased radial force, 12000 h bearing lifetime, minimum radial force: 9 kN

Note

Bearing with increased radial force

The roller bearings used here could sustain damage if they are operated under no load.

Observe the specified minimum radial forces!

Axial forces

Deep-groove ball bearings can absorb both radial as well as axial forces.

The maximum axial forces F_A as a function of the radial force are shown in the following force diagrams.

The permissible bearing forces are specified without taking into account the force due to spring-loaded bearings, the rotor weight for vertical mounting as well as the direction of the force.

Note

The permissible axial forces at the shaft extension $F_{A\ perm}$ are dependent on the application (mounting, force direction) and must be calculated.

Forces due to the rotor weight and spring-loading forces

Table 3- 21 Force due to weight and spring-loading of the rotor

Motor type	Force due to weight F_L [N]	Force due to spring-loading F_C [N] +/- 25%
1PH8083	90	450
1PH8087	115	
1PH8101	120	550
1PH8103	150	
1PH8105	195	
1PH8107	220	
1PH8131	270	900
1PH8133	330	
1PH8135	390	
1PH8137	445	
1PH8138		
1PH8163	600	1200
1PH8164		
1PH8165	715	
1PH8166		
1PH8167	655	
1PH8168		
1PH8184	900	880
1PH8184 (type of construction IM V5, V15)		2300
1PH8186	1150	880
1PH8186 (type of construction IM V5, V15)		2300

Motor type	Force due to weight F_L [N]	Force due to spring-loading F_C [N] +/- 25%
1PH8224	1710	880
1PH8226	2160	
1PH8228	2570	
1PH8284	3300	1100
1PH8286	4000	
1PH8288	4700	

Permissible axial forces for shaft height 80

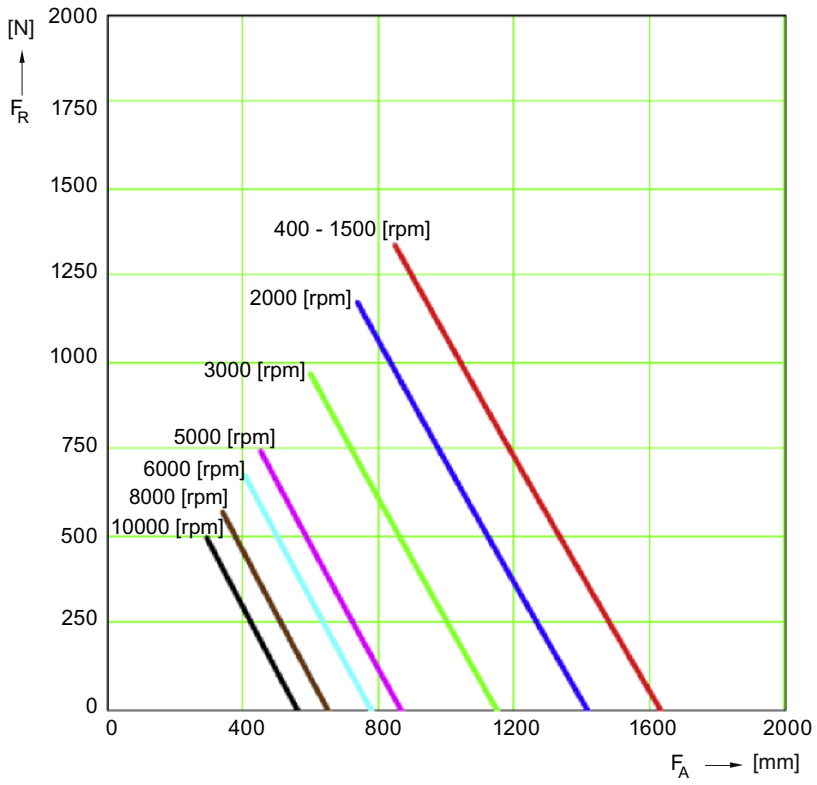


Figure 3-33 SH 80, Standard, 20000 h bearing lifetime

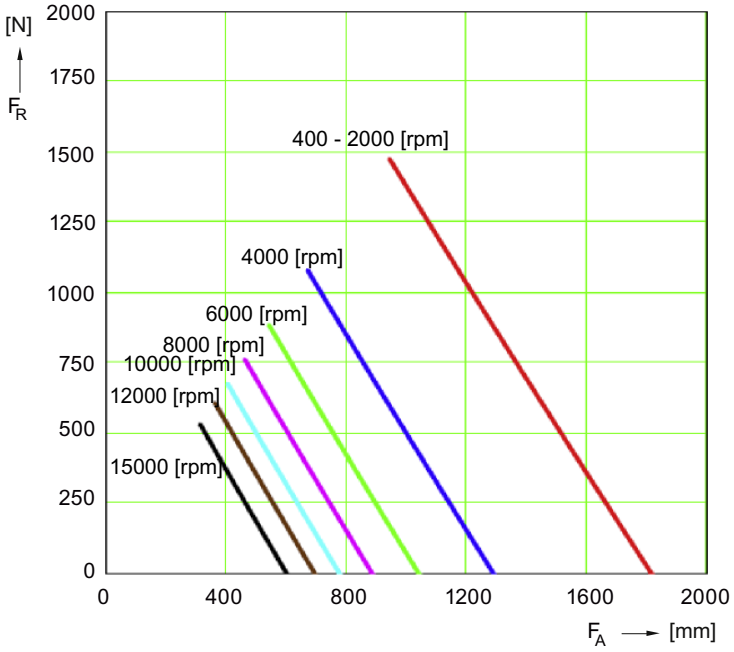


Figure 3-34 SH 80, Performance, High Performance, 12000 h bearing lifetime

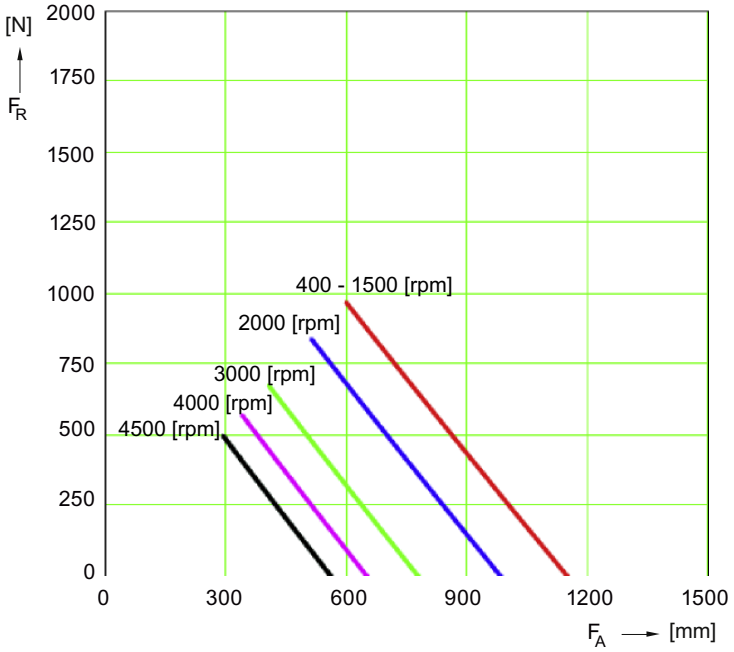


Figure 3-35 SH 80, Advanced Lifetime, 40000 h bearing lifetime

Permissible axial forces for shaft height 100

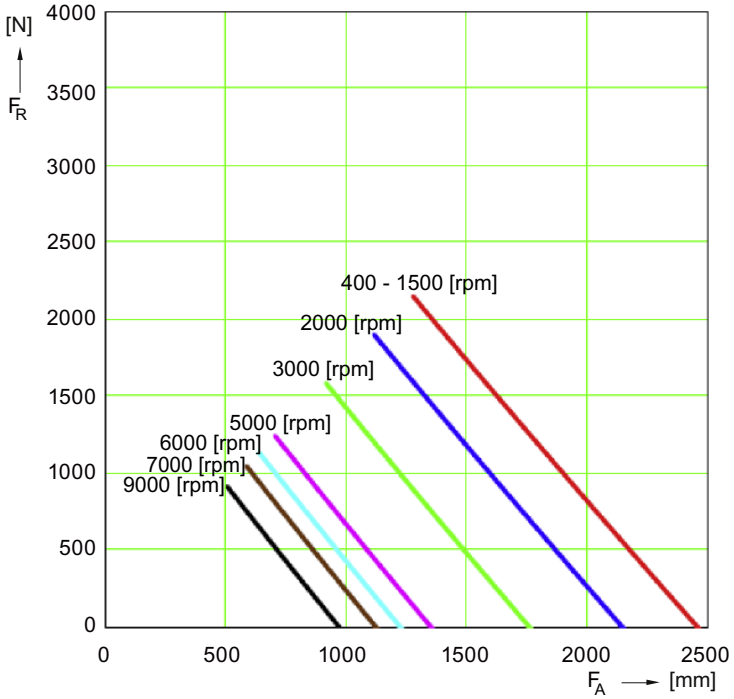


Figure 3-36 SH 100, Standard, 20000 h bearing lifetime

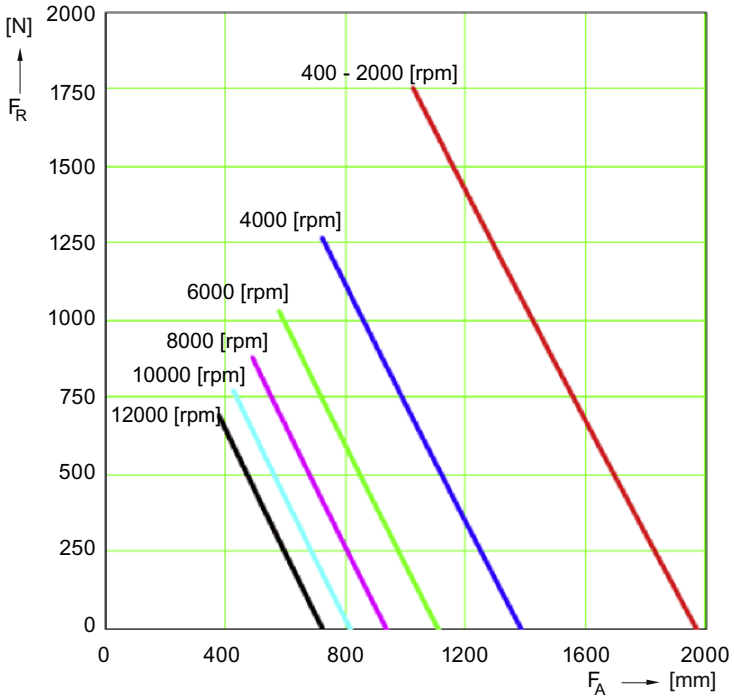


Figure 3-37 SH 100, Performance, 12000 h bearing lifetime

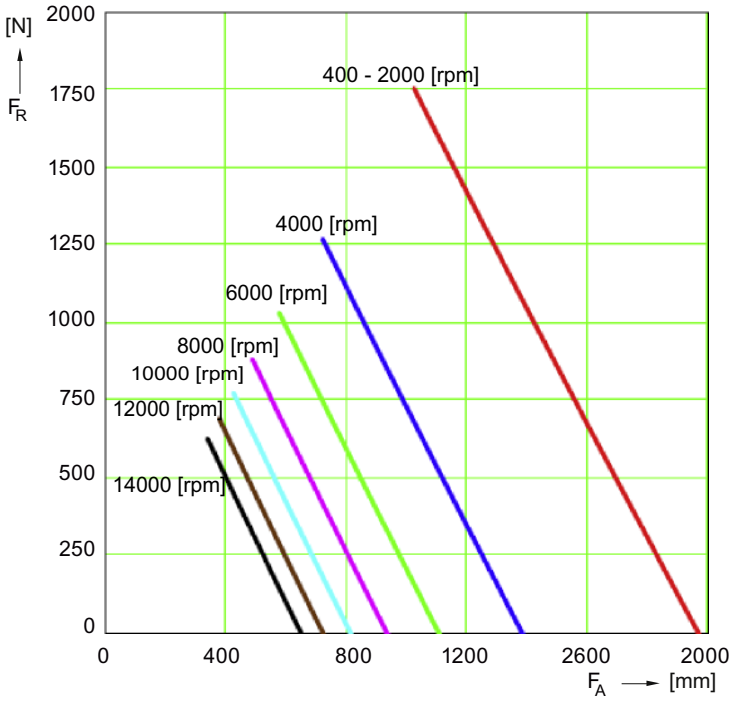


Figure 3-38 SH 100, High Performance, 12000 h bearing lifetime

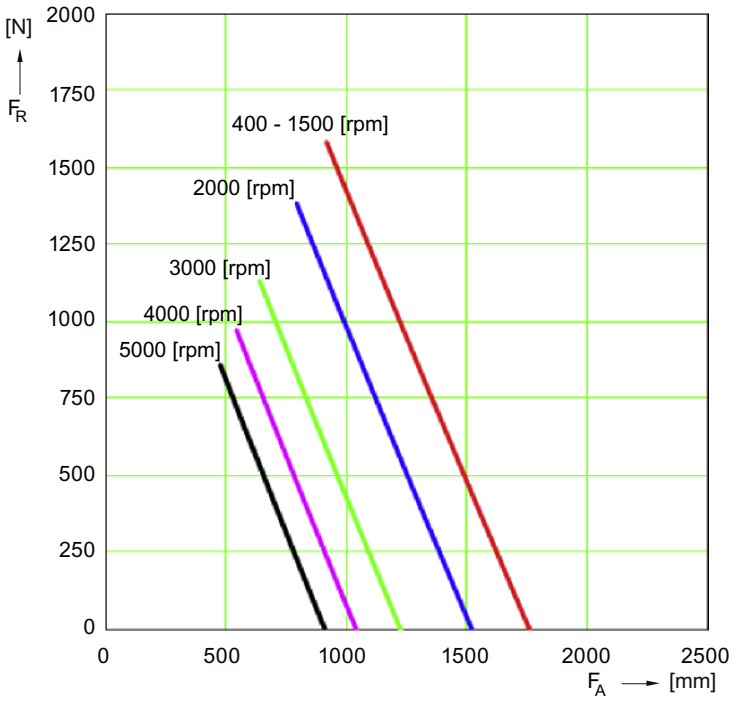


Figure 3-39 SH 100, Advanced Lifetime, 40000 h bearing lifetime

Permissible axial forces for SH 132

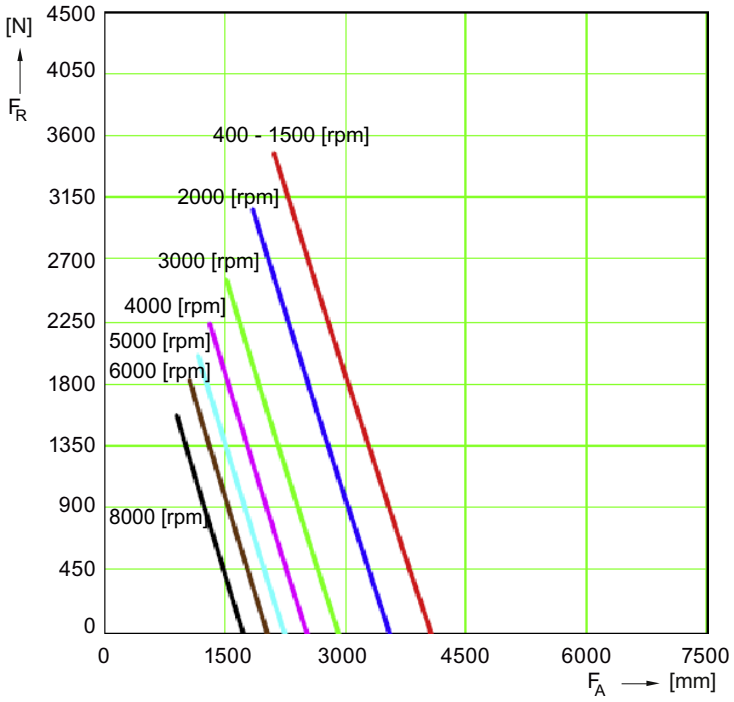


Figure 3-40 SH 132, Standard, 20000 h bearing lifetime

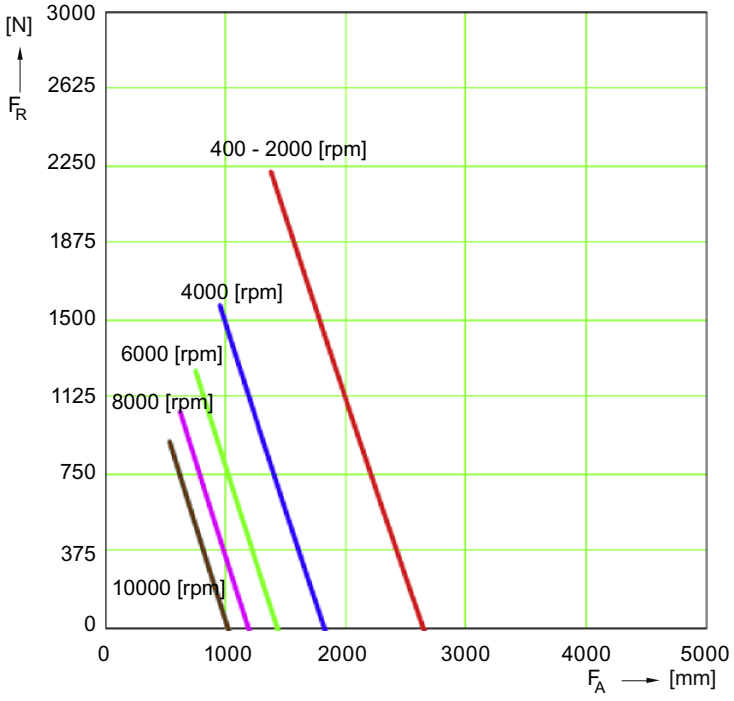


Figure 3-41 SH 132, Performance, 12000 h bearing lifetime

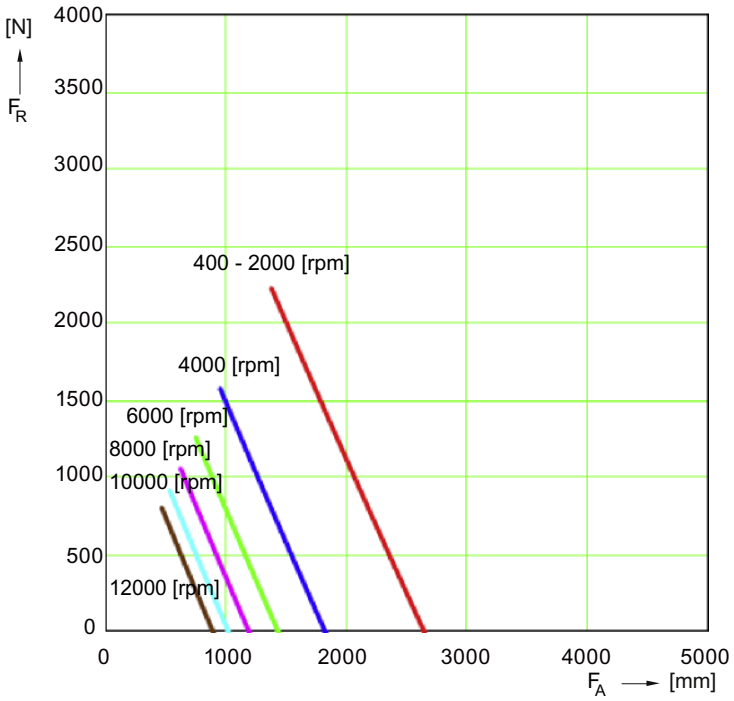


Figure 3-42 SH 132, High Performance, 12000 h bearing lifetime

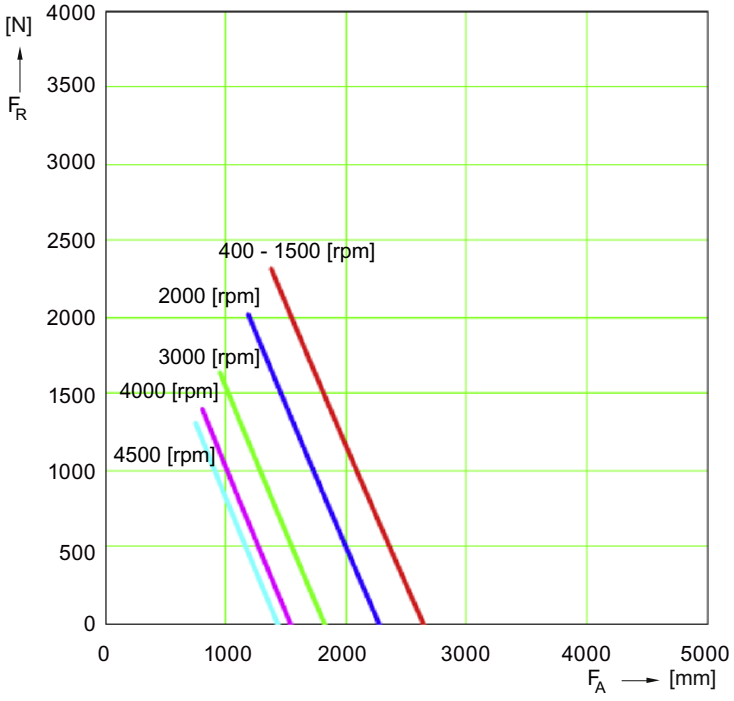


Figure 3-43 SH 132, Advanced Lifetime, 40000 h bearing lifetime

Permissible axial forces for SH 160

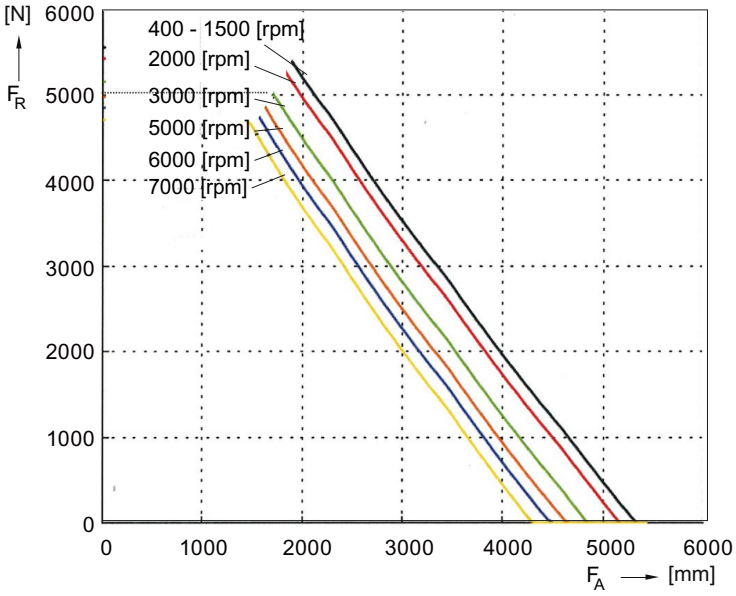


Figure 3-44 SH 160, Standard, 20000 h bearing lifetime

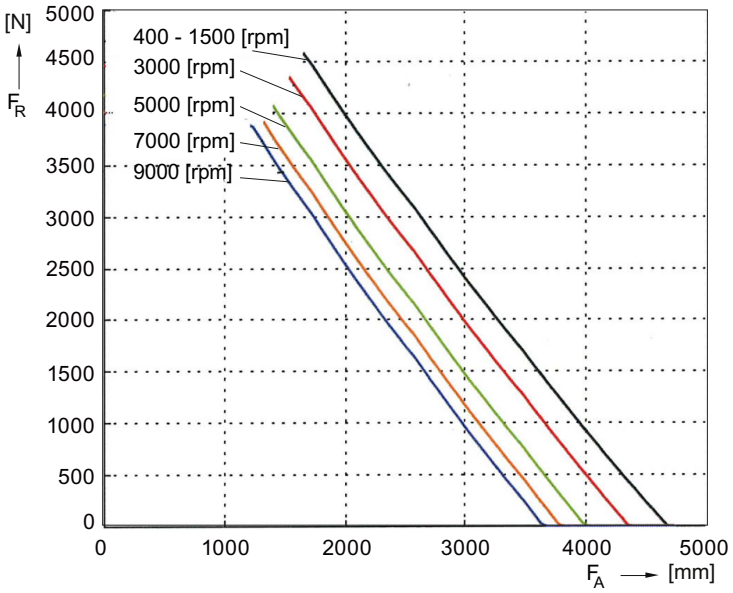


Figure 3-45 SH 160, Performance, 12000 h bearing lifetime

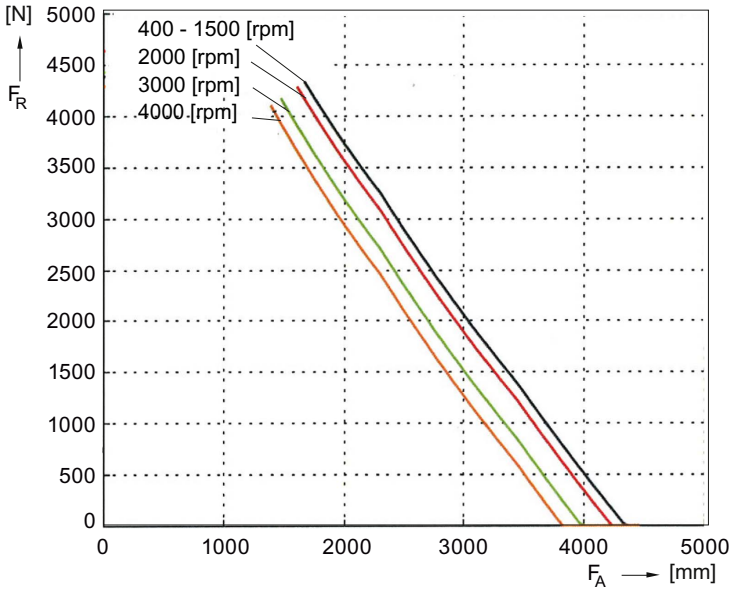


Figure 3-46 SH 160, Advanced Lifetime, 40000 h bearing lifetime

Permissible axial forces for SH 180

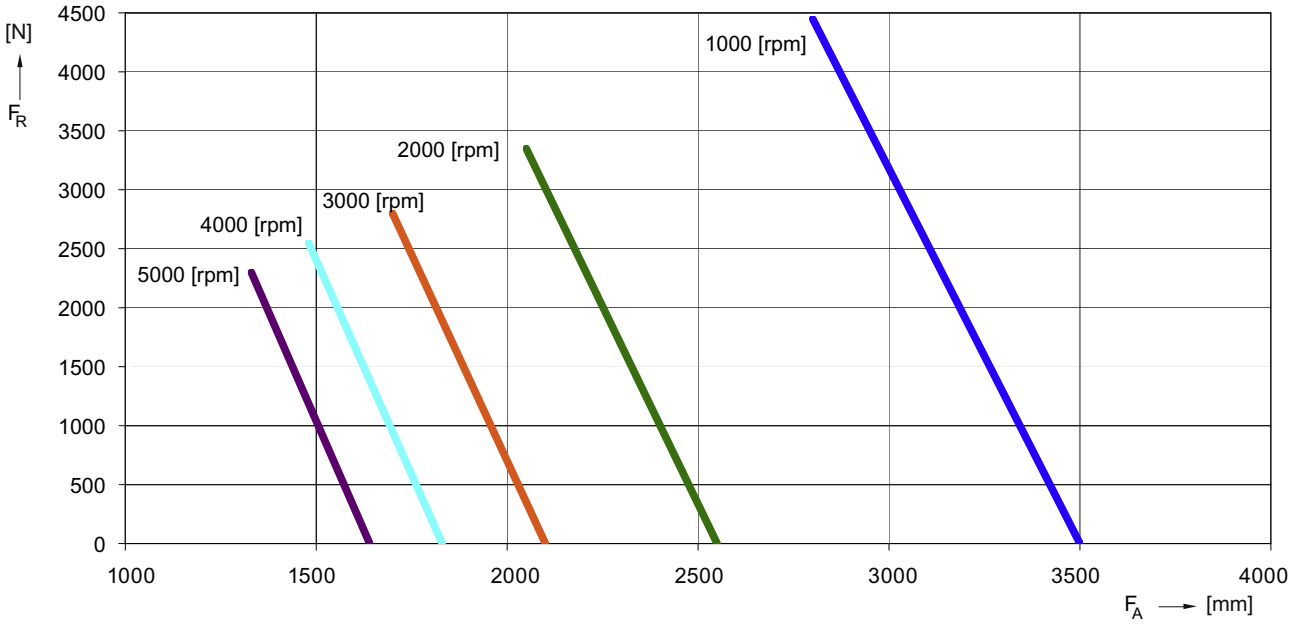


Figure 3-47 SH 180, Standard/Performance, 20000/12000 h bearing lifetime

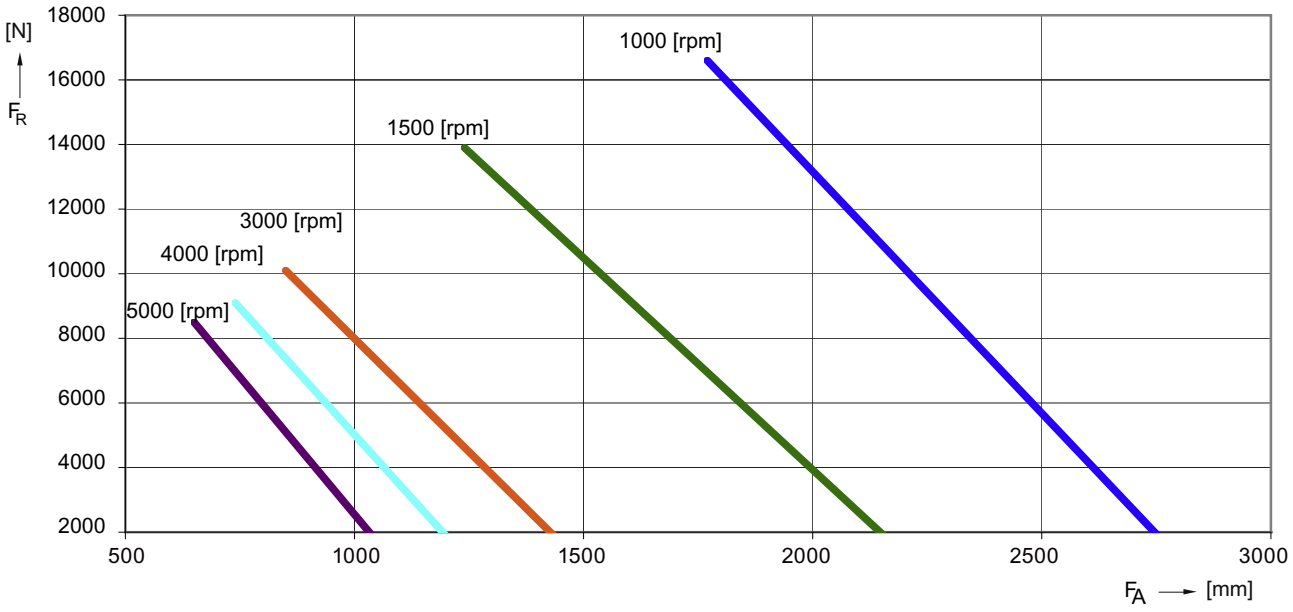


Figure 3-48 SH 180, increased cantilever forces, 12000 h bearing lifetime

Permissible axial forces for SH 225

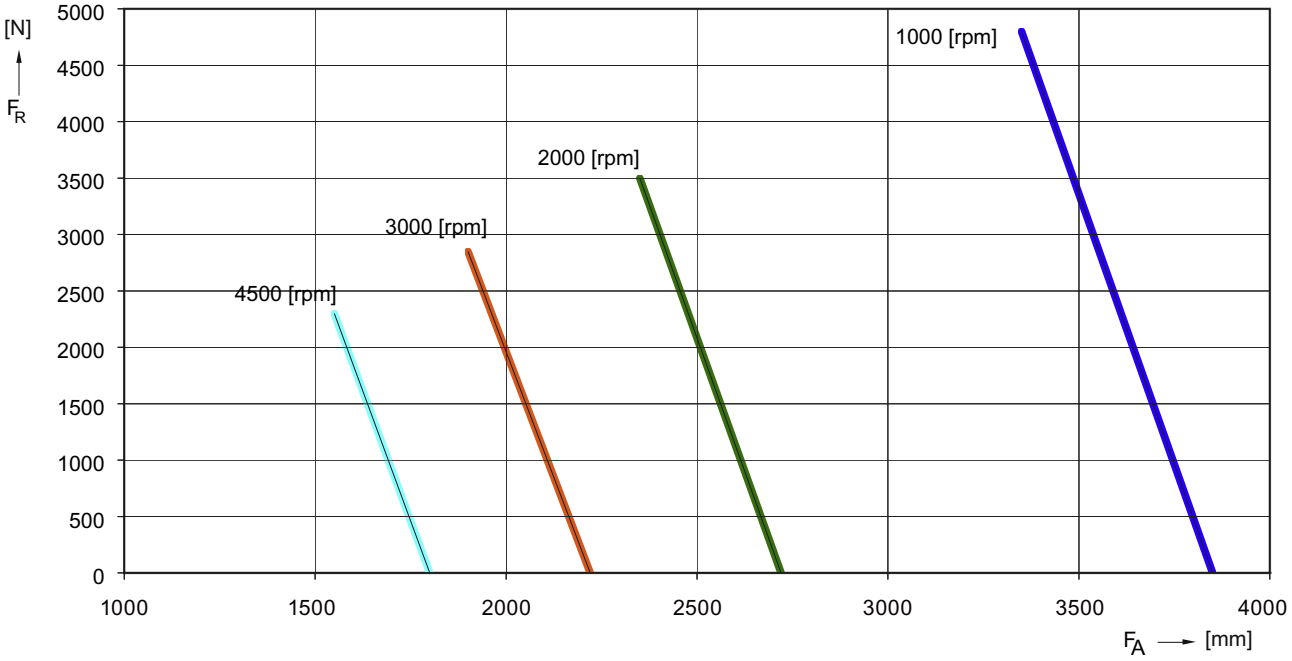


Figure 3-49 SH 225, Standard/Performance, 20000/12000 h bearing lifetime

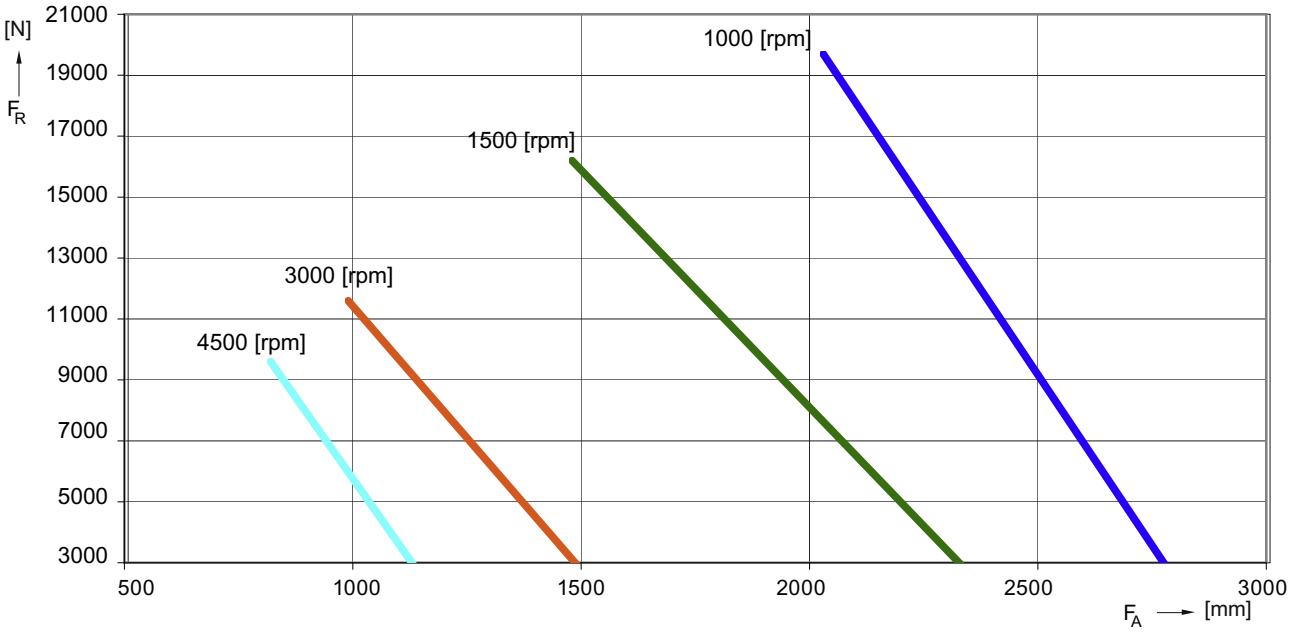


Figure 3-50 SH 225, increased cantilever forces, 12000 h bearing lifetime

Permissible axial forces for SH 280

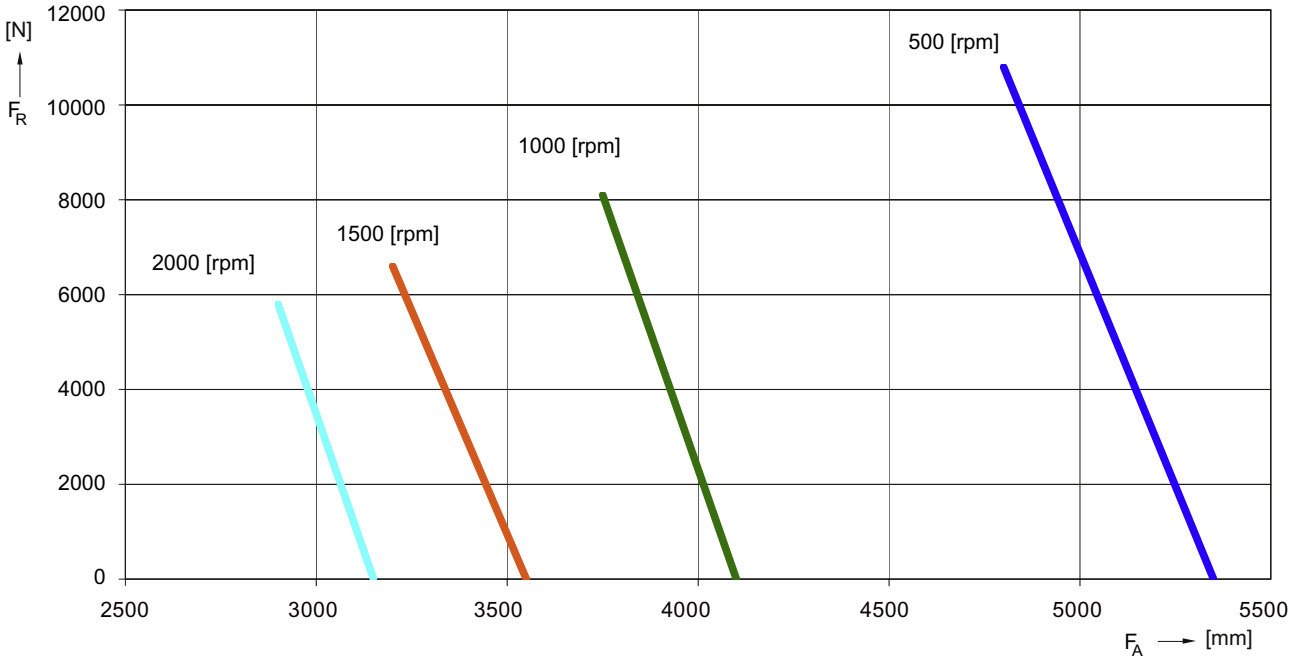


Figure 3-51 SH 280, Standard, 20000 h bearing lifetime

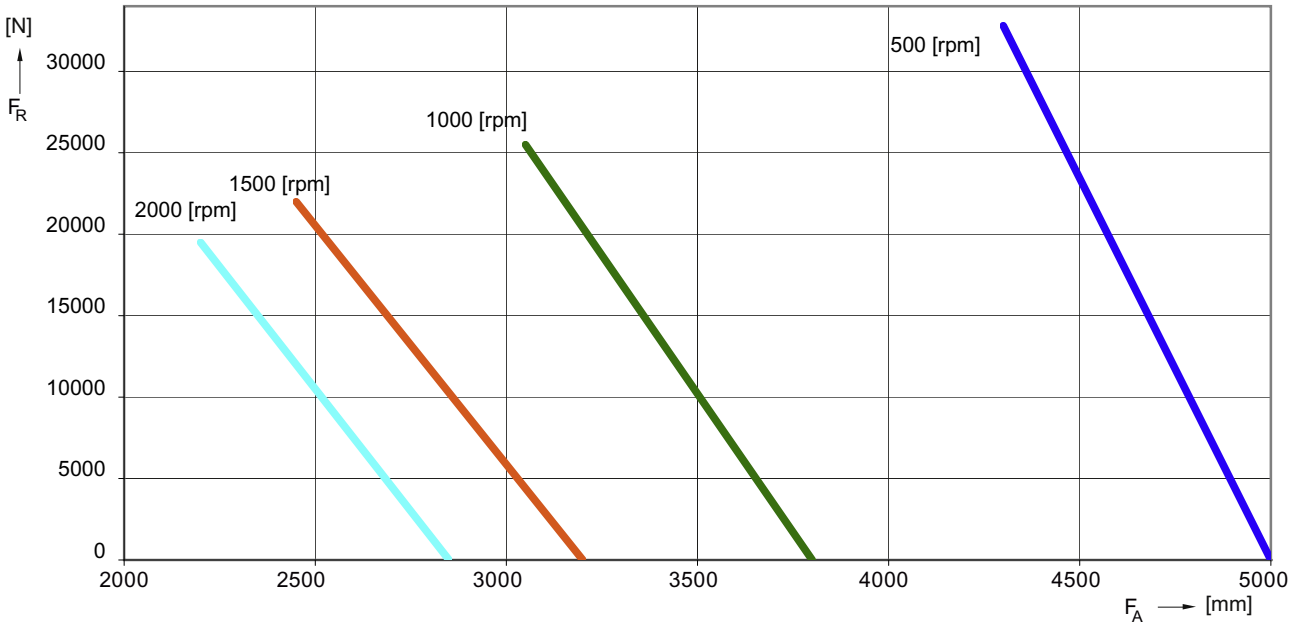


Figure 3-52 SH 280, increased cantilever forces, 12000 h bearing lifetime

3.6 Shaft end

The DE shaft end is cylindrical in accordance with DIN 748 Part 3 (IEC 60072-1).

3.7 Radial eccentricity, concentricity and axial eccentricity

The shaft and flange accuracies are checked in accordance with DIN 42955, IEC 60072. Data deviating from these values are indicated in the dimension drawings.

Table 3- 22 Radial eccentricity tolerance of the shaft to the frame axis (in relation to the cylindrical shaft extensions)

Shaft height	Tolerance level N	Tolerance level R	Tolerance SPECIAL
80	0.05	0.025	0.01
100	0.05	0.025	0.01
132	0.05	0.025	0.01
160	0.06	0.03	0.01
180	0.06	0.03	-
225	0.06	0.03	-
280	0.07	0.035	-

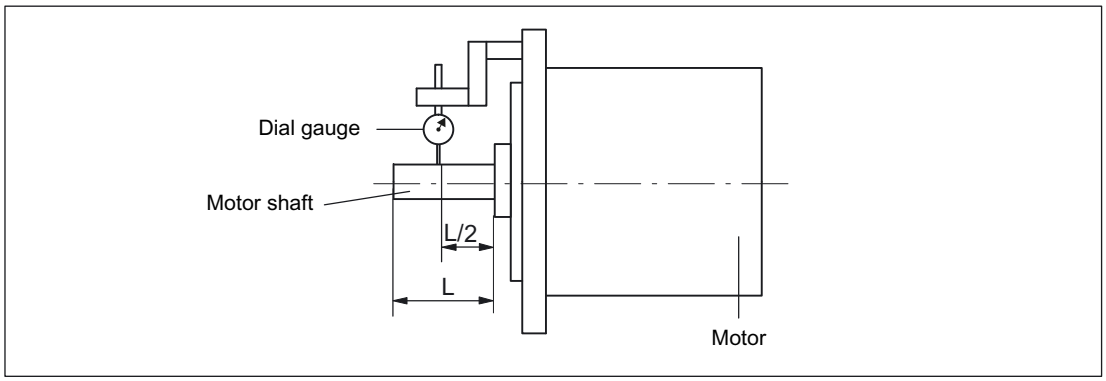


Figure 3-53 Checking the radial eccentricity

Table 3- 23 Concentricity and axial eccentricity tolerance of the flange surface to the shaft axis (referred to the centering diameter of the mounting flange)

Shaft height	Tolerance level N	Tolerance level R	Tolerance SPECIAL
80	0.1	0.05	0.03
100	0.1	0.05	0.04
132	0.125	0.063	0.04
160	0.125	0.063	0.04
180	0.125	0.063	-
225	0.125	0.063	-
280	0.16	0.08	-

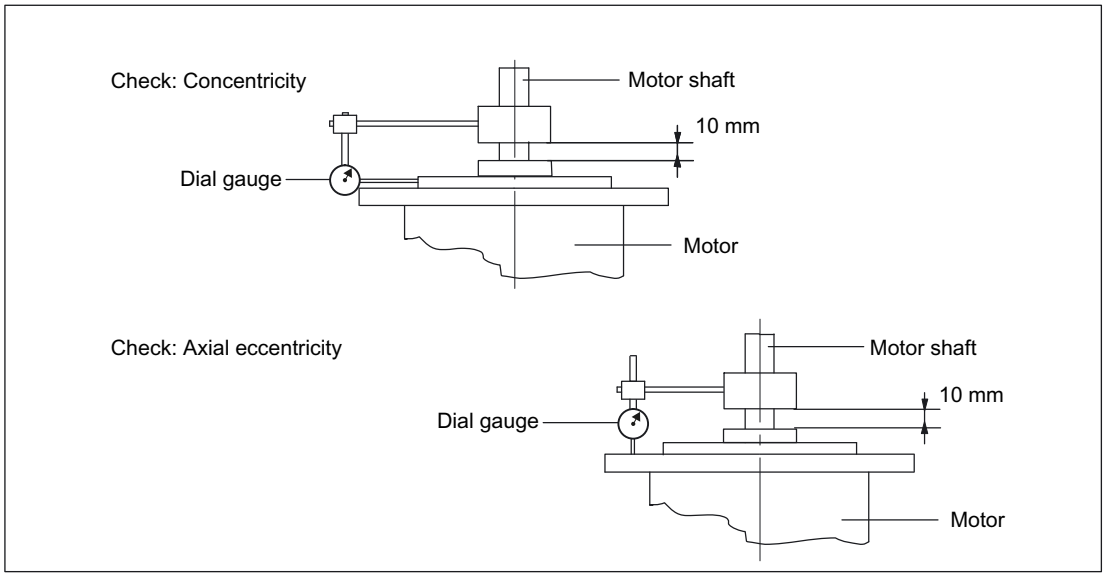


Figure 3-54 Checking the concentricity and axial eccentricity

3.8 Balancing process

Requirements placed on the process when balancing mounted components - especially belt pulleys

In addition to the balance quality of the motor, the vibration quality of motors with mounted belt pulleys and coupling is essentially determined by the balance quality of the mounted component.

If the motor and mounted component are separately balanced before they are assembled, then the process used to balance the belt pulley or coupling must be adapted to the motor balancing type.

For asynchronous motors, a differentiation should be made between the following balancing types:

- Half-key balancing (an "H" is stamped on the shaft face)
- Full-key balancing (an "F" is stamped on the shaft face)
- Smooth shaft end (no keyway)

The balancing type is coded in the order designation.

Note

In the case of a half-key balanced shaft end and short output element, remove if necessary the part of the feather key which protrudes out of the output element and beyond the shaft contour. This is urgently recommended in the case of speeds above 1000 rpm and high requirements of balance quality.

For the highest demands placed on the system balance quality, we recommend that motors with smooth shaft (without keyway) are used. For motors balanced with full key, we recommend belt pulleys with two keyways on opposite sides, however, with only one key in the shaft end.

Table 3- 24 Requirements placed on the balancing process as a function of the motor balancing type

Balancing equipment/ Process step	Motor Half key balanced	Motor balanced with full key	Motor with plain shaft end
Auxiliary shaft to balance the mounted component	• Auxiliary shaft with keyway • Keyway with the same dimensions as in the motor shaft end • Auxiliary shaft half key balanced	• Auxiliary shaft with keyway • Slot design with the exception of the slot width (as the motor) can be freely selected • Auxiliary shaft full key balanced	• Auxiliary shaft without keyway • If required, use a tapered auxiliary shaft
	• Balance quality of the auxiliary shaft ≤ 10 % of the required balance quality of the component to be mounted to the motor		
Attaching the mounted component to the auxiliary shaft for balancing	• Attached using a key • Key design, dimensions and materials the same as at the motor shaft end	• Attached using a key • Key design, dimensions and material the same as used for the full key balancing of the auxiliary shaft	• Attach the component as far as possible without any play, e.g. using a light press fit on the tapered shaft
Position the mounted component on the auxiliary shaft	• Select a position between the mounted component and the key of the auxiliary shaft so that it is the same when mounted on the actual motor	• No special requirements	
Balance the mounted component	• Two-plane balancing is recommended - i.e. balancing in two planes at both sides of the mounted components at right angles to the axis of rotation		

Special requirements

If special requirements are placed on the smooth running operation of the machine, we recommend that the motor together with the output components is completely balanced. In this case, balancing should be carried out in two planes of the output component.

3.9 Vibration severity level

The 1PH8 motors conform to vibration severity level A in accordance with EN 60034-14 (IEC 600-34-14). The values indicated refer only to the motor. These values can be increased at the motor due to the overall vibration characteristics of the complete system after the drive has been mounted.

Note

According to the vibration severity limit value diagrams below (Figure 3-47 or 3-48), the motors operate within the limit values stipulated for versions R, S, SR or SPECIAL over the specified speed range. Furthermore, within the rated speed range, they correspond to vibration severity grades A or B as defined by EN 60034-14 (IEC 600-34-14).

Precise vibration characteristics of different motor variants are defined according to order number, as specified in Section 1.

As a general rule, high radial force loading capability is not compatible with high speed and high vibration quality. The reason for this is that the different applications require different bearings.

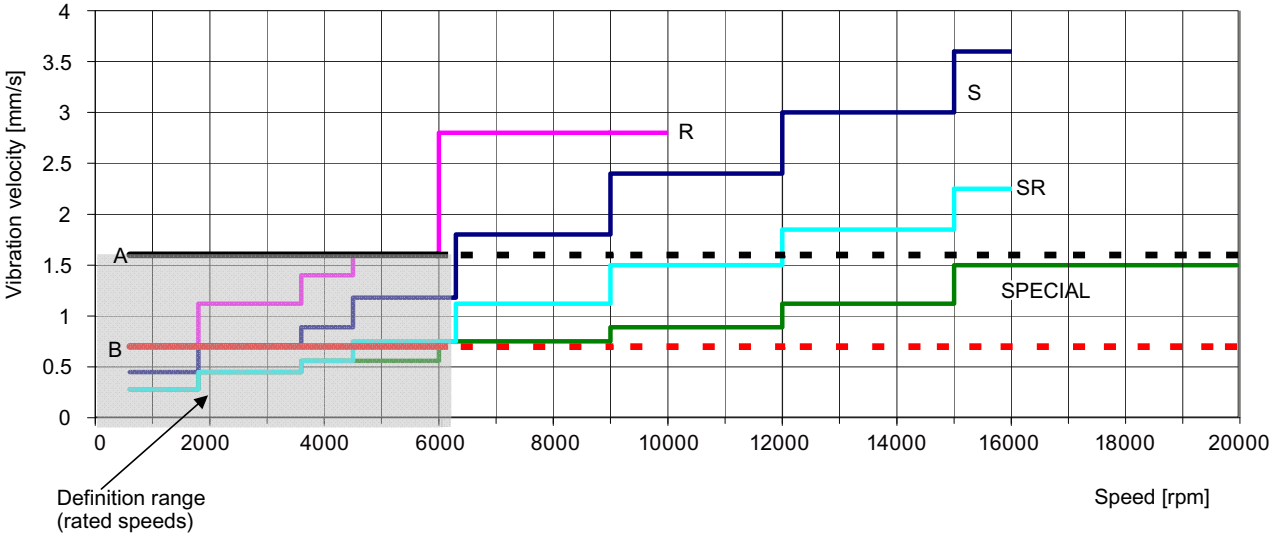


Figure 3-55 Vibration severity limit values for SH 80 to 132

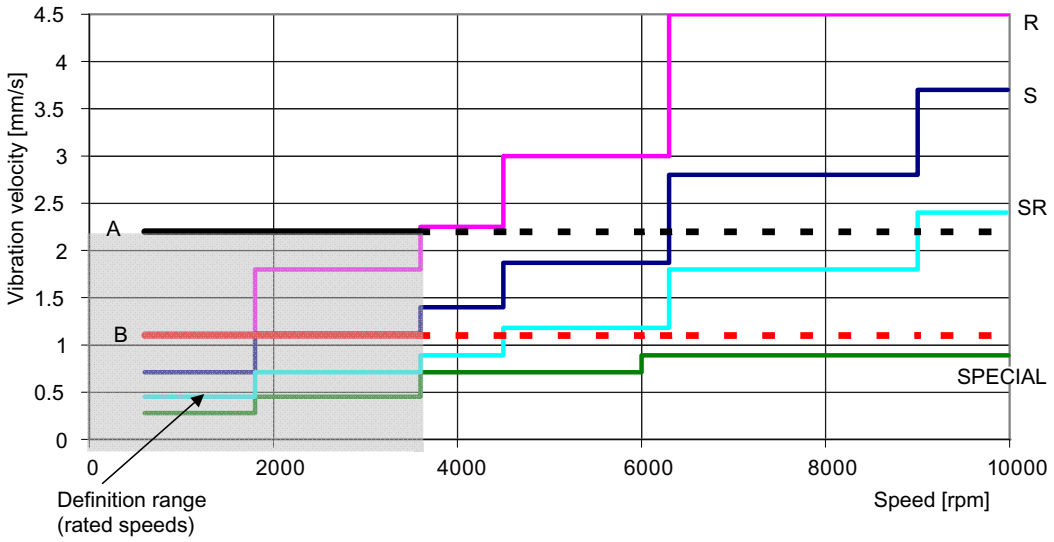


Figure 3-56 Vibration severity limit values for SH 160 to 280

3.10 Paint finish

1PH8 motors are supplied with the following paint finish:

- SH 80 to 160: Standard paint finish, anthracite RAL 7016
- SH 180 to 280: Standard paint finish, anthracite RAL 7016

Other colors: Refer to the table "Technical features, options".

Note

Use in sub-tropical regions

The motors should be ordered with a "worldwide" paint finish if they are to be used in sub-tropical regions or if they are to be transported by sea to prevent corrosion.

Technical data and characteristics

4

4.1 Asynchronous motors

4.1.1 Technical data

The technical data of the relevant motor version is defined by three design points in the tables.

These three design points also correspond to the data stamped on the rating plate of the motor and to the data listed in the selection and ordering data sections of catalog PM 21, NC 61 or D31.

4.1.1.1 Explanation of short codes_asynchronous

Table 4- 1 Explanation of the abbreviations used

Abbreviation	Unit	Description
P_{rated}	kW	Rated power
M_{rated}	Nm	Rated torque
I_{rated}	A	Rated current
U_{rated}	V	Rated voltage
f_{rated}	Hz	Rated frequency
n_{rated}	rpm	Rated speed
cos Φ	-	Power factor
η	-	Efficiency (design point sine-wave operation or 1st order fundamental wave)
J	kgm^2	Moment of inertia
T_{th}	min	Thermal time constant
I_{μ}	A	Magnetizing current
P_cool	kW	Heat loss to be dissipated on water-cooled motors
m	kg	Weight
n_{max1}	rpm	Maximum permissible speed with bearing type "Standard or Increased Speed"
n_{max2}	rpm	Maximum permissible speed with bearing type "Performance"
n_{max3}	rpm	Maximum permissible speed with bearing type "High Performance"
$n_{max,Br}$	rpm	Maximum permissible speed with bearing type "Advanced Lifetime" or built-on holding brake
n_2	rpm	Maximum operating speed in field-weakening range (borders range of constant power)
M_{max}	Nm	Maximum permissible short-time torque for dynamic processes
I_{max}	A	Maximum permissible short-time current at M_{max}
M_0	Nm	Torque (S1) at zero speed
I_0	A	Current (S1) at M_0

4.1.1.2 Shaft height 80 – forced ventilation

Table 4- 2 1PH8 shaft height 80, forced ventilation (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8083-1□F□□	SLM/BLM 400 V	2.8	18	7.5	346	53.3	1500	0.80	0.809	0.0064	10	3.8	32
Y connection	ALM 400 V	3.3	18	7.5	398	61.7	1750	0.80	0.831			3.8	
	SLM/BLM/ALM 480 V	3.7	18	7.6	447	70.0	2000	0.79	0.850			3.7	
1PH8083-1□G□□	SLM/BLM 400 V	3.7	18	11.6	293	70.2	2000	0.79	0.832			5.7	
Y connection	ALM 400 V	4.1	17	11.3	332	80.0	2300	0.78	0.852			5.7	
	SLM/BLM/ALM 480 V	4.6	17	11.2	376	91.6	2650	0.78	0.862			5.7	
1PH8083-1□M□□	SLM/BLM 400 V	4.1	13	13.6	298	102.6	3000	0.74	0.869			7.3	
Y connection	ALM 400 V	4.5	13	13.5	327	112.6	3300	0.74	0.875			7.3	
	SLM/BLM/ALM 480 V	4.9	13	14.0	355	122.6	3600	0.74	0.881			7.3	
1PH8083-1□N□□	SLM/BLM 400 V	4.8	10	17.0	300	152.3	4500	0.70	0.860			9.5	
Y connection	ALM 400 V	5.3	10	17.0	335	168.9	5000	0.69	0.870			9.7	
	SLM/BLM/ALM 480 V	5.5	10	16.5	350	185.7	5500	0.71	0.870			9.0	
1PH8087-1□F□□	SLM/BLM 400 V	3.7	24	10.0	336	53.2	1500	0.81	0.817	0.0089	10	4.9	39
Y connection	ALM 400 V	4.3	23	10.0	396	61.3	1750	0.78	0.838			5.3	
	SLM/BLM/ALM 480 V	4.9	23	10.0	435	69.9	2000	0.80	0.864			4.9	
1PH8087-1□G□□	SLM/BLM 400 V	4.9	23	14.1	320	69.8	2000	0.78	0.853			7.3	
Y connection	ALM 400 V	5.4	22	13.7	353	79.8	2300	0.79	0.859			6.8	
	SLM/BLM/ALM 480 V	6.0	22	13.6	390	91.6	2650	0.79	0.884			6.5	
1PH8087-1□M□□	SLM/BLM 400 V	4.8	15	17.3	284	102.2	3000	0.72	0.871			9.6	
Y connection	ALM 400 V	5.2	15	17.1	303	112.3	3300	0.73	0.878			9.2	
	SLM/BLM/ALM 480 V	5.7	15	17.1	329	122.4	3600	0.73	0.878			9.2	
1PH8087-1□N□□	SLM/BLM 400 V	5.8	12	19.5	315	152.1	4500	0.70	0.871			11.0	
Y connection	ALM 400 V	6.5	12	19.5	335	169.0	5000	0.73	0.878			10.4	
	SLM/BLM/ALM 480 V	6.9	12	19.0	370	185.6	5500	0.71	0.878			10.5	

4.1.1.3 Shaft height 100 – forced ventilation

Table 4- 3 1PH8 shaft height 100, forced ventilation (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8101-1□F□□	SLM/BLM 400 V	3.7	24	12.5	265	52.4	1500	0.80	0.835	0.0138	20	6.0	42
Y connection	ALM 400 V	4.3	23	12.5	304	60.8	1750	0.80	0.852			6.0	
	SLM/BLM/ALM 480 V	4.7	22	12.5	343	69.0	2000	0.79	0.871			6.0	
1PH8101-1□S□□	SLM/BLM 400 V	3.7	24	13.2	253	52.4	1500	0.80	0.830			6.3	
Y connection	ALM 400 V	4.9	23	13.2	328	69.1	2000	0.80	0.870			6.3	
	SLM/BLM/ALM 480 V	6.2	24	13.2	404	85.9	2500	0.80	0.890			6.2	
1PH8101-1□S□□	SLM/BLM 400 V	3.7	9	13.5	289	134.6	4000	0.69	0.890			7.8	
Δ connection	ALM 400 V	4.9	9	13.5	360	168.0	5000	0.70	0.900			7.8	
	SLM/BLM/ALM 480 V	6.2	10	13.0	460	201.3	6000	0.68	0.910			8.5	

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8103-1□D□□	SLM/BLM 400 V	3.7	35	10.0	333	35.8	1000	0.82	0.814	0.0172	20	4.6	51
Y connection	ALM 400 V	4.3	36	10.0	380	40.7	1150	0.81	0.824			4.8	
	SLM/BLM/ALM 480 V	4.7	33	9.7	423	47.3	1350	0.82	0.848			4.4	
1PH8103-1□F□□	SLM/BLM 400 V	5.5	35	13.5	368	52.4	1500	0.80	0.852			6.5	
Y connection	ALM 400 V	6.3	34	13.1	412	60.8	1750	0.81	0.859			6.0	
	SLM/BLM/ALM 480 V	7.0	33	12.7	460	69.1	2000	0.81	0.894			5.8	
1PH8103-1□G□□	SLM/BLM 400 V	7.0	33	17.5	345	69.0	2000	0.79	0.877			8.7	
Y connection	ALM 400 V	7.5	31	17.0	382	78.9	2300	0.79	0.891			8.1	
	SLM/BLM/ALM 480 V	8.0	29	16.0	434	90.4	2650	0.78	0.913			8.1	
1PH8103-1□M□□	SLM/BLM 400 V	8.4	27	25.7	297	102.1	3000	0.78	0.900			12.2	
Y connection	ALM 400 V	9.3	27	25.7	326	112.1	3300	0.78	0.900			12.2	
	SLM/BLM/ALM 480 V	10.0	27	25.4	355	122.1	3600	0.77	0.910			12.3	
1PH8105-1□F□□	SLM/BLM 400 V	7.0	45	17.5	348	51.9	1500	0.79	0.867	0.0252	20	8.8	65
Y connection	ALM 400 V	8.0	44	17.5	400	60.2	1750	0.78	0.878			8.8	
	SLM/BLM/ALM 480 V	9.0	43	17.0	453	68.5	2000	0.78	0.911			8.7	
1PH8105-1□S□□	SLM/BLM 400 V	7.5	18	24.0	308	134.6	4000	0.73	0.907			12.7	
Δ connection	ALM 400 V	9.3	18	24.0	398	167.9	5000	0.71	0.914			13.2	
	SLM/BLM/ALM 480 V	11.2	18	22.0	460	201.3	6000	0.73	0.932			12.7	
1PH8105-1□S□□	SLM/BLM 400 V	7.5	48	23.0	285	52.1	1500	0.79	0.864			11.5	
Y connection	ALM 400 V	10.0	48	23.0	366	68.9	2000	0.80	0.891			10.9	
	SLM/BLM/ALM 480 V	12.5	48	23.0	451	85.5	2500	0.80	0.922			10.9	
1PH8107-1□D□□	SLM/BLM 400 V	6.3	60	17.5	307	35.5	1000	0.82	0.834	0.0289	20	8.2	73
Y connection	ALM 400 V	7.2	60	17.5	348	40.6	1150	0.82	0.852			8.2	
	SLM/BLM/ALM 480 V	8.0	57	17.0	400	47.1	1350	0.80	0.867			8.2	
1PH8107-1□F□□	SLM/BLM 400 V	9.0	57	23.5	330	52.2	1500	0.81	0.869			10.8	
Y connection	ALM 400 V	10.0	55	22.0	380	60.4	1750	0.80	0.878			10.9	
	SLM/BLM/ALM 480 V	11.0	53	21.5	428	68.6	2000	0.79	0.901			10.8	
1PH8107-1□G□□	SLM/BLM 400 V	10.5	50	26.0	355	68.6	2000	0.78	0.897			12.9	
Y connection	ALM 400 V	12.0	50	26.0	406	78.6	2300	0.78	0.909			13.0	
	SLM/BLM/ALM 480 V	13.0	47	24.0	460	90.0	2650	0.77	0.932			12.8	
1PH8107-1□M□□	SLM/BLM 400 V	12.0	38	38.0	294	101.6	3000	0.76	0.900			19.2	
Y connection	ALM 400 V	13.0	38	38.0	314	111.7	3300	0.78	0.900			12.2	
	SLM/BLM/ALM 480 V	14.0	37	37.5	350	121.6	3600	0.77	0.910			12.3	
1PH8107-1□S□□	SLM/BLM 400 V	8.5	20	28.0	323	134.4	4000	0.68	0.898			16.4	
Δ connection	ALM 400 V	11.0	21	28.0	410	167.8	5000	0.68	0.909			16.7	
	SLM/BLM/ALM 480 V	14.0	22	27.0	460	201.3	6000	0.73	0.931			15.5	
1PH8107-1□S□□	SLM/BLM 400 V	8.5	54	27.0	275	52.0	1500	0.80	0.861			13.1	
Y connection	ALM 400 V	11.0	53	26.7	368	68.6	2000	0.76	0.894			14.2	
	SLM/BLM/ALM 480 V	14.0	53	26.5	454	85.2	2500	0.77	0.923			14.1	

4.1.1.4 Shaft height 132 – forced ventilation

Table 4- 4 1PH8 shaft height 132, forced ventilation (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8131-1□F□□	SLM/BLM 400 V	11.0	70	24	360	51.4	1500	0.84	0.899	0.059	30	10.4	89
Y connection	ALM 400 V	13.0	71	24	416	59.8	1750	0.84	0.914			10.3	
	SLM/BLM/ALM 480 V	15.0	72	24	460	68.2	2000	0.86	0.931			9.2	
1PH8131-1□S□□	SLM/BLM 400 V	11.0	28	40	285	134.1	4000	0.75	0.893			18.1	
Δ connection	ALM 400 V	14.6	28	40	360	167.5	5000	0.78	0.897			18.5	
	SLM/BLM/ALM 480 V	18.0	29	35	453	200.8	6000	0.75	0.908			20.2	
1PH8131-1□S□□	SLM/BLM 400 V	11.0	70	39	227	51.5	1500	0.85	0.884			15.1	
Y connection	ALM 400 V	14.6	70	39	302	68.2	2000	0.84	0.908			15.9	
	SLM/BLM/ALM 480 V	18.0	69	38	372	84.8	2500	0.84	0.922			15.6	
1PH8133-1□D□□	SLM/BLM 400 V	12.0	115	30	319	35.0	1000	0.88	0.871	0.076	30	10.1	106
Y connection	ALM 400 V	13.5	112	29	361	40.0	1150	0.87	0.884			10.7	
	SLM/BLM/ALM 480 V	15.0	106	28	417	46.5	1350	0.86	0.904			10.7	
1PH8133-1□F□□	SLM/BLM 400 V	15.0	96	34	342	51.3	1500	0.85	0.899			14.2	
Y connection	ALM 400 V	17.5	96	34	392	59.7	1750	0.85	0.913			13.6	
	SLM/BLM/ALM 480 V	20.0	96	34	445	68.2	2000	0.85	0.933			13.5	
1PH8133-1□G□□	SLM/BLM 400 V	20.0	96	45	350	68.1	2000	0.85	0.919			18.1	
Y connection	ALM 400 V	22.5	93	44	400	78.1	2300	0.84	0.933			18.1	
	SLM/BLM/ALM 480 V	24.0	86	41	456	89.6	2650	0.83	0.949			18.1	
1PH8135-1□F□□	SLM/BLM 400 V	18.5	118	43	330	51.3	1500	0.85	0.898	0.094	30	18.1	125
Y connection	ALM 400 V	21.5	117	43	383	59.6	1750	0.84	0.909			18.3	
	SLM/BLM/ALM 480 V	24.0	115	43	434	67.9	2000	0.84	0.929			18.1	
1PH8135-1□S□□	SLM/BLM 400 V	18.5	44	51	364	134.0	4000	0.76	0.912			23.3	
Δ connection	ALM 400 V	24.5	47	52	425	167.5	5000	0.81	0.939			22.8	
	SLM/BLM/ALM 480 V	30.5	49	50	460	201.0	6000	0.86	0.941			20.0	
1PH8135-1□S□□	SLM/BLM 400 V	18.5	118	51	283	51.3	1500	0.85	0.901			21.1	
Y connection	ALM 400 V	24.5	117	51	372	68.0	2000	0.85	0.917			20.9	
	SLM/BLM/ALM 480 V	30.5	117	50	460	84.6	2500	0.85	0.949			20.8	
1PH8137-1□D□□	SLM/BLM 400 V	17.0	162	43	307	34.8	1000	0.88	0.881	0.109	30	15.1	141
Y connection	ALM 400 V	19.5	162	43	350	39.8	1150	0.87	0.891			16.1	
	SLM/BLM/ALM 480 V	22.0	156	42	404	46.4	1350	0.86	0.902			15.9	
1PH8137-1□F□□	SLM/BLM 400 V	22.0	140	56	308	51.3	1500	0.84	0.904			24.2	
Y connection	ALM 400 V	25.0	136	56	353	59.6	1750	0.84	0.907			23.1	
	SLM/BLM/ALM 480 V	28.0	134	55	401	67.9	2000	0.84	0.931			23.1	
1PH8137-1□G□□	SLM/BLM 400 V	28.0	134	60	350	68.1	2000	0.87	0.924			21.5	
Y connection	ALM 400 V	29.0	120	56	400	77.9	2300	0.86	0.929			21.9	
	SLM/BLM/ALM 480 V	30.0	108	52	460	89.4	2650	0.83	0.941			22.4	
1PH8137-1□S□□	SLM/BLM 400 V	22.0	53	55	383	134.0	4000	0.76	0.907			27.6	
Δ connection	ALM 400 V	27.5	53	56	425	167.5	5000	0.83	0.919			22.5	
	SLM/BLM/ALM 480 V	33.0	53	55	460	201.0	6000	0.87	0.942			20.0	
1PH8137-1□S□□	SLM/BLM 400 V	22.0	140	56	308	51.3	1500	0.84	0.902			24.2	
Y connection	ALM 400 V	29.0	138	56	398	68.0	2000	0.85	0.931			22.7	
	SLM/BLM/ALM 480 V	36.0	138	56	460	84.9	2500	0.89	0.951			17.4	

4.1.1.5 Shaft height 160 - forced ventilation

Table 4- 5 1PH8 shaft height 160, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8163-1□B□□	SLM/BLM 400 V	9.5	227	30	260	14.3	400	0.91	0.828	0.216	35	8.1	196
Y connection	ALM 400 V	12	229	30	325	17.6	500	0.90	0.819			8.9	
	SLM/BLM/ALM 480 V	14.5	231	30	370	21.0	600	0.90	0.851			8.1	
1PH8163-1□D□□	SLM/BLM 400 V	22	210	55	300	34.2	1000	0.89	0.909			17.3	
Y connection	ALM 400 V	25	208	55	343	39.2	1150	0.88	0.915			17.5	
	SLM/BLM/ALM 480 V	28	198	52	400	45.8	1350	0.88	0.924			17.7	
1PH8163-1□F□□	SLM/BLM 400 V	30	191	71	319	50.8	1500	0.87	0.923			25.6	
Y connection	ALM 400 V	34	186	70	366	59.2	1750	0.87	0.926			24.6	
	SLM/BLM/ALM 480 V	37	177	68	416	67.4	2000	0.86	0.932			24.6	
1PH8163-1□G□□	SLM/BLM 400 V	36	172	83	324	67.5	2000	0.88	0.929			28.1	
Y connection	ALM 400 V	38	158	78	370	77.4	2300	0.87	0.935			28.2	
	SLM/BLM/ALM 480 V	40	144	76	390	89.2	2650	0.89	0.936			23.1	
1PH8165-1□B□	SLM/BLM 400 V	13	310	36	300	14.1	400	0.86	0.826	0.232	35	14.9	230
Y connection	ALM 400 V	16	306	36	365	17.5	500	0.85	0.830			14.8	
	SLM/BLM/ALM 480 V	19	302	35	420	20.8	600	0.88	0.850			12.0	
1PH8165-1□D□□	SLM/BLM 400 V	28	267	71	292	34.2	1000	0.89	0.914			22.2	
Y connection	ALM 400 V	31	257	69	333	39.2	1150	0.89	0.921			20.9	
	SLM/BLM/ALM 480 V	34	241	66	387	45.8	1350	0.86	0.928			22.5	
1PH8165-1□F□□	SLM/BLM 400 V	37	236	78	350	50.8	1500	0.88	0.926			27.0	
Y connection	ALM 400 V	41	224	76	400	59.1	1750	0.88	0.934			25.8	
	SLM/BLM/ALM 480 V	45	215	75	440	67.5	2000	0.89	0.936			23.6	
1PH8165-1□G□□	SLM/BLM 400 V	41	196	88	350	67.4	2000	0.87	0.927			32.4	
Y connection	ALM 400 V	44	183	85	394	77.4	2300	0.86	0.932			31.0	
	SLM/BLM/ALM 480 V	50	180	85	440	89.0	2650	0.87	0.932			28.9	

4.1.1.6 Shaft height 180 - forced ventilation

Table 4- 6 1PH8 shaft height 180, degree of protection IP55, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8184-1□B□□ Y connection	SLM/BLM 400 V	16.3	389	49	271	14.1	400	0.85	0.834	0.489	22	23	350
	ALM 400 V	20.5	392	49	335	17.4	500	0.84	0.861			23	
	SLM/BLM/ALM 480 V	25	398	49	410	20.7	600	0.81	0.882			26	
1PH8184-1□C□□ Y connection	SLM/BLM 400 V	27	368	65	320	24.0	700	0.84	0.889	0.489	22	30	350
	ALM 400 V	31	370	65	365	27.4	800	0.84	0.901			30	
	SLM/BLM/ALM 480 V	39	372	65	460	34.0	1000	0.82	0.917			32	
1PH8184-1□D□□ Y connection	SLM/BLM 400 V	39	372	87	340	34.0	1000	0.83	0.920	0.489	22	42	350
	ALM 400 V	44	365	86	390	39.0	1150	0.82	0.928			42	
	SLM/BLM/ALM 480 V	50	354	84	450	45.7	1350	0.82	0.936			41	
1PH8184-1□F□□ Y connection	SLM/BLM 400 V	51	325	116	335	50.6	1500	0.80	0.940	0.489	22	63	350
	ALM 400 V	60	327	120	390	58.9	1750	0.79	0.944			64	
	SLM/BLM/ALM 480 V	68	325	118	450	67.2	2000	0.78	0.947			65	
1PH8184-1□L□□ Y connection	SLM/BLM 400 V	78	298	166	340	84.0	2500	0.84	0.952	0.489	22	75	350
	ALM 400 V	81	267	152	395	97.3	2900	0.82	0.952			76	
	SLM/BLM/ALM 480 V	65	183	120	460	113.7	3400	0.72	0.944			77	
1PH8186-1□B□□ Y connection	SLM/BLM 400 V	21.2	506	65	268	13.9	400	0.83	0.850	0.652	25	34	422
	ALM 400 V	26.5	506	65	335	17.2	500	0.80	0.875			36	
	SLM/BLM/ALM 480 V	32	509	66	400	20.6	600	0.79	0.892			37	
1PH8186-1□C□□ Y connection	SLM/BLM 400 V	35	478	83	330	23.9	700	0.81	0.909	0.652	25	44	422
	ALM 400 V	40	478	83	360	27.3	800	0.84	0.916			41	
	SLM/BLM/ALM 480 V	50	478	83	450	33.9	1000	0.83	0.929			42	
1PH8186-1□D□□ Y connection	SLM/BLM 400 V	51	487	112	340	34.0	1000	0.83	0.926	0.652	25	56	422
	ALM 400 V	58	482	112	390	38.9	1150	0.82	0.933			57	
	SLM/BLM/ALM 480 V	67	474	112	450	45.6	1350	0.82	0.939			55	
1PH8186-1□F□□ Y connection	SLM/BLM 400 V	74	471	166	330	50.6	1500	0.83	0.945	0.652	25	82	422
	ALM 400 V	85	464	164	385	58.9	1750	0.82	0.949			83	
	SLM/BLM/ALM 480 V	94	449	160	445	67.2	2000	0.80	0.952			86	
1PH8186-1□L□□ Y connection	SLM/BLM 400 V	106	405	230	335	83.9	2500	0.84	0.955	0.652	25	107	422
	ALM 400 V	101	333	198	385	97.2	2900	0.80	0.954			106	
	SLM/BLM/ALM 480 V	81	228	158	455	113.7	3400	0.69	0.943			109	

4.1.1.7 Shaft height 180 - forced ventilation (open-circuit ventilation)

Table 4- 7 1PH8 shaft height 180, degree of protection IP23, forced ventilation, open-circuit ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8184-1□B□□ Y connection	SLM/BLM 400 V	24.5	585	67	300	14.3	400	0.88	0.801	0.489	26	25	350
	ALM 400 V	30	573	65	370	17.6	500	0.86	0.840			27	
	SLM/BLM/ALM 480 V	36	573	64	440	20.9	600	0.85	0.863			28	
1PH8184-1□C□□ Y connection	SLM/BLM 400 V	40	546	94	320	24.5	700	0.90	0.852	0.489	26	27	350
	ALM 400 V	45	537	91	365	27.8	800	0.90	0.872			28	
	SLM/BLM/ALM 480 V	57	544	90	460	34.4	1000	0.89	0.896			30	
1PH8184-1□D□□ Y connection	SLM/BLM 400 V	57	544	120	340	34.4	1000	0.89	0.899	0.489	26	39	350
	ALM 400 V	65	540	120	390	39.4	1150	0.88	0.911			39	
	SLM/BLM/ALM 480 V	74	523	118	450	46.0	1350	0.88	0.922			39	
1PH8184-1□F□□ Y connection	SLM/BLM 400 V	76	484	162	335	50.9	1500	0.87	0.931	0.489	26	61	350
	ALM 400 V	89	486	162	390	59.3	1750	0.87	0.937			61	
	SLM/BLM/ALM 480 V	98	468	156	450	67.5	2000	0.85	0.943			63	
1PH8184-1□L□□ Y connection	SLM/BLM 400 V	100	382	205	340	84.2	2500	0.87	0.949	0.489	26	74	350
	ALM 400 V	113	372	200	395	97.5	2900	0.87	0.952			75	
	SLM/BLM/ALM 480 V	113	317	176	460	114.1	3400	0.85	0.953			75	
1PH8186-1□B□□ Y connection	SLM/BLM 400 V	31.5	752	88	290	14.2	400	0.87	0.822	0.652	29	37	422
	ALM 400 V	40	764	88	355	17.5	500	0.87	0.850			38	
	SLM/BLM/ALM 480 V	48	764	88	430	20.8	600	0.84	0.874			41	
1PH8186-1□C□□ Y connection	SLM/BLM 400 V	52	709	116	330	24.3	700	0.89	0.885	0.652	29	41	422
	ALM 400 V	60	716	120	360	27.7	800	0.90	0.891			38	
	SLM/BLM/ALM 480 V	74	707	116	450	34.3	1000	0.89	0.912			39	
1PH8186-1□D□□ Y connection	SLM/BLM 400 V	74	707	156	340	34.3	1000	0.89	0.908	0.652	29	53	422
	ALM 400 V	85	706	154	390	39.3	1150	0.89	0.918			54	
	SLM/BLM/ALM 480 V	98	693	152	450	45.9	1350	0.89	0.928			53	
1PH8186-1□F□□ Y connection	SLM/BLM 400 V	108	688	225	330	50.9	1500	0.89	0.936	0.652	29	79	422
	ALM 400 V	125	682	225	385	59.2	1750	0.88	0.942			80	
	SLM/BLM/ALM 480 V	135	645	210	445	67.5	2000	0.87	0.948			83	
1PH8186-1□L□□ Y connection	SLM/BLM 400 V	130	497	270	335	84.1	2500	0.87	0.954	0.652	29	105	422
	ALM 400 V	150	494	270	385	97.4	2900	0.87	0.955			105	
	SLM/BLM/ALM 480 V	130	365	210	455	113.9	3400	0.82	0.954			108	

4.1.1.8 Shaft height 225 - forced ventilation

Table 4- 8 1PH8 shaft height 225, degree of protection IP55, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8224-1□B□□ Y connection	SLM/BLM 400 V	30.4	726	86	268	13.9	400	0.87	0.872	1.48	49	34	610
	ALM 400 V	38	726	85	335	17.2	500	0.86	0.896			36	
	SLM/BLM/ALM 480 V	45	716	83	405	20.5	600	0.85	0.912			37	
1PH8224-1□C□□ Y connection	SLM/BLM 400 V	55	750	136	310	23.8	700	0.82	0.925	1.48	49	67	610
	ALM 400 V	57	681	126	350	27.1	800	0.80	0.934			67	
	SLM/BLM/ALM 480 V	71	678	126	425	33.8	1000	0.81	0.943			64	
1PH8224-1□D□□ Y connection	SLM/BLM 400 V	71	678	158	335	33.8	1000	0.82	0.942	1.48	49	77	610
	ALM 400 V	81	673	156	385	38.8	1150	0.82	0.946			78	
	SLM/BLM/ALM 480 V	92	651	154	450	45.5	1350	0.81	0.951			78	
1PH8224-1□F□□ Y connection	SLM/BLM 400 V	95	605	200	340	50.5	1500	0.85	0.953	1.48	49	87	610
	ALM 400 V	110	600	198	395	58.9	1750	0.85	0.956			87	
	SLM/BLM/ALM 480 V	124	592	196	460	67.2	2000	0.83	0.957			90	
1PH8224-1□L□□ Y connection	SLM/BLM 400 V	142	542	295	340	83.9	2500	0.86	0.958	1.48	49	113	610
	ALM 400 V	149	491	270	395	97.2	2900	0.85	0.957			115	
	SLM/BLM/ALM 480 V	85	239	168	460	113.6	3400	0.68	0.934			115	
1PH8226-1□B□□ Y connection	SLM/BLM 400 V	39.2	936	112	264	13.9	400	0.87	0.887	1.93	52	46	740
	ALM 400 V	49	936	110	330	17.2	500	0.86	0.908			48	
	SLM/BLM/ALM 480 V	59	939	110	395	20.5	600	0.85	0.921			49	
1PH8226-1□C□□ Y connection	SLM/BLM 400 V	68	928	162	310	23.8	700	0.84	0.932	1.93	52	76	740
	ALM 400 V	73	872	154	350	27.1	800	0.83	0.940			75	
	SLM/BLM/ALM 480 V	92	879	156	440	33.8	1000	0.82	0.948			77	
1PH8226-1□D□□ Y connection	SLM/BLM 400 V	92	879	194	340	33.8	1000	0.85	0.944	1.93	52	86	740
	ALM 400 V	105	872	192	390	38.8	1150	0.85	0.949			86	
	SLM/BLM/ALM 480 V	120	849	188	460	45.5	1350	0.84	0.954			88	
1PH8226-1□F□□ Y connection	SLM/BLM 400 V	130	828	270	340	50.5	1500	0.85	0.957	1.93	52	119	740
	ALM 400 V	135	737	250	395	58.8	1750	0.83	0.960			119	
	SLM/BLM/ALM 480 V	153	731	245	450	67.1	2000	0.83	0.961			119	
1PH8226-1□L□□ Y connection	SLM/BLM 400 V	168	642	350	335	83.8	2500	0.86	0.961	1.93	52	151	740
	ALM 400 V	185	609	335	390	97.1	2900	0.85	0.960			152	
	SLM/BLM/ALM 480 V	90	253	205	460	113.5	3400	0.60	0.926			156	
1PH8228-1□B□□ Y connection	SLM/BLM 400 V	48	1146	132	272	13.8	400	0.86	0.896	2.33	55	58	870
	ALM 400 V	60	1146	132	340	17.2	500	0.85	0.914			59	
	SLM/BLM/ALM 480 V	72	1146	130	410	20.5	600	0.84	0.927			62	
1PH8228-1□C□□ Y connection	SLM/BLM 400 V	82	1119	188	315	23.8	700	0.86	0.933	2.33	55	80	870
	ALM 400 V	92	1098	182	360	27.2	800	0.86	0.941			80	
	SLM/BLM/ALM 480 V	115	1098	182	450	33.8	1000	0.85	0.949			82	
1PH8228-1□D□□ Y connection	SLM/BLM 400 V	113	1079	235	340	33.9	1000	0.87	0.948	2.33	55	97	870
	ALM 400 V	129	1071	235	390	38.8	1150	0.86	0.953			97	
	SLM/BLM/ALM 480 V	147	1040	225	460	45.5	1350	0.86	0.957			99	

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8228-1□F□□ Y connection	SLM/BLM 400 V	160	1019	340	340	50.4	1500	0.83	0.959	2.33	55	170	870
	ALM 400 V	179	977	330	395	58.7	1750	0.82	0.961			170	
	SLM/BLM/ALM 480 V	196	936	325	450	67.1	2000	0.81	0.962			169	
1PH8228-1□L□□ Y connection	SLM/BLM 400 V	205	783	420	340	83.8	2500	0.86	0.963	2.33	55	181	870
	ALM 400 V	215	708	390	395	97.1	2900	0.84	0.961			183	
	SLM/BLM/ALM 480 V	95	267	225	460	113.5	3400	0.57	0.922			183	

4.1.1.9 Shaft height 225 - forced ventilation (open-circuit ventilation)

Table 4- 9 1PH8 shaft height 225, degree of protection IP23, forced ventilation, open-circuit ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8224-1□B□□ Y connection	SLM/BLM 400 V	45	1074	114	300	14.1	400	0.89	0.849	1.48	21	39	610
	ALM 400 V	55	1051	112	370	17.4	500	0.88	0.878			41	
	SLM/BLM/ALM 480 V	67	1066	118	410	20.9	600	0.90	0.883			35	
1PH8224-1□C□□ Y connection	SLM/BLM 400 V	80	1091	188	310	24.1	700	0.88	0.904	1.48	21	63	610
	ALM 400 V	90	1074	184	350	27.4	800	0.88	0.914			63	
	SLM/BLM/ALM 480 V	105	1003	174	425	34.1	1000	0.88	0.929			61	
1PH8224-1□D□□ Y connection	SLM/BLM 400 V	105	1003	220	335	34.1	1000	0.88	0.926	1.48	21	73	610
	ALM 400 V	120	997	220	385	39.1	1150	0.88	0.934			74	
	SLM/BLM/ALM 480 V	137	969	215	450	45.7	1350	0.87	0.941			75	
1PH8224-1□F□□ Y connection	SLM/BLM 400 V	142	904	290	340	50.8	1500	0.89	0.942	1.48	21	84	610
	ALM 400 V	165	900	285	395	59.2	1750	0.89	0.946			84	
	SLM/BLM/ALM 480 V	178	850	265	460	67.4	2000	0.88	0.952			88	
1PH8224-1□L□□ Y connection	SLM/BLM 400 V	178	680	355	340	84.1	2500	0.89	0.954	1.48	21	112	610
	ALM 400 V	205	675	355	395	97.4	2900	0.89	0.955			113	
	SLM/BLM/ALM 480 V	205	576	310	460	114.0	3400	0.87	0.954			113	
1PH8226-1□B□□ Y connection	SLM/BLM 400 V	57	1361	144	305	13.9	400	0.86	0.875	1.93	23	61	740
	ALM 400 V	72	1375	144	375	17.3	500	0.86	0.895			60	
	SLM/BLM/ALM 480 V	87	1385	152	410	20.8	600	0.90	0.899			49	
1PH8226-1□C□□ Y connection	SLM/BLM 400 V	106	1446	240	310	24.2	700	0.90	0.907	1.93	23	71	740
	ALM 400 V	118	1409	235	350	27.5	800	0.90	0.918			71	
	SLM/BLM/ALM 480 V	146	1394	230	440	34.1	1000	0.89	0.932			74	
1PH8226-1□D□□ Y connection	SLM/BLM 400 V	135	1289	275	340	34.1	1000	0.90	0.929	1.93	23	82	740
	ALM 400 V	155	1287	270	390	39.1	1150	0.90	0.936			83	
	SLM/BLM/ALM 480 V	172	1217	255	460	45.7	1350	0.89	0.945				
1PH8226-1□F□□ Y connection	SLM/BLM 400 V	175	1114	350	340	50.7	1500	0.89	0.950	1.93	23	117	740
	ALM 400 V	200	1091	350	390	59.0	1750	0.89	0.954			114	
	SLM/BLM/ALM 480 V	220	1051	335	450	67.3	2000	0.88	0.957				
1PH8226-1□L□□ Y connection	SLM/BLM 400 V	235	898	475	335	84.0	2500	0.89	0.957	1.93	23	149	740
	ALM 400 V	270	889	470	390	97.3	2900	0.89	0.958			150	
	SLM/BLM/ALM 480 V	270	758	405	460	113.9	3400	0.87	0.957			153	
1PH8228-1□B□□ Y connection	SLM/BLM 400 V	72	1719	176	305	14.0	400	0.88	0.878	2.33	25	69	870
	ALM 400 V	90	1719	174	380	17.3	500	0.87	0.899			73	
	SLM/BLM/ALM 480 V	108	1719	188	410	20.8	600	0.90	0.902			57	

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8228-1□C□□ Y connection	SLM/BLM 400 V	120	1637	265	315	24.1	700	0.91	0.91	2.33	25	75	870
	ALM 400 V	135	1612	260	360	27.4	800	0.91	0.922			77	
	SLM/BLM/ALM 480 V	165	1576	250	450	34.1	1000	0.90	0.936			79	
1PH8228-1□D□□ Y connection	SLM/BLM 400 V	165	1576	330	340	34.1	1000	0.91	0.933	2.33	25	93	870
	ALM 400 V	190	1578	330	390	39.1	1150	0.91	0.940			94	
	SLM/BLM/ALM 480 V	218	1542	320	460	45.7	1350	0.90	0.947			96	
1PH8228-1□F□□ Y connection	SLM/BLM 400 V	230	1464	465	340	50.6	1500	0.88	0.953	2.33	25	166	870
	ALM 400 V	265	1446	460	390	59.0	1750	0.89	0.956			162	
	SLM/BLM/ALM 480 V	288	1375	440	450	67.3	2000	0.88	0.959			166	
1PH8228-1□L□□ Y connection	SLM/BLM 400 V	265	1012	530	340	83.9	2500	0.89	0.960	2.33	25	180	870
	ALM 400 V	300	988	510	395	97.3	2900	0.89	0.960			182	
	SLM/BLM/ALM 480 V	300	843	450	460	113.8	3400	0.87	0.958			181	

4.1.1.10 Shaft height 280 - forced ventilation

Table 4- 10 1PH8 shaft height 280, degree of protection IP55, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8224-1□B1□ Δ connection	SLM/BLM 400 V	63	1504	154	325	13.6	400	0.79	0.924	4.20	47	86	1200
	ALM 400 V	80	1529	154	395	17.0	500	0.81	0.935			81	
	SLM/BLM/ALM 480 V	95	1519	154	460	20.3	600	0.82	0.943			77	
1PH8284-1□C1□ Δ connection	SLM/BLM 400 V	110	1501	240	330	23.7	700	0.85	0.947	4.20	47	106	1200
	ALM 400 V	125	1492	235	400	27.0	800	0.81	0.952			124	
	SLM/BLM/ALM 480 V	150	1433	230	455	33.7	1000	0.86	0.957			101	
1PH8284-1□D1□ Δ connection	SLM/BLM 400 V	150	1433	315	335	33.7	1000	0.85	0.958	4.20	47	143	1200
	ALM 400 V	170	1414	310	400	38.6	1150	0.82	0.960			157	
	SLM/BLM/ALM 480 V	200	1416	315	460	45.3	1350	0.83	0.962			151	
1PH8284-1□F1□ Δ connection	SLM/BLM 400 V	196	1248	390	345	50.4	1500	0.87	0.963	4.20	47	162	1200
	ALM 400 V	225	1228	390	400	58.7	1750	0.86	96.4			162	
	SLM/BLM/ALM 480 V	255	1218	390	455	67.0	2000	0.86	0.965			162	
1PH8284-1□H1□ Y connection	BLM 690 V	61	1456	82	555	13.7	400	0.84	0.920	4.20	47	39	1200
	ALM 690 V	77	1471	82	690	17.0	500	0.84	0.932			39	
1PH8284-1□K1□ Y connection	BLM 690 V	100	1364	118	605	23.7	700	0.85	0.945	4.20	47	53	1200
	ALM 690 V	115	1373	120	690	27.0	800	0.85	0.950			53	
1PH8284-1□U1□ Y connection	BLM 690 V	143	1366	176	600	33.6	1000	0.82	0.956	4.20	47	89	1200
	ALM 690 V	164	1362	174	690	38.6	1150	0.82	0.959			90	
1PH8284-1□W1□ Y connection	BLM 690 V	186	1184	220	590	50.3	1500	0.86	0.962	4.20	47	92	1200
	ALM 690 V	217	1184	220	690	58.7	1750	0.86	0.963			93	
1PH8286-1□B1□ Δ connection	SLM/BLM 400 V	80	1910	186	325	13.6	400	0.82	0.928	5.20	50	98	1400
	ALM 400 V	100	1909	188	400	17.0	500	0.82	0.939			96	
	SLM/BLM/ALM 480 V	120	1916	188	460	20.3	600	0.85	0.945			88	

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8286-1□C1□	SLM/BLM 400 V	138	1883	295	325	23.7	700	0.87	0.949	5.20	50	121	1400
Δ connection	ALM 400 V	155	1850	285	385	27.0	800	0.85	0.955			133	
	SLM/BLM/ALM 480 V	185	1767	280	460	33.7	1000	0.86	0.960			122	
1PH8286-1□D1□	SLM/BLM 400 V	182	1738	410	330	33.6	1000	0.81	0.960	5.20	50	215	1400
Δ connection	ALM 400 V	210	1745	410	380	38.6	1150	0.81	0.962			217	
	SLM/BLM/ALM 480 V	245	1733	410	445	45.3	1350	0.81	0.963			217	
1PH8286-1□F1□	SLM/BLM 400 V	250	1592	490	345	50.4	1500	0.89	0.965	5.20	50	182	1400
Δ connection	ALM 400 V	270	1474	460	400	58.7	1750	0.88	0.966			183	
	SLM/BLM/ALM 480 V	310	1481	460	455	67.0	2000	0.88	0.967			182	
1PH8286-1□H1□	BLM 690 V	77	1838	100	555	13.7	400	0.87	0.921	5.20	50	43	1400
Y connection	ALM 690 V	96	1834	100	690	17.0	500	0.86	0.934			43	
1PH8286-1□K1□	BLM 690 V	127	1733	158	605	23.6	700	0.81	0.951	5.20	50	83	1400
Y connection	ALM 690 V	145	1731	158	690	26.9	800	0.81	0.954			83	
1PH8286-1□U1□	BLM 690 V	176	1681	230	570	33.6	1000	0.81	0.959	5.20	50	124	1400
Y connection	ALM 690 V	203	1686	230	655	38.6	1150	0.81	0.961			124	
1PH8286-1□W1□	BLM 690 V	224	1426	260	590	50.3	1500	0.88	0.965	5.20	50	104	1400
Y connection	ALM 690 V	261	1424	260	690	58.7	1750	0.87	0.966			105	
1PH8288-1□B1□	SLM/BLM 400 V	103	2459	245	325	13.6	400	0.80	0.931	6.30	53	136	1650
Δ connection	ALM 400 V	130	2481	245	395	17.0	500	0.82	0.941			127	
	SLM/BLM/ALM 480 V	155	2474	245	460	20.3	600	0.84	0.948			121	
1PH8288-1□C1□	SLM/BLM 400 V	166	2265	365	325	23.6	700	0.85	0.953	6.30	53	171	1650
Δ connection	ALM 400 V	190	2268	365	370	27.0	800	0.85	0.957			171	
	SLM/BLM/ALM 480 V	230	2197	355	460	33.6	1000	0.84	0.962			172	
1PH8288-1□D1□	SLM/BLM 400 V	226	2158	495	335	33.6	1000	0.82	0.962	6.30	53	252	1650
Δ connection	ALM 400 V	260	2160	495	385	38.6	1150	0.82	0.964			253	
	SLM/BLM/ALM 480 V	305	2158	495	450	45.3	1350	0.82	0.965			251	
1PH8288-1□F1□	SLM/BLM 400 V	320	2037	620	345	50.4	1500	0.89	0.966	6.30	53	233	1650
Δ connection	ALM 400 V	340	1856	580	400	58.7	1750	0.88	0.967			233	
	SLM/BLM/ALM 480 V	385	1838	570	455	67.0	2000	0.88	0.967			232	
1PH8288-1□H1□	BLM 690 V	100	2388	130	555	13.7	400	0.87	0.924	6.30	53	55	1650
Y connection	ALM 690 V	125	2388	128	690	17.0	500	0.87	0.937			56	
1PH8288-1□K1□	BLM 690 V	162	2210	186	605	23.7	700	0.88	0.949	6.30	53	75	1650
Y connection	ALM 690 V	185	2208	184	690	27.0	800	0.88	0.953			76	
1PH8288-1□U1□	BLM 690 V	218	2082	275	580	33.6	1000	0.82	0.961	6.30	53	145	1650
Y connection	ALM 690 V	251	2084	275	665	38.6	1150	0.82	0.963			145	
1PH8288-1□W1□	BLM 690 V	282	1795	325	590	50.3	1500	0.88	0.966	6.30	53	133	1650
Y connection	ALM 690 V	329	1795	325	690	58.7	1750	0.87	0.967			134	

4.1.1.11 Shaft height 280 - forced ventilation (open-circuit ventilation)

Table 4- 11 1PH8 shaft height 280, degree of protection IP23, forced ventilation, open-circuit ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8284-1□C4□	SLM/BLM 400 V	171	2333	355	330	23.9	700	0.91	0.930	4.20	18	101	1200
Δ connection	ALM 400 V	195	2328	335	400	27.2	800	0.89	0.942			117	
	SLM/BLM/ALM 480 V	235	2244	345	455	33.9	1000	0.91	0.946			97	
1PH8284-1□D4□	SLM/BLM 400 V	243	2321	490	335	33.9	1000	0.90	0.947	4.20	18	137	1200
Δ connection	ALM 400 V	280	2325	475	400	38.9	1150	0.89	0.953			150	
	SLM/BLM/ALM 480 V	325	2299	475	460	45.5	1350	0.90	0.957			146	
1PH8284-1□F4□	SLM/BLM 400 V	319	2031	620	345	50.6	1500	0.91	0.957	4.20	18	157	1200
Δ connection	ALM 400 V	370	2019	610	400	58.9	1750	0.91	0.960			158	
	SLM/BLM/ALM 480 V	415	1981	600	455	67.3	2000	0.91	0.962			157	
1PH8284-1□K4□	BLM 690 V	162	2210	184	605	23.9	700	0.91	0.927	4.20	18	50	1200
Y connection	ALM 690 V	185	2208	182	690	27.2	800	0.91	0.934			51	
1PH8284-1□U4□	BLM 690 V	236	2254	265	600	33.9	1000	0.90	0.947	4.20	18	85	1200
Y connection	ALM 690 V	272	2255	270	690	38.9	1150	0.89	0.951			86	
1PH8284-1□W4□	BLM 690 V	307	1955	345	590	50.6	1500	0.91	0.956	4.20	18	89	1200
Y connection	ALM 690 V	359	1959	345	690	58.9	1750	0.91	0.959			91	
1PH8286-1□C4□	SLM/BLM 400 V	219	2988	455	325	23.9	700	0.92	0.931	5.20	20	115	1400
Δ connection	ALM 400 V	250	2984	435	385	27.2	800	0.91	0.942			126	
	SLM/BLM/ALM 480 V	310	2961	450	460	33.9	1000	0.91	0.948			117	
1PH8286-1□D4□	SLM/BLM 400 V	309	2951	630	330	33.8	1000	0.90	0.952	5.20	20	207	1400
Δ connection	ALM 400 V	355	2944	630	380	38.8	1150	0.89	0.956			209	
	SLM/BLM/ALM 480 V	410	2901	620	445	45.5	1350	0.89	0.960			210	
1PH8286-1□F4□	SLM/BLM 400 V	382	2432	730	345	50.6	1500	0.92	0.959	5.20	20	177	1400
Δ connection	ALM 400 V	445	2429	730	400	58.9	1750	0.92	0.962			178	
	SLM/BLM/ALM 480 V	500	2387	720	455	67.2	2000	0.92	0.963			178	
1PH8286-1□K4□	BLM 690 V	210	2865	235	605	23.8	700	0.90	0.938	5.20	20	79	1400
Y connection	ALM 690 V	240	2865	235	690	27.2	800	0.90	0.944			79	
1PH8286-1□U4□	BLM 690 V	299	2855	355	570	33.8	1000	0.89	0.952	5.20	20	119	1400
Y connection	ALM 690 V	344	2860	355	655	38.8	1150	0.89	0.956			119	
1PH8286-1□W4□	BLM 690 V	370	2356	410	590	50.6	1500	0.92	0.958	5.20	20	101	1400
Y connection	ALM 690 V	432	2356	410	410	58.9	1750	0.92	0.961			102	
1PH8288-1□C4□	SLM/BLM 400 V	272	3711	570	325	23.9	700	0.91	0.939	6.30	22	161	1650
Δ connection	ALM 400 V	310	3701	560	370	27.2	800	0.91	0.945			164	
	SLM/BLM/ALM 480 V	385	3677	560	460	33.9	1000	0.91	0.953			164	
1PH8288-1□D4□	SLM/BLM 400 V	379	3619	760	335	33.8	1000	0.90	0.955	6.30	22	242	1650
Δ connection	ALM 400 V	435	3607	760	385	38.8	1150	0.90	0.958			244	
	SLM/BLM/ALM 480 V	505	3573	750	450	45.5	1350	0.90	0.962			243	

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8288-1□F4□ Δ connection	SLM/BLM 400 V	480	3056	910	345	50.6	1500	0.92	0.961	6.30	22	229	1650
	ALM 400 V	560	3055	910	400	58.9	1750	0.92	0.963			228	
	SLM/BLM/ALM 480 V	630	3009	900	455	67.2	2000	0.92	0.965			230	
1PH8288-1□K4□ Y connection	BLM 690 V	263	3588	295	605	23.9	700	0.92	0.929	6.30	22	71	1650
	ALM 690 V	300	3581	290	690	27.3	800	0.92	0.936			72	
1PH8288-1□U4□ Y connection	BLM 690 V	367	3505	425	425	33.8	1000	0.90	0.954	6.30	22	140	1650
	ALM 690 V	422	3504	425	665	38.8	1150	0.90	0.958			140	
1PH8288-1□W4□ Y connection	BLM 690 V	465	2961	520	590	50.5	1500	0.92	0.960	6.30	22	130	1650
	ALM 690 V	543	2964	510	690	58.9	1750	0.92	0.963			131	

4.1.1.12 Overload factors for intermittent duty types (S6) and short-time duty (S2)

The specified overload factors for intermittent duty types (S6) and for short-time duty (S2) are based on the S1 characteristic (continuous operation) of the relevant motor.

Table 4- 12 S6/S2 overload factors for forced-ventilated asynchronous motors (IP55)

Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH808□-1□□0/1	1.20	1.50	1.90	1.20
1PH810□-1□□0/1	1.20	1.50	1.90	1.20
1PH813□-1□□0/1	1.20	1.50	1.90	1.20
1PH816□-1□□0/1	1.20	1.50	1.90	1.20
1PH8184-1□□0/1	1.23	1.47	1.74	1.16
1PH8186-1□□0/1	1.25	1.49	1.79	1.20
1PH8224-1□□0/1	1.23	1.47	1.70	1.48
1PH8226-1□□0/1	1.23	1.47	1.70	1.51
1PH8228-1□□0/1	1.23	1.47	1.70	1.54
1PH8284-1□□0/1	1.23	1.47	1.76	1.46
1PH8286-1□□0/1	1.23	1.47	1.76	1.49
1PH8288-1□□0/1	1.23	1.47	1.76	1.52

Table 4- 13 S6/S2 overload factors for forced-ventilated asynchronous motors, open-circuit ventilation (IP23)

Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH8184-1□□3/4	1.23	1.47	1.74	1.21
1PH8186-1□□3/4	1.25	1.49	1.79	1.25
1PH8224-1□□3/4	1.23	1.47	1.70	1.15
1PH8226-1□□3/4	1.23	1.47	1.70	1.17
1PH8228-1□□3/4	1.23	1.47	1.70	1.20
1PH8284 -1□□4	1.23	1.47	1.76	1.11
1PH8286 -1□□4	1.23	1.47	1.76	1.14
1PH8288 -1□□4	1.23	1.47	1.76	1.16

4.1.1.13 Shaft height 80 - water-cooled

Table 4- 14 1PH8 shaft height 80, water cooling (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8083-1□F2□ Y connection	SLM/BLM 400 V	3.5	22	8.9	357	54.5	1500	0.84	0.784	0.0064	8	3.6	0.7	36
	ALM 400 V	4.0	22	8.7	416	62.4	1750	0.82	0.808			4.0	0.7	
	SLM/BLM/ALM 480 V	4.6	22	8.7	457	71.0	2000	0.83	0.839			3.8	0.7	
1PH8083-1□G2□ Y connection	SLM/BLM 400 V	4.3	21	12.0	322	70.4	2000	0.80	0.833			5.9	0.7	
	ALM 400 V	4.9	20	12.0	362	80.5	2300	0.80	0.846			5.8	0.7	
	SLM/BLM/ALM 480 V	5.6	20	12.0	425	91.8	2650	0.76	0.862			6.5	0.7	
1PH8083-1□N2□ Y connection	SLM/BLM 400 V	6.7	14	18.0	347	152.9	4500	0.76	0.877			9.2	0.7	
	ALM 400 V	7.5	14	18.0	383	169.6	5000	0.76	0.891			9.2	0.7	
	SLM/BLM/ALM 480 V	8.2	14	18.0	460	185.7	5500	0.67	0.909			11.7	0.7	
1PH8087-1□F2□ Y connection	SLM/BLM 400 V	4.6	29	13.7	316	53.3	1500	0.78	0.814	0.0089	8	7.2	1.2	44
	ALM 400 V	5.4	29	13.7	358	61.8	1750	0.80	0.831			6.8	1.2	
	SLM/BLM/ALM 480 V	6.1	29	13.7	402	70.0	2650	0.79	0.868			6.8	1.2	
1PH8087-1□G2□ Y connection	SLM/BLM 400 V	6.1	29	17.5	312	70.3	2000	0.80	0.843			8.4	1.2	
	ALM 400 V	7.0	29	17.7	355	80.3	2300	0.79	0.860			8.6	1.2	
	SLM/BLM/ALM 480 V	8.1	29	17.8	415	91.8	2650	0.77	0.871			9.3	1.2	

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8087-1□N2□ Y connection	SLM/BLM 400 V	8.5	18	24.0	345	152.5	4500	0.74	0.891			12.4	1.2	
	ALM 400 V	9.5	18	24.0	380	169.3	5000	0.75	0.894			12.3	1.2	
	SLM/BLM/ALM 480 V	10.5	18	24.0	420	186.0	5500	0.74	0.898			12.4	1.2	

4.1.1.14 Shaft height 100 - water-cooled

Table 4- 15 1PH8 shaft height 100, water cooling (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8101-1□F2□ Y connection	SLM/BLM 400 V	5.0	32	12.8	357	53.1	1500	0.81	0.813	0.0138	10	6.0	1.3	51
	ALM 400 V	5.8	32	12.8	400	61.7	1750	0.83	0.834			5.4	1.3	
	SLM/BLM/ALM 480 V	6.6	32	12.5	450	69.9	2000	0.82	0.858			4.4	1.3	
1PH8101-1□G2□ Y connection	SLM/BLM 400 V	6.4	31	16.8	335	69.8	2000	0.81	0.857			7.6	1.3	
	ALM 400 V	7.3	30	16.8	382	79.7	2300	0.80	0.874			7.8	1.3	
	SLM/BLM/ALM 480 V	8.4	30	16.8	435	91.4	2650	0.80	0.888			7.7	1.3	
1PH8103-1□F2□ Y connection	SLM/BLM 400 V	7.1	45	19.7	317	53.0	1500	0.82	0.827	0.0172	10	8.6	1.8	60
	ALM 400 V	8.2	45	19.7	364	61.4	1750	0.82	0.851			8.6	1.8	
	SLM/BLM/ALM 480 V	9.4	45	19.7	411	69.7	2000	0.82	0.869			8.5	1.8	
1PH8103-1□G2□ Y connection	SLM/BLM 400 V	9.5	45	23.8	343	69.8	2000	0.82	0.857			10.3	1.8	
	ALM 400 V	10.9	45	23.8	390	79.8	2300	0.82	0.883			10.3	1.8	
	SLM/BLM/ALM 480 V	12.5	45	23.5	454	91.2	2650	0.79	0.904			11.3	1.8	
1PH8103-1□M2□ Y connection	SLM/BLM 400 V	10.6	34	30.0	309	102.4	3000	0.80	0.900			13.0	1.8	
	ALM 400 V	11.7	34	30.0	340	112.4	3300	0.80	0.900			13.2	1.8	
	SLM/BLM/ALM 480 V	12.7	34	29.7	368	122.5	3600	0.80	0.910			13.0	1.8	
1PH8105-1□F2□ Y connection	SLM/BLM 400 V	11.0	70	28.5	340	52.8	1500	0.81	0.843	0.0252	10	13.3	2.7	74
	ALM 400 V	12.5	68	28.5	380	61.2	1750	0.81	0.862			12.1	2.7	
	SLM/BLM/ALM 480 V	14.0	67	27.5	426	69.5	2000	0.82	0.894			11.7	2.7	
1PH8105-1□G2□ Y connection	SLM/BLM 400 V	13.0	62	34.5	326	69.3	2000	0.81	0.879			15.6	2.7	
	ALM 400 V	15.0	62	34.0	370	79.3	2300	0.81	0.891			15.1	2.7	
	SLM/BLM/ALM 480 V	17.0	61	33.5	424	90.9	2650	0.81	0.911			15.3	2.7	
1PH8105-1□M2□ Y connection	SLM/BLM 400 V	16.8	53	45.0	324	102.3	3000	0.80	0.900			20.3	2.7	
	ALM 400 V	18.5	54	45.0	355	112.4	3300	0.80	0.910			20.2	2.7	
	SLM/BLM/ALM 480 V	20.0	53	45.0	375	122.5	3600	0.81	0.920			18.6	2.7	
1PH8107-1□F2□ Y connection	SLM/BLM 400 V	14.0	89	43.7	277	53.3	1500	0.83	0.829	0.0289	10	17.8	3.0	83
	ALM 400 V	15.5	85	42.0	314	61.4	1750	0.83	0.847			17.5	3.0	
	SLM/BLM/ALM 480 V	18.0	86	42.6	363	69.7	2000	0.81	0.873			19.1	3.0	
1PH8107-1□M2□ Y connection	SLM/BLM 400 V	18.0	57	60.0	264	102.2	3000	0.80	0.900			26.0	3.0	
	ALM 400 V	20.0	58	60.0	290	112.2	3300	0.80	0.900			26.1	3.0	
	SLM/BLM/ALM 480 V	21.0	56	59.0	315	122.1	3600	0.79	0.910			26.1	3.0	

4.1.1.15 Shaft height 132 - water-cooled

Table 4- 16 1PH8 shaft height 132, water cooling (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8131-1□F2□ Y connection	SLM/BLM 400 V	15.0	96	30	380	52.3	1500	0.89	0.883	0.0590	12	9.2	2.6	105
	ALM 400 V	17.0	93	30	425	60.7	1750	0.89	0.897			8.2	2.6	
	SLM/BLM/ALM 480 V	18.5	88	30	460	68.7	2000	0.90	0.912			7.2	2.6	
1PH8131-1□G2□ Y connection	SLM/BLM 400 V	18.0	86	40	352	69.1	2000	0.85	0.908			15.5	2.6	
	ALM 400 V	20.0	83	39	400	78.5	2300	0.85	0.920			15.4	2.6	
	SLM/BLM/ALM 480 V	23.0	83	39	458	90.1	2650	0.85	0.938			15.4	2.6	
1PH8133-1□F2□ Y connection	SLM/BLM 400 V	17.0	108	38	345	51.5	1500	0.86	0.883	0.0760	12	14.2	2.8	123
	ALM 400 V	19.5	106	38	403	59.8	1750	0.85	0.913			14.9	2.8	
	SLM/BLM/ALM 480 V	22.5	107	38	452	68.2	2000	0.86	0.938			14.4	2.8	
1PH8133-1□G2□ Y connection	SLM/BLM 400 V	22.0	105	52	336	68.2	2000	0.84	0.909			22.2	2.8	
	ALM 400 V	25.0	104	52	373	78.3	2300	0.86	0.923			19.4	2.8	
	SLM/BLM/ALM 480 V	28.0	101	50	427	89.9	2650	0.85	0.933			19.5	2.8	
1PH8135-1□F2□ Y connection	SLM/BLM 400 V	22.0	140	51	342	51.5	1500	0.85	0.901	0.0940	12	20.3	3.3	141
	ALM 400 V	25.5	139	51	395	59.8	1750	0.85	0.914			20.1	3.3	
	SLM/BLM/ALM 480 V	29.0	138	52	448	68.2	2000	0.85	0.931			19.9	3.3	
1PH8135-1□G2□ Y connection	SLM/BLM 400 V	29.0	138	64	348	68.3	2000	0.86	0.924			23.9	3.3	
	ALM 400 V	31.0	129	61	397	78.1	2300	0.85	0.933			24.1	3.3	
	SLM/BLM/ALM 480 V	32.0	115	58	448	89.6	2650	0.84	0.942			23.0	3.3	
1PH8137-1□F2□ Y connection	SLM/BLM 400 V	27.0	172	67	315	51.6	1500	0.86	0.900	0.1090	12	25.3	3.8	157
	ALM 400 V	31.5	172	67	365	59.9	1750	0.86	0.911			24.8	3.8	
	SLM/BLM/ALM 480 V	36.0	172	67	415	68.3	2000	0.86	0.928			25.4	3.8	
1PH8138-1□F2□ Y connection	SLM/BLM 400 V	30.0	191	80	289	51.9	1500	0.88	0.882			27.1	4.2	160
	ALM 400 V	33.0	180	77	332	60.0	1750	0.87	0.898			27.1	4.2	
	SLM/BLM/ALM 480 V	37.0	177	76	380	68.4	2000	0.86	0.920			28.4	4.2	

4.1.1.16 Shaft height 160 - water cooling

Table 4- 17 1PH8 SH 160, water cooling (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8163-1□F2□ Y connection	SLM/BLM 400 V	37	236	84	328	51.1	1500	0.88	0.916	0.216	14	27.4	3.8	229
	ALM 400 V	43	235	84	380	59.4	1750	0.88	0.924			27.3	4.1	
	SLM/BLM/ALM 480 V	49	234	84	430	67.7	2000	0.88	0.925			26.9	3.6	
1PH8163-1□G2□ Y connection	SLM/BLM 400 V	42	201	93	335	67.6	2000	0.88	0.937			30.8	4.0	
	ALM 400 V	48	199	93	382	77.6	2300	0.88	0.939			30.2	4.2	
	SLM/BLM/ALM 480 V	55	198	90	450	89.2	2650	0.86	0.940			33.6	4.1	
1PH8165-1□F2□ Y connection	SLM/BLM 400 V	46	293	104	330	50.9	1500	0.87	0.930	0.232	14	37.2	4.6	264
	ALM 400 V	53	289	104	374	59.3	1750	0.88	0.935			33.8	4.8	
	SLM/BLM/ALM 480 V	60	287	103	426	67.6	2000	0.88	0.940			34.0	4.8	
1PH8165-1□G2□ Y connection	SLM/BLM 400 V	53	253	110	352	67.6	2000	0.89	0.938			32.1	4.7	
	ALM 400 V	60	249	107	410	77.6	2300	0.88	0.946			33.7	4.9	
	SLM/BLM/ALM 480 V	65	234	100	460	89.2	2650	0.89	0.948			31.9	4.8	
1PH8166-1□F2□ Y connection	SLM/BLM 400 V	52	331	116	332	51.2	1500	0.88	0.936	0.232		36.7	5.5	269
	ALM 400 V	61	333	116	381	59.5	1750	0.89	0.940			35.2	5.7	
	SLM/BLM/ALM 480 V	68	325	116	426	67.9	2000	0.89	0.941			32.8	5.8	
1PH8166-1□G2□ Y connection	SLM/BLM 400 V	64	306	125	376	67.8	2000	0.88	0.937			39.3	5.9	
	ALM 400 V	72	299	124	420	77.8	2300	0.89	0.946			35.5	5.9	
	SLM/BLM/ALM 480 V	83	299	125	460	89.6	2650	0.90	0.948			35.7	5.9	

4.1.1.17 Shaft height 180 - water-cooled

Table 4- 18 1PH8 shaft height 180, water-cooled (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8184-1□B2□ Y connection	SLM/BLM 400 V	17,0	406	50	271	14,0	400	0,87	0,831	0,489	25	28	4,1	340
	ALM 400 V	23,0	439	54	335	17,4	500	0,86	0,850			27	5,4	
	SLM/BLM/ALM 480 V	29,0	462	55	405	20,8	600	0,86	0,869			28	5,5	
1PH8184-1□C2□ Y connection	SLM/BLM 400 V	33,0	450	77	320	24,2	700	0,89	0,872			33	6,1	
	ALM 400 V	38,0	454	77	365	27,5	800	0,88	0,885			33	6,2	
	SLM/BLM/ALM 480 V	48,0	458	77	460	34,1	1000	0,86	0,905			34	6,8	
1PH8184-1□D2□ Y connection	SLM/BLM 400 V	47,0	449	114	300	34,2	1000	0,88	0,904			45	6,9	
	ALM 400 V	54,0	448	112	350	39,2	1150	0,87	0,915			46	6,6	
	SLM/BLM/ALM 480 V	64,0	453	112	410	45,8	1350	0,87	0,924			46	7,3	
1PH8184-1□F2□ Y connection	SLM/BLM 400 V	70,0	446	150	335	51,9	1500	0,87	0,928			66	7,3	
	ALM 400 V	82,0	447	150	390	59,3	1750	0,87	0,933			65	8,0	
	SLM/BLM/ALM 480 V	95,0	454	152	450	67,3	2000	0,85	0,938			68	8,6	
1PH8184-1□L2□ Y connection	SLM/BLM 400 V	95,0	363	198	340	85,2	2500	0,87	0,945			75	7,6	
	ALM 400 V	102	336	182	395	97,5	2900	0,87	0,945			77	8,3	
	SLM/BLM/ALM 480 V	100	281	158	460	114,0	3400	0,84	0,944			76	8,4	

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8186-1□B2□ Y connection	SLM/BLM 400 V	23,0	549	68	268	13,9	400	0,86	0,845	0,652	28	42	5,6	410
	ALM 400 V	30,0	573	70	335	17,3	500	0,85	0,868			43	5,5	
	SLM/BLM/ALM 480 V	38,0	605	73	405	20,6	600	0,84	0,883			44	6,3	
1PH8186-1□C2□ Y connection	SLM/BLM 400 V	43,0	587	97	330	23,9	700	0,86	0,898			49	6,7	
	ALM 400 V	49,0	585	99	360	27,4	800	0,88	0,904			44	6,9	
	SLM/BLM/ALM 480 V	61,0	583	98	450	34,0	1000	0,87	0,920			44	7,2	
1PH8186-1□D2□ Y connection	SLM/BLM 400 V	64,0	611	148	320	34,0	1000	0,85	0,920			78	7,7	
	ALM 400 V	74,0	615	148	370	38,9	1150	0,84	0,927			80	7,9	
	SLM/BLM/ALM 480 V	86,0	608	148	420	45,7	1350	0,86	0,933			73	8,4	
1PH8186-1□F2□ Y connection	SLM/BLM 400 V	93,0	592	198	330	51,0	1500	0,88	0,935			85	9,0	
	ALM 400 V	111	606	200	385	59,3	1750	0,89	0,939			85	9,9	
	SLM/BLM/ALM 480 V	126	602	200	445	67,3	2000	0,87	0,943			89	10,6	
1PH8186-1□L2□ Y connection	SLM/BLM 400 V	120	458	250	335	83,9	2500	0,88	0,948			109	9,4	
	ALM 400 V	135	445	245	385	97,3	2900	0,87	0,948			108	10,3	
	SLM/BLM/ALM 480 V	121	340	200	455	113,5	3400	0,81	0,942			110	10,4	

4.1.1.18 Shaft height 225 - water-cooled

Table 4- 19 1PH8 shaft height 225, water cooling (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8224-1□B2□ Y connection	SLM/BLM 400 V	36.0	859	100	268	14.0	400	0.91	0.858	1.452	30	37	6.1	610
	ALM 400 V	46.0	879	100	335	17.3	500	0.90	0.883			38	6.5	
	SLM/BLM/ALM 480 V	53.0	844	94	410	20.6	600	0.87	0.908			40	5.9	
1PH8224-1□C2□ Y connection	SLM/BLM 400 V	61.0	832	128	340	24.0	700	0.89	0.914			48	6.3	
	ALM 400 V	70.0	836	130	380	27.3	800	0.89	0.920			46	6.7	
	SLM/BLM/ALM 480 V	87.0	831	132	460	34.0	600	0.89	0.931			44	7.2	
1PH8224-1□D2□ Y connection	SLM/BLM 400 V	89.0	850	188	335	33.9	1000	0.87	0.937			79	6.7	
	ALM 400 V	101	839	186	385	38.9	1150	0.86	0.944			79	6.8	
	SLM/BLM/ALM 480 V	115	813	180	450	45.5	1350	0.86	0.950			79	6.9	
1PH8224-1□F2□ Y connection	SLM/BLM 400 V	119	758	240	340	50.6	1500	0.89	0.951			87	7.0	615
	ALM 400 V	138	753	240	395	58.9	1750	0.88	0.954			87	7.6	
	SLM/BLM/ALM 480 V	155	740	235	460	67.2	2000	0.86	0.958			90	7.8	
1PH8224-1□L2□ Y connection	SLM/BLM 400 V	153	584	310	340	83.8	2500	0.87	0.961			113	7.2	
	ALM 400 V	164	540	285	395	97.1	2900	0.88	0.961			114	7.7	
	SLM/BLM/ALM 480 V	164	461	255	460	114.0	3400	0.84	0.959			113	8.1	

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8226-1□B2□ Y connection	SLM/BLM 400 V	47.0	1122	130	264	14.0	400	0.90	0.875	1.895	32	49	7.1	740
	ALM 400 V	59.0	1127	128	330	17.3	500	0.90	0.899			50	7.2	
	SLM/BLM/ALM 480 V	70.0	1114	122	410	20.5	600	0.88	0.919			55	6.8	
1PH8226-1□C2□ Y connection	SLM/BLM 400 V	81.0	1105	184	310	23.9	700	0.88	0.928			79	7.0	
	ALM 400 V	93.0	1110	186	350	27.2	800	0.88	0.934			77	7.4	
	SLM/BLM/ALM 480 V	116	1108	184	440	33.9	1000	0.88	0.944			79	7.8	
1PH8226-1□D2□ Y connection	SLM/BLM 400 V	115	1098	235	340	33.9	1000	0.89	0.938			87	8.6	745
	ALM 400 V	131	1088	230	390	38.9	1150	0.89	0.945			87	8.6	
	SLM/BLM/ALM 480 V	150	1061	225	460	45.5	1350	0.88	0.951			88	8.8	
1PH8226-1□F2□ Y connection	SLM/BLM 400 V	145	923	295	340	50.5	1500	0.87	0.957			119	7.5	
	ALM 400 V	169	922	295	390	58.8	1750	0.88	0.895			116	8.3	
	SLM/BLM/ALM 480 V	191	912	290	450	67.1	2000	0.88	0.961			118	8.9	
1PH8226-1□L2□ Y connection	SLM/BLM 400 V	185	707	380	335	83.8	2500	0.87	0.963			151	8.2	
	ALM 400 V	204	672	360	390	97.1	2900	0.87	0.960			152	9.3	
	SLM/BLM/ALM 480 V	199	559	310	460	114.0	3400	0.84	0.958			153	10.0	
1PH8228-1□B2□ Y connection	SLM/BLM 400 V	58.0	1385	154	272	13.9	400	0.90	0.886	2.354	34	62	7.9	870
	ALM 400 V	72.0	1375	150	340	17.2	500	0.90	0.908			63	7.9	
	SLM/BLM/ALM 480 V	85.0	1353	148	410	20.5	600	0.88	0.923			64	7.9	
1PH8228-1□C2□ Y connection	SLM/BLM 400 V	96.0	1310	210	315	23.9	700	0.90	0.930			82	8.1	
	ALM 400 V	110	1313	210	360	27.2	800	0.90	0.937			82	8.3	
	SLM/BLM/ALM 480 V	138	1318	210	450	33.9	1000	0.89	0.946			83	8.9	
1PH8228-1□D2□ Y connection	SLM/BLM 400 V	141	1346	280	340	33.9	1000	0.91	0.943			98	9.6	875
	ALM 400 V	161	1337	280	390	38.9	1150	0.90	0.948			98	10.0	
	SLM/BLM/ALM 480 V	184	1302	270	460	45.5	1350	0.90	0.954			99	10.2	
1PH8228-1□F2□ Y connection	SLM/BLM 400 V	192	1222	390	340	50.5	1500	0.87	0.959			169	9.4	
	ALM 400 V	221	1206	390	390	58.8	1750	0.87	0.961			165	10.3	
	SLM/BLM/ALM 480 V	245	1170	380	450	67.1	2000	0.86	0.963			169	10.9	
1PH8228-1□L2□ Y connection	SLM/BLM 400 V	226	863	455	340	83.7	2500	0.87	0.964			181	9.8	
	ALM 400 V	237	780	415	395	97.0	2900	0.87	0.963			182	10.5	
	SLM/BLM/ALM 480 V	237	666	370	460	114.0	3400	0.84	0.959			180	11.7	

4.1.1.19 Shaft height 280 - water-cooled

Table 4- 20 1PH8 shaft height 280, water-cooled (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8284-1□B2□ Δ connection	SLM/BLM 400 V	71,0	1695	170	295	13,8	400	0,89	0,914	4,2	30	70	7,0	1280
	ALM 400 V	89,0	1700	172	365	17,1	500	0,88	0,929			69	7,0	
	SLM/BLM/ALM 480 V	107	1703	170	440	20,4	600	0,88	0,939			71	7,0	
1PH8284-1□C2□ Δ connection	SLM/BLM 400 V	123	1678	260	330	23,7	700	0,87	0,945			108	7,0	
	ALM 400 V	141	1683	260	375	27,0	800	0,88	0,950			108	8,0	
	SLM/BLM/ALM 480 V	176	1681	265	455	33,7	1000	0,88	0,956			102	8,0	
1PH8284-1□D2□ Δ connection	SLM/BLM 400 V	172	1643	350	335	33,7	1000	0,88	0,957			144	8,0	
	ALM 400 V	198	1644	355	385	38,7	1150	0,87	0,960			144	9,0	
	SLM/BLM/ALM 480 V	232	1641	355	450	45,4	1350	0,87	0,963			143	9,0	
1PH8284-1□F2□ Δ connection	SLM/BLM 400 V	227	1445	445	343	50,4	1500	0,89	0,964			161	9,0	
	ALM 400 V	265	1446	445	400	58,7	1750	0,89	0,966			161	10,0	
	SLM/BLM/ALM 480 V	303	1447	445	455	67,0	2000	0,89	0,967			160	11,0	
1PH8284-1□H2□ Y connection	BLM 690 V	68,0	1624	89	555	13,7	400	0,87	0,917	4,2	30	41	6,0	1280
	ALM 690 V	85,0	1624	89	690	17,0	500	0,86	0,931			41	6,0	
1PH8284-1□K2□ Y connection	BLM 690 V	119	1624	136	605	23,7	700	0,88	0,942			54	8,0	
	ALM 690 V	137	1635	138	690	27,0	800	0,88	0,947			54	8,0	
1PH8284-1□U2□ Y connection	BLM 690 V	167	1595	196	600	33,8	1000	0,86	0,956			89	8,0	
	ALM 690 V	192	1594	198	690	38,6	1150	0,85	0,959			90	8,0	
1PH8284-1□W2□ Y connection	BLM 690 V	220	1401	250	590	50,4	1500	0,89	0,963			92	9,0	
	ALM 690 V	257	1401	250	690	58,7	1750	0,89	0,965			92	10,0	
1PH8286-1□B2□ Δ connection	SLM/BLM 400 V	89,0	2125	210	300	13,7	400	0,89	0,916	5,2	33	83	9,0	1490
	ALM 400 V	111	2120	205	375	17,0	500	0,89	0,931			84	9,0	
	SLM/BLM/ALM 480 V	133	2117	205	445	20,4	600	0,89	0,940			83	9,0	
1PH8286-1□C2□ Δ connection	SLM/BLM 400 V	153	2087	320	325	23,7	700	0,89	0,948			123	9,0	
	ALM 400 V	175	2089	320	375	27,0	800	0,88	0,953			126	9,0	
	SLM/BLM/ALM 480 V	219	2091	325	455	33,7	1000	0,89	0,958			120	10,0	
1PH8286-1□D2□ Δ connection	SLM/BLM 400 V	214	2044	460	330	33,6	1000	0,85	0,960			215	9,0	
	ALM 400 V	246	2043	455	380	38,6	1150	0,85	0,962			216	10,0	
	SLM/BLM/ALM 480 V	289	2044	460	445	45,3	1350	0,85	0,964			216	11,0	
1PH8286-1□F2□ Δ connection	SLM/BLM 400 V	281	1789	540	343	50,4	1500	0,90	0,966			181	11,0	
	ALM 400 V	328	1790	540	400	58,7	1750	0,90	0,967			182	12,0	
	SLM/BLM/ALM 480 V	375	1791	550	455	67,0	2000	0,90	0,968			180	13,0	

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	P_cool [kW]	m [kg]
1PH8286-1□H2□ Y connection	BLM 690 V	85,0	2029	108	555	13,7	400	0,89	0,917	5,2	33	45	8,0	1490
	ALM 690 V	106	2025	108	690	17,0	500	0,88	0,931			45	8,0	
1PH8286-1□K2□ Y connection	BLM 690 V	148	2019	174	605	23,6	700	0,85	0,950			84	8,0	
	ALM 690 V	170	2029	176	690	27,0	800	0,85	0,954			84	8,0	
1PH8286-1□U2□ Y connection	BLM 690 V	208	1986	260	570	33,6	1000	0,85	0,959			123	9,0	
	ALM 690 V	239	1985	260	655	38,6	1150	0,85	0,962			123	10,0	
1PH8286-1□W2□ Y connection	BLM 690 V	273	1738	310	590	50,4	1500	0,90	0,965			104	11,0	
	ALM 690 V	318	1735	305	690	58,7	1750	0,90	0,967			104	12,0	
1PH8288-1□B2□ Δ connection	SLM/BLM 400 V	109	2602	260	295	13,7	400	0,89	0,925	6,3	35	110	9,0	1750
	ALM 400 V	136	2598	260	365	17,0	500	0,88	0,938			109	9,0	
	SLM/BLM/ALM 480 V	164	2610	260	440	20,3	600	0,88	0,946			111	10,0	
1PH8288-1□C2□ Δ connection	SLM/BLM 400 V	188	2565	400	324	23,4	700	0,88	0,952			172	10,0	
	ALM 400 V	215	2567	405	370	27,0	800	0,87	0,956			172	10,0	
	SLM/BLM/ALM 480 V	269	2569	405	460	33,6	1000	0,87	0,961			171	11,0	
1PH8288-1□D2□ Δ connection	SLM/BLM 400 V	264	2521	550	335	33,6	1000	0,86	0,962			251	11,0	
	ALM 400 V	304	2525	550	385	38,6	1150	0,86	0,964			251	12,0	
	SLM/BLM/ALM 480 V	357	2525	550	450	45,3	1350	0,86	0,966			249	13,0	
1PH8288-1□F2□ Δ connection	SLM/BLM 400 V	345	2197	660	345	50,3	1500	0,90	0,967			234	13,0	
	ALM 400 V	403	2199	670	400	58,7	1750	0,90	0,968			232	14,0	
	SLM/BLM/ALM 480 V	460	2197	670	455	67,0	2000	0,90	0,969			230	16,0	
1PH8288-1□H2□ Y connection	BLM 690 V	105	2507	134	555	13,7	400	0,88	0,923	6,3	35	58	9,0	1750
	ALM 690 V	131	2502	134	690	17,0	500	0,88	0,936			58	9,0	
1PH8288-1□K2□ Y connection	BLM 690 V	182	2483	205	605	23,7	700	0,90	0,946			77	11,0	
	ALM 690 V	209	2495	205	690	27,0	800	0,90	0,951			77	12,0	
1PH8288-1□U2□ Y connection	BLM 690 V	256	2445	310	580	33,6	1000	0,86	0,961			145	11,0	
	ALM 690 V	295	2450	310	665	38,6	1150	0,86	0,963			144	12,0	
1PH8288-1□W2□ Y connection	BLM 690 V	335	2133	375	590	50,3	1500	0,90	0,966			132	13,0	
	ALM 690 V	391	2134	375	690	58,7	1750	0,90	0,968			133	14,0	

4.1.1.20 Overload factors for intermittent duty types (S6) and short-time duty (S2)

The specified overload factors for intermittent duty types (S6) and for short-time duty (S2) are based on the S1 characteristic (continuous operation) of the relevant motor.

Table 4- 21 S6/S2 overload factors for water-cooled asynchronous motors

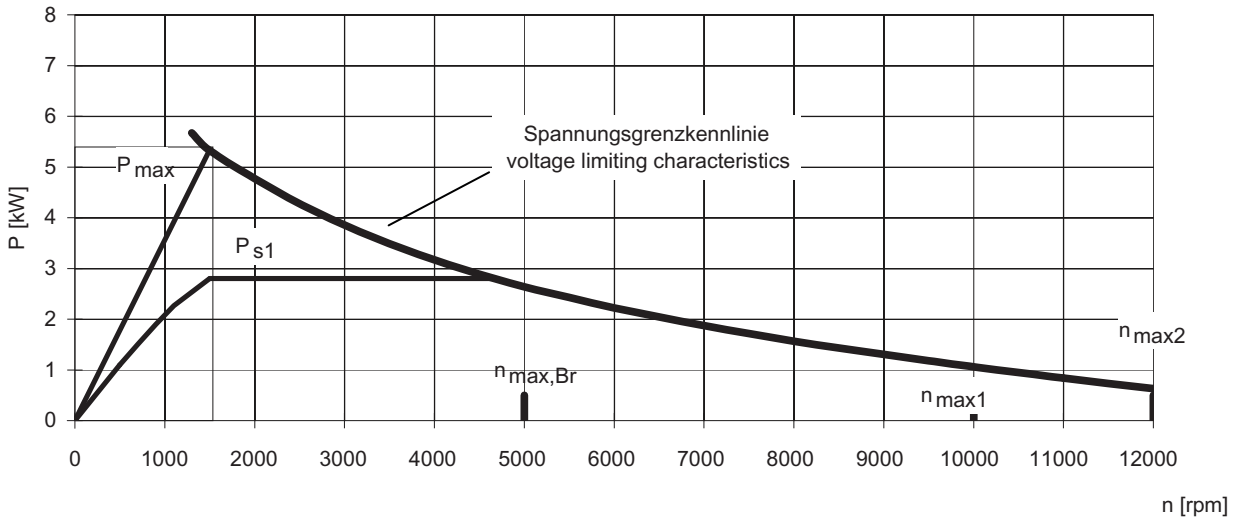
Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH808□-1□□2	1.20	1.40	1.70	1.00
1PH810□-1□□2	1.20	1.40	1.70	1.00
1PH813□-1□□2	1.20	1.40	1.70	1.00
1PH816□-1□□2	1.20	1.47	1.70	1.00
1PH8184-1□□2	1.23	1.47	1.70	1.20
1PH8186-1□□2	1.23	1.47	1.70	1.23
1PH8224-1□□2	1.23	1.47	1.70	1.26
1PH8226-1□□2	1.23	1.47	1.70	1.28
1PH8228-1□□2	1.23	1.47	1.70	1.30
1PH8284 -1□□2	1.23	1.47	1.70	1.26
1PH8286 -1□□2	1.23	1.47	1.70	1.29
1PH8288 -1□□2	1.23	1.47	1.70	1.31

4.1.2 Characteristics forced ventilation

4.1.2.1 Shaft height 80 – forced ventilation

Table 4- 22 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	2.8	18	7.5	10000	12000	-	5000	4700	34	18	21	8



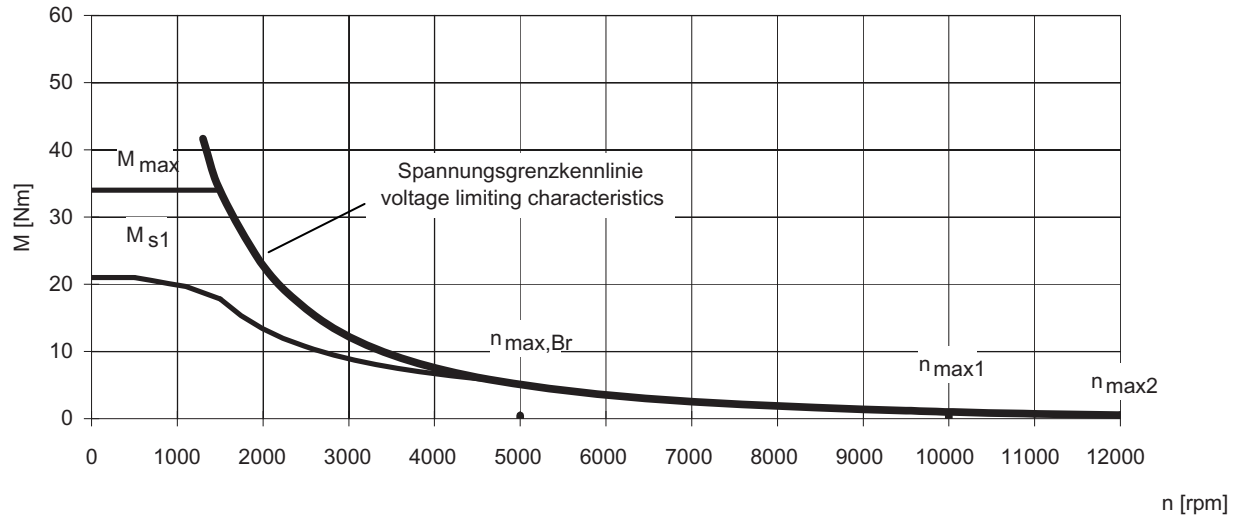
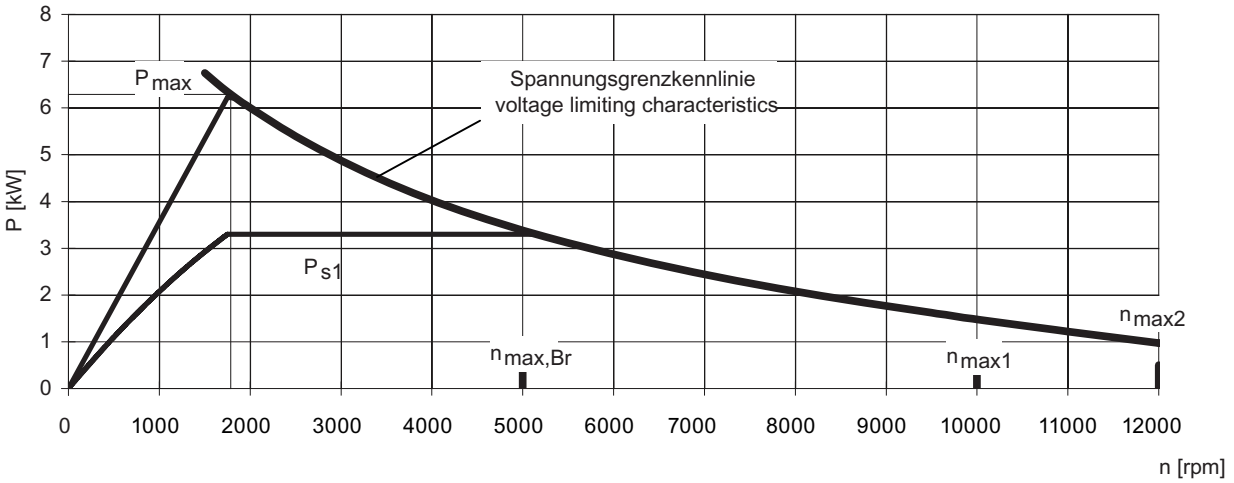


Table 4- 23 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	3.3	18	7.5	10000	12000	-	5000	5200	34	18	21	8
1500	2.8	18	7.5	10000				6200				



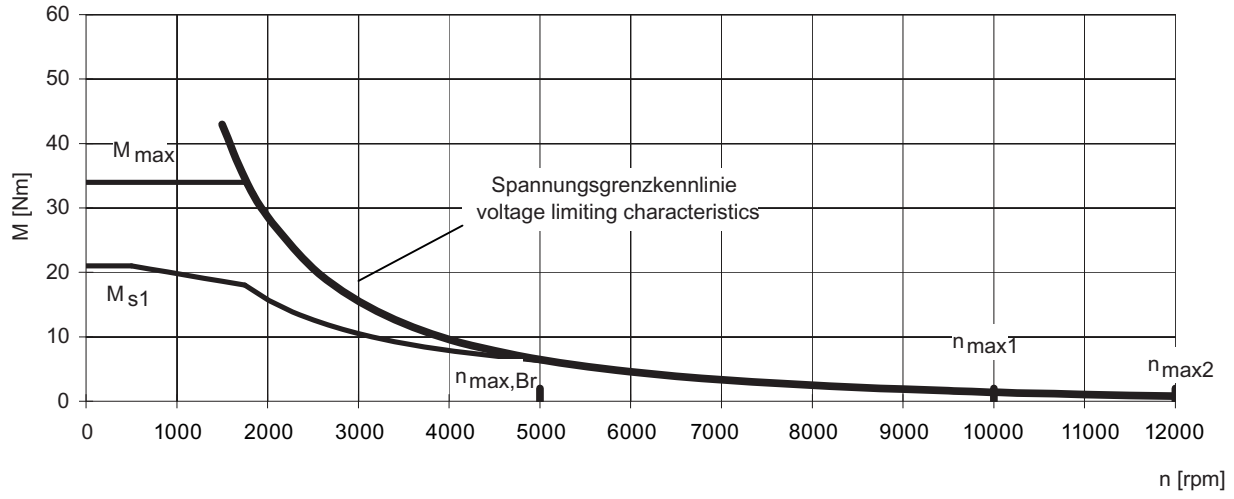


Table 4- 24 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	3.7	18	7.6	10000	12000	-	5000	5550	34	18	21	8

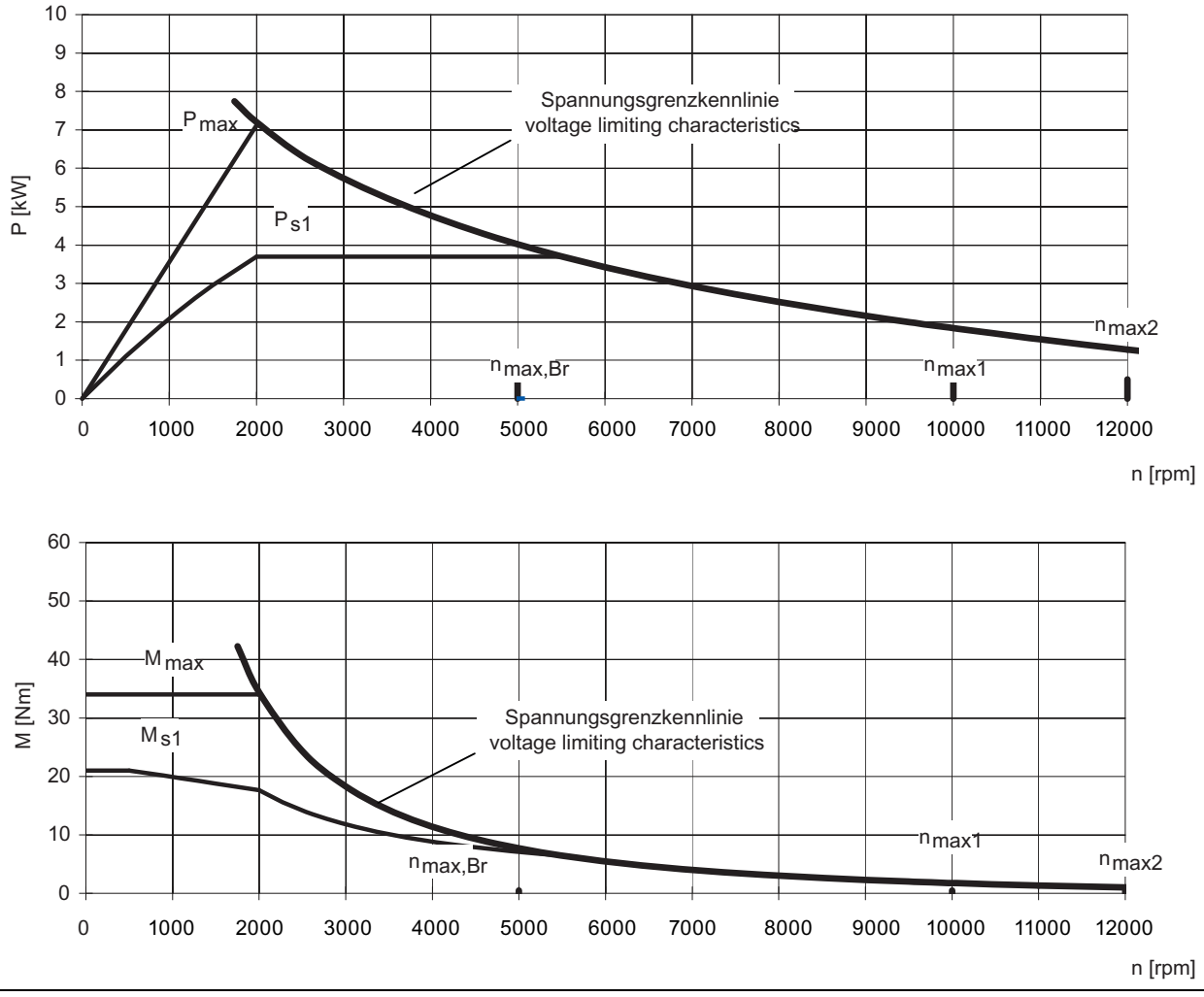


Table 4- 25 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	3.7	18	11.6	10000	15000	17000	5000	9200	45	24	21	12

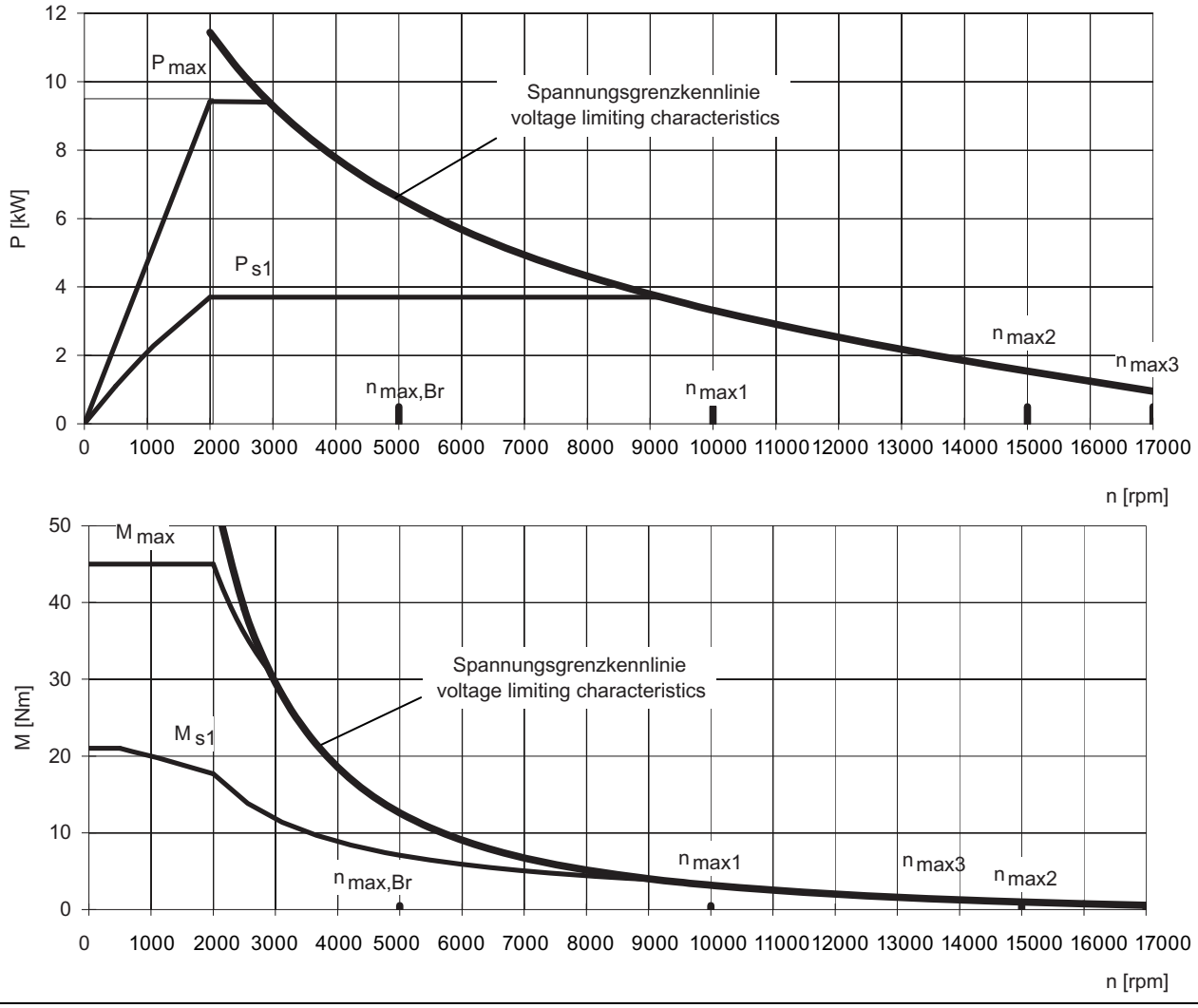
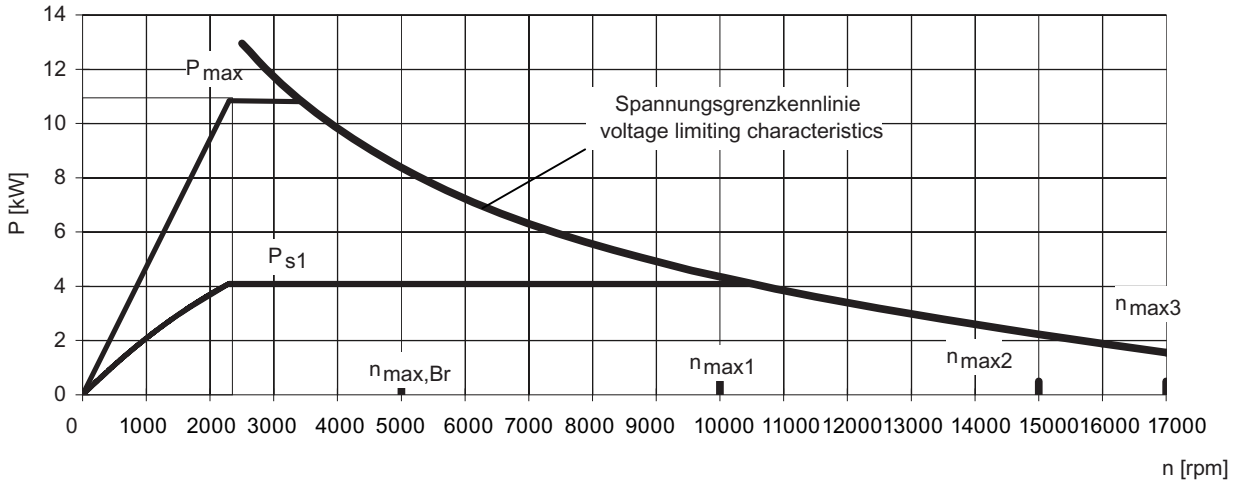


Table 4- 26 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	4.1	17	11.3	10000	15000	17000	5000	10550	45	24	21	12
2000	3.7	18	11.6					11350				



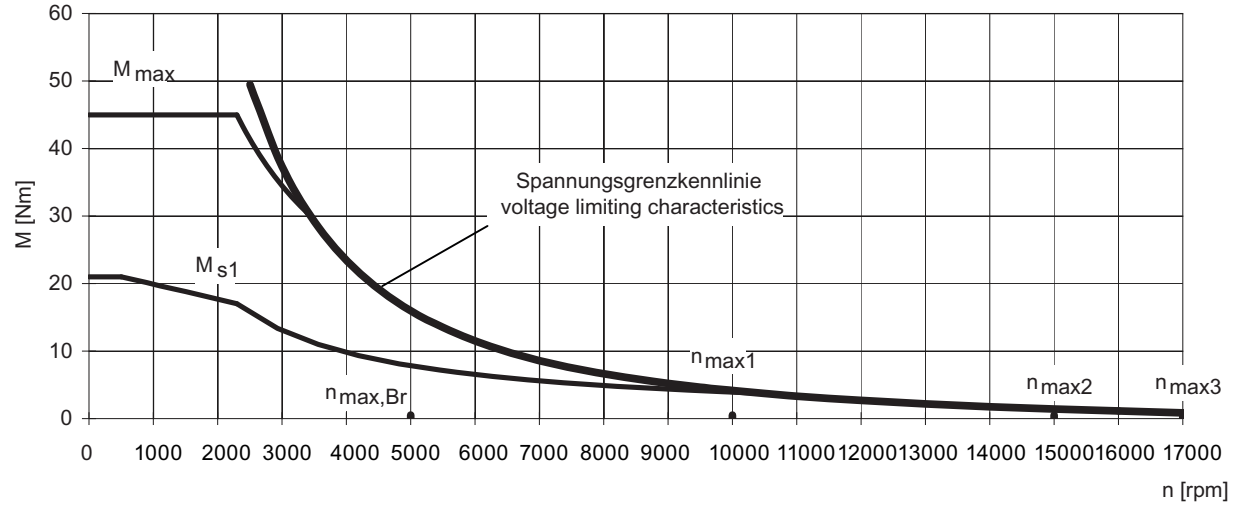
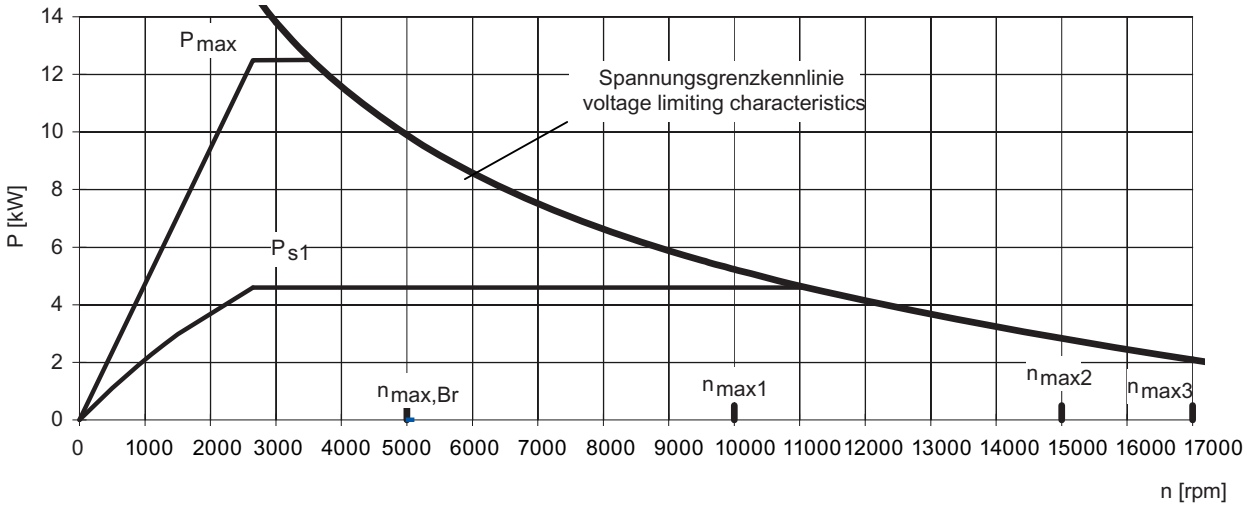


Table 4- 27 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	4.6	17	11.2	10000	15000	17000	5000	11150	45	24	21	12



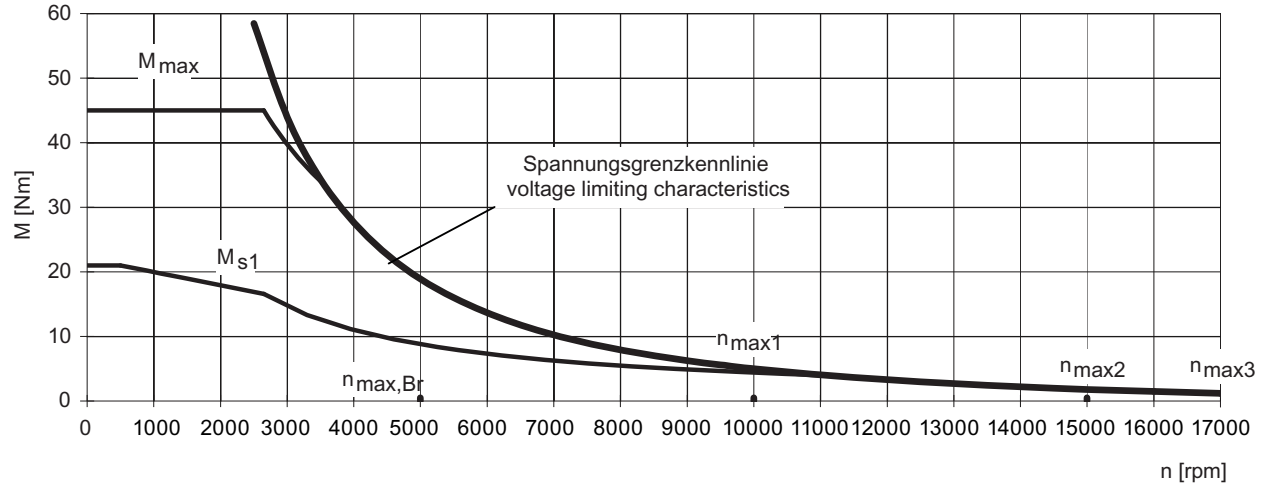
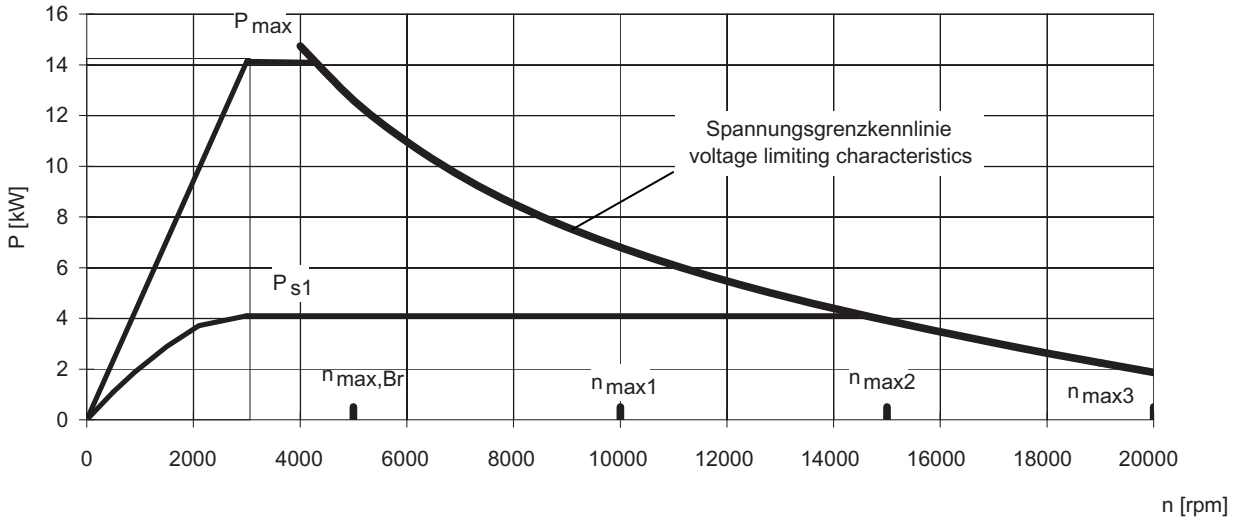


Table 4- 28 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	4.1	13	13.6	10000	15000	20000	5000	14650	45	36	21	17



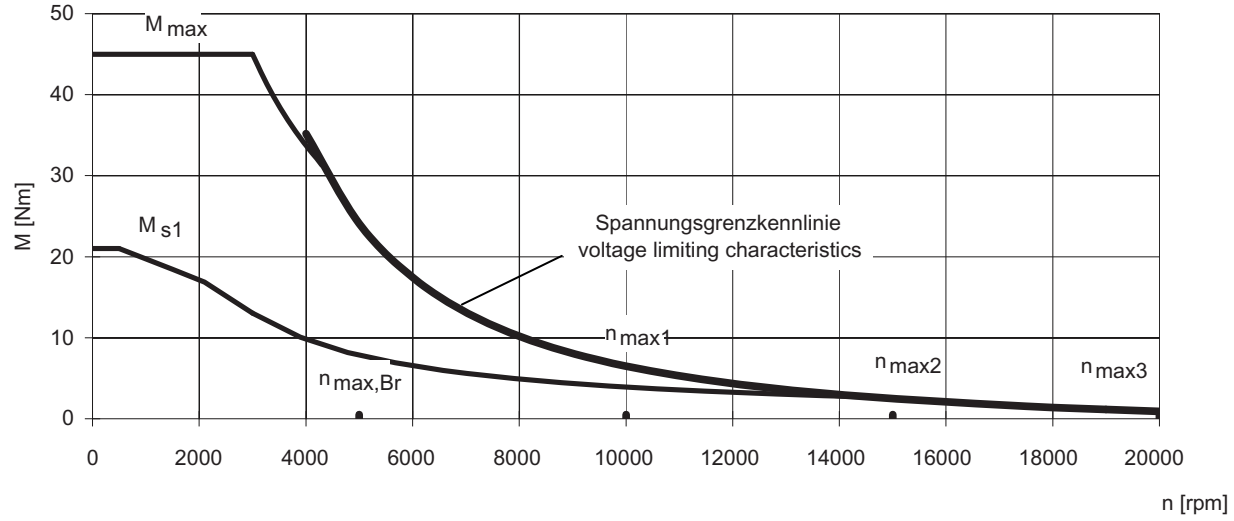
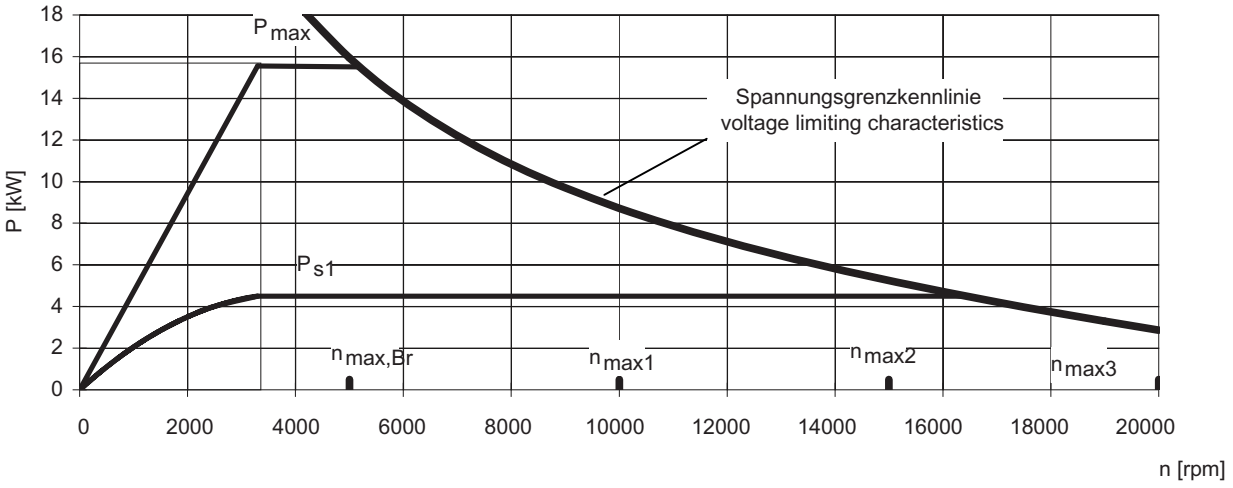


Table 4- 29 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	4.5	13	13.5	10000	15000	20000	5000	16500	45	36	21	17
3000	4.1	13	13.6					17300				



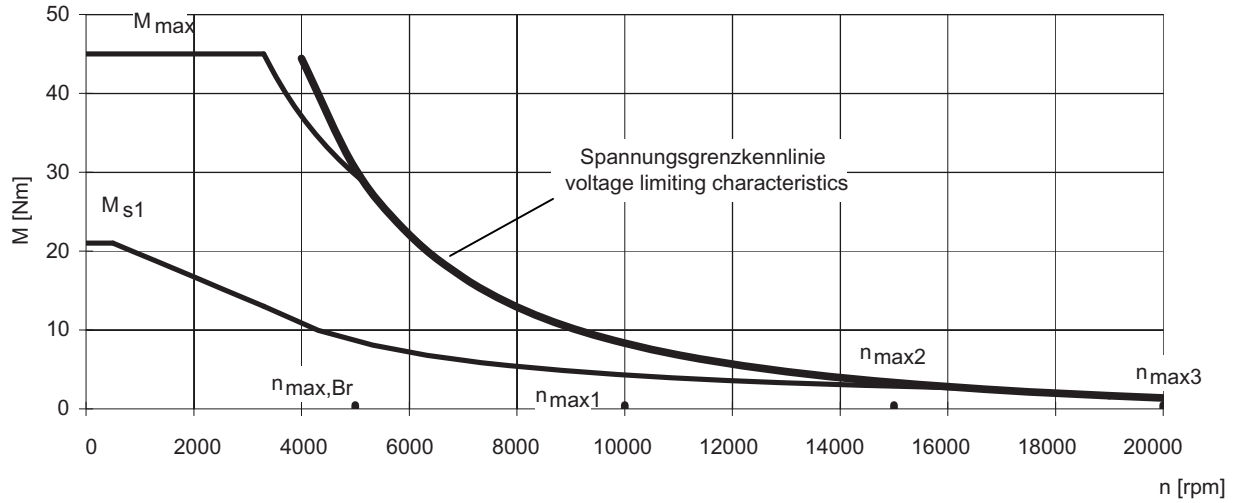
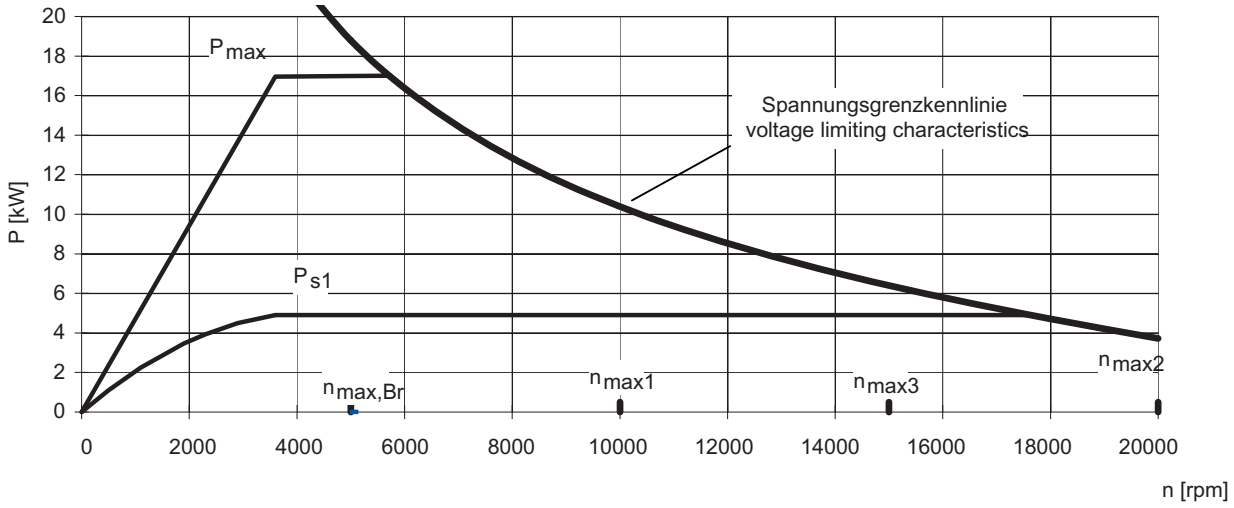


Table 4- 30 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	4.9	13	14.0	10000	15000	20000	5000	17650	45	36	21	17



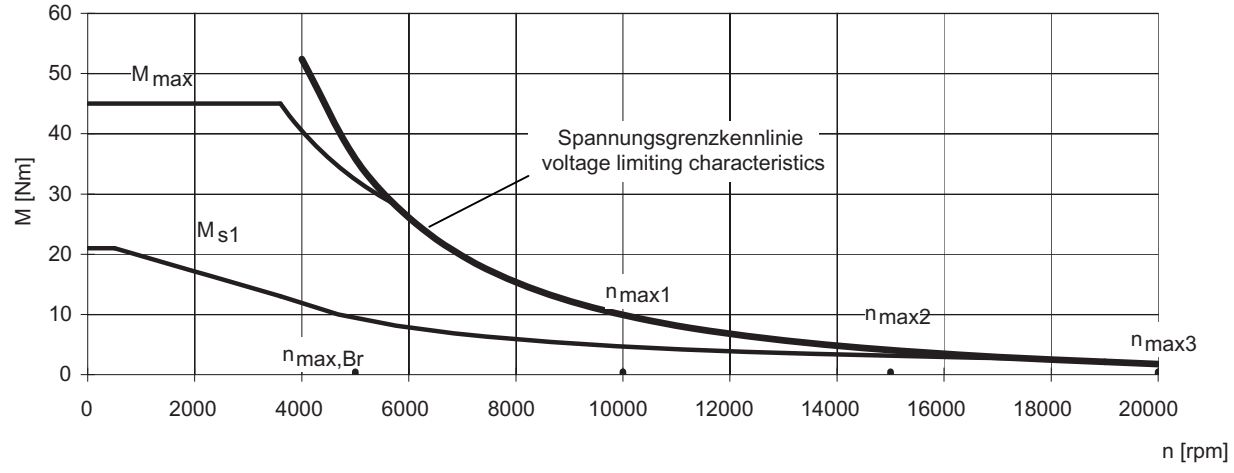


Table 4- 31 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4500	4.8	10	17.0	10000	15000	20000	5000	20000	40	41	19	23

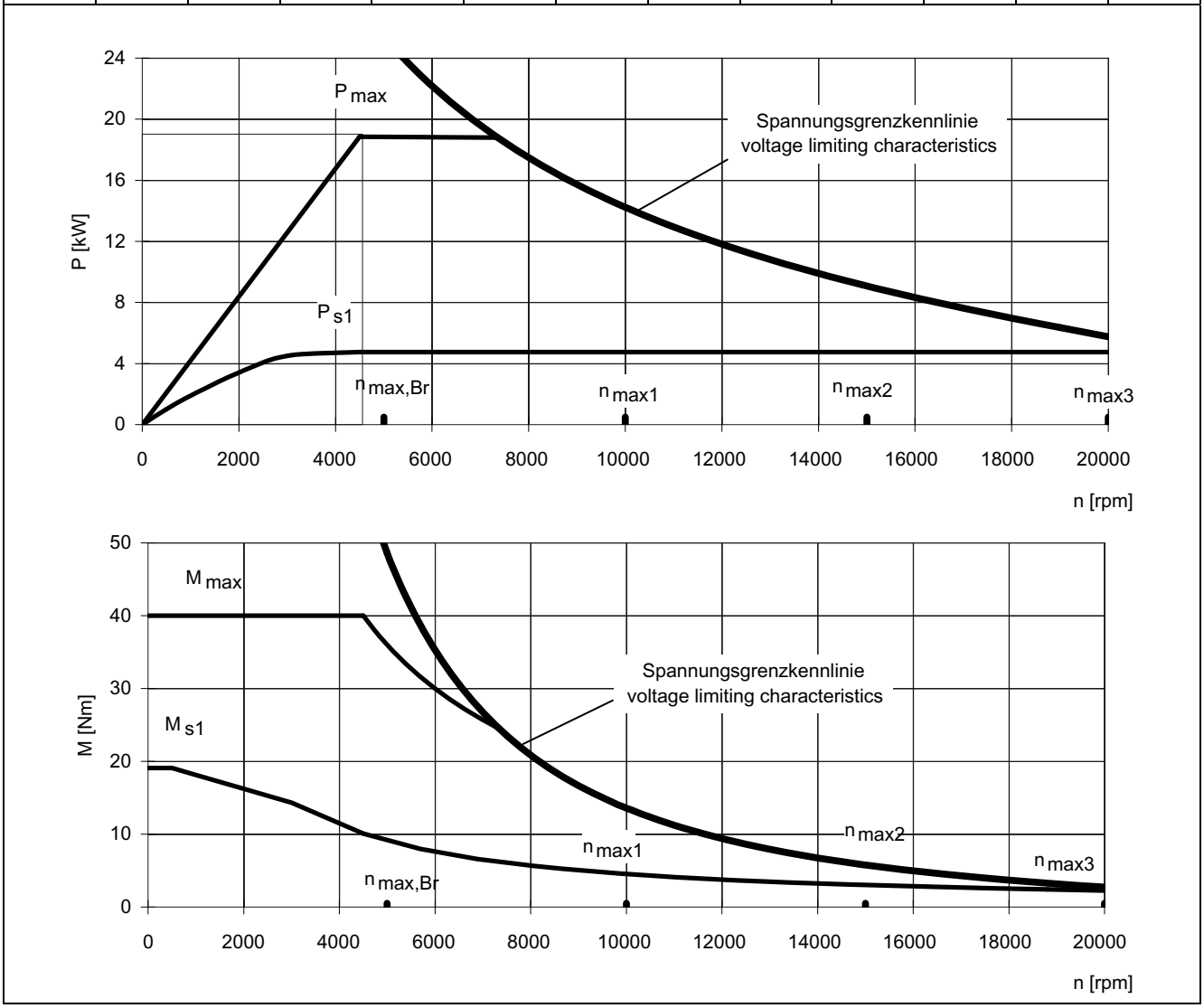


Table 4- 32 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	5.3	10	17.0	10000	15000	20000	5000	20000	40	41	19	23
4500	4.8	10	17.0					20000				

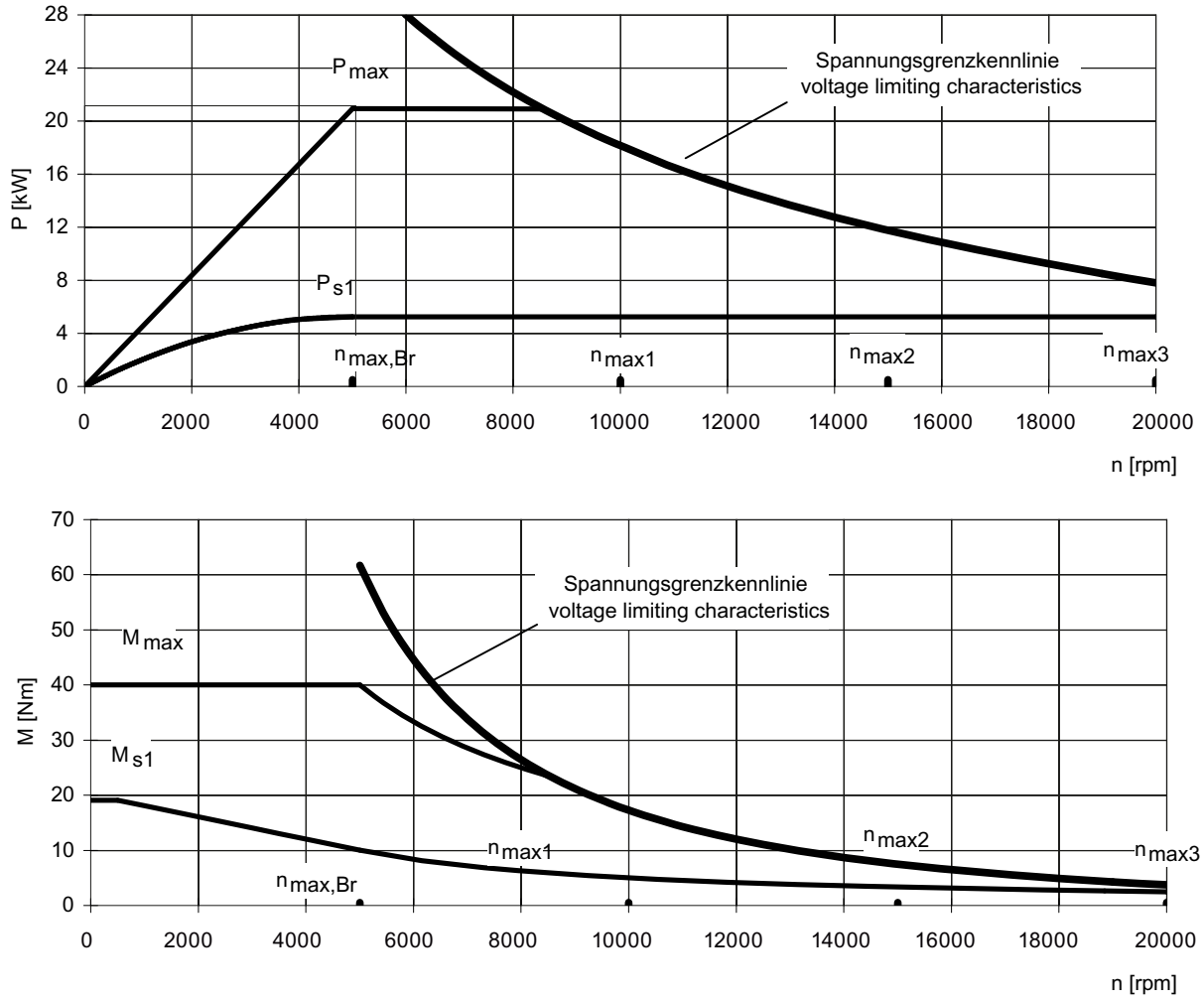


Table 4- 33 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5500	5.5	10	16.5	10000	15000	20000	5000	20000	40	41	19	23

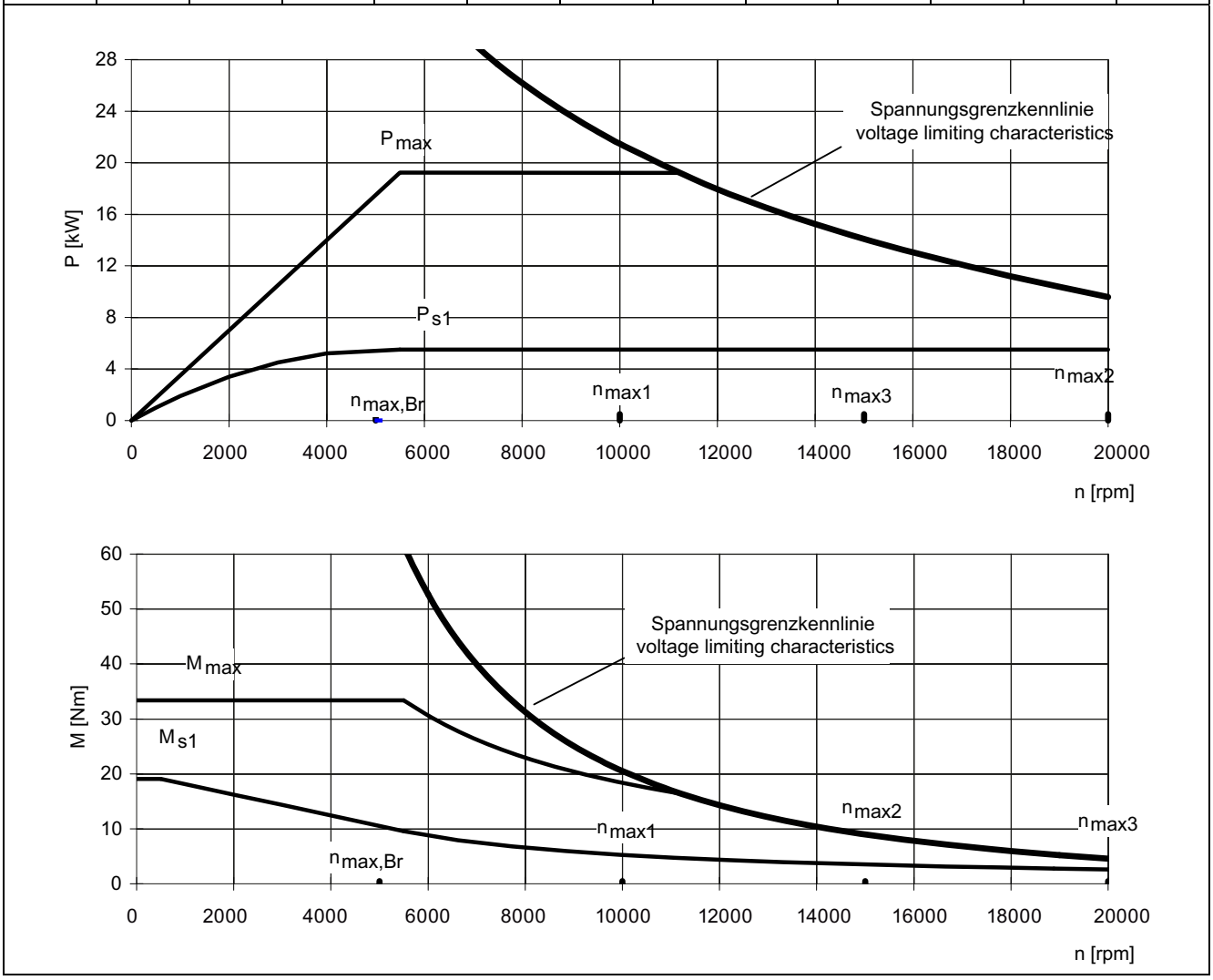
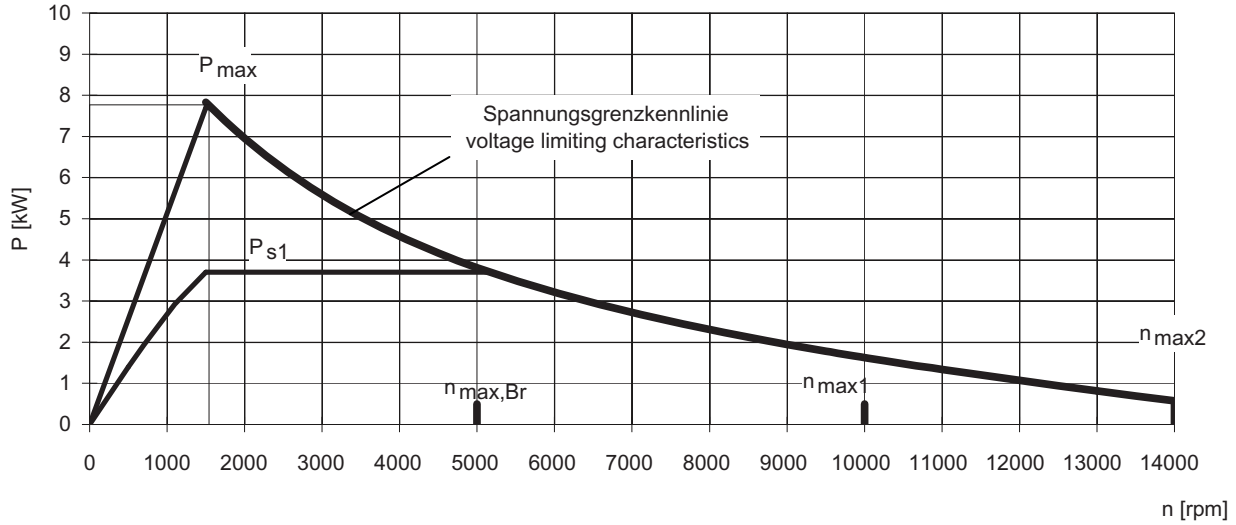


Table 4- 34 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	3.7	24	10.0	10000	14000	-	5000	5200	49	20	27	11



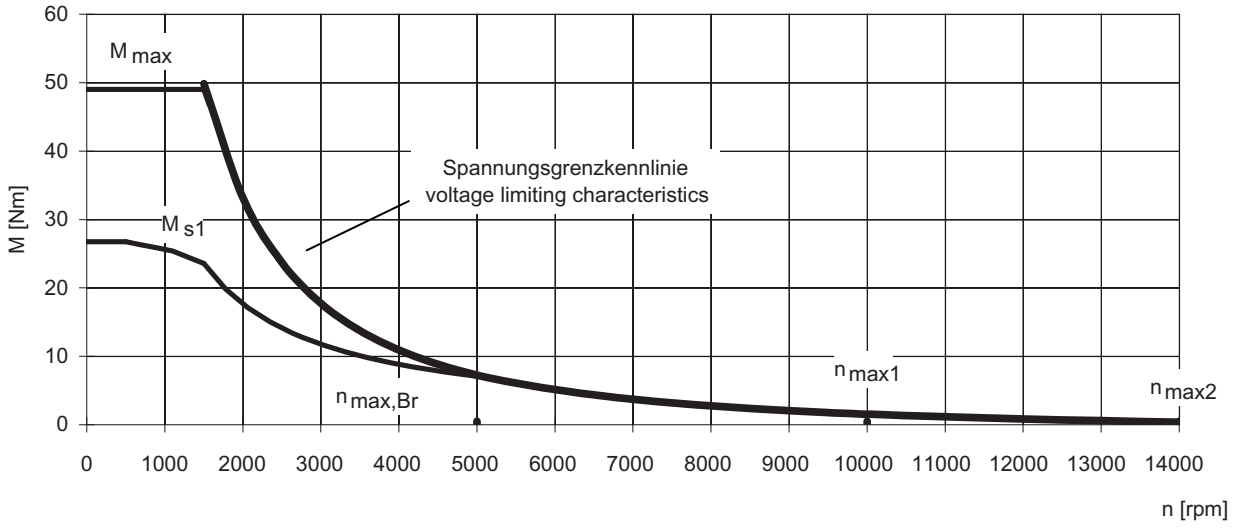
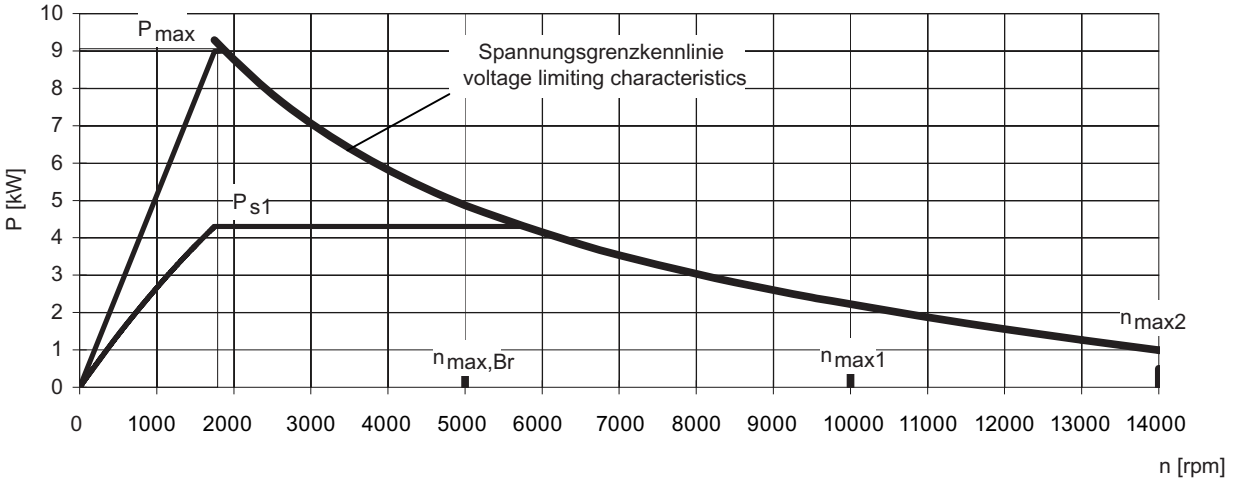


Table 4- 35 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	4.3	23	10.0	10000	14000	-	5000	5850	49	20	27	11
1500	3.7	24	10.0					6750				



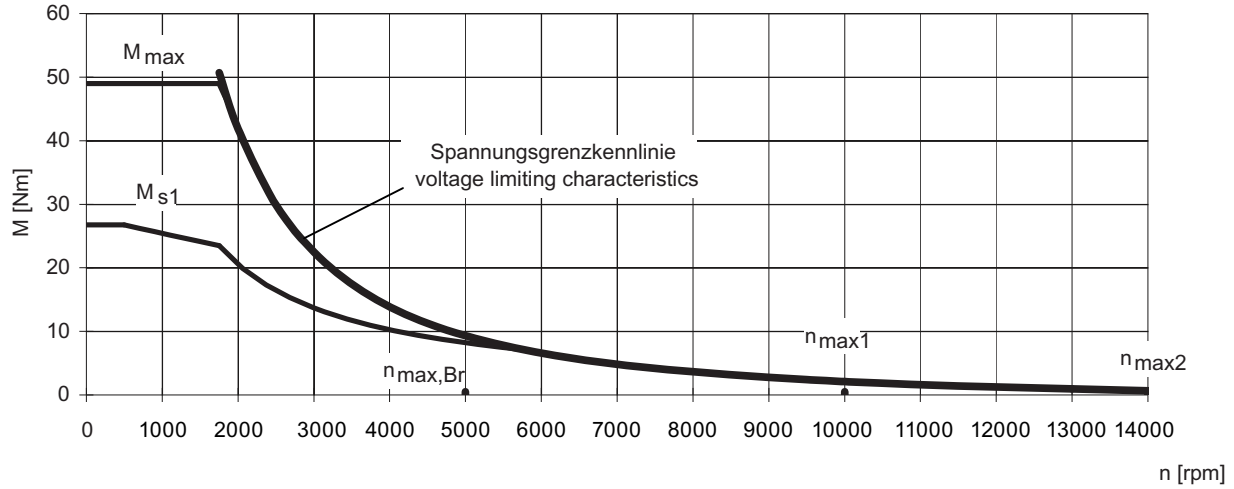
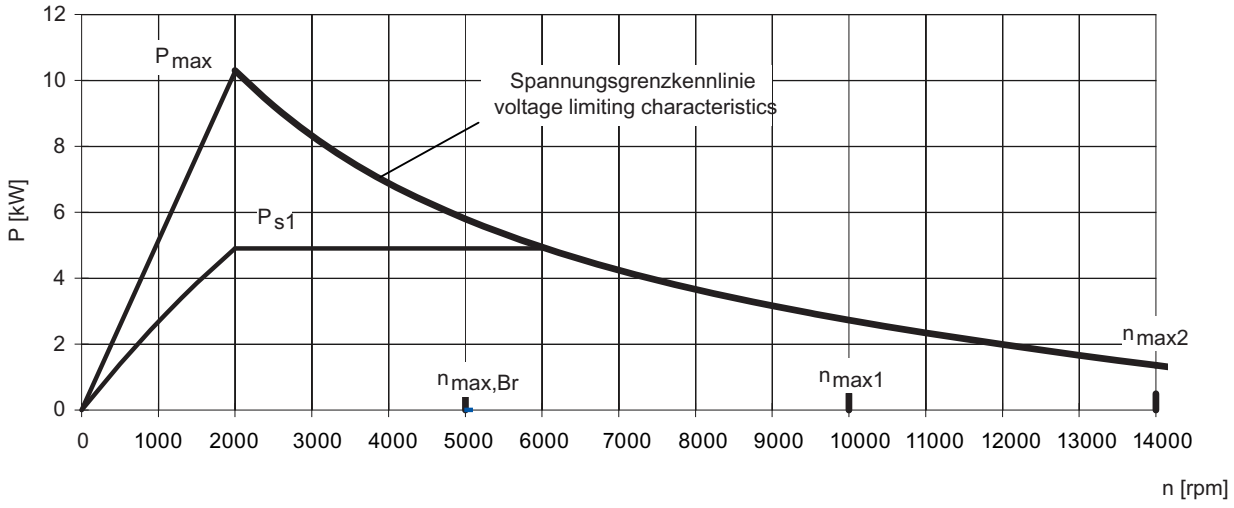


Table 4- 36 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.9	23	10.0	10000	14000	-	5000	6100	49	20	27	11



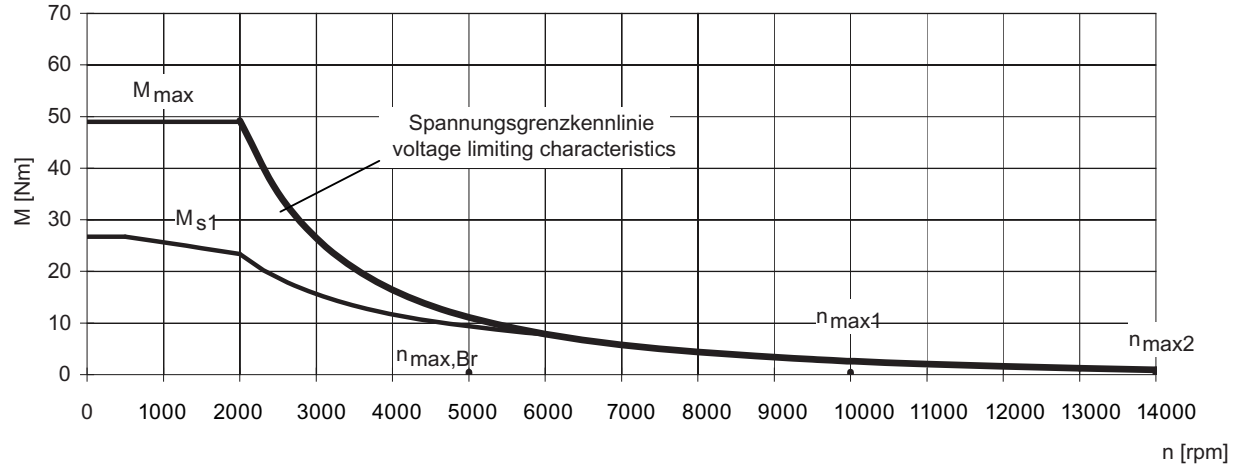


Table 4- 37 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.9	23	14.1	10000	15000	18000	5000	8400	63	31	27	15

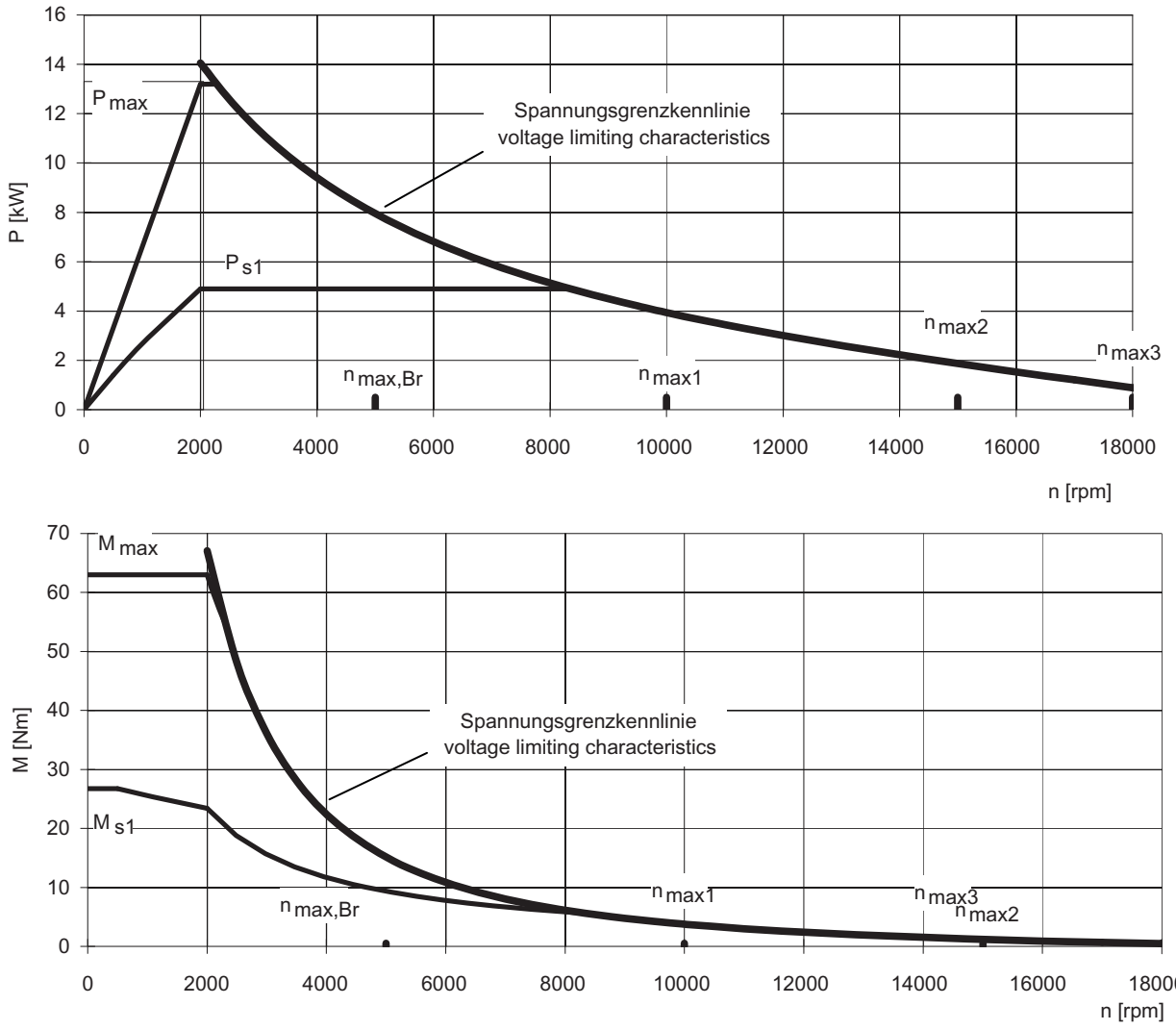
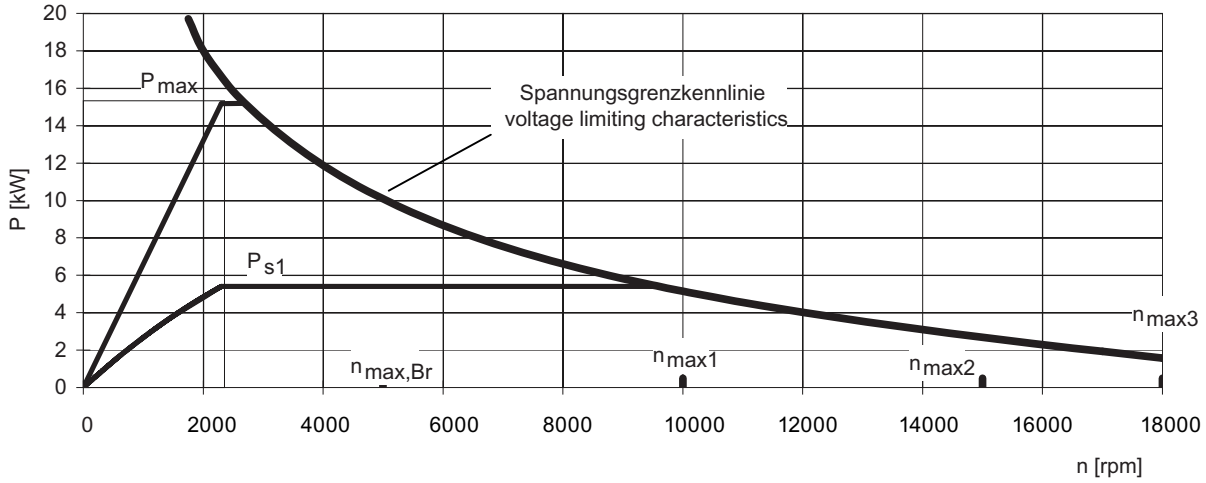


Table 4- 38 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	5.4	22	13.7	10000	15000	18000	5000	9650	63	31	27	15
2000	4.9	23	14.1					10450				



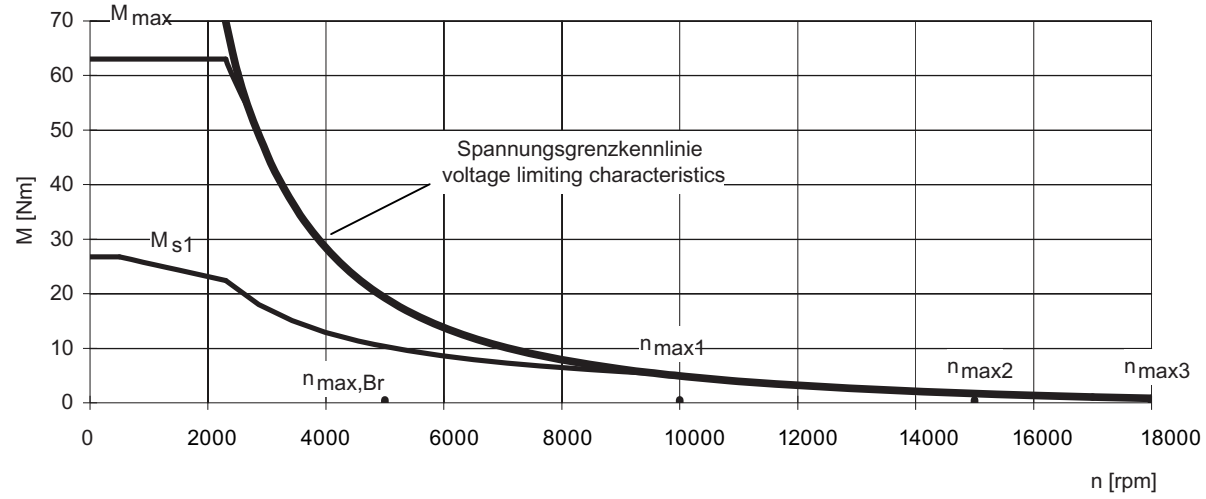
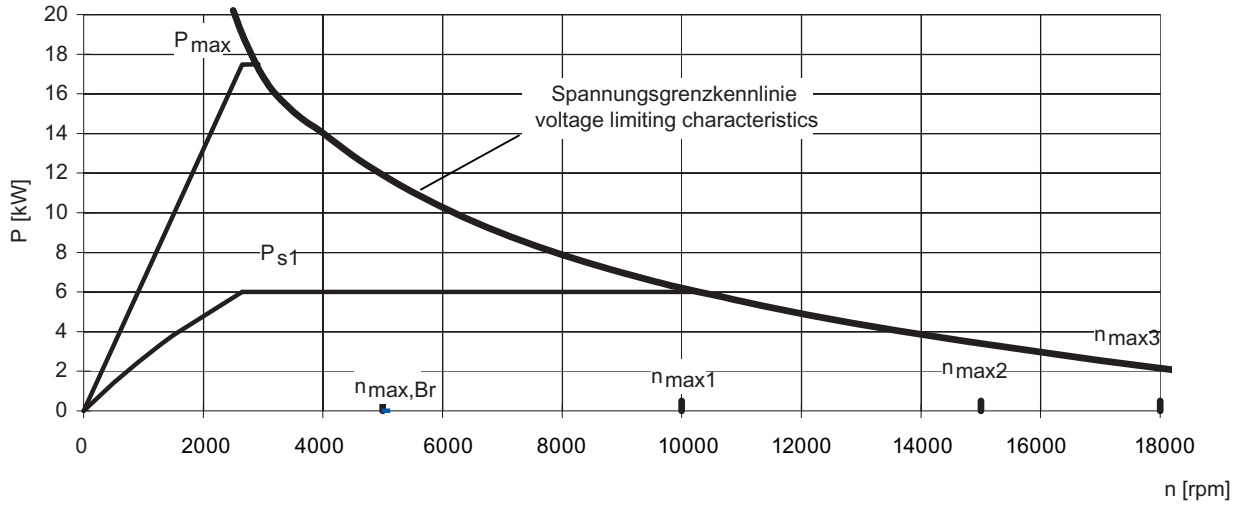


Table 4- 39 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	6.0	22	13.6	10000	15000	18000	5000	10300	63	31	27	15



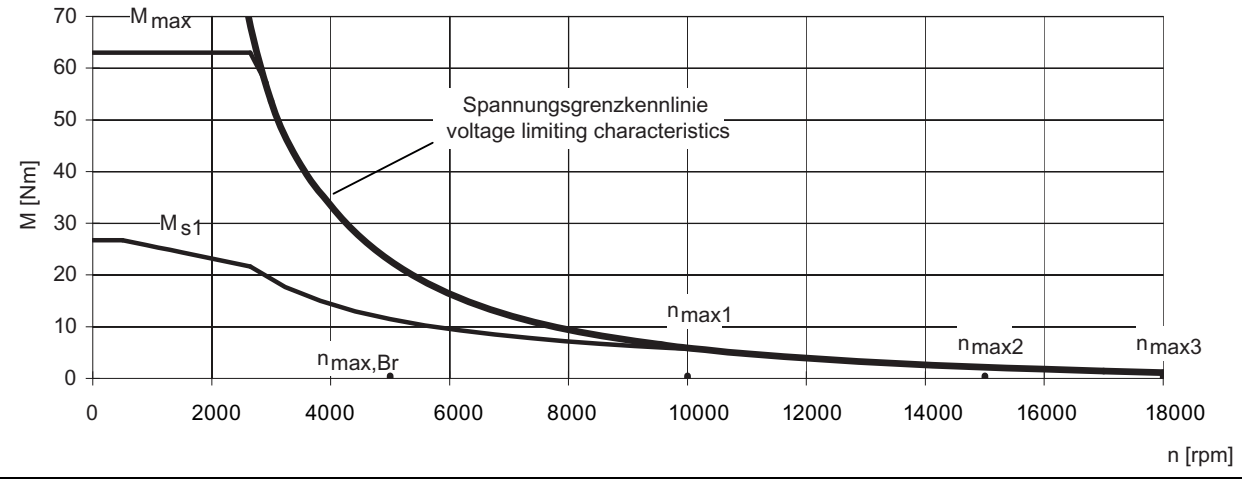


Table 4- 40 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	4.8	15	17.3	10000	15000	20000	5000	172000	65	46	27	23

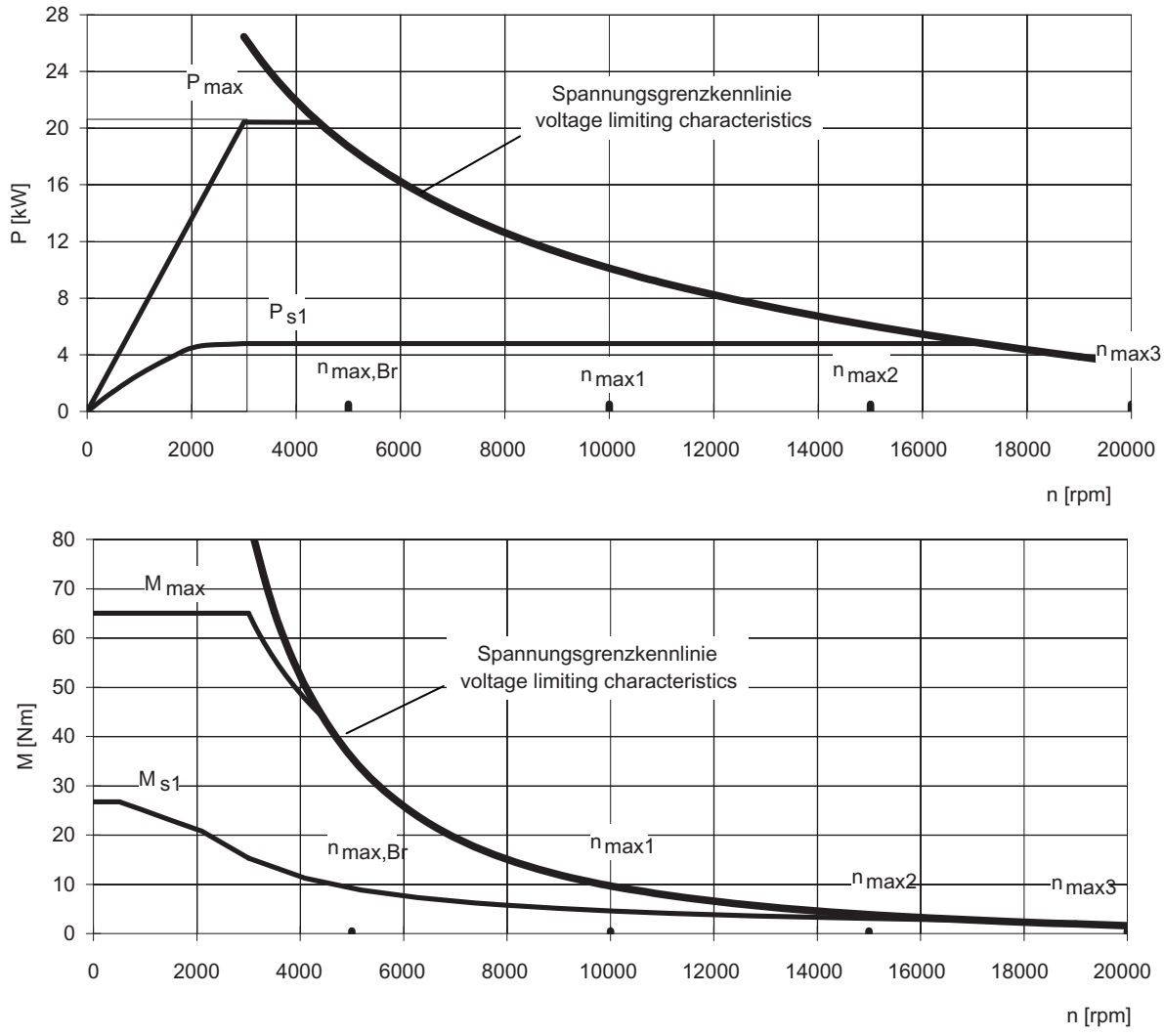
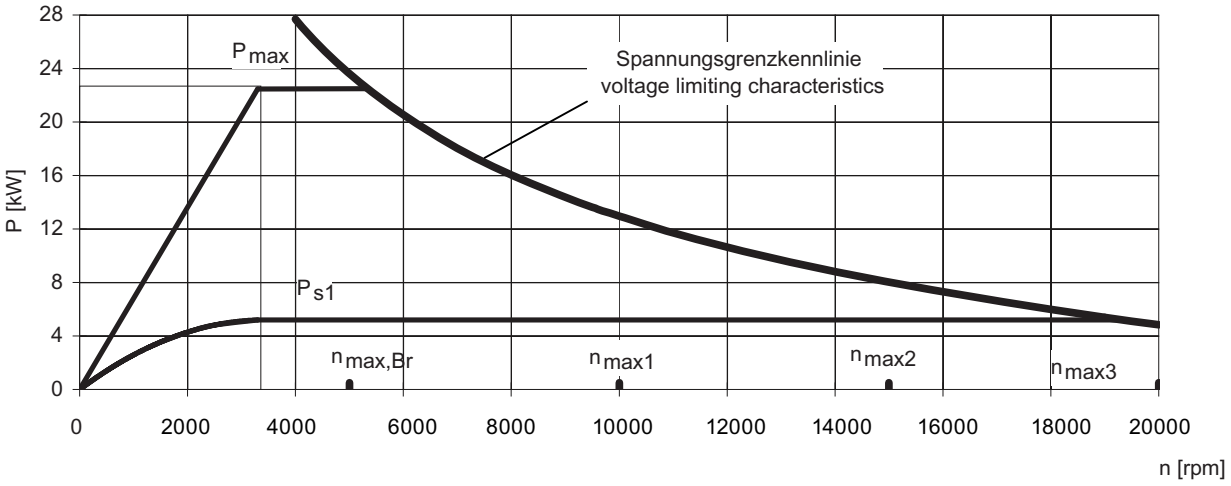


Table 4- 41 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	5.2	15	17.1	10000	15000	20000	5000	19400	65	46	27	23
3000	4.8	15	17.3					20050				



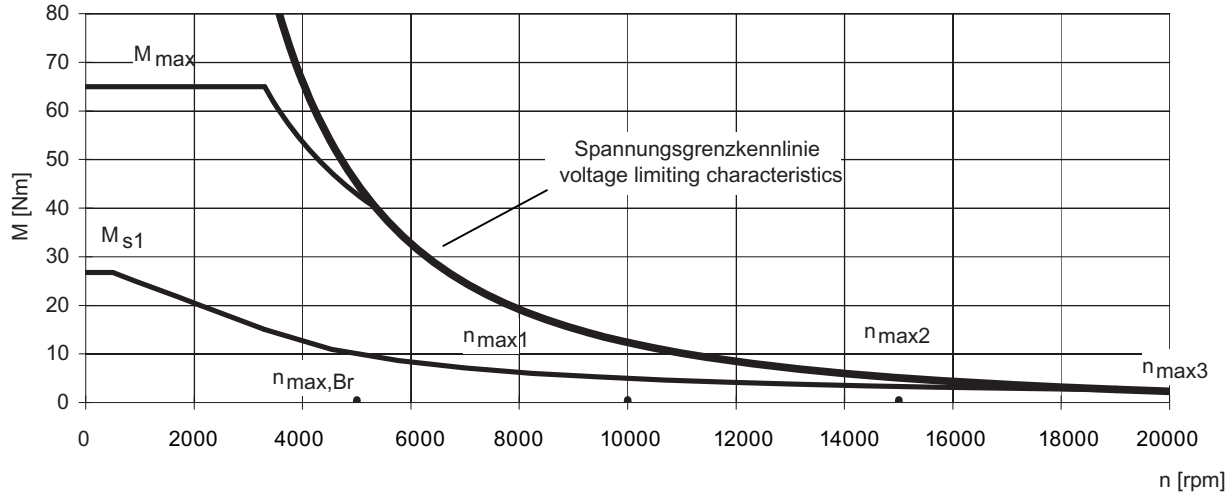
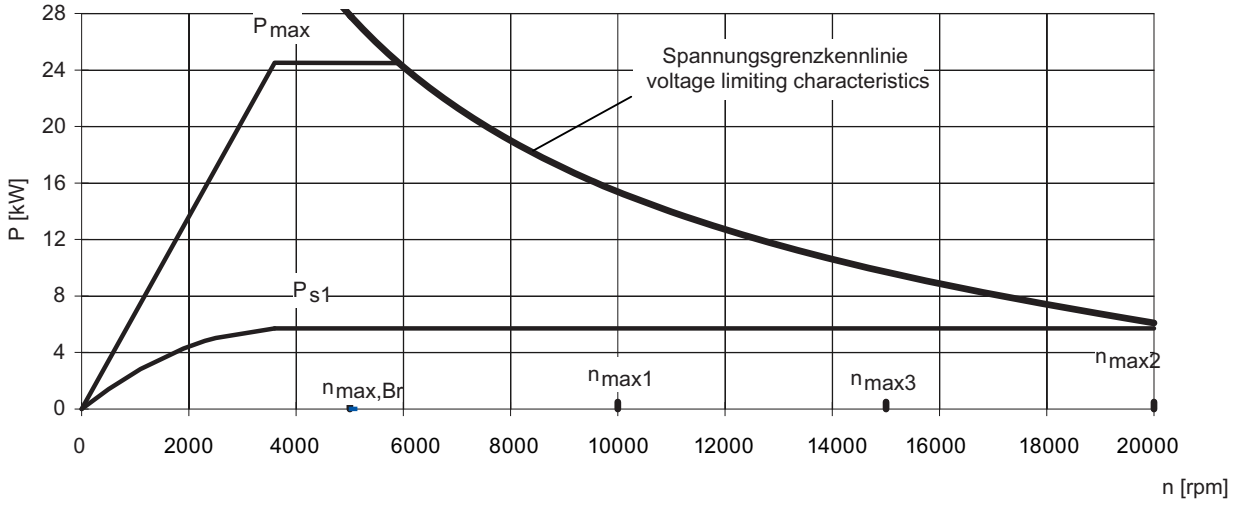


Table 4- 42 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	5.7	15	17.1	10000	15000	20000	5000	20050	65	46	27	23



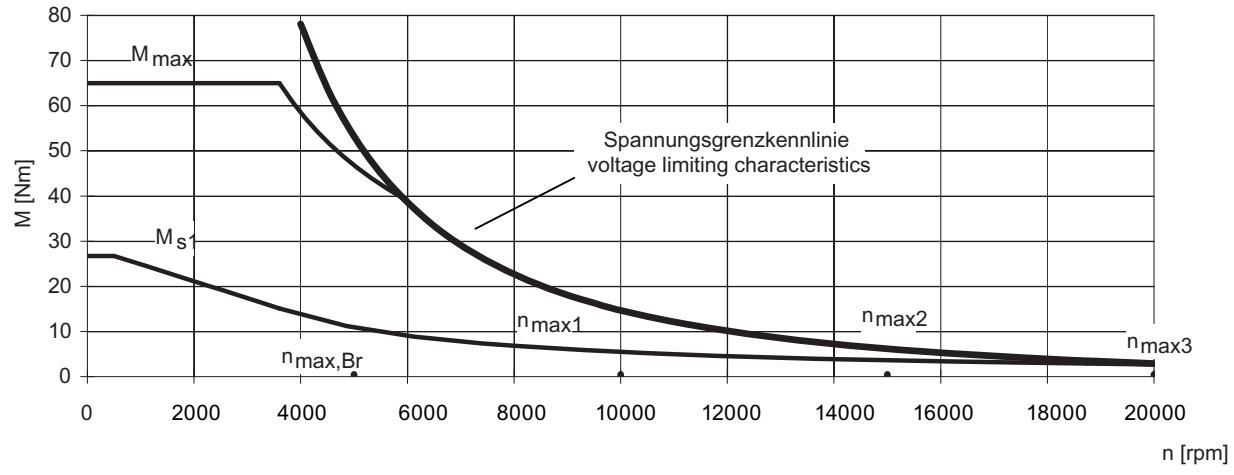


Table 4- 43 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4500	5.8	12	19.5	10000	15000	20000	5000	20000	65	66	25	28

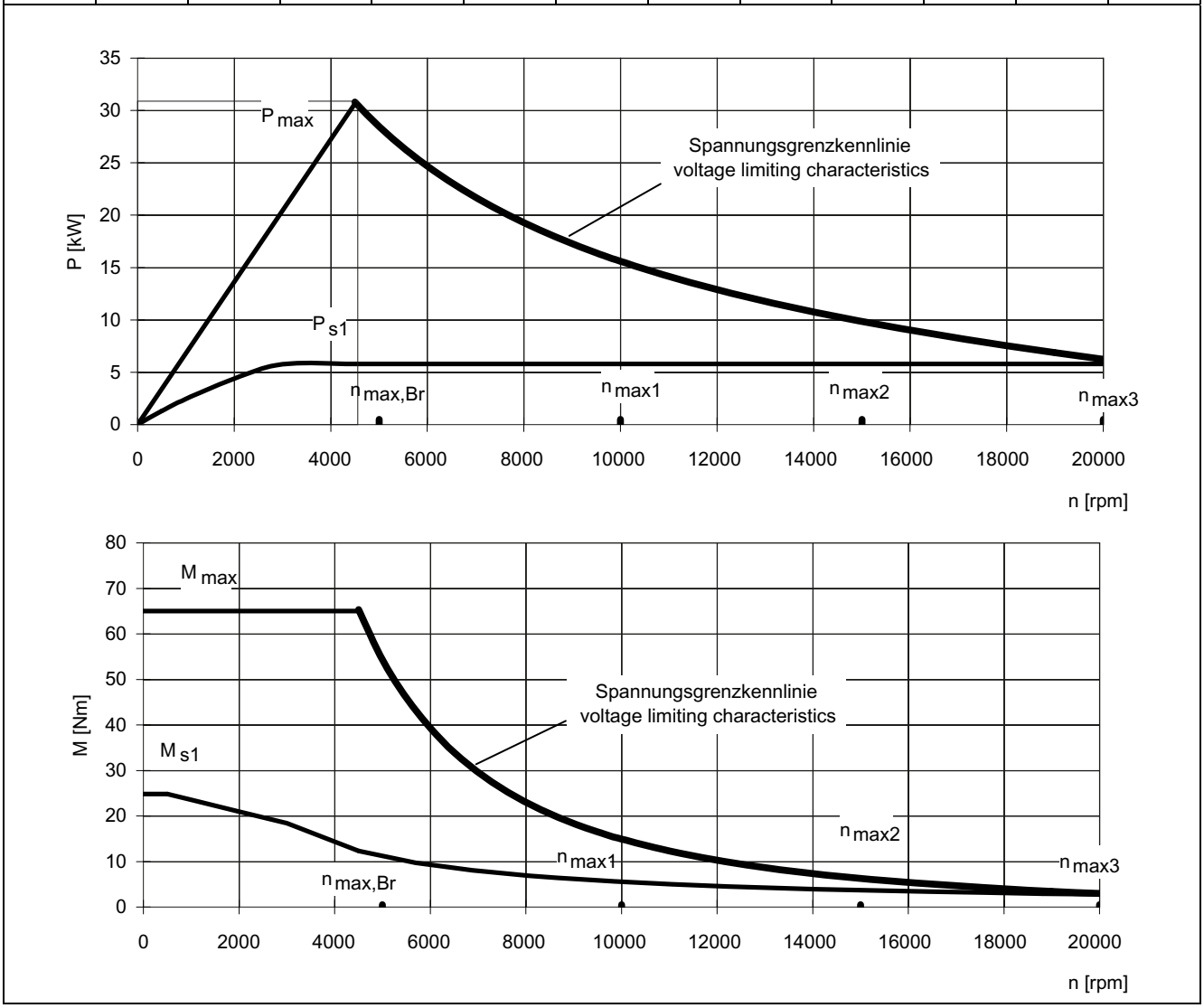
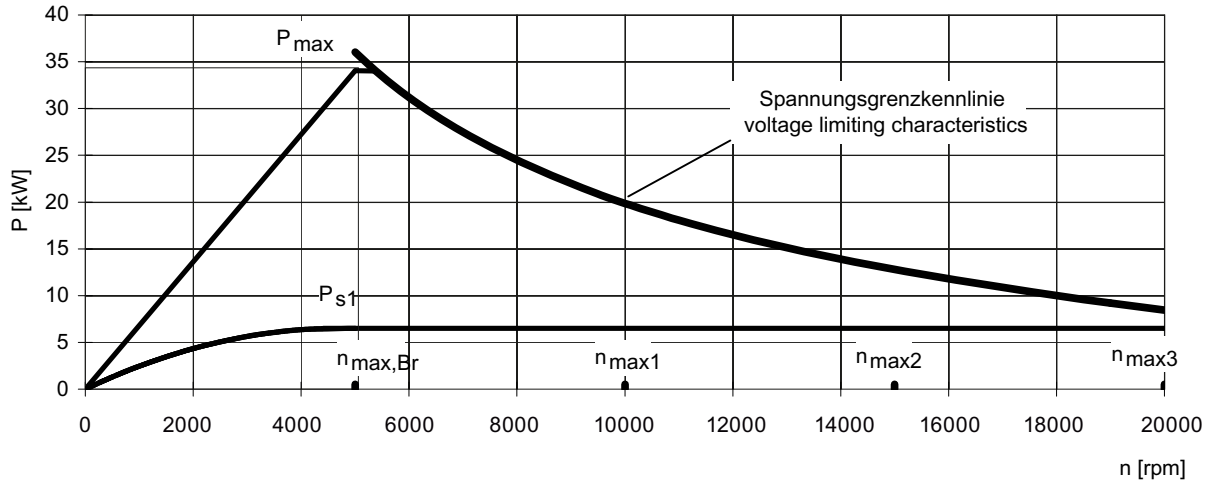


Table 4- 44 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	6.5	12	19.5	10000	15000	20000	5000	20000	65	66	25	28
4500	5.8	12	19.5					20000				



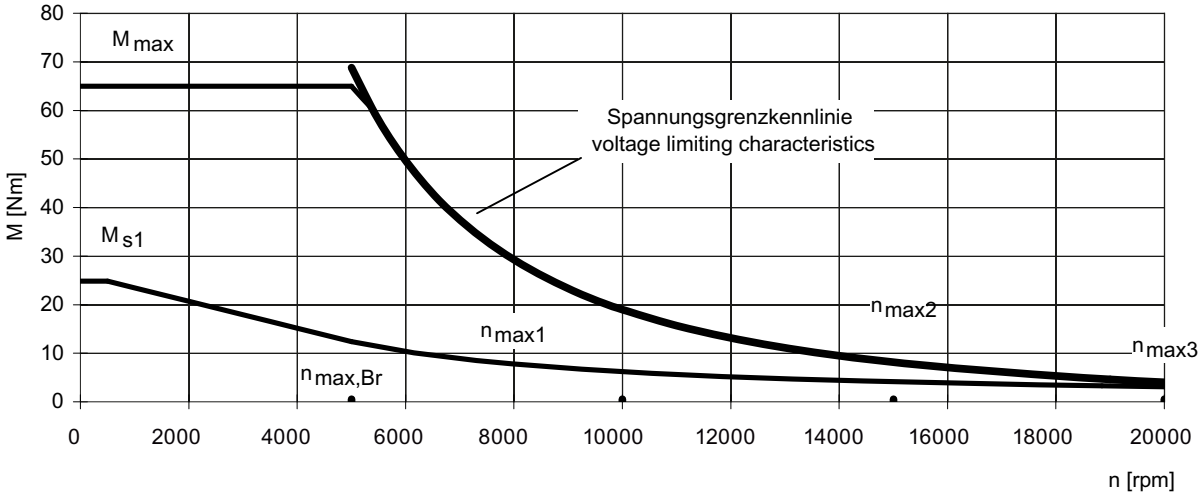
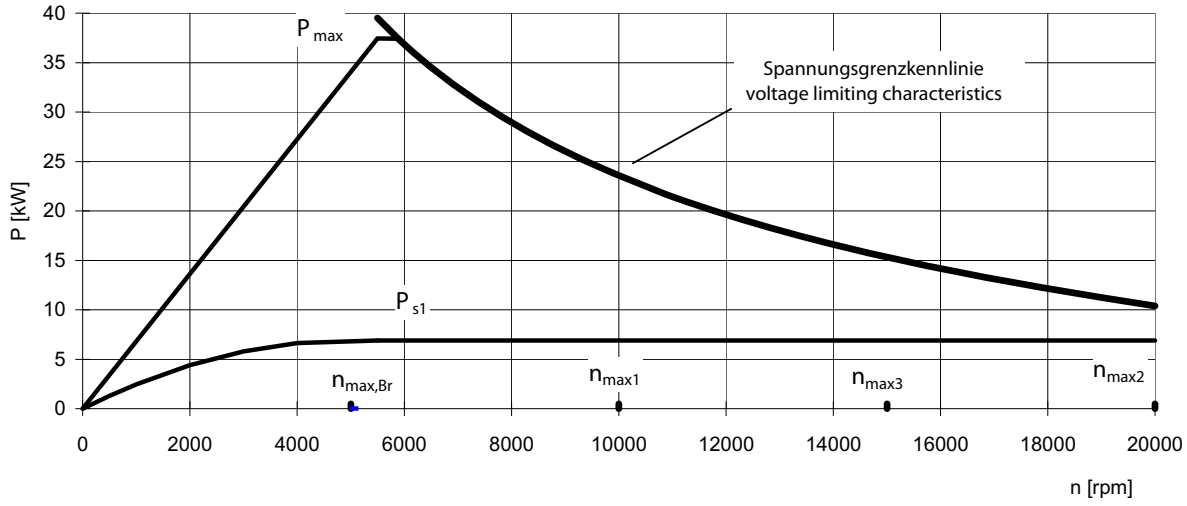
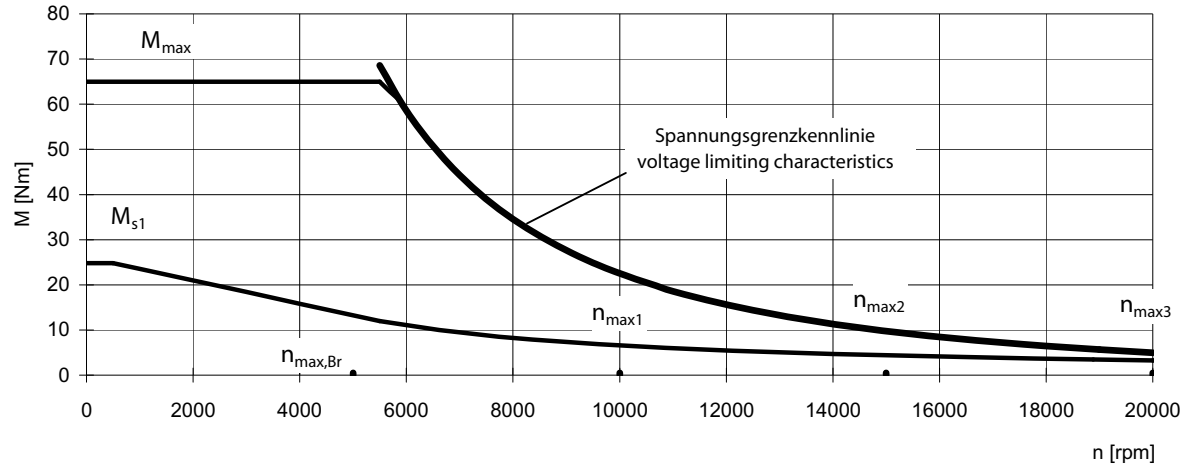


Table 4- 45 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□N□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5500	6.9	12	19.0	10000	15000	20000	5000	20000	65	66	25	28





* siehe Projektierungsanleitung

4.1.2.2 Shaft height 100 – forced ventilation

Table 4- 46 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	3.7	24	12.5	9000	12000	-	5000	5000	60	32	29	14

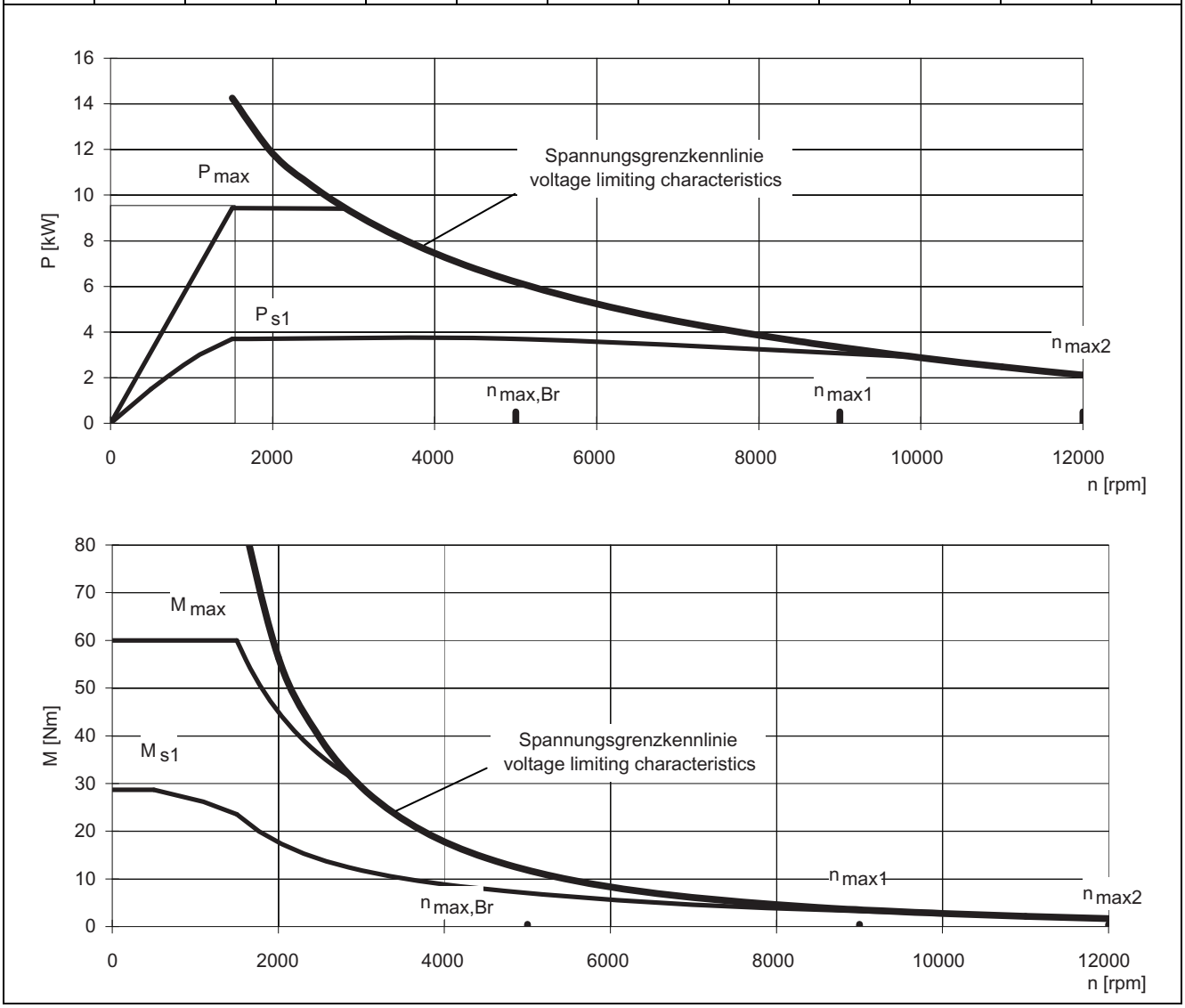
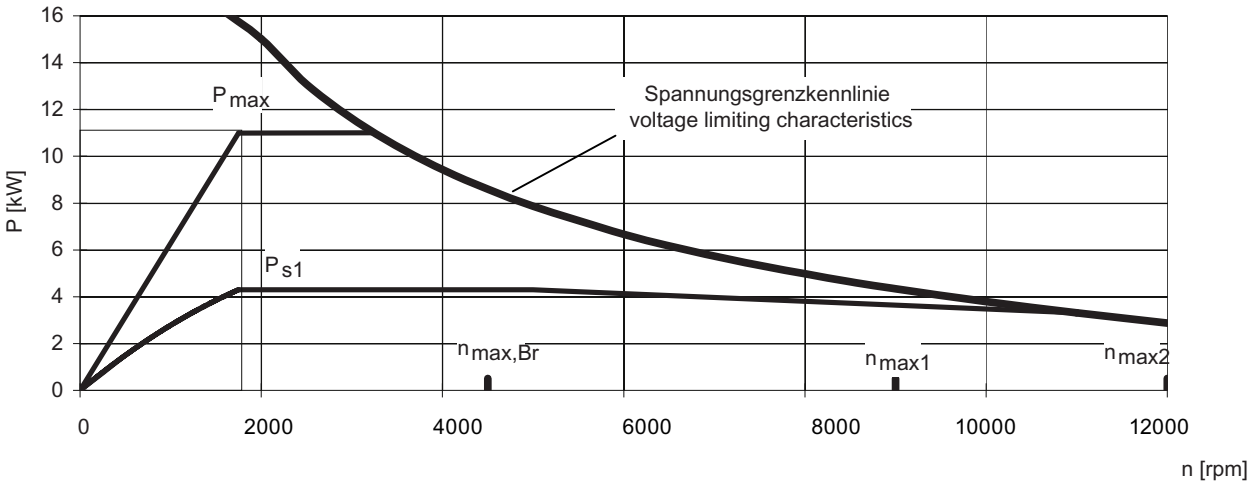


Table 4- 47 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	4.3	23	12.5	9000	12000	-	4500	5000	60	32	29	14
1500	3.7	24	12.5					8350				



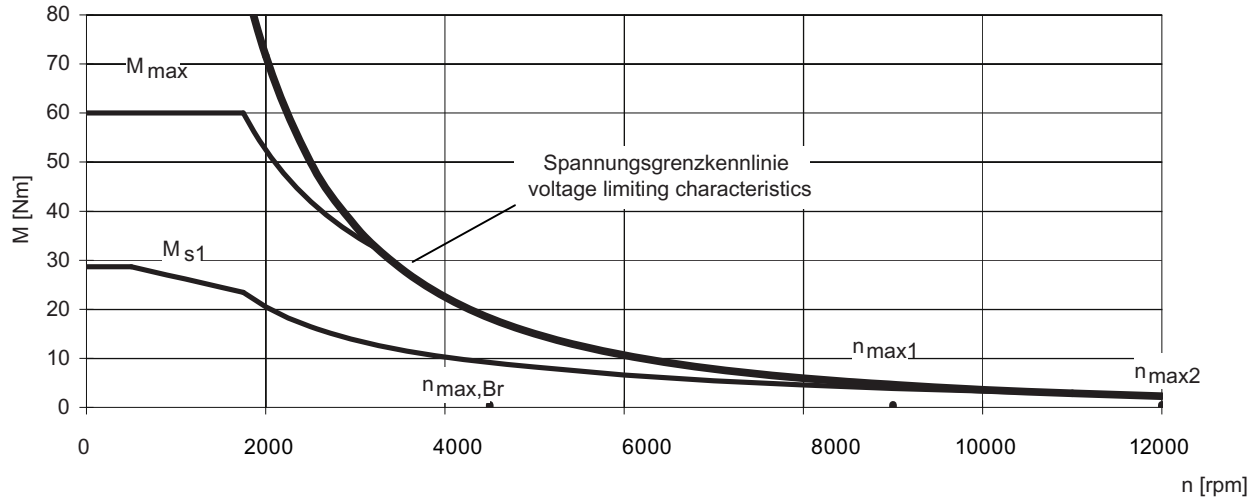


Table 4- 48 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8101-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.7	22	12.5	9000	12000	-	4500	7500	60	32	29	14

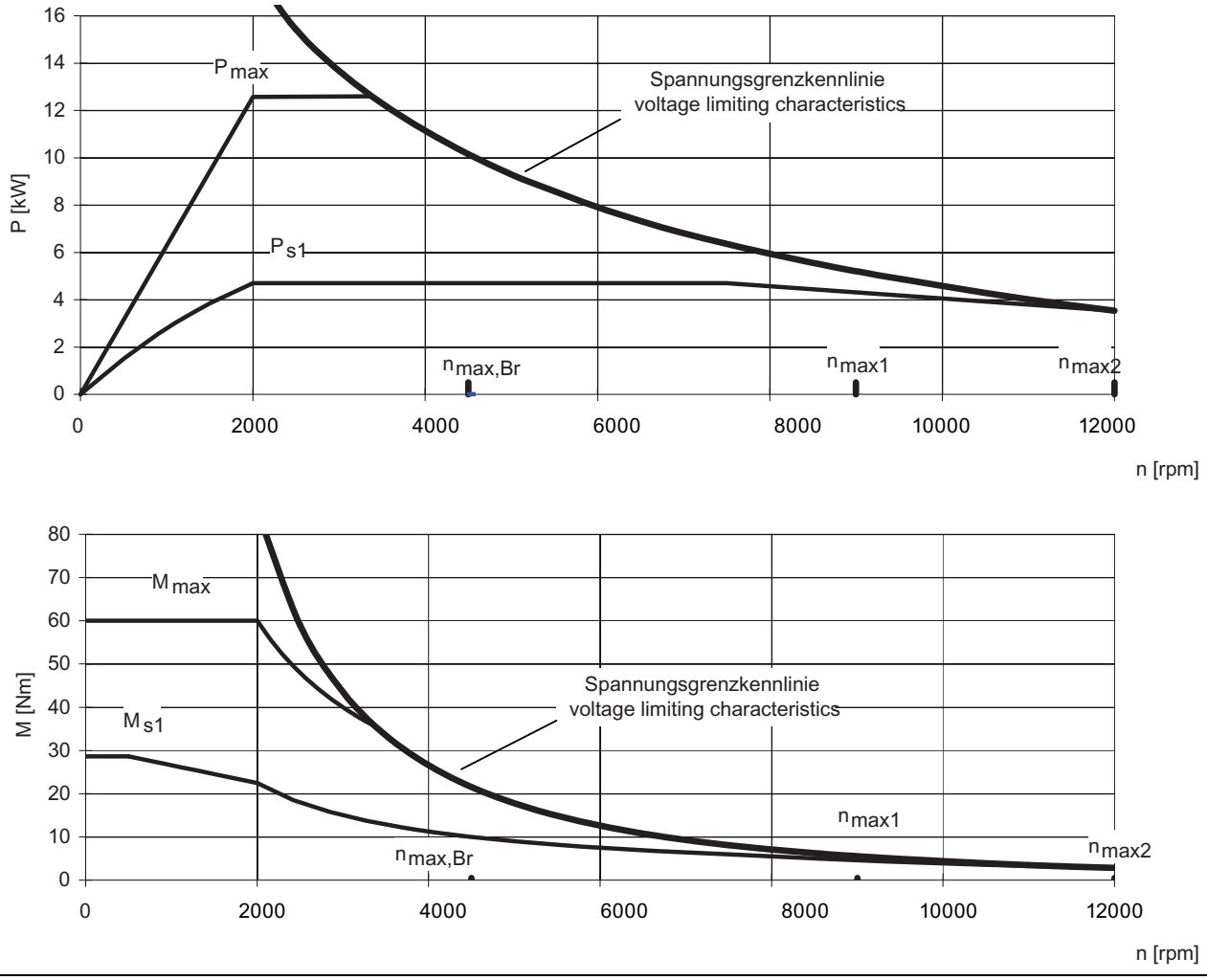


Table 4- 49 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	3.7	9	13.5	9000	12000	18000	5000	10500	30	45	19	20

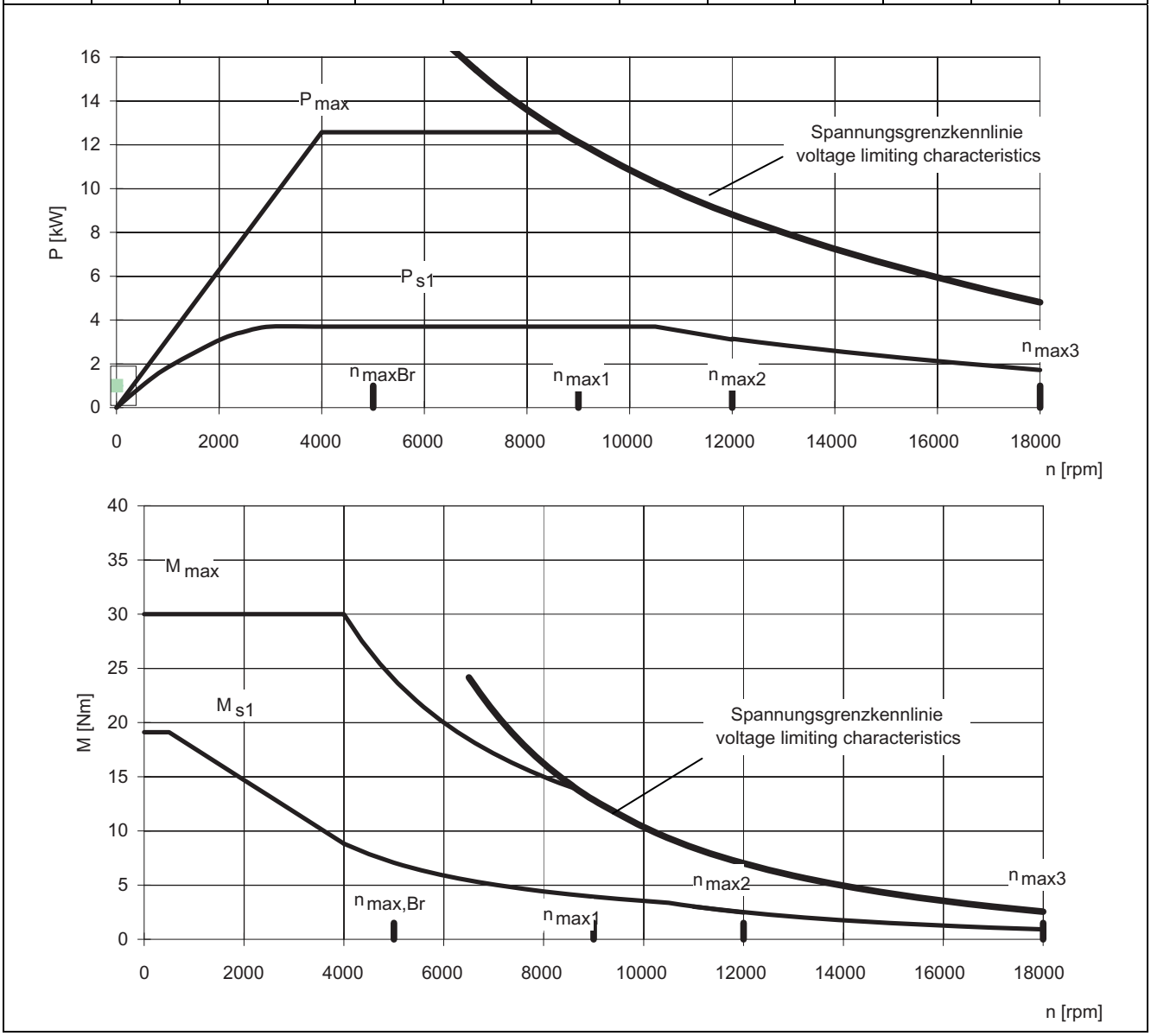


Table 4- 50 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	4.9	9	13.5	9000	12000	18000	5000	10000	30	45	19	20
4000	3.7	9	13.5					13000				

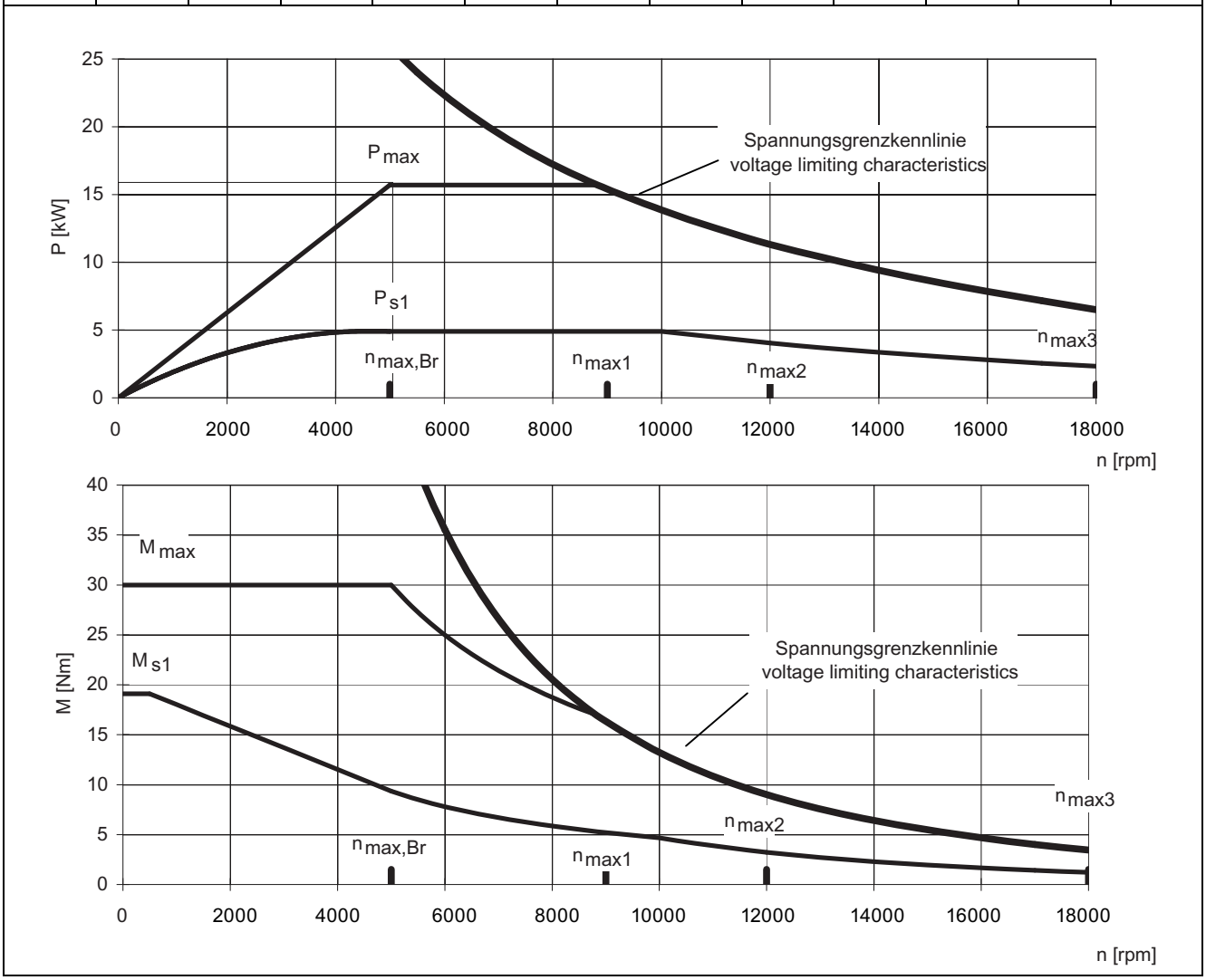
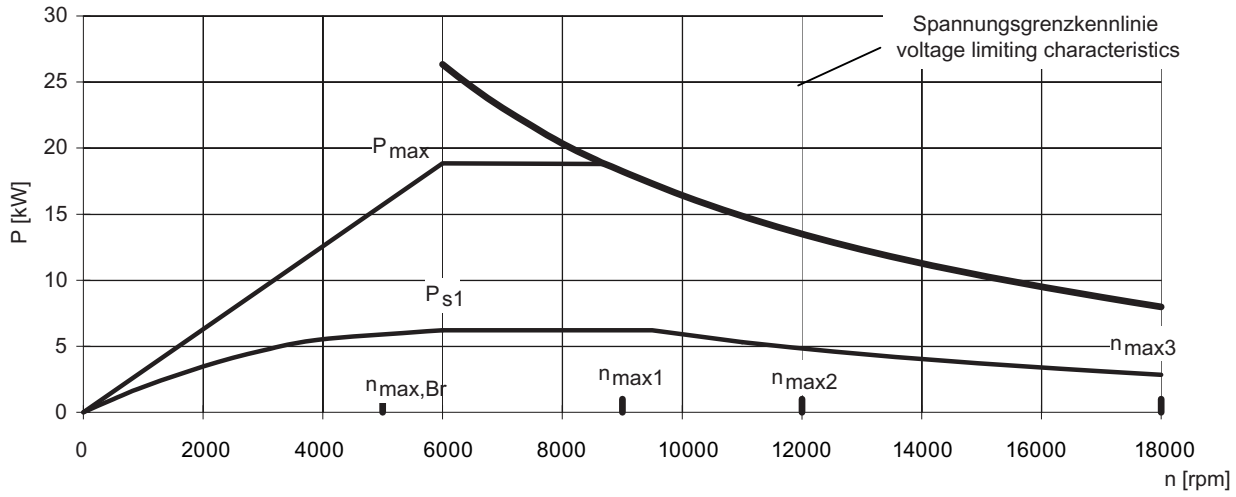


Table 4- 51 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8101-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	6.2	10	13.0	9000	12000	18000	5000	9500	30	45	19	20



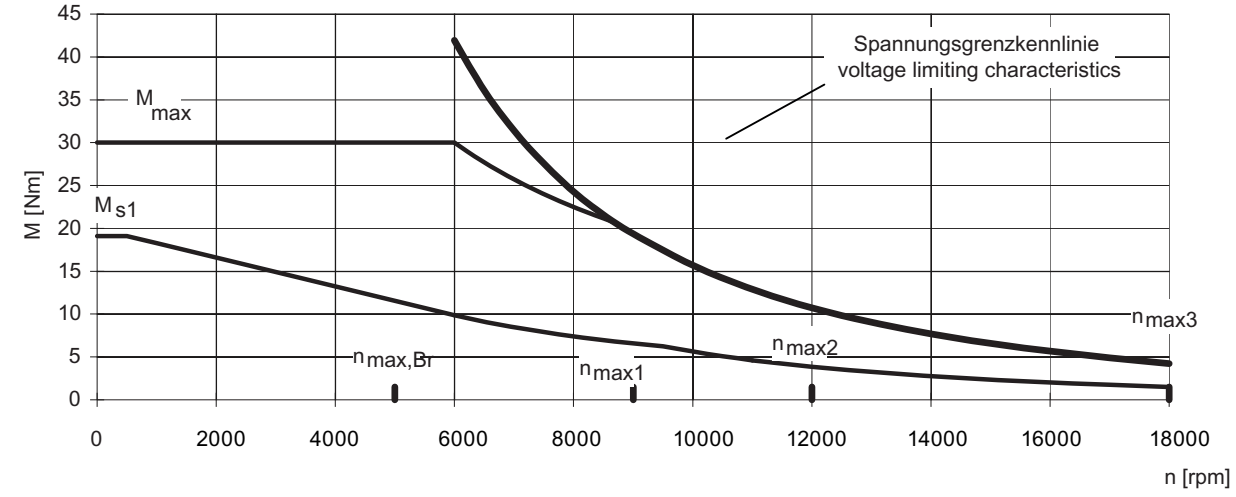


Table 4- 52 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	3.7	24	13.2	9000	12000	-	5000	9100	60	34	29	15

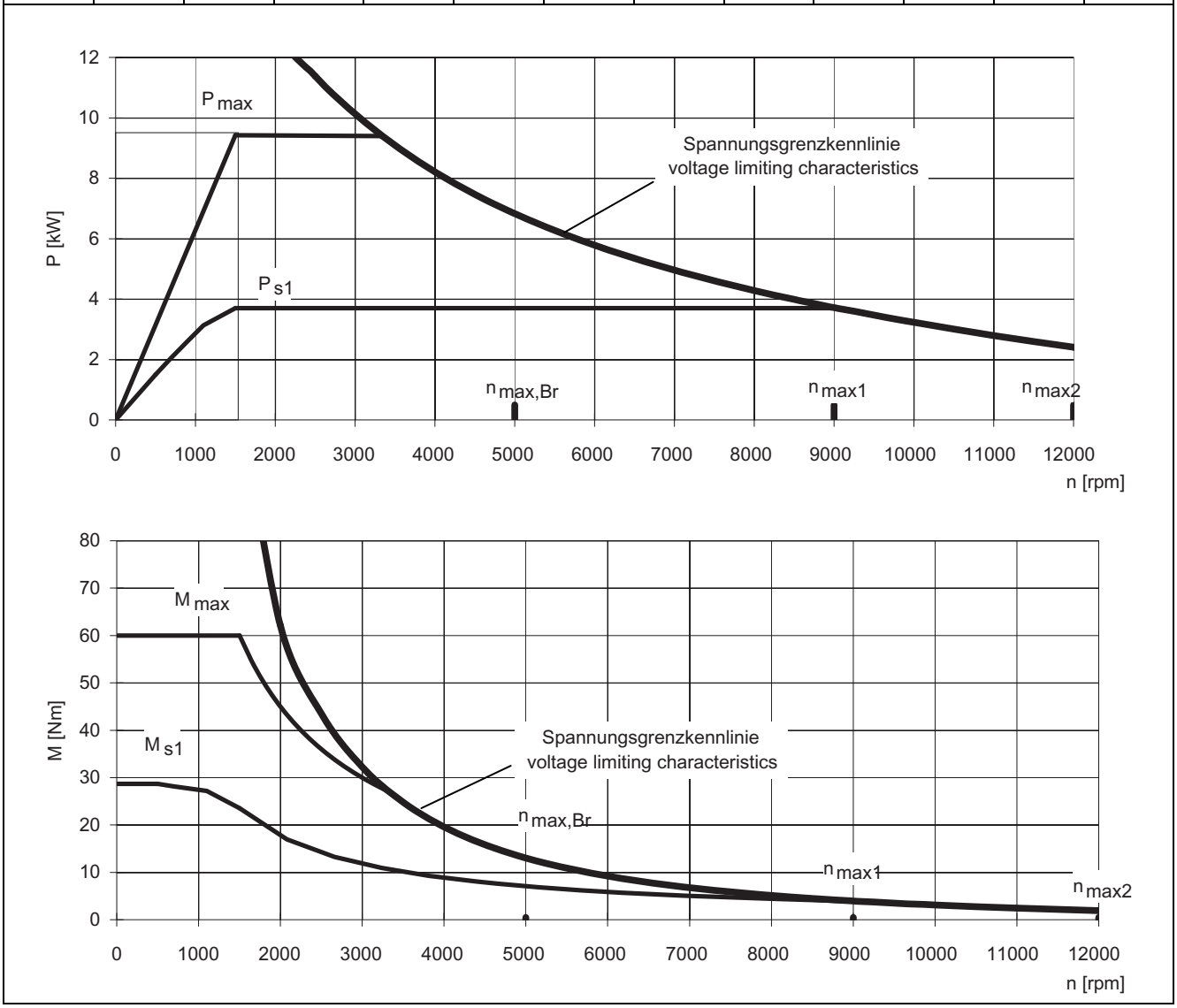
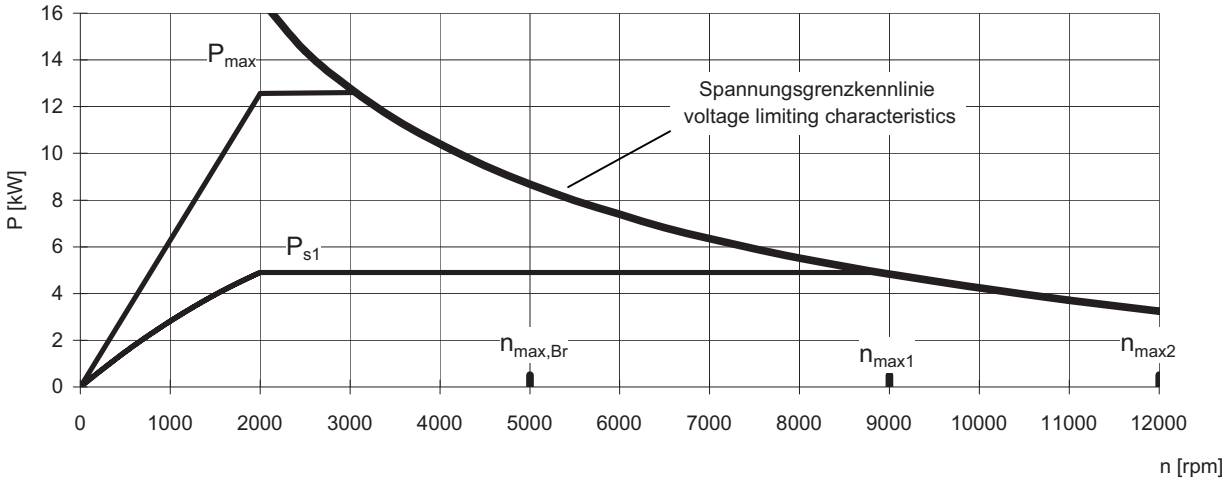


Table 4- 53 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.9	23	13.2	9000	12000	-	5000	8950	60	34	29	15
1500	3.7	24	13.2					11100				



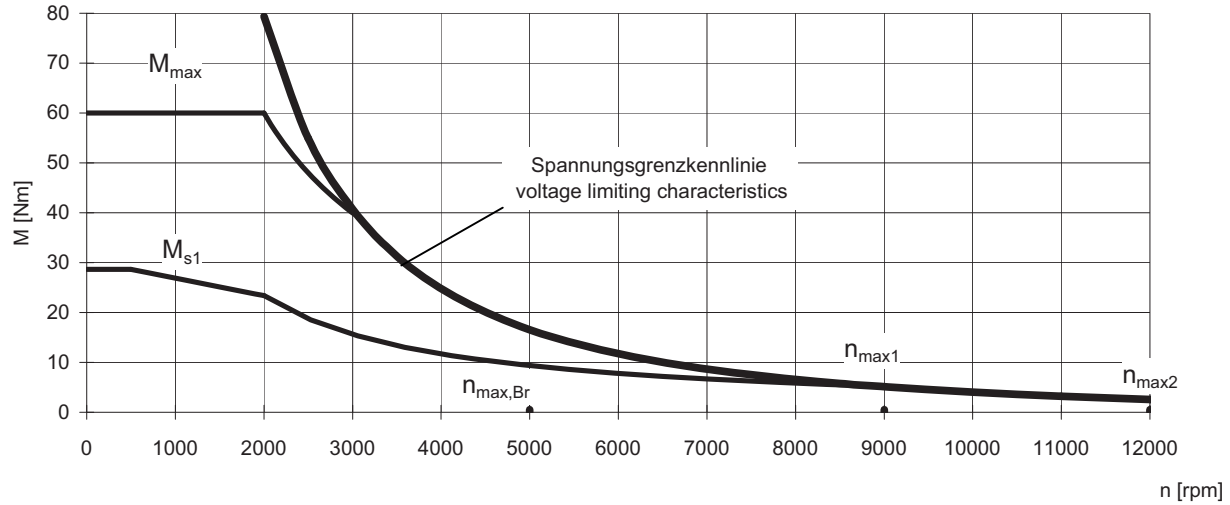
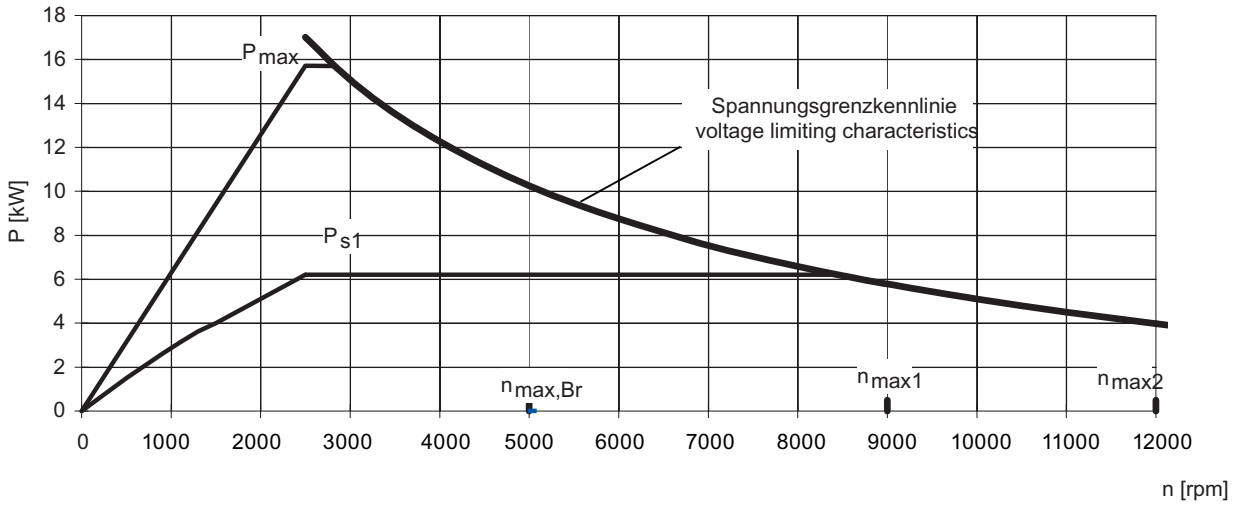


Table 4- 54 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8101-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	6.2	24	13.2	9000	12000	-	5000	8500	60	34	29	15



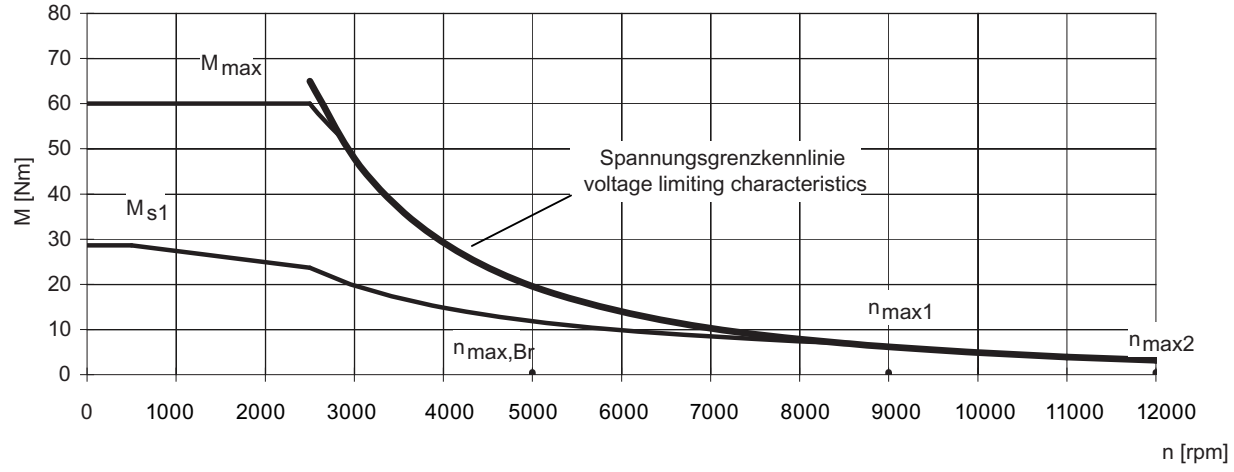
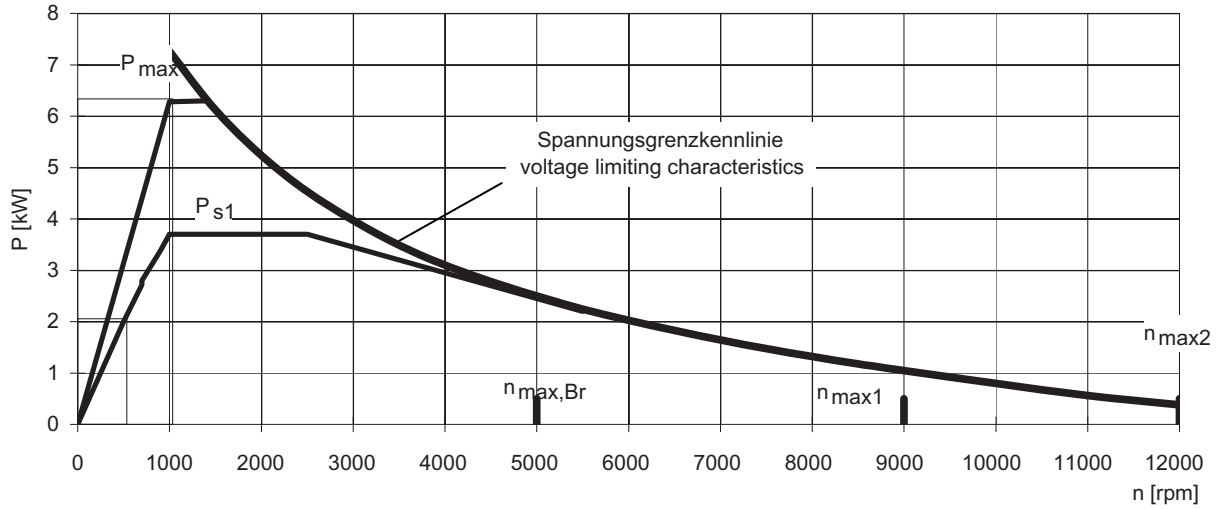


Table 4- 55 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	3.7	35	10.0	9000	12000	-	5000	2550	60	17	38	11



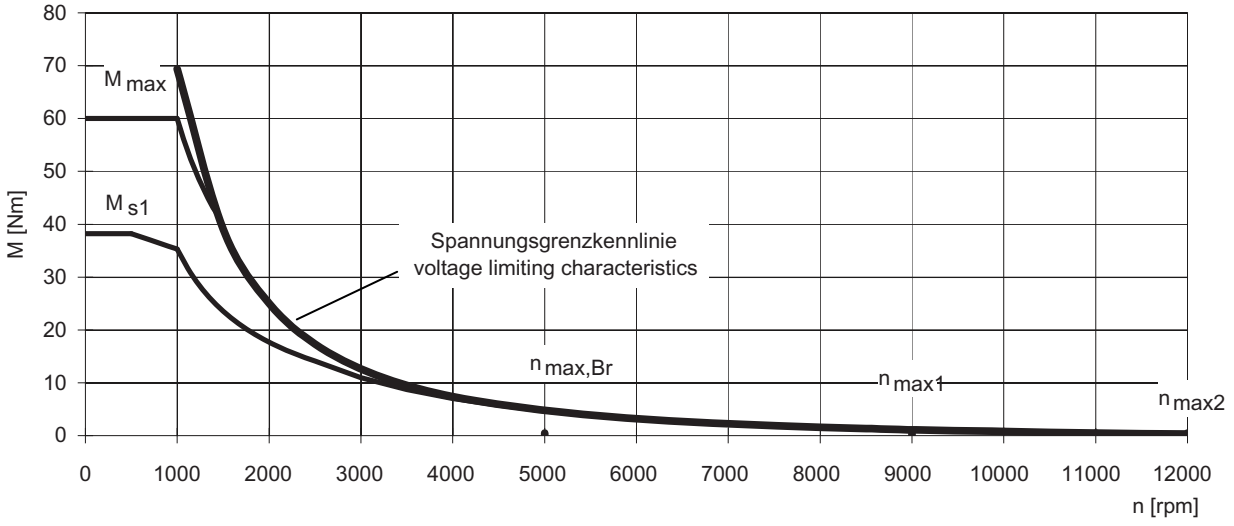
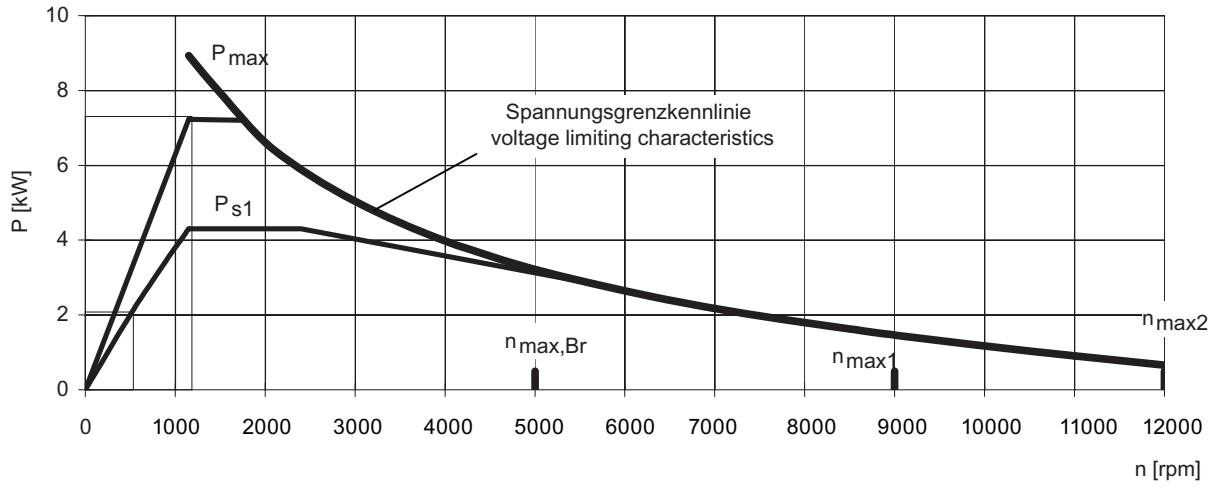


Table 4- 56 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	4.3	36	10.0	9000	12000	-	5000	2450	60	17	38	11
1000	3.7	35	10.0					3800				



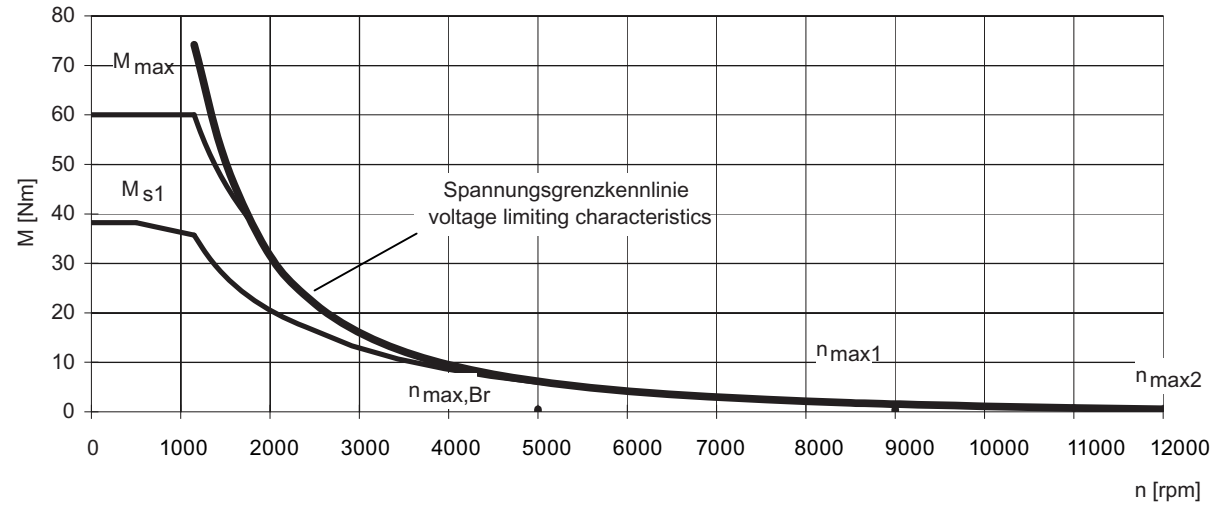
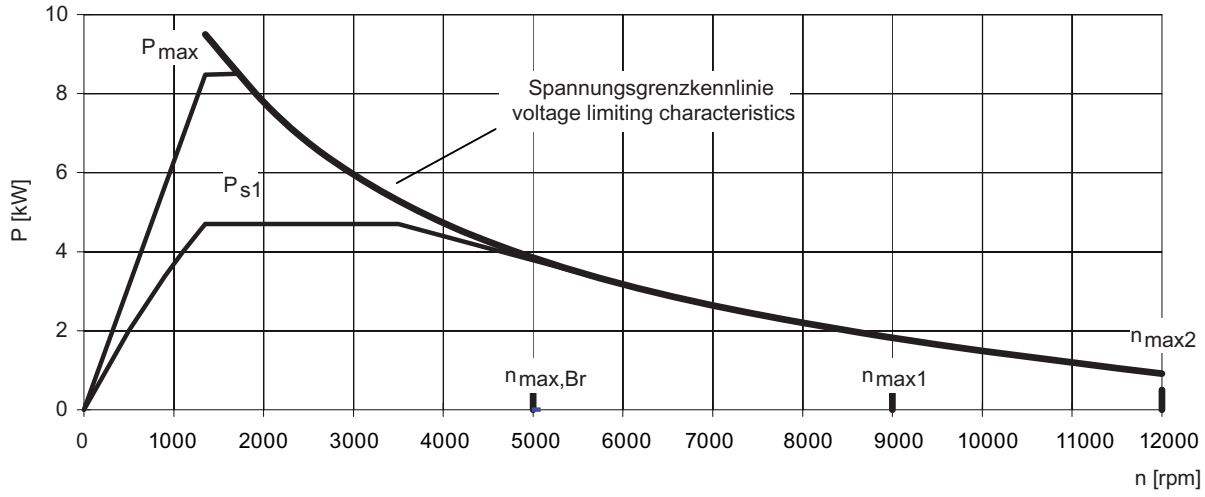


Table 4- 57 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	4.7	33	9.7	9000	12000	-	5000	3500	60	17	38	11



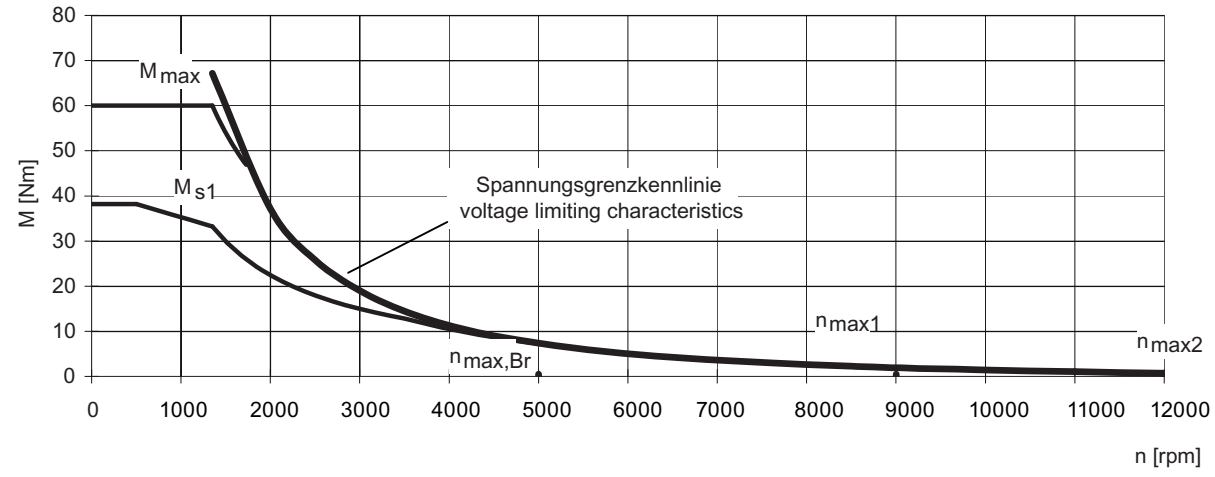


Table 4- 58 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	5.5	35	13.5	9000	12000	-	5000	4200	60	23	38	14

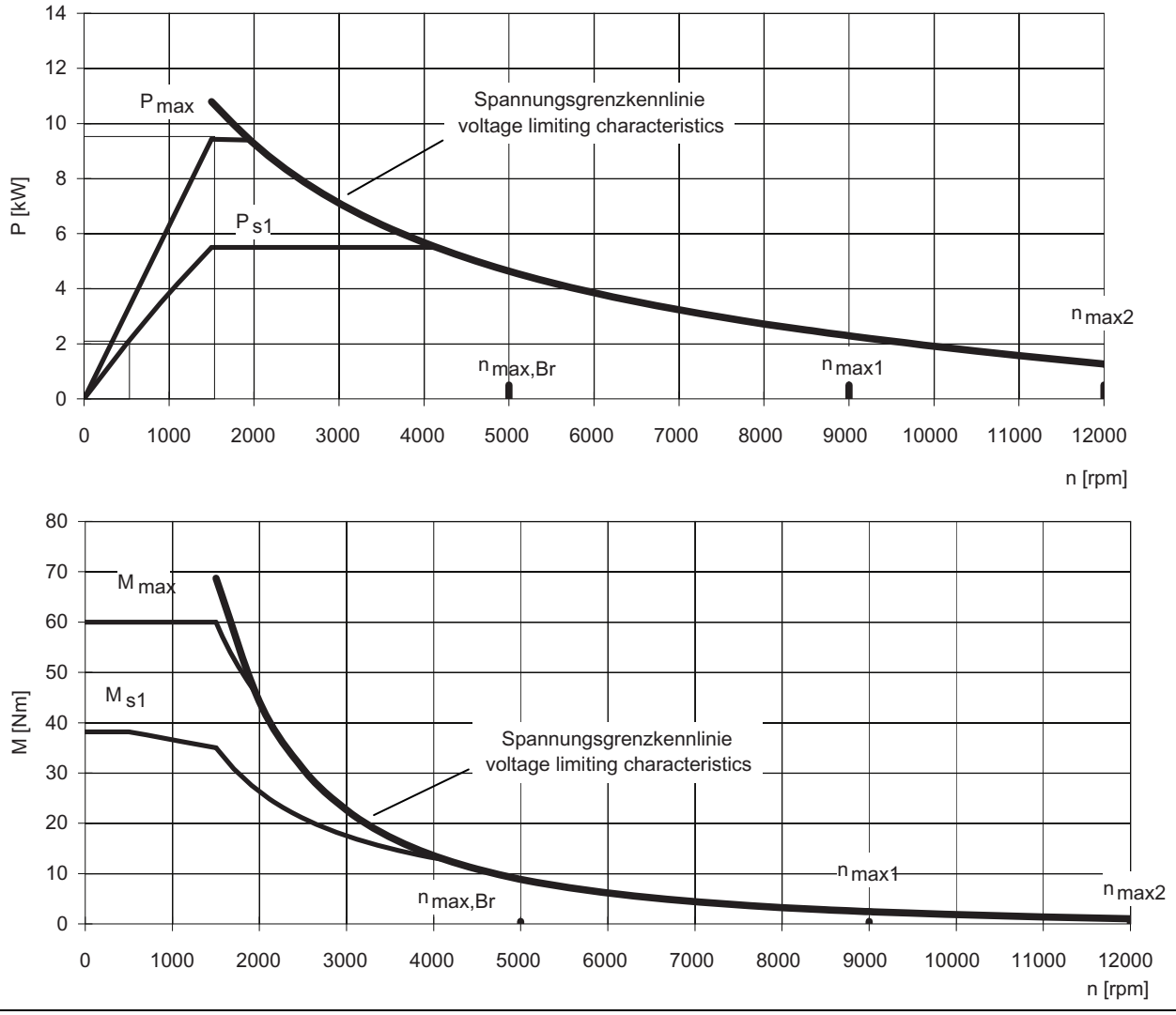
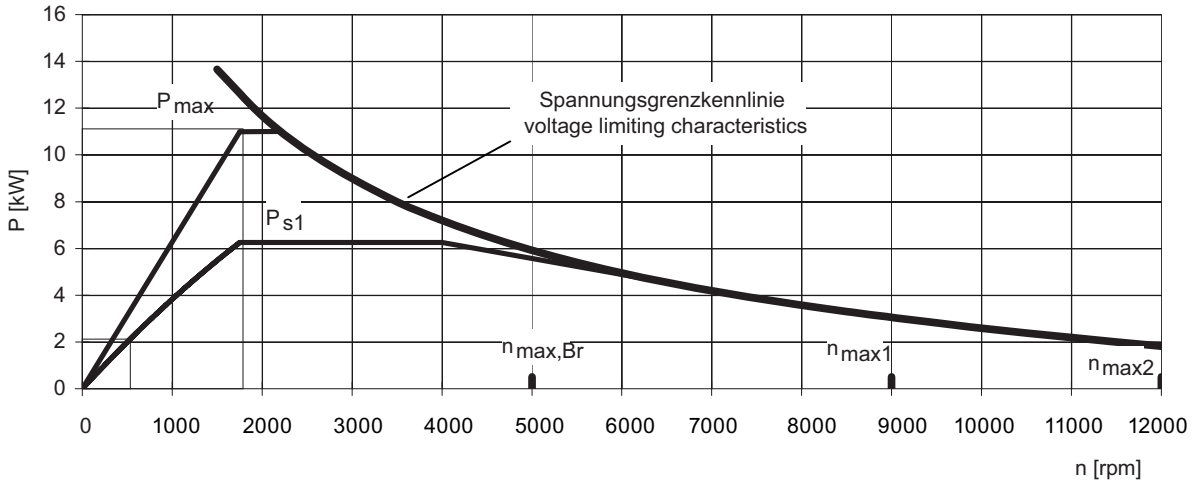


Table 4- 59 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	6.3	34	13.1	9000	12000	-	5000	4000	60	23	38	14
1500	5.5	35	13.5					5200				



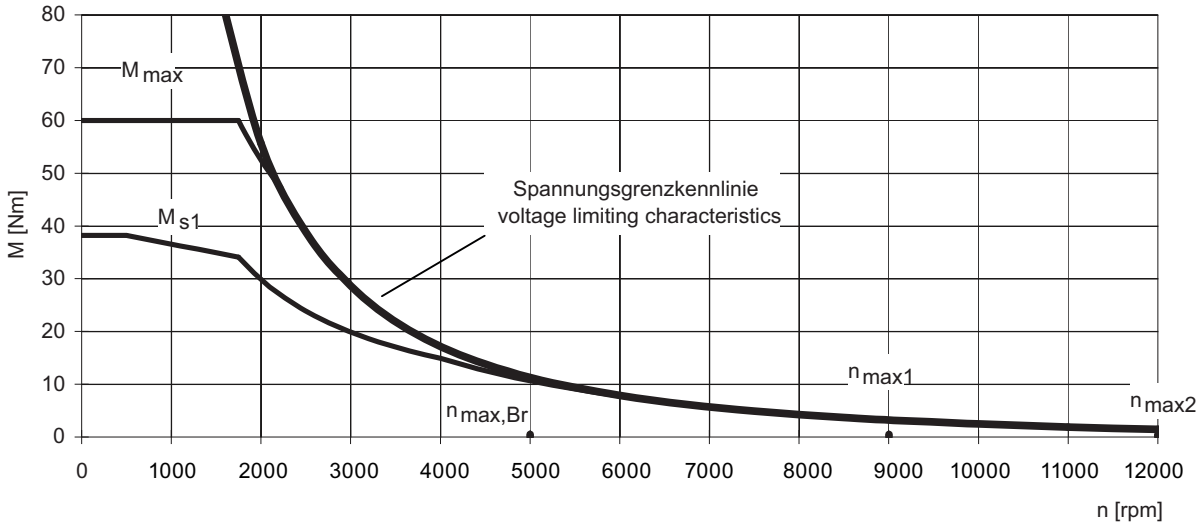
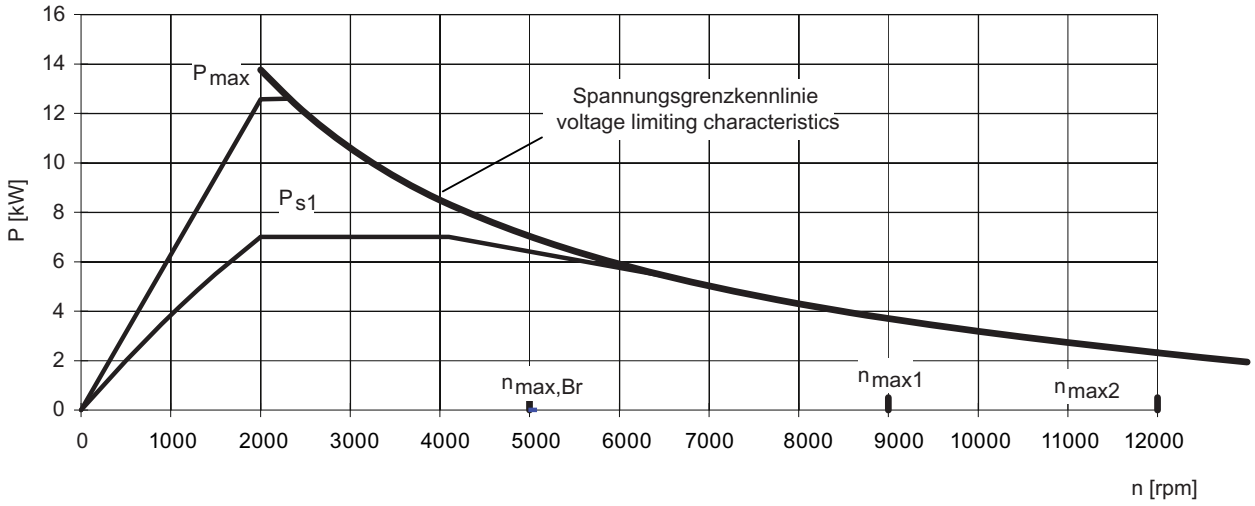


Table 4- 60 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	7.0	33	12.7	9000	12000	-	5000	4100	60	23	38	14



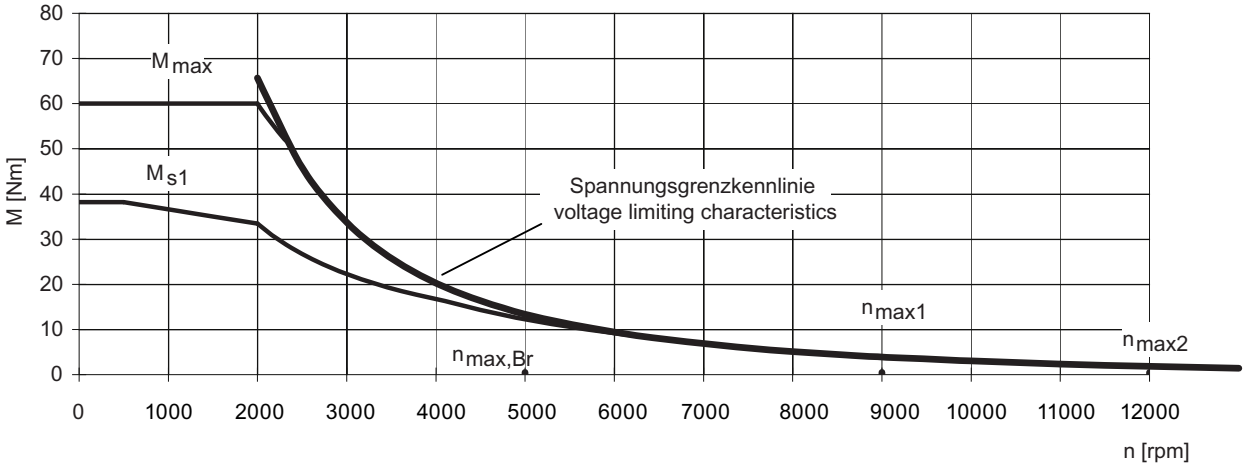
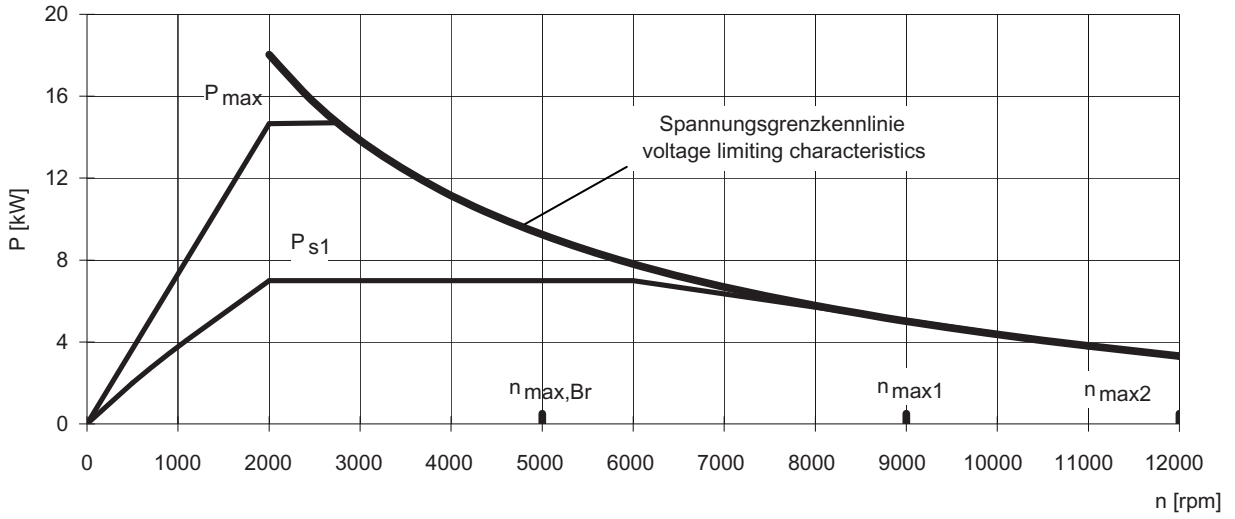


Table 4- 61 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	7.0	33	17.5	9000	12000	-	5000	6000	70	38	38	19



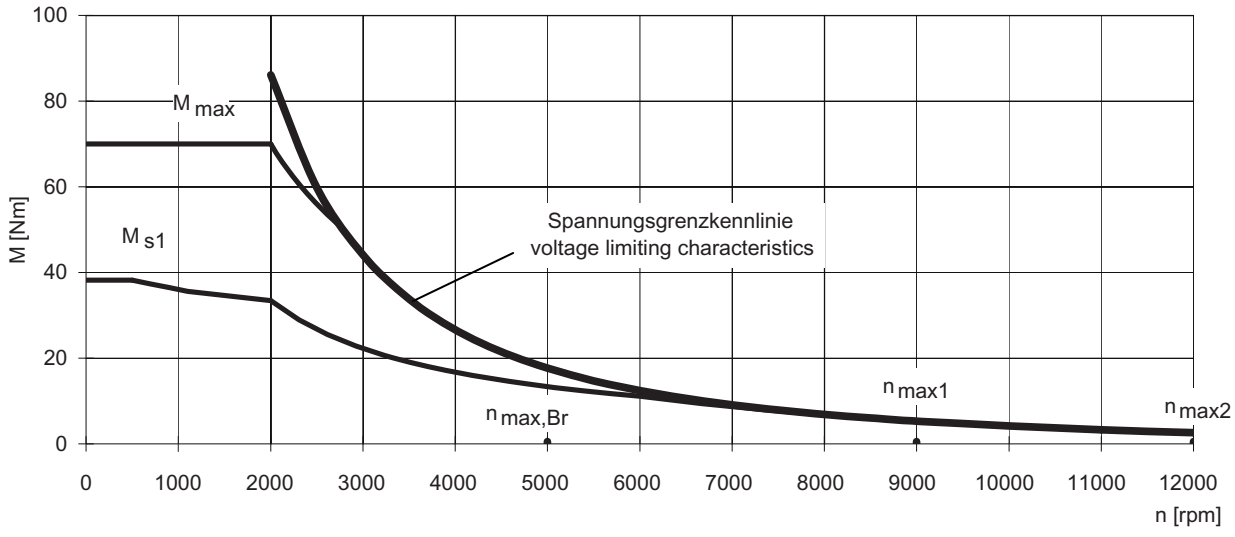
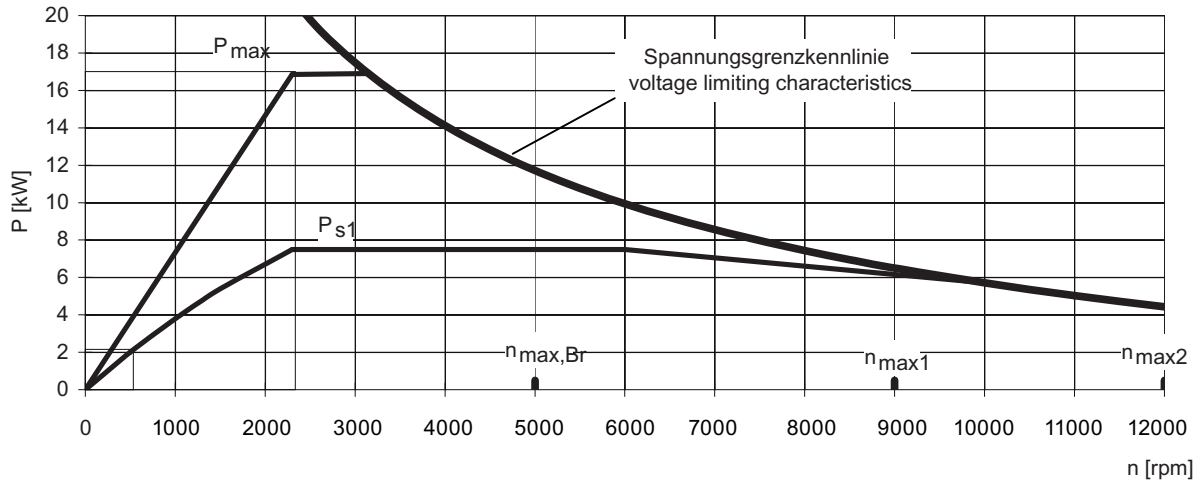


Table 4- 62 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	7.5	31	17.0	9000	12000	-	5000	6000	70	38	38	19
2000	7.0	33	17.5					7200				



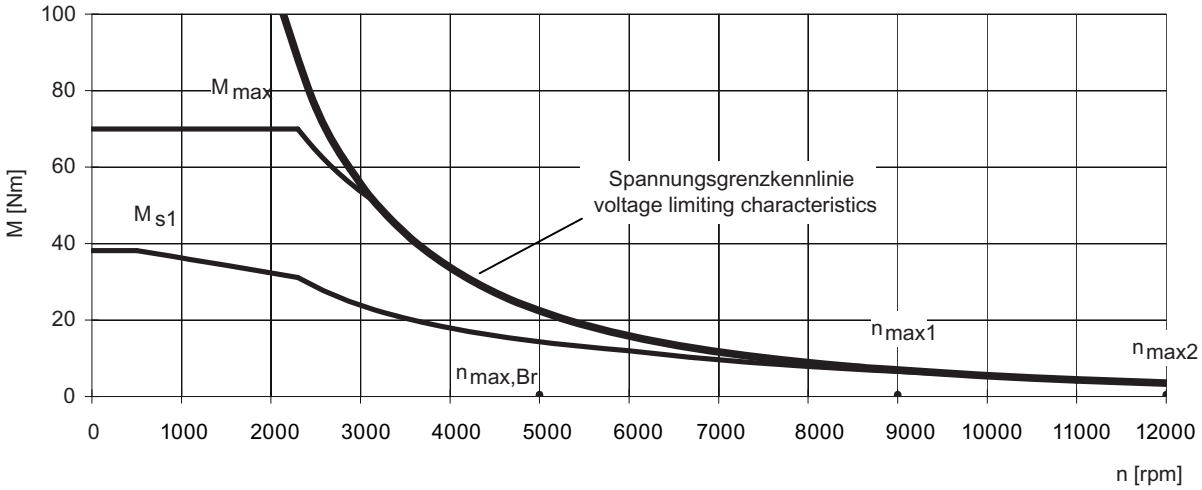


Table 4- 63 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	8.0	29	16.0	9000	12000	-	5000	7500	70	38	38	19

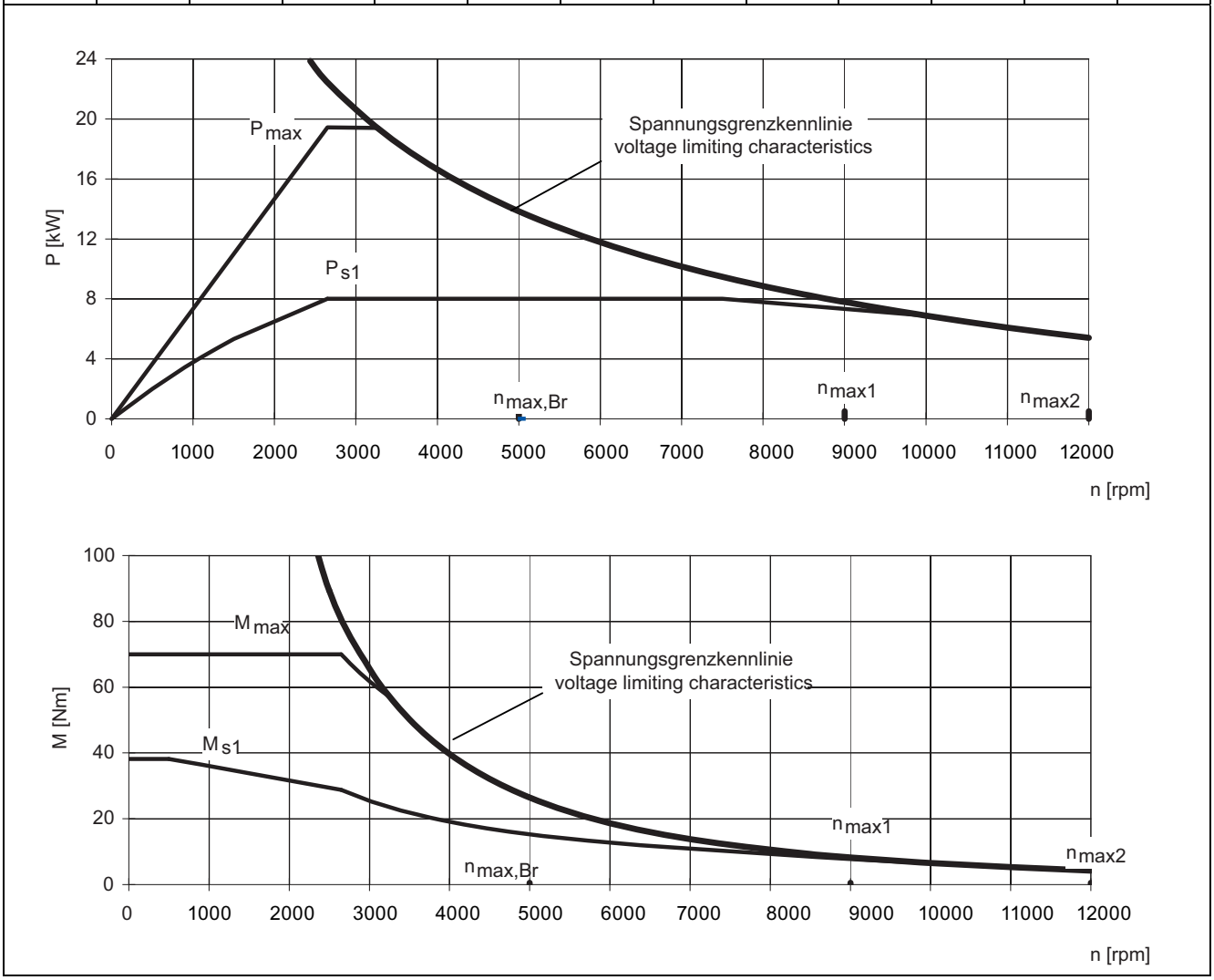


Table 4- 64 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	8.4	27	25.7	9000	12000	18000	5000	14250	100	93	38	31

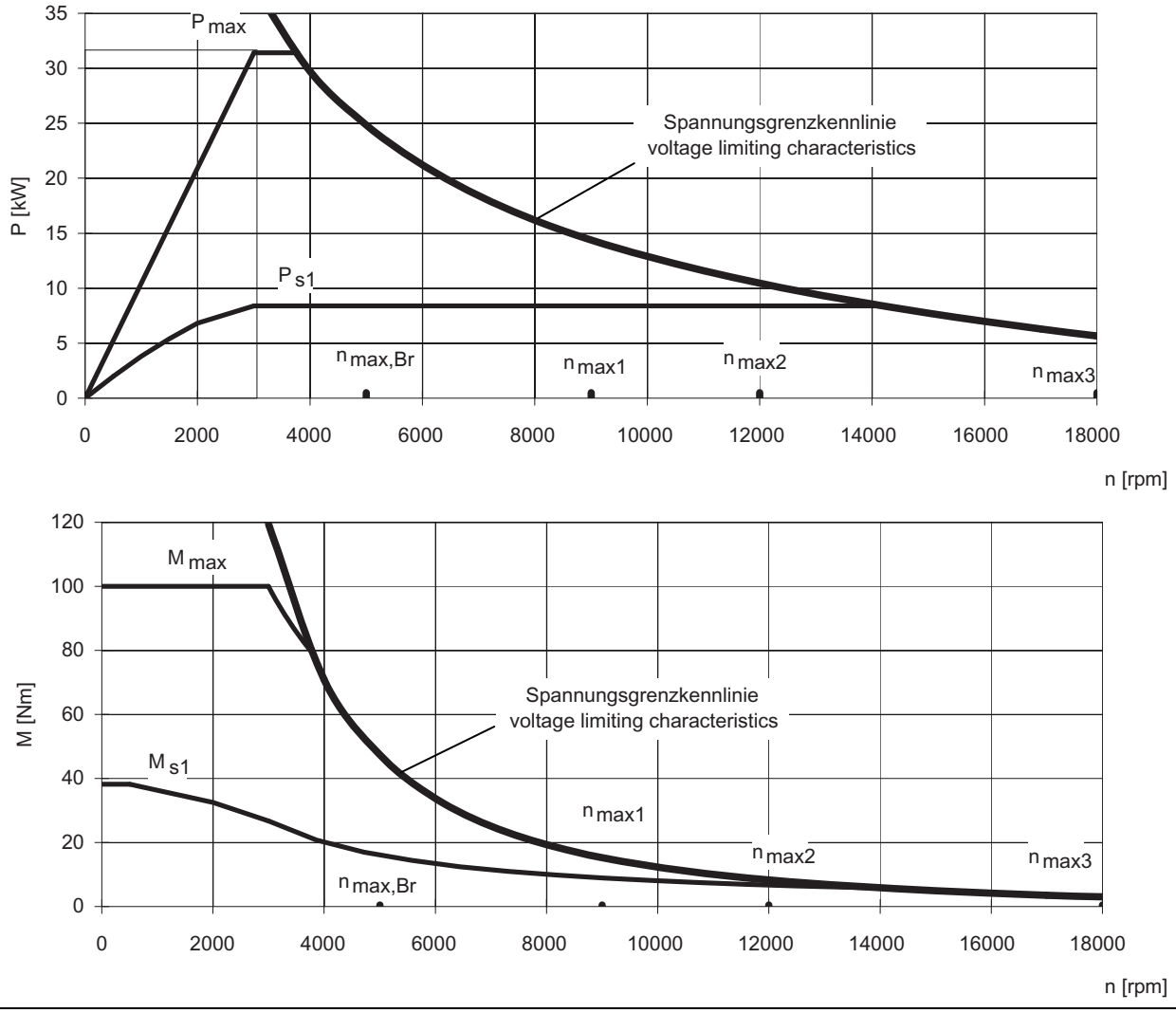
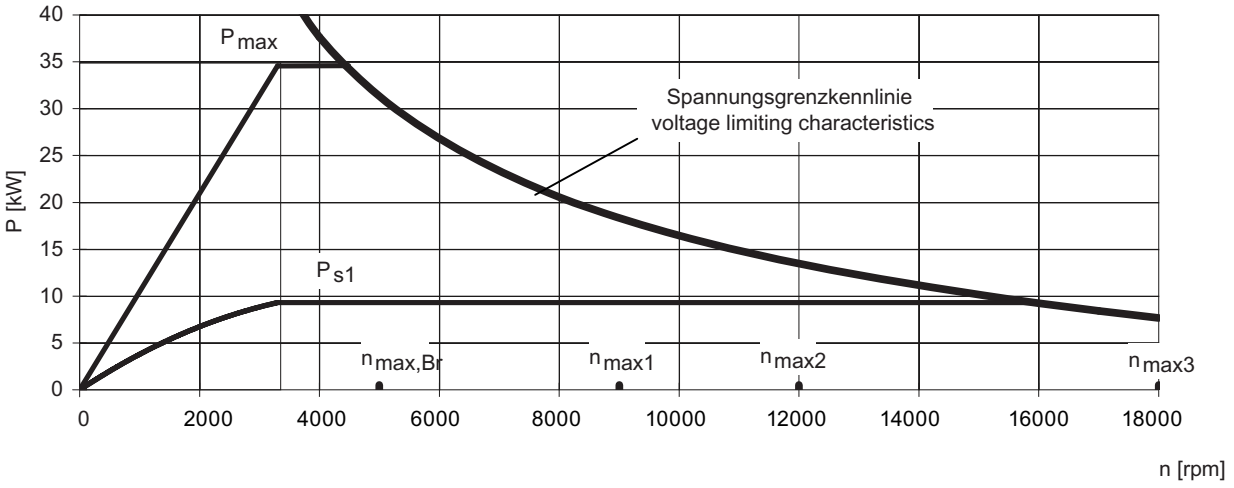


Table 4- 65 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	9.3	27	25.7	9000	12000	18000	5000	16000	100	93	38	31
3000	8.4	27	25.7					17100				



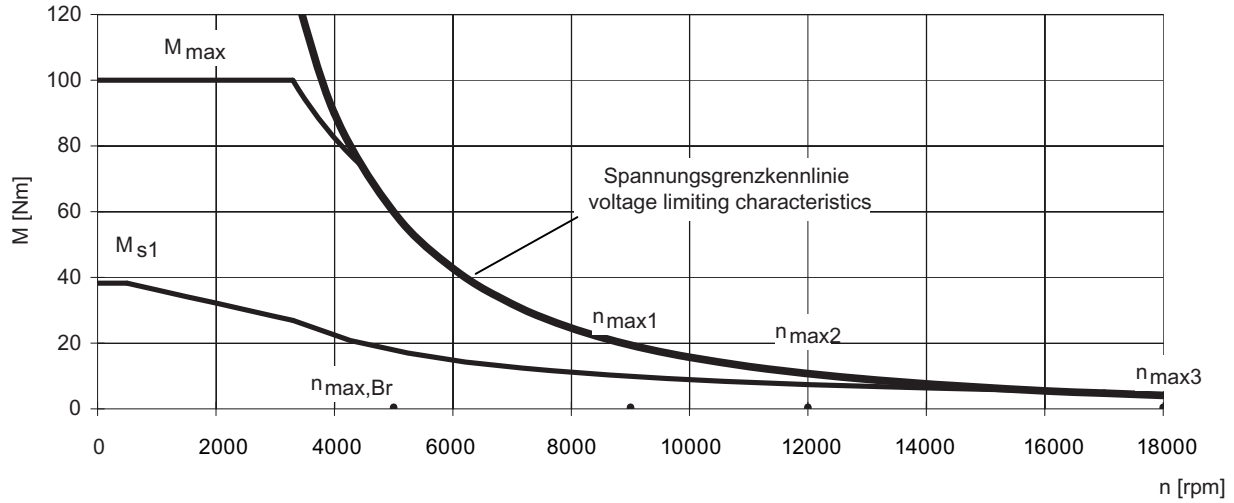
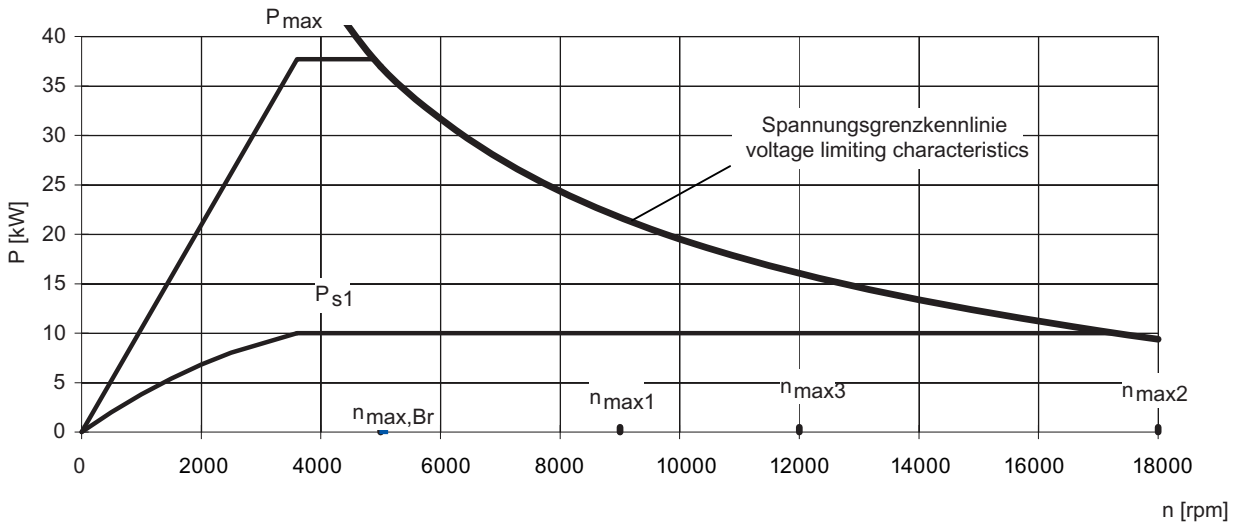


Table 4- 66 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	10.0	27	25.4	9000	12000	18000	5000	17650	100	93	38	31



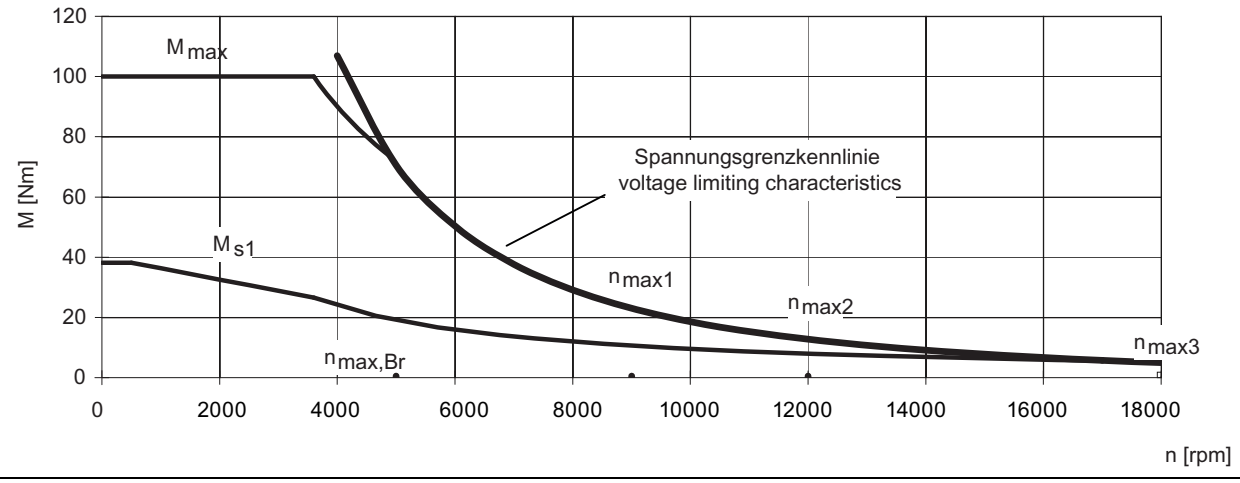


Table 4- 67 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	7,0	45	17,5	9000	12000	-	5000	5250	95	38	52	20

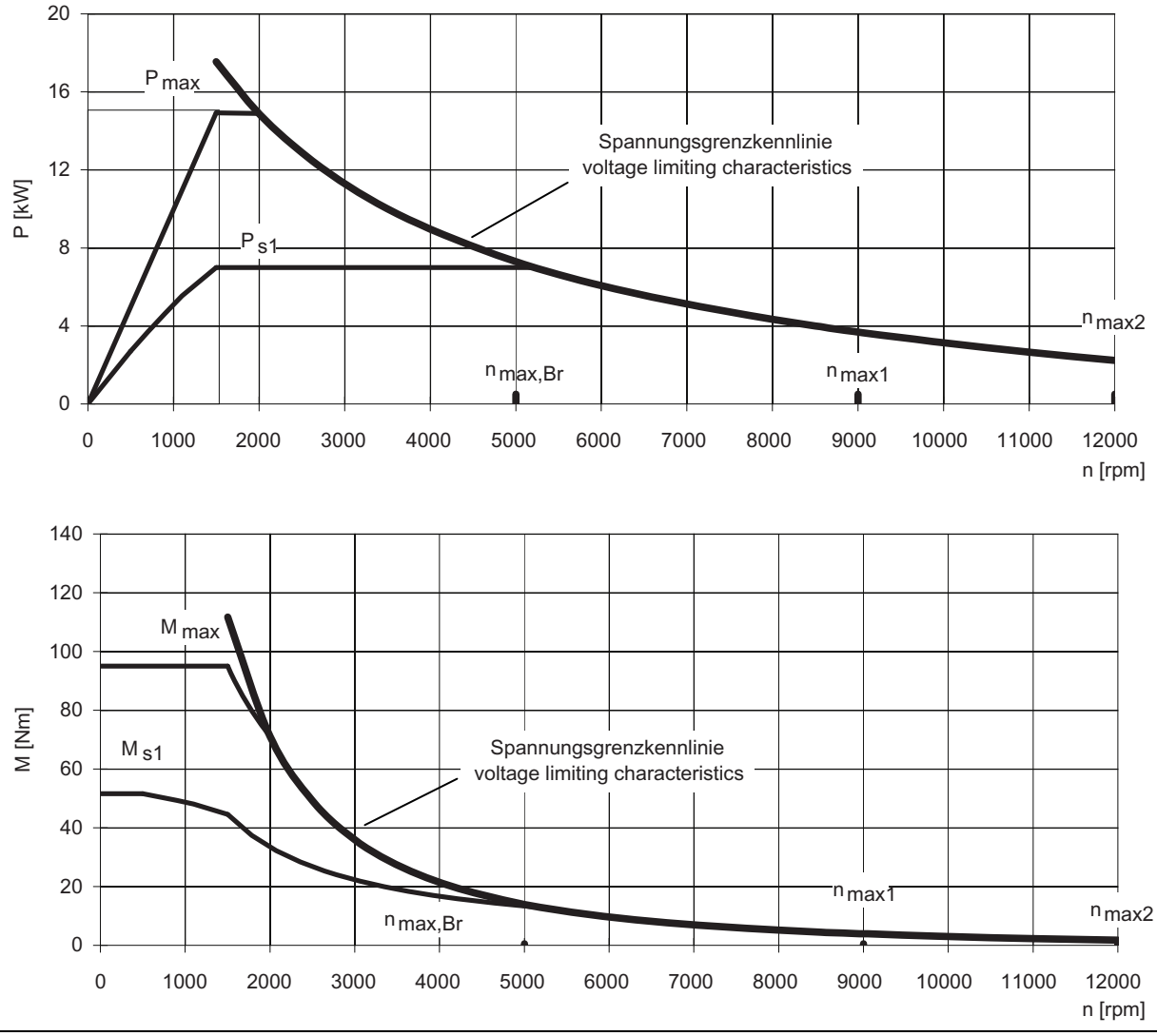
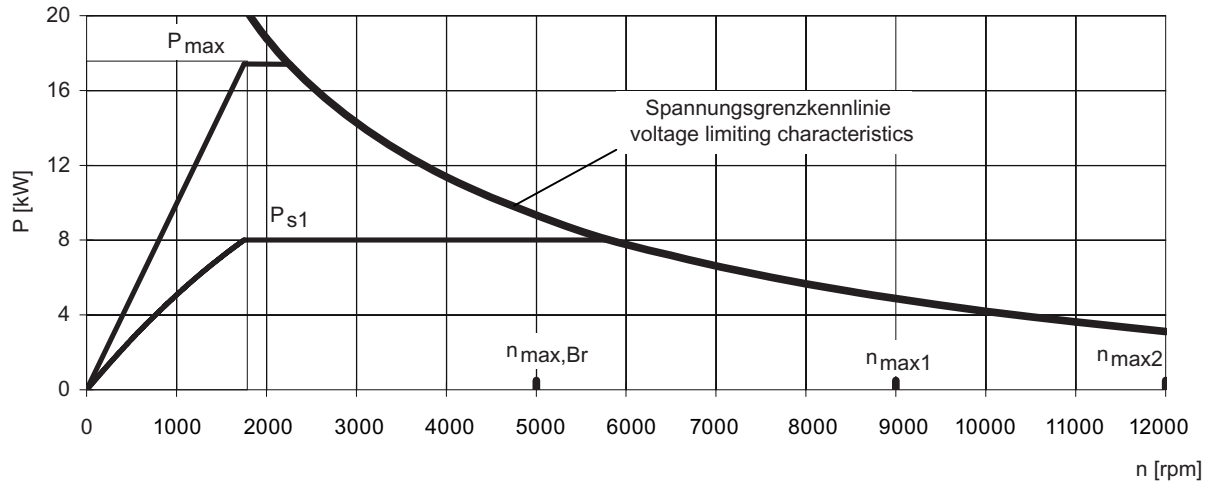


Table 4- 68 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	8,0	44	17,5	9000	12000	-	5000	5900	95	38	52	20
1500	7,0	45	17,5					6700				



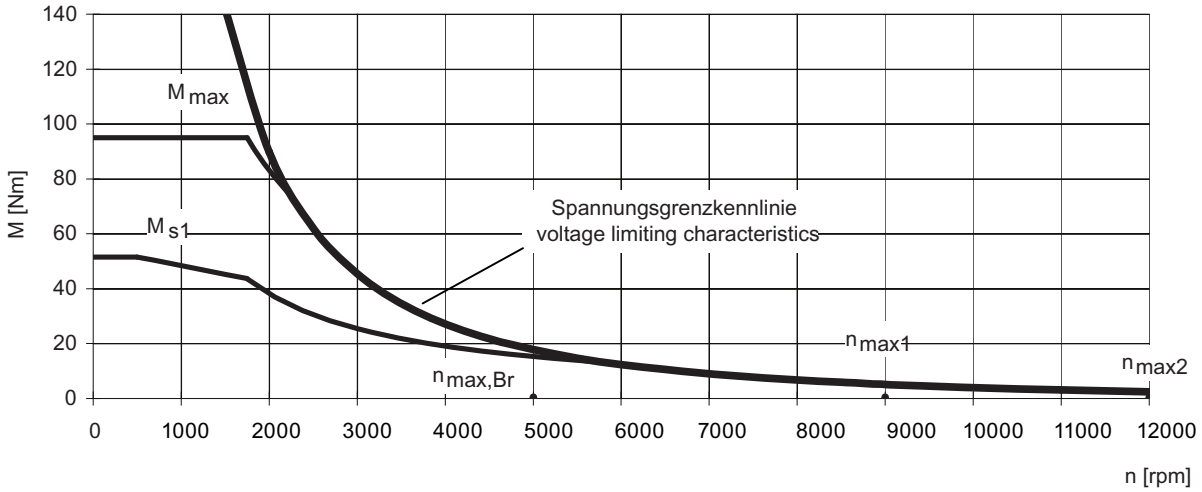
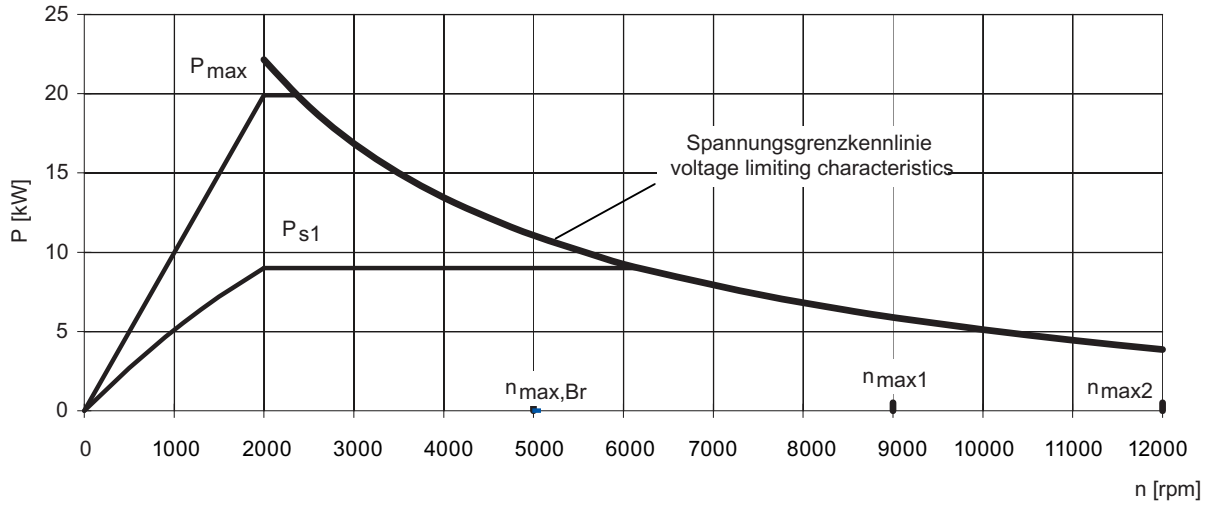


Table 4- 69 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	9,0	43	17,0	9000	12000	-	5000	6181	95	38	52	20



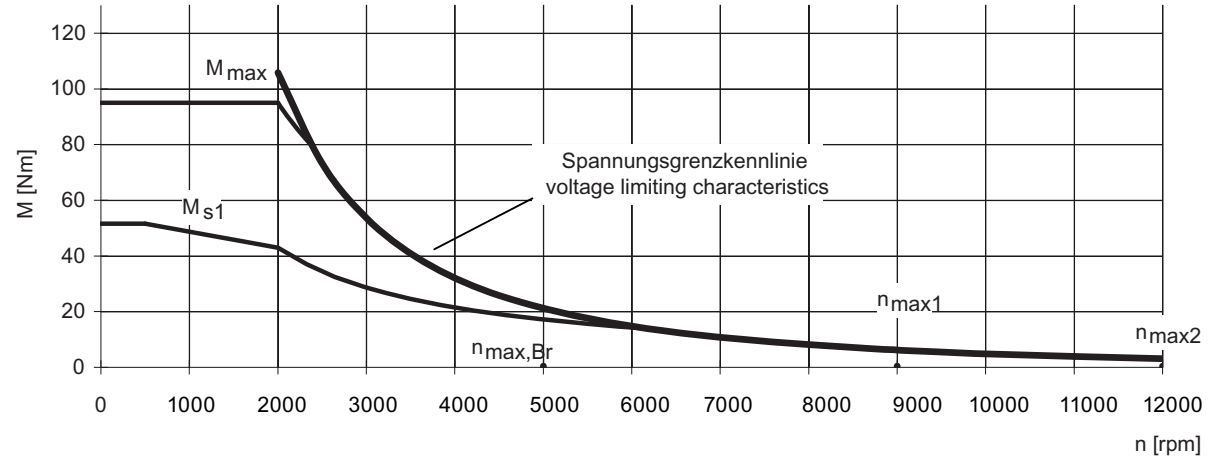
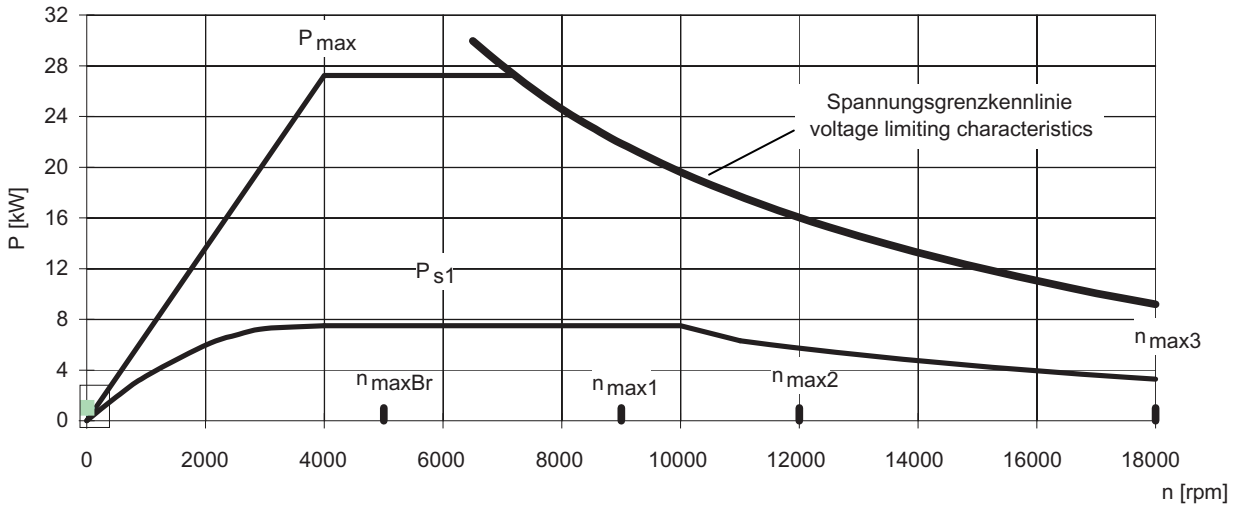


Table 4- 70 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	7,5	18	24	9000	12000	18000	5000	10000	65	86	36	35



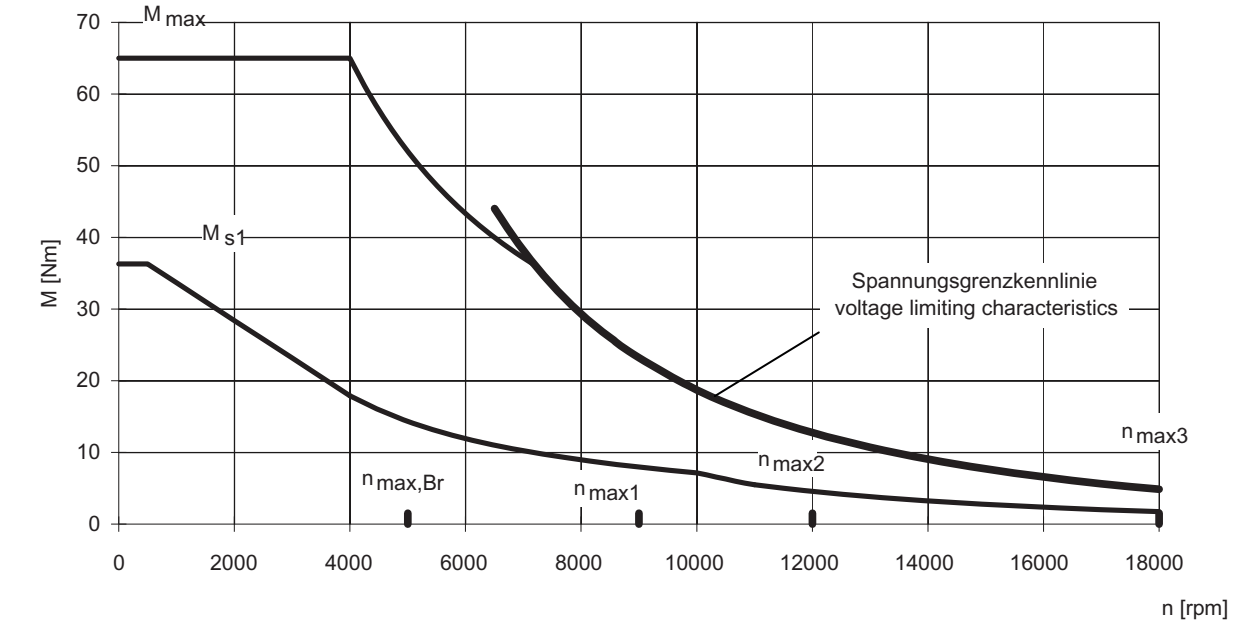
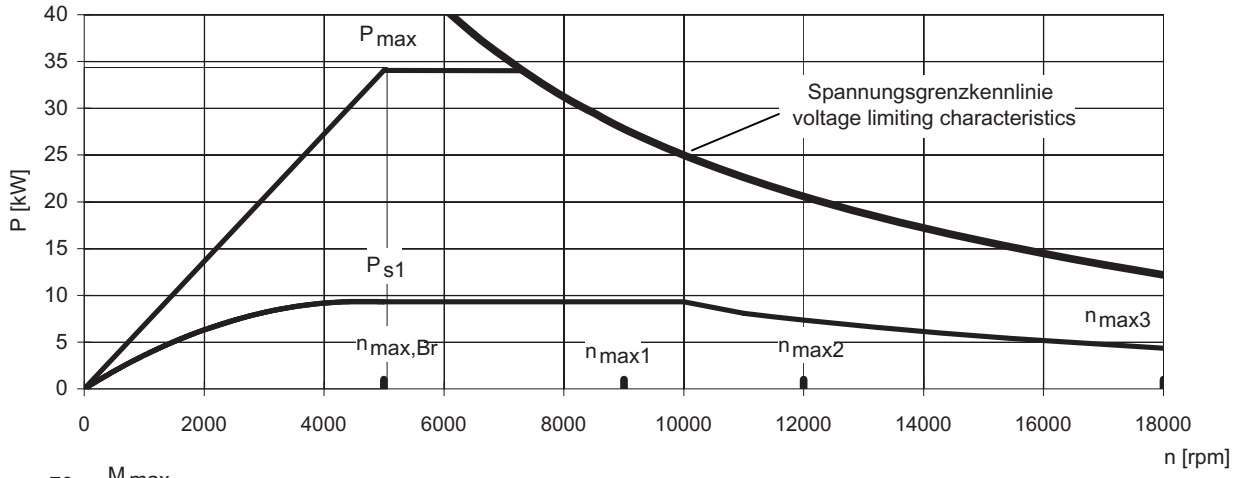


Table 4- 71 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	9,3	18	24	9000	12000	18000	5000	10000	65	86	36	34
4000	7,5	18	24					11500				



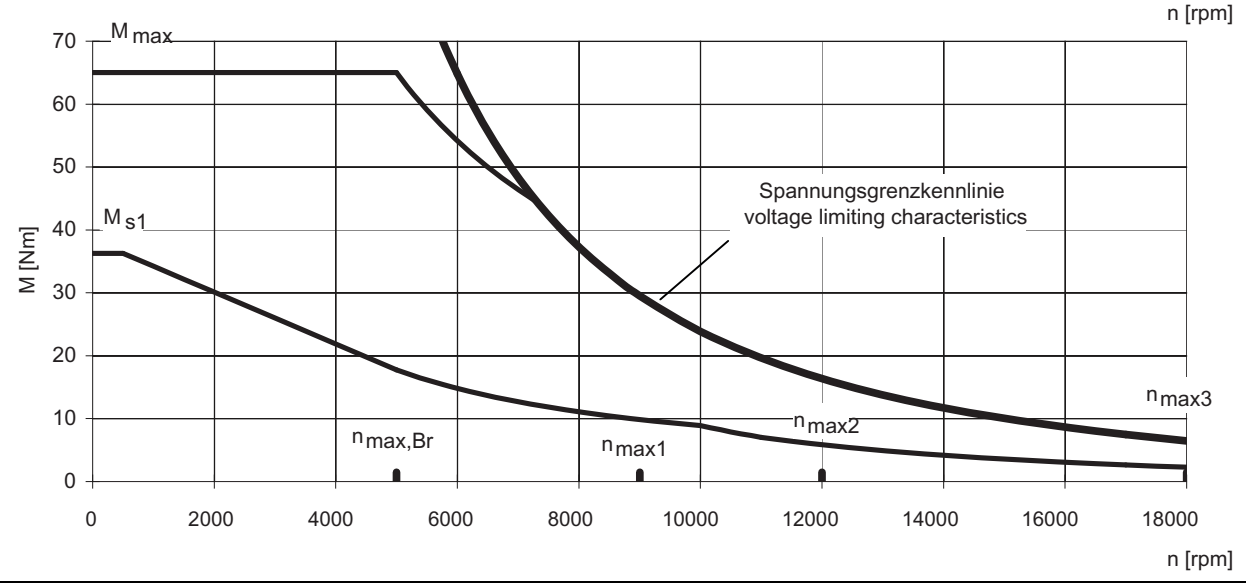
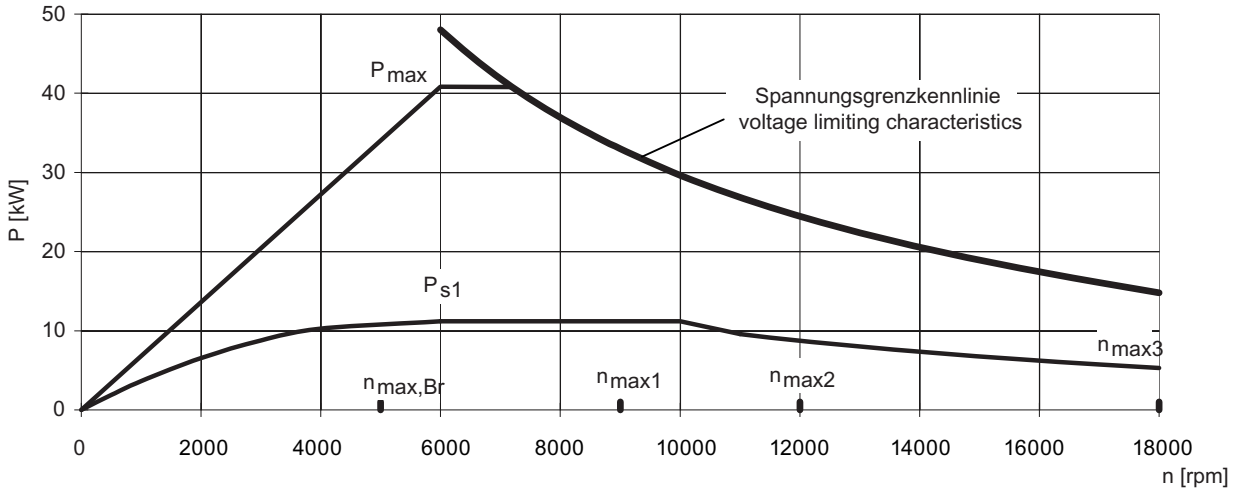


Table 4- 72 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	11,2	18	22	9000	12000	18000	5000	10000	65	86	36	35



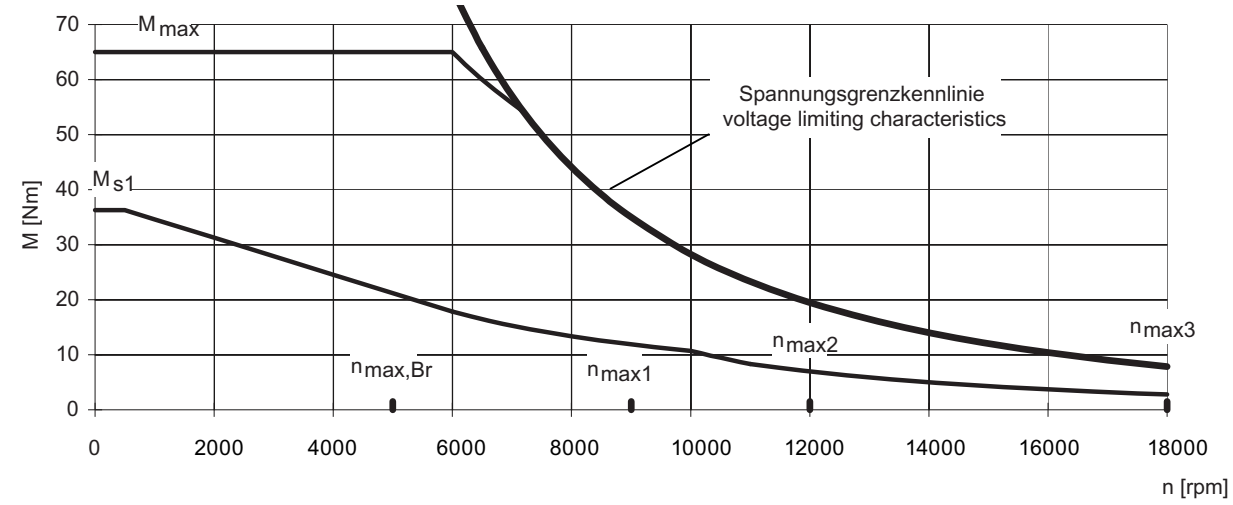


Table 4- 73 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	7,5	48	23,0	9000	12000	-	5000	7900	100	46	55	25

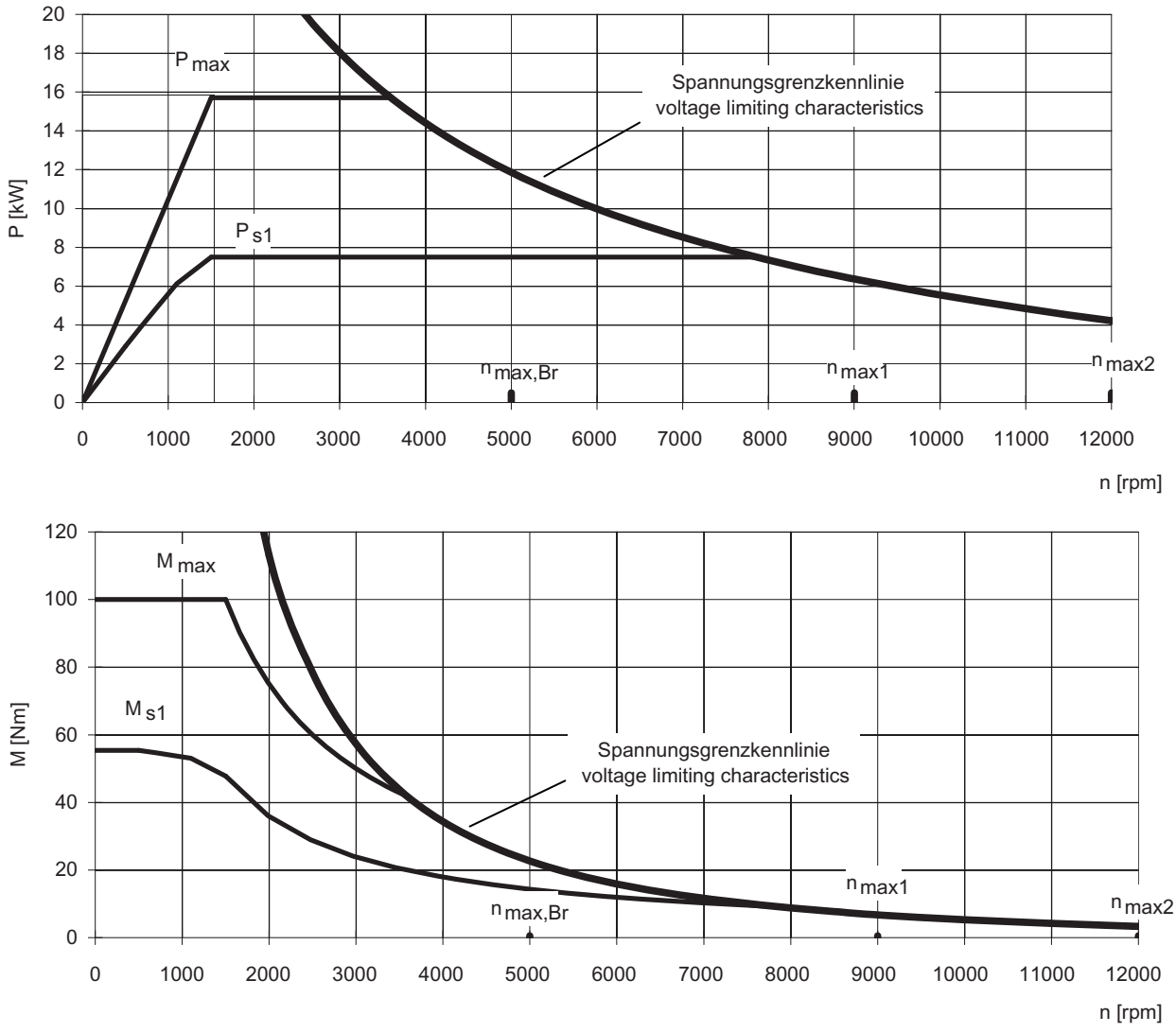
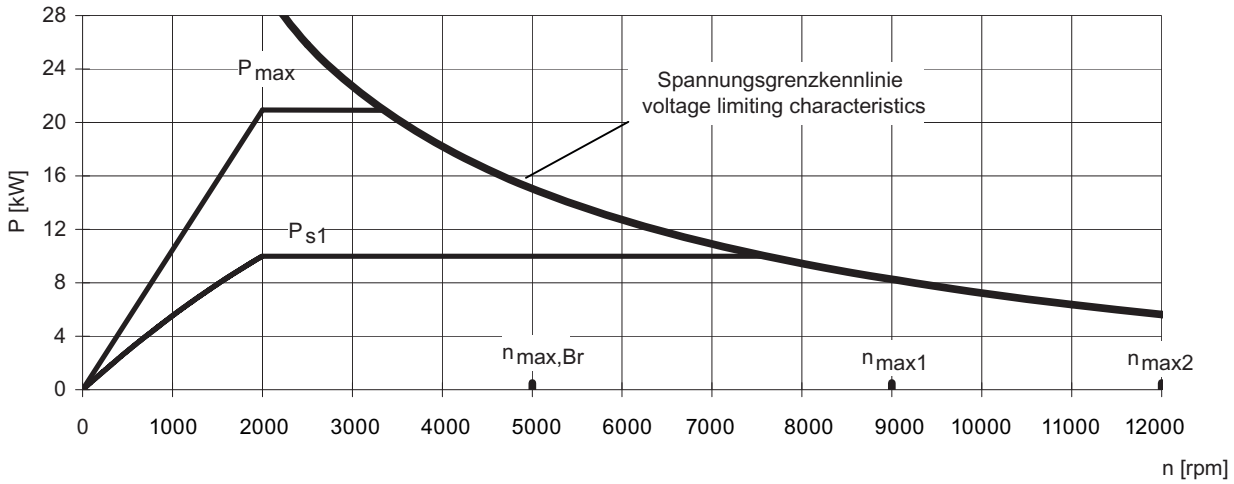


Table 4- 74 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	10,0	48	23,0	9000	12000	-	5000	7650	100	46	55	25
1500	7,5	48	23,0					9800				



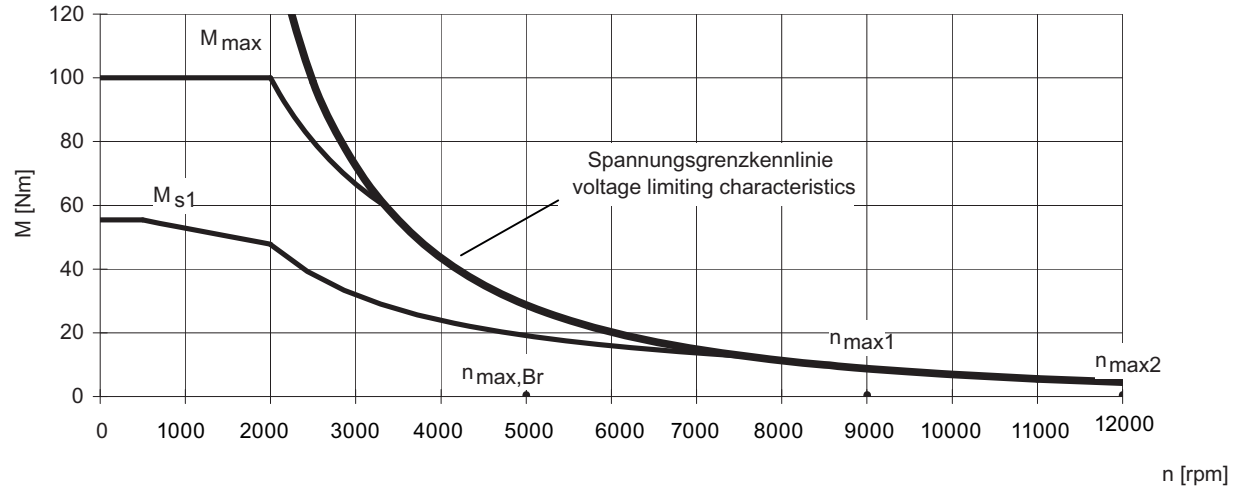
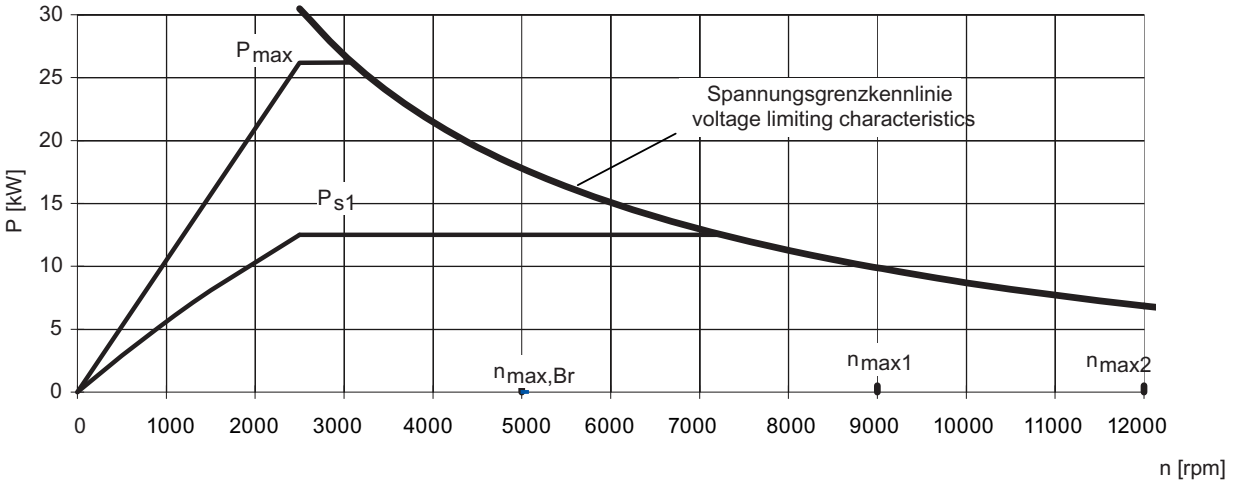


Table 4- 75 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	12,5	48	23,0	9000	12000	-	5000	7300	100	46	55	25



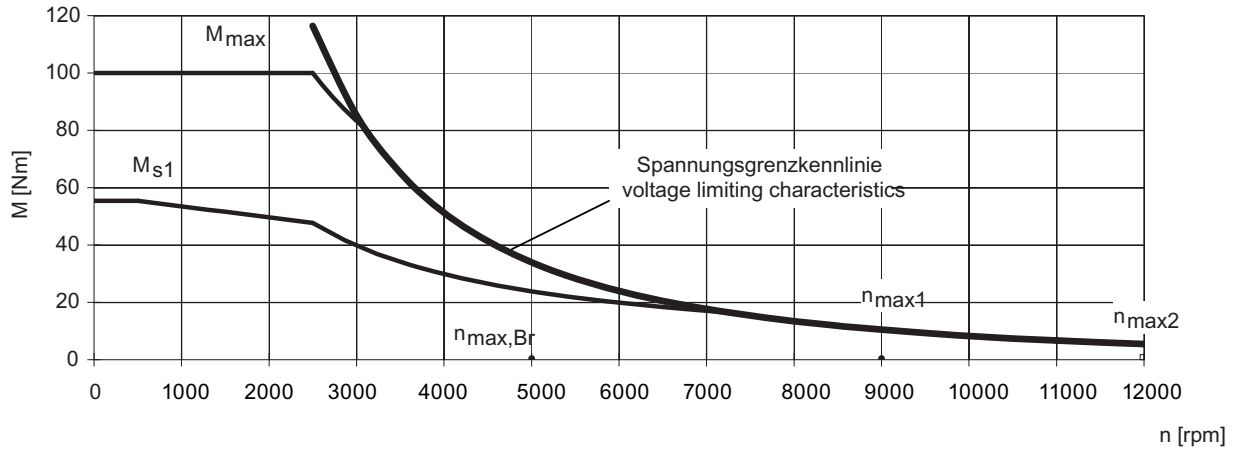


Table 4- 76 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	6.3	60	17.5	9000	12000	-	5000	4300	135	40	63	25

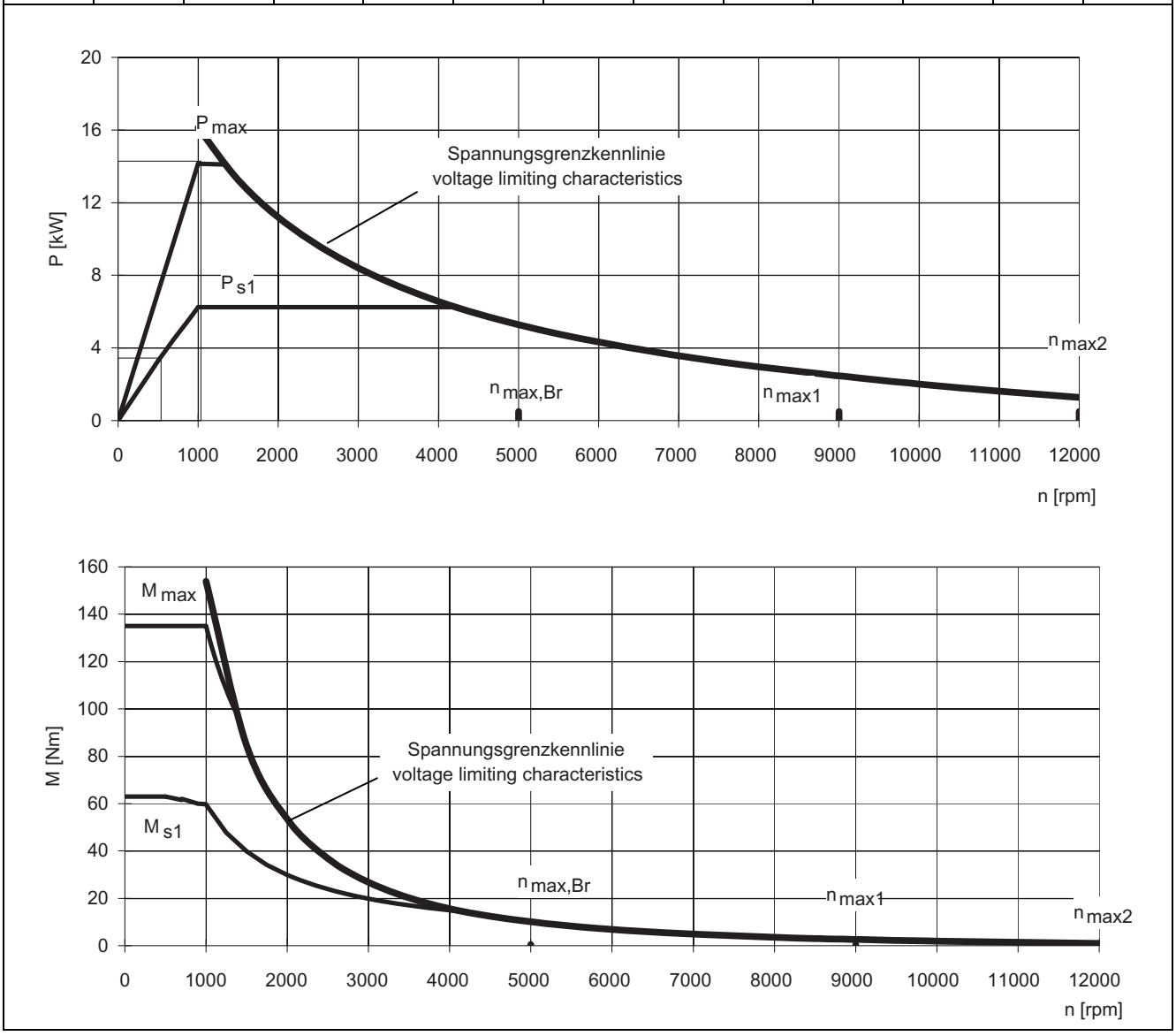
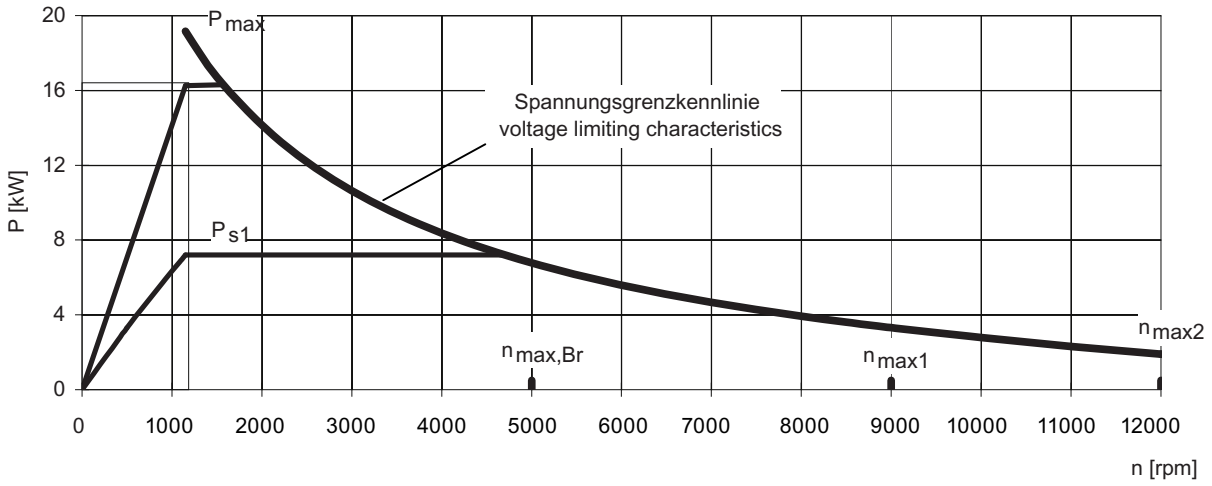


Table 4- 77 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	7.2	60	17.5	9000	12000	-	5000	4750	135	40	63	25
1000	6.3	60	17.5					5450				



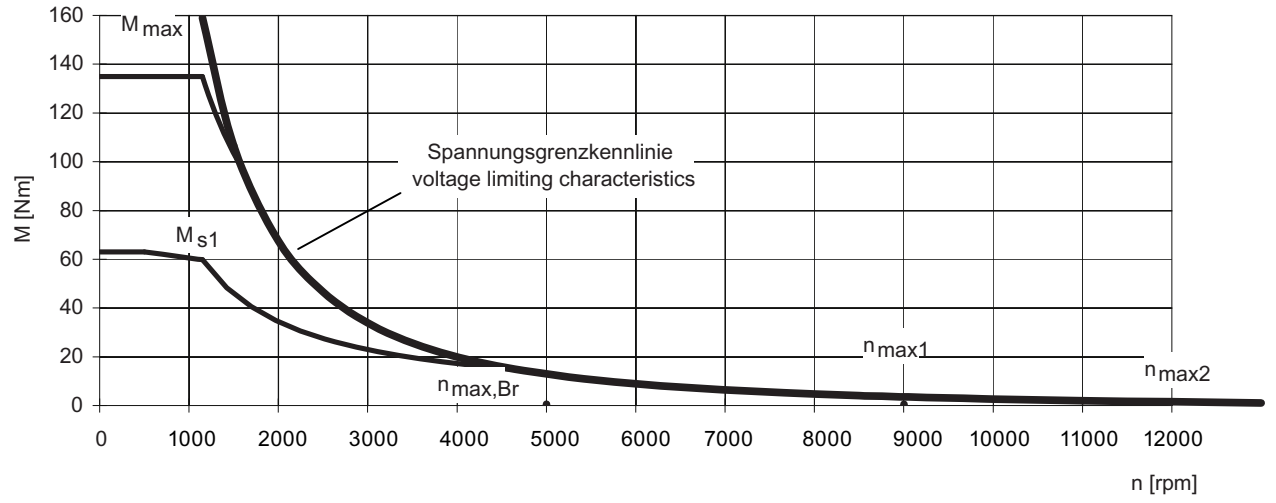
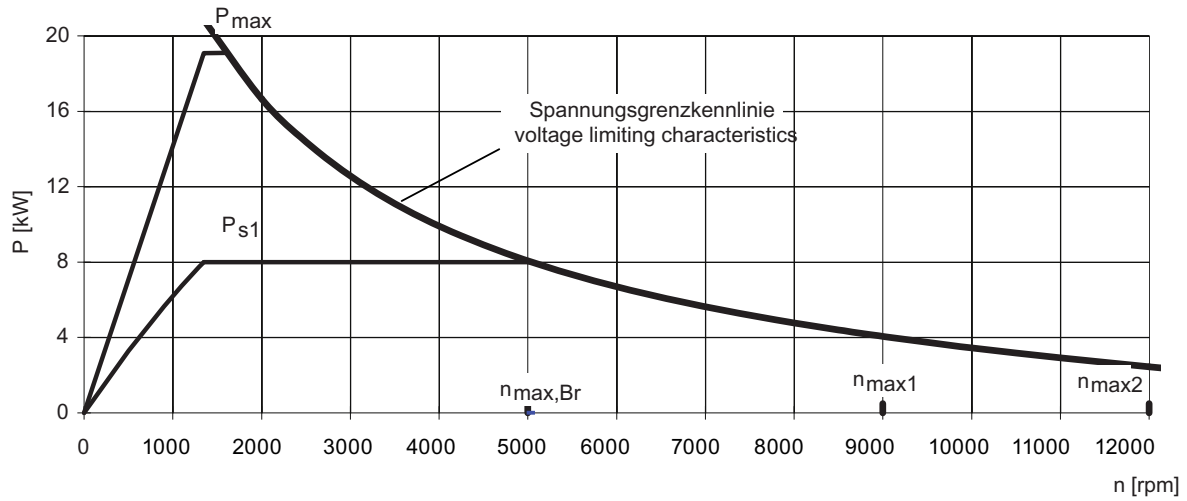


Table 4- 78 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	8.0	57	17.0	9000	12000	-	5000	5045	135	40	63	25



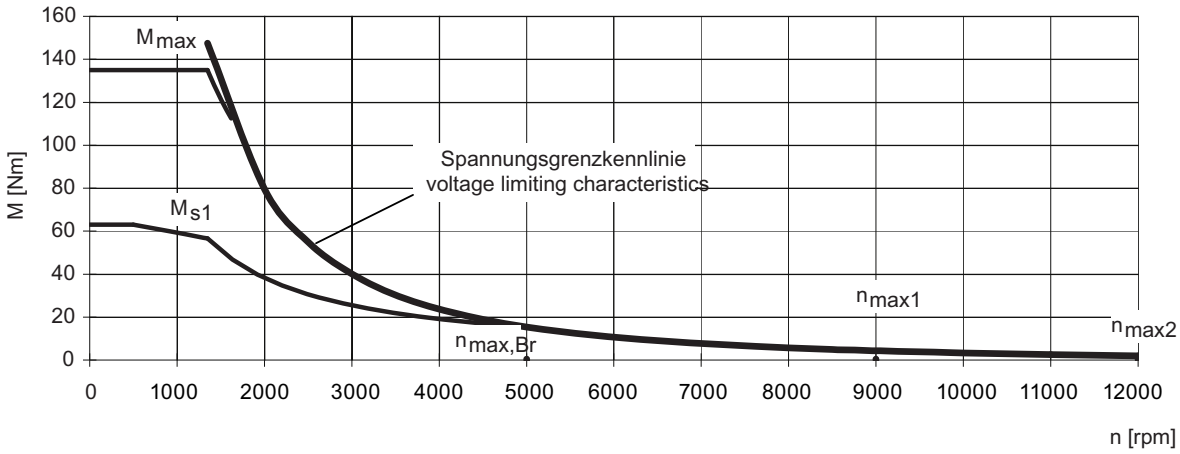


Table 4- 79 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	9.0	57	23.5	9000	12000	-	5000	4500	135	54	63	25

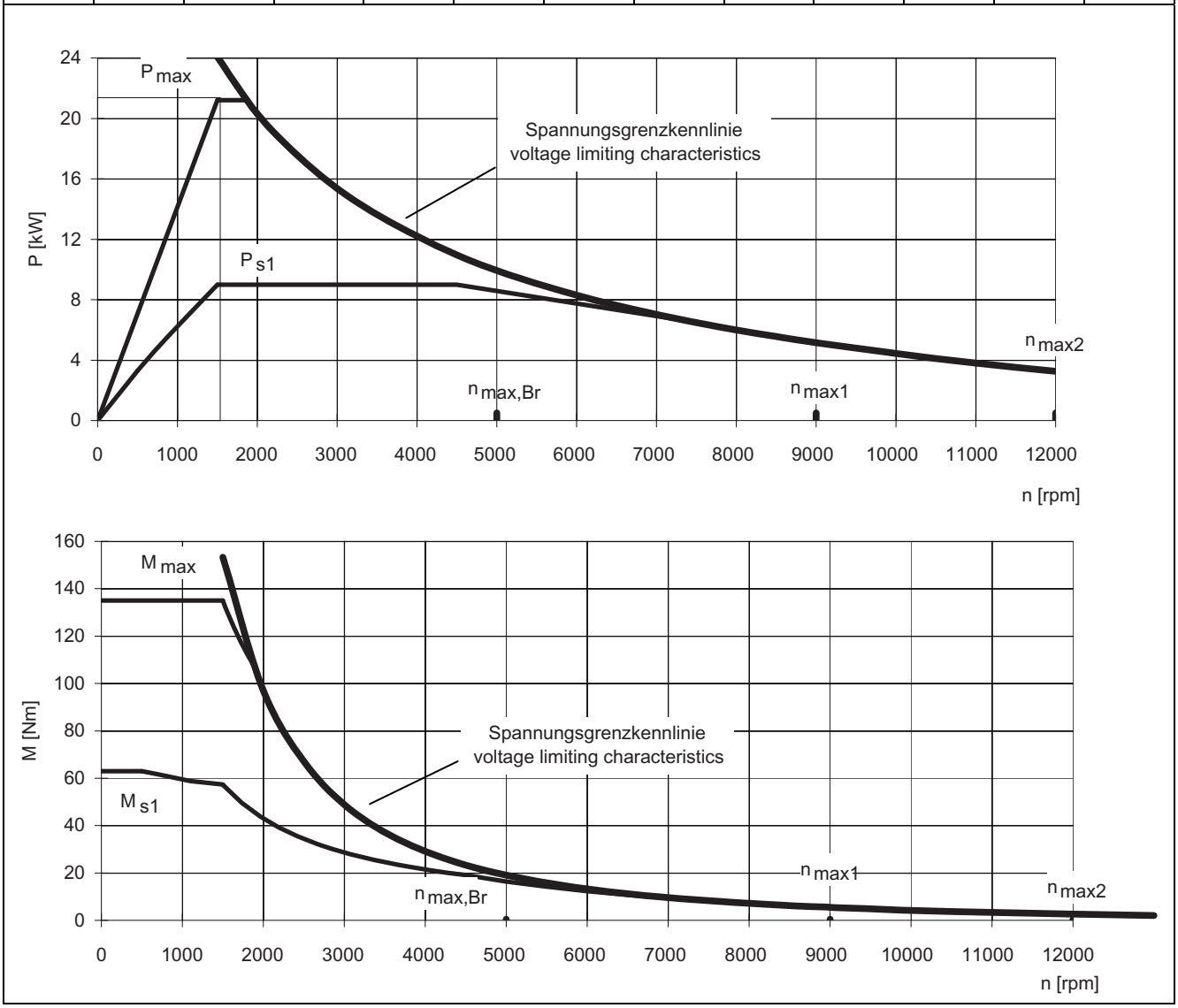
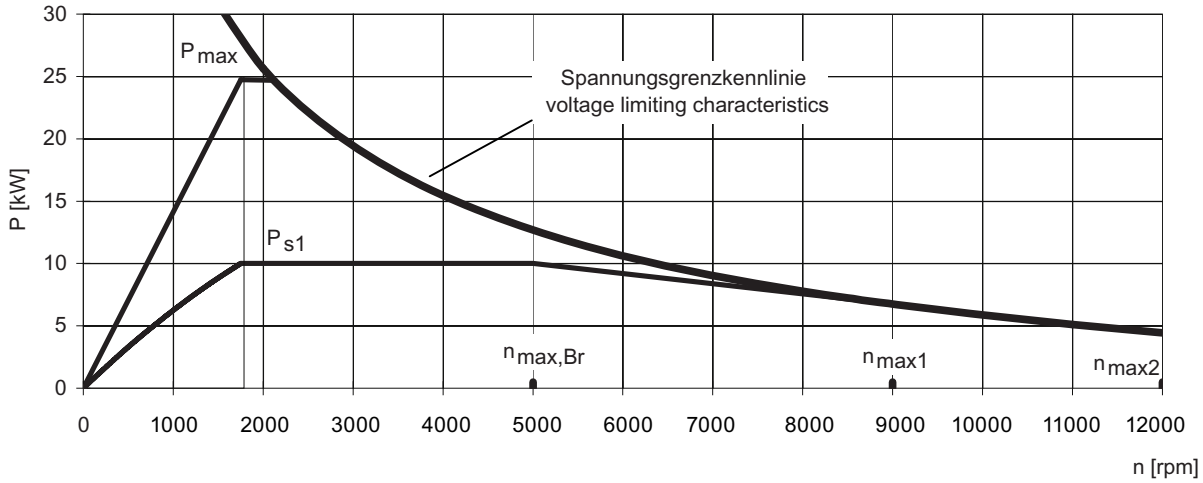


Table 4- 80 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	10.0	55	22.0	9000	12000	-	5000	5000	135	54	63	25
1500	9.0	57	23.5					6250				



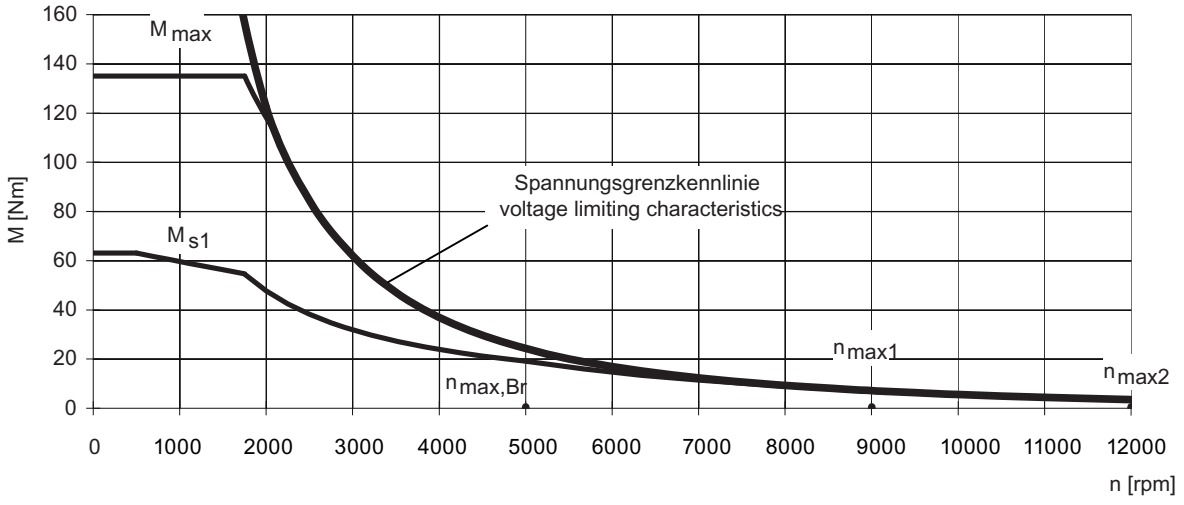
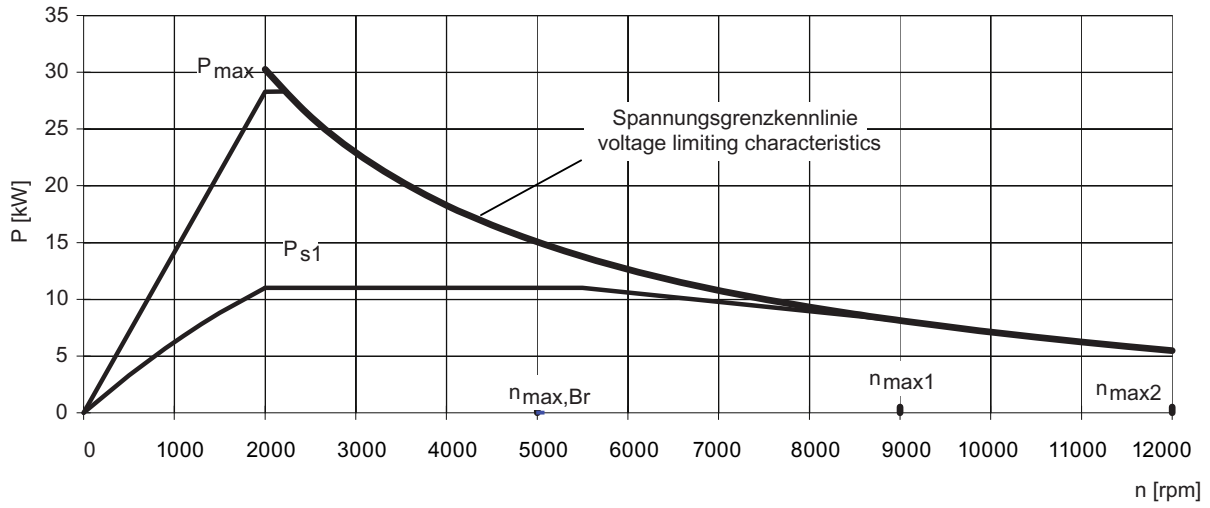


Table 4- 81 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	11.0	53	21.5	9000	12000	-	5000	5500	135	54	63	25



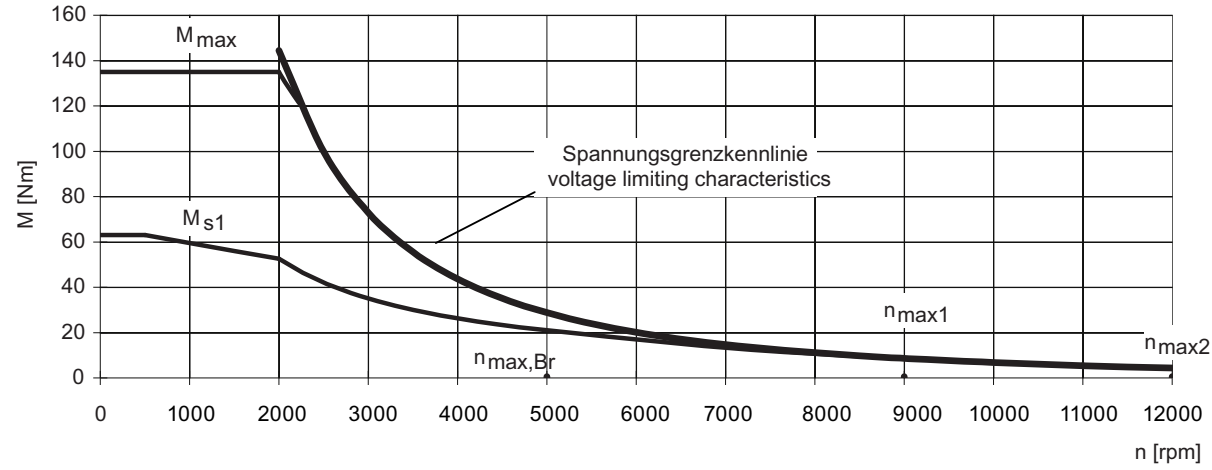


Table 4- 82 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	10.5	50	26.0	9000	12000	-	5000	4600	120	60	63	29

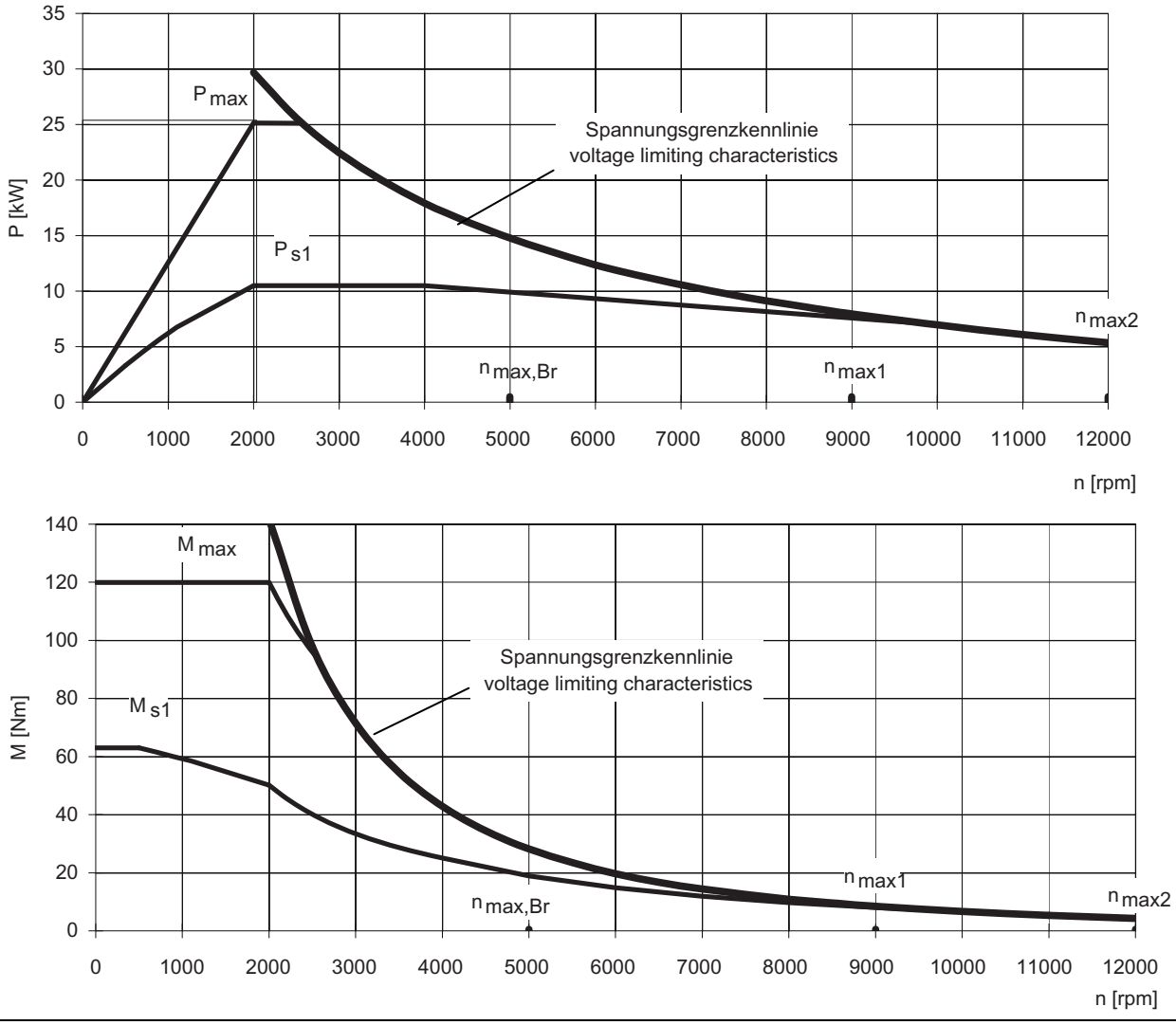
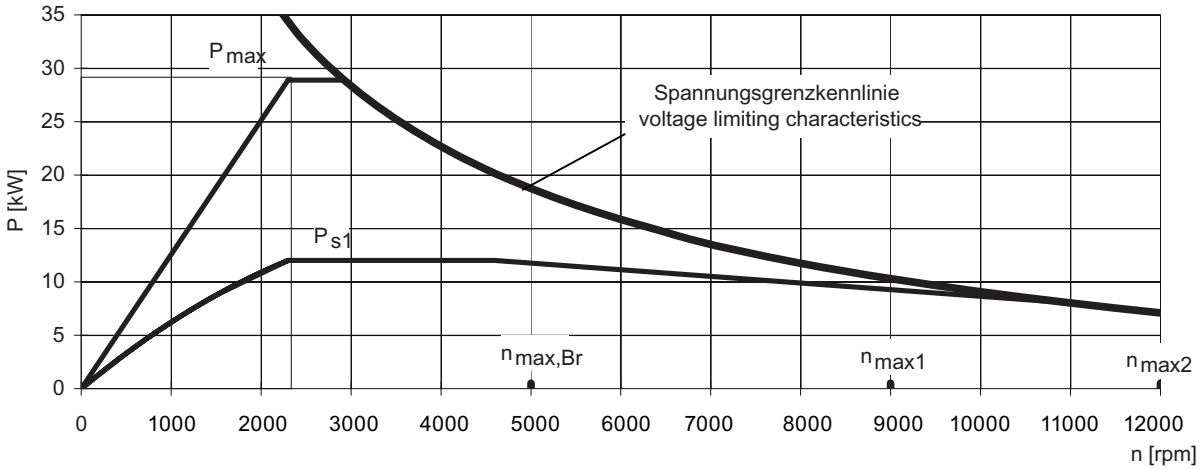


Table 4- 83 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	12.0	50	26.0	9000	12000	-	5000	4600	120	60	63	29
2000	10.5	50	26.0					7500				



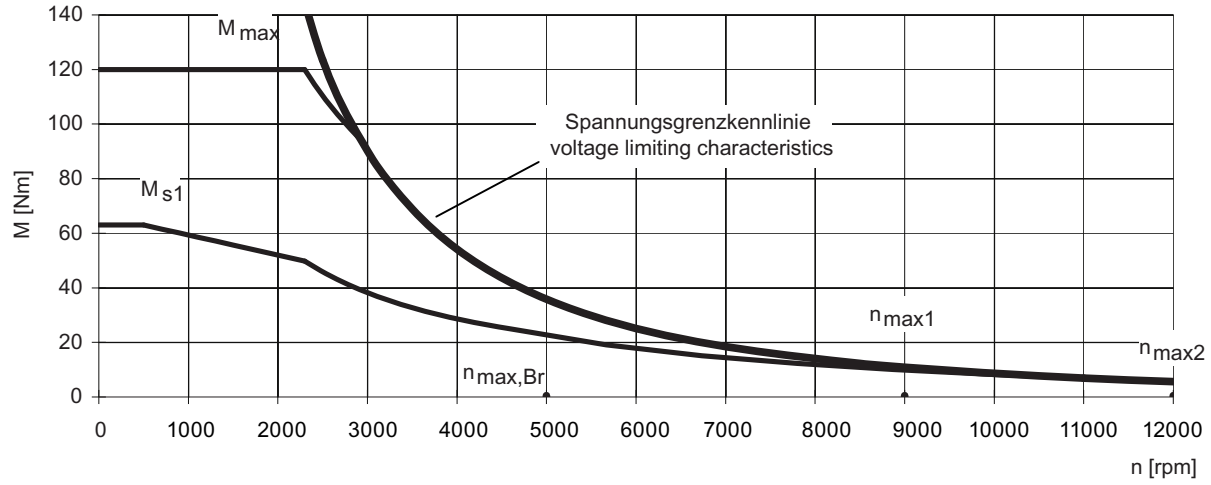
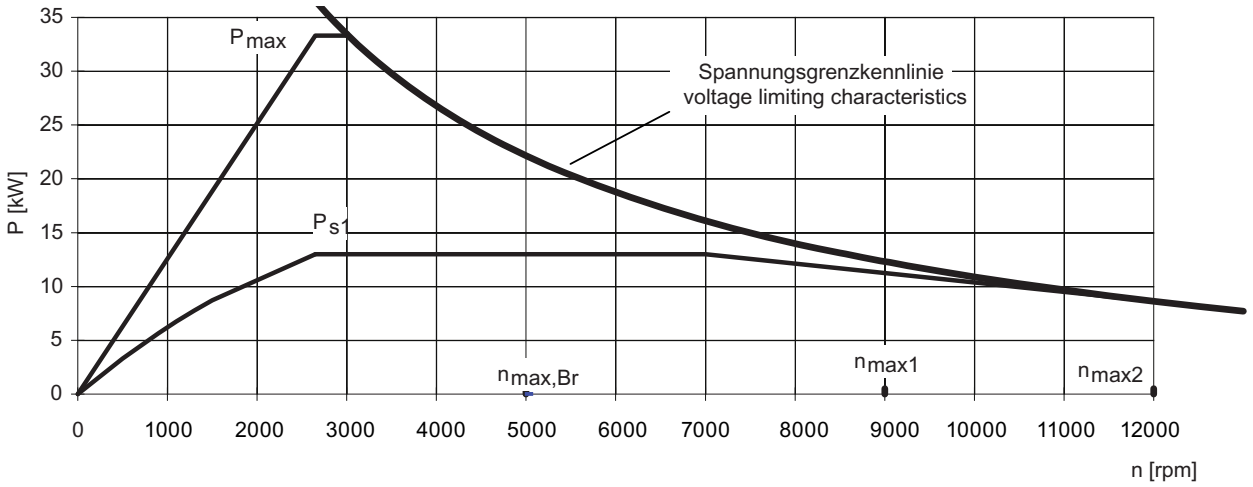


Table 4- 84 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	13.0	47	24.0	9000	12000	-	5000	7000	120	60	63	29



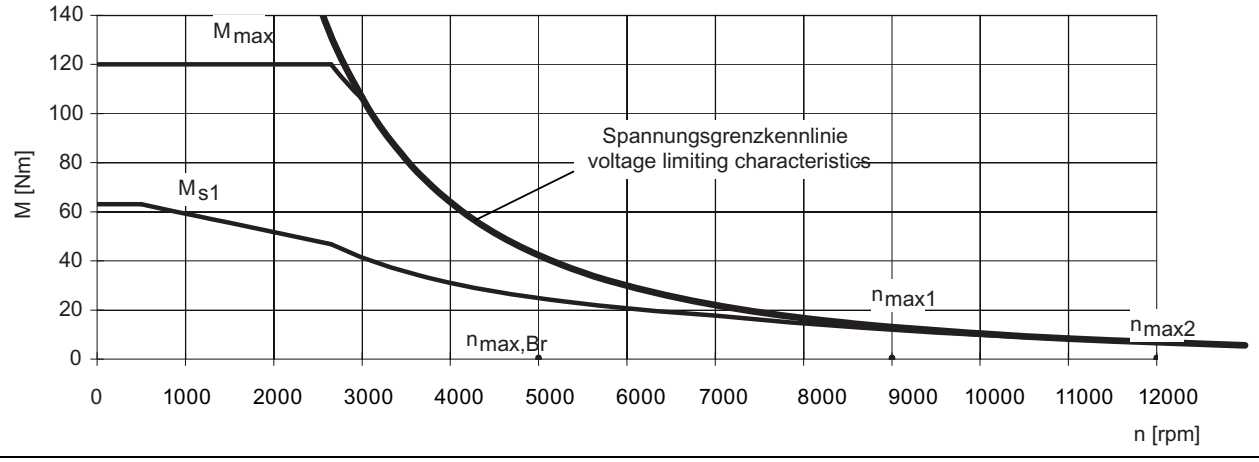
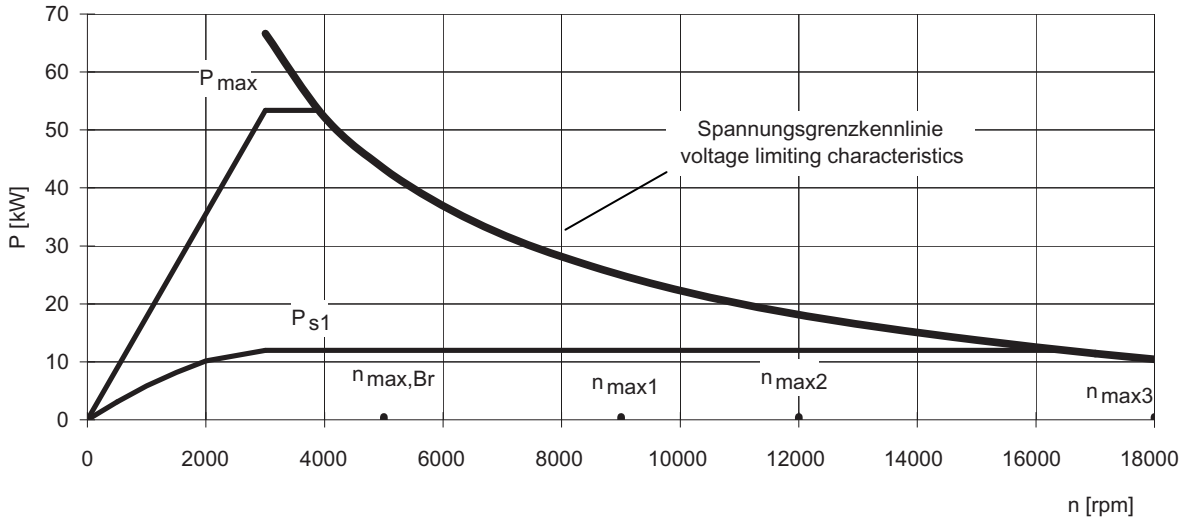


Table 4- 85 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	12.0	38	38.0	9000	12000	18000	5000	16500	170	166	59	48



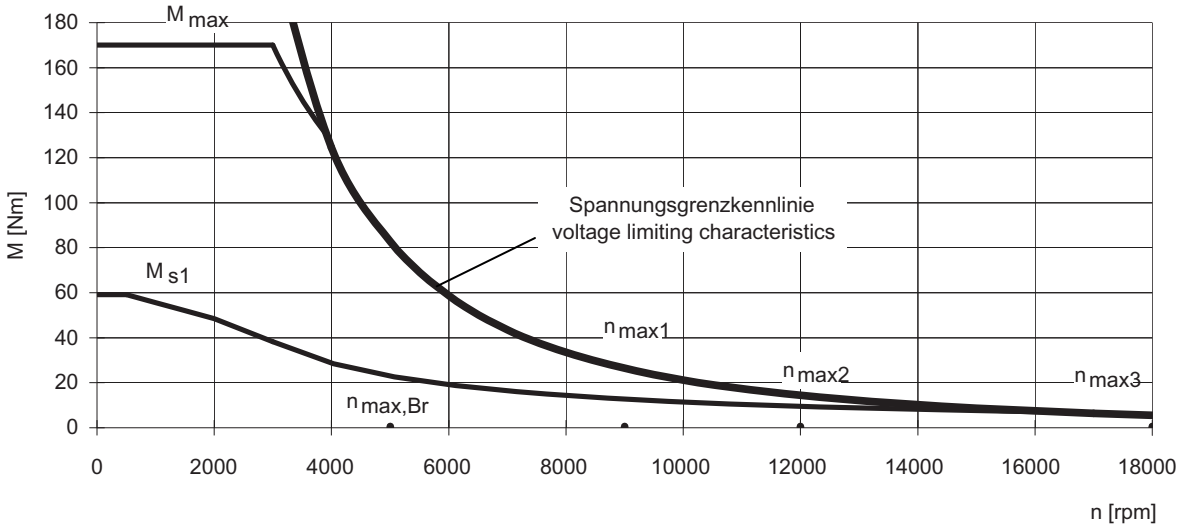


Table 4- 86 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	13.0	38	38.0	9000	12000	18000	5000	18000	170	166	59	48
3000	12.0	8	38.0					18000				

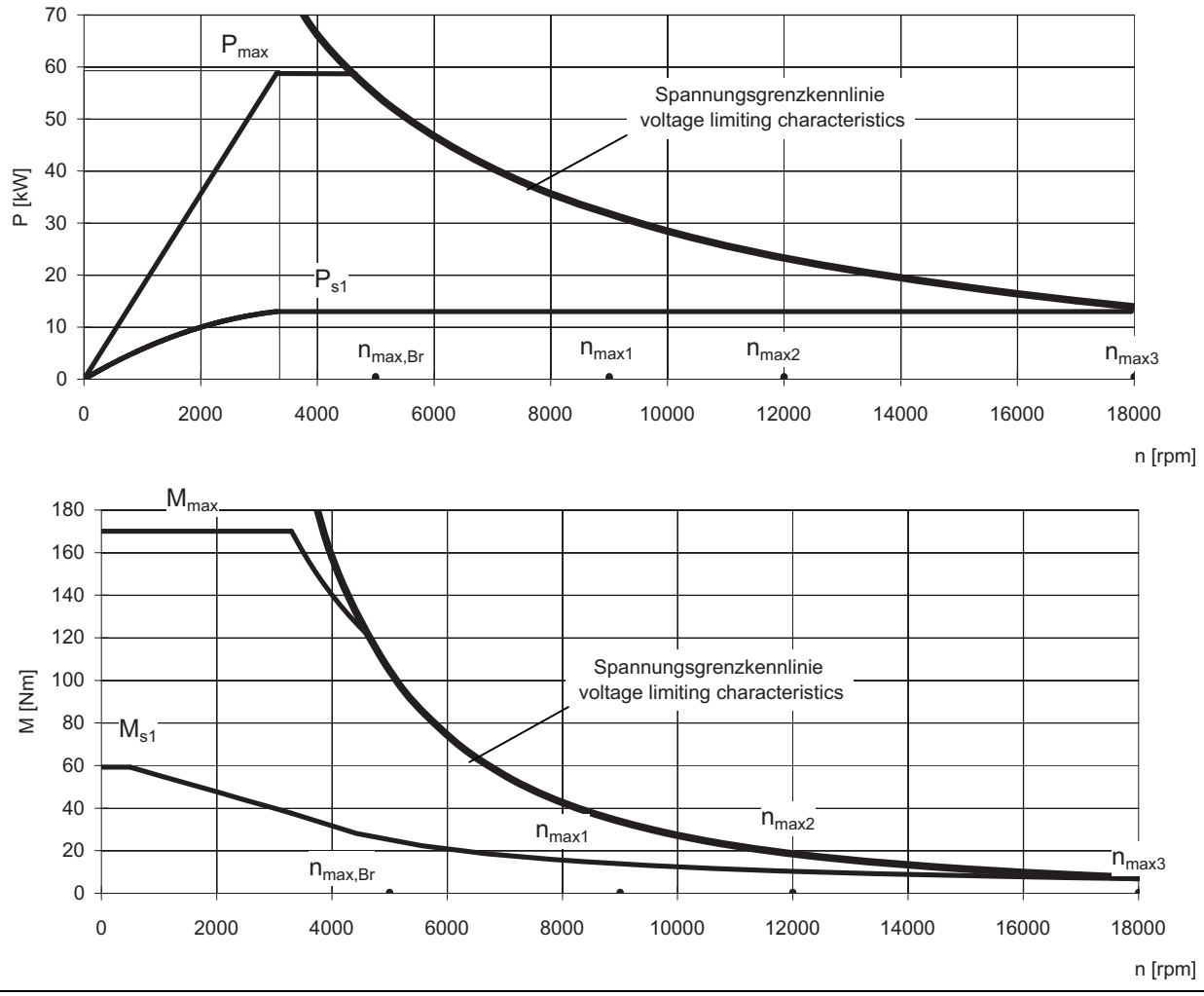
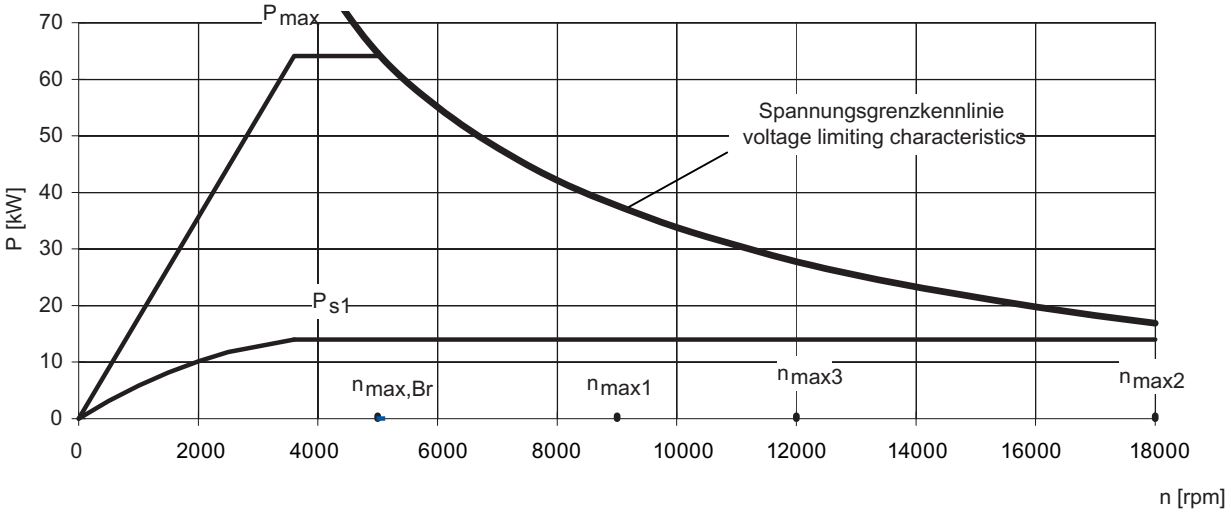


Table 4- 87 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□M□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	14.0	37	37.5	9000	12000	18000	5000	18000	170	166	59	48



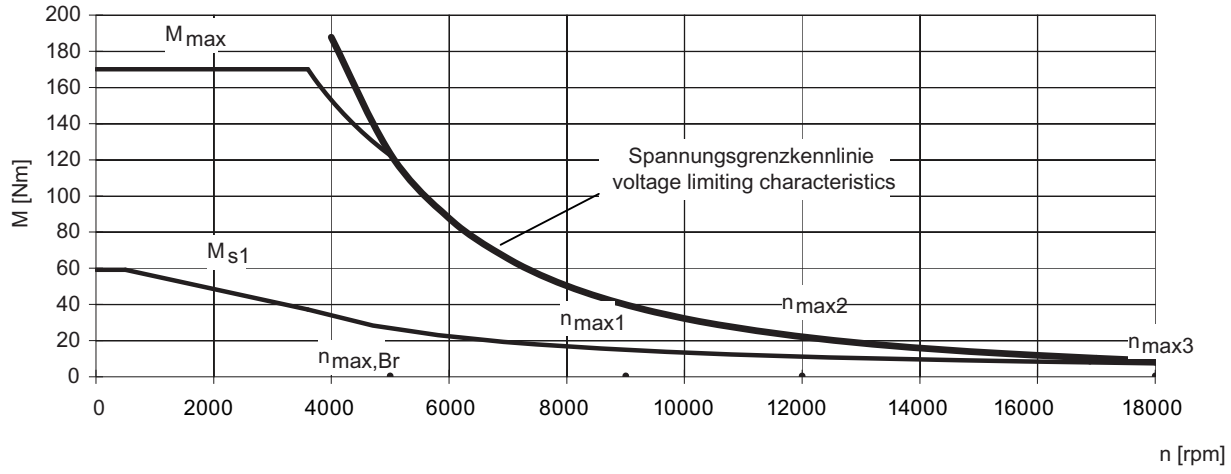
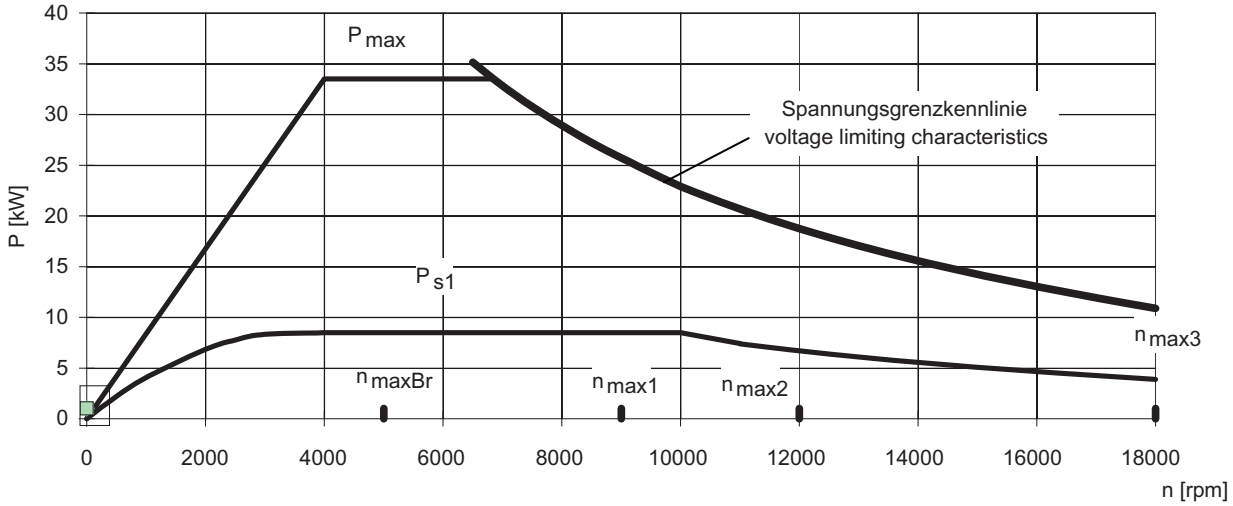


Table 4- 88 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	8.5	20	28.0	9000	12000	18000	5000	10000	80	100	42	40



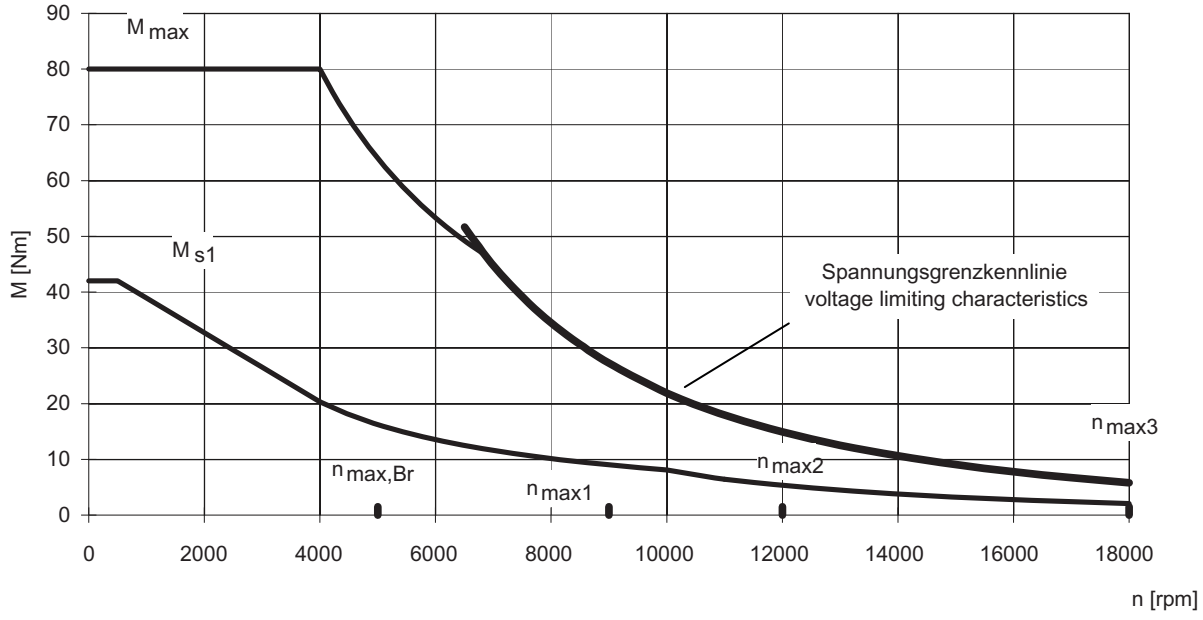


Table 4- 89 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	11.0	21	28.0	9000	12000	18000	5000	10000	80	100	42	40
4000	8.5	20	28.0					12000				

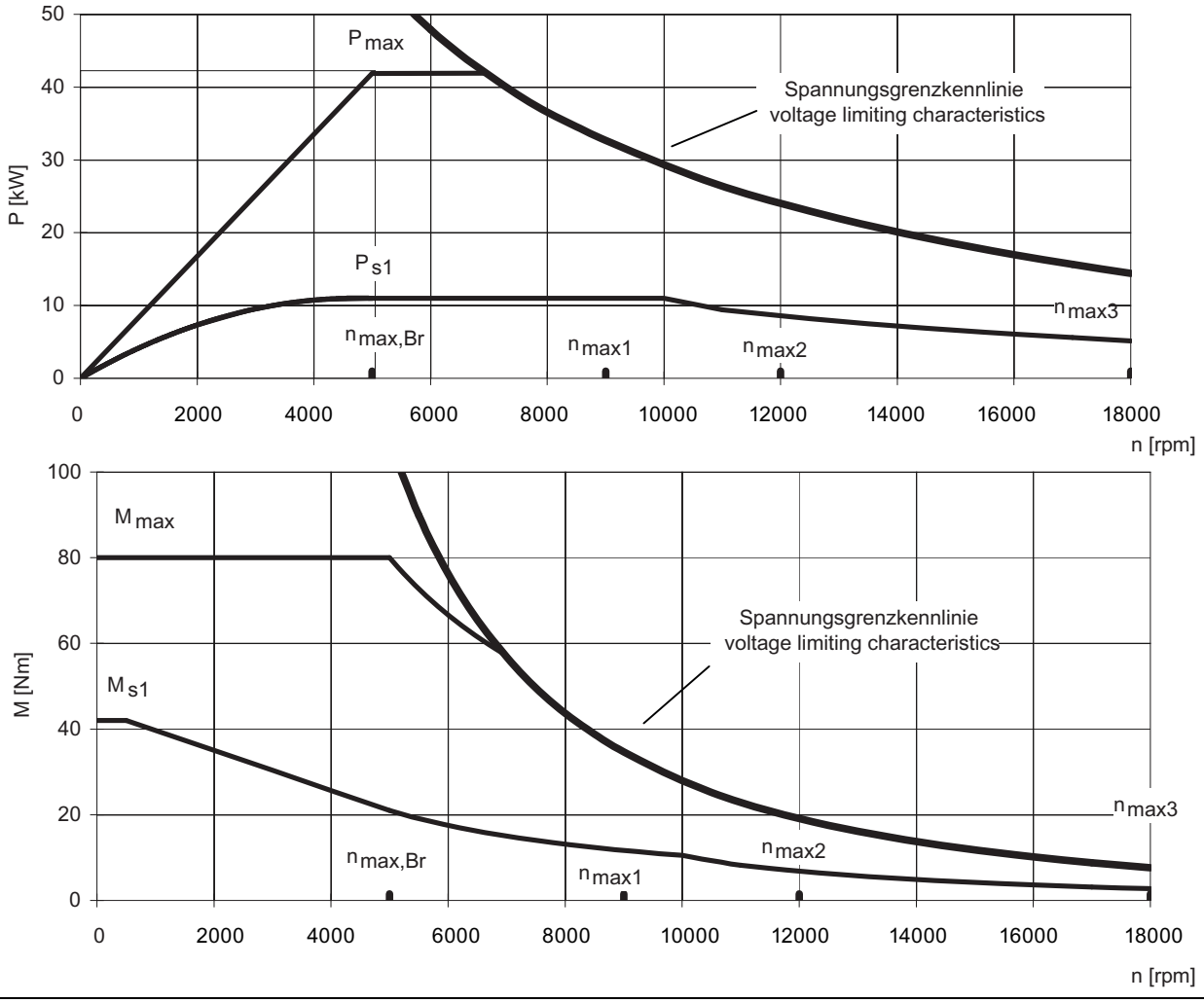
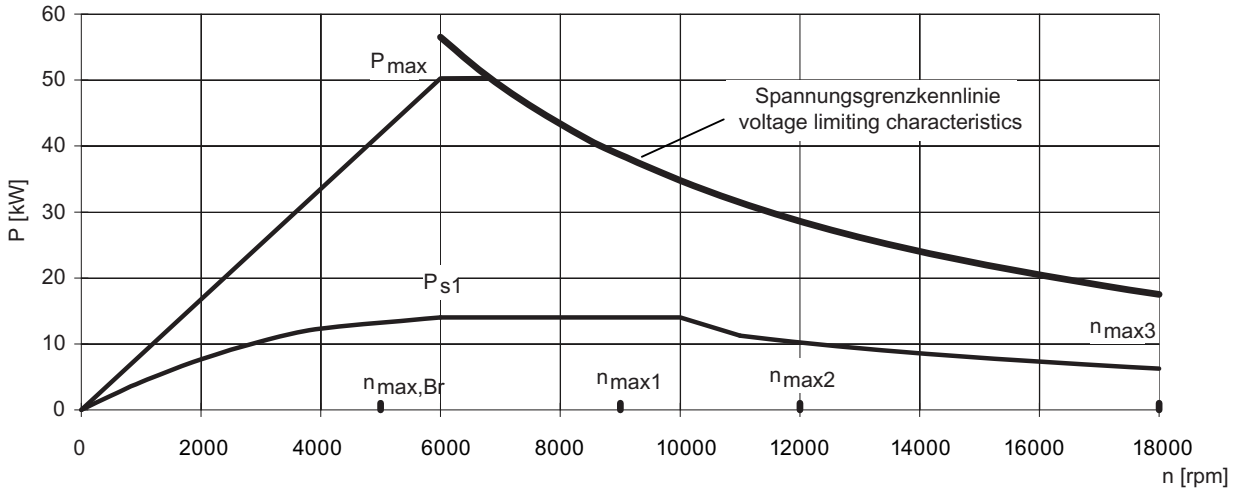


Table 4- 90 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	14.0	22	27	9000	12000	18000	5000	10000	80	100	42	40



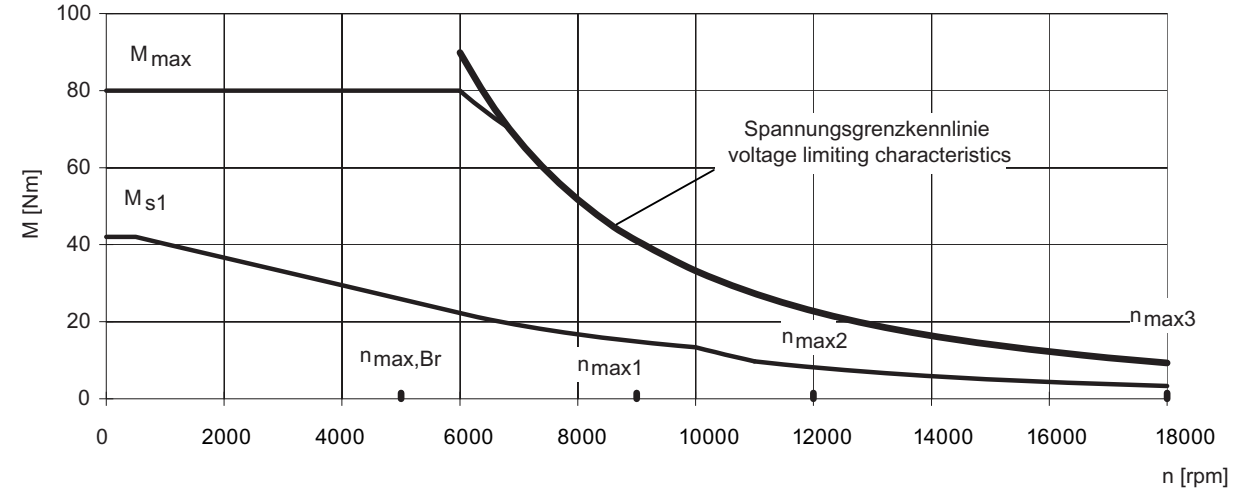
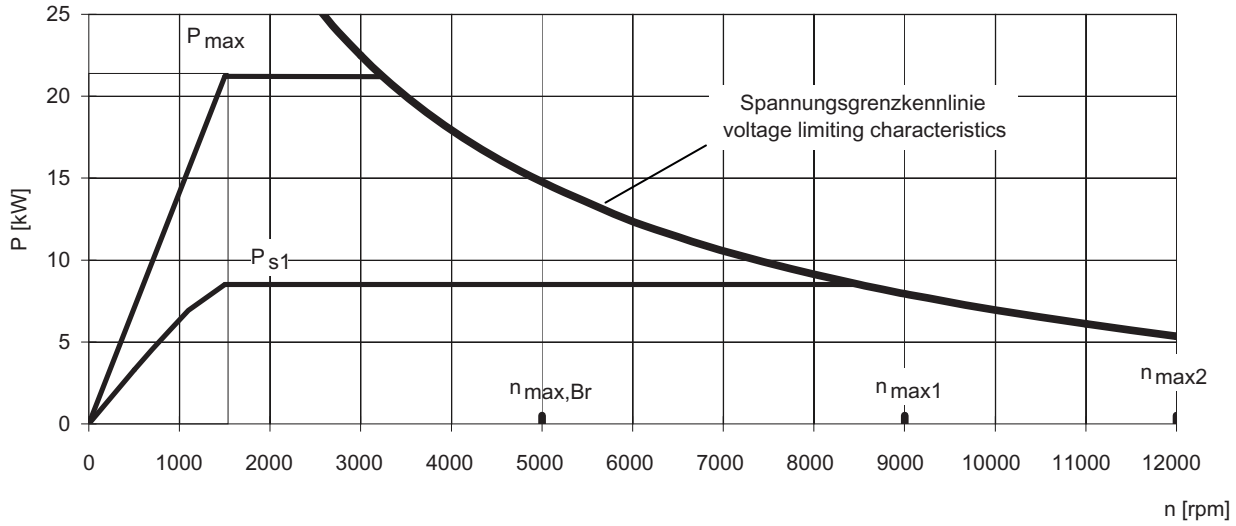


Table 4- 91 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	8.5	54	27.0	9000	12000	-	5000	8550	135	66	63	30



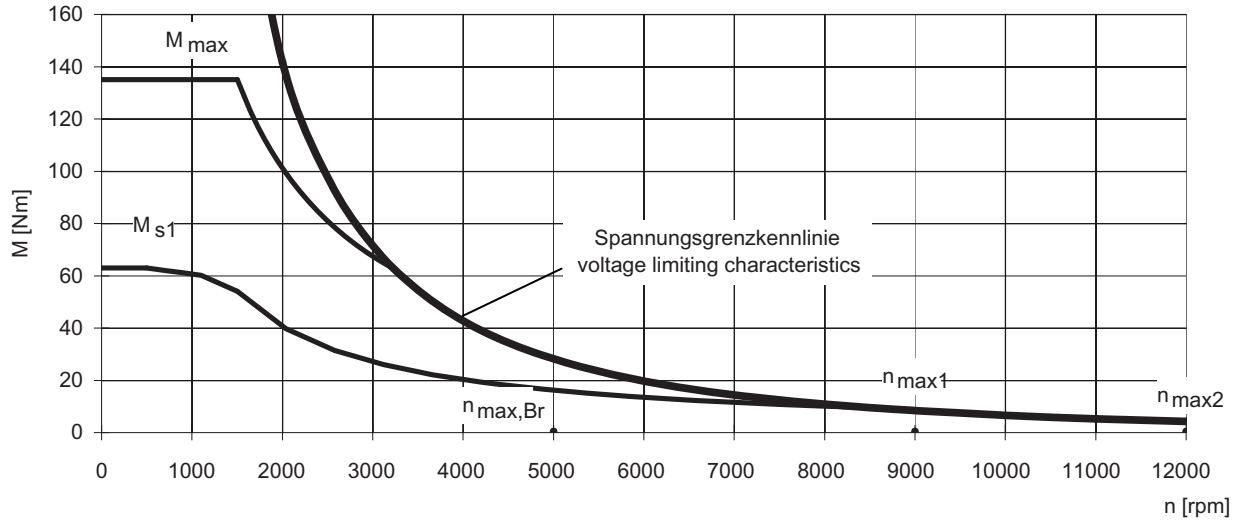
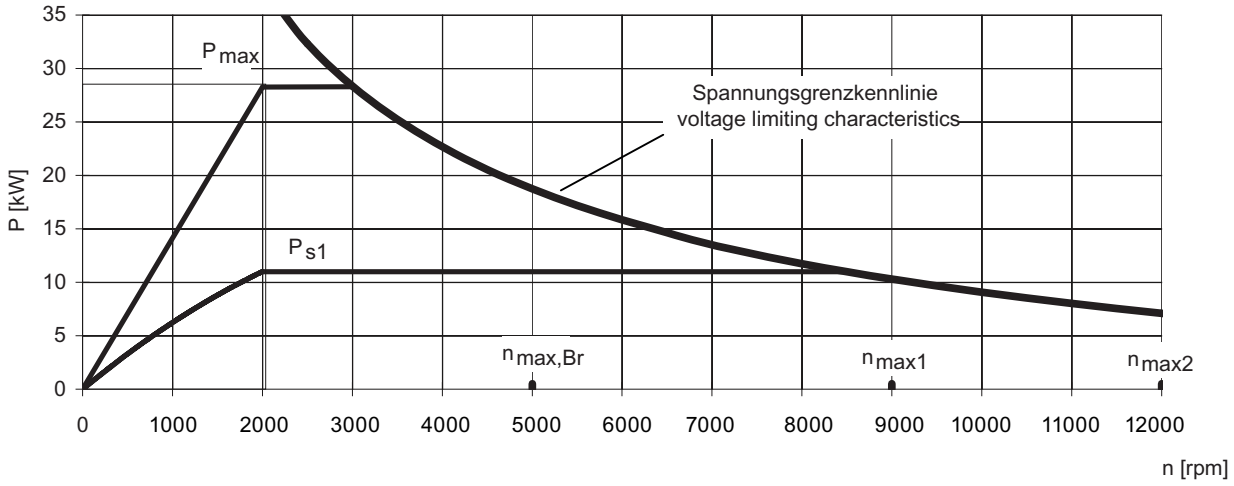


Table 4- 92 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	11.0	53	26.7	9000	12000	-	5000	8550	135	66	63	30
1500	8.5	54	27.0					10600				



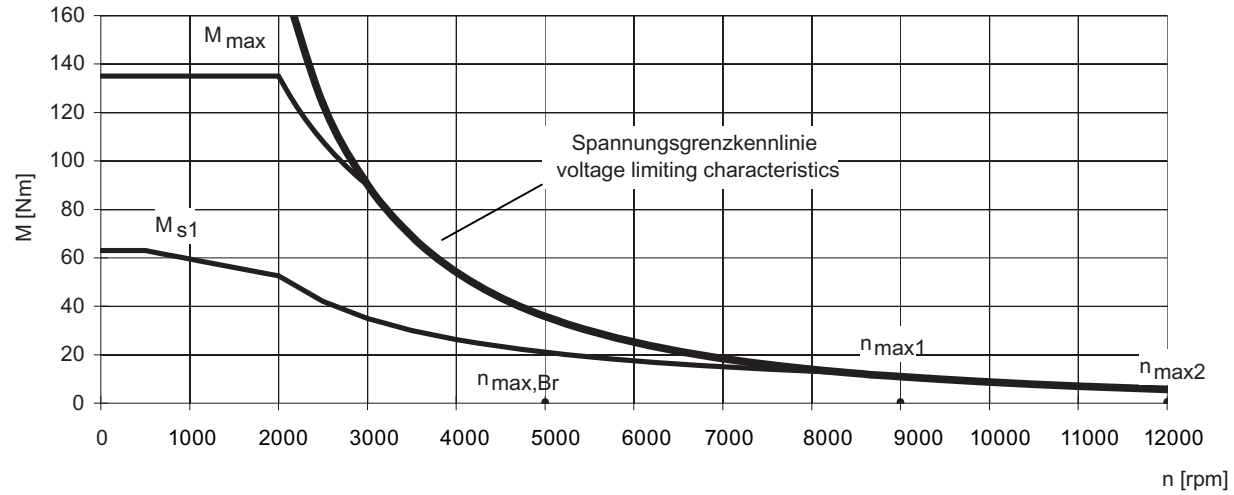
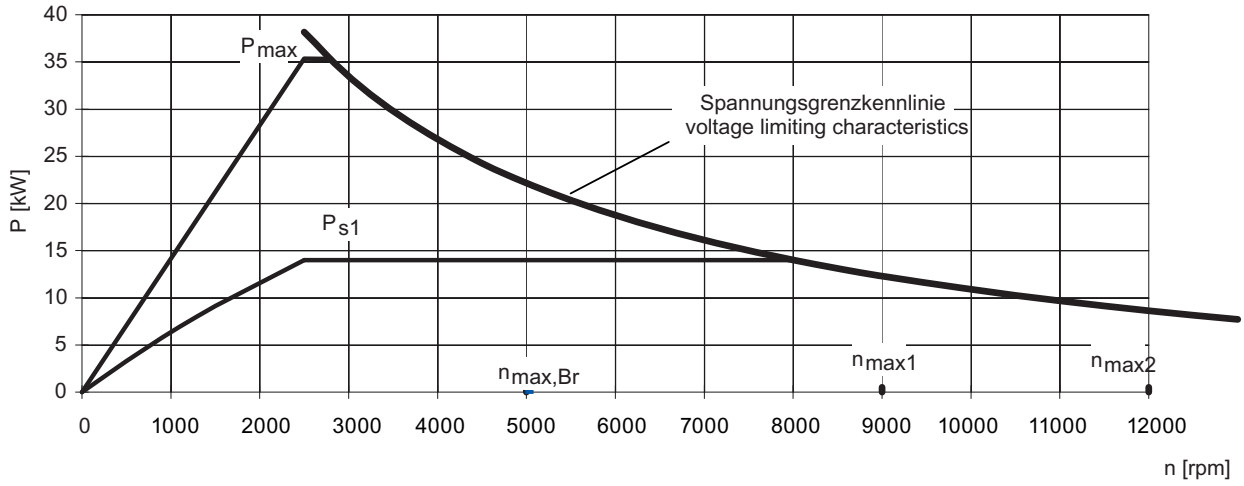
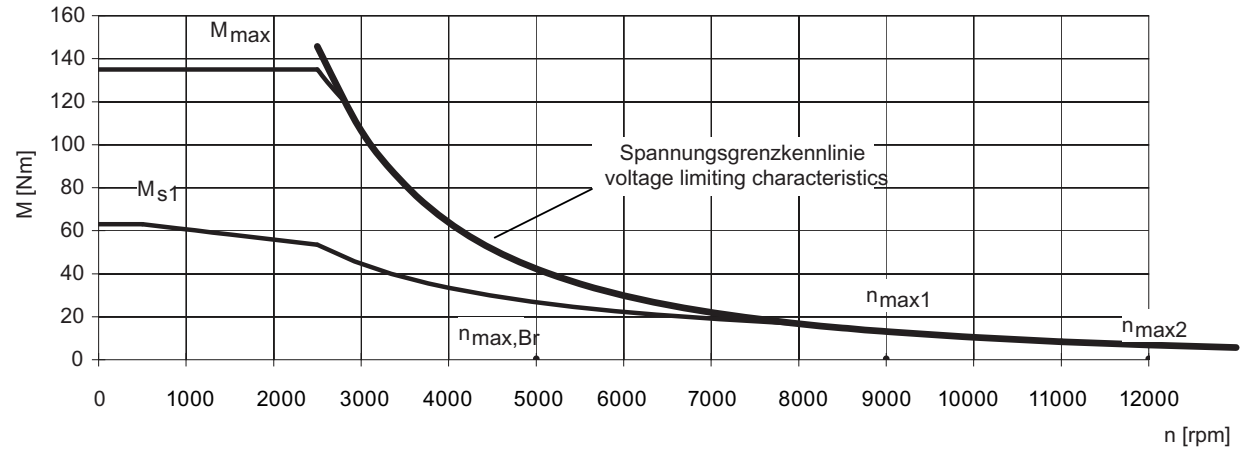


Table 4- 93 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	14.0	53	26.5	9000	12000	-	5000	8050	135	66	63	30

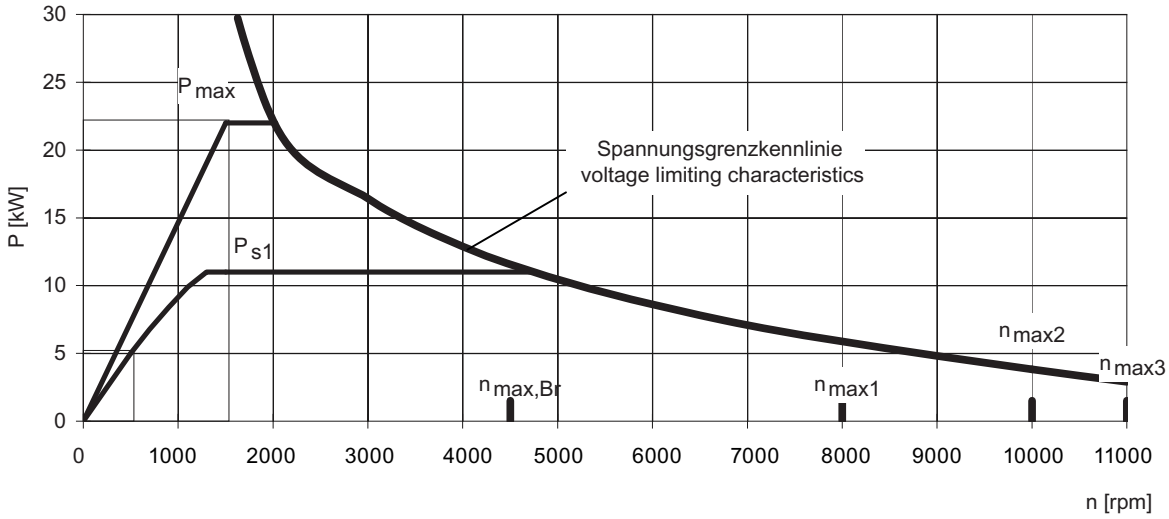




4.1.2.3 Shaft height 132 – forced ventilation

Table 4- 94 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	11,0	70	24	8000	10000	11000	4500	4800	140	48	96	30



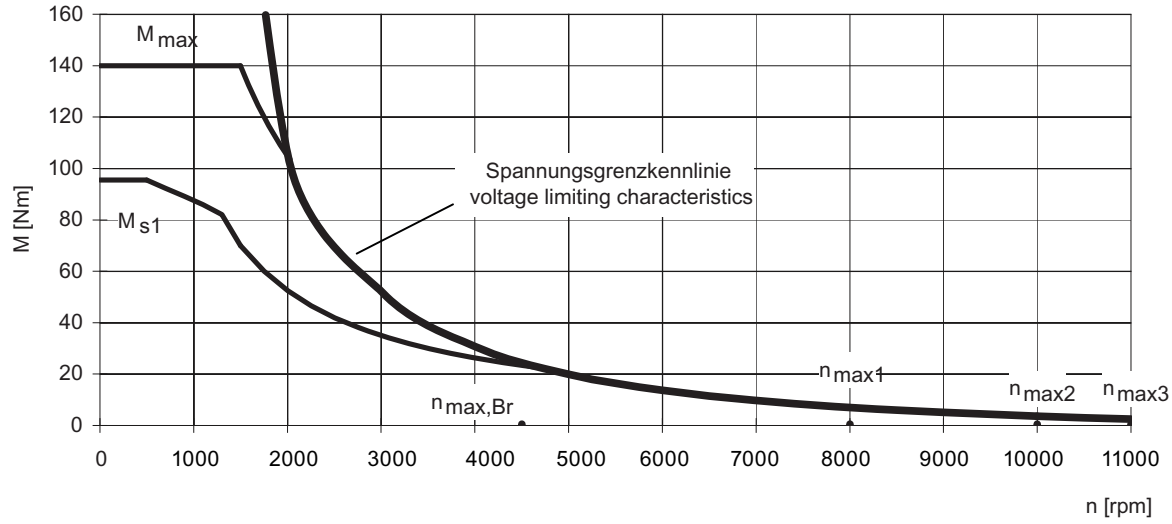
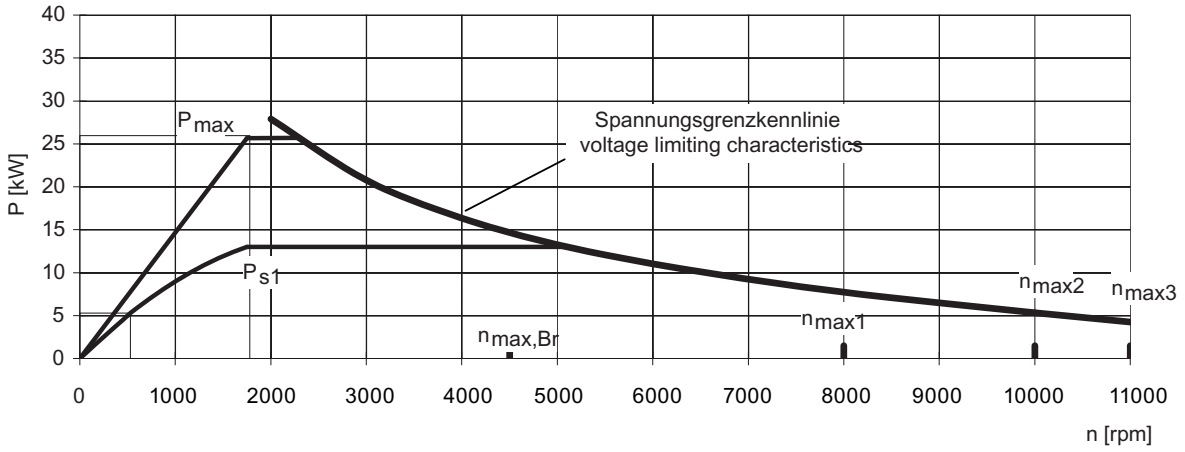


Table 4- 95 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	13,0	71	24	8000	10000	11000	4500	5150	140	48	96	30
1500	11,0	70	24					6050				



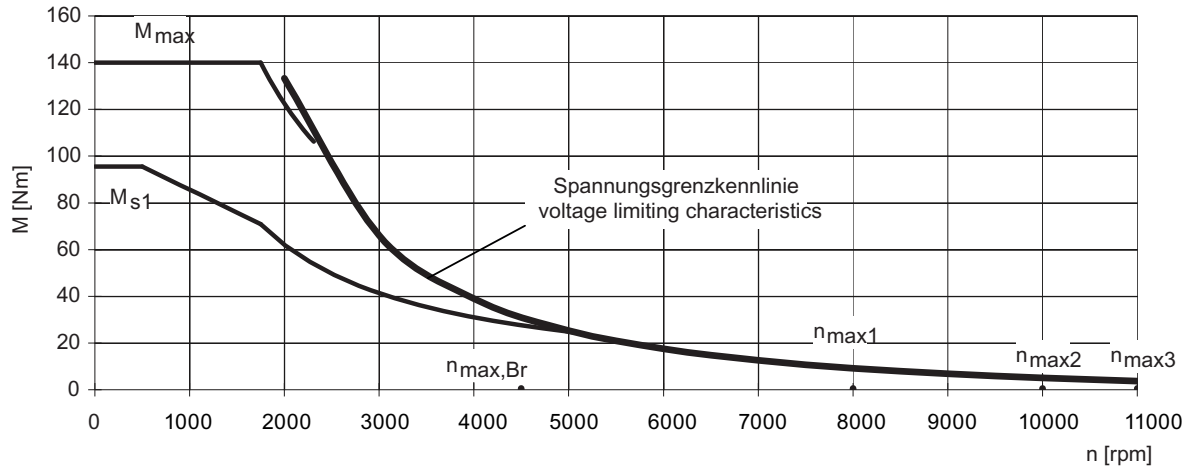
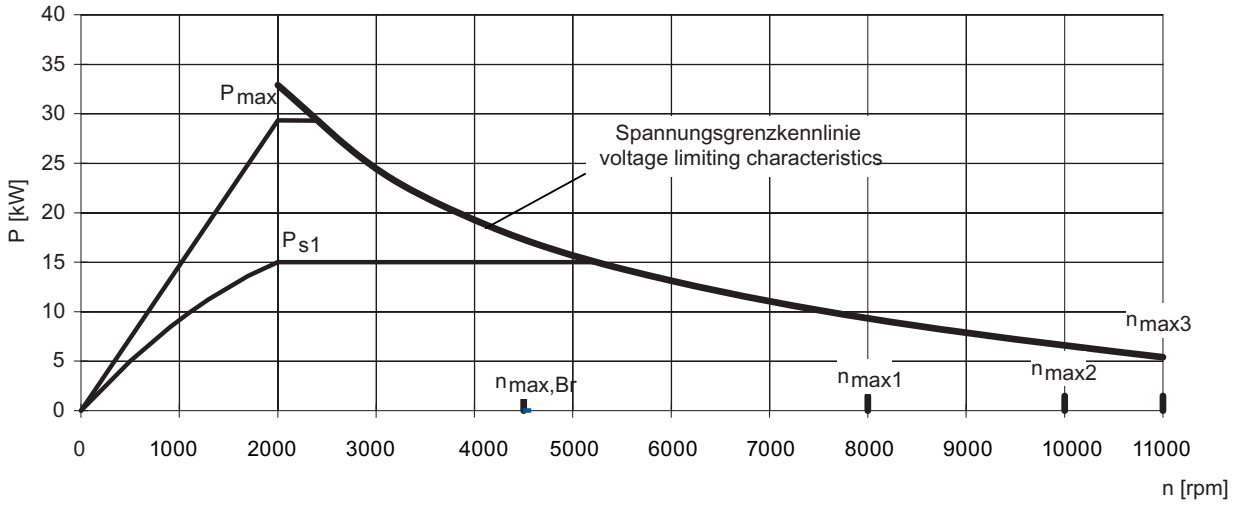


Table 4- 96 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	15,0	72	24	8000	10000	11000	4500	5300	140	48	96	30



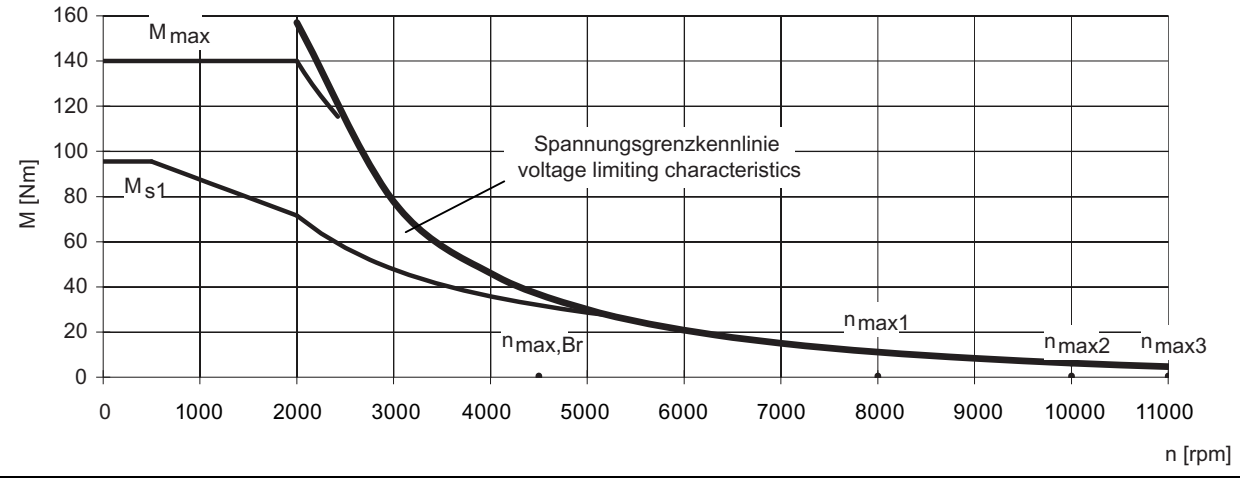
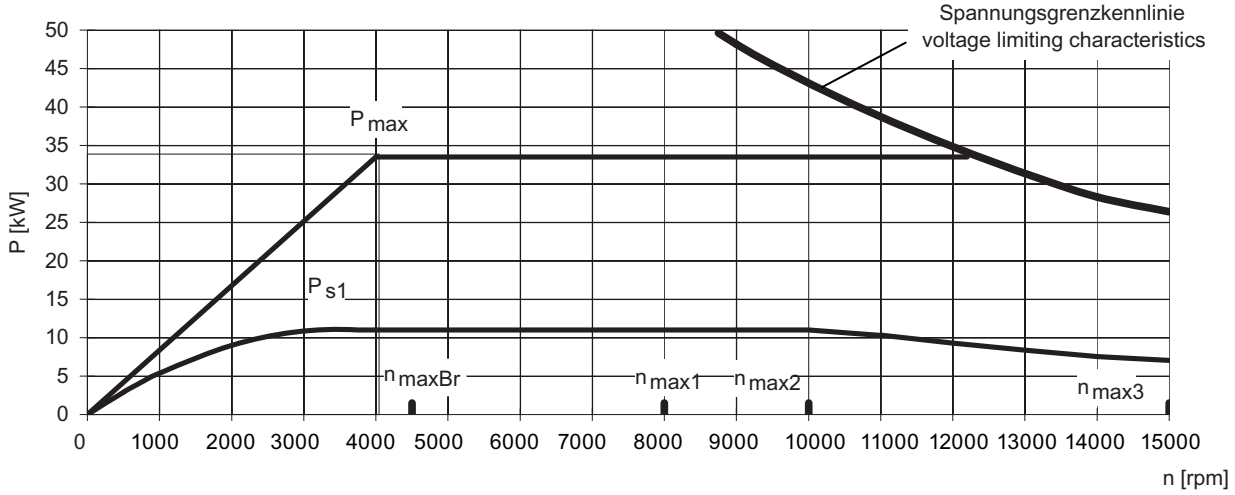


Table 4- 97 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	11,0	26	40	8000	10000	15000	4500	10000	80	114	55	56



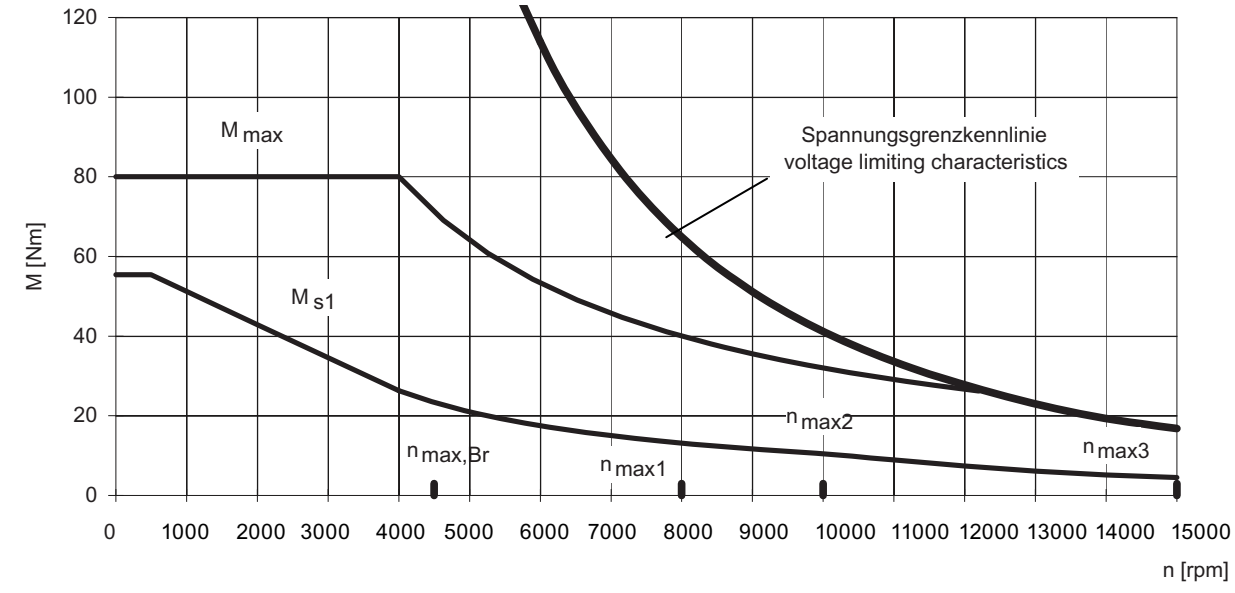


Table 4- 98 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	14,6	28	40	8000	10000	15000	4500	10000	80	114	55	56
4000	11,0	28	40					13000				

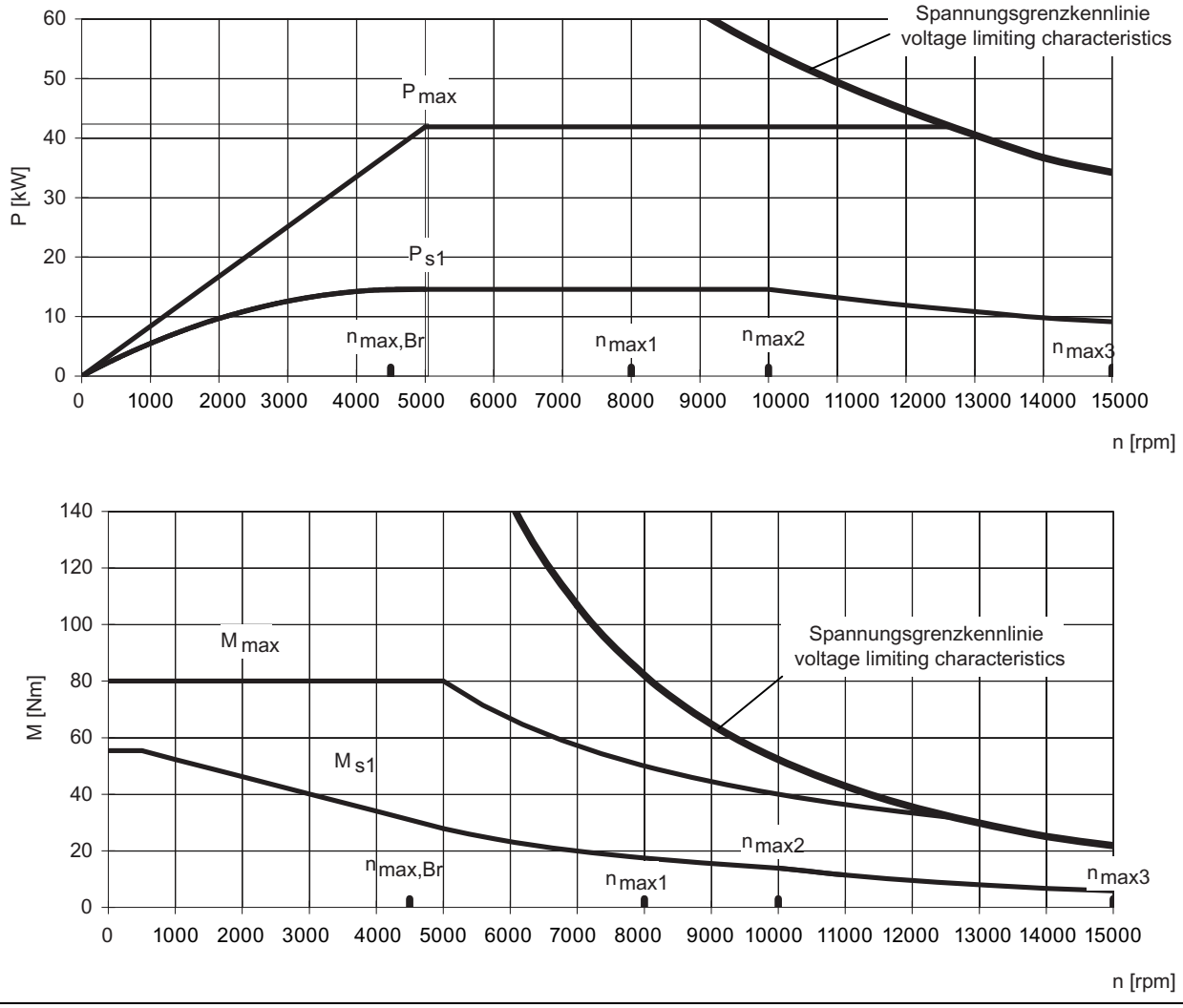
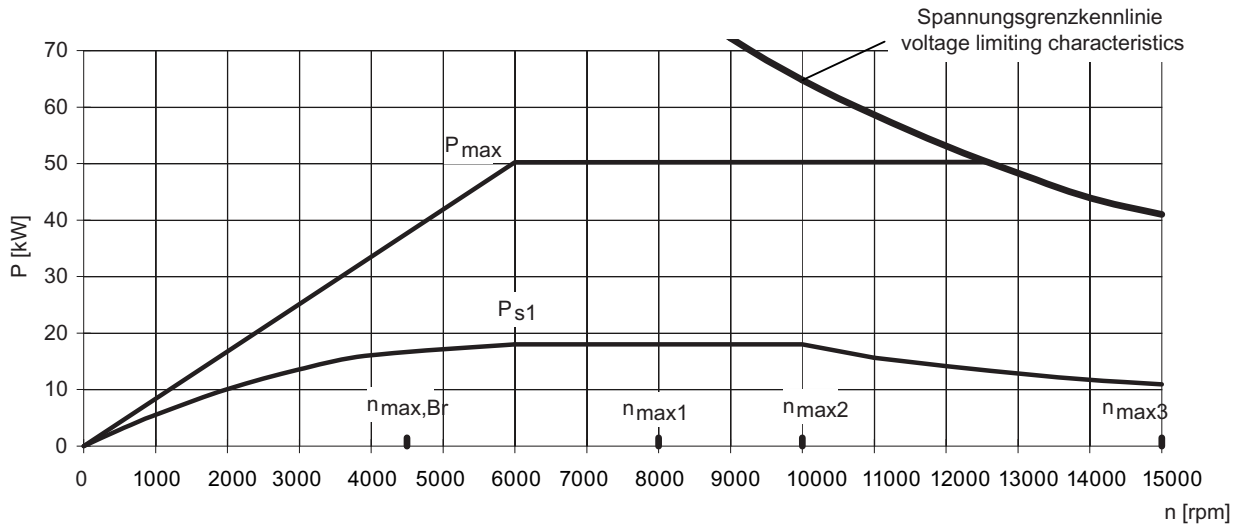


Table 4- 99 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	18,0	29	35	8000	10000	15000	4500	10000	80	114	55	56



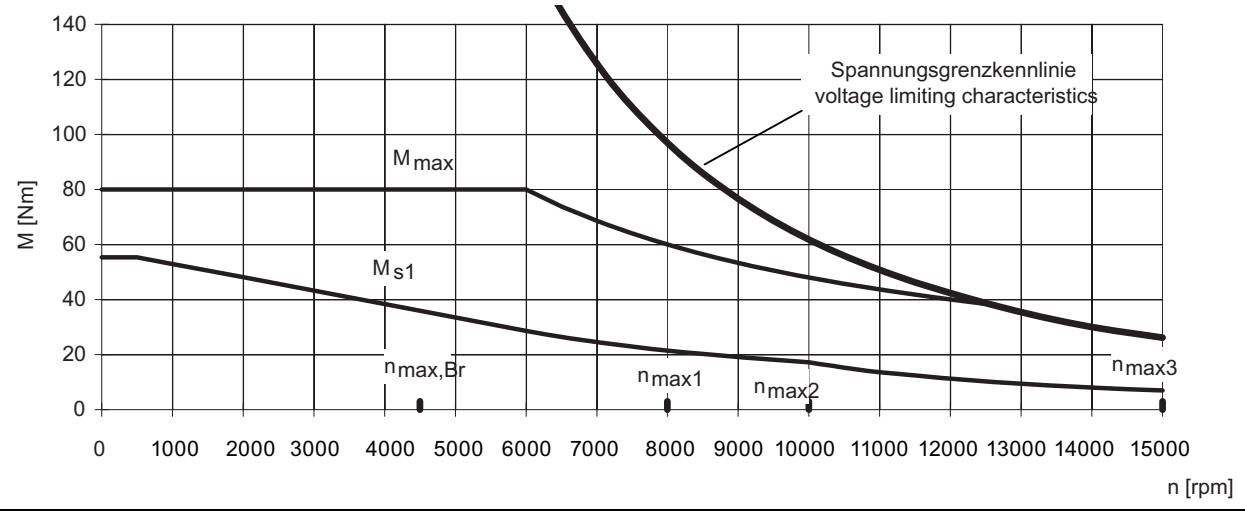


Table 4- 100 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	11,0	70	39	8000	10000	14000	4500	8000	200	111	94	47

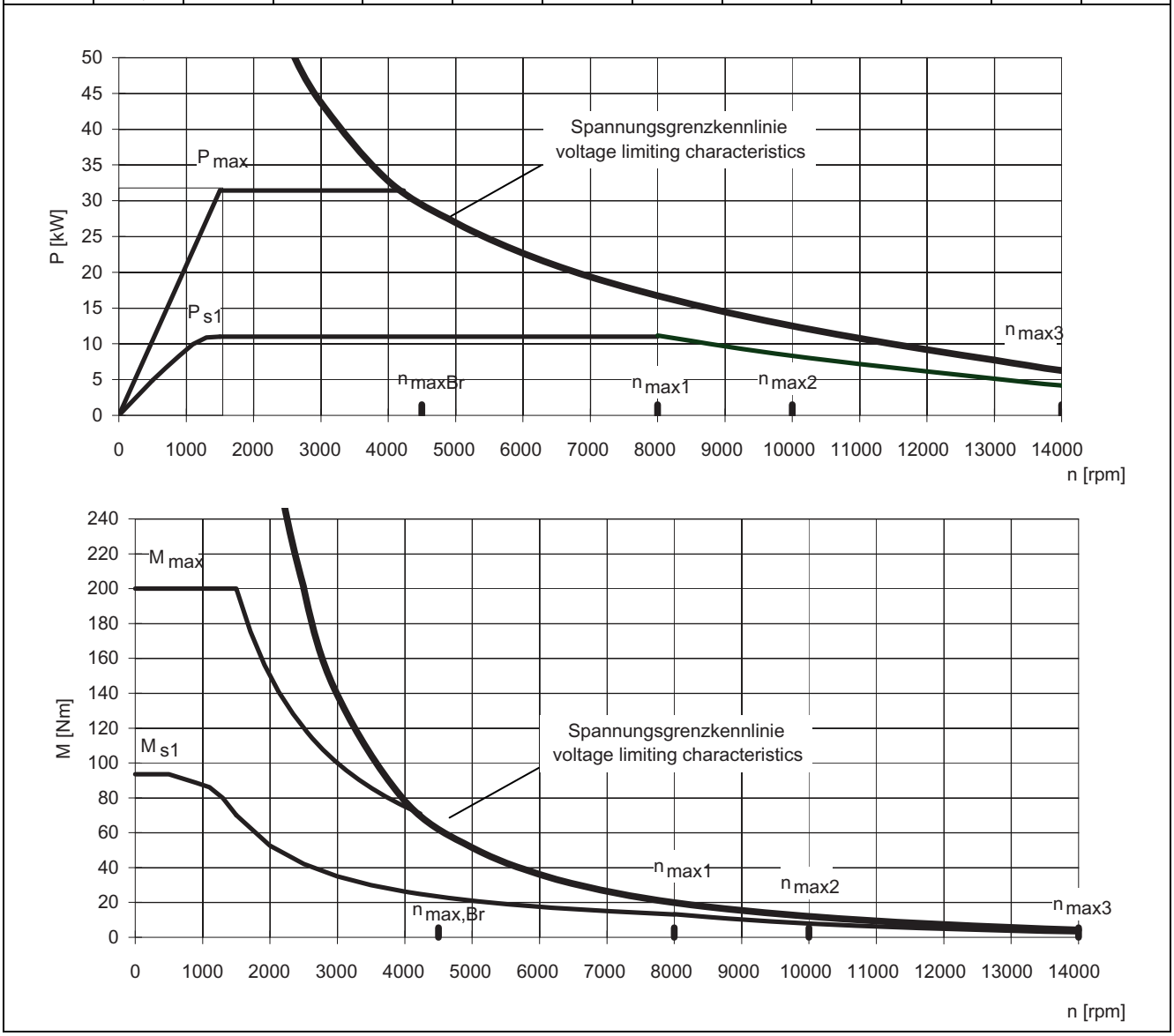
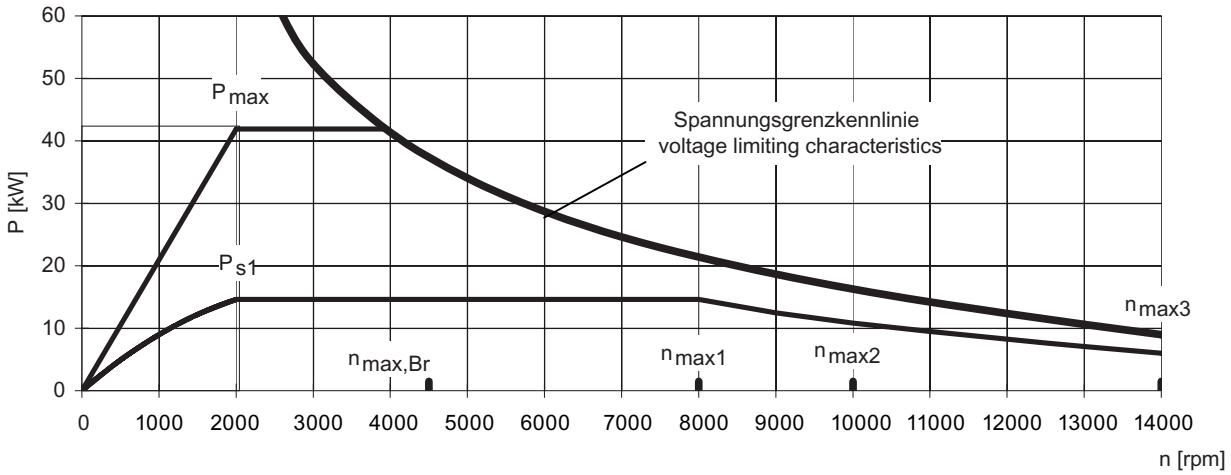


Table 4- 101 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	14,6	70	39	8000	10000	14000	4500	8000	200	111	94	47
1500	11,0	70	39					10000				



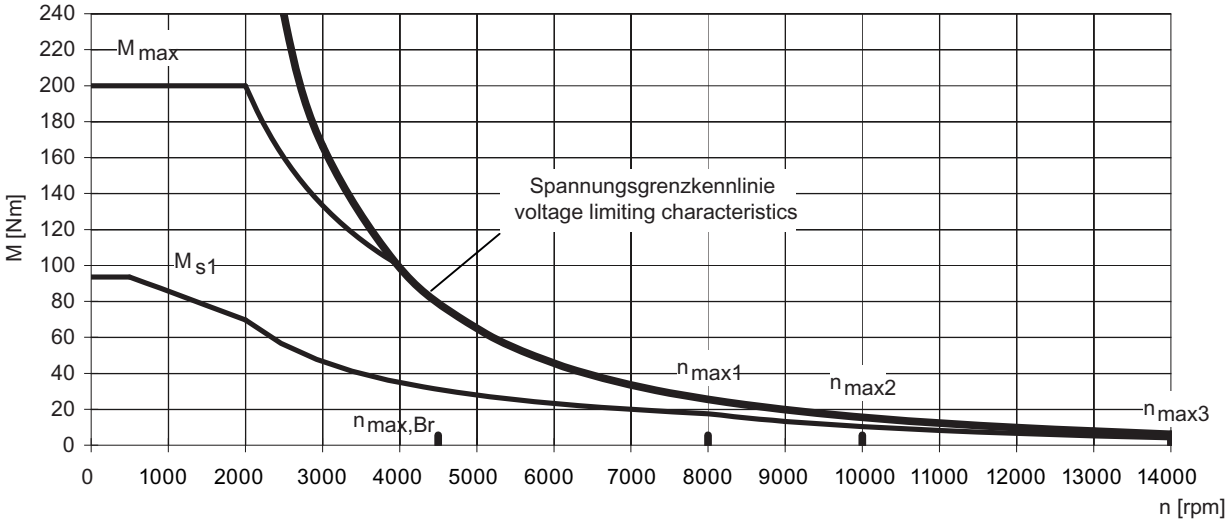
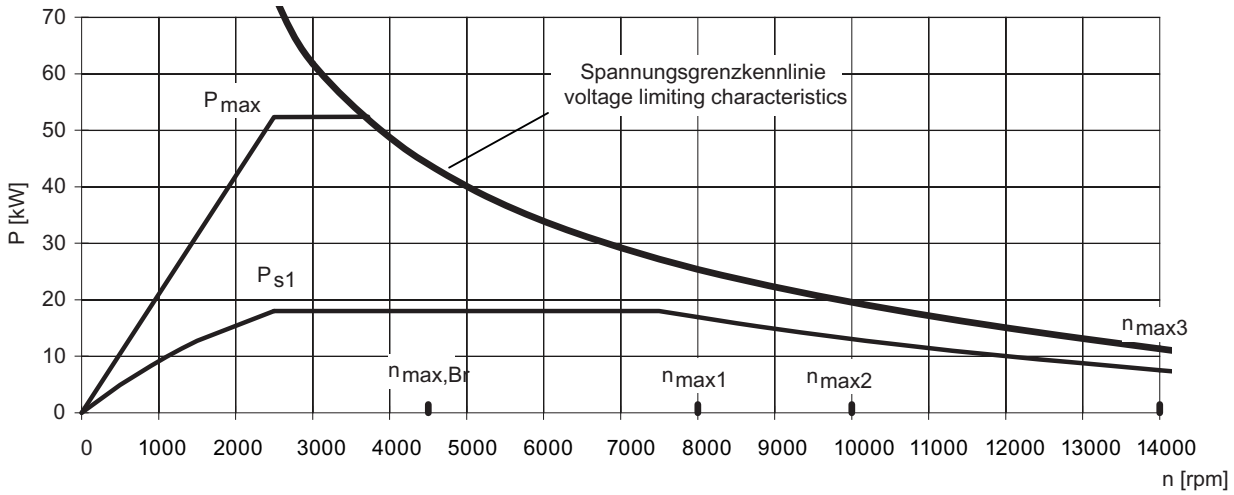


Table 4- 102 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	18,0	69	38	8000	10000	14000	4500	7500	200	111	94	47



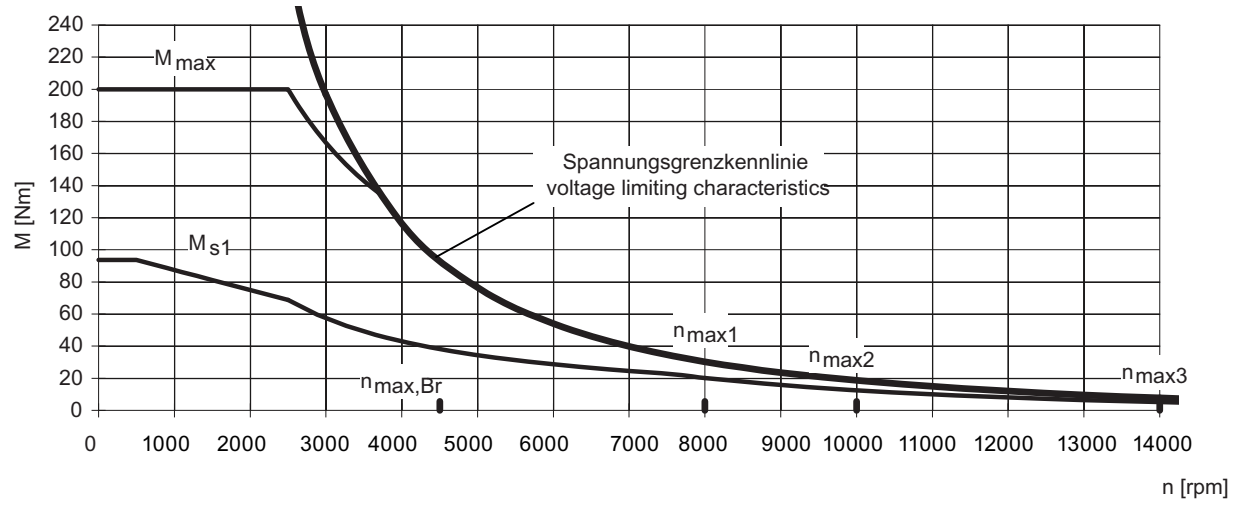


Table 4- 103 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	12,0	115	30	8000	10000	-	4500	3000	250	65	128	32

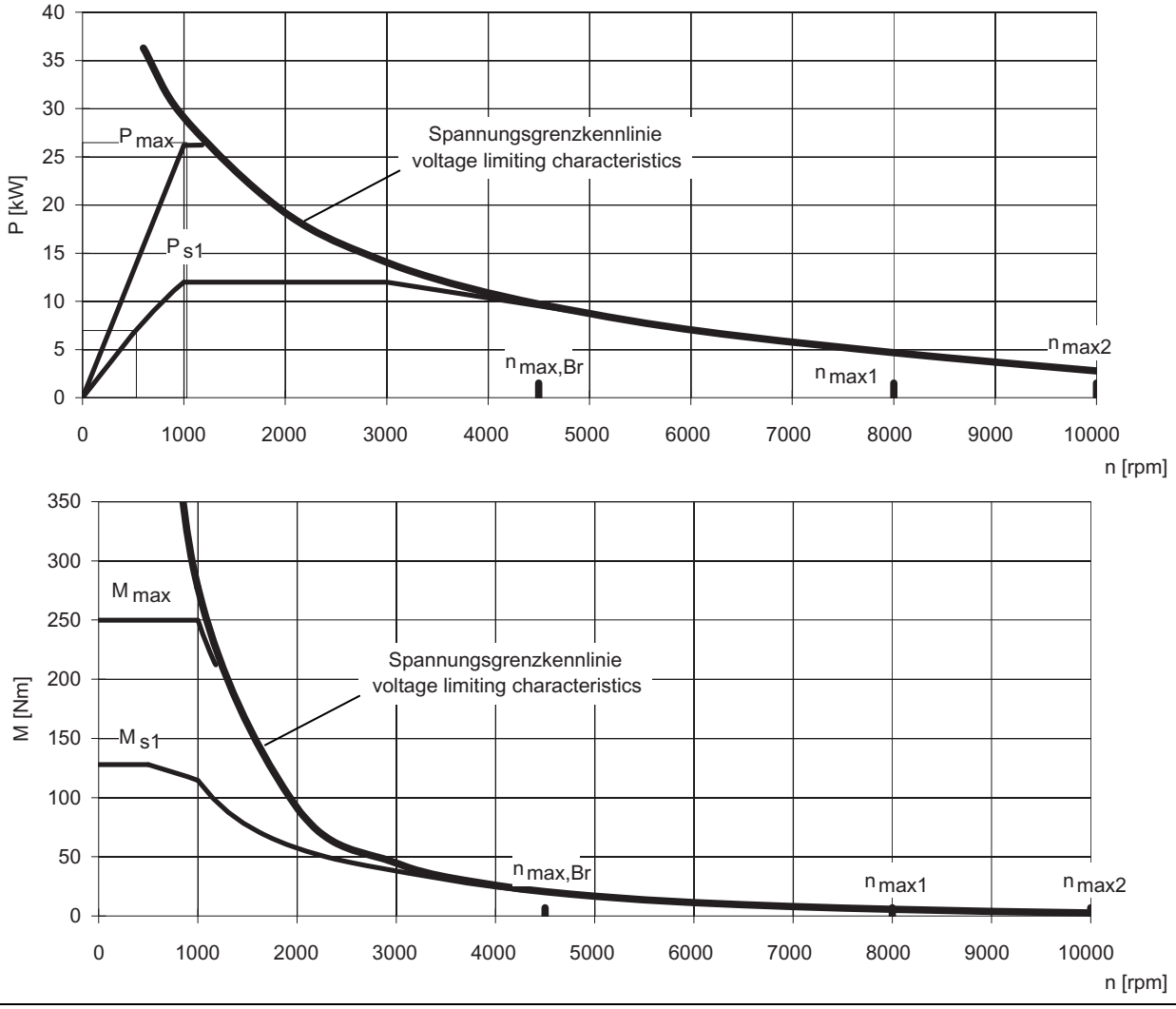
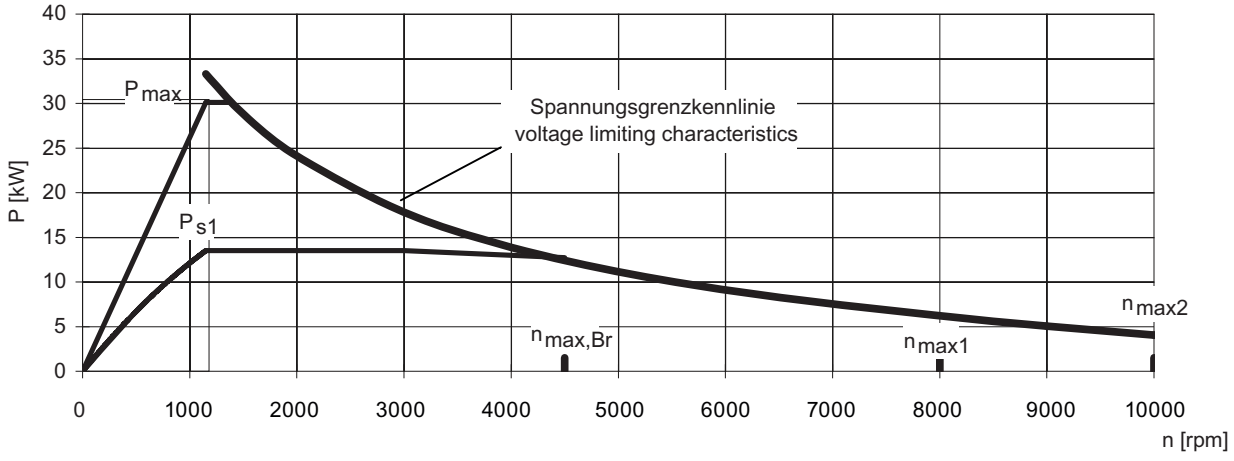


Table 4- 104 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	13,5	112	29	8000	10000	-	4500	3000	250	65	128	32
1000	12,0	115	30					4600				



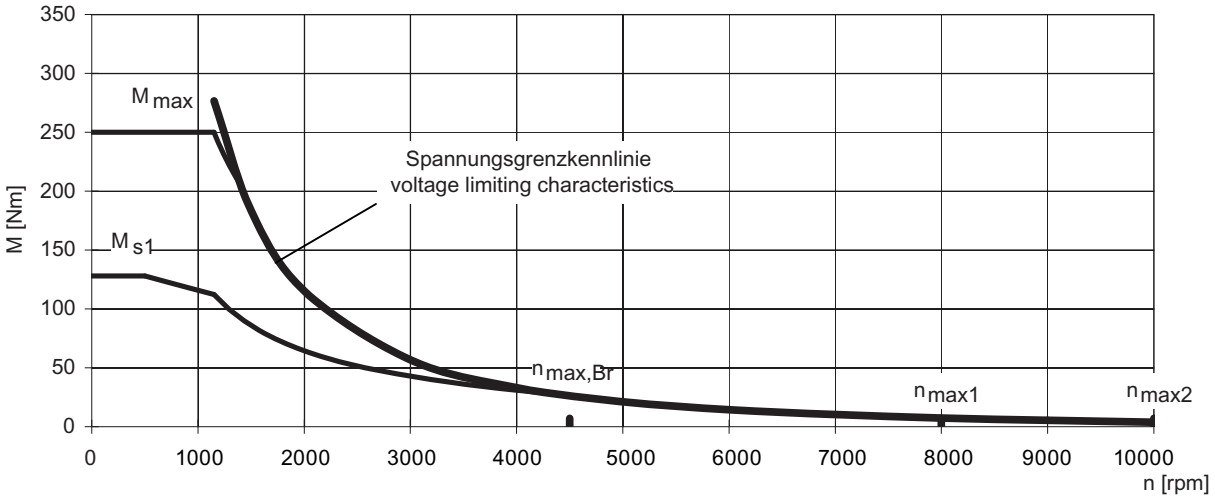


Table 4- 105 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	15,0	106	28	8000	10000	-	4500	3500	250	65	128	32

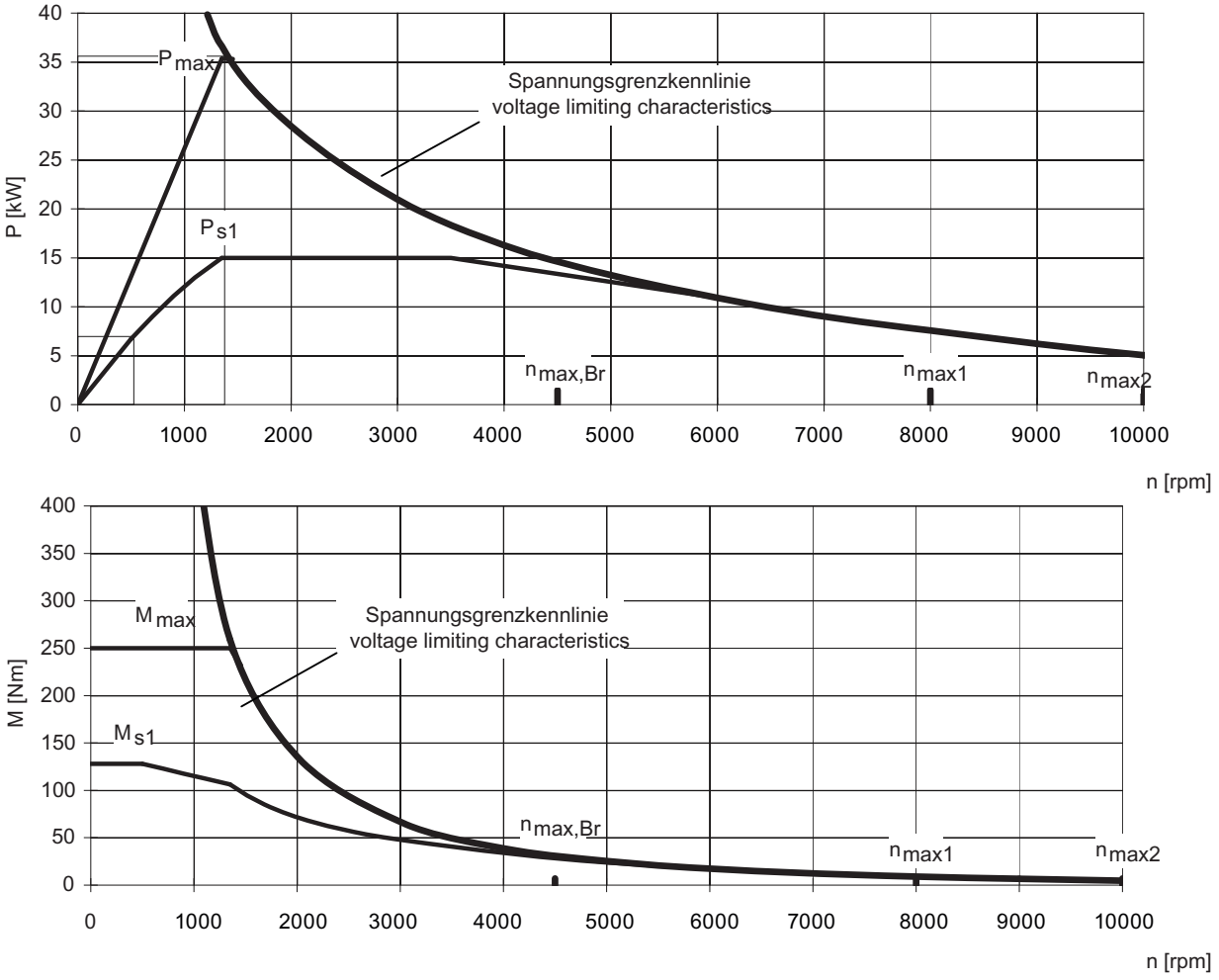


Table 4- 106 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	15,0	96	34	8000	10000	13000	4500	5500	240	85	126	42

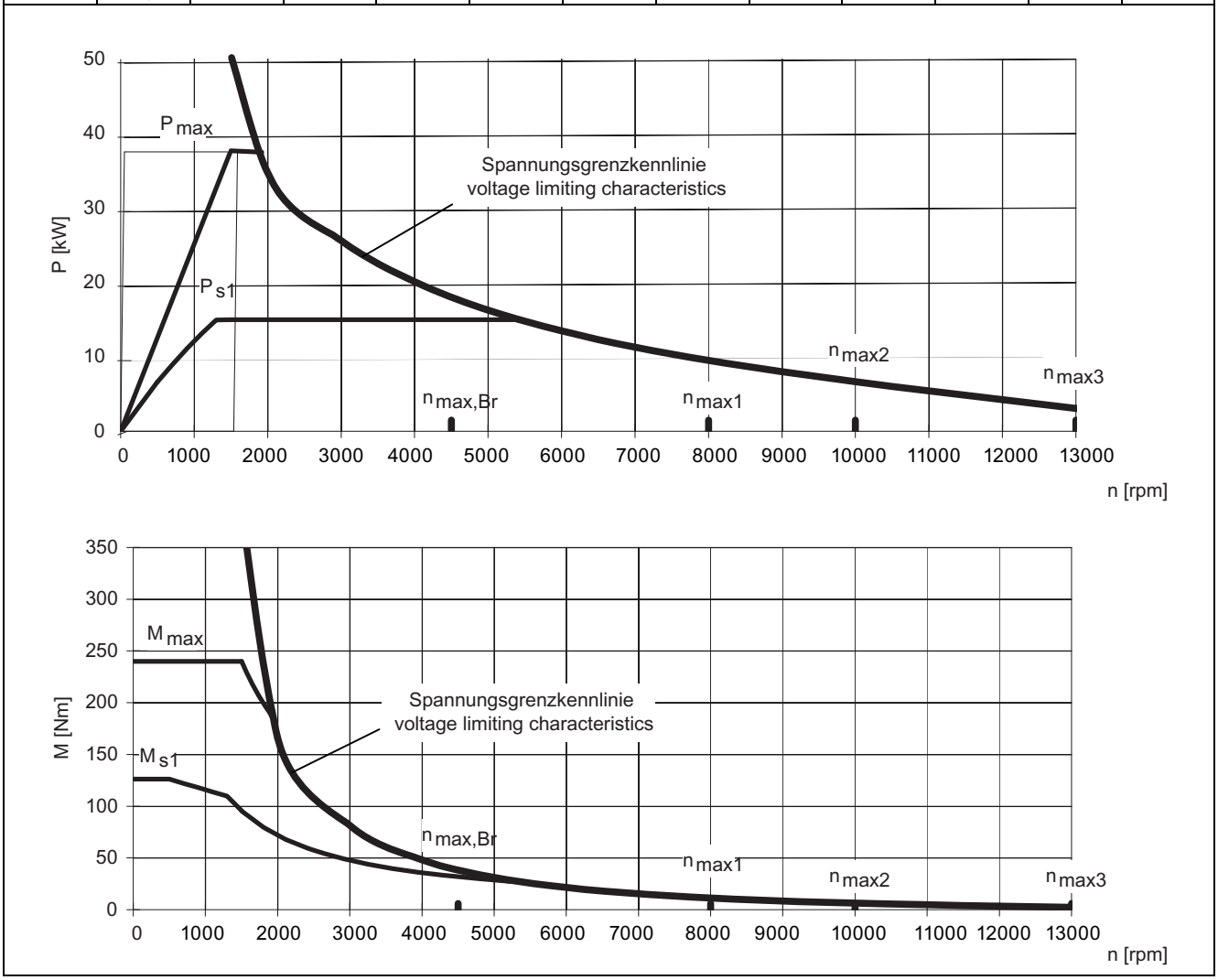
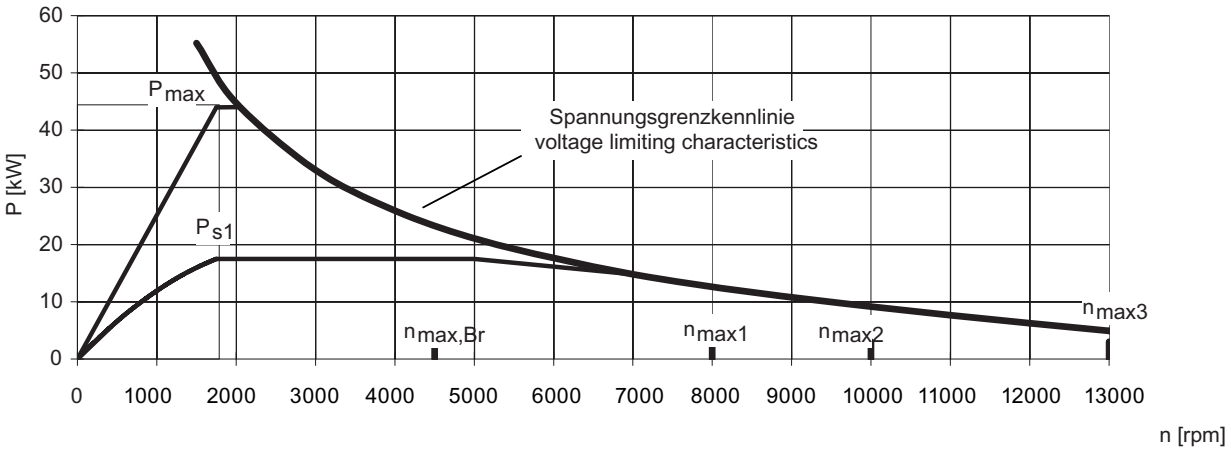


Table 4- 107 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	17,5	96	34	8000	10000	13000	4500	5000	240	85	126	42
1500	15,0	96	34					6900				



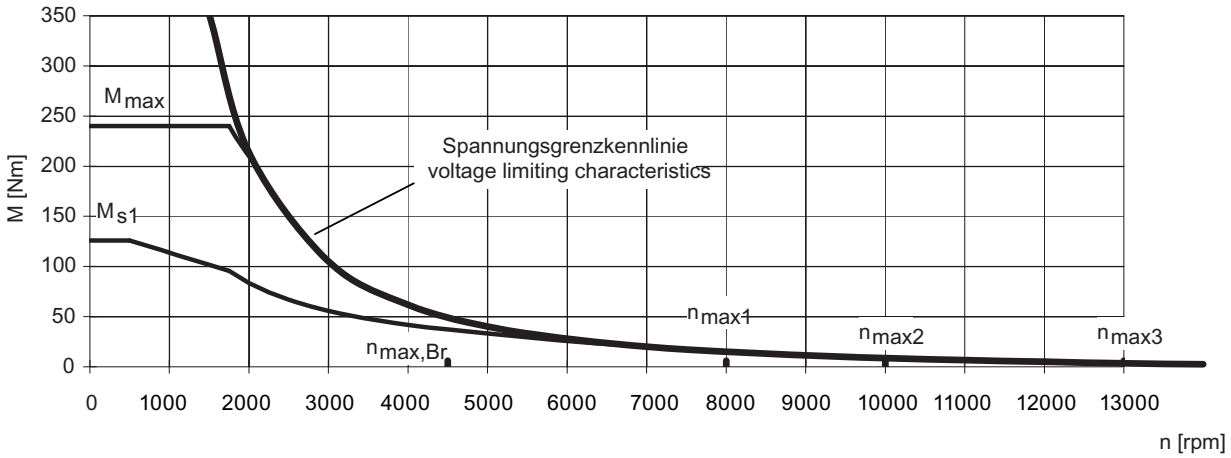


Table 4- 108 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	20,0	96	34	8000	10000	13000	4500	6200	240	85	126	42

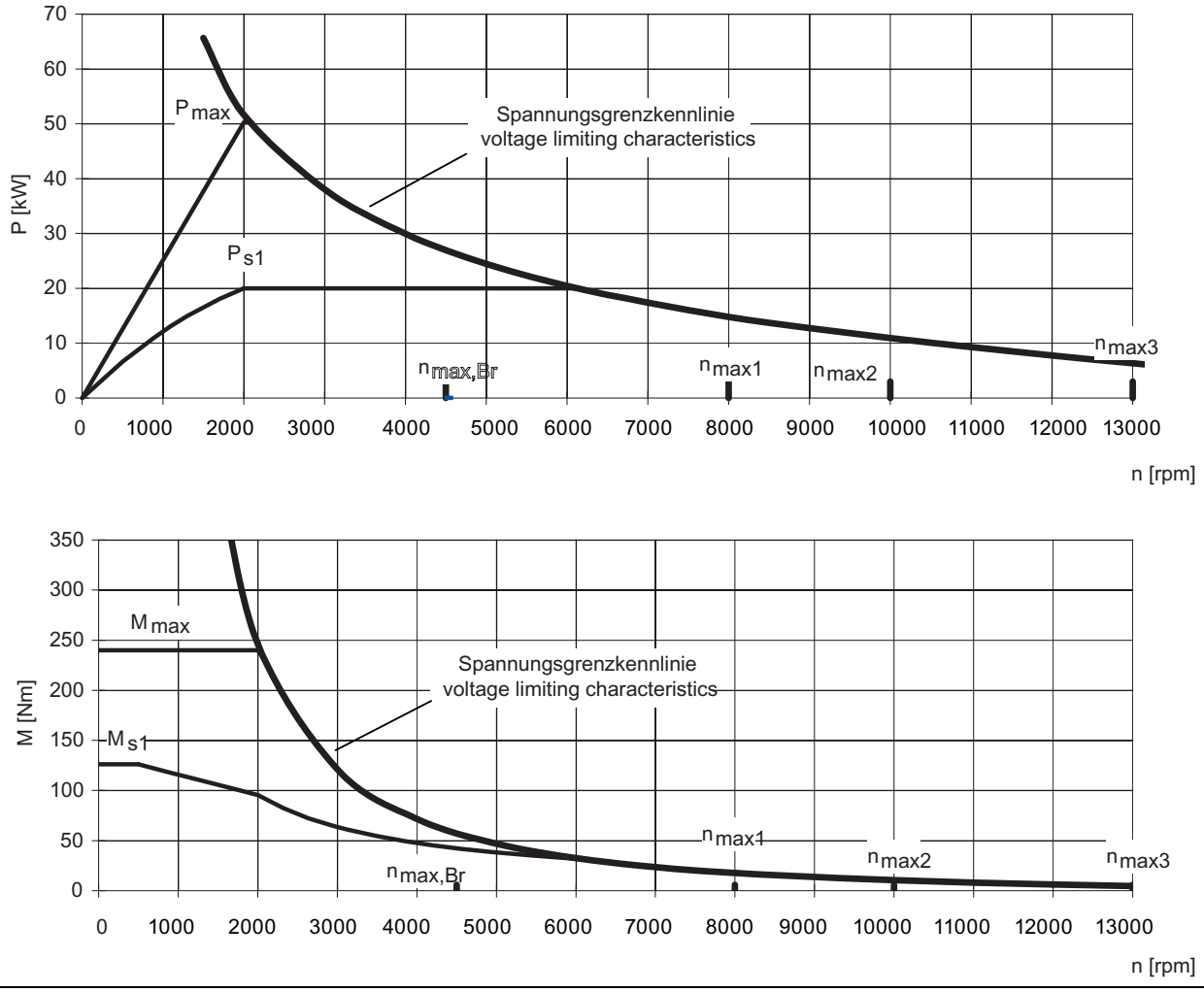
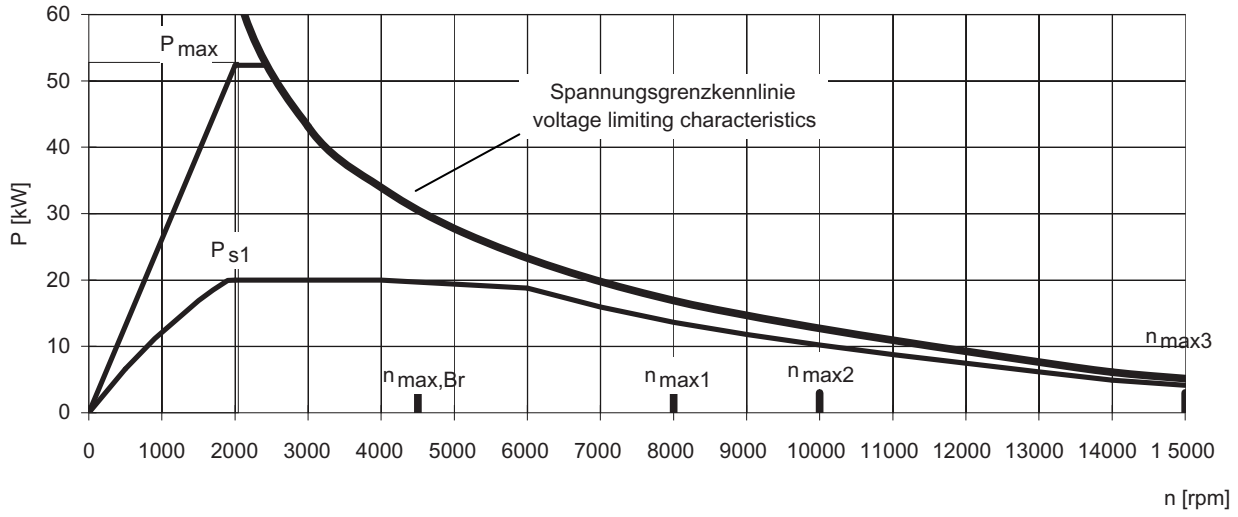


Table 4- 109 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	20,0	96	45	8000	10000	15000	4500	4000	250	117	126	54



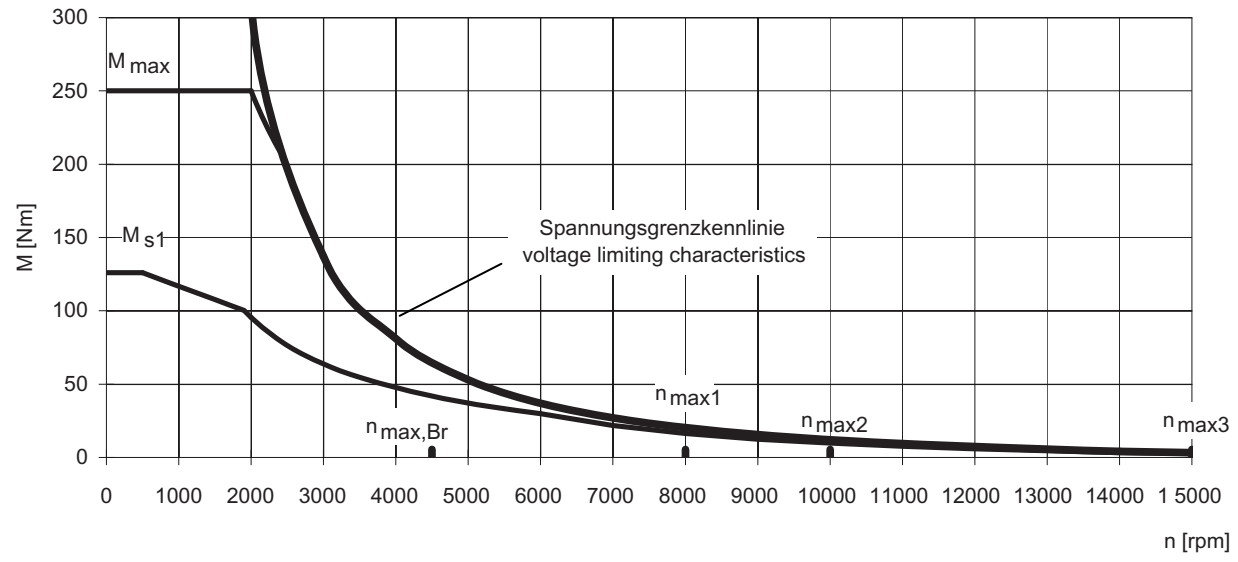


Table 4- 110 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	22,5	93	44	8000	10000	15000	4500	5000	250	117	126	54
2000	20,0	96	45					6500				

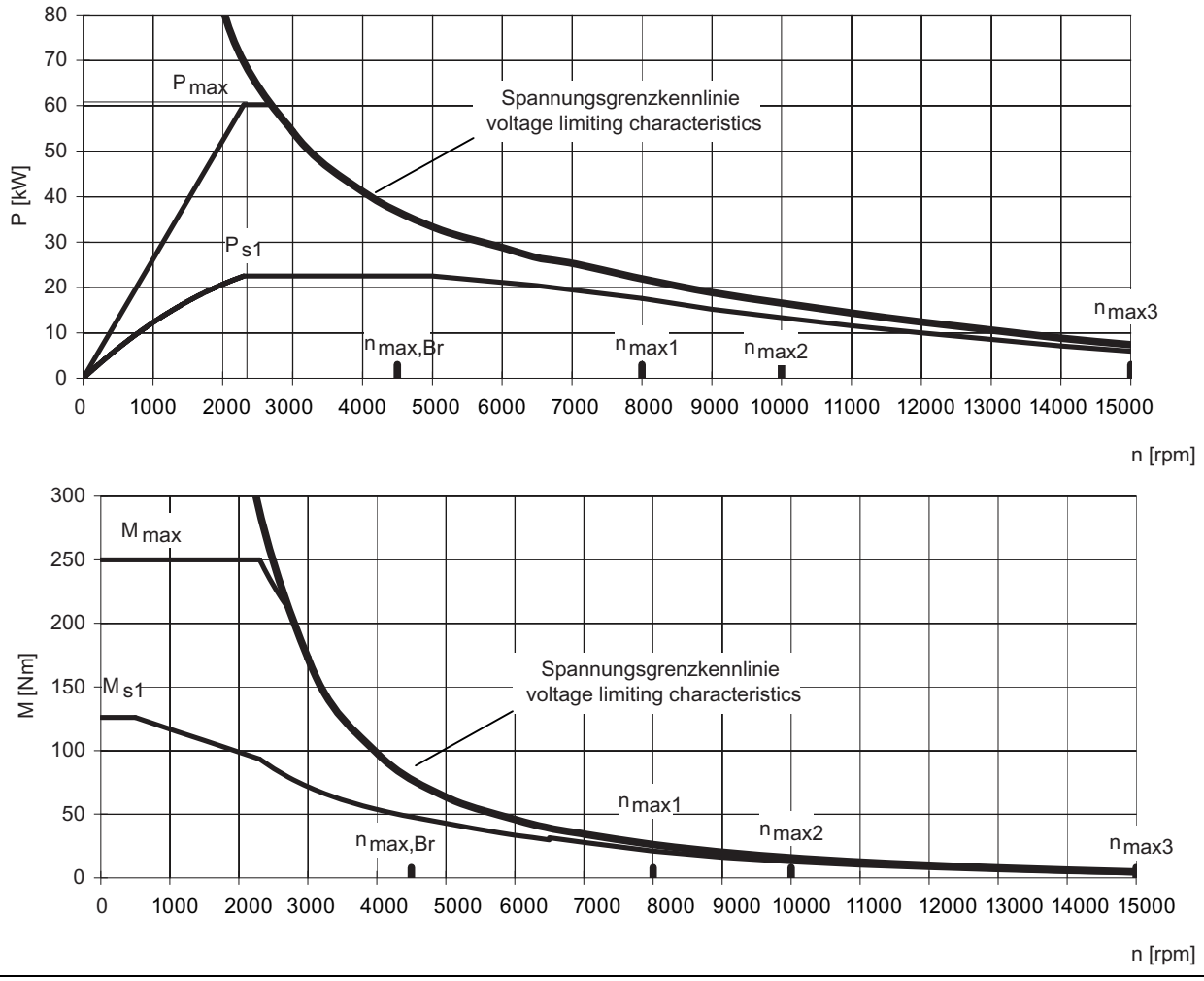


Table 4- 111 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	24,0	86	41	8000	10000	15000	4500	7000	250	117	126	54

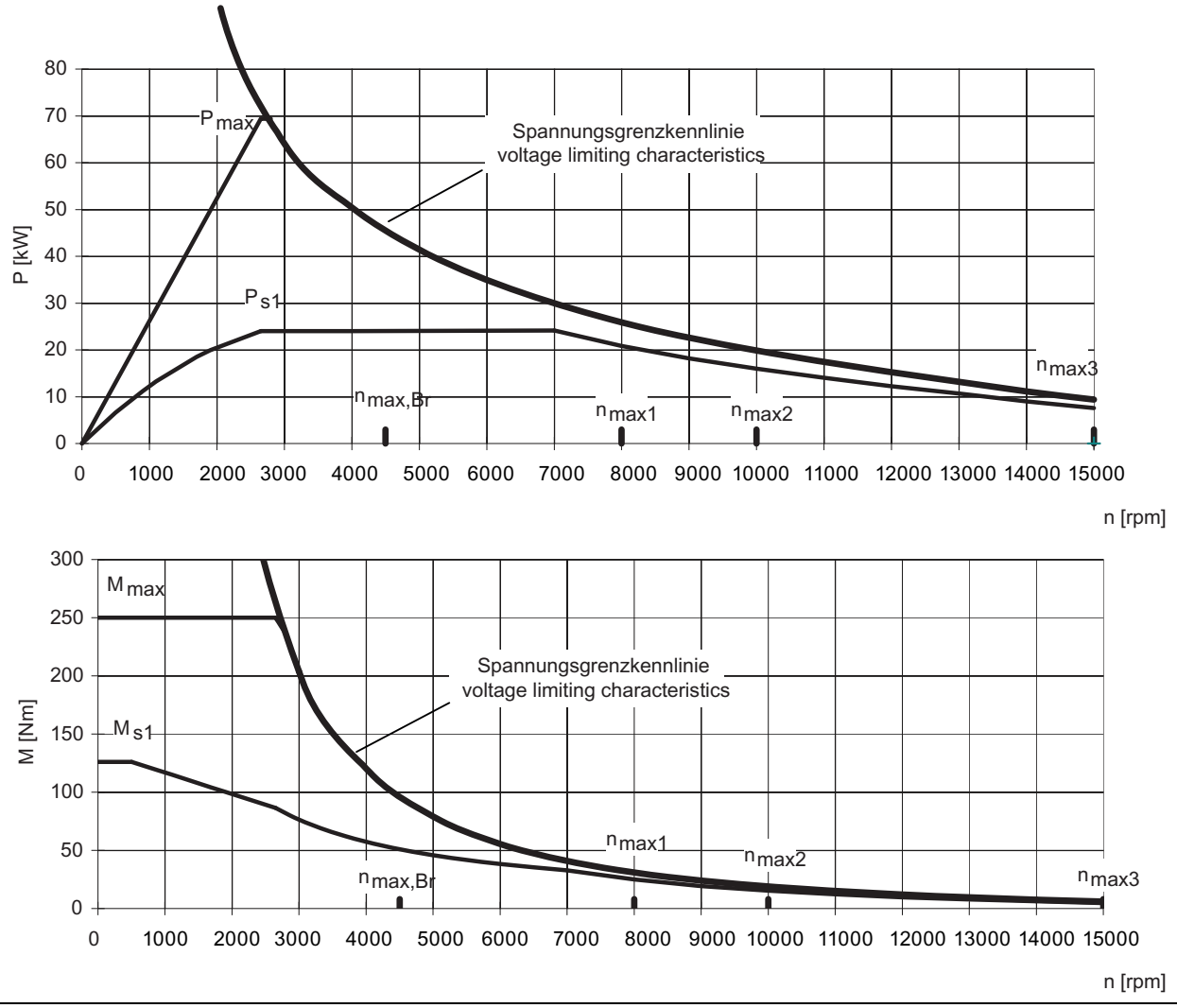


Table 4- 112 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	18.5	118	43	8000	10000	14000	4500	6150	300	112	157	53

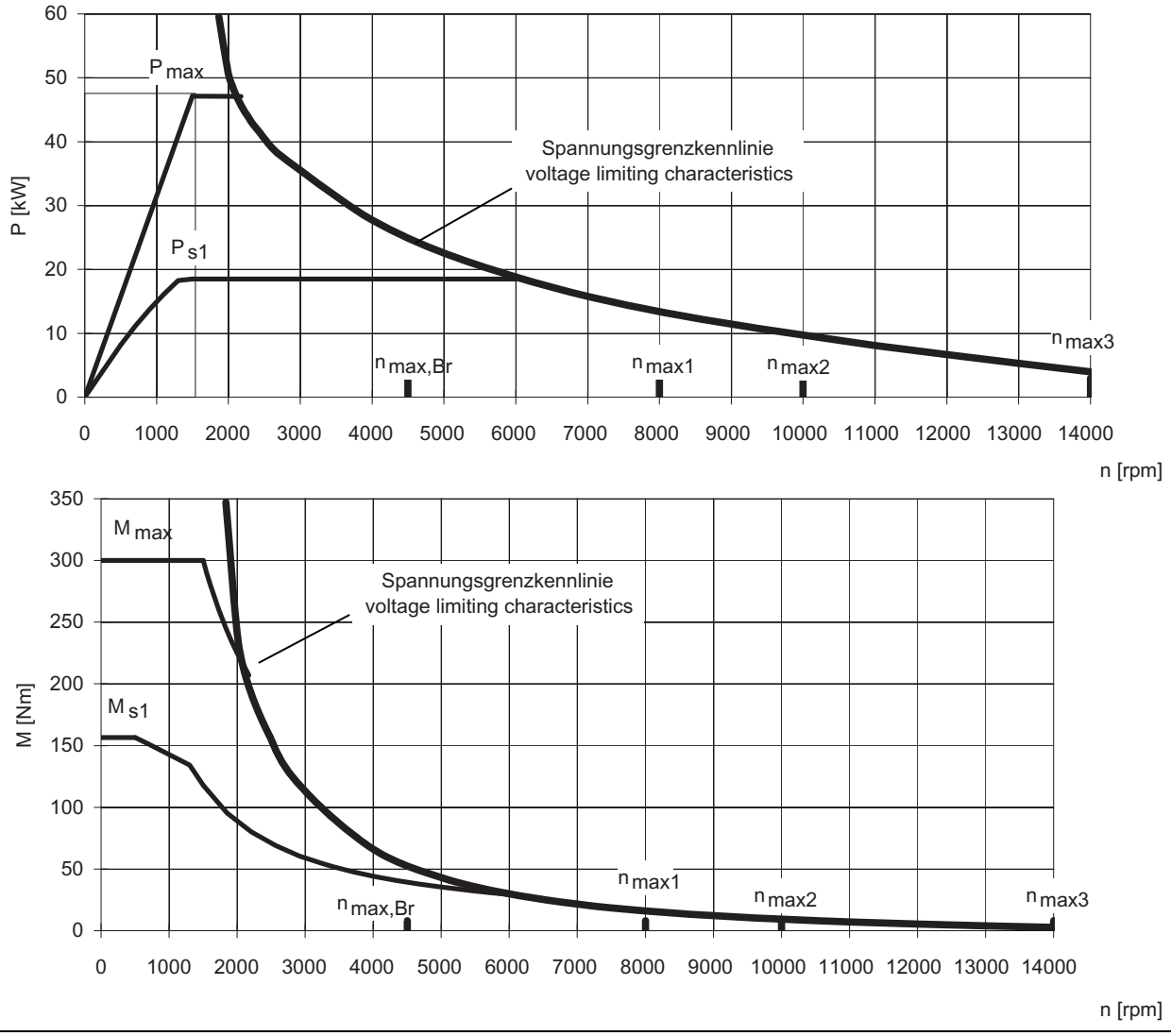


Table 4- 113 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	21.5	117	43	8000	10000	14000	4500	5500	300	112	157	53
1500	18.5	118	43					7500				

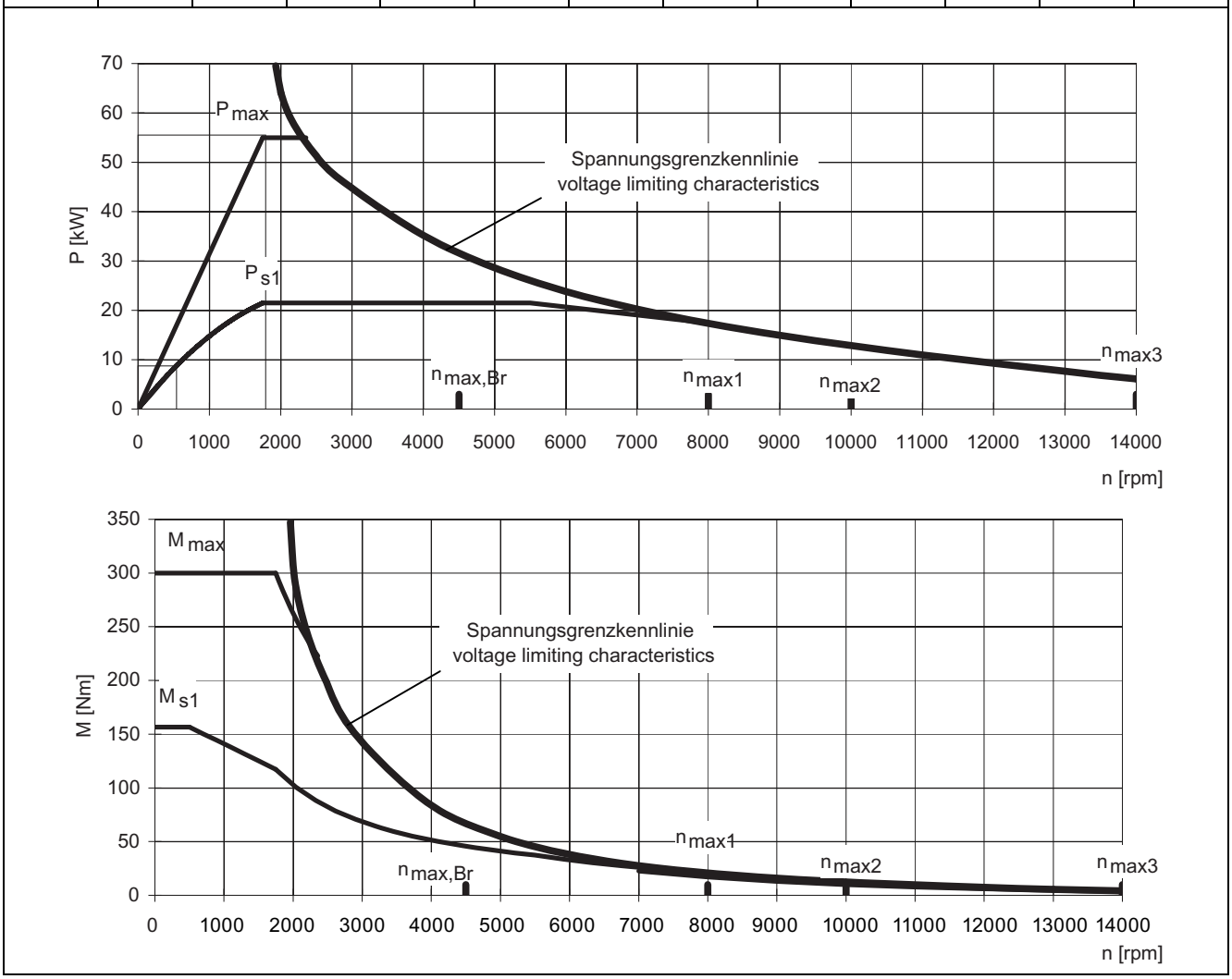


Table 4- 114 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	24.0	115	43	8000	10000	14000	4500	7100	300	112	157	53

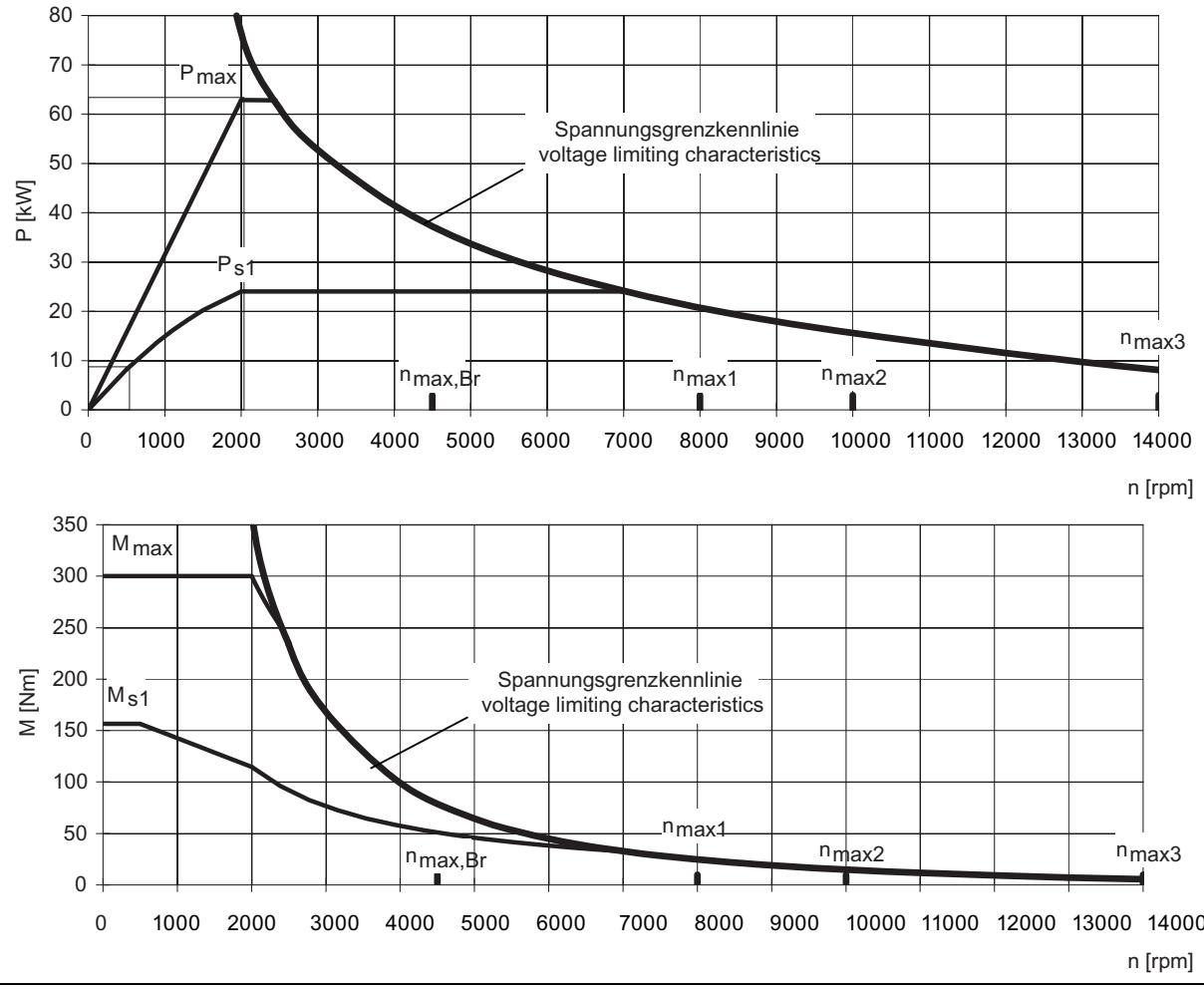
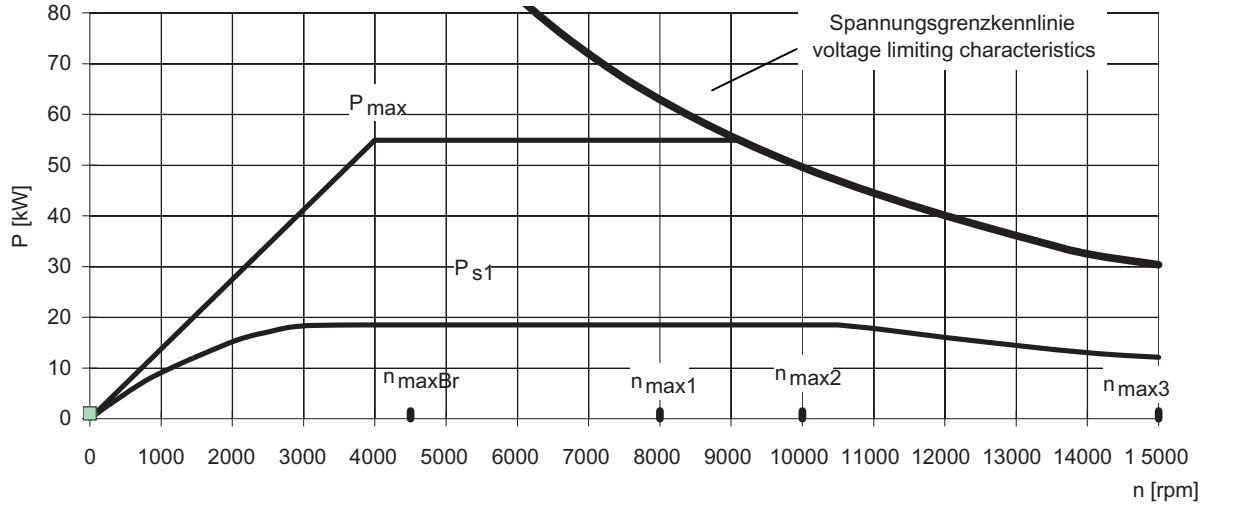


Table 4- 115 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	18.5	44	51	8000	10000	15000	4500	10500	131	145	94	78



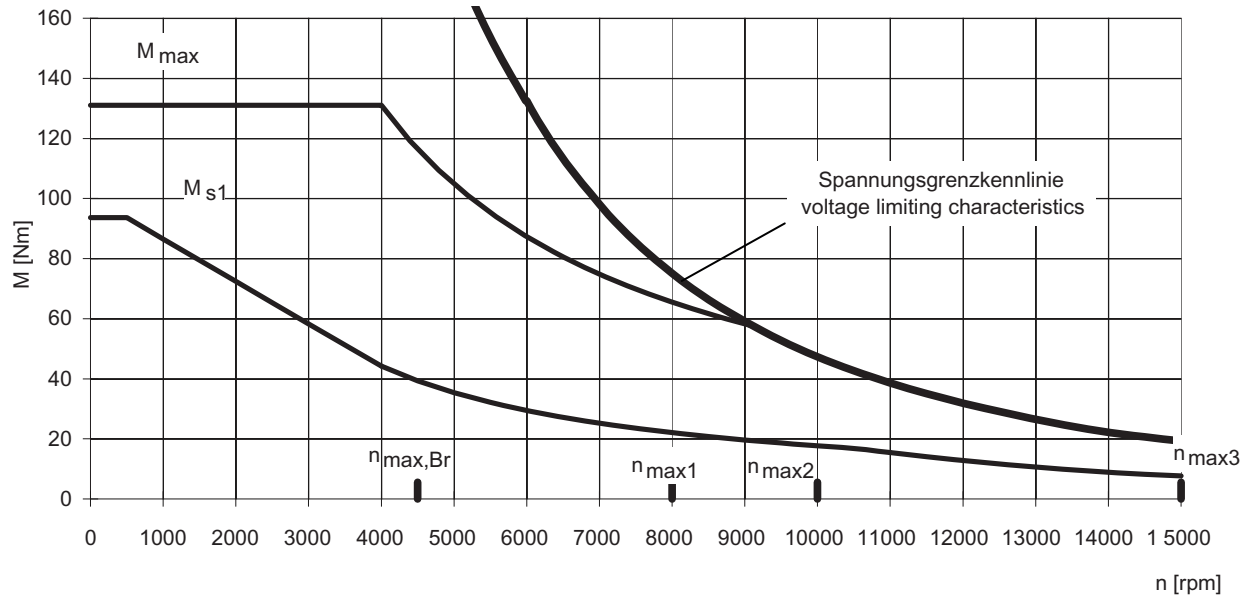


Table 4- 116 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	24.5	47	52	8000	10000	15000	4500	10000	131	145	94	78
4000	18.5	44	51					13000				

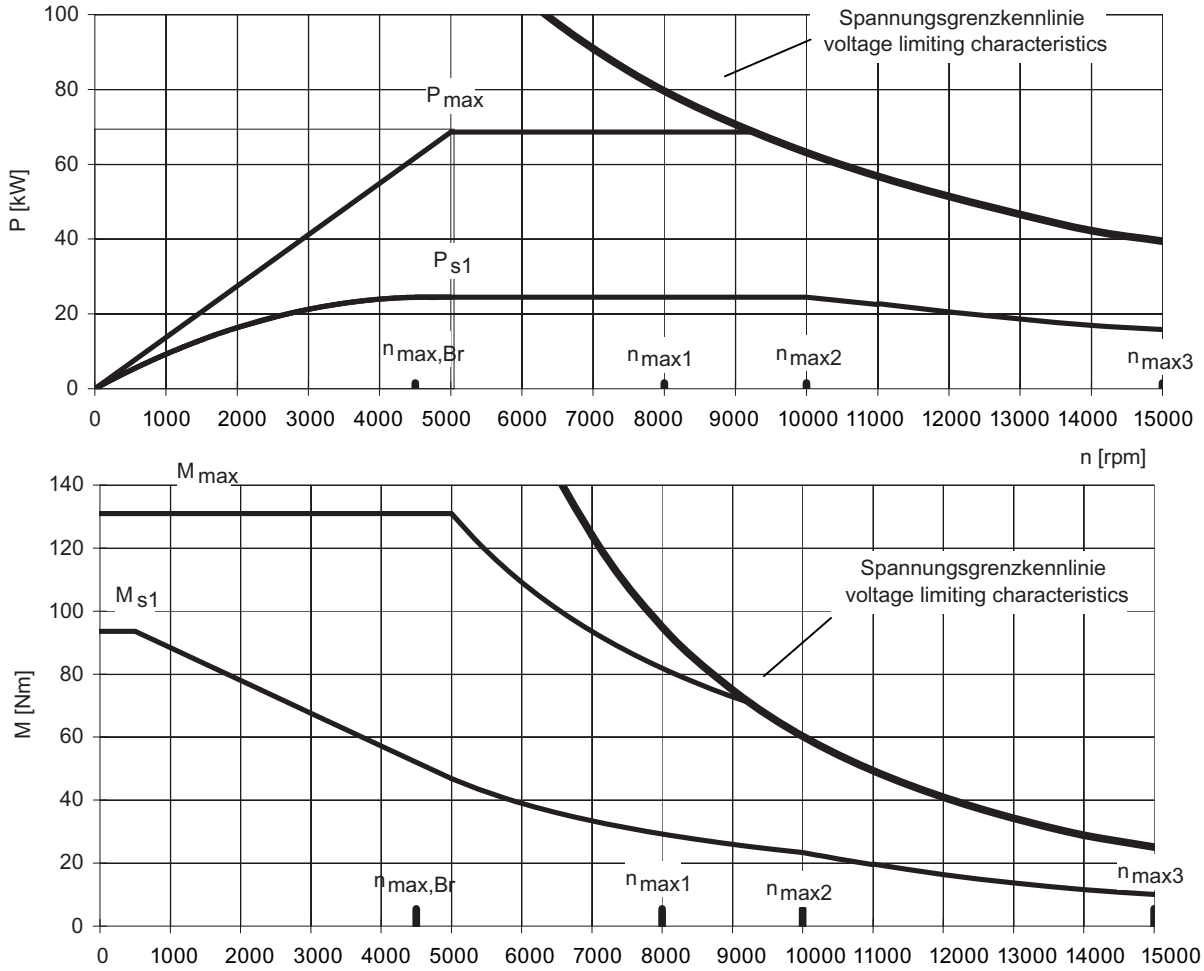
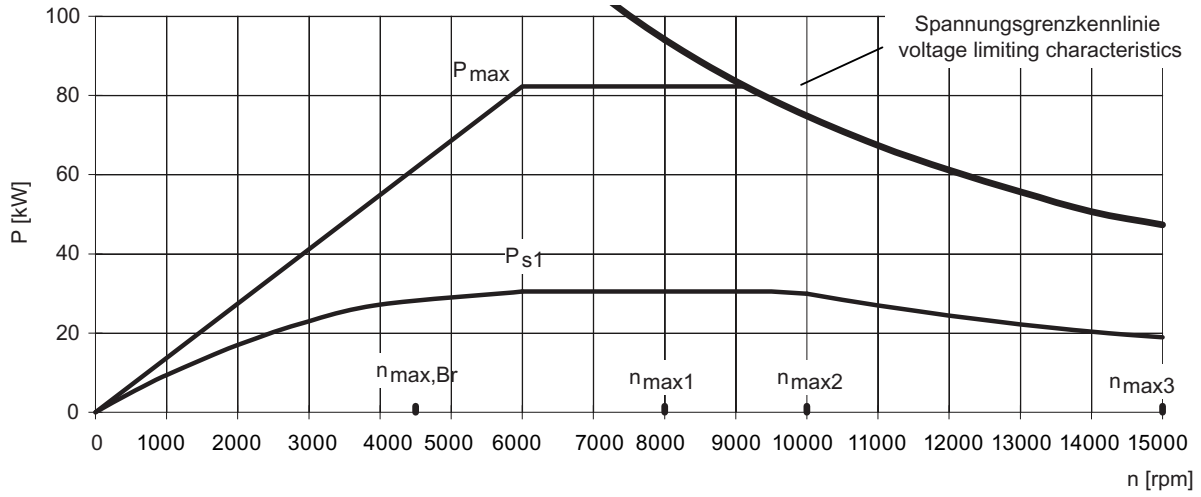


Table 4- 117 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	30.5	49	50	8000	10000	15000	4500	9500	131	145	94	78



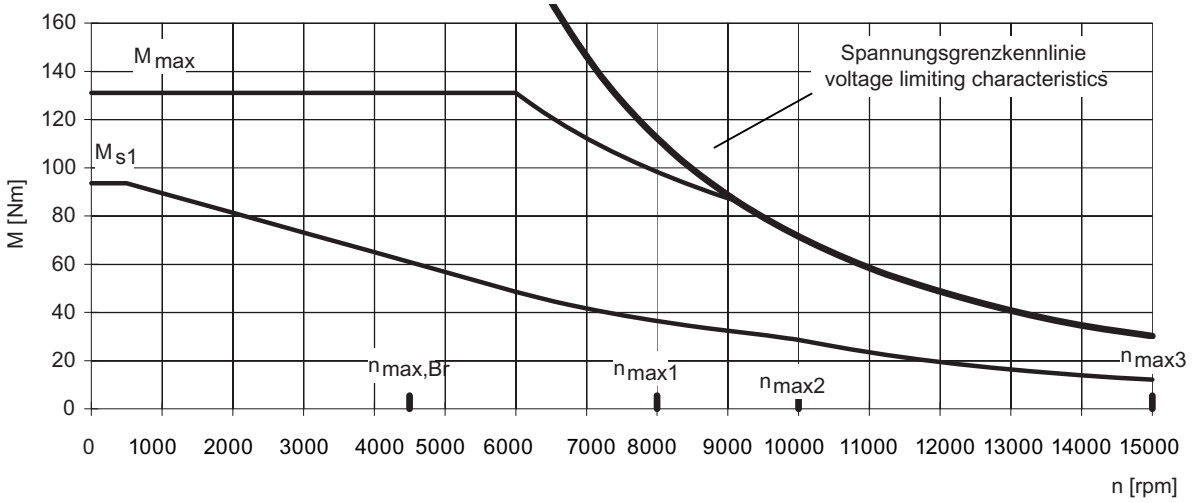
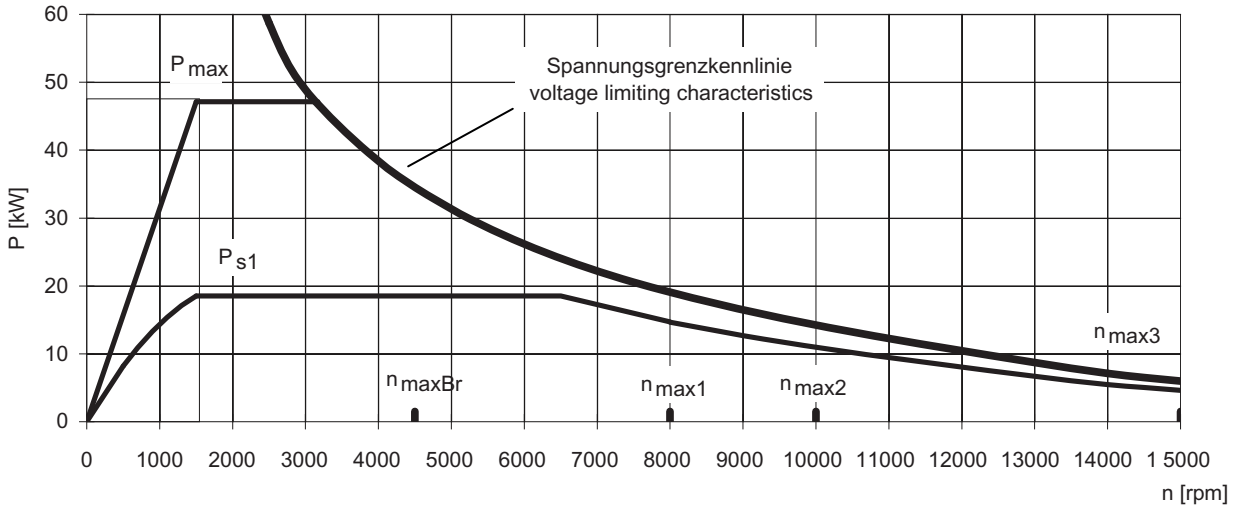


Table 4- 118 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	18.5	118	51	8000	10000	15000	4500	6500	300	132	157	62



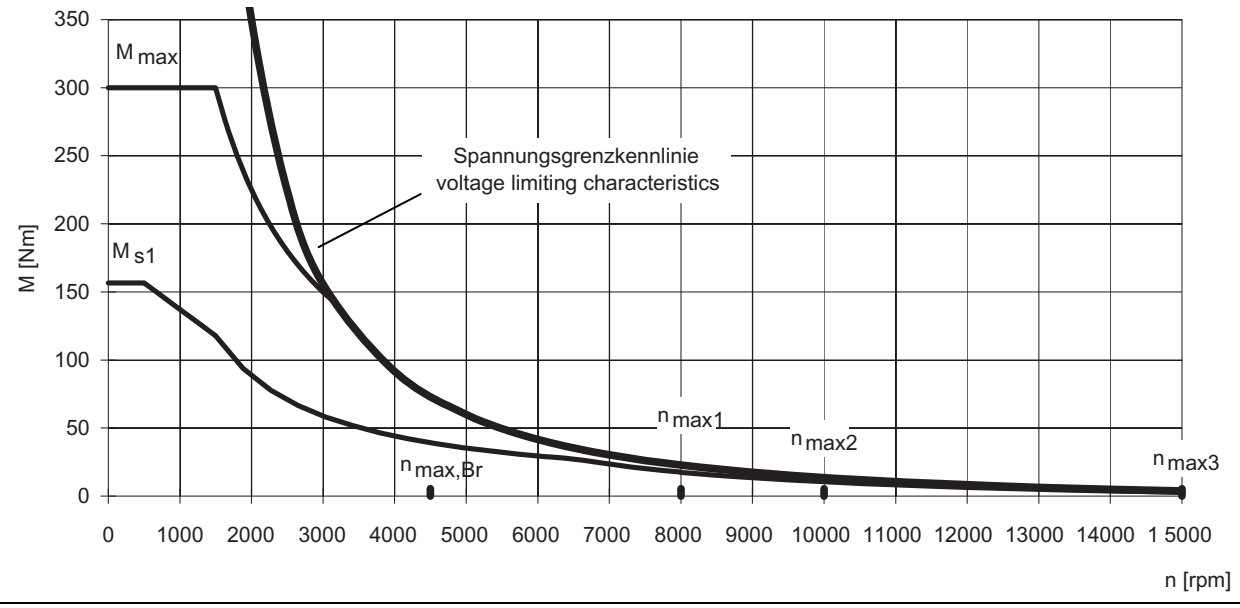
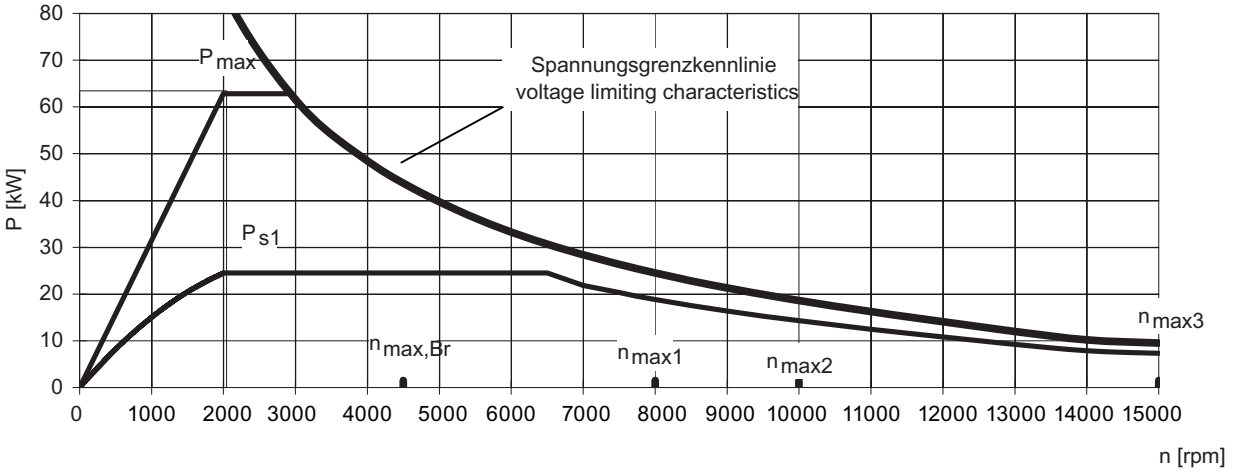


Table 4- 119 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	24.5	117	51	8000	10000	15000	4500	6500	300	132	157	62
1500	18.5	118	51					8000				



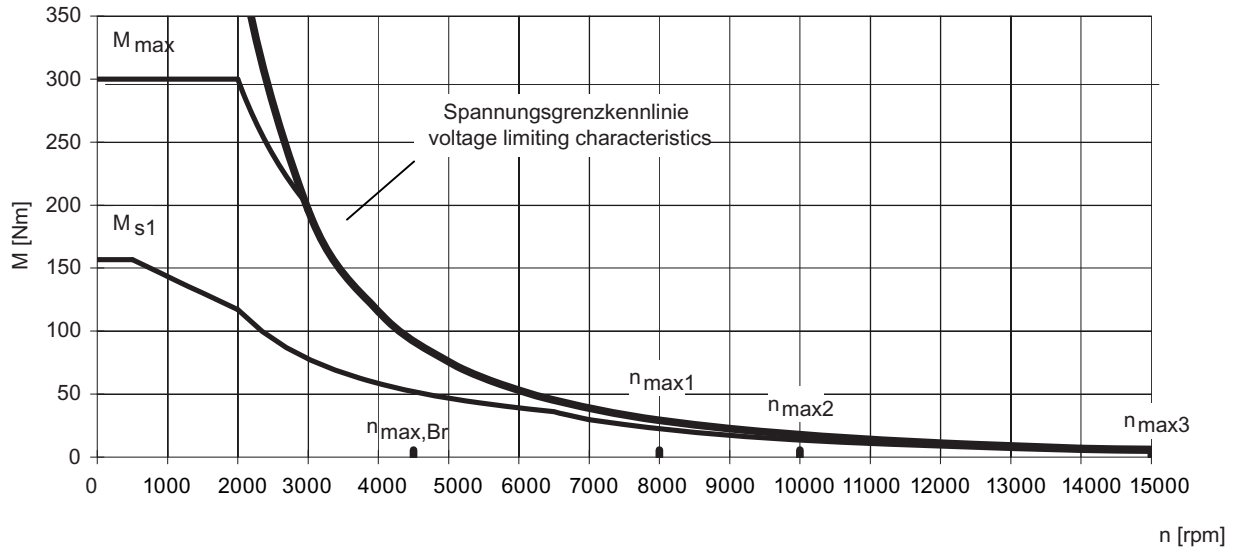


Table 4- 120 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	30.5	117	50	8000	10000	15000	4500	6000	300	132	157	62

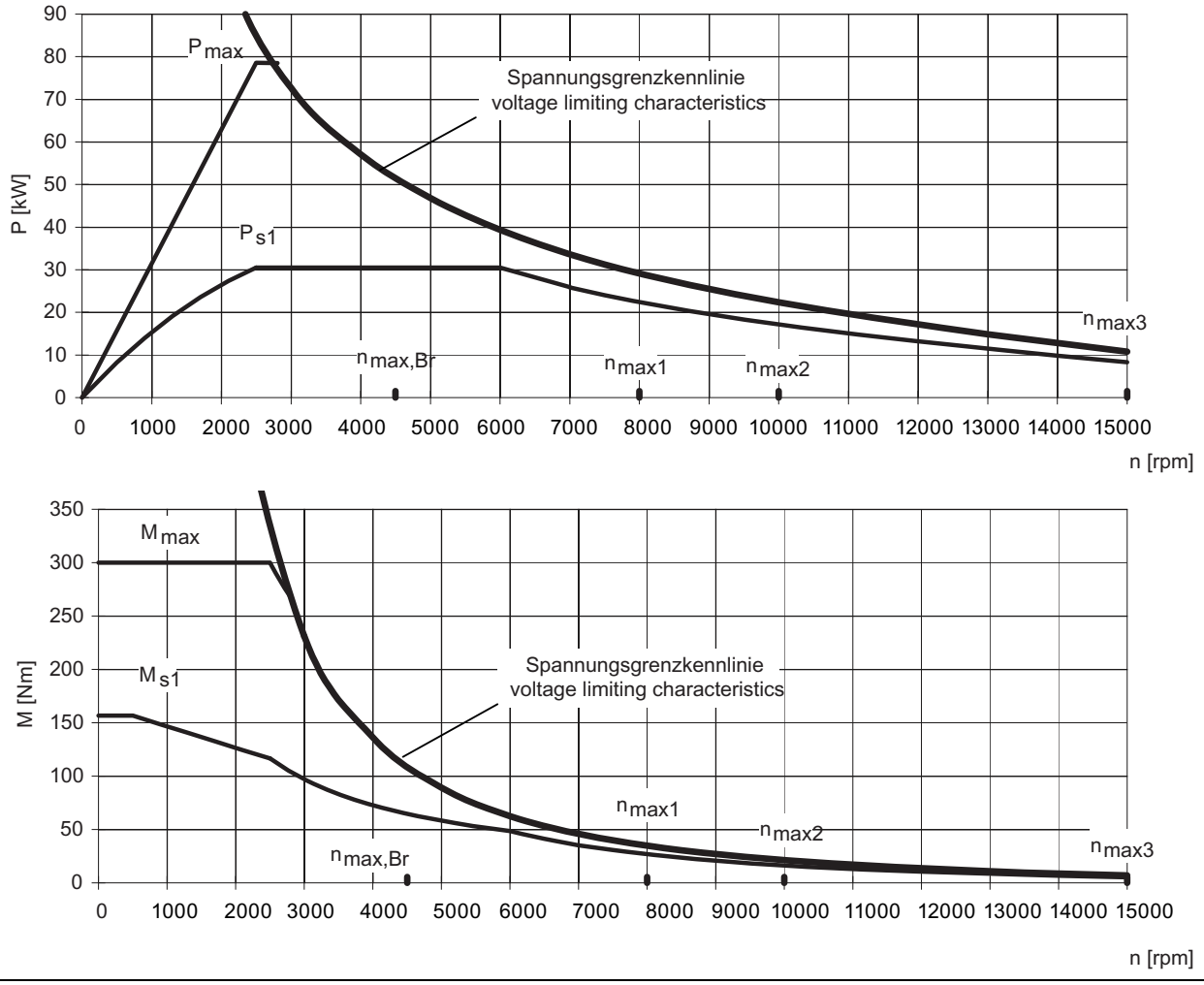


Table 4- 121 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	17.0	162	43	8000	10000	12000	4500	4300	405	108	183	47

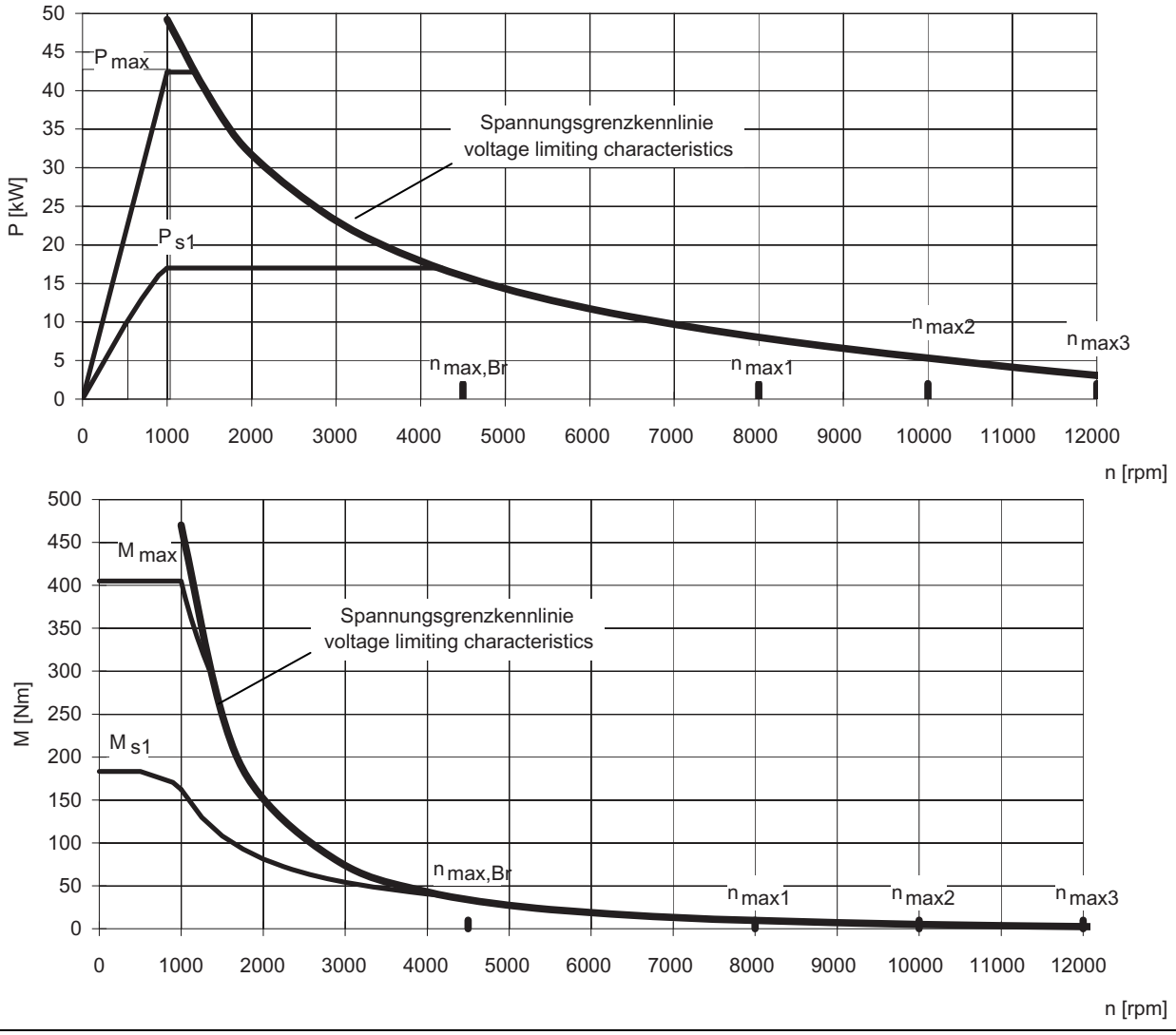
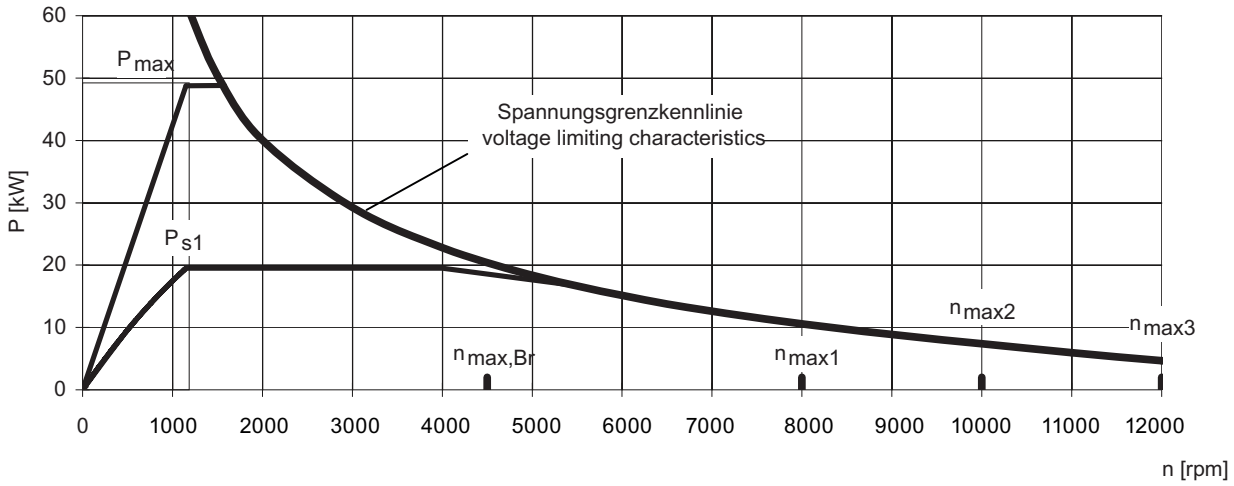


Table 4- 122 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	19.5	162	43	8000	10000	12000	4500	4000	405	108	183	47
1000	17.0	162	43					5400				



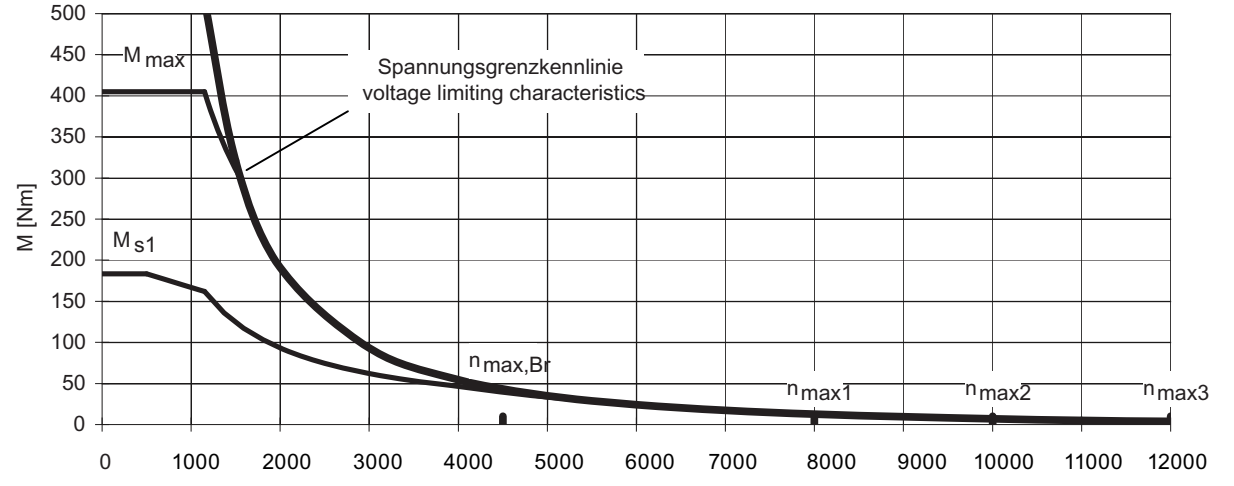


Table 4- 123 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	22.0	156	42	8000	10000	12000	4500	4000	405	108	183	47

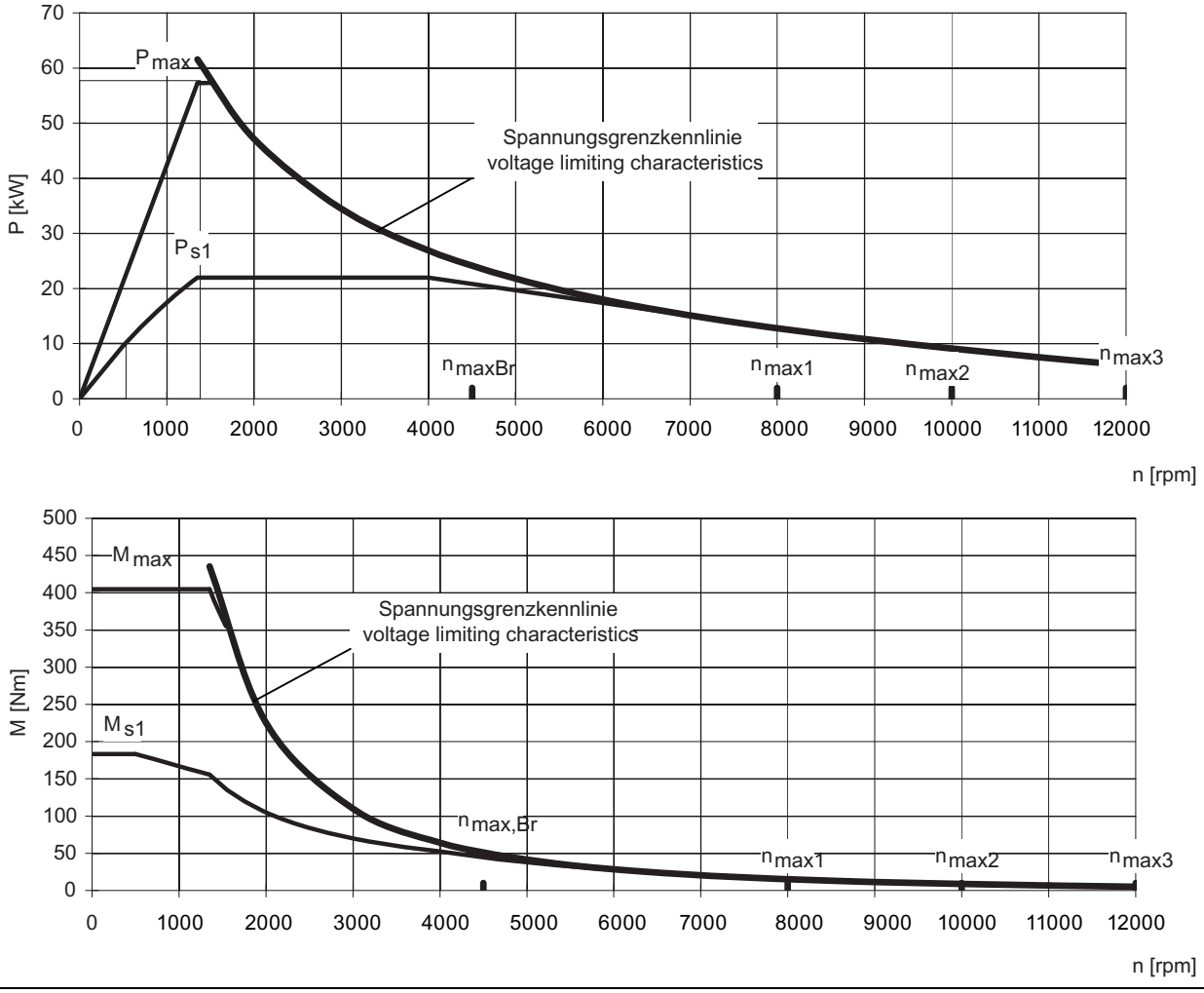
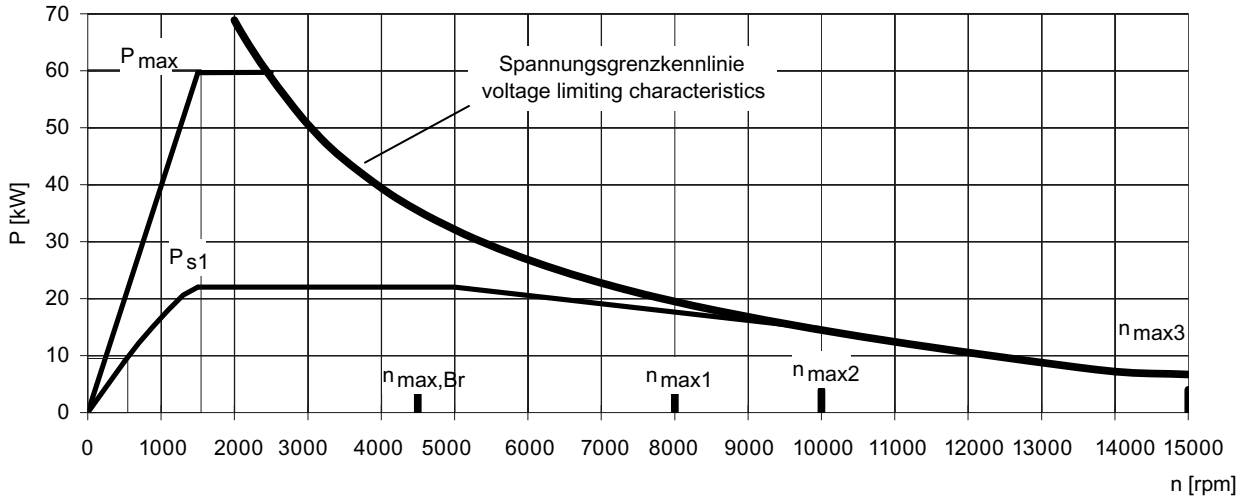


Table 4- 124 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	22.0	140	56	8000	10000	15000	4500	4300	380	151	172	68



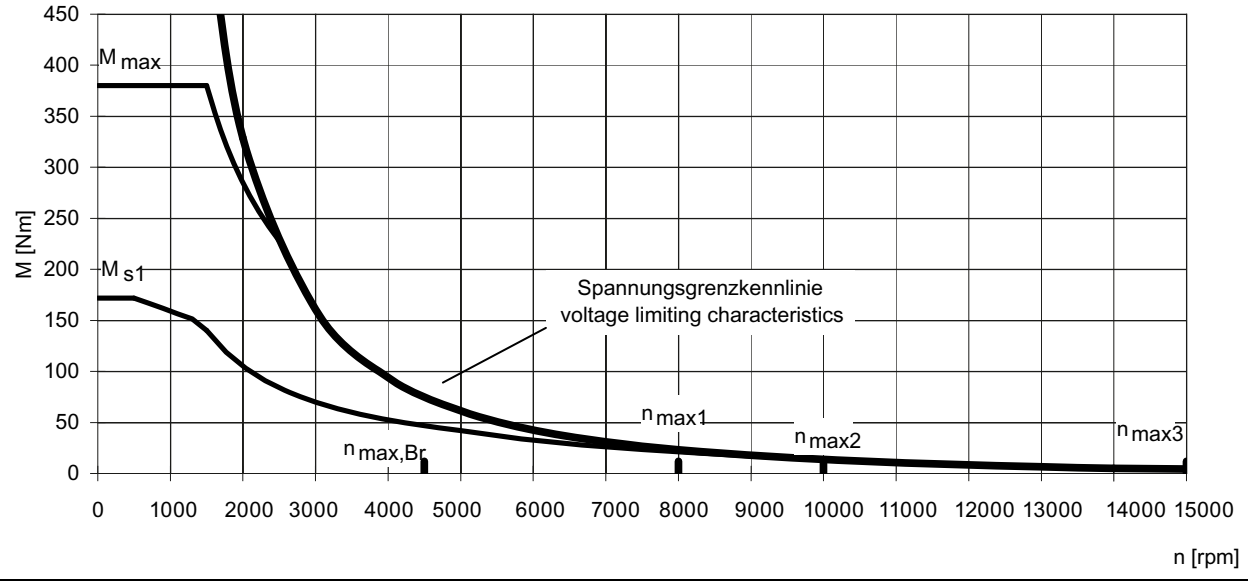
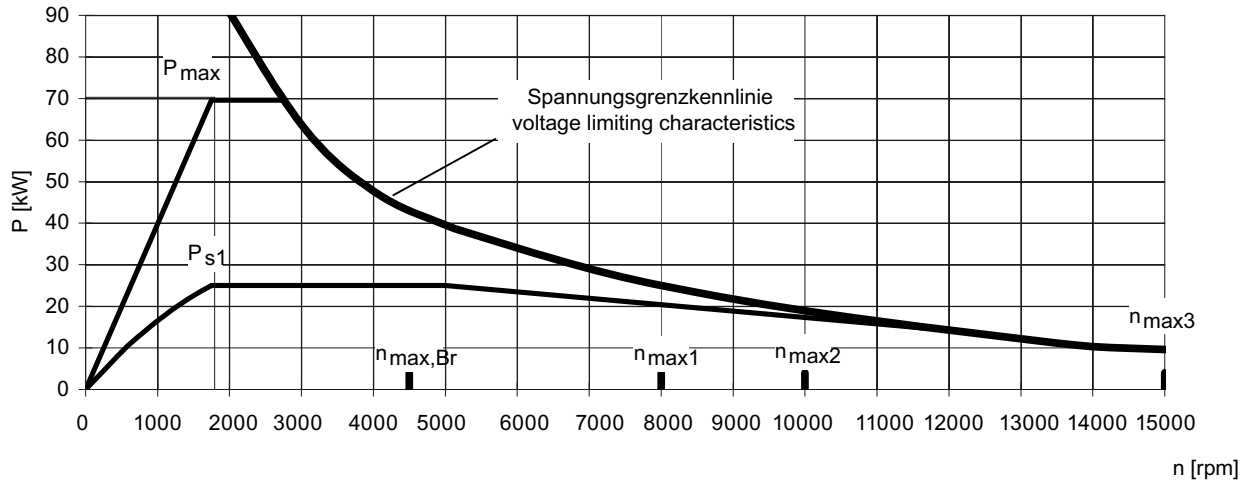


Table 4- 125 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	25.0	136	56	8000	10000	15000	4500	5000	380	151	172	68
1500	22.0	140	56					7000				



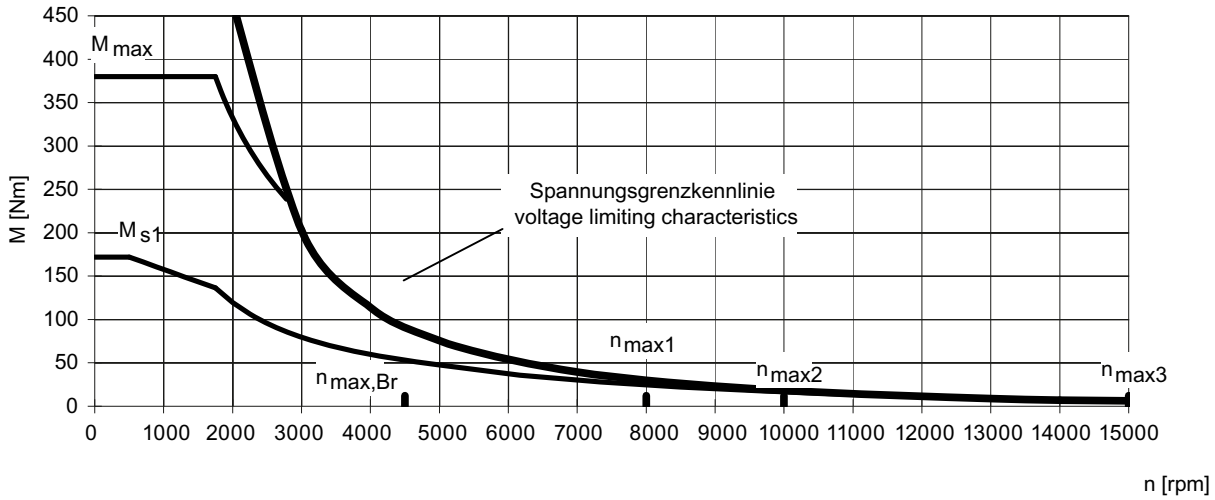


Table 4- 126 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	28.0	134	55	8000	10000	15000	4500	4000	380	151	172	68

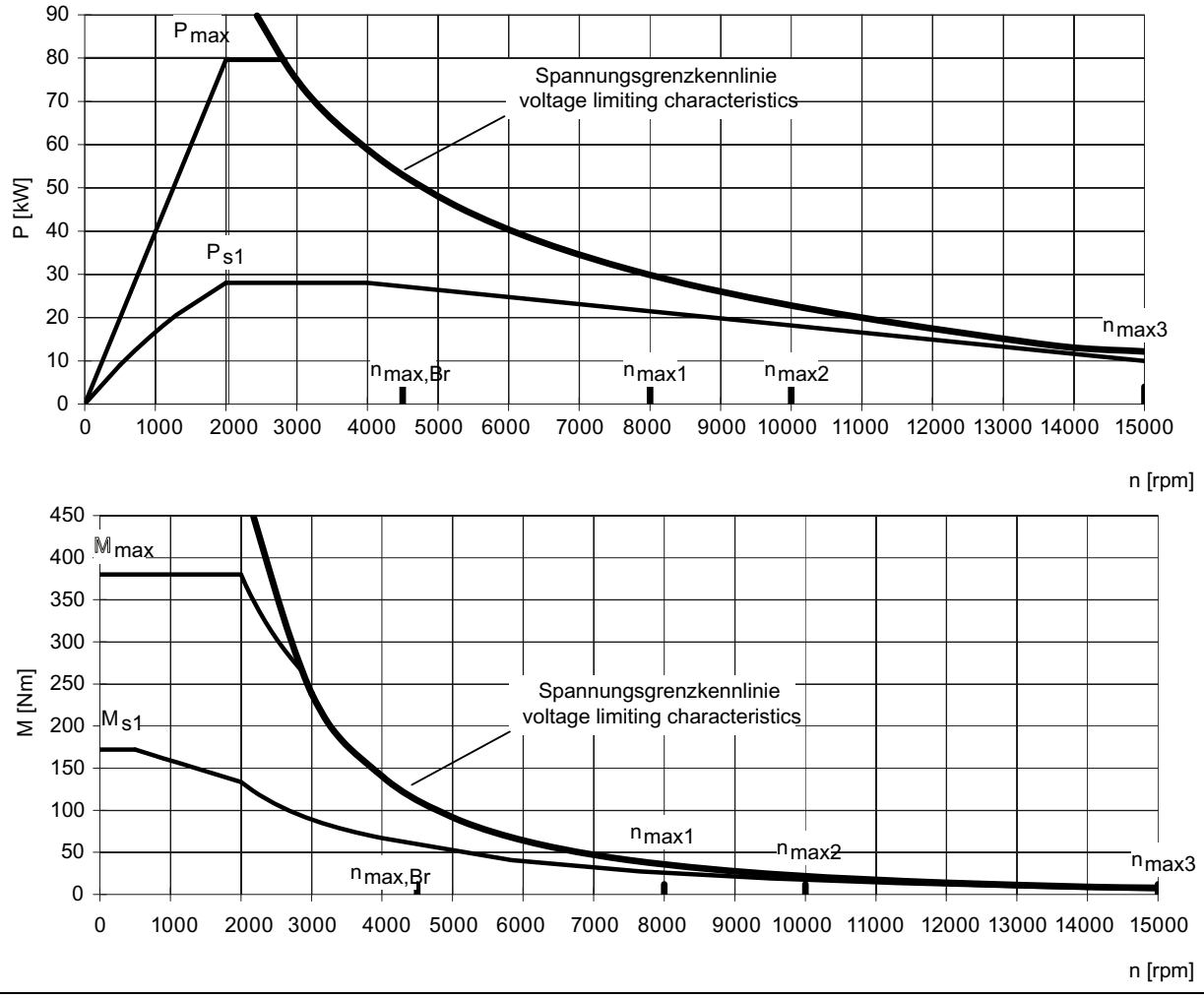
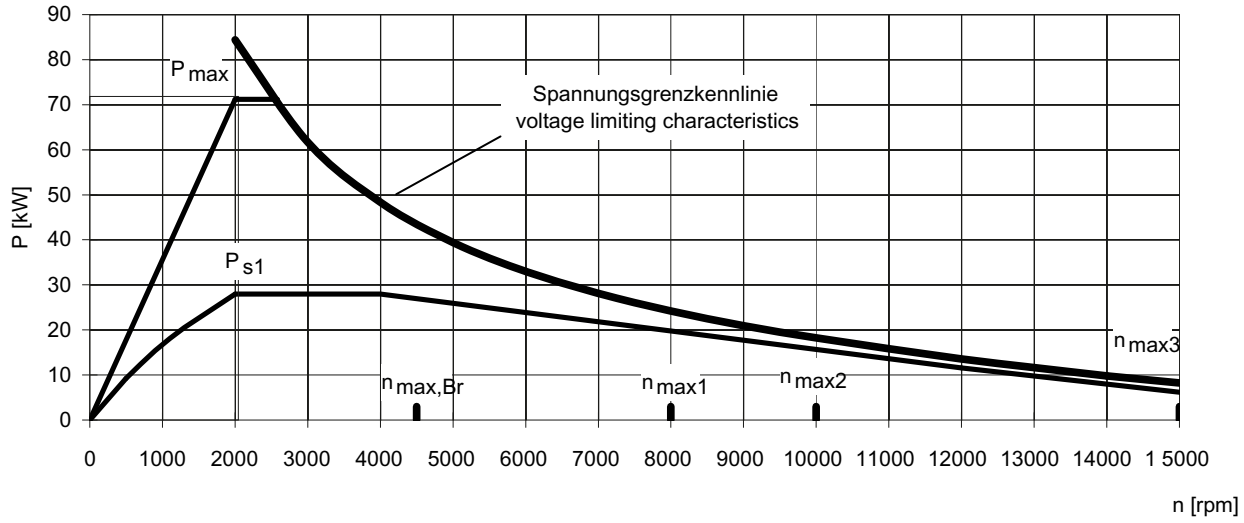


Table 4- 127 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	28.0	134	60	8000	10000	15000	4500	4000	340	152	176	73



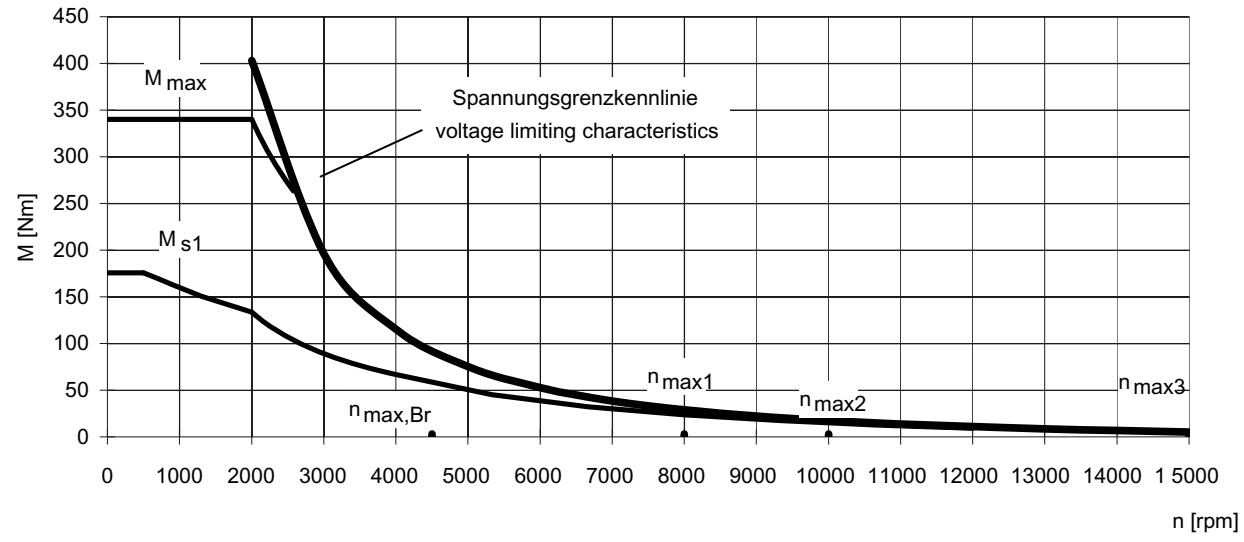
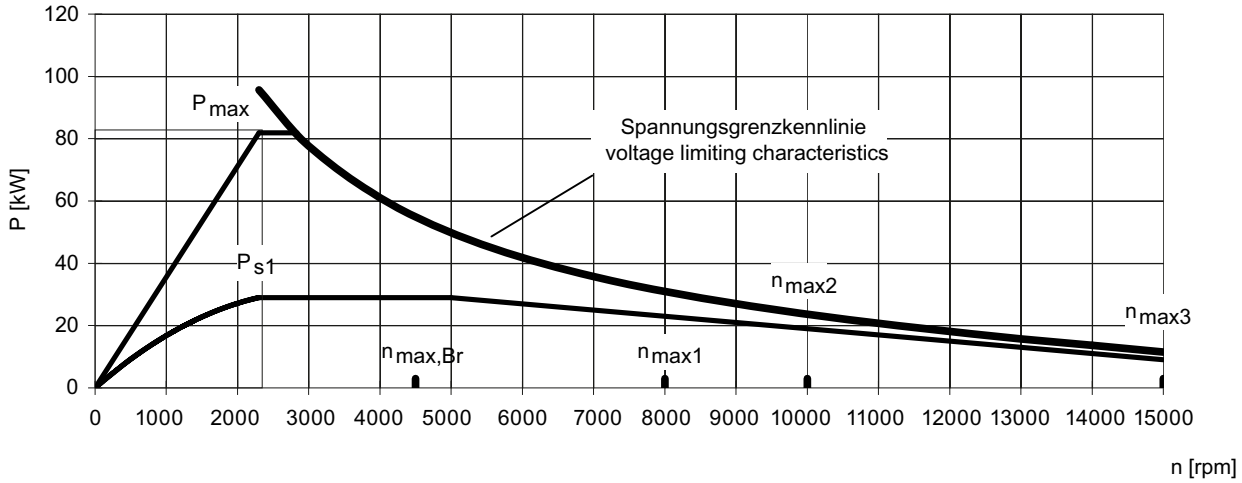


Table 4- 128 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	29.0	120	56	8000	10000	15000	4500	5000	340	152	176	73
2000	28.0	134	60					5500				



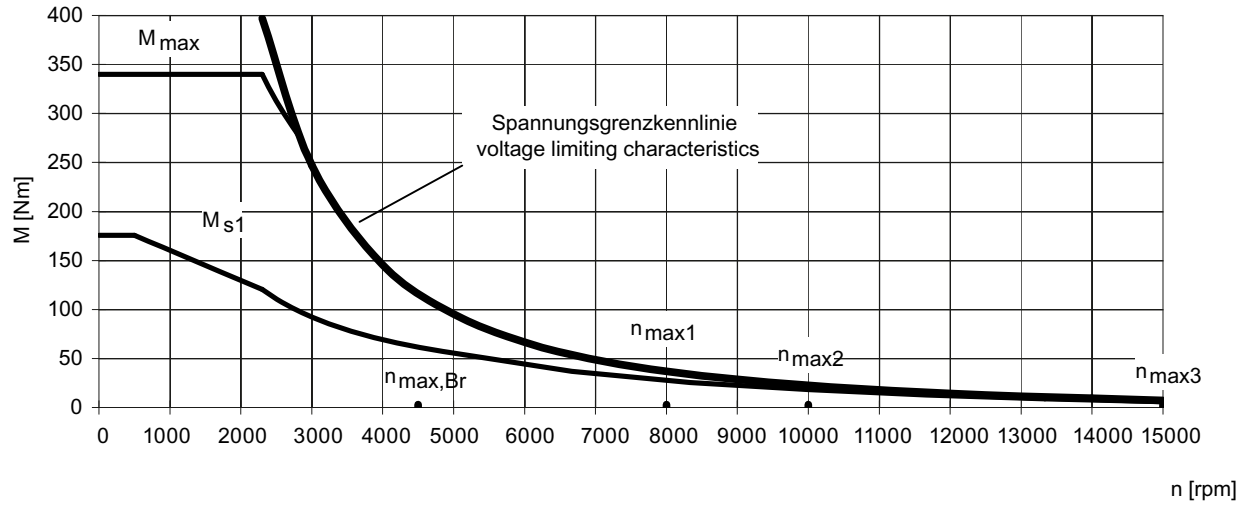


Table 4- 129 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	30.0	108	52	8000	10000	15000	4500	4250	340	152	176	73

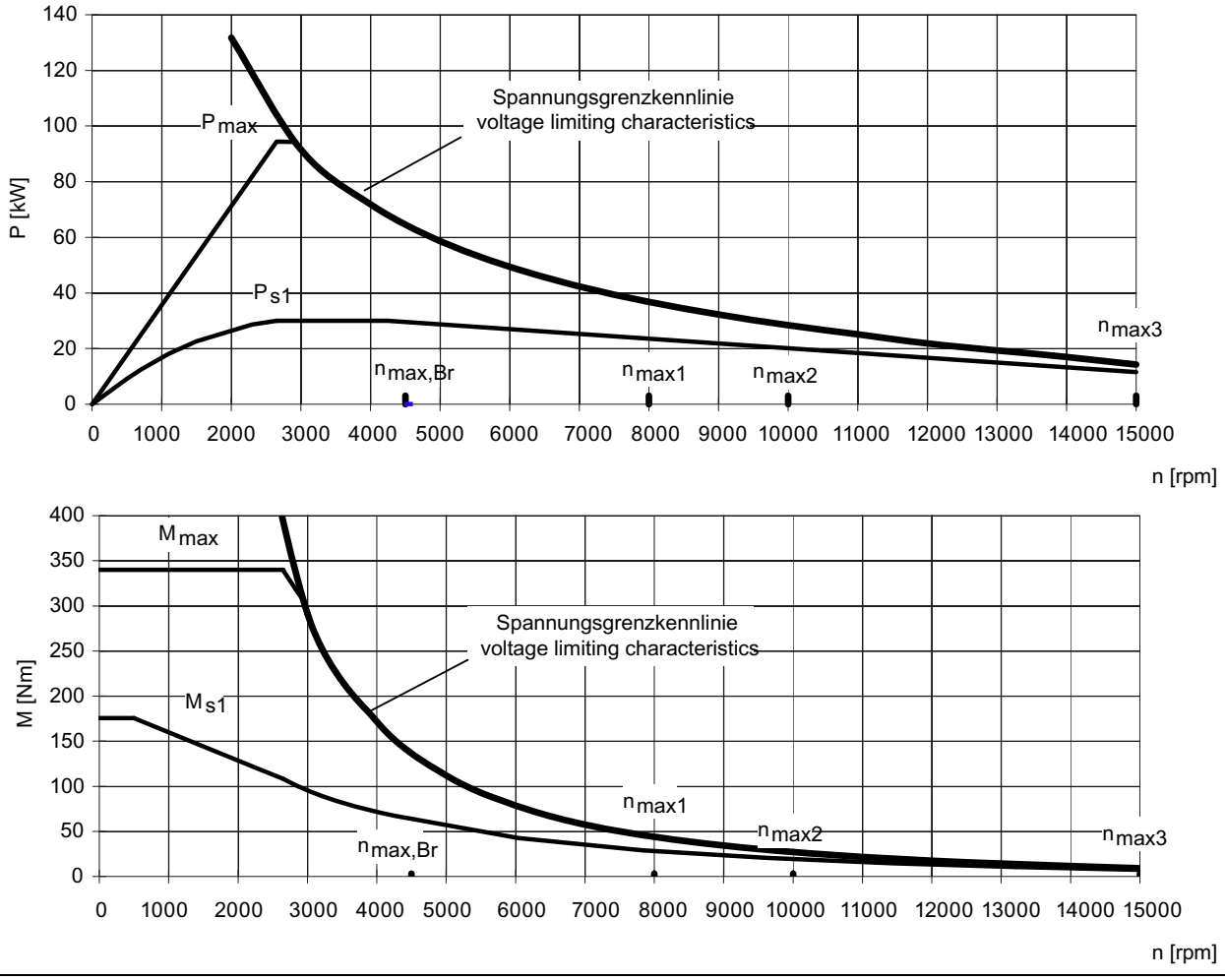
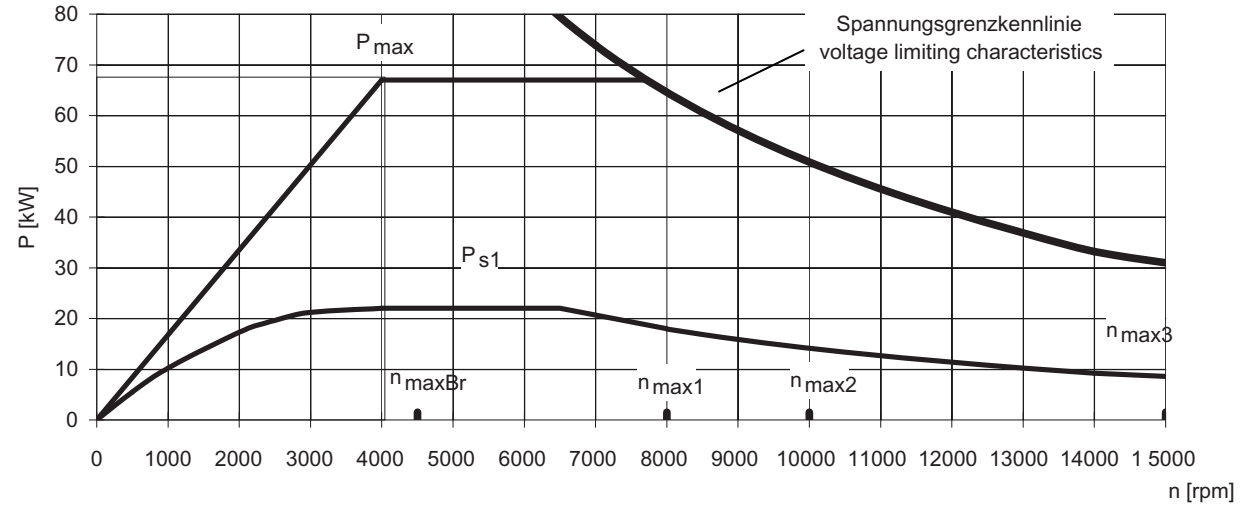


Table 4- 130 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4000	22.0	53	55	8000	10000	15000	4500	6500	160	160	105	87



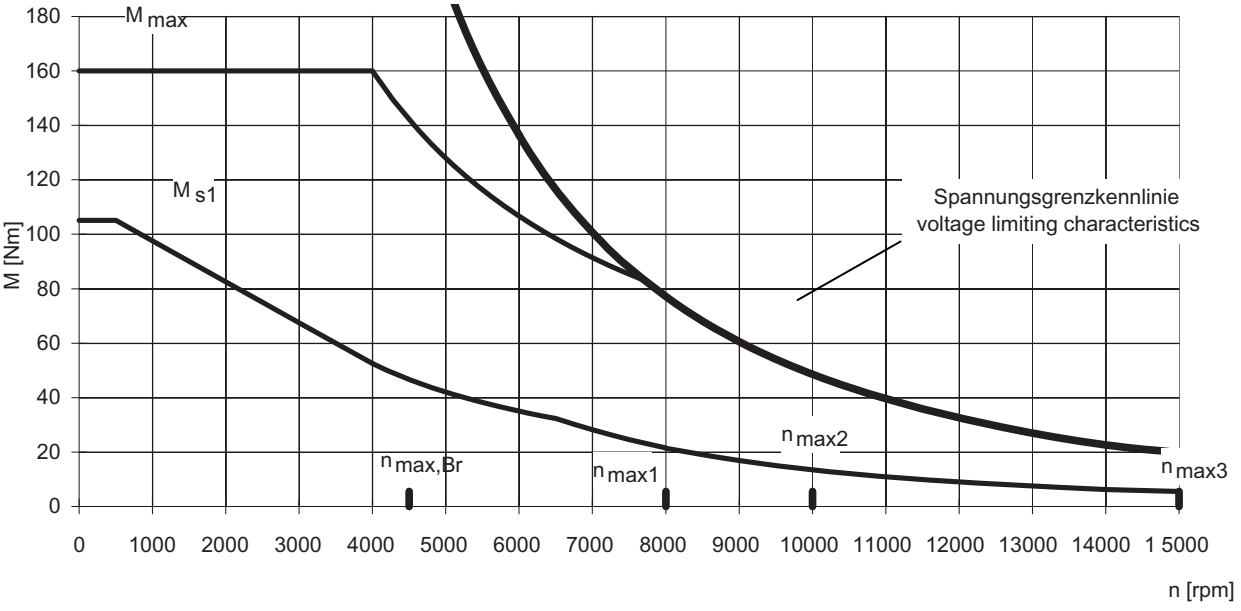


Table 4- 131 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	27.5	53	56	8000	10000	15000	4500	6000	160	160	105	87
4000	22.0	53	55					8000				

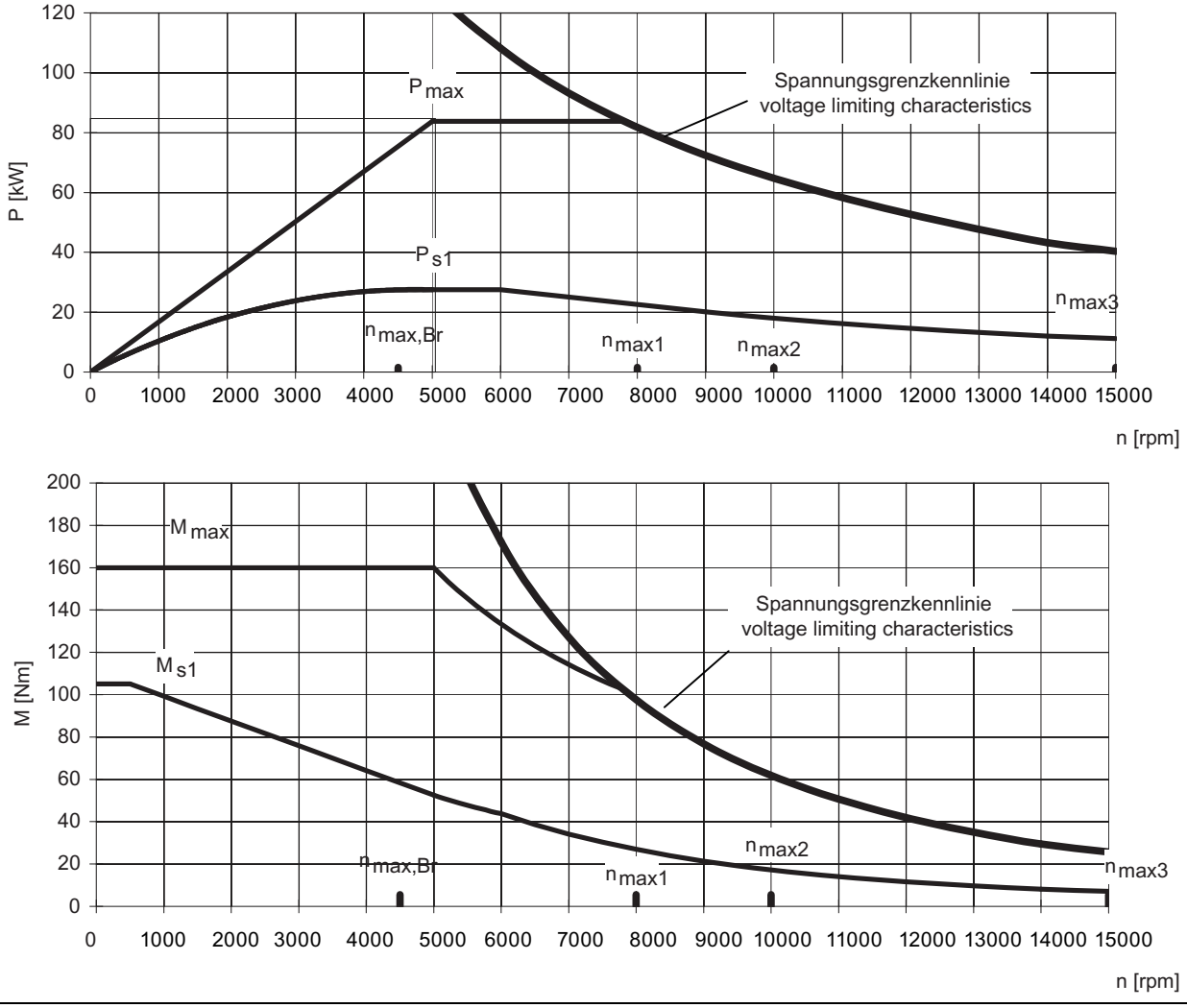


Table 4- 132 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□S□□, Δ connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6000	33.0	53	55	8000	10000	15000	4500	6000	160	160	105	87

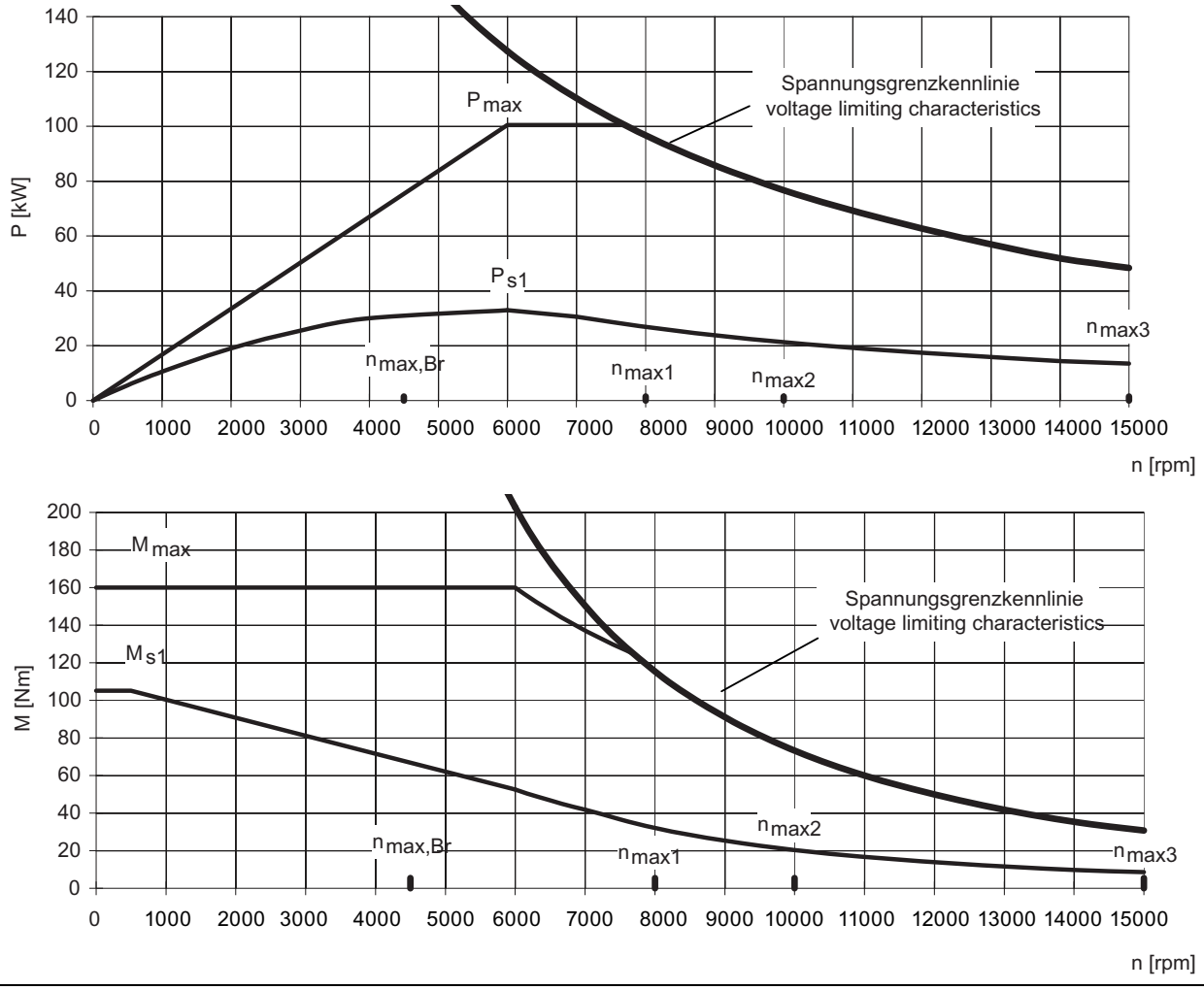
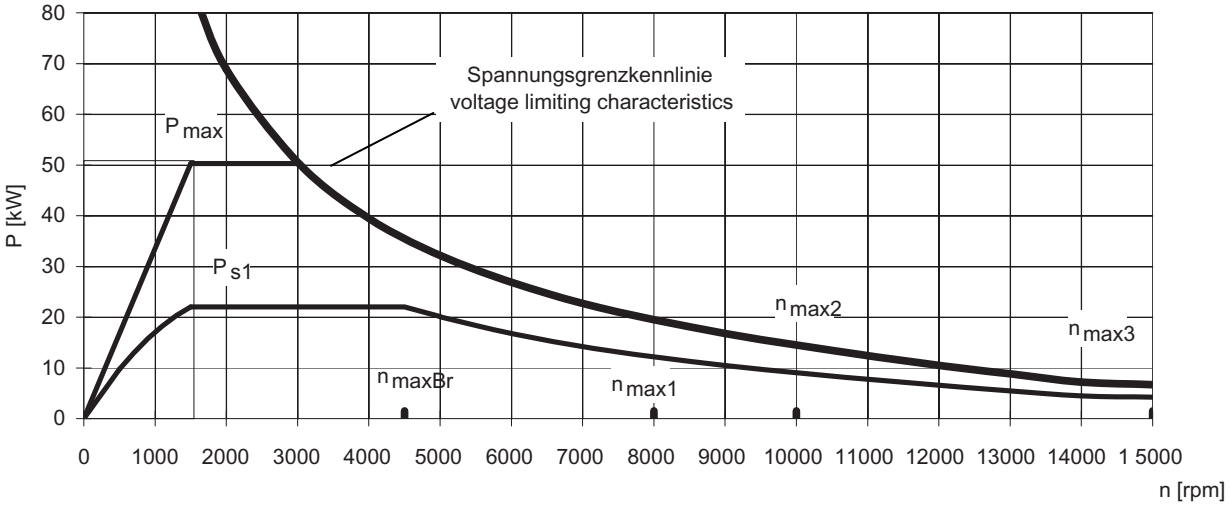


Table 4- 133 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	22.0	140	56	8000	10000	15000	4500	4500	320	130	185	68



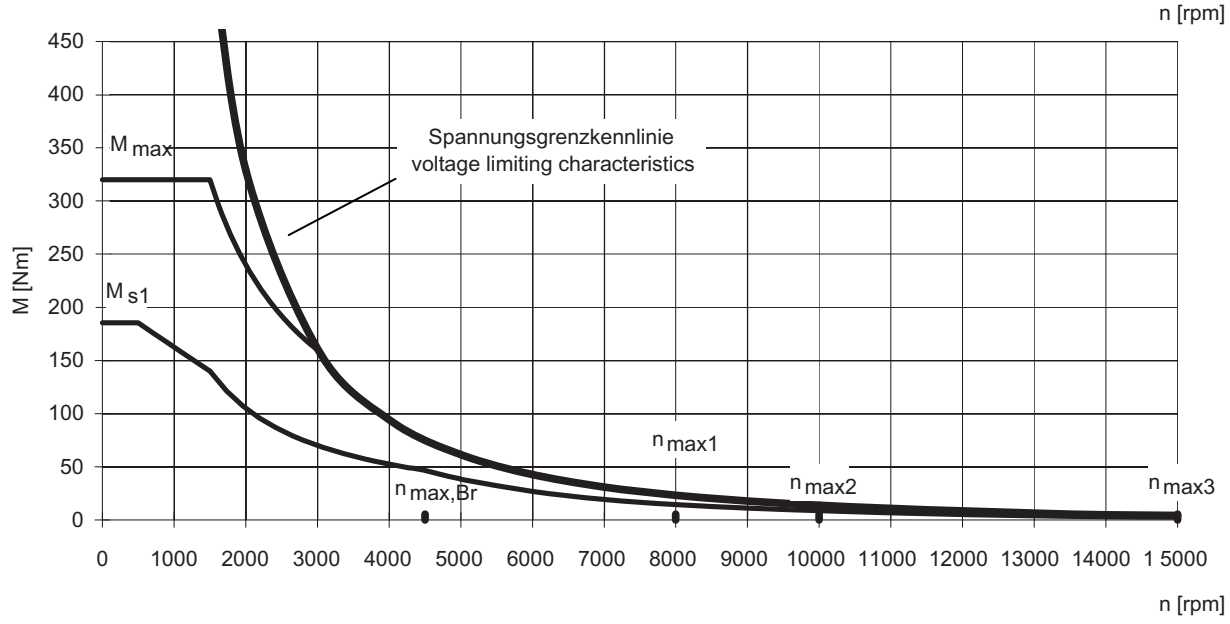
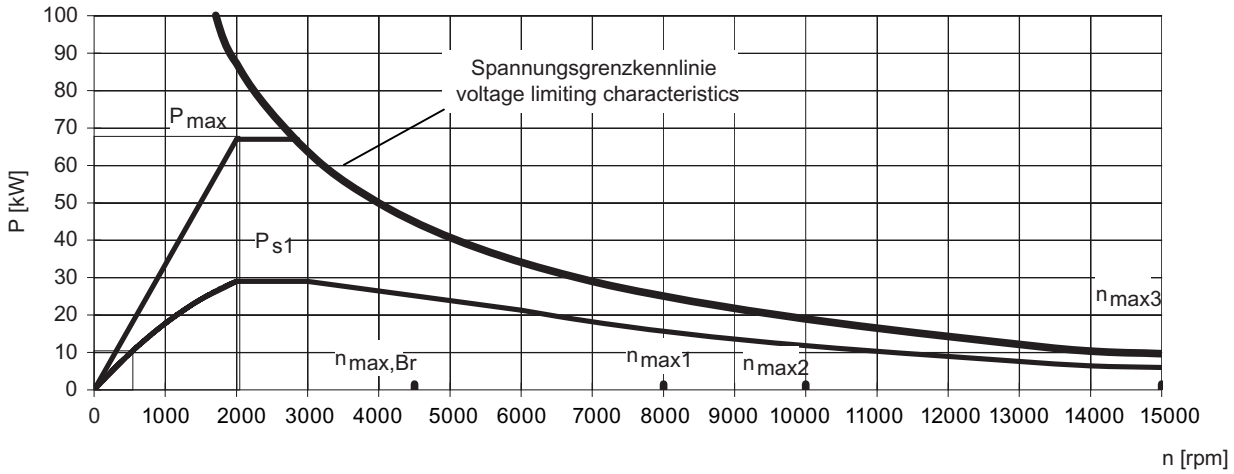


Table 4- 134 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	29.0	138	56	8000	10000	15000	4500	3000	320	130	185	68
1500	22.0	140	56					5700				



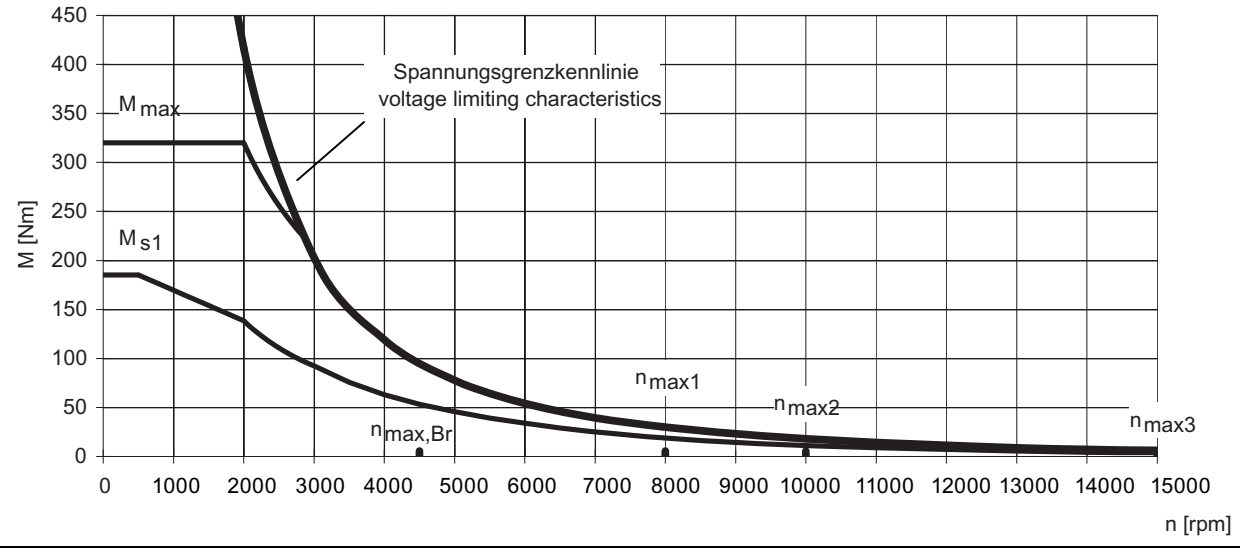
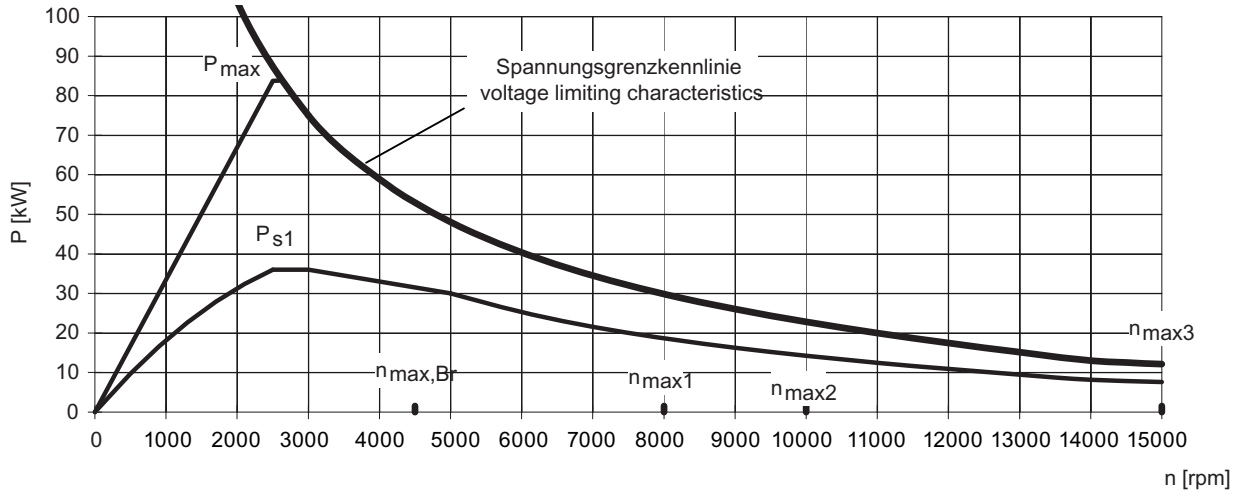
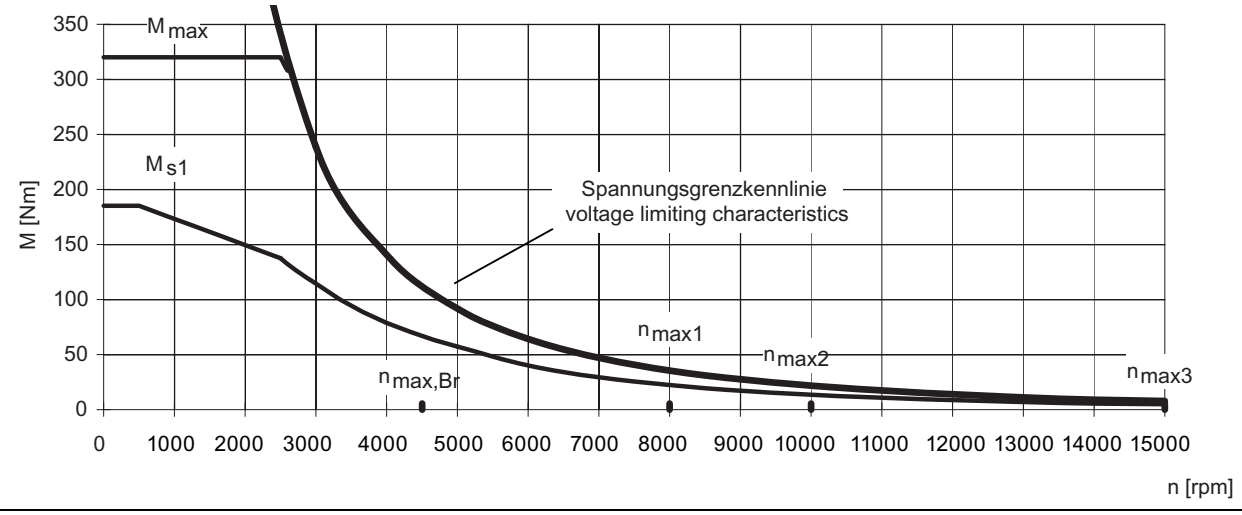


Table 4- 135 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□S□□, Y connection

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	36.0	138	50	8000	10000	15000	4500	3000	320	130	185	68





4.1.2.4 Shaft height 160 - forced ventilation

Table 4- 136 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□B□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	9.5	227	30.0	6500	-	-	4000	2150	570	70	239	30

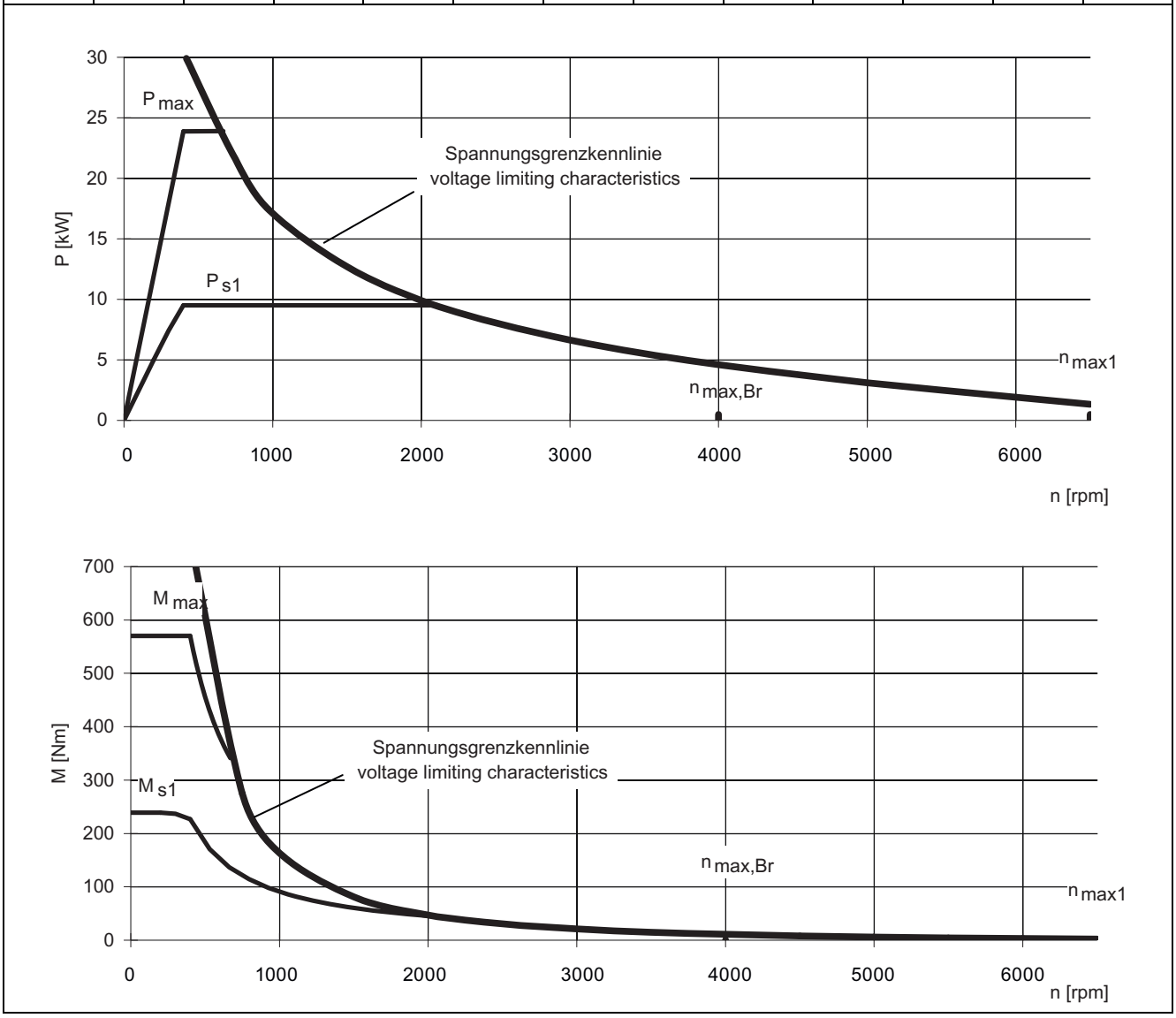
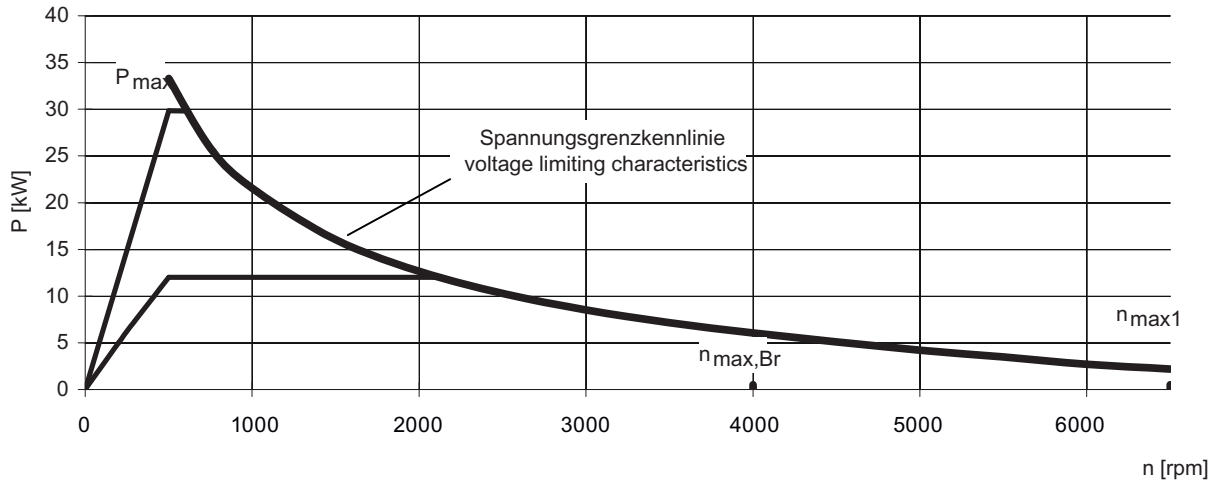


Table 4- 137 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□B□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	12.0	229	30.0	6500	-	-	4000	2200	570	70	239	30
400	9.5	227	30.0					2750				



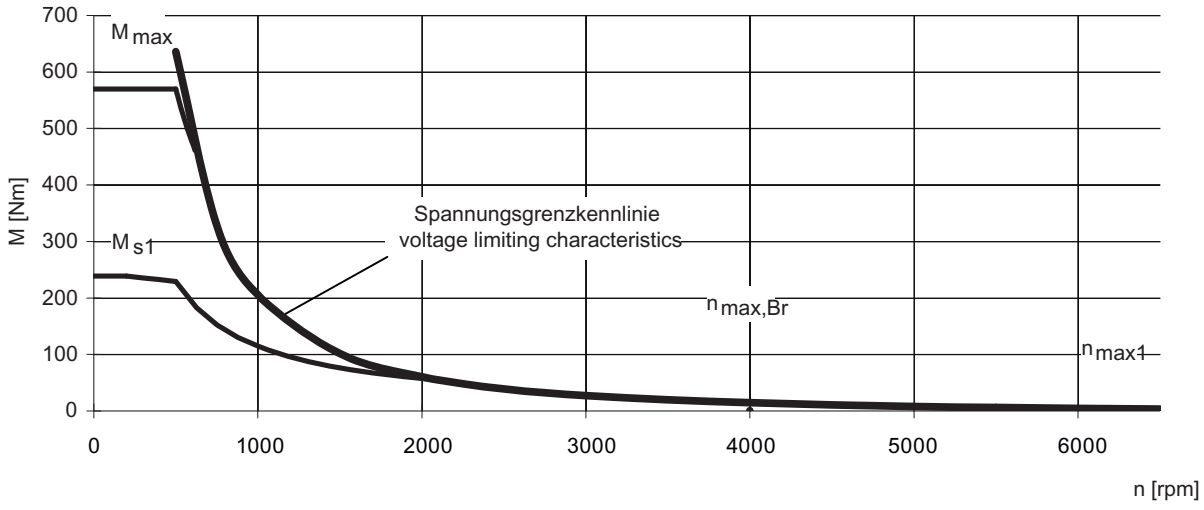
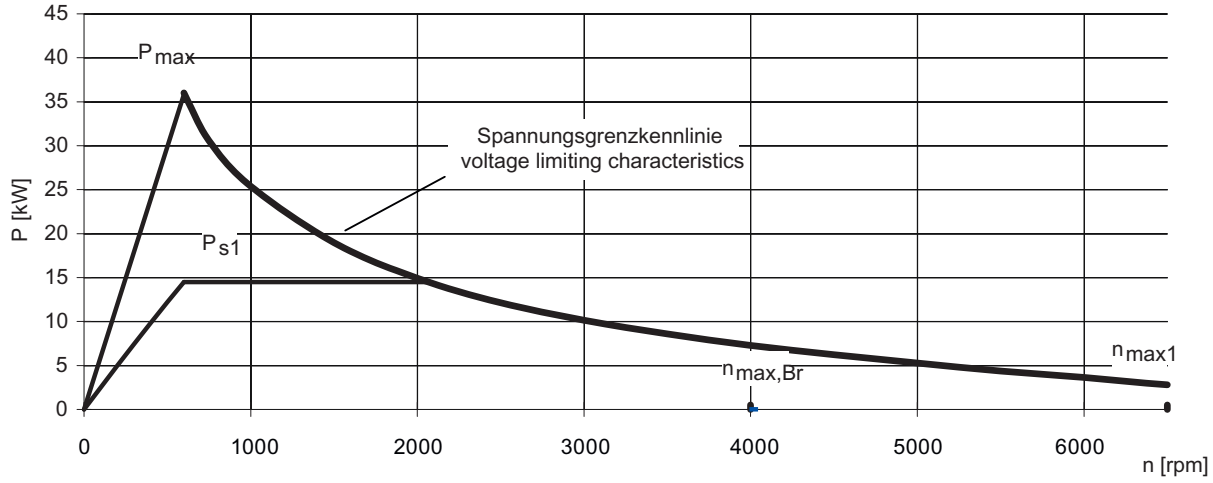


Table 4- 138 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□B□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	14.5	231	30.0	6500	-	-	4000	2150	570	70	239	30



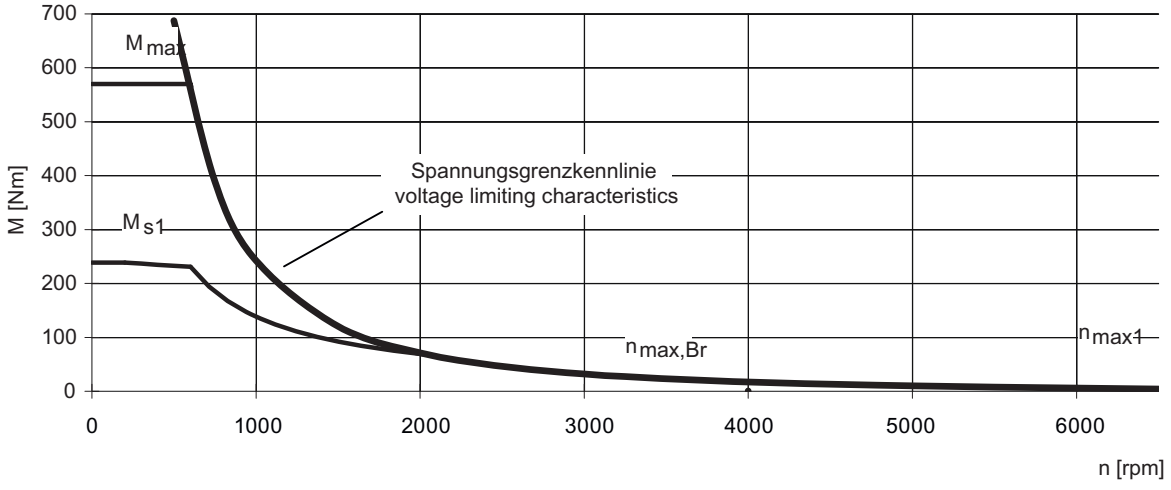
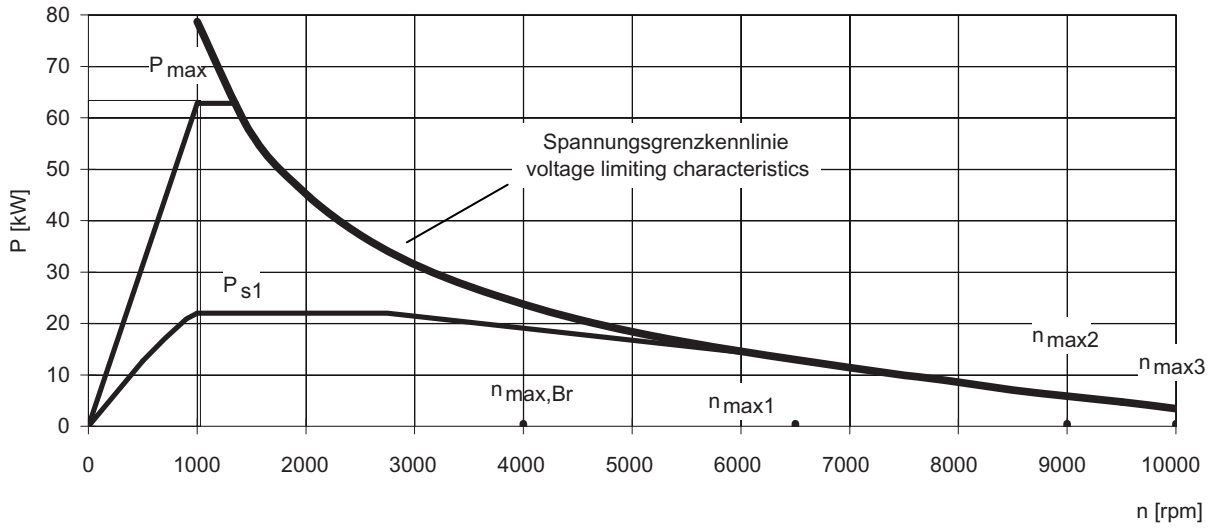


Table 4- 139 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	22.0	210	55.0	6500	9000	10000	4000	2800	600	151	243	60



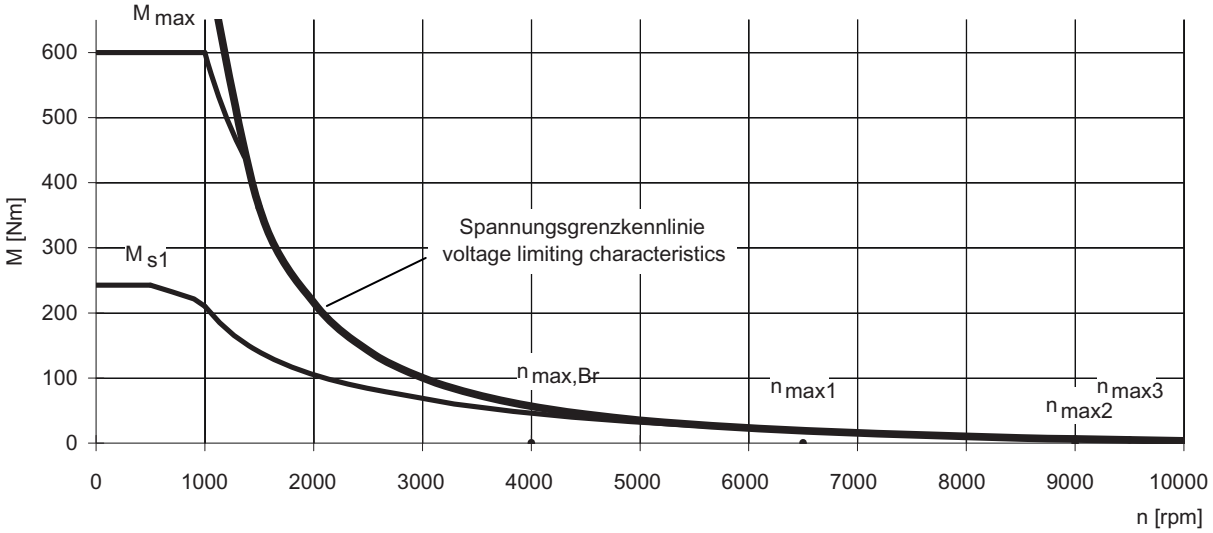
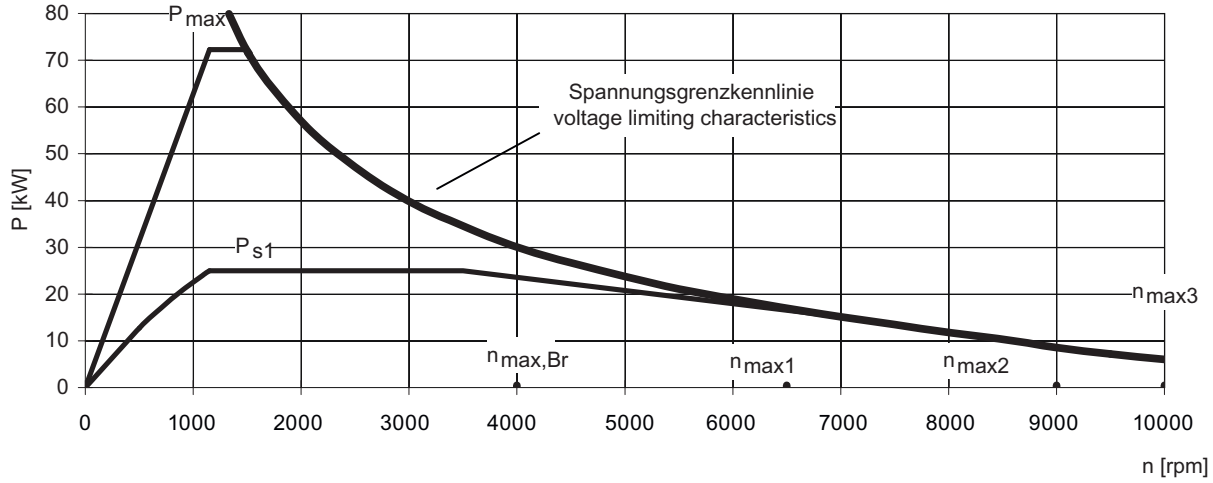


Table 4- 140 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	25.0	208	55.0	6500	9000	10000	4000	3550	600	151	243	60
1000	22.0	210	55.0					5050				



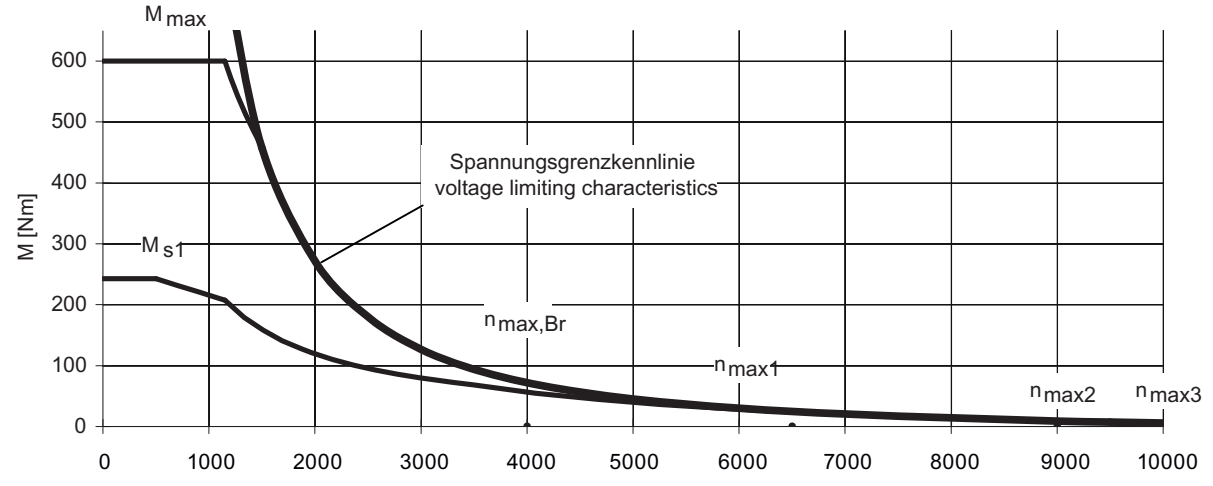
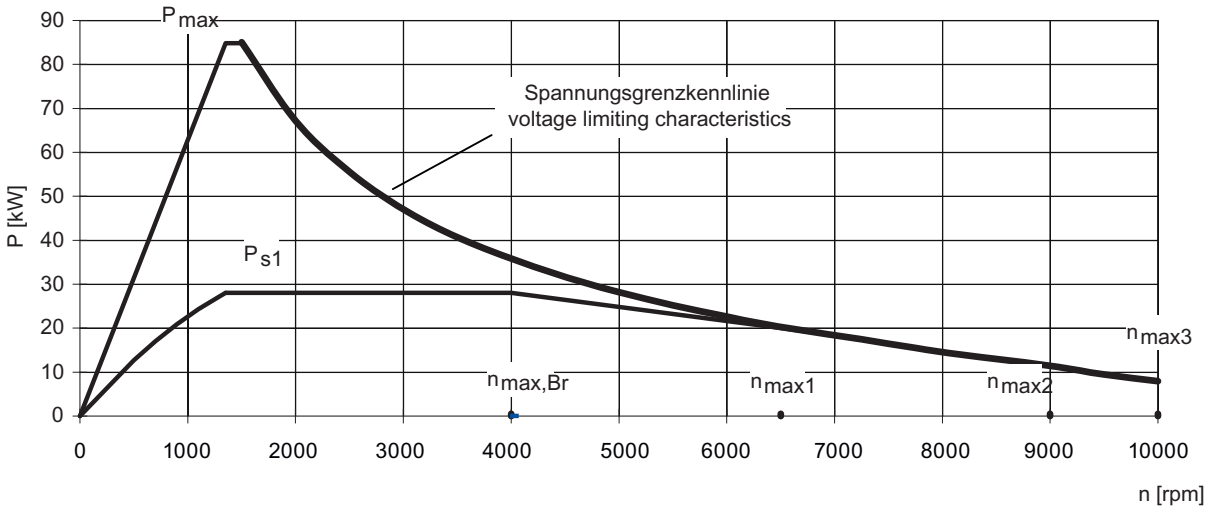


Table 4- 141 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	28.0	198	52.0	6500	9000	10000	4000	4000	600	151	243	60



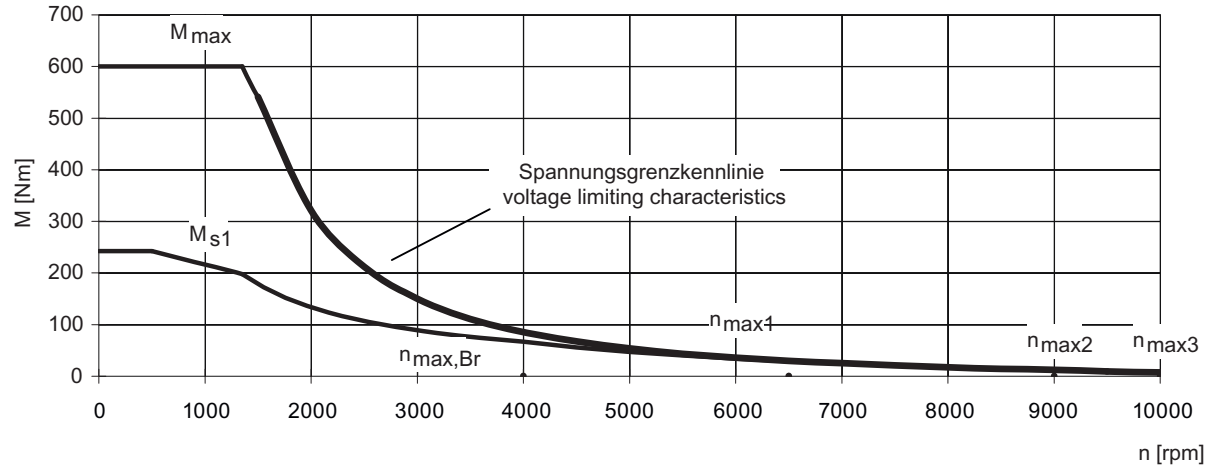


Table 4- 142 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	30.0	191	71.0	6500	9000	10000	4000	3050	600	217	252	87

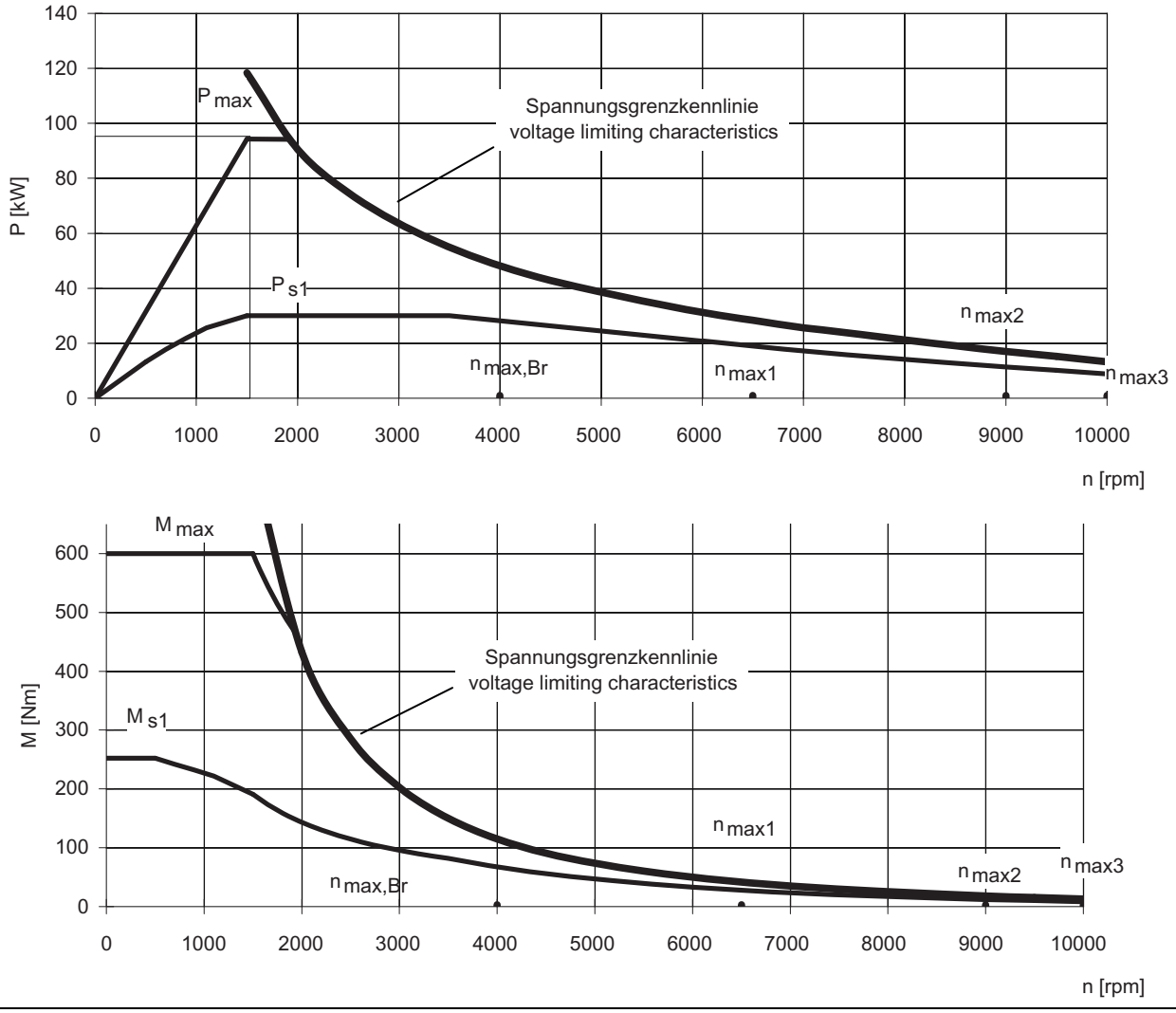
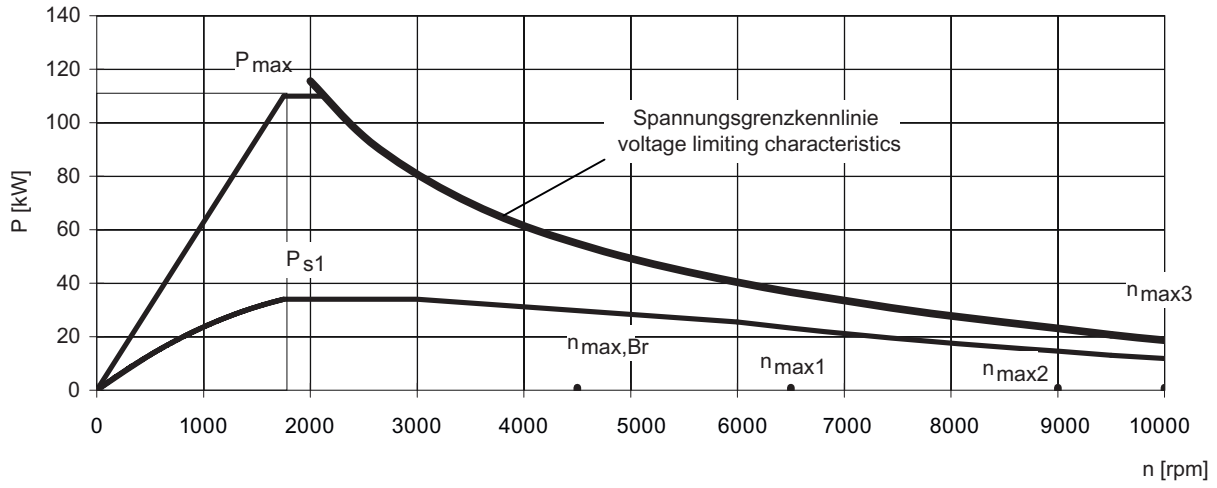


Table 4- 143 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	34.0	186	70.0	6500	9000	10000	4500	3050	600	217	252	87
1500	30.0	191	71.0					5000				



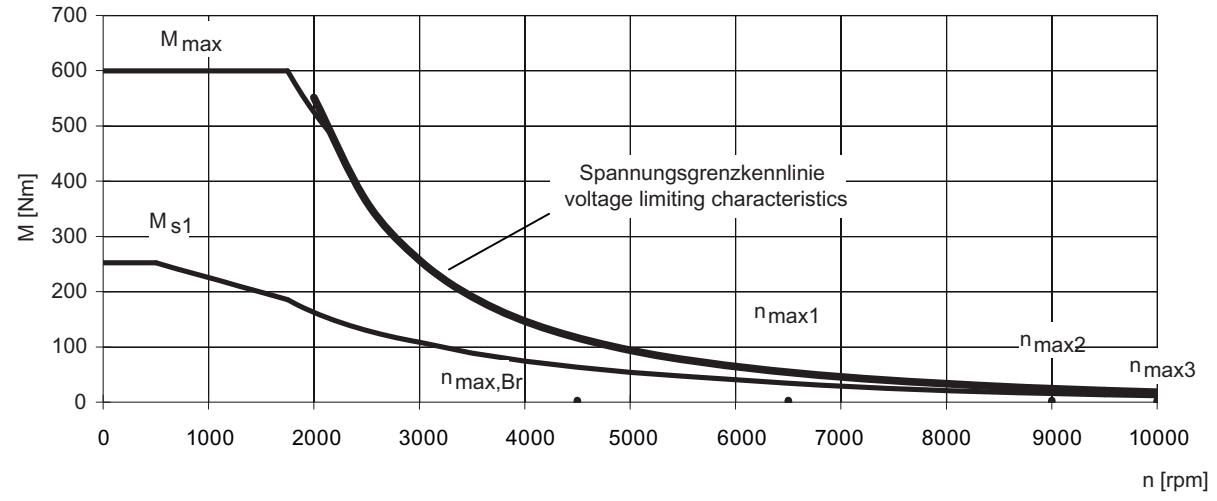
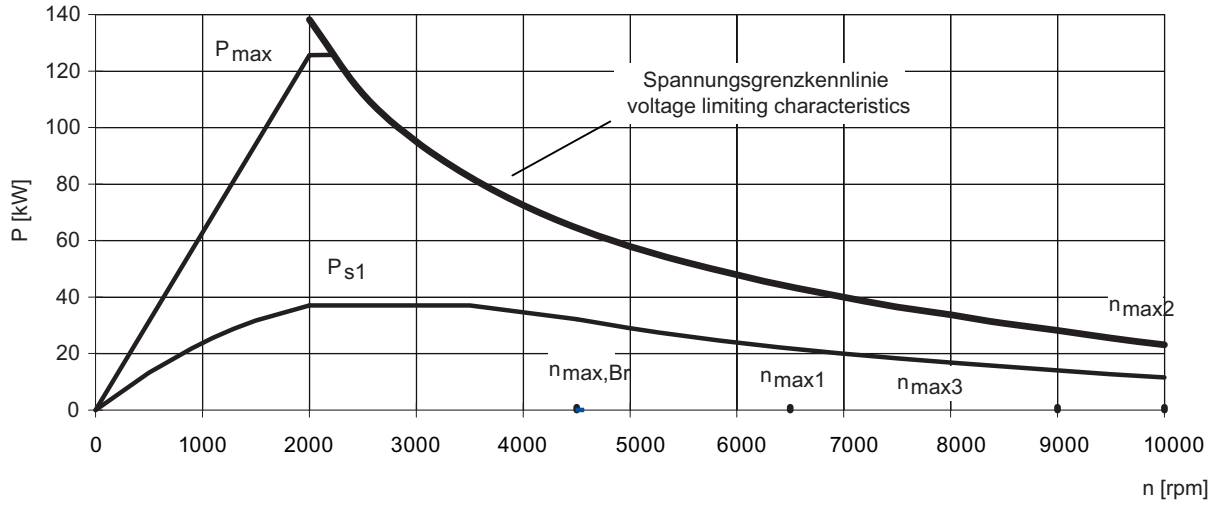


Table 4- 144 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	37.0	177	68.0	6500	9000	10000	4500	3550	600	217	252	87



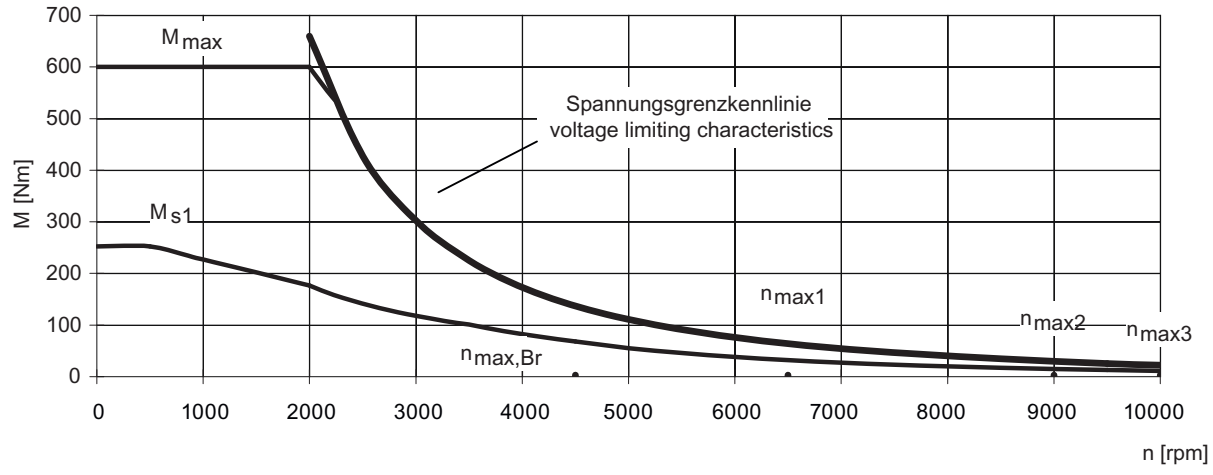
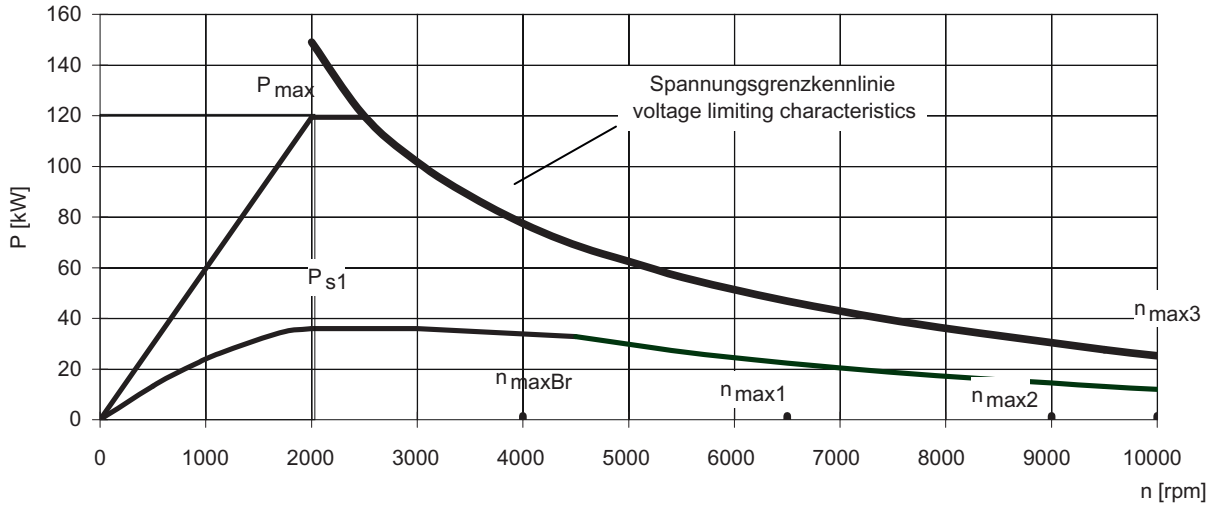


Table 4- 145 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	36.0	172	83.0	6500	9000	10000	4000	3000	570	272	254	111



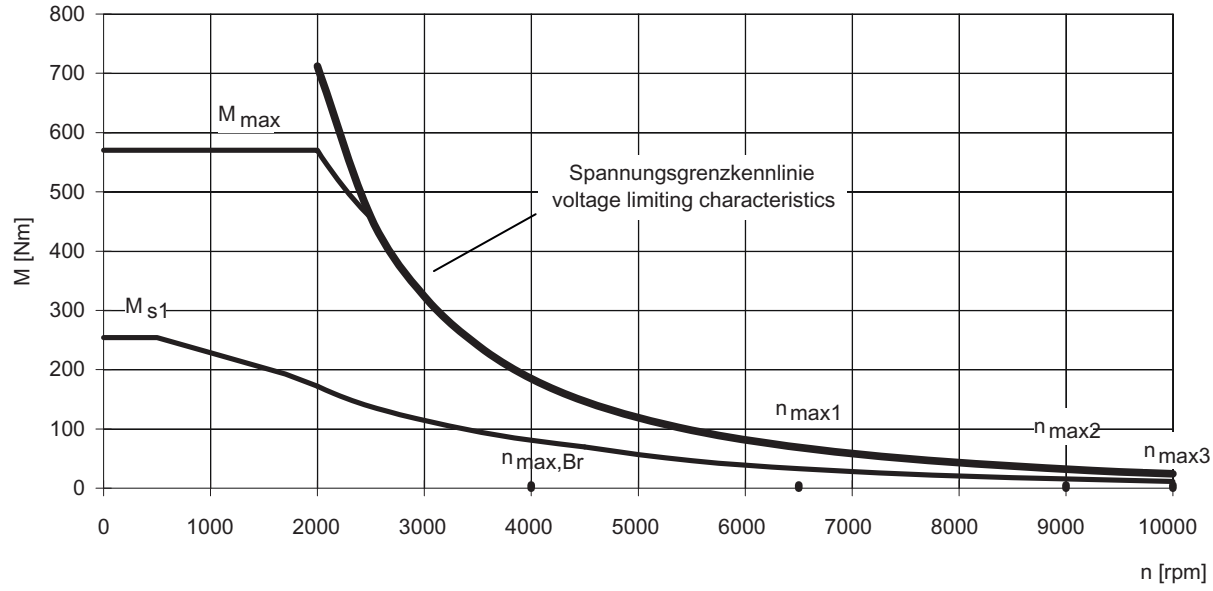
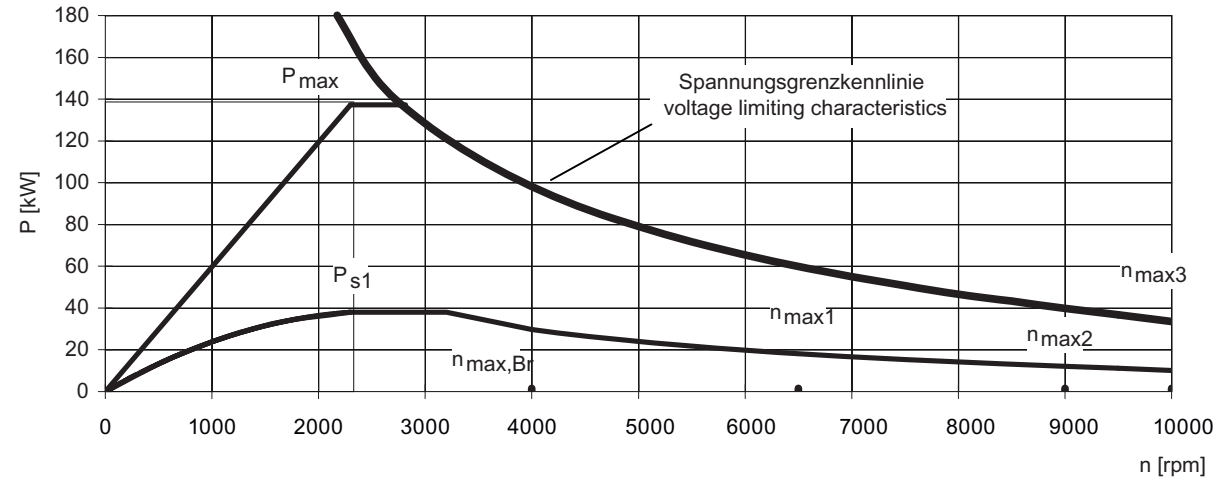


Table 4- 146 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	38.0	158	78.0	6500	9000	10000	4000	3200	570	272	245	111
2000	36.0	172	83.0					3500				



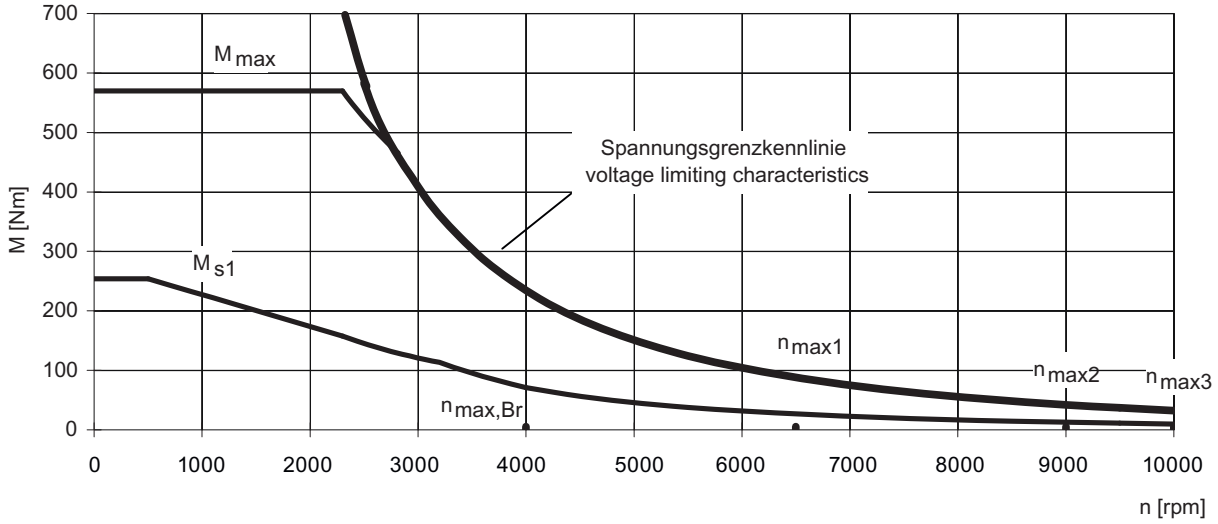
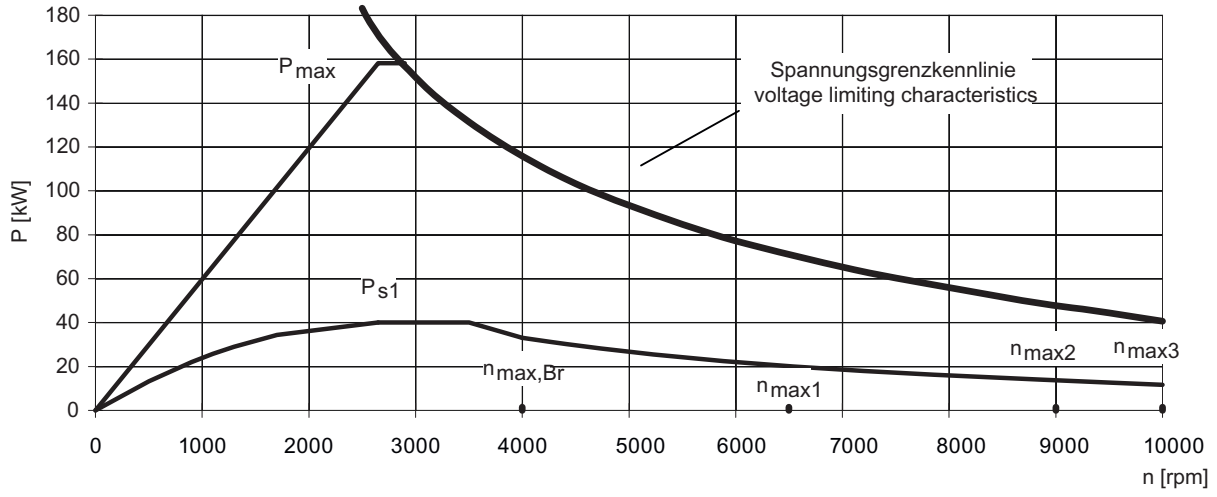


Table 4- 147 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	40.0	144	76.0	6500	9000	10000	4000	3500	570	272	254	111



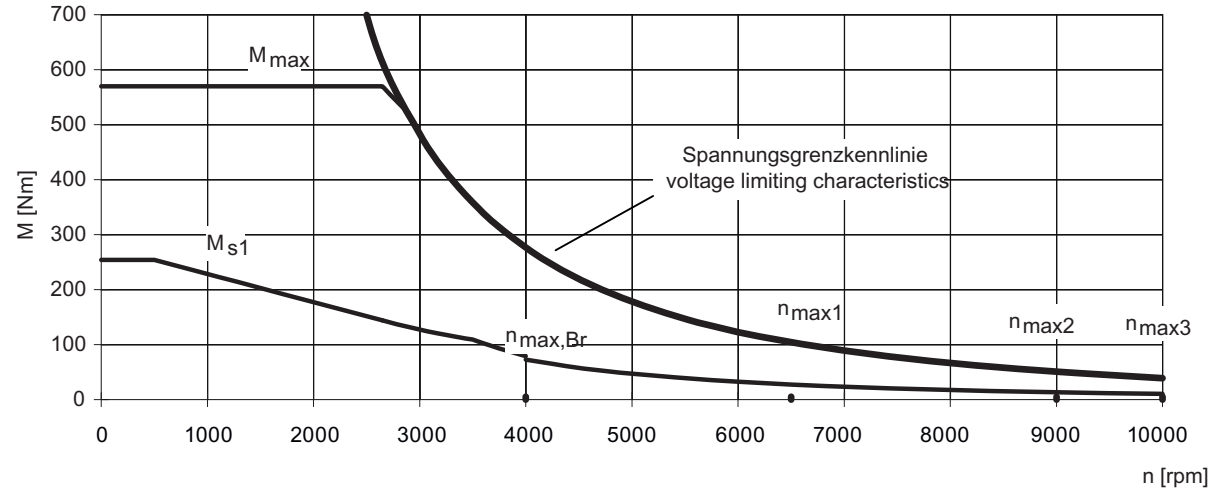


Table 4- 148 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□B□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	13.0	310	36.0	6500	-	-	4000	1750	610	75	329	37

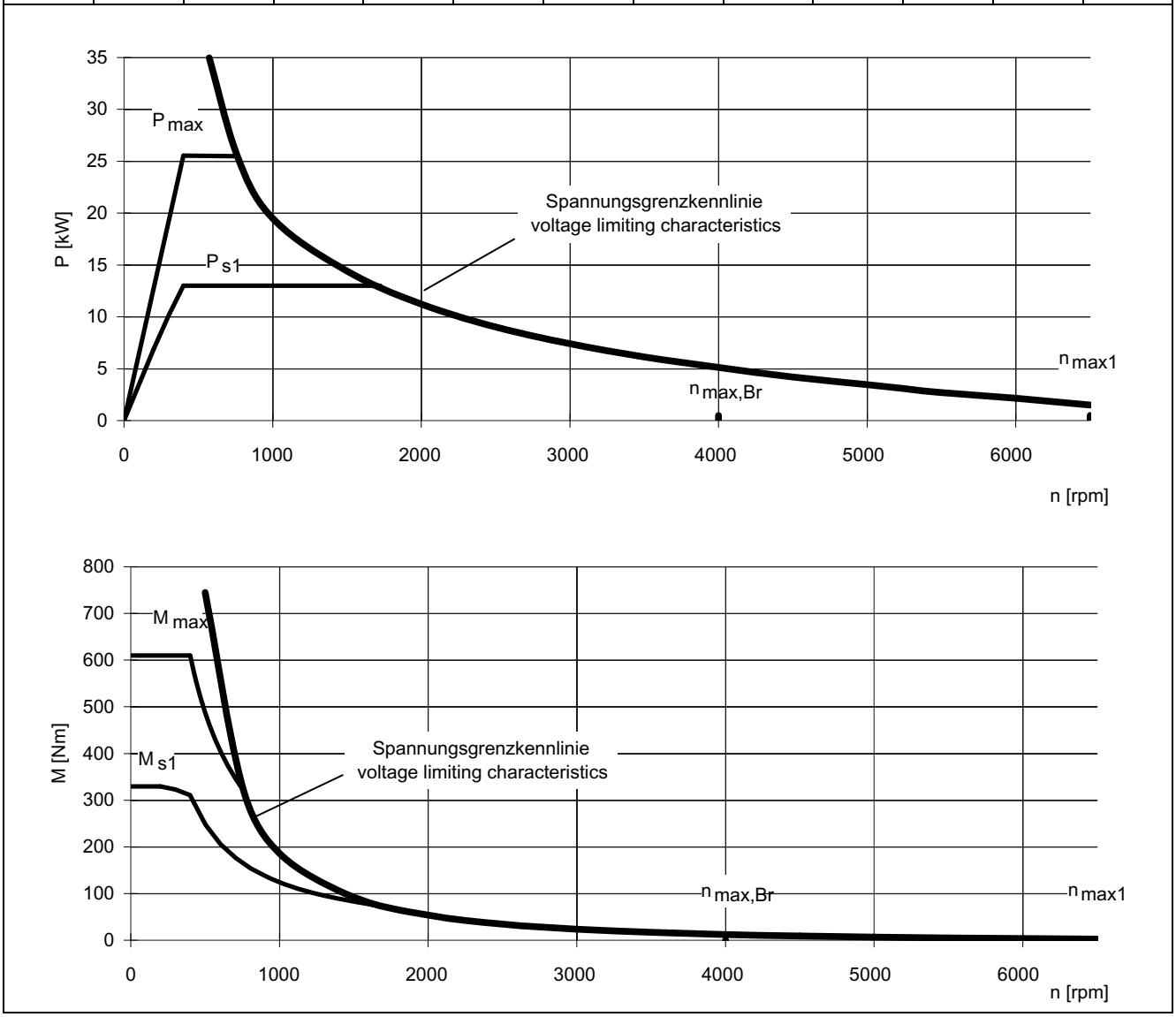
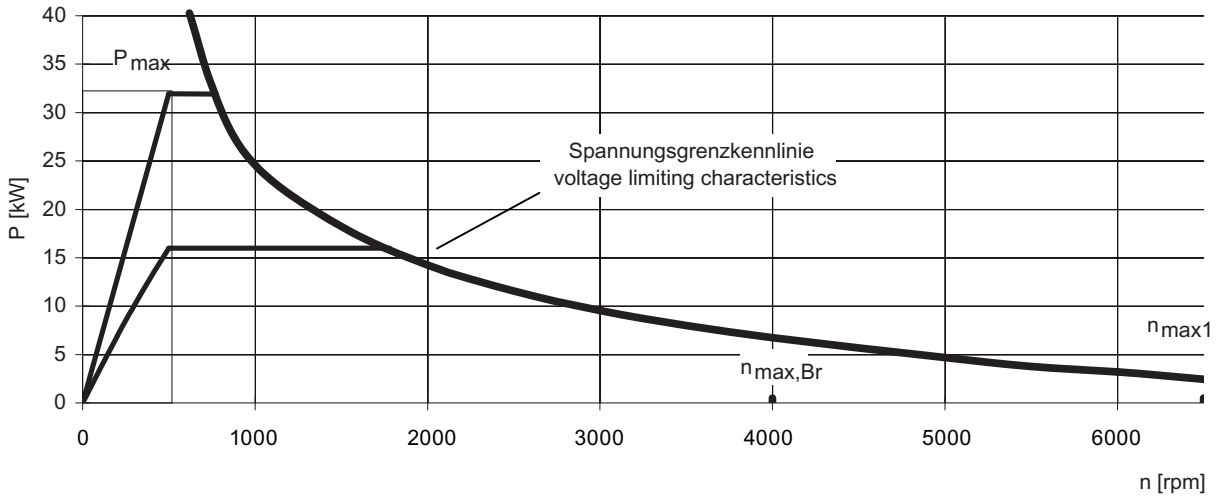


Table 4- 149 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□B□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	16.0	306	36.0	6500	-	-	4000	1850	610	75	329	37
400	13.0	310	36.0					2300				



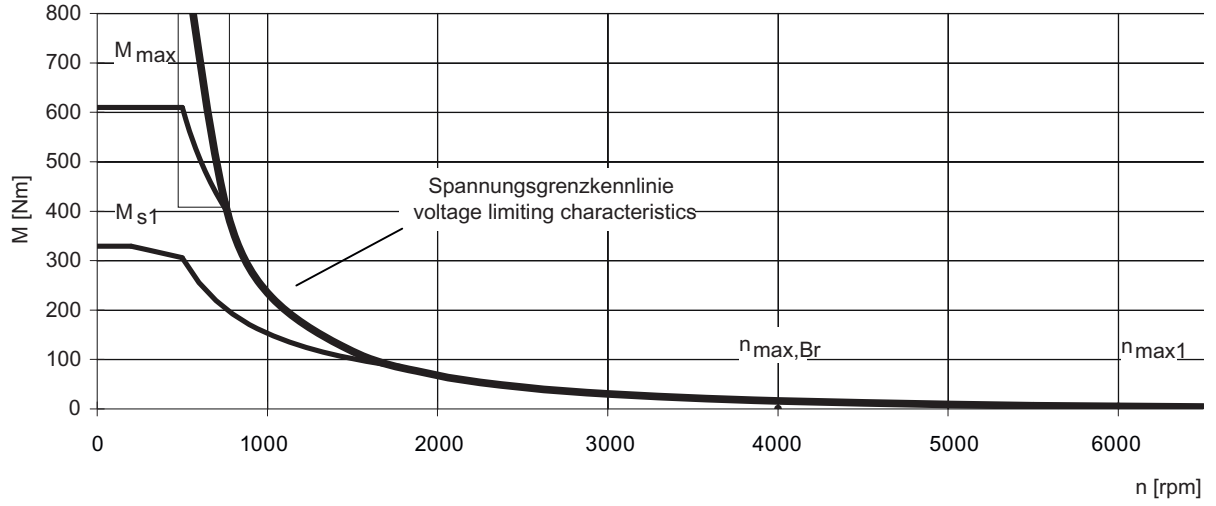
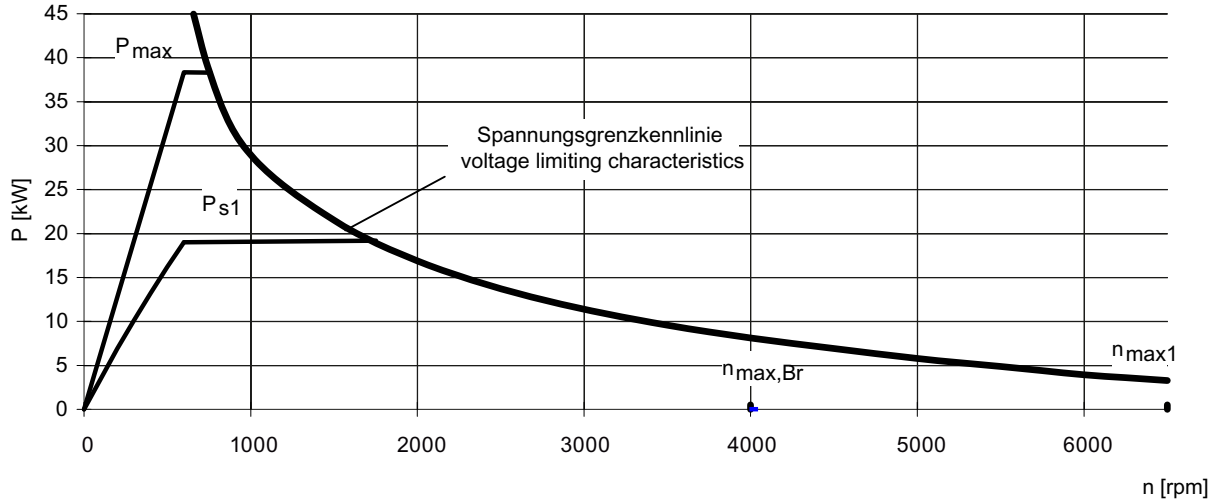


Table 4- 150 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□B□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	19.0	302	35.0	6500	-	-	4000	1800	610	75	329	37



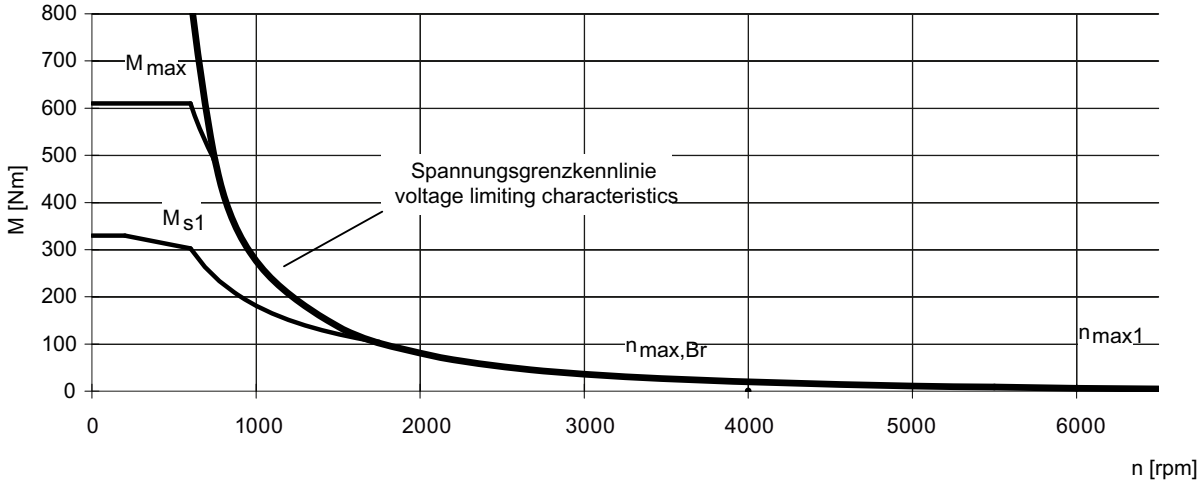
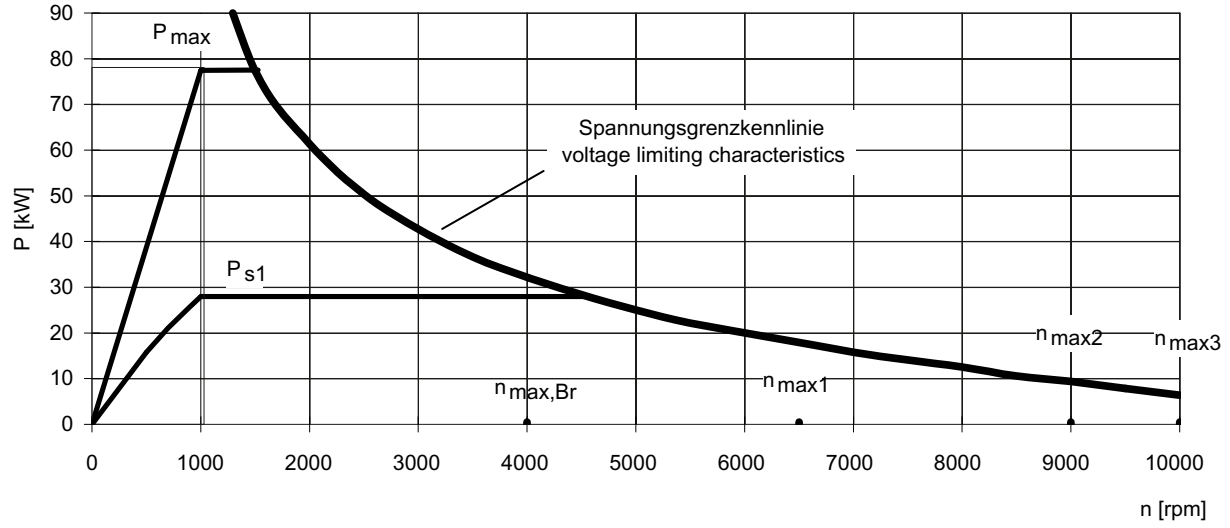


Table 4- 151 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	28.0	267	71.0	6500	9000	10000	4000	4600	740	192	302	77



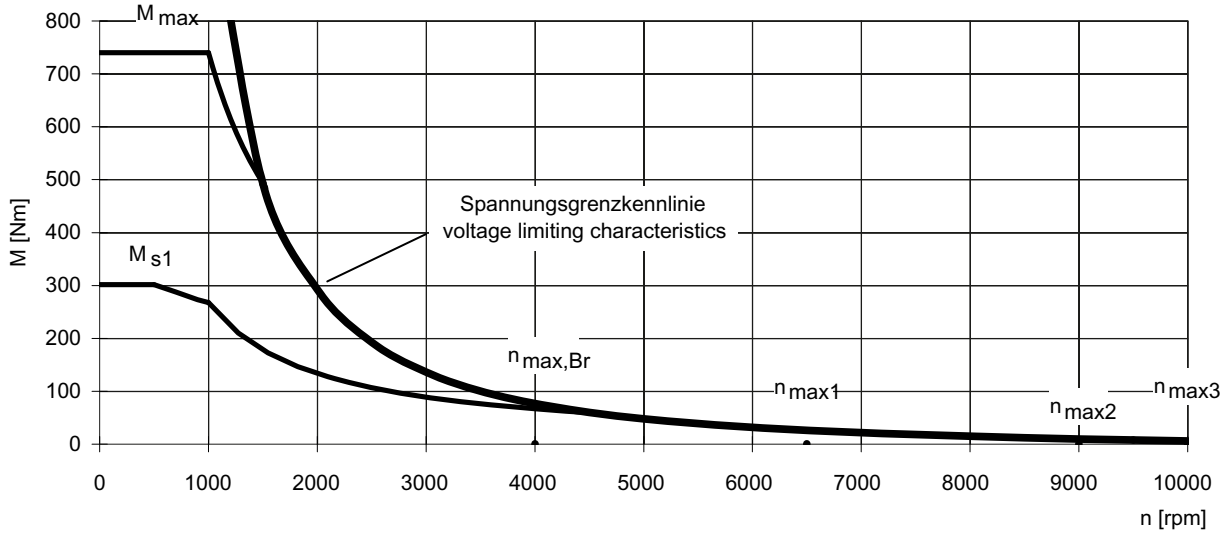


Table 4- 152 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	31.0	257	69.0	6500	9000	10000	4000	4850	740	192	302	77
1000	28.0	267	71.0					5550				

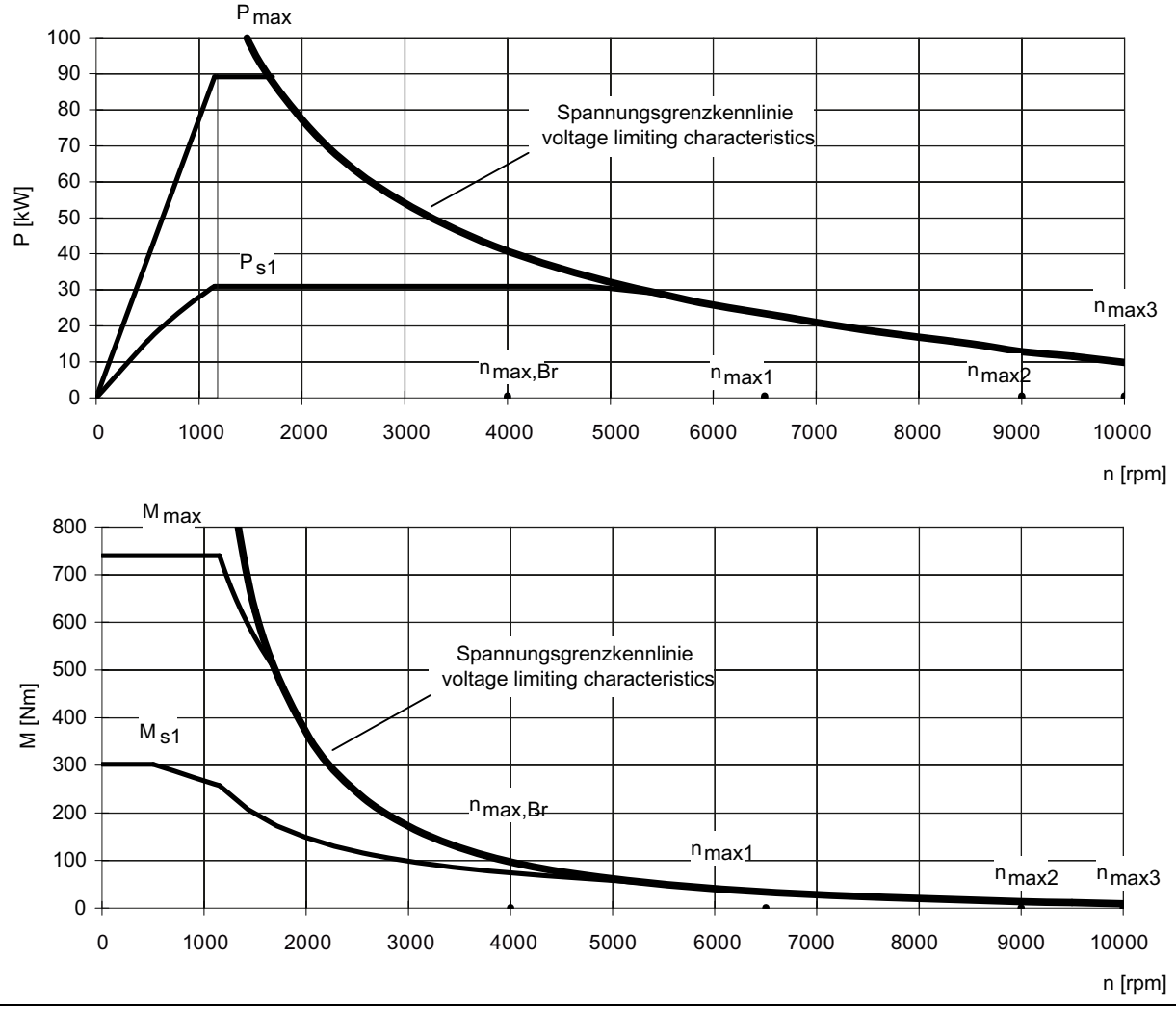
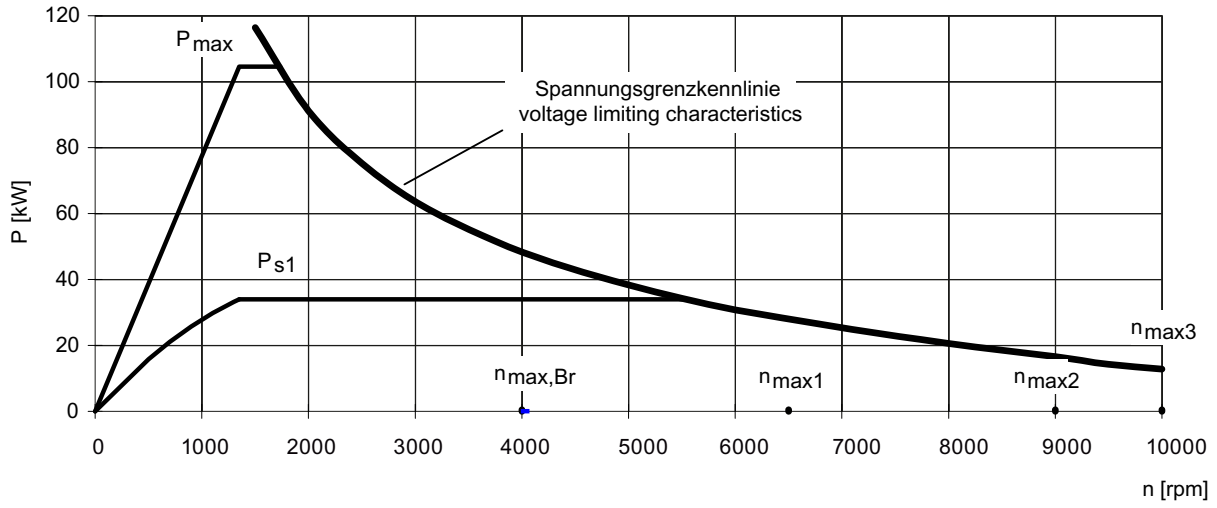


Table 4- 153 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□D□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	34.0	241	66.0	6500	9000	10000	4000	5600	740	192	302	77



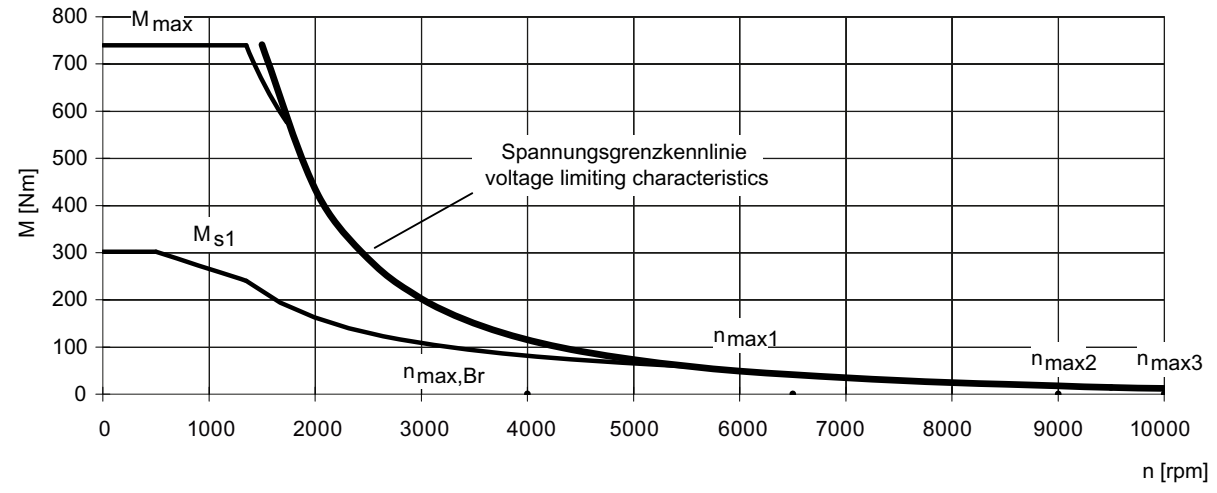


Table 4- 154 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	37.0	236	78.0	6500	9000	10000	4000	2800	630	206	304	95

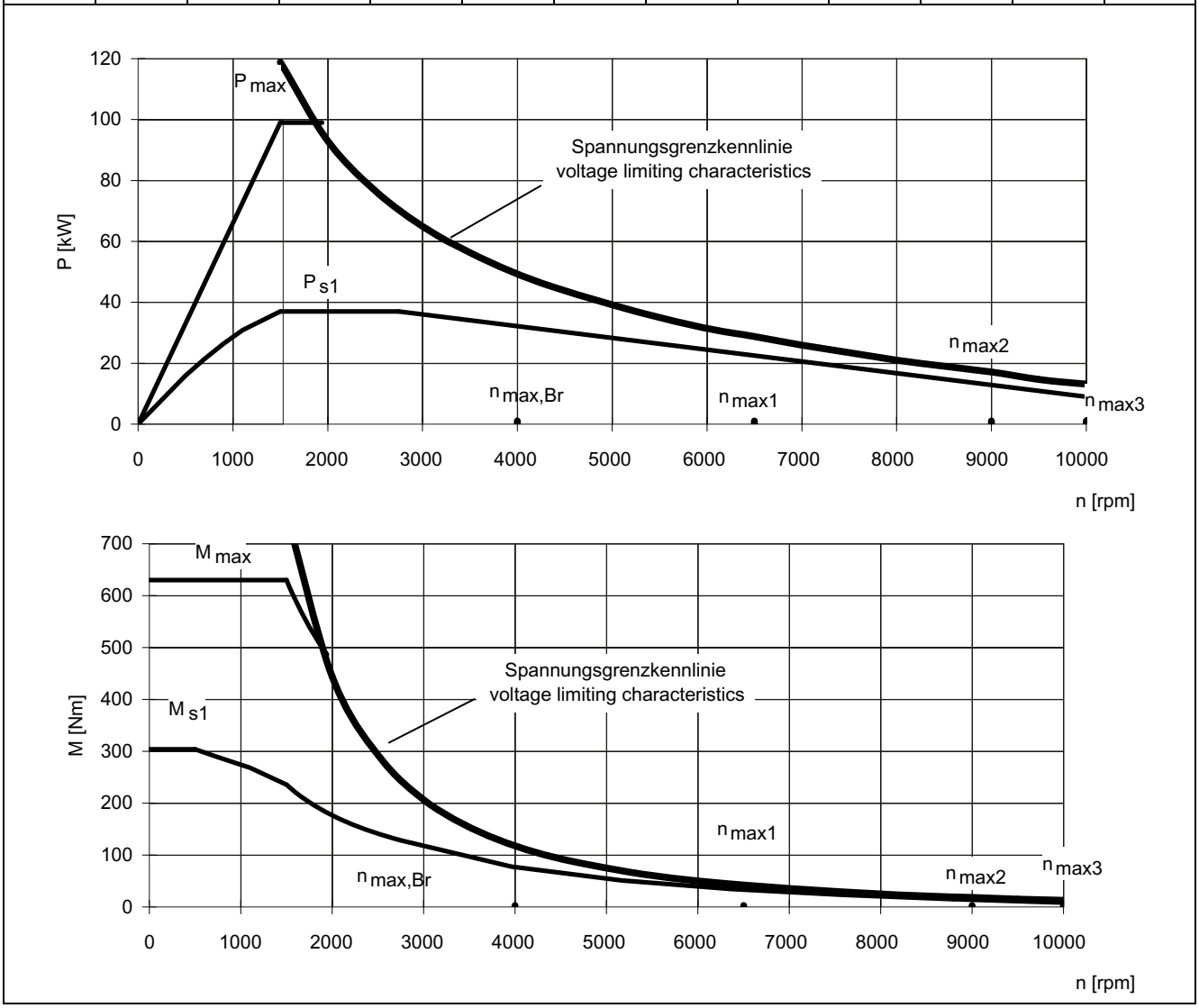
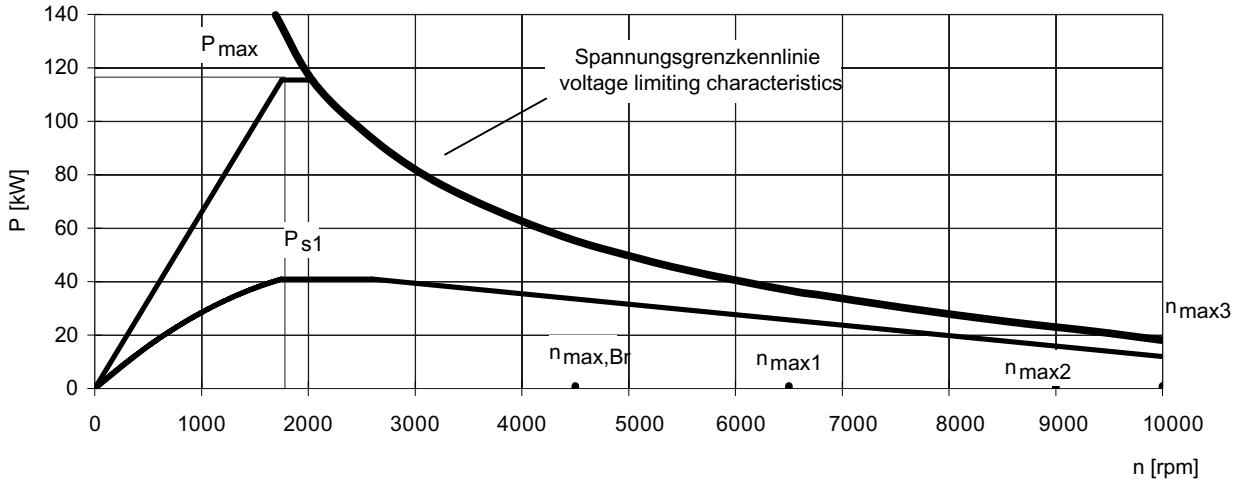


Table 4- 155 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	41.0	224	76.0	6500	9000	10000	4500	2650	630	206	304	95
1500	37.0	236	78.0					4550				



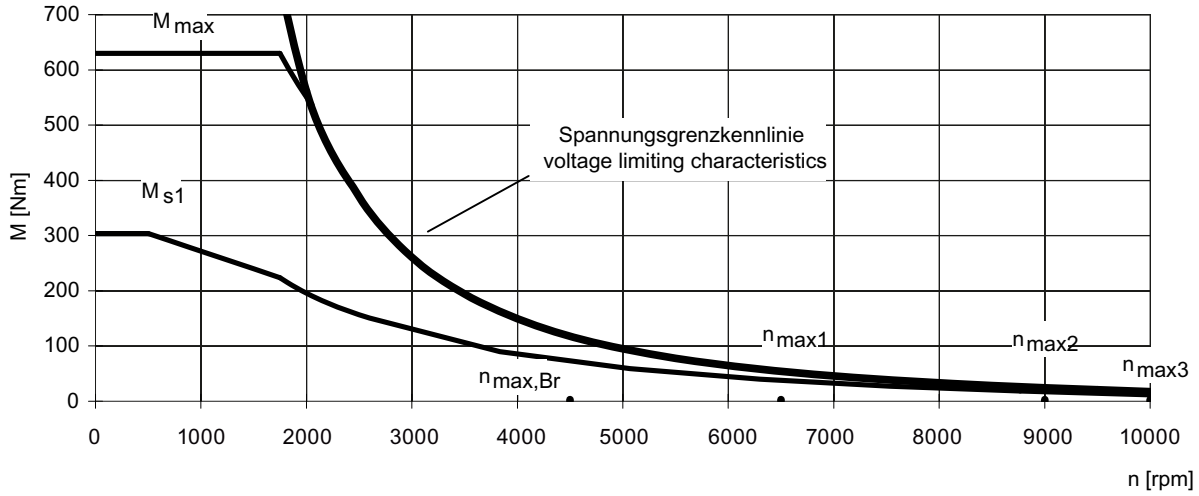
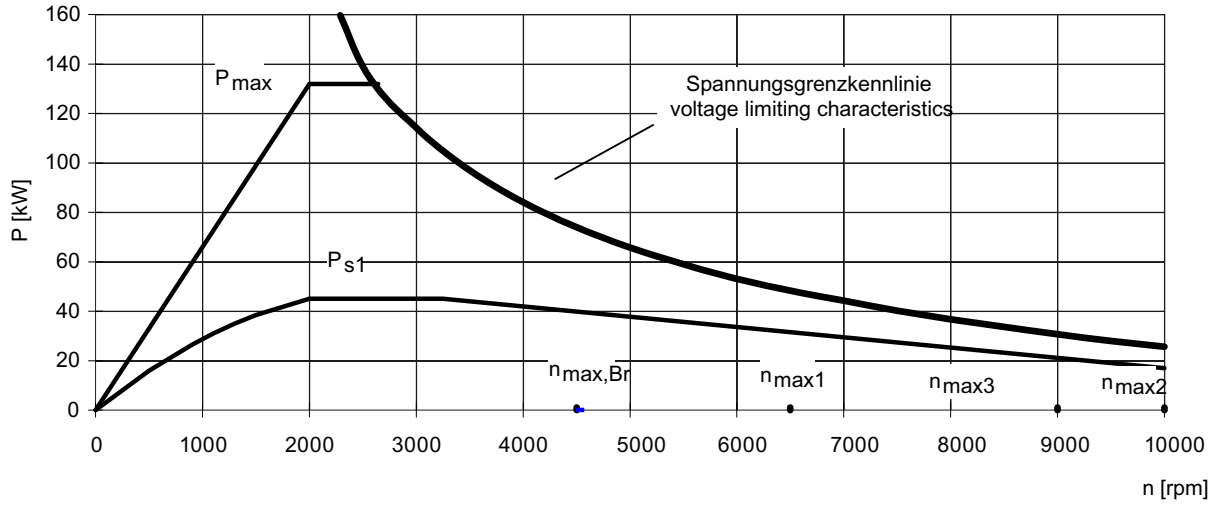


Table 4- 156 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□F□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	45.0	215	75.0	6500	9000	10000	4500	3300	630	206	304	95



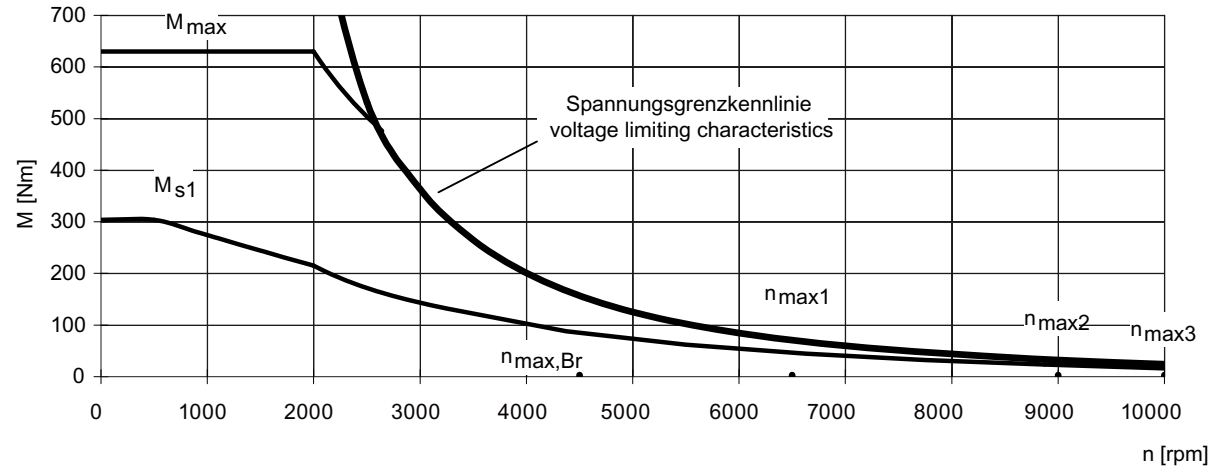
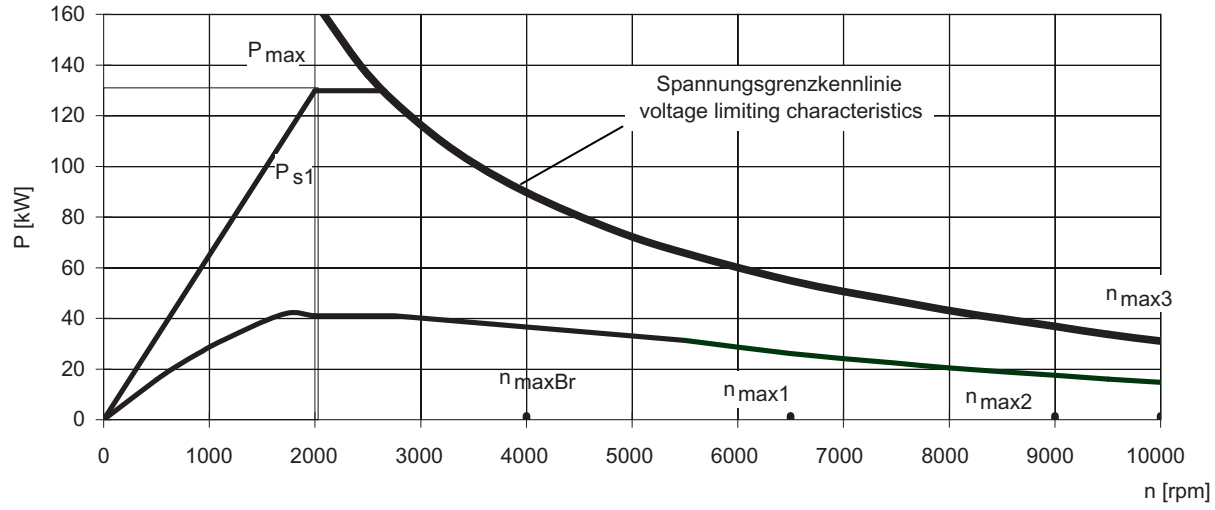


Table 4- 157 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	41.0	196	88.0	6500	9000	10000	4000	2750	620	278	302	122



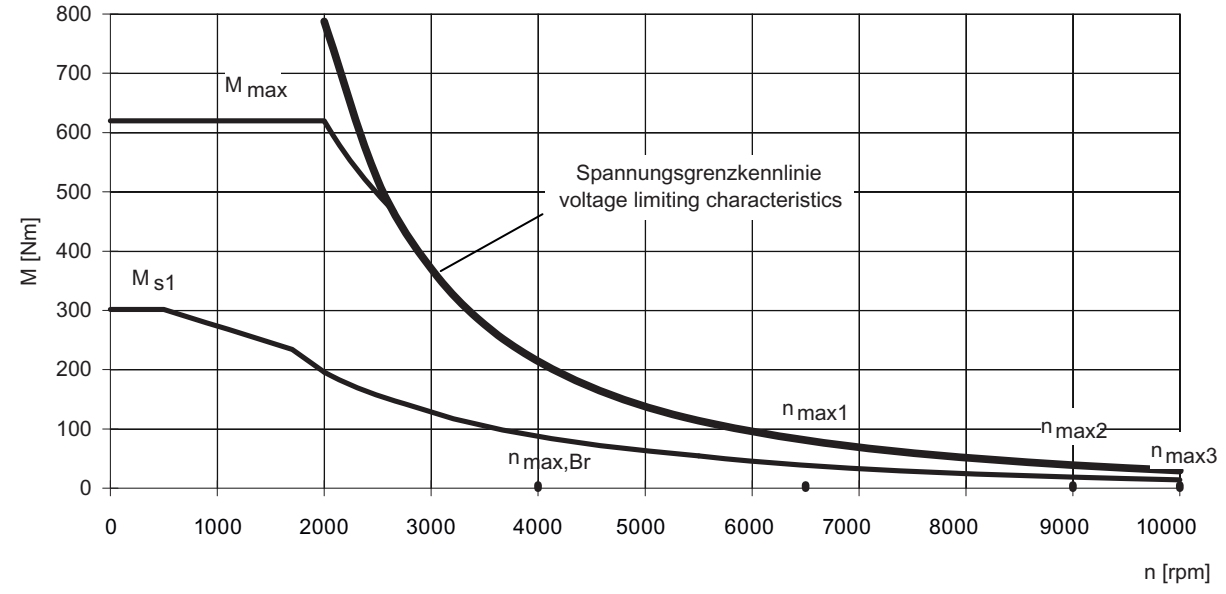


Table 4- 158 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	44.0	183	85.0	6500	9000	10000	4000	3000	620	278	302	122
2000	41.0	196	88.0					3200				

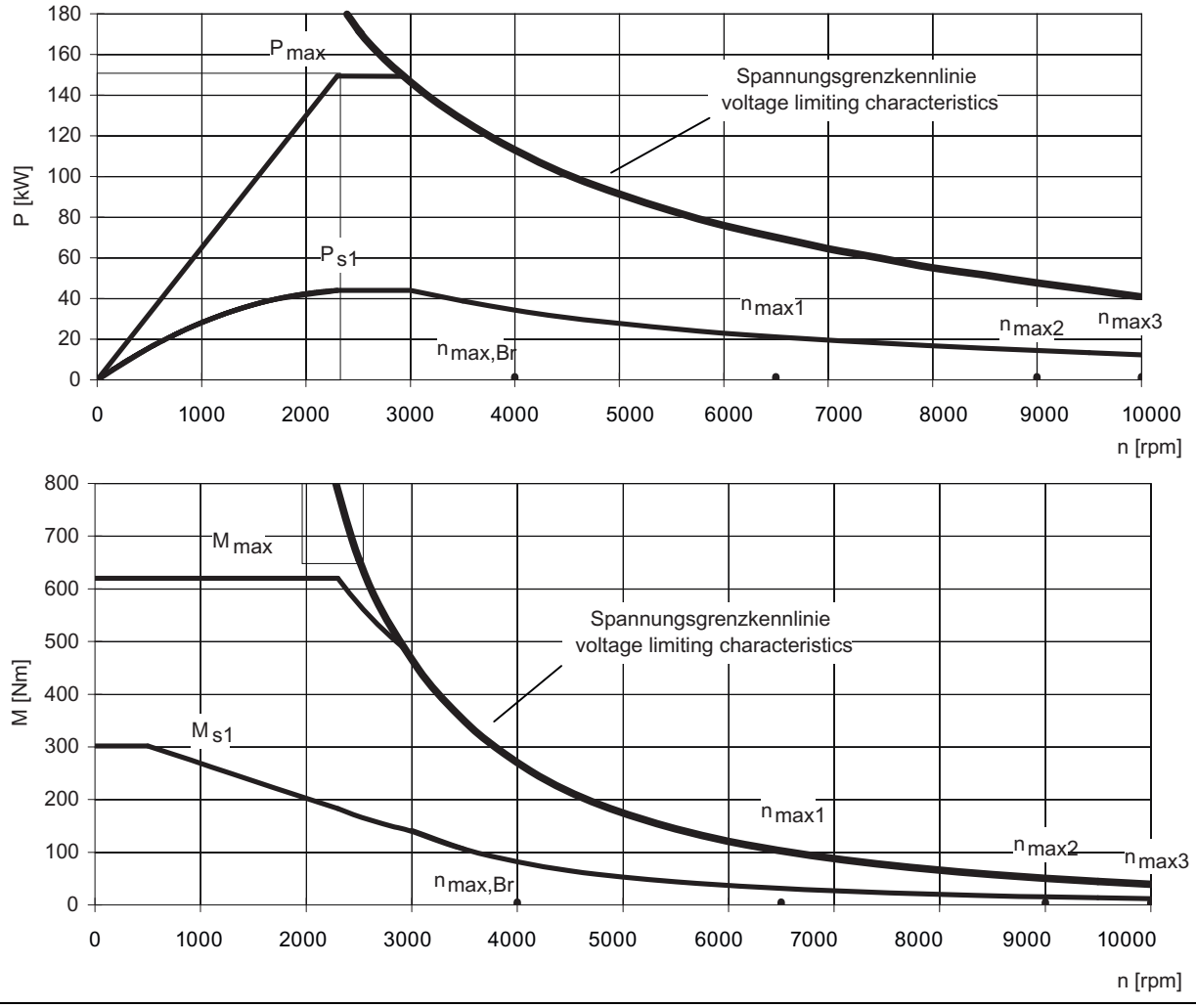
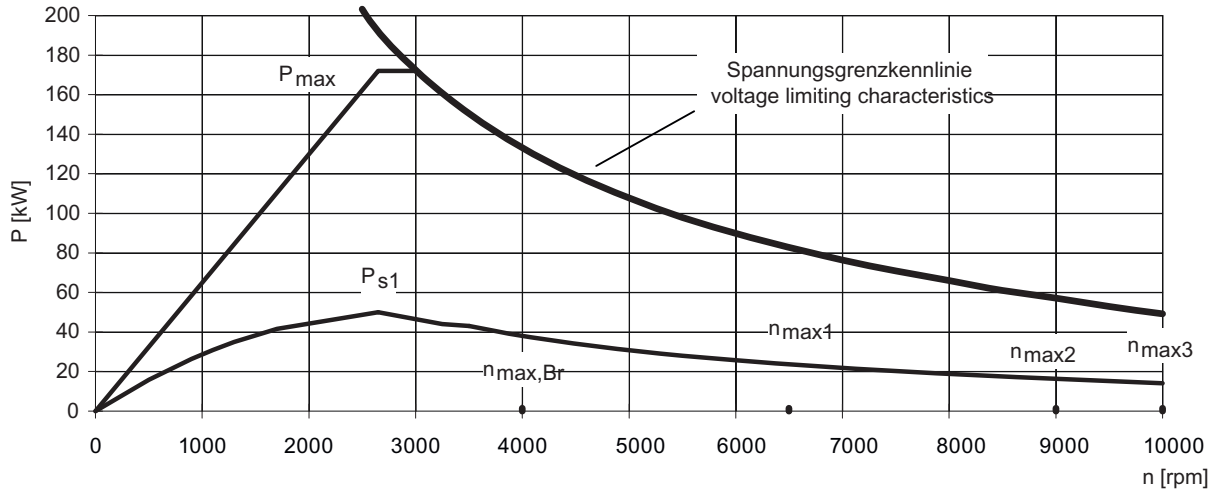
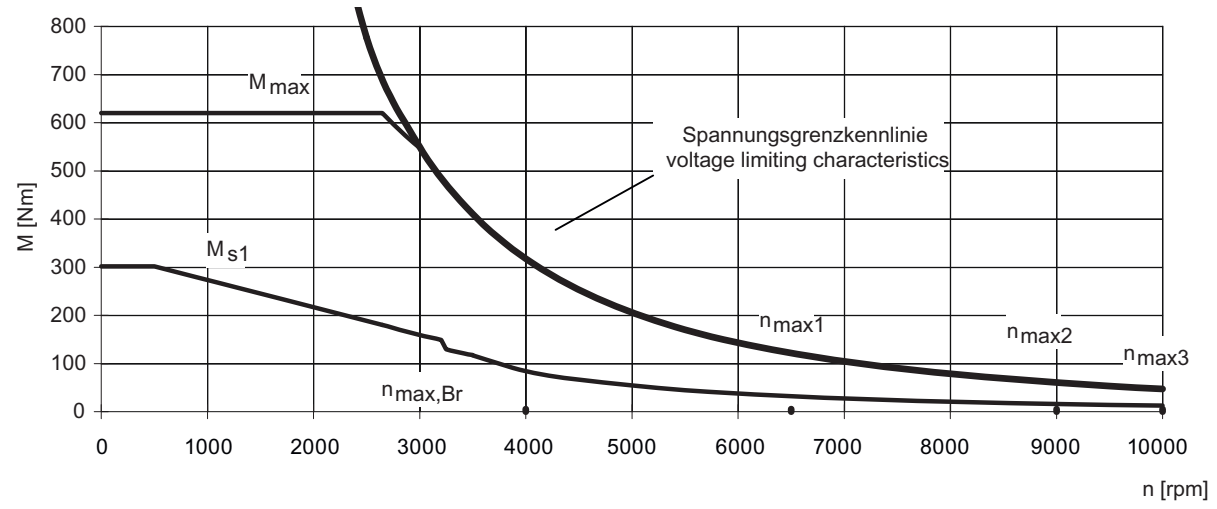


Table 4- 159 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□G□□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	50.0	180	85.0	6500	9000	10000	4000	3250	620	278	302	122

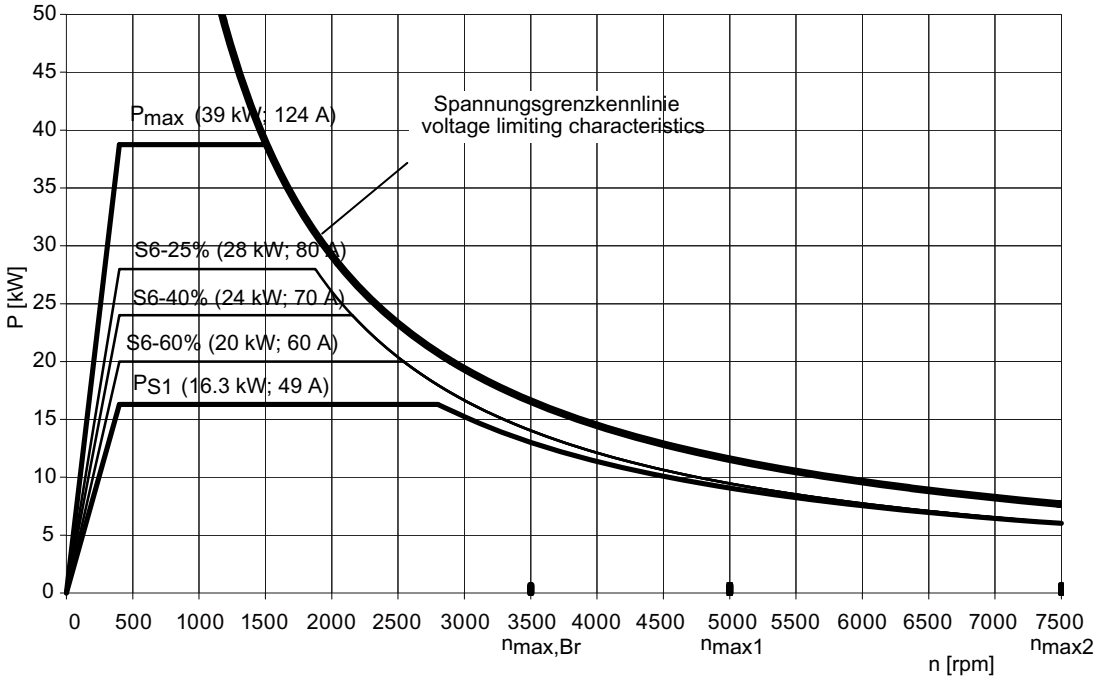




4.1.2.5 Shaft height 180 - forced ventilation

Table 4- 160 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	16.3	389	49	5000	7500	-	3500	2800	925	124	389	49



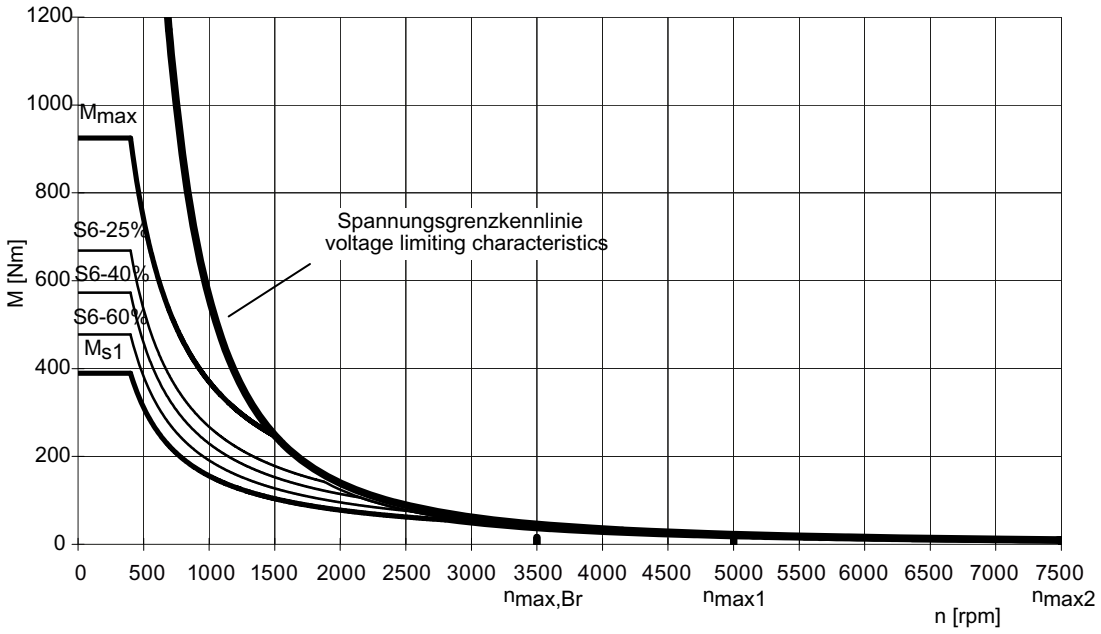
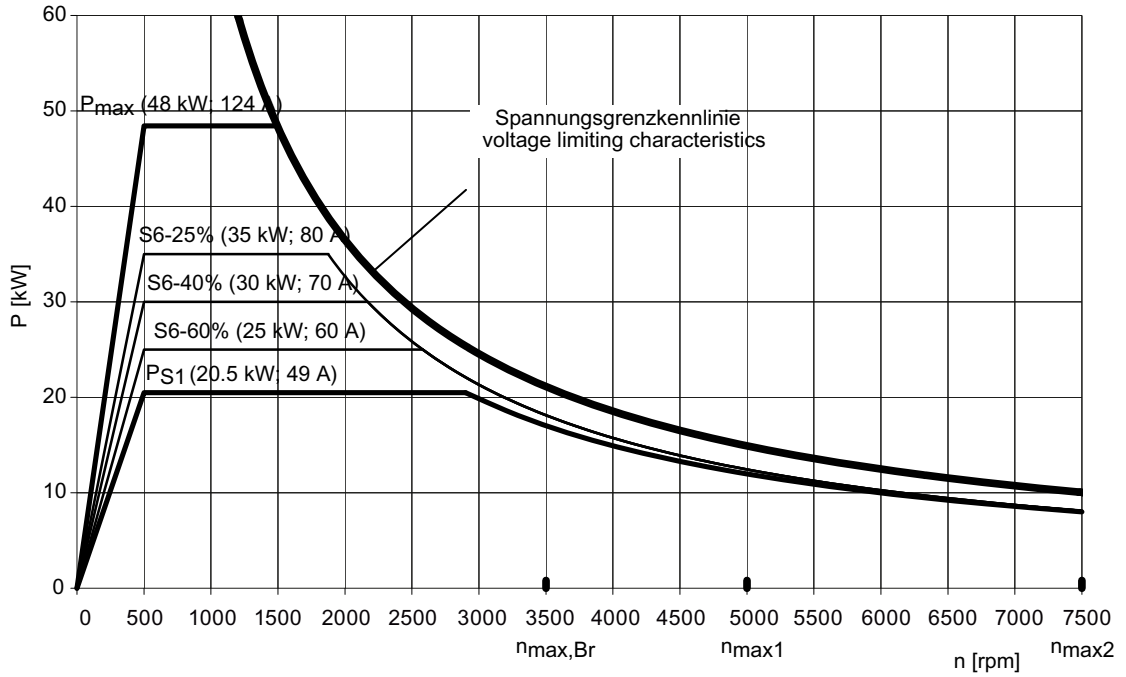


Table 4- 161 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	20.5	392	49	5000	7500	-	3500	2900	925	124	392	49
400	16.3	389	49					3700				



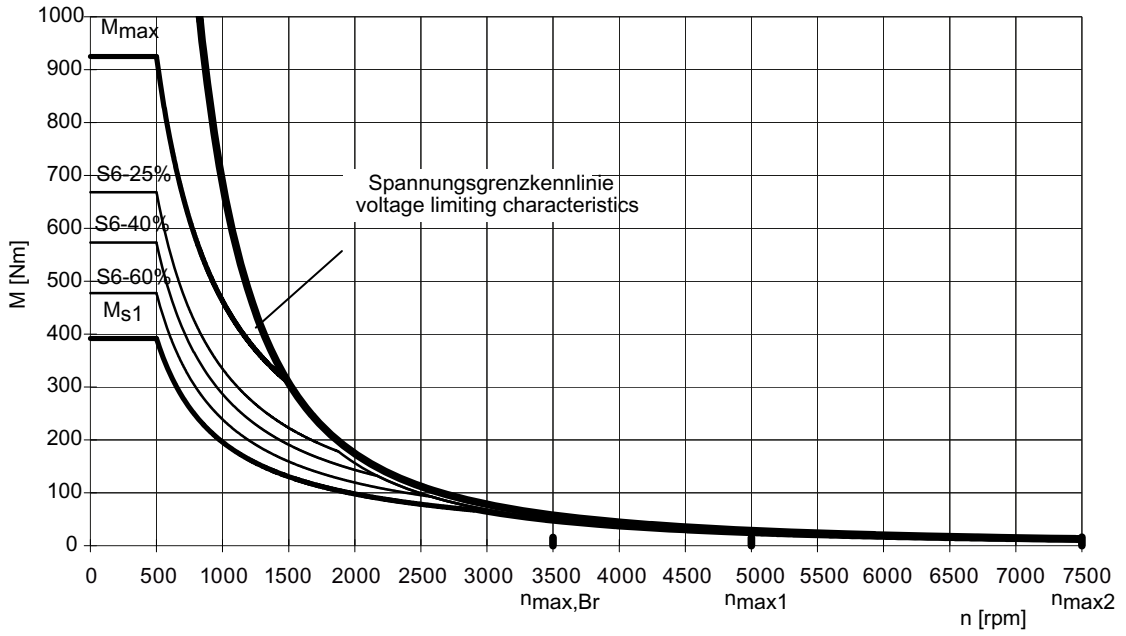
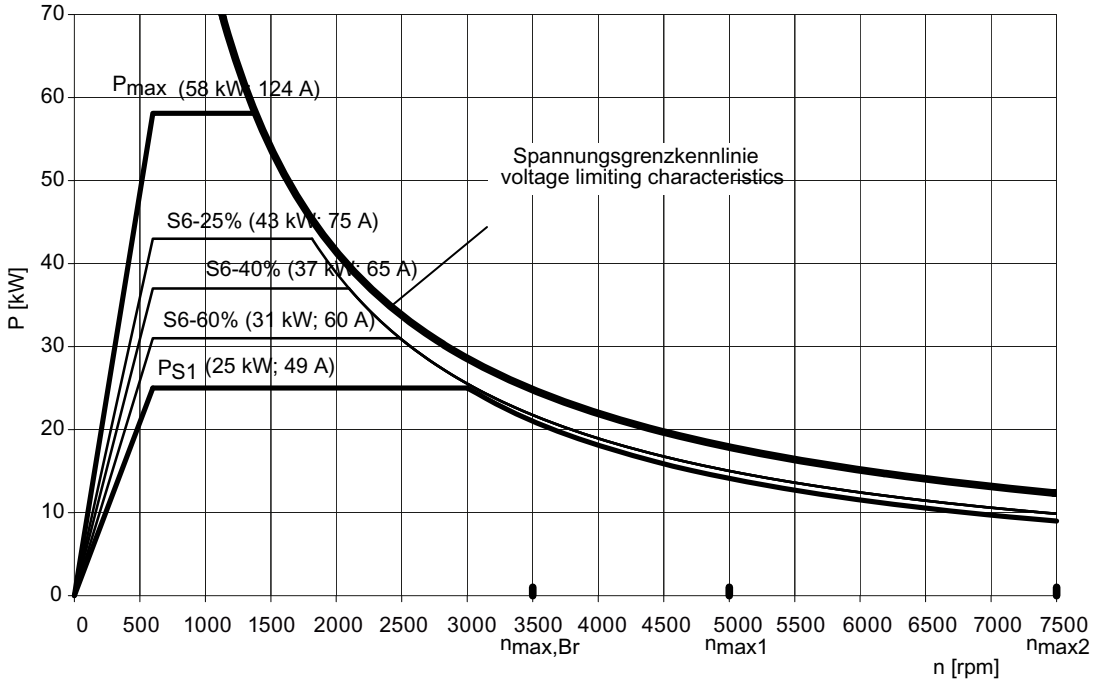


Table 4- 162 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	25	398	49	5000	7500	-	3500	3000	925	124	398	49



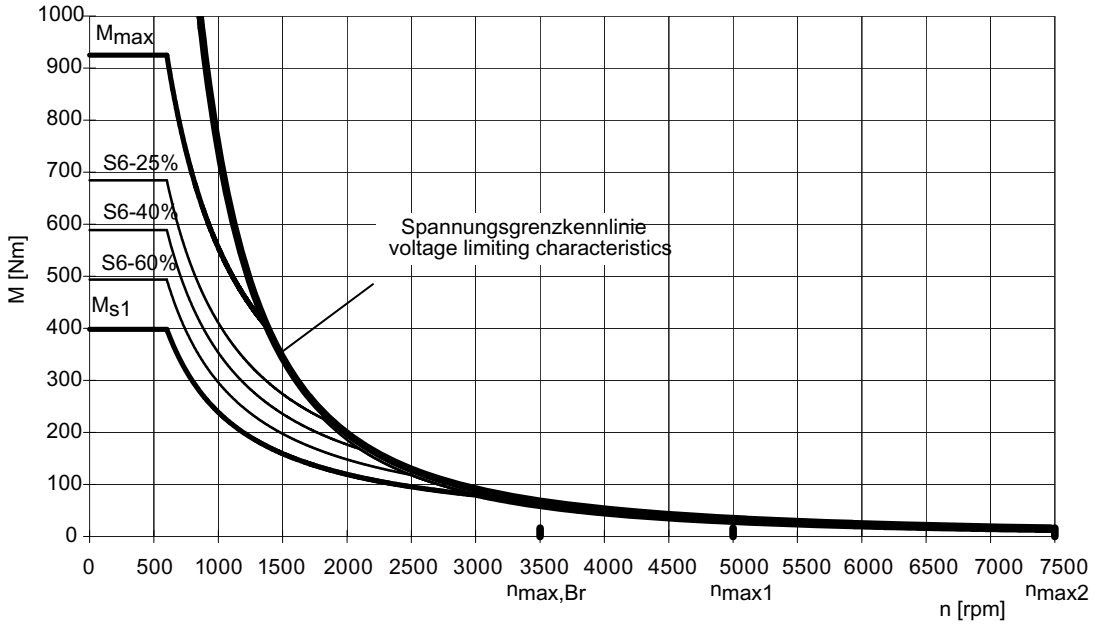
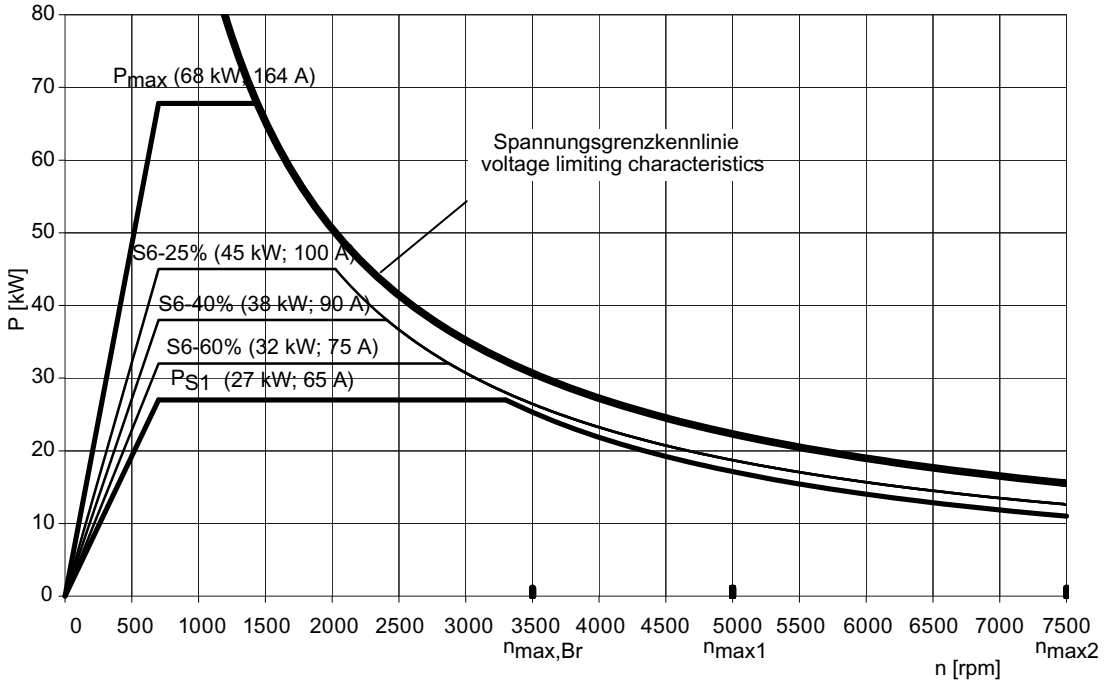


Table 4- 163 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	27	368	65	5000	7500	-	3500	3300	925	164	368	65



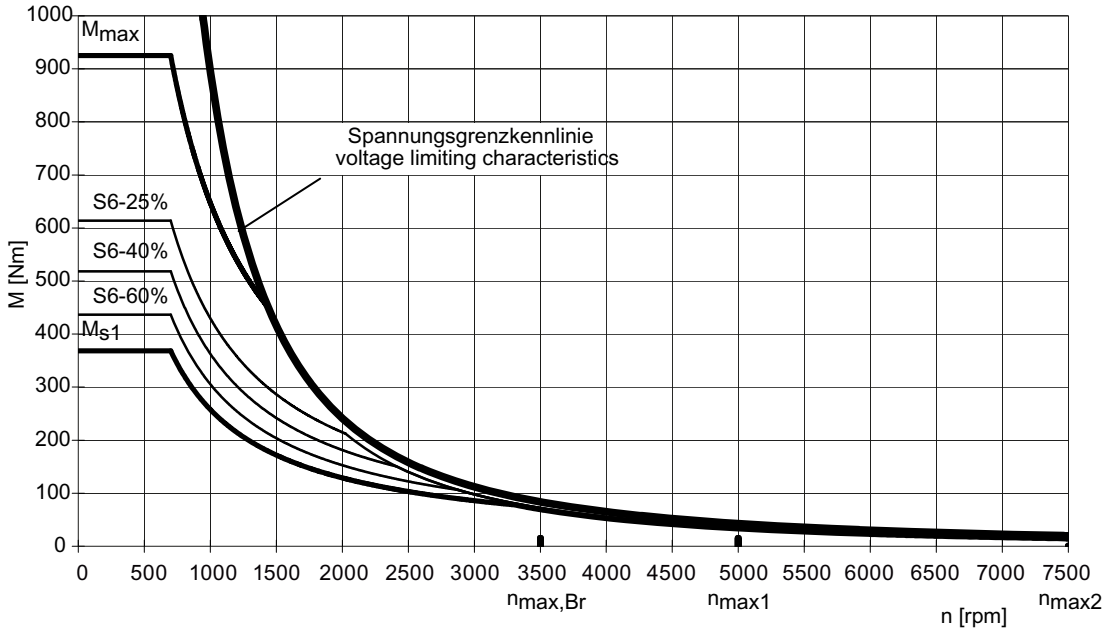
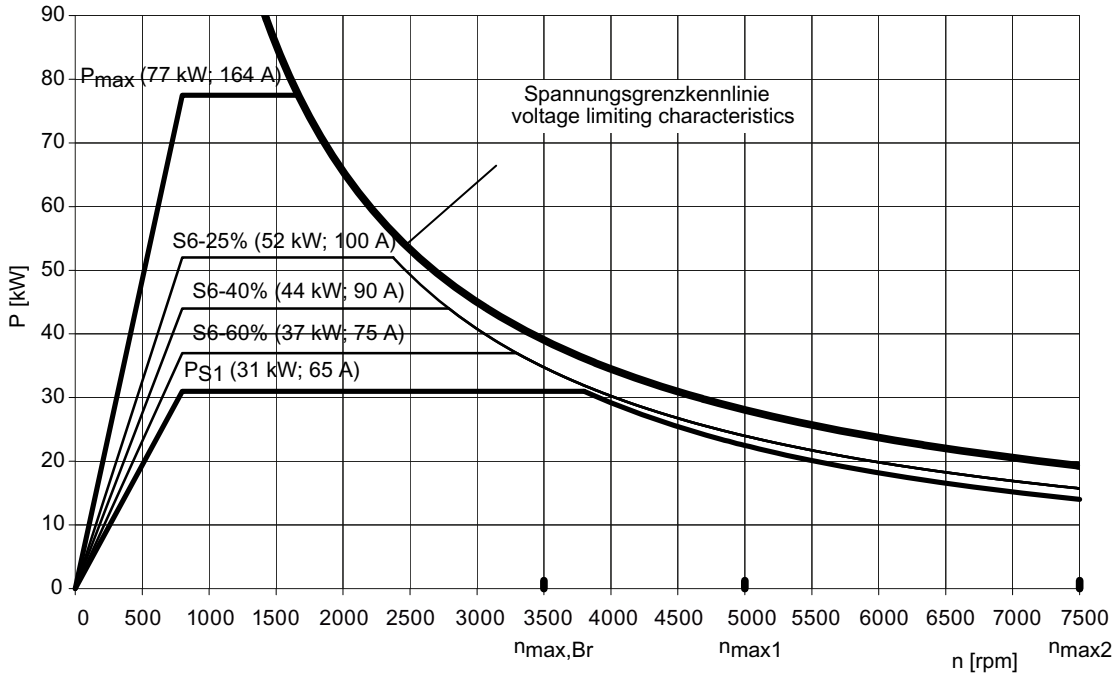


Table 4- 164 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	31	370	65	5000	7500	-	3500	3800	925	164	370	65
700	27	368	65					4300				



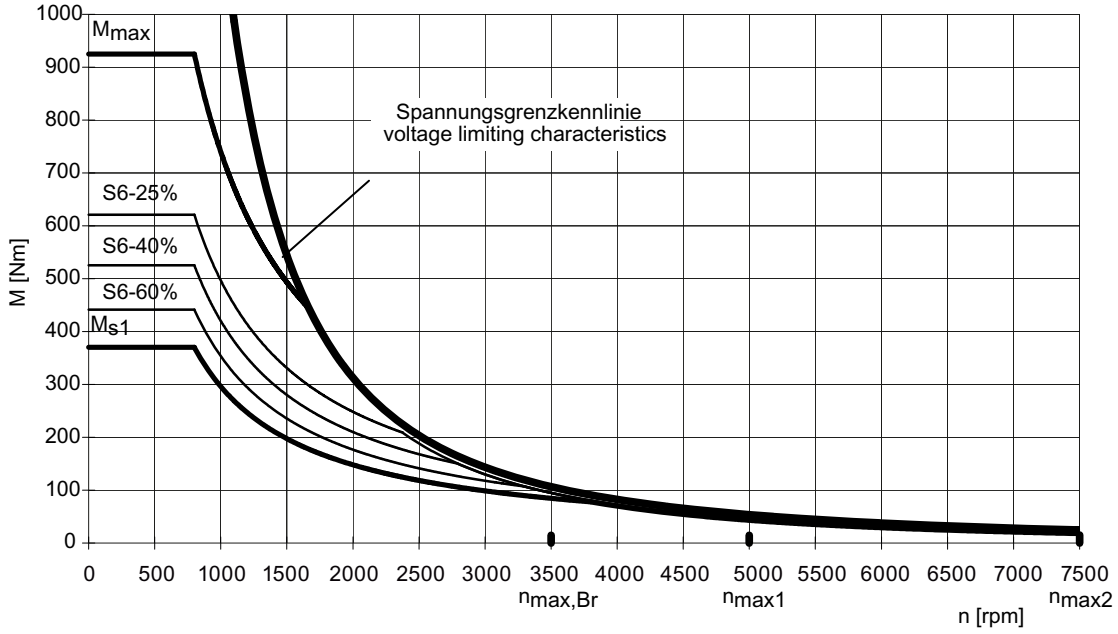
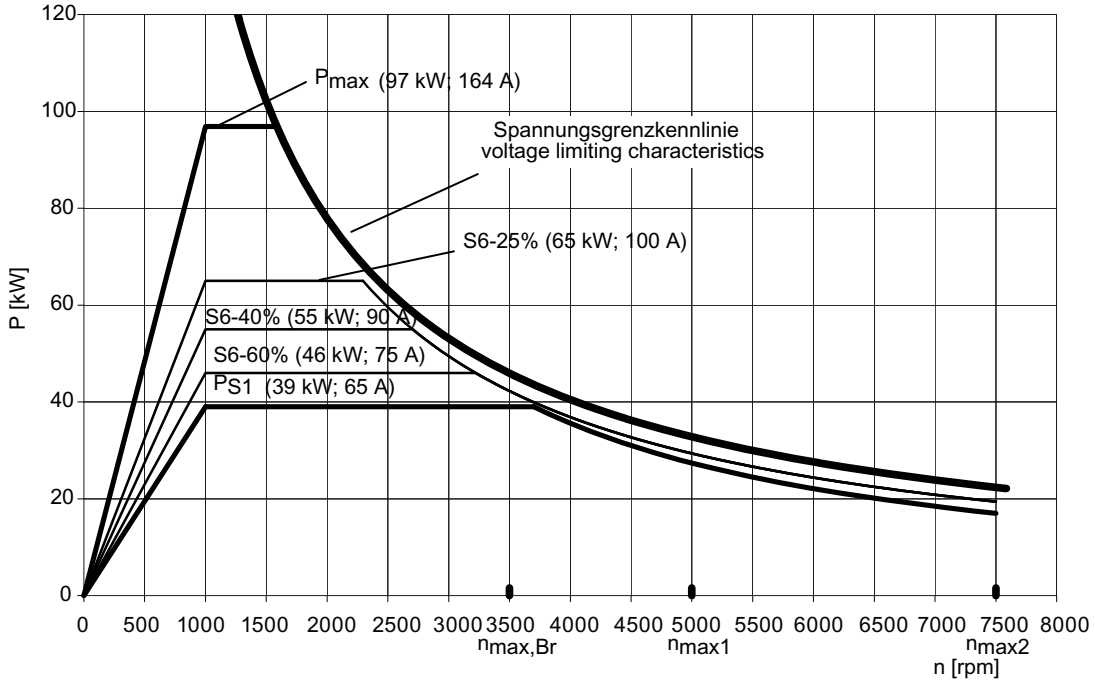


Table 4- 165 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	39	372	65	5000	7500	-	3500	3700	925	164	372	65



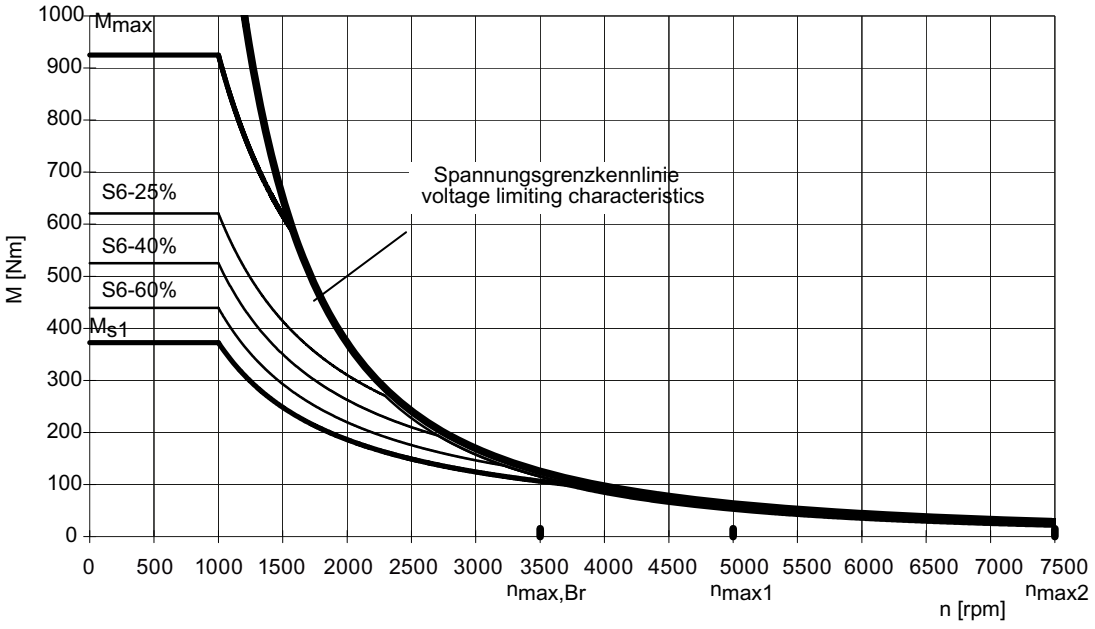
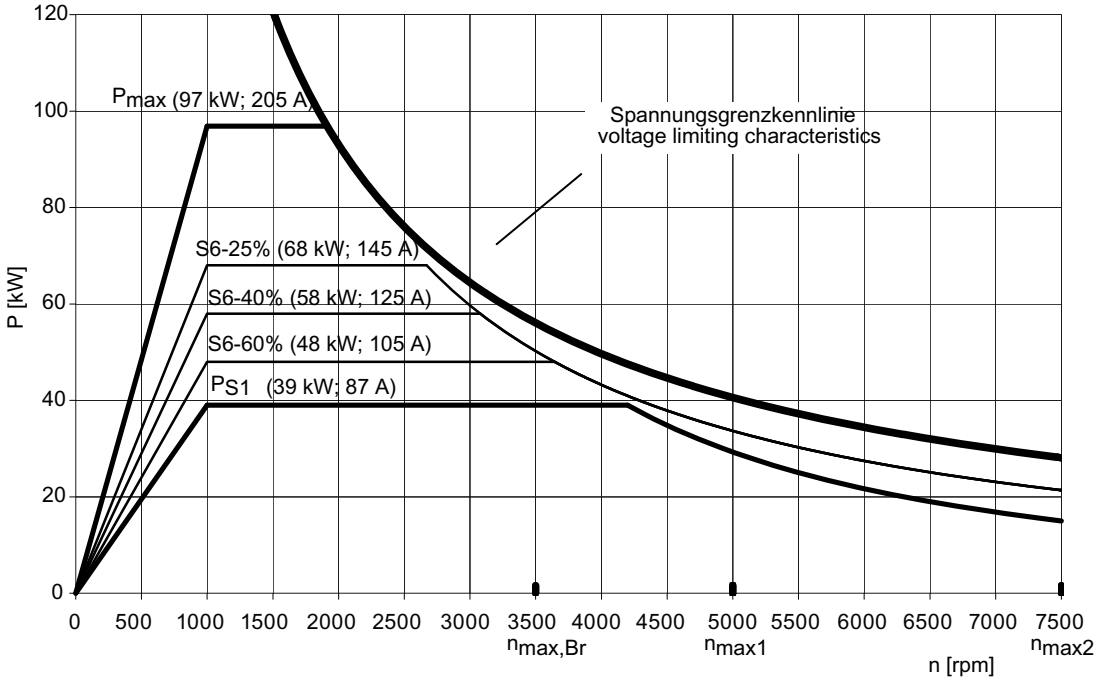


Table 4- 166 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	39	372	87	5000	7500	-	3500	4200	925	205	372	87



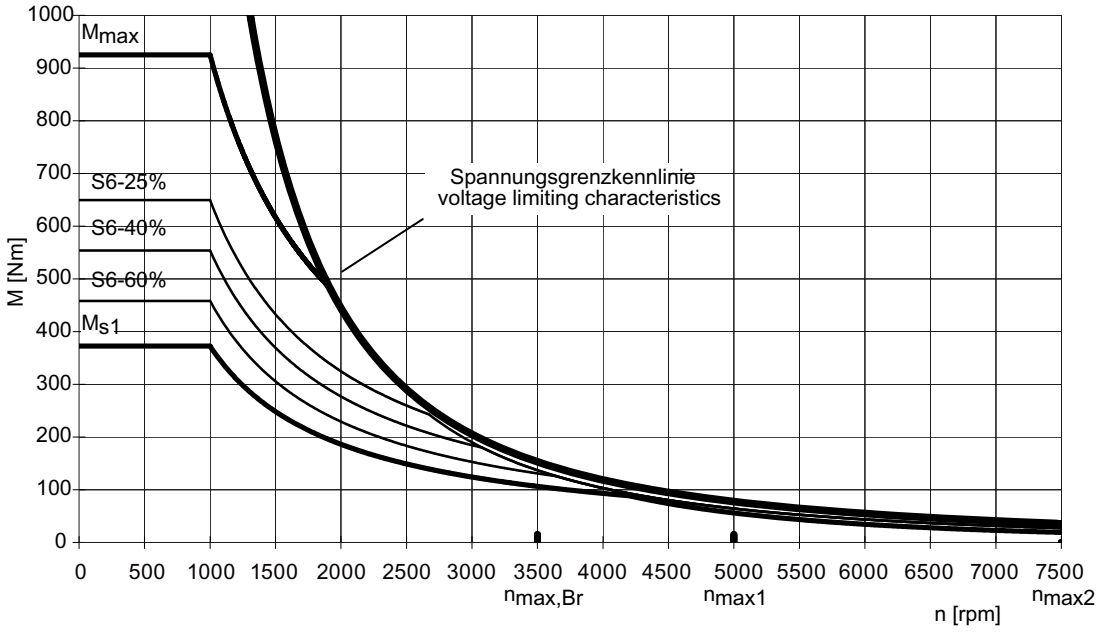
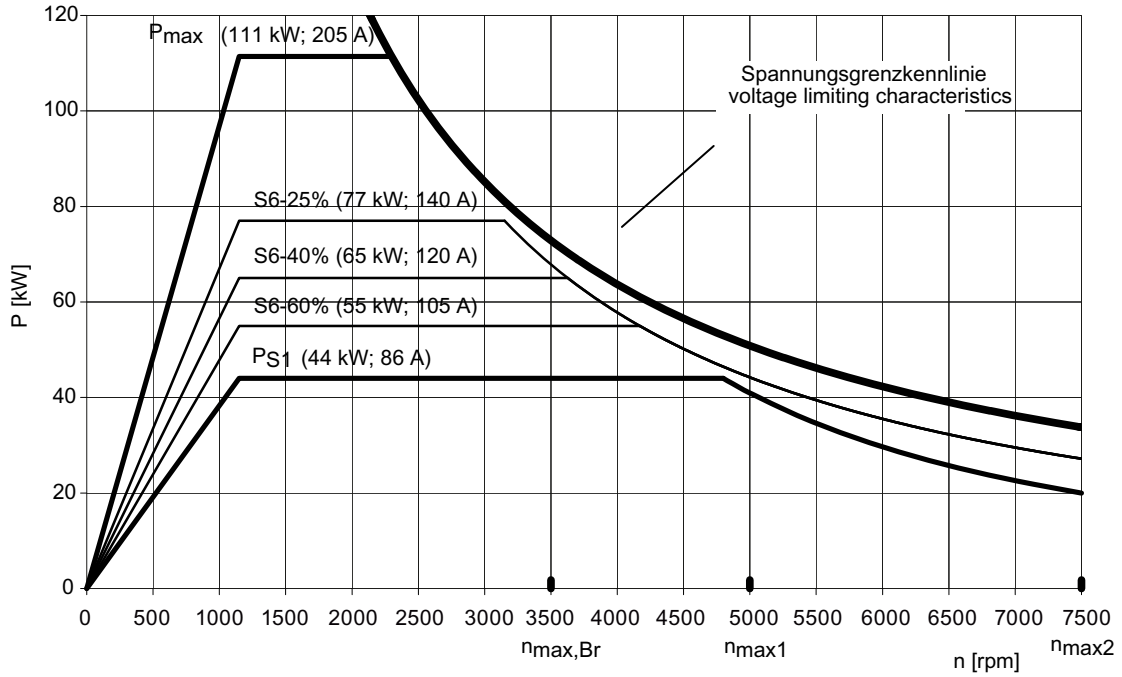


Table 4- 167 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	44	365	86	5000	7500	-	3500	4800	925	205	365	86
1000	39	372	87					5100				



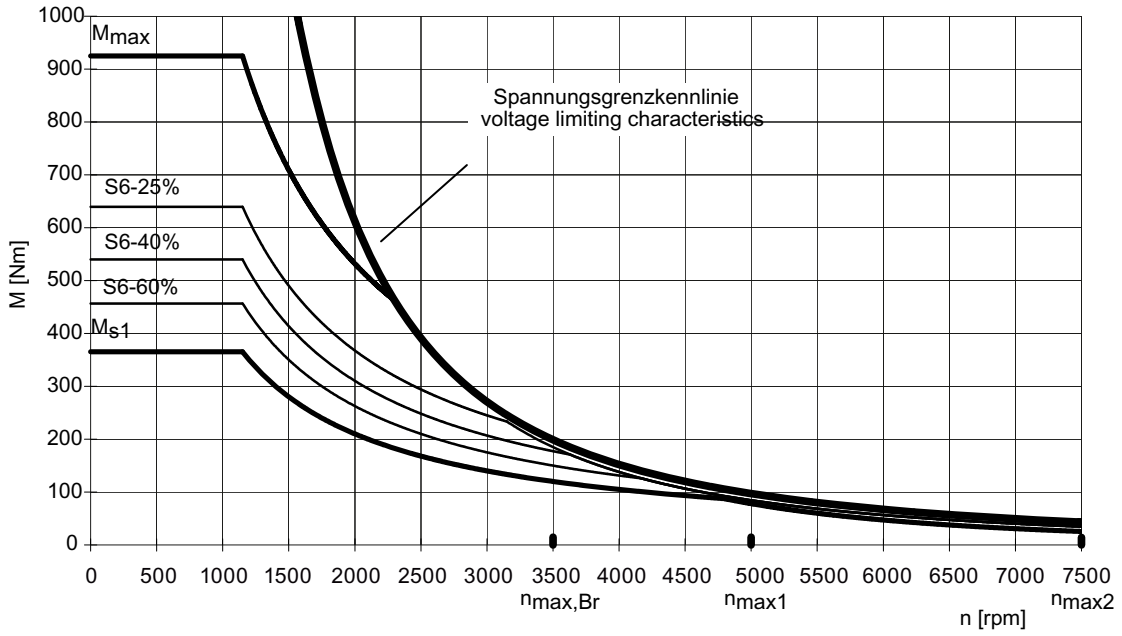
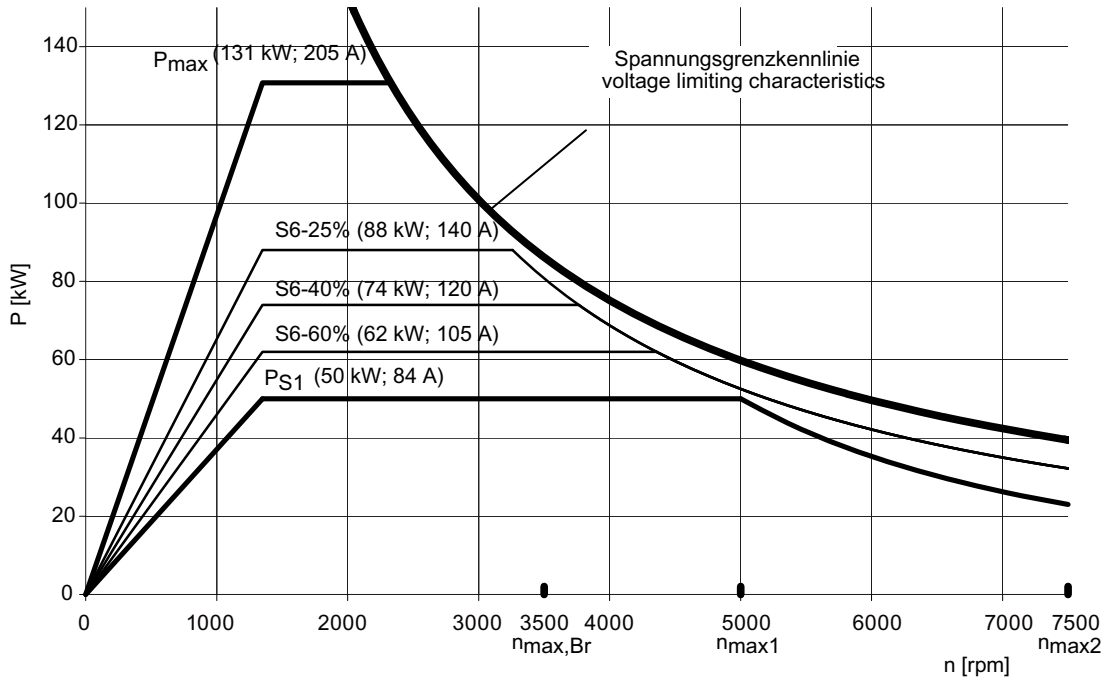


Table 4- 168 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	50	354	84	5000	7500	-	3500	5000	925	205	354	84



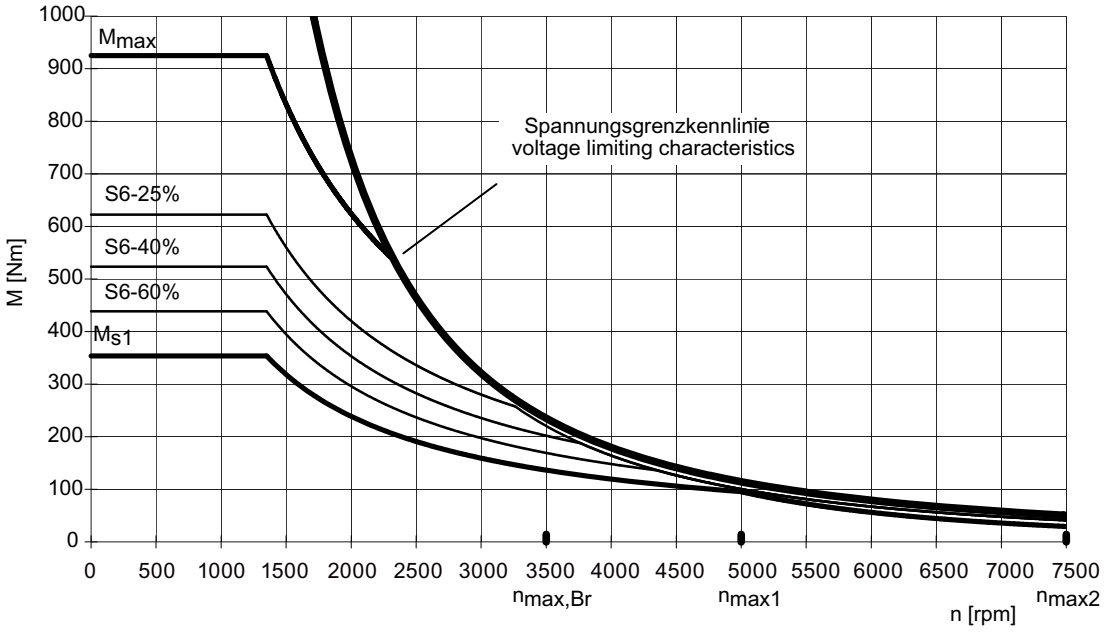
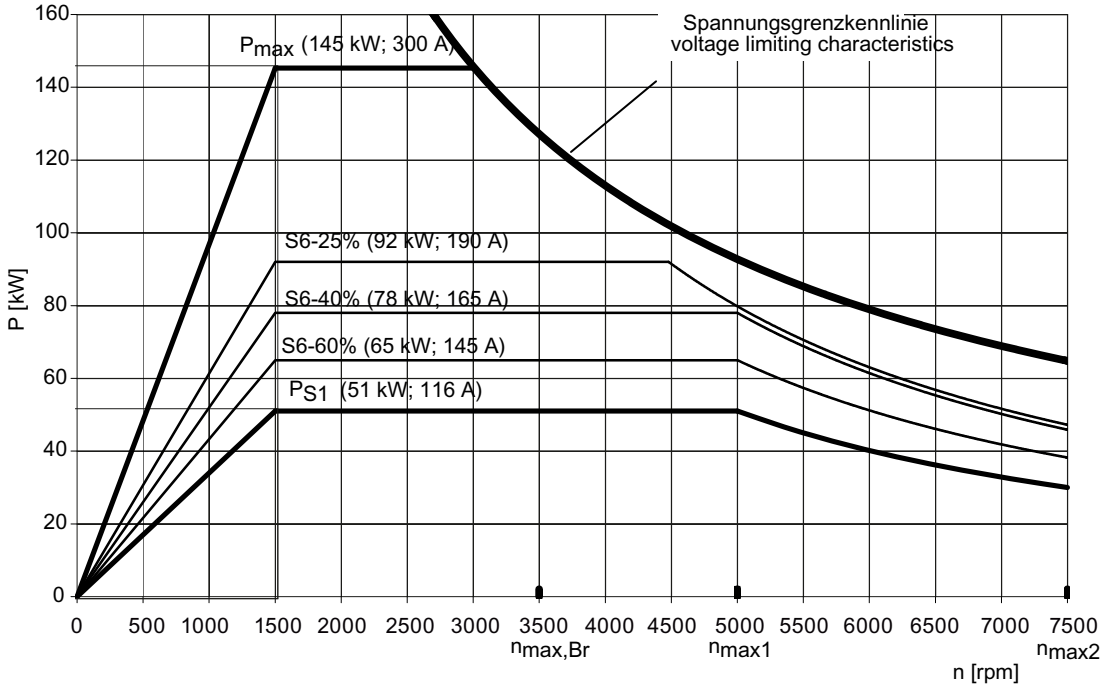


Table 4- 169 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	51	325	116	5000	7500	-	3500	5000	925	300	325	116



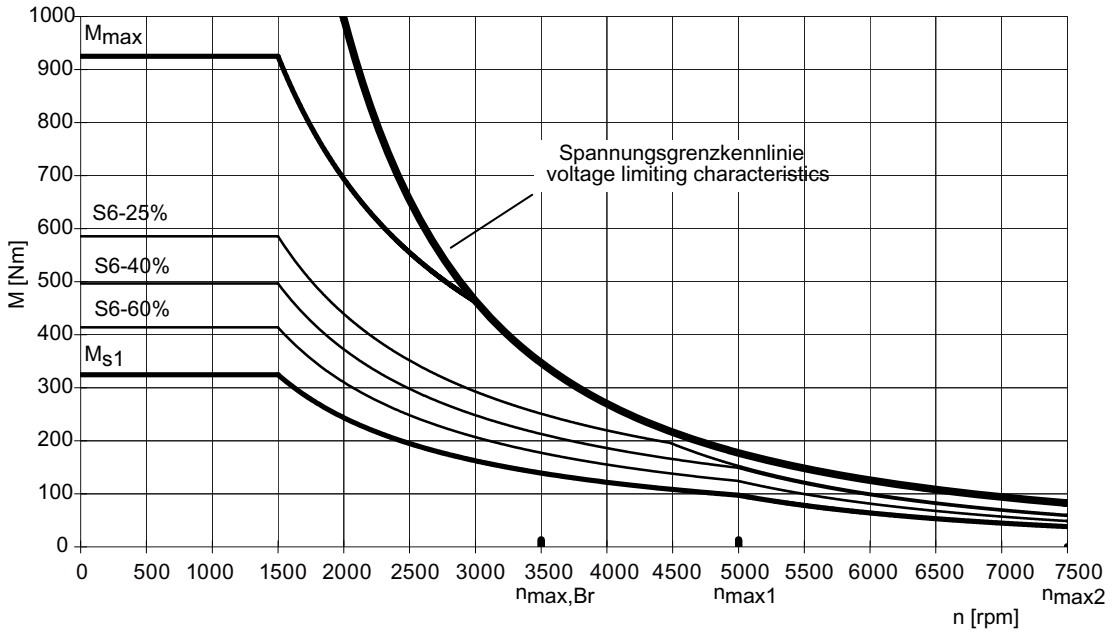
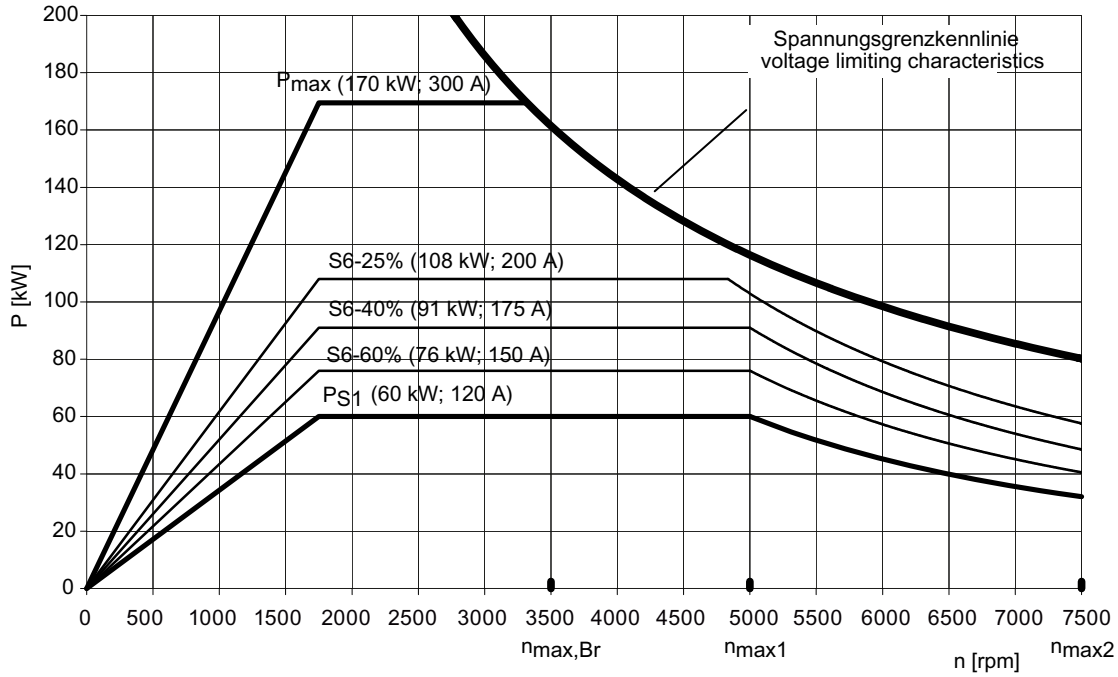


Table 4- 170 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	60	327	120	5000	7500	-	3500	5000	925	300	327	120
1500	51	325	116					5600				



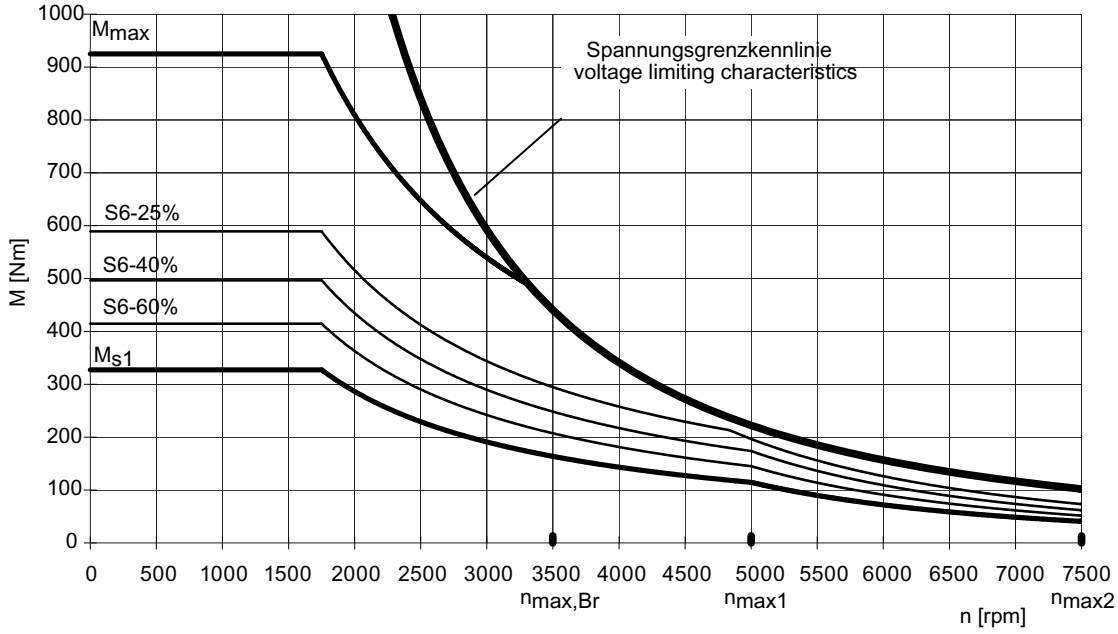
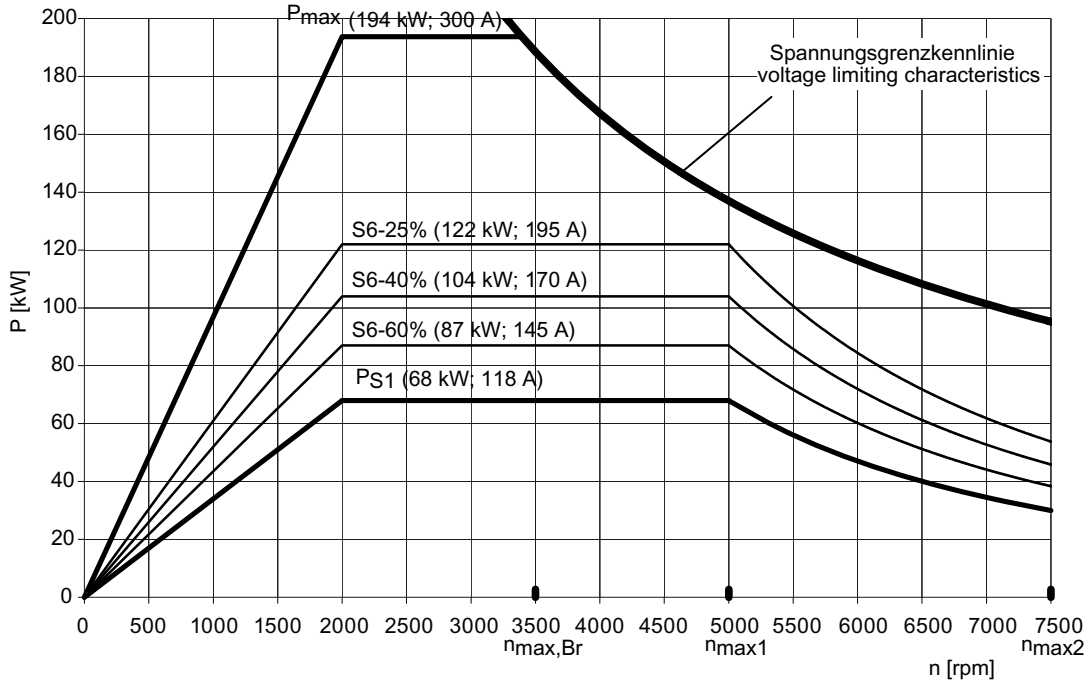


Table 4- 171 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	68	325	118	5000	7500	-	3500	5000	925	300	325	118



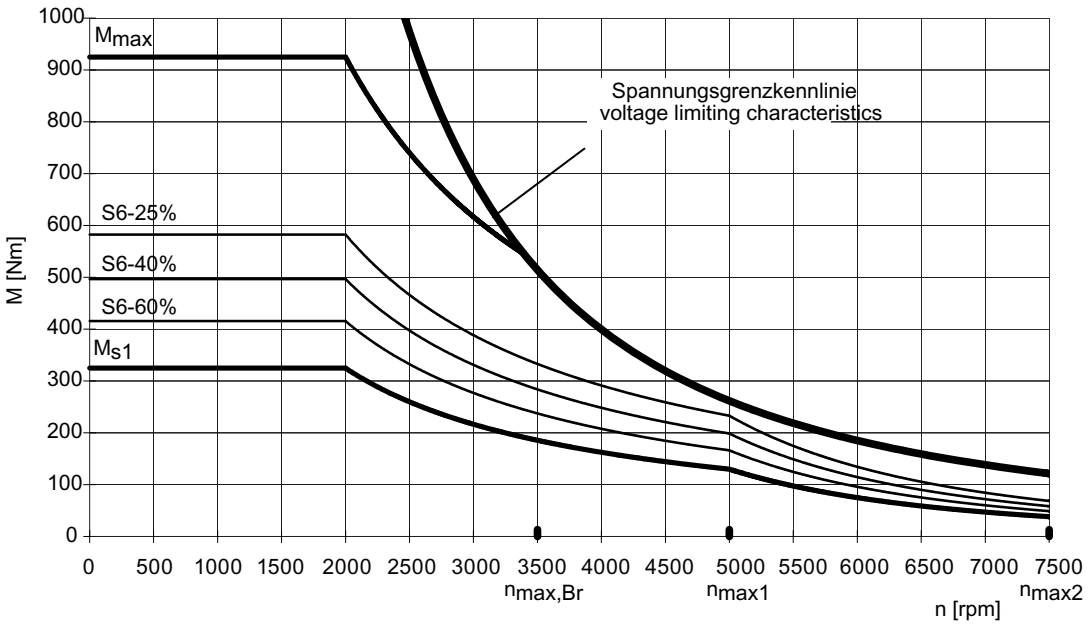
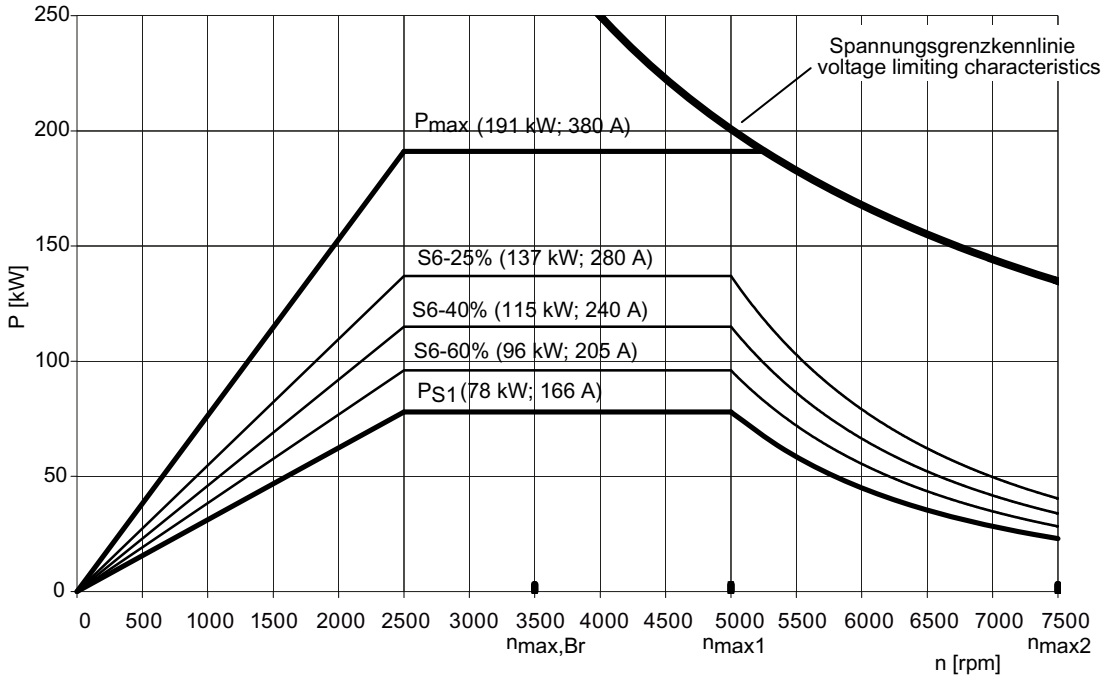


Table 4- 172 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	78	298	166	5000	7500	-	3500	5000	730	380	298	166



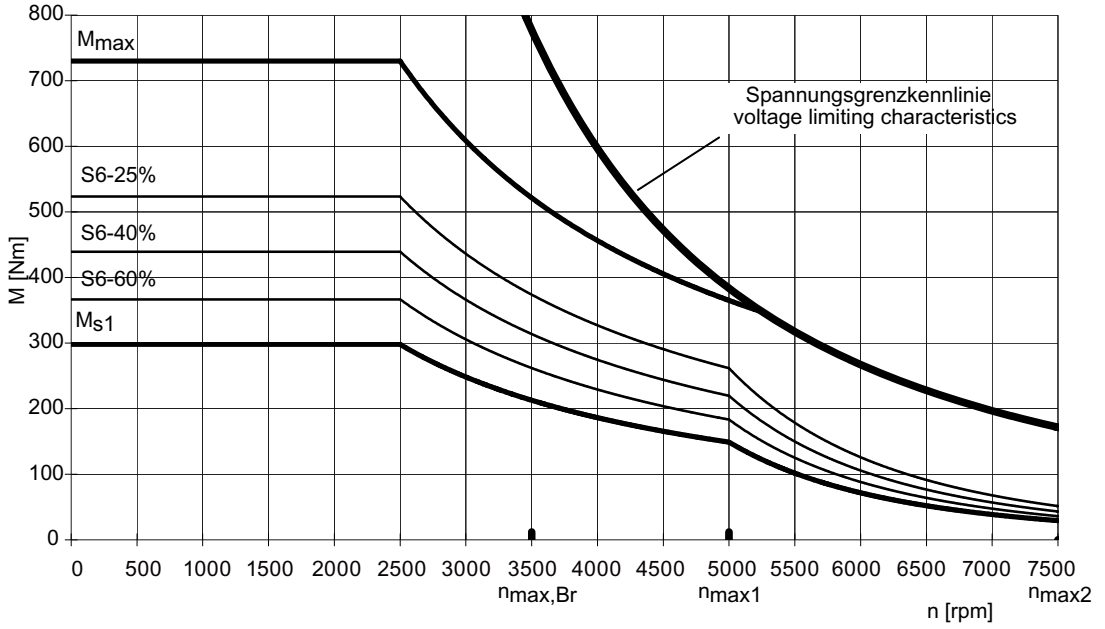
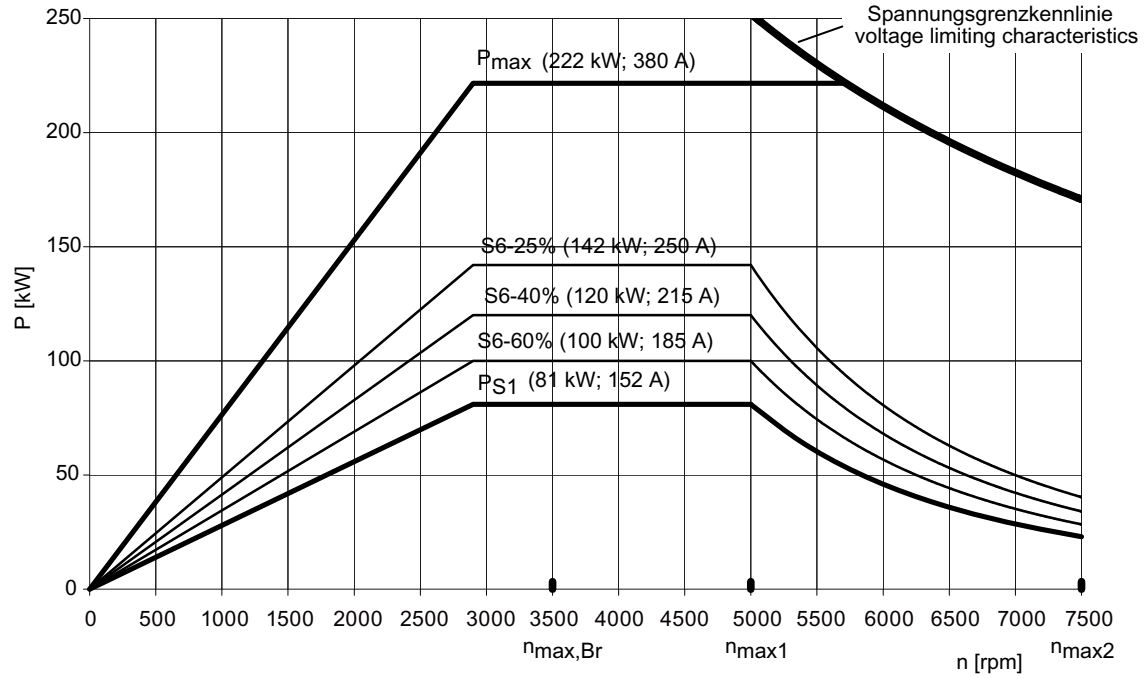


Table 4- 173 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	81	267	152	5000	7500	-	3500	5000	730	380	267	152
2500	78	298	166					5100				



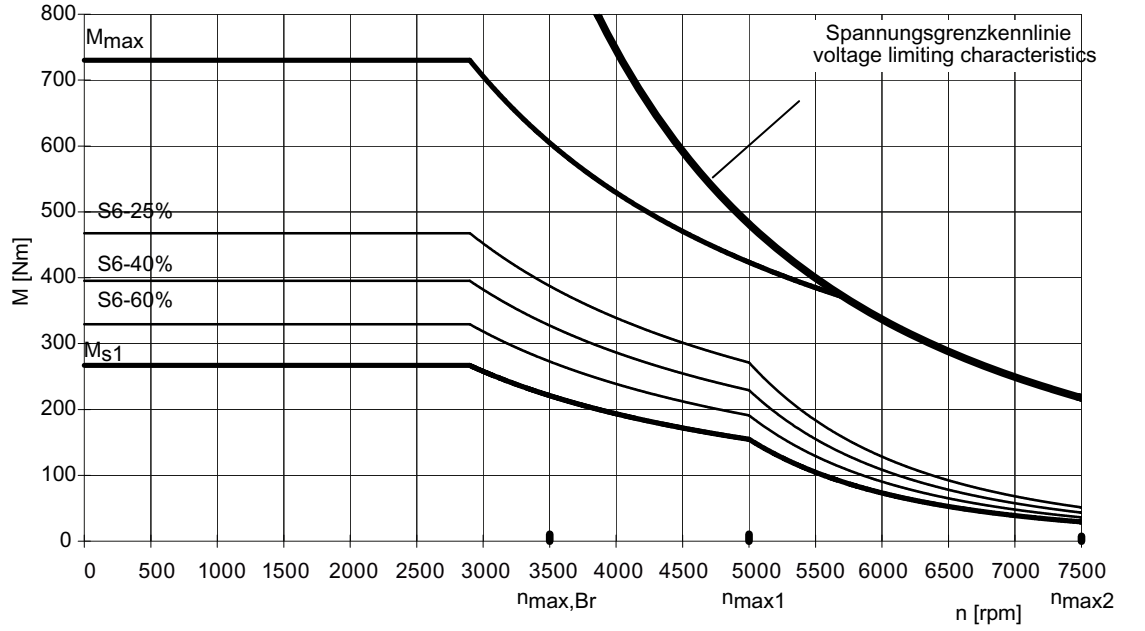
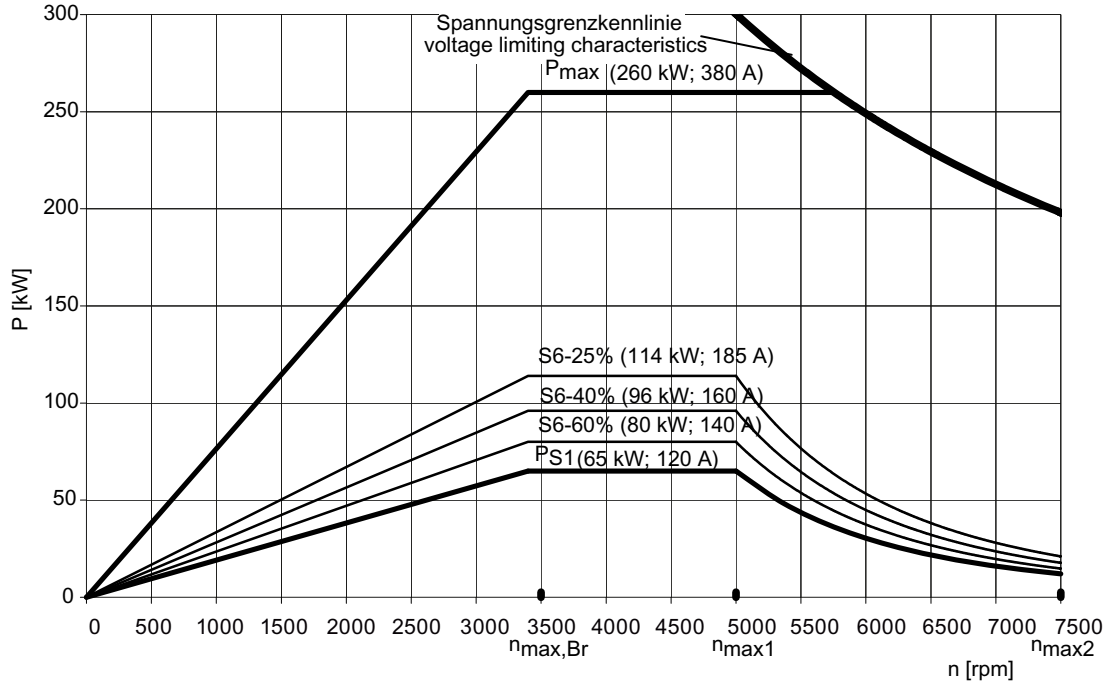


Table 4- 174 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	65	183	120	5000	7500	-	3500	5000	730	380	183	120



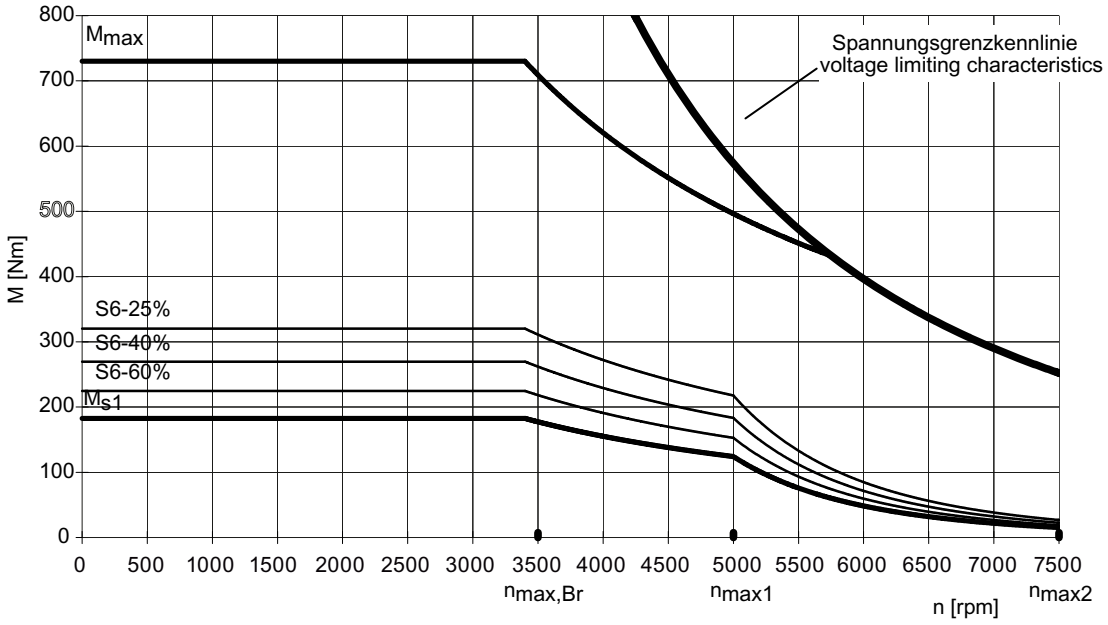
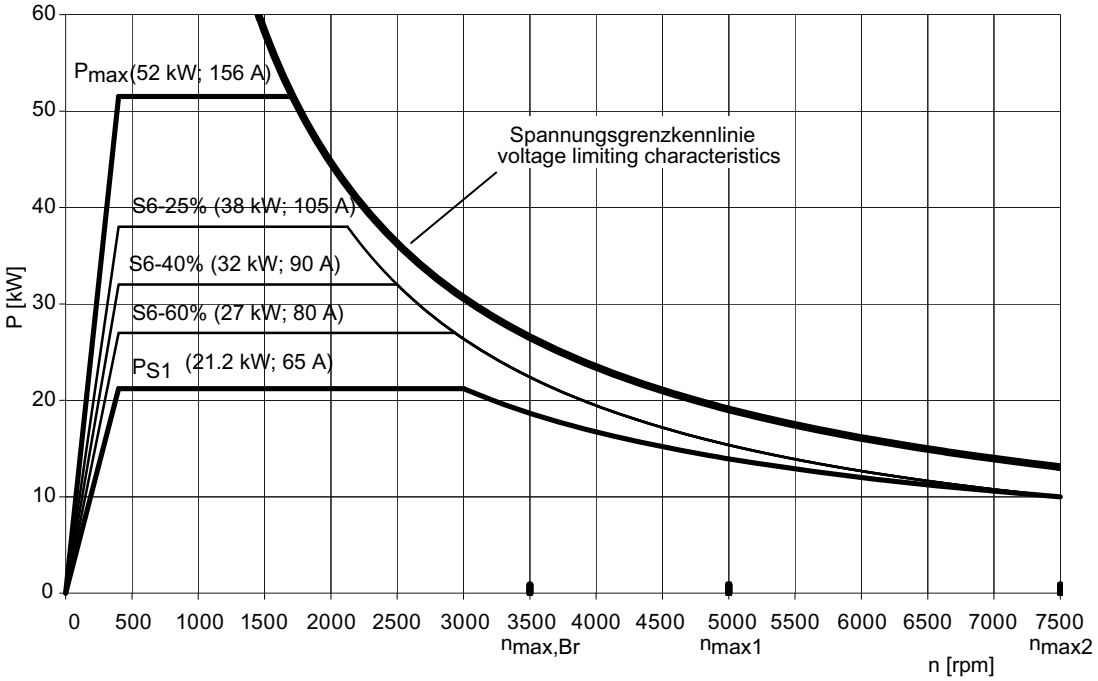


Table 4- 175 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	21.2	506	65	5000	7500	-	3500	3000	1230	156	506	65



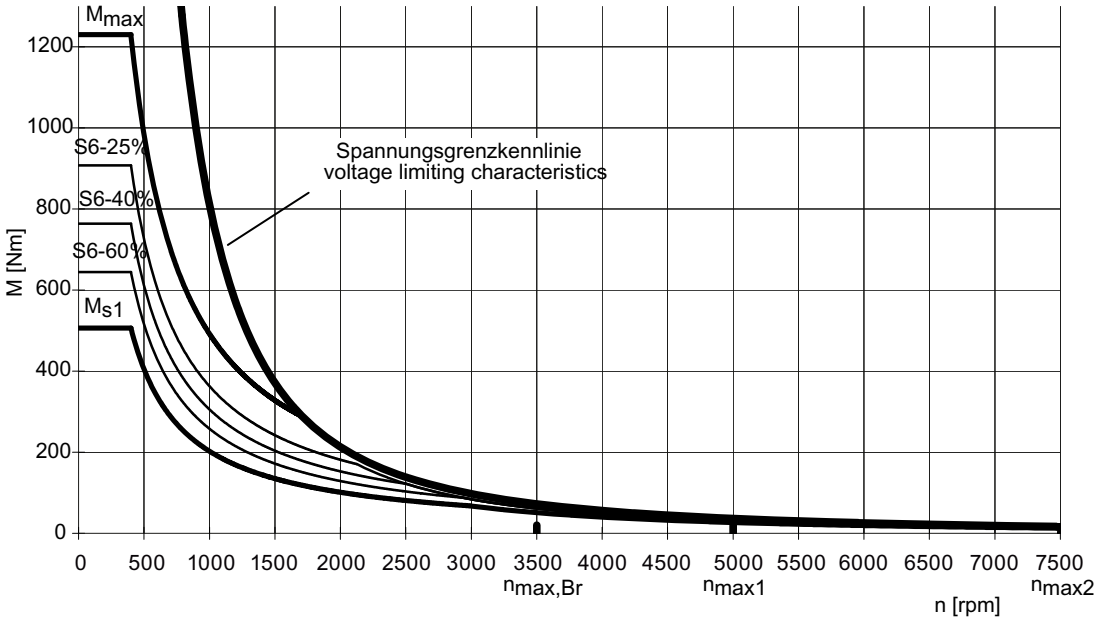
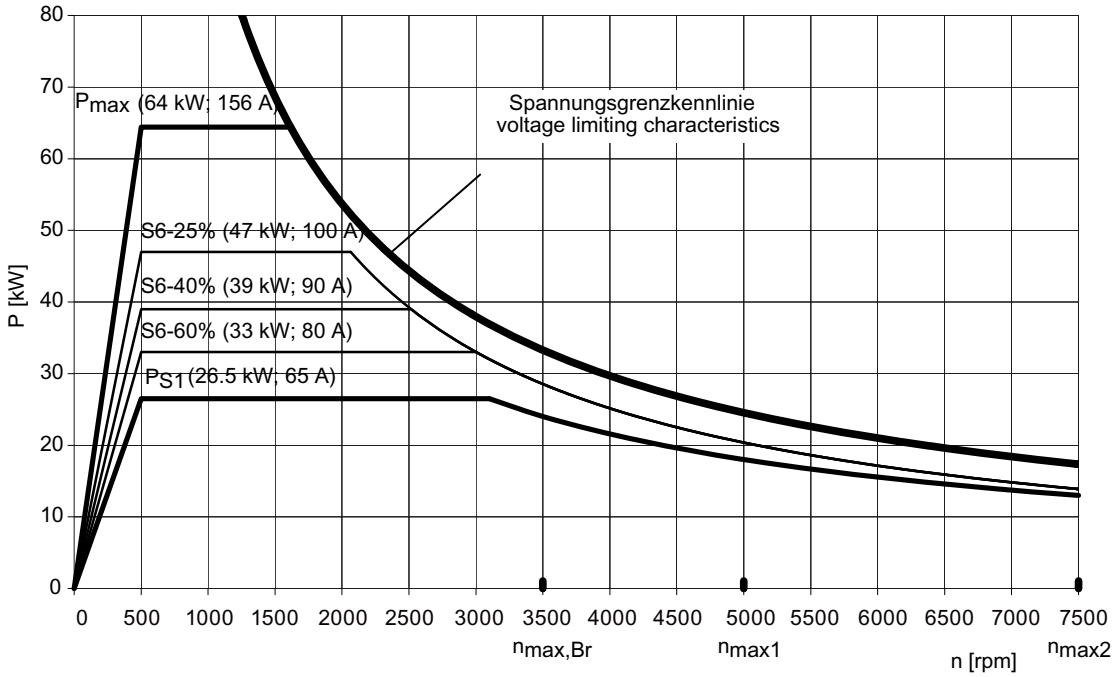


Table 4- 176 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	26.5	506	65	5000	7500	-	3500	3100	1230	156	506	65
400	21.2	506	65					4100				



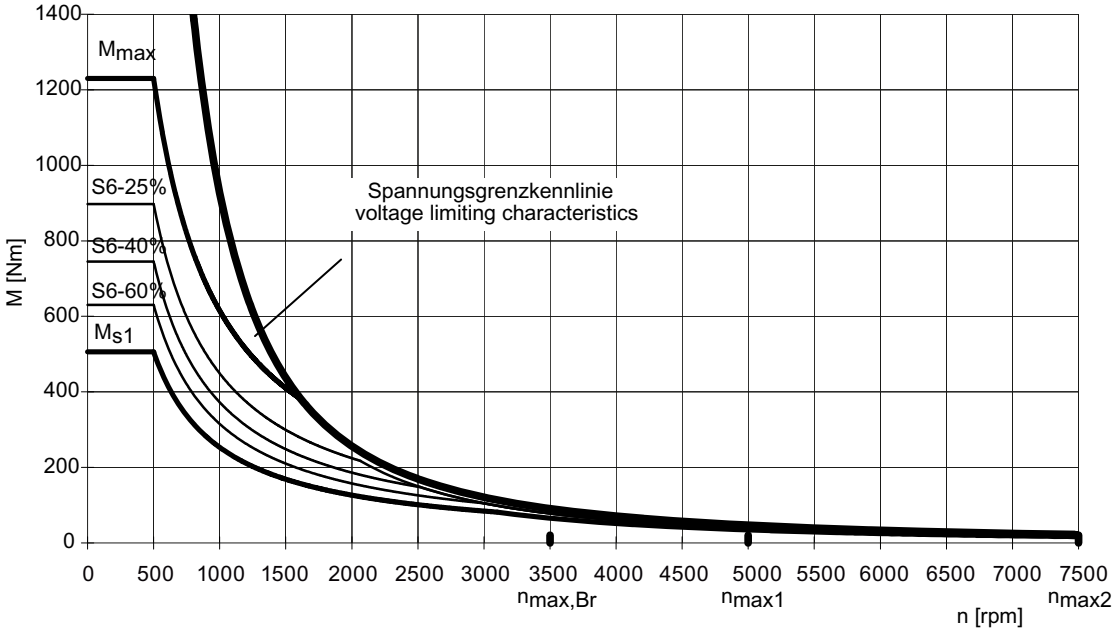
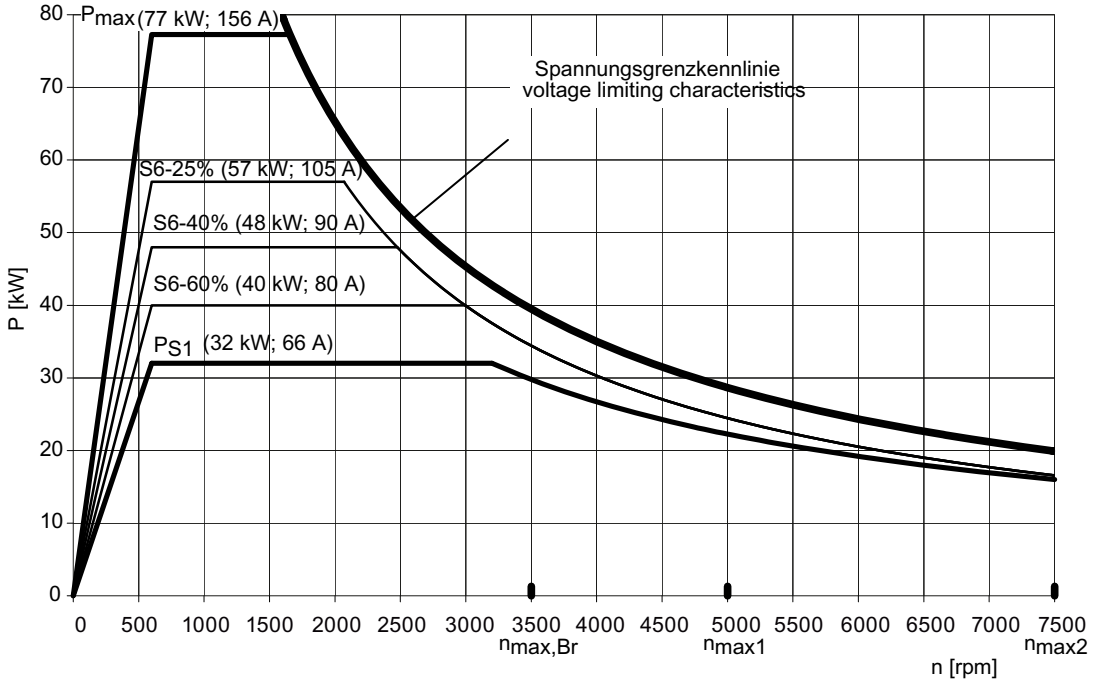


Table 4- 177 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	32	509	66	5000	7500	-	3500	3200	1230	156	509	66



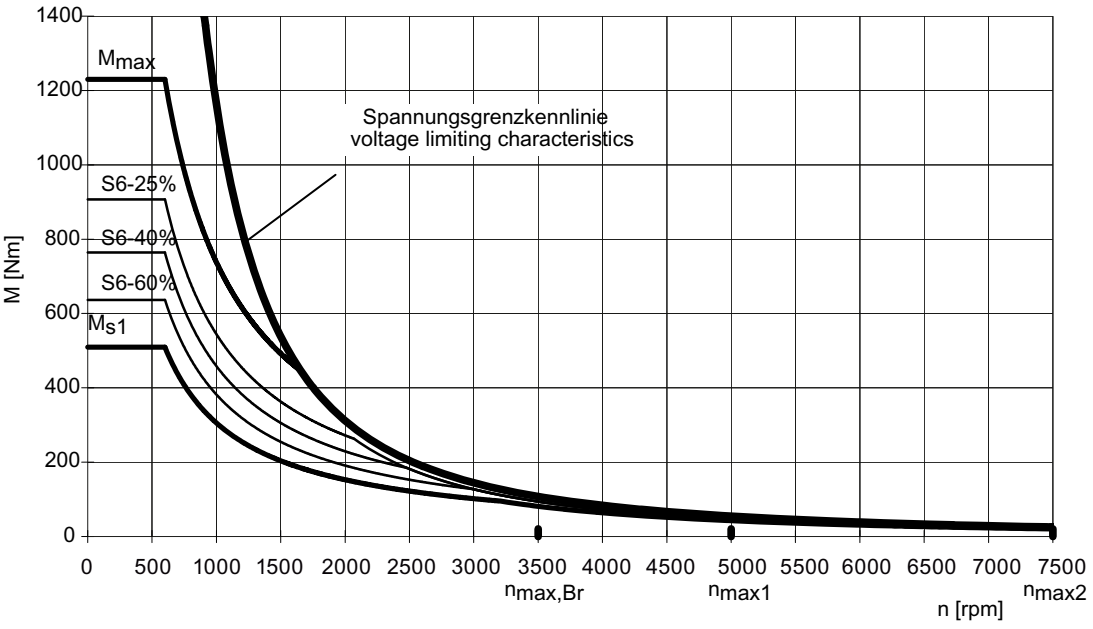
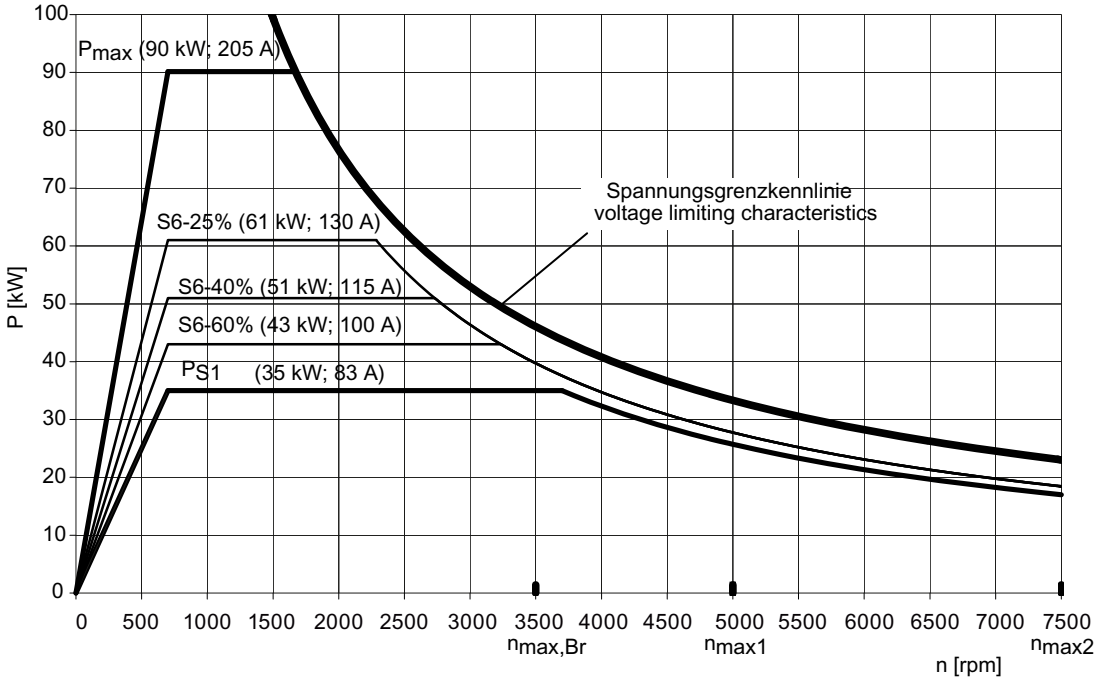


Table 4- 178 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	35	478	83	5000	7500	-	3500	3700	1230	205	478	83



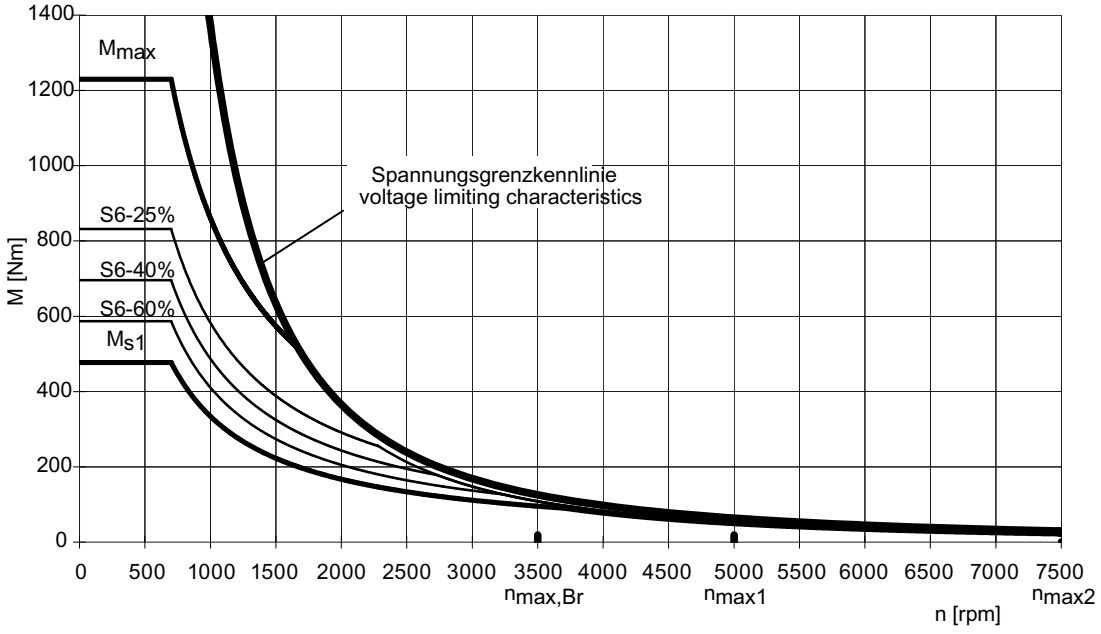
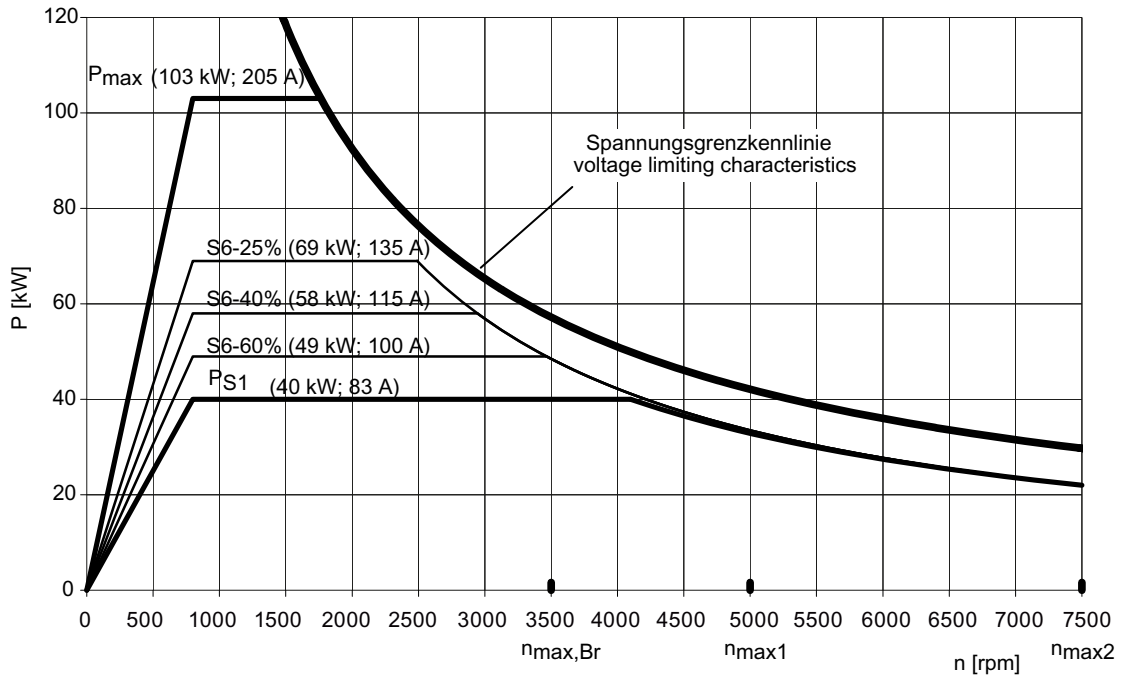


Table 4- 179 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	40	478	83	5000	7500	-	3500	4100	1230	205	478	83
700	35	478	83					4700				



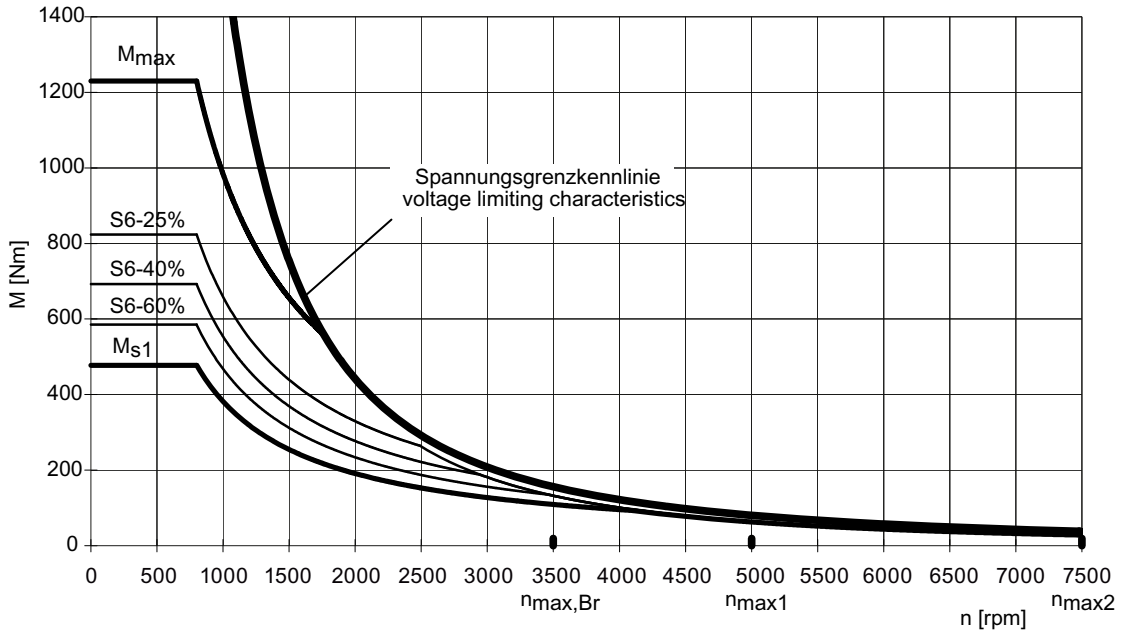
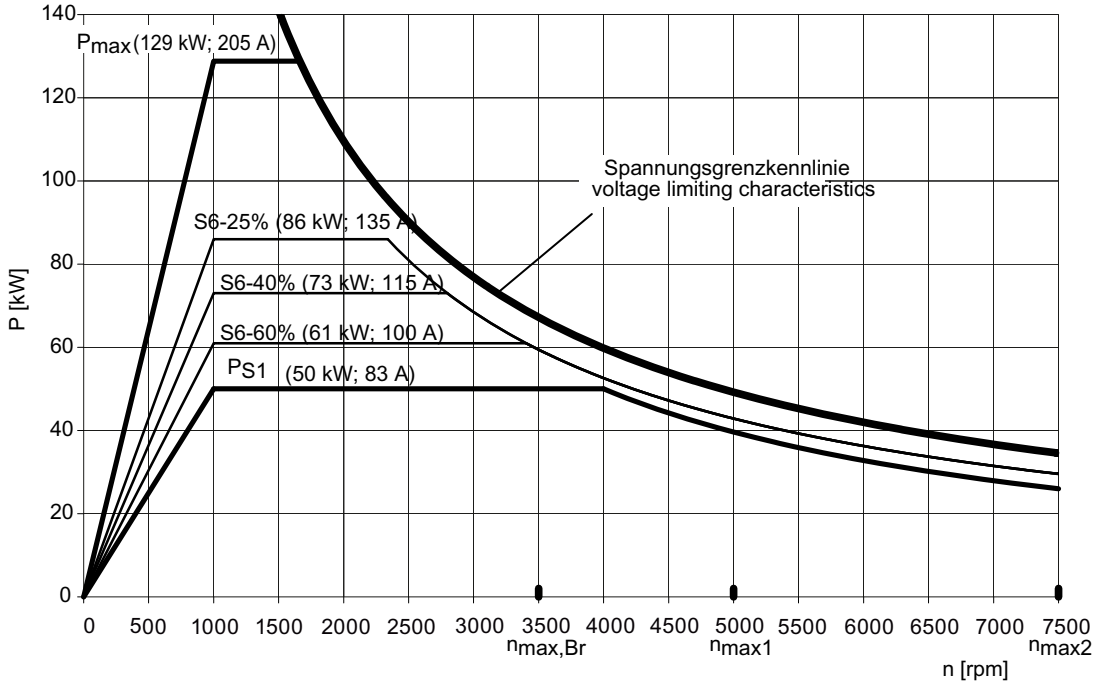


Table 4- 180 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	50	478	83	5000	7500	-	3500	4000	1230	205	478	83



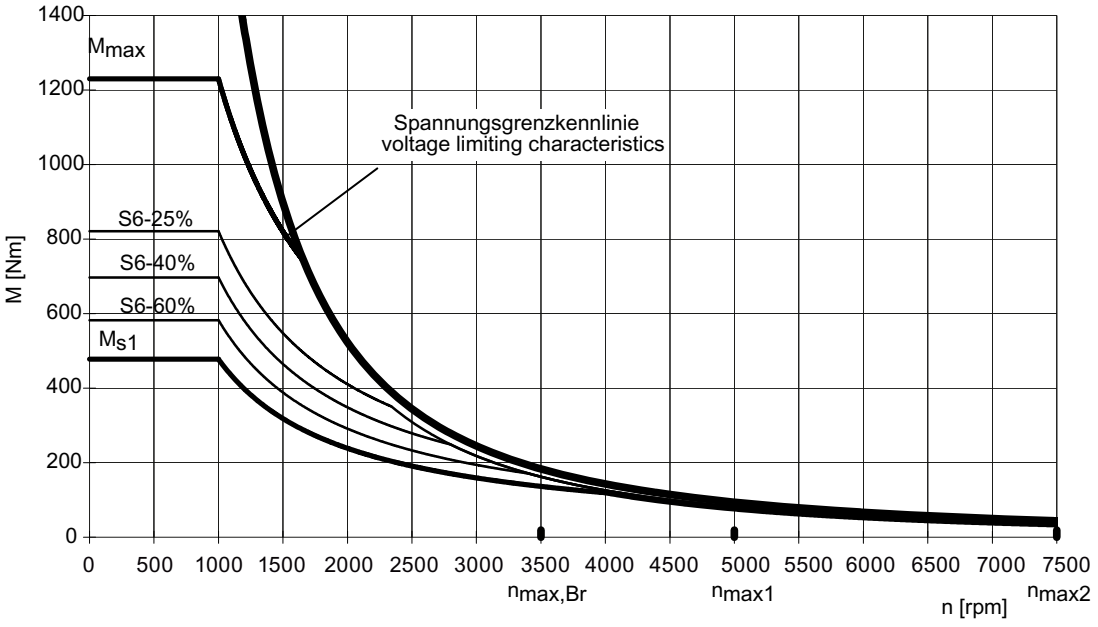
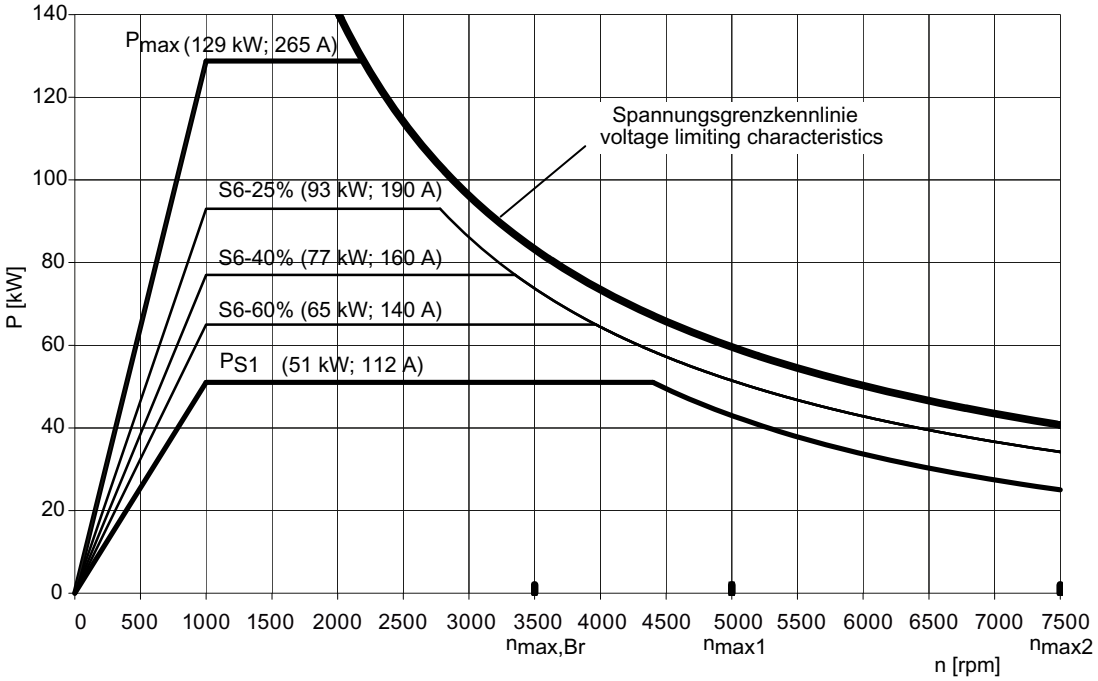


Table 4- 181 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	51	487	112	5000	7500	-	3500	4400	1230	265	487	112



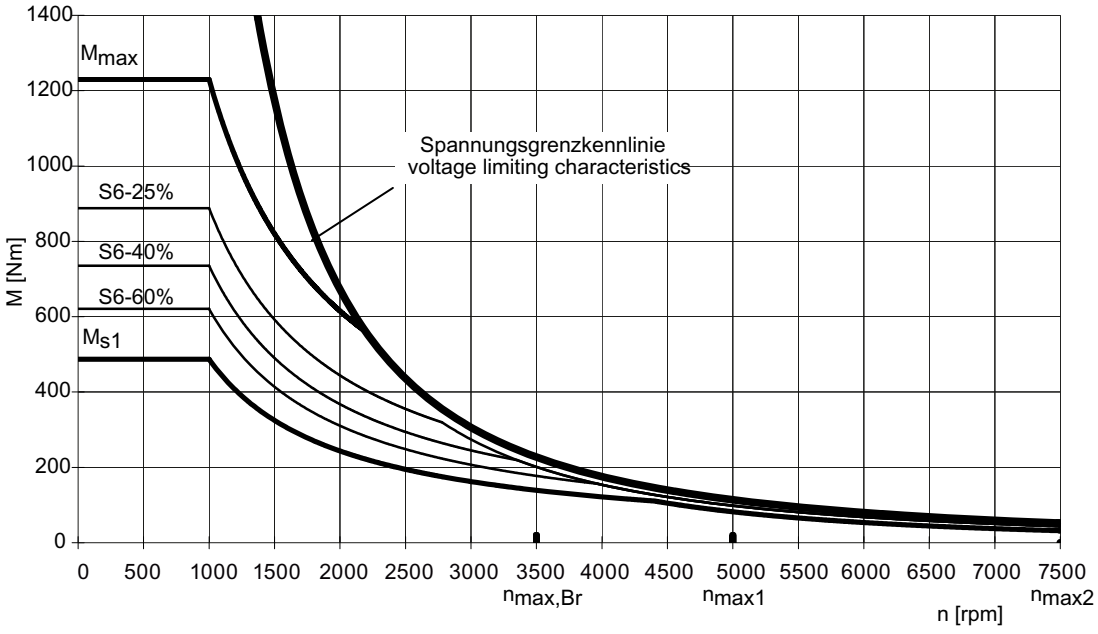
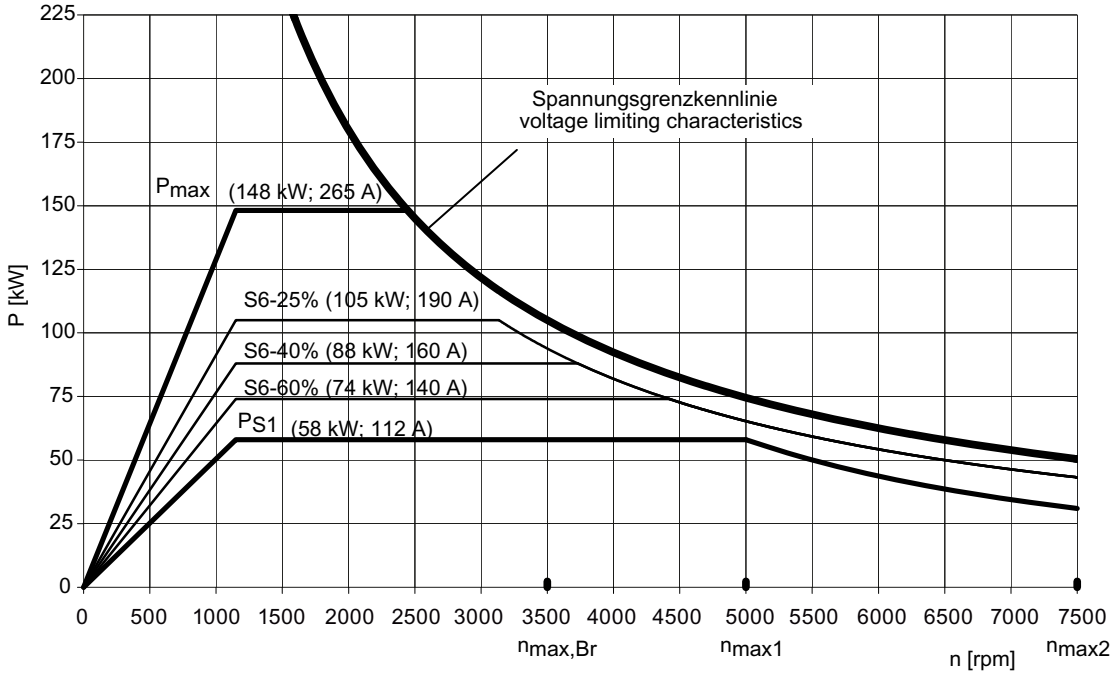


Table 4- 182 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	58	482	112	5000	7500	-	3500	5000	1230	265	482	112
1000	51	487	112					5400				



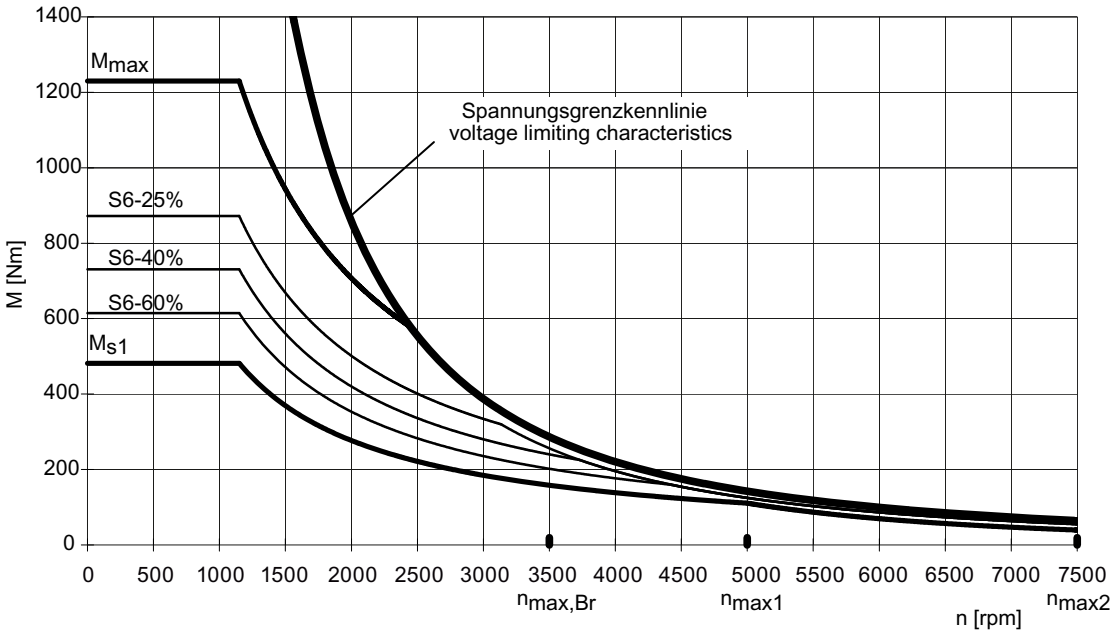
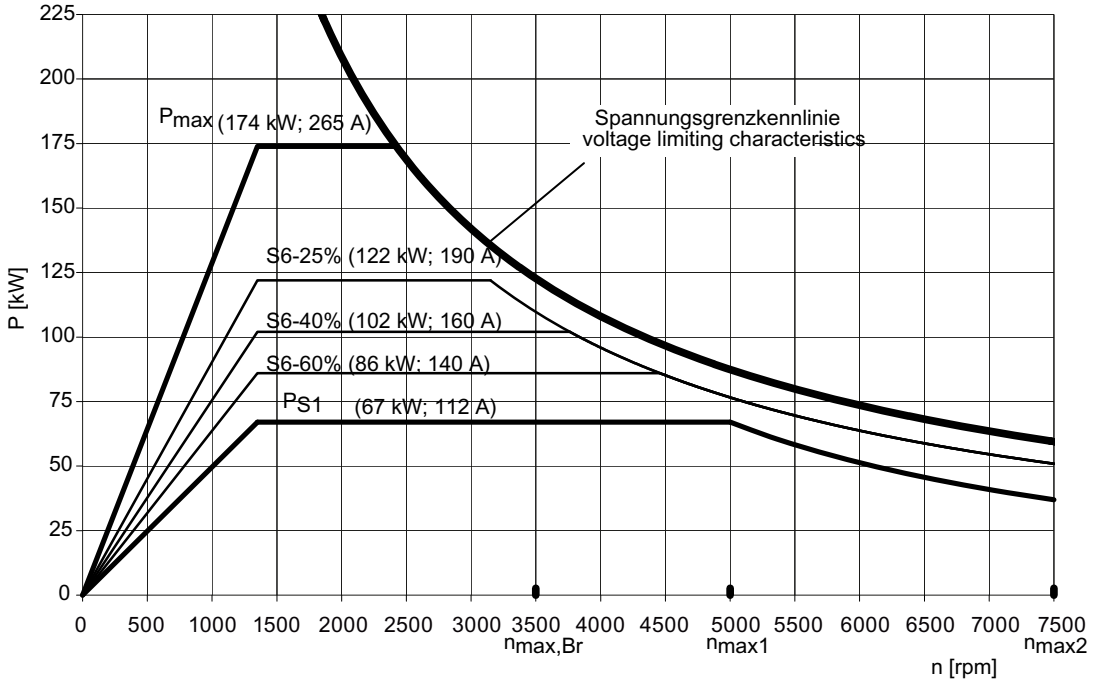


Table 4- 183 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	67	474	112	5000	7500	-	3500	5000	1230	265	474	112



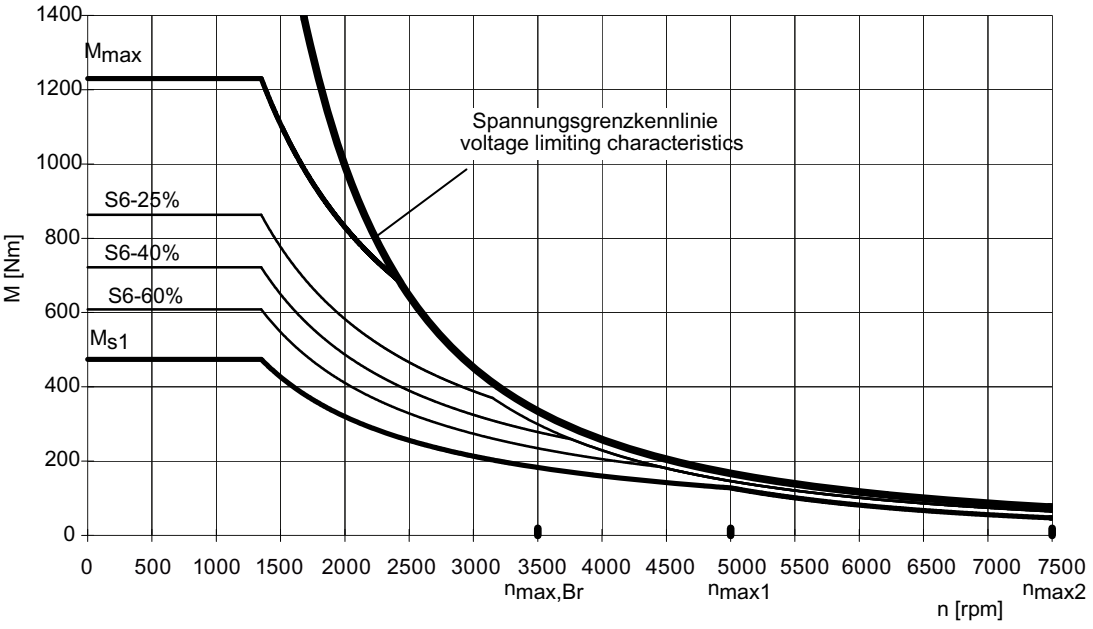
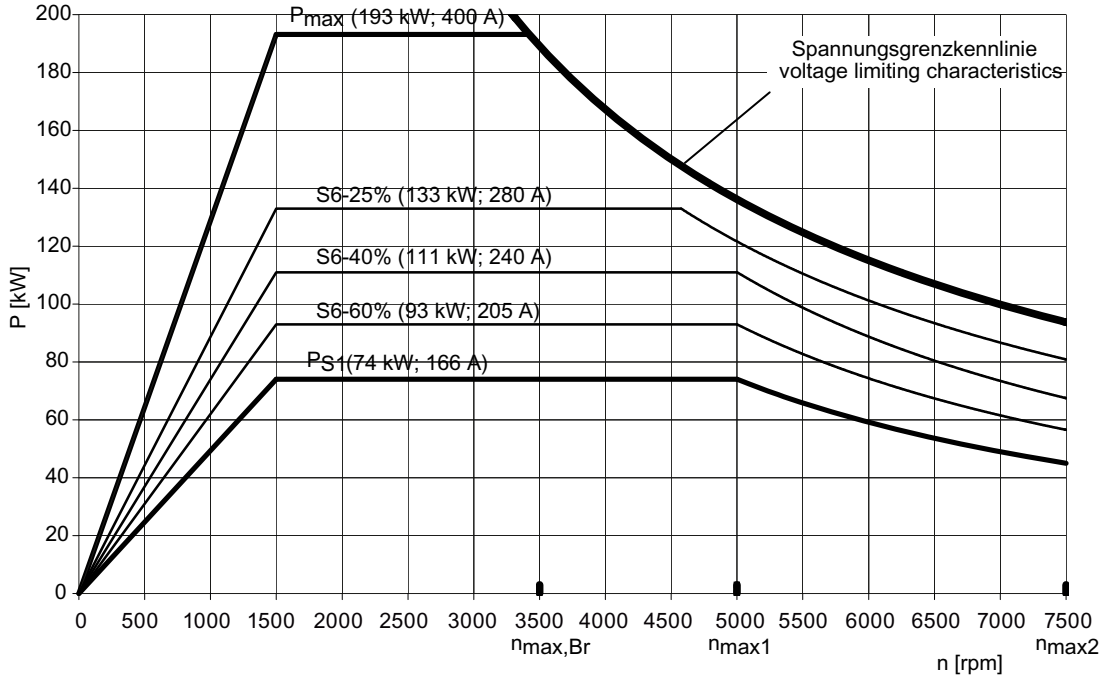


Table 4- 184 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	74	471	166	5000	7500	-	3500	5000	1230	400	471	166



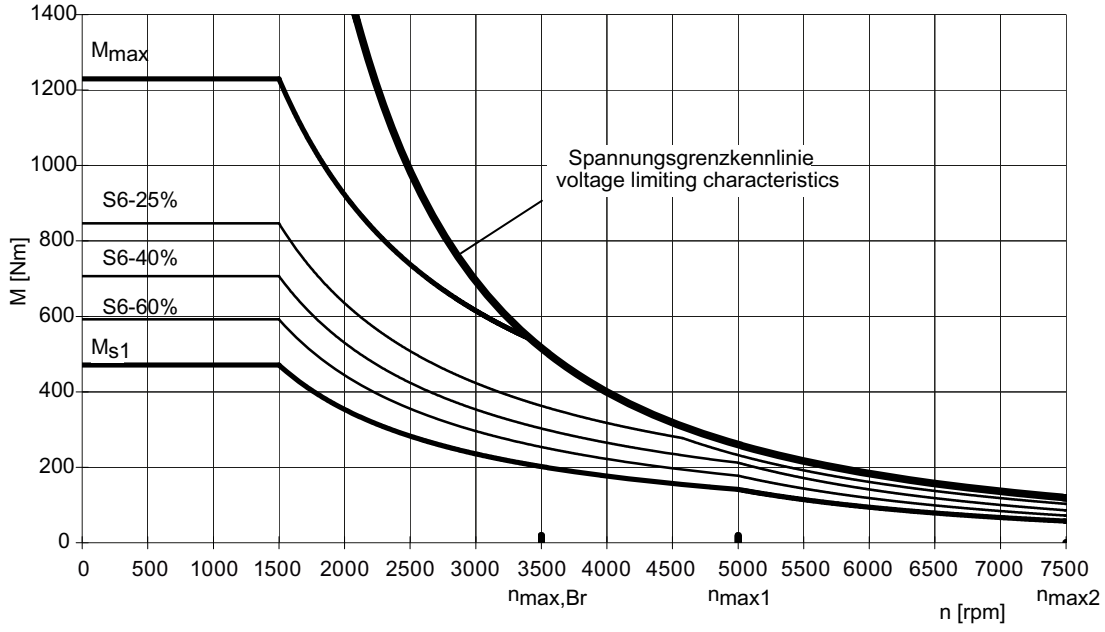
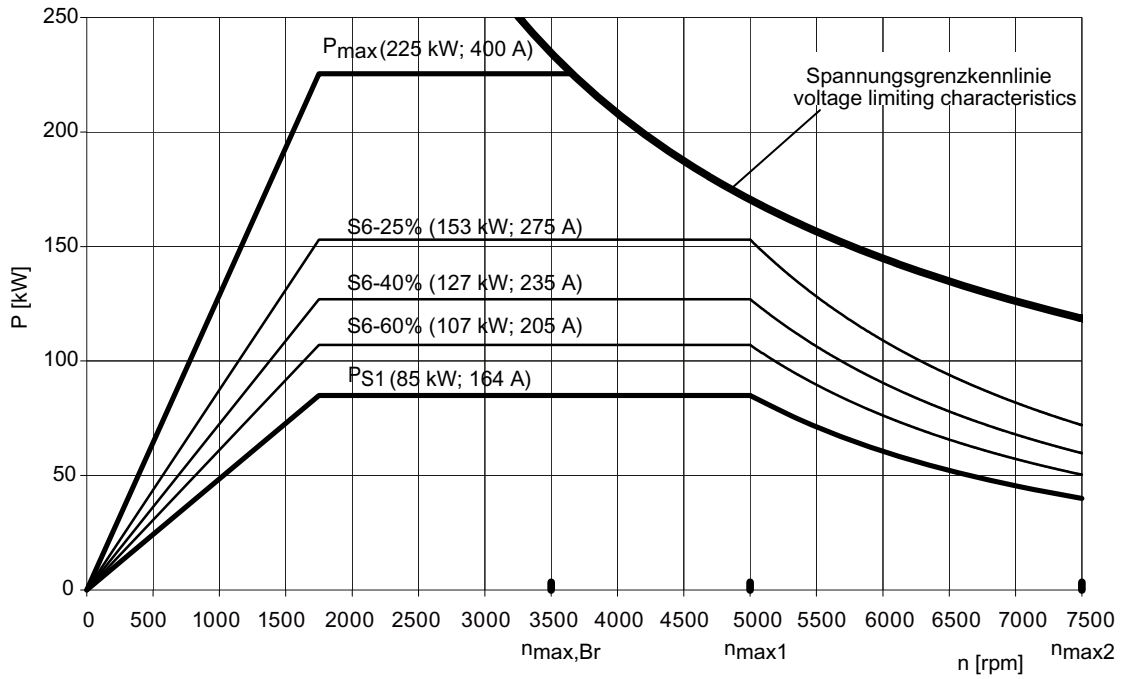


Table 4- 185 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	85	464	164	5000	7500	-	3500	5000	1230	400	464	164
1500	74	471	166					5400				



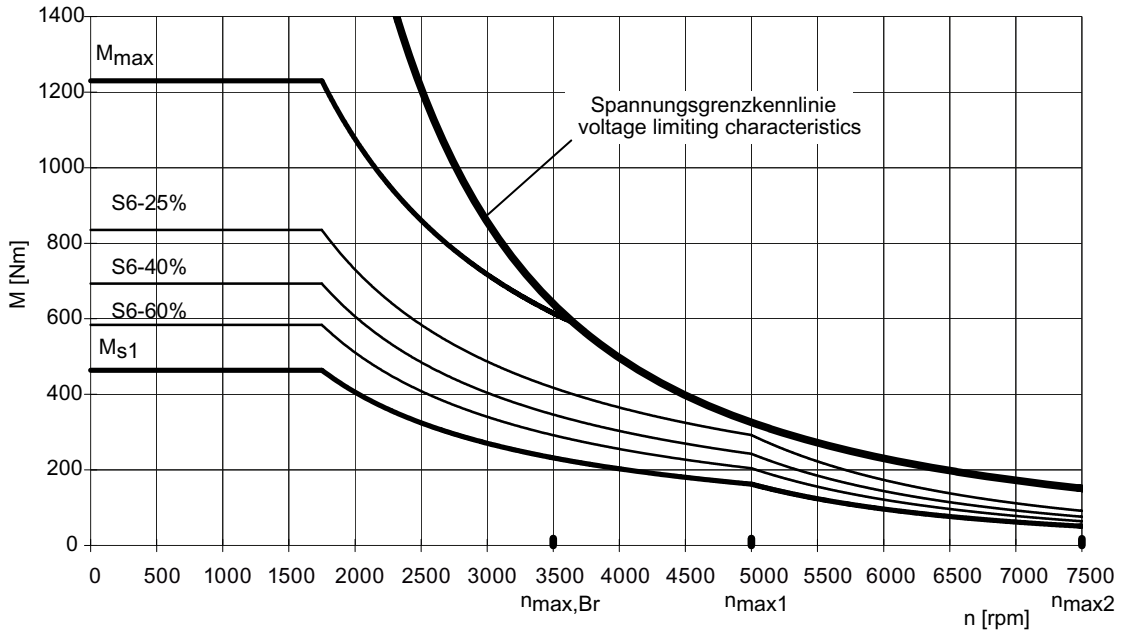
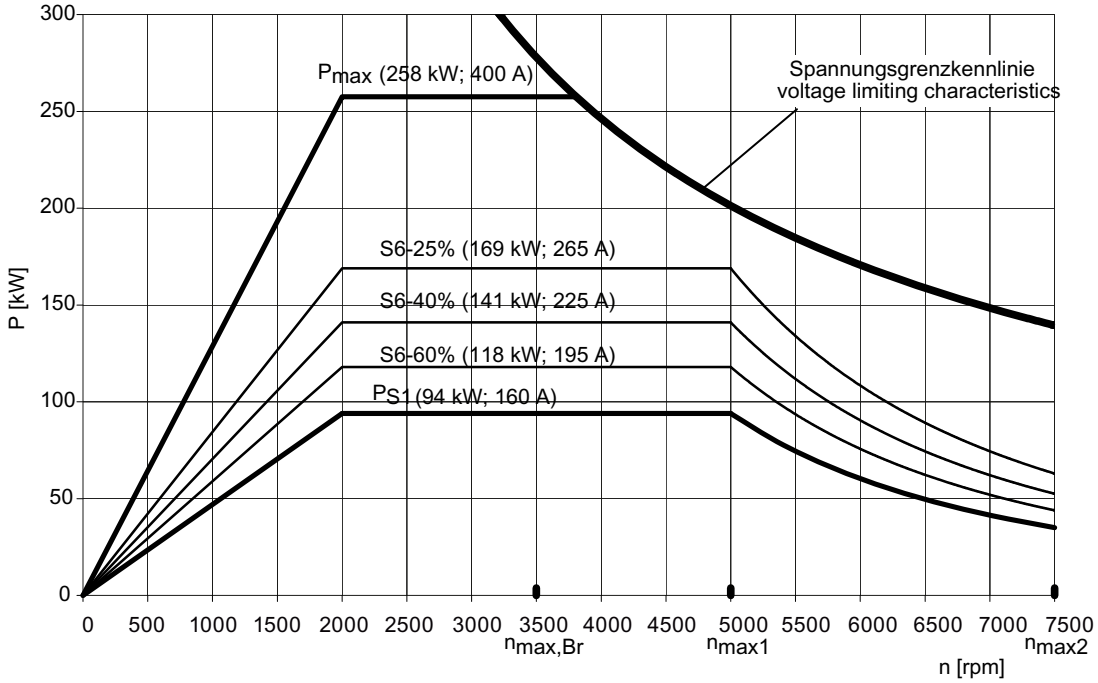


Table 4- 186 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	94	449	160	5000	7500	-	3500	5000	1230	400	449	160



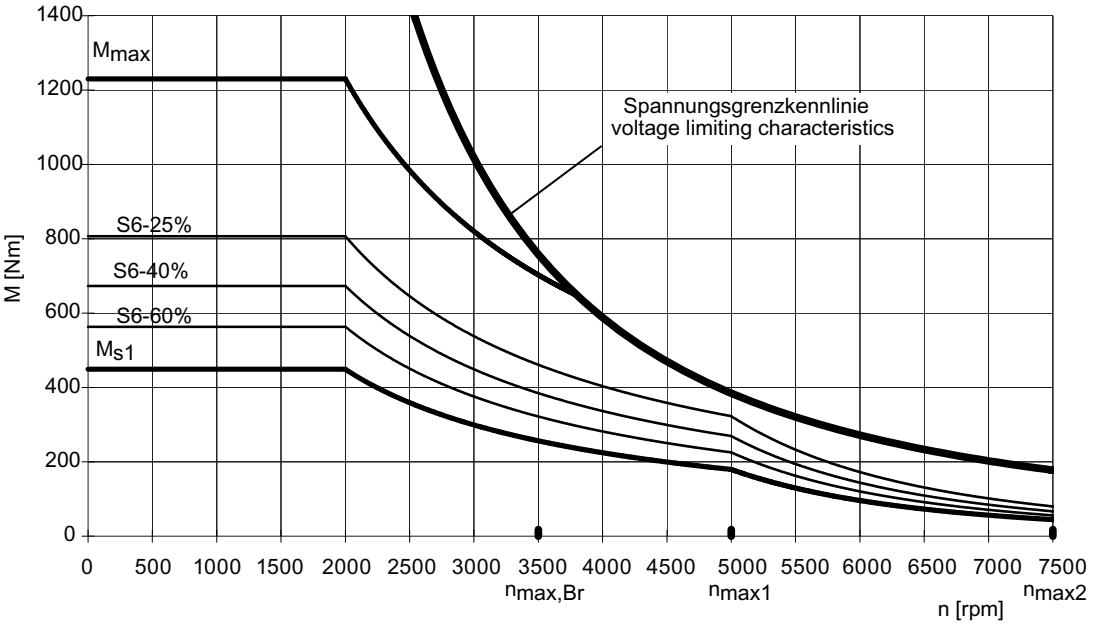
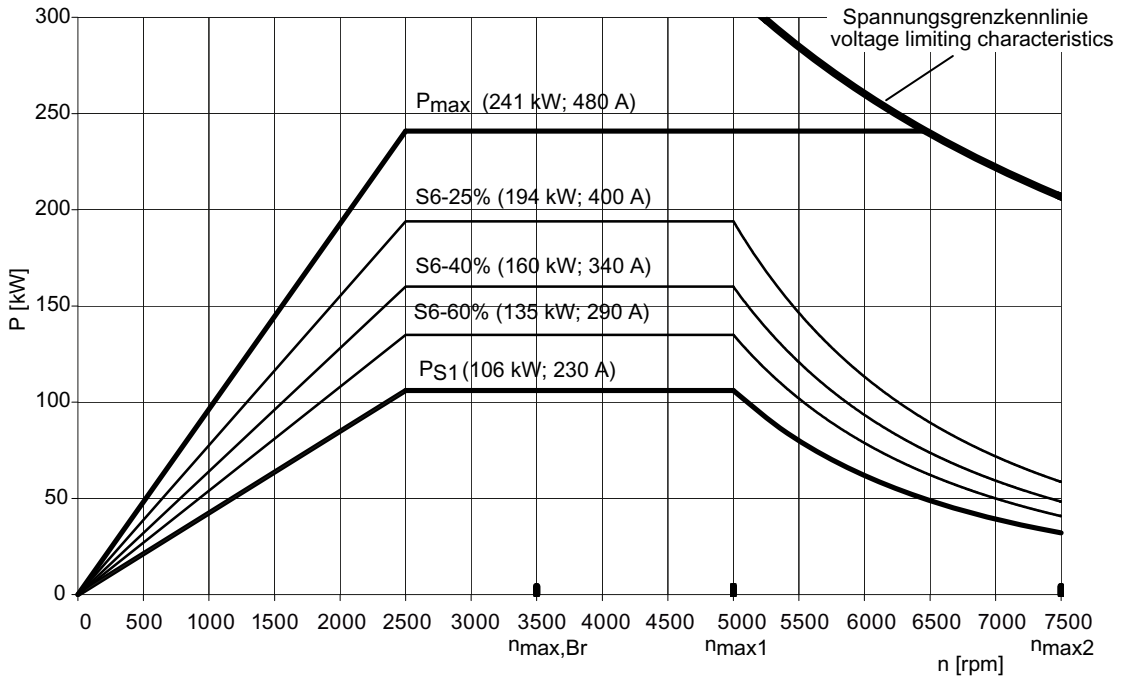


Table 4- 187 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	106	405	230	5000	7500	-	3500	5000	920	480	405	230



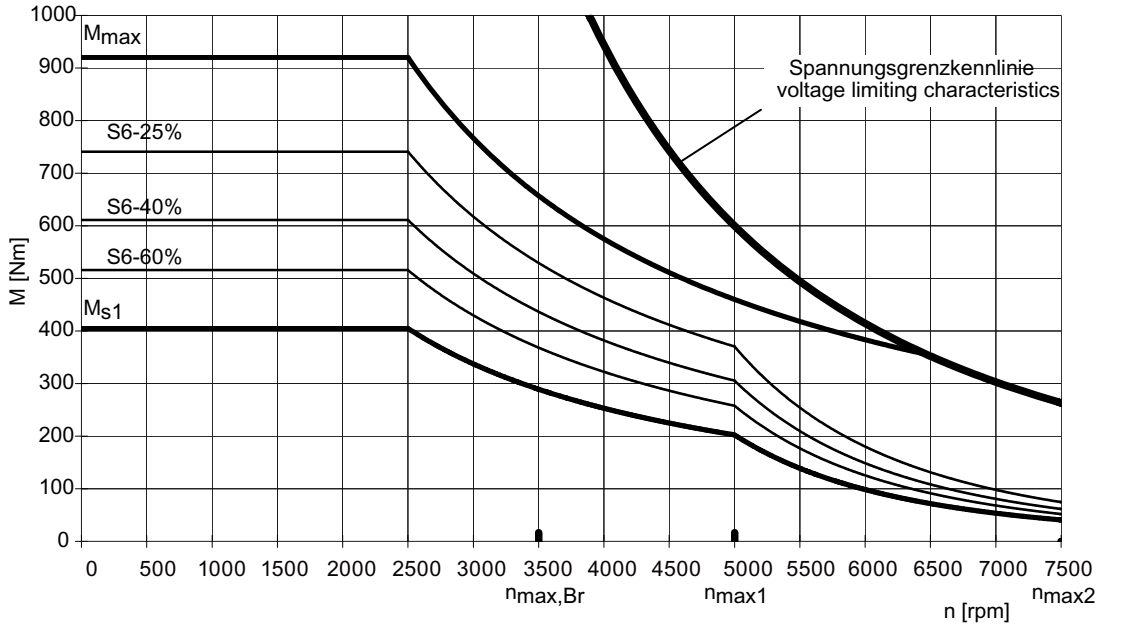
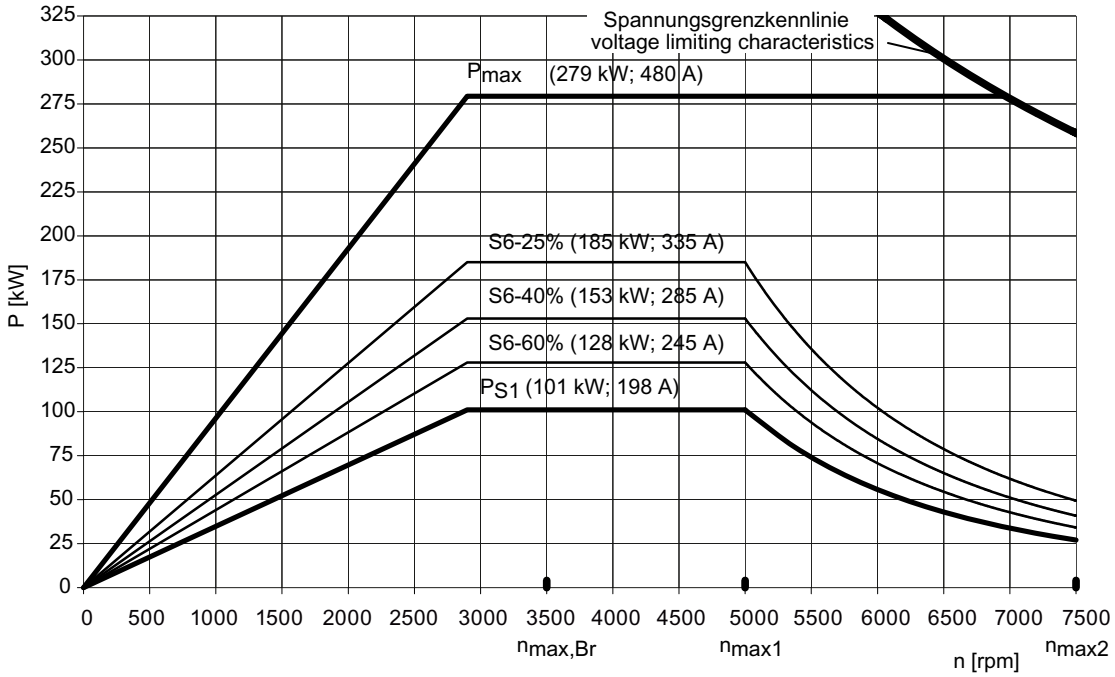


Table 4- 188 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	101	333	198	5000	75000	-	3500	5000	920	480	333	198
-	-	-	-					-				



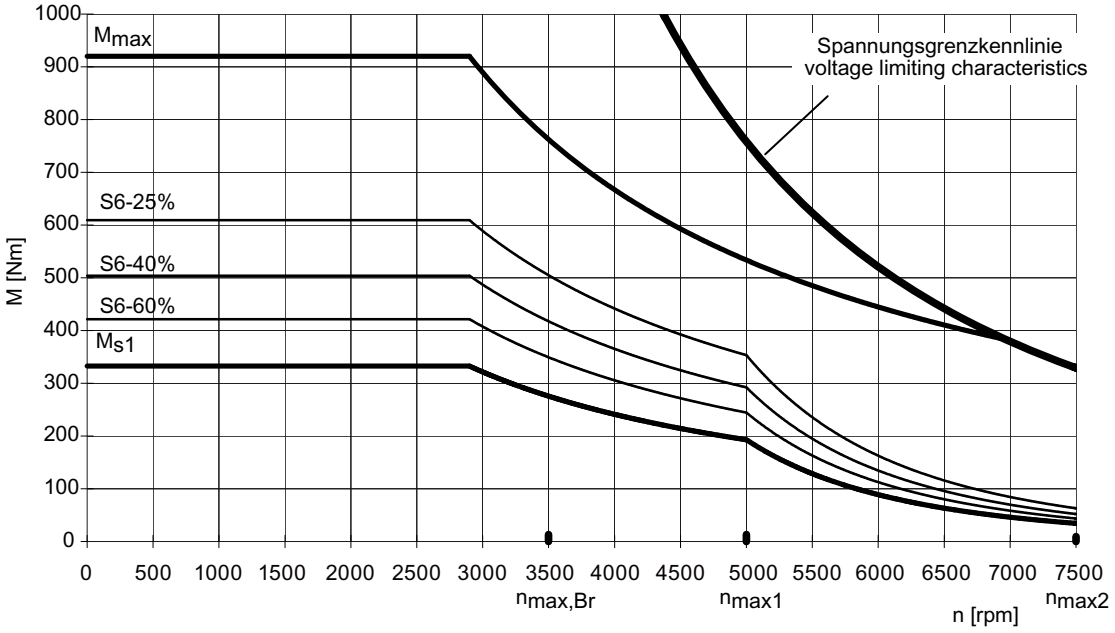
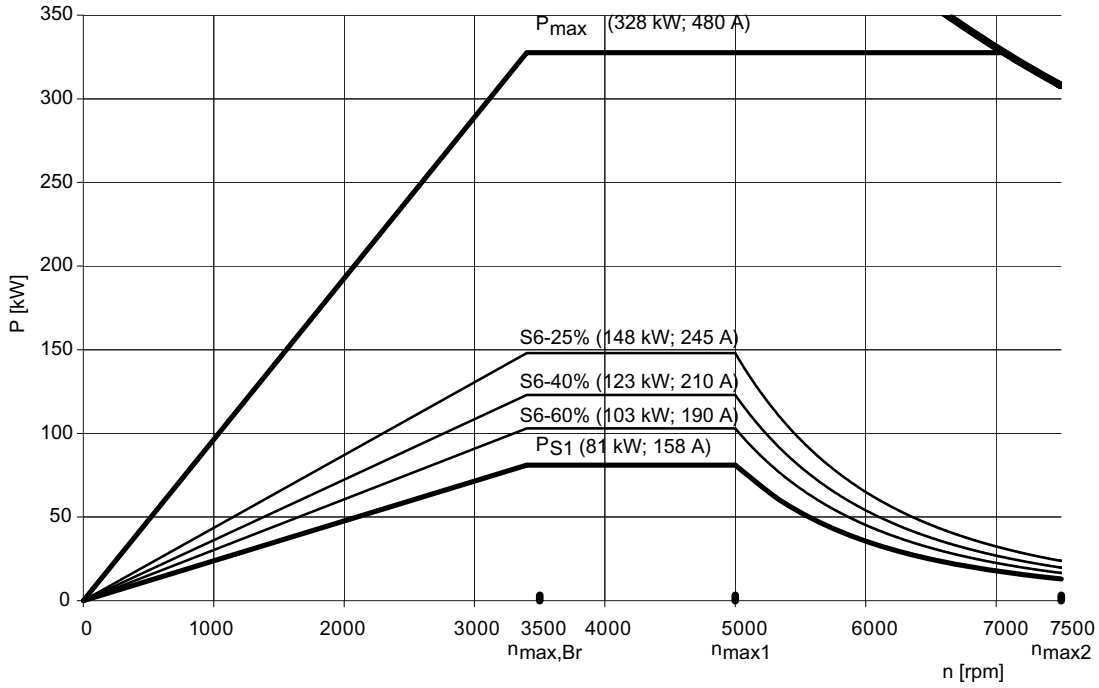
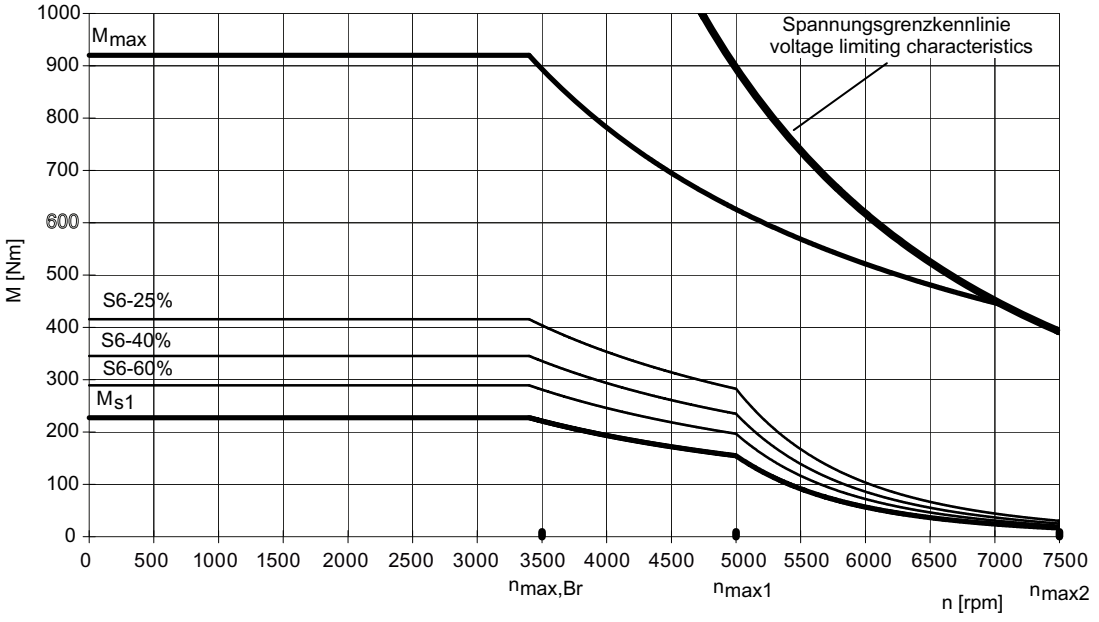


Table 4- 189 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	81	228	158	5000	7500	-	3500	5000	920	480	228	158

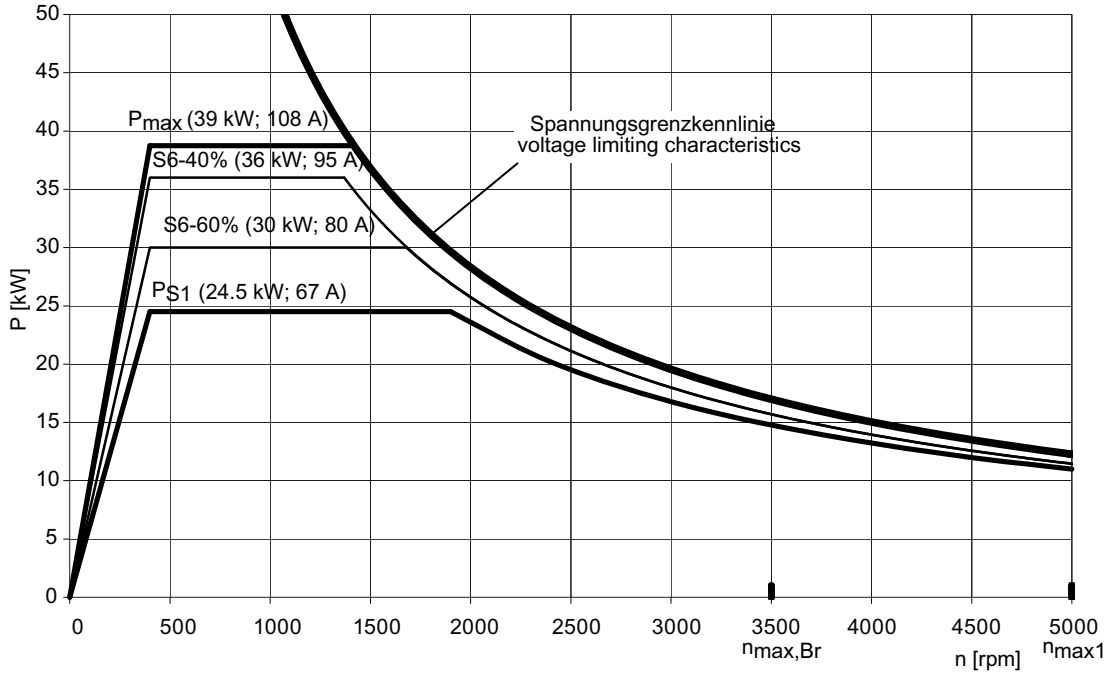




4.1.2.6 Shaft height 180 - forced ventilation (open-circuit ventilation)

Table 4- 190 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	24.5	585	67	5000	-	-	3500	1900	925	108	585	67



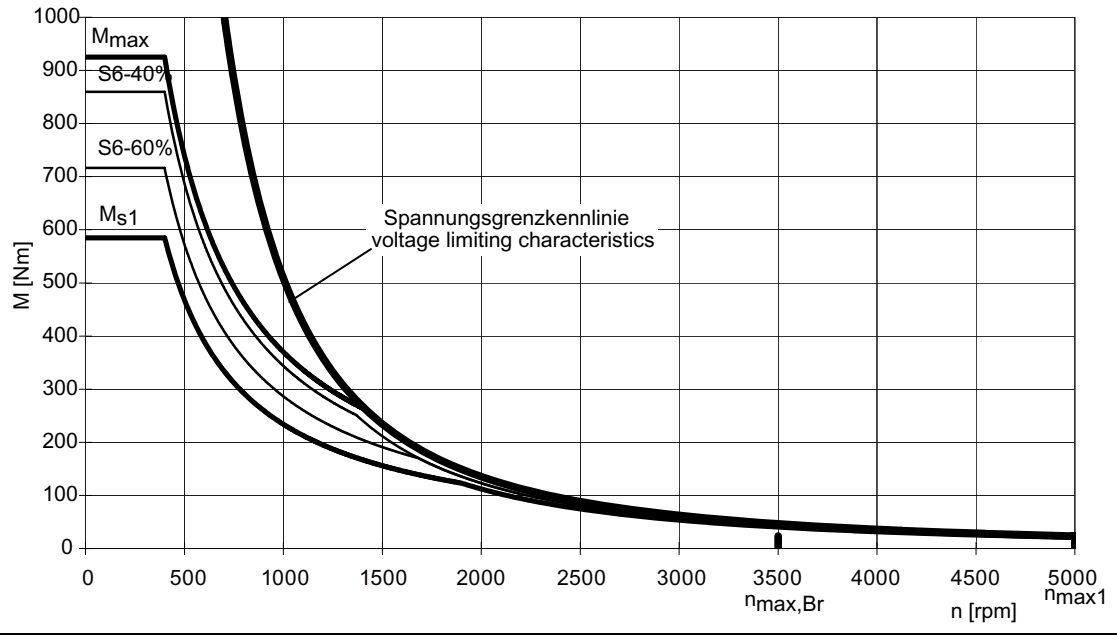
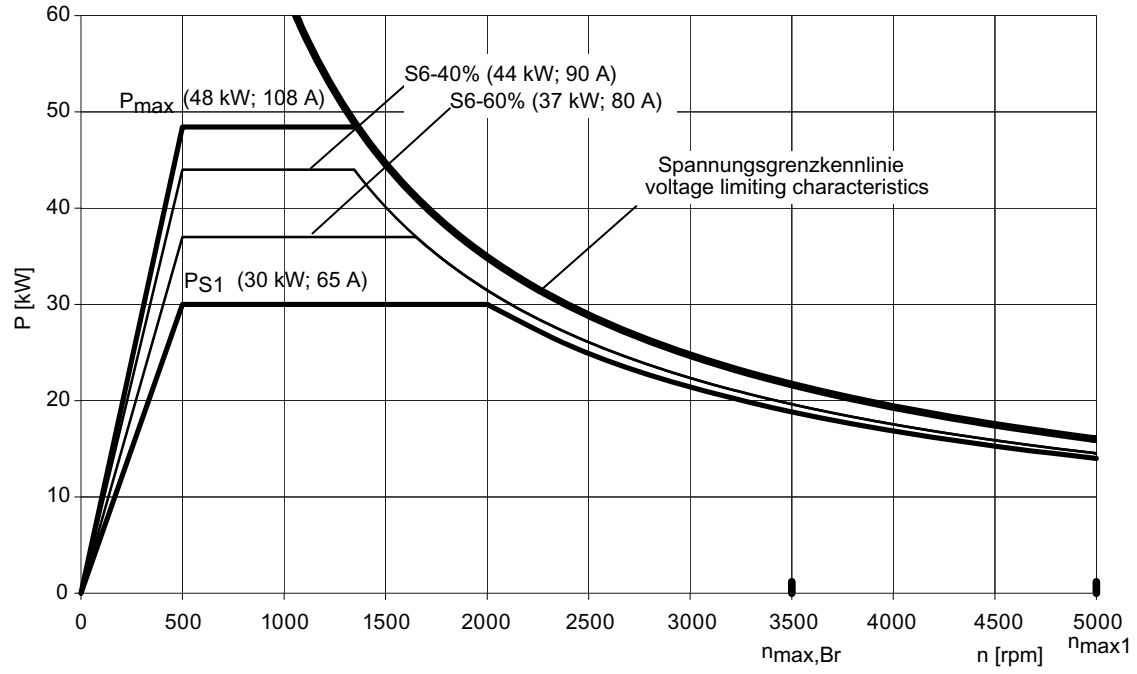


Table 4- 191 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	30	573	65	5000	-	-	3500	2000	925	108	573	65
400	24.5	585	67					2600				



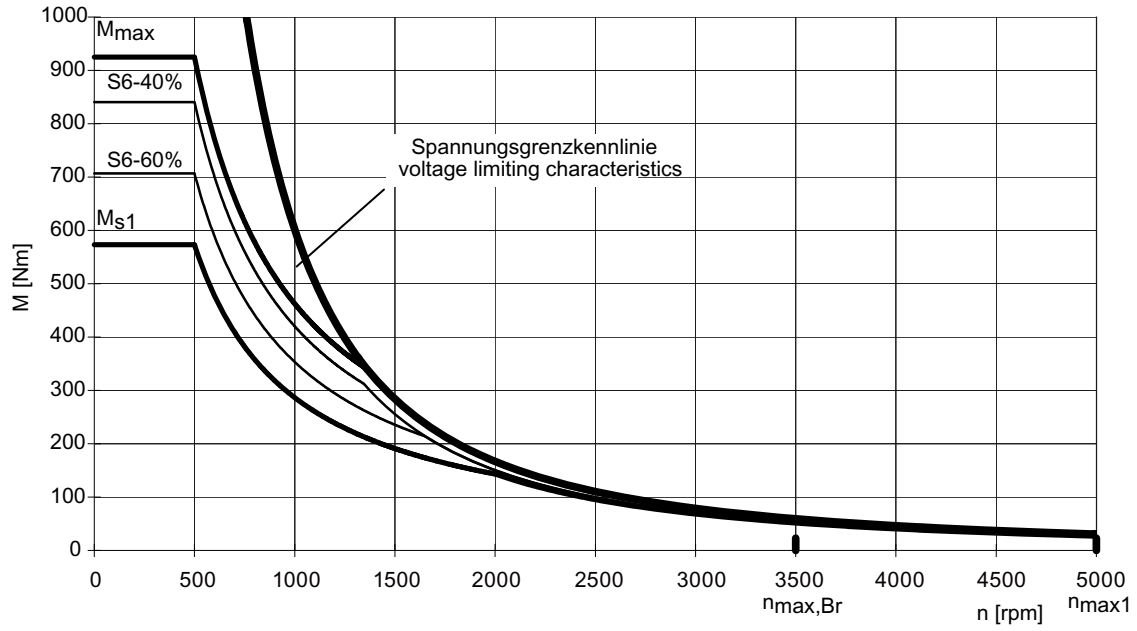
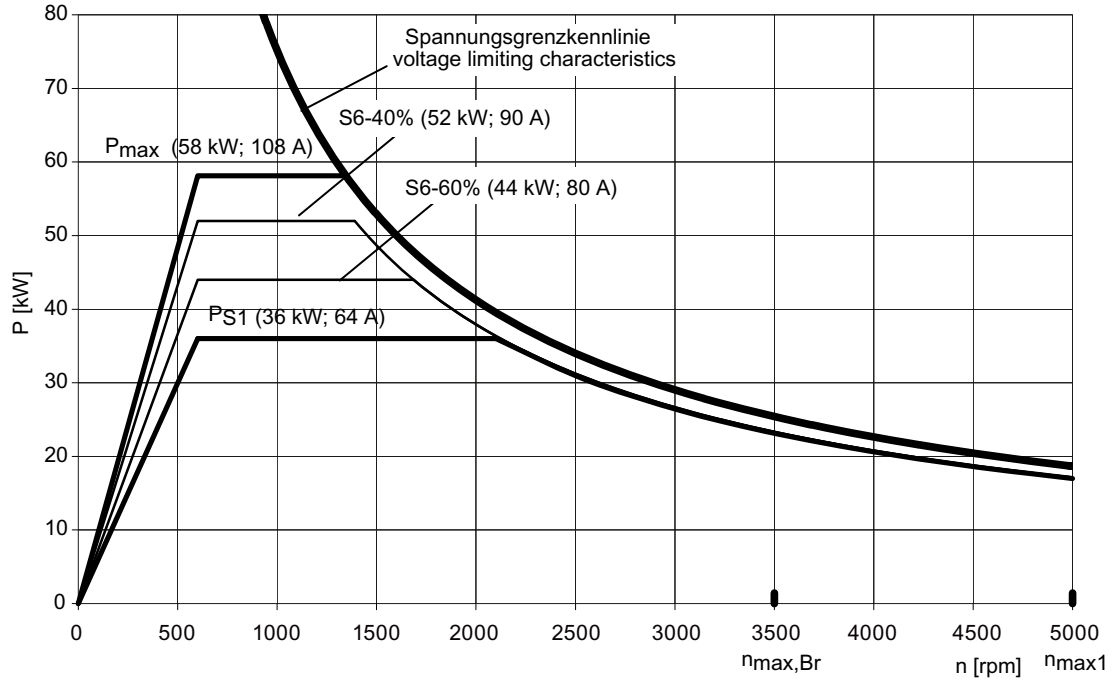


Table 4- 192 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	36	573	64	5000	-	-	3500	2100	925	108	573	64



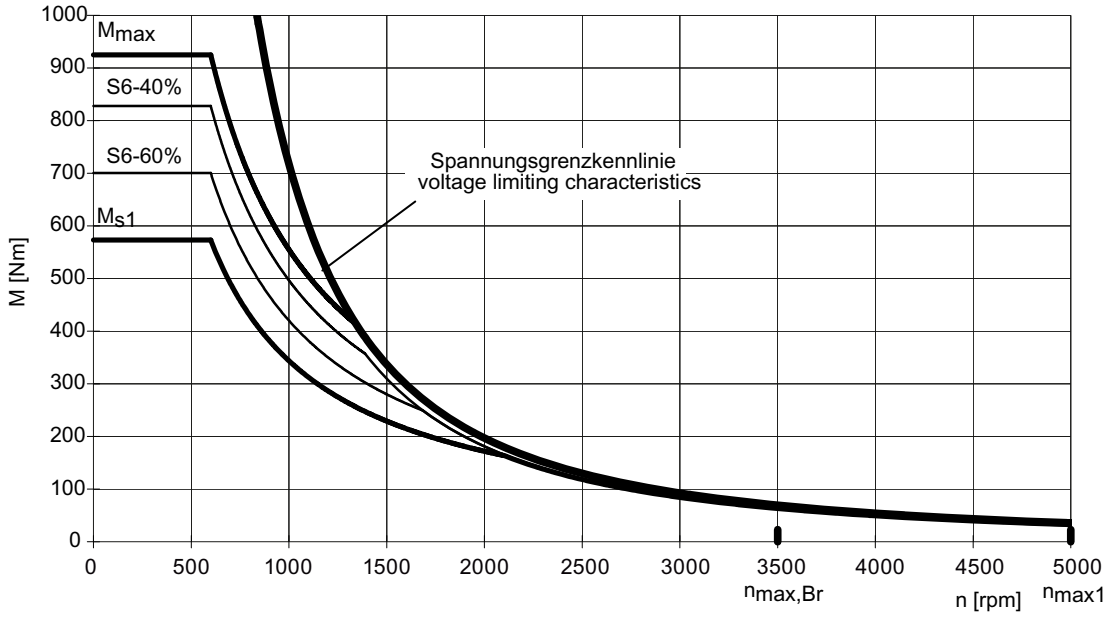
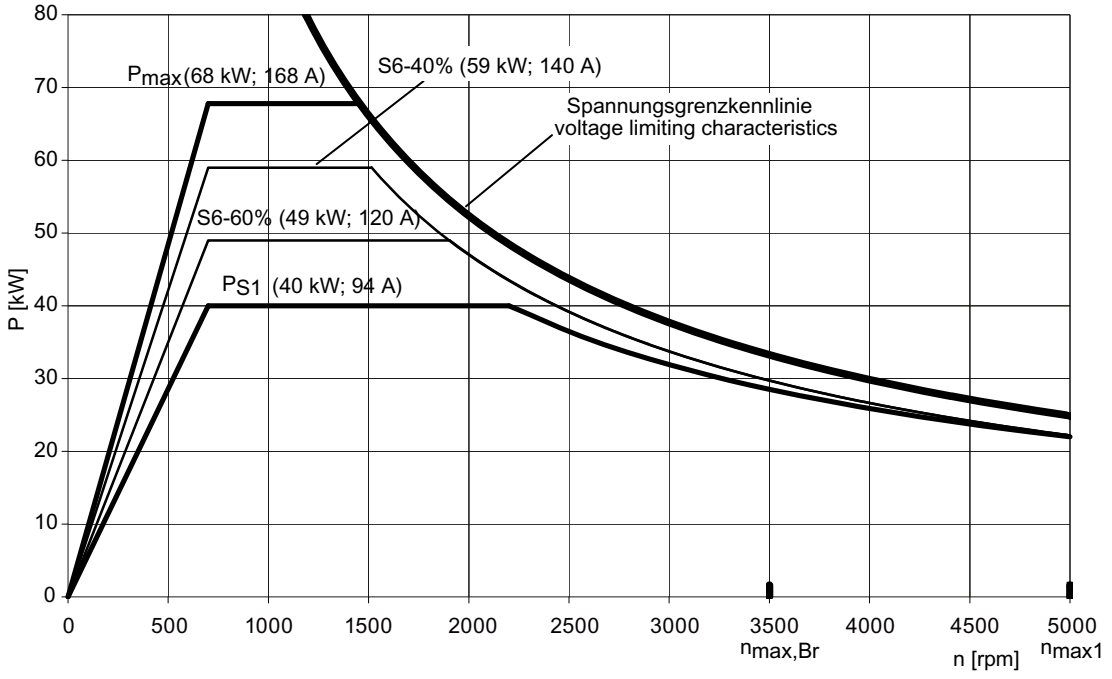


Table 4- 193 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	40	546	94	5000	-	-	3500	2200	925	168	546	94



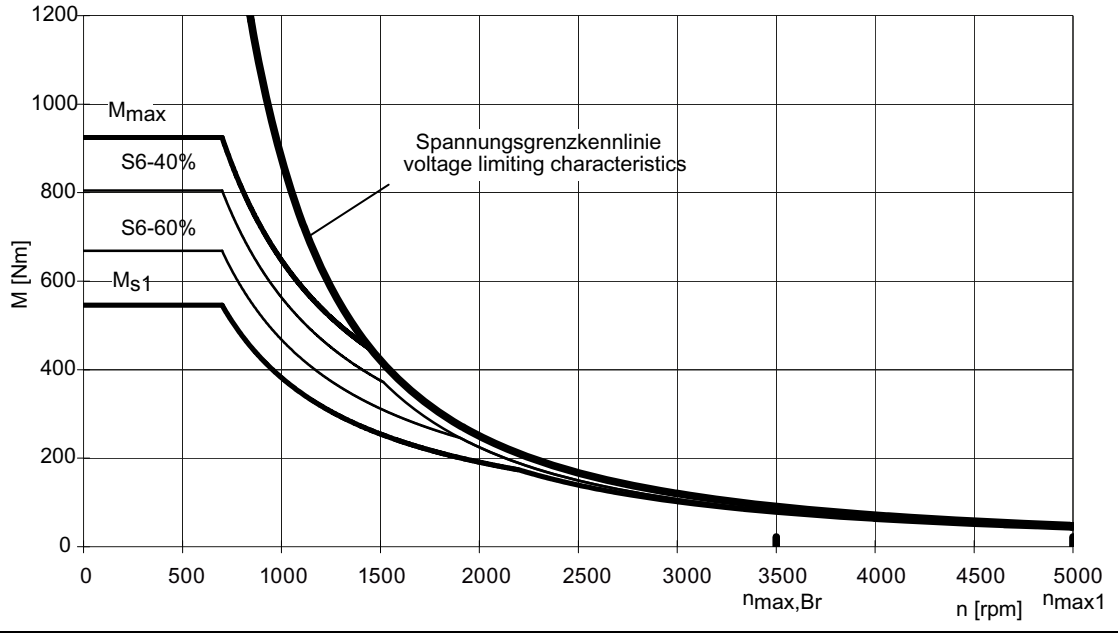
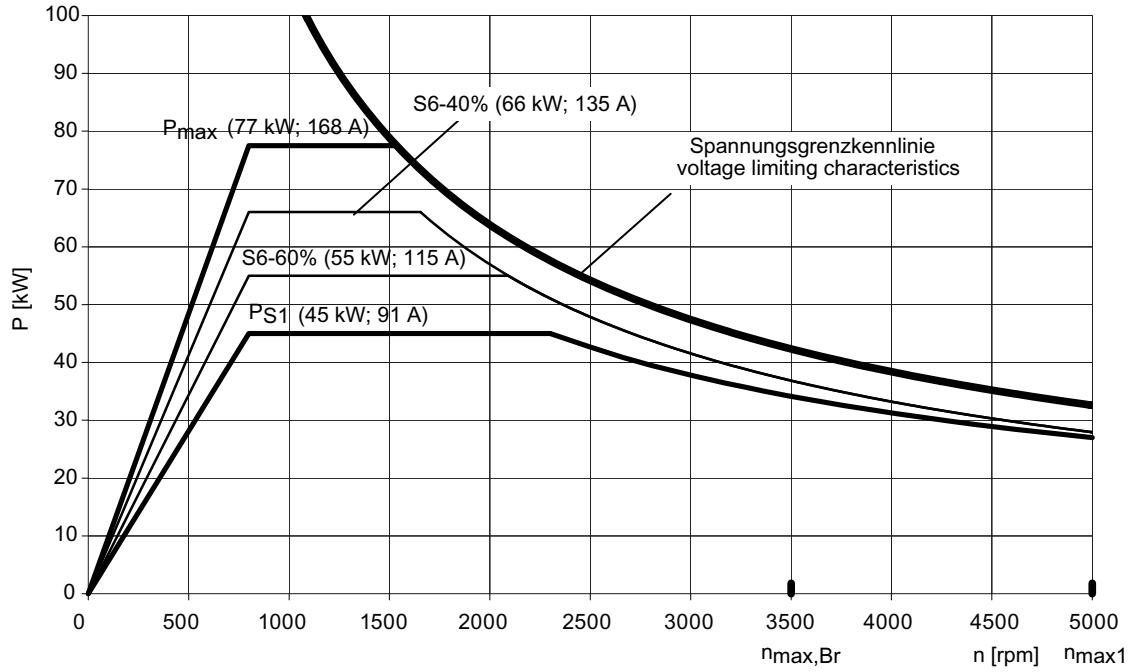


Table 4- 194 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	45	537	91	5000	-	-	3500	2300	925	168	537	91
700	40	546	94					2800				



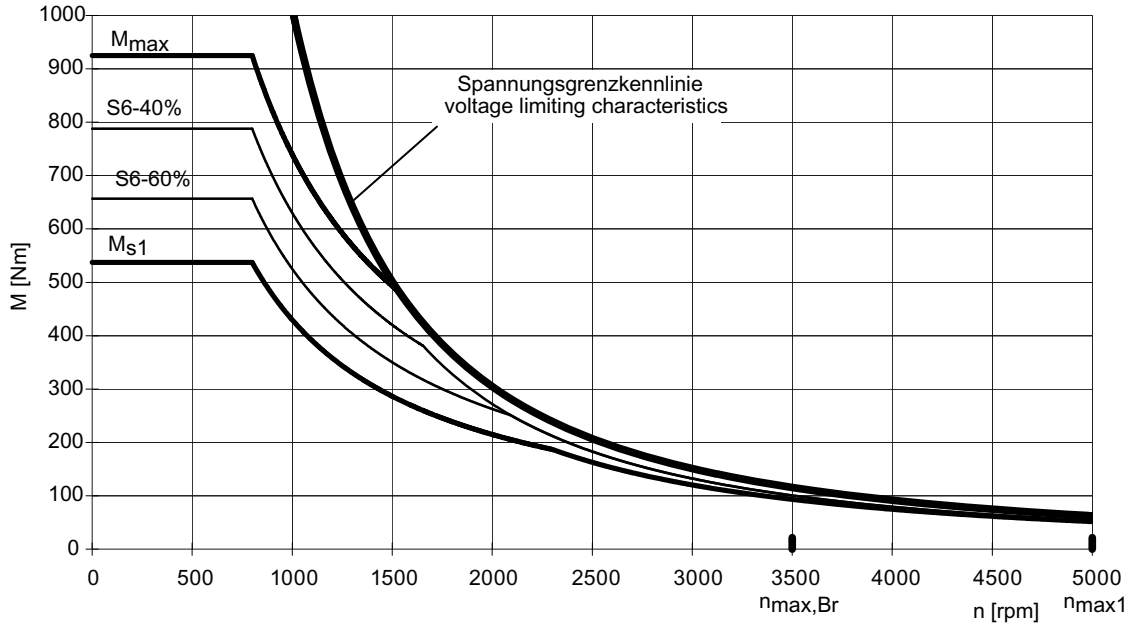
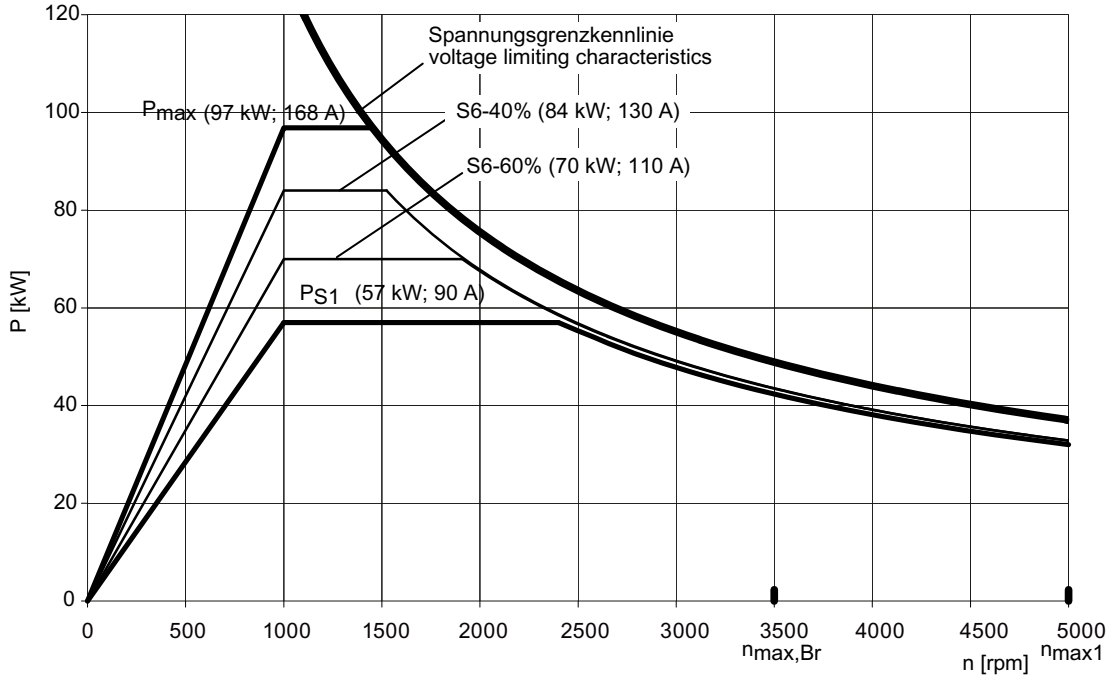


Table 4- 195 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	57	544	90	5000	-	-	3500	2400	925	168	544	90



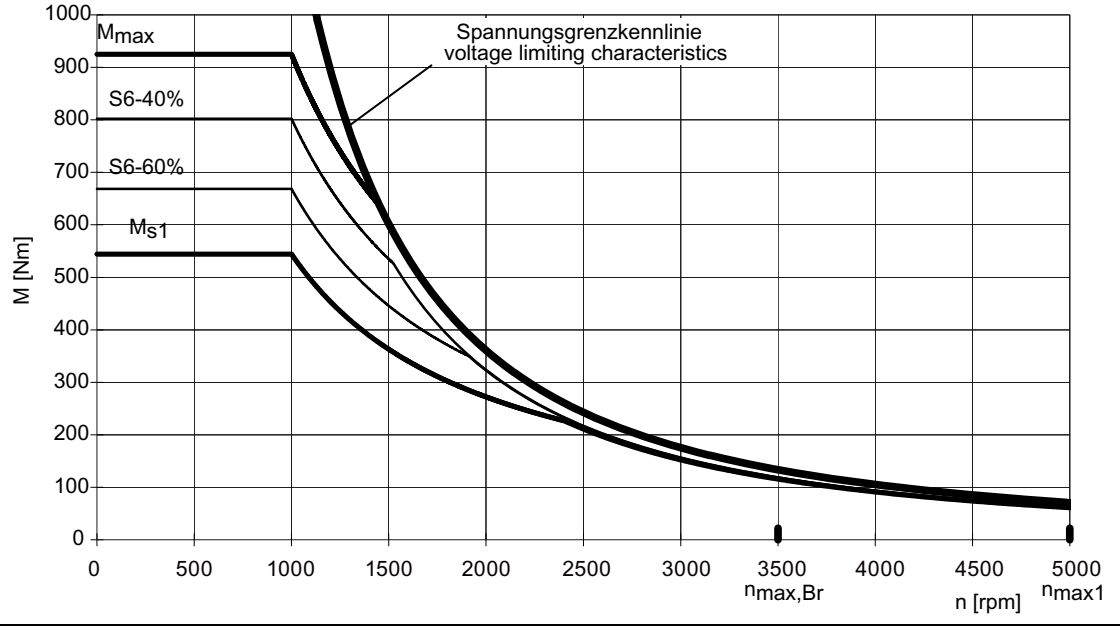
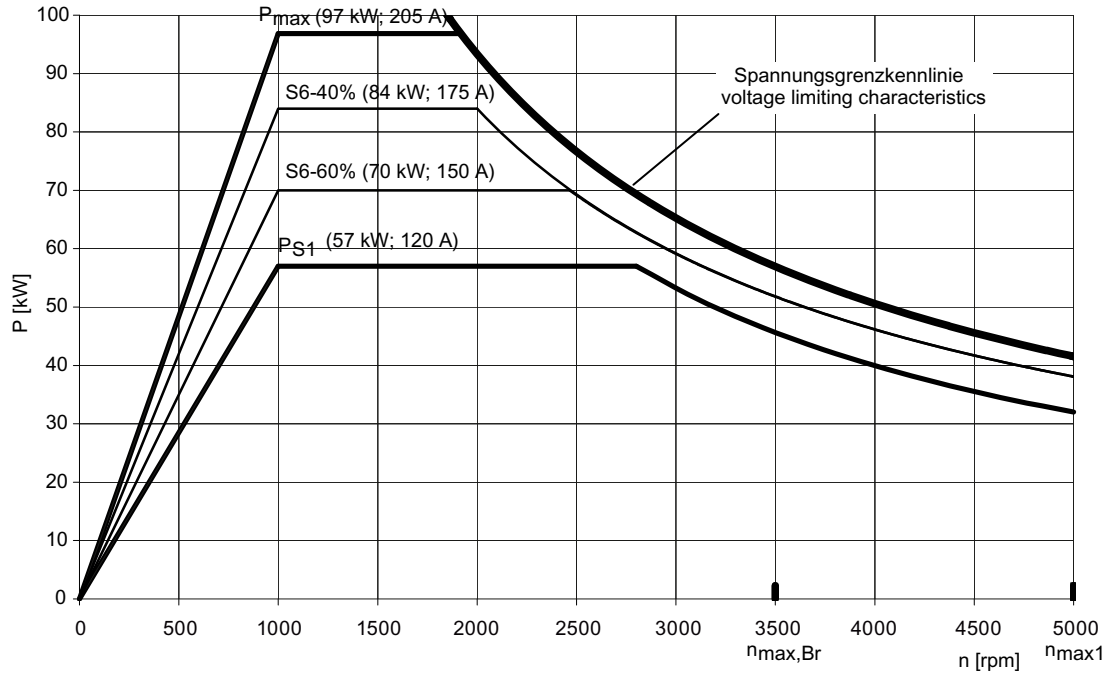


Table 4- 196 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	57	544	120	5000	-	-	3500	2800	925	205	544	120



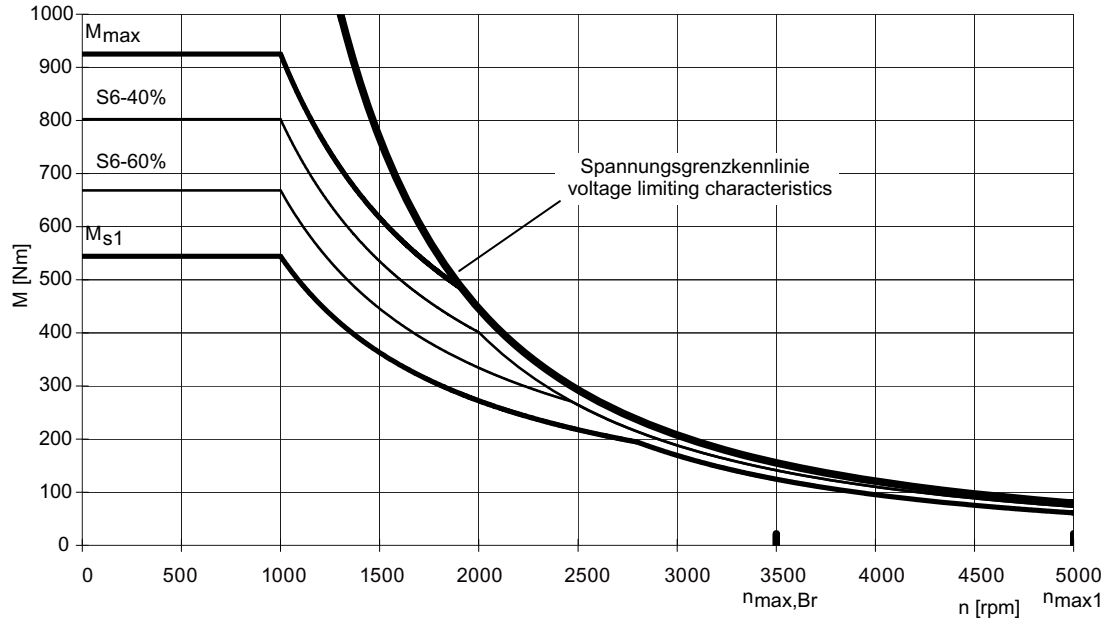
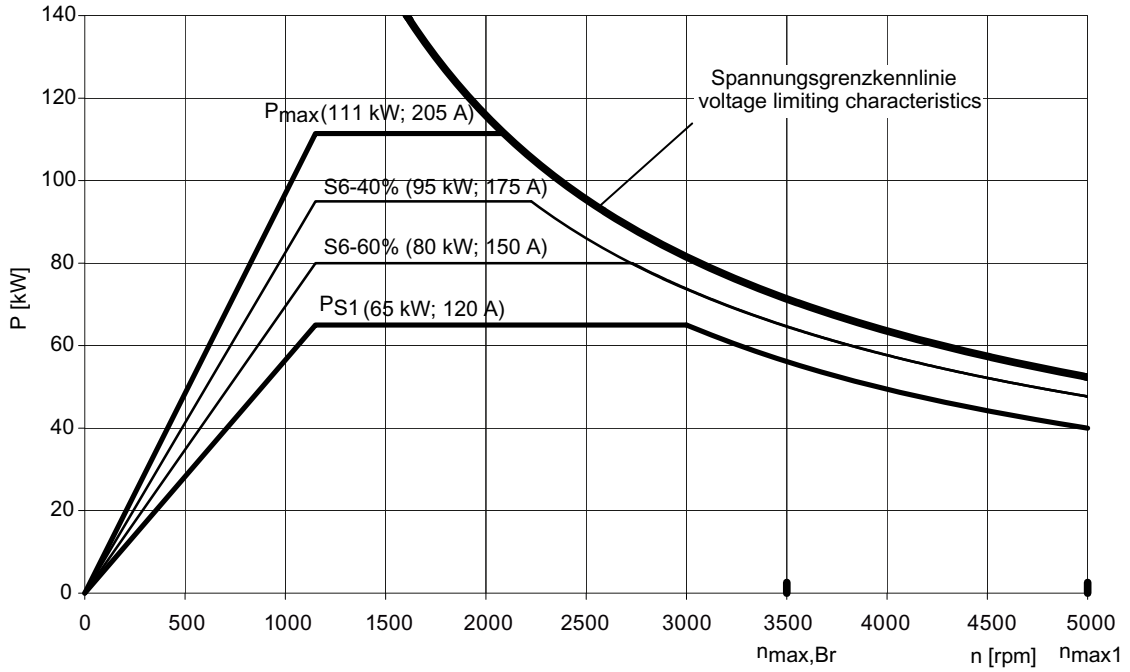


Table 4- 197 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	65	540	120	5000	-	-	3500	3000	925	205	540	120
1000	57	544	120					3400				



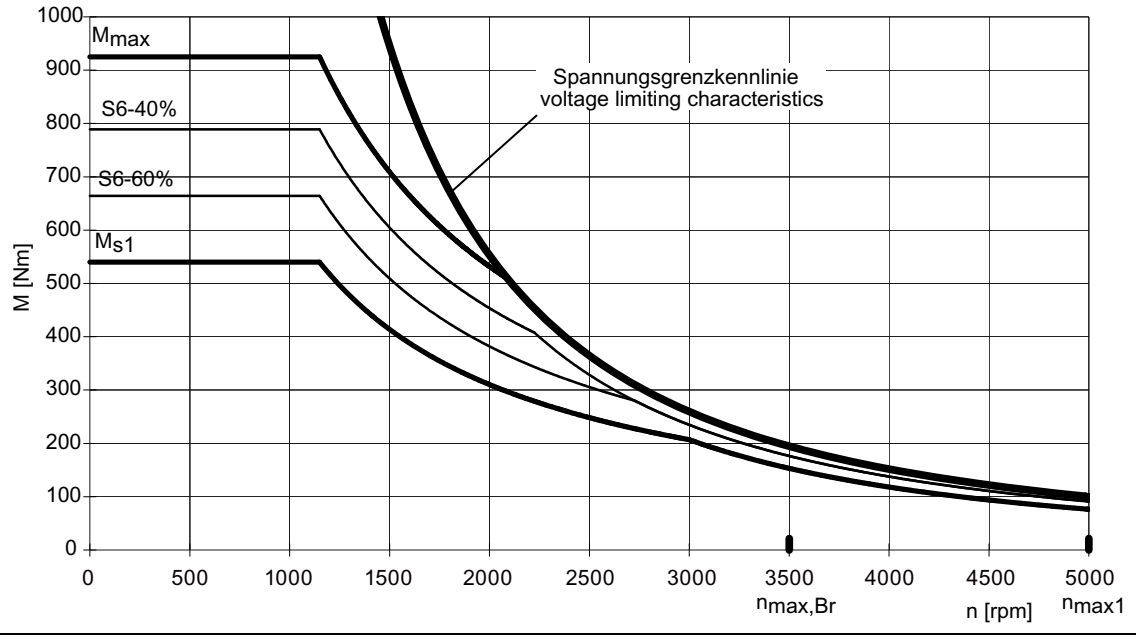
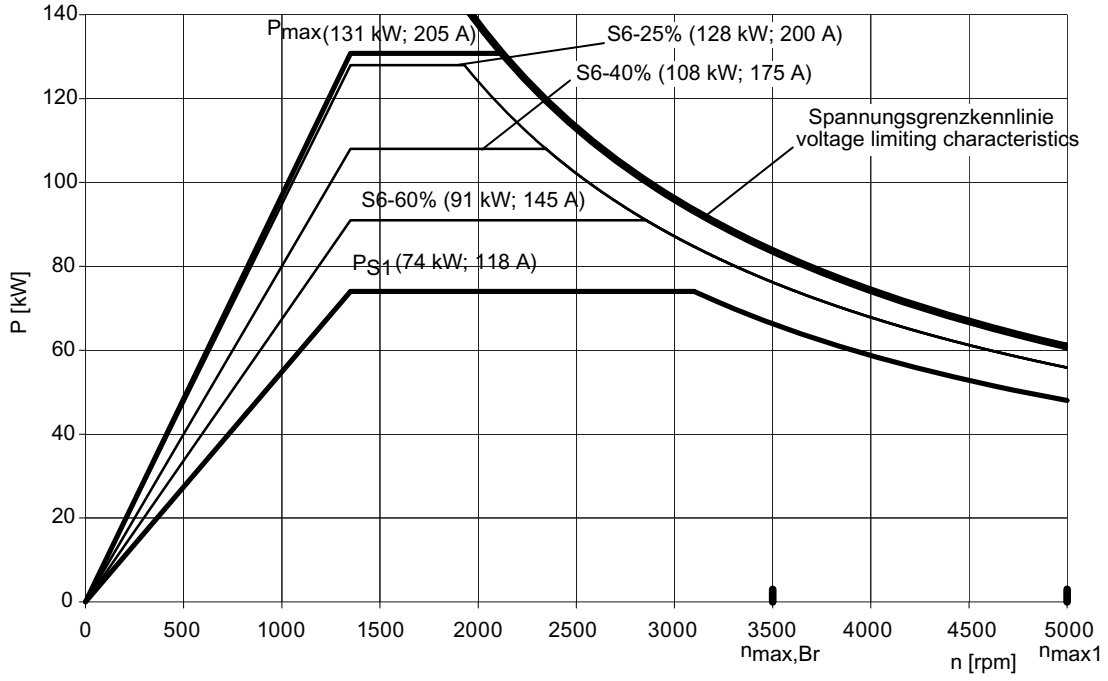


Table 4- 198 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	74	523	118	5000	-	-	3500	3100	925	205	523	118



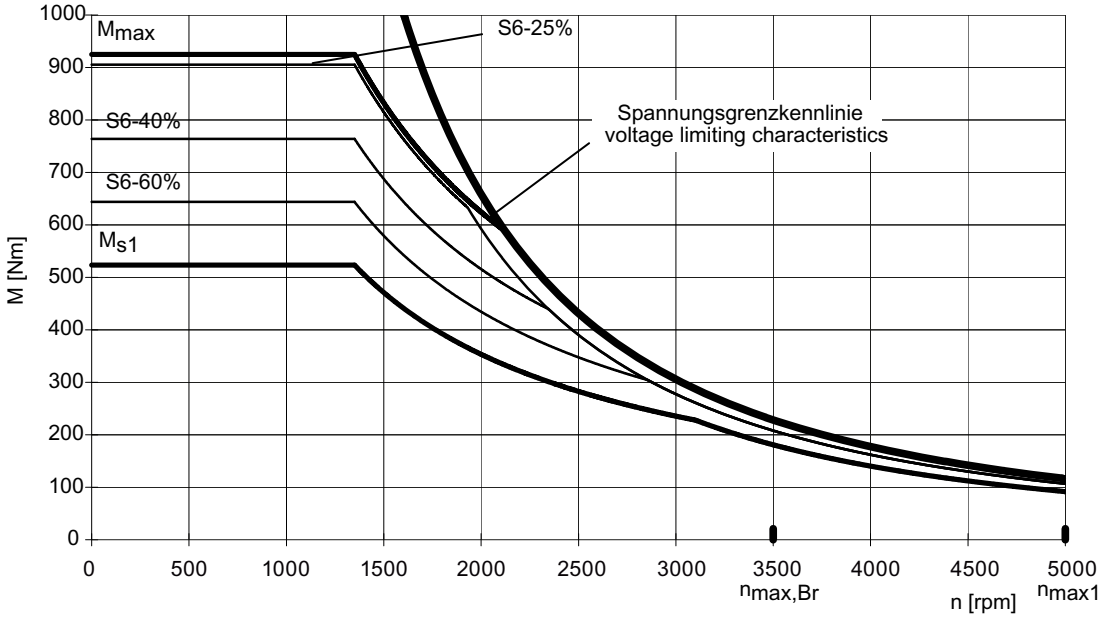
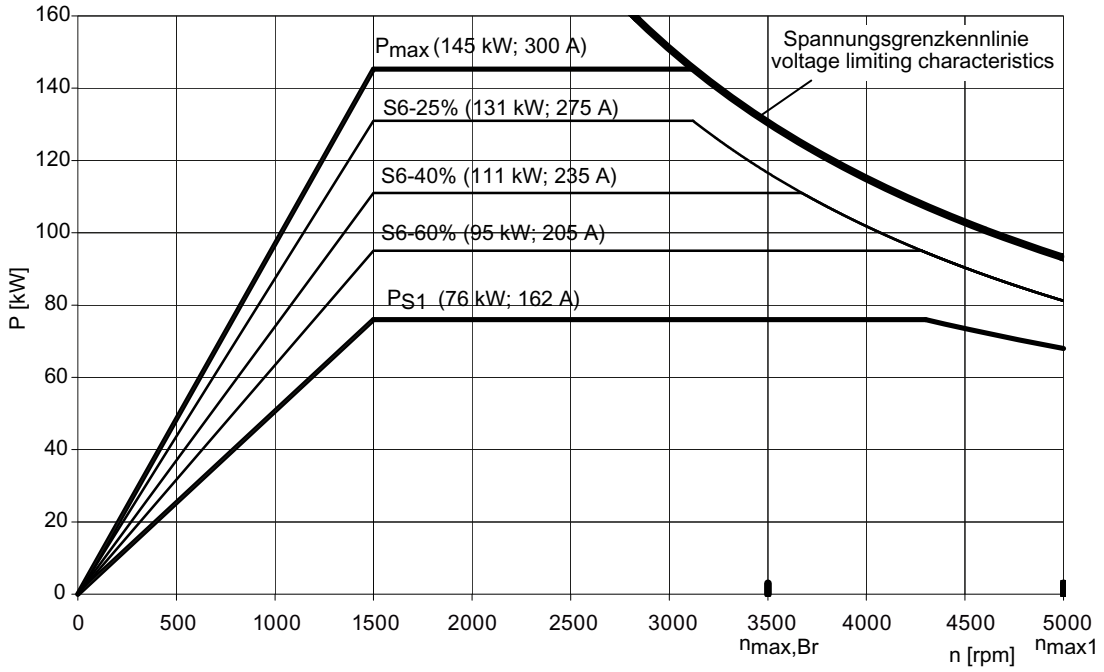


Table 4- 199 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	76	484	162	5000	-	-	3500	4300	925	300	484	162



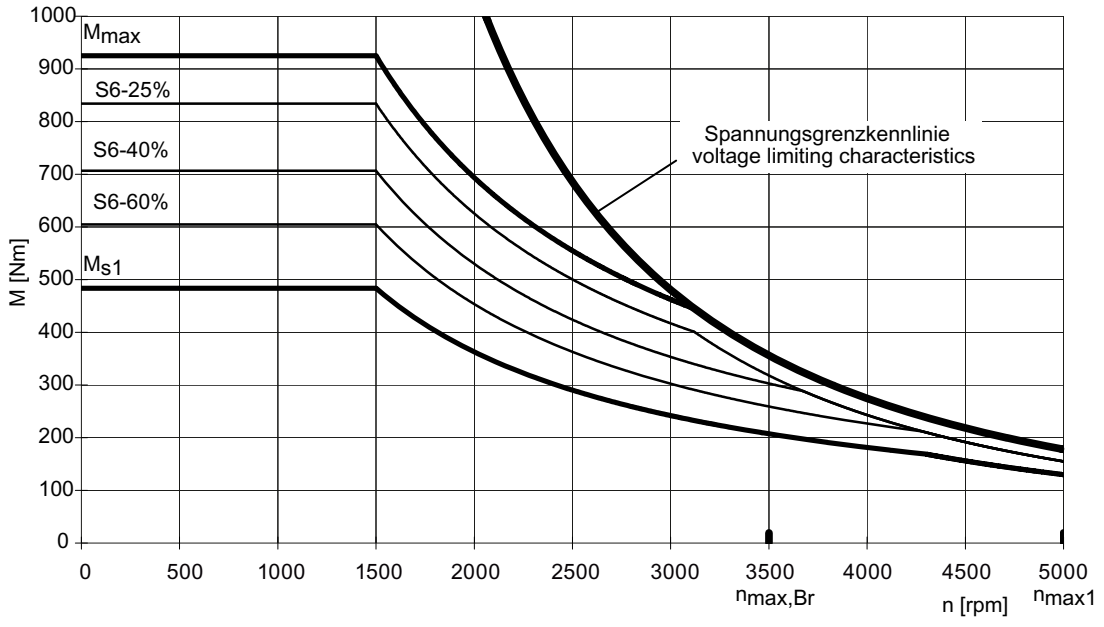
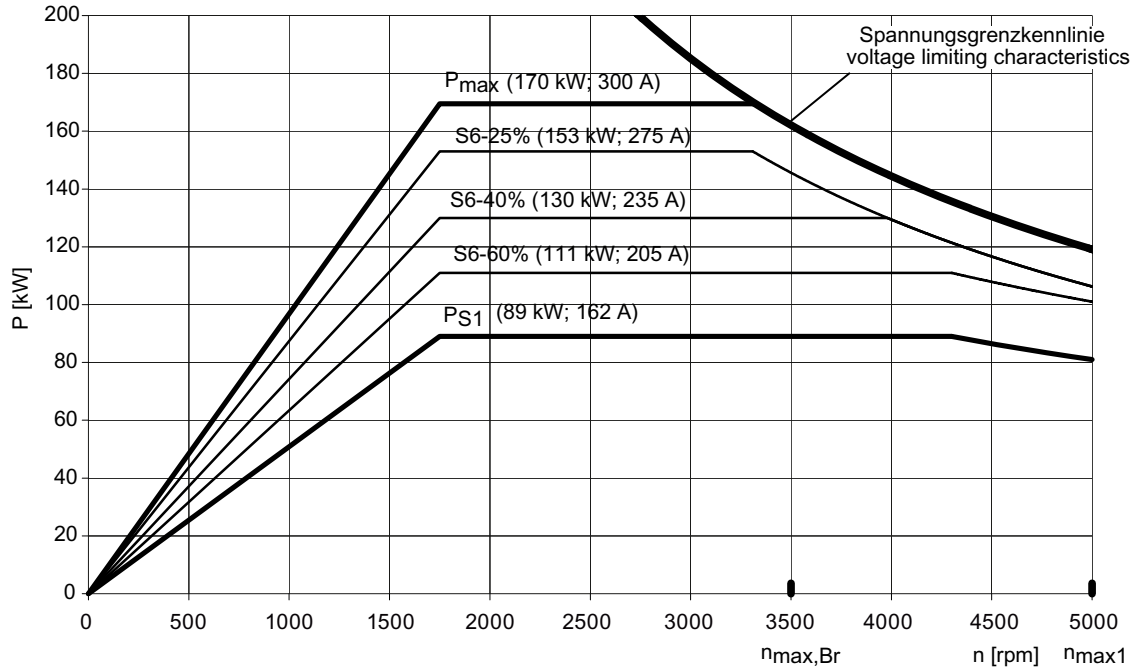


Table 4- 200 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	89	486	162	5000	-	-	3500	4300	925	300	486	162
1500	76	484	162					5000				



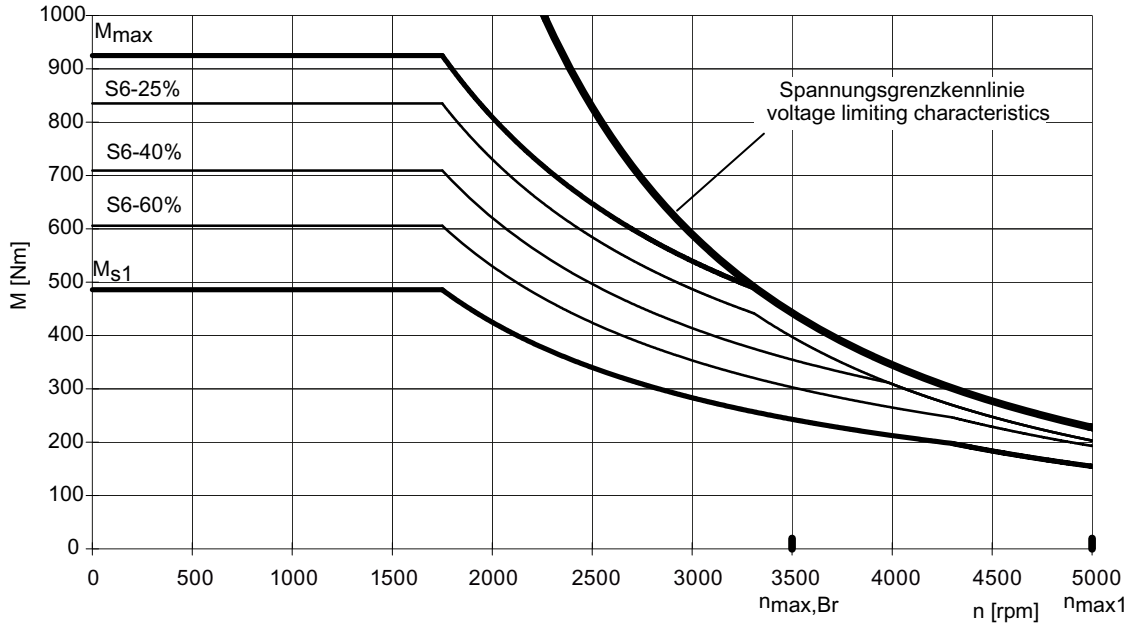
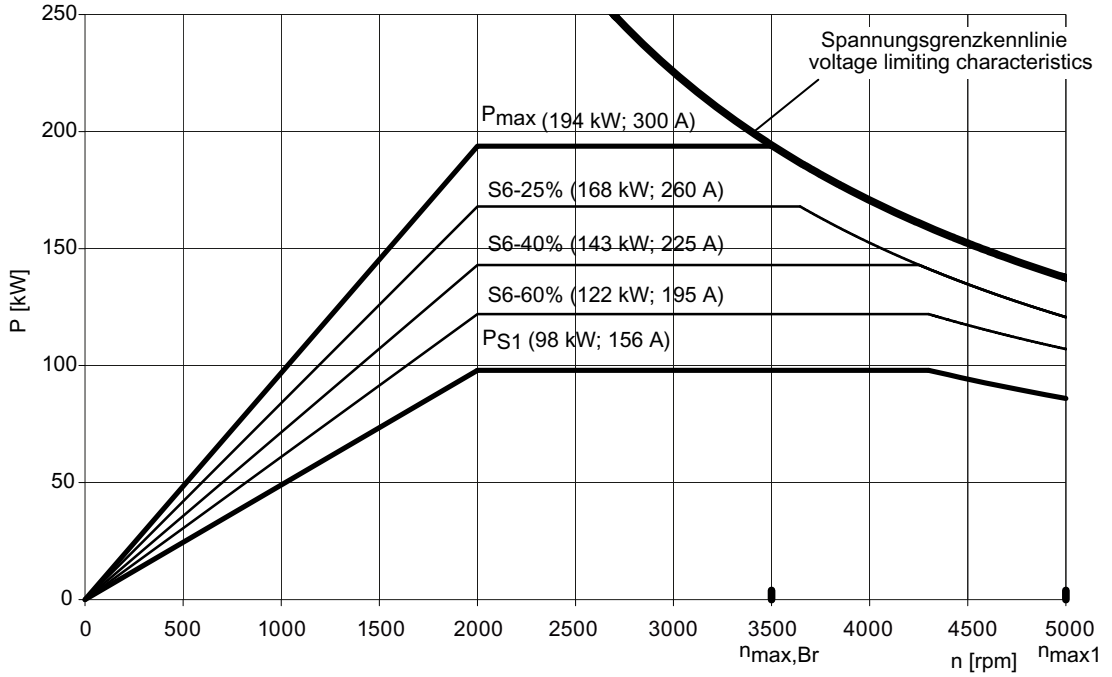


Table 4- 201 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	98	468	156	5000	-	-	3500	4300	925	300	468	156



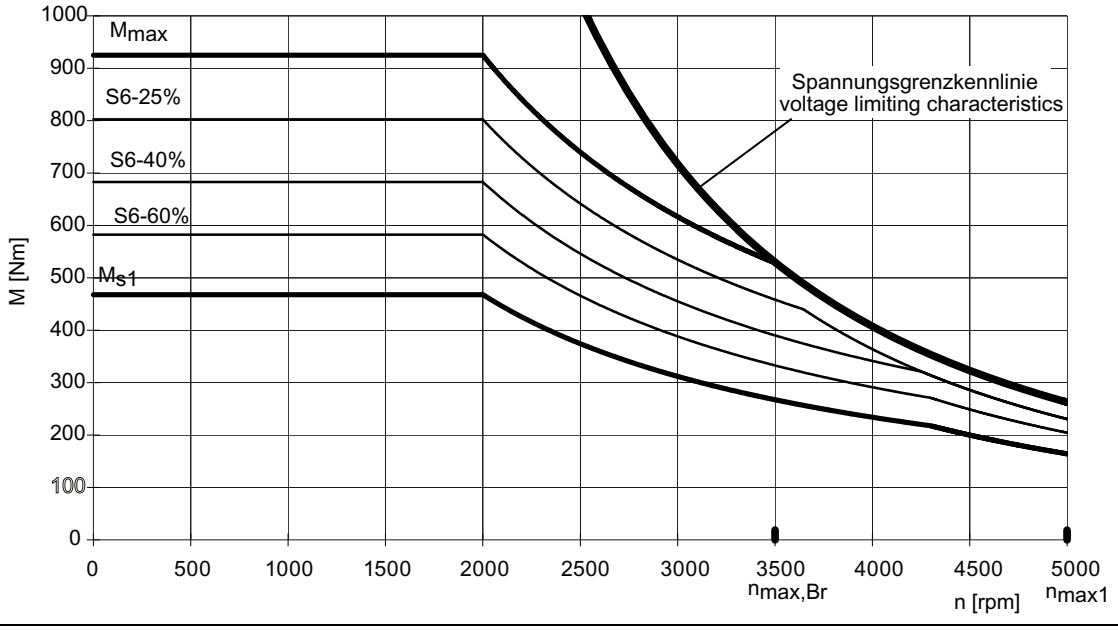
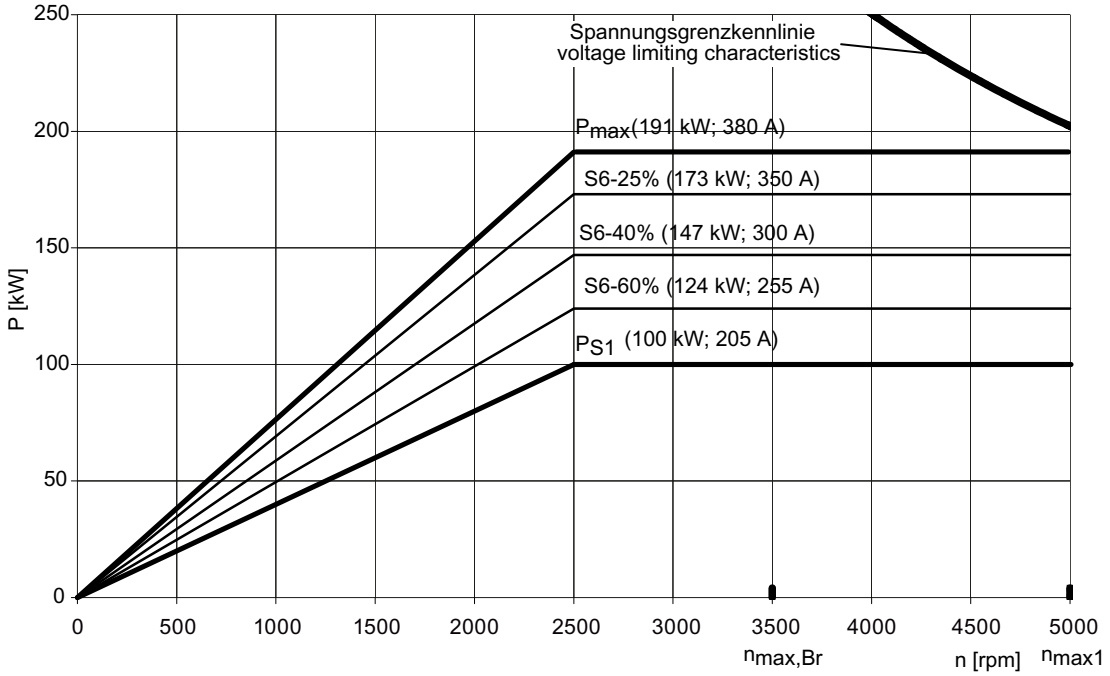


Table 4- 202 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	100	382	205	5000	-	-	3500	5000	730	380	382	205



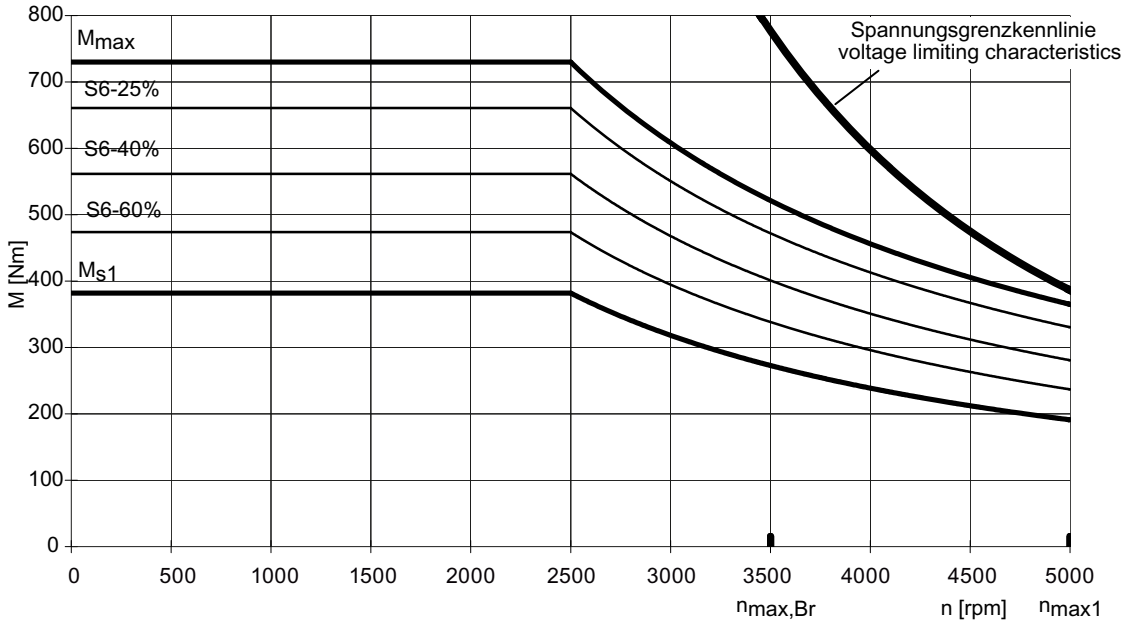
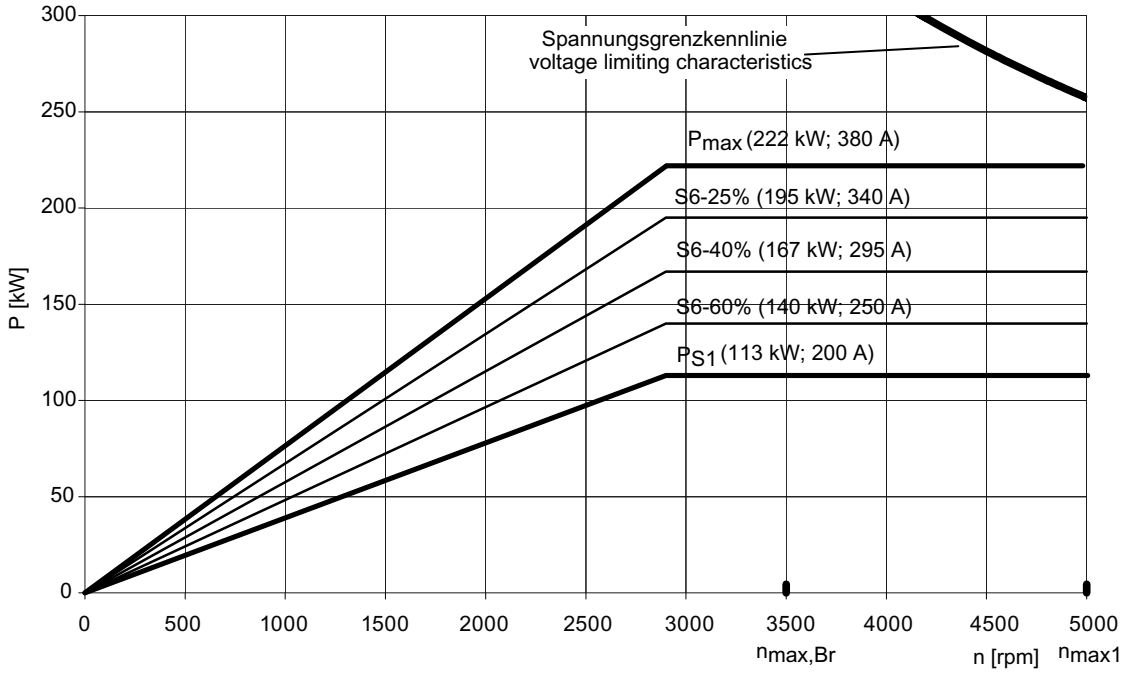


Table 4- 203 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	113	372	200	5000	-	-	3500	5000	730	380	372	200
2500	100	382	205					5000				



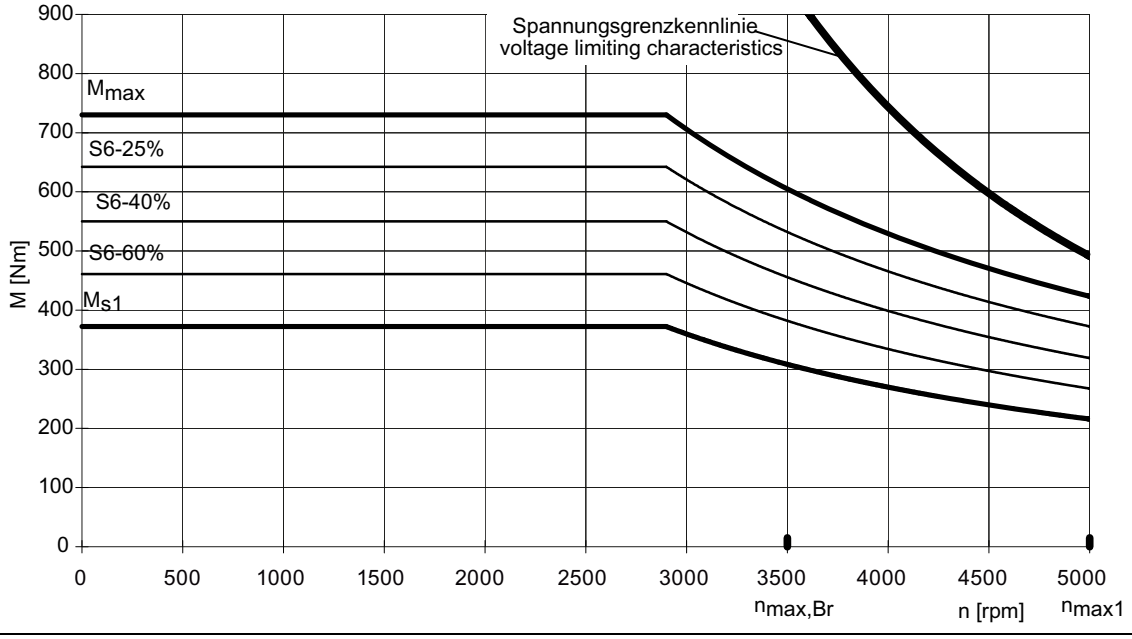
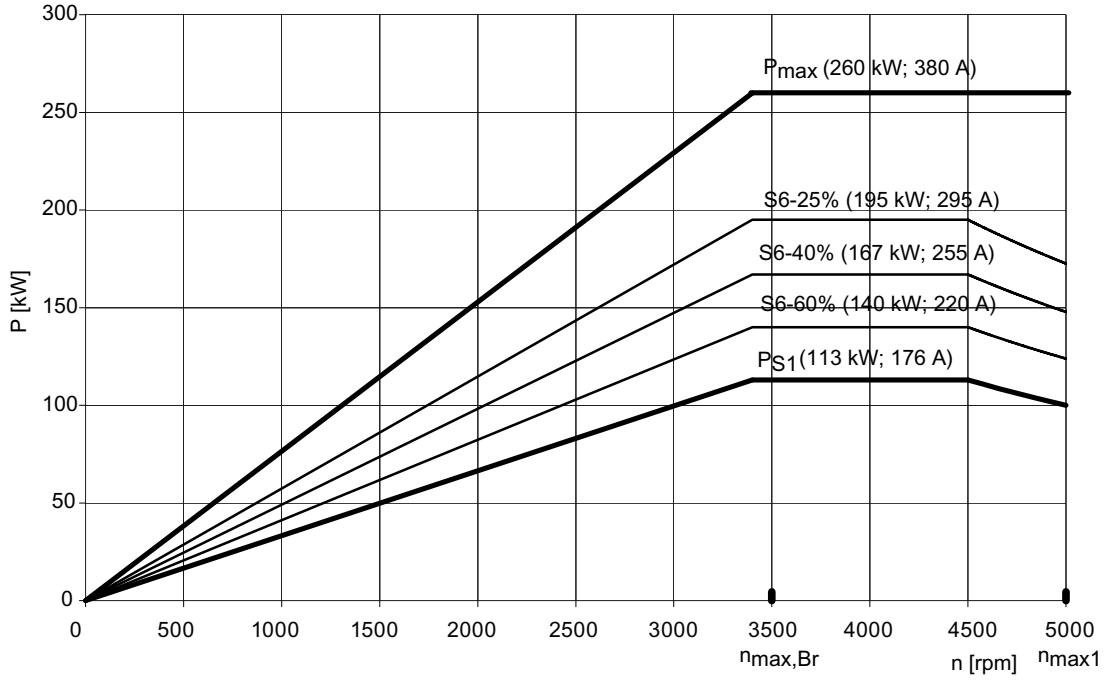


Table 4- 204 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	113	317	176	5000	-	-	3500	4500	730	380	317	176



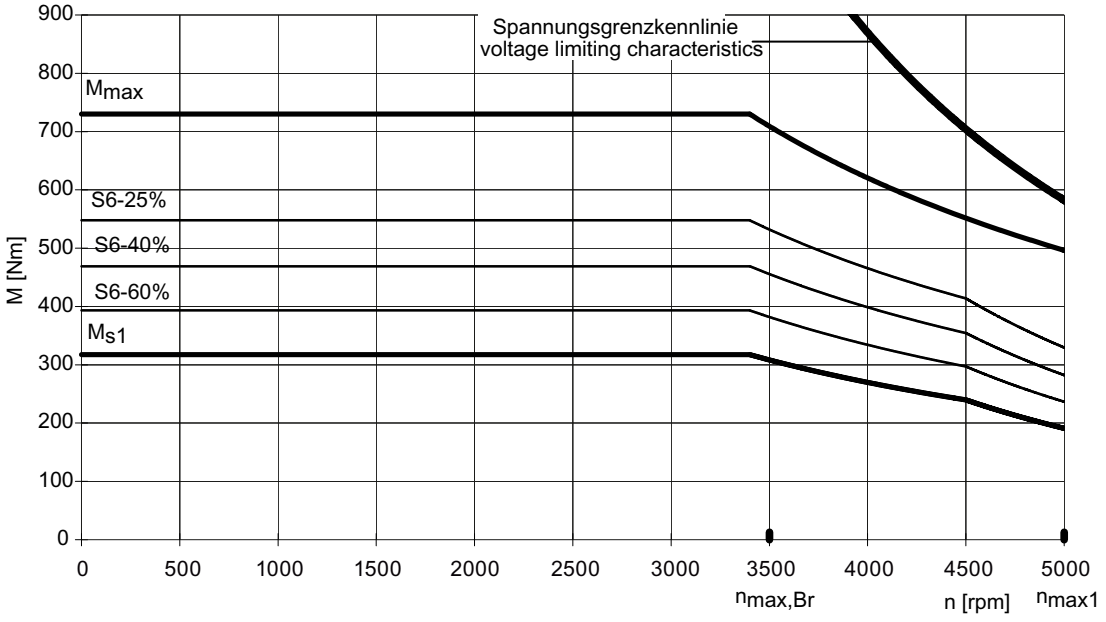
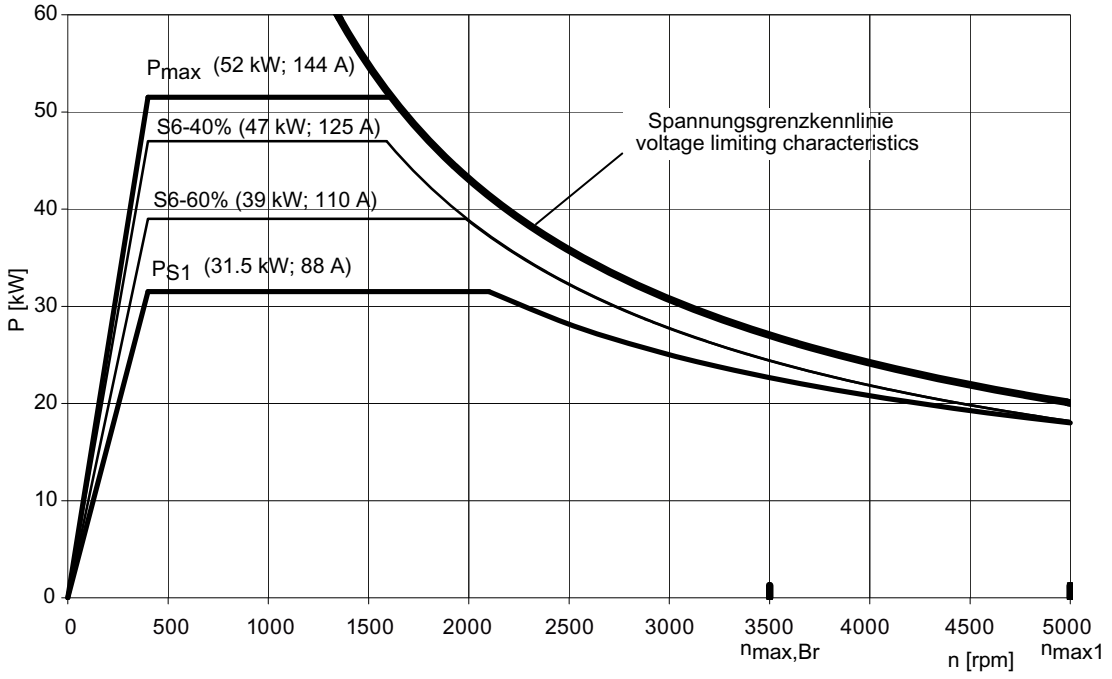


Table 4- 205 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	31.5	752	88	5000	-	-	3500	2100	1230	144	752	88



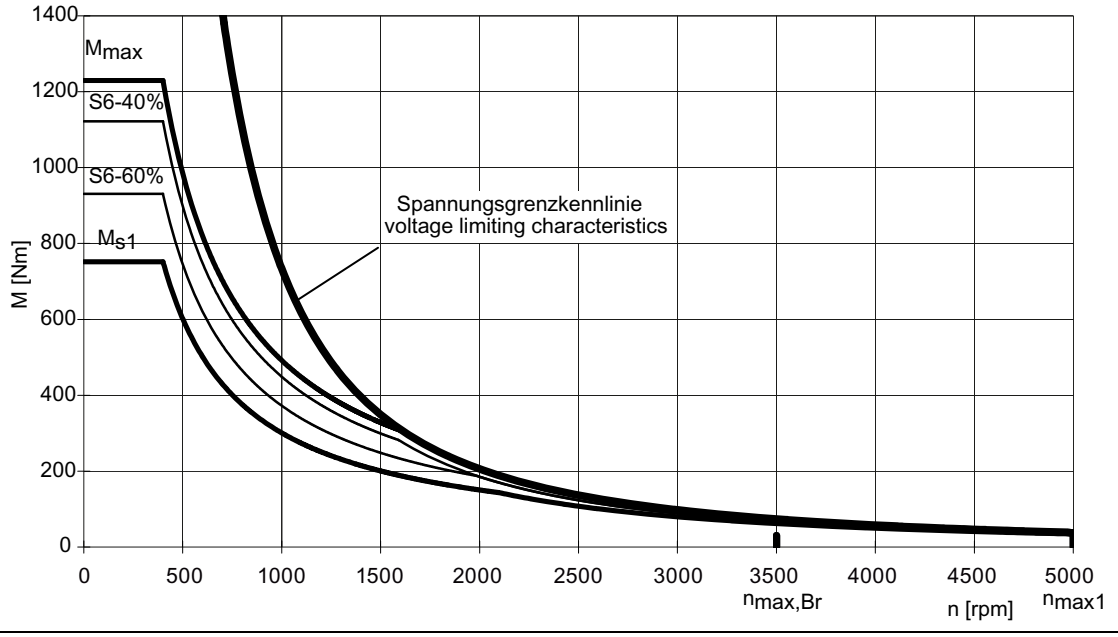
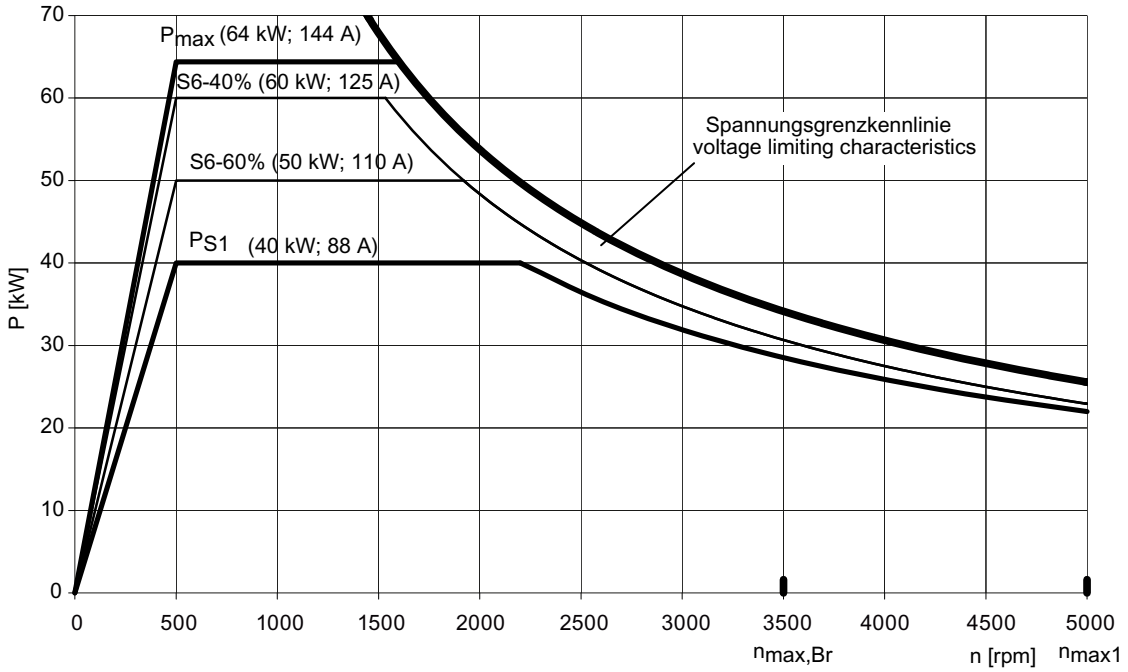


Table 4- 206 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	40	764	88	5000	-	-	3500	2200	1230	144	764	88
400	31.5	752	88					3100				



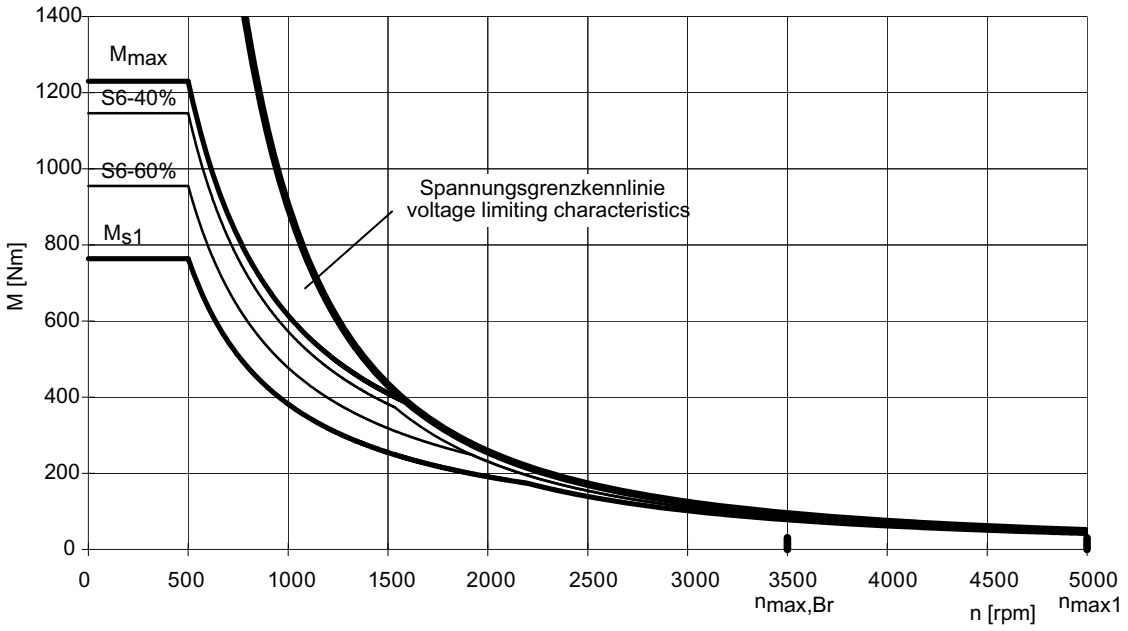
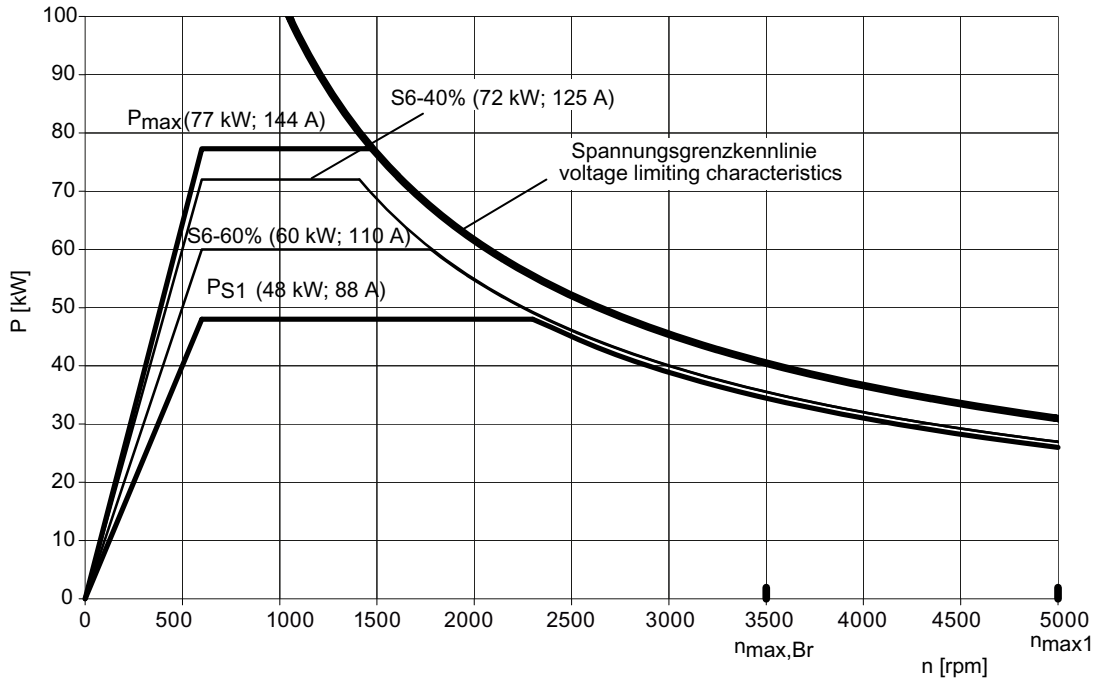


Table 4- 207 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	48	764	88	5000	-	-	3500	2300	1230	144	764	88



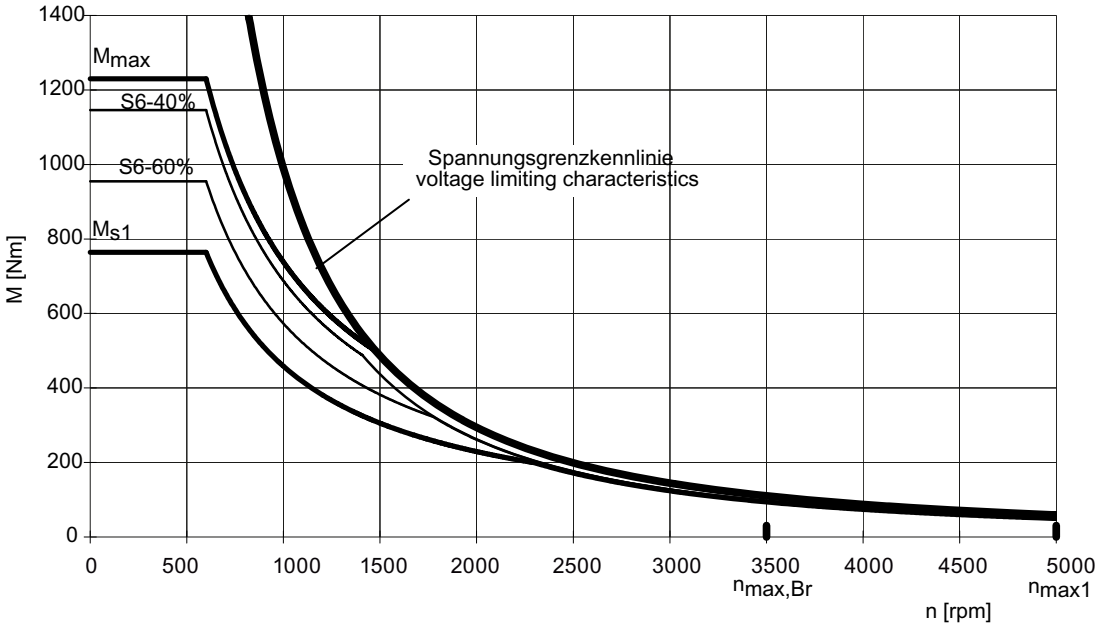
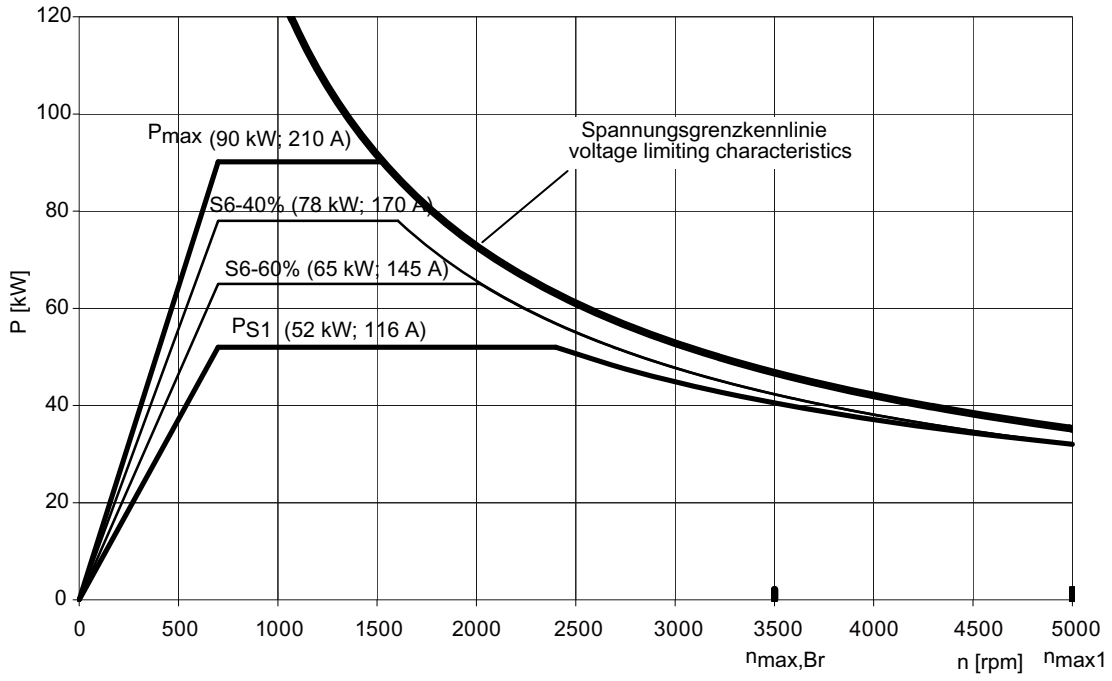


Table 4- 208 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	52	709	116	5000	-	-	3500	2400	1230	210	709	116



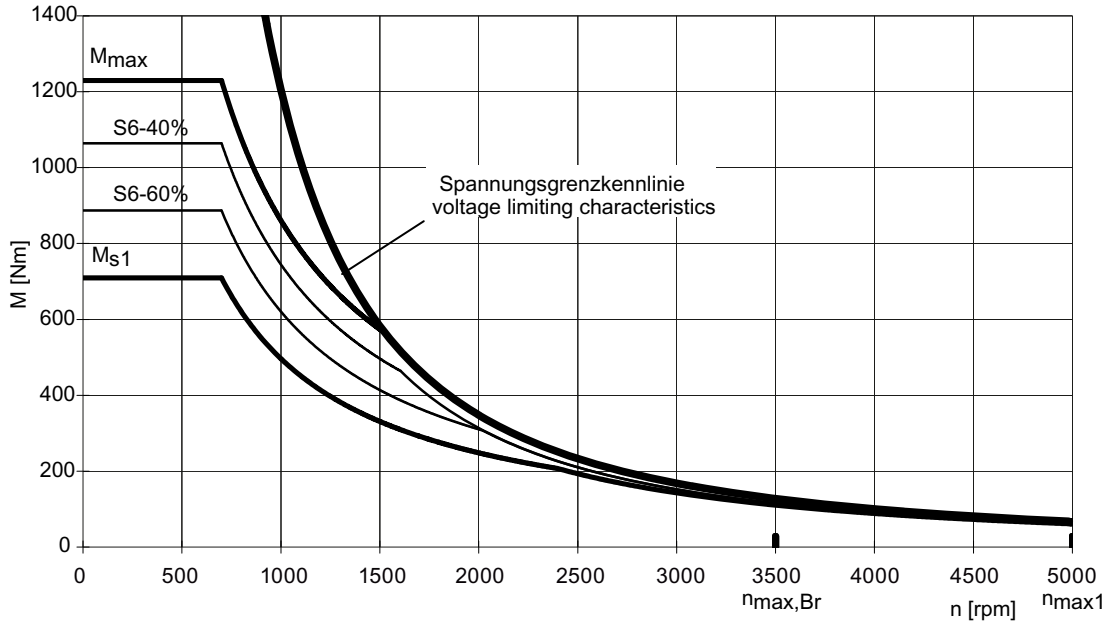
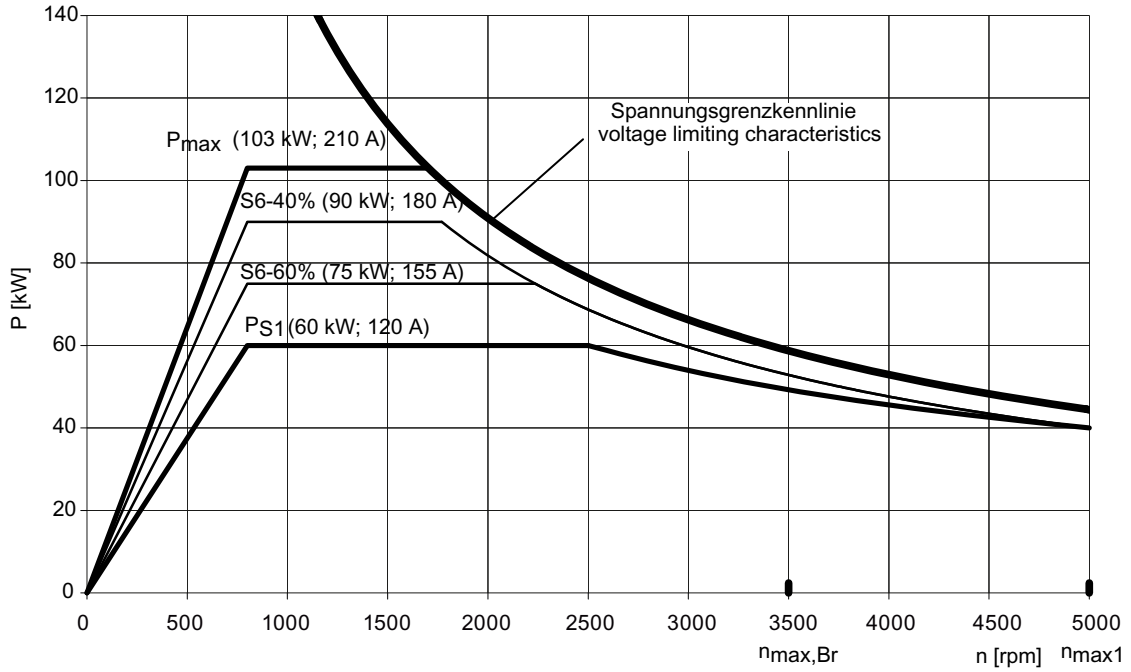


Table 4- 209 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	60	716	120	5000	-	-	3500	2500	1230	210	716	120
700	52	709	116					3200				



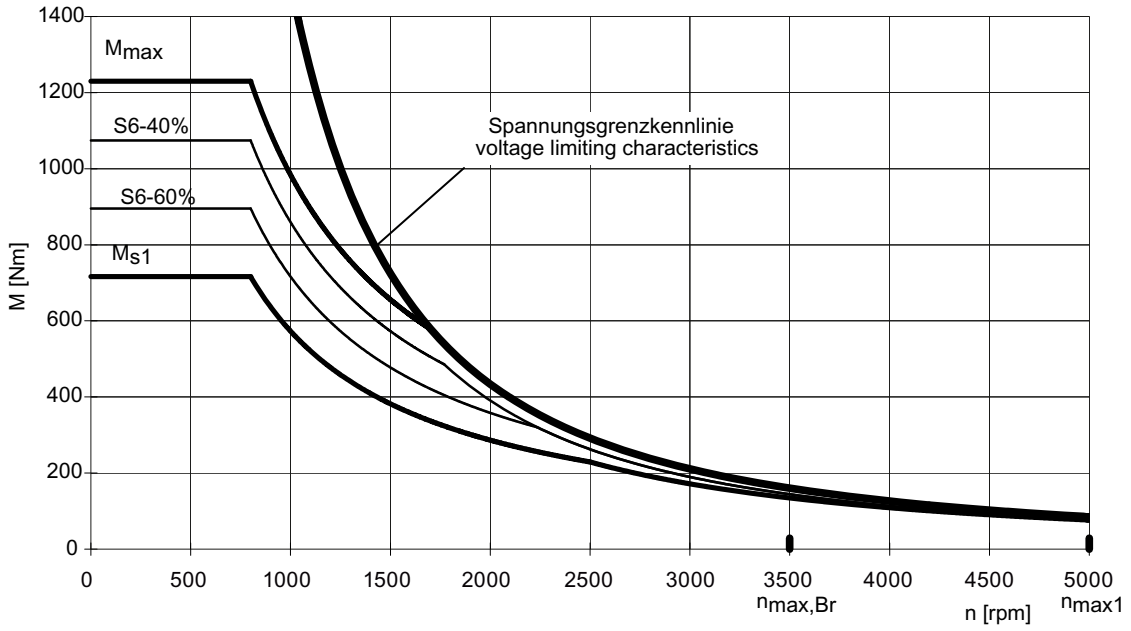
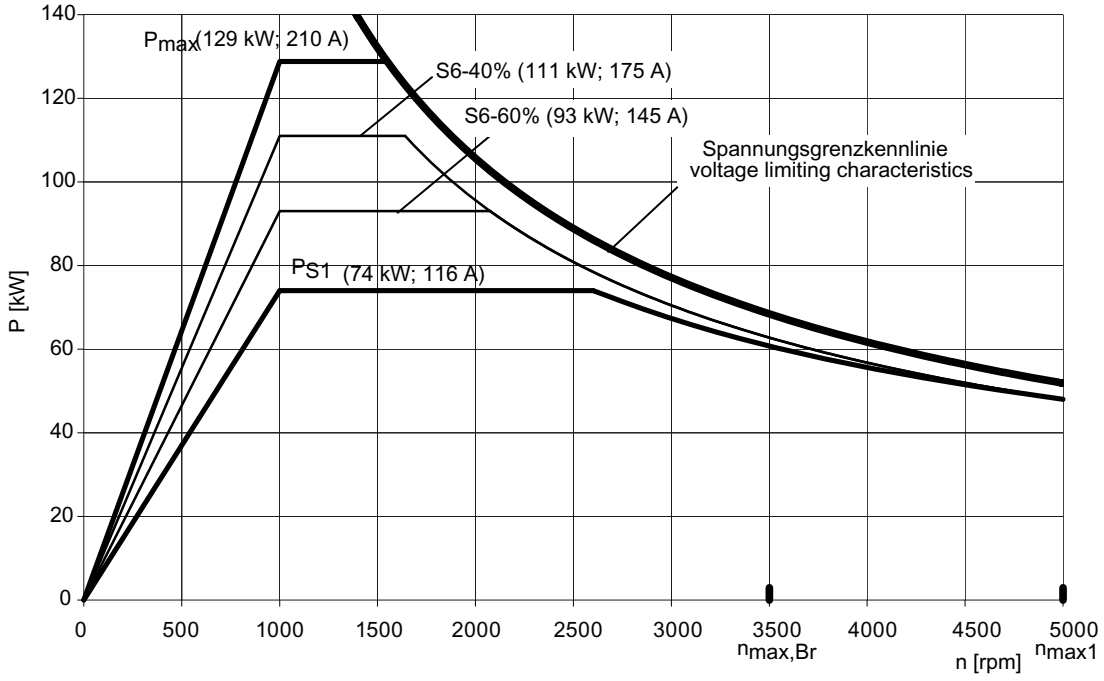


Table 4- 210 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	74	707	116	5000	-	-	3500	2600	1230	210	707	116



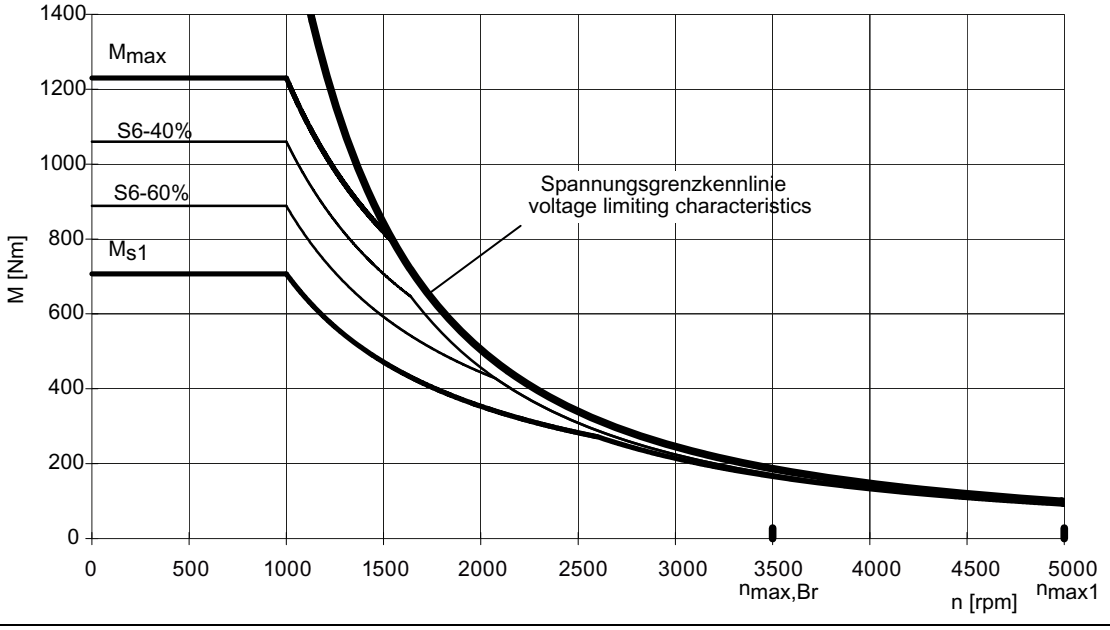
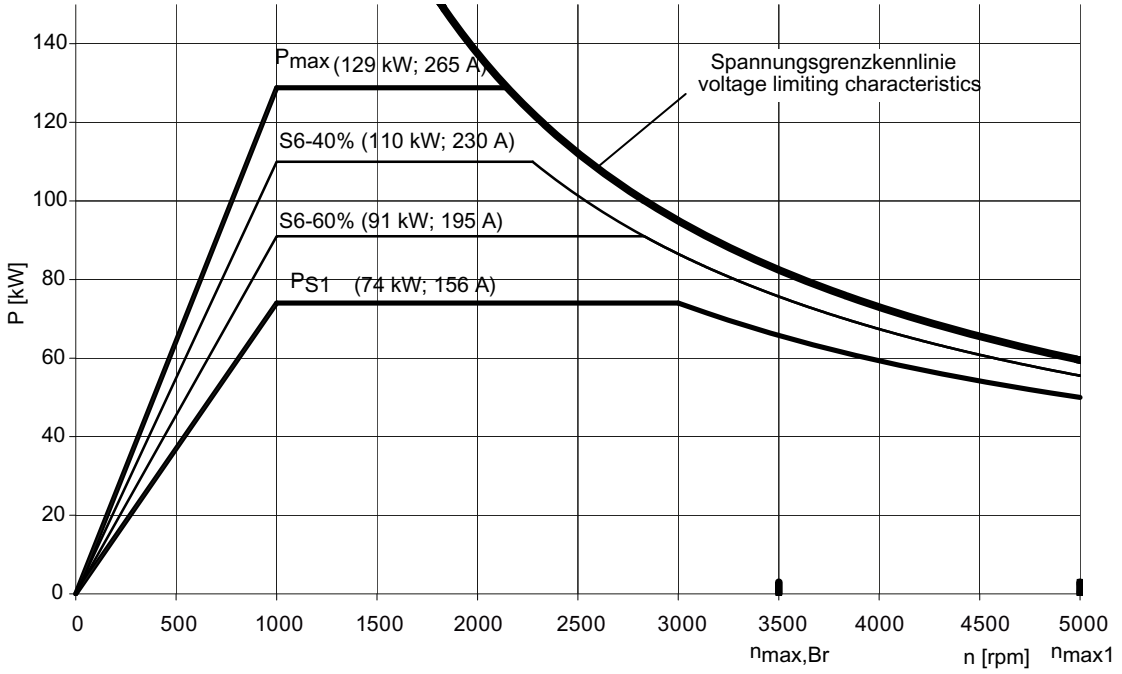


Table 4- 211 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	74	707	156	5000	-	-	3500	3000	1230	265	707	156



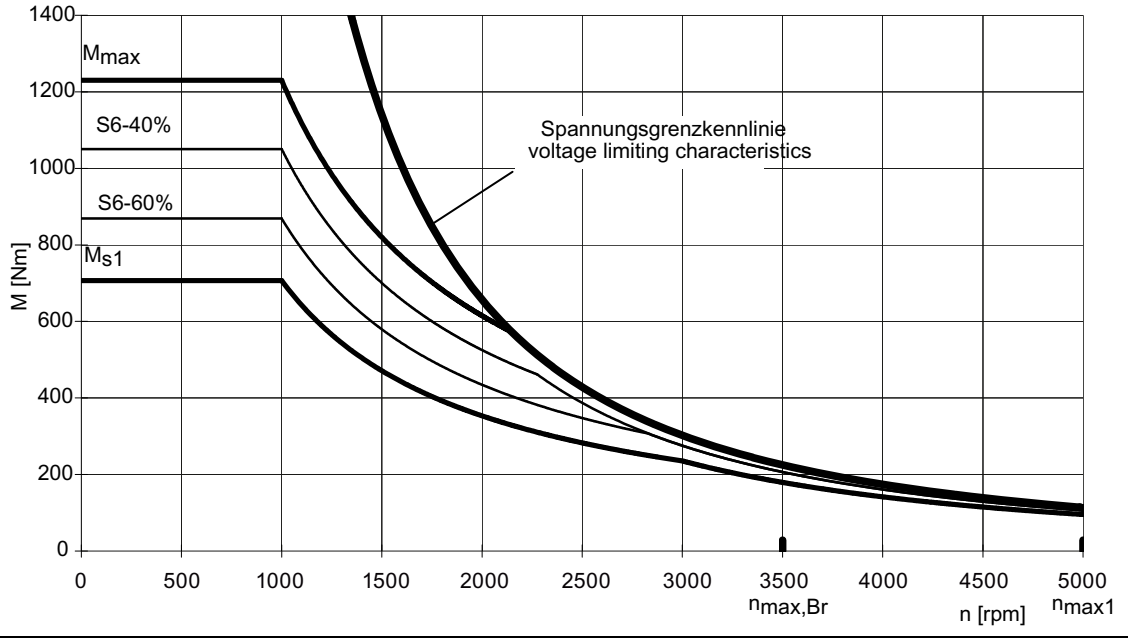
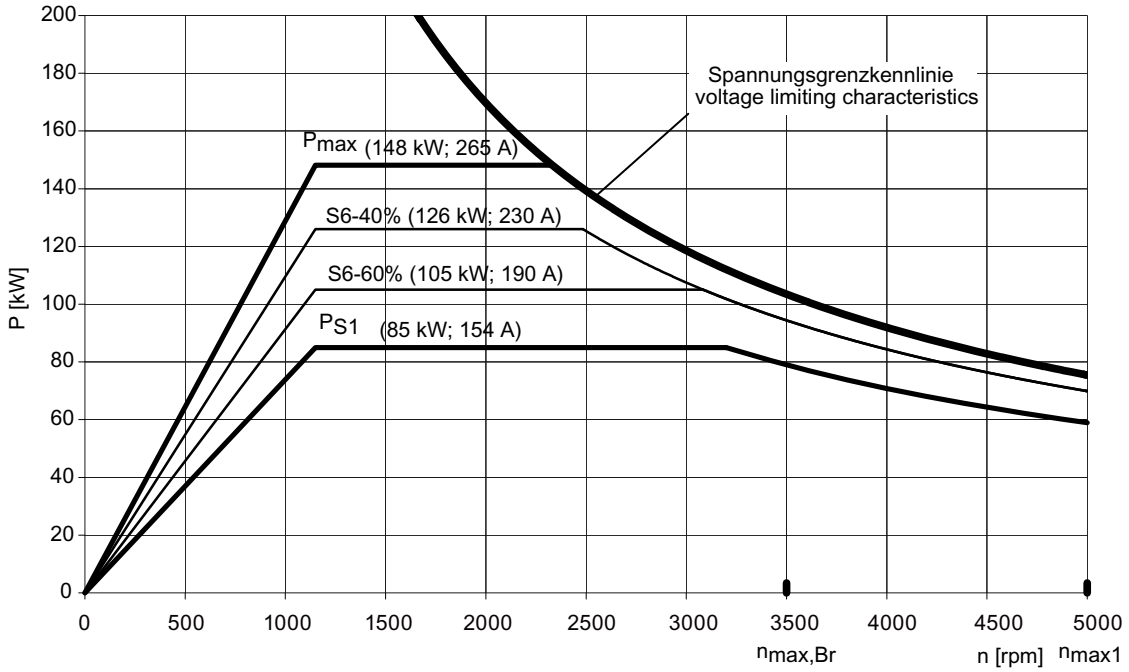


Table 4- 212 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	85	706	154	5000	-	-	3500	3200	1230	265	706	154
1000	74	707	156					3800				



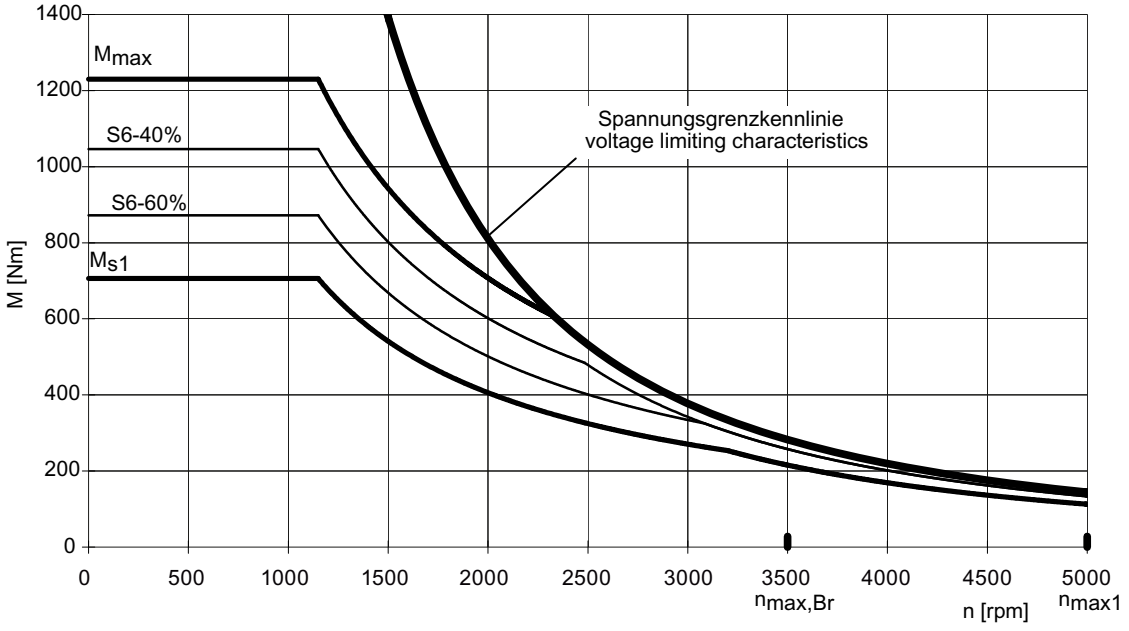
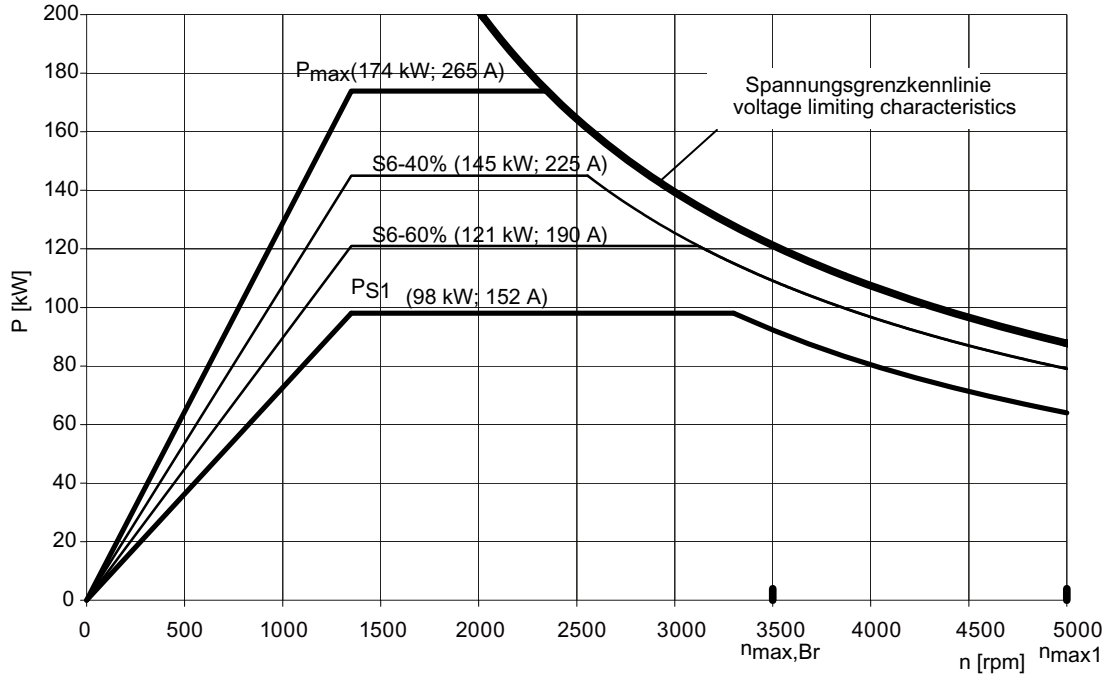


Table 4- 213 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	98	693	152	5000	-	-	3500	3300	1230	265	693	152



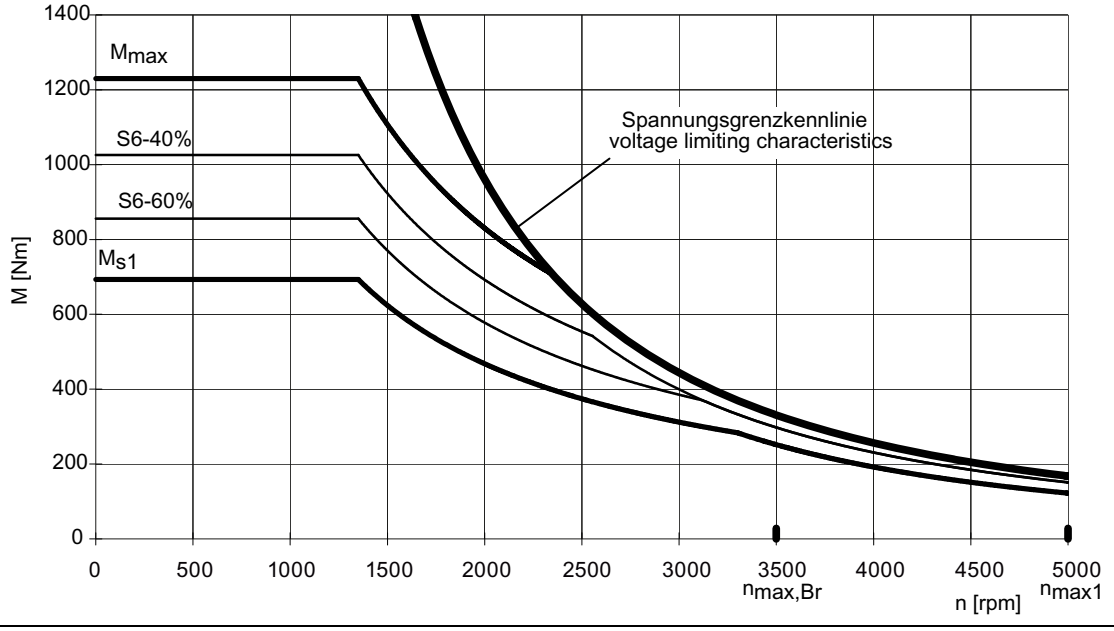
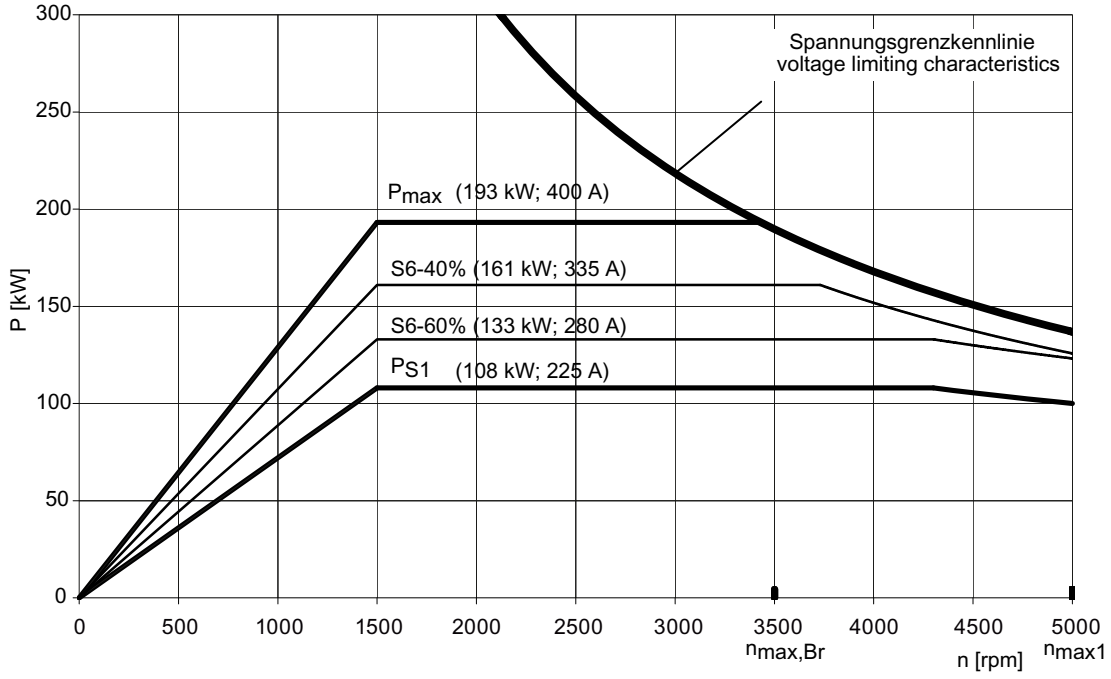


Table 4- 214 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	108	688	225	5000	-	-	3500	4300	1230	400	688	225



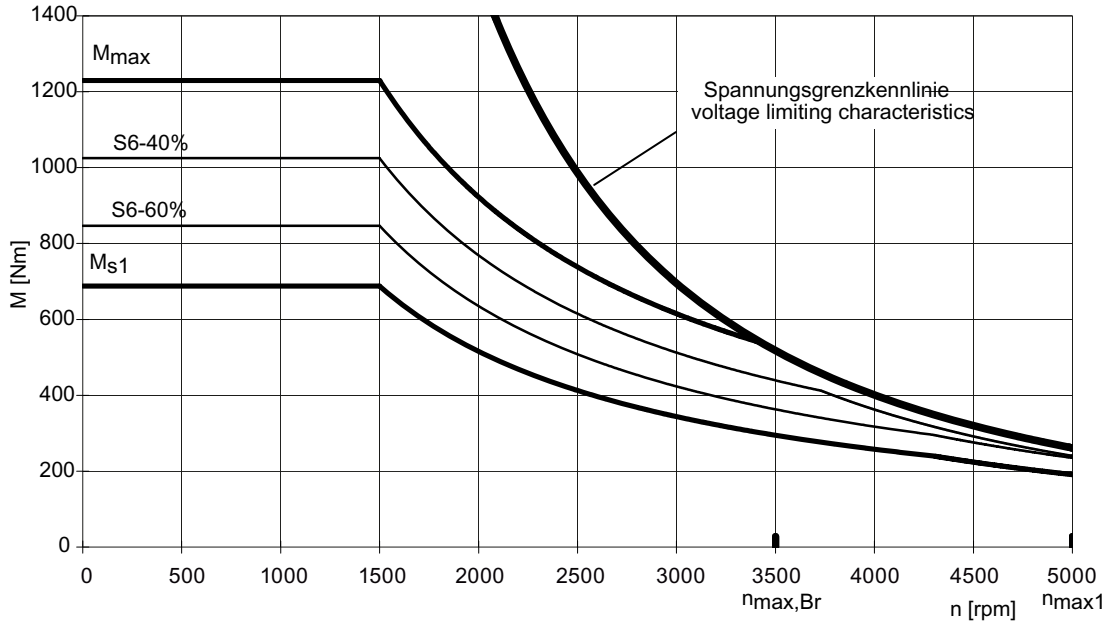
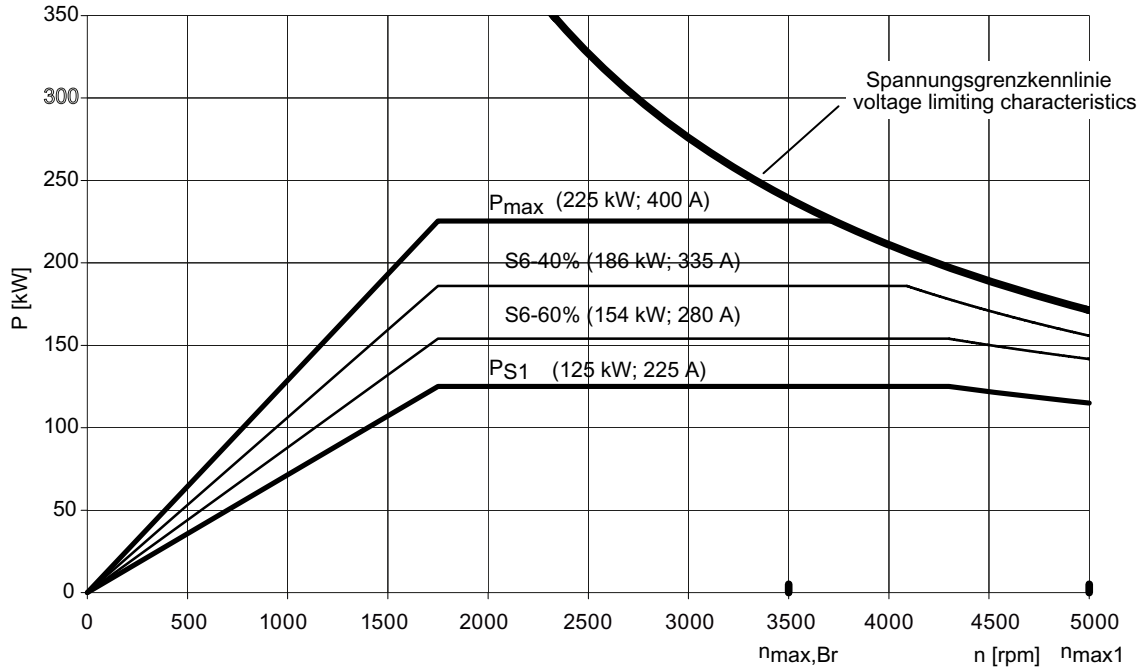


Table 4- 215 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	125	682	225	5000	-	-	3500	4300	1230	400	682	225
1500	108	688	225					5000				



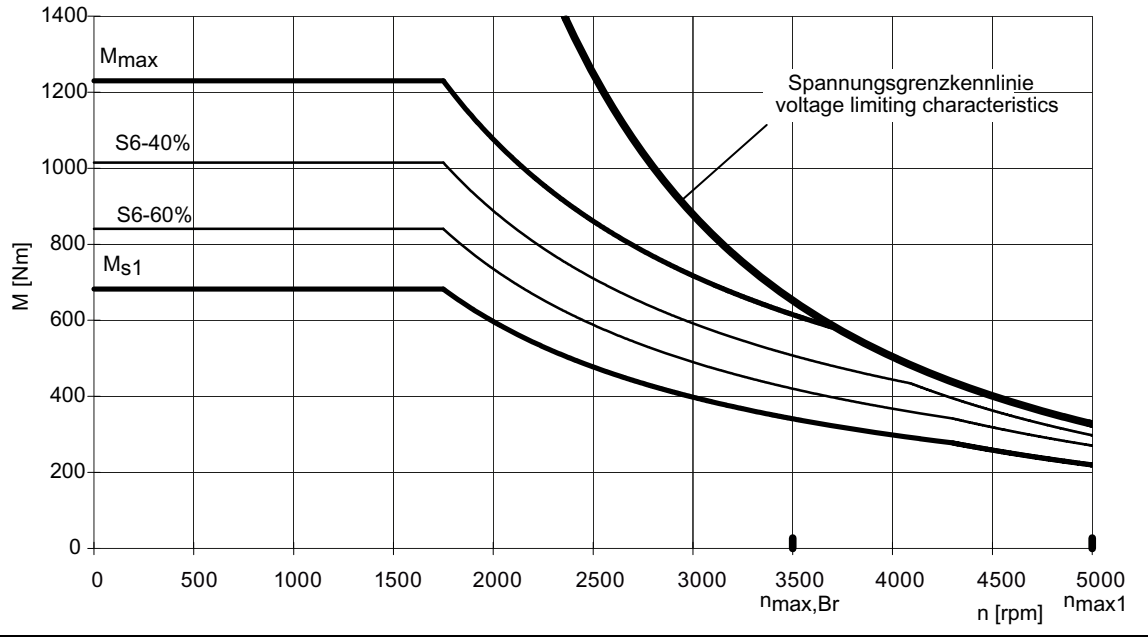
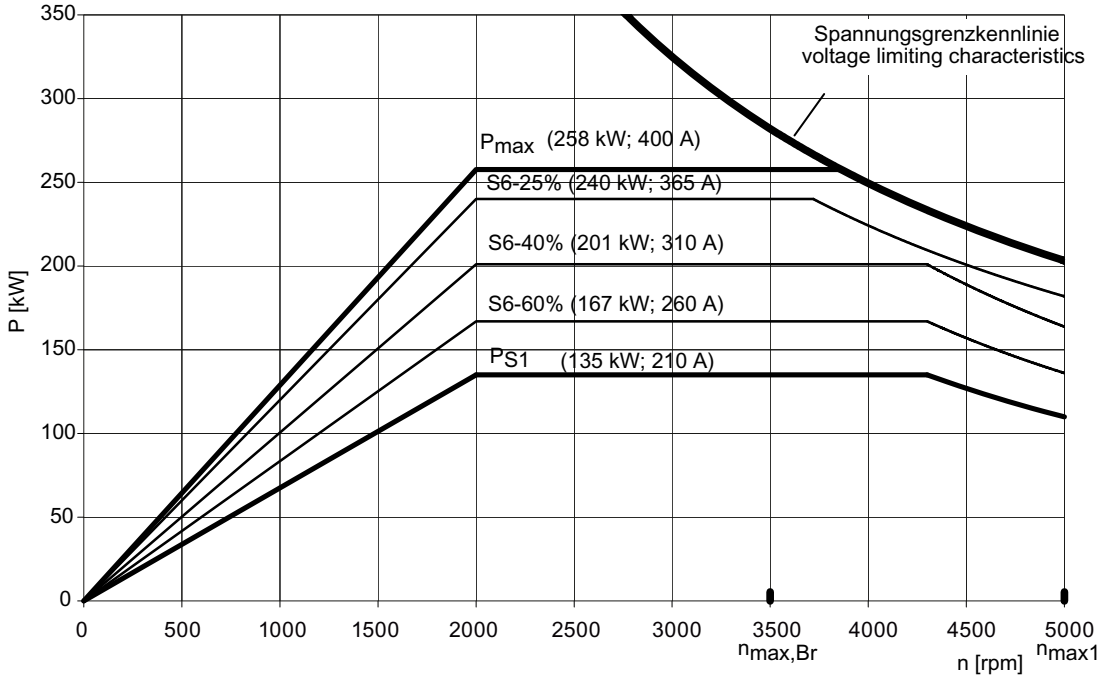


Table 4- 216 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	135	645	210	5000	-	-	3500	4300	1230	400	645	210



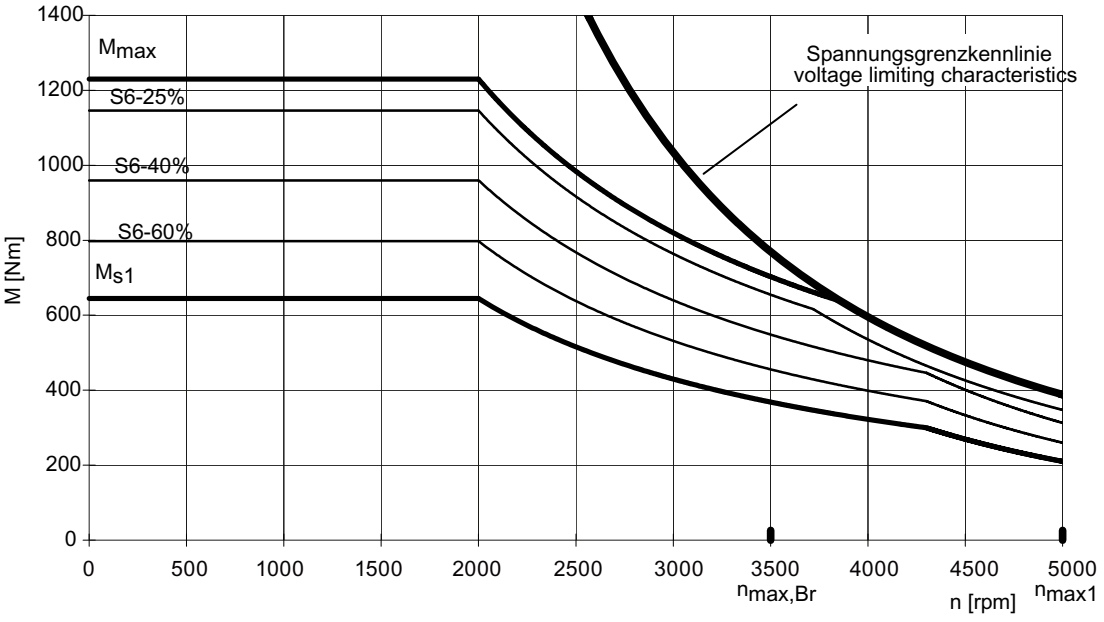
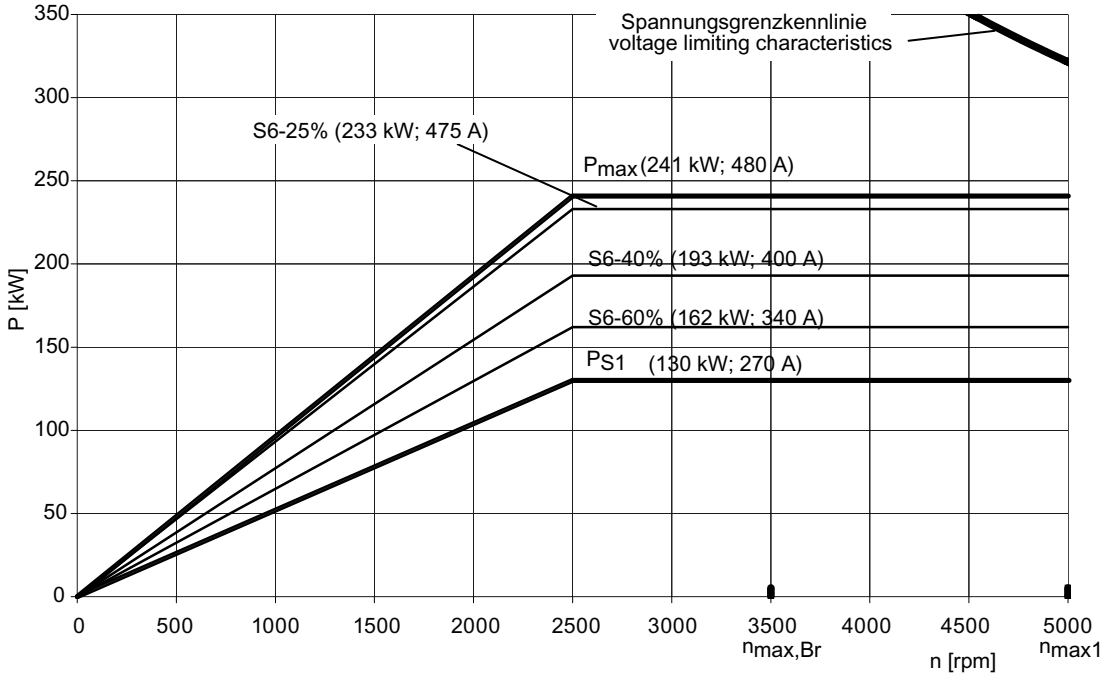


Table 4- 217 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	130	497	270	5000	-	-	3500	5000	920	480	497	270



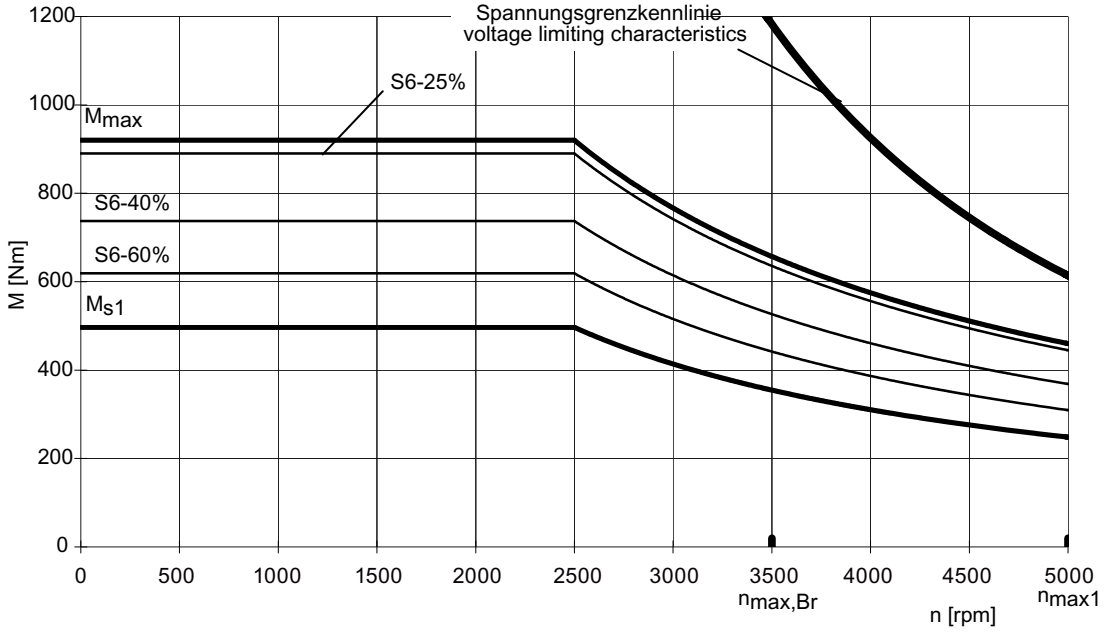
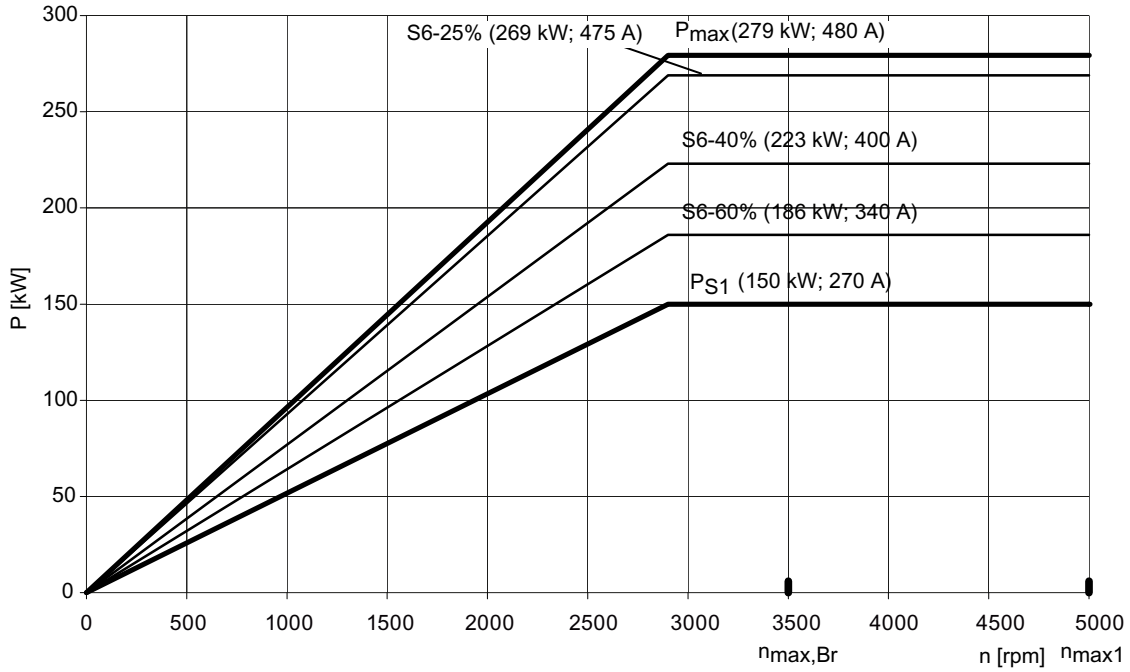


Table 4- 218 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	150	494	270	5000	-	-	3500	5000	920	480	494	270
2500	130	497	270					5000				



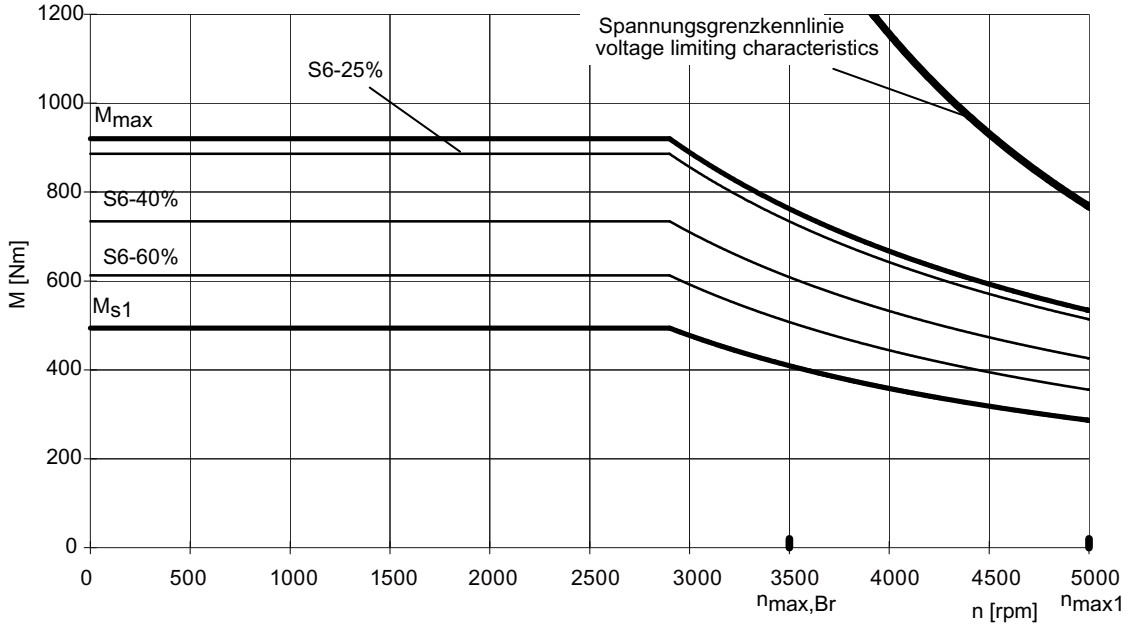
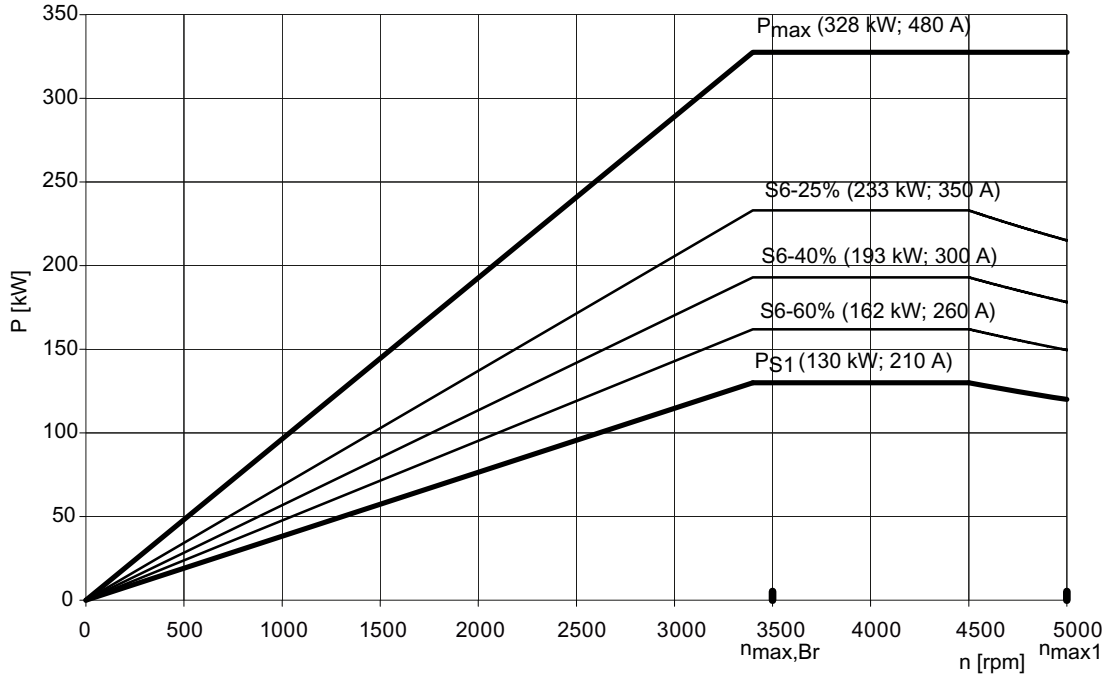
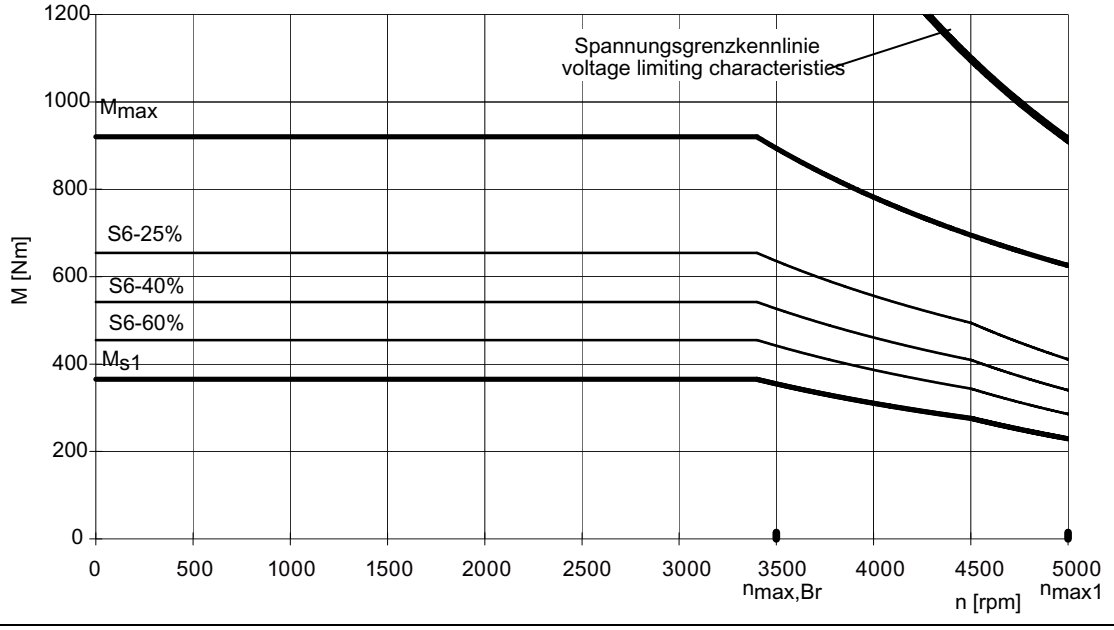


Table 4- 219 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	130	365	210	5000	-	-	3500	4500	920	480	365	210

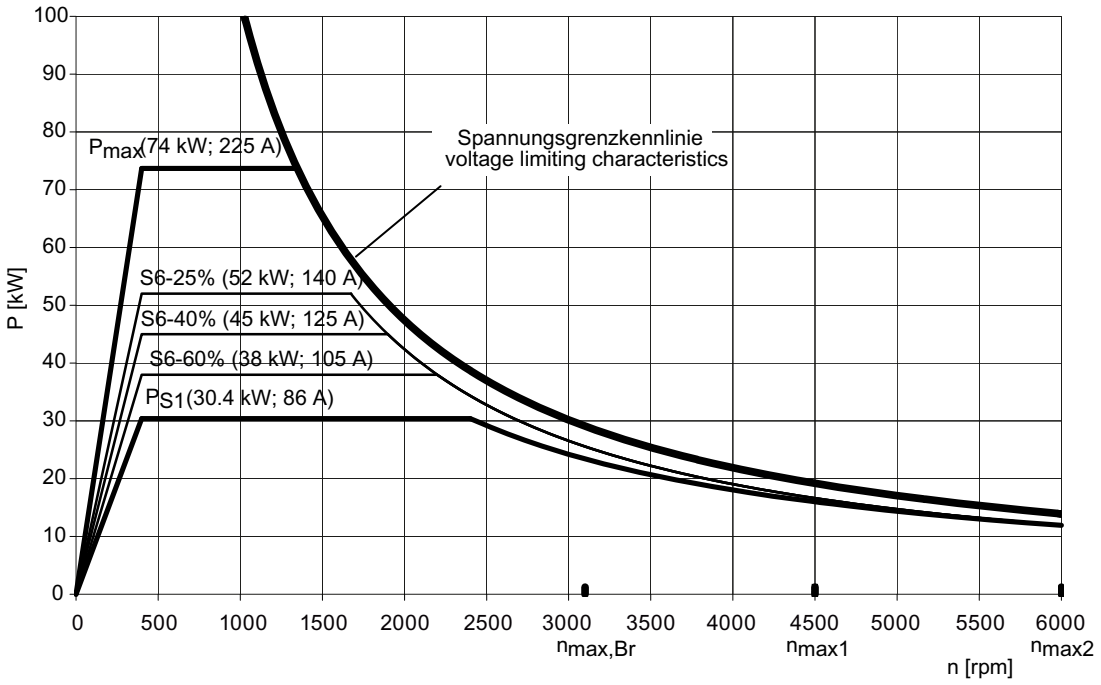




4.1.2.7 Shaft height 225 - forced ventilation

Table 4- 220 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	30.4	726	86	4500	6000	-	3100	2400	1760	225	726	86



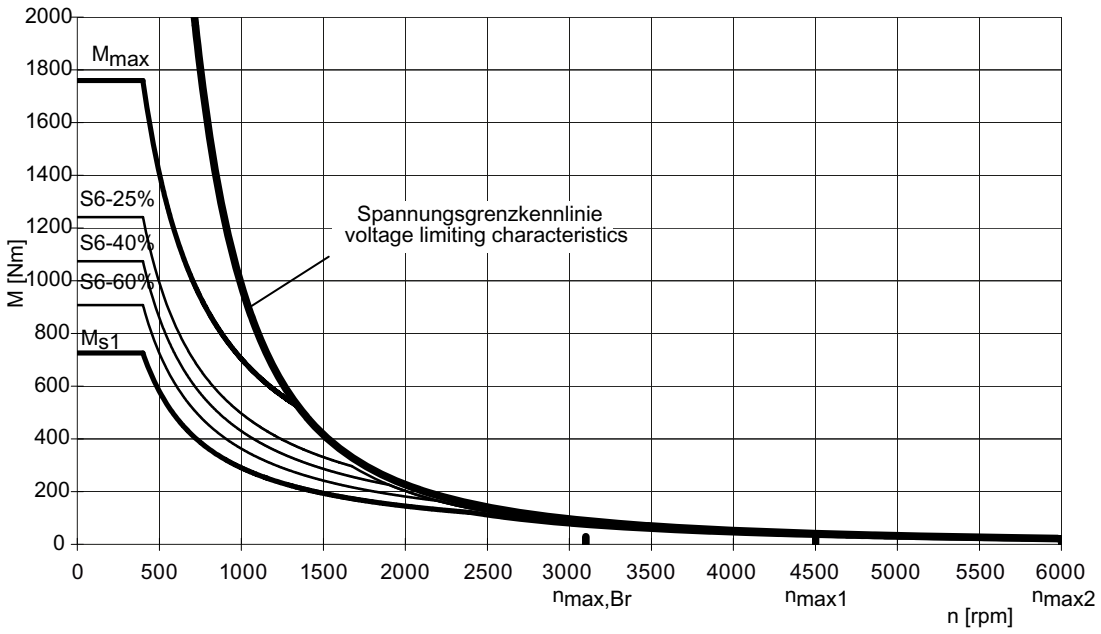
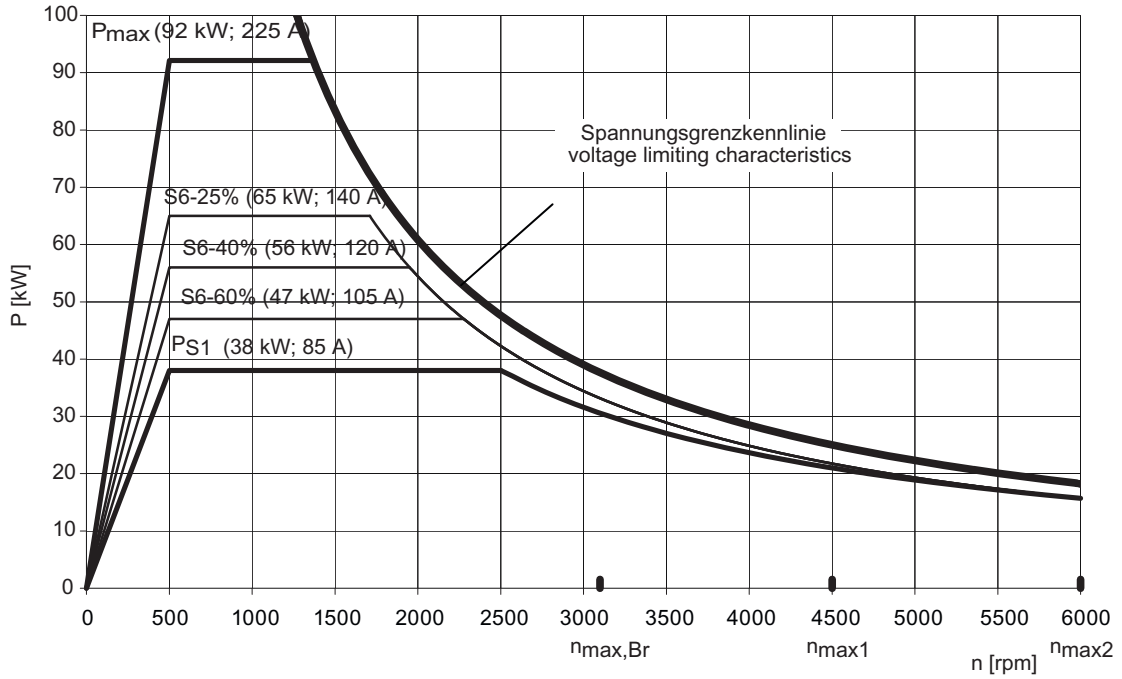


Table 4- 221 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	38	726	85	4500	6000	-	3100	2500	1760	225	726	85
400	30	726	86					3100				



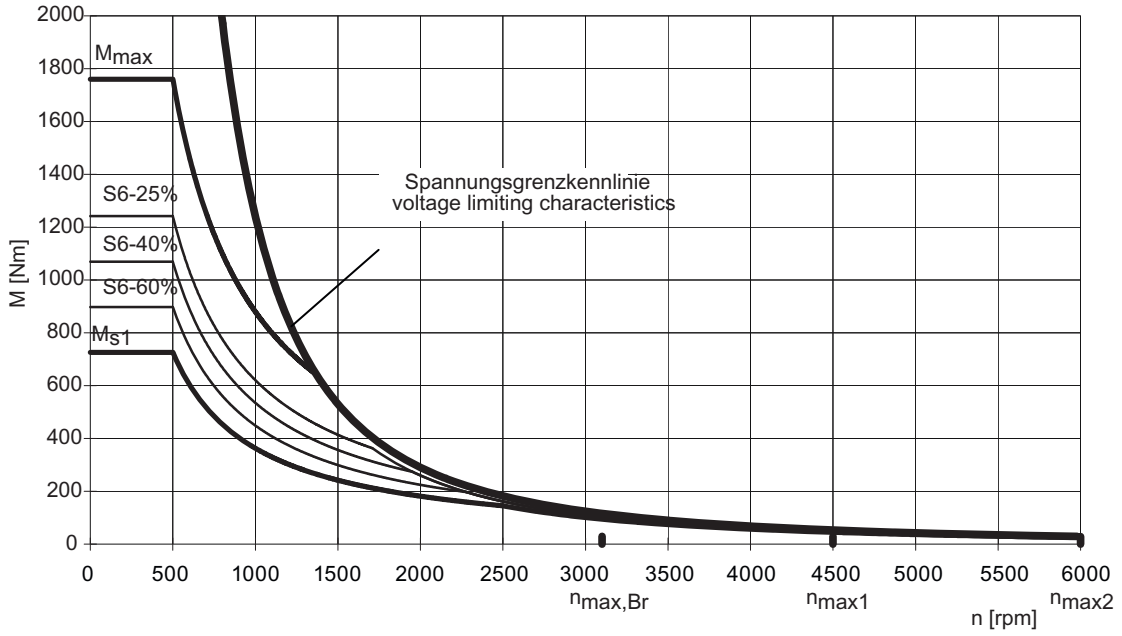
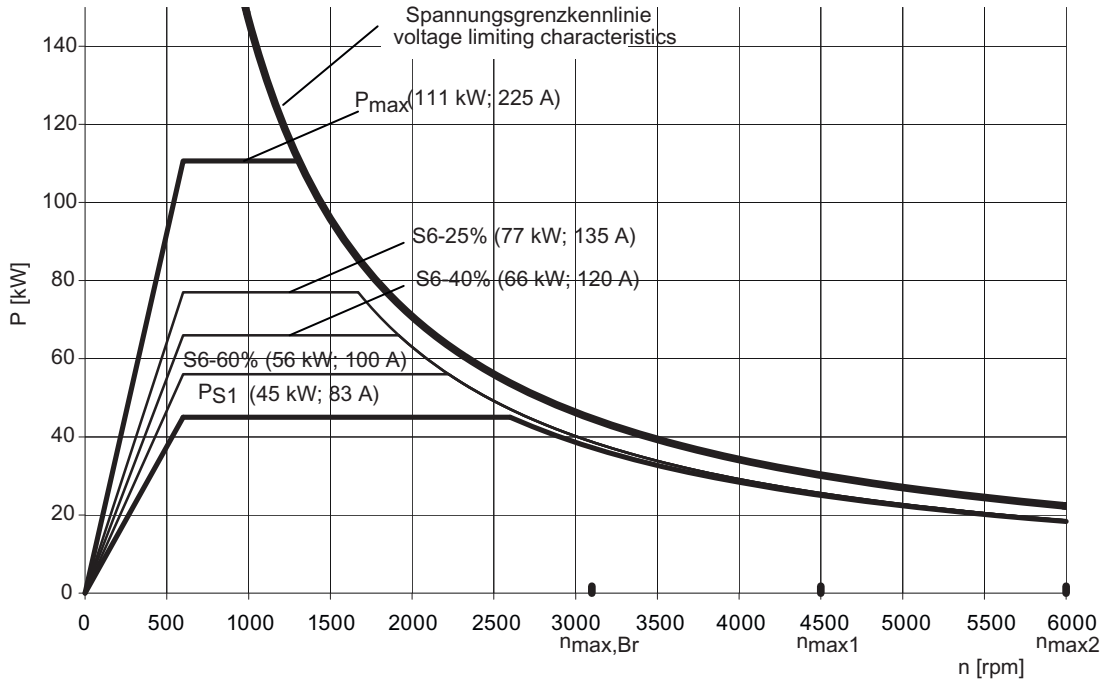


Table 4- 222 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	45	716	83	4500	6000	-	3100	2600	1760	225	716	83



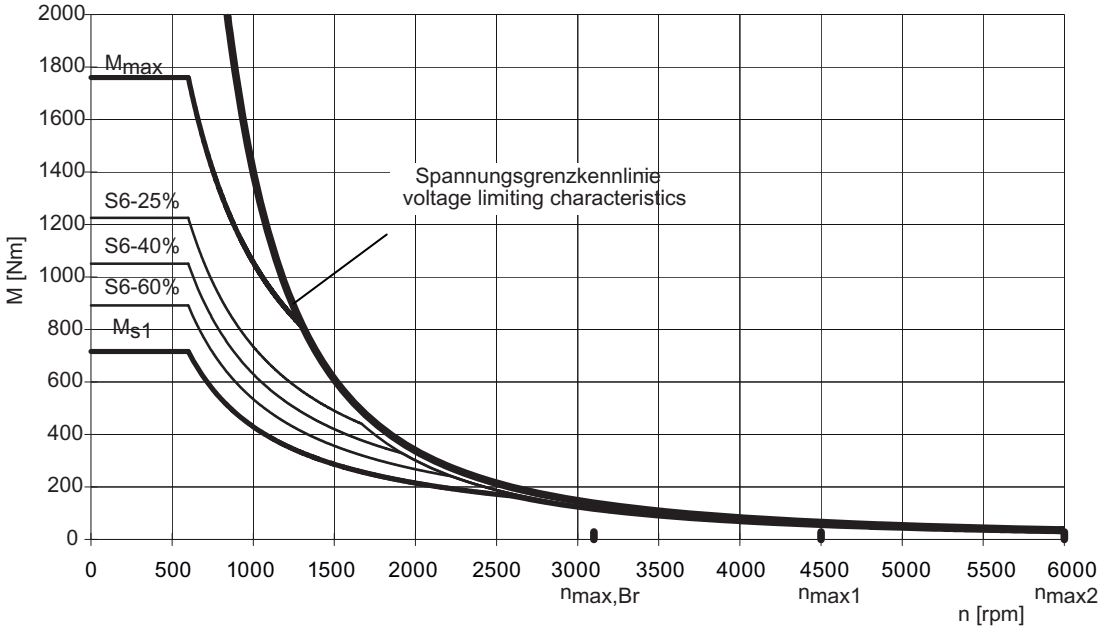
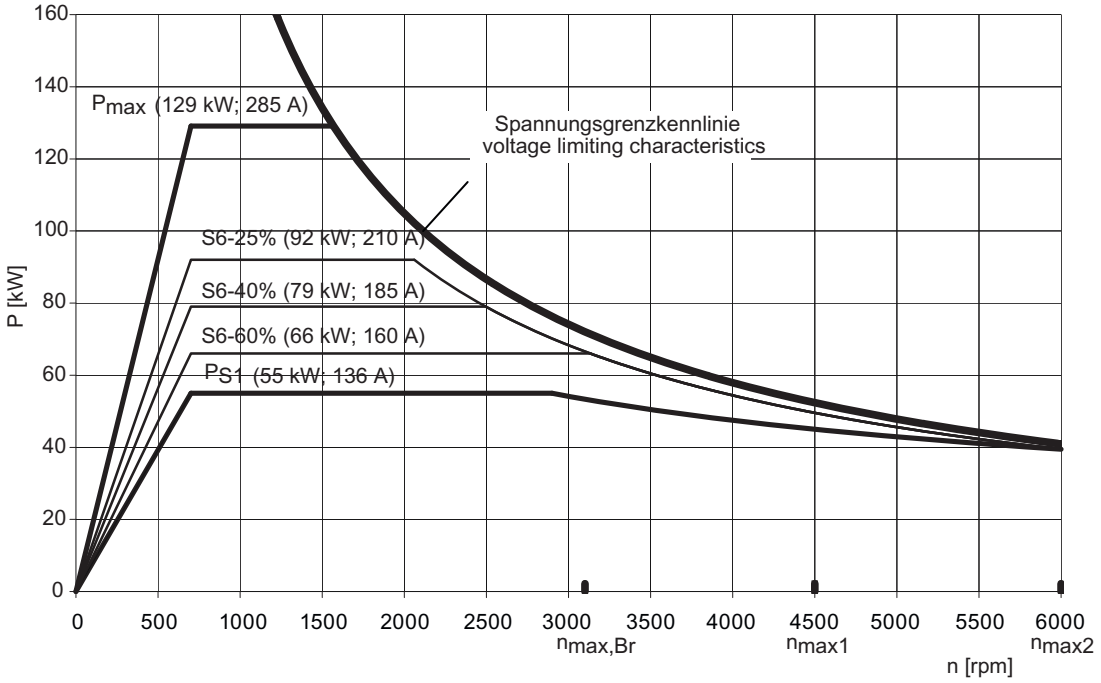


Table 4- 223 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	55	750	136	4500	6000	-	3100	2900	1760	285	750	136



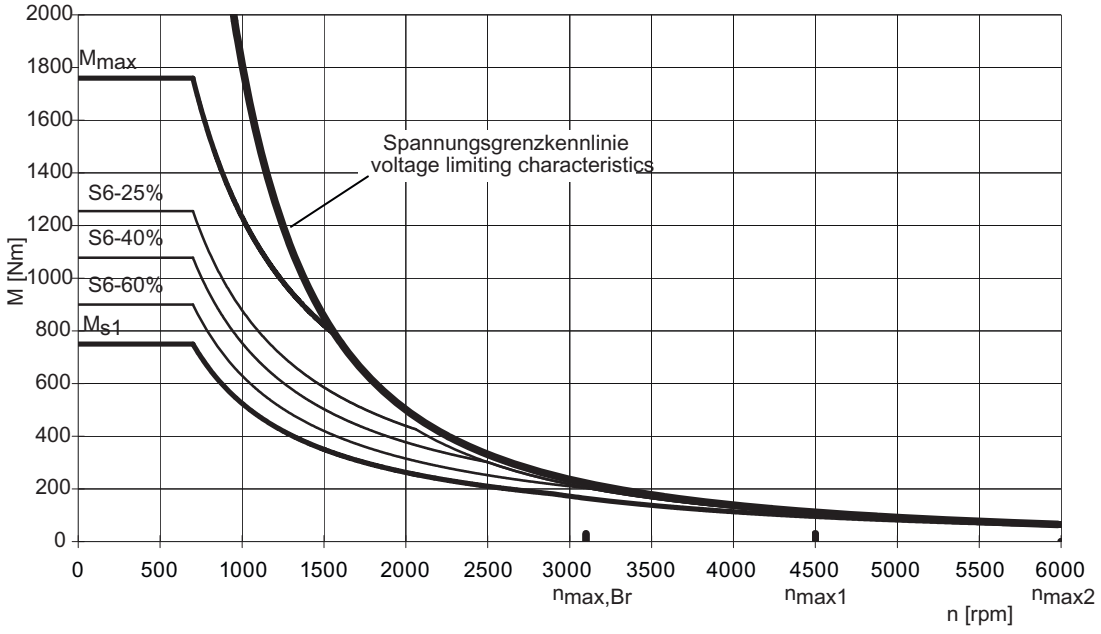
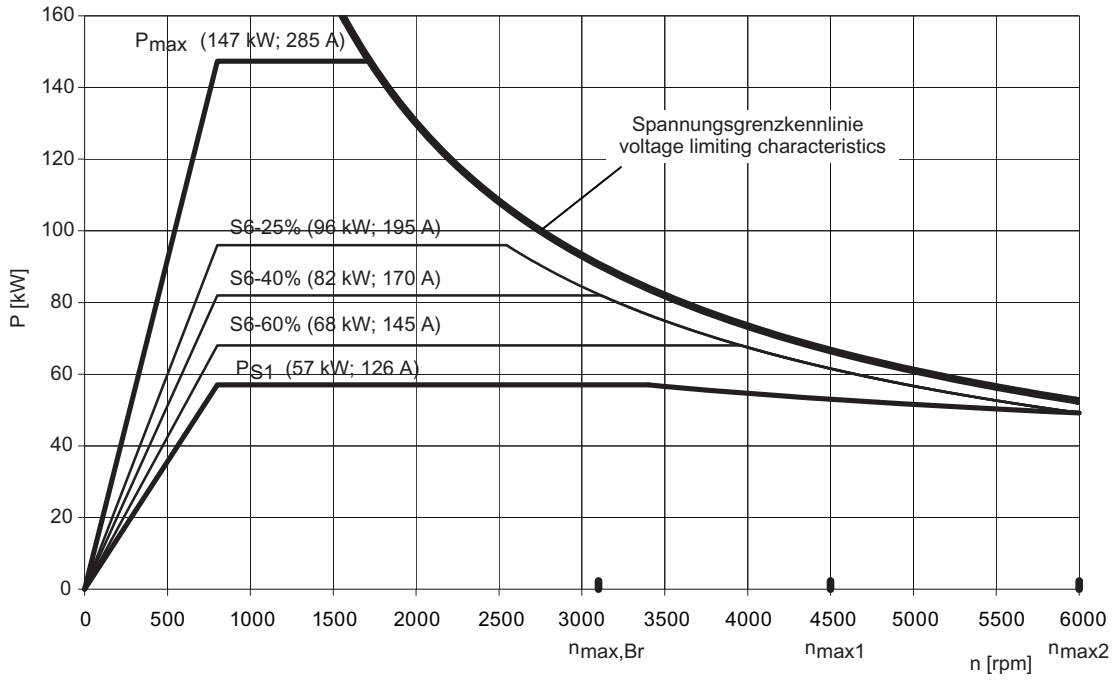


Table 4- 224 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	57	681	126	4500	6000	-	3100	3400	1760	285	681	126
700	55	750	136					3900				



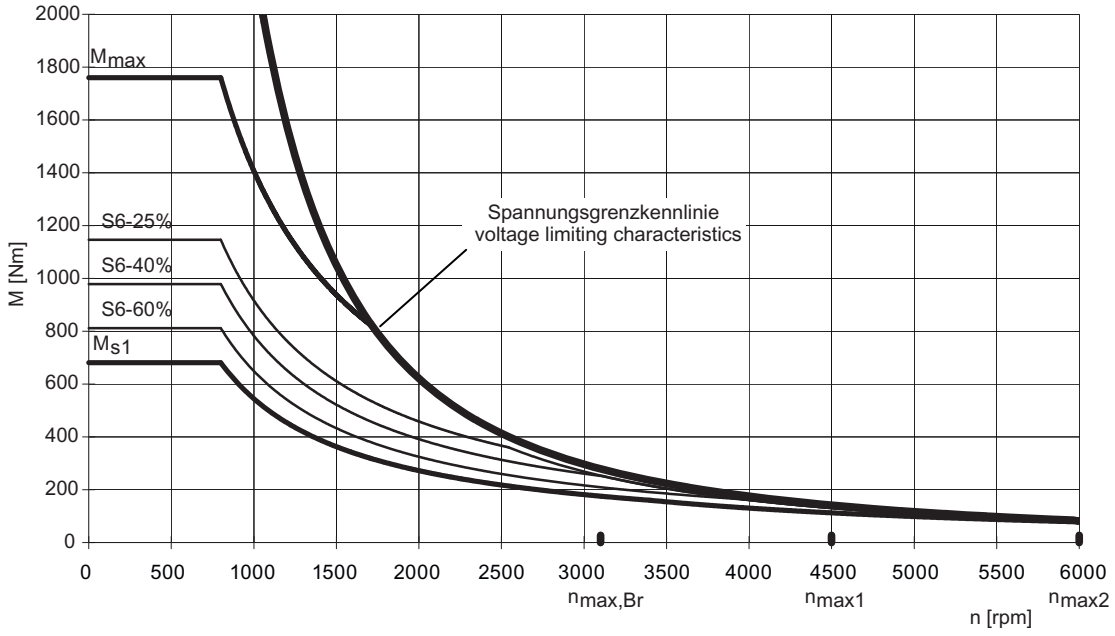
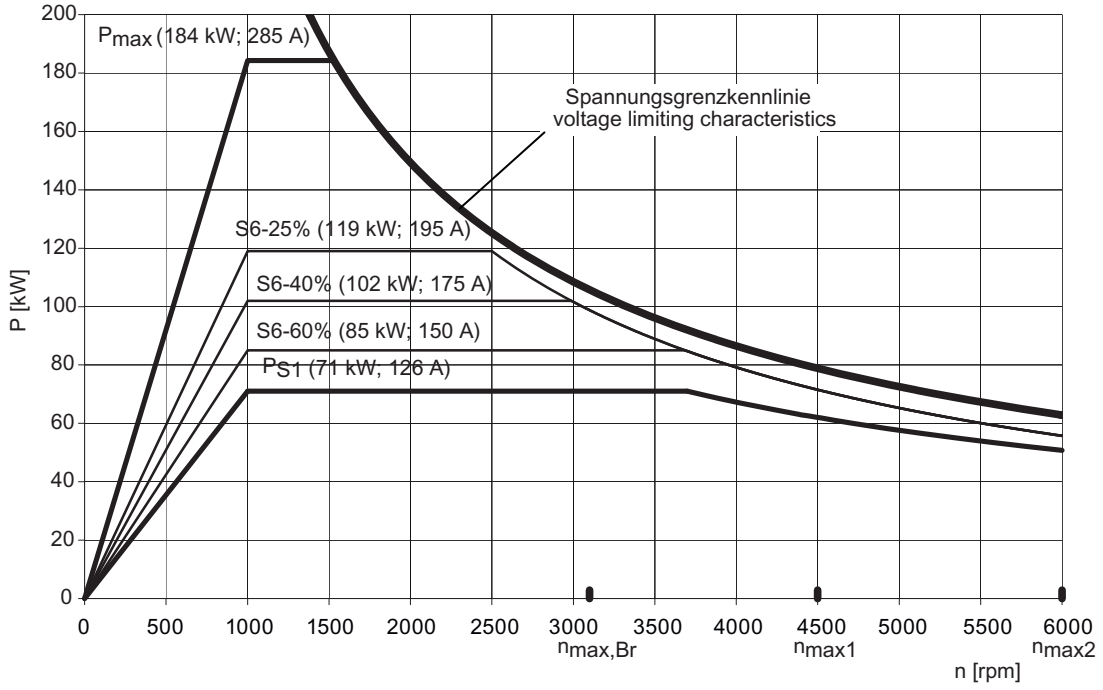


Table 4- 225 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	71	678	126	4500	6000	-	3100	3700	1760	185	678	126



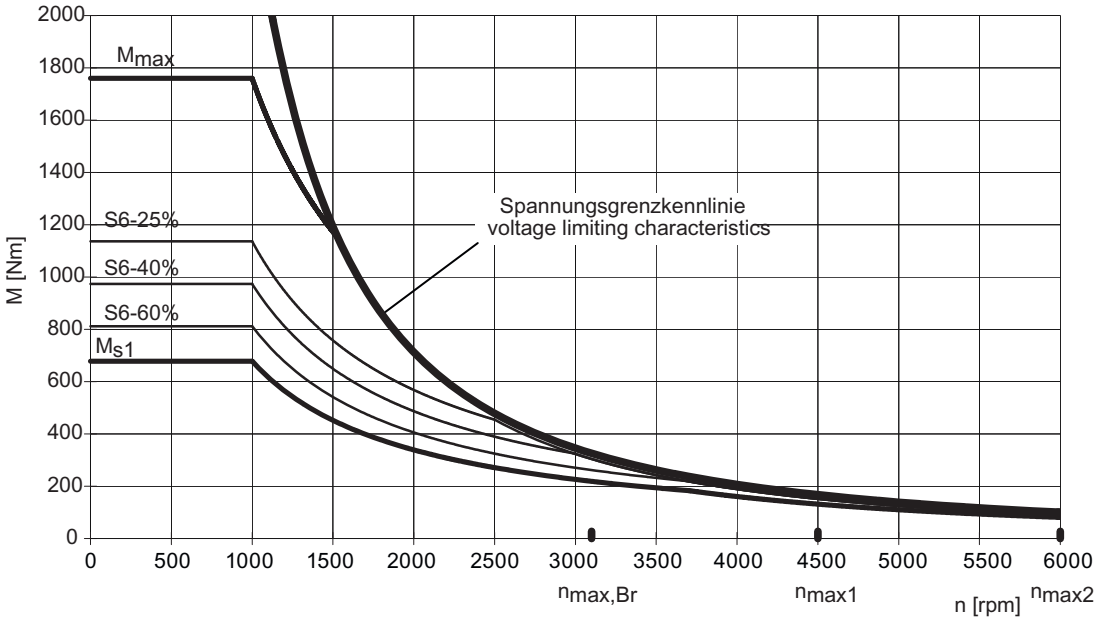
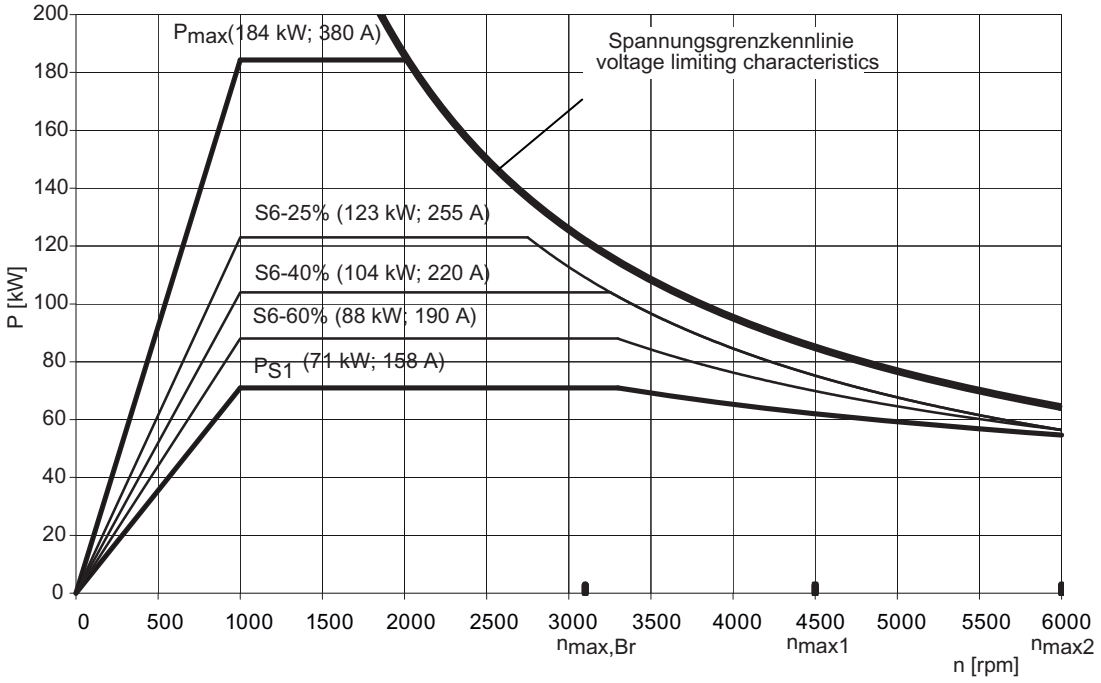


Table 4- 226 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	71	678	158	4500	6000	-	3100	3300	1760	380	678	158



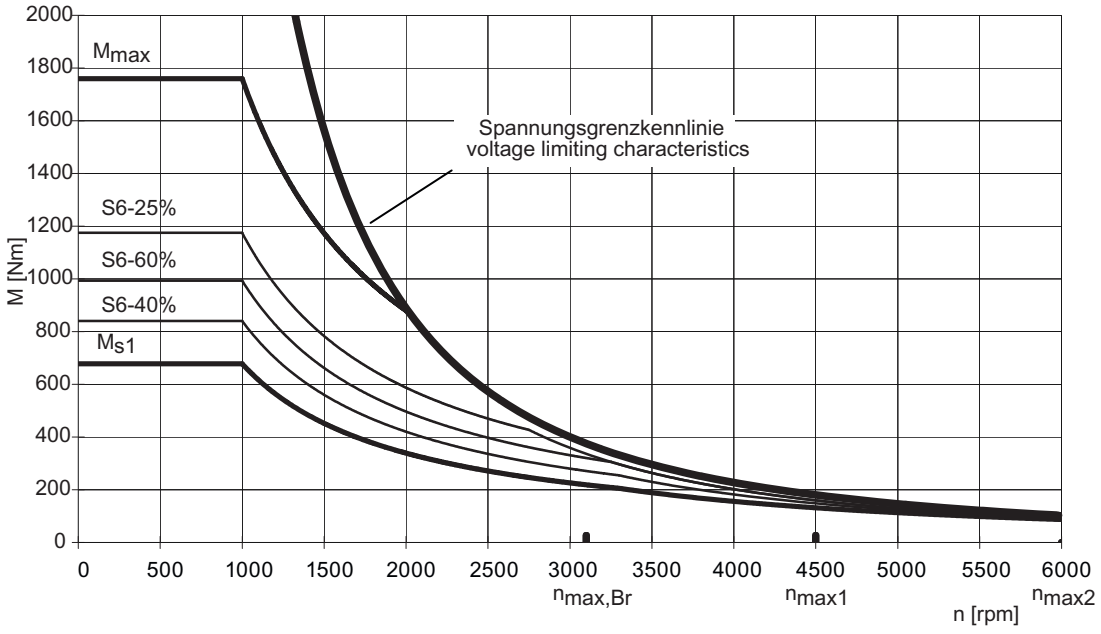
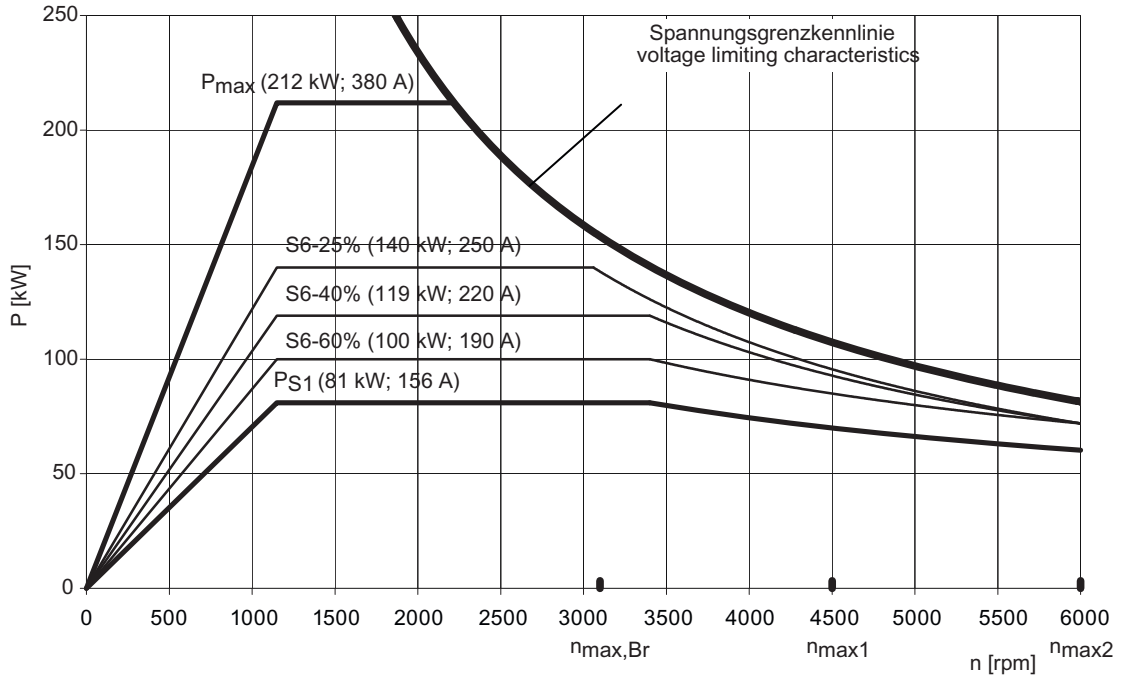


Table 4- 227 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	81	673	156	4500	6000	-	3100	3400	1760	380	673	156
1000	71	678	158					4400				



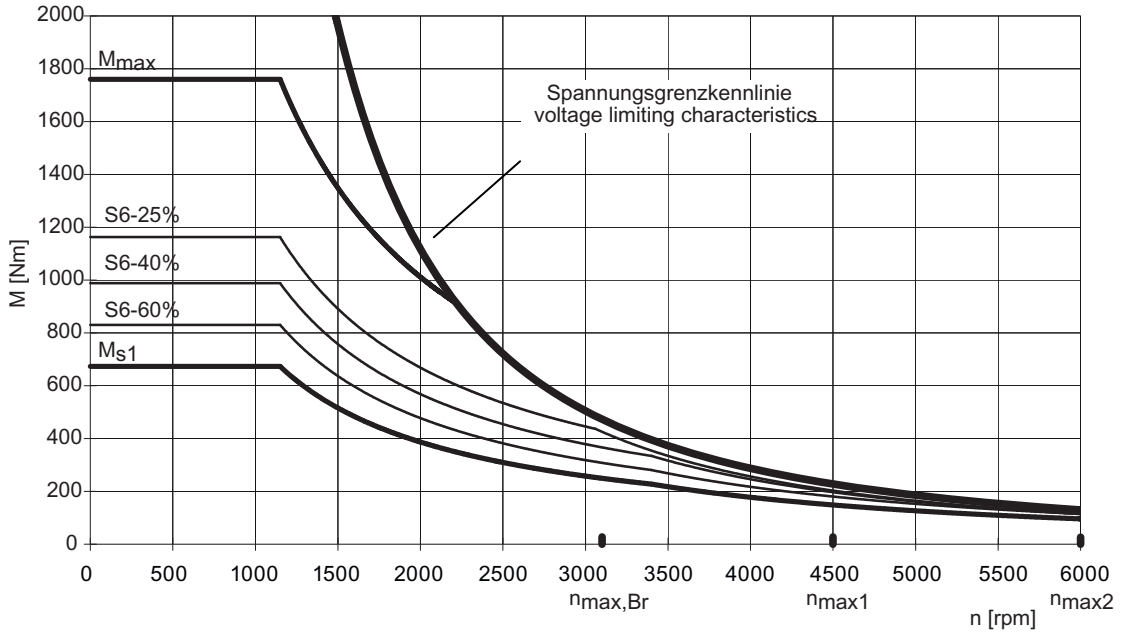
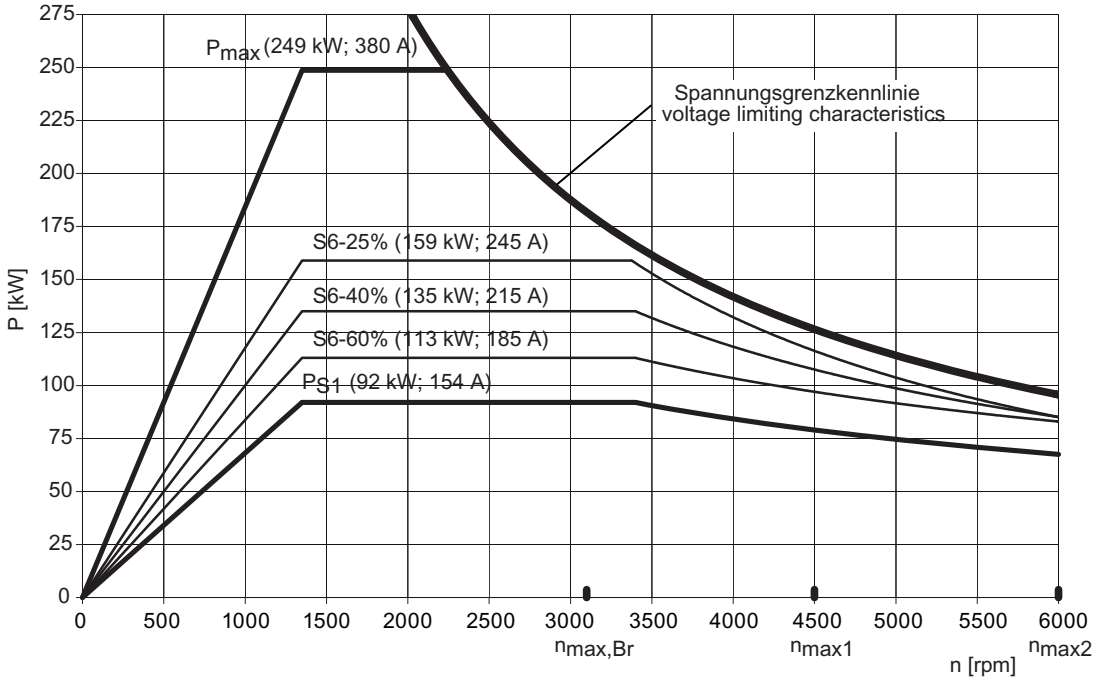


Table 4- 228 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	92	651	154	4500	6000	-	3100	3400	1760	380	651	154



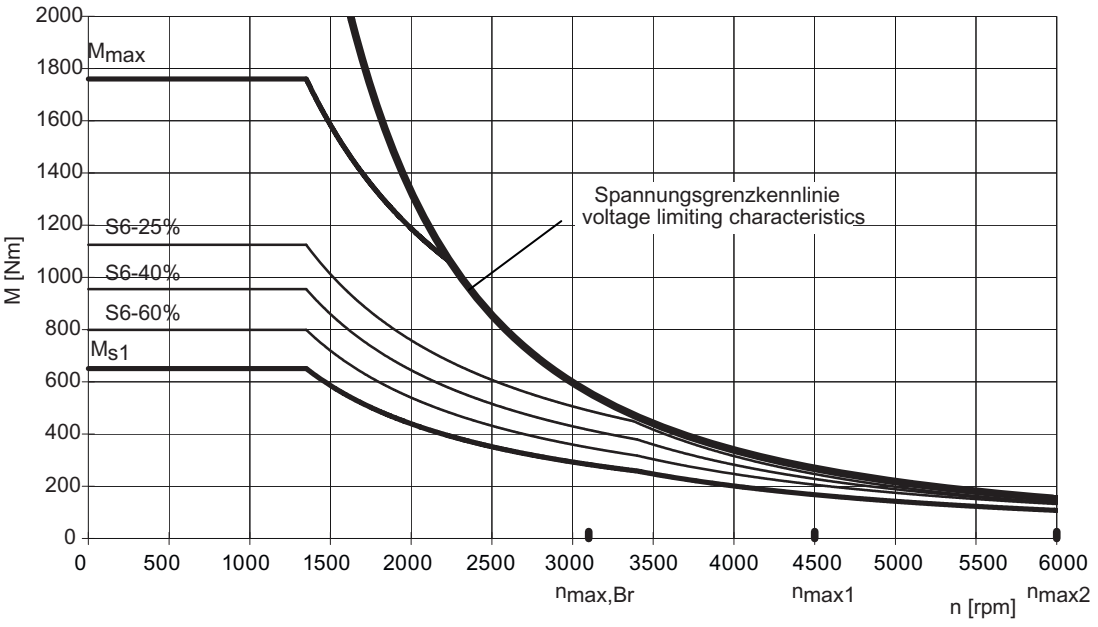
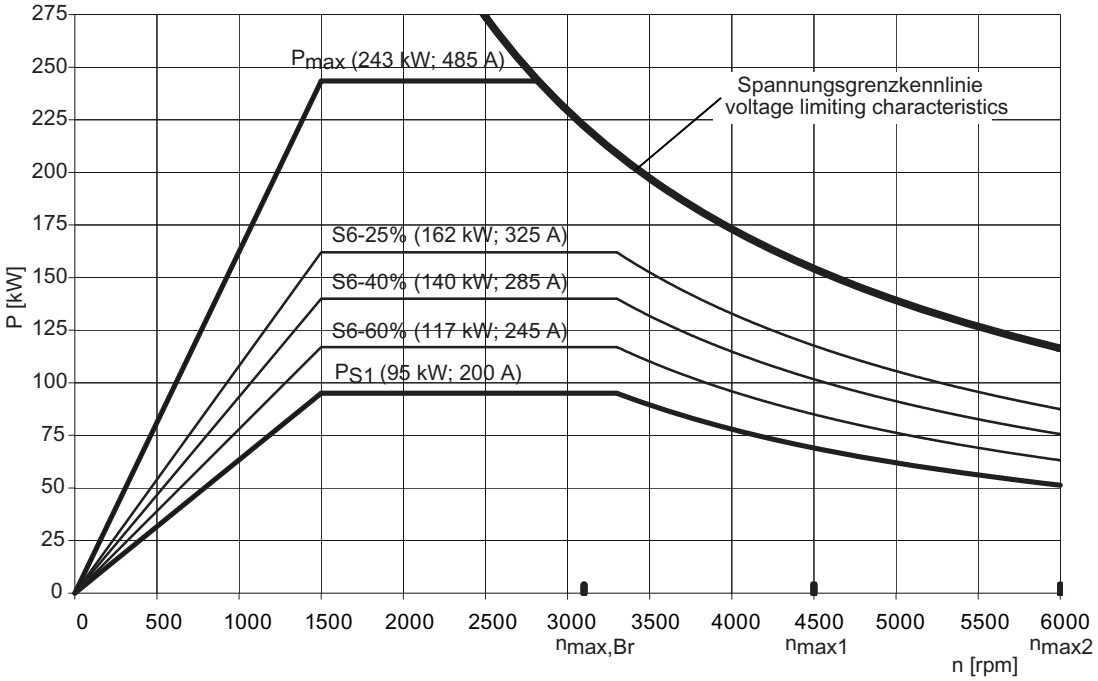


Table 4- 229 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	95	605	200	4500	6000	-	3100	3300	1550	485	605	200



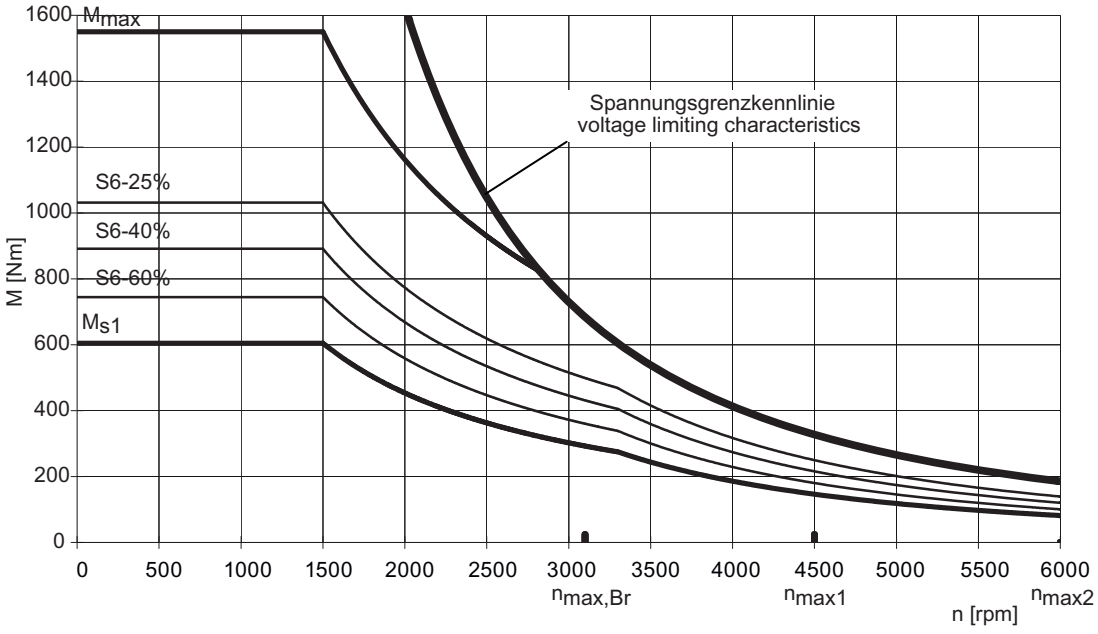
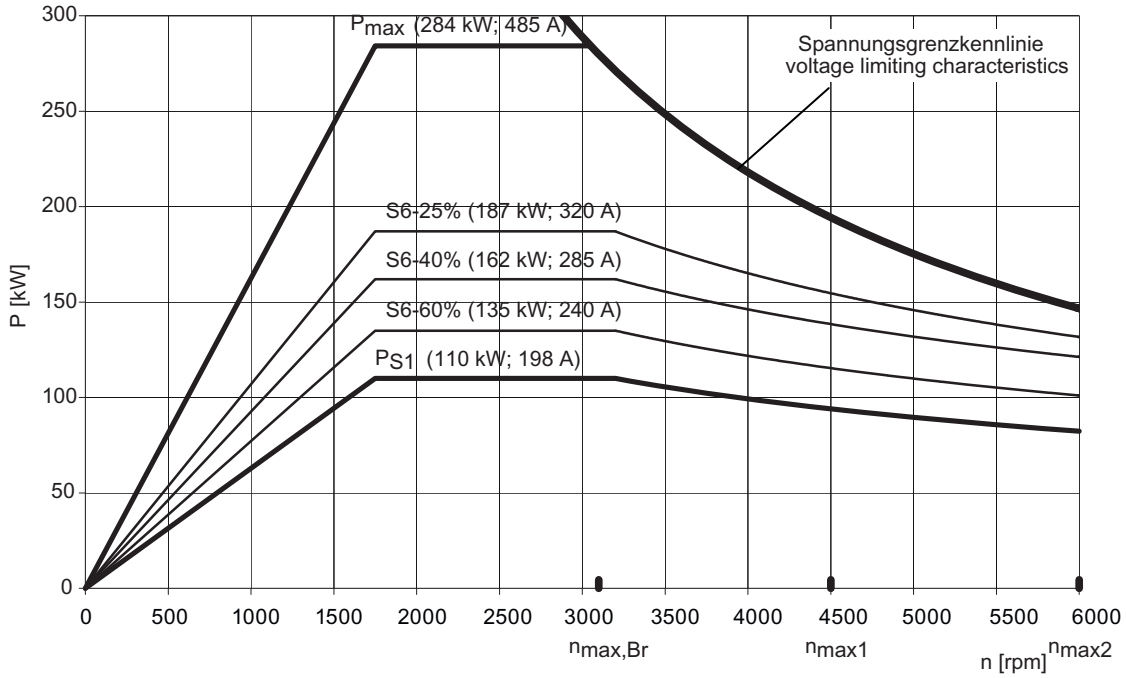


Table 4- 230 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	110	600	198	4500	6000	-	3100	3200	1550	485	600	198
1500	95	605	200					4400				



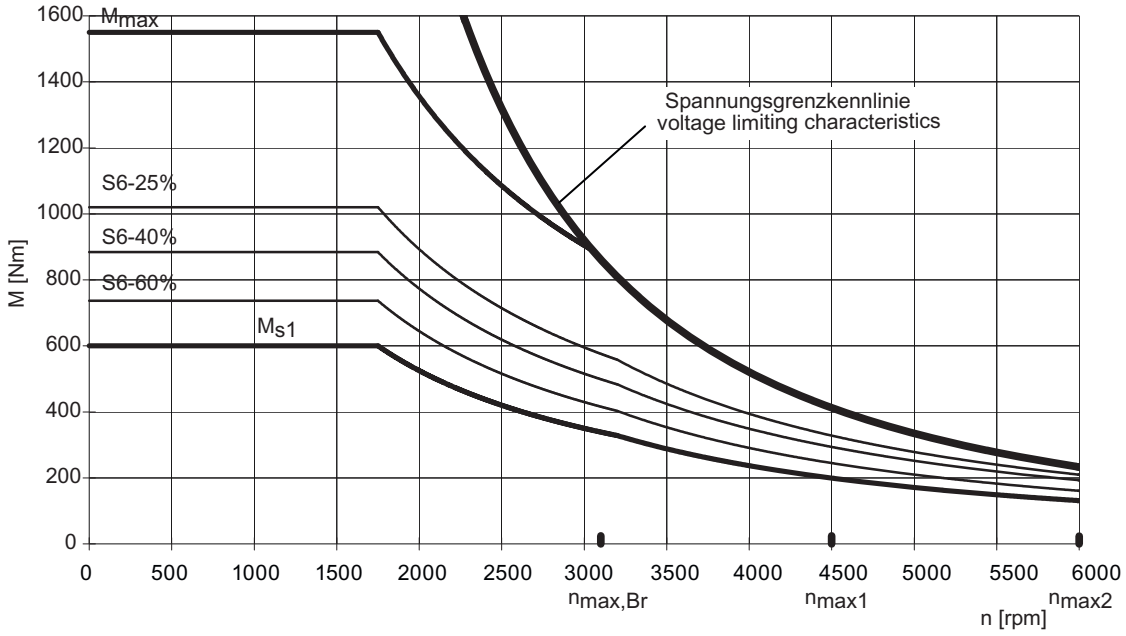
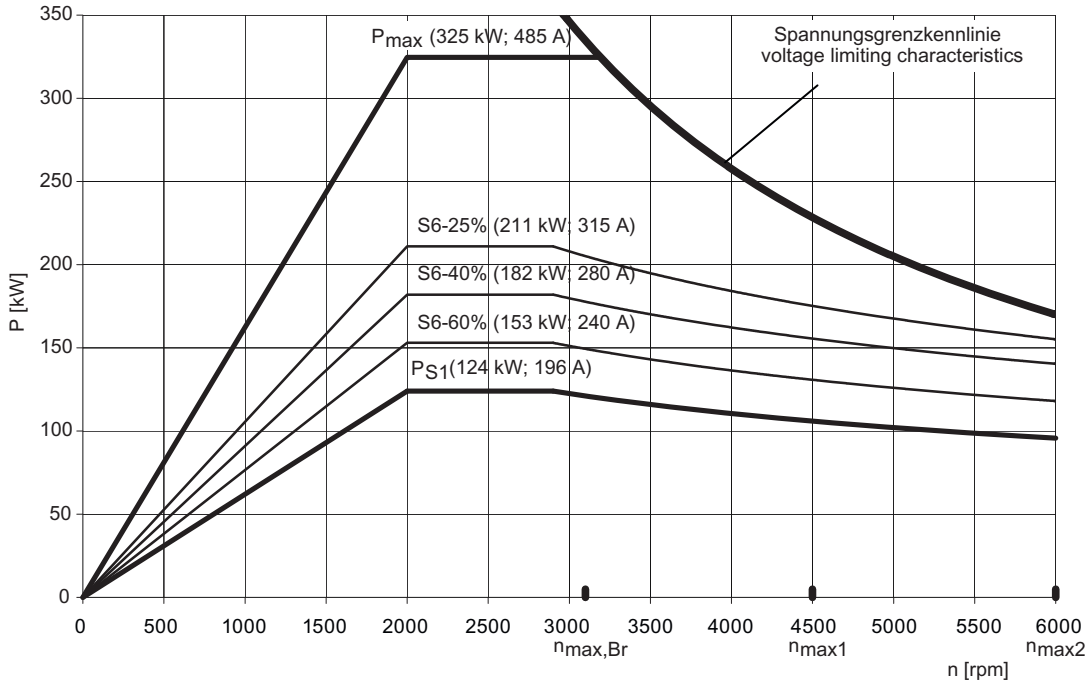


Table 4- 231 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	124	592	196	4500	6000	-	3100	2900	1550	485	592	196



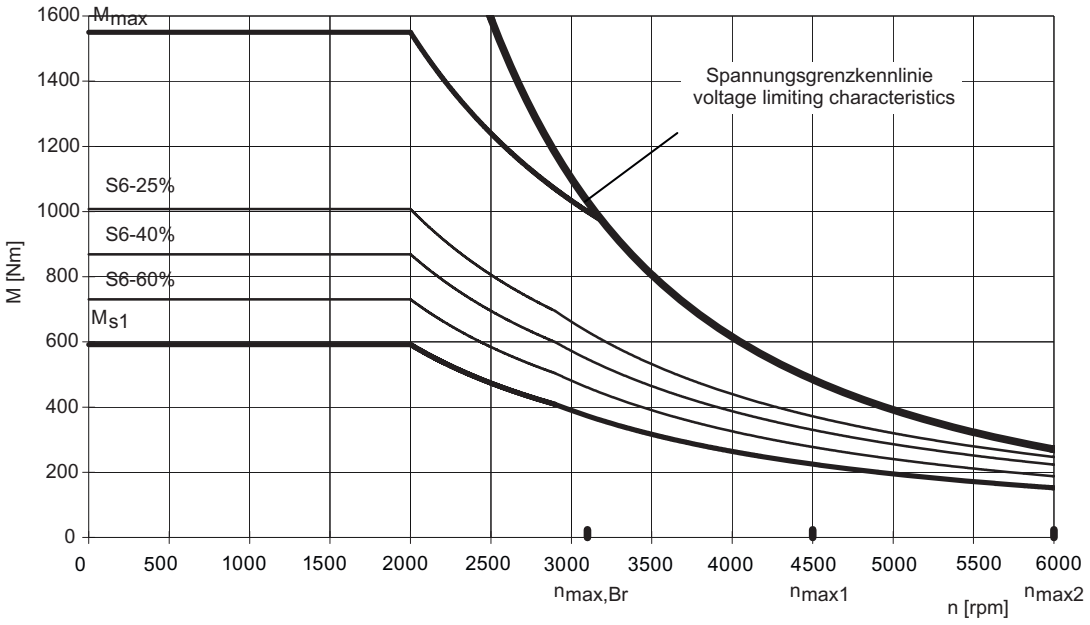
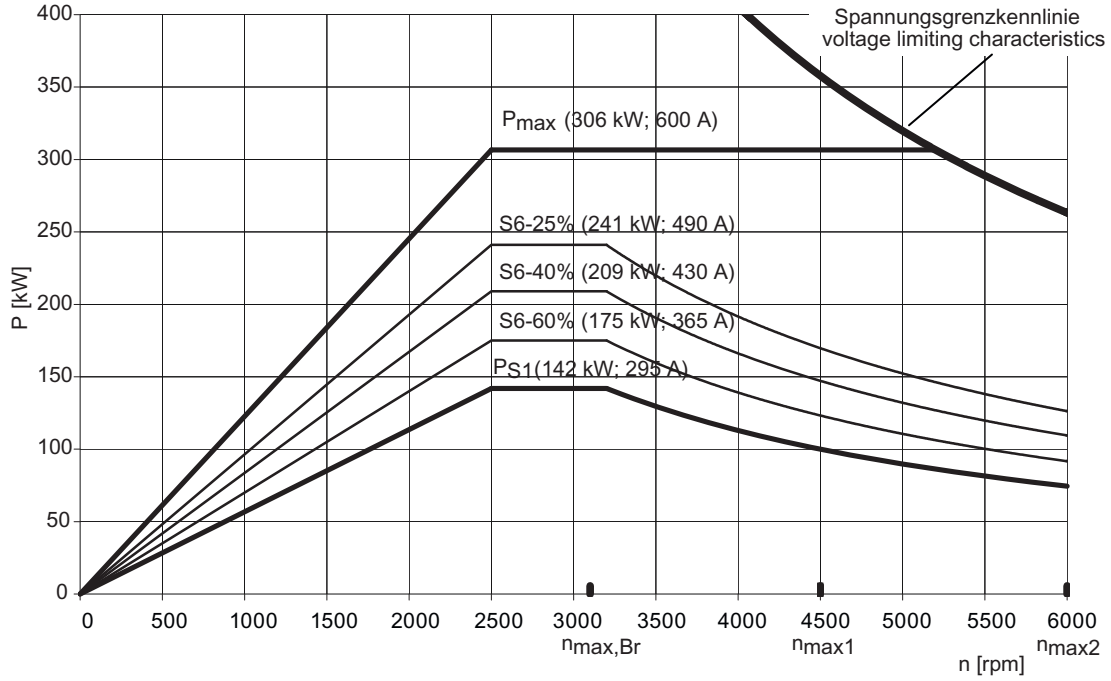


Table 4- 232 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	142	542	295	4500	6000	-	3100	3200	1170	600	542	295



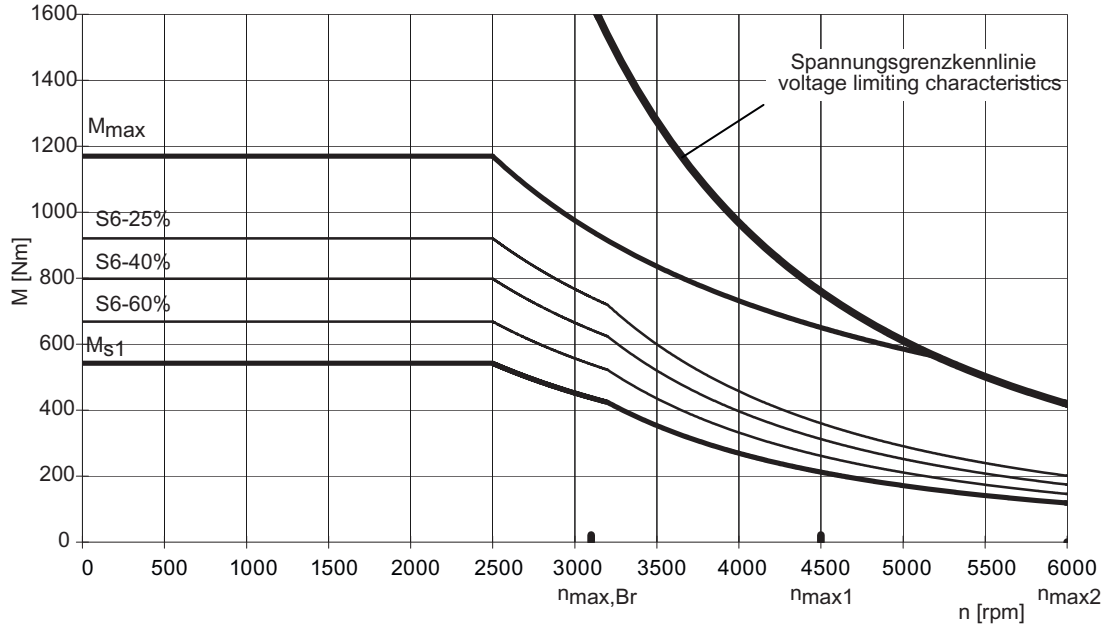
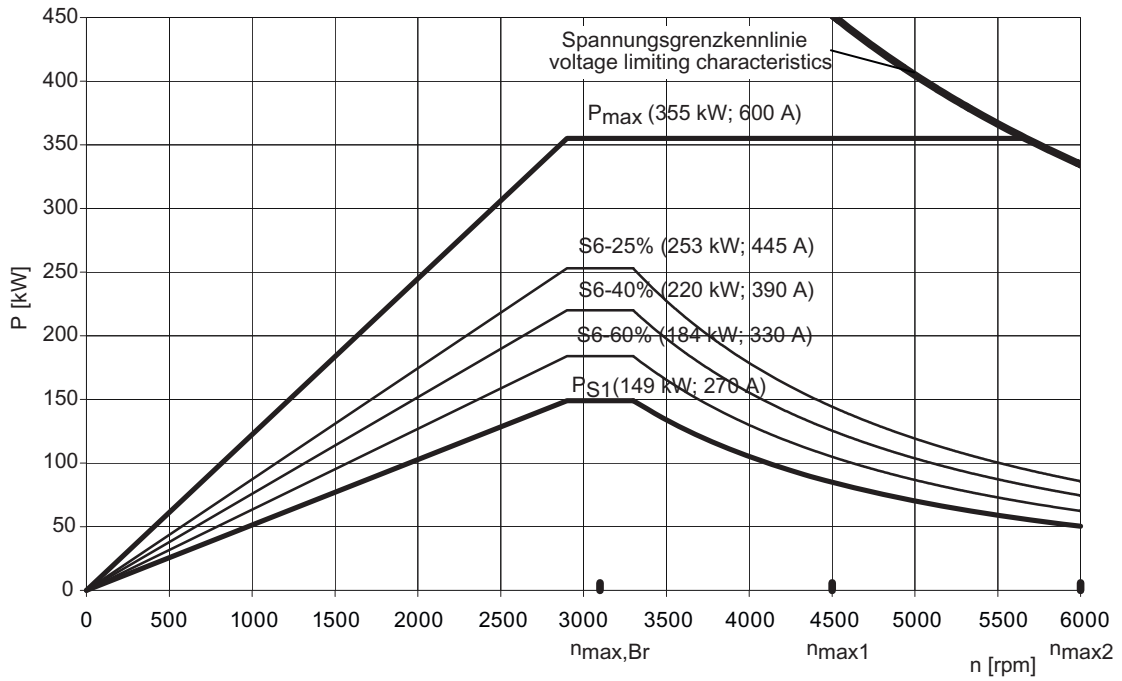


Table 4- 233 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	149	491	270	4500	6000	-	3100	3300	1170	600	491	270
2500	142	542	295					3400				



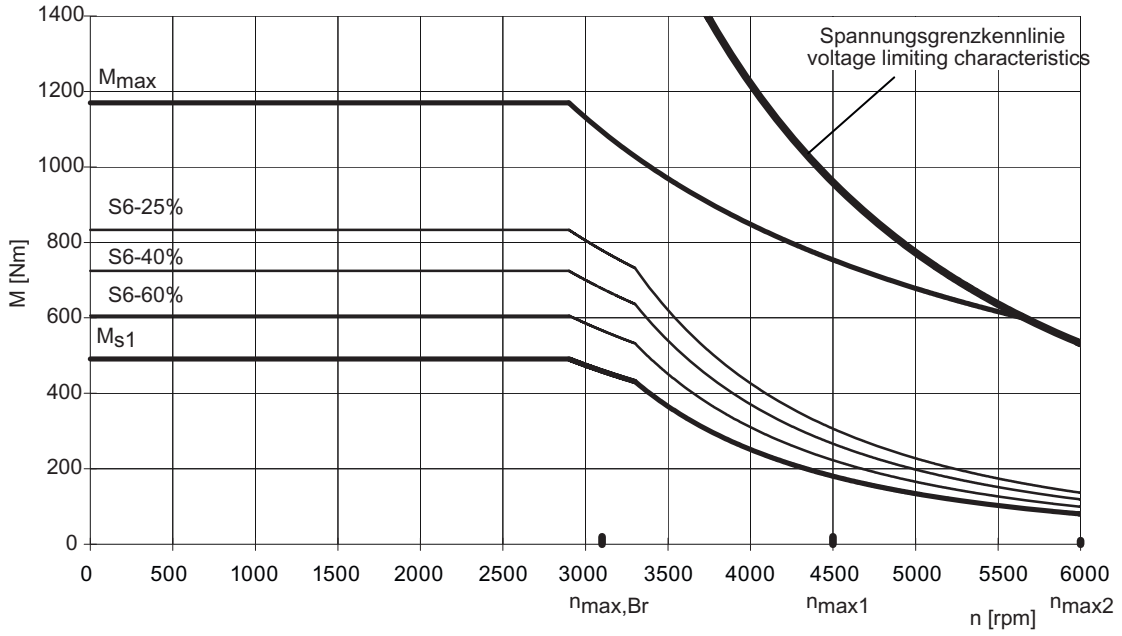
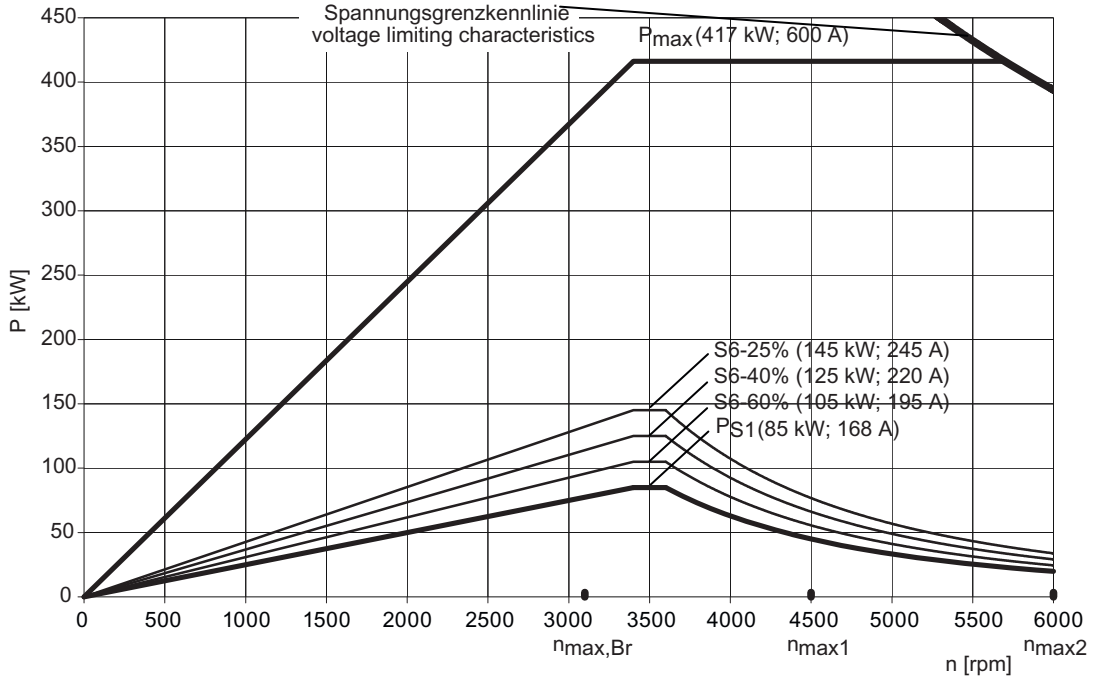


Table 4- 234 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	85	239	168	4500	6000	-	3100	3600	1170	600	239	168



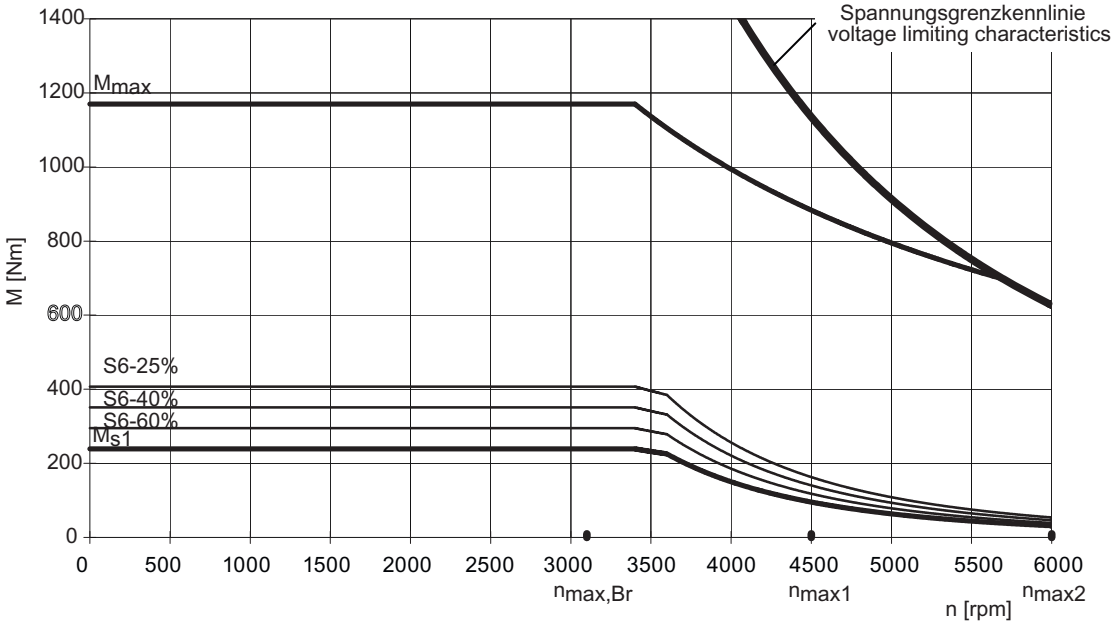
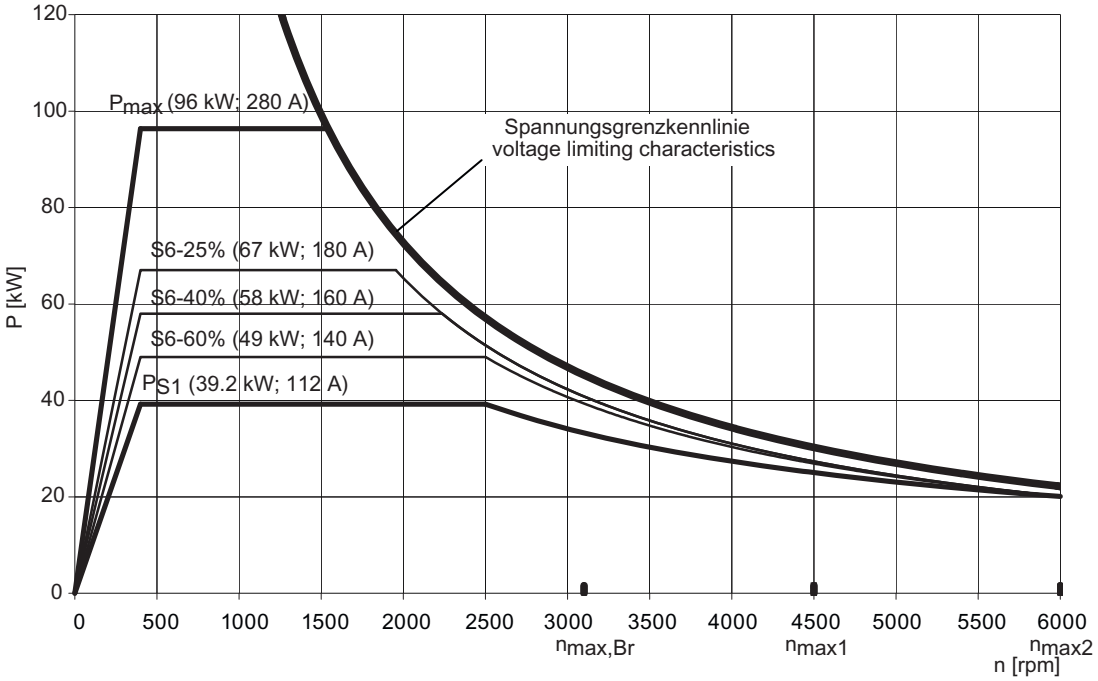


Table 4- 235 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	39.2	936	112	4500	6000	-	3100	2500	2300	280	936	112



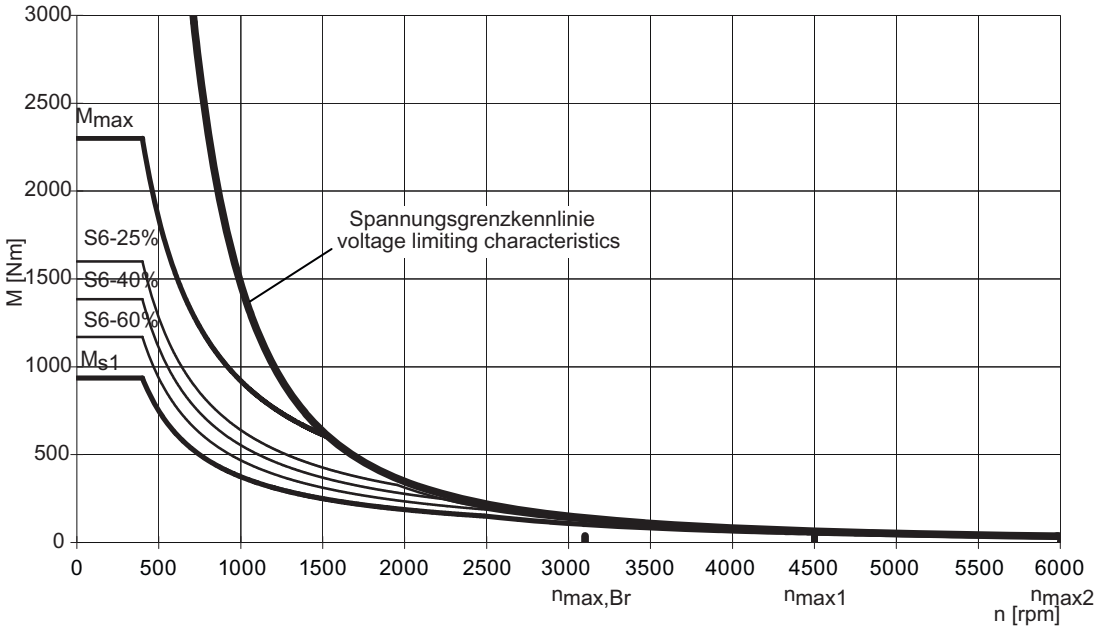
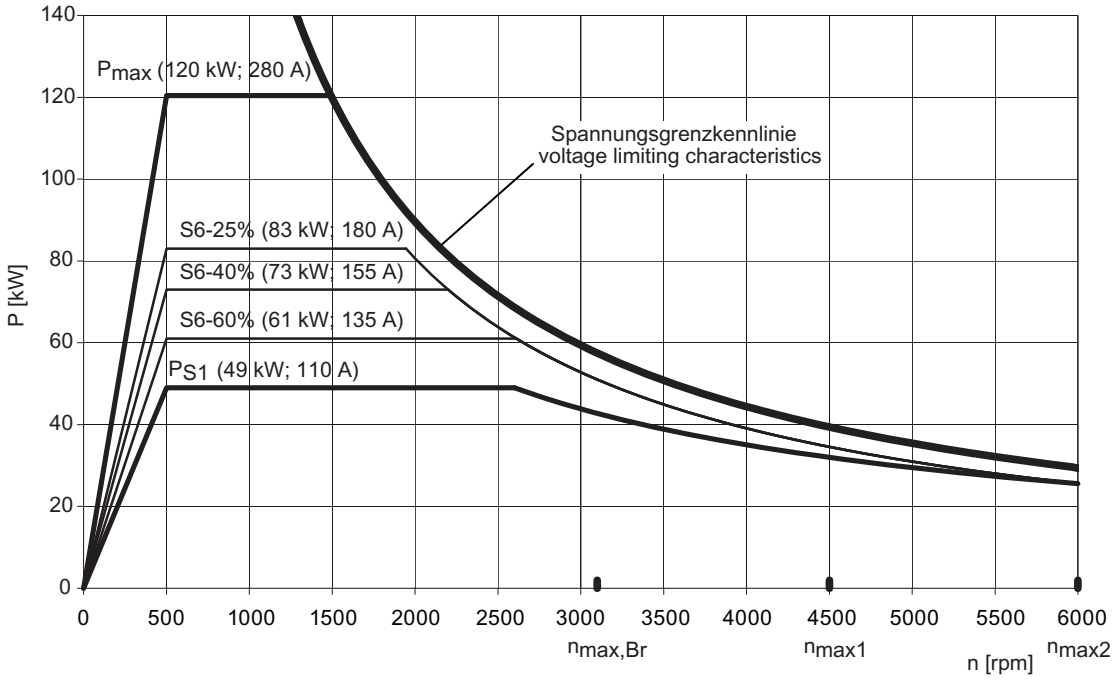


Table 4- 236 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	49	936	110	4500	6000	-	3100	2600	2300	280	936	110
400	39	936	112					3500				



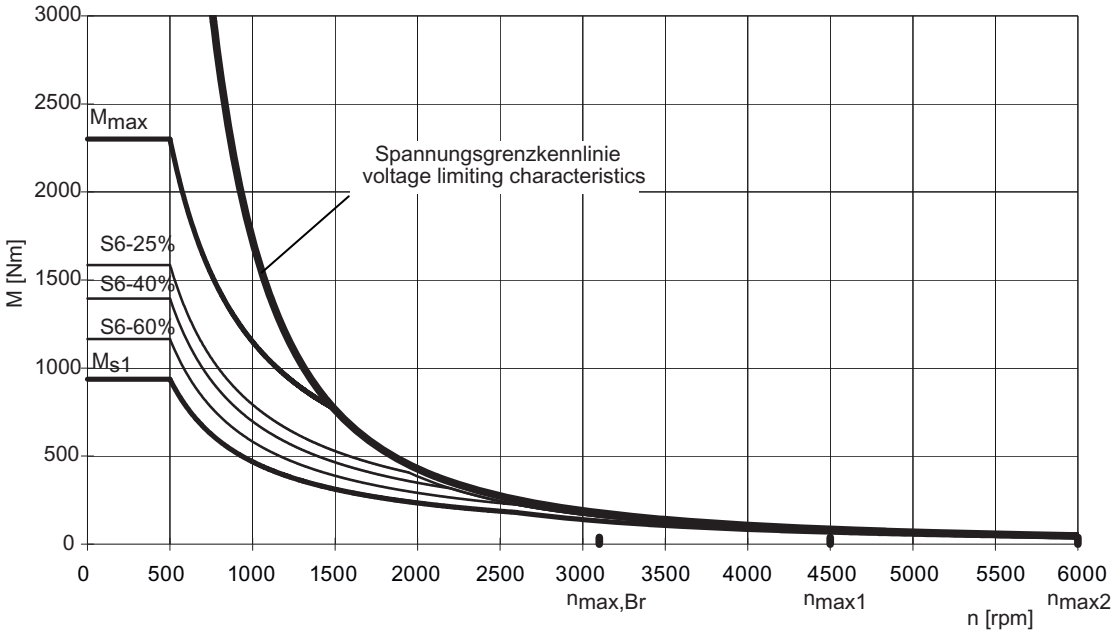
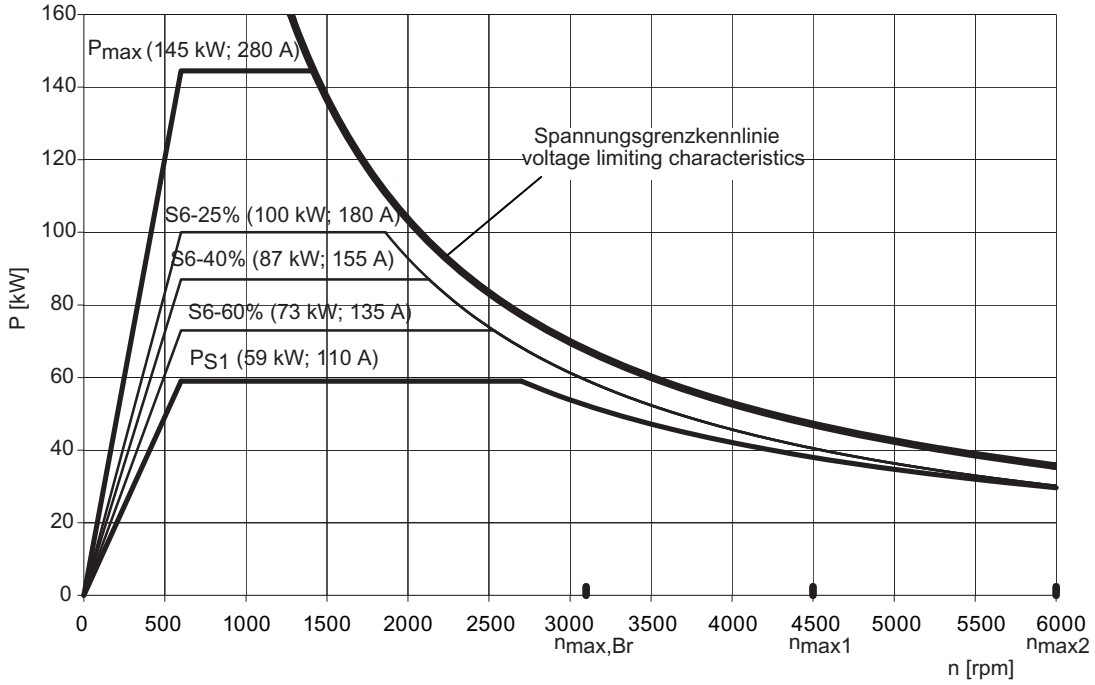


Table 4- 237 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	59	939	110	4500	6000	-	3100	2700	2300	280	939	110



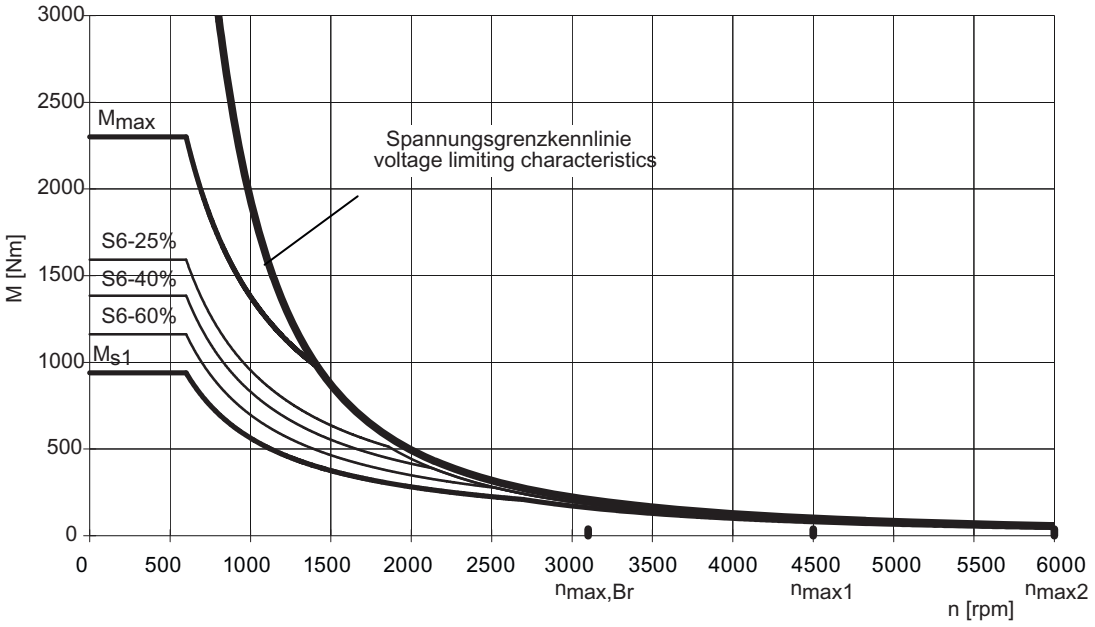
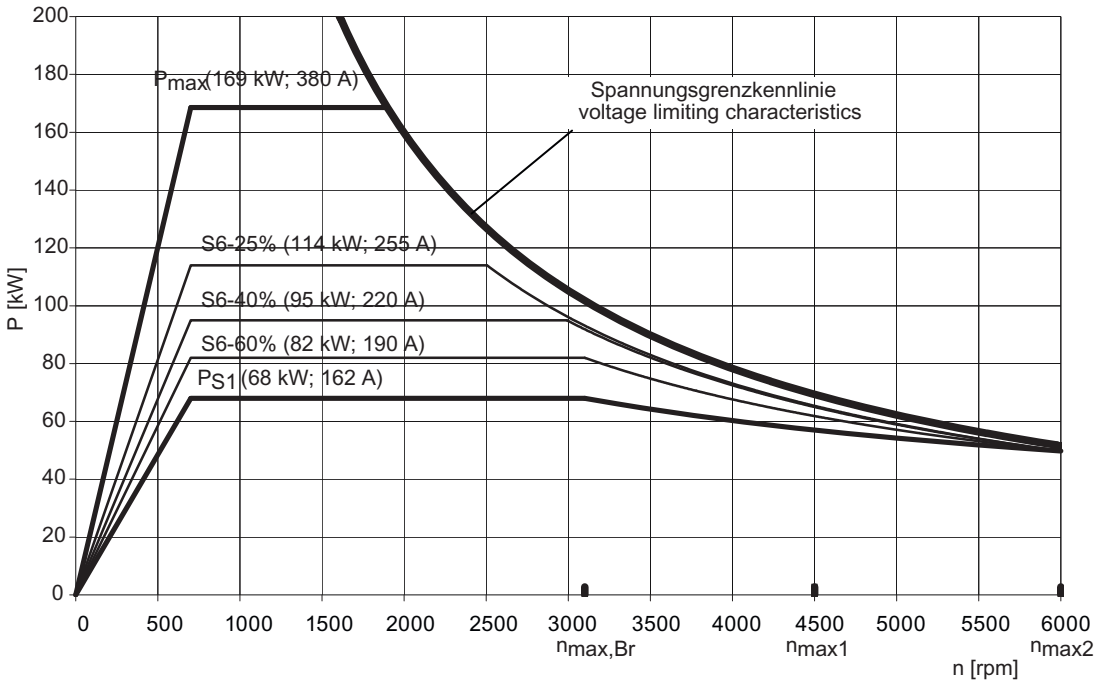


Table 4- 238 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	68	928	162	4500	6000	-	3100	3100	2300	380	928	162



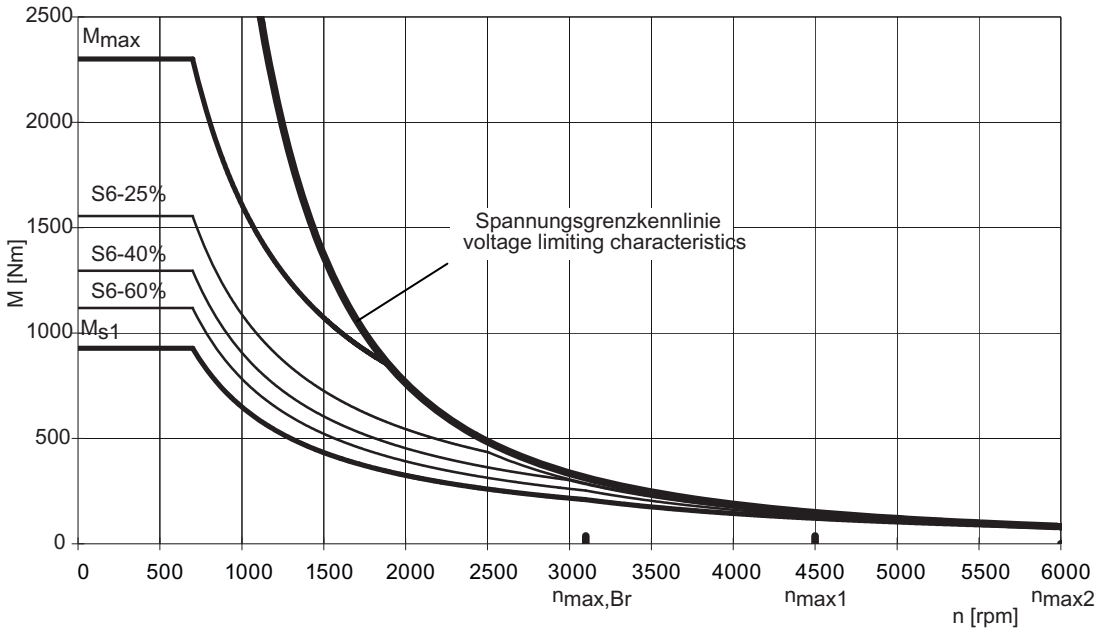
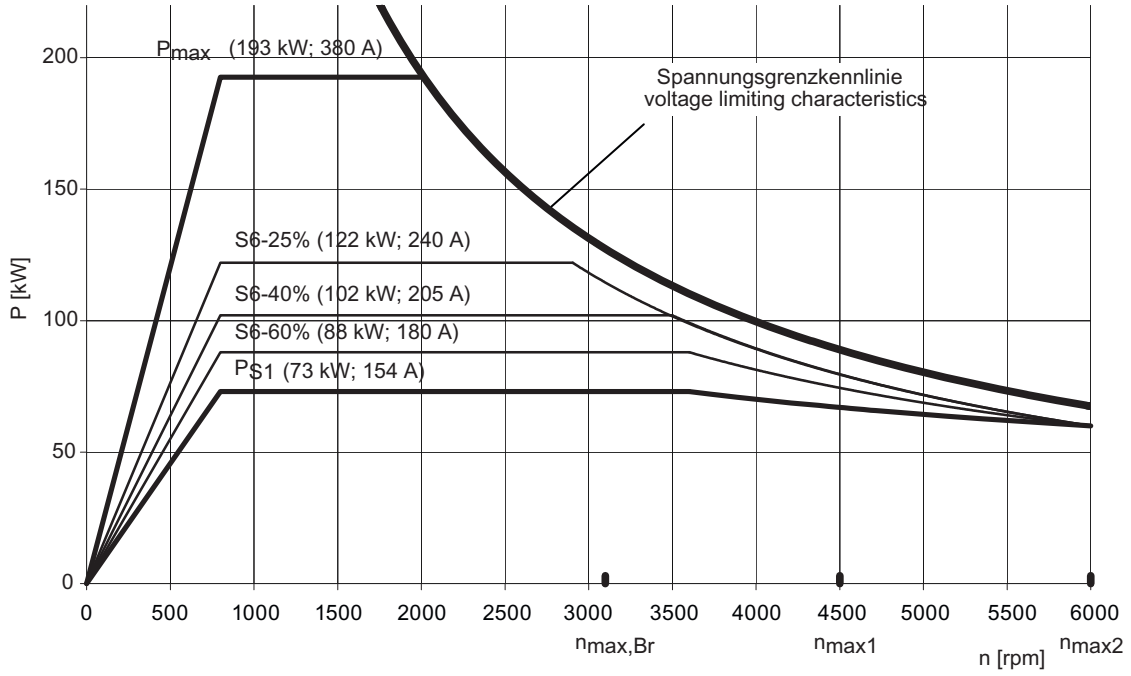


Table 4- 239 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	73	872	154	4500	6000	-	3100	3600	2300	380	872	154
700	68	928	162					4300				



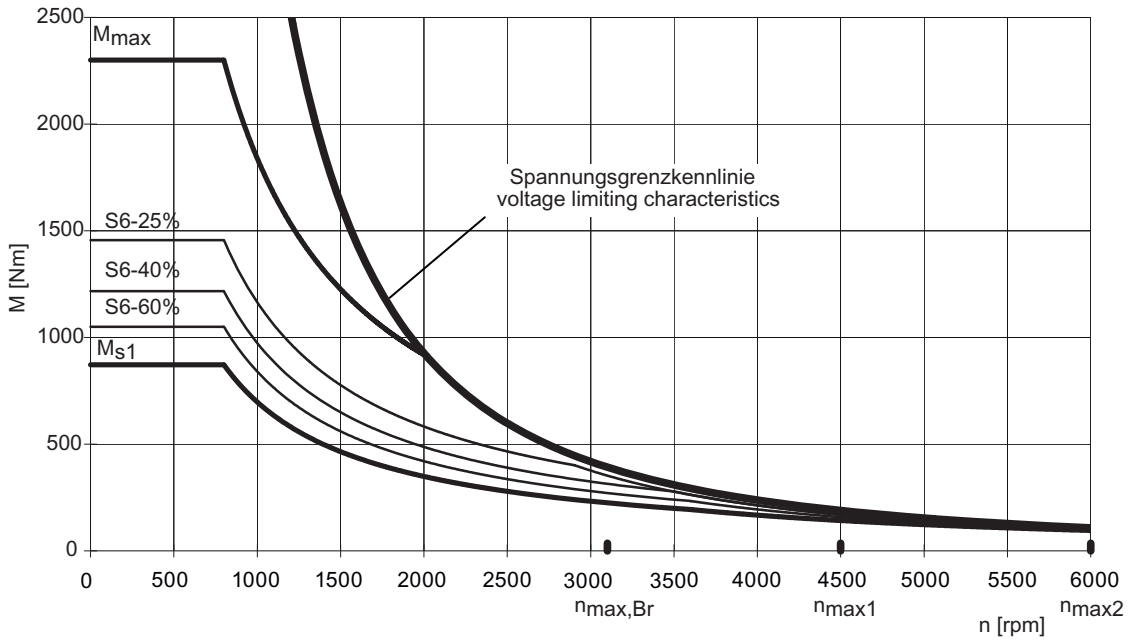
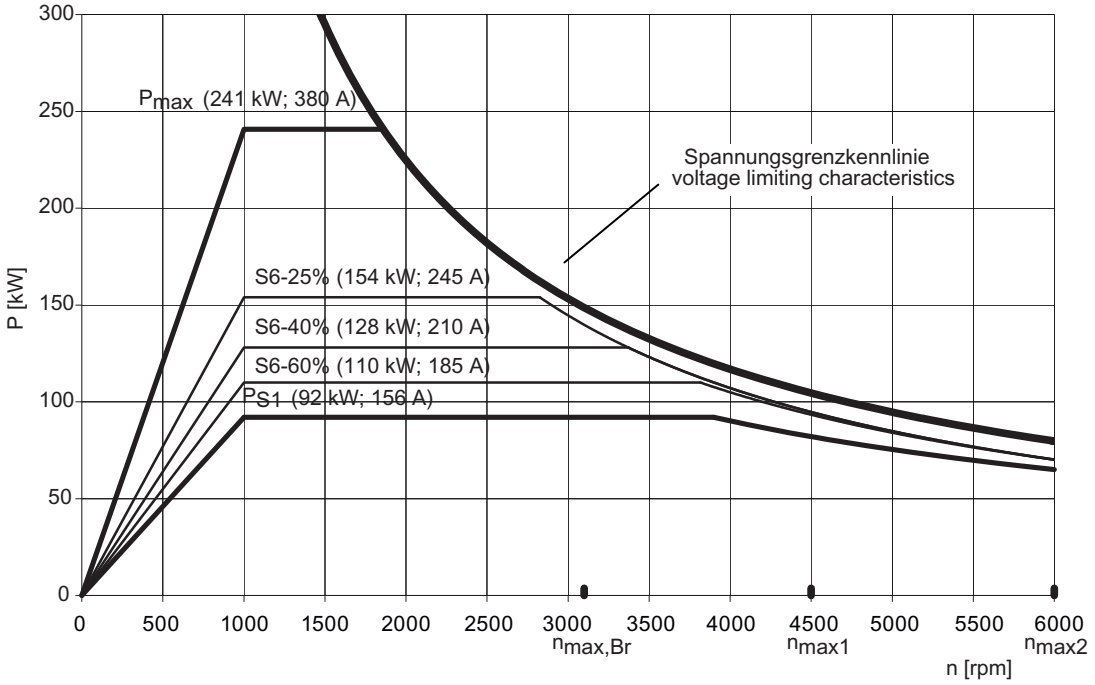


Table 4- 240 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	92	879	156	4500	6000	-	3100	3900	2300	380	879	156



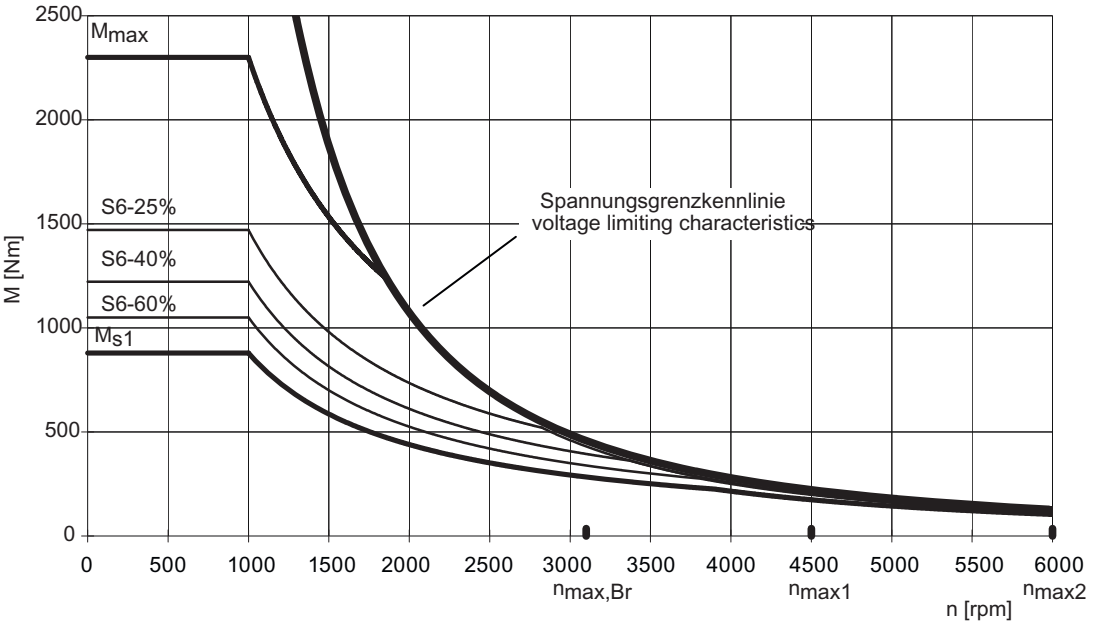
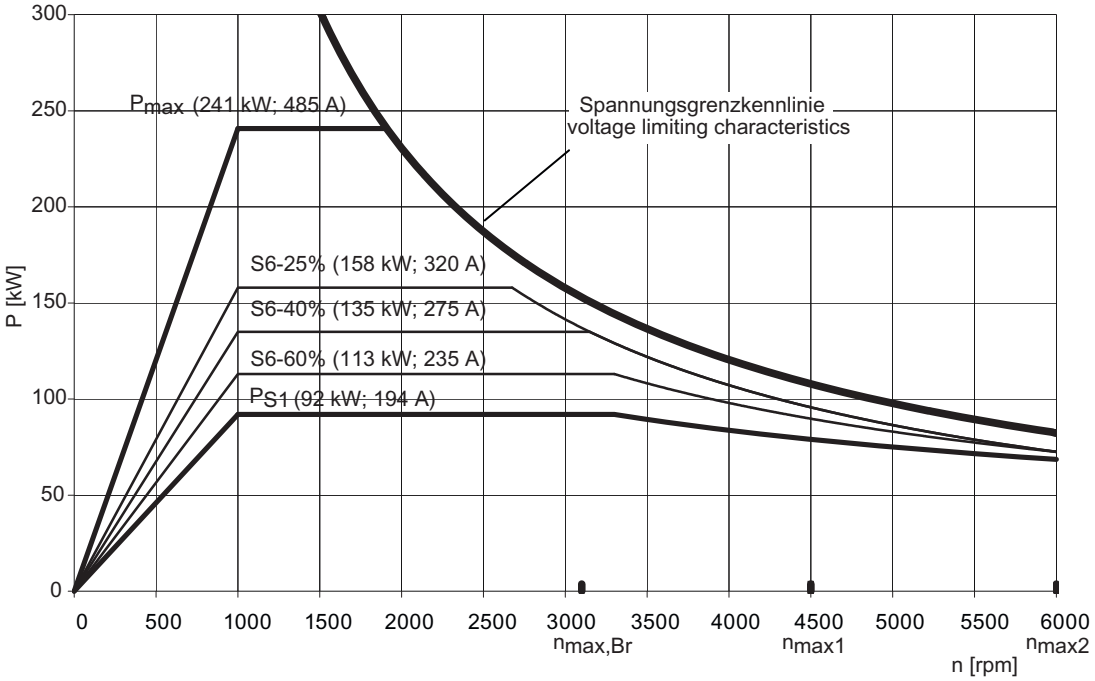


Table 4- 241 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	92	879	194	4500	6000	-	3100	3300	2300	485	879	194



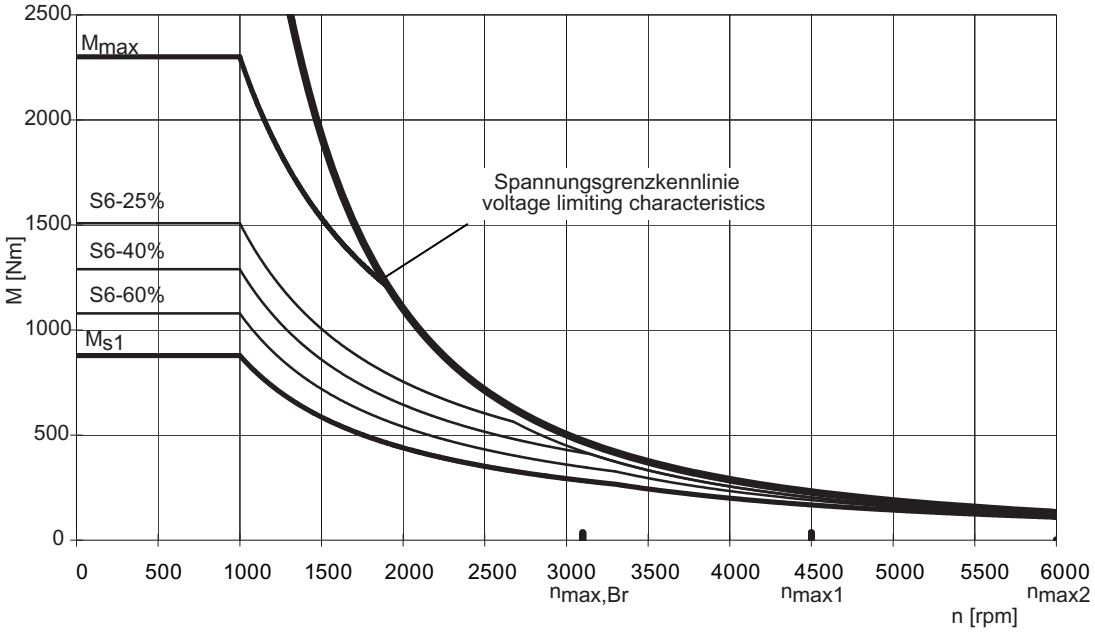
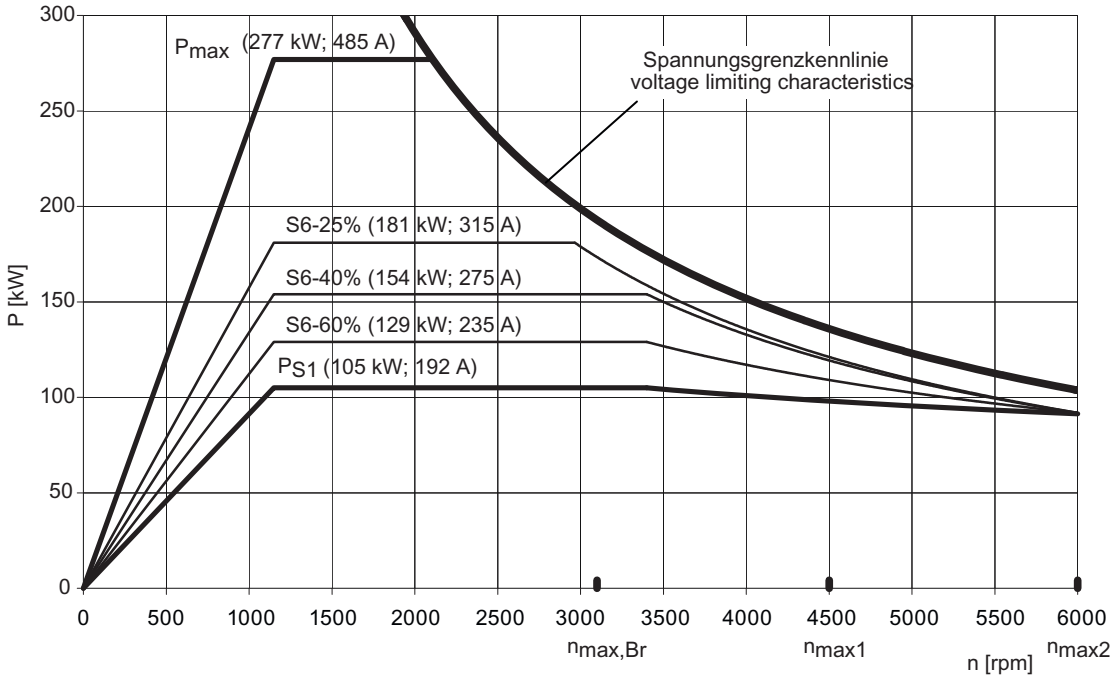


Table 4- 242 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	105	872	192	4500	6000	-	3100	3400	2300	485	872	192
1000	92	879	194					5800				



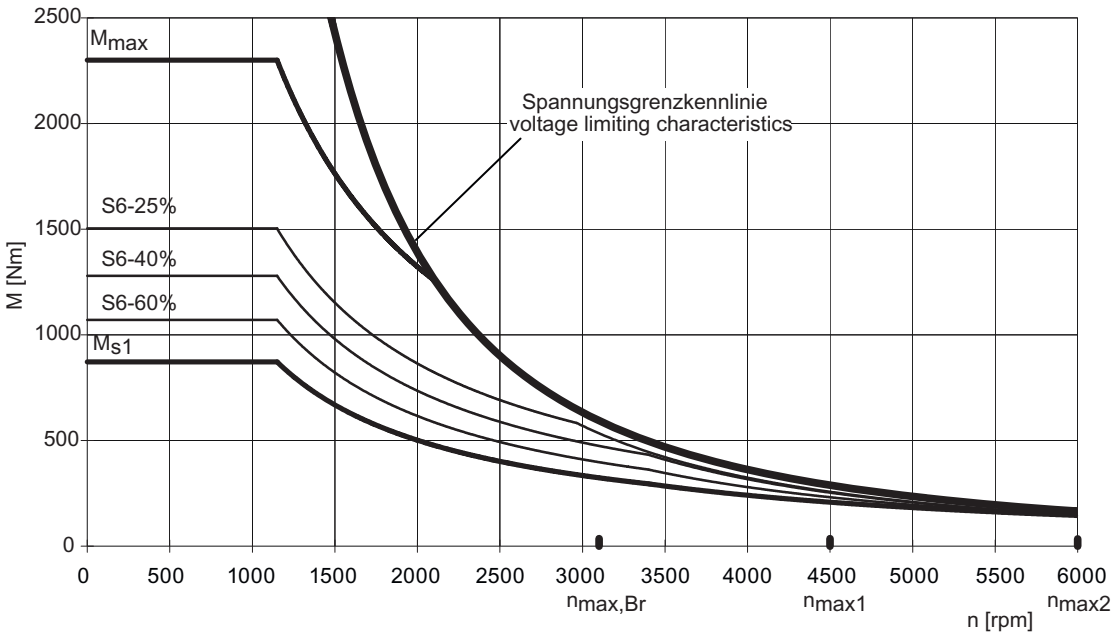
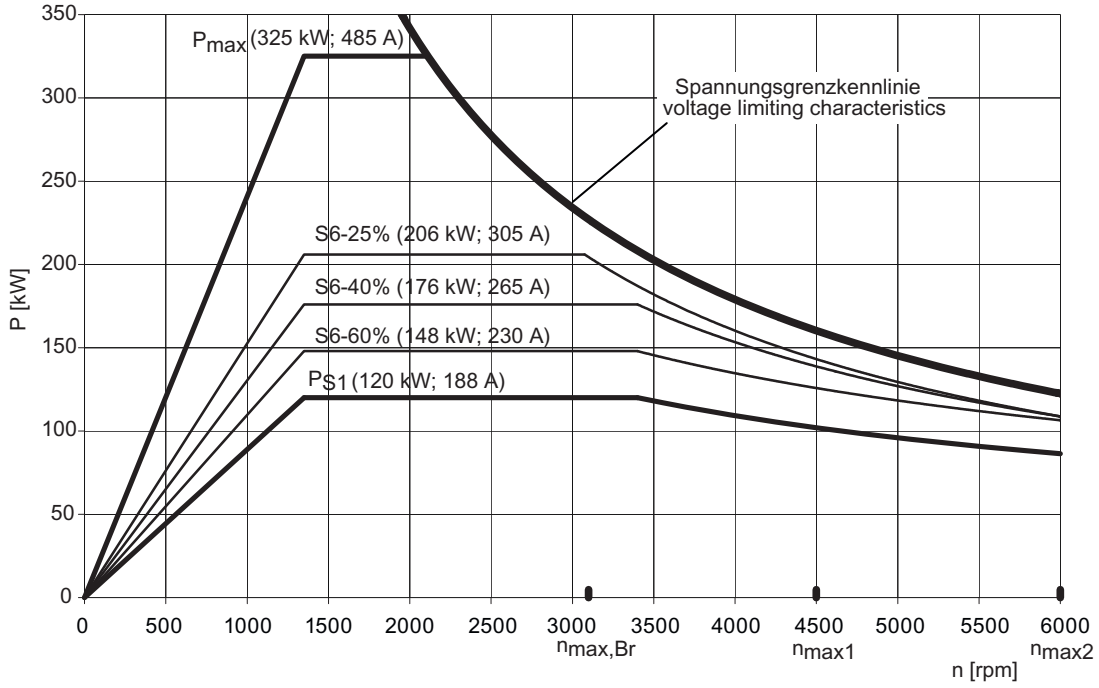


Table 4- 243 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	120	849	188	4500	6000	-	3100	3400	2300	485	849	188



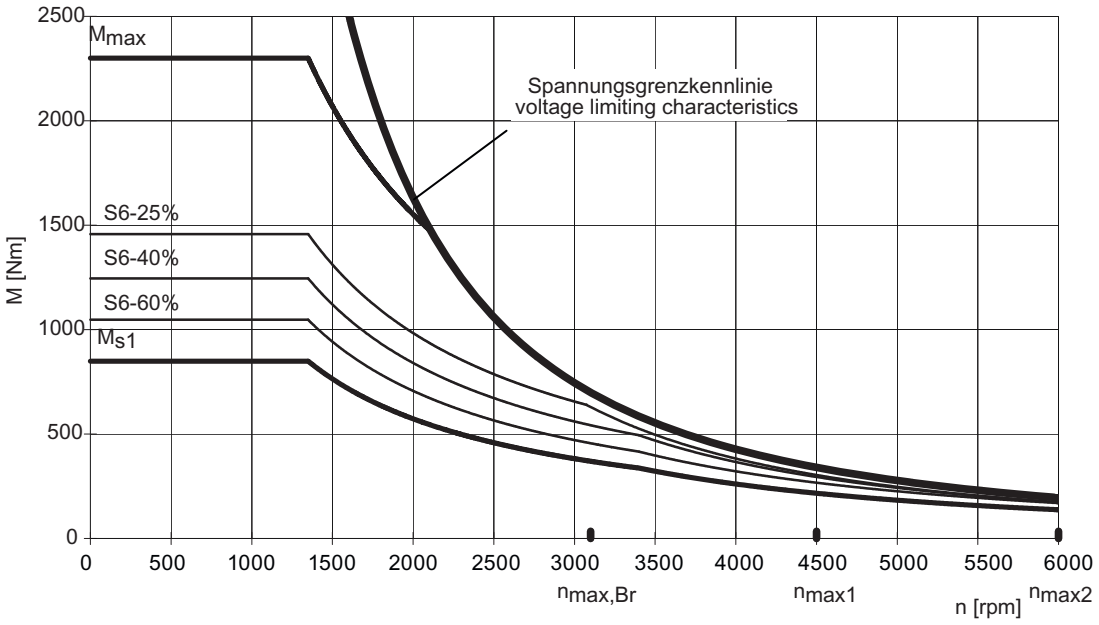
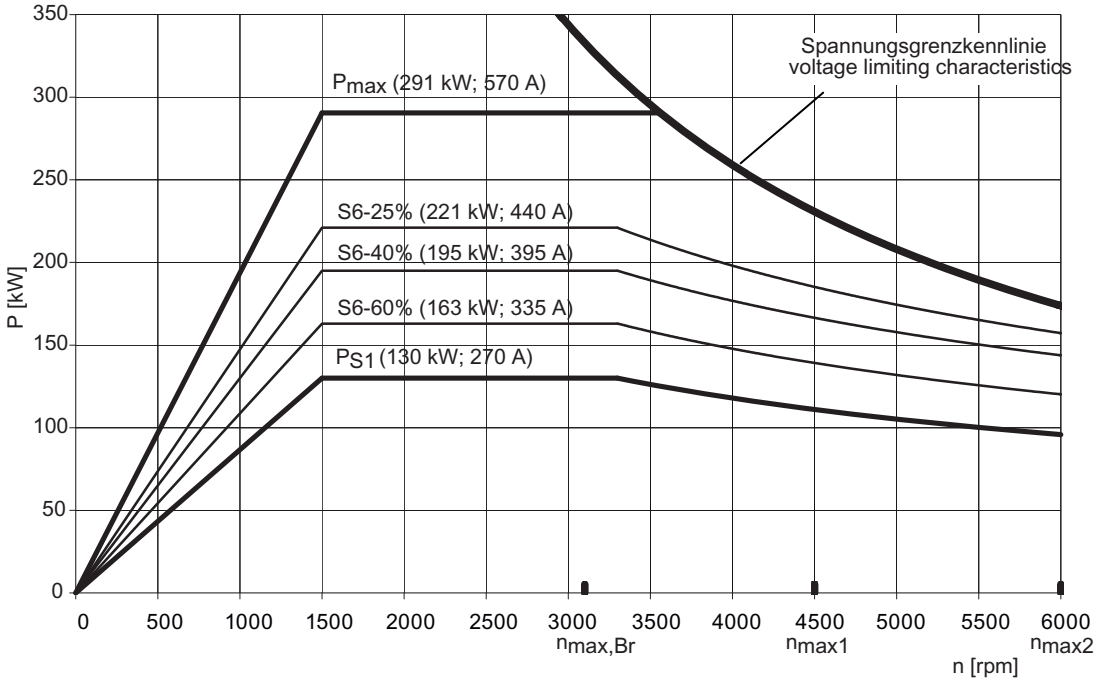


Table 4- 244 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	130	828	270	4500	6000	-	3100	3300	1850	570	828	270



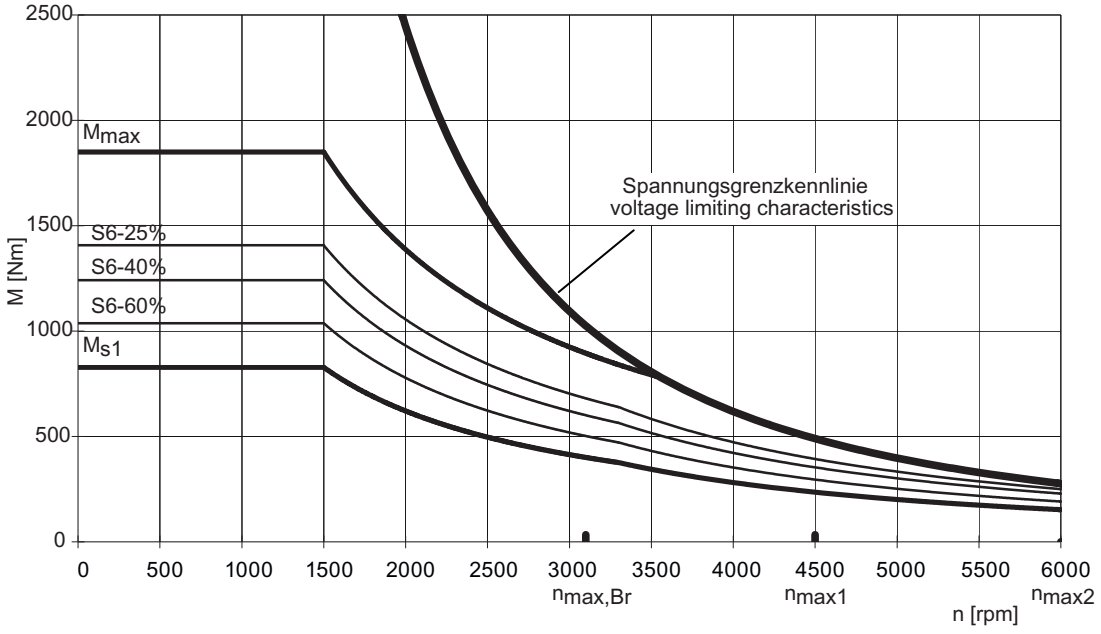
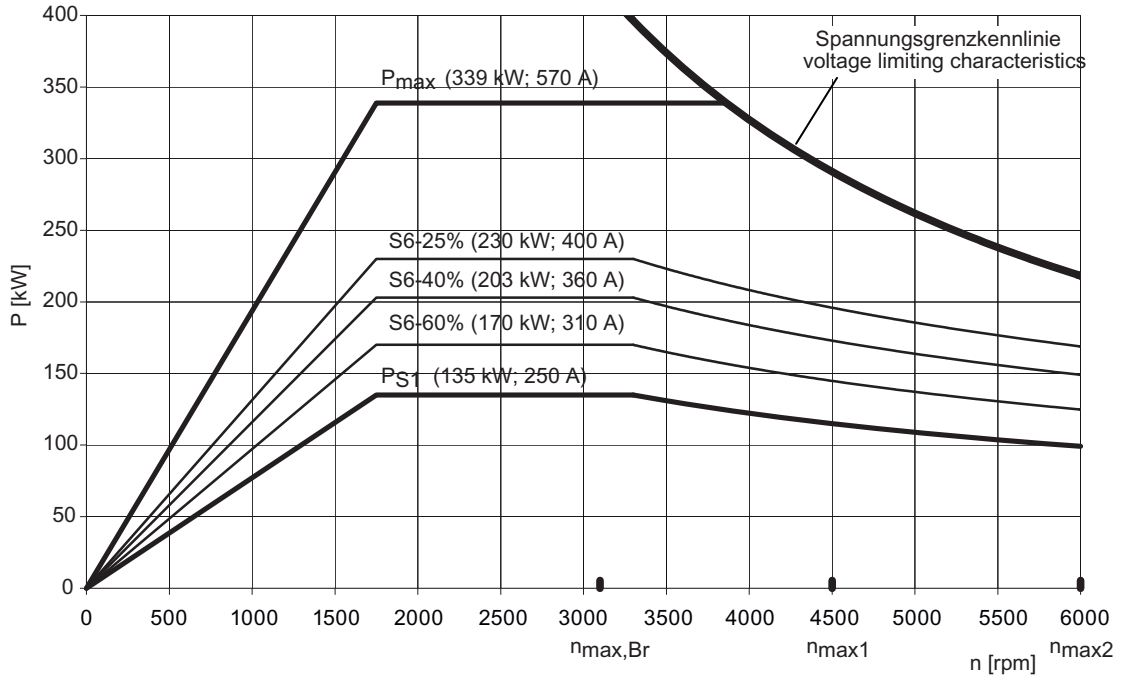


Table 4- 245 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	135	737	250	4500	6000	-	3100	3300	1850	570	737	250
1500	130	828	270					3500				



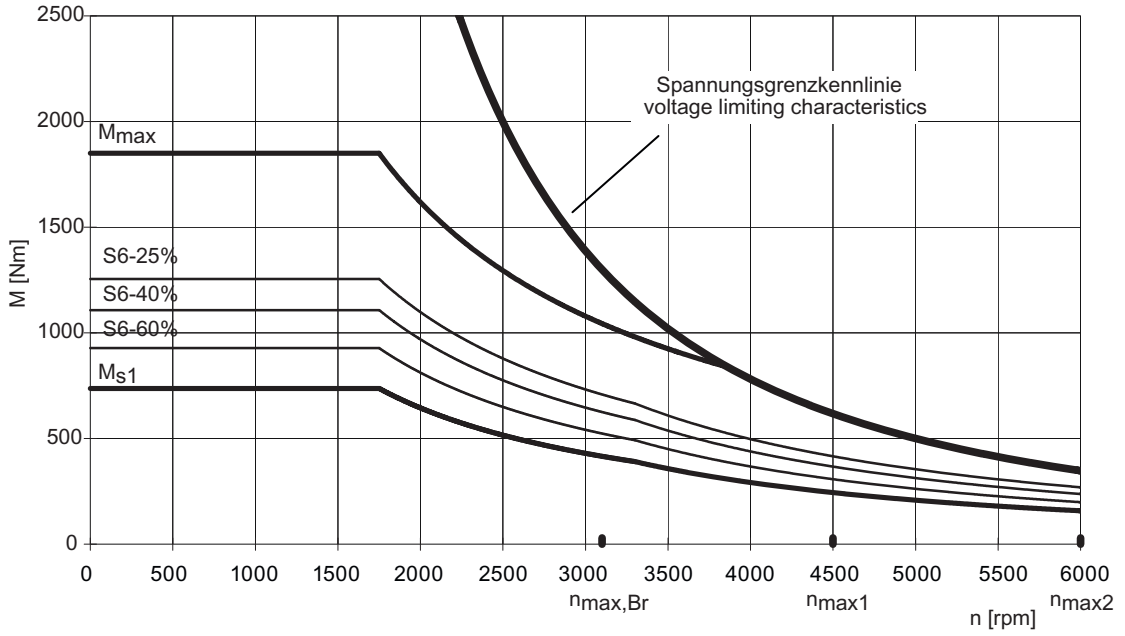
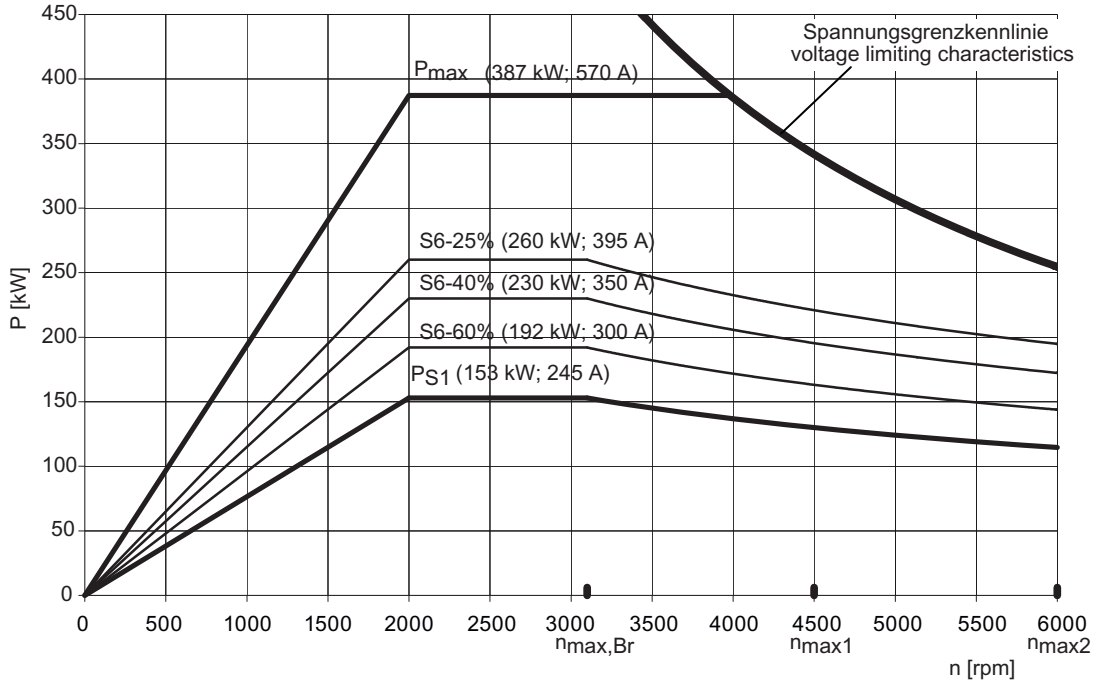


Table 4- 246 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	153	731	245	4500	6000	-	3100	3100	1850	570	731	245



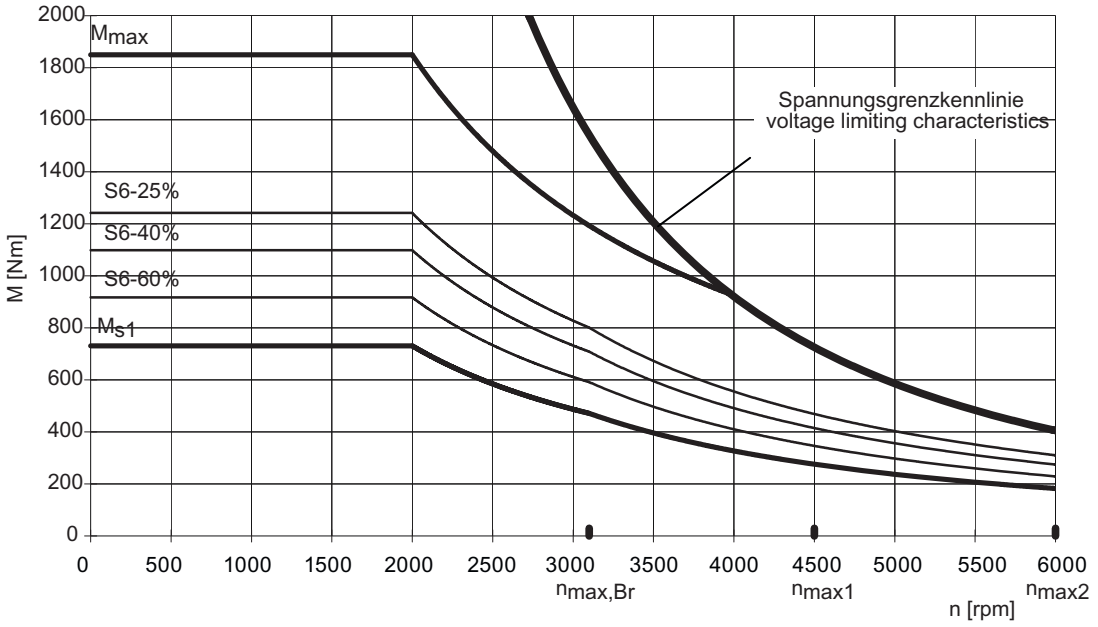
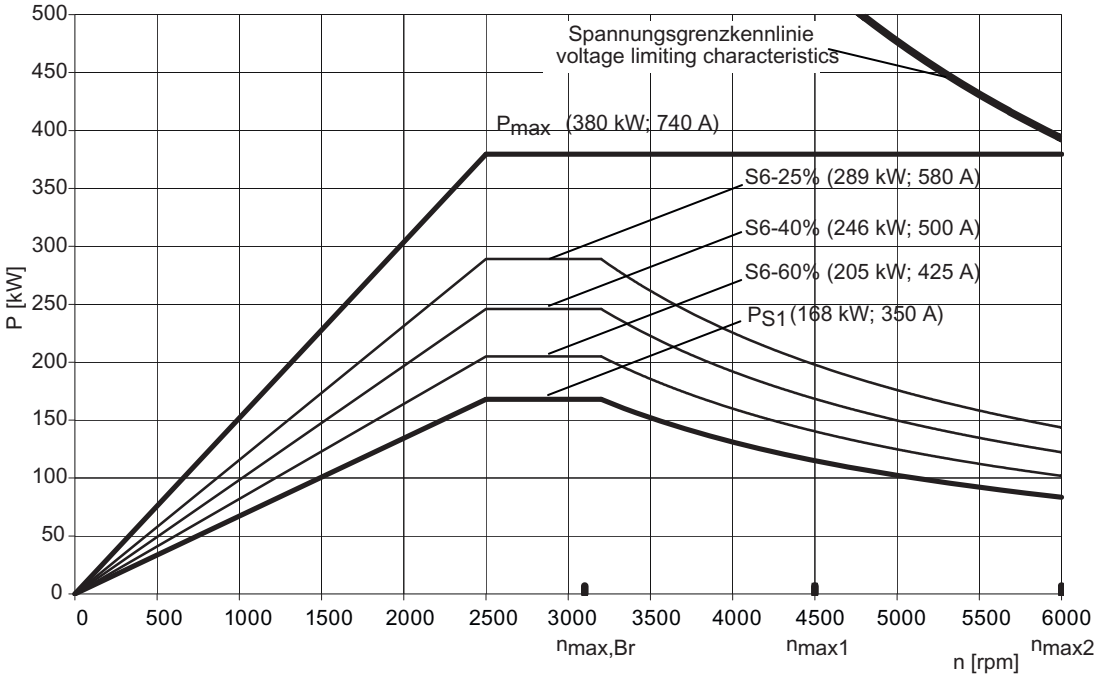


Table 4- 247 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	168	642	350	4500	6000	-	3100	3200	1450	740	642	350



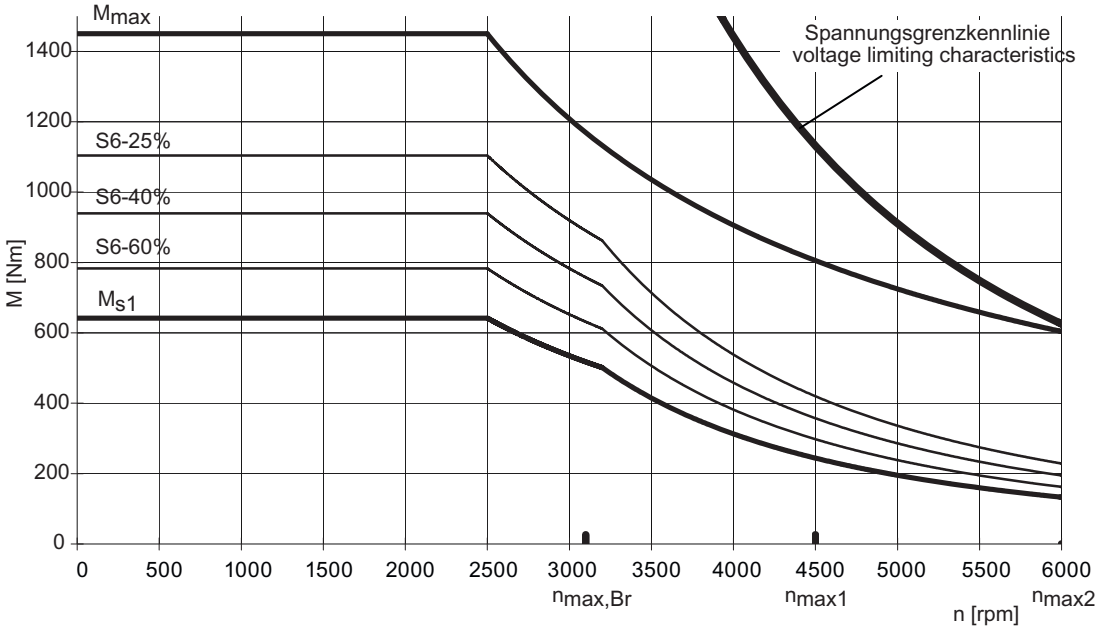
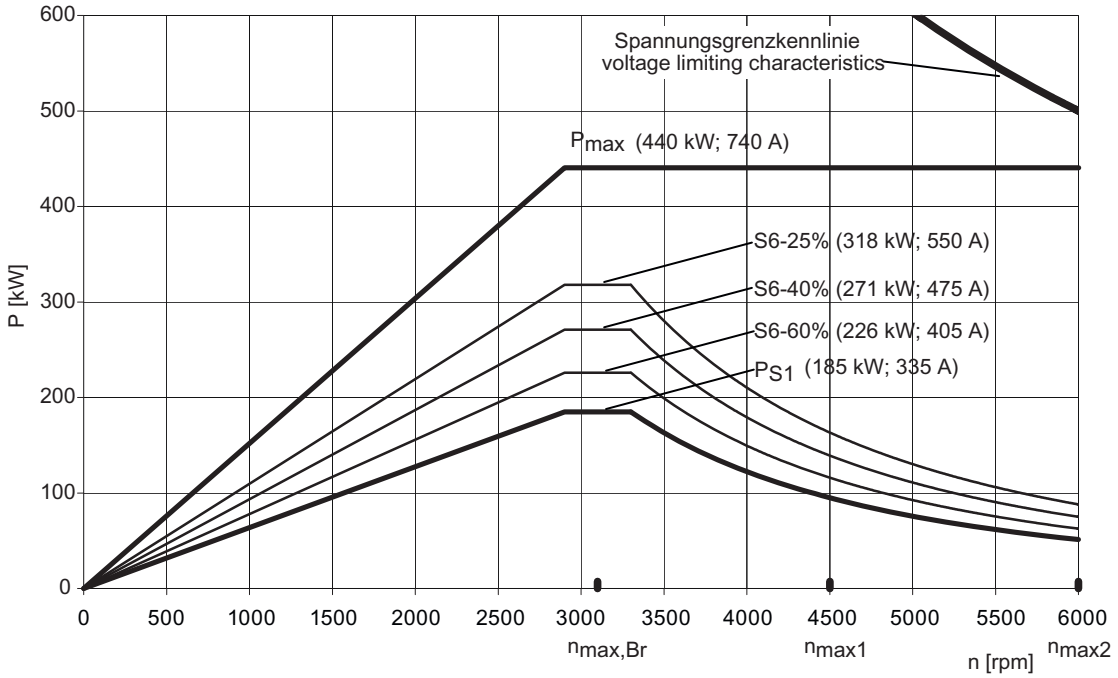


Table 4- 248 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	185	609	335	4500	6000	-	3100	3300	1450	740	609	335
2500	168	642	350					3500				



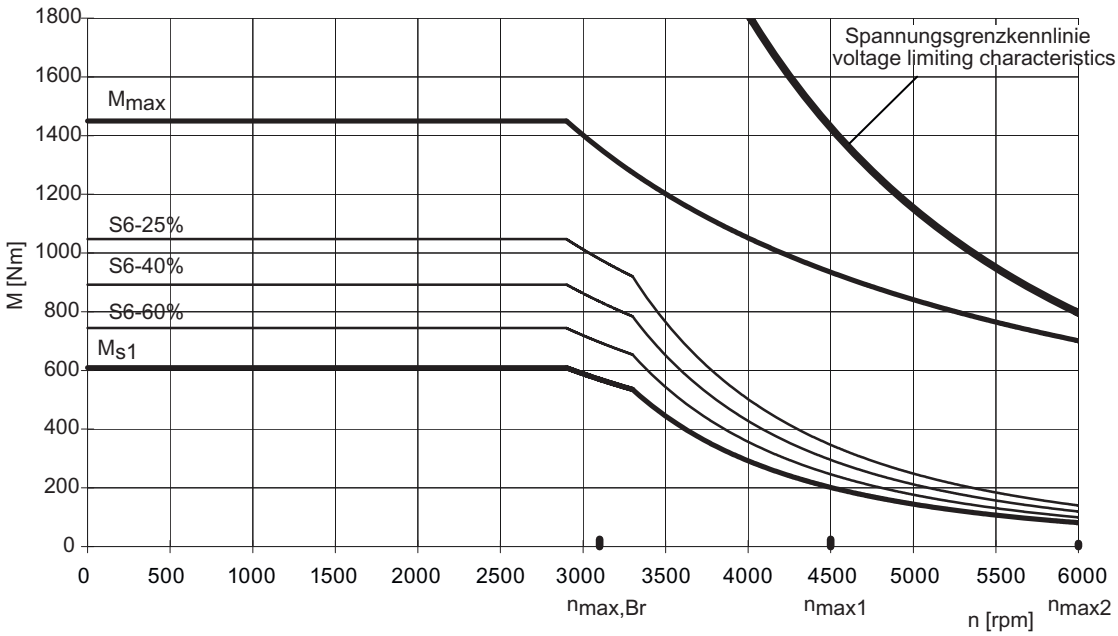
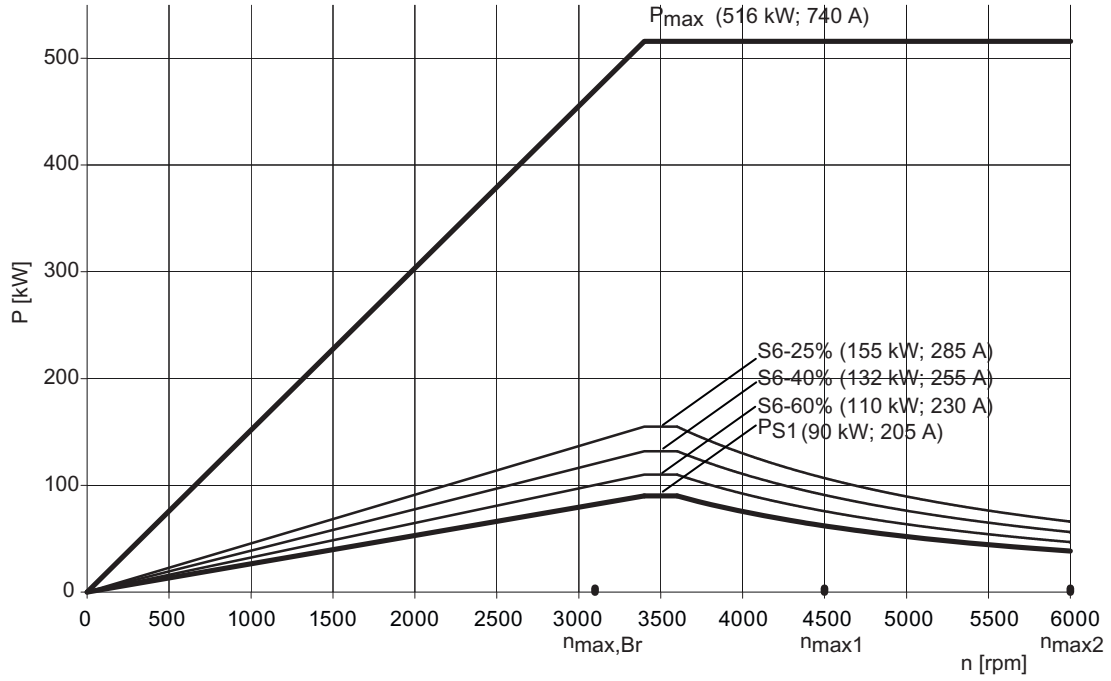


Table 4- 249 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	90	253	205	4500	6000	-	3100	3600	1450	740	253	205



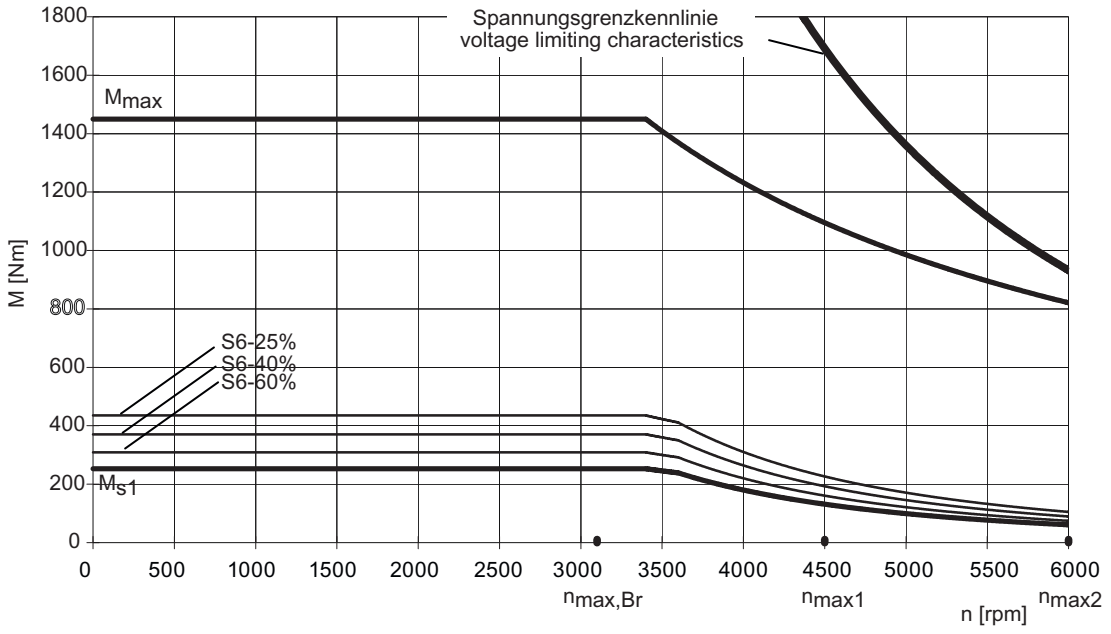
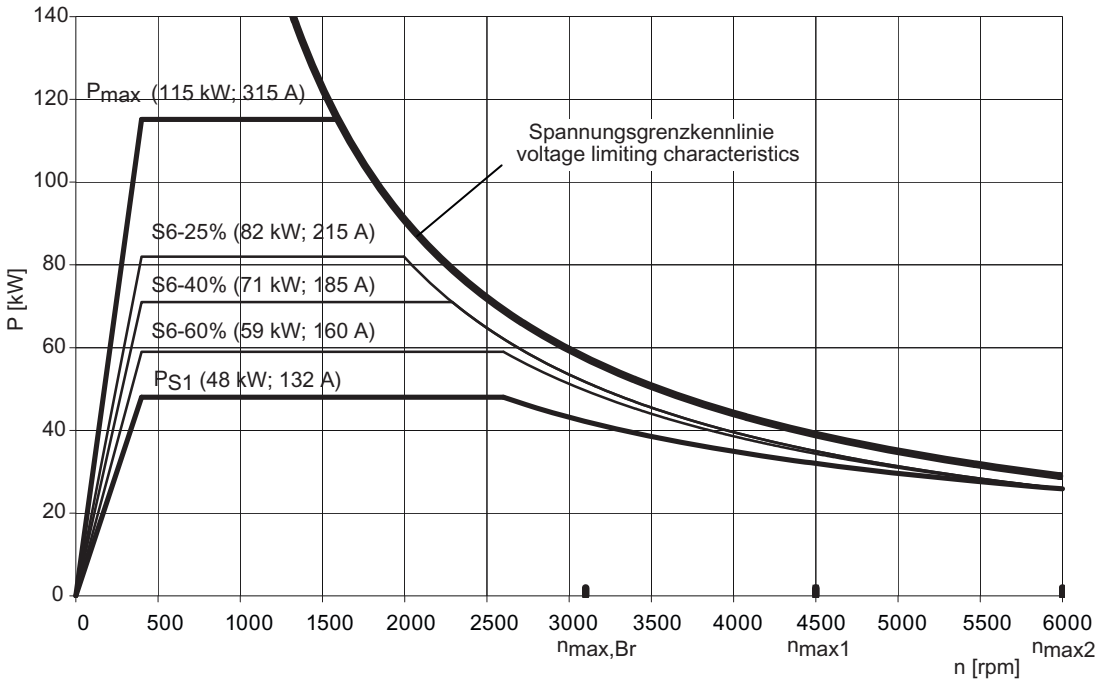


Table 4- 250 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	48	1146	132	4500	6000	-	3100	2600	2750	315	1146	132



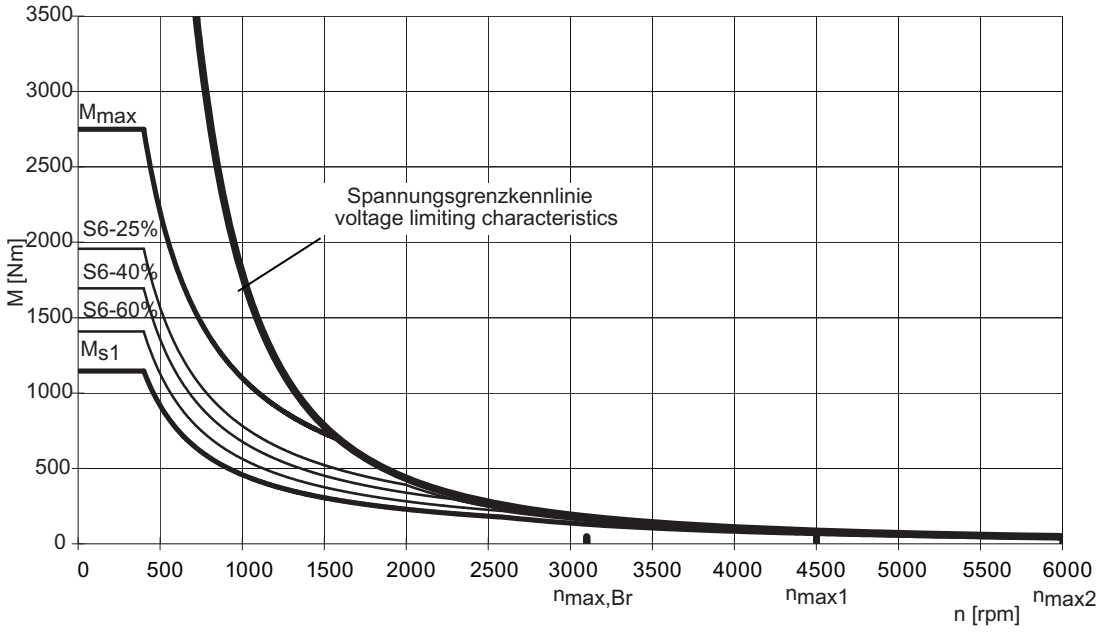
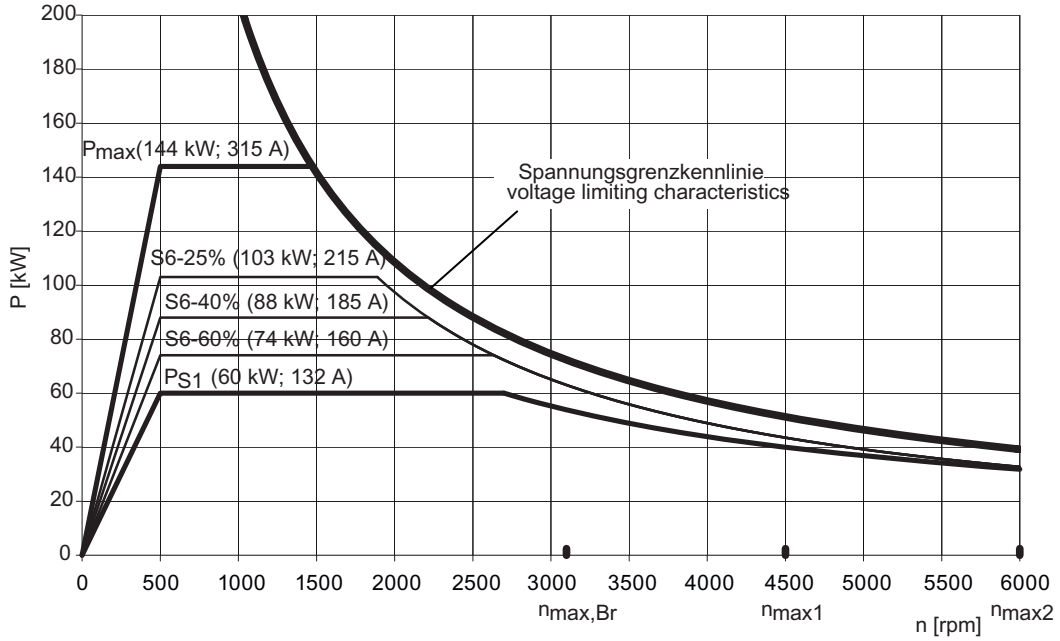


Table 4- 251 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	60	1146	132	4500	6000	-	3100	2700	2750	315	1146	132
400	48	1146	132					3600				



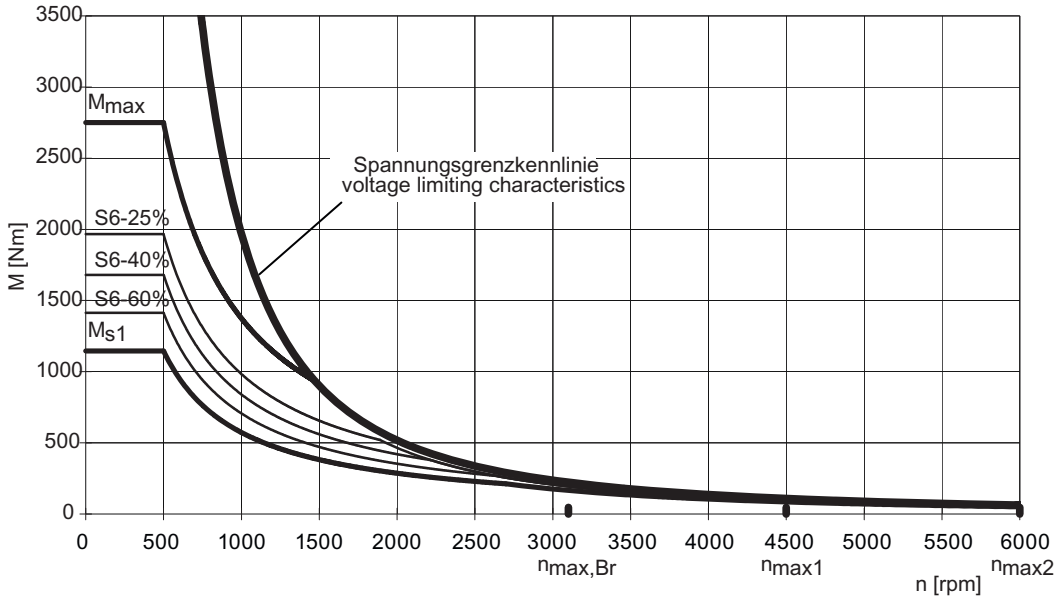
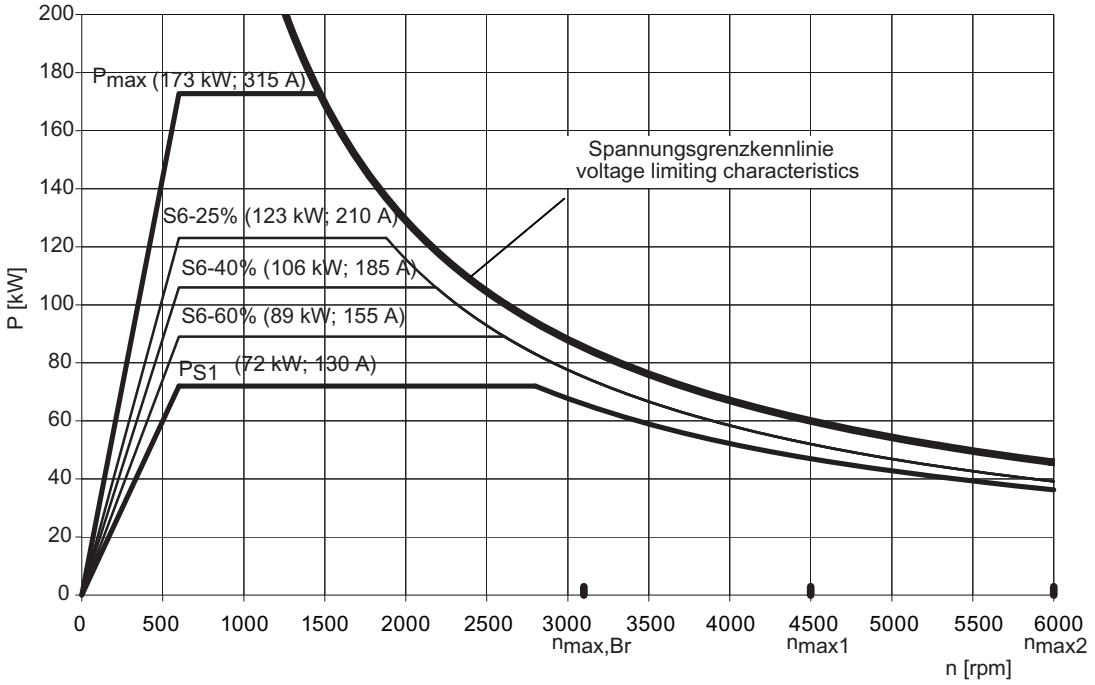


Table 4- 252 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□B□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	72	1146	130	4500	6000	-	3100	2800	2750	315	1146	130



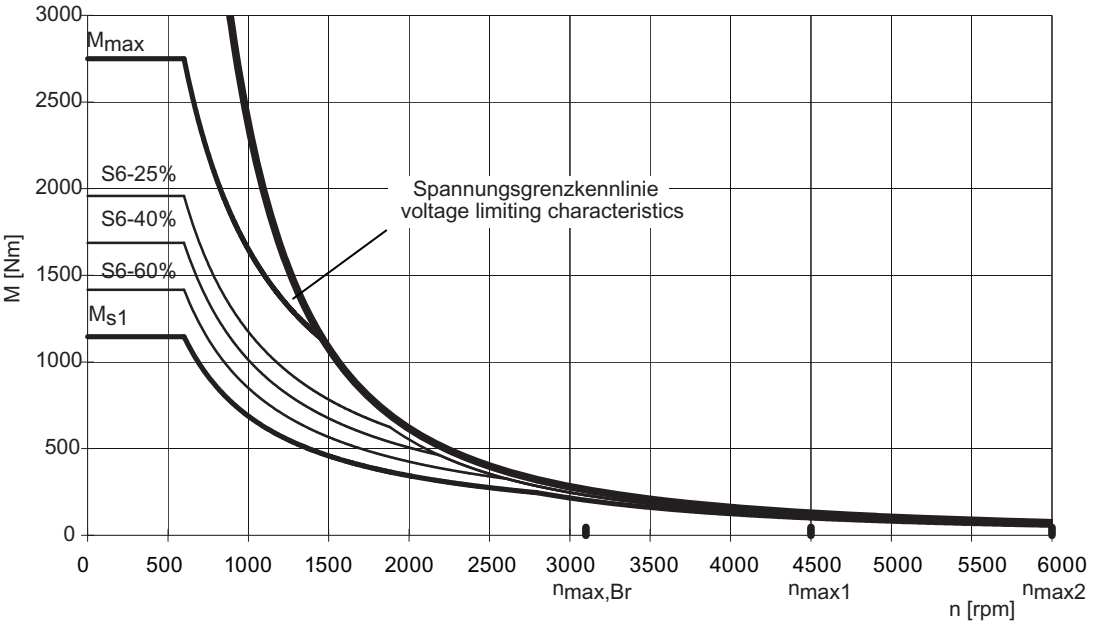
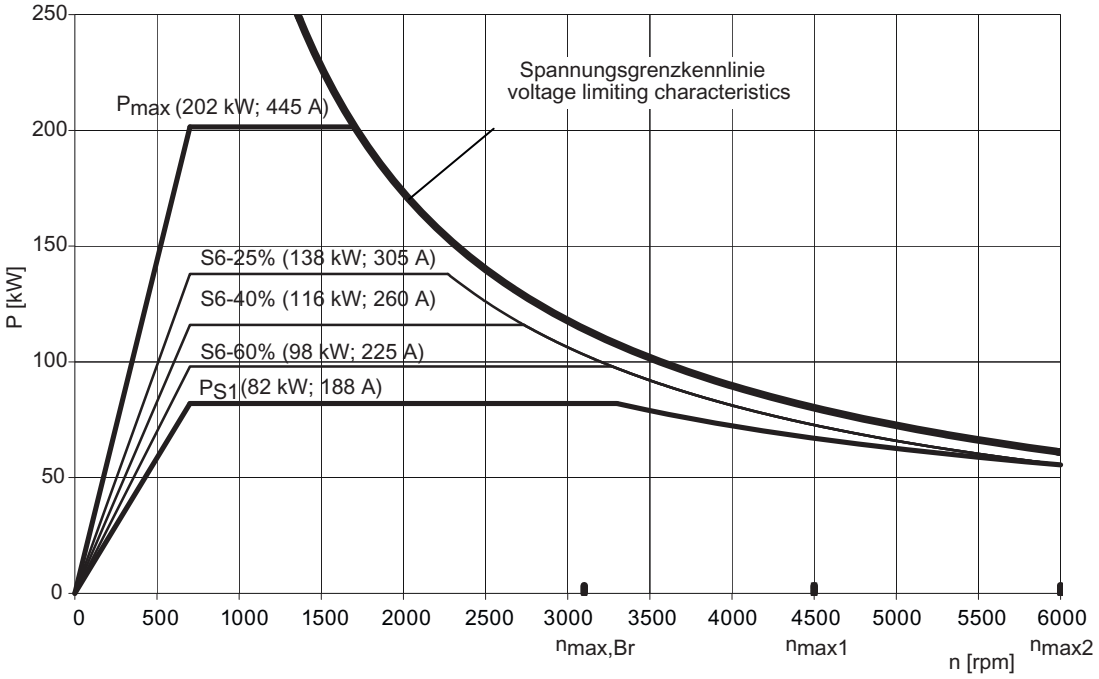


Table 4- 253 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	82	1119	188	4500	6000	-	3100	3300	2750	445	1119	188



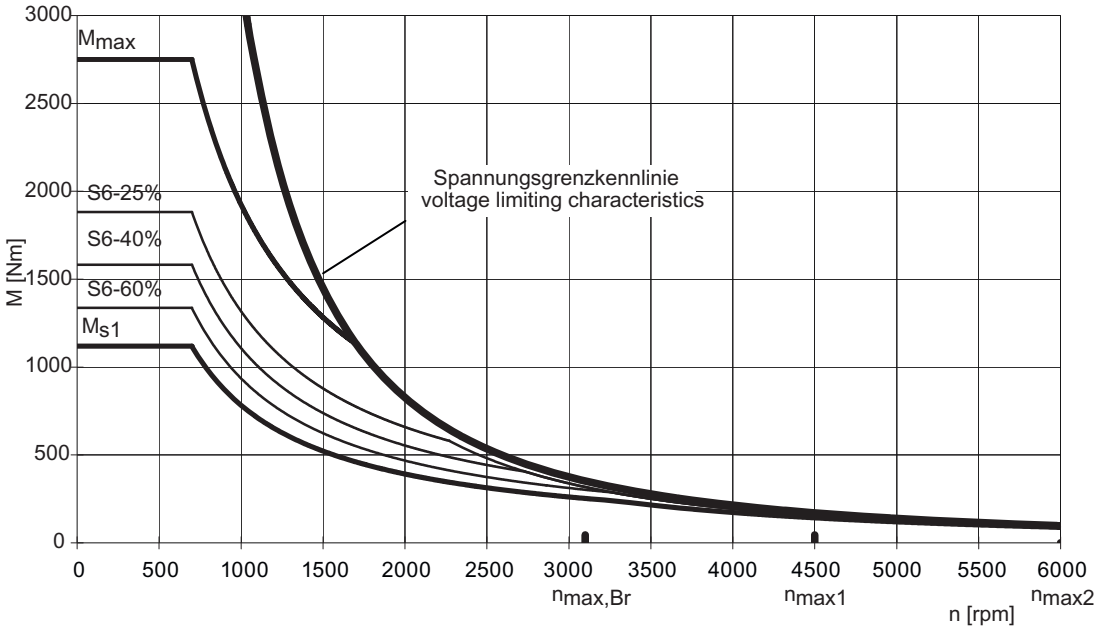
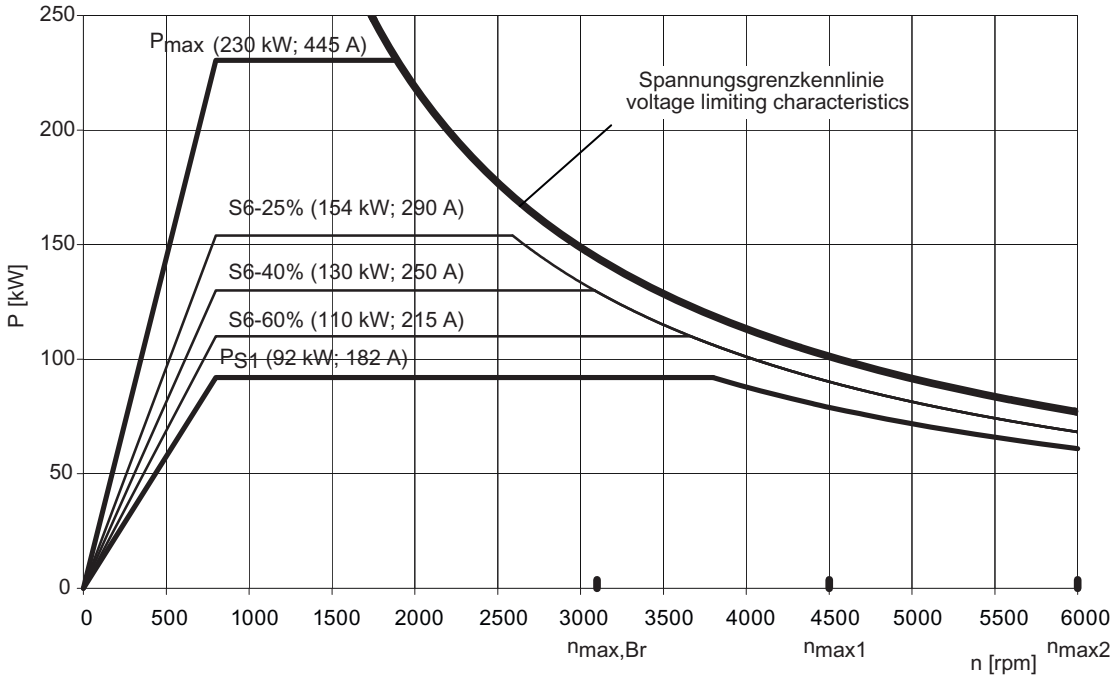


Table 4- 254 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	92	1098	182	4500	6000	-	3100	3800	2750	445	1098	182
700	82	1119	188					4300				



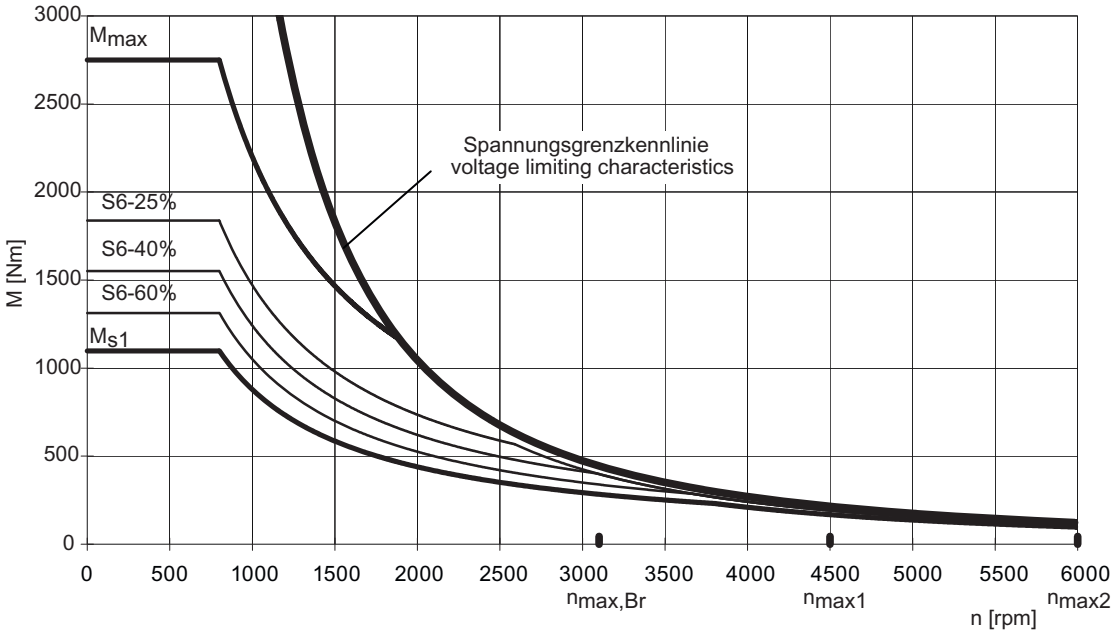
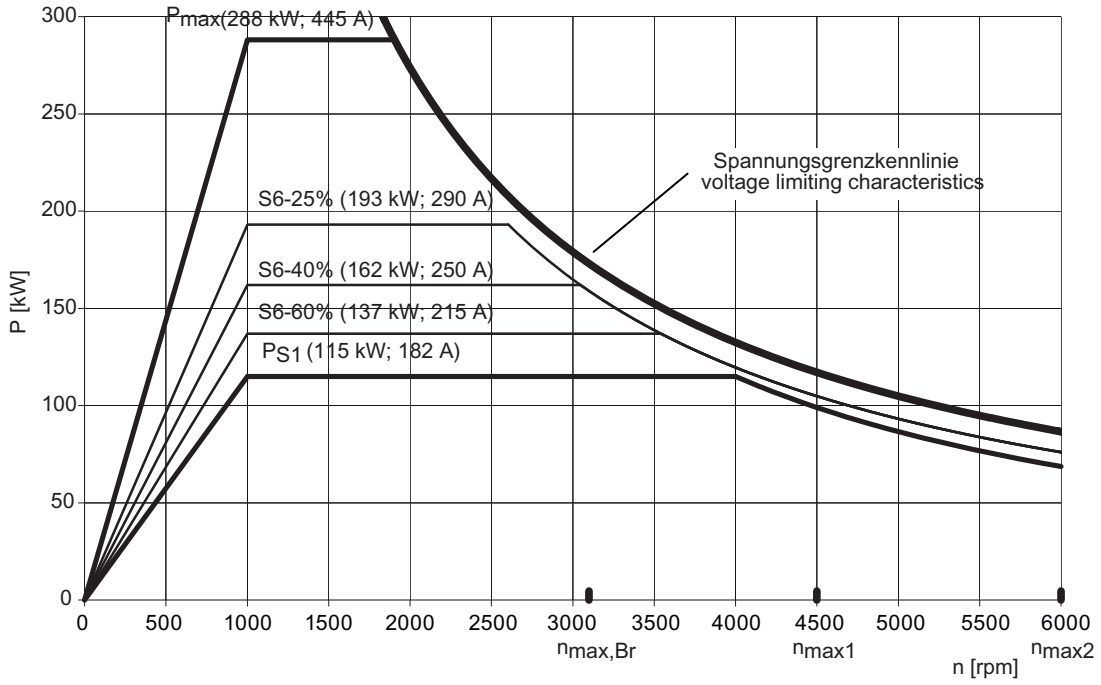


Table 4- 255 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□C□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	115	1098	182	4500	6000	-	3100	4000	2750	445	1098	182



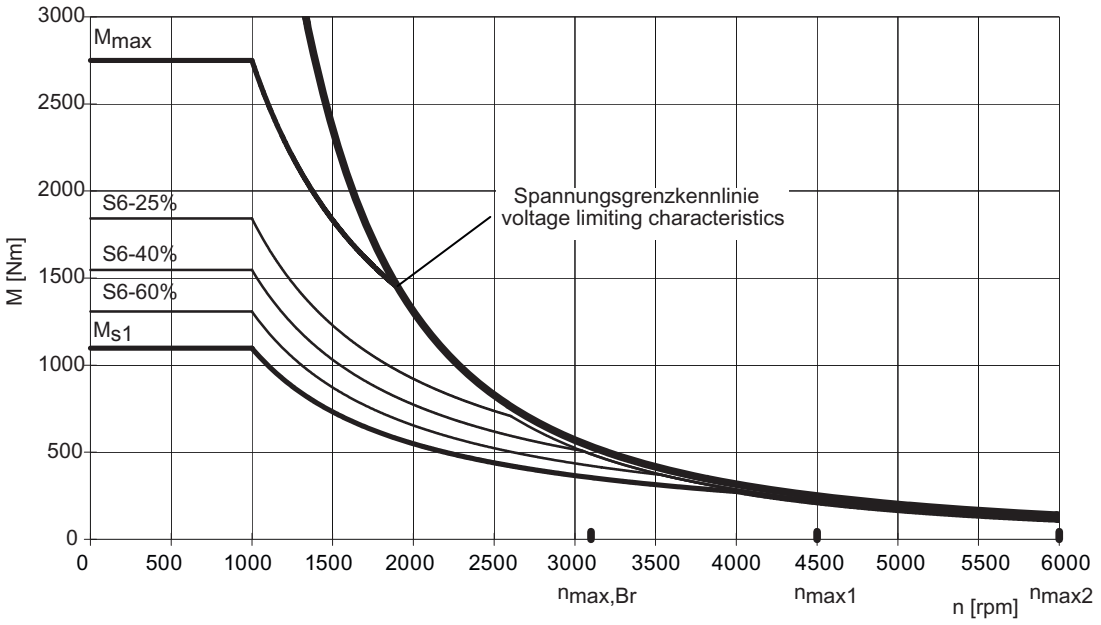
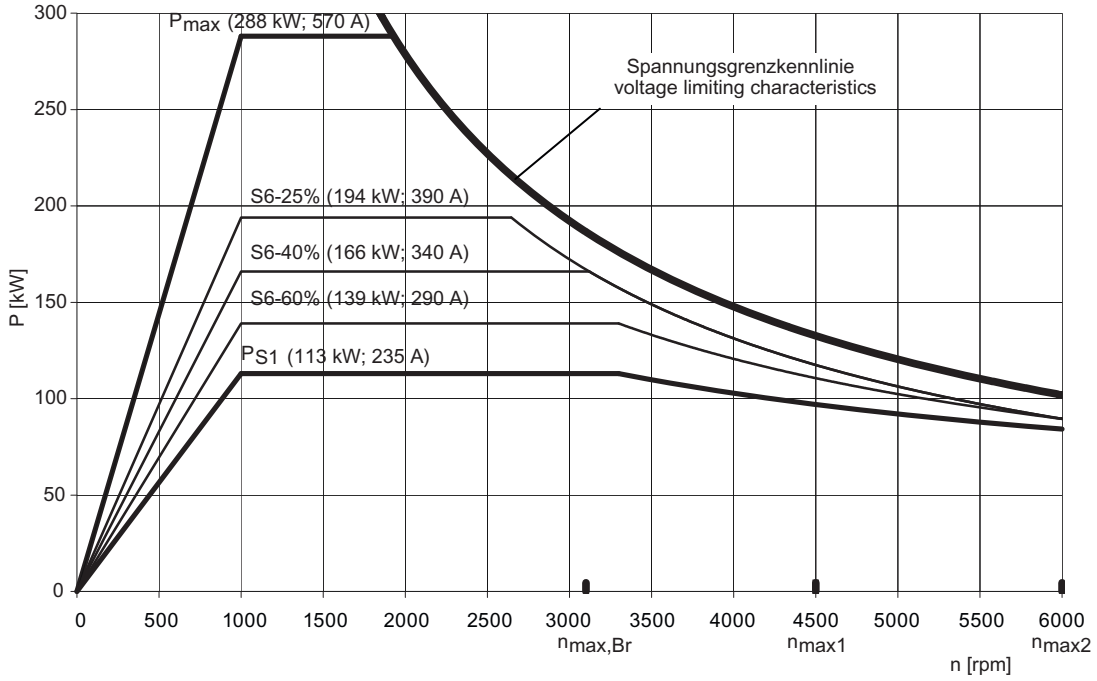


Table 4- 256 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	113	1079	235	4500	6000	-	3100	3300	2750	570	1079	235



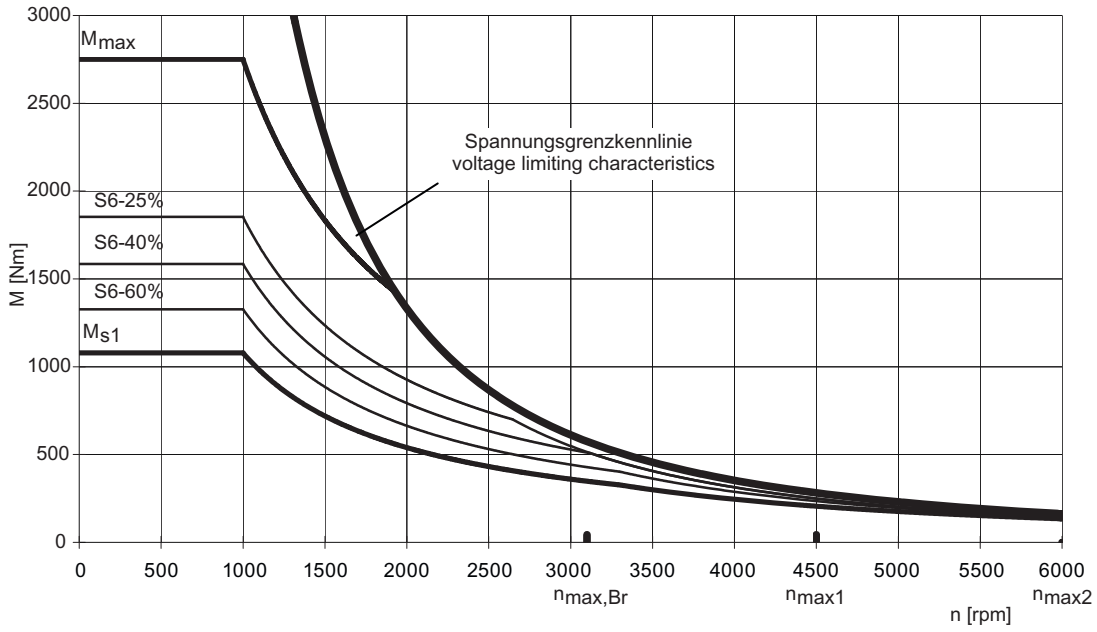
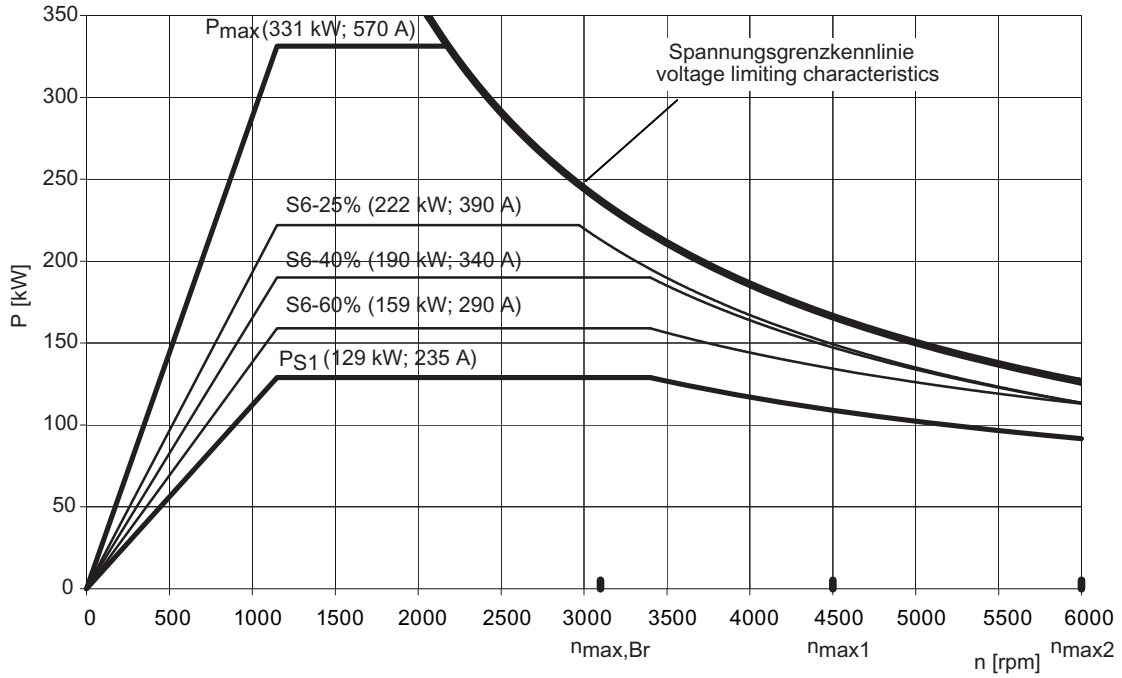


Table 4- 257 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	129	1071	235	4500	6000	-	3100	3400	2750	570	1071	235
1000	113	1079	235					4200				



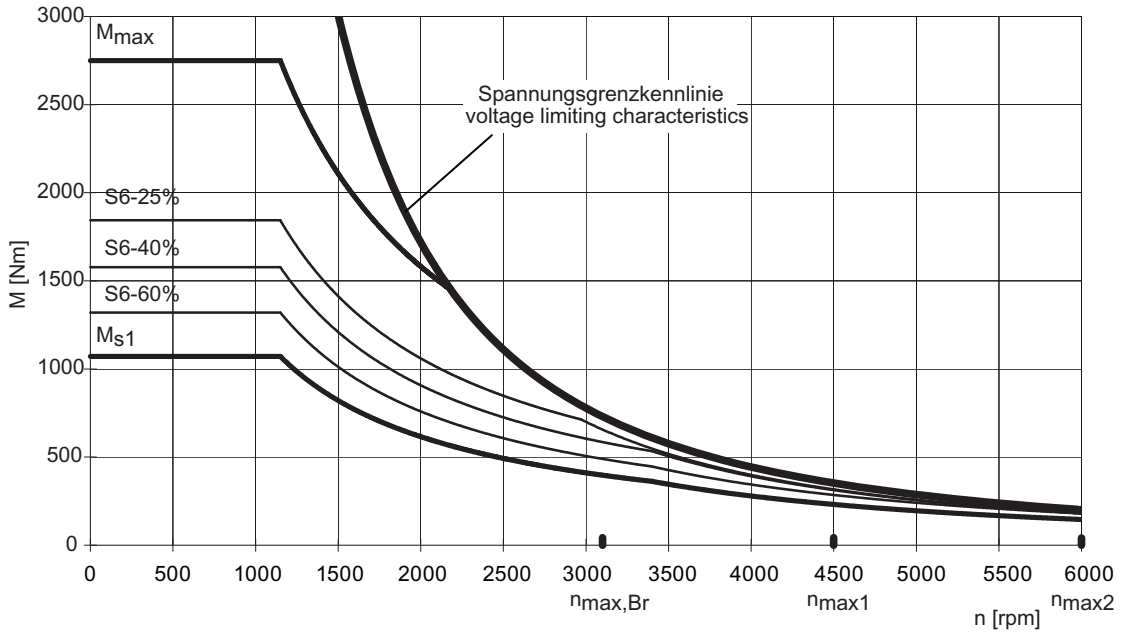
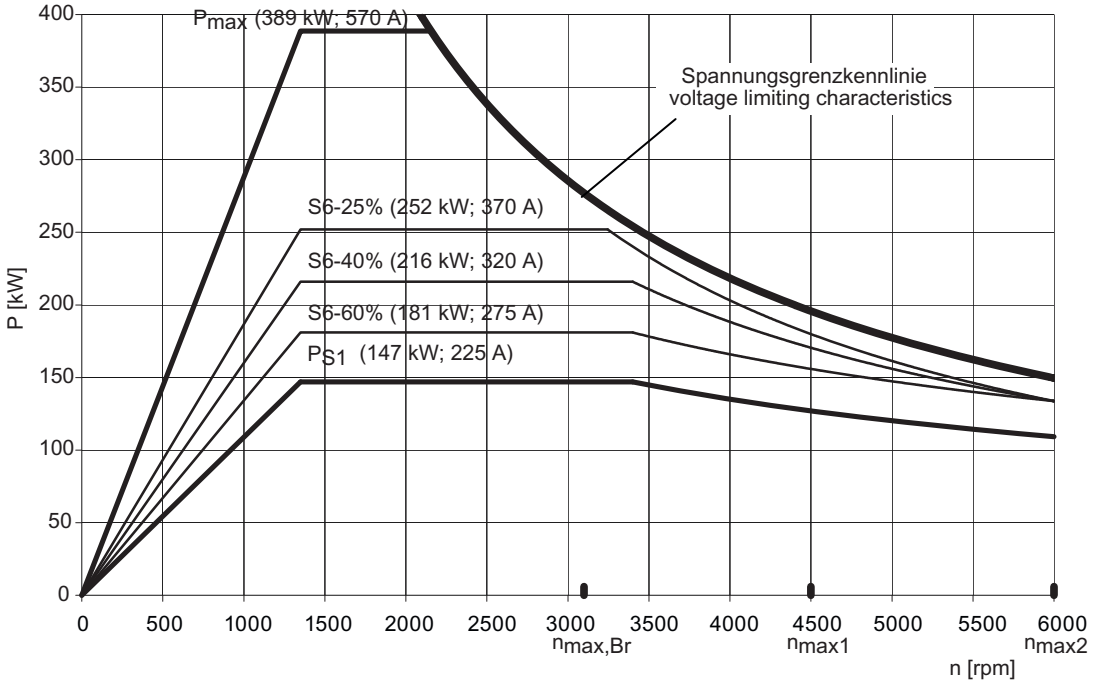


Table 4- 258 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□D□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	147	1040	225	4500	6000	-	3100	3400	2750	570	1040	225



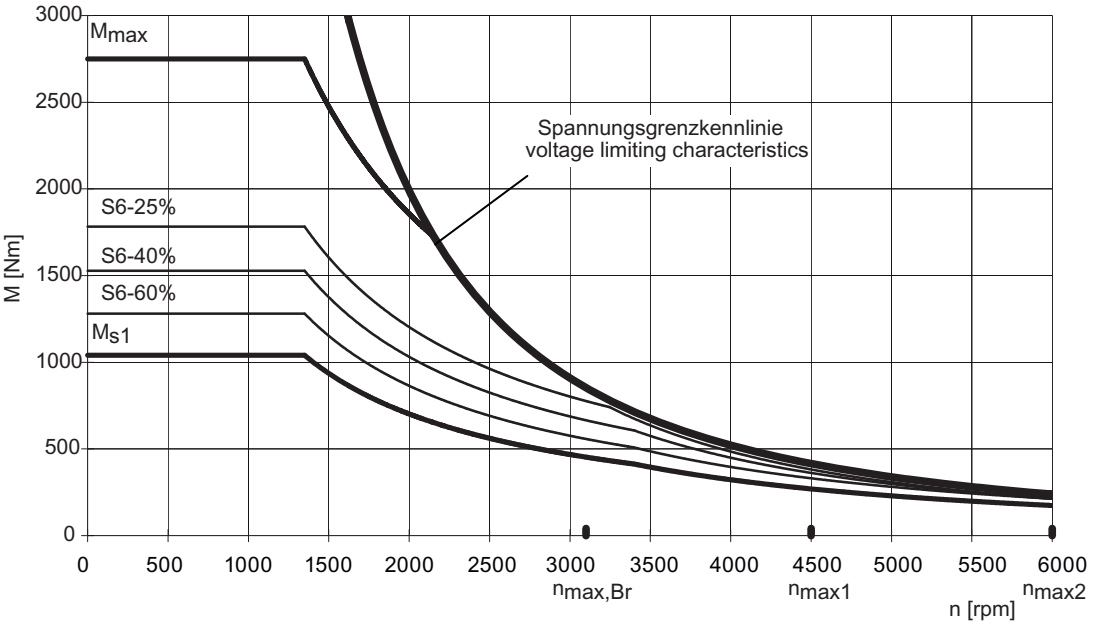
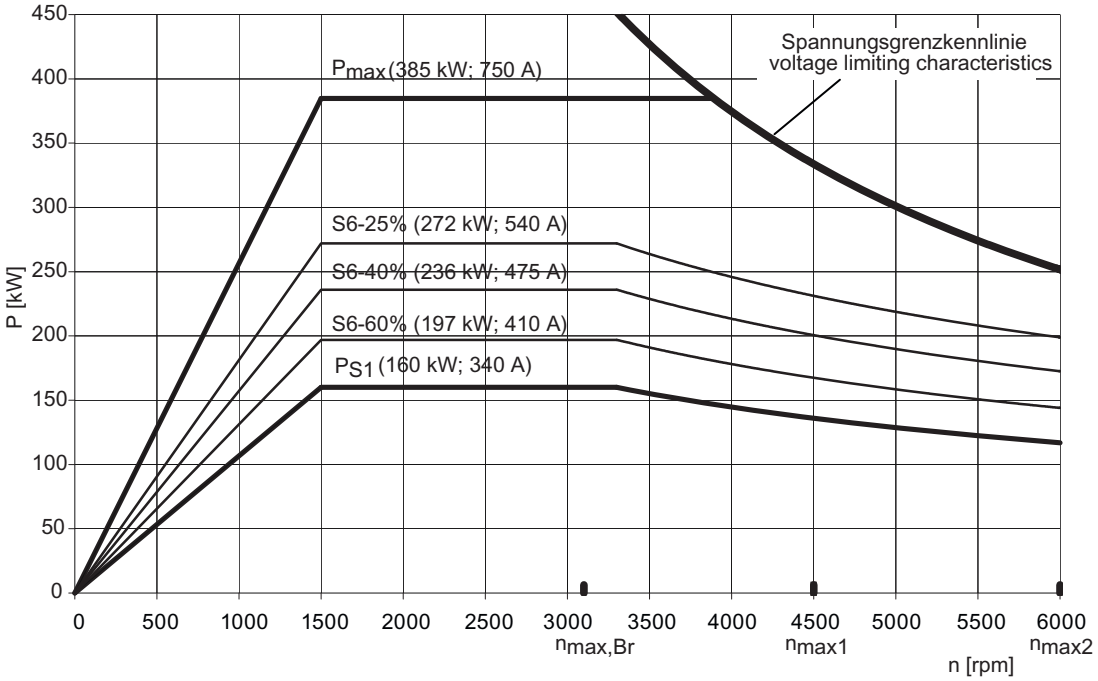


Table 4- 259 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	160	1019	340	4500	6000	-	3100	3300	2450	750	1019	340



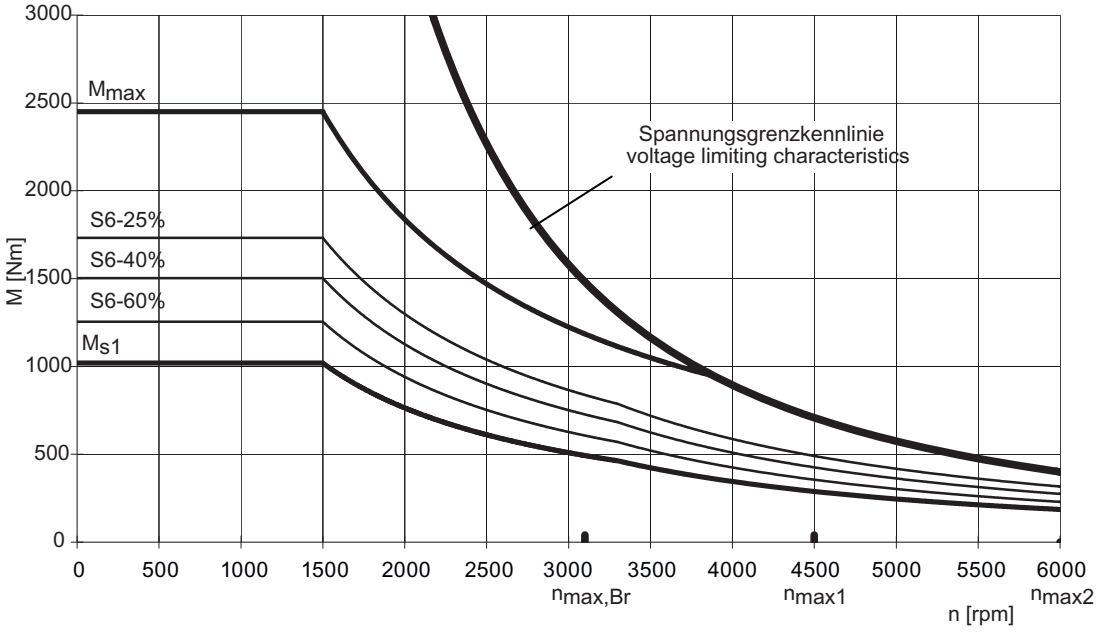
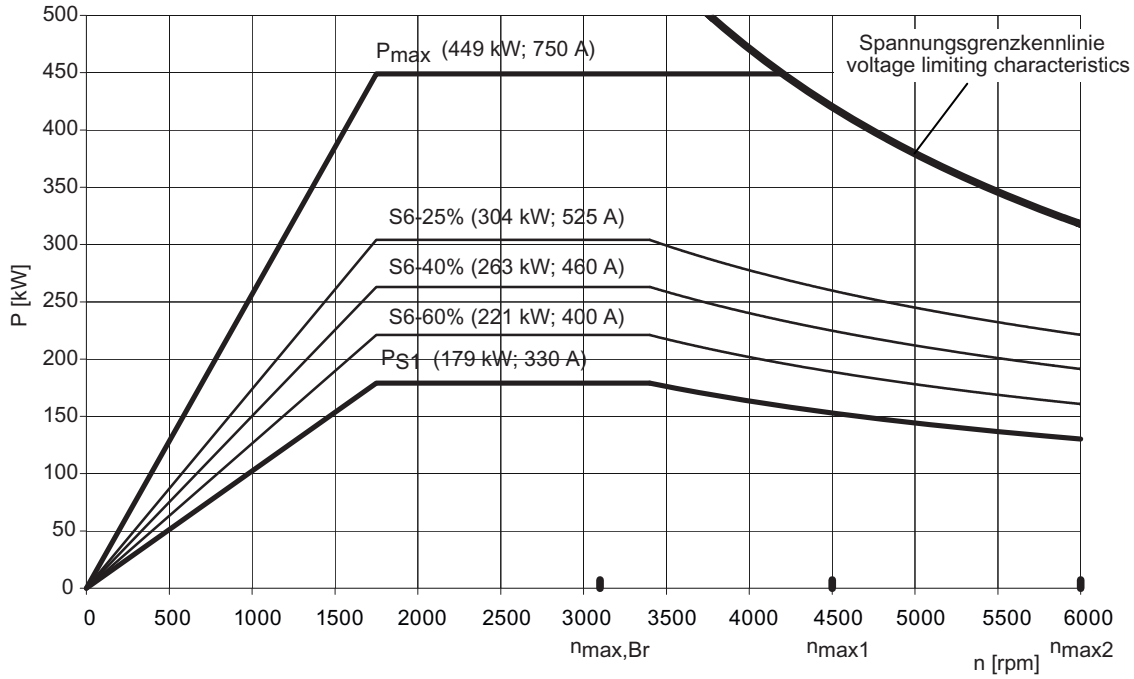


Table 4- 260 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	179	977	330	4500	6000	-	3100	3400	2450	750	977	330
1500	160	1019	340					4200				



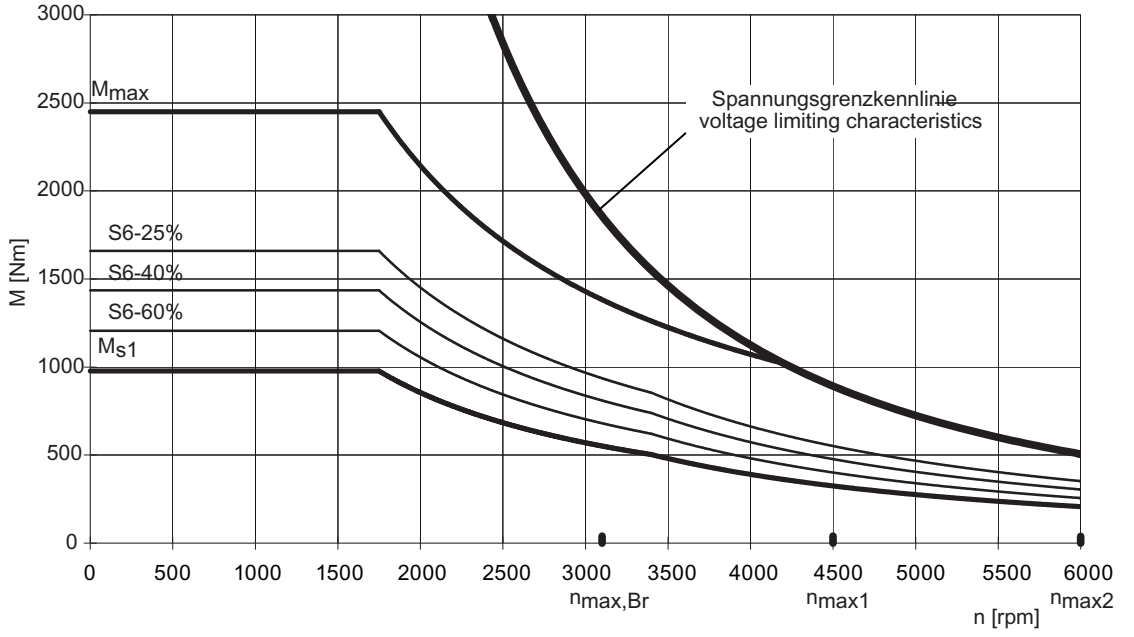
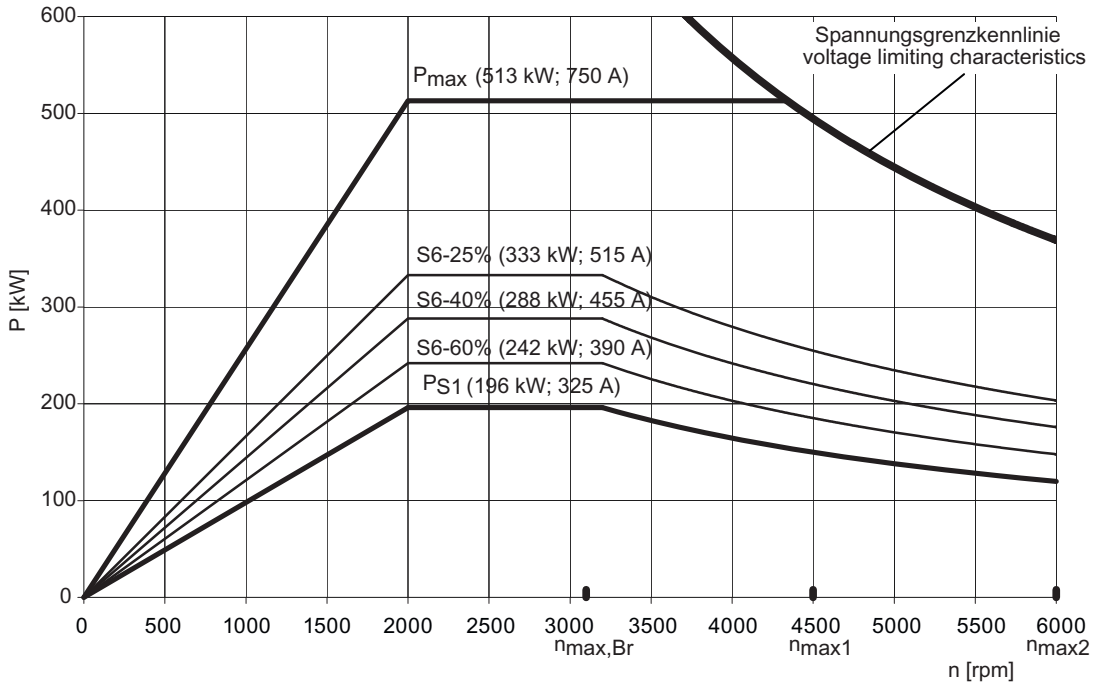


Table 4- 261 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□F□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	196	936	325	4500	6000	-	3100	3200	2450	750	036	325



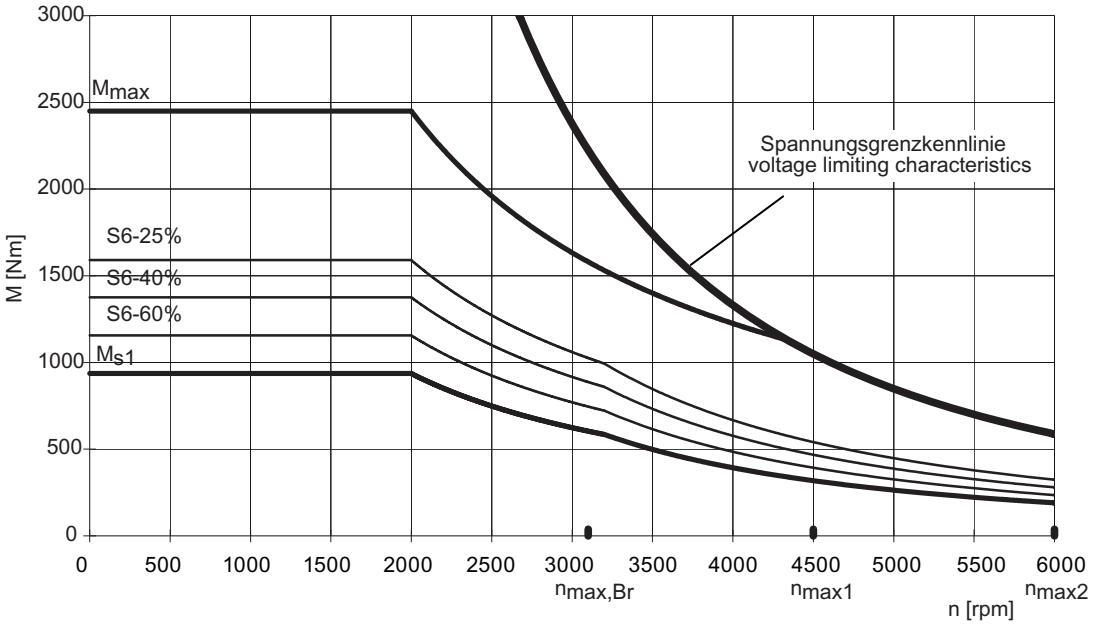
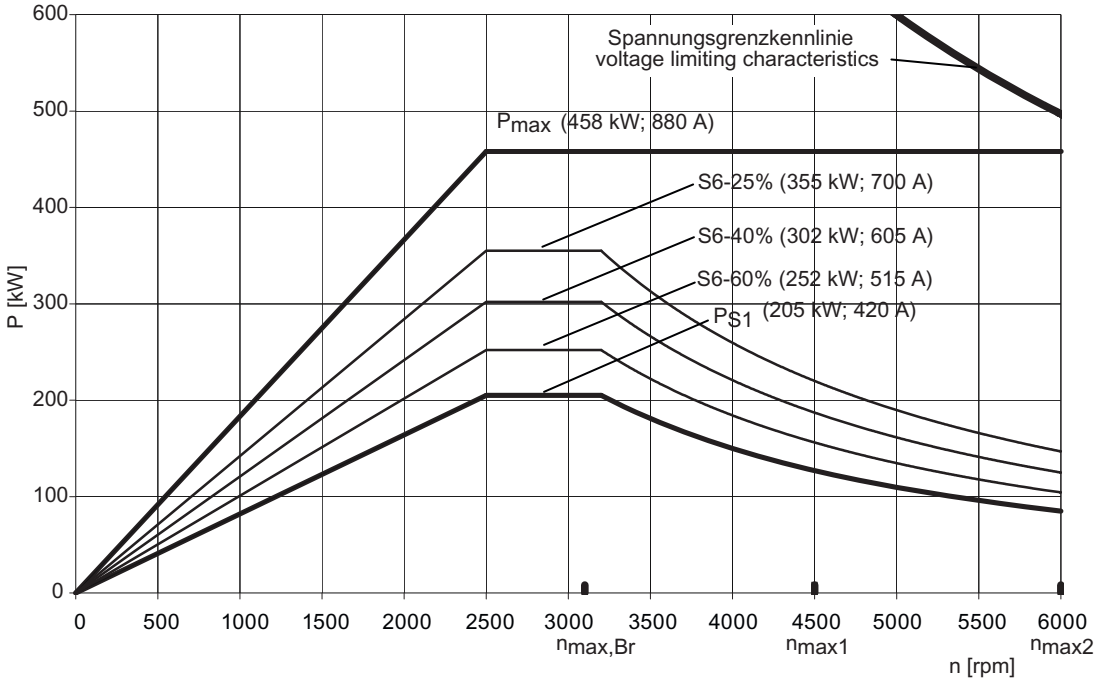


Table 4- 262 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	205	783	420	4500	6000	-	3100	3200	1750	880	783	420



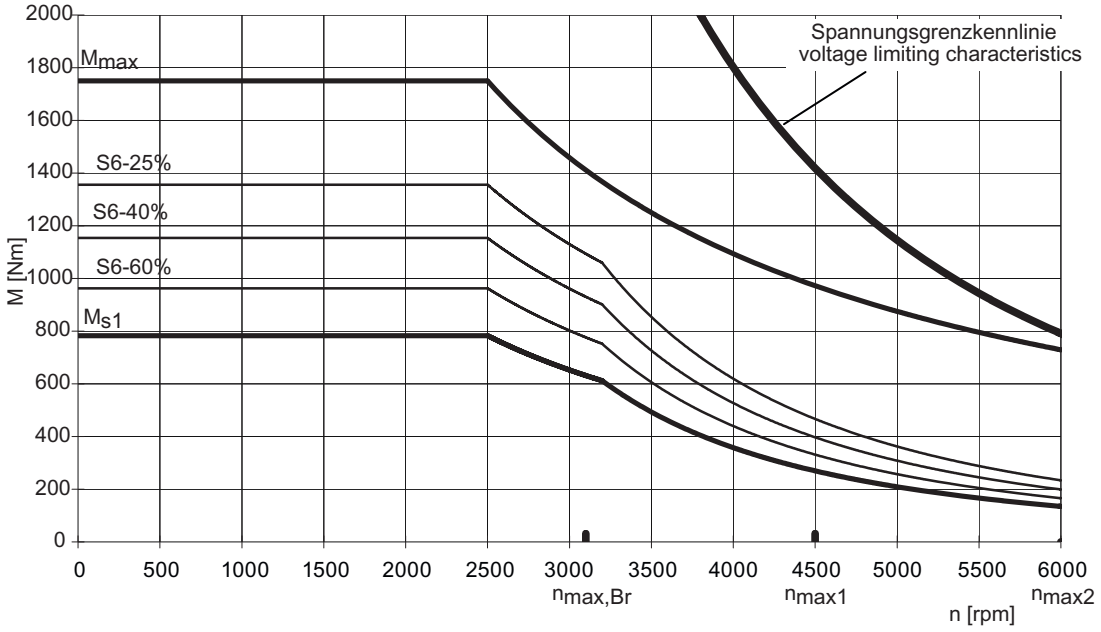


Table 4- 263 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	215	708	390	4500	6000	-	3100	3300	1750	880	708	390
2500	205	783	420					3400				

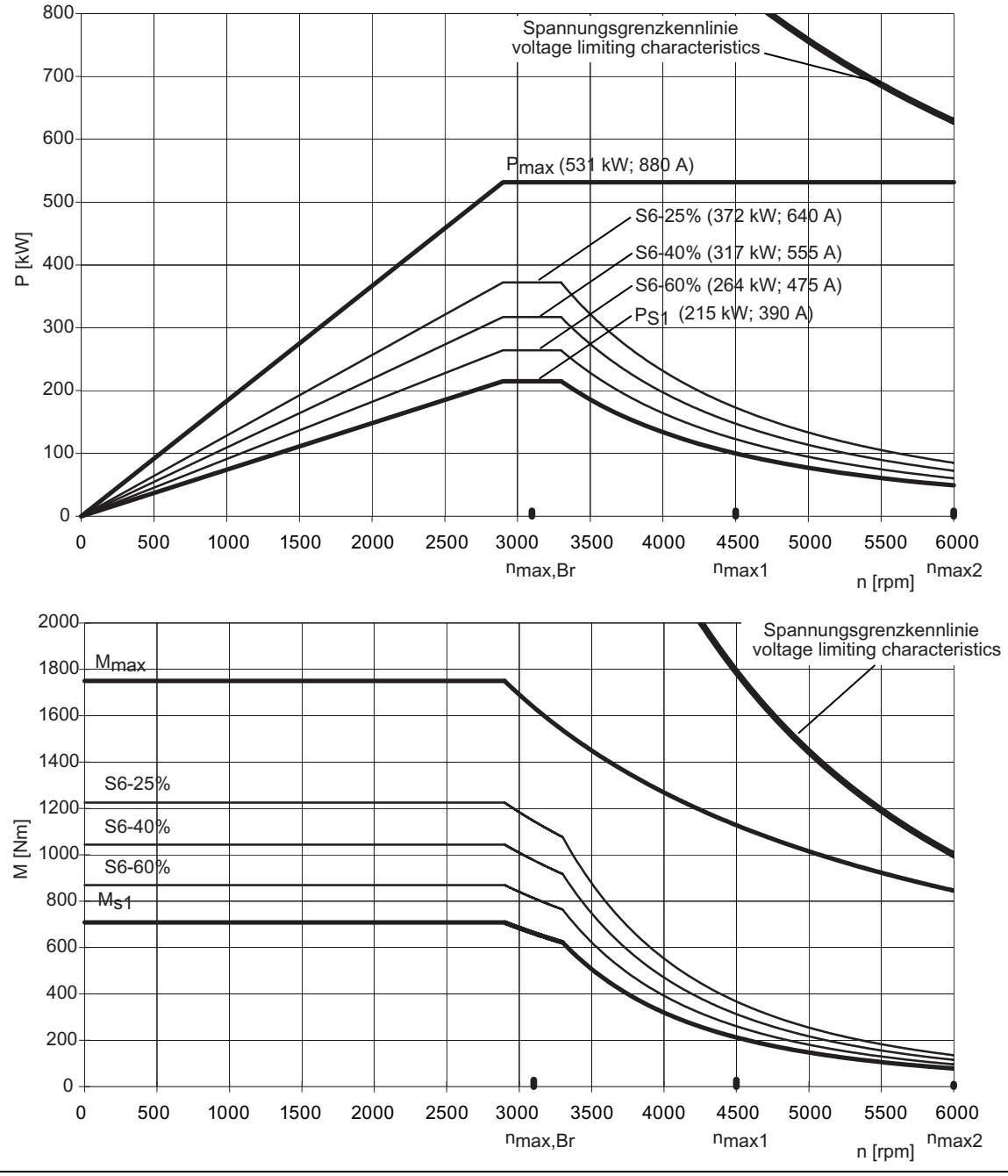
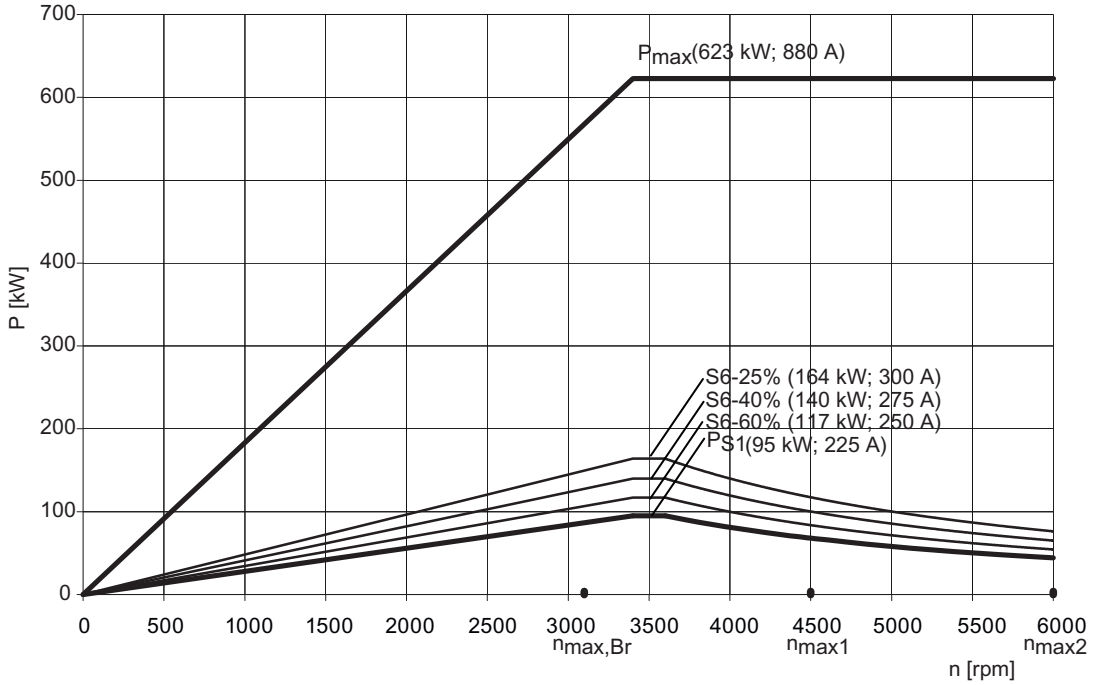
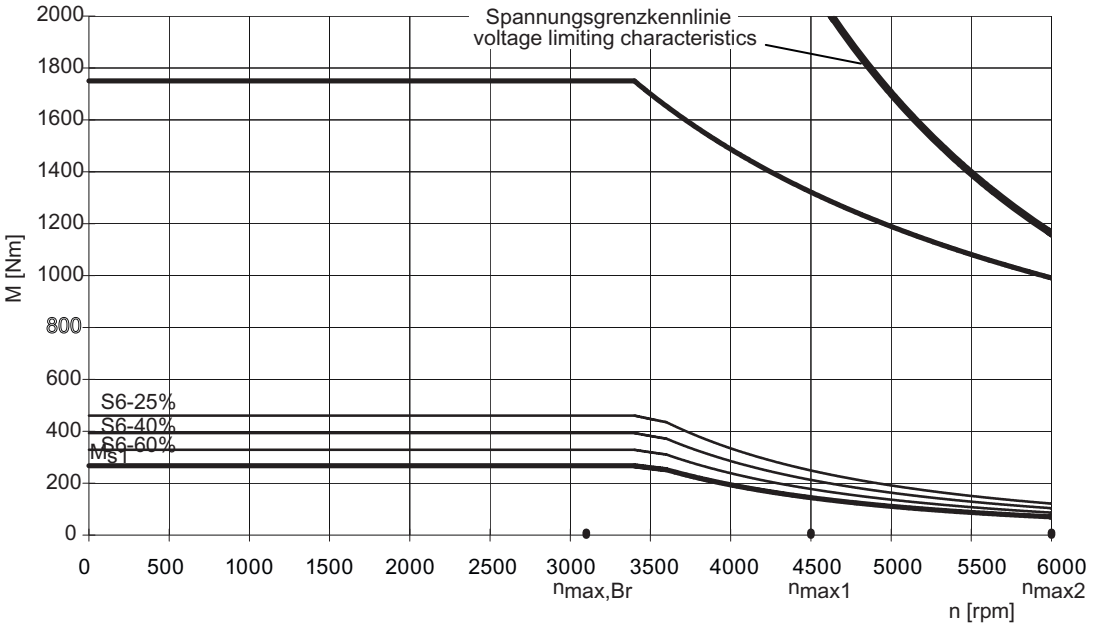


Table 4- 264 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L□□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	95	267	225	4500	6000	-	3100	3600	1750	880	267	225

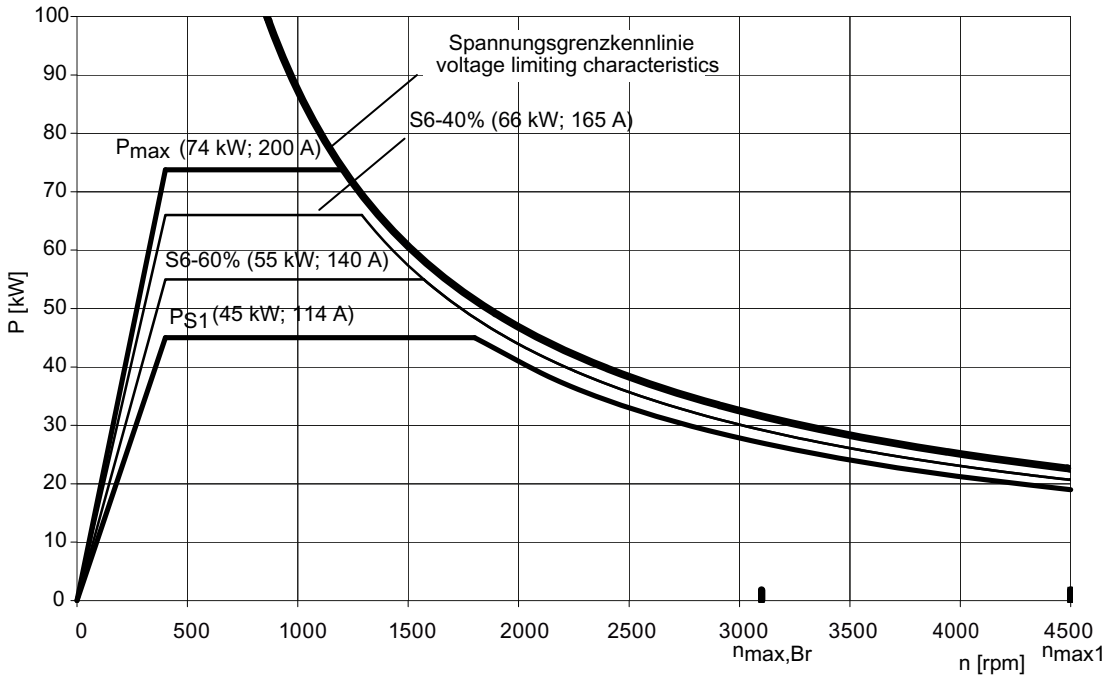




4.1.2.8 Shaft height 225 - forced ventilation (open-circuit ventilation)

Table 4- 265 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	45	1074	114	4500	-	-	3100	1800	1760	200	1074	114



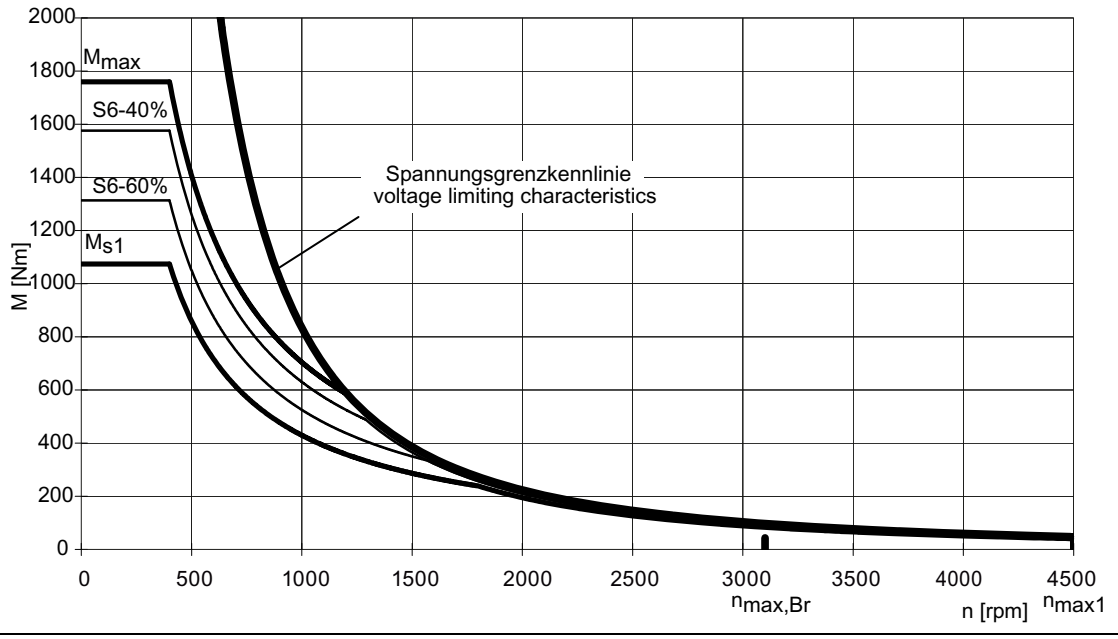
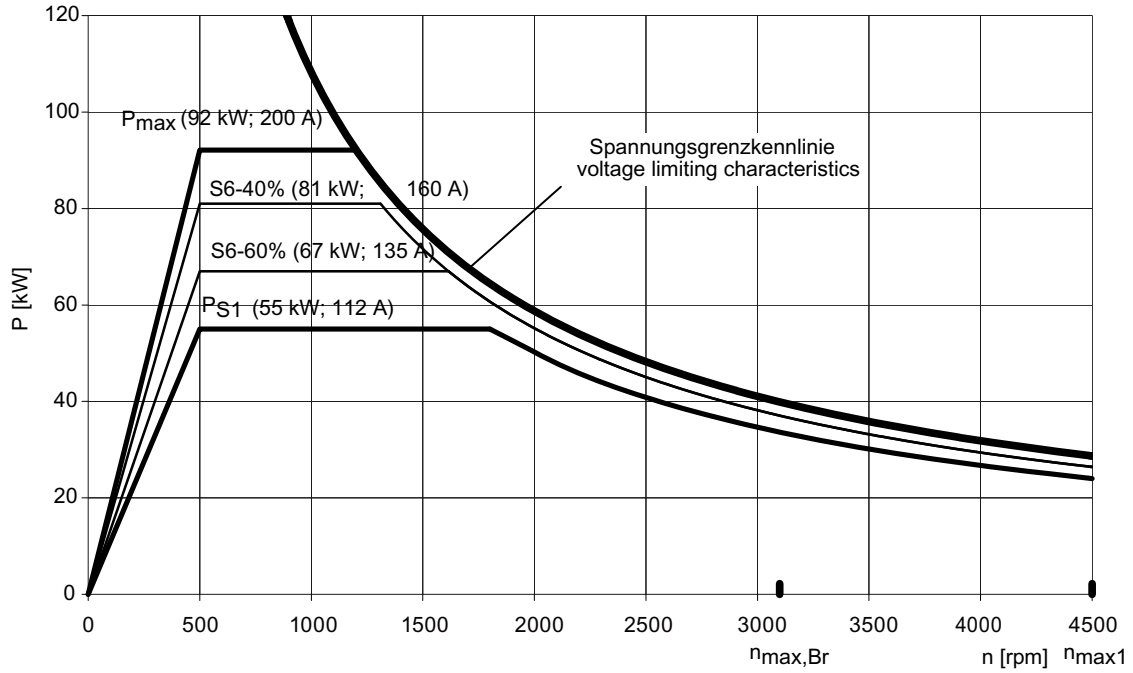


Table 4- 266 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	55	1051	112	4500	-	-	3100	1800	1760	200	1051	112
400	45	1074	114					2200				



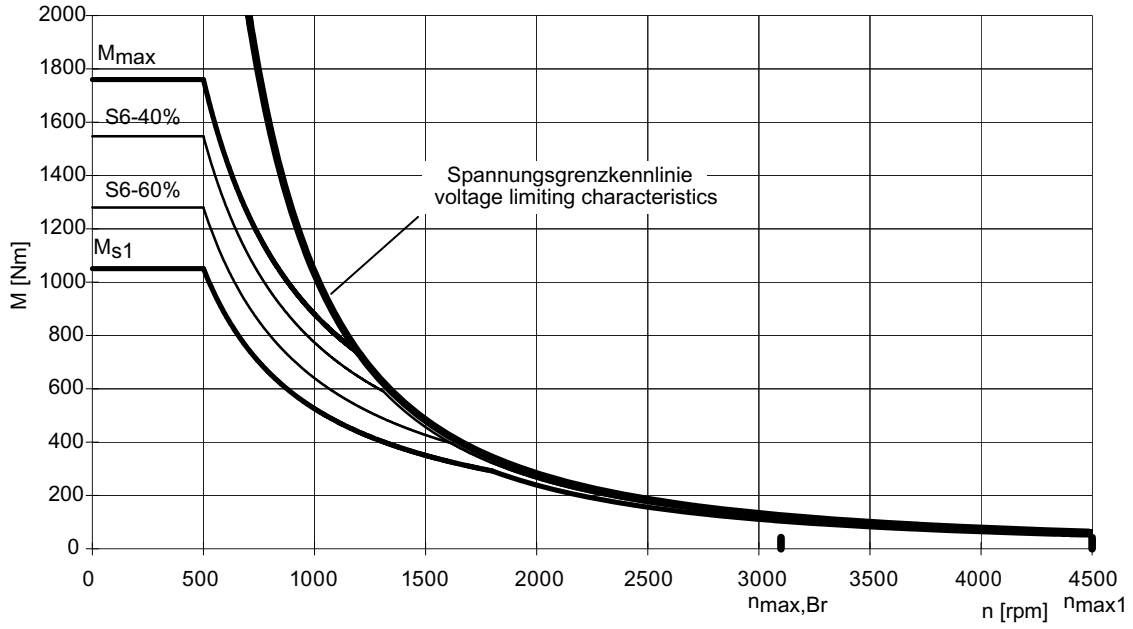
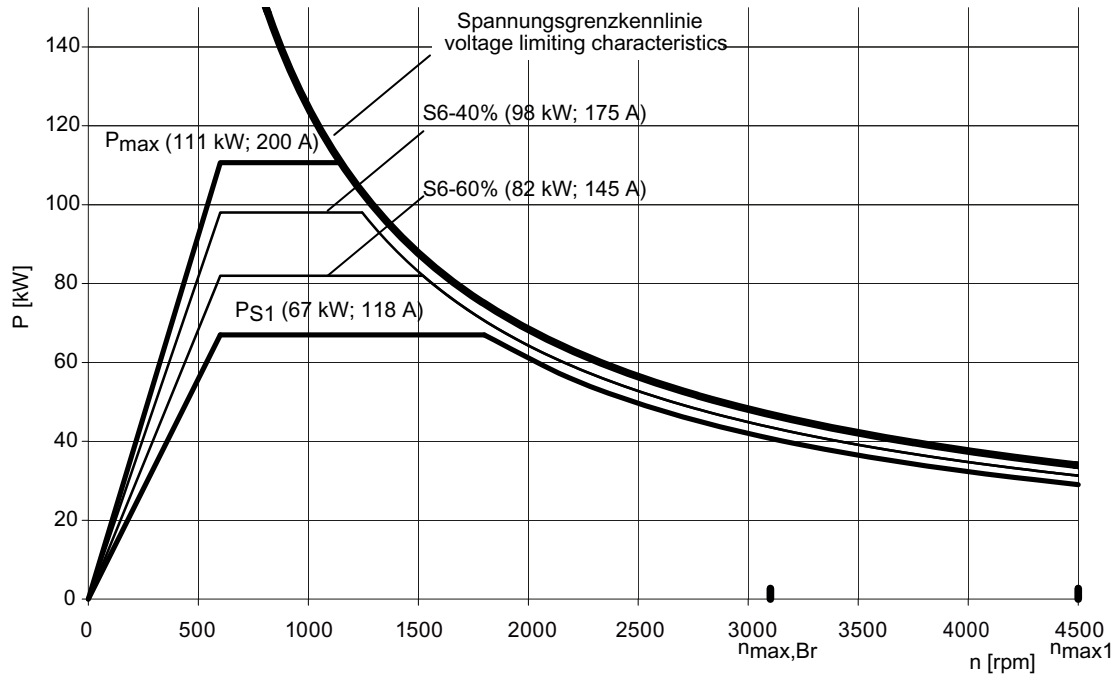


Table 4- 267 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	67	1066	118	4500	-	-	3100	1800	1760	200	1066	118



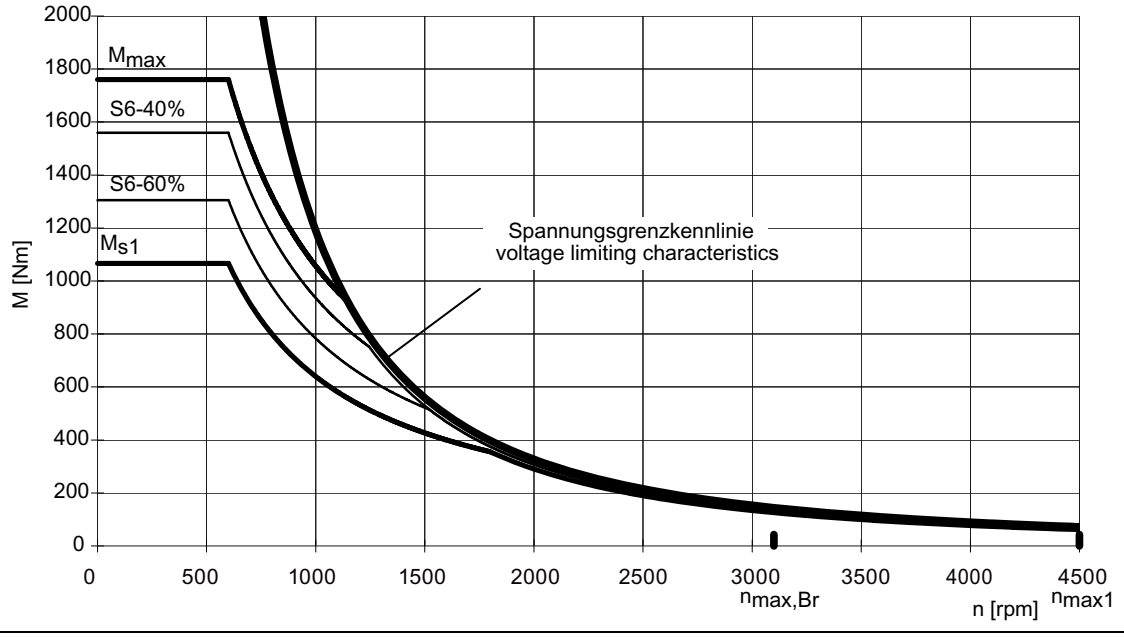
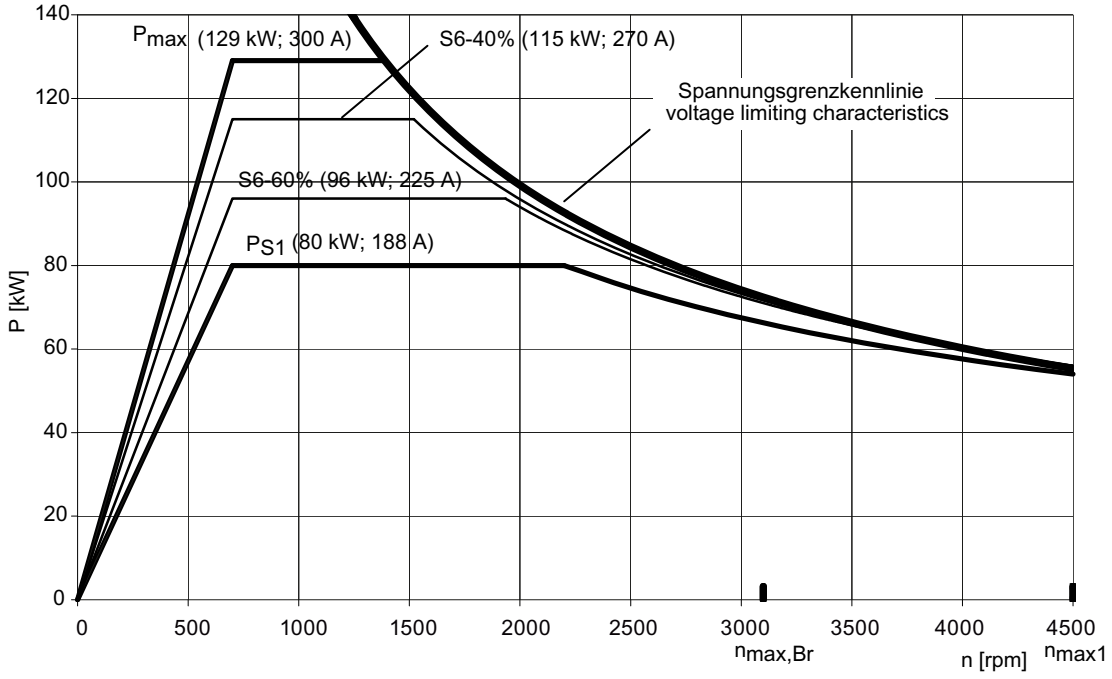


Table 4- 268 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	80	1091	188	4500	-	-	3100	2200	1760	300	1091	188



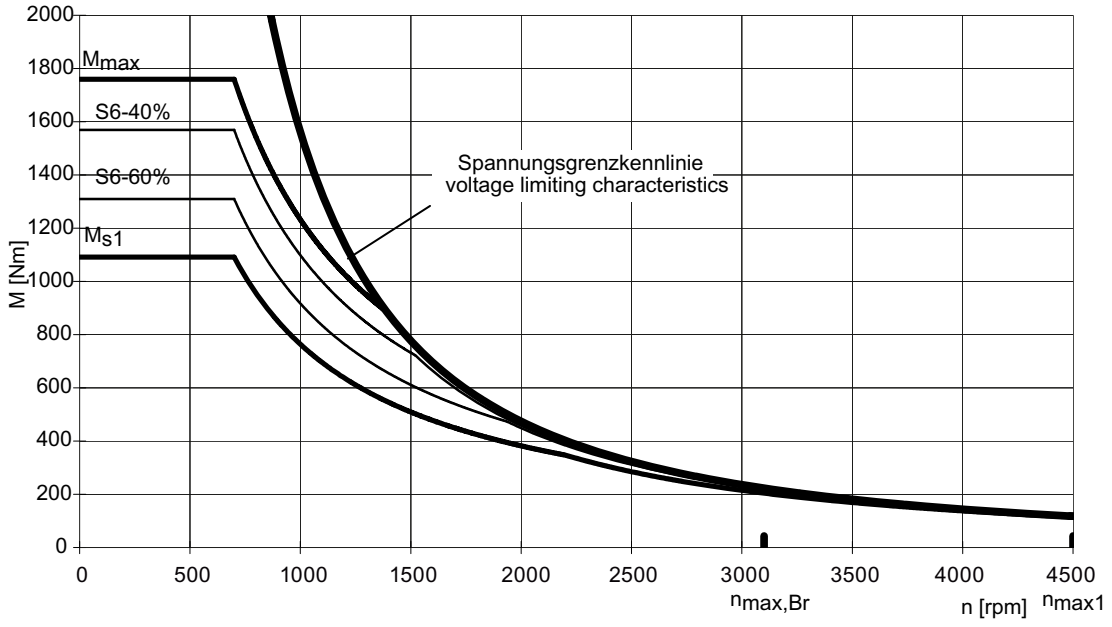
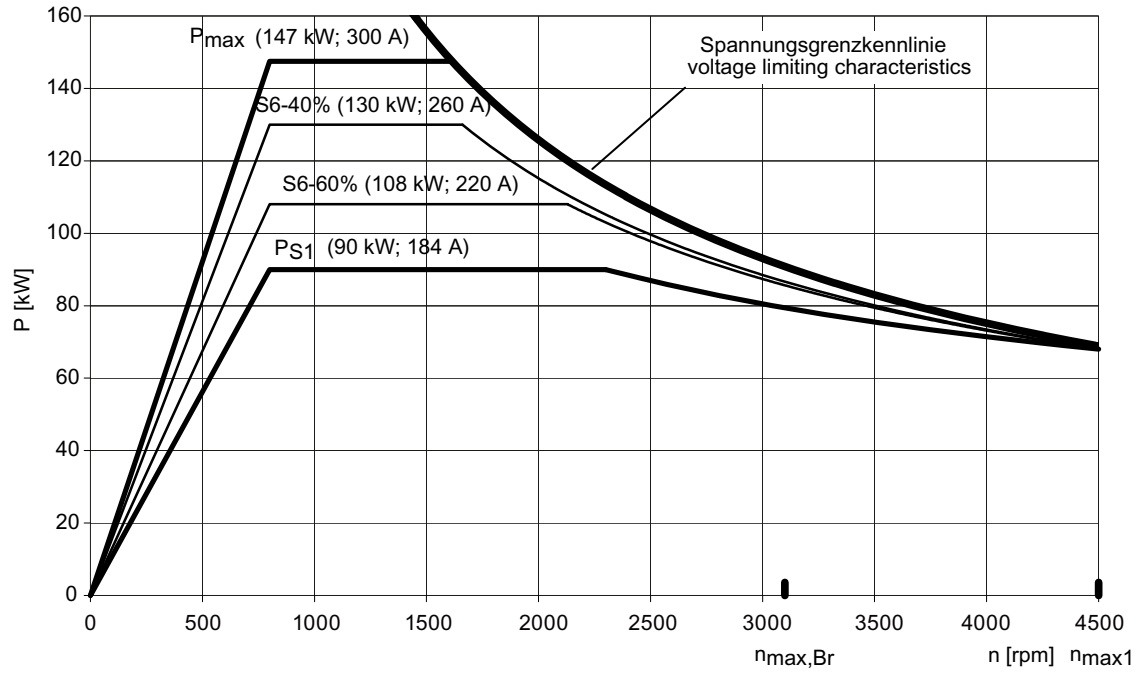


Table 4- 269 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	90	1074	184	4500	-	-	3100	2300	1760	300	1074	184
700	80	1091	188					3000				



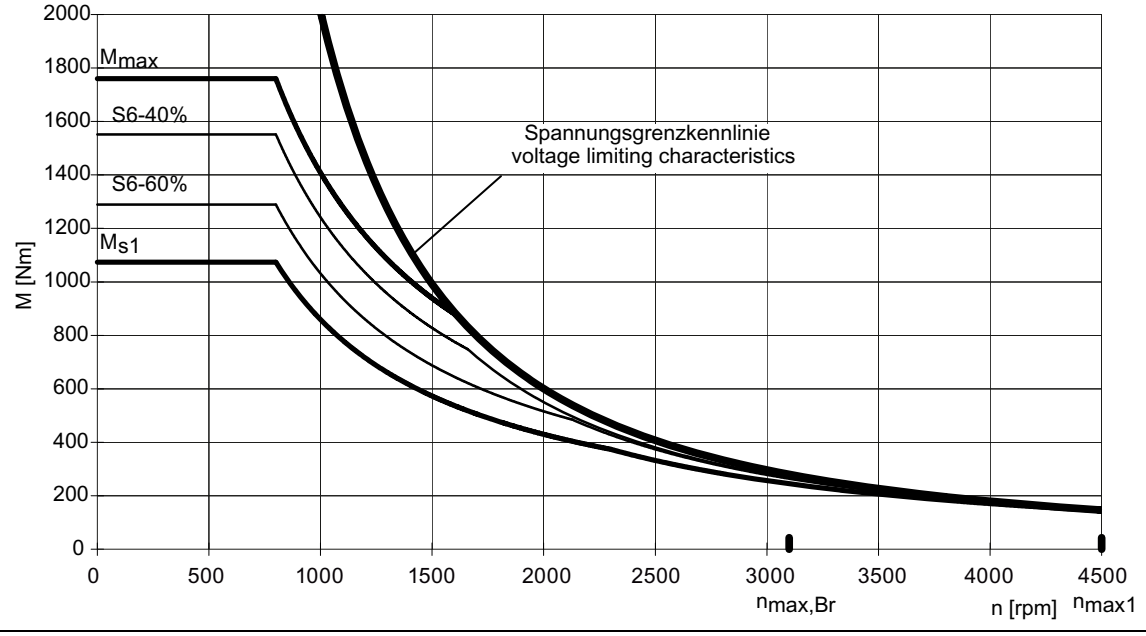
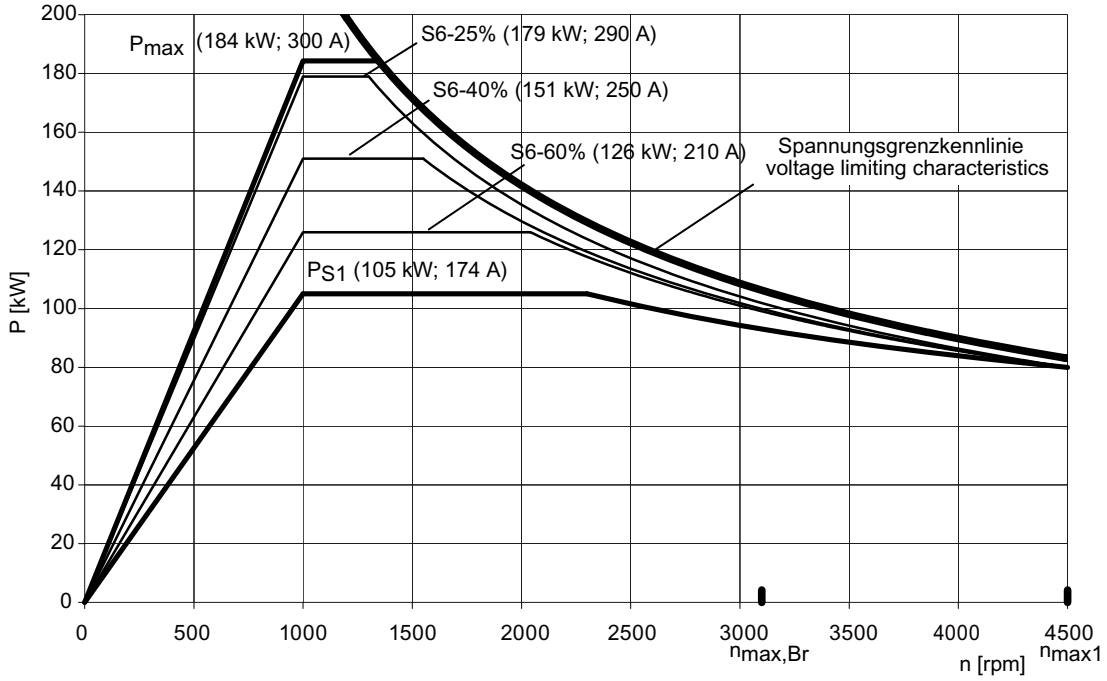


Table 4- 270 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	105	1003	174	4500	-	-	3100	2300	1760	300	1003	174



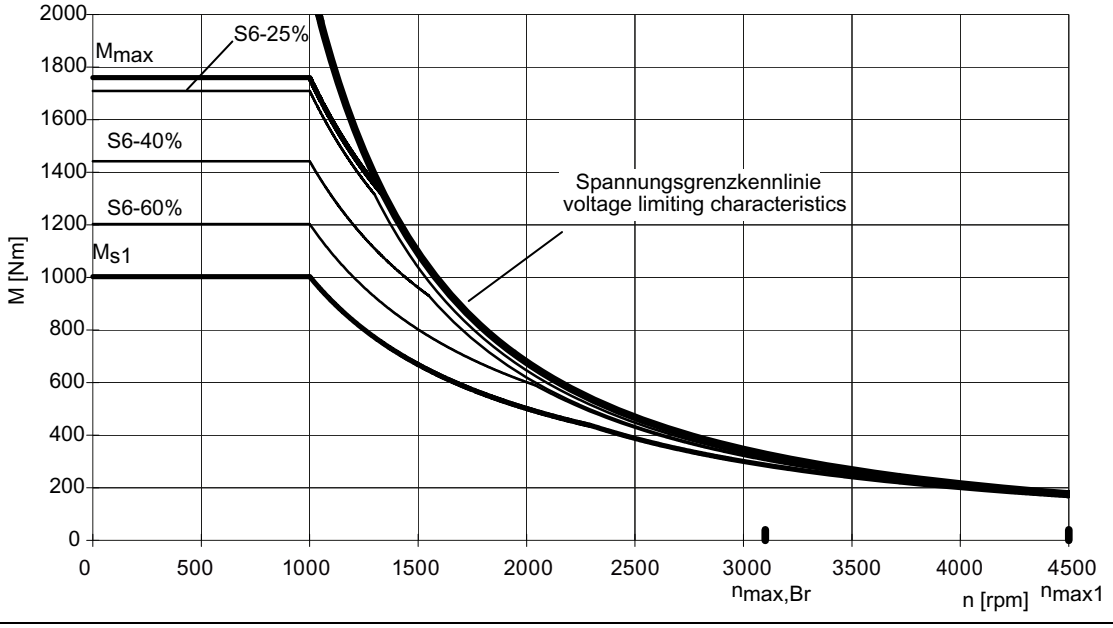
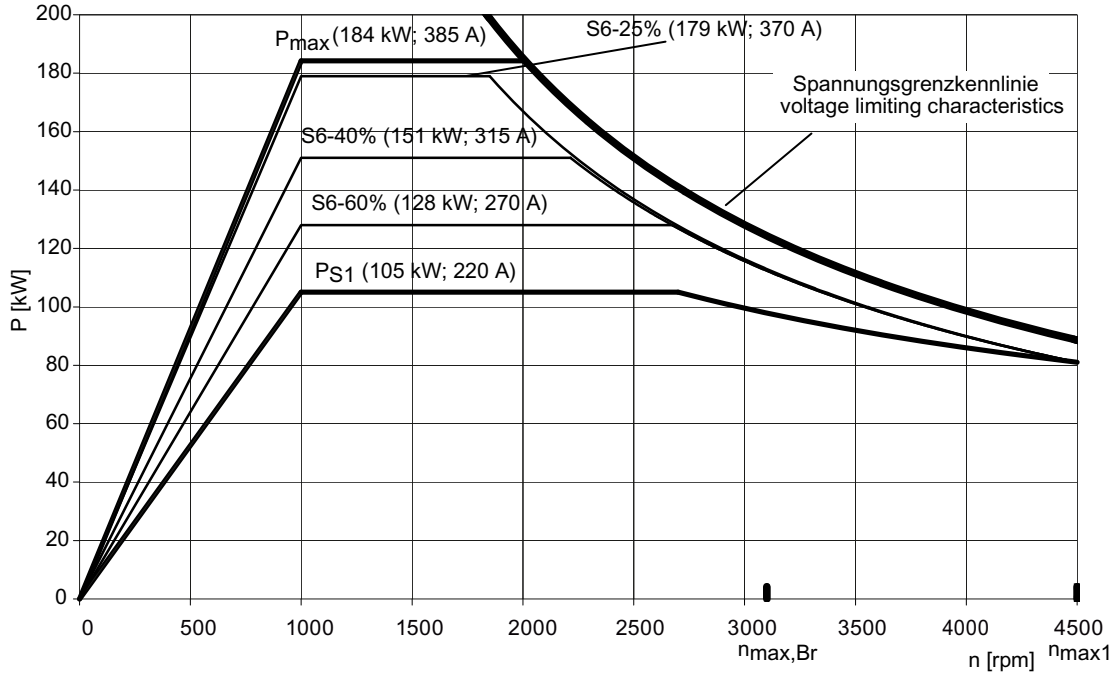


Table 4- 271 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	105	1003	220	4500	-	-	3100	2700	1760	385	1003	2200



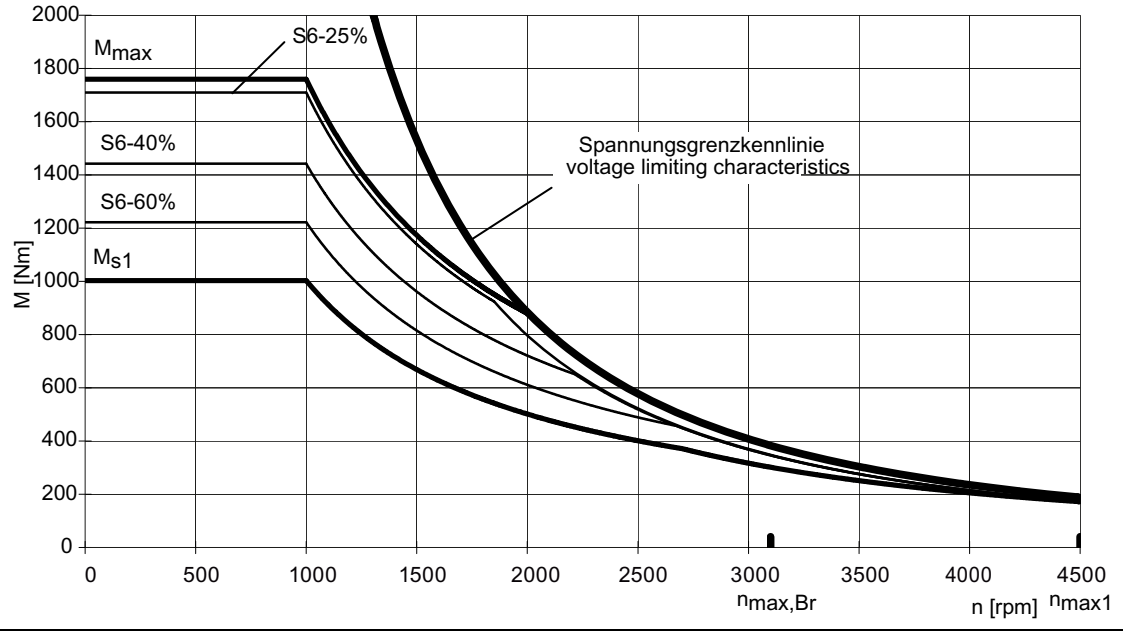
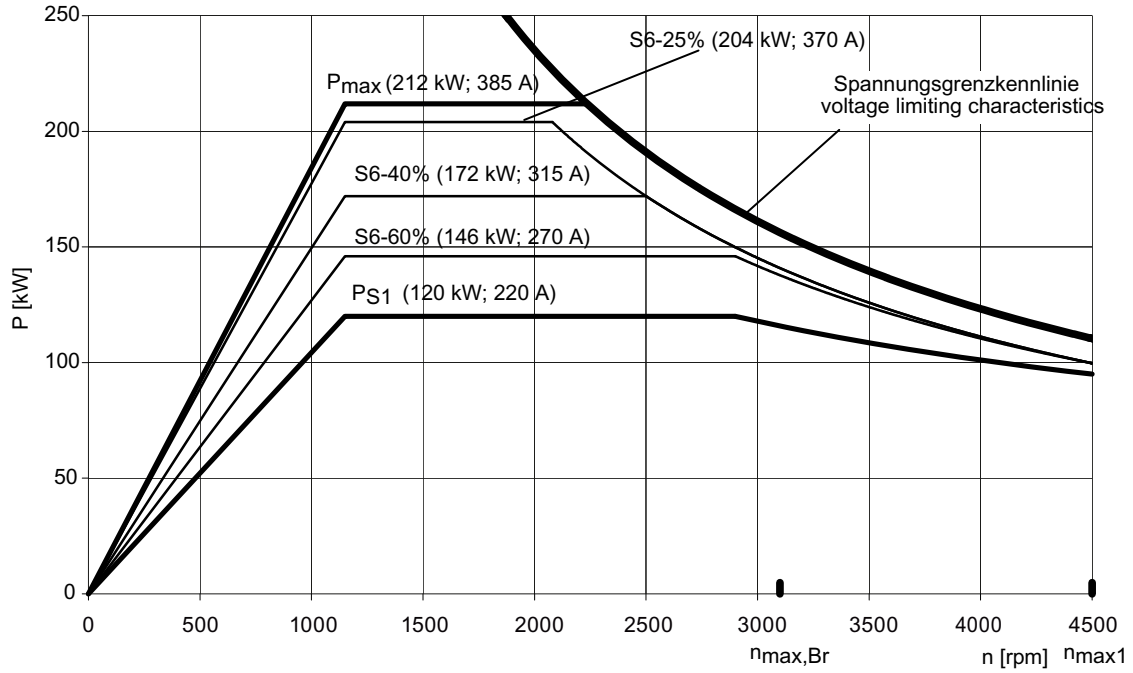


Table 4- 272 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	120	997	220	4500	-	-	3100	2900	1760	385	997	220
1000	105	1003	220					3700				



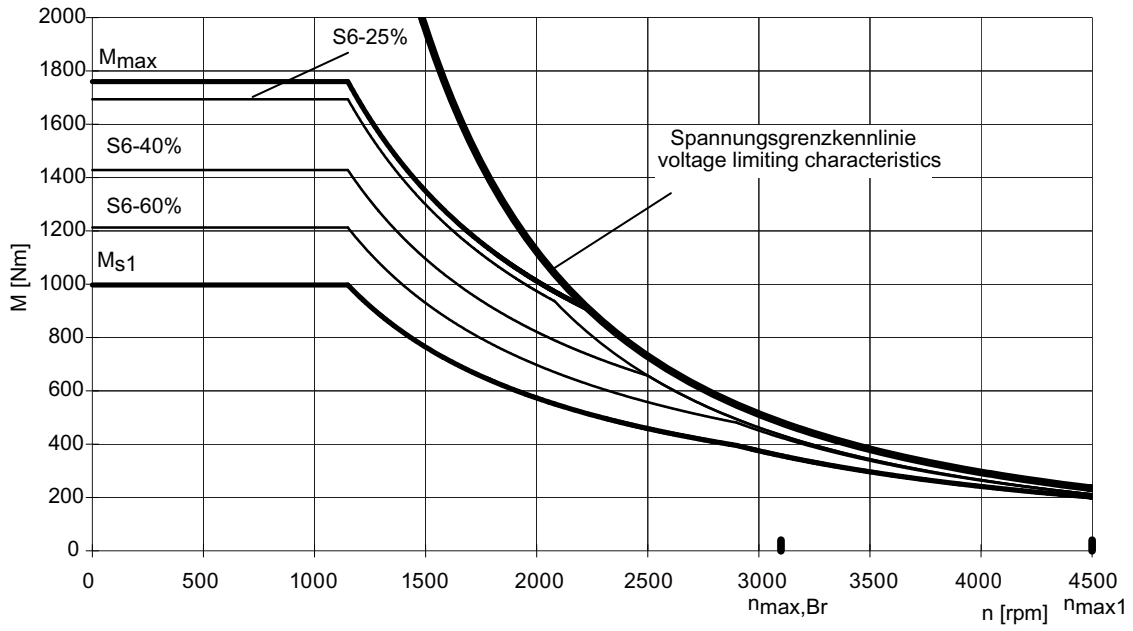
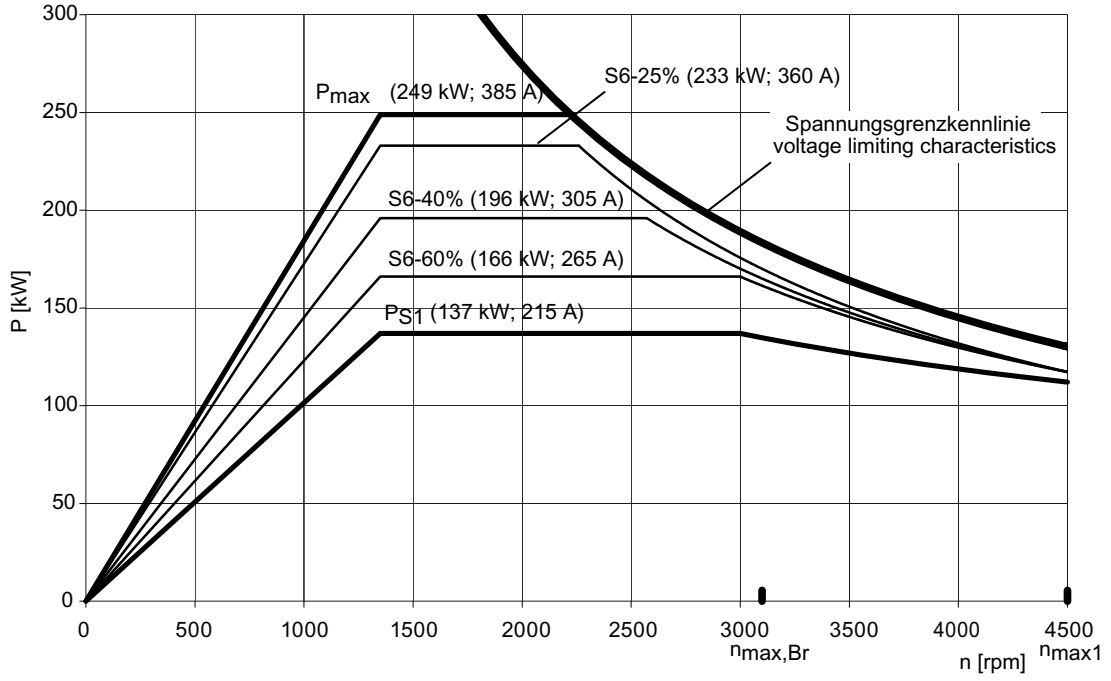


Table 4- 273 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	137	969	215	4500	-	-	3100	3000	1760	385	969	215



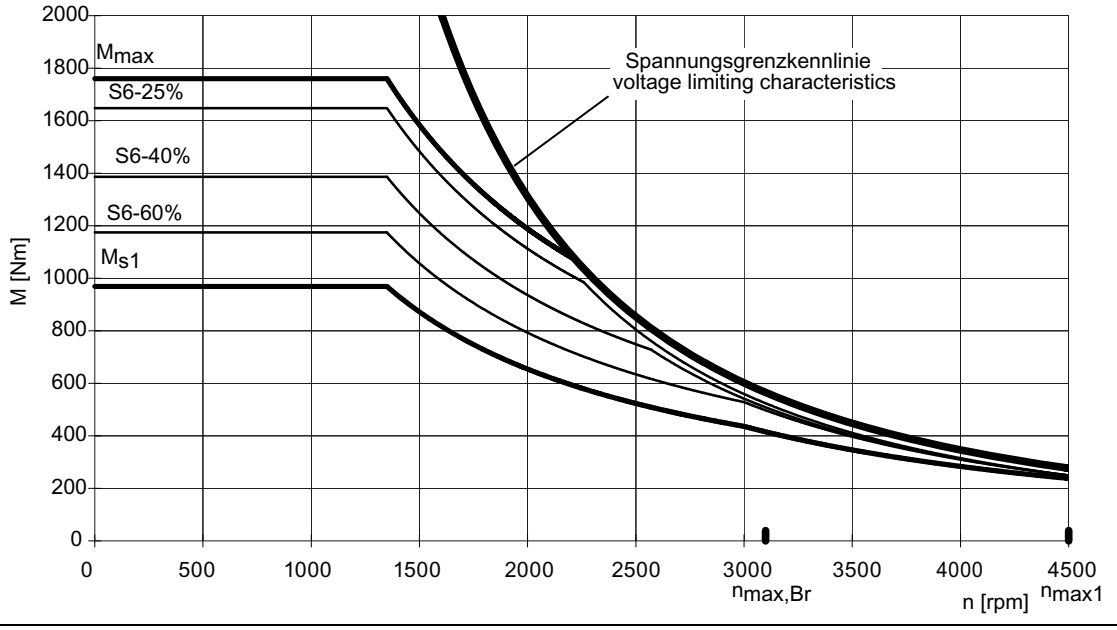
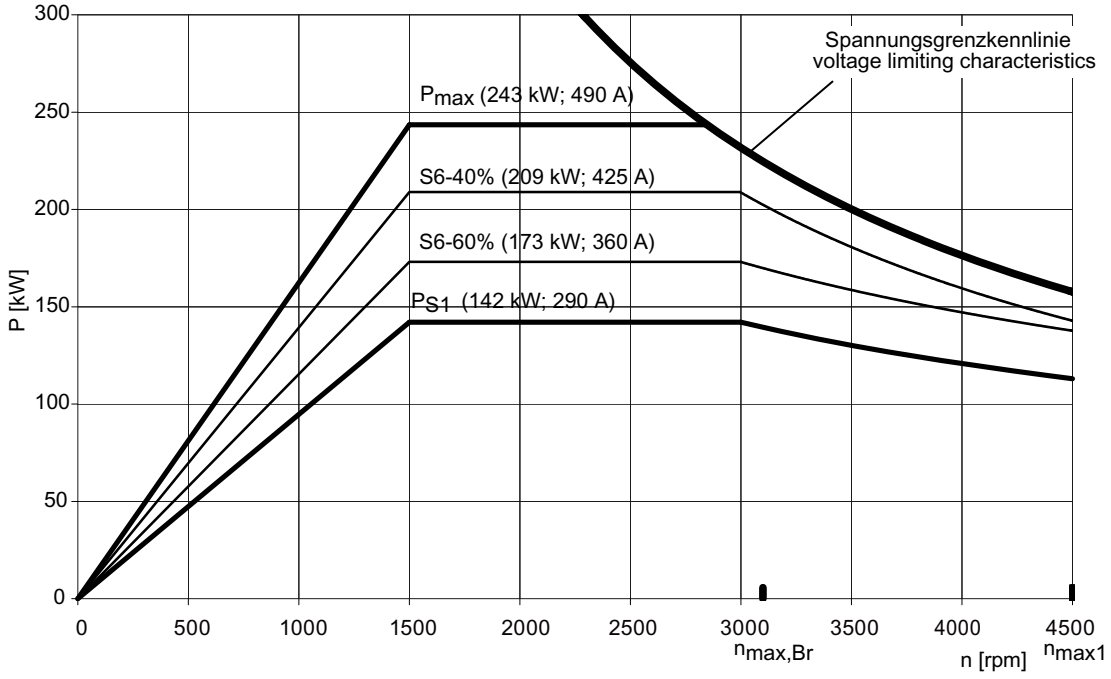


Table 4- 274 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	142	904	290	4500	-	-	3100	3000	1550	490	904	290



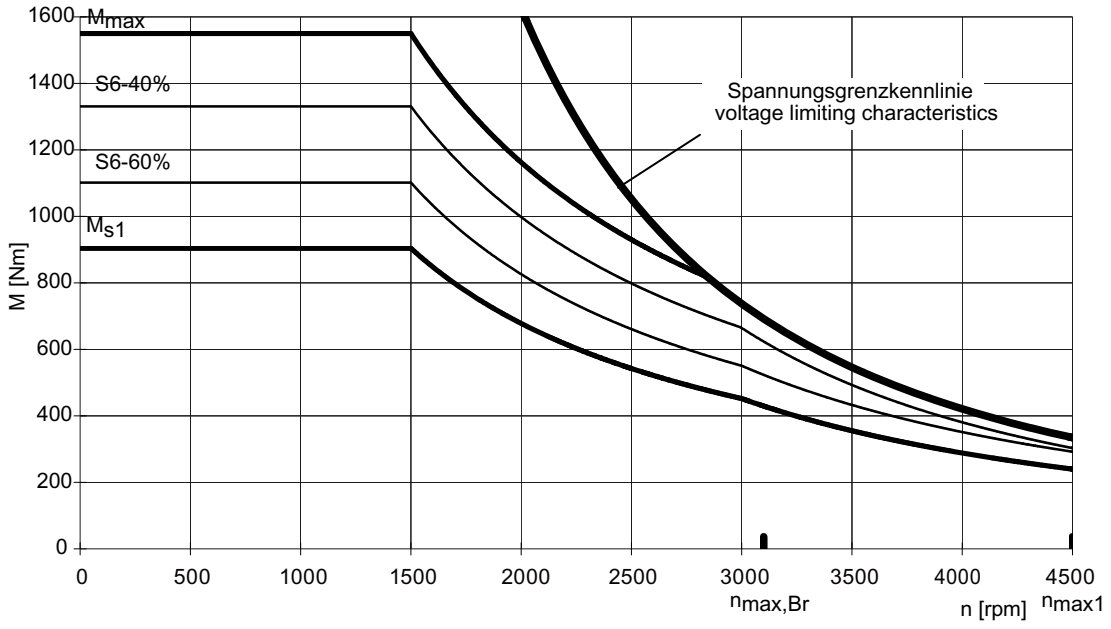
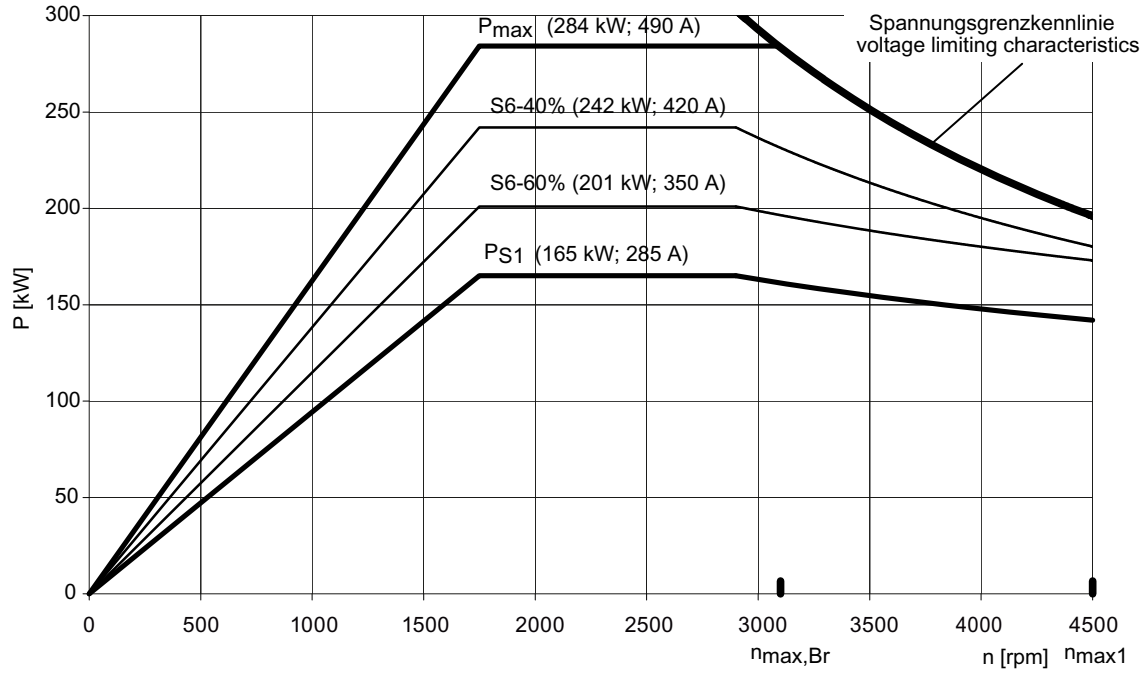


Table 4- 275 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	165	900	285	4500	-	-	3100	2900	1550	490	900	285
1500	142	904	290					4500				



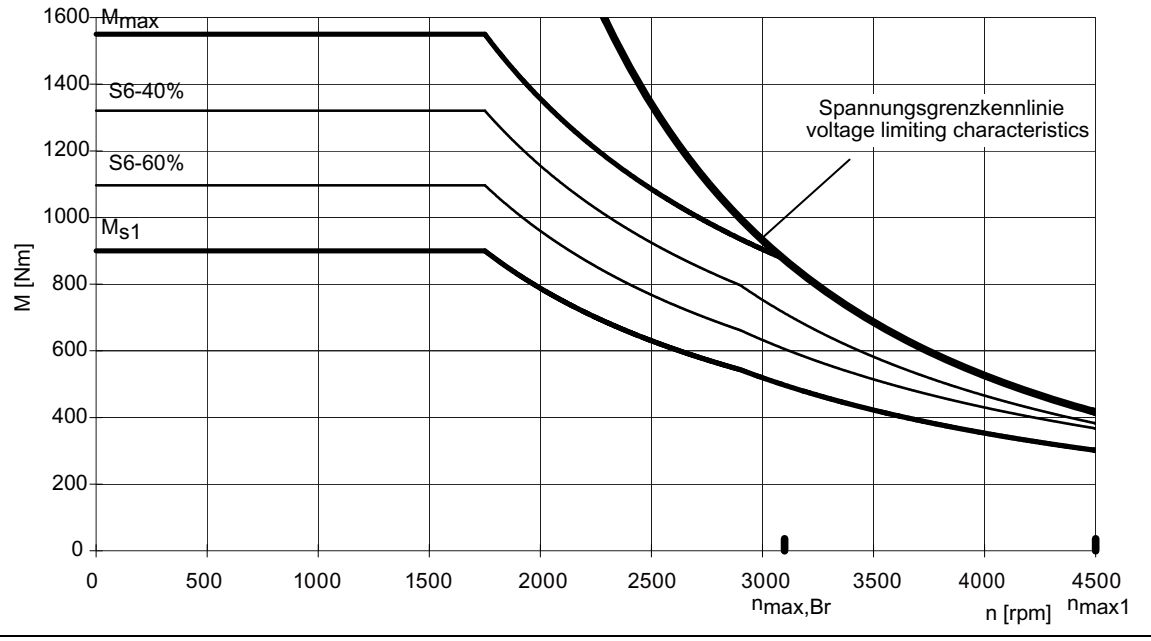
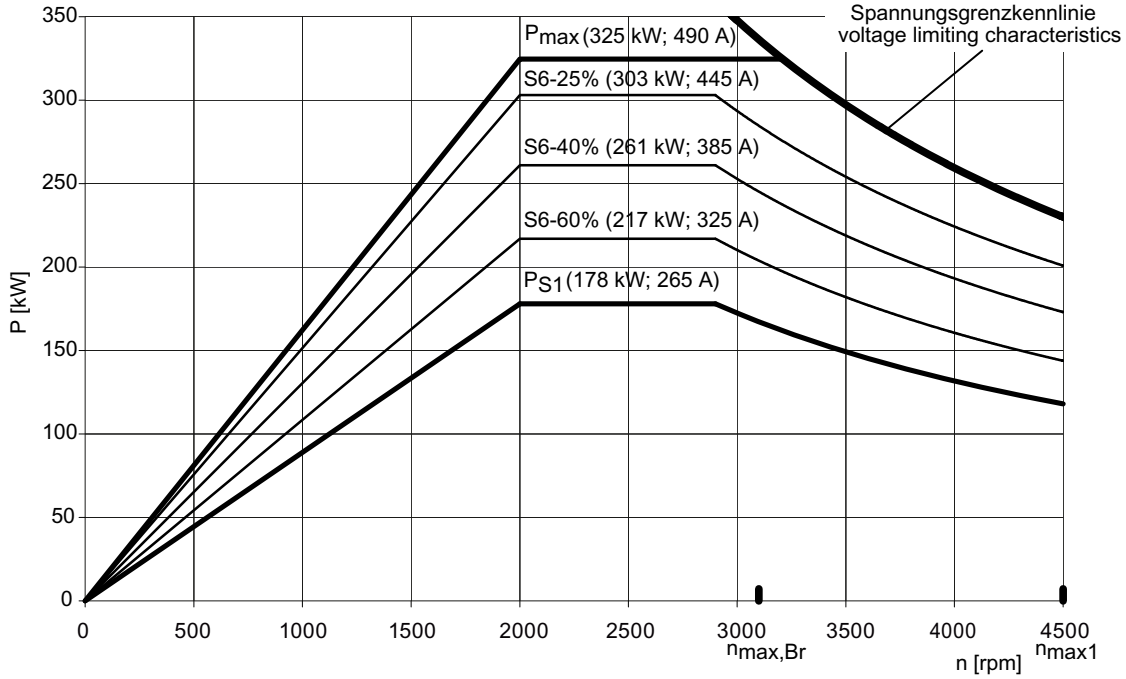


Table 4- 276 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	178	850	265	4500	-	-	3100	2900	1550	490	850	265



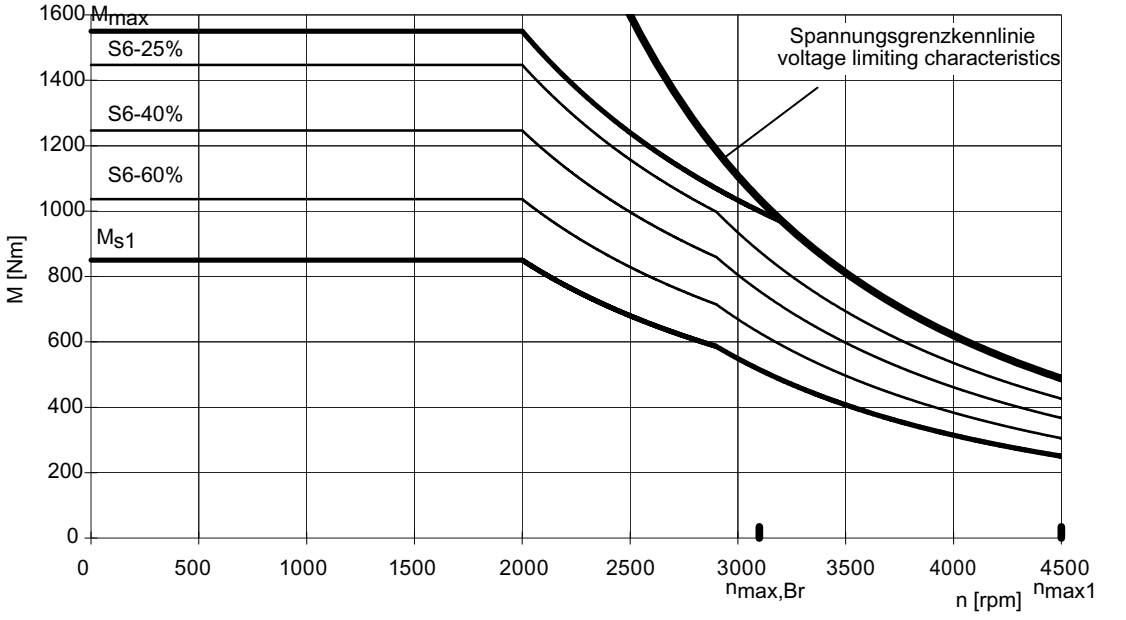
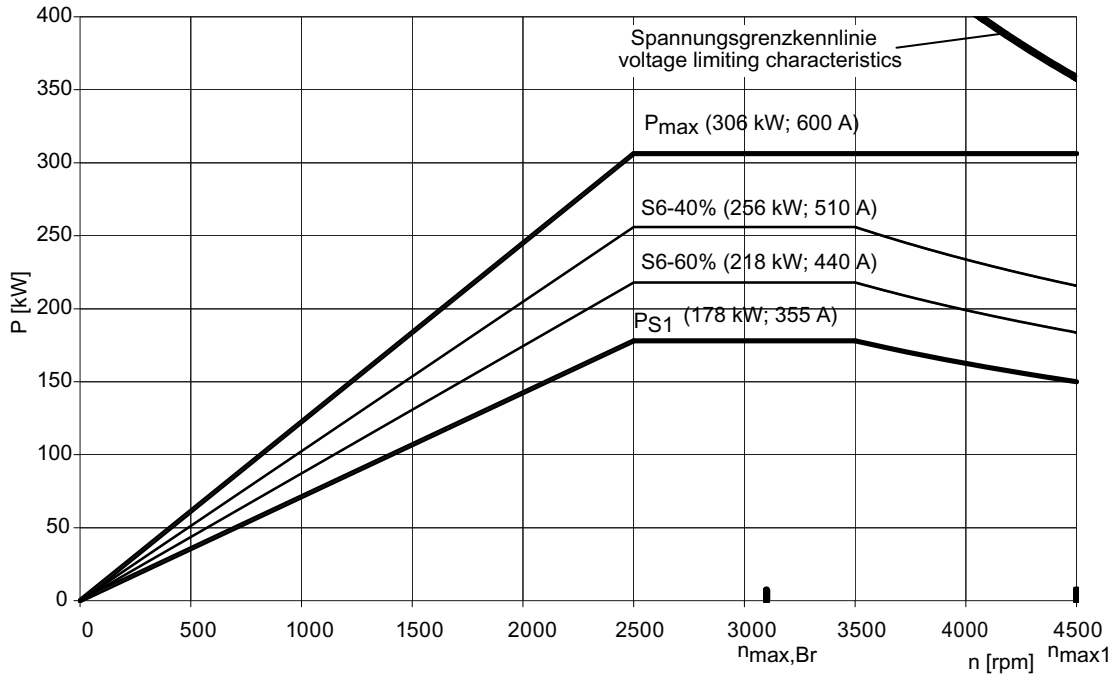


Table 4- 277 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	178	680	355	4500	-	-	3100	3500	1170	600	680	355



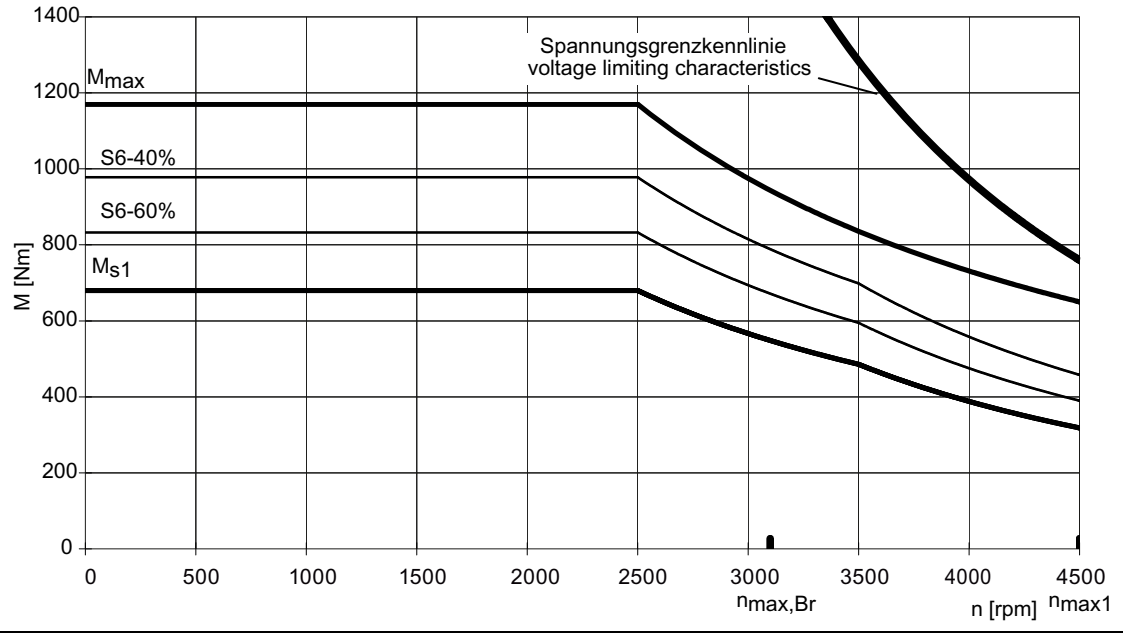
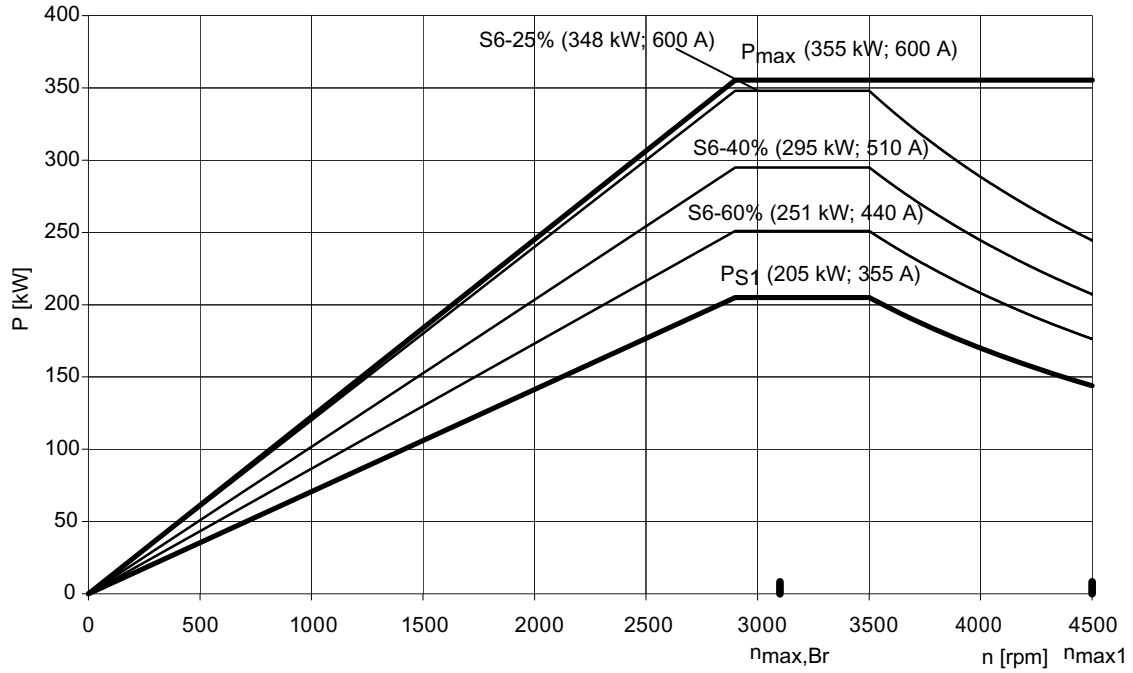


Table 4- 278 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	205	675	355	4500	-	-	3100	3500	1170	600	675	355
2500	178	680	355					3900				



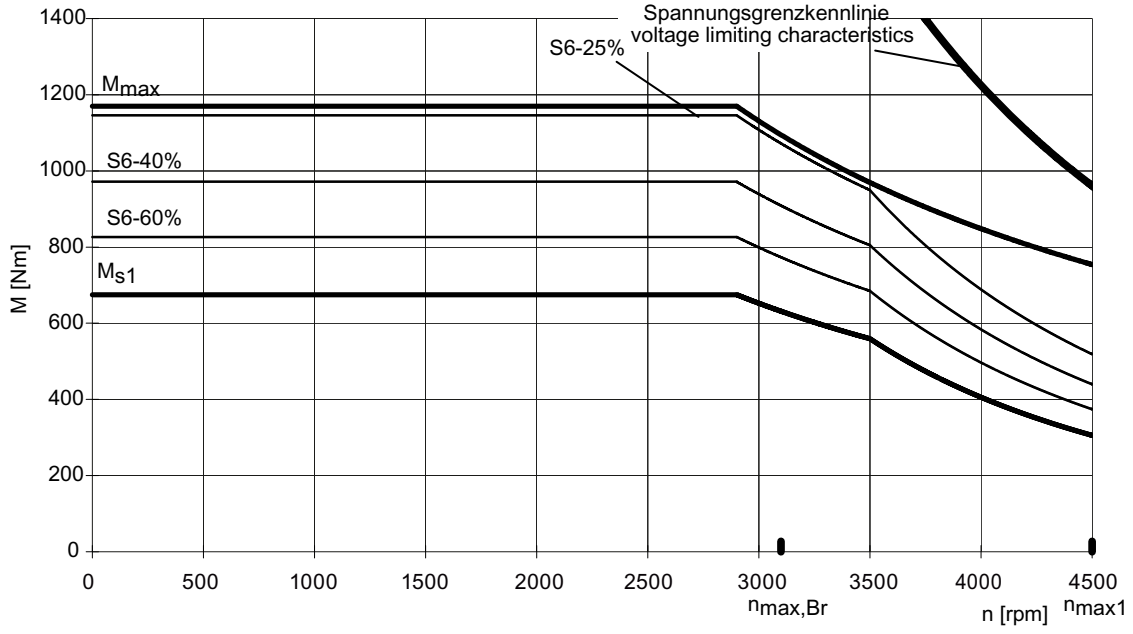
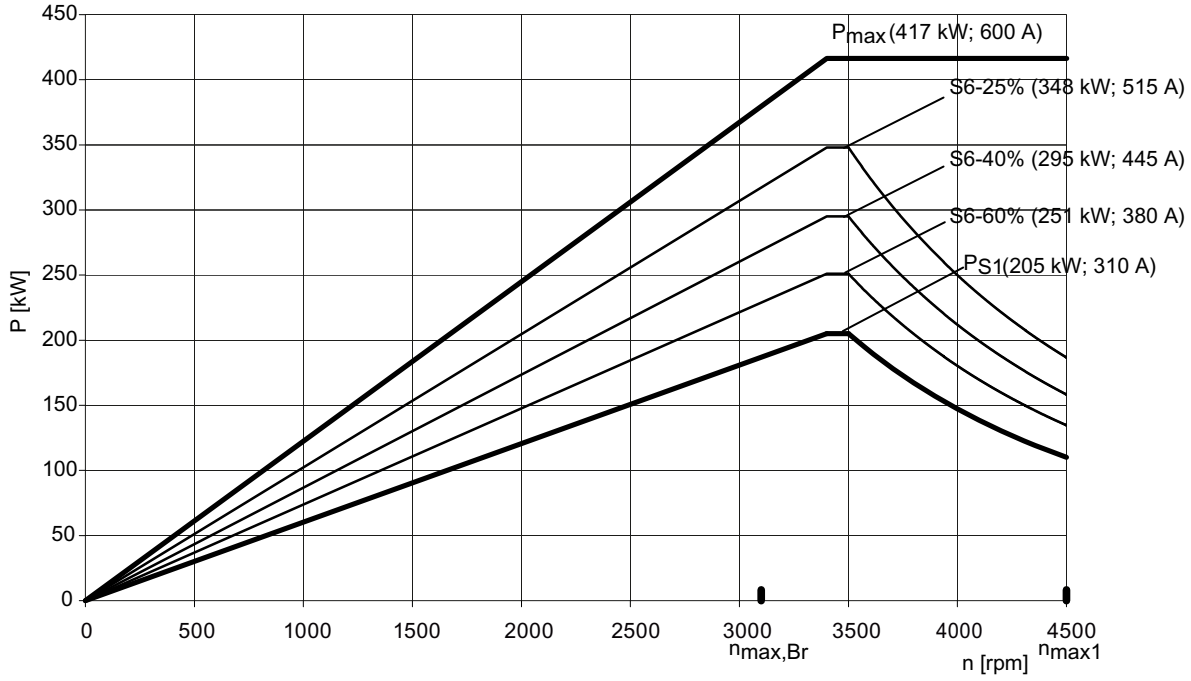


Table 4- 279 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	205	576	310	4500	-	-	3100	3500	1170	600	576	310



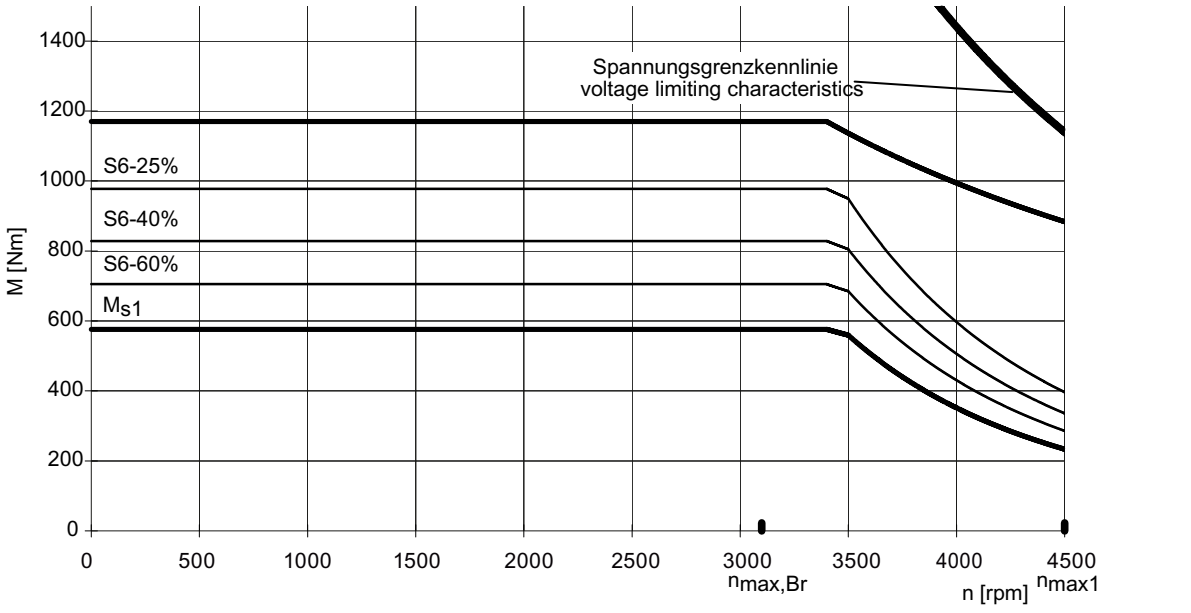
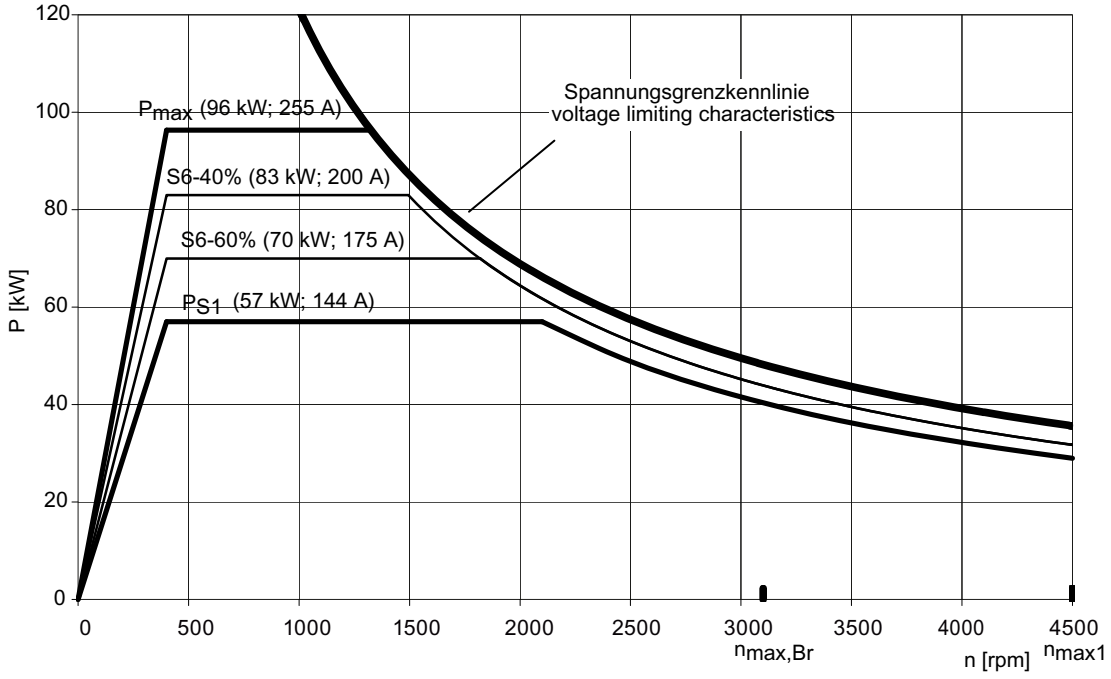


Table 4- 280 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	57	1361	144	4500	-	-	3100	2100	2300	255	1361	144



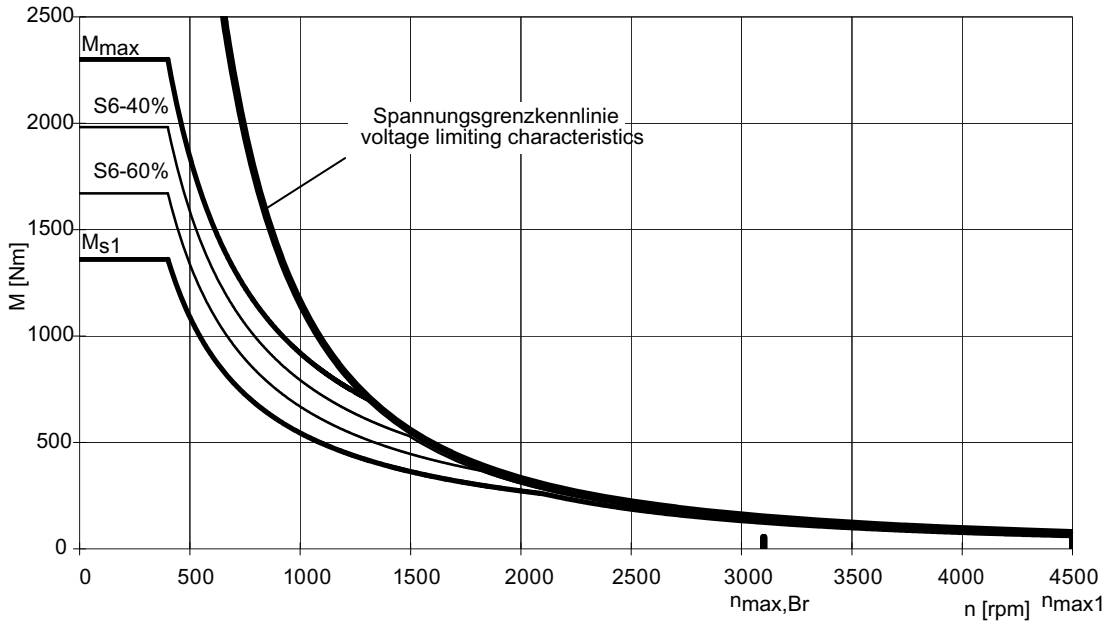
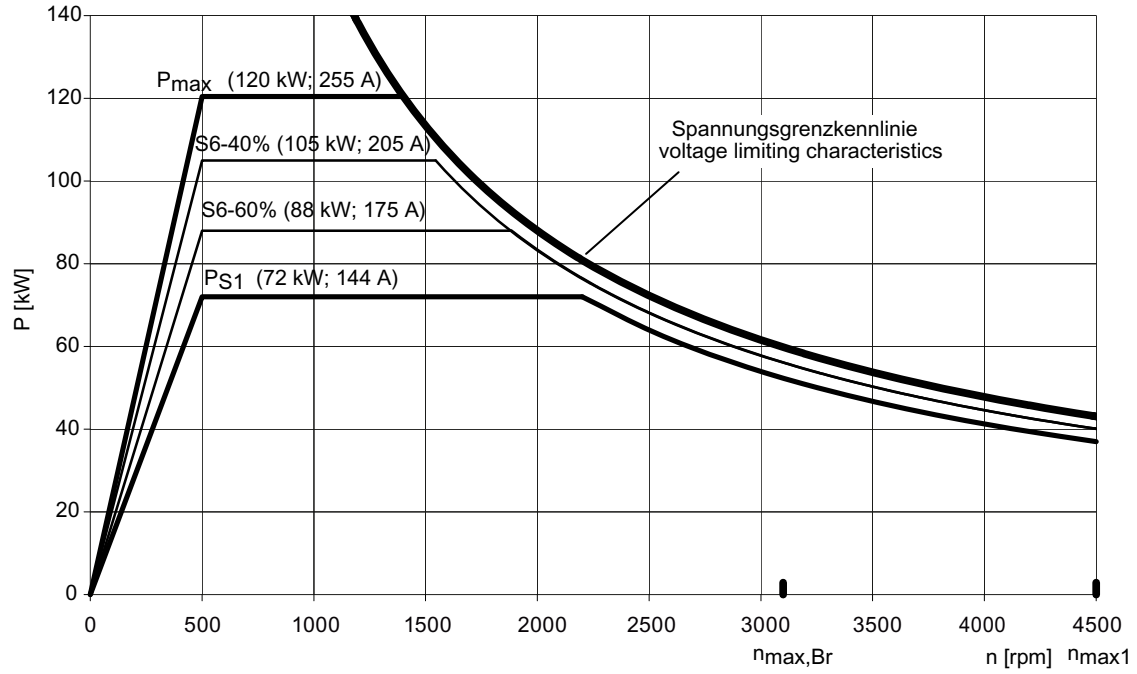


Table 4- 281 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	72	1375	144	4500	-	-	3100	2200	2300	255	1375	144
400	57	1361	144					2800				



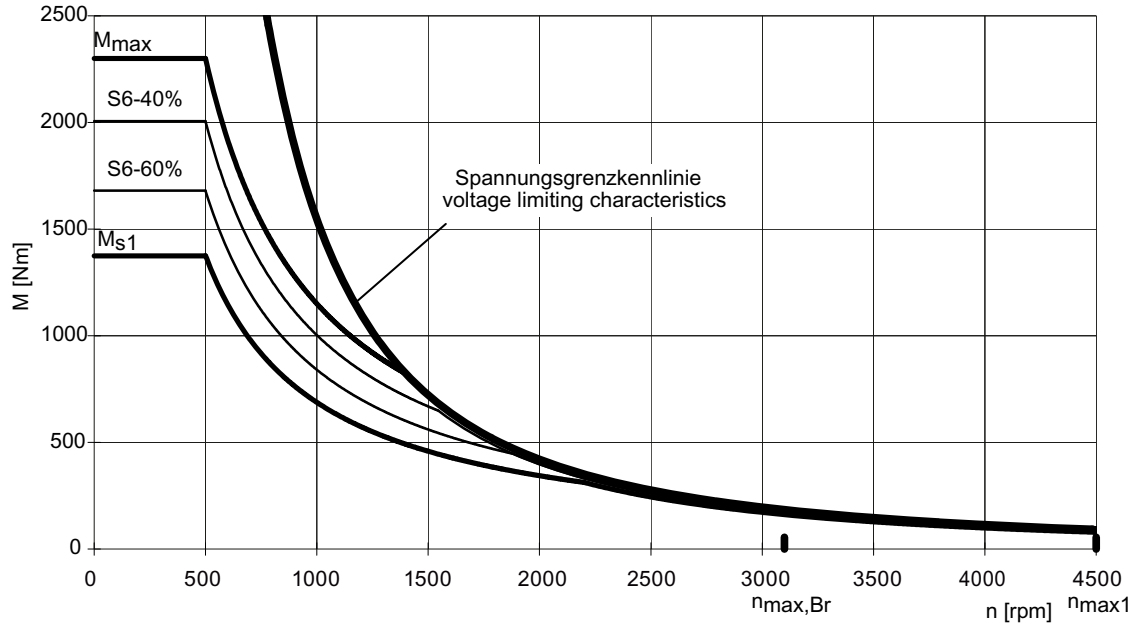
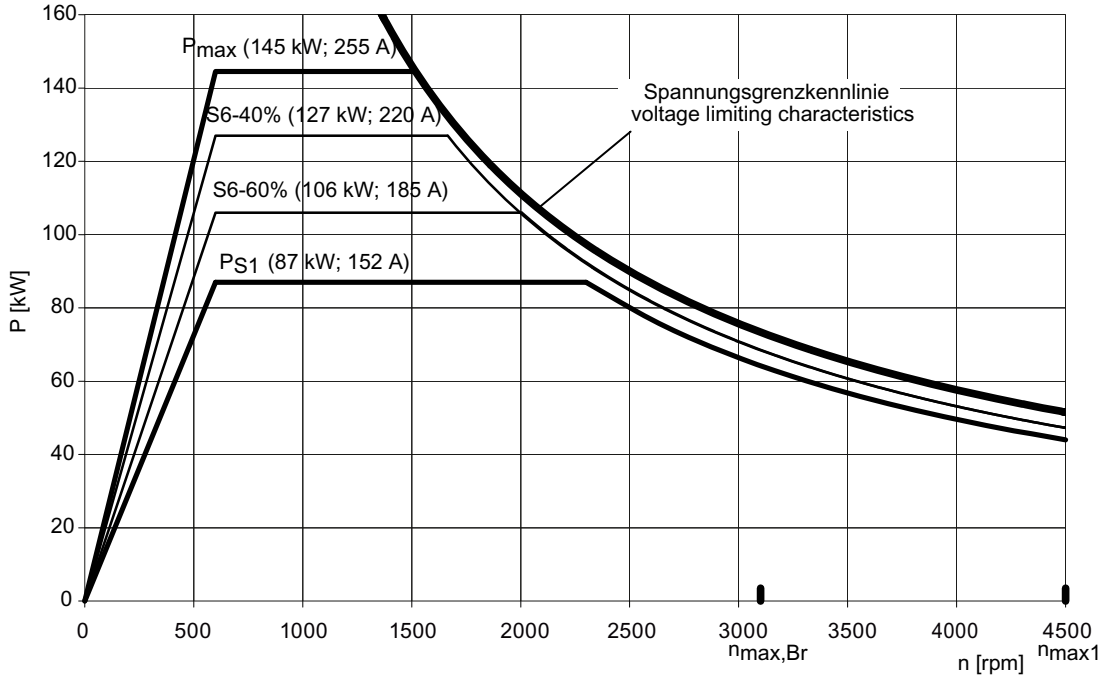


Table 4- 282 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	87	1385	152	4500	-	-	3100	2300	2300	255	1385	152



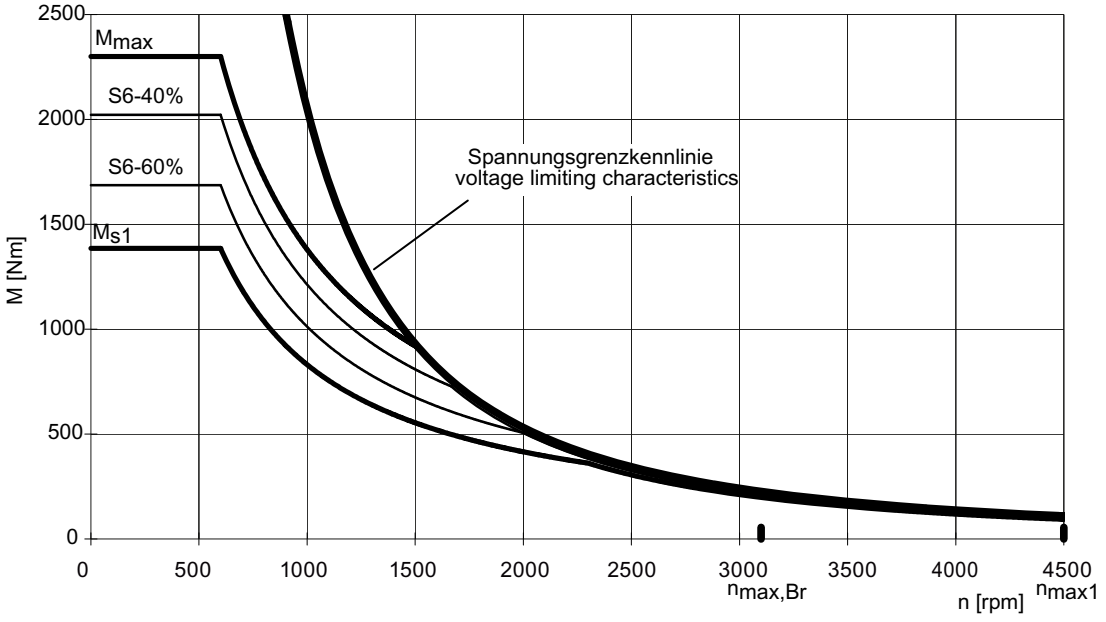
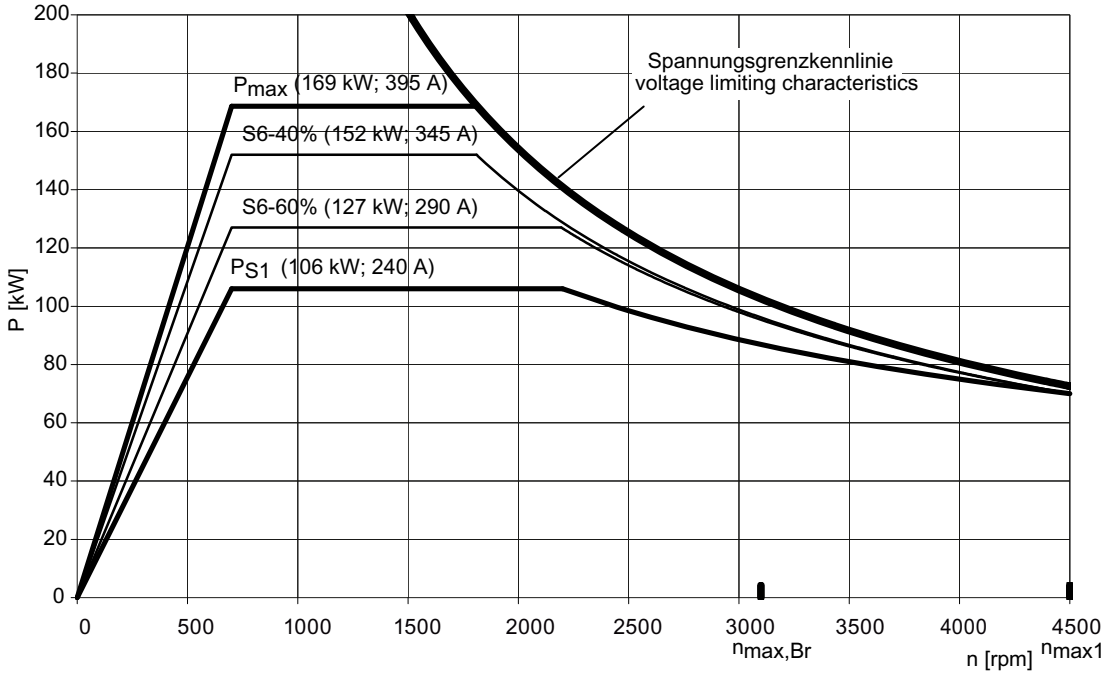


Table 4- 283 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	106	1446	240	4500	-	-	3100	2200	2300	395	1446	240



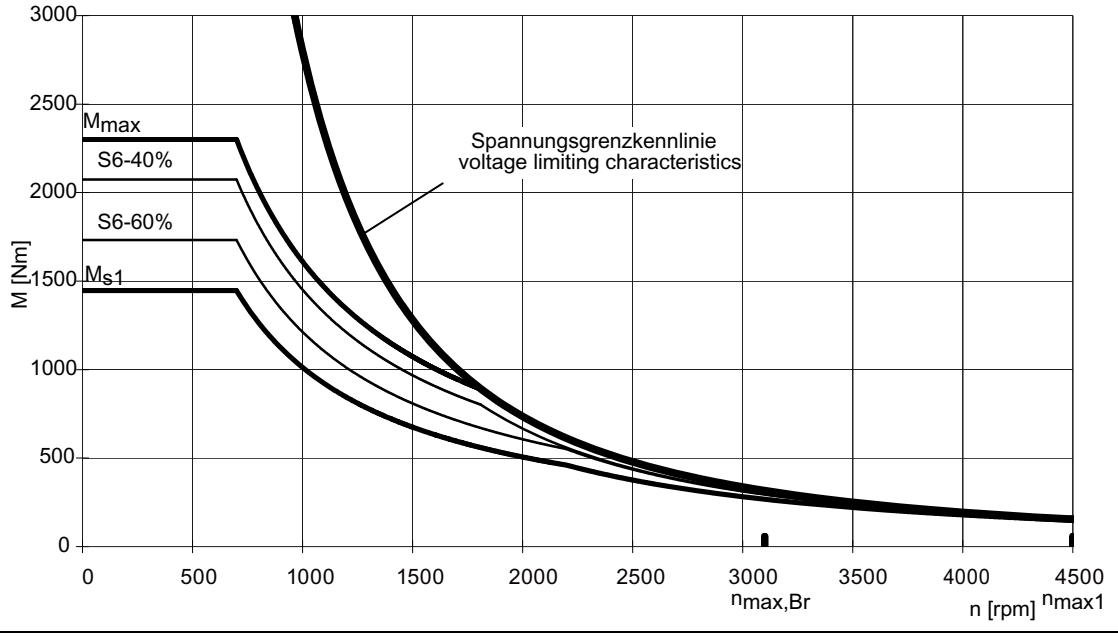
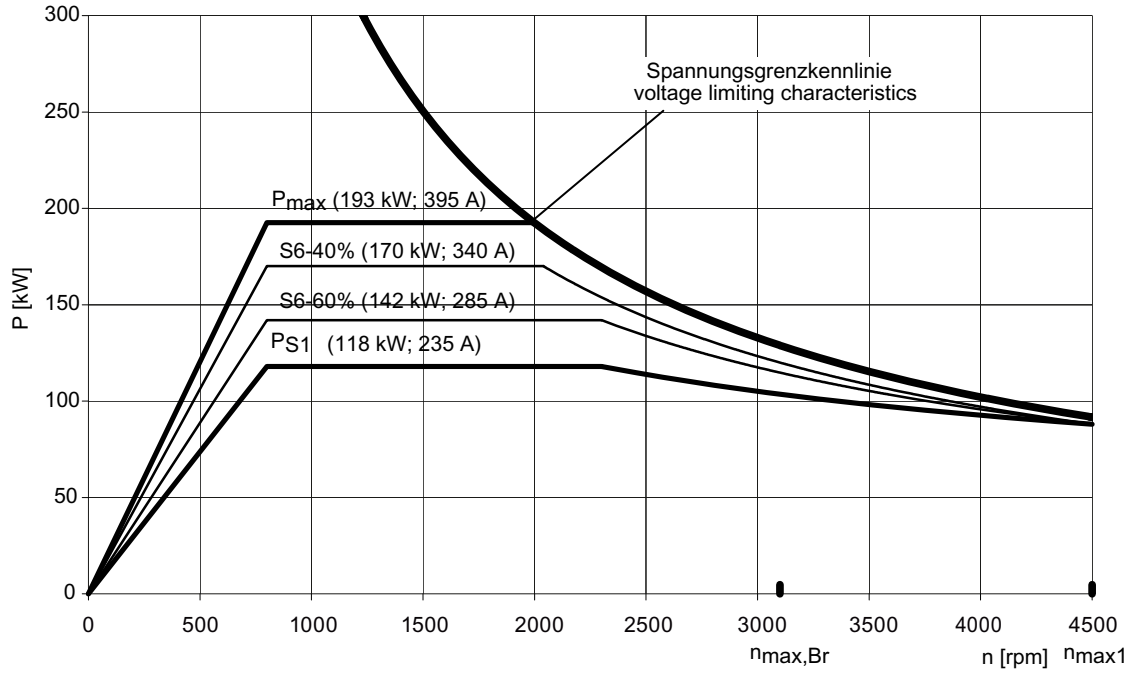


Table 4- 284 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	118	1409	235	4500	-	-	3100	2300	2300	395	1409	235
700	106	1446	240					2900				



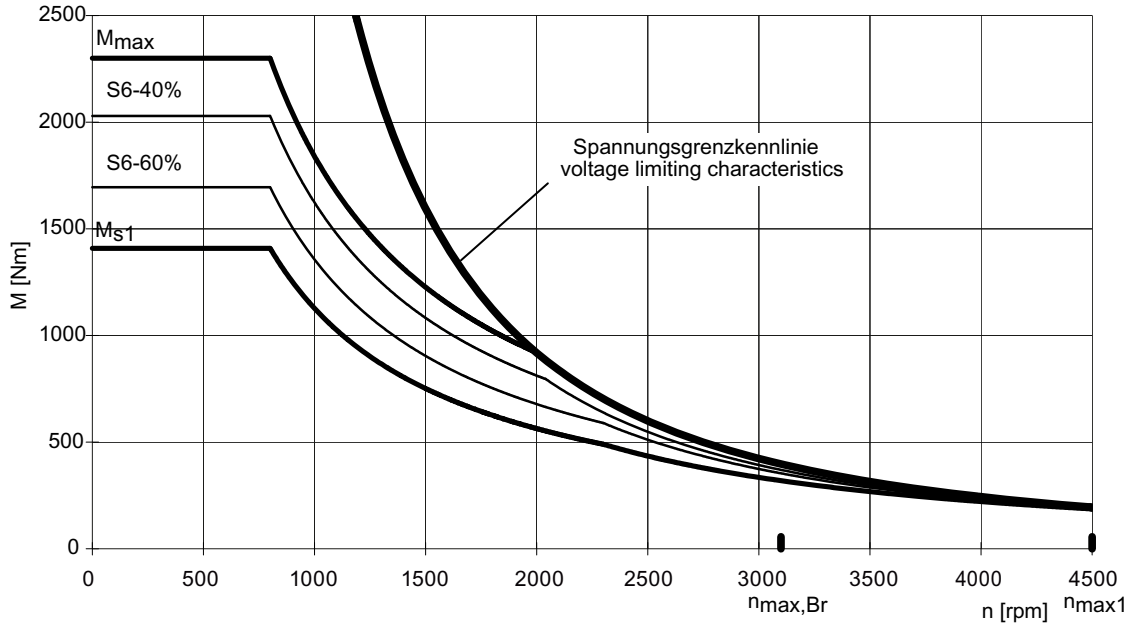
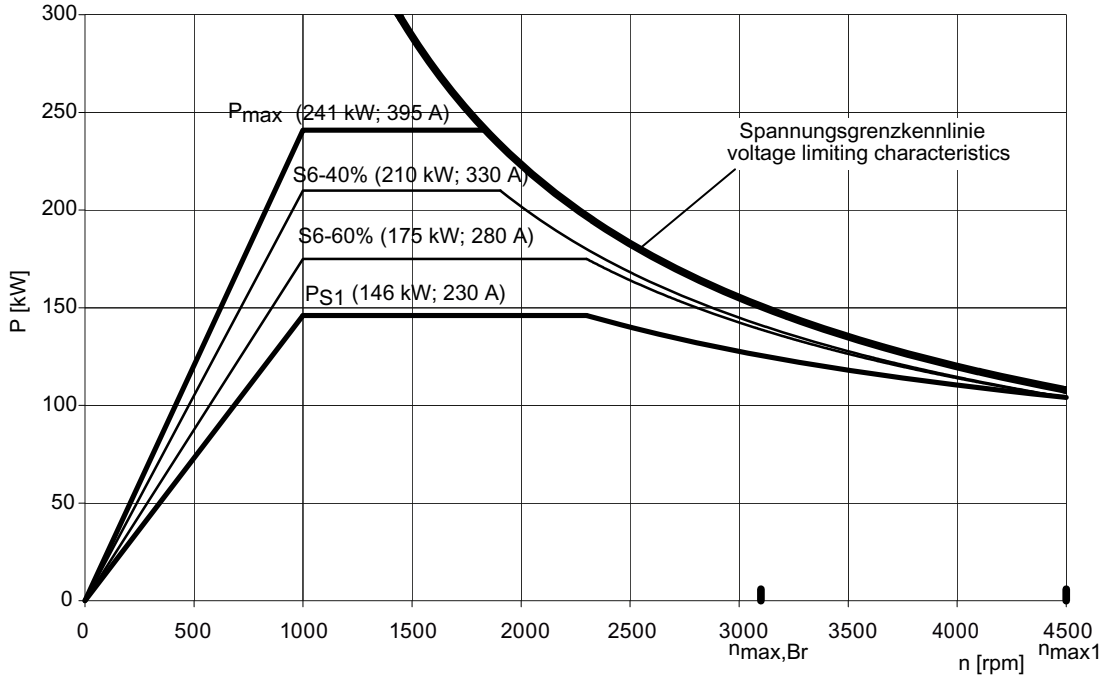


Table 4- 285 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	146	1394	230	4500	-	-	3100	2300	2300	395	1394	230



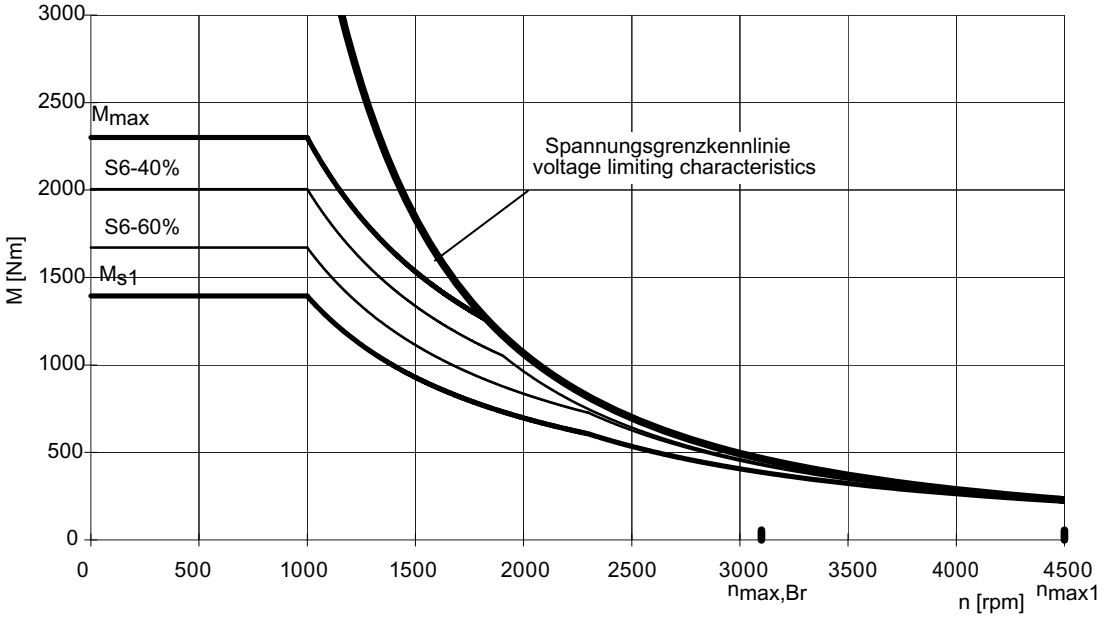
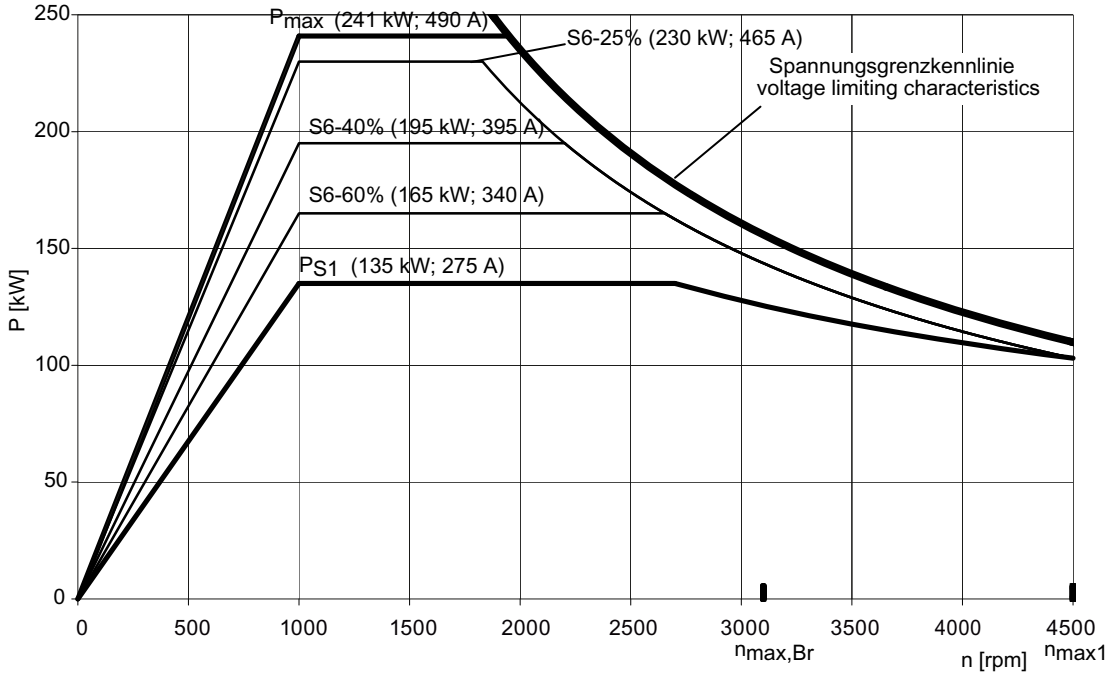


Table 4- 286 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	135	1289	275	4500	-	-	3100	2700	2300	490	1289	275



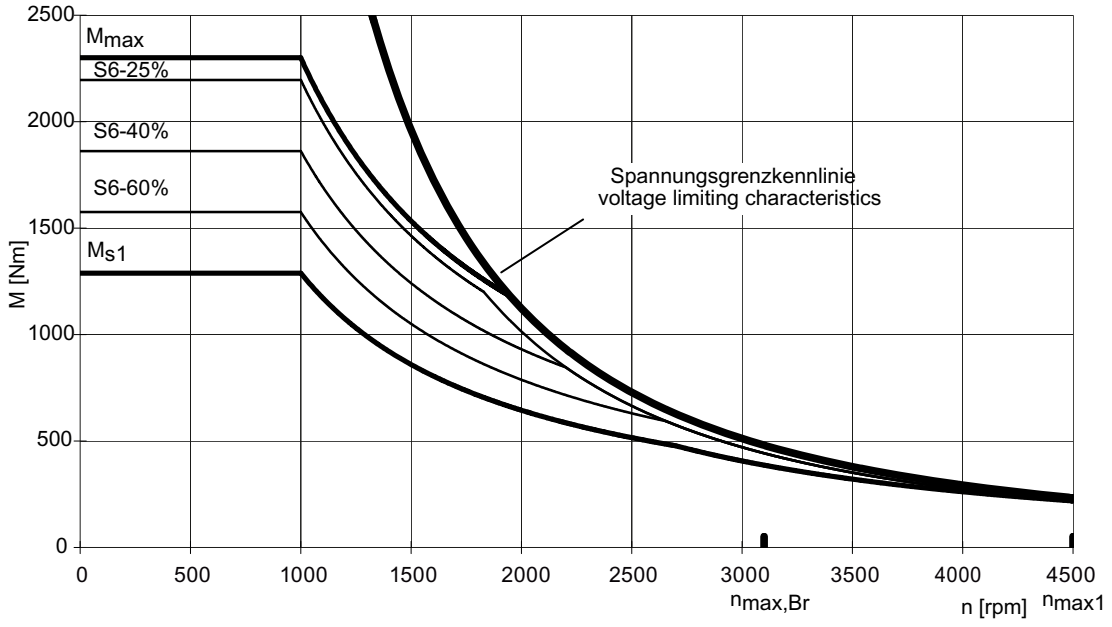
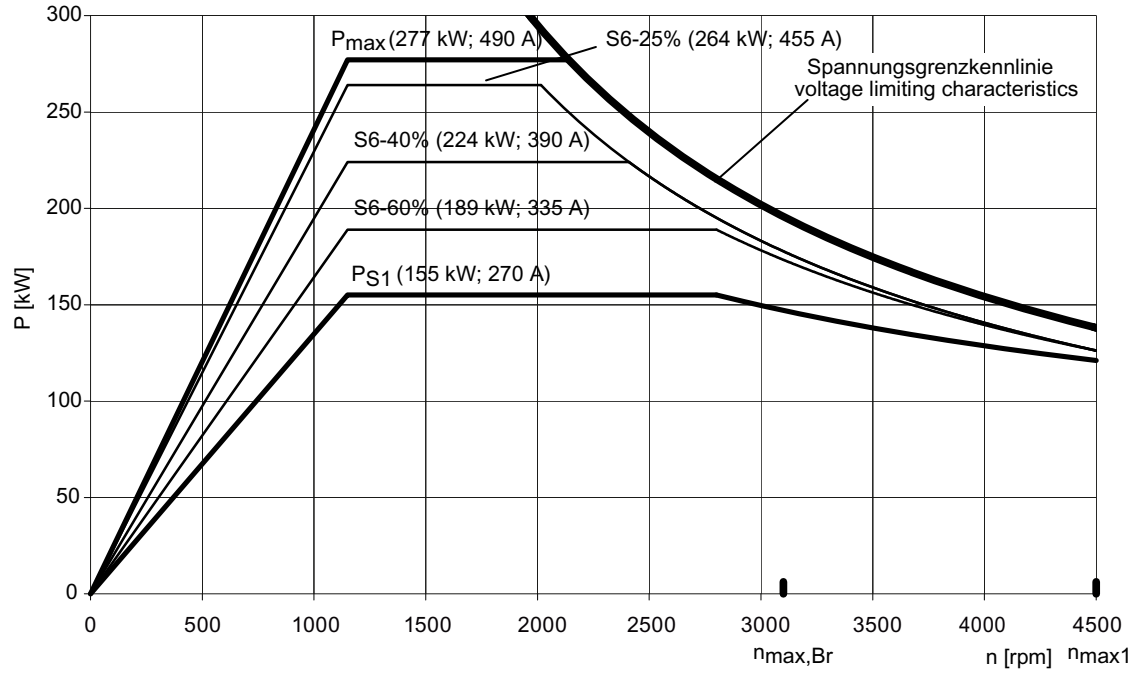


Table 4- 287 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	155	1287	270	4500	-	-	3100	2800	2300	490	1287	270
1000	135	1289	275					3600				



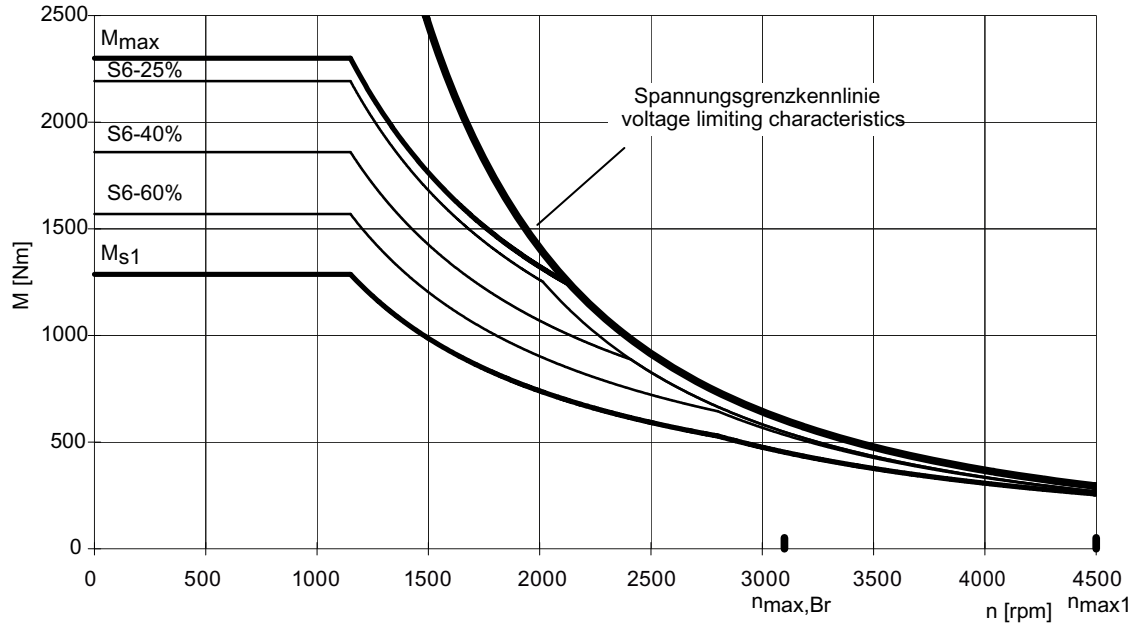
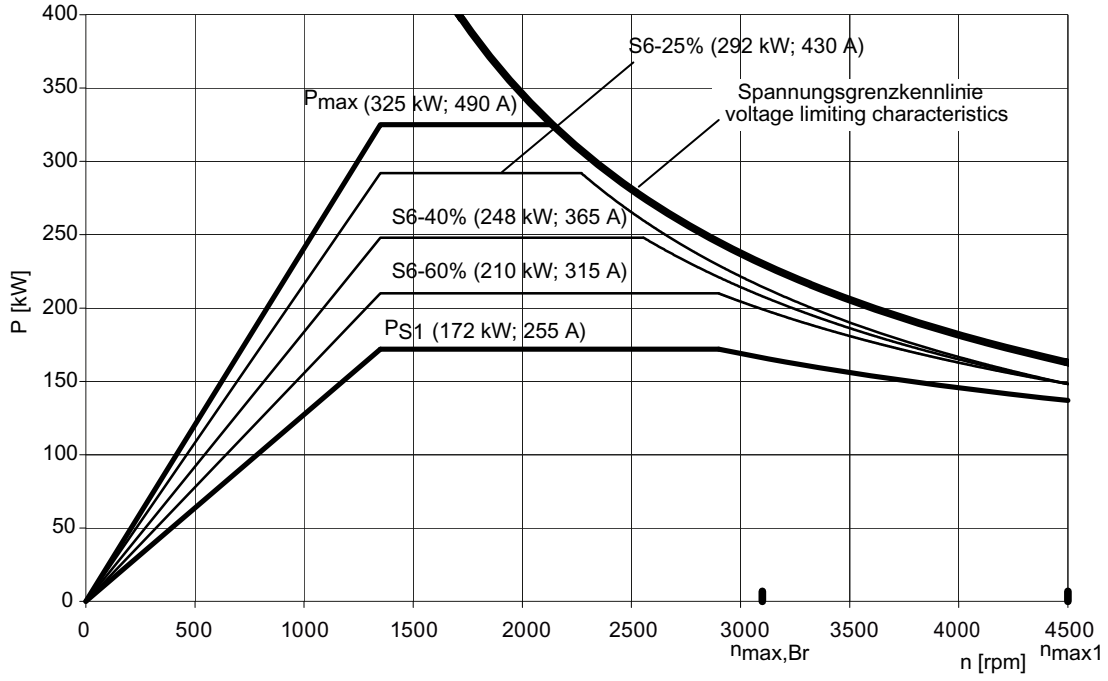


Table 4- 288 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	172	1217	255	4500	-	-	3100	2900	2300	490	1217	255



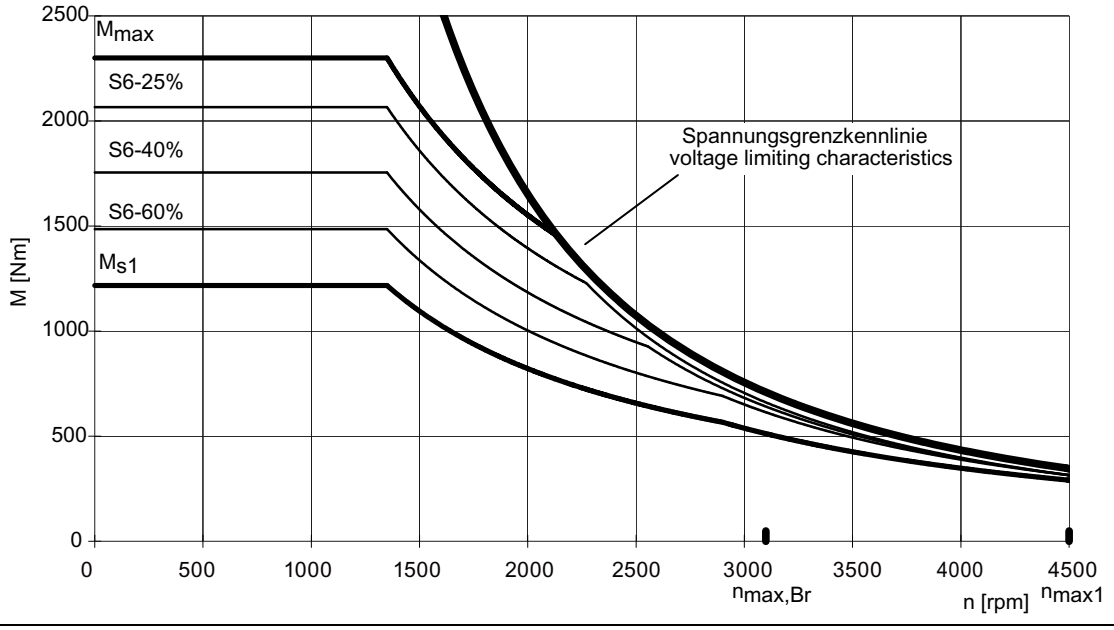
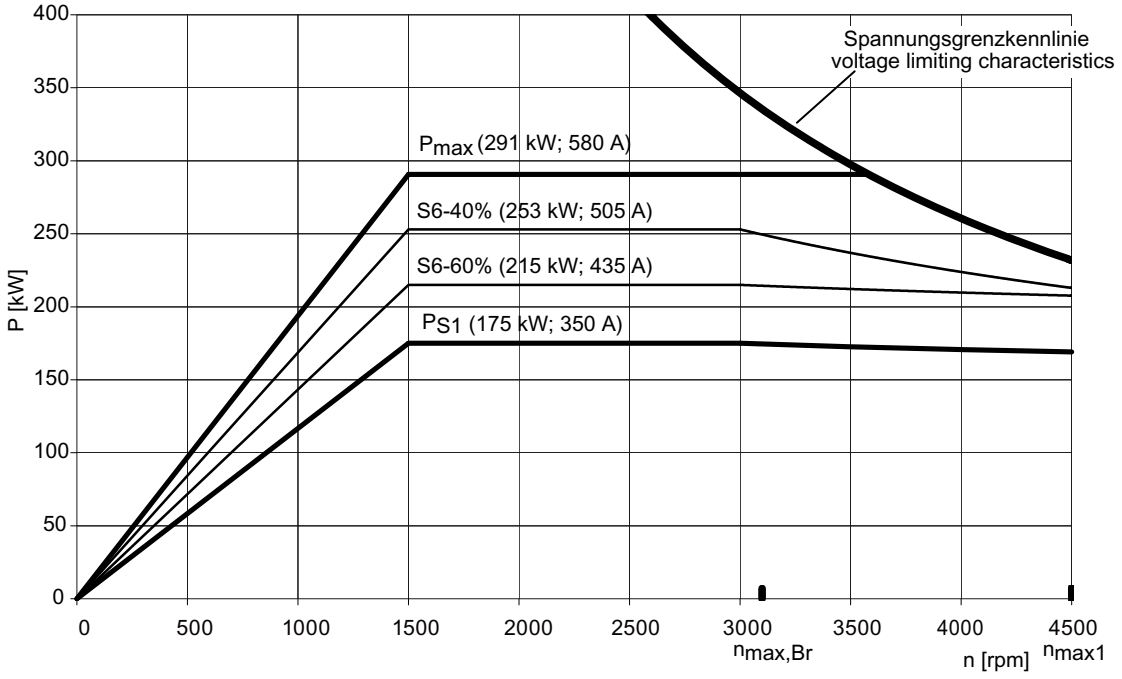


Table 4- 289 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	175	1114	350	4500	-	-	3100	3000	1850	580	1114	350



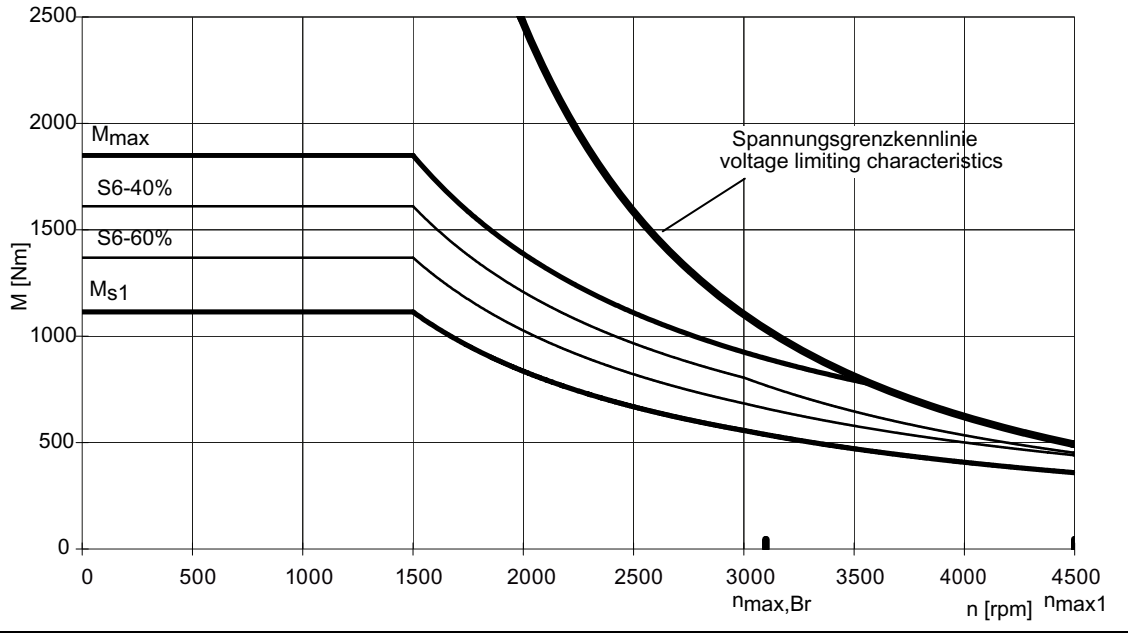
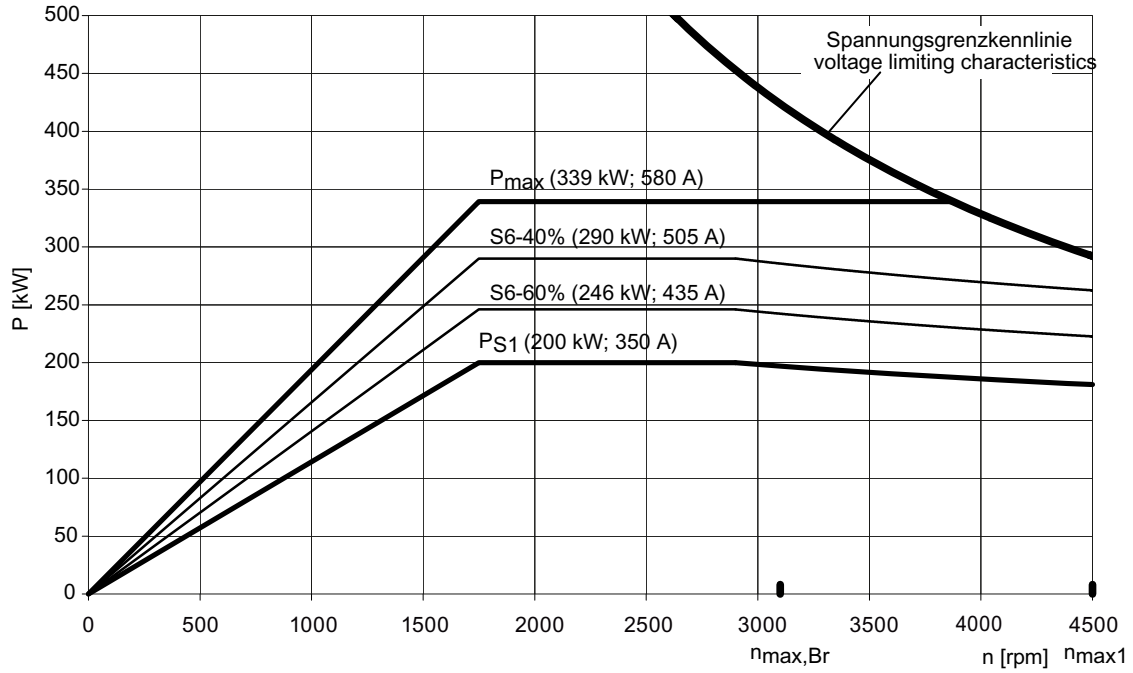


Table 4- 290 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	200	1091	350	4500	-	-	3100	2900	1850	580	1091	350
1500	175	1114	350					4500				



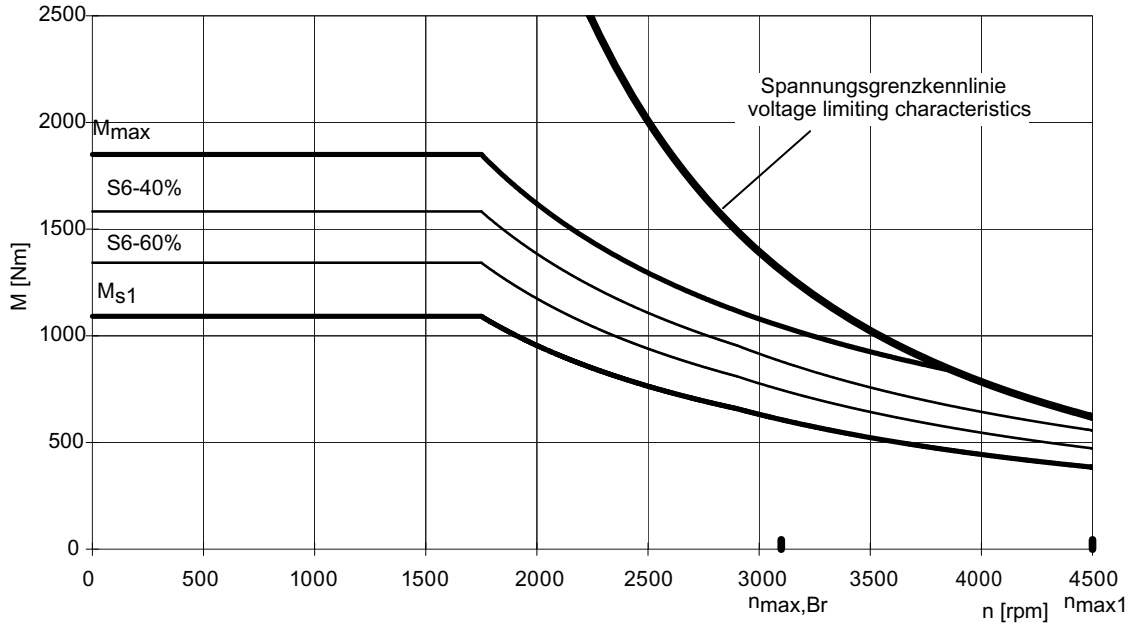
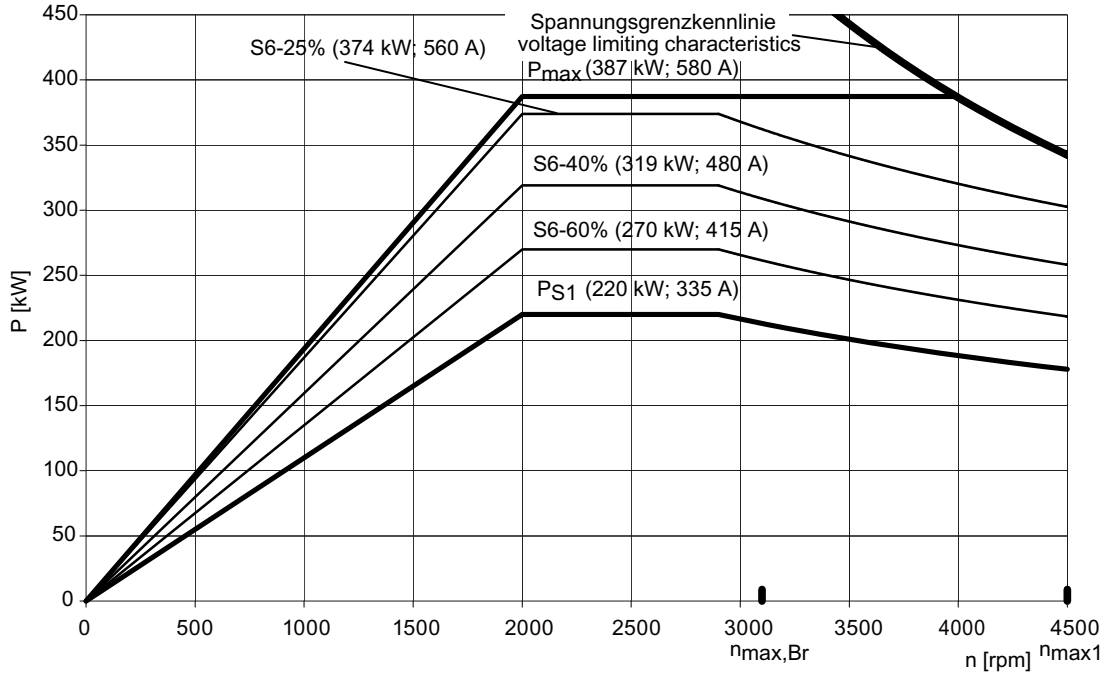


Table 4- 291 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	220	1051	335	4500	-	-	3100	2900	1850	580	1051	335



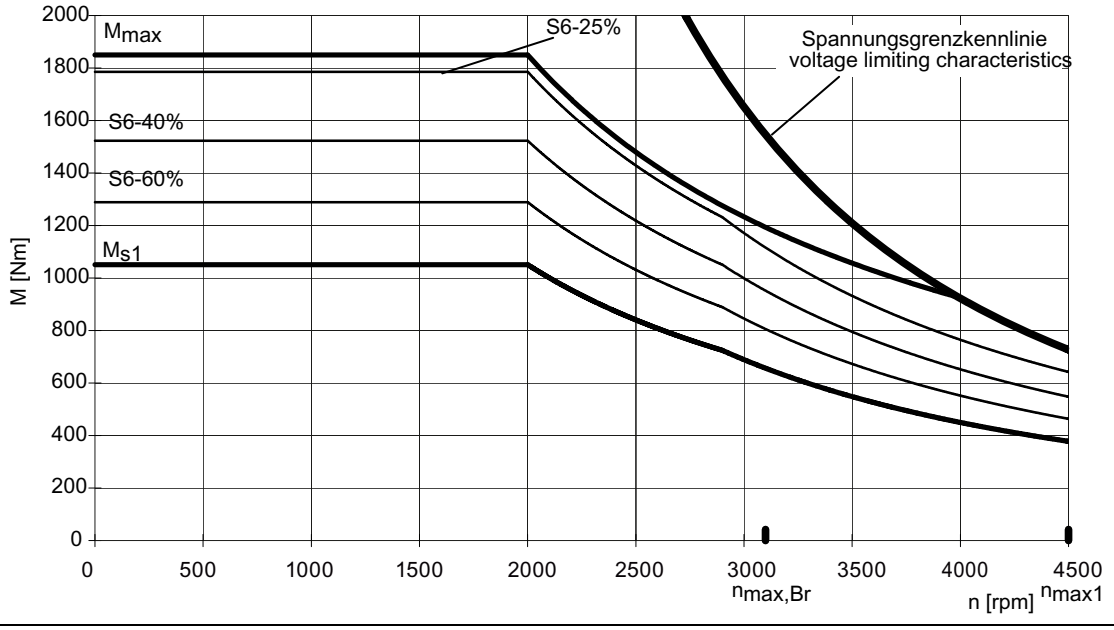
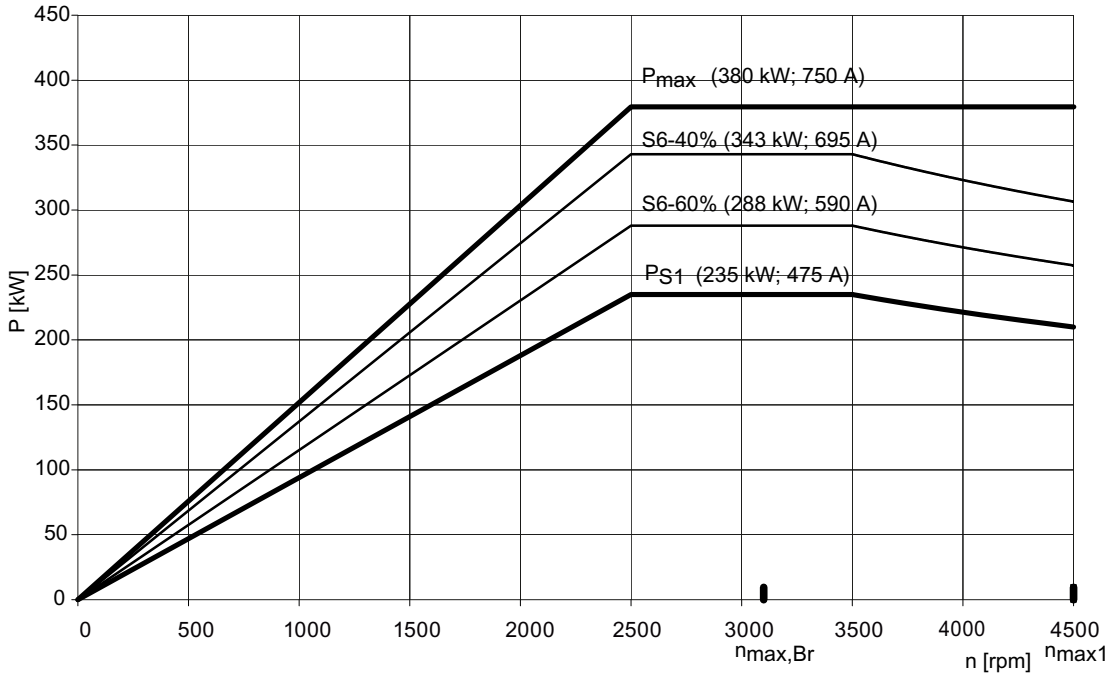


Table 4- 292 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	235	898	475	4500	-	-	3100	3500	1450	750	898	475



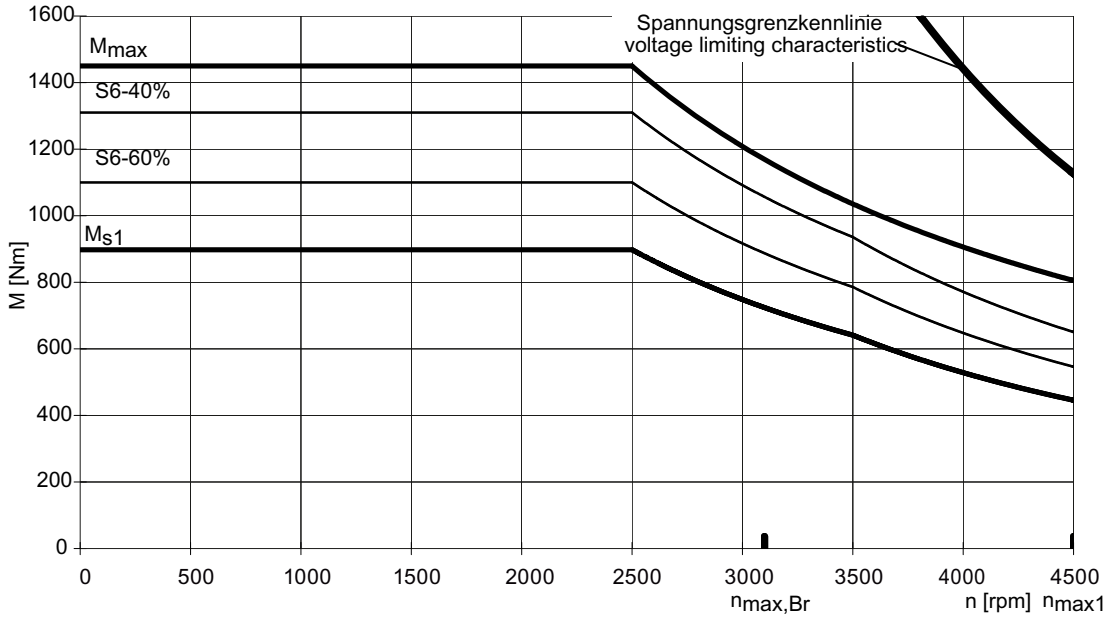
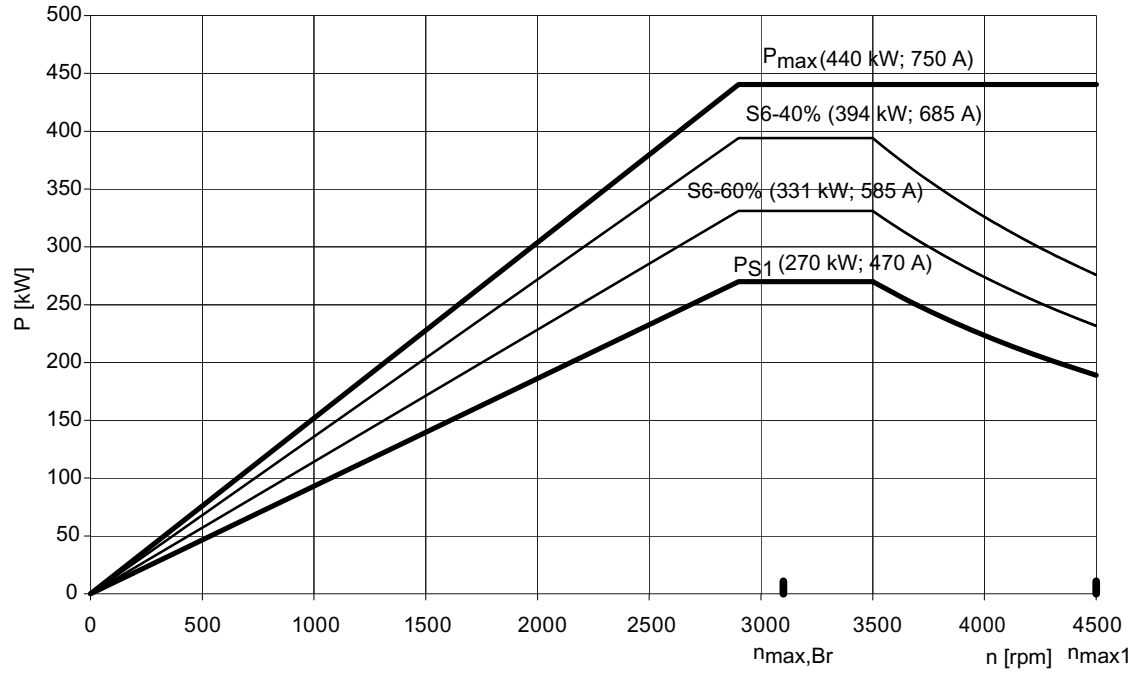


Table 4- 293 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	270	889	470	4500	-	-	3100	3500	1450	750	889	470
2500	235	898	475					3900				



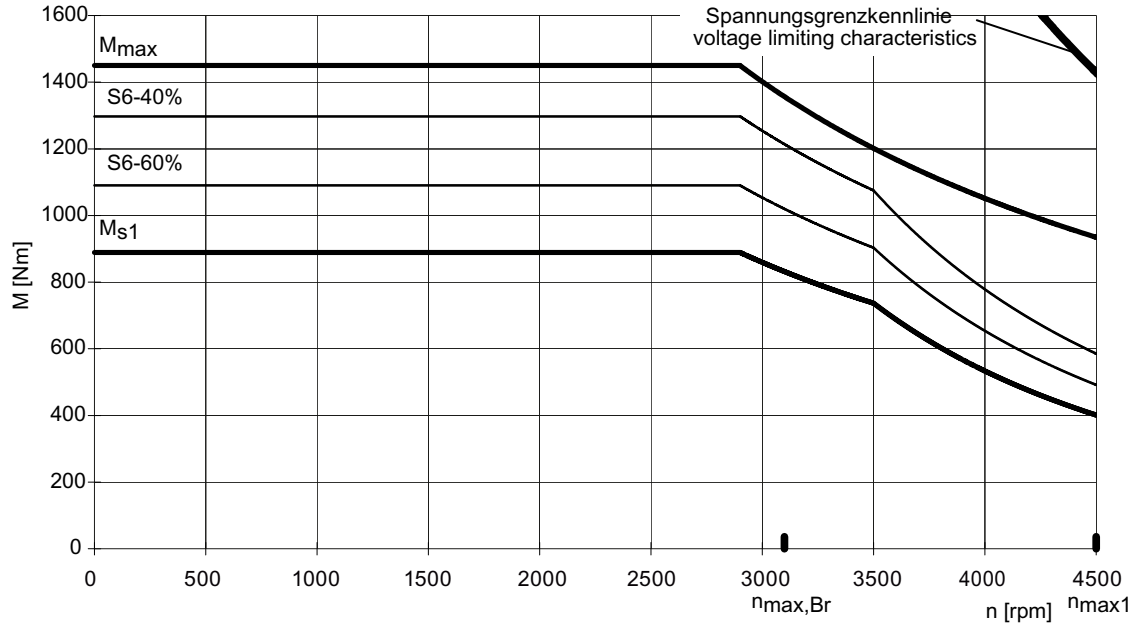
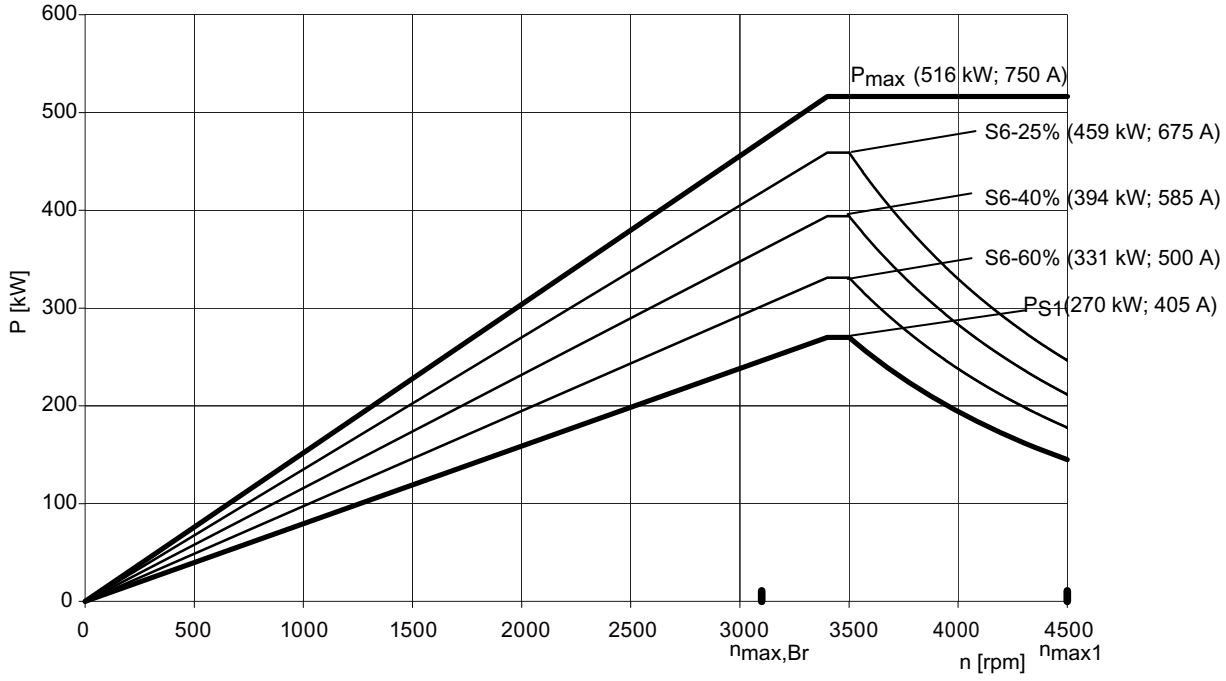


Table 4- 294 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	270	758	405	4500	-	-	3100	3500	1450	750	758	405



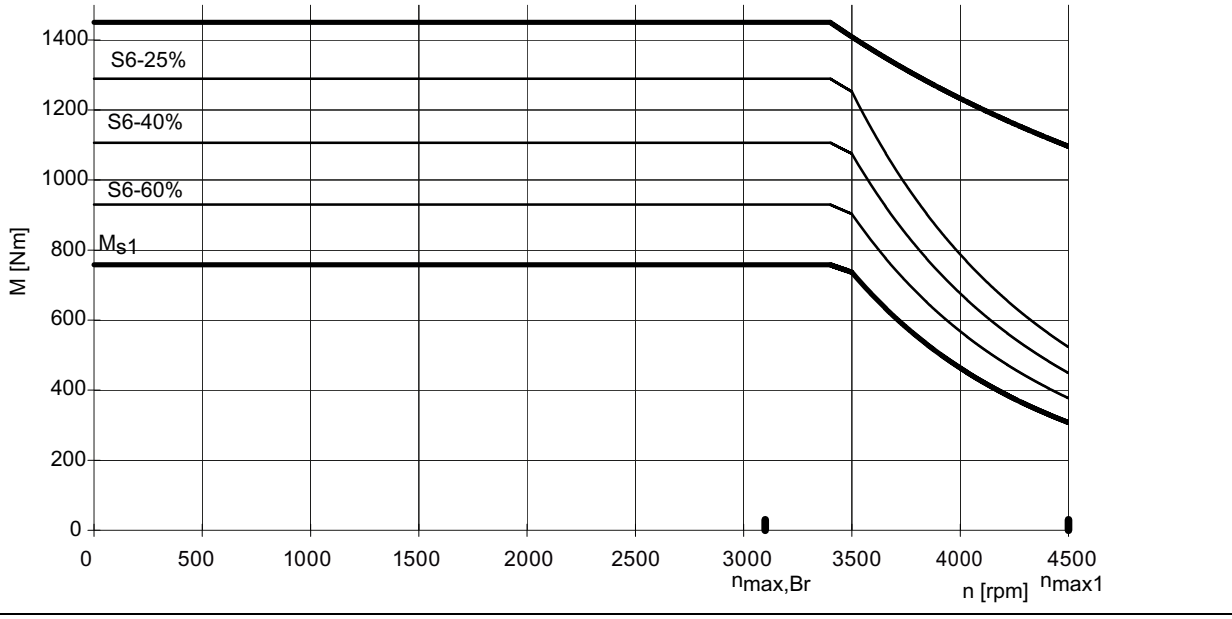
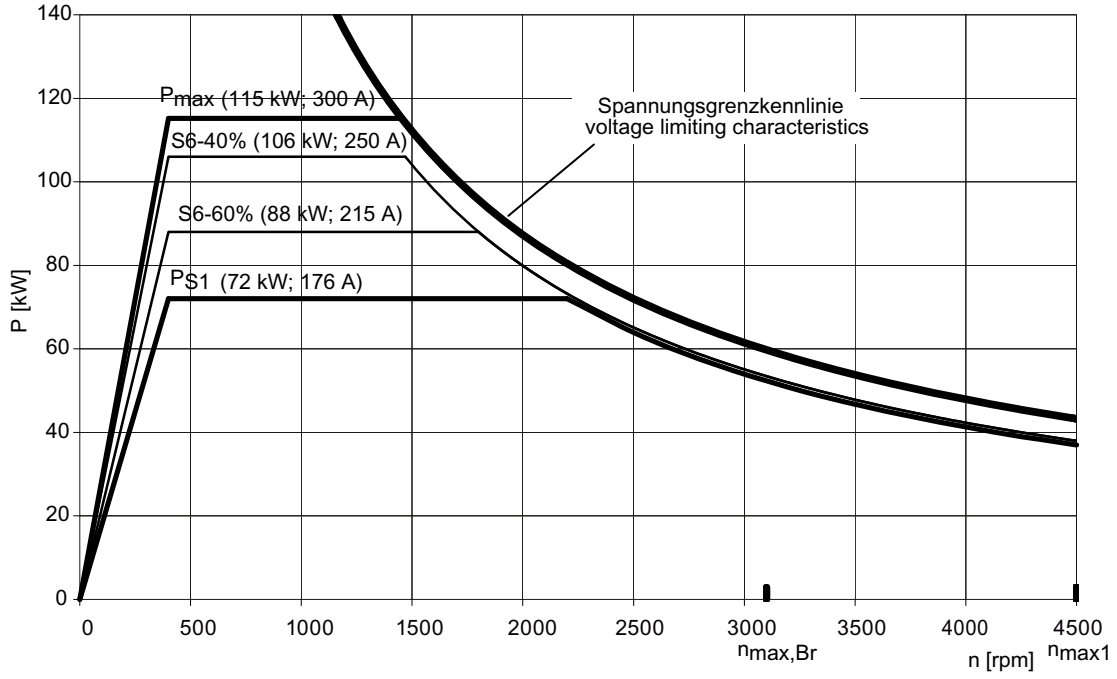


Table 4- 295 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	72	1719	176	4500	-	-	3100	2200	2750	300	1719	176



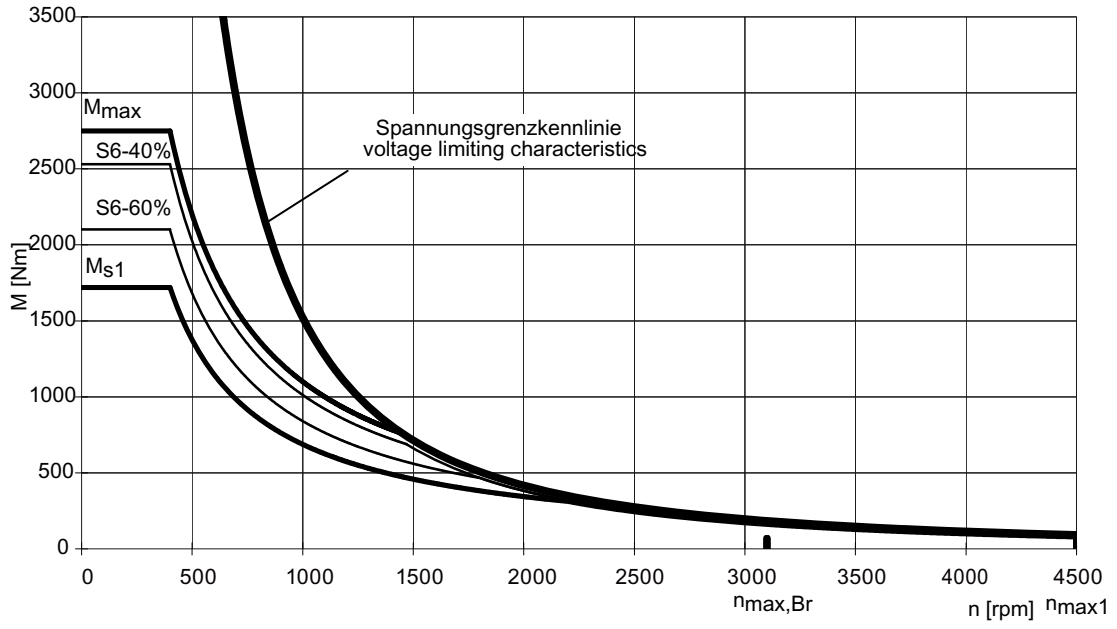
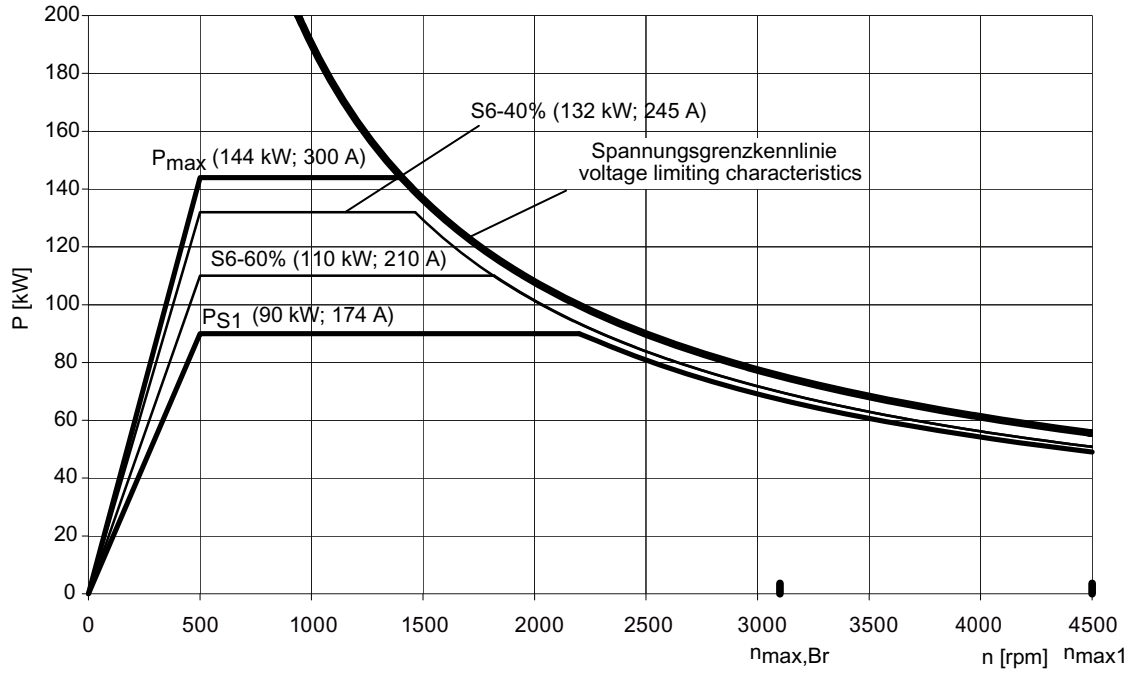


Table 4- 296 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	90	1719	174	4500	-	-	3100	2200	2750	300	1719	174
400	72	1719	176					2900				



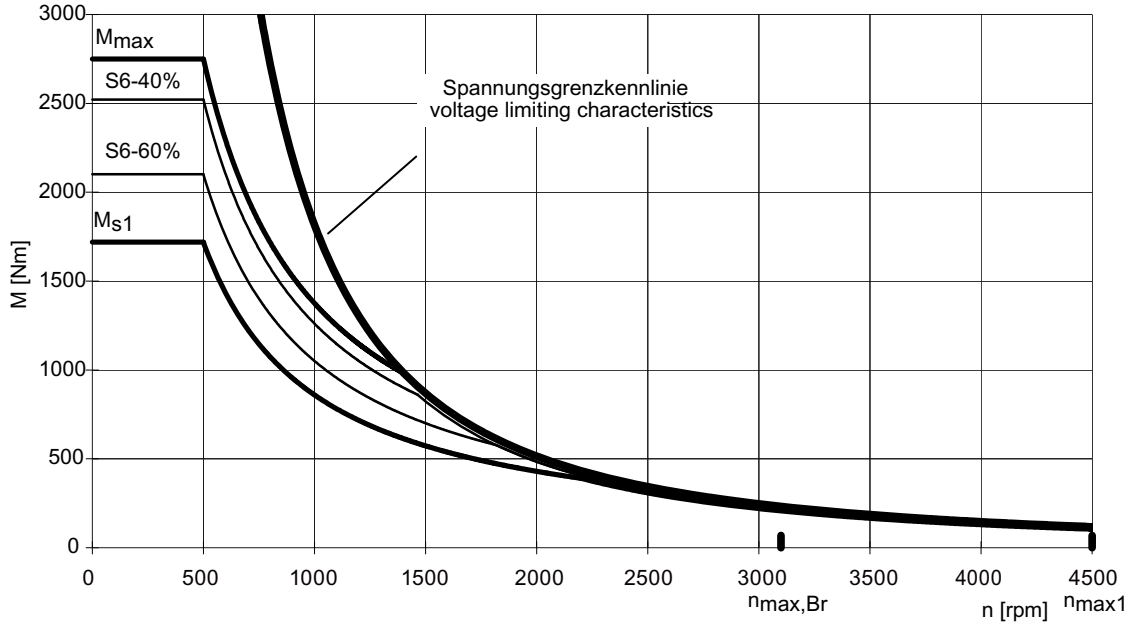
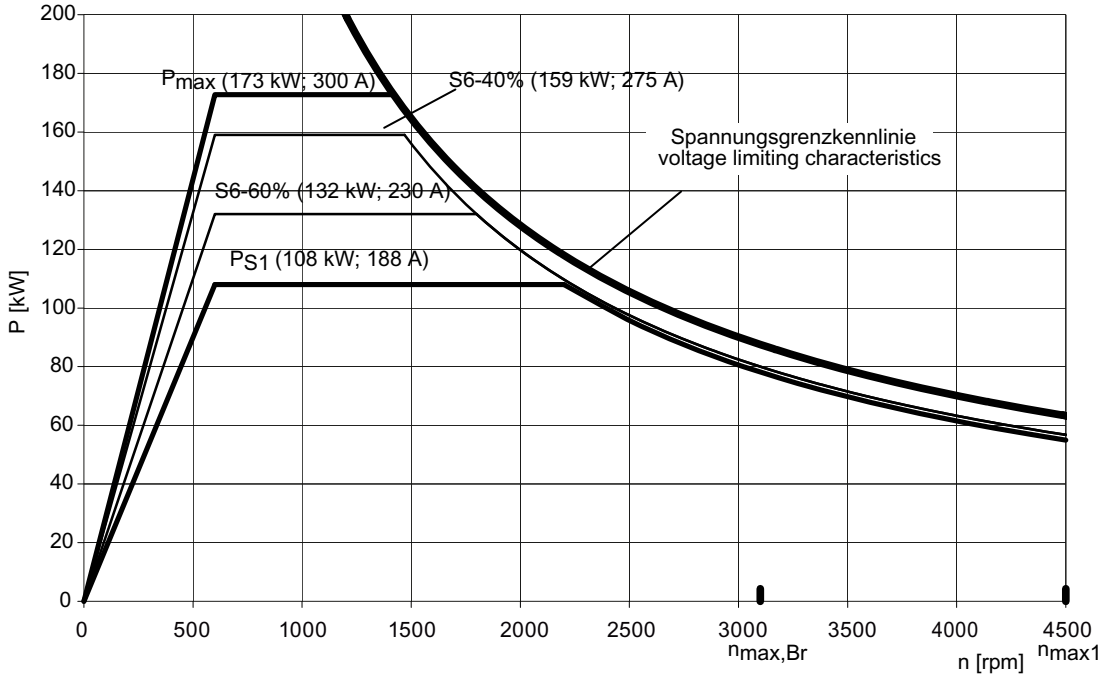


Table 4- 297 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□B□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	108	1719	188	4500	-	-	3100	2200	2750	300	1719	188



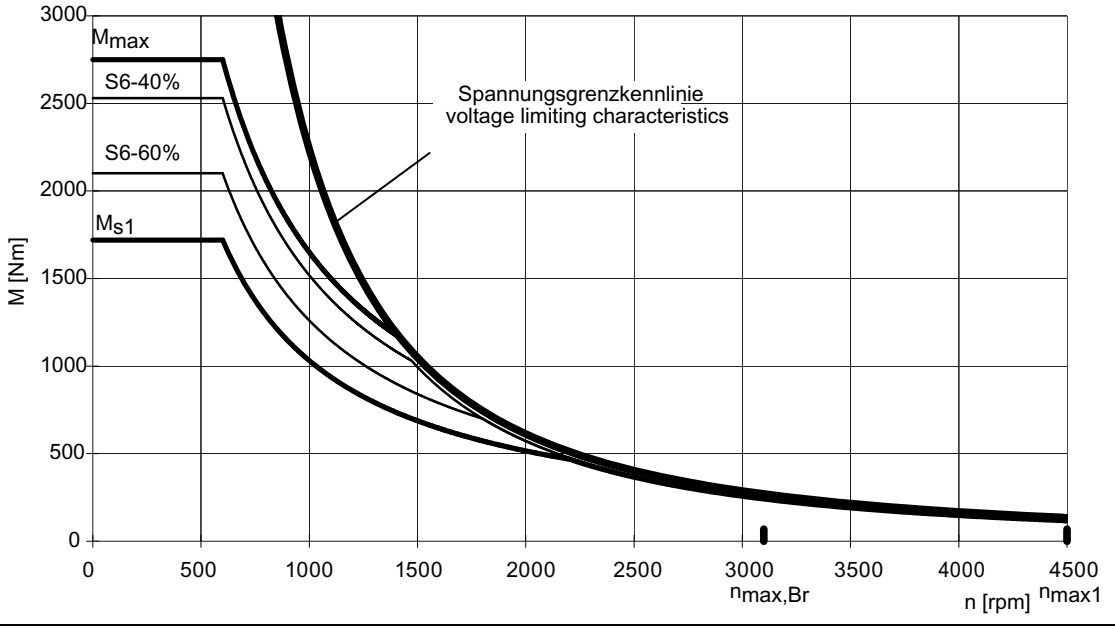
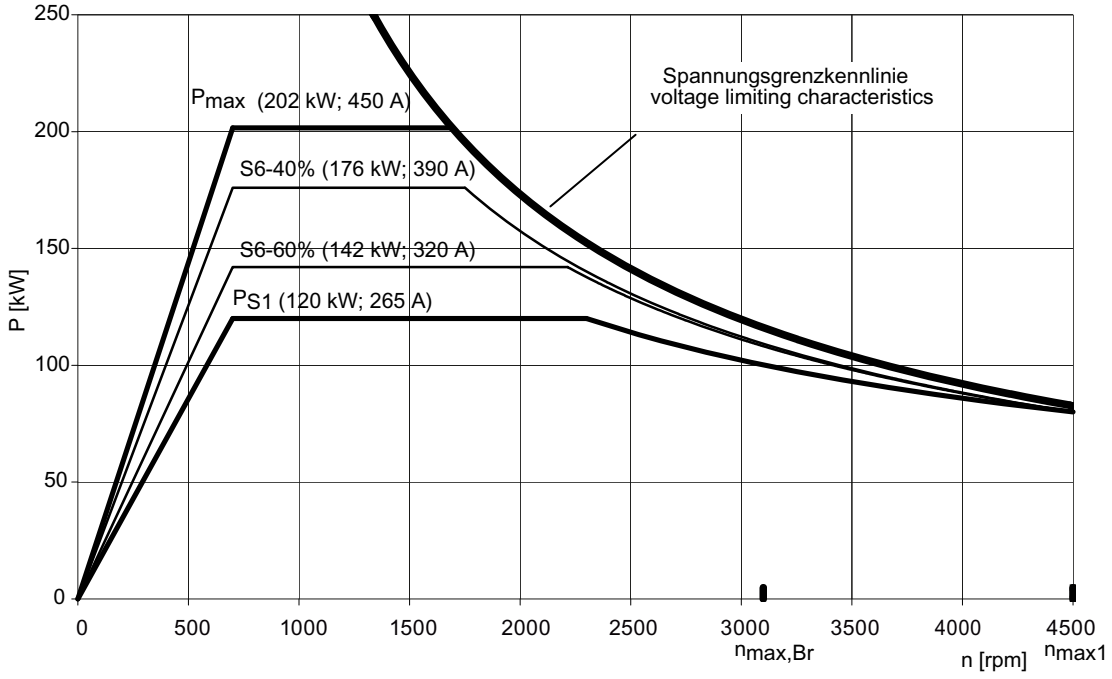


Table 4- 298 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	120	1637	265	4500	-	-	3100	2300	2750	450	1637	265



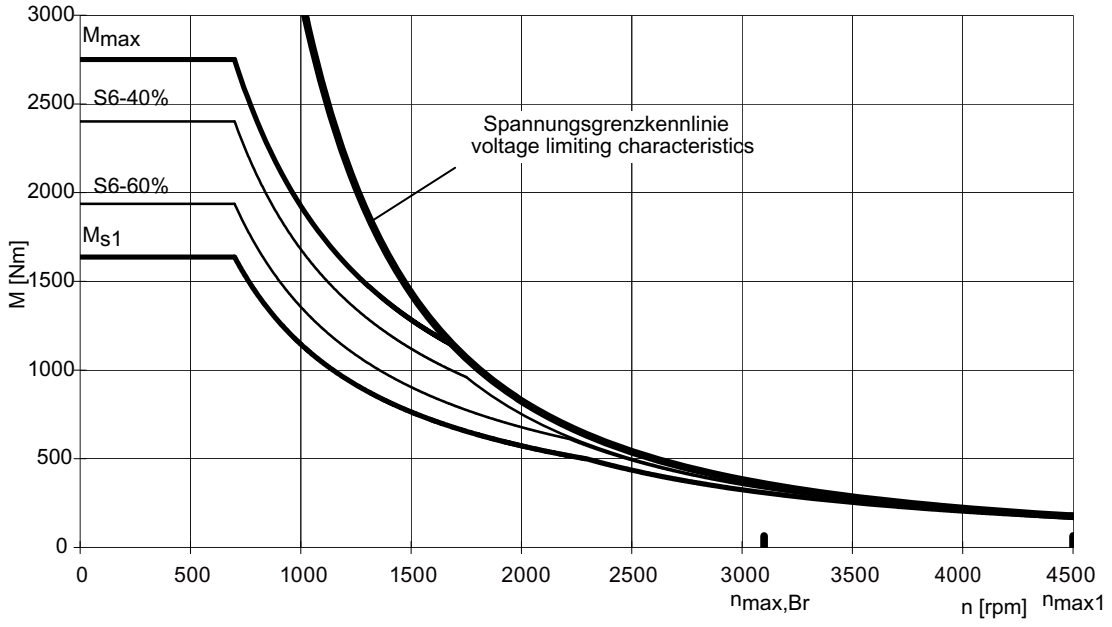
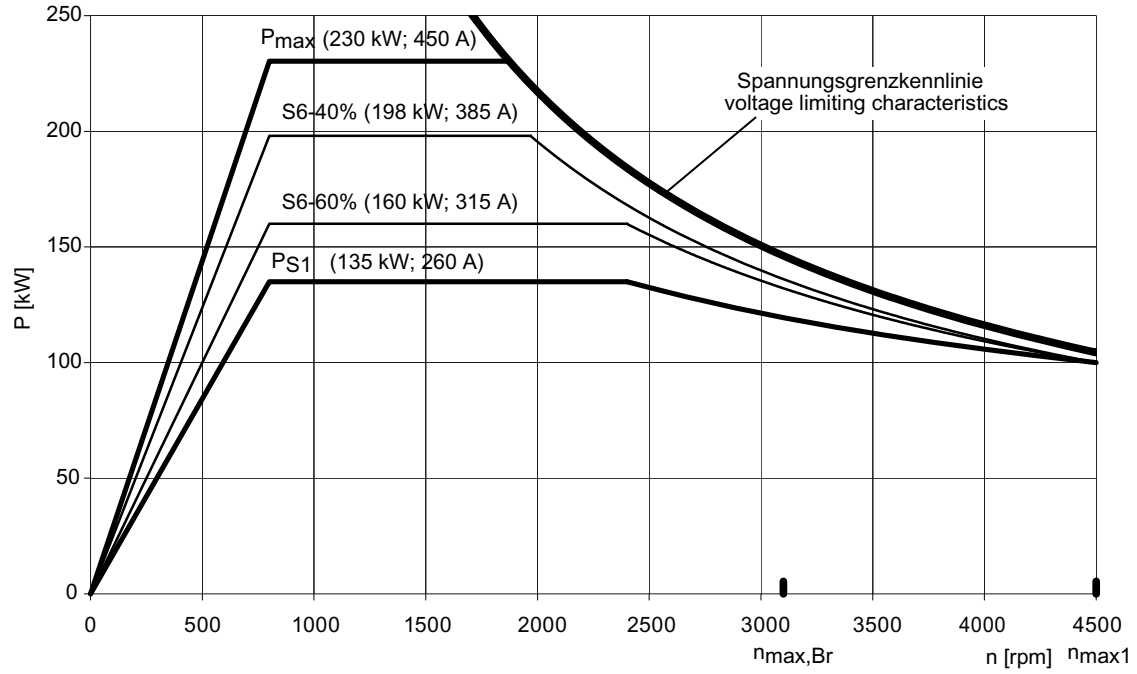


Table 4- 299 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	135	1612	260	4500	-	-	3100	2400	2750	450	1612	260
700	120	1637	265					3100				



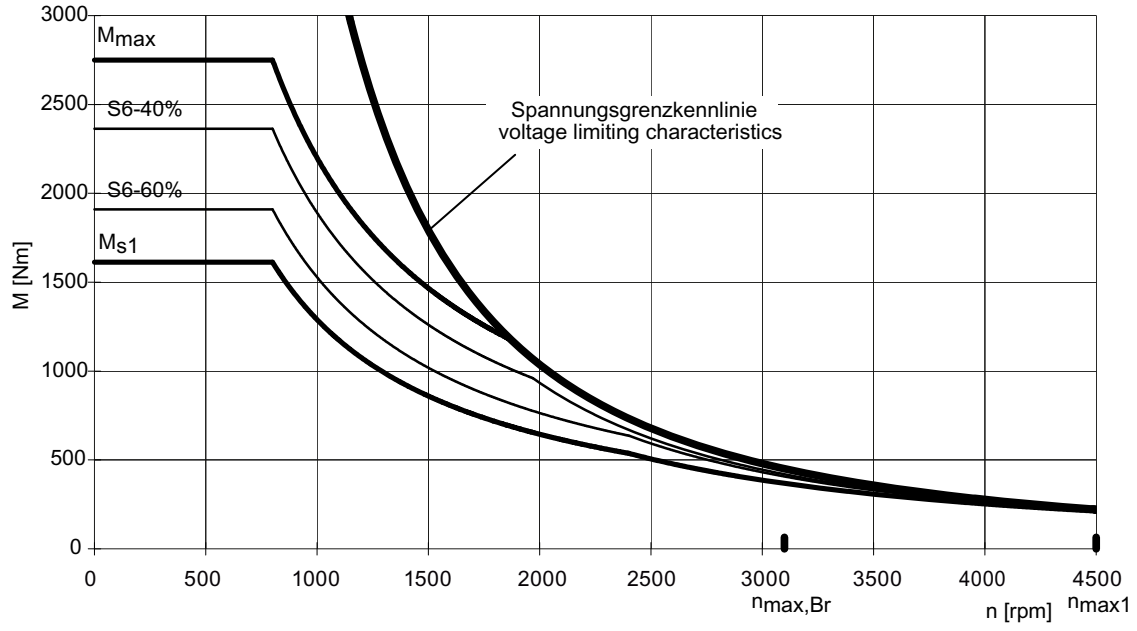
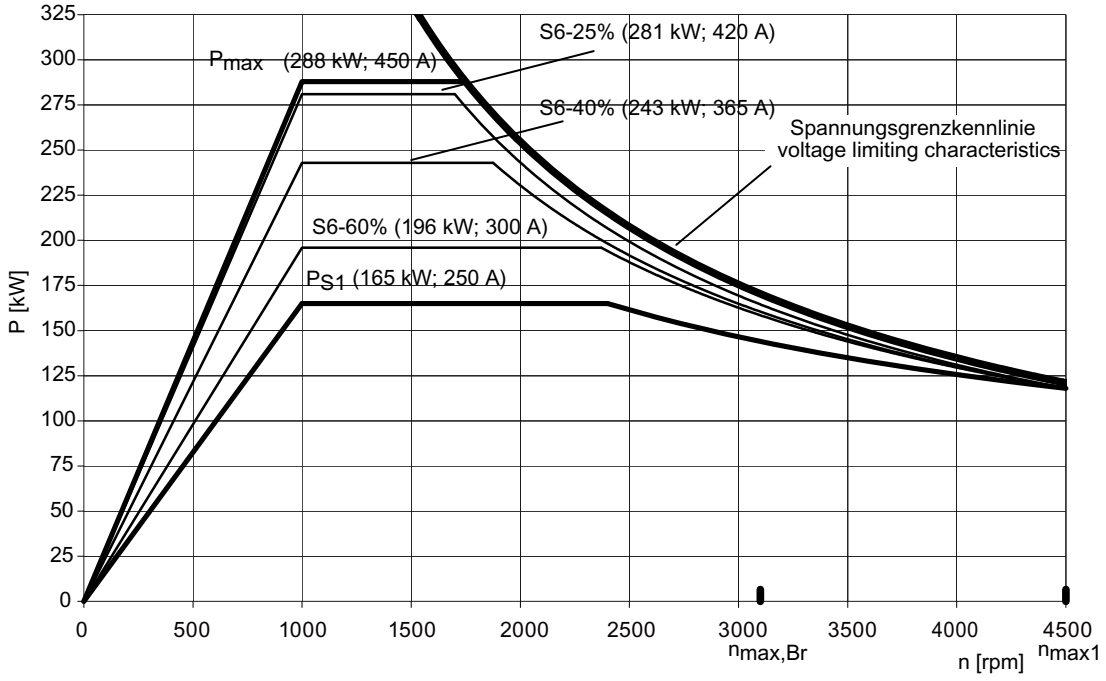


Table 4- 300 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□C□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	165	1576	250	4500	-	-	3100	2400	2750	450	1576	250



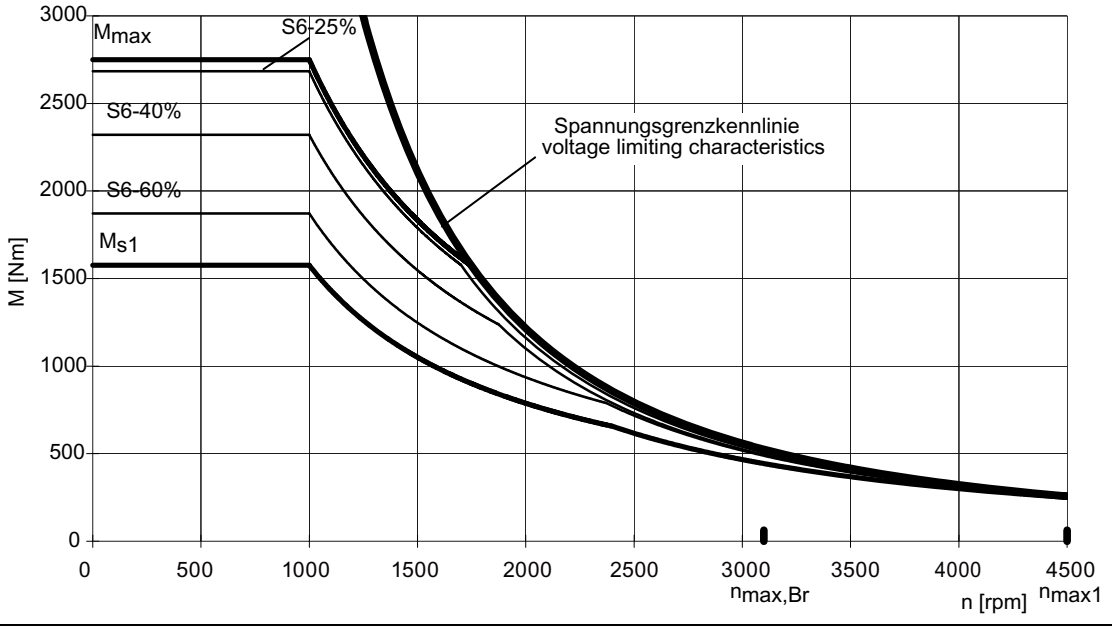
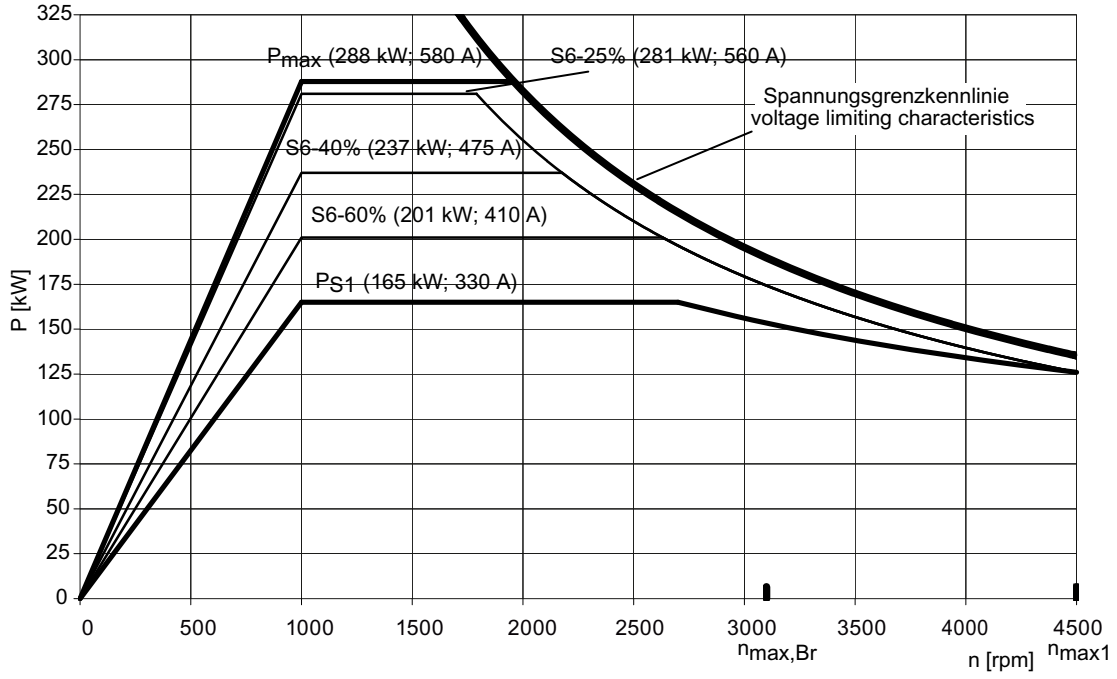


Table 4- 301 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	165	1576	330	4500	-	-	3100	2700	2750	580	1576	330



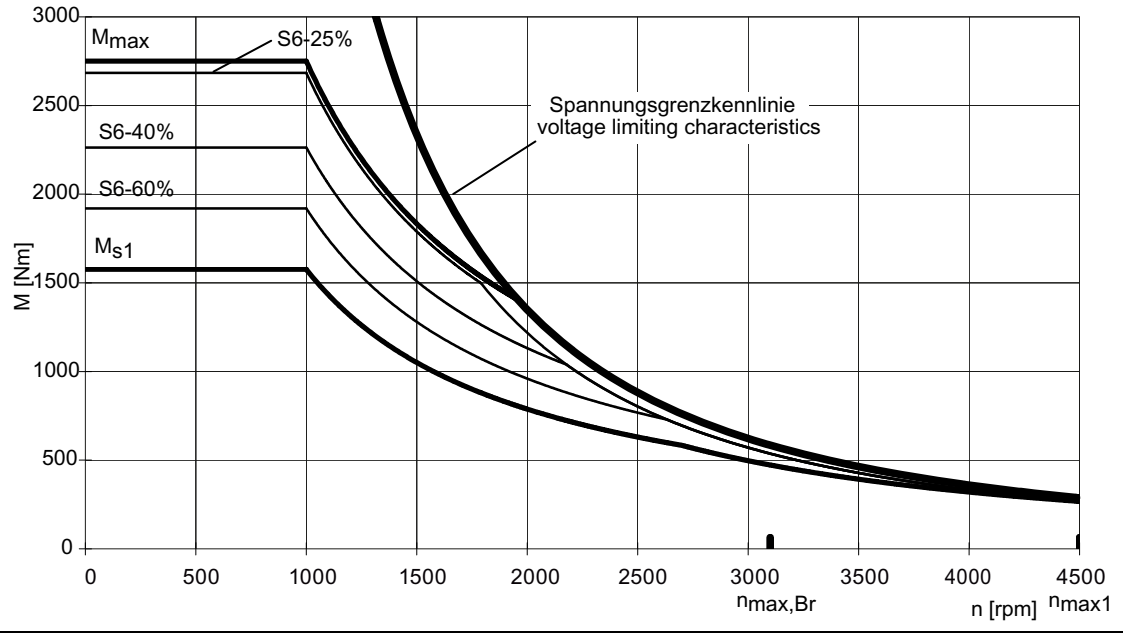
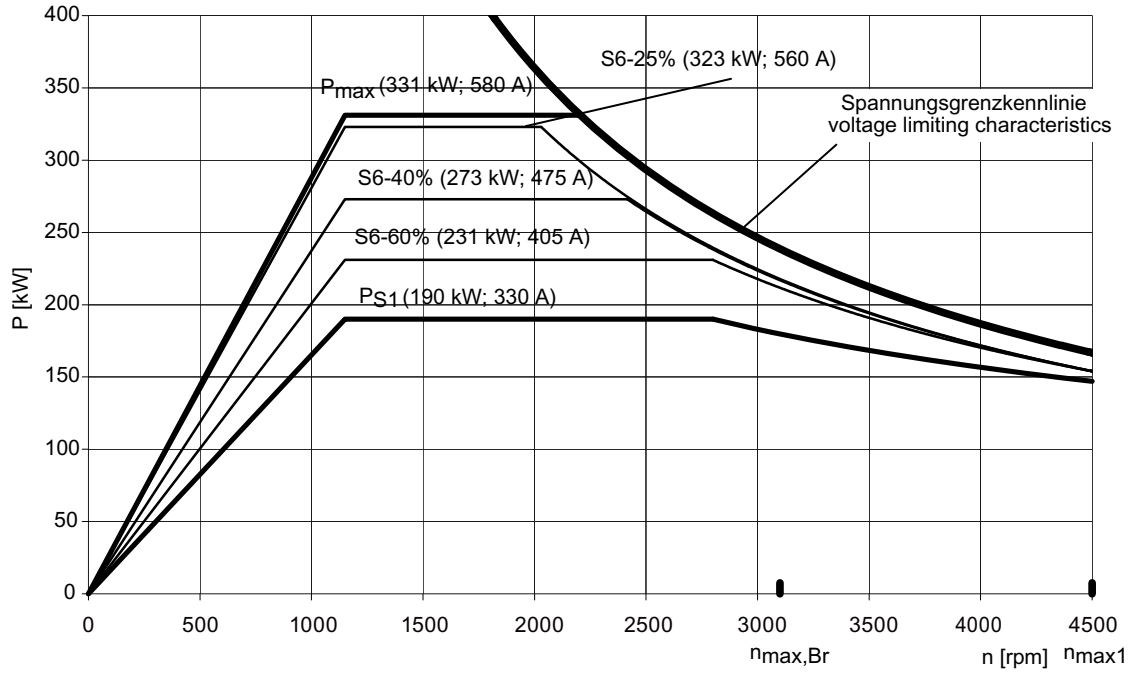


Table 4- 302 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	190	1578	330	4500	-	-	3100	2800	2750	580	1578	330
1000	165	1576	330					3600				



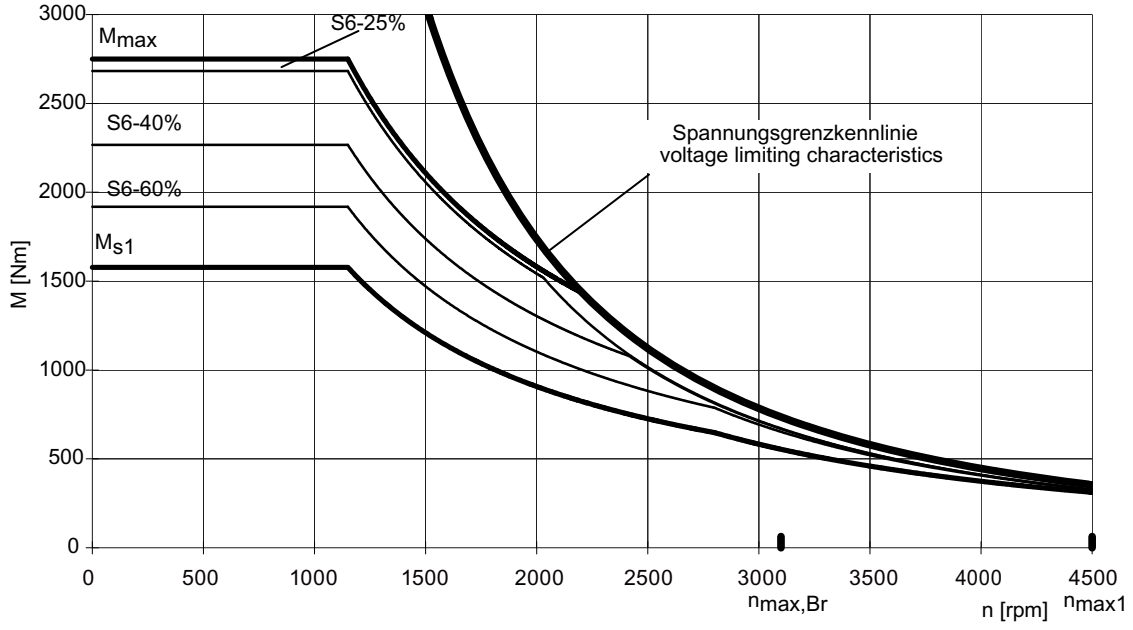
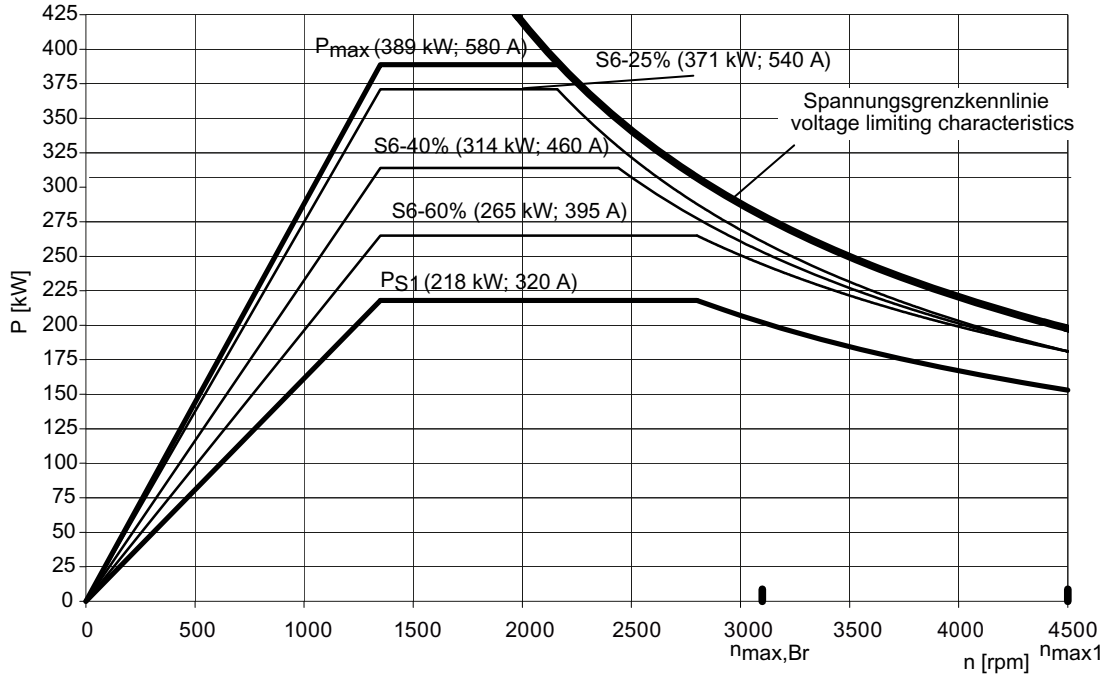


Table 4- 303 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□D□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	218	1542	320	4500	-	-	3100	2800	2750	580	1542	320



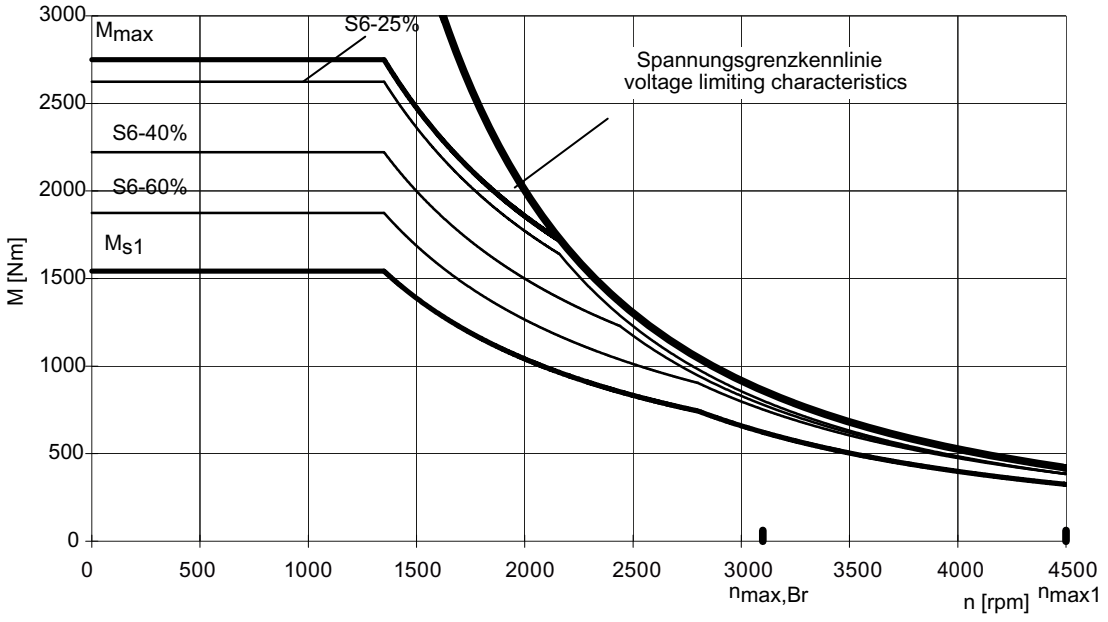
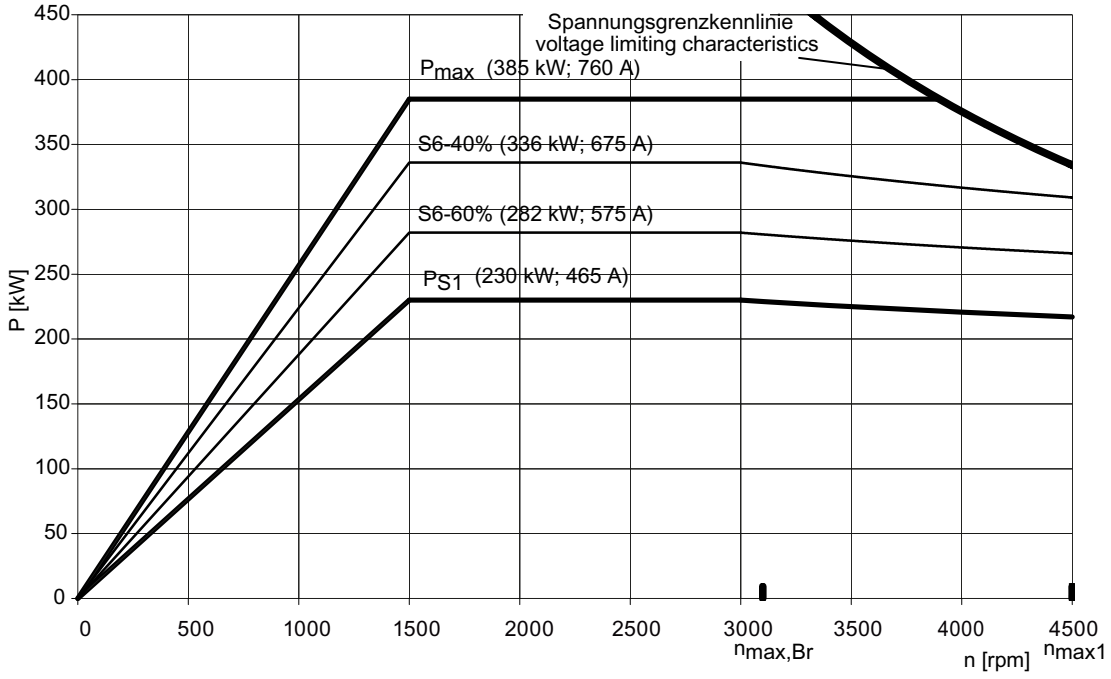


Table 4- 304 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	230	1464	465	4500	-	-	3100	3000	2450	760	1464	465



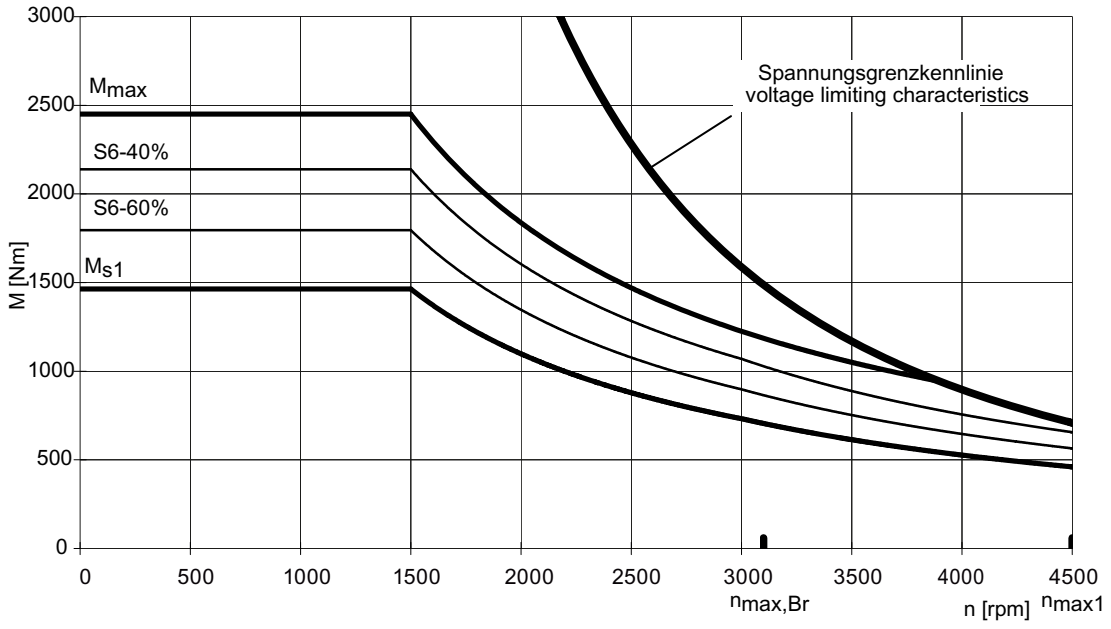
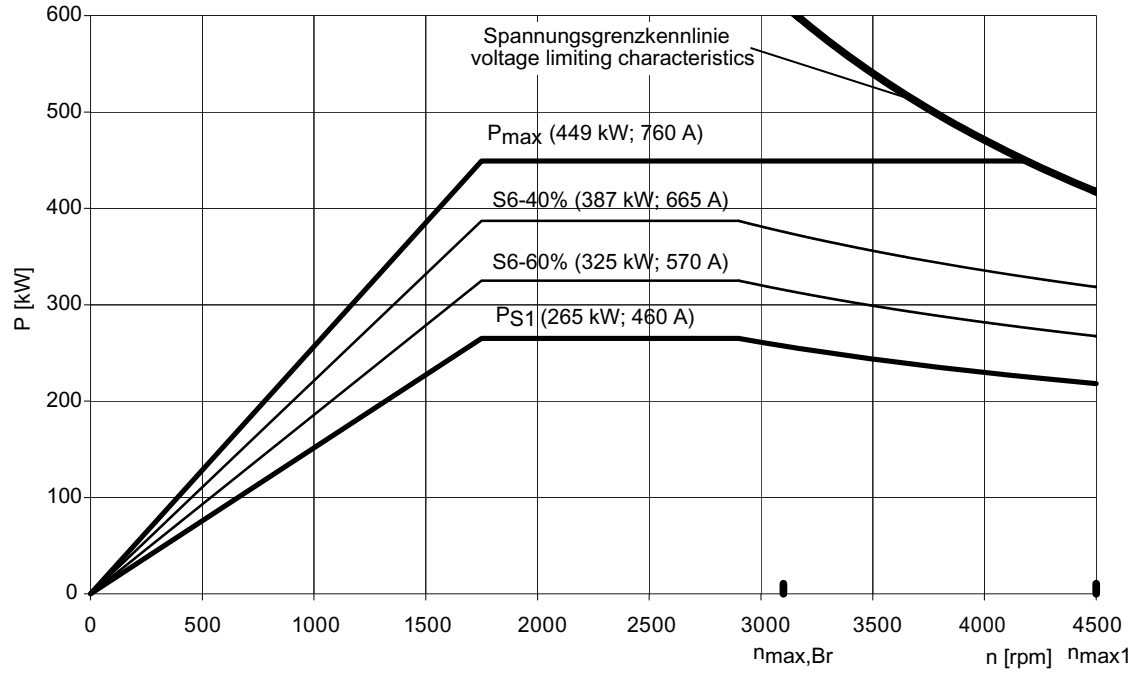


Table 4- 305 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	265	1446	460	4500	-	-	3100	2900	2450	760	1446	460
1500	230	1464	465					4000				



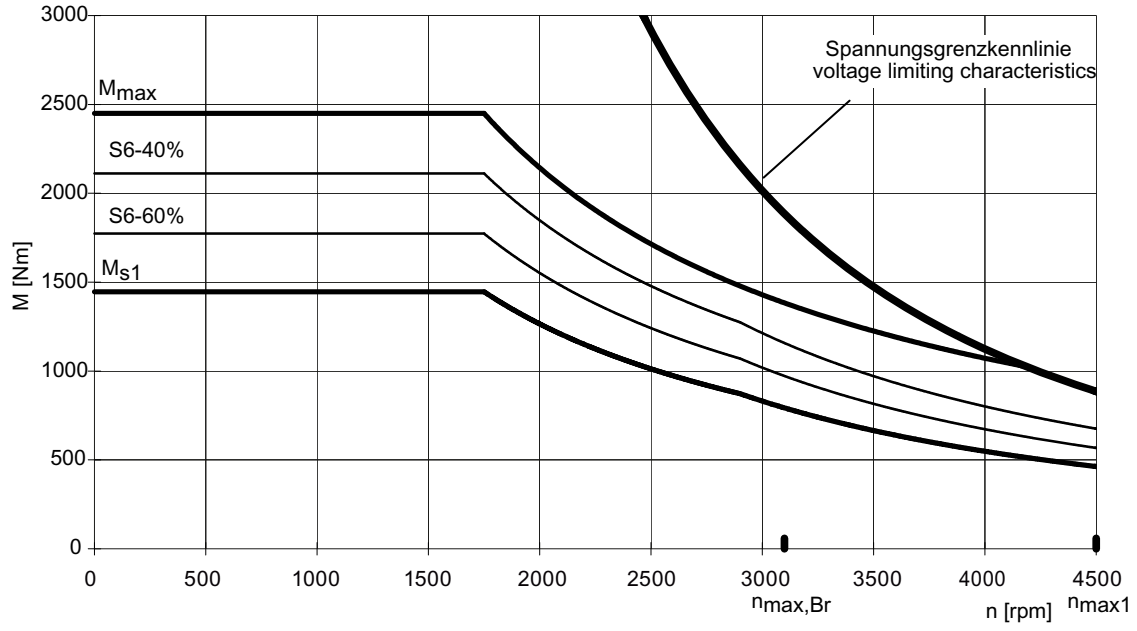
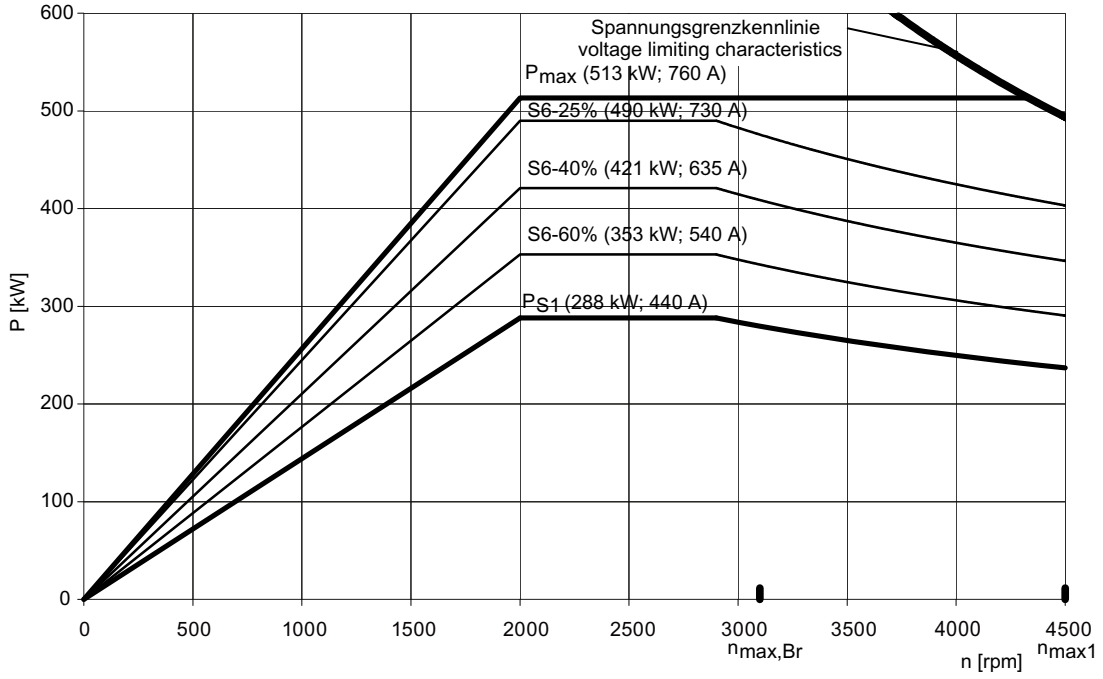


Table 4- 306 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□F□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	288	1375	440	4500	-	-	3100	2900	2450	760	1375	440



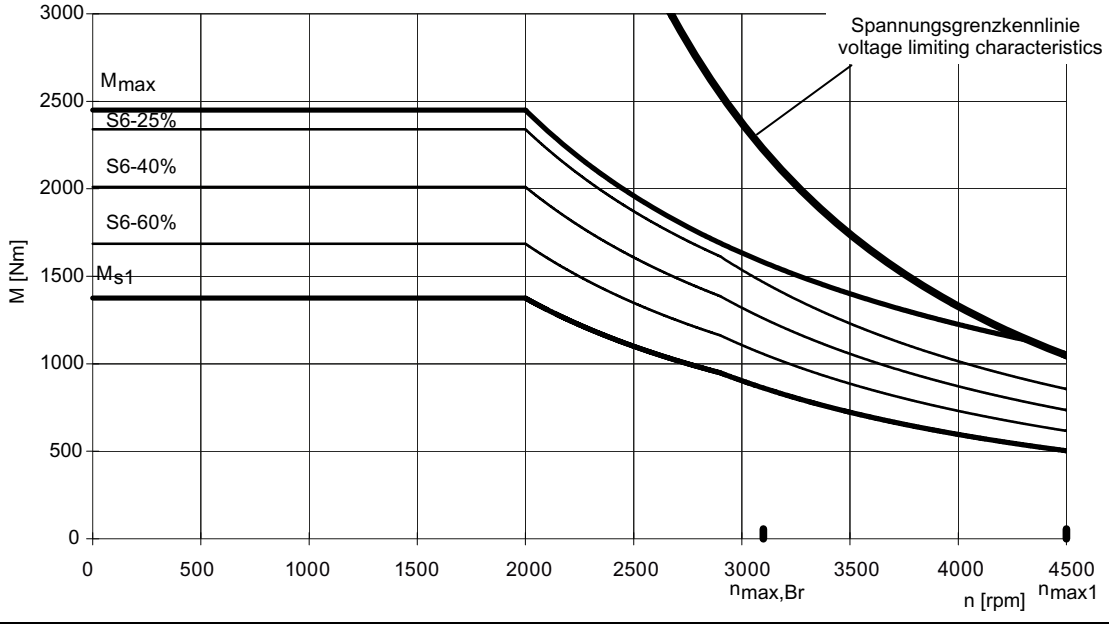
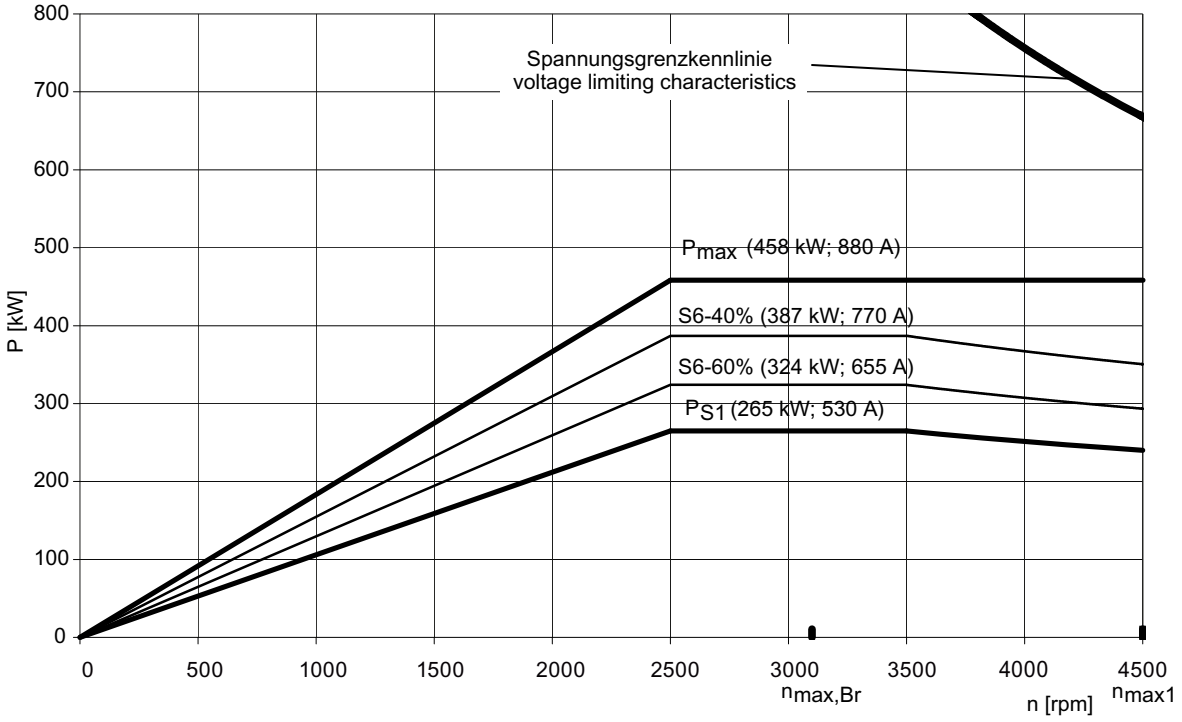


Table 4- 307 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	265	1012	530	4500	-	-	3100	3500	1750	880	1012	530



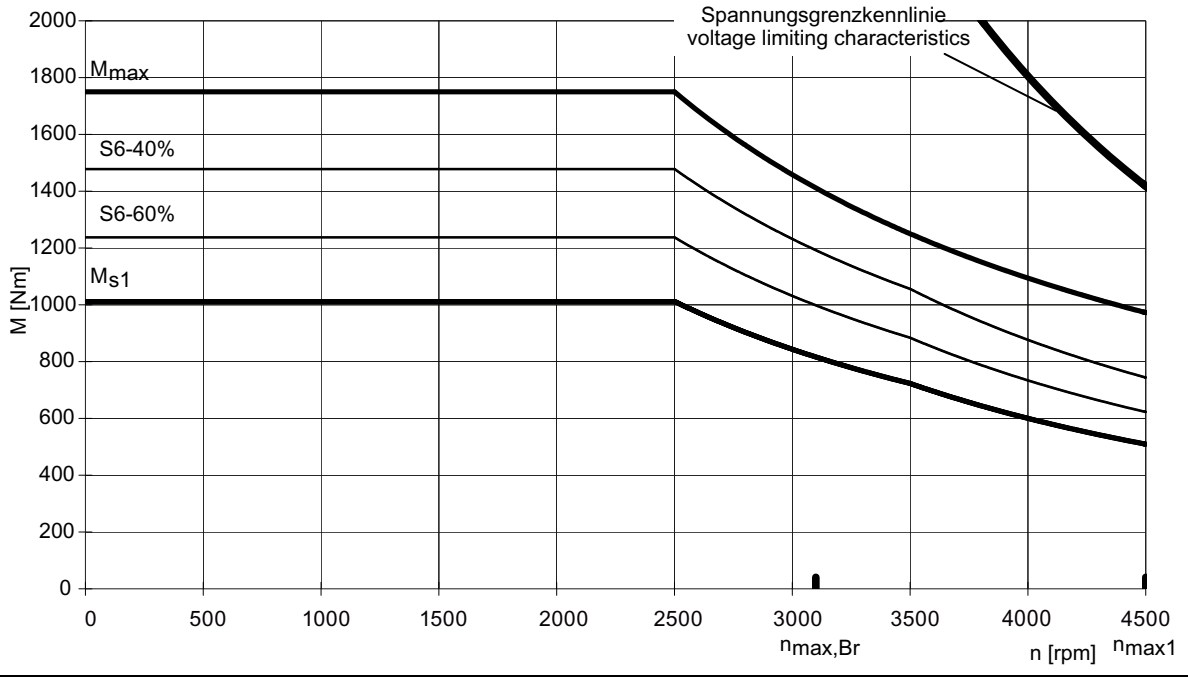
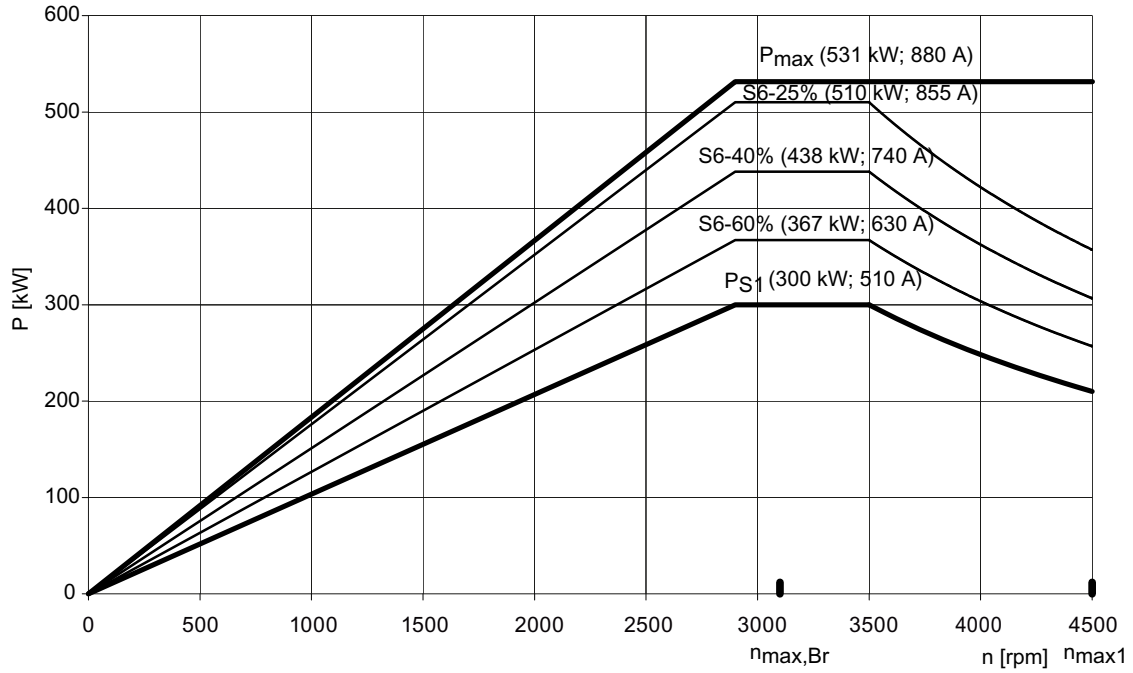


Table 4- 308 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	300	988	510	4500	-	-	3100	3500	1750	880	988	510
2500	265	1012	530					3800				



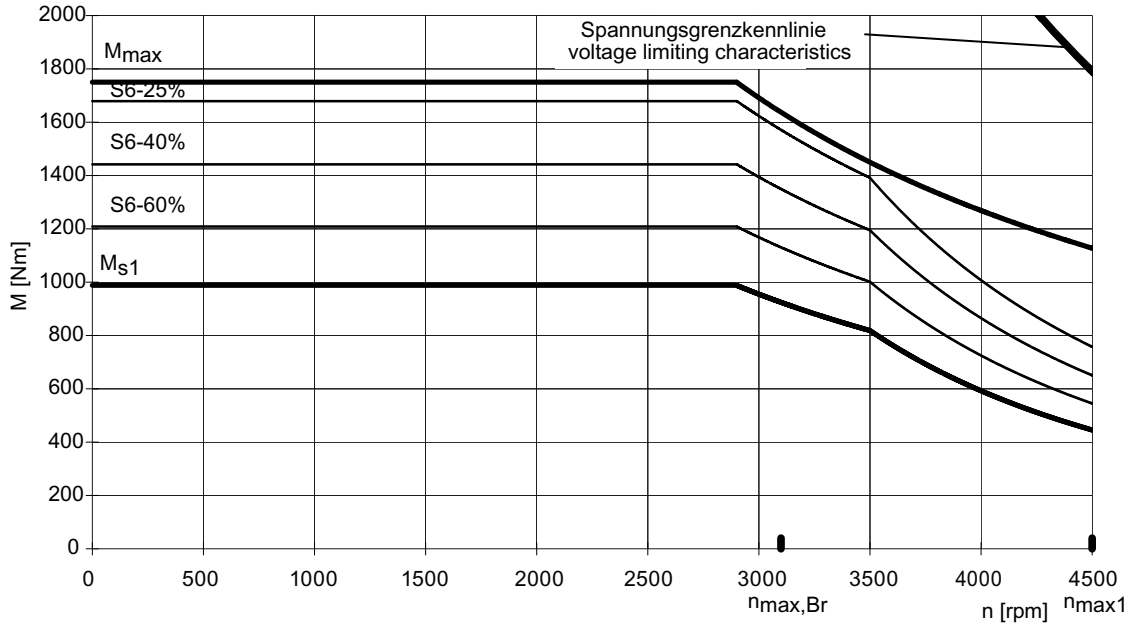
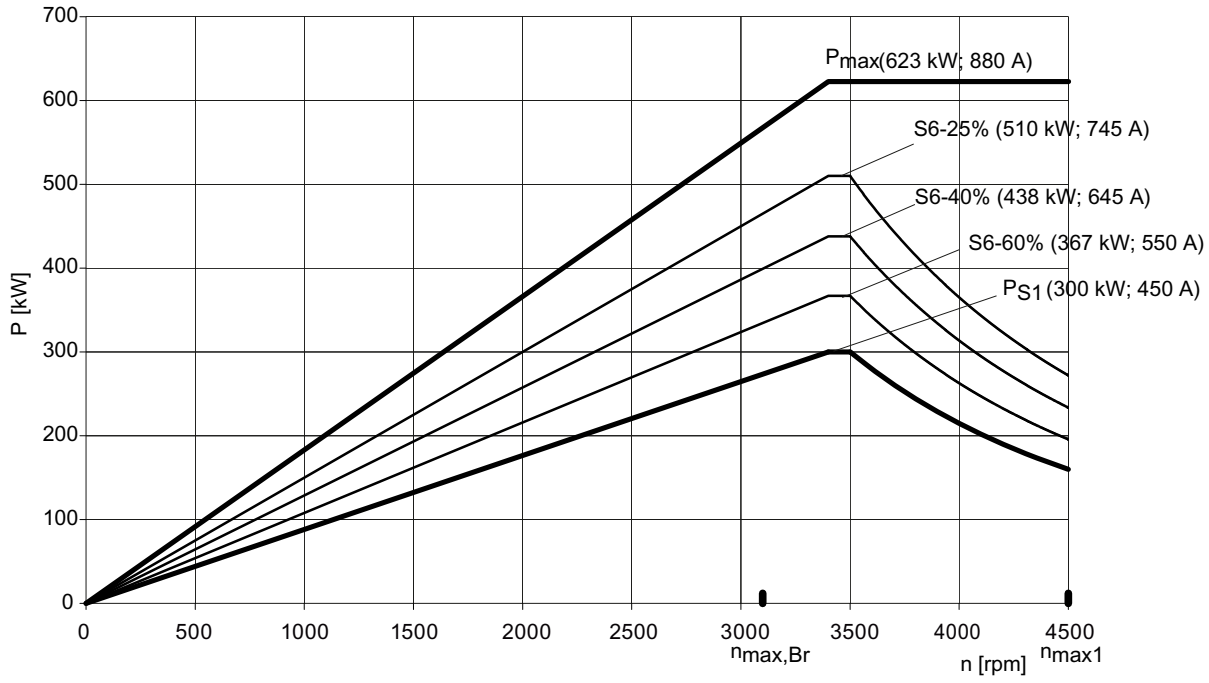
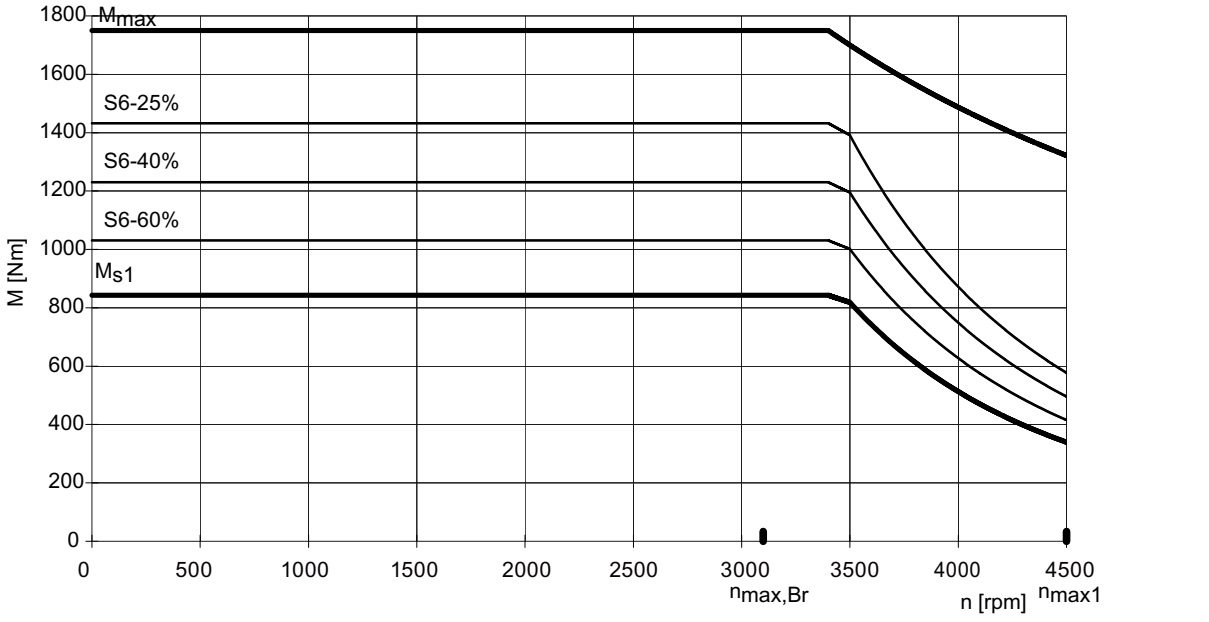


Table 4- 309 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L□□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	300	843	450	4500	-	-	3100	3500	1750	880	843	450

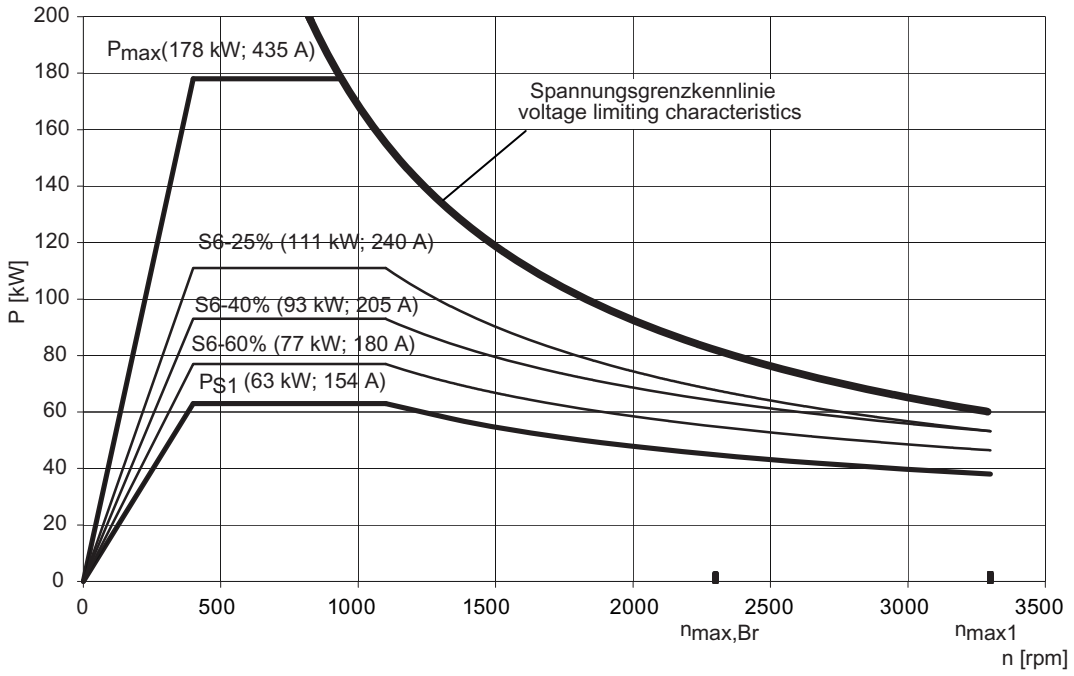




4.1.2.9 Shaft height 280 - forced ventilation

Table 4- 310 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	63	1504	154	3300	-	-	2300	1100	4250	435	1504	154



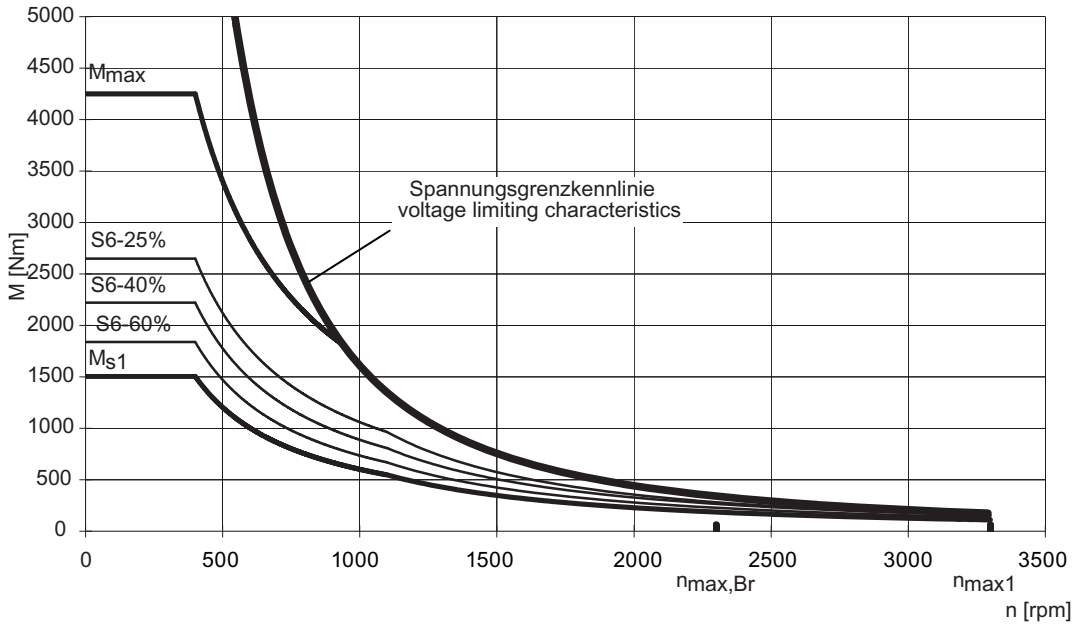
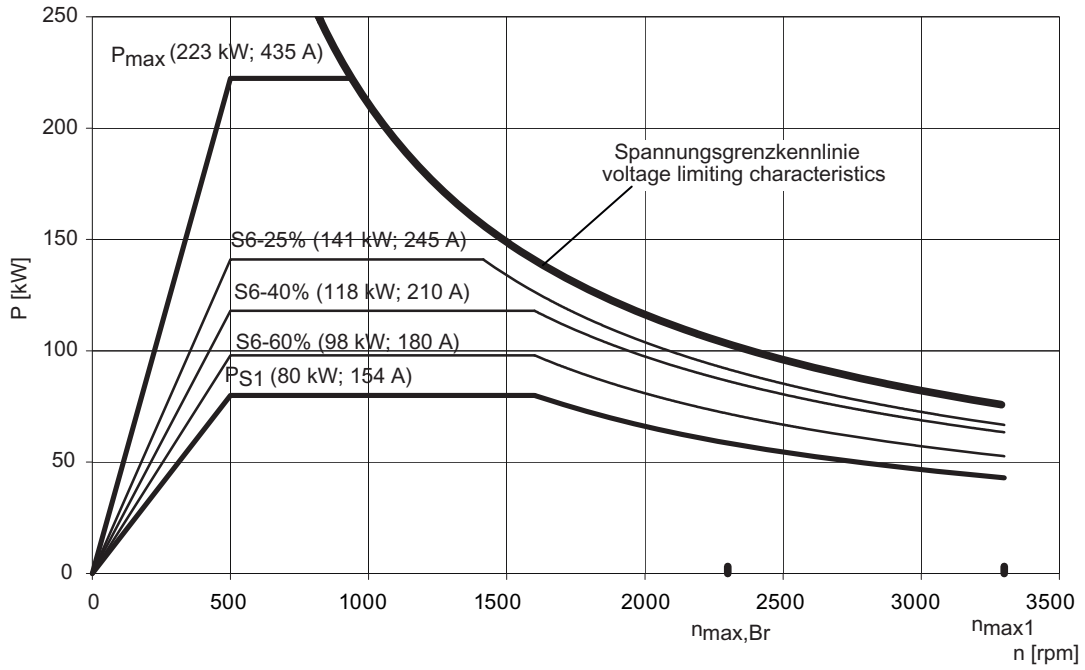


Table 4- 311 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	80	1529	154	3300	-	-	2300	1600	4250	435	1529	154
400	63	1504	154					2100				



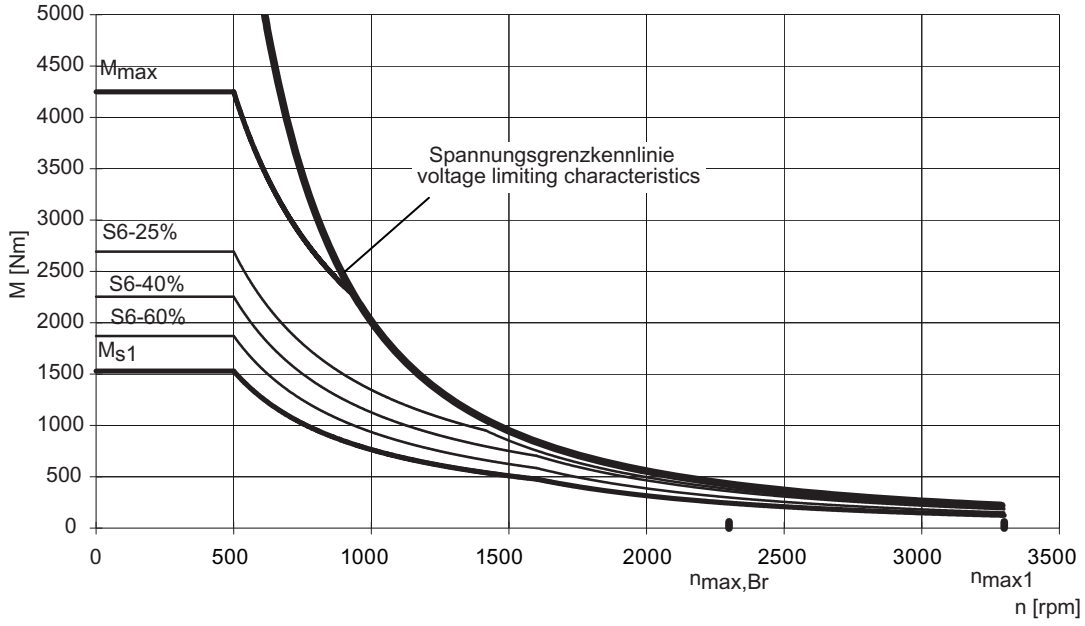
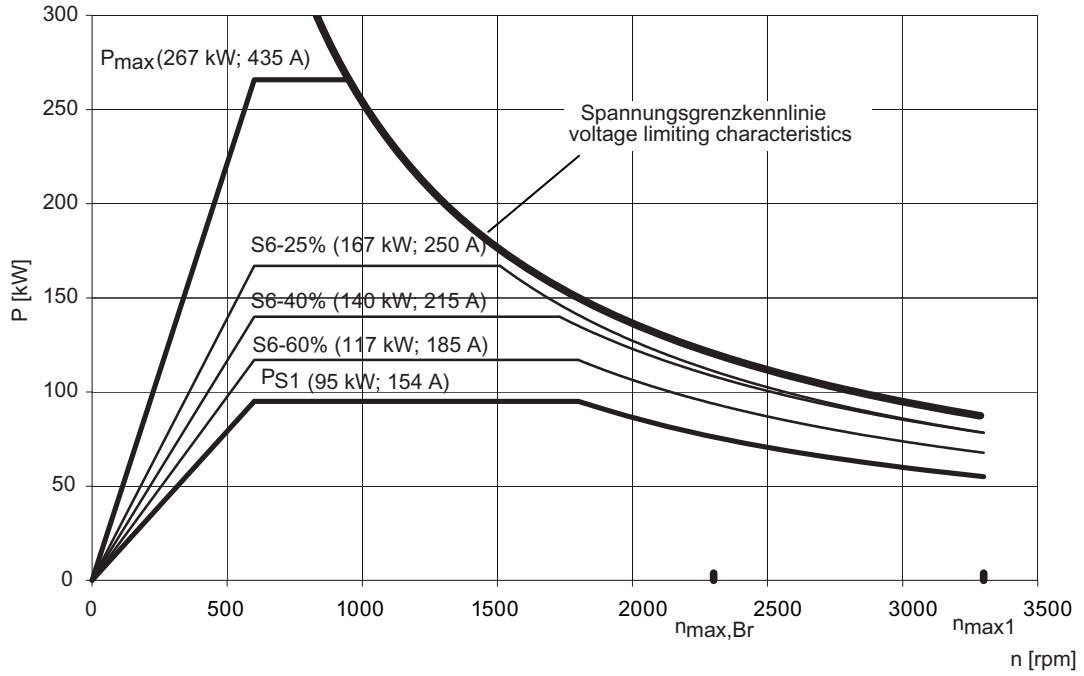


Table 4- 312 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	95	1519	154	3300	-	-	2300	1800	4250	435	1519	154



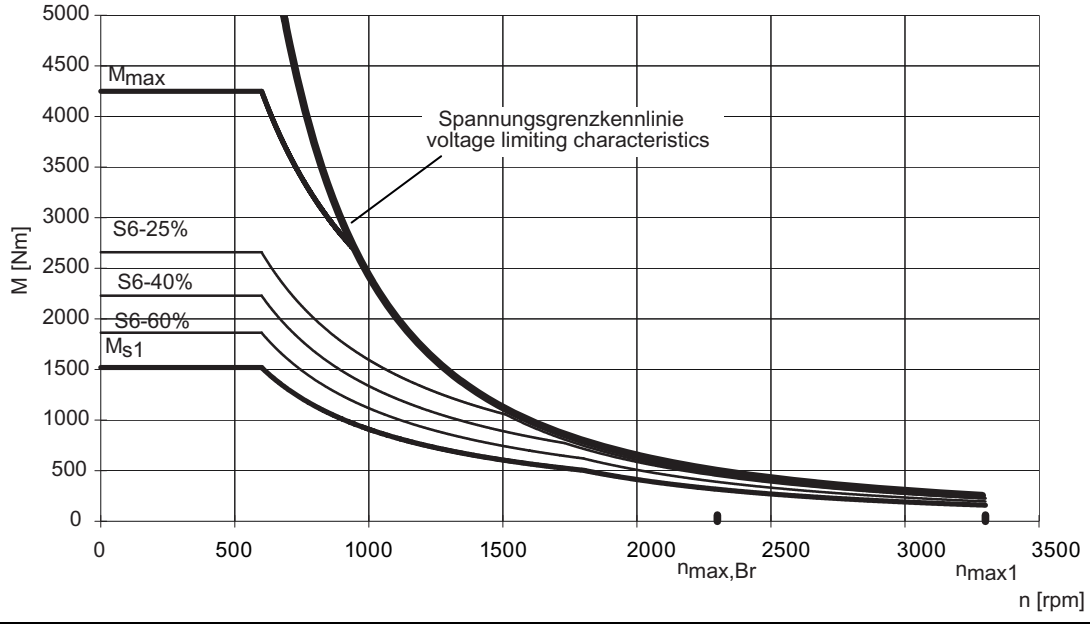
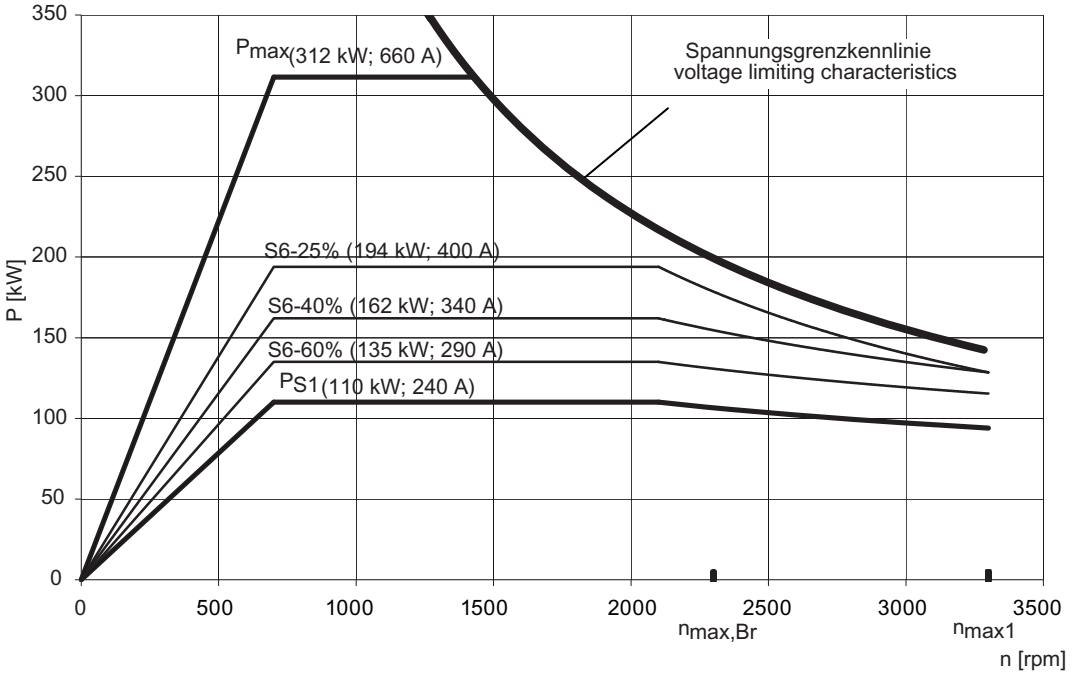


Table 4- 313 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	110	1501	240	3300	-	-	2300	2100	4250	660	1501	240



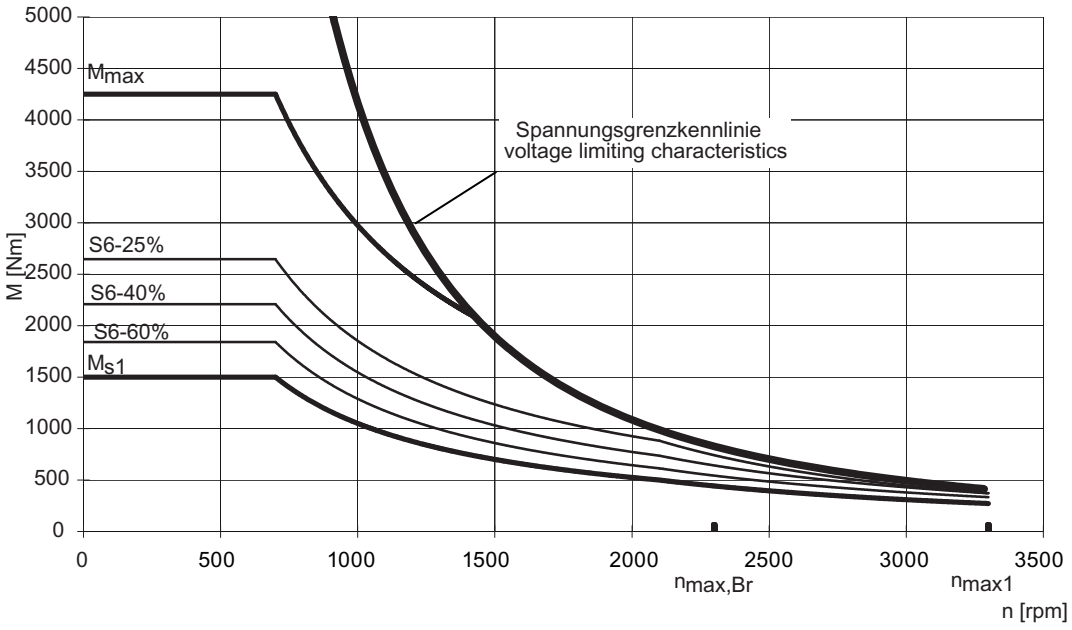
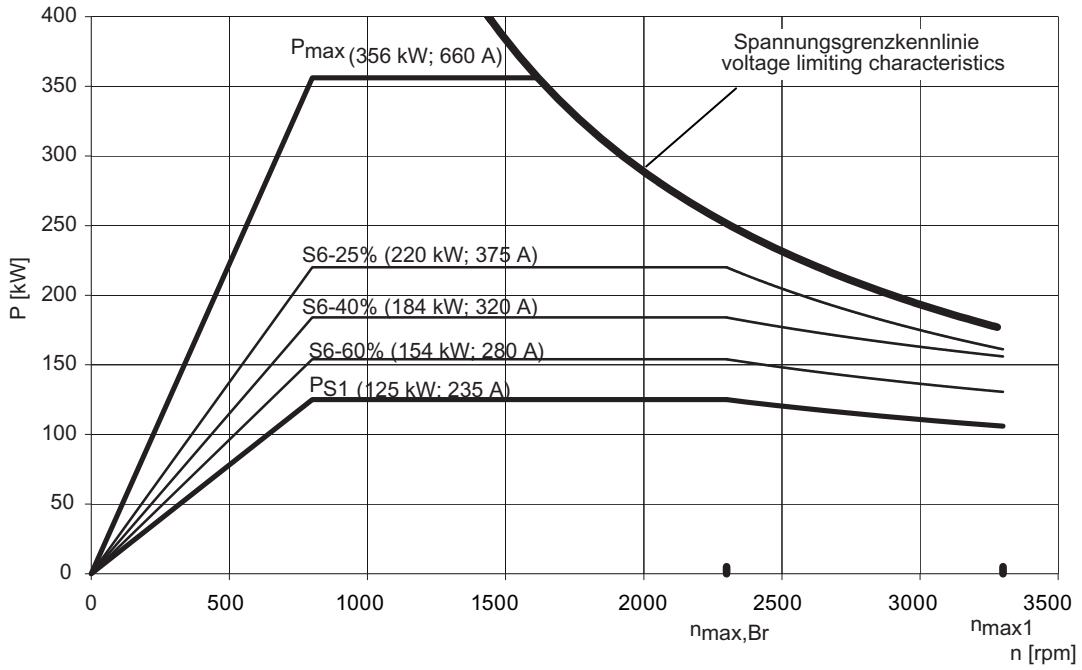


Table 4- 314 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	125	1492	235	3300	-	-	2300	2300	4250	660	1492	235
700	110	1501	240					3000				



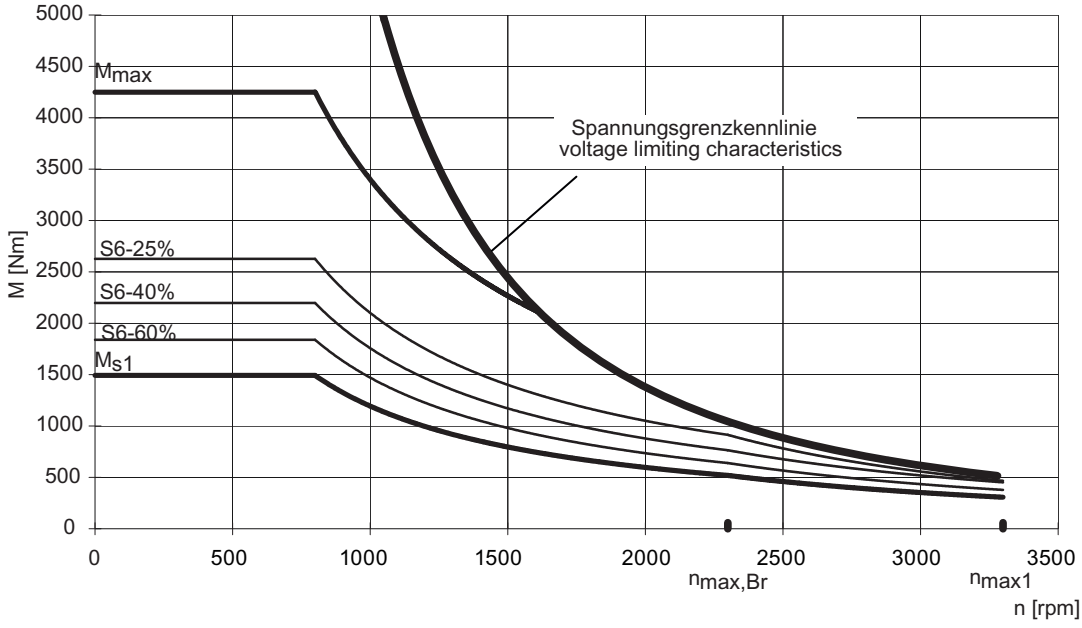
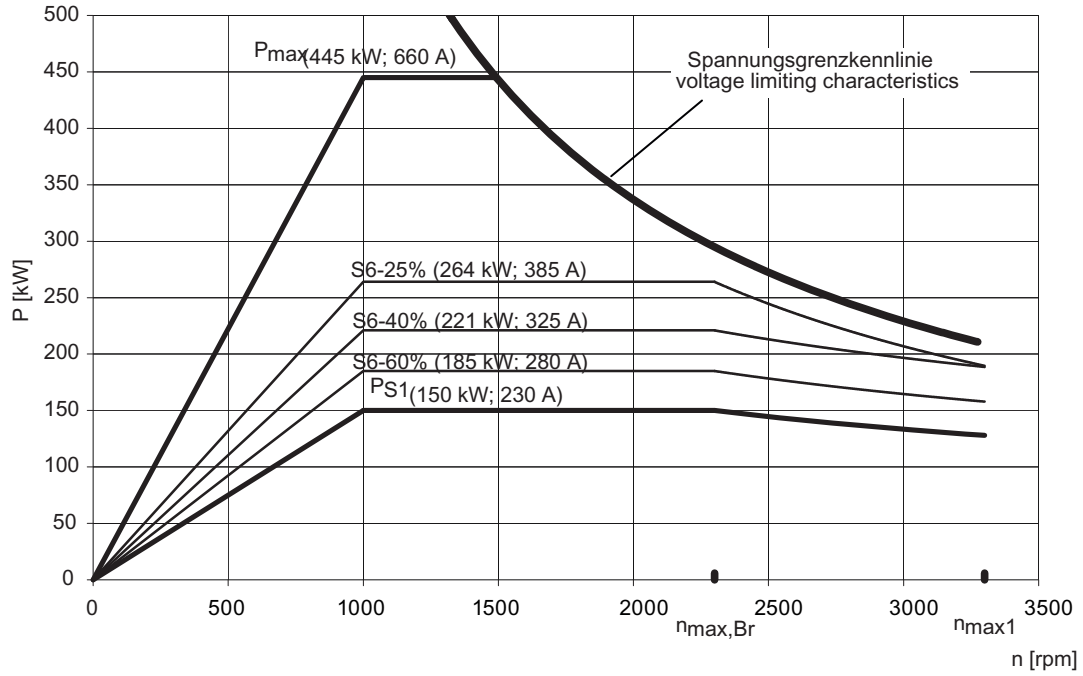


Table 4- 315 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	150	1433	230	3300	-	-	2300	2300	4250	660	1433	230



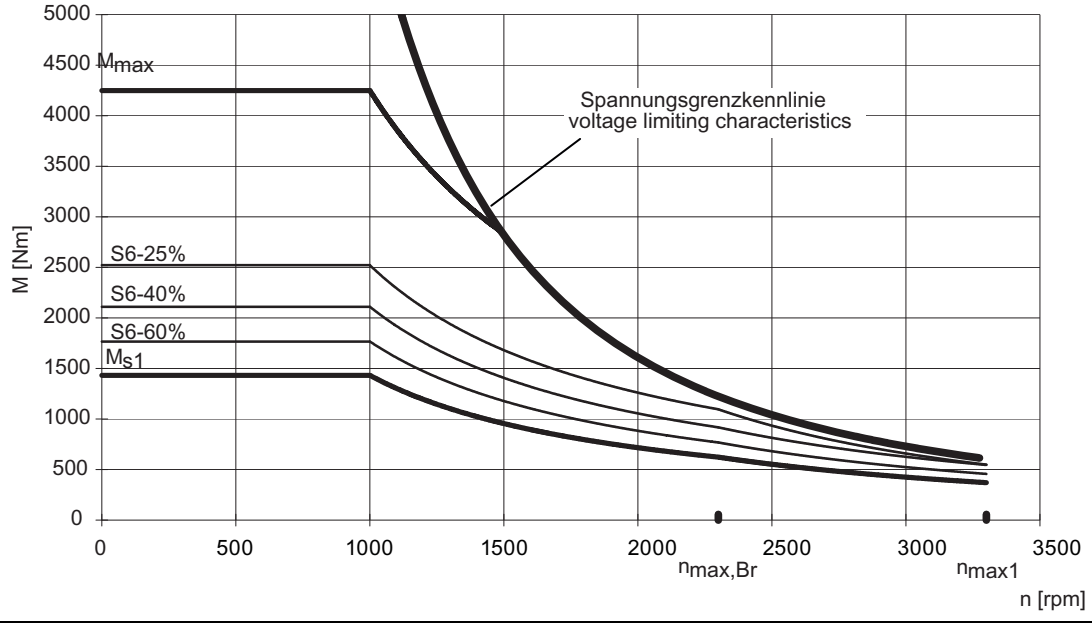
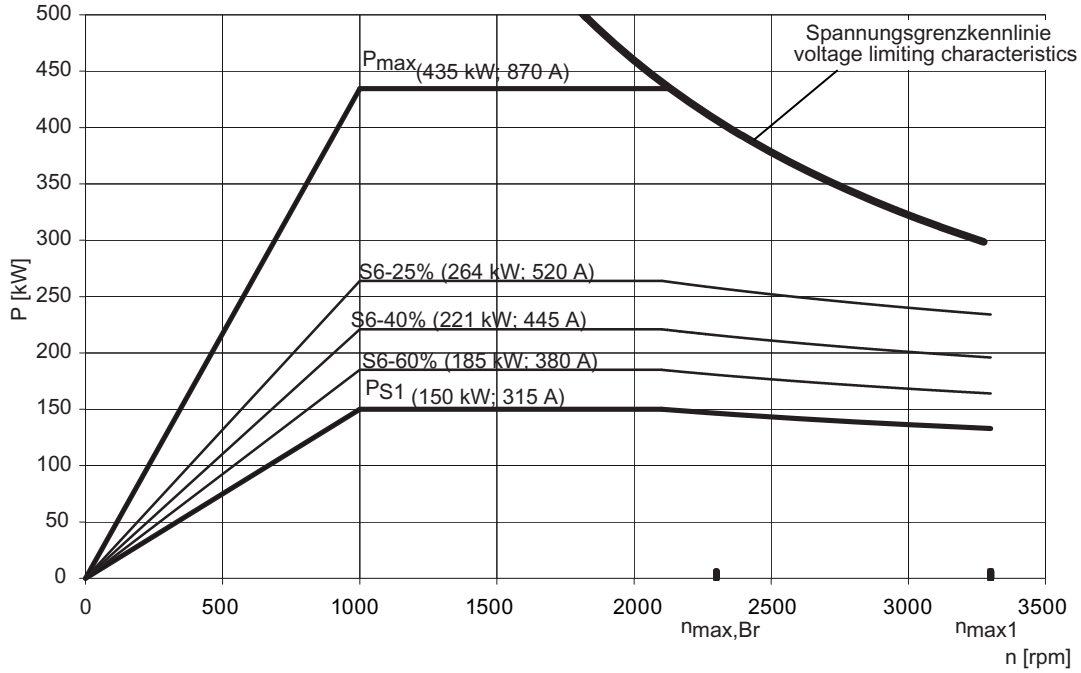


Table 4- 316 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	150	1433	315	3300	-	-	2300	2100	4150	870	1433	315



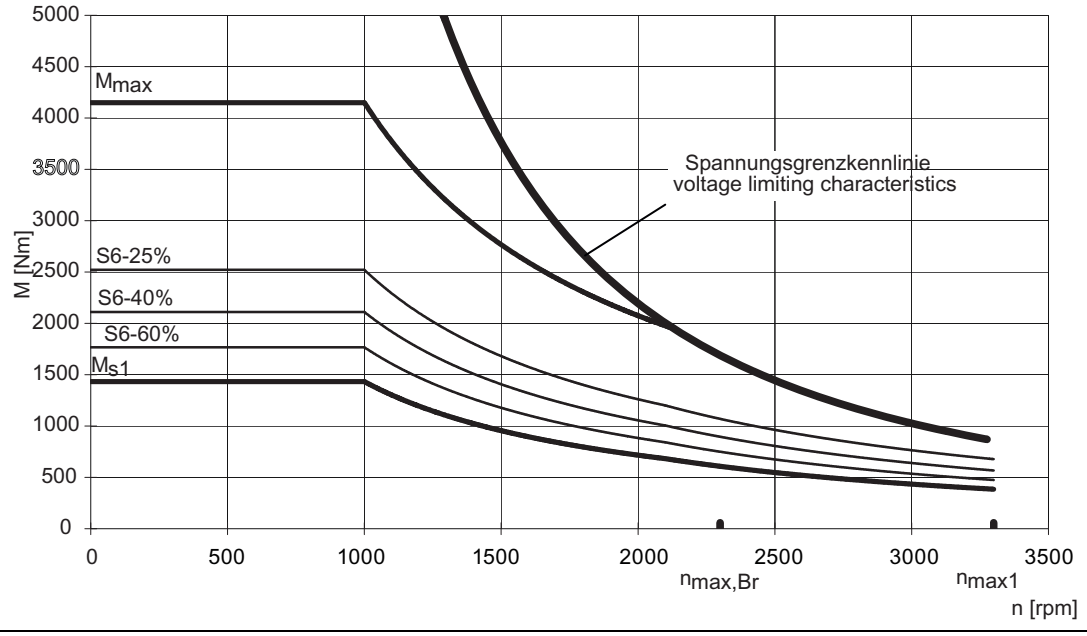
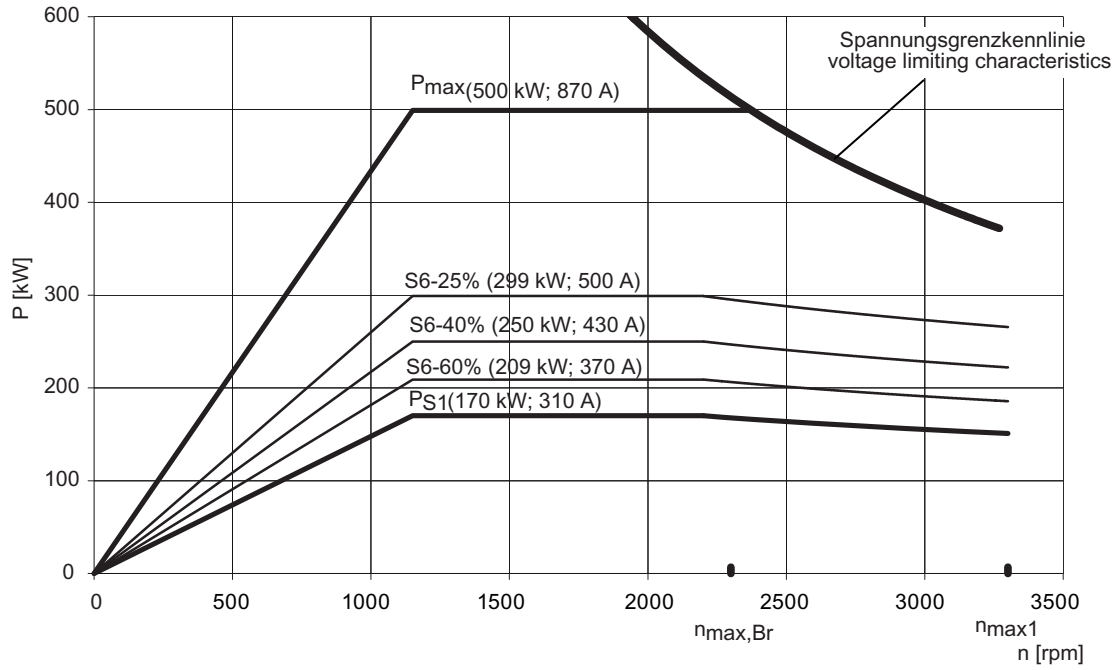


Table 4- 317 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	170	1414	310	3300	-	-	2300	2200	4150	870	1414	310
1000	150	1433	315					3300				



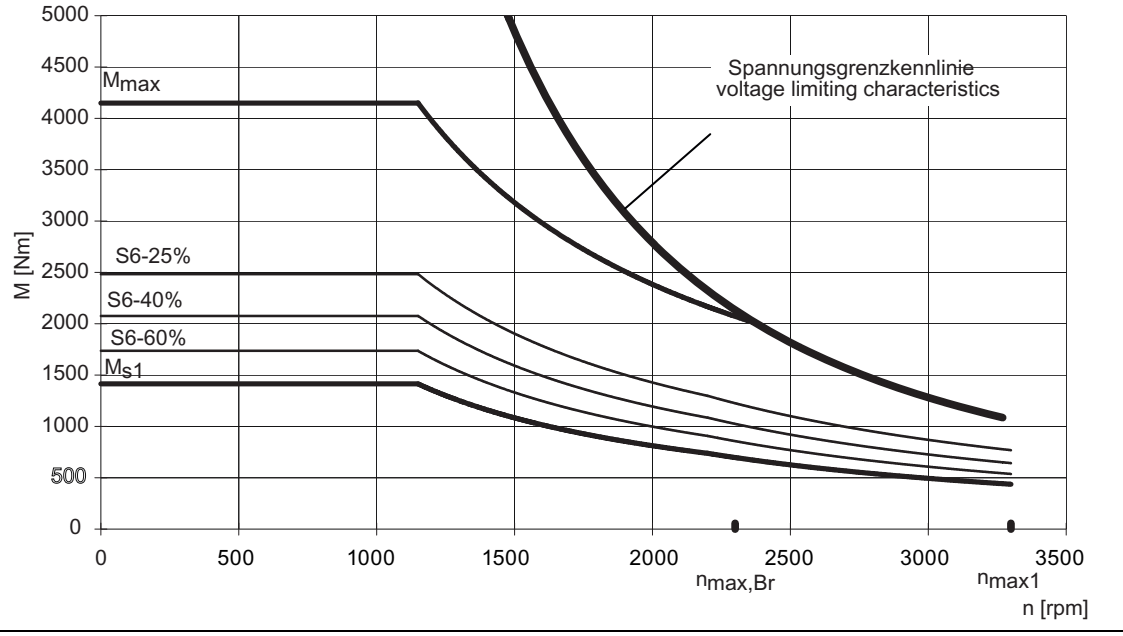
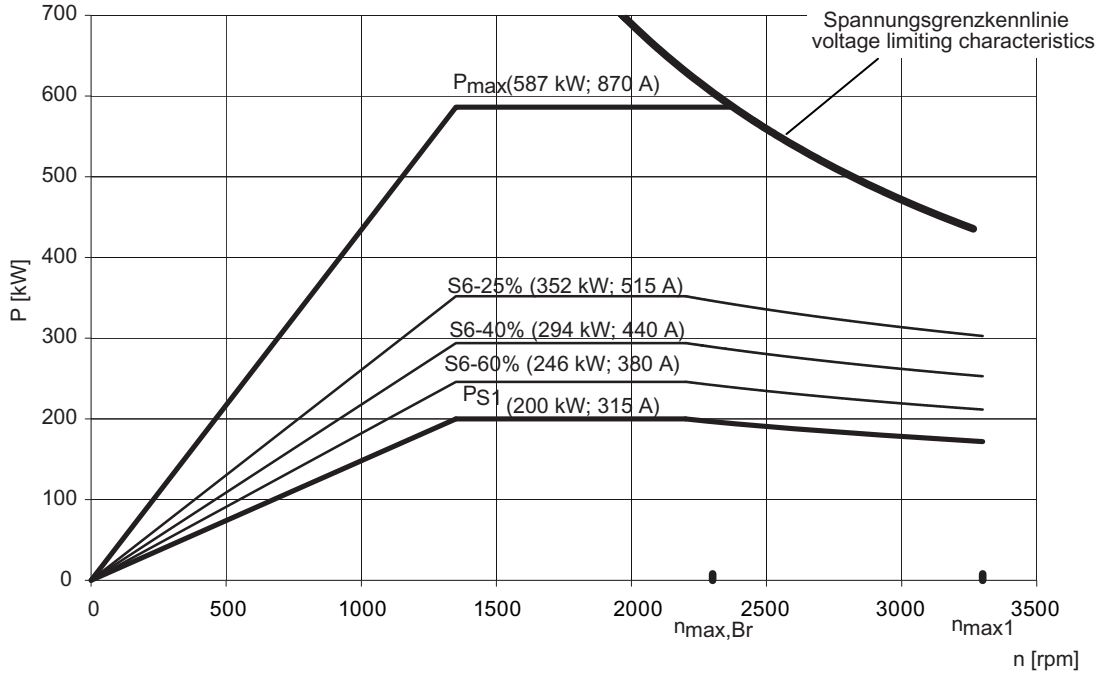


Table 4- 318 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	200	1416	315	3300	-	-	2300	2200	4150	870	1416	315



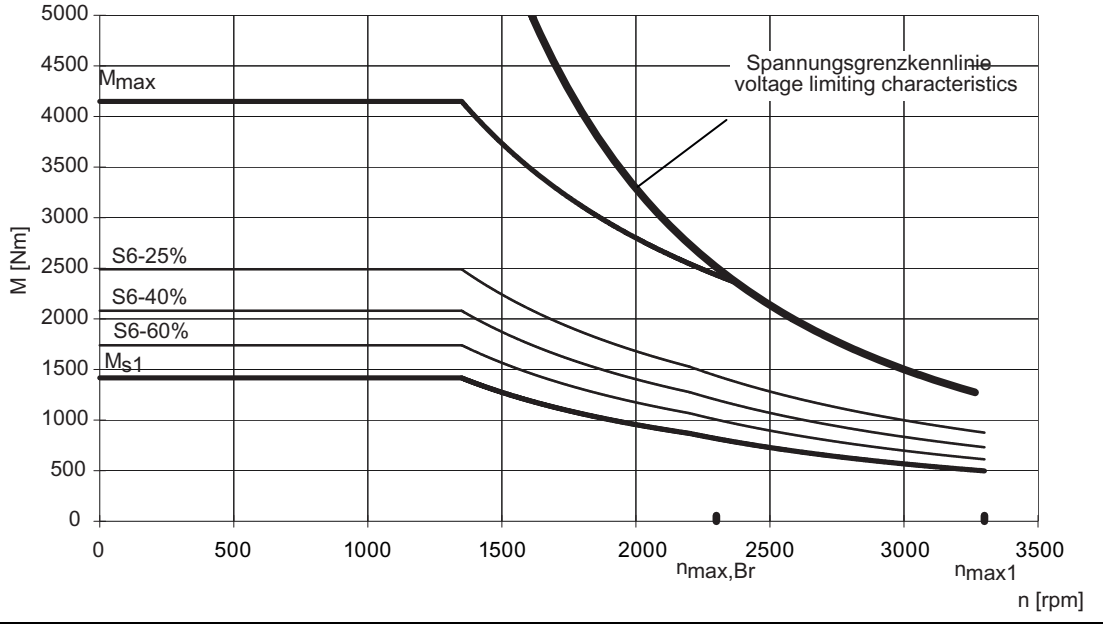
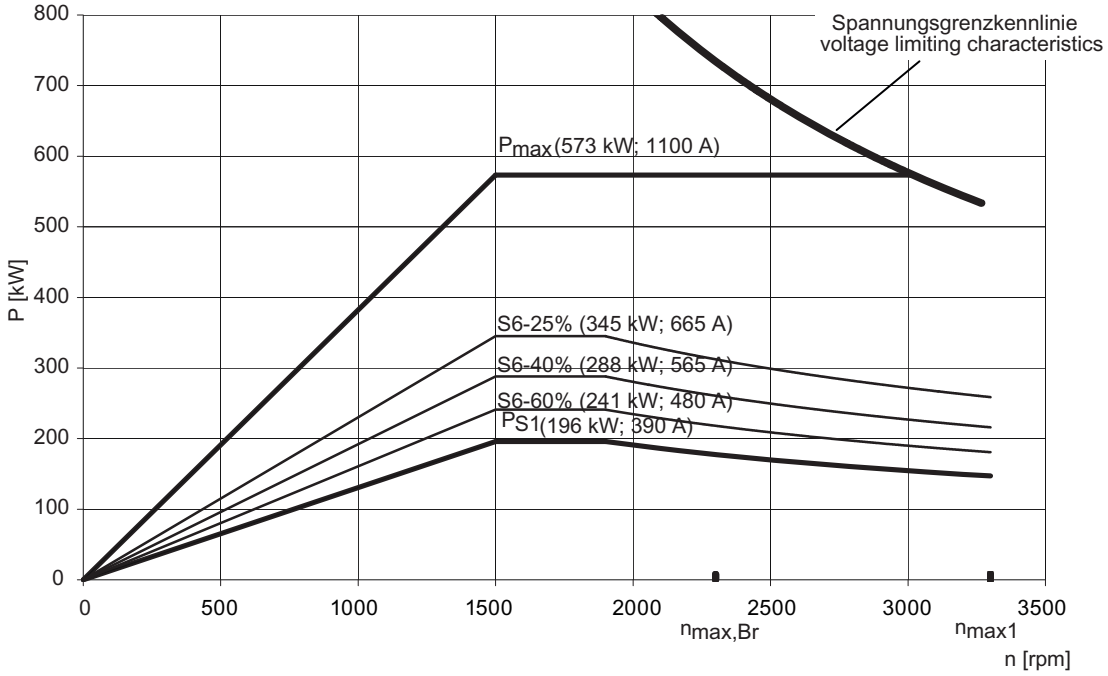


Table 4- 319 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	196	1248	390	3300	-	-	2300	1900	3650	1100	1248	390



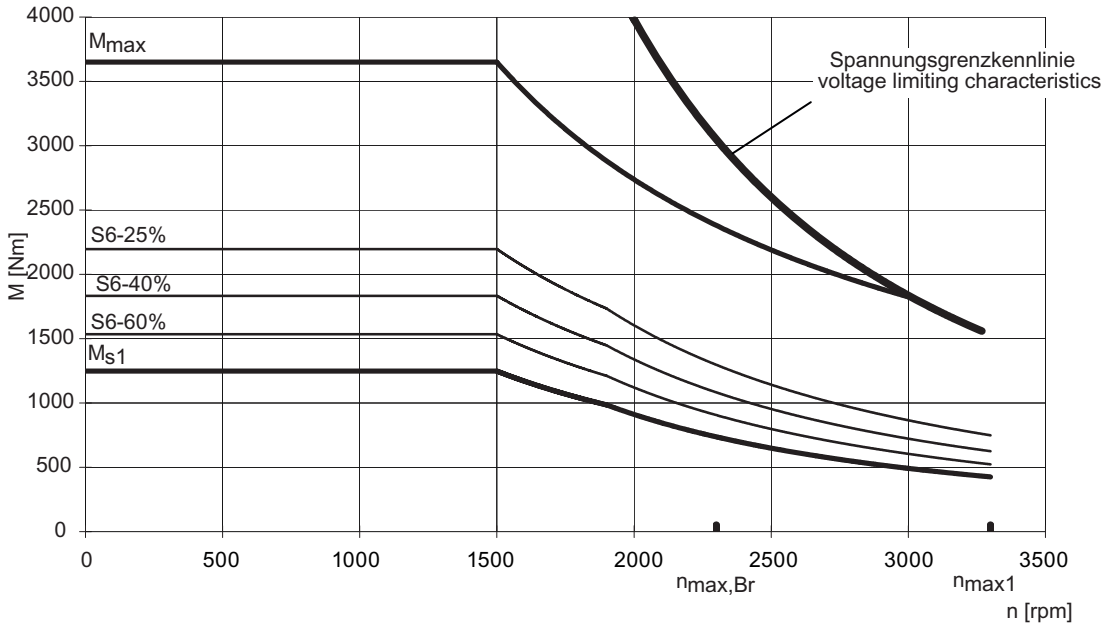
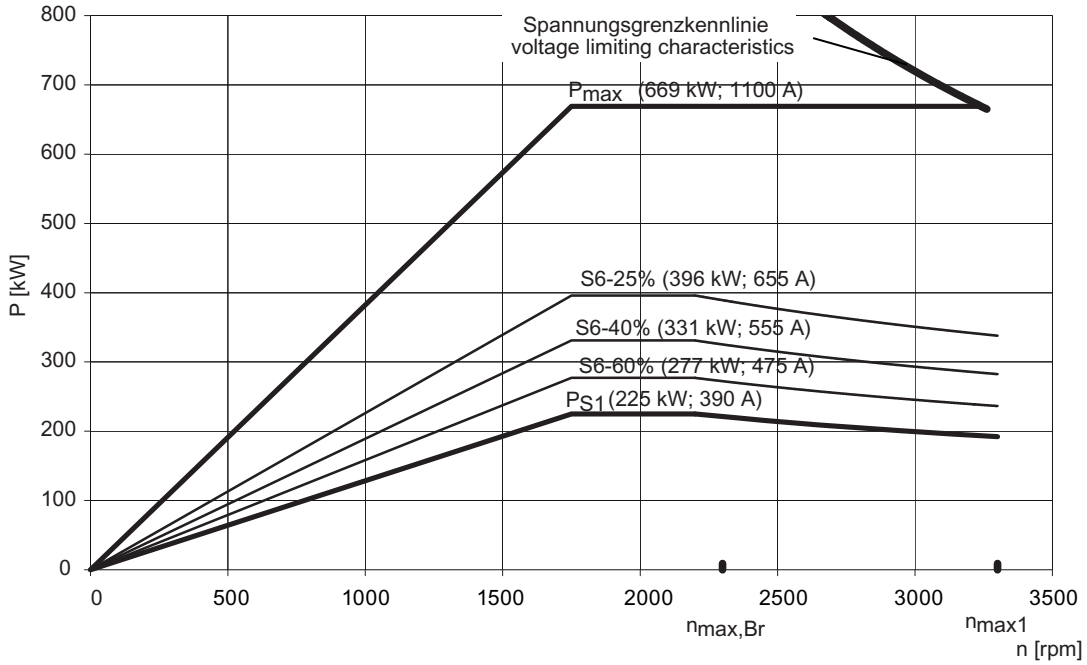


Table 4- 320 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	225	1228	390	3300	-	-	2300	2200	3650	1100	1228	390
1500	196	1248	390					3100				



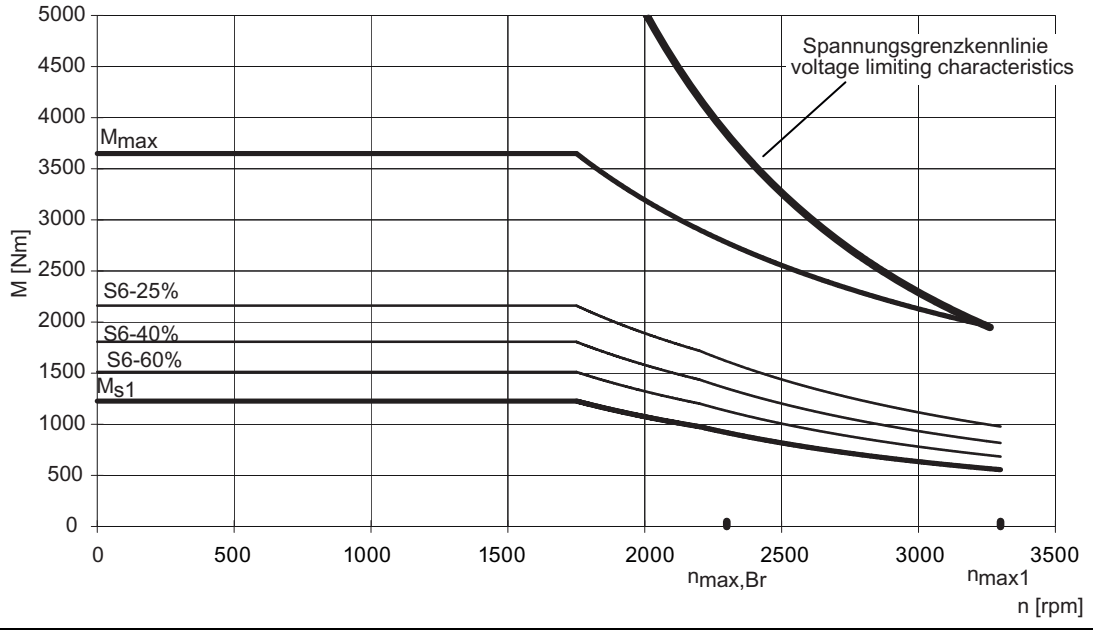
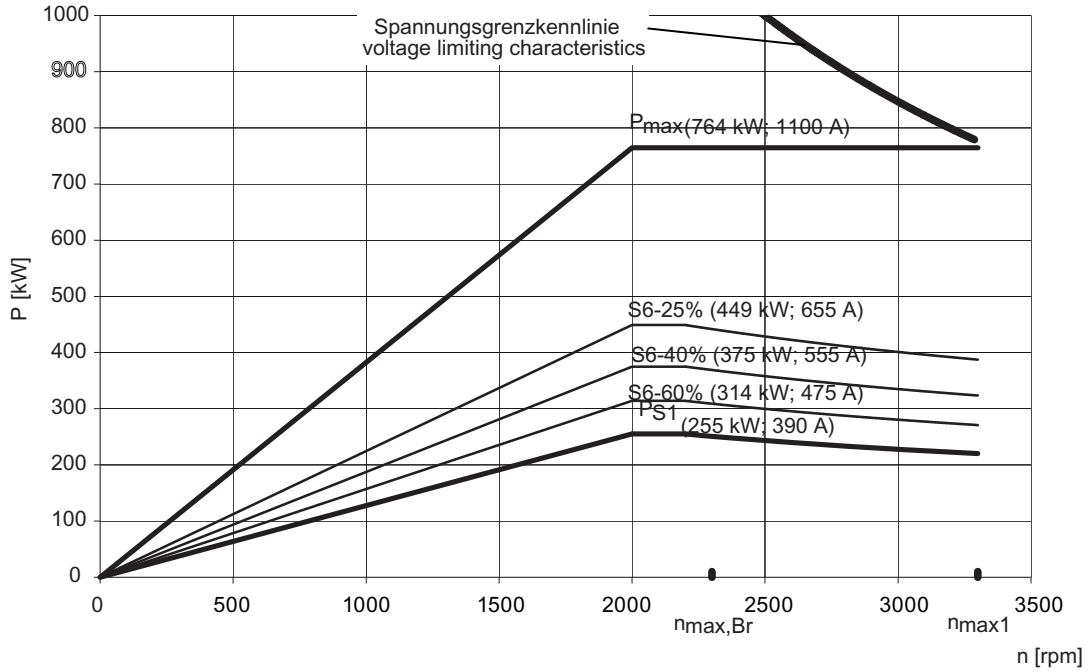


Table 4- 321 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	255	1218	390	3300	-	-	2300	2200	3650	1100	1218	390



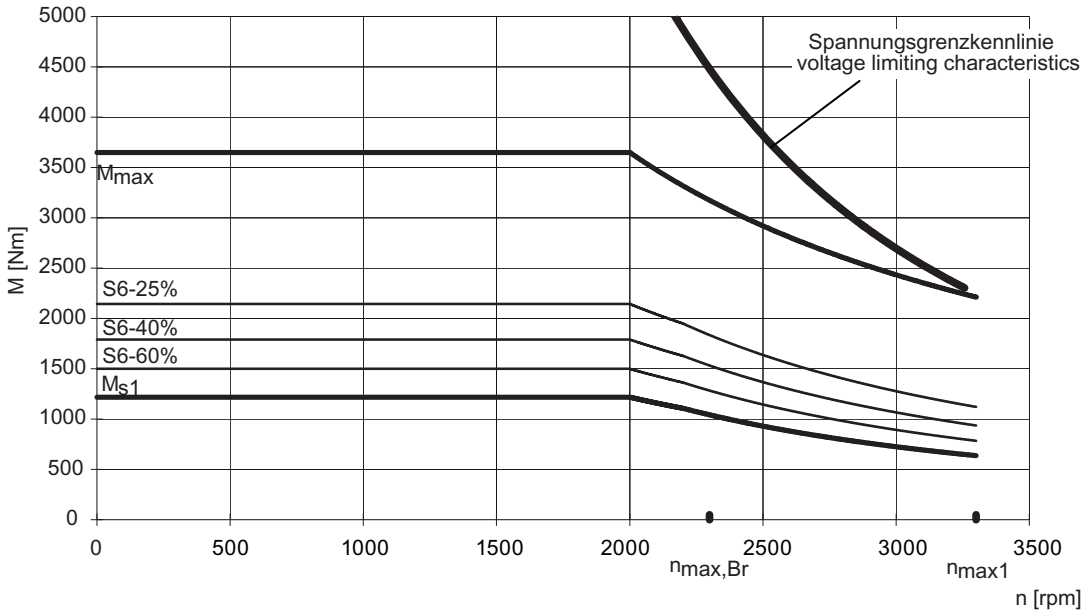
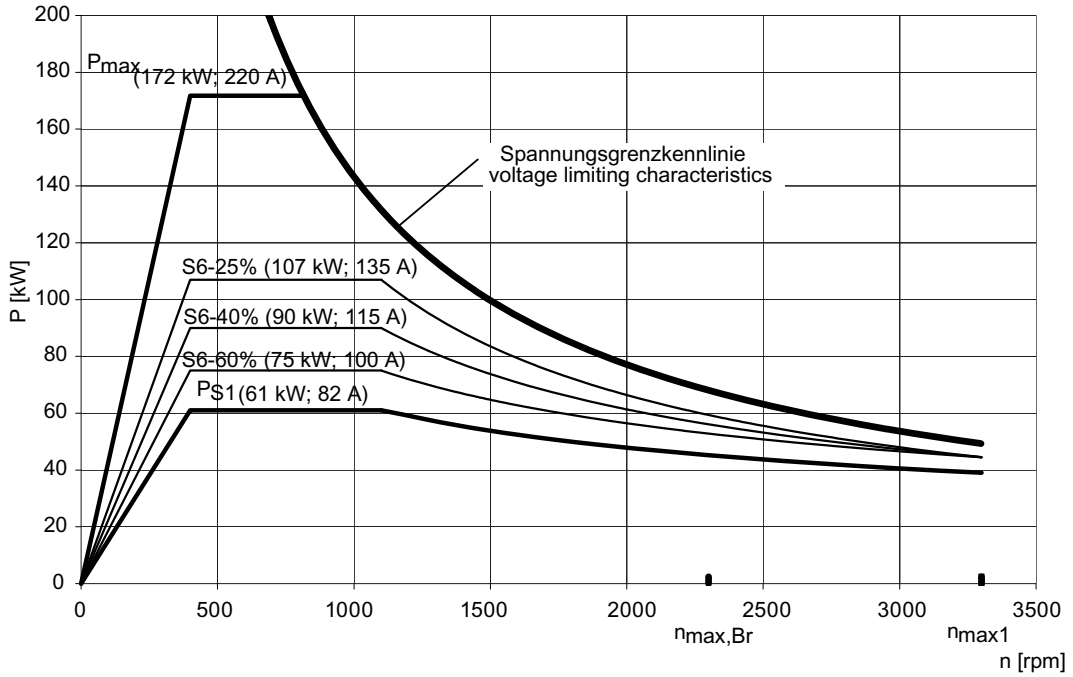


Table 4- 322 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	61	1456	82	3300	-	-	2300	1100	4100	220	1456	82



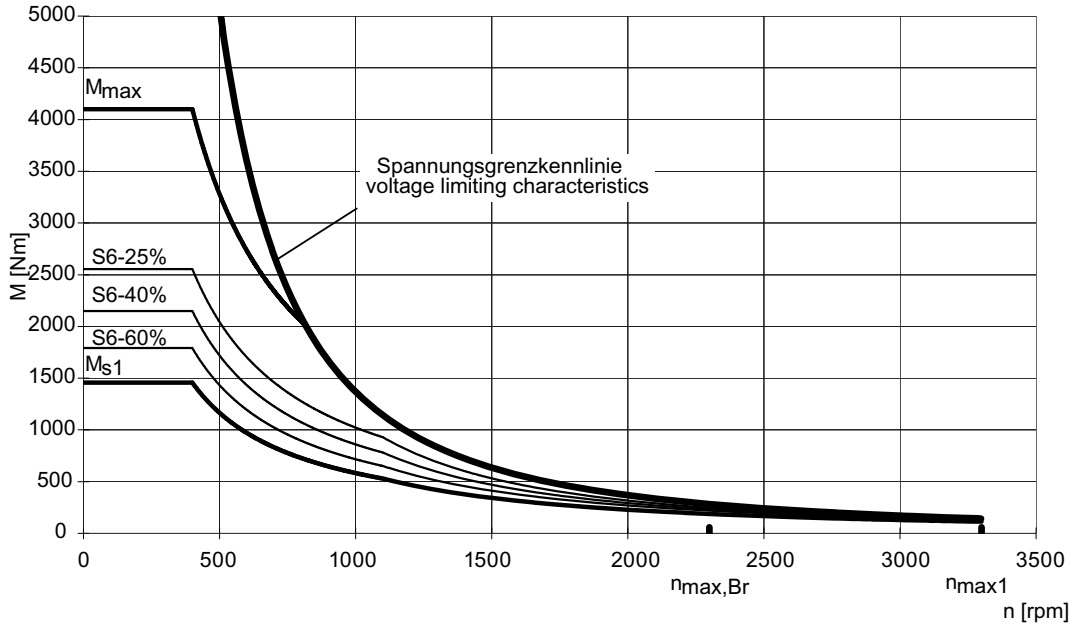
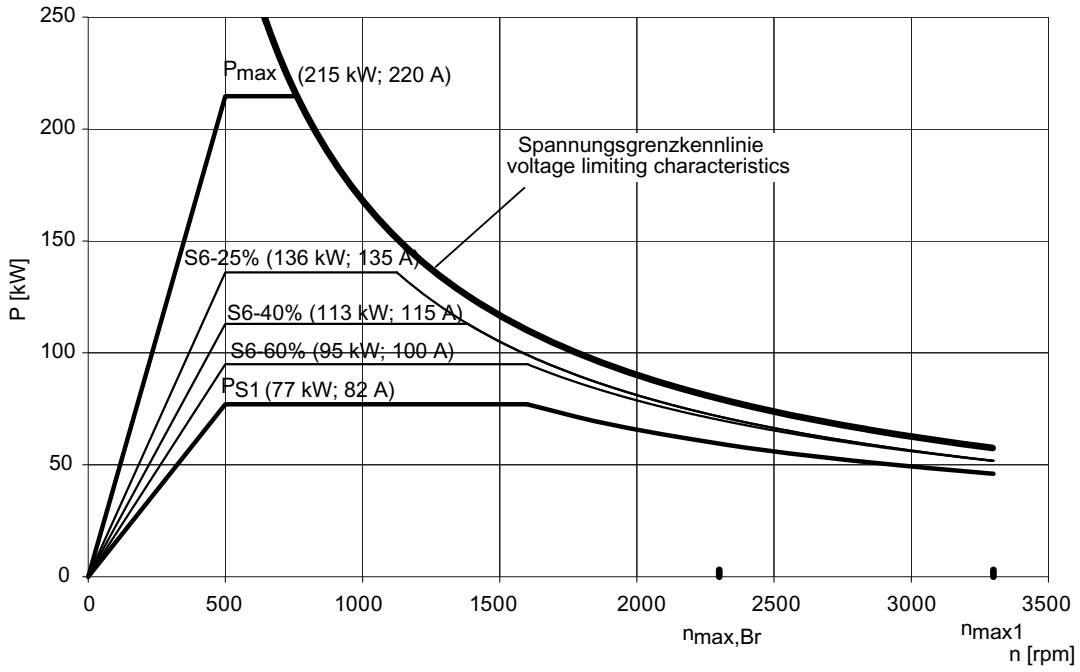


Table 4- 323 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	77	1471	82	3300	-	-	2300	1600	4100	220	1471	82
400	61	1456	82					2200				



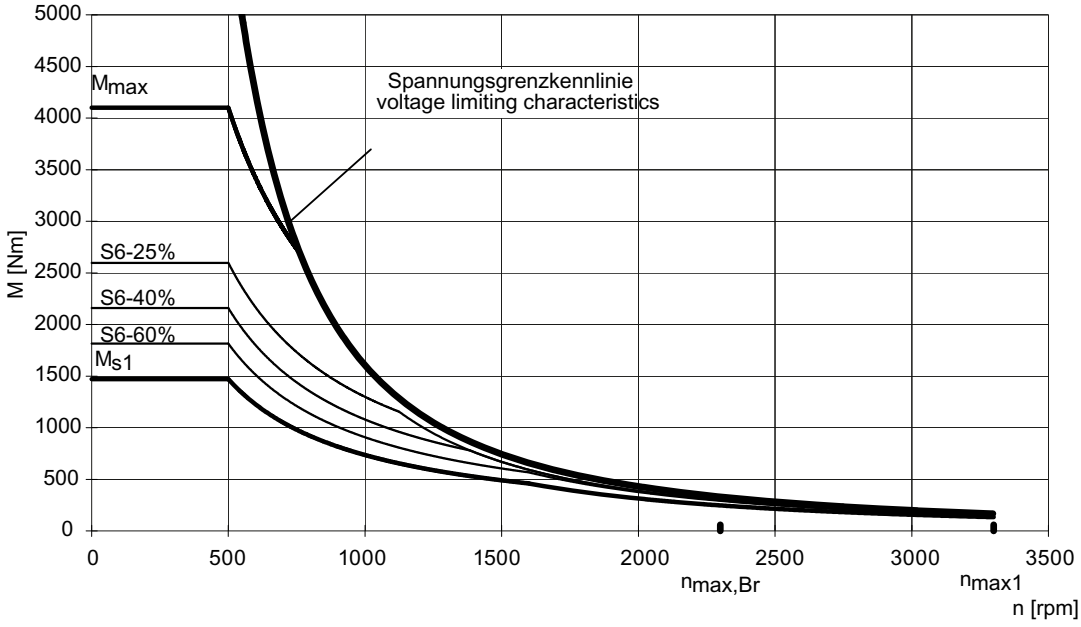
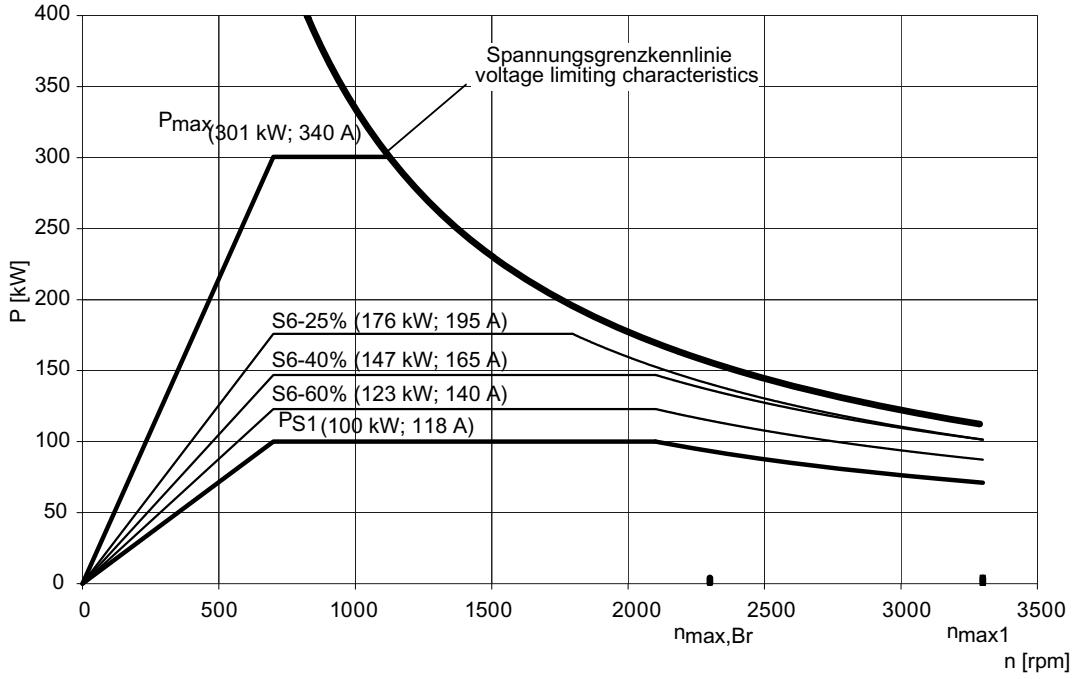


Table 4- 324 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	100	1364	118	3300	-	-	2300	2100	4100	340	1364	118



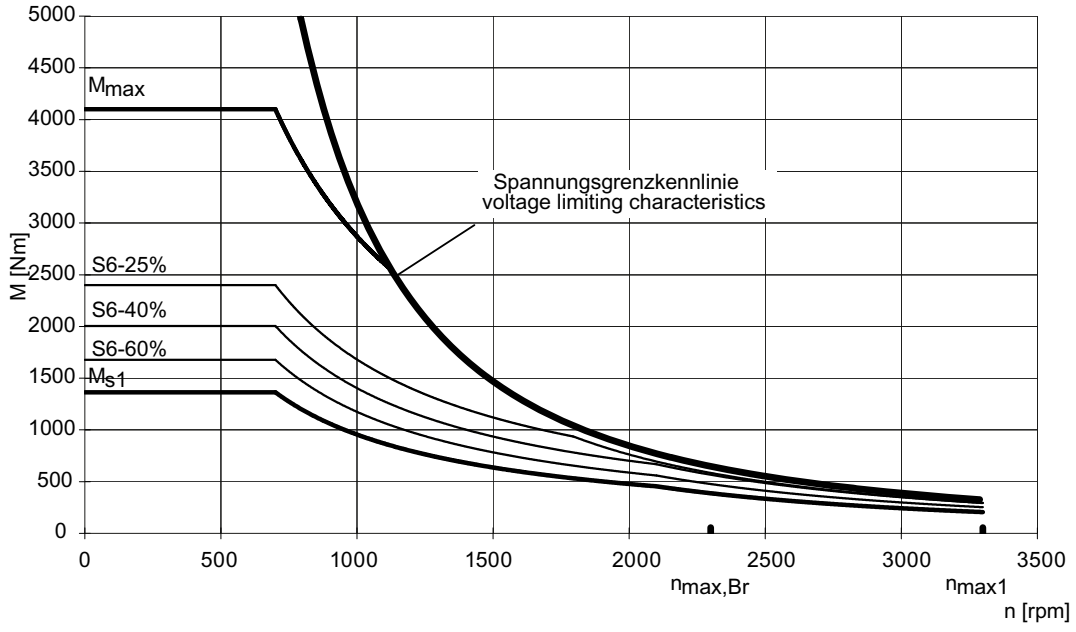
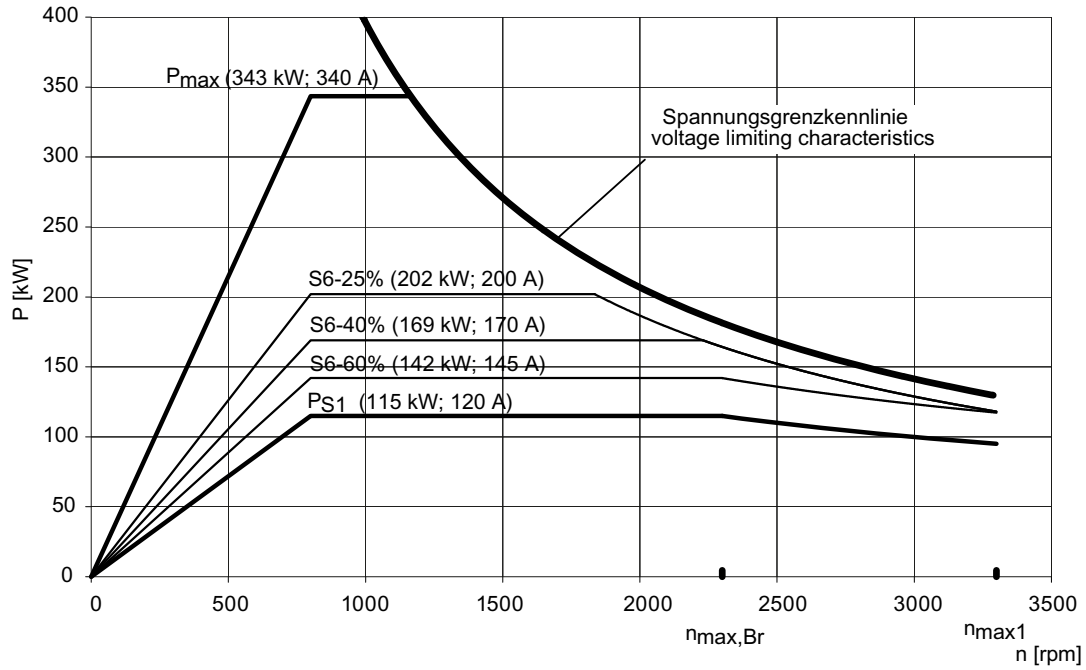


Table 4- 325 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	115	1373	120	3300	-	-	2300	2300	4100	340	1373	120
700	100	1364	118					3000				



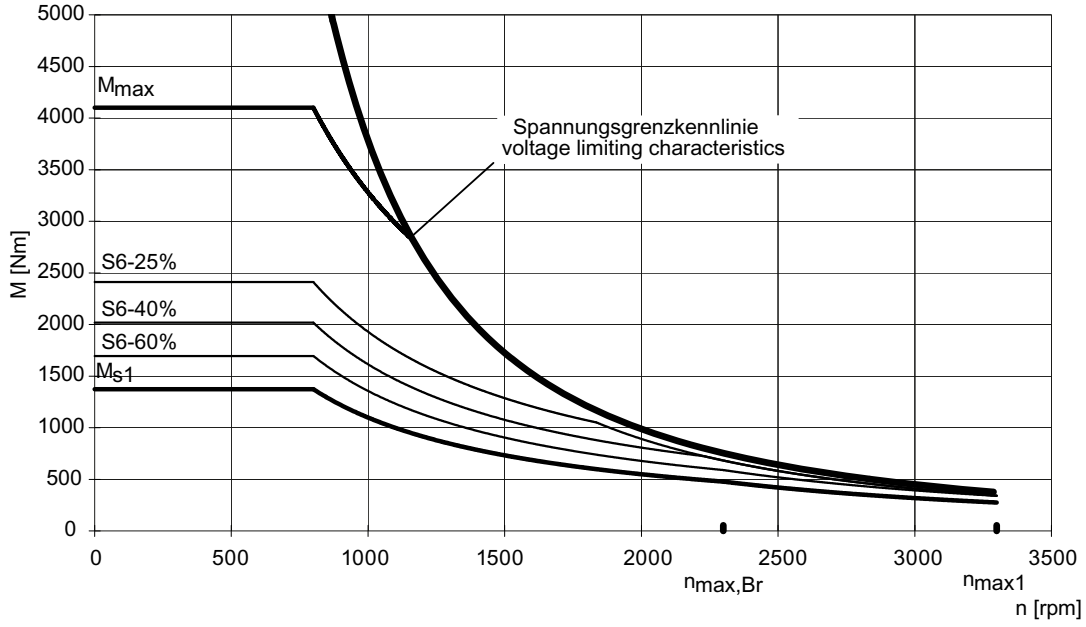
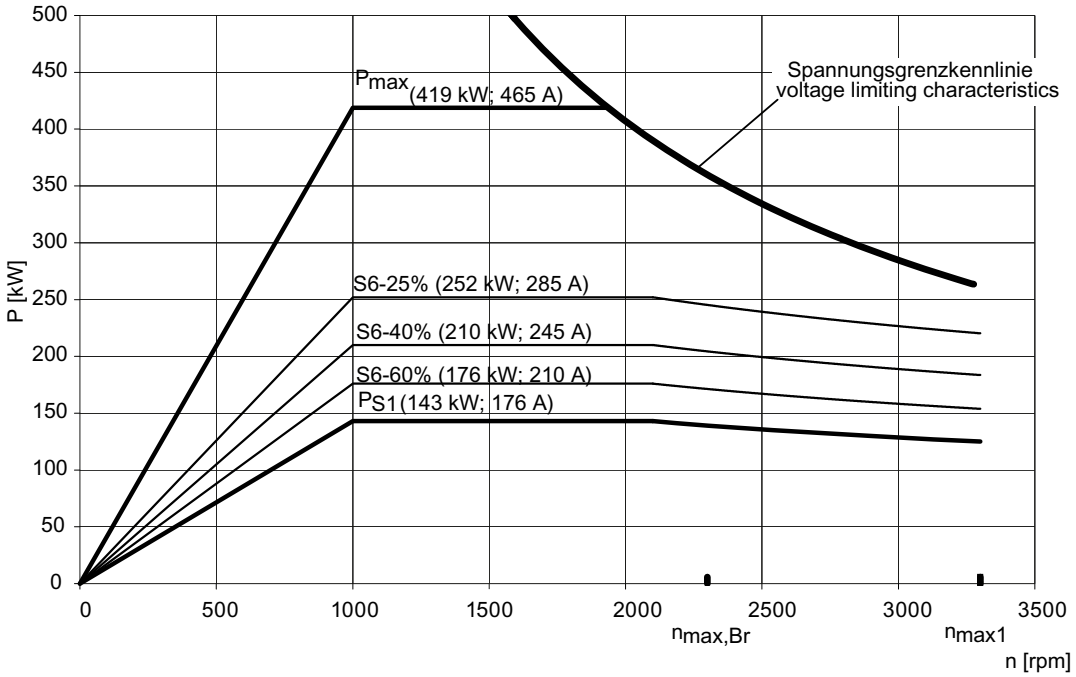


Table 4- 326 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	143	1366	176	3300	-	-	2300	2100	4000	465	1366	176



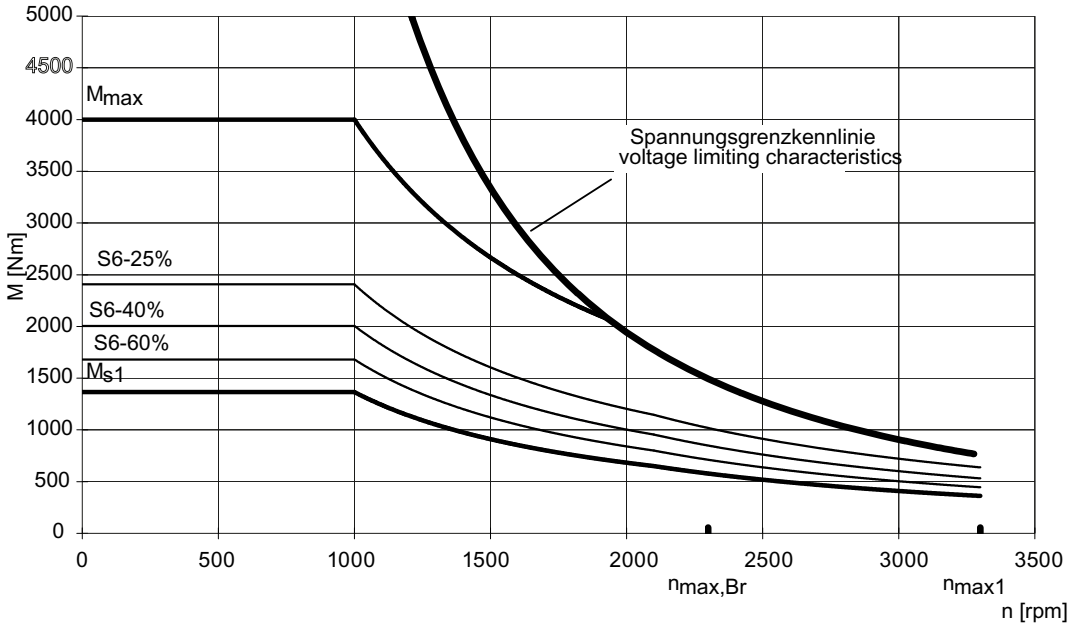
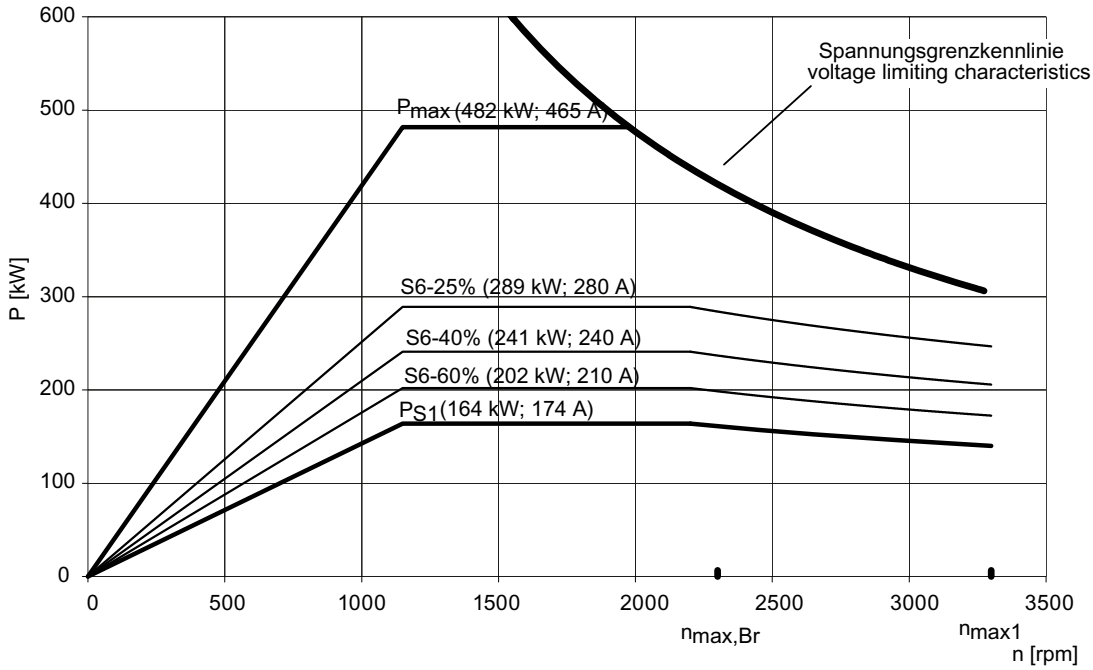


Table 4- 327 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	164	1362	174	3300	-	-	2300	2200	4000	465	1362	174
1000	143	1366	176					3100				



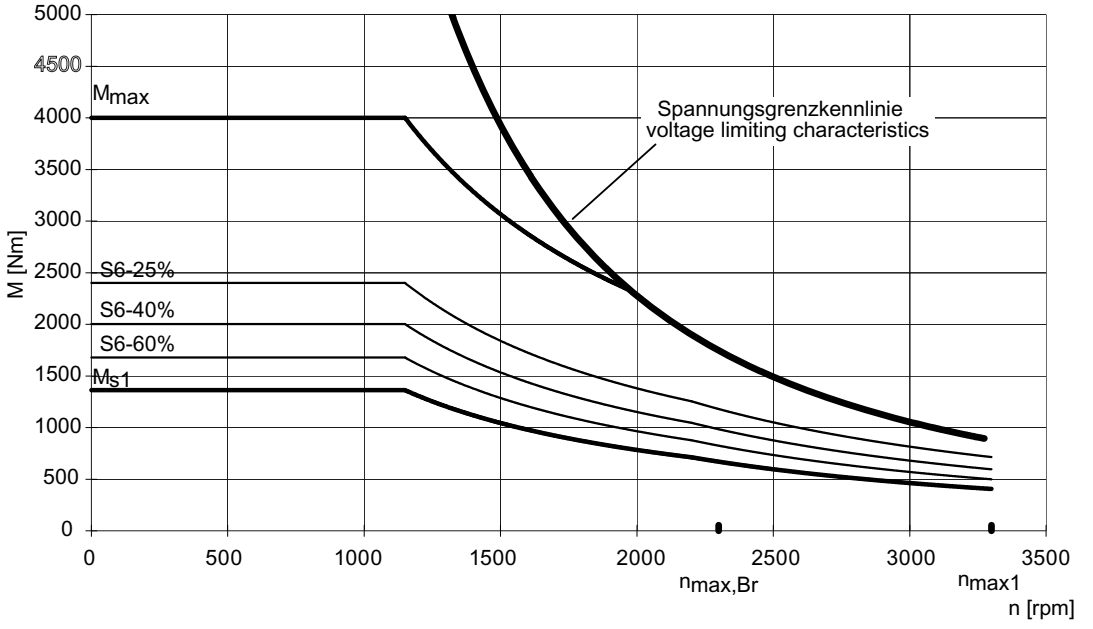
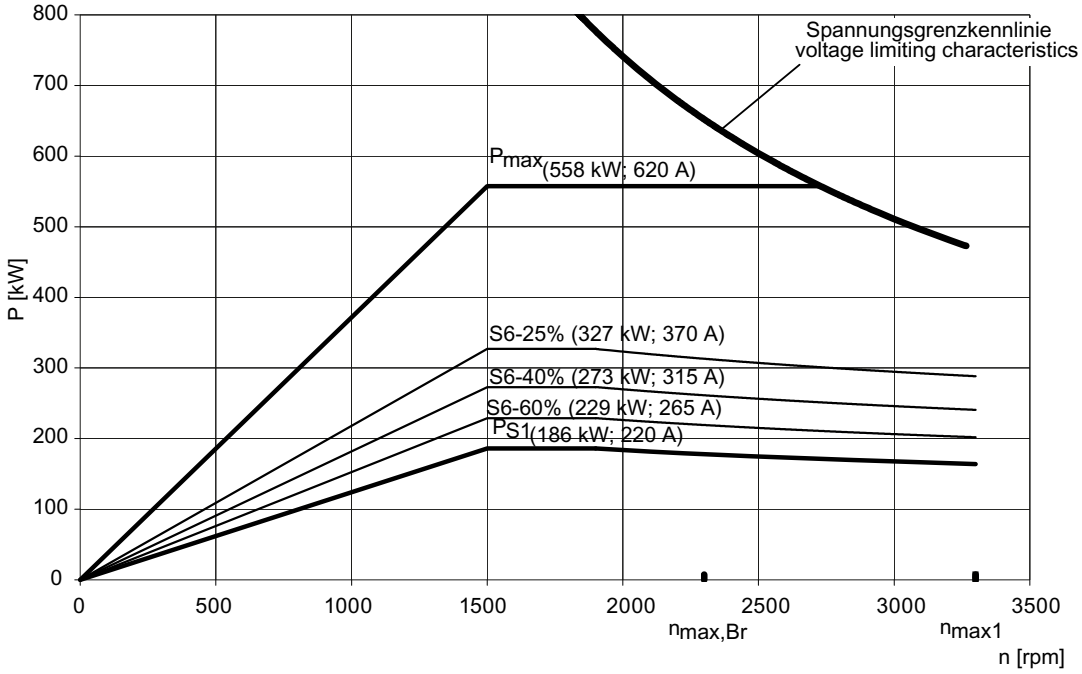


Table 4- 328 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	186	1184	220	3300	-	-	2300	1900	3550	620	1184	220



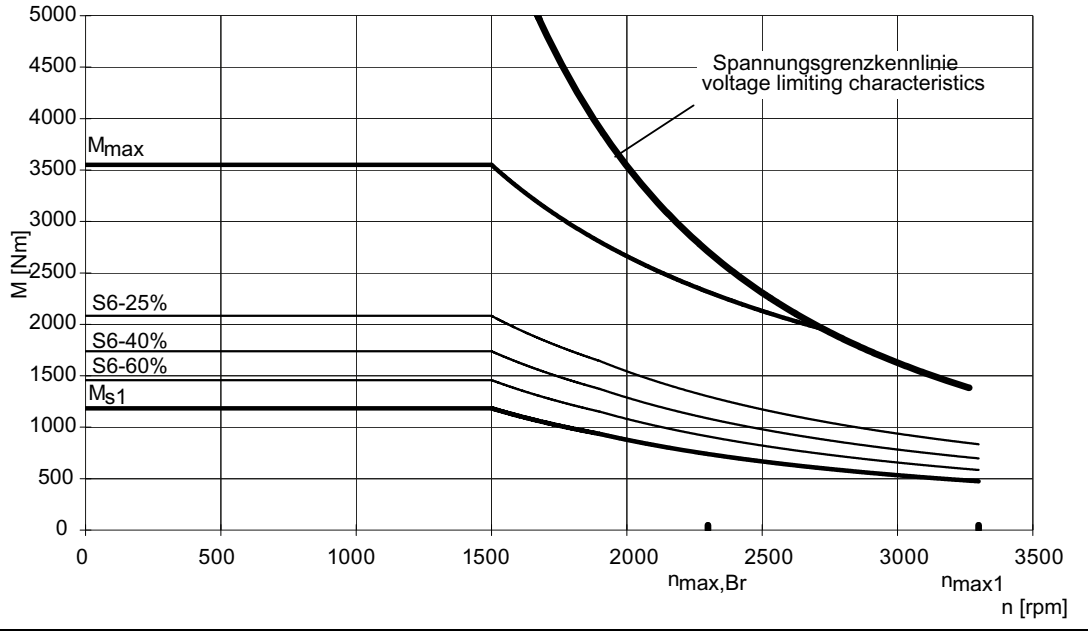
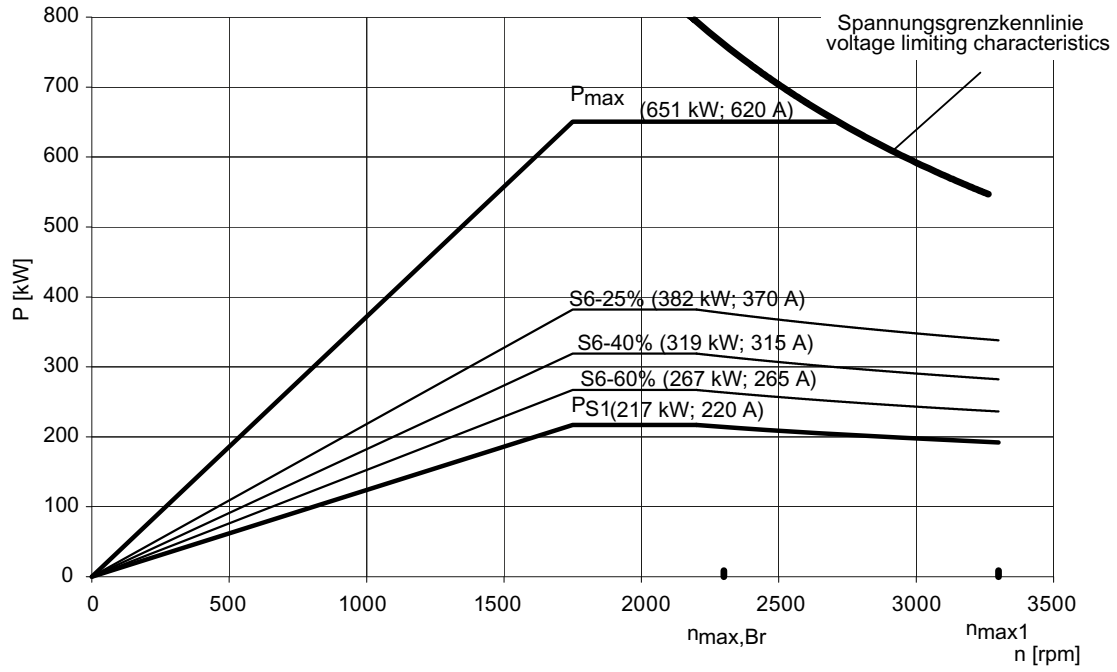


Table 4- 329 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	217	1184	220	3300	-	-	2300	2200	3550	620	1184	220
1500	186	1184	220					3300				



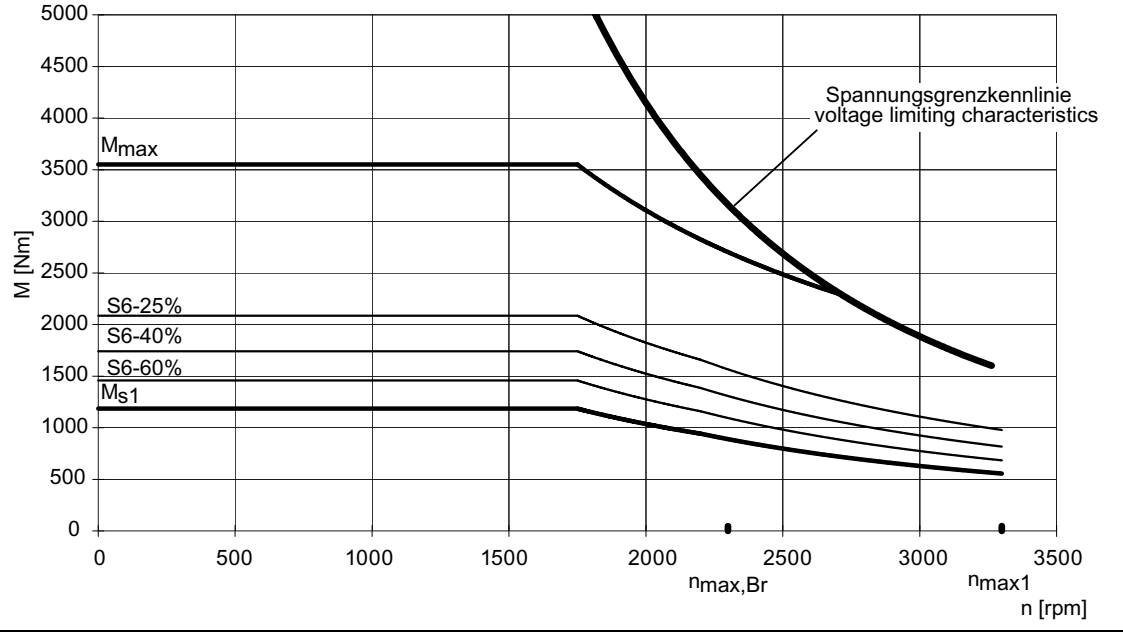
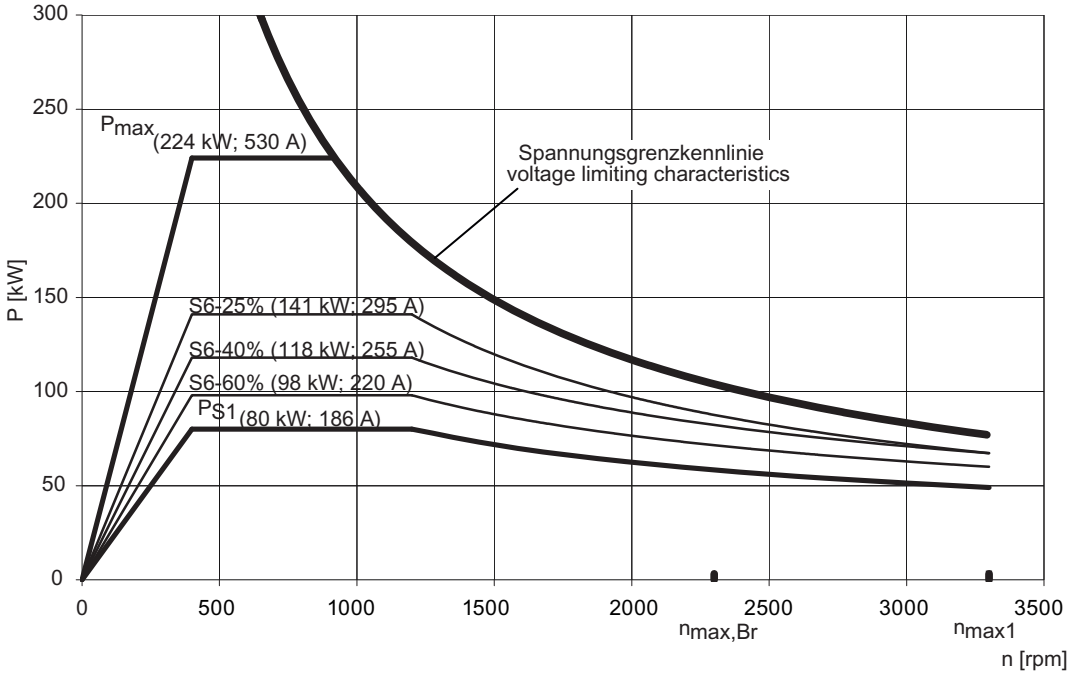


Table 4- 330 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	80	1910	186	3300	-	-	2300	1200	5350	530	1910	186



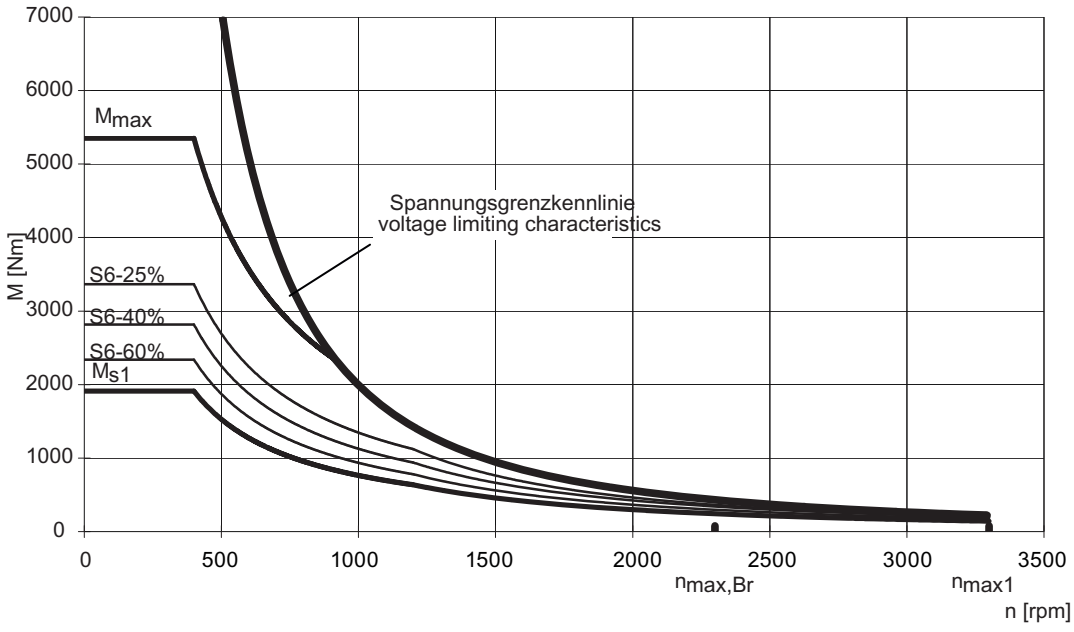
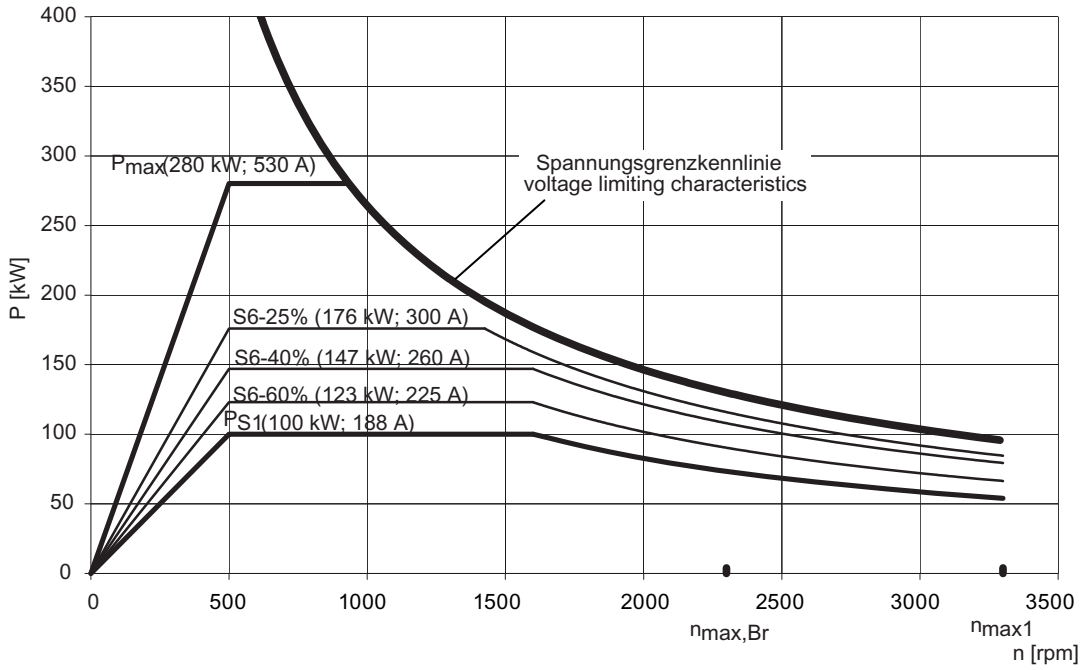


Table 4- 331 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	100	1909	188	3300	-	-	2300	1600	5350	530	1909	188
400	80	1910	186					2100				



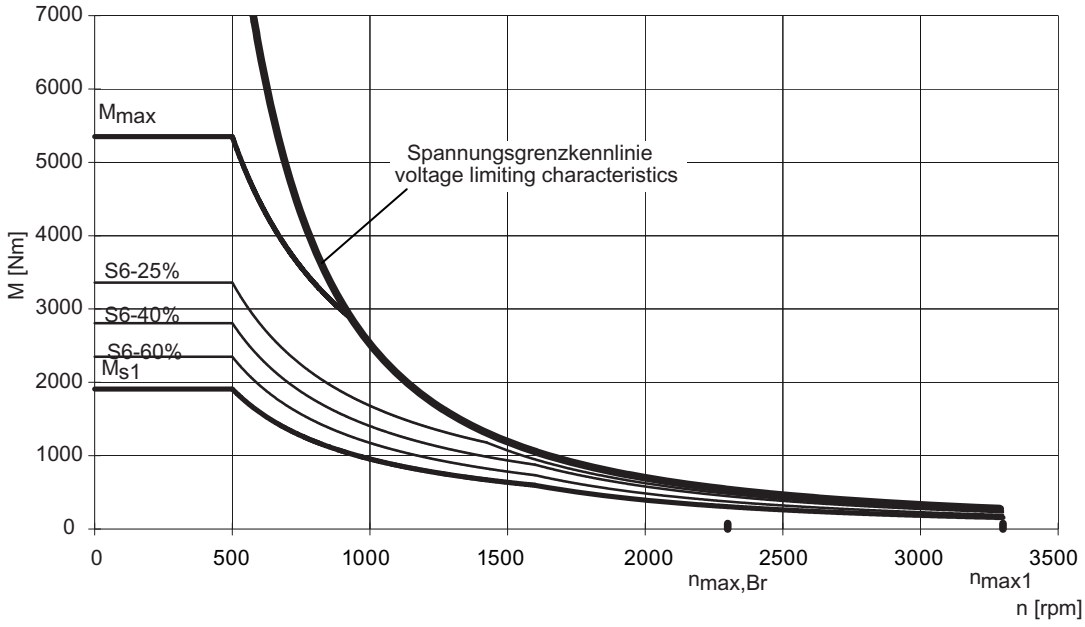
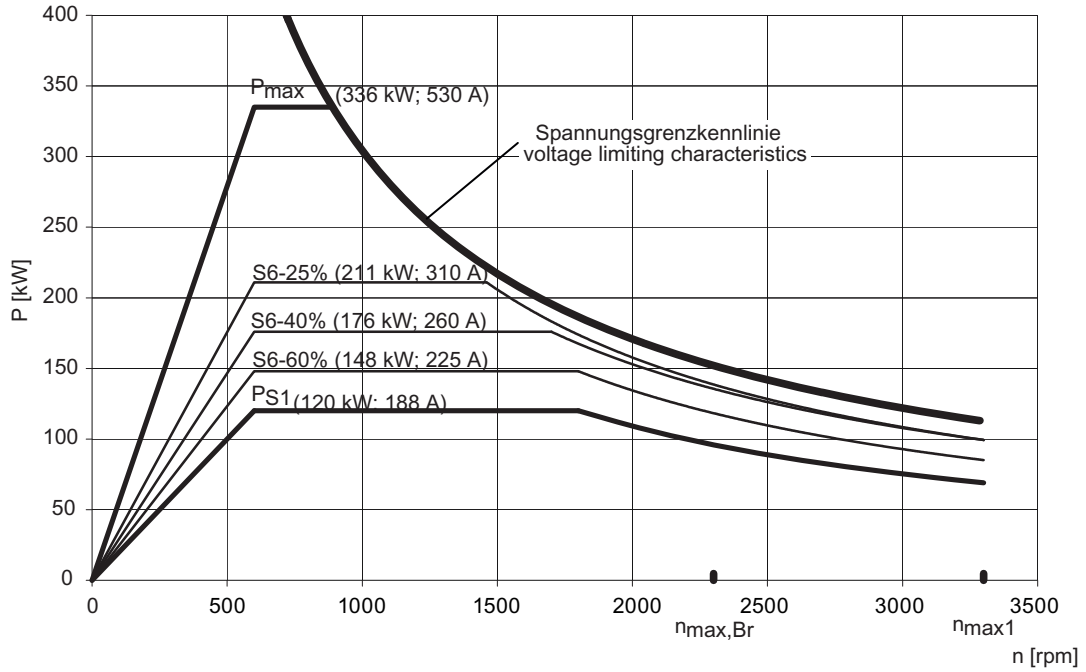


Table 4- 332 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	120	1916	188	3300	-	-	2300	1800	5350	530	1916	188



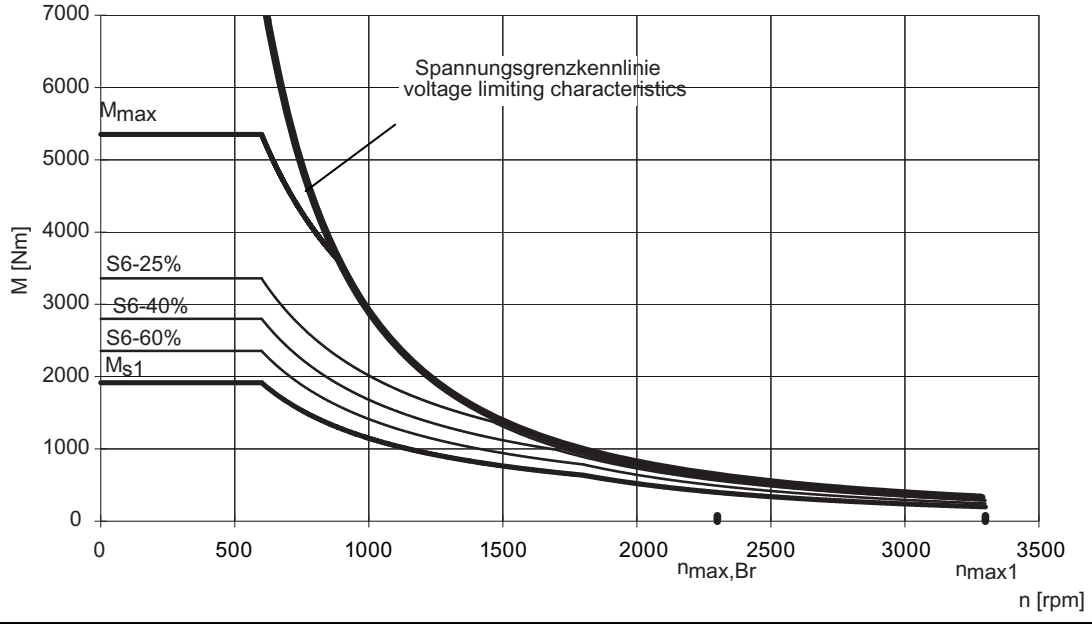
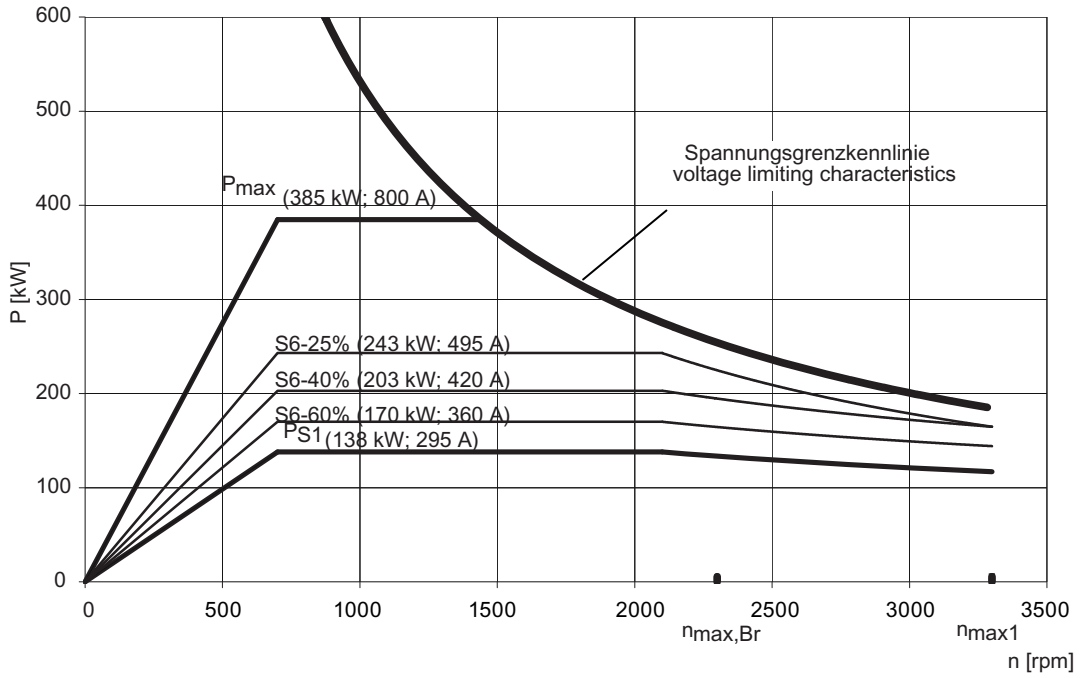


Table 4- 333 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	138	1883	295	3300	-	-	2300	2100	5250	800	1883	295



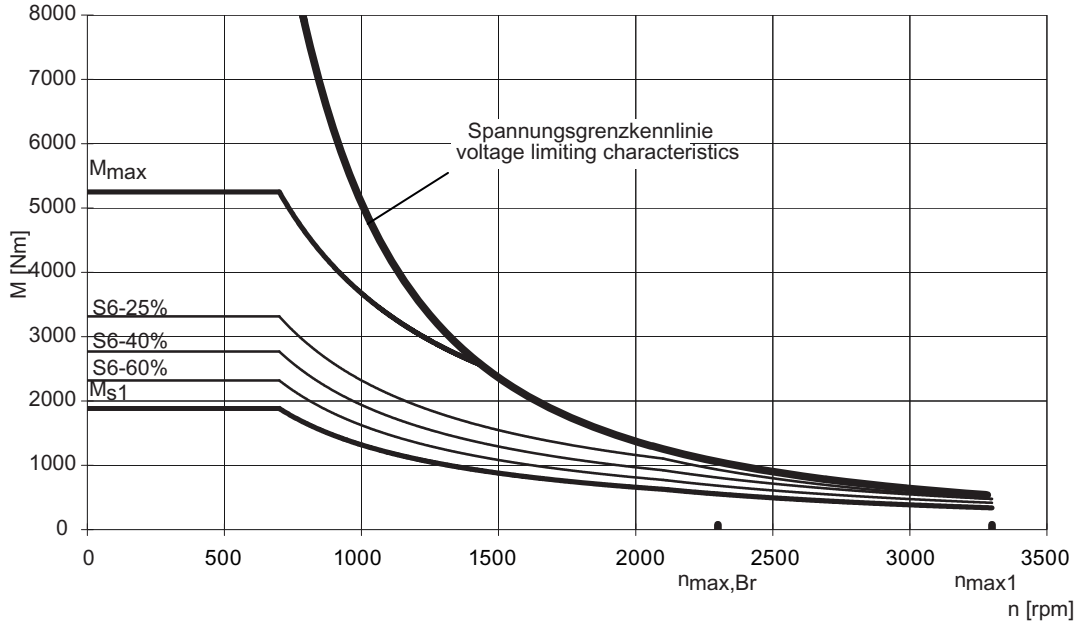
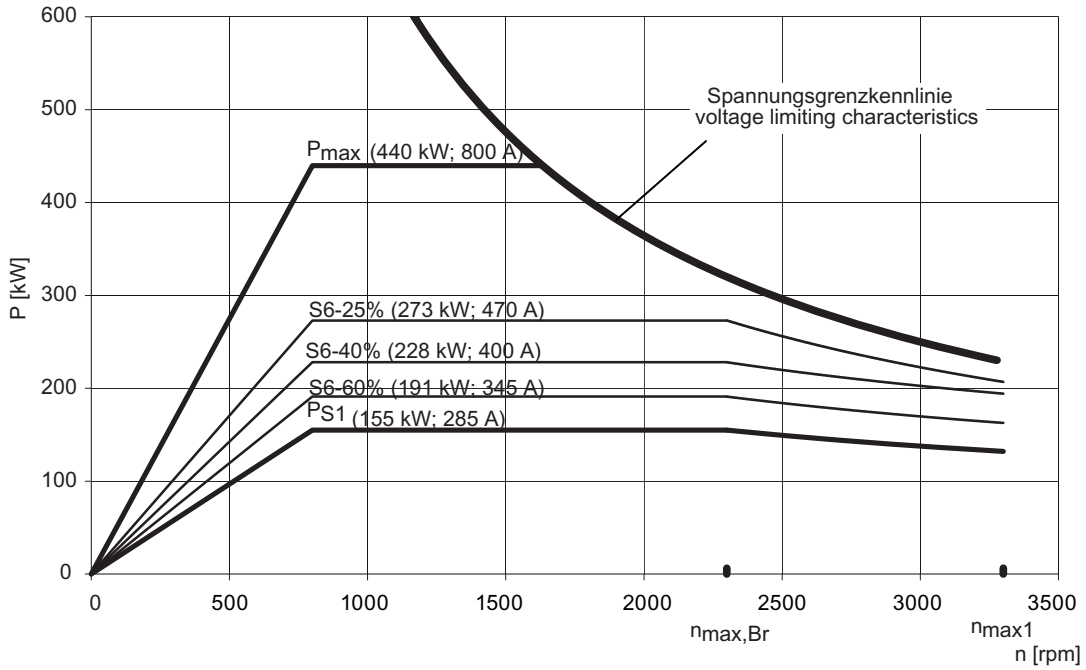


Table 4- 334 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	155	1850	285	3300	-	-	2300	2300	5250	800	1850	285
700	138	1883	295					3000				



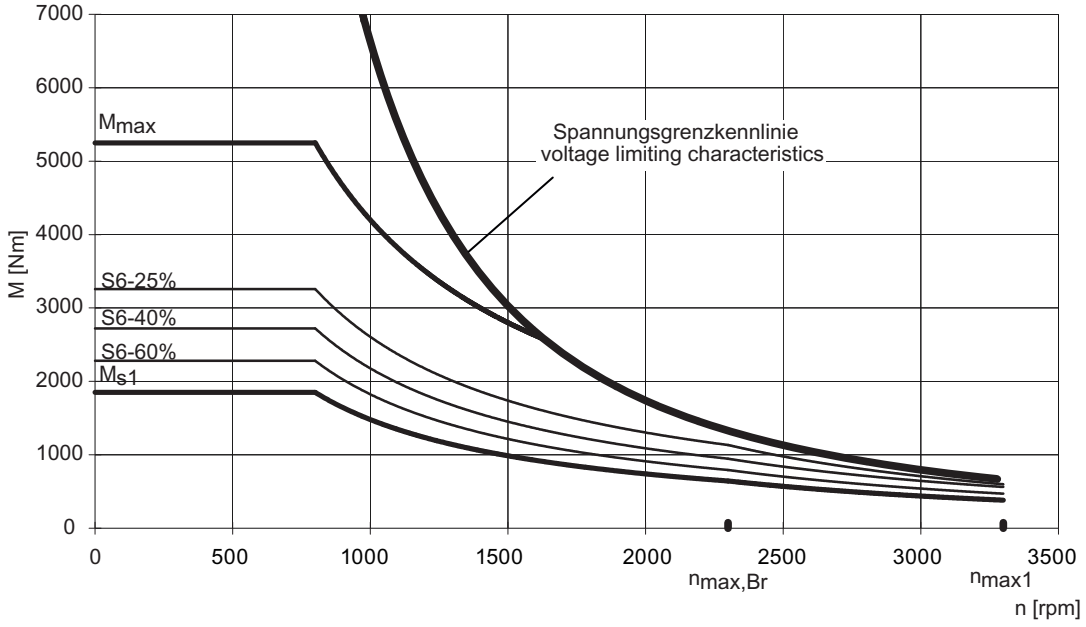
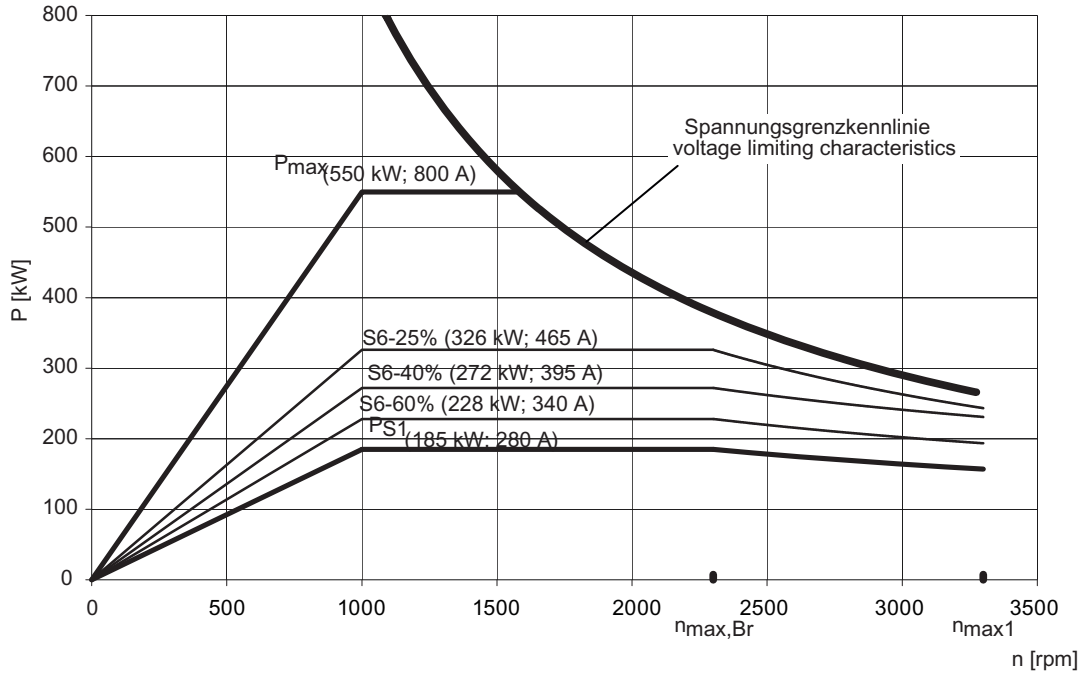


Table 4- 335 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	185	1767	280	3300	-	-	2300	2300	5250	800	1767	280



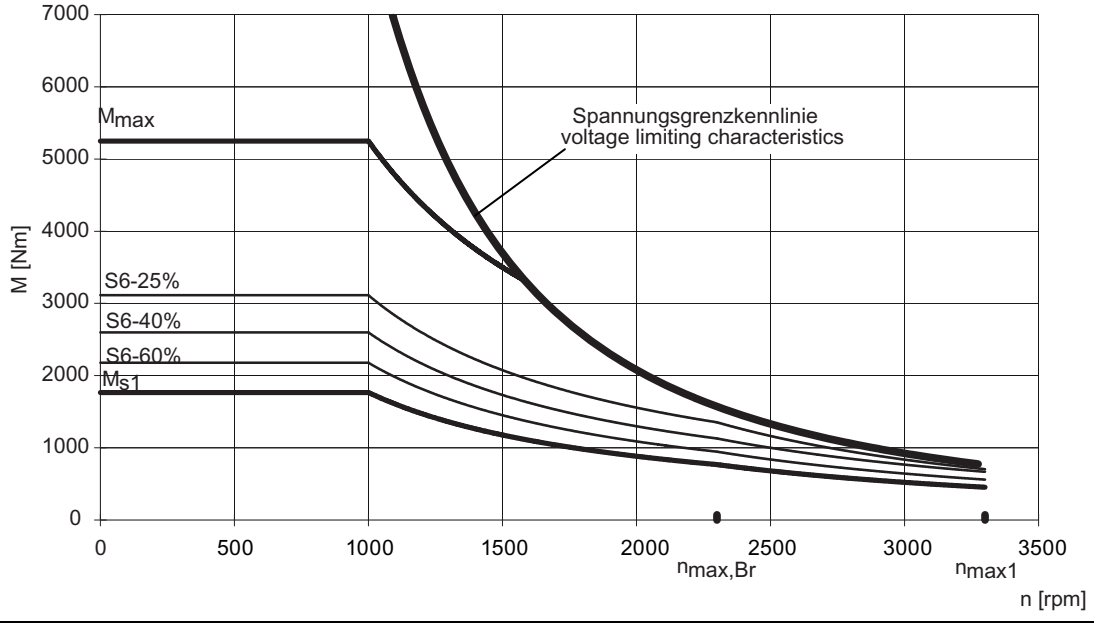
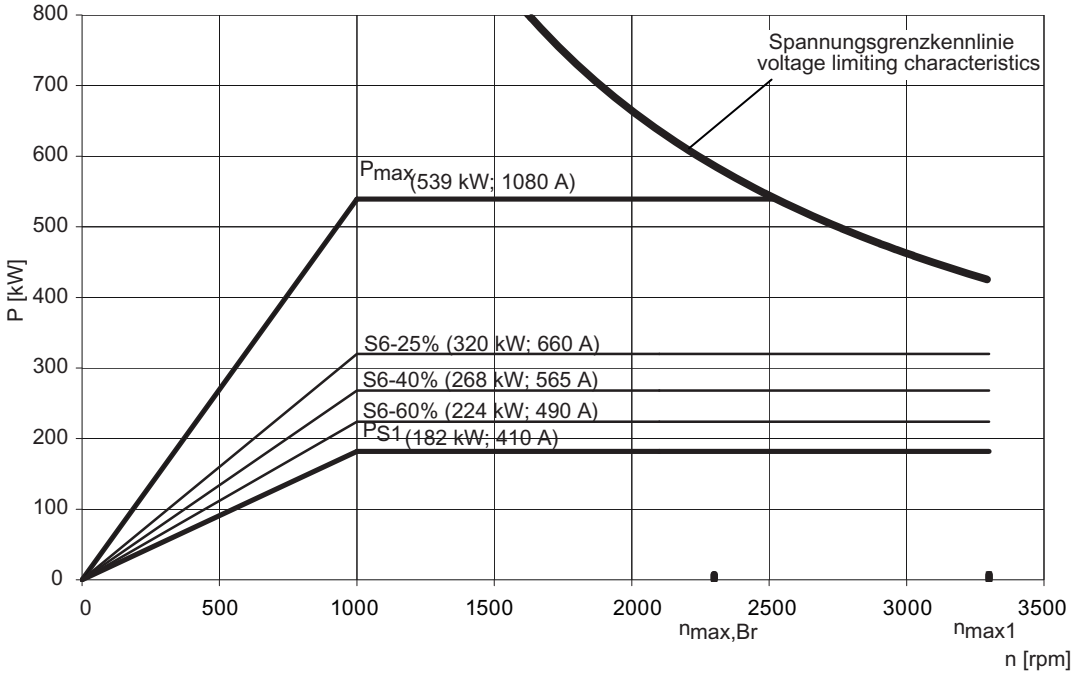


Table 4- 336 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	182	1738	410	3300	-	-	2300	2100	5150	1080	1738	410



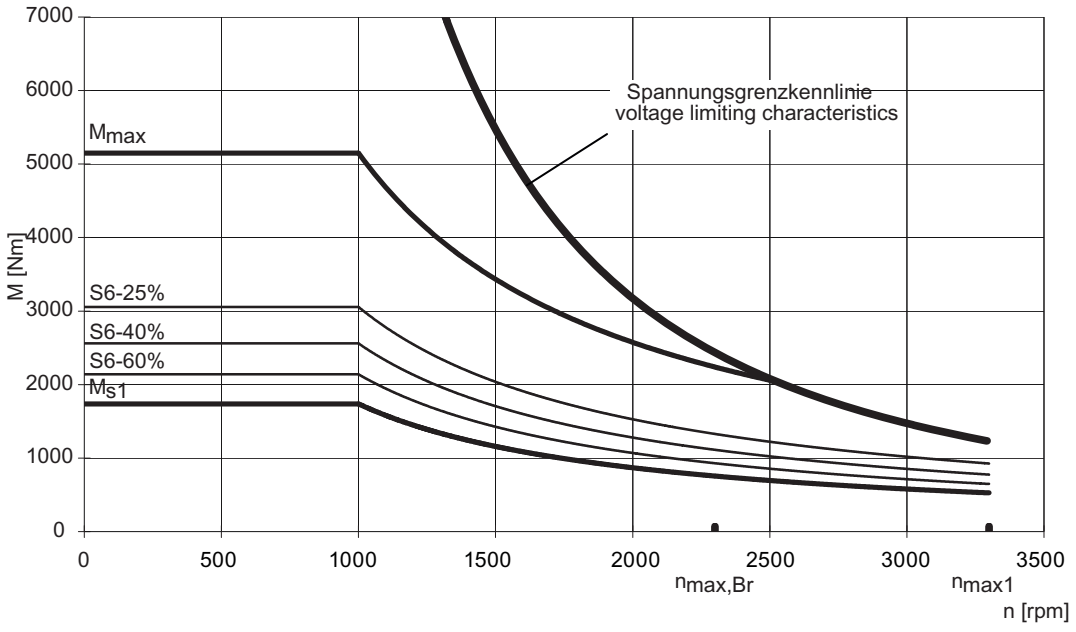
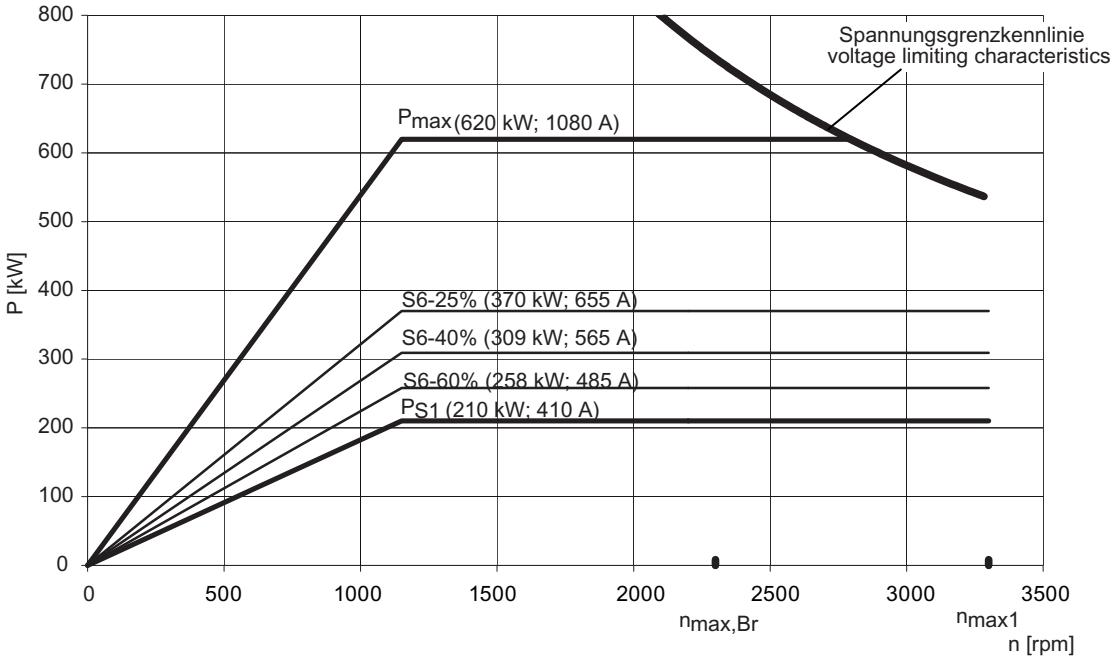


Table 4- 337 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	210	1745	410	3300	-	-	2300	2200	5150	1080	1745	410
1000	182	1738	410					3300				



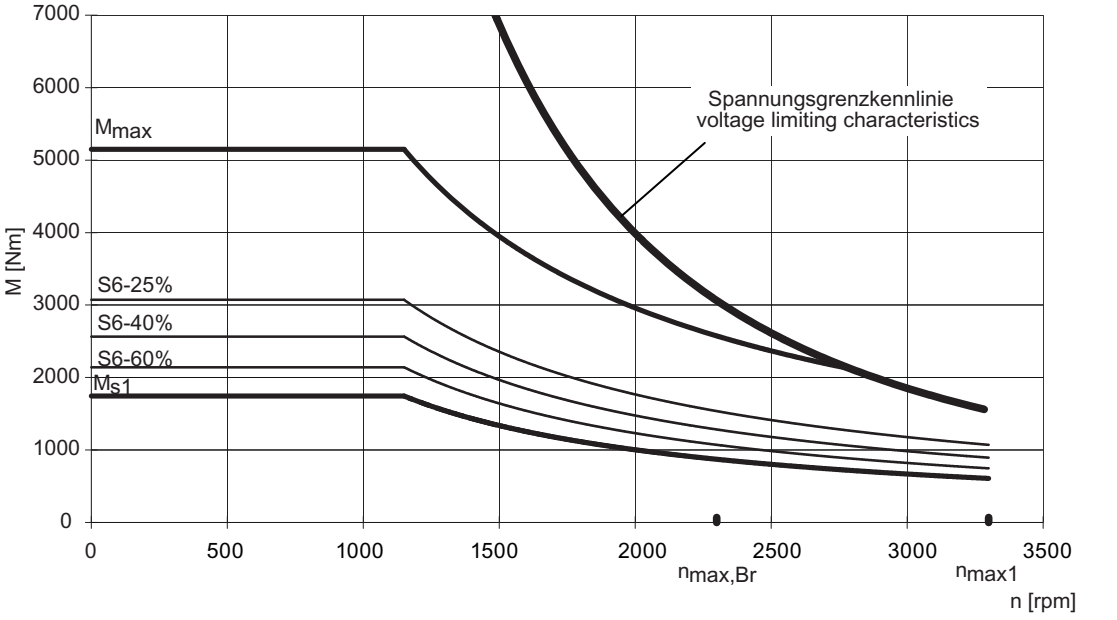
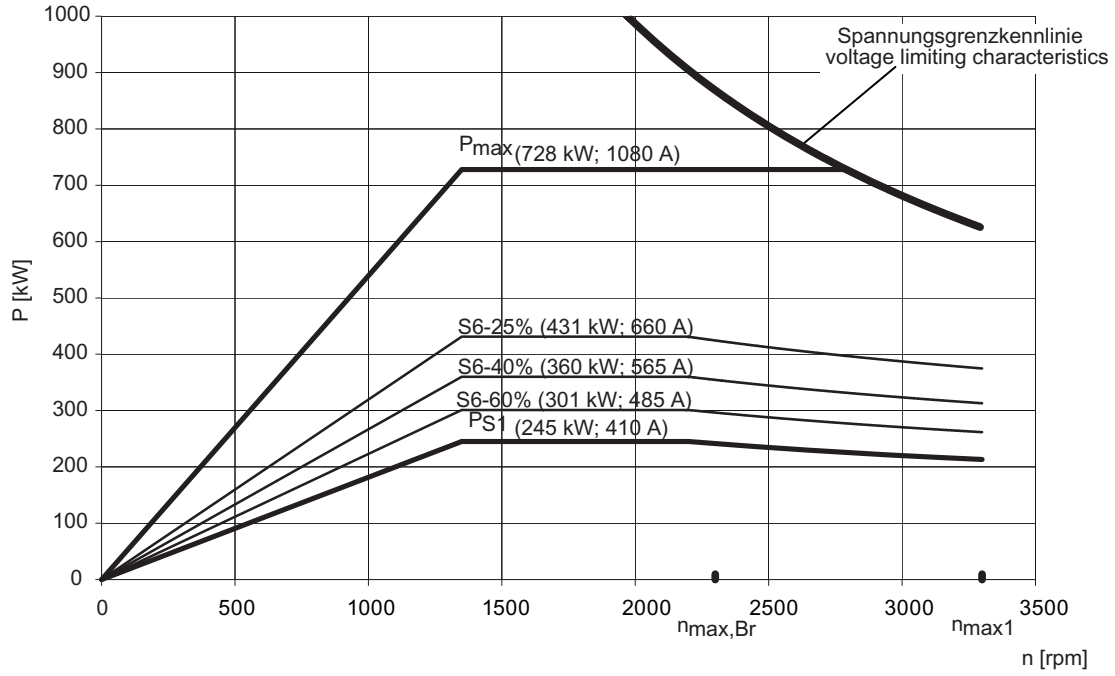


Table 4- 338 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	245	1733	410	3300	-	-	2300	2200	5150	1080	1733	410



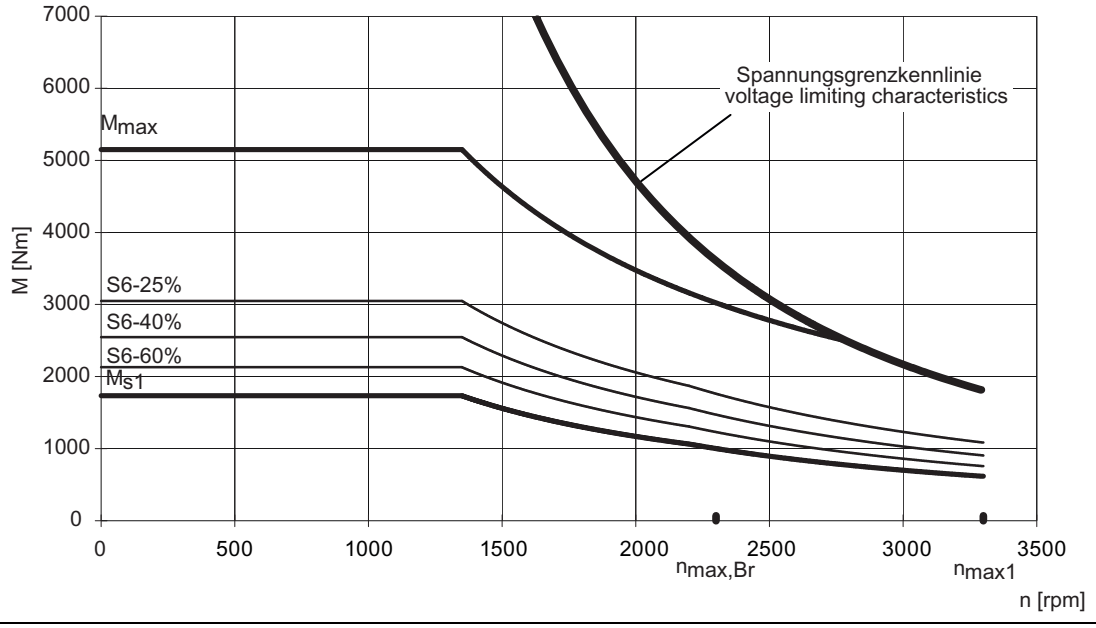
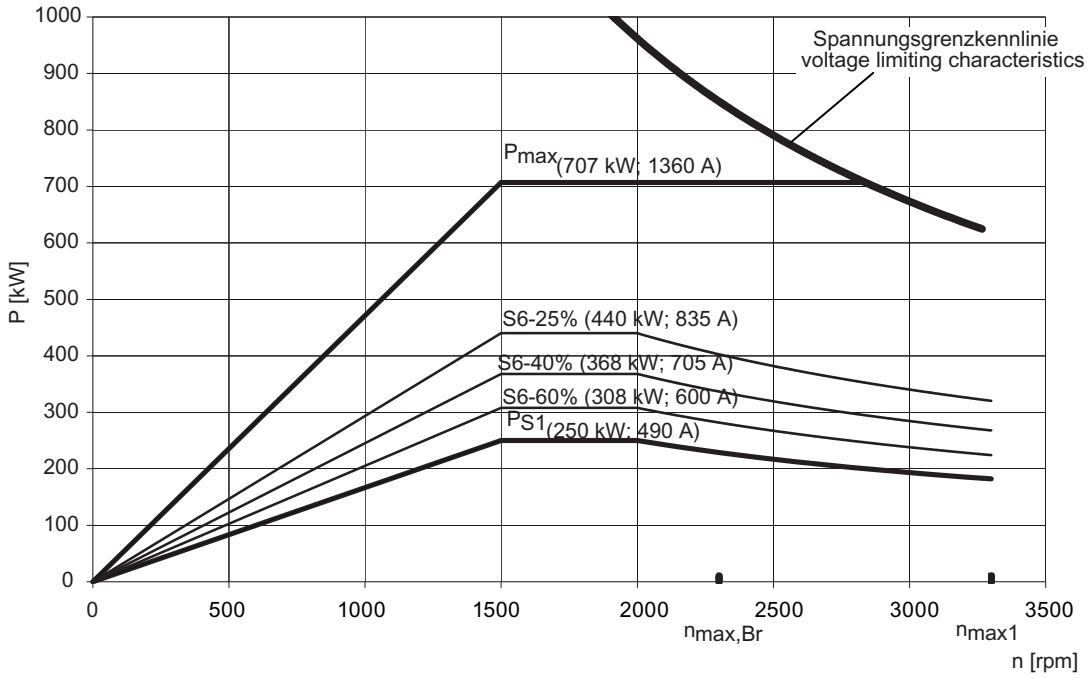


Table 4- 339 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	250	1592	490	3300	-	-	2300	2000	4500	1360	1592	490



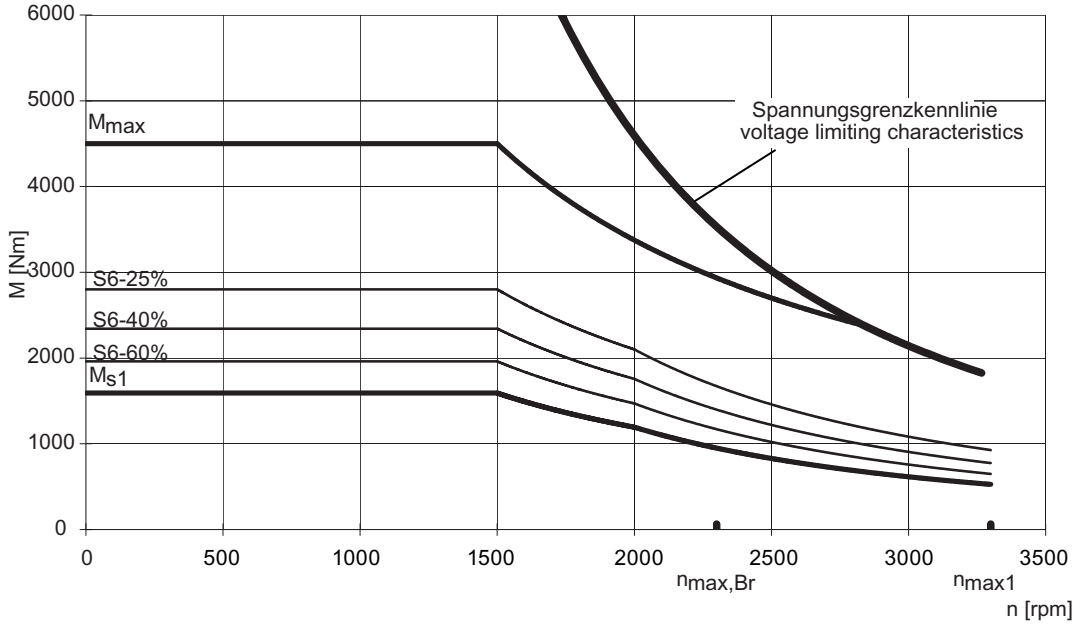
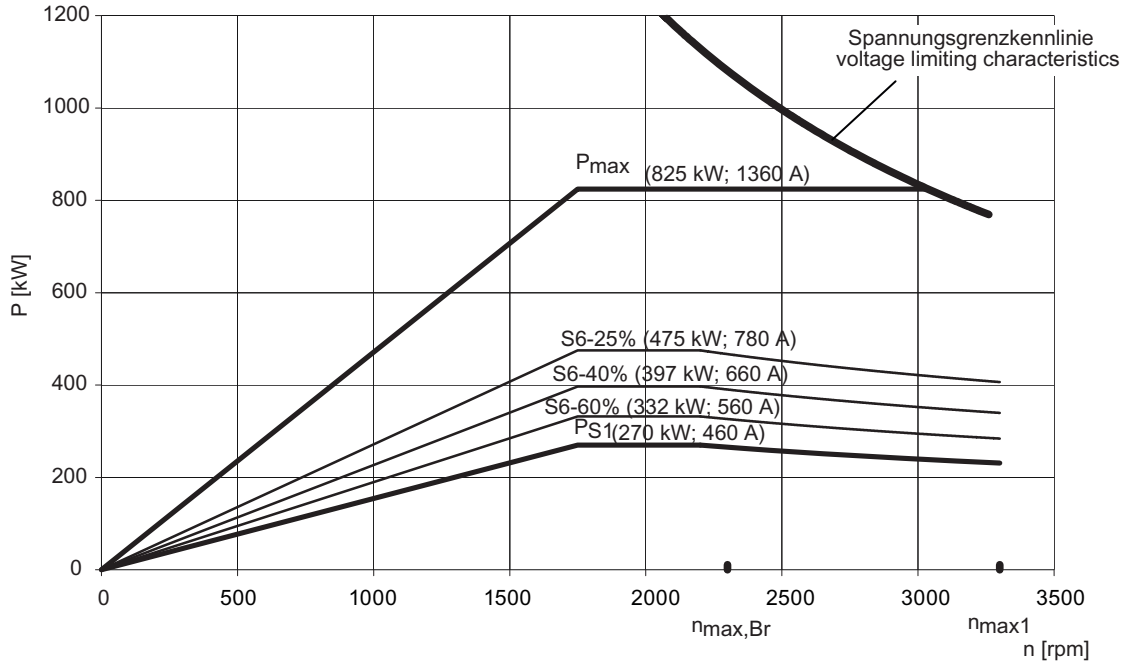


Table 4- 340 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	270	1474	460	3300	-	-	2300	2200	4500	1360	1474	460
1500	250	1592	490					2700				



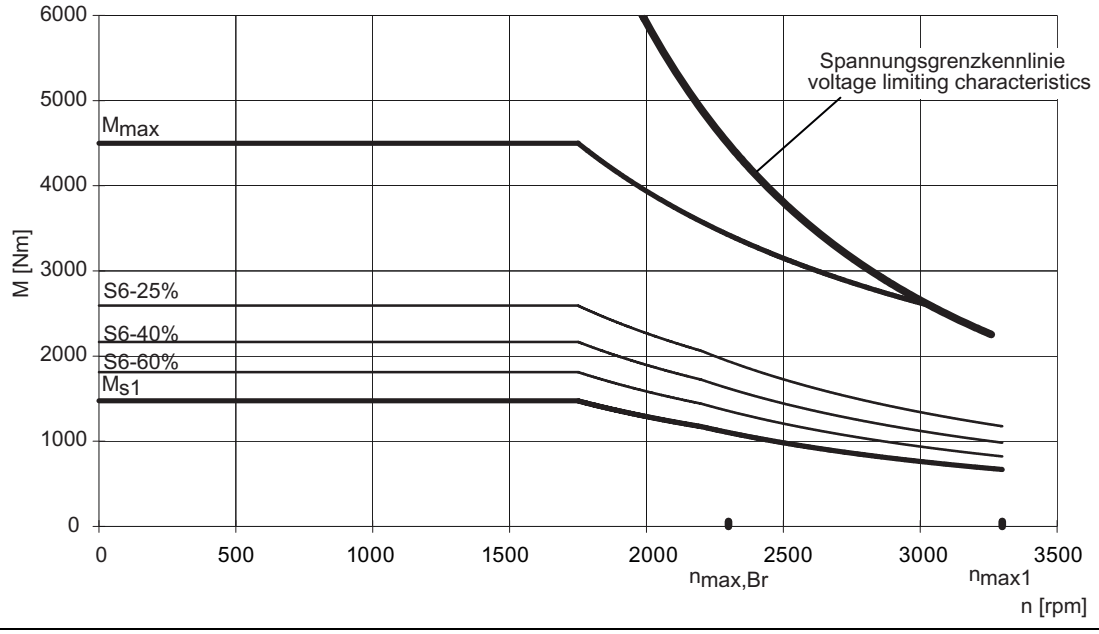
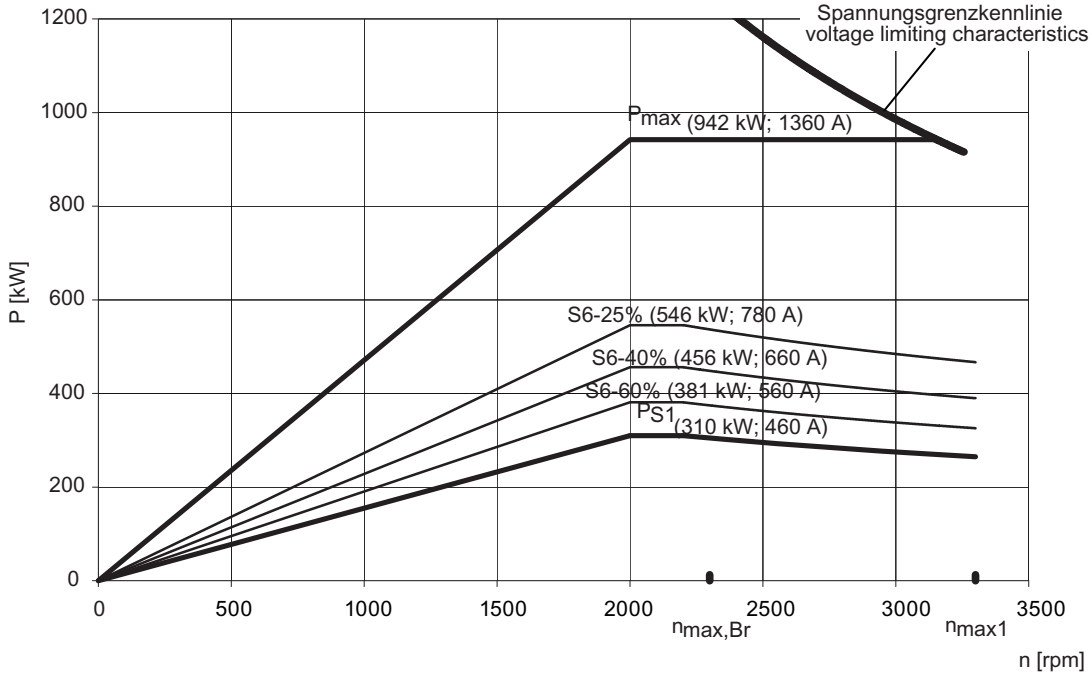


Table 4- 341 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	310	1481	460	3300	-	-	2300	2200	4500	1360	1481	460



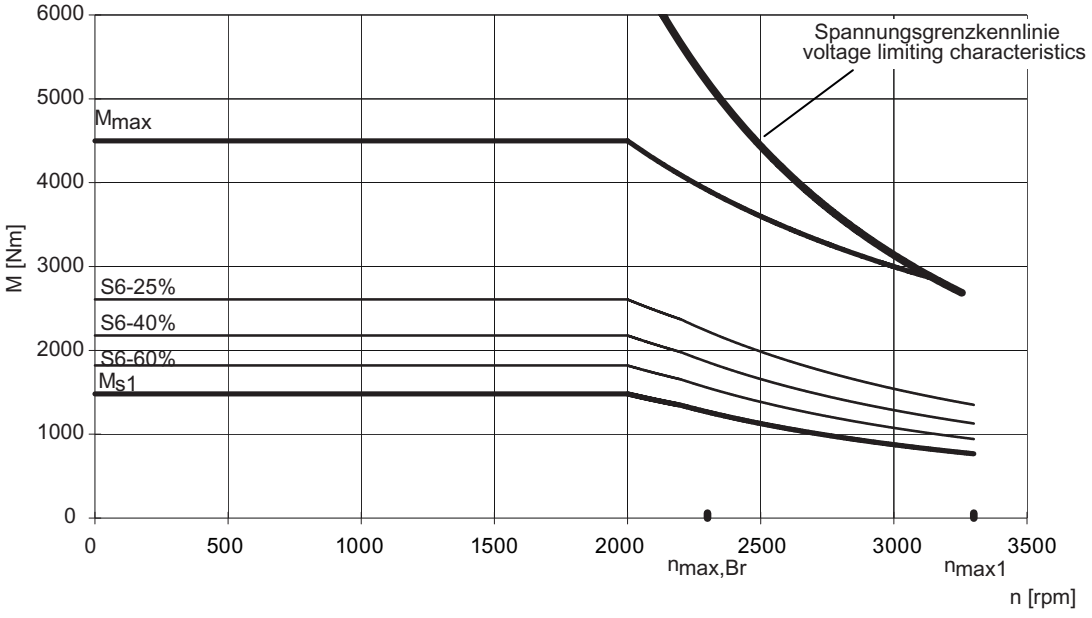
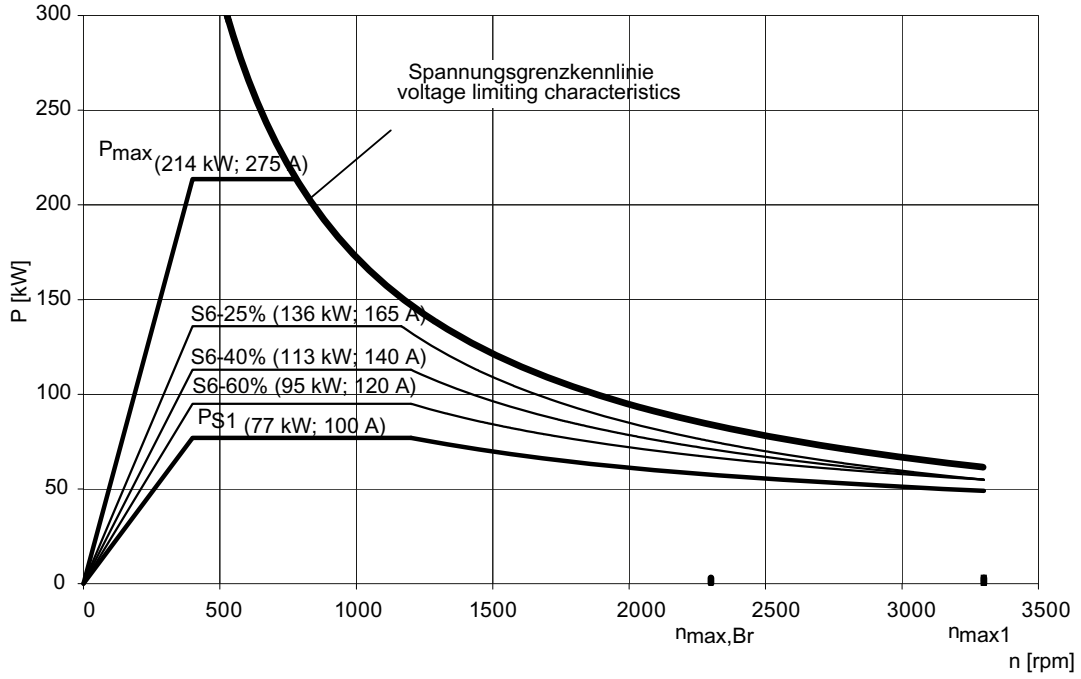


Table 4- 342 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	77	1838	100	3300	-	-	2300	1200	5100	275	1838	100



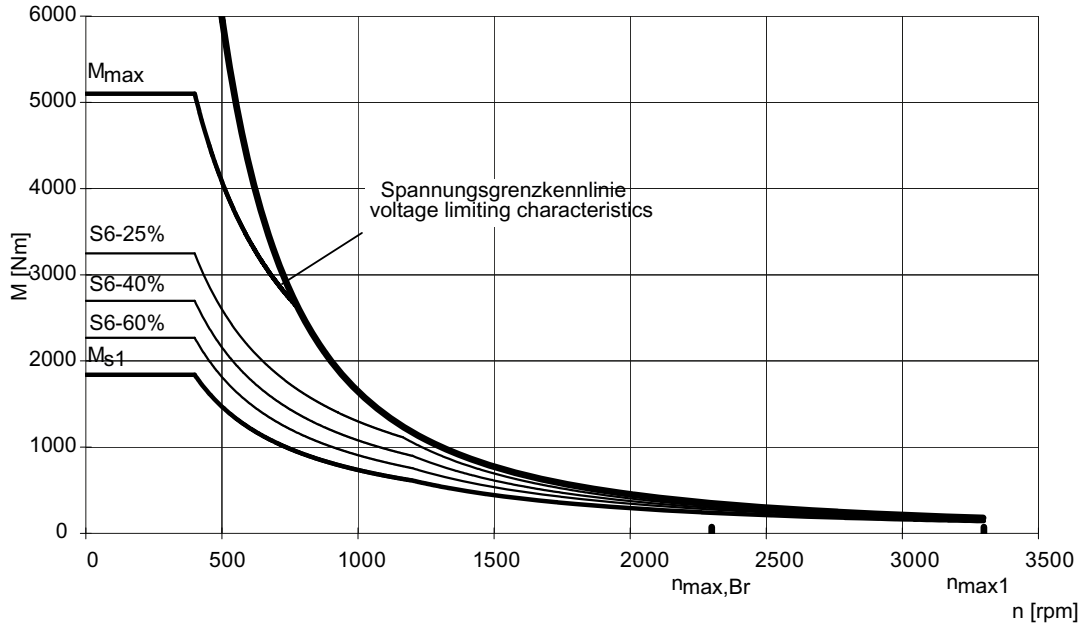
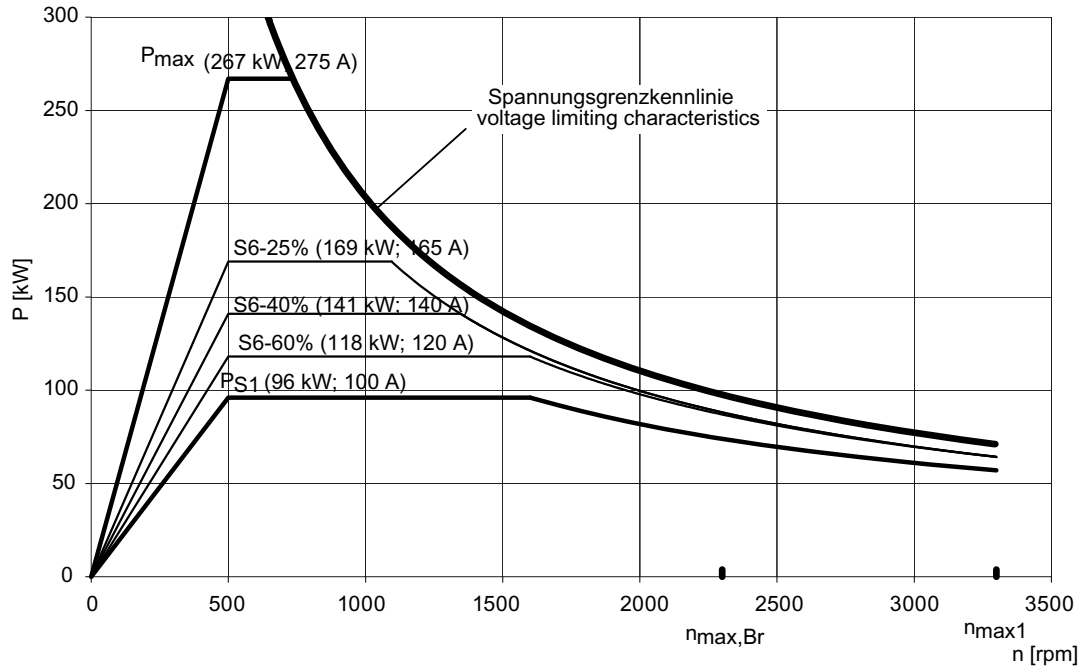


Table 4- 343 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	96	1834	100	3300	-	-	2300	1600	5100	275	1834	100
400	77	1838	100					2200				



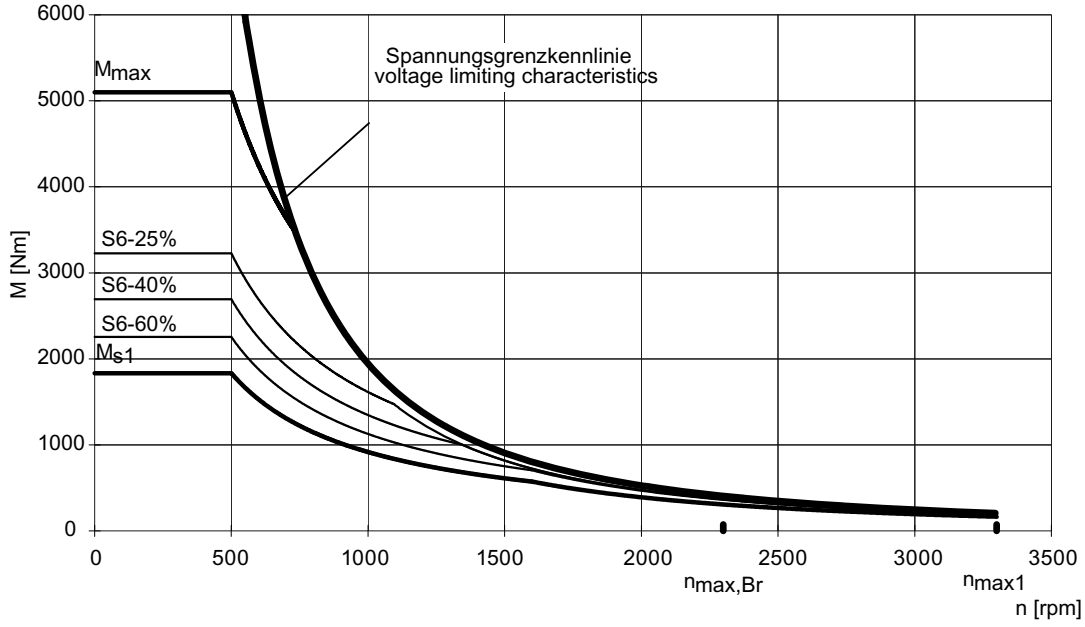
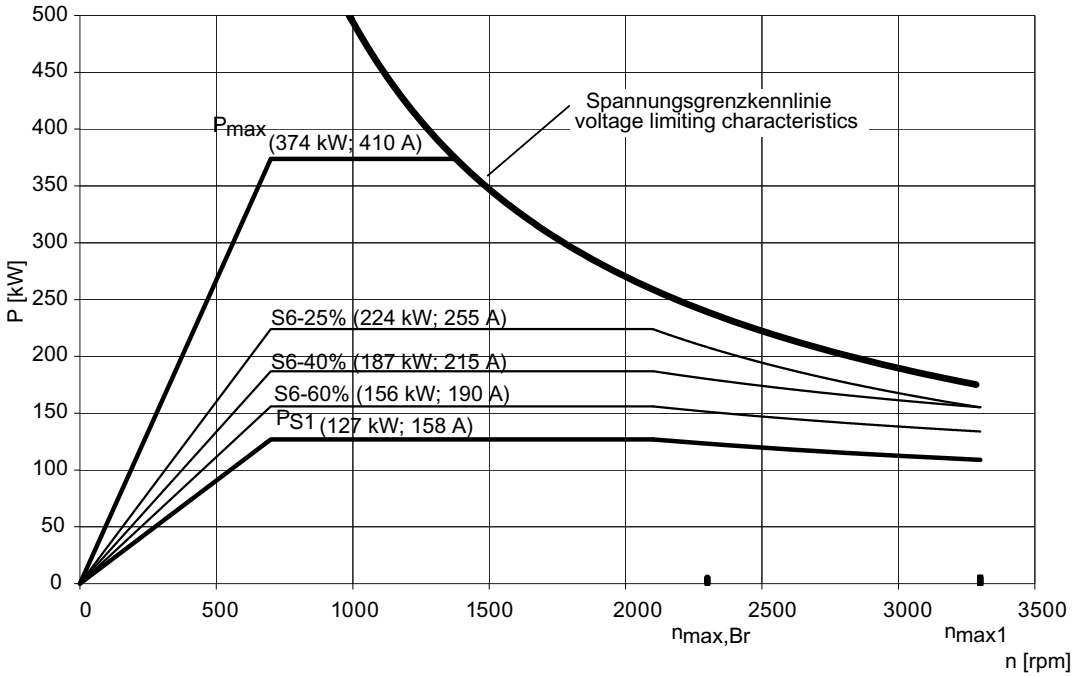


Table 4- 344 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	127	1733	158	3300	-	-	2300	2100	5100	410	1733	158



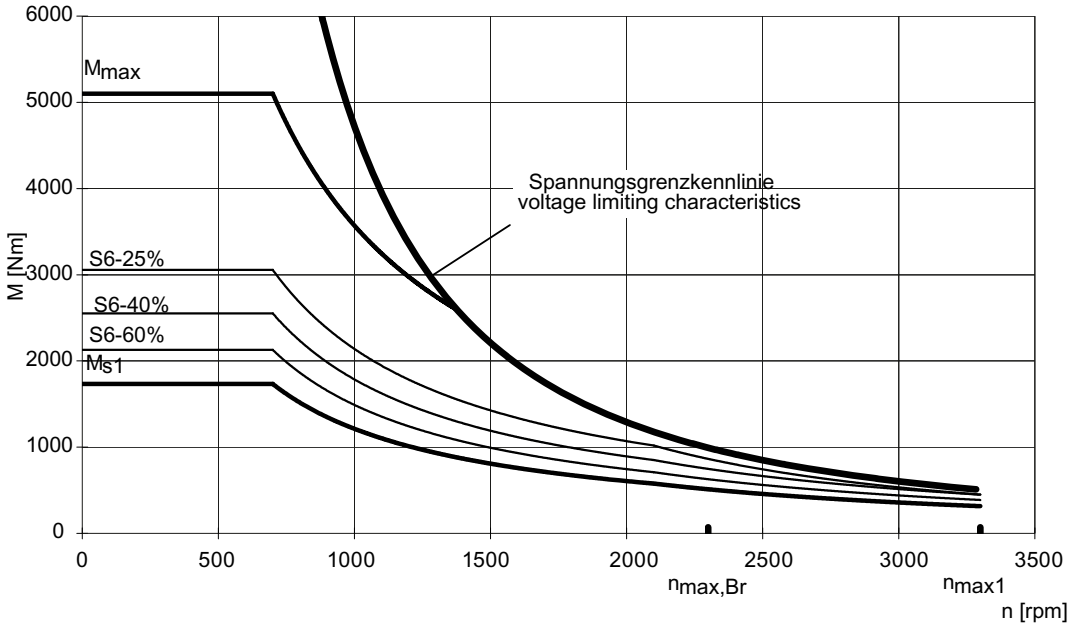
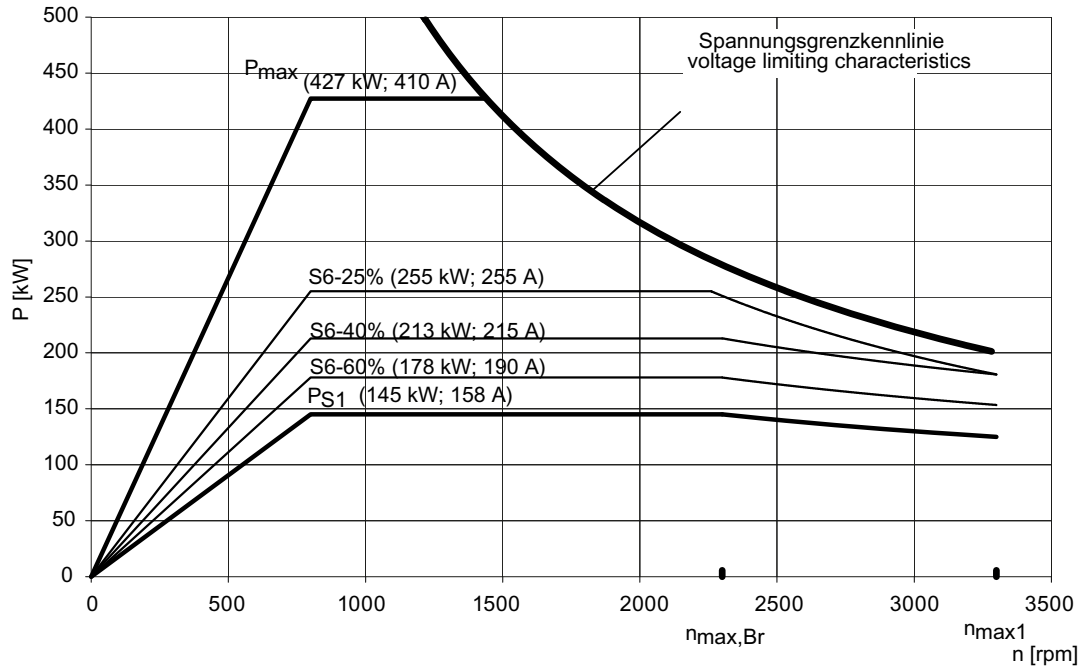


Table 4- 345 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	145	1731	158	3300	-	-	2300	2300	5100	410	1731	158
700	127	1733	158					3200				



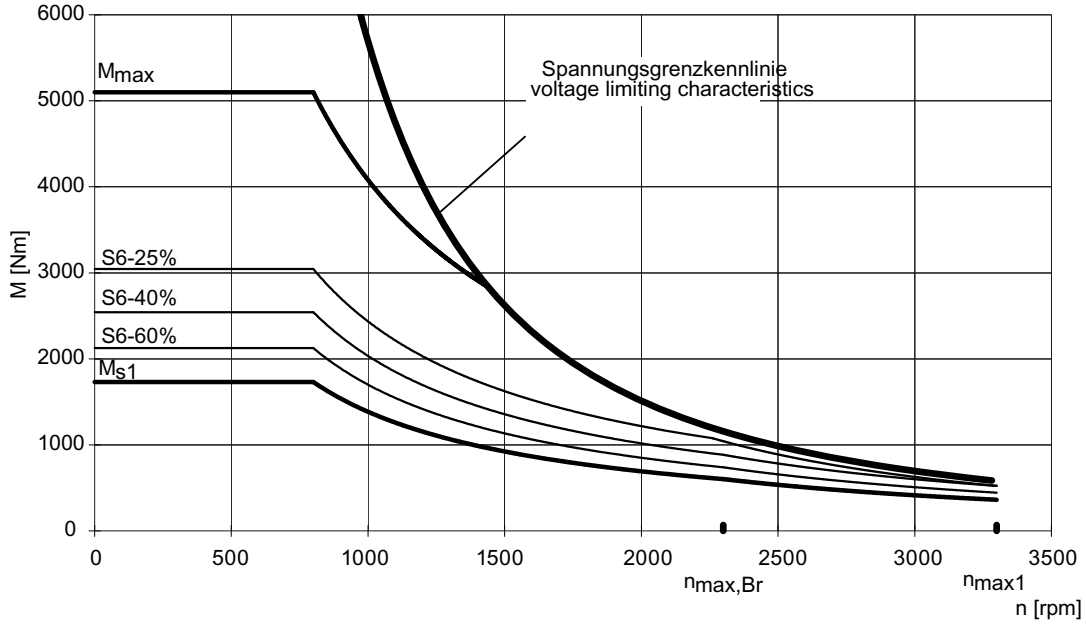
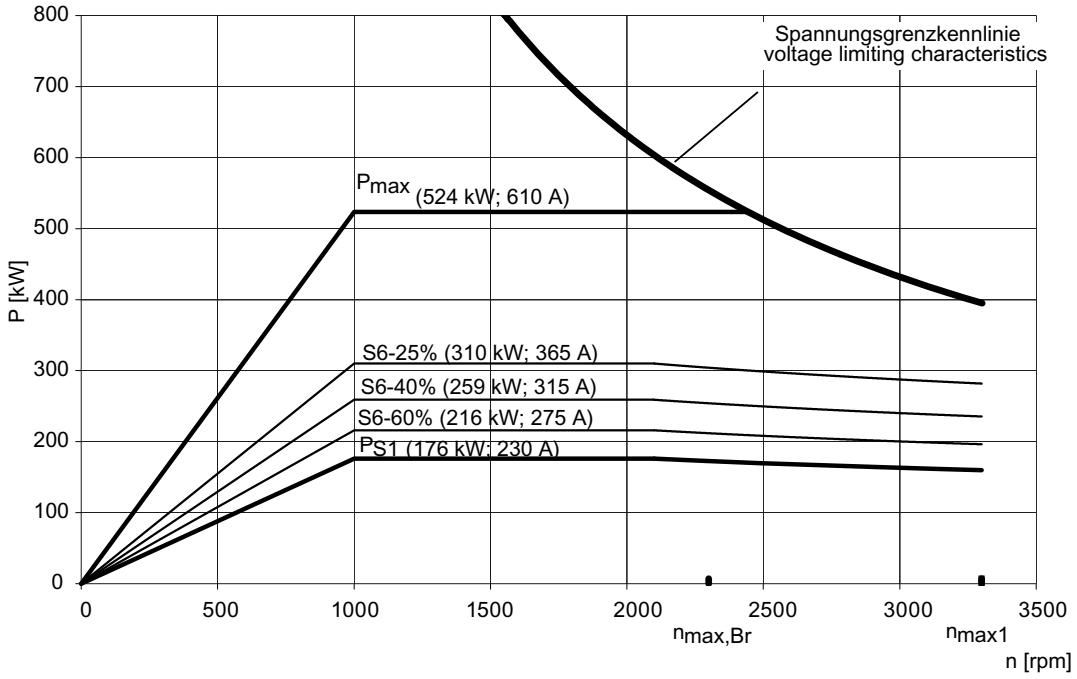


Table 4- 346 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	176	1681	230	3300	-	-	2300	2100	5000	610	1681	230



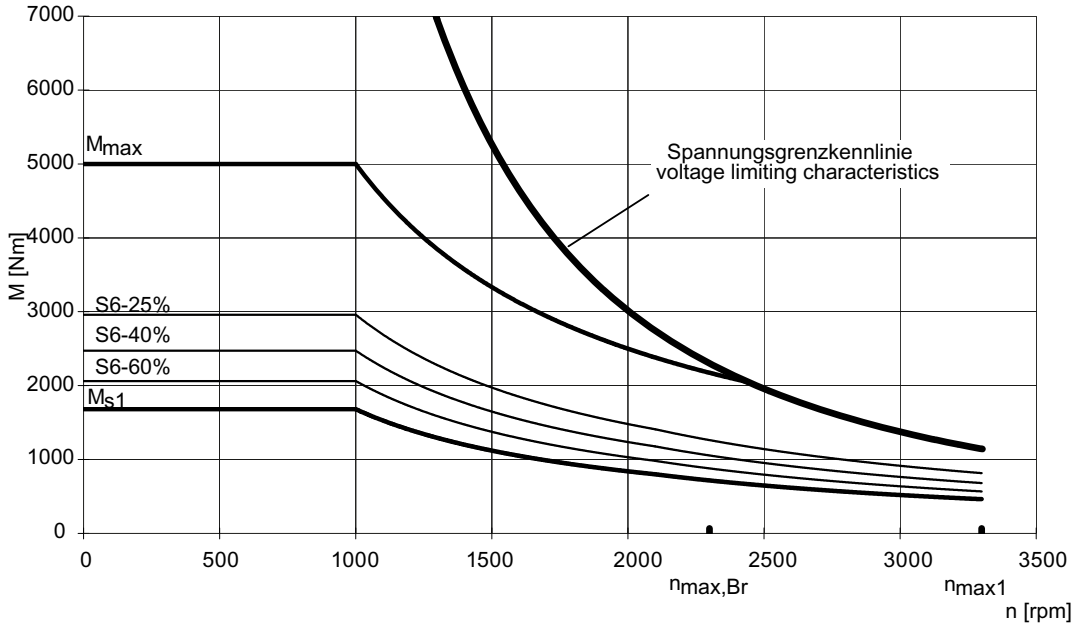
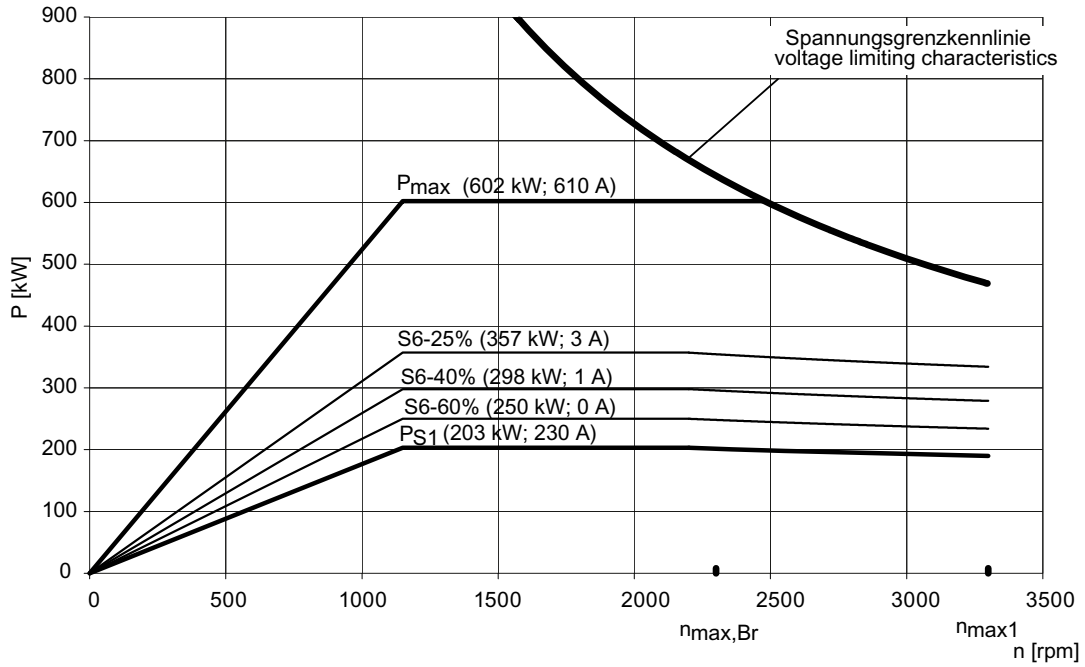


Table 4- 347 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	203	1686	230	3300	-	-	2300	2200	5000	610	1686	230
1000	176	1681	230					3300				



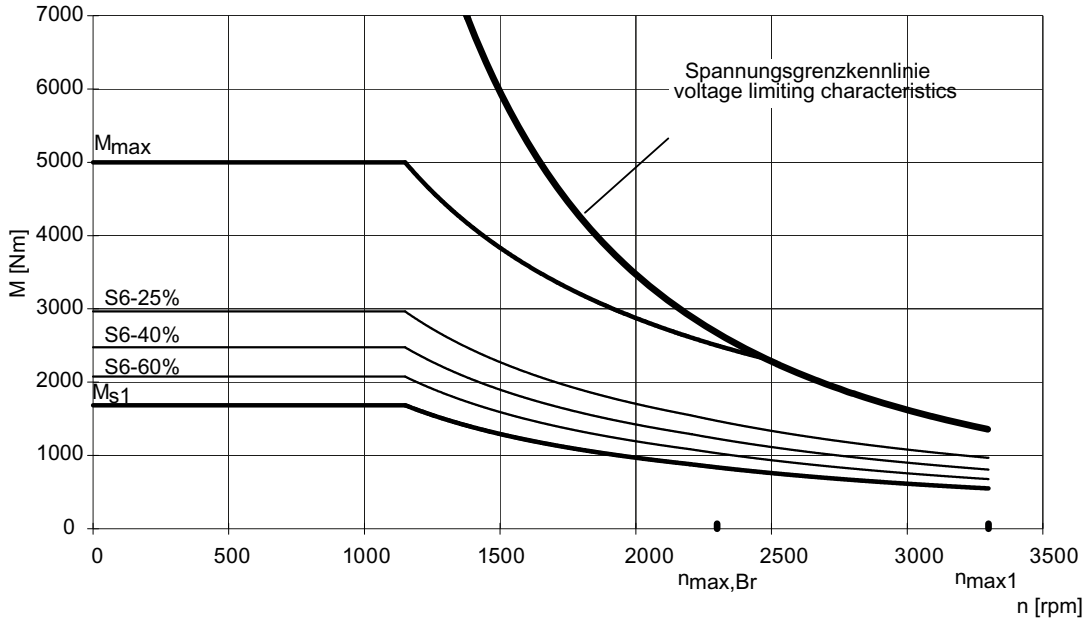
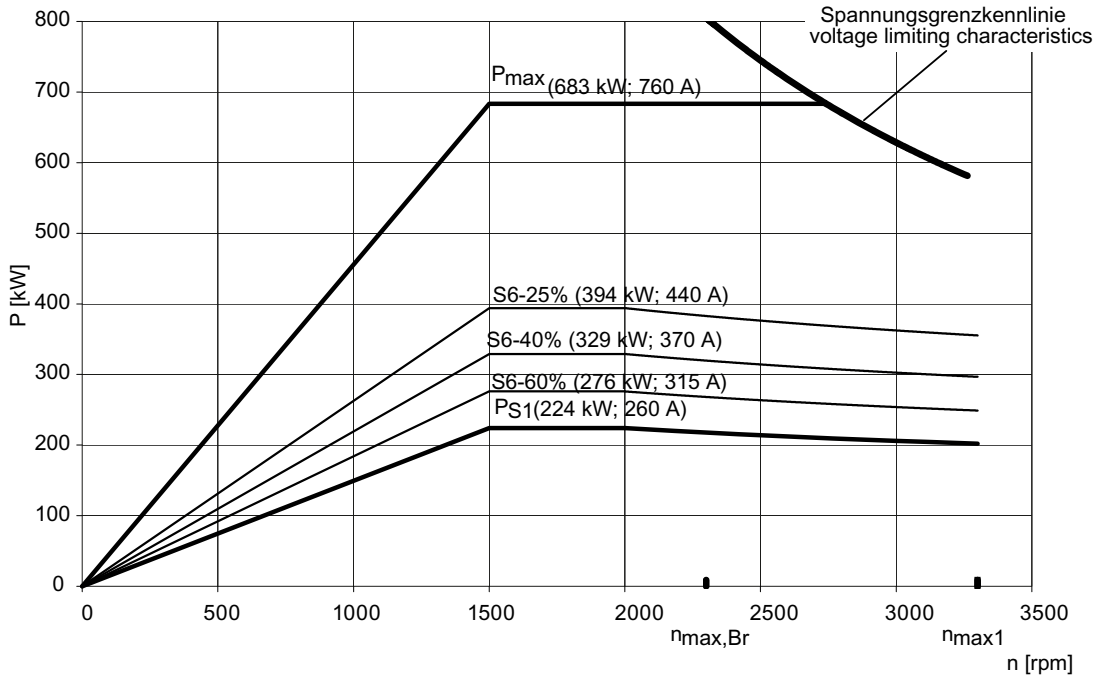


Table 4- 348 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	224	1426	260	3300	-	-	2300	2000	4350	760	1426	260



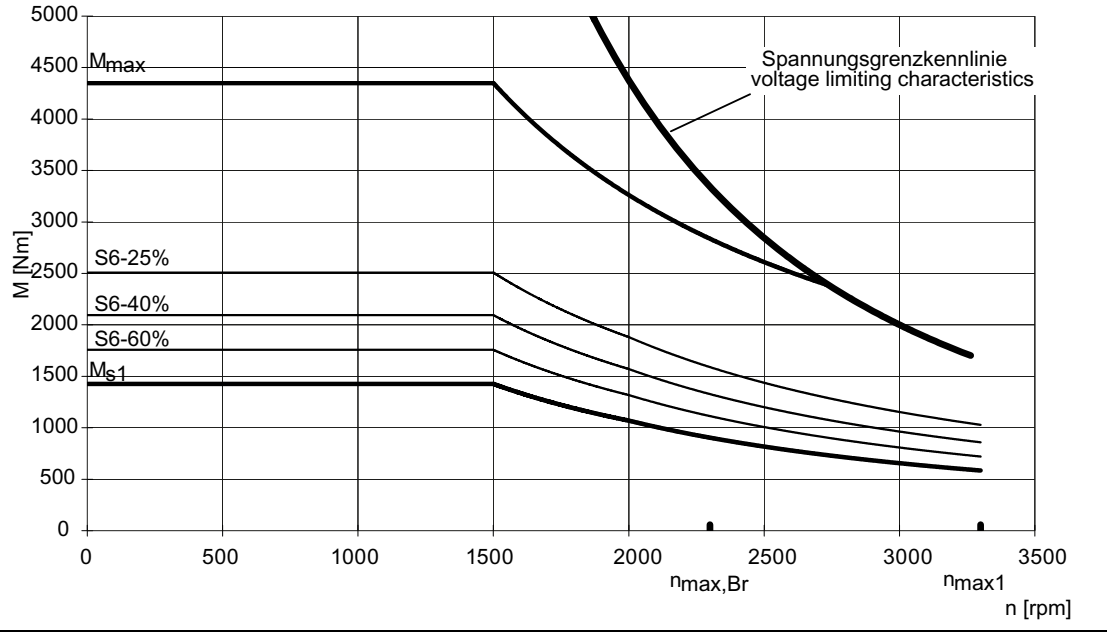
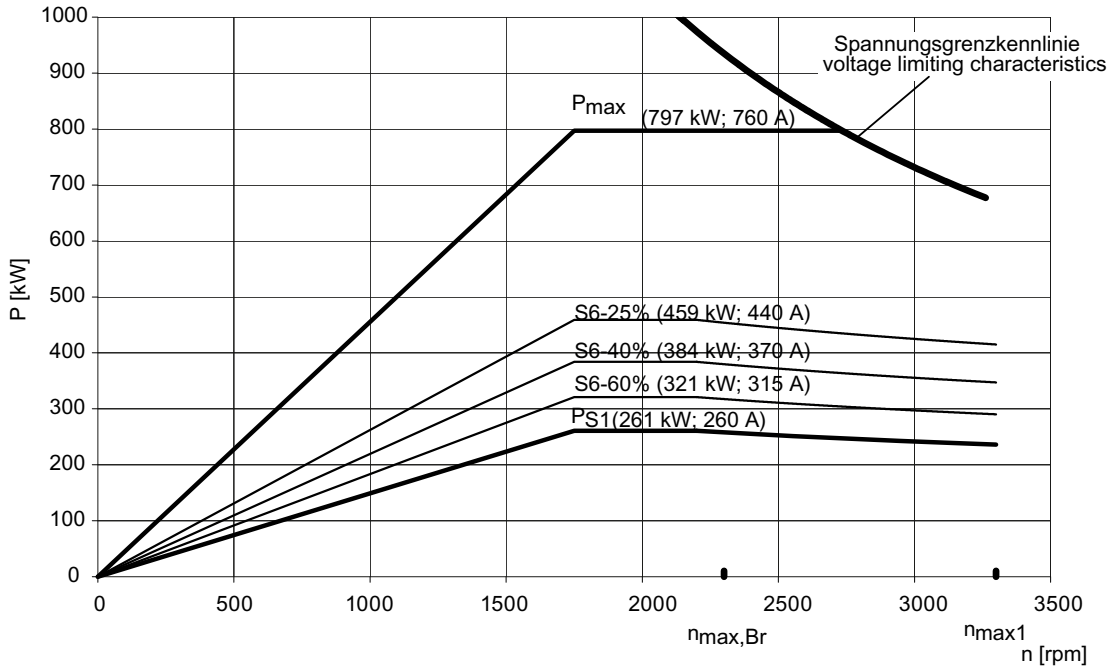


Table 4- 349 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	261	1424	260	3300	-	-	2300	2200	4350	760	1424	260
1500	224	1426	260					3300				



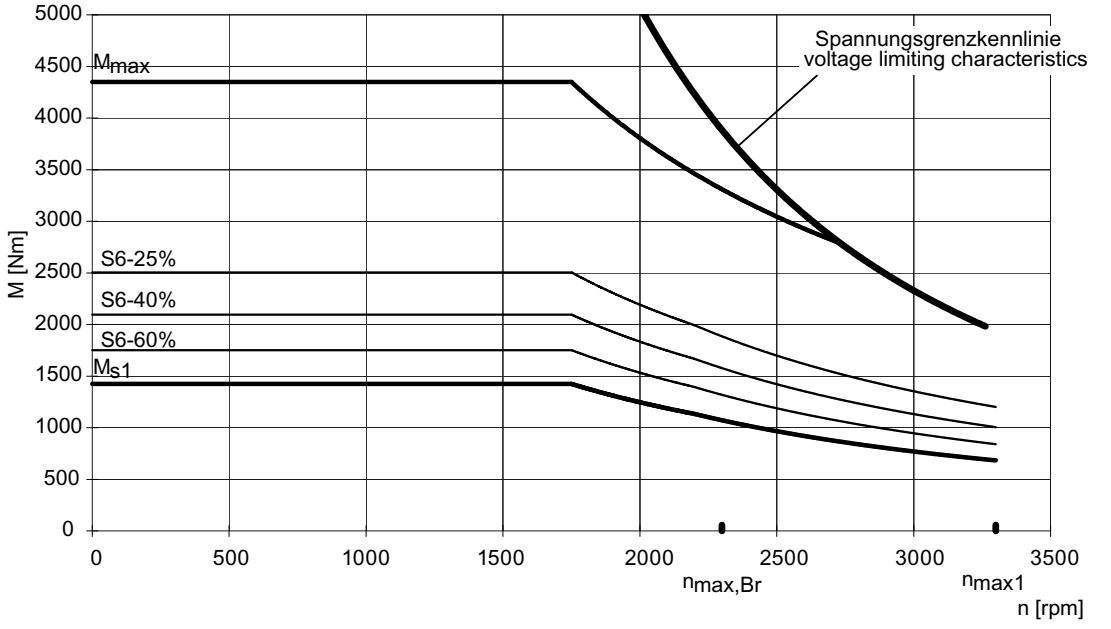
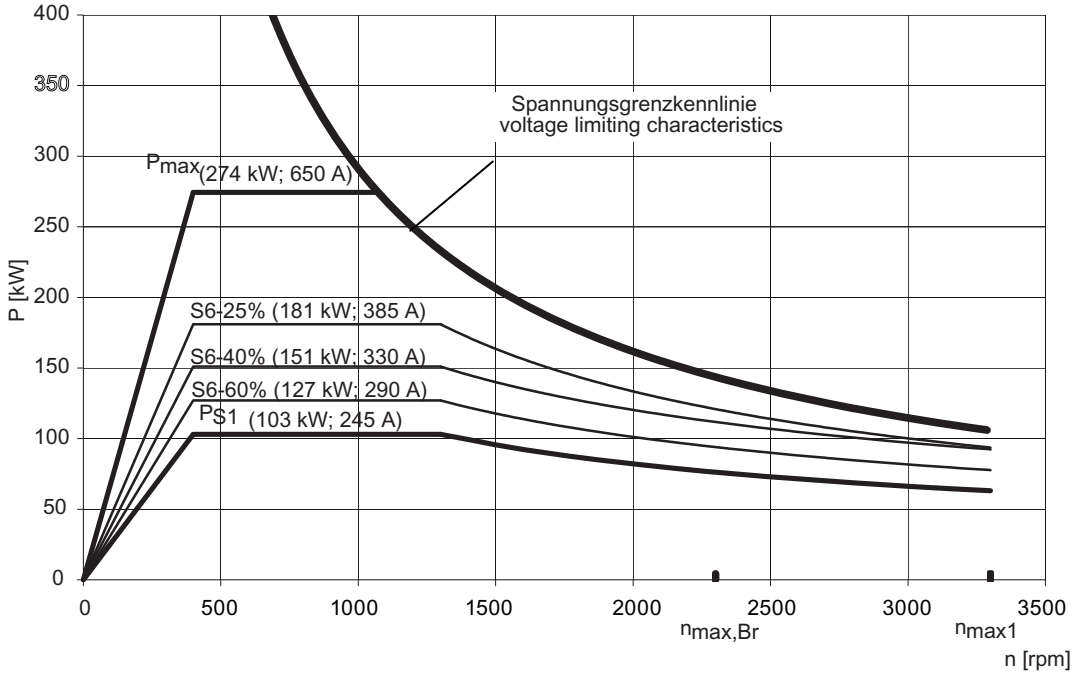


Table 4- 350 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	103	2459	245	3300	-	-	2300	1300	6550	650	2459	245



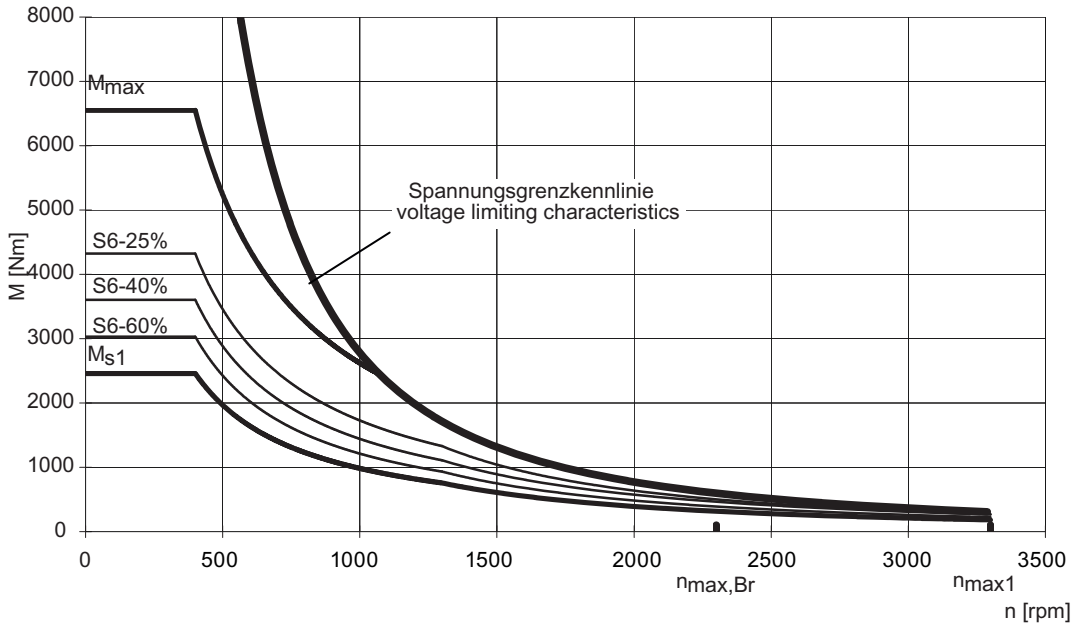
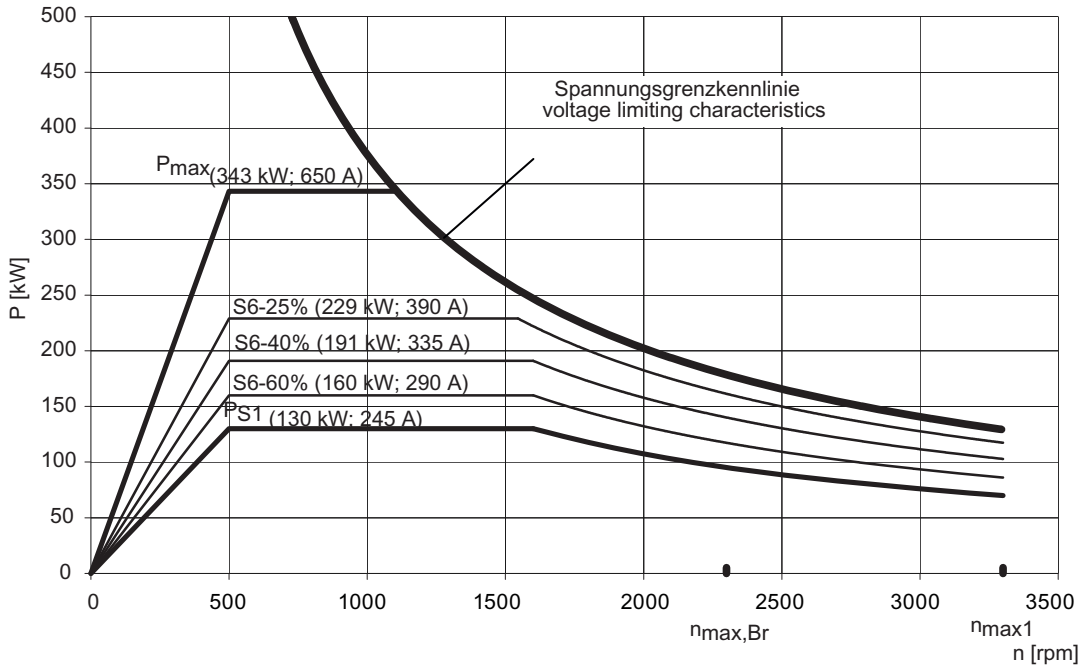


Table 4- 351 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	130	2481	245	3300	-	-	2300	1600	6550	650	2481	245
400	104	2481	245					2100				



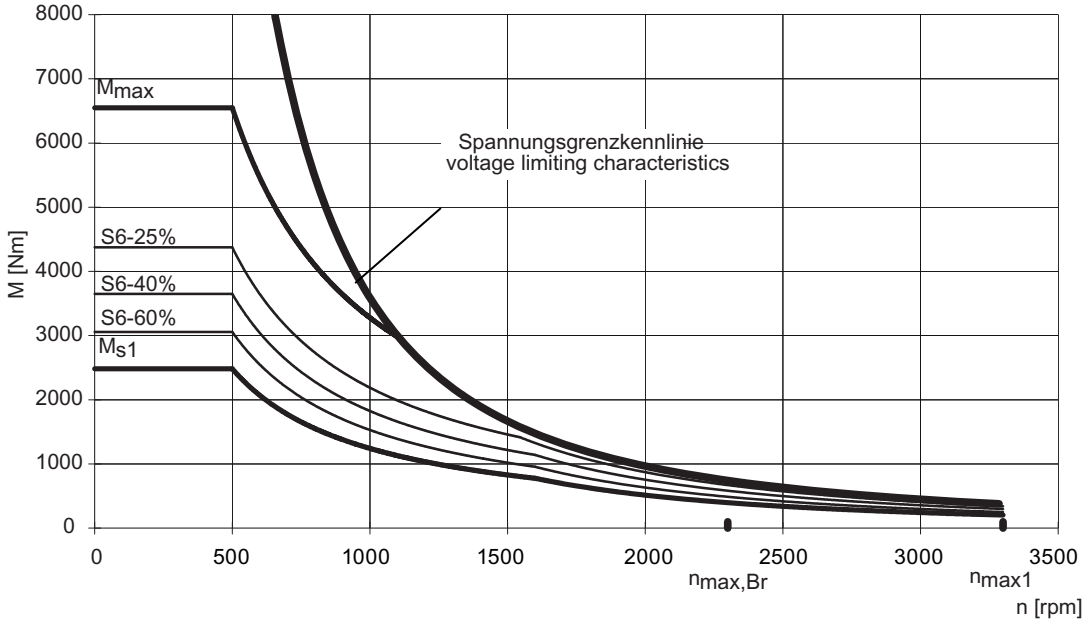
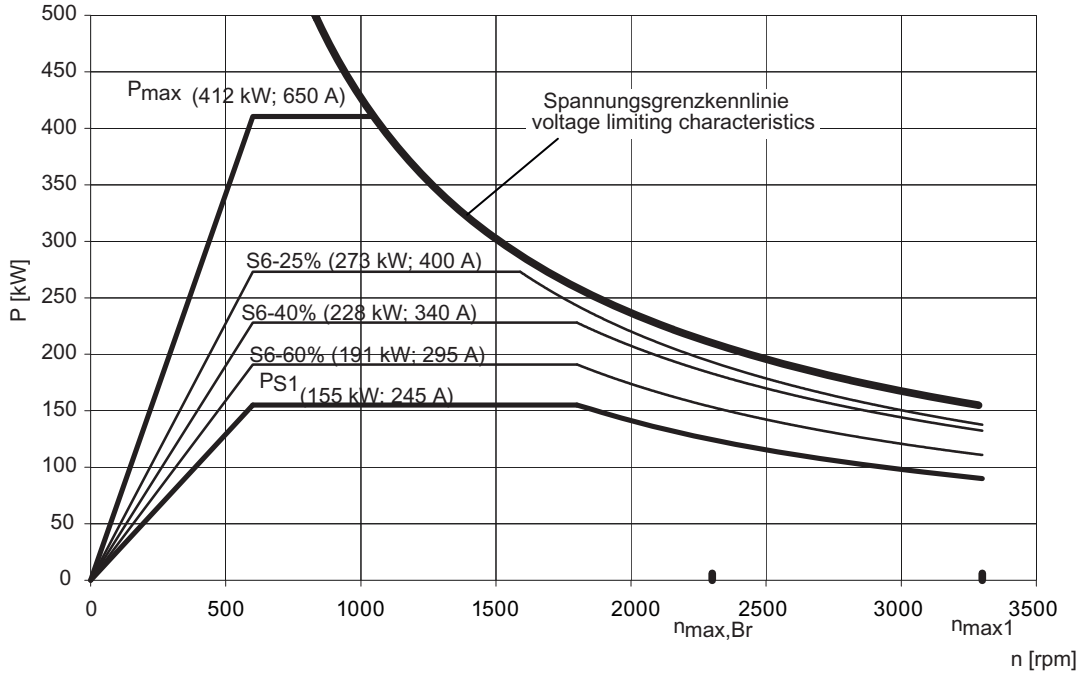


Table 4- 352 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□B1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	155	2474	245	3300	-	-	2300	1800	6550	650	2474	245



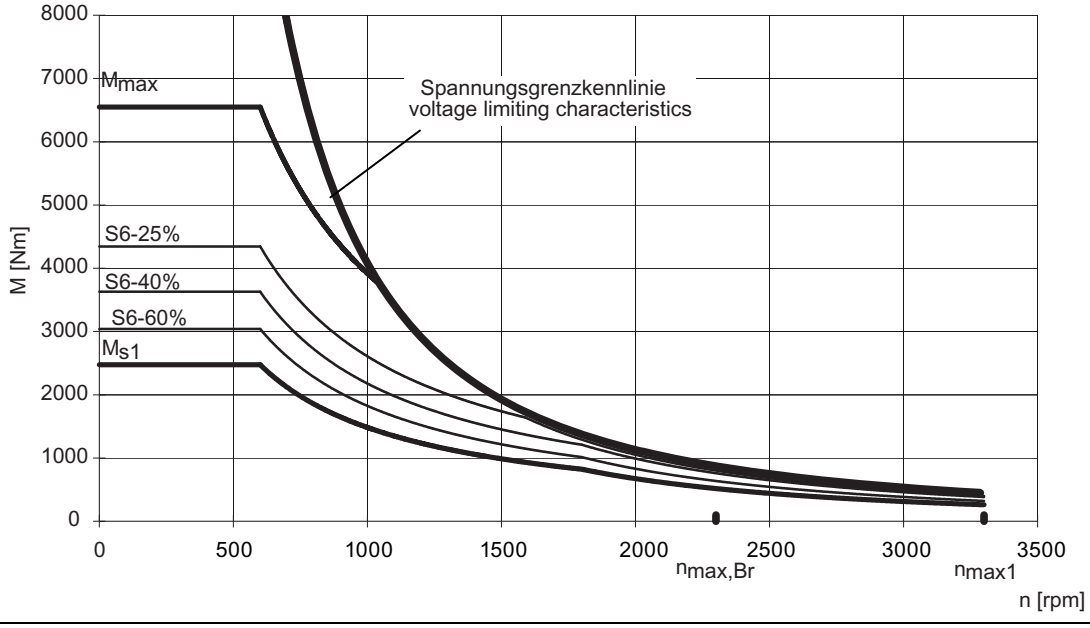
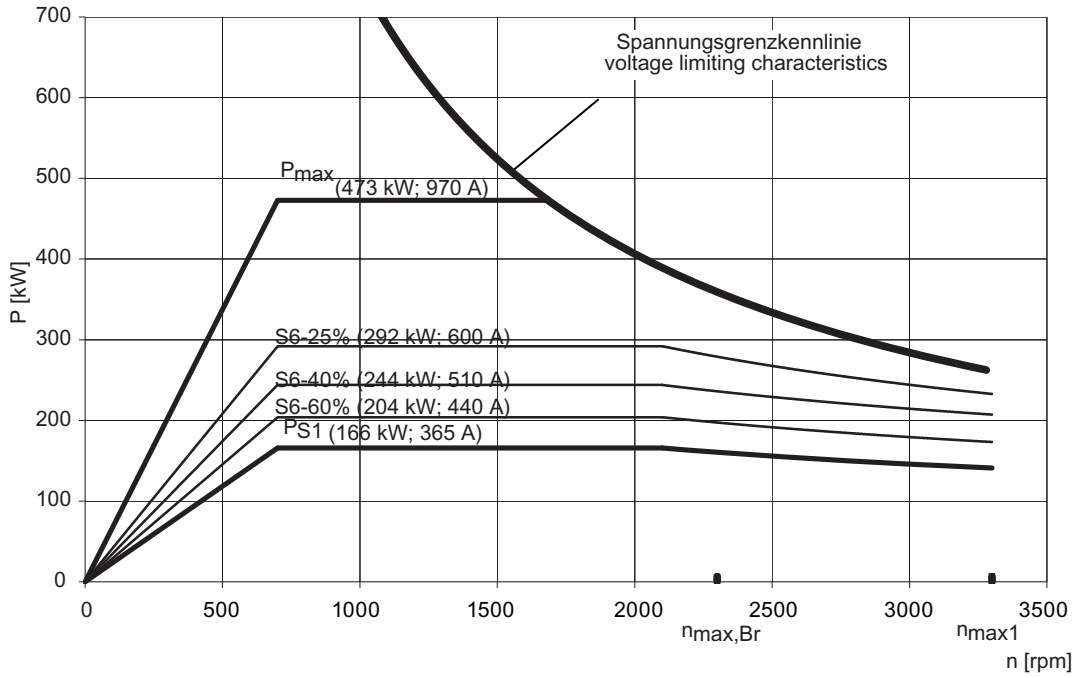


Table 4- 353 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	166	2265	365	3300	-	-	2300	2100	6450	970	2265	365



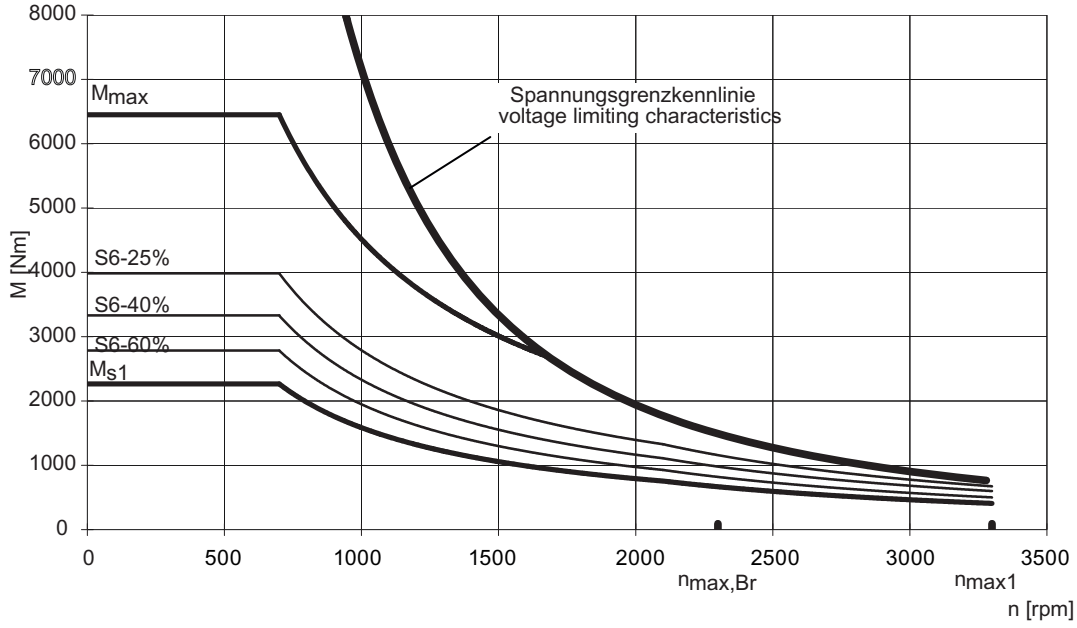
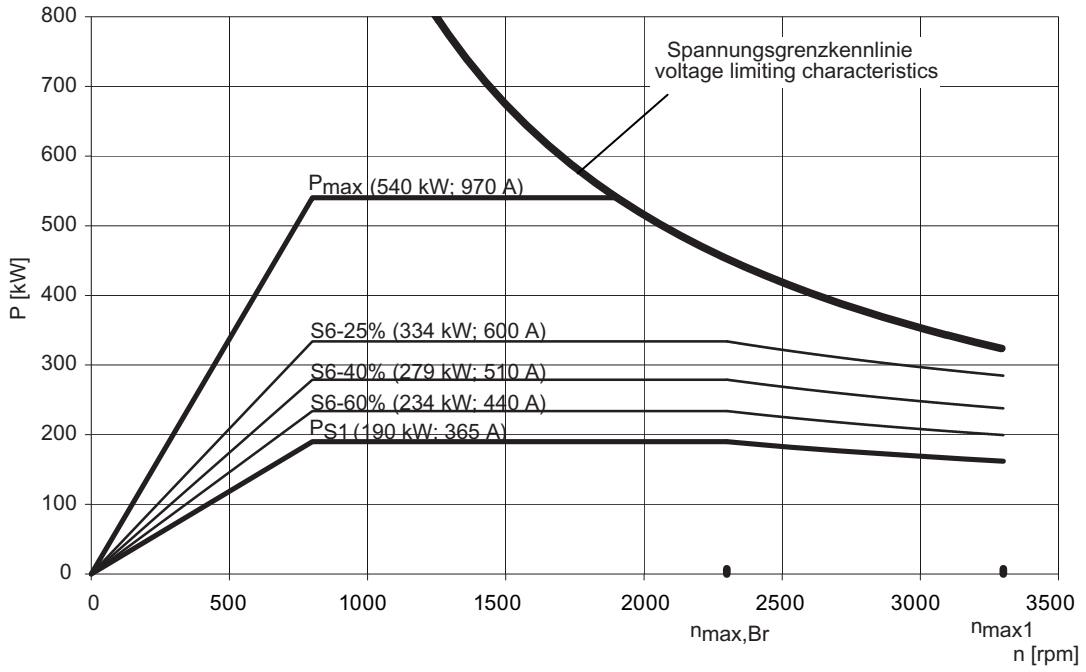


Table 4- 354 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	190	2268	365	3300	-	-	2300	2300	6450	970	2268	365
700	166	2268	365					3100				



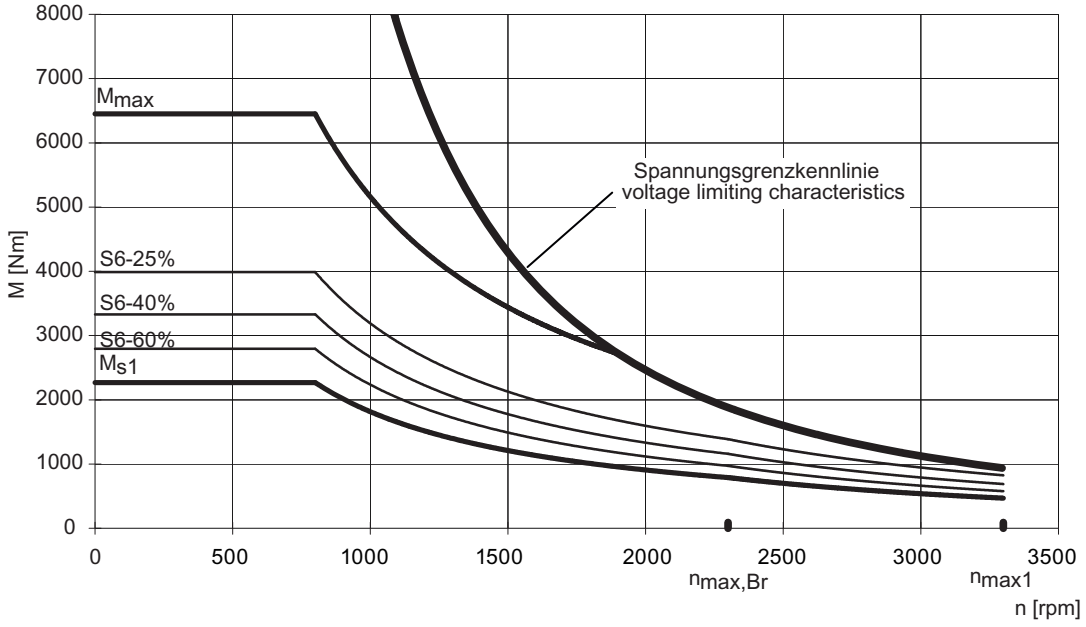
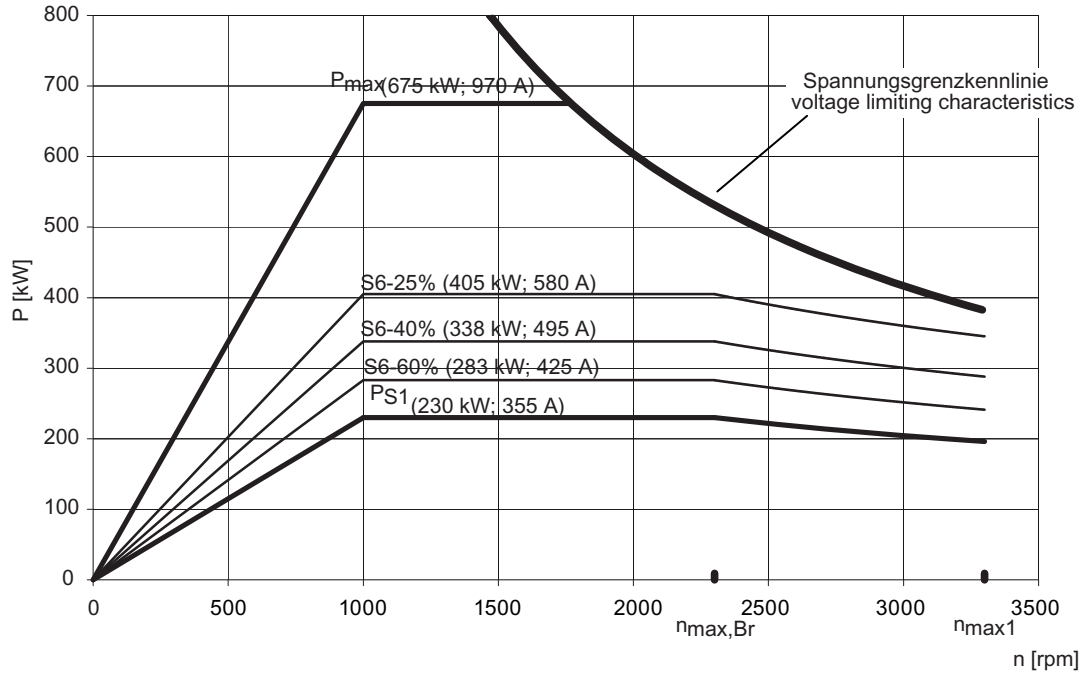


Table 4- 355 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□C1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	230	2197	355	3300	-	-	2300	2300	6450	970	2197	355



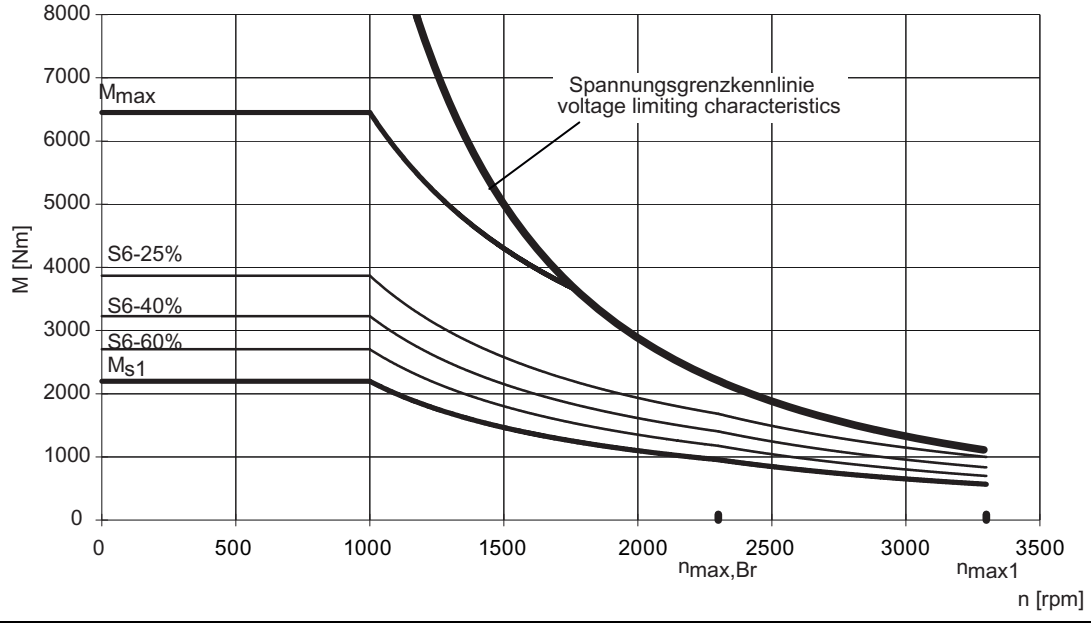
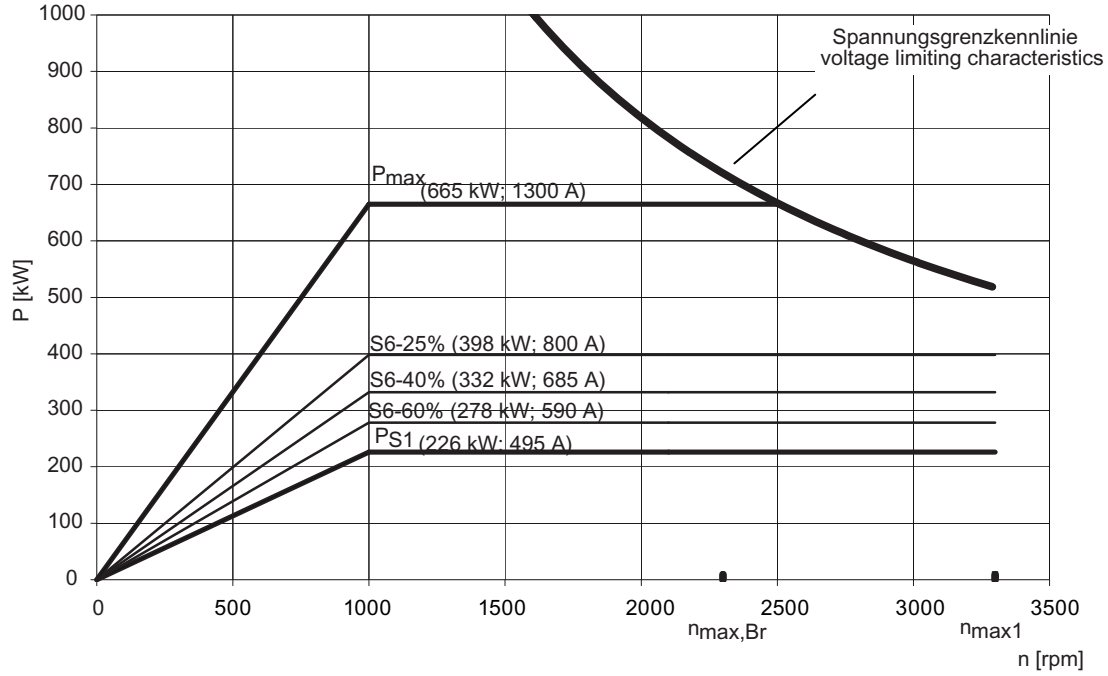


Table 4- 356 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	226	2158	495	3300	-	-	2300	2100	6350	1300	2158	495



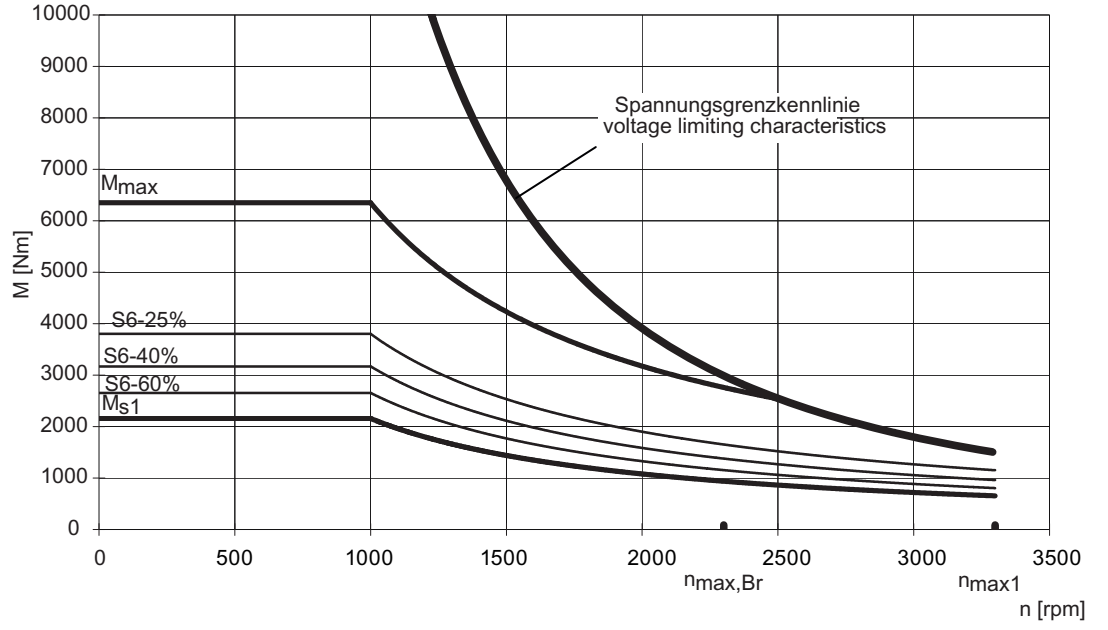
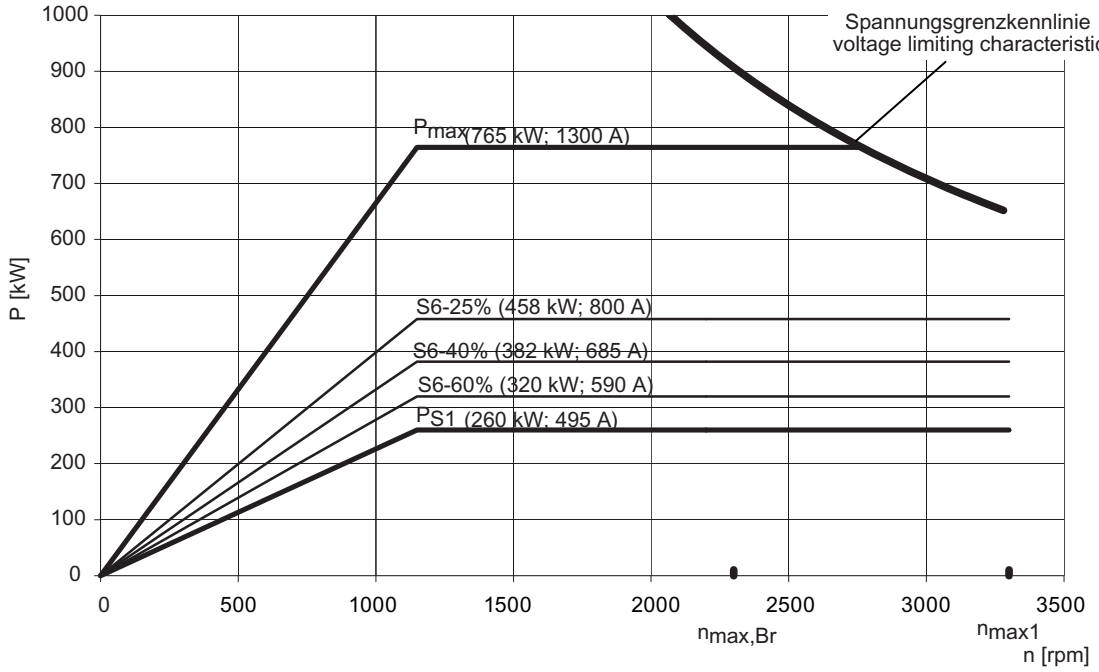


Table 4- 357 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	260	2160	495	3300	-	-	2300	2200	6350	1300	2160	495
1000	226	2160	495					3300				



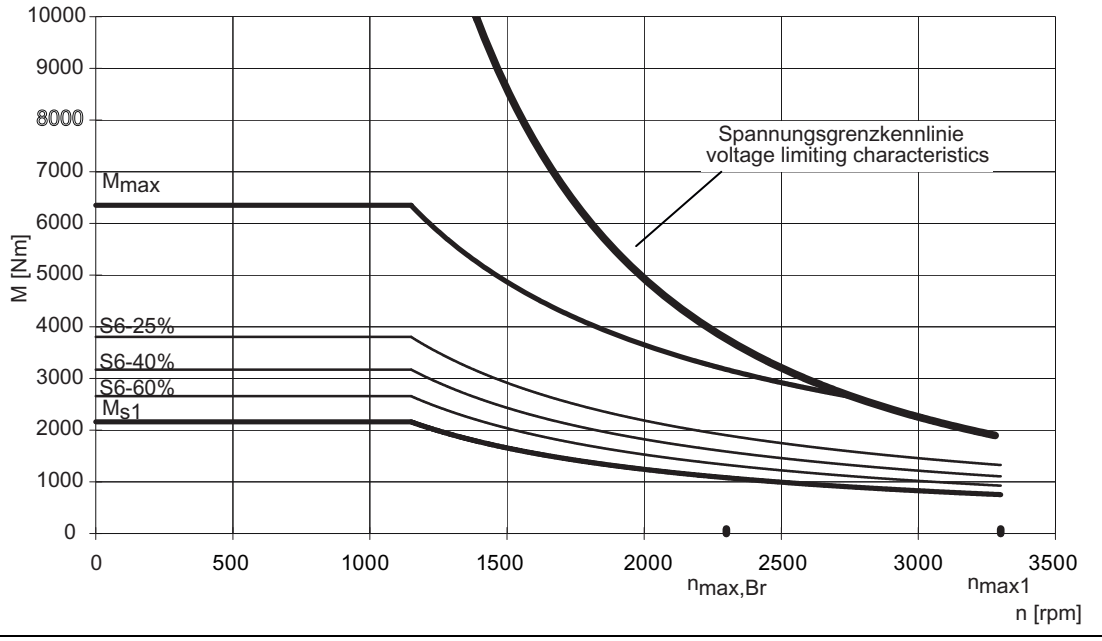
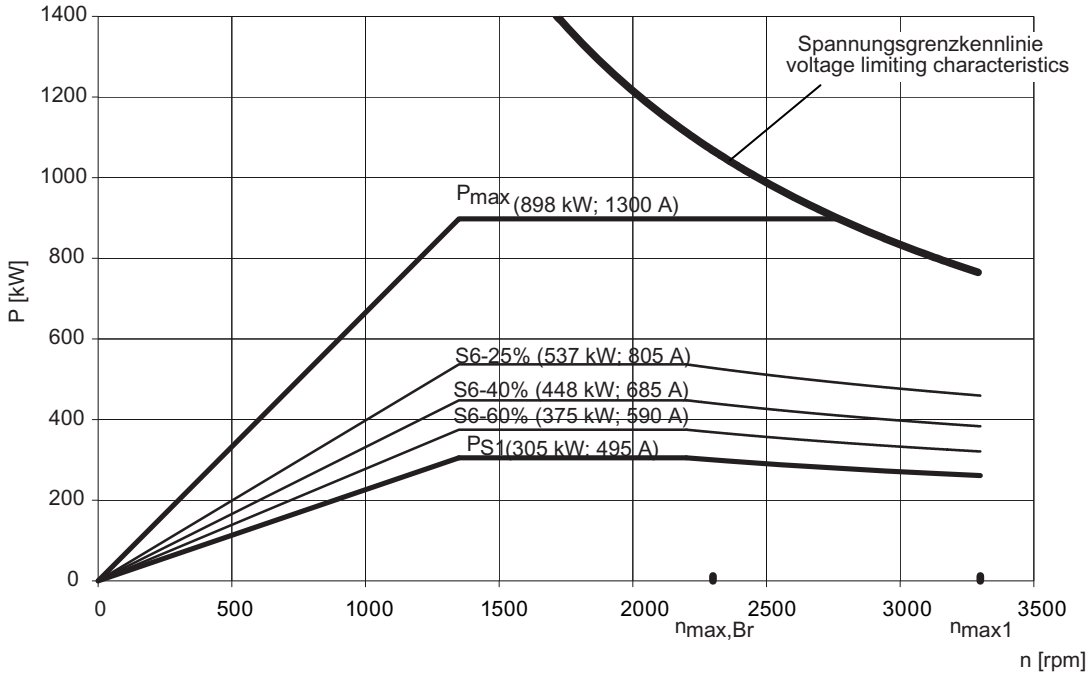


Table 4- 358 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□D1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	305	2158	495	3300	-	-	2300	2200	6350	1300	2158	495



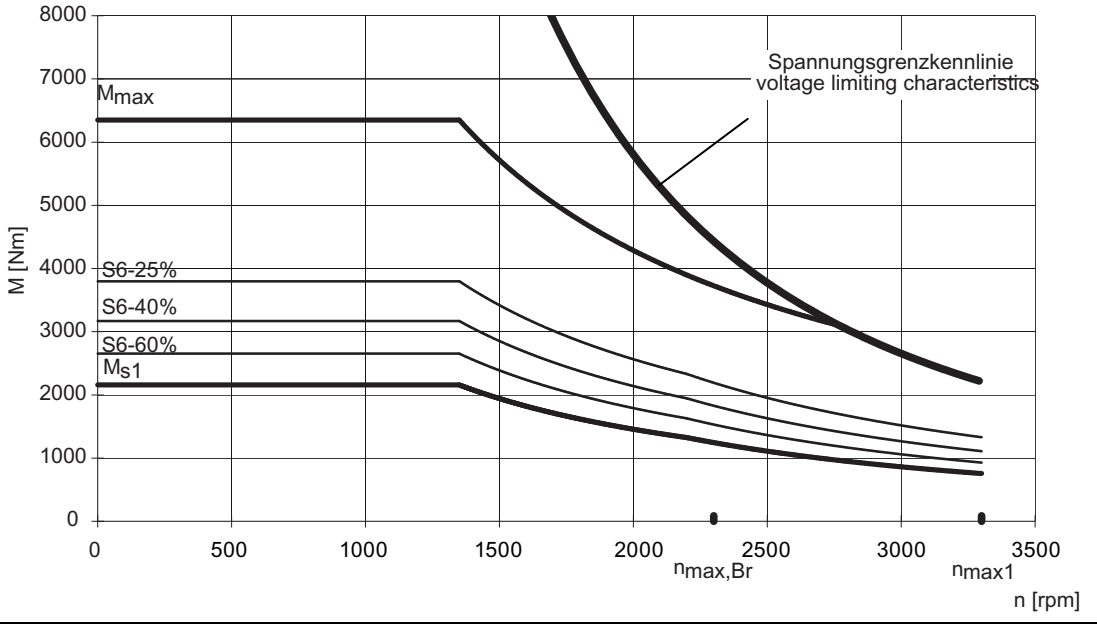
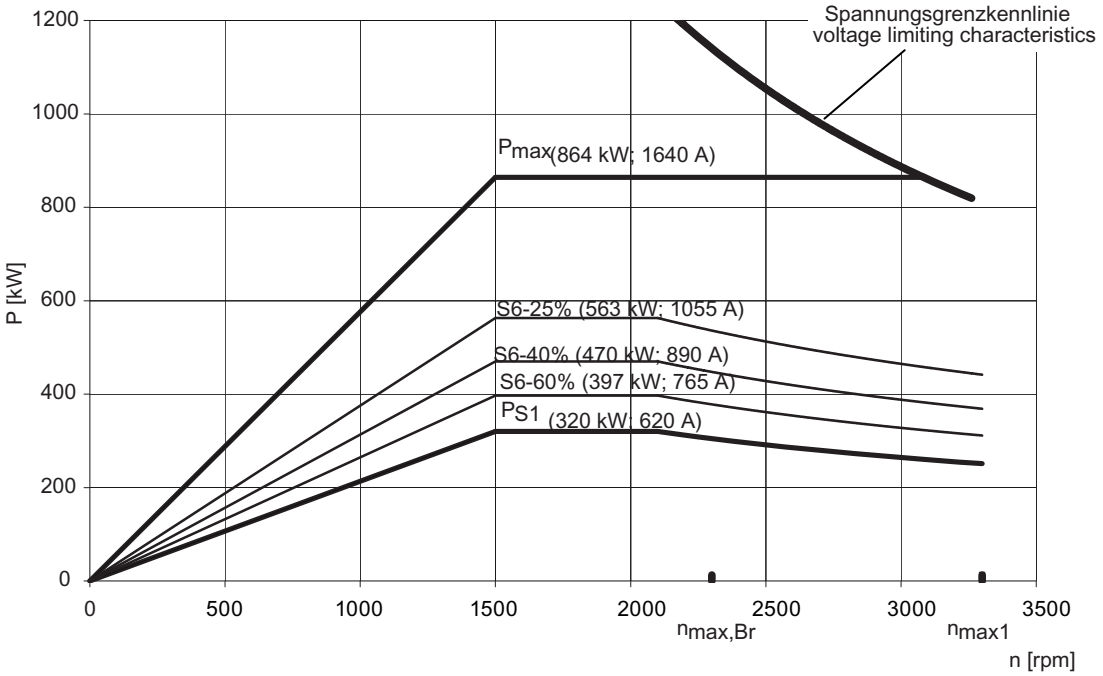


Table 4- 359 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	320	2037	620	3300	-	-	2300	2100	5500	1640	2037	1640



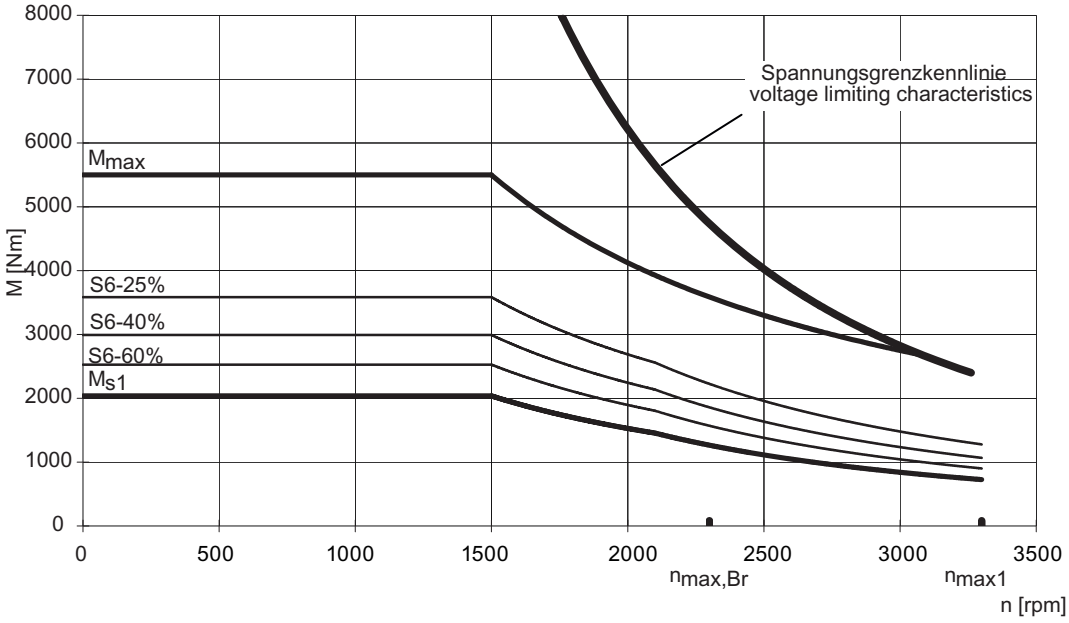
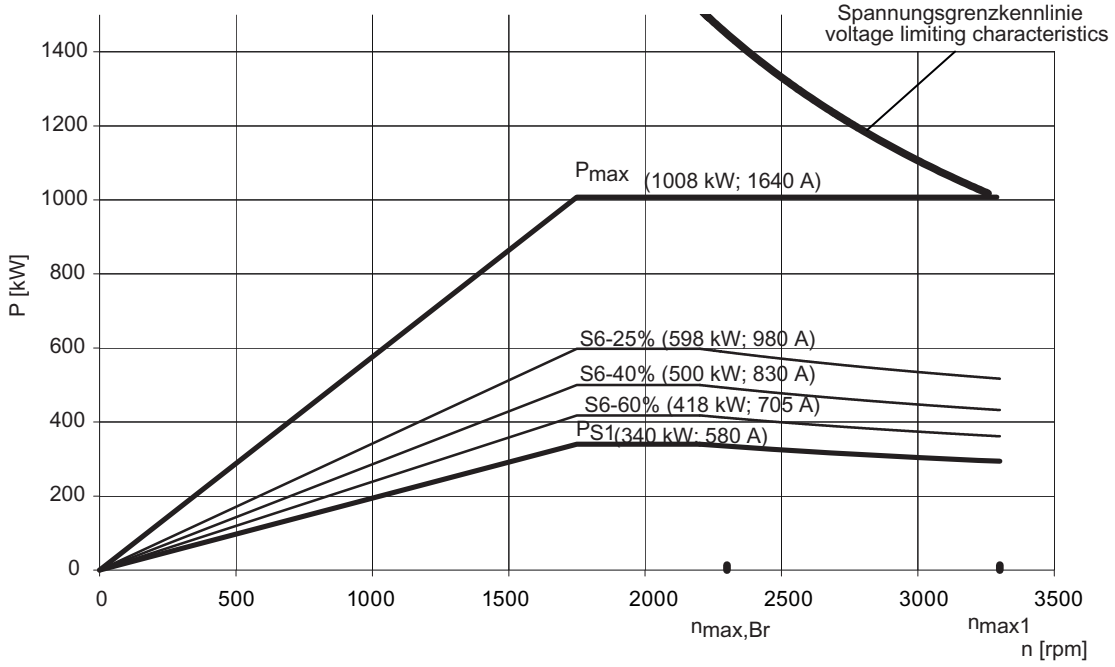


Table 4- 360 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	340	1856	580	3300	-	-	2300	2200	5500	1640	1856	1640
1500	292	1856	580					3300				



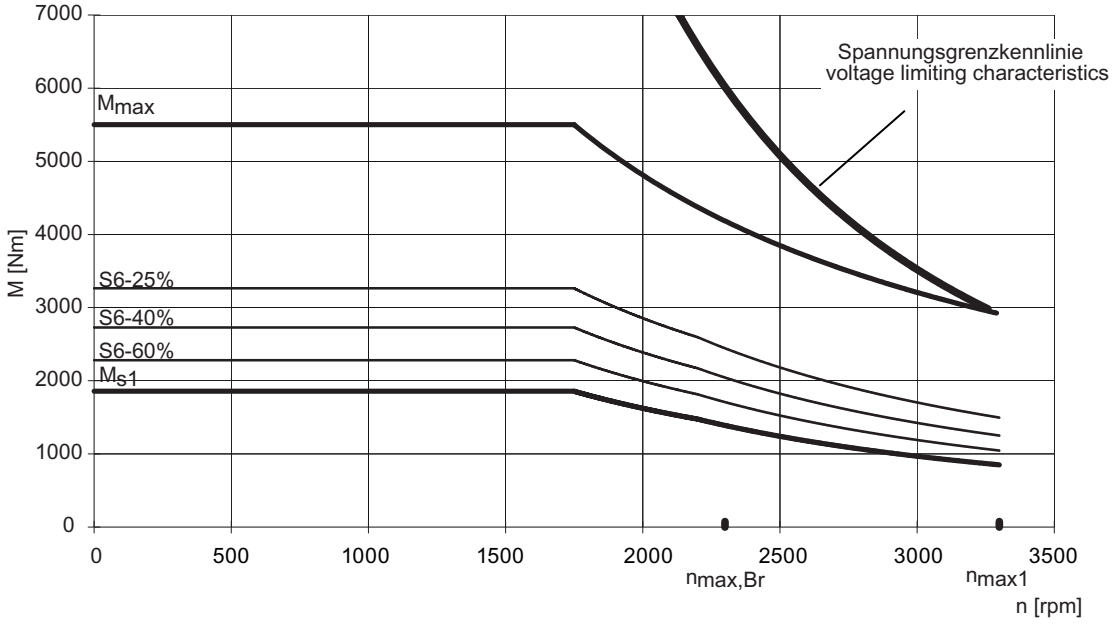
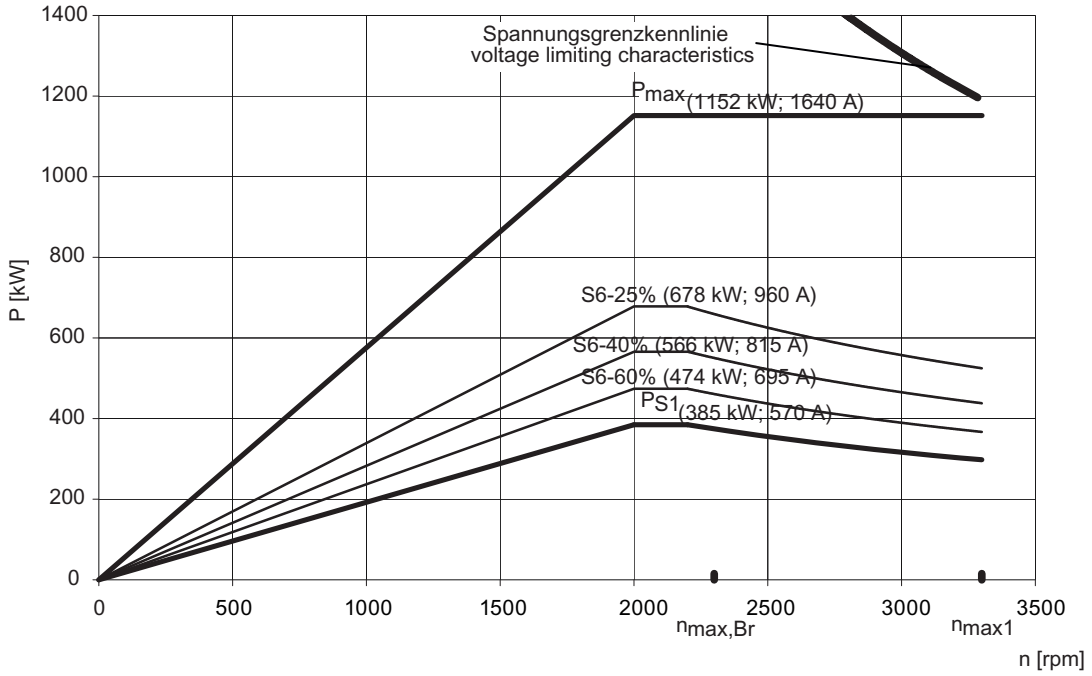


Table 4- 361 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□F1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	385	1838	570	3300	-	-	2399	2200	5500	1640	1838	1640



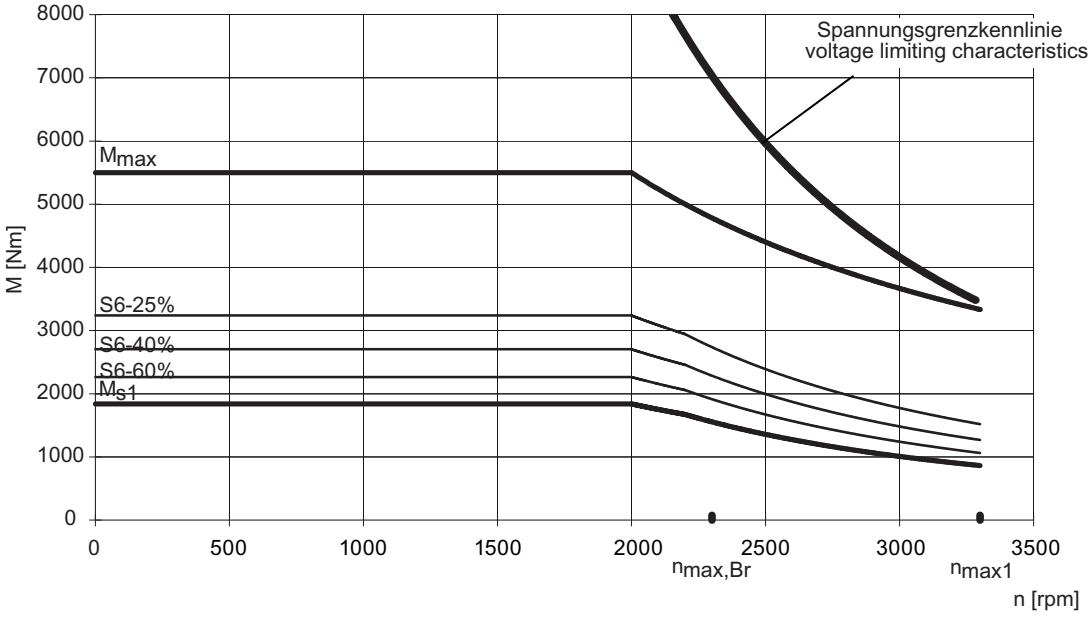
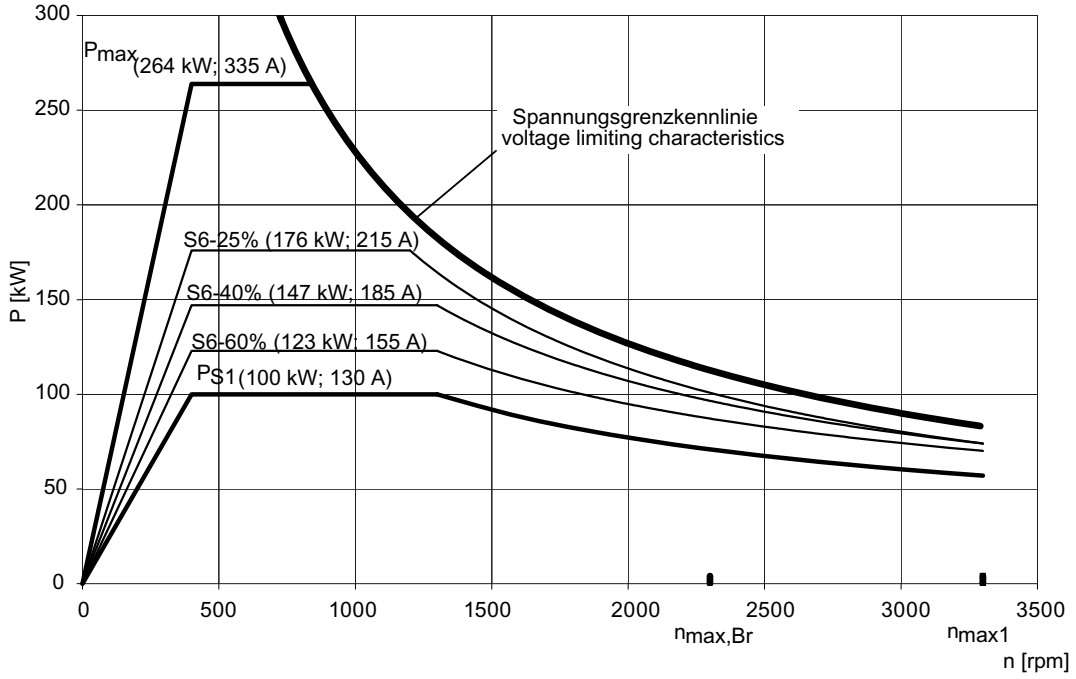


Table 4- 362 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	100	2388	130	3300	-	-	2300	1300	6300	335	2388	130



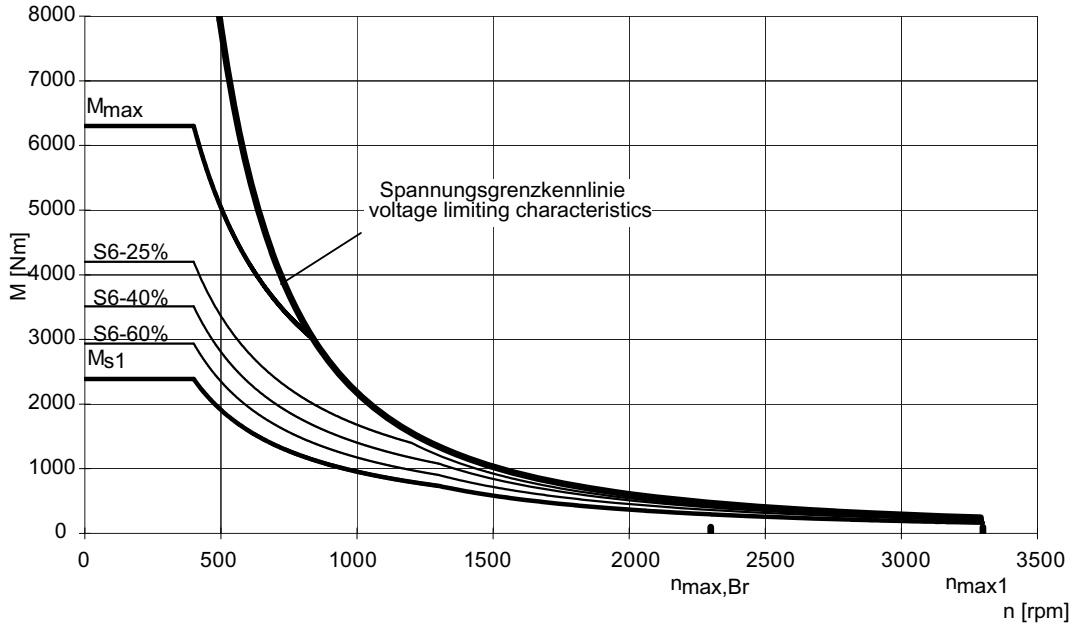
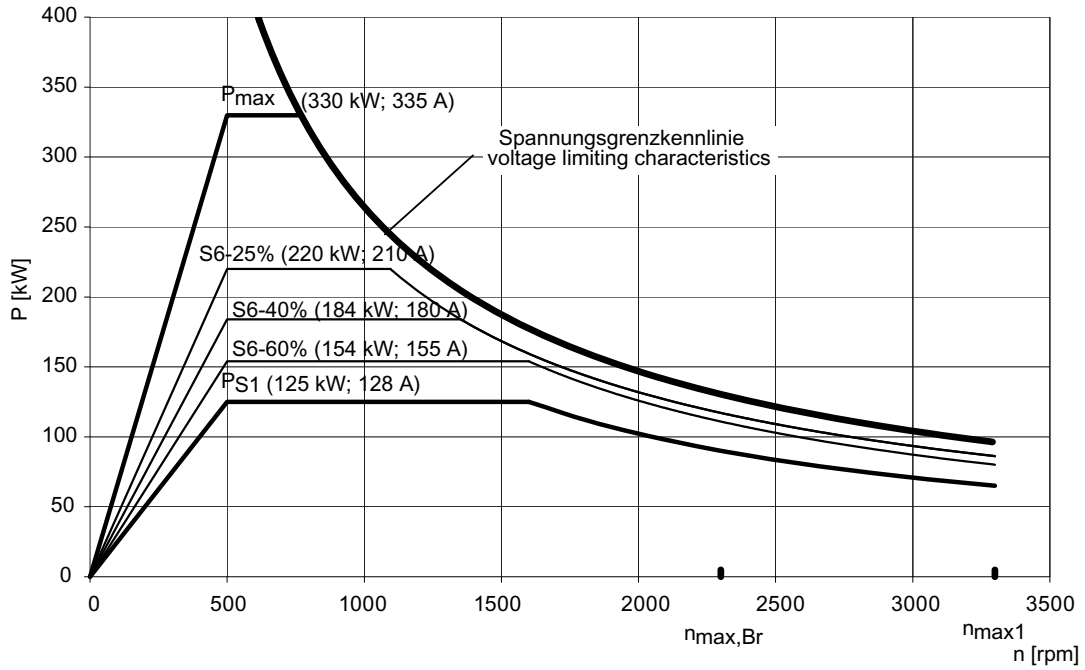


Table 4- 363 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□H1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	125	2388	128	3300	-	-	2300	1600	6300	335	2388	128
400	100	2388	128					2000				



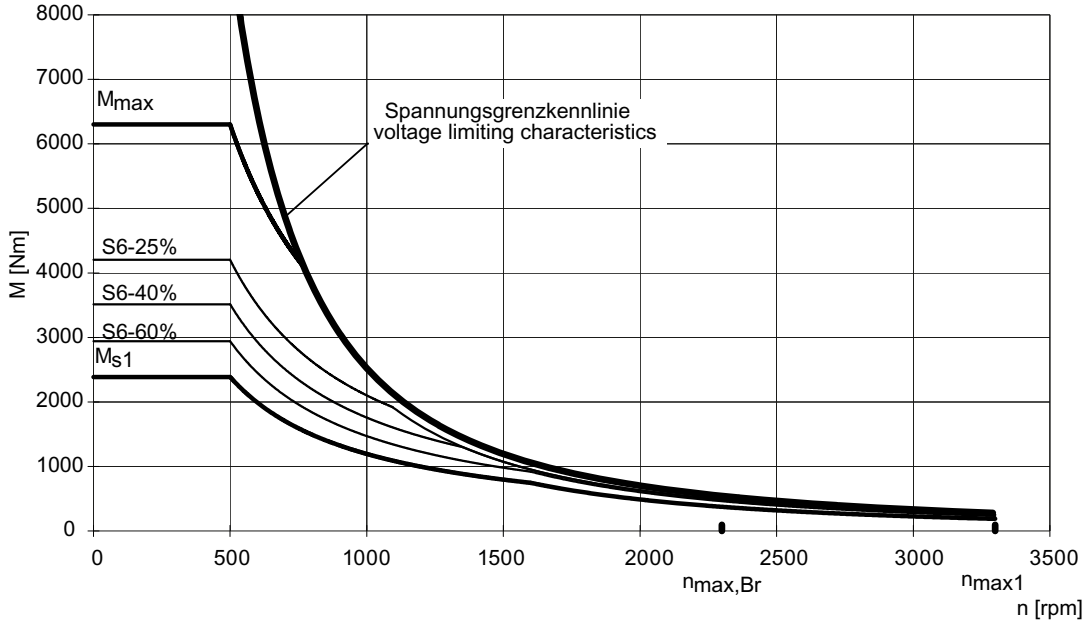
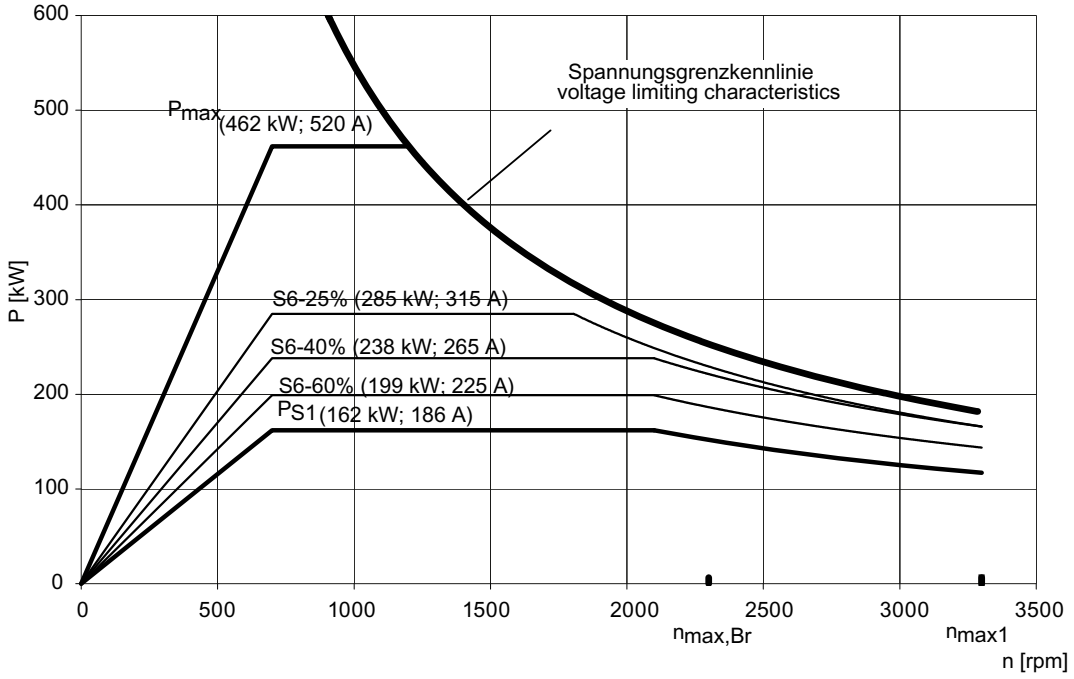


Table 4- 364 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	162	2210	186	3300	-	-	2300	2100	6300	520	2210	186



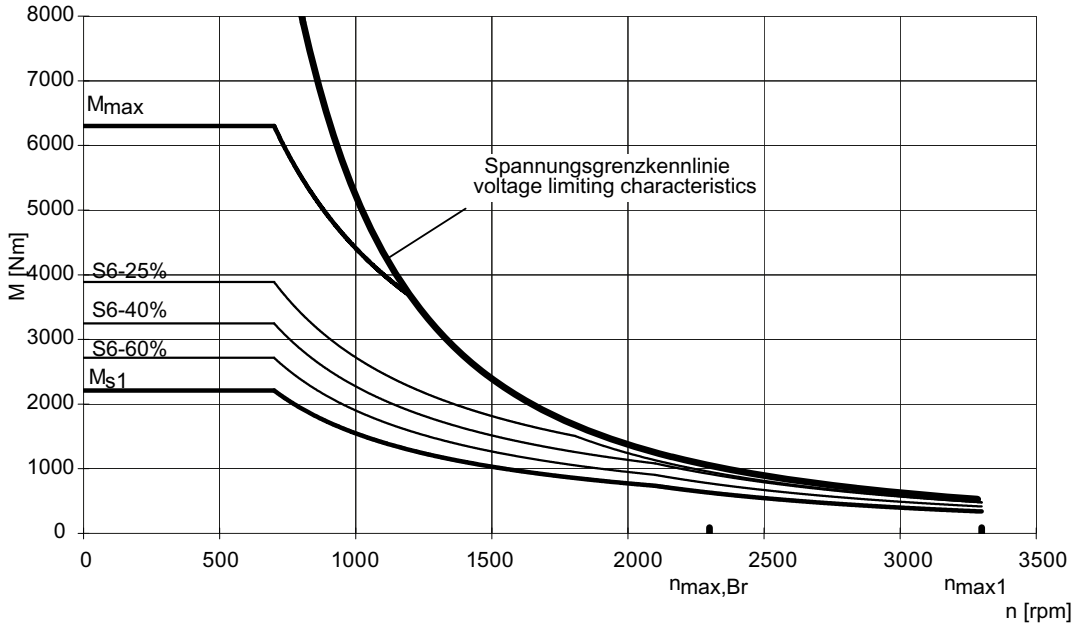
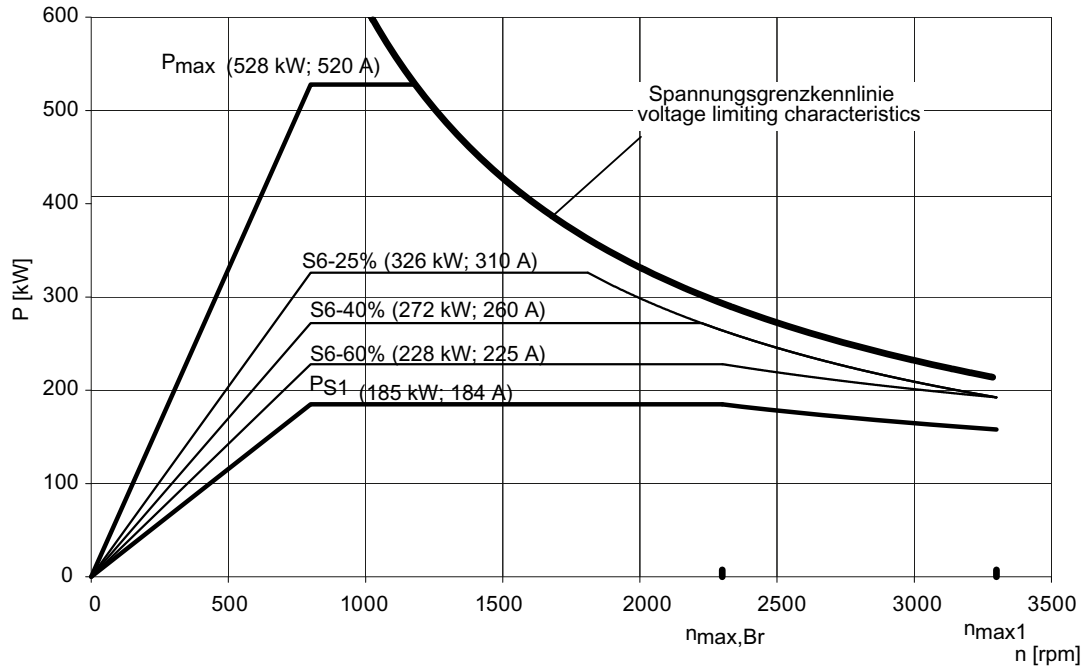


Table 4- 365 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□K1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	185	2208	184	3300	-	-	2300	2300	6300	520	2208	184
700	162	2208	184					3100				



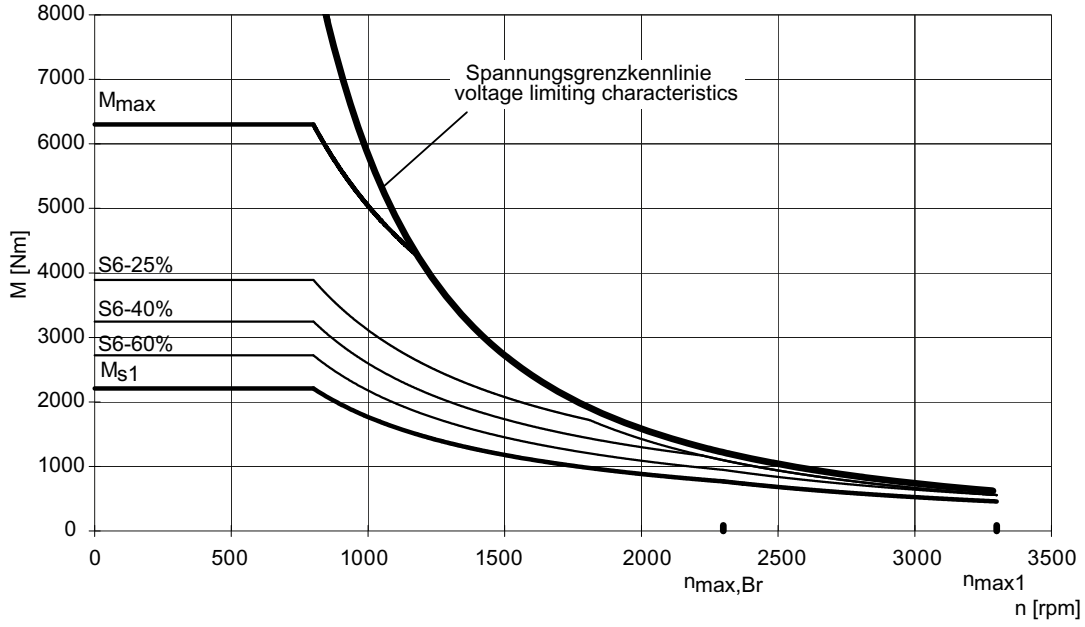
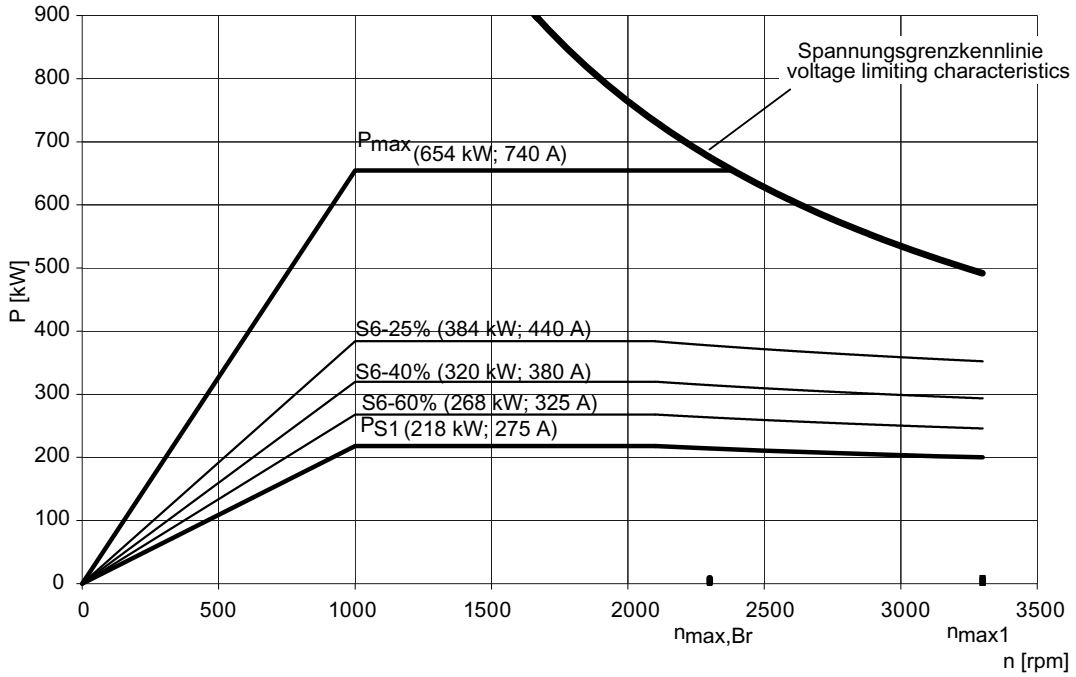


Table 4- 366 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	218	2082	275	3300	-	-	2300	2100	6250	740	2082	275



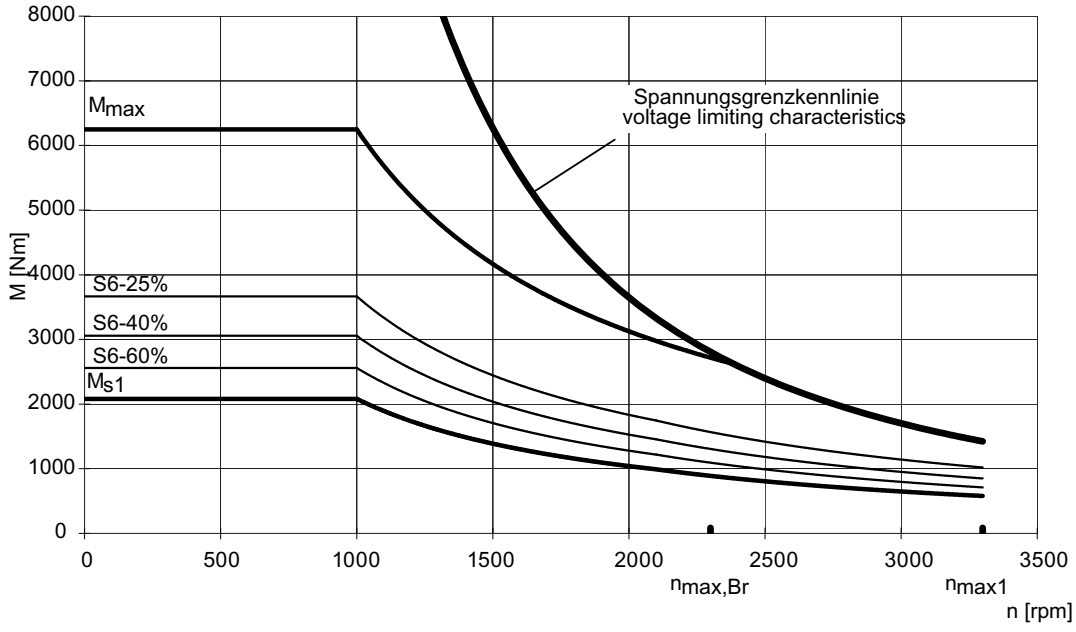
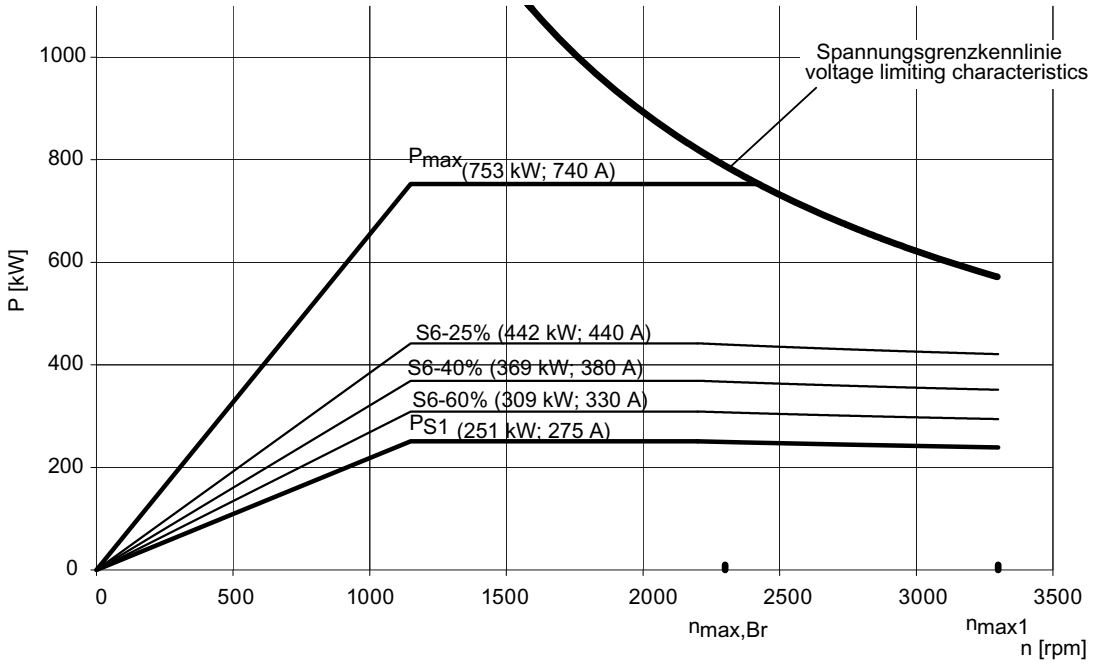


Table 4- 367 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□U1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	251	2084	275	3300	-	-	2300	2200	6250	740	2084	275
1000	218	2084	275					3300				



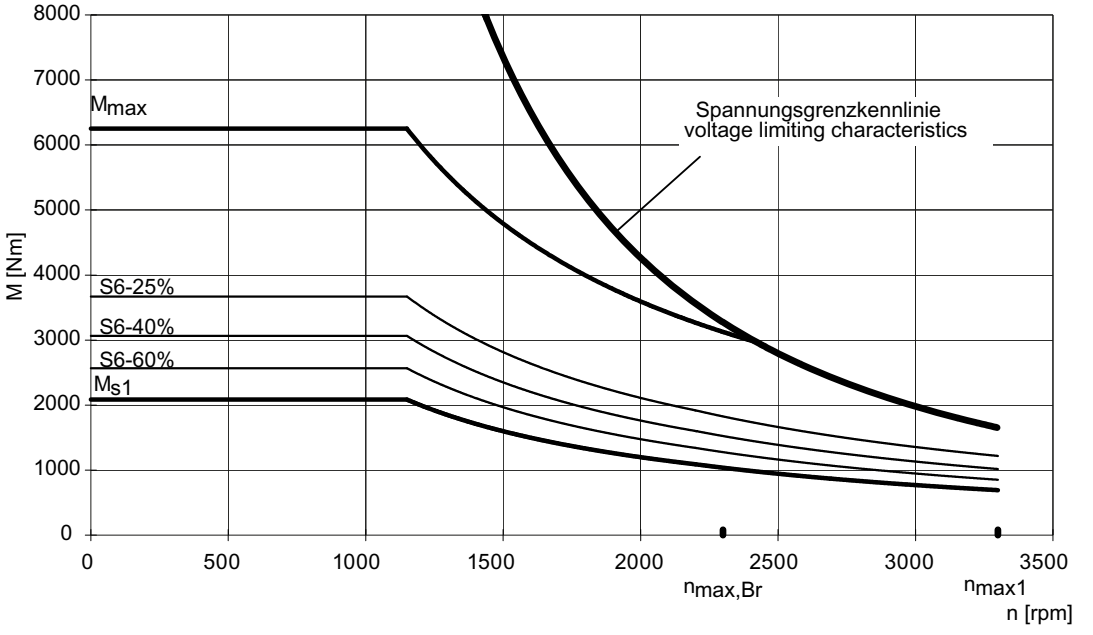
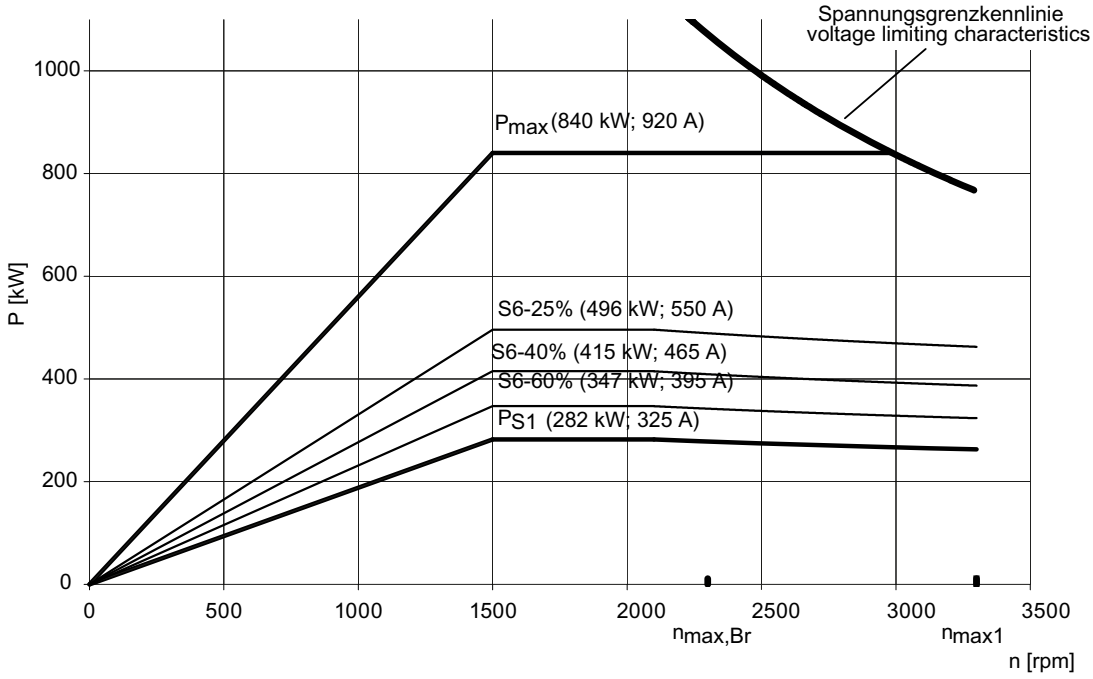


Table 4- 368 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	282	1795	325	3300	-	-	2300	2100	5350	920	1795	325



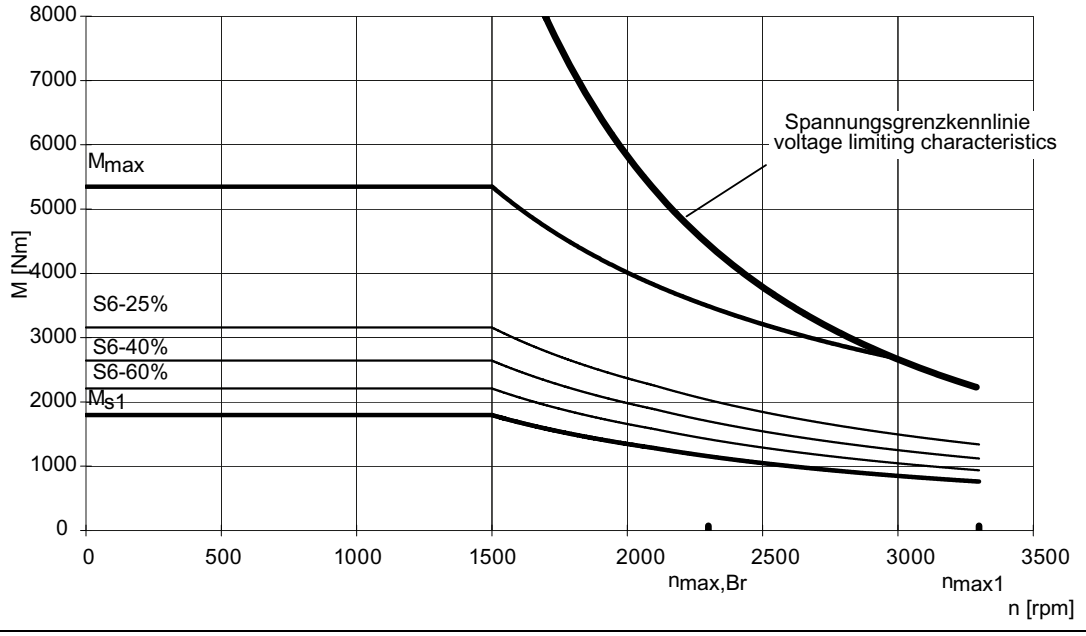
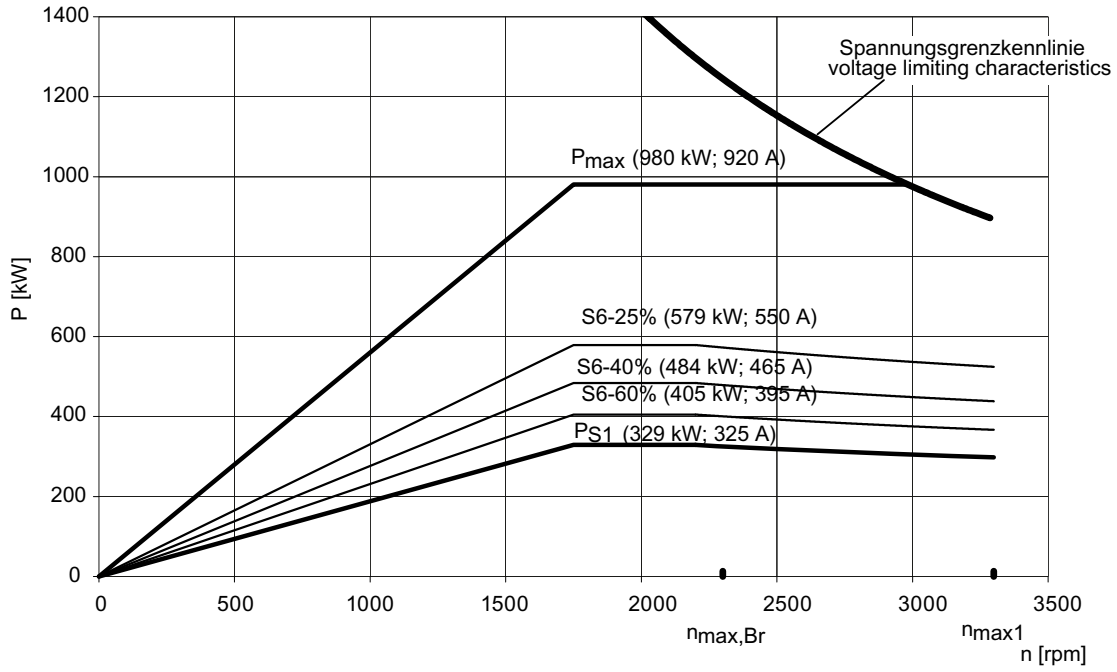
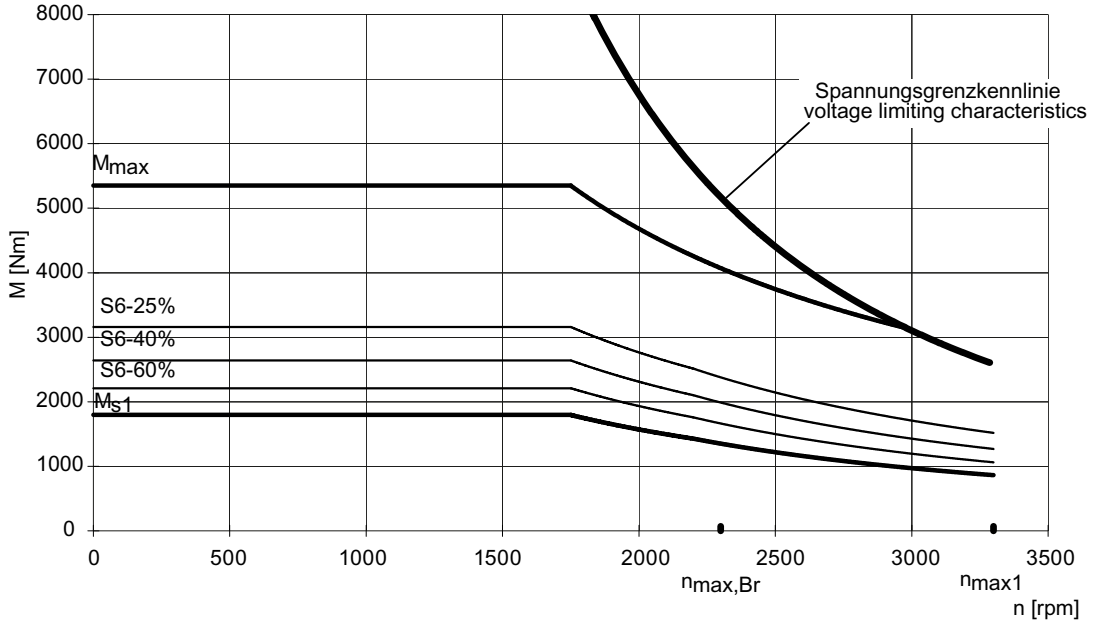


Table 4- 369 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□W1□, (IP55)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	329	1795	325	3300	-	-	2300	2200	5350	920	1795	325
1500	282	1795	325					3300				

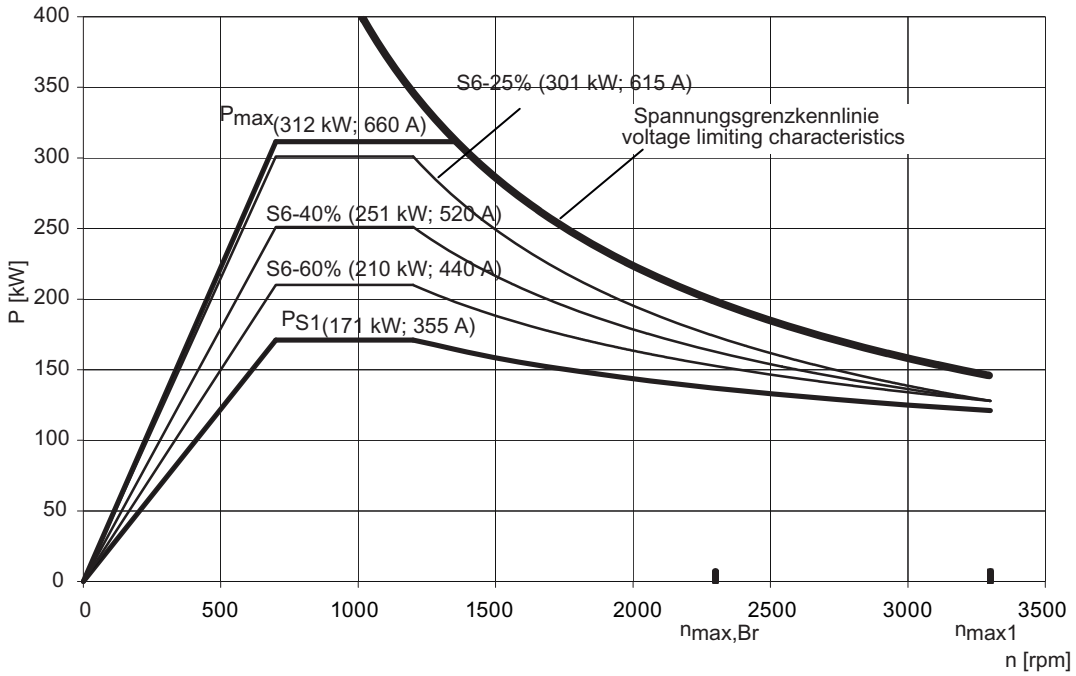




4.1.2.10 Shaft height 280 - forced ventilation (open-circuit ventilation)

Table 4- 370 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	171	2333	355	3300	-	-	2300	1200	4250	660	2333	355



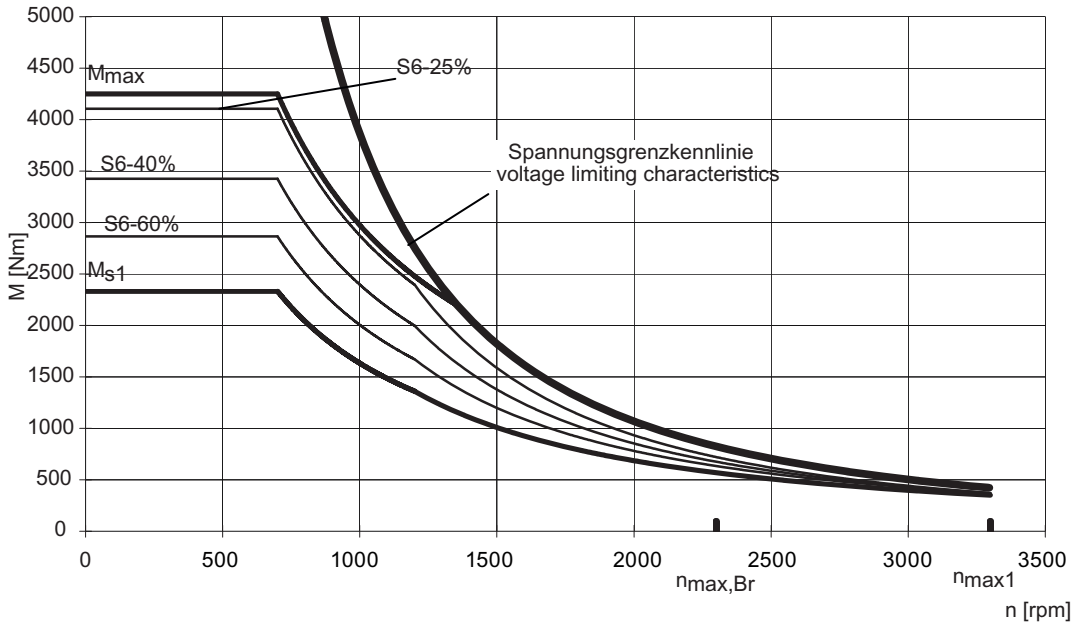
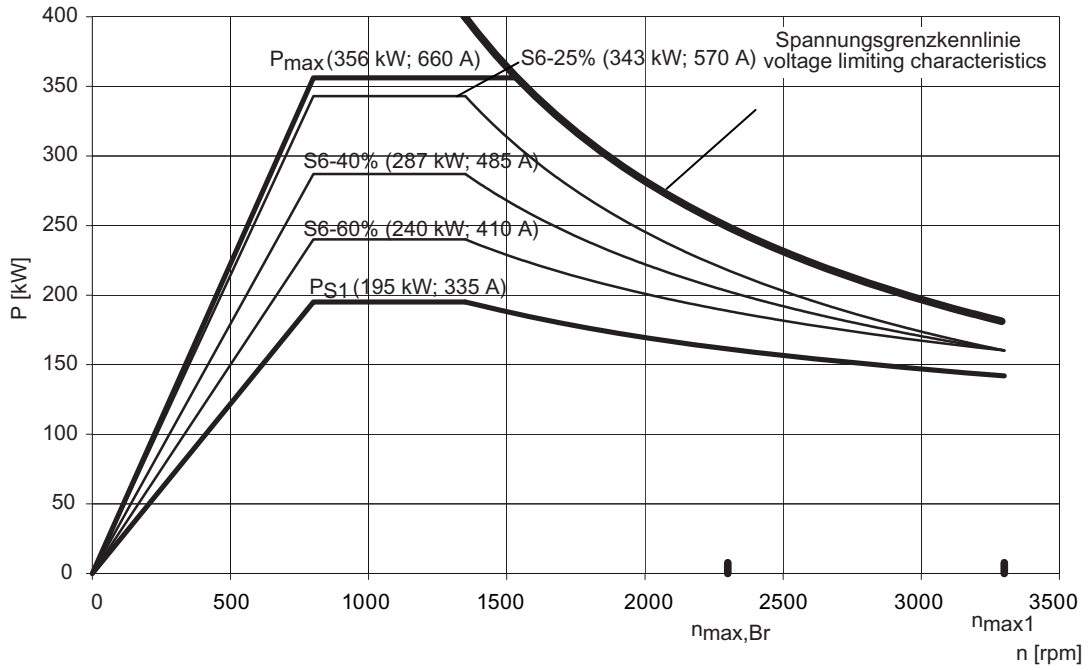


Table 4- 371 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	195	2328	335	3300	-	-	2300	1350	4250	660	2328	335
700	171	2333	355					2000				



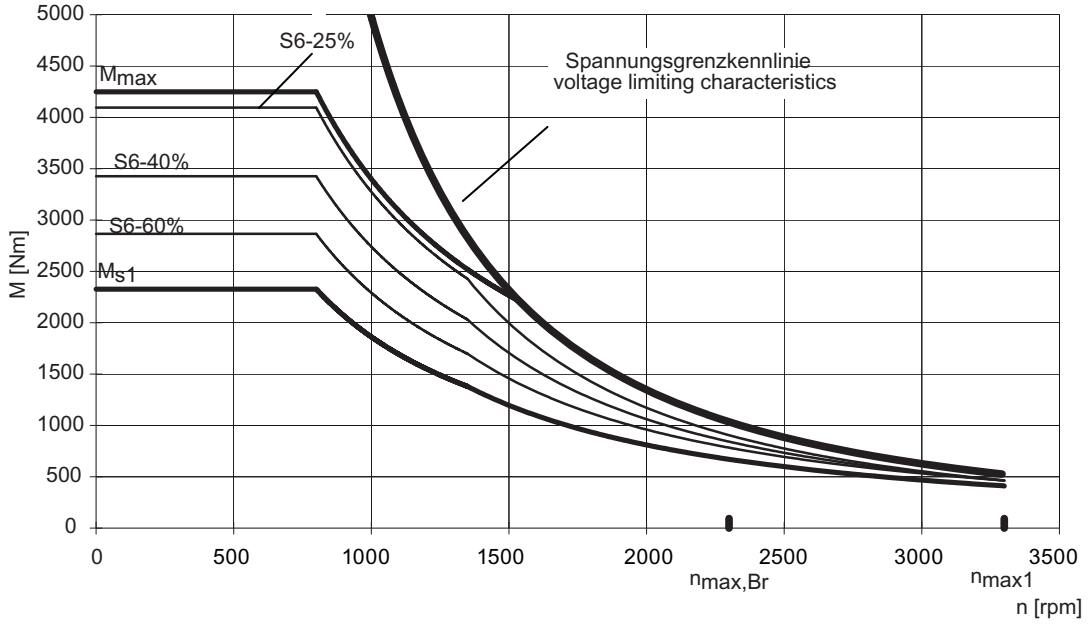
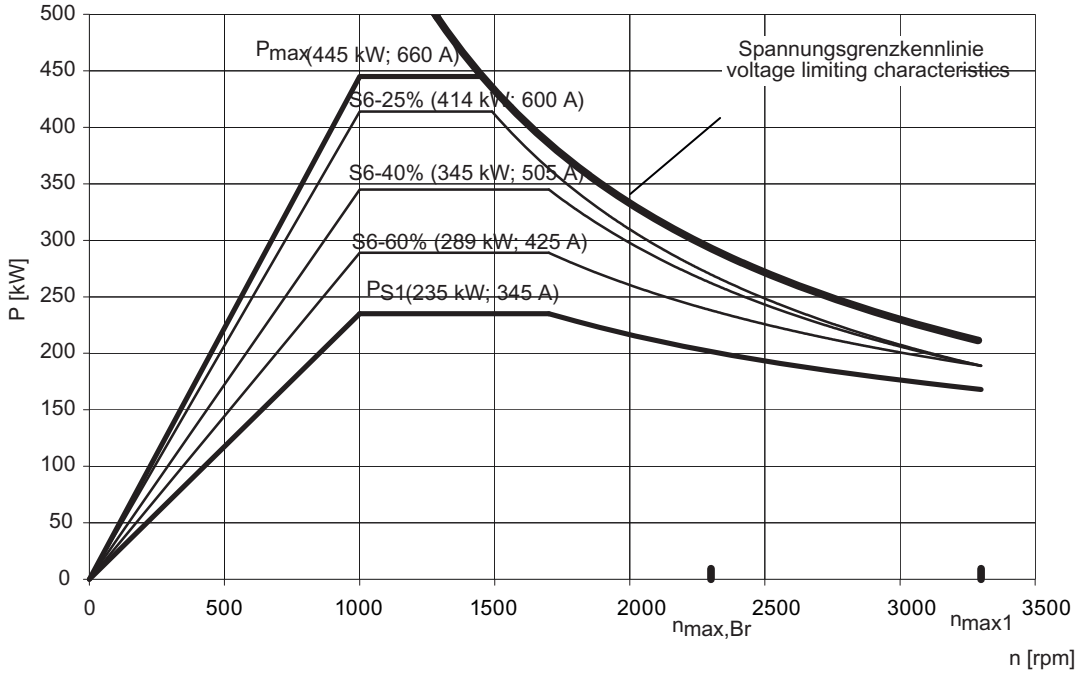


Table 4- 372 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	235	2244	345	3300	-	-	2300	1700	4250	660	2244	345



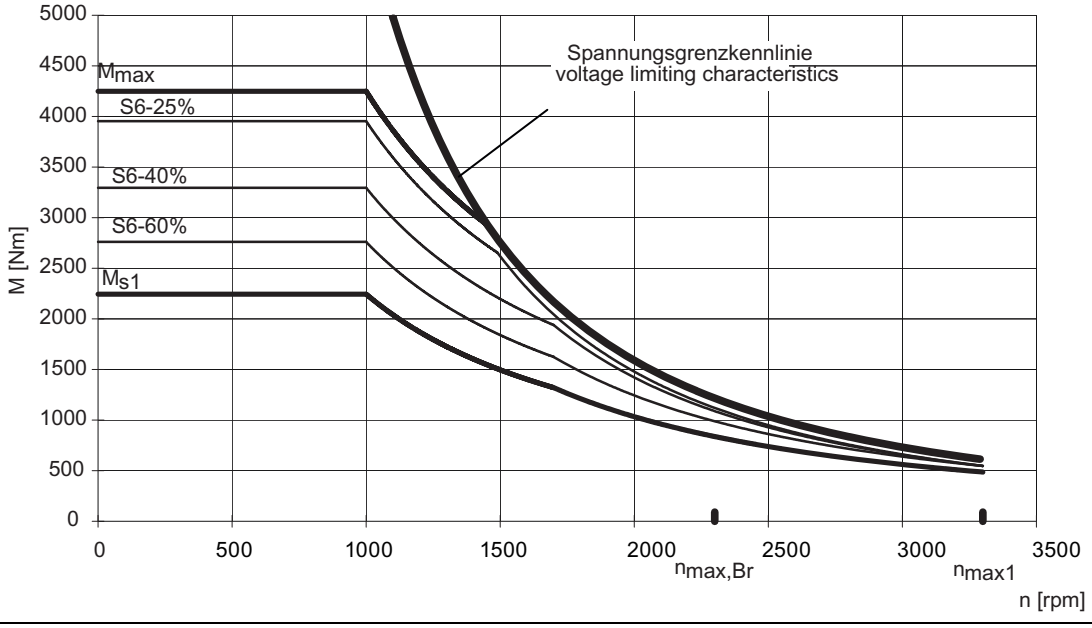
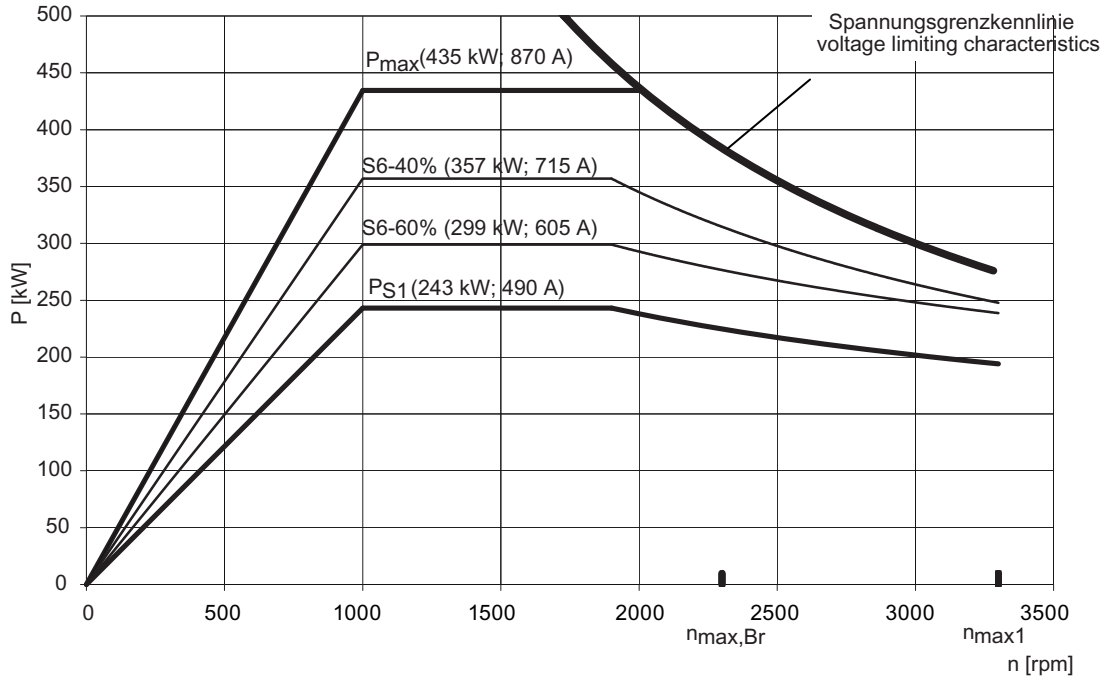


Table 4- 373 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	243	2321	490	3300	-	-	2300	1900	4150	870	2321	490



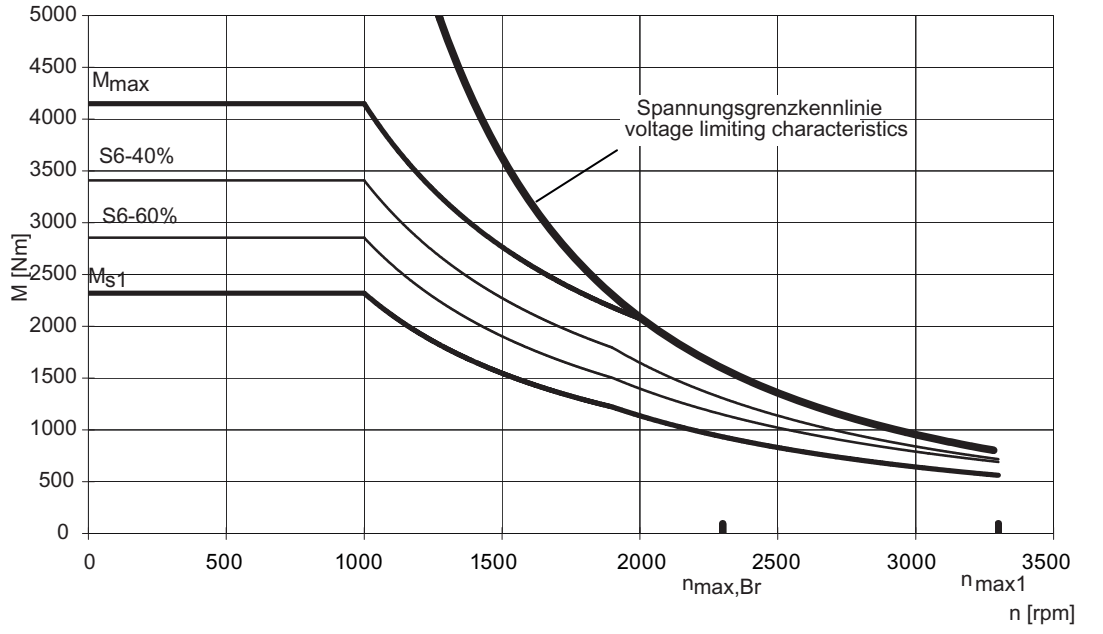
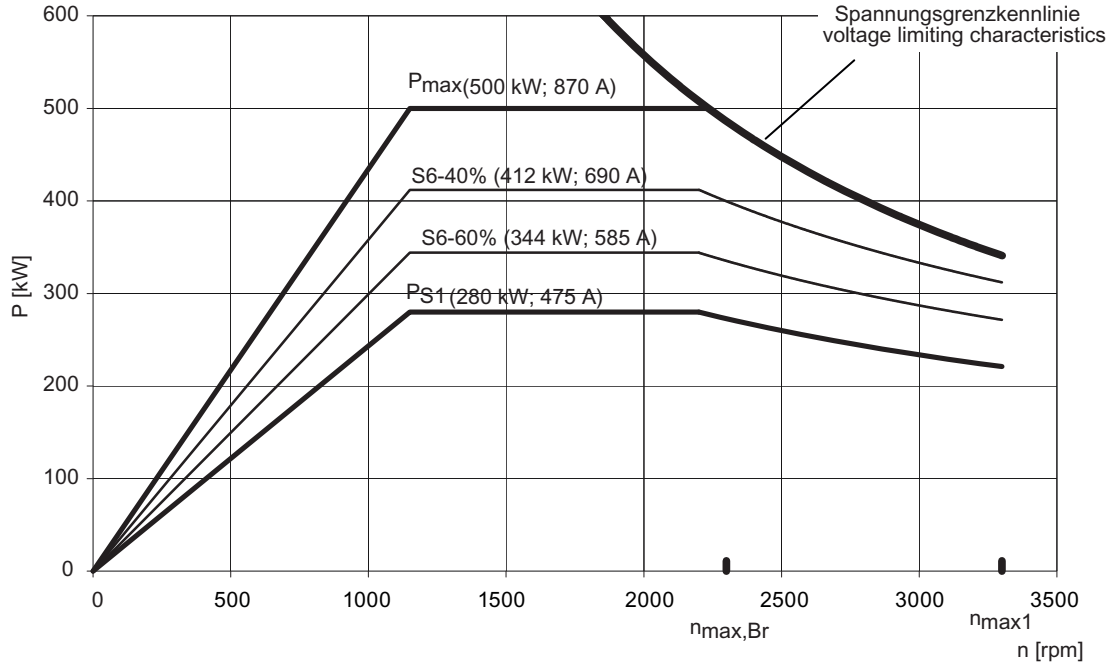


Table 4- 374 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	280	2325	475	3300	-	-	2300	2200	4150	870	2325	475
1000	243	2321	490					2800				



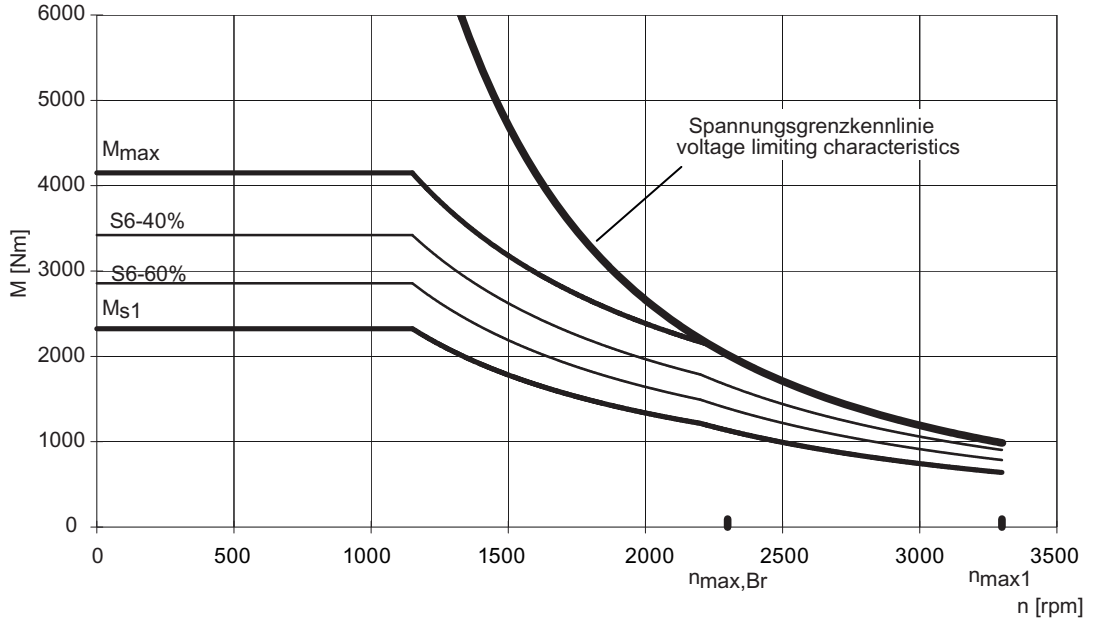
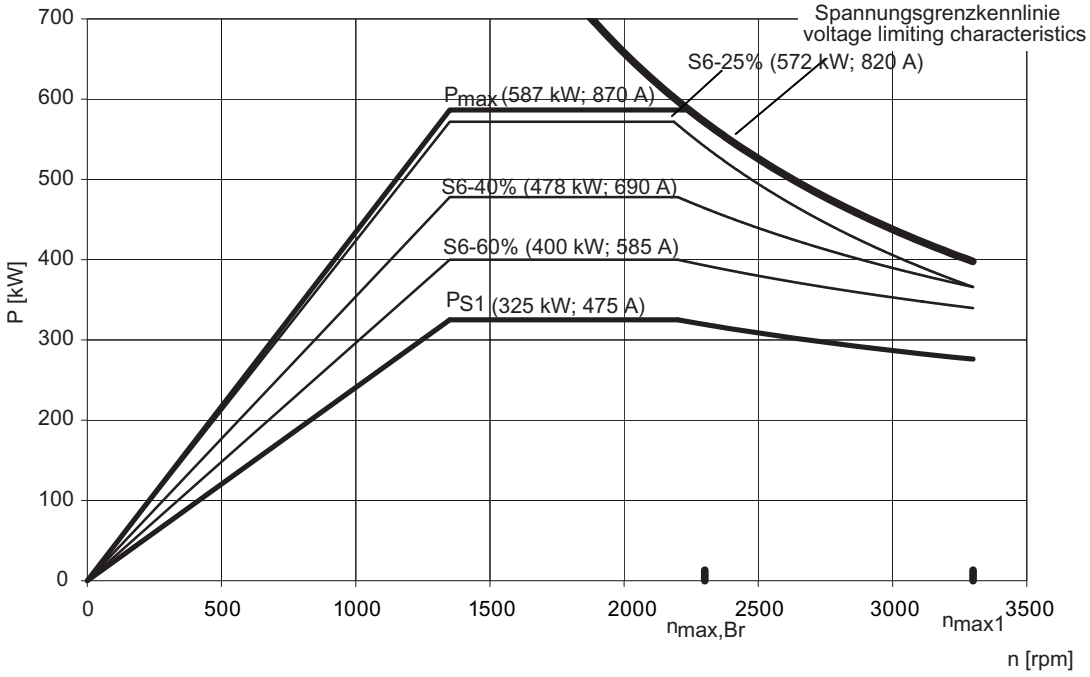


Table 4- 375 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	325	2299	475	3300	-	-	2300	2200	4150	870	2299	475



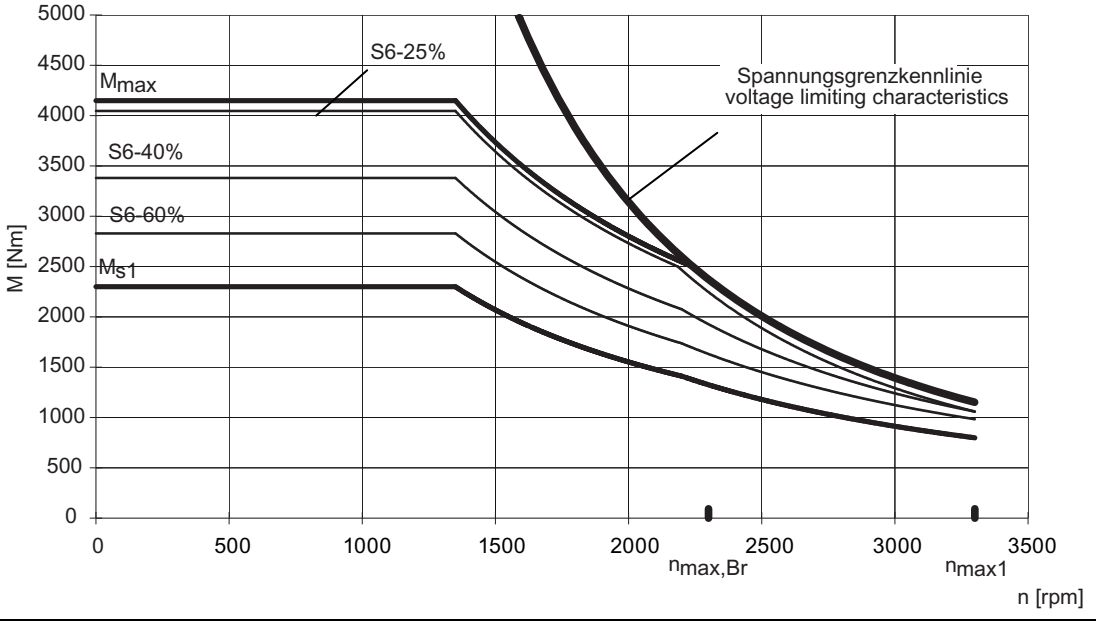
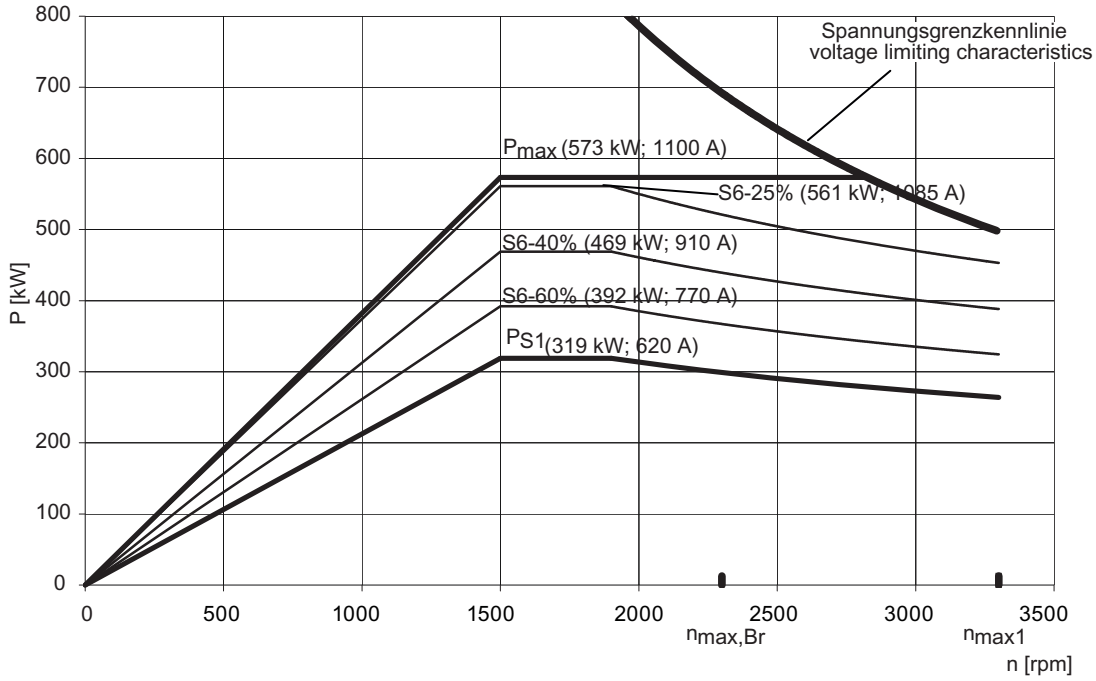


Table 4- 376 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	319	2031	620	3300	-	-	2300	1900	3650	1100	2031	620



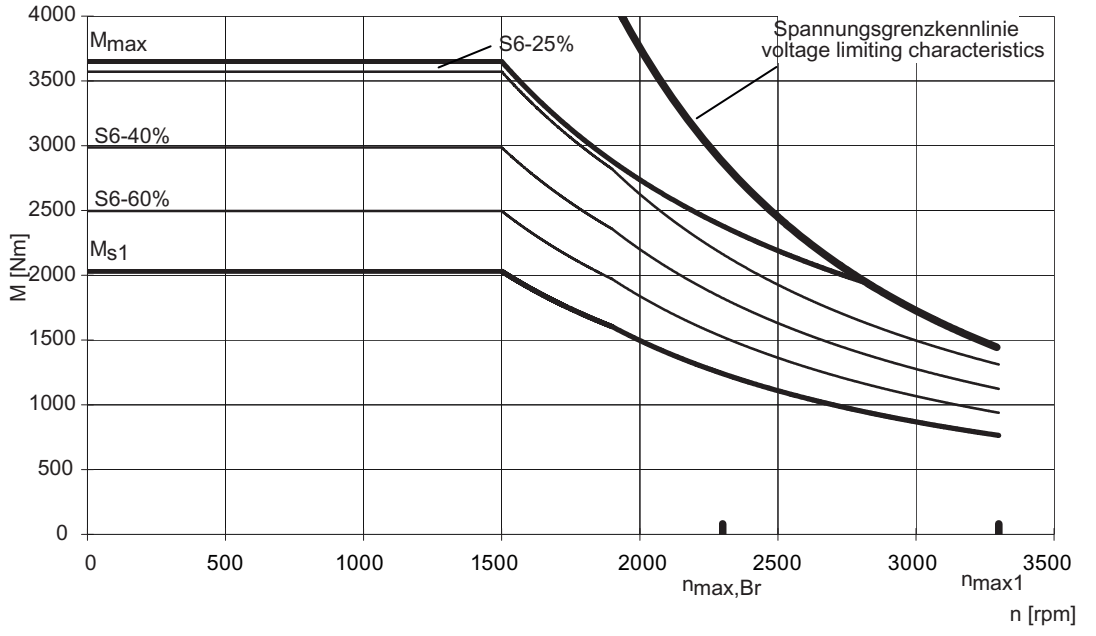
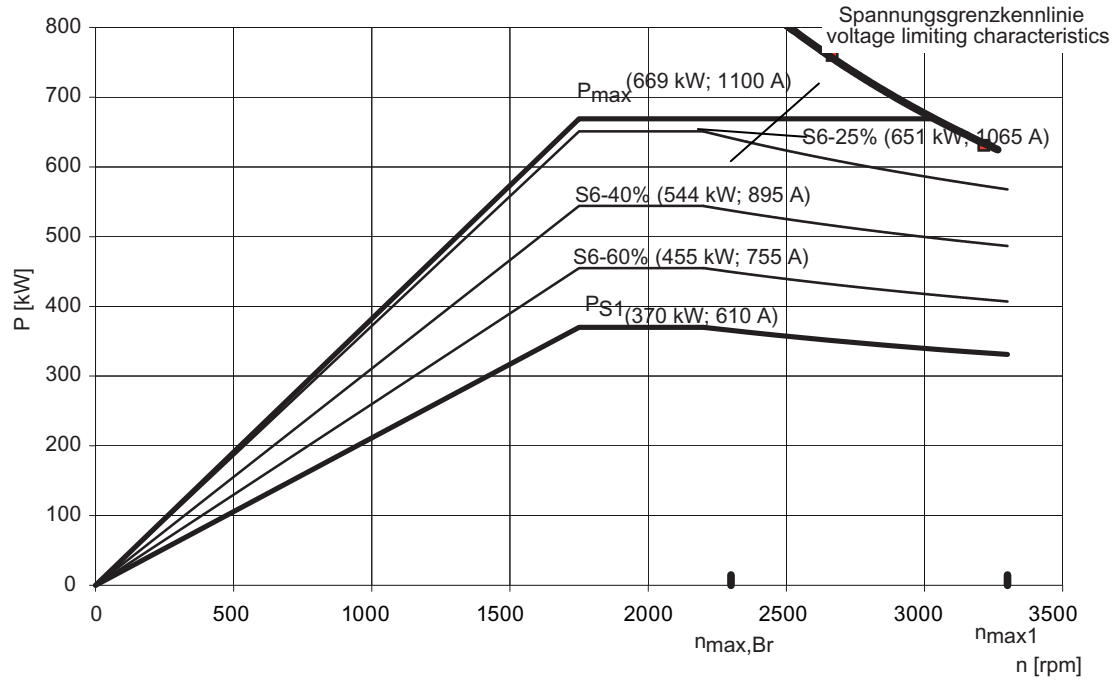


Table 4- 377 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	370	2019	610	3300	-	-	2300	2200	3650	1100	2019	610
1500	319	2031	620					3300				



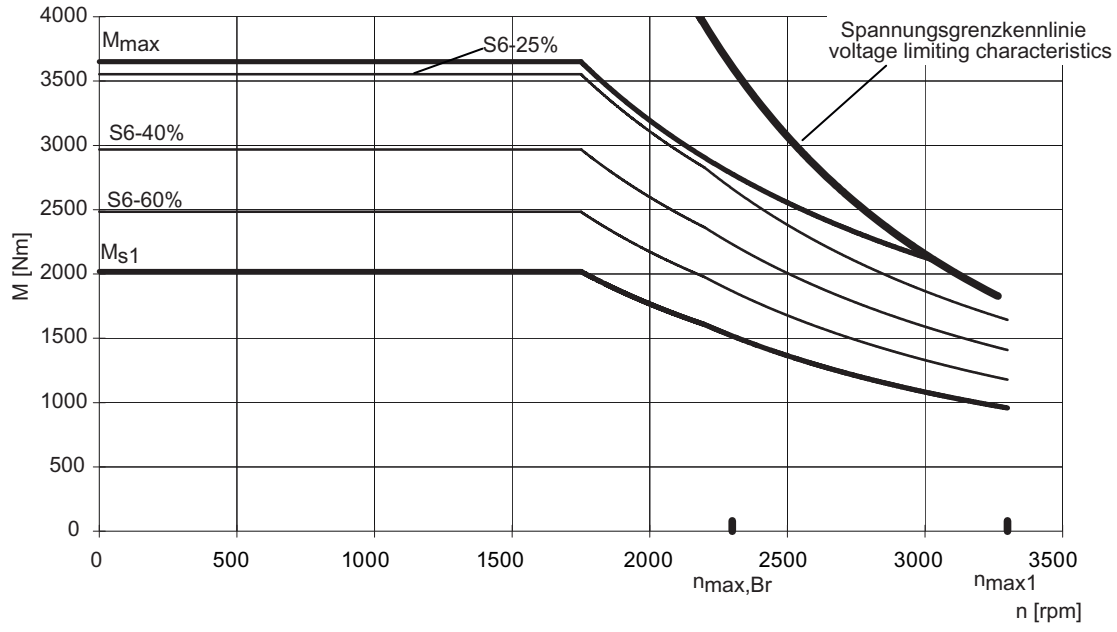
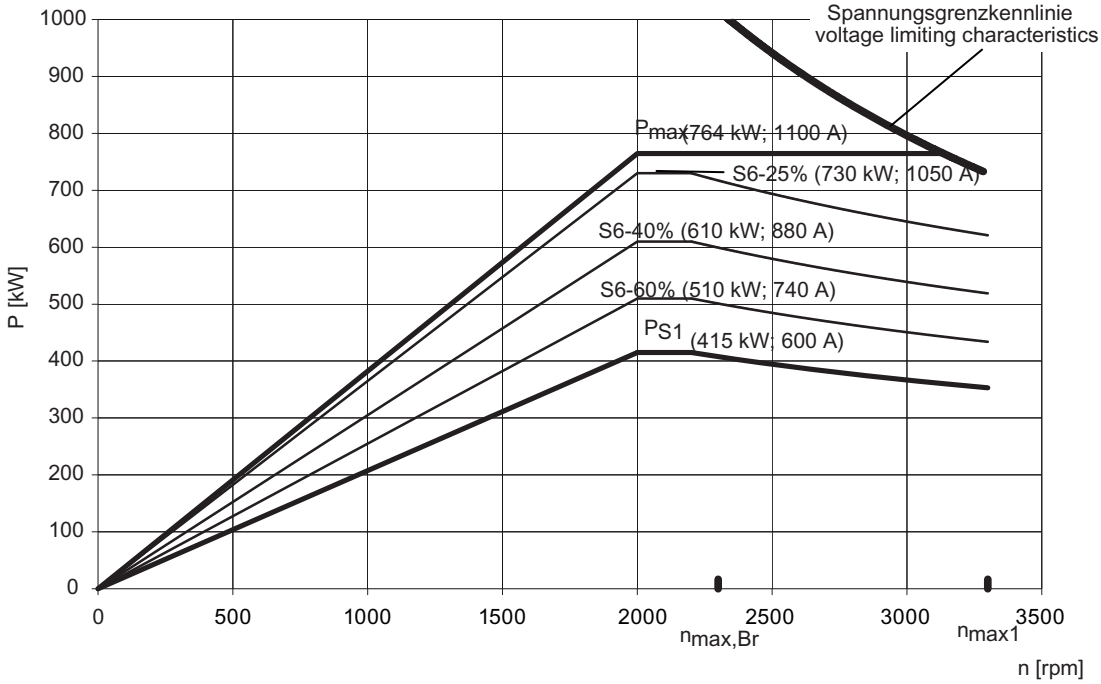


Table 4- 378 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	415	1981	600	3300	-	-	2300	2200	3650	1100	1981	600



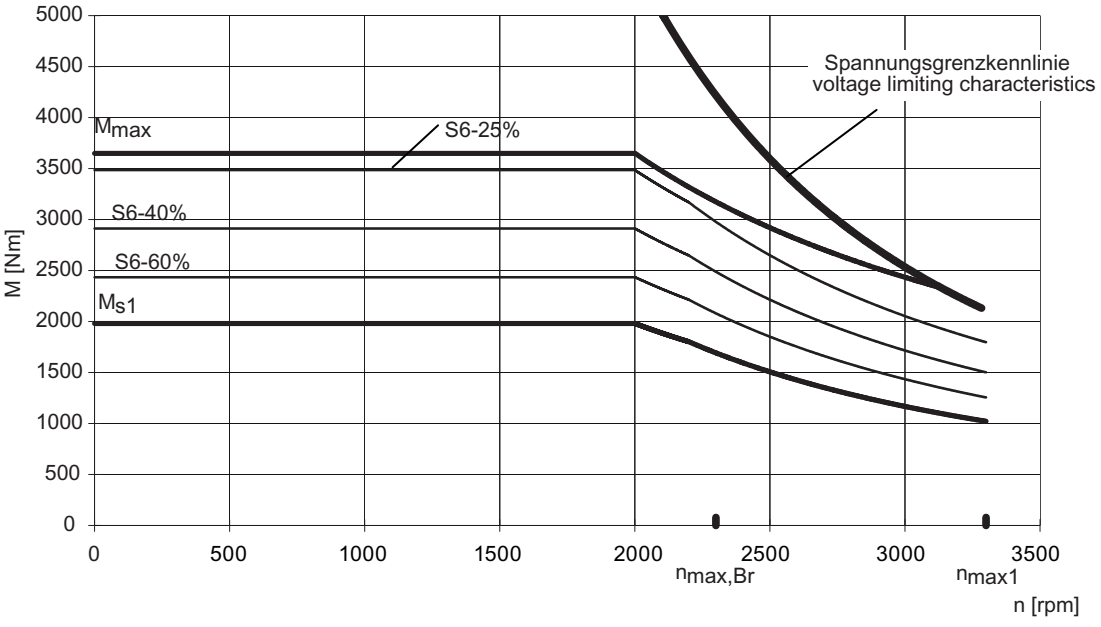
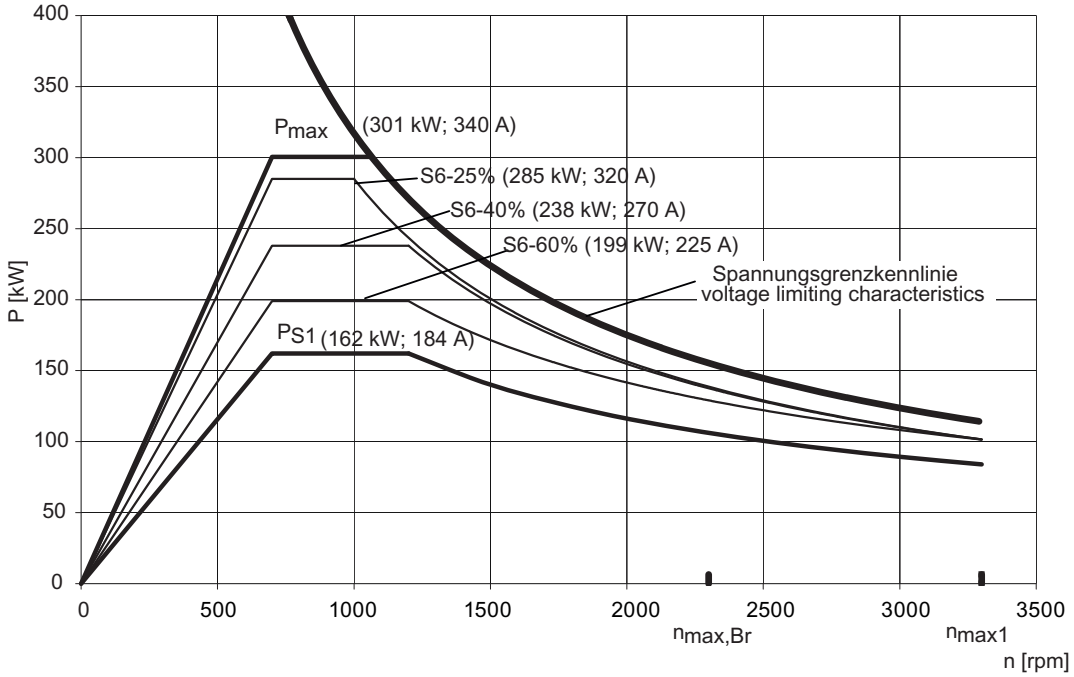


Table 4- 379 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	162	2210	184	3300	-	-	2300	1200	4100	340	2210	184



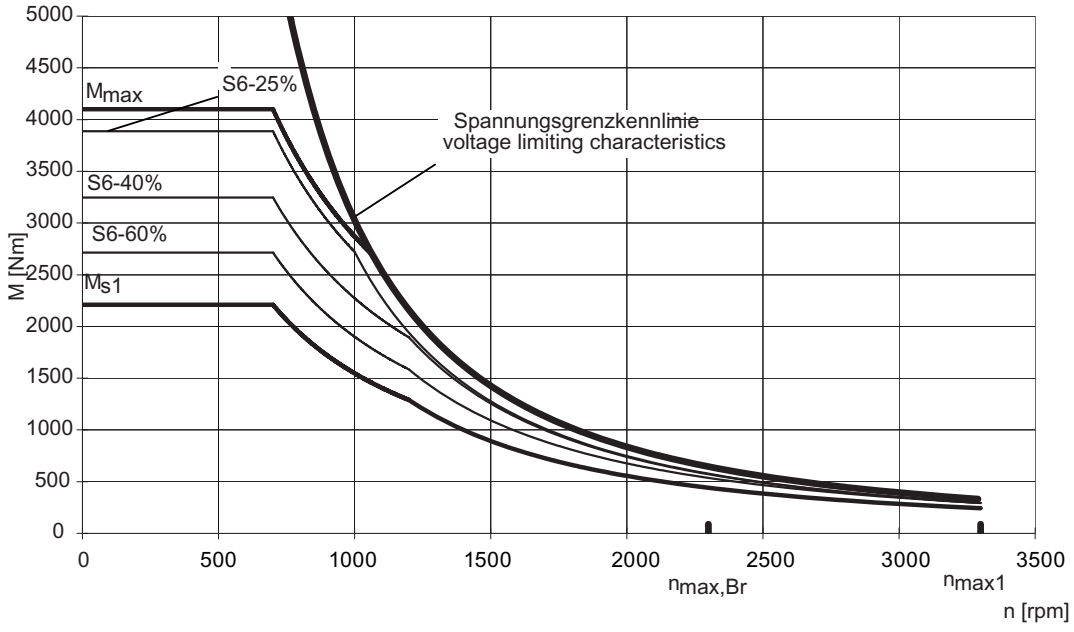
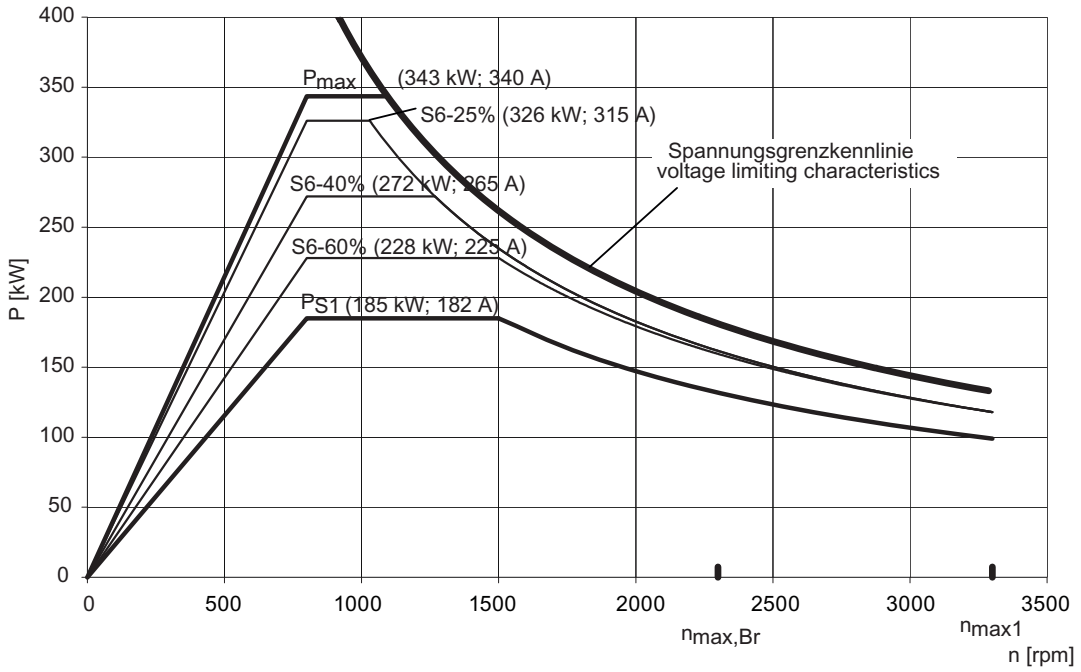


Table 4- 380 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	185	2208	182	3300	-	-	2300	1500	4100	340	2208	182
700	162	2210	184					1800				



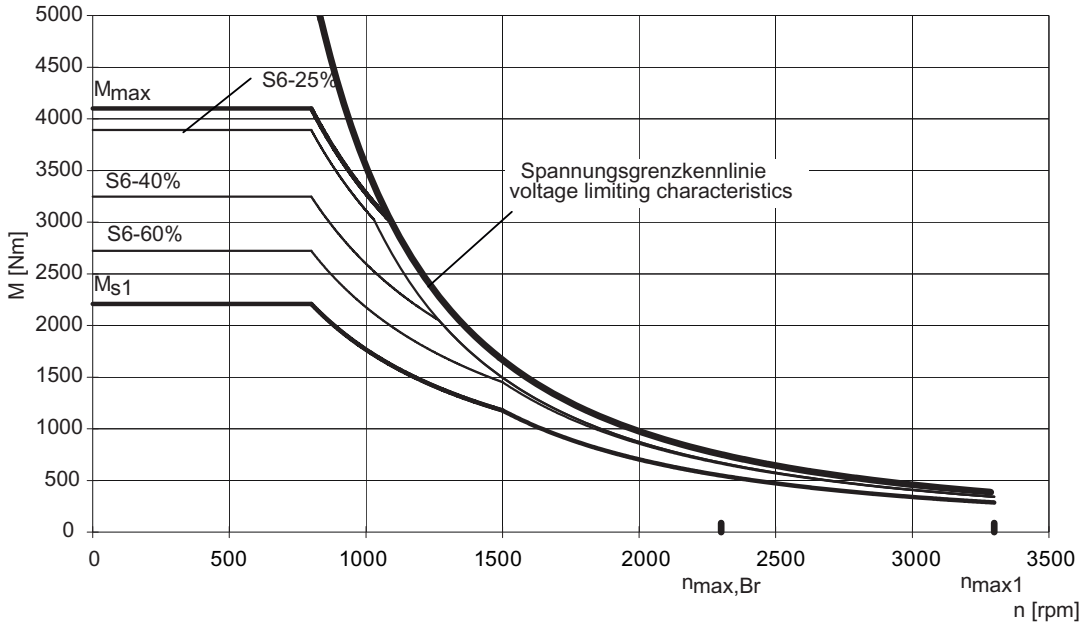
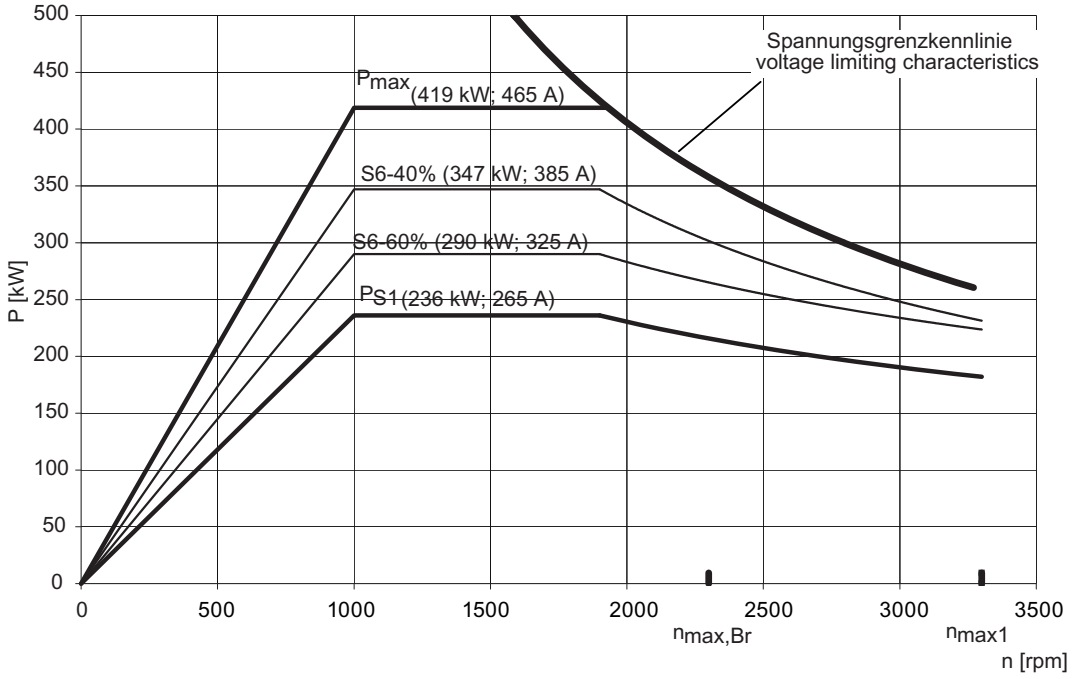


Table 4- 381 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	236	2254	265	3300	-	-	2300	1900	4000	465	2254	265



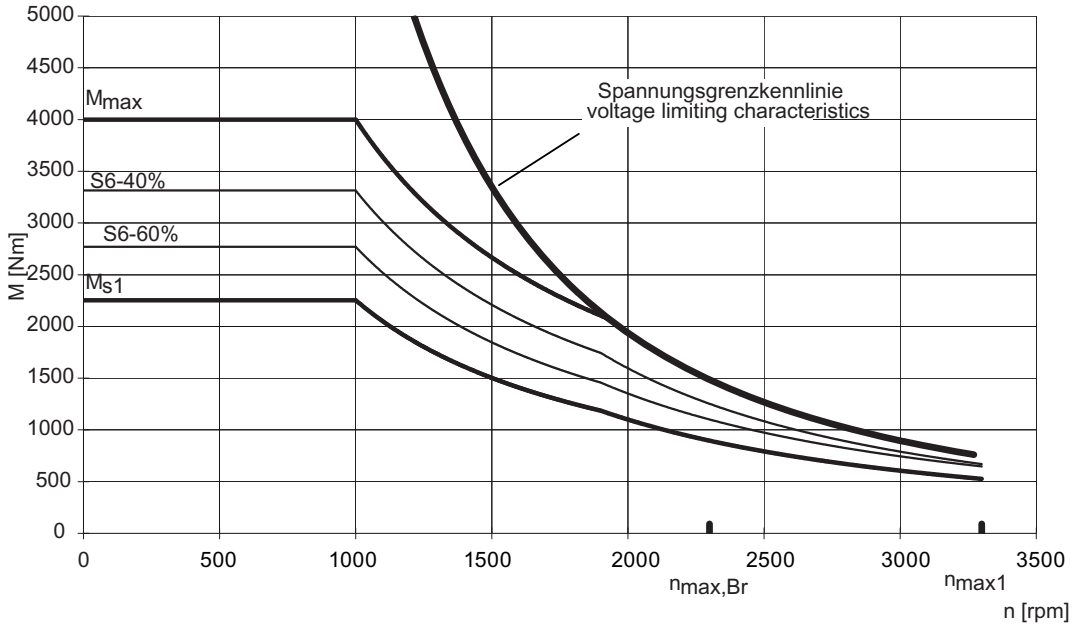
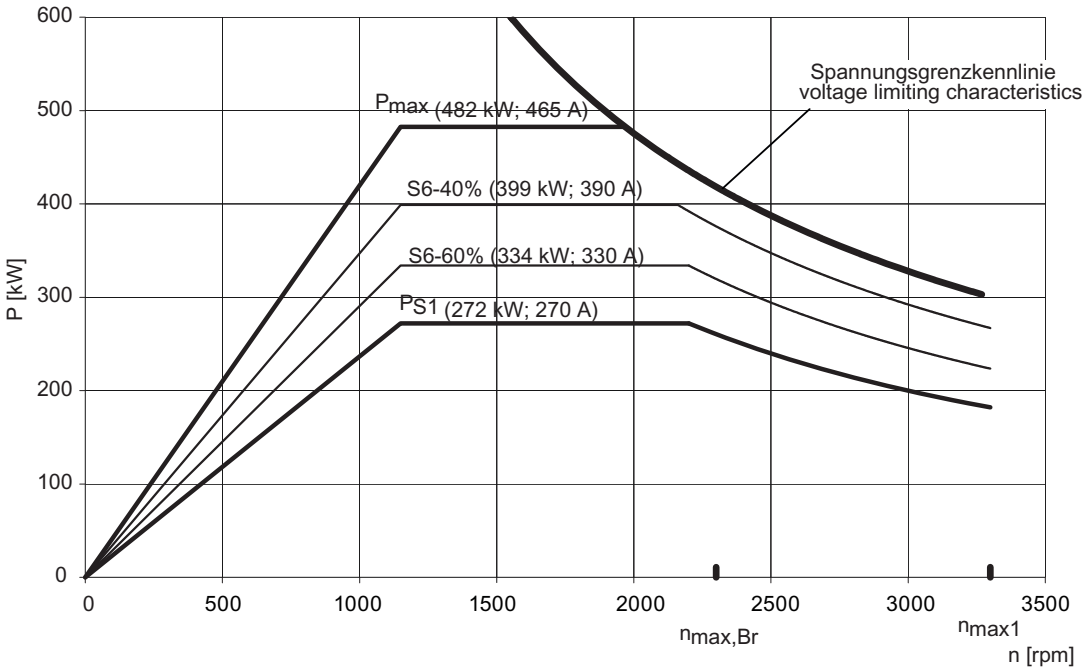


Table 4- 382 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	272	2255	270	3300	-	-	2300	2200	4000	465	2255	270
1000	236	2254	265					2500				



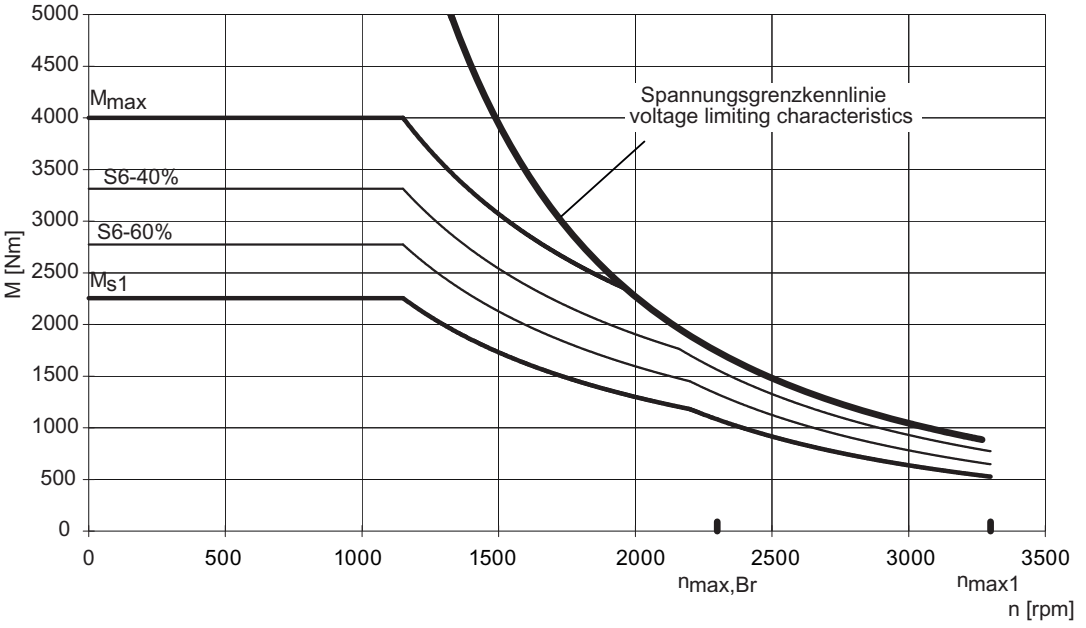
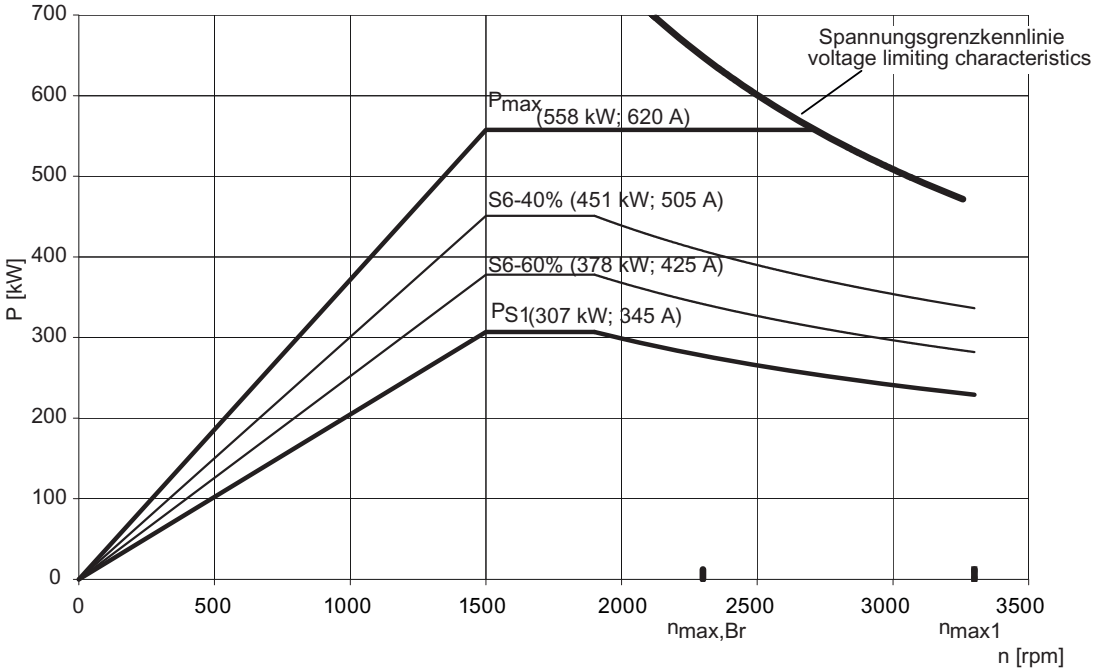


Table 4- 383 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	307	1955	345	3300	-	-	2300	1900	3550	620	1955	345



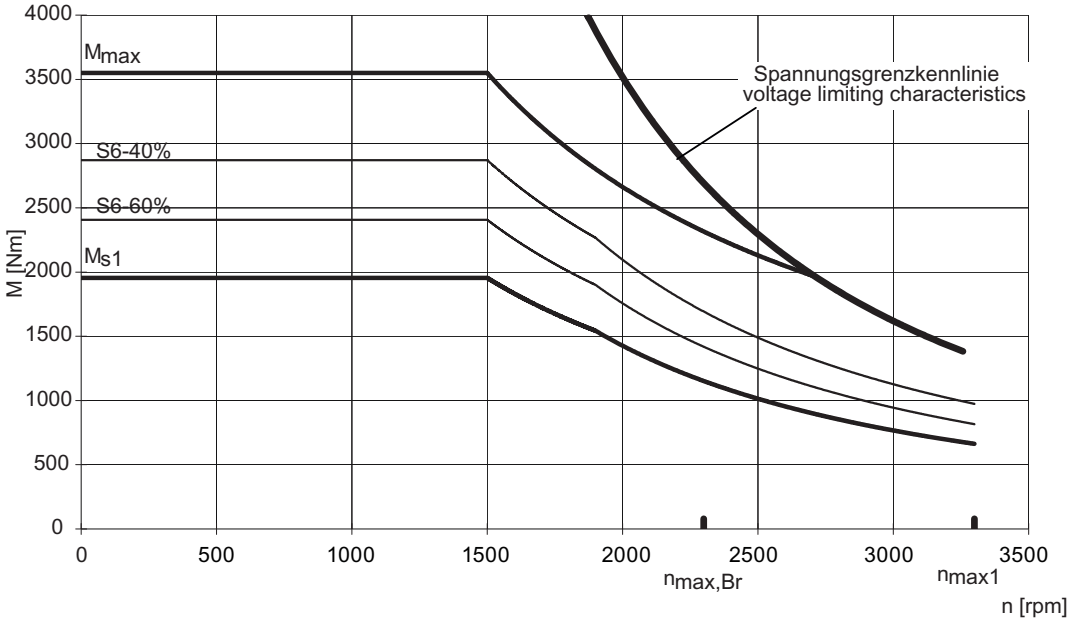
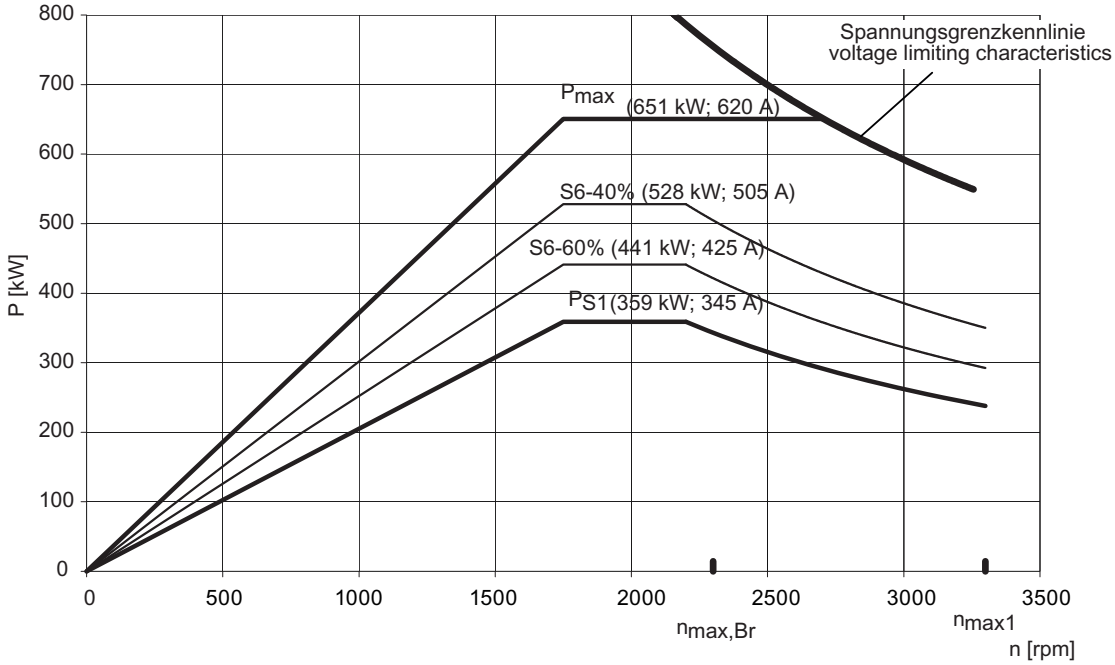


Table 4- 384 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	359	1959	345	3300	-	-	2300	2200	3550	620	1959	345
1500	307	1955	345					2600				



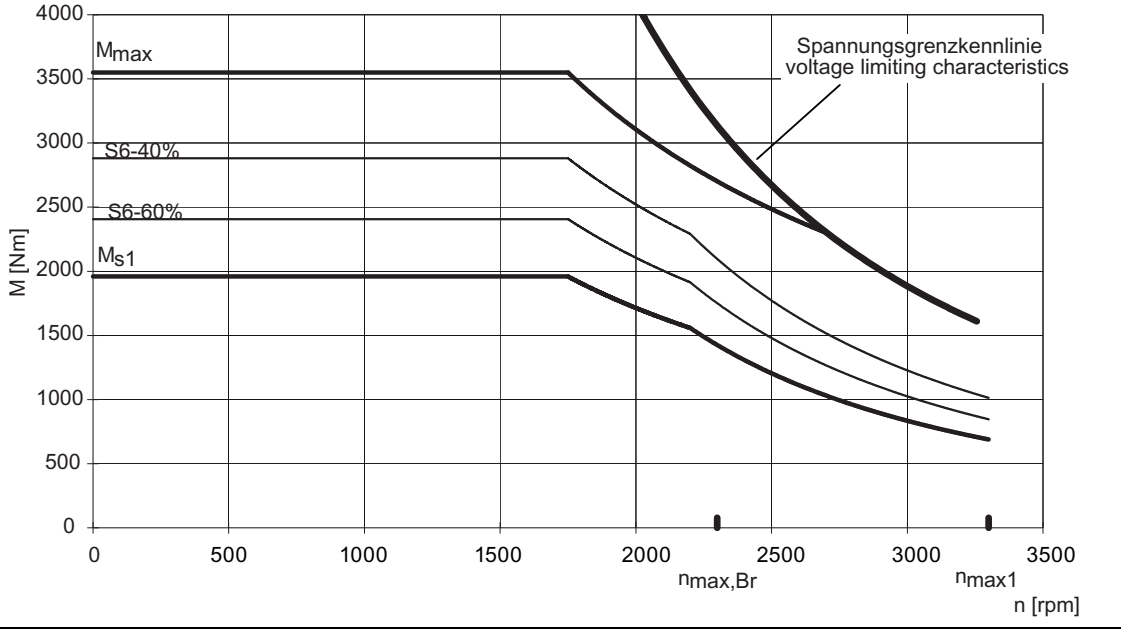
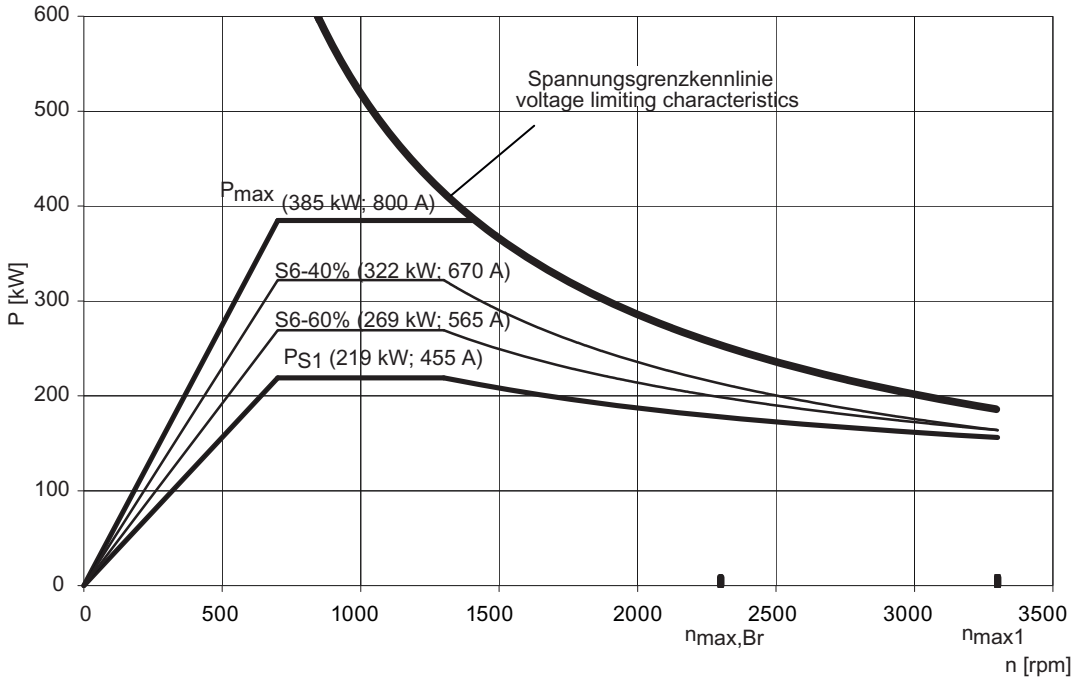


Table 4- 385 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	219	2988	455	3300	-	-	2300	1300	5250	800	2988	455



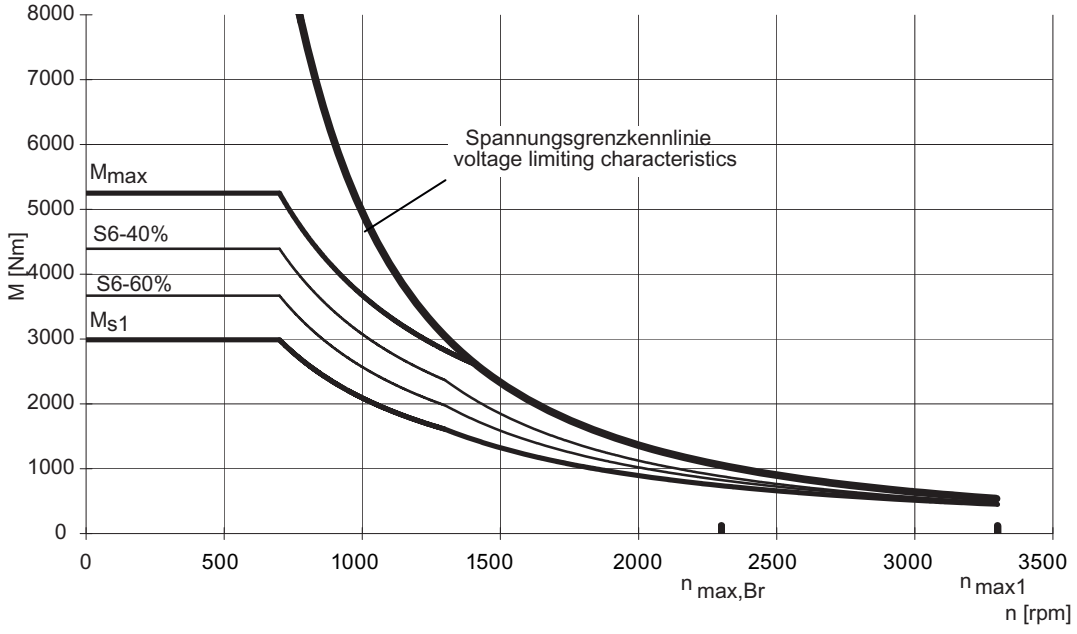
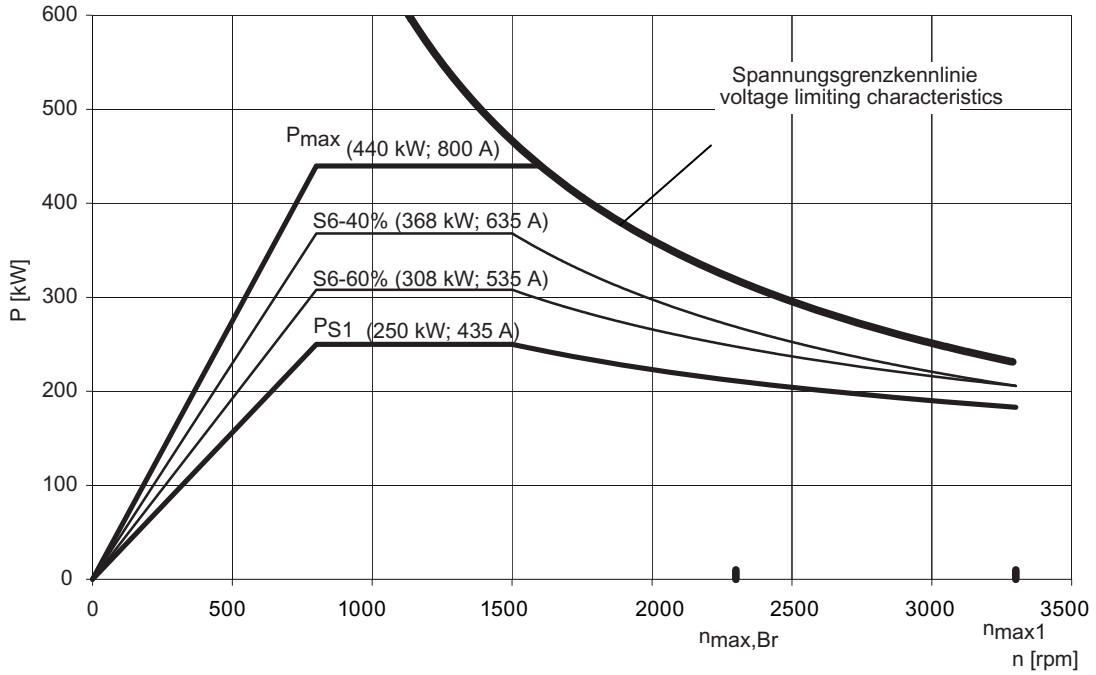


Table 4- 386 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	250	2984	435	3300	-	-	2300	1500	5250	800	2984	435
700	219	2988	455					2100				



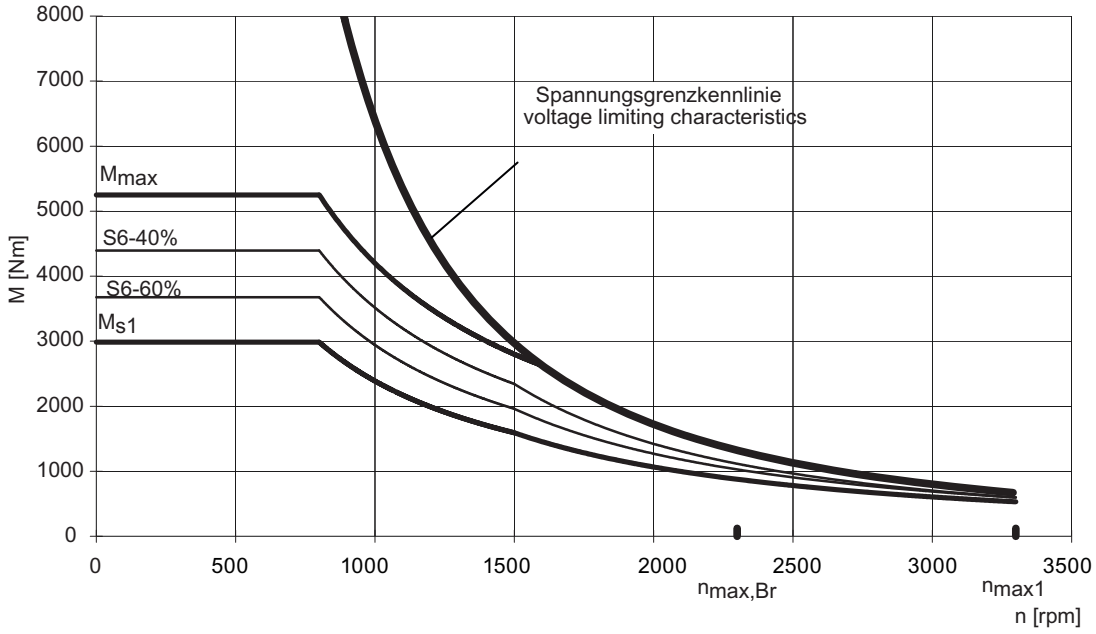
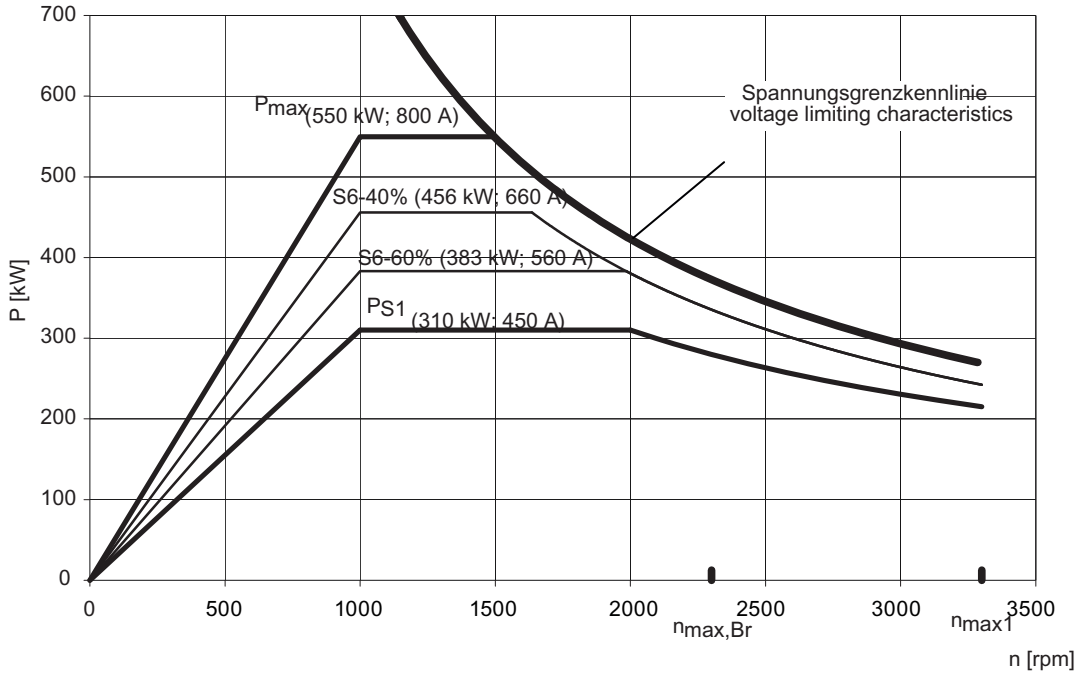


Table 4- 387 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	310	2961	450	3300	-	-	2300	2000	5250	800	2961	450



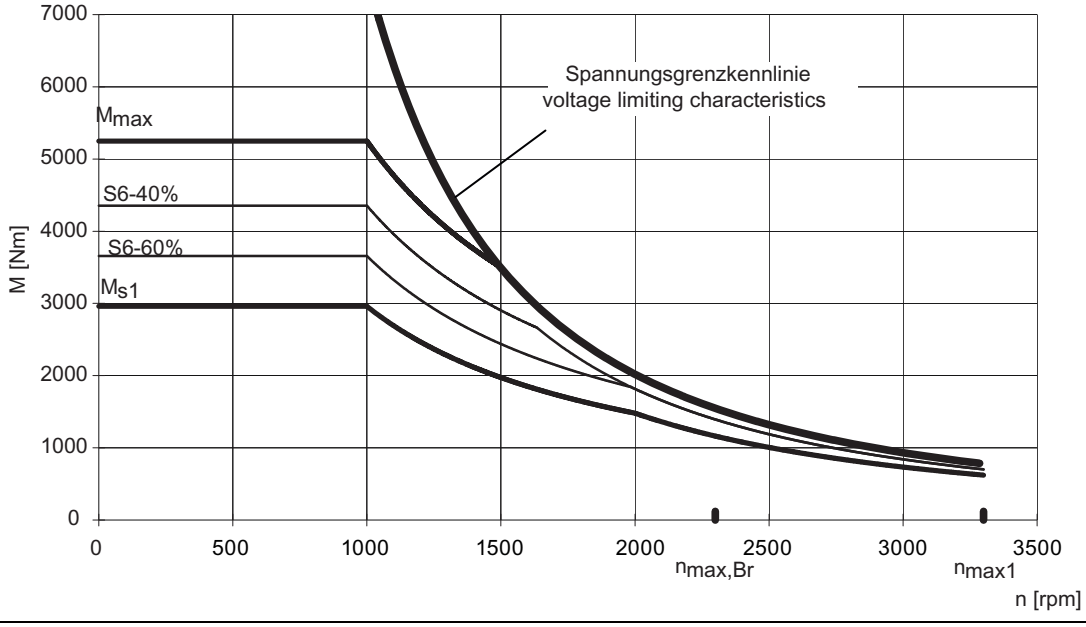
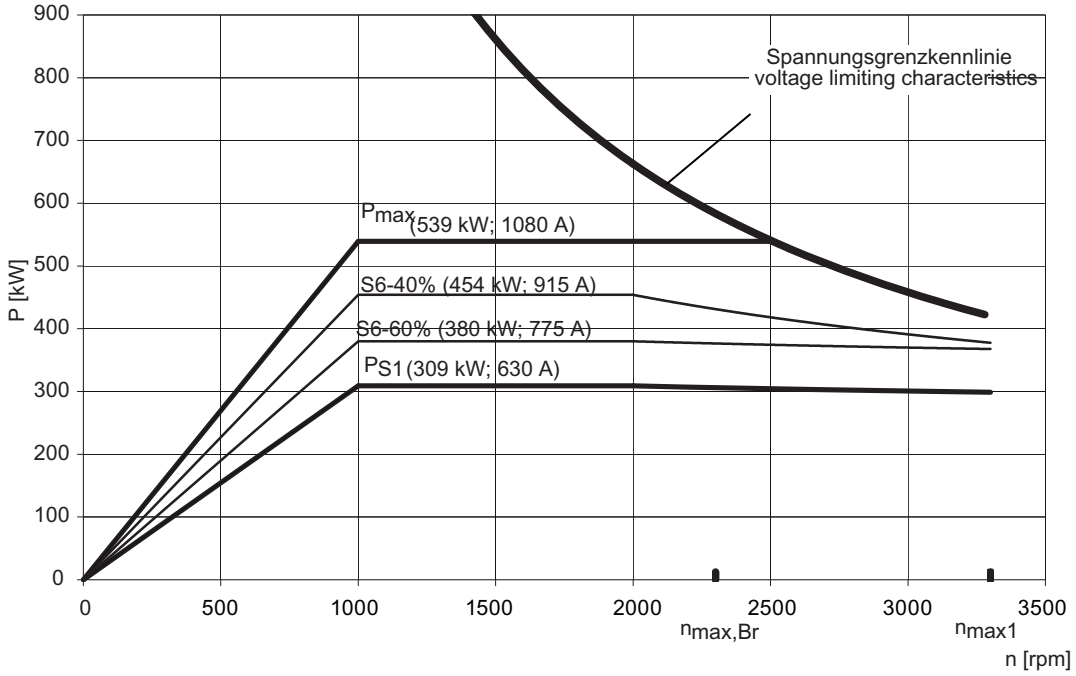


Table 4- 388 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	309	2951	630	3300	-	-	2300	2000	5150	1080	2951	630



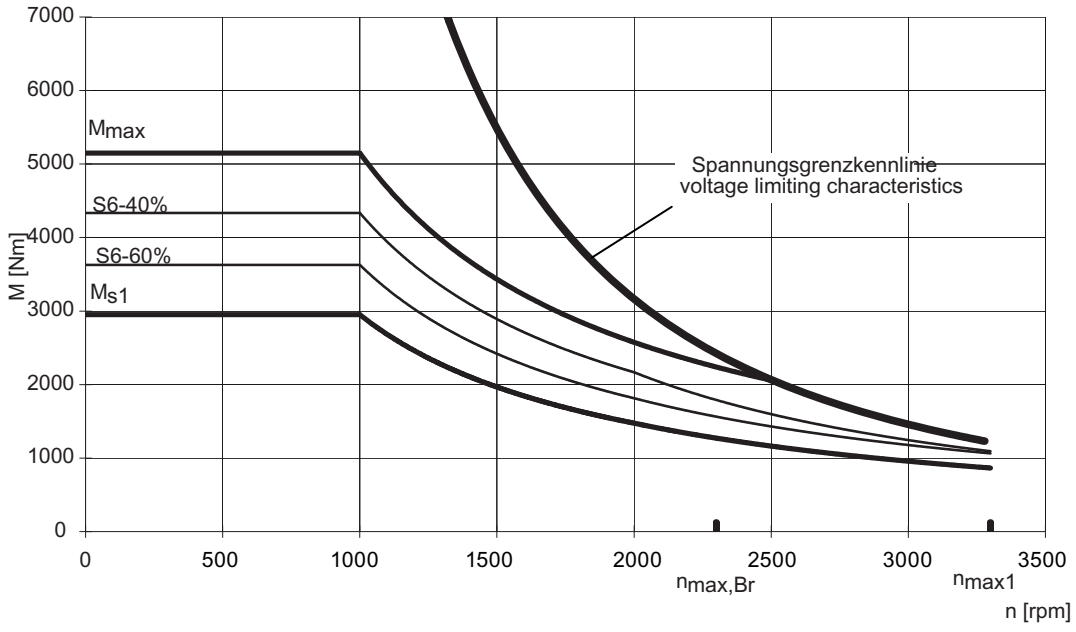
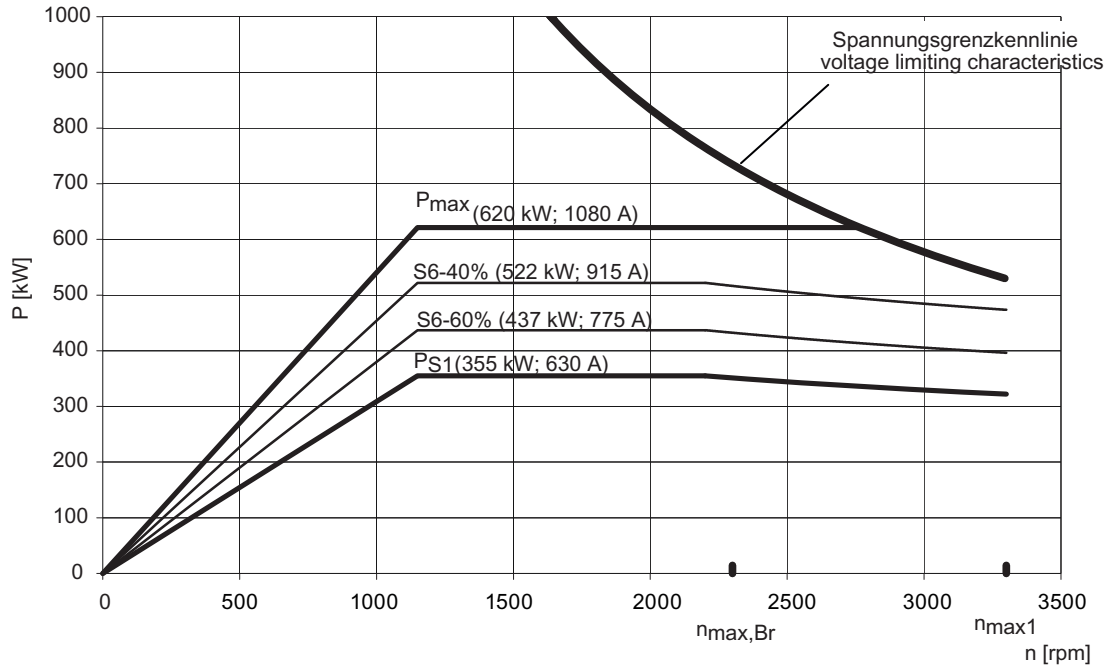


Table 4- 389 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	355	2944	630	3300	-	-	2300	2200	5150	1080	2944	630
1000	309	2951	630					3300				



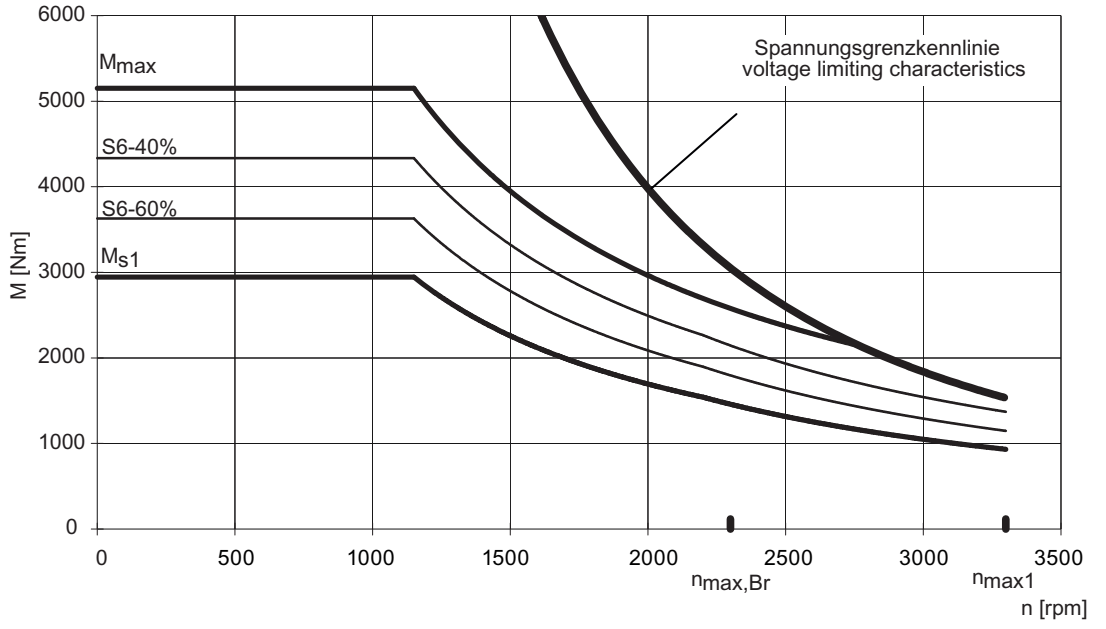
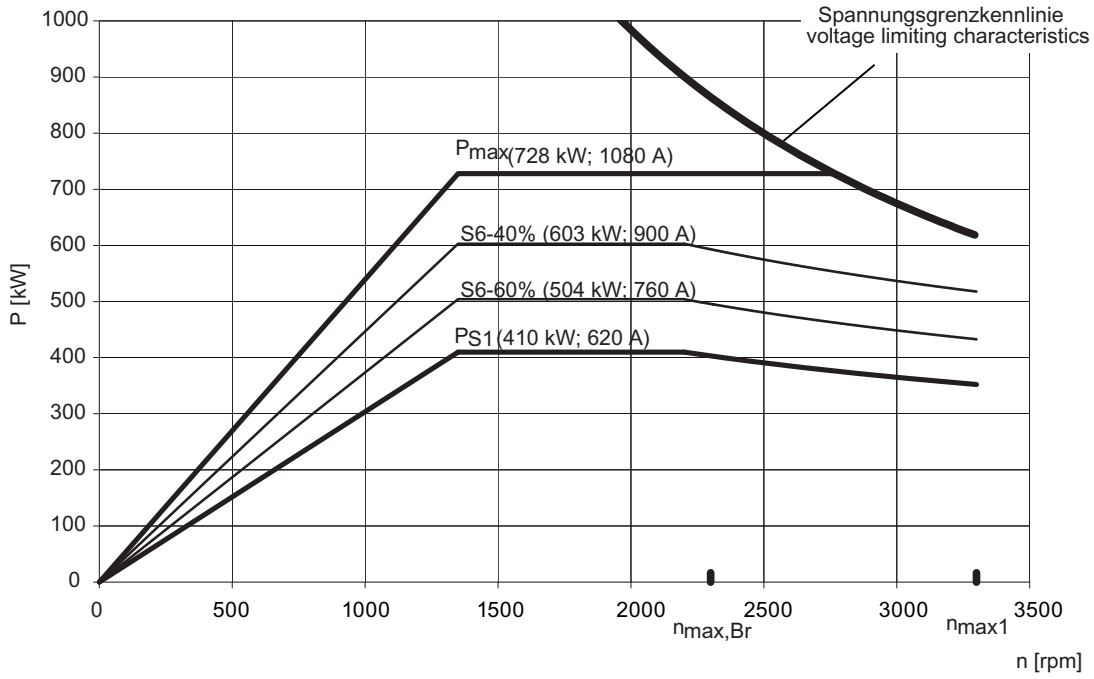


Table 4- 390 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	410	2901	620	3300	-	-	2300	2200	5150	1080	2901	620



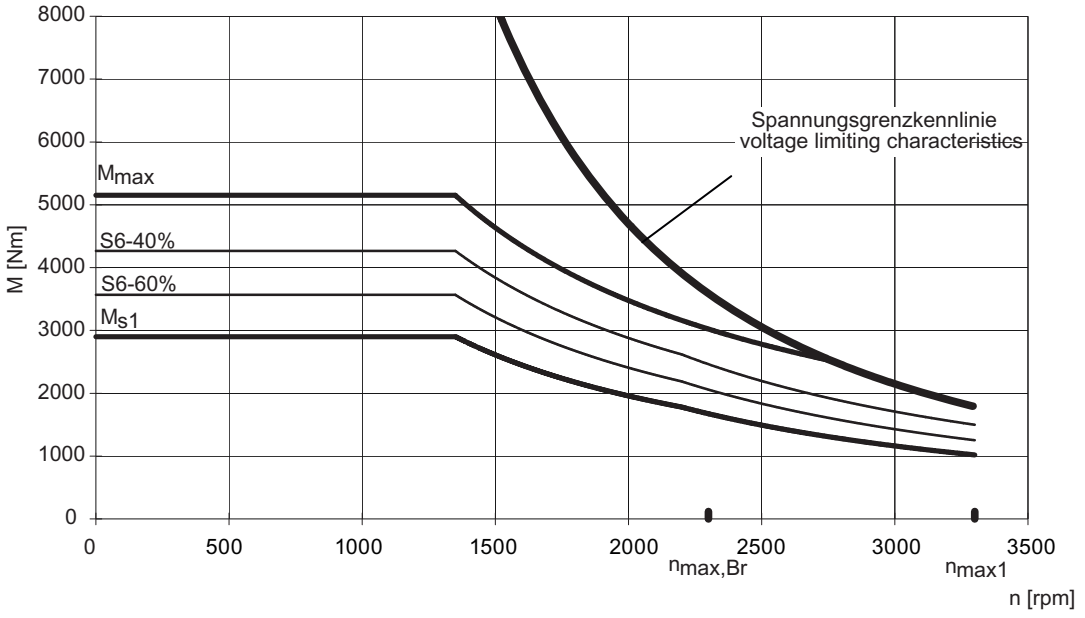
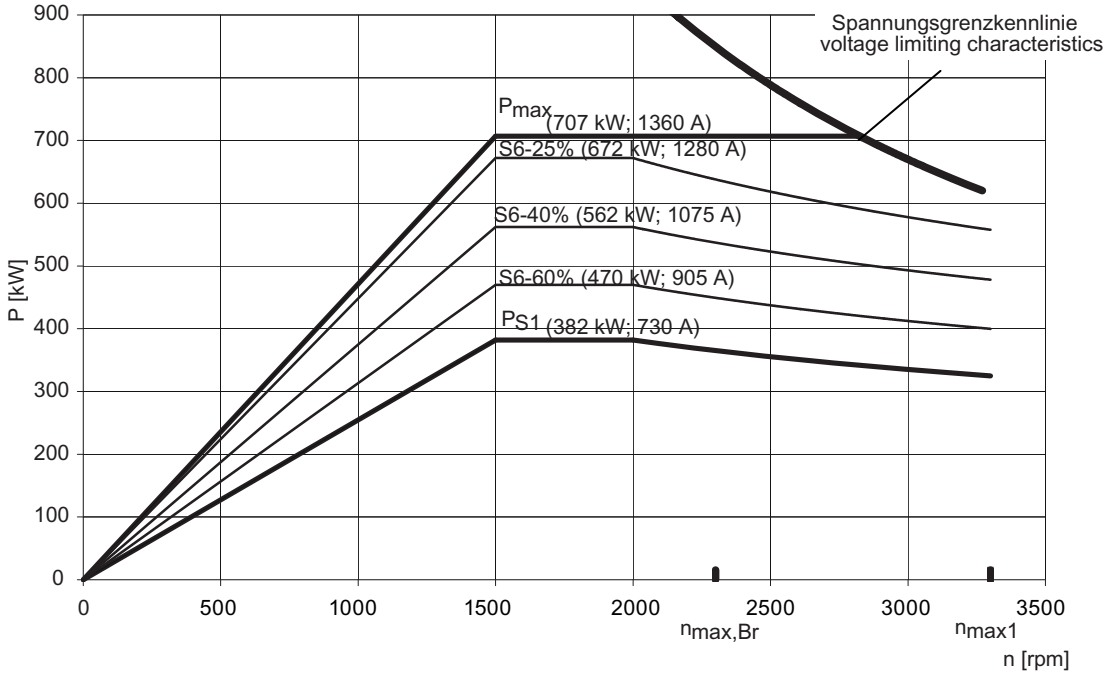


Table 4- 391 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	382	2432	730	3300	-	-	2300	2000	4500	1360	2432	730



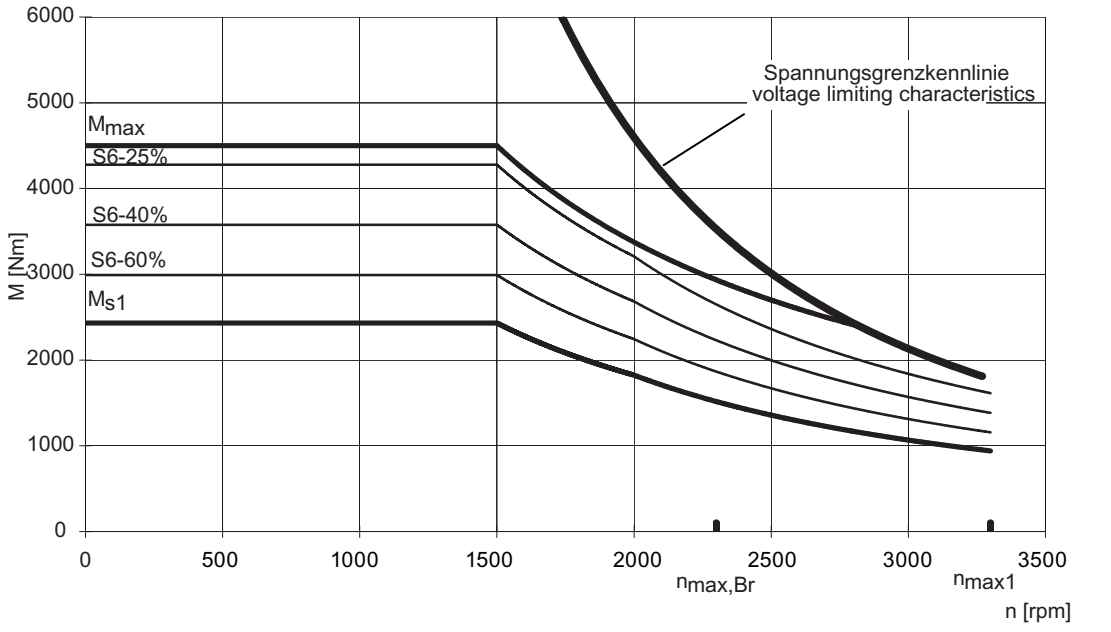
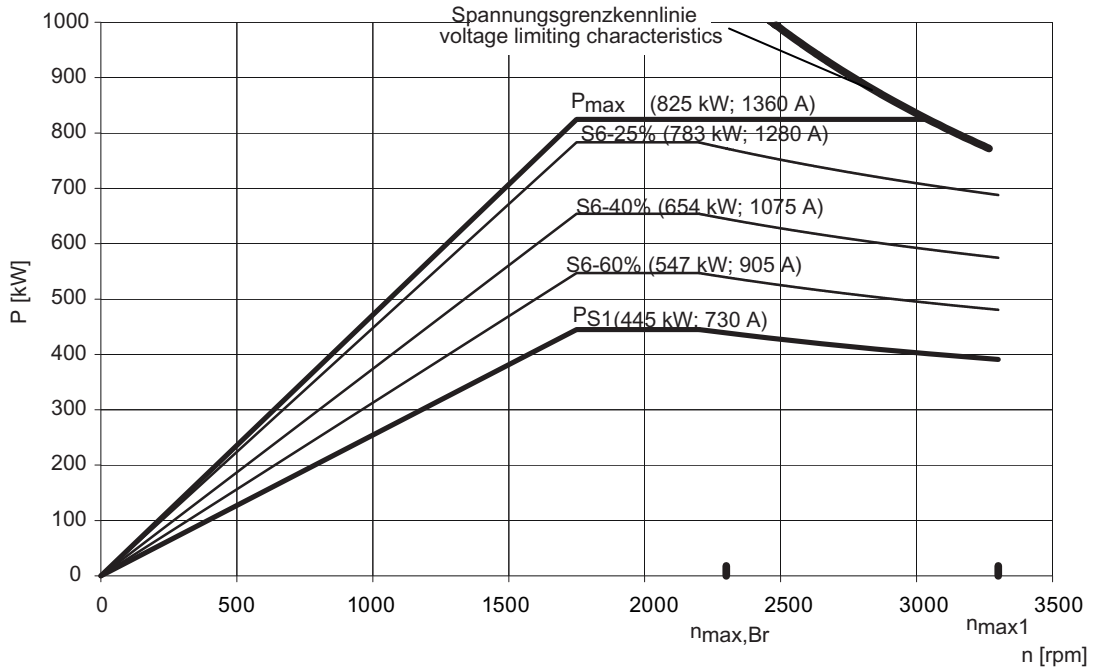


Table 4- 392 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	445	2429	730	3300	-	-	2300	2200	4500	1360	2429	730
1500	382	2432	730					3300				



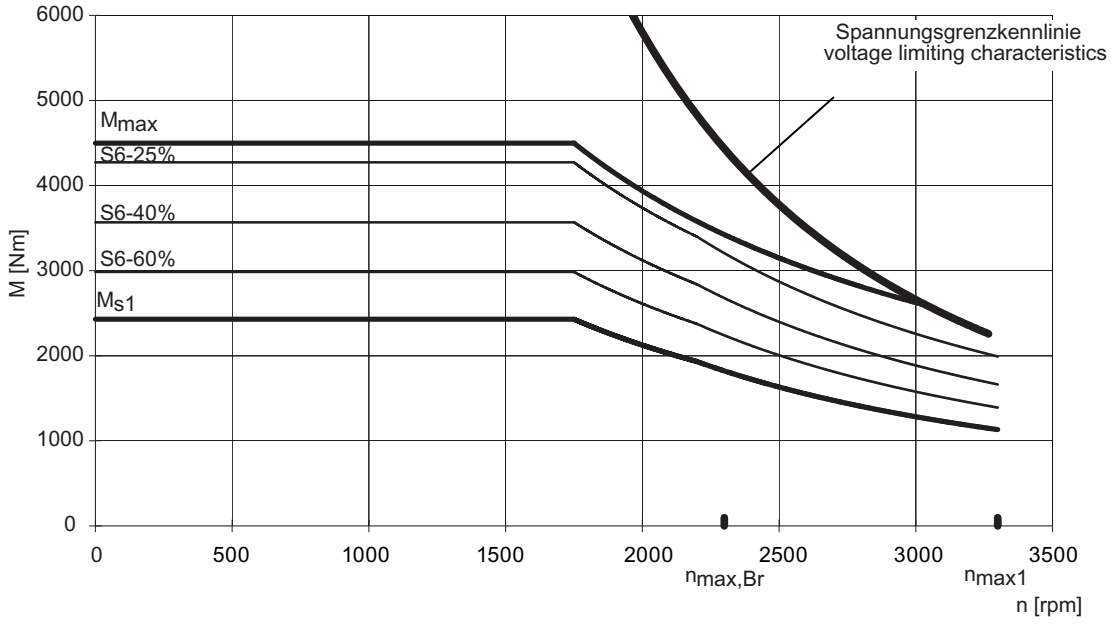
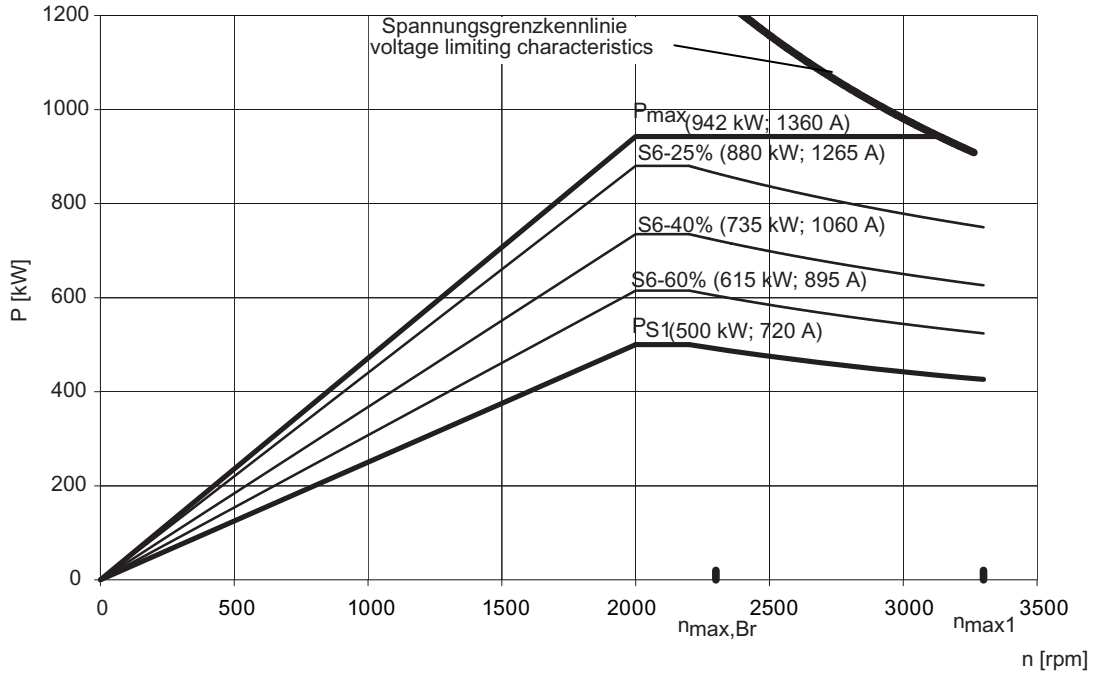


Table 4- 393 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	500	2387	720	3300	-	-	2300	2200	4500	1360	2387	720



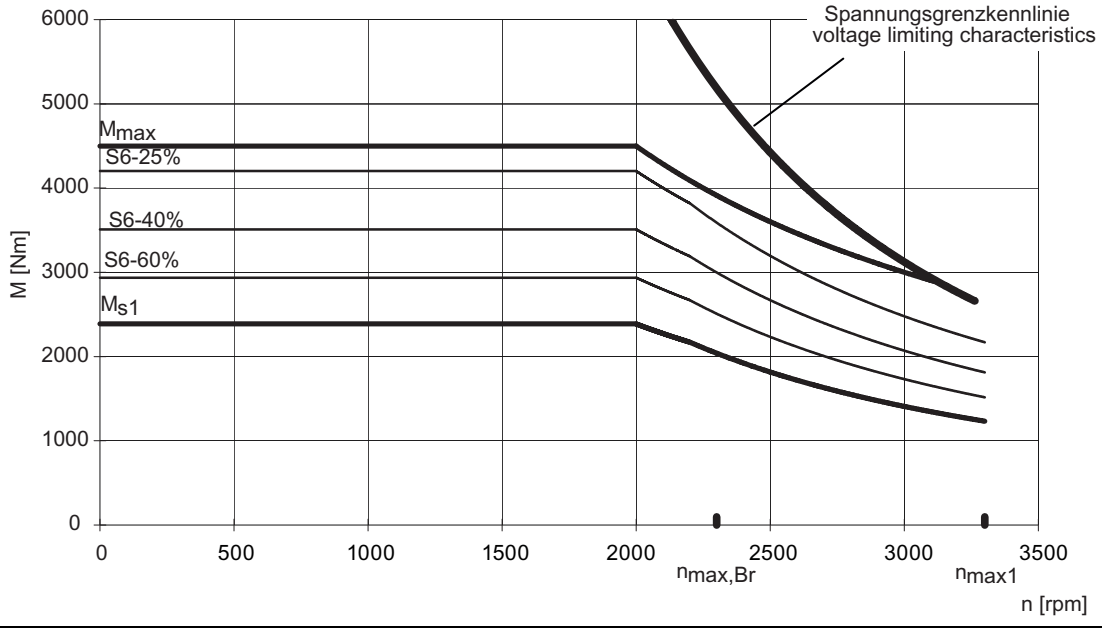
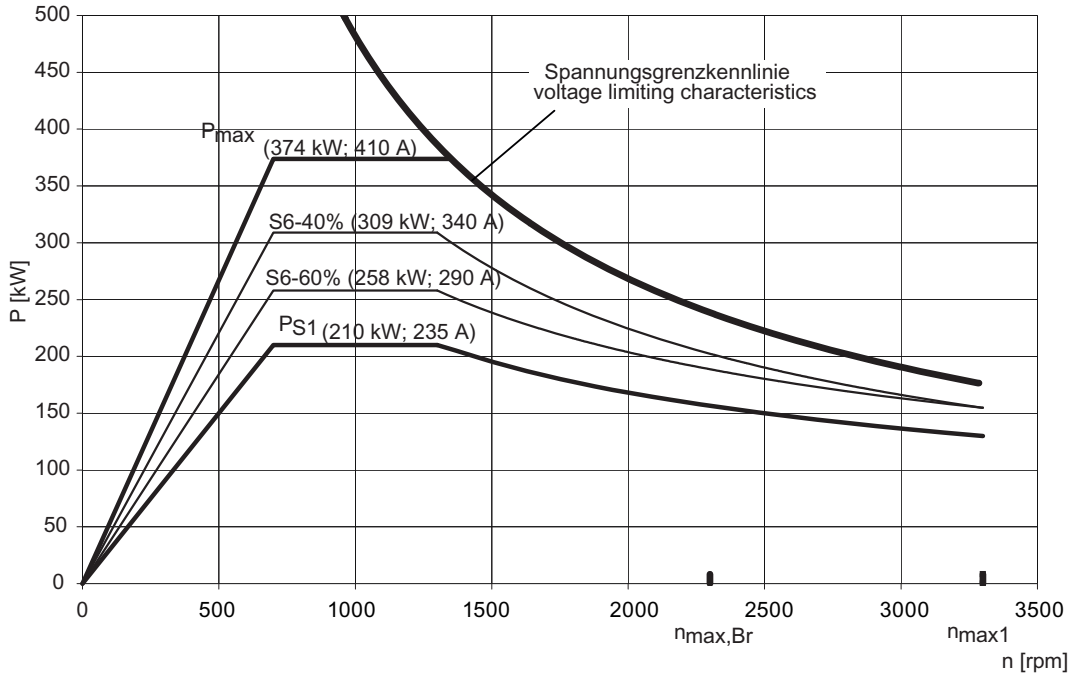


Table 4- 394 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	210	2865	235	3300	-	-	2300	1300	5100	410	2865	235



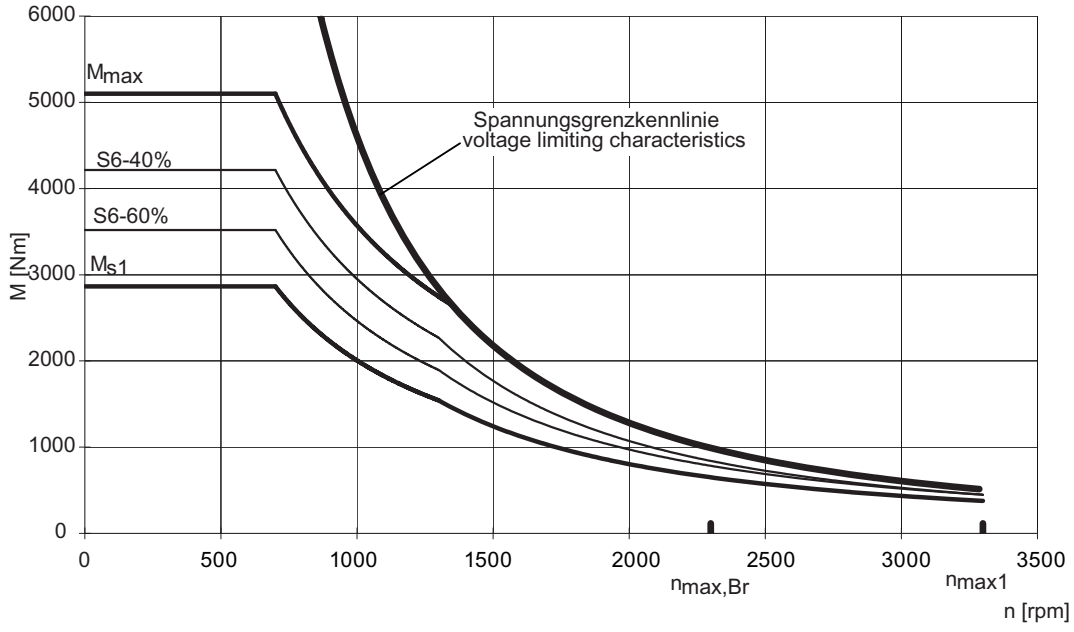
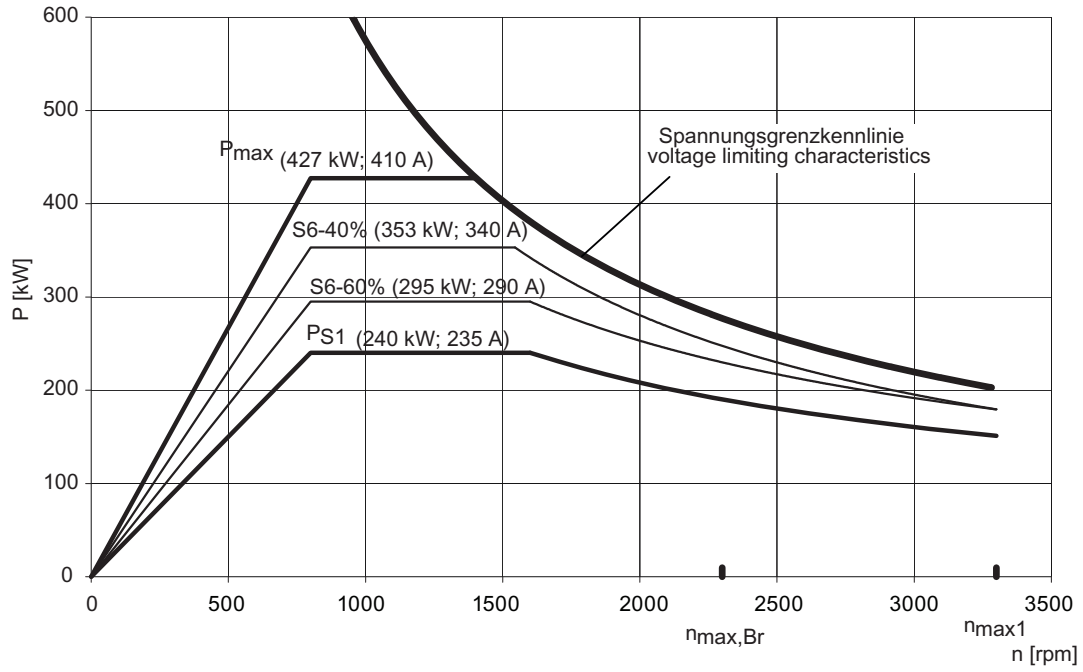


Table 4- 395 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	240	2865	235	3300	-	-	2300	1600	5100	410	2865	235
700	210	2865	235					2000				



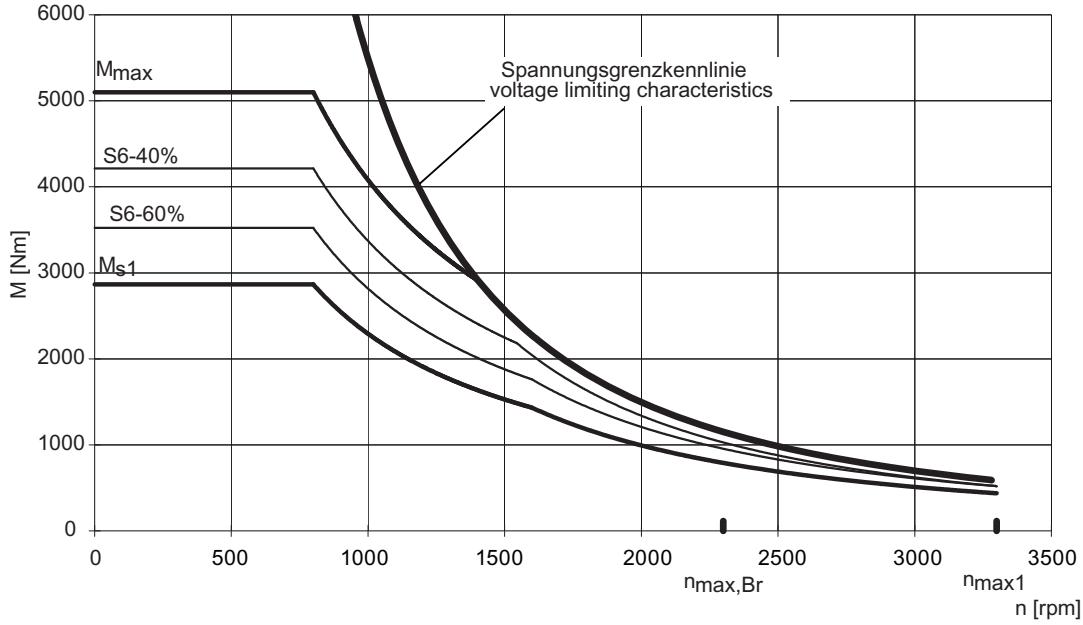
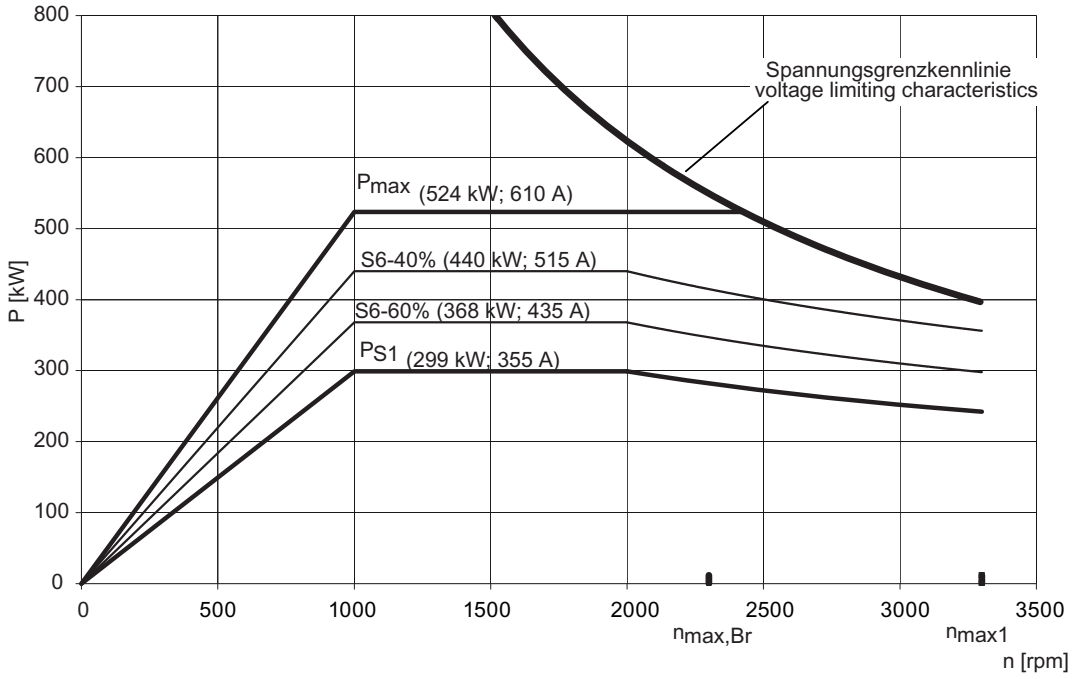


Table 4- 396 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	299	2855	355	3300	-	-	2300	2000	5000	610	2855	355



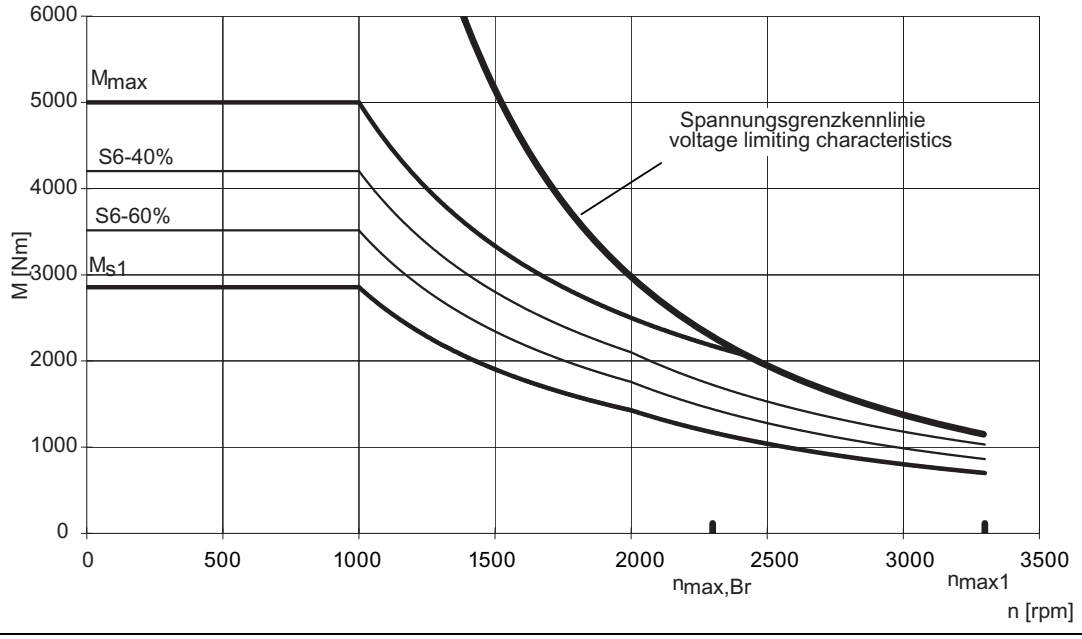
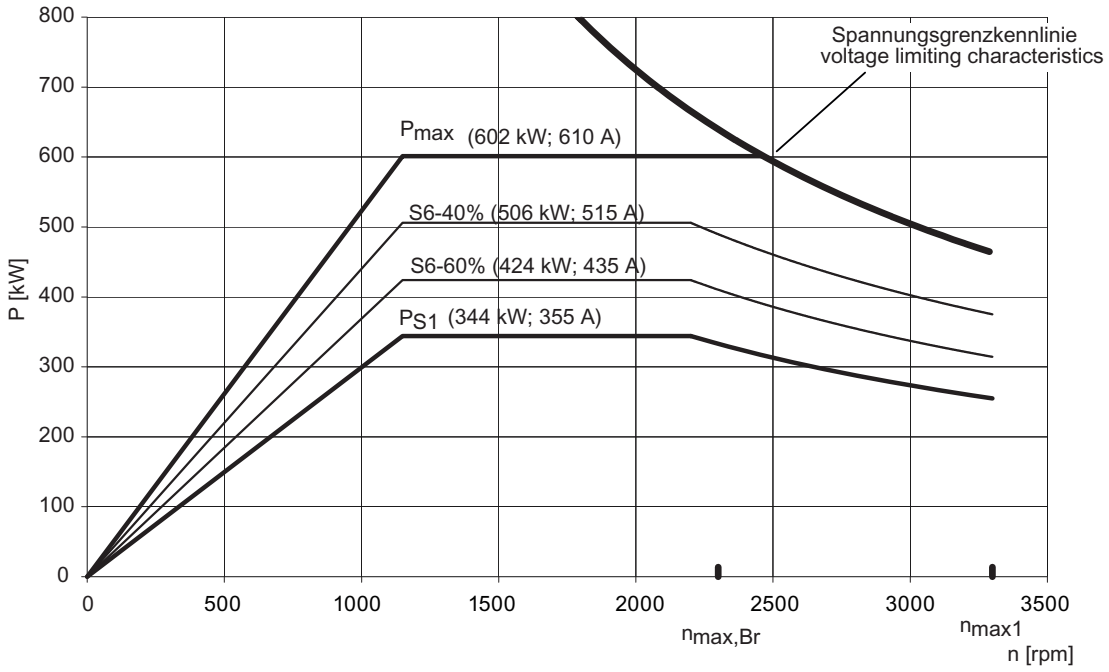


Table 4- 397 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	344	2860	355	3300	-	-	2300	2200	5000	610	2860	355
1000	299	2855	355					2700				



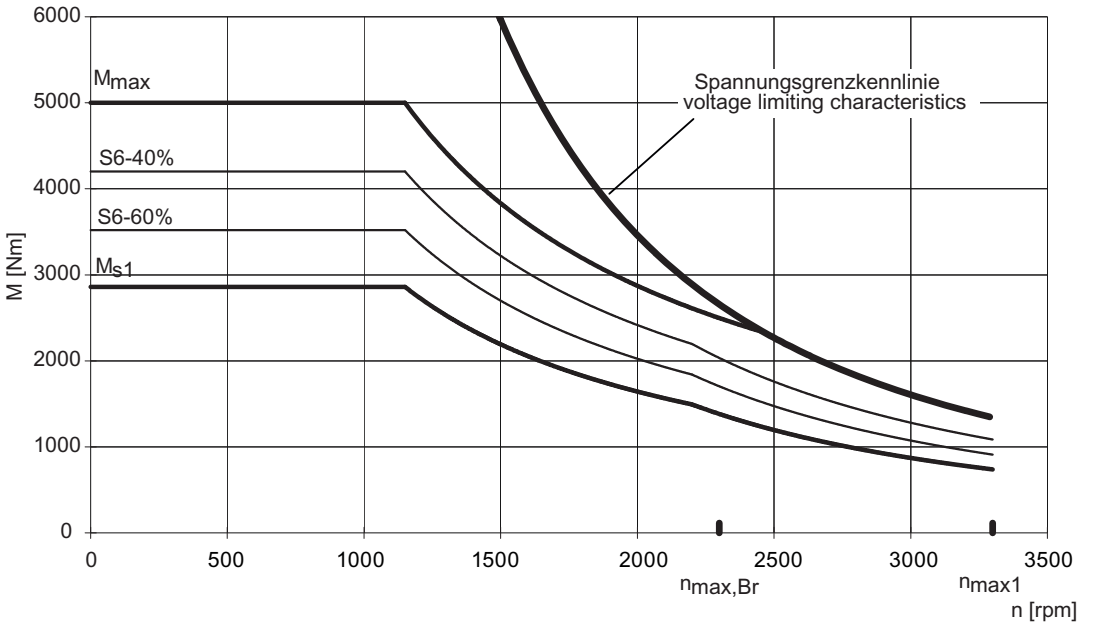
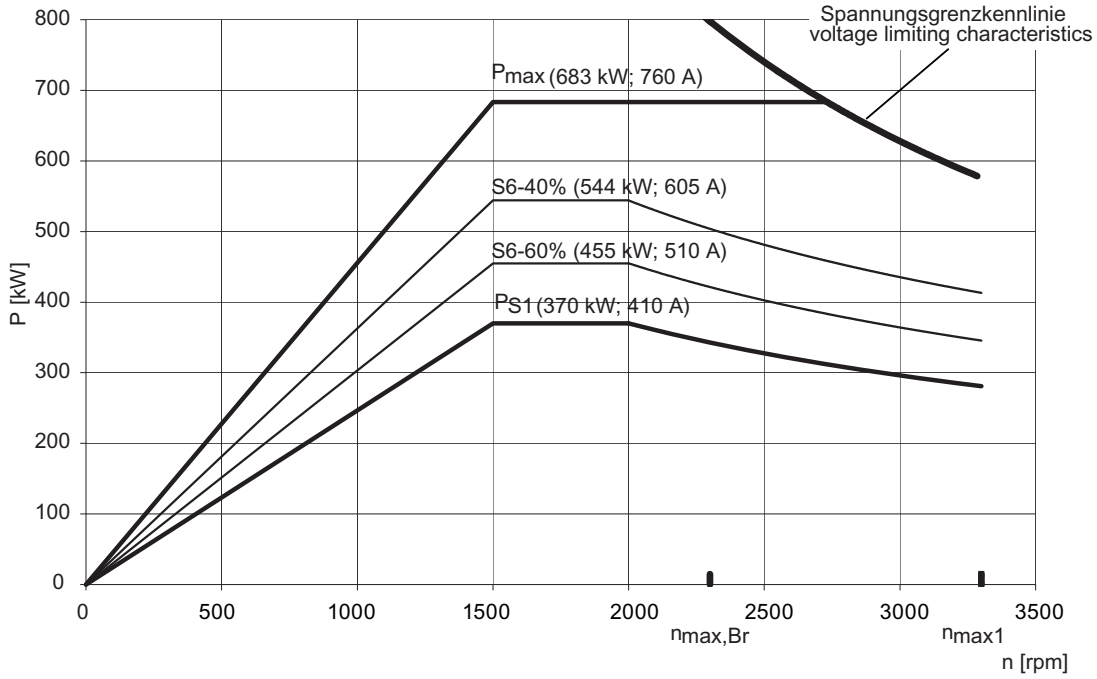


Table 4- 398 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	370	2356	410	3300	-	-	2300	2000	4350	760	2356	410



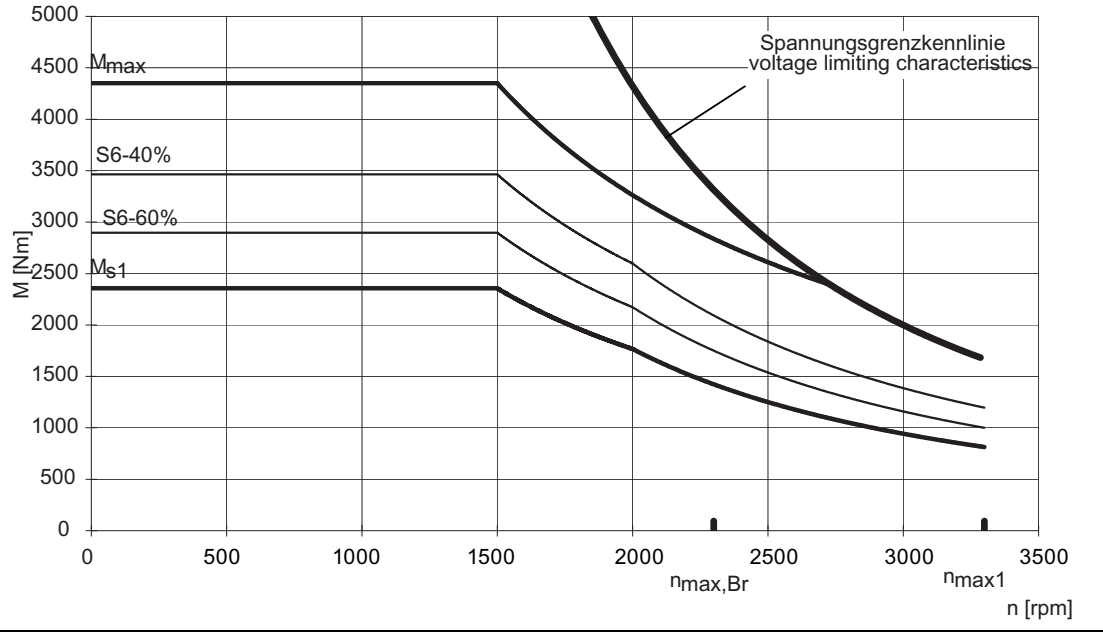
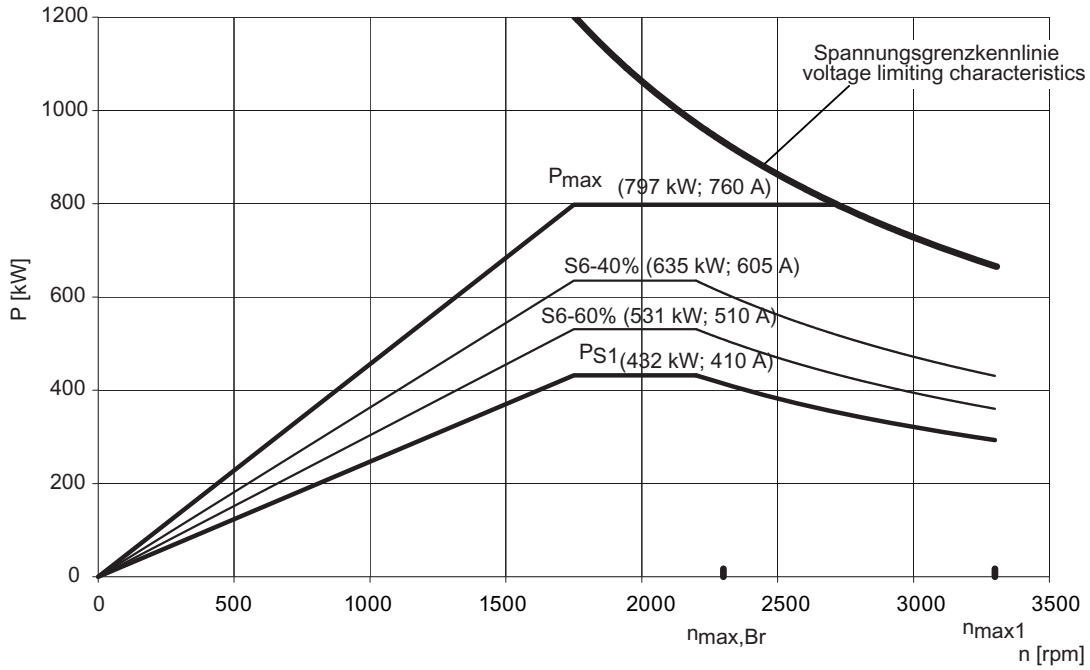


Table 4- 399 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	432	2356	410	3300	-	-	2300	2200	4350	760	2356	410
1500	370	2356	410					2600				



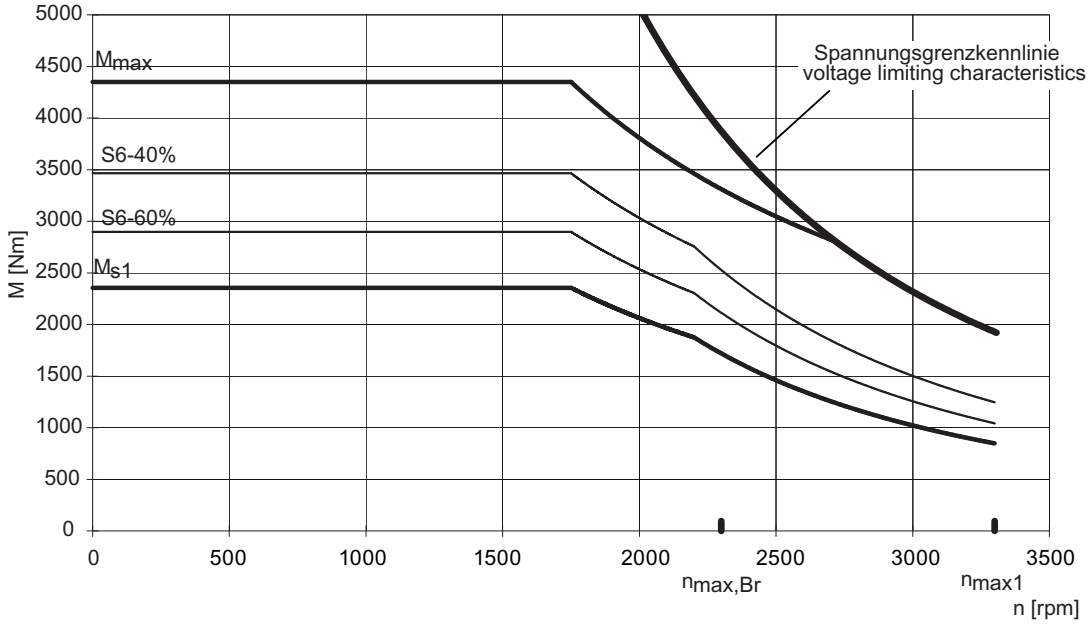
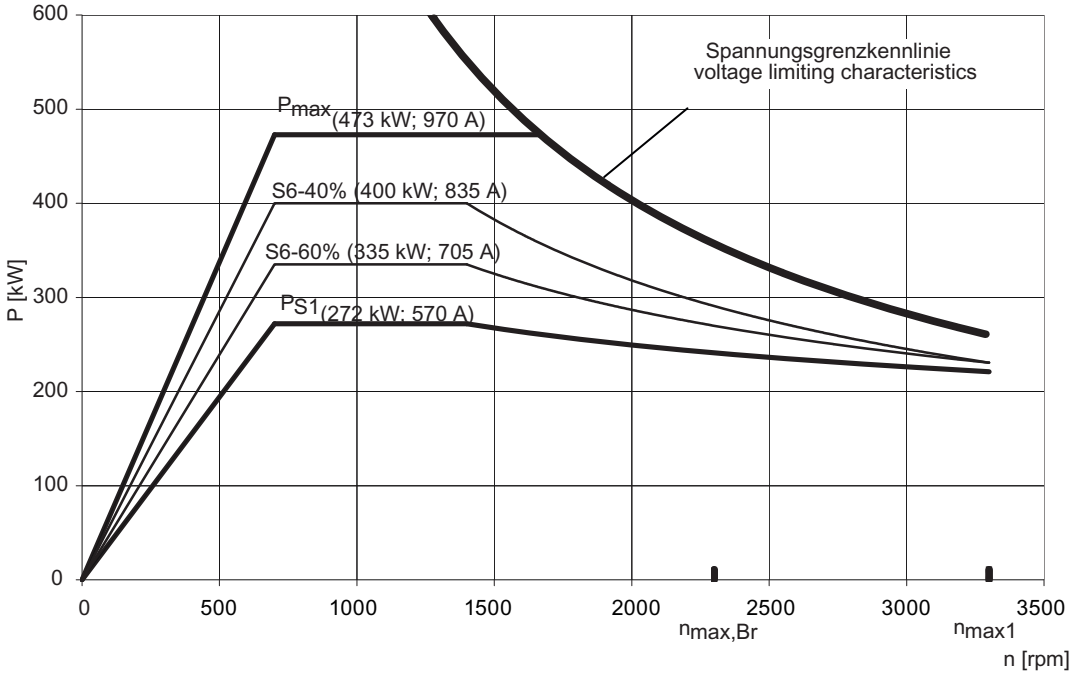


Table 4- 400 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	272	3711	570	3300	-	-	2300	1400	6450	970	3711	570



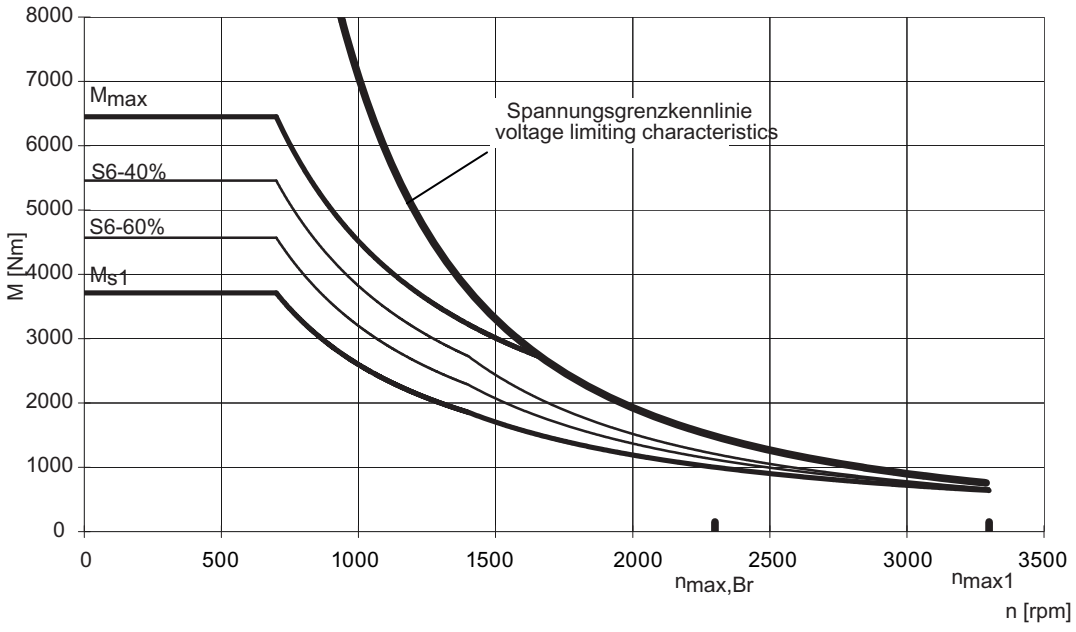
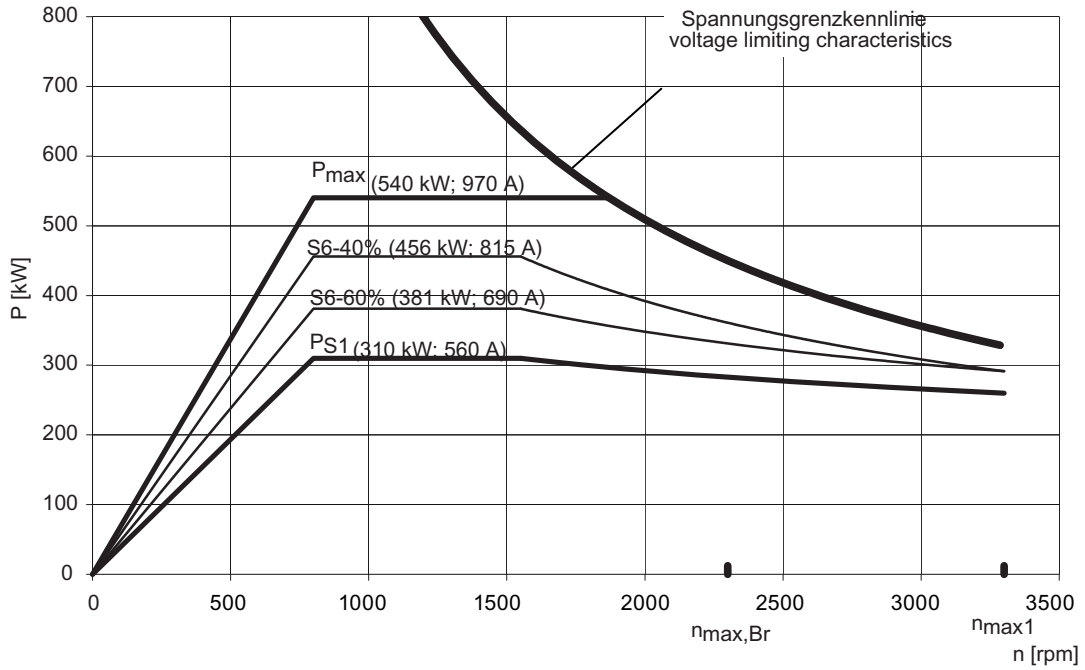


Table 4- 401 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	310	3701	560	3300	-	-	2300	1550	6450	970	3701	560
700	271	3701	560					2800				



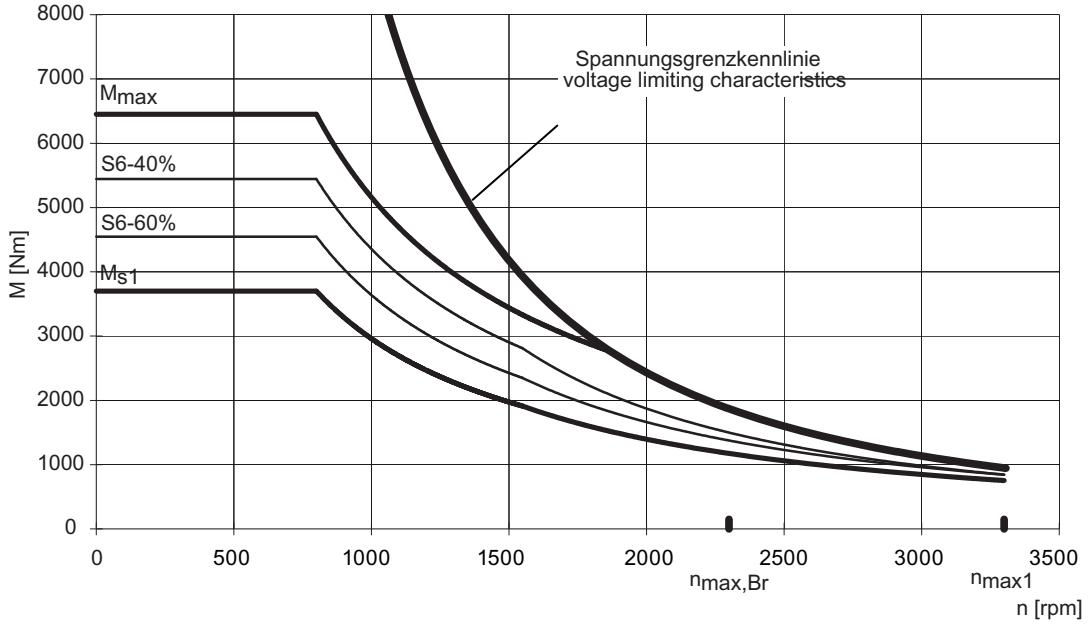
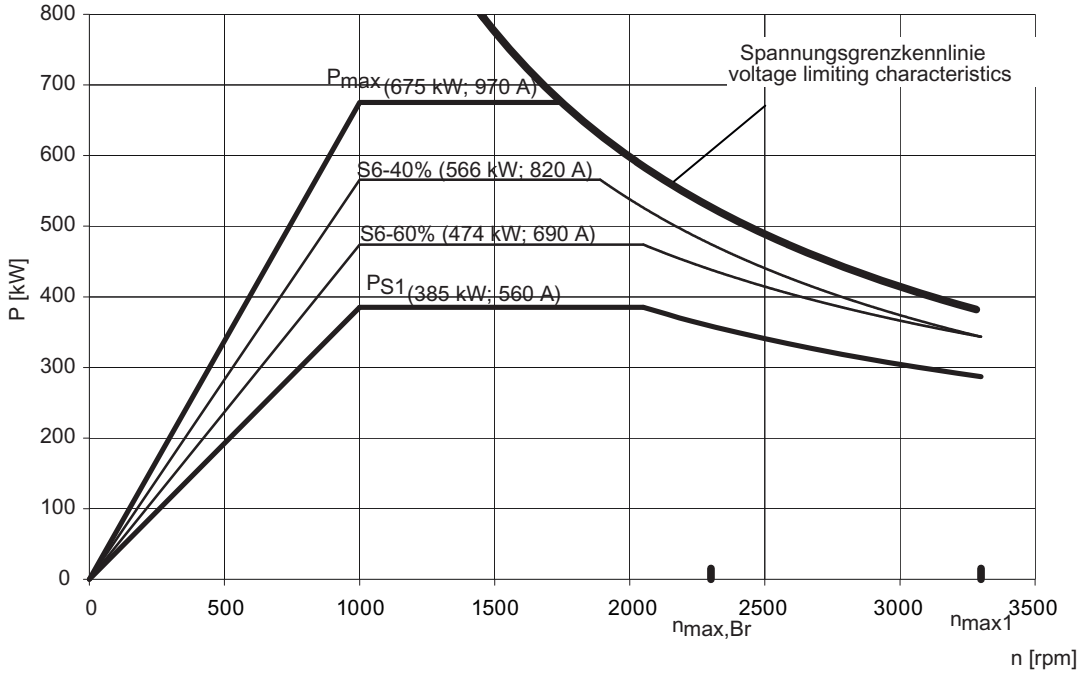


Table 4- 402 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□C4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	385	3677	560	3300	-	-	2300	2050	6450	970	3677	560



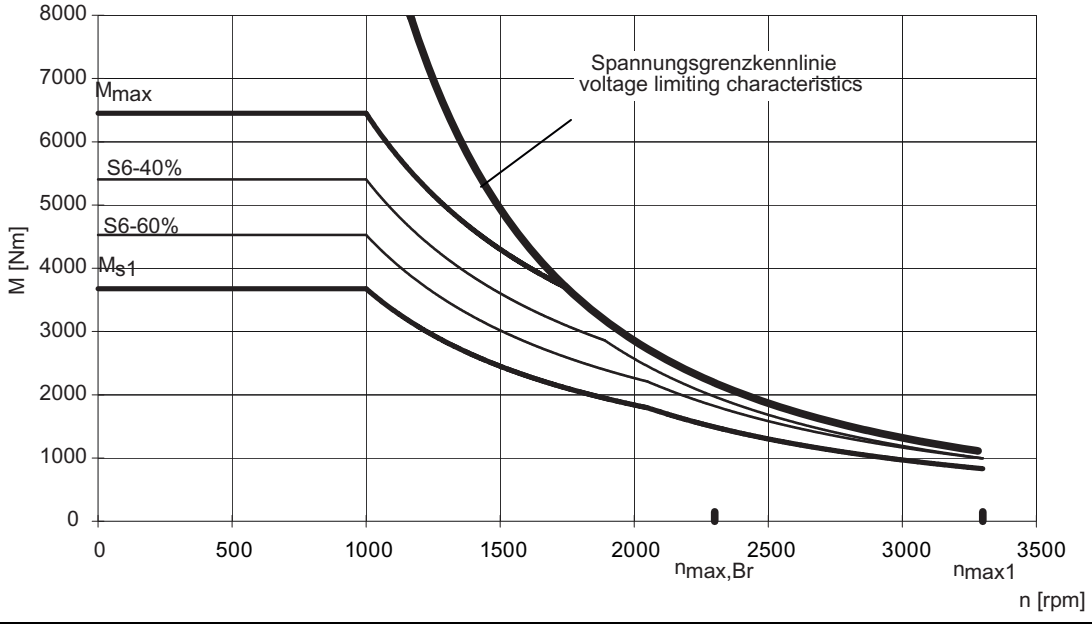
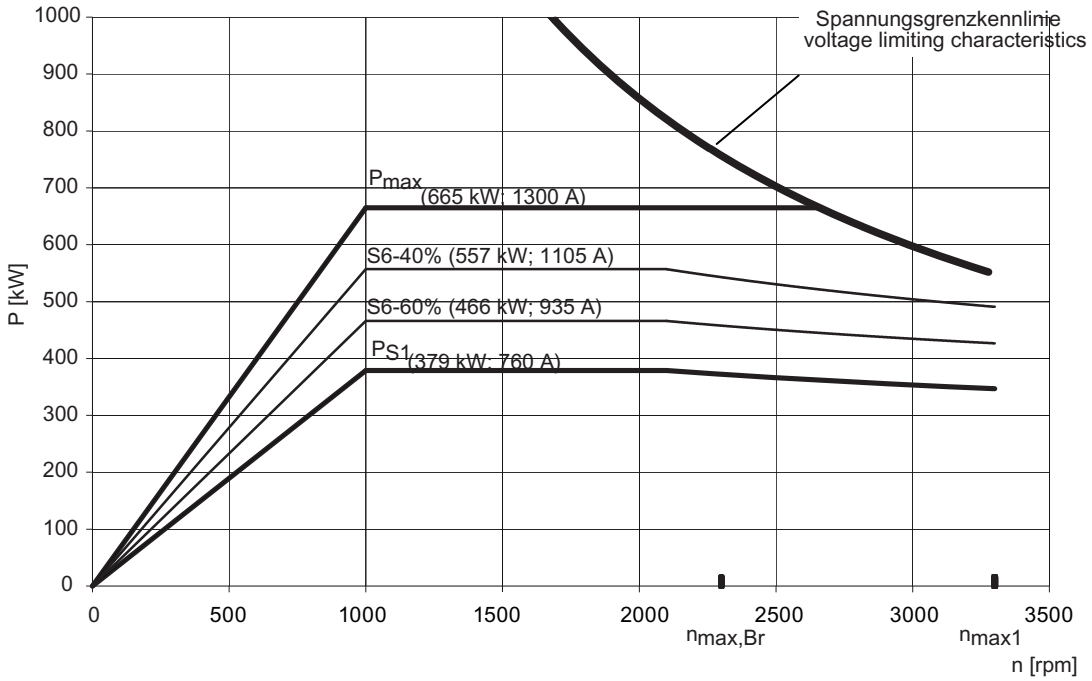


Table 4- 403 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	379	3619	760	3300	-	-	2300	2100	6350	1300	3619	760



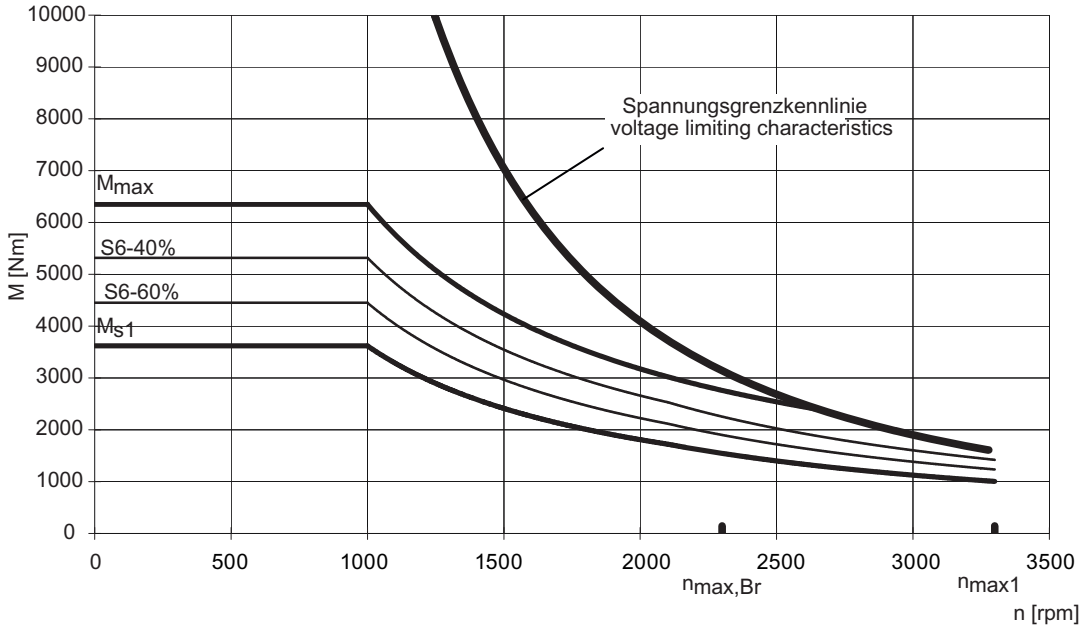
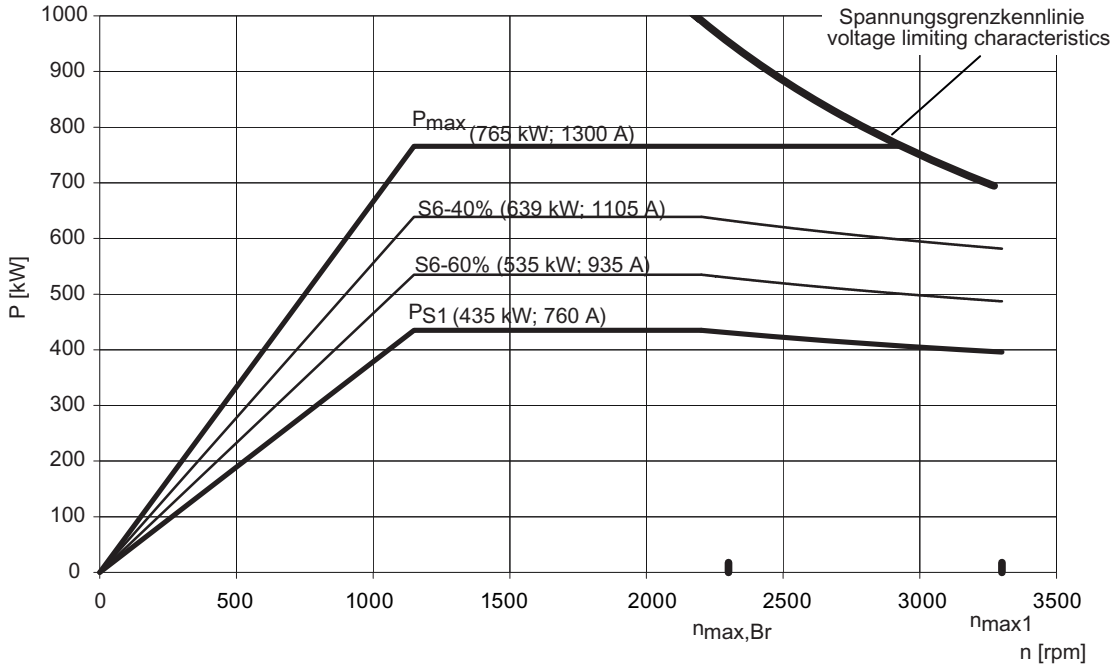


Table 4- 404 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	435	3607	760	3300	-	-	2300	2200	6350	1300	3607	760
1000	378	3607	760					3300				



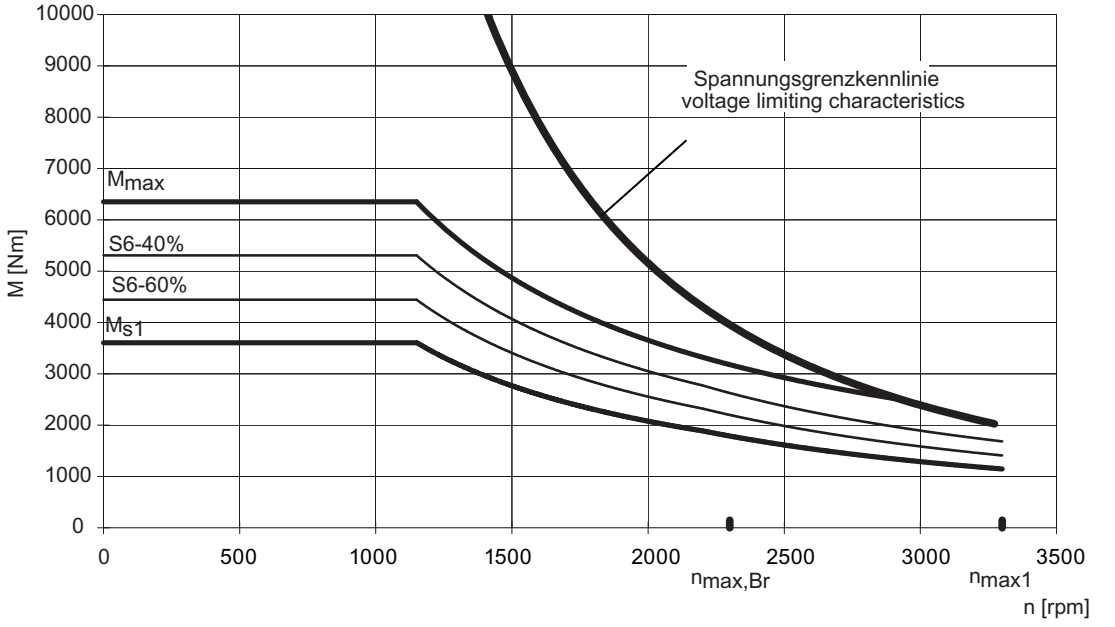
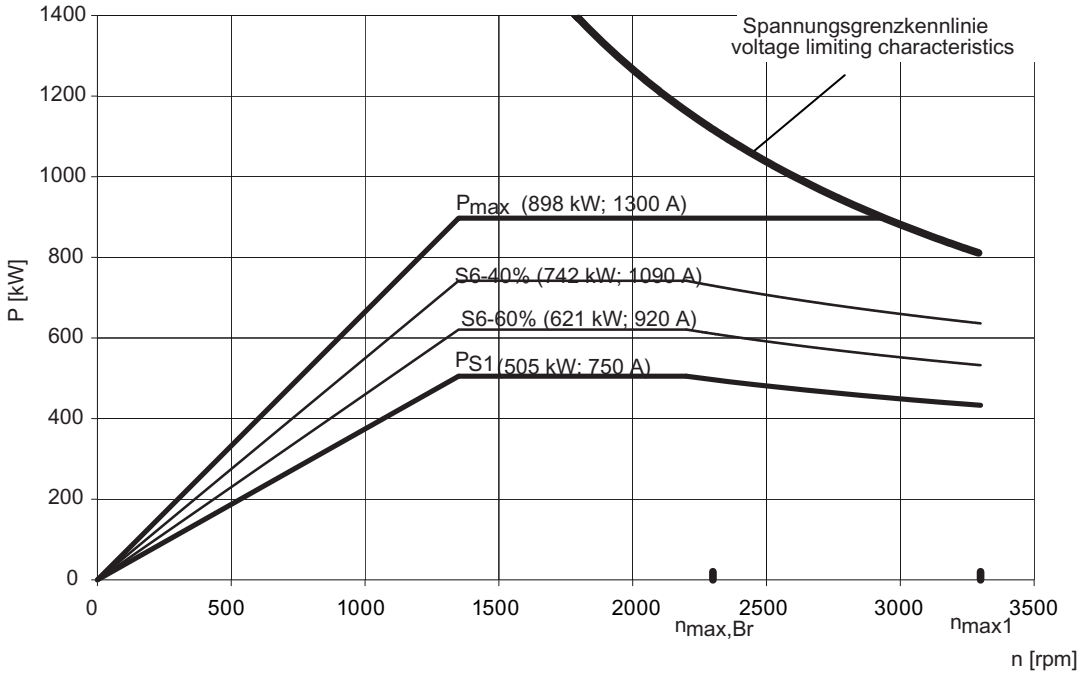


Table 4- 405 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□D4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	505	3573	750	3300	-	-	2300	2200	6350	1300	3573	750



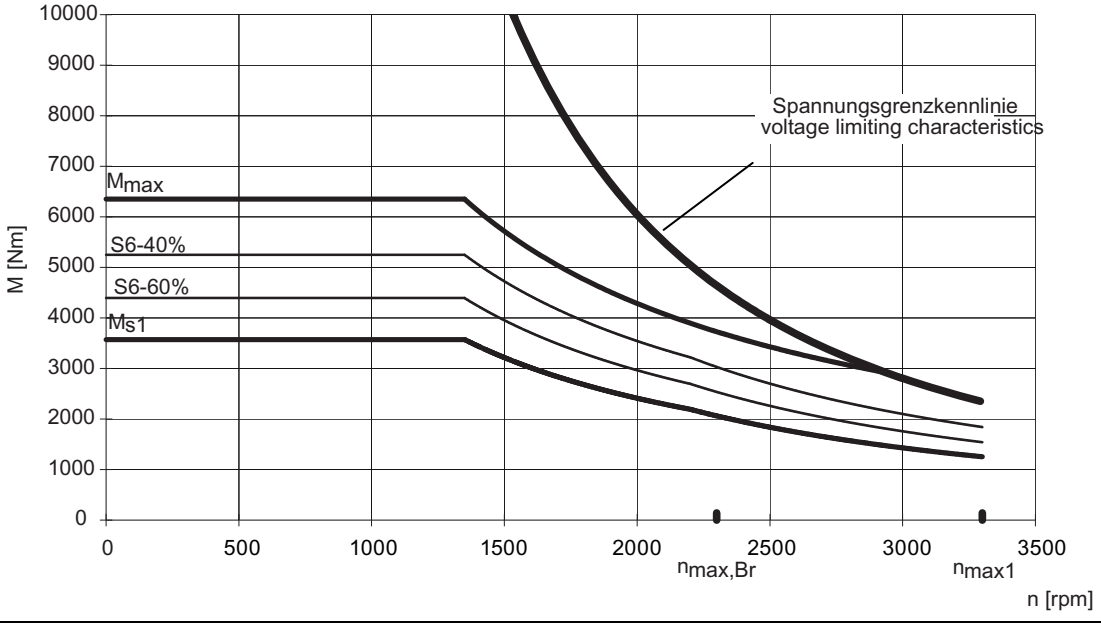
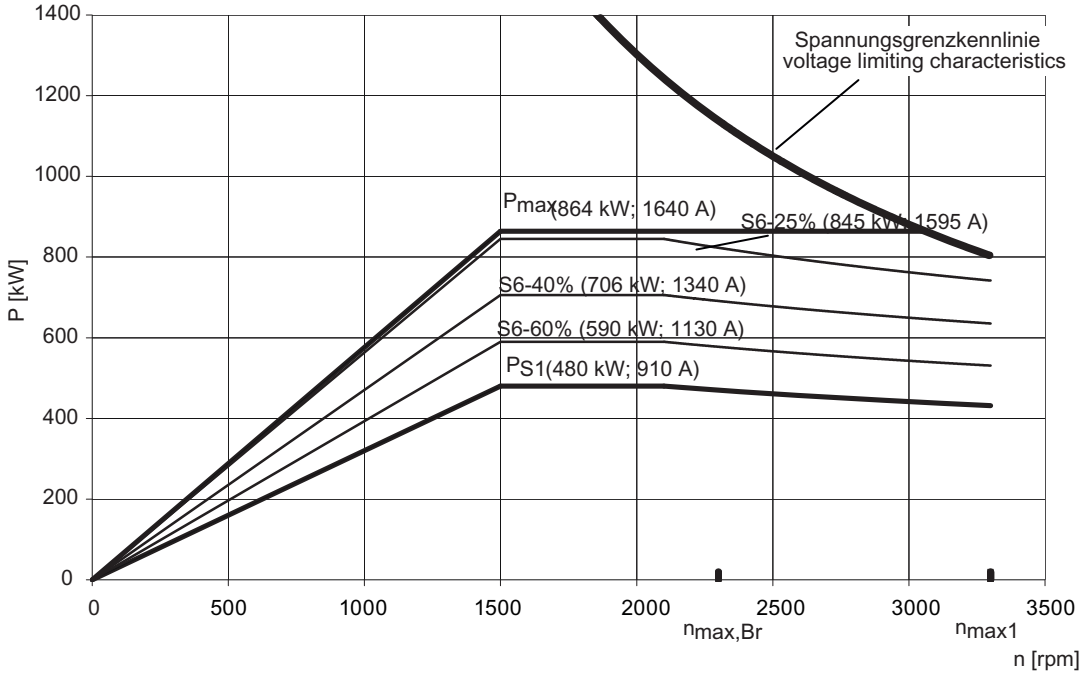


Table 4- 406 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	480	3056	910	3300	-	-	2300	2100	5500	1640	3056	910



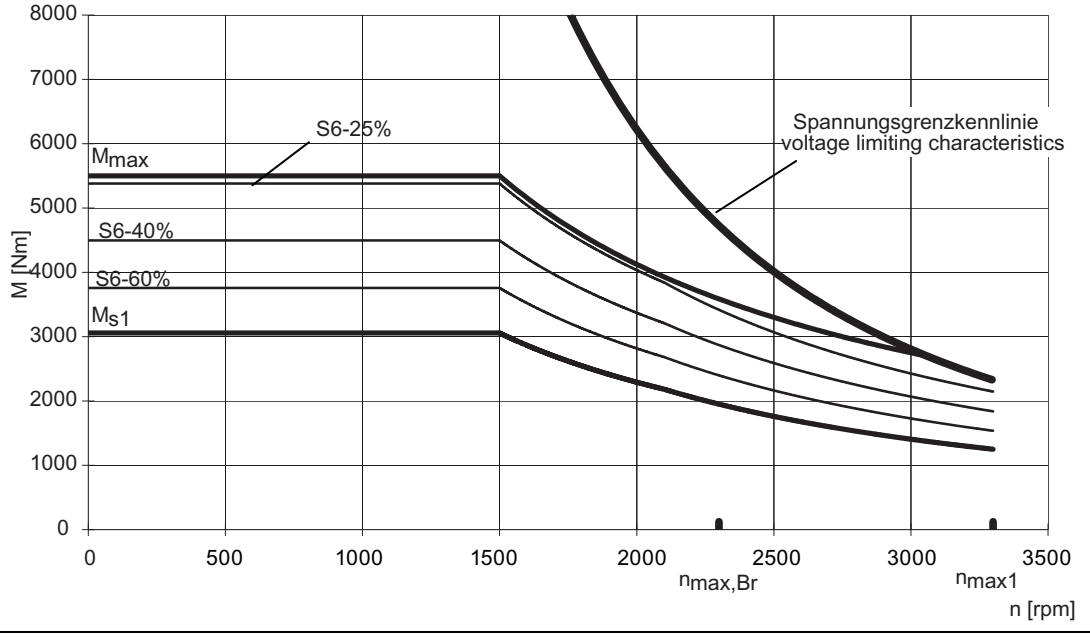
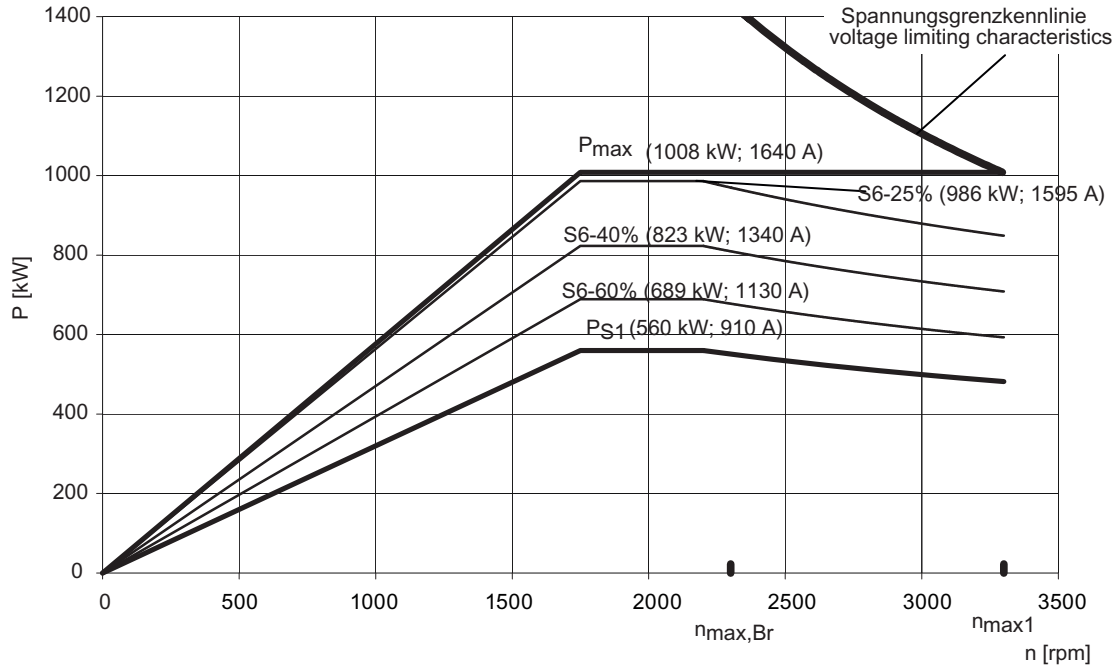


Table 4- 407 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	560	3055	910	3300	-	-	2300	2200	5500	1640	3055	910
1500	480	3055	910					3300				



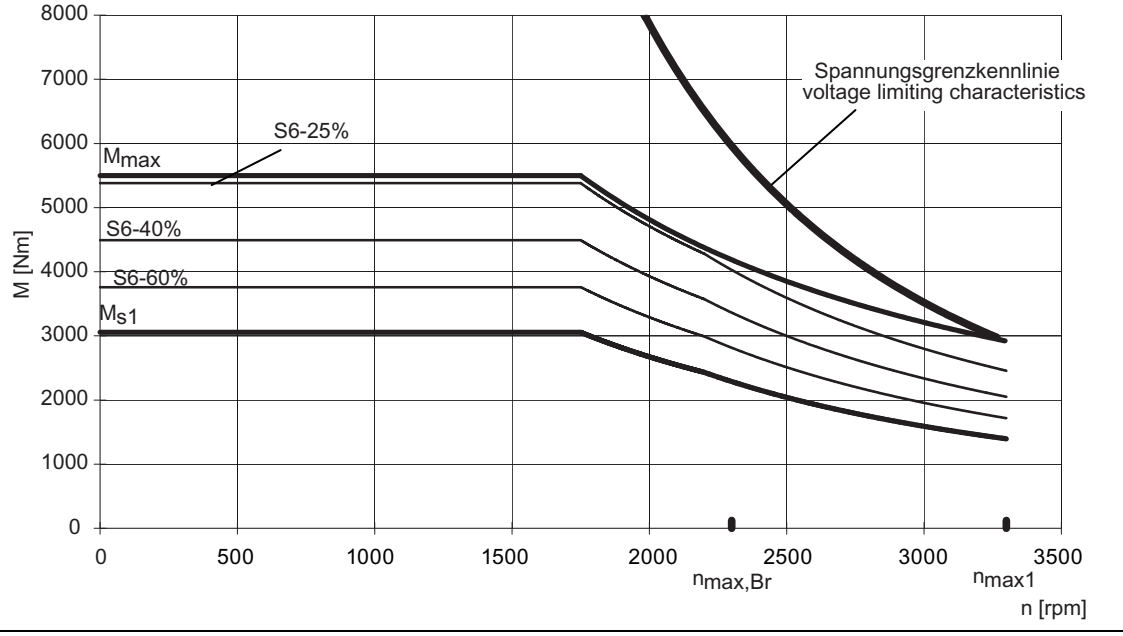
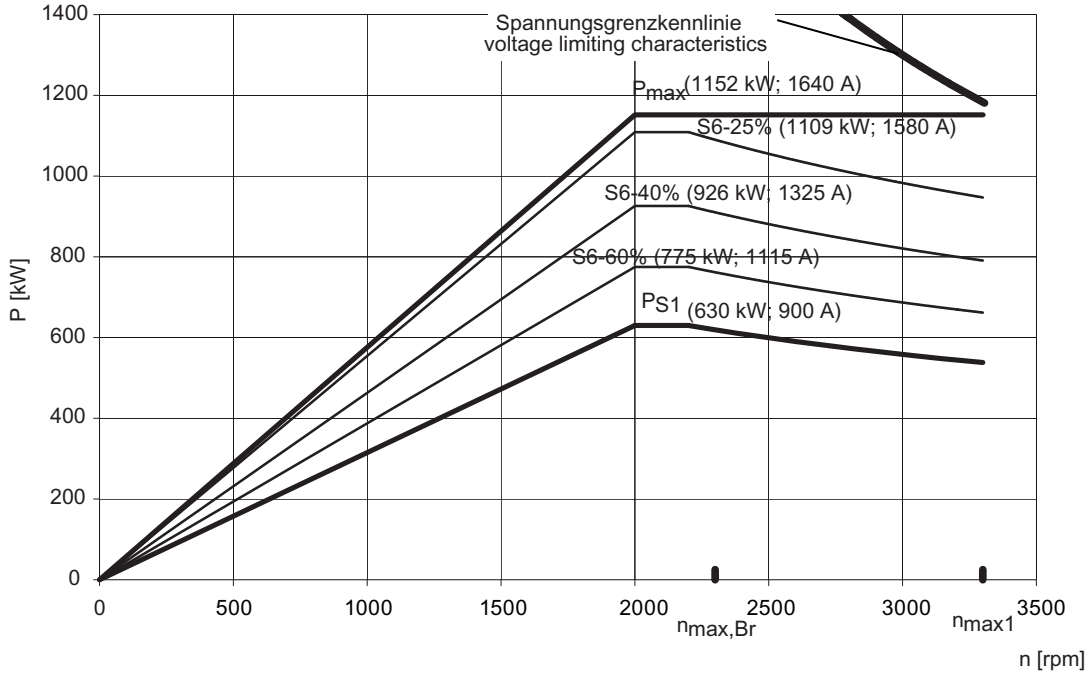


Table 4- 408 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□F4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	630	3009	900	3300	-	-	2300	2200	5500	1640	3009	900



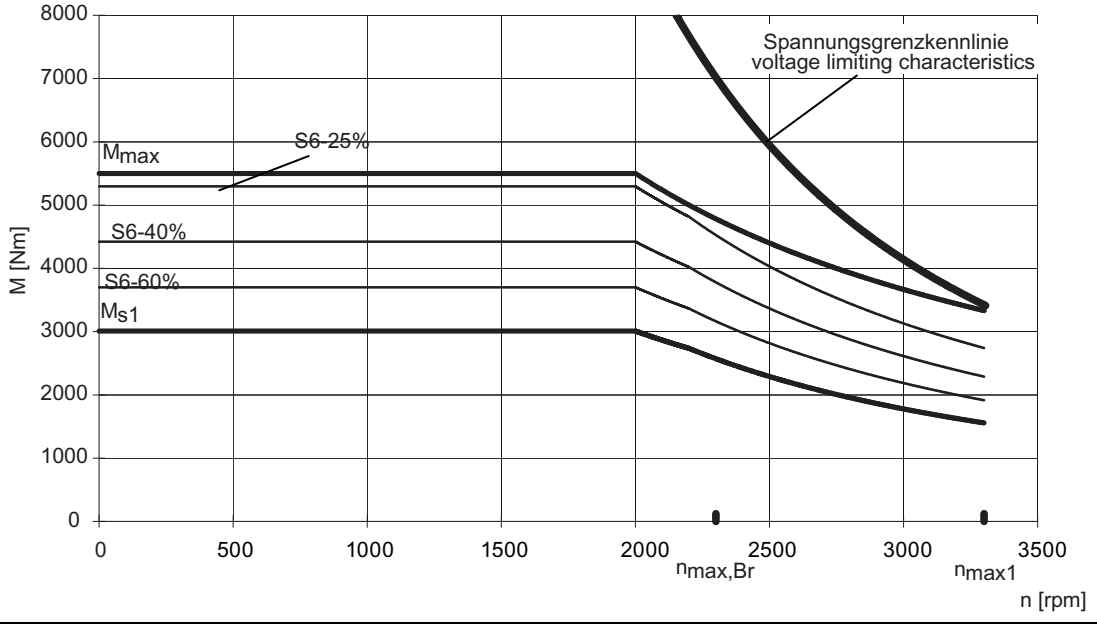
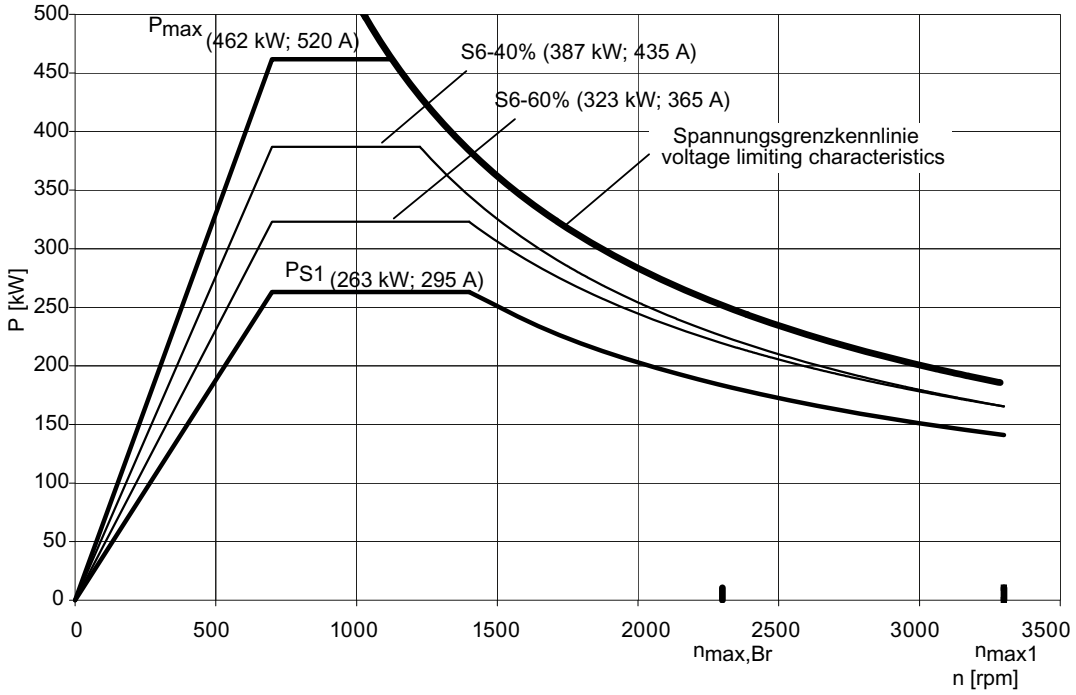


Table 4- 409 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	263	3588	295	3300	-	-	2300	1400	6300	520	3588	295



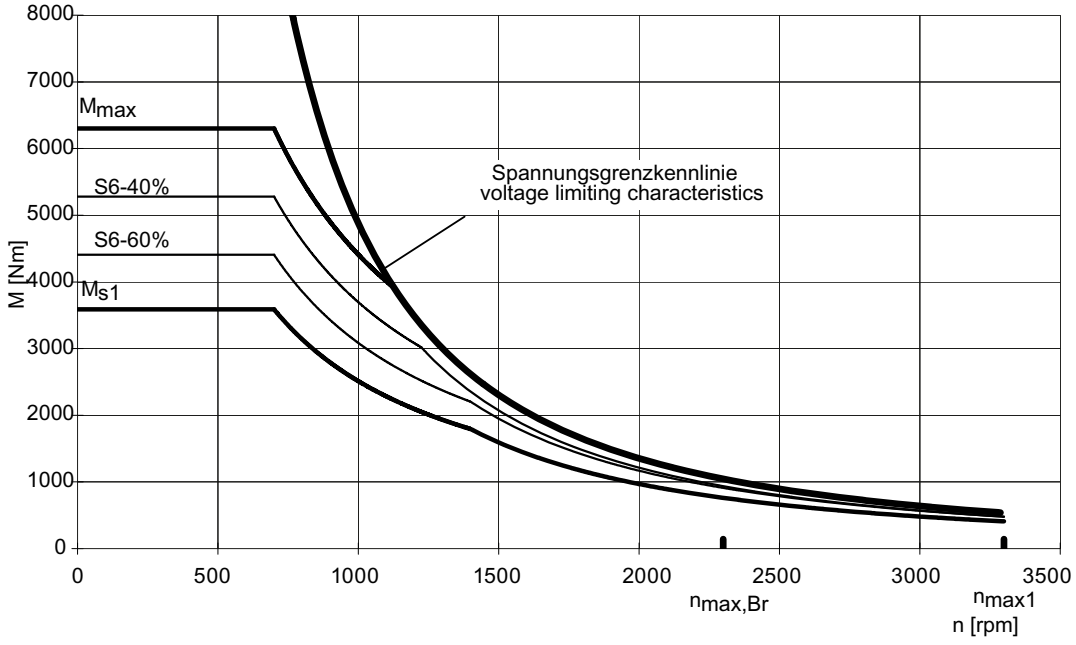
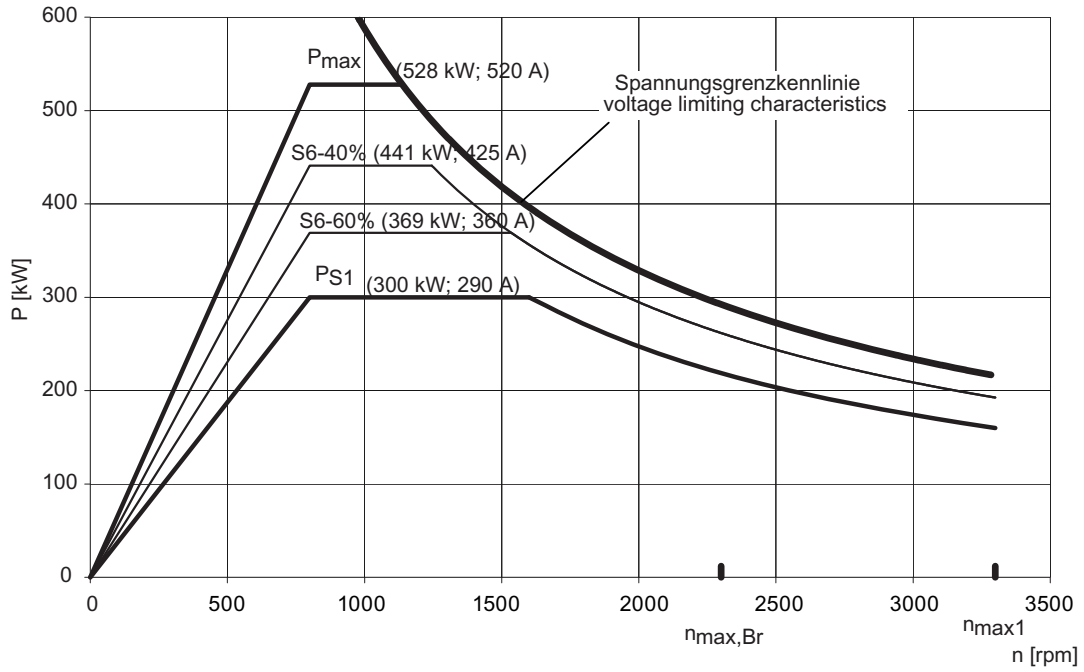


Table 4- 410 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□K4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	300	3581	290	3300	-	-	2300	1600	6300	520	3581	290
700	263	3581	290					1900				



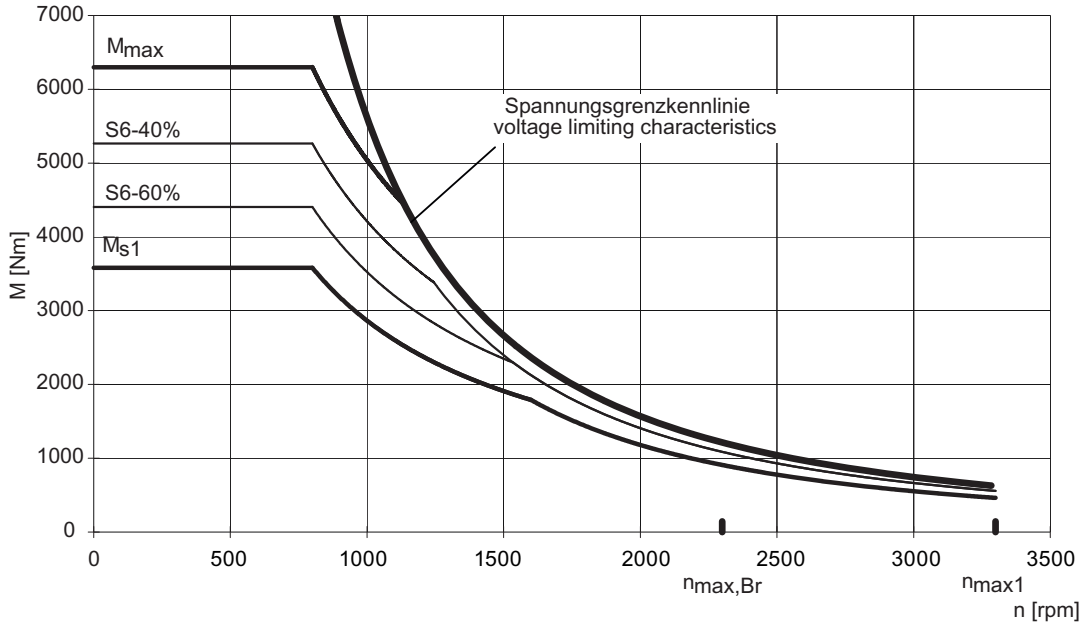
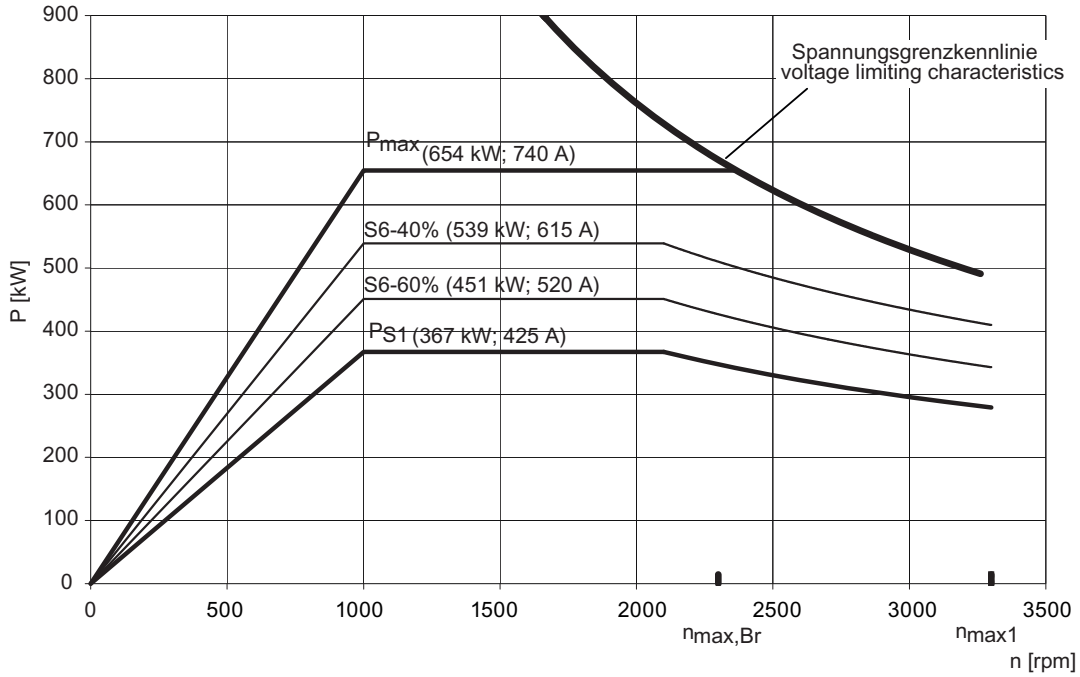


Table 4- 411 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	367	3505	425	3300	-	-	2300	2100	6250	740	3505	425



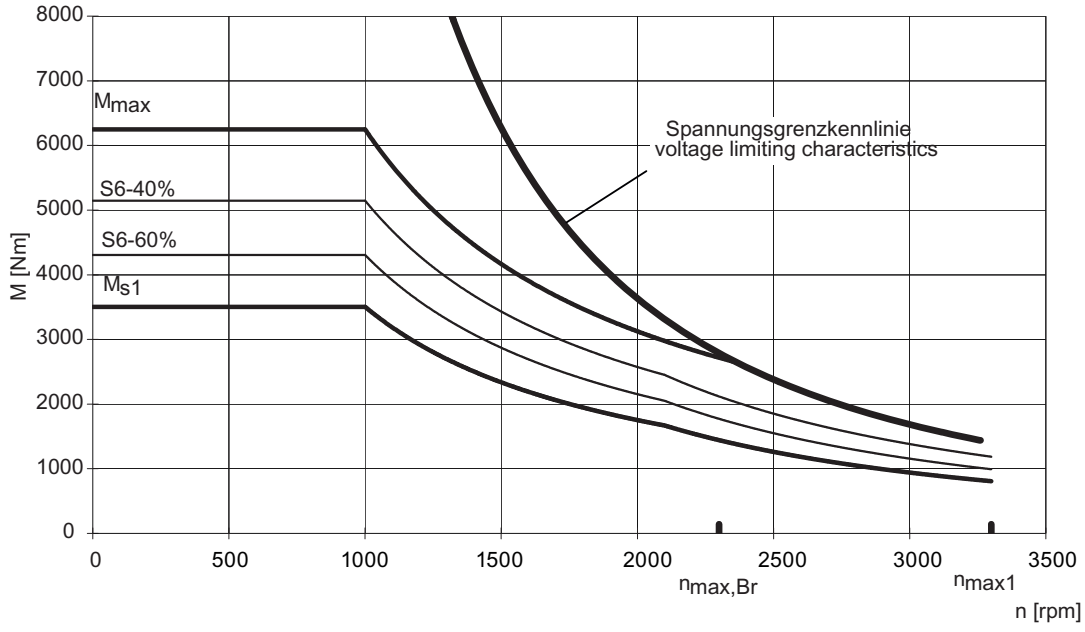
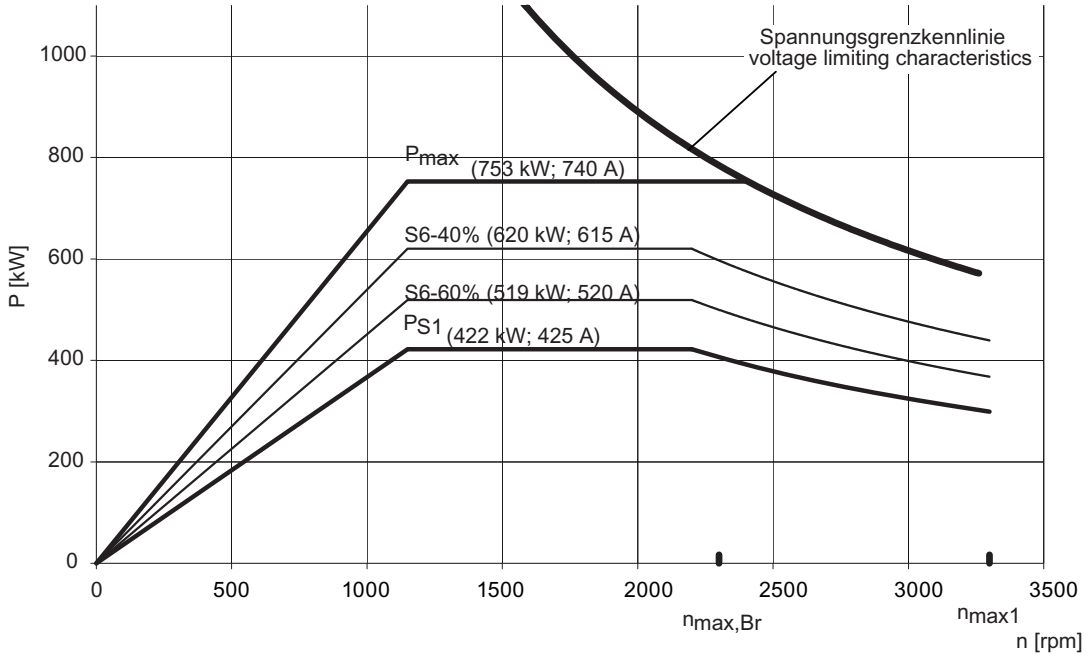


Table 4- 412 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□U4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	422	3504	425	3300	-	-	2300	2200	6250	740	3504	425
1000	367	3504	425					2600				



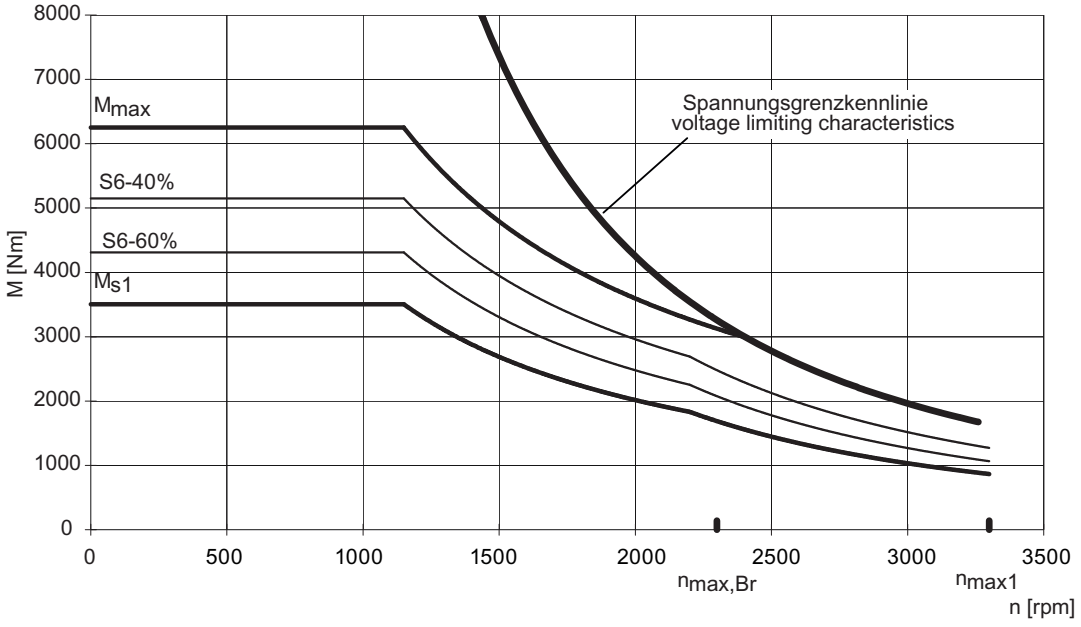
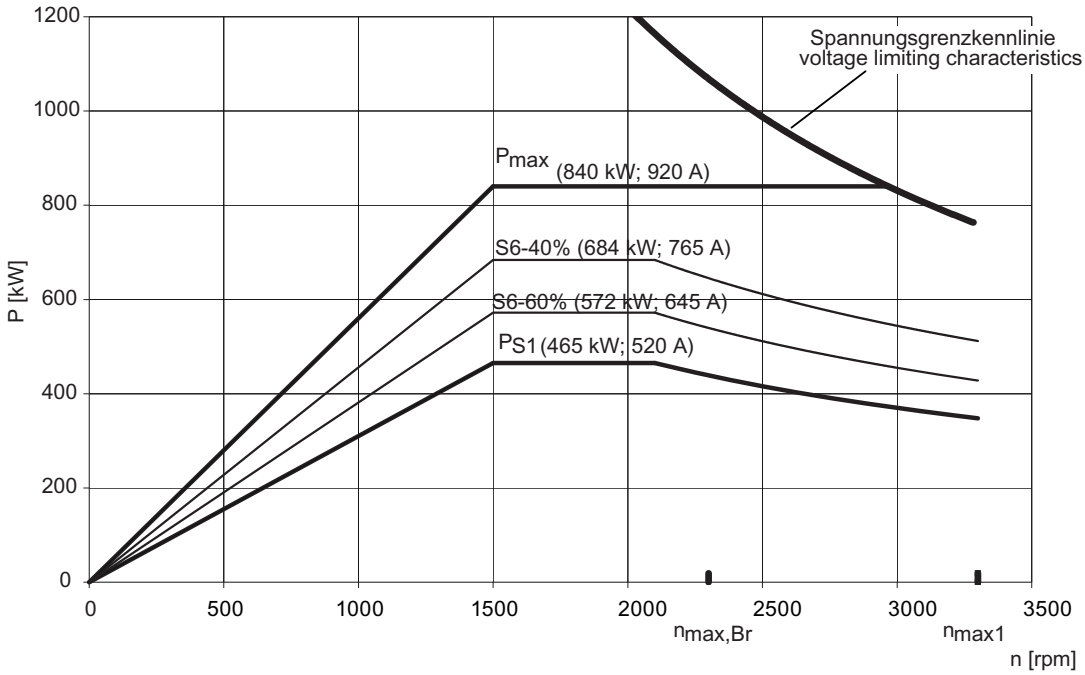


Table 4- 413 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	465	2961	520	3300	-	-	2300	2100	5350	920	2961	520



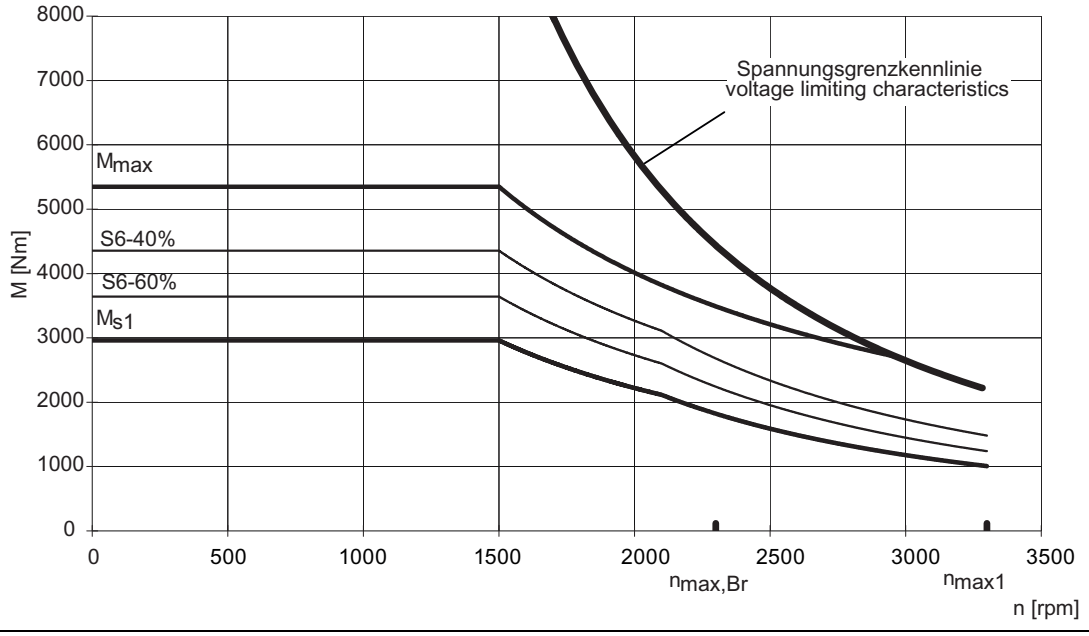
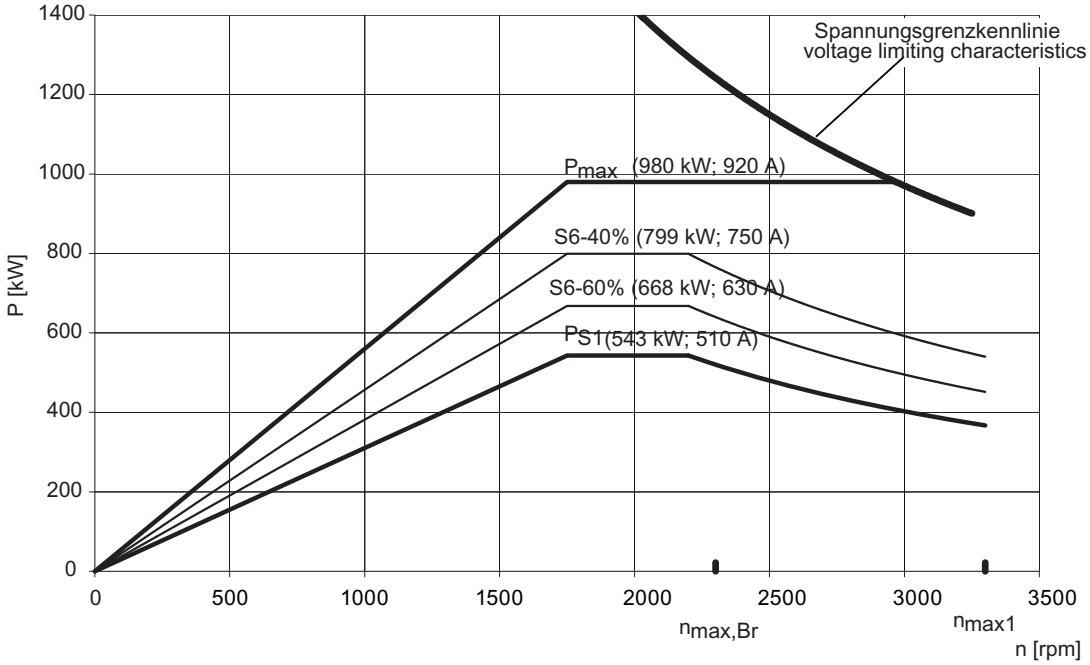
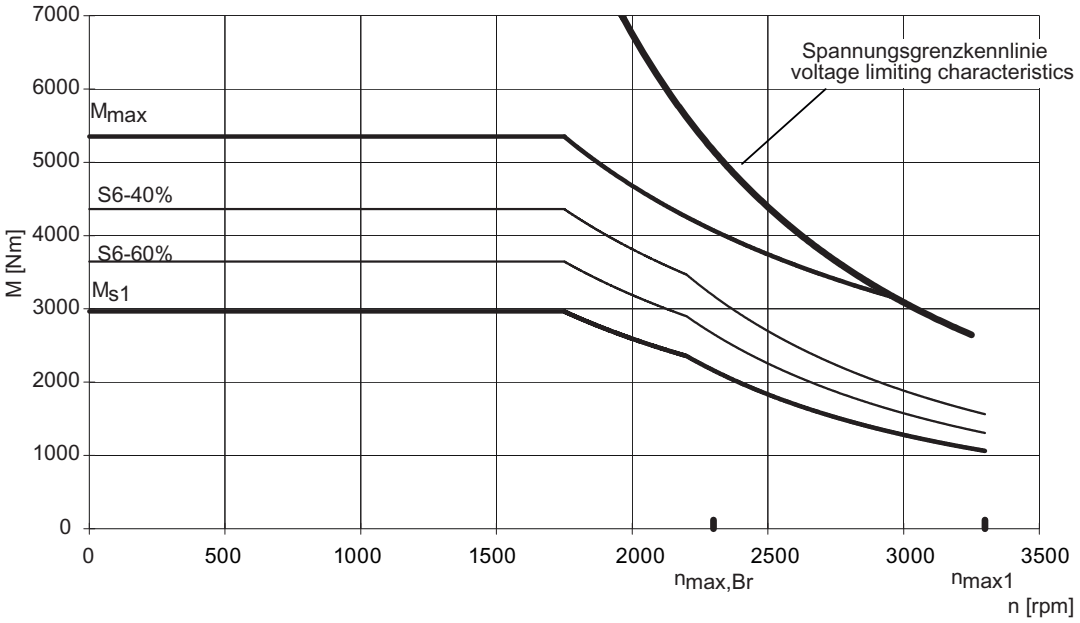


Table 4- 414 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□W4□, (IP23)

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	543	2964	510	3300	-	-	2300	2200	5350	920	2964	510
1500	466	2964	510					2600				



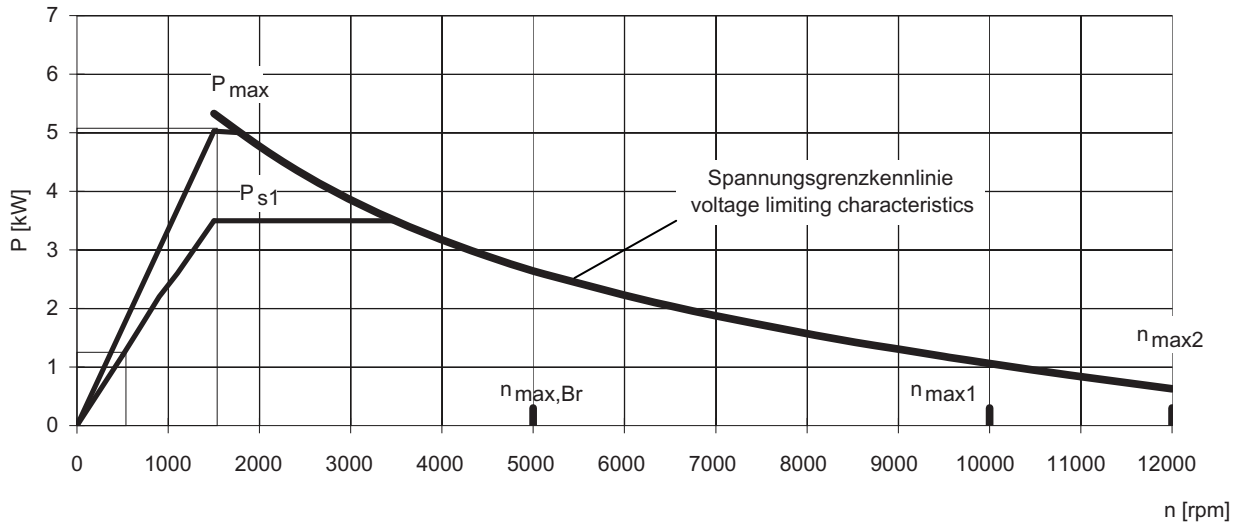


4.1.3 Characteristics water cooling

4.1.3.1 Shaft height 80 - water-cooled

Table 4- 415 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	3.5	22	8.9	10000	12000	-	5000	3550	32	13	23	9



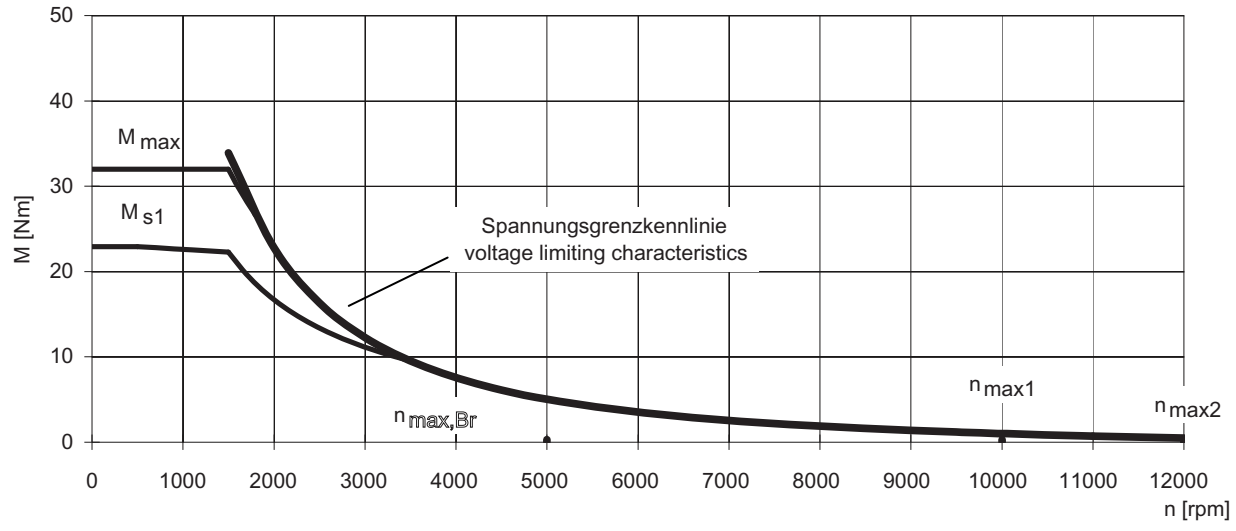
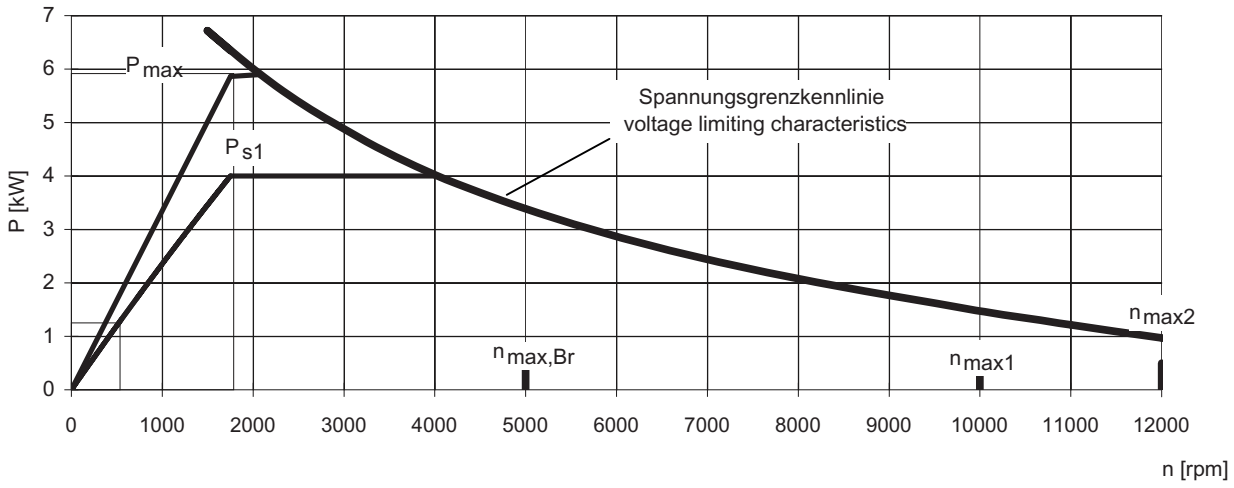


Table 4- 416 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	4.0	22	8.7	10000	12000	-	5000	4100	32	13	23	9
1500	3.5	22	8.9					4850				



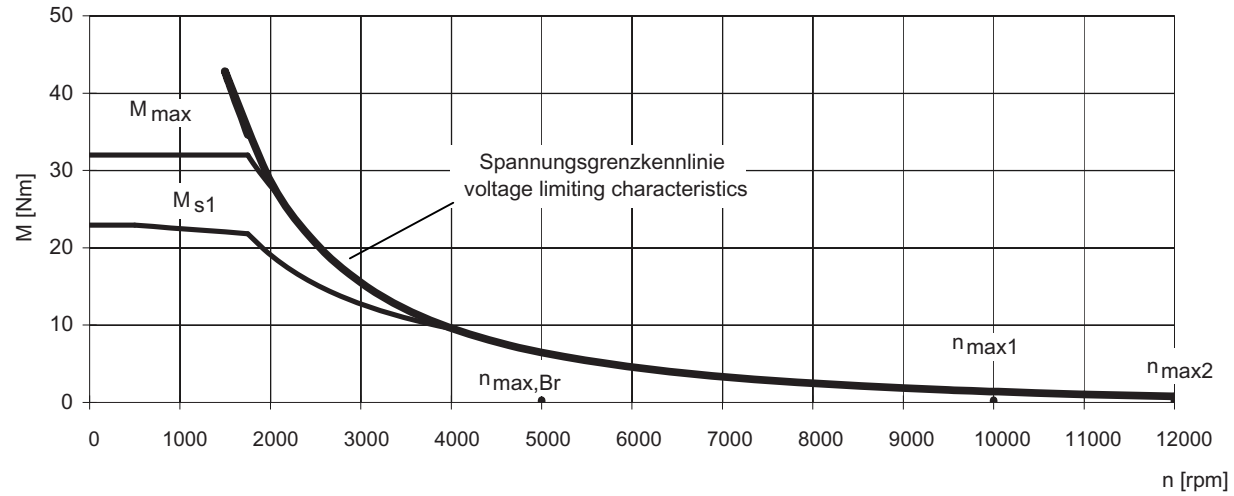
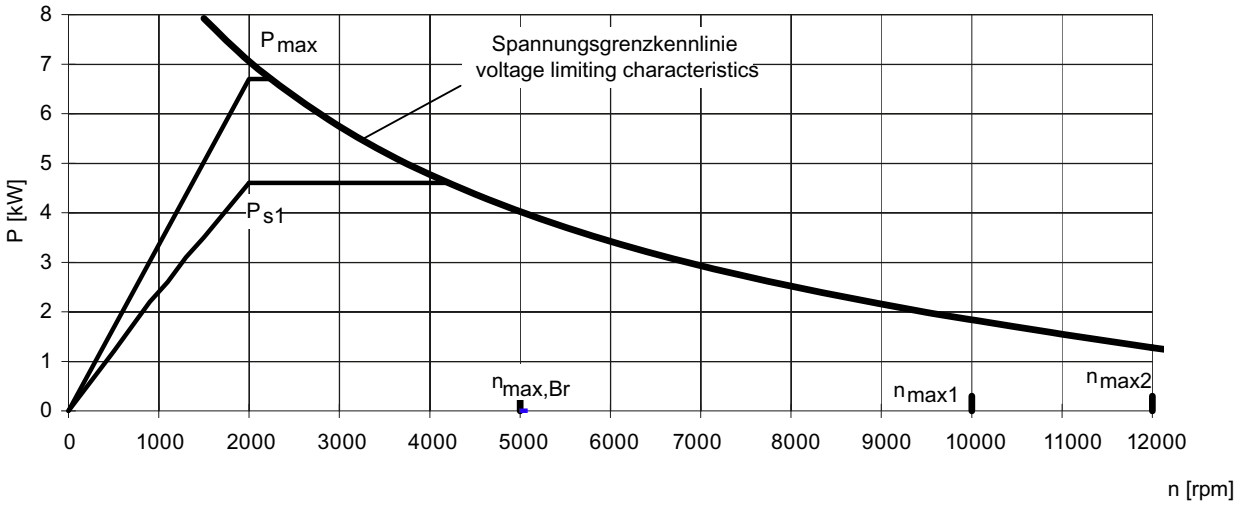


Table 4- 417 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.6	22	8.7	10000	12000	-	5000	4250	32	13	23	9



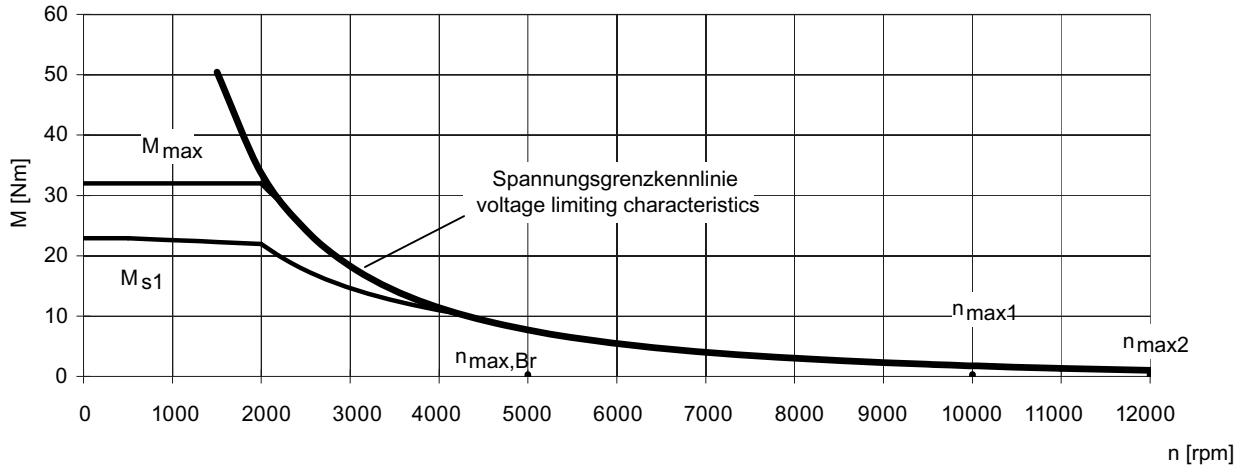


Table 4- 418 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	4.3	21	12.0	10000	15000	16000	5000	7200	45	26	23	13

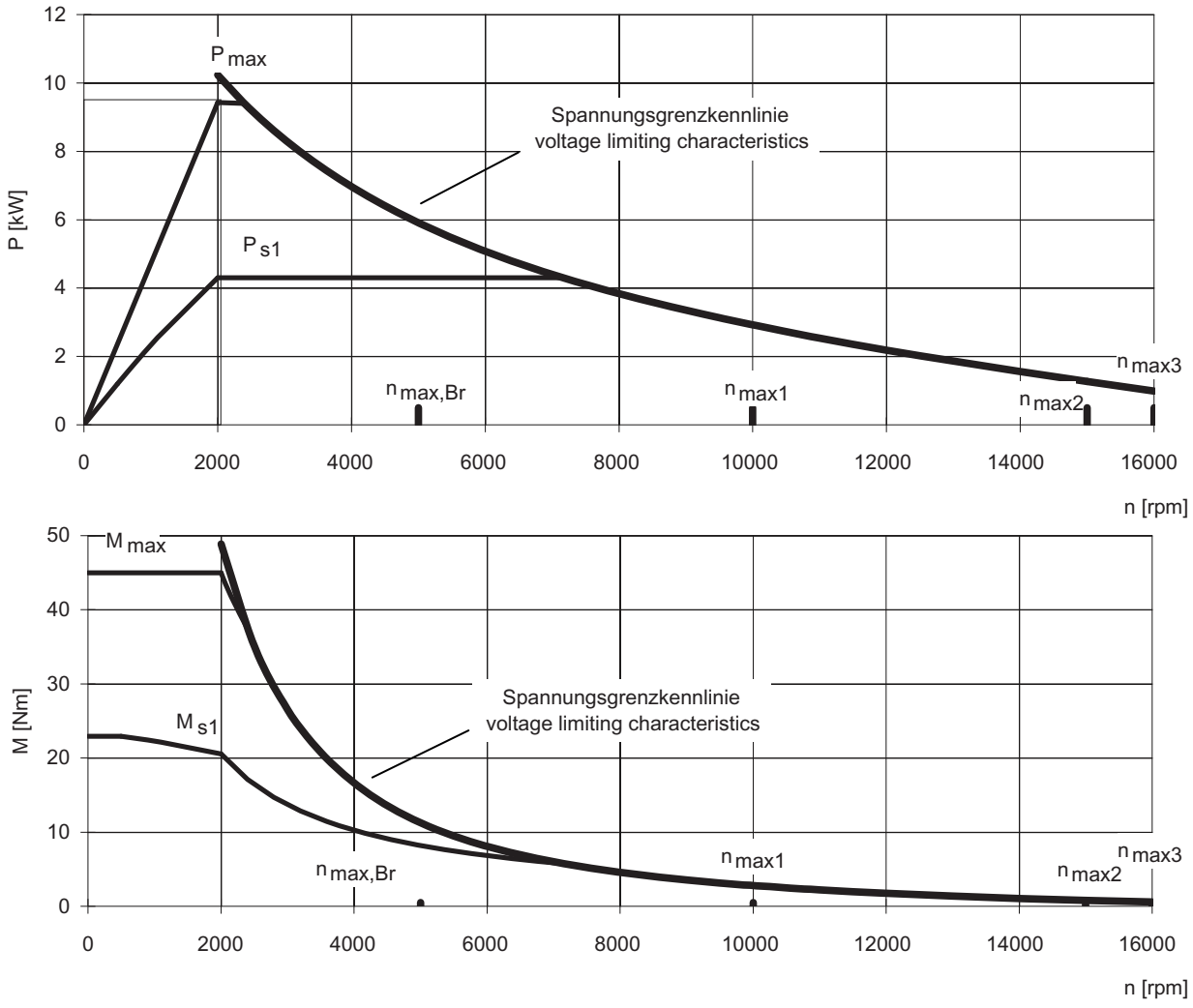
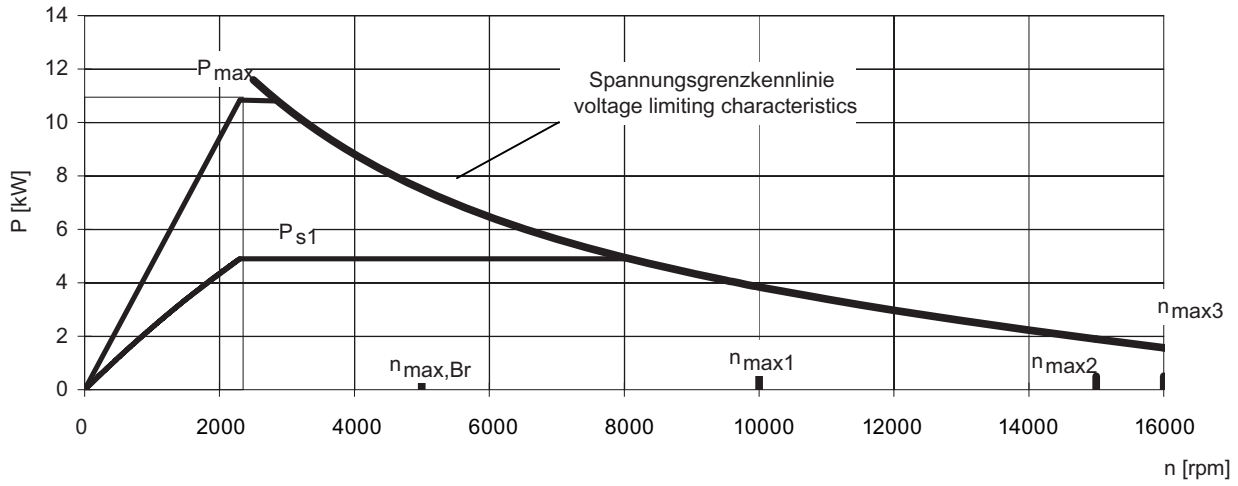


Table 4- 419 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	4.9	20	12.0	10000	15000	16000	5000	8150	45	26	23	13
2000	4.3	21	12.0					9150				



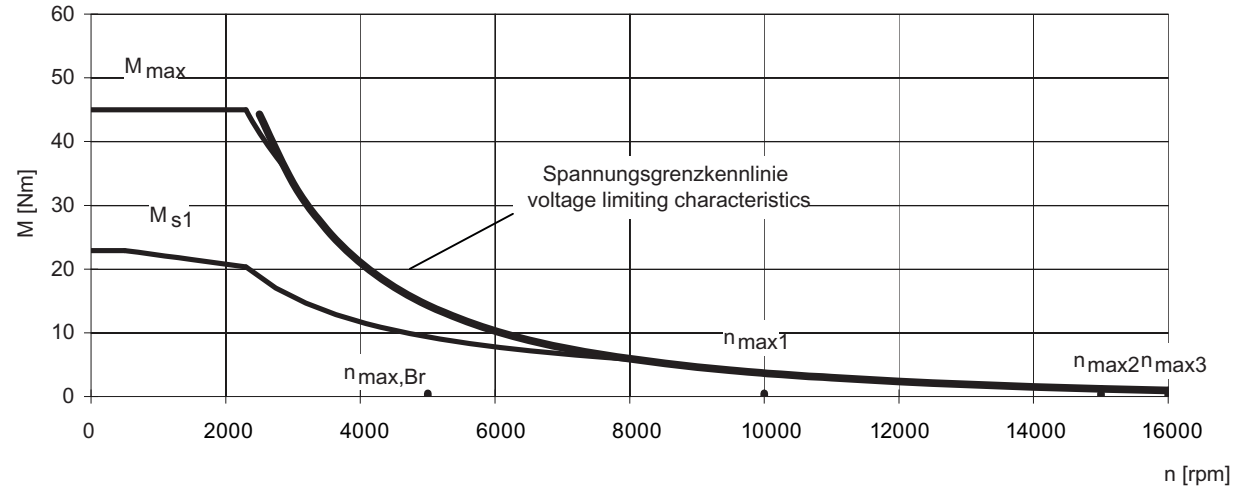


Table 4- 420 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	5.6	20	12.0	10000	15000	16000	5000	8500	45	26	23	13

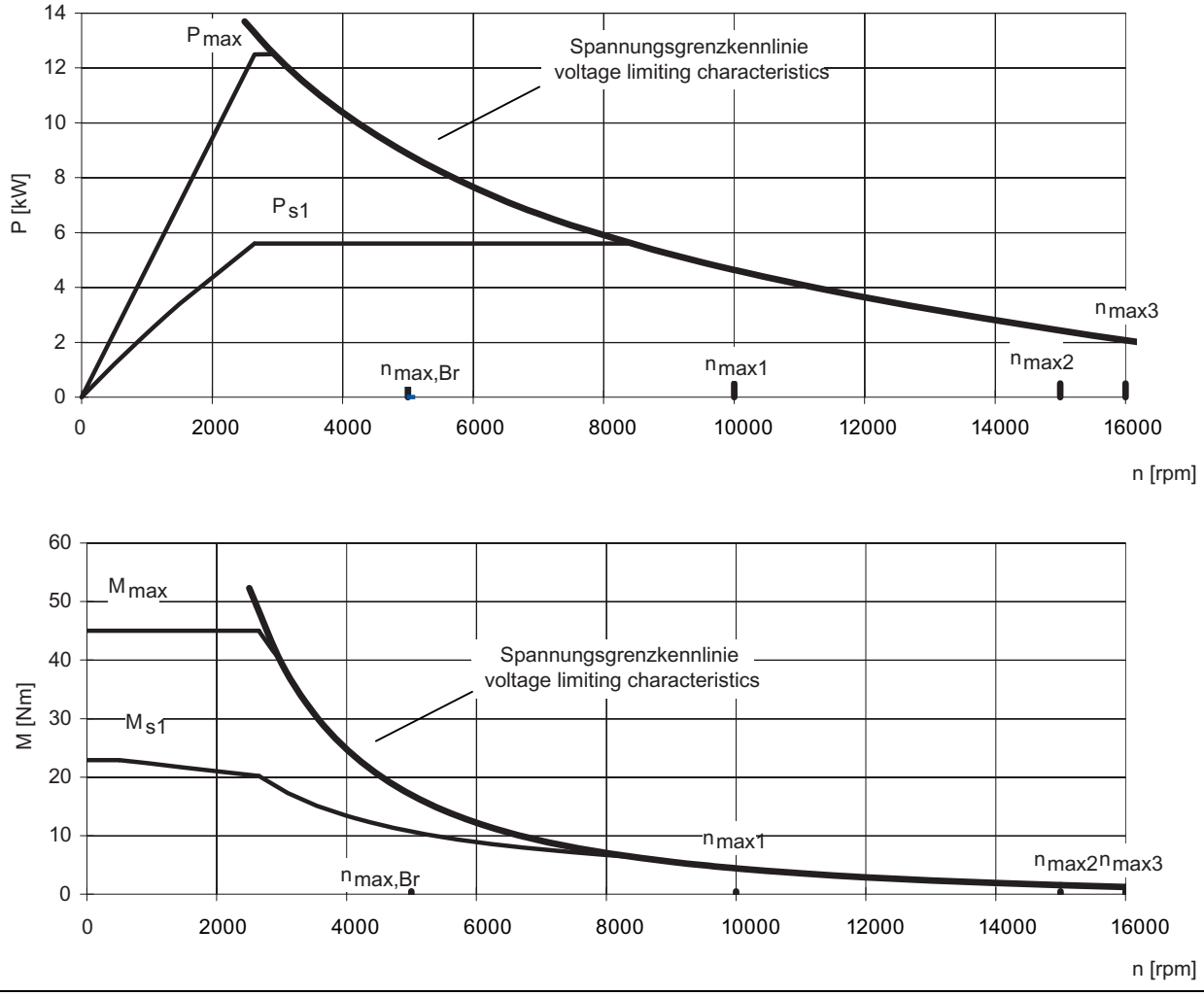


Table 4- 421 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4500	6.7	14	18.0	10000	15000	20000	5000	15850	45	45	23	23

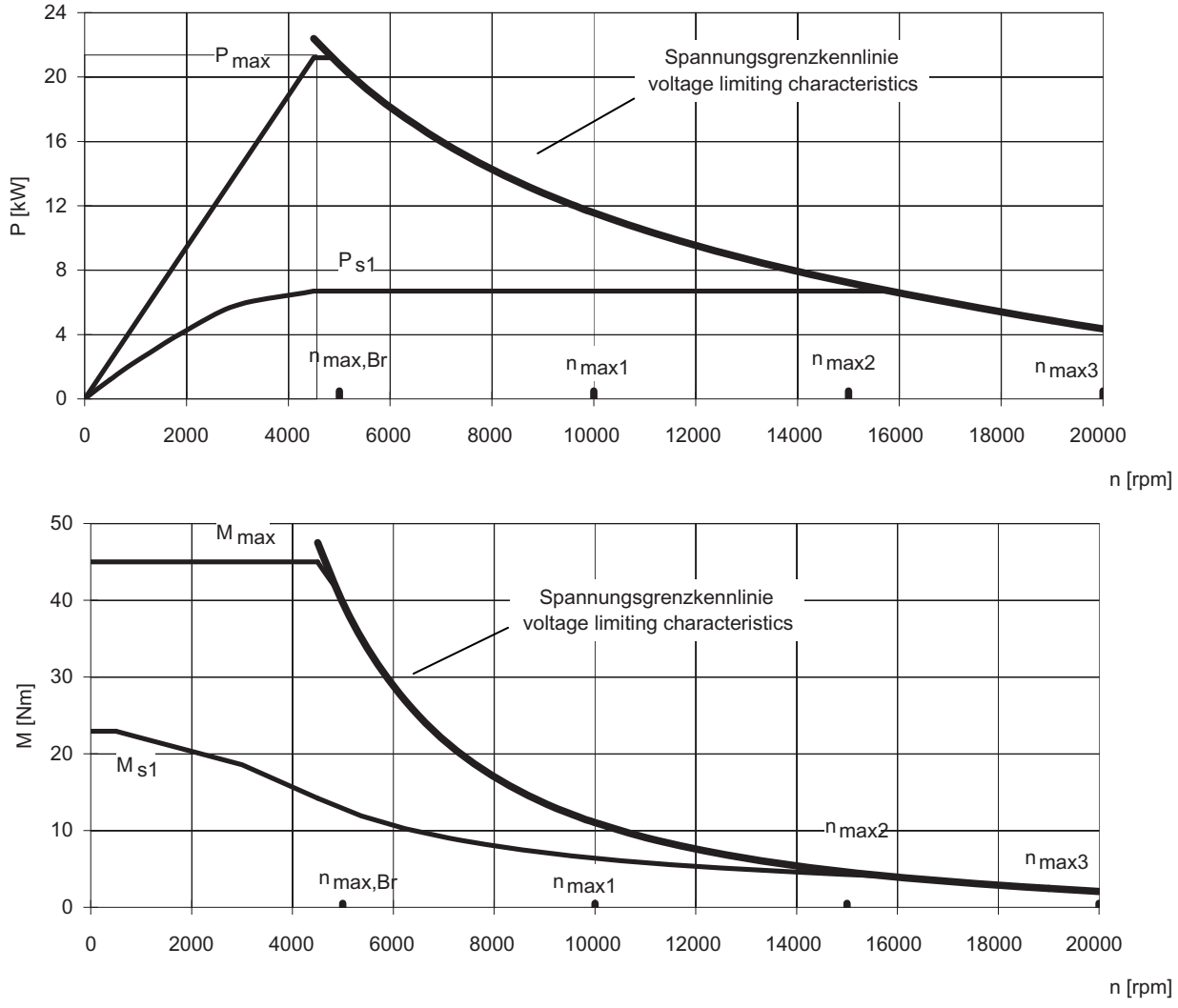
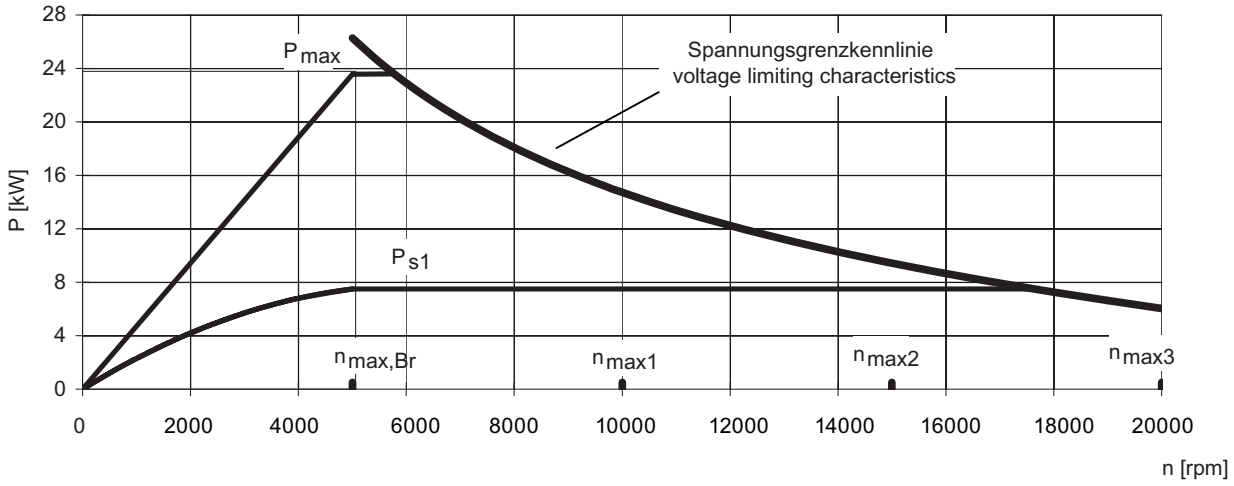


Table 4- 422 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	7.5	14	18.0	10000	15000	20000	5000	17700	45	45	23	23
4500	6.7	14	18.0					18950				



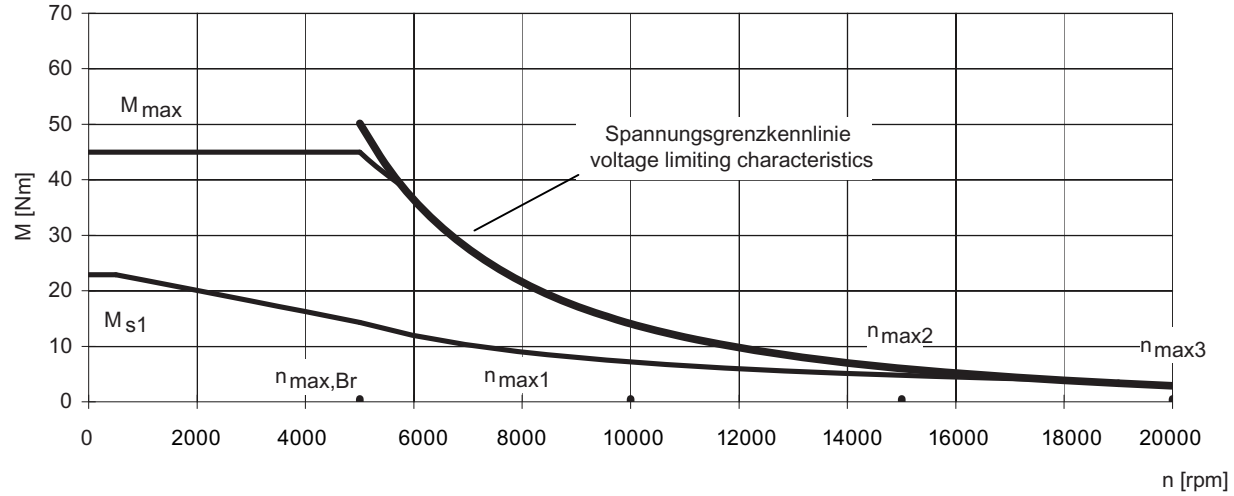
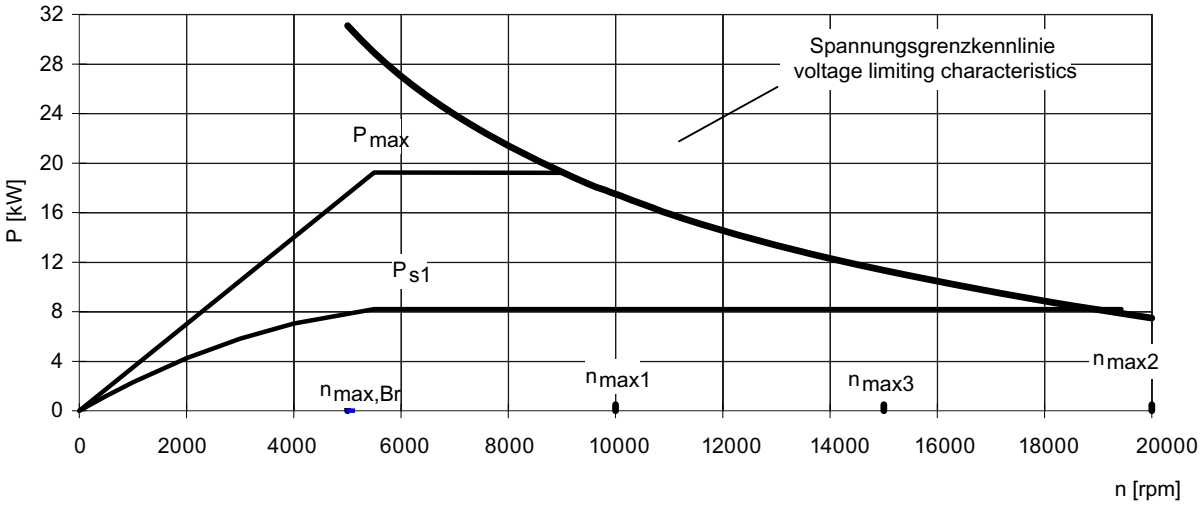


Table 4- 423 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8083-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5500	8.2	14	18.0	10000	15000	20000	5000	19500	33	36	23	23



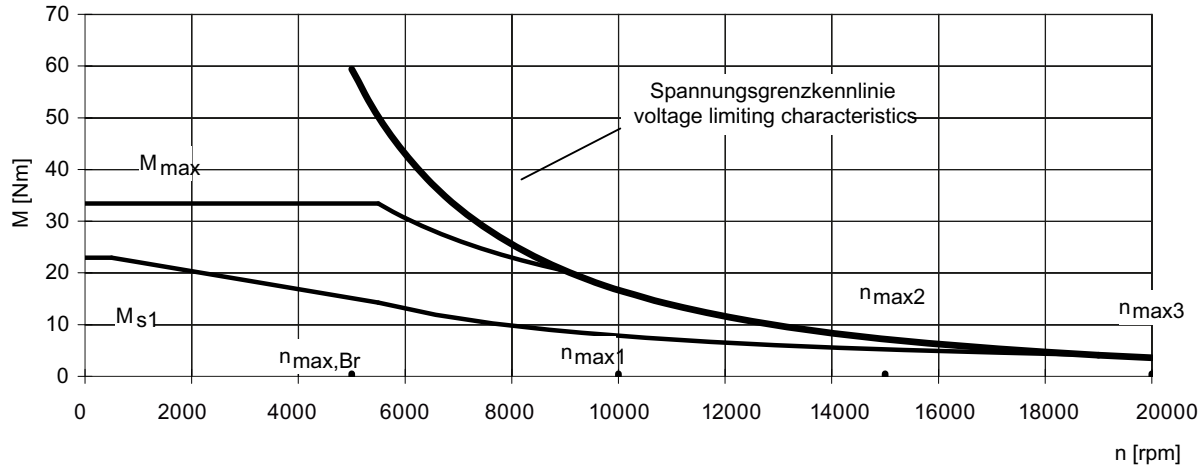


Table 4- 424 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	4,6	29	13,7	10000	15000	-	5000	6000	65	29	34	15

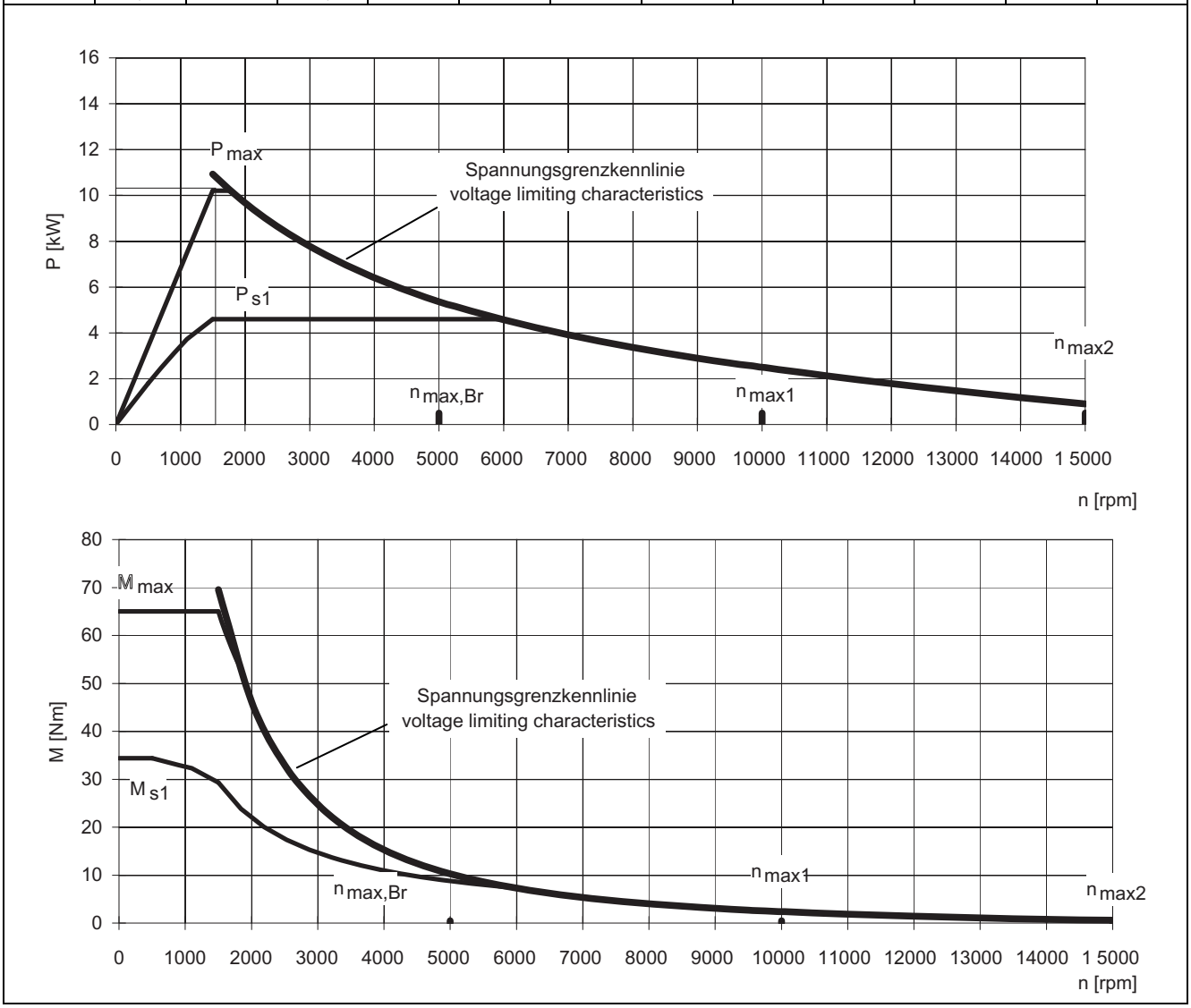
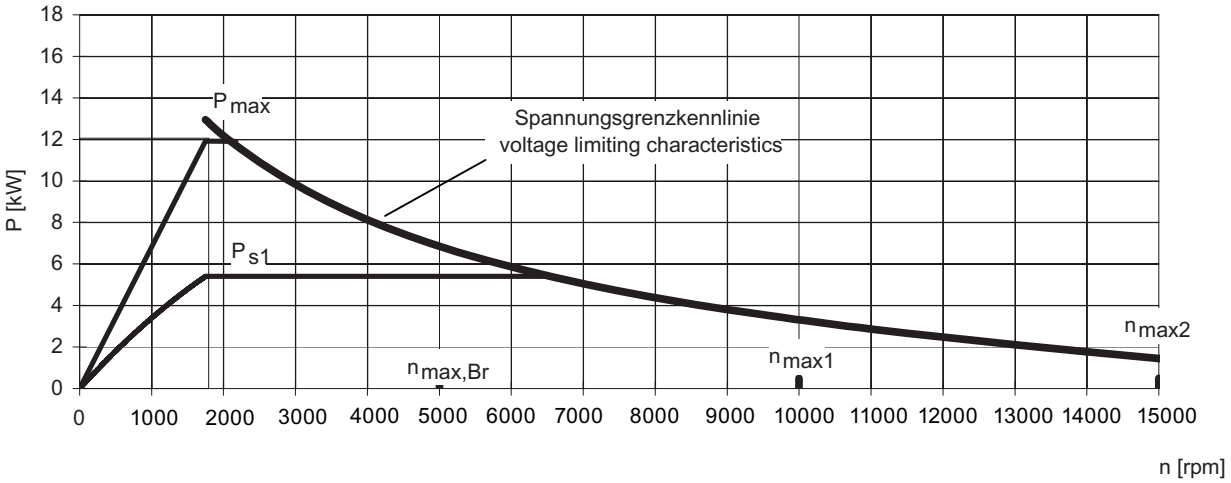


Table 4- 425 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	5,4	29	13,7	10000	15000	-	5000	6600	65	29	34	15
1500	4,6	29	13,7					7700				



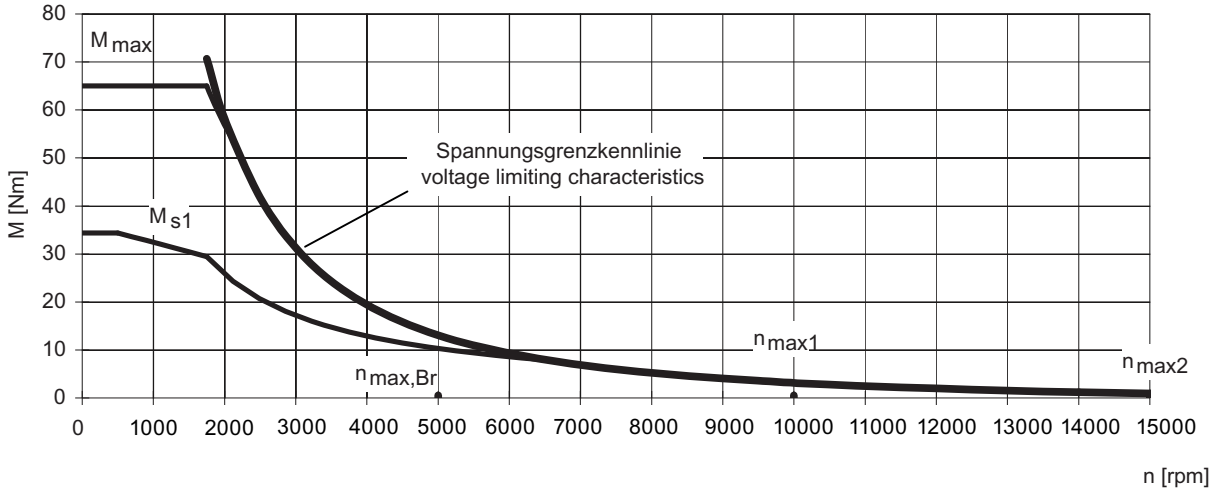


Table 4- 426 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	6,1	29	13,7	10000	15000	-	5000	6950	65	29	34	15

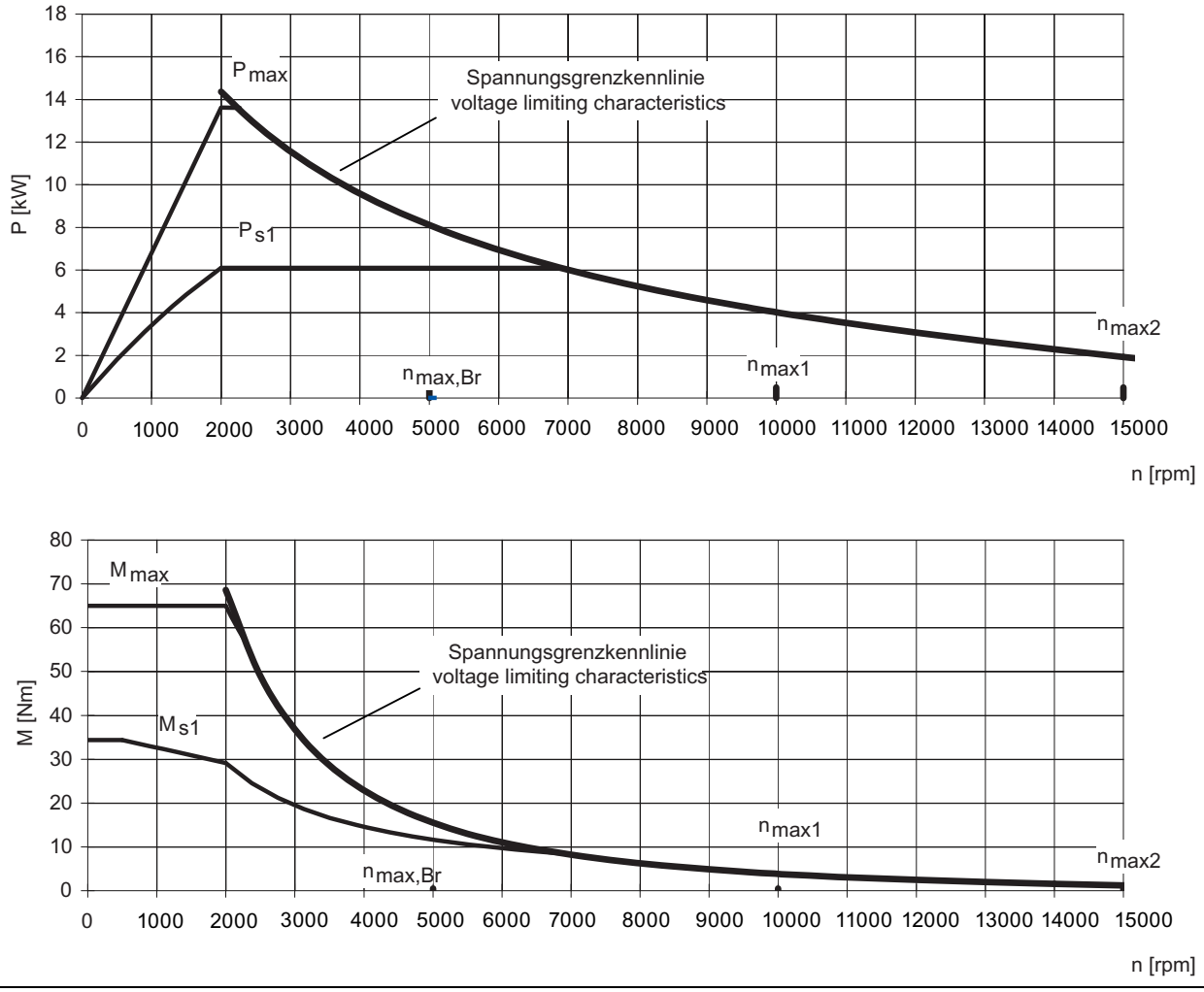
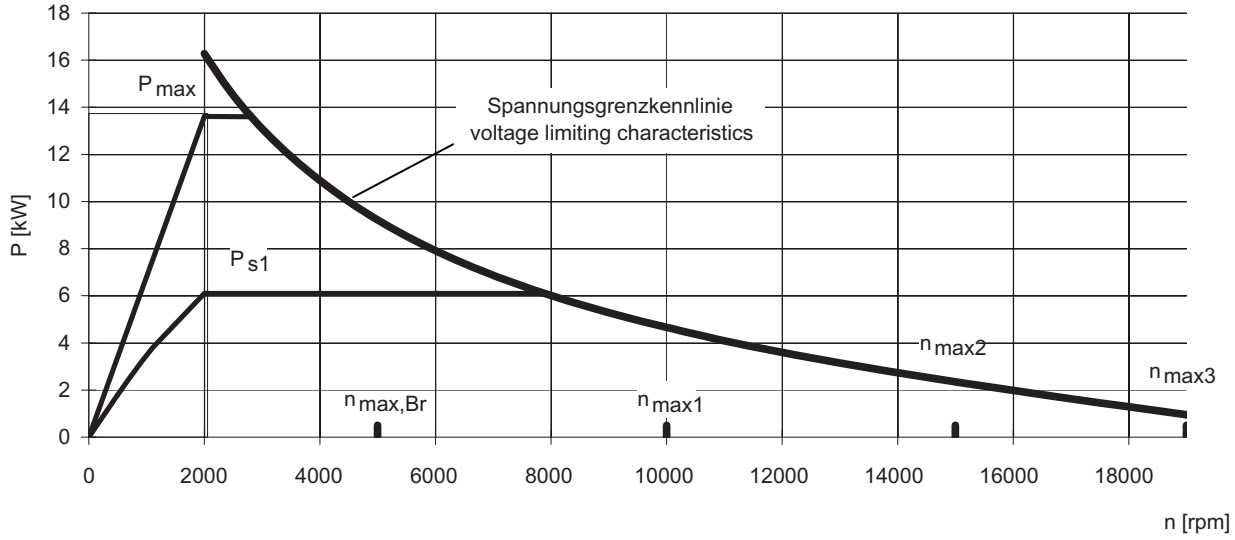


Table 4- 427 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	6,1	29	17,5	10000	15000	19000	5000	7950	65	38	34	19



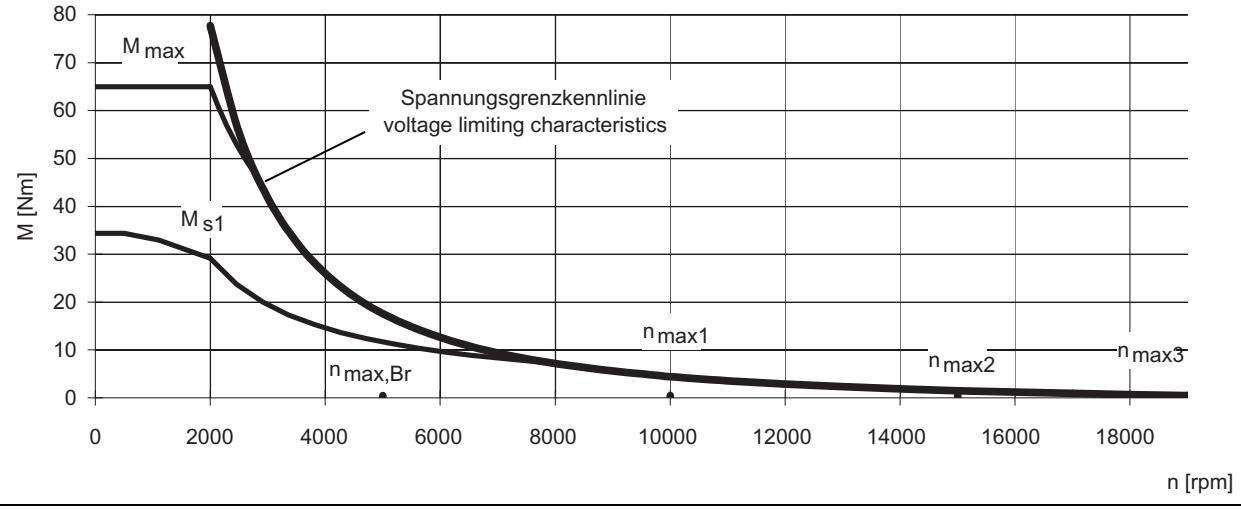
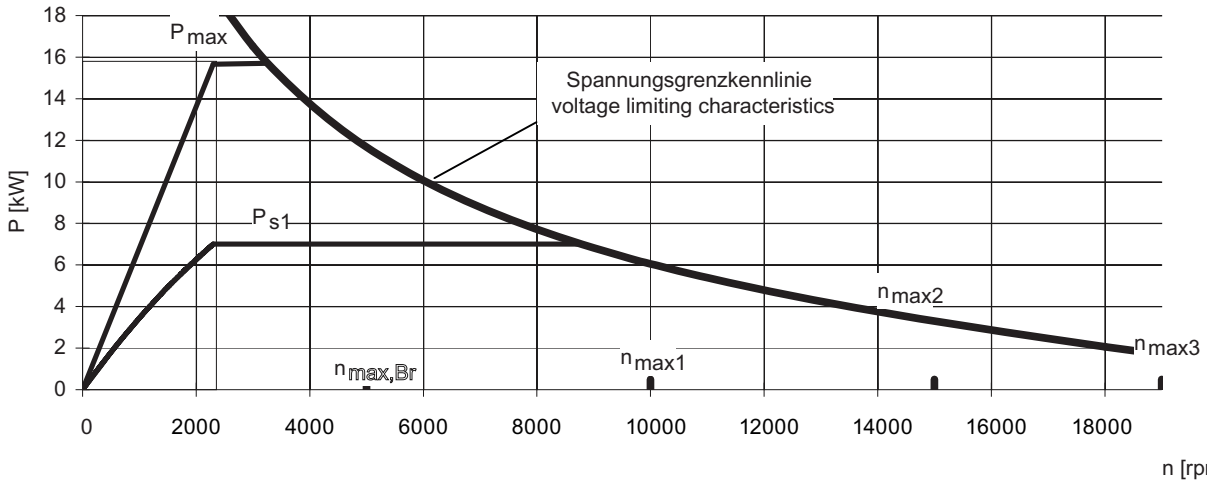


Table 4- 428 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	7,0	29	17,7	10000	15000	19000	5000	8850	65	38	34	19
2000	6,1	29	17,5					10000				



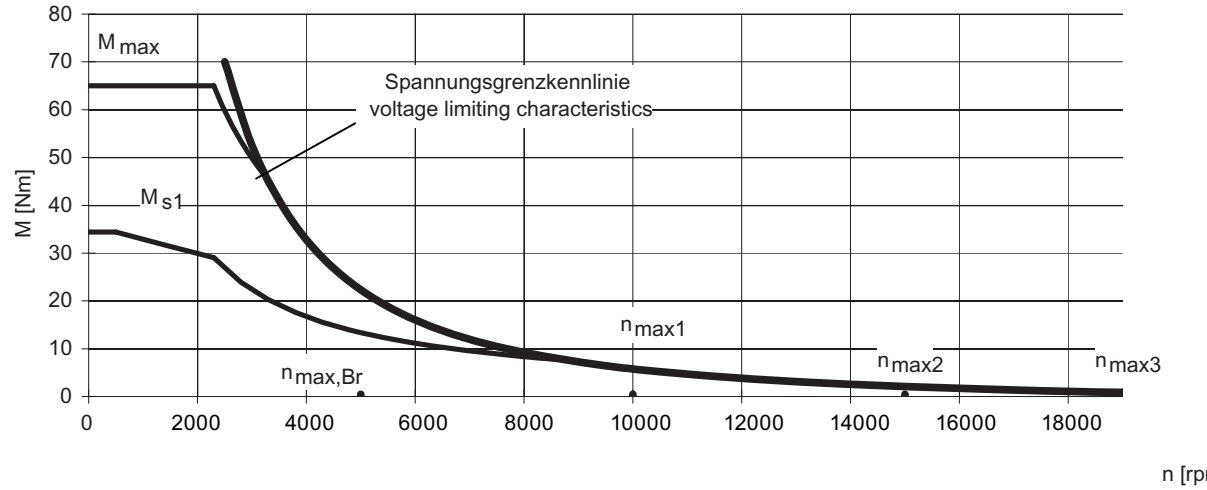
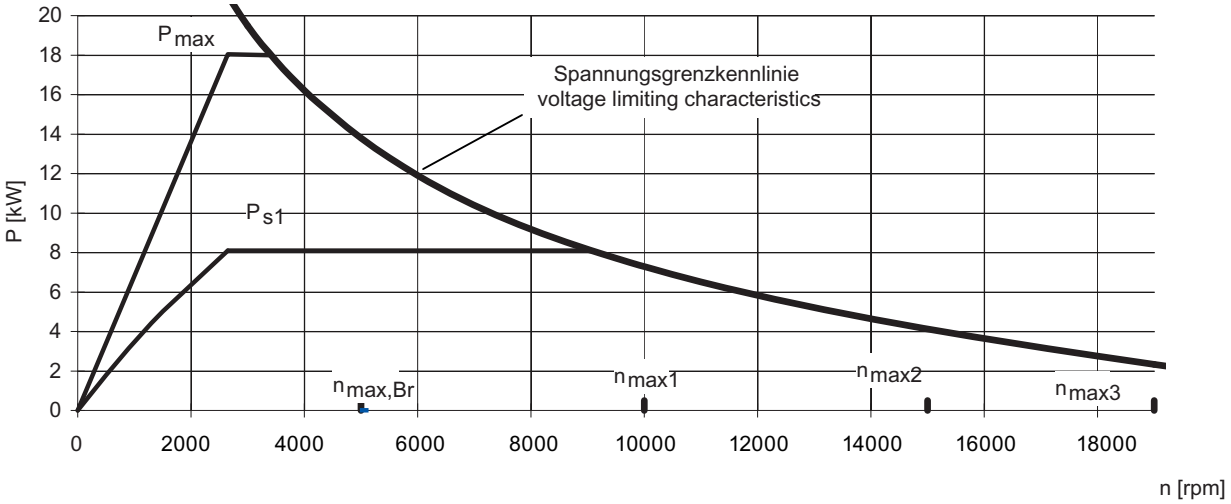


Table 4- 429 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	8,1	29	17,8	10000	15000	19000	5000	9150	65	38	34	19



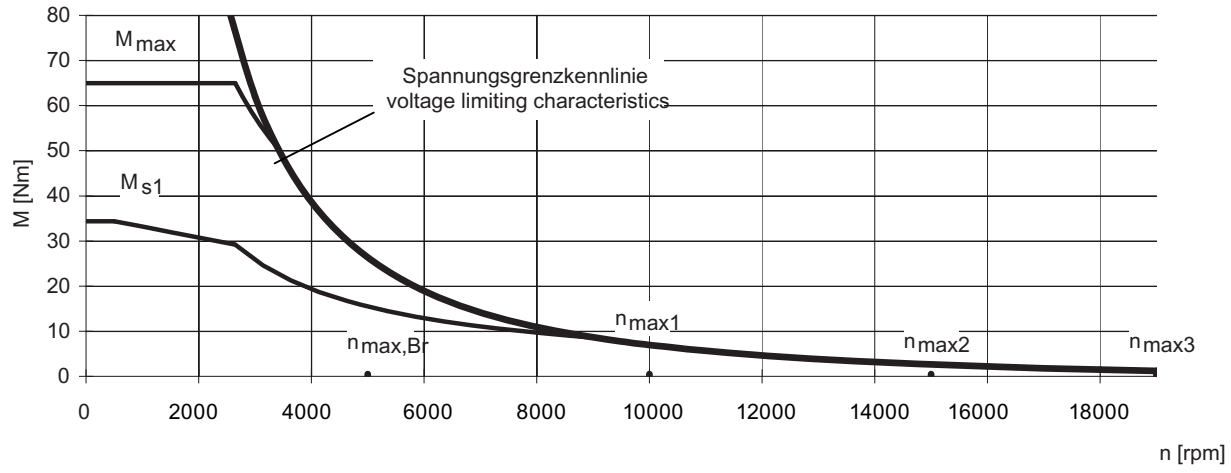


Table 4- 430 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
4500	8,5	18	24,0	10000	15000	20000	5000	16750	60	64	27	31

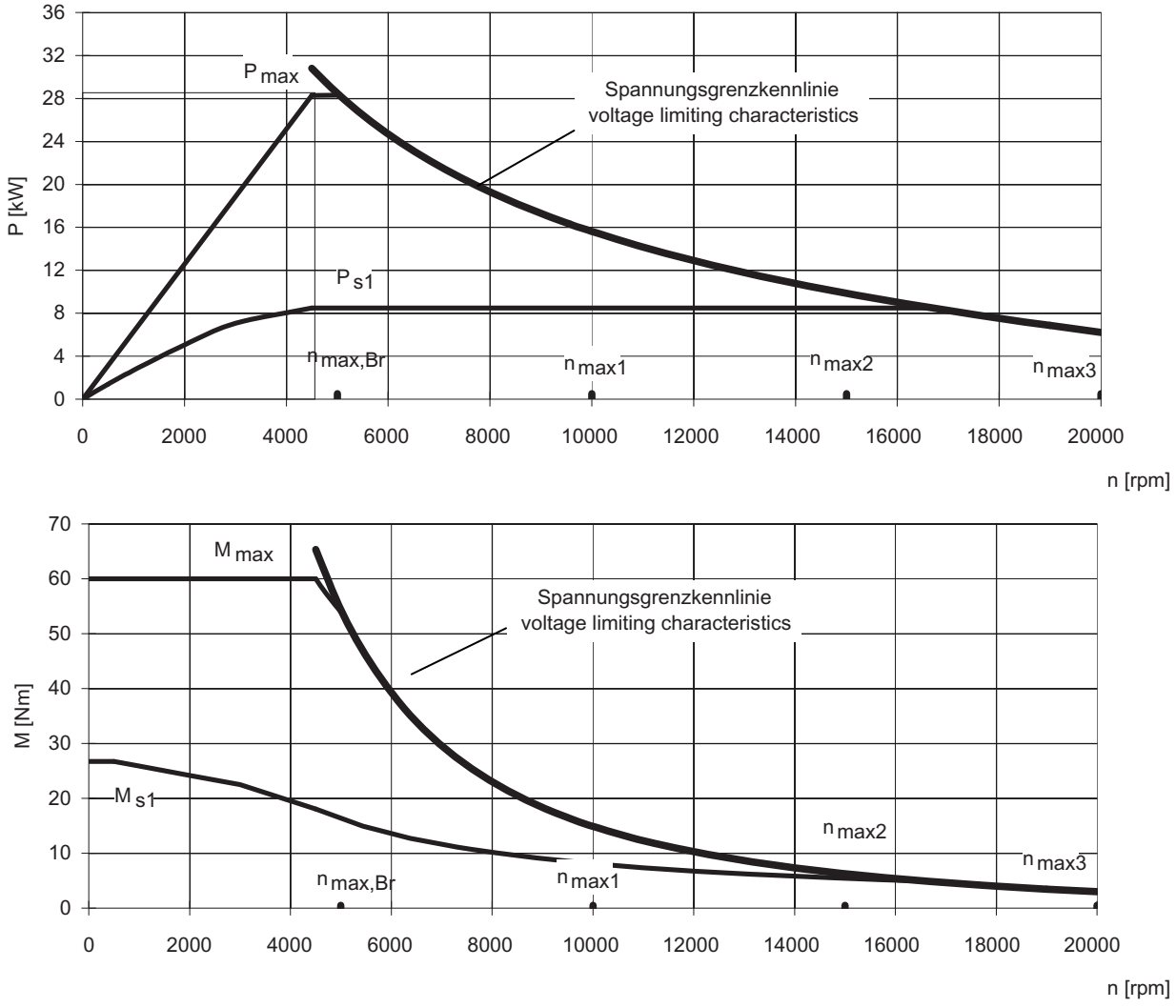
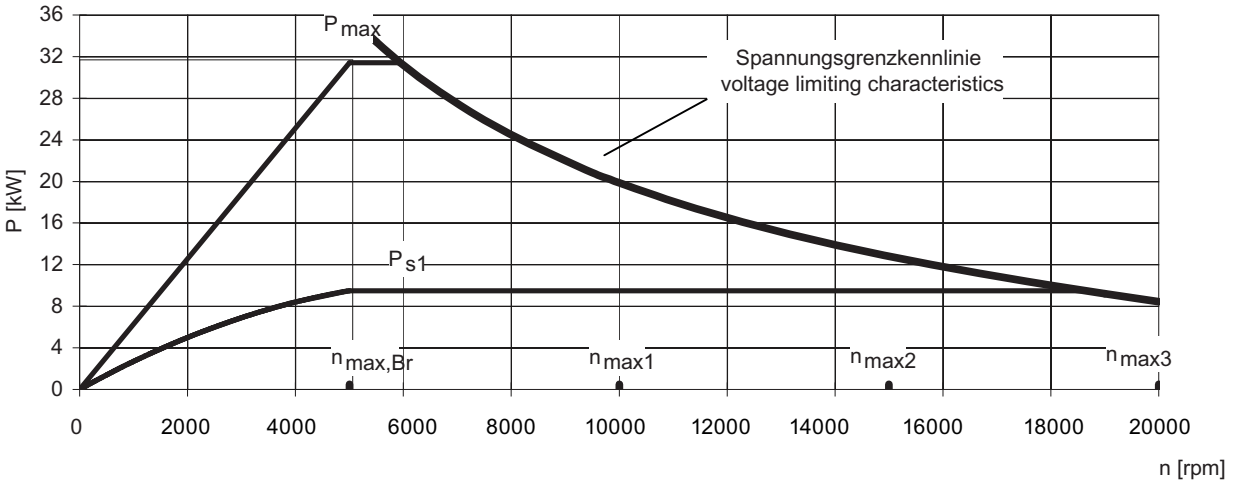


Table 4- 431 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5000	9,5	18	24,0	10000	15000	20000	5000	18700	60	64	27	31
4500	8,5	18	24,0					20000				



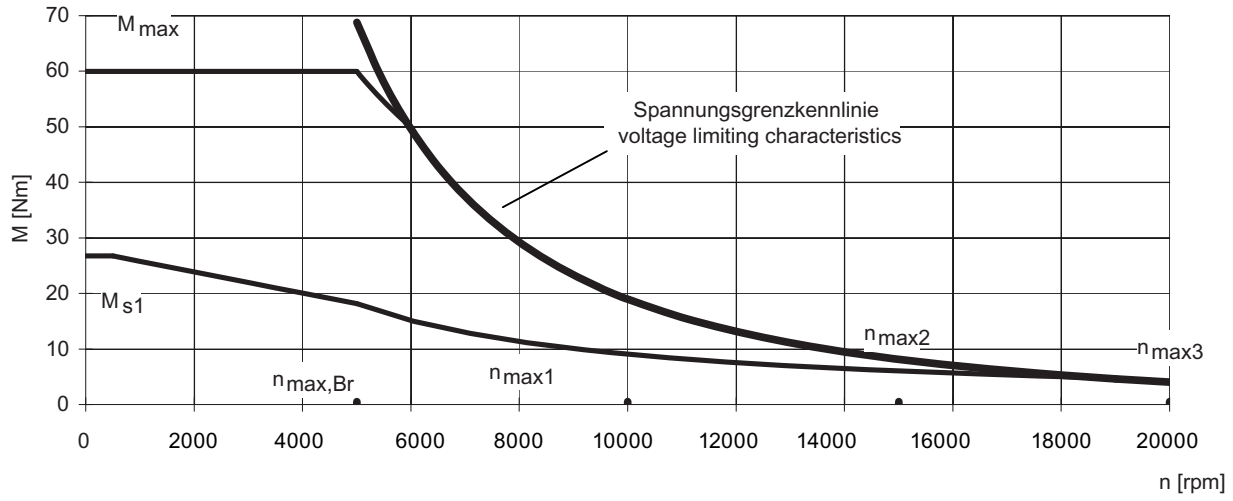
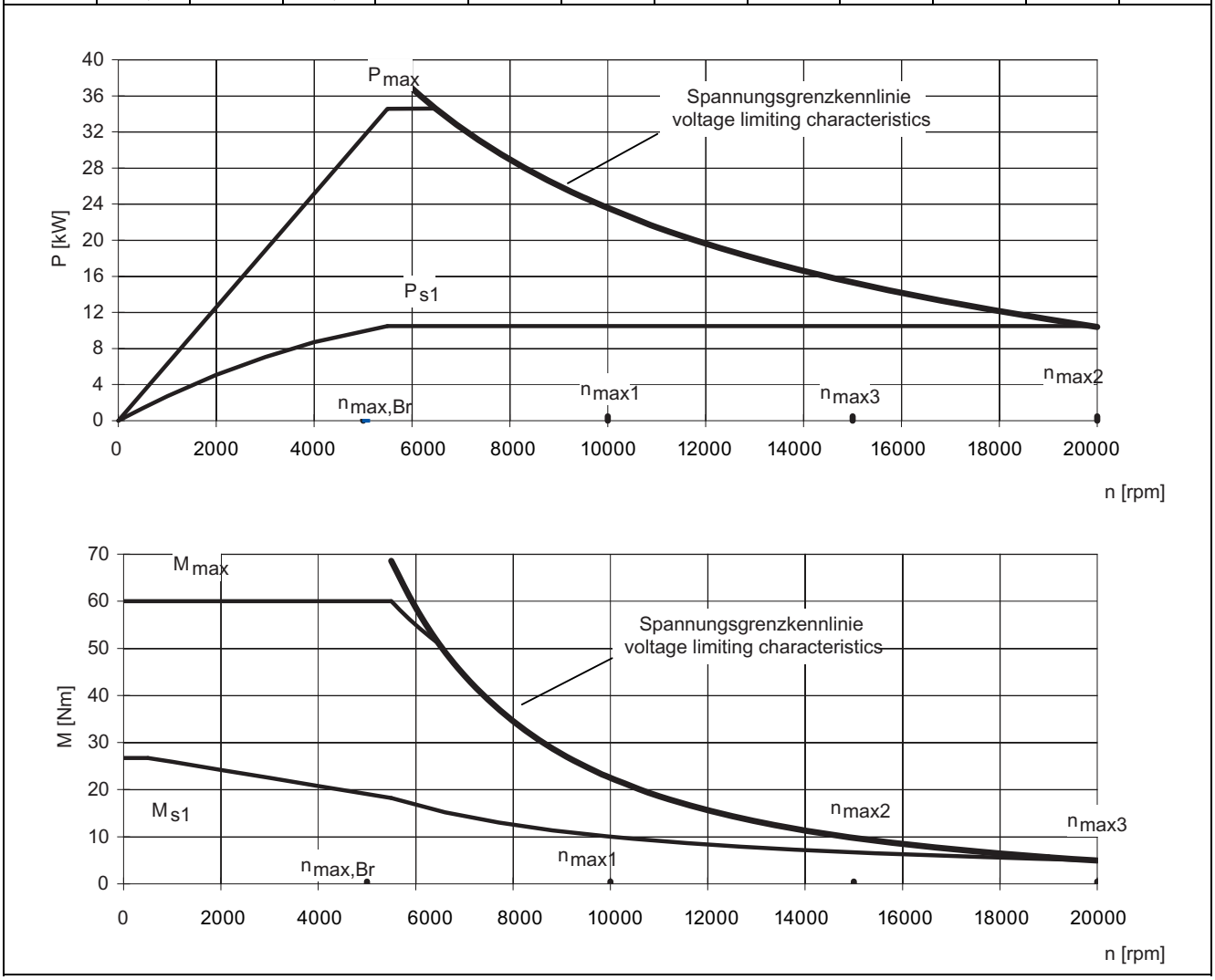


Table 4- 432 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8087-□□N2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
5500	10,5	18	24,0	10000	15000	20000	5000	19900	60	64	27	31



4.1.3.2 Shaft height 100 - water-cooled

Table 4- 433 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	5.0	32	12.8	9000	-	-	5000	2500	50	25	34	13

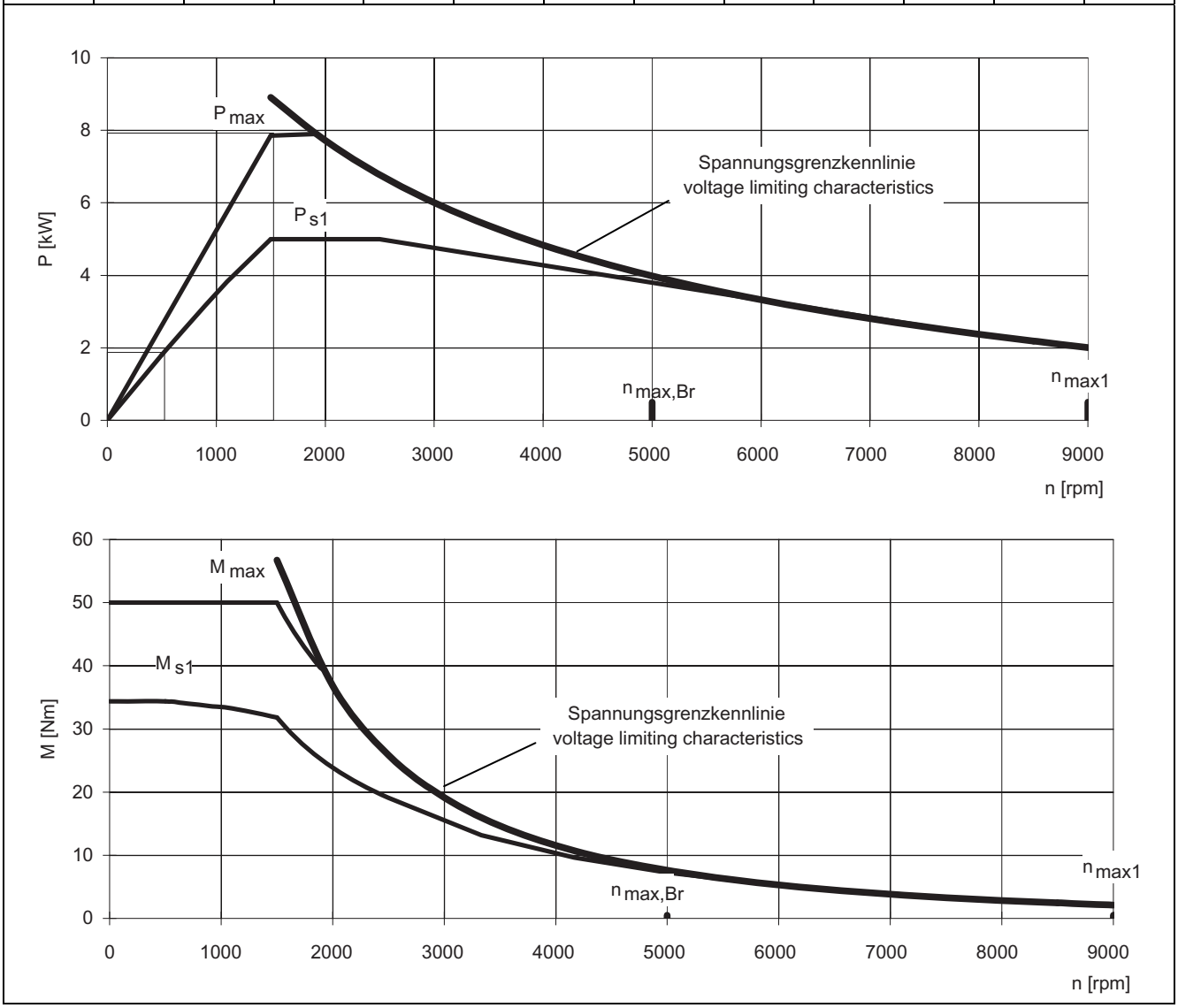


Table 4- 434 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	5.8	32	12.8	9000	-	-	5000	5000	50	25	34	13
1500	5.0	32	12.8					4200				

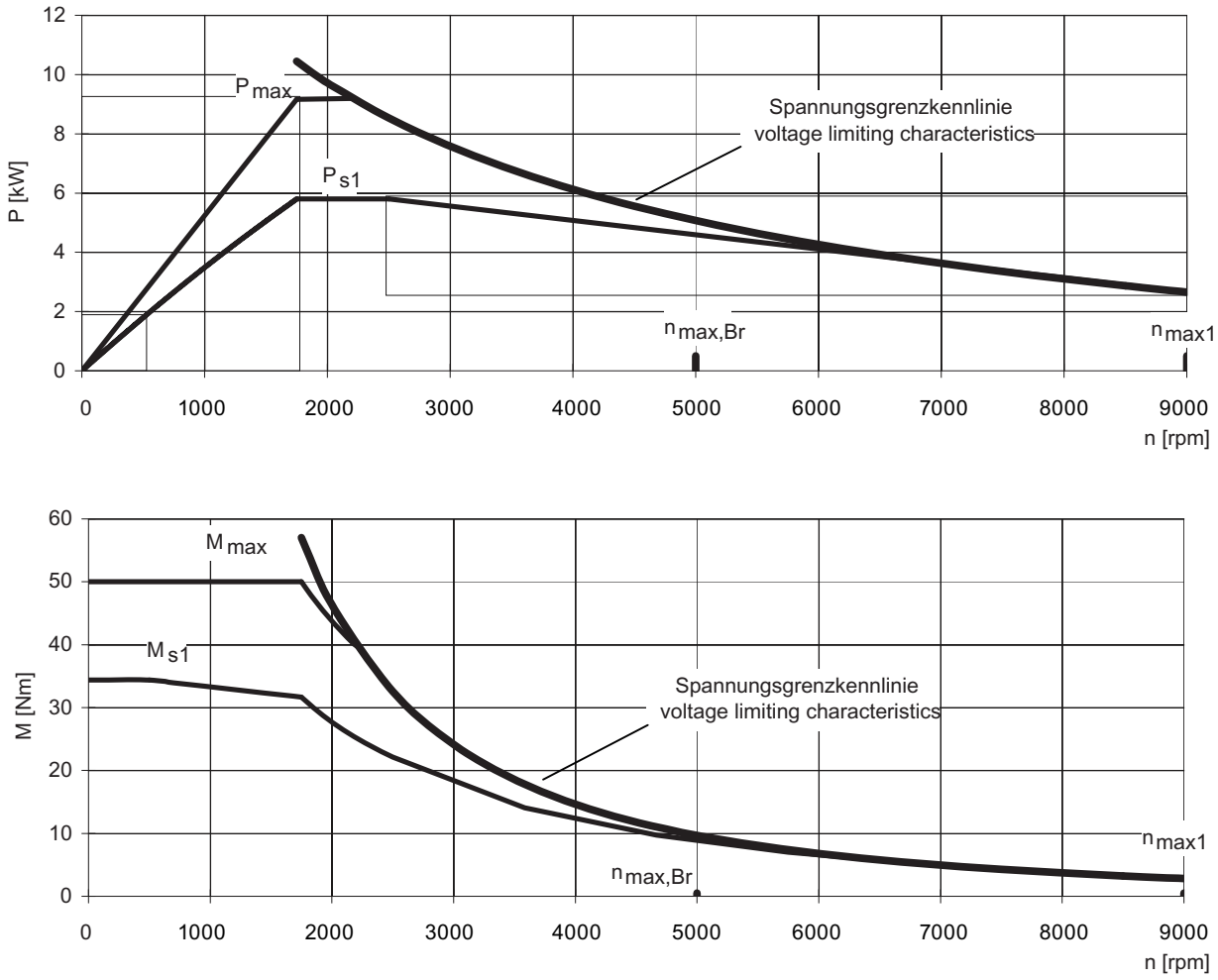


Table 4- 435 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8101-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	6.6	32	12.5	9000	-	-	5000	2500	50	25	34	13

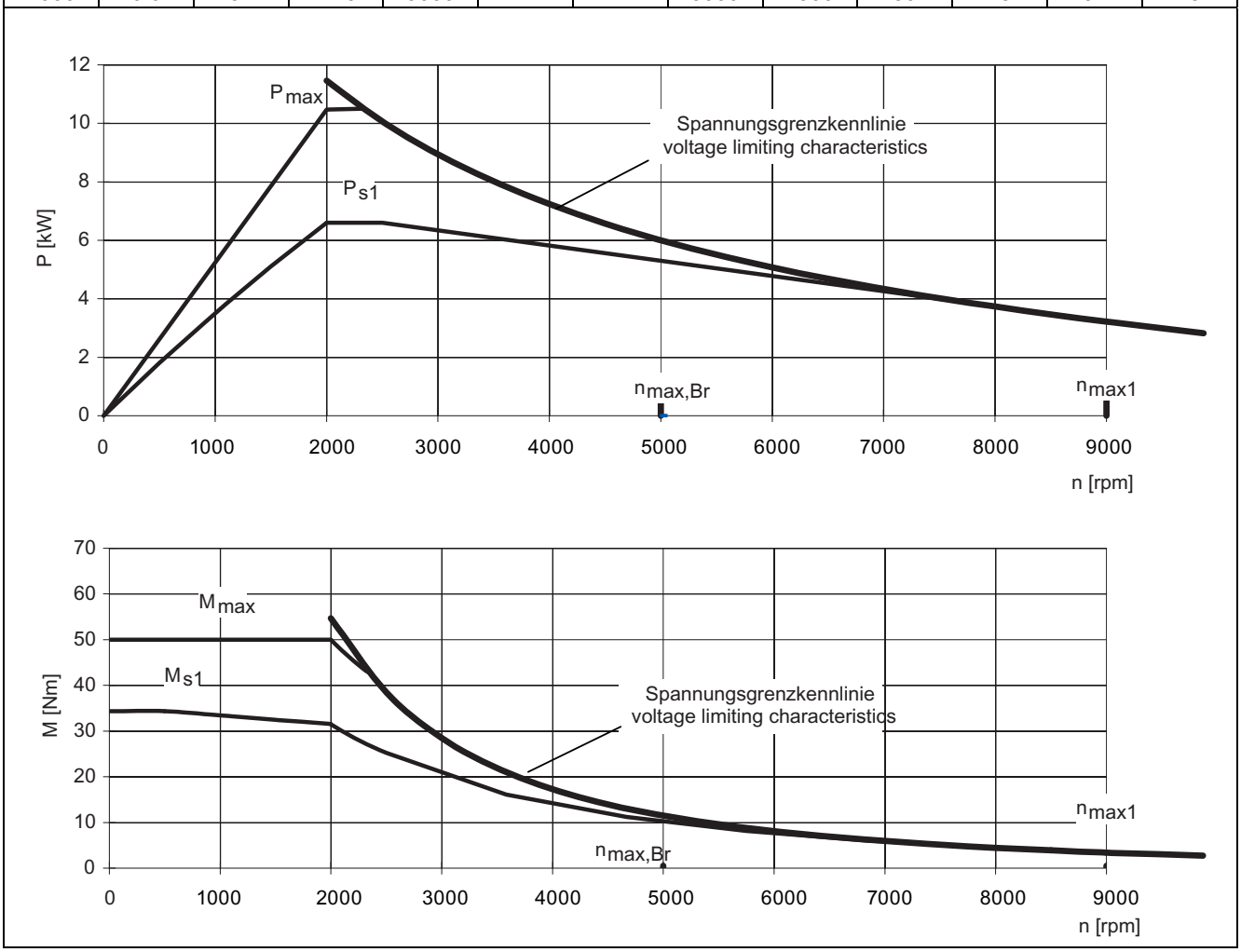
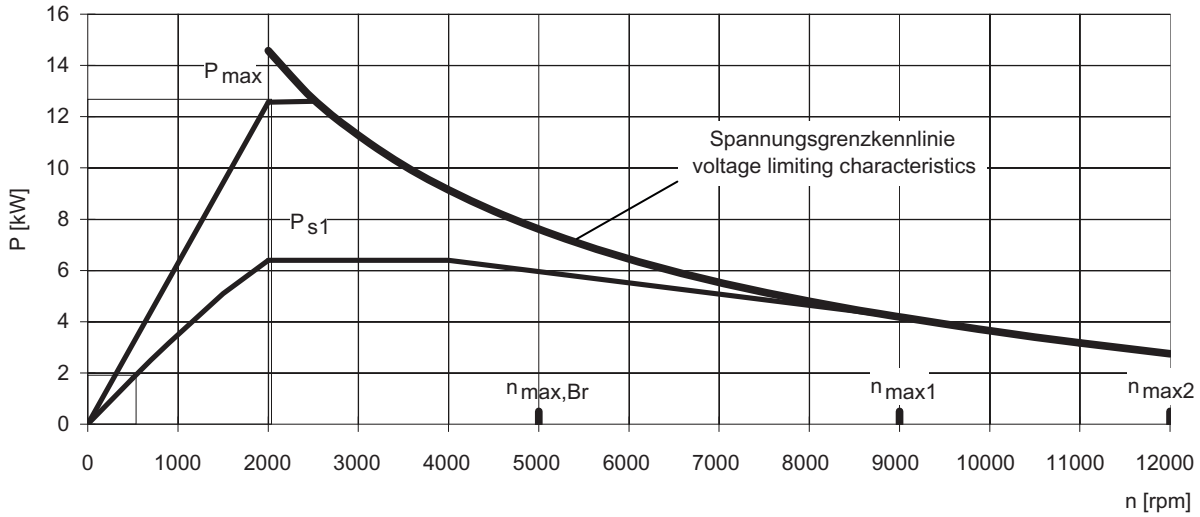


Table 4- 436 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	6.4	31	16.8	9000	12000	-	5000	4000	60	33	34	18



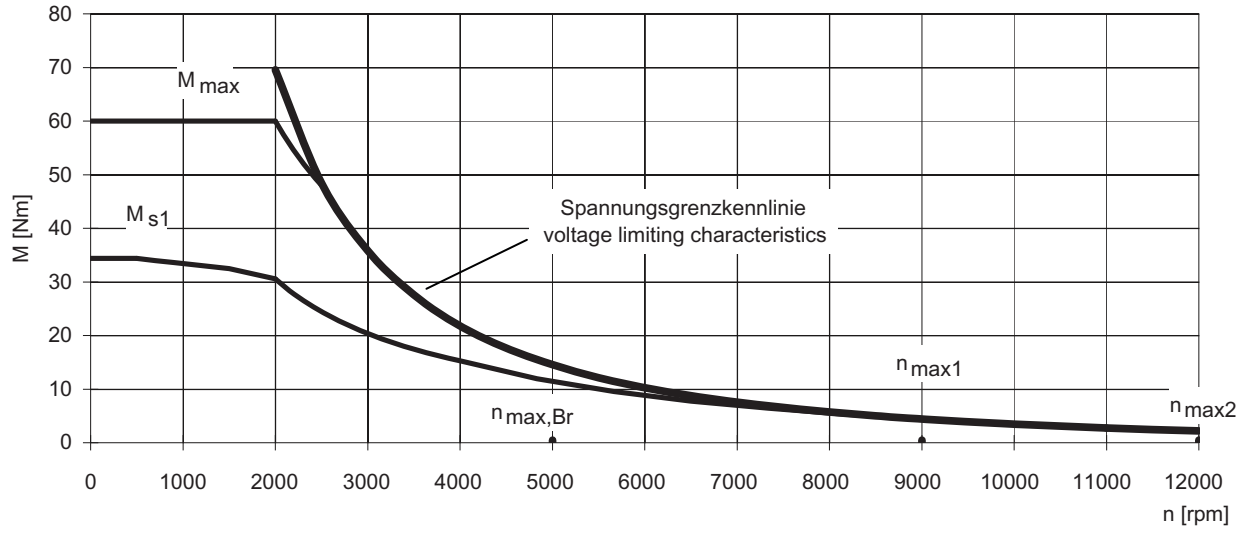
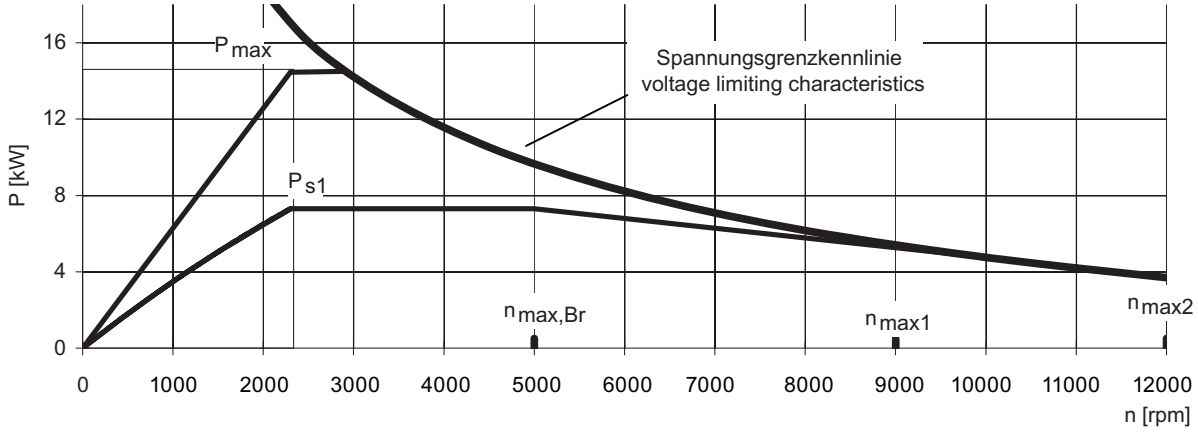


Table 4- 437 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	7.3	30	16.8	9000	12000	-	5000	5000	60	33	34	18
2000	6.4	31	16.8					6800				
1500	5.0	32	17.3					9600				



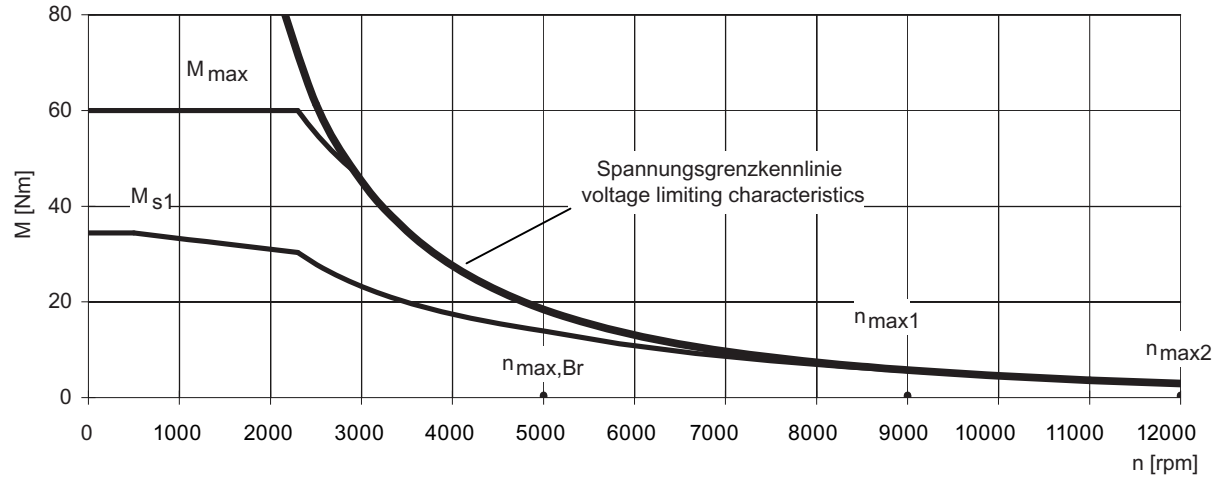


Table 4- 438 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8101-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	8.4	30	16.8	9000	12000	-	5000	4000	60	33	34	18

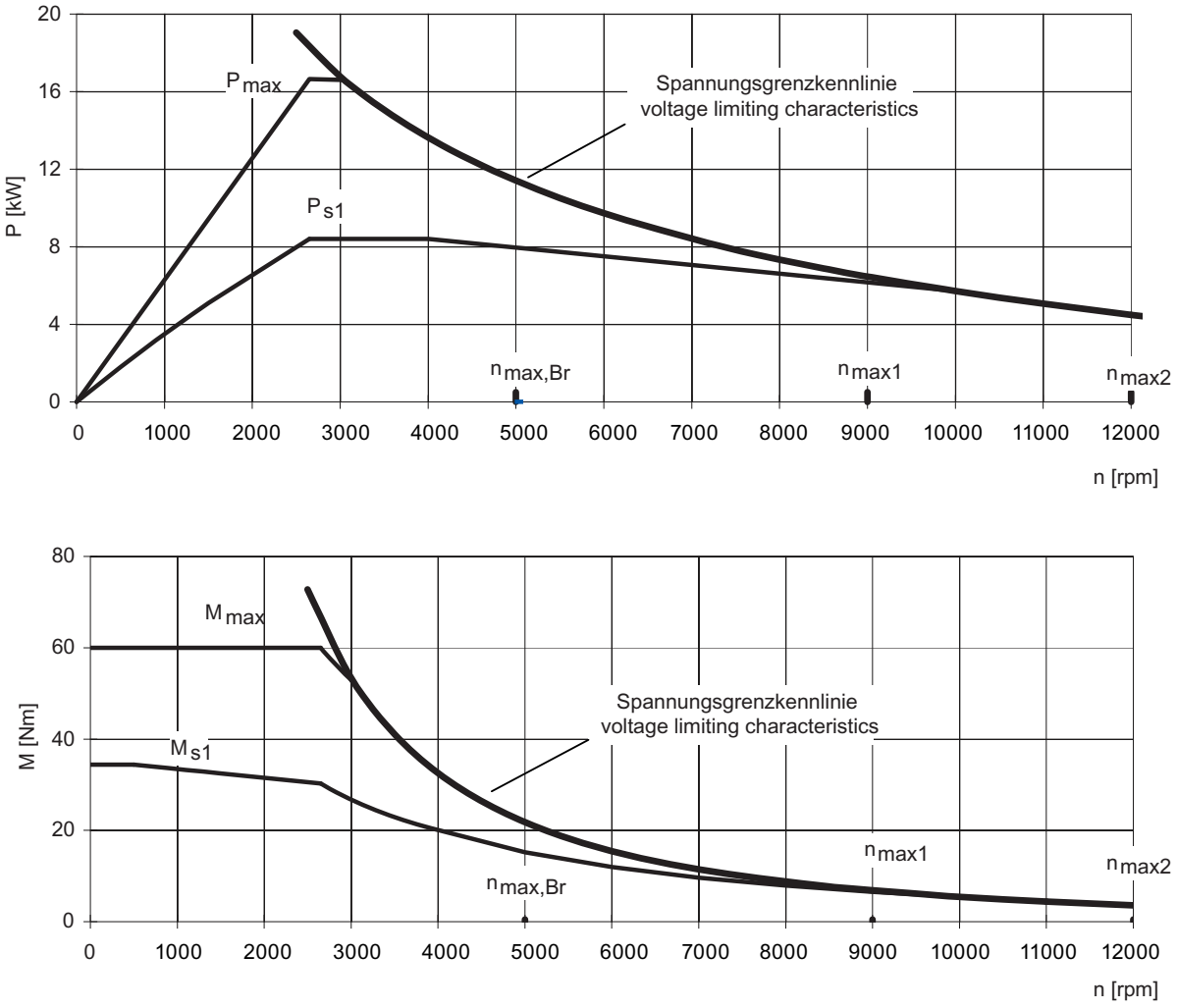


Table 4- 439 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	7.1	45	19.7	9000	-	-	5000	4000	85	37	48	20

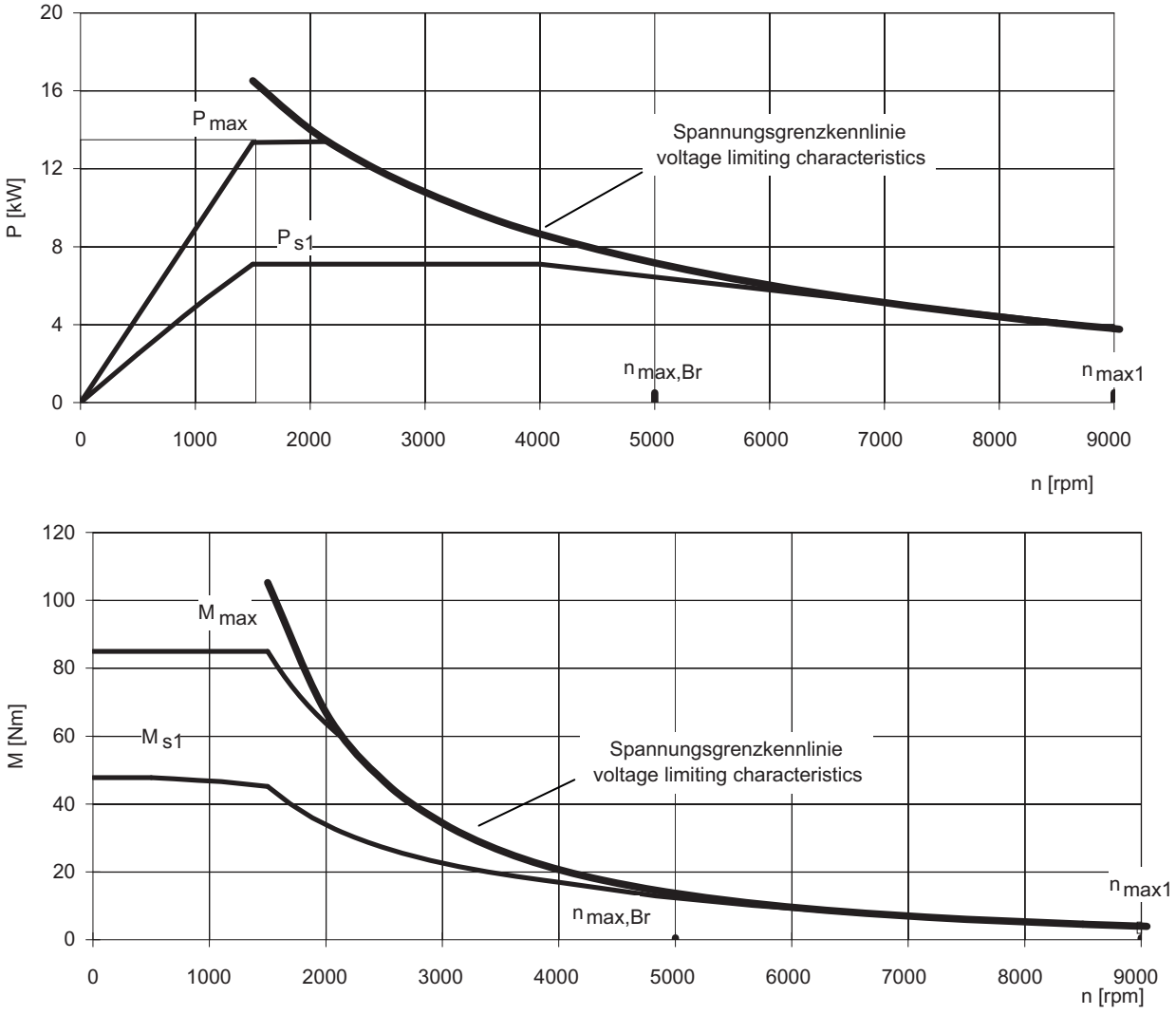


Table 4- 440 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	8.2	45	19.7	9000	-	-	5000	5000	85	37	48	20
1500	7.1	45	19.7					6400				

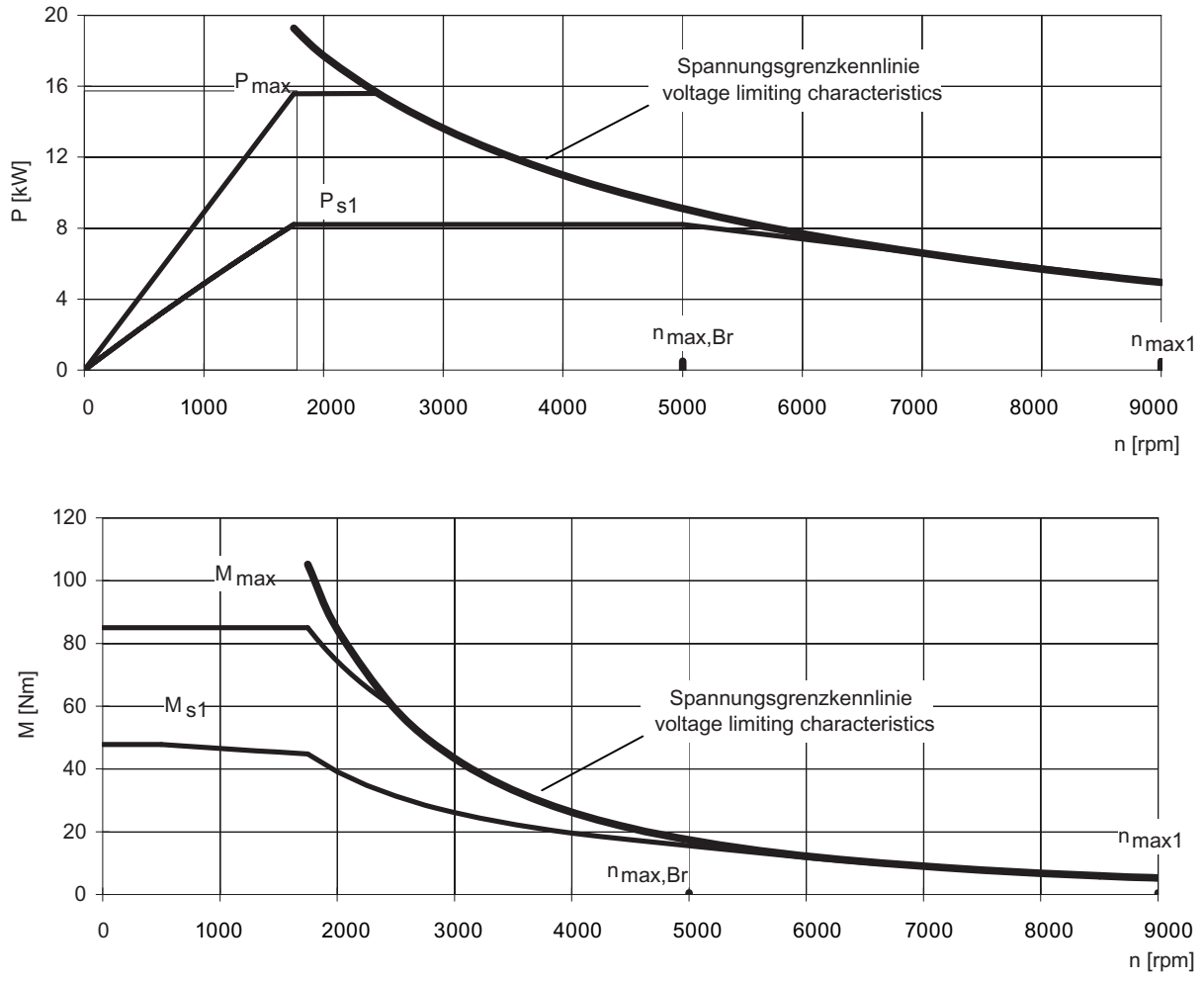
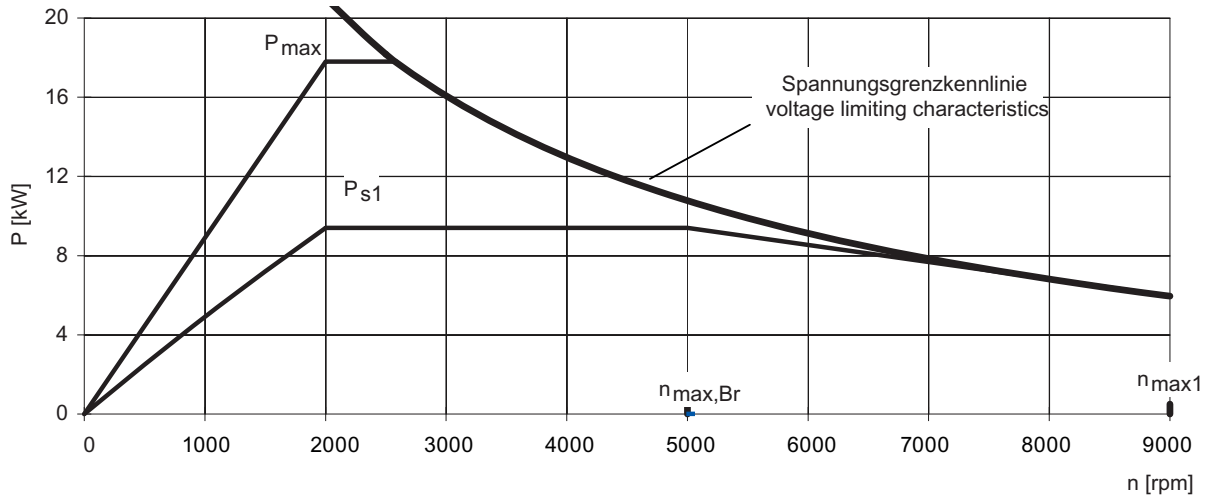


Table 4- 441 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	9.4	45	19.7	9000	-	-	5000	5000	85	37	48	20



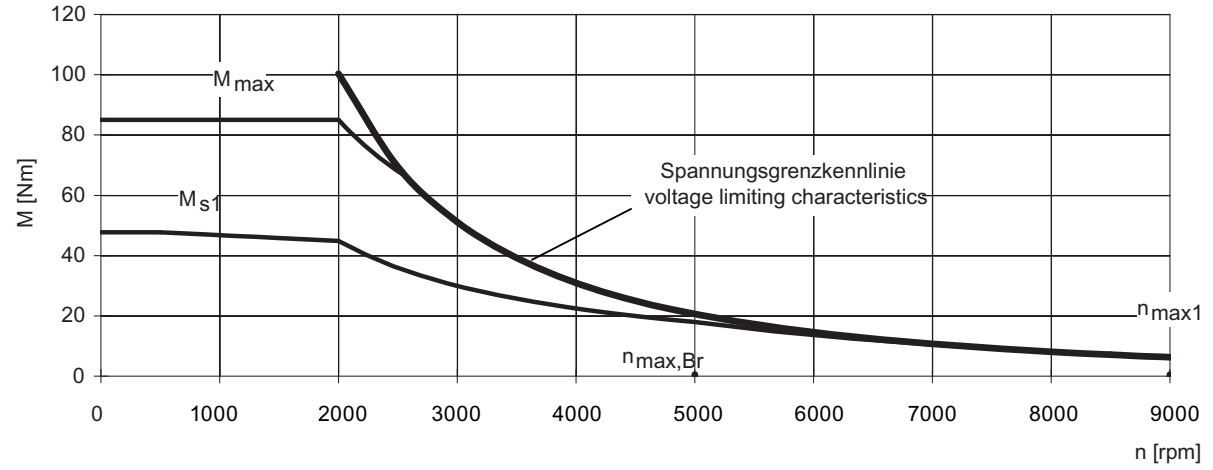


Table 4- 442 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	9.5	45	23.8	9000	12000	-	5000	3000	80	43	48	24

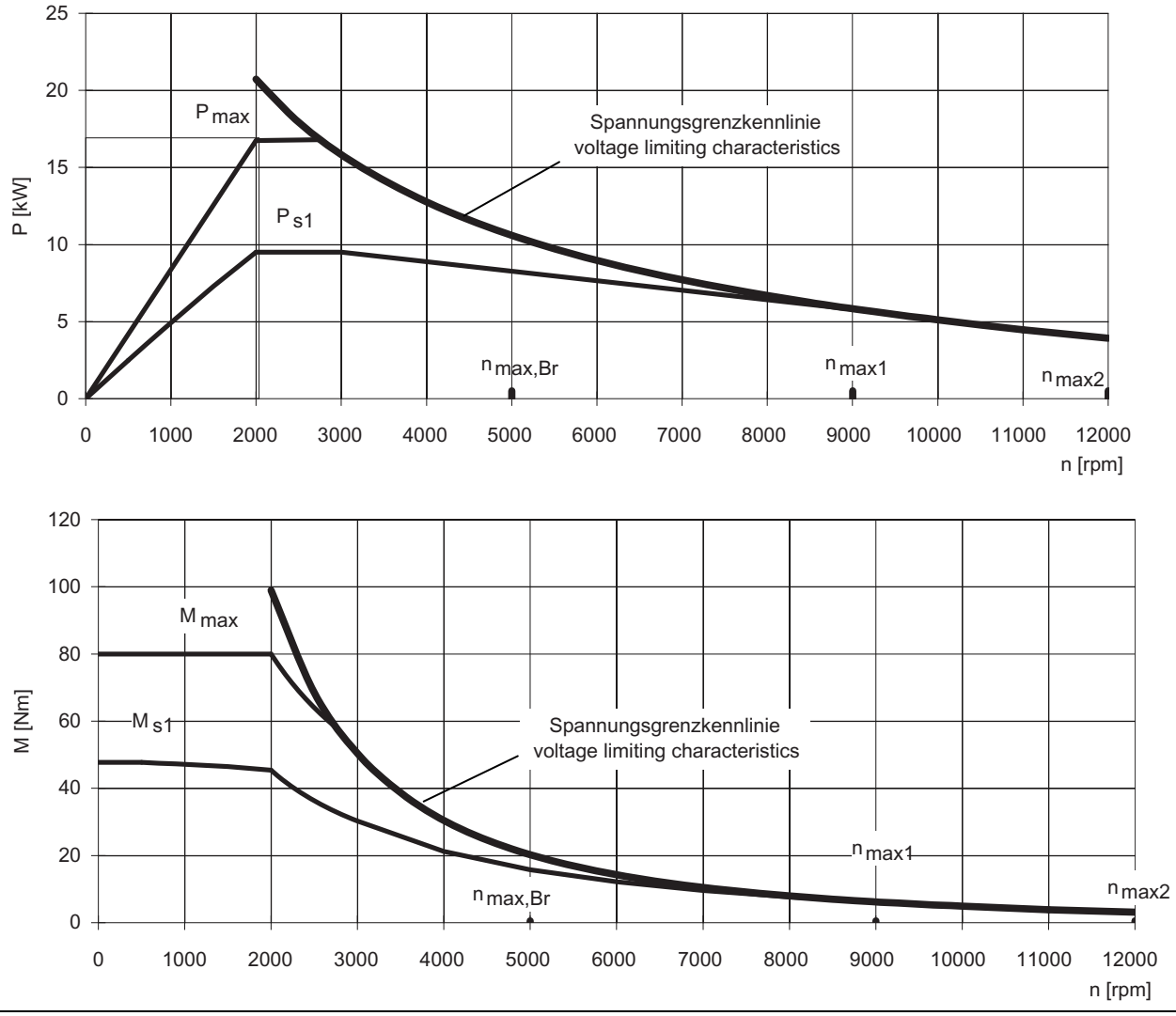
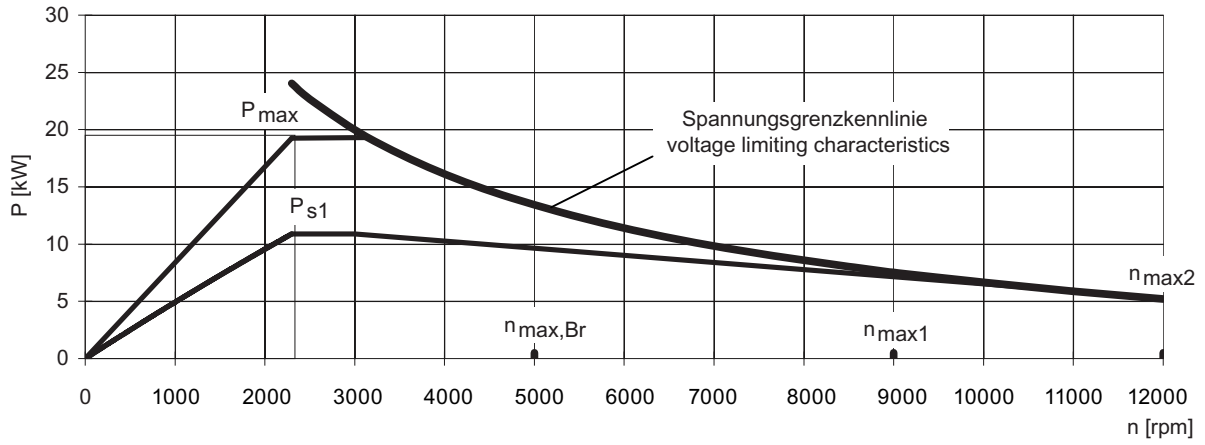


Table 4- 443 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	10.9	45	23.8	9000	12000	-	5000	3000	80	43	48	24
2000	9.5	45	23.8					5300				
1500	7.0	45	23.7					8900				



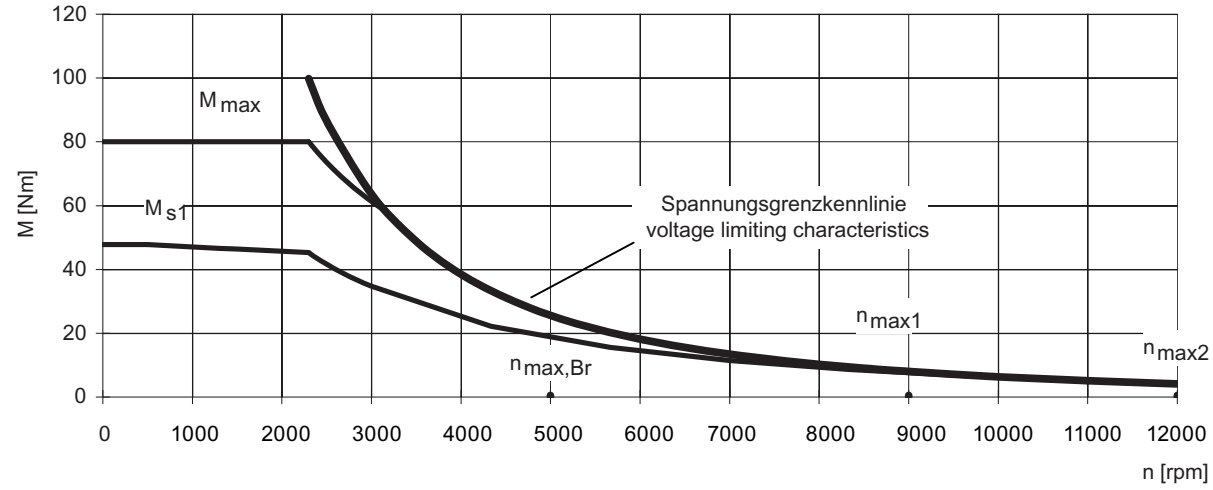
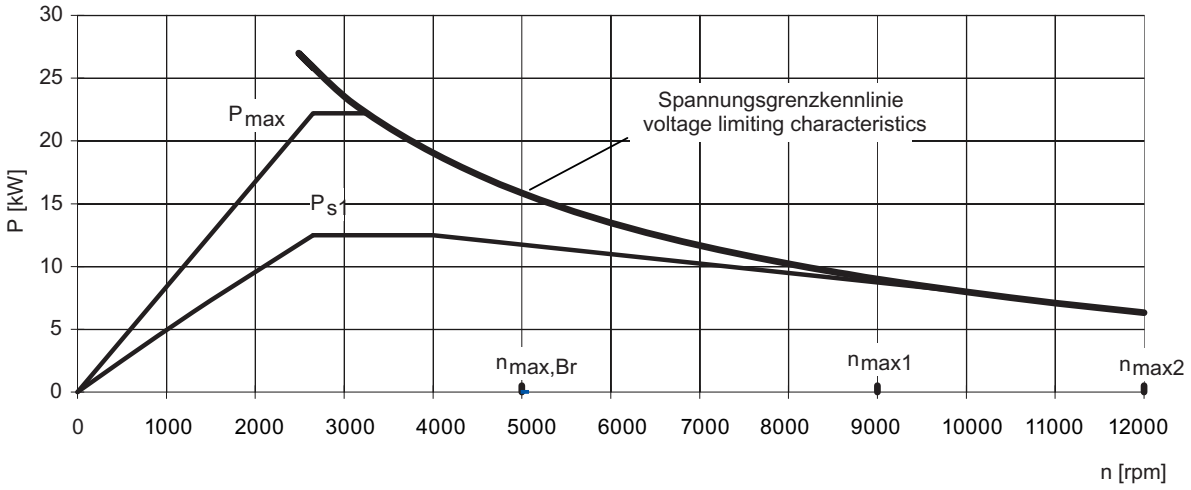


Table 4- 444 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	12.5	45	23.5	9000	12000	-	5000	4000	80	43	48	24



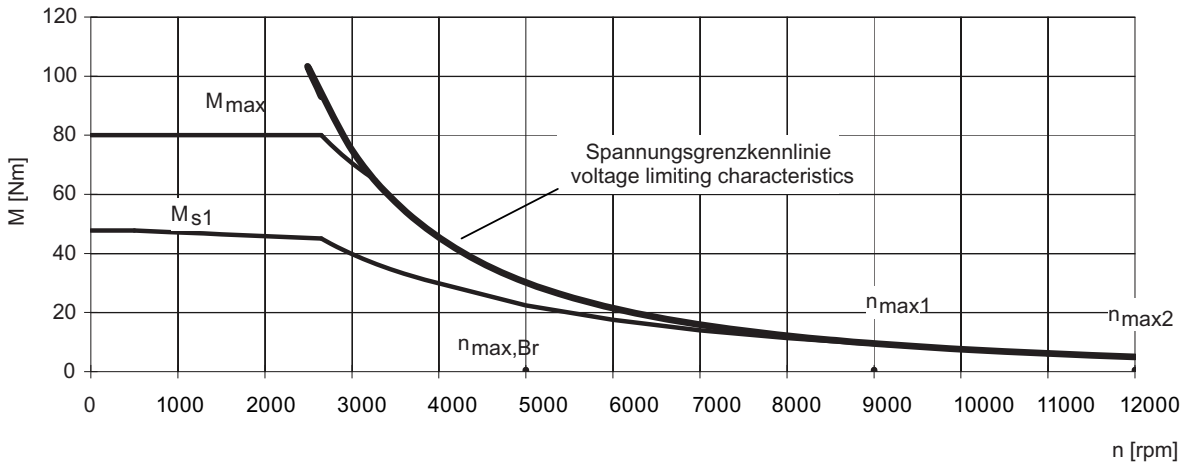
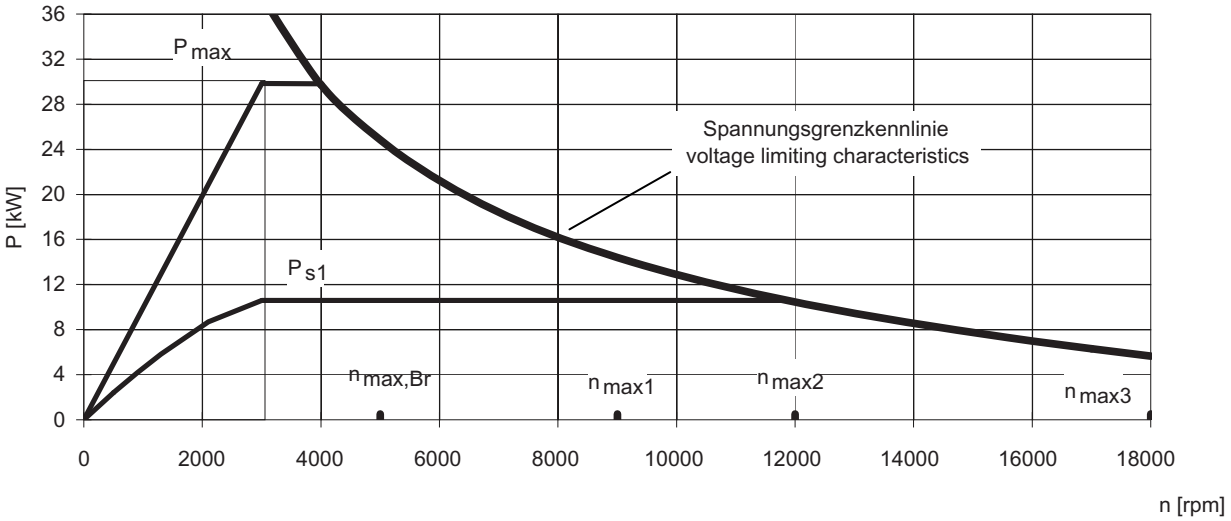


Table 4- 445 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	10.6	34	30.0	9000	12000	18000	5000	11900	95	82	46	35



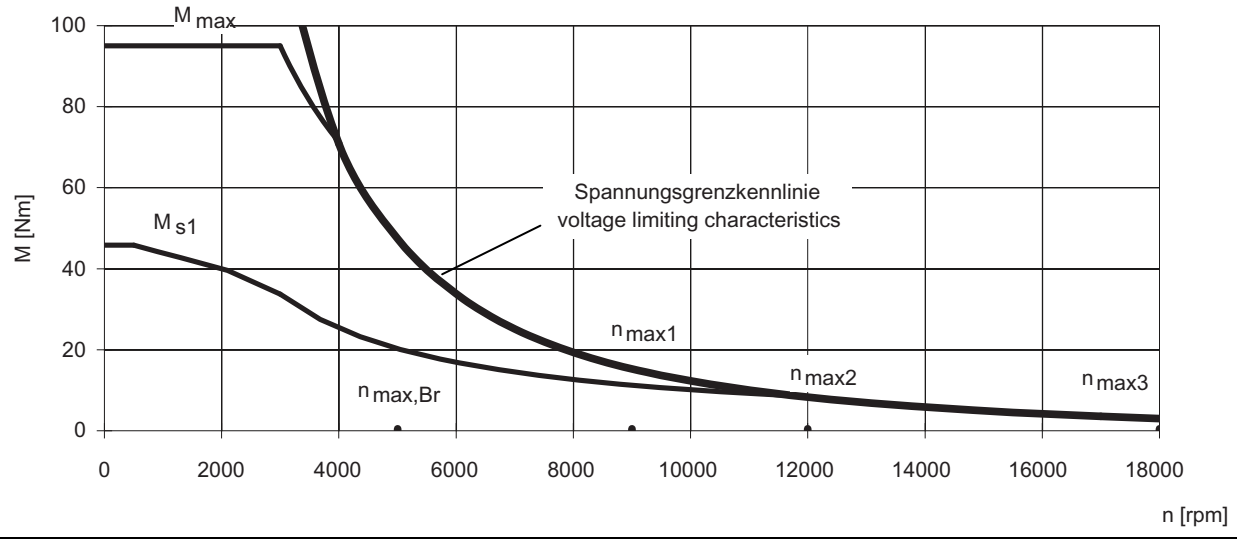
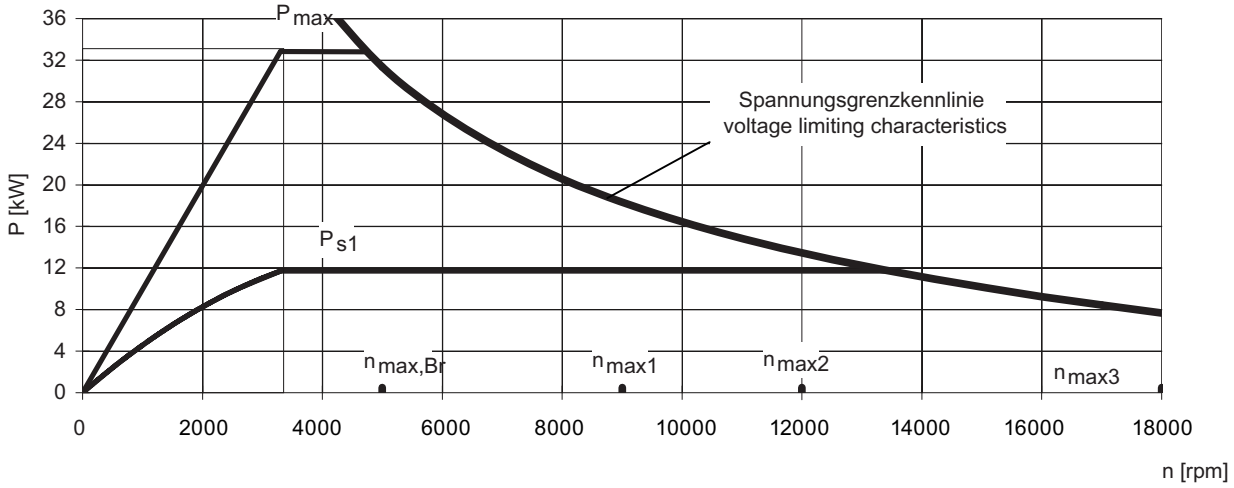


Table 4- 446 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□M2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	11.7	34	30.0	9000	12000	18000	5000	13550	95	82	46	35
3000	10.6	34	30.0					14600				



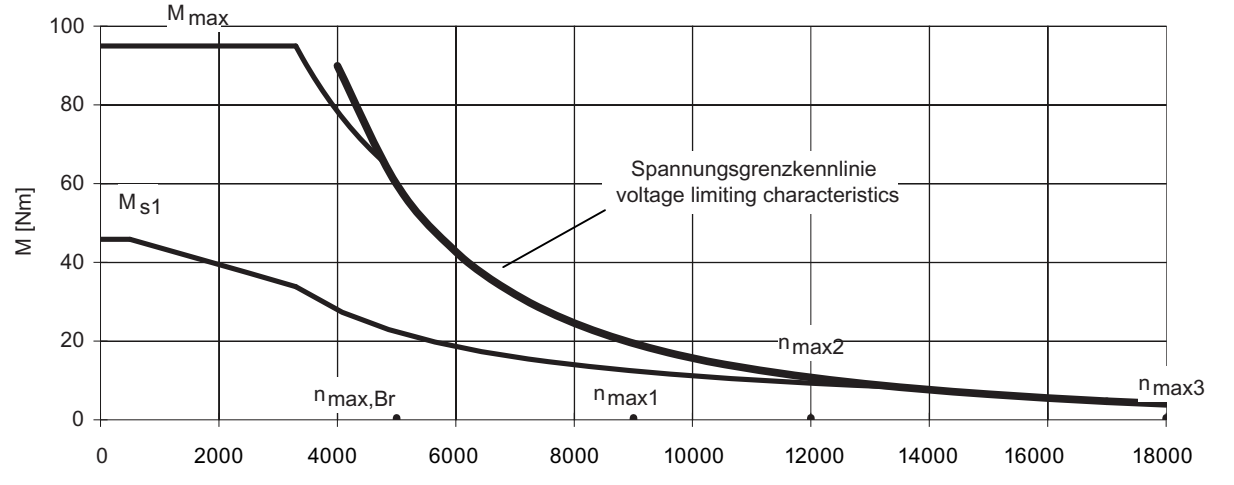
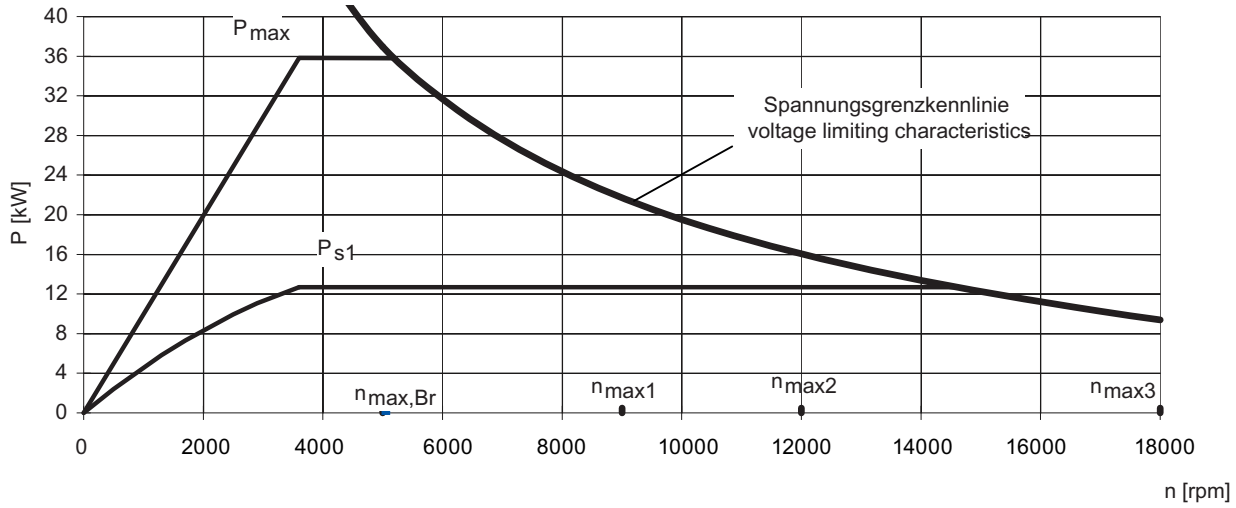


Table 4- 447 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8103-□□M2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	12.7	34	29.7	9000	12000	18000	5000	17650	95	82	46	35



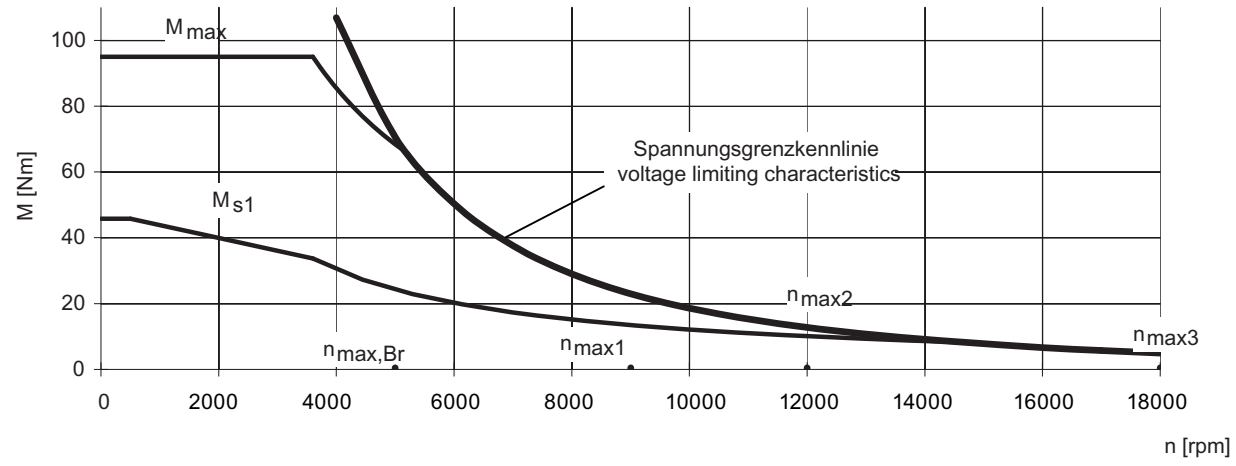
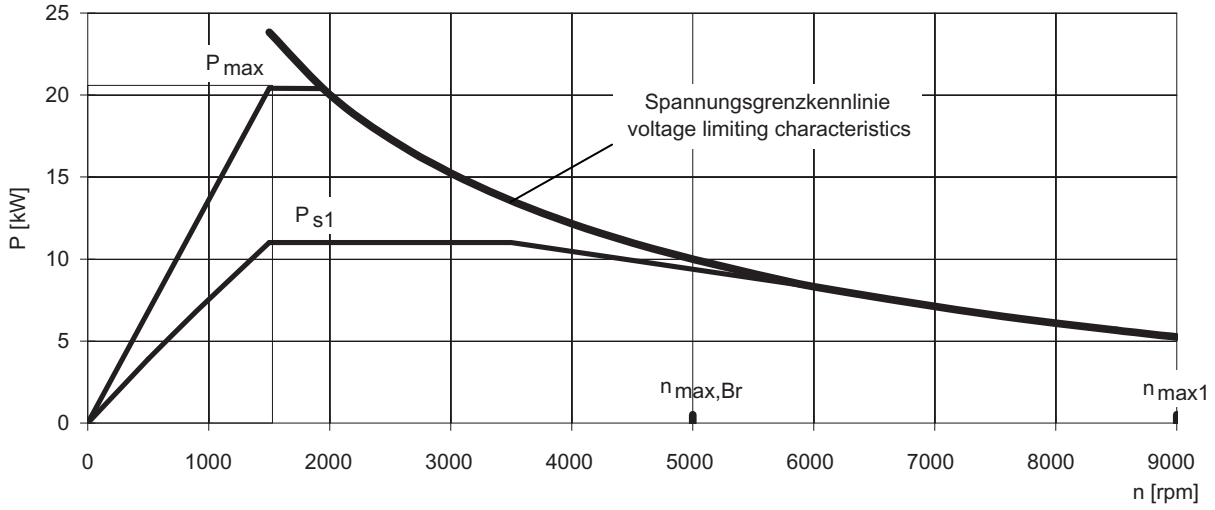


Table 4- 448 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	11.0	70	28.5	9000	-	-	5000	3500	130	54	74	29



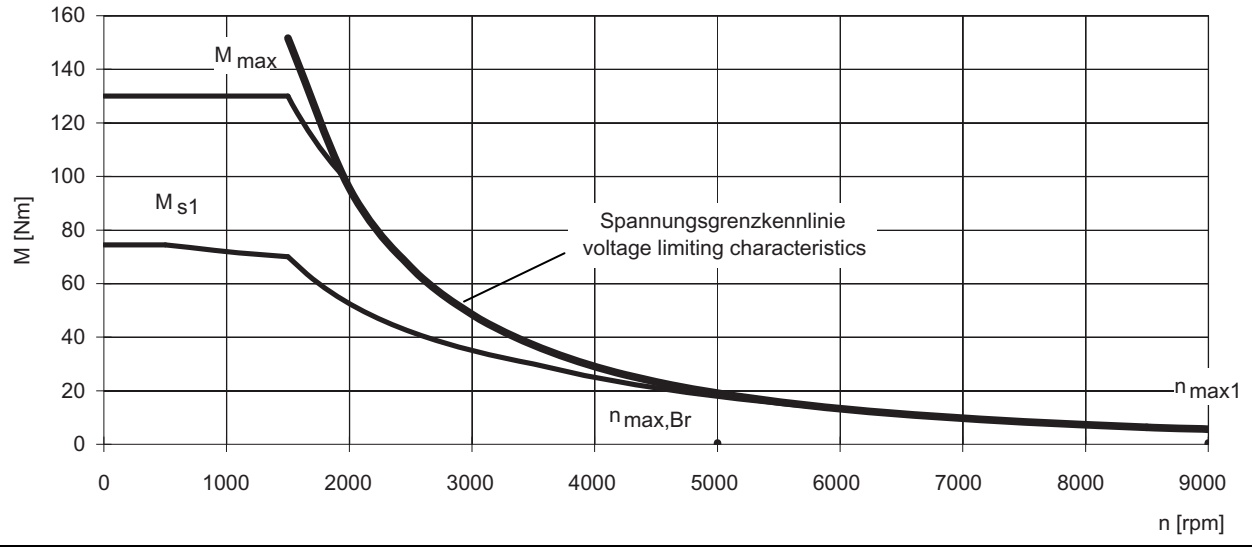
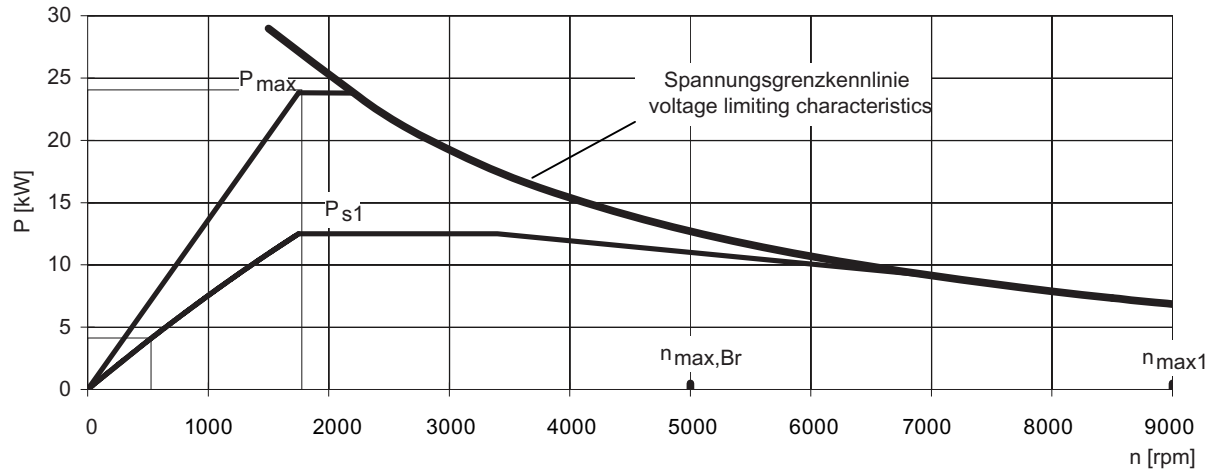


Table 4- 449 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	12.5	68	28.5	9000	-	-	5000	3400	130	54	74	29
1500	11.0	70	28.5					5000				



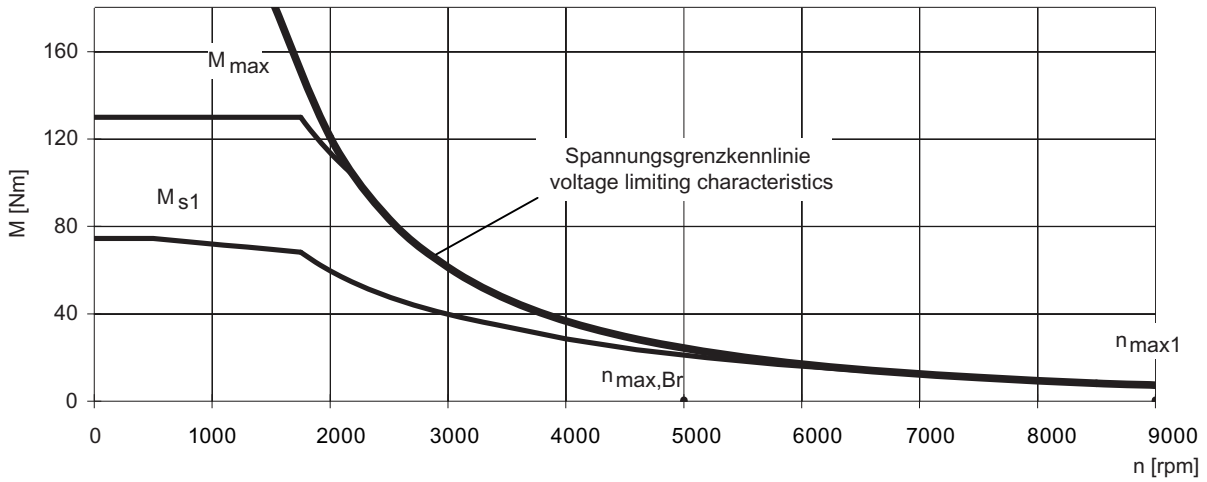
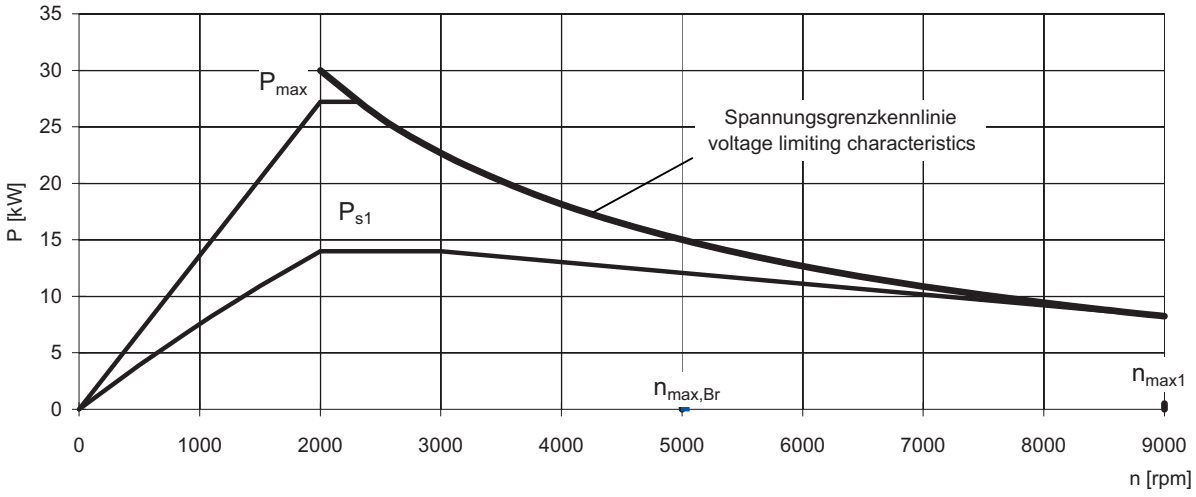


Table 4- 450 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	14.0	67	27.5	9000	-	-	5000	3000	130	54	74	29



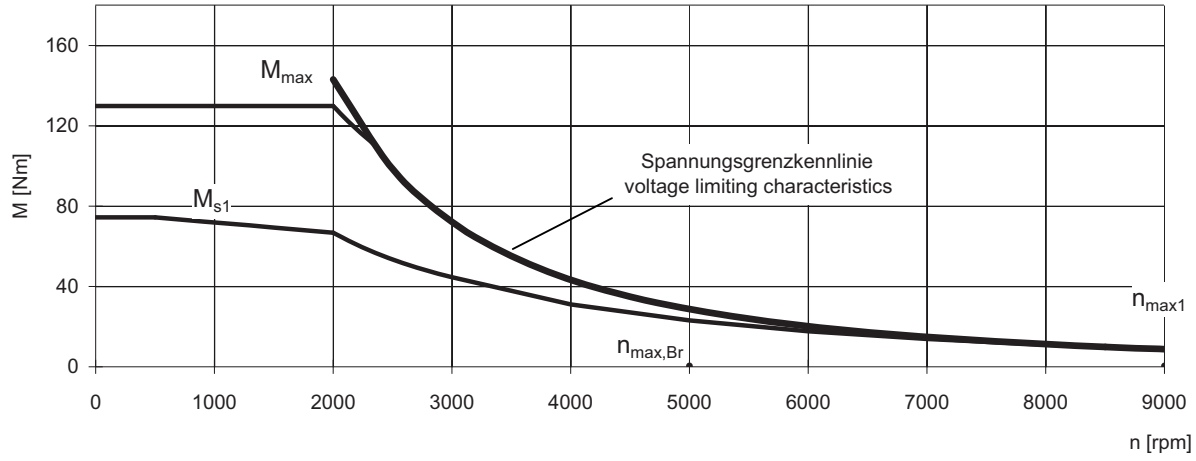
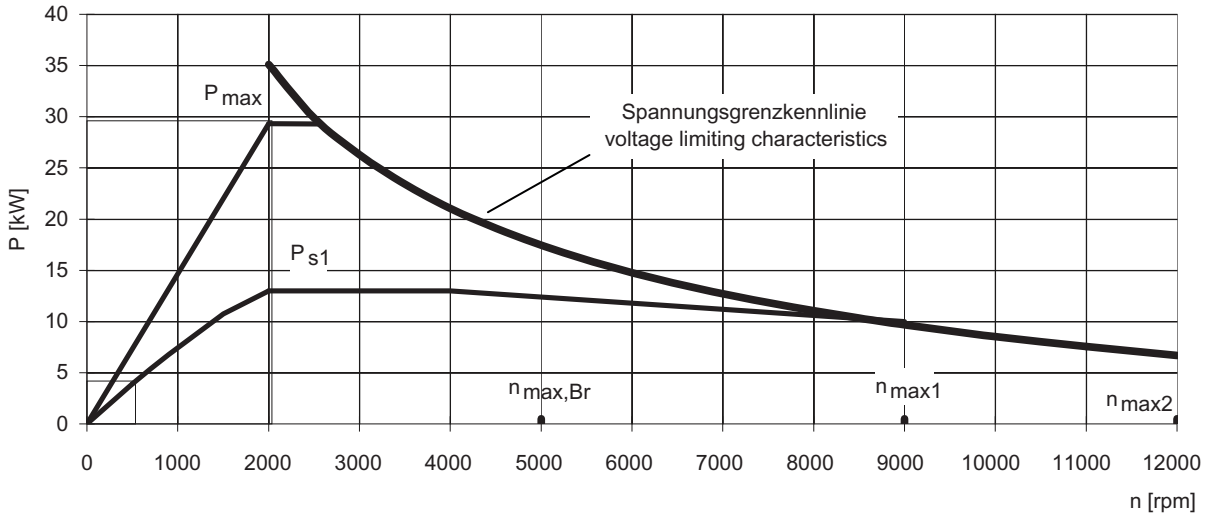


Table 4- 451 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	13.0	62	34.5	9000	12000	-	5000	4000	140	75	74	38



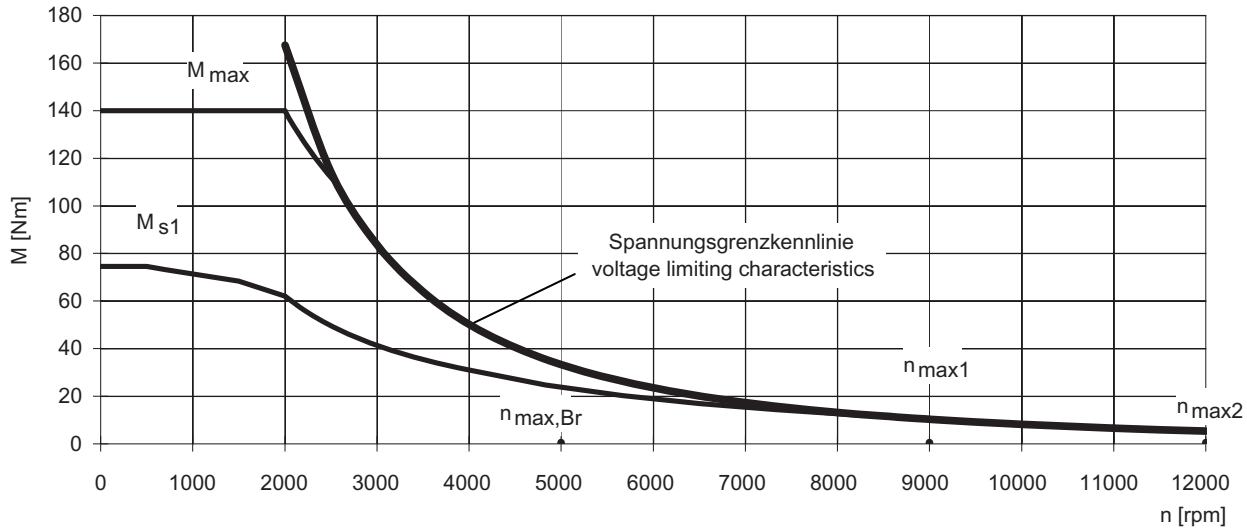
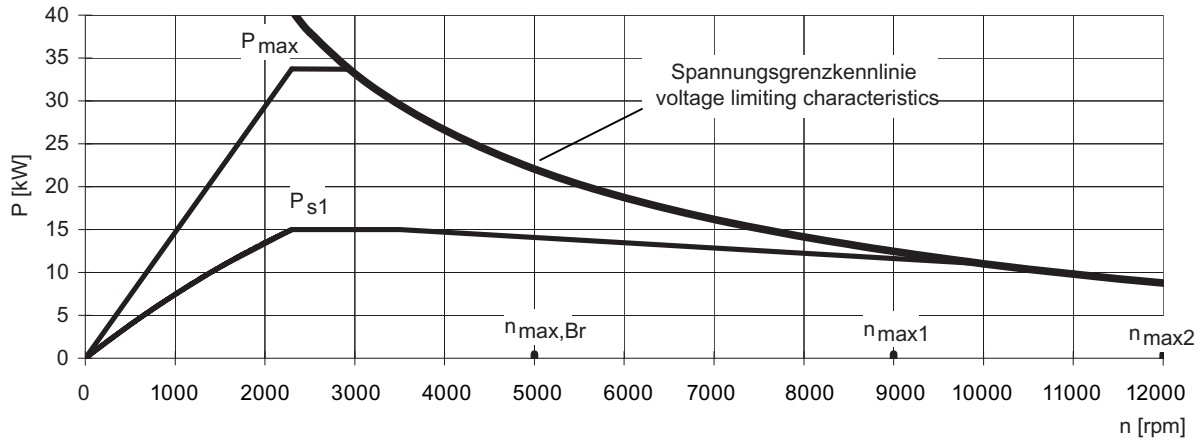


Table 4- 452 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	15.0	62	34.0	9000	12000	-	5000	3500	140	75	74	38
2000	13.0	62	34.5					6750				
1500	11.0	70	35.2					10000				



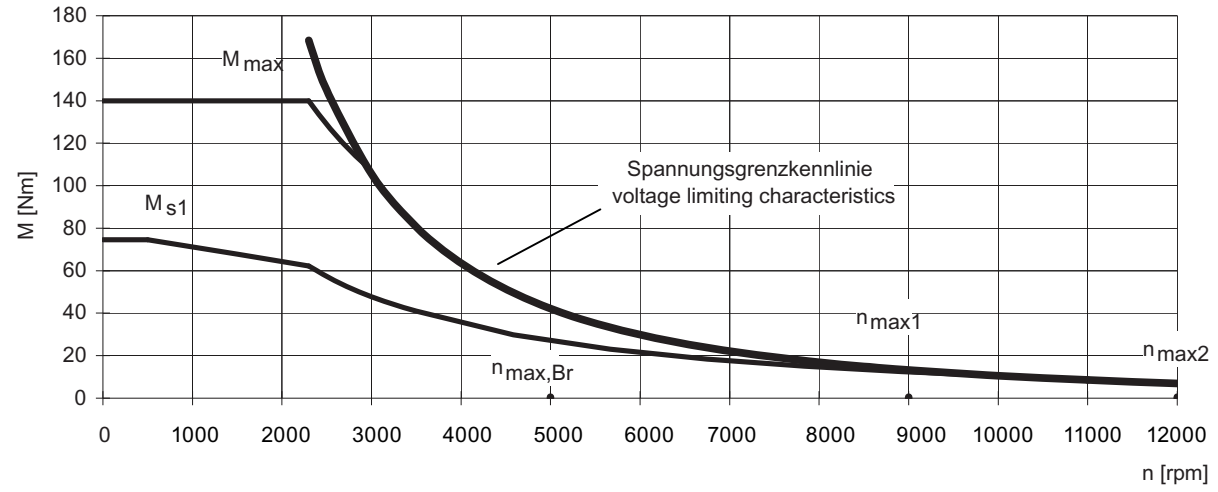
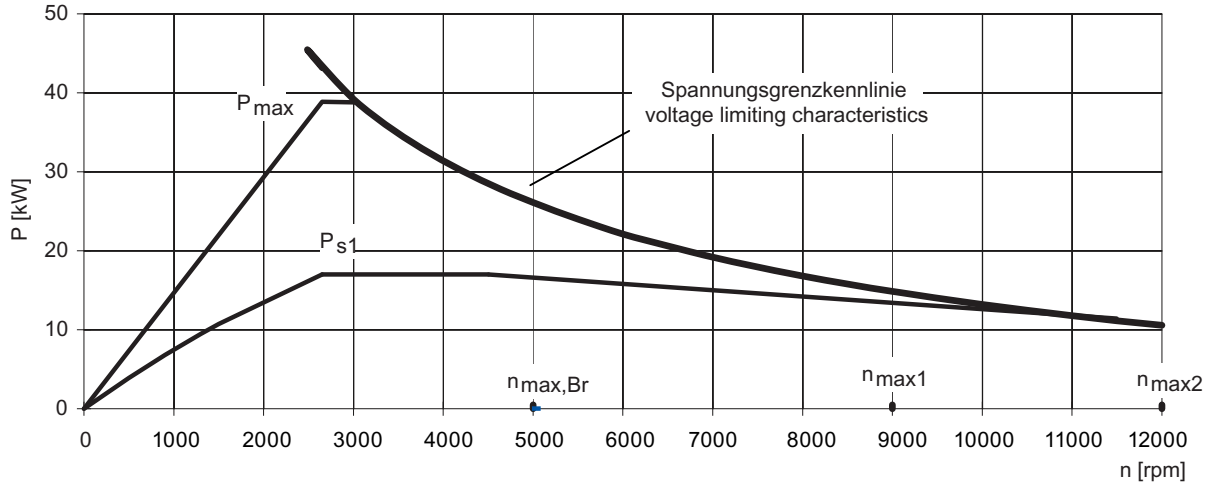


Table 4- 453 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	17.0	61	33.5	9000	12000	-	5000	4500	140	75	74	38



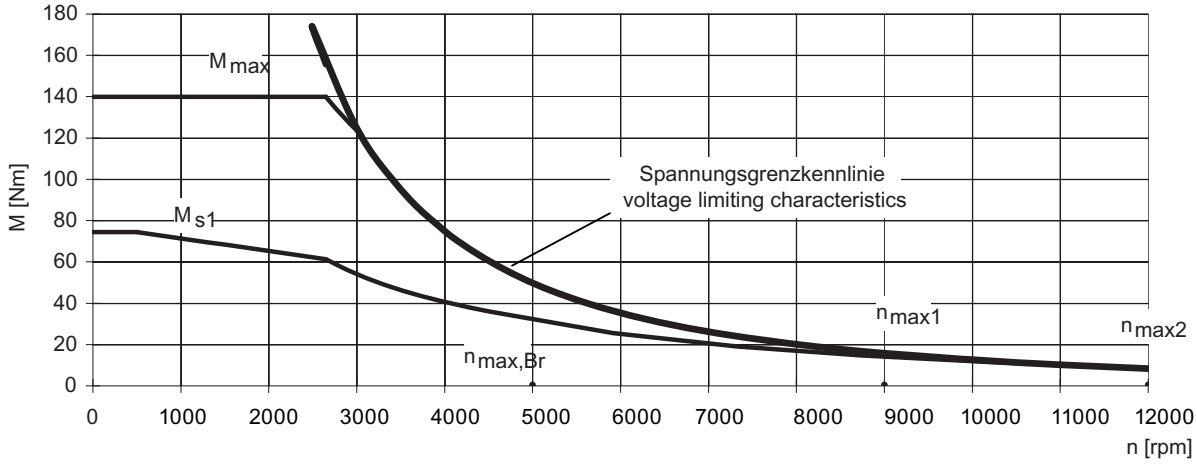
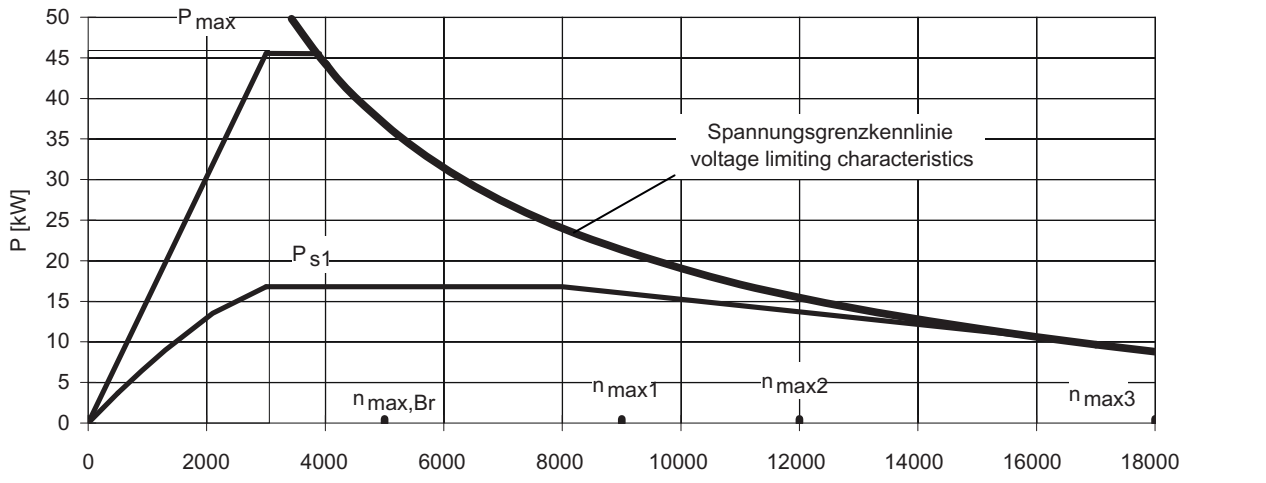


Table 4- 454 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□M2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	16.8	53	45.0	9000	12000	18000	5000	8050	145	119	71	52



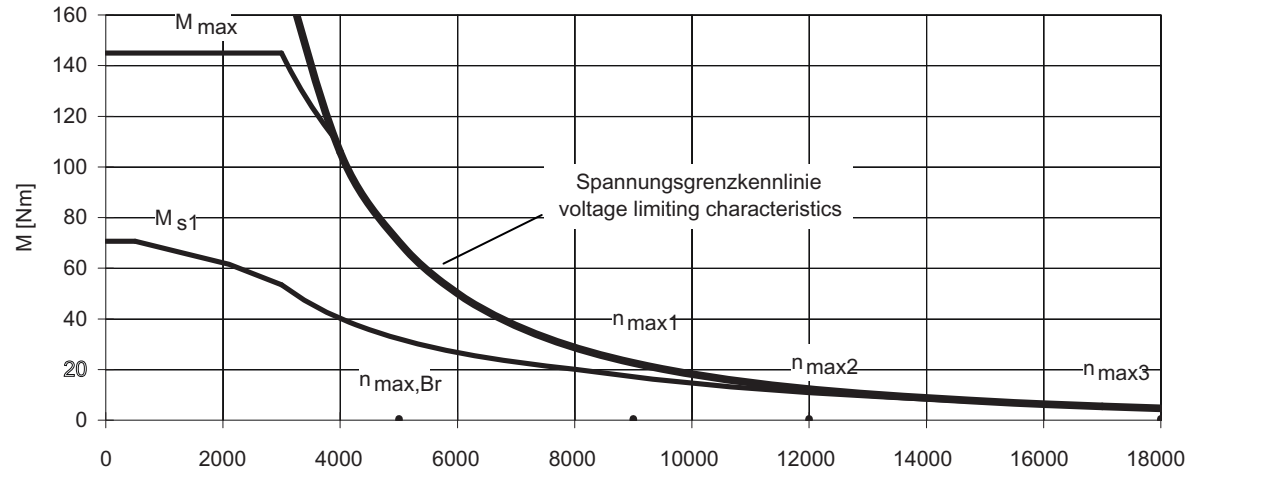
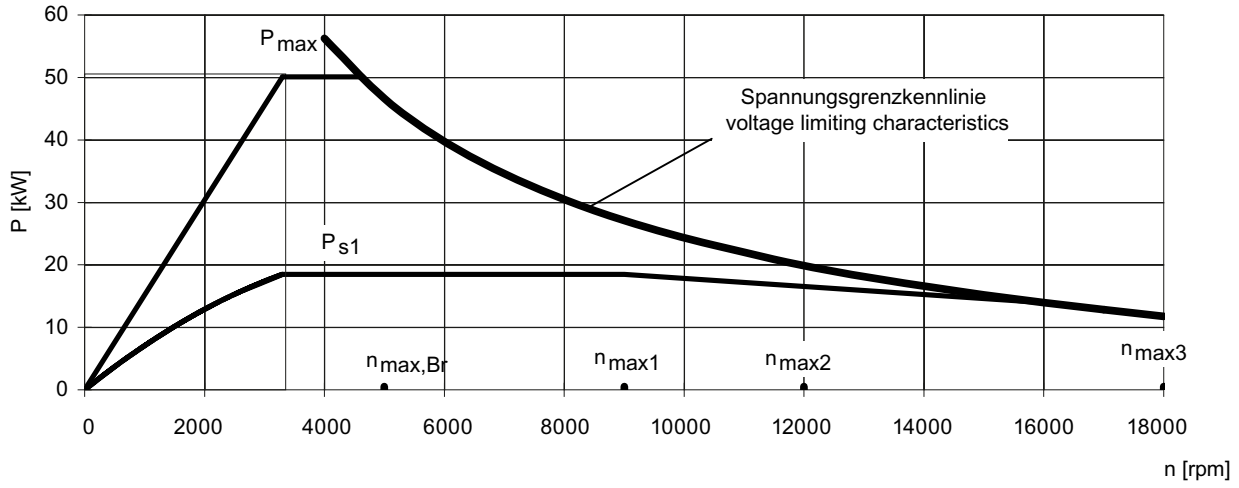


Table 4- 455 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□M2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	18.5	54	45.0	9000	12000	18000	5000	9050	145	119	71	52
3000	16.8	53	45.0					11700				



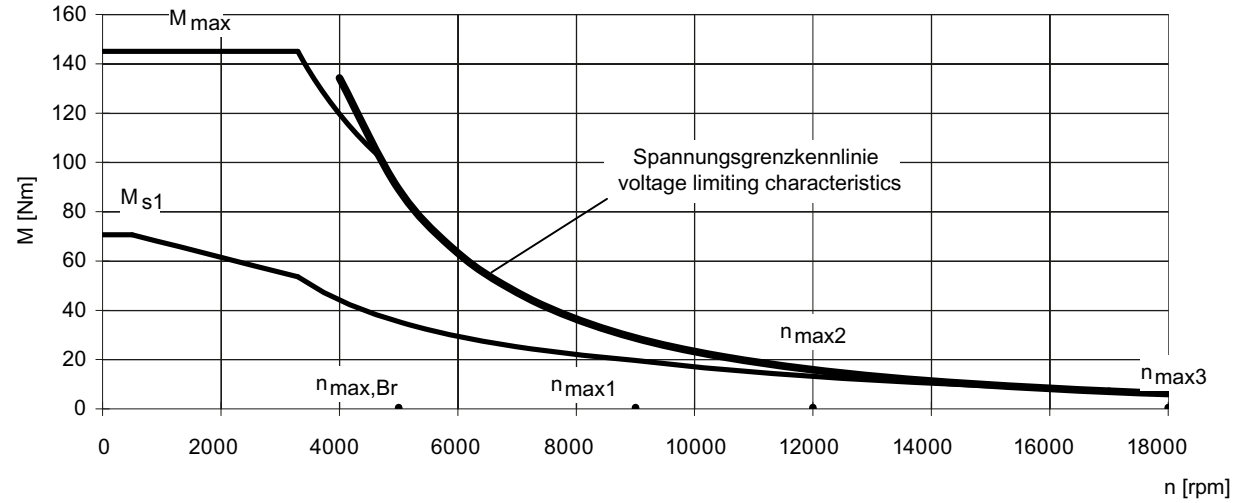
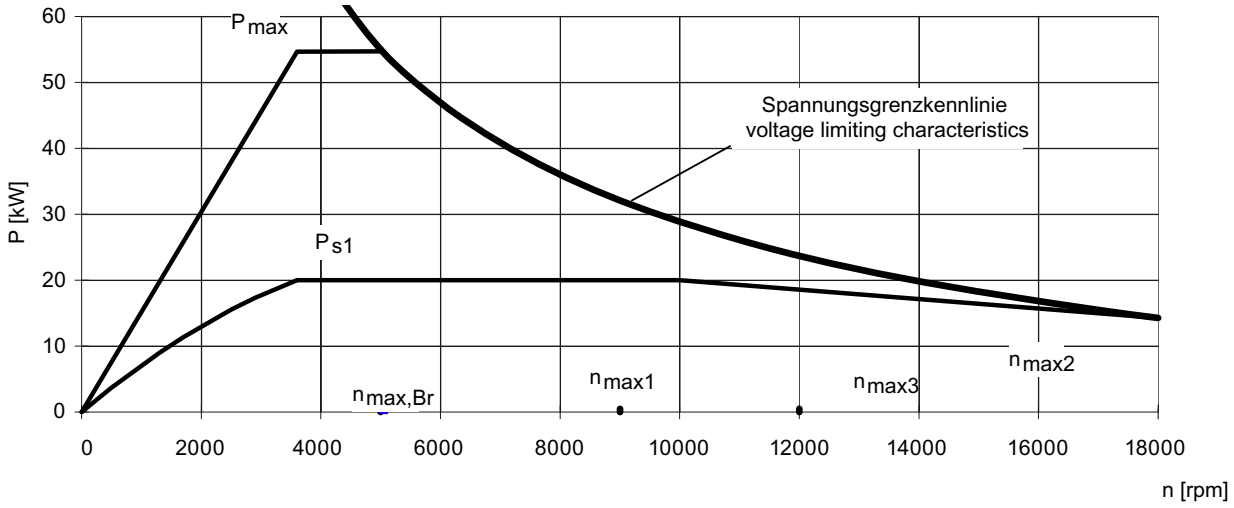


Table 4- 456 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8105-□□M2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	20.0	53	45.0	9000	12000	18000	5000	10000	145	119	71	42



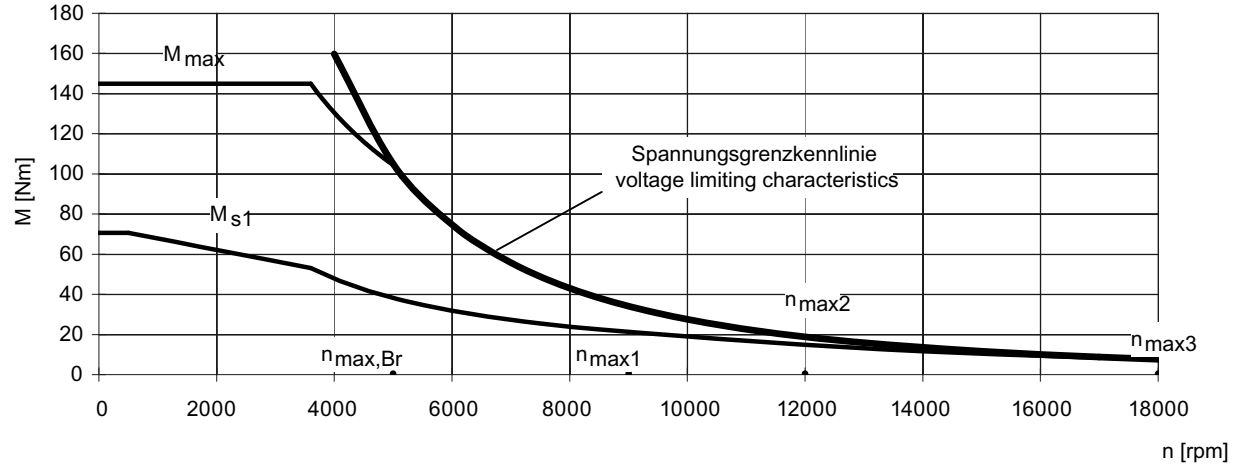
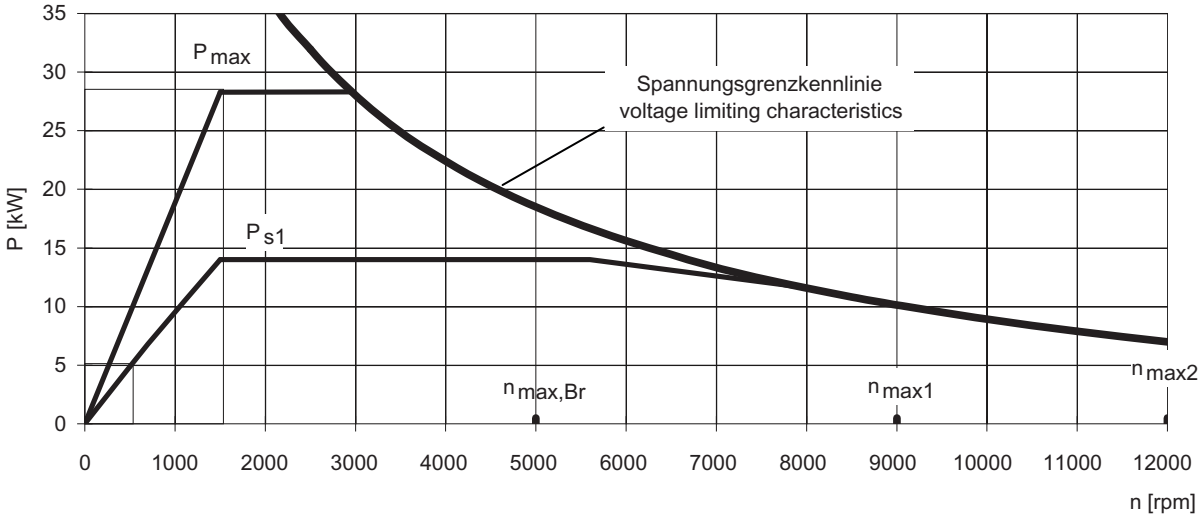


Table 4- 457 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	14.0	89	43.7	9000	12000	-	5000	5600	180	89	94	44



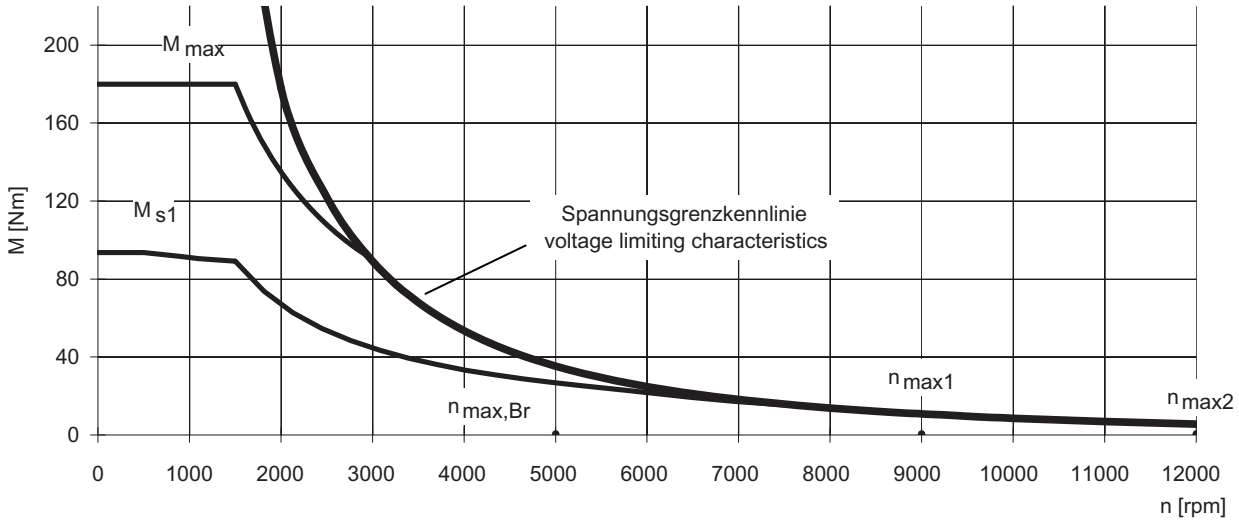
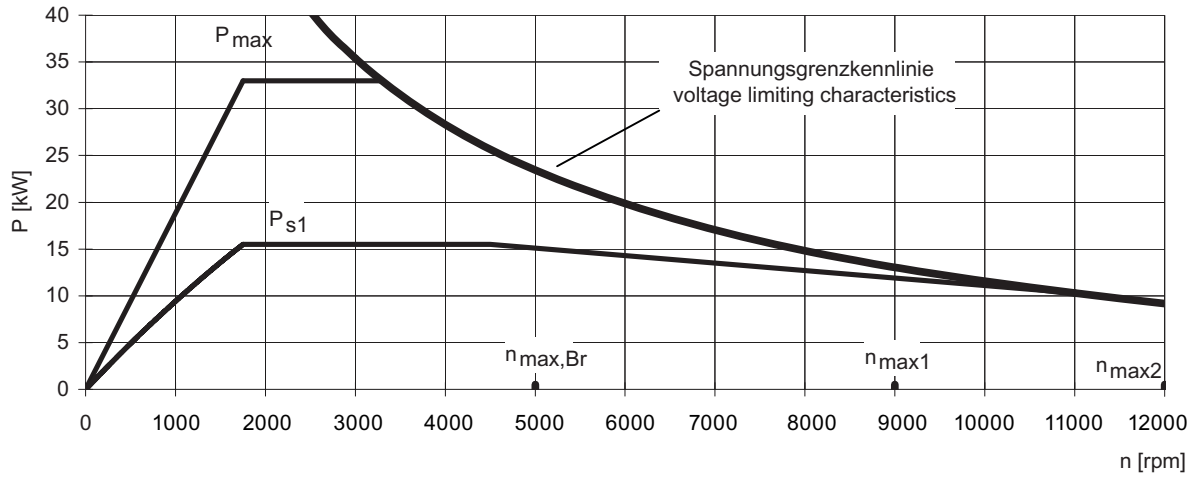


Table 4- 458 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	15.5	85	42.0	9000	12000	-	5000	4500	180	89	94	44
1500	14.0	89	43.7					6400				



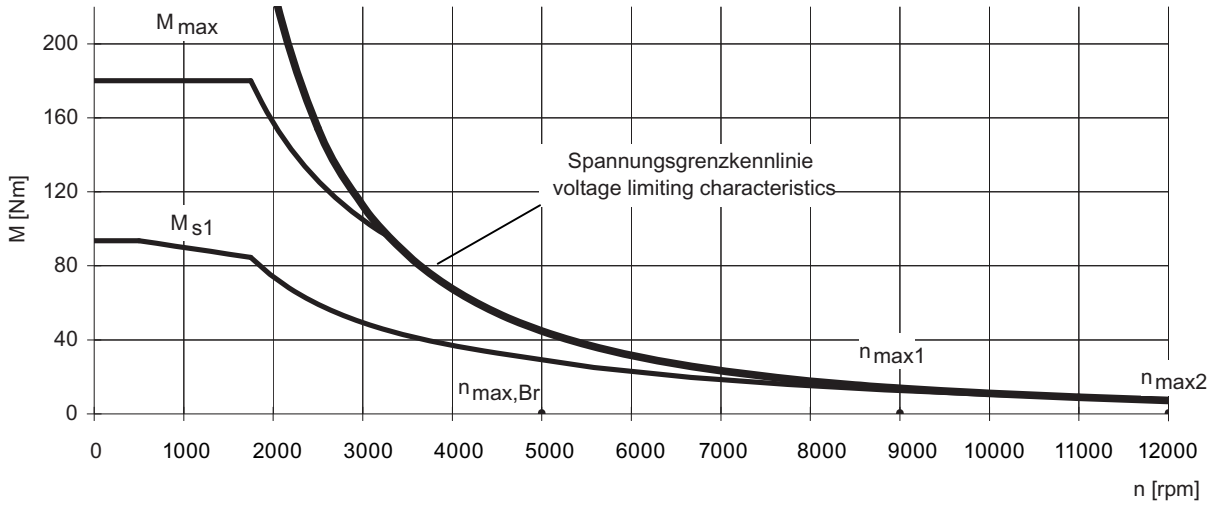
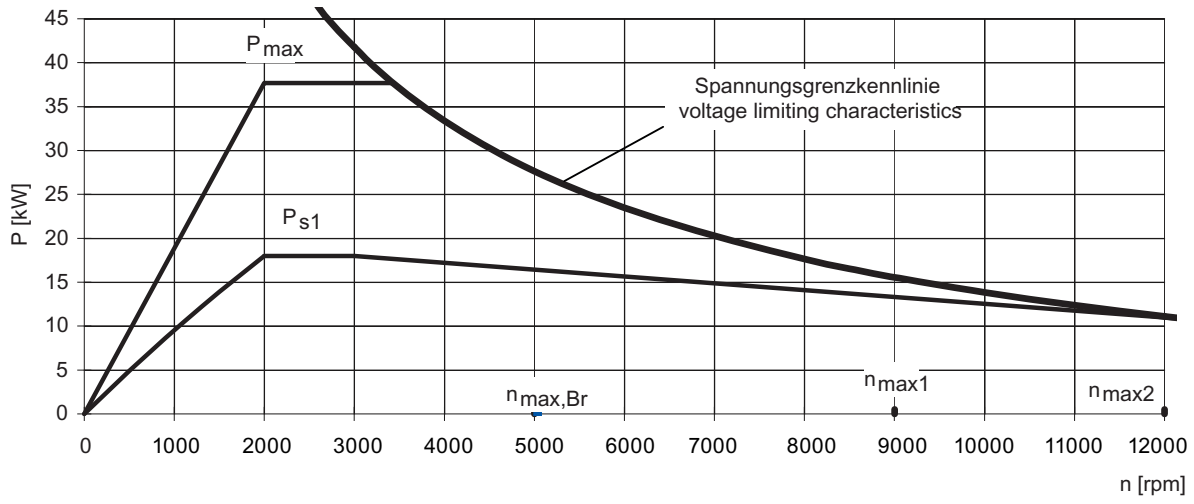


Table 4- 459 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	18.0	86	42.6	9000	12000	-	5000	3000	180	89	94	44



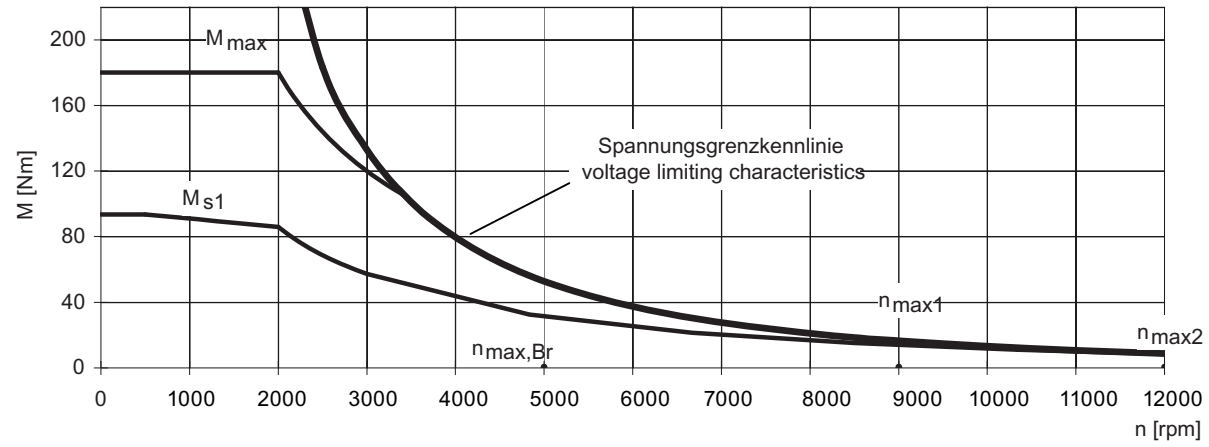
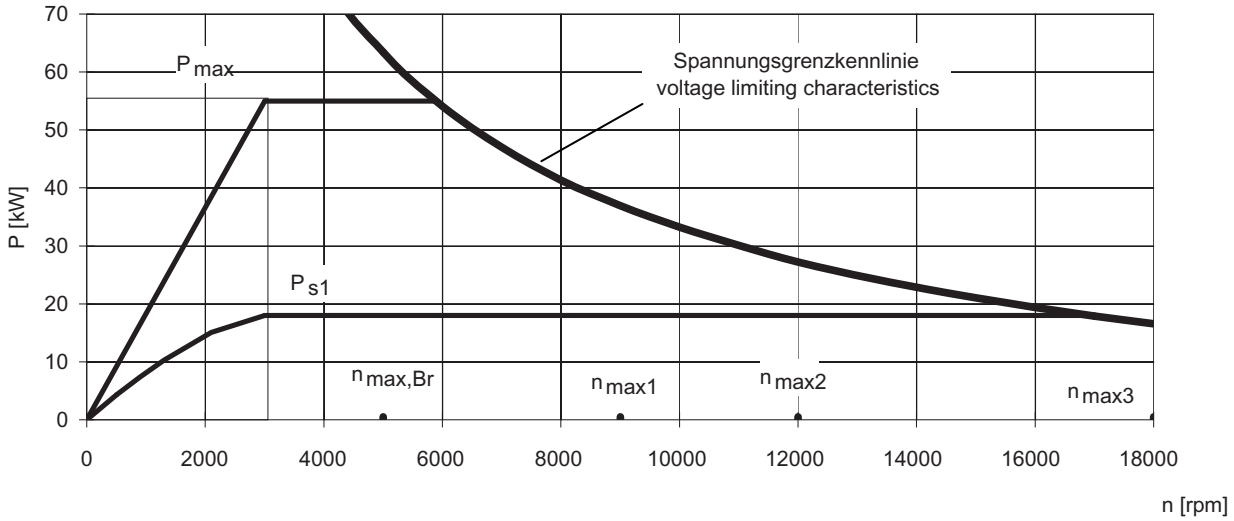


Table 4- 460 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	18.0	57	60.0	9000	12000	18000	5000	17000	175	178	82	73



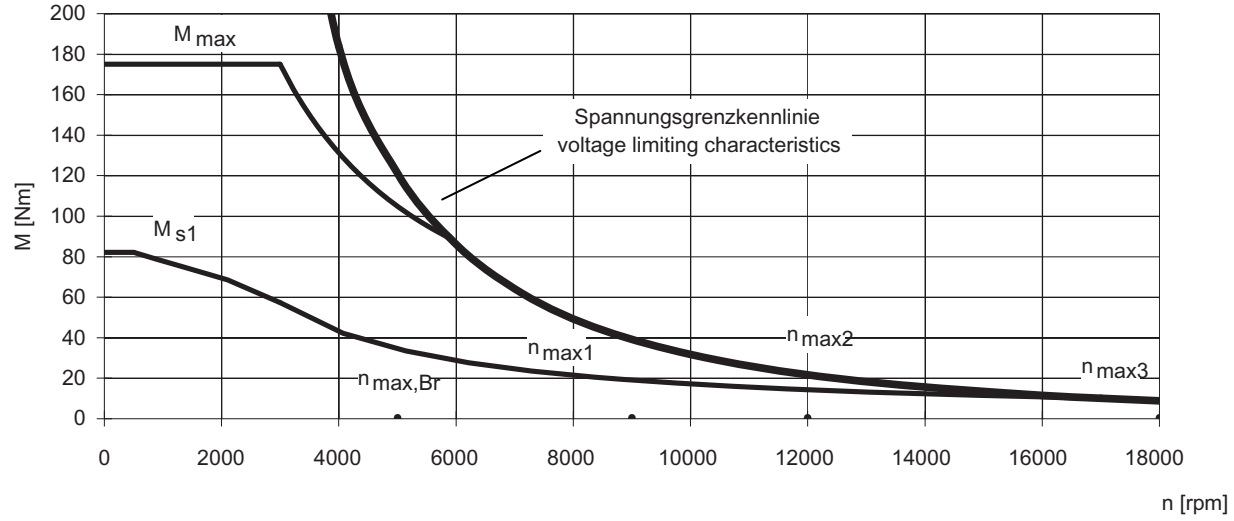


Table 4- 461 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□M2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	20.0	58	60.0	9000	12000	18000	5000	18050	175	178	82	73
3000	18.0	57	60.0					18050				

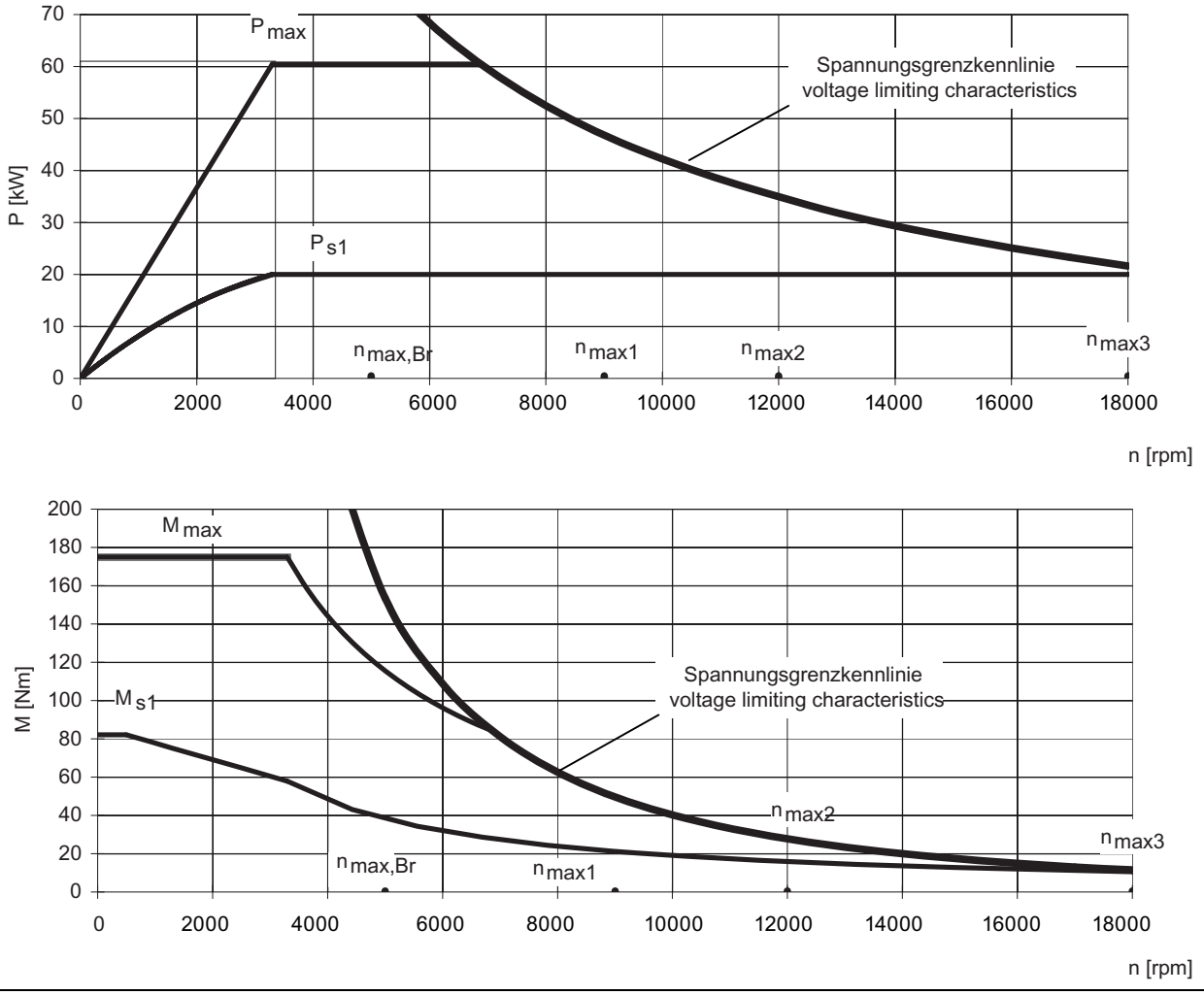
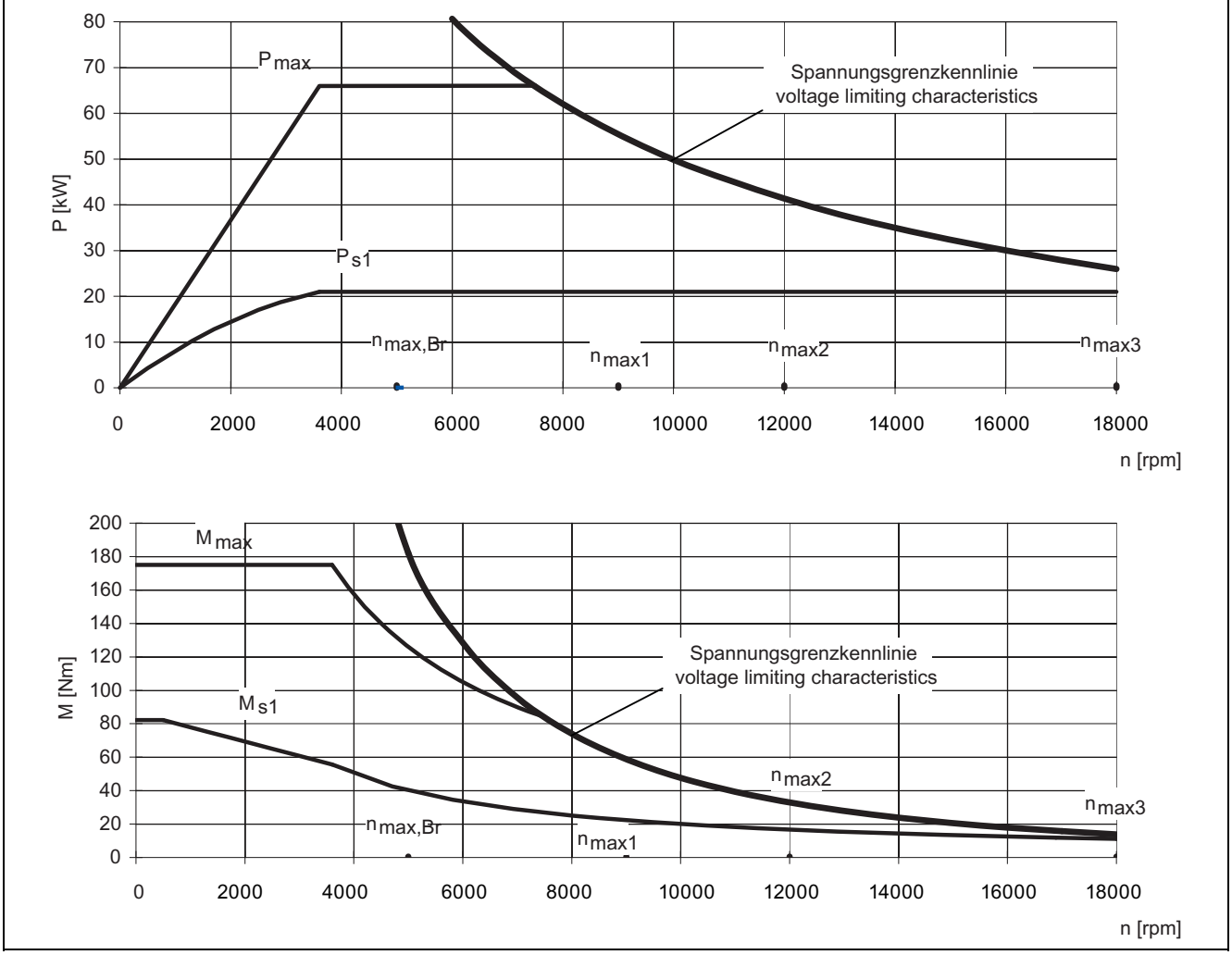


Table 4- 462 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8107-□□M2□,

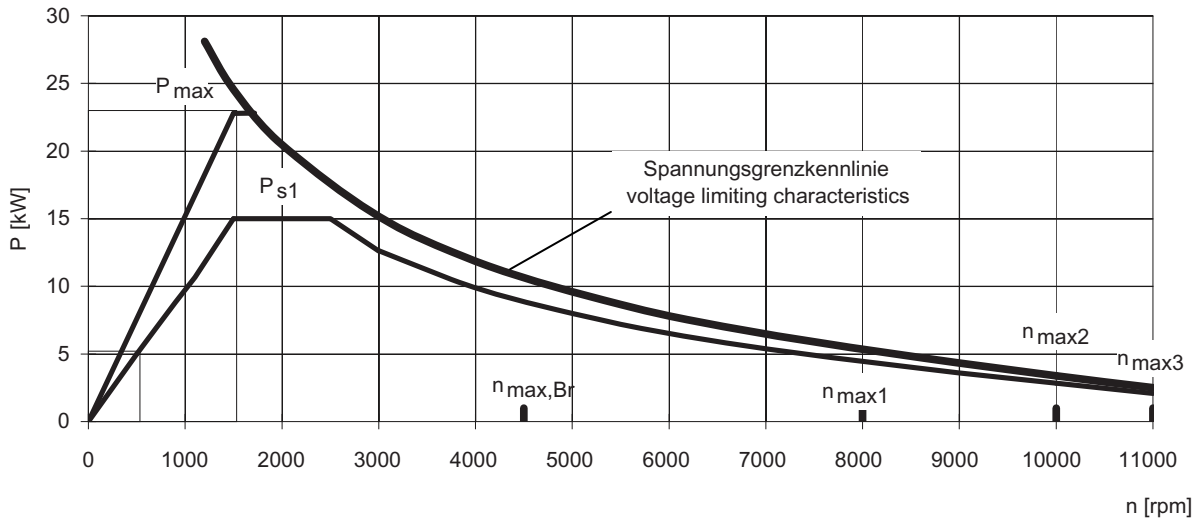
n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	21.0	56	59.0	9000	12000	1800	5000	17650	175	178	82	73



4.1.3.3 Shaft height 132 - water-cooled

Table 4- 463 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	15,0	96	30	8000	10000	11000	4500	2500	145	46	96	30



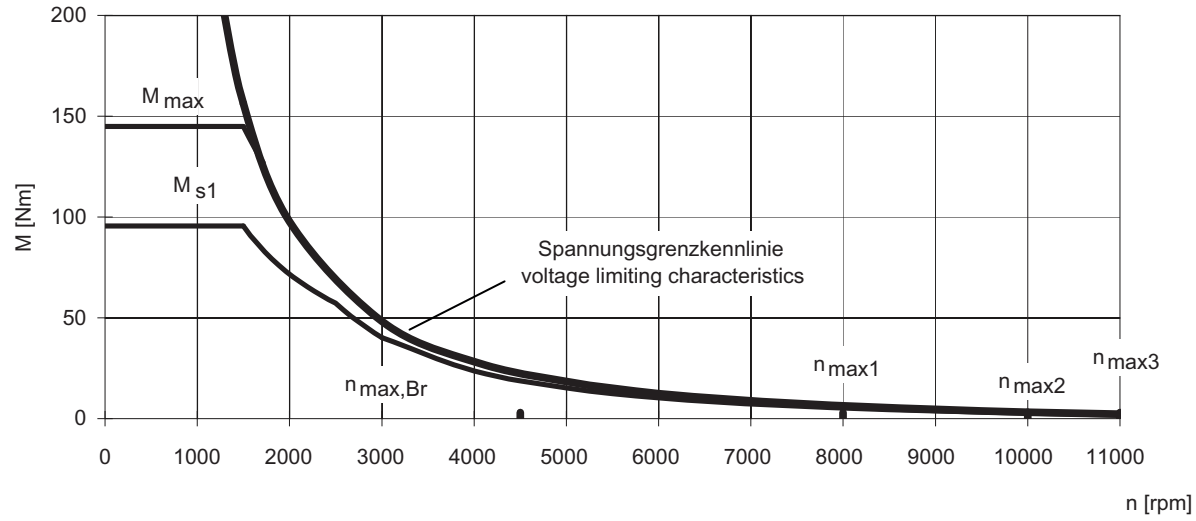


Table 4- 464 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	17,0	93	30	8000	10000	11000	4500	2500	145	46	96	30
1500	15,0	96	30					3200				

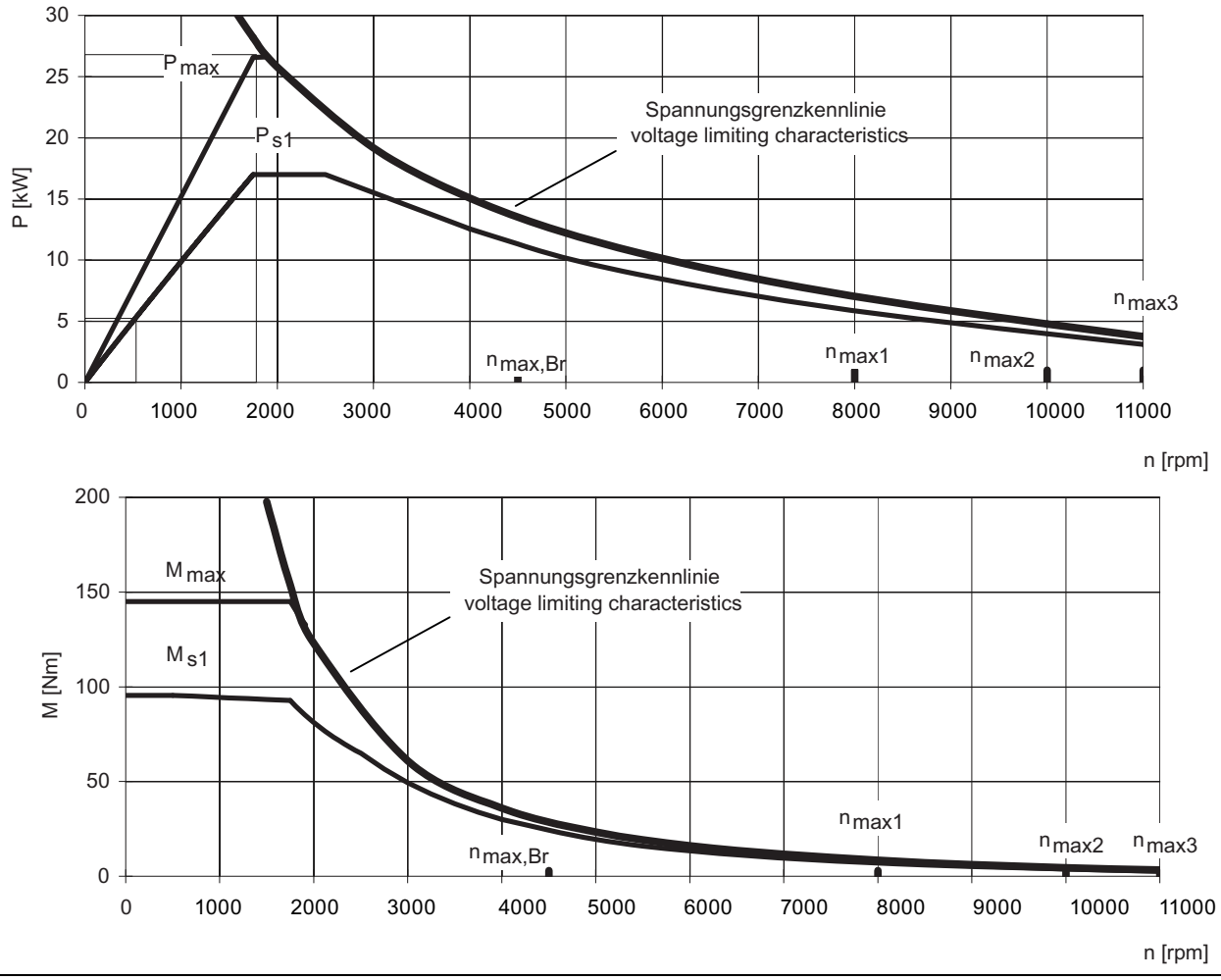
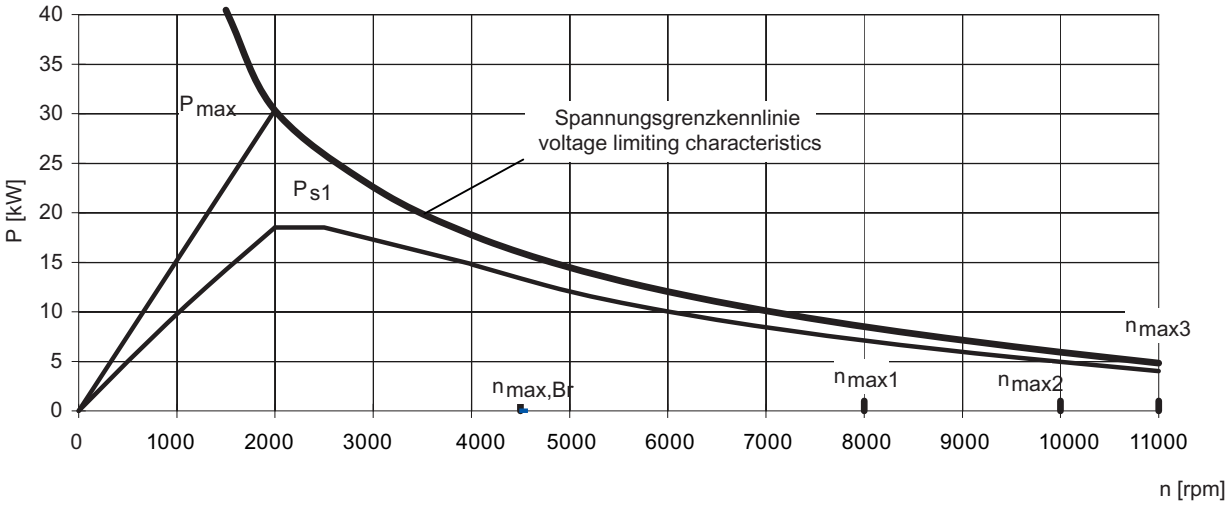


Table 4- 465 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	18,5	88	30	8000	10000	11000	4500	2500	145	46	96	30



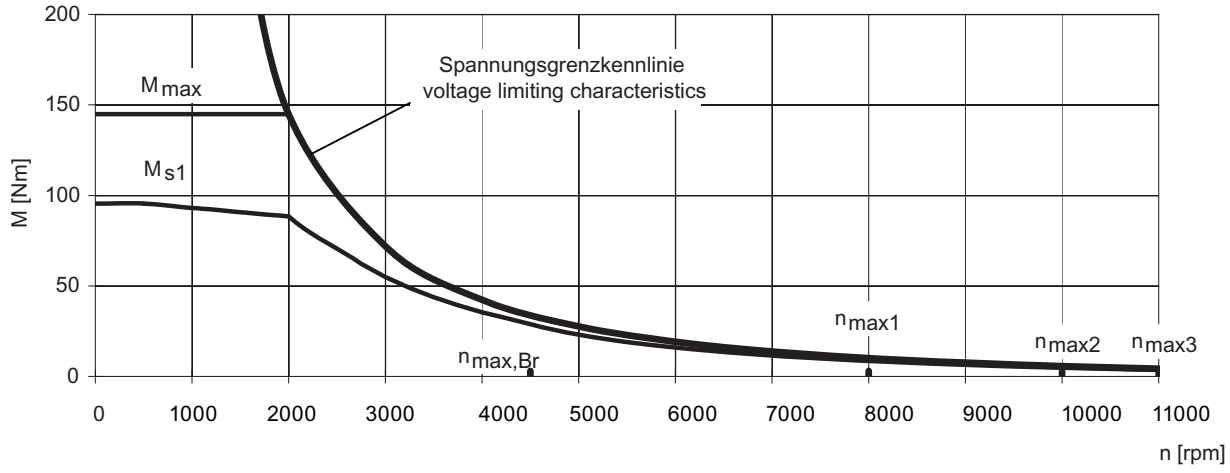
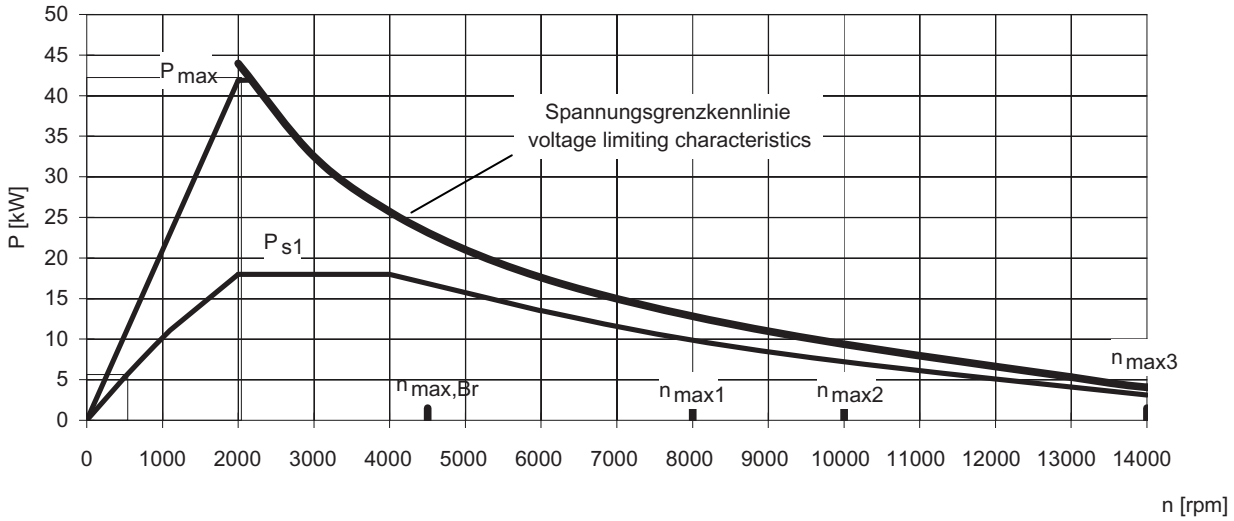


Table 4- 466 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	18,0	86	40	8000	10000	14000	4500	4000	200	93	101	44



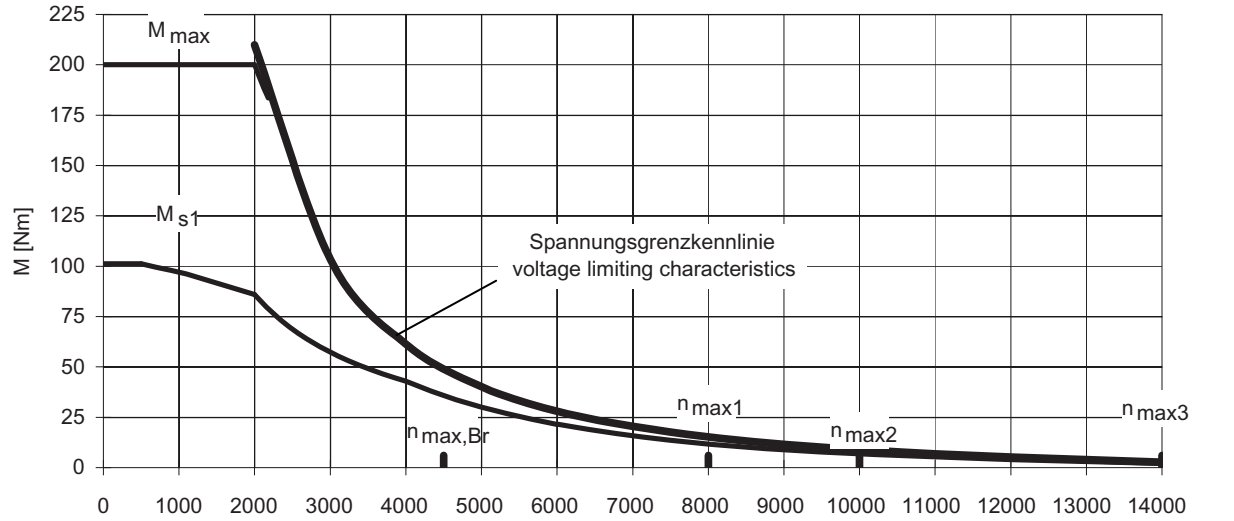
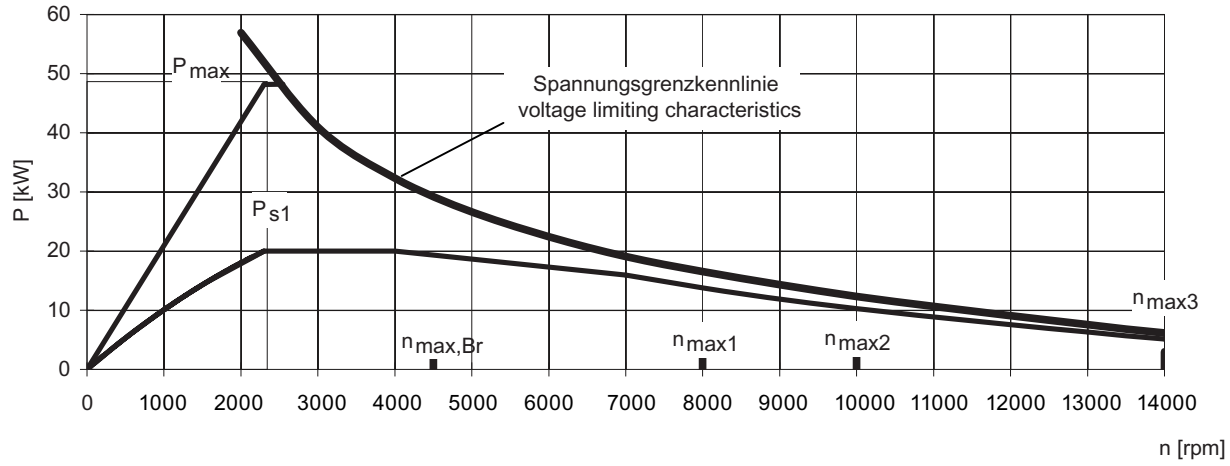


Table 4- 467 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	20,0	83	39	8000	10000	14000	4500	4000	200	93	101	44
2000	18,0	86	40					5500				
1500	14,3	91	41					7800				



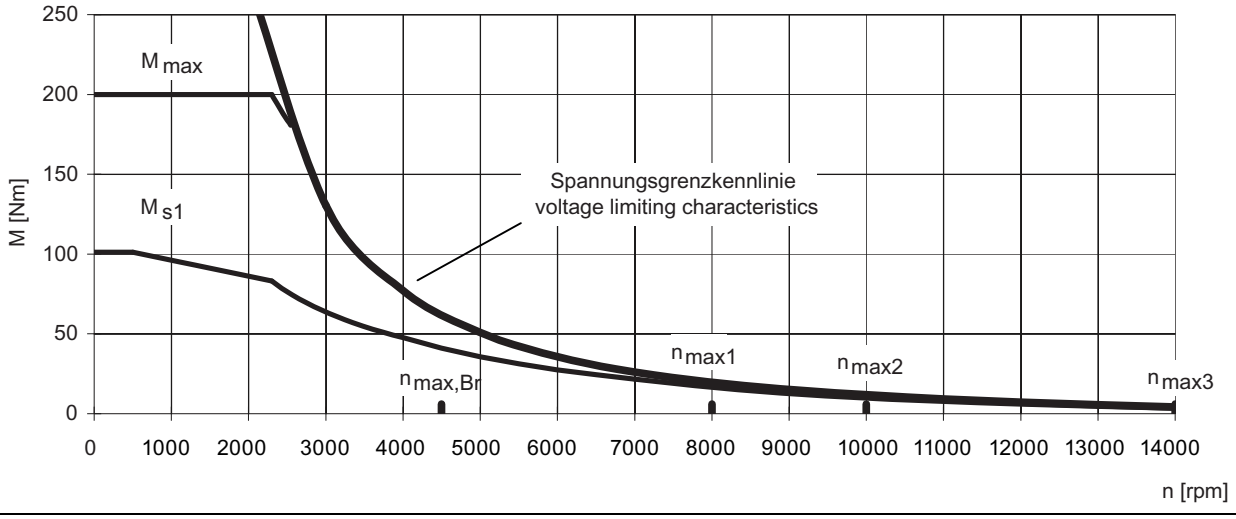
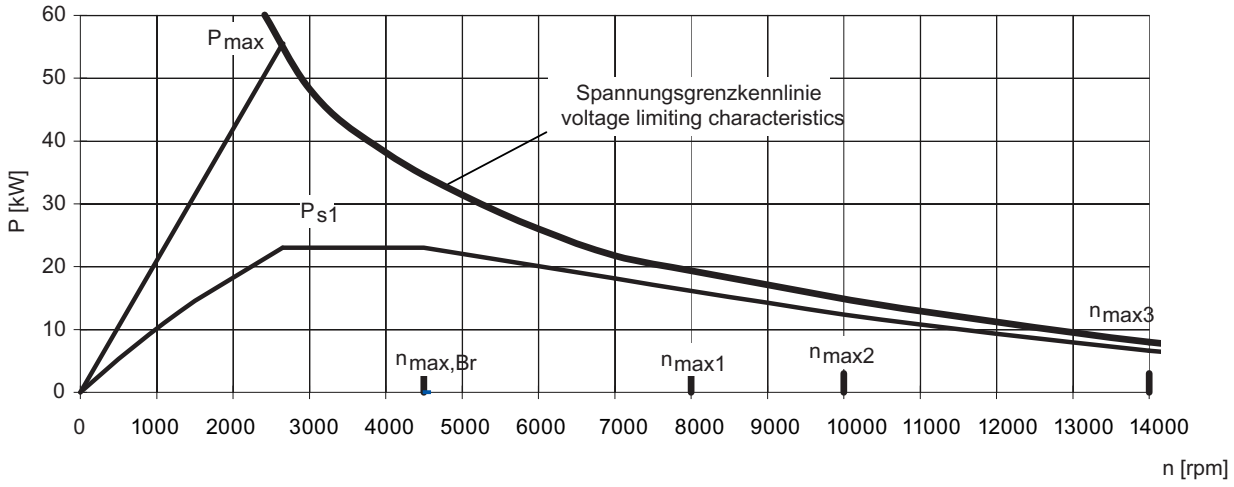


Table 4- 468 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	23,0	83	39	8000	10000	14000	4500	4500	200	93	101	44



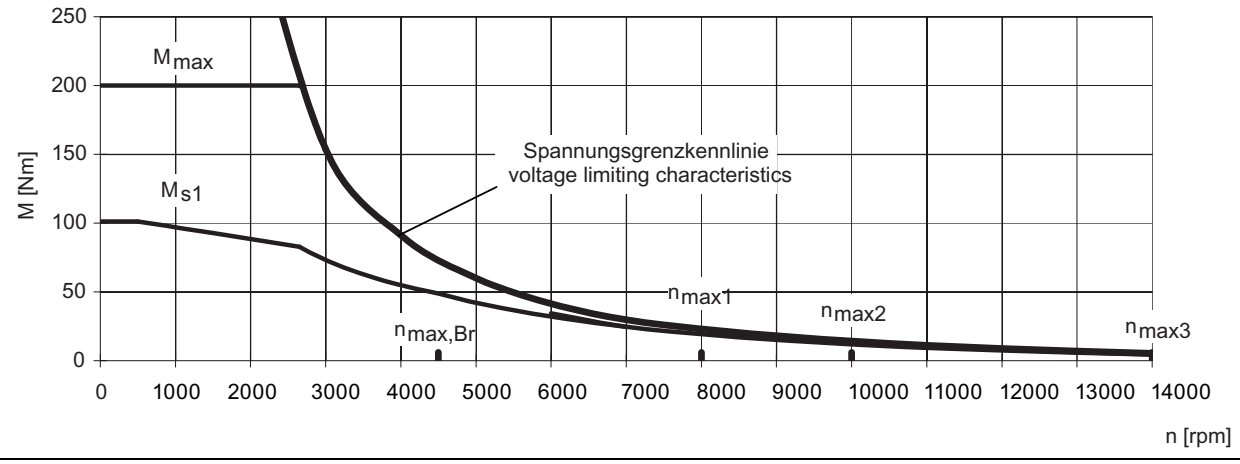


Table 4- 469 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	17.0	108	38	8000	10000	13000	4500	3500	240	85	136	45

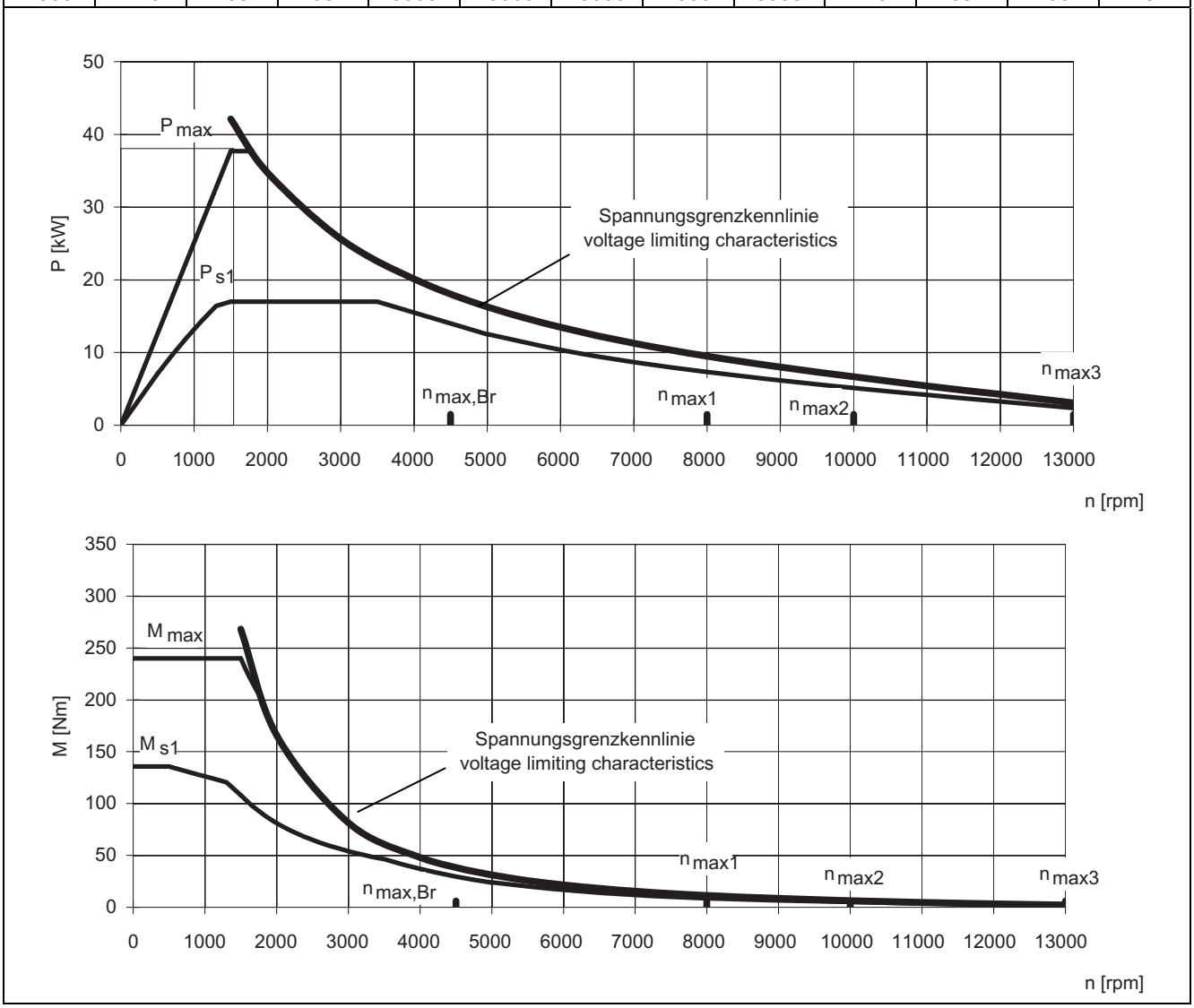
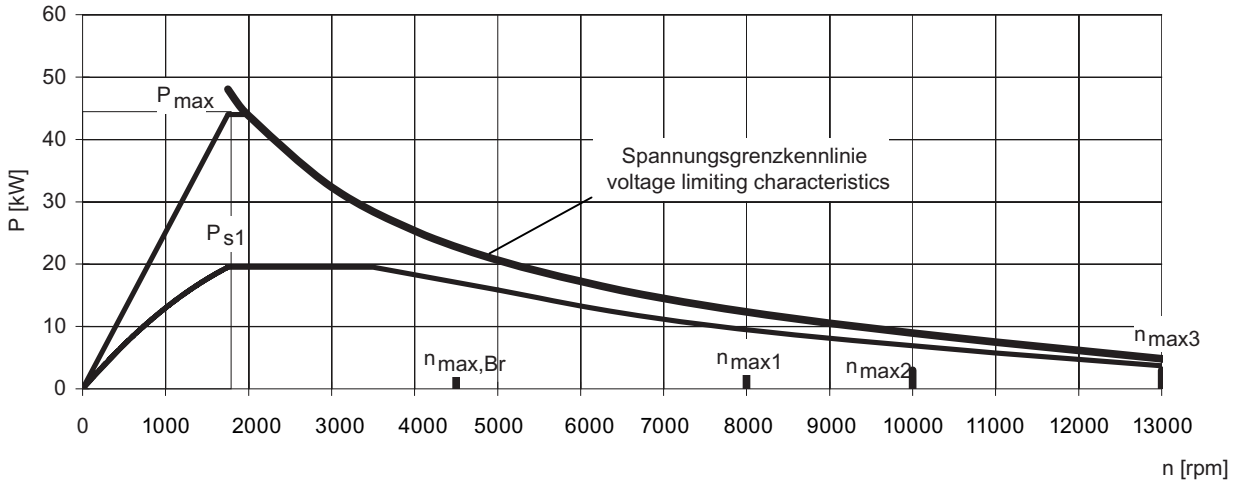


Table 4- 470 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	19.5	106	38	8000	10000	13000	4500	3500	240	85	136	45
1500	17.0	108	38					4500				



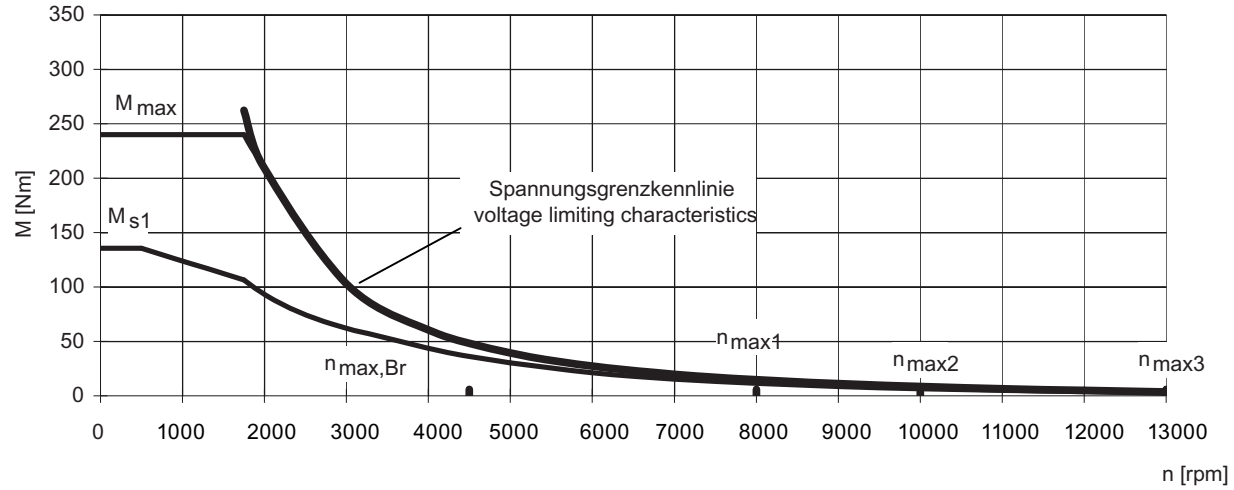
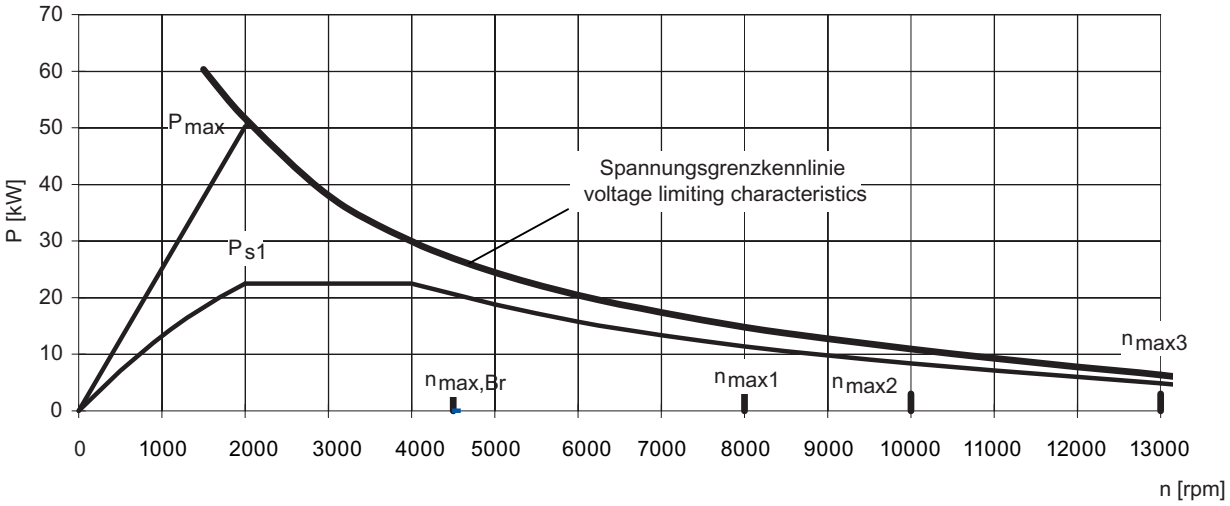


Table 4- 471 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	22.5	107	38	8000	10000	13000	4500	4000	240	85	136	45



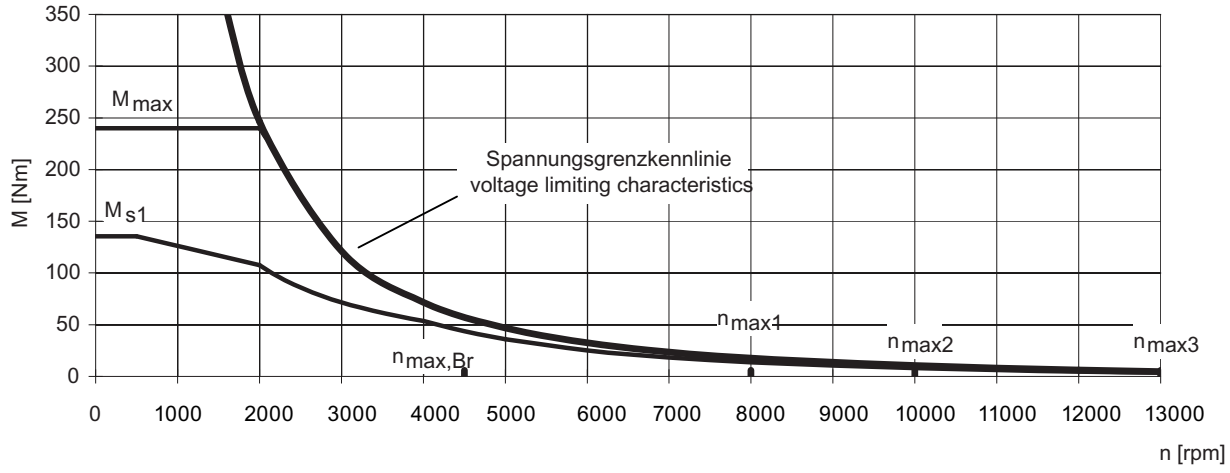
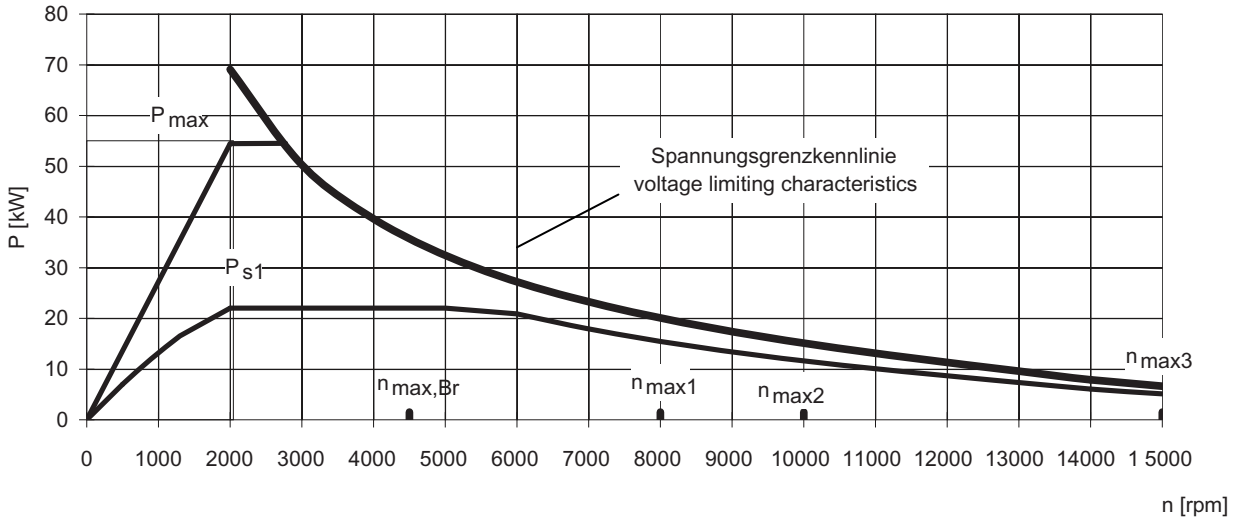


Table 4- 472 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	22.0	105	52	8000	10000	15000	4500	5000	260	129	134	61



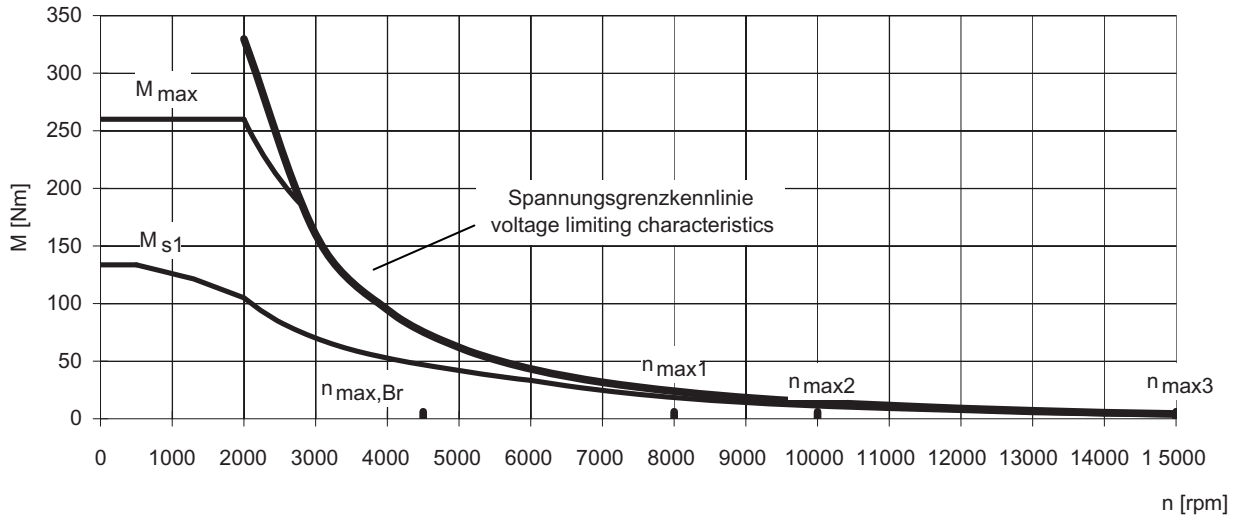
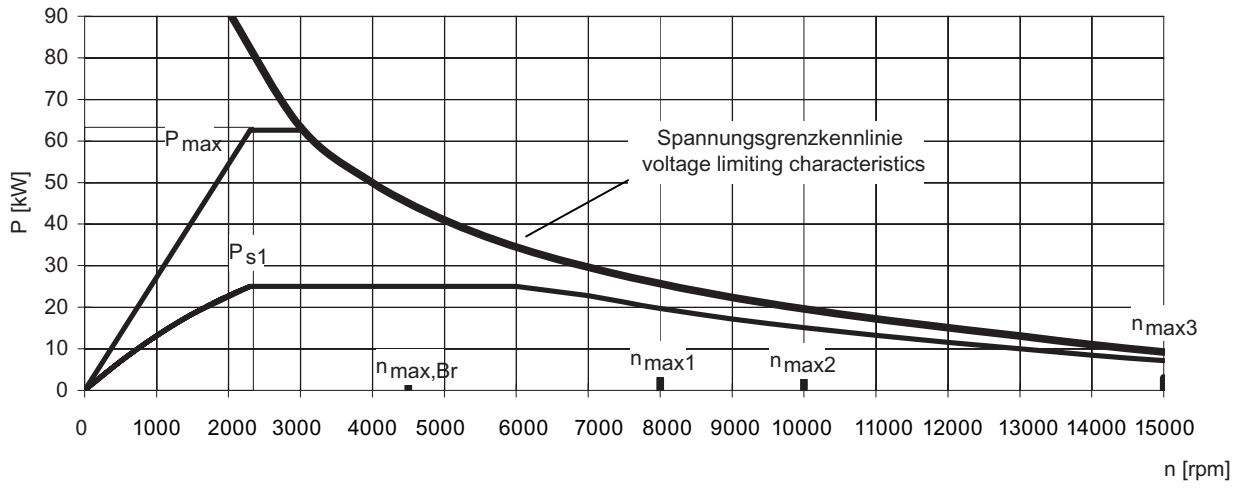


Table 4- 473 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	25.0	104	52	8000	10000	15000	4500	6000	260	129	134	61
2000	22.0	105	52					7000				
1500	18.4	117	54					8000				



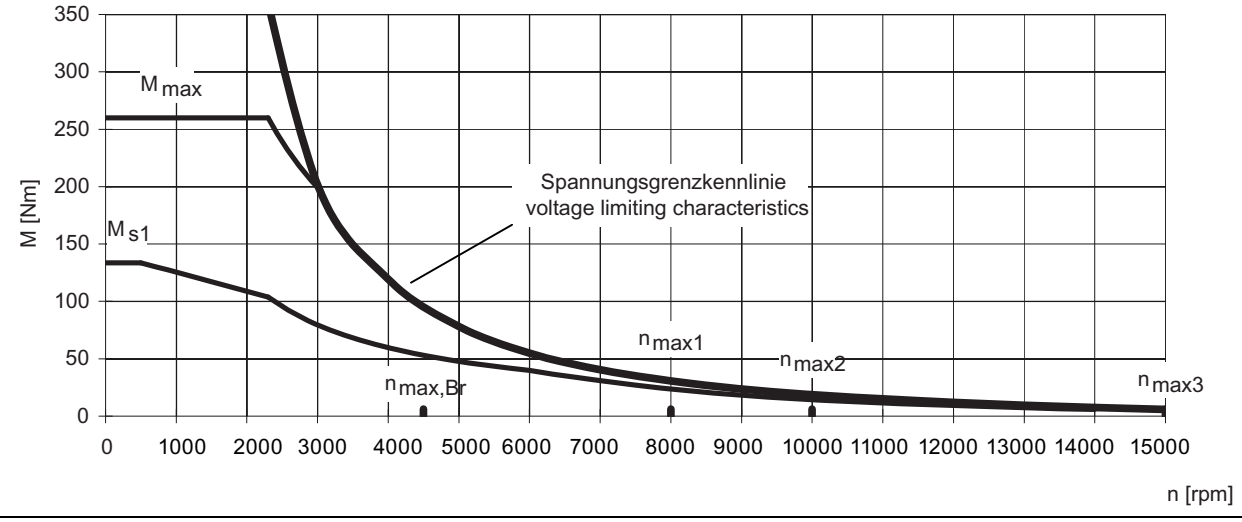
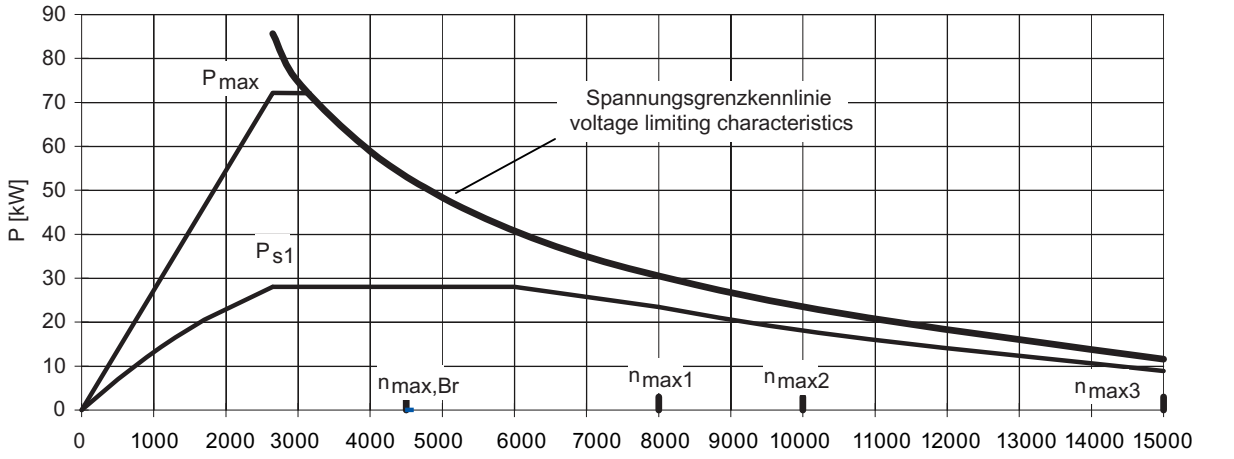


Table 4- 474 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	28.0	101	50	8000	10000	15000	4500	6000	260	129	134	61



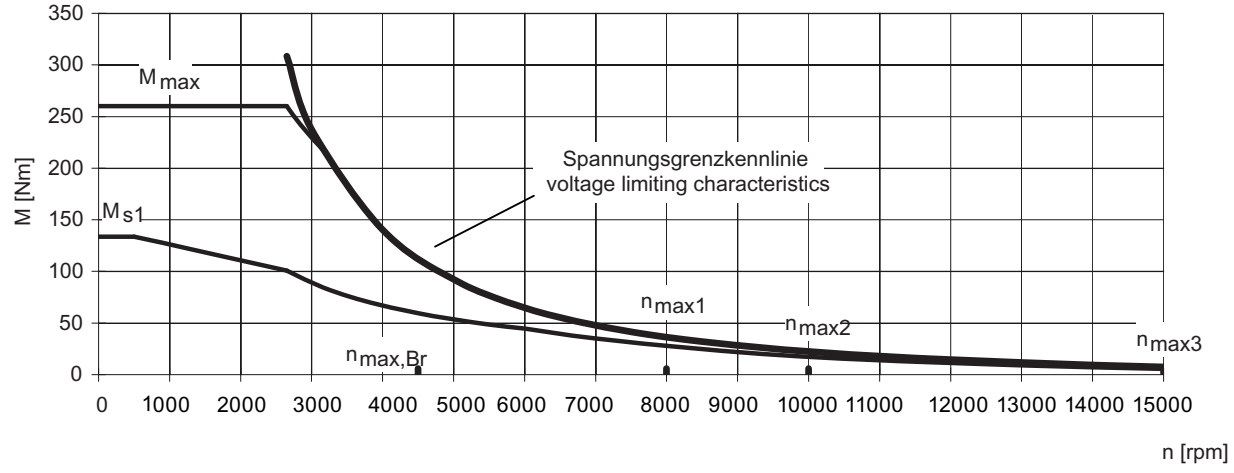


Table 4- 475 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	22,0	140	51	8000	10000	14000	4500	4000	320	117	172	58

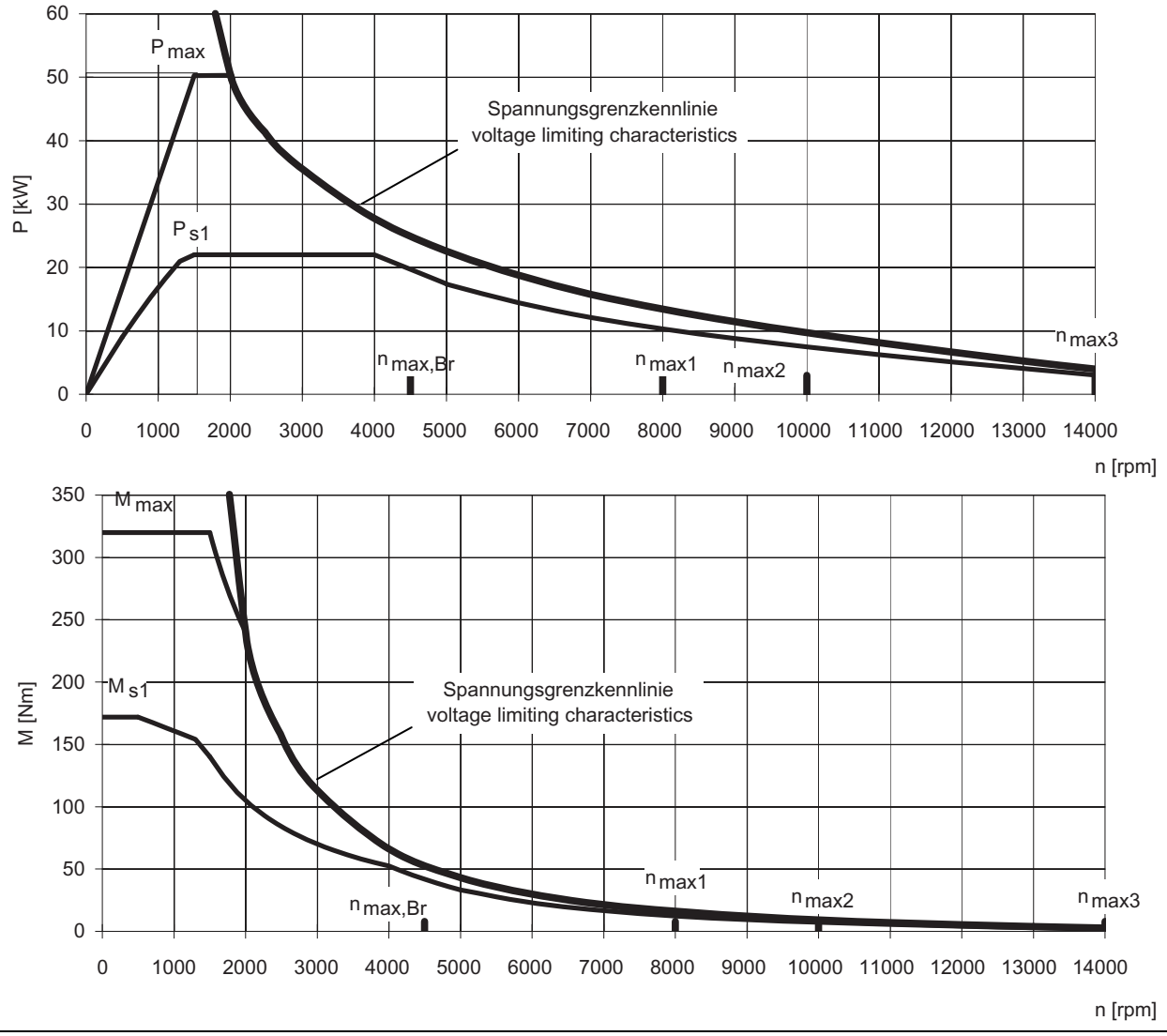
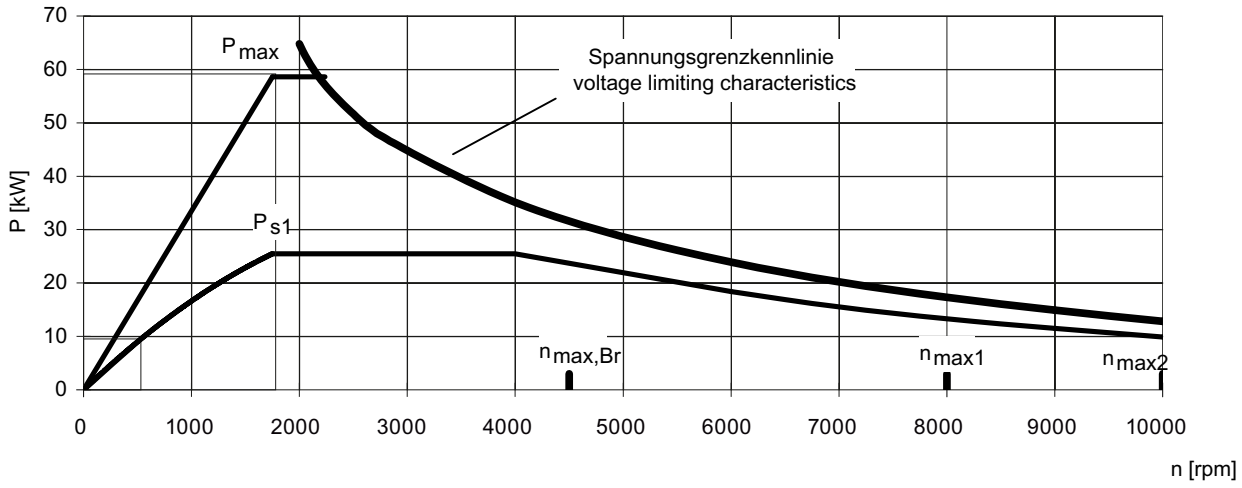


Table 4- 476 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	25,5	139	51	8000	10000	14000	4500	4000	320	117	172	58
1500	22,0	140	51					5250				



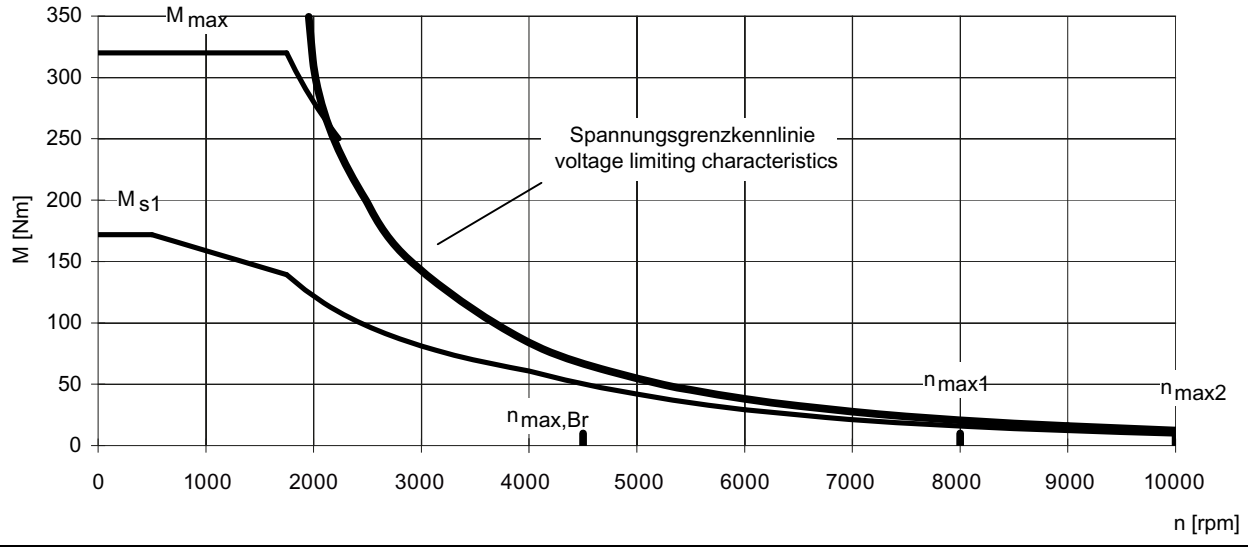
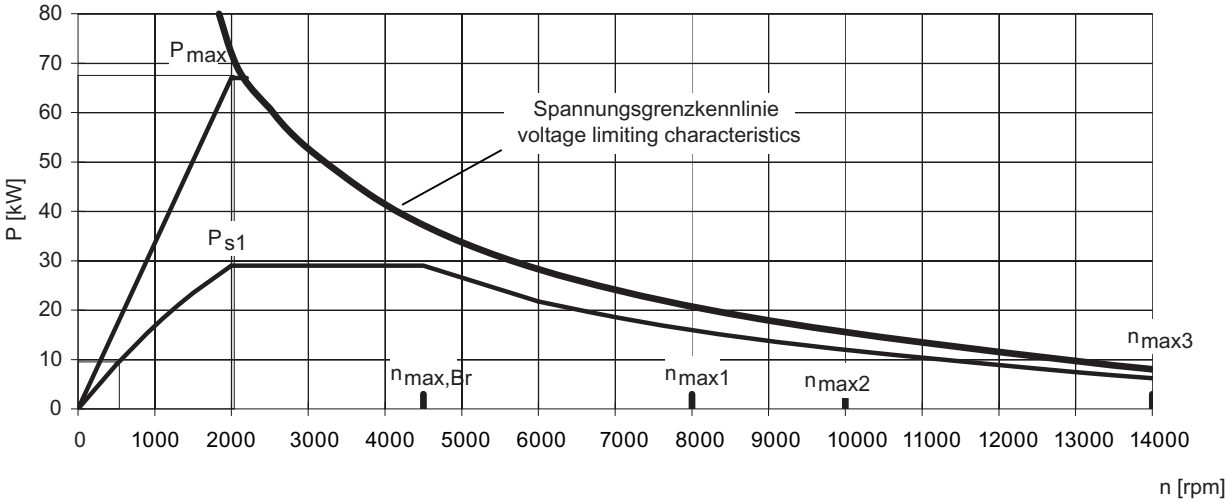


Table 4- 477 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	29,0	138	52	8000	10000	14000	4500	4500	320	117	172	58



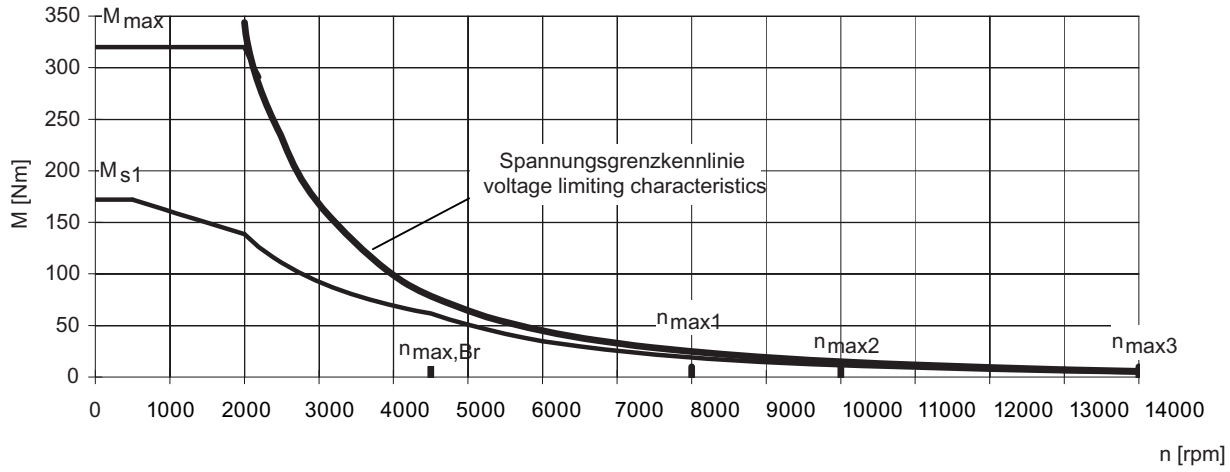


Table 4- 478 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	29,0	138	64	8000	10000	15000	4500	4500	320	148	170	73

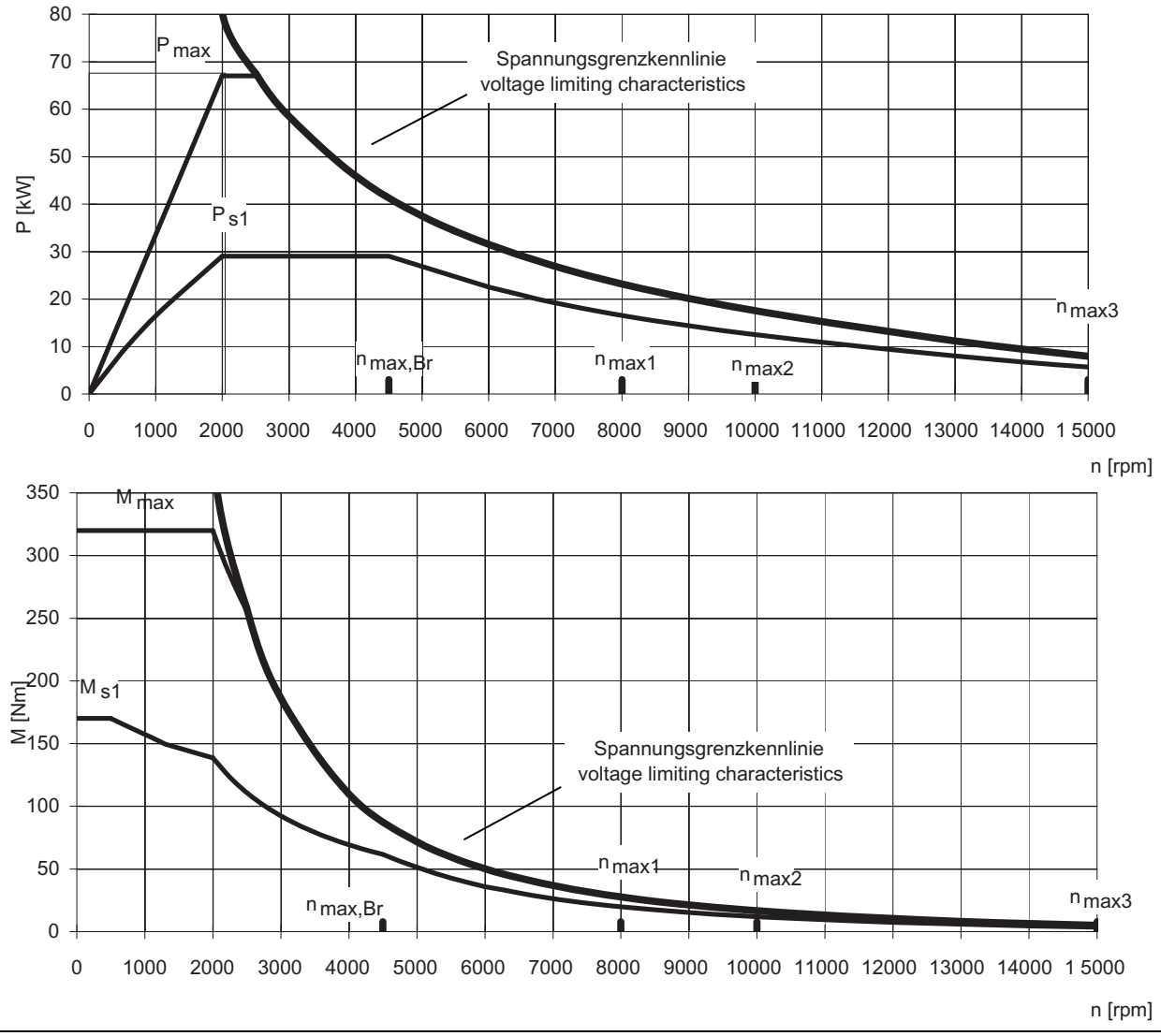


Table 4- 479 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	31,0	129	61	8000	10000	15000	4500	4500	320	148	170	73
2000	29,0	138	64					5250				
1500	23,1	147	63					7300				

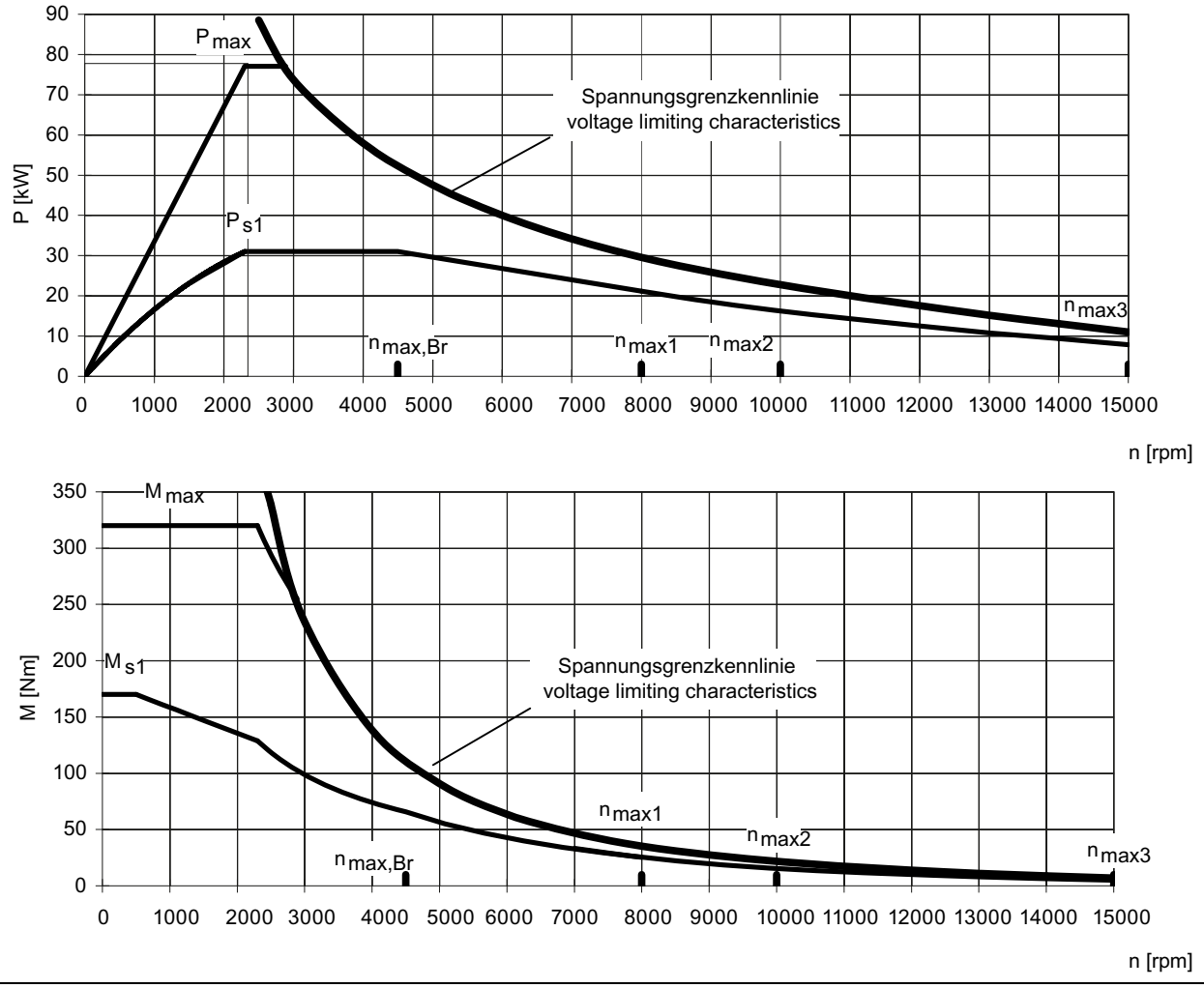


Table 4- 480 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	32,0	115	58	8000	10000	15000	4500	5500	320	148	170	73

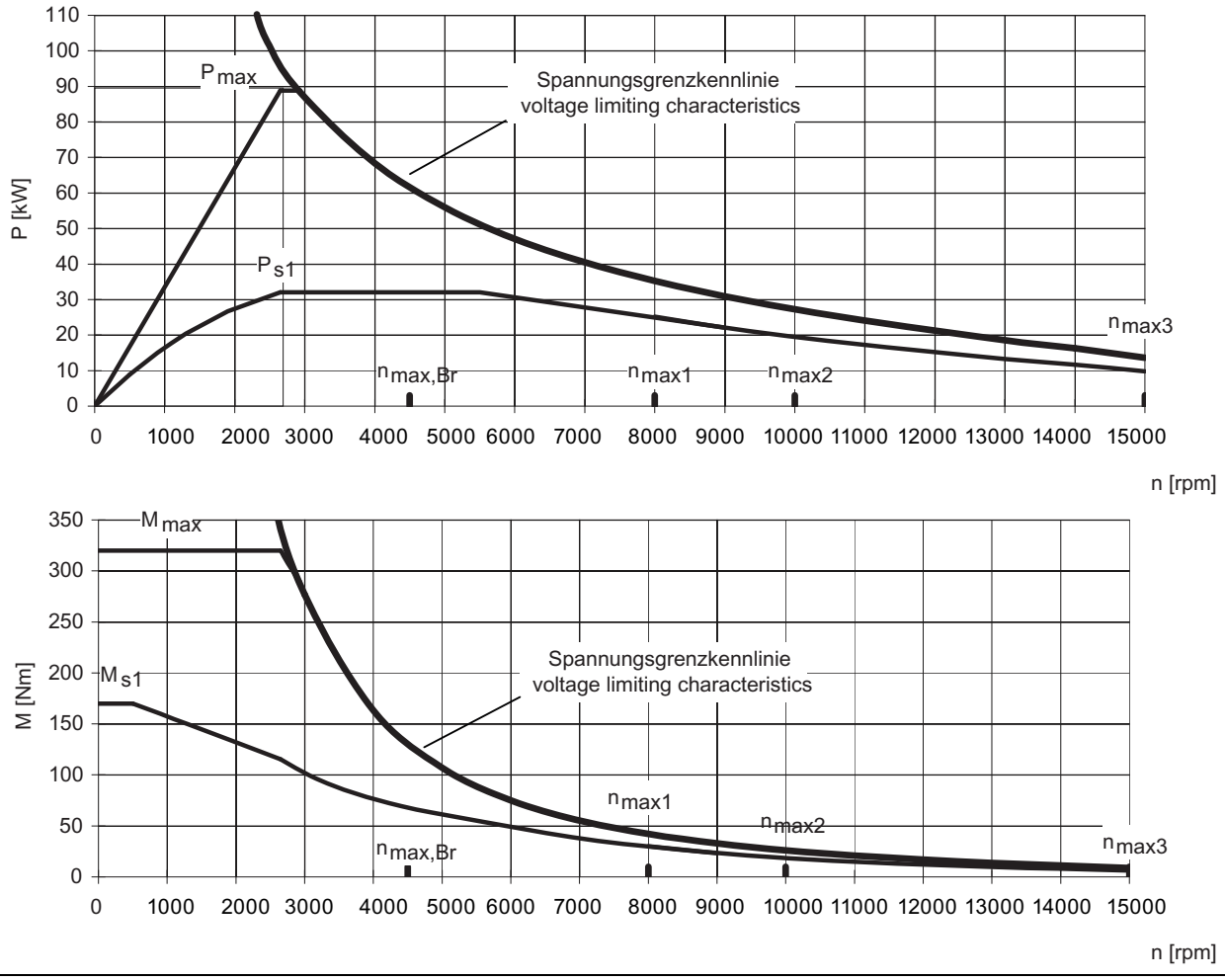


Table 4- 481 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	27,0	172	67	8000	10000	15000	4500	4000	400	156	202	73

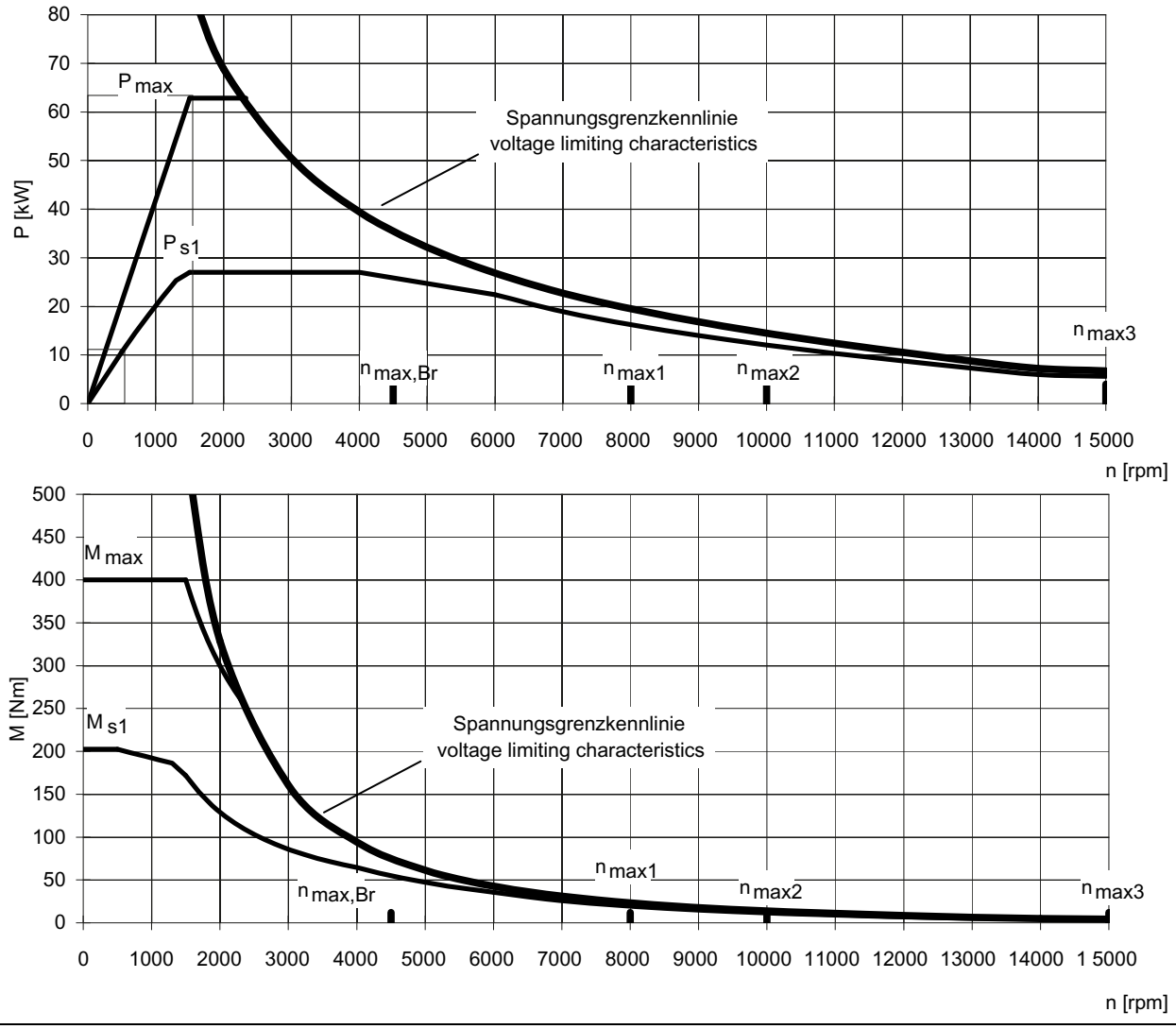


Table 4- 482 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	31,5	172	67	8000	10000	15000	4500	4500	400	156	202	73
1500	27,0	172	67					6500				

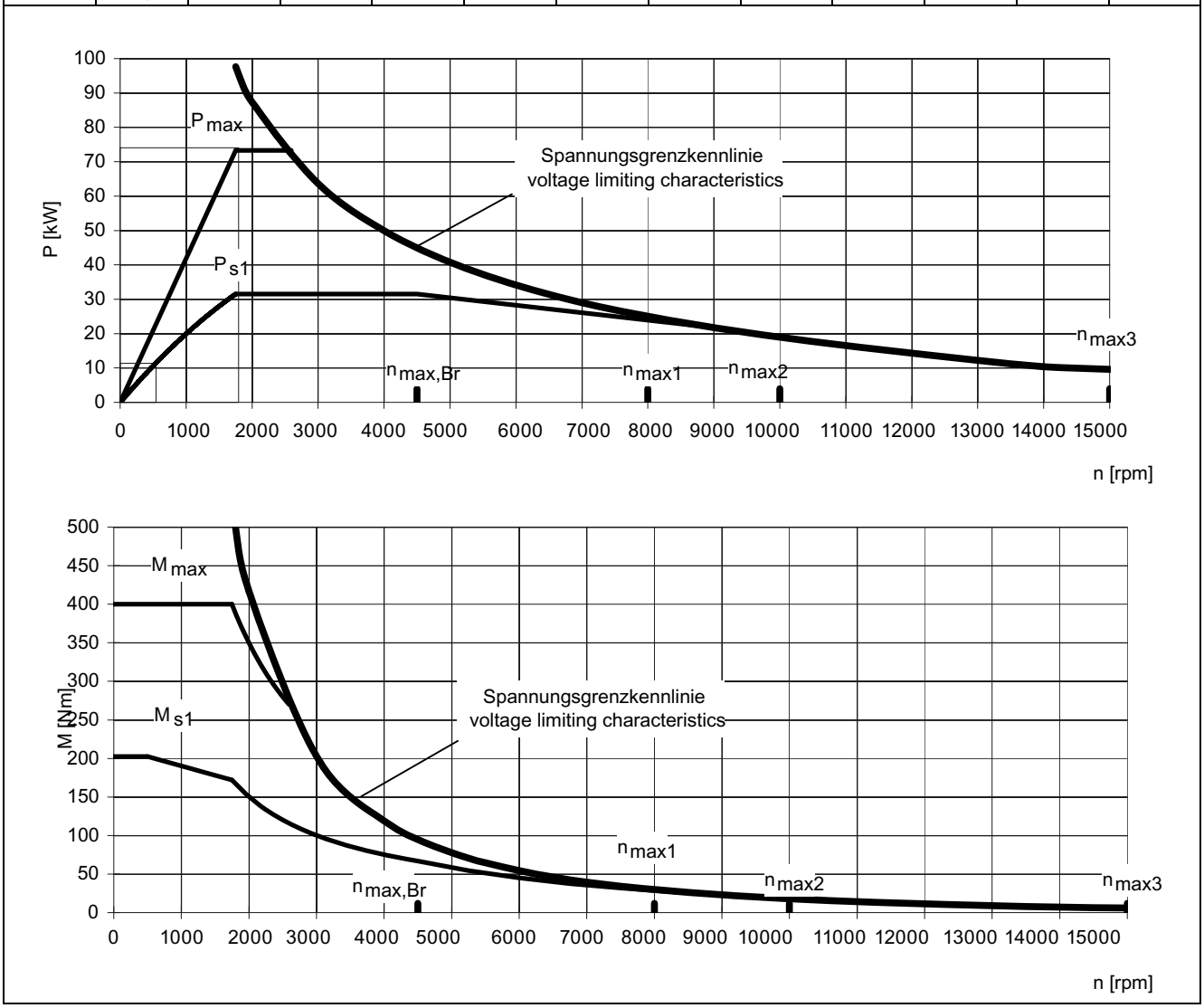


Table 4- 483 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	36,0	172	67	8000	10000	15000	4500	4000	400	156	202	73

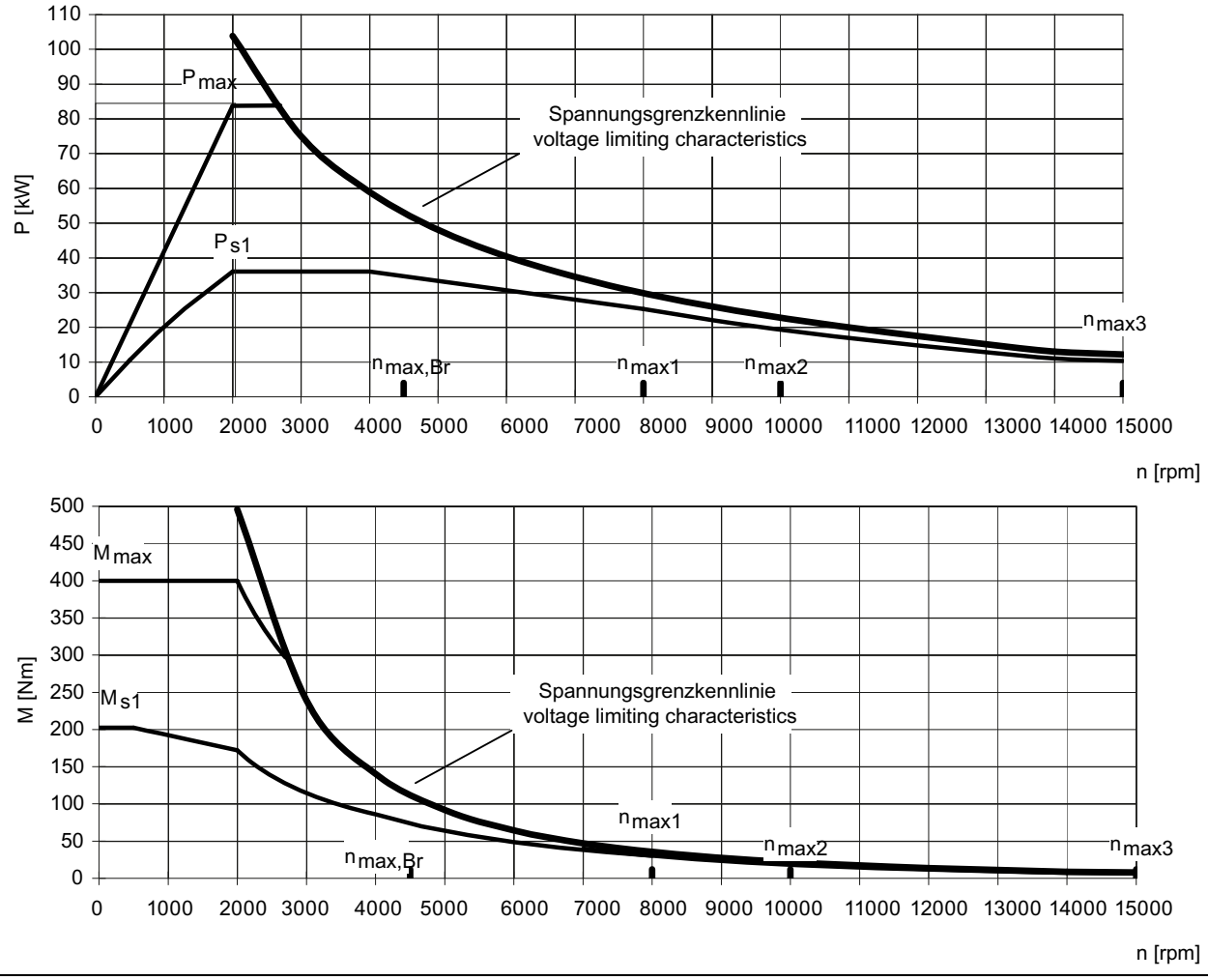


Table 4- 484 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	30,0	191	80	8000	10000	15000	4500	5000	400	168	223	88

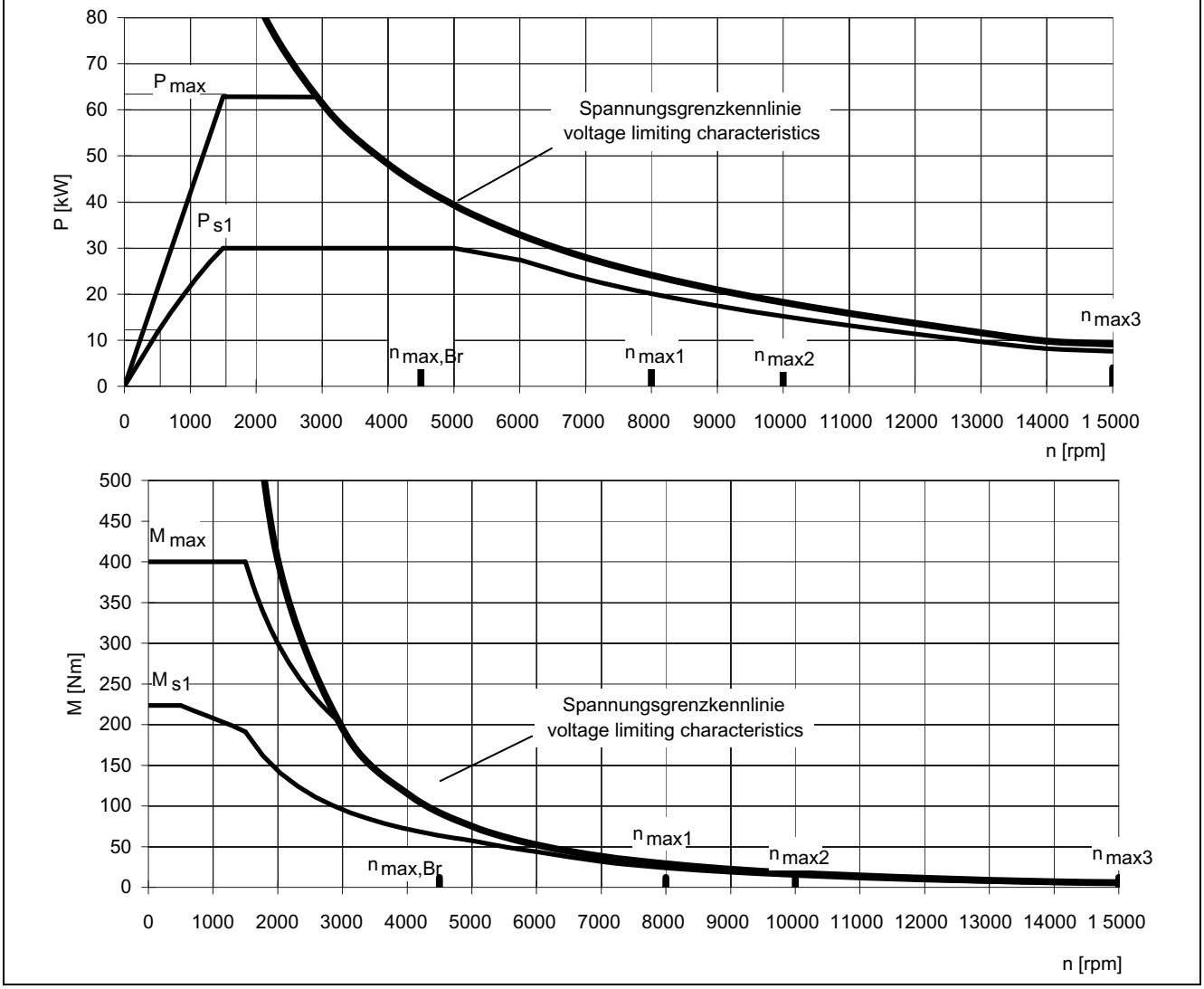
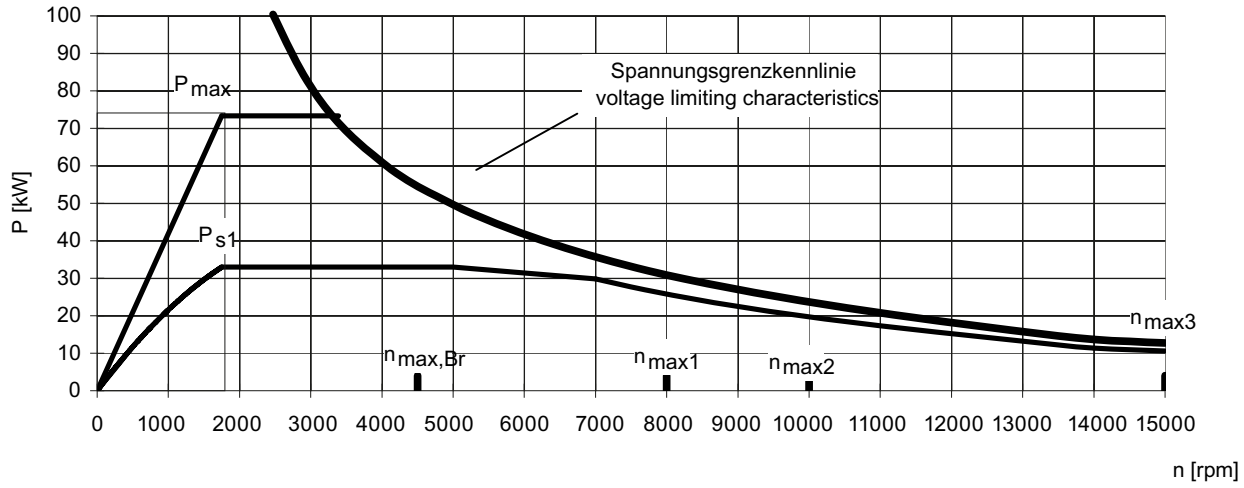


Table 4- 485 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	33,0	180	77	8000	10000	15000	4500	5000	400	168	223	88
1500	30,0	191	80					7000				



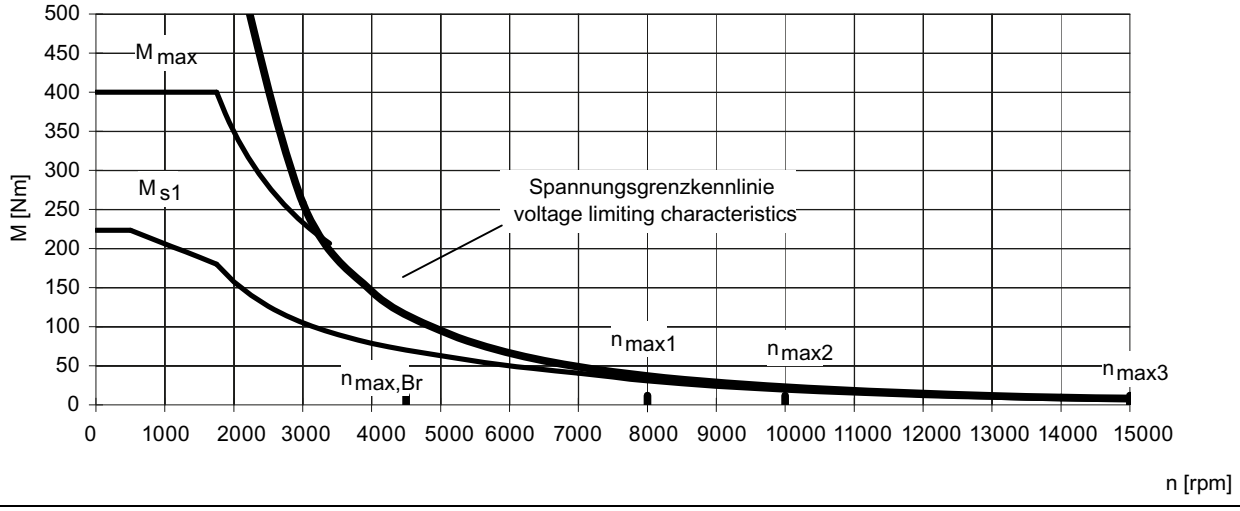
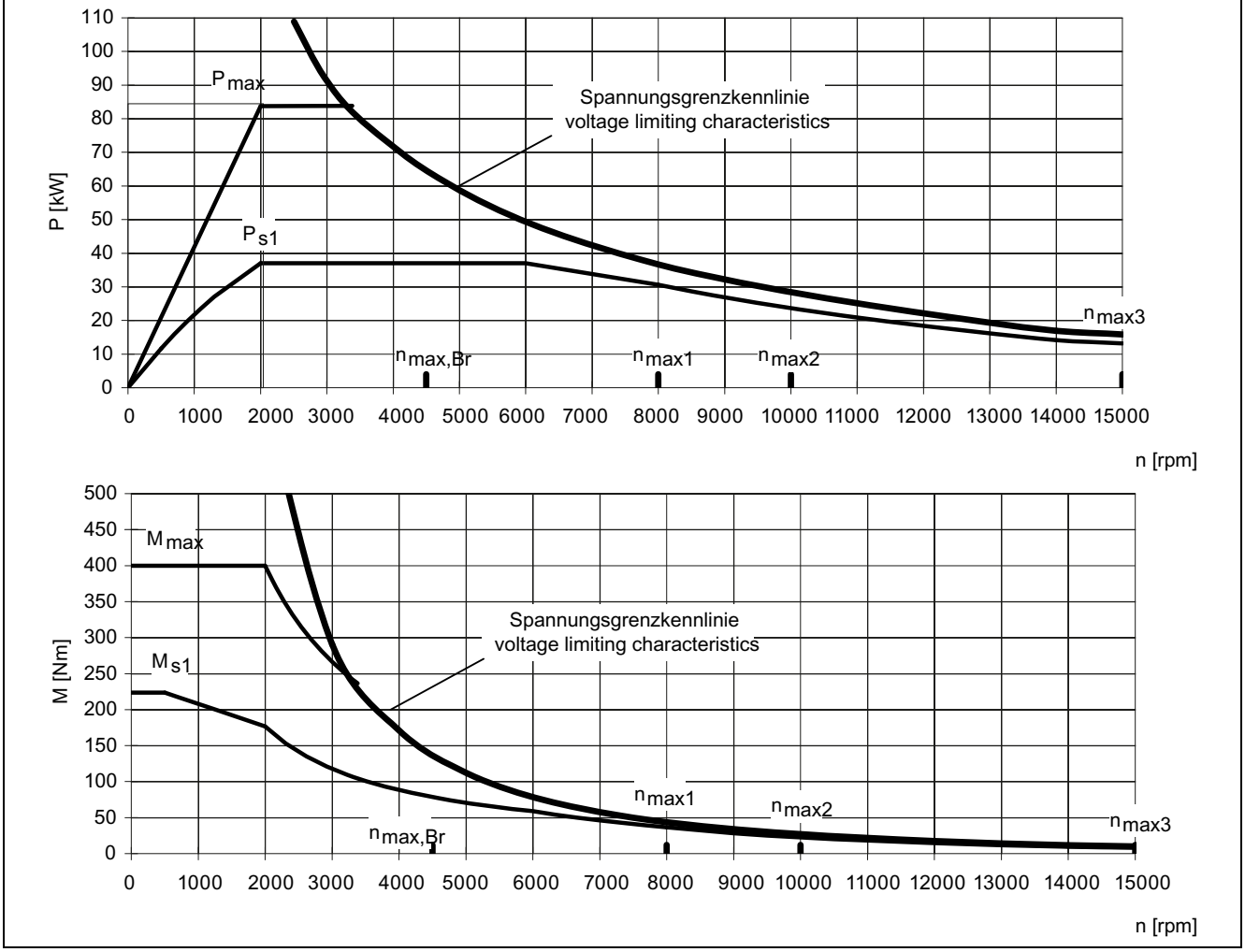


Table 4- 486 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	37,0	177	76	8000	10000	15000	4500	6000	400	168	223	88



4.1.3.4 Shaft height 160 - water cooling

Table 4- 487 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	37.0	236	84.0	6500	9000	10000	4000	3000	600	208	288	96

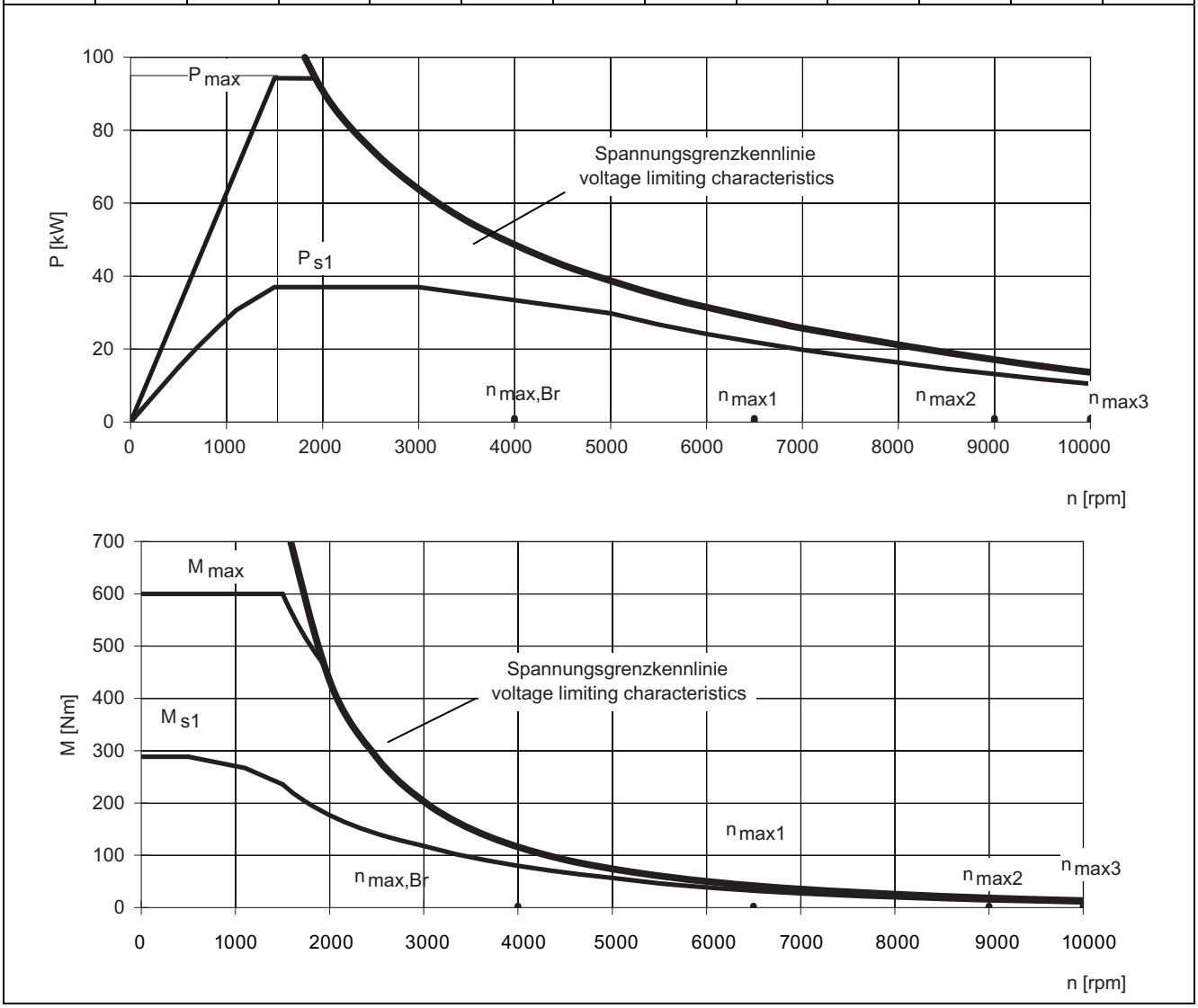
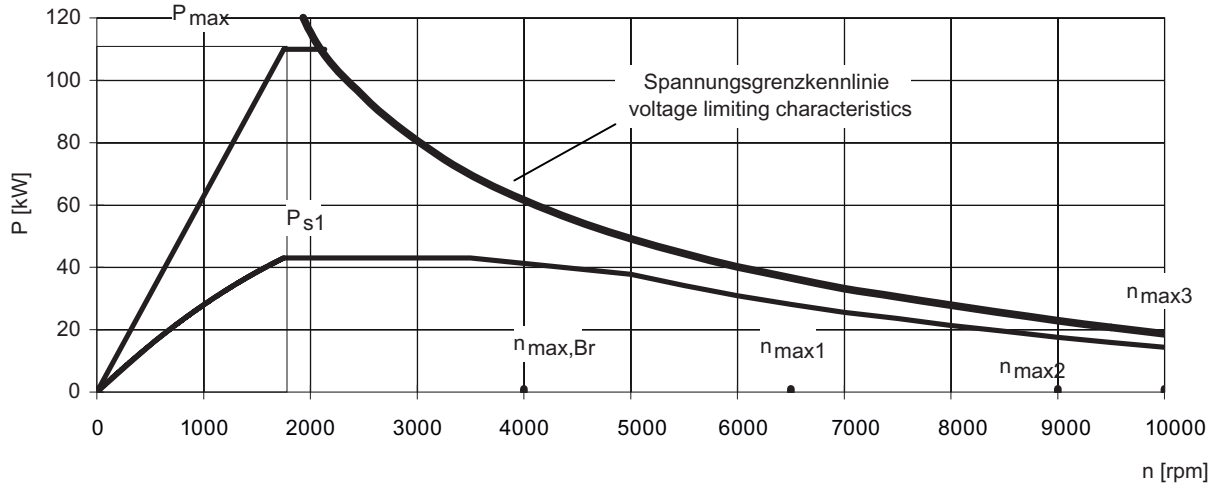


Table 4- 488 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	43.0	235	84.0	6500	9000	10000	4000	3500	600	208	288	96
1500	37.0	236	84.0					5000				



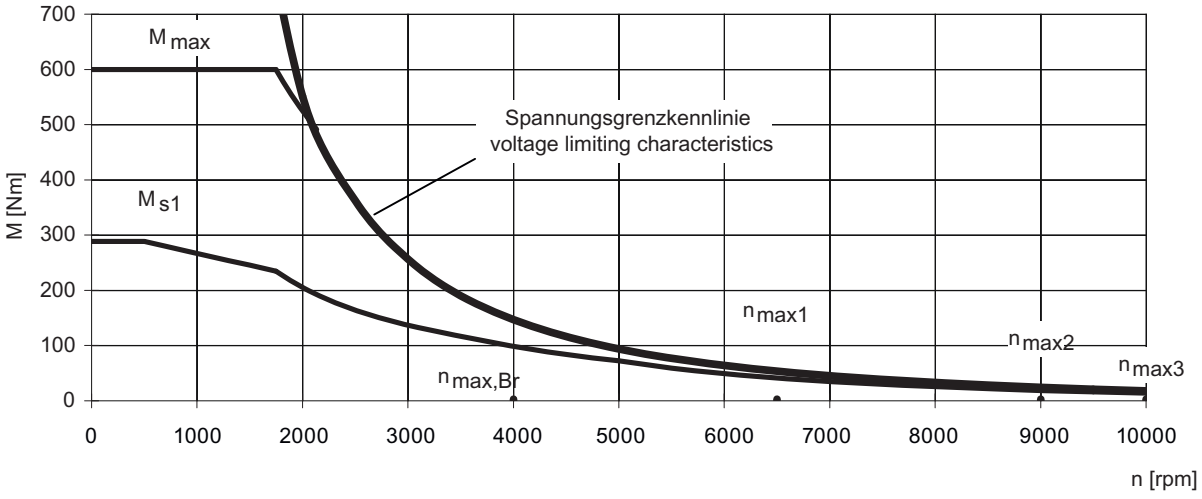
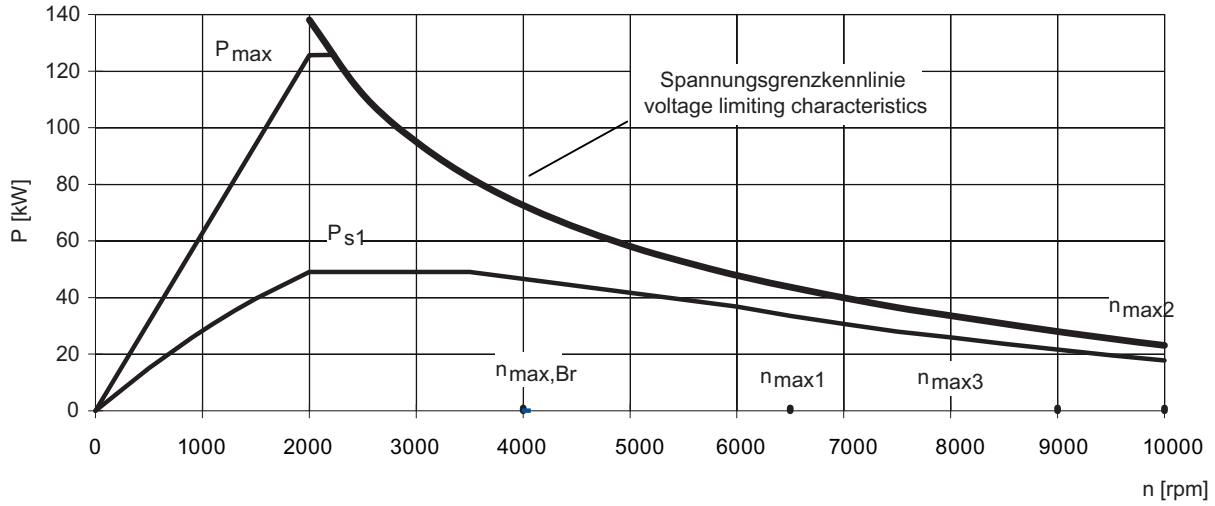


Table 4- 489 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	49.0	234	80.0	6500	9000	10000	4000	3500	600	208	288	96



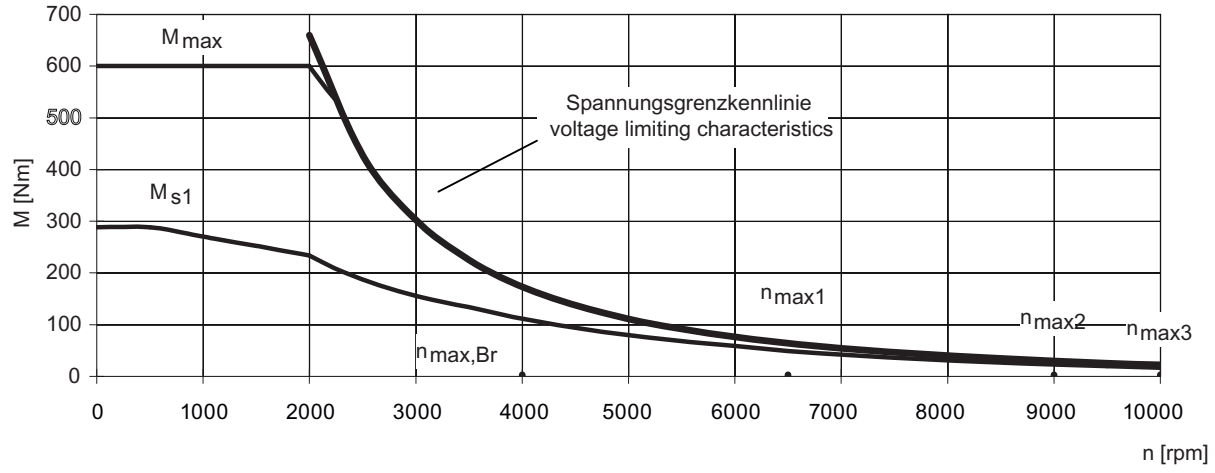
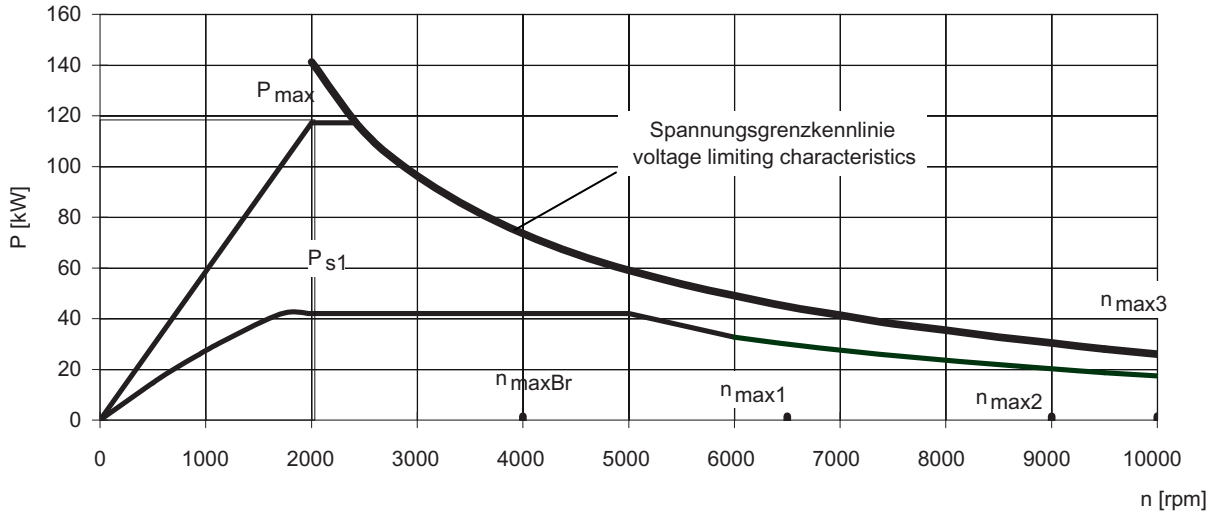


Table 4- 490 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	42.0	201	93.0	6500	9000	10000	4000	5000	560	253	281	120



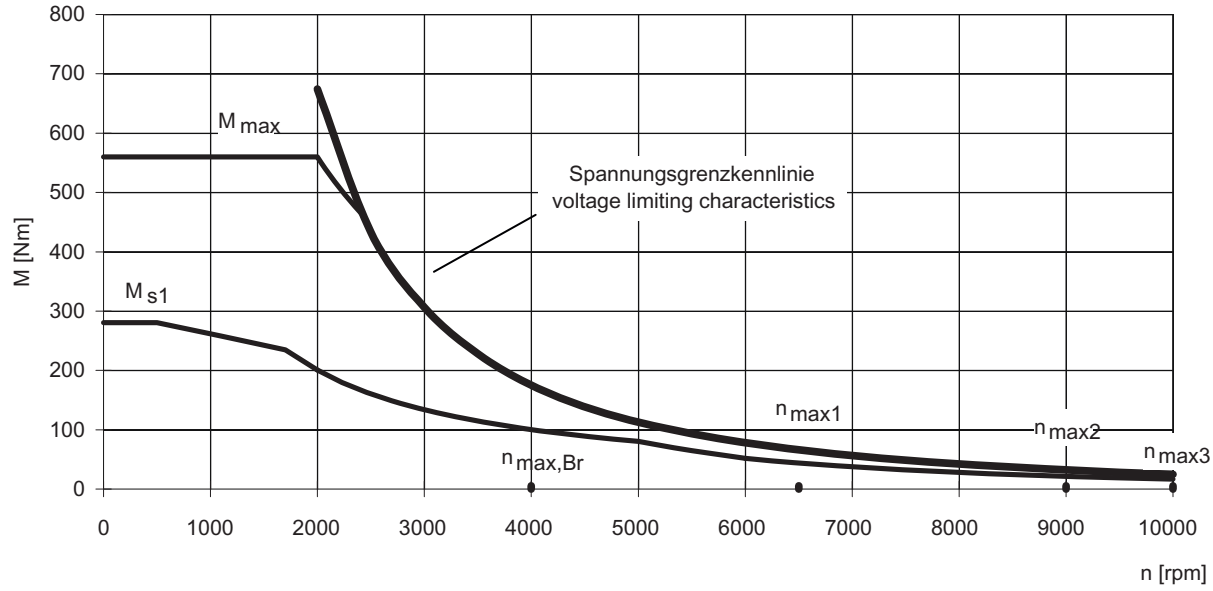
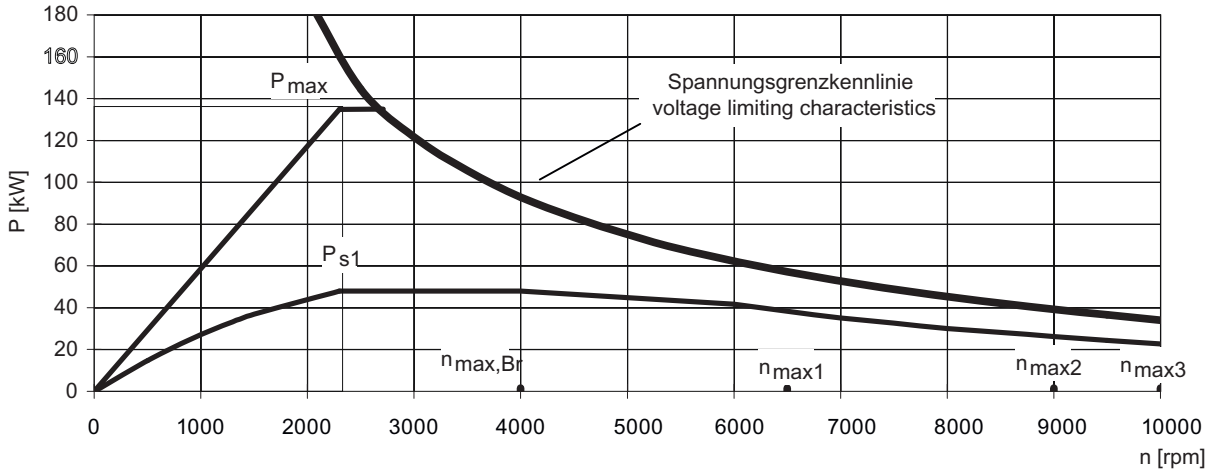


Table 4- 491 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	48.0	199	93.0	6500	9000	10000	4000	4000	560	253	281	120
2000	42.0	201	93.0					5800				
1500	37.0	236	98.0					6600				



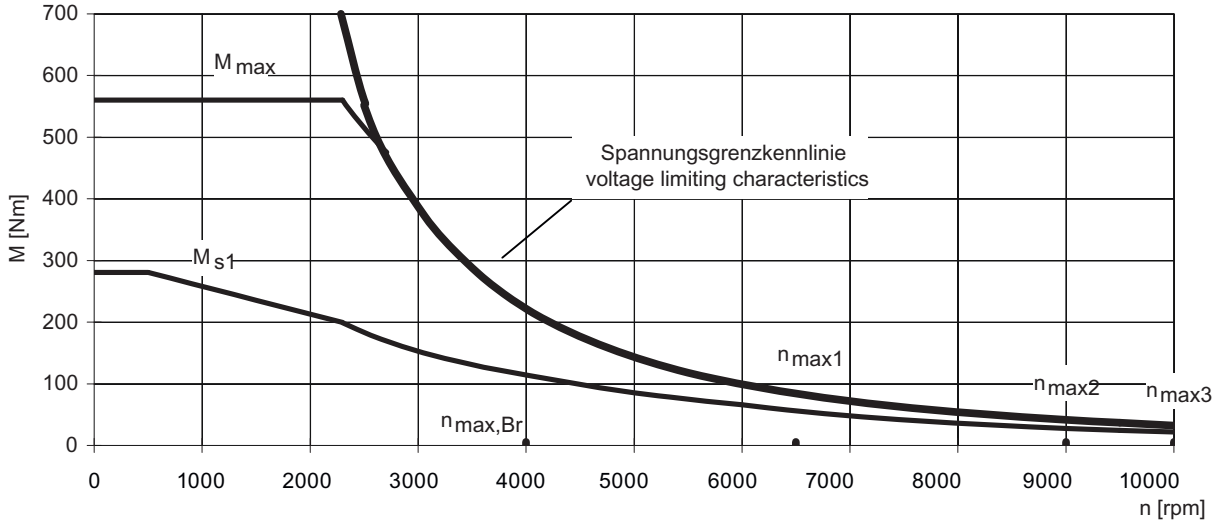


Table 4- 492 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8163-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	55.0	198	90.0	6500	9000	10000	4000	5000	560	253	281	120

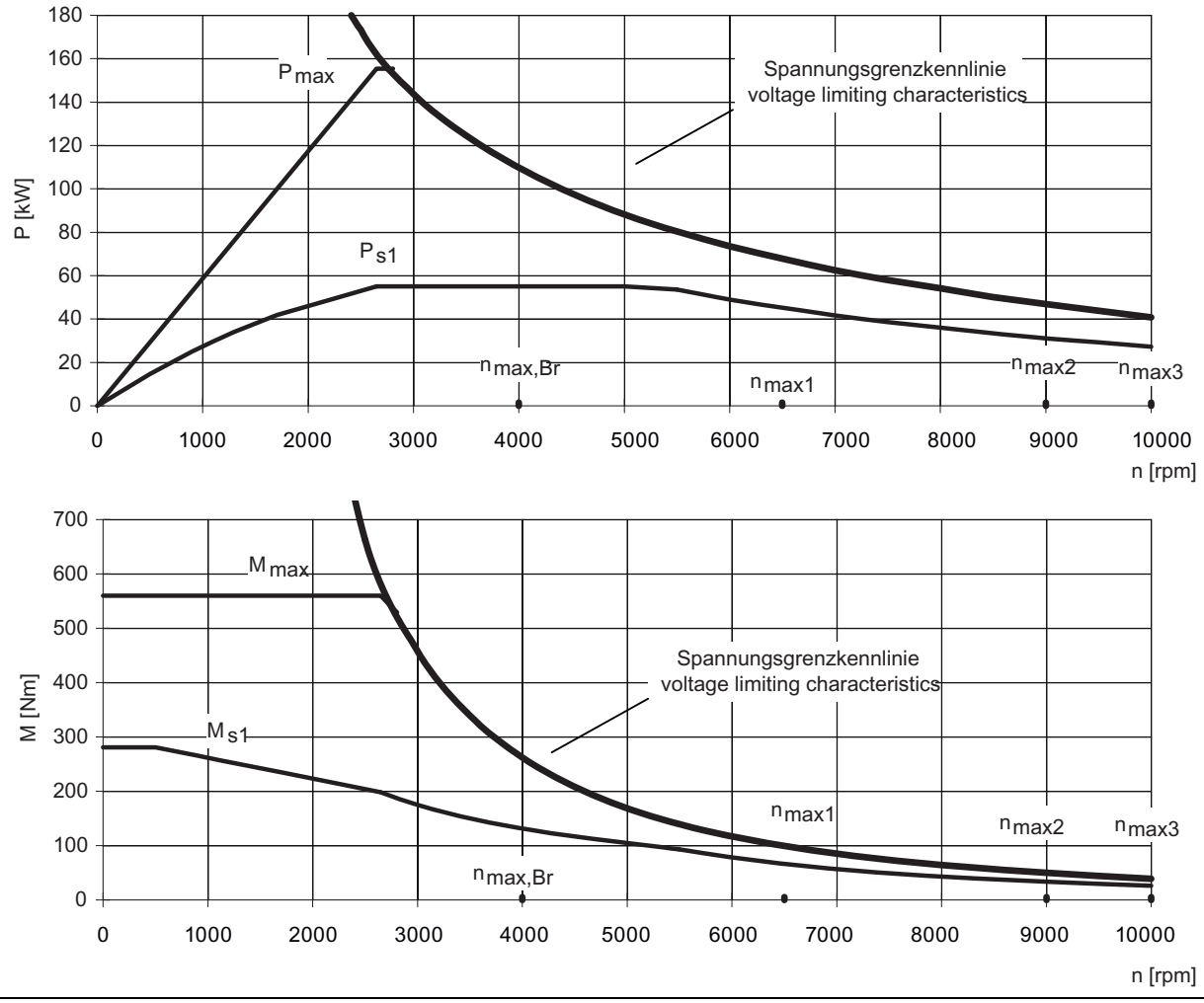


Table 4- 493 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	46.0	293	104.0	6500	9000	10000	4500	3050	700	245	334	112

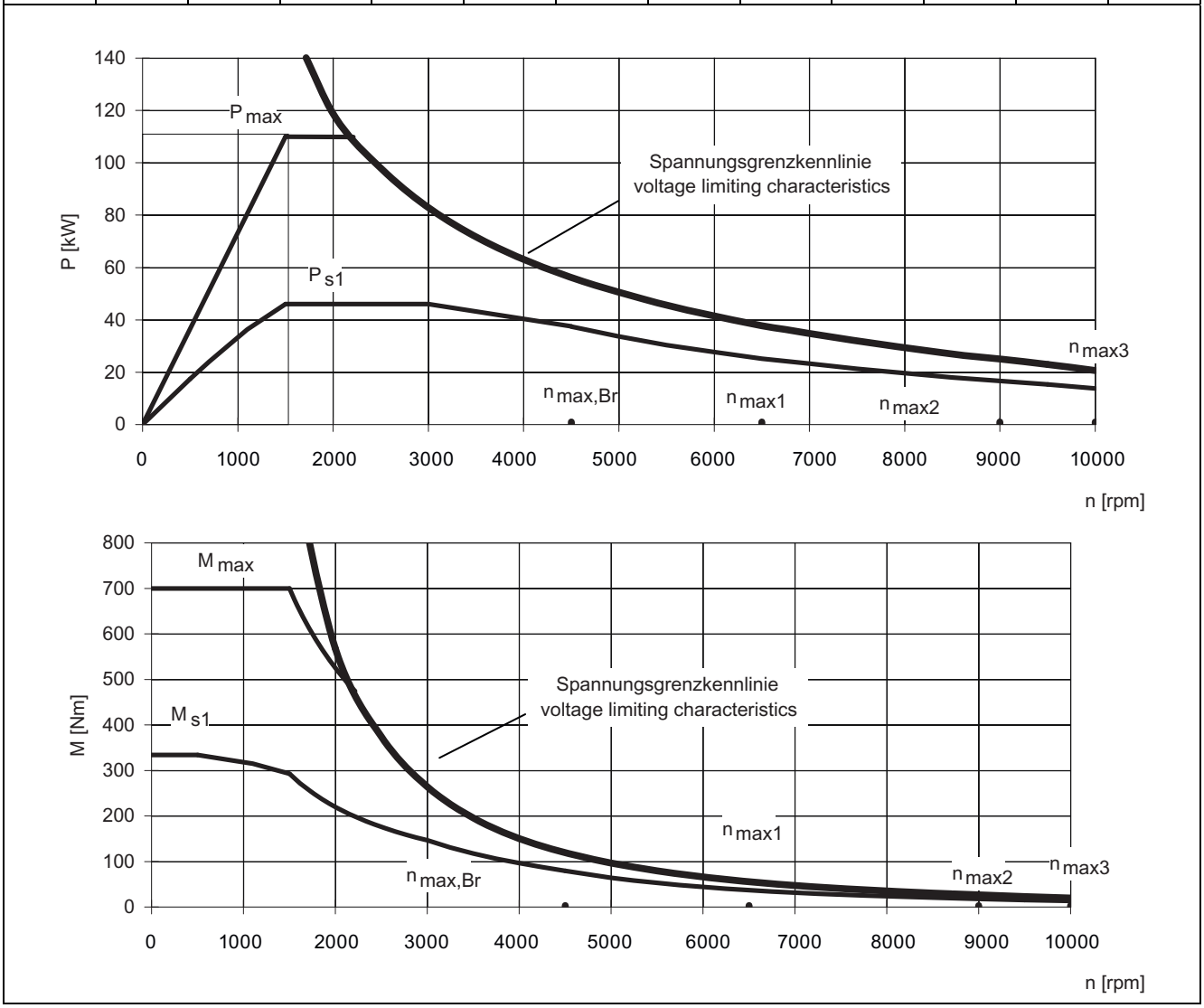
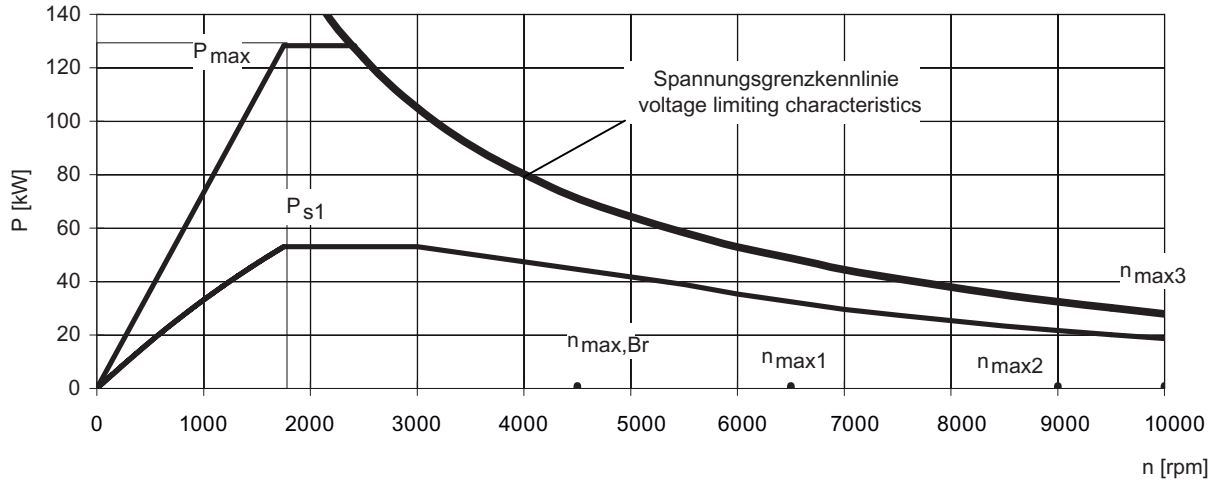


Table 4- 494 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	53.0	289	104.0	6500	9000	10000	4500	3050	700	245	334	112
1500	46.0	293	104.0					4150				



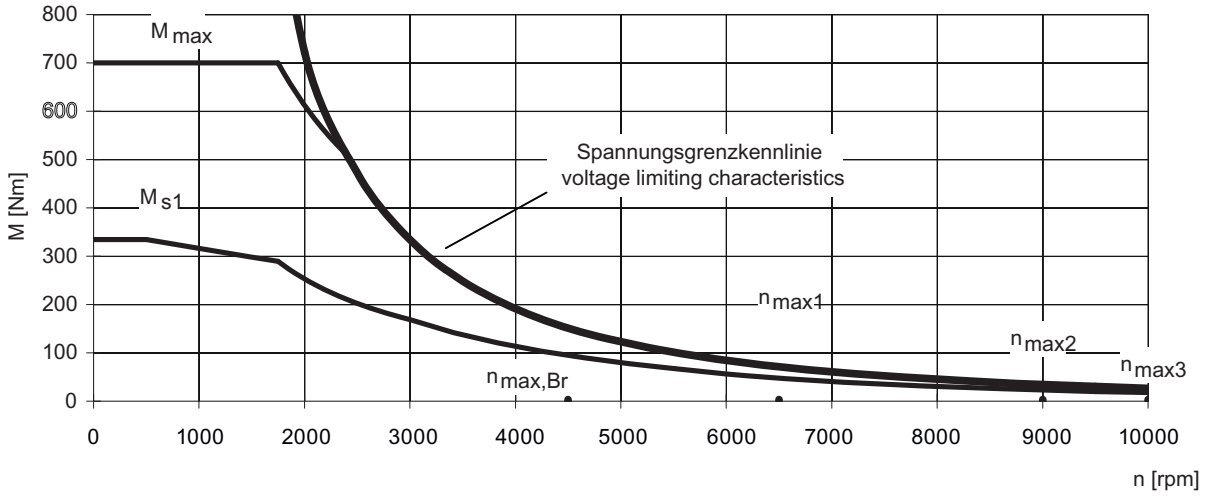
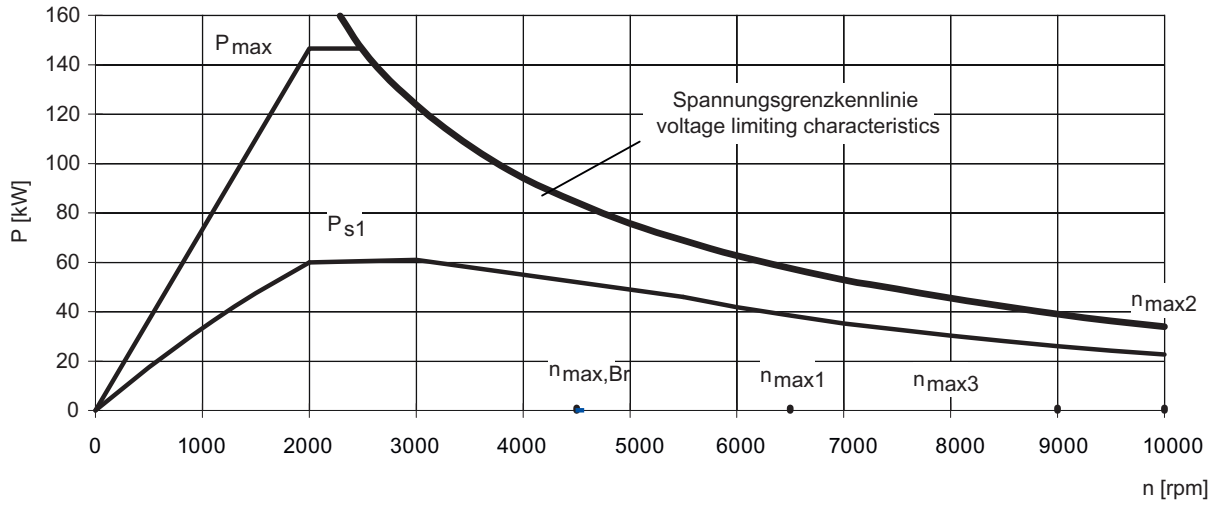


Table 4- 495 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	60.0	287	103.0	6500	9000	10000	4500	3050	700	245	334	112



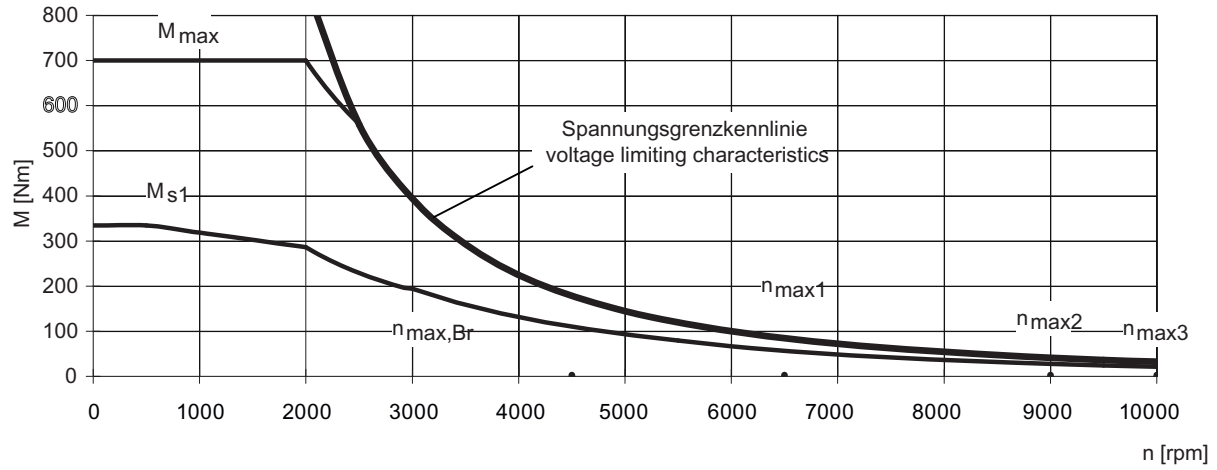
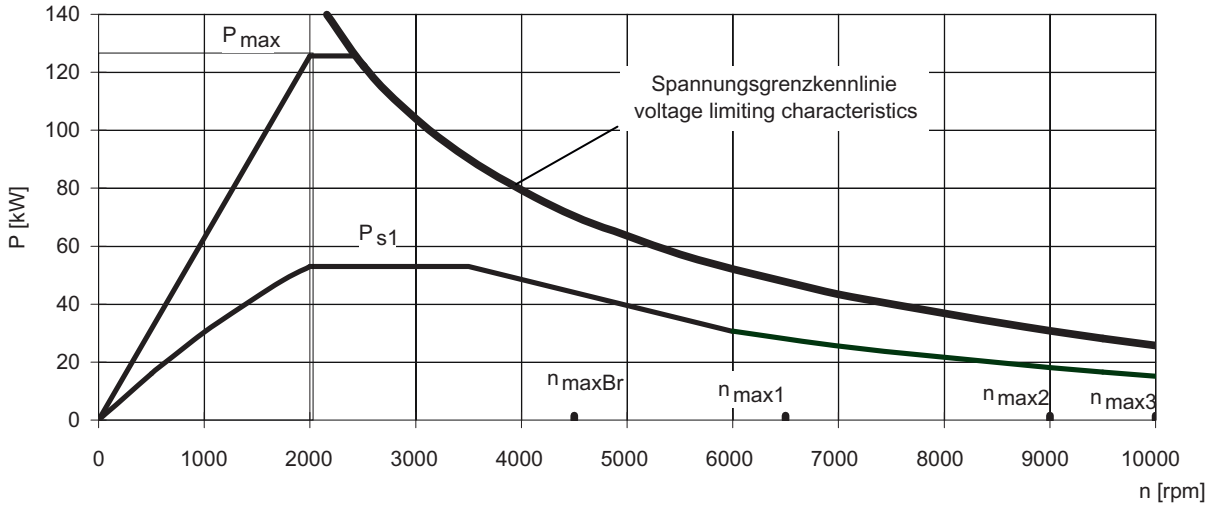


Table 4- 496 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	53.0	253	110.0	6500	9000	10000	4500	3500	600	250	306	135



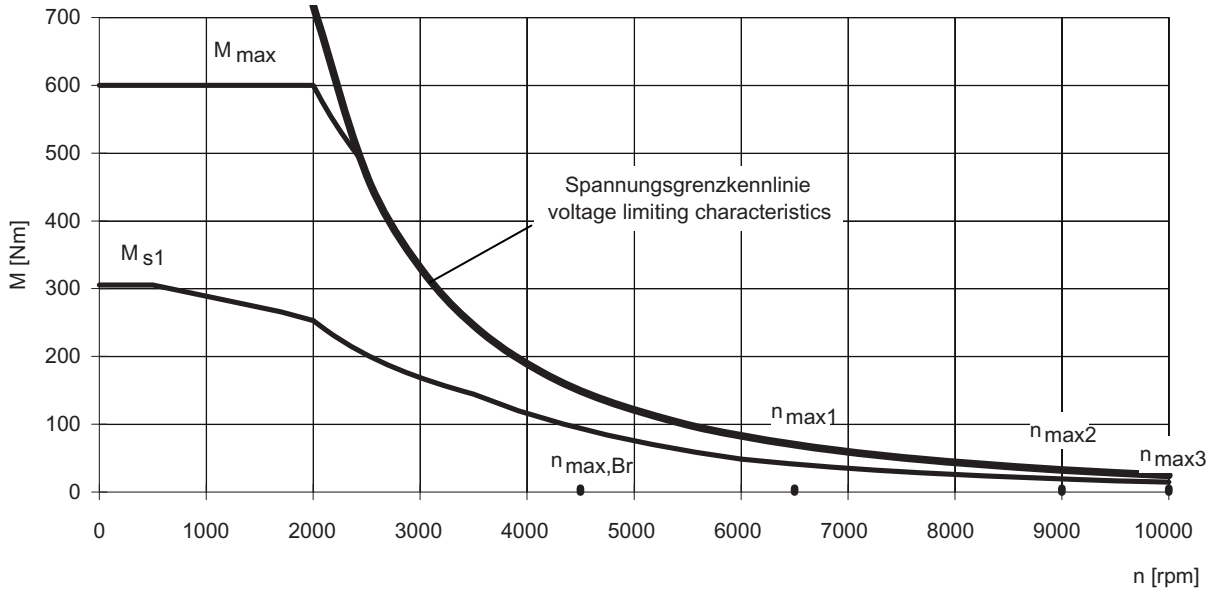
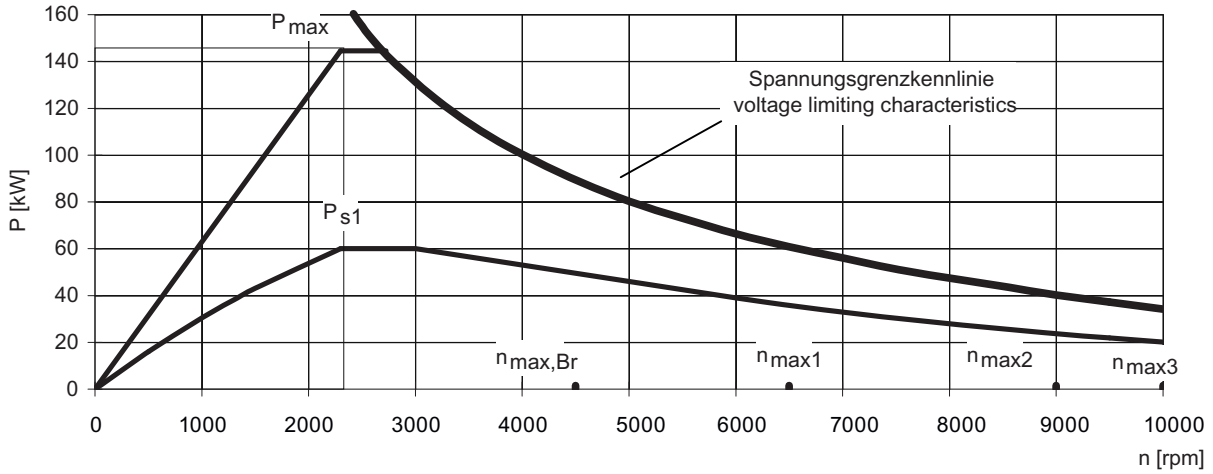


Table 4- 497 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	60.0	249	107.0	6500	9000	10000	4500	3000	600	250	306	135
2000	53.0	253	110.0					3900				
1500	43.1	274	112.0					5000				



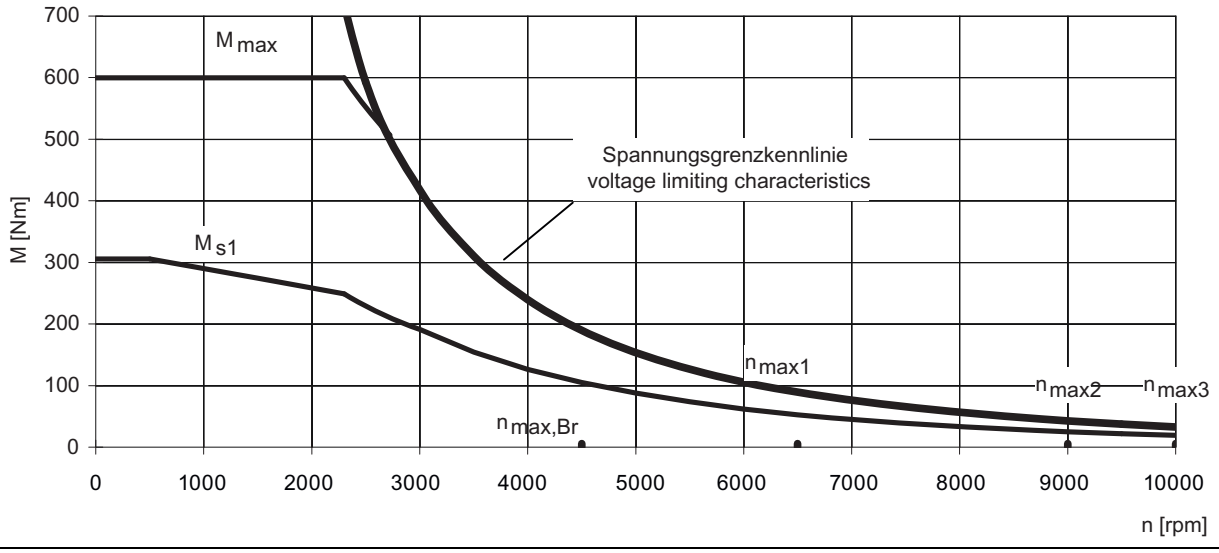


Table 4- 498 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	65.0	234	100.0	6500	9000	10000	4500	4000	600	250	306	135

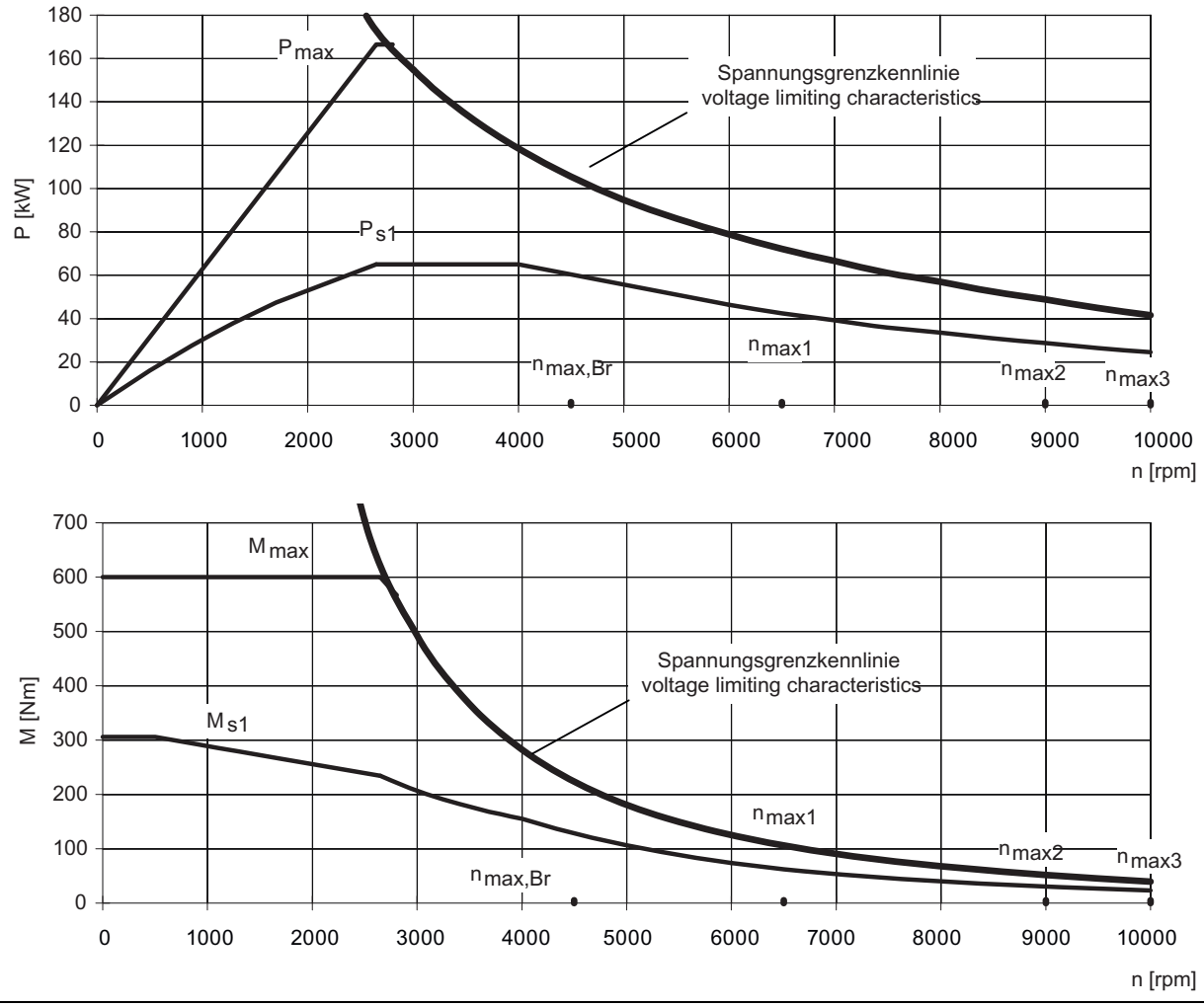


Table 4- 499 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□F2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	52.0	331	116.0	6500	9000	10000	4500	3050	730	250	353	127

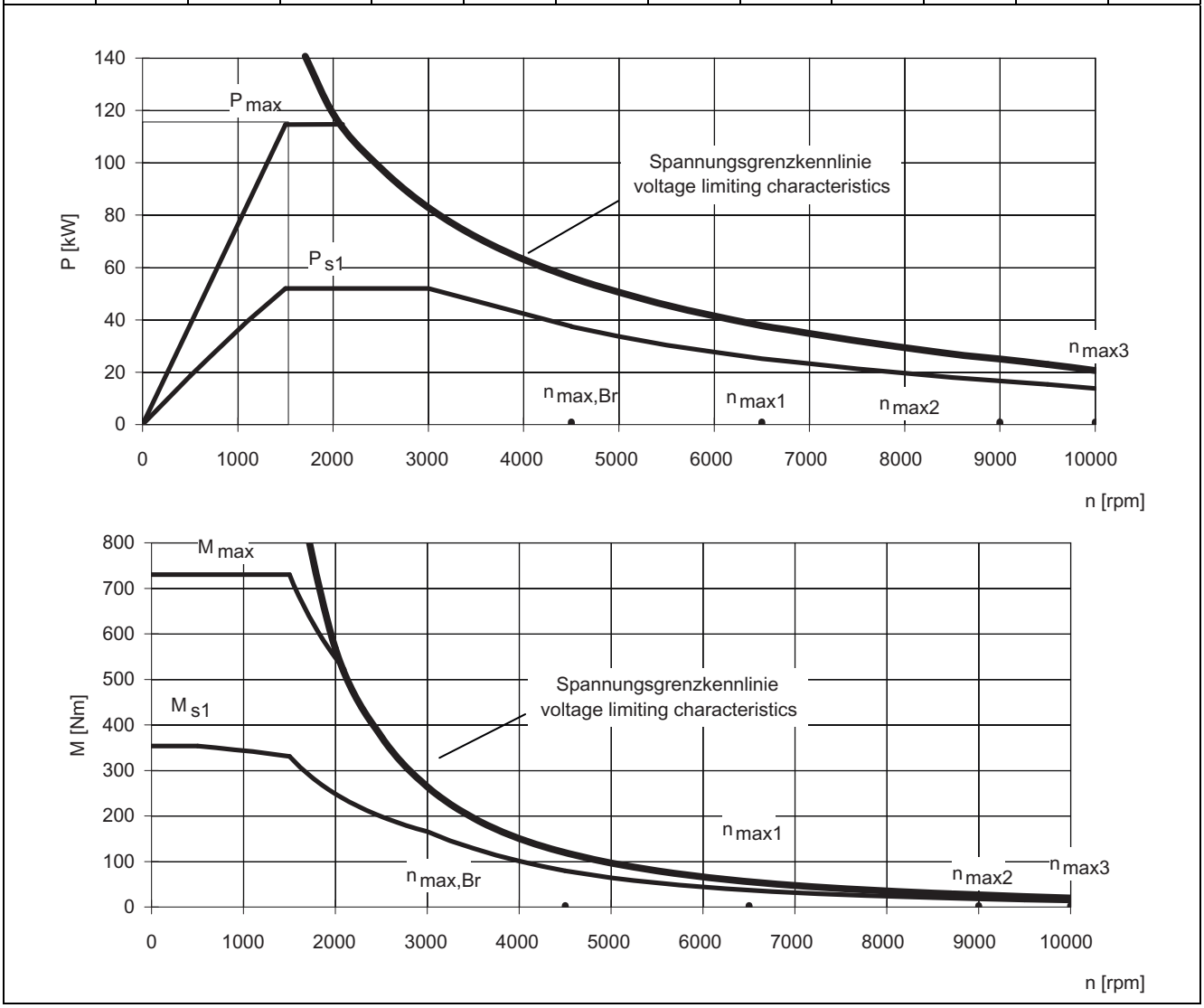


Table 4- 500 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	61.0	333	116.0	6500	9000	10000	4500	3050	730	250	353	127
1500	52.0	331	116.0					4050				

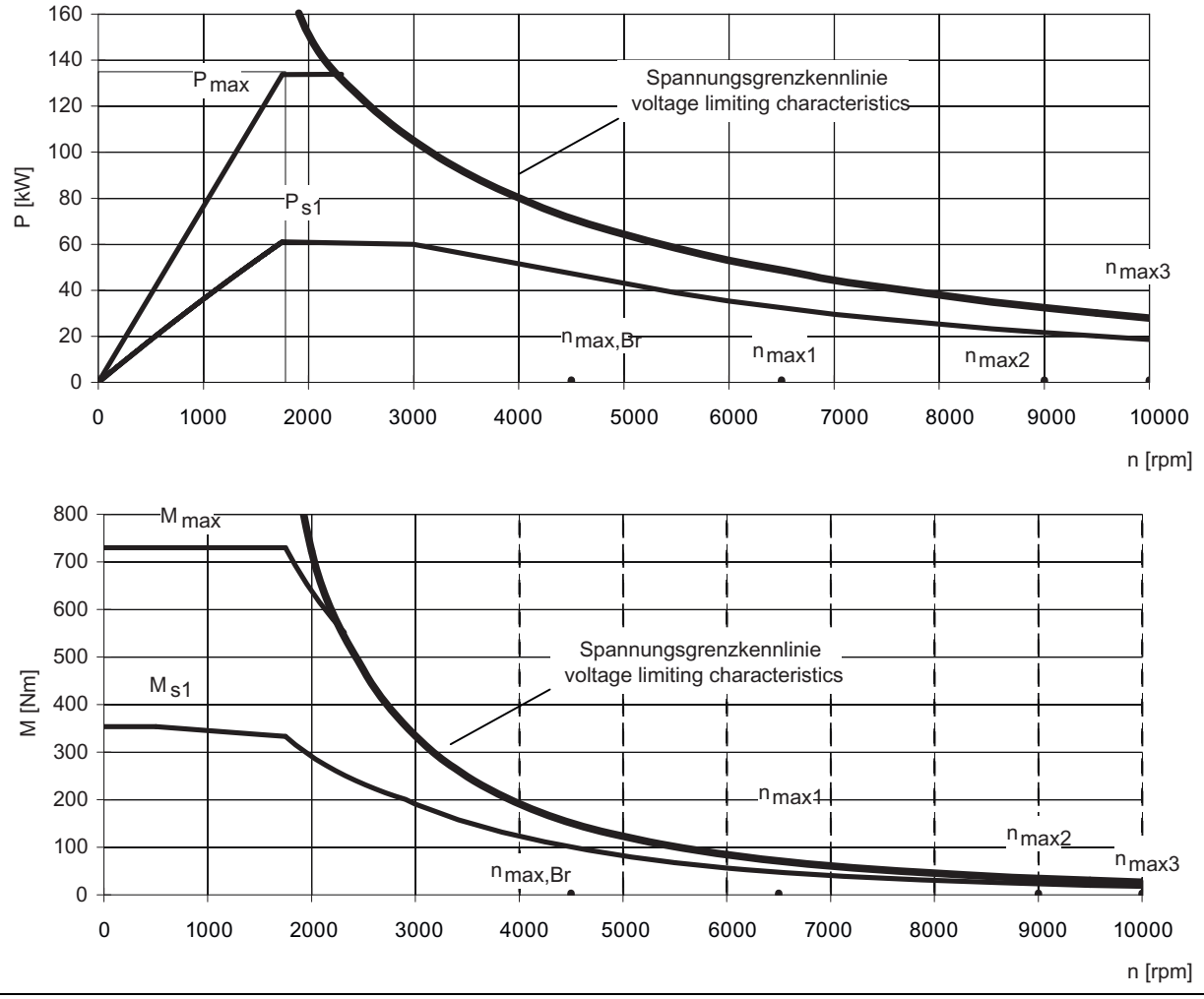
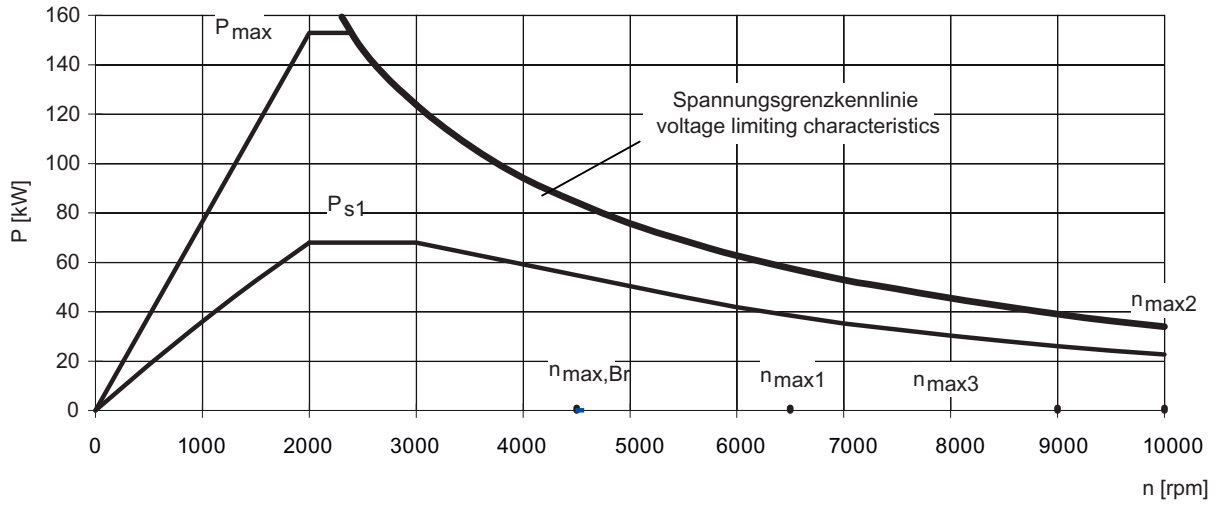


Table 4- 501 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	68.0	325	116.0	6500	9000	10000	4500	3050	730	250	353	127



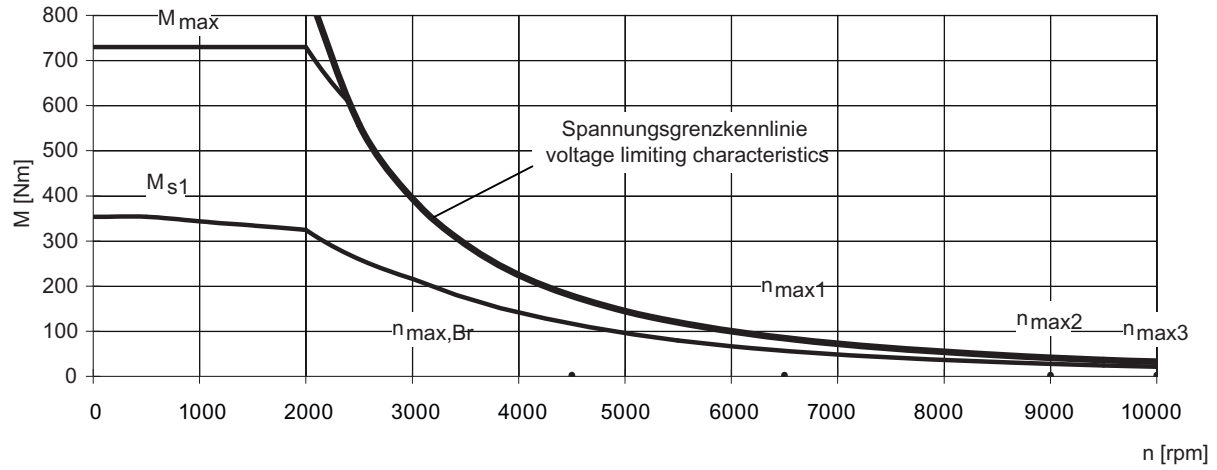
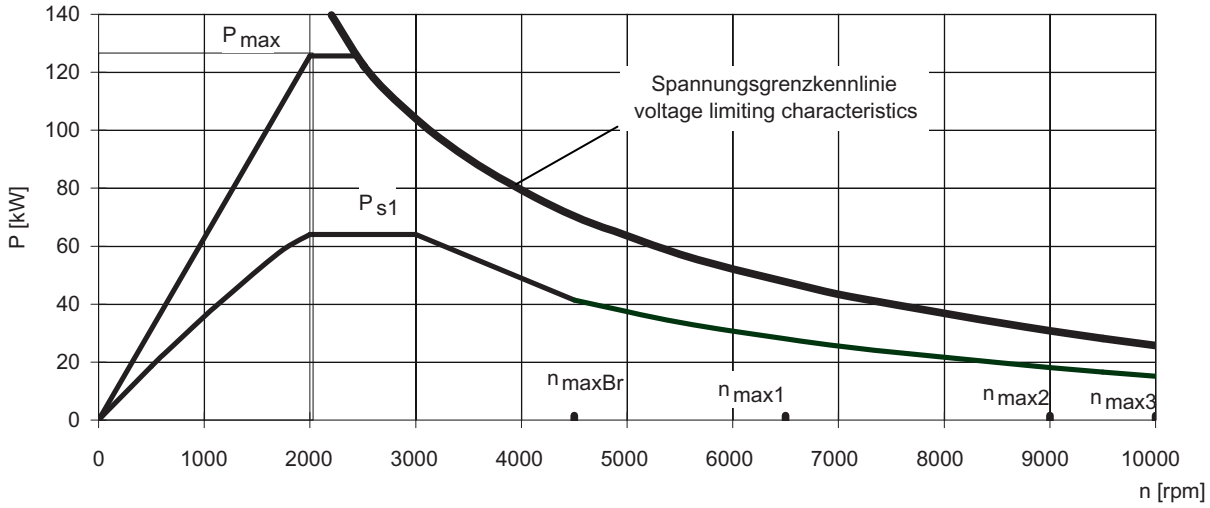


Table 4- 502 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□G2□,

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [kW]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	64.0	306	125.0	6500	9000	10000	4500	3000	600	241	353	147



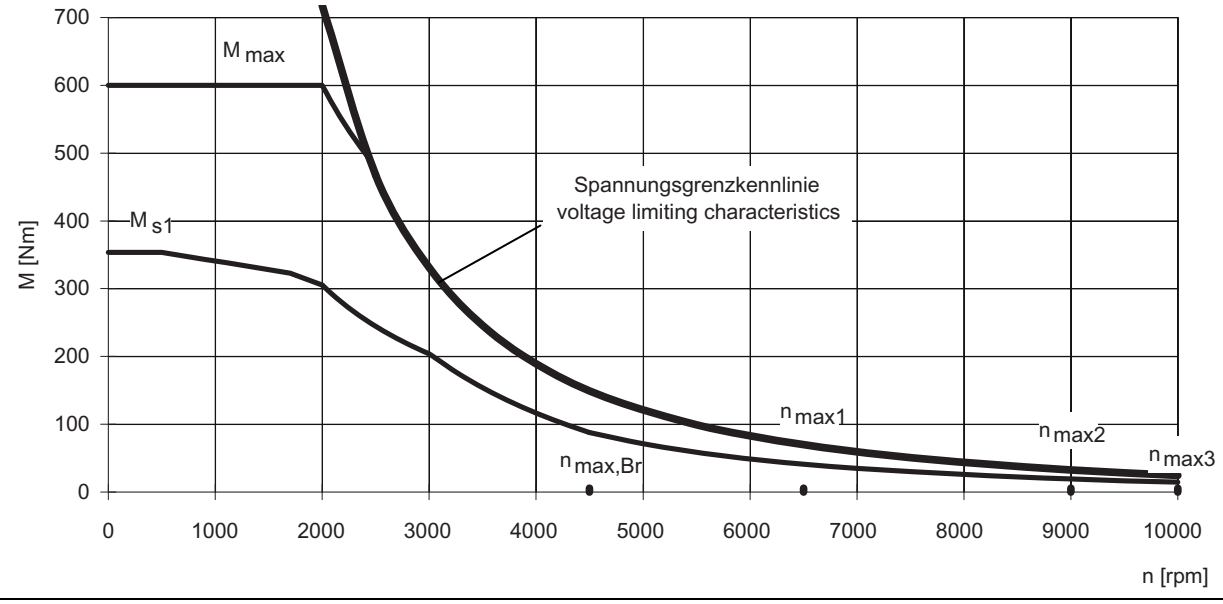
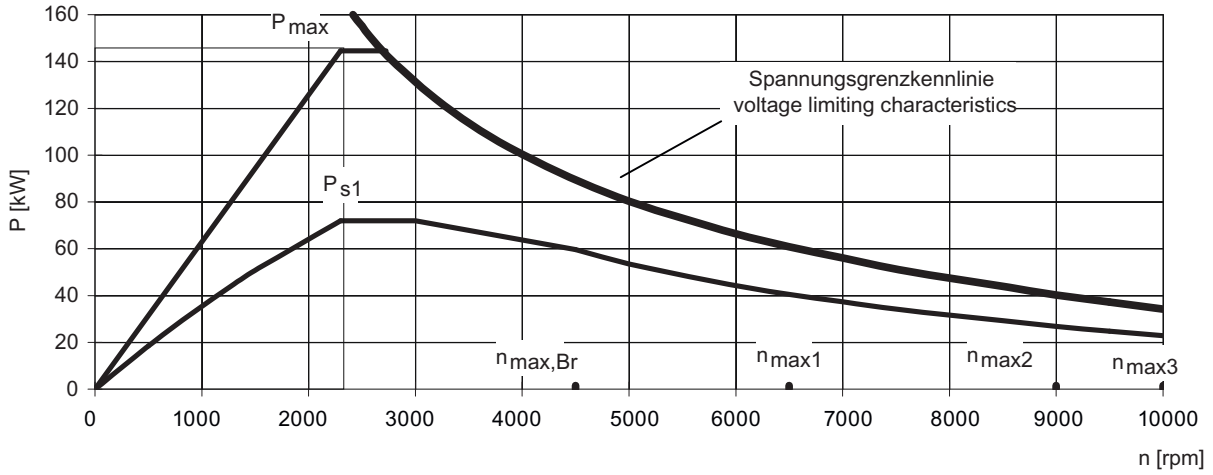


Table 4- 503 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	72.0	299	124.0	6500	9000	10000	4500	3000	600	241	353	147
2000	64.0	306	125.0					4000				
1500	52.0	331	126.0					5200				



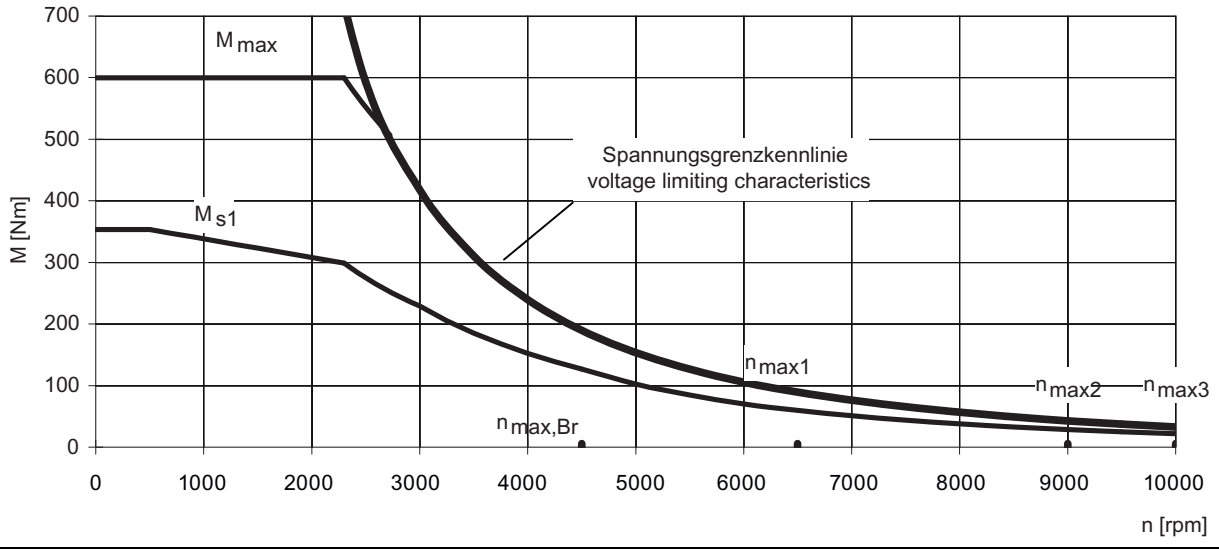
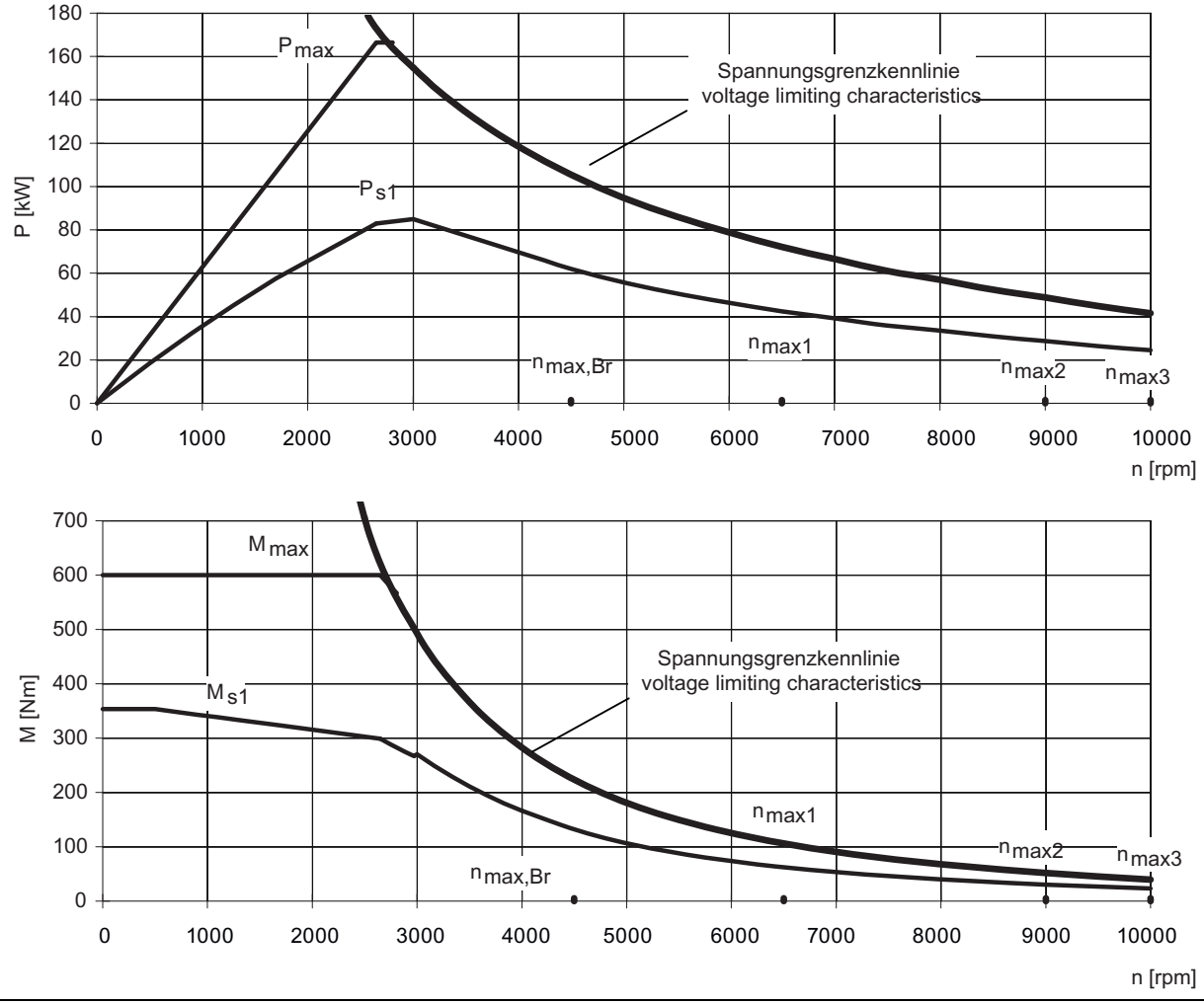


Table 4- 504 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-□□G2□

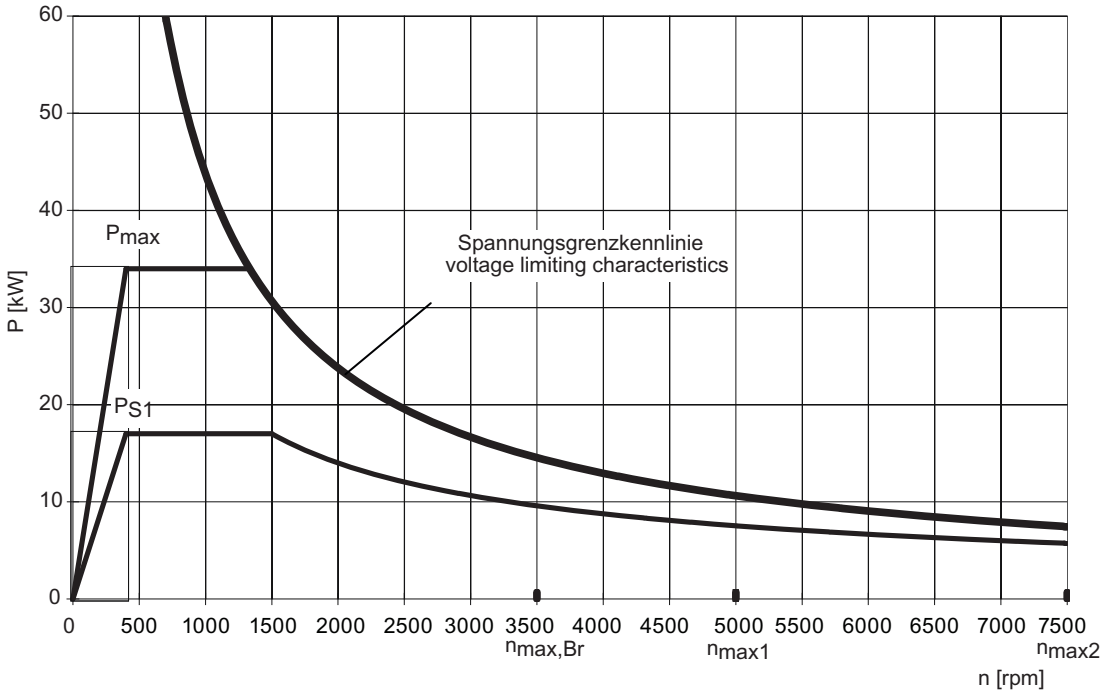
n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	83.0	299	125.0	6500	9000	10000	4500	3000	600	241	353	147



4.1.3.5 Shaft height 180 - water-cooled

Table 4- 505 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	17	406	50	5000	7500	-	3500	1500	812	100	406	50



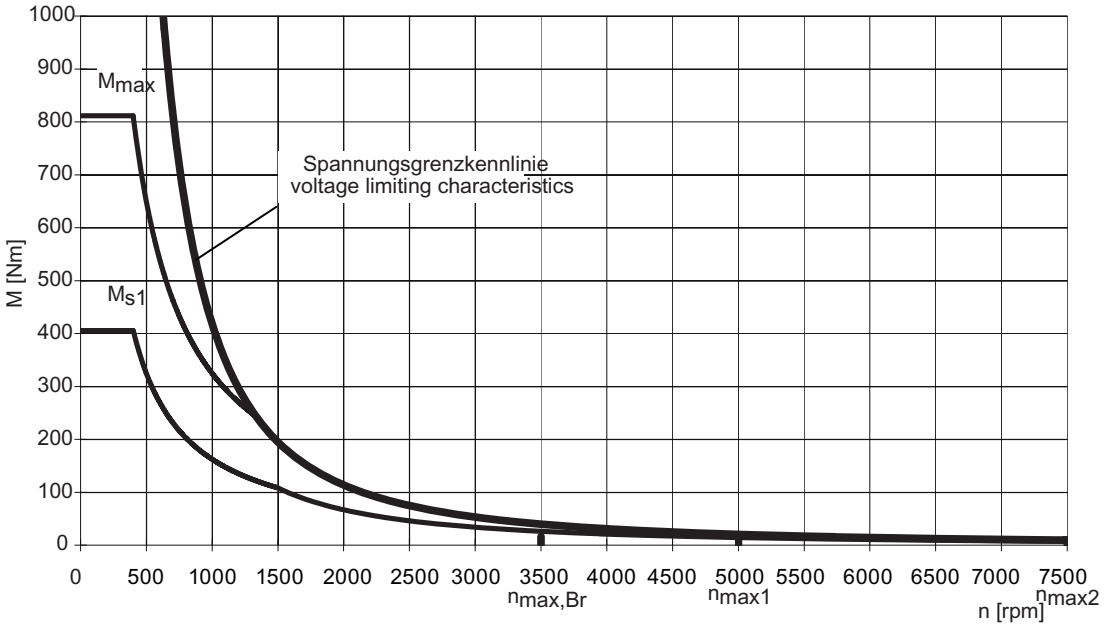
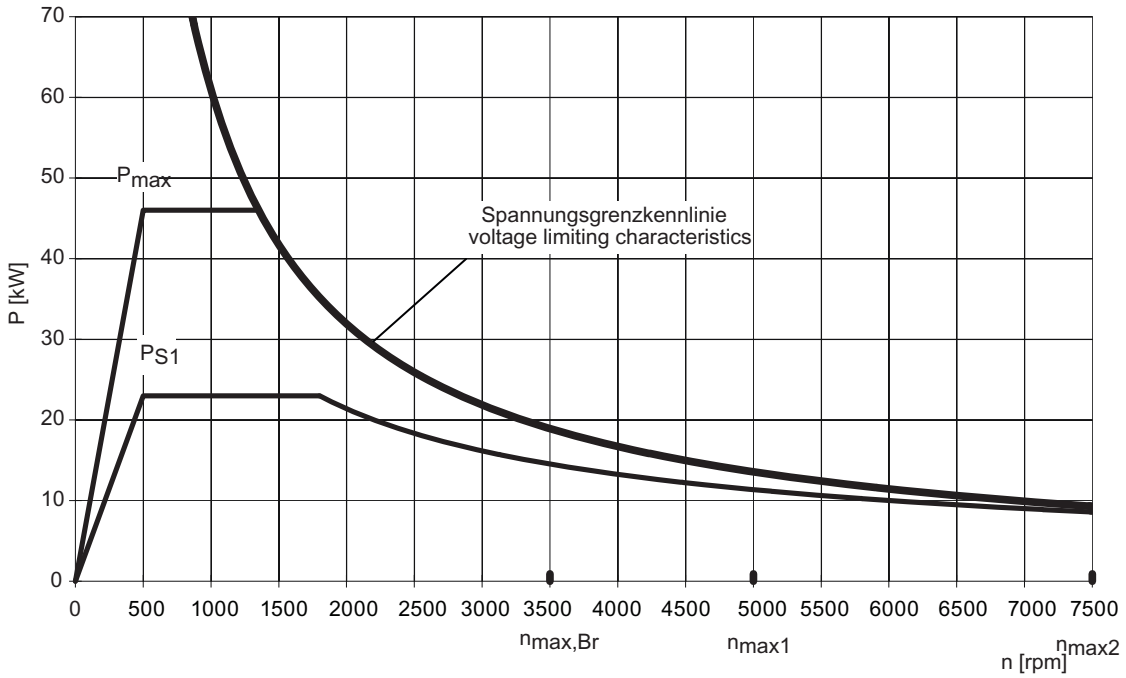


Table 4- 506 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	23	439	54	5000	7500	-	3500	1800	879	108	439	54
400	18	439	54					2500				



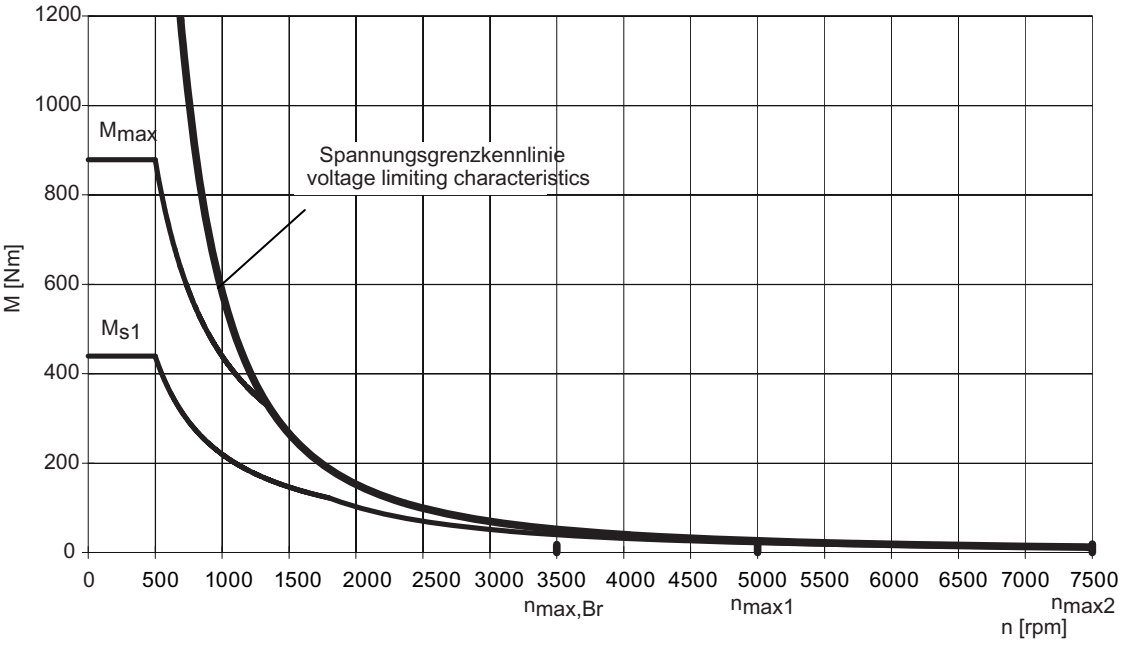
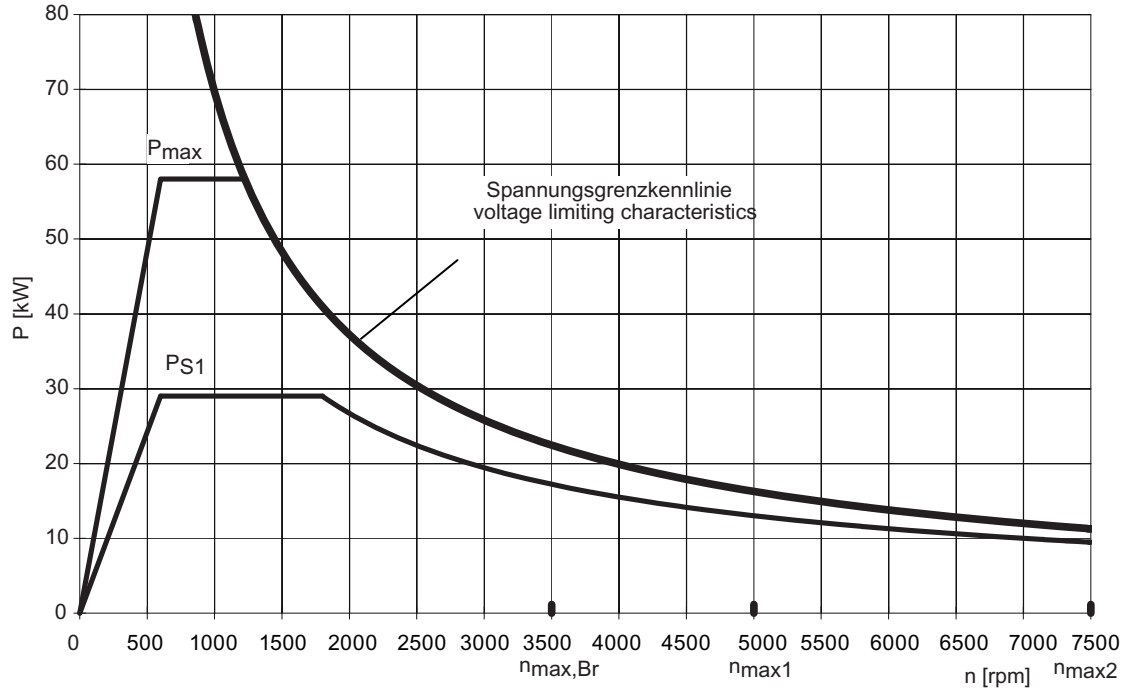


Table 4- 507 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	29	462	55	5000	7500	-	3500	1800	923	110	462	55



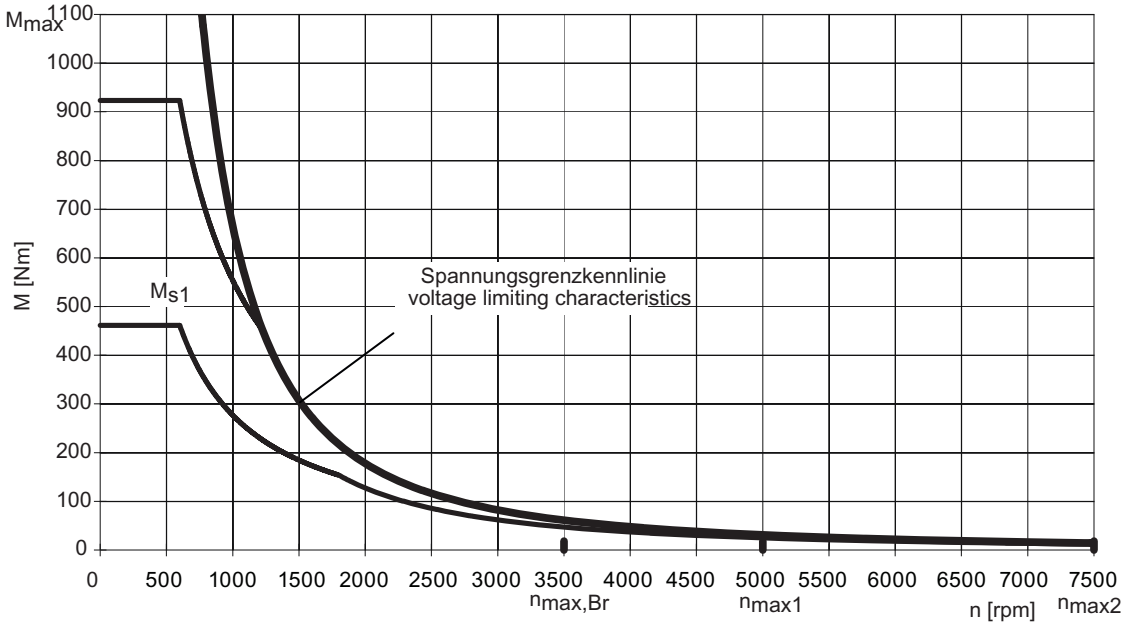
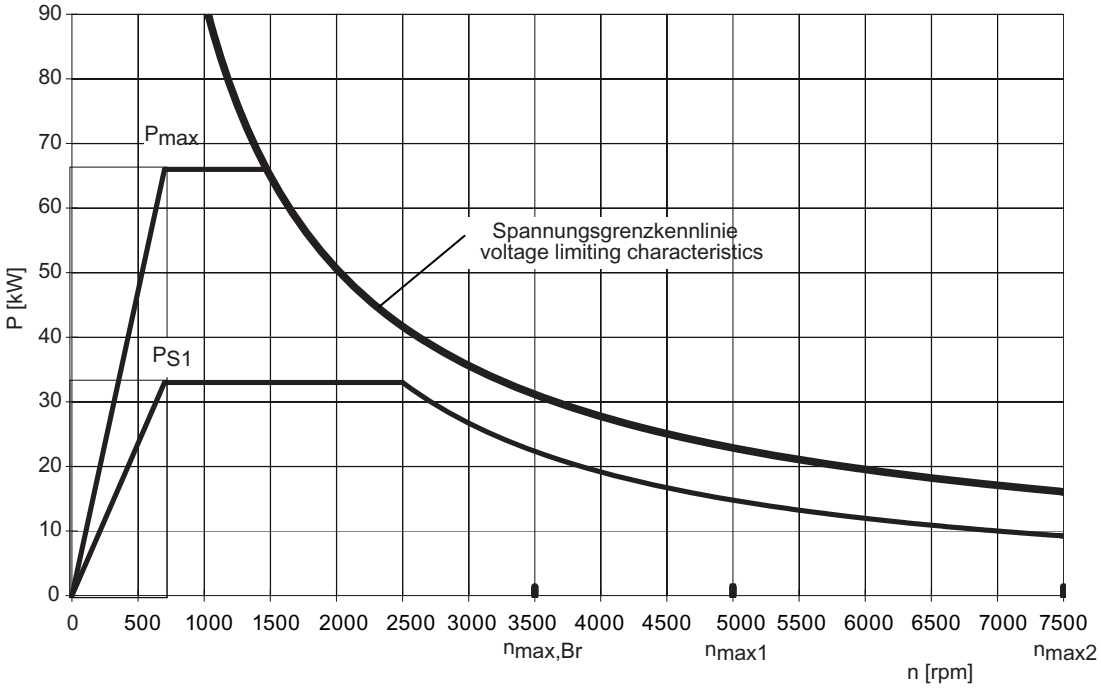


Table 4- 508 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	33	450	77	5000	7500	-	3500	2500	900	154	450	77



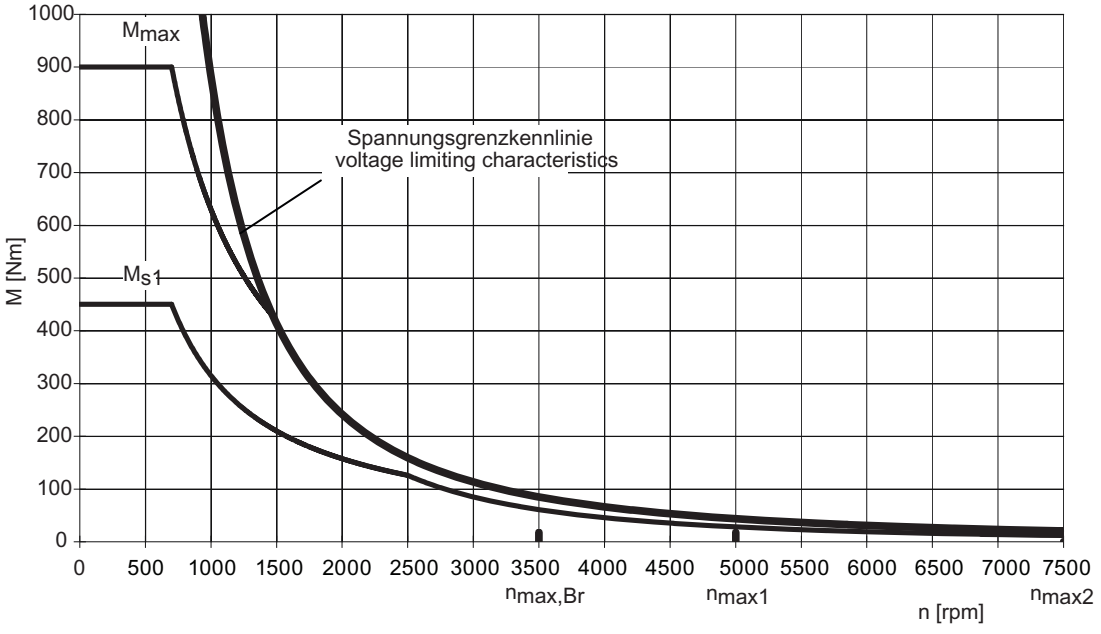
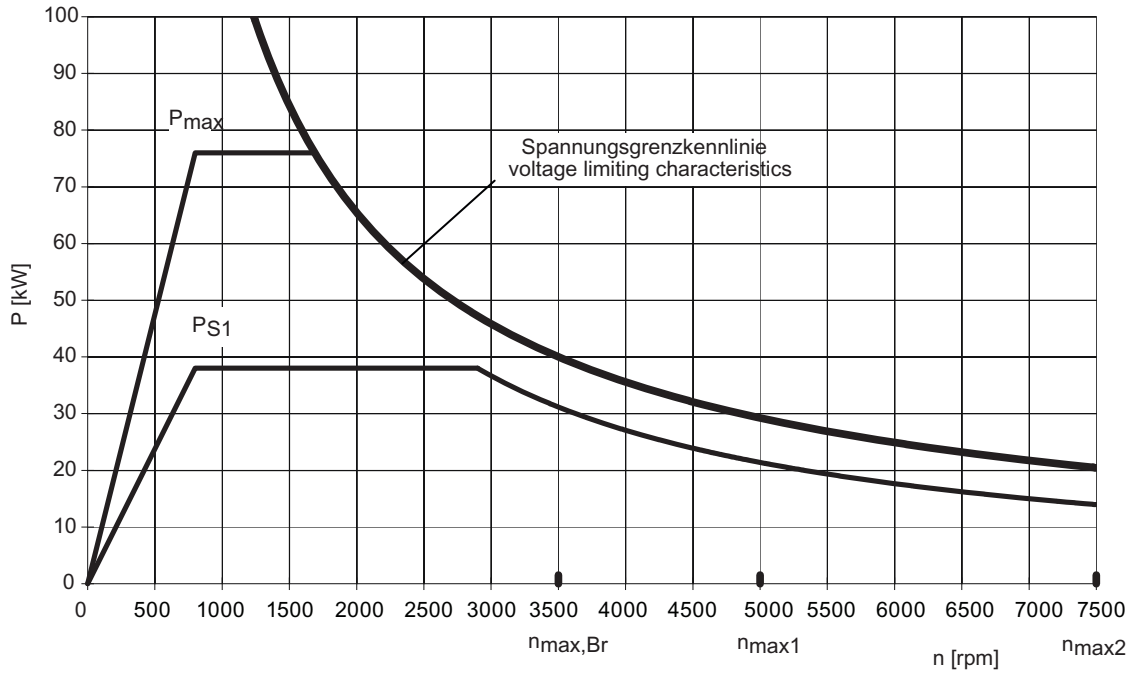


Table 4- 509 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	38	454	77	5000	7500	-	3500	2900	907	154	454	77
700	33	454	77					3300				



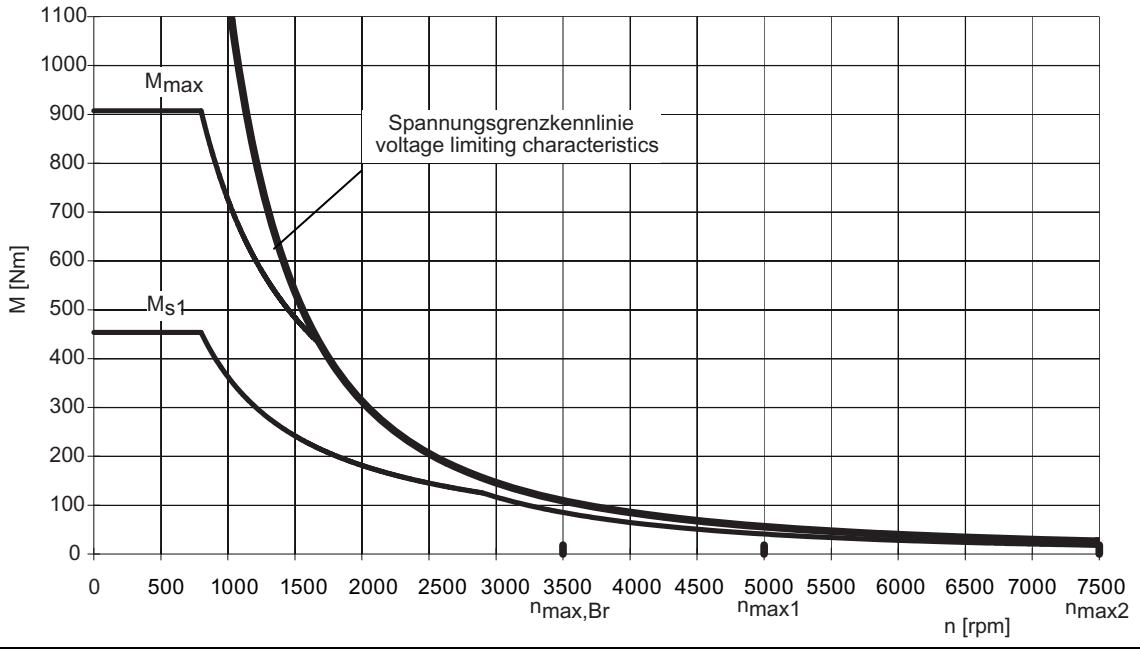
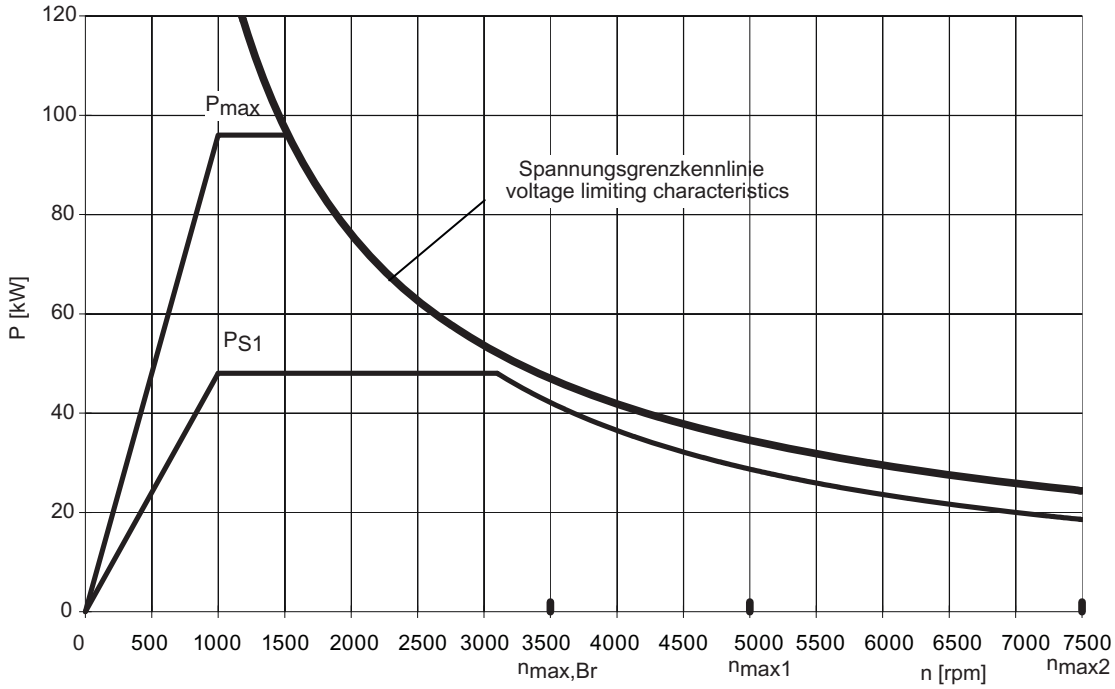


Table 4- 510 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	48	458	77	5000	7500	-	3500	3100	917	154	458	77



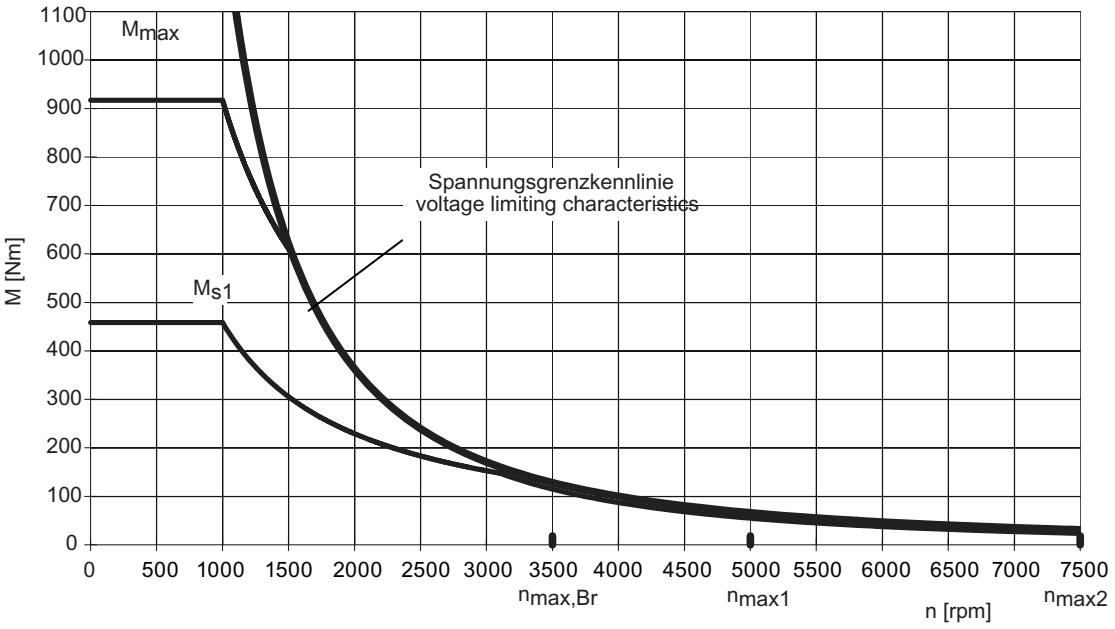
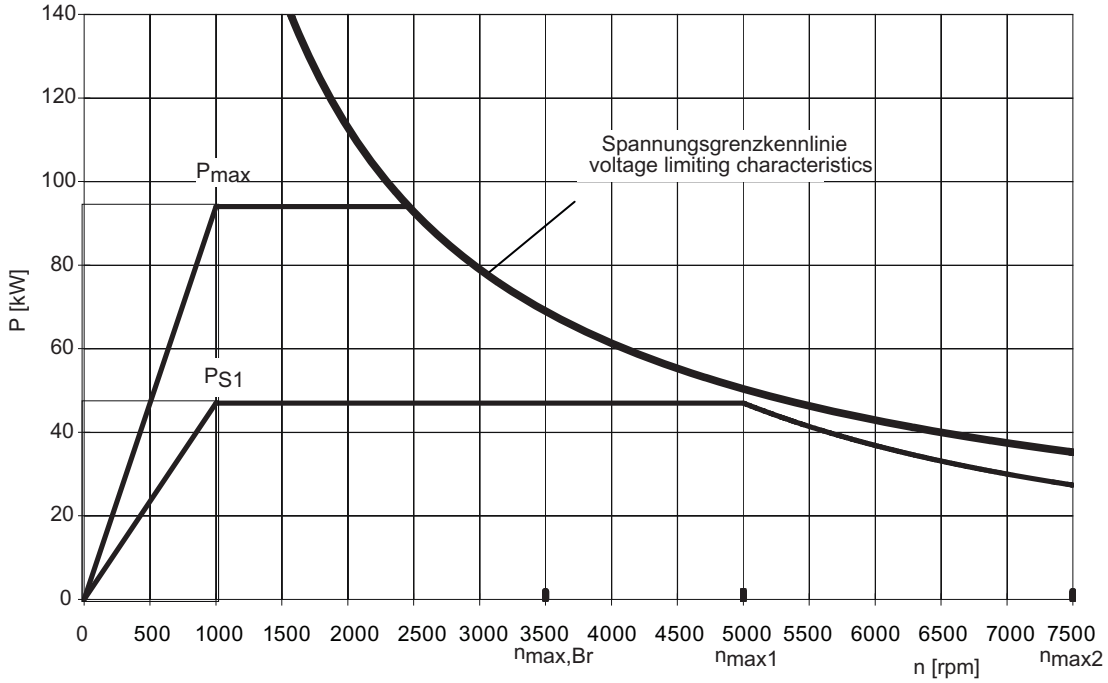


Table 4- 511 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	47	449	114	5000	7500	-	3500	5000	898	228	449	114



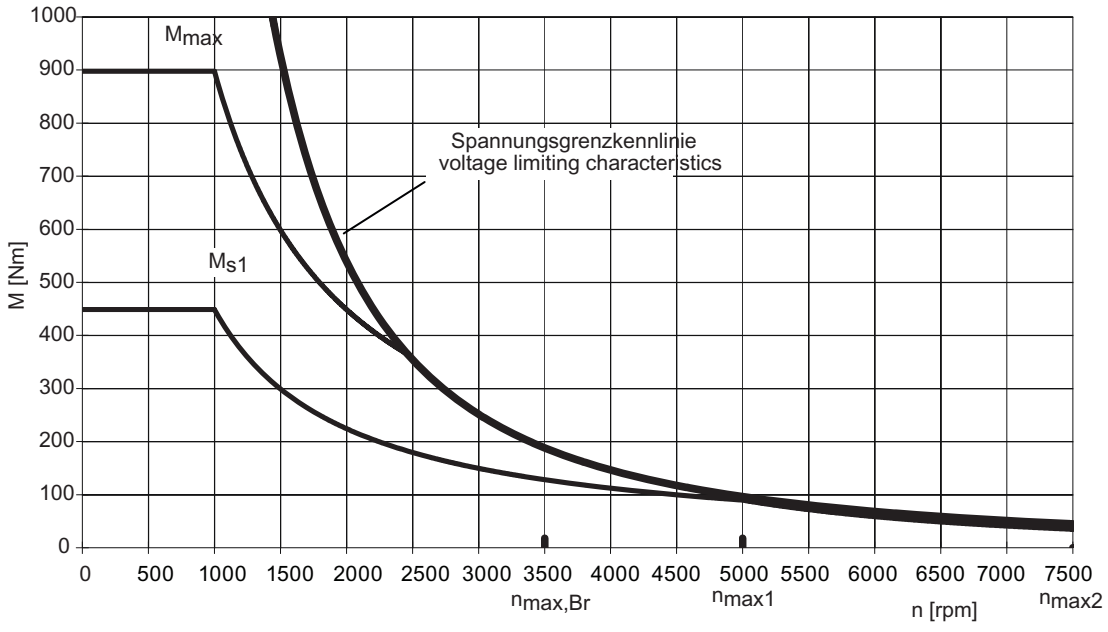
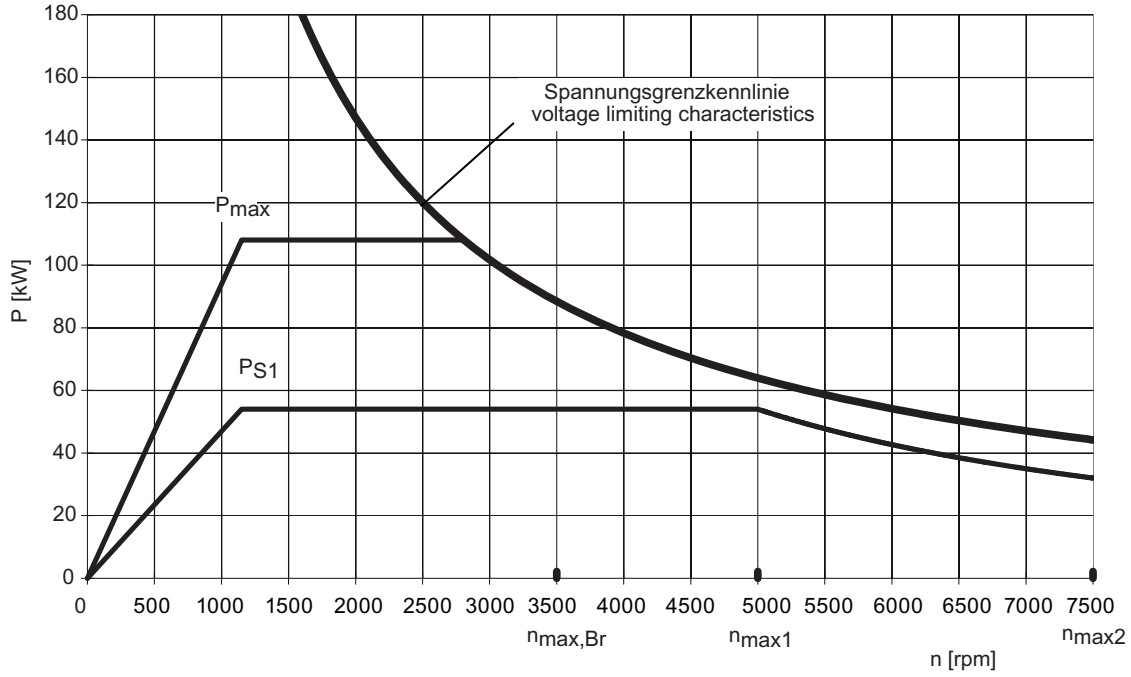


Table 4- 512 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	54	448	112	5000	7500	-	3500	5000	897	224	448	112
1000	47	448	112					5500				



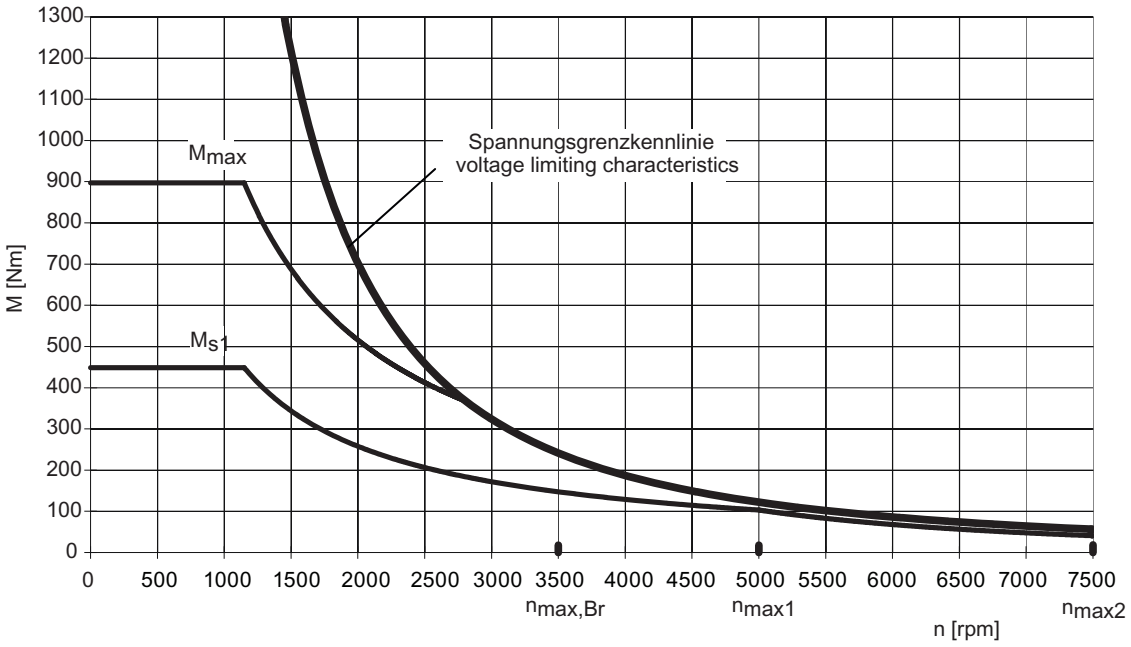
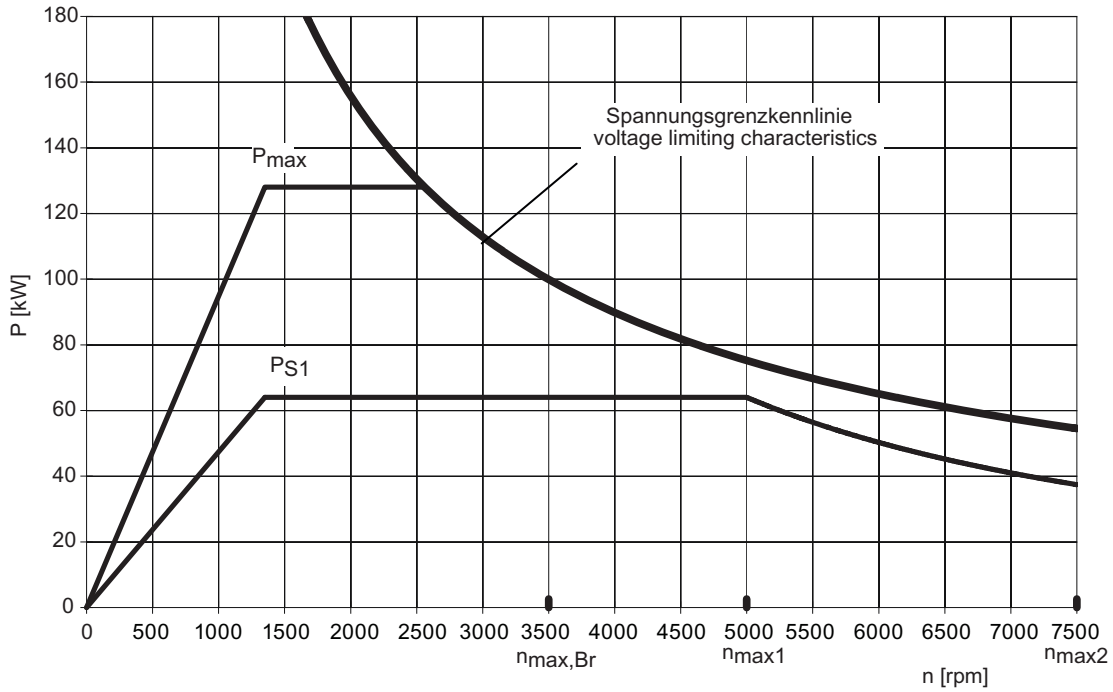


Table 4- 513 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	64	453	112	5000	7500	-	3500	5000	905	224	453	112



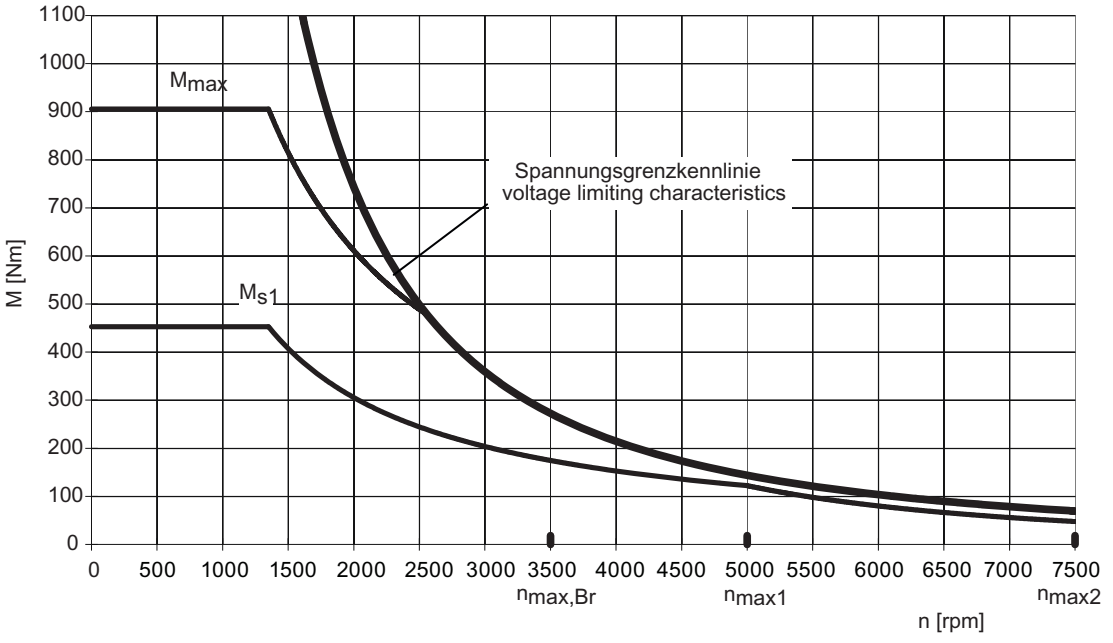
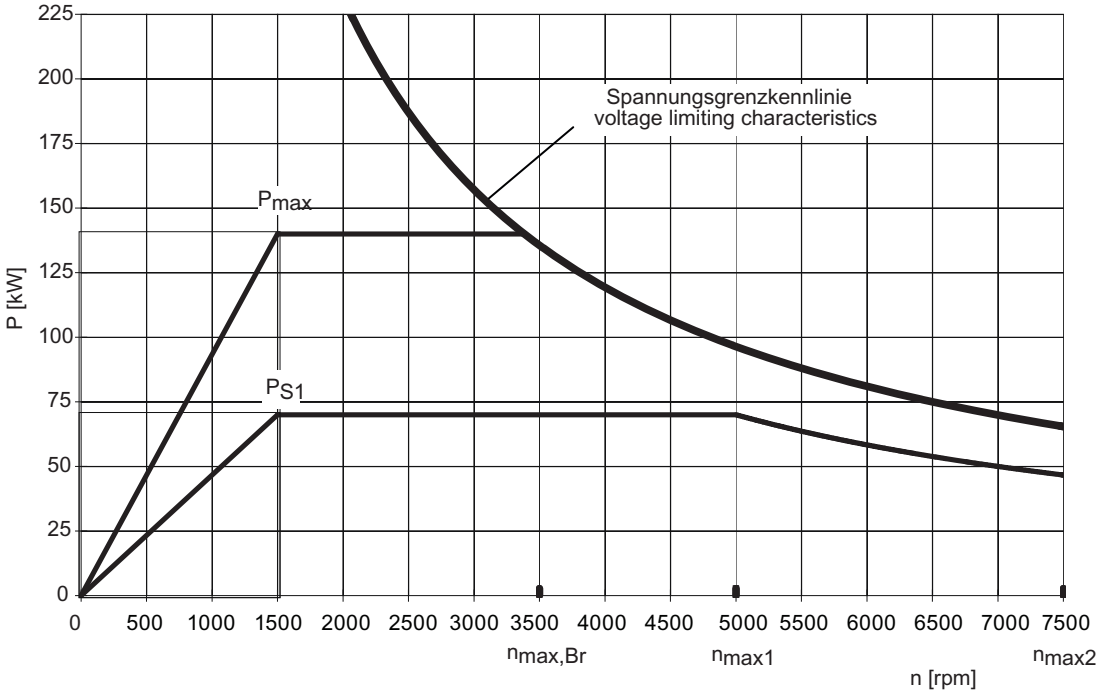


Table 4- 514 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	70	446	150	5000	7500	-	3500	5000	891	300	446	150



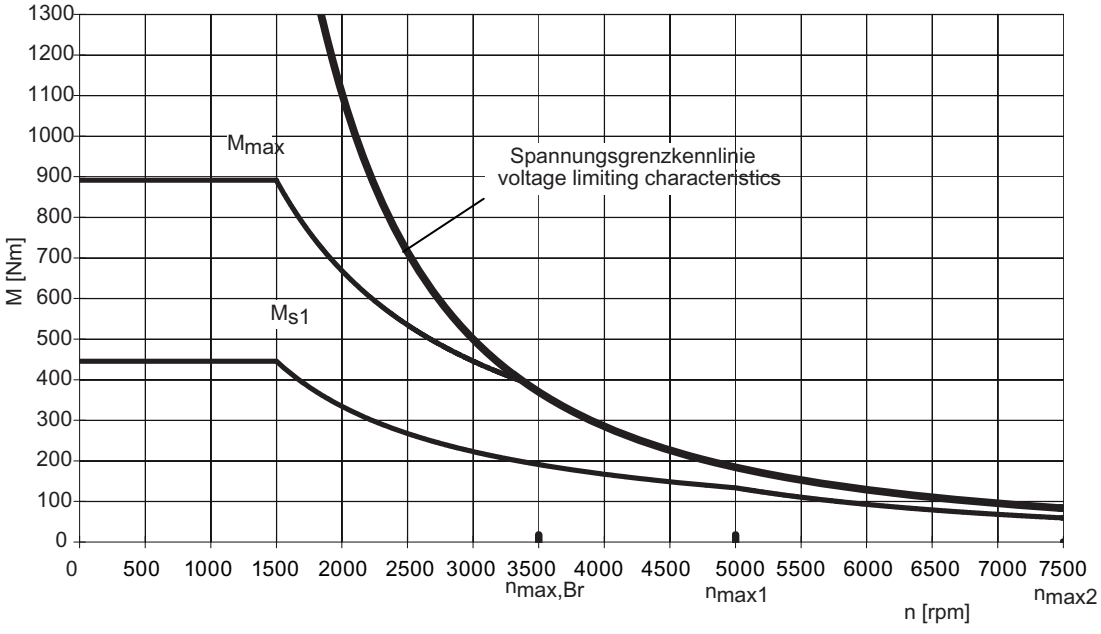
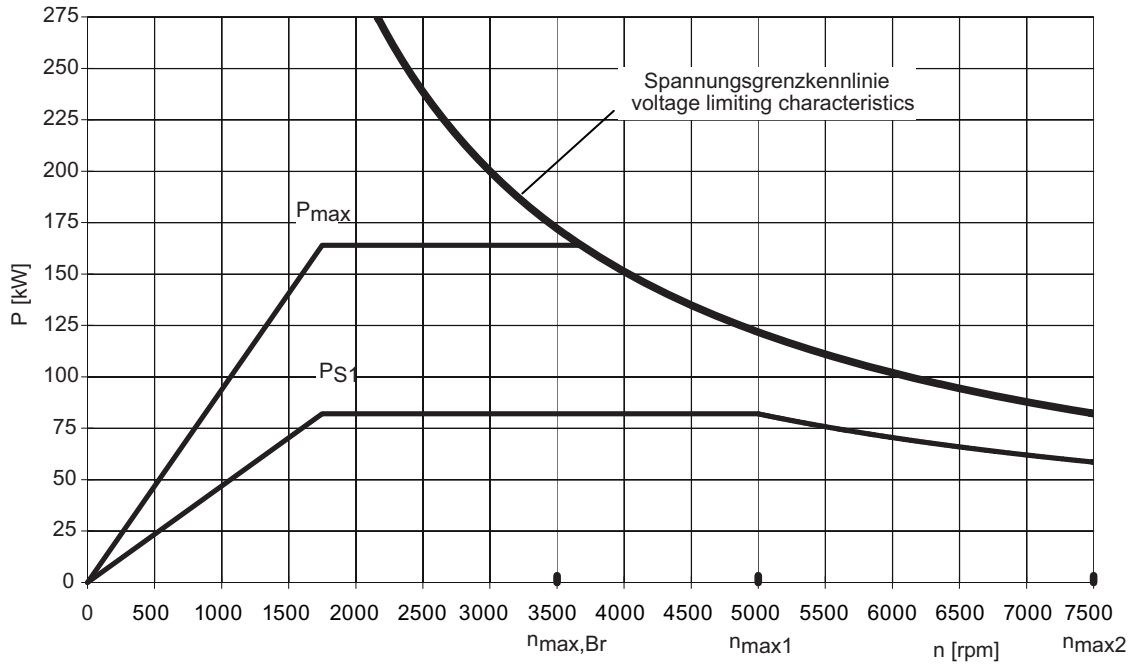


Table 4- 515 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	82	447	150	5000	7500	-	3500	5000	895	300	447	150
1500	70	447	150					5000				



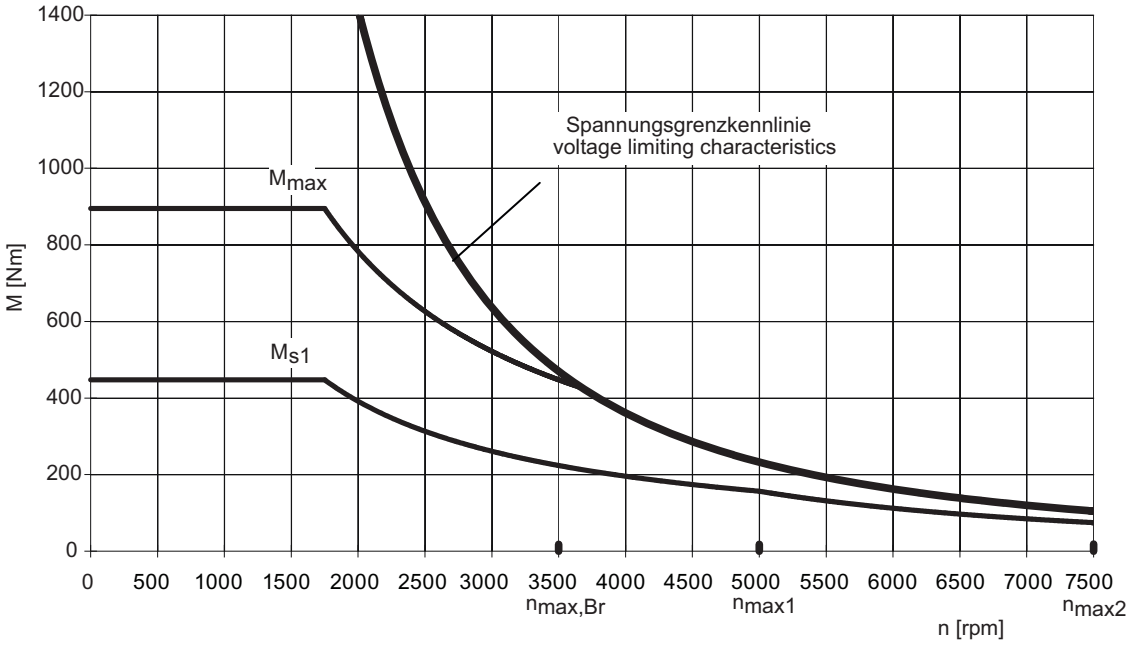
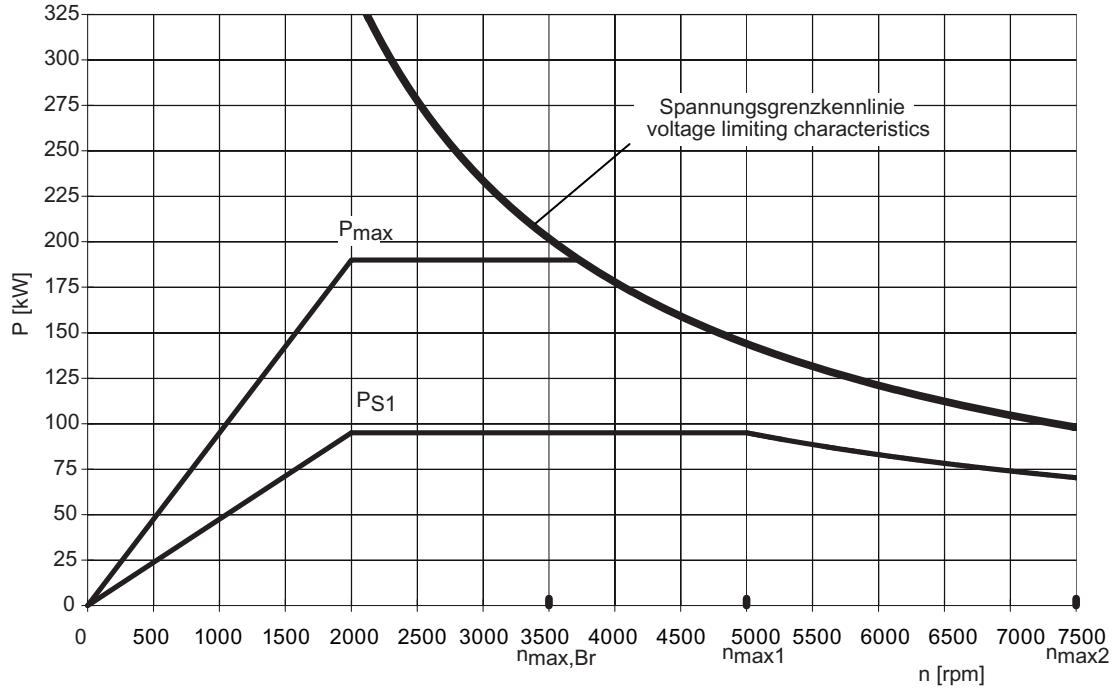


Table 4- 516 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	95	454	152	5000	7500	-	3500	5000	907	304	454	152



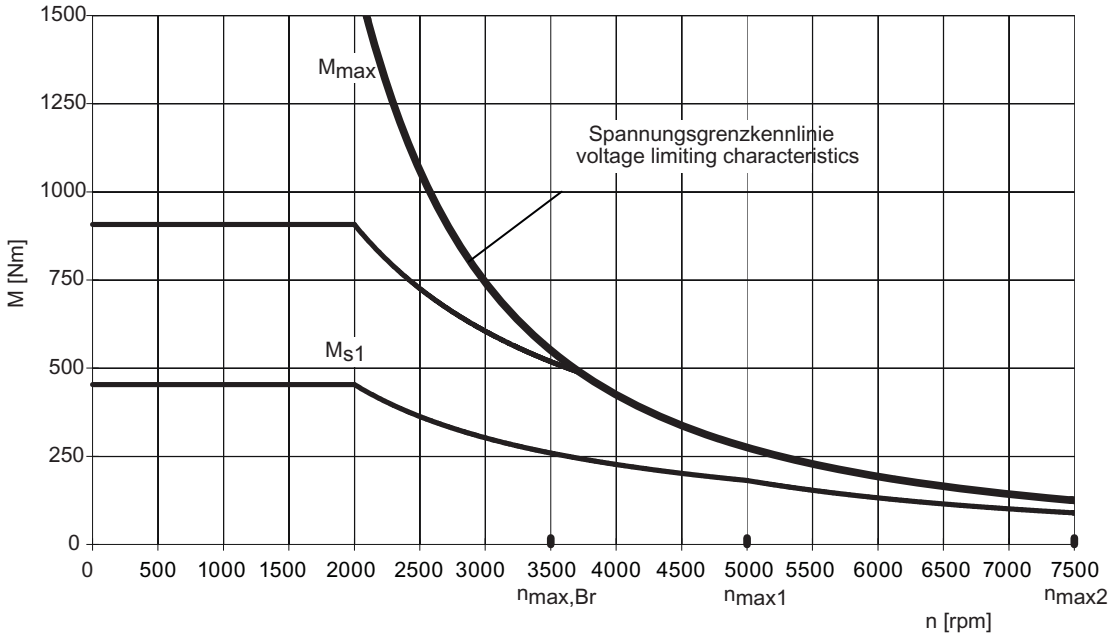
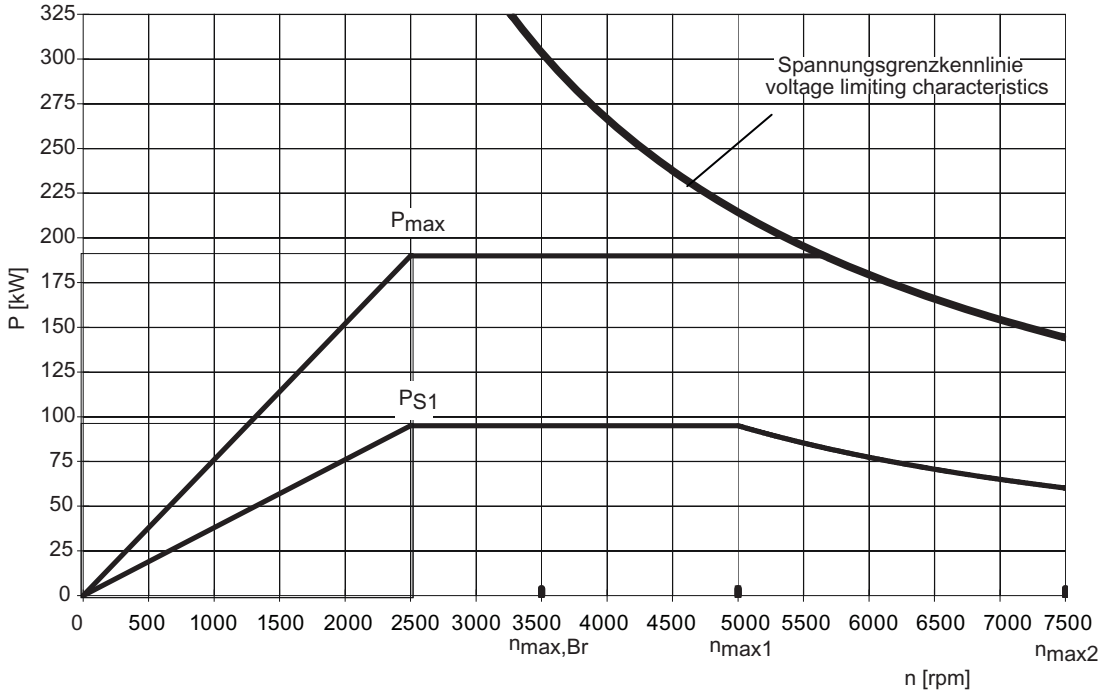


Table 4- 517 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	95	363	196	5000	7500	-	3500	5000	726	392	363	196



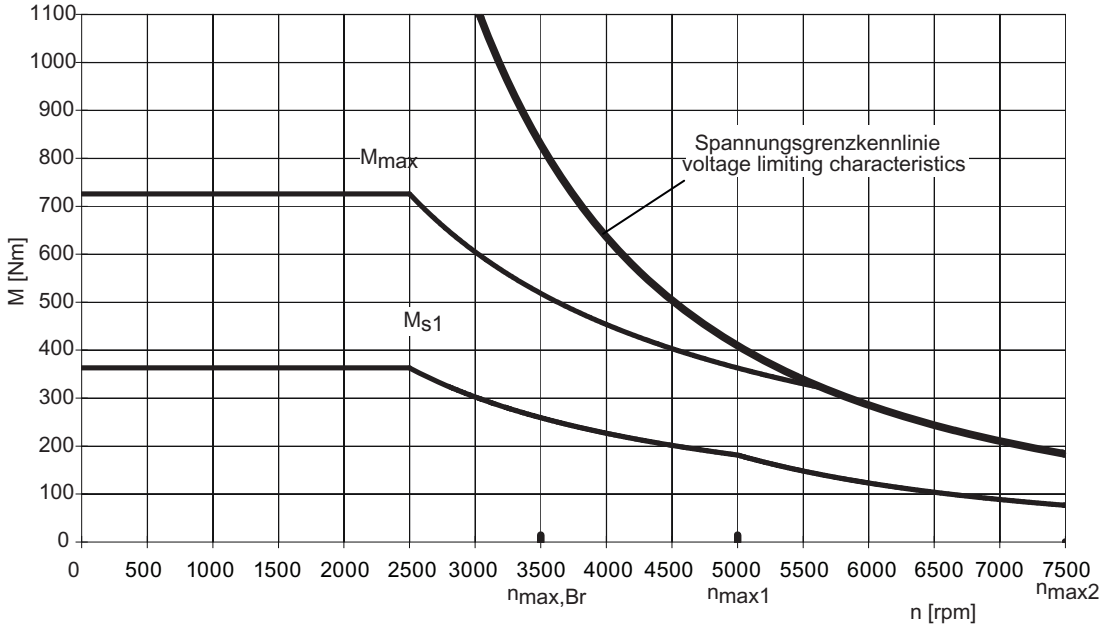
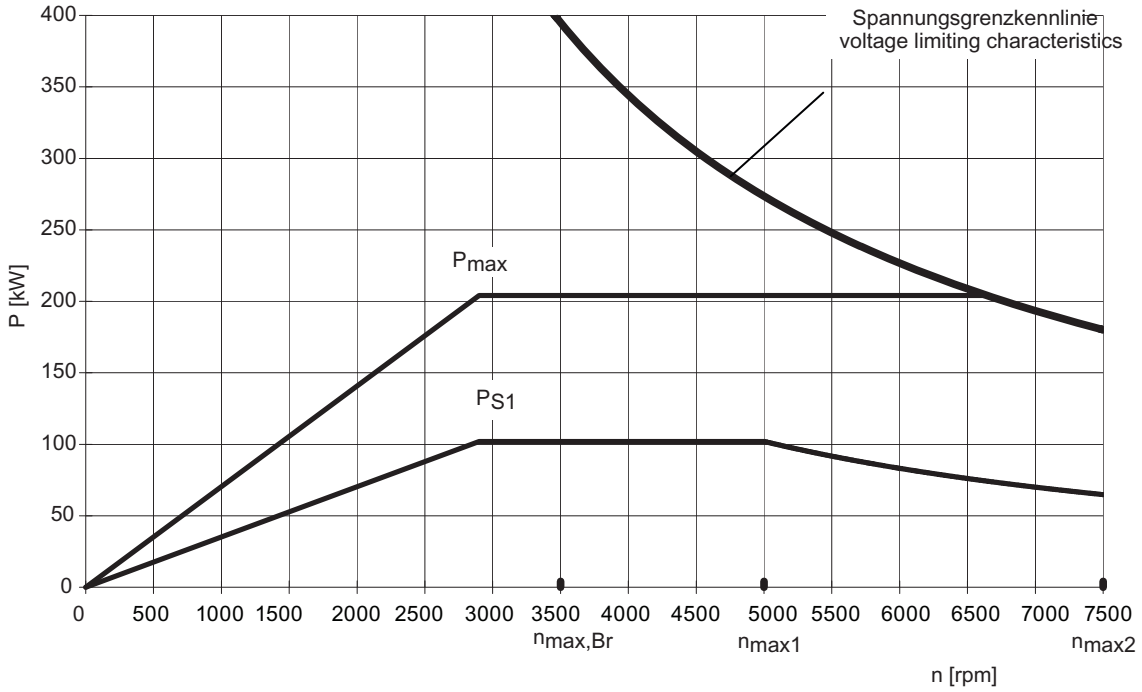


Table 4- 518 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	102	336	182	5000	7500	-	3500	5000	672	364	336	182
2500	88	336	182					5700				



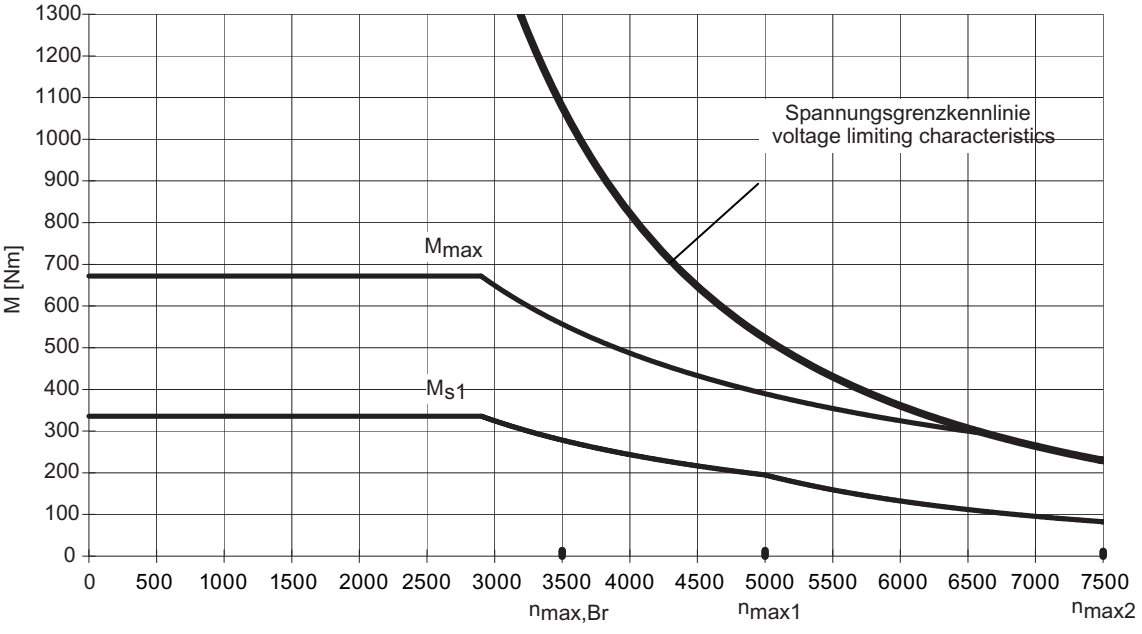


Table 4- 519 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	100	281	158	5000	7500	-	3500	5000	562	316	281	158

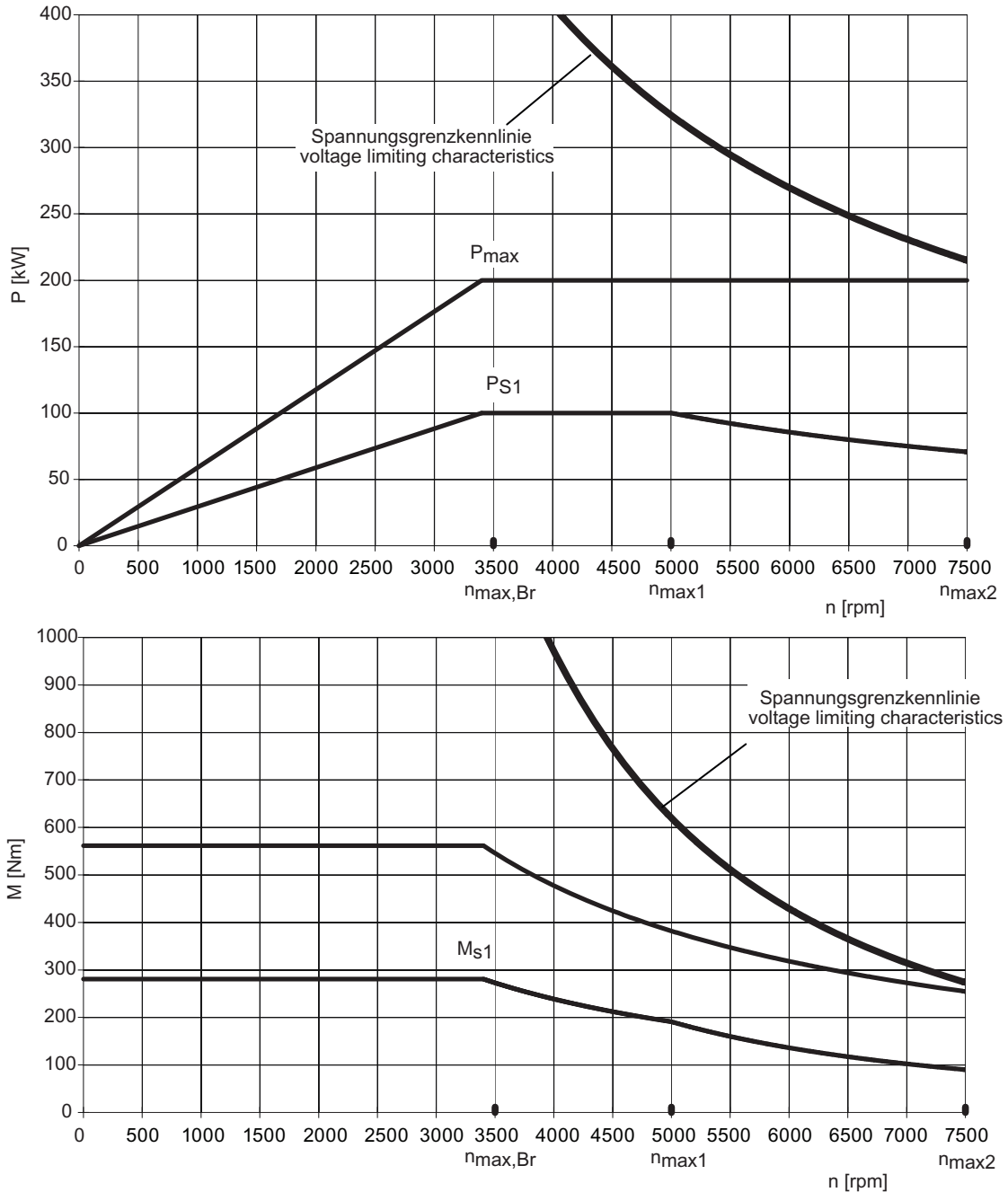
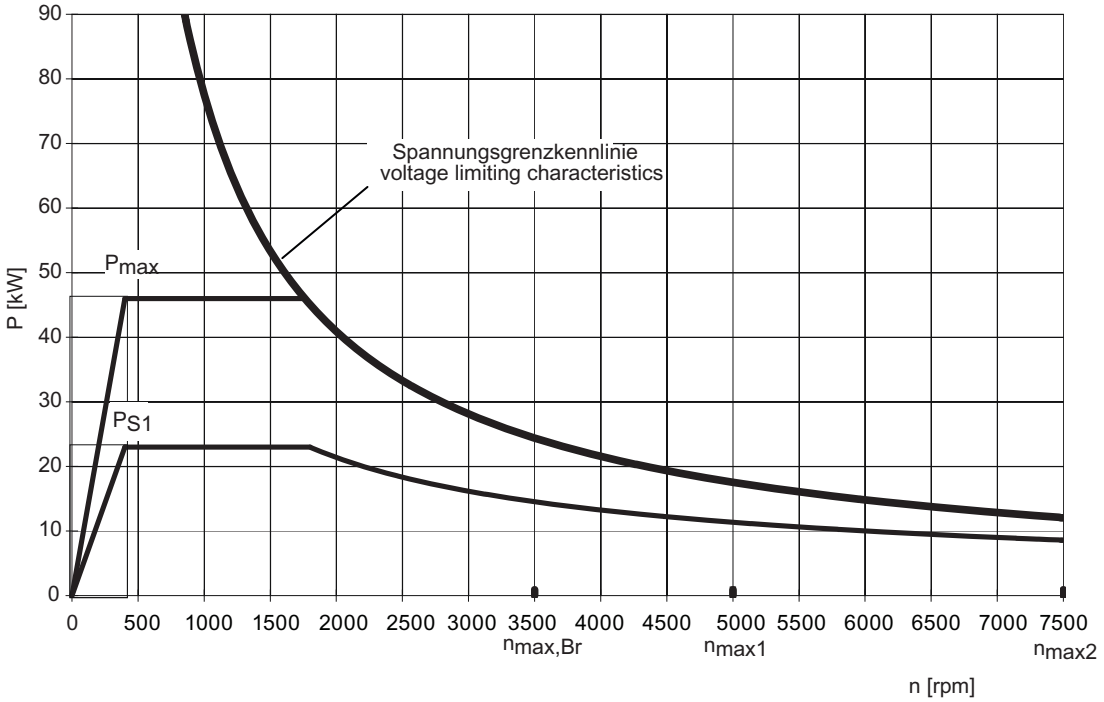


Table 4- 520 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	23	549	68	5000	7500	-	3500	1800	1098	136	549	68



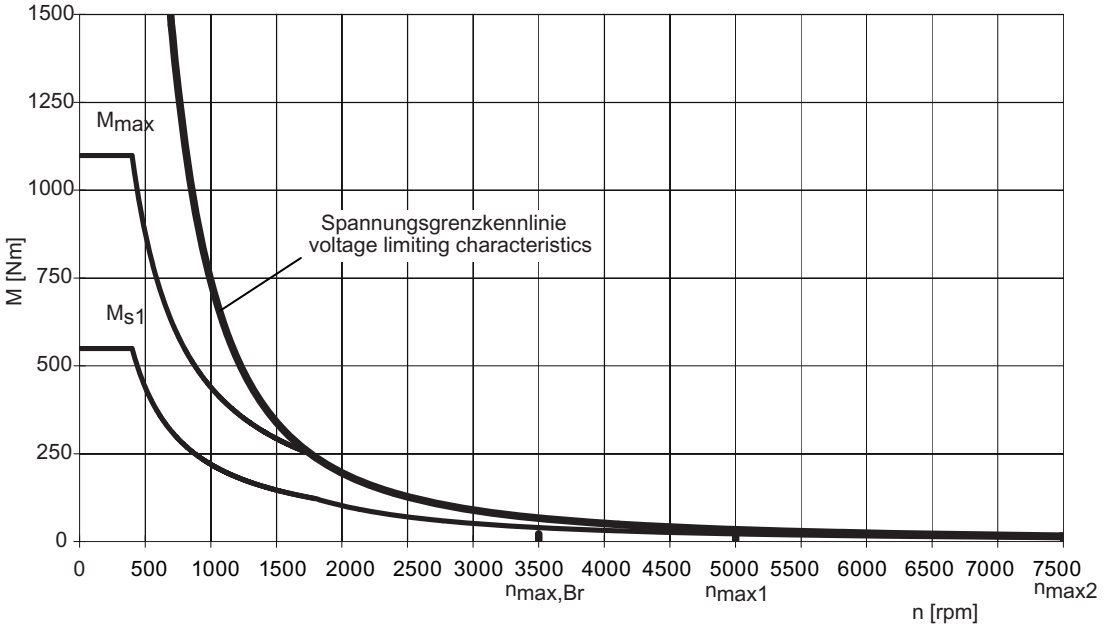
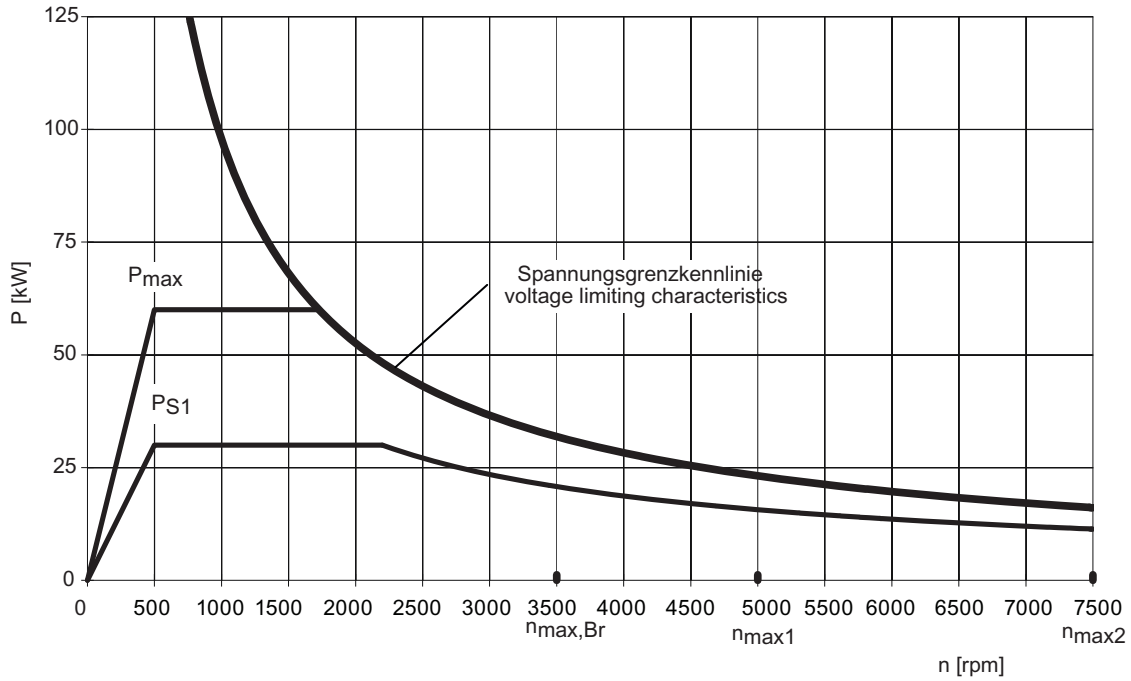


Table 4- 521 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	30	573	70	5000	7500	-	3500	2200	1146	140	573	70
400	24	573	70					2900				



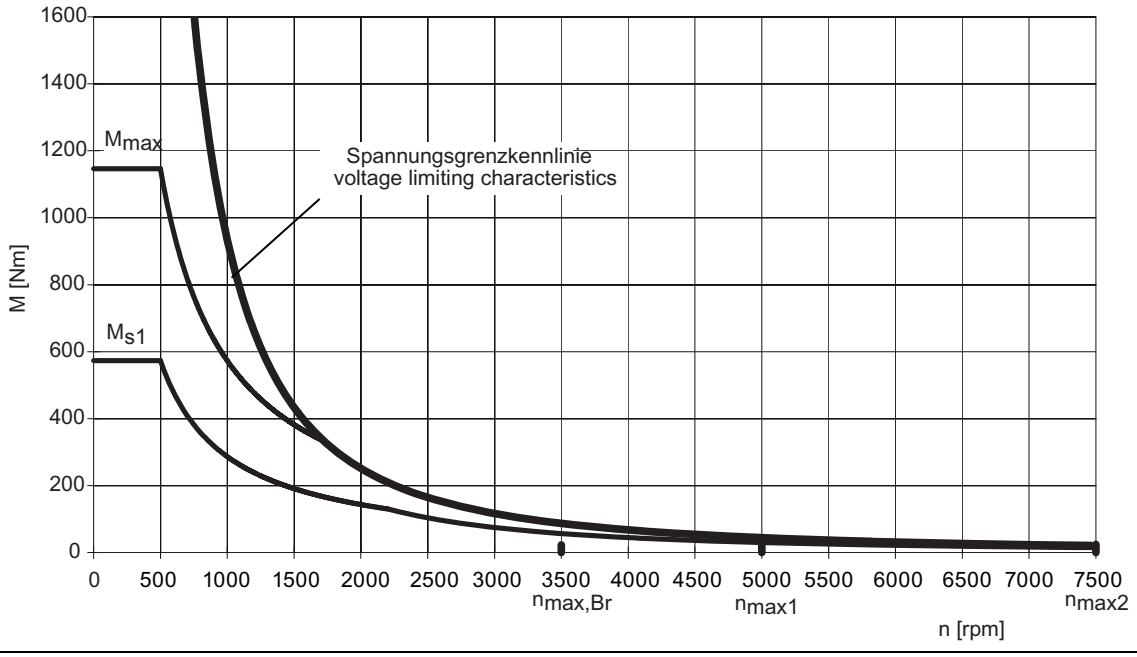
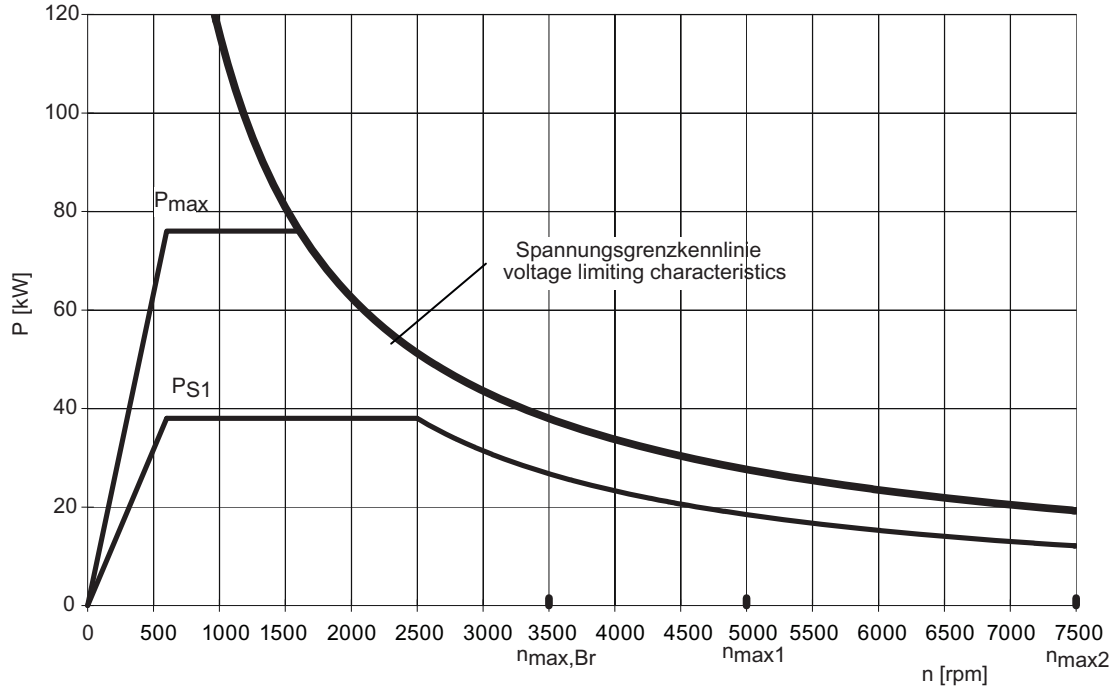


Table 4- 522 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	38	605	73	5000	7500	-	3500	2500	1210	146	605	73



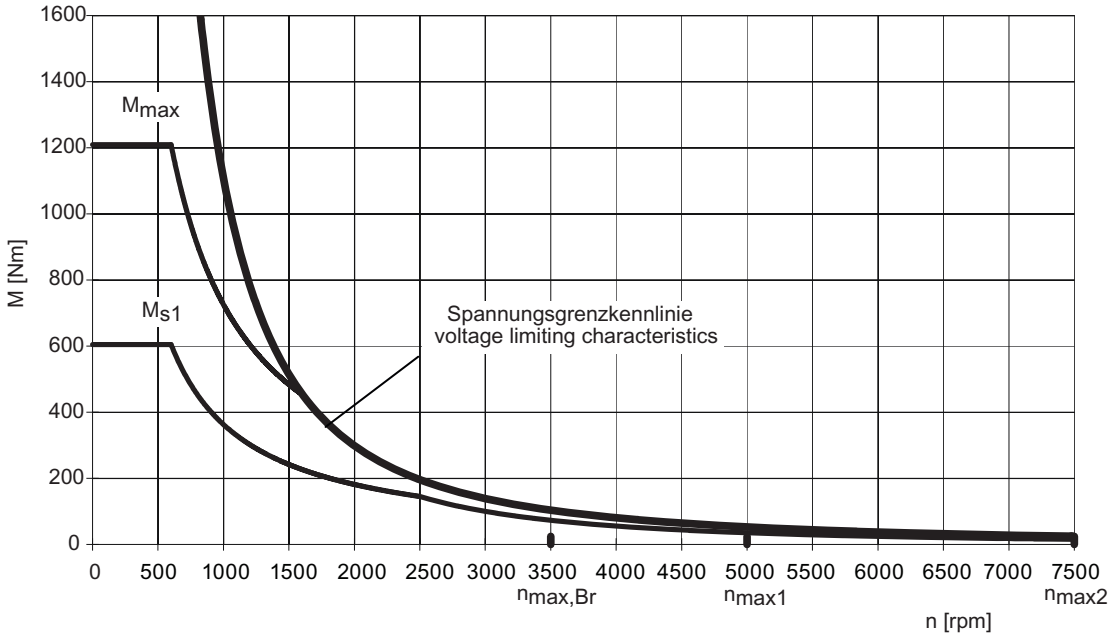
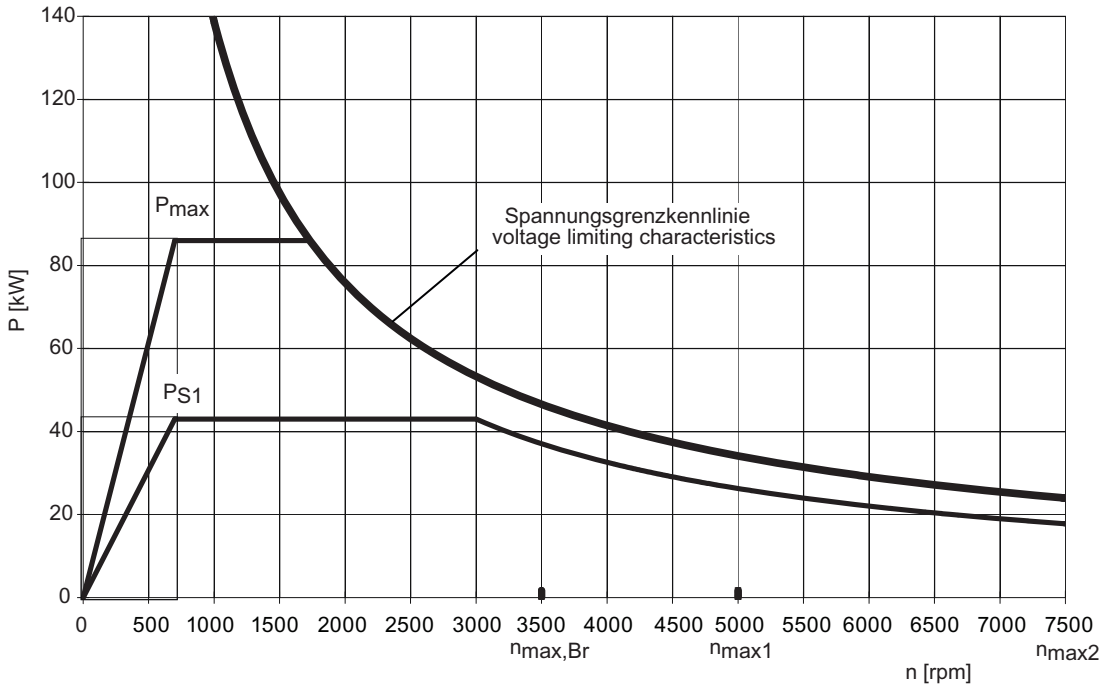


Table 4- 523 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	43	587	97	5000	7500	-	3500	3000	1173	194	587	97



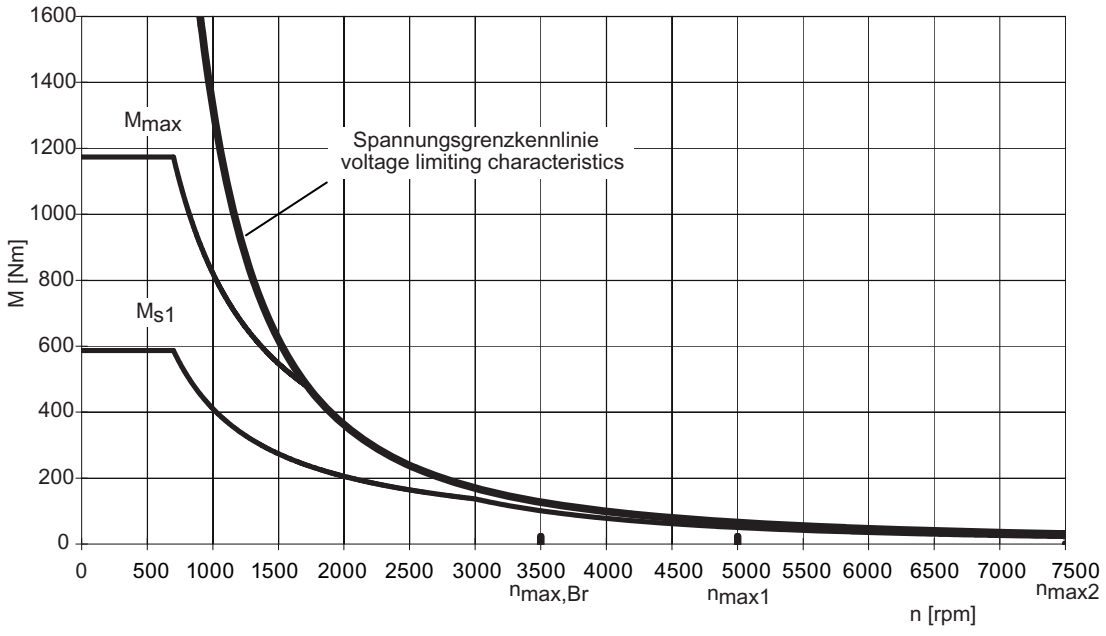
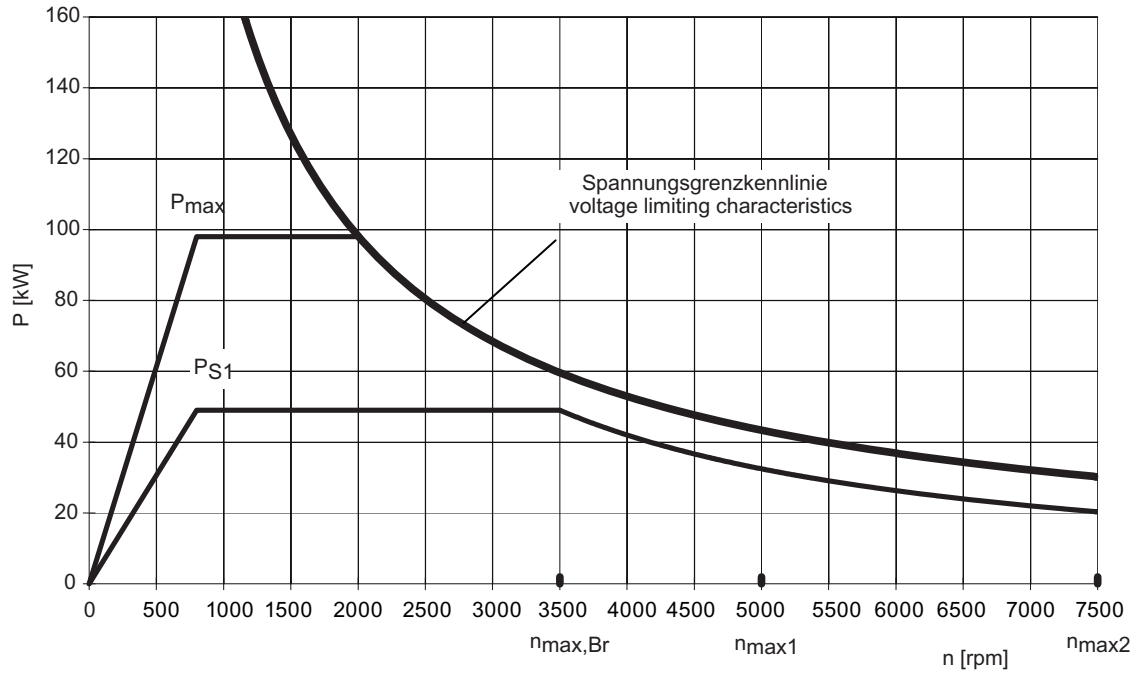


Table 4- 524 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	49	585	99	5000	7500	-	3500	3500	1170	198	585	99
700	43	585	99					3900				



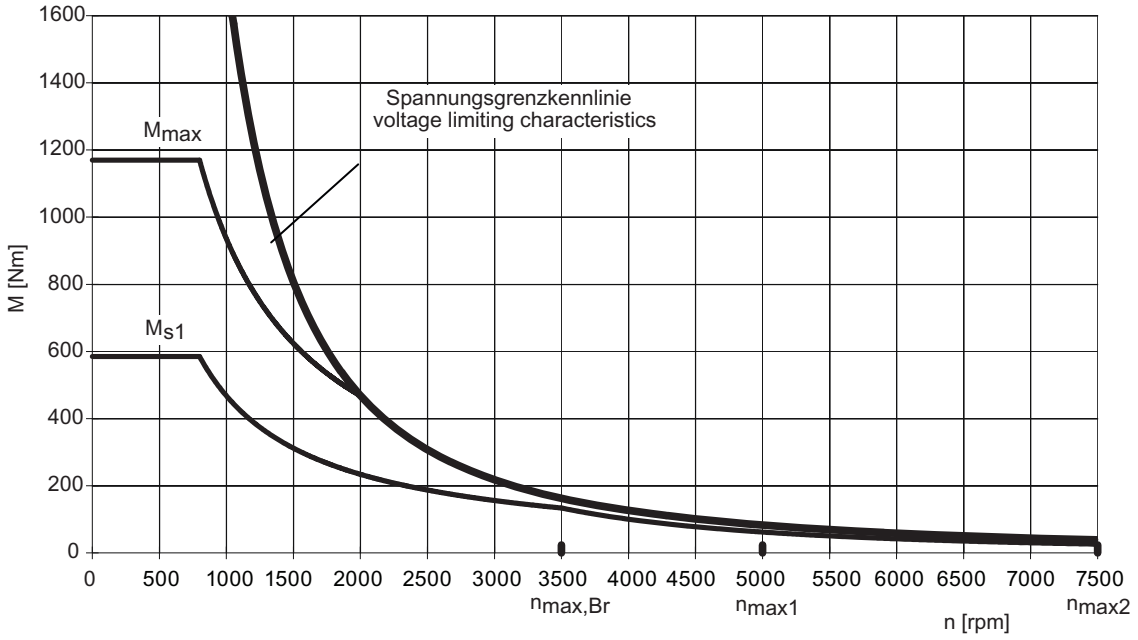
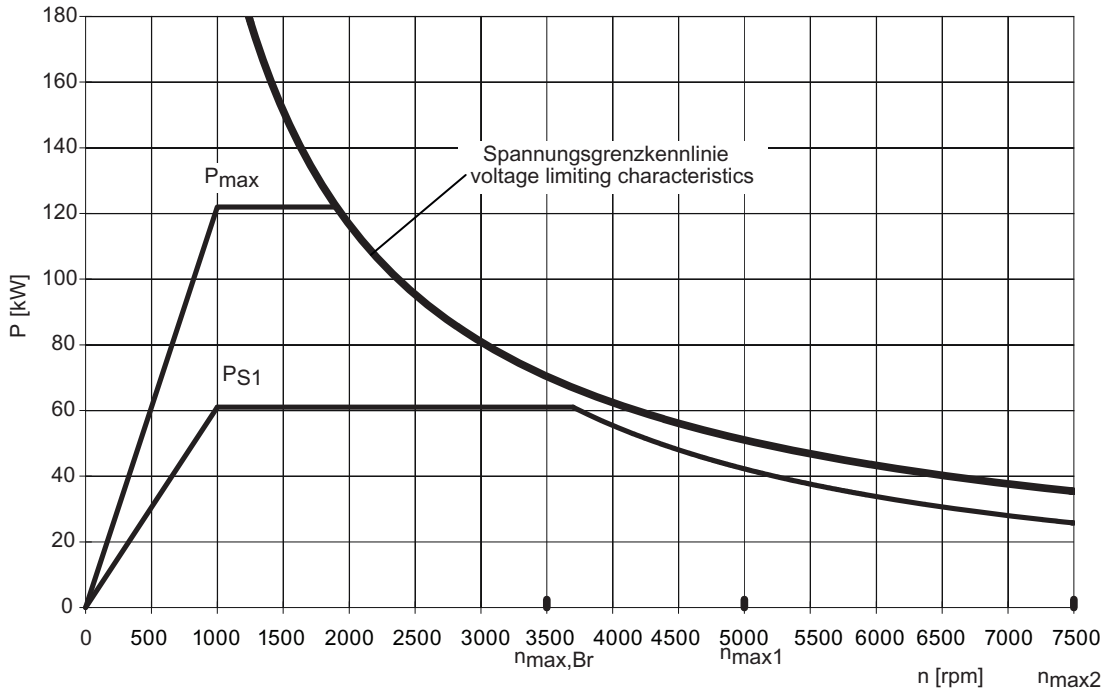


Table 4- 525 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	61	583	98	5000	7500	-	3500	3700	1165	196	583	98



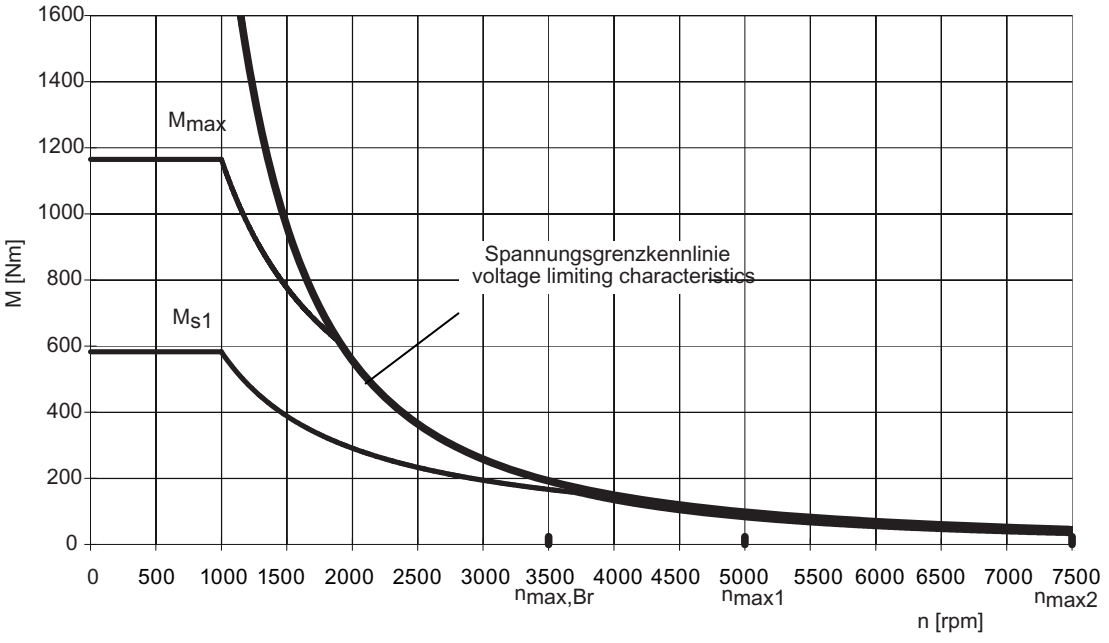
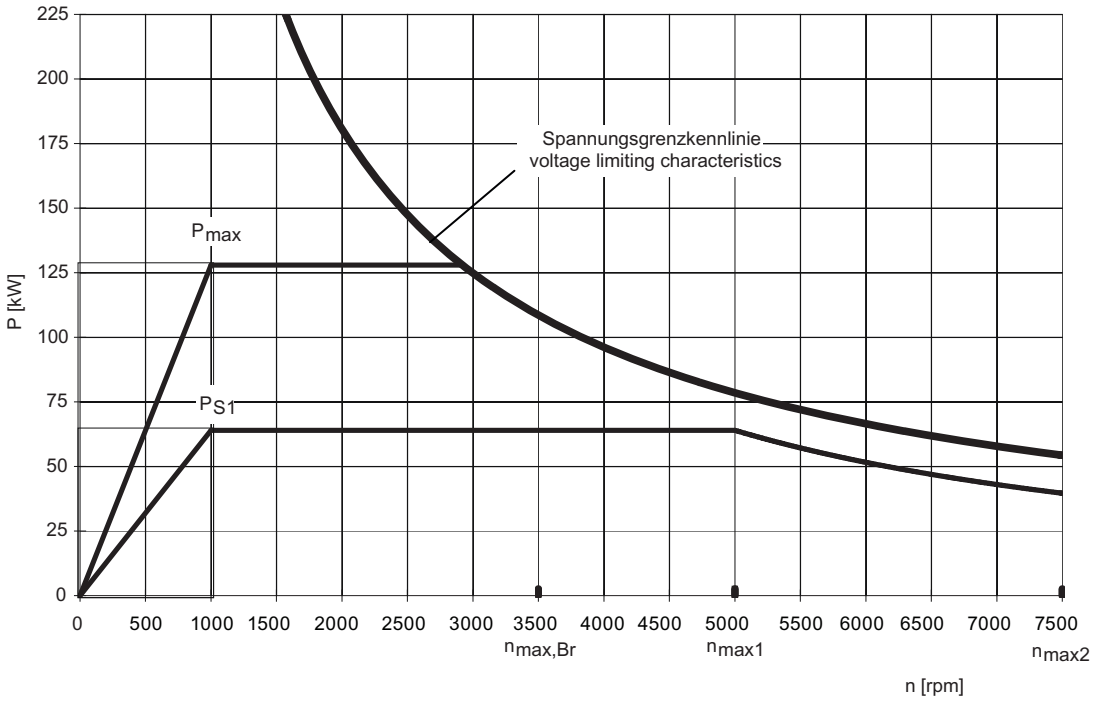


Table 4- 526 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	64	611	148	5000	7500	-	3500	5000	1222	296	611	148



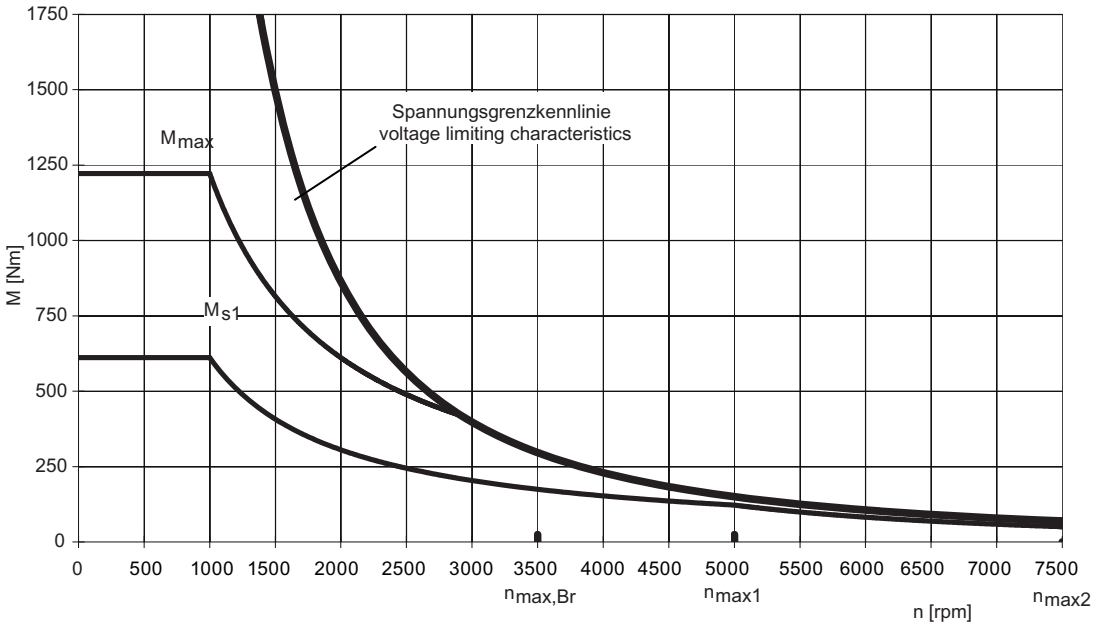
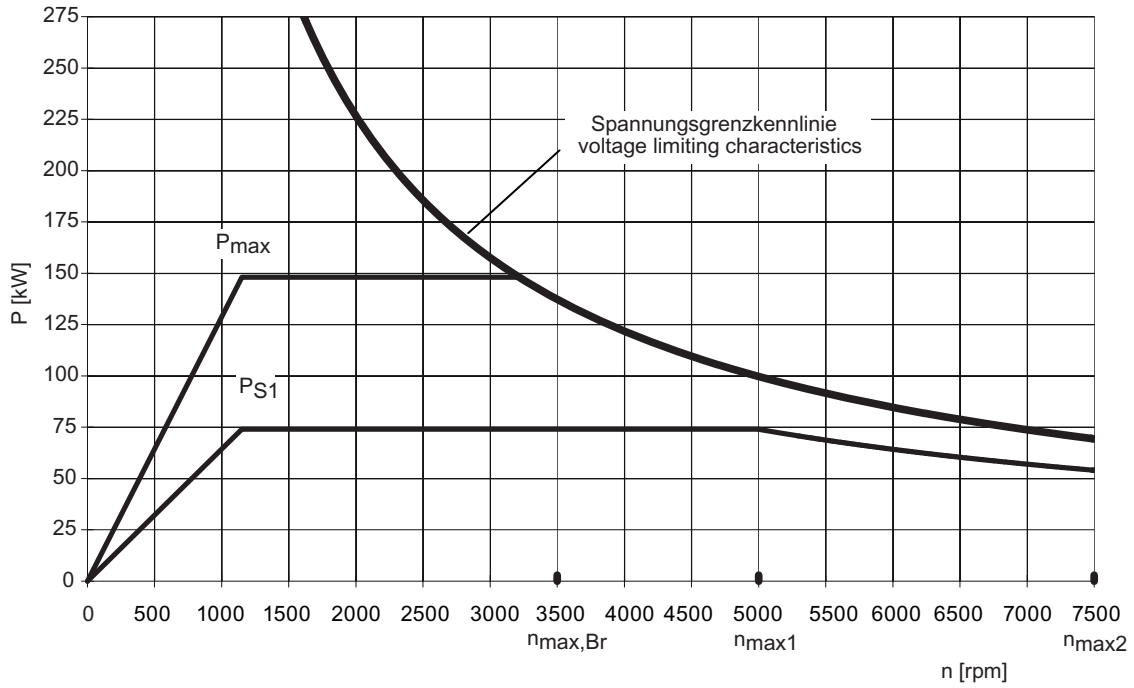


Table 4- 527 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	74	615	148	5000	7500	-	3500	5000	1229	296	615	148
1000	64	615	148					6000				



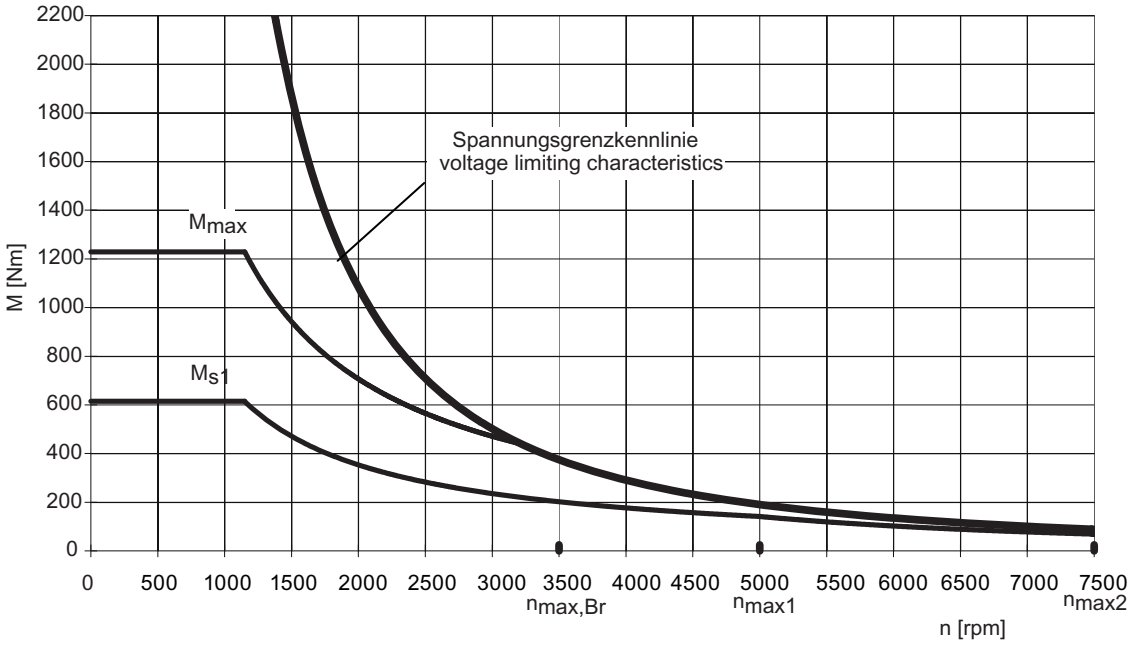
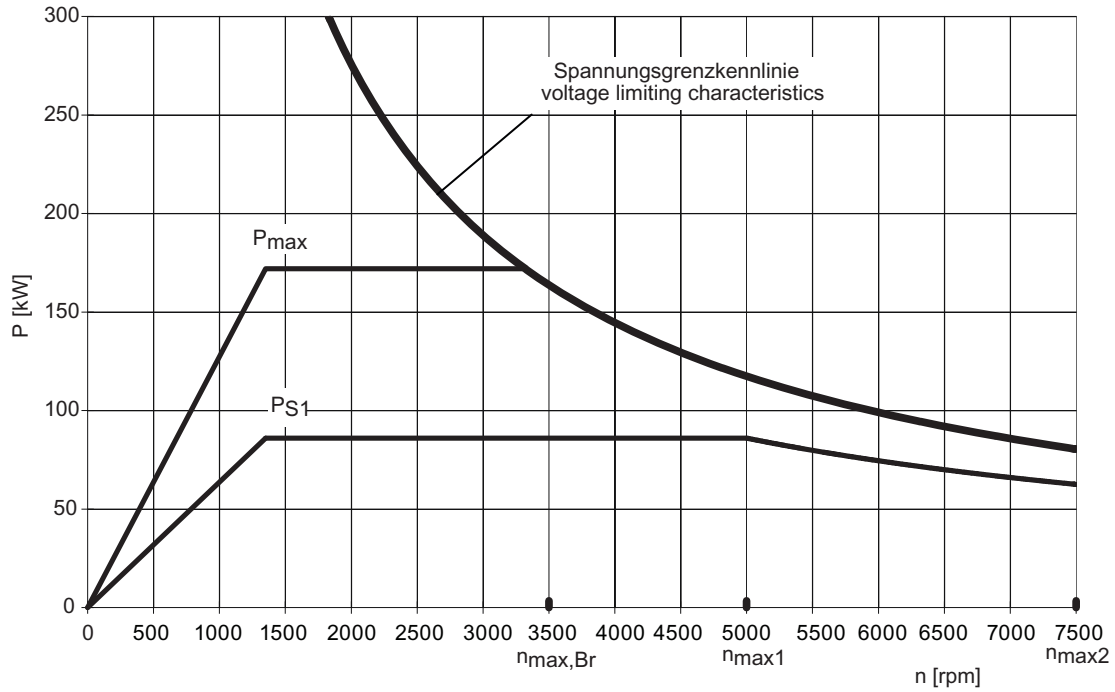


Table 4- 528 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	86	608	148	5000	7500	-	3500	5000	1217	296	608	148



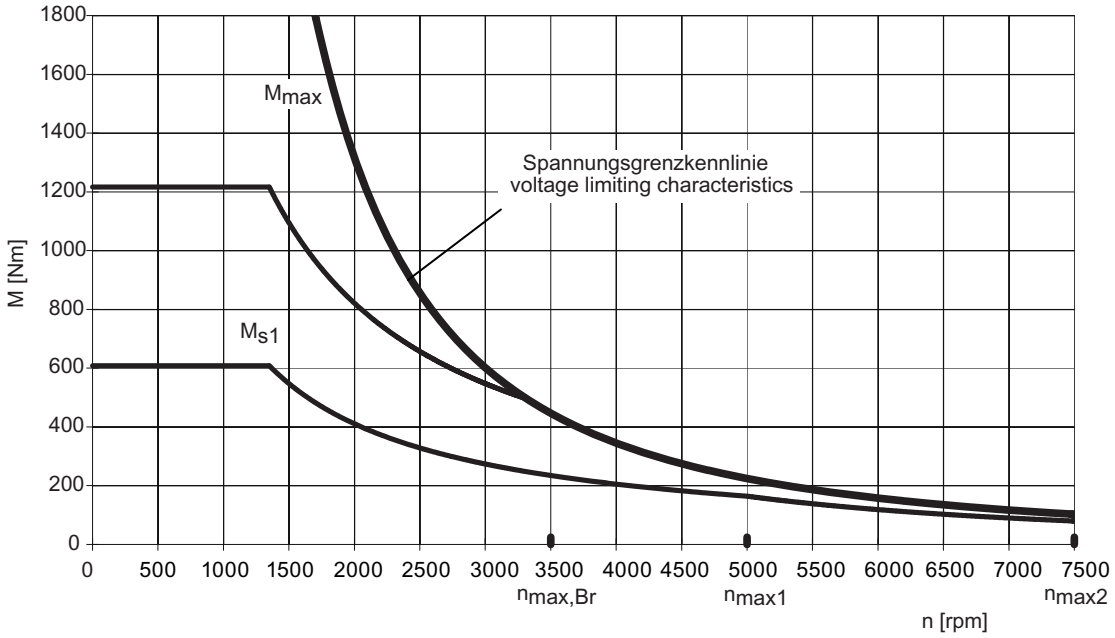
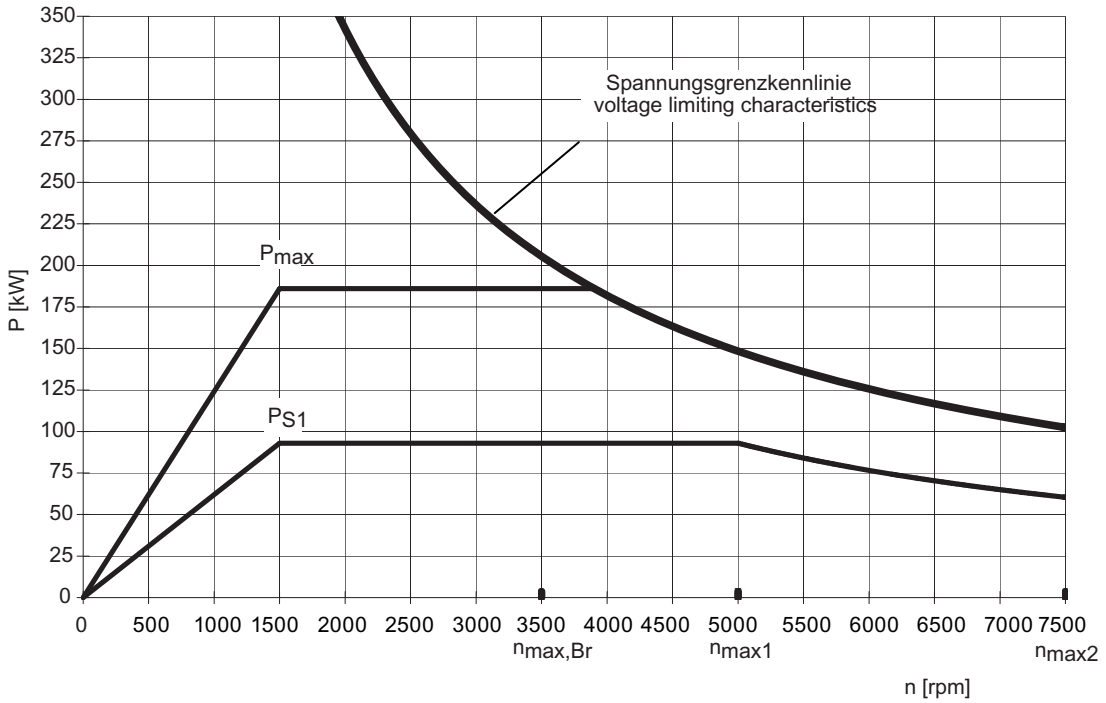


Table 4- 529 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	93	592	198	5000	7500	-	3500	5000	1184	396	592	198



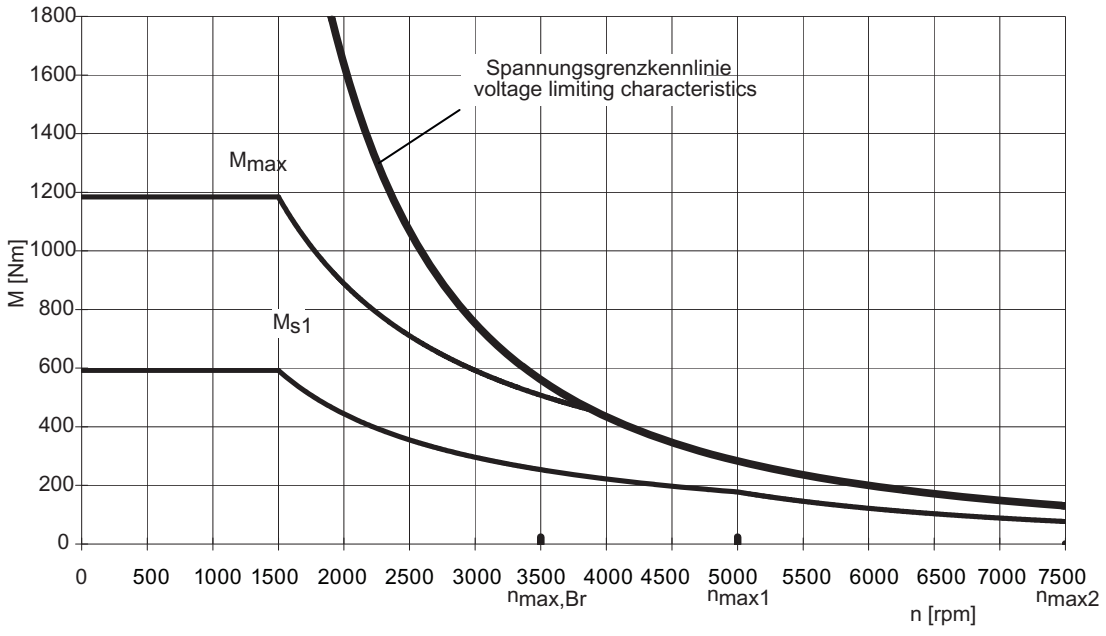
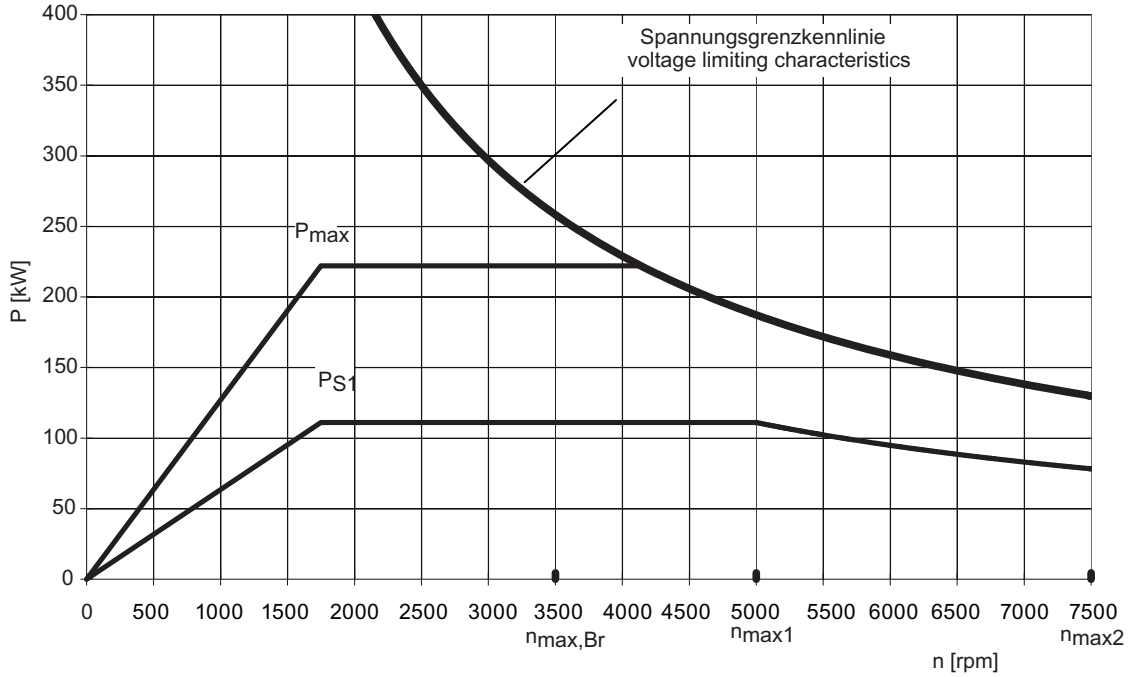


Table 4- 530 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	111	606	200	5000	7500	-	3500	5000	1211	400	606	200
1500	95	606	200					6000				



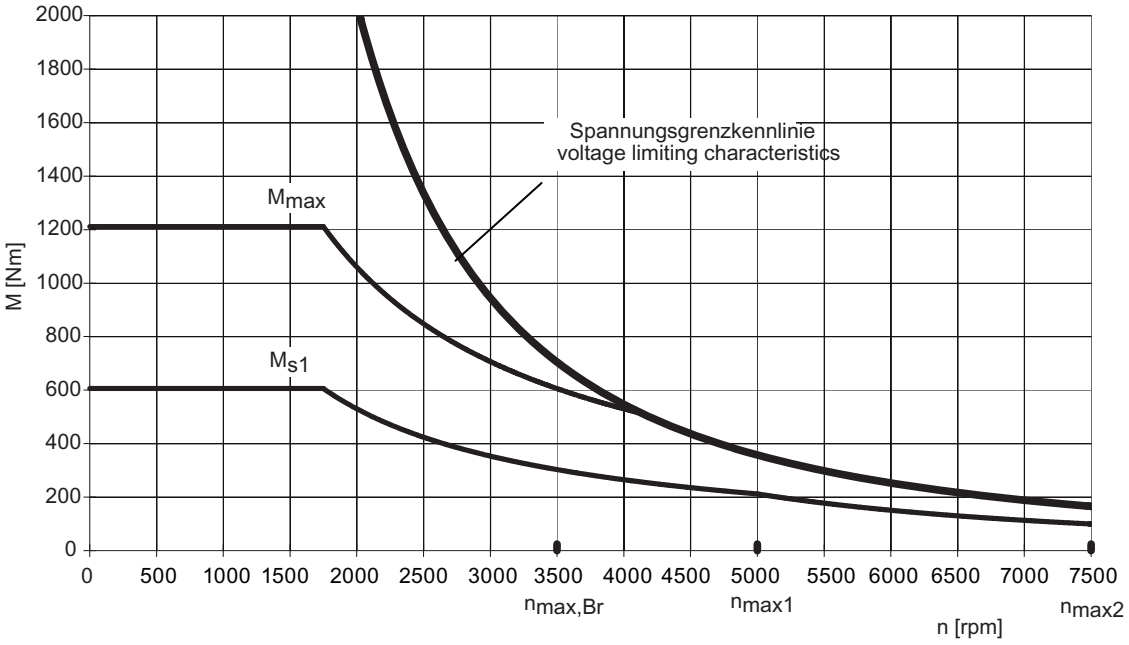
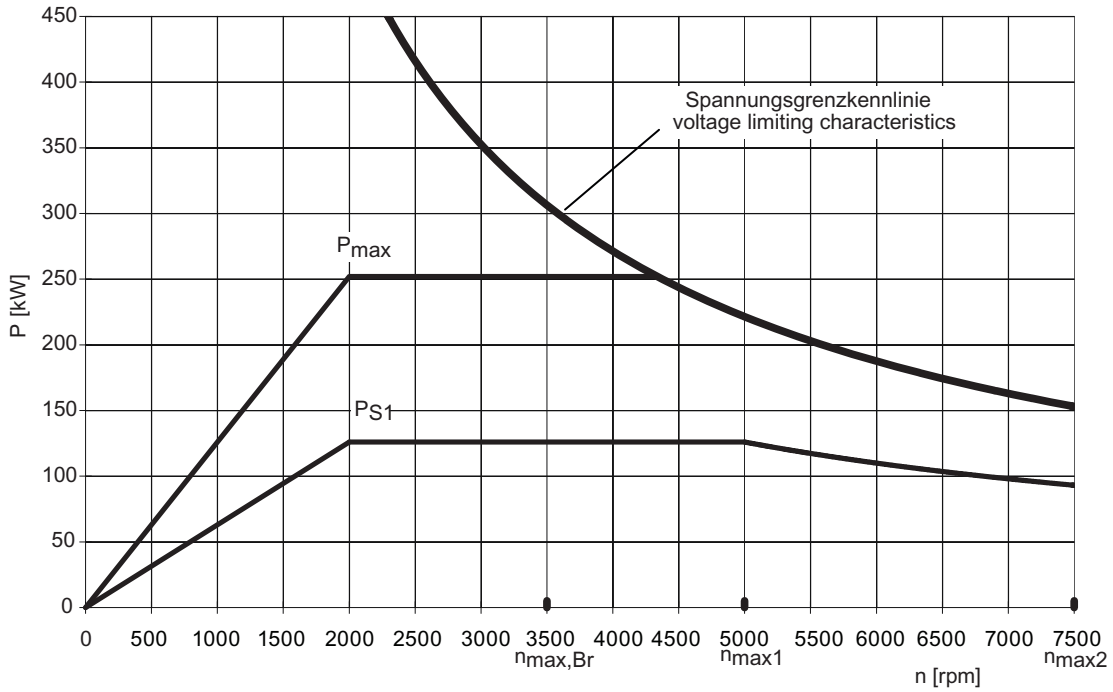


Table 4- 531 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	126	602	200	5000	7500	-	3500	5000	1203	400	602	200



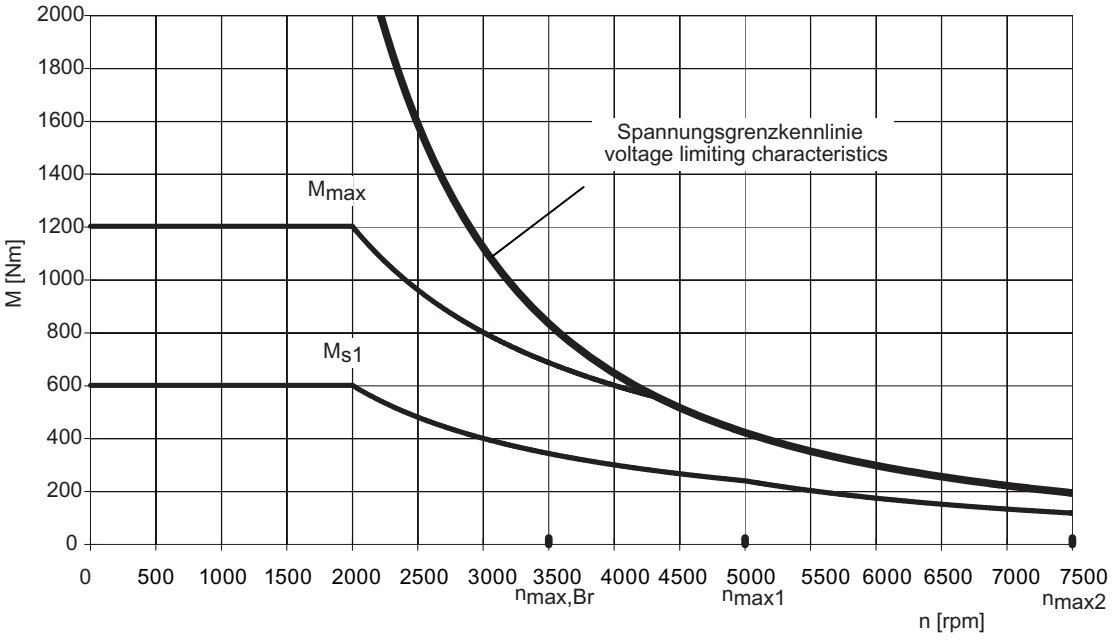
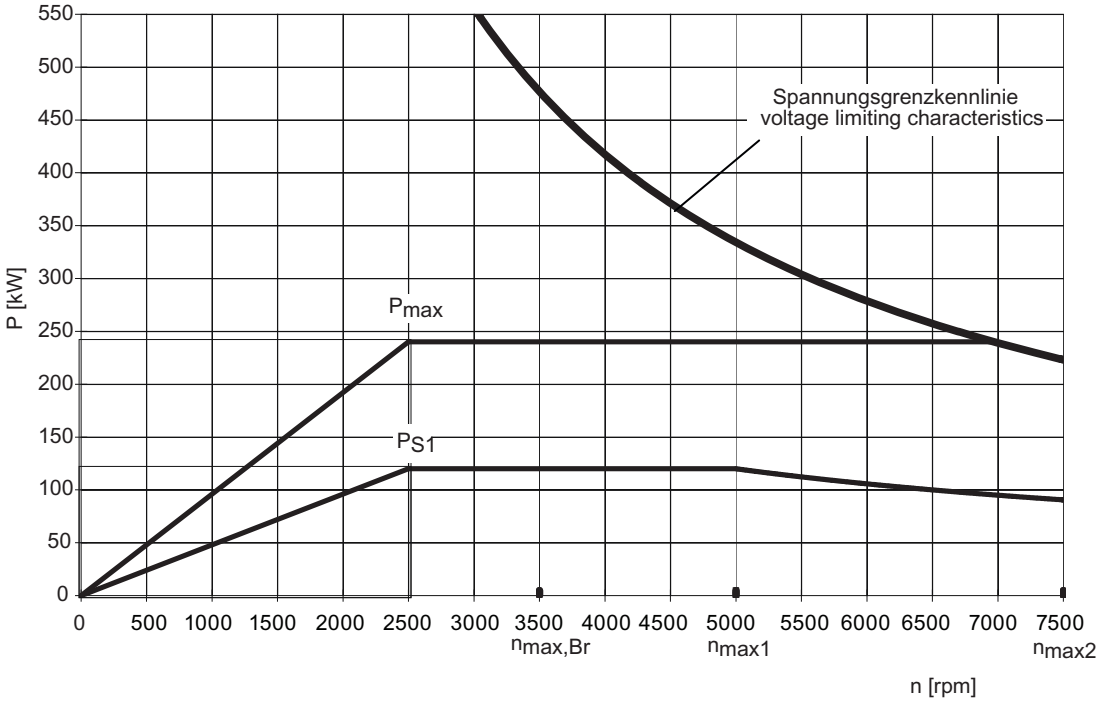


Table 4- 532 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	120	458	250	5000	7500	-	3500	5000	917	500	458	250



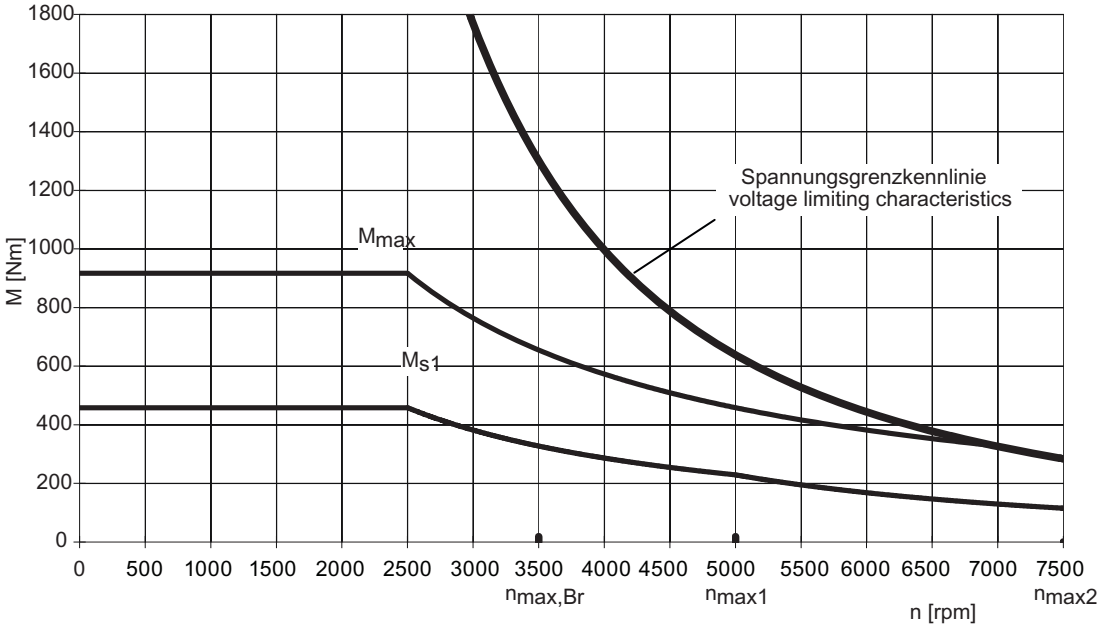
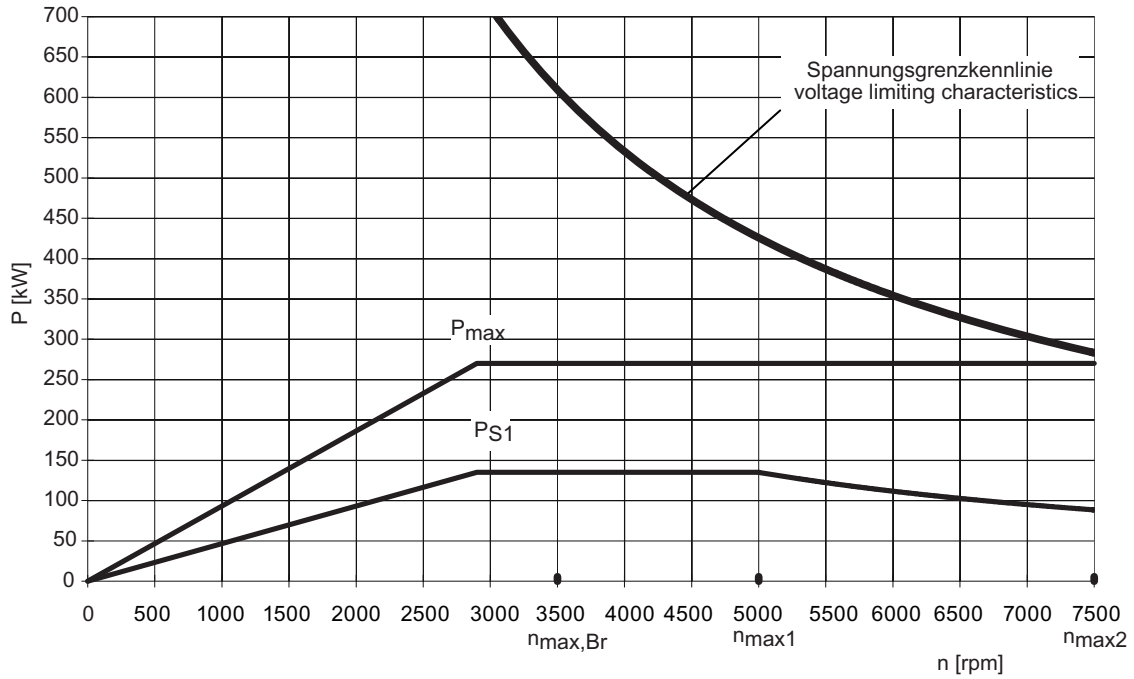


Table 4- 533 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	135	445	245	5000	7500	-	3500	5000	889	490	445	245
2500	116	445	245					5700				



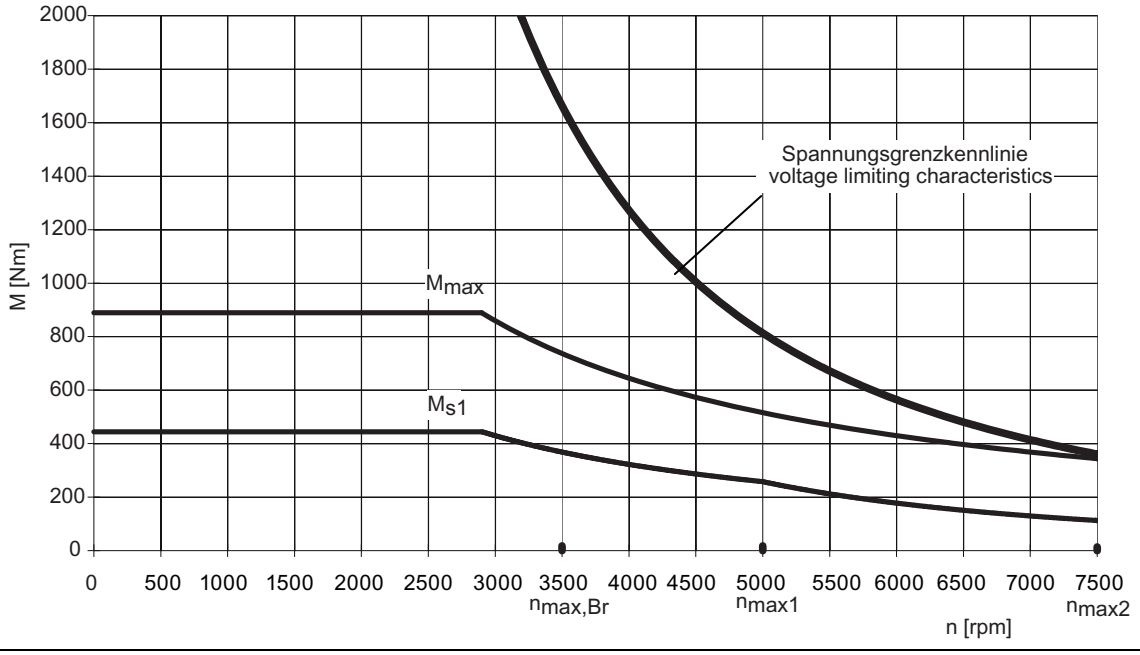
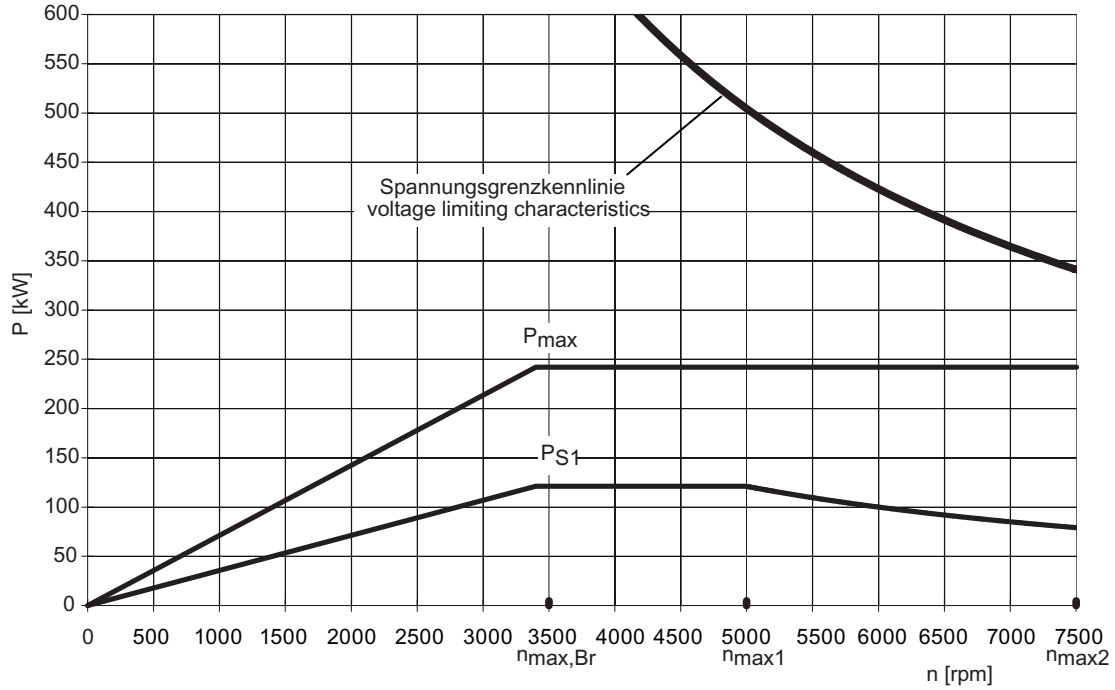
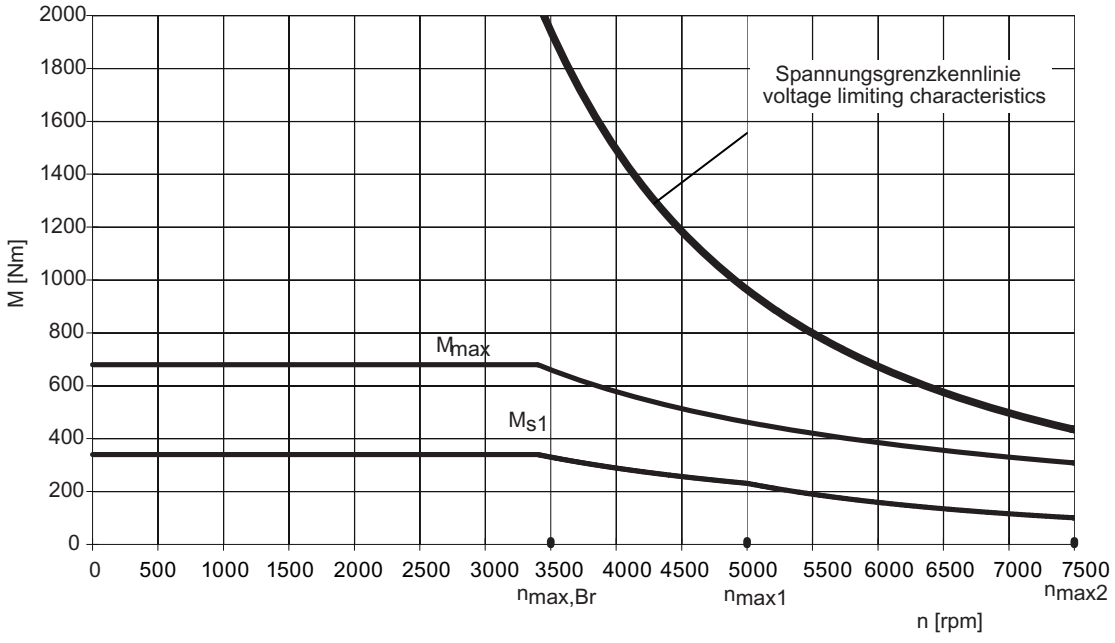


Table 4- 534 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	121	340	200	5000	7500	-	3500	5000	680	400	340	200

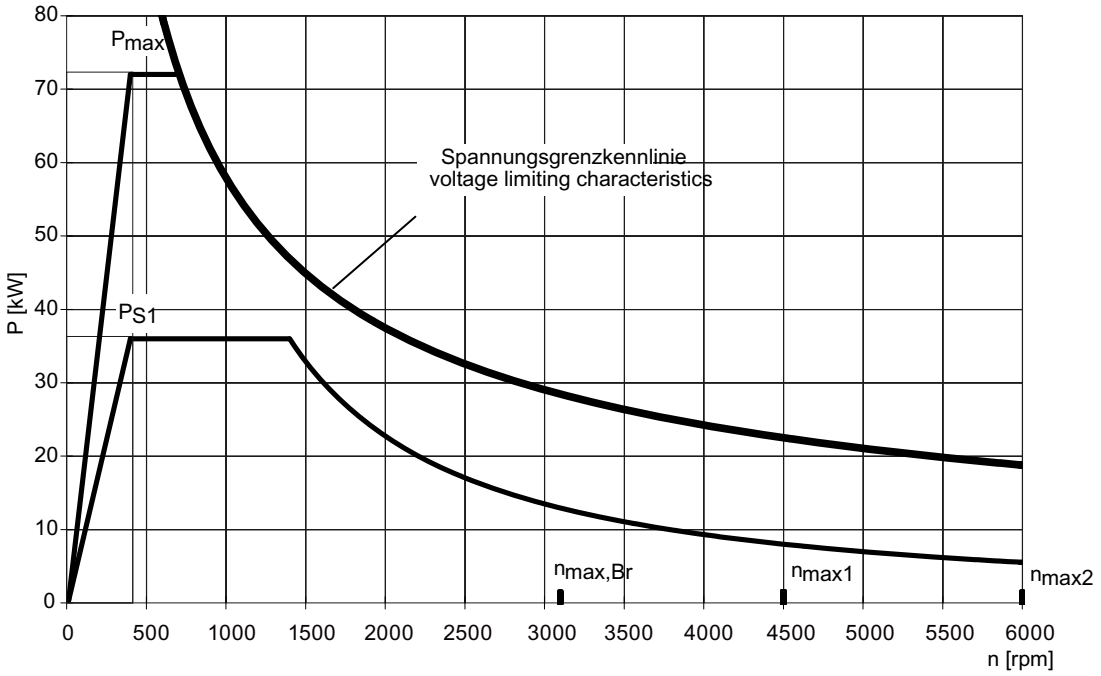




4.1.3.6 Shaft height 225 - water-cooled

Table 4- 535 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	36	859	100	4500	6000	-	3100	1400	1719	200	859	100



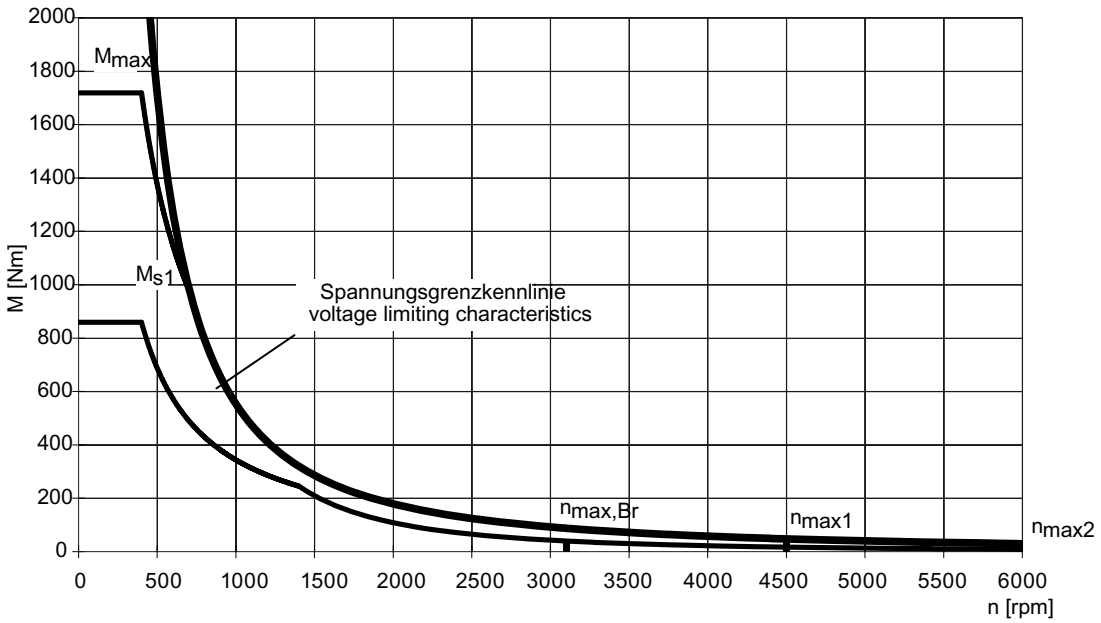
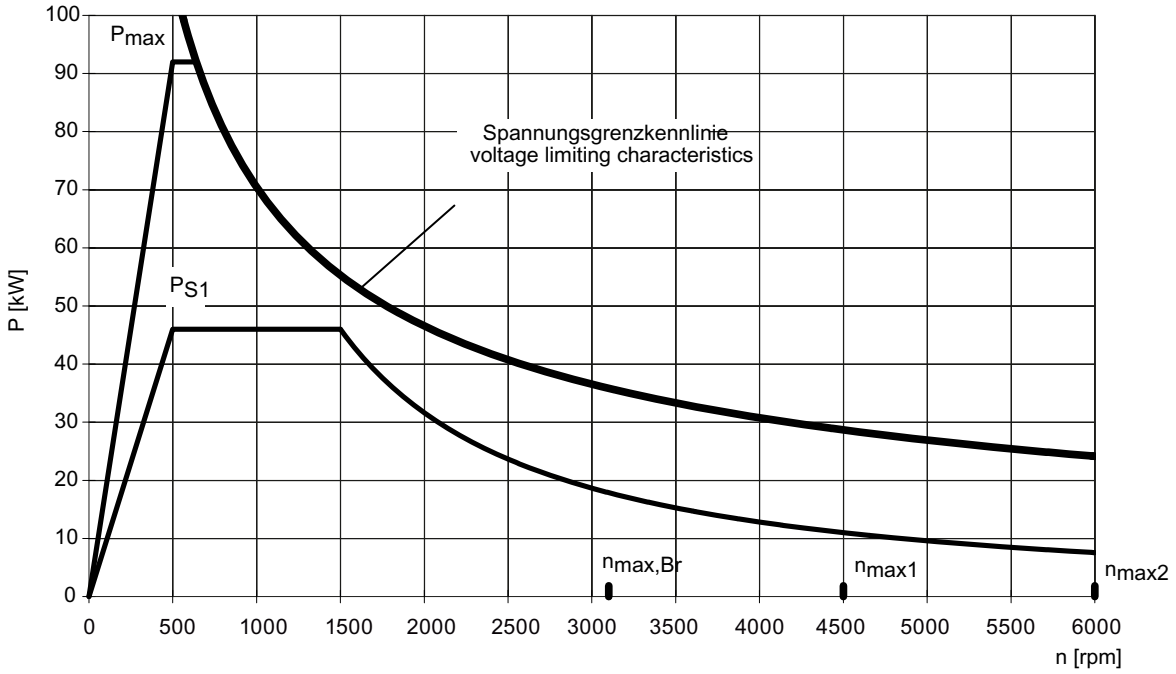


Table 4- 536 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	46	879	100	4500	6000	-	3100	1500	1757	200	879	100
400	37	879	100					1750				



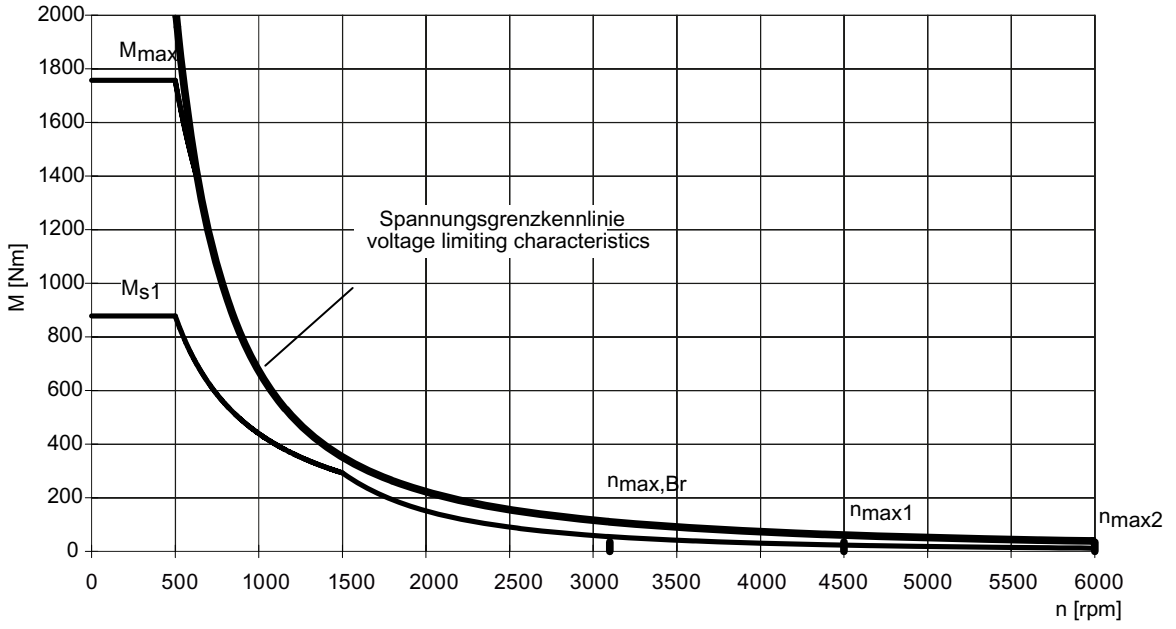
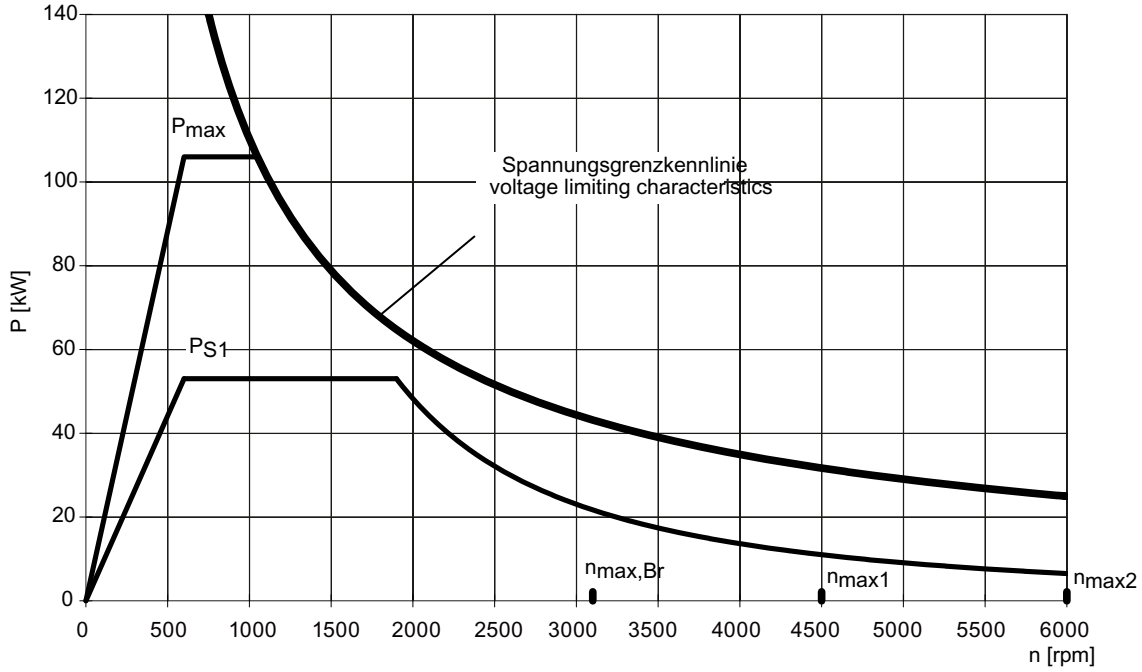


Table 4- 537 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	53	844	94	4500	6000	-	3100	1900	1687	188	844	94



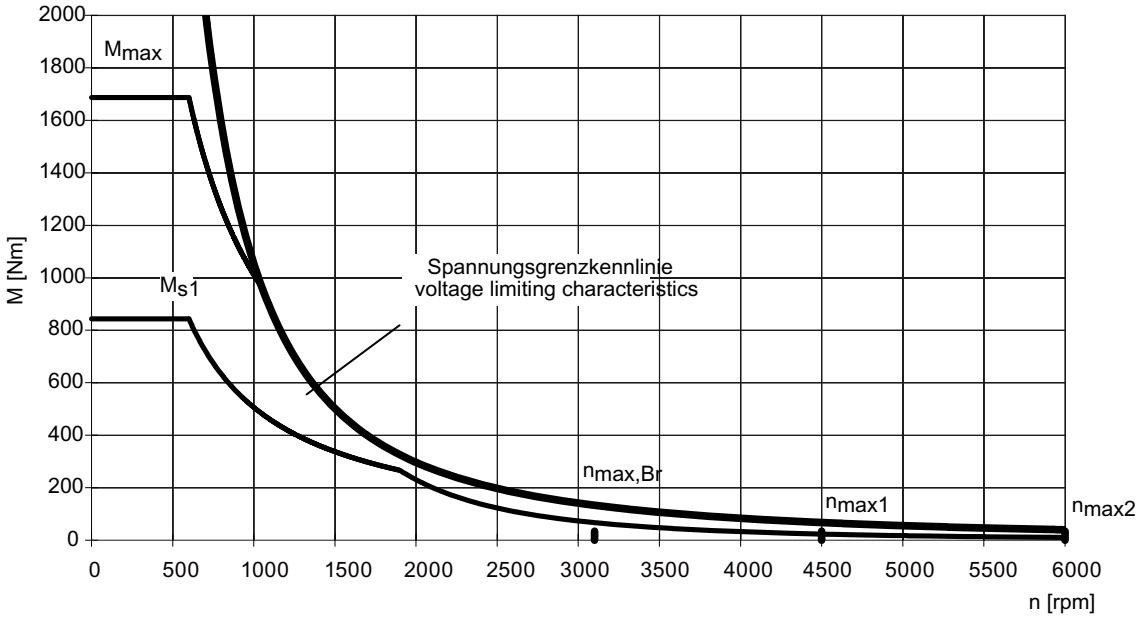
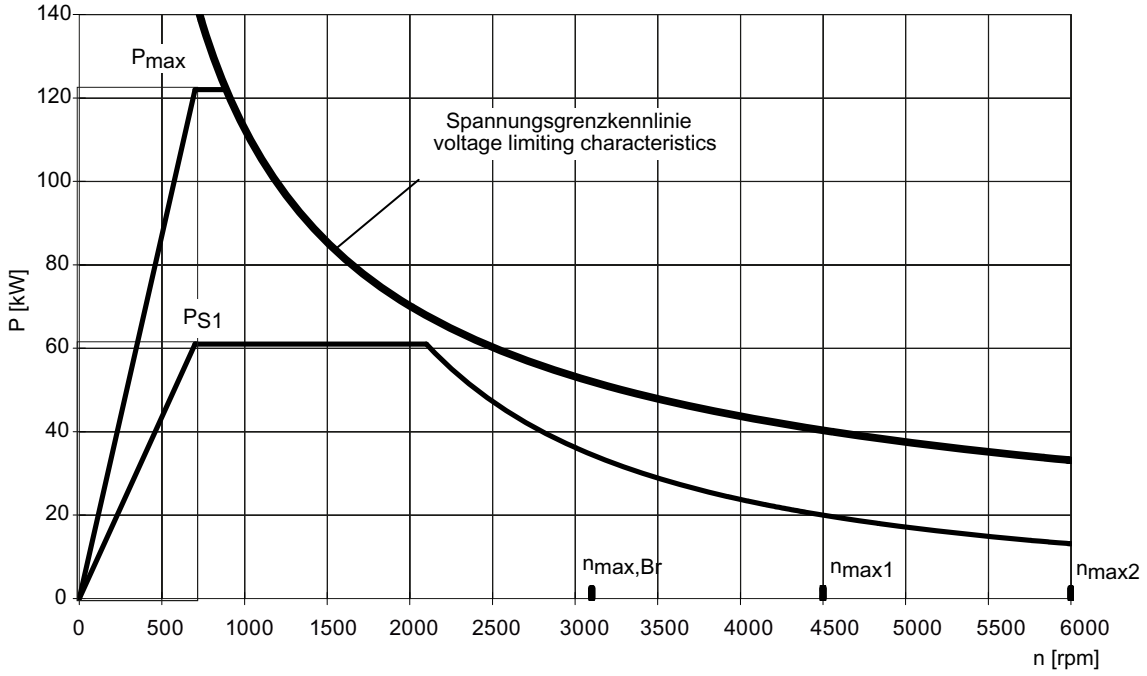


Table 4- 538 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	61	832	128	4500	6000	-	3100	2100	1664	256	832	128



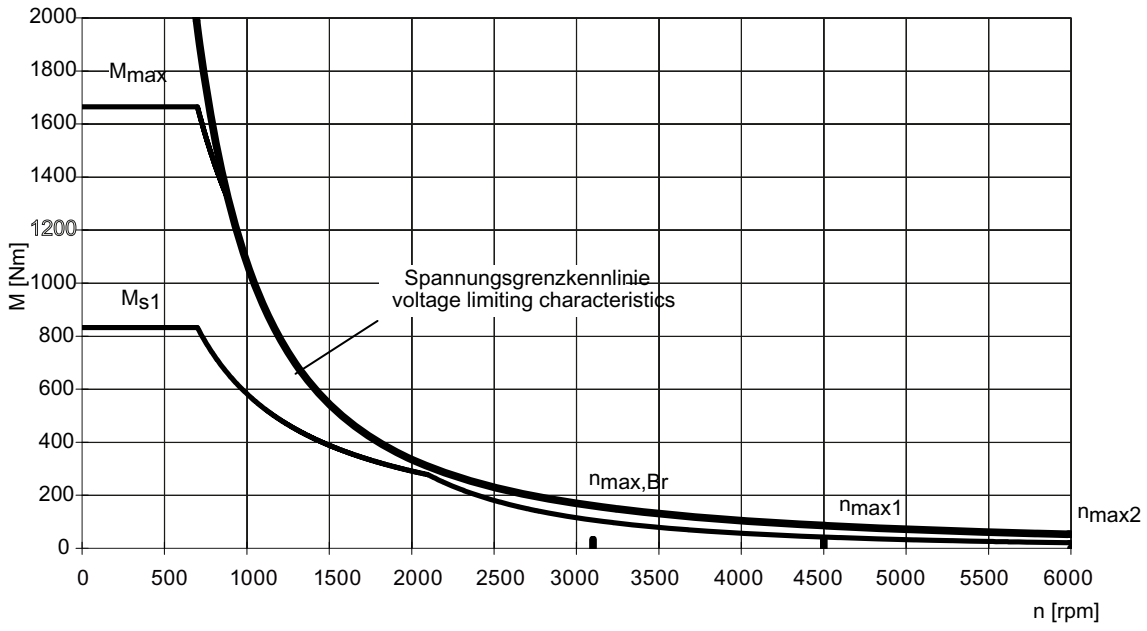
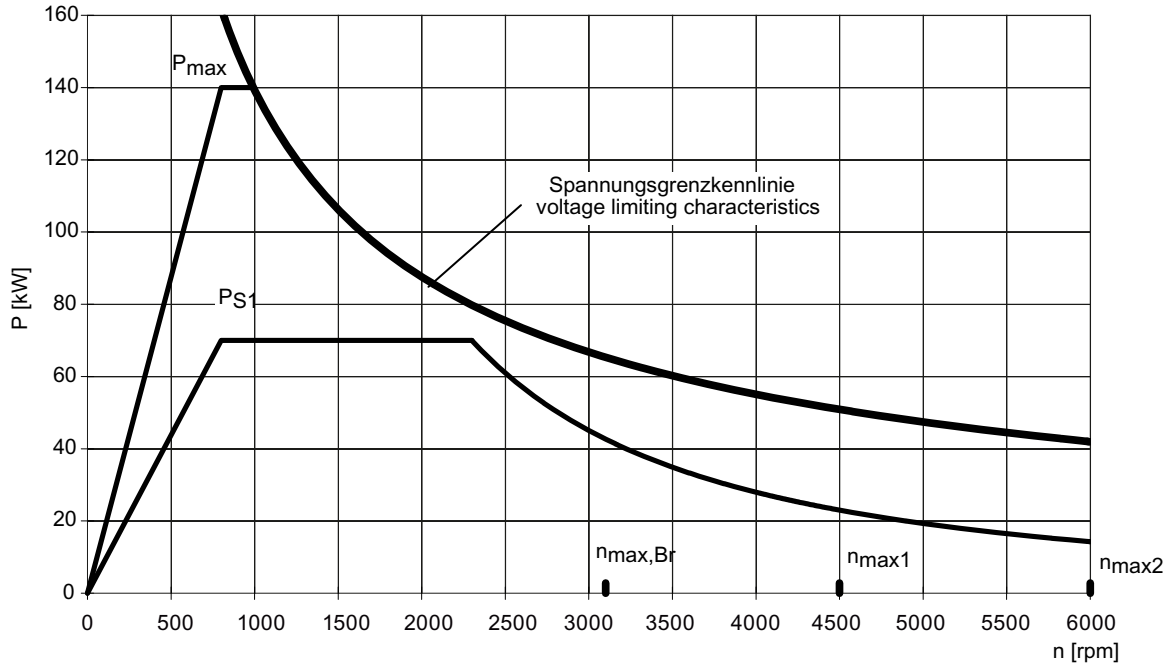


Table 4- 539 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	70	836	130	4500	6000	-	3100	2300	1671	260	836	130
700	61	836	130					2500				



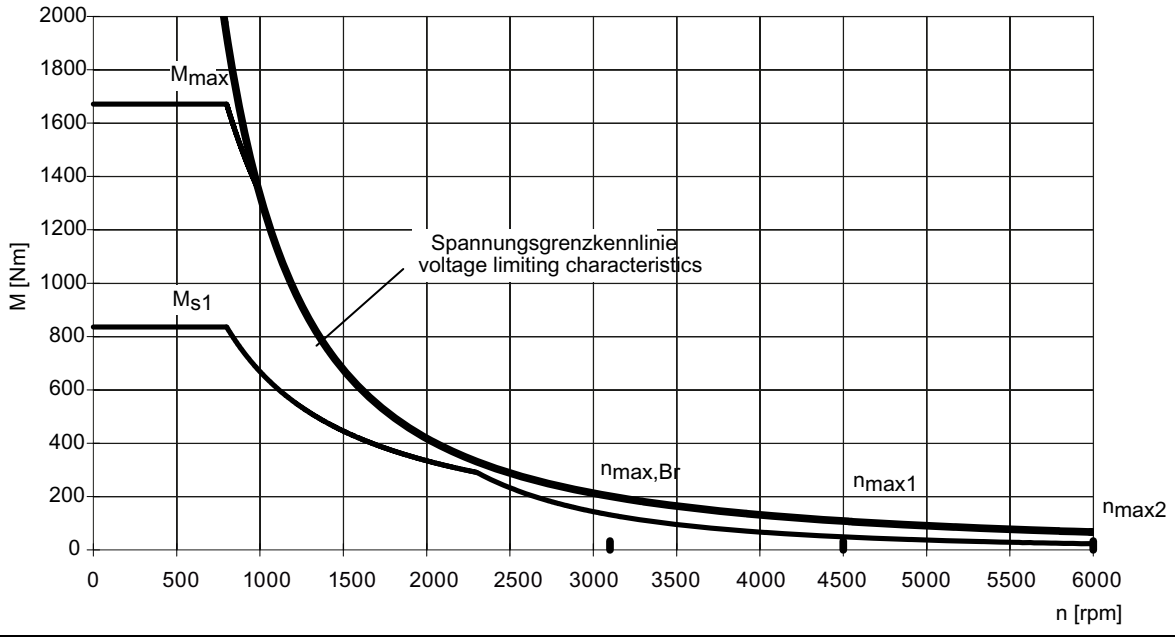
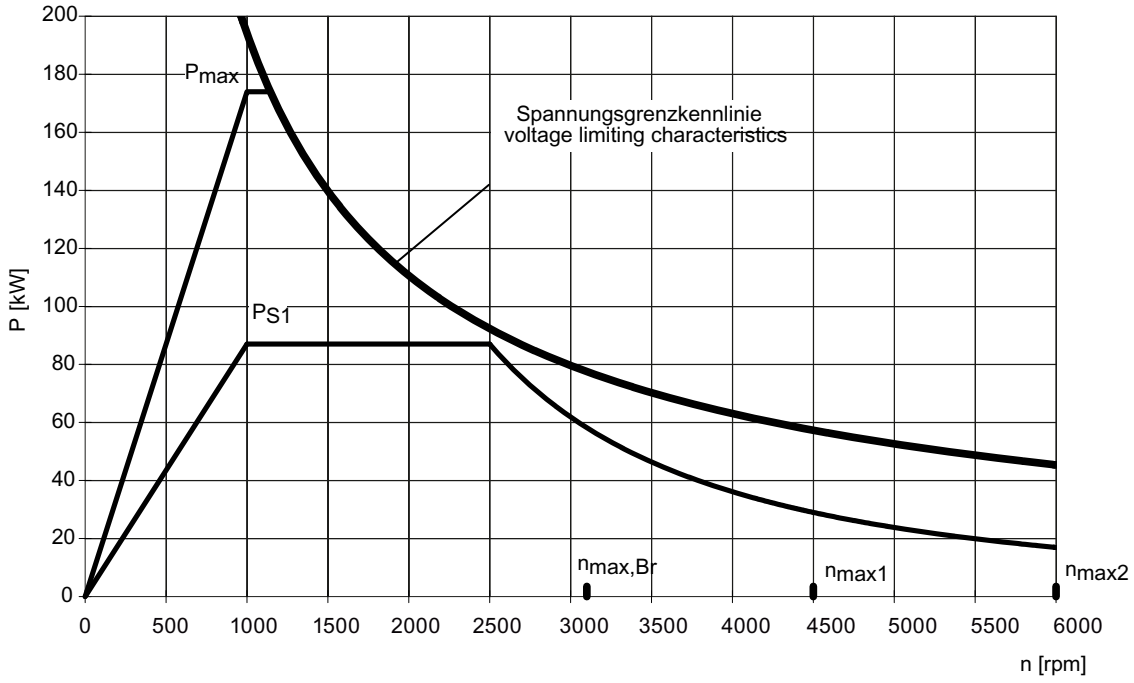


Table 4- 540 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	87	831	132	4500	6000	-	3100	2500	1662	264	831	132



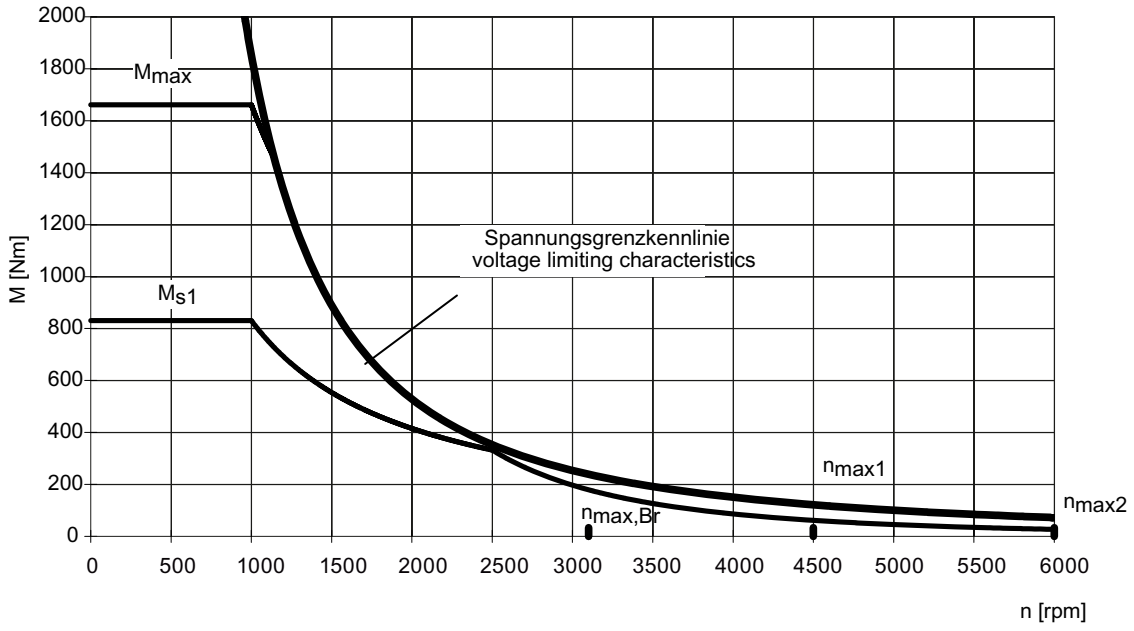
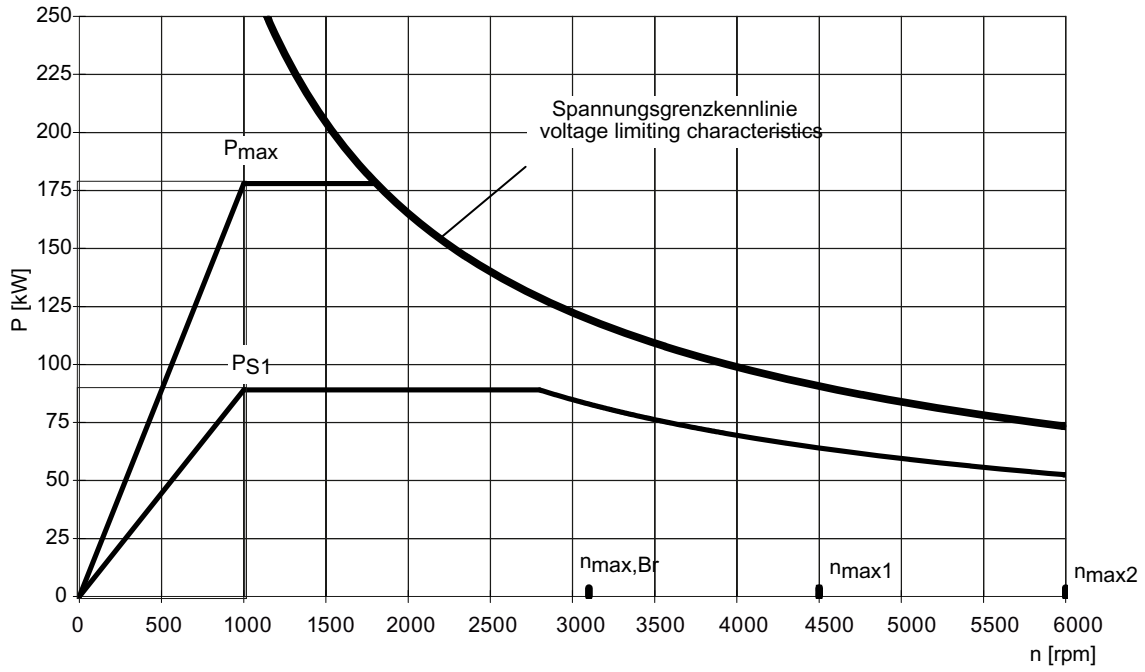


Table 4- 541 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	89	850	188	4500	6000	-	3100	2800	1700	376	850	188



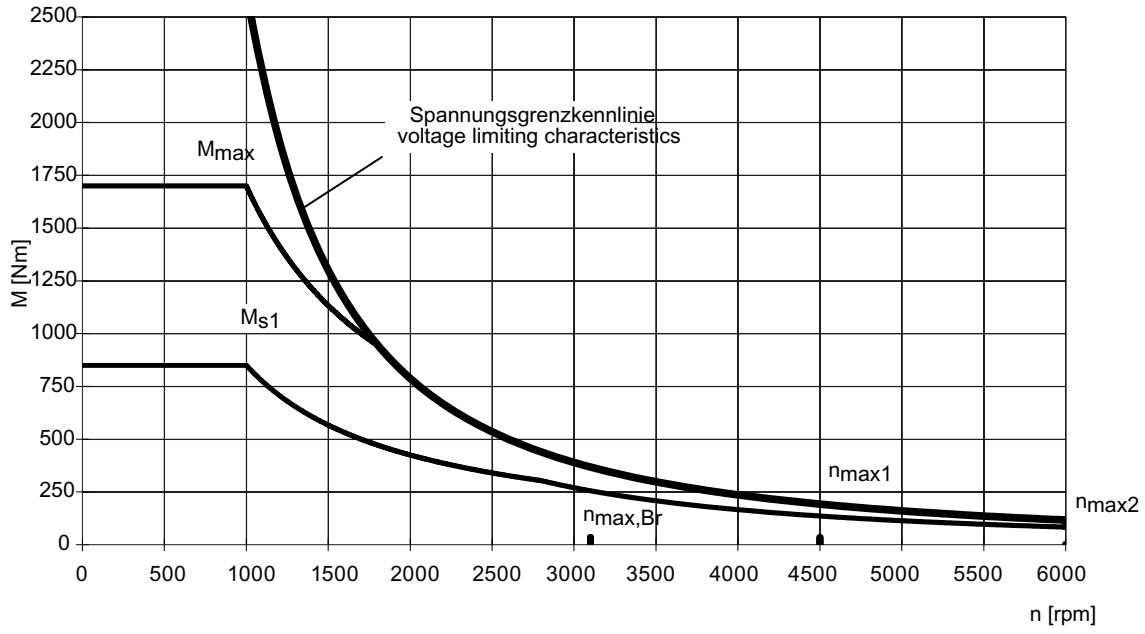
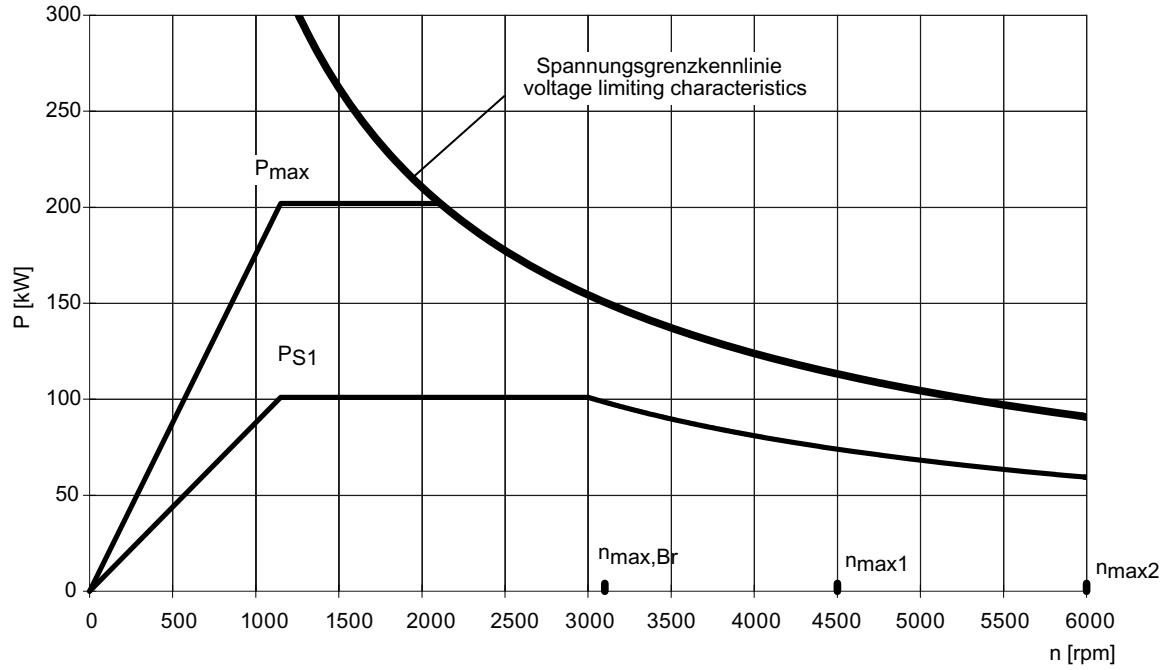


Table 4- 542 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	101	839	186	4500	6000	-	3100	3000	1677	372	839	186
1000	88	839	186					3600				



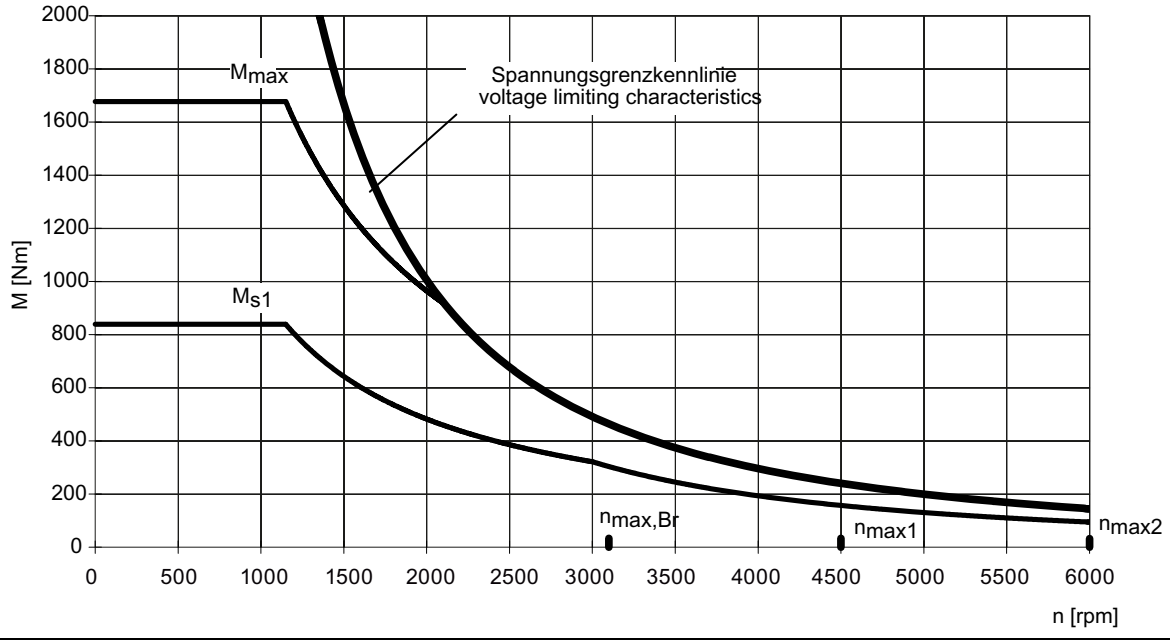
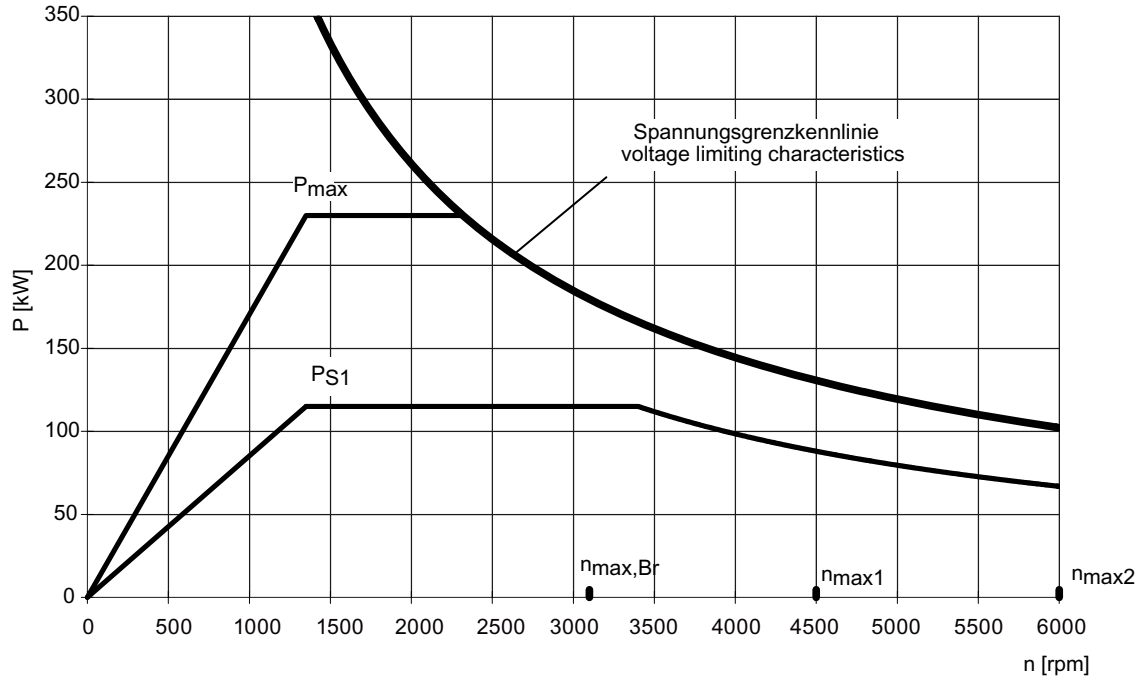


Table 4- 543 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	115	813	180	4500	6000	-	3100	3400	1627	360	814	180



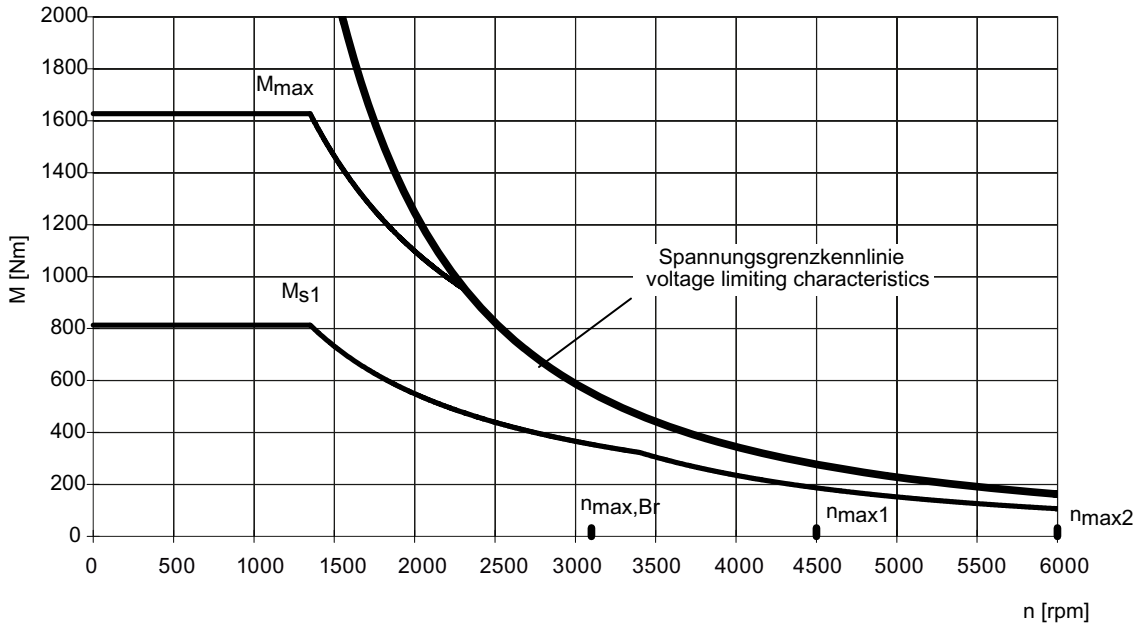
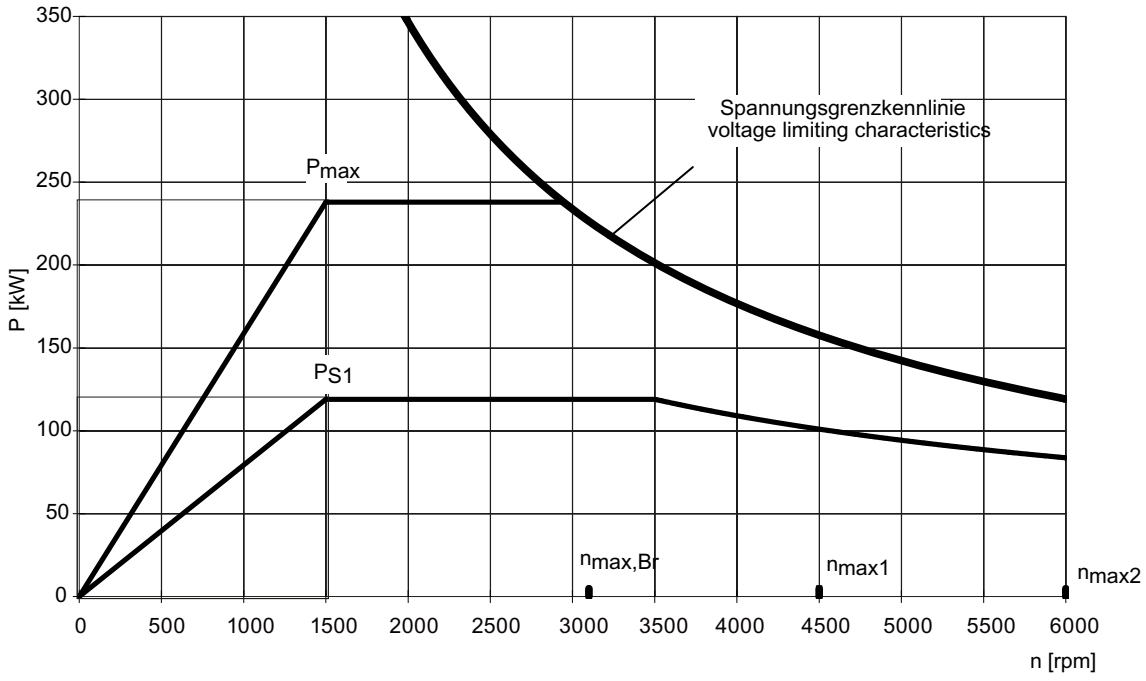


Table 4- 544 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	119	758	240	4500	6000	-	3100	3500	1515	480	758	240



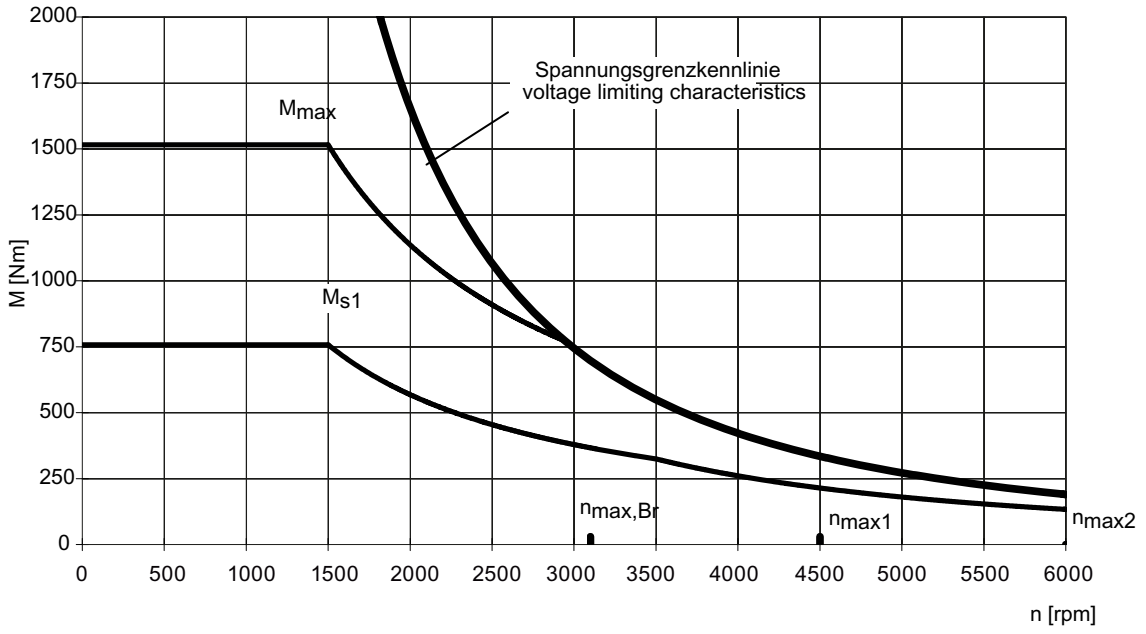
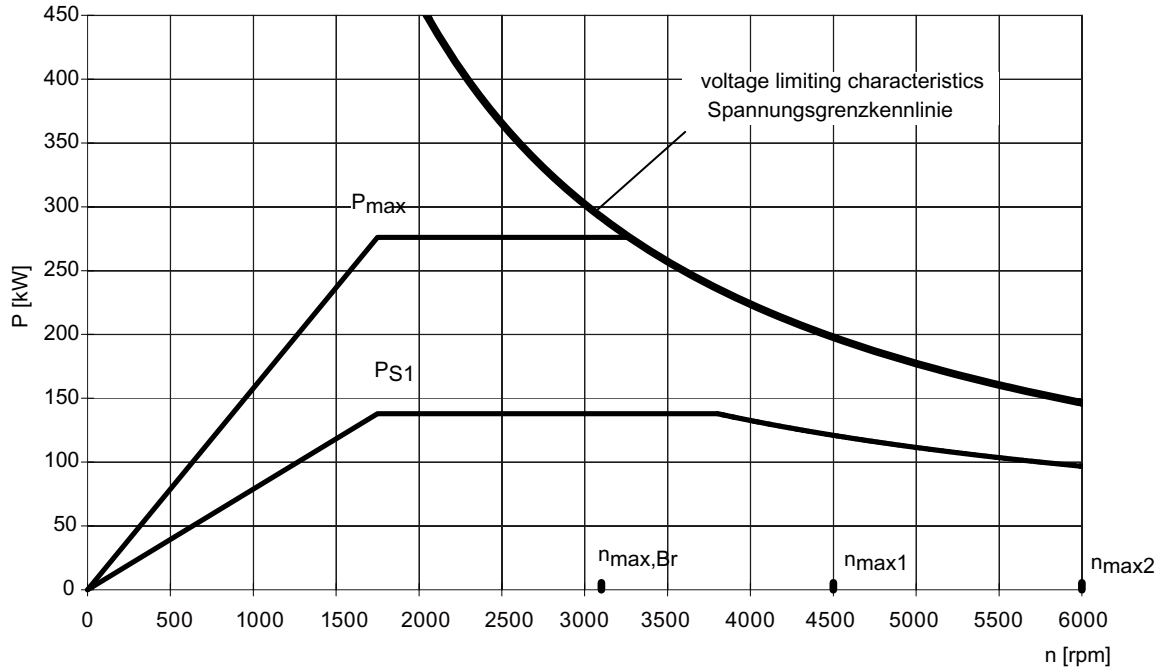


Table 4- 545 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	138	753	240	4500	6000	-	3100	3800	1506	480	753	240
1500	118	753	240					4500				



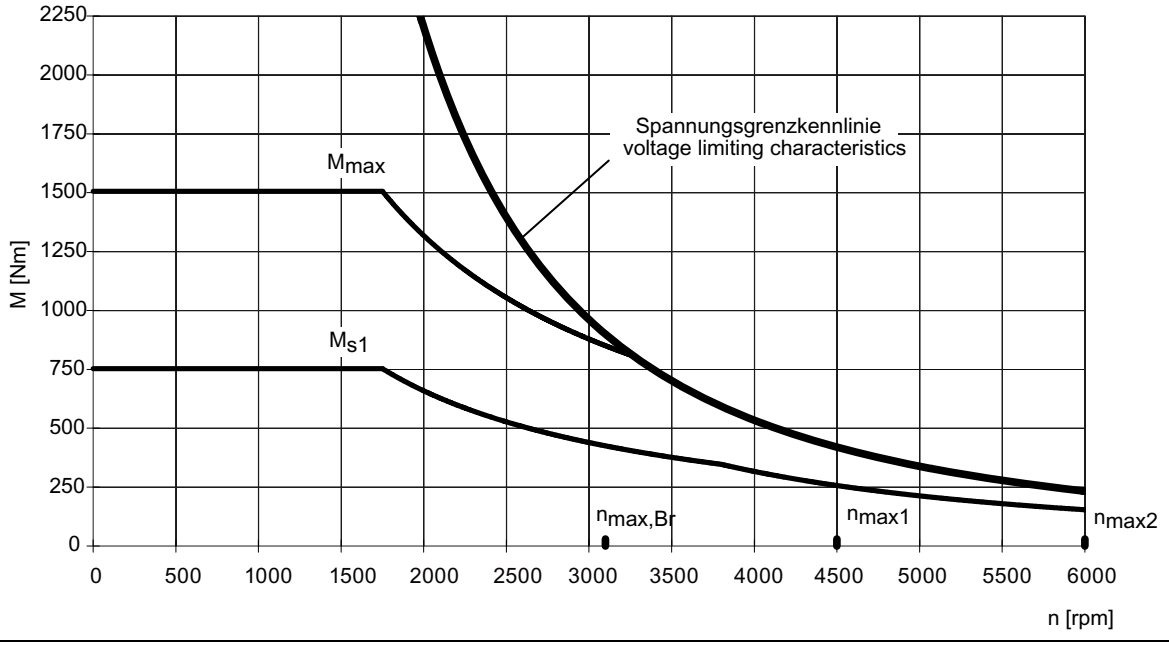
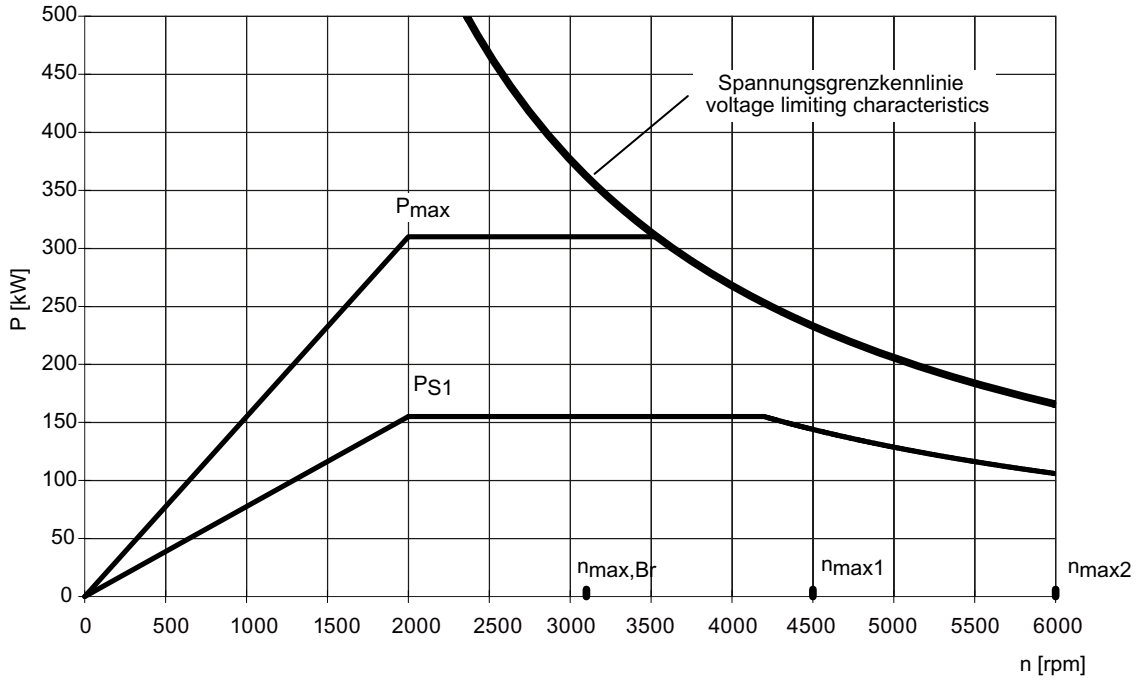


Table 4- 546 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	155	740	235	4500	6000	-	3100	4200	1480	470	740	235



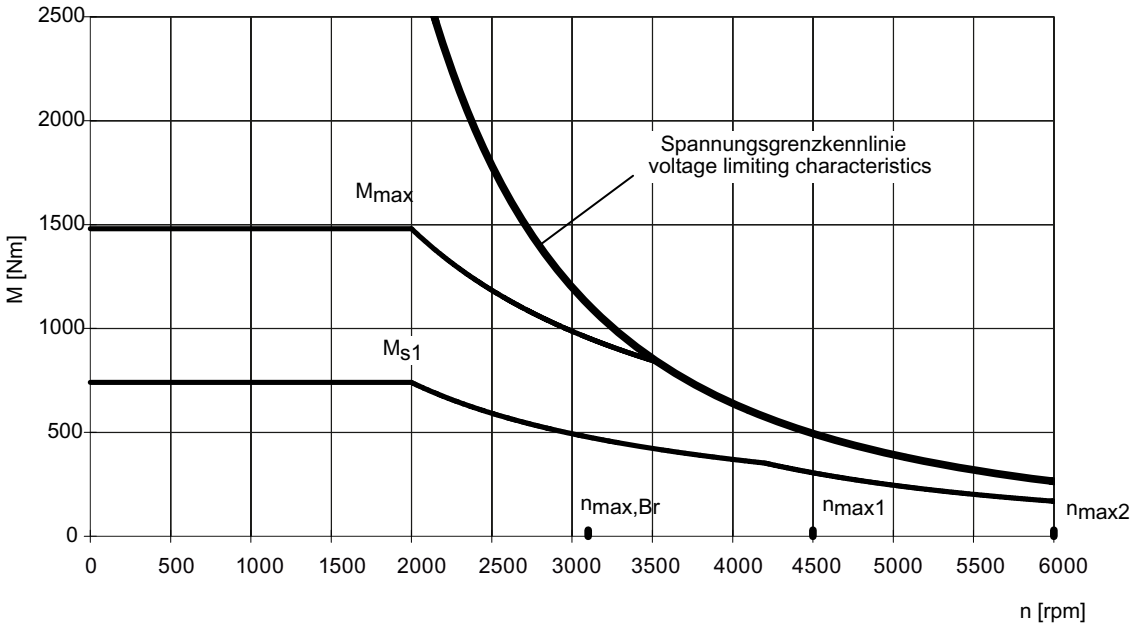
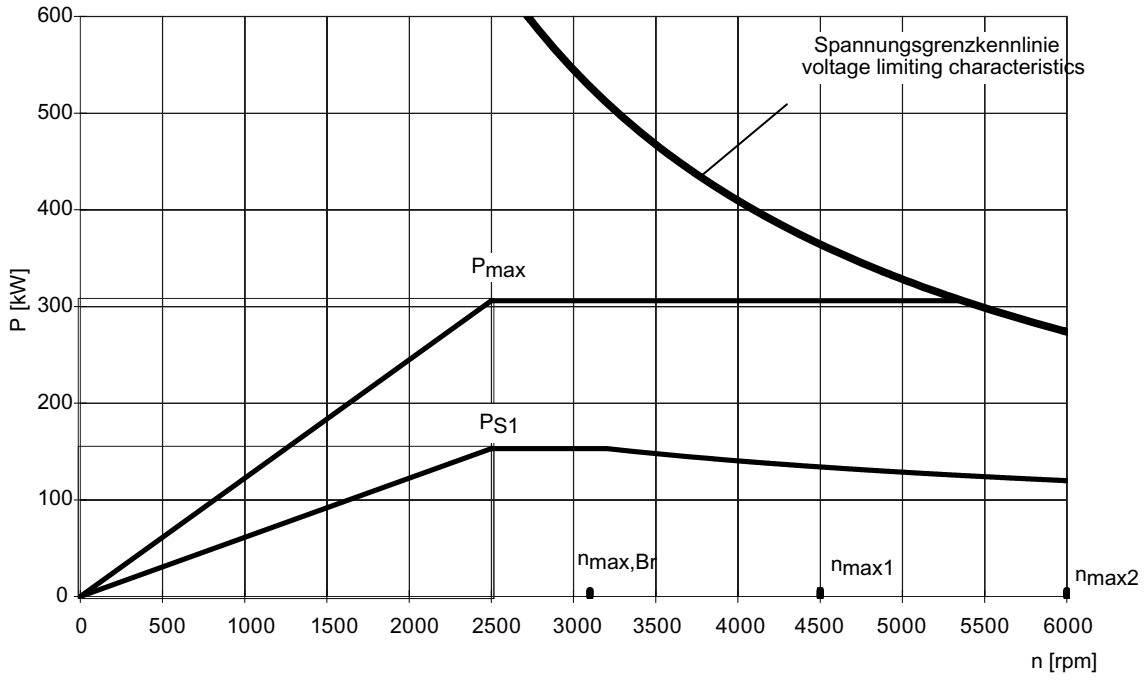


Table 4- 547 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	153	584	310	4500	6000	-	3100	3200	1169	620	584	310



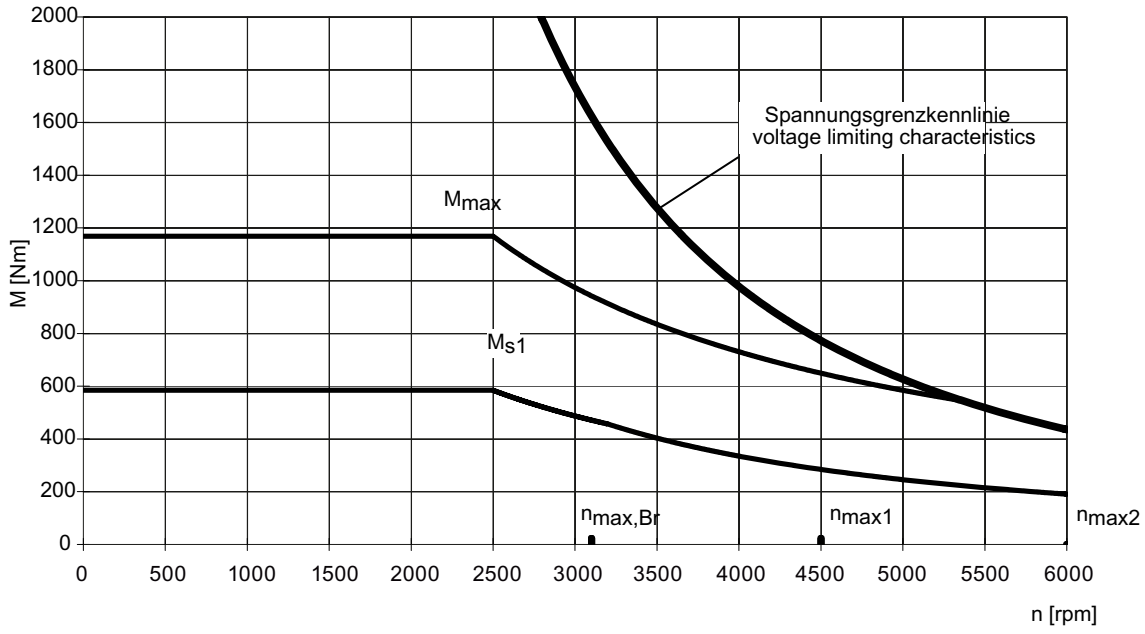
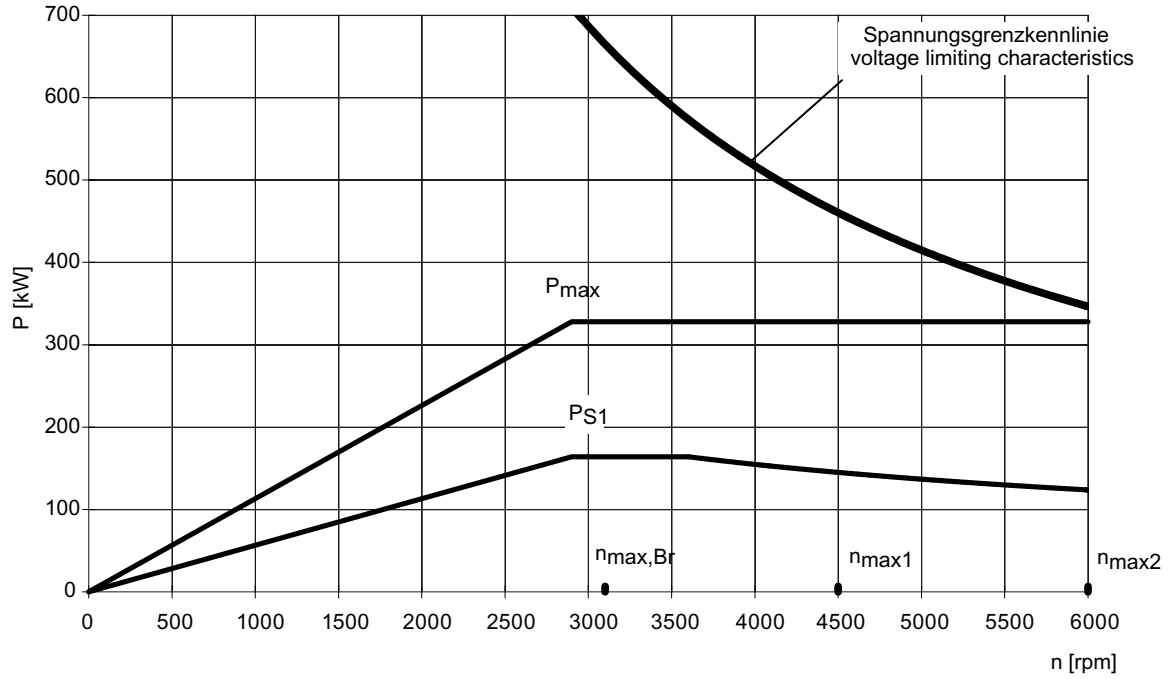


Table 4- 548 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	164	540	285	4500	6000	-	3100	3600	1080	570	540	285
2500	141	540	285					4500				



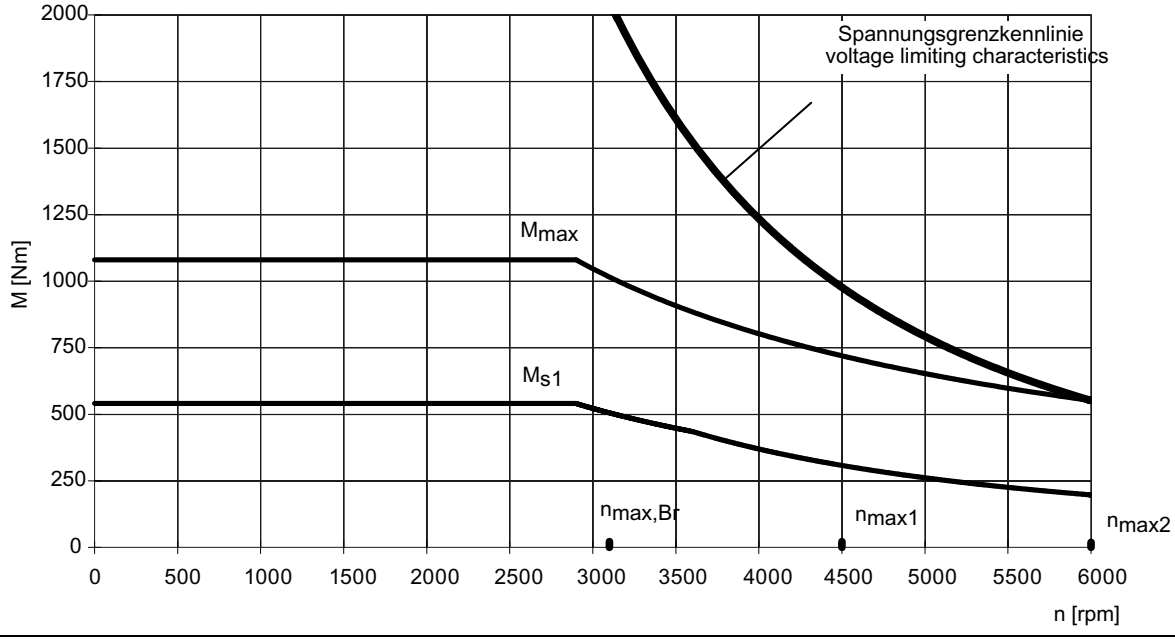
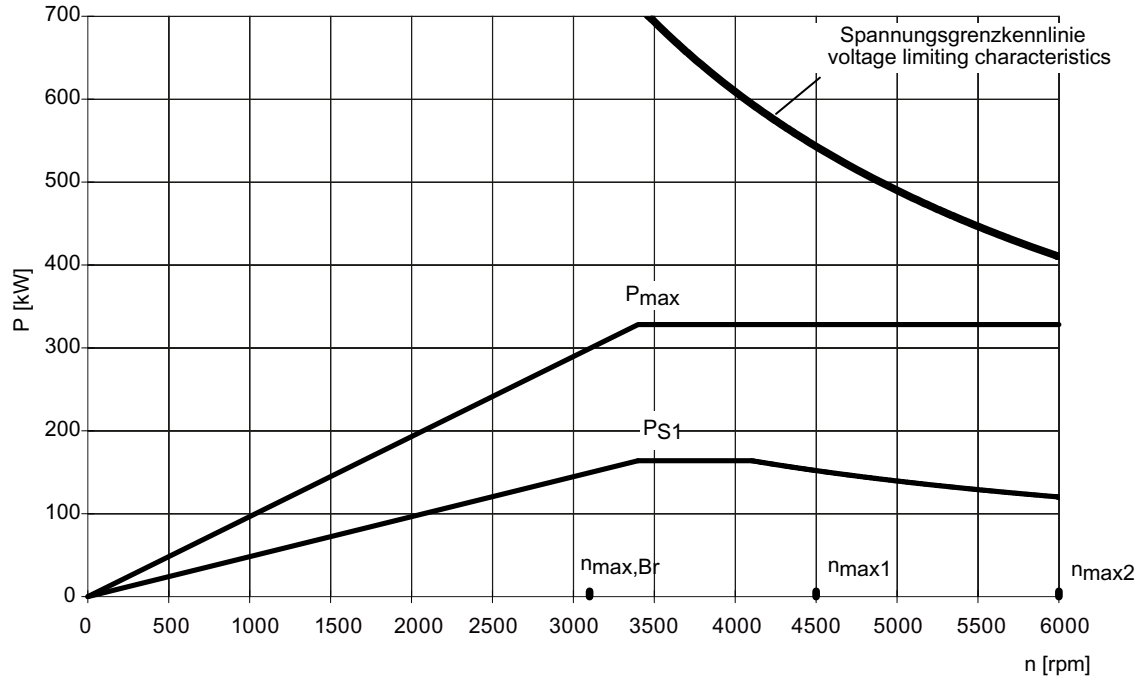


Table 4- 549 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	164	461	255	4500	6000	-	3100	4100	921	510	461	255



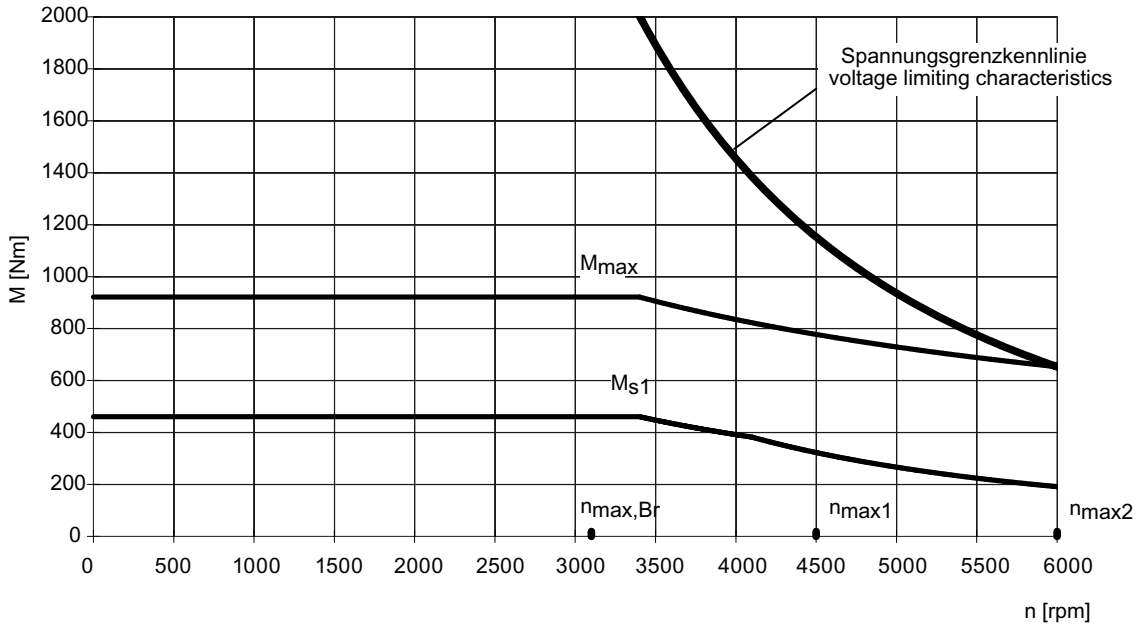
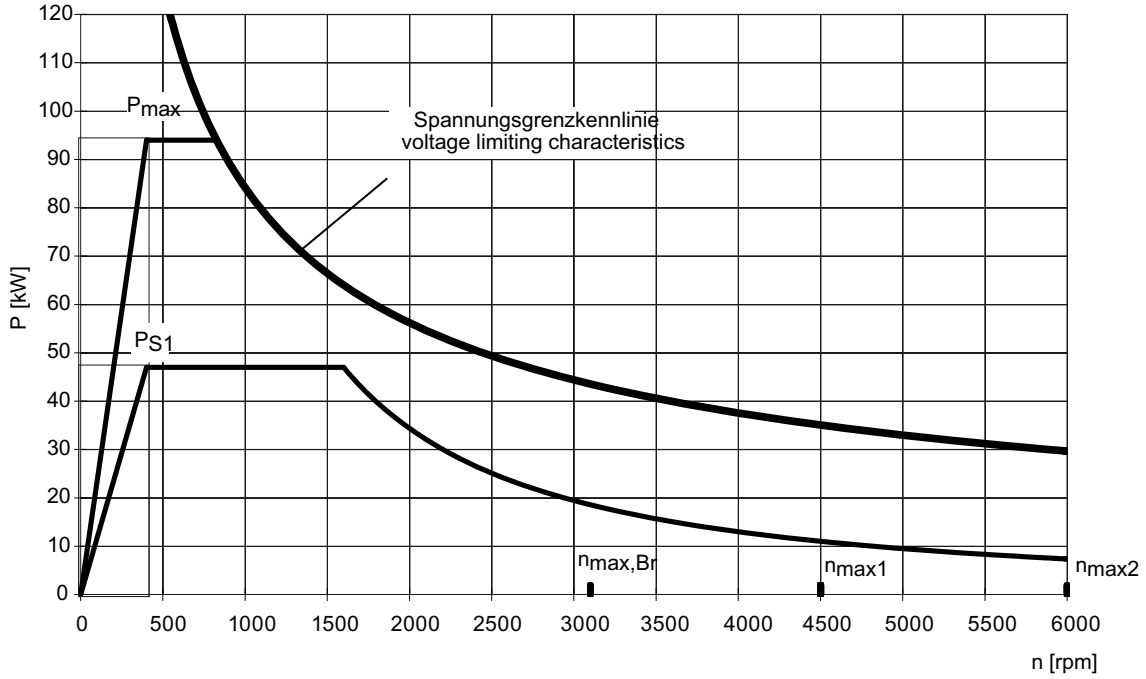


Table 4- 550 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	47	1122	130	4500	6000	-	3100	1600	2244	260	1122	130



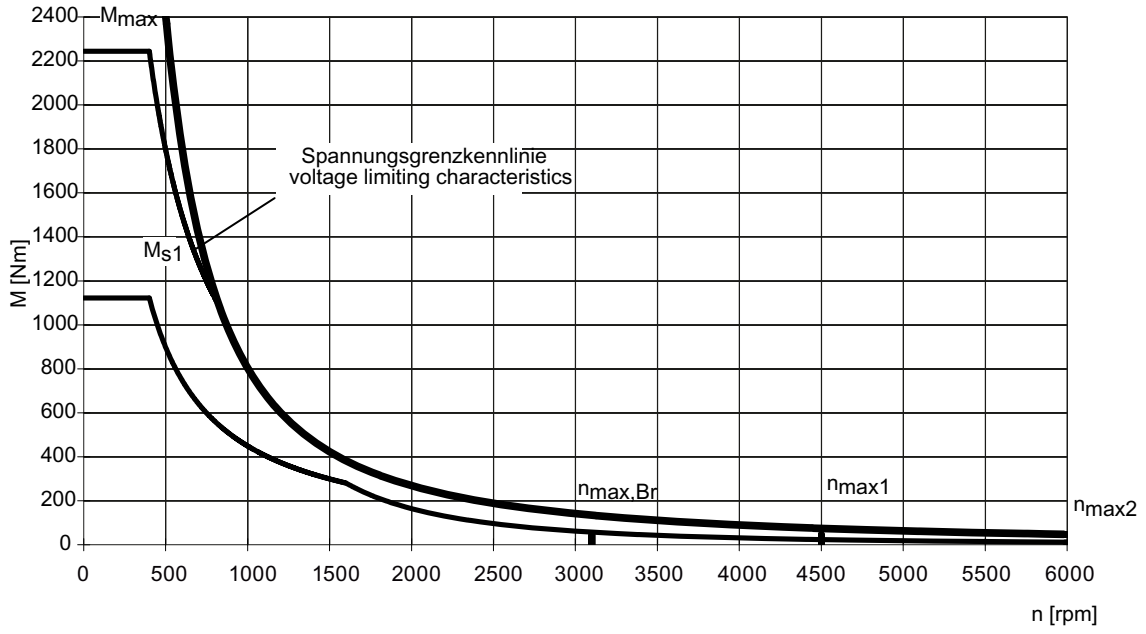
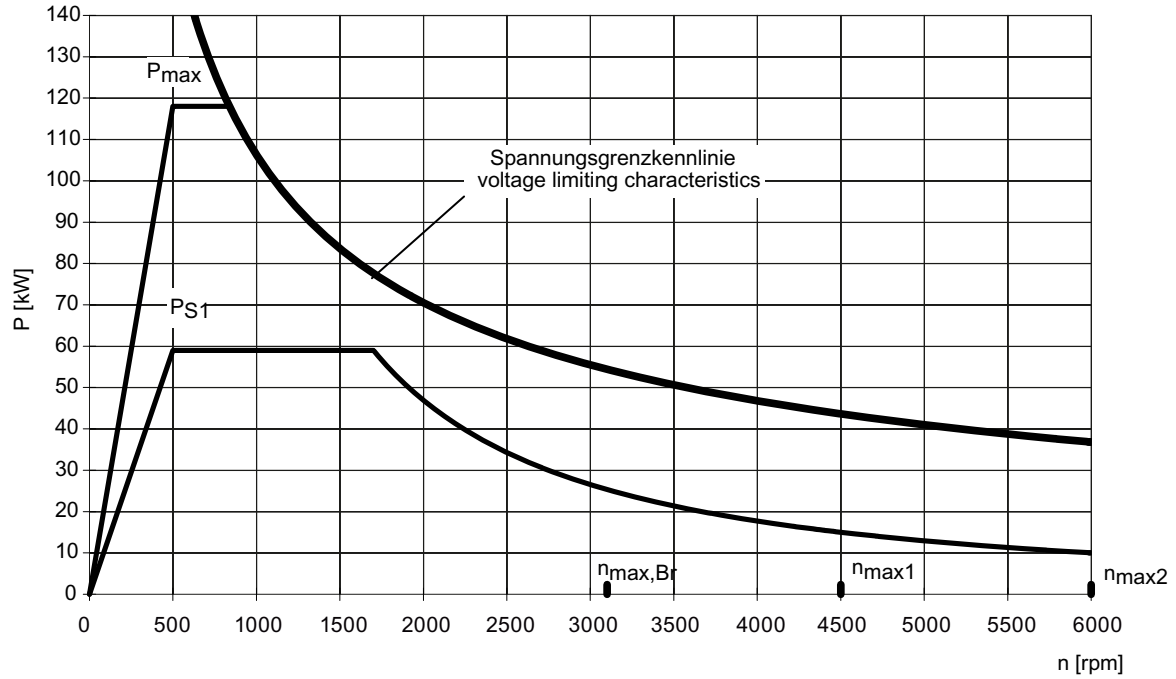


Table 4- 551 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	59	1127	128	4500	6000	-	3100	1700	2254	256	1127	128
400	47	1127	128					2000				



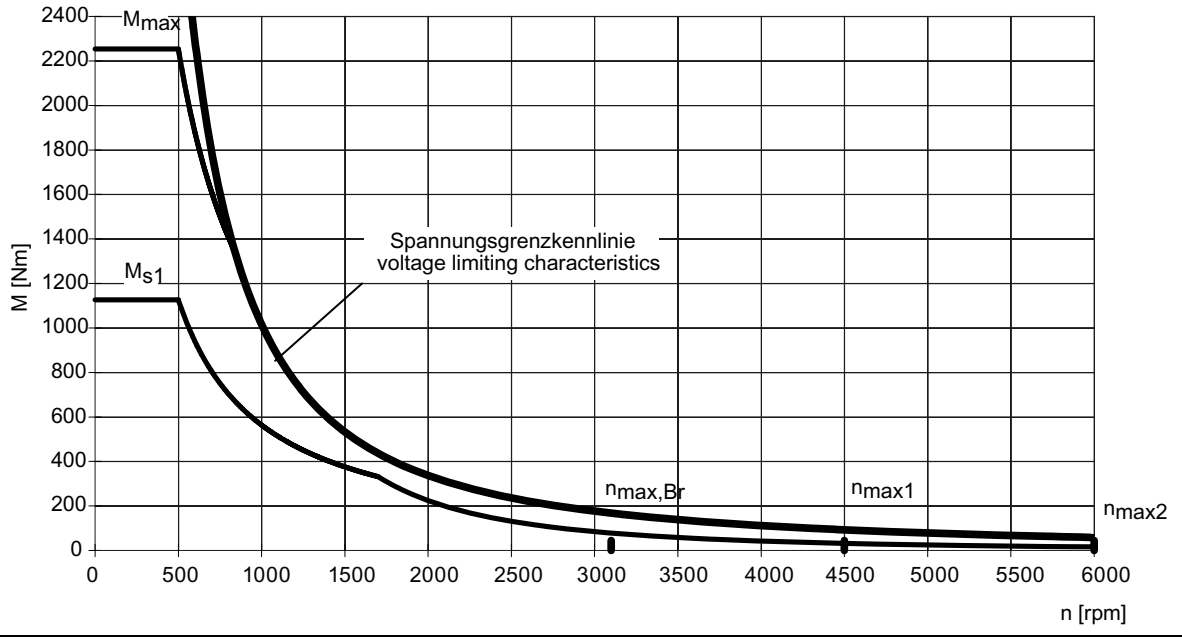
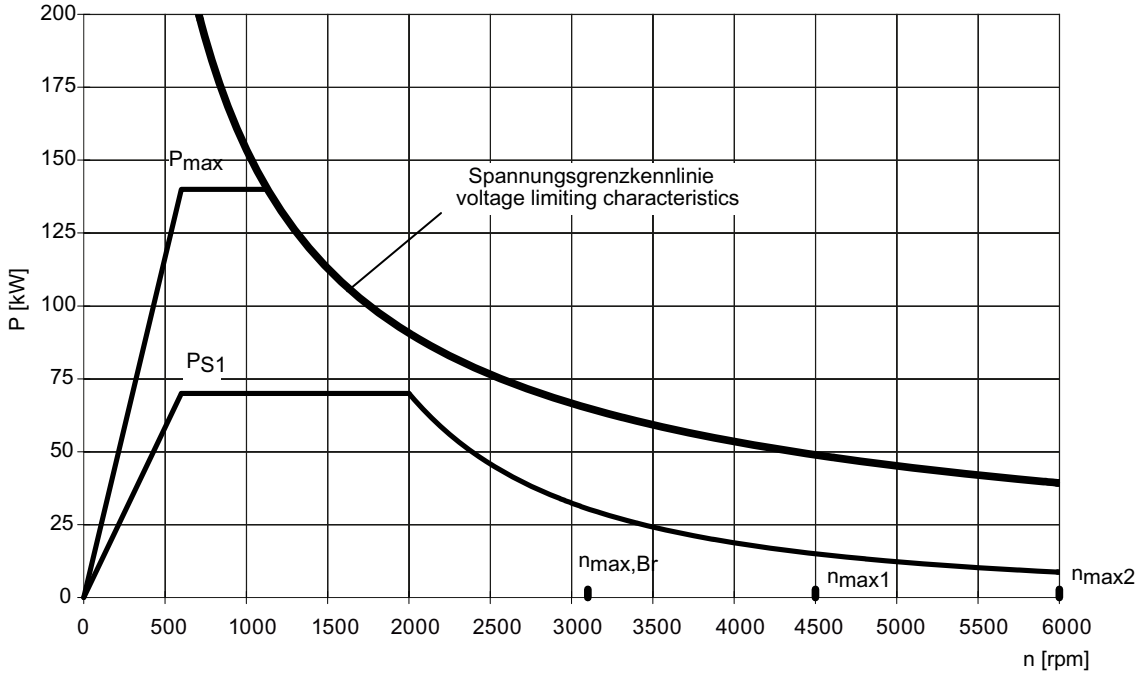


Table 4- 552 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	70	1114	122	4500	6000	-	3100	2000	2228	244	1114	122



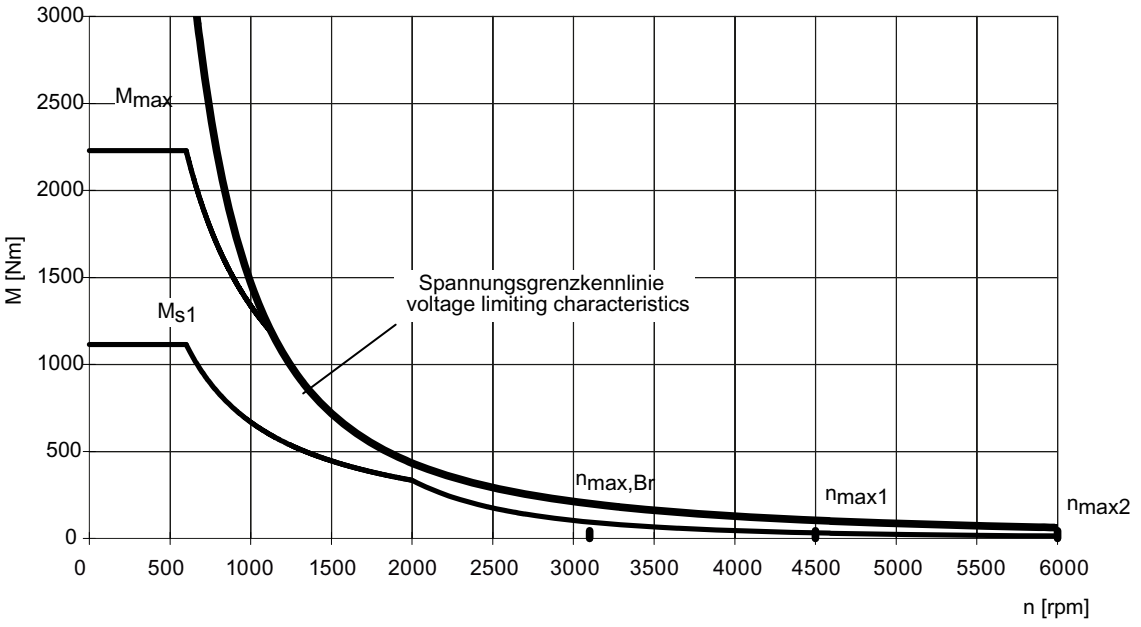
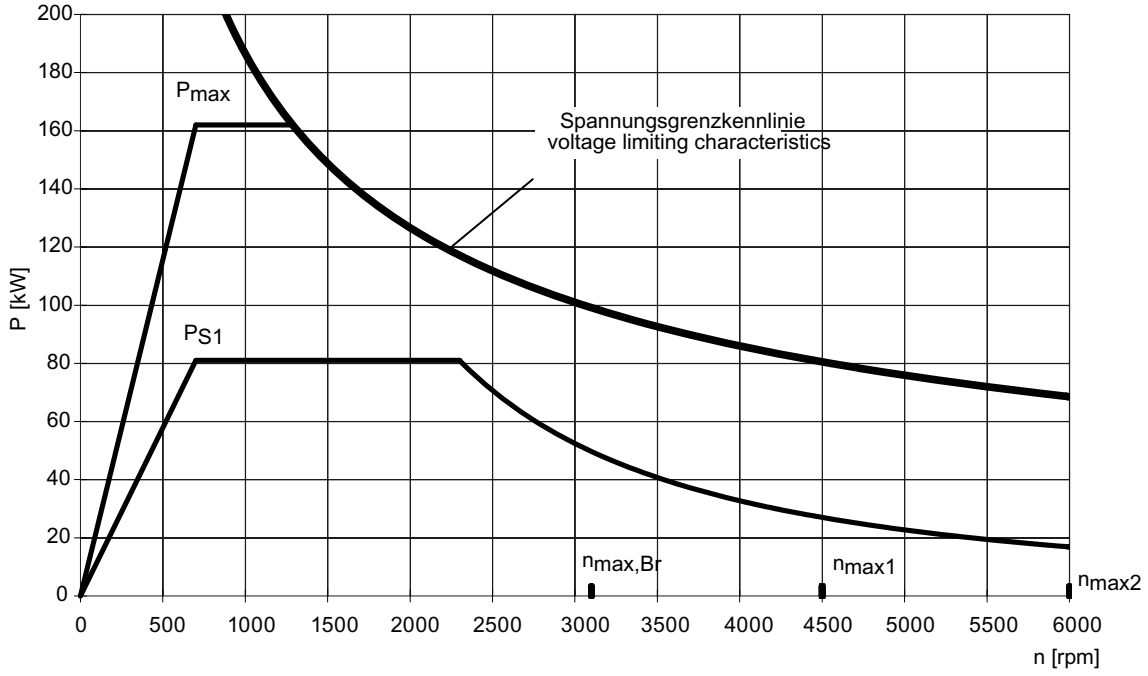


Table 4- 553 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	81	1105	184	4500	6000	-	3100	2300	2210	368	1105	184



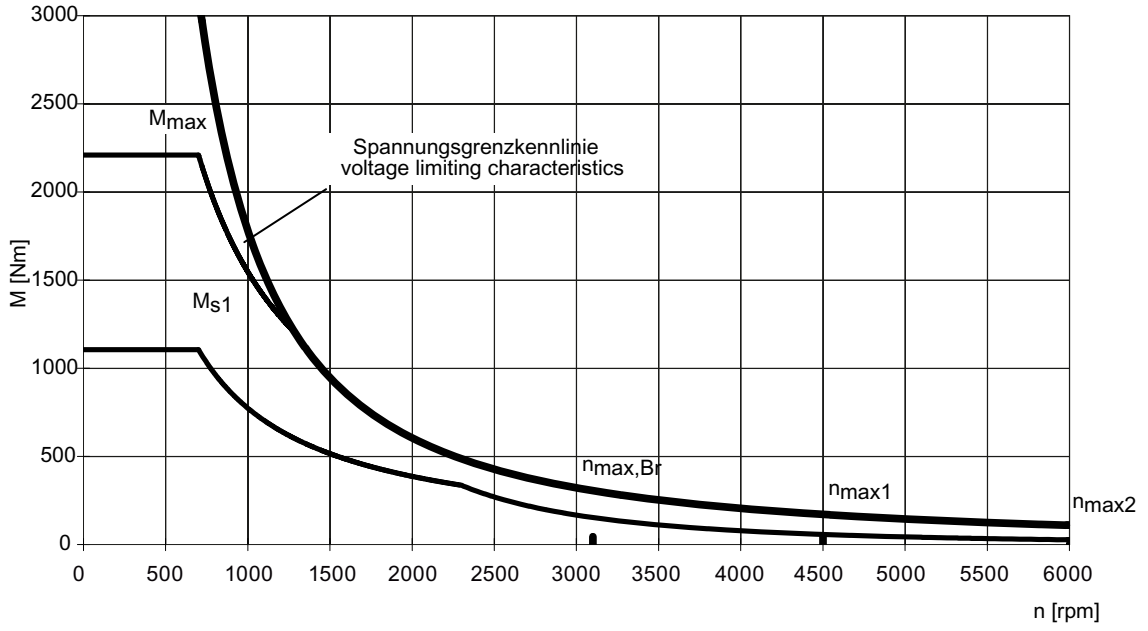
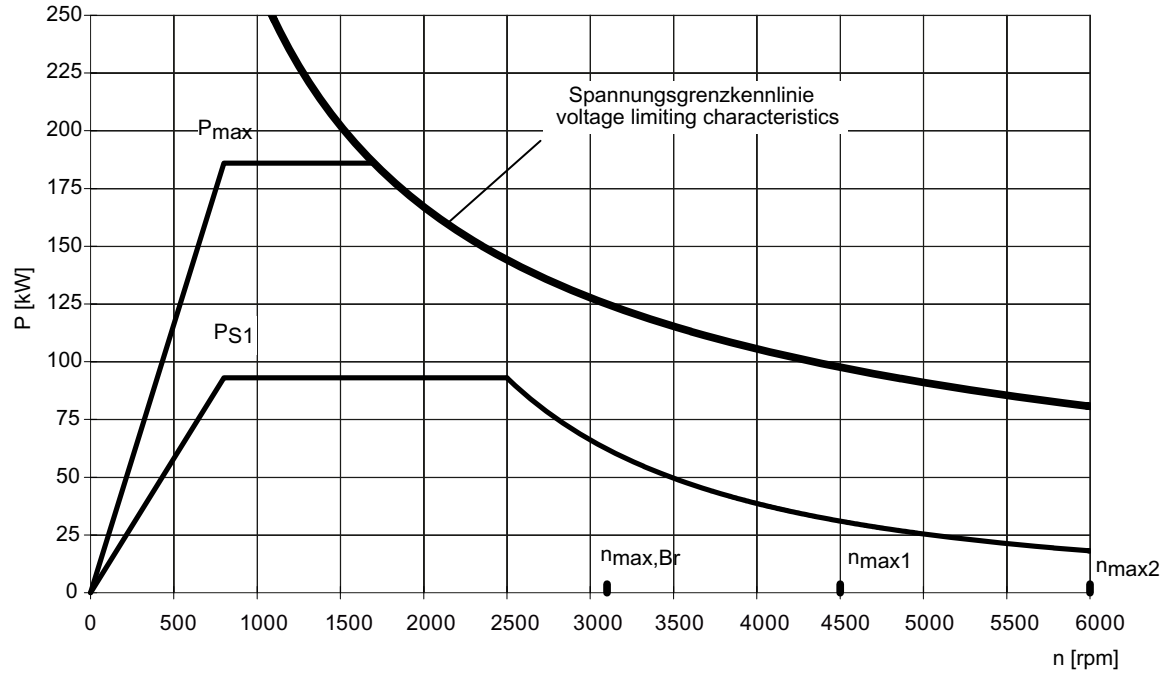


Table 4- 554 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	93	1110	186	4500	6000	-	3100	2500	2220	372	1110	186
700	81	1110	186					2700				



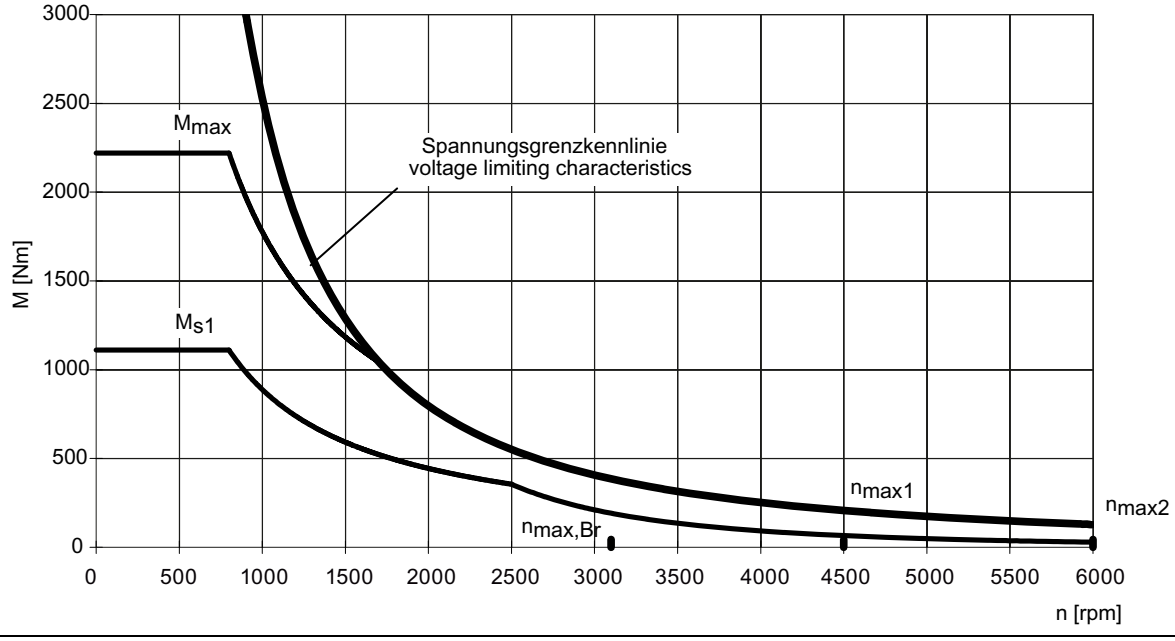
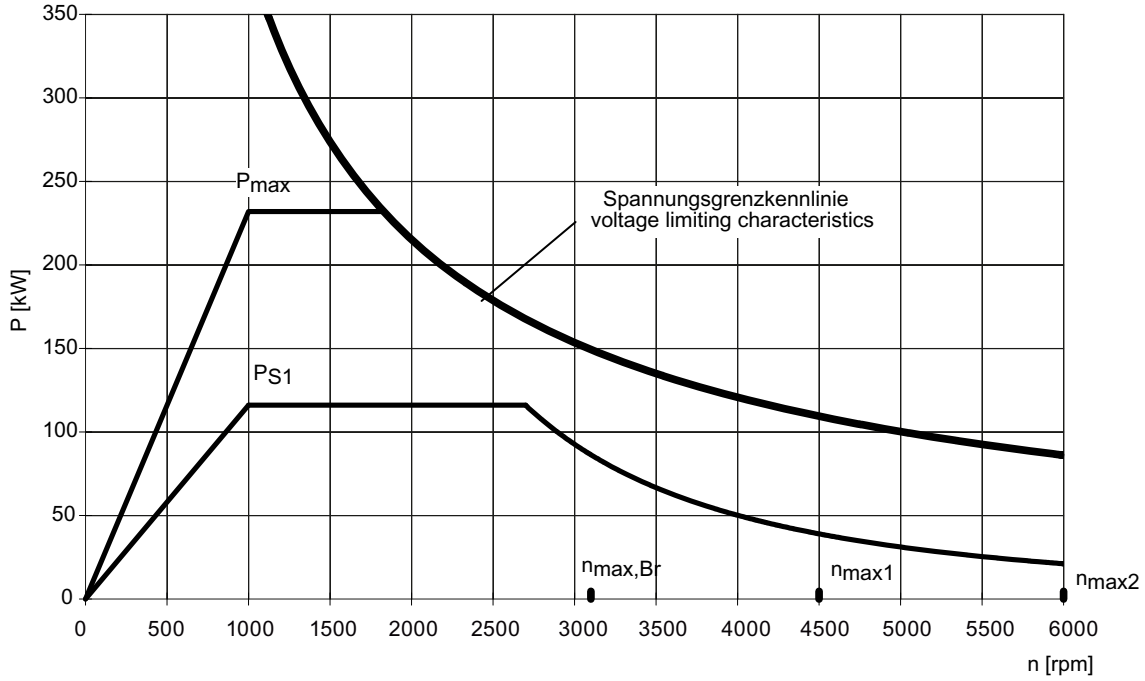


Table 4- 555 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	116	1108	184	4500	6000	-	3100	2700	2216	368	1108	184



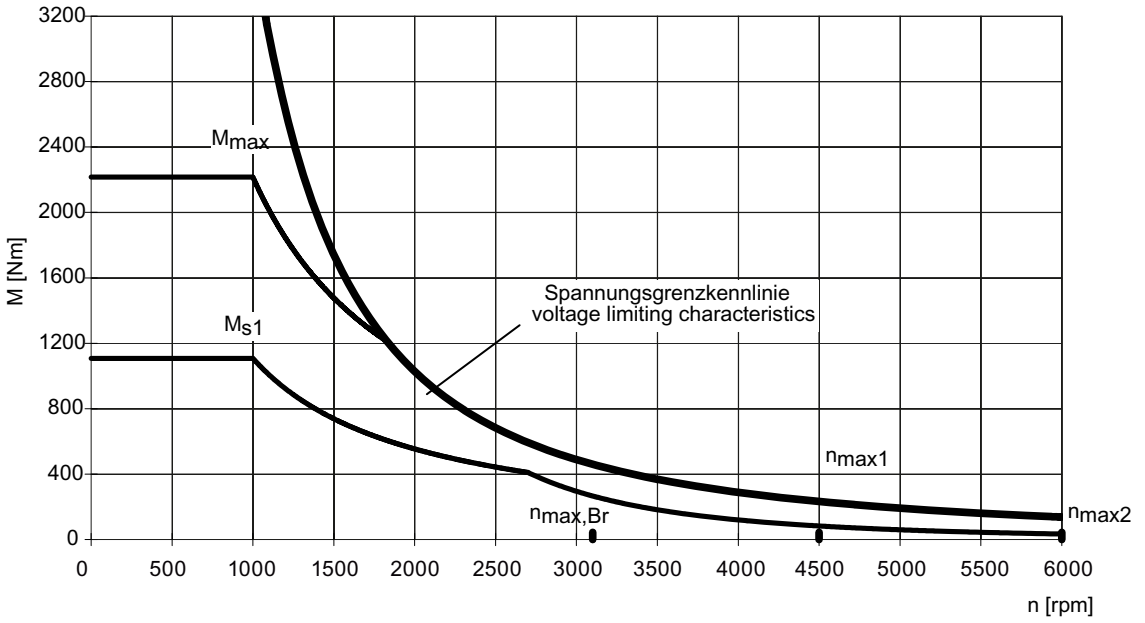
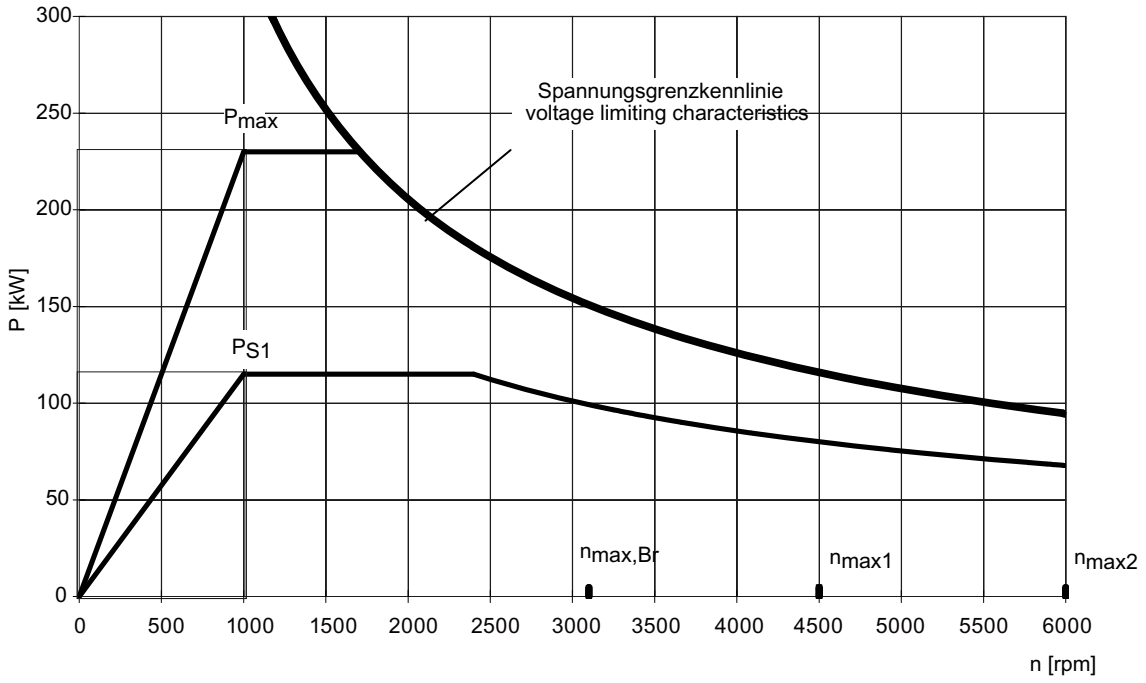


Table 4- 556 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	115	1098	235	4500	6000	-	3100	2400	2197	470	1098	235



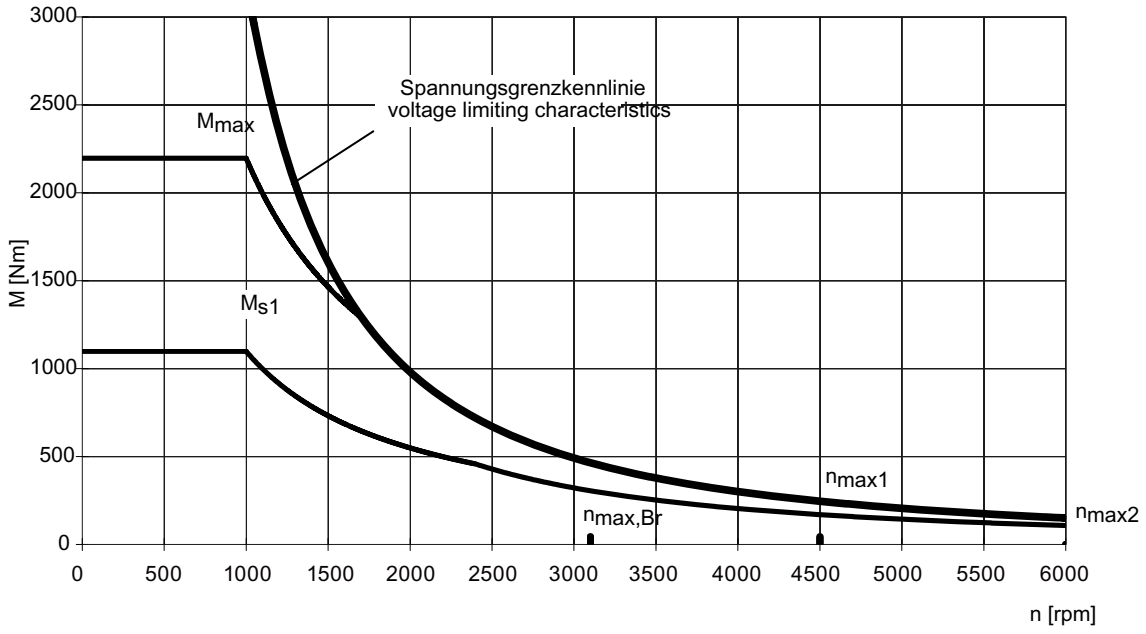
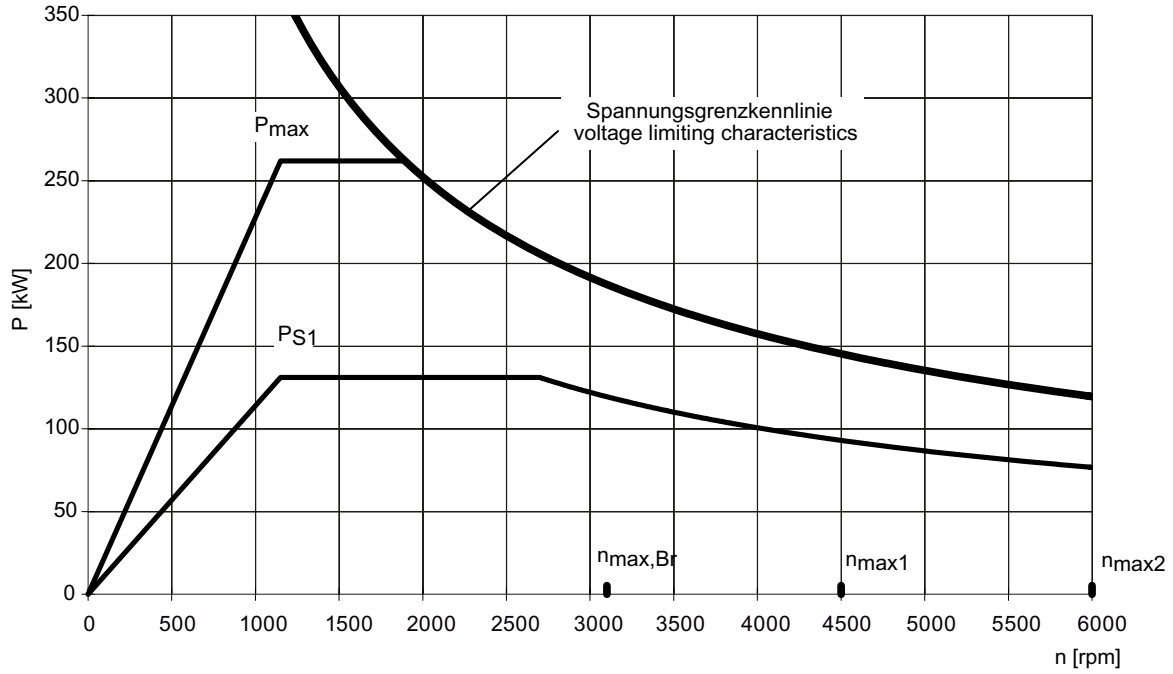


Table 4- 557 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	131	1088	230	4500	6000	-	3100	2700	2176	460	1088	230
1000	114	1088	230					3300				



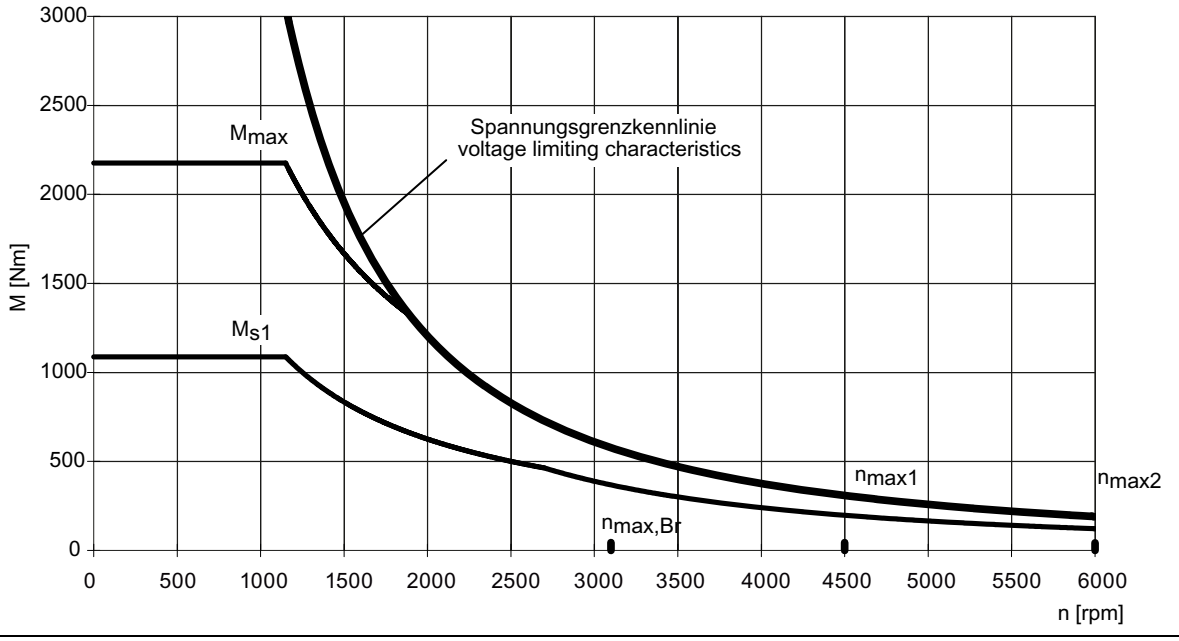
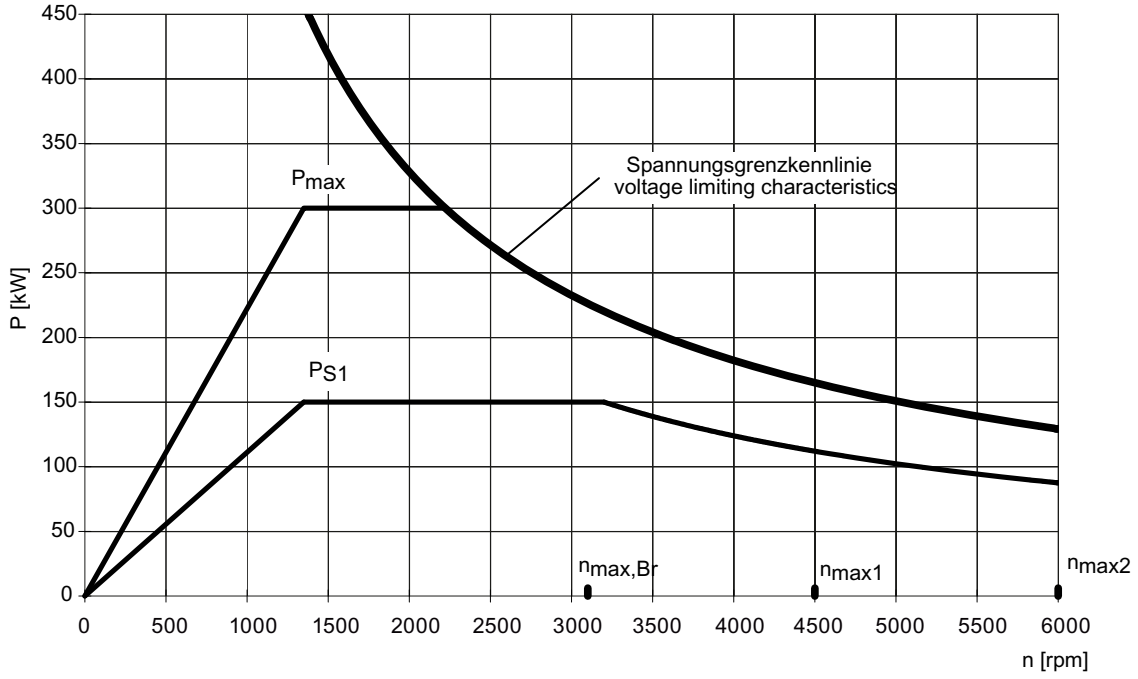


Table 4- 558 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	150	1061	225	4500	6000	-	3100	3200	2122	450	1061	225



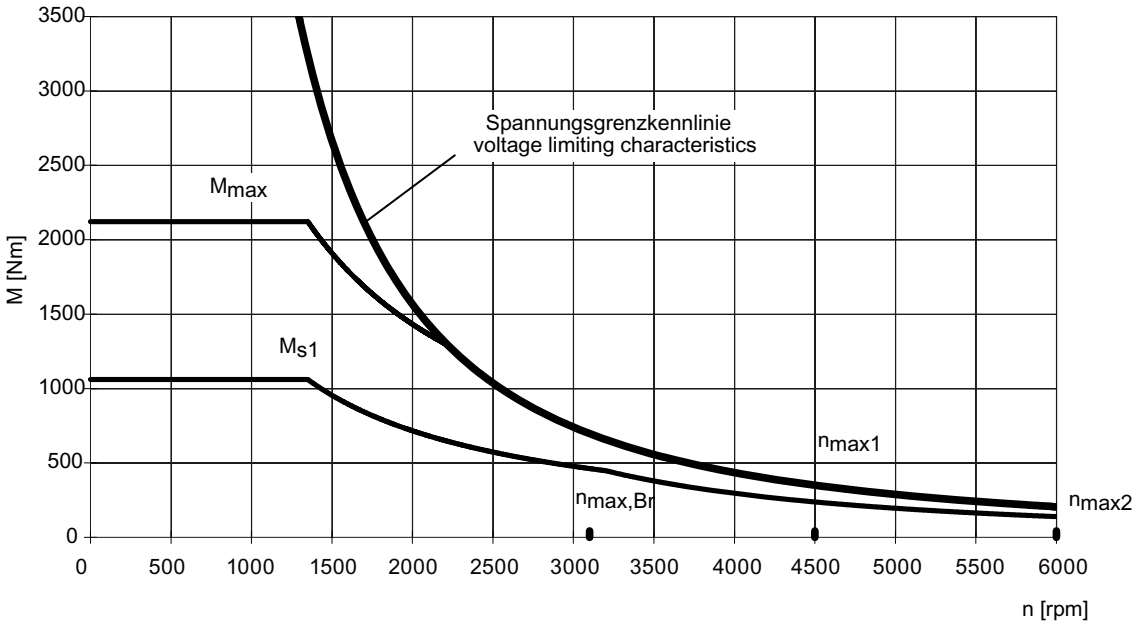
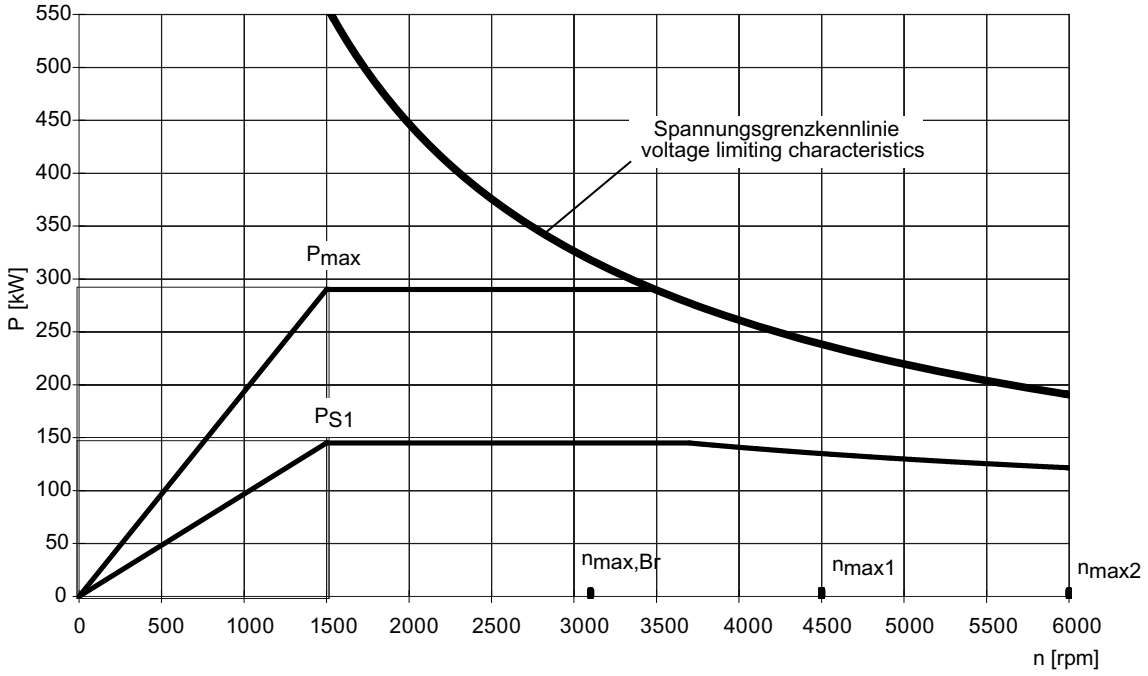


Table 4- 559 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	145	923	295	4500	6000	-	3100	3700	1846	590	923	295



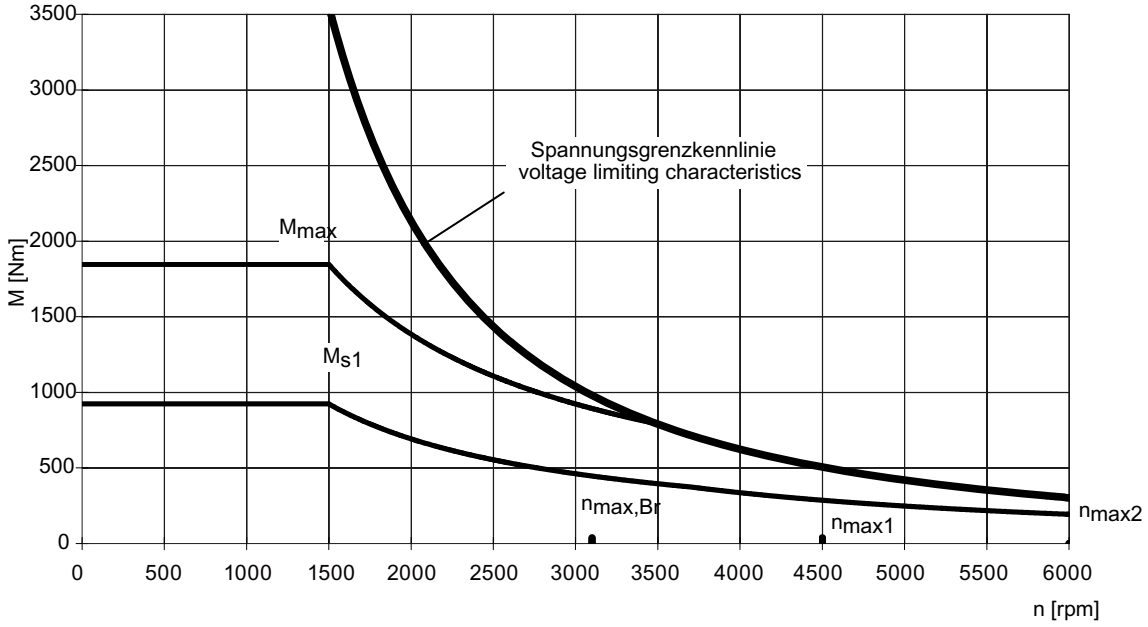
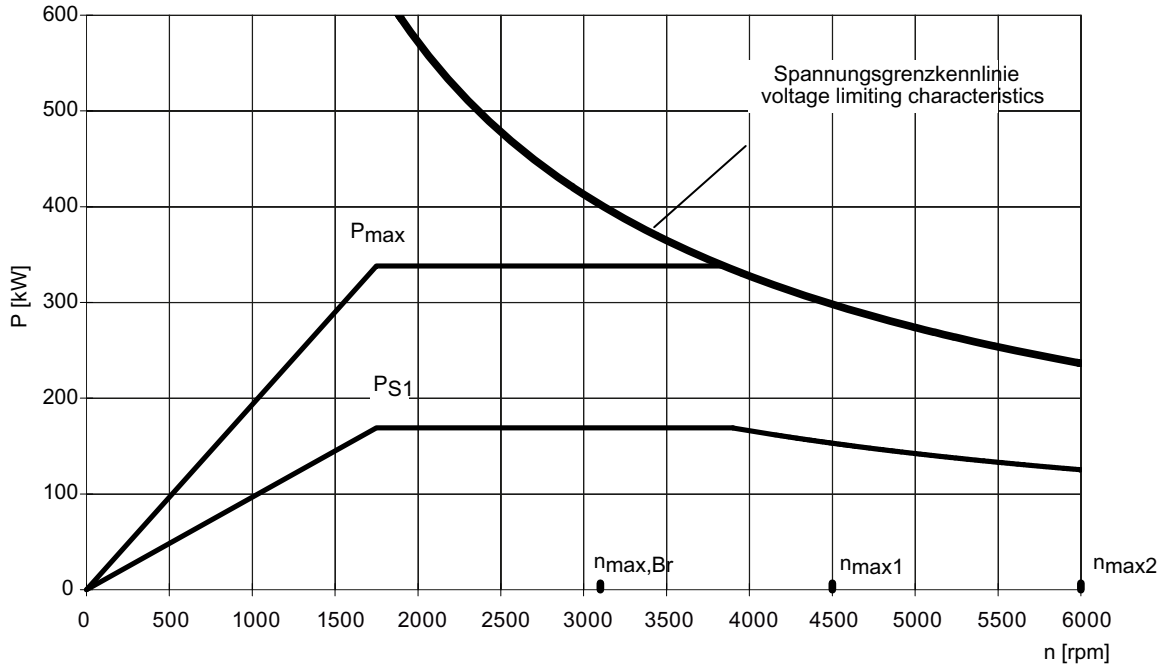


Table 4- 560 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	169	922	295	4500	6000	-	3100	3900	1845	590	922	295
1500	145	922	295					4500				



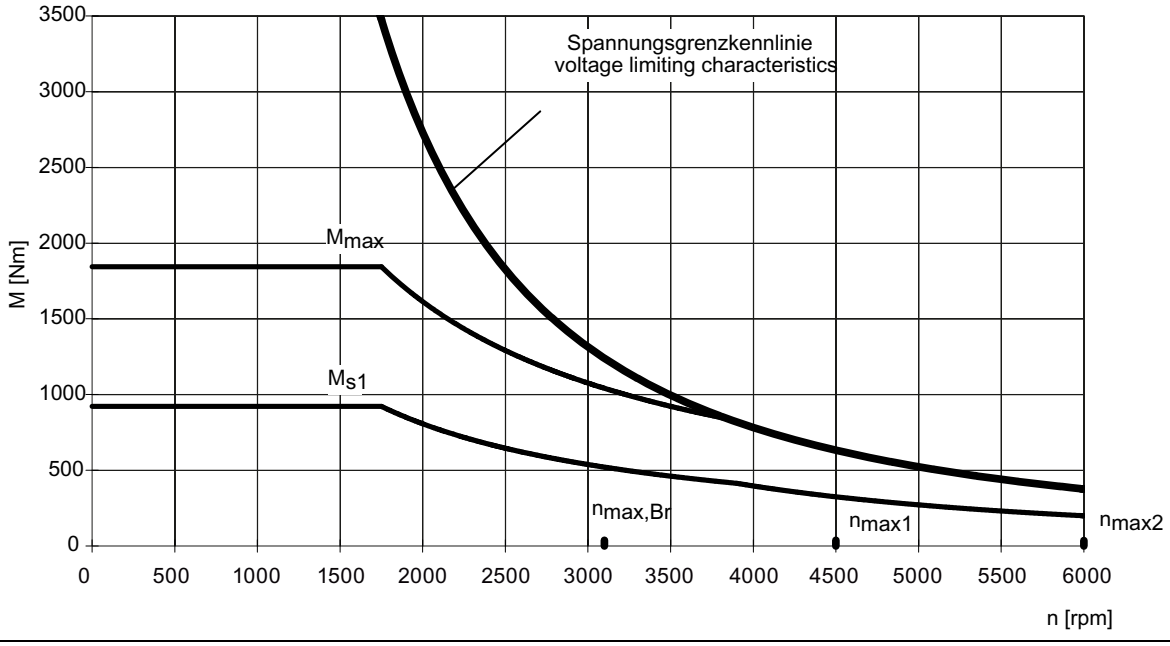
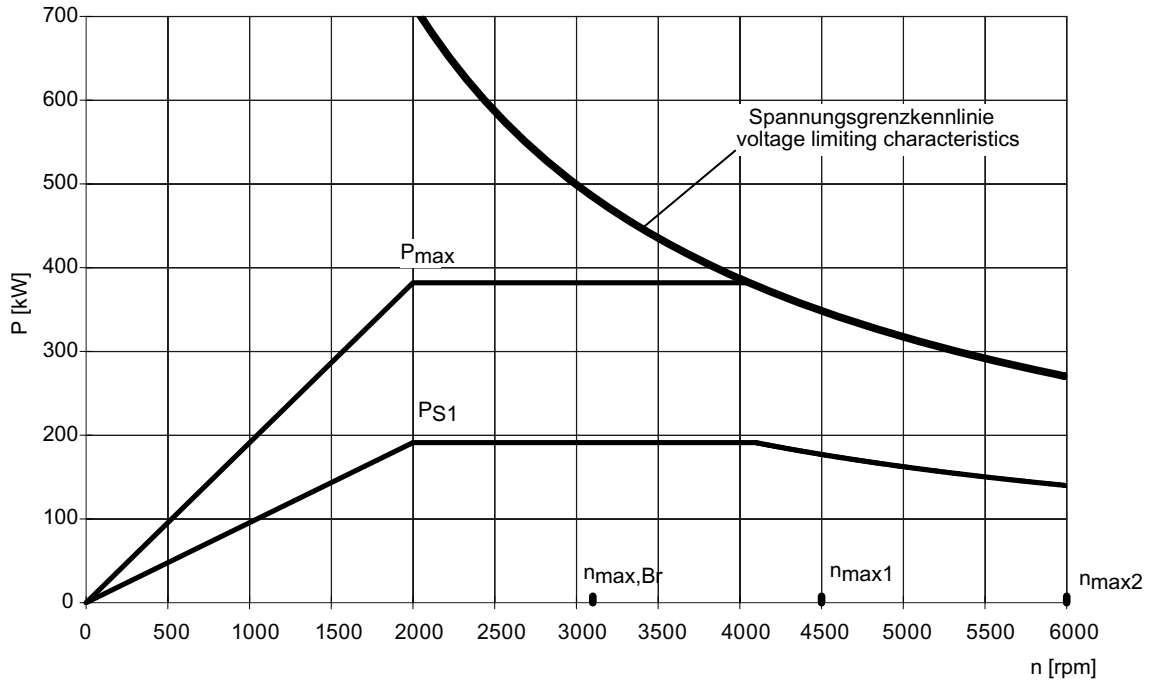


Table 4- 561 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	191	912	290	4500	6000	-	3100	4100	1824	580	912	290



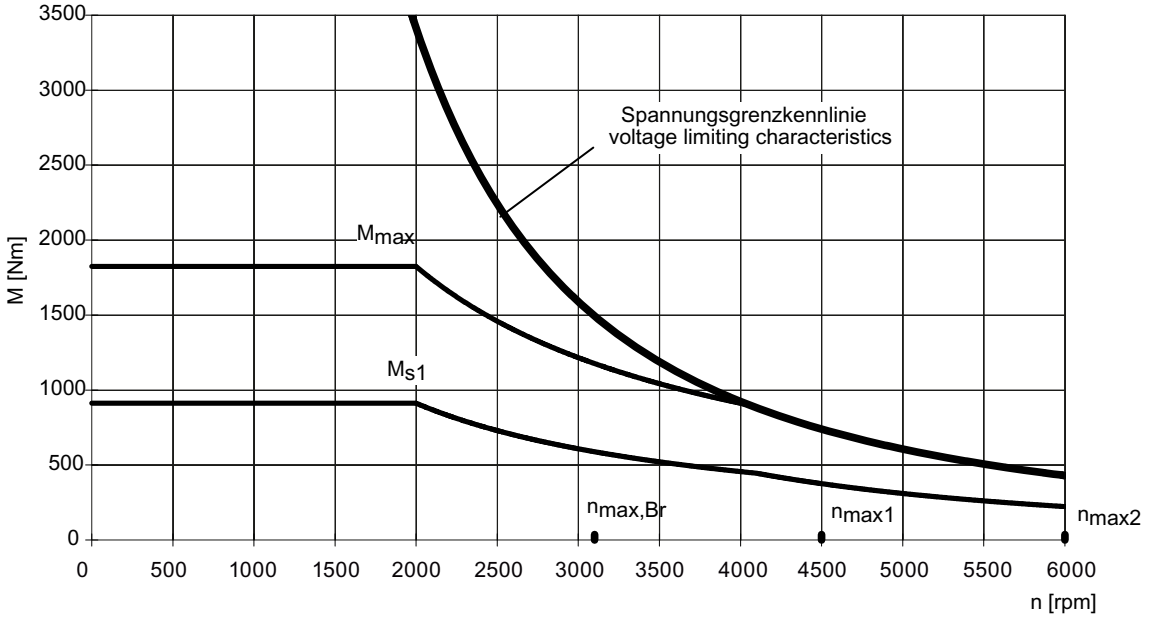
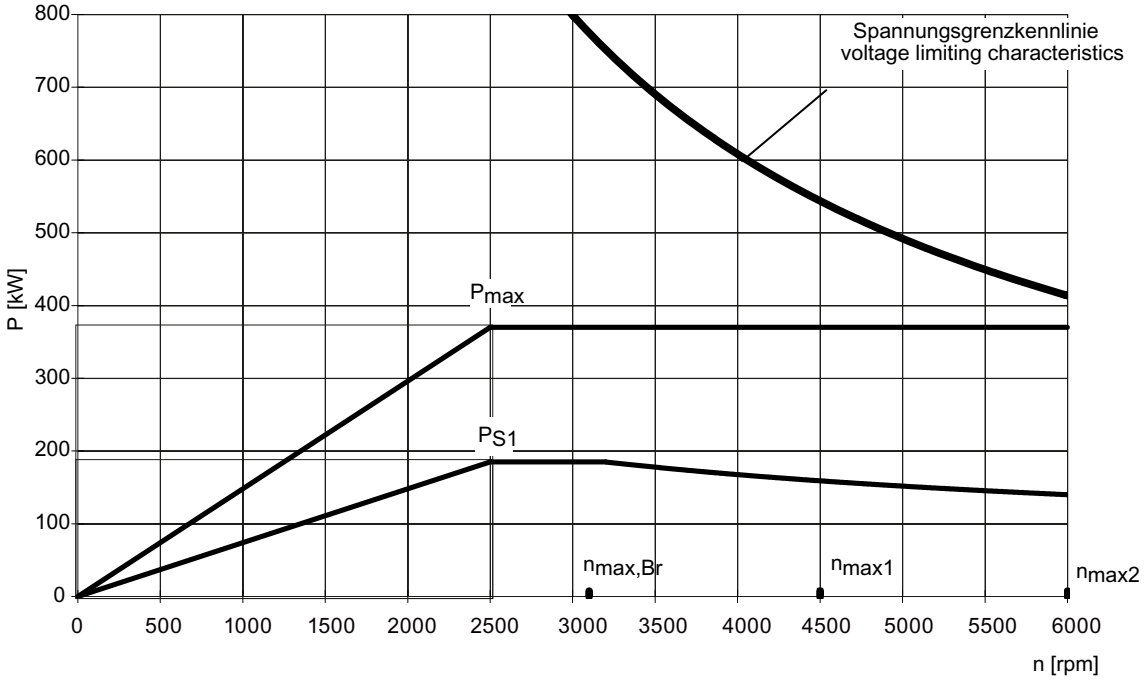


Table 4- 562 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	185	707	380	4500	6000	-	3100	3200	1413	760	707	380



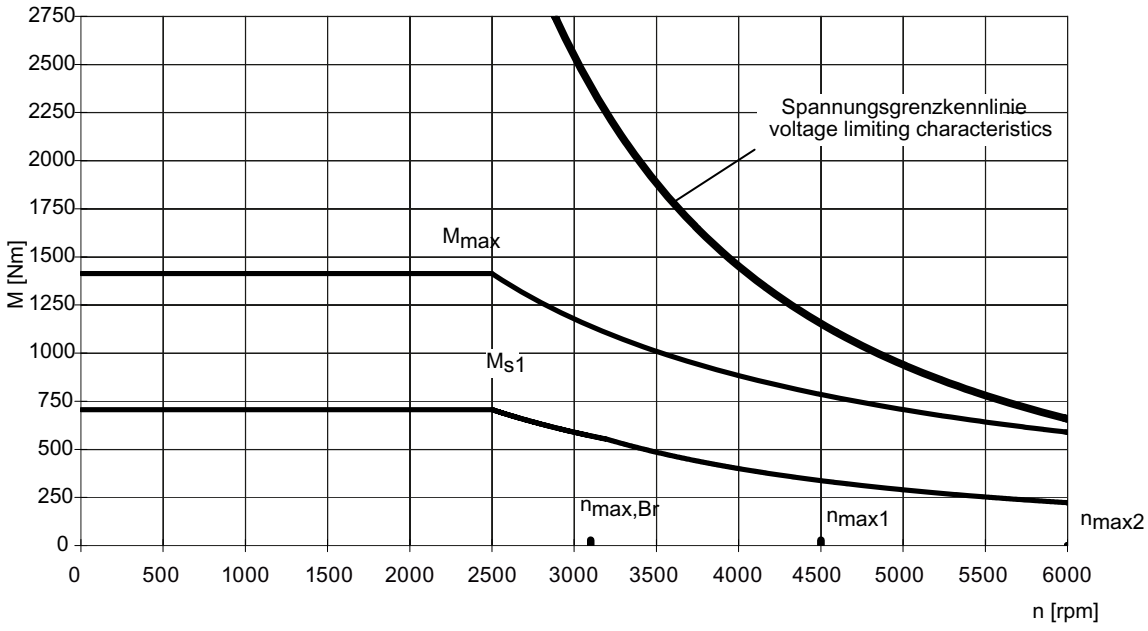
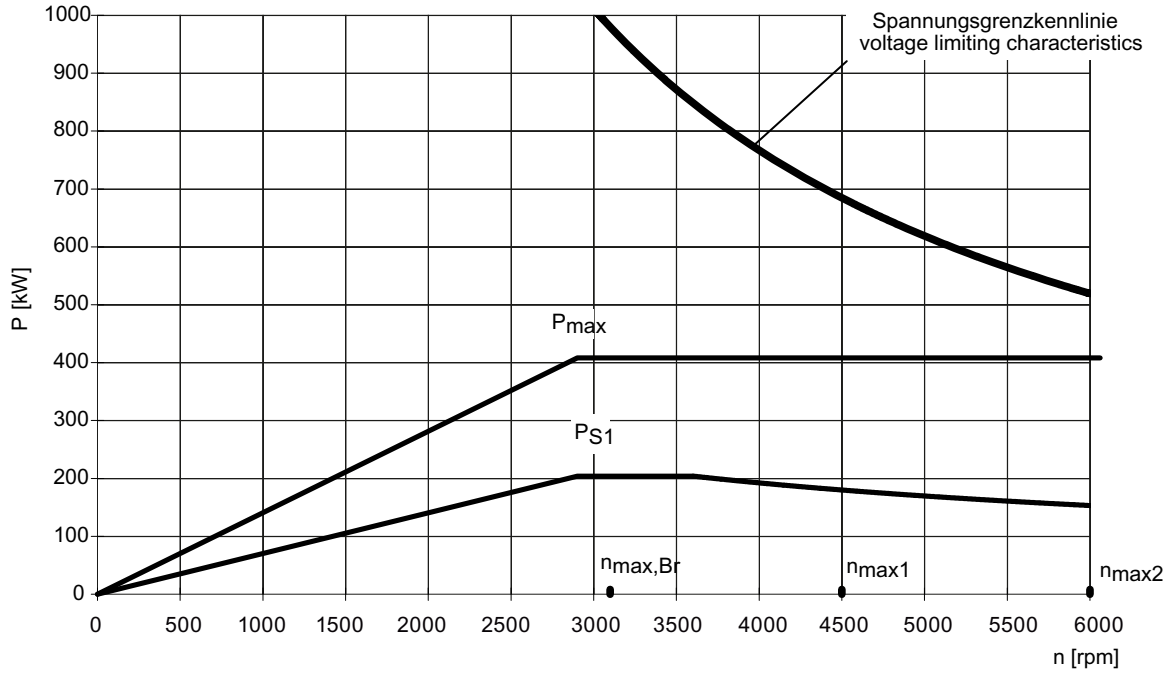


Table 4- 563 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	204	672	360	4500	6000	-	3100	3600	1343	720	672	360
2500	176	672	360					4500				



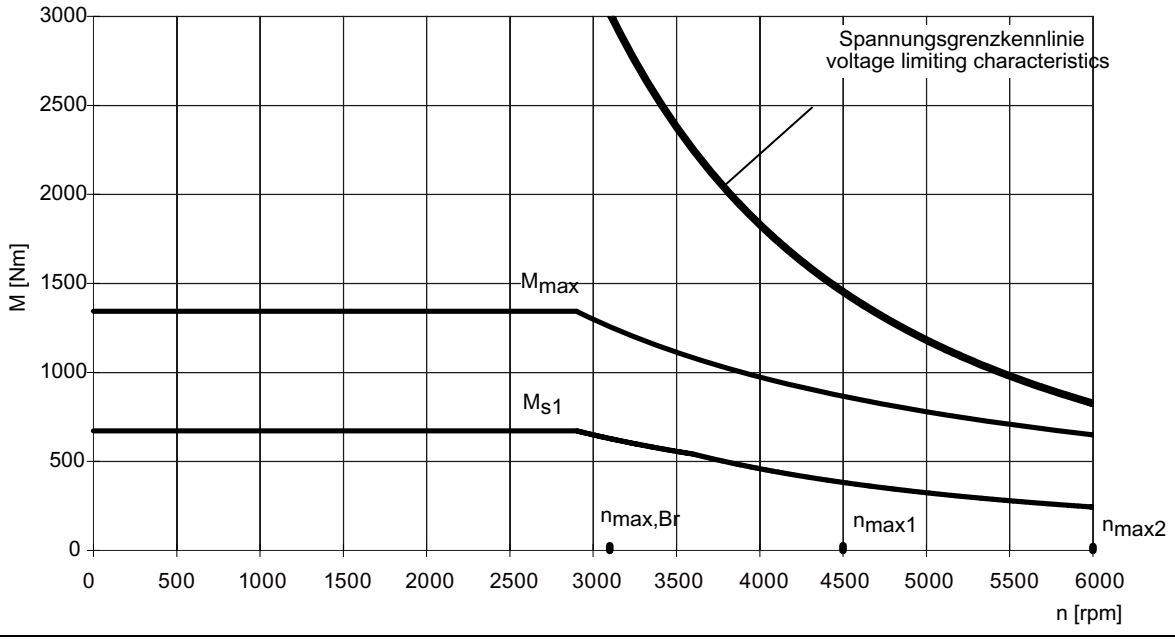
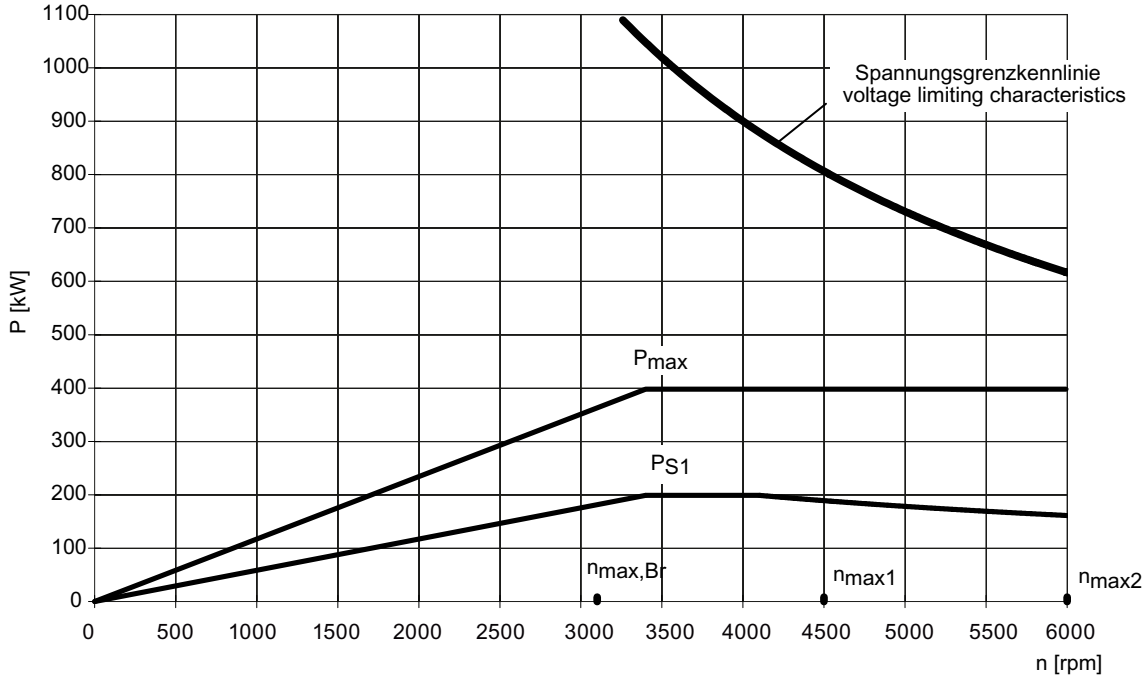


Table 4- 564 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	199	559	310	4500	6000	-	3100	4100	1118	620	559	310



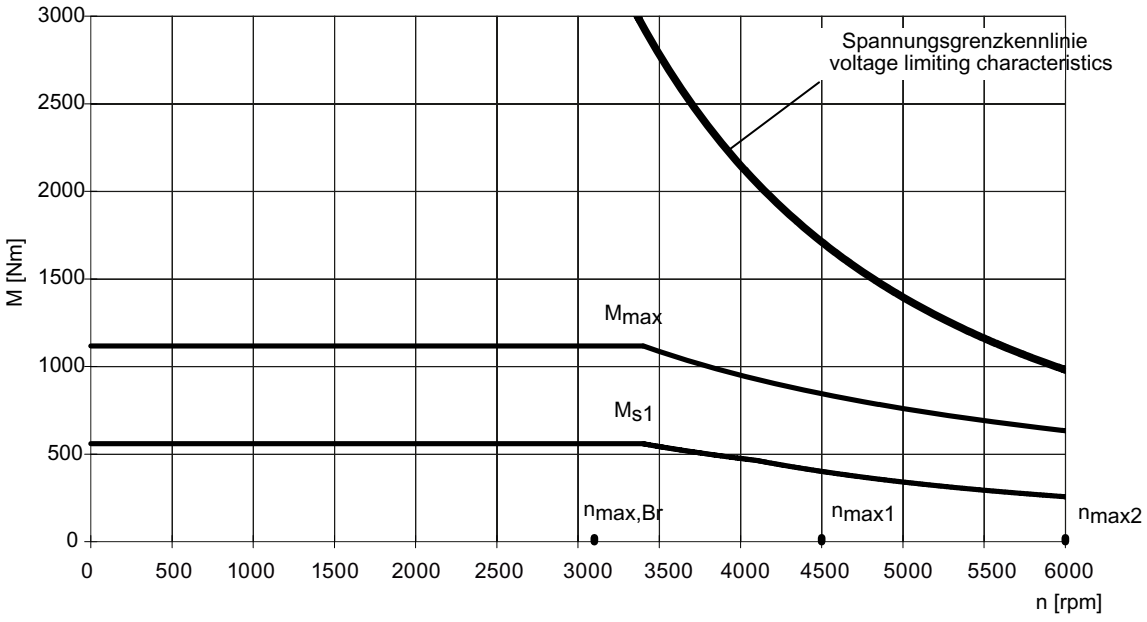
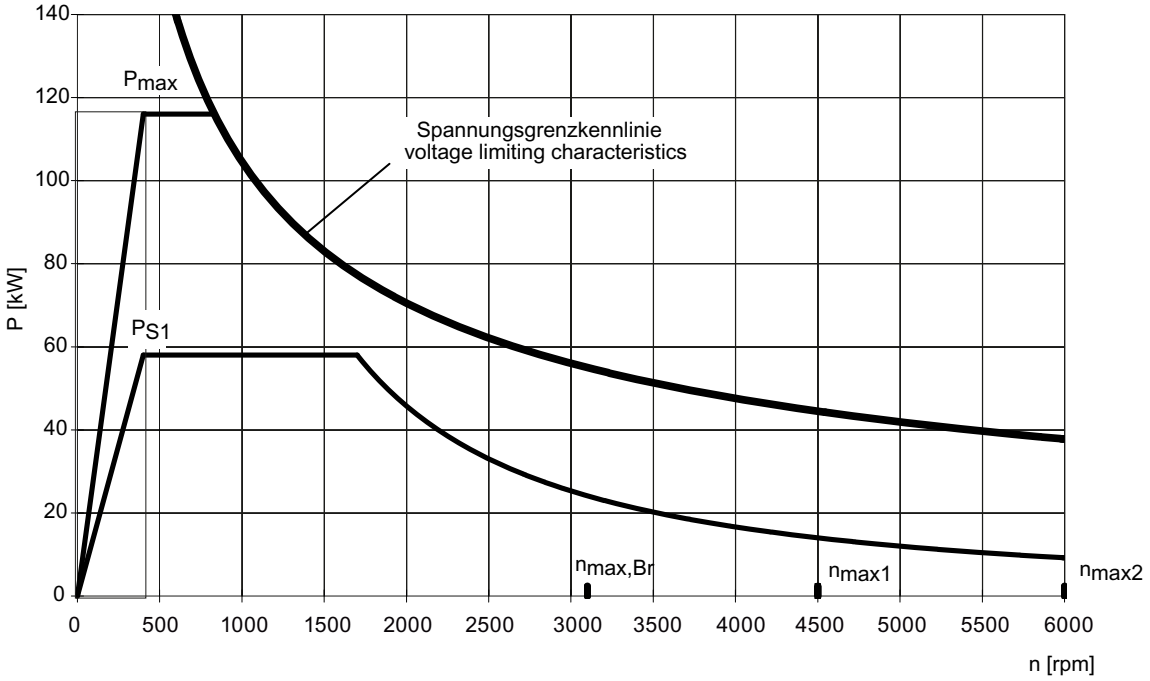


Table 4- 565 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	58	1385	154	4500	6000	-	3100	1700	2769	308	1385	154



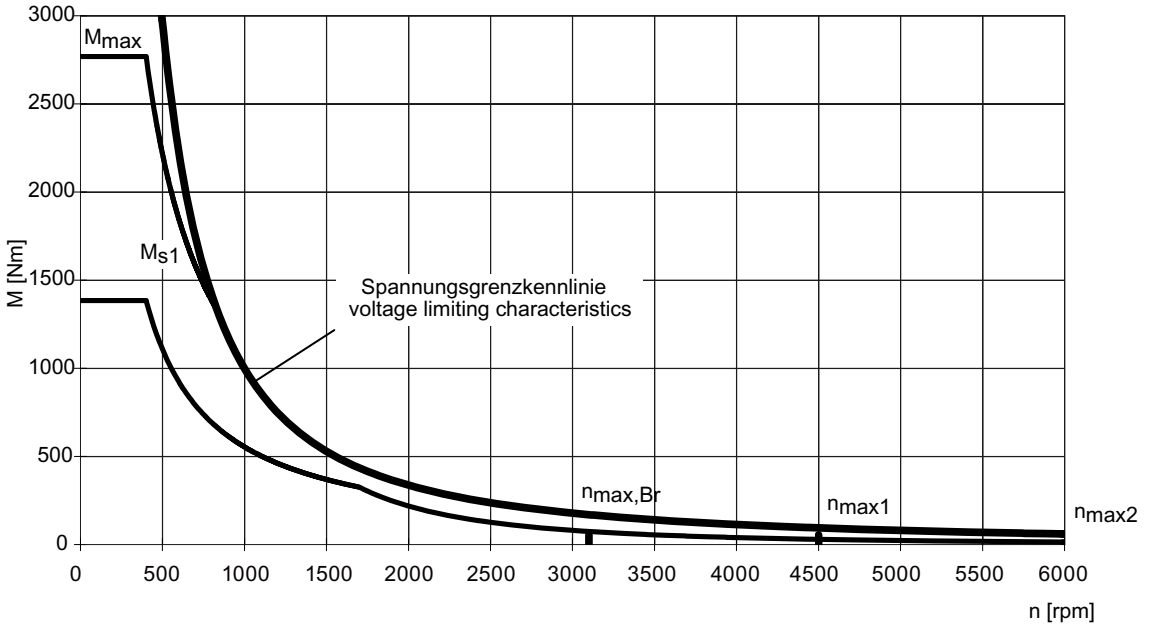
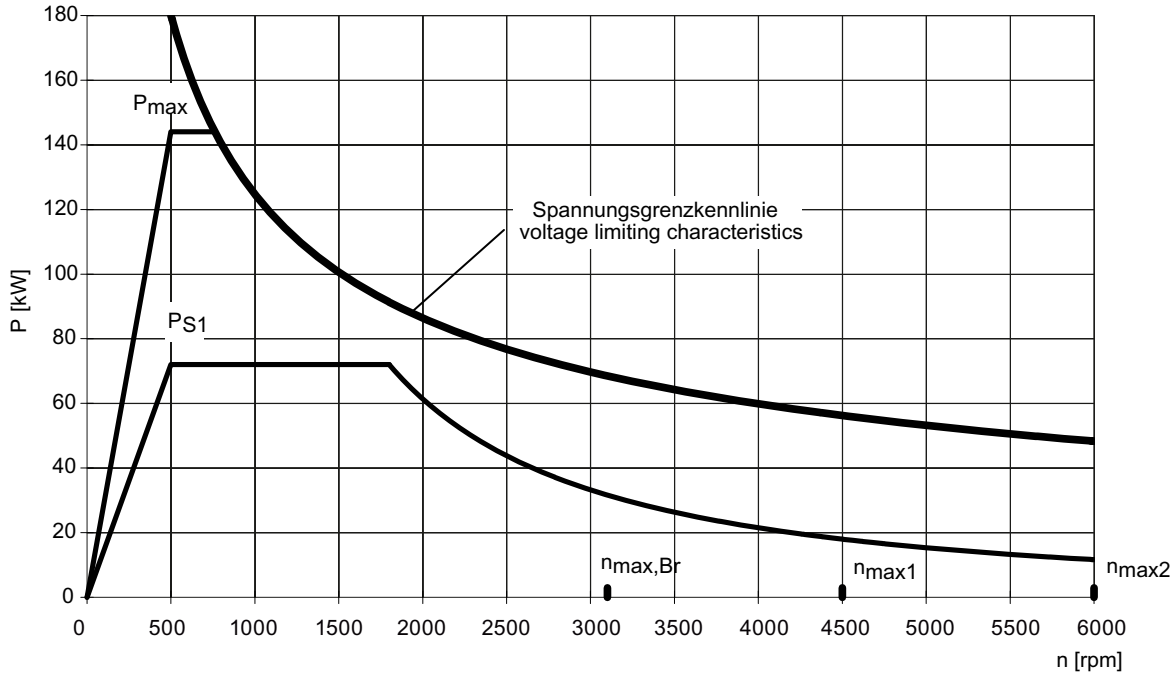


Table 4- 566 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	72	1375	150	4500	6000	-	3100	1800	2750	300	1375	150
400	58	1375	150					2100				



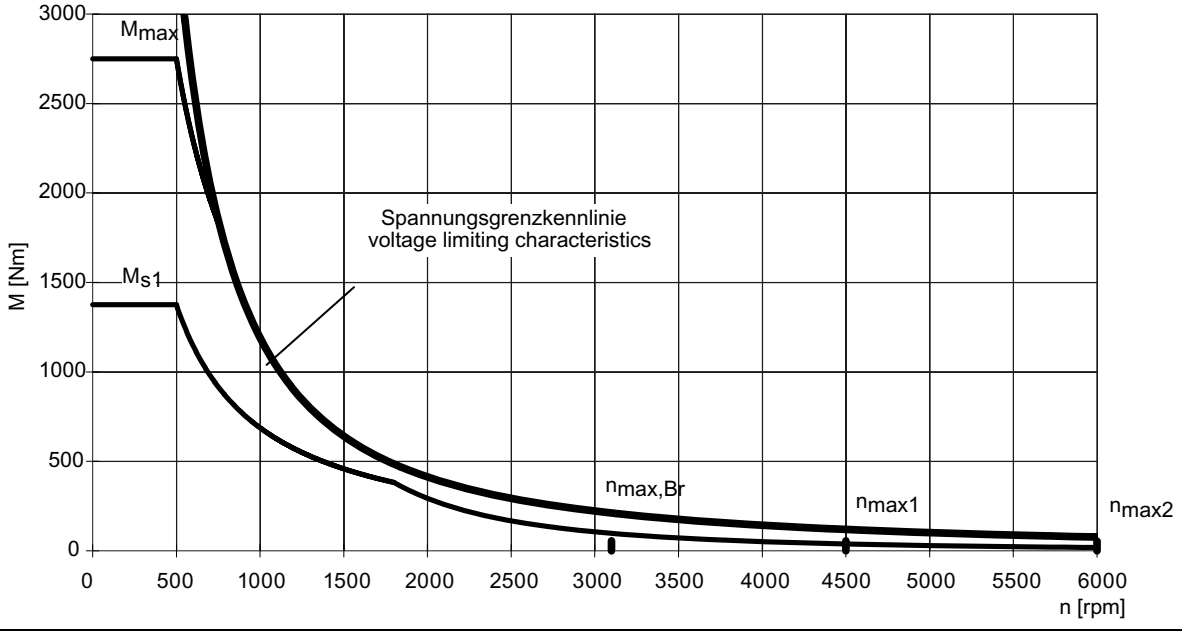
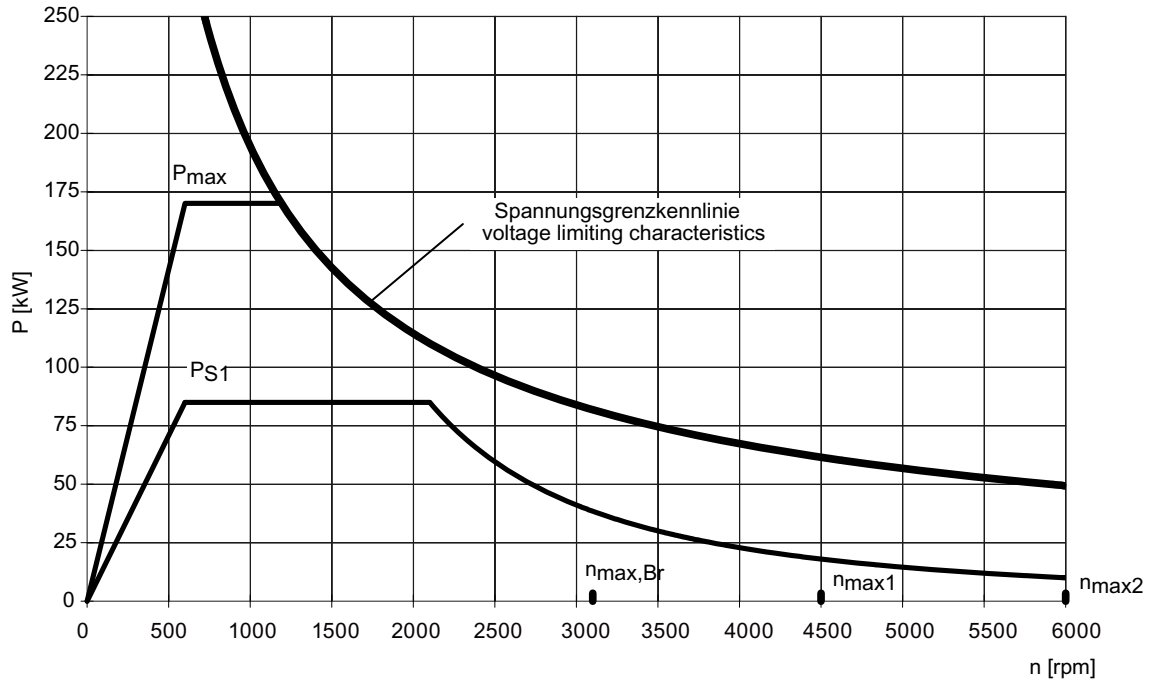


Table 4- 567 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	85	1353	148	4500	6000	-	3100	2100	2706	296	1353	148



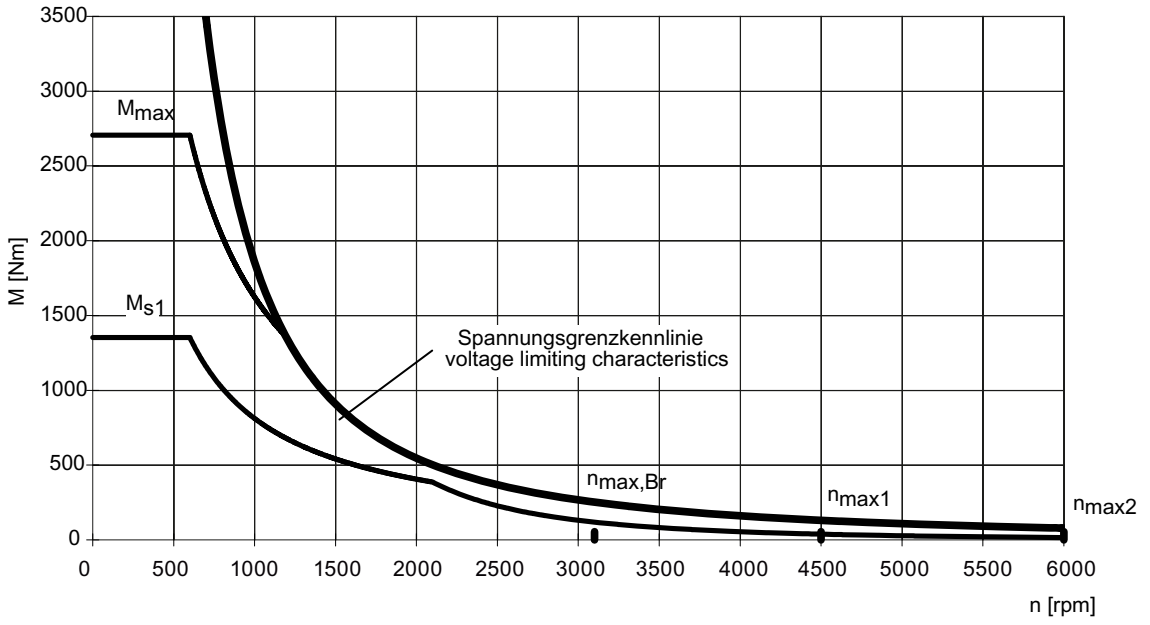
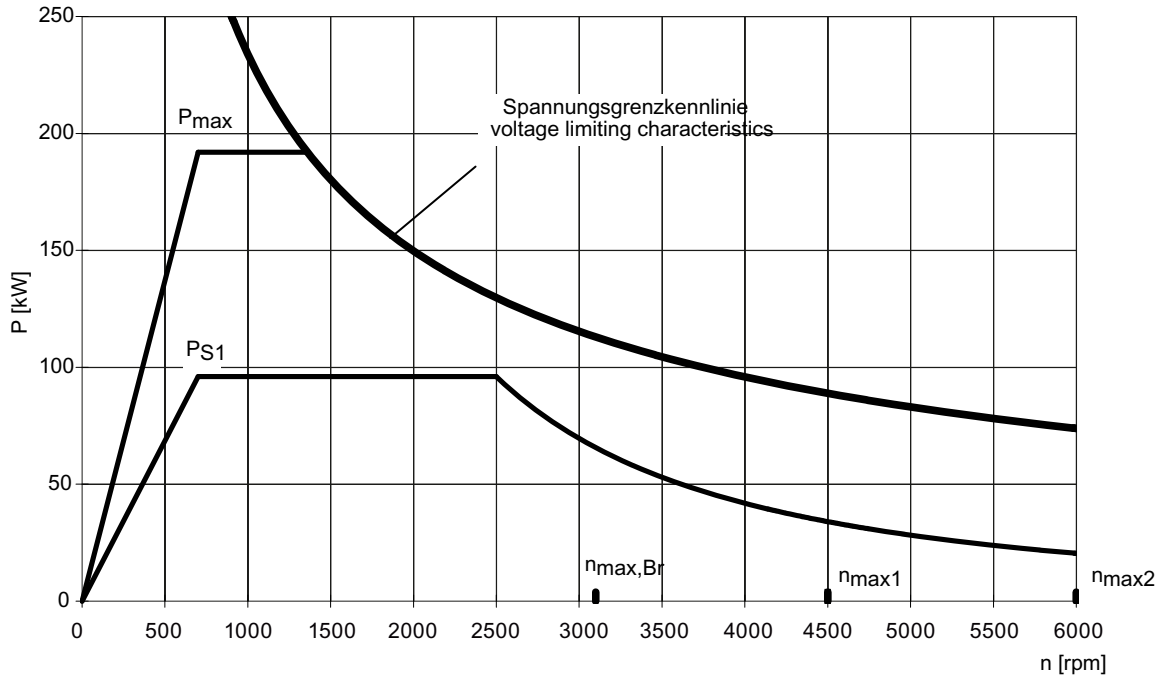


Table 4- 568 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	96	1310	210	4500	6000	-	3100	2500	2619	420	1310	210



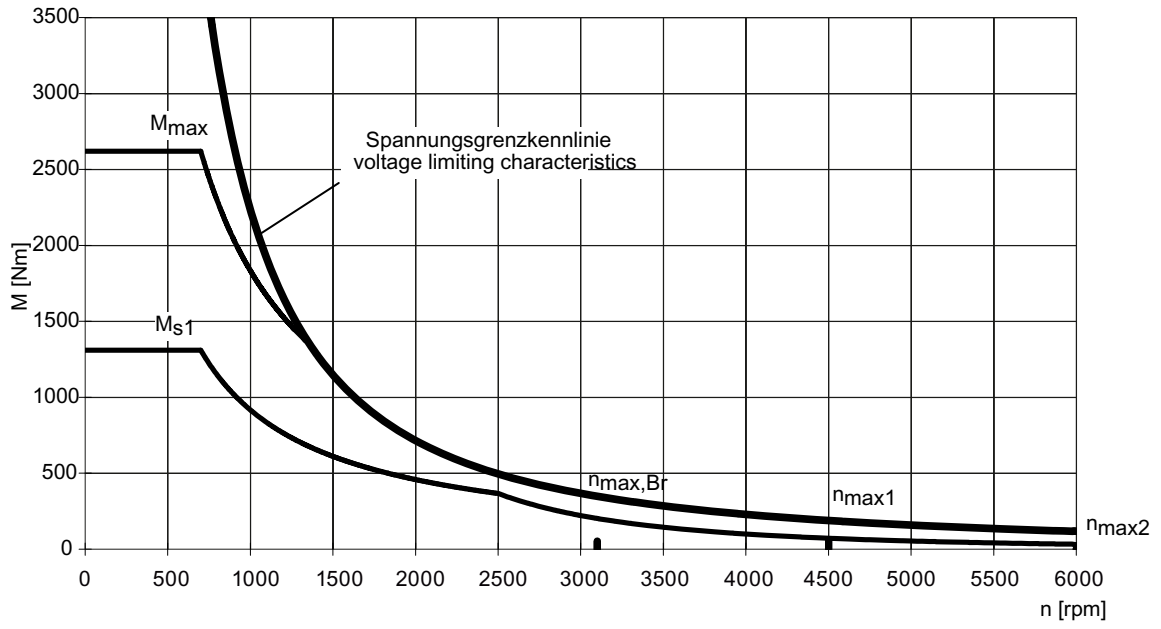
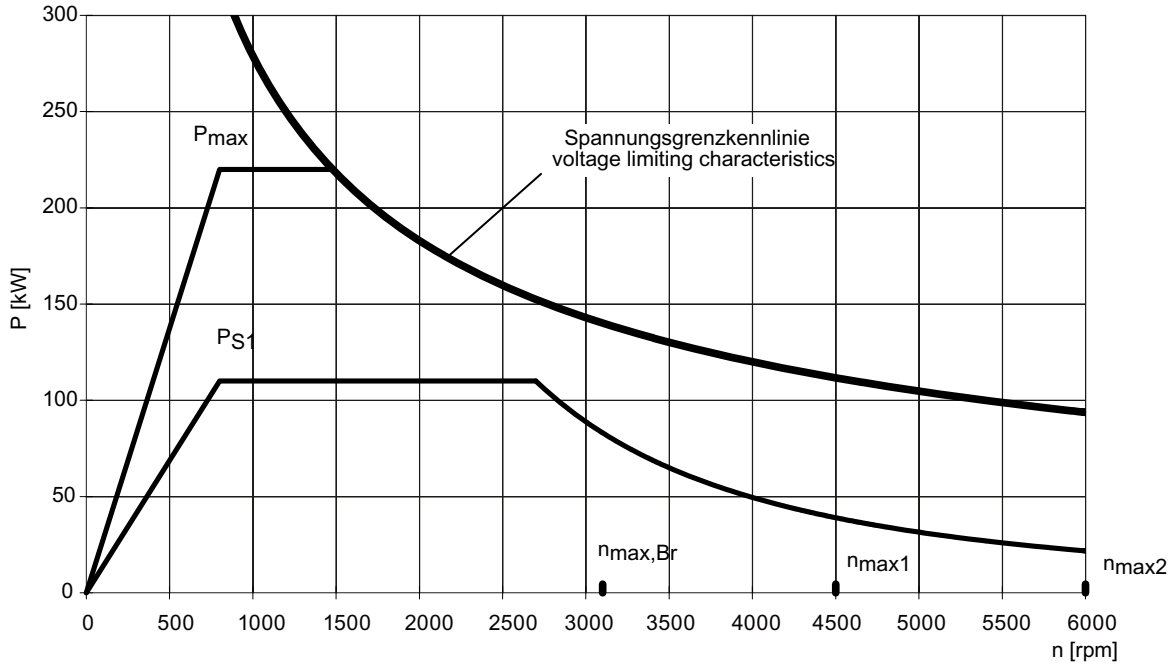


Table 4- 569 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	110	1313	210	4500	6000	-	3100	2700	2626	420	1313	210
700	96	1313	210					2900				



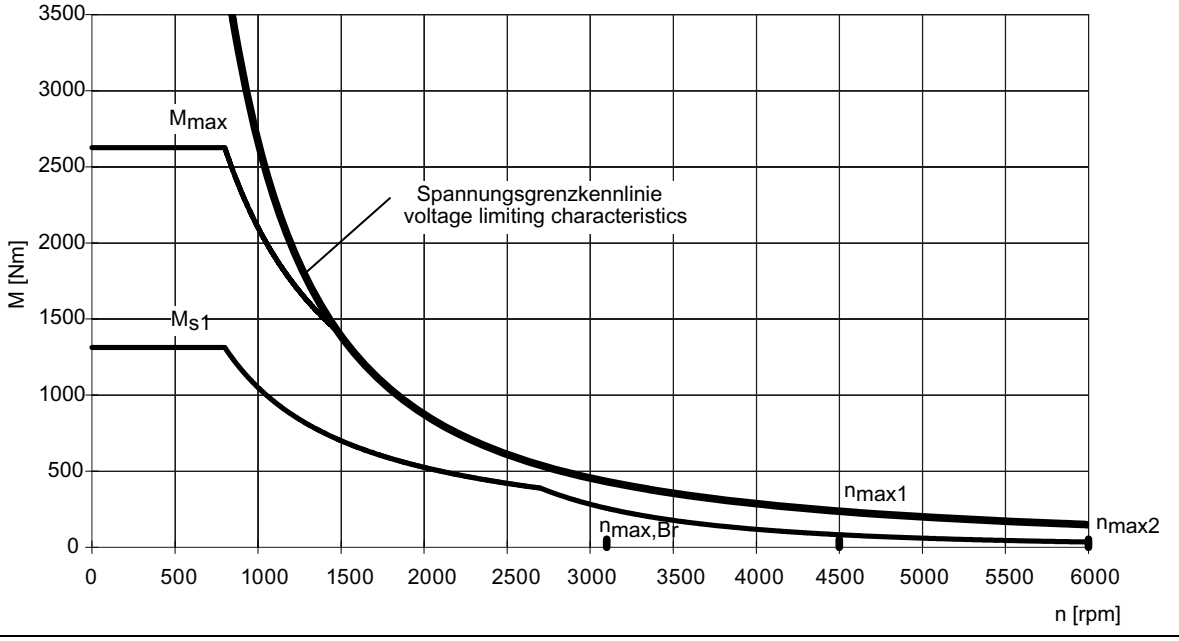
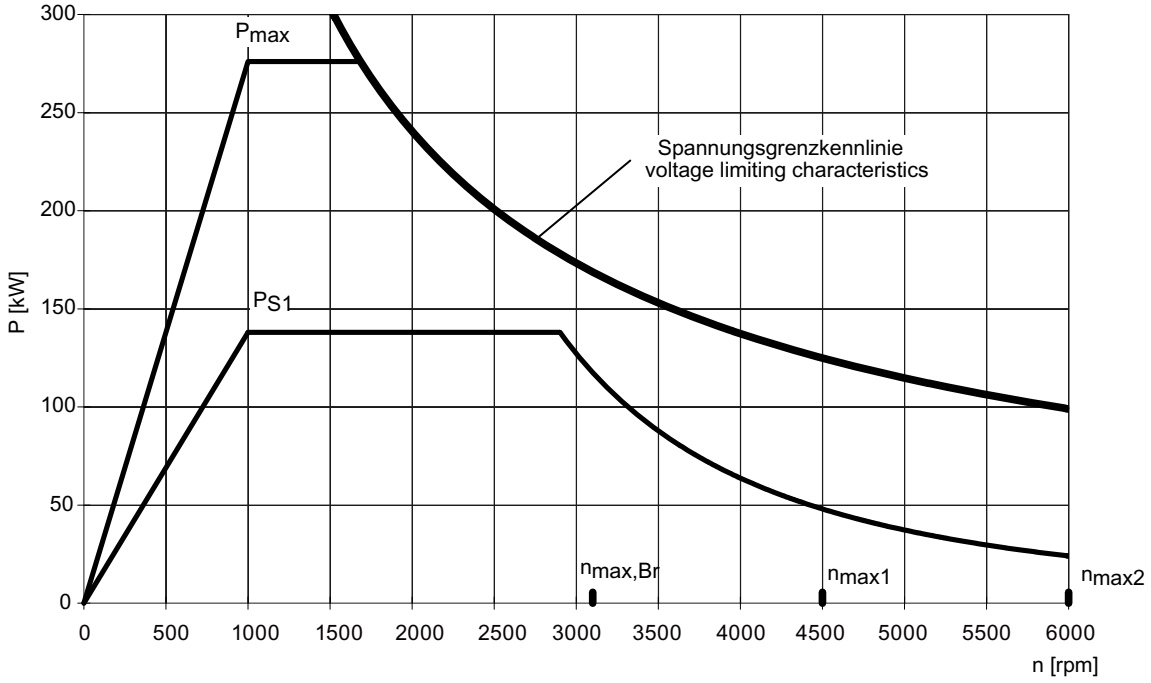


Table 4- 570 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	138	1318	210	4500	6000	-	3100	2900	2636	420	1318	210



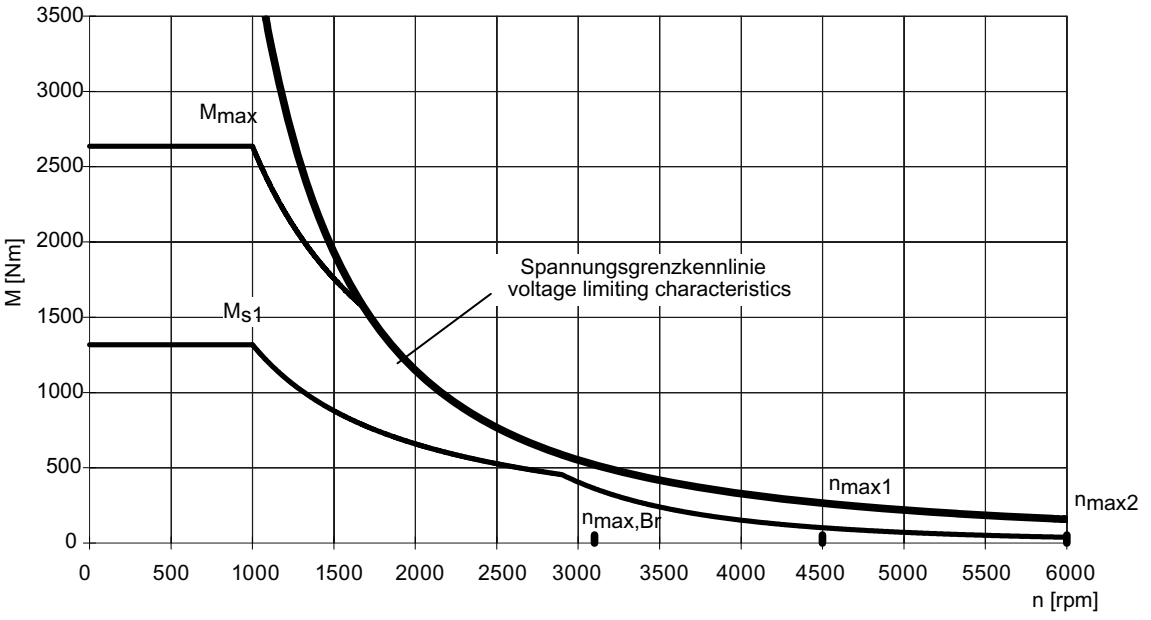
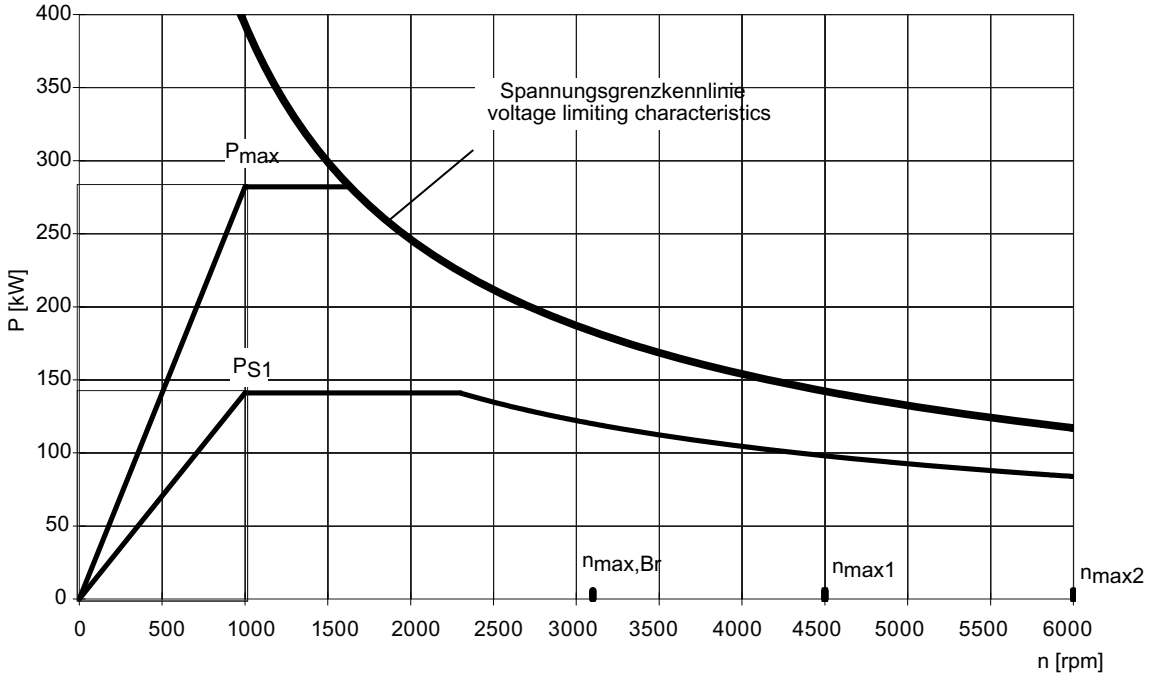


Table 4- 571 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	141	1346	280	4500	6000	-	3100	2300	2693	560	1346	280



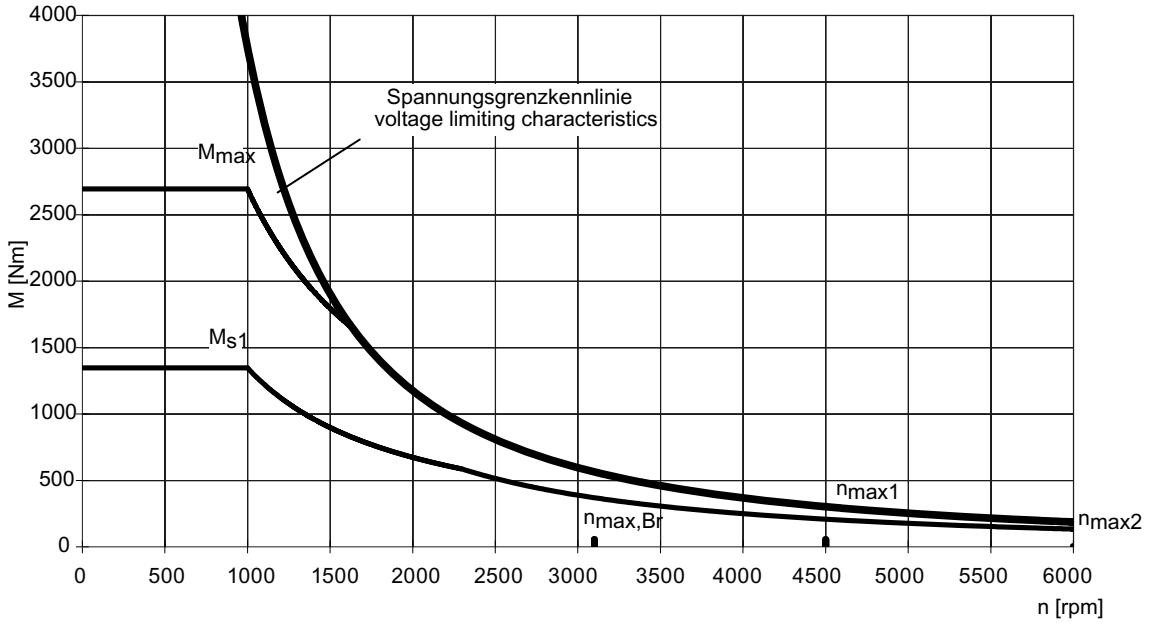
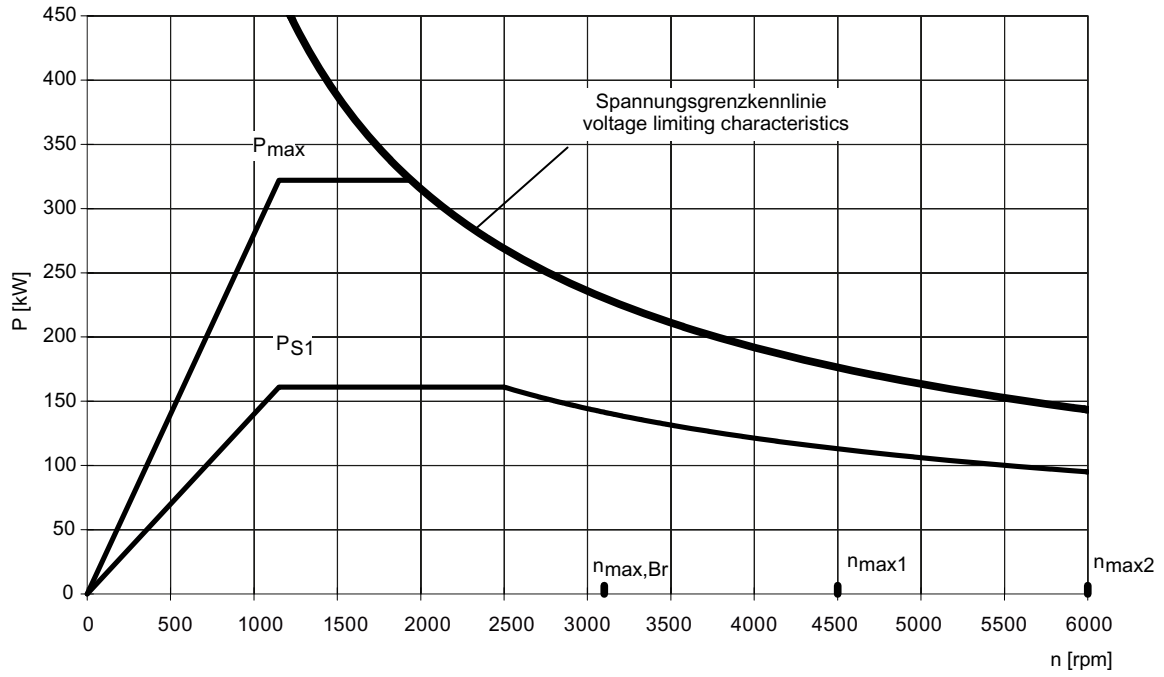


Table 4- 572 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	161	1337	280	4500	6000	-	3100	2500	2674	560	1337	280
1000	140	1337	280					3200				



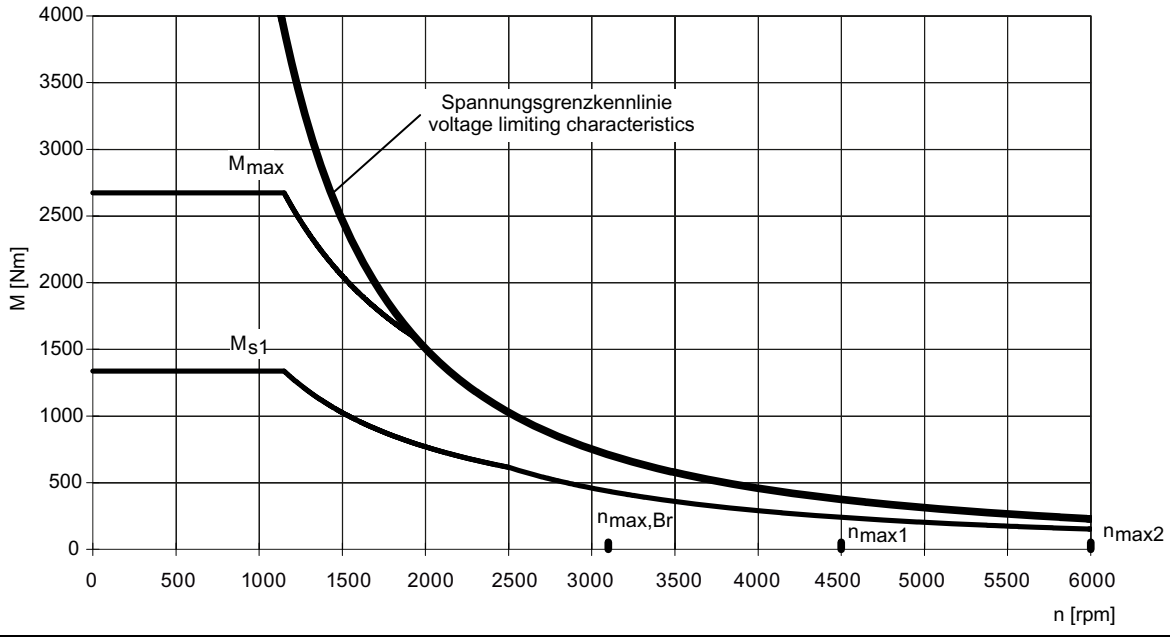
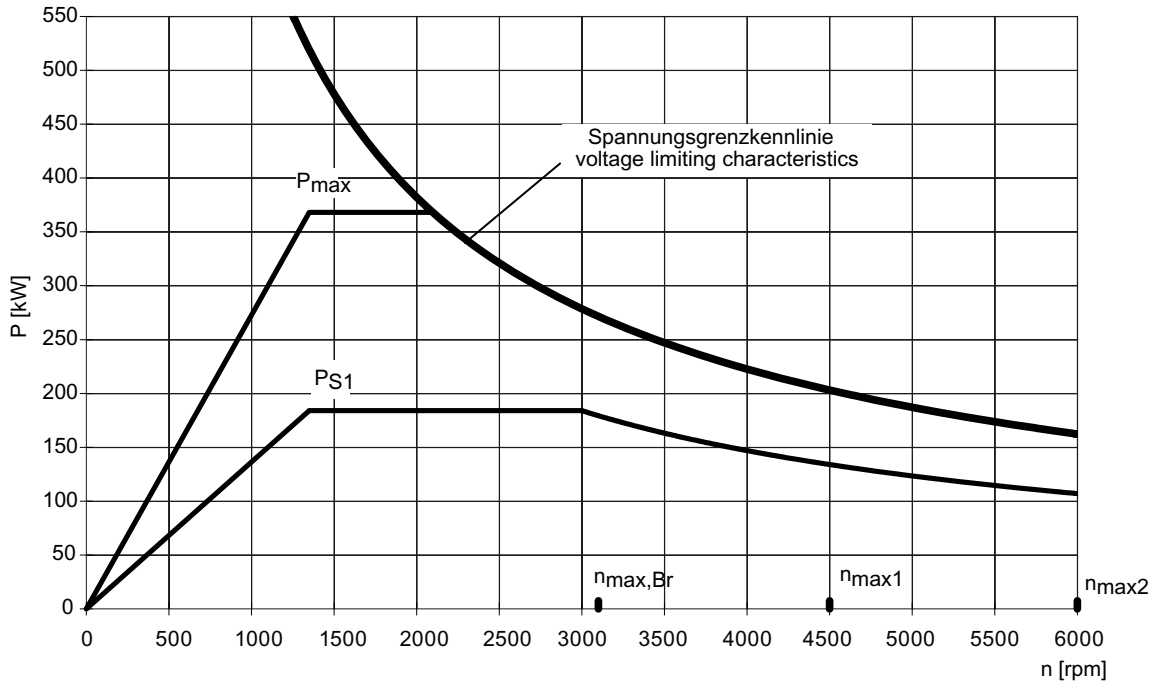


Table 4- 573 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	184	1302	270	4500	6000	-	3100	3000	2603	540	1302	270



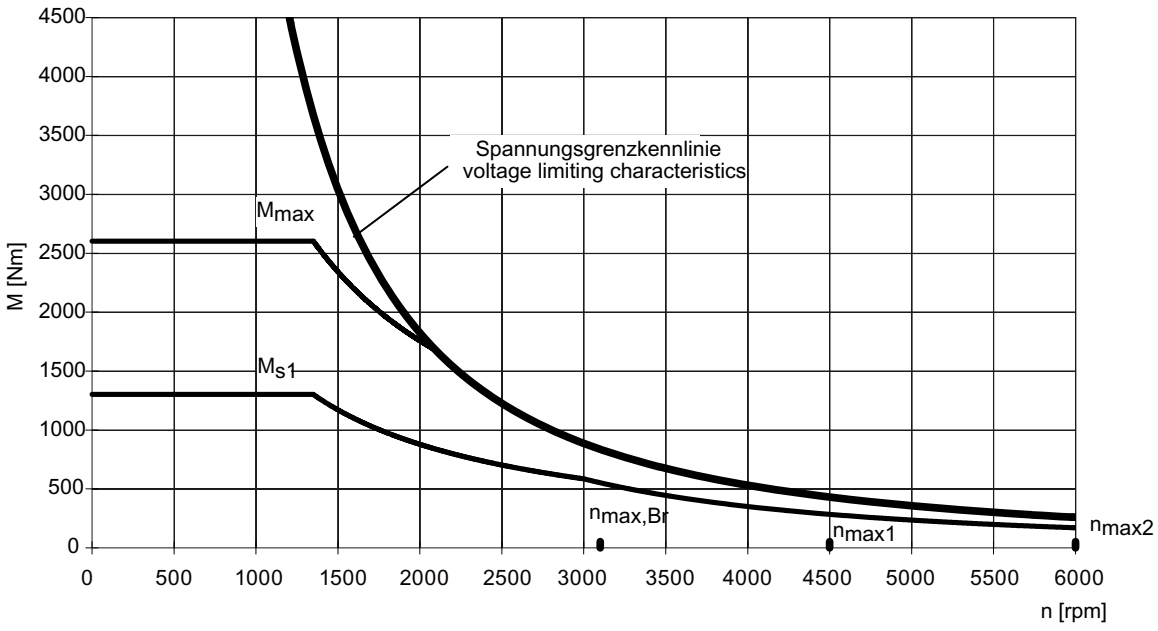
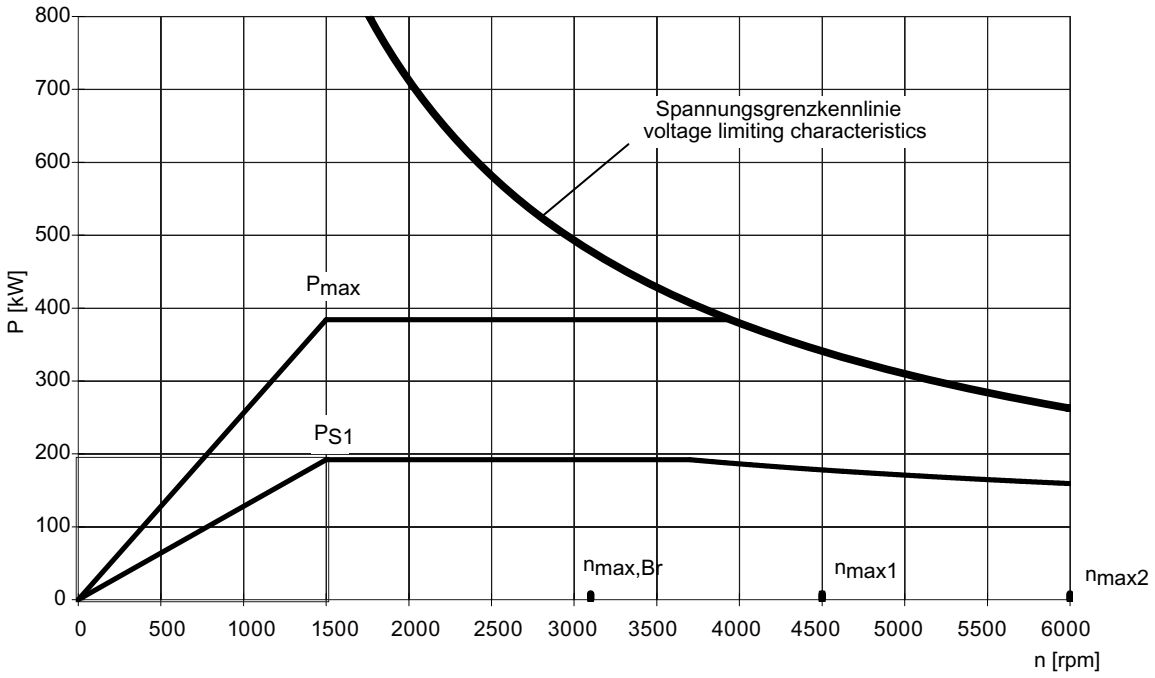


Table 4- 574 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	192	1222	390	4500	6000	-	3100	3700	2445	780	1222	390



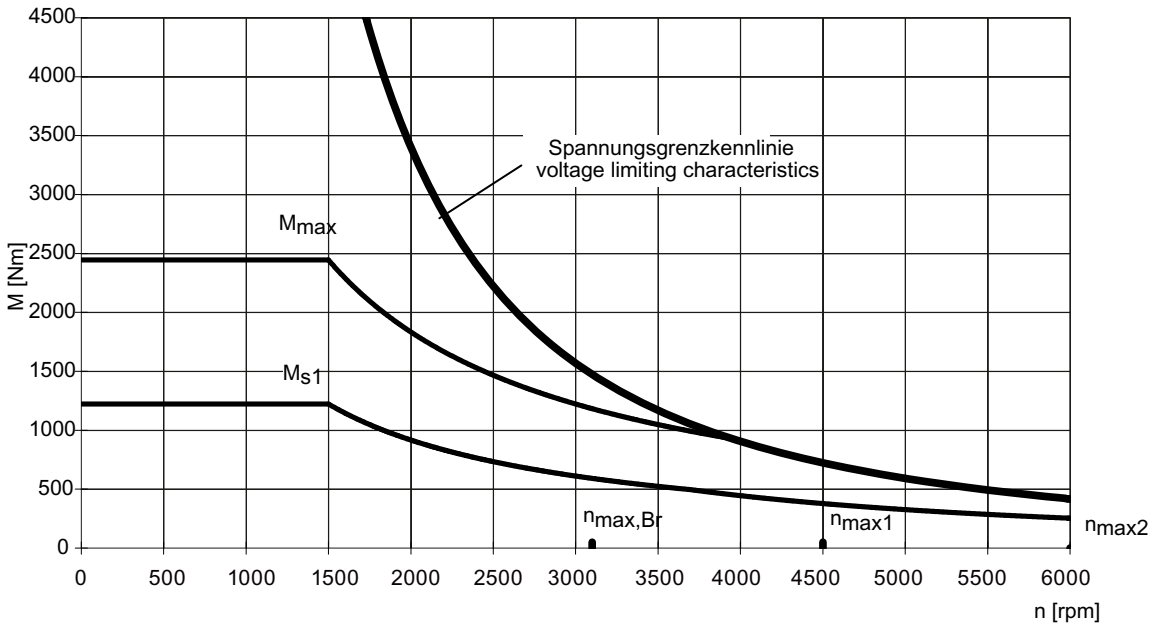
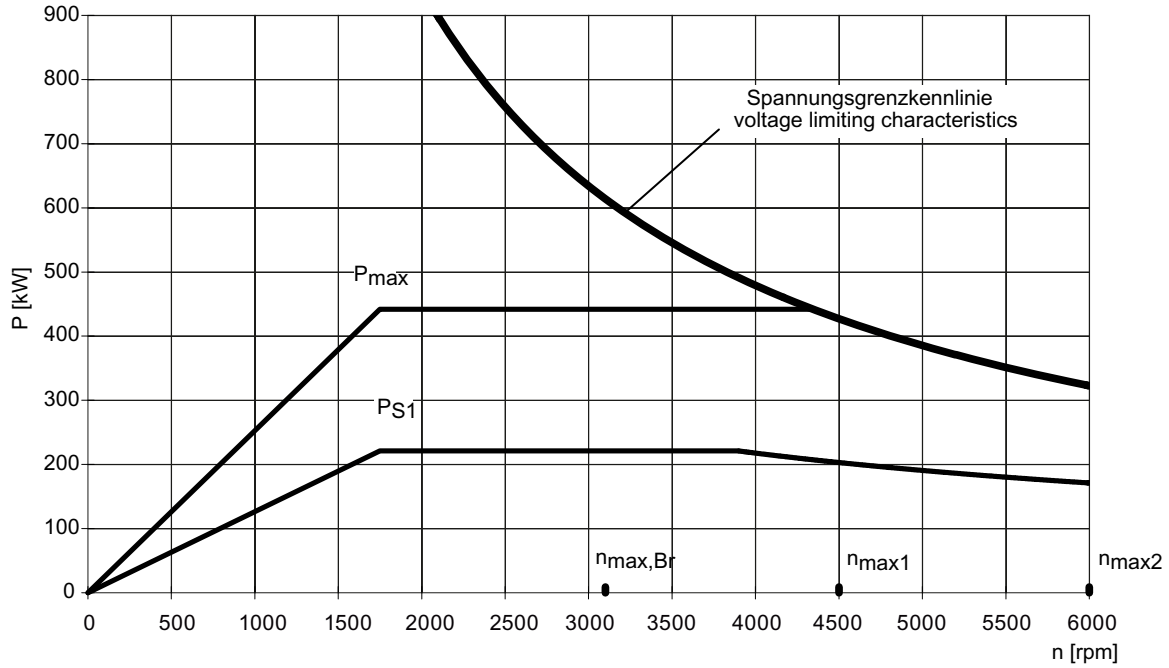


Table 4- 575 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	221	1206	390	4500	6000	-	3100	3900	2412	780	1206	390
1500	189	1206	390					4500				



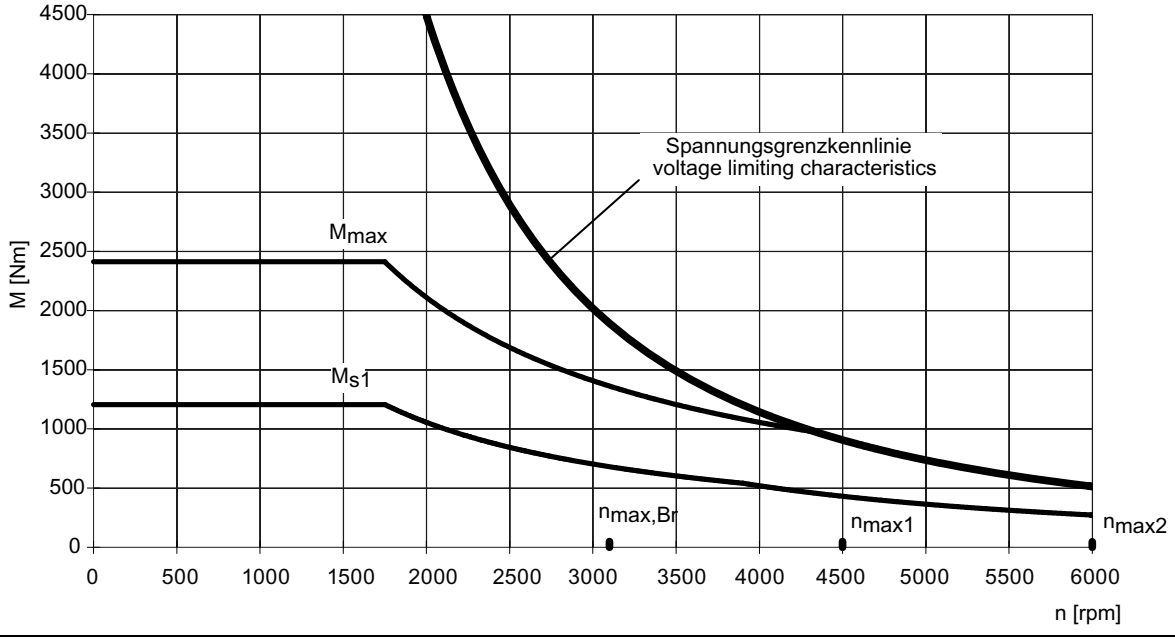
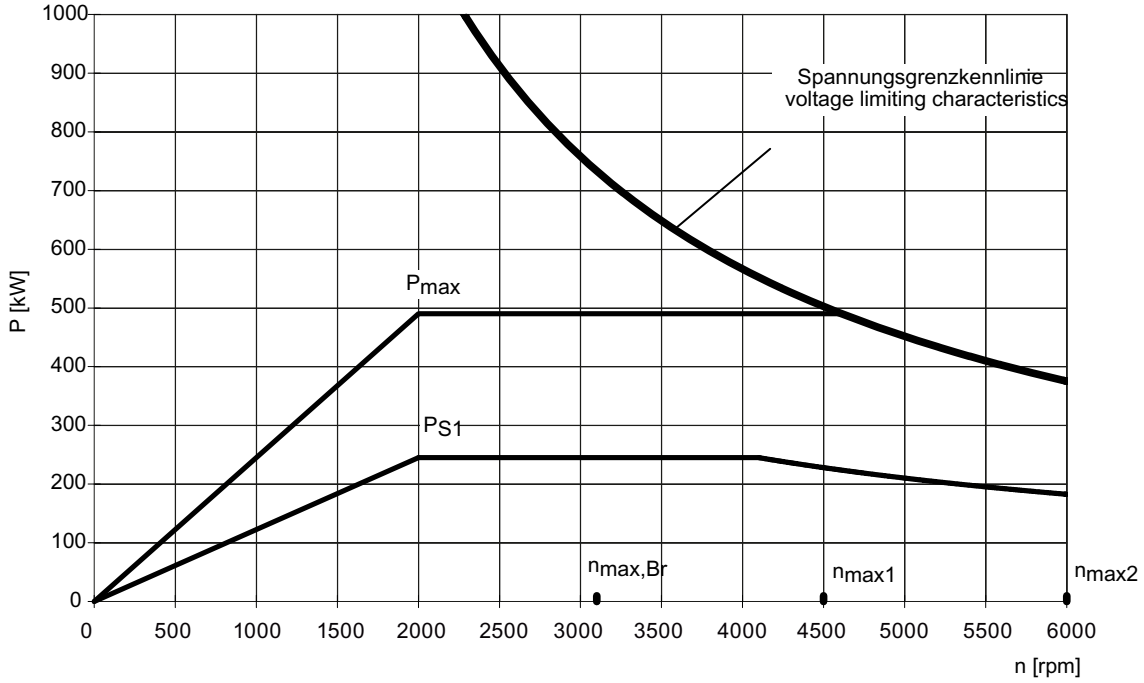


Table 4- 576 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	245	1170	380	4500	6000	-	3100	4100	2340	760	1170	380



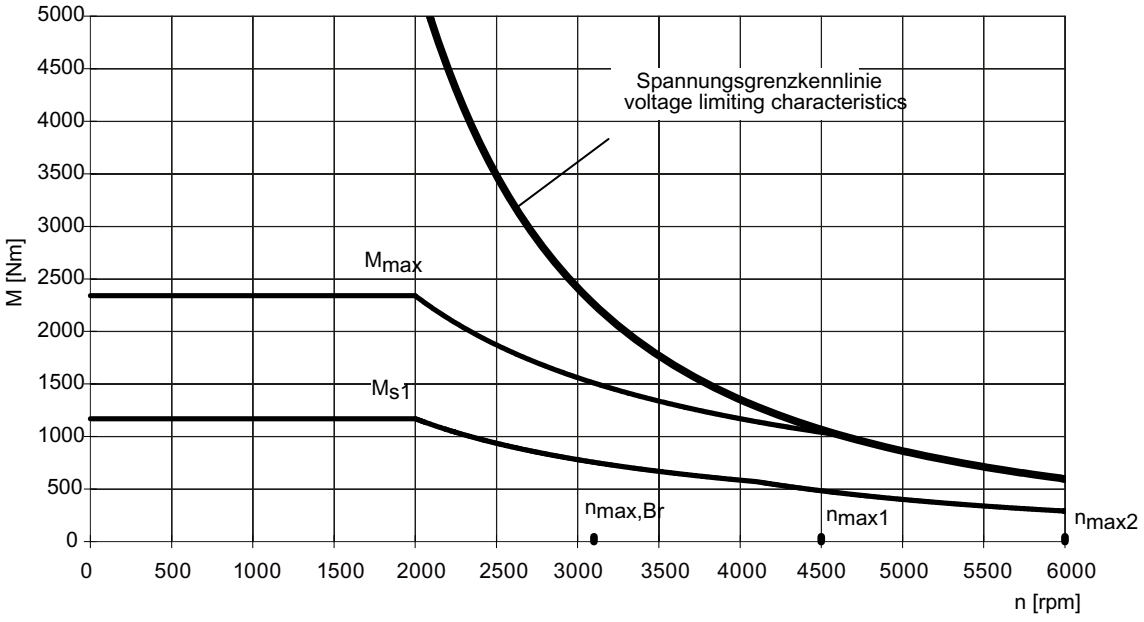
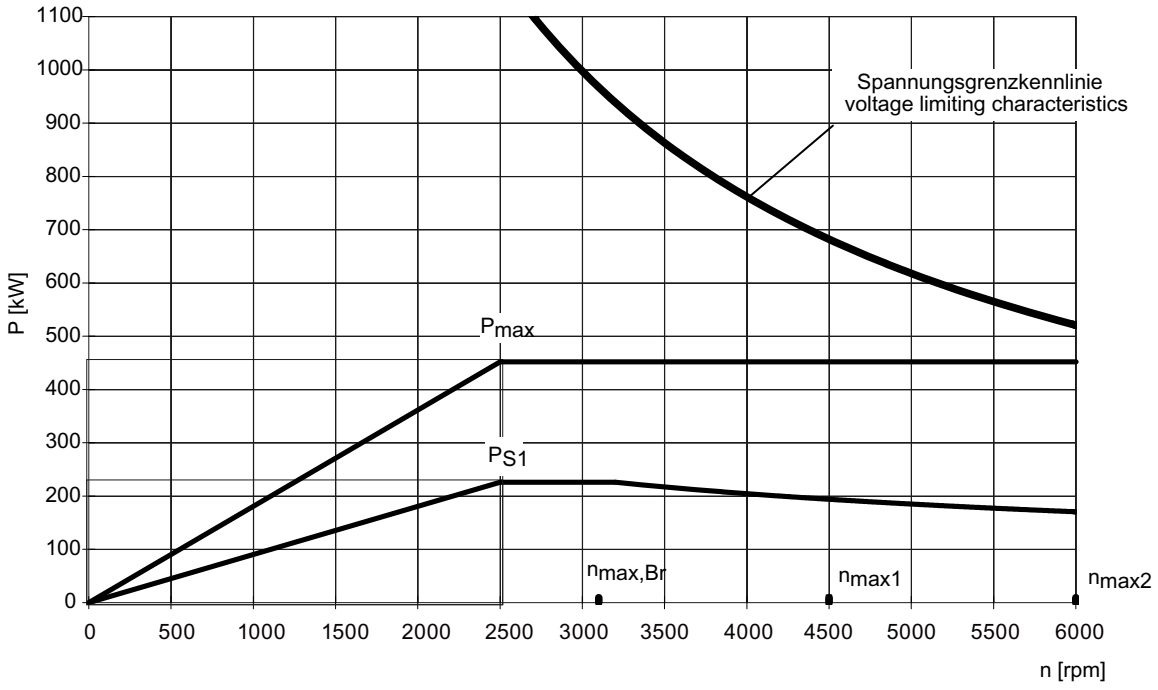


Table 4- 577 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	226	863	455	4500	6000	-	3100	3200	1727	910	863	455



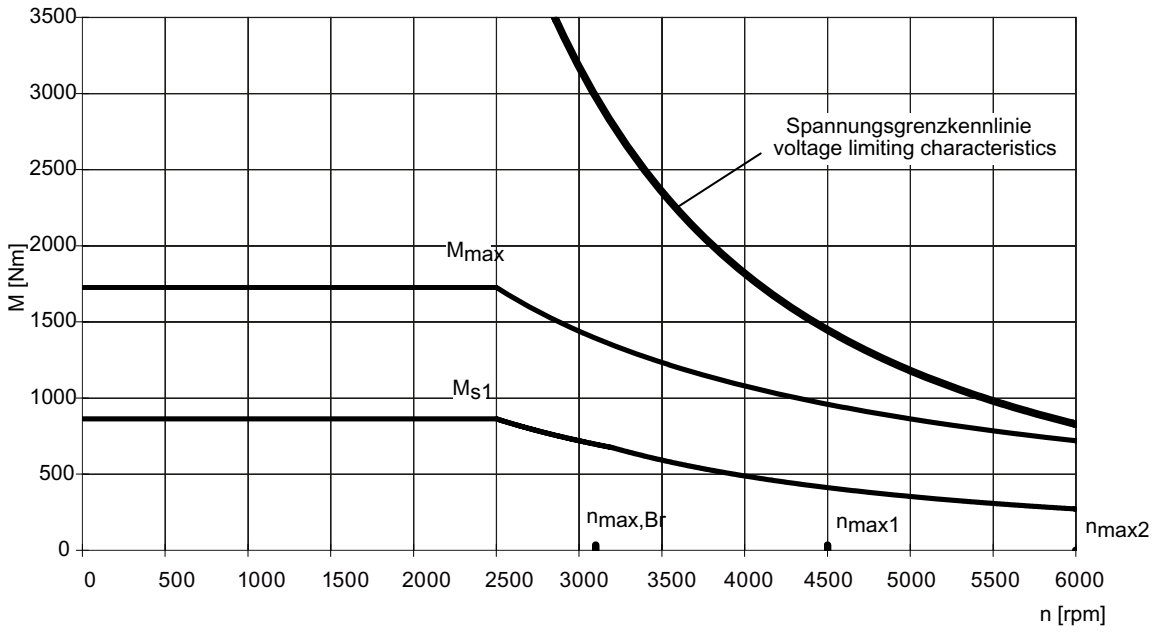
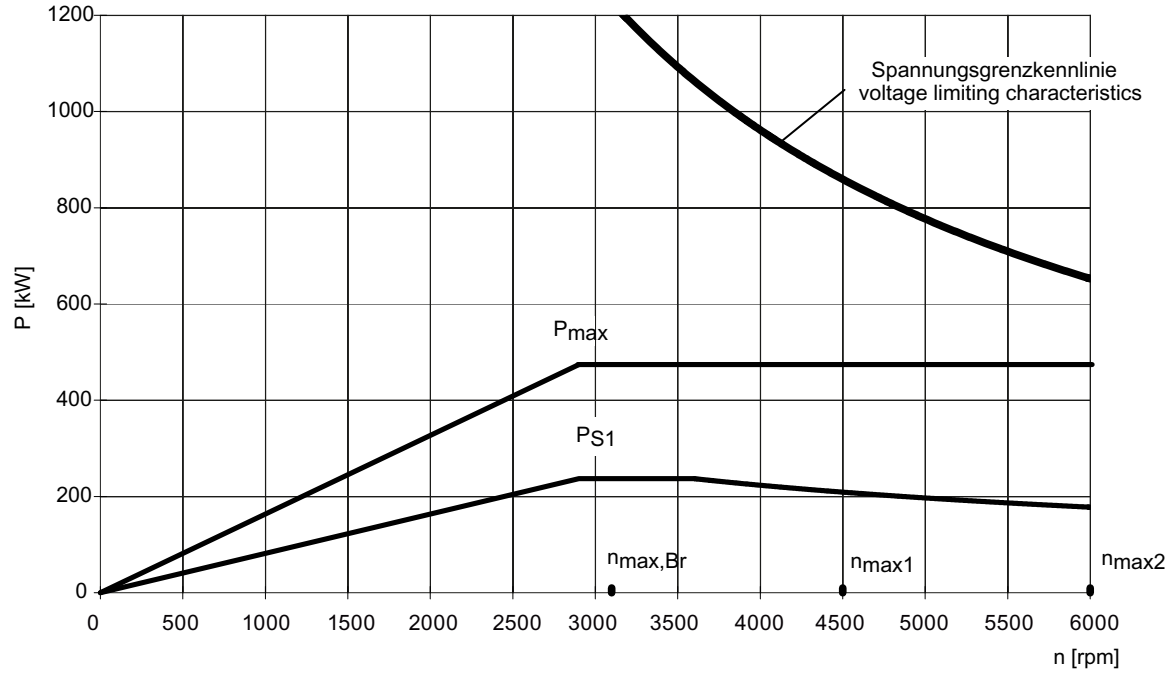


Table 4- 578 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	237	780	415	4500	6000	-	3100	3600	1561	830	780	415
2500	204	780	415					4500				



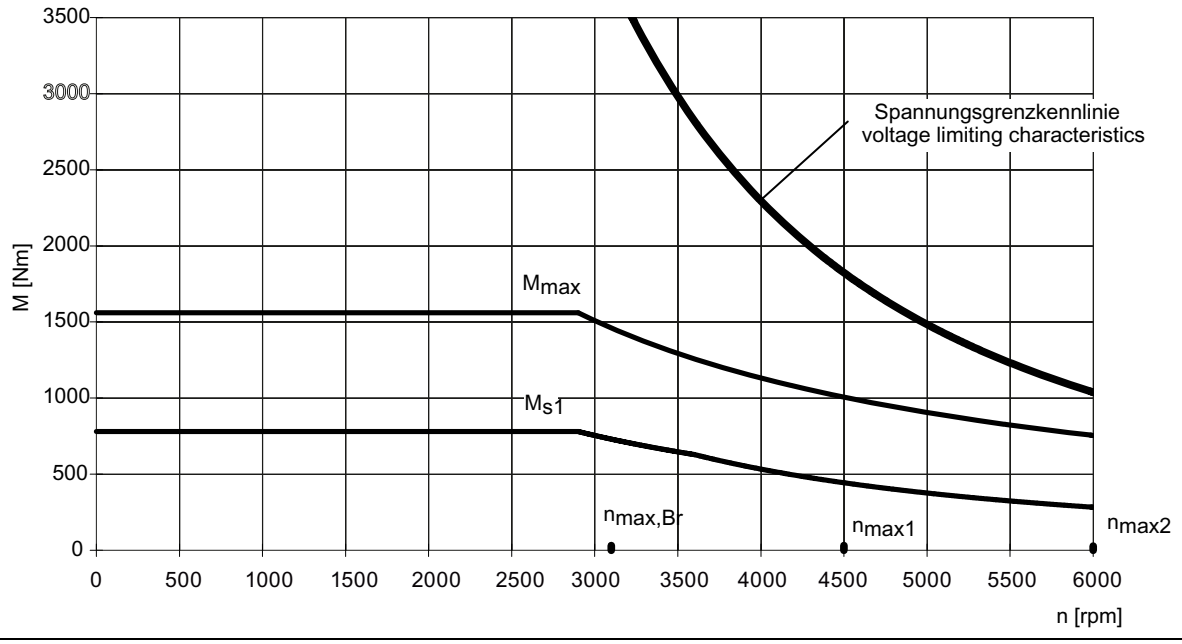
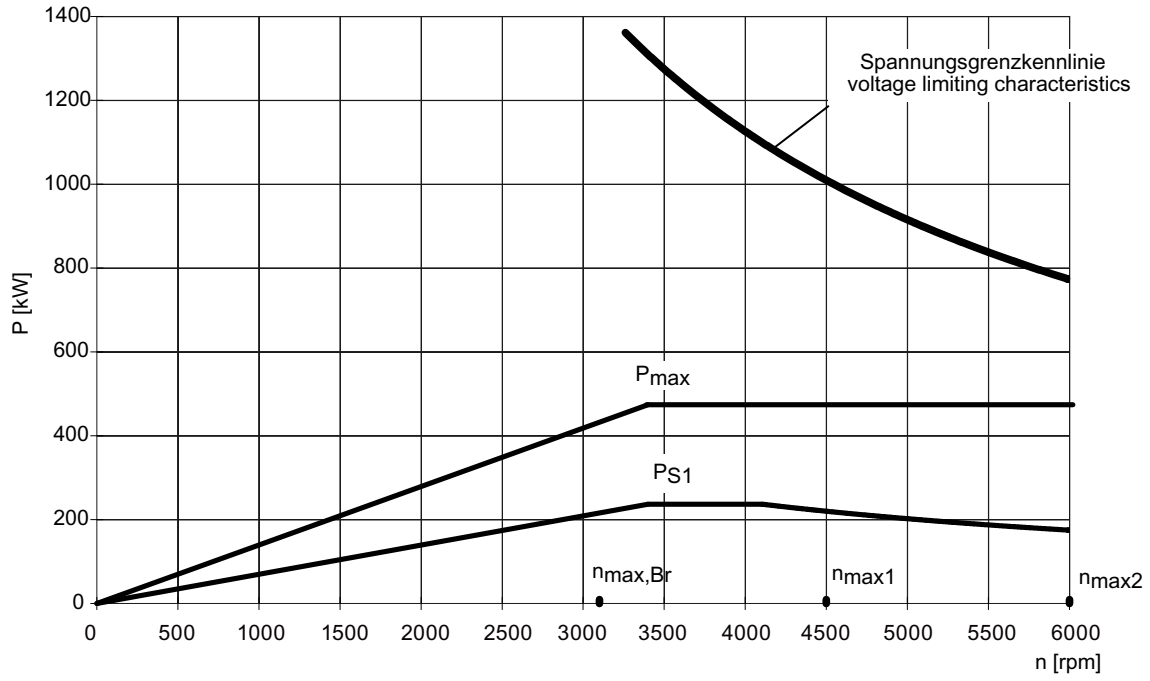
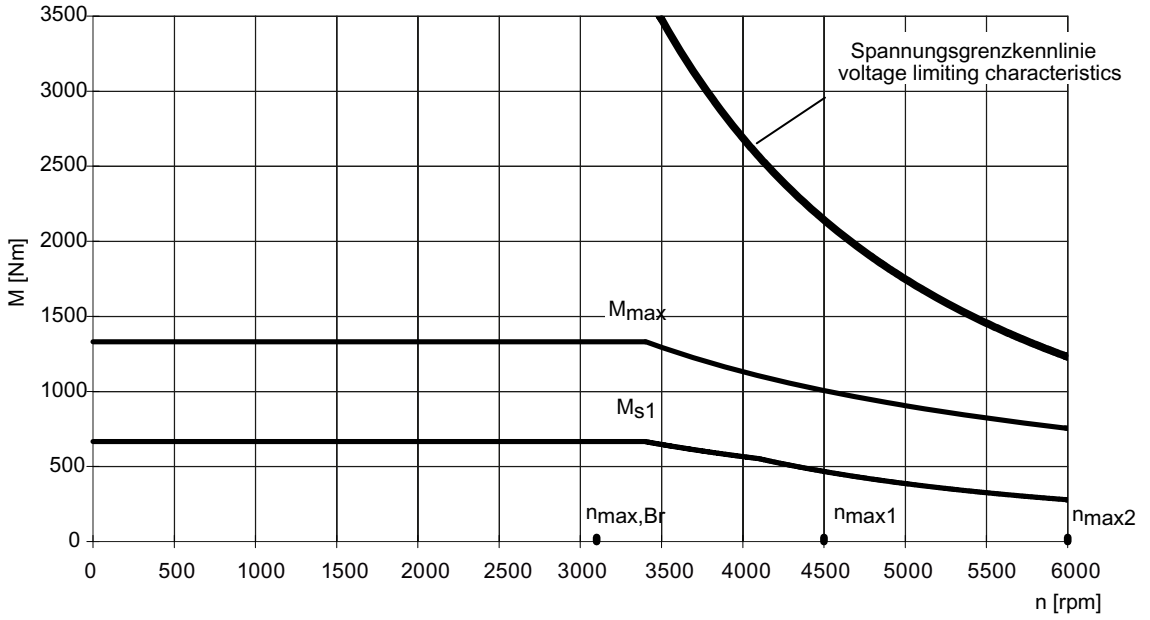


Table 4- 579 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3400	237	666	370	4500	6000	-	3100	4100	1331	740	666	370

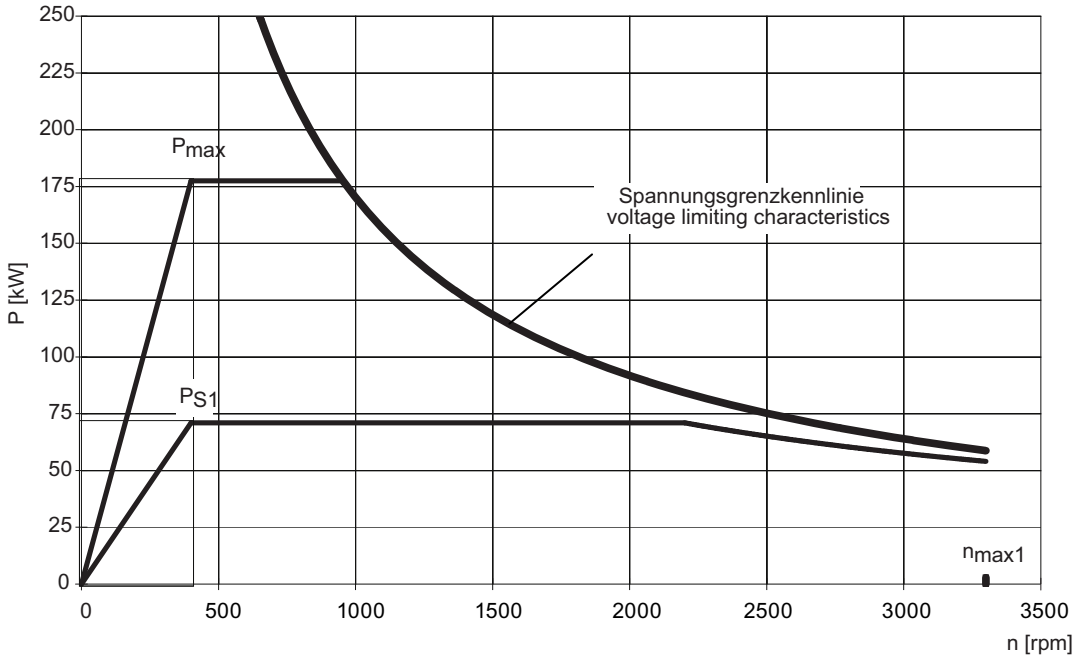




4.1.3.7 Shaft height 280 - water-cooled

Table 4- 580 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	71	1695	170	3300	-	-	-	2200	4238	425	1695	170



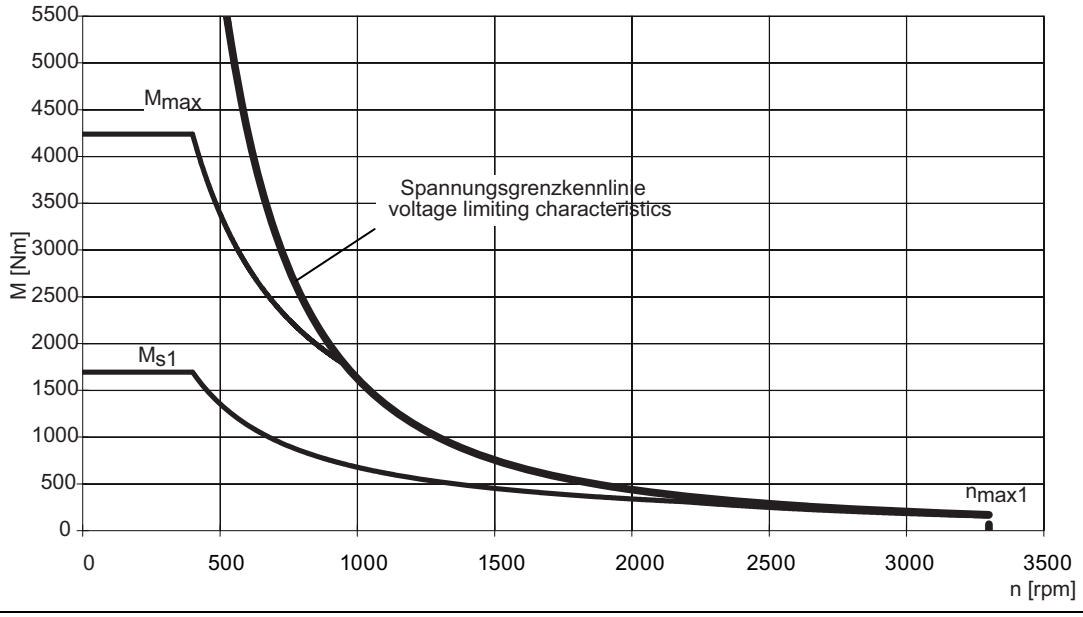
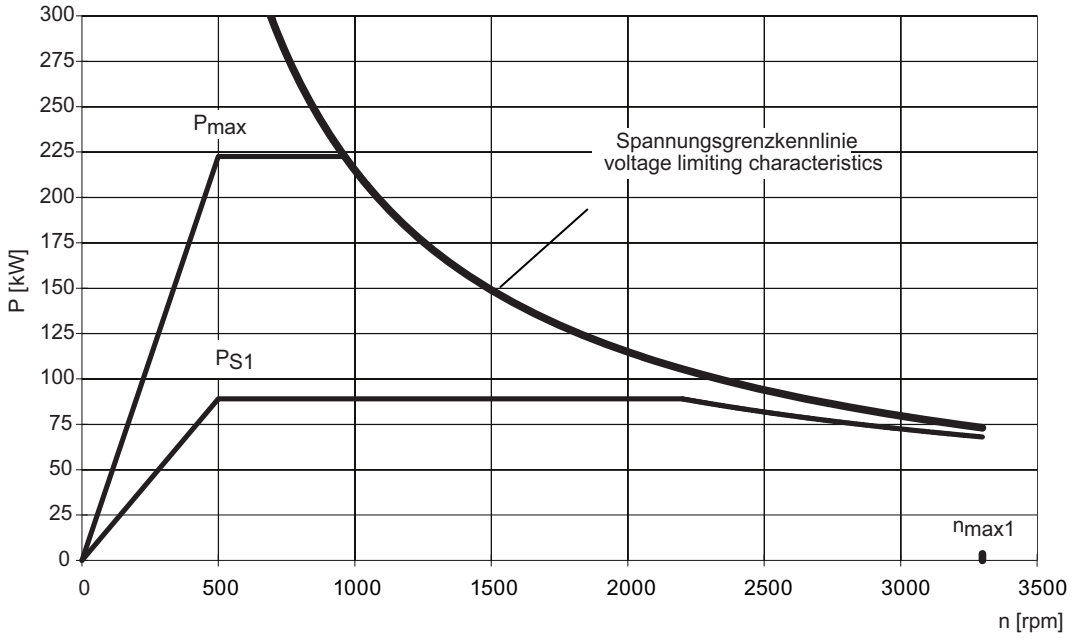


Table 4- 581 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	89	1700	172	3300	-	-	-	2200	4250	430	1700	172
400	71	1700	172					3100				



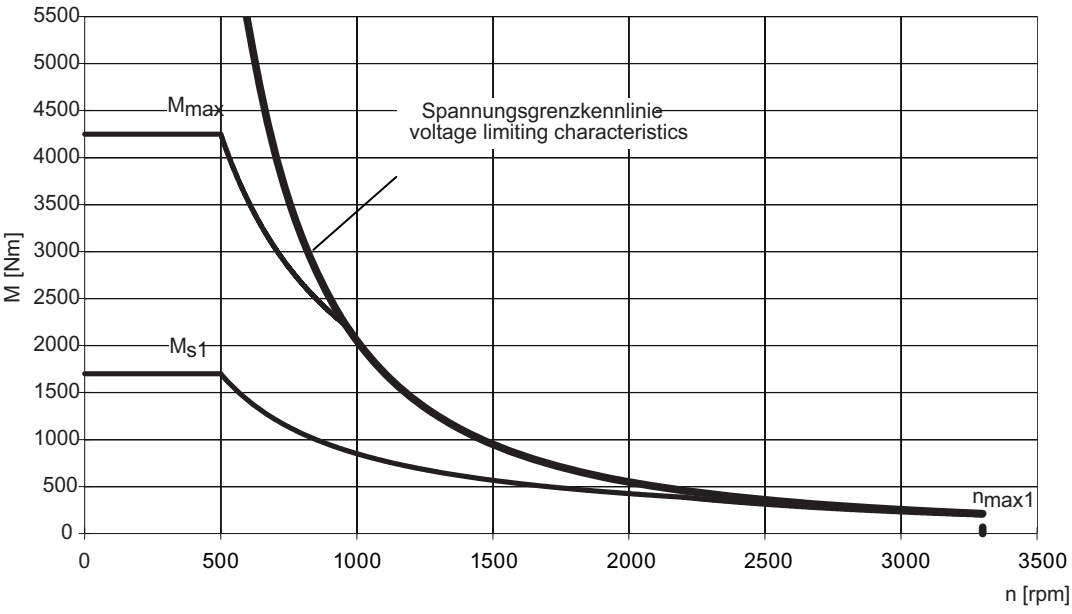
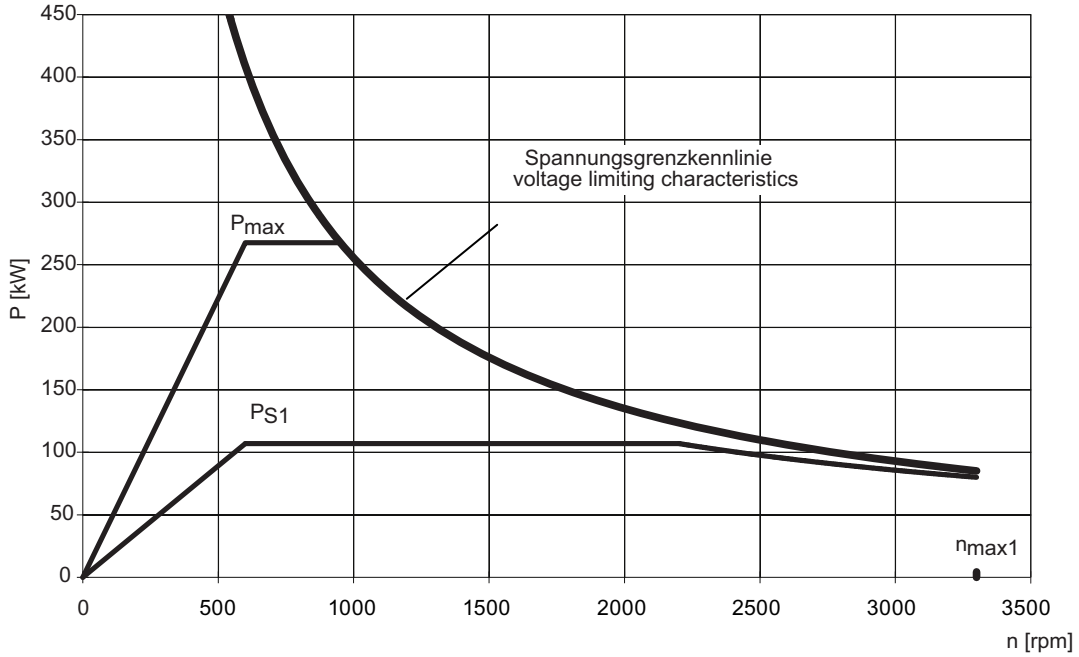


Table 4- 582 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	107	1703	170	3300	-	-	-	2200	4258	425	1703	170



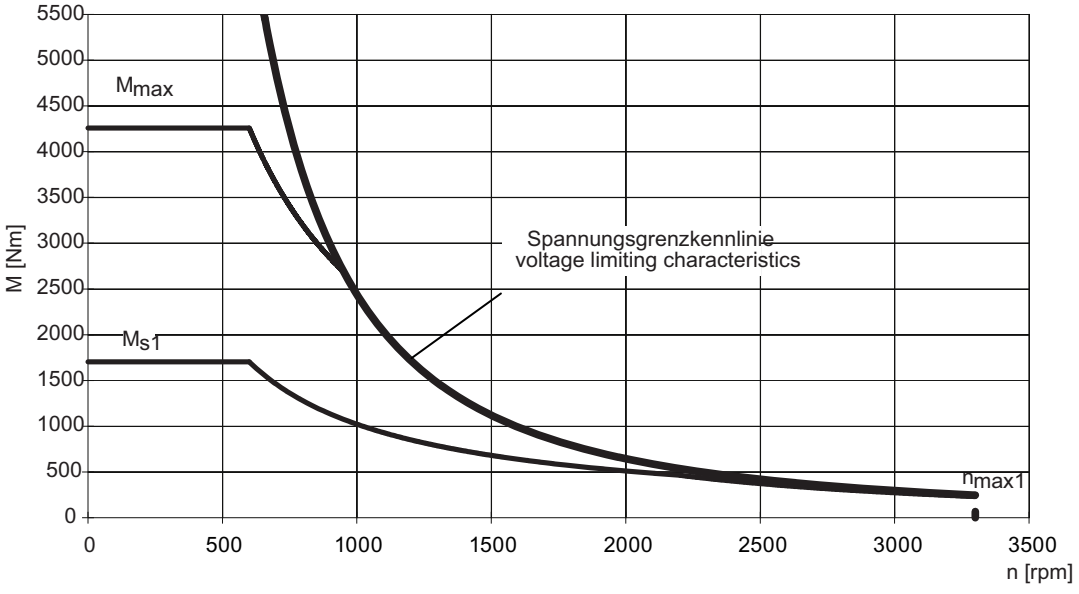
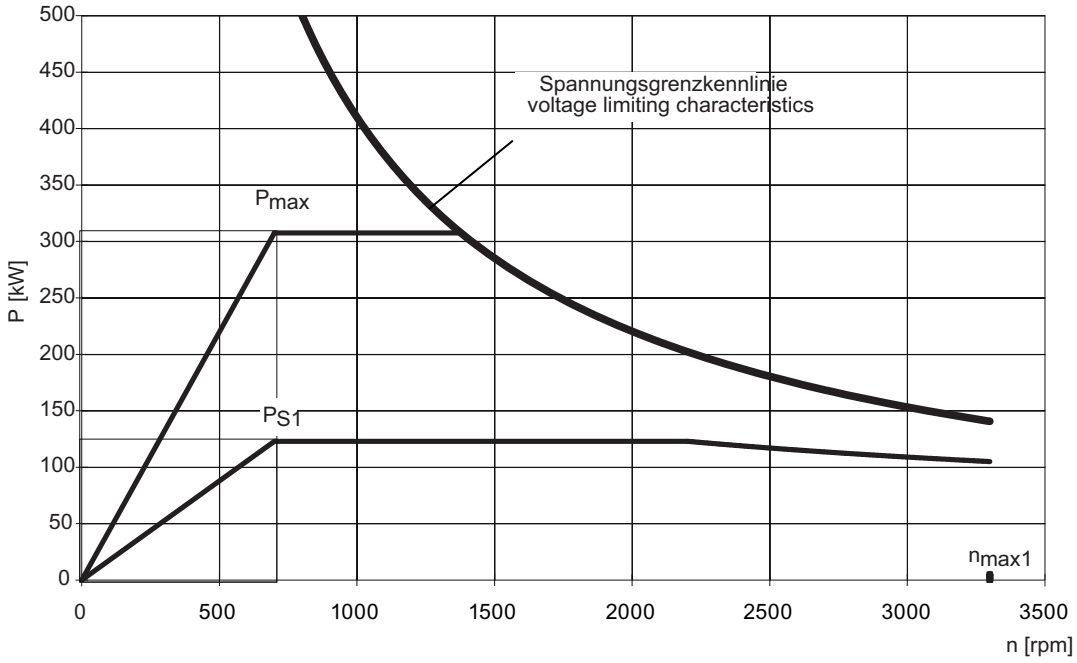


Table 4- 583 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	123	1678	260	3300	-	-	-	2200	4195	650	1678	260



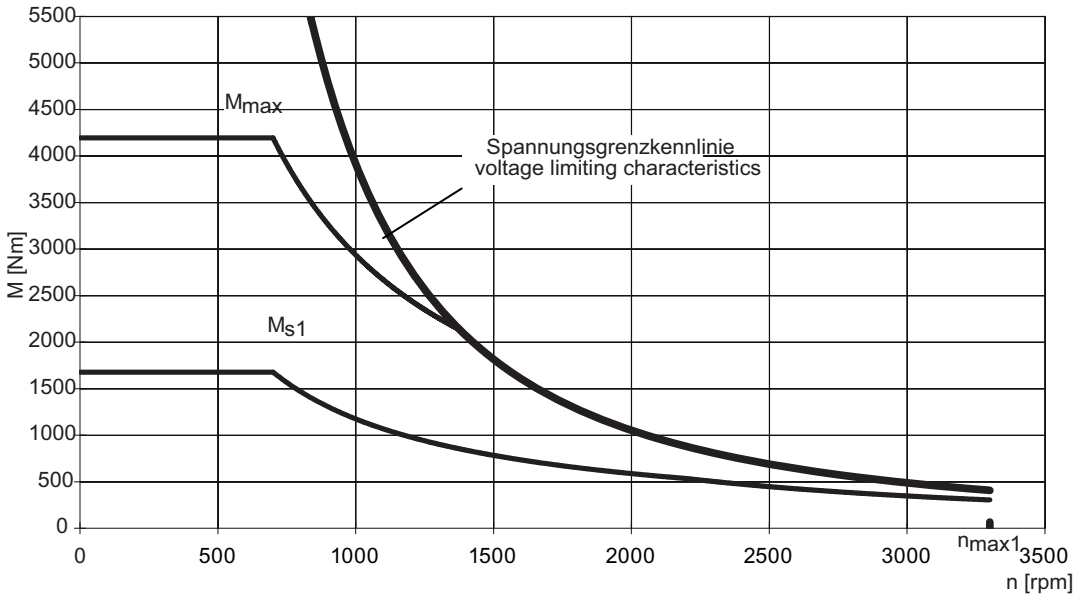
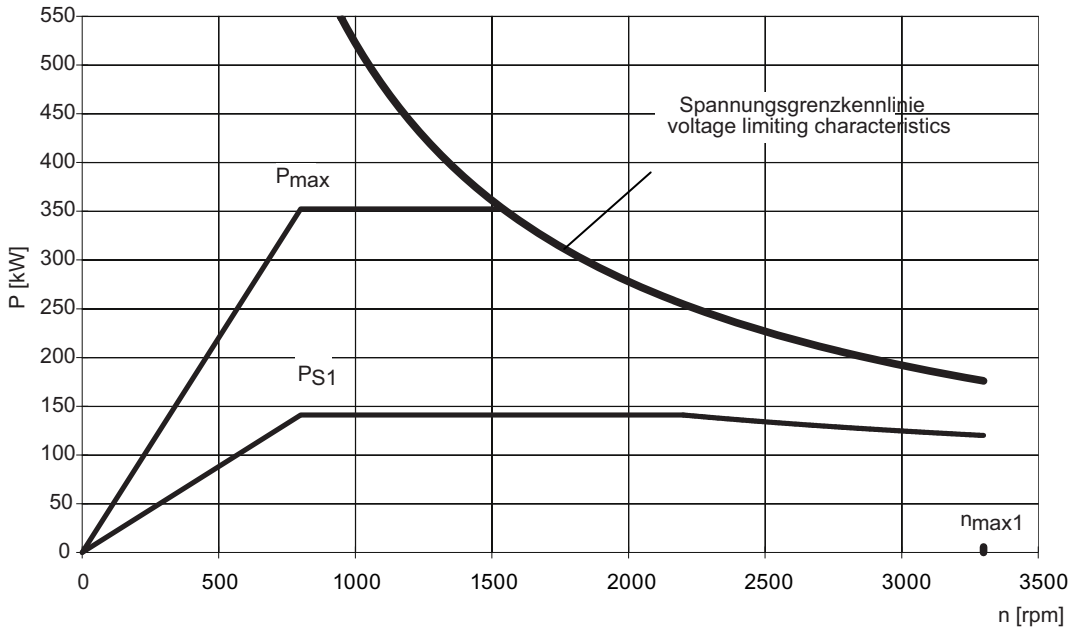


Table 4- 584 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	141	1683	260	3300	-	-	-	2200	4208	650	1683	260
700	123	1683	260					3100				



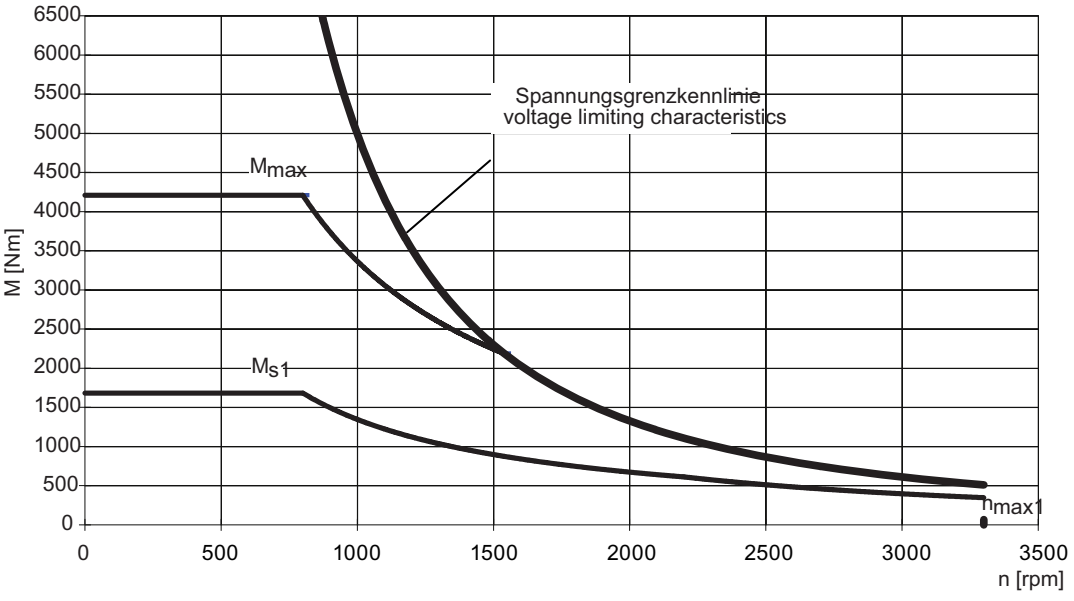
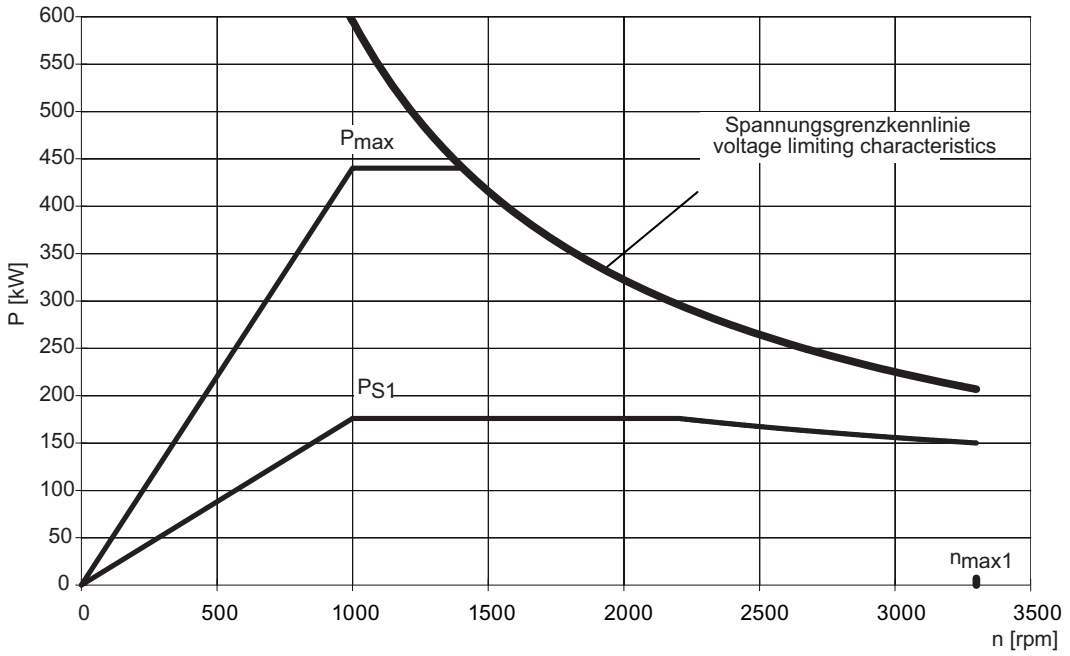


Table 4- 585 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	176	1681	265	3300	-	-	-	2200	4202	663	1681	265



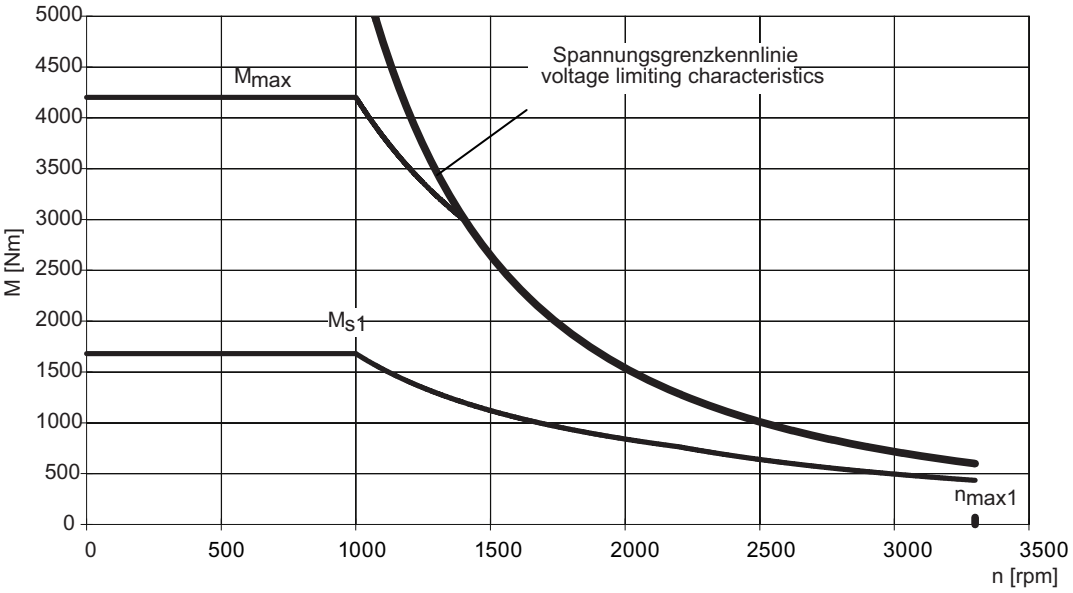
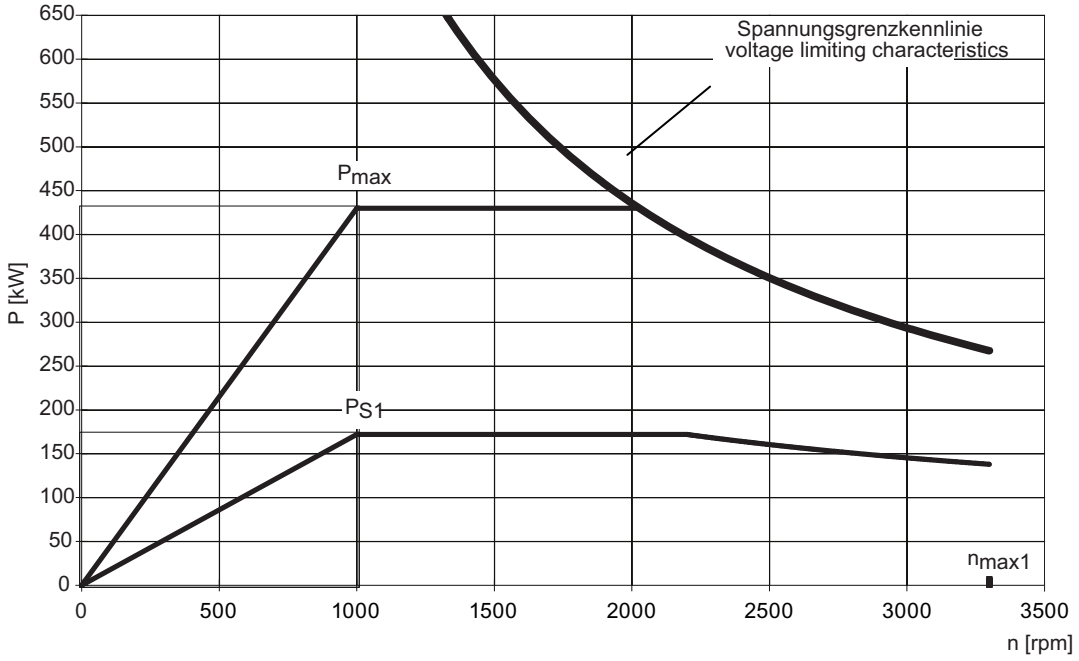


Table 4- 586 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	172	1643	350	3300	-	-	-	2200	4107	875	1643	350



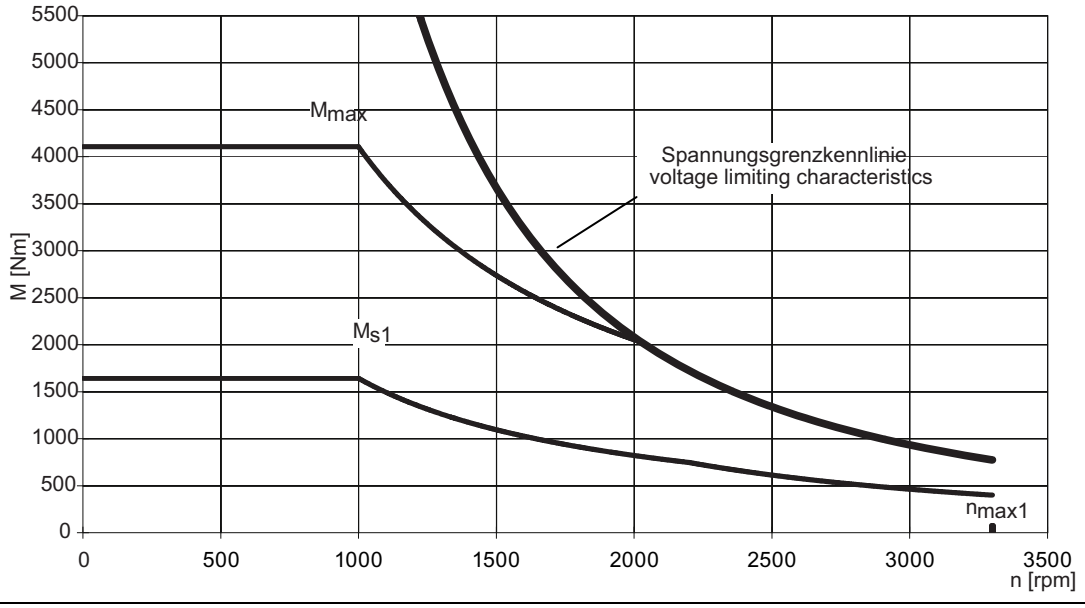
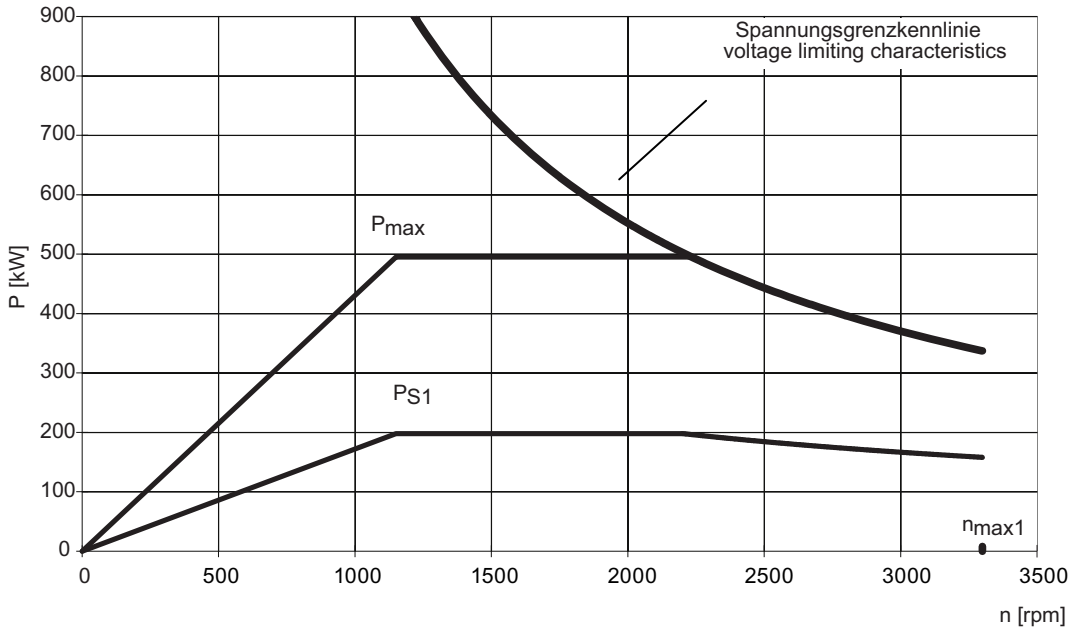


Table 4- 587 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	198	1644	355	3300	-	-	-	2200	4111	888	1644	355
1000	172	1644	355					2800				



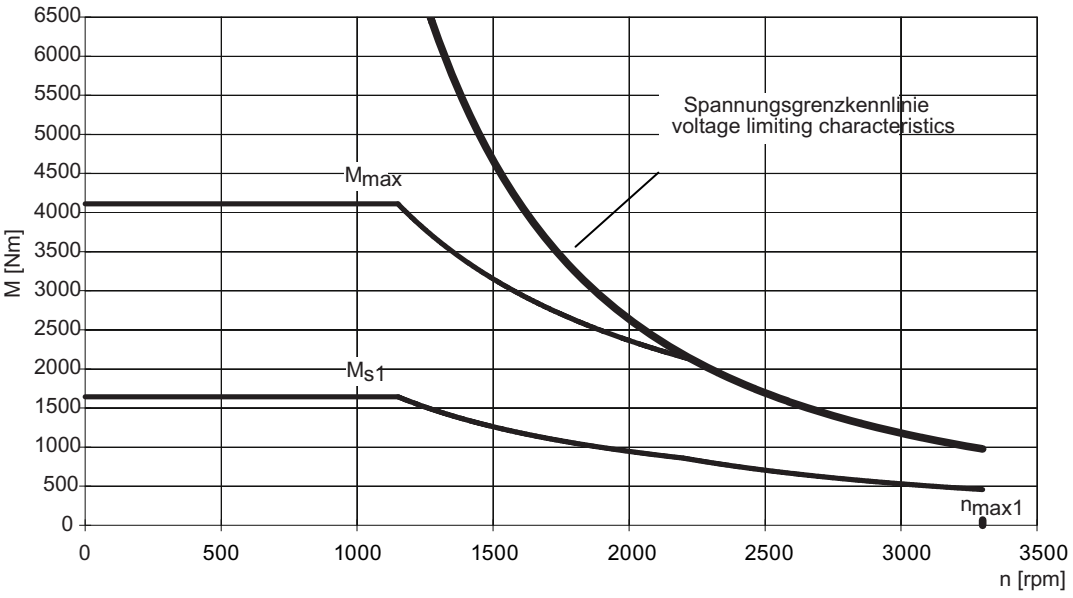
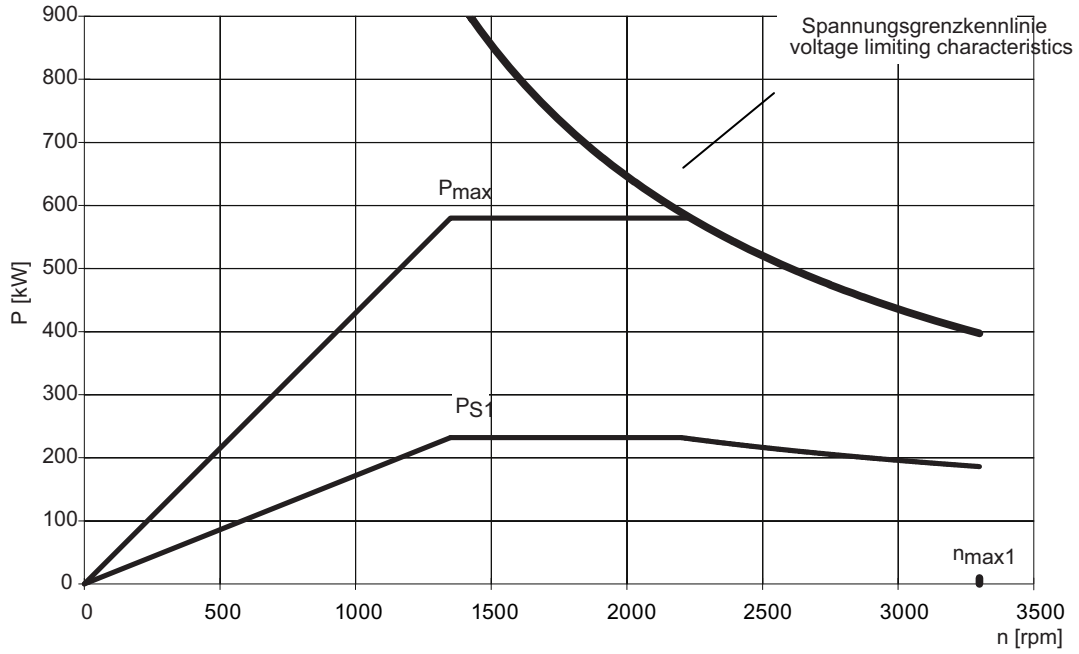


Table 4- 588 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	232	1641	355	3300	-	-	-	2200	4103	888	1641	355



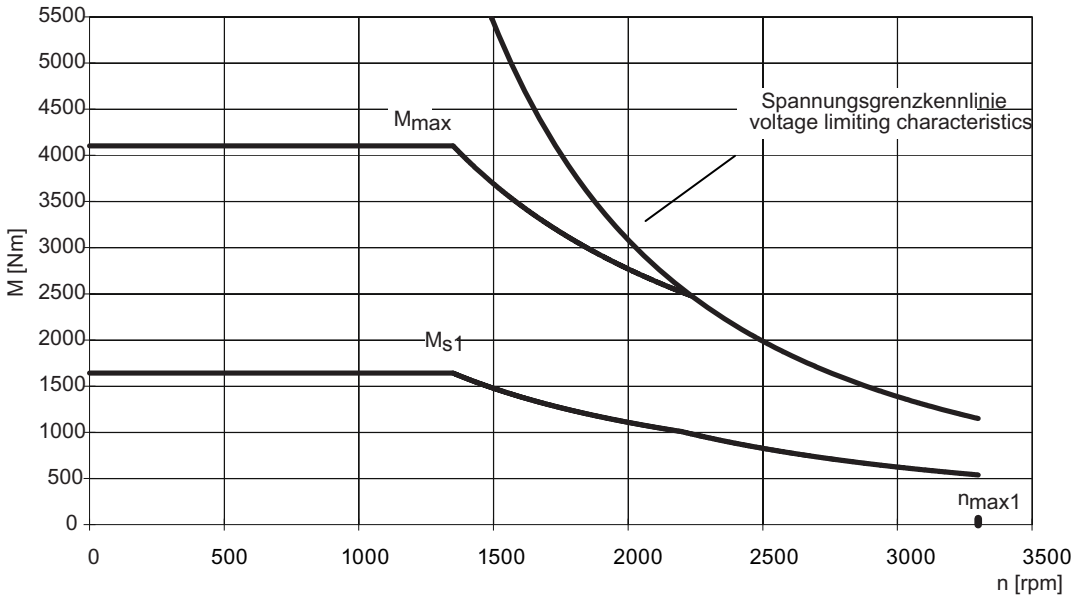
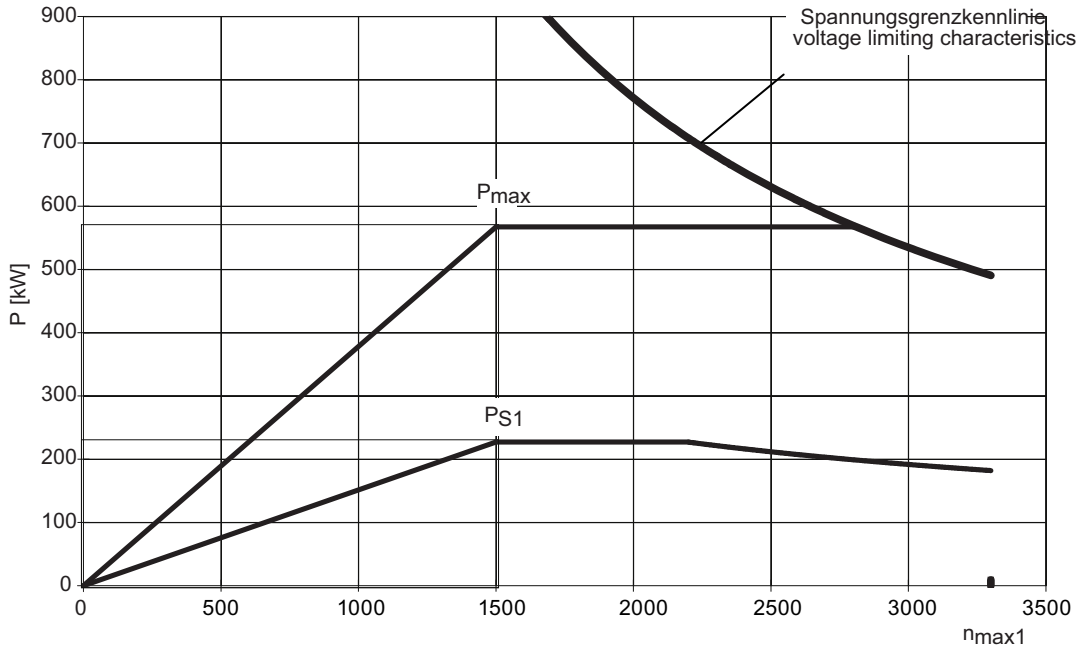


Table 4- 589 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	227	1445	445	3300	-	-	-	2200	3613	1113	1445	445



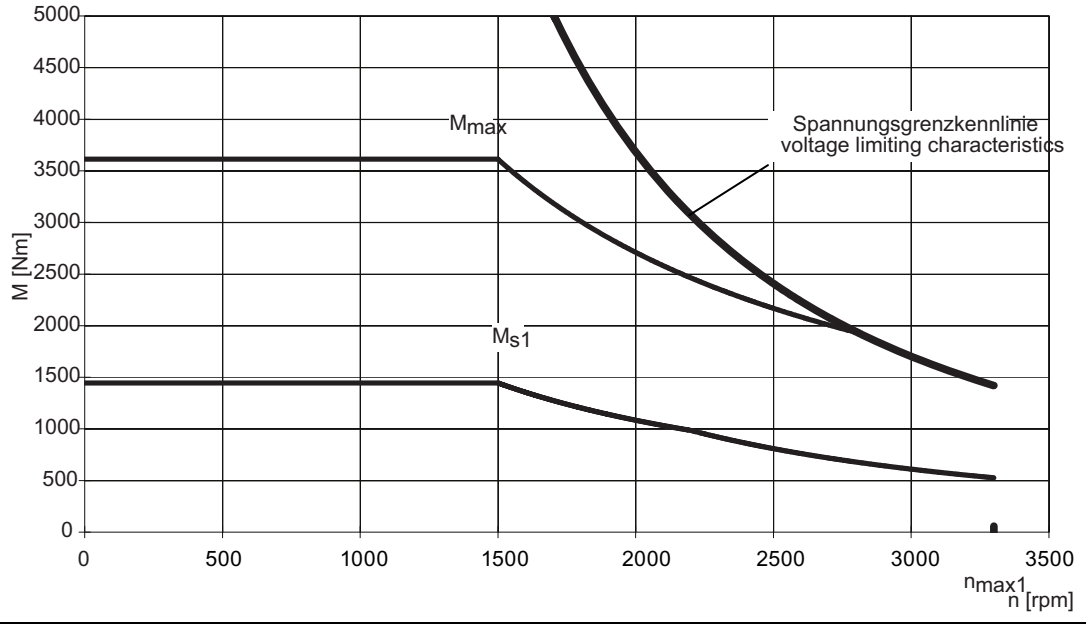
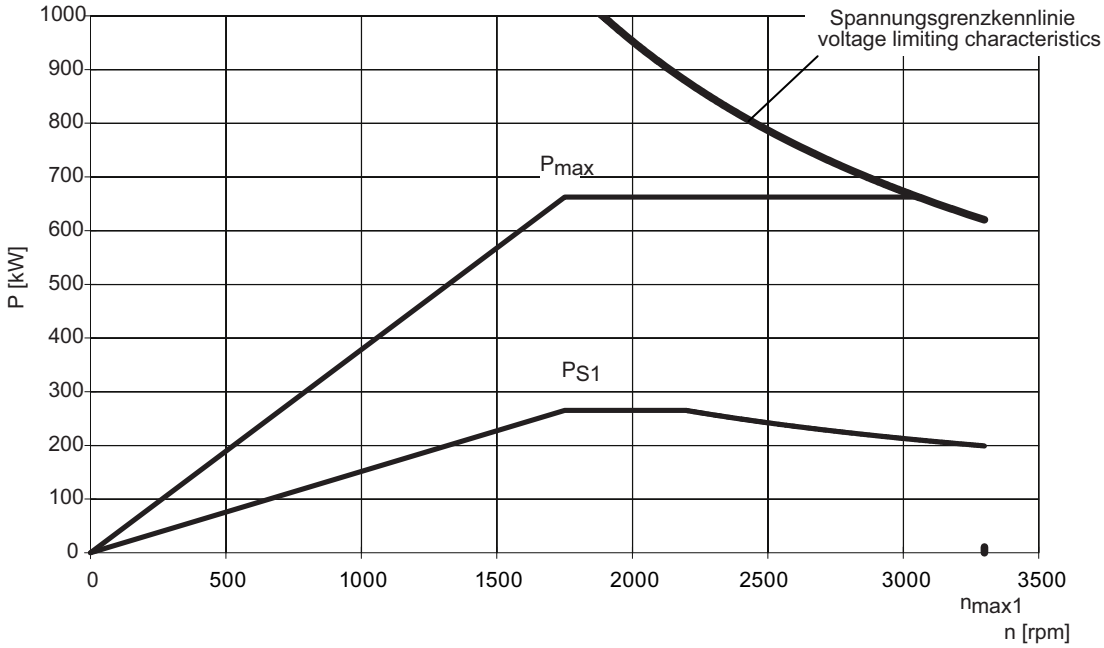


Table 4- 590 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	265	1446	445	3300	-	-	-	2200	3615	1113	1446	445
1500	227	1446	445					2700				



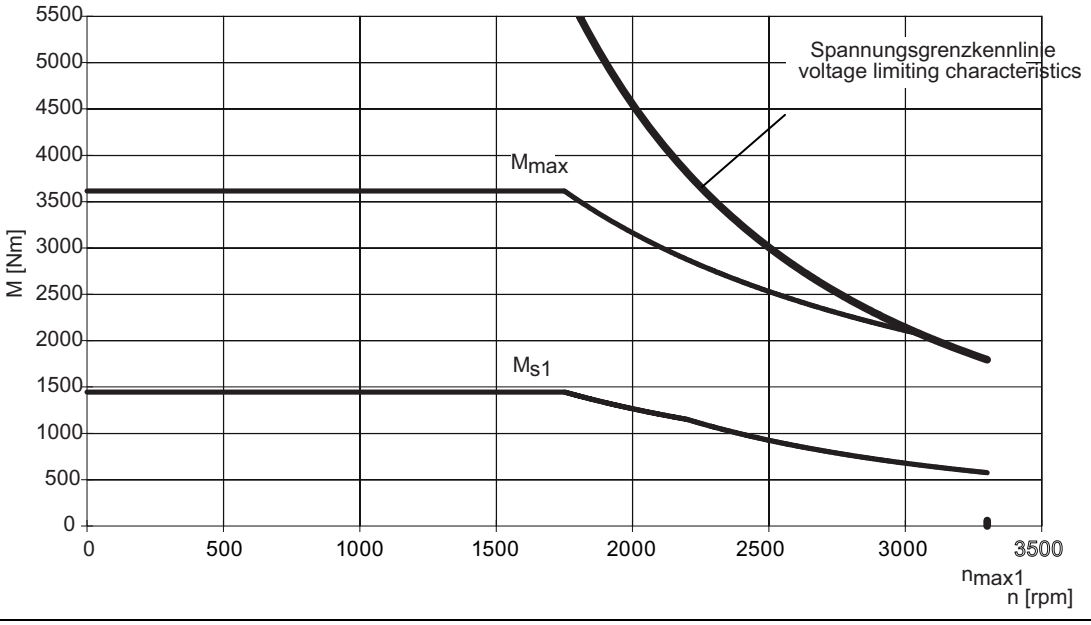
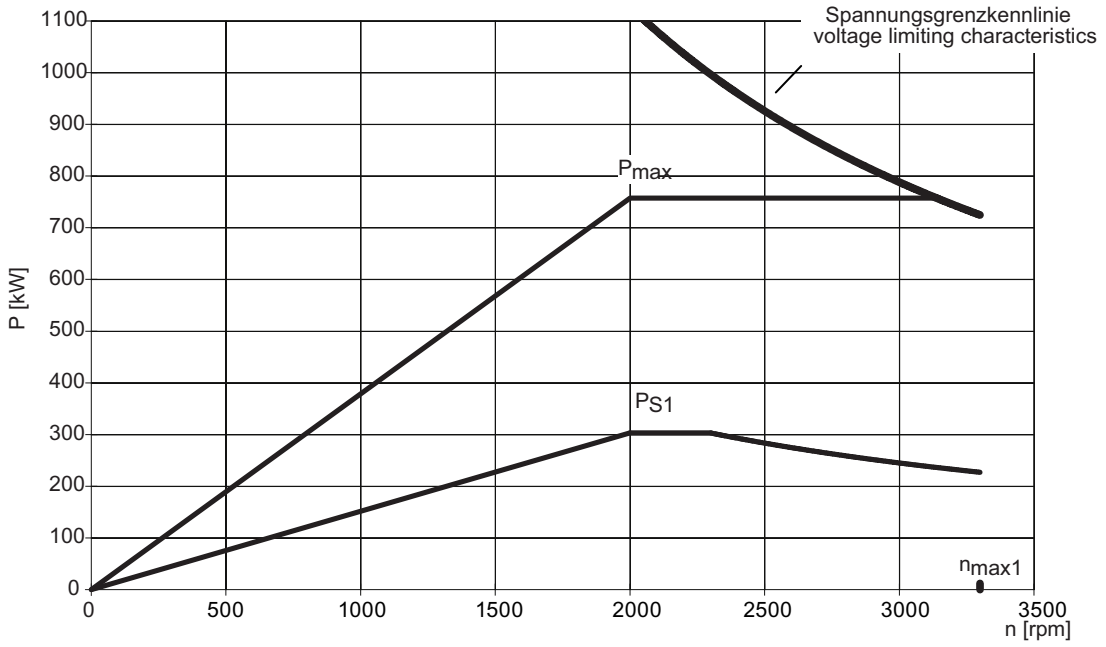


Table 4- 591 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	303	1447	445	3300	-	-	-	2300	3617	1113	1447	445



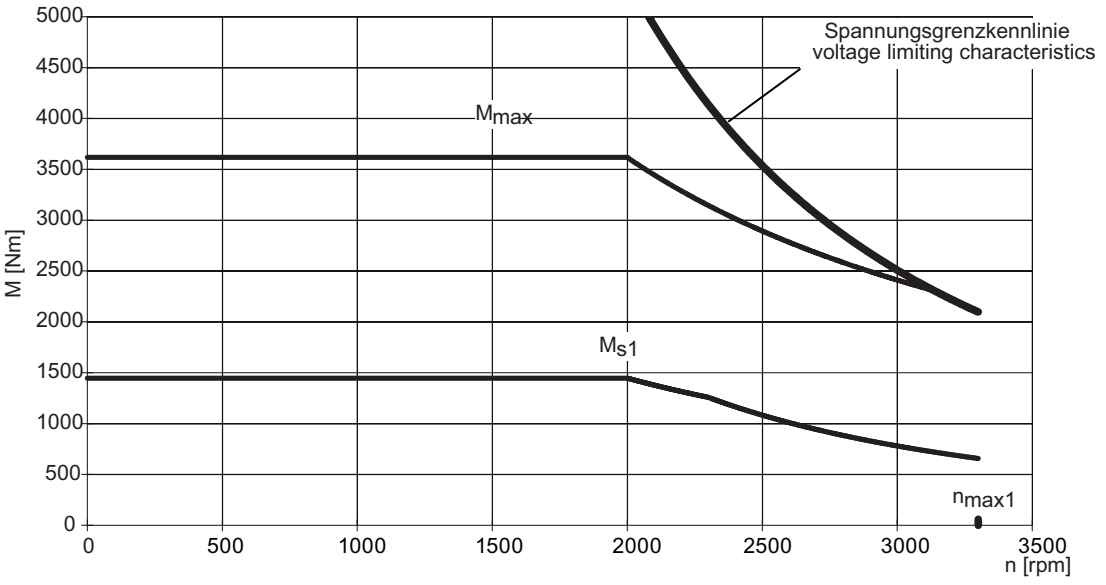


Table 4- 592 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	68	1624	89	3300	-	-	-	2000	4059	223	1624	89

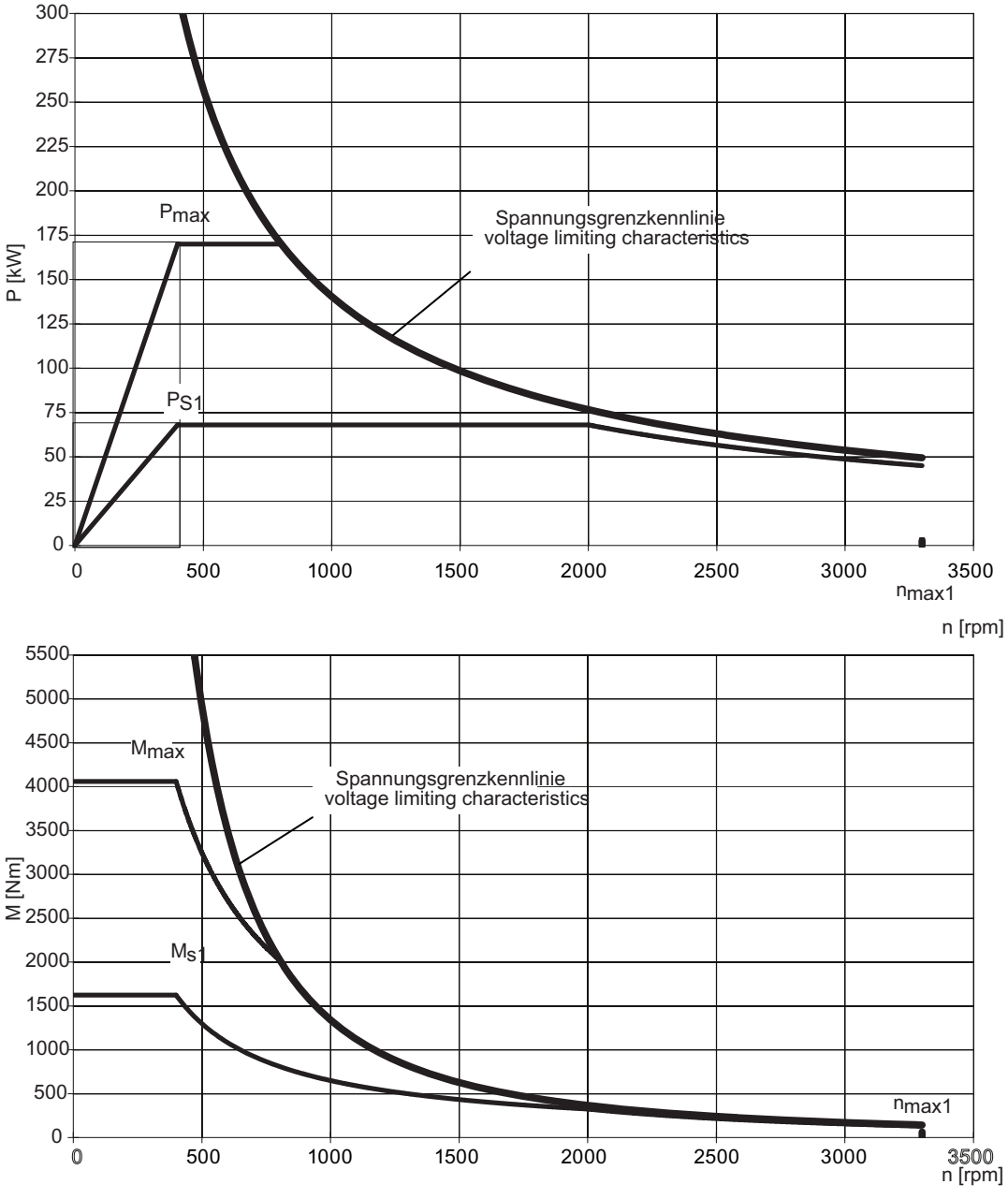
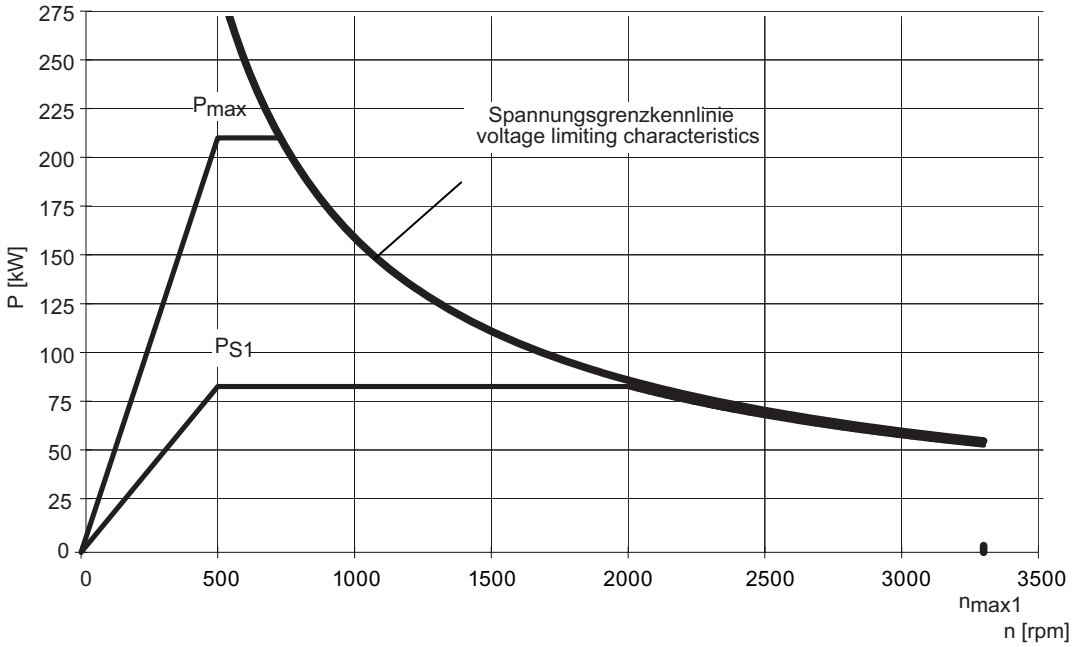


Table 4- 593 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	85	1624	89	3300	-	-	-	2000	4059	223	1624	89
400	68	1624	89					2600				



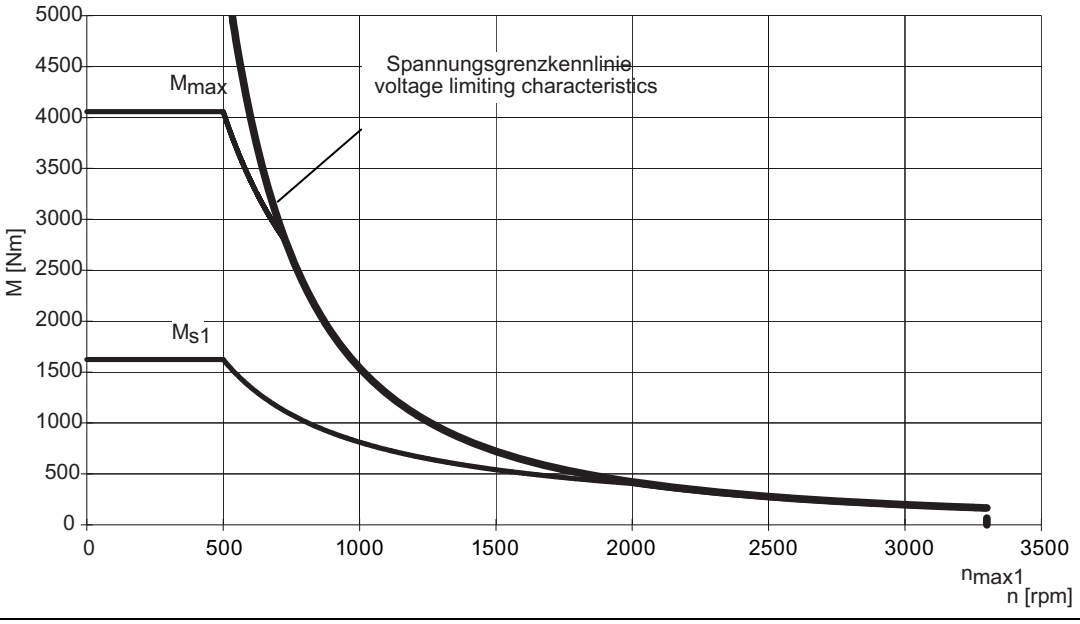
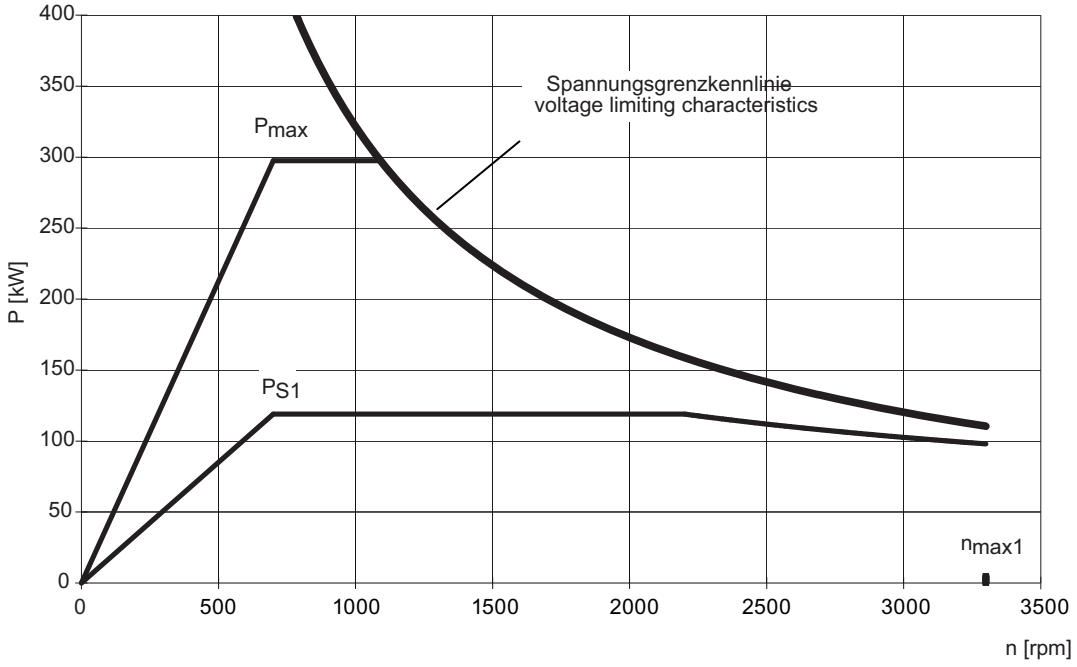


Table 4- 594 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	119	1624	136	3300	-	-	-	2200	4059	340	1624	136



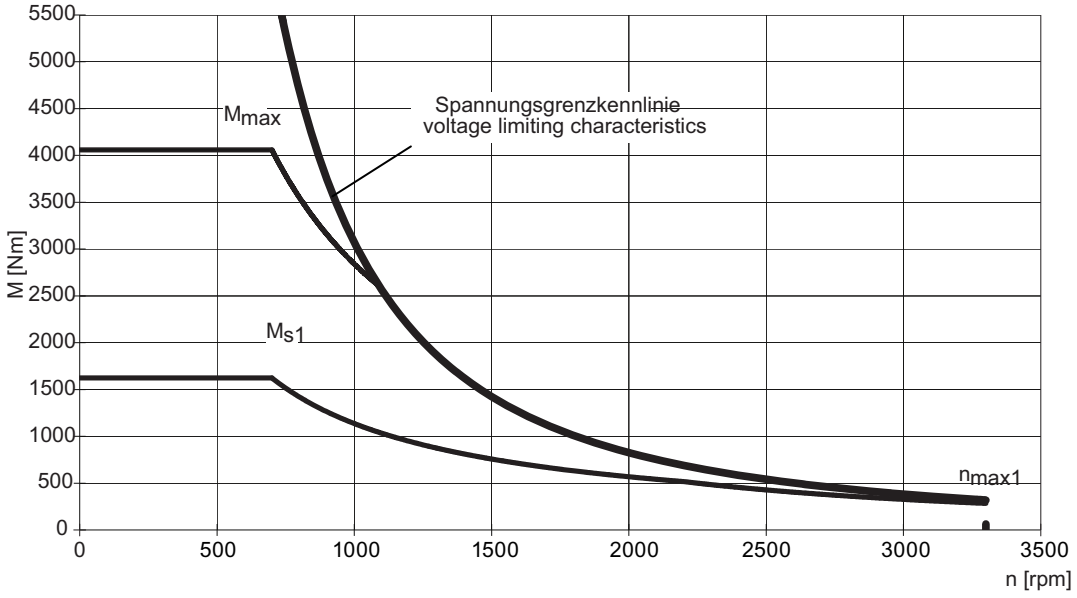
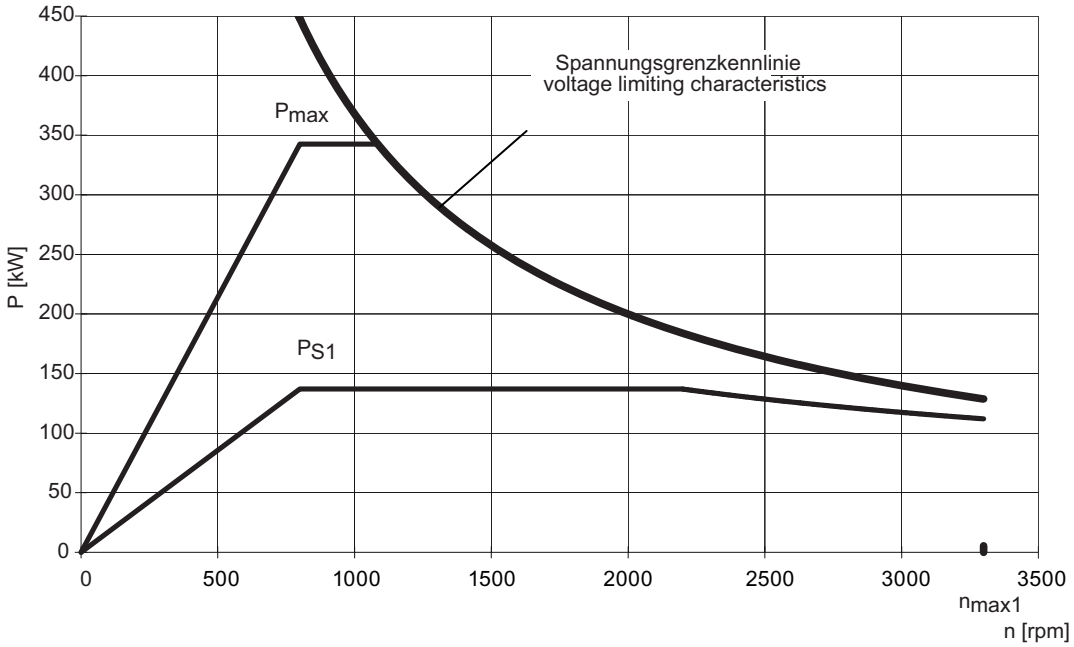


Table 4- 595 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	137	1635	138	3300	-	-	-	2200	4089	345	1635	138
700	120	1635	138					2900				



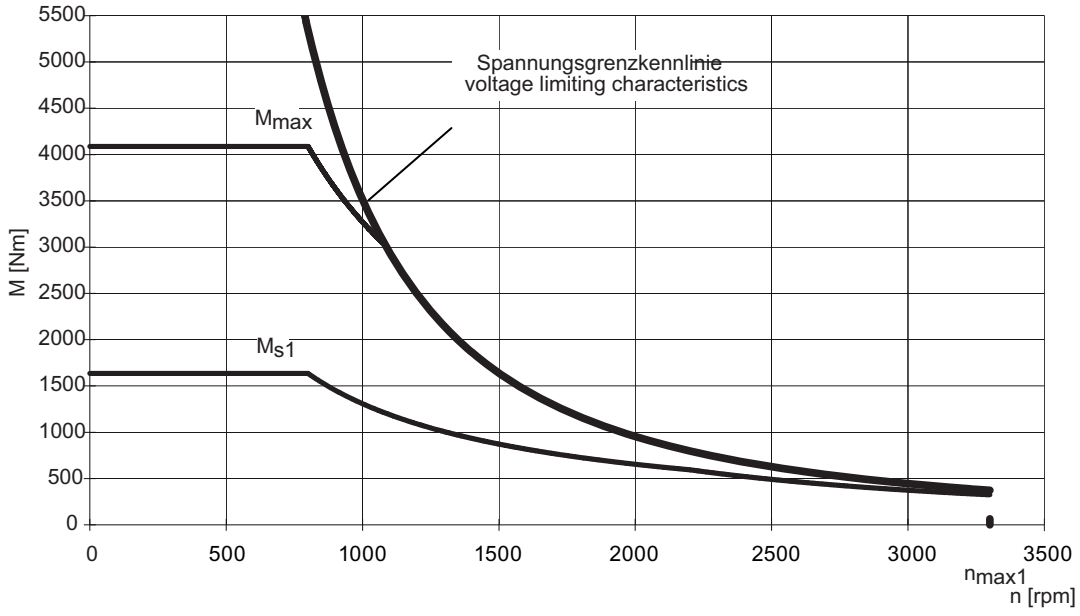
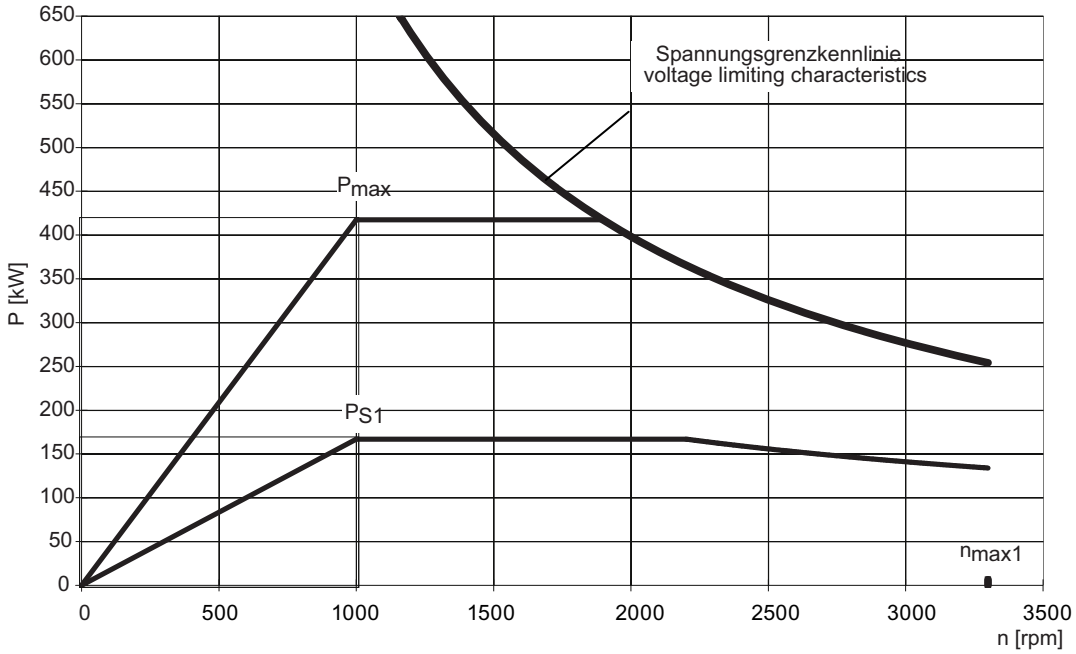


Table 4- 596 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	167	1595	196	3300	-	-	-	2200	3987	490	1595	196



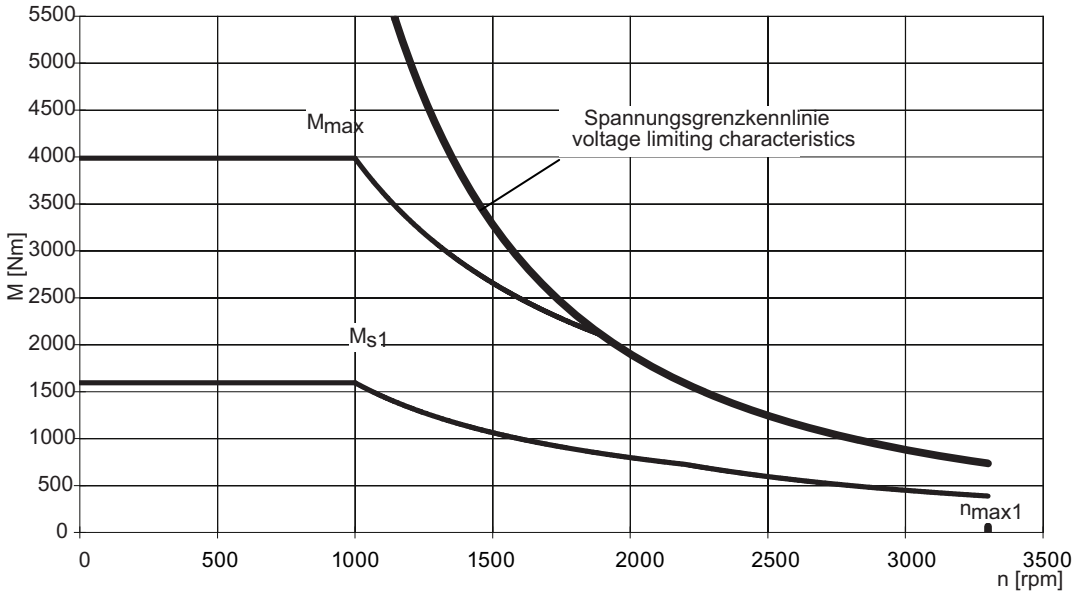
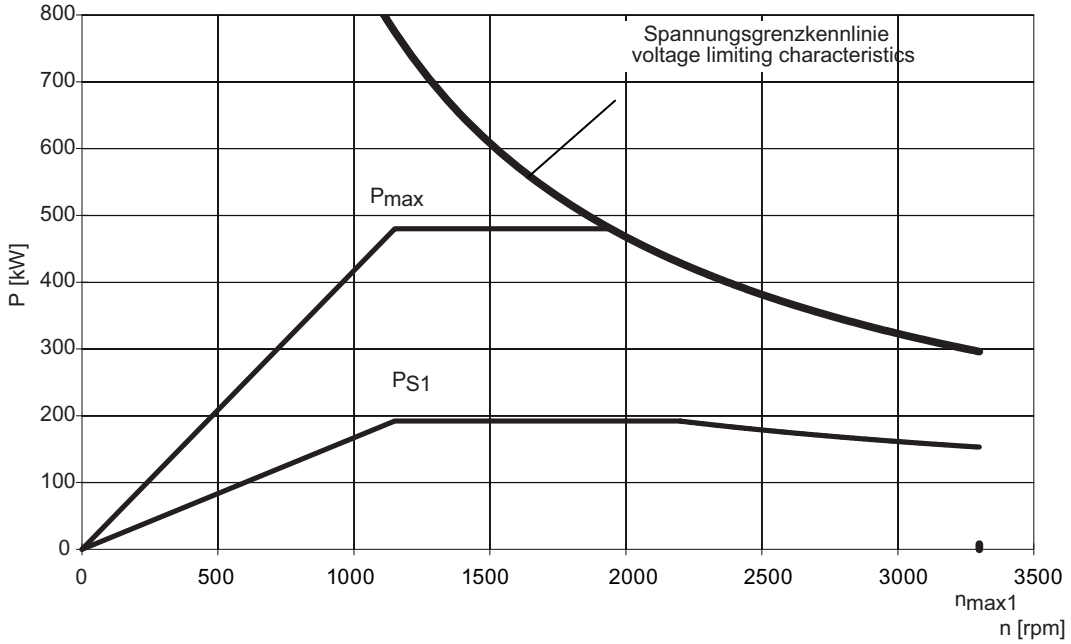


Table 4- 597 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	192	1594	198	3300	-	-	-	2200	3986	495	1594	198
1000	167	1594	198					2800				



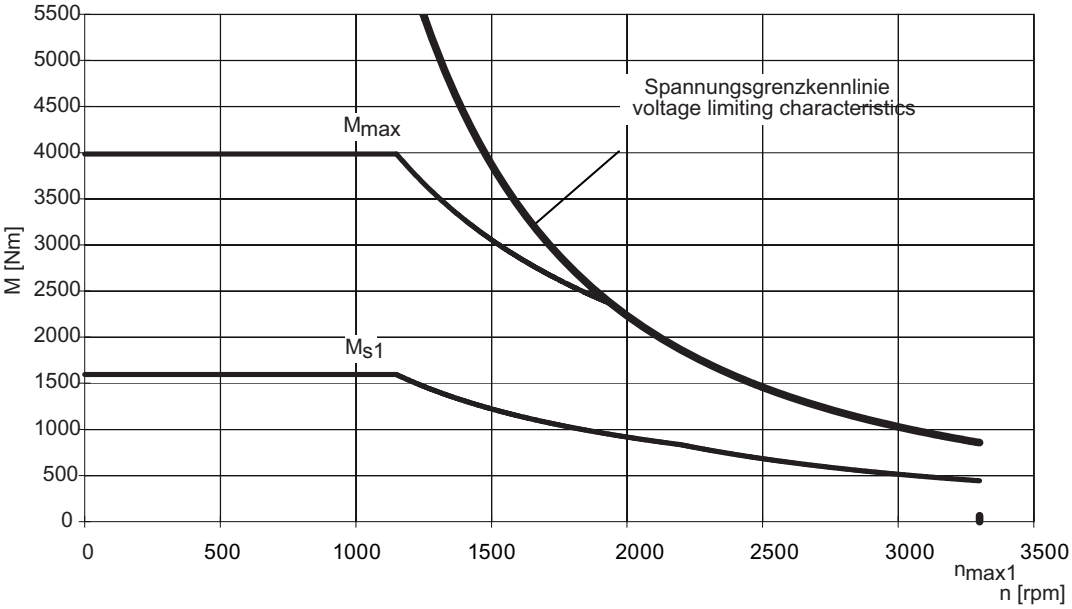
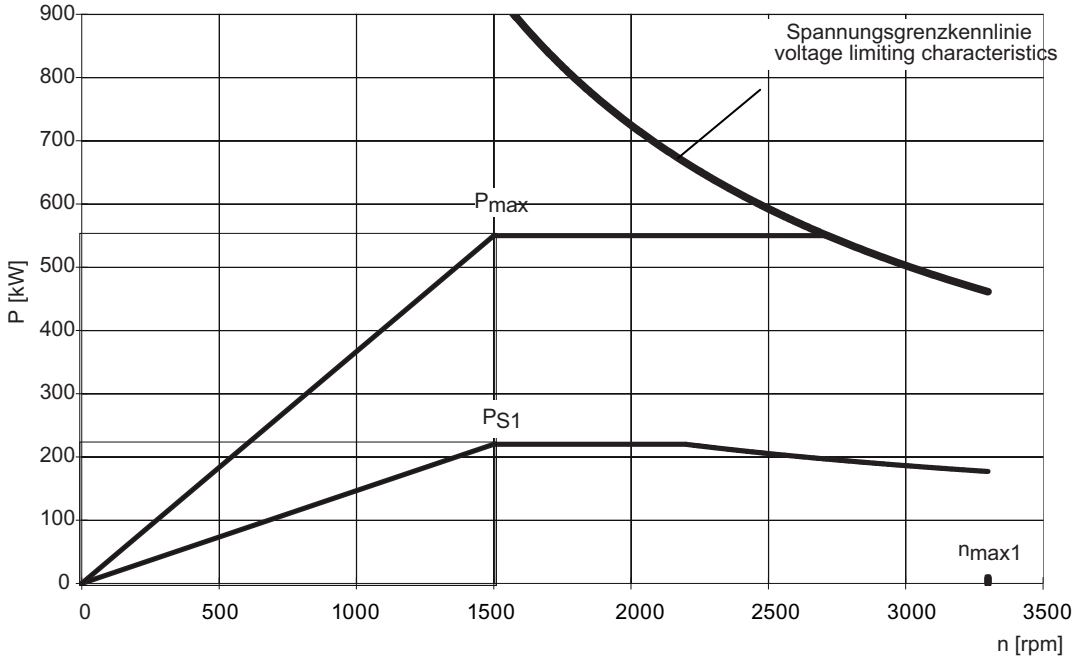


Table 4- 598 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	220	1401	250	3300	-	-	-	2200	3502	625	1401	250



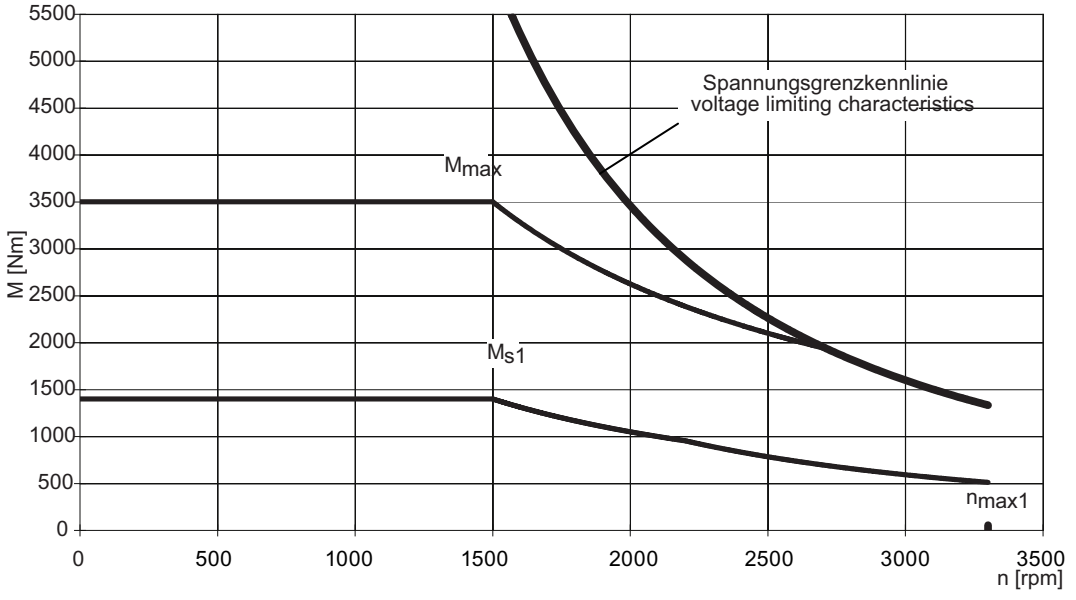
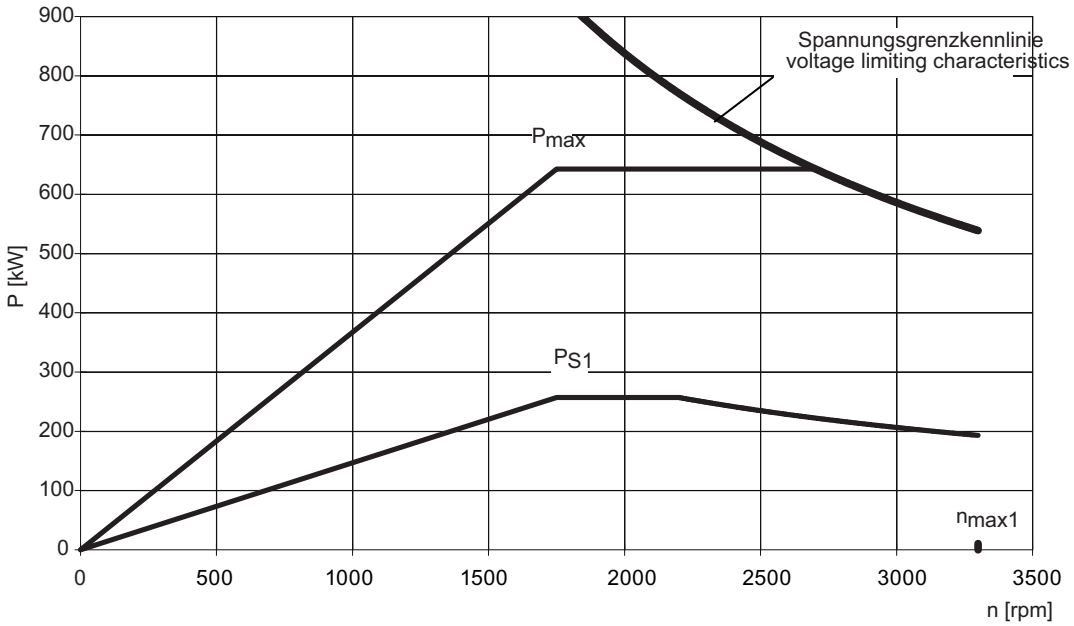


Table 4- 599 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	257	1402	250	3300	-	-	-	2200	3506	625	1402	250
1500	220	1402	250					2700				



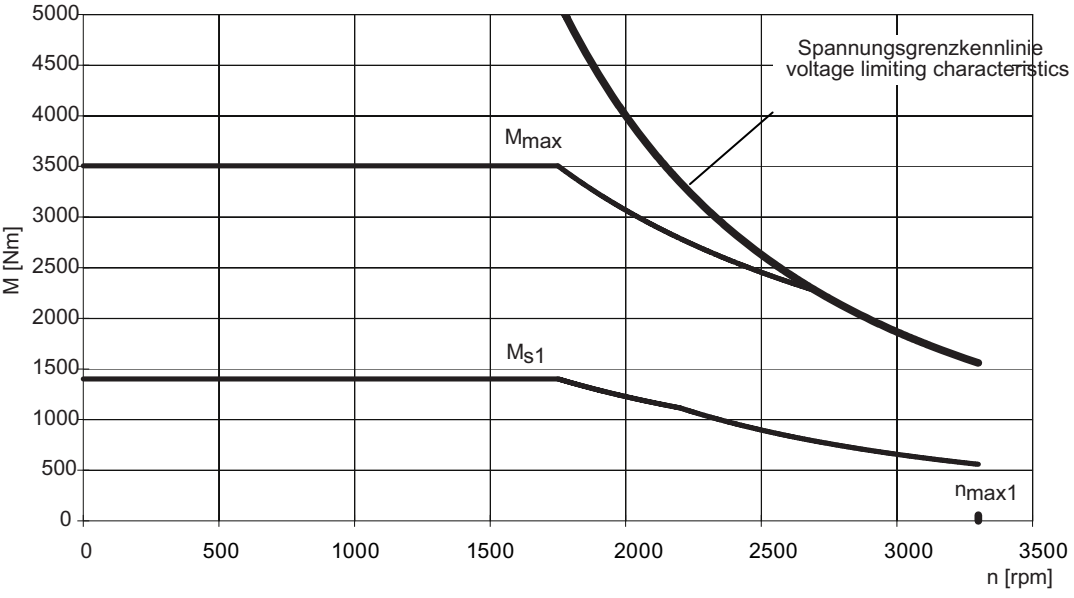
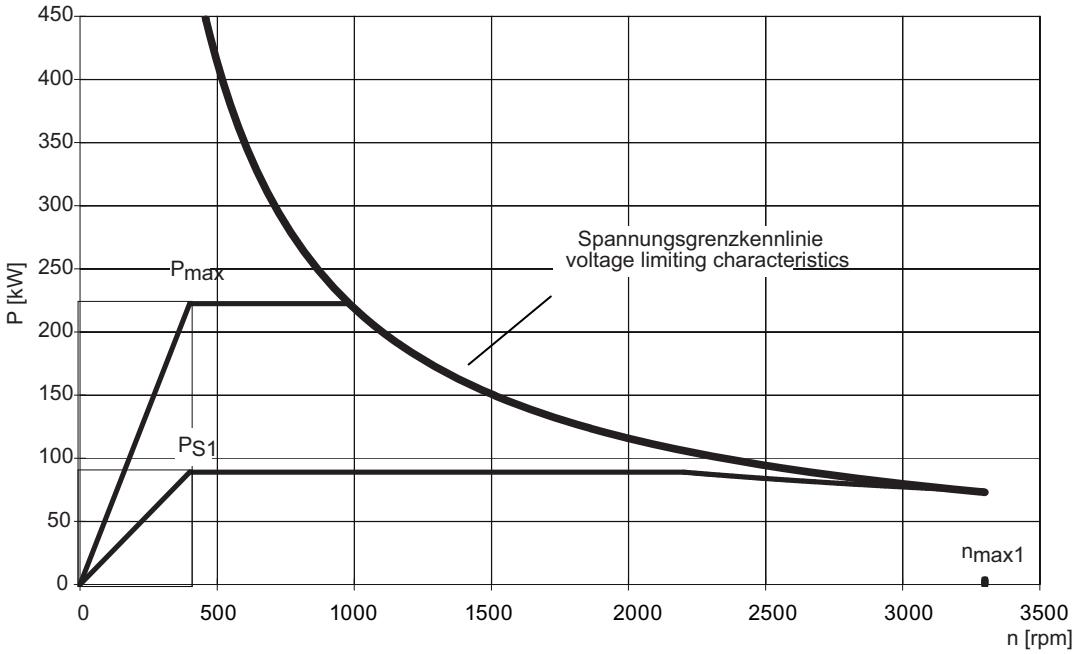


Table 4- 600 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	89	2125	210	3300	-	-	-	2200	5312	525	2125	210



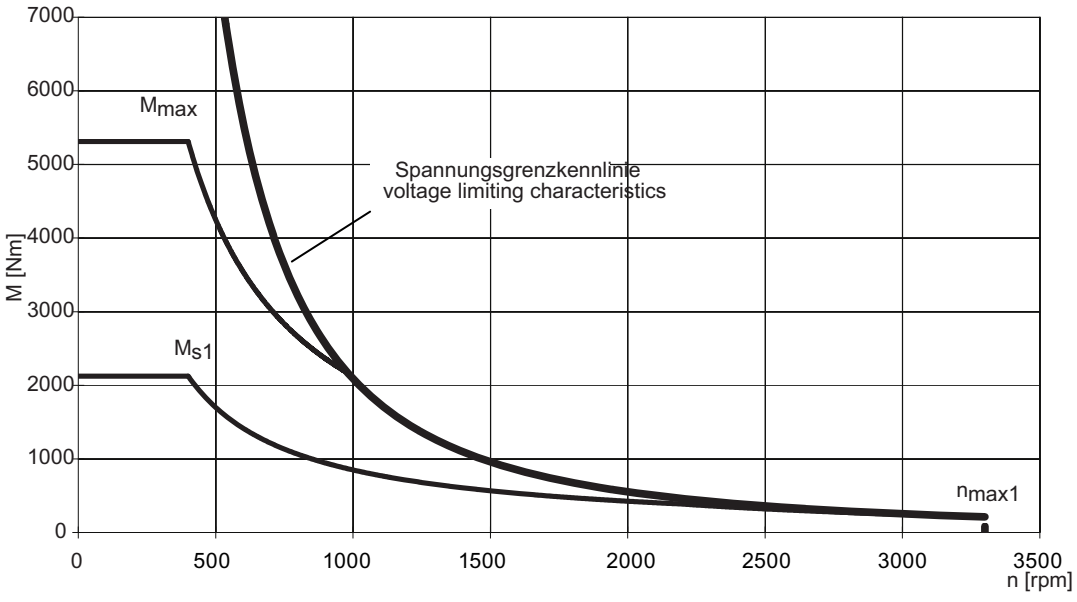
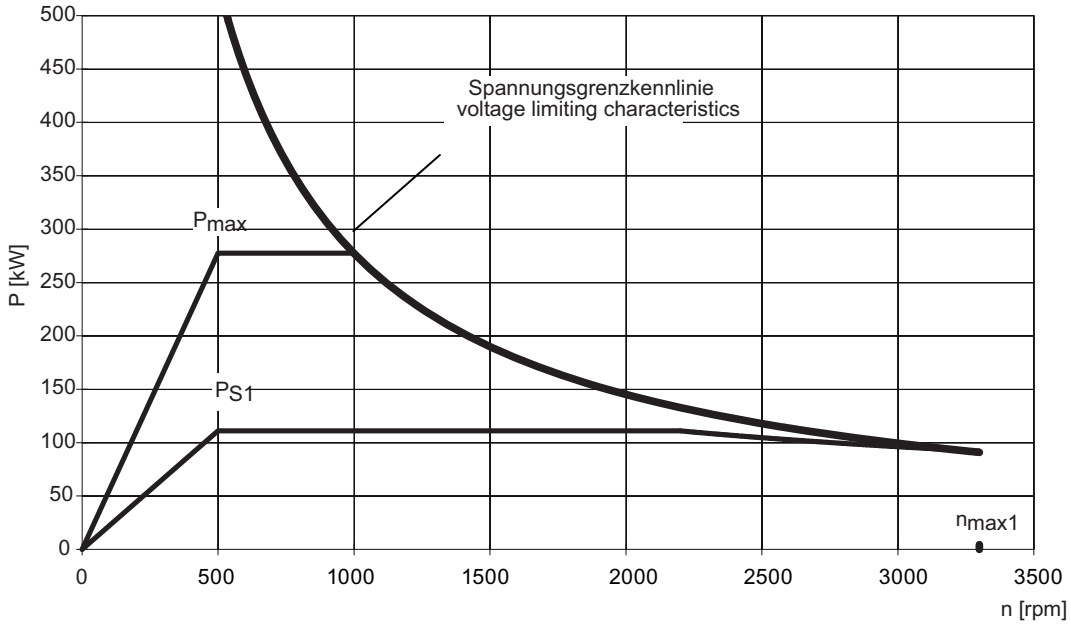


Table 4- 601 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	111	2120	205	3300	-	-	-	2200	5300	513	2120	205
400	89	2120	205					3300				



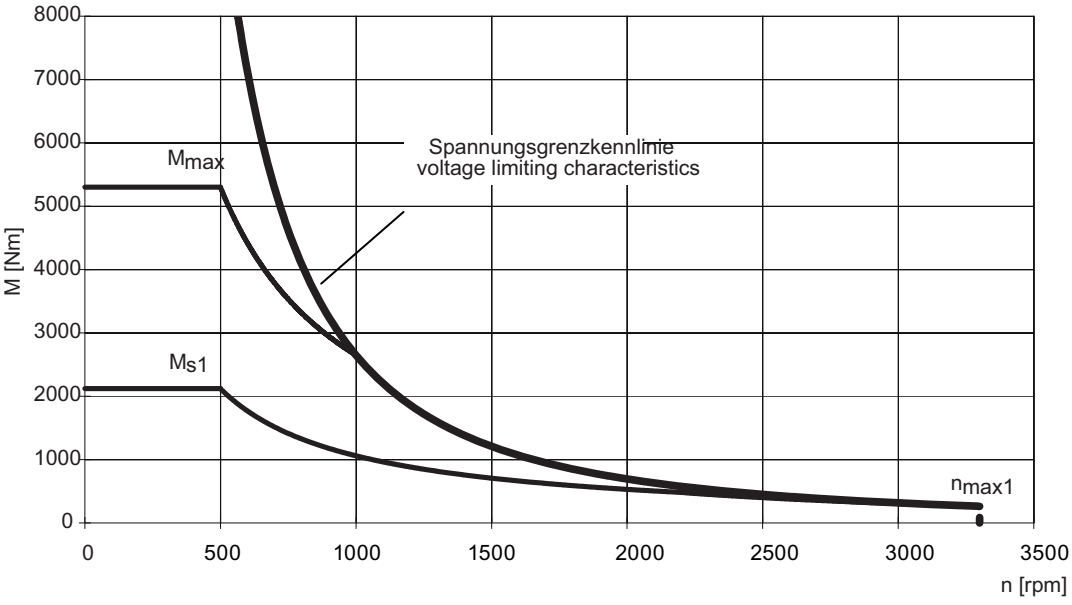


Table 4- 602 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	133	2117	205	3300	-	-	-	2200	5292	513	2117	205

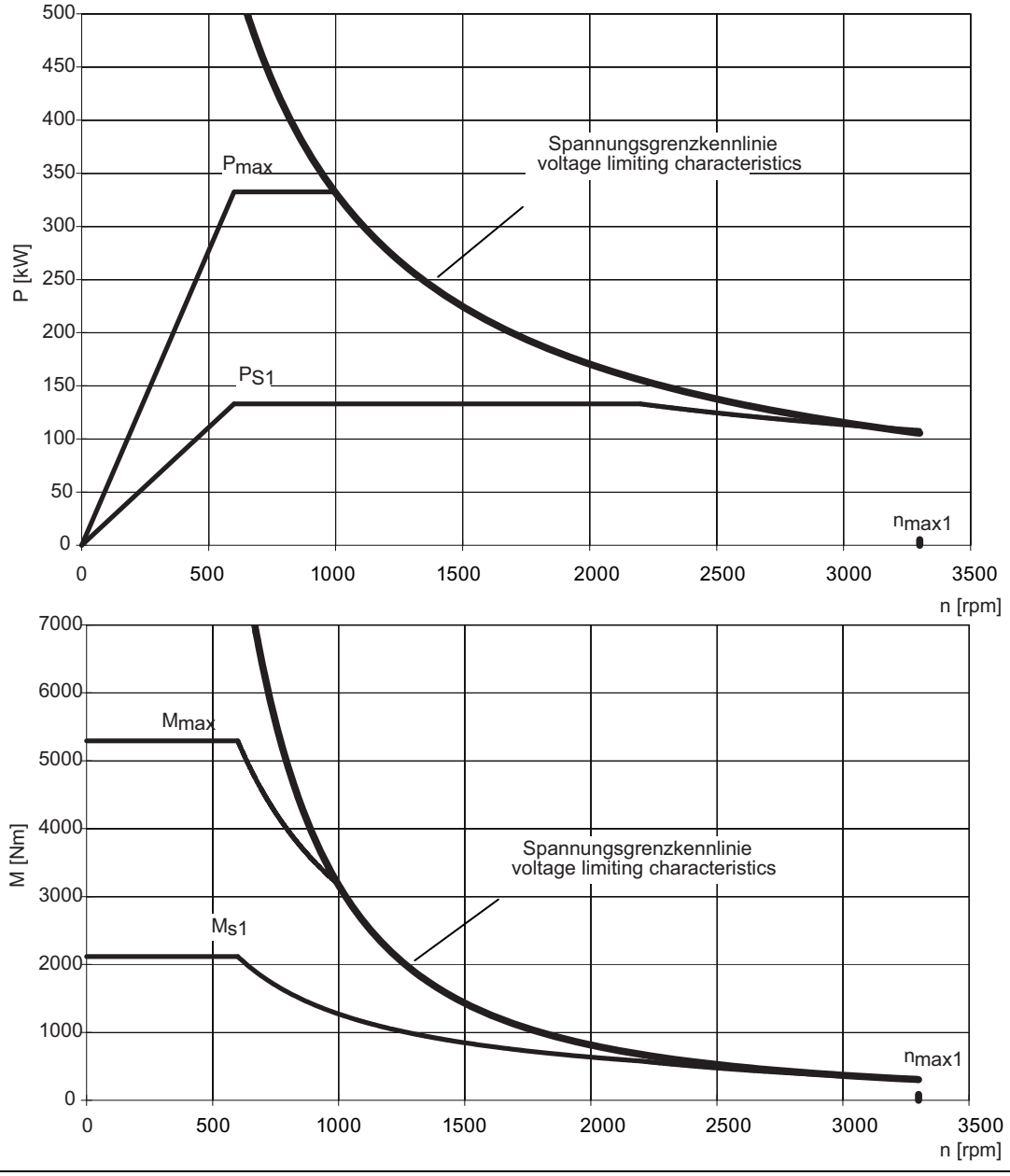
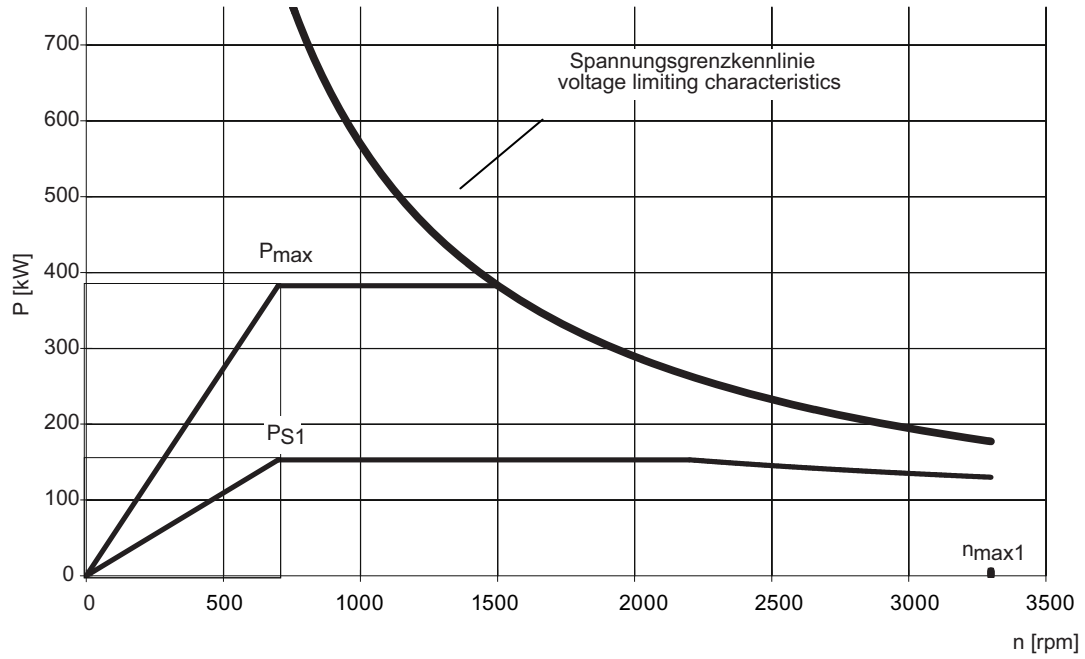


Table 4- 603 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	153	2087	320	3300	-	-	-	2200	5218	800	2087	320



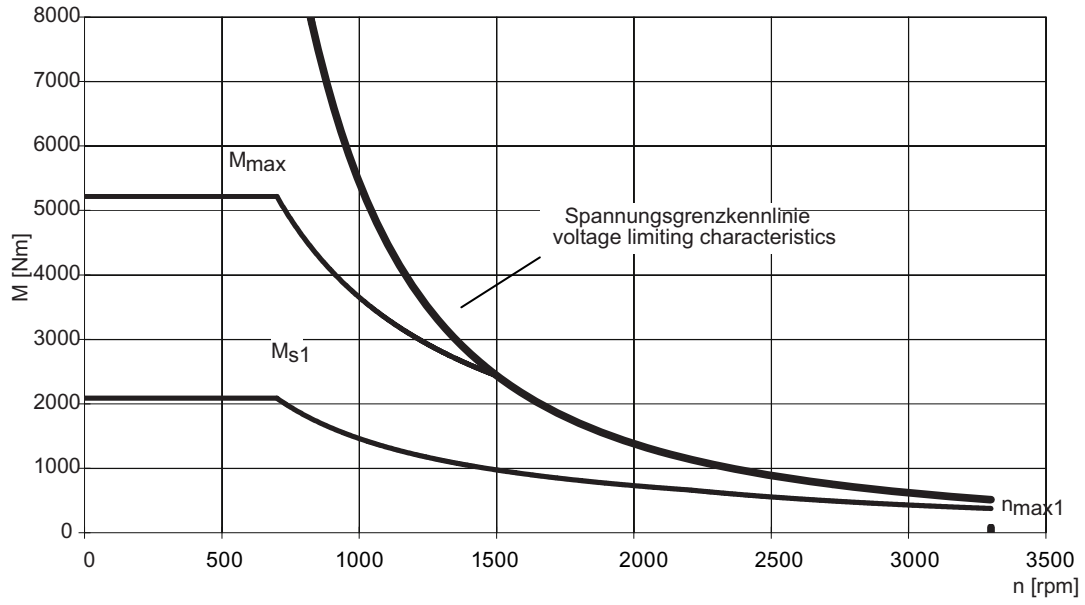
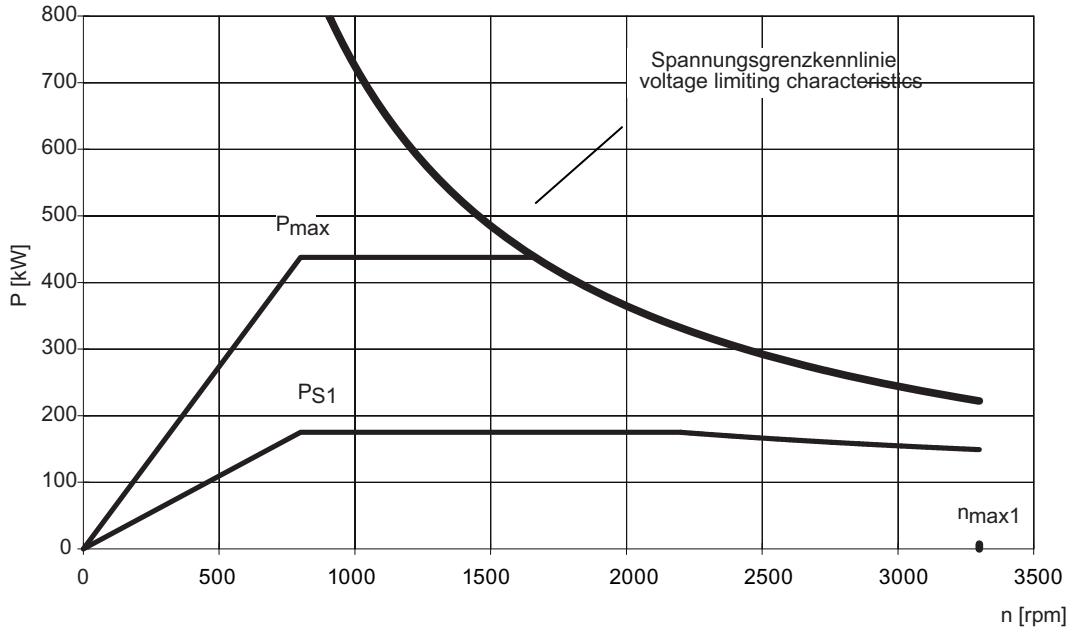


Table 4- 604 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	175	2089	320	3300	-	-	-	2200	5223	800	2089	320
700	153	2089	320					3100				



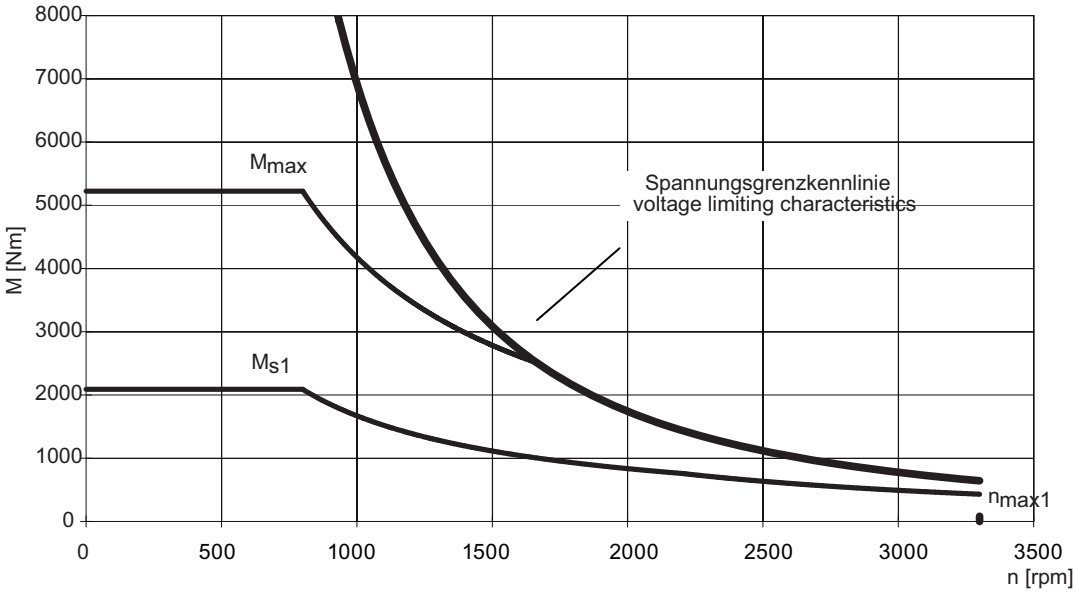
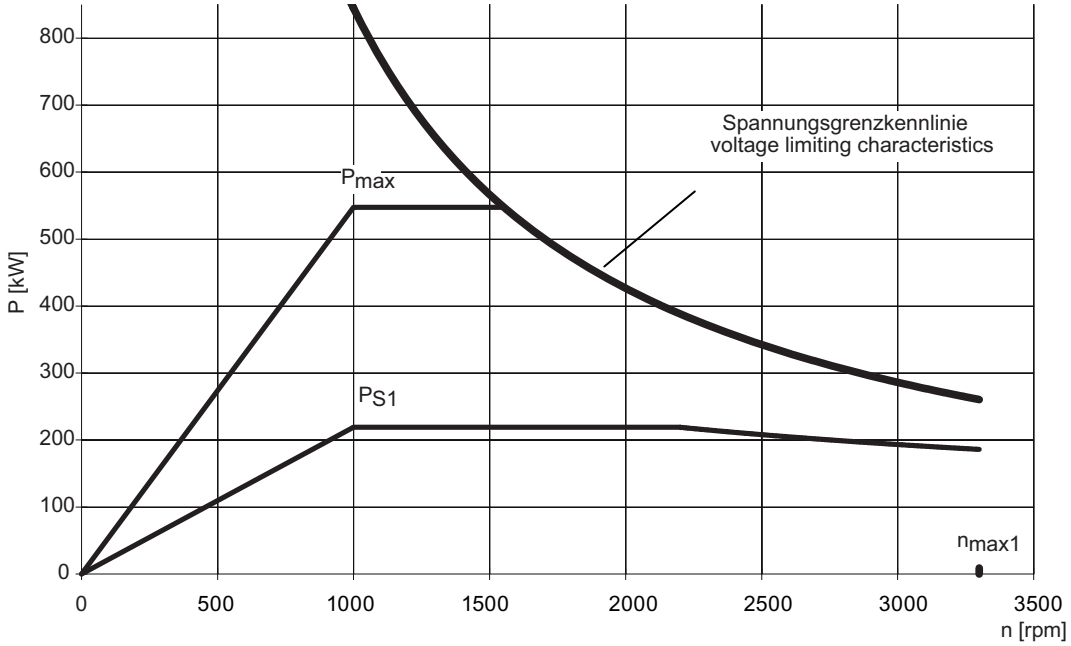


Table 4- 605 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	219	2091	325	3300	-	-	-	2200	5229	813	2091	325



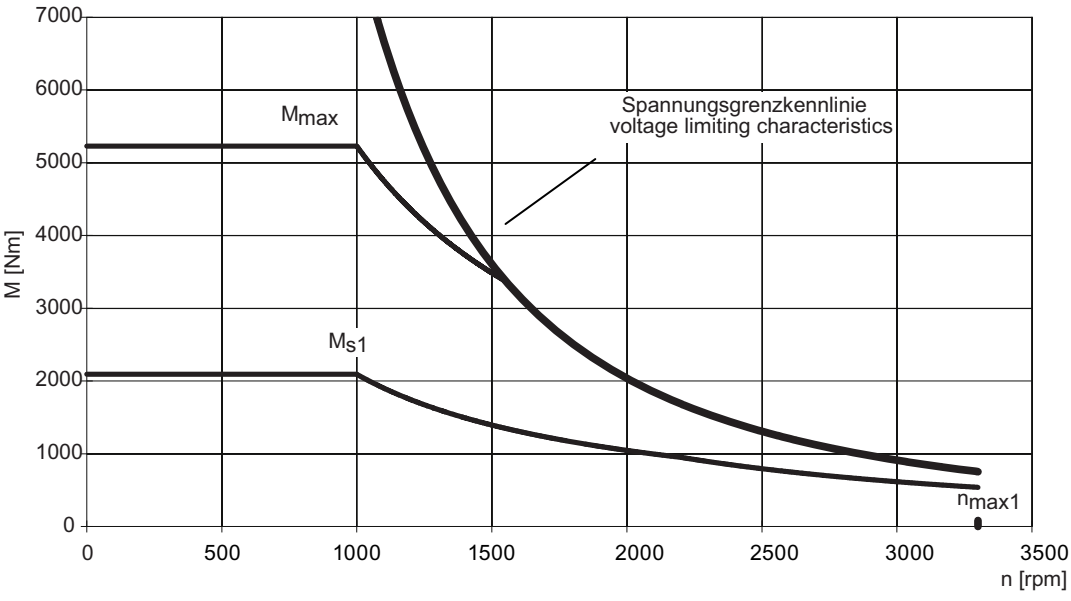
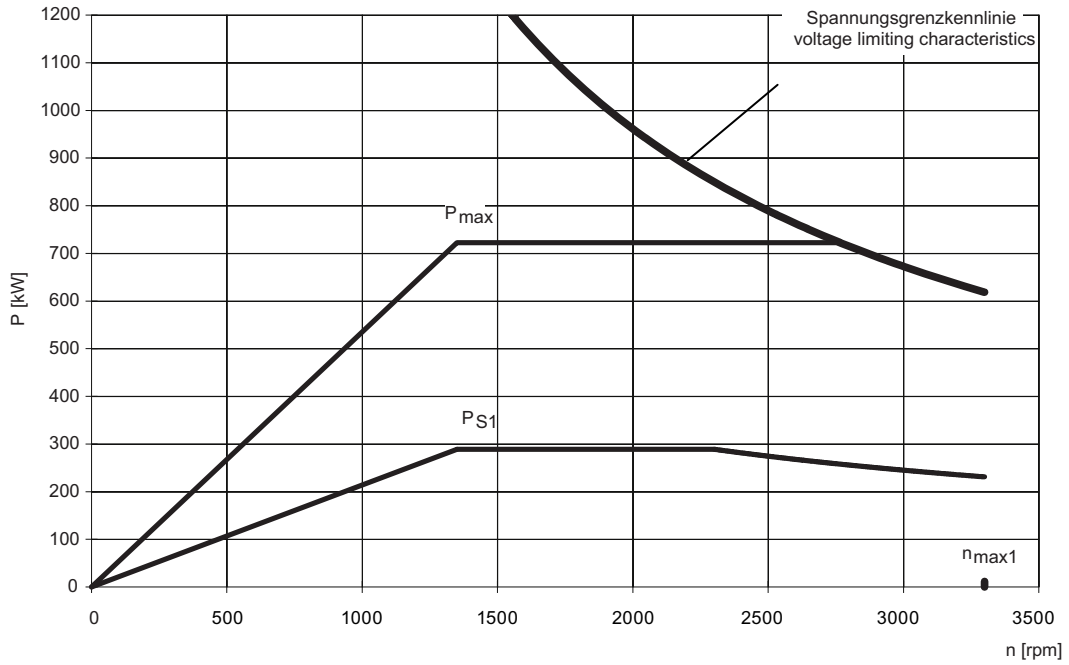


Table 4- 606 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	214	2044	460	3300	-	-	-	2200	5109	1150	2044	460



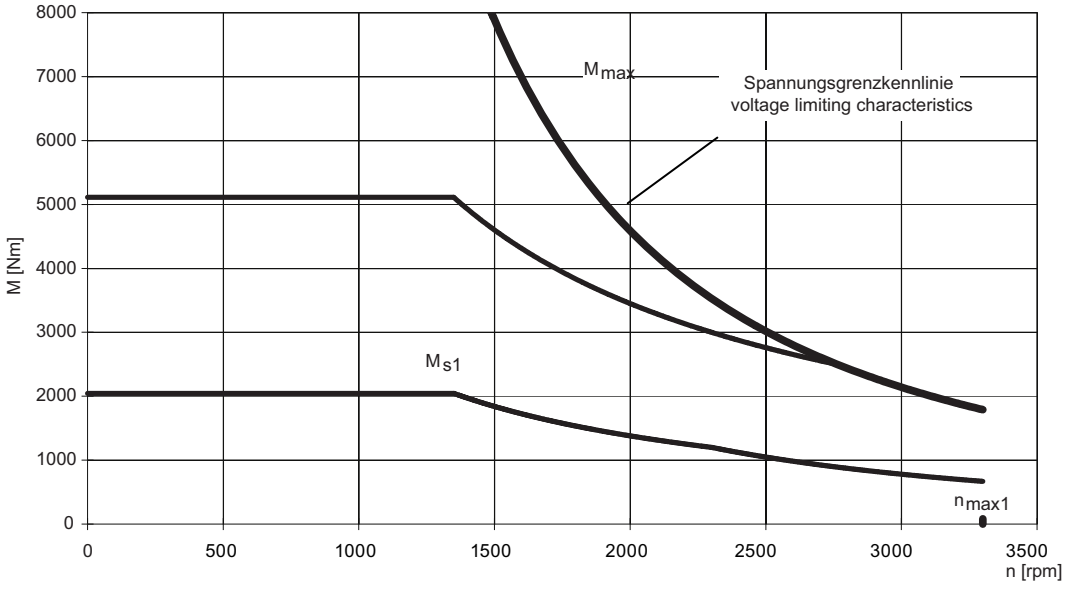
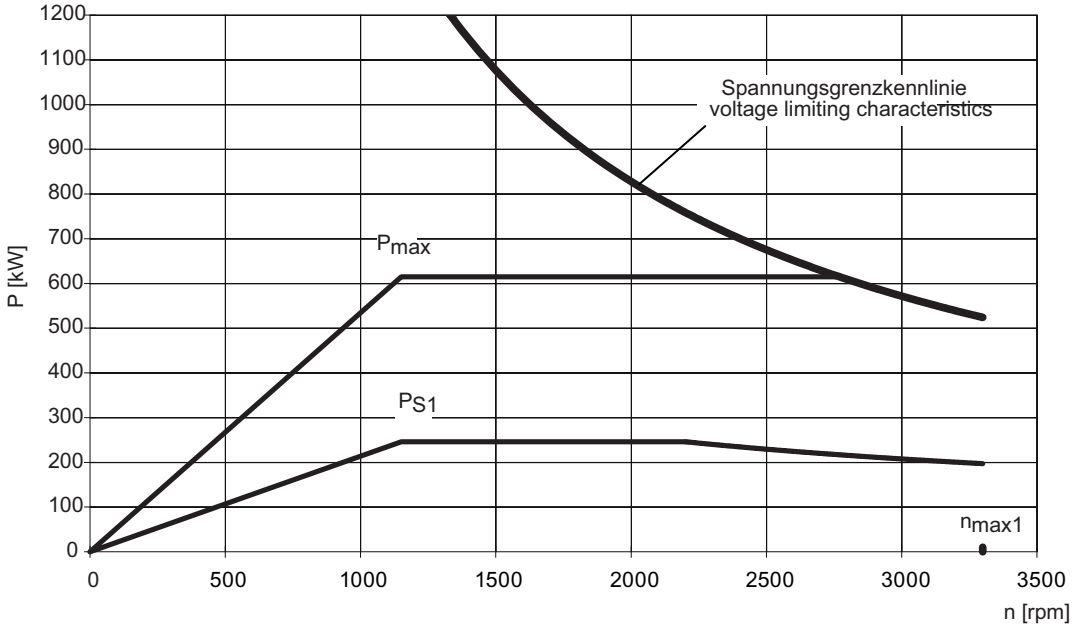


Table 4- 607 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	246	2043	455	3300	-	-	-	2200	5107	1138	2043	455
1000	214	2043	455					2800				



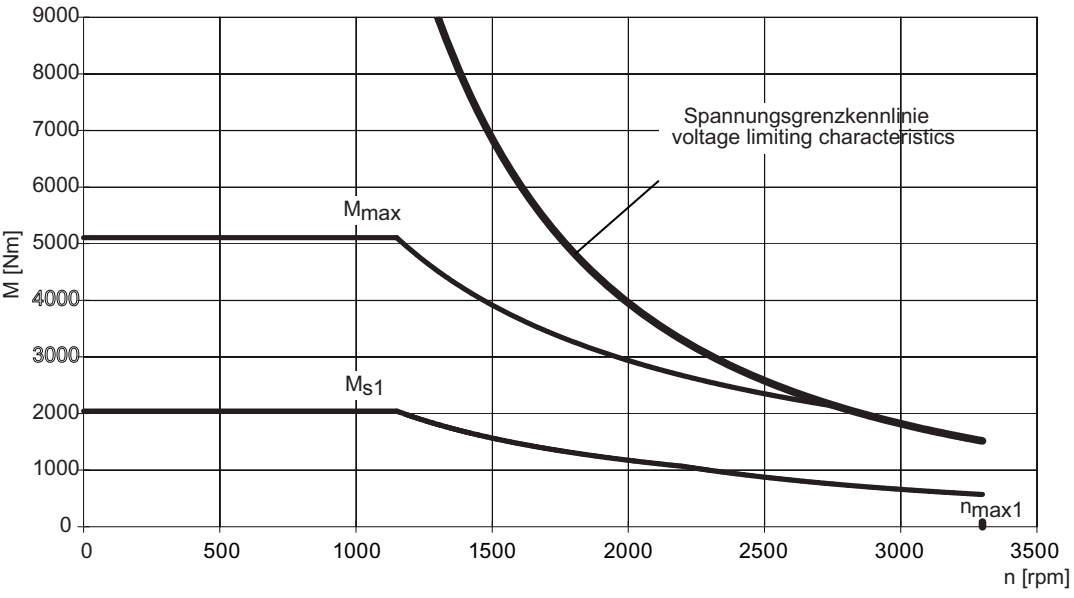
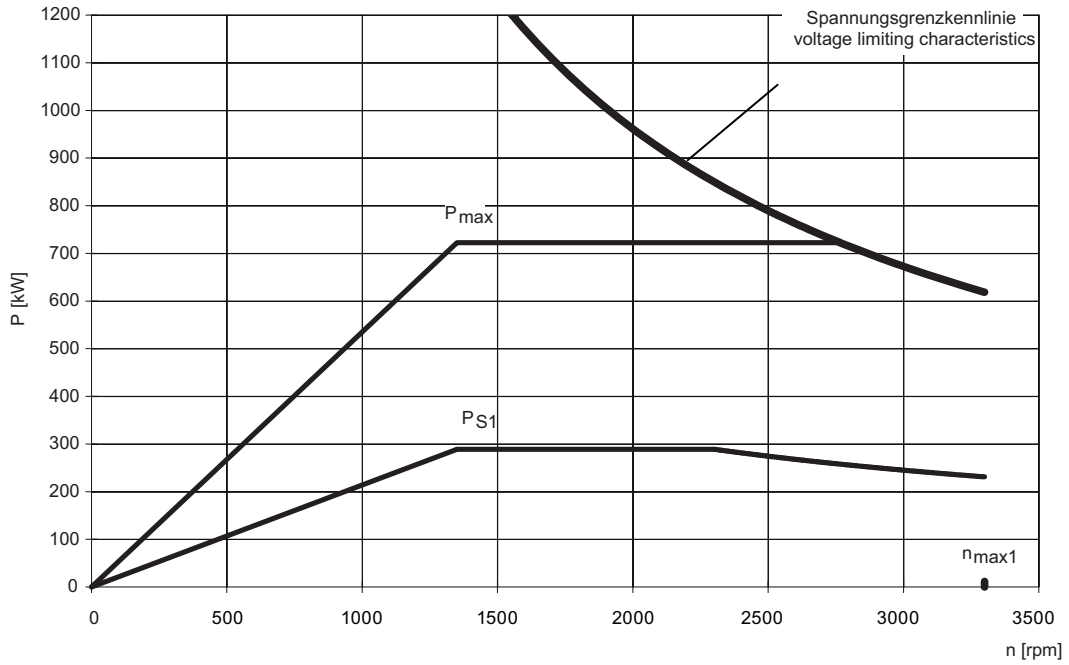


Table 4- 608 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	289	2044	460	3300	-	-	-	2300	5111	1150	2044	460



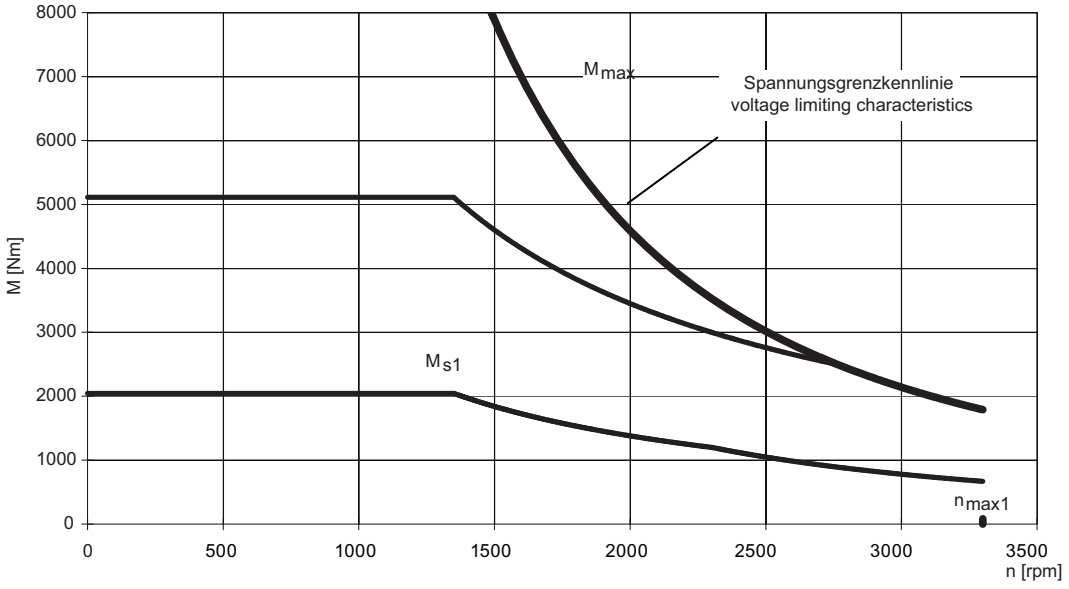
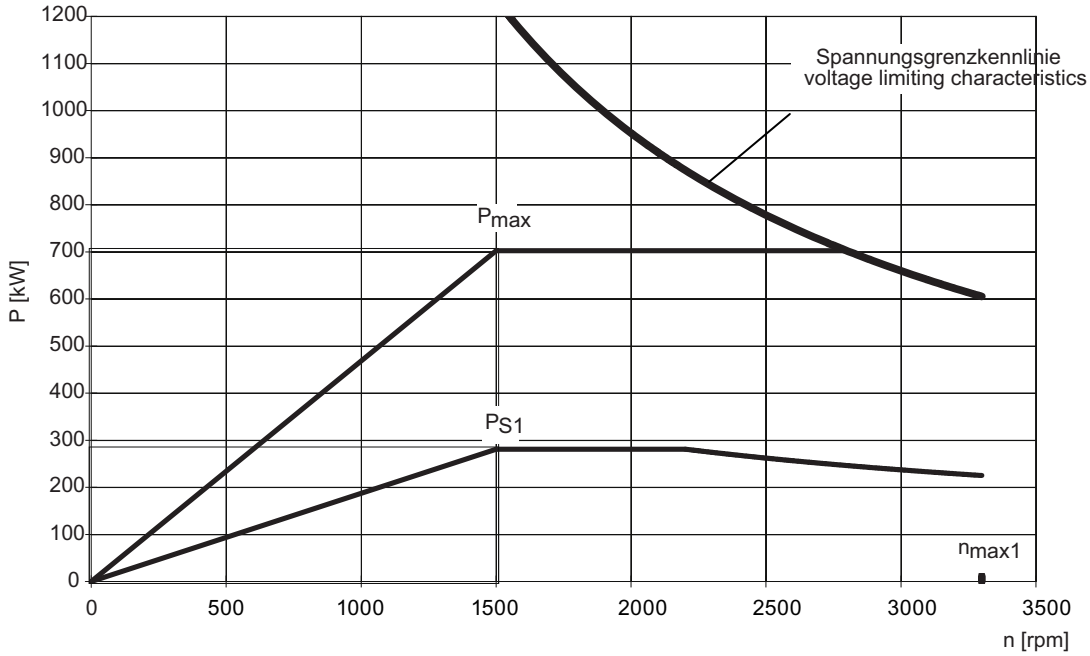


Table 4- 609 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	281	1789	540	3300	-	-	-	2200	4473	1350	1789	540



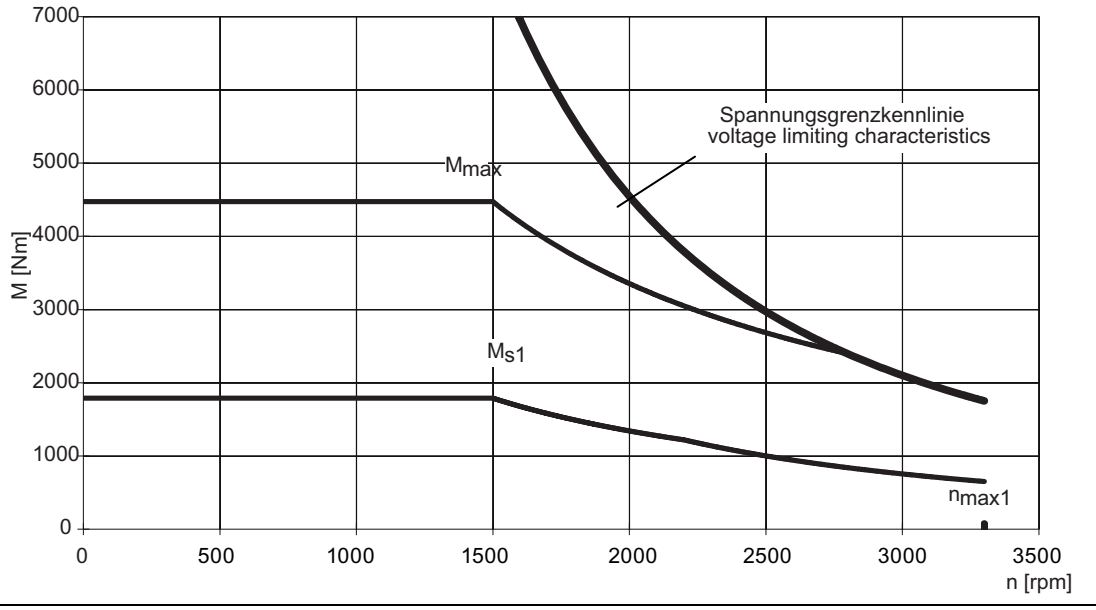
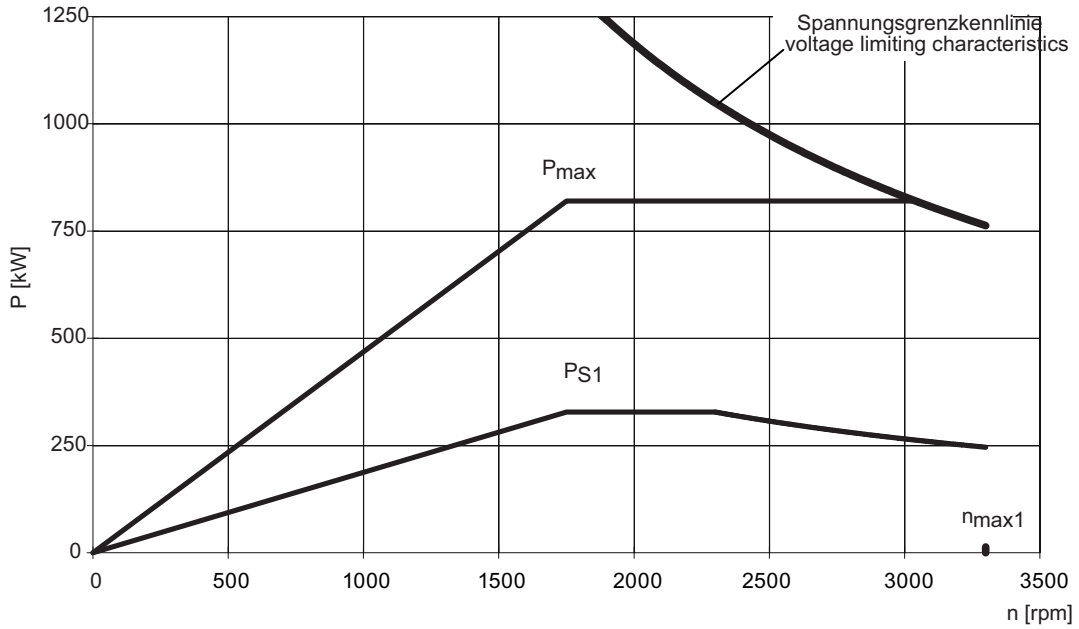


Table 4- 610 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	328	1790	540	3300	-	-	-	2300	4475	1350	1790	540
1500	281	1790	540					2800				



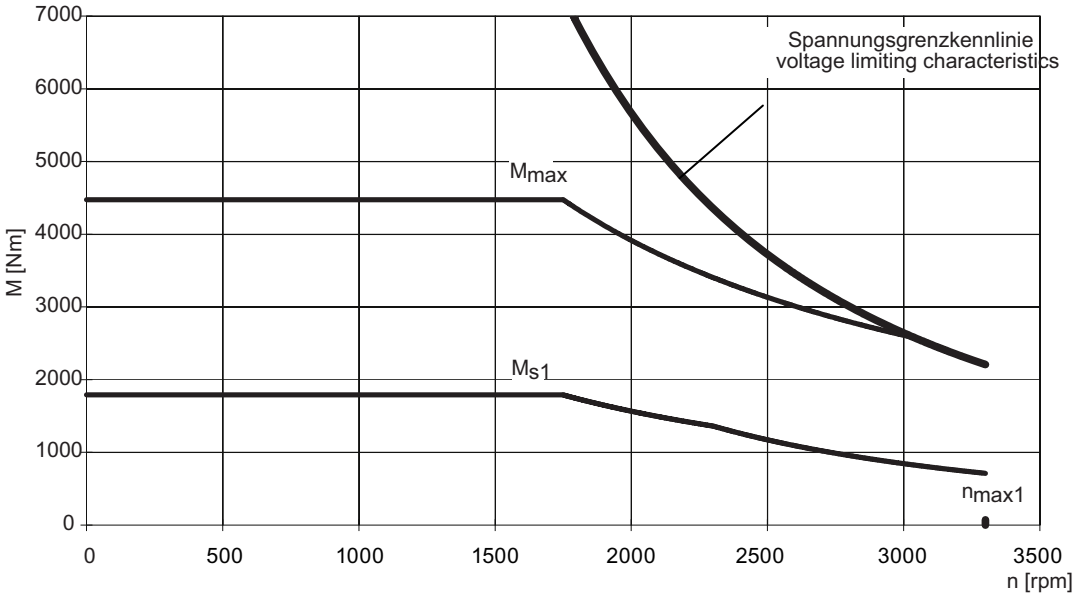
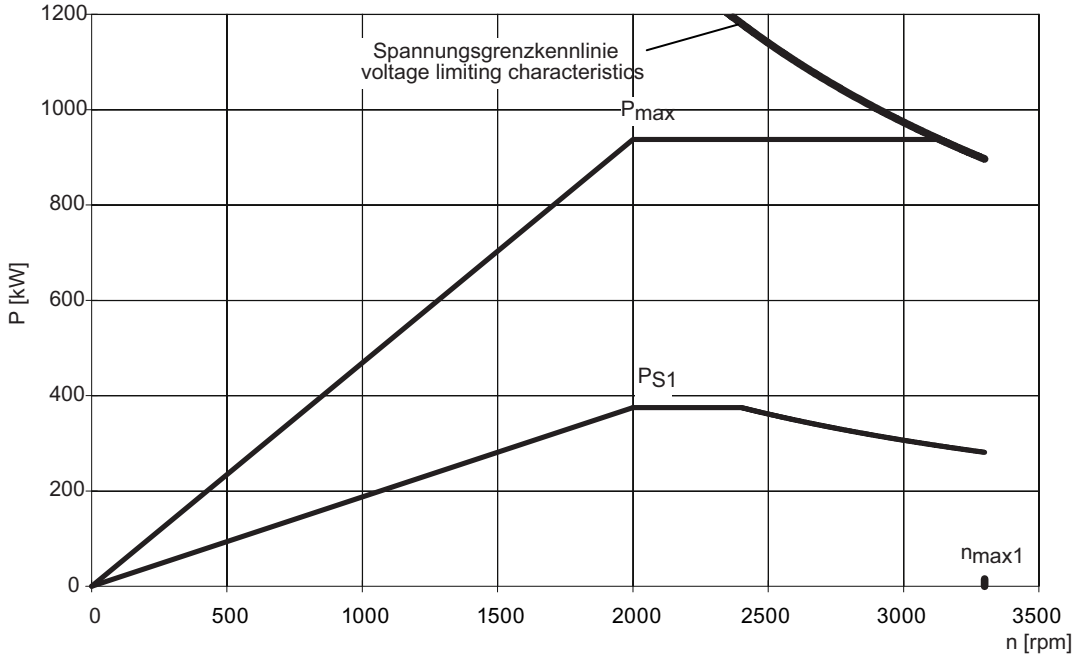


Table 4- 611 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	375	1791	550	3300	-	-	-	2400	4477	1375	1791	550



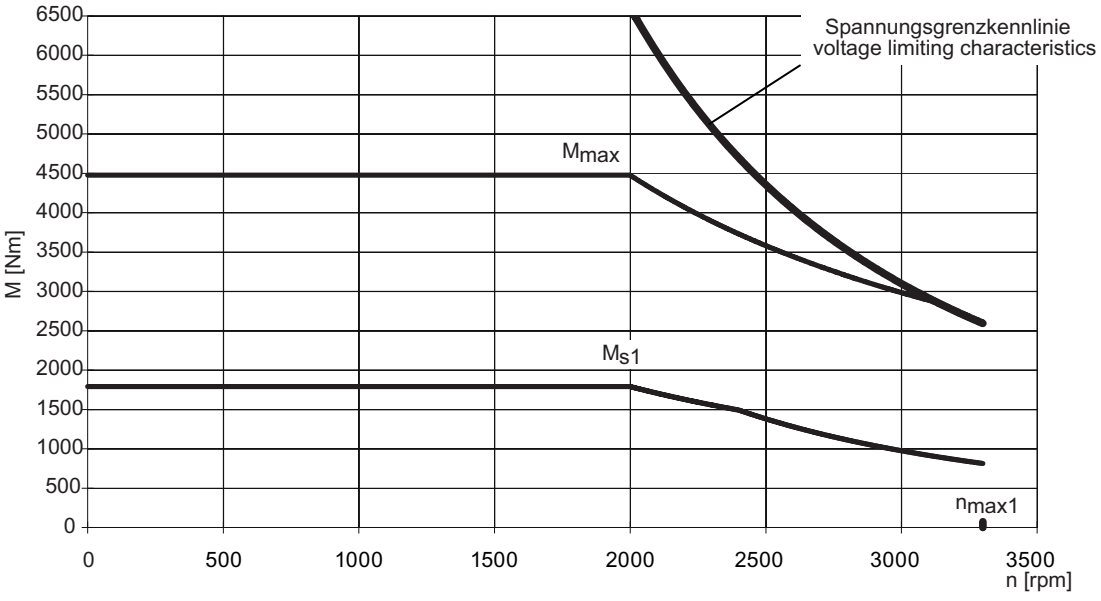
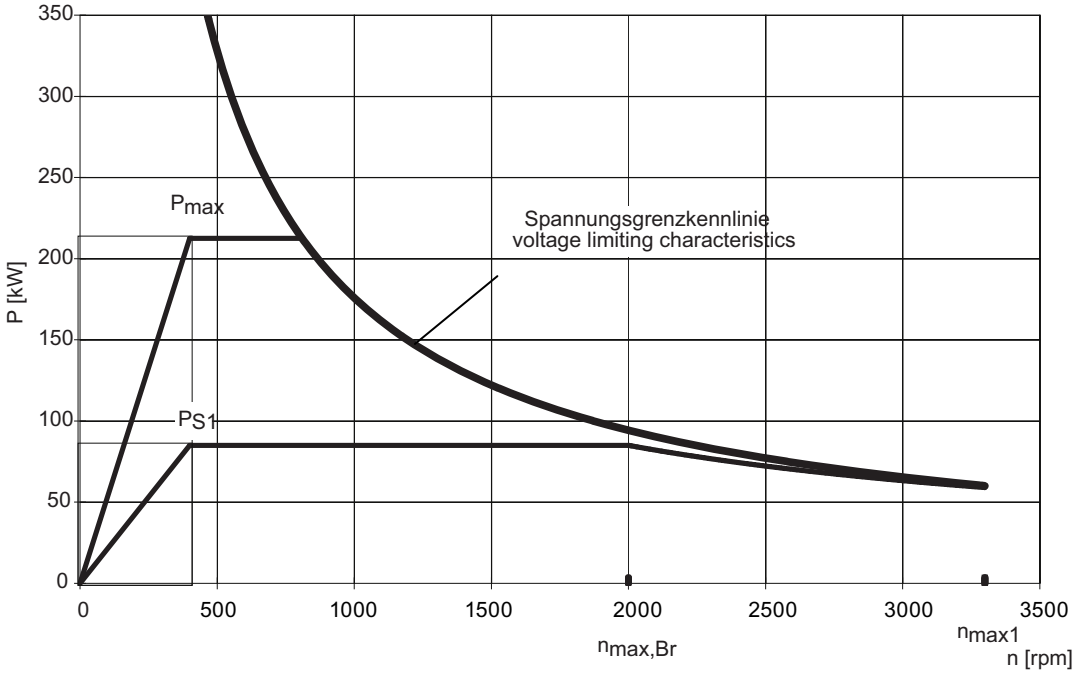


Table 4- 612 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	85	2029	108	3300	-	-	2000	2000	5073	270	2029	108



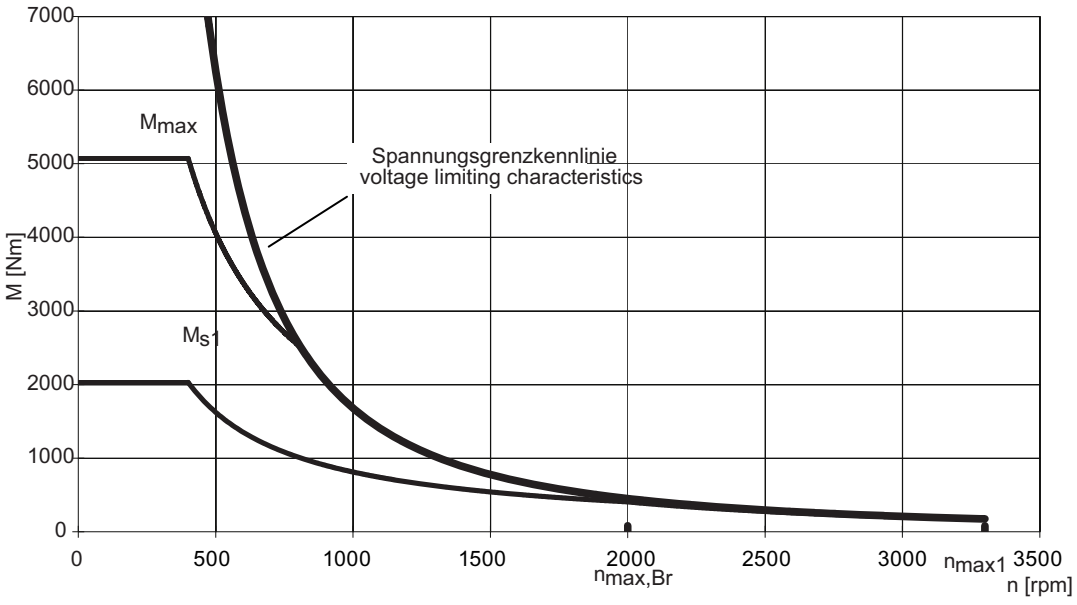
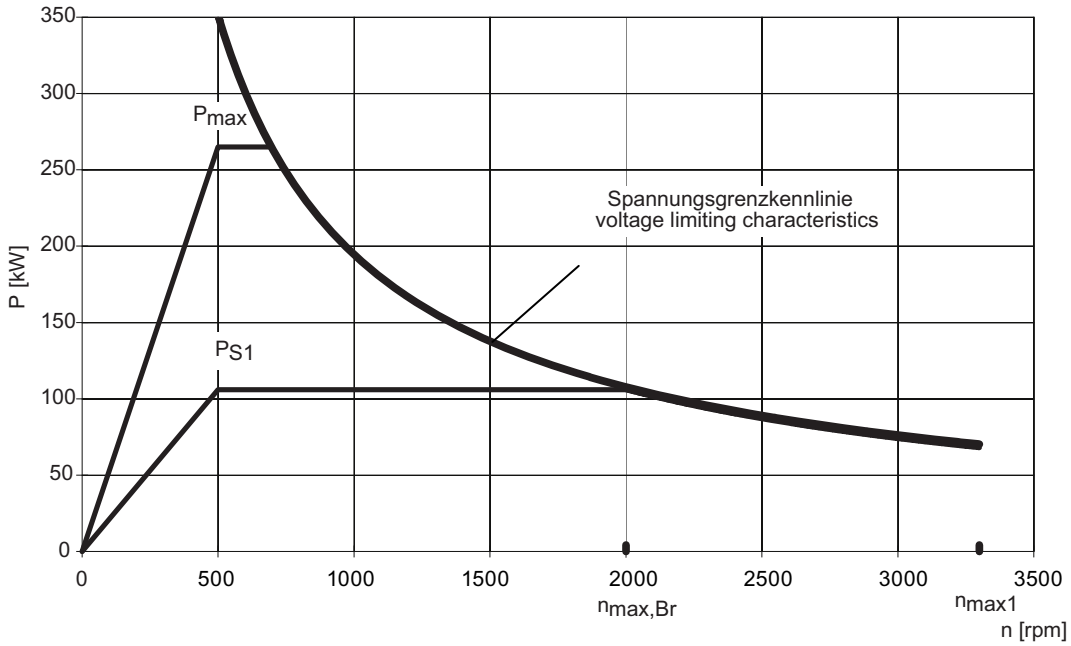


Table 4- 613 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	106	2025	108	3300	-	-	-	2000	5062	270	2025	108
400	85	2025	108					2600				



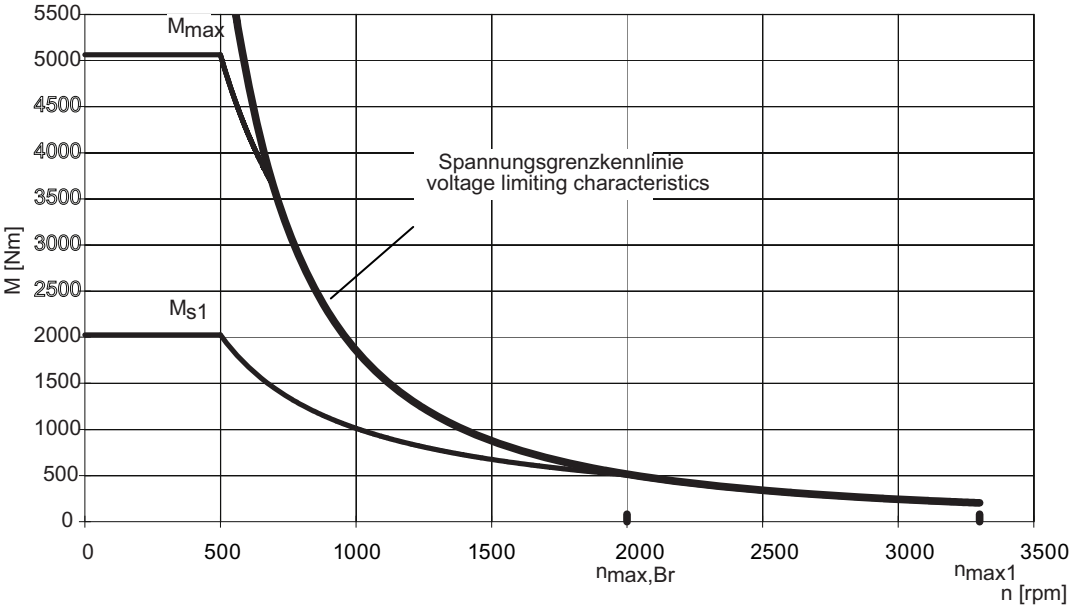
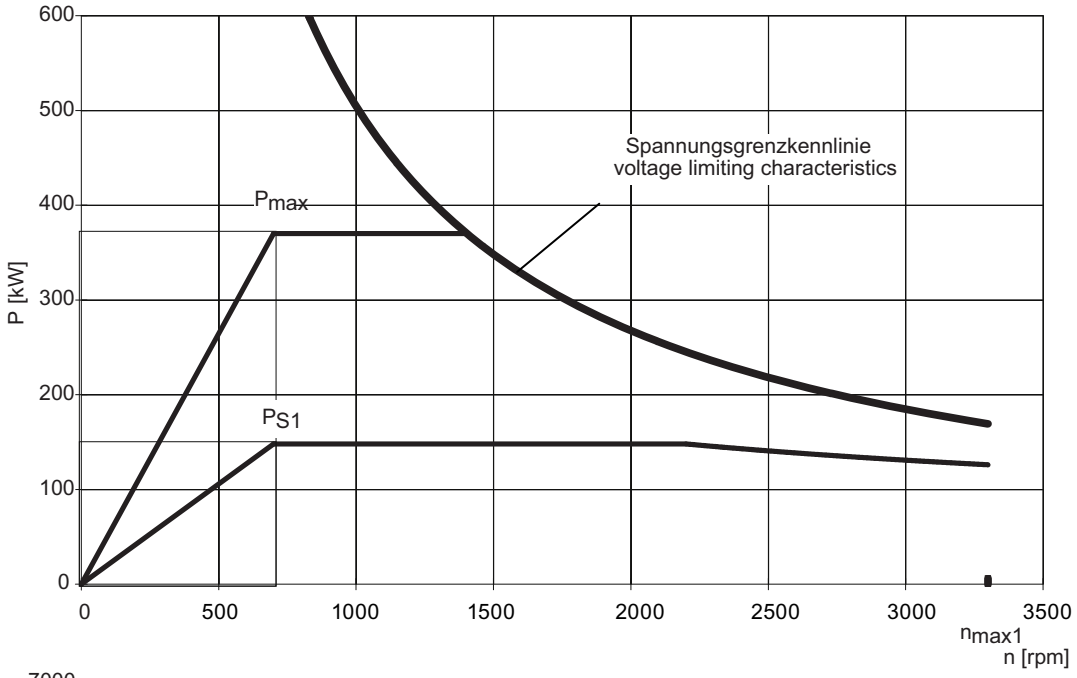


Table 4- 614 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	148	2019	174	3300	-	-	-	2200	5048	435	2019	174



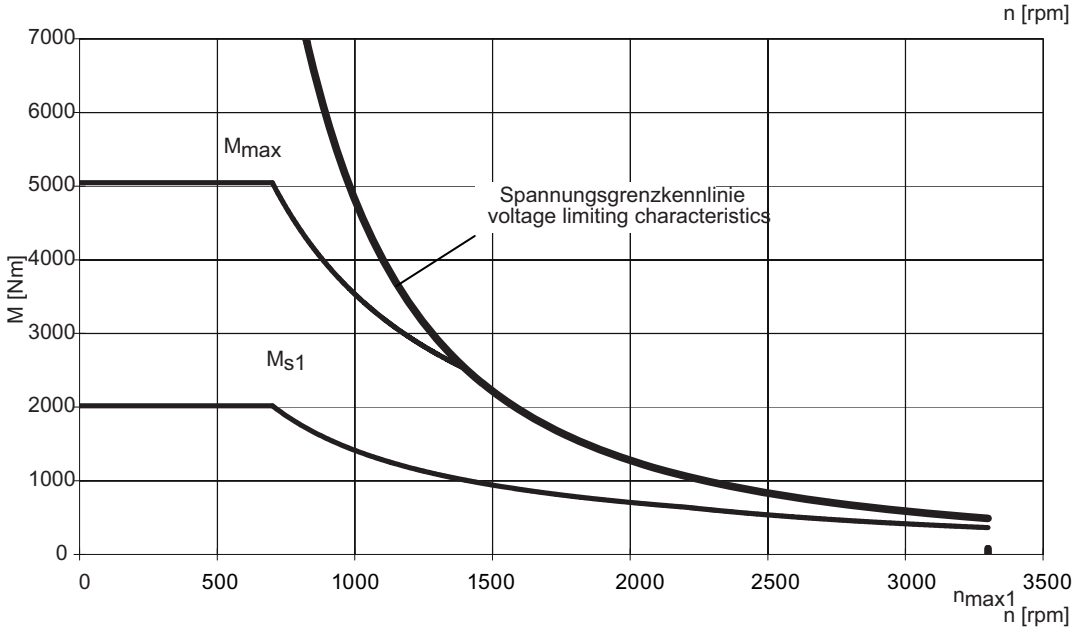
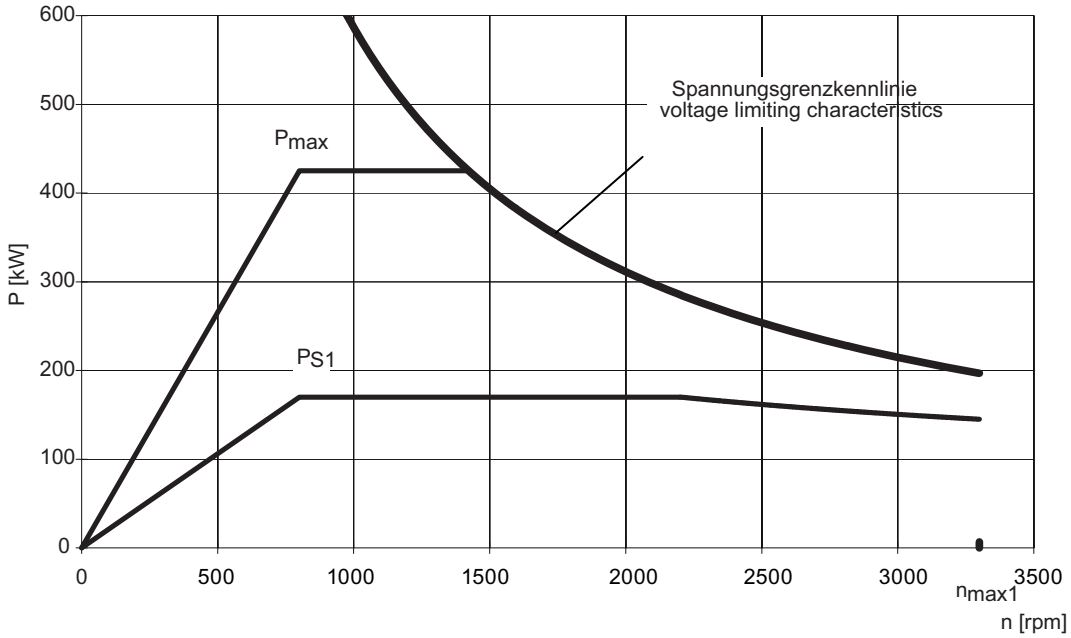


Table 4- 615 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	170	2029	176	3300	-	-	-	2200	5073	440	2029	176
700	149	2029	176					3100				



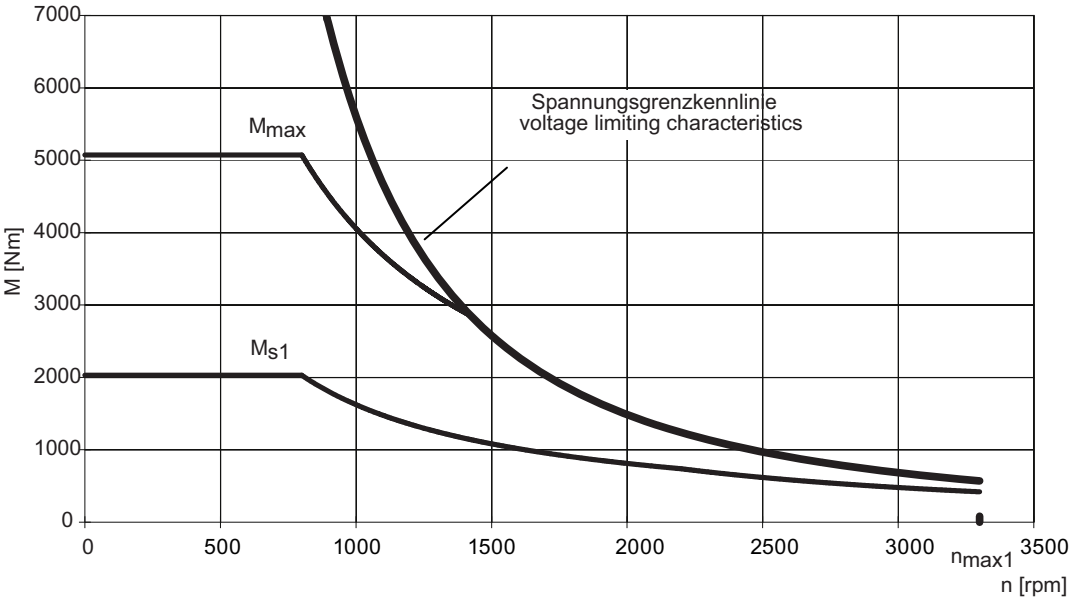
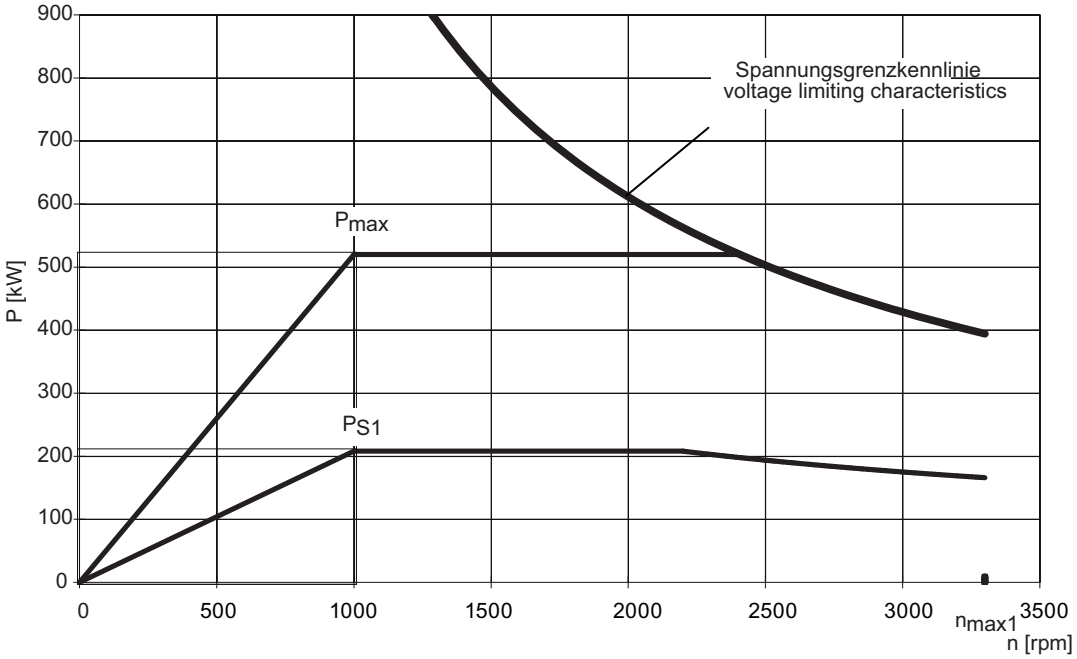


Table 4- 616 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	208	1986	260	3300	-	-	-	2200	4966	650	1986	260



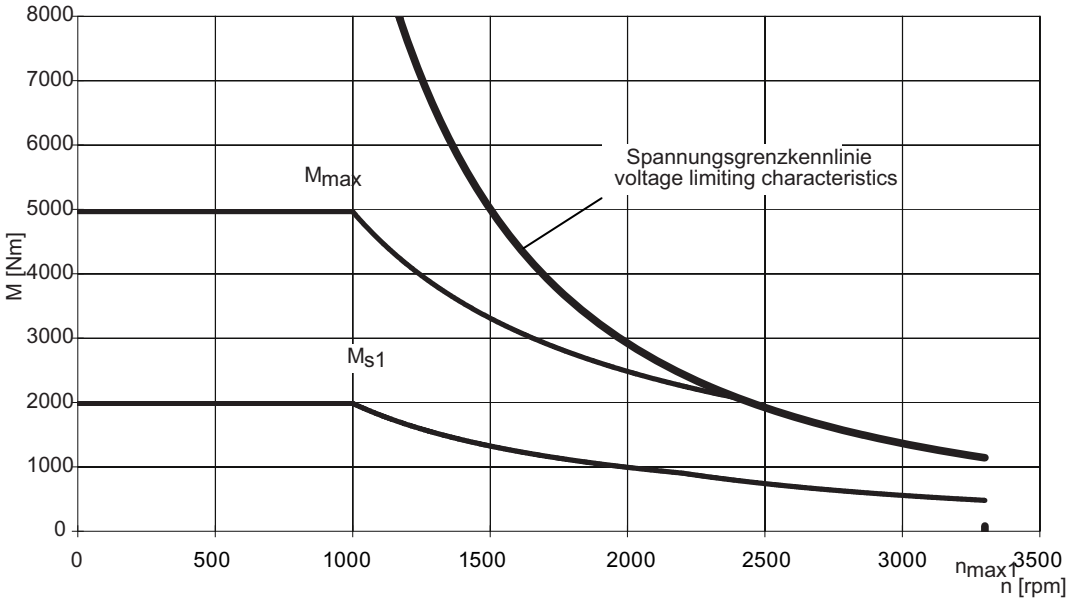
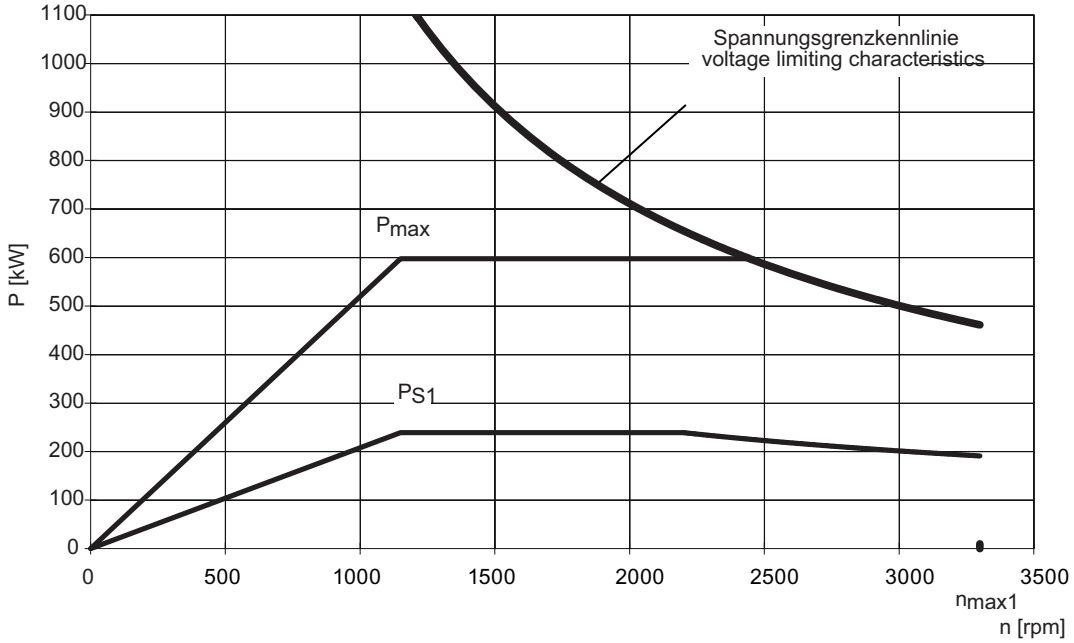


Table 4- 617 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	239	1985	260	3300	-	-	-	2200	4962	650	1985	260
1000	208	1985	260					2800				



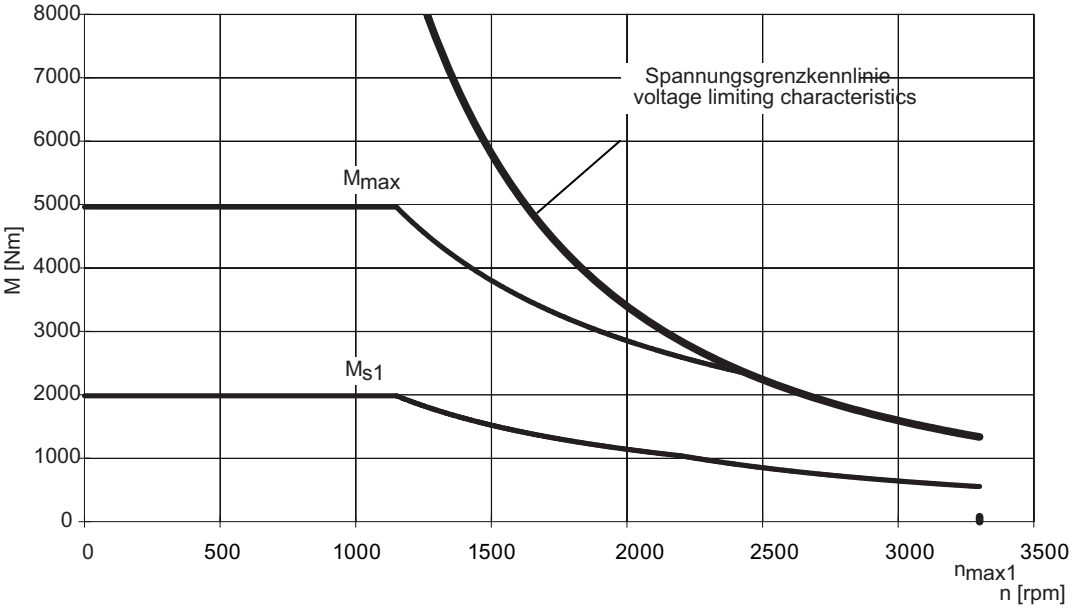
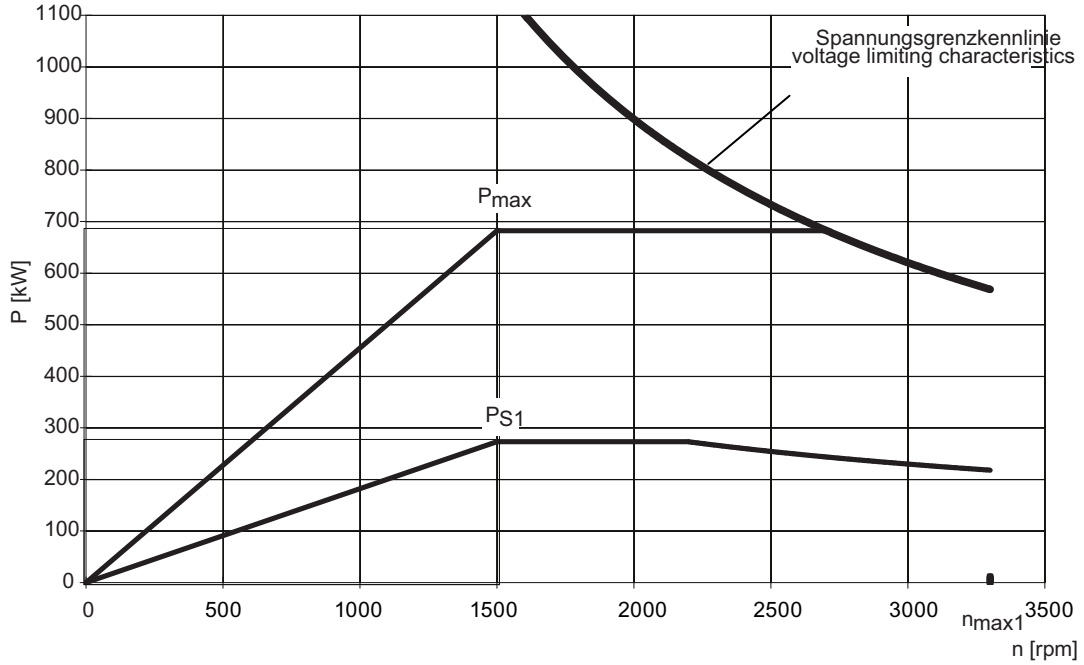


Table 4- 618 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	273	1738	310	3300	-	-	-	2200	4345	775	1738	310



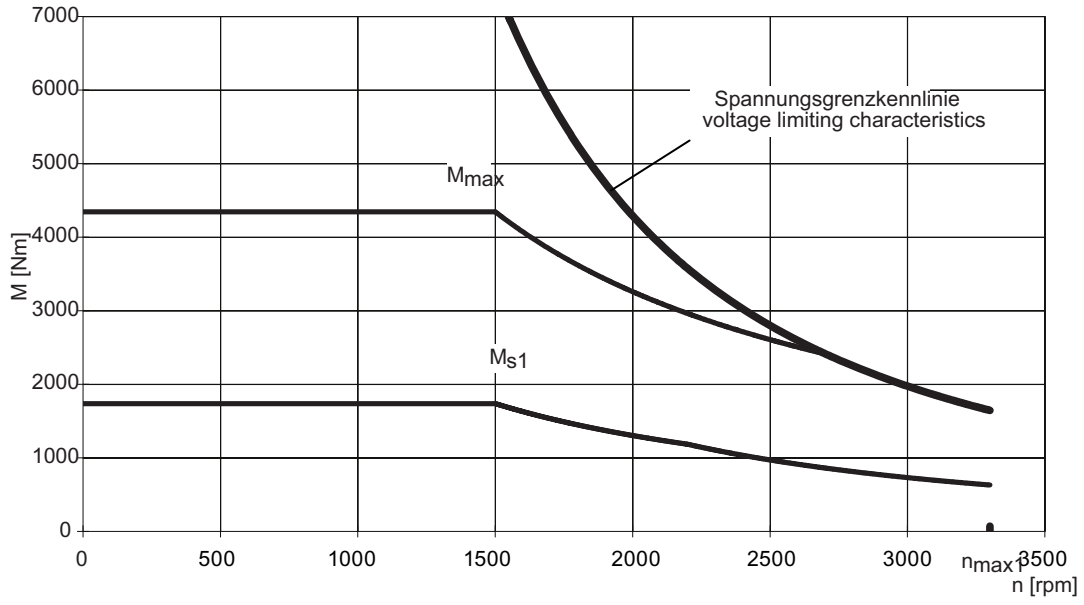
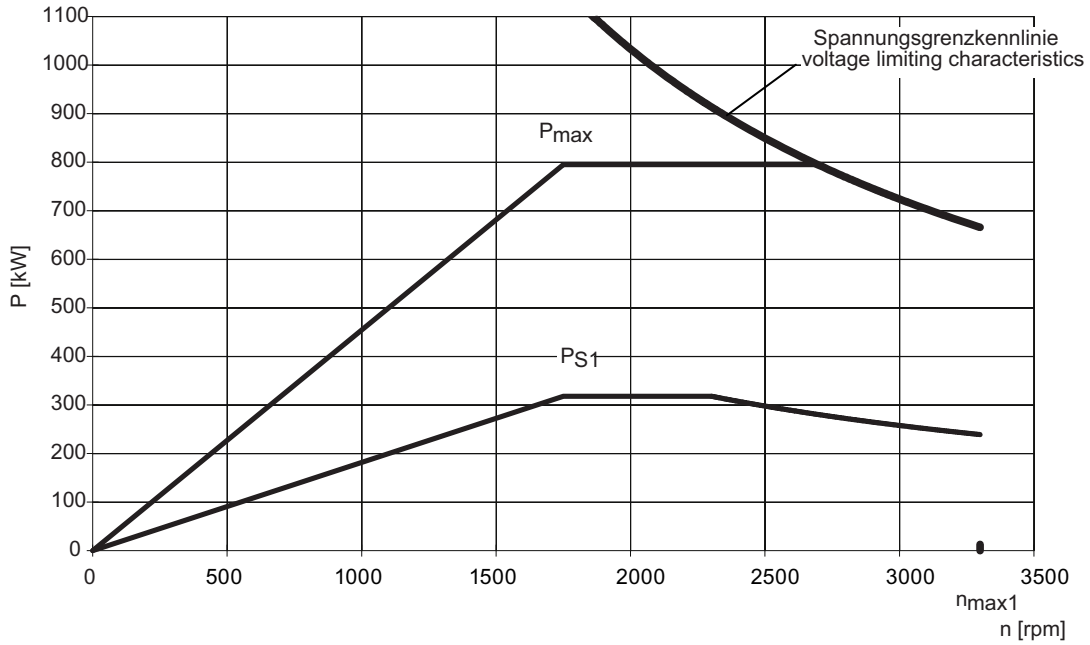


Table 4- 619 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	318	1735	305	3300	-	-	-	2300	4338	763	1735	305
1500	273	1735	305					2800				



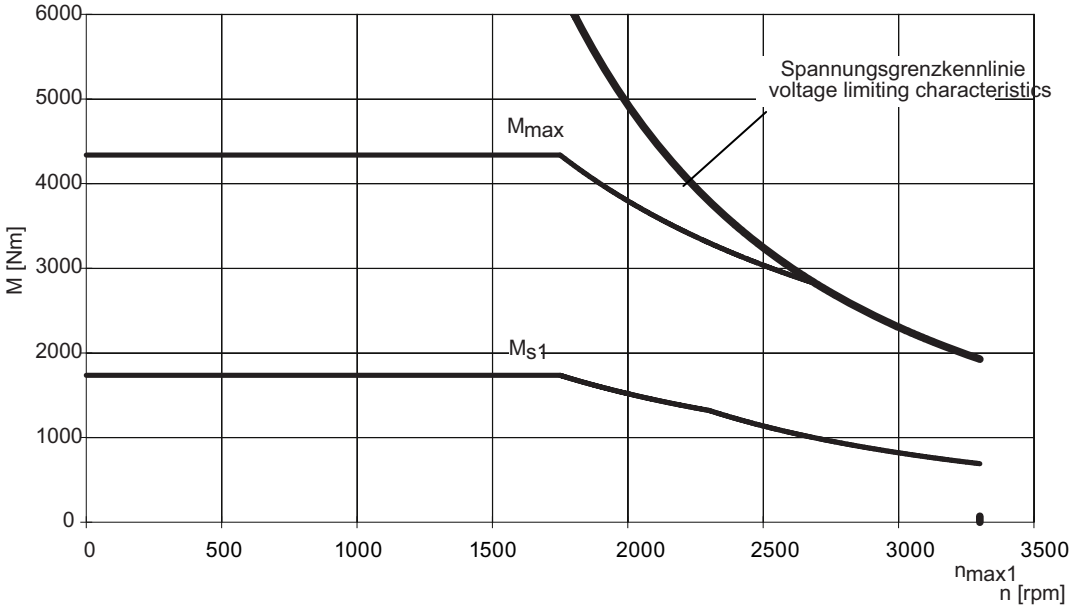


Table 4- 620 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	109	2602	260	3300	-	-	-	2200	6506	650	2602	260

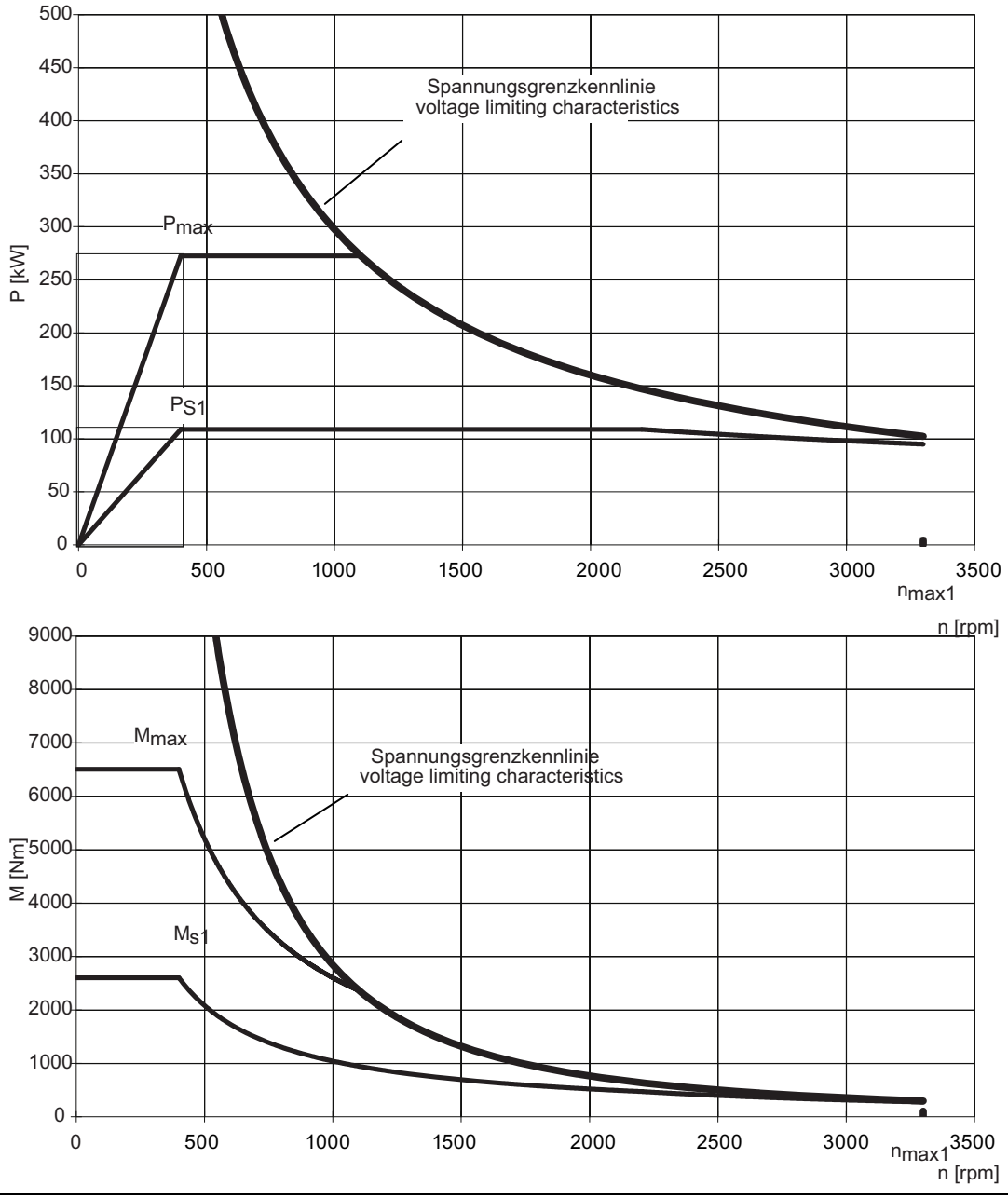
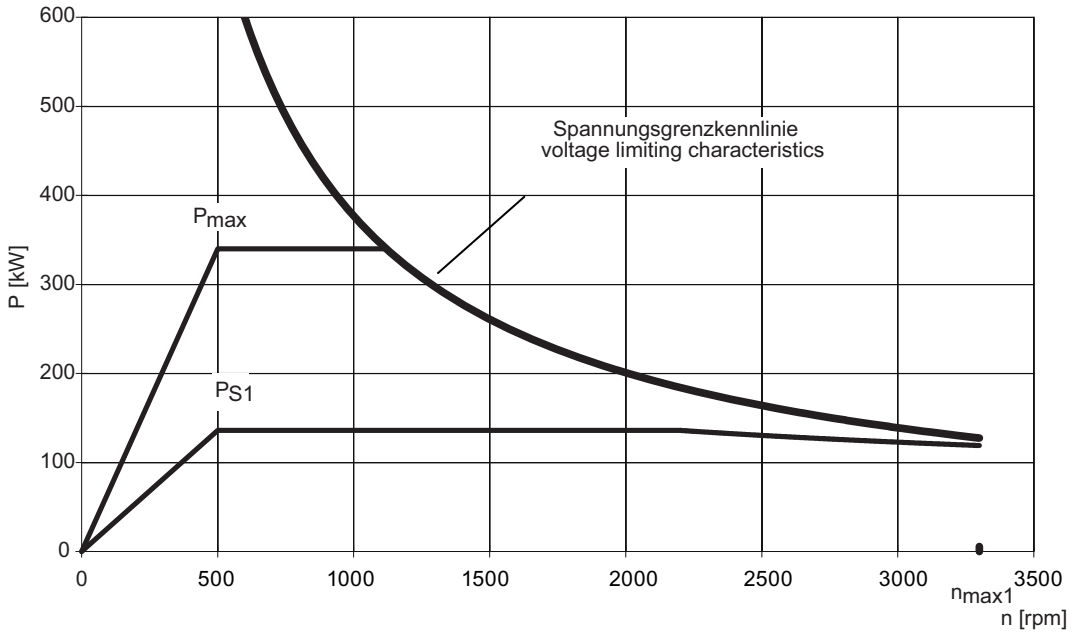


Table 4- 621 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	136	2598	260	3300	-	-	-	2200	6494	650	2598	260
400	109	2598	260					3300				



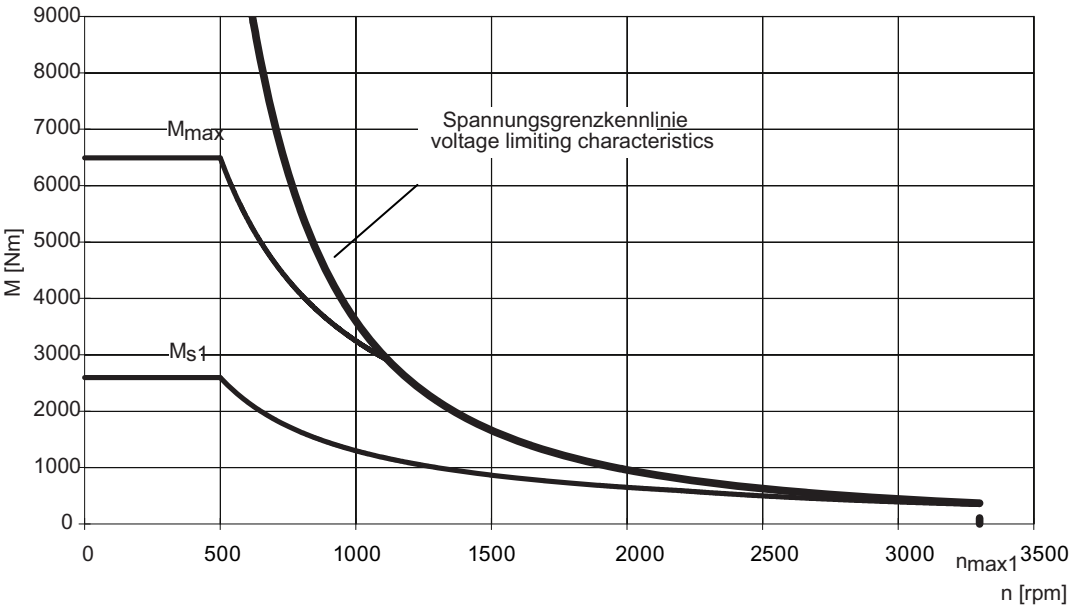
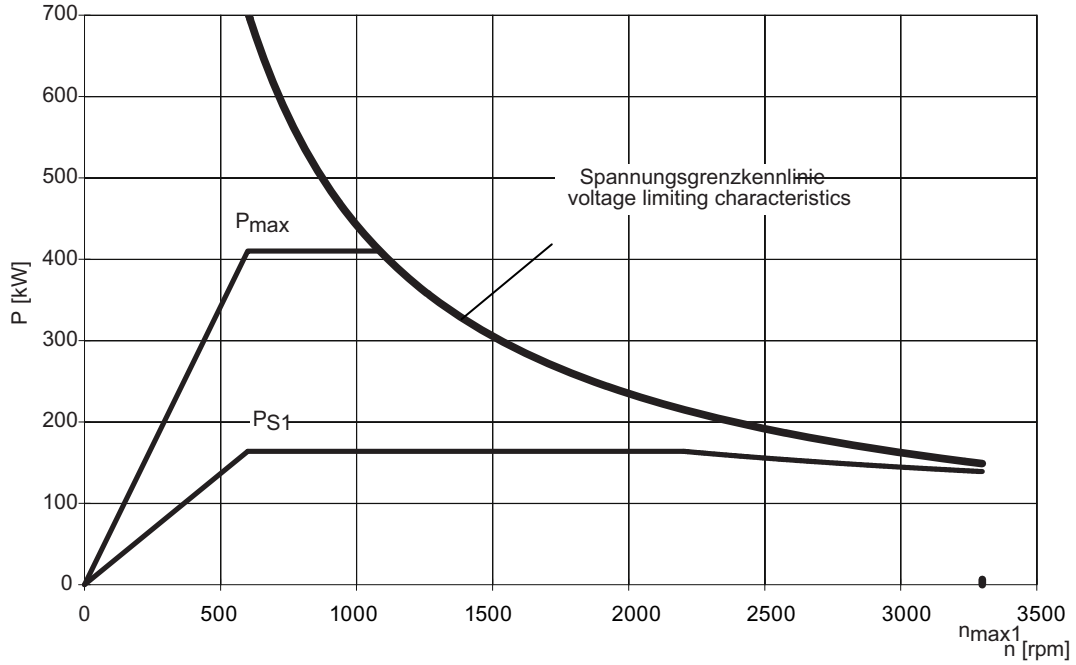


Table 4- 622 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□B2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
600	164	2610	260	3300		-	-	-	2200	6526	2610	260



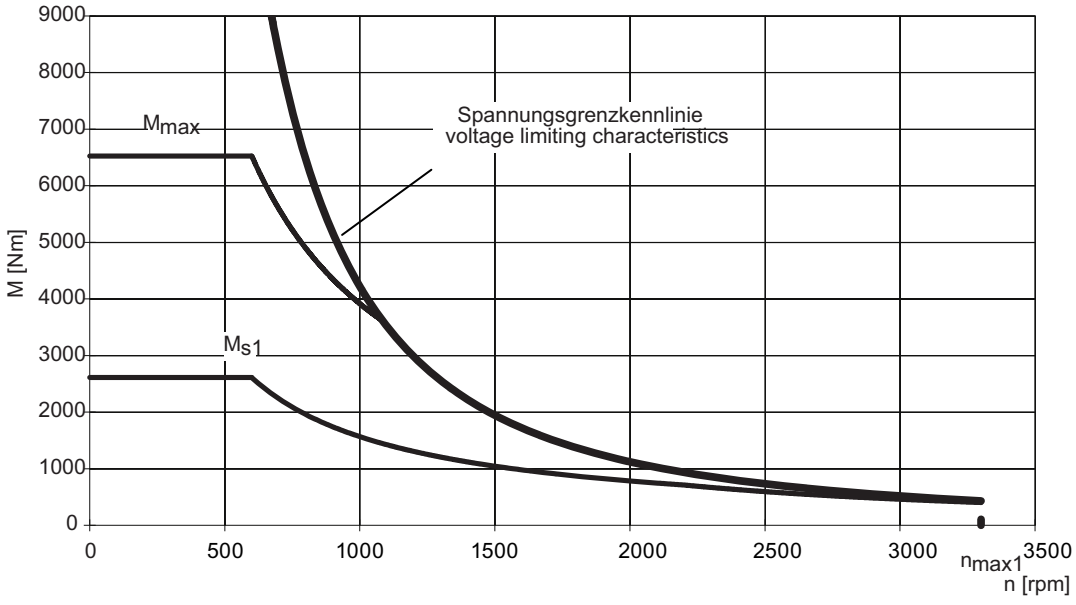
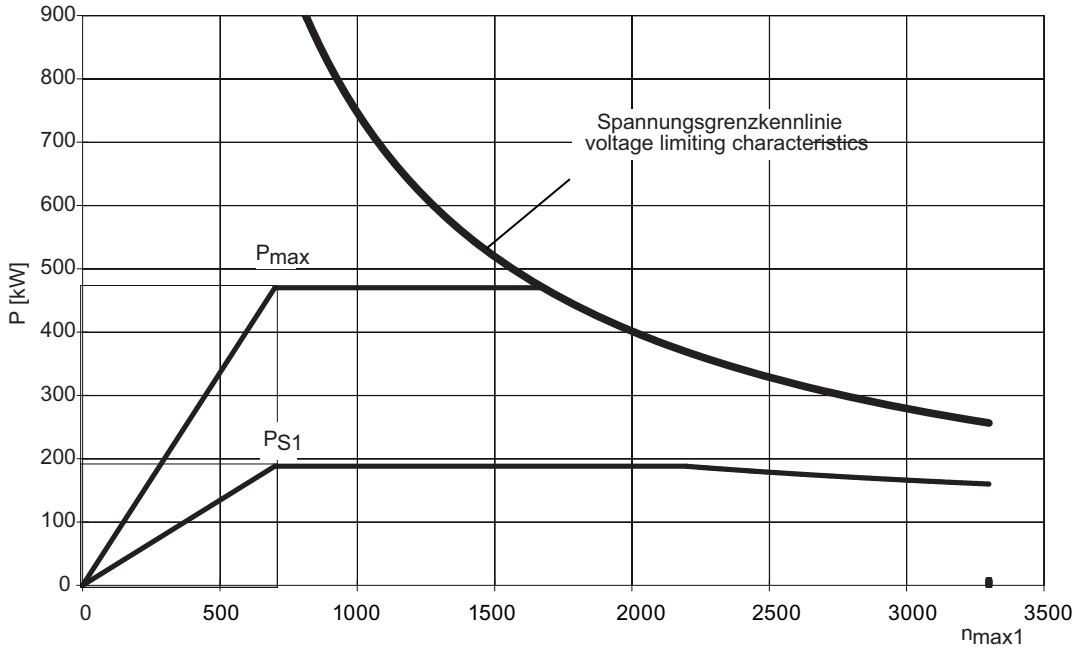


Table 4- 623 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	188	2565	400	3300	-	-	-	2200	6412	1000	2565	400



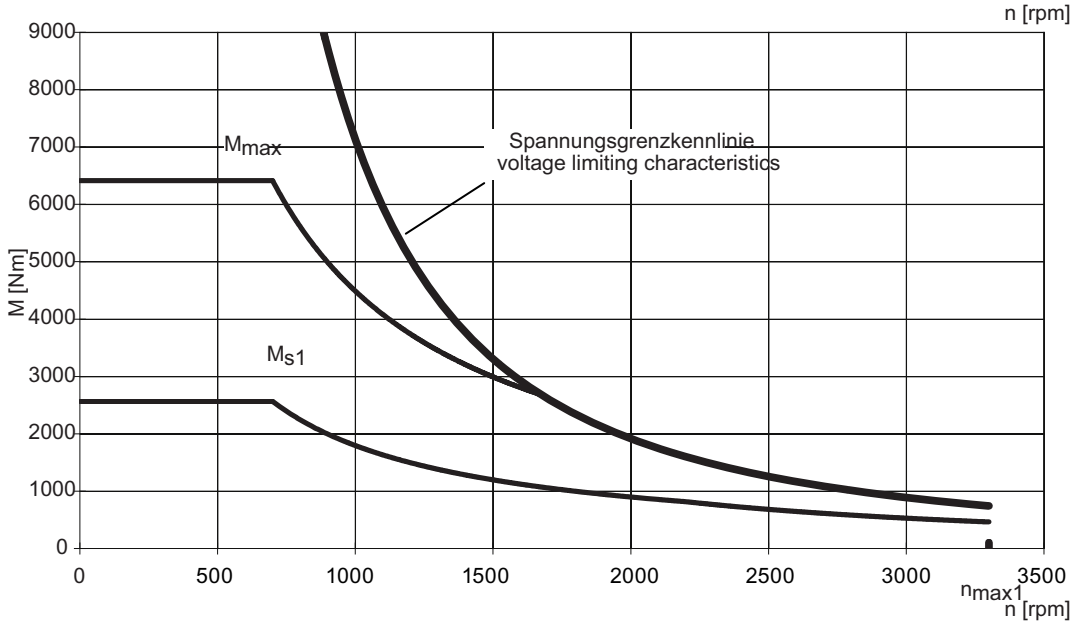
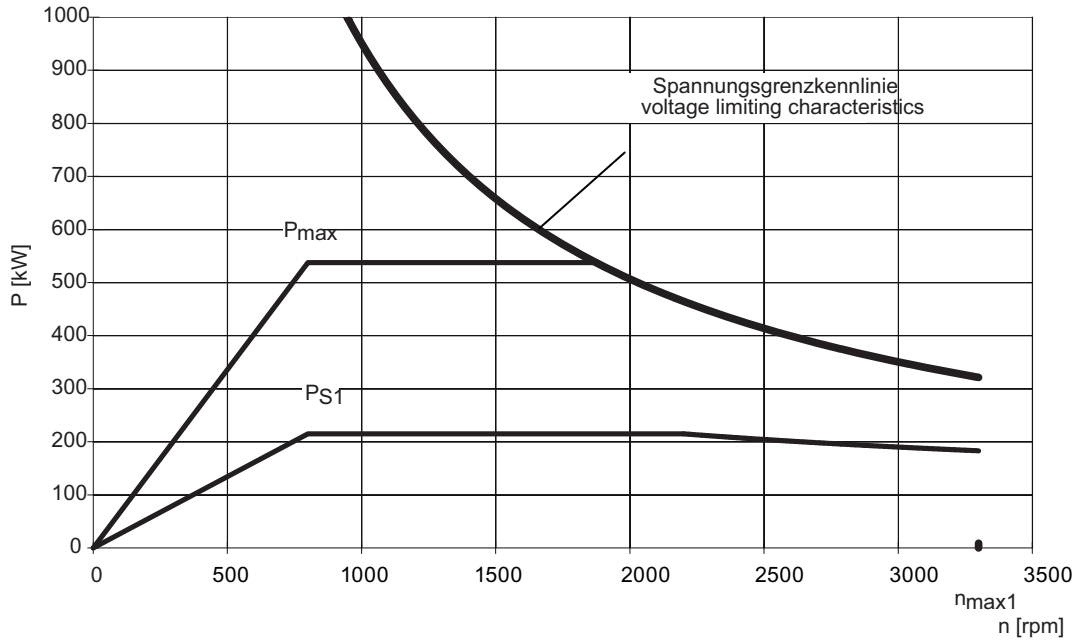


Table 4- 624 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	215	2567	405	3300	-	-	-	2200	6416	1013	2567	405
700	188	2567	405					3100				



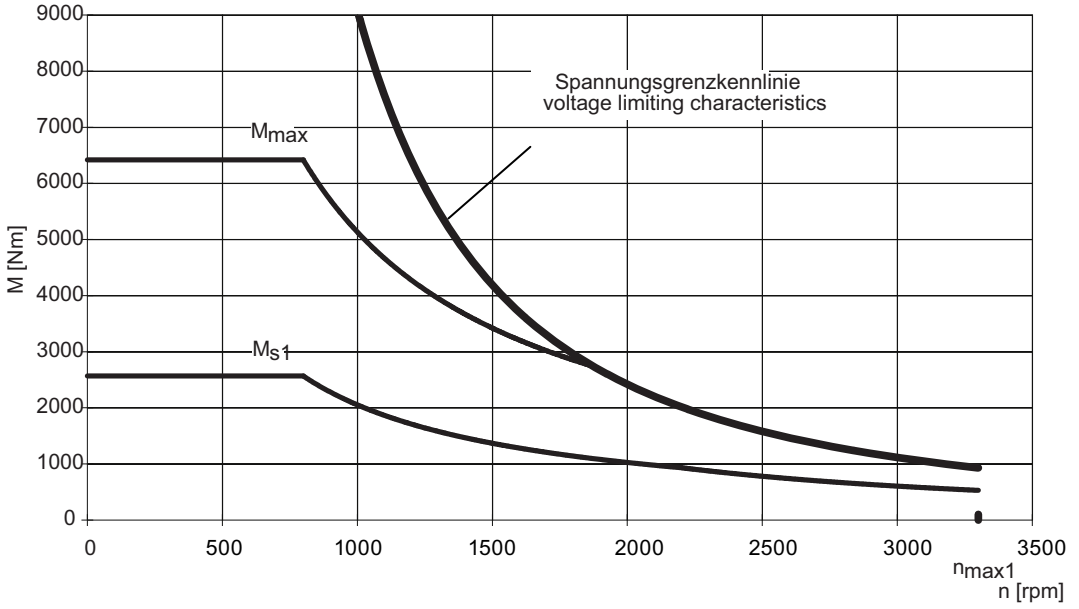
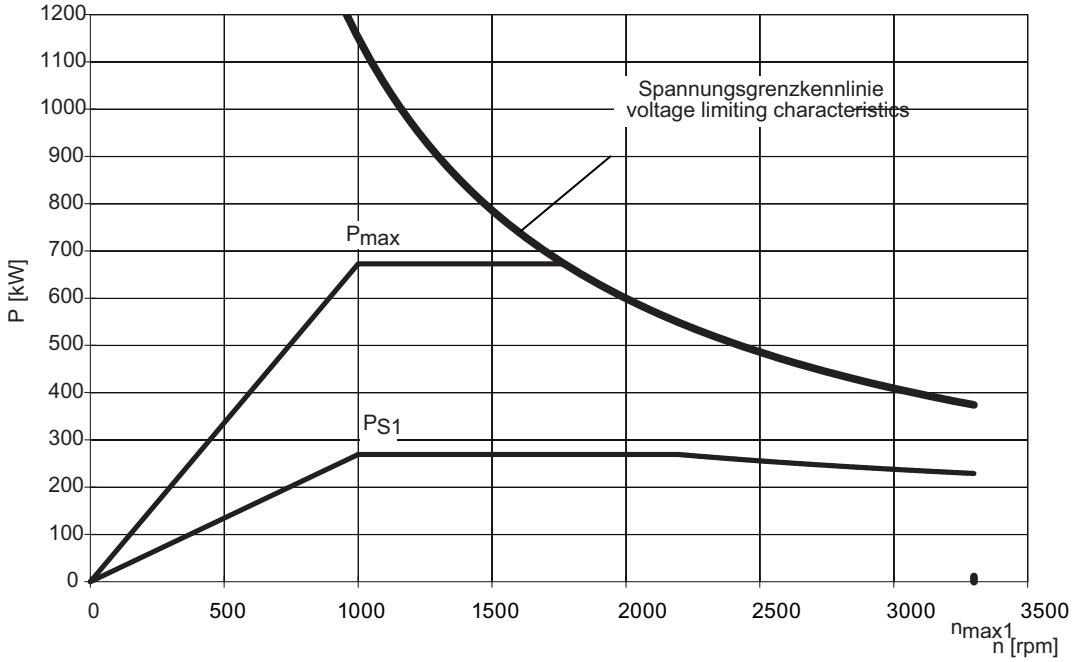


Table 4- 625 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	269	2569	405	3300	-	-	-	2200	6422	1013	2569	405



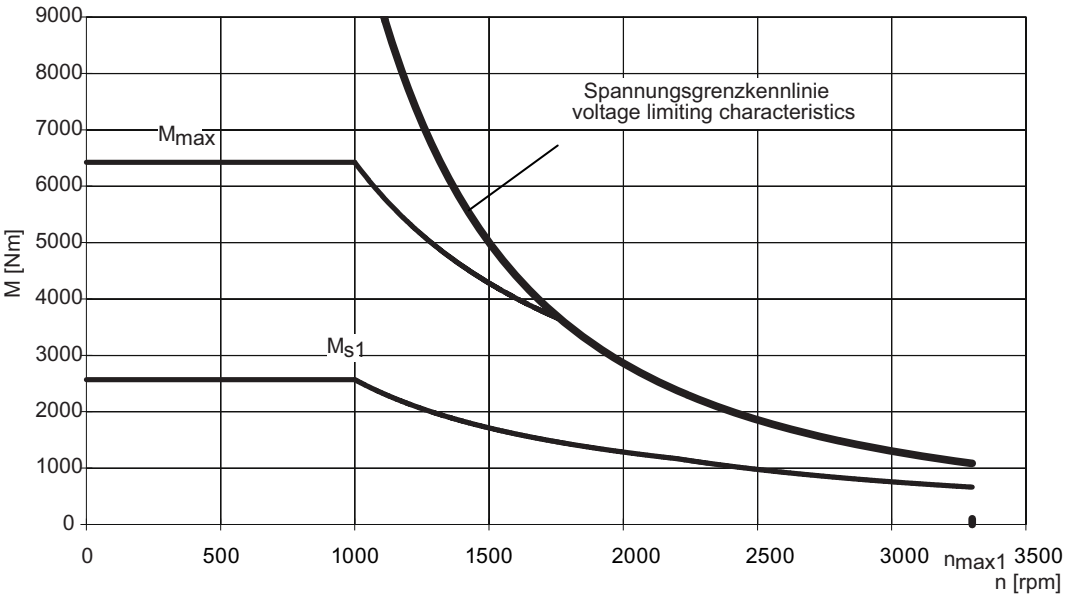
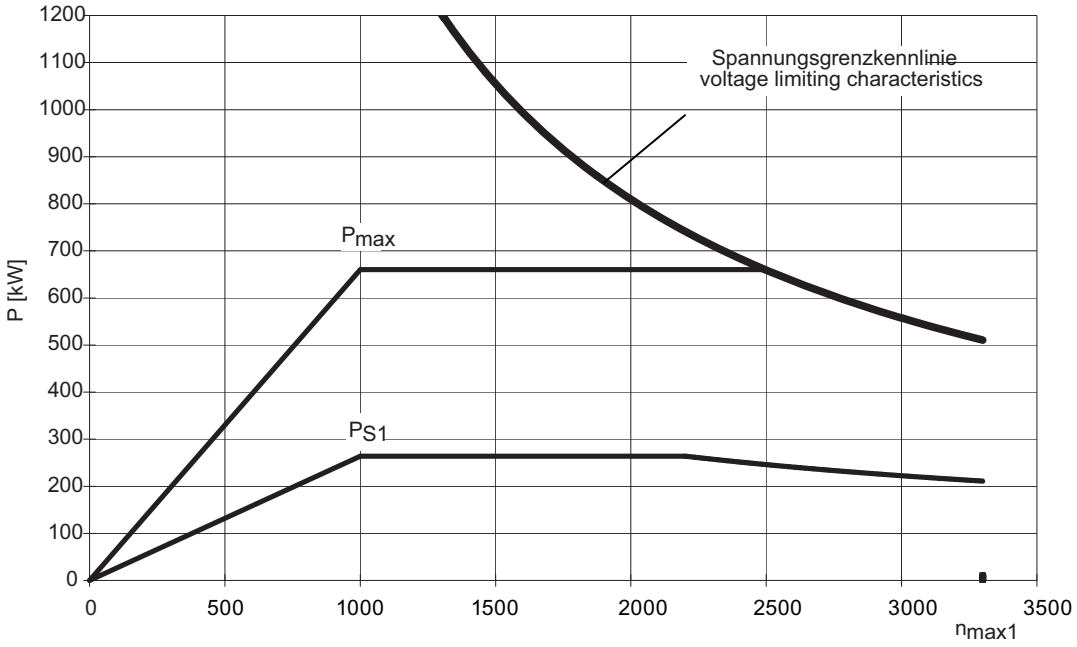


Table 4- 626 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	264	2521	550	3300	-	-	-	2200	6303	1375	2521	550



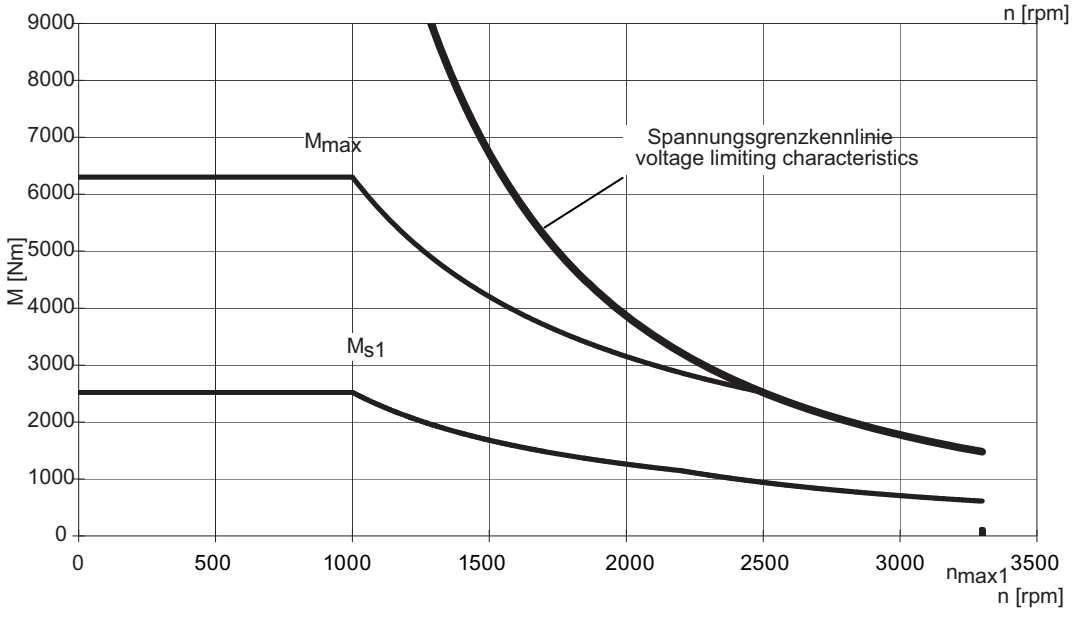
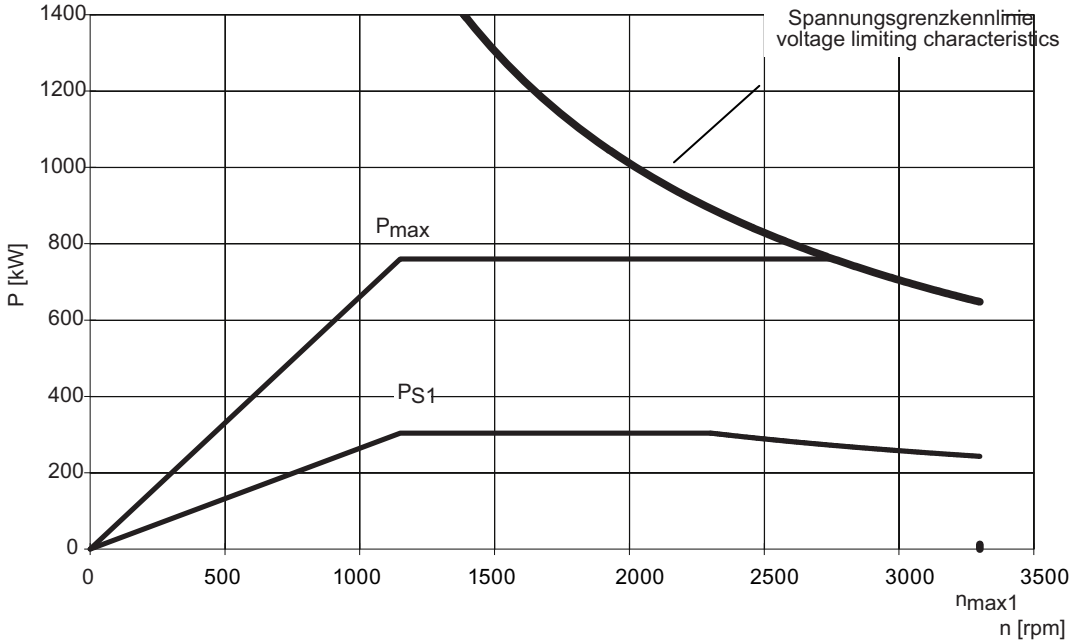


Table 4- 627 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	304	2525	550	3300	-	-	-	2300	6311	1375	2525	550
1000	264	2525	550					2900				



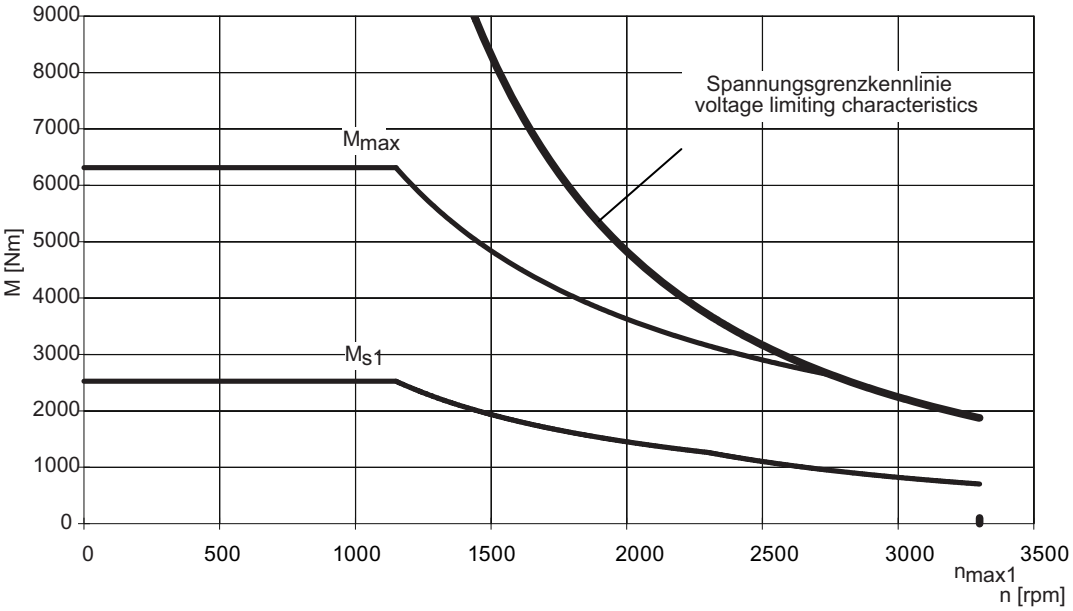
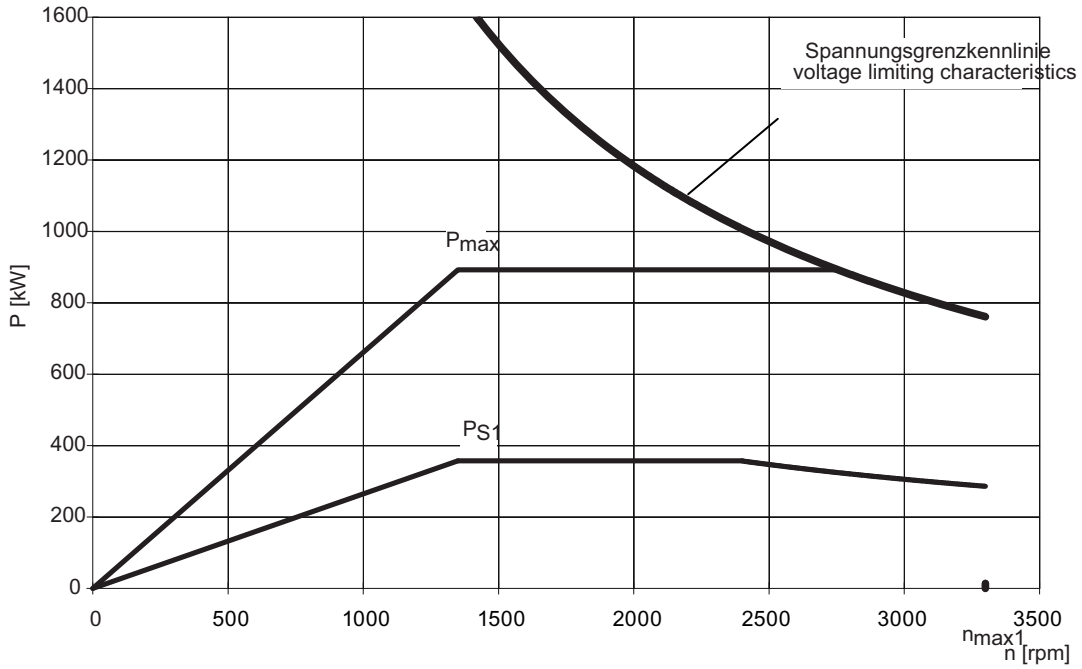


Table 4- 628 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	357	2525	550	3300	-	-	-	2400	6314	1375	2525	550



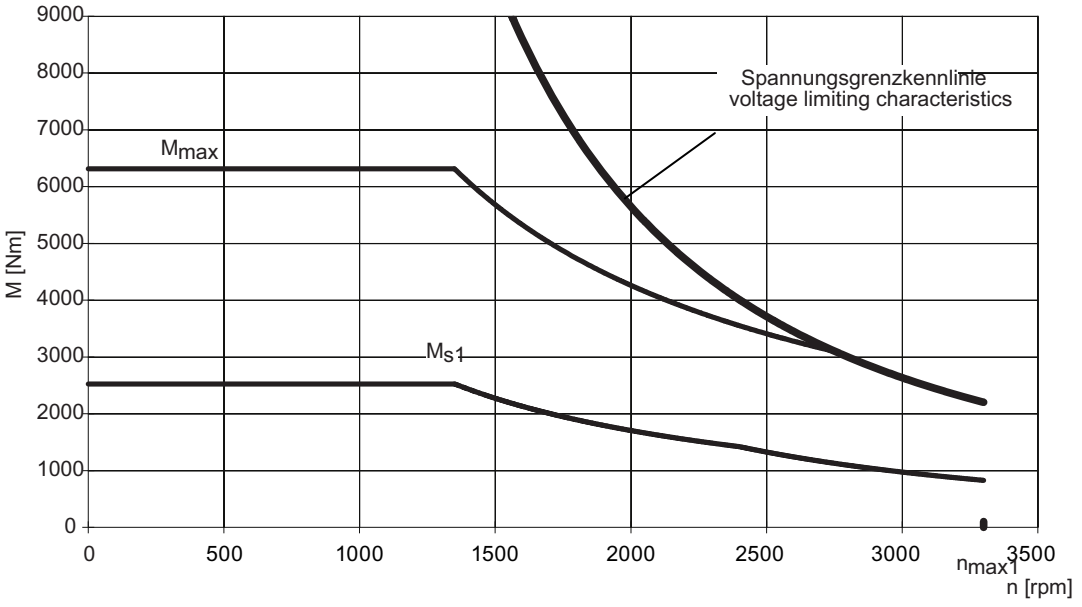
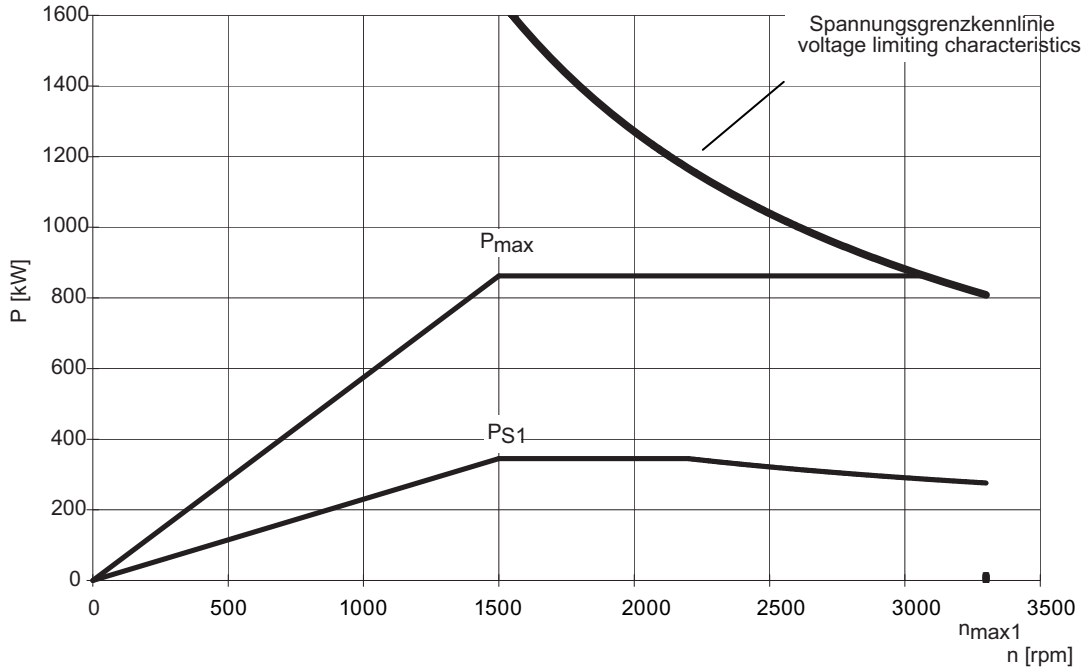


Table 4- 629 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	345	2197	660	3300	-	-	-	2200	5491	1650	2197	660



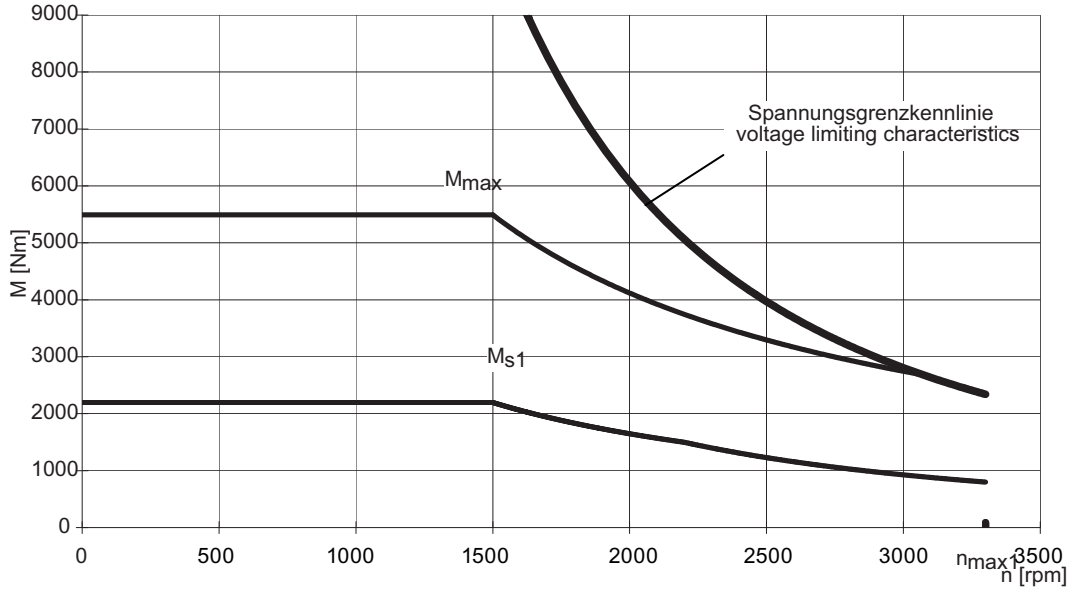
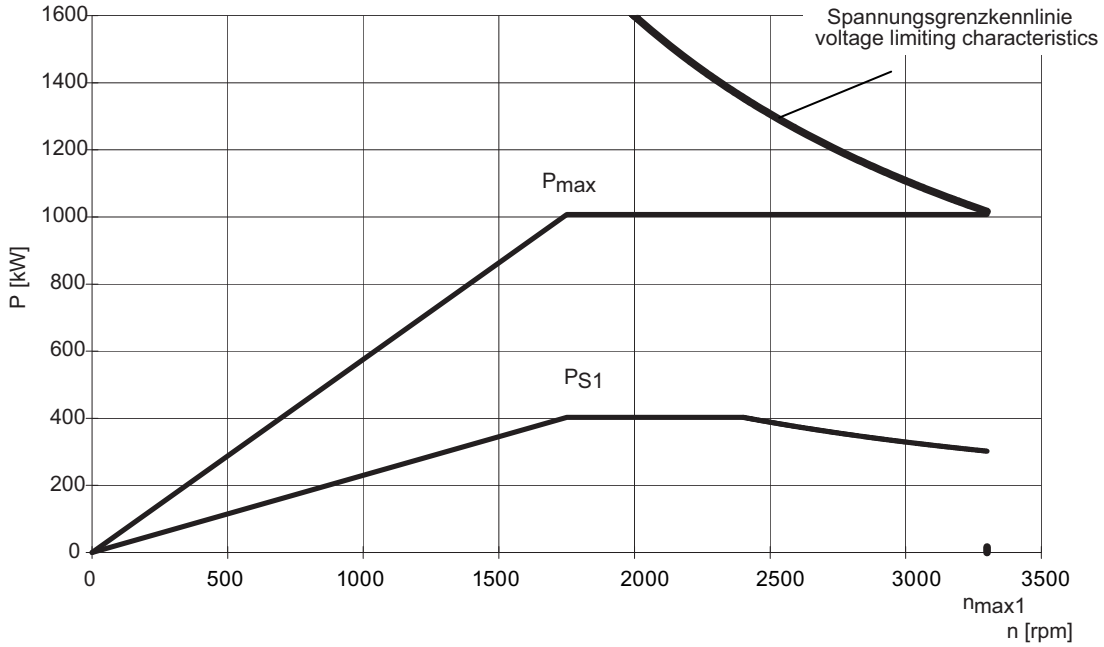


Table 4- 630 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	403	2199	670	3300	-	-	-	2400	5498	1675	2199	670
1500	345	2199	670					2800				



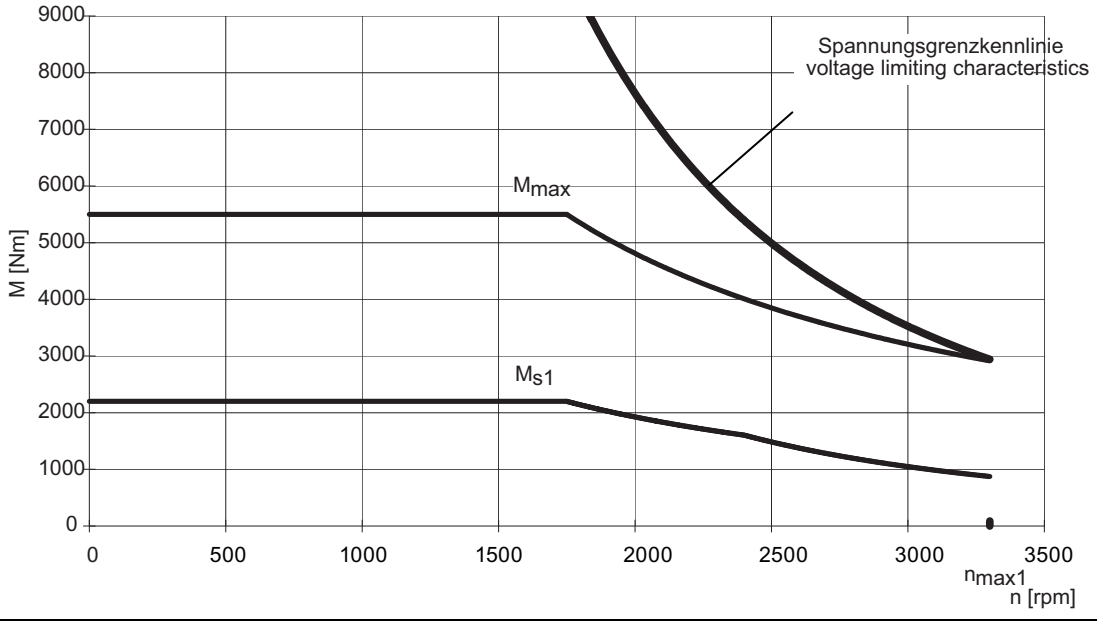
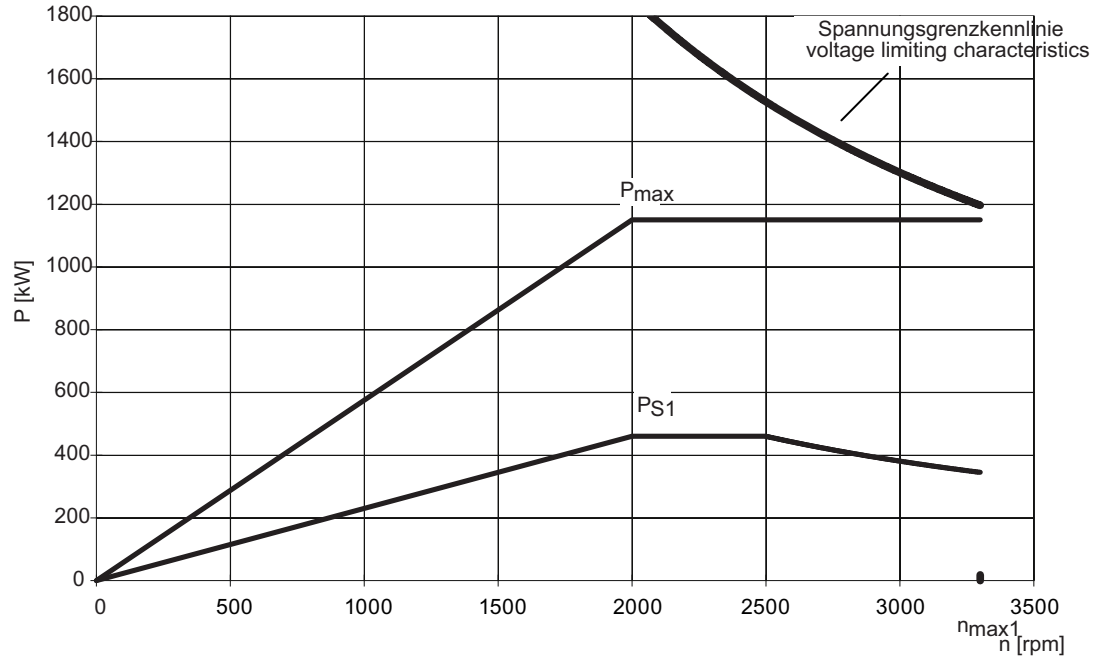


Table 4- 631 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	460	2197	670	3300	-	-	-	2500	5491	1675	2197	670



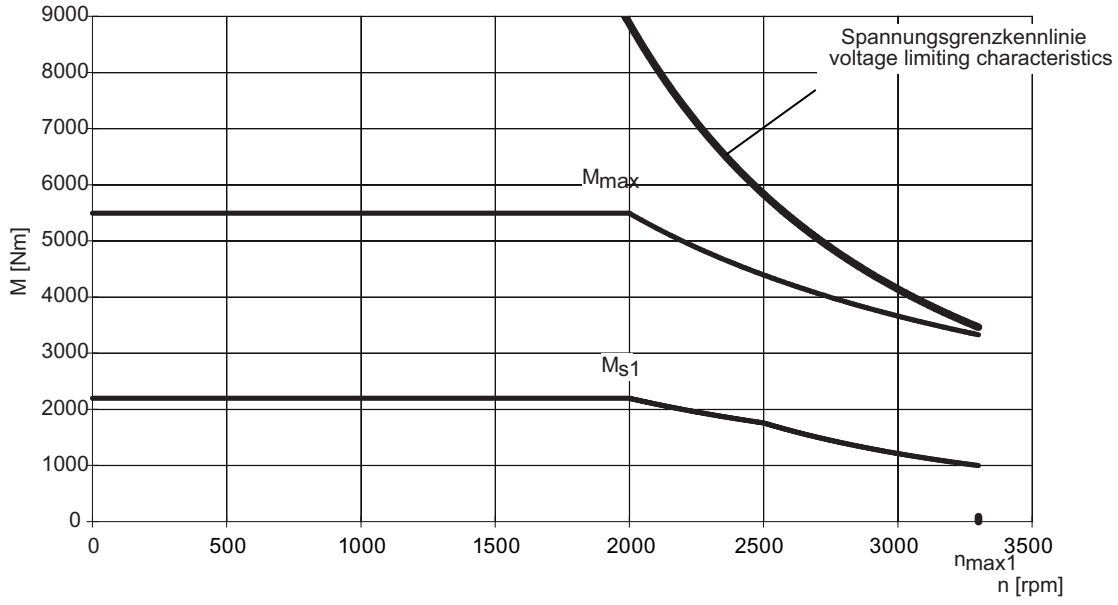
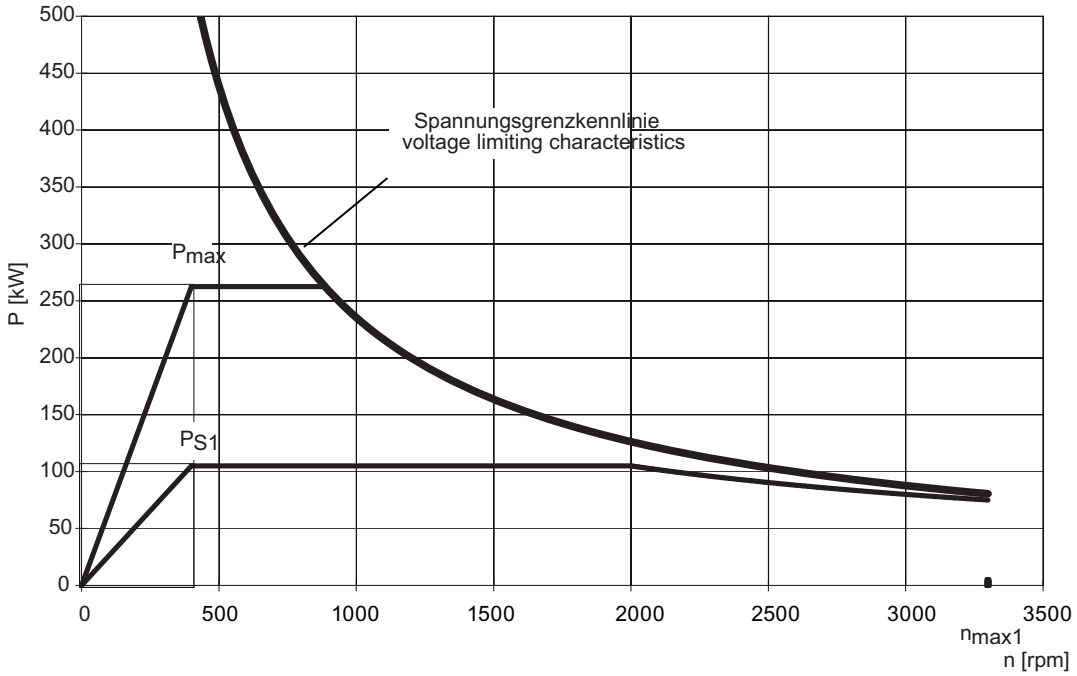


Table 4- 632 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
400	105	2507	134	3300	-	-	-	2000	6267	335	2507	134



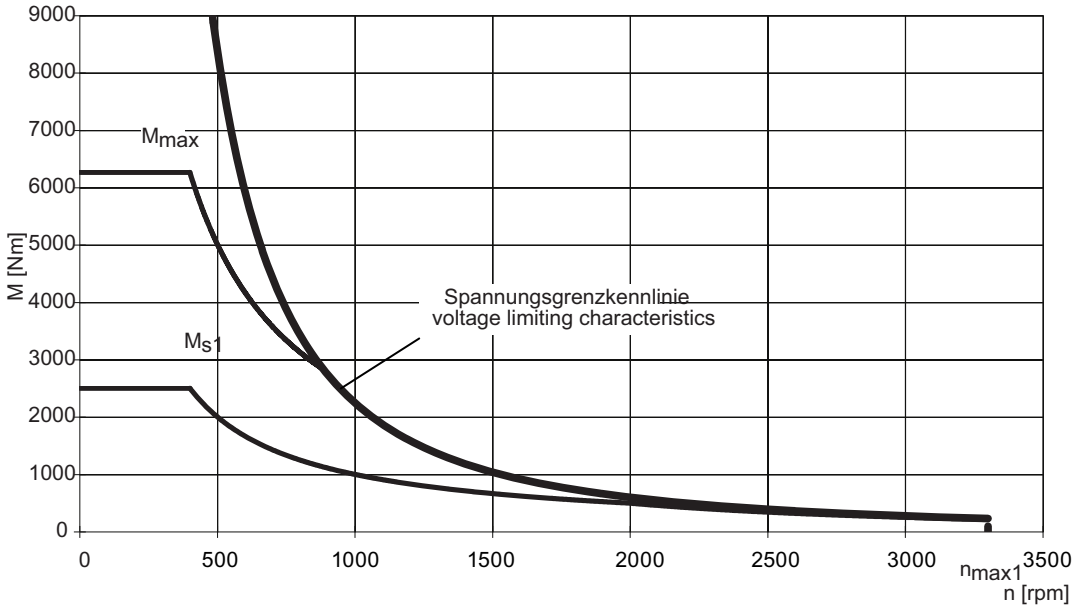
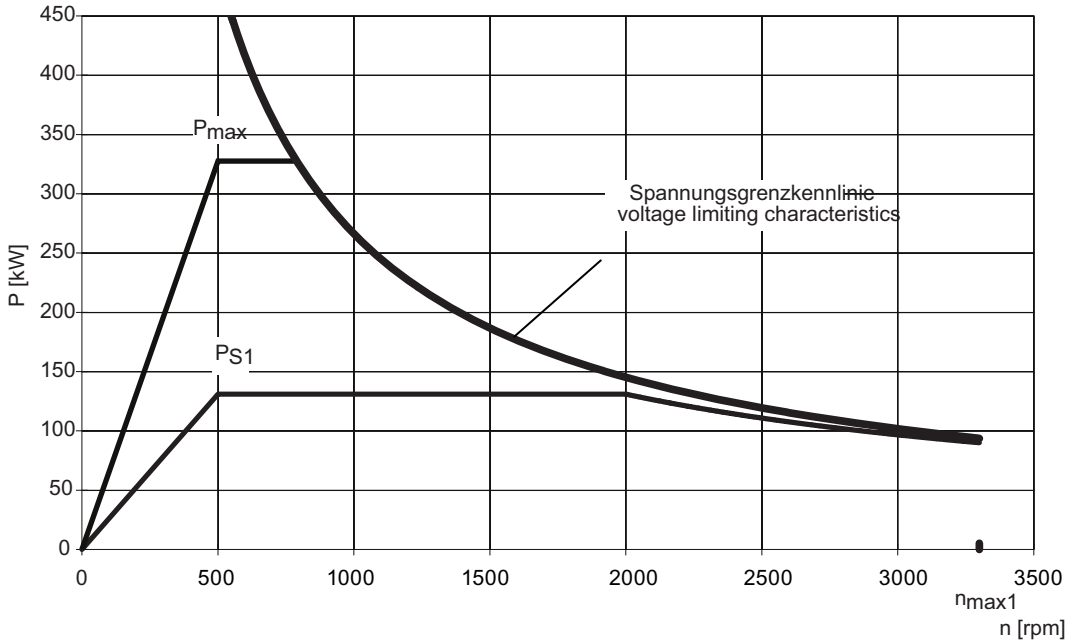


Table 4- 633 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□H2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	131	2502	134	3300	-	-	-	2000	6255	335	2502	134
400	105	2502	134					2700				



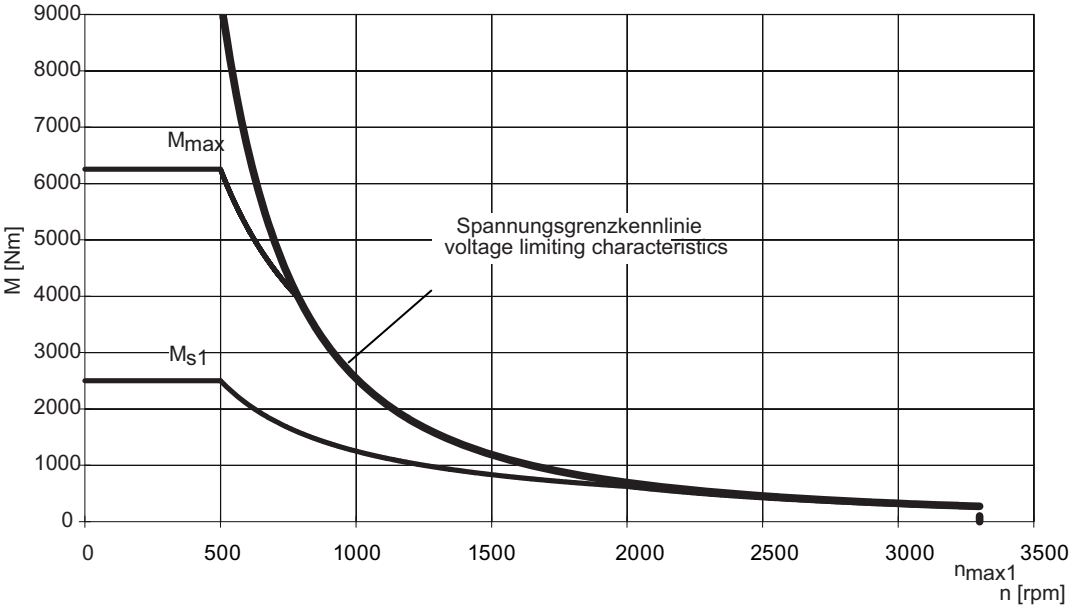
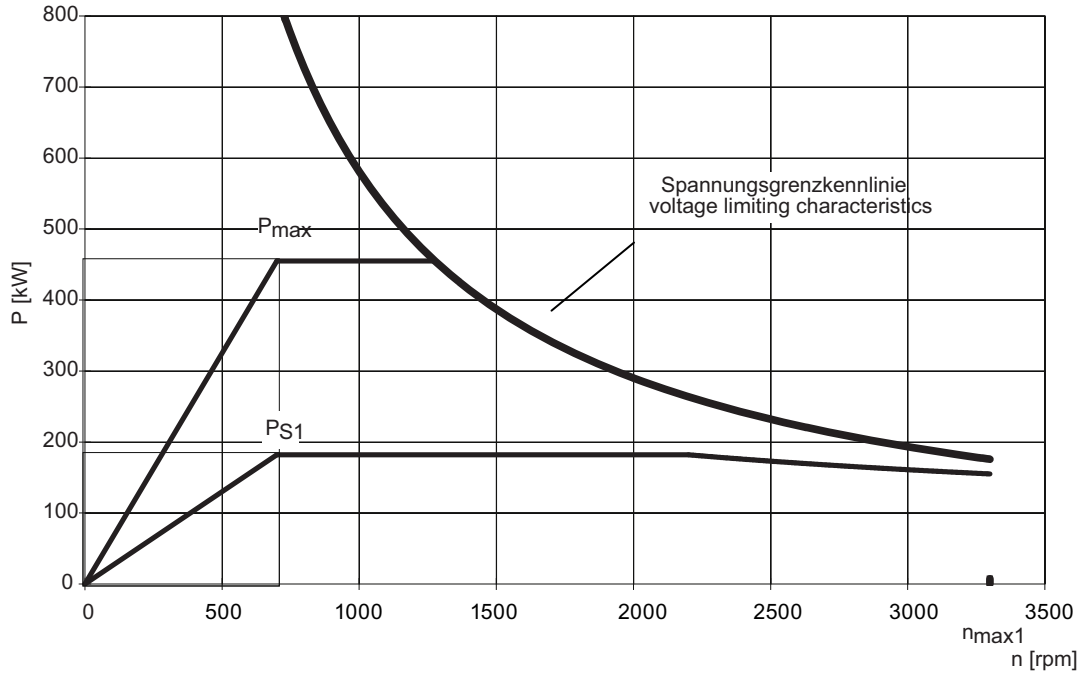


Table 4- 634 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	182	2483	205	3300	-	-	-	2200	6208	513	2483	205



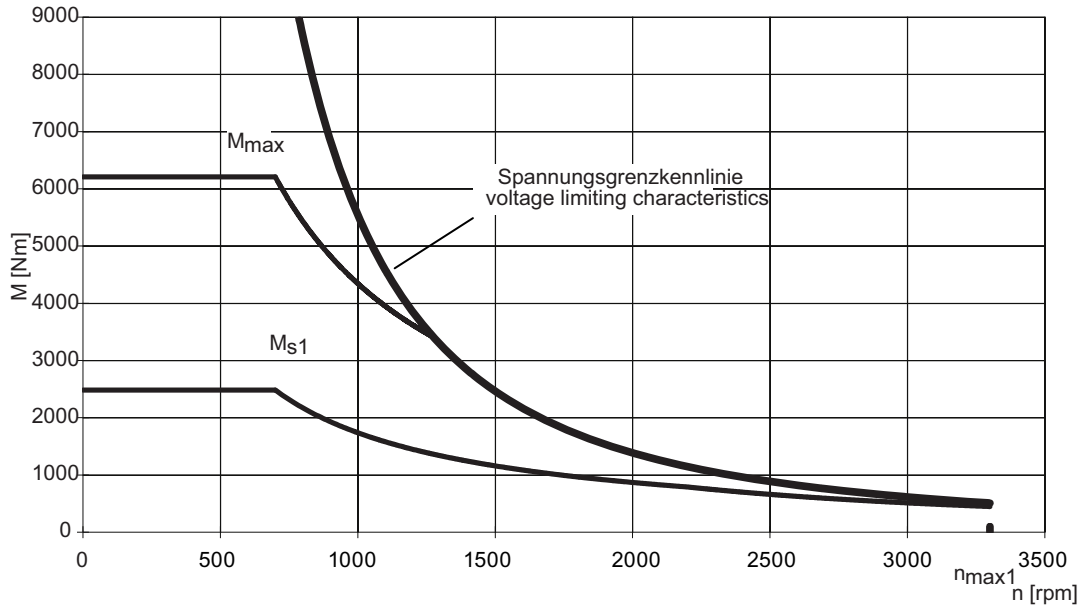
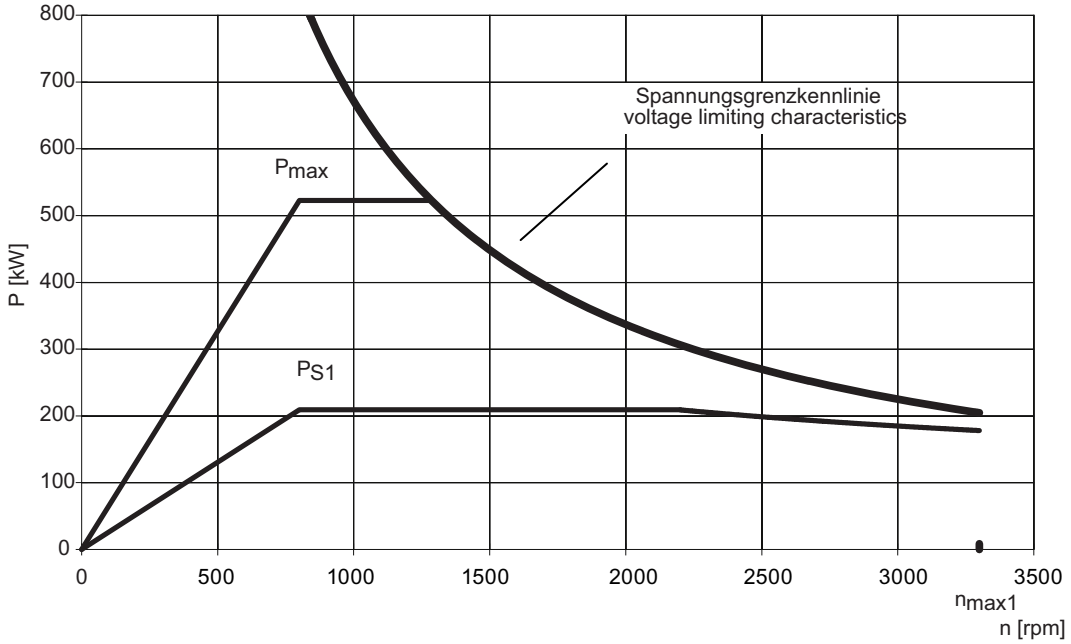


Table 4- 635 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□K2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	209	2495	205	3300	-	-	-	2200	6237	513	2495	205
700	183	2495	205					3100				



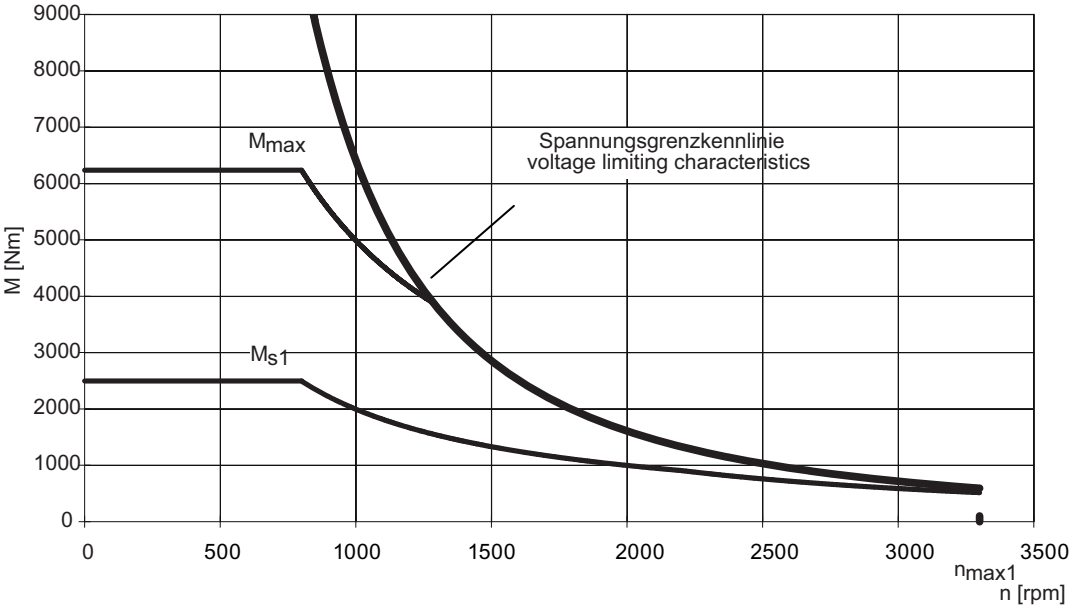
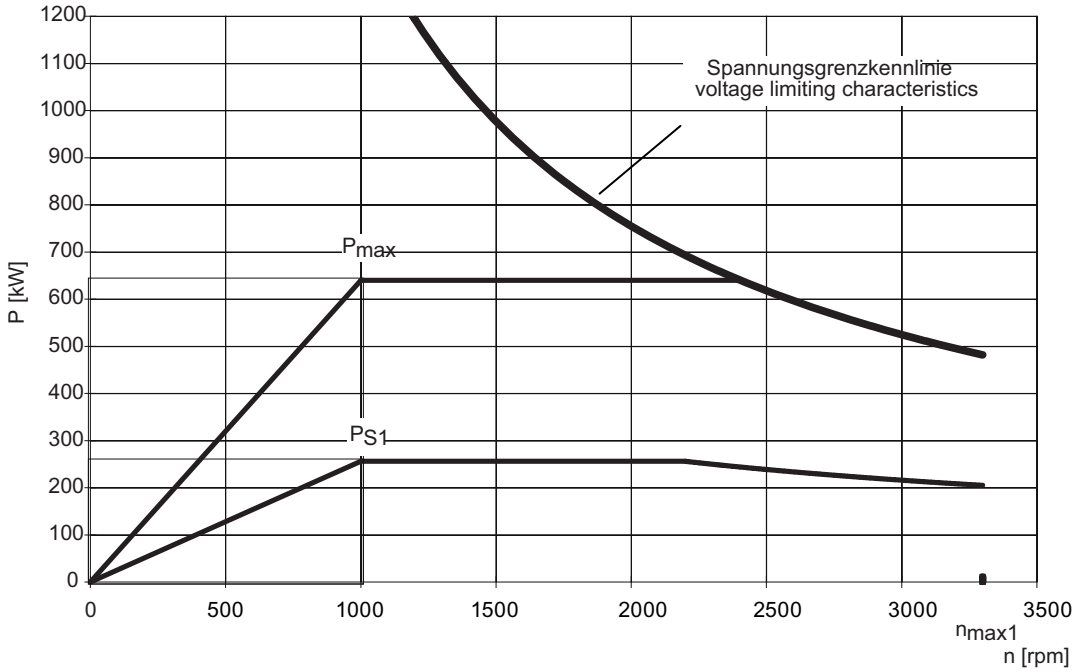


Table 4- 636 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	256	2445	310	3300	-	-	-	2200	6112	775	2445	310



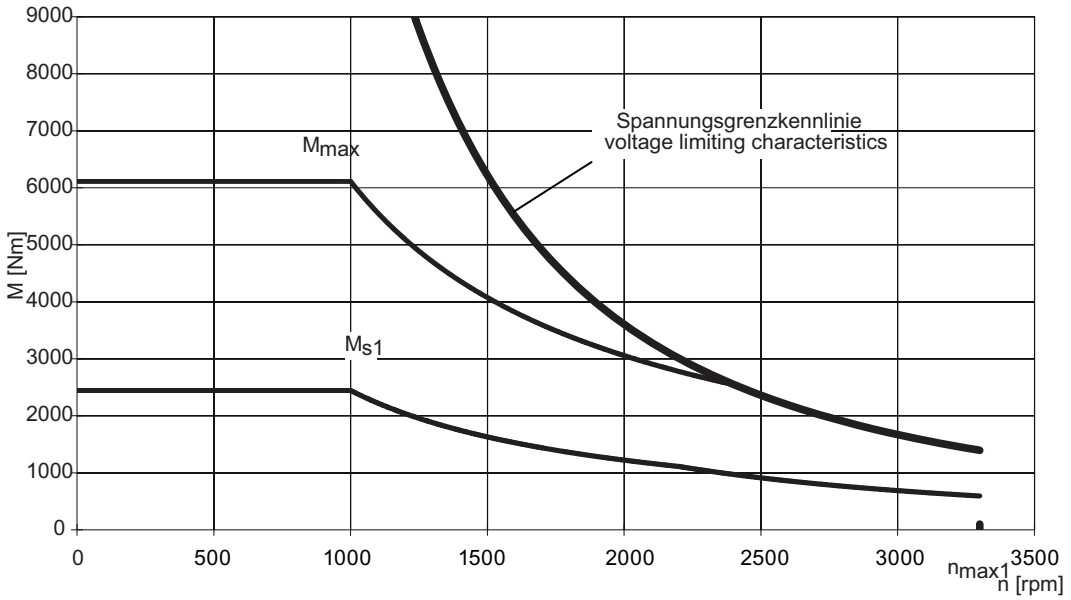
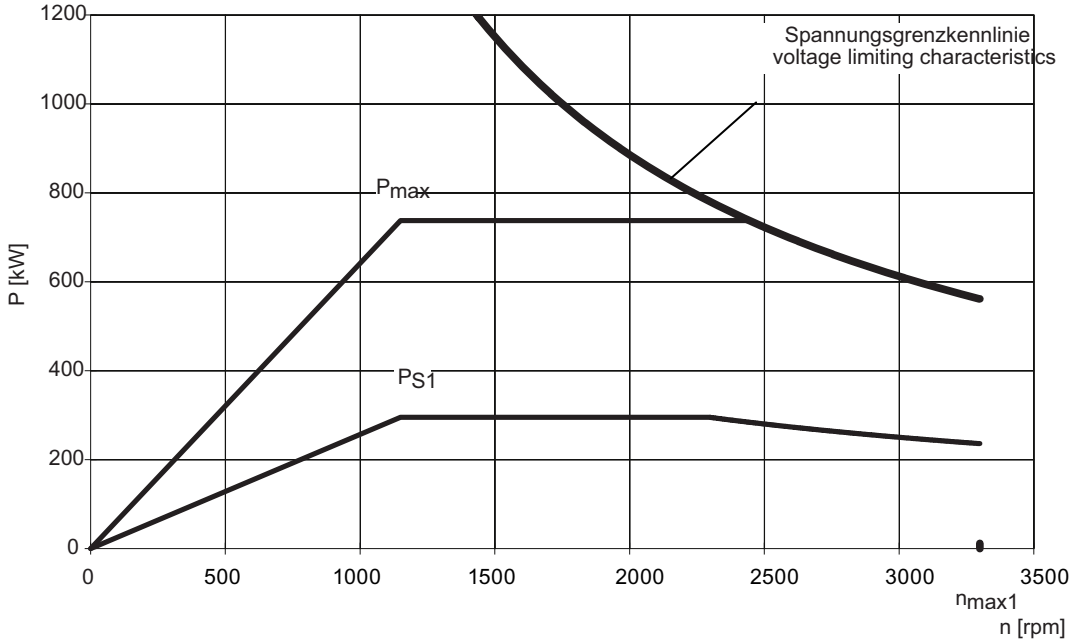


Table 4- 637 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□U2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	295	2450	310	3300	-	-	-	2300	6124	775	2450	310
1000	257	2450	310					2900				



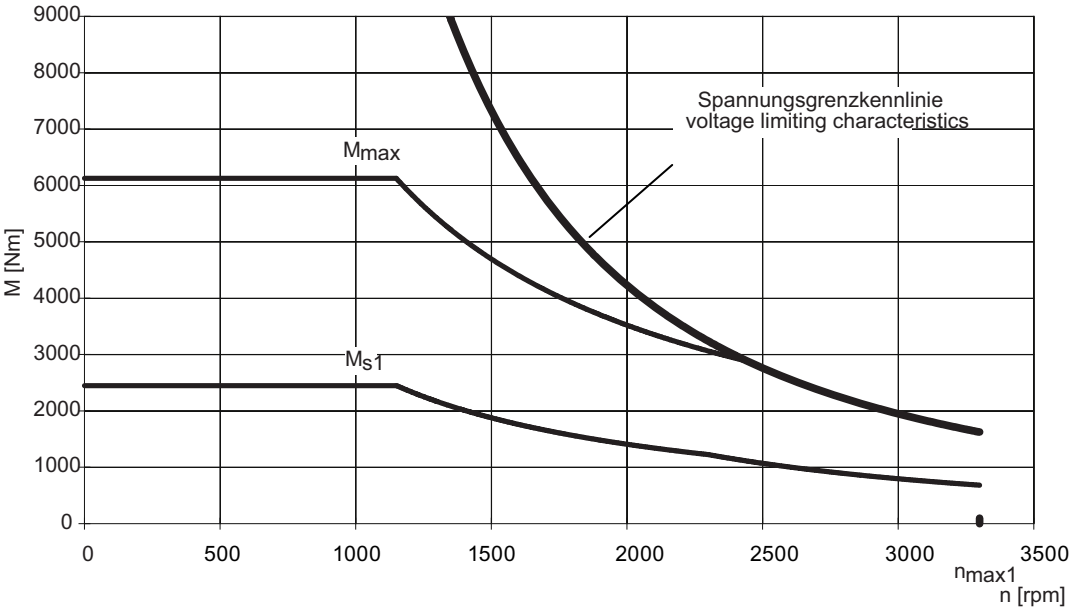
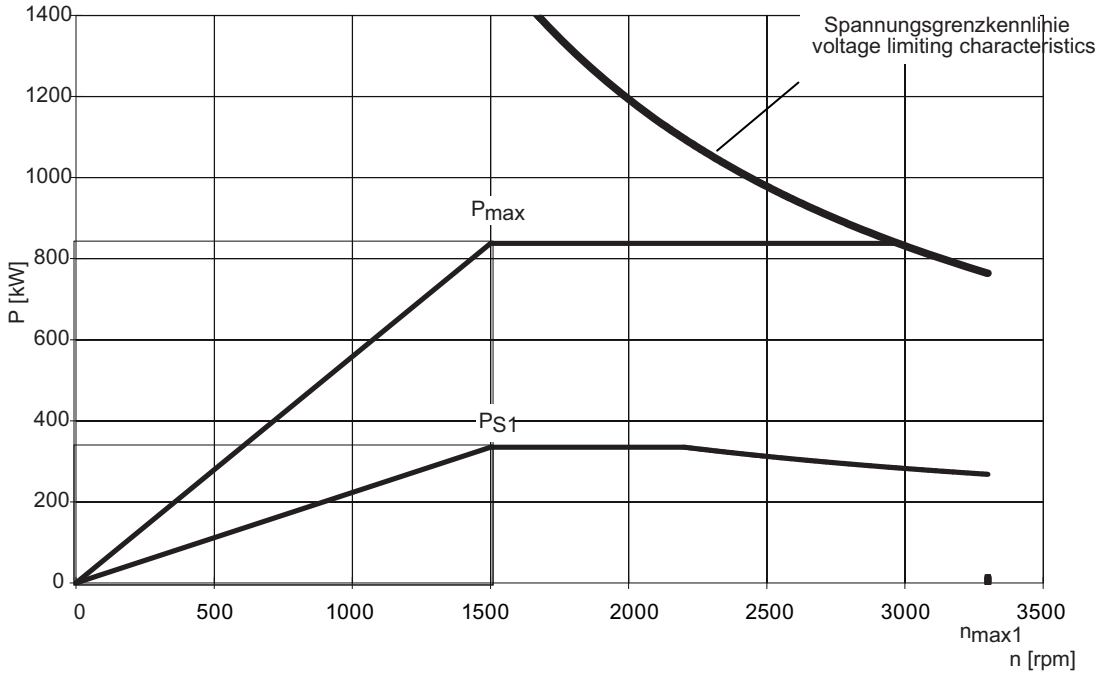


Table 4- 638 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	335	2133	375	3300	-	-	-	2200	5332	938	2133	375



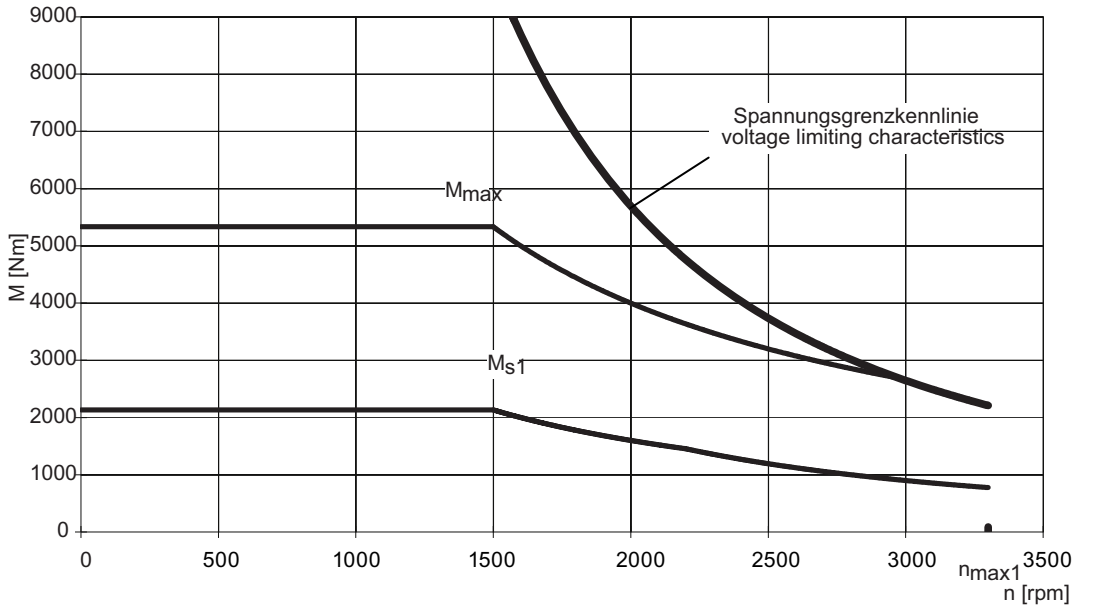
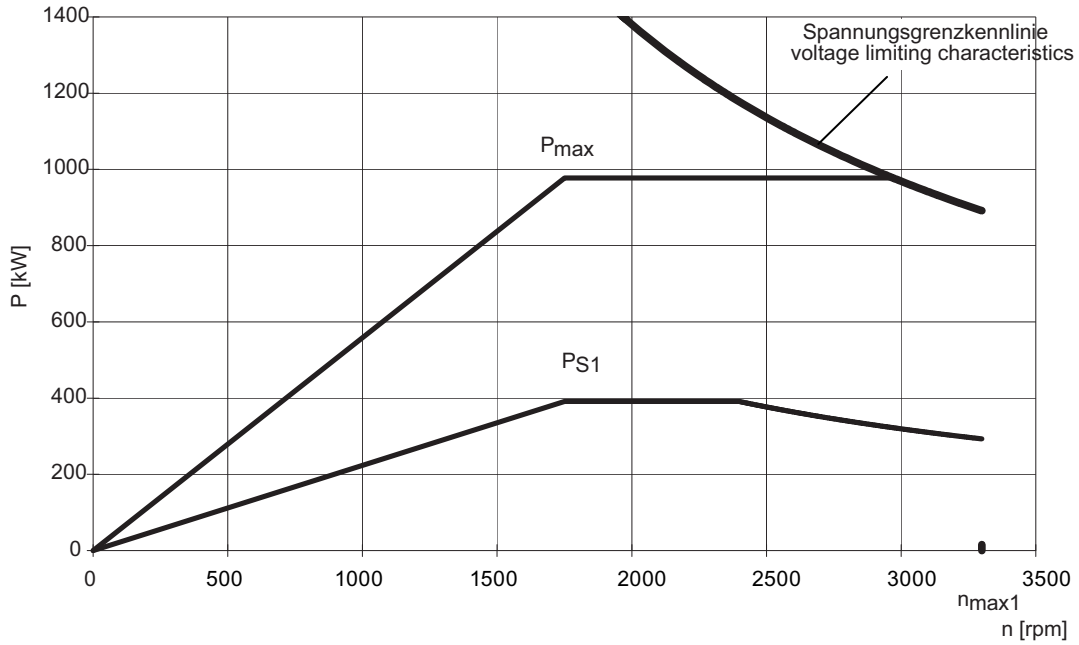
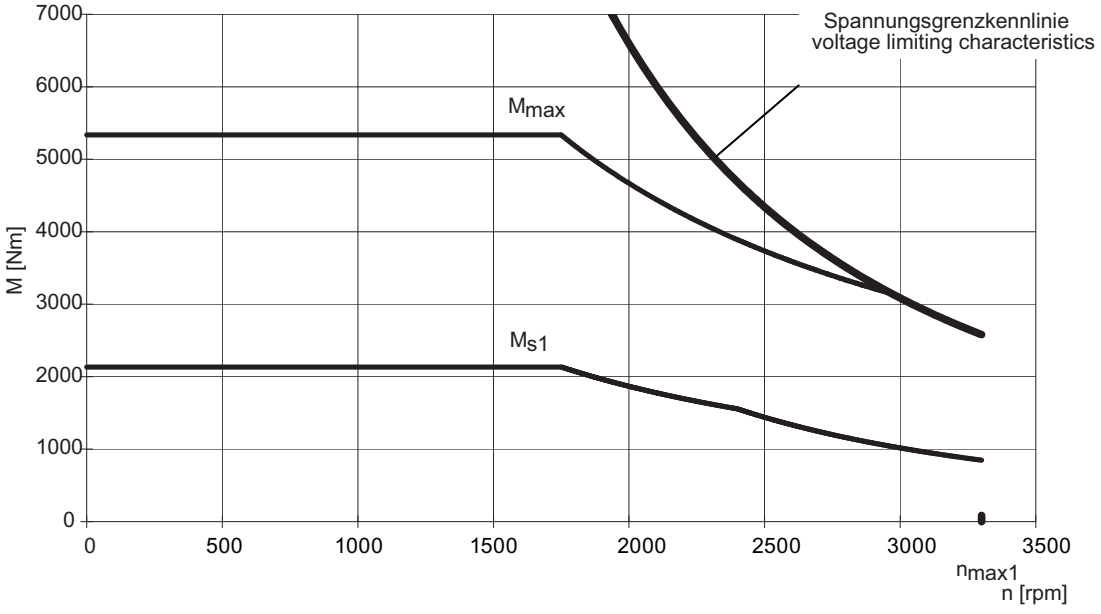


Table 4- 639 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□W2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	391	2134	375	3300	-	-	-	2400	5334	938	2134	375
1500	335	2134	375					2800				





4.2 Synchronous motors

4.2.1 Technical data

The technical data of the relevant motor version is defined by three design points in the tables.

These three design points also correspond to the data stamped on the rating plate of the motor and to the data listed in the selection and ordering data sections of catalog PM 21, NC 61 or D31.

4.2.1.1 Explanation of short codes_synchronous

Table 4- 640 Explanation of the abbreviations used

Abbreviation	Unit	Description
P_{rated}	kW	Rated power
M_{rated}	Nm	Rated torque
I_{rated}	A	Rated current
U_{rated}	V	Rated voltage
f_{rated}	Hz	Rated frequency
n_{rated}	rpm	Rated speed
M_0	Nm	Torque (S1) at zero speed
I_0	A	Current (S1) at M_0
η	-	Maximum efficiency in S1 speed range (in range n_{opt})
J	kgm^2	Moment of inertia
T_{th}	min	Thermal time constant
P_cool	kW	Heat loss to be dissipated on water-cooled motors
m	kg	Weight
n_{max}	rpm	Maximum permissible speed with bearing type "standard or increased speed"
$n_{max,Br}$	rpm	Maximum permissible speed with bearing type "Advanced Lifetime" or built-on holding brake
$n_{max,Inv}$	rpm	Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the Motor Module (borders range without VPM (Voltage Protection Module)
n_{opt}	rpm	Speed at optimum operating point
P_{opt}	kW	Maximum possible power (S1) at the optimum operating point at speed n_{opt}
M_{max}	Nm	Maximum permissible short-time torque for dynamic processes
I_{max}	A	Maximum permissible short-time current at M_{max}

4.2.1.2 Shaft height 132 – forced ventilation

Table 4- 641 1PH8 shaft height 132, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	J [kgm²]	η	T_{th} [min]	m [kg]
1PH8131-2□F□□	SLM/BLM 400 V	15.7	100	29	388	50.0	1500	105	30	0.0446	0.944	10	85
Y connection	ALM 400 V	18.0	98	29	415	58.3	1750	105	30		0.947		
	SLM/BLM/ALM 480 V	19.9	95	29	449	66.7	2000	105	30		0.948		
1PH8131-2□L□□	SLM/BLM 400 V	25.0	96	44	371	83.3	2500	105	48		0.948		
Y connection	ALM 400 V	27.7	95	44	415	93.3	2800	105	48		0.949		
	SLM/BLM/ALM 480 V	29.5	94	43	449	100	3000	105	48		0.951		
1PH8133-2□F□□	SLM/BLM 400 V	19.9	127	44	316	50.0	1500	131	45	0.0600	0.948		103
Y connection	ALM 400 V	23.1	126	43	366	58.3	1750	131	45		0.950		
	SLM/BLM/ALM 480 V	26.2	125	43	415	66.7	2000	131	45		0.951		
1PH8133-2□L□□	SLM/BLM 400 V	31.7	121	55	371	83, 3	2500	131	59		0.948		
Y connection	ALM 400 V	35.2	120	54	415	93, 3	2800	131	59		0.952		
	SLM/BLM/ALM 480 V	37.4	119	54	449	100	3000	131	59		0.952		
1PH8135-2□F□□	SLM/BLM 400 V	23.7	151	43	383	50.0	1500	158	44	0.0750	0.952		120
Y connection	ALM 400 V	27.2	149	42	415	58.3	1750	158	44		0.952		
	SLM/BLM/ALM 480 V	30.2	144	42	449	66.7	2000	158	44		0.953		
1PH8135-2□G□□	SLM/BLM 400 V	31.4	150	59	356	66.7	2000	158	63		0.953		
Y connection	ALM 400 V	35.6	148	59	407	76, 7	2300	158	63		0.953		
	SLM/BLM/ALM 480 V	40.2	145	58	449	88.3	2650	158	63		0.952		
1PH8137-2□F□□	SLM/BLM 400 V	30.6	195	60	356	50.0	1500	203	62	0.0885	0.952		136
Y connection	ALM 400 V	35.6	194	59	412	58.3	1750	203	62		0.953		
	SLM/BLM/ALM 480 V	40.0	191	59	449	66.7	2000	203	62		0.954		
1PH8137-2□L□□	SLM/BLM 400 V	48.4	185	83	371	83.3	2500	203	89		0.954		
Y connection	ALM 400 V	53.4	182	82	415	93.3	2800	203	89		0.953		
	SLM/BLM/ALM 480 V	56.9	181	81	449	100	3000	203	89		0.953		
1PH8137-2□M□□	SLM/BLM 400 V	57.5	183	104	370	100	3000	203	115		0.953		
Y connection	ALM 400 V	62.2	180	102	405	110	3300	203	115		0.952		
	SLM/BLM/ALM 480 V	66.7	177	100	440	120	3600	203	115		0.950		

4.2.1.3 Shaft height 160 - forced ventilation

Table 4- 642 1PH8 shaft height 160, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	J [kgm²]	η	T_{th} [min]	m [kg]
1PH8165-2□F□□	SLM/BLM 400 V	61	390	119	340	100	1500	440	126	0.216	0.940	10	218
Y connection	ALM 400 V	69	375	115	395	117	1750	440	126		0.943		
	SLM/BLM/ALM 480 V	74	355	110	445	133	2000	440	126		0.946		
1PH8165-2□L□□	SLM/BLM 400 V	84	320	148	370	167	2500	440	188		0.955		
Y connection	ALM 400 V	87	300	138	410	187	2800	440	188		0.959		
	SLM/BLM/ALM 480 V	89	285	131	440	200	3000	440	188		0.960		
1PH8167-2□F□□	SLM/BLM 400 V	69	435	133	345	100	1500	500	143	0.244	0.940		240
Y connection	ALM 400 V	77	420	128	400	117	1750	500	143		0.943		
	SLM/BLM/ALM 480 V	82	395	123	450	133	2000	500	143		0.946		
1PH8167-2□L□□	SLM/BLM 400 V	95	360	177	350	167	2500	500	230		0.955		
Y connection	ALM 400 V	98	335	164	385	187	2800	500	230		0.959		
	SLM/BLM/ALM 480 V	99	315	155	410	200	3000	500	230		0.960		

4.2.1.4 Shaft height 180 - forced ventilation

Table 4- 643 1PH8 SH 180, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	J [kgm²]	η	T_{th} [min]	m [kg]
1PH8184-2□C□□	SLM/BLM 400 V	33	450	80	278	47.0	700	480	84	0.460	0.932	18	330
Y connection	ALM 400 V	38	454	80	316	53.0	800	480	84		0.926		
	SLM/BLM/ALM 480 V	46	439	78	390	67.0	1000	480	84		0.937		
1PH8184-2□D□□	SLM/BLM 400 V	46	439	106	285	67.0	1000	480	115		0.937		330
Y connection	ALM 400 V	53	440	106	327	77.0	1150	480	115		0.942		
	SLM/BLM/ALM 480 V	62	439	106	382	90.0	1350	480	115		0.946		
1PH8184-2□F□□	SLM/BLM 400 V	70	446	148	308	100	1500	480	157		0.951		330
Y connection	ALM 400 V	82	447	150	359	117	1750	480	157		0.954		
	SLM/BLM/ALM 480 V	86	411	138	404	133	2000	480	157		0.957		
1PH8186-2□C□□	SLM/BLM 400 V	44	600	108	269	47.0	700	640	115	0.600	0.924	21	400
Y connection	ALM 400 V	50	597	108	306	53.0	800	640	115		0.931		
	SLM/BLM/ALM 480 V	62	592	108	379	67.0	1000	640	115		0.941		
1PH8186-2□D□□	SLM/BLM 400 V	62	592	148	275	67.0	1000	640	157		0.943		400
Y connection	ALM 400 V	71	590	148	315	77.0	1150	640	157		0.948		
	SLM/BLM/ALM 480 V	83	587	146	368	90.0	1350	640	157		0.952		
1PH8186-2□F□□	SLM/BLM 400 V	93	592	215	282	100	1500	640	229		0.952		405
Y connection	ALM 400 V	109	595	215	328	117	1750	640	229		0.955		
	SLM/BLM/ALM 480 V	115	549	200	370	133	2000	640	229		0.956		

4.2.1.5 Shaft height 225 - forced ventilation

Table 4- 644 1PH8 SH 225, forced ventilation (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	J [kgm²]	η	T_{th} [min]	m [kg]
1PH8224-2□C□□	SLM/BLM 400 V	48	655	120	256	47.0	700	708	128	1.28	0.961	23	580
Y connection	ALM 400 V	55	657	120	292	53.0	800	708	128		0.962		
	SLM/BLM/ALM 480 V	68	649	118	363	67.0	1000	708	128		0.965		
1PH8224-2□D□□	SLM/BLM 400 V	68	649	170	254	67.0	1000	708	183		0.964		
Y connection	ALM 400 V	78	648	170	292	77.0	1150	708	183		0.965		
	SLM/BLM/ALM 480 V	91	644	168	342	90.0	1350	708	183		0.965		
1PH8224-2□F□□	SLM/BLM 400 V	101	643	235	271	100	1500	708	256		0.965		
Y connection	ALM 400 V	117	638	235	315	117	1750	708	256		0.965		
	SLM/BLM/ALM 480 V	118	563	210	355	133	2000	708	256		0.963		
1PH8226-2□C□□	SLM/BLM 400 V	64	873	170	238	47.0	700	944	183	1.66	0.963	26	700
Y connection	ALM 400 V	73	871	170	271	53.0	800	944	183		0.965		
	SLM/BLM/ALM 480 V	91	869	170	338	67.0	1000	944	183		0.967		
1PH8226-2□D□□	SLM/BLM 400 V	91	869	215	265	67.0	1000	944	233		0.967		
Y connection	ALM 400 V	104	864	215	304	77.0	1150	944	233		0.967		
	SLM/BLM/ALM 480 V	121	856	215	356	90.0	1350	944	233		0.968		
1PH8226-2□F□□	SLM/BLM 400 V	134	853	295	288	100	1500	944	320		0.967		
Y connection	ALM 400 V	156	851	295	335	117	1750	944	320		0.966		
	SLM/BLM/ALM 480 V	157	750	260	378	133	2000	944	320		0.964		
1PH8228-2□C□□	SLM/BLM 400 V	80	1091	200	254	47.0	700	1180	213	2.02	0.965	28	810
Y connection	ALM 400 V	91	1086	198	290	53.0	800	1180	213		0.967		
	SLM/BLM/ALM 480 V	113	1079	198	361	67.0	1000	1180	213		0.968		
1PH8228-2□D□□	SLM/BLM 400 V	113	1079	265	271	67.0	1000	1180	284		0.968		
Y connection	ALM 400 V	129	1071	260	311	77.0	1150	1180	284		0.969		
	SLM/BLM/ALM 480 V	151	1068	260	364	90.0	1350	1180	284		0.968		
1PH8228-2□F□□	SLM/BLM 400 V	168	1070	395	270	100	1500	1180	427		0.967		
Y connection	ALM 400 V	195	1064	390	314	117	1750	1180	427		0.966		
	SLM/BLM/ALM 480 V	196	936	345	355	133	2000	1180	427		0.964		

4.2.1.6 Overload factors for intermittent duty types (S6) and short-time duty (S2)

The specified overload factors for intermittent duty types (S6) and for short-time duty (S2) are based on the S1 characteristic (continuous operation) of the relevant motor.

Table 4- 645 S6/S2 overload factors for forced-ventilated synchronous motors

Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH813□-2□□0/1	1.20	1.35	1.40	1.15
1PH816□-2□□0/1	1.20	1.35	1.40	1.15
1PH818□-2□□0/1	1.10	1.20	1.25	1.07
1PH822□-2□□0/1	1.10	1.25	1.30	1.30

4.2.1.7 Shaft height 132 - water-cooled

Table 4- 646 1PH8 shaft height 132, water cooling (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	η	J [kgm²]	T_{th} [min]	P_cool [kW]	m [kg]
1PH8131-2□F2□ Y connection	SLM/BLM 400 V	17.6	112	40	326	50.0	1500	115	41	0.946	0.0446	5	1.6	102
	ALM 400 V	20.4	112	40	377	58.3	1750	115	41	0.947			1.8	
	SLM/BLM/ALM 480 V	23.2	111	39	427	66.7	2000	115	41	0.948			1.9	
1PH8131-2□L2□ Y connection	SLM/BLM 400 V	28.5	109	57	359	83.3	2500	115	60	0.948			2.3	
	ALM 400 V	31.7	108	56	400	93.3	2800	115	60	0.949			2.5	
	SLM/BLM/ALM 480 V	33.6	107	56	427	100	3000	115	60	0.950			2.7	
1PH8133-2□F2□ Y connection	SLM/BLM 400 V	23.1	147	42	371	50.0	1500	155	43	0.947	0.0600		2.1	120
	ALM 400 V	26.4	144	42	415	58.3	1750	155	43	0.948			2.4	
	SLM/BLM/ALM 480 V	29.0	139	41	449	66.7	2000	155	43	0.949			2.5	
1PH8133-2□G2□ Y connection	SLM/BLM 400 V	30.6	146	57	383	66.7	2000	155	61	0.950			2.5	
	ALM 400 V	34.9	145	57	415	76.7	2300	155	61	0.951			2.8	
	SLM/BLM/ALM 480 V	39.1	141	57	449	88.3	2650	155	61	0.952			3.1	
1PH8135-2□F2□ Y connection	SLM/BLM 400 V	29.7	189	57	384	50.0	1500	196	59	0.950			2.7	138
	ALM 400 V	34.1	186	56	415	58.3	1750	196	59	0.951			3.1	
	SLM/BLM/ALM 480 V	37.9	181	56	449	66.7	2000	196	59	0.952			3.2	
1PH8135-2□G2□ Y connection	SLM/BLM 400 V	39.0	186	81	346	66.7	2000	196	85	0.952	0.0750		3.1	
	ALM 400 V	44.3	184	80	395	76.7	2300	196	85	0.953			3.5	
	SLM/BLM/ALM 480 V	50.5	182	79	452	88.3	2650	196	85	0.954			4.0	
1PH8137-2□F2□ Y connection	SLM/BLM 400 V	32.7	208	58	371	50.0	1500	226	60	0.951	0.0885		2.9	153
	ALM 400 V	37.0	202	58	415	58.3	1750	225	60	0.952			3.3	
	SLM/BLM/ALM 480 V	40.6	194	57	449	66.7	2000	226	60	0.953			3.4	
1PH8137-2□G2□ Y connection	SLM/BLM 400 V	44.4	212	85	371	66.7	2000	226	90	0.954			3.6	
	ALM 400 V	50.8	210	84	424	76.7	2300	226	90	0.956			4.1	
	SLM/BLM/ALM 480 V	56.8	205	83	449	88.3	2650	226	90	0.954			4.5	
1PH8138-2□F2□ Y connection	SLM/BLM 400 V	44.9	286	118	316	50.0	1500	290	120	0.958			4.0	156
	ALM 400 V	52.4	286	118	366	58.3	1750	290	120	0.959			4.7	
	SLM/BLM/ALM 480 V	59.7	285	118	416	66.7	2000	290	120	0.960			4.8	
1PH8138-2□G2□ Y connection	SLM/BLM 400 V	59.3	283	131	374	66.7	2000	290	133	0.960			4.7	
	ALM 400 V	67.7	281	130	415	76.7	2300	290	133	0.961			5.4	
	SLM/BLM/ALM 480 V	76.3	275	130	449	88.3	2650	290	133	0.962			6.1	

4.2.1.8 Shaft height 160 - water cooling

Table 4- 647 1PH8 shaft height 160, water cooling (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	η	J [kgm²]	T_{th}	P_cool [kW]	m [kg]
1PH8164-2□F2□ Y connection	SLM/BLM 400 V	59	375	111	380	100	1500	440	118	0.940	0.175	5	4.7	224
	ALM 400 V	67	365	108	440	117	1750	440	118	0.943			5.3	
	SLM/BLM/ALM 480 V	70	330	105	500	133	2000	440	118	0.946			5.6	
1PH8164-2□L2□ Y connection	SLM/BLM 400 V	88	335	165	355	167	2500	440	205	0.955			6.2	
	ALM 400 V	93	315	156	395	187	2800	440	205	0.959			6.5	
	SLM/BLM/ALM 480 V	96	305	150	420	200	3000	440	205	0.960			6.7	
1PH8166-2□F2□ Y connection	SLM/BLM 400 V	74	475	148	355	100	1500	550	159	0.940	0.216		6.0	257
	ALM 400 V	85	460	143	410	117	1750	550	159	0.943			6.6	
	SLM/BLM/ALM 480 V	89	425	138	465	133	2000	550	159	0.946			7.2	
1PH8166-2□L2□ Y connection	SLM/BLM 400 V	102	390	188	380	167	2500	550	240	0.955			7.1	
	ALM 400 V	109	375	177	420	187	2800	550	240	0.959			7.5	
	SLM/BLM/ALM 480 V	110	350	169	450	200	3000	550	240	0.960			7.7	
1PH8168-2□F2□ Y connection	SLM/BLM 400 V	84	530	169	355	100	1500	620	179	0.940	0.244	5	6.7	279
	ALM 400 V	94	510	164	410	117	1750	620	179	0.943			7.5	
	SLM/BLM/ALM 480 V	100	480	157	465	133	2000	620	179	0.946			8.0	
1PH8168-2□L2□ Y connection	SLM/BLM 400 V	119	455	225	355	167	2500	520	240	0.955			8.3	
	ALM 400 V	123	420	210	395	187	2800	520	240	0.959			8.6	
	SLM/BLM/ALM 480 V	125	395	197	420	200	3000	520	240	0.960			8.8	

4.2.1.9 Shaft height 180 - water-cooled

Table 4- 648 1PH8 shaft height 180, water cooling (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	η	J [kgm²]	T_{th} [min]	P_cool [kW]	m [kg]
1PH8184-2□C2□ Y connection	SLM/BLM 400 V	42	573	100	303	47.0	700	590	103	0.919	0.45	13	3.8	330
	ALM 400 V	48	573	102	342	53.0	800	590	103	0.926			4.4	
	SLM/BLM/ALM 480 V	60	573	102	423	67.0	1000	590	103	0.937			5.6	
1PH8184-2□D2□ Y connection	SLM/BLM 400 V	61	583	140	313	67.0	1000	600	143	0.937			5.7	330
	ALM 400 V	70	581	140	386	77.0	1150	600	143	0.942			6.5	
	SLM/BLM/ALM 480 V	82	580	140	417	90.0	1350	600	143	0.946			7.7	
1PH8184-2□F2□ Y connection	SLM/BLM 400 V	90	573	190	334	100	1500	600	196	0.951			8.5	330
	ALM 400 V	103	562	186	386	117	1750	600	196	0.954			9.7	
	SLM/BLM/ALM 480 V	110	525	176	434	133	2000	600	196	0.957			10.4	
1PH8184-2□L2□ Y connection	SLM/BLM 400 V	127	485	260	328	167	2500	530	278	0.957			12.0	332
	ALM 400 V	140	461	250	375	193	2900	530	278	0.956			13.2	
	SLM/BLM/ALM 480 V	142	424	230	405	213	3200	530	278	0.954			13.4	
1PH8186-2□C2□ Y connection	SLM/BLM 400 V	58	791	142	295	47.0	700	800	143	0.924	0.60	14	5.3	400
	ALM 400 V	66	788	142	335	53.0	800	800	143	0.931			6.1	
	SLM/BLM/ALM 480 V	82	783	140	415	67.0	1000	800	143	0.941			7.6	
1PH8186-2□D2□ Y connection	SLM/BLM 400 V	80	764	190	300	67.0	1000	800	196	0.943			7.5	400
	ALM 400 V	92	764	190	345	77.0	1150	800	196	0.948			8.6	
	SLM/BLM/ALM 480 V	107	757	190	400	90.0	1350	800	196	0.952			10.1	
1PH8186-2□F2□ Y connection	SLM/BLM 400 V	119	758	275	305	100	1500	800	285	0.952			11.2	405
	ALM 400 V	138	753	275	355	117	1750	800	285	0.955			13.0	
	SLM/BLM/ALM 480 V	154	735	265	400	133	2000	800	285	0.956			14.6	
1PH8186-2□L2□ Y connection	SLM/BLM 400 V	168	642	370	305	167	2500	720	405	0.957			15.9	405
	ALM 400 V	178	586	340	345	193	2900	720	405	0.955			16.8	
	SLM/BLM/ALM 480 V	183	546	315	375	213	3200	720	405	0.953			17.3	

4.2.1.10 Shaft height 225 - water-cooled

Table 4- 649 1PH8 shaft height 225, water cooling (basic data)

Motor	Module	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rated} [V]	f_{rated} [Hz]	n_{rated} [rpm]	M_o [Nm]	I_o [A]	η	J [kgm²]	T_{th} [min]	P_cool [kW]	m [kg]
1PH8224-2□C2□ Y connection	SLM/BLM 400 V	72	982	180	275	47	700	1007	183	0.947	1.28	16	6.7	580
	ALM 400 V	81	967	178	310	53	800	1007	183	0.952			7.6	
	SLM/BLM/ALM 480 V	101	964	178	385	67	1000	1007	183	0.957			9.6	
1PH8224-2□D2□ Y connection	SLM/BLM 400 V	101	964	255	275	67	1000	1007	262	0.956			9.6	
	ALM 400 V	115	955	250	310	77	1150	1007	262	0.959			10.9	
	SLM/BLM/ALM 480 V	135	955	250	365	90	1350	1007	262	0.961			12.8	
1PH8224-2□F2□ Y connection	SLM/BLM 400 V	151	961	355	290	100	1500	1007	367	0.962			14.4	
	ALM 400 V	175	955	355	335	117	1750	1007	367	0.963			16.7	
	SLM/BLM/ALM 480 V	186	888	330	380	133	1350	1007	367	0.964			17.7	
1PH8224-2□L2□ Y connection	SLM/BLM 400 V	182	695	365	320	167	2500	885	460	0.961			17.3	
	ALM 400 V	191	629	335	370	193	2900	885	460	0.958			18.1	
	SLM/BLM/ALM 480 V	196	585	310	400	213	3200	885	460	0.954			18.5	
1PH8226-2□C2□ Y connection	SLM/BLM 400 V	95	1296	255	255	47	700	1330	260	0.952	1.66	18	8.9	700
	ALM 400 V	108	1289	255	287	53	800	1330	260	0.956			10.2	
	SLM/BLM/ALM 480 V	134	1280	255	357	67	1000	1330	260	0.960			12.7	
1PH8226-2□D2□ Y connection	SLM/BLM 400 V	135	1289	325	285	67	1000	1330	330	0.960			12.8	
	ALM 400 V	155	1287	325	325	77	1150	1330	330	0.962			14.8	
	SLM/BLM/ALM 480 V	180	1273	320	380	90	1350	1330	330	0.964			17.2	
1PH8226-2□F2□ Y connection	SLM/BLM 400 V	201	1280	445	305	100	1500	1330	454	0.965			19.2	
	ALM 400 V	233	1271	440	355	117	1750	1330	454	0.965			22.3	
	SLM/BLM/ALM 480 V	248	1184	410	390	133	2000	1330	454	0.965			23.7	
1PH8226-2□L2□ Y connection	SLM/BLM 400 V	228	871	400	360	167	2500	1170	532	0.962			21.7	
	ALM 400 V	238	784	365	413	193	2900	1170	532	0.958			22.6	
	SLM/BLM/ALM 480 V	245	731	340	460	213	3200	1170	532	0.954			23.1	
1PH8228-2□C2□ Y connection	SLM/BLM 400 V	121	1651	305	305	47	700	1680	306	0.955	2.02	19	11.4	810
	ALM 400 V	138	1647	305	315	53	800	1680	306	0.958			13.1	
	SLM/BLM/ALM 480 V	172	1642	300	390	67	1000	1680	306	0.961			16.4	
1PH8228-2□D2□ Y connection	SLM/BLM 400 V	169	1614	395	290	67	1000	1680	408	0.962			16.1	
	ALM 400 V	194	1611	395	330	77	1150	1660	408	0.964			18.5	
	SLM/BLM/ALM 480 V	226	1599	395	395	90	1350	1660	408	0.965			21.6	
1PH8228-2□F2□ Y connection	SLM/BLM 400 V	251	1598	590	285	100	1500	1680	612	0.964			23.9	
	ALM 400 V	289	1577	580	335	117	1750	1680	612	0.965			27.6	
	SLM/BLM/ALM 480 V	310	1480	550	380	133	2000	1680	612	0.964			29.6	
1PH8228-2□L2□ Y connection	SLM/BLM 400 V	270	1031	570	300	167	2500	1400	762	0.963			25.7	
	ALM 400 V	283	932	520	345	193	2900	1400	762	0.958			26.8	
	SLM/BLM/ALM 480 V	291	868	485	380	213	3200	1400	762	0.958			27.5	

4.2.1.11 Overload factors for intermittent duty types (S6) and short-time duty (S2)

The specified overload factors for intermittent duty types (S6) and for short-time duty (S2) are based on the S1 characteristic (continuous operation) of the relevant motor.

Table 4- 650 S6/S2 overload factors for water-cooled synchronous motors

Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH813□-2□□2	1.10	1.20	1.50	1.07
1PH816□-2□□2	1.10	1.20	1.50	1.07
1PH818□-2□□2	1.10	1.20	1.50	1.07
1PH822□-2□□2	1.10	1.20	1.50	1.07

4.2.2 Characteristics forced ventilation

4.2.2.1 Shaft height 132 – forced ventilation

Table 4- 651 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	15,7	100	29	17	2000	4500	4500	2550	220	74	105	30

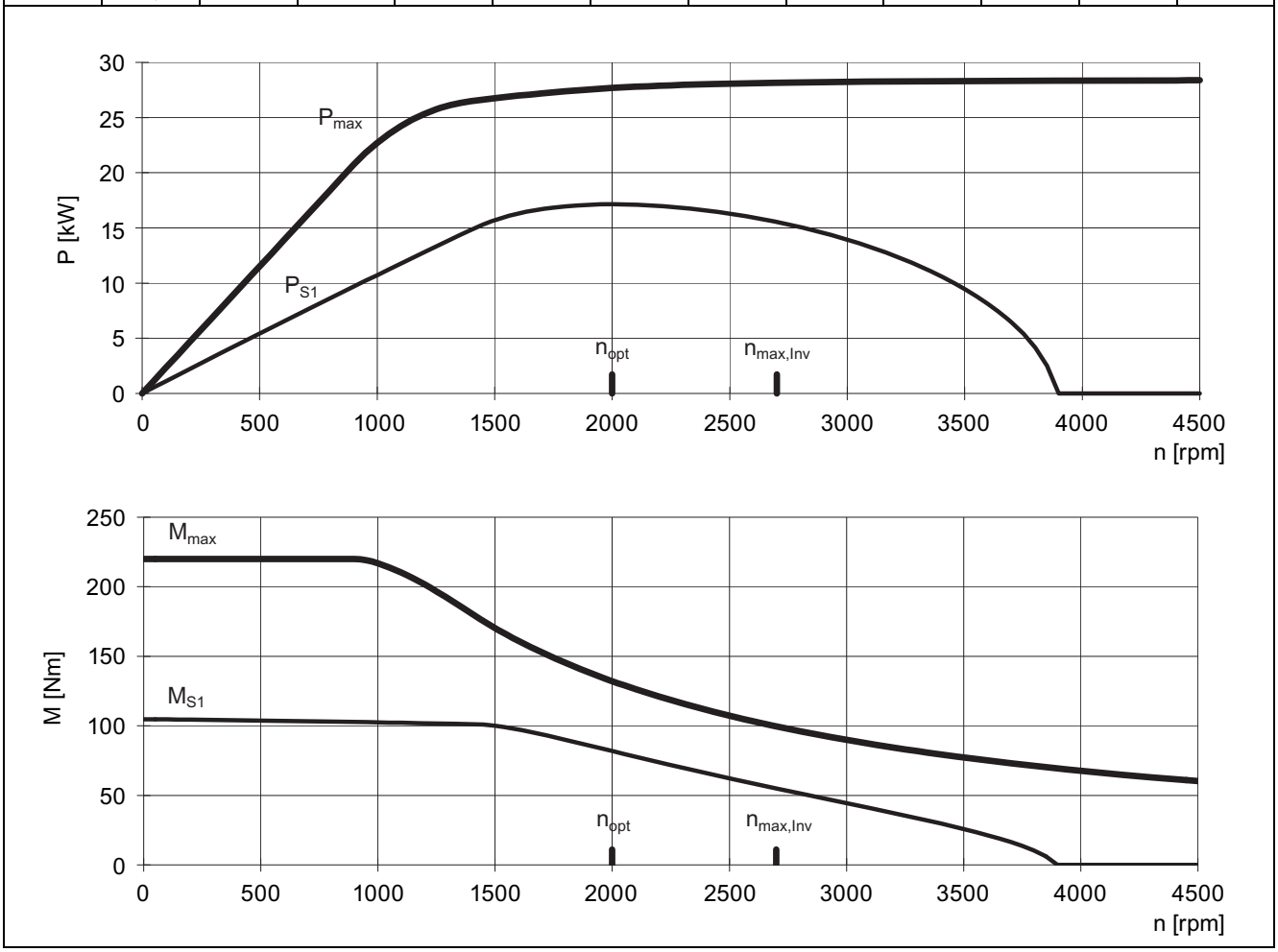
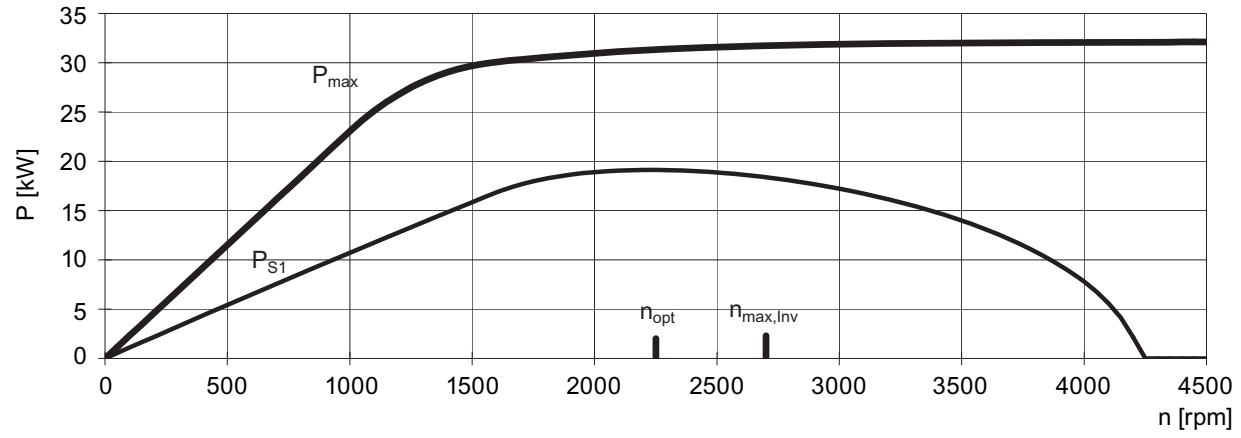


Table 4- 652 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	18,0	98	29	19	2250	4500	4500	2550	220	74	105	30
1500	15,7	100	29									



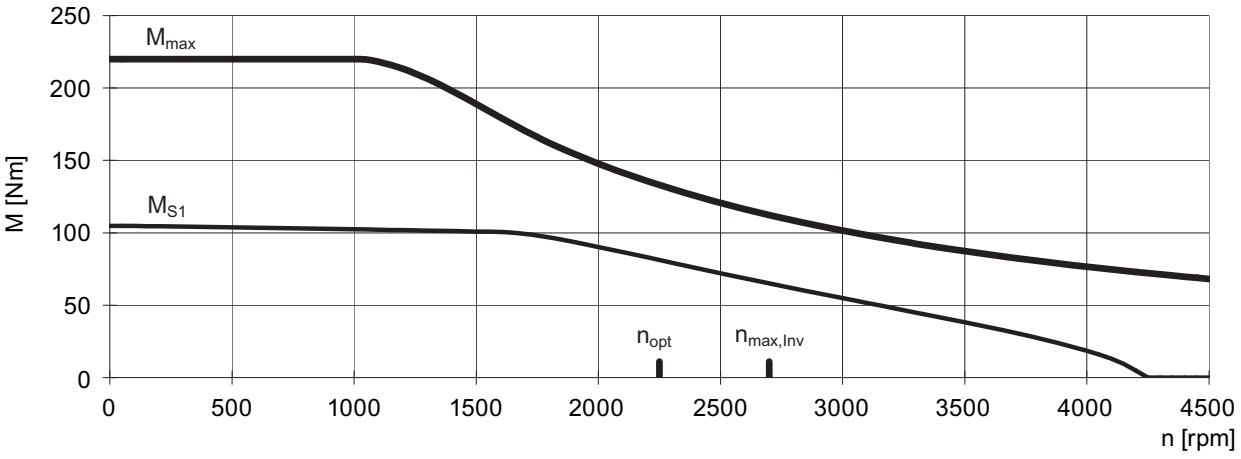
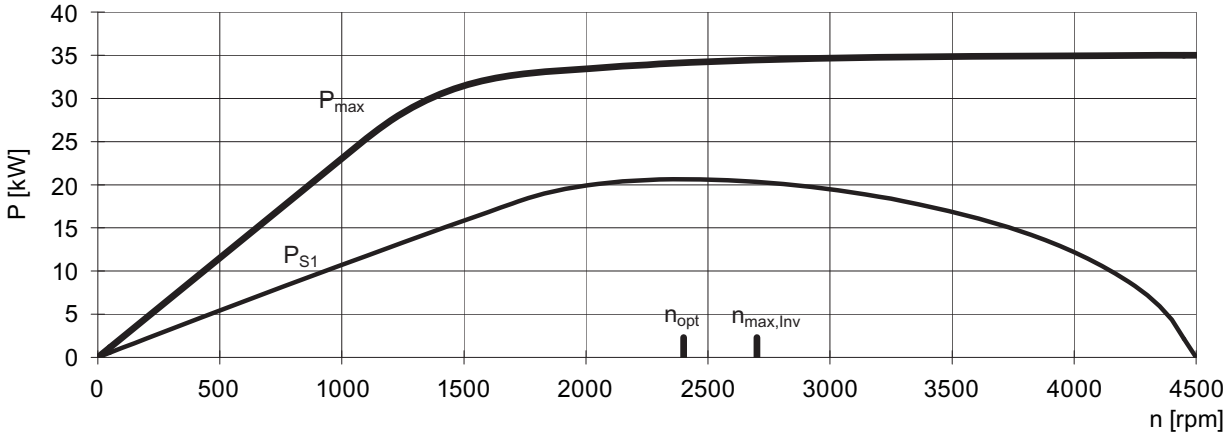


Table 4- 653 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	19,9	95	29	21	2400	4500	4500	2550	220	74	105	30



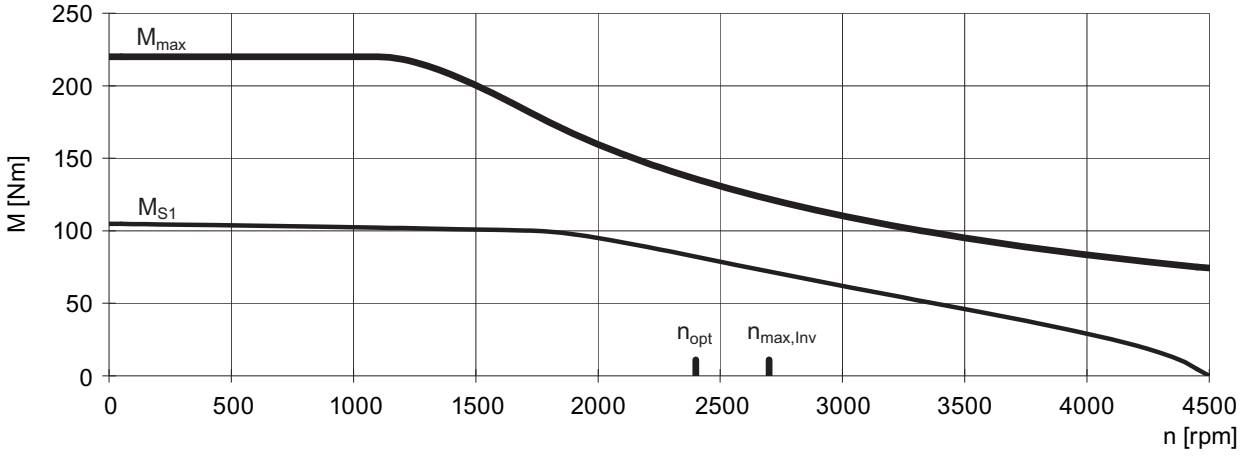


Table 4- 654 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	25,0	96	44	26	3050	4500	4500	4050	220	117	105	48

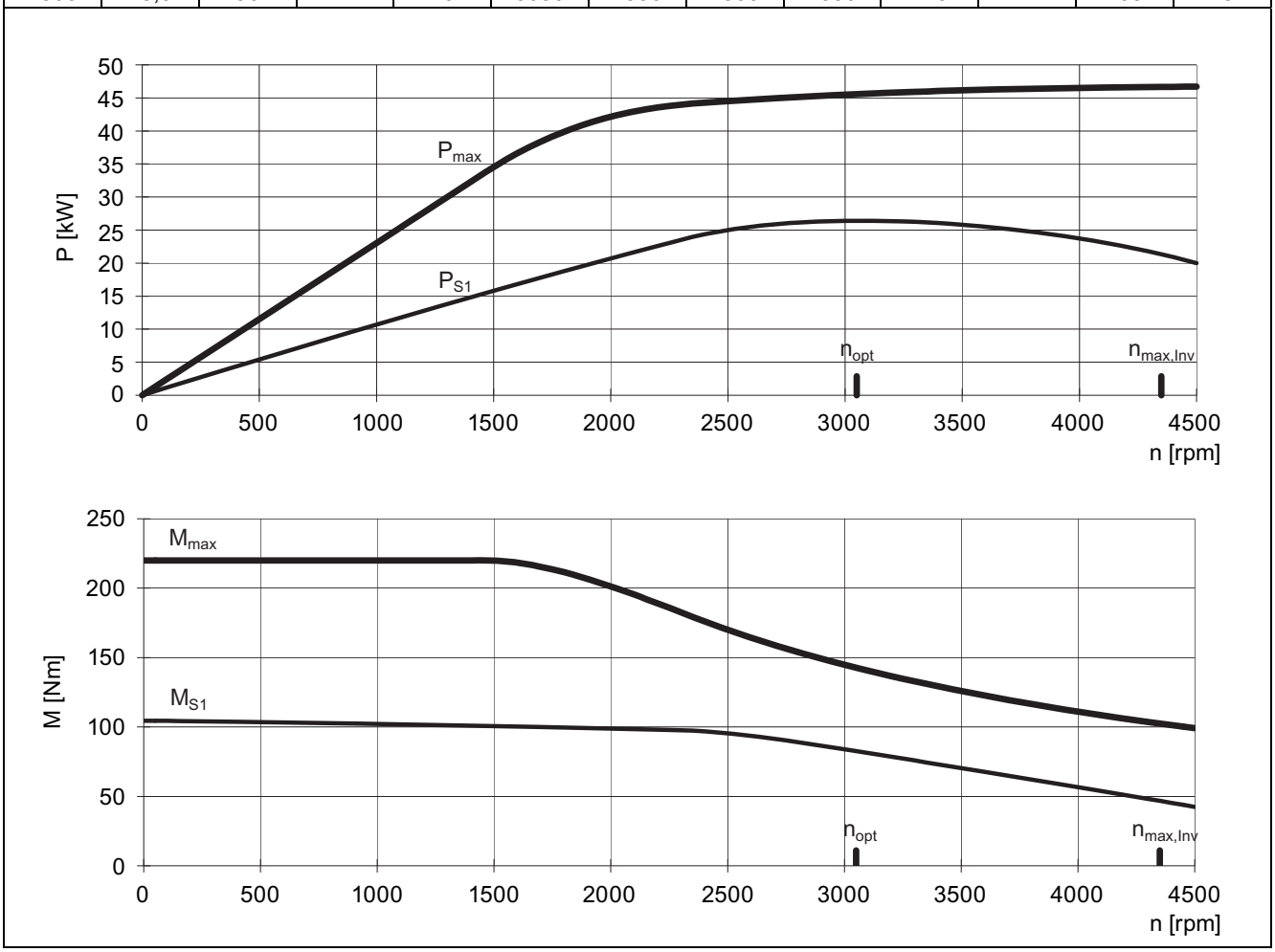
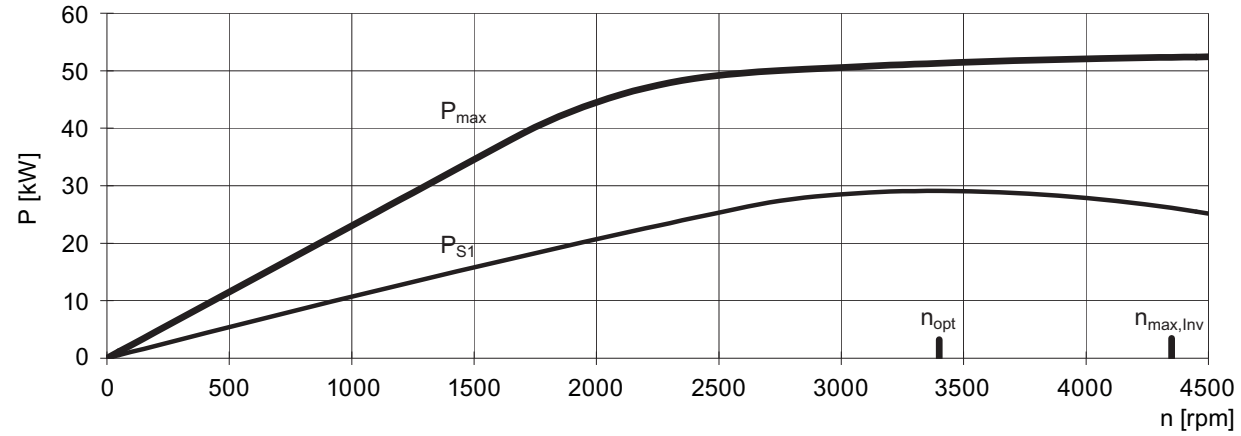


Table 4- 655 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	27,7	95	44	29	3400	4500	4500	4050	220	117	105	48
2500	25,0	96	44									



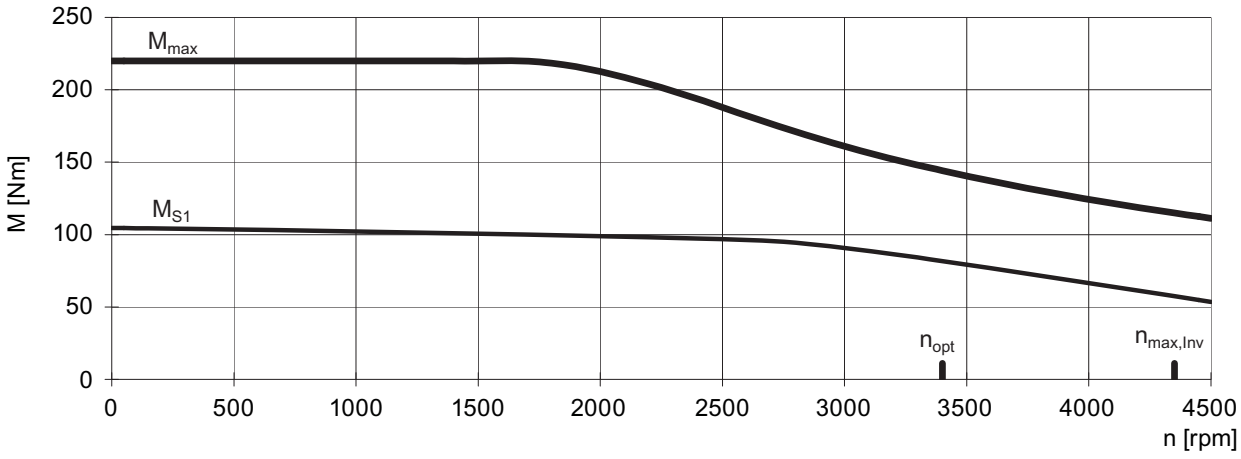


Table 4- 656 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	29,5	94	43	31	3600	4500	4500	4050	220	117	105	48

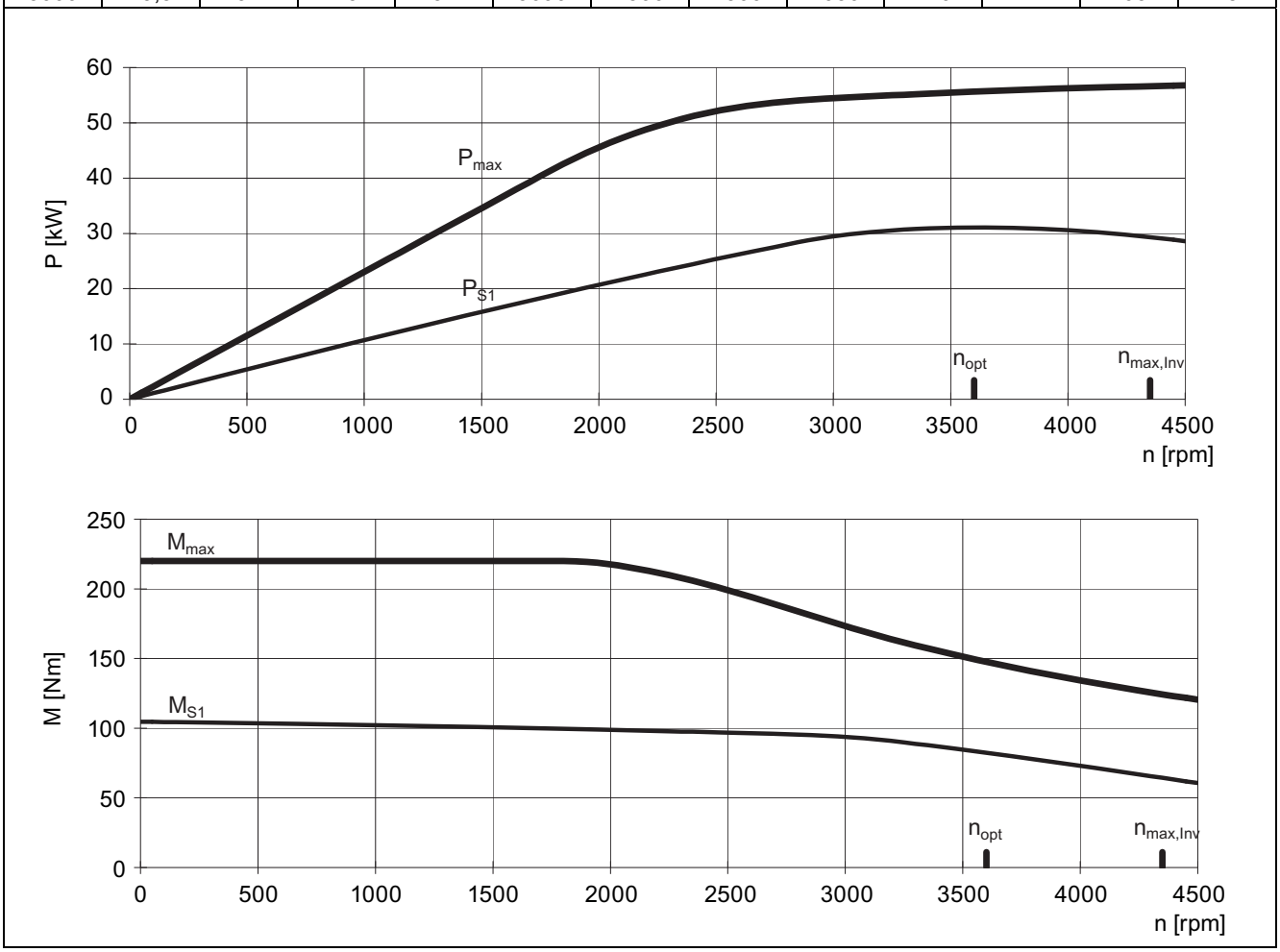


Table 4- 657 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	19,9	127	44	26	2300	4500	4500	3050	310	124	131	45

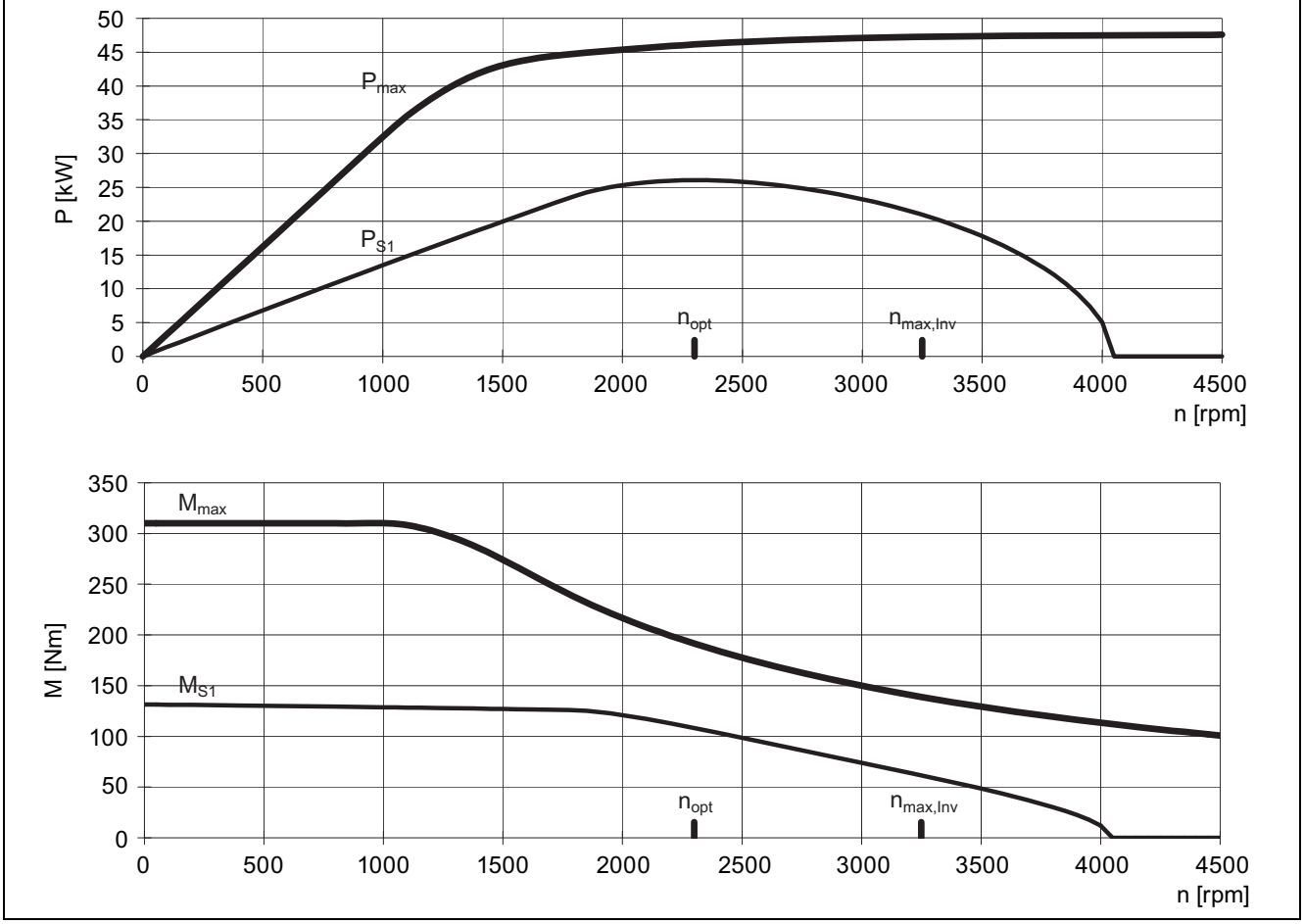
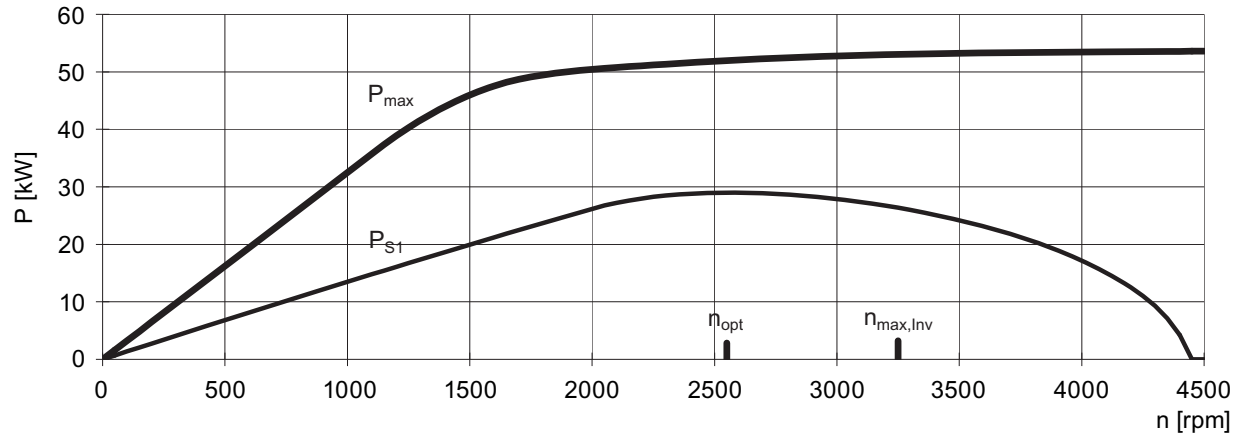


Table 4- 658 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	23,1	126	43	29	2550	4500	4500	3050	310	124	131	45
1500	19,9	127	44									



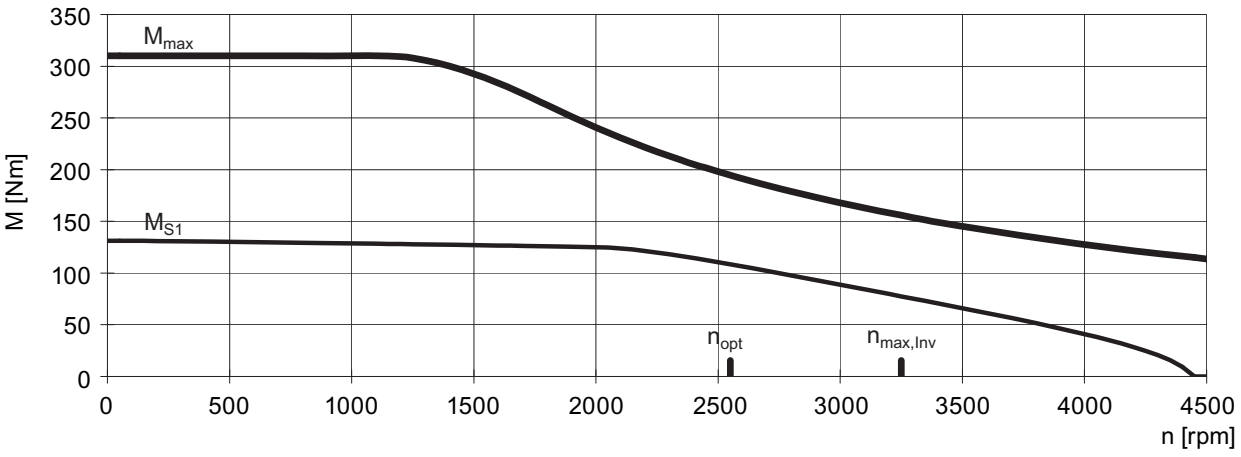
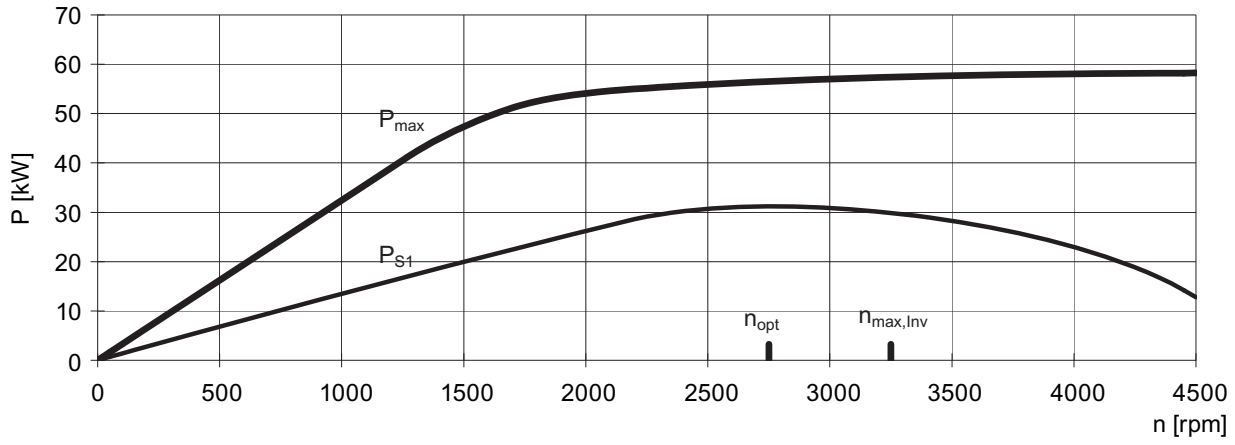


Table 4- 659 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	26,2	125	43	31	2750	4500	4500	3050	310	124	131	45



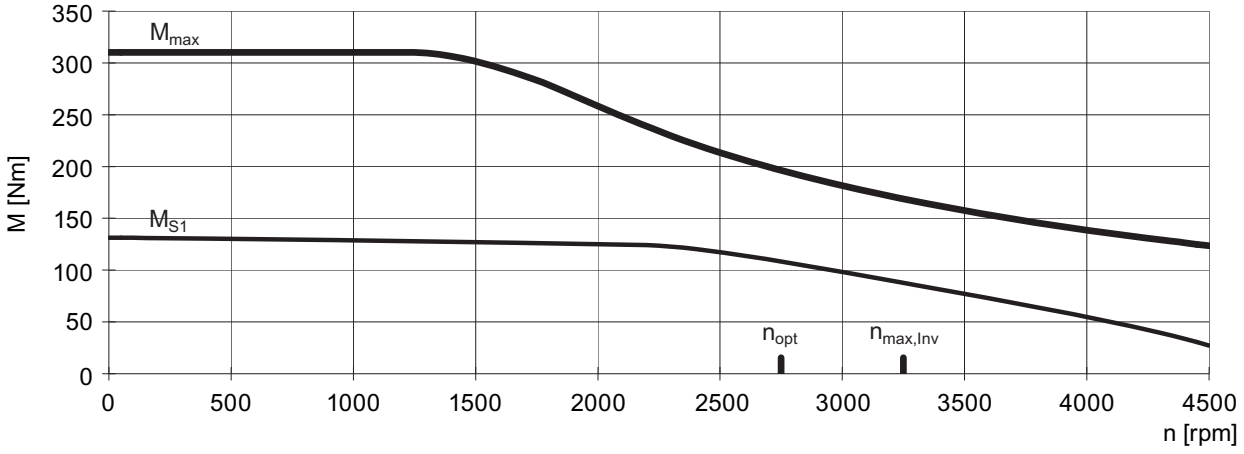


Table 4- 660 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	31,7	121	55	33	2950	4500	4500	3950	310	162	131	59

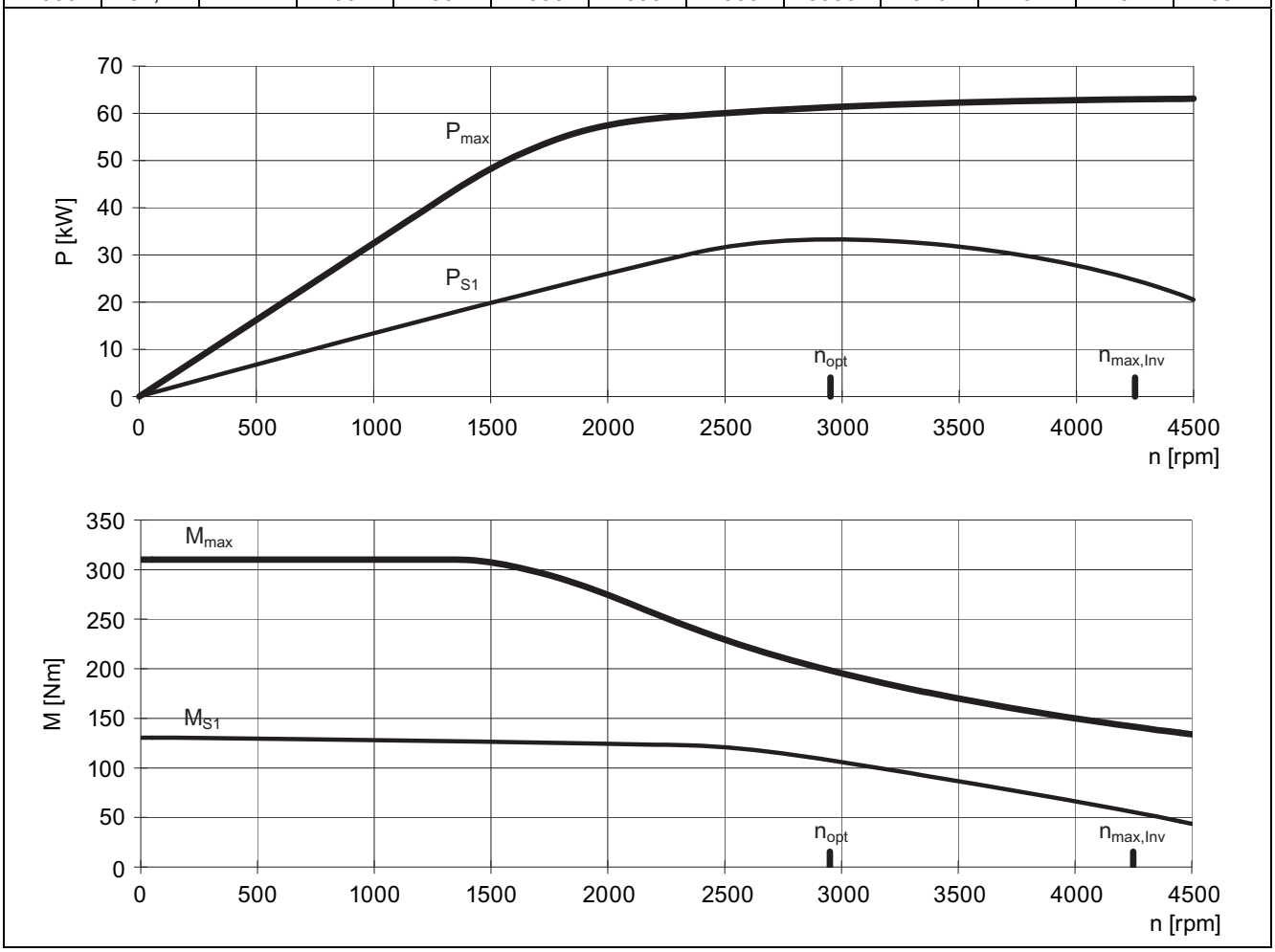
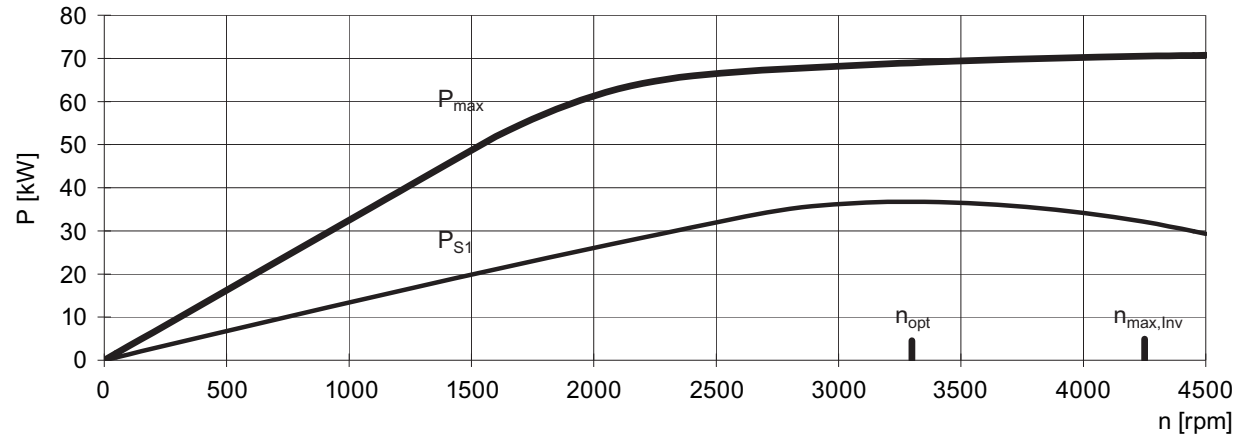


Table 4- 661 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	35,2	120	54	37	3300	4500	4500	3950	310	162	131	59
2500	31,7	121	55									



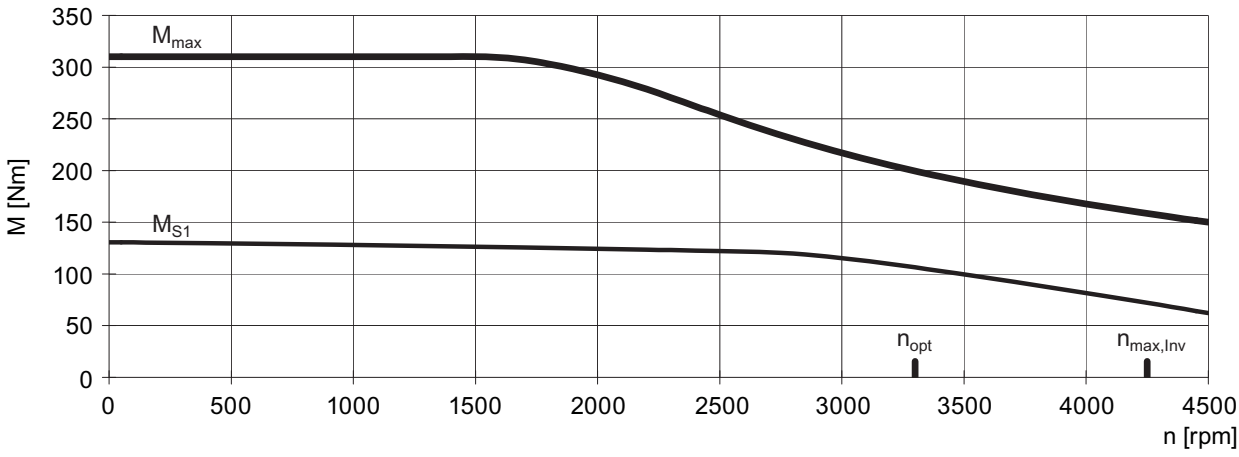


Table 4- 662 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	37,4	119	54	39	3550	4500	4500	3950	310	162	131	59

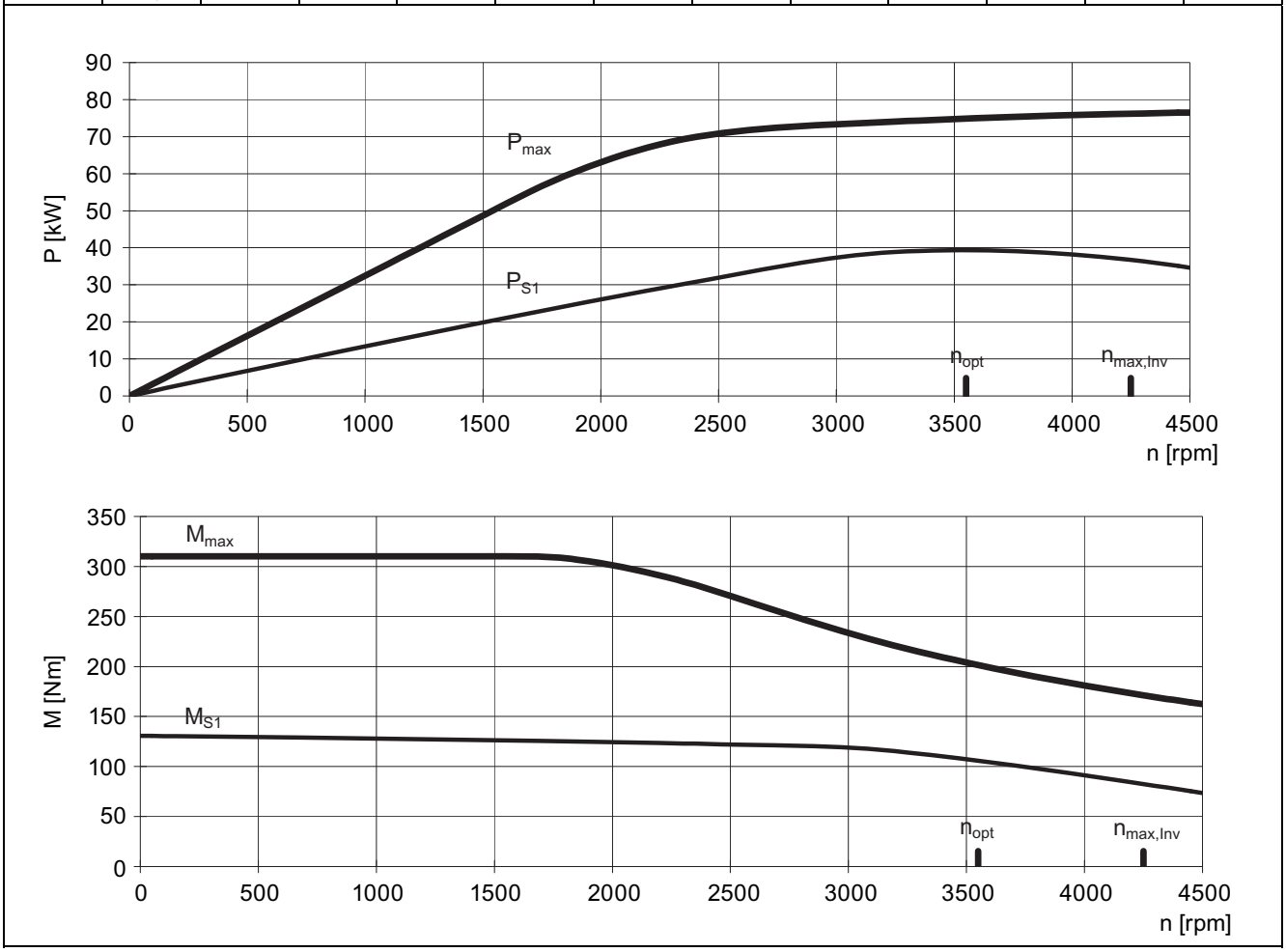


Table 4- 663 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	23,7	151	43	26	1900	4500	4500	2450	390	127	158	44

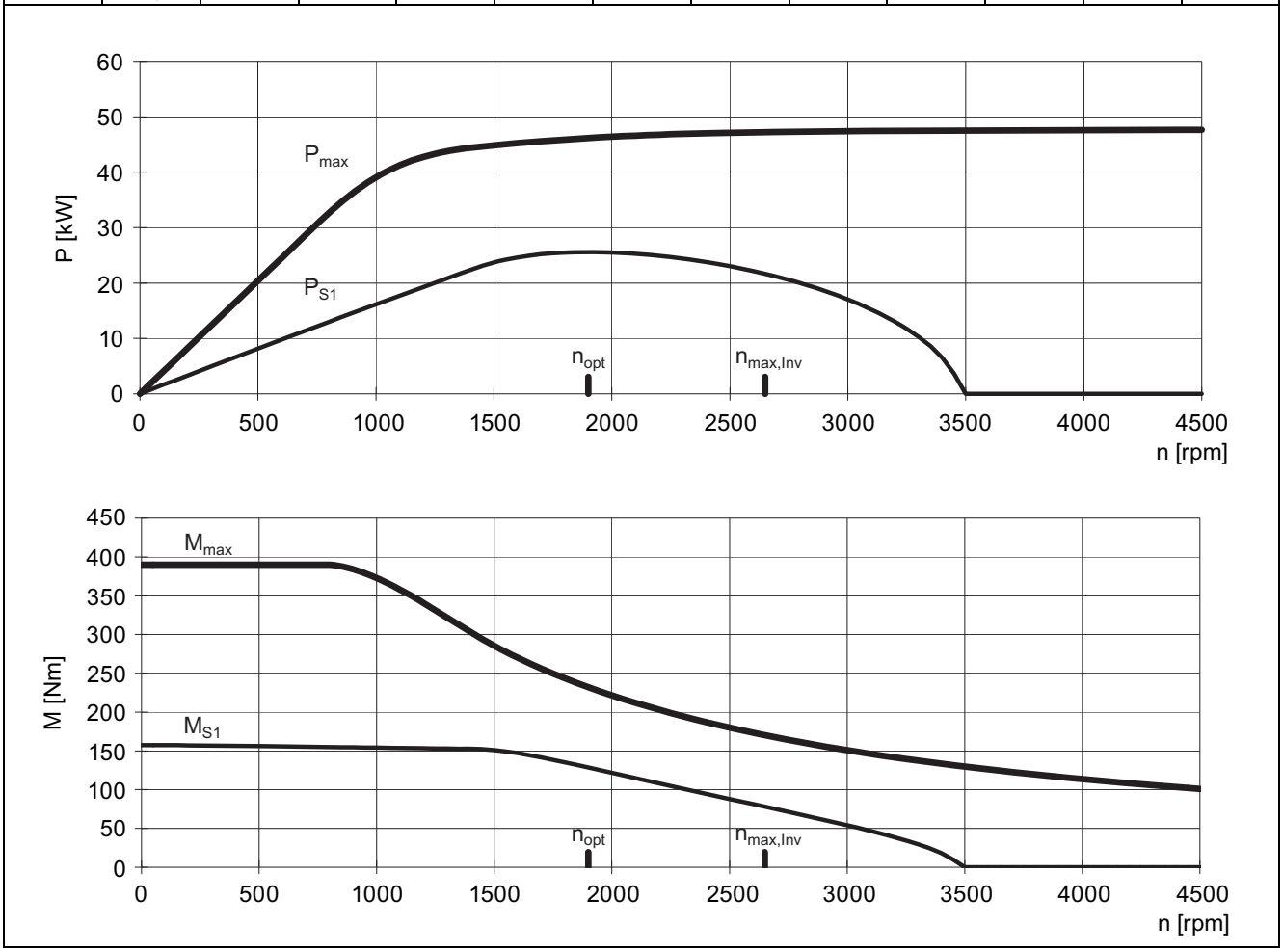
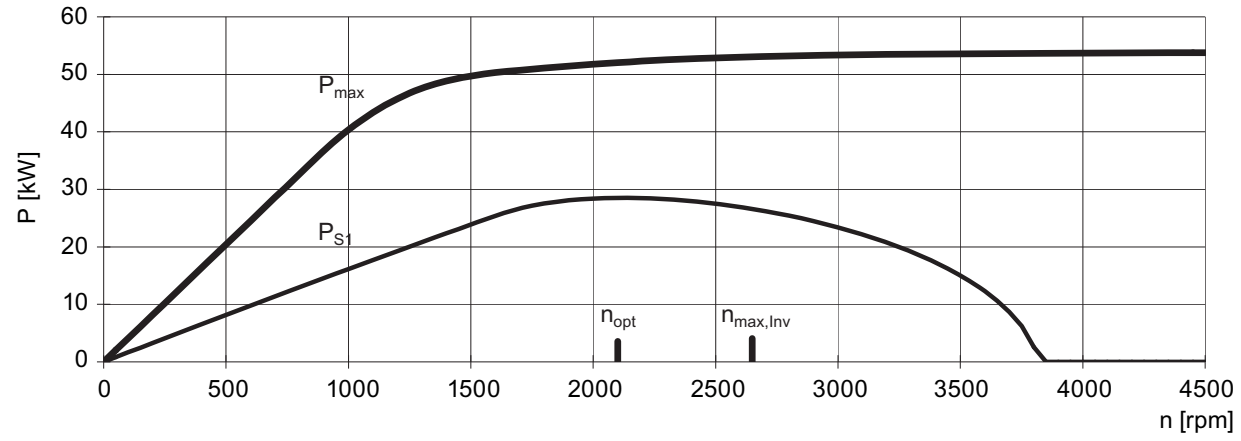


Table 4- 664 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	27,2	149	42	29	2100	4500	4500	2450	390	127	158	44
1500	23,7	151	43									



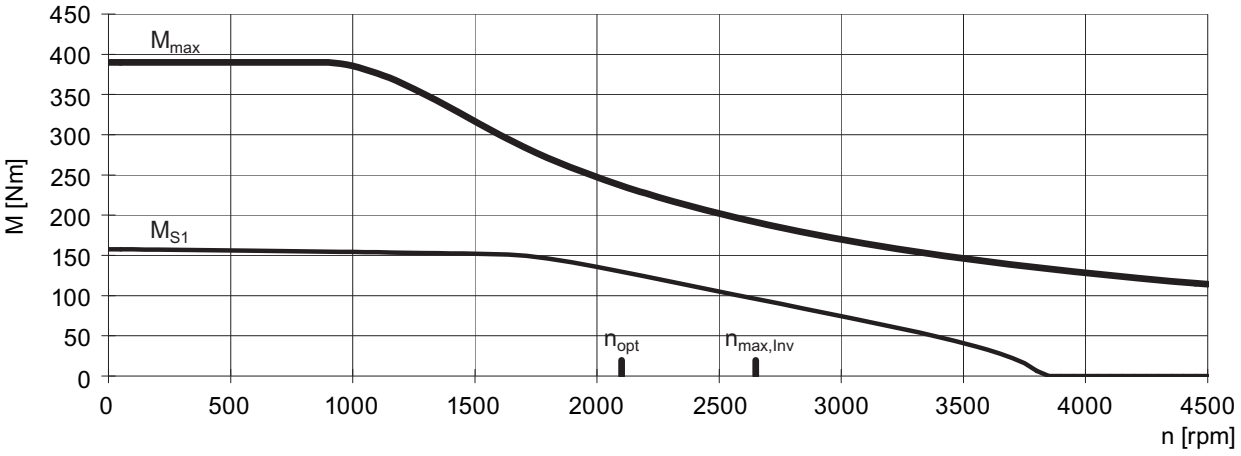


Table 4- 665 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	30,2	144	42	31	2300	4500	4500	2450	390	127	158	44

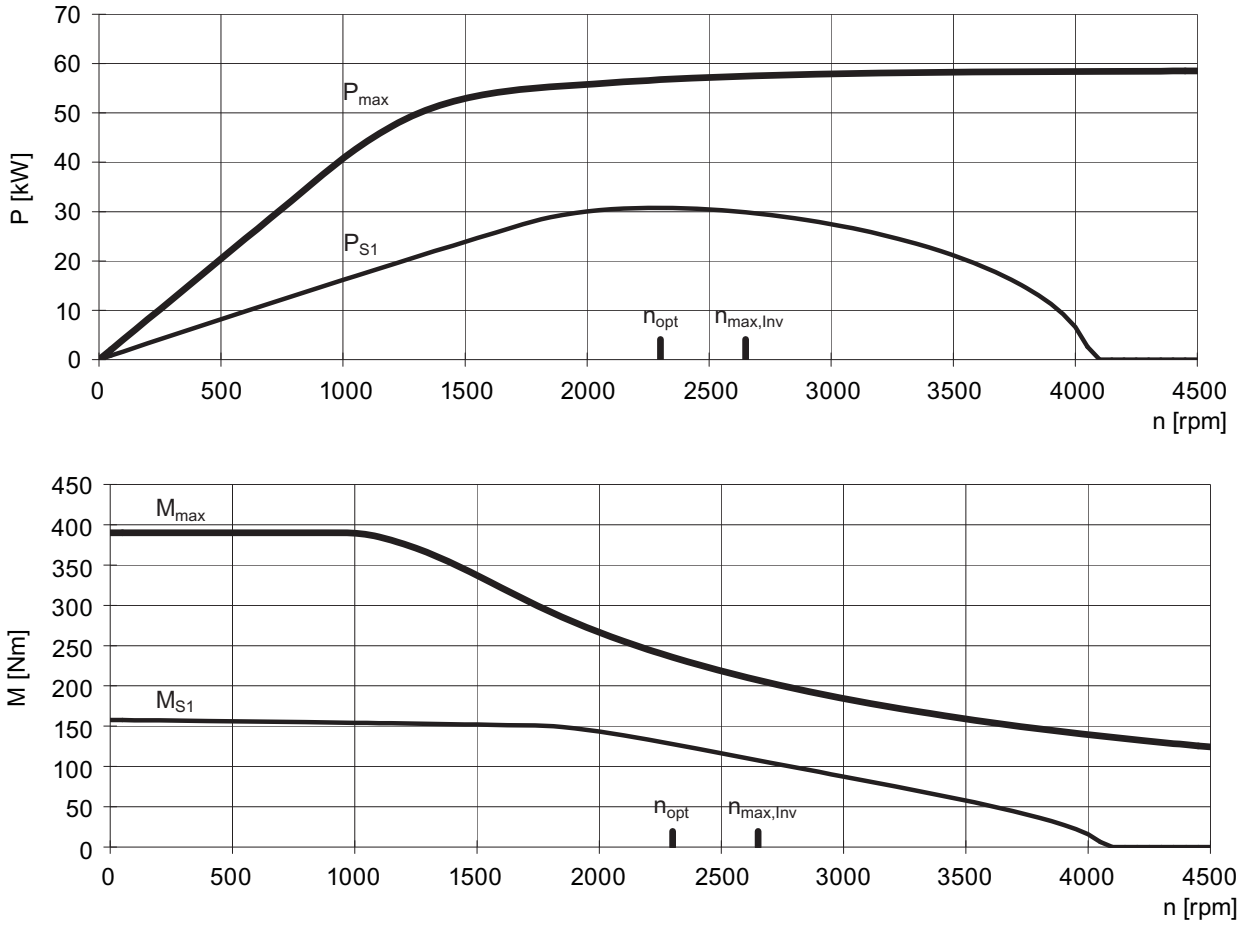


Table 4- 666 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	31,4	150	59	36	2650	4500	4500	3500	390	179	158	63

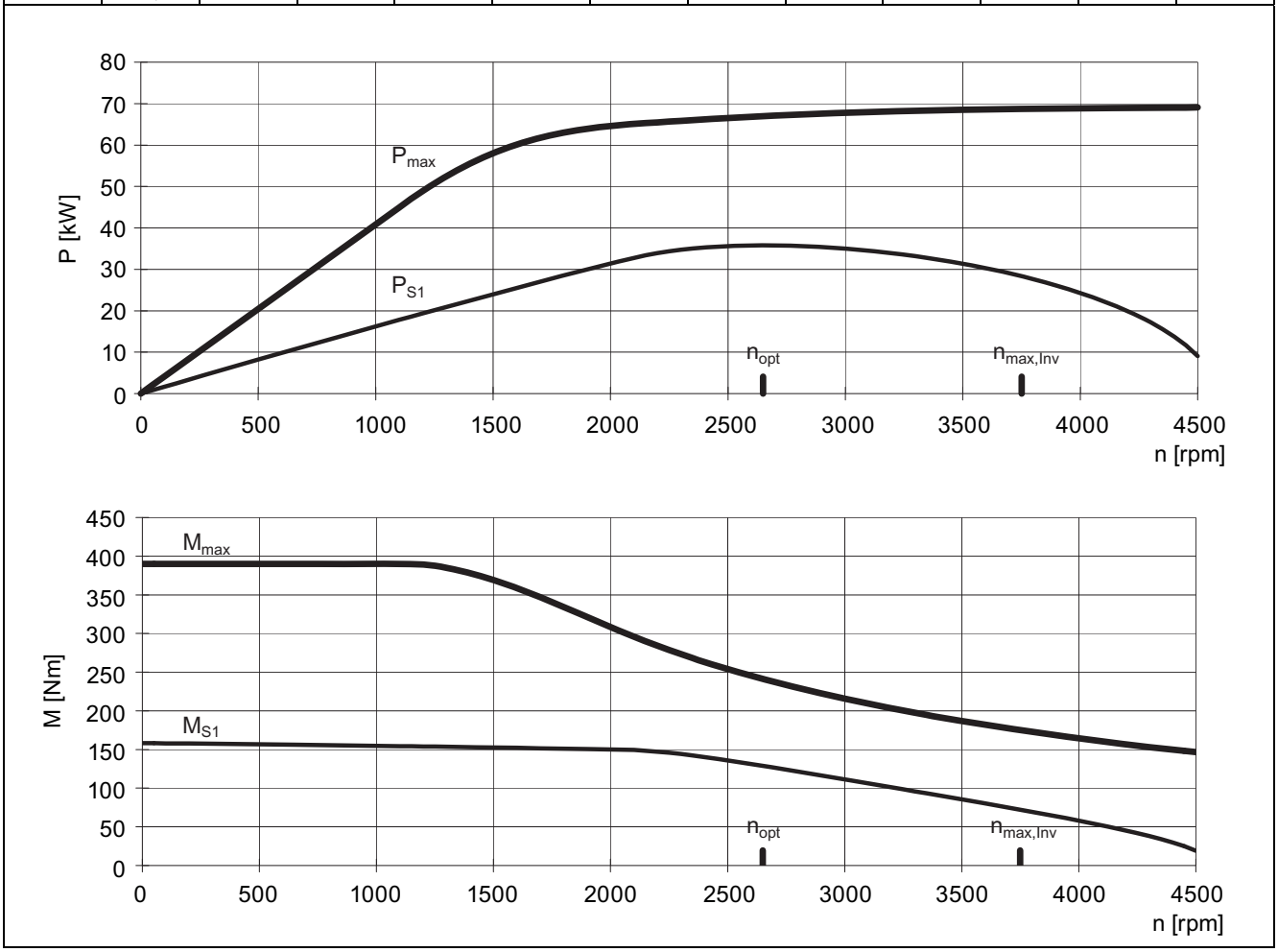
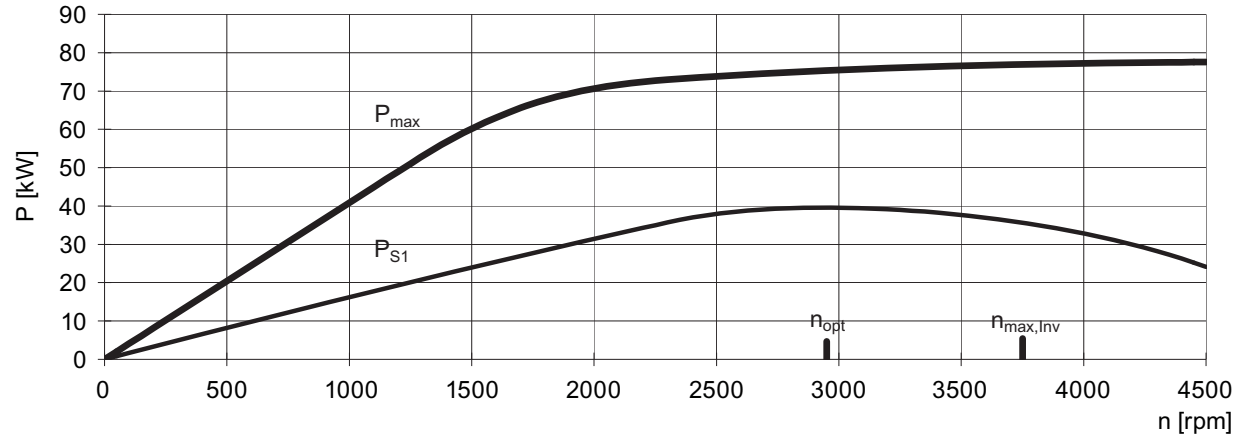


Table 4- 667 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	35,6	148	59	40	2950	4500	4500	3500	390	179	158	63
2000	31,4	150	59									



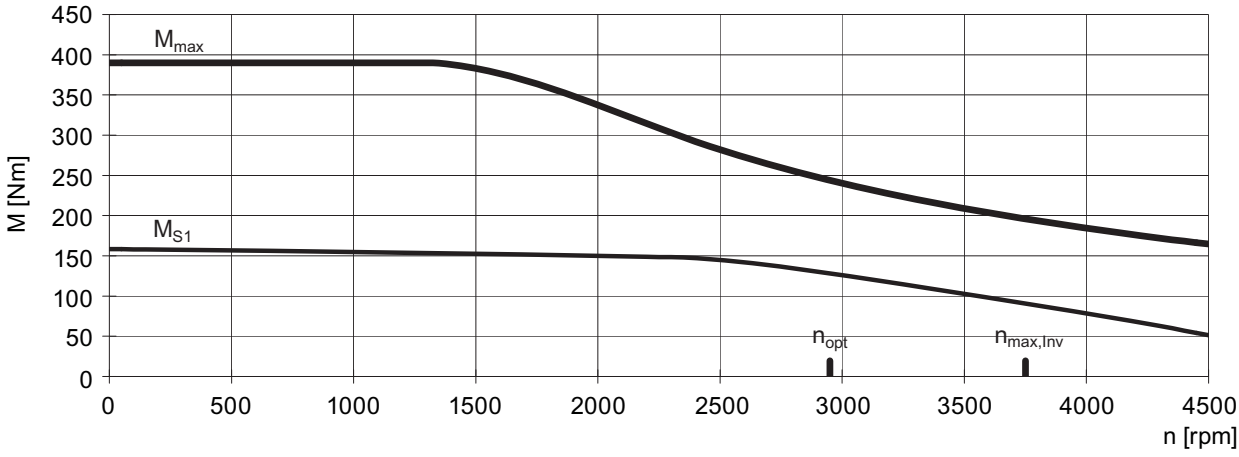
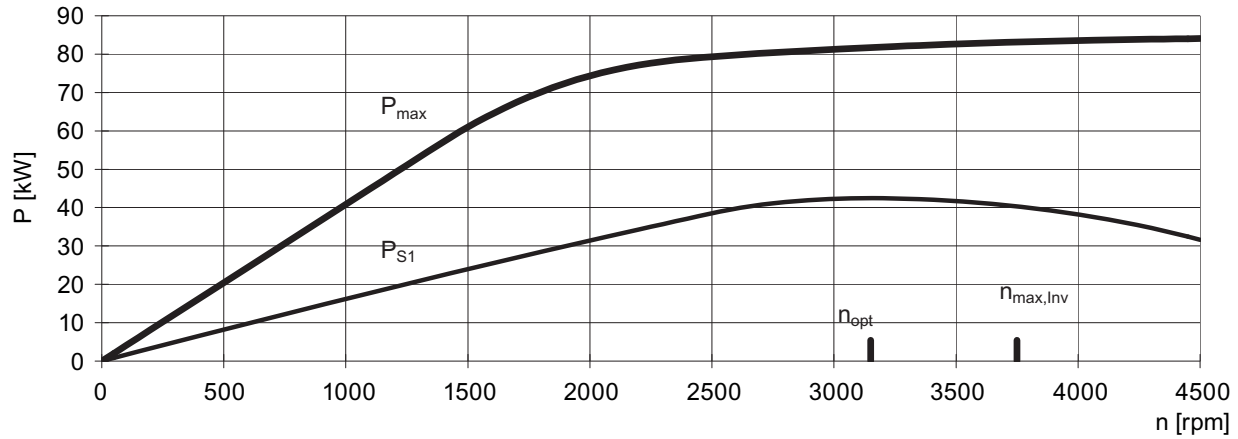


Table 4- 668 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□G□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	40,2	145	58	42	3150	4500	4500	3500	390	179	158	63



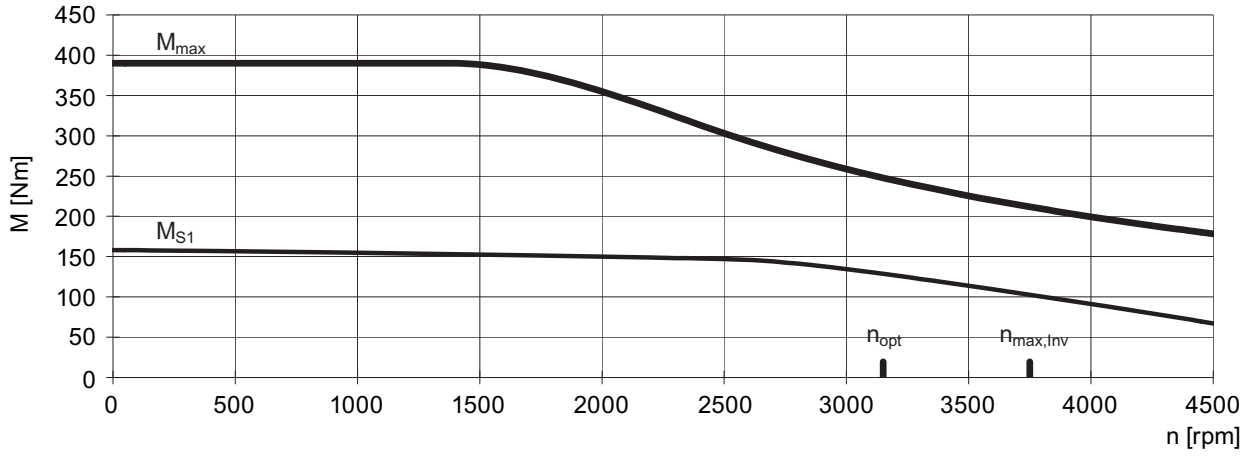


Table 4- 669 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	30,6	195	60	36	2100	4500	4500	2700	460	163	203	62

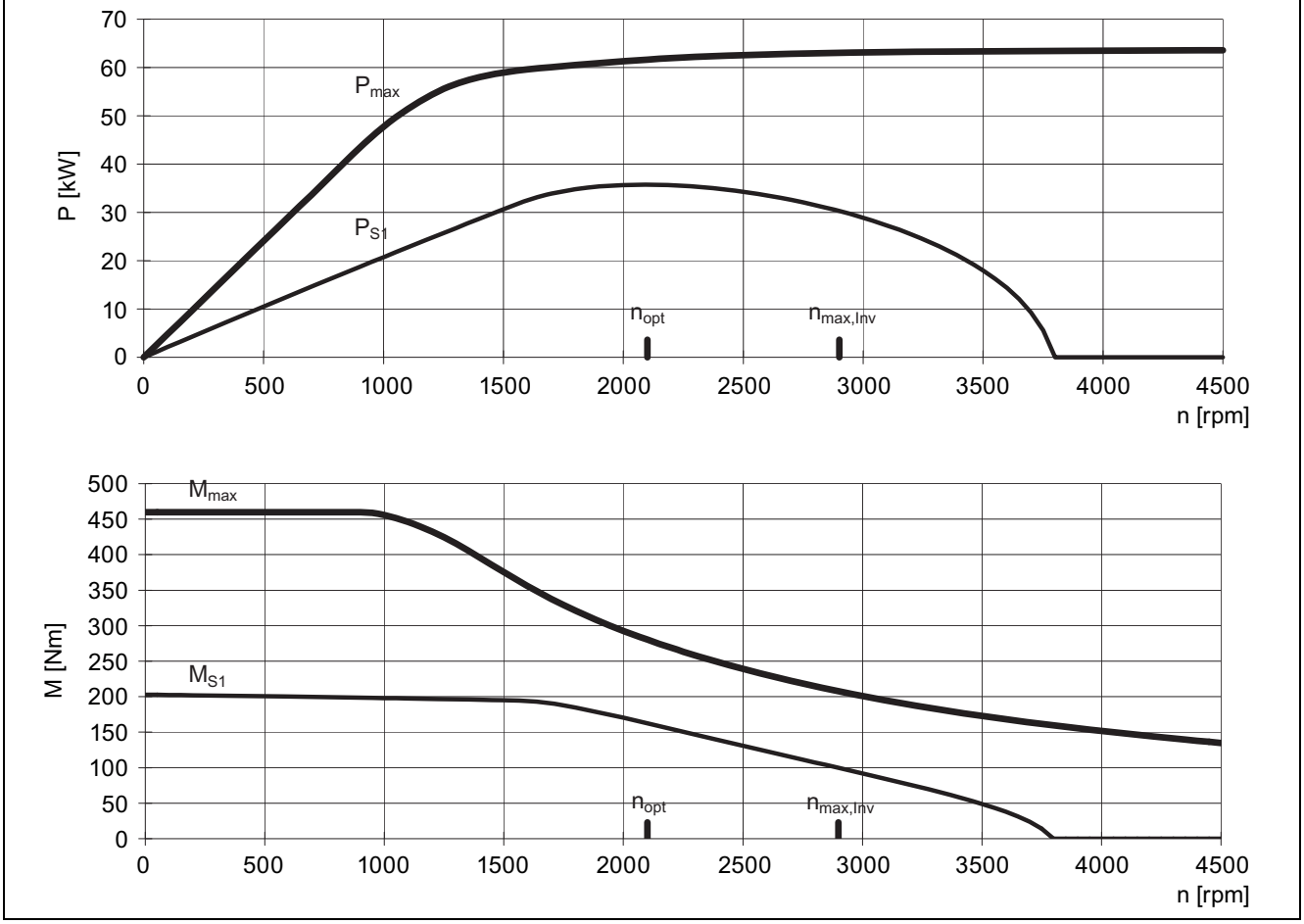
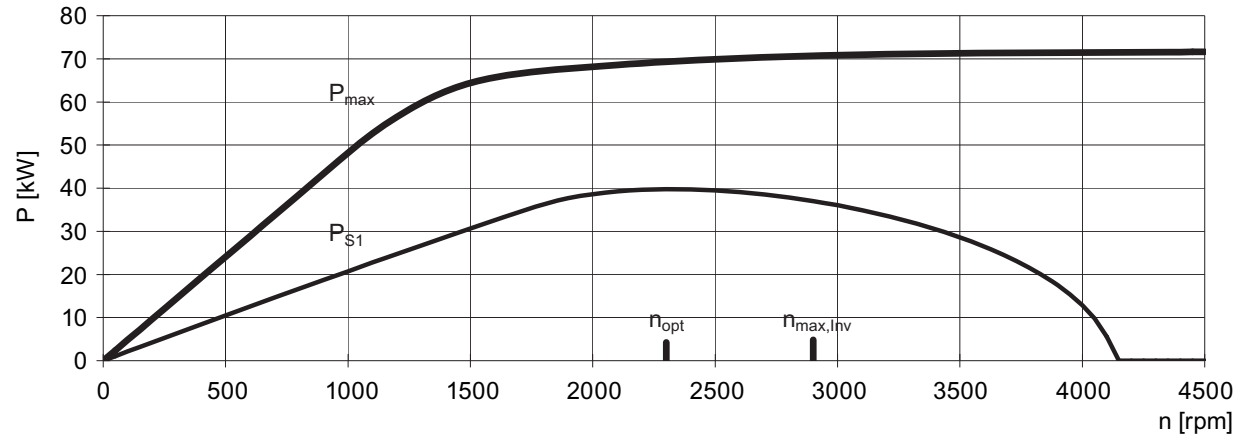


Table 4- 670 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	35,6	194	59	40	2300	4500	4500	2700	460	163	203	62
1500	30,6	195	60									



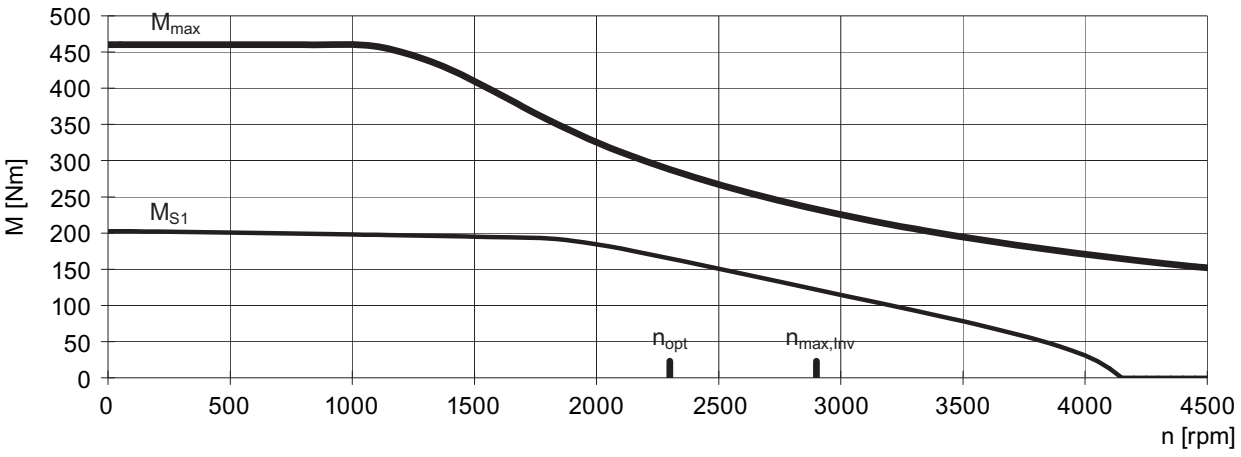
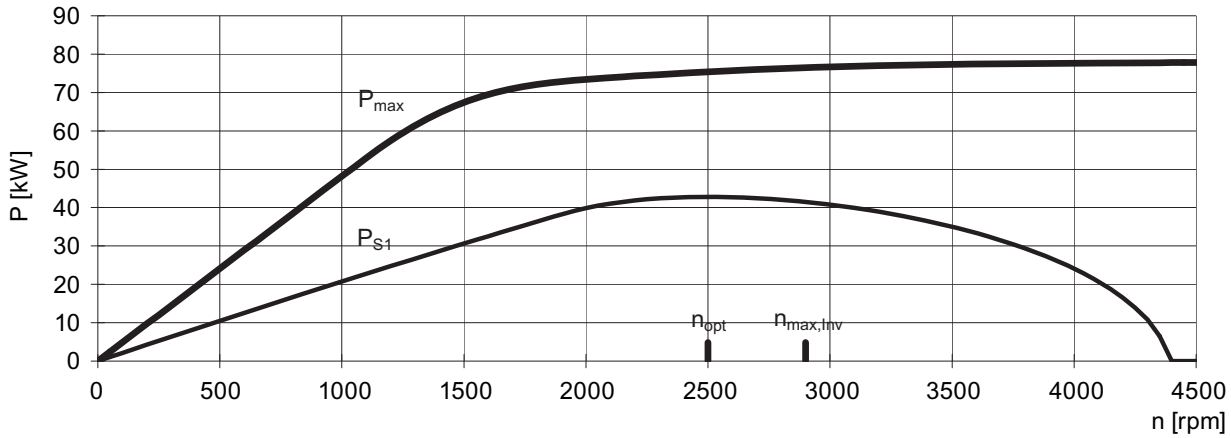


Table 4- 671 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	40,0	191	59	43	2500	4500	4500	2700	460	163	203	62



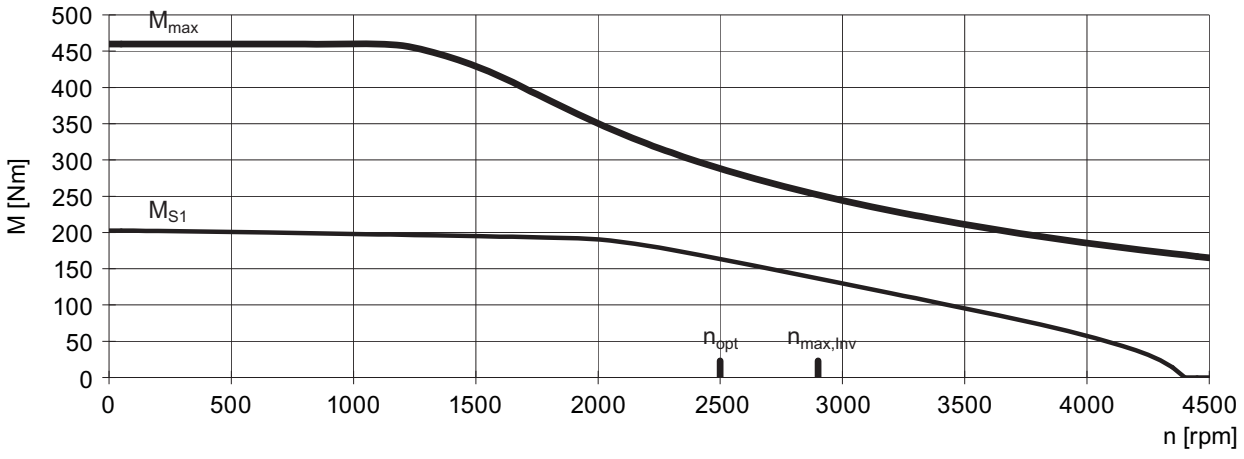


Table 4- 672 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	48,4	185	83	50	2950	4500	4500	3900	460	235	203	89

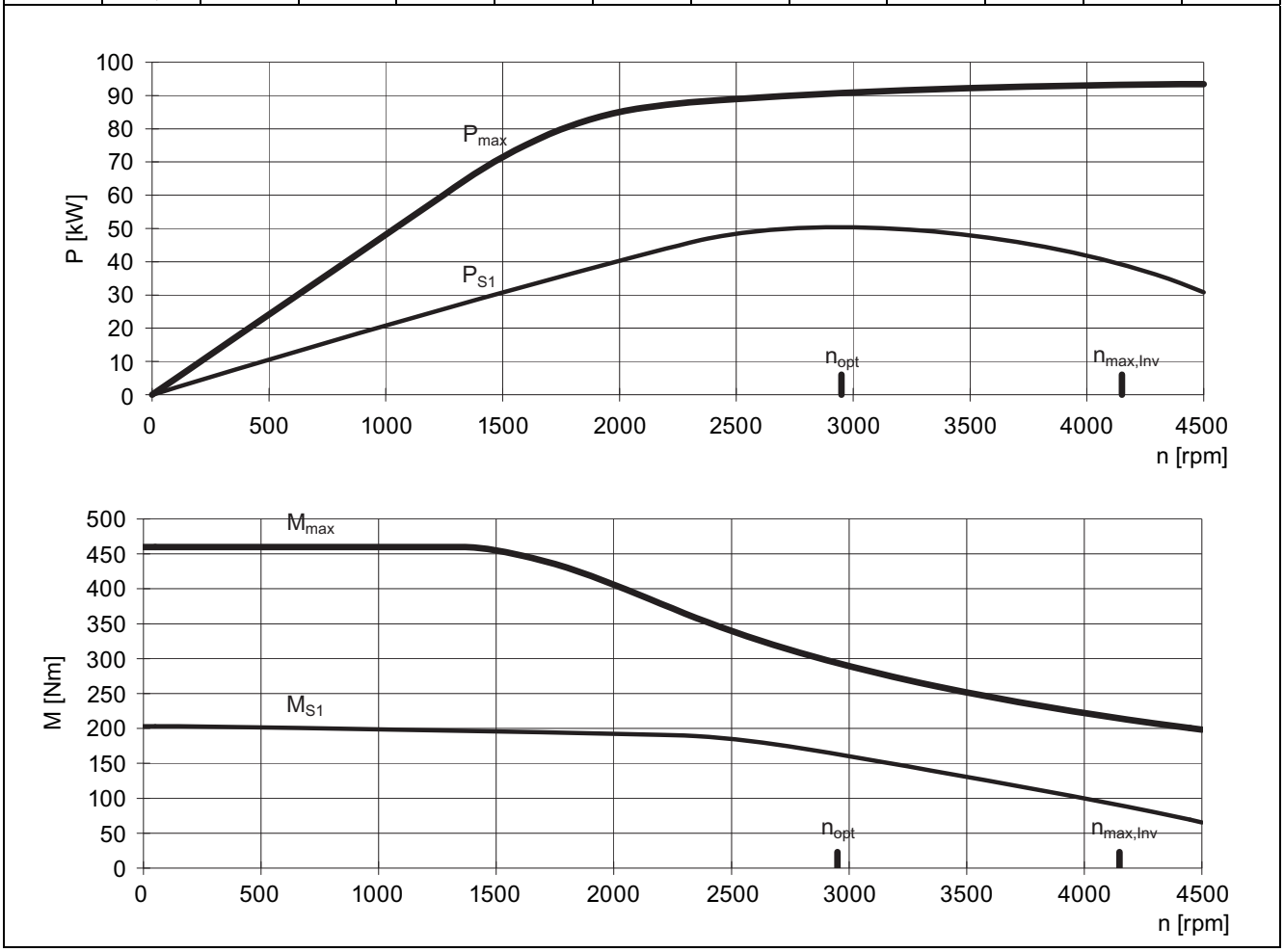


Table 4- 673 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	53,4	182	82	55	3250	4500	4500	3900	460	235	203	89
2500	48,4	185	83									

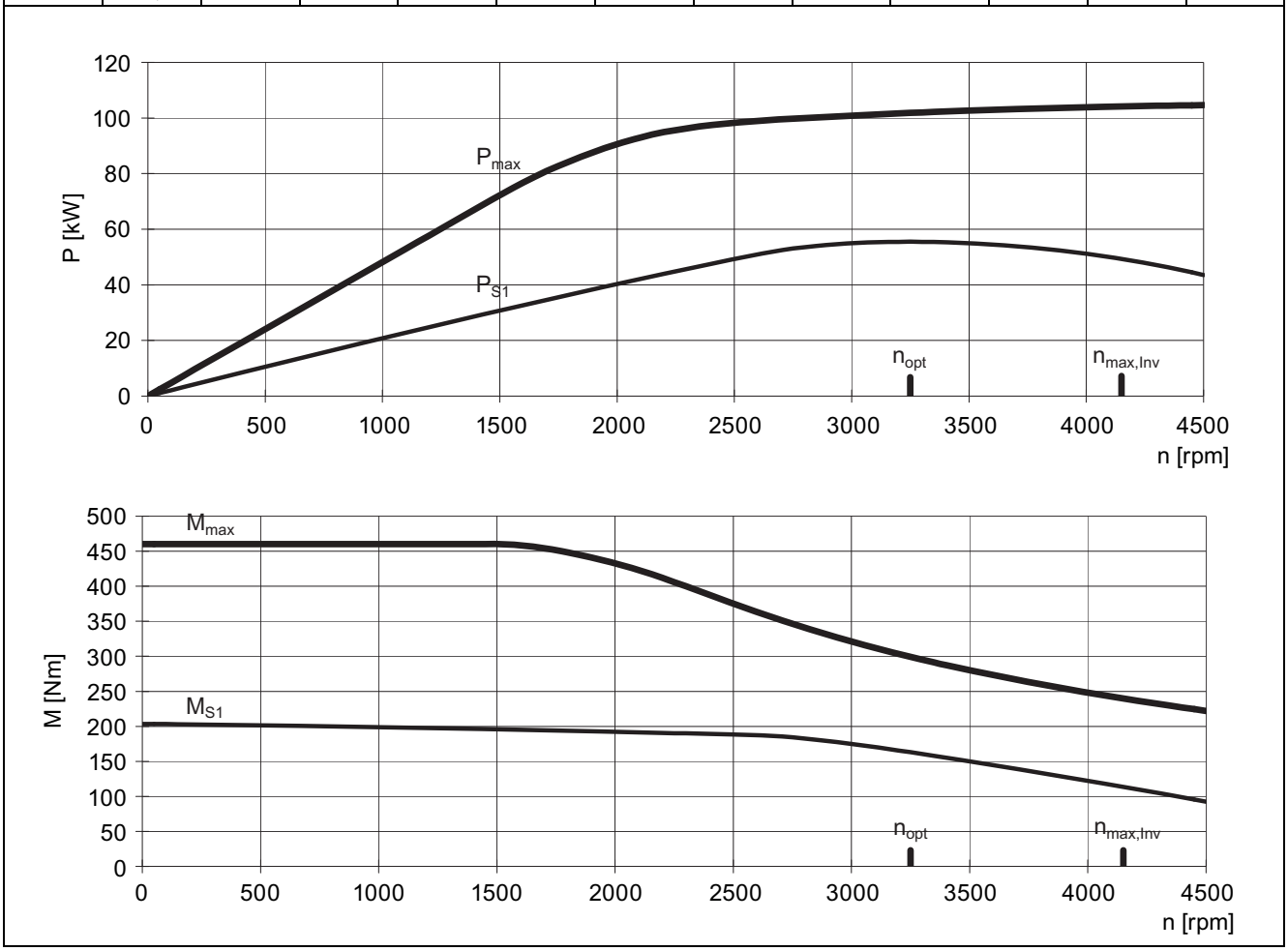
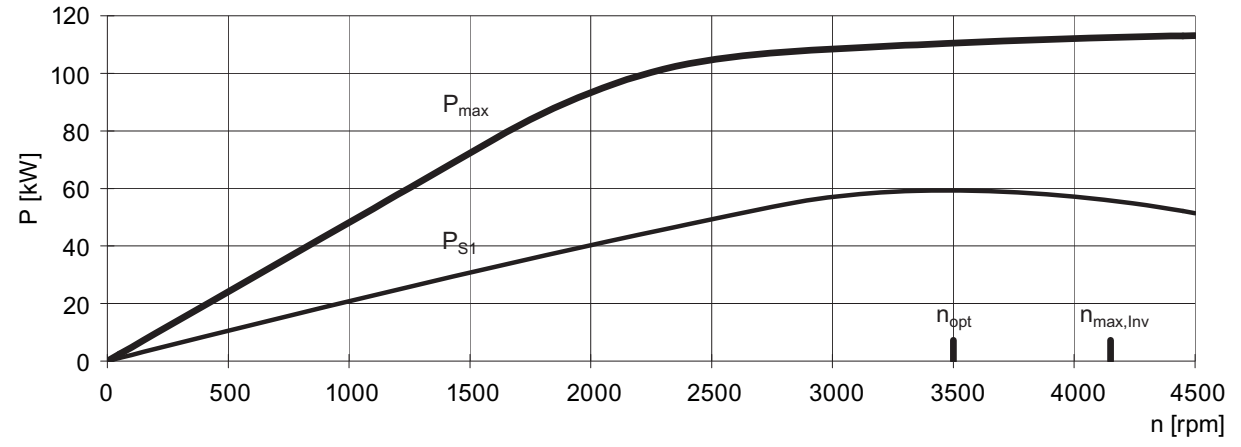


Table 4- 674 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	56,9	181	81	59	3500	4500	4500	3900	460	235	203	89



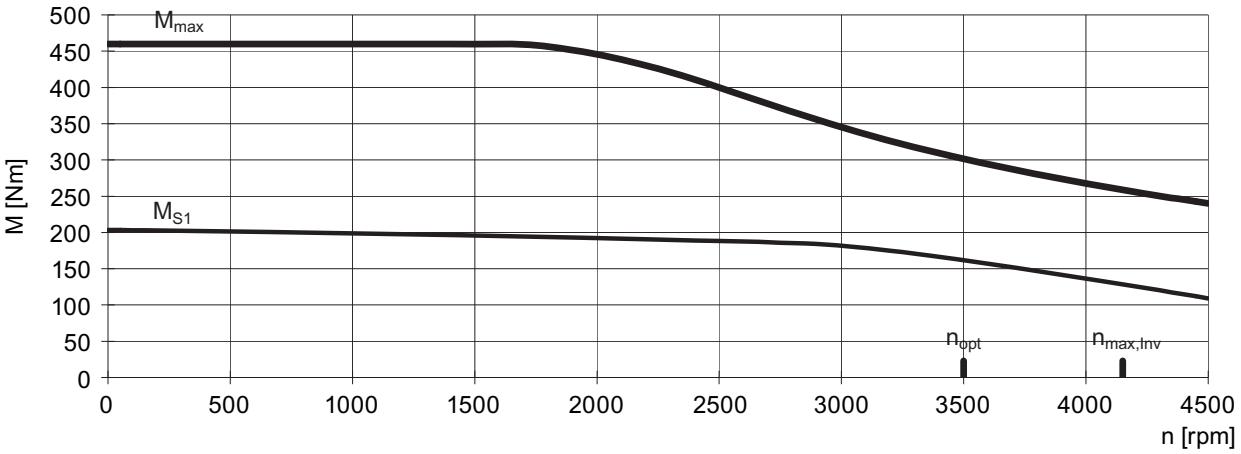


Table 4- 675 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□M□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	57,5	183	104	62	3650	4500	4500	> 4500	460	303	203	115

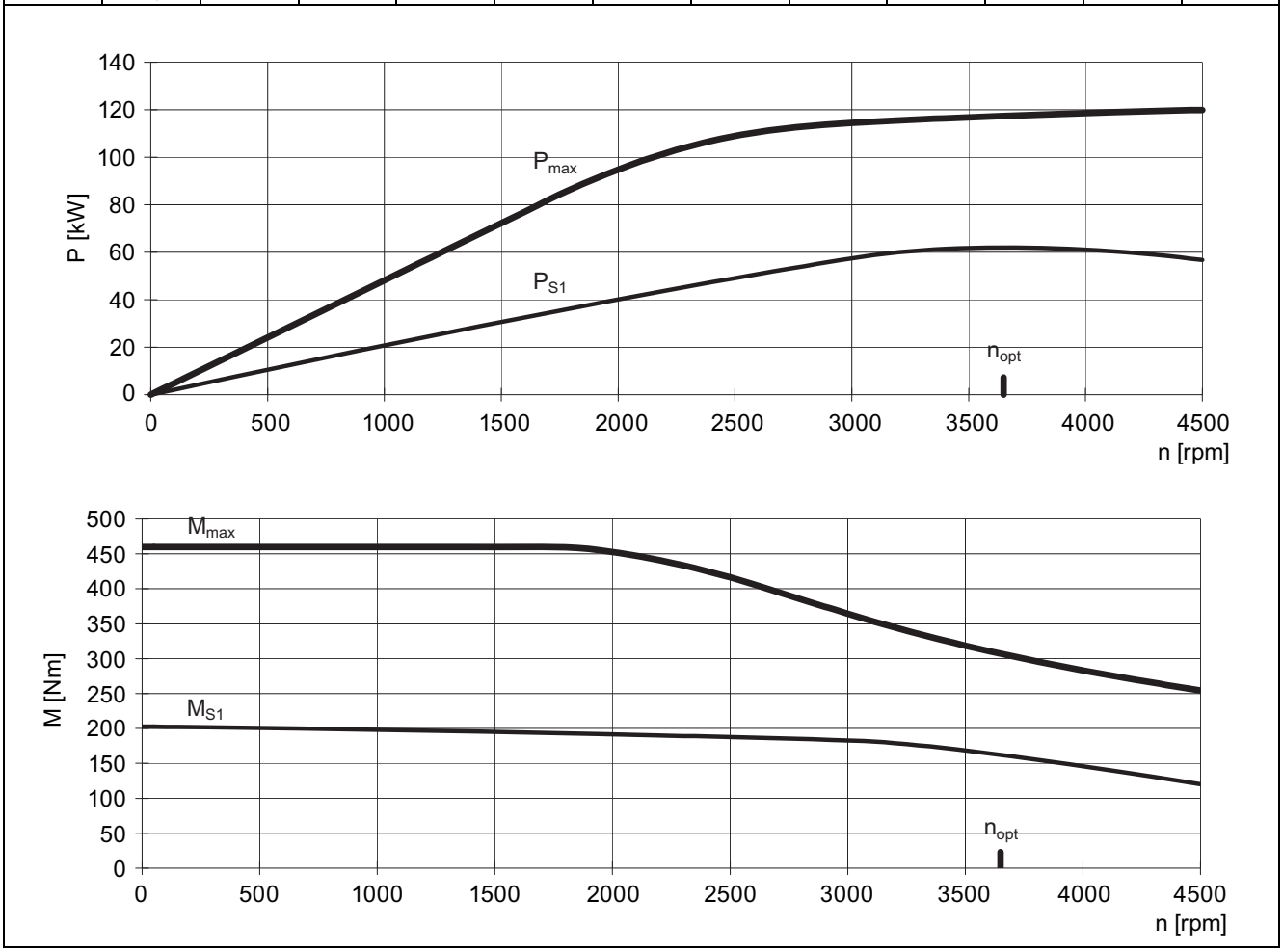
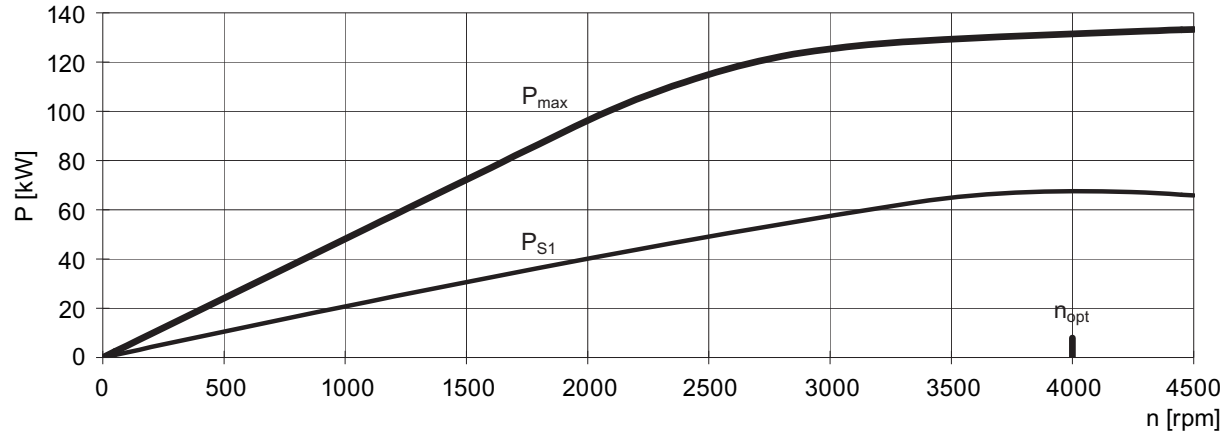


Table 4- 676 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□M□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3300	62,2	180	102	68	4000	4500	4500	> 4500	460	303	203	115
3000	57,5	183	104									



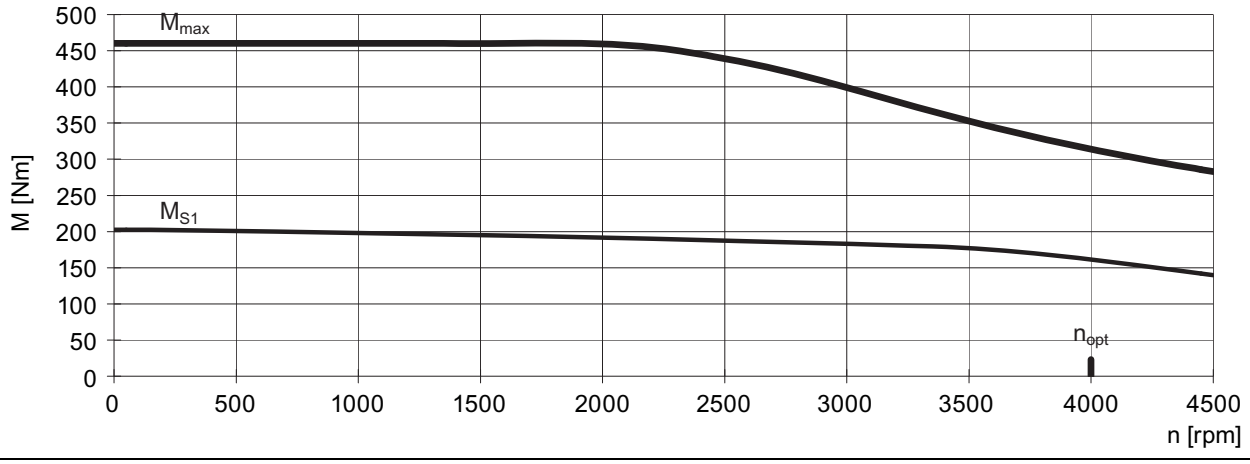
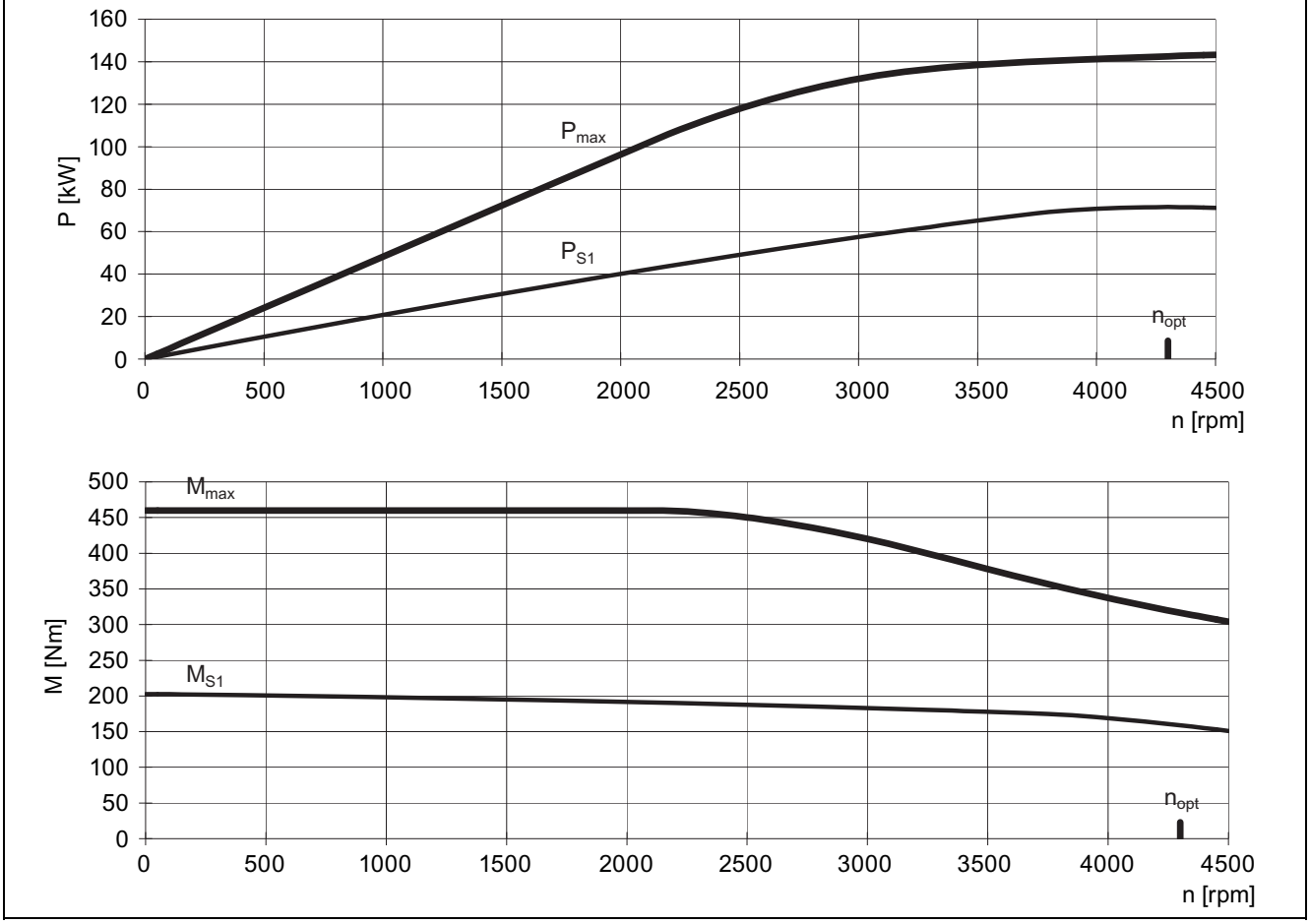


Table 4- 677 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□M□□

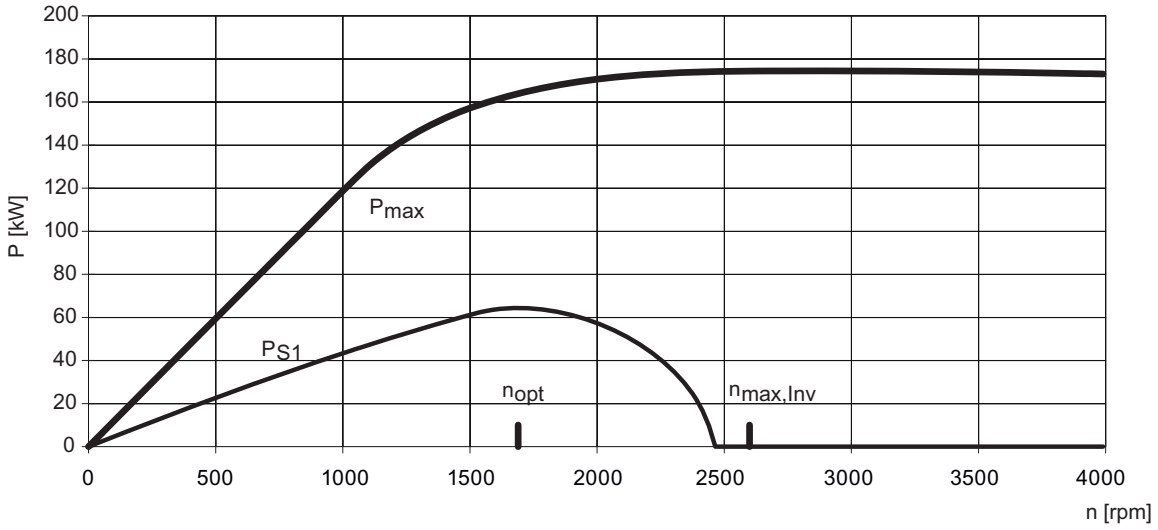
n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3600	66,7	177	100	72	4300	4500	4500	> 4500	460	303	203	115



4.2.2.2 Shaft height 160 - forced ventilation

Table 4- 678 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	61.0	390	119	64.4	1690	4000	4000	2600	1135	367	440	126



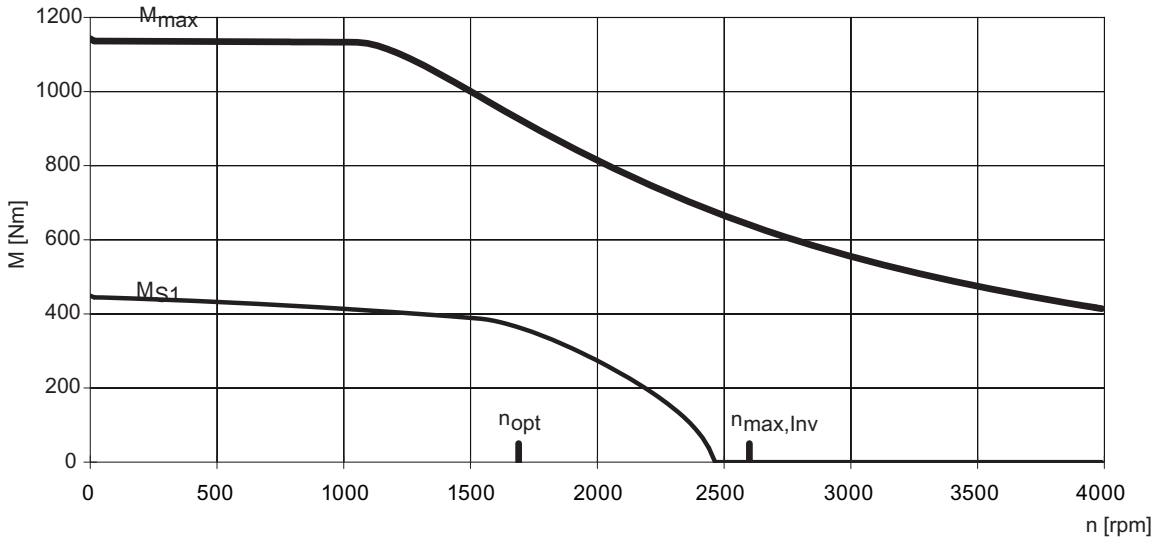


Table 4- 679 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	69.0	375	115	70.1	1890	4000	4000	2600	1135	367	440	126
1500	61.0	390	119									

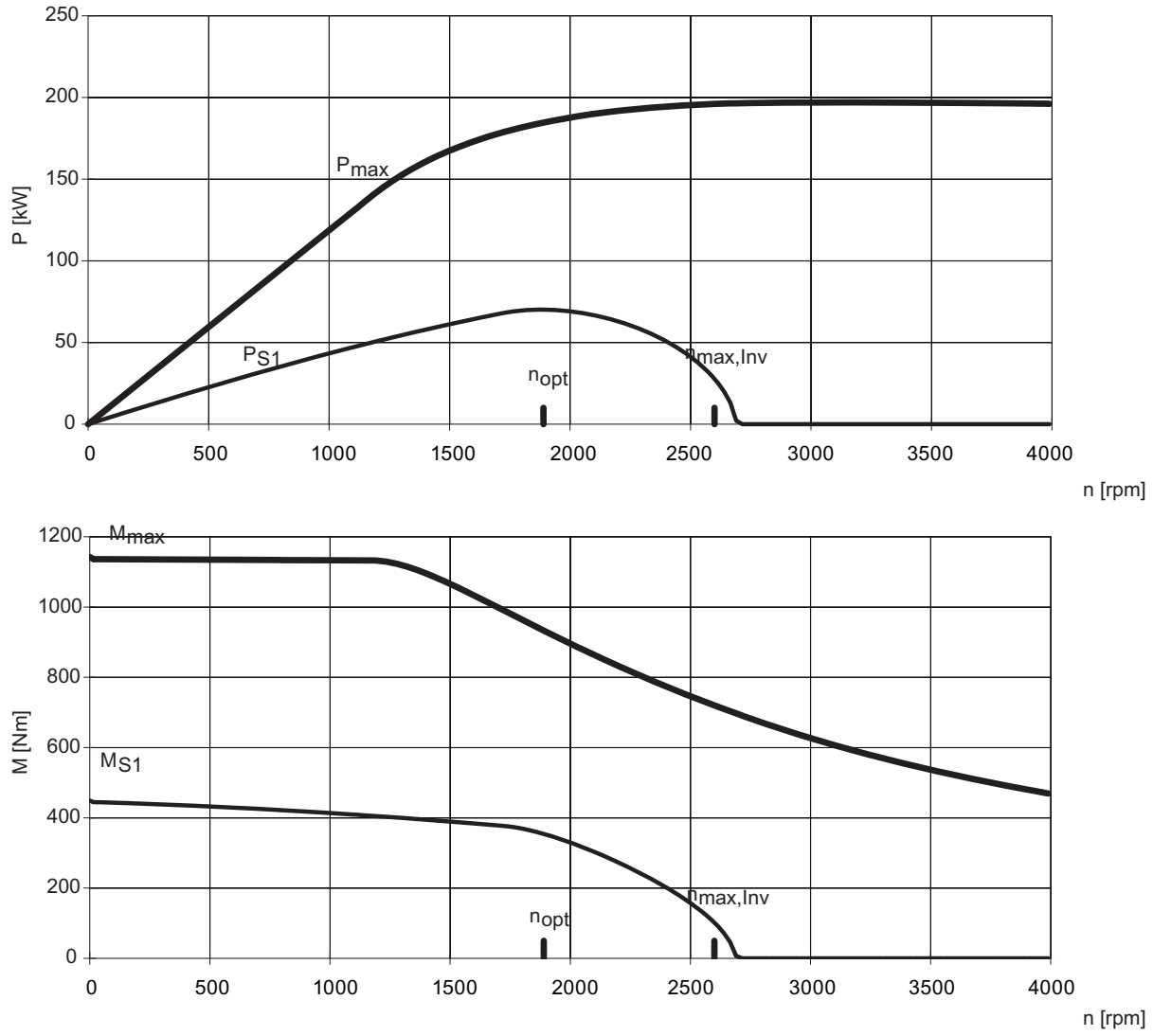
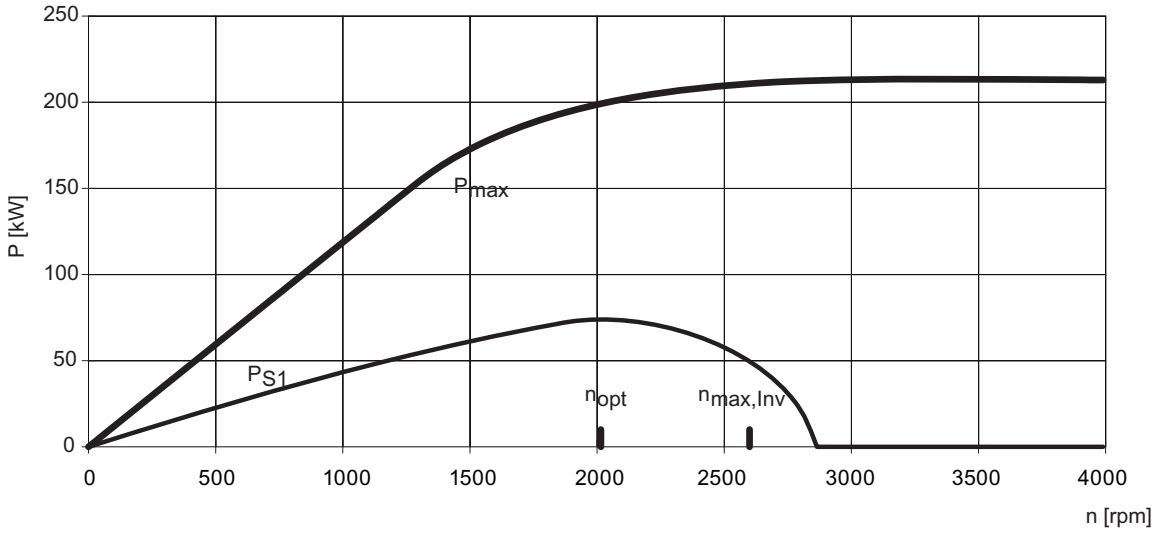


Table 4- 680 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	74.0	355	110	73.9	2015	4000	4000	2600	1135	367	440	126



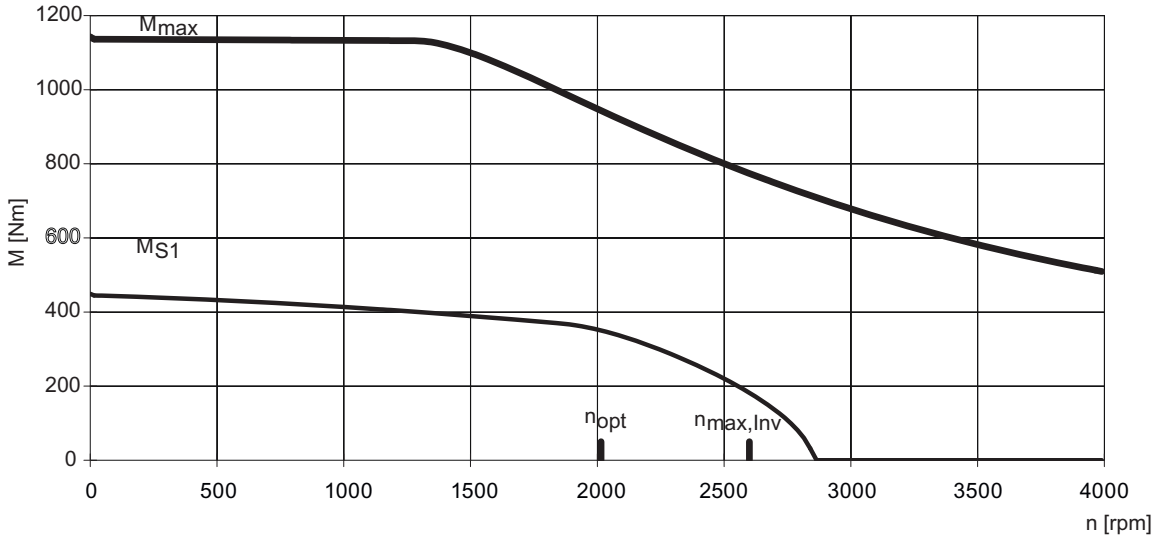
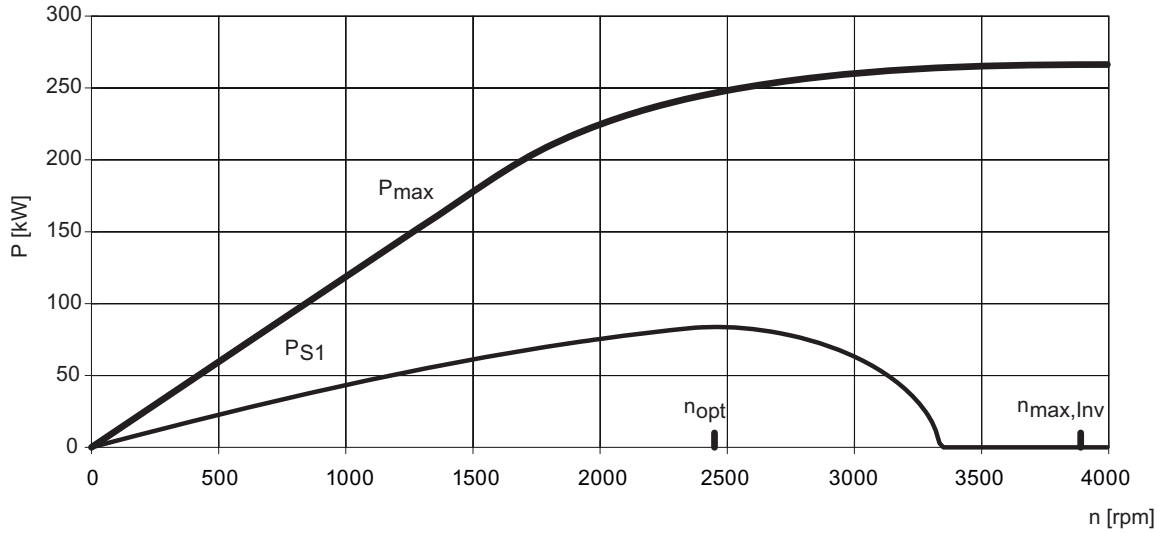


Table 4- 681 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	84.0	320	148	83.7	2450	4000	4000	3900	1135	551	440	188



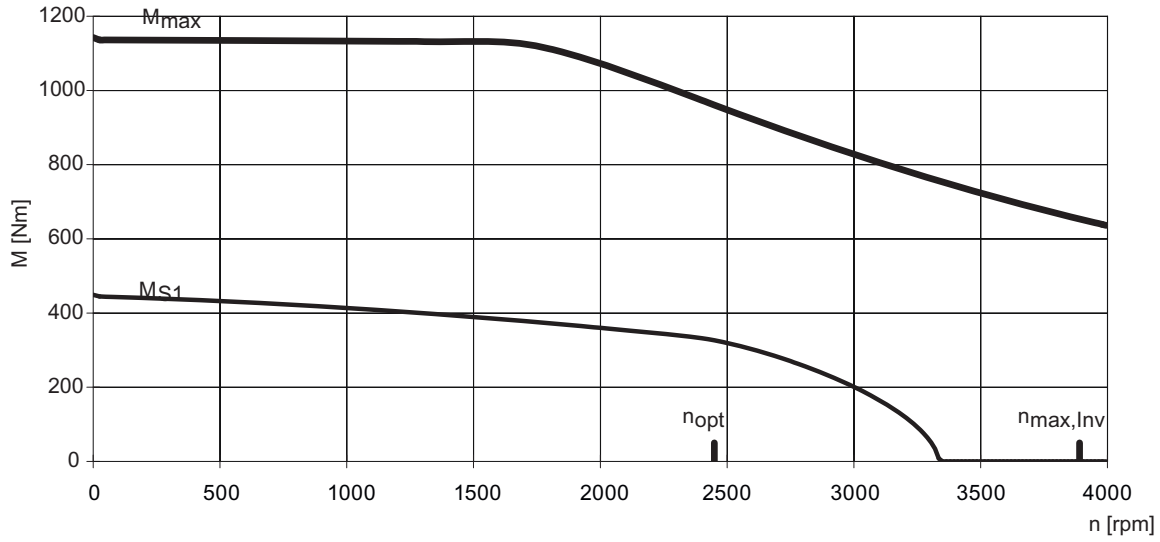
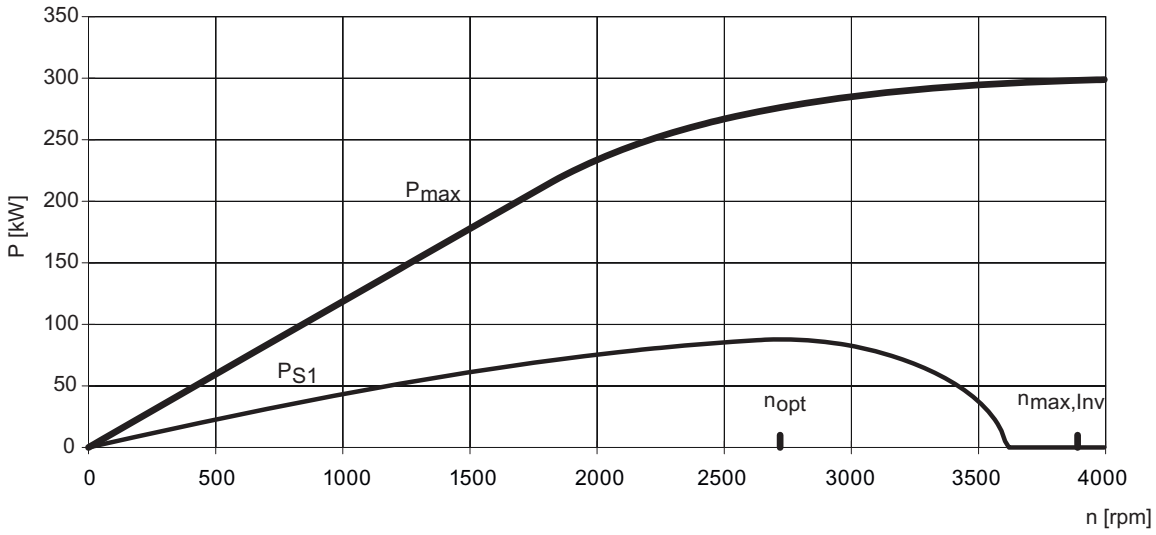


Table 4- 682 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	87.0	300	138	87.8	2720	4000	4000	3900	1135	551	440	188
2500	84.0	320	148									



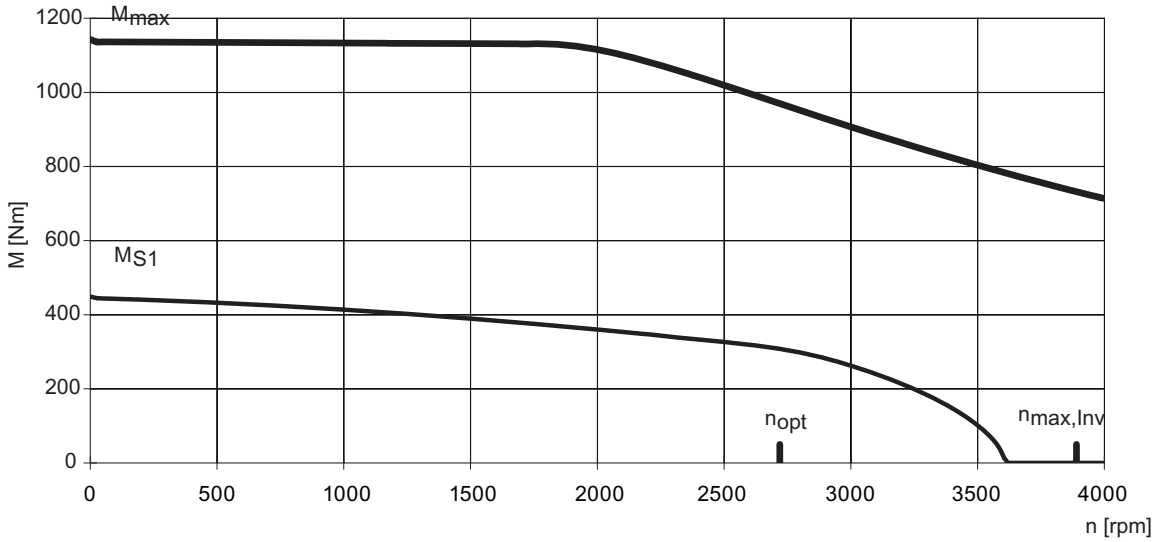
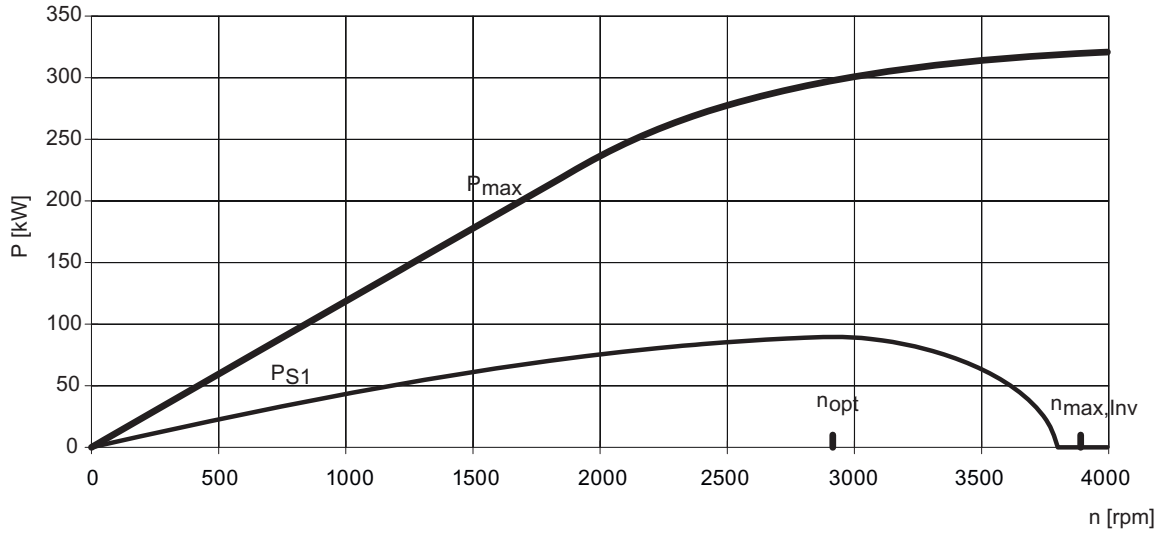


Table 4- 683 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	89.0	285	131	89.6	2915	4000	4000	3900	1135	551	440	188



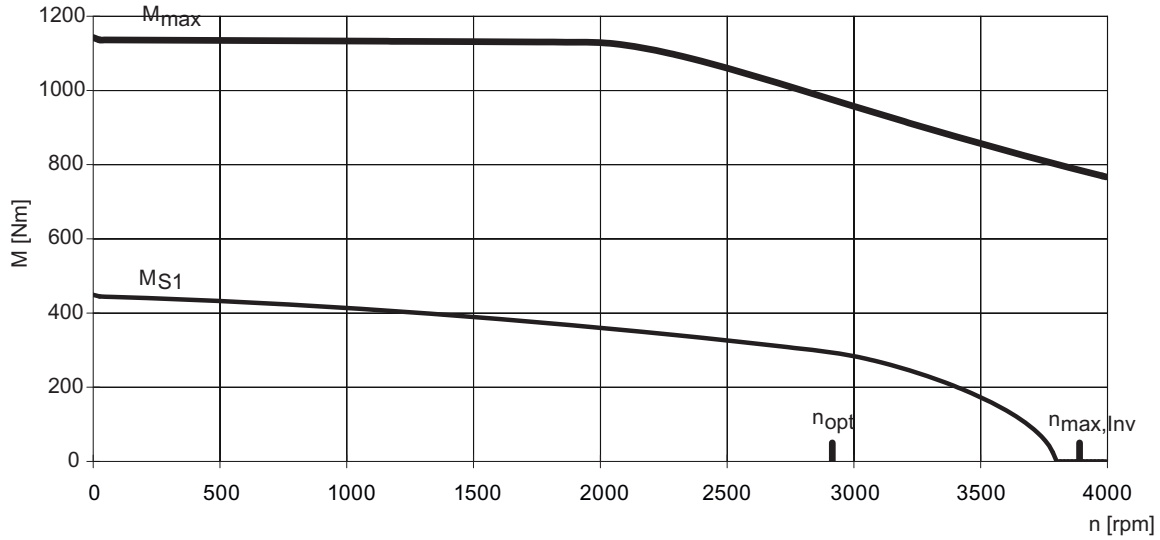
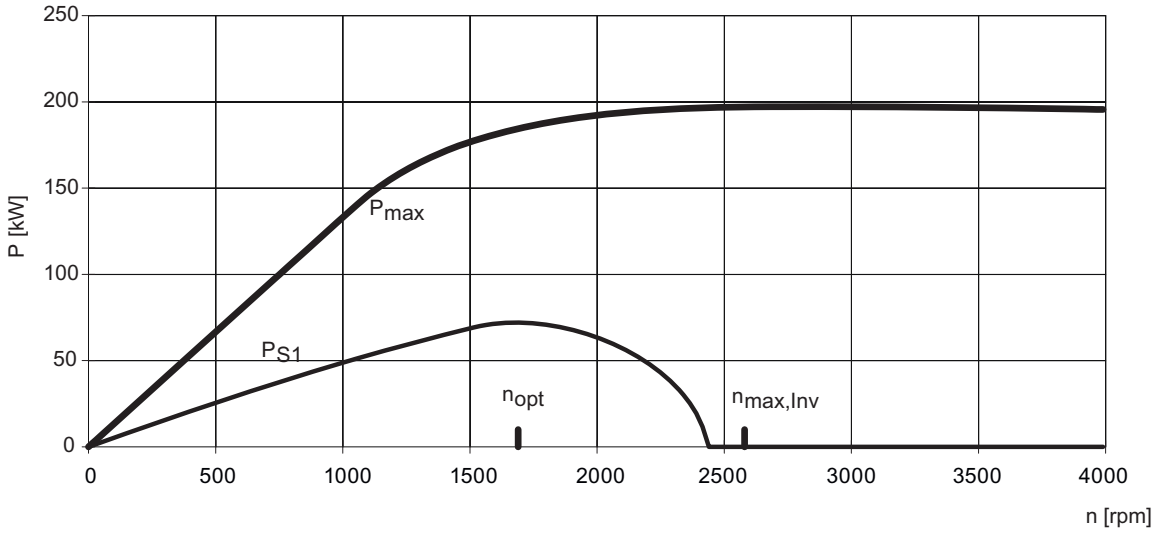


Table 4- 684 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8167-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	69.0	435	133	72.0	1690	4000	4000	2600	1280	413	500	143



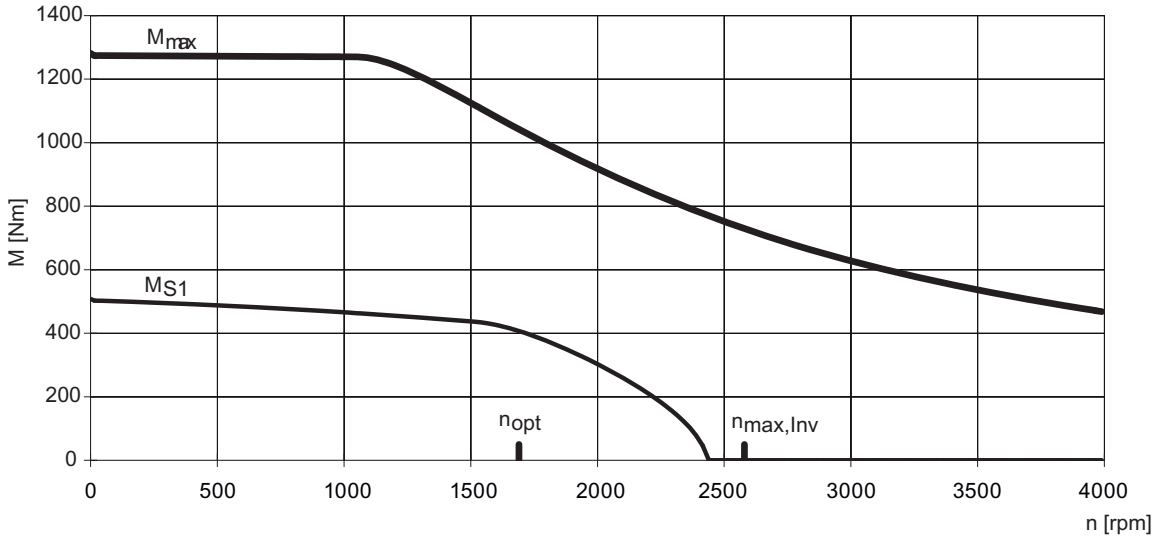
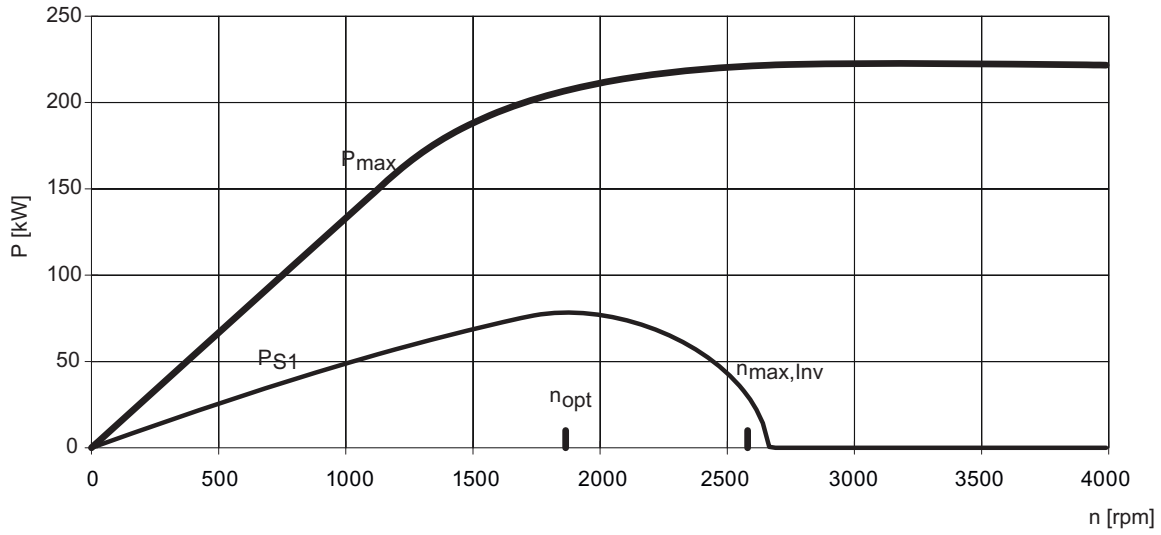


Table 4- 685 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8167-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	77.0	420	128	78.3	1865	4000	4000	2600	1280	413	500	143
1500	69.0	435	133									



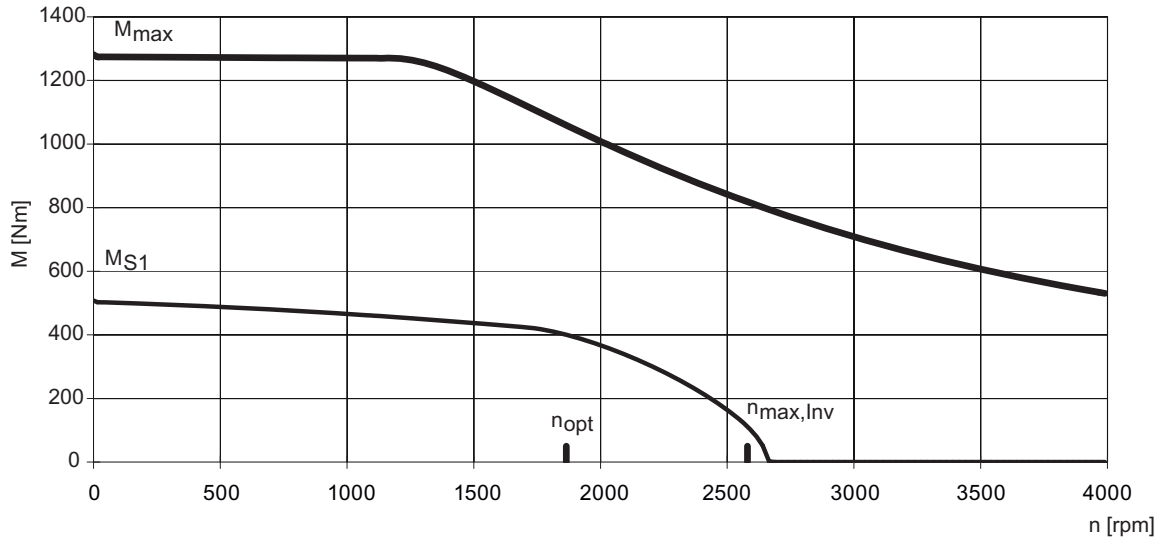
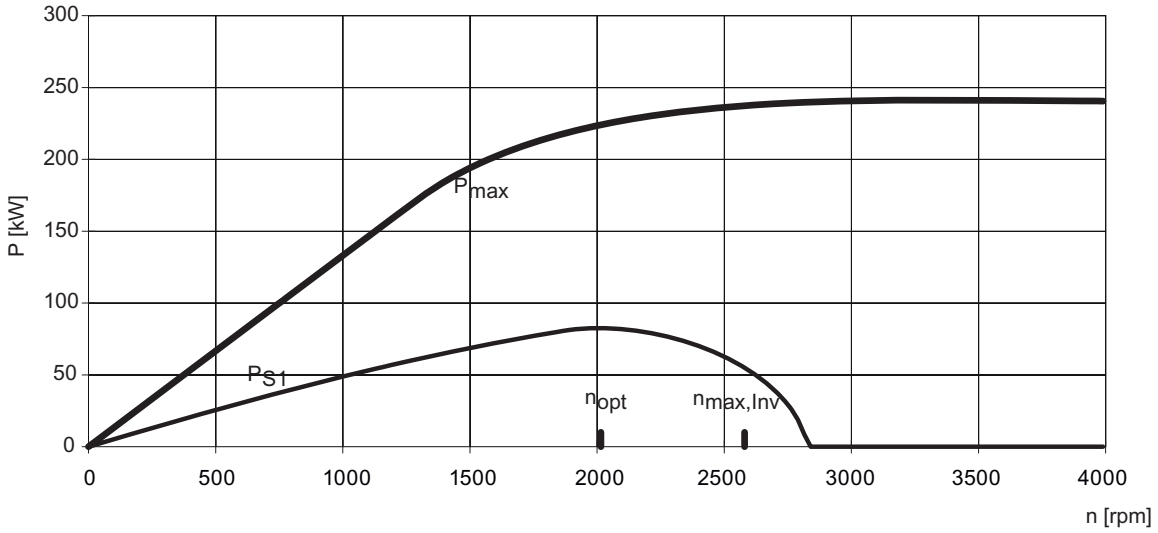


Table 4- 686 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8167-□□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	82.0	395	123	82.5	2015	4000	4000	2600	1280	413	500	143



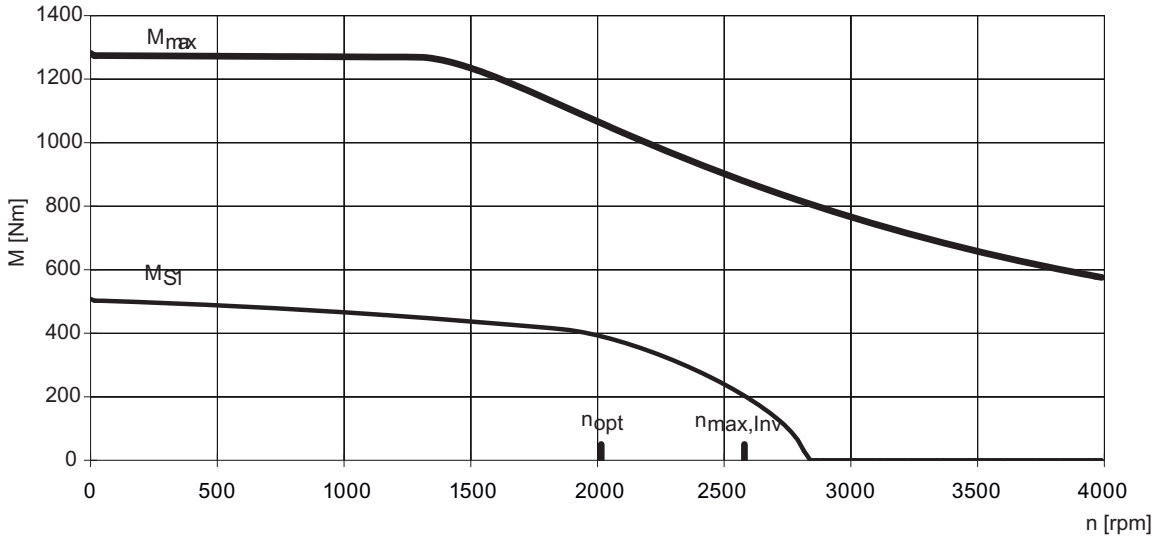
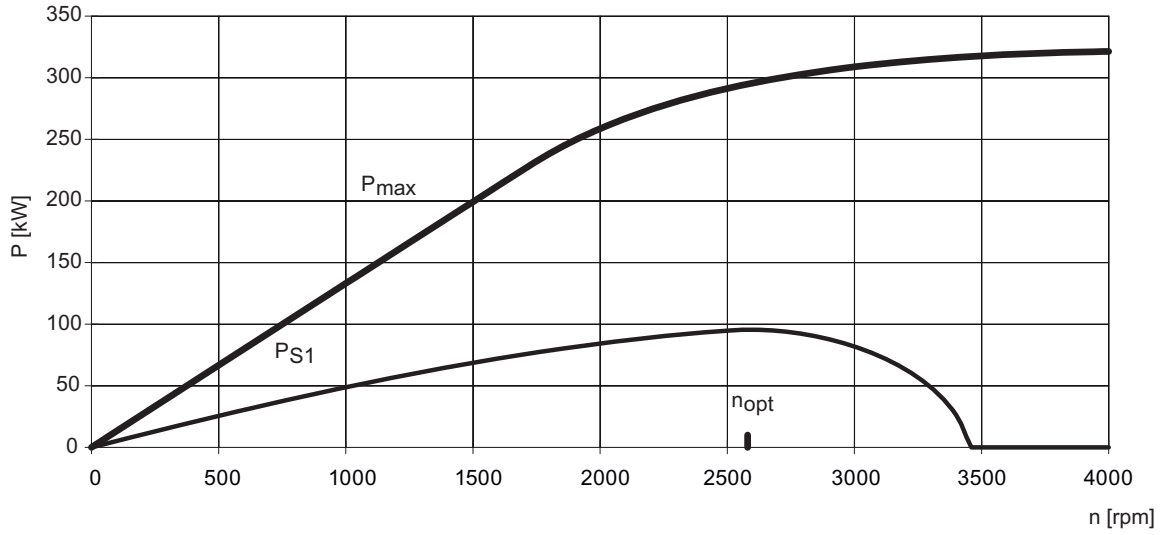


Table 4- 687 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8167-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	95.0	360	177	95.5	2580	4000	4000	>4000	1280	661	500	230



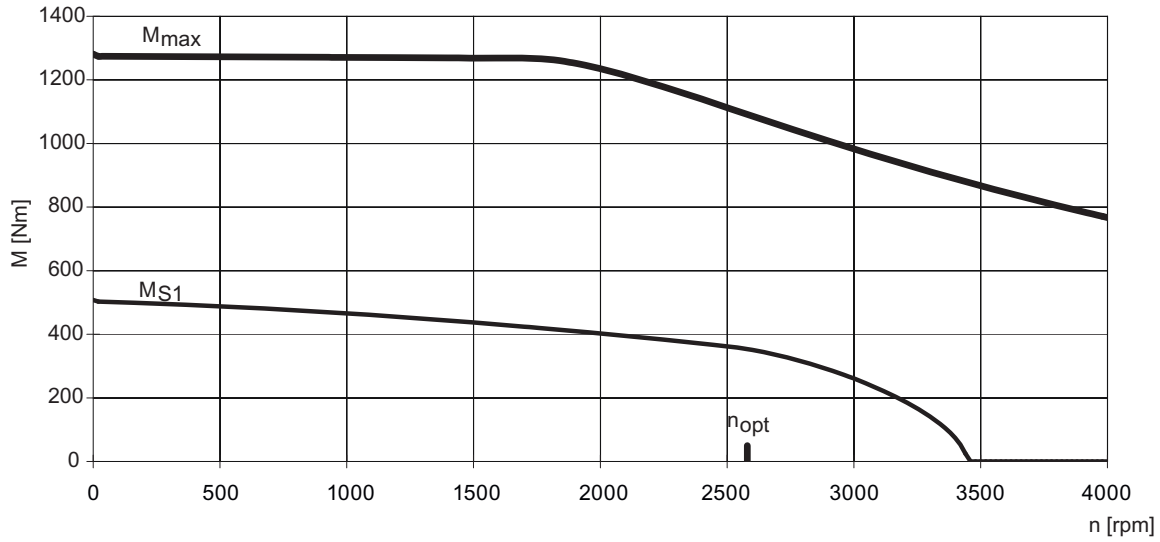
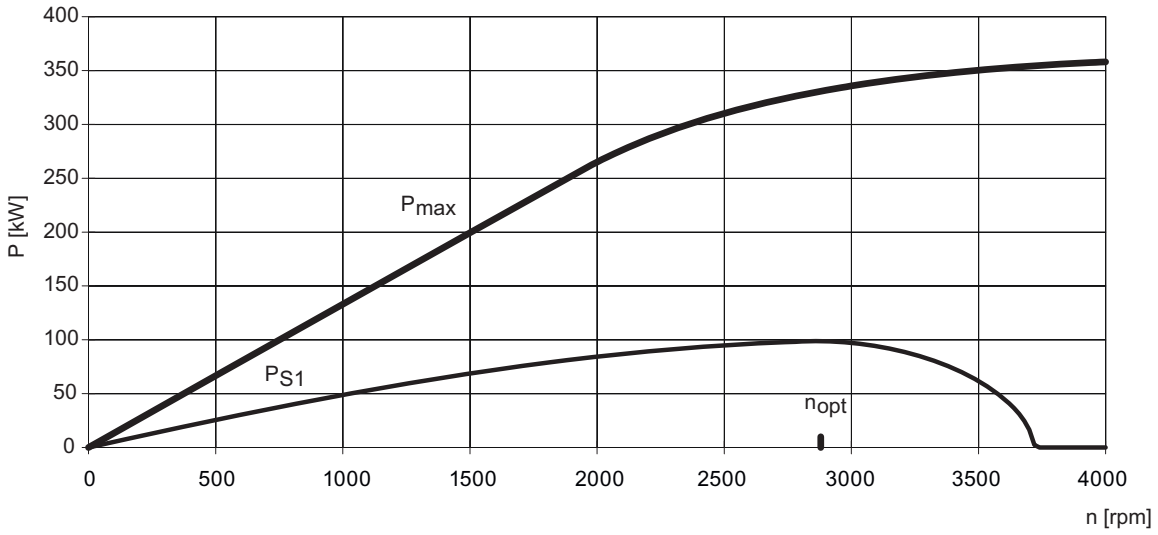


Table 4- 688 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8167-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	98.0	335	164	98.6	2880	4000	4000	>4000	1280	661	500	230
2500	95.0	360	177									



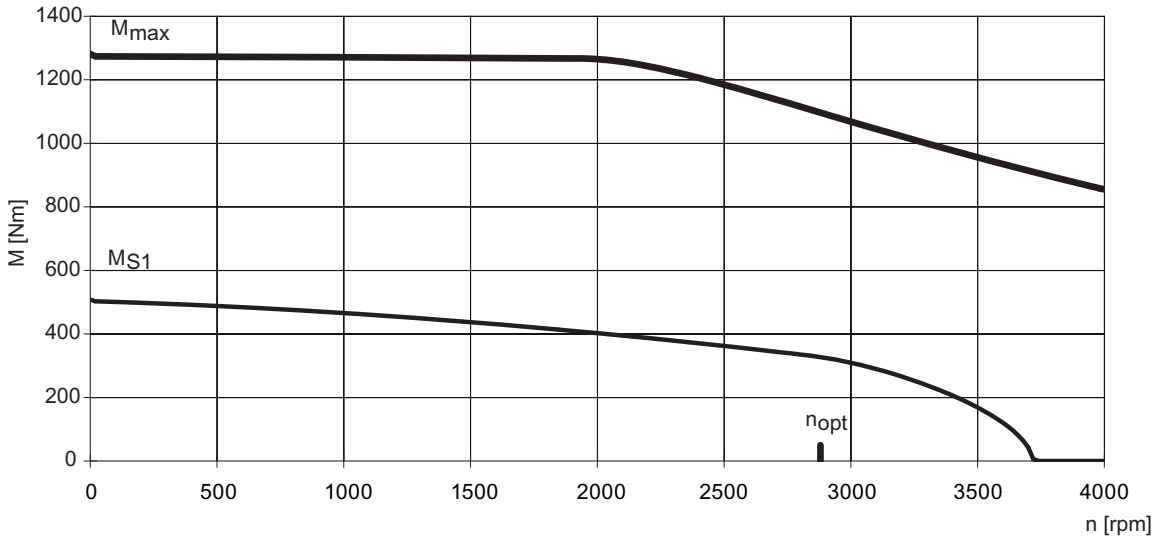
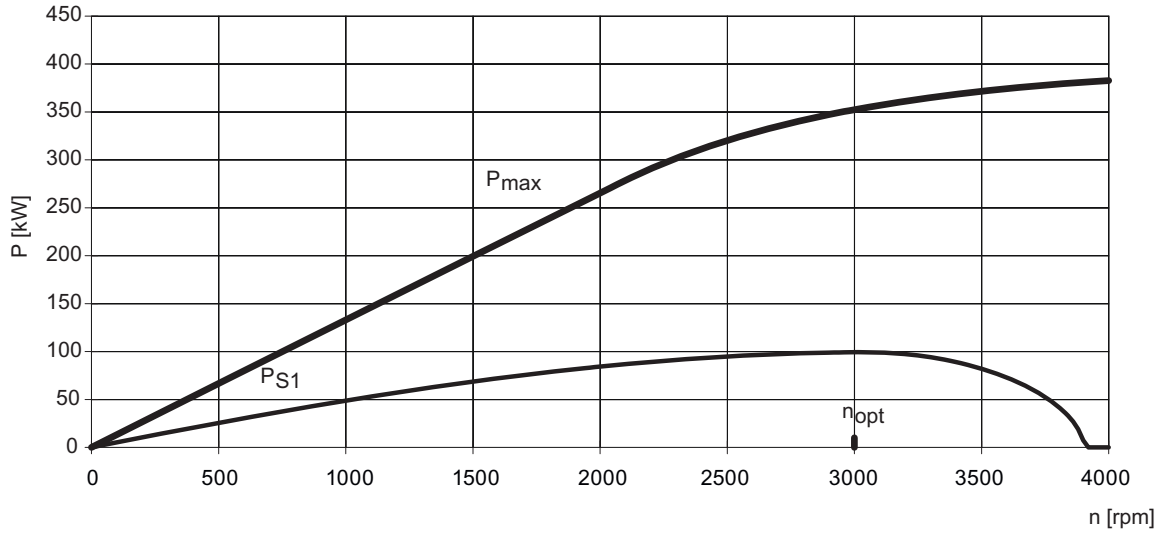
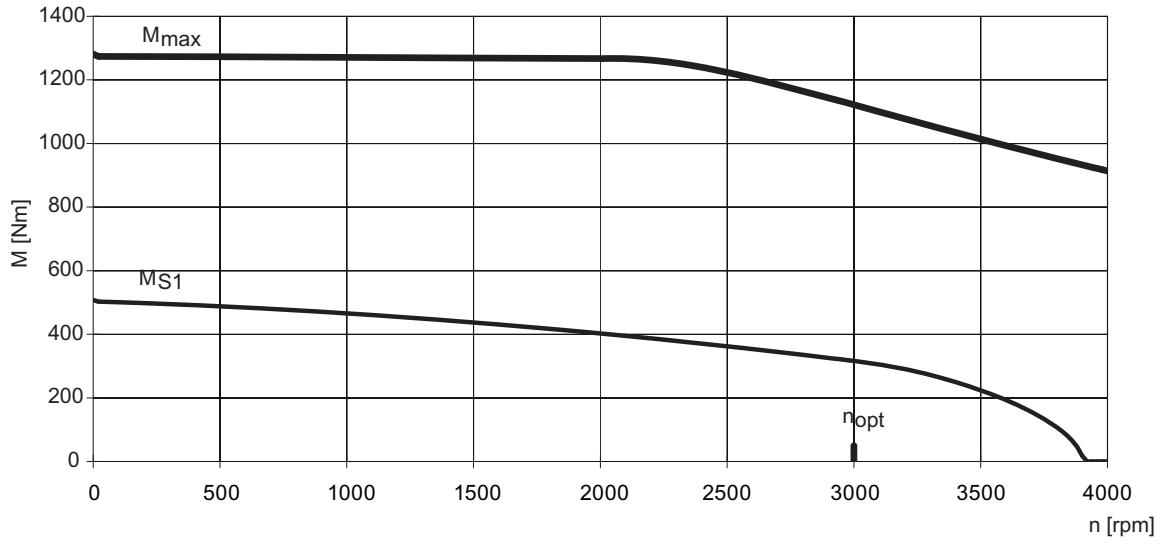


Table 4- 689 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8167-□□L□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	99.0	315	155	99.3	3000	4000	4000	>4000	1280	661	500	230





4.2.2.3 Shaft height 180 - forced ventilation

Table 4- 690 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	33	450	80	37	1050	3800	3500	1450	1450	260	480	84

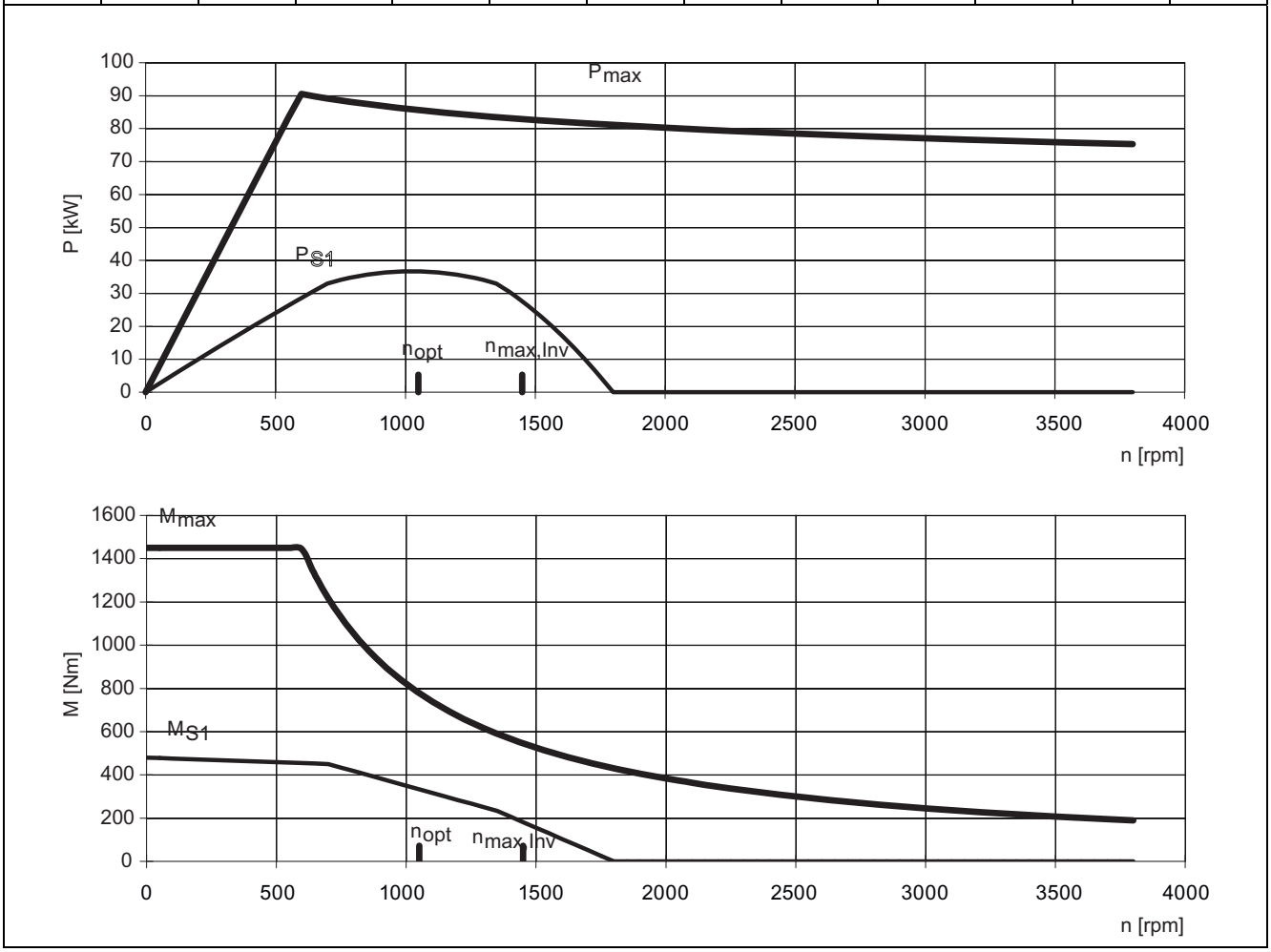
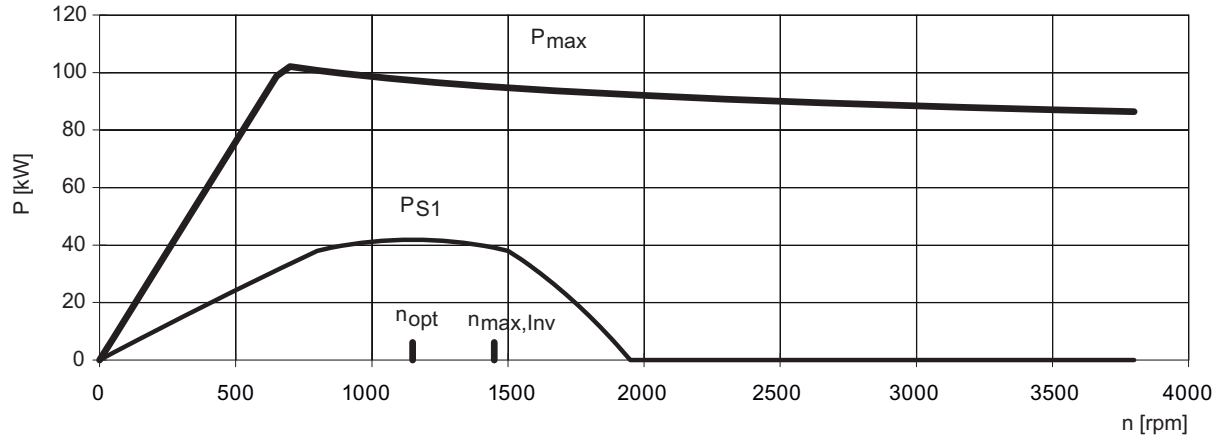


Table 4- 691 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	38	454	80	42	1150	3800	3500	1450	1450	260	480	84
700	33	450	80									



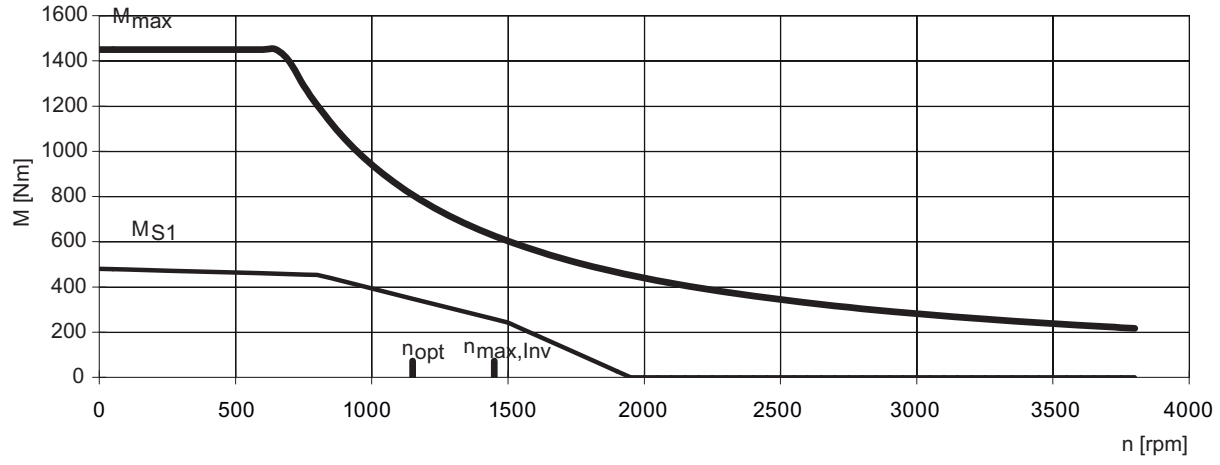


Table 4- 692 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	46	439	78	49	1300	3800	3500	1450	1450	260	480	84

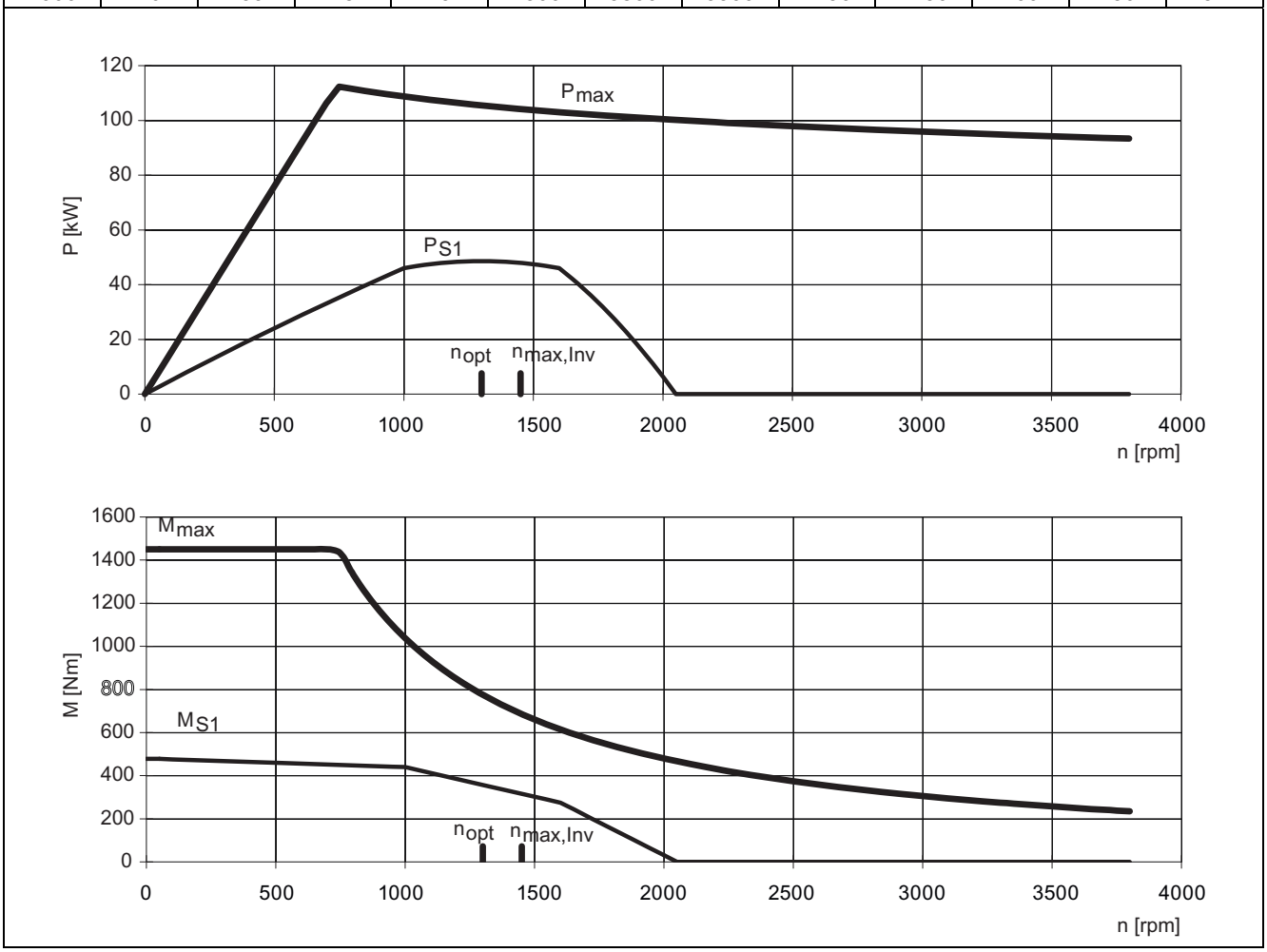


Table 4- 693 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	46	439	106	50	1400	3800	3500	1950	1450	355	480	115

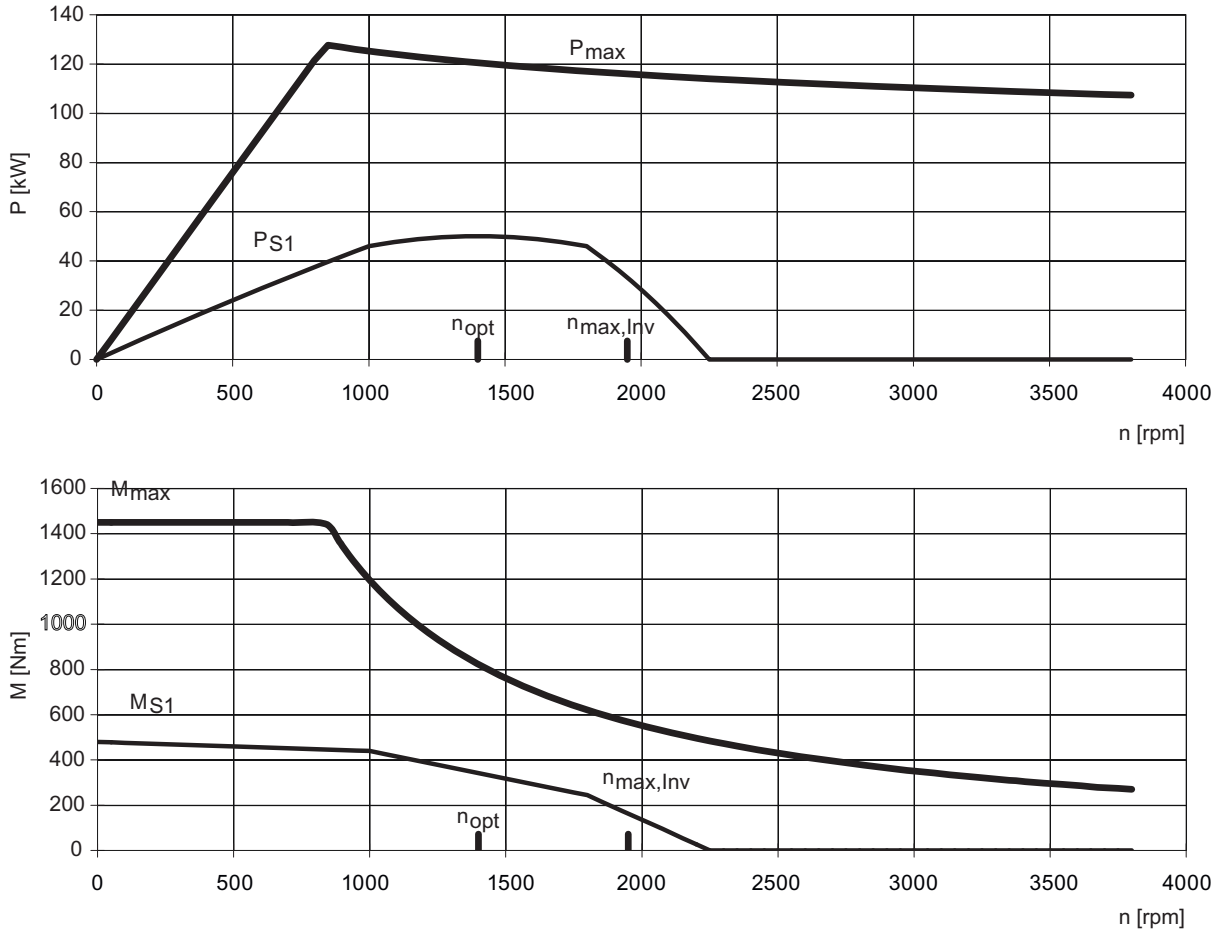
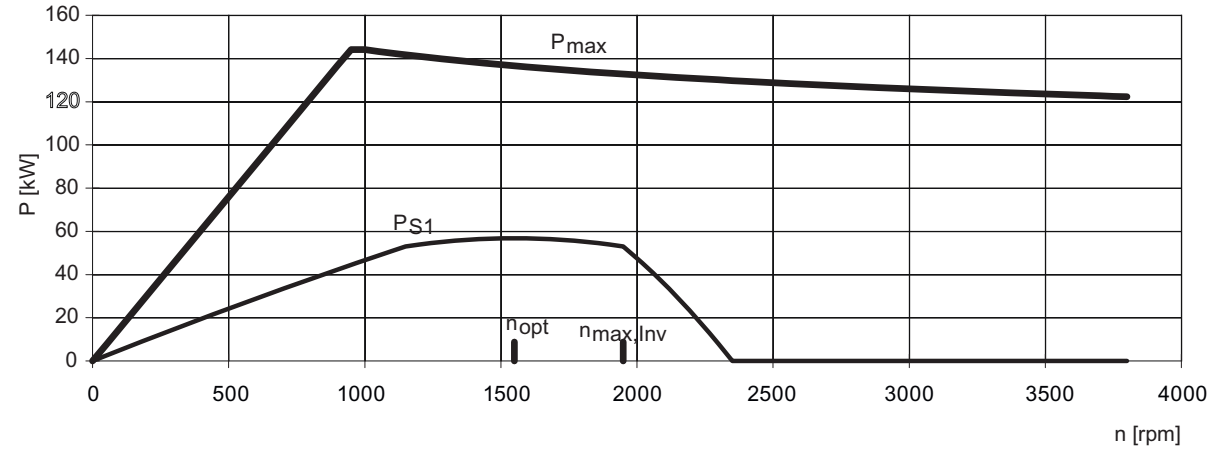


Table 4- 694 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	53	440	106	57	1550	3800	3500	1950	1450	355	480	115
1000	46	439	106									



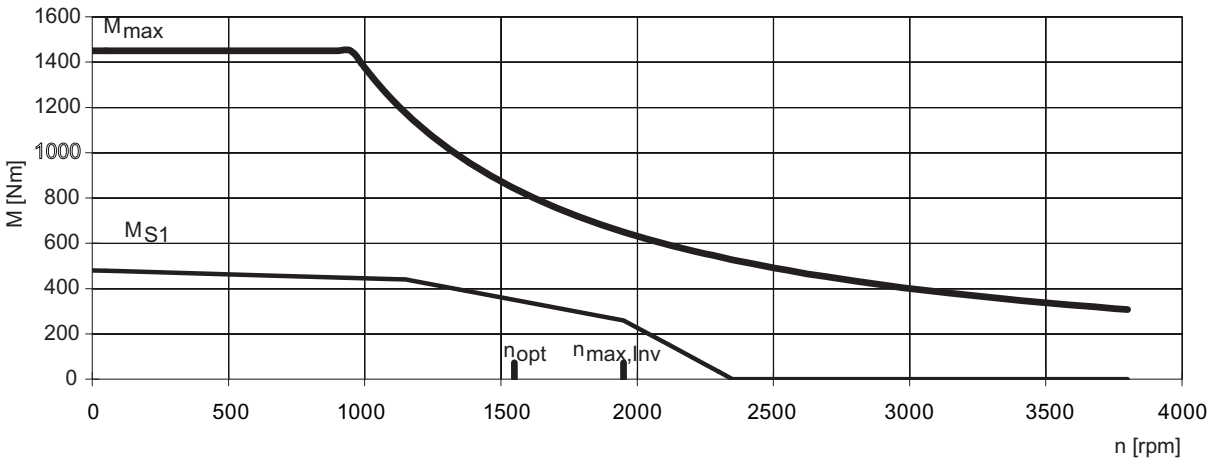
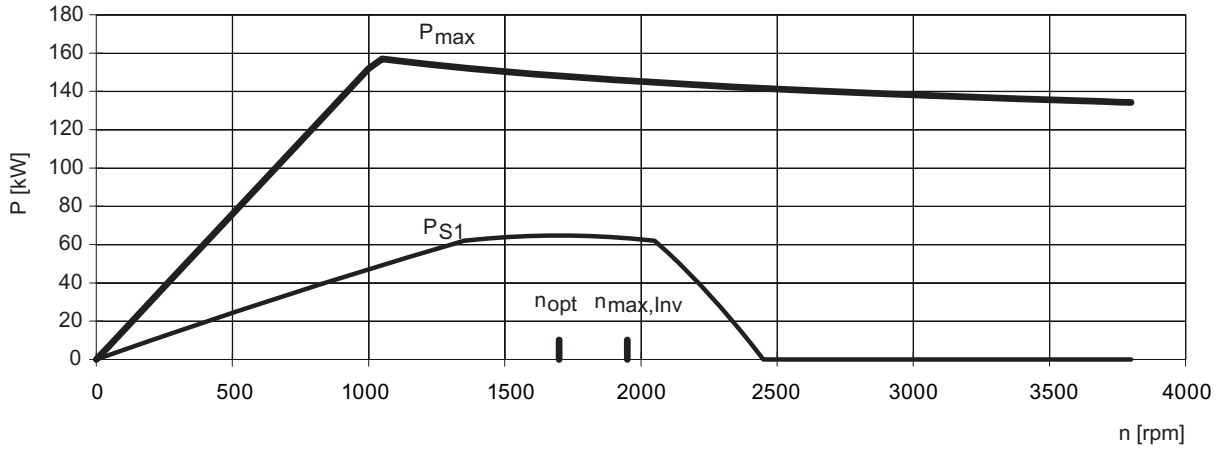


Table 4- 695 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	62	439	106	65	1700	3800	3500	1950	1450	355	480	115



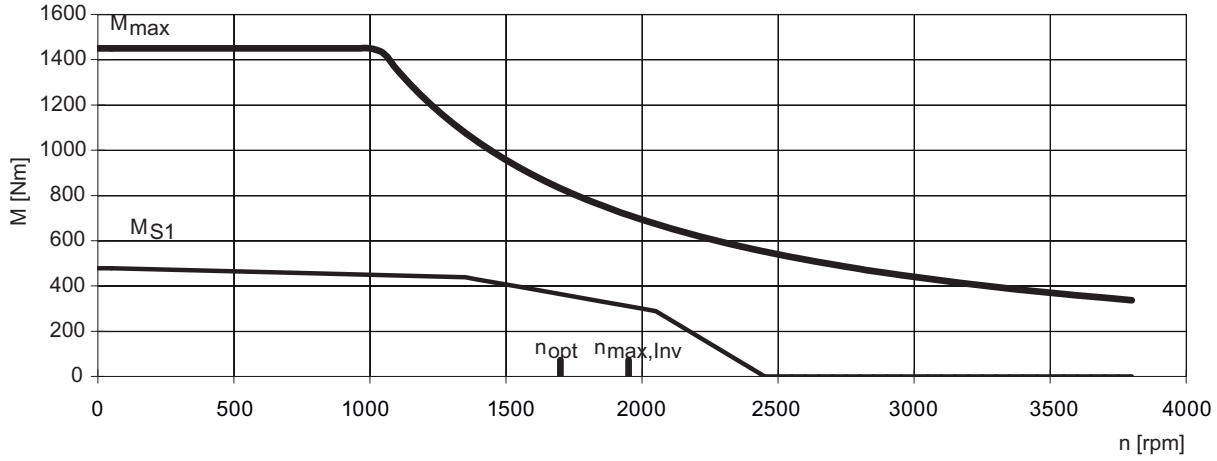


Table 4- 696 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	70	446	148	73	1900	3800	3500	2700	1450	490	480	157

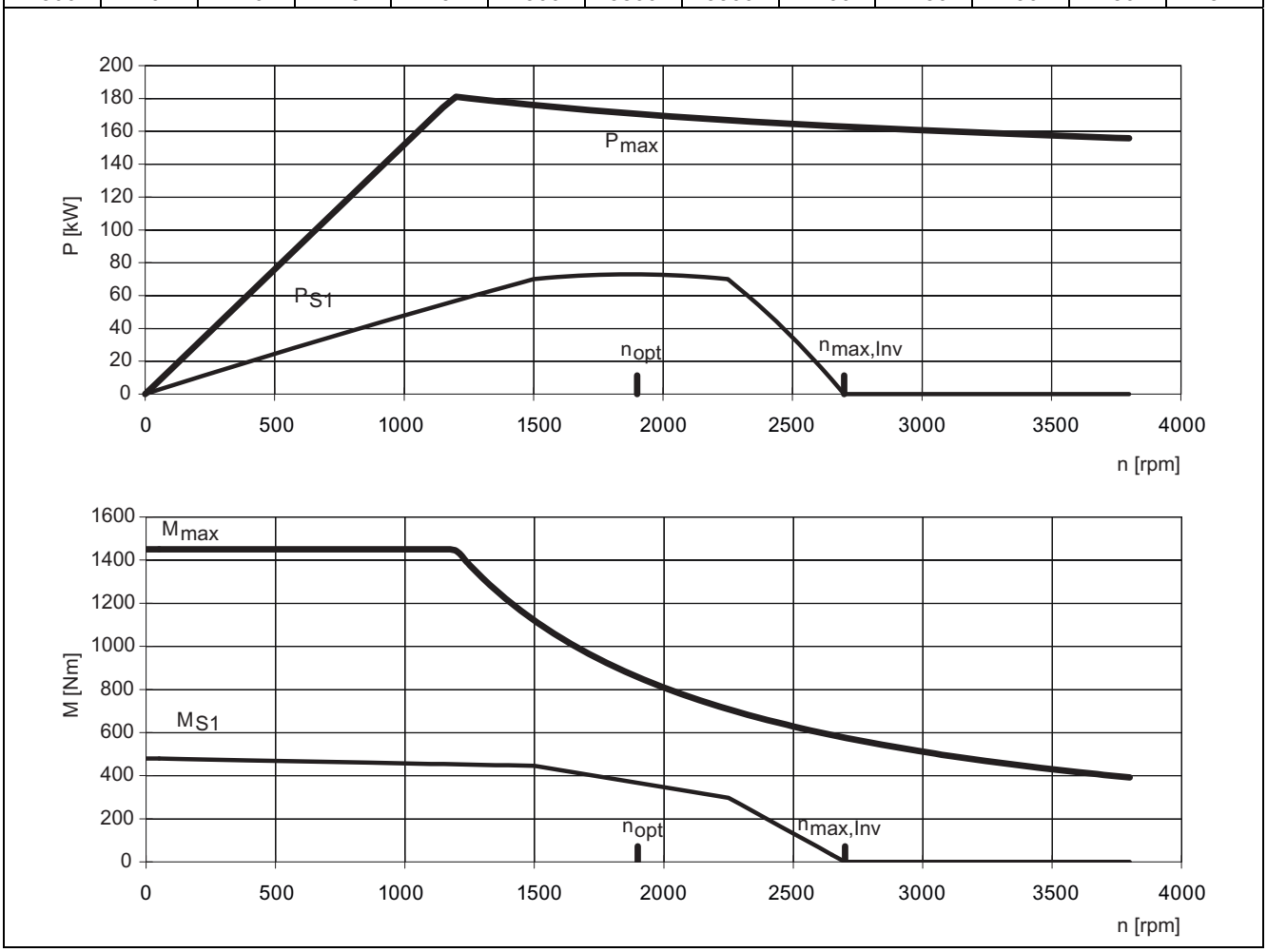
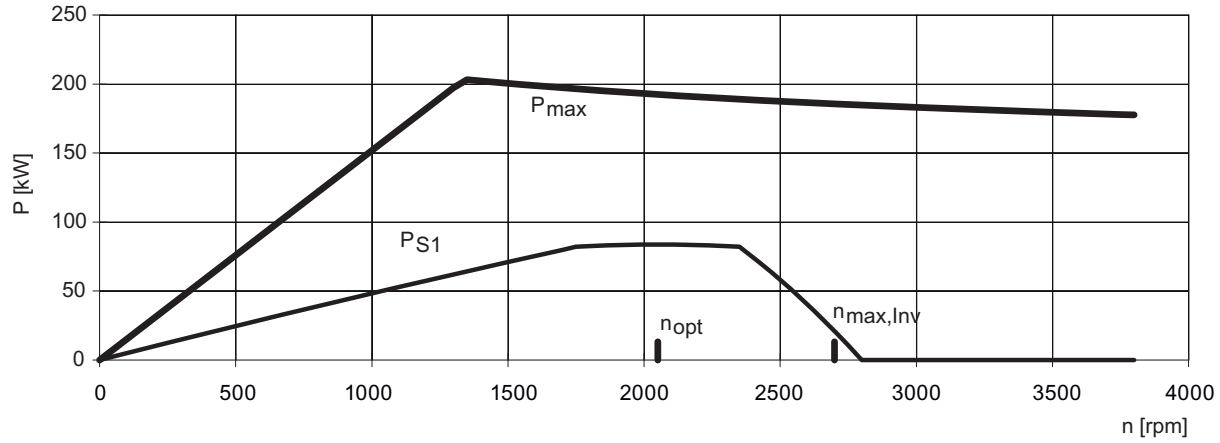


Table 4- 697 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	82	447	150	84	2050	3800	3500	2700	1450	490	480	157
1500	70	446	148									



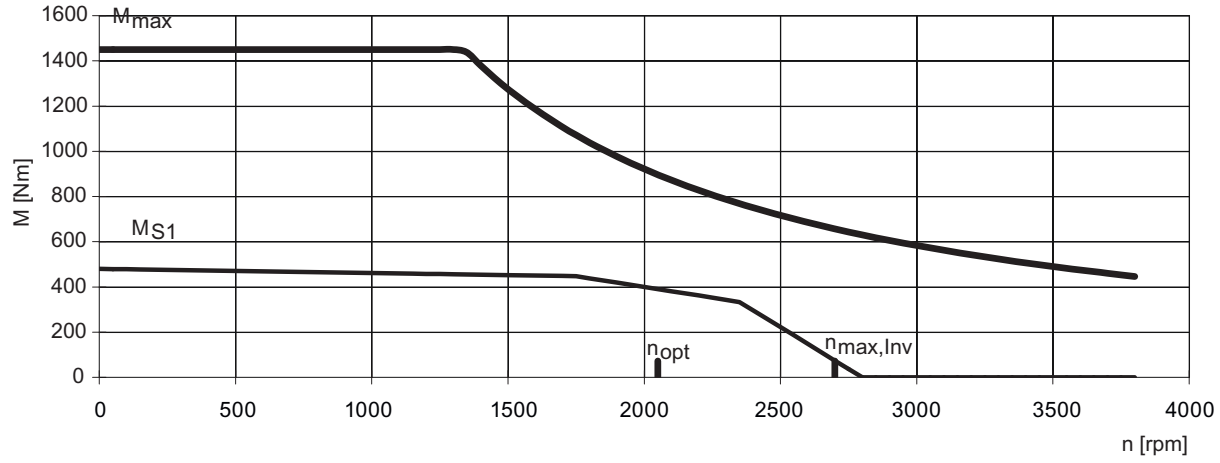


Table 4- 698 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	86	411	138	87	2250	3800	3500	2700	1450	490	480	157

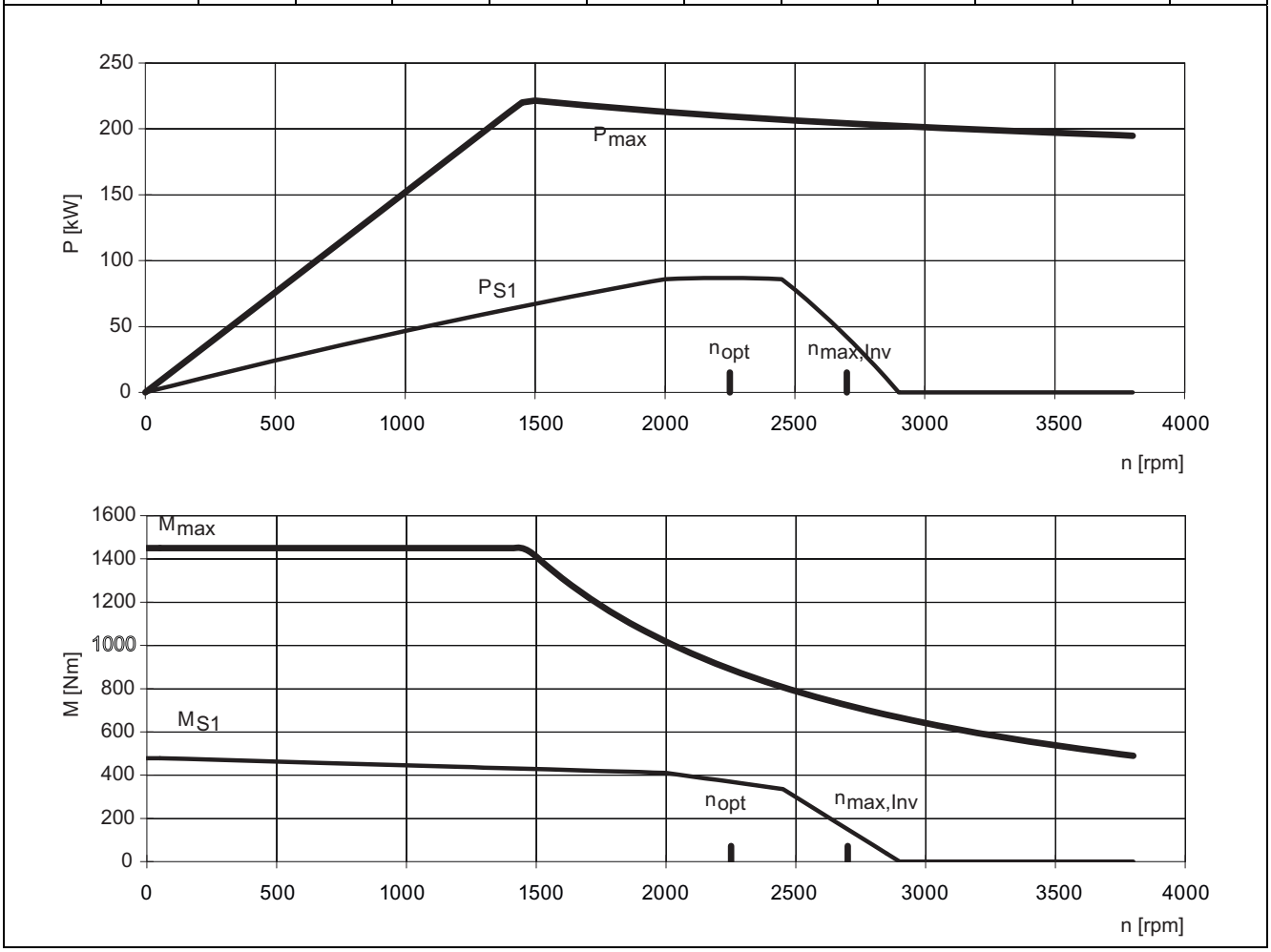
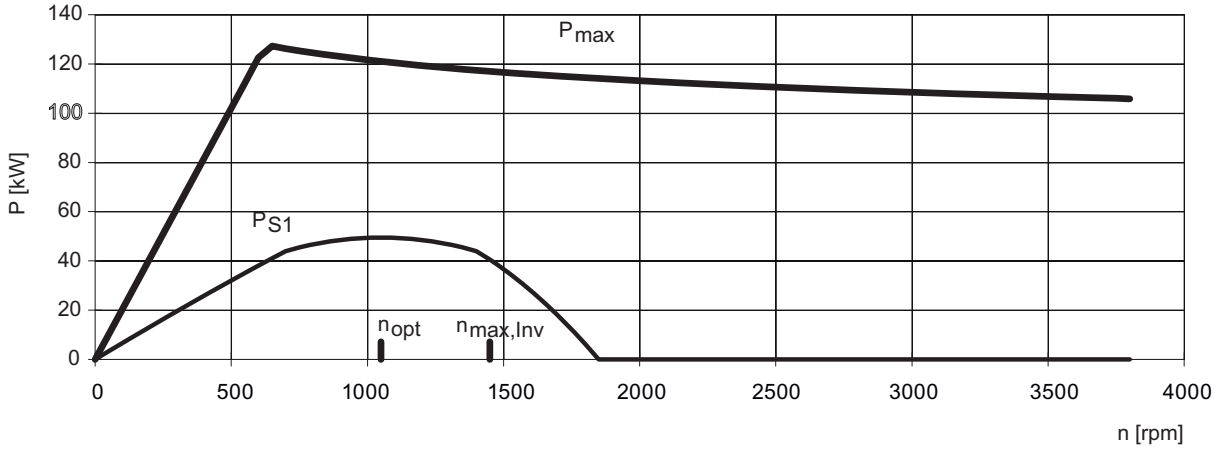


Table 4- 699 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	44	600	108	49	1050	3800	3500	1450	1950	358	640	115



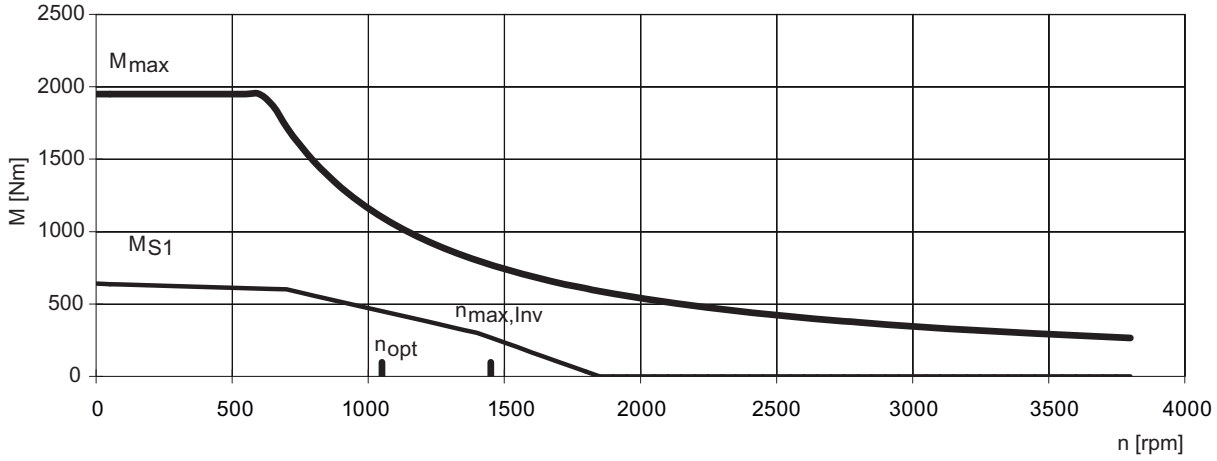
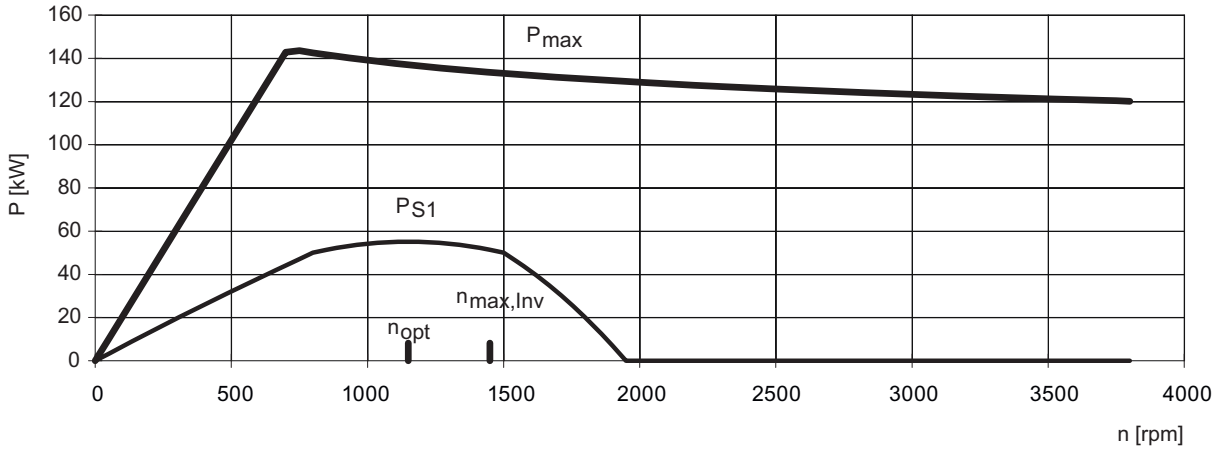


Table 4- 700 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	50	597	108	55	1150	3800	3500	1450	1950	358	640	115
700	44	600	108									



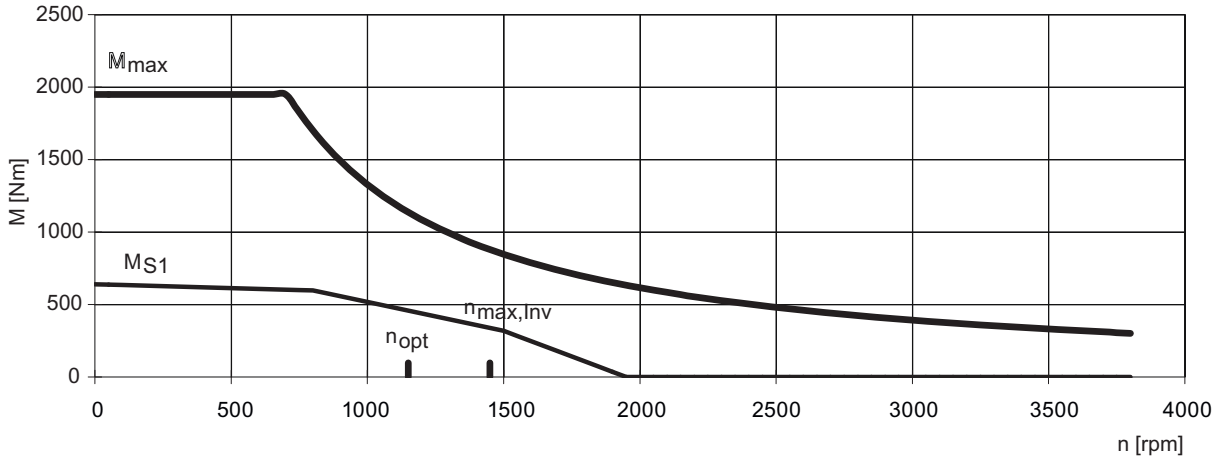


Table 4- 701 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	62	592	108	65	1300	3800	3500	1450	1950	358	640	115

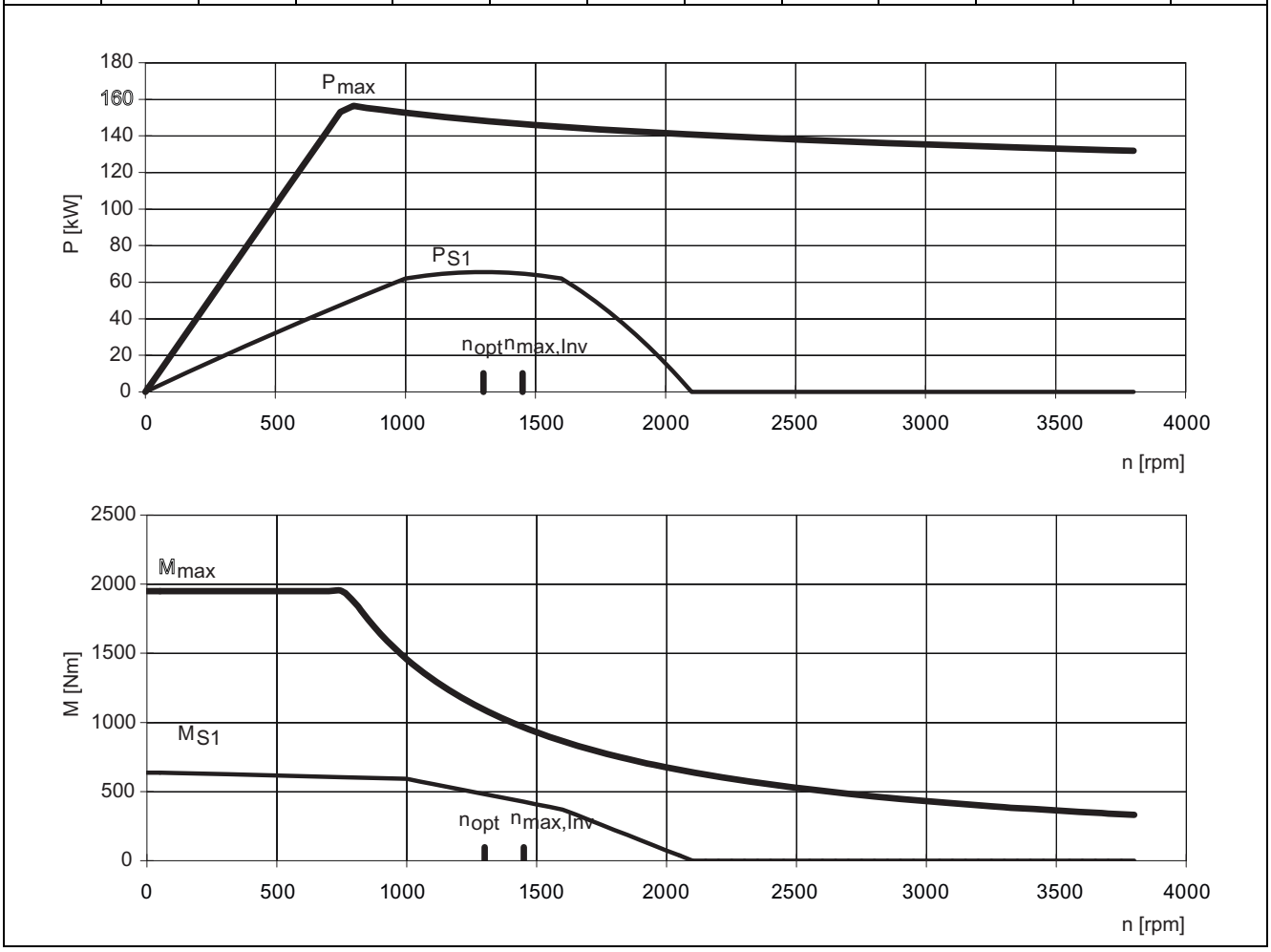


Table 4- 702 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	62	592	148	69	1450	3800	3500	2050	1950	490	640	157

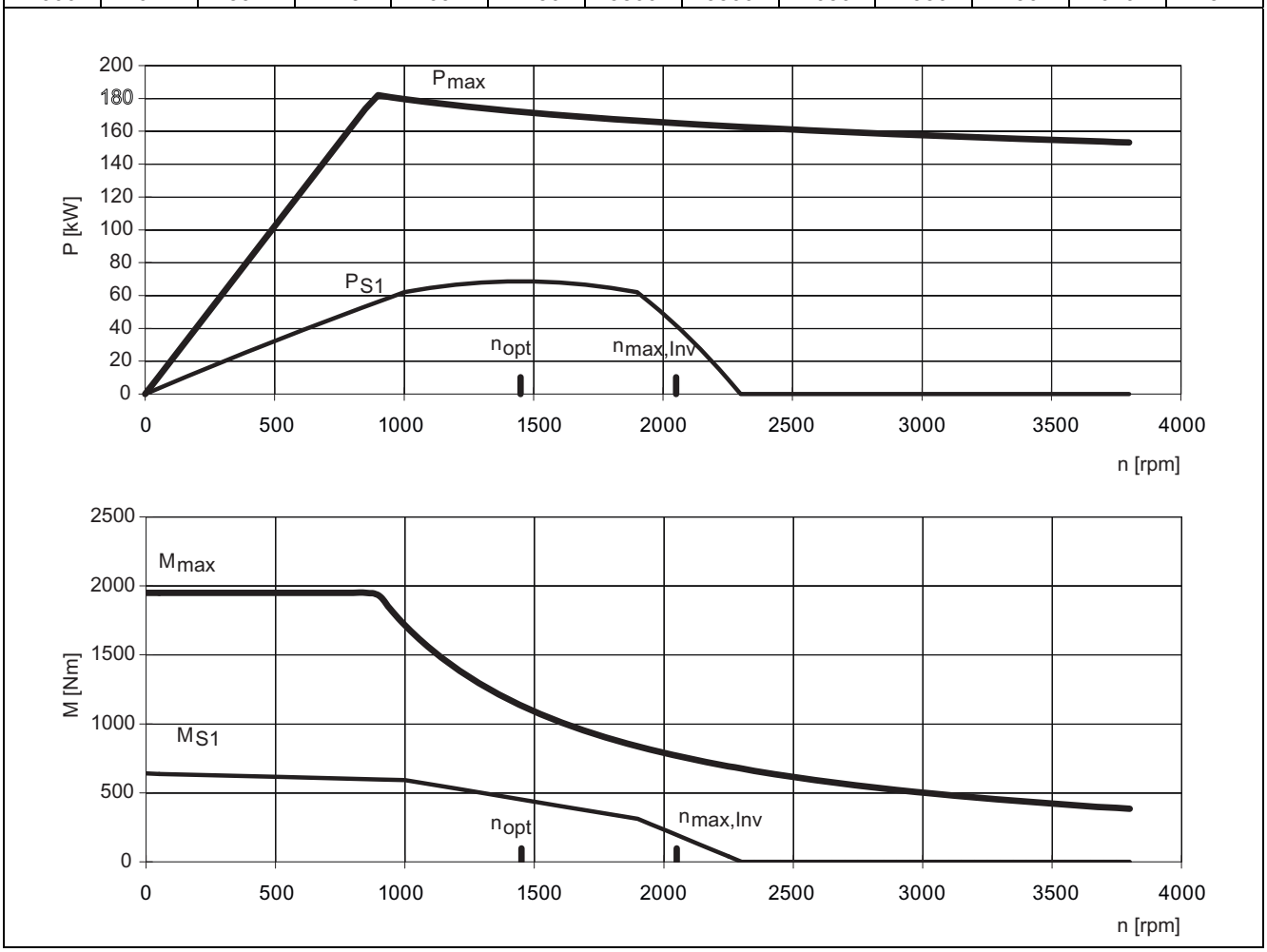
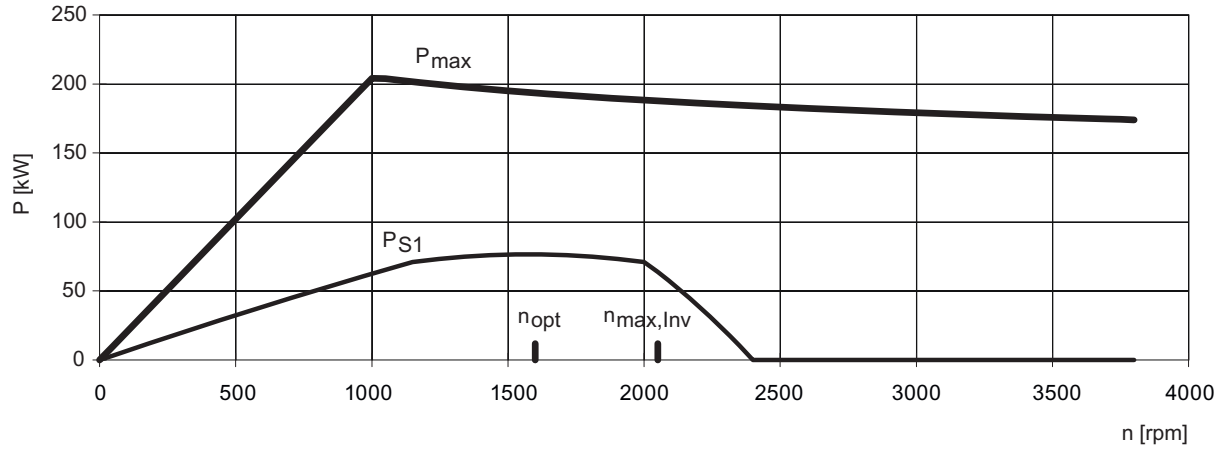


Table 4- 703 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	71	590	148	77	1600	3800	3500	2050	1950	490	640	157
1000	62	592	148									



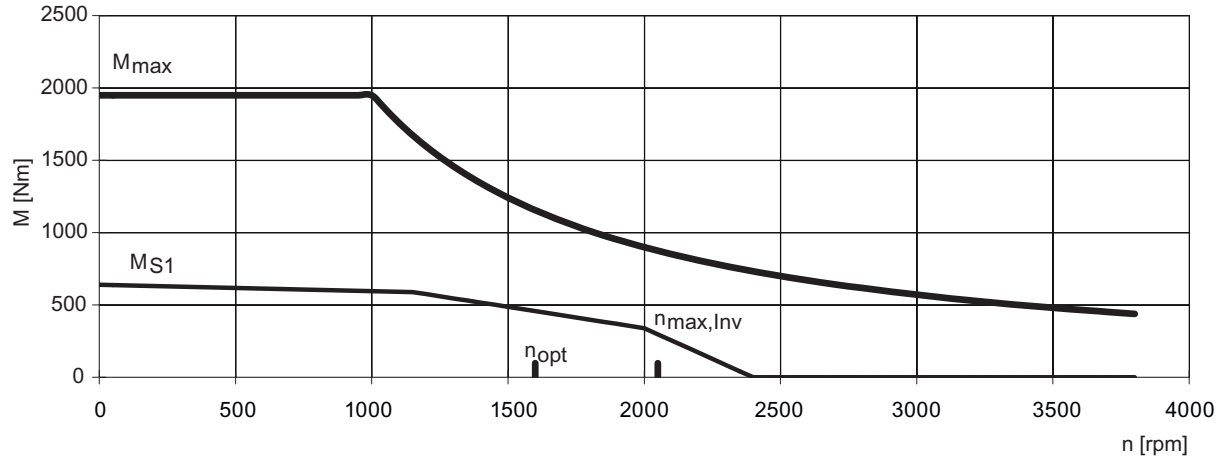


Table 4- 704 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	83	587	146	87	1750	3800	3500	2050	1950	490	640	157

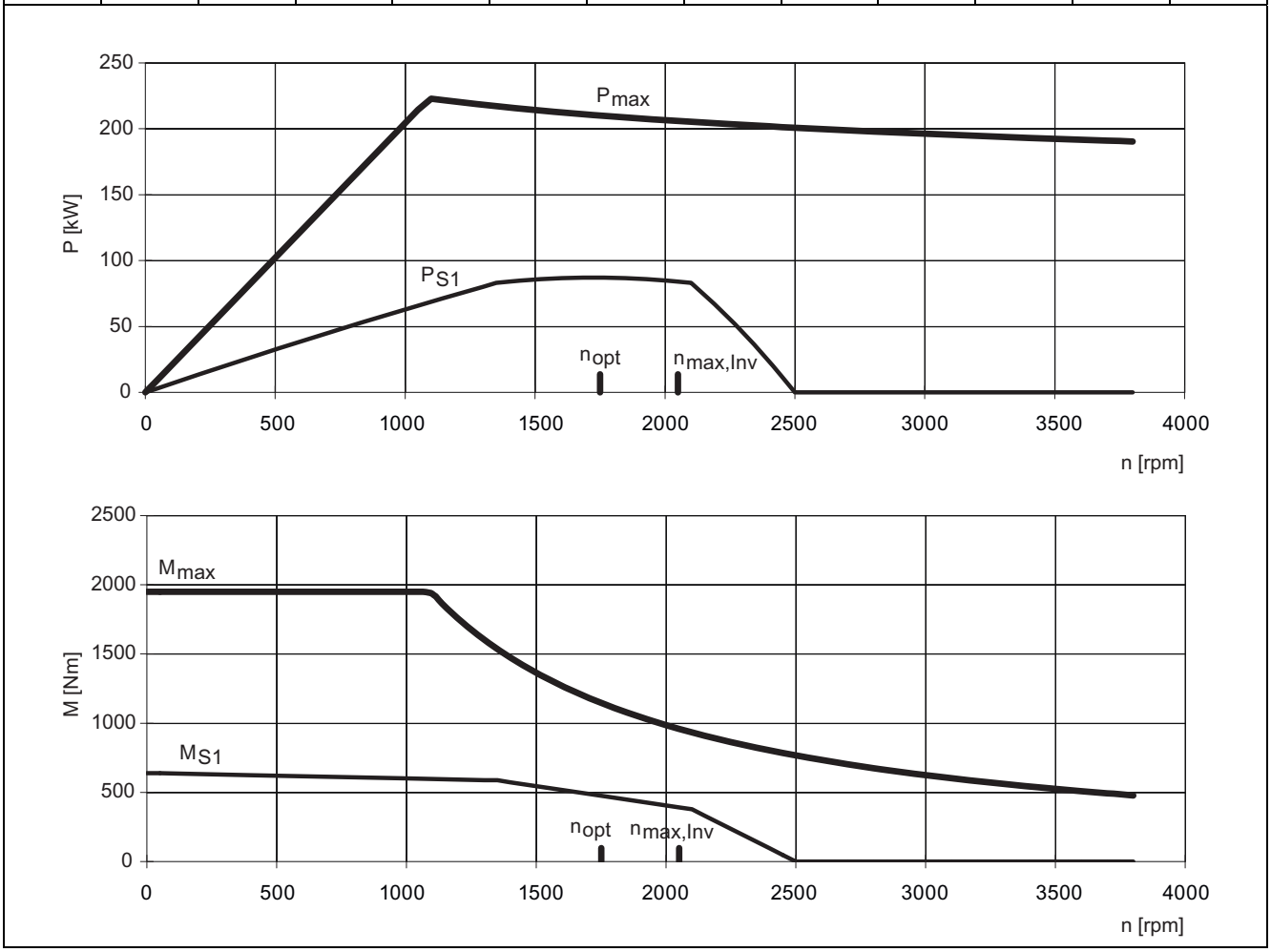
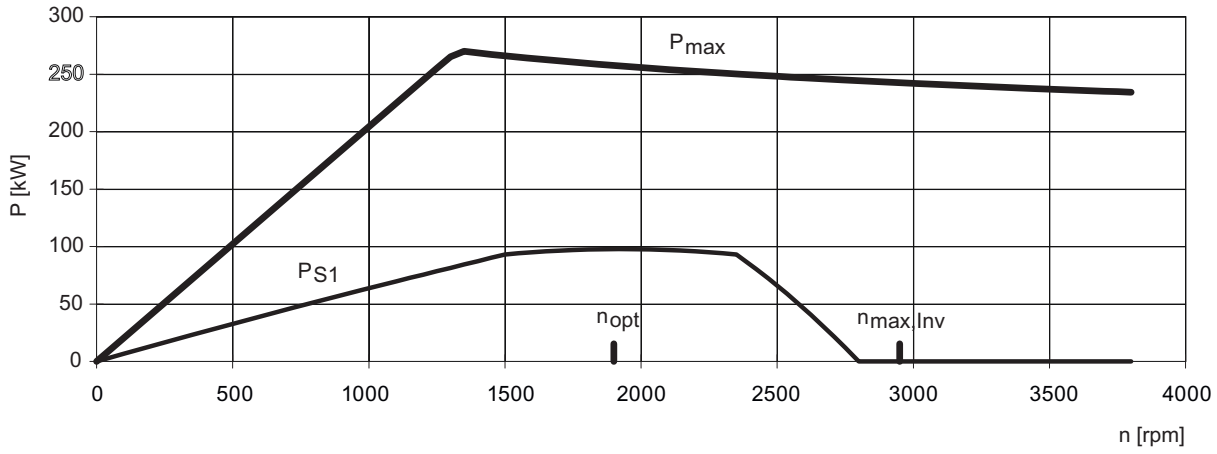


Table 4- 705 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	93	592	215	98	1900	3800	3500	2950	1950	720	640	229



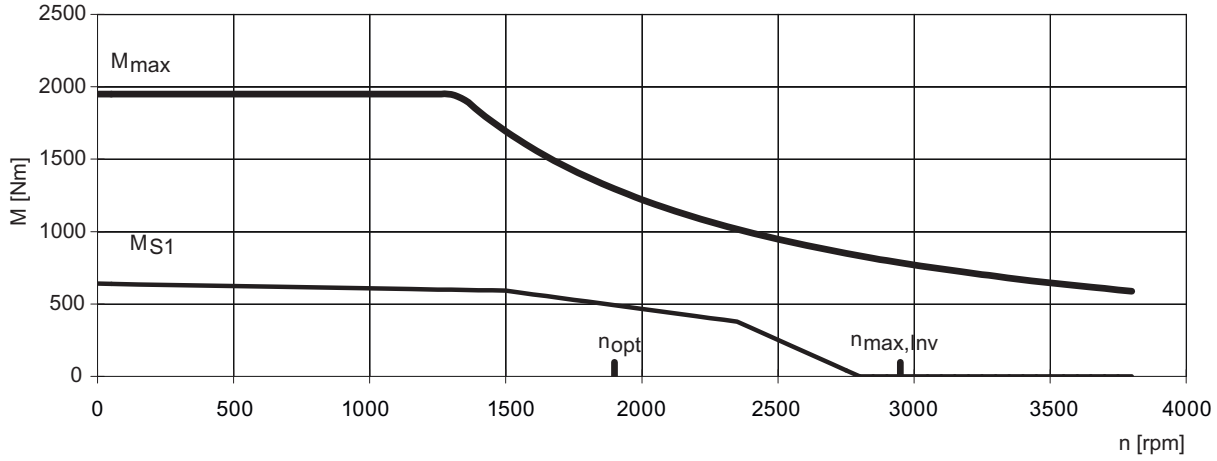
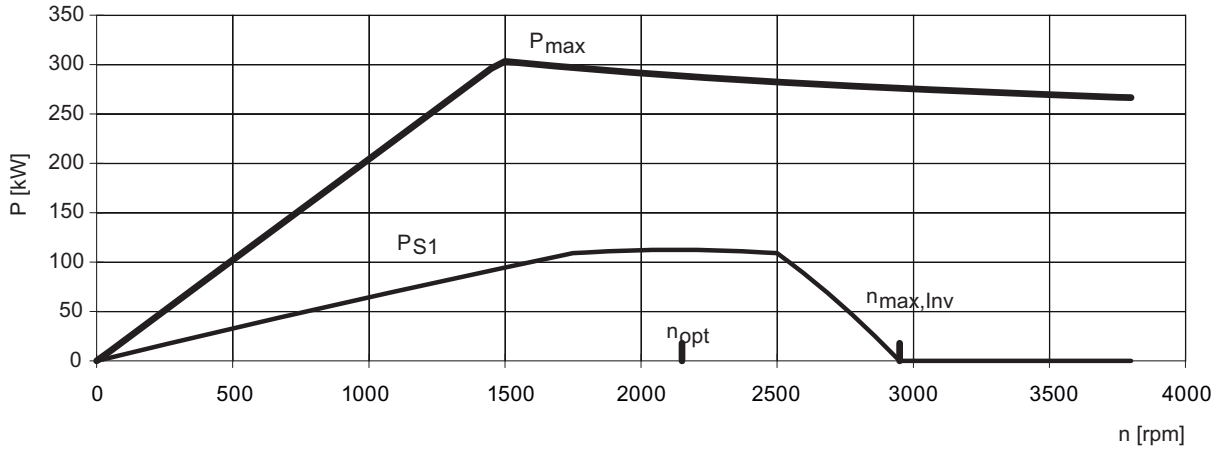


Table 4- 706 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	109	595	215	112	2150	3800	3500	2950	1950	720	640	229
1500	93	592	215									



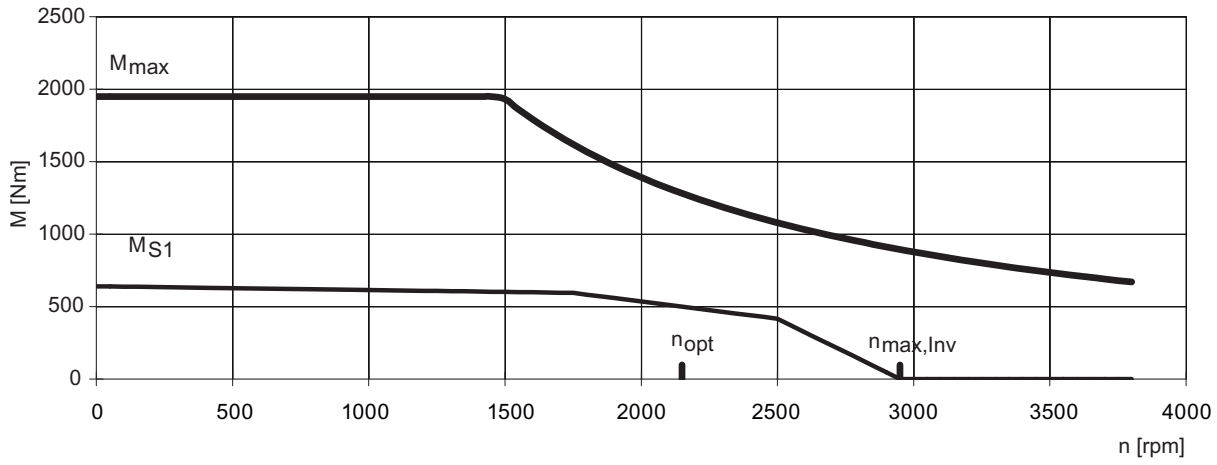
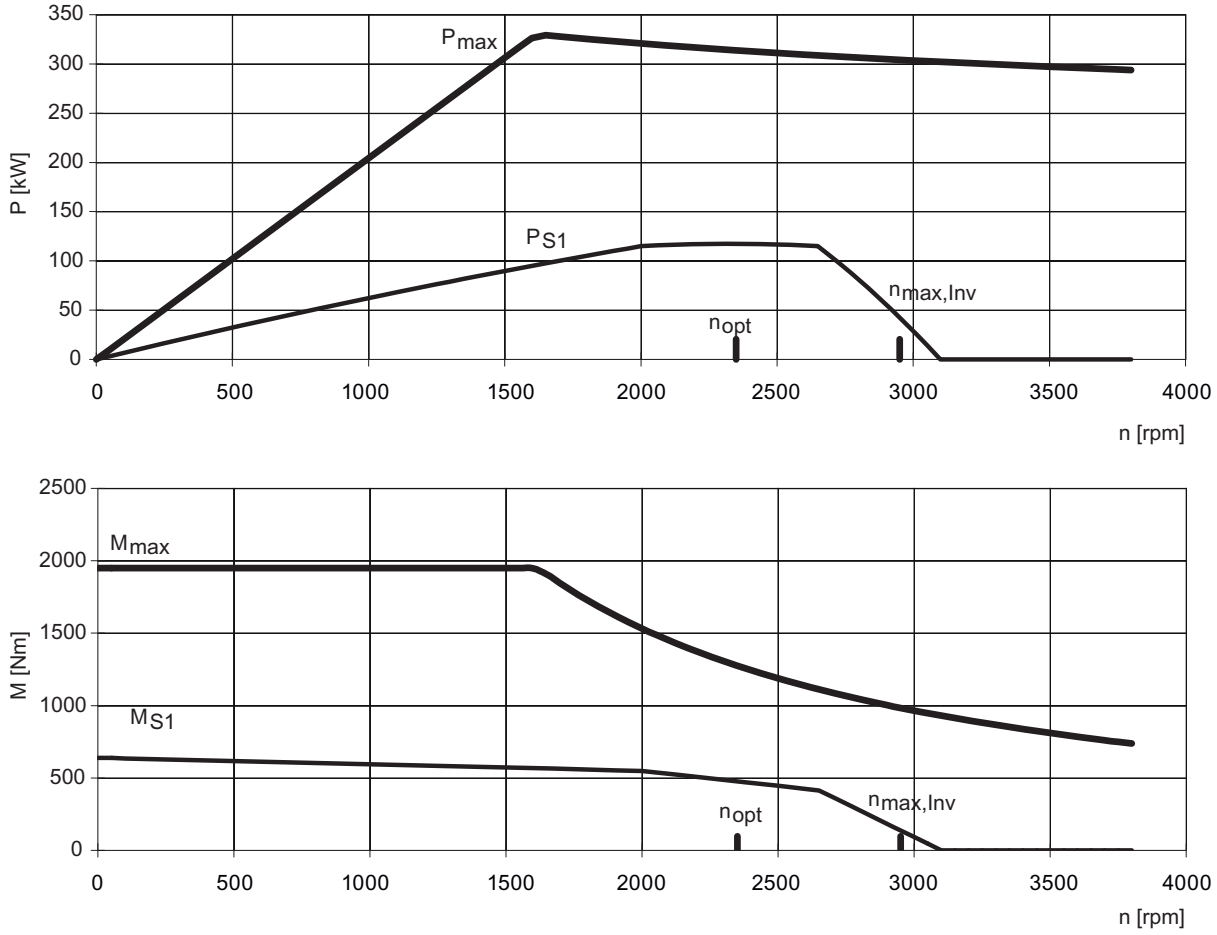


Table 4- 707 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	115	549	200	117	2350	3800	3500	2950	1950	720	640	229



4.2.2.4 Shaft height 225 - forced ventilation

Table 4- 708 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	48	655	120	52	950	3500	3100	1450	2400	450	708	128

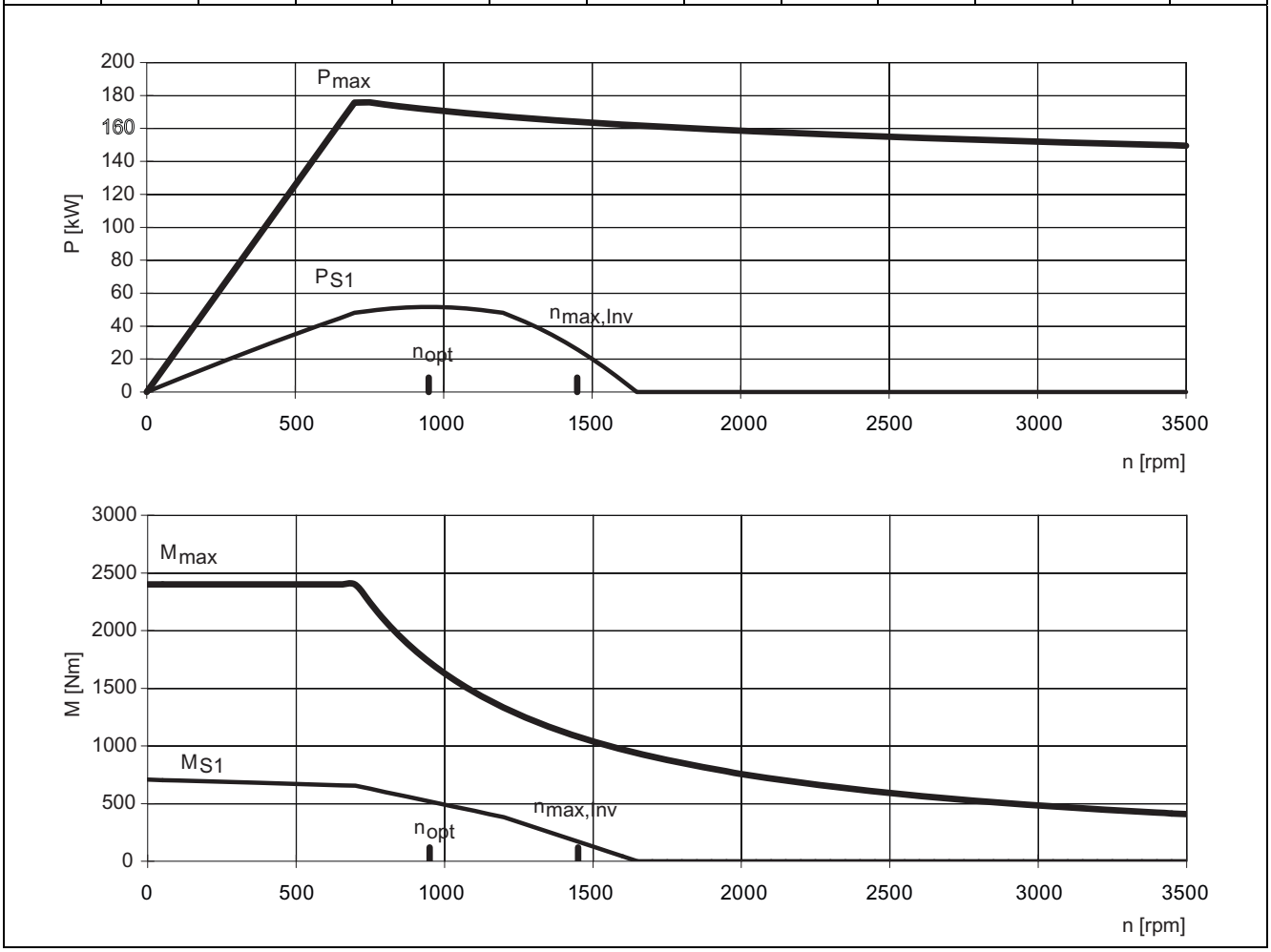
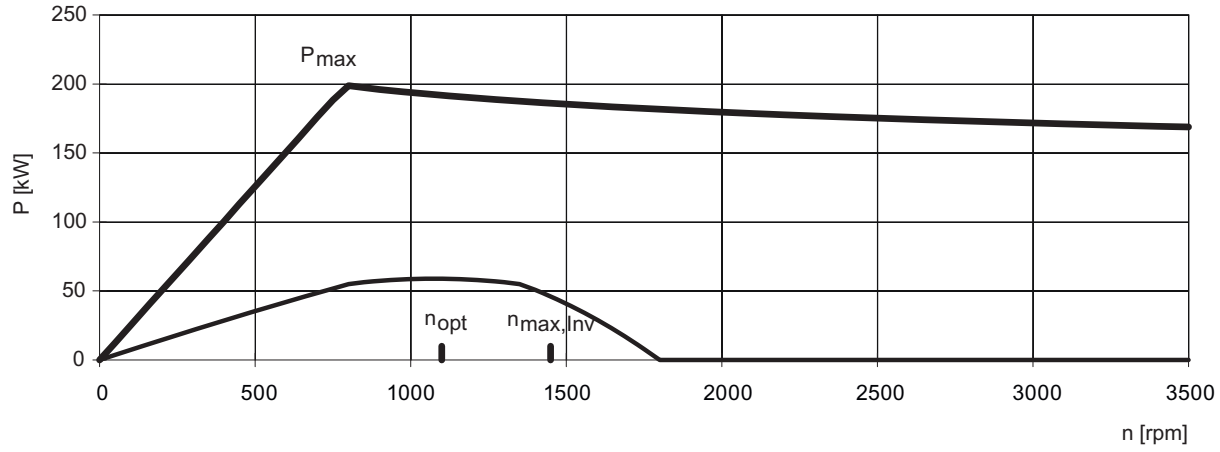


Table 4- 709 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	55	657	120	59	1100	3500	3100	1450	2400	450	708	128
700	48	655	120									



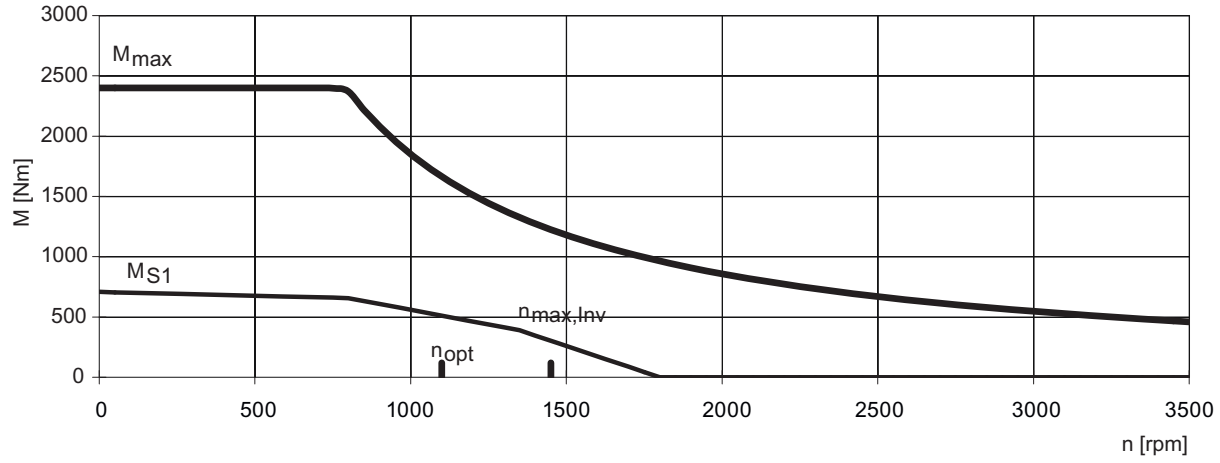


Table 4- 710 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	68	649	118	70	1250	3500	3100	1450	2400	450	708	128

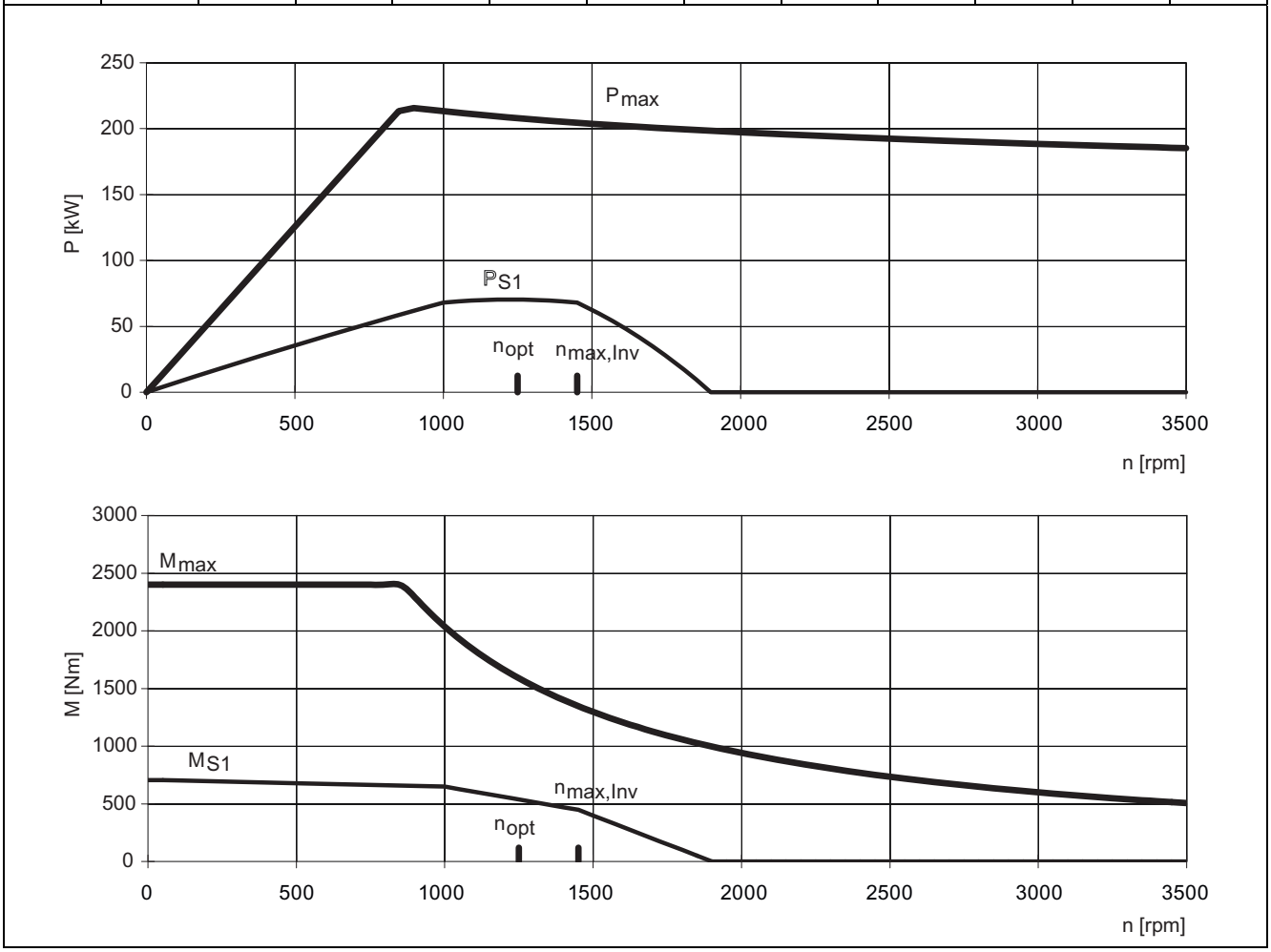


Table 4- 711 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	68	649	170	73	1350	3500	3100	2050	2400	640	708	183

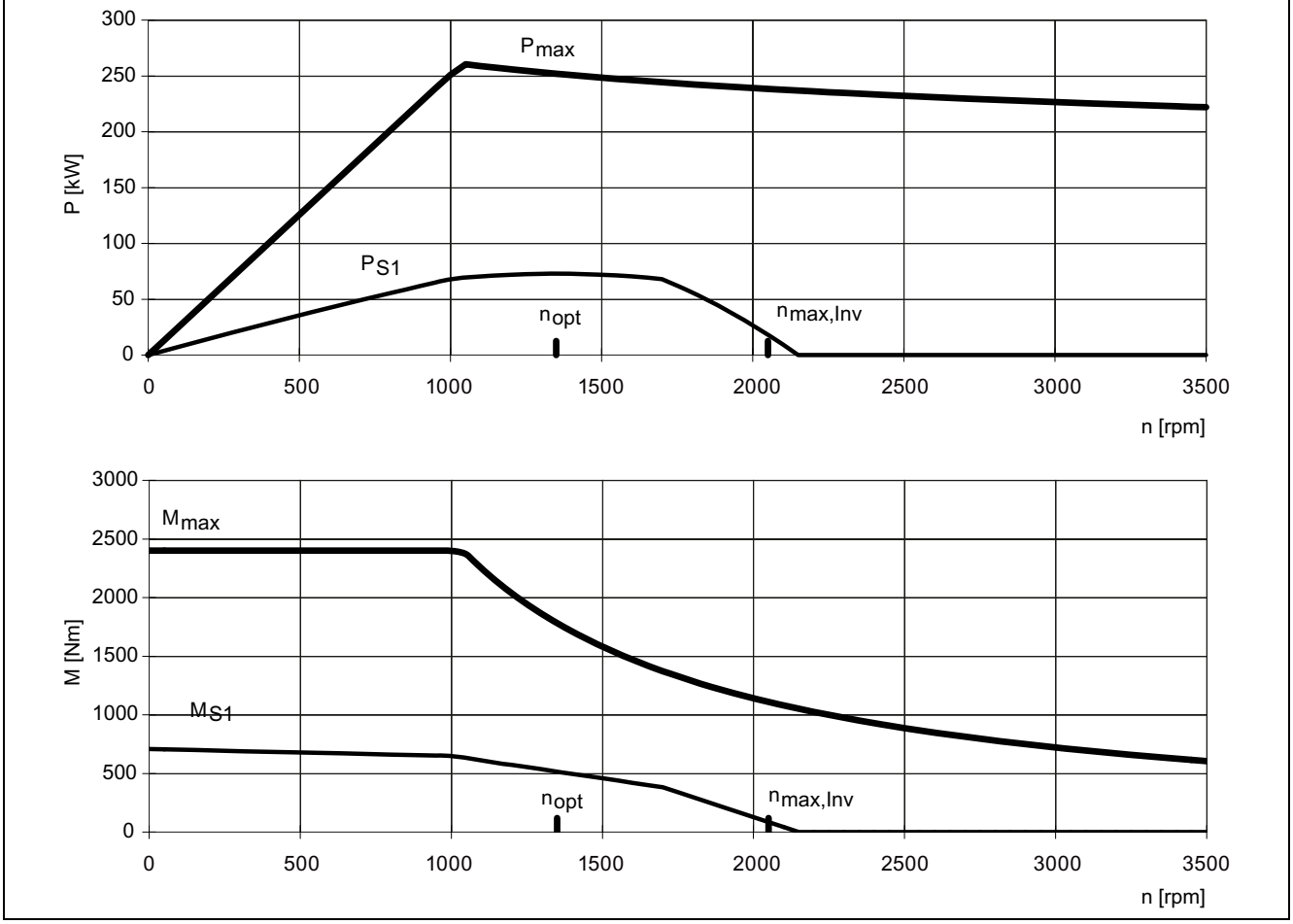
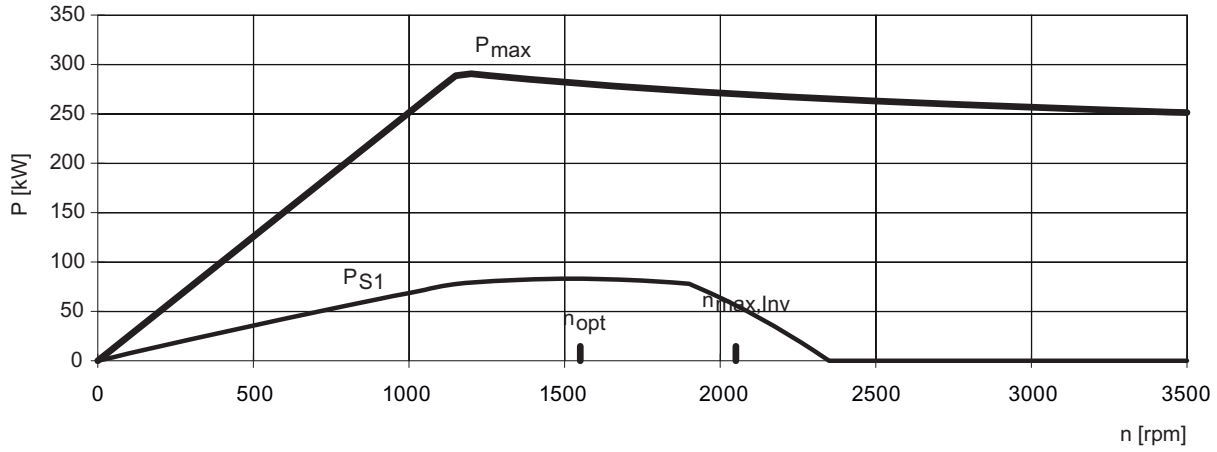


Table 4- 712 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	78	648	170	83	1550	3500	3100	2050	2400	640	708	183
1000	68	649	170									



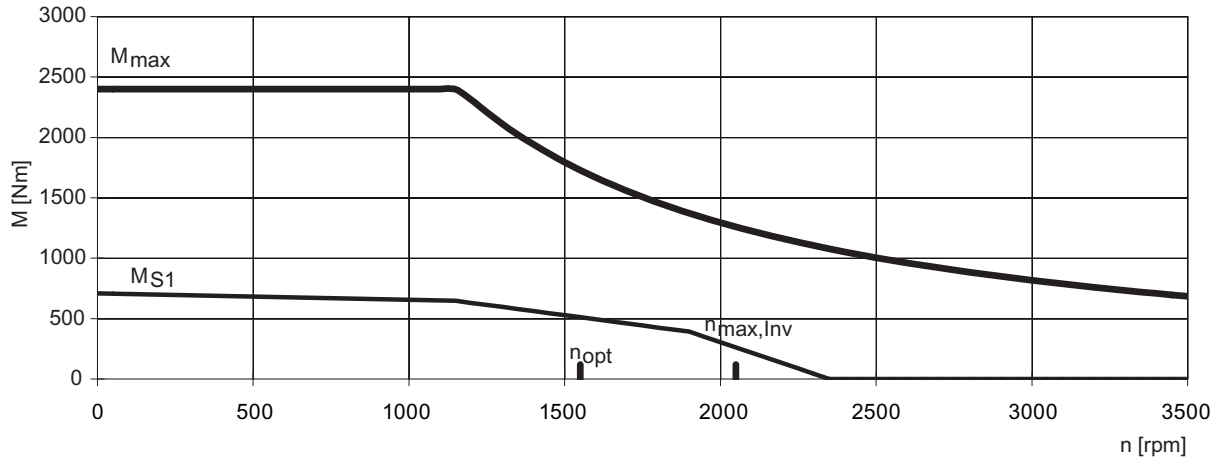


Table 4- 713 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	91	643	168	94	1700	3500	3100	2050	2400	640	708	183

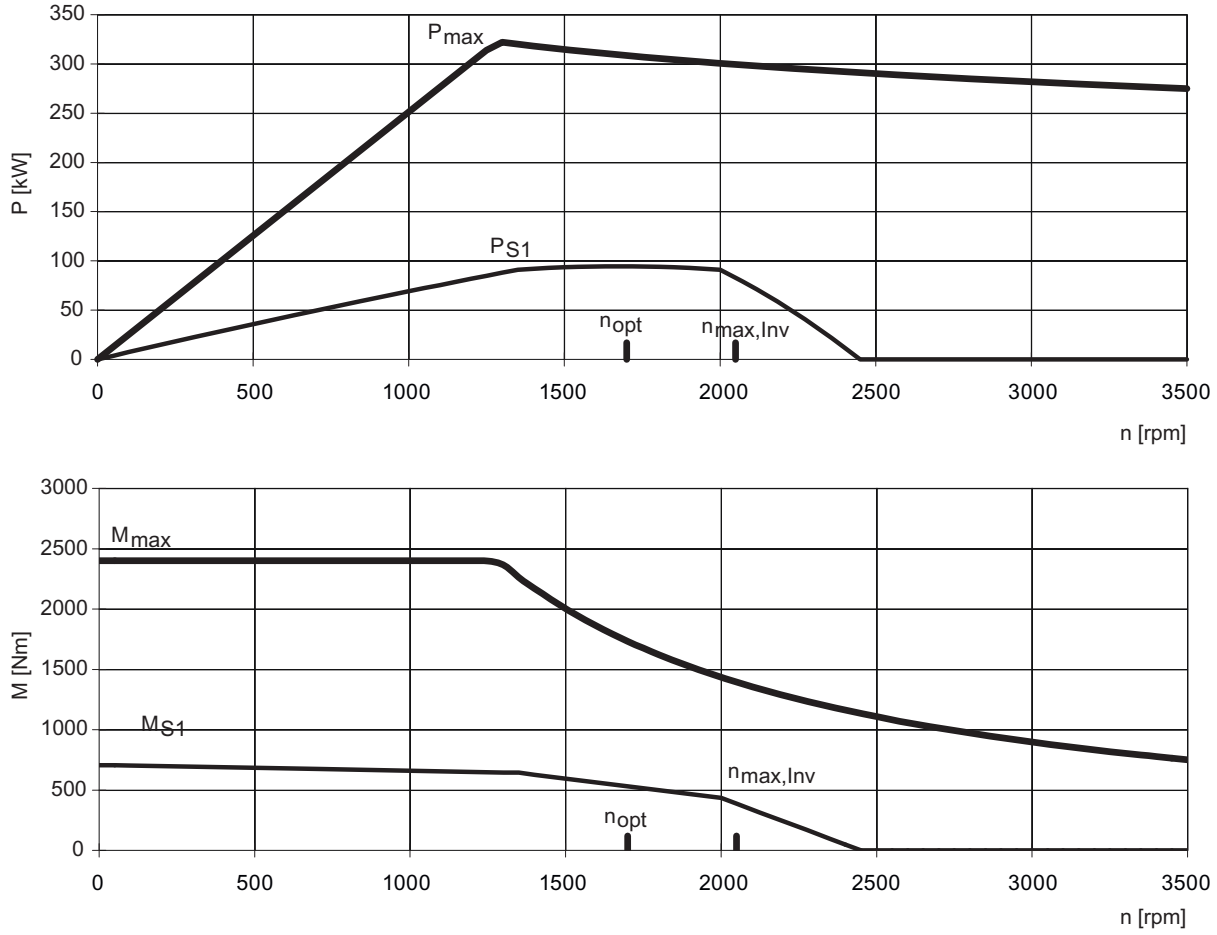


Table 4- 714 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	101	643	235	105	1850	3500	3100	2900	2400	900	708	256

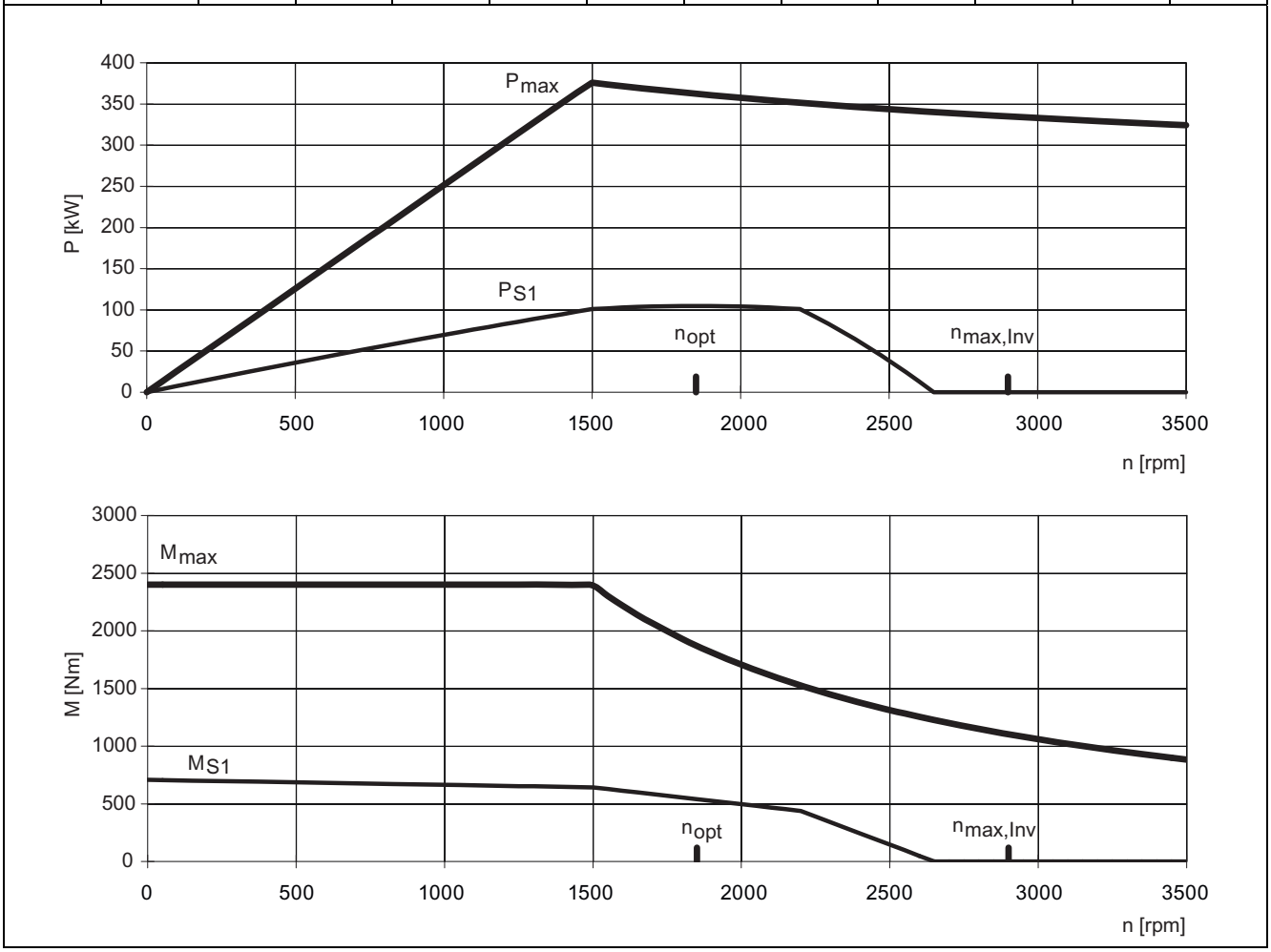
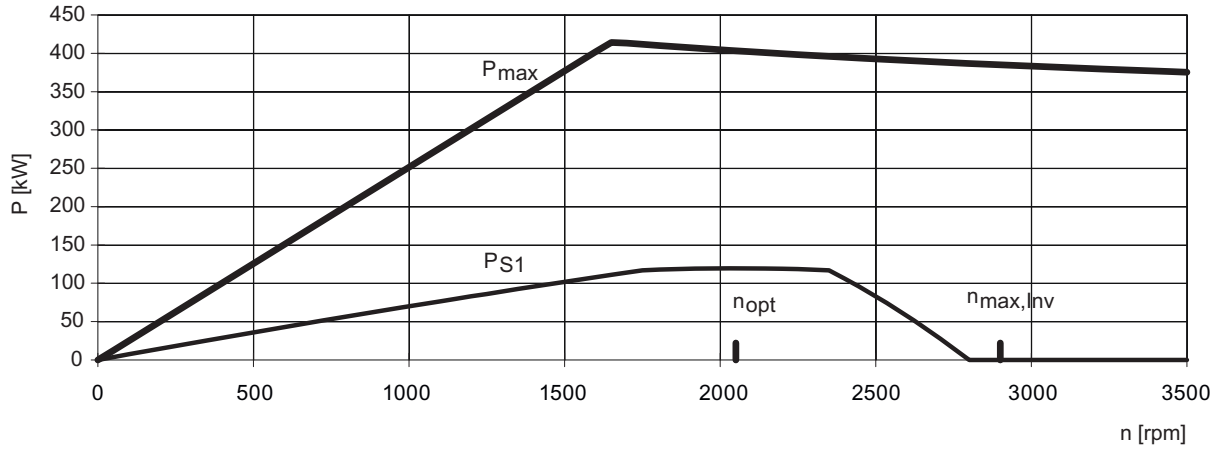


Table 4- 715 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	117	638	235	120	2050	3500	3100	2900	2400	900	708	256
1500	101	643	235									



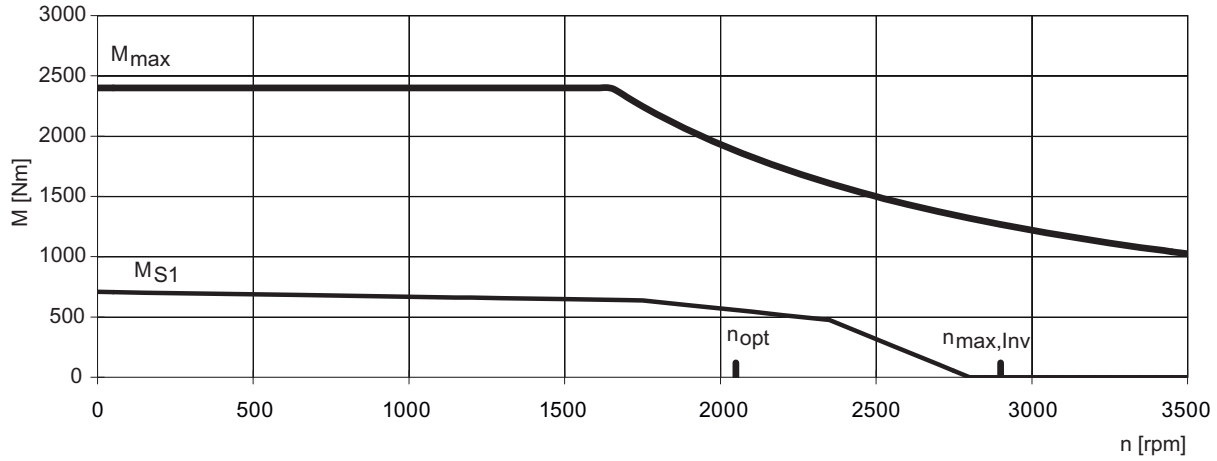


Table 4- 716 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	118	563	210	119	2250	3500	3100	2900	2400	900	708	256

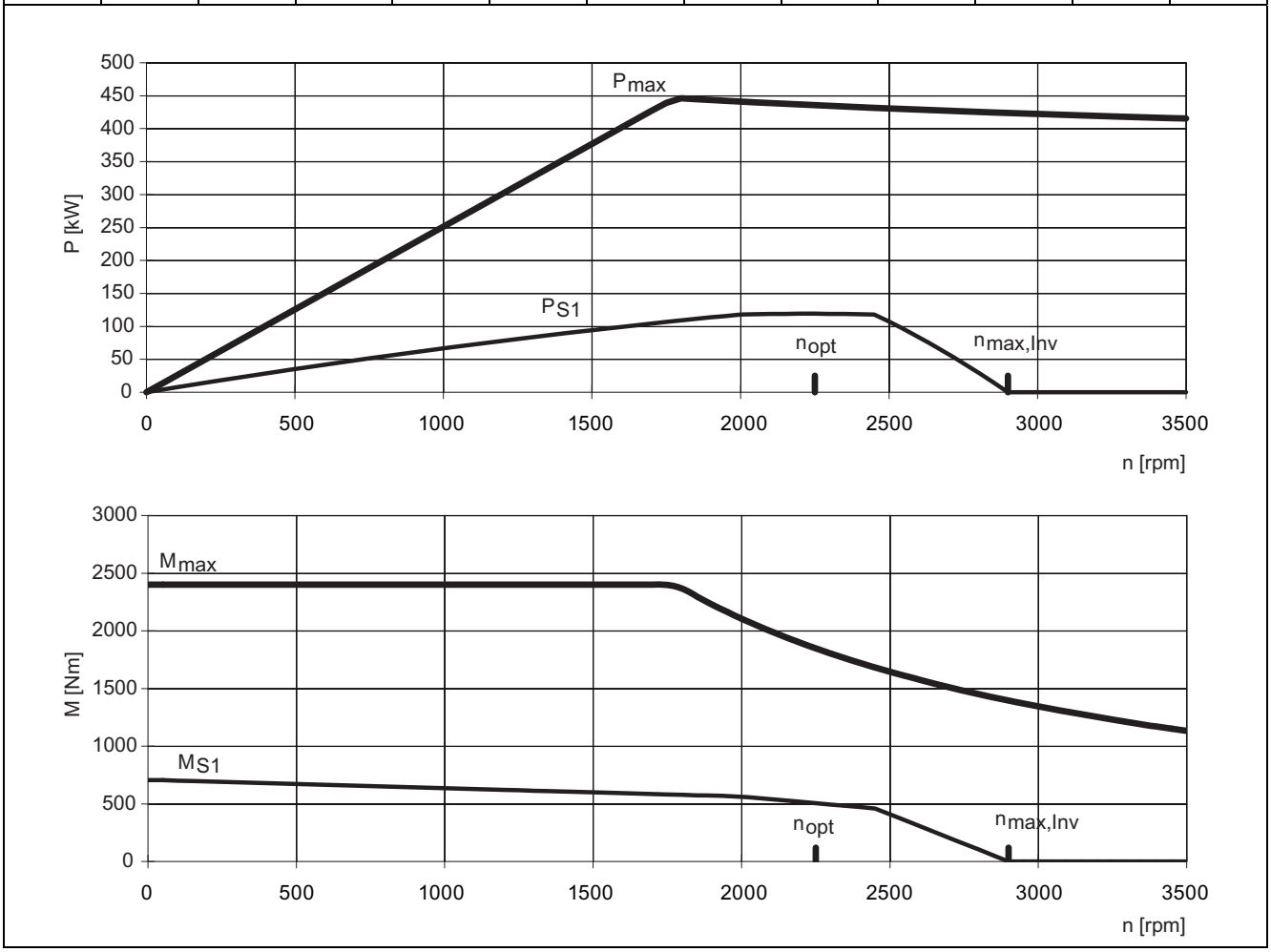


Table 4- 717 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	64	873	170	70	1000	3500	3100	1550	3200	640	944	183

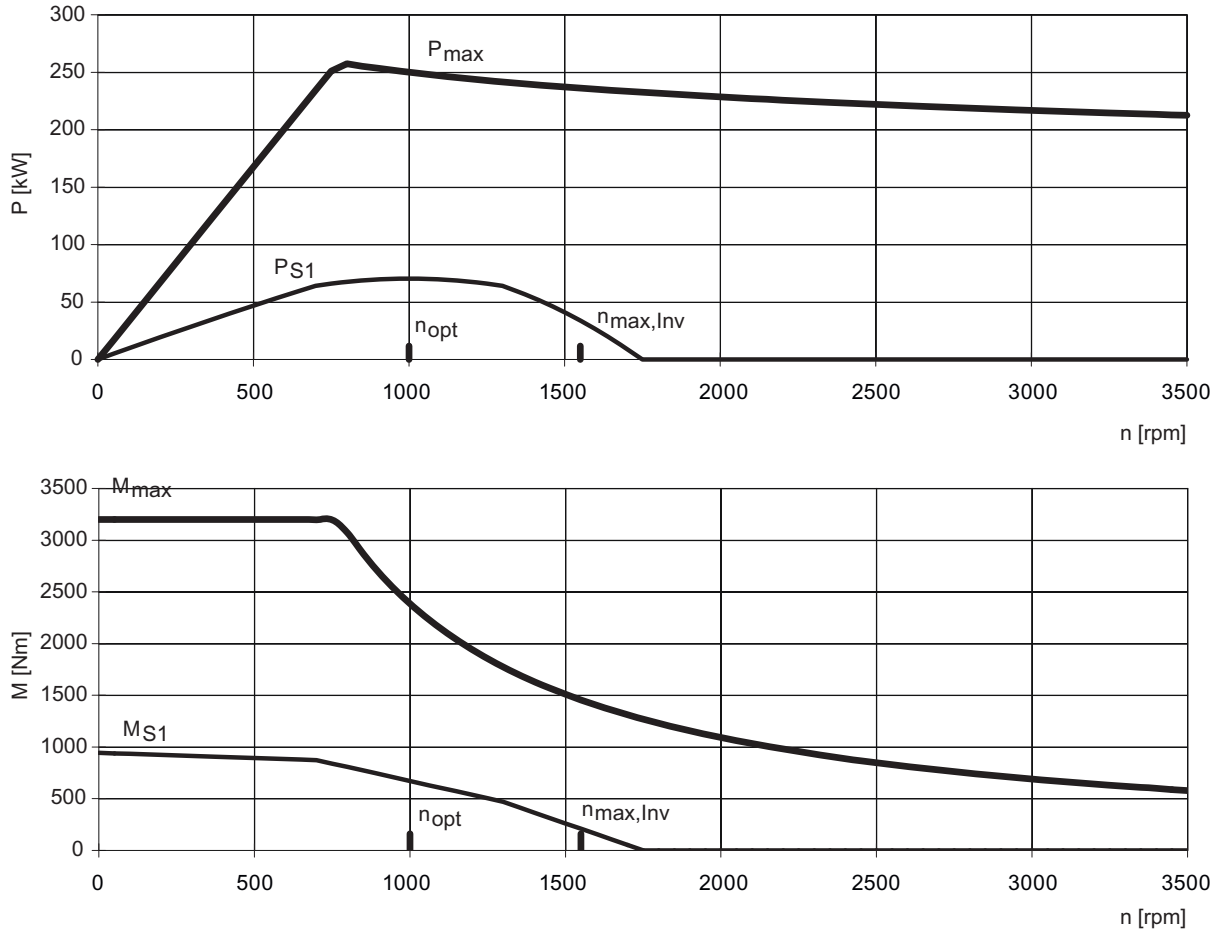
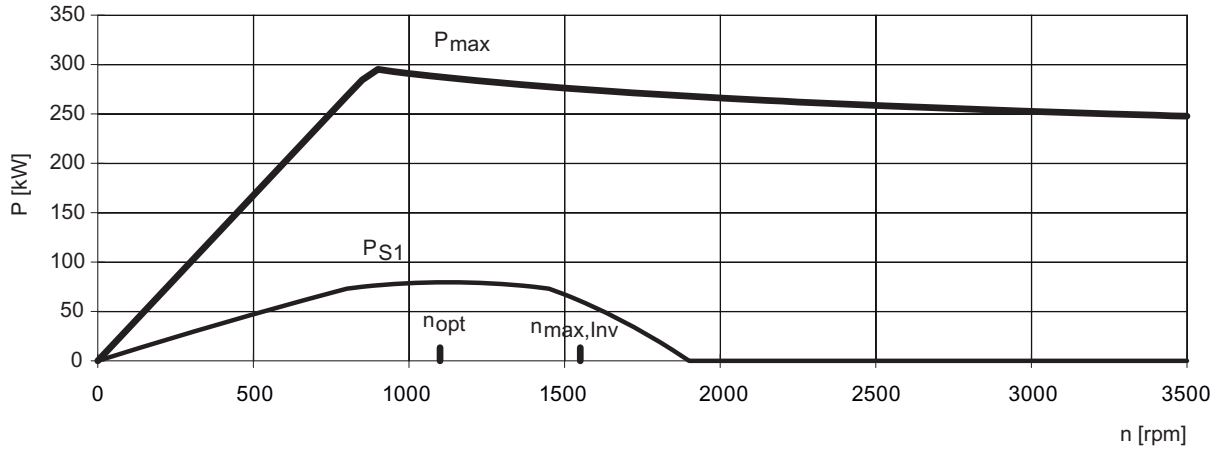


Table 4- 718 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	73	872	170	80	1100	3500	3100	1550	3200	640	944	183
700	64	873	170									



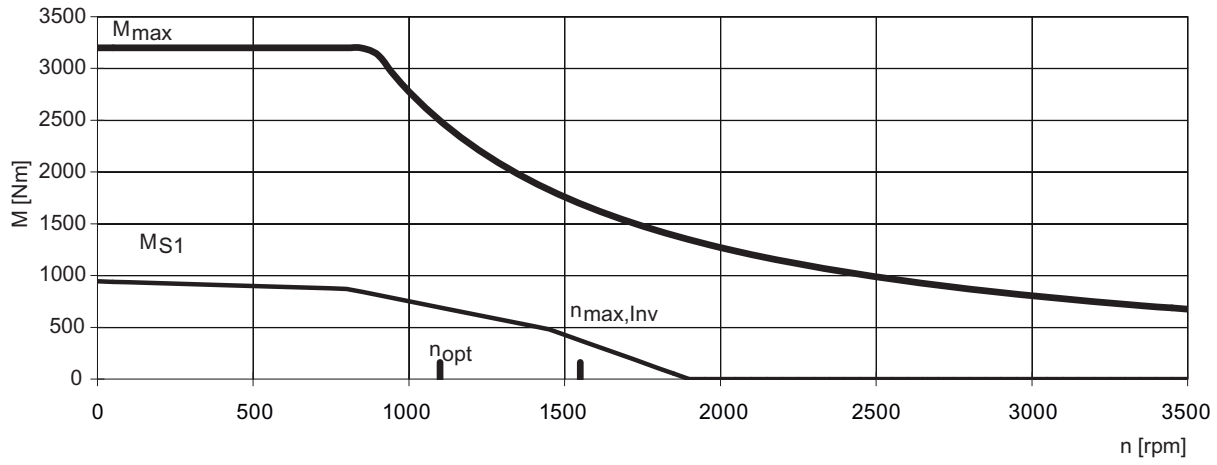


Table 4- 719 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	91	869	170	95	1300	3500	3100	1550	3200	640	944	183

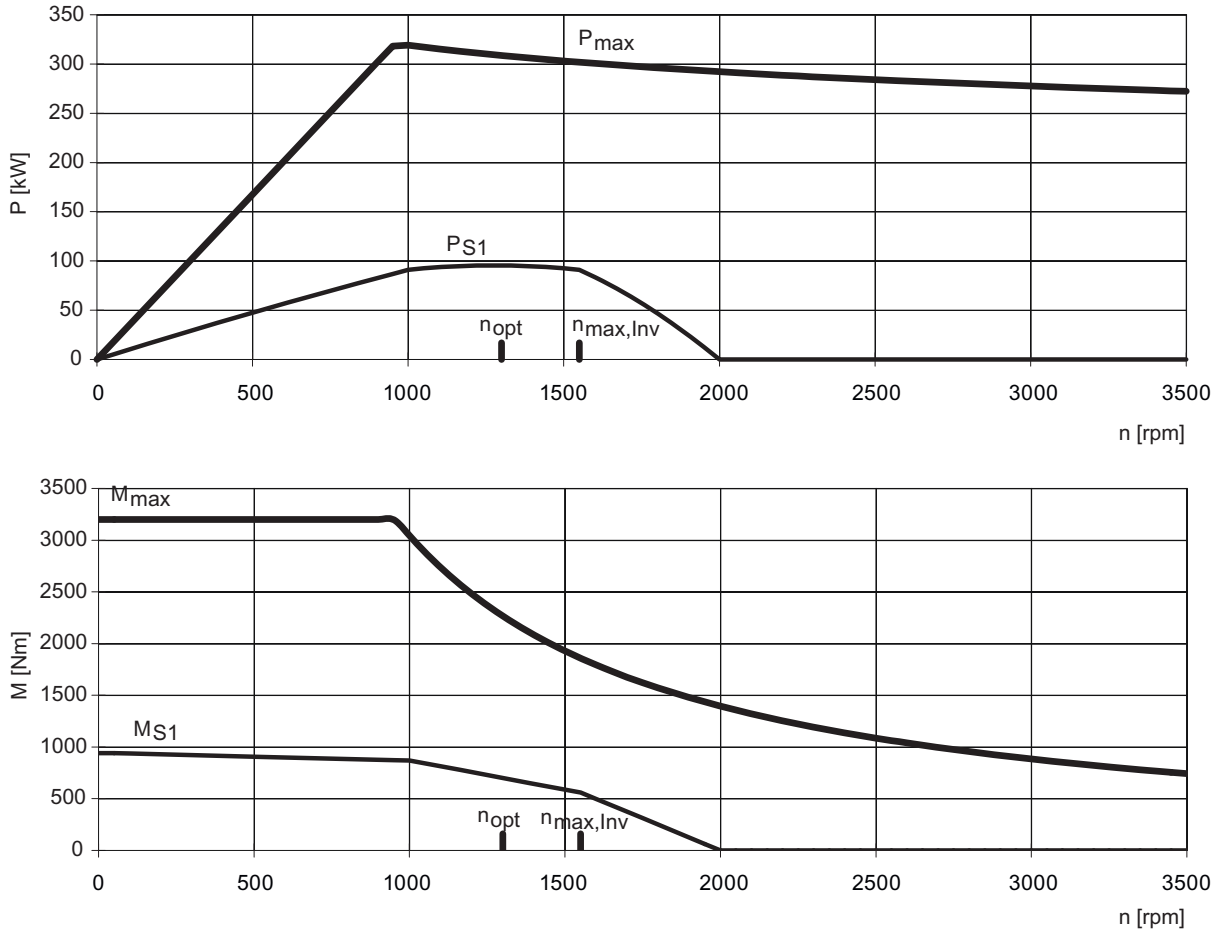


Table 4- 720 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	91	869	215	97	1350	3500	3100	1950	3200	820	944	233

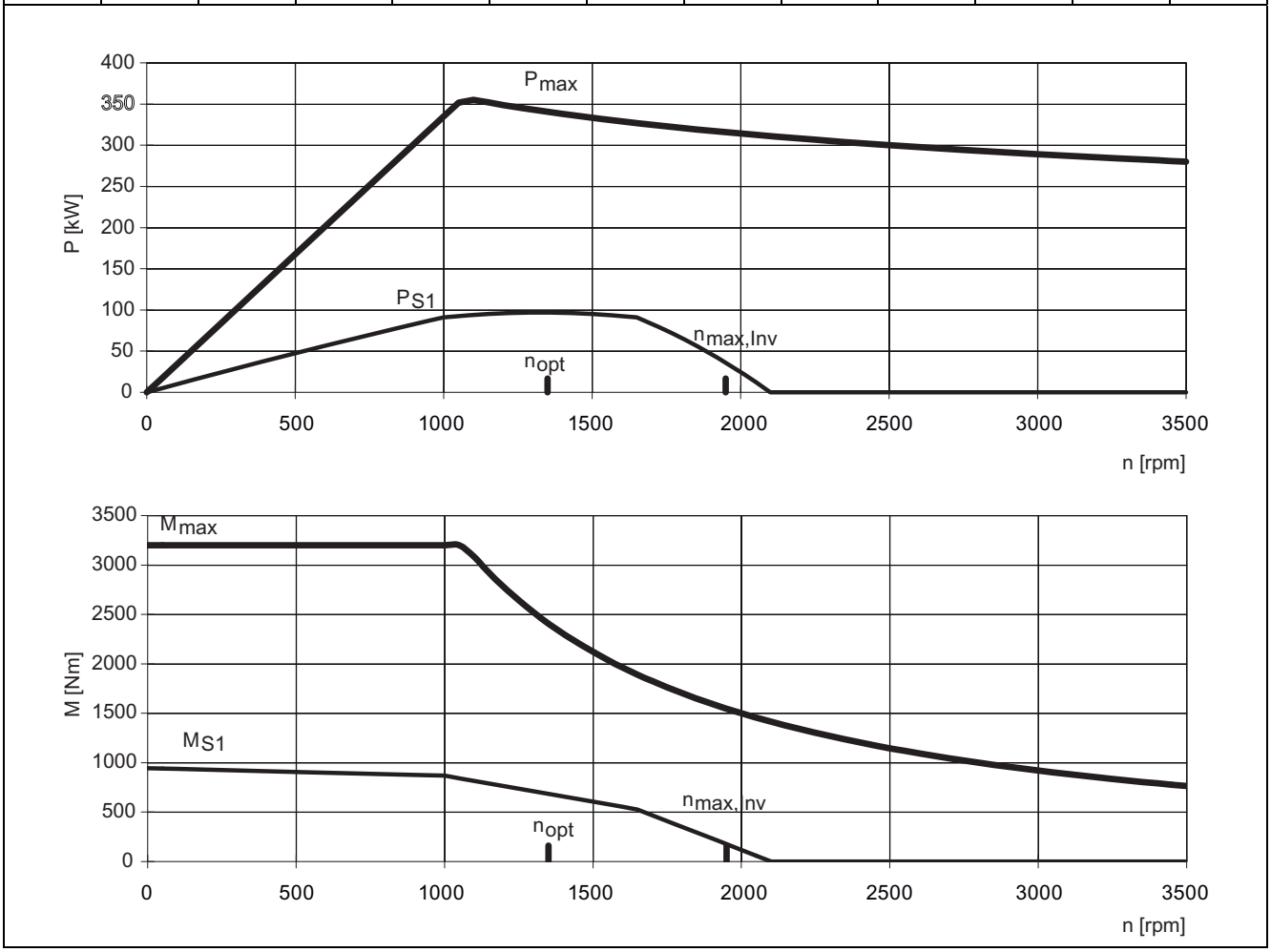
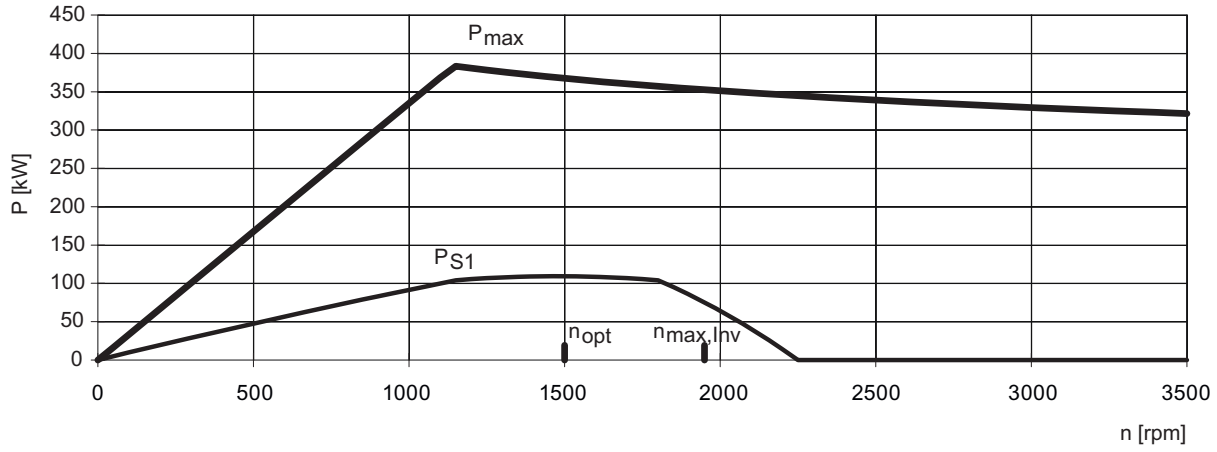


Table 4- 721 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	104	863	215	109	1500	3500	3100	1950	3200	820	944	233
1000	91	869	215									



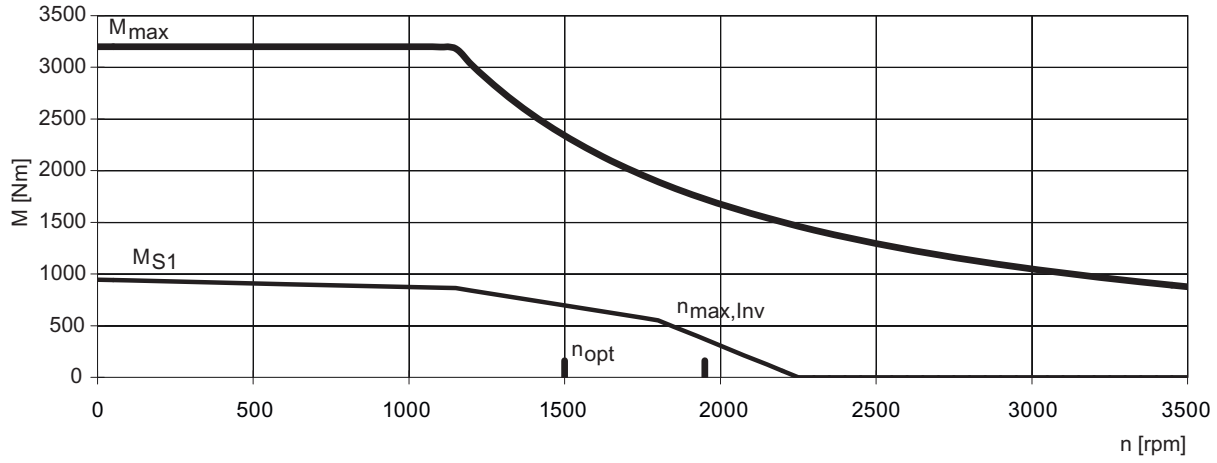


Table 4- 722 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	121	855	215	124	1650	3500	3100	1950	3200	820	944	233

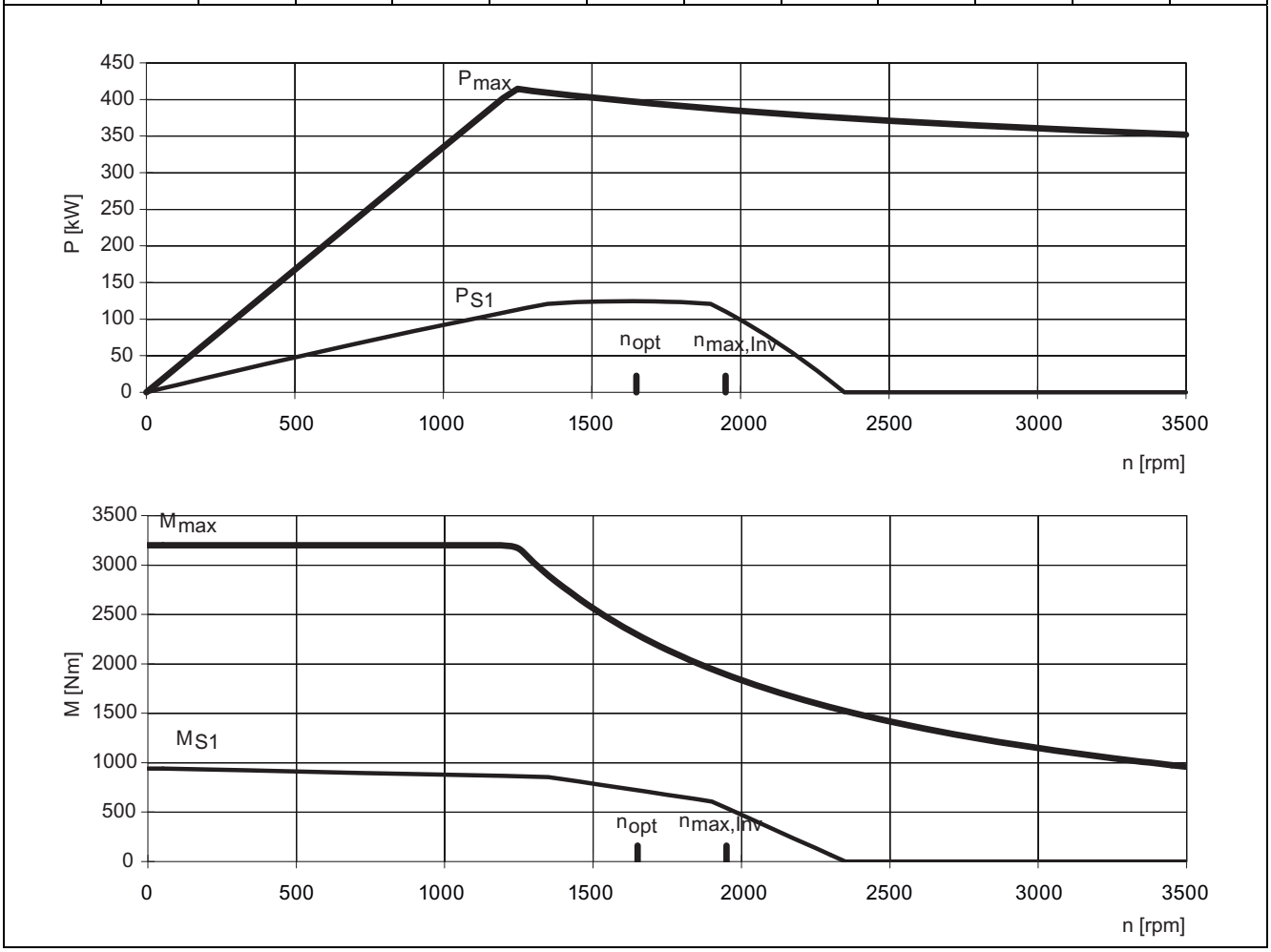


Table 4- 723 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	134	853	295	138	1800	3500	3100	2700	3200	1120	944	320

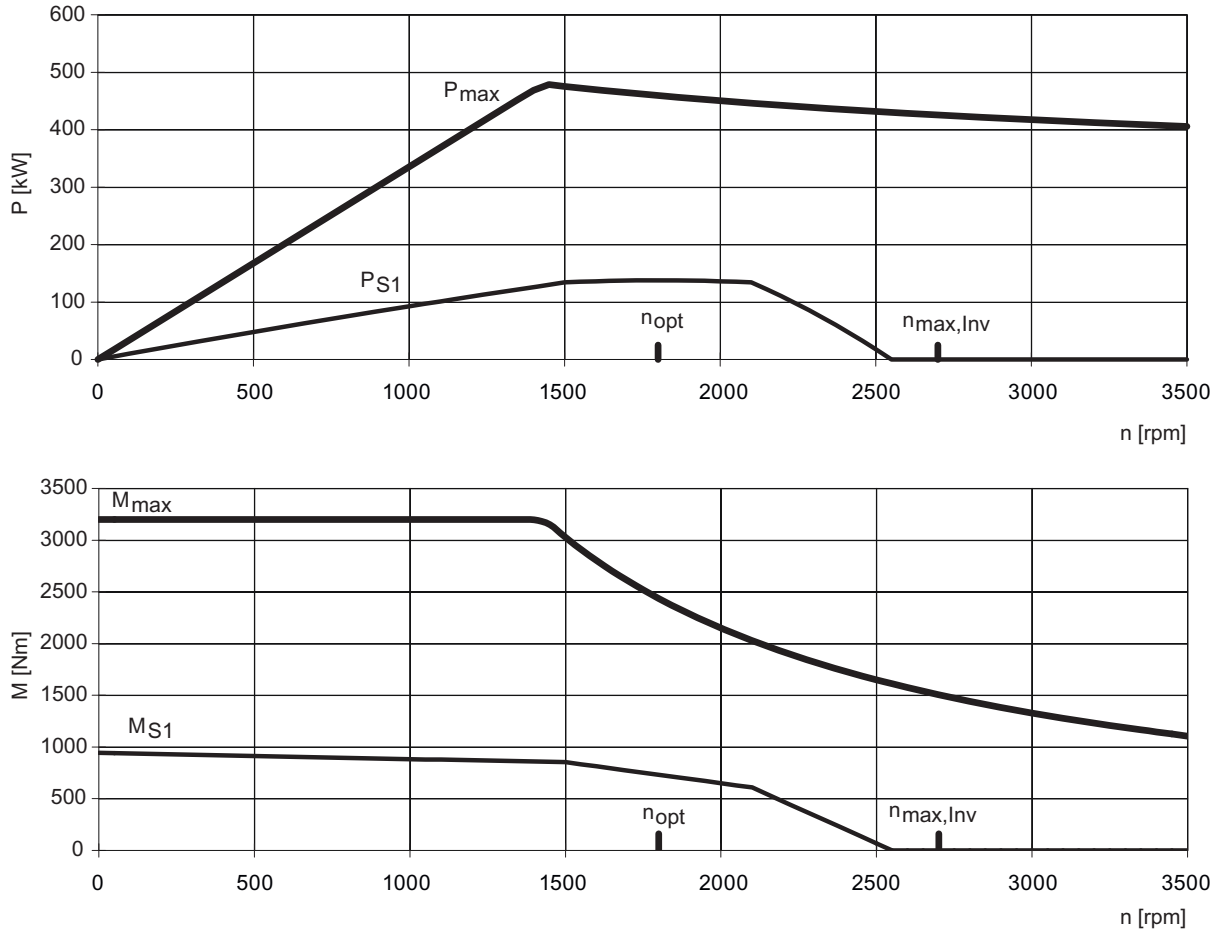
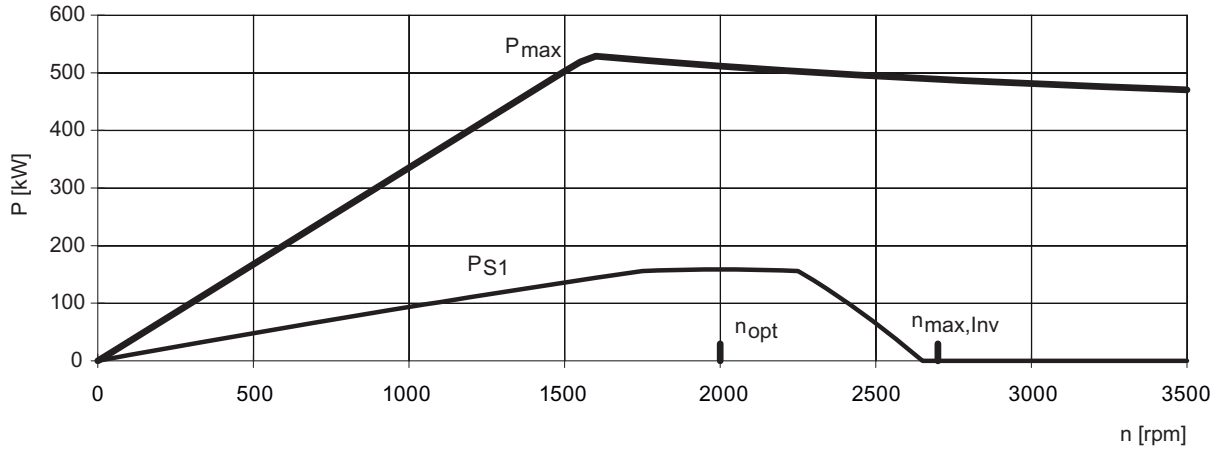


Table 4- 724 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	156	851	295	158	2000	3500	3100	2700	3200	1120	944	320
1500	134	853	295									



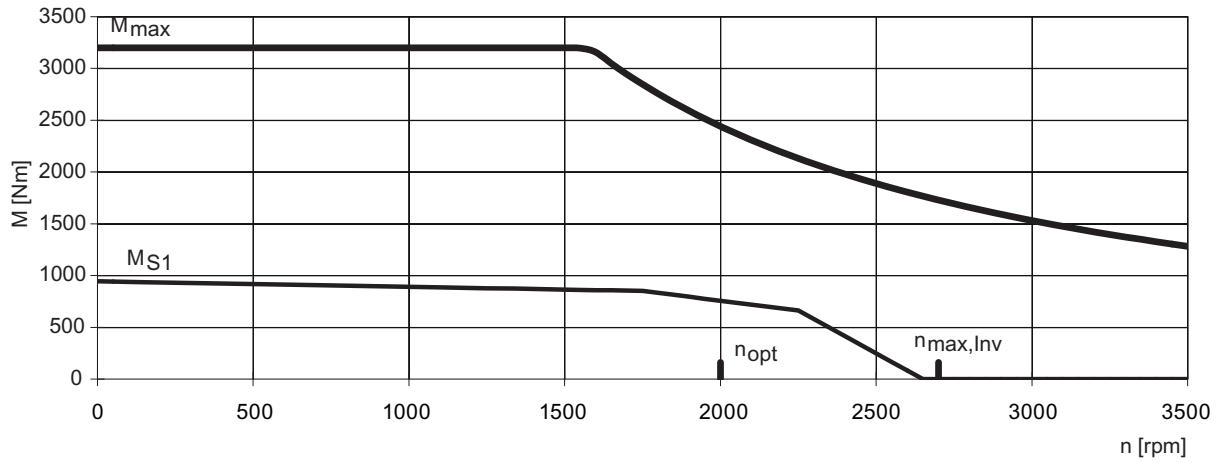


Table 4- 725 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	157	750	260	158	2200	3500	3100	2700	3200	1120	944	320

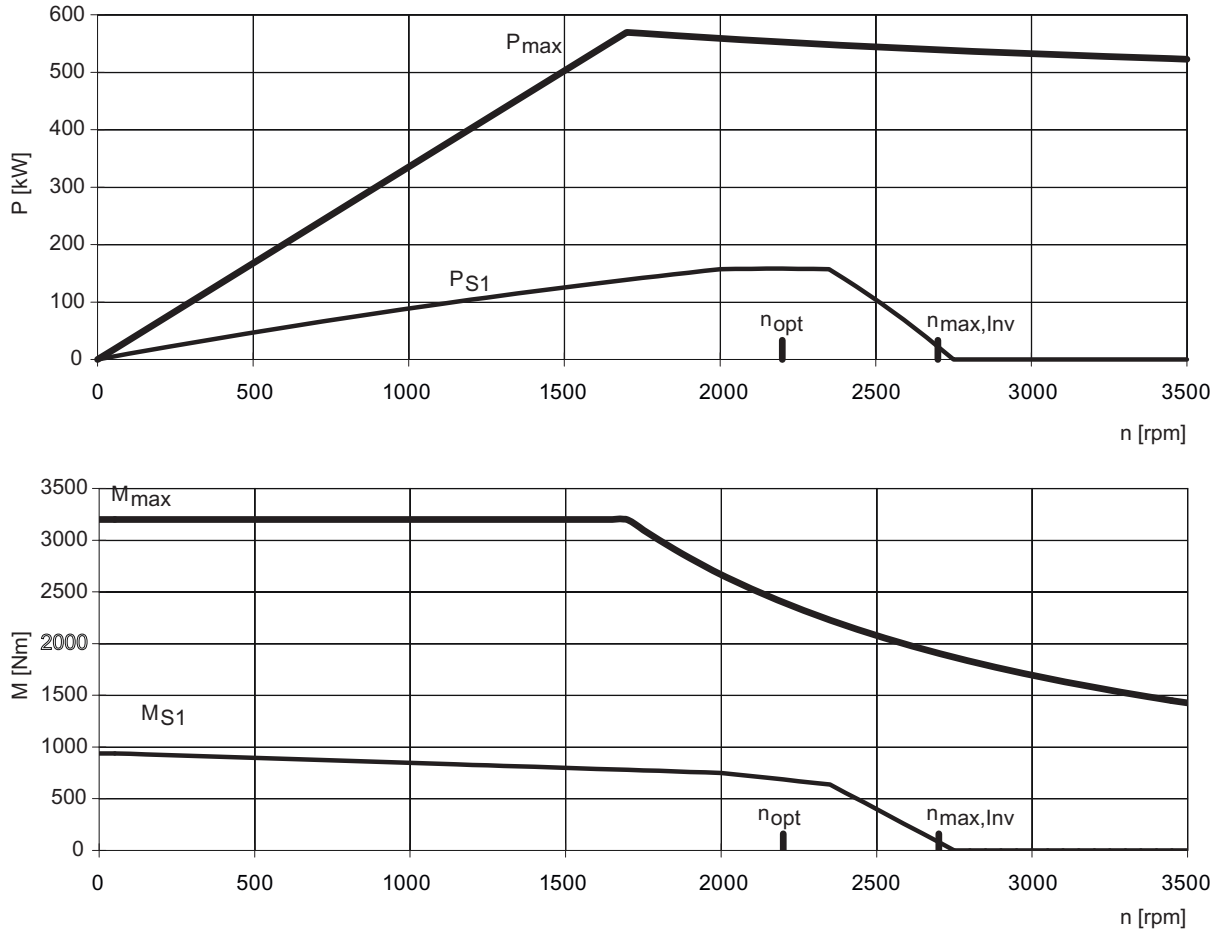


Table 4- 726 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	80	1092	200	86	950	3500	3100	1450	4000	750	1180	213

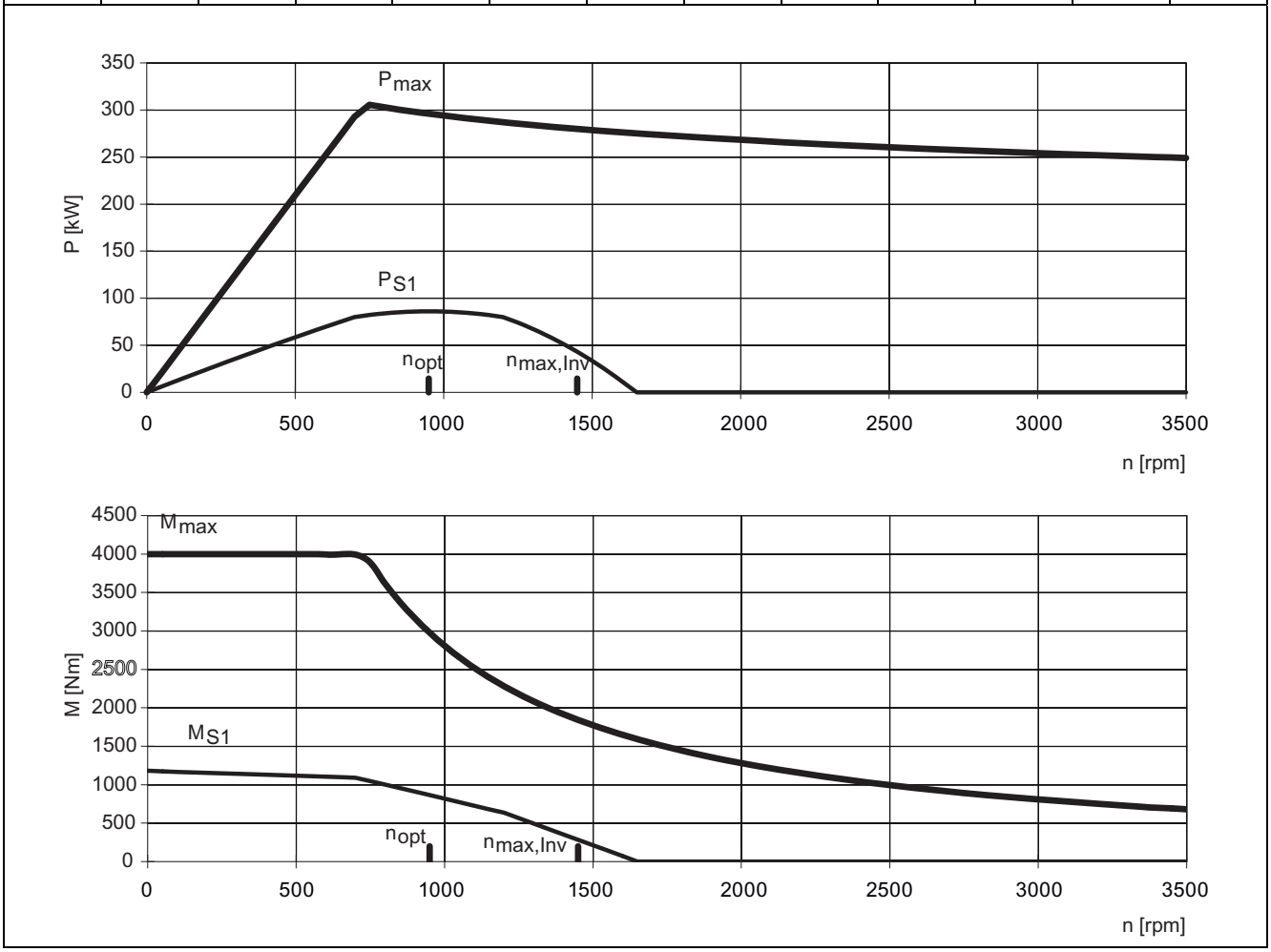
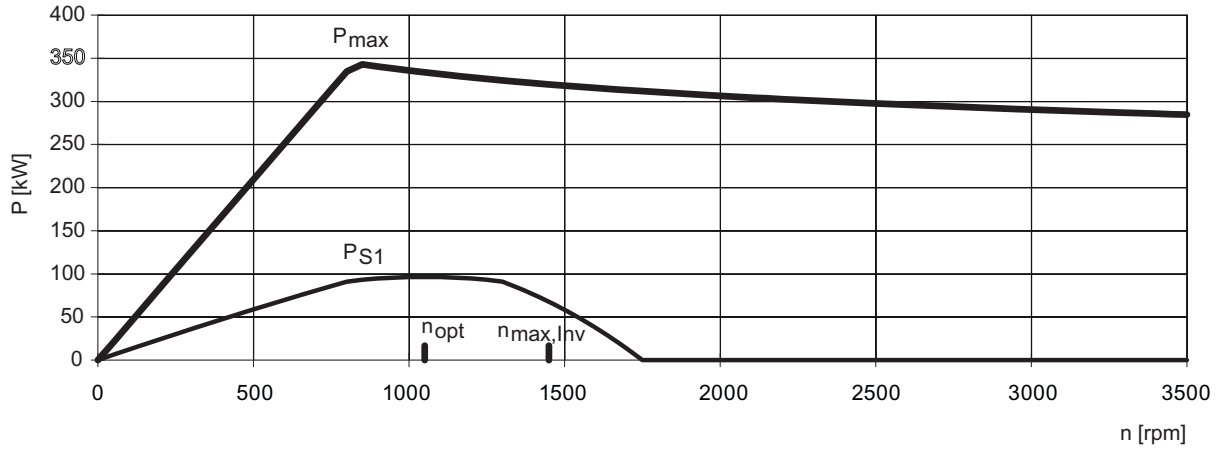


Table 4- 727 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	91	1086	198	96	1050	3500	3100	1450	4000	750	1180	213
700	80	1092	200									



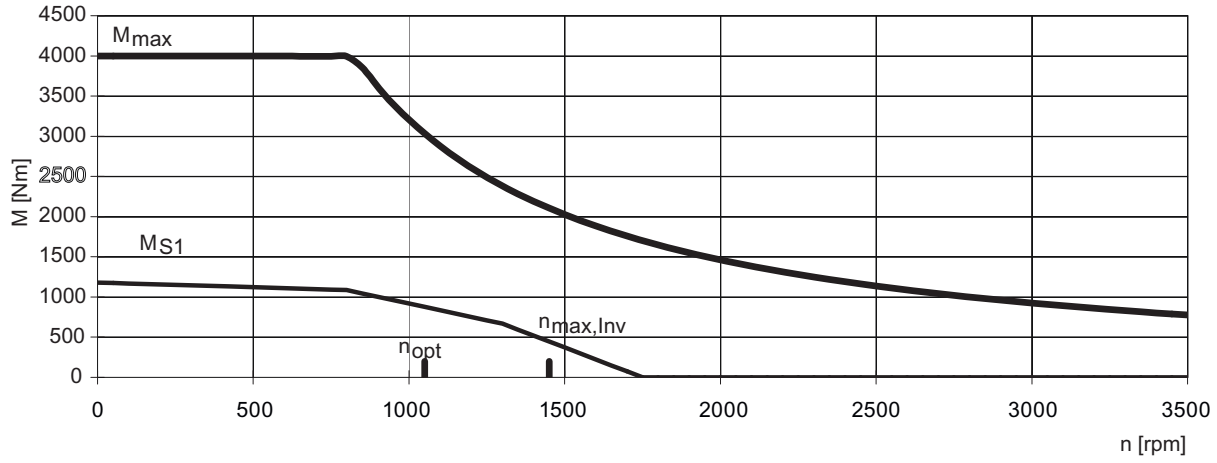


Table 4- 728 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□C□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	113	1079	198	116	1200	3500	3100	1450	4000	750	1180	213

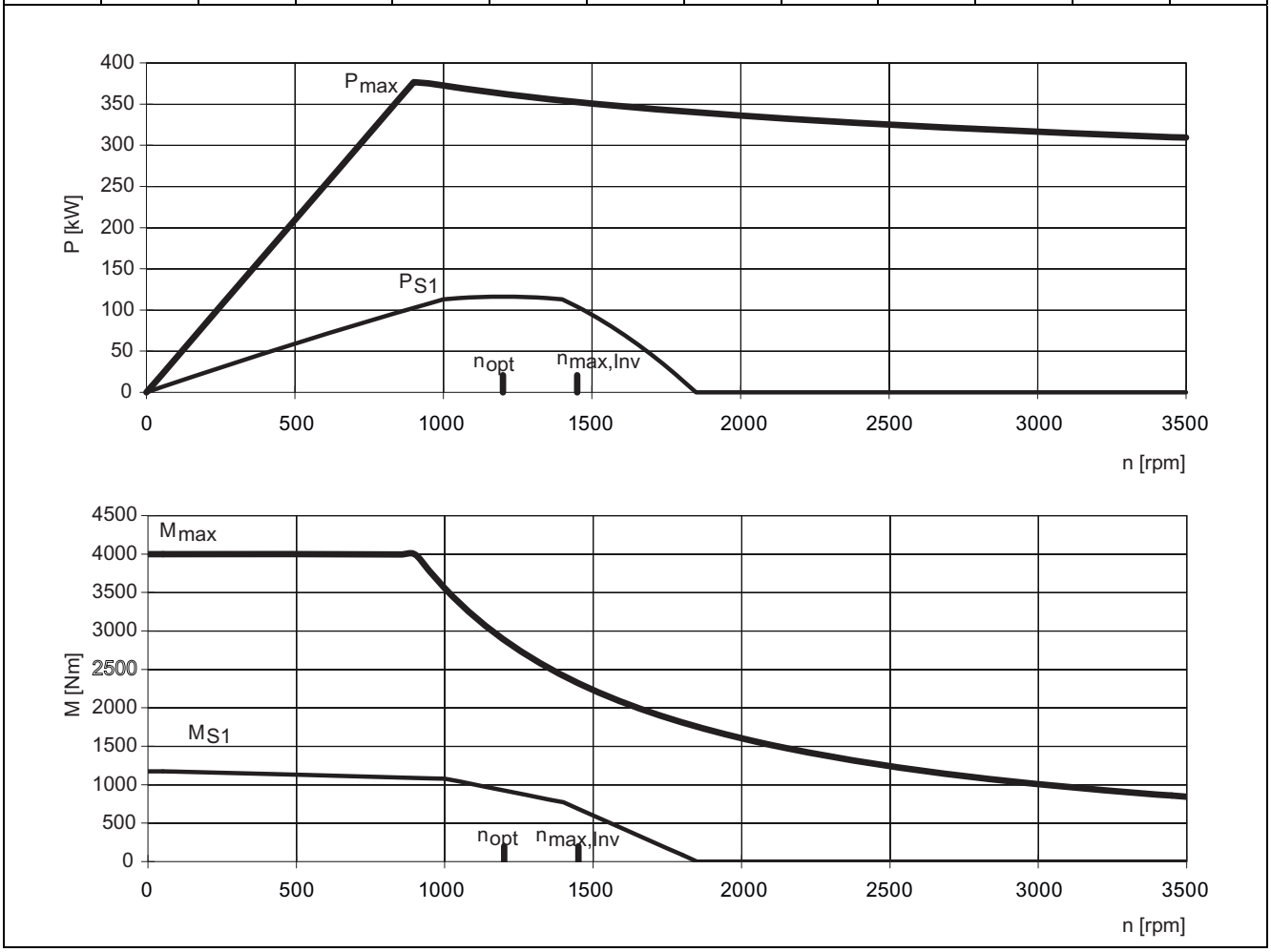


Table 4- 729 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	113	1079	265	119	1300	3500	3100	1950	4000	1000	1180	284

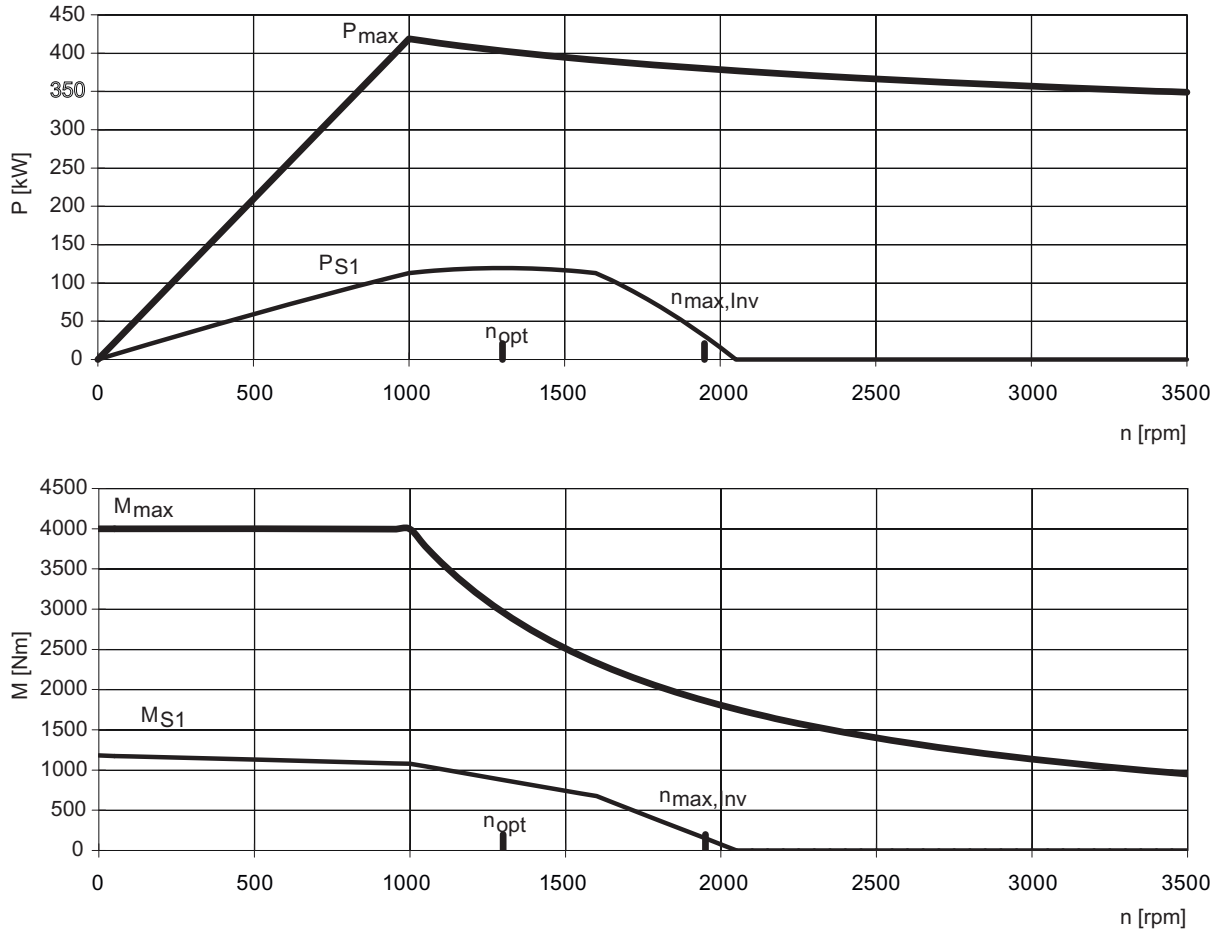
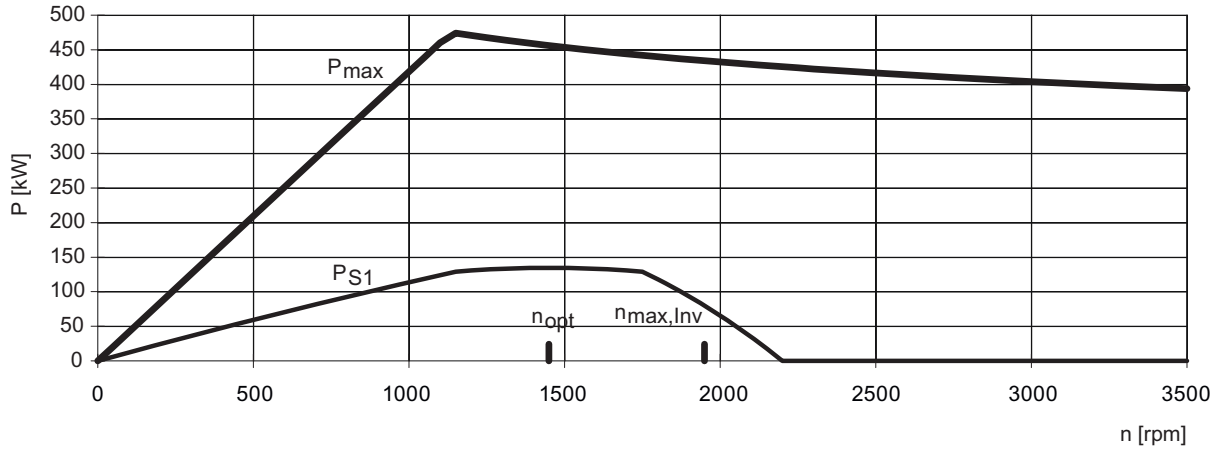


Table 4- 730 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	129	1071	260	135	1450	3500	3100	1950	4000	1000	1180	284
1000	113	1079	265									



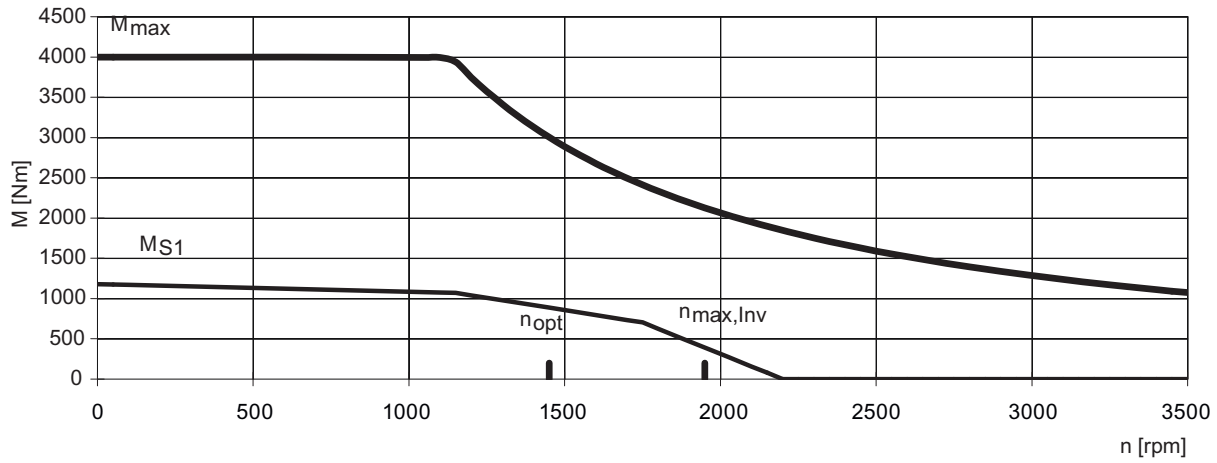
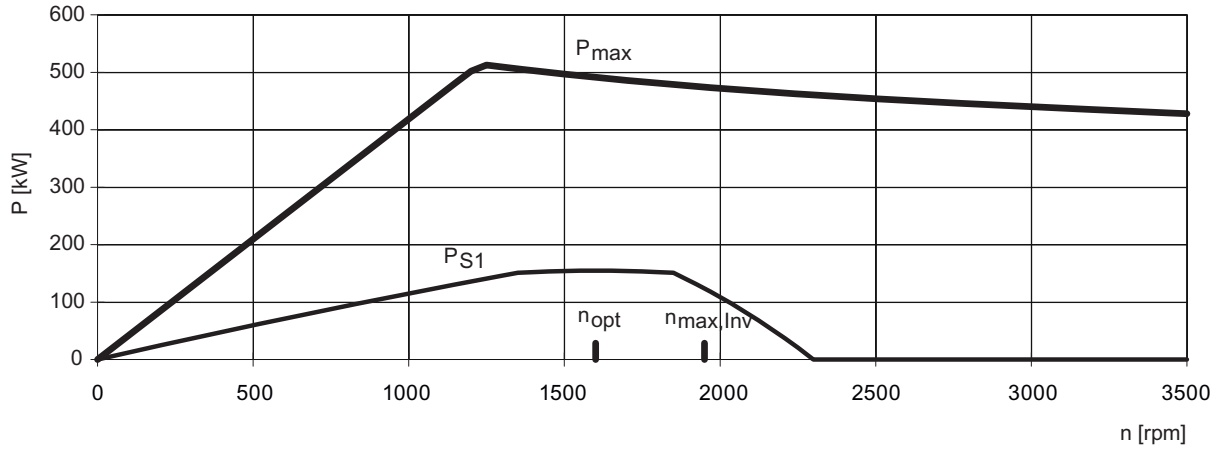


Table 4- 731 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□D□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	151	1068	260	155	1600	3500	3100	1950	4000	1000	1180	284



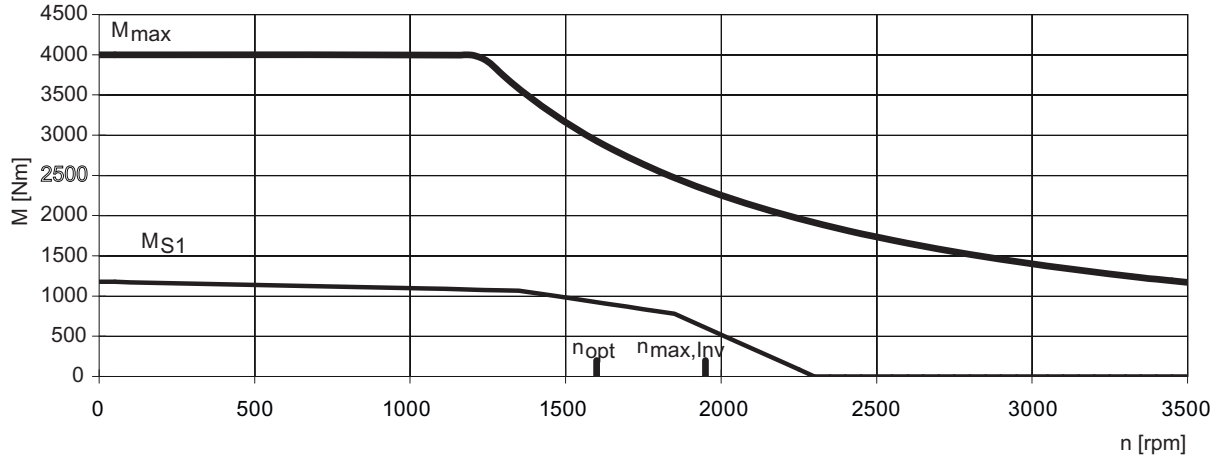


Table 4- 732 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	168	1070	395	174	1850	3500	3100	2900	4000	1500	1180	427

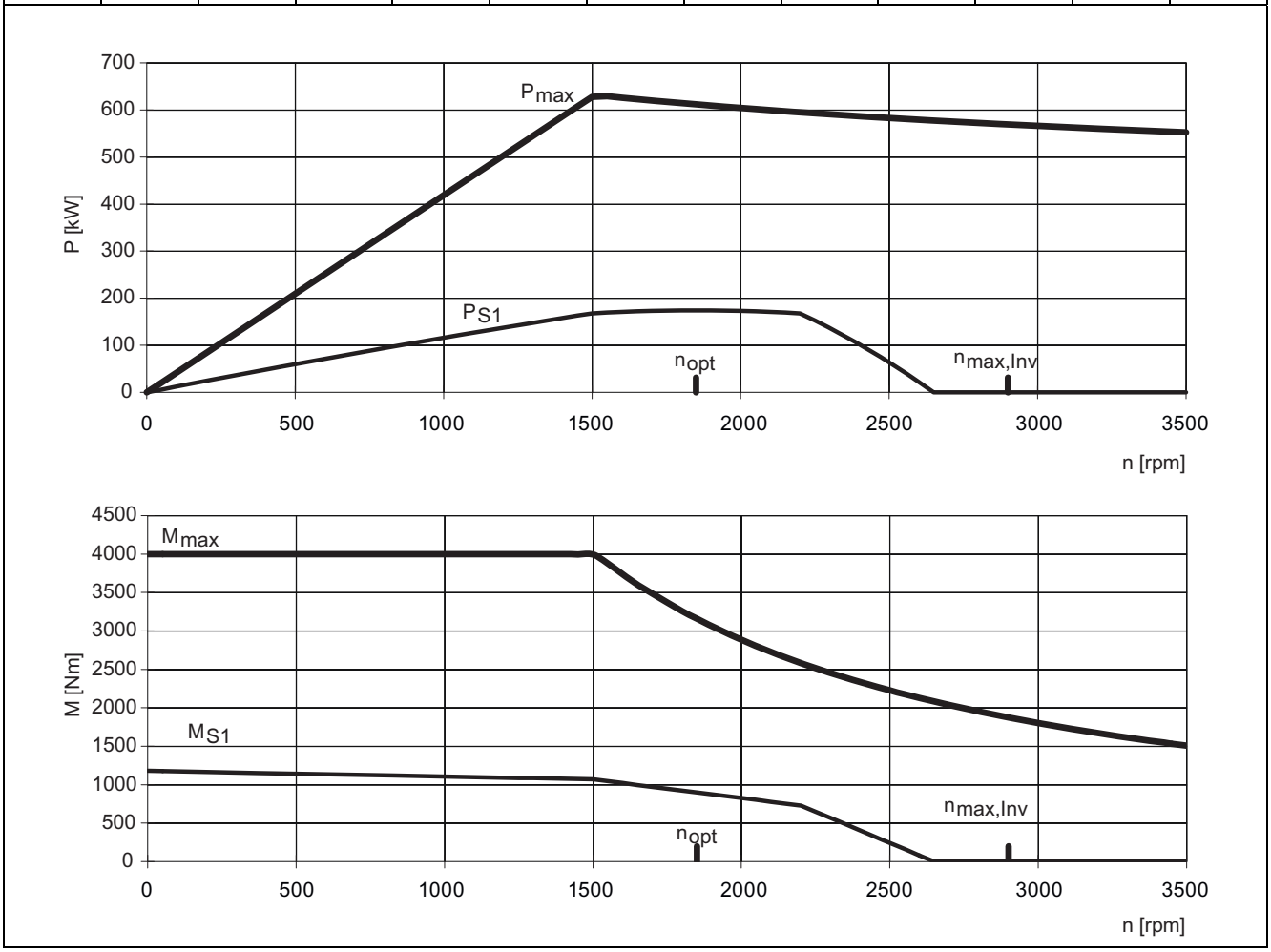
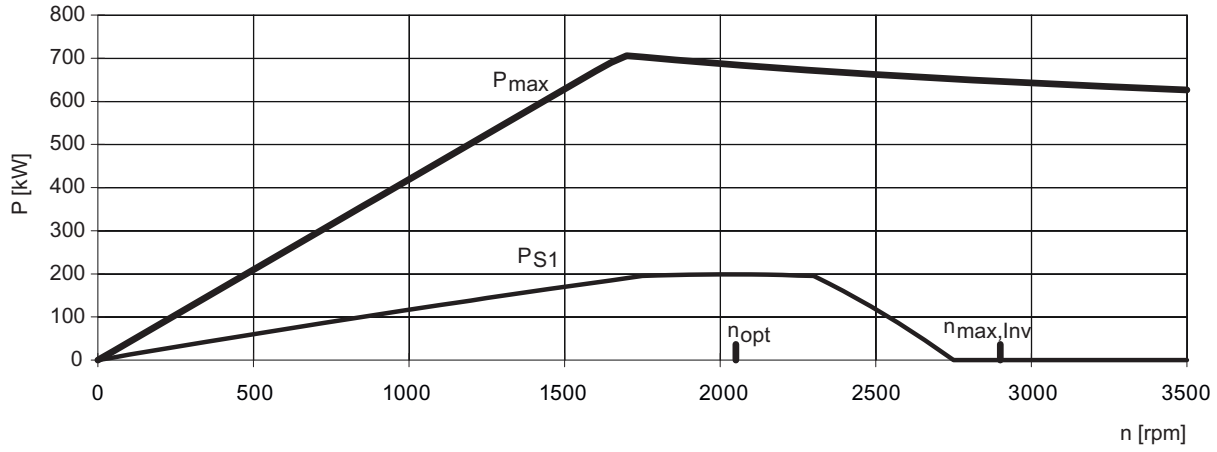


Table 4- 733 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	195	1064	390	199	2050	3500	3100	2900	4000	1500	1180	427
1500	168	1070	395									



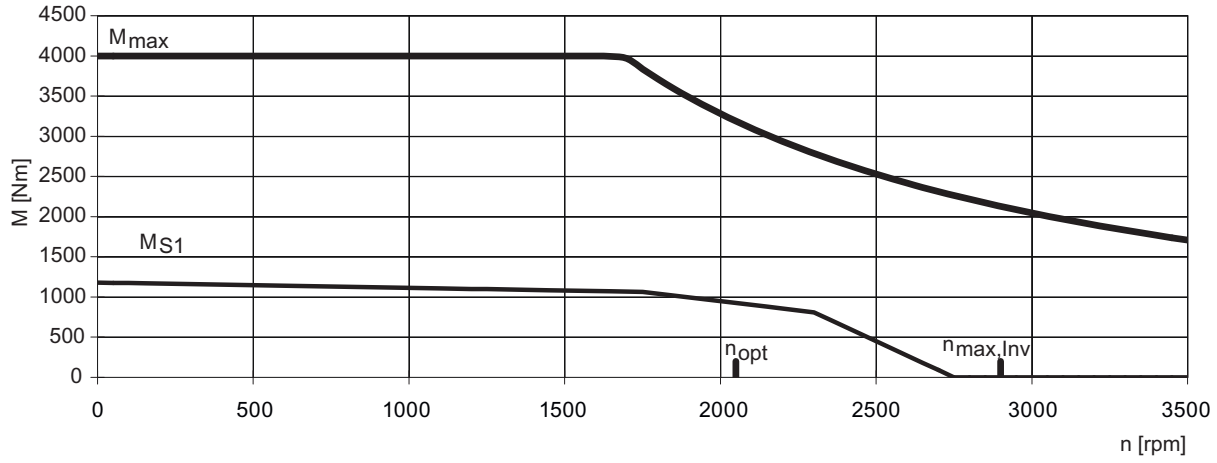
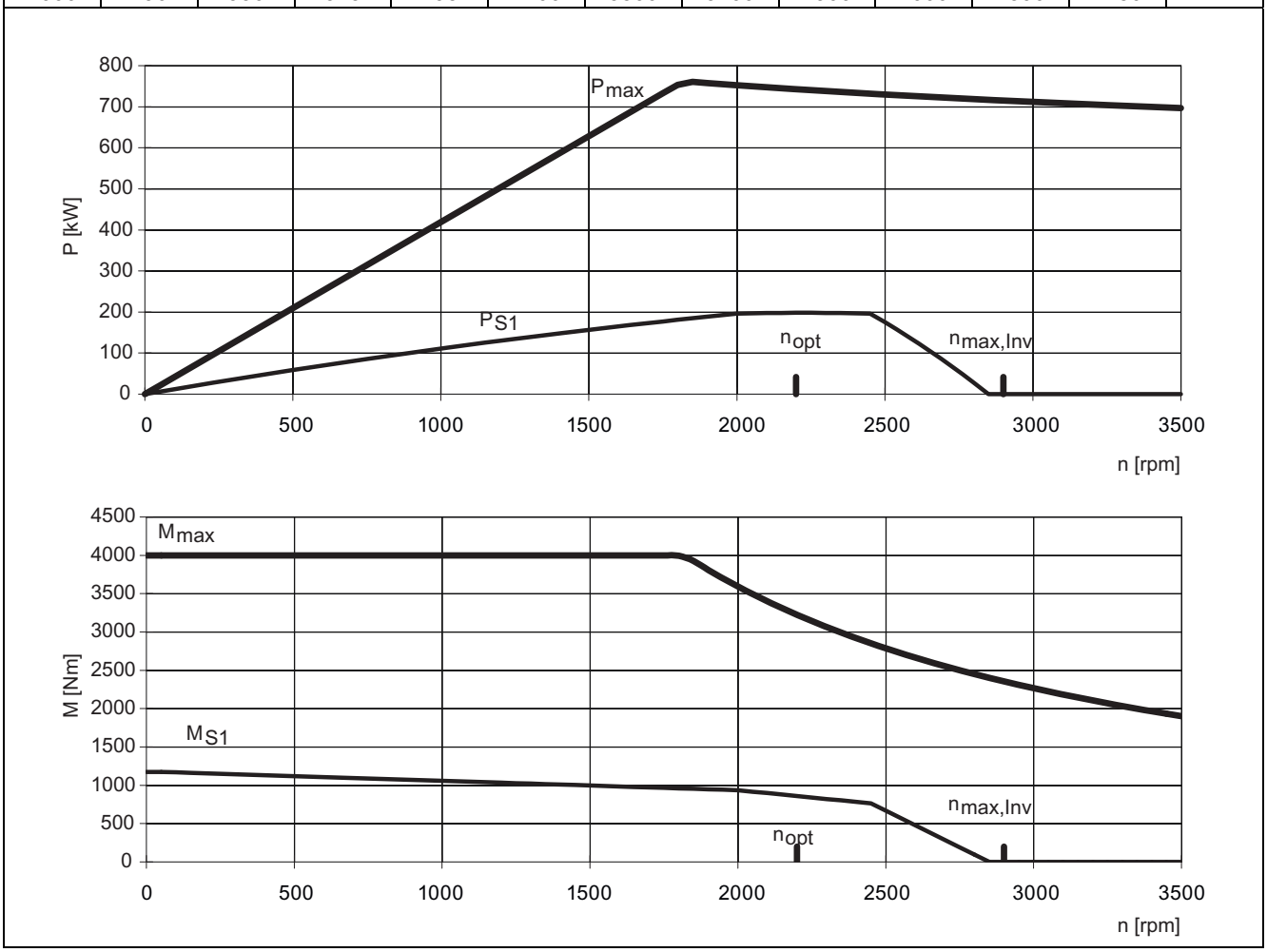


Table 4- 734 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□F□□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	196	936	345	198	2200	3500	3100	2900	4000	1500	1180	427



4.2.3 Characteristics water cooling

4.2.3.1 Shaft height 132 - water-cooled

Table 4- 735 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	17,6	112	40	23	2500	4500	4500	3150	220	90	115	41

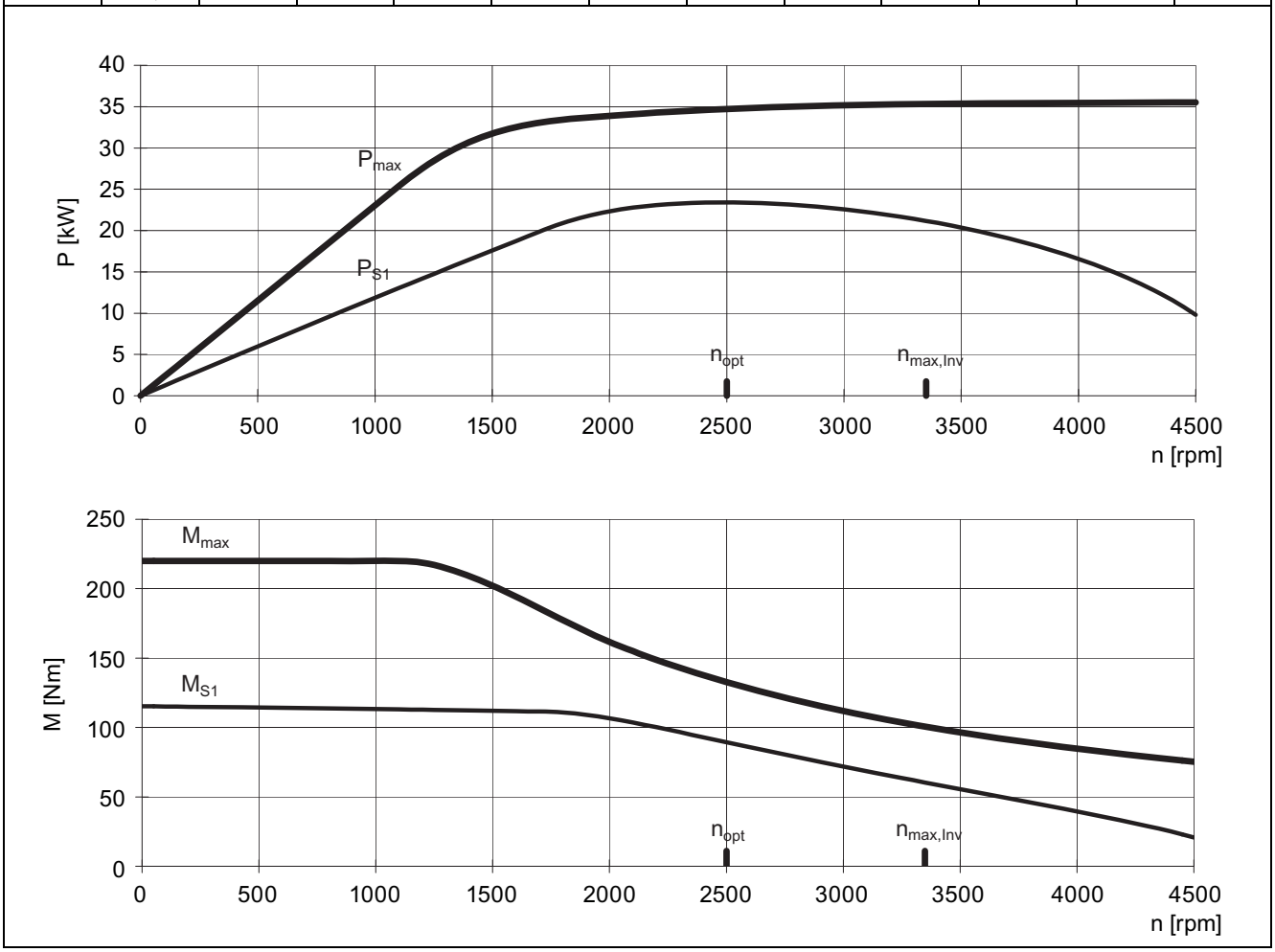
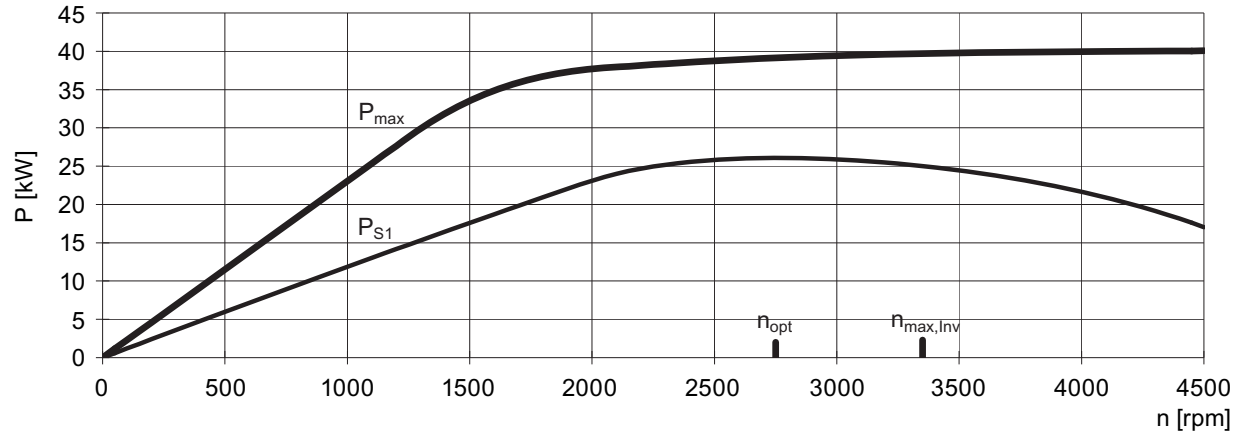


Table 4- 736 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	20,4	112	40	26	2750	4500	4500	3150	220	90	115	41
1500	17,6	112	40									



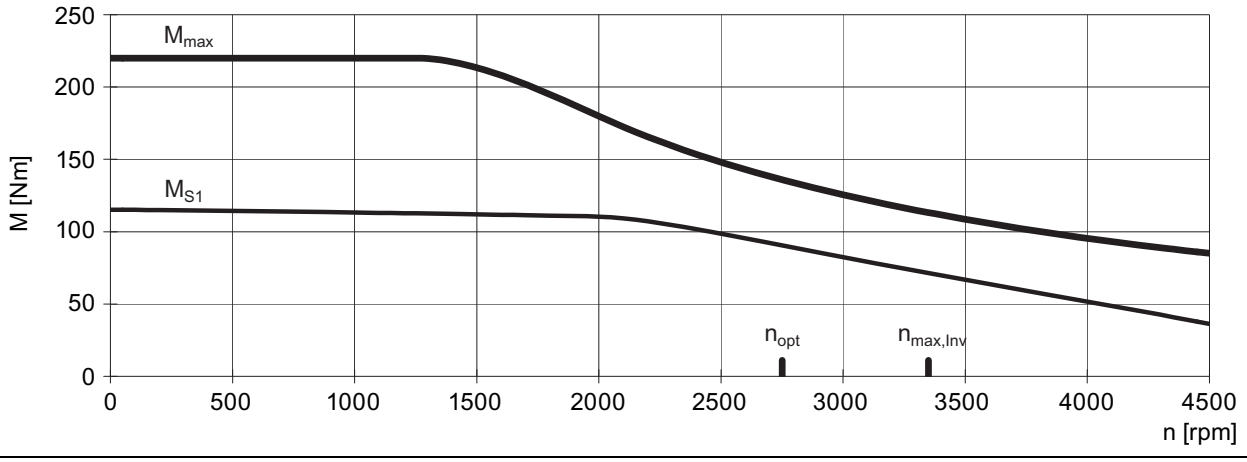
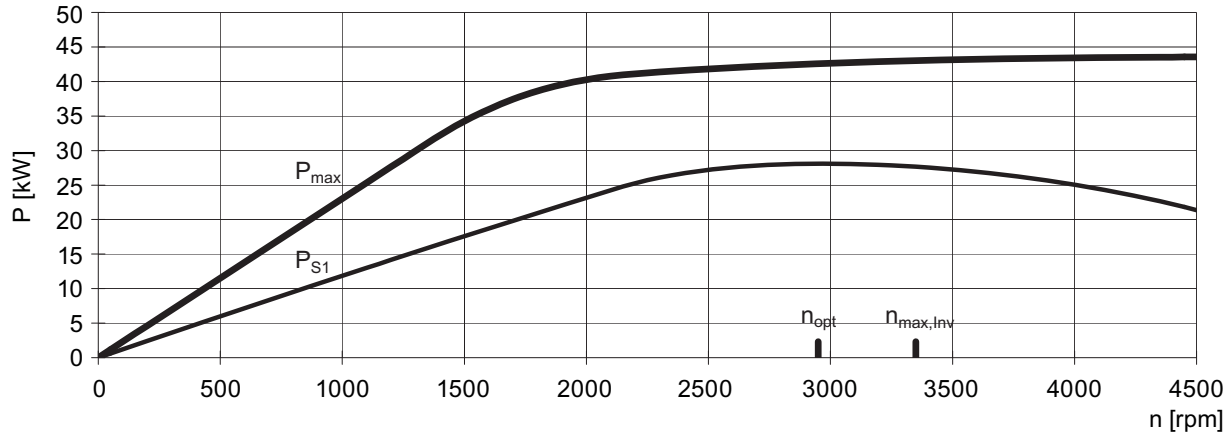


Table 4- 737 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	23,2	111	39	28	2950	4500	4500	3150	220	90	115	41



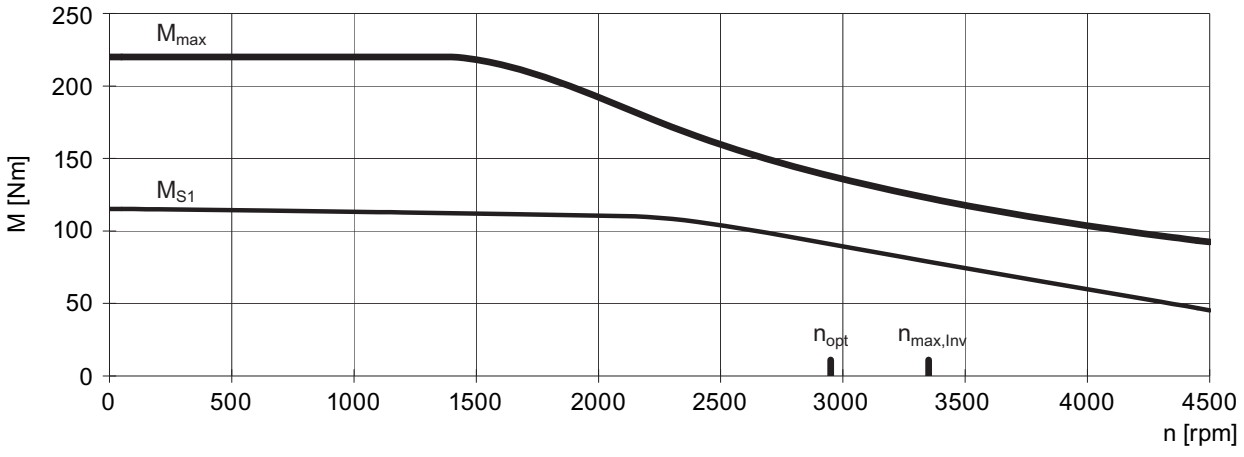


Table 4- 738 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	28,5	109	57	34	3550	4500	4500	> 4500	220	133	115	60

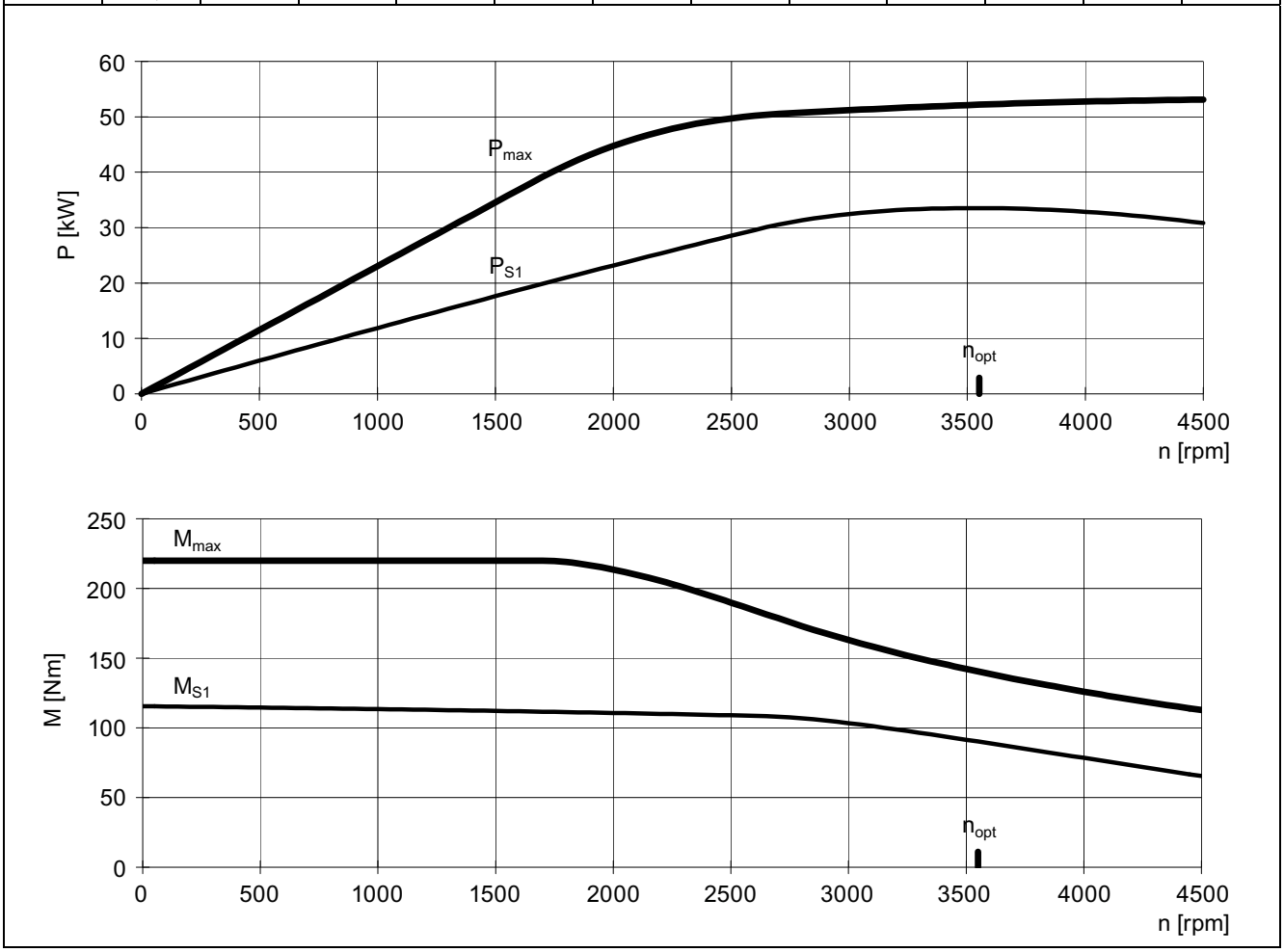


Table 4- 739 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	31,7	108	56	37	3900	4500	4500	> 4500	220	133	115	60
2500	28,5	109	57									

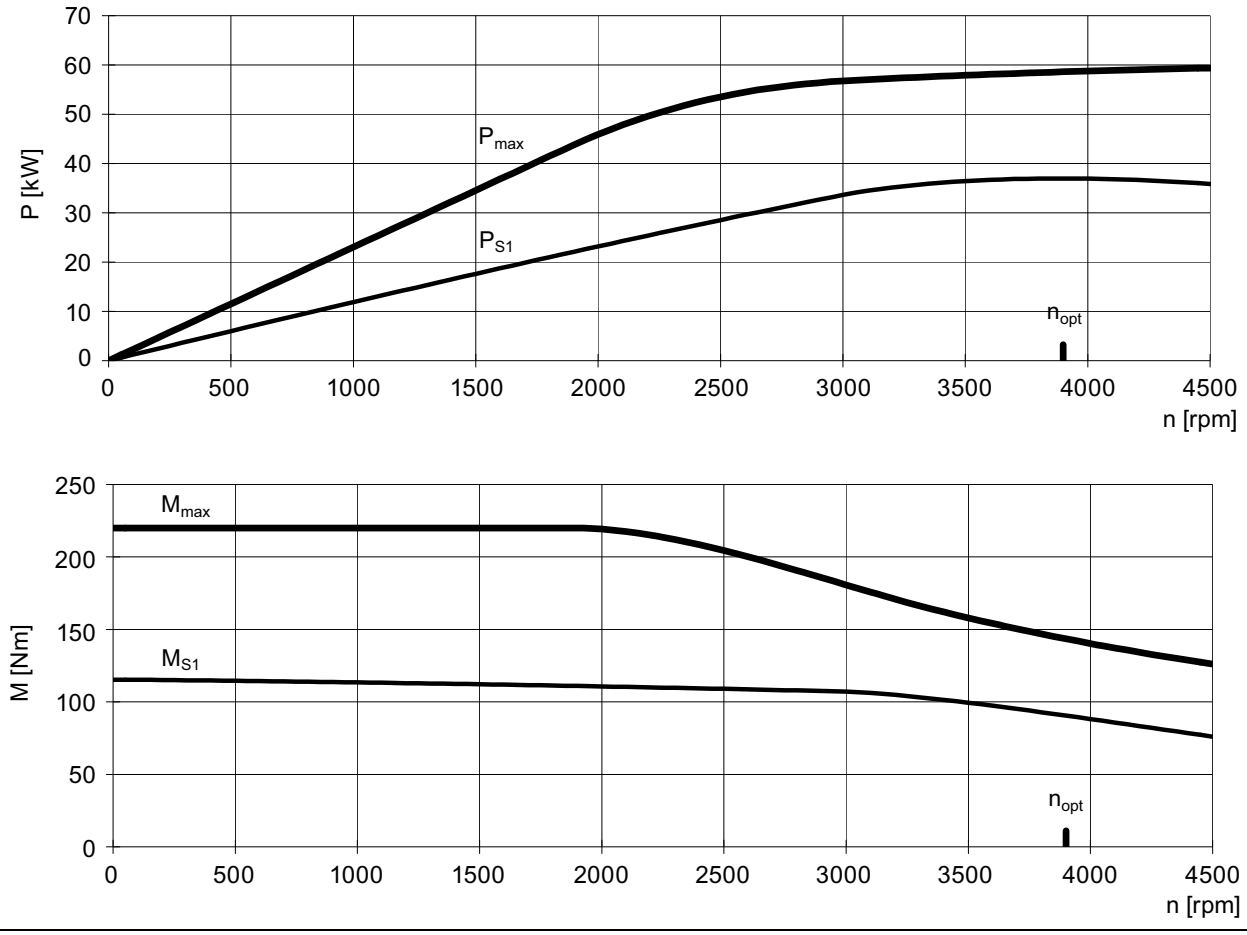


Table 4- 740 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	33,6	107	56	39	4150	4500	4500	> 4500	220	133	115	60

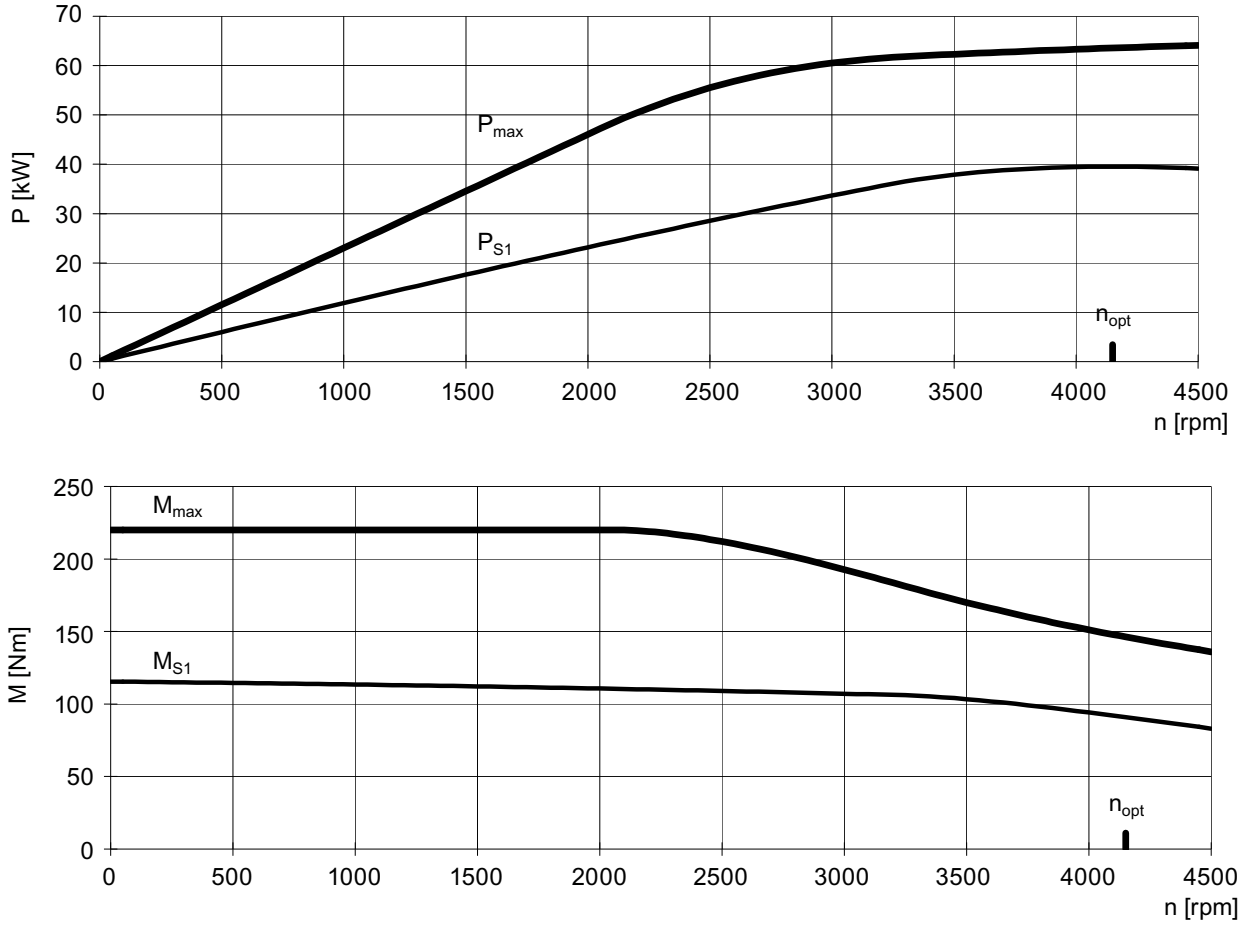


Table 4- 741 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	23,1	147	42	25	2000	4500	4500	2450	310	100	155	43

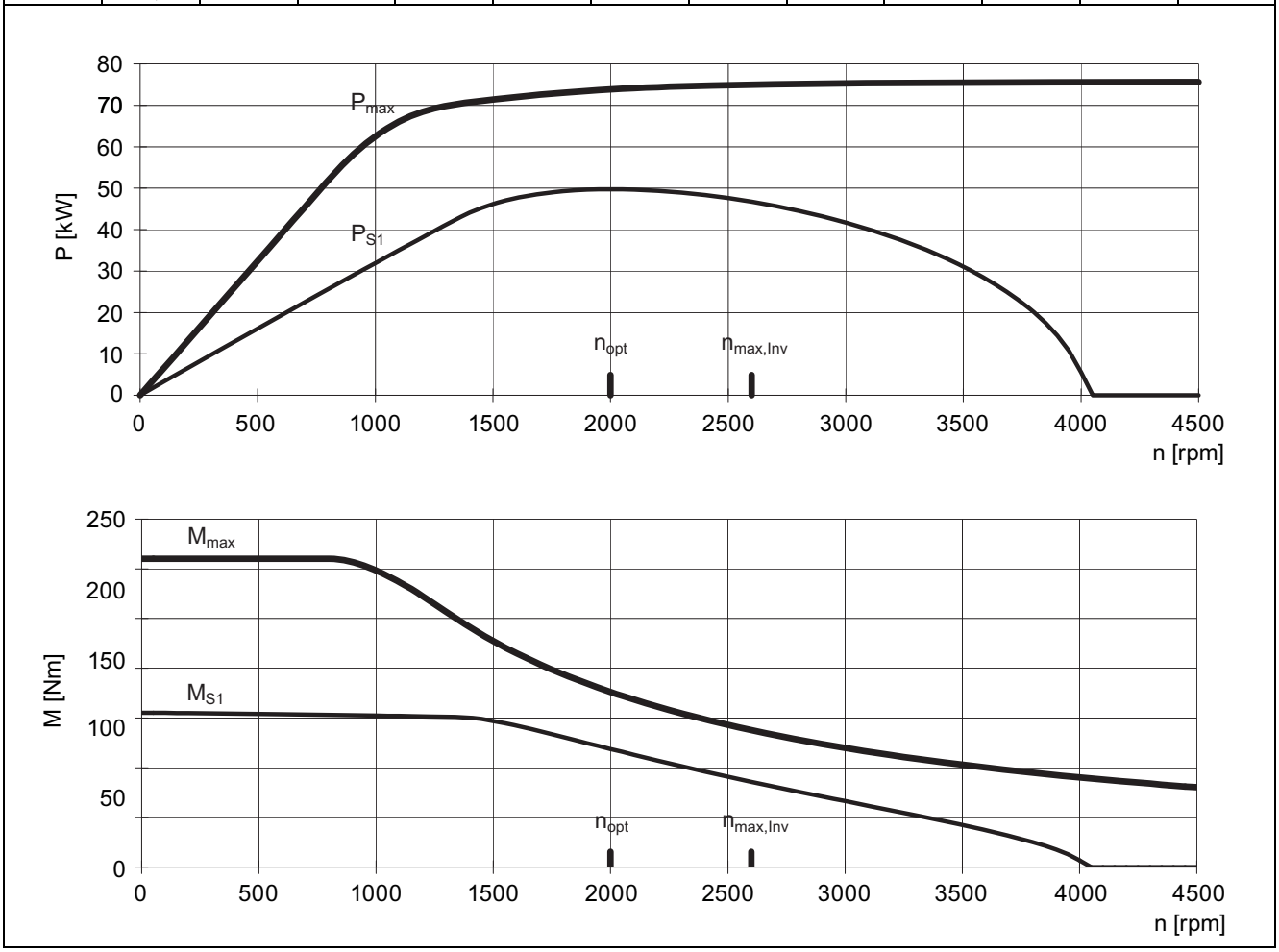
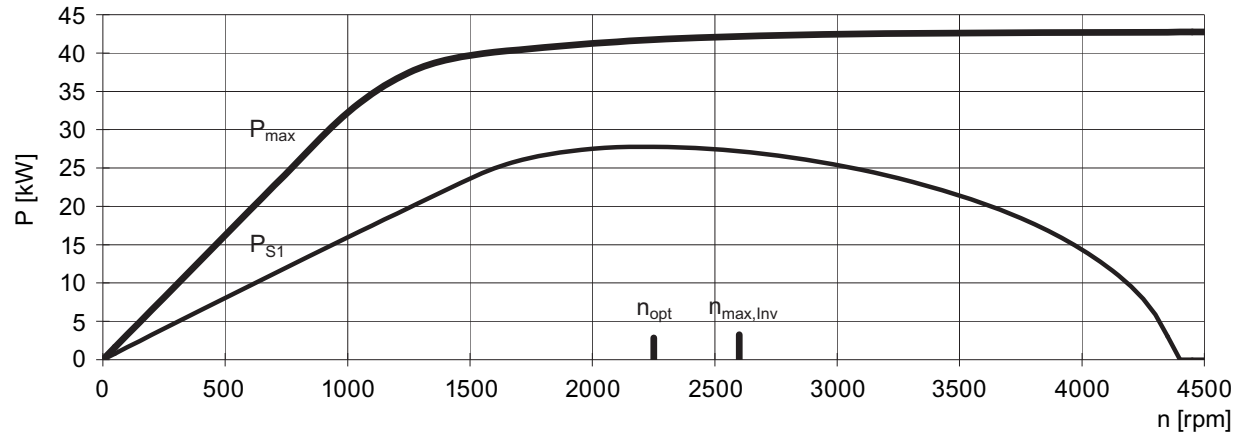


Table 4- 742 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	26,4	144	42	28	2250	4500	4500	2450	310	100	155	43
1500	23,1	147	42									



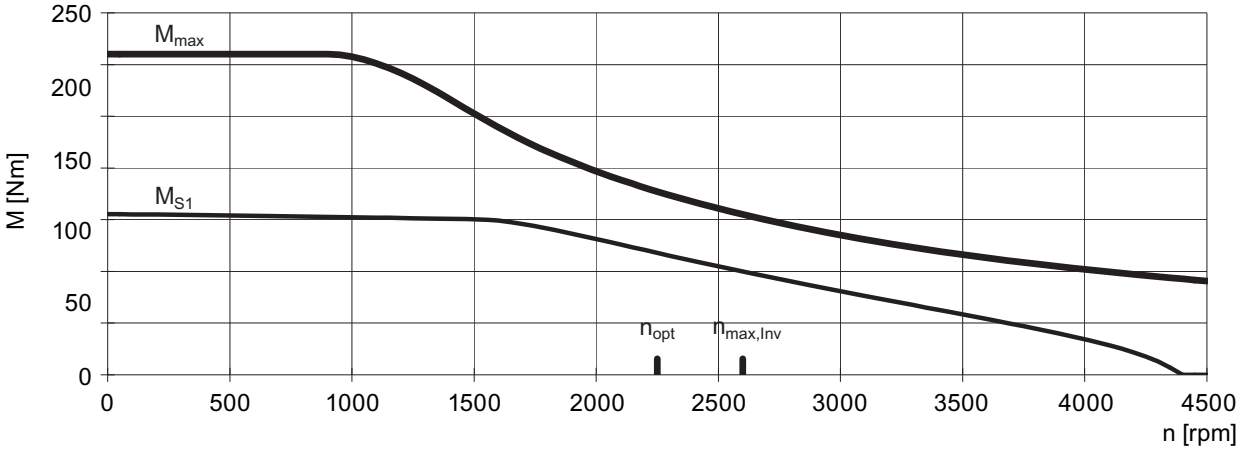
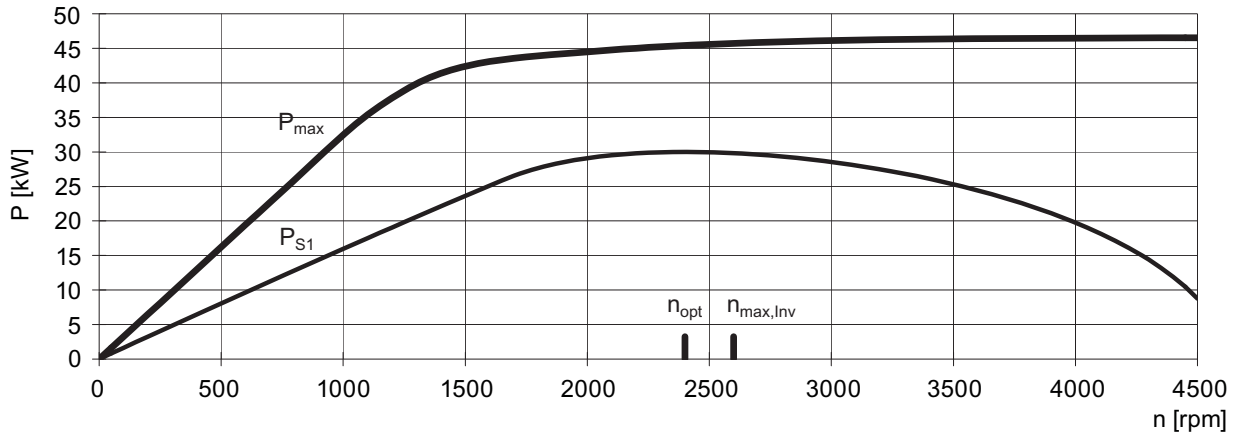


Table 4- 743 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	29,0	139	41	30	2400	4500	4500	2450	310	100	155	43



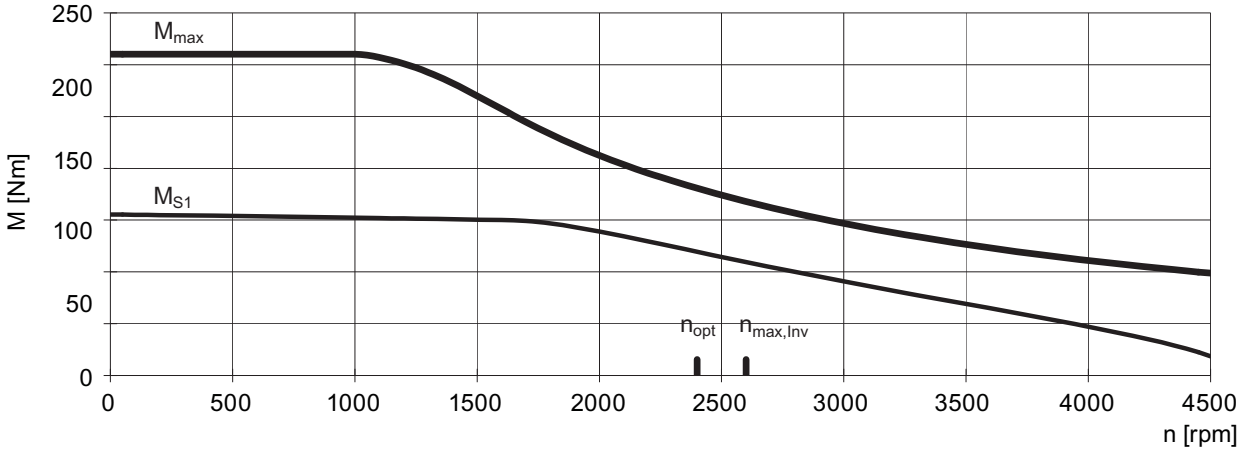


Table 4- 744 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	30,6	146	57	34	2750	4500	4500	3450	310	140	155	61

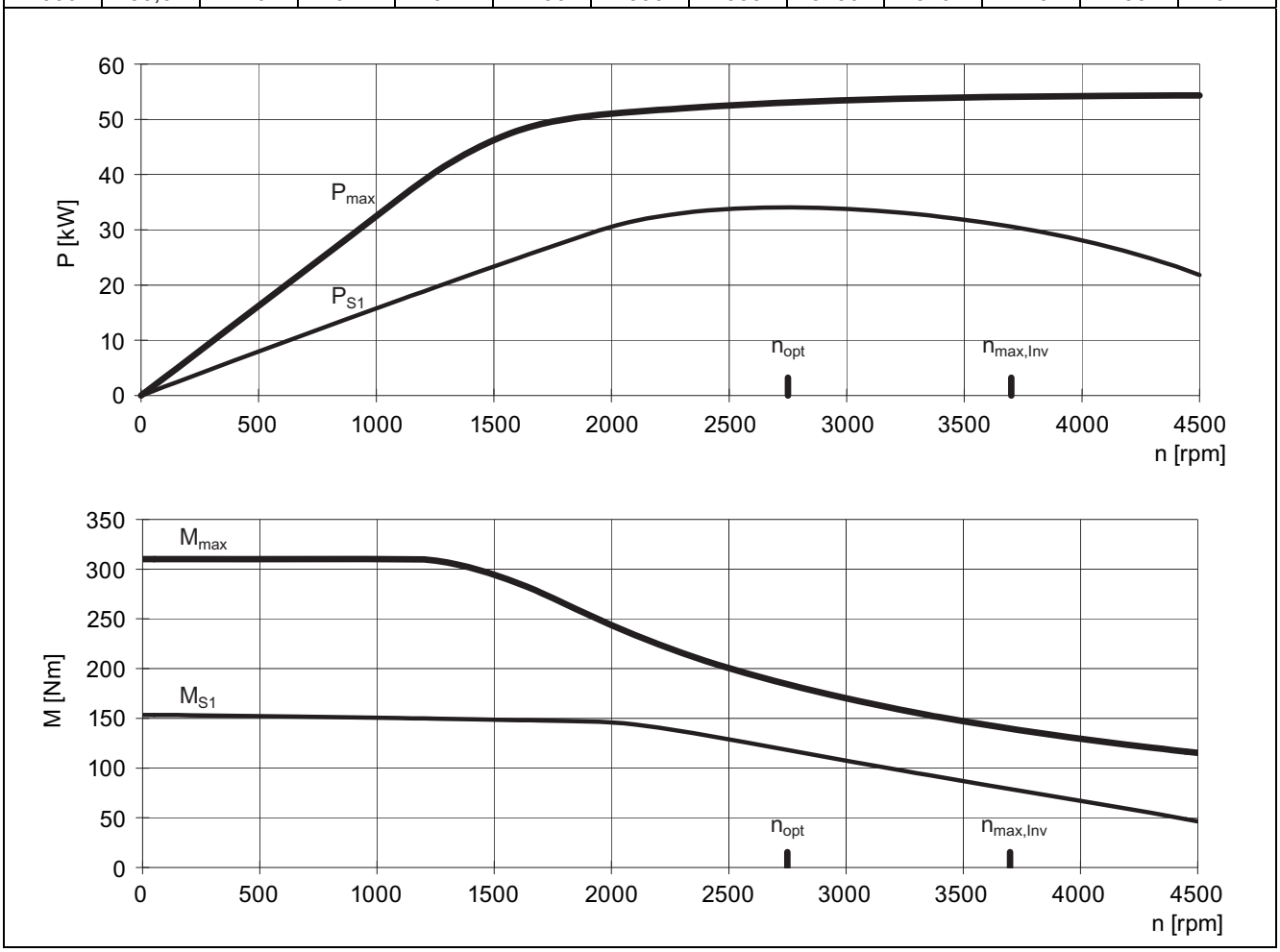


Table 4- 745 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	34,9	145	57	38	3050	4500	4500	3450	310	140	155	61
2000	30,6	146	57									

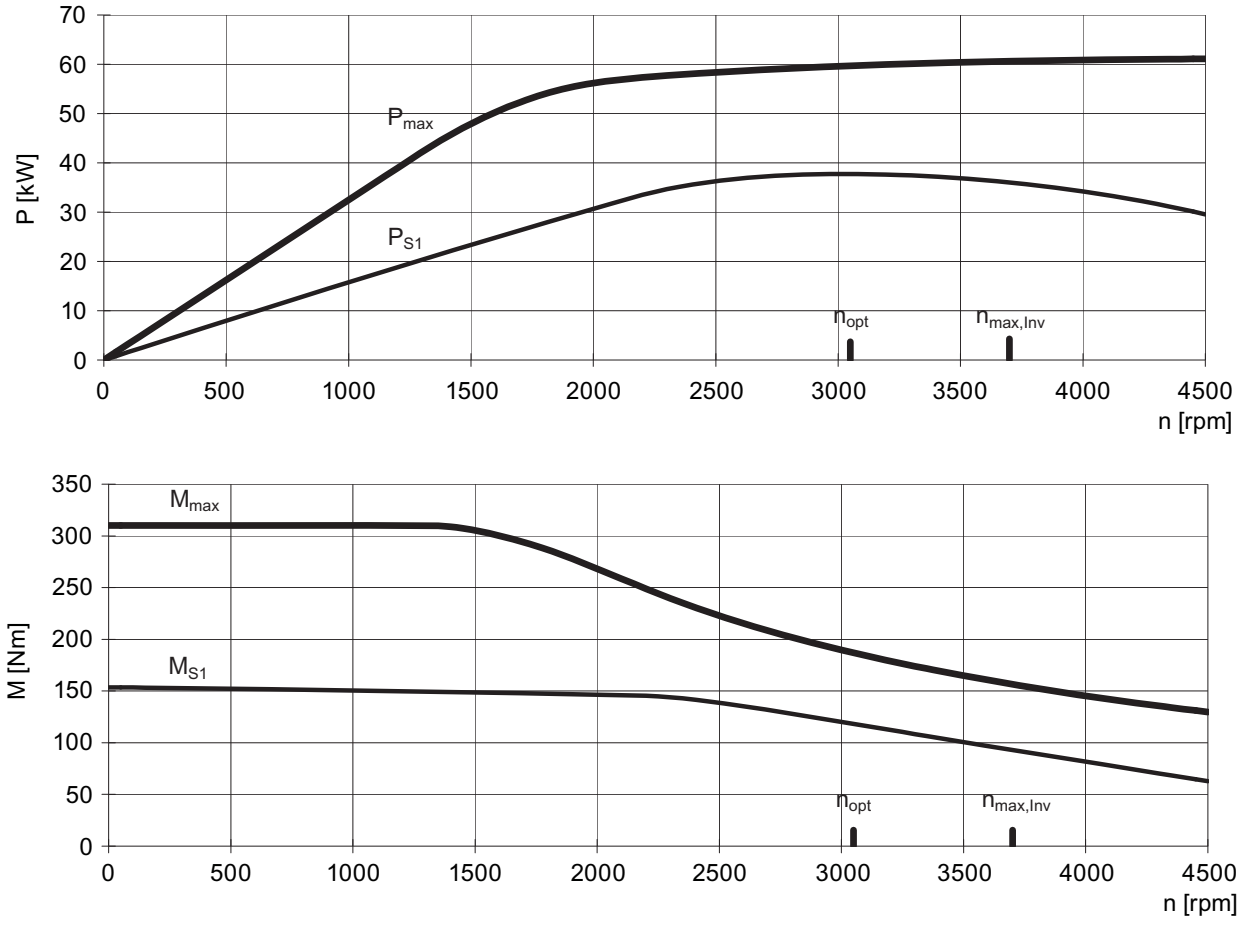


Table 4- 746 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	39,1	141	57	41	3250	4500	4500	3450	310	140	155	61

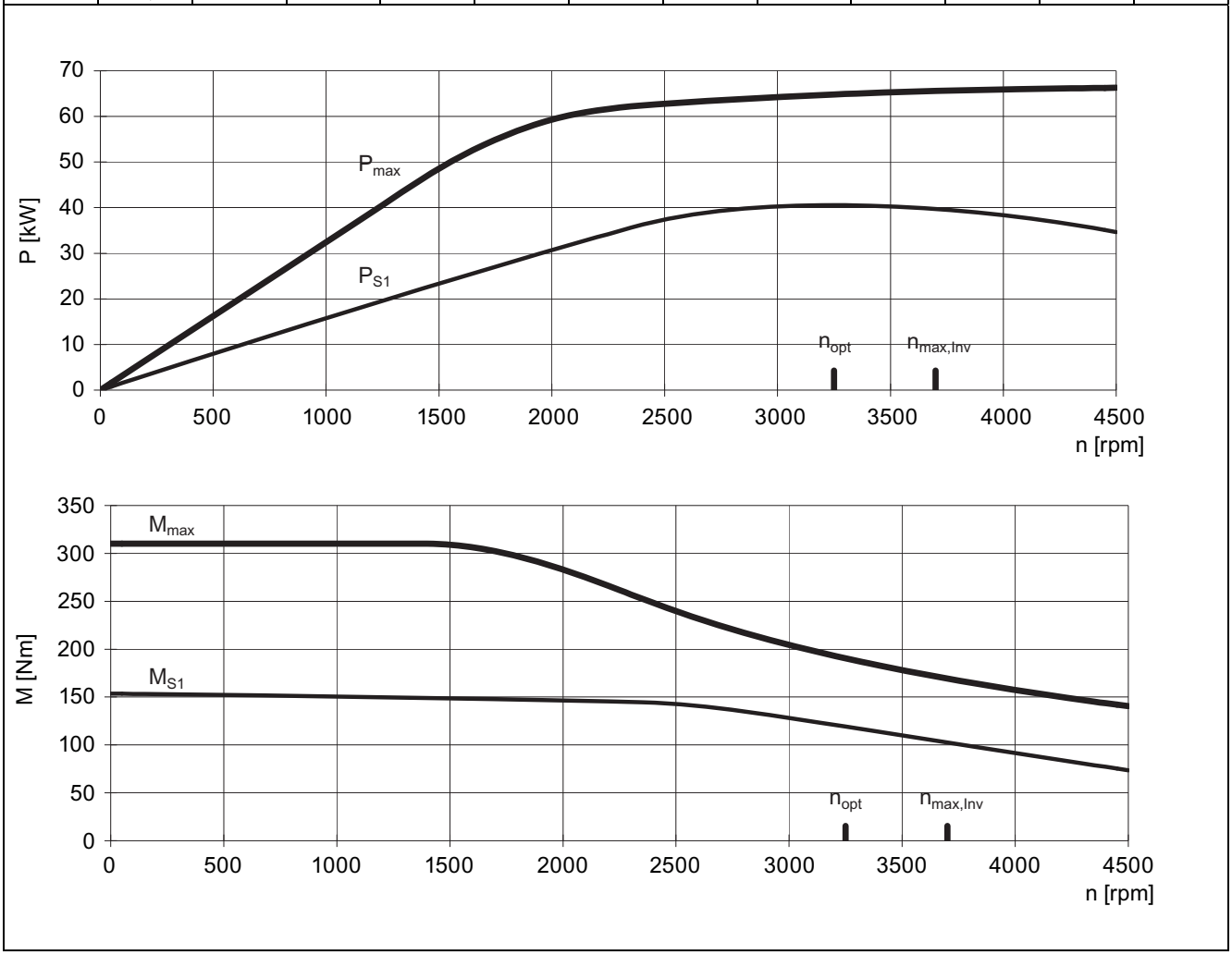


Table 4- 747 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	29,7	189	57	34	2150	4500	4500	2650	390	135	196	59

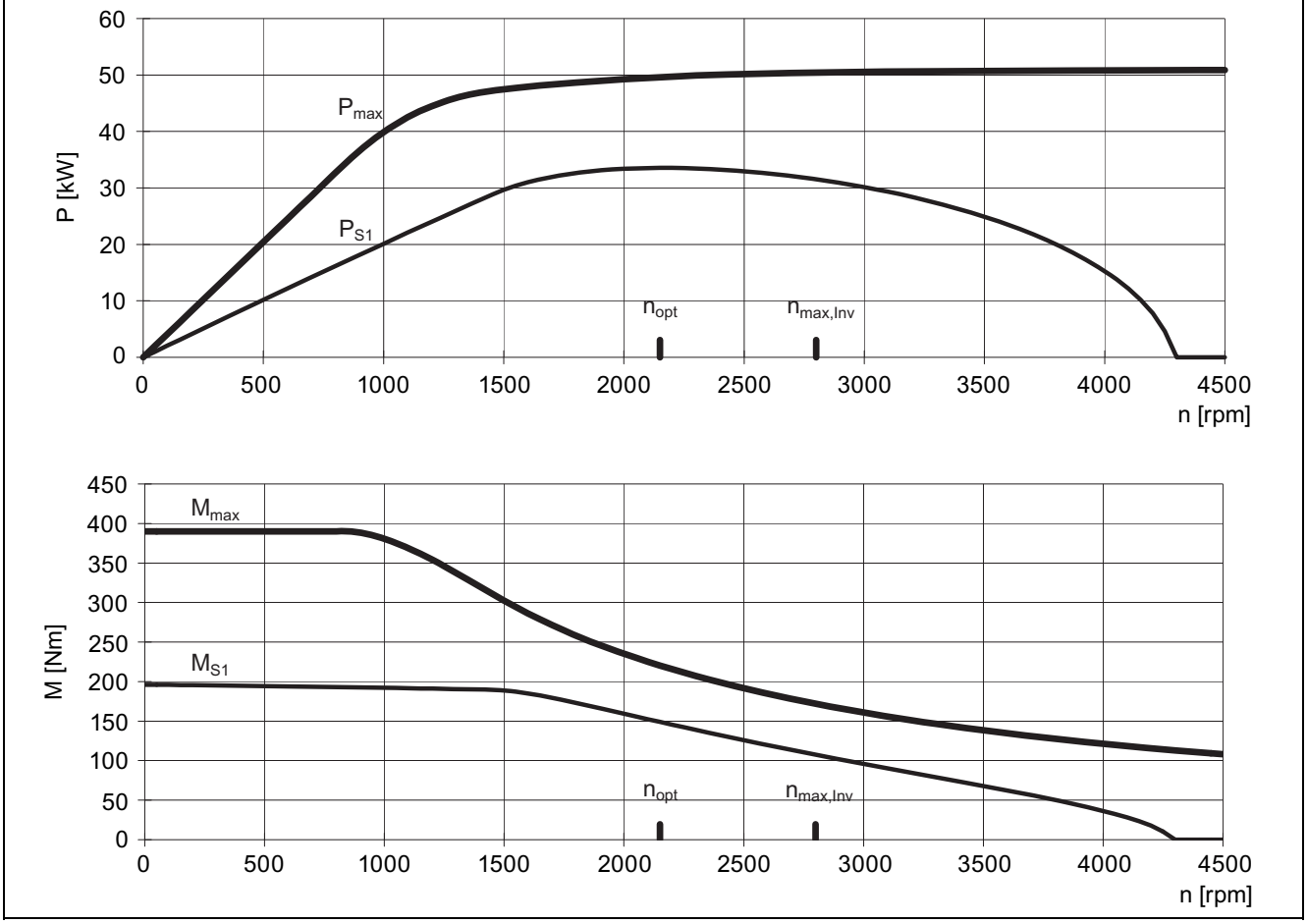
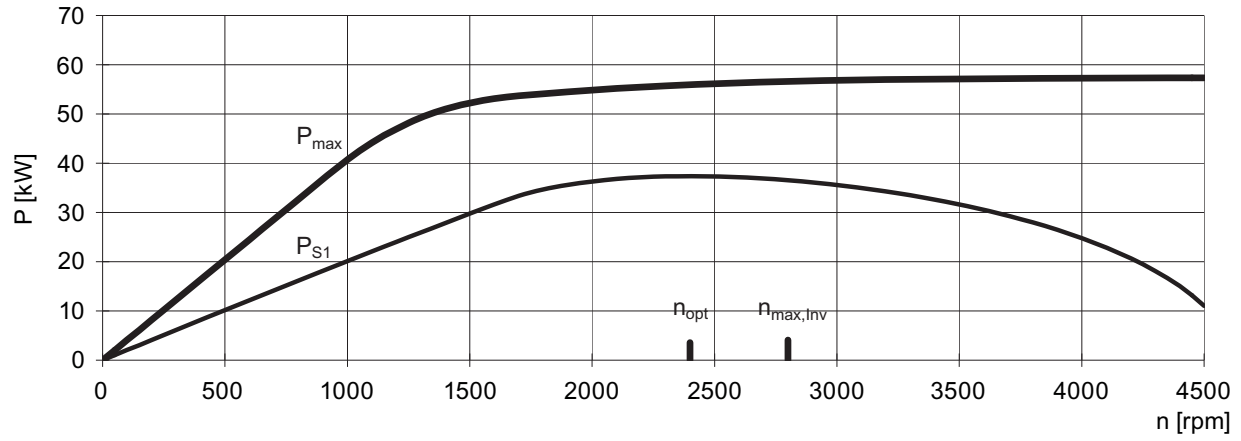


Table 4- 748 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	34,1	186	56	37	2400	4500	4500	2650	390	135	196	59
1500	29,7	189	57									



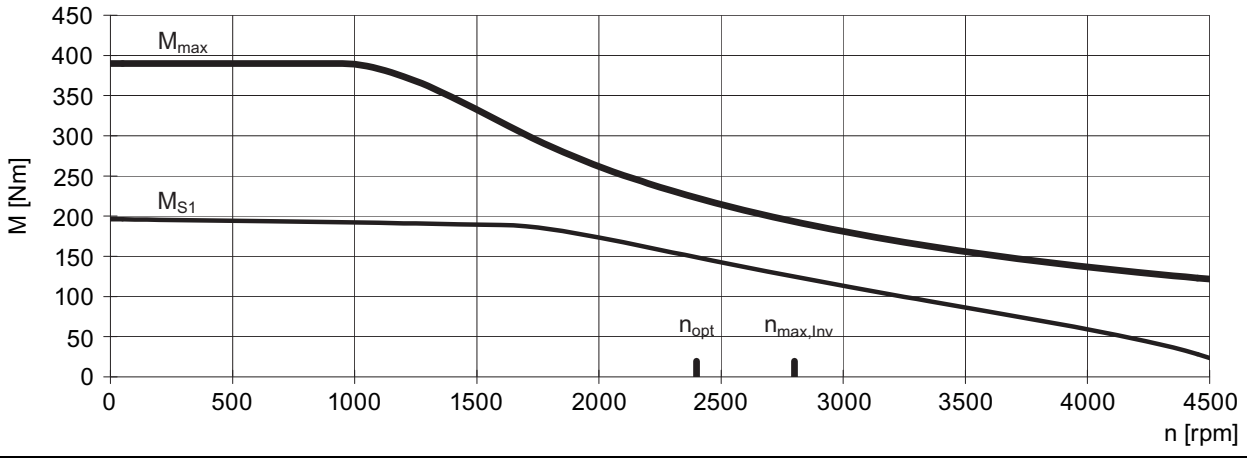
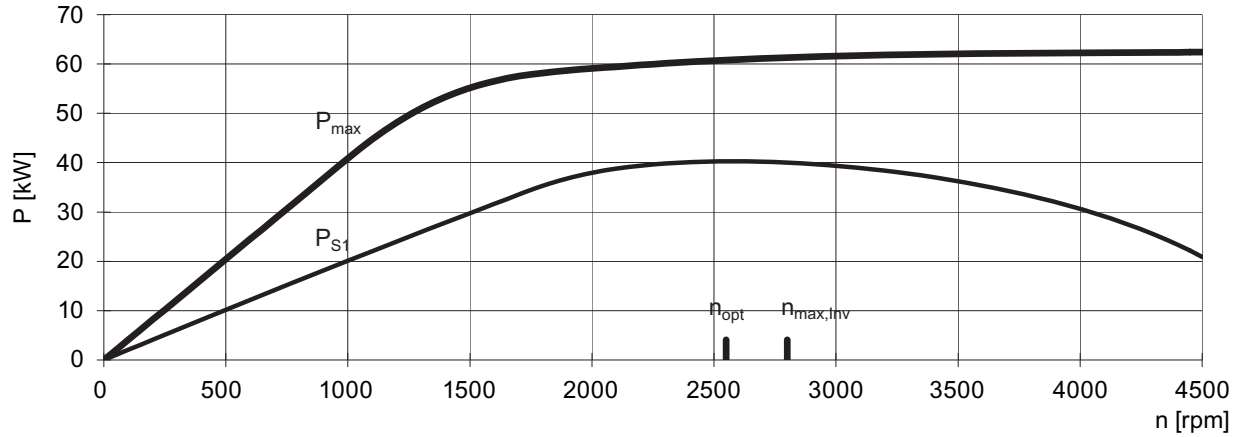


Table 4- 749 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	37,9	181	56	40	2550	4500	4500	2650	390	135	196	59



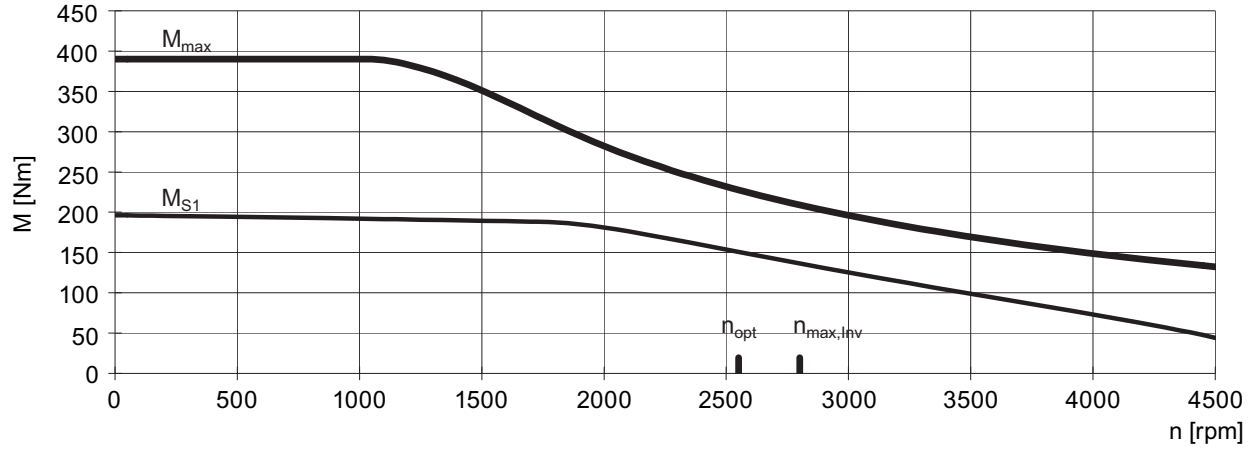


Table 4- 750 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	39,0	186	81	48	3000	4500	4500	3800	390	196	196	85

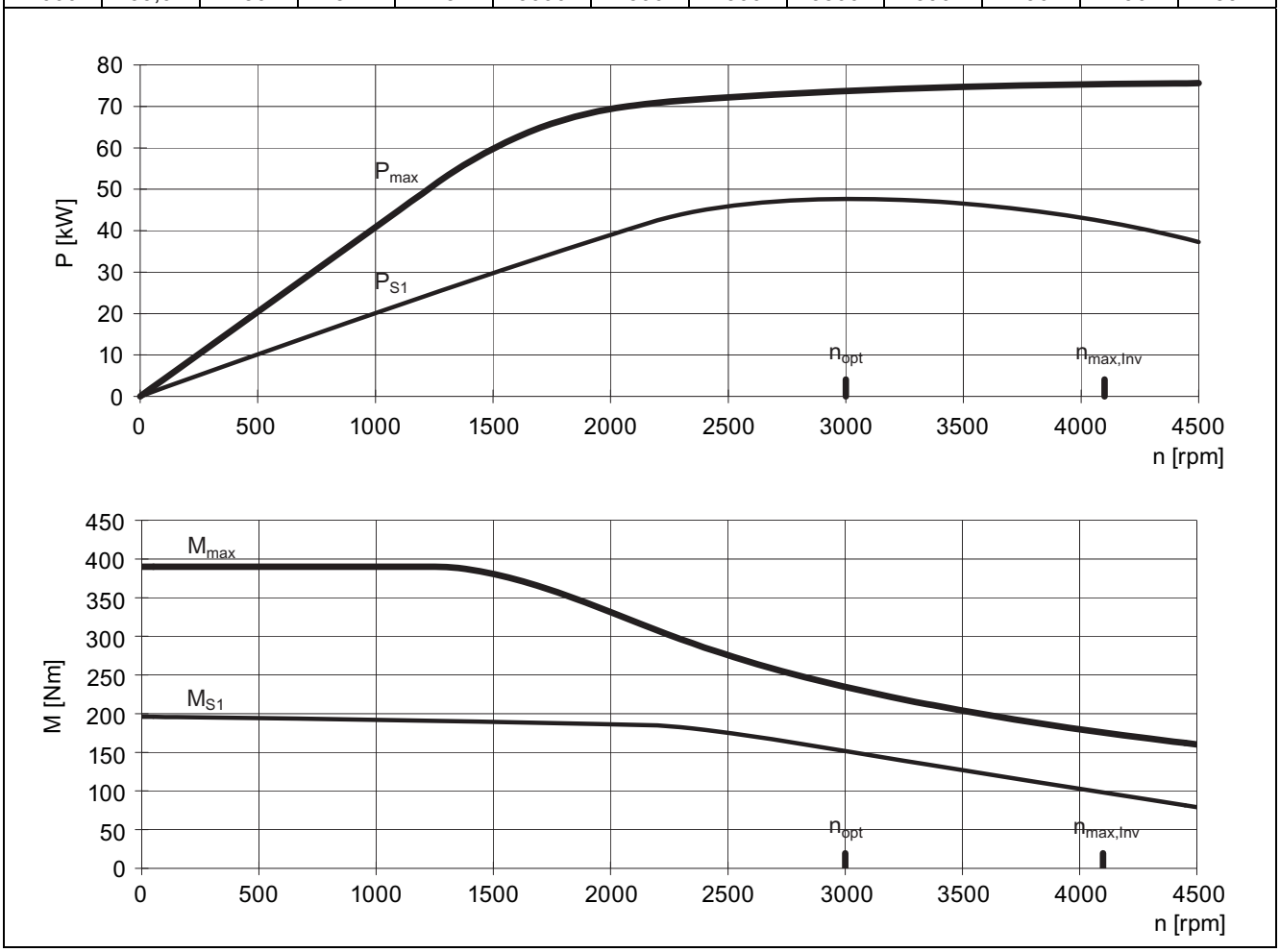
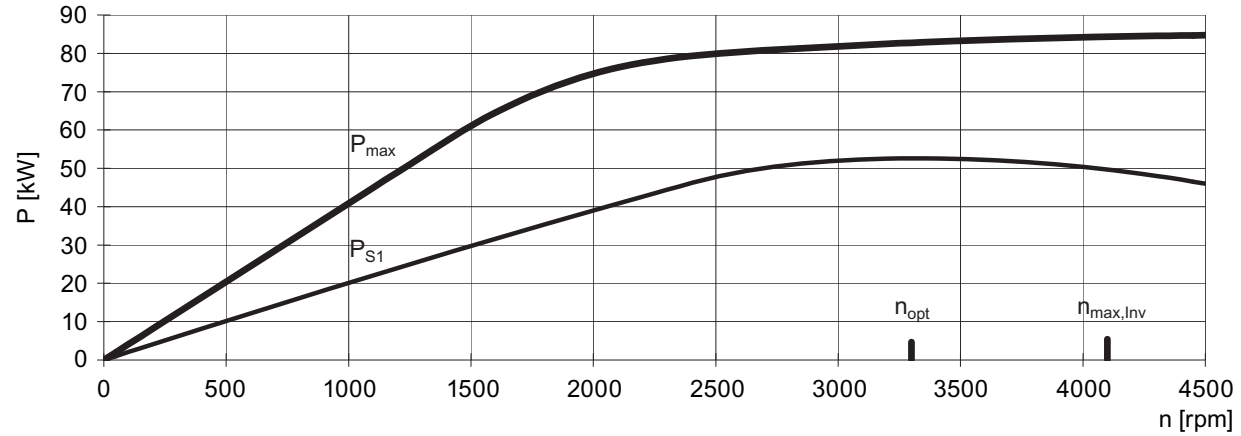


Table 4- 751 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	44,3	184	80	53	3300	4500	4500	3800	390	196	196	85
2000	39,0	186	81									



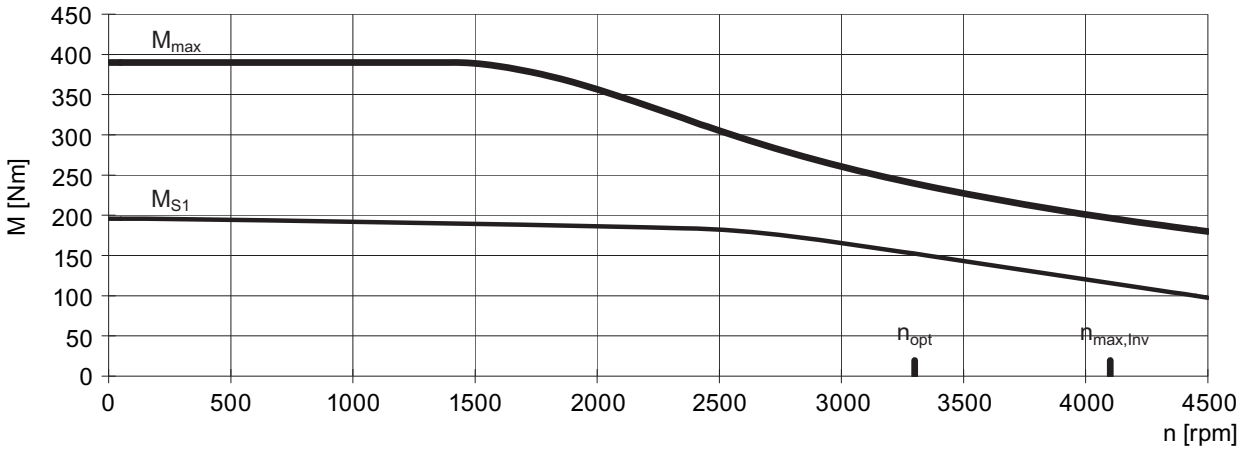


Table 4- 752 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	50,5	182	79	56	3550	4500	4500	3800	390	196	196	85

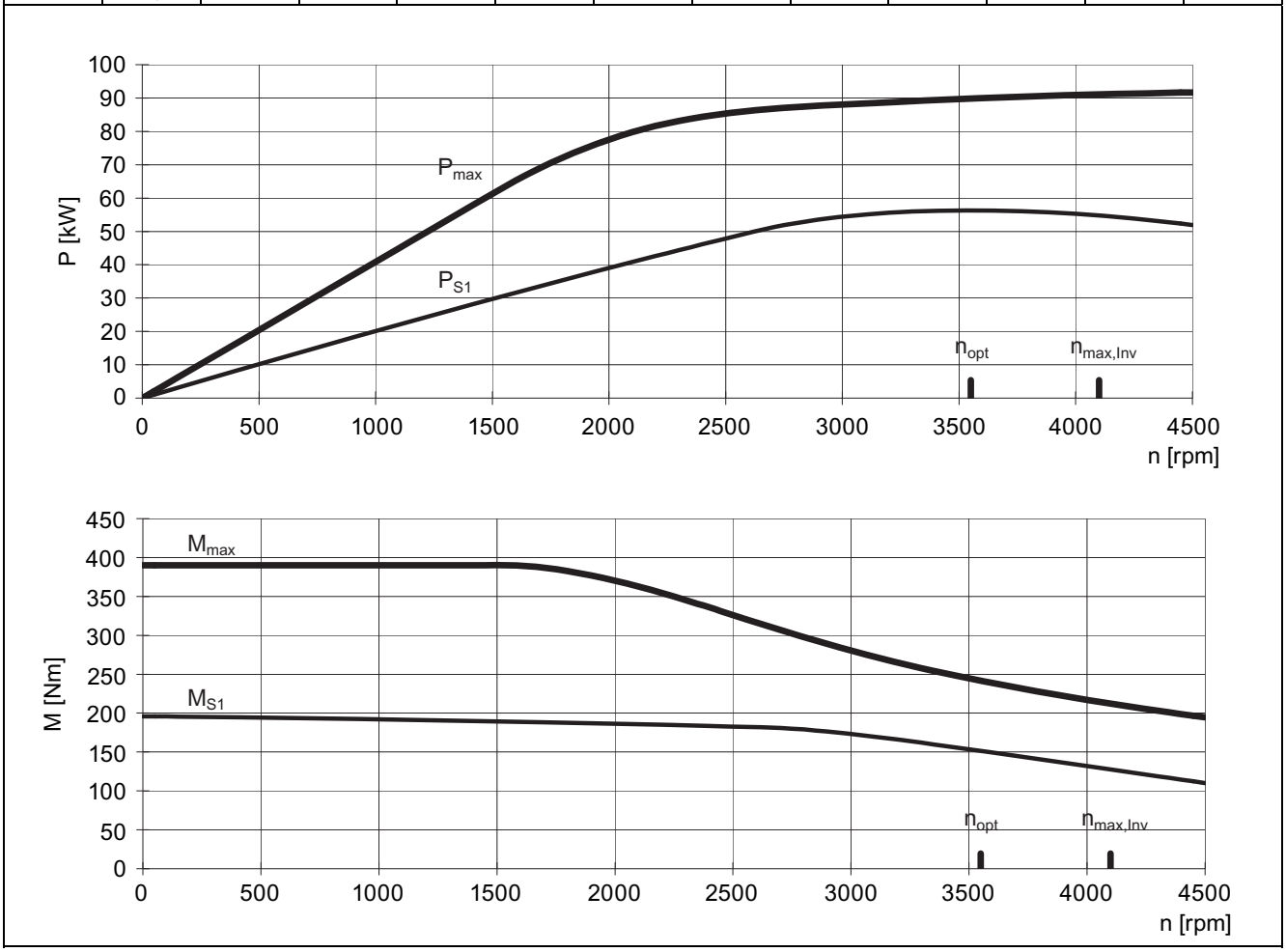


Table 4- 753 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	32,7	208	58	35	1950	4500	4500	2350	460	141	226	60

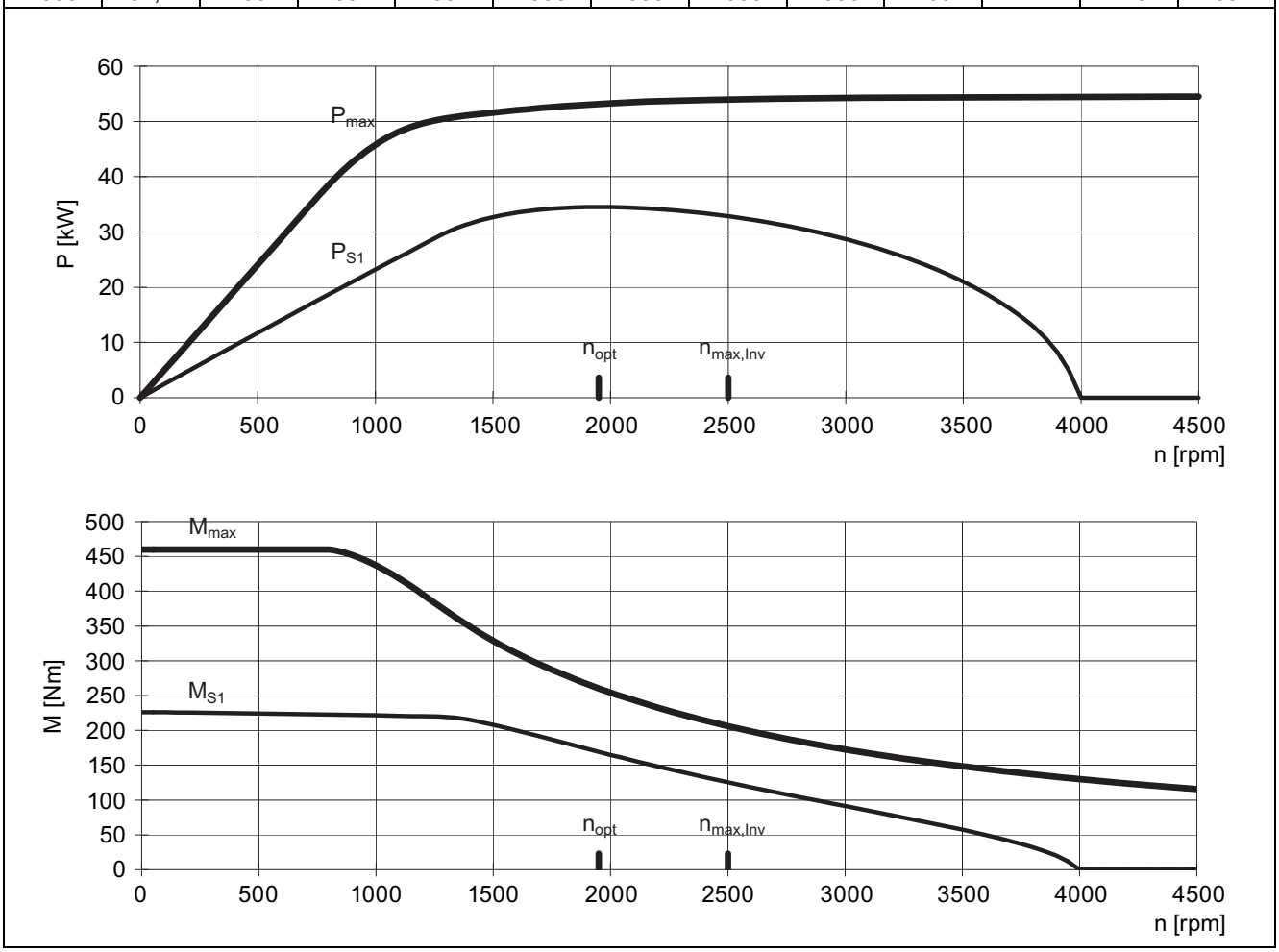
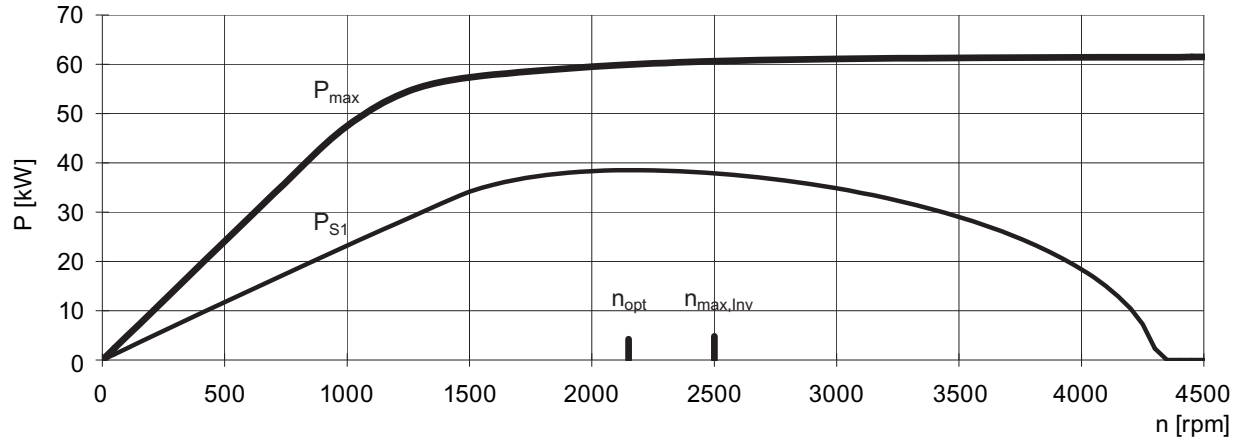


Table 4- 754 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	37,0	202	58	38	2150	4500	4500	2350	460	141	226	60
1500	34,1	217	58									



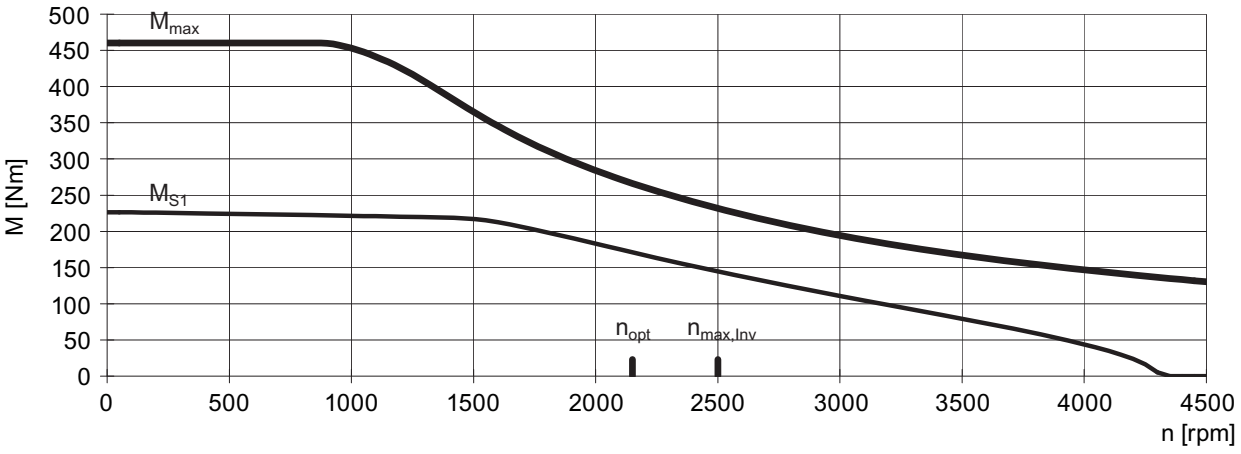
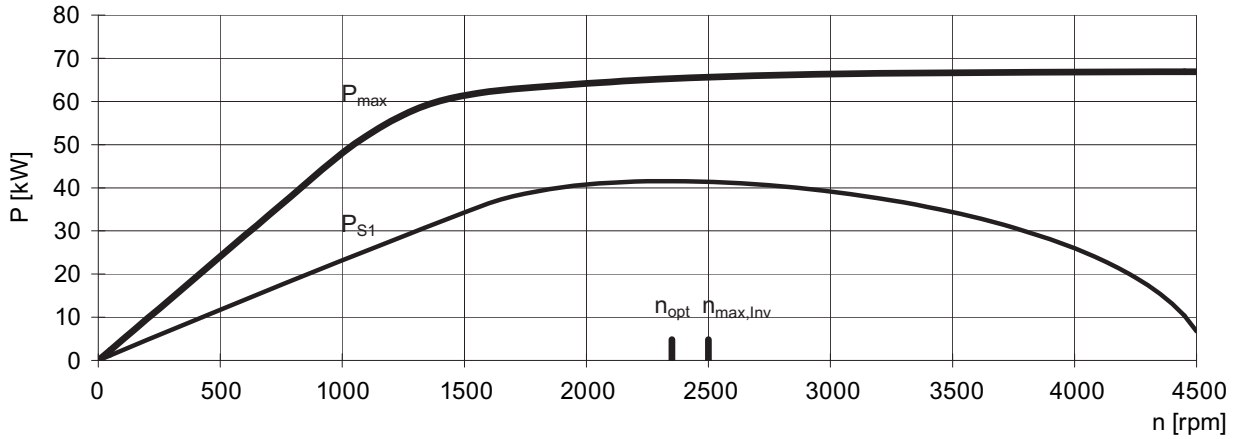


Table 4- 755 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	40,6	194	57	41	2350	4500	4500	2350	460	141	226	60



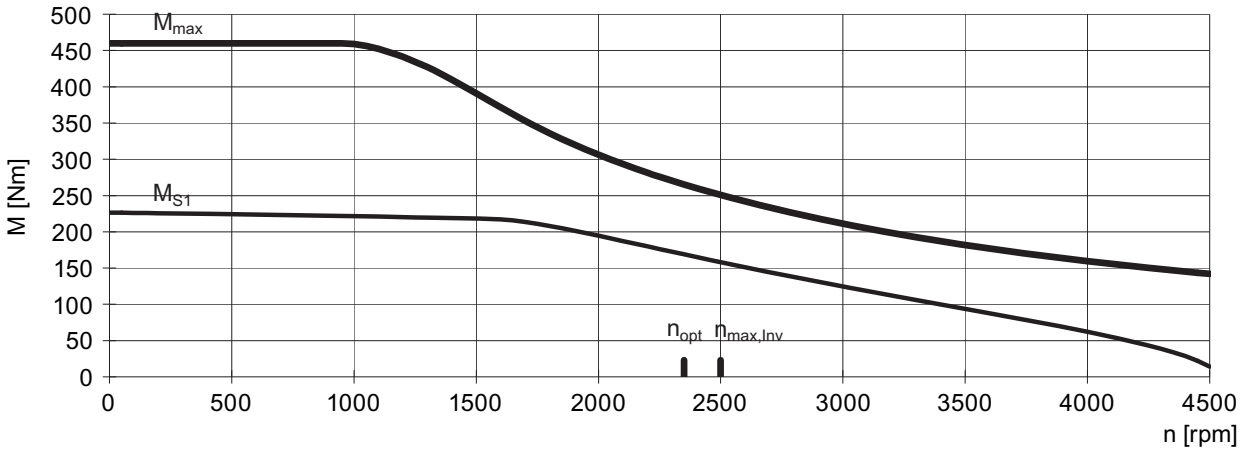


Table 4- 756 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	44,4	212	85	50	2800	4500	4500	3500	460	212	226	90

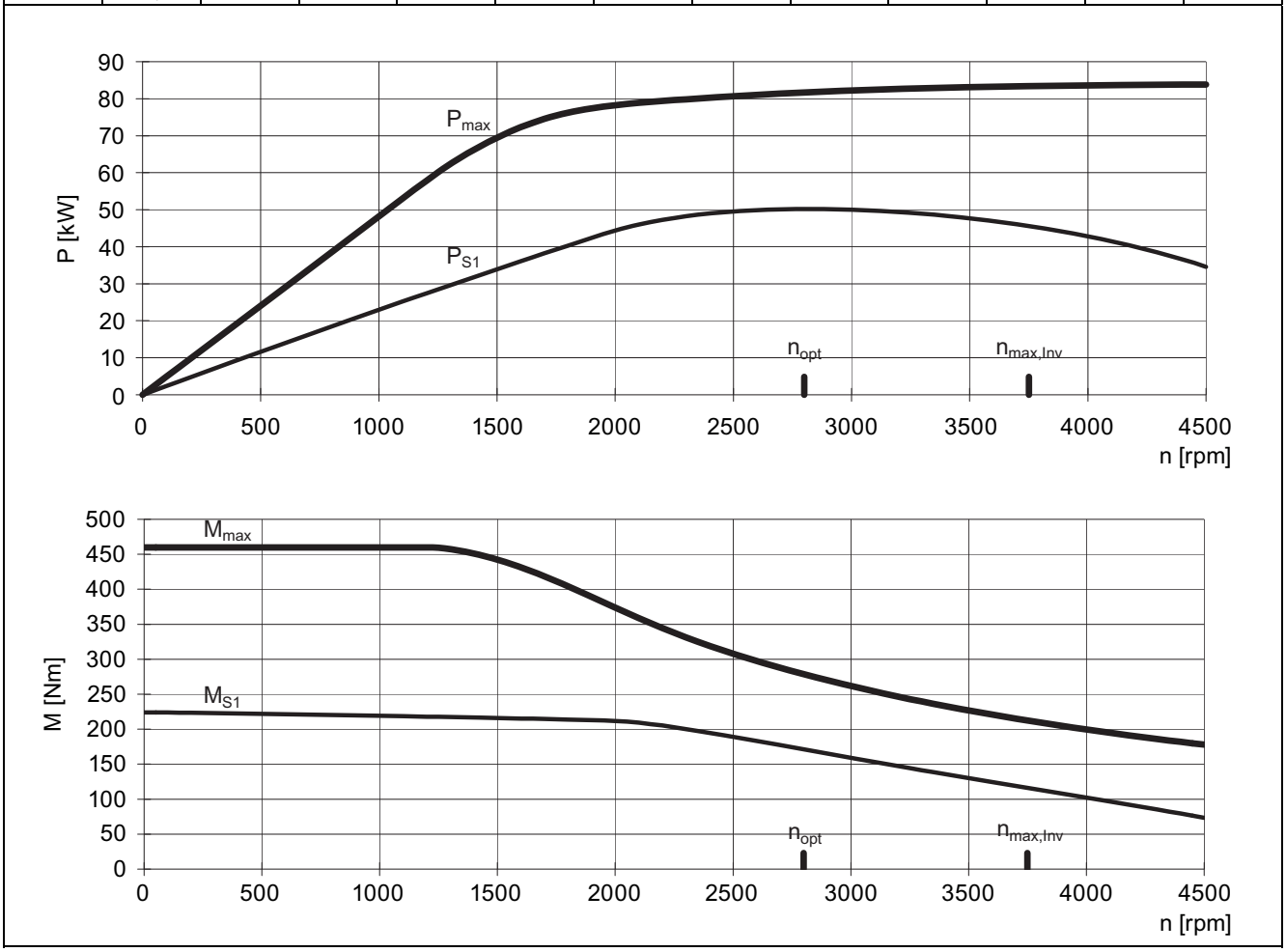
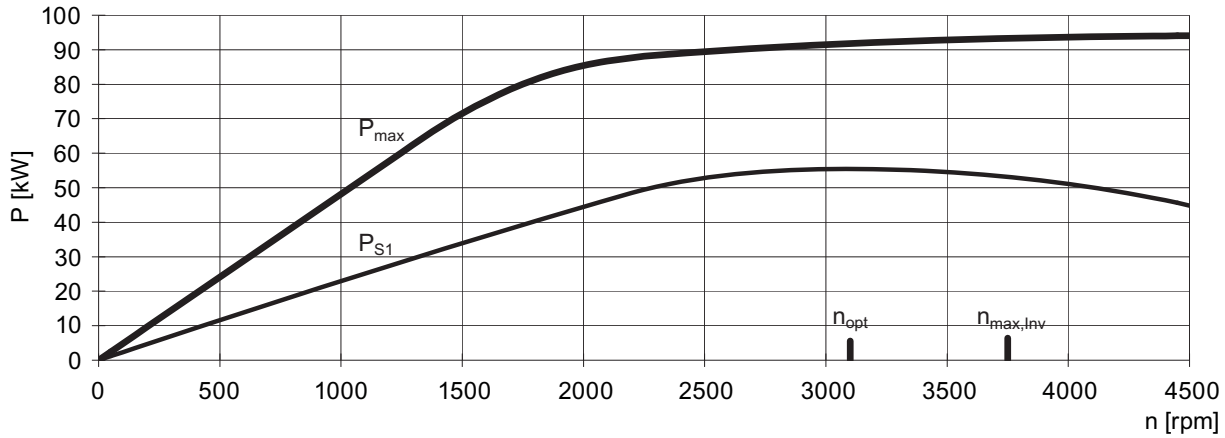


Table 4- 757 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	50,5	210	84	56	3100	4500	4500	3500	460	212	226	90
2000	44,4	212	85									



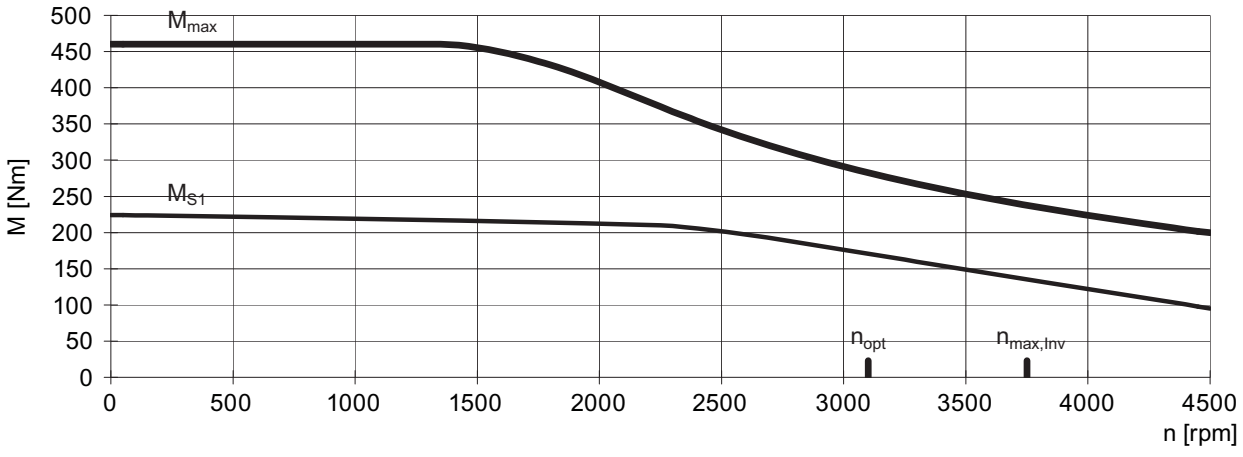
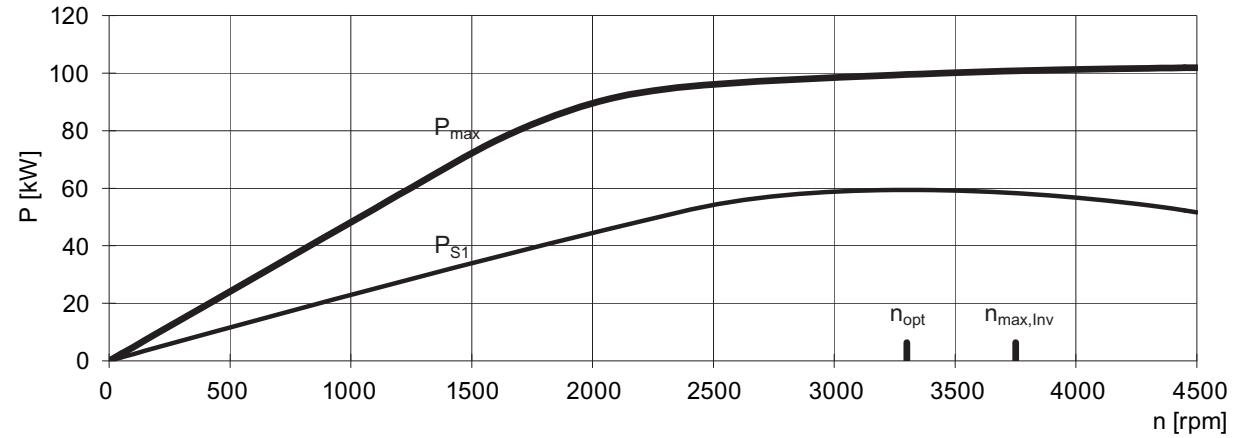


Table 4- 758 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	56,8	205	83	60	3300	4500	4500	3500	460	212	226	90



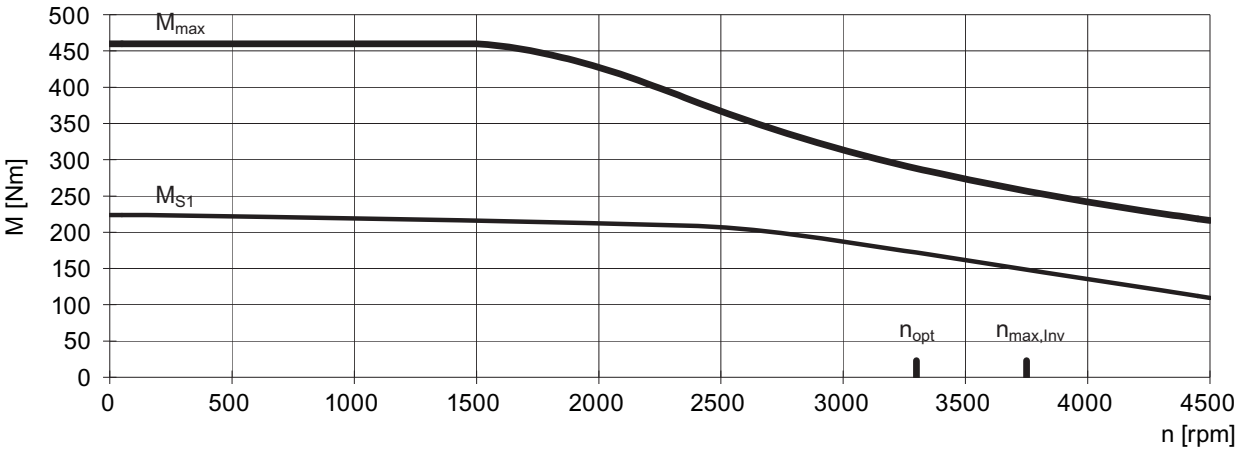


Table 4- 759 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	44,9	286	118	68	4200	4500	4500	3500	460	212	290	120

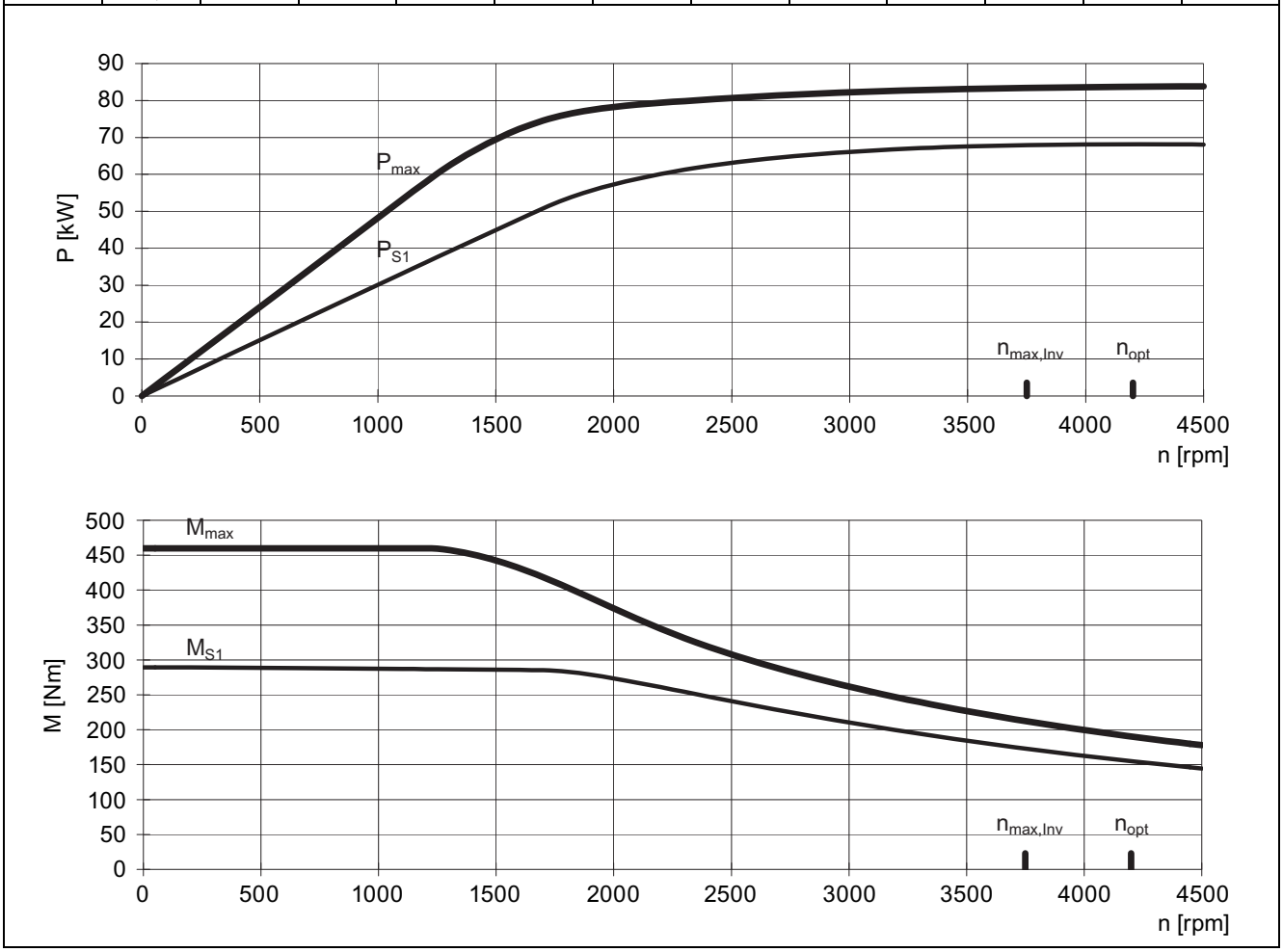


Table 4- 760 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	52,4	286	118	76	4550	4500	4500	3500	460	212	290	120
1500	44,9	286	118									

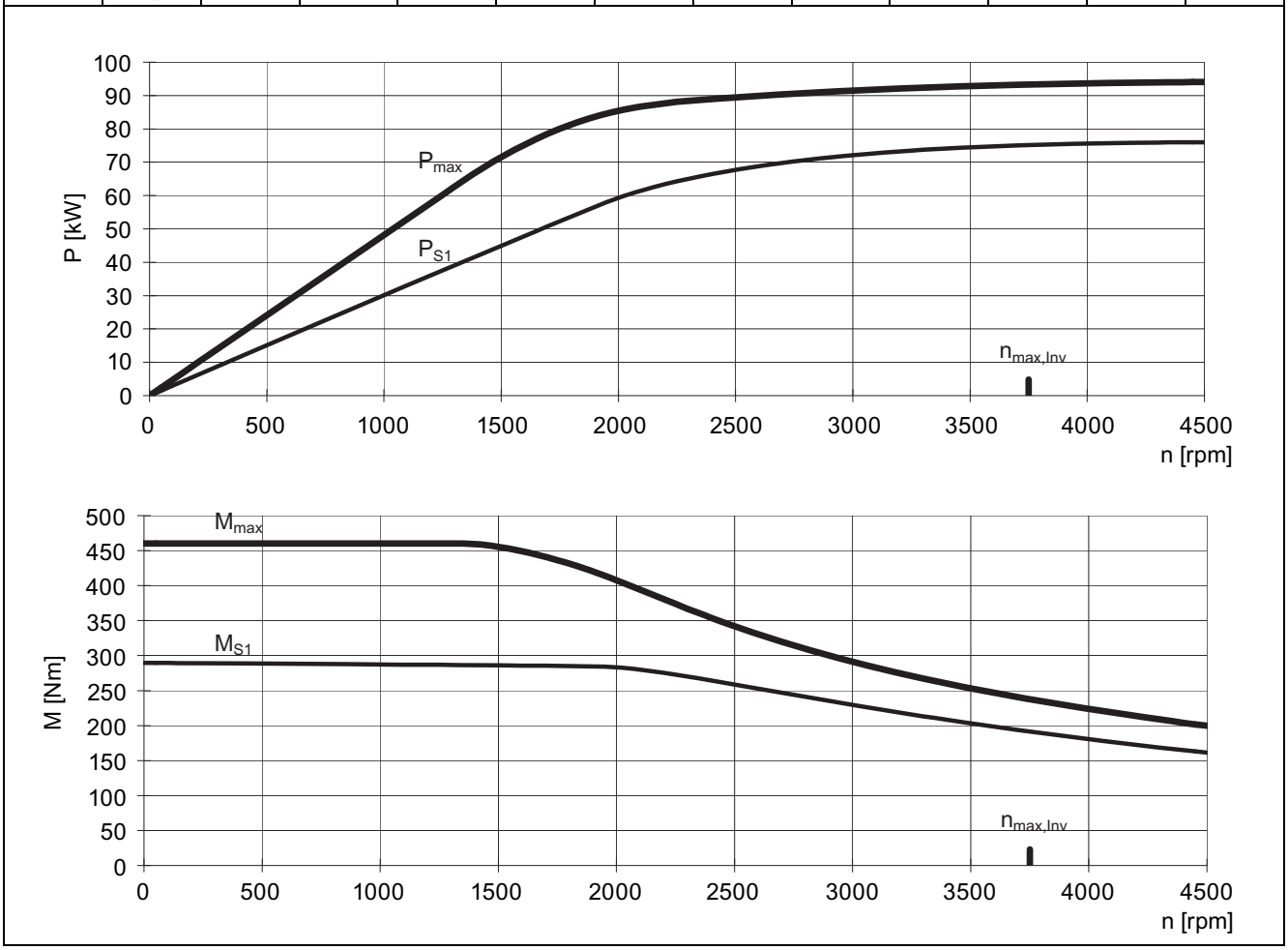


Table 4- 761 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8138-□□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	59,7	285	118	82	4800	4500	4500	3500	460	212	290	120

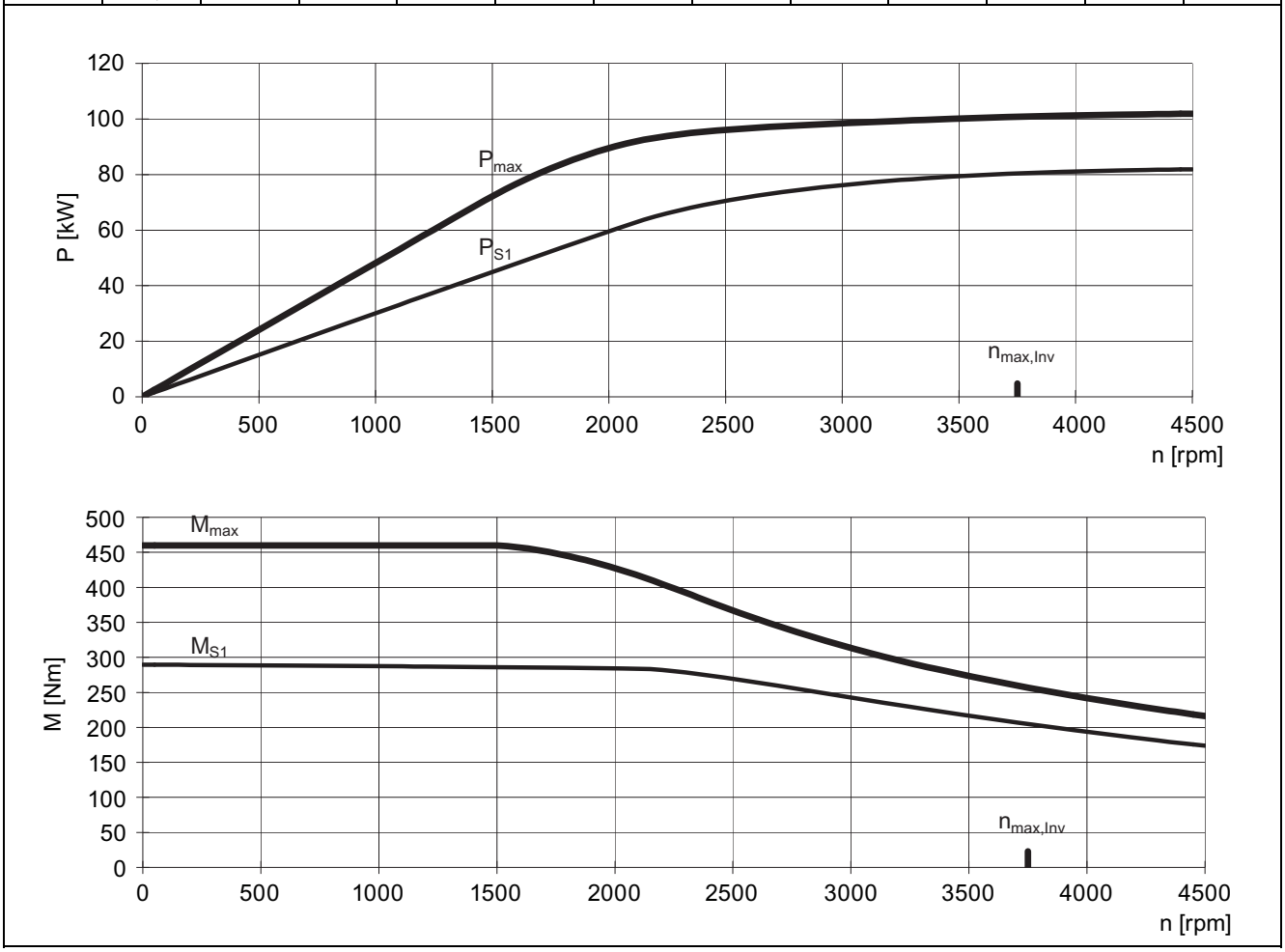
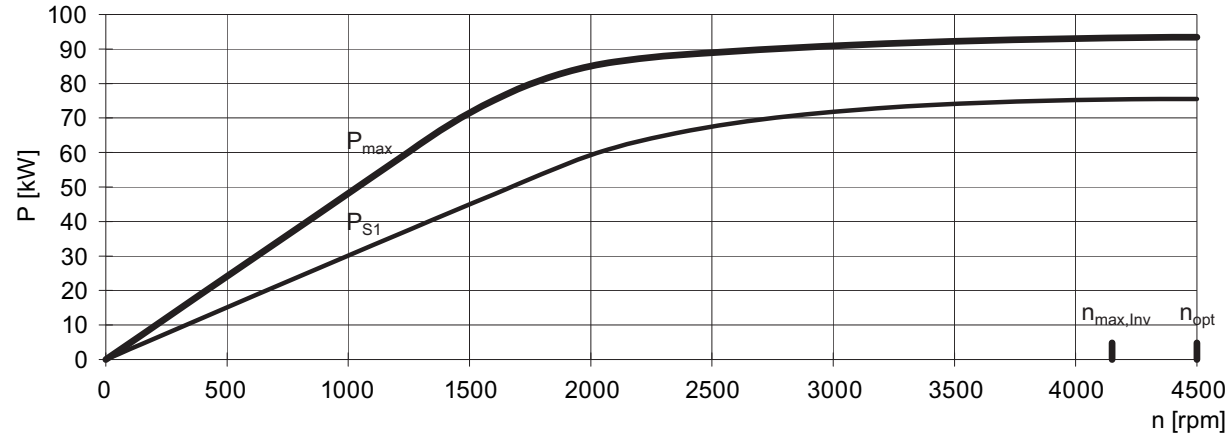


Table 4- 762 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	59,3	283	131	76	4500	4500	4500	3900	460	235	290	133



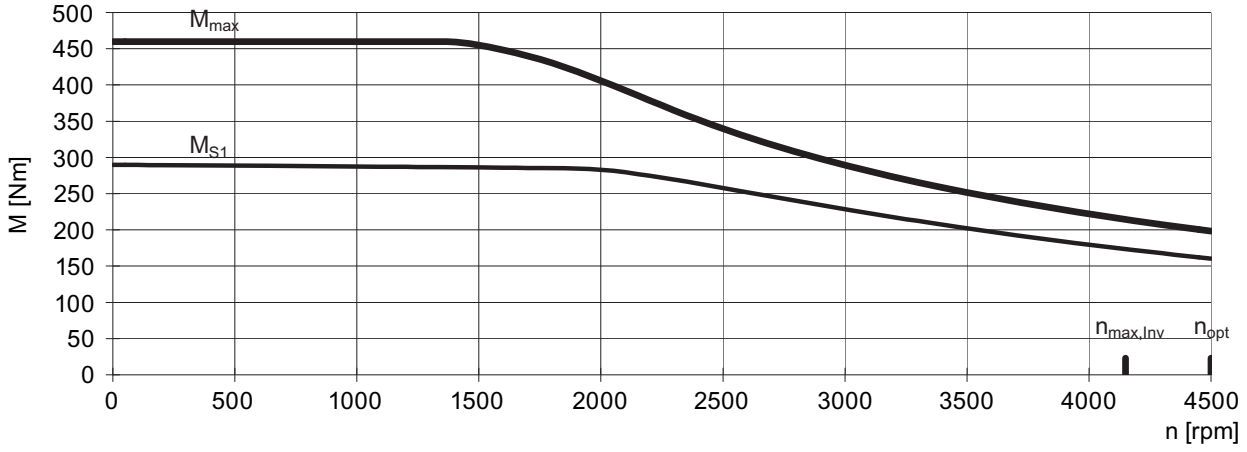


Table 4- 763 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2300	67,7	281	130	84	4500	4500	4500	3900	460	235	290	133
2000	59,7	285	131									

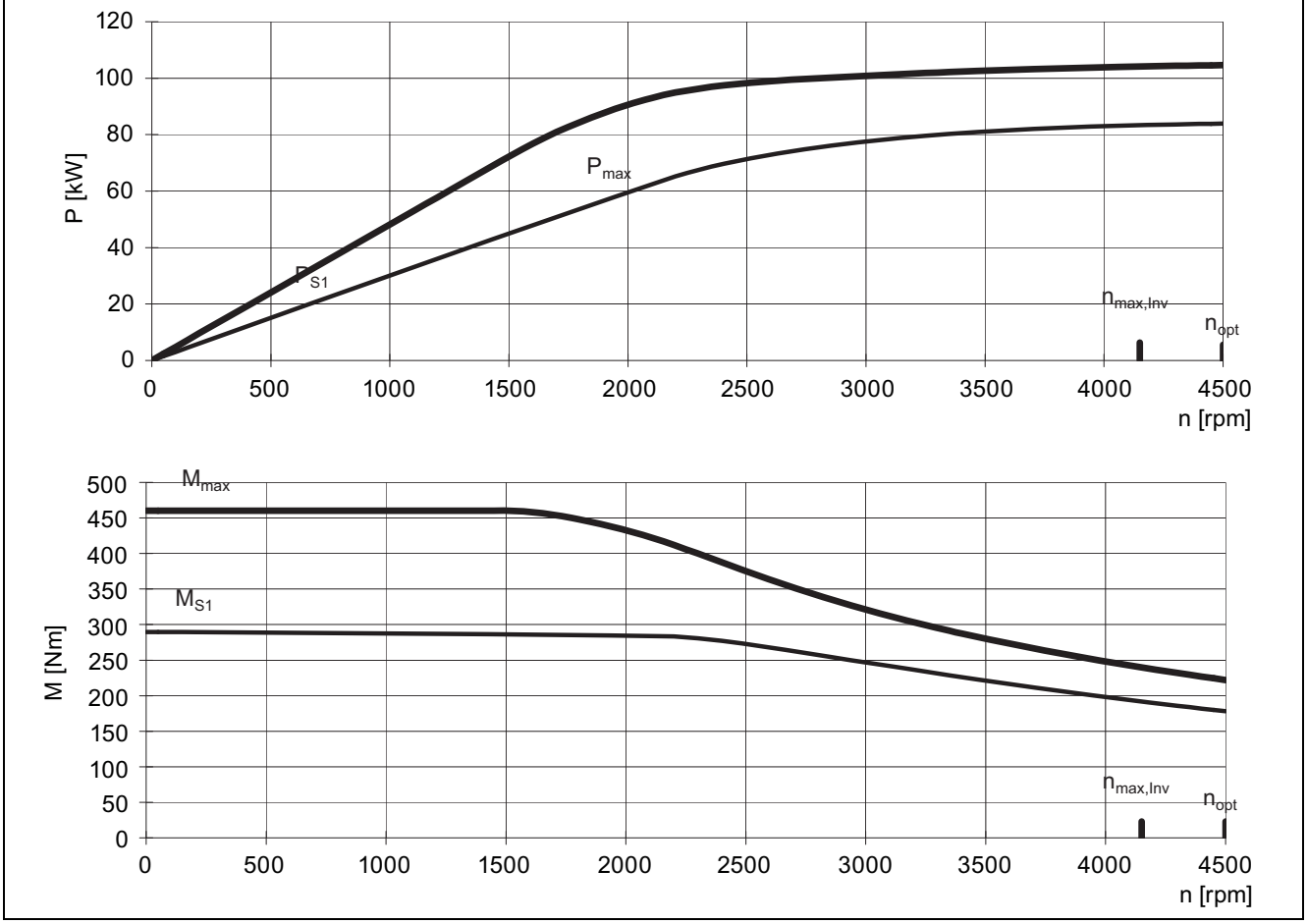
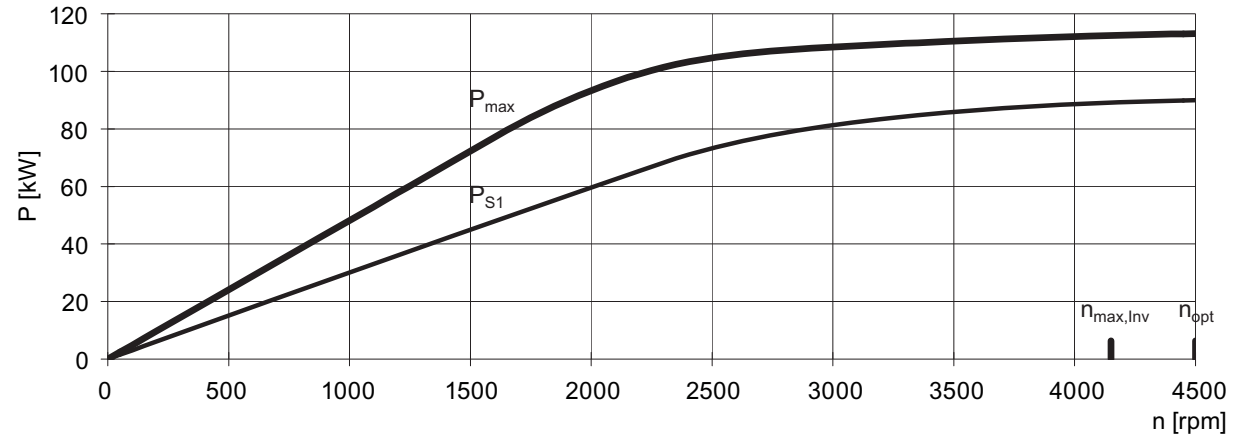
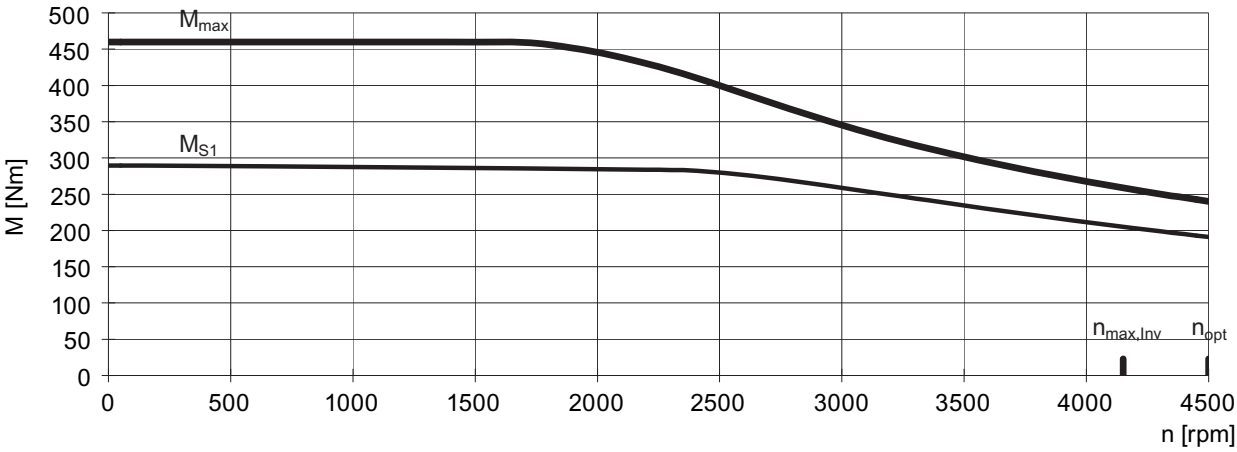


Table 4- 764 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8138-□□G2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2650	76,3	275	130	91	4500	4500	4500	3900	460	235	290	133

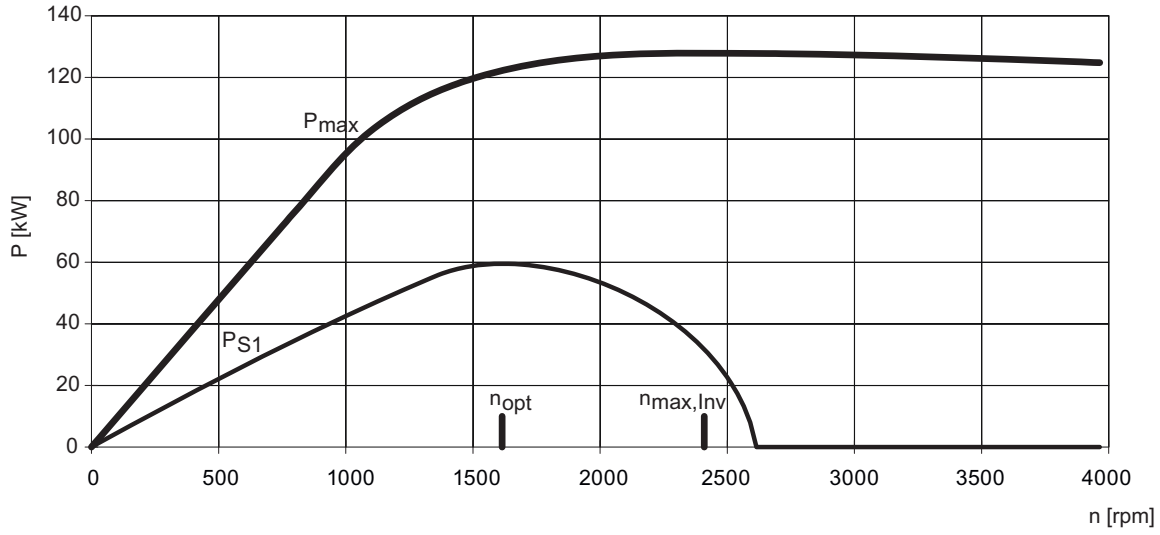




4.2.3.2 Shaft height 160 - water cooling

Table 4- 765 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8164-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	59.0	375	111	59.5	1615	4000	4000	2400	915	276	440	118



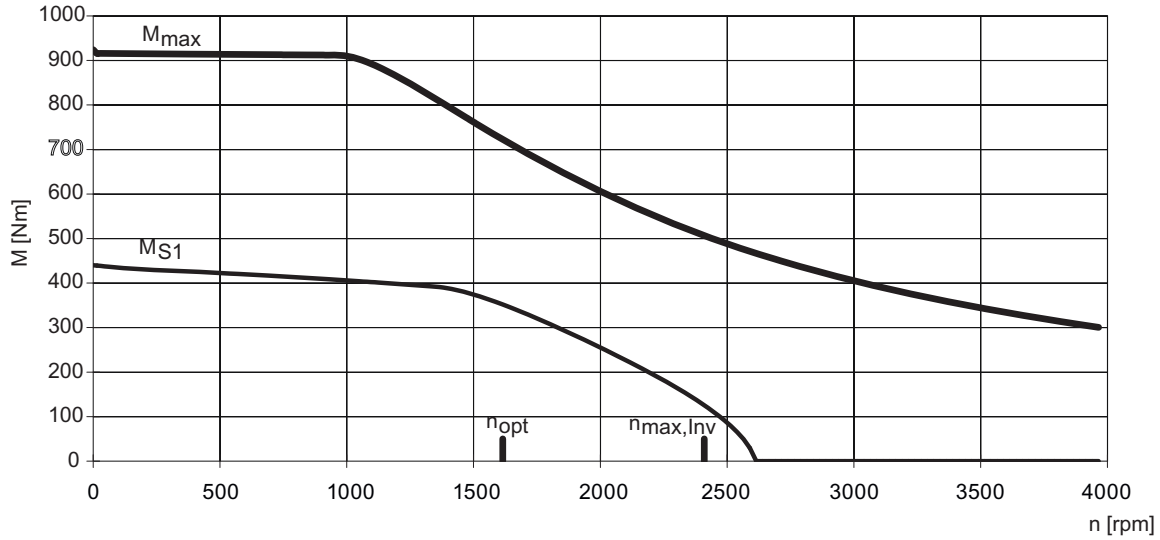
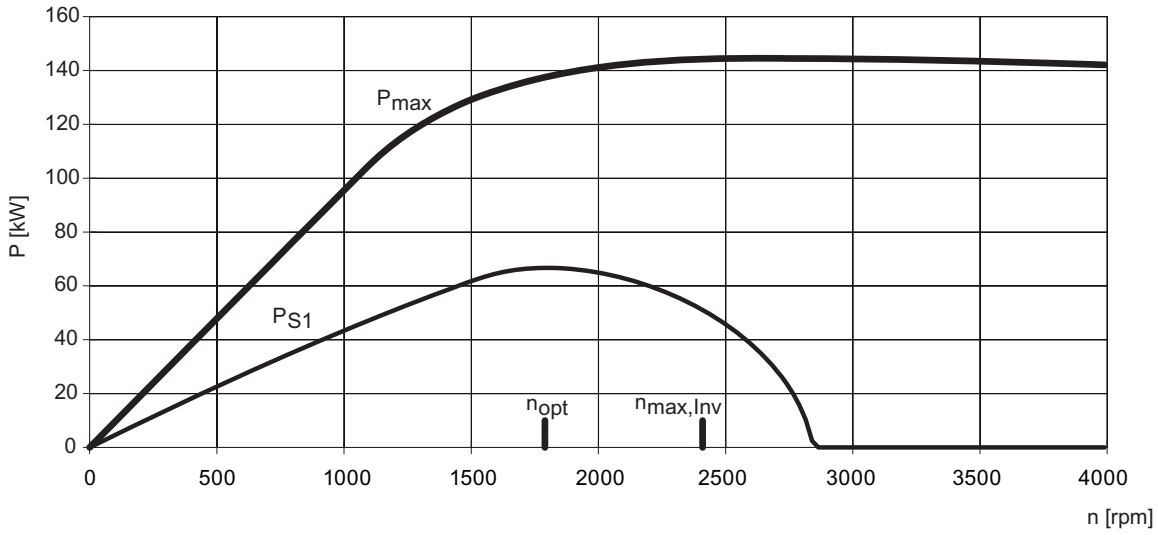


Table 4- 766 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8164-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	67.0	365	108	66.7	1790	4000	4000	2400	915	276	440	118
1500	59.0	375	111									



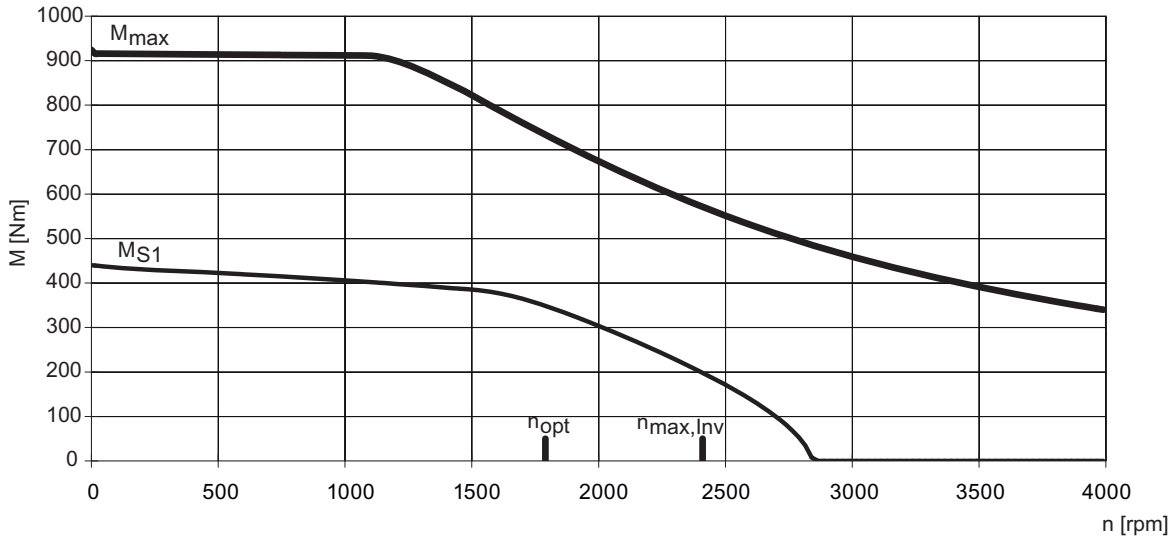
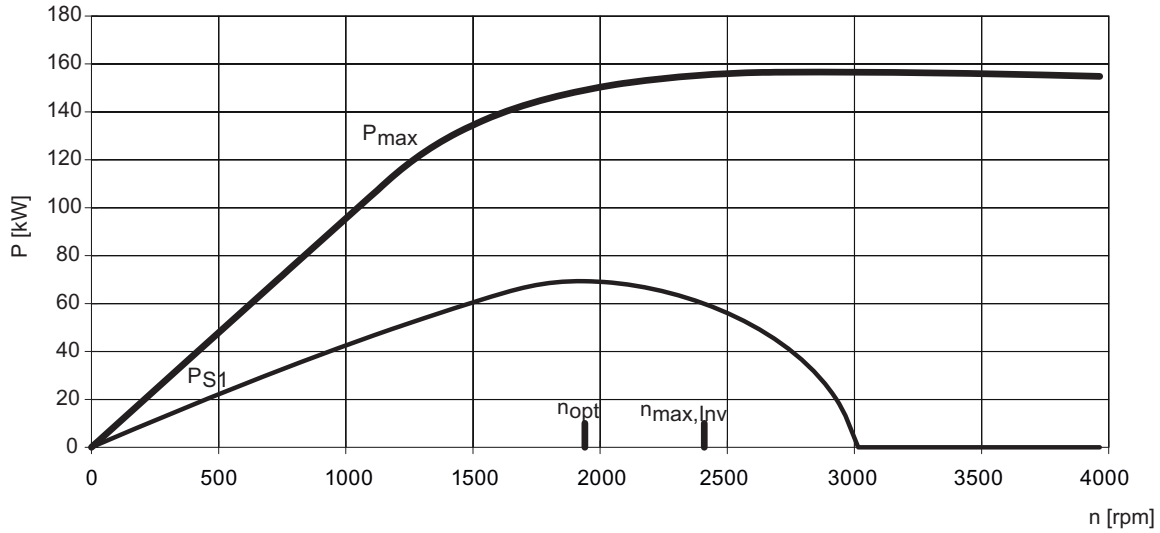


Table 4- 767 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8164-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	70.0	330	105	69.3	1940	4000	4000	2400	915	276	440	118



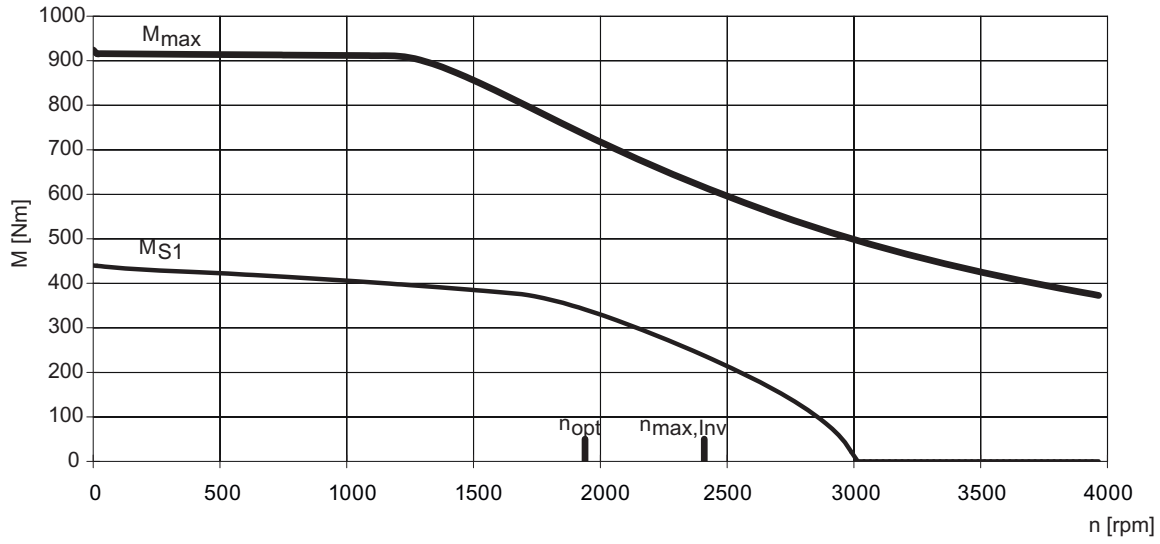
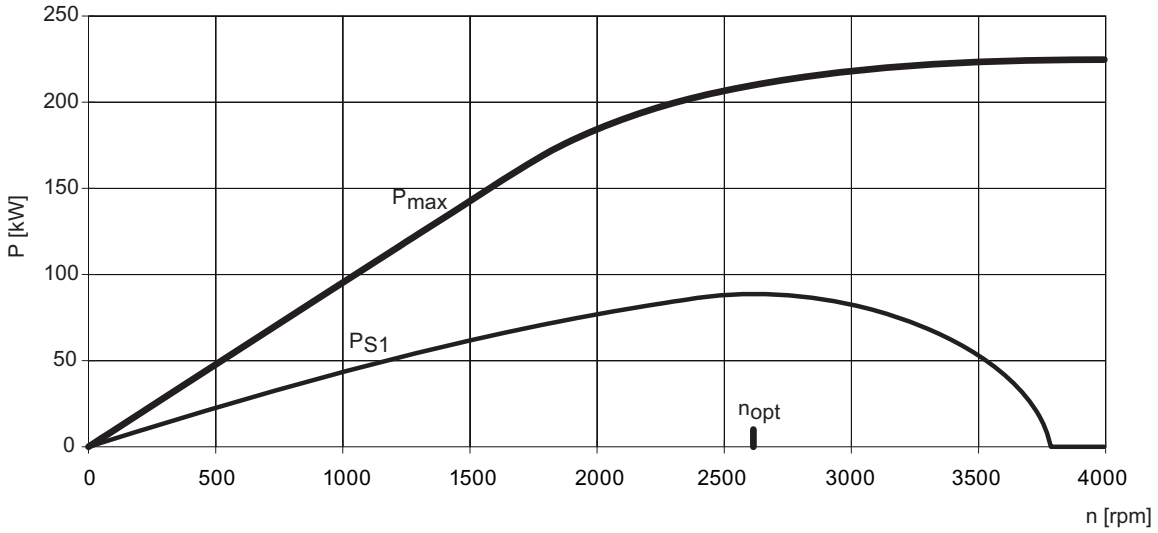


Table 4- 768 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8164-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	88.0	335	165	88.7	2615	4000	4000	>4000	915	472	440	205



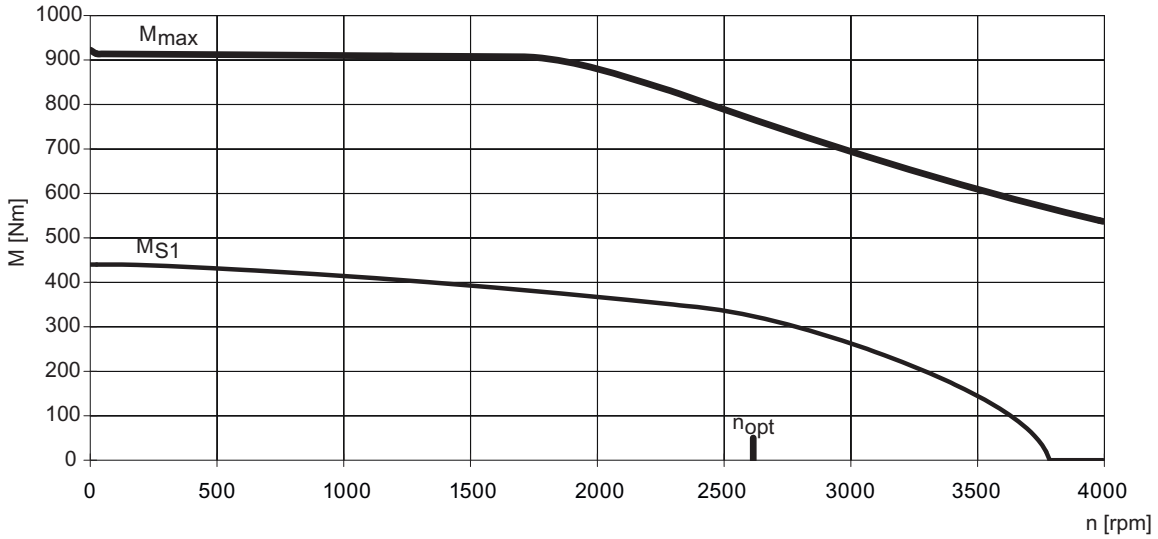
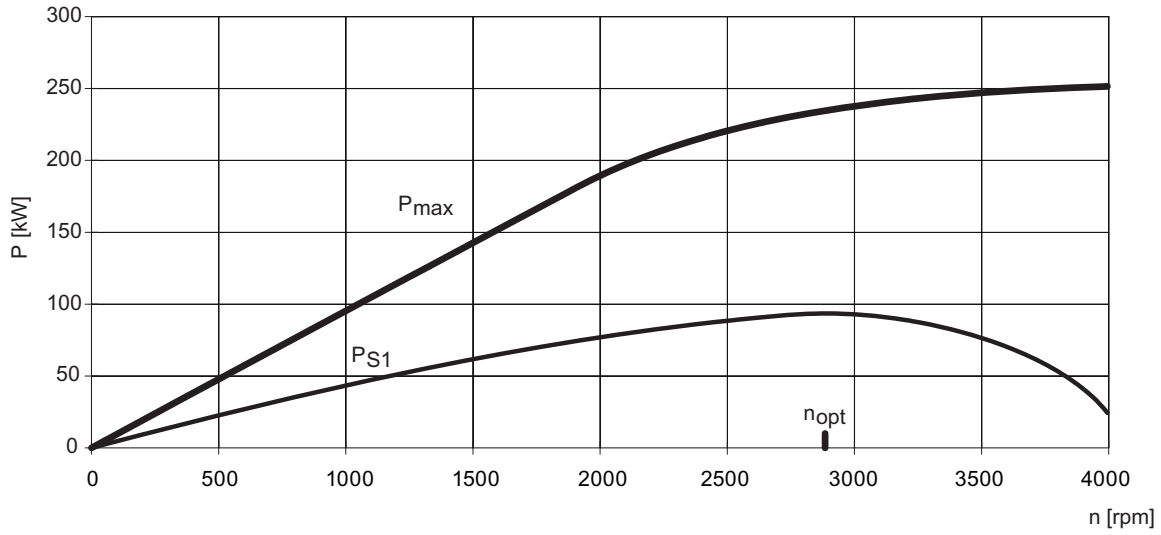


Table 4- 769 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8164-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	93.0	315	156	93.5	2885	4000	4000	>4000	915	472	440	205
2500	88.0	335	165									



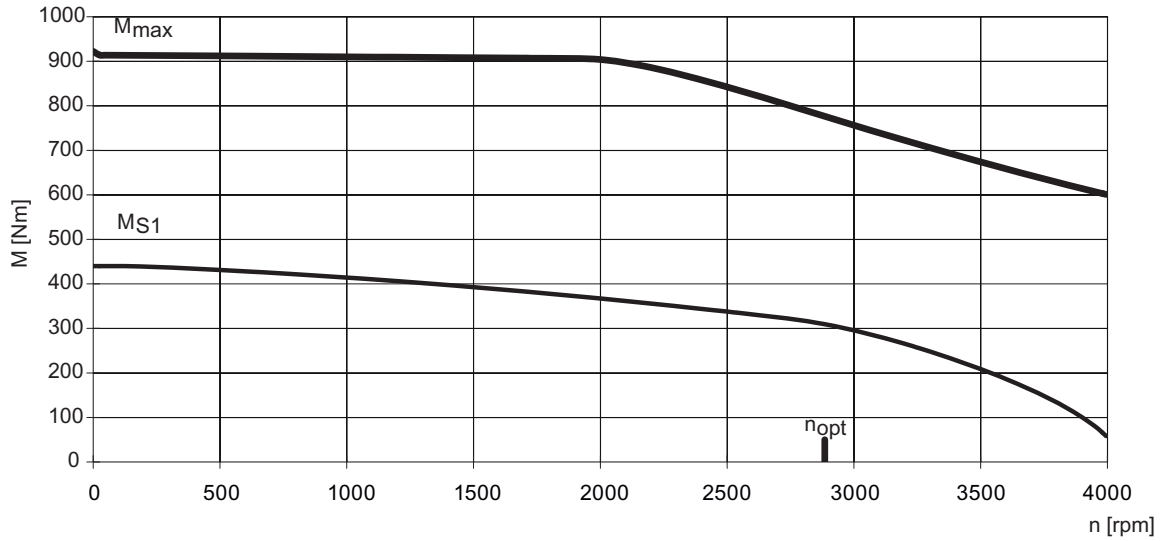
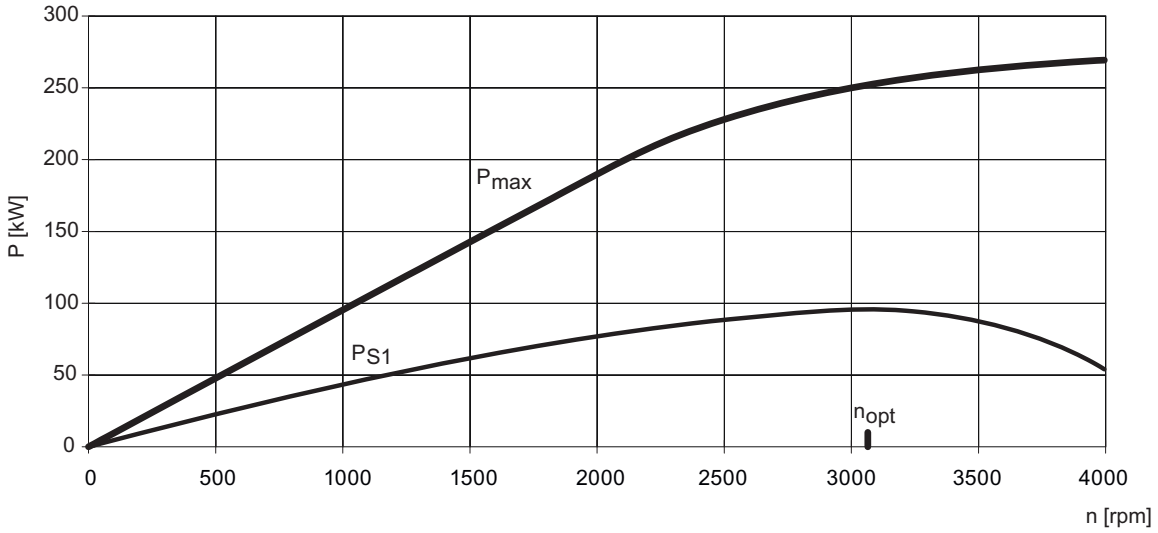


Table 4- 770 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8164-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	96.0	305	150	95.8	3065	4000	4000	>4000	915	472	440	205



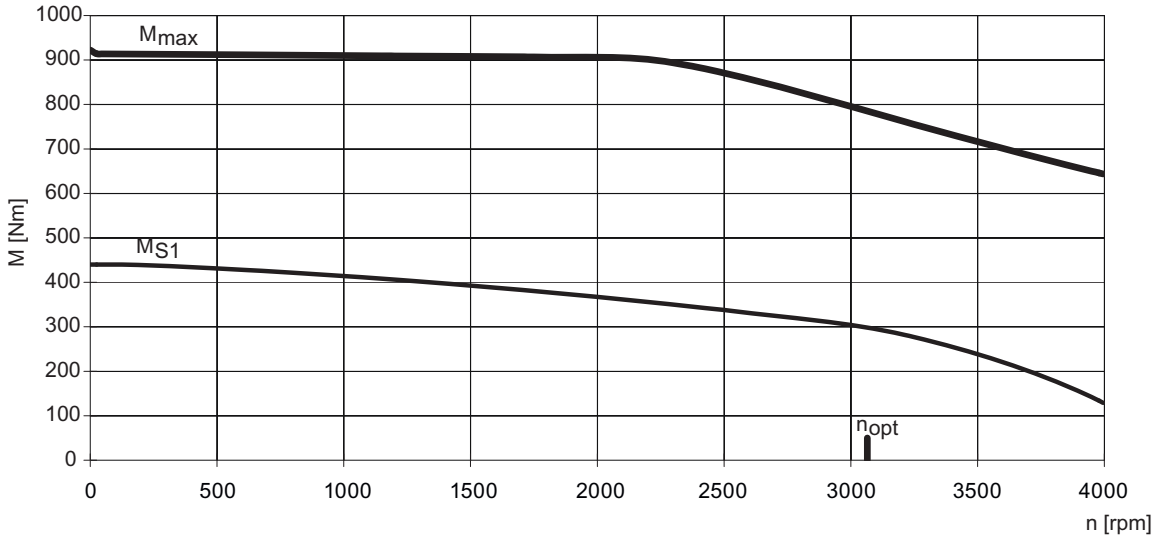
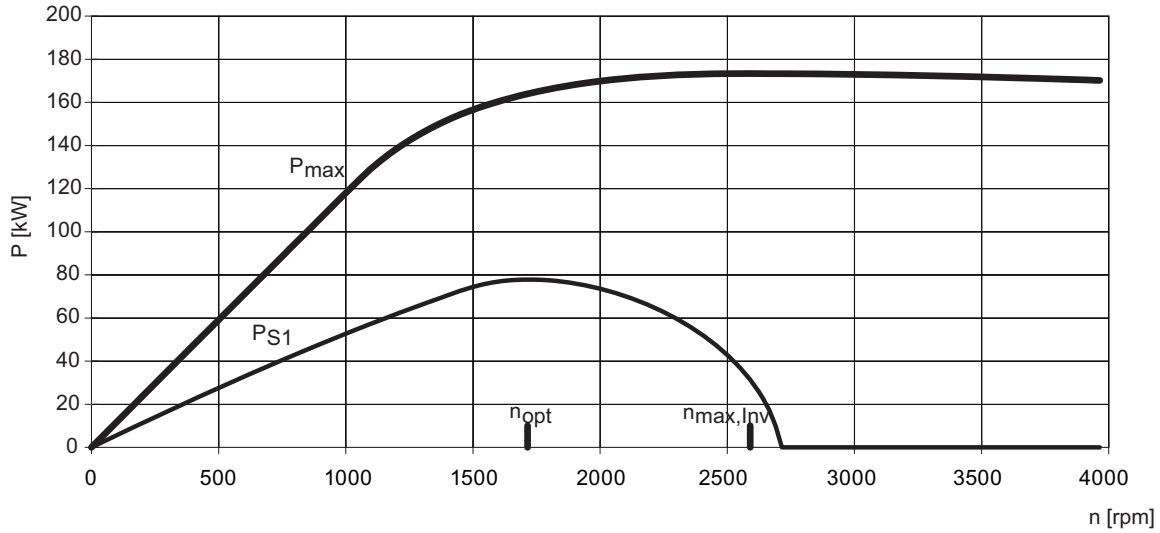


Table 4- 771 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	74.0	475	148	77.8	1715	4000	4000	2600	1135	367	550	159



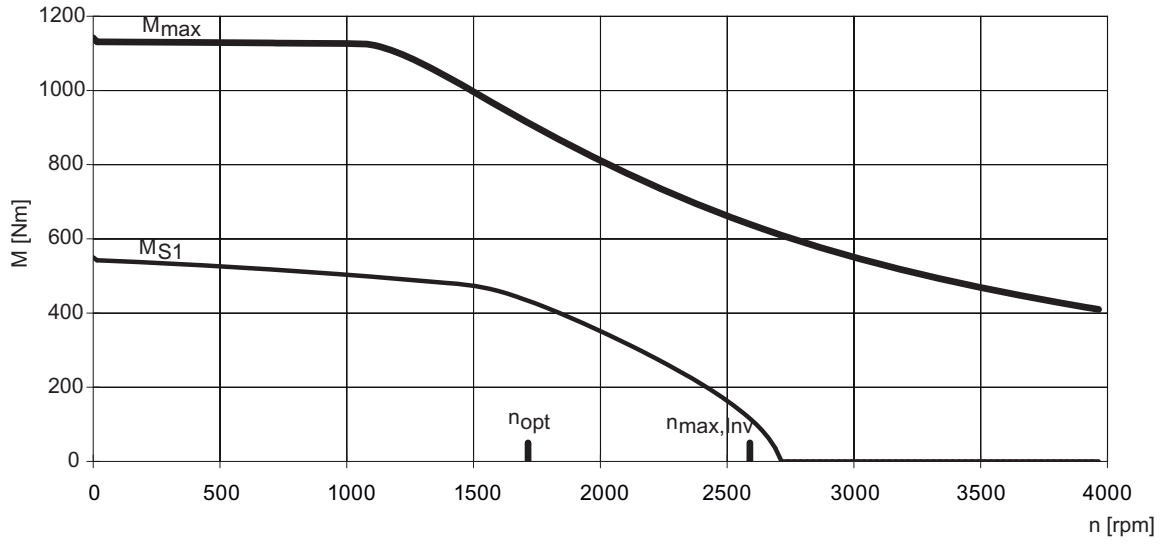
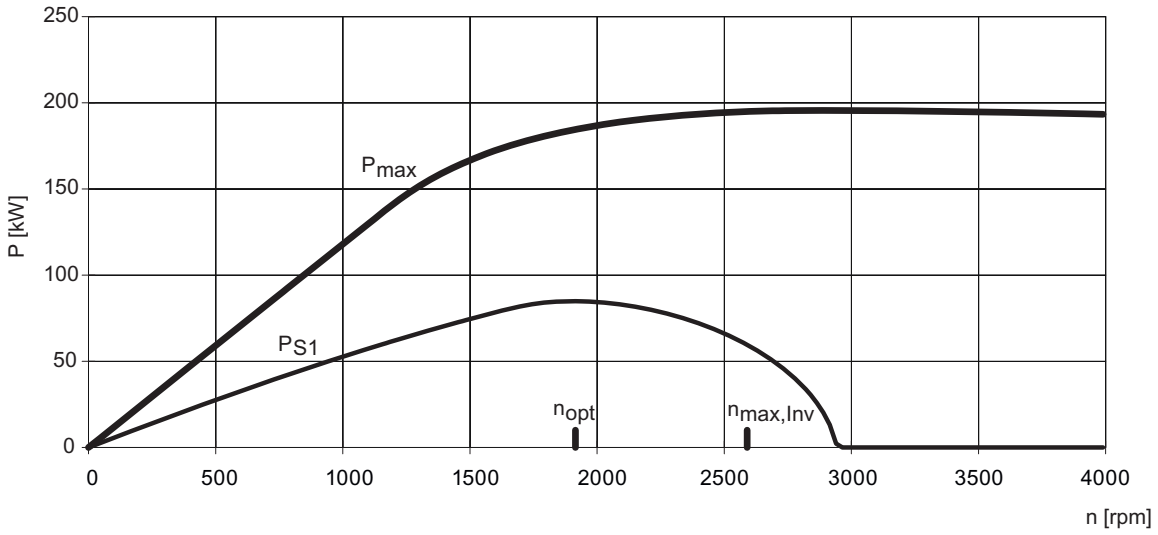


Table 4- 772 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	85.0	460	143	84.8	1915	4000	4000	2600	1135	367	550	159
1500	74.0	475	148									



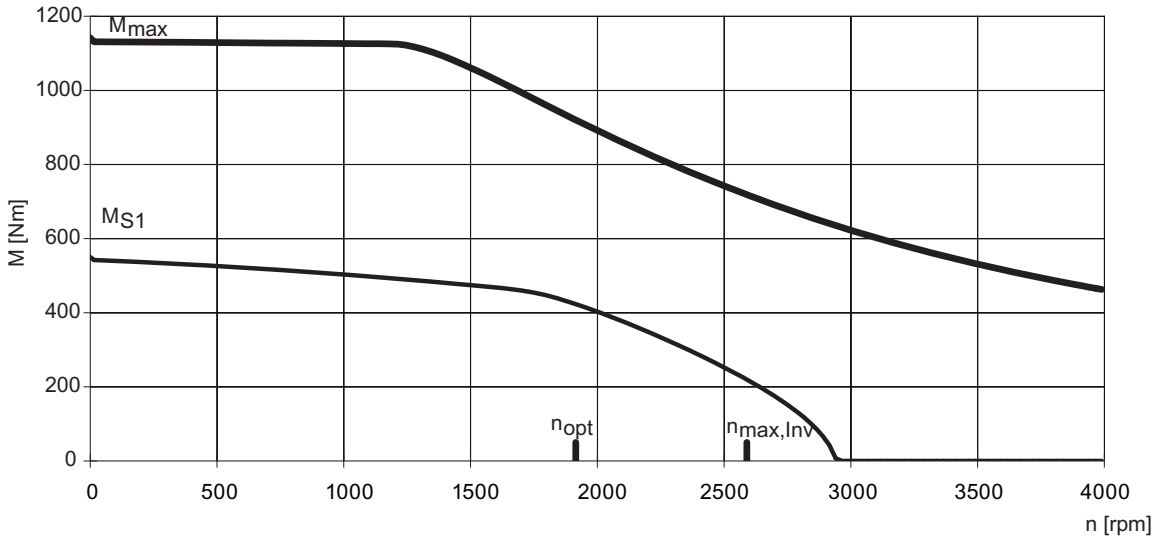
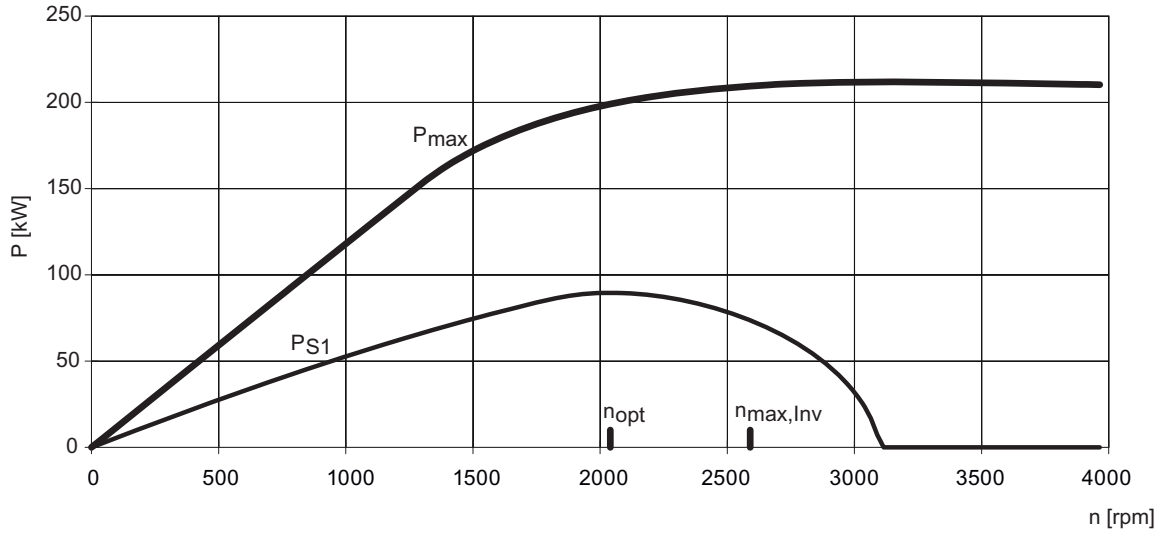


Table 4- 773 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	89.0	425	138	89.5	2040	4000	4000	2600	1135	367	550	159



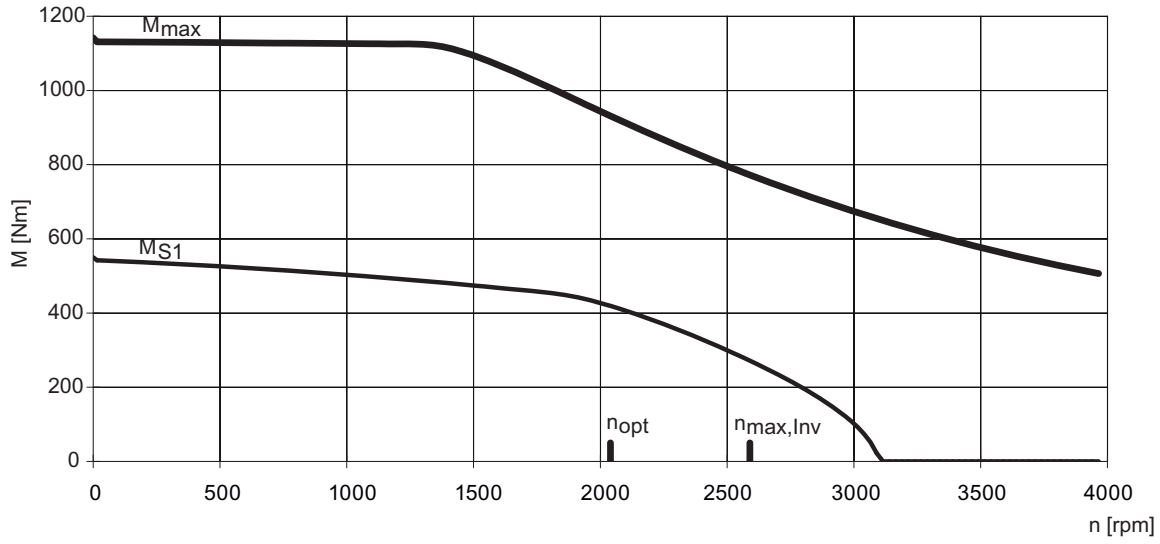
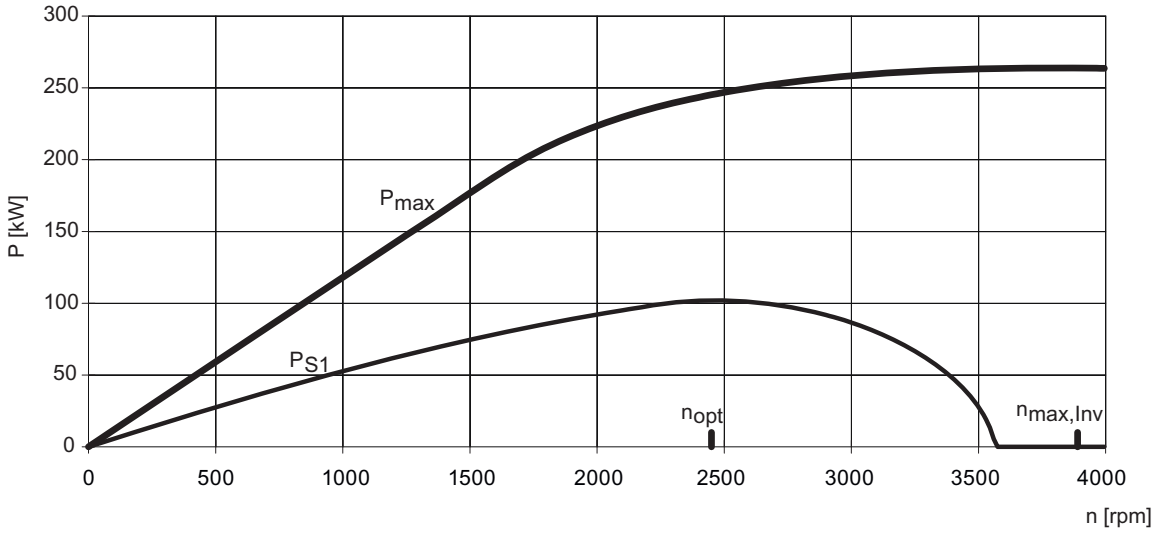


Table 4- 774 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	102.0	390	188	102.0	2450	4000	4000	3900	1135	551	550	240



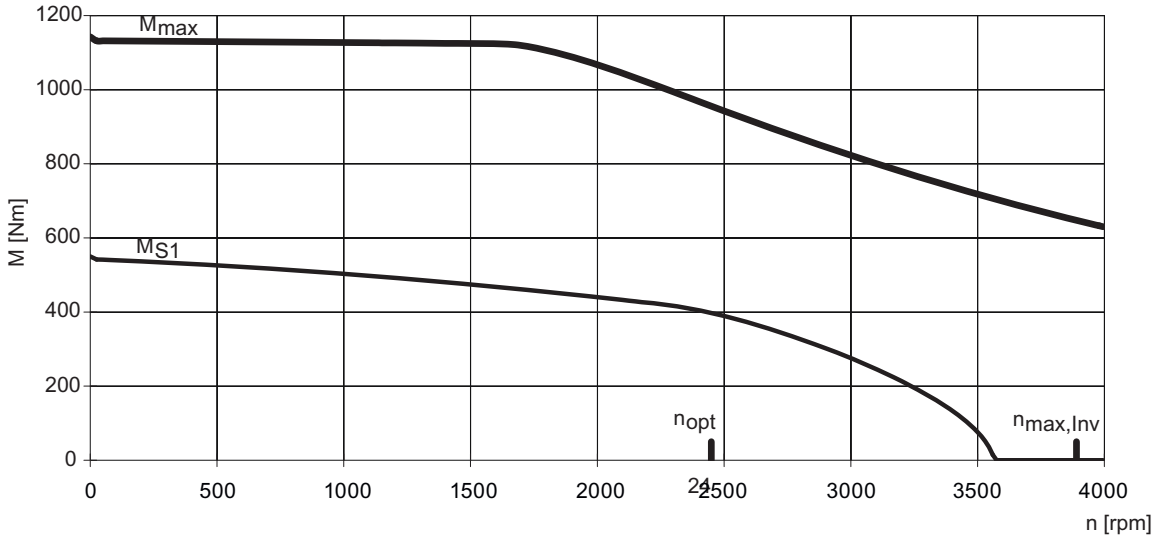
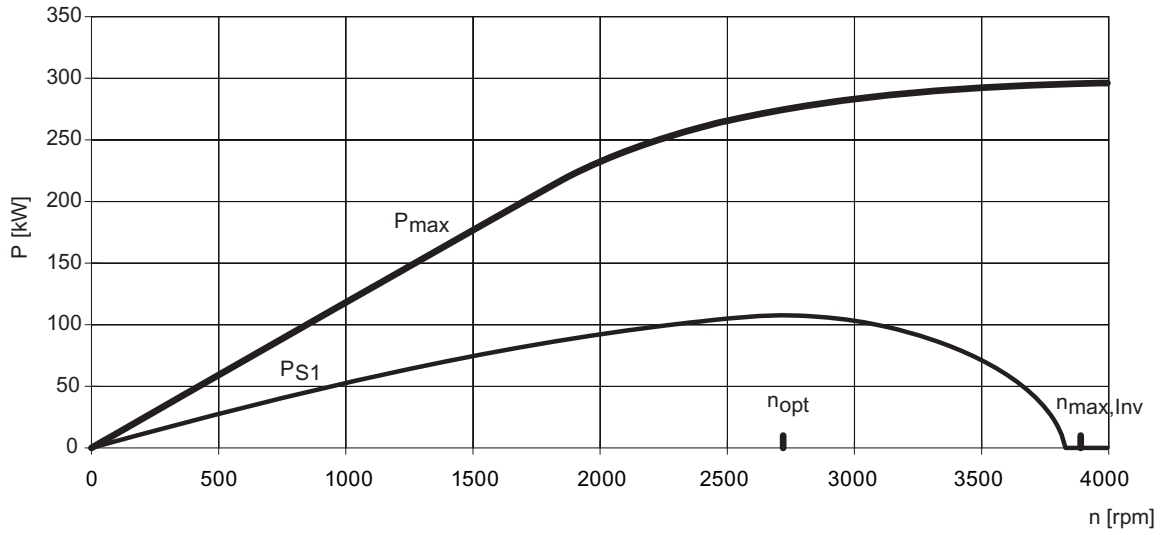


Table 4- 775 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	109.0	375	177	107.6	2720	4000	4000	3900	1135	551	550	240
2500	102.0	390	188									



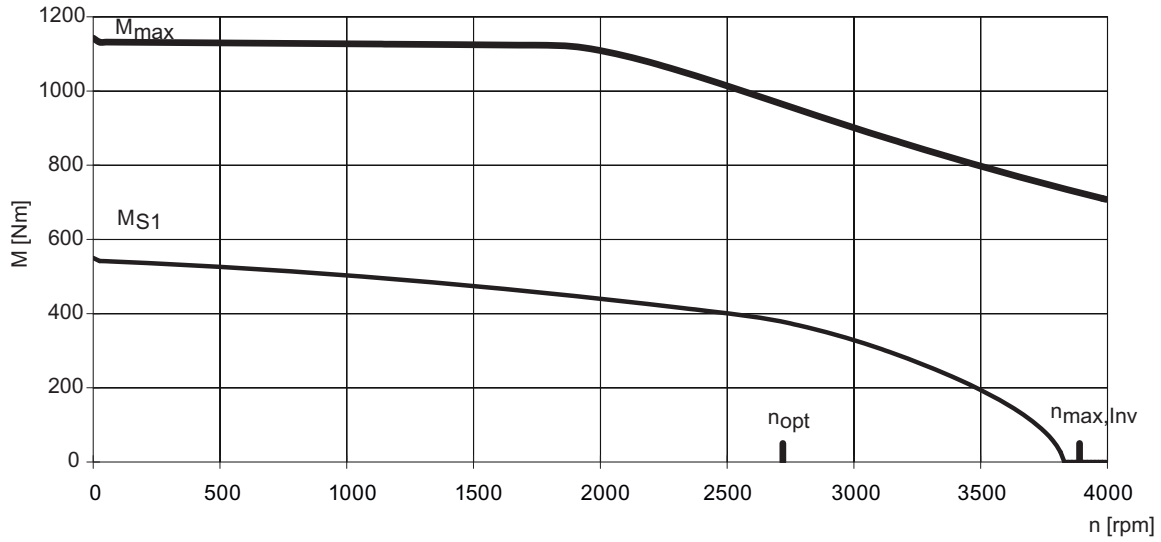
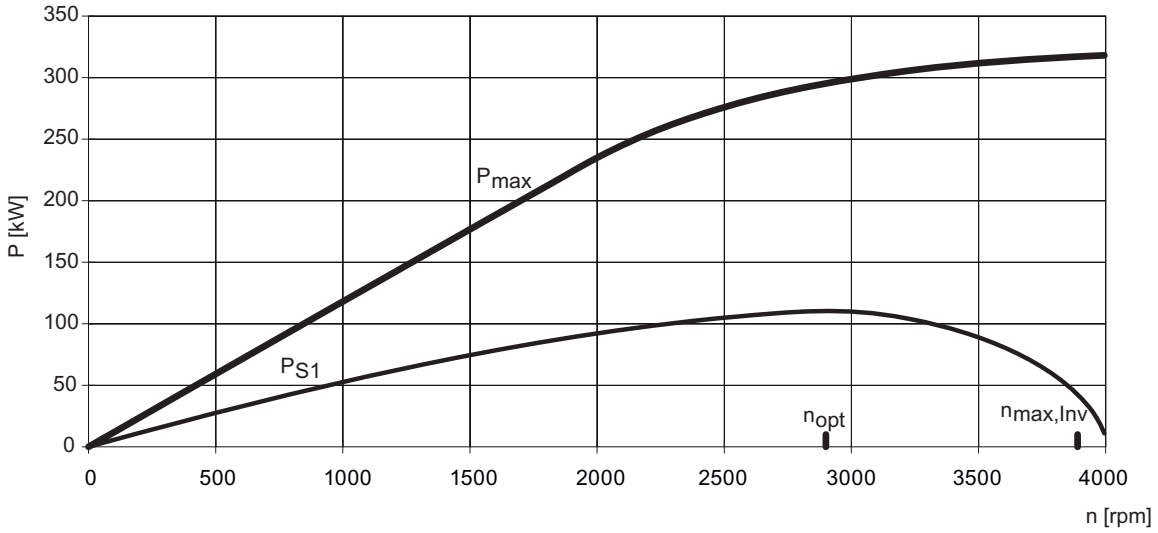


Table 4- 776 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	110.0	350	169	110.4	2900	4000	4000	3900	1135	551	550	240



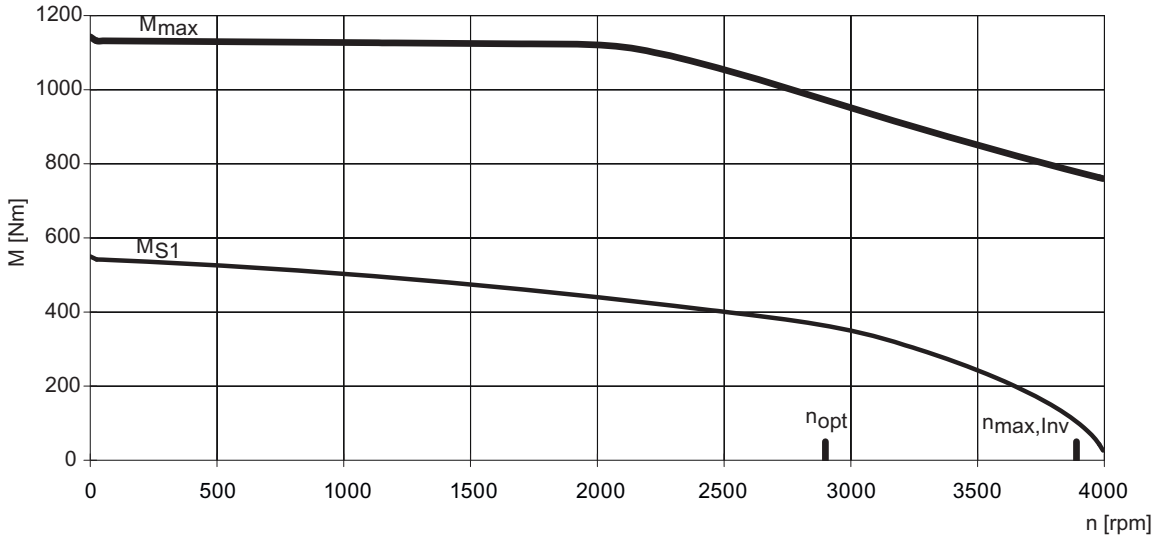
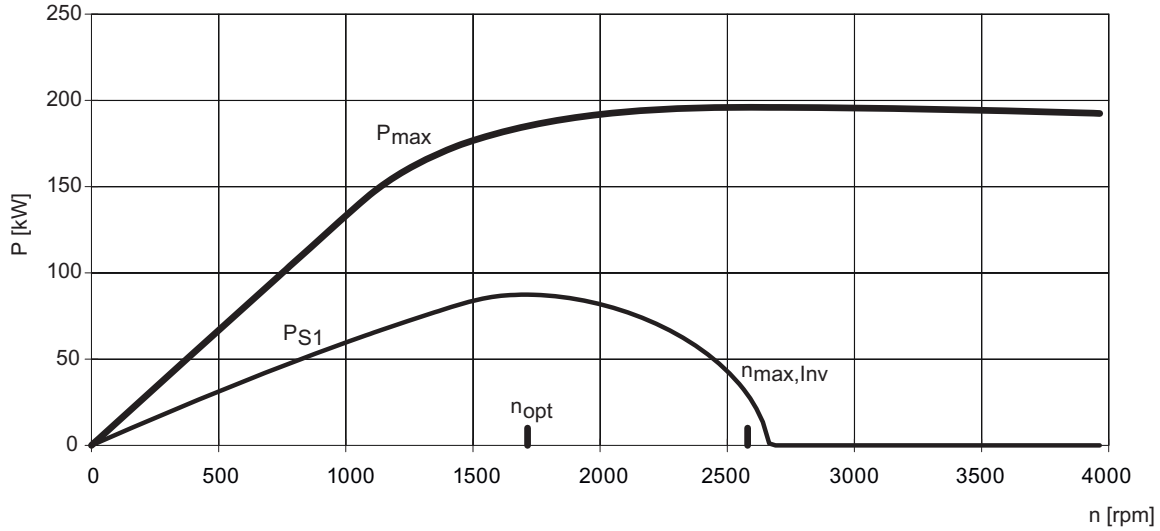


Table 4- 777 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8168-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	84.0	530	169	87.4	1715	4000	4000	2600	1280	413	620	179



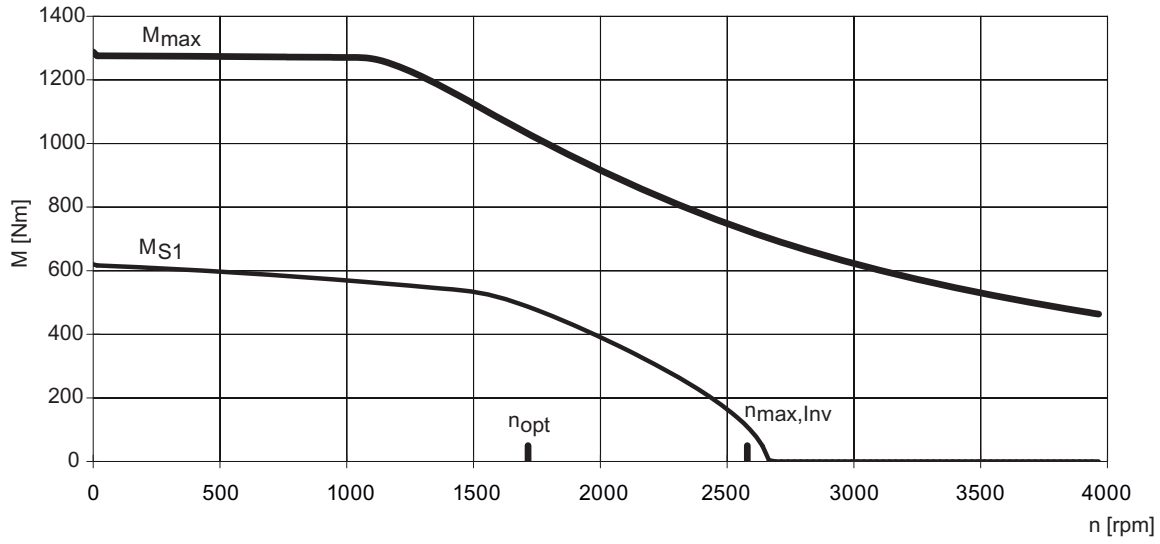
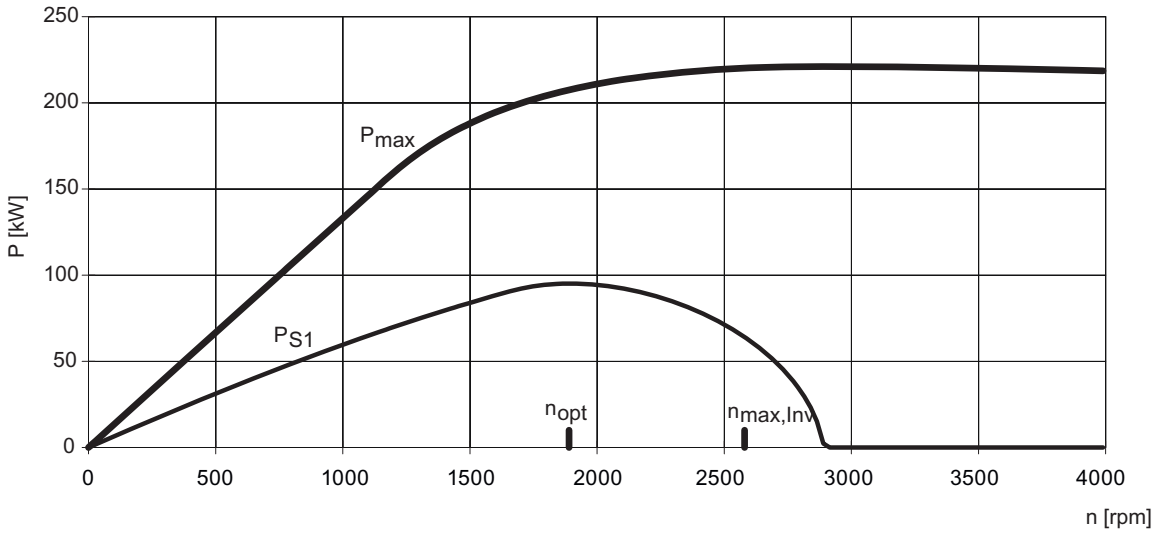


Table 4- 778 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8168-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	94.0	510	164	95.1	1890	4000	4000	2600	1280	413	620	179
1500	84.0	530	169									



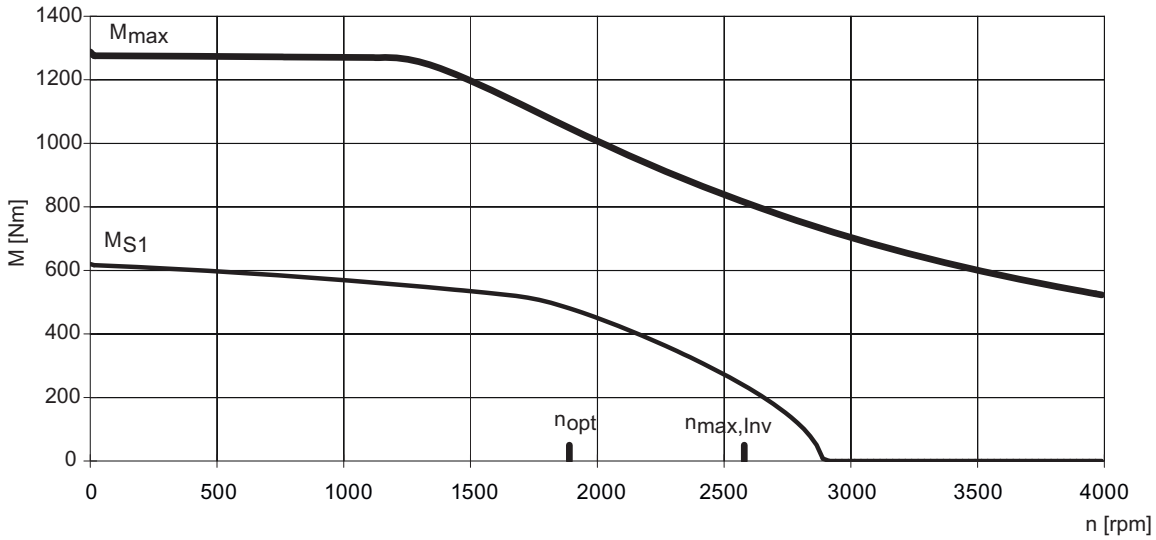
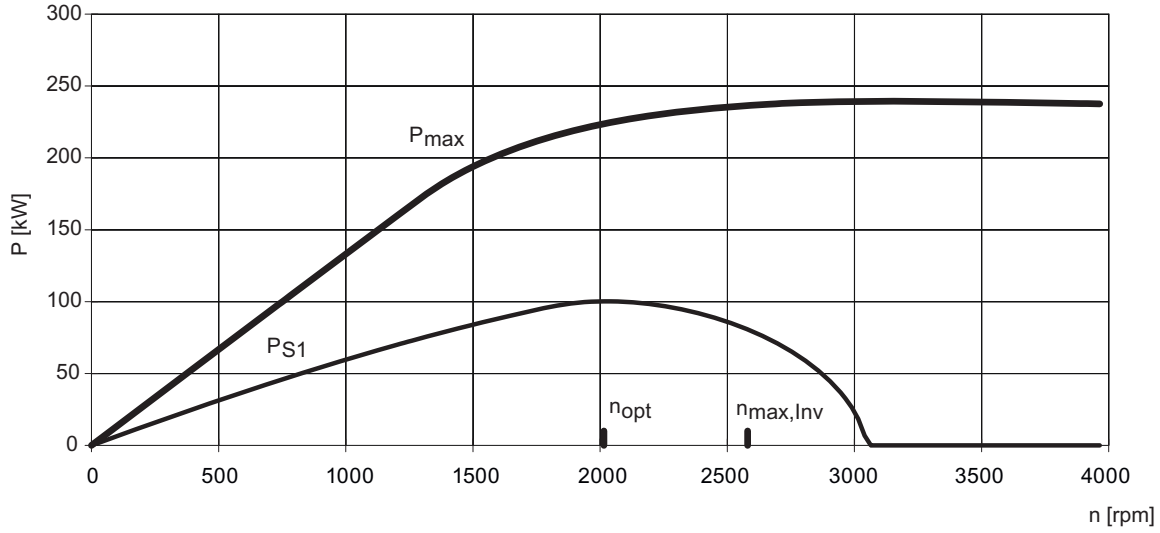


Table 4- 779 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8168-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	100.0	480	157	100.2	2015	4000	4000	2600	1280	413	620	179



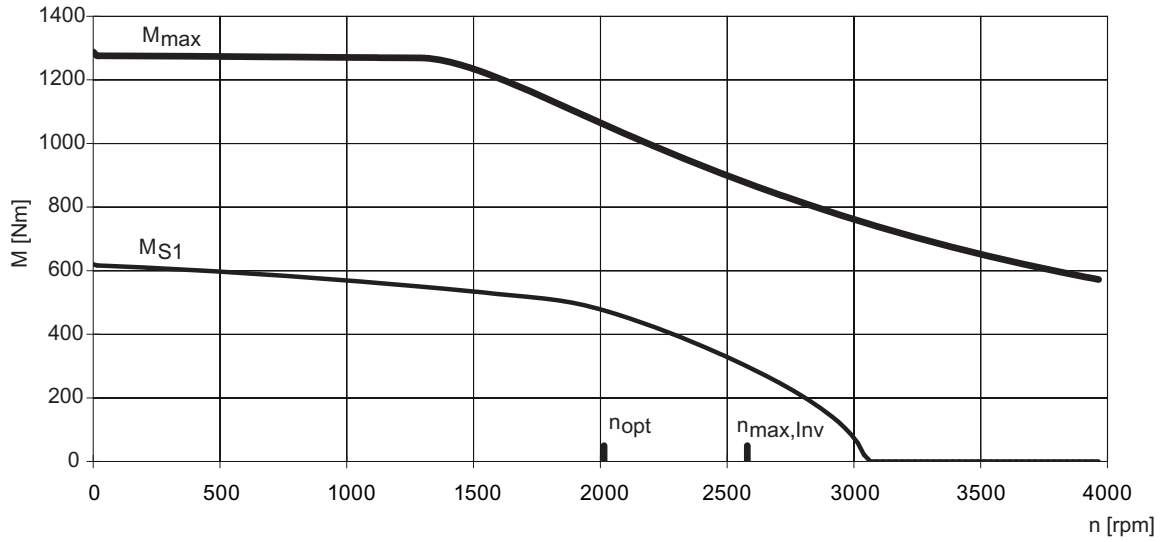
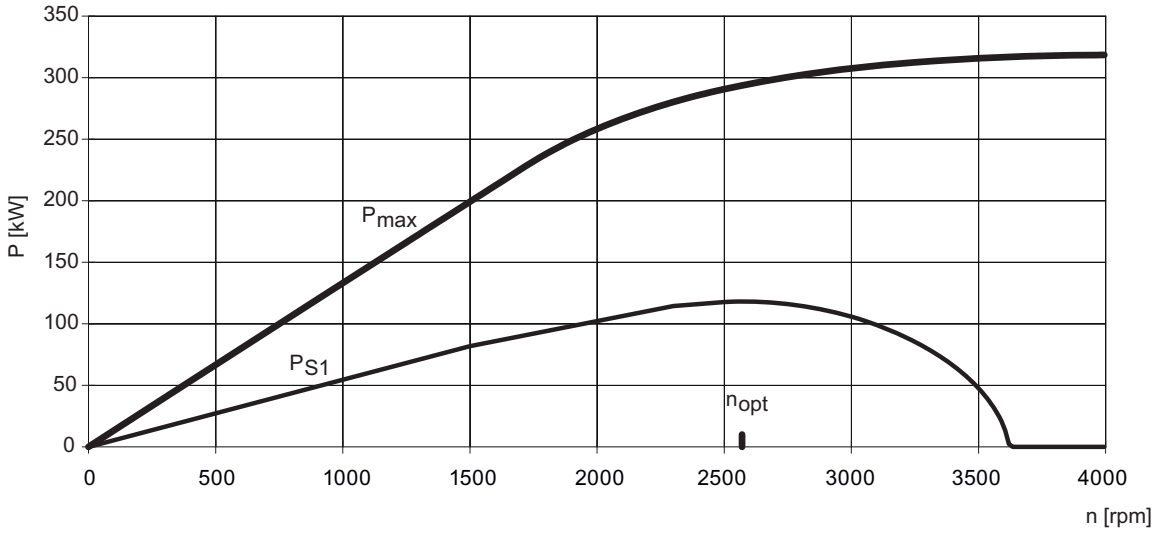


Table 4- 780 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8168-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	119.0	455	225	118.1	2570	4000	4000	>4000	1280	661	520	240



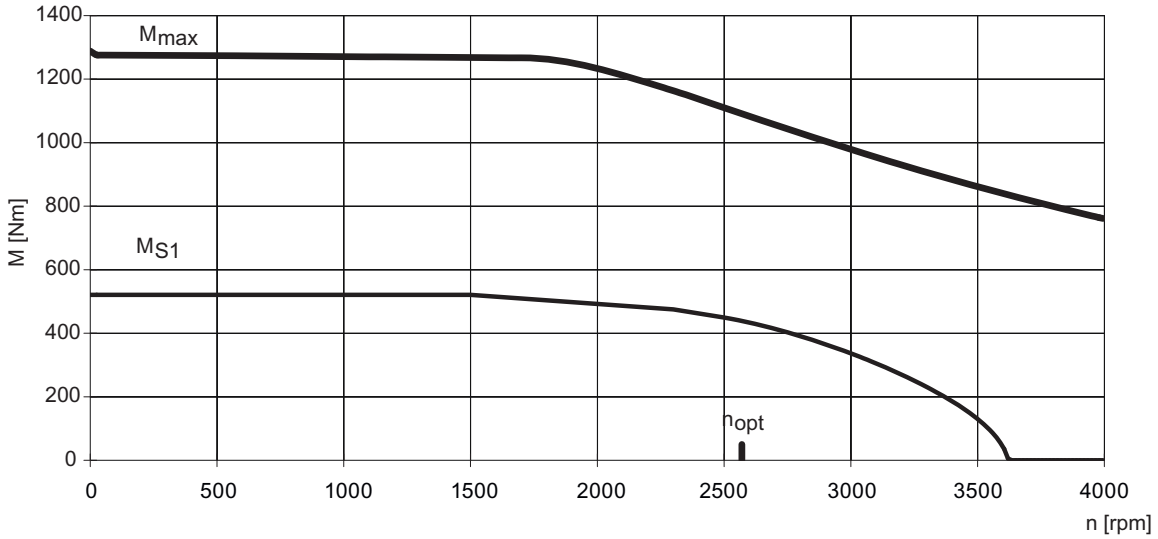


Table 4- 781 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8168-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2800	123.0	420	210	123.5	2840	4000	4000	>4000	1280	661	520	240
2500	119.0	455	225									

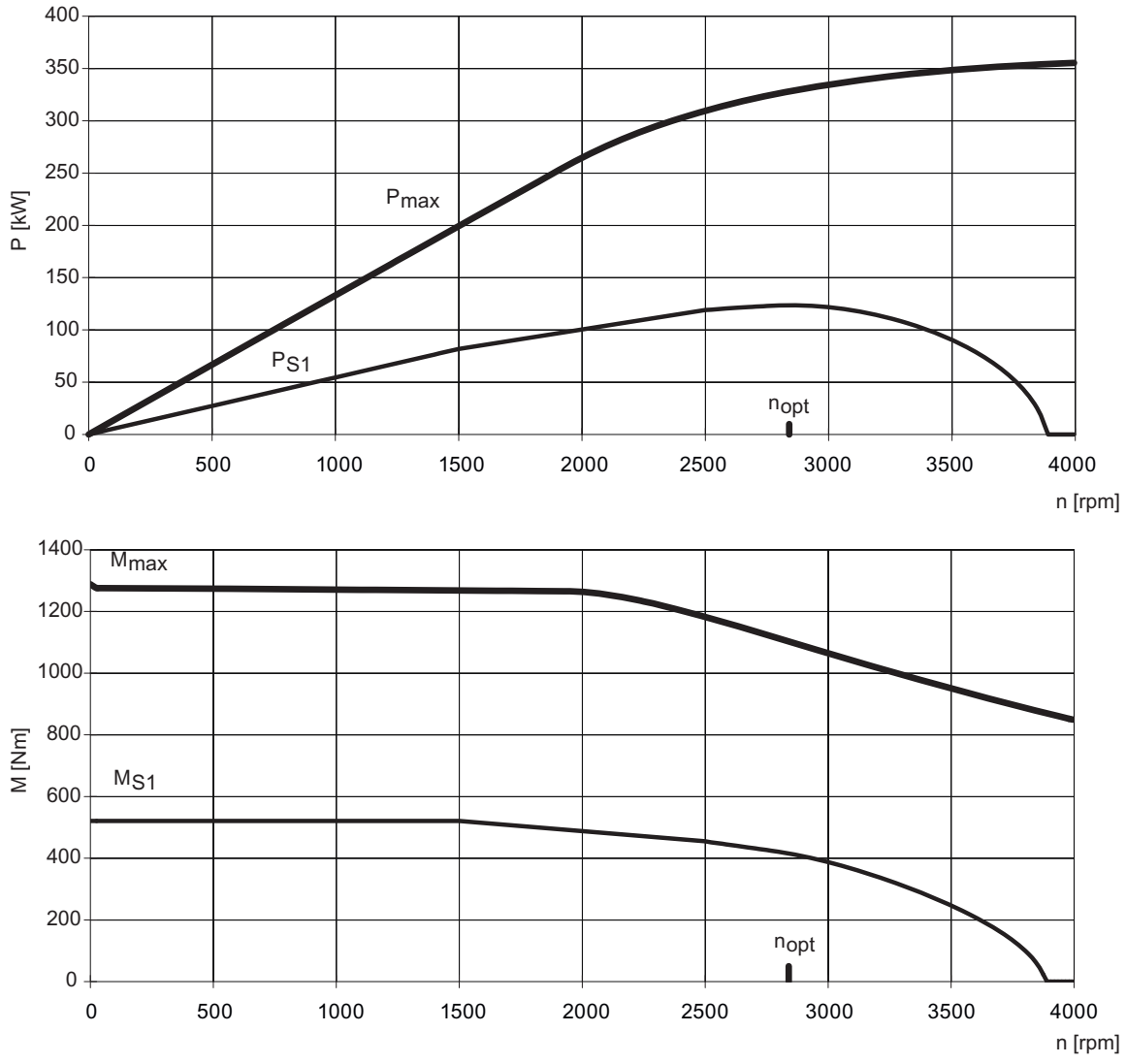
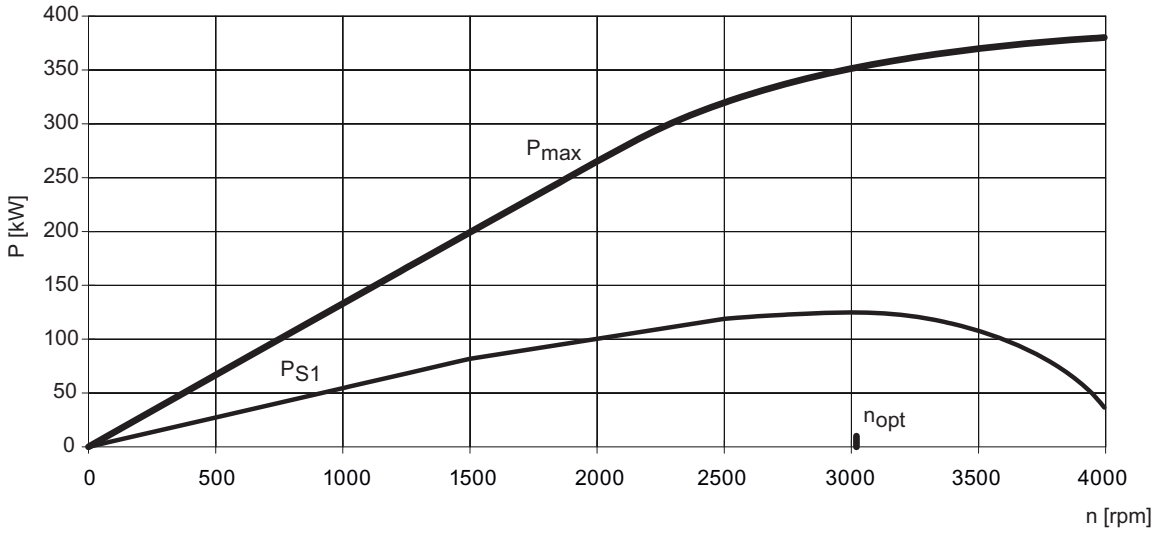
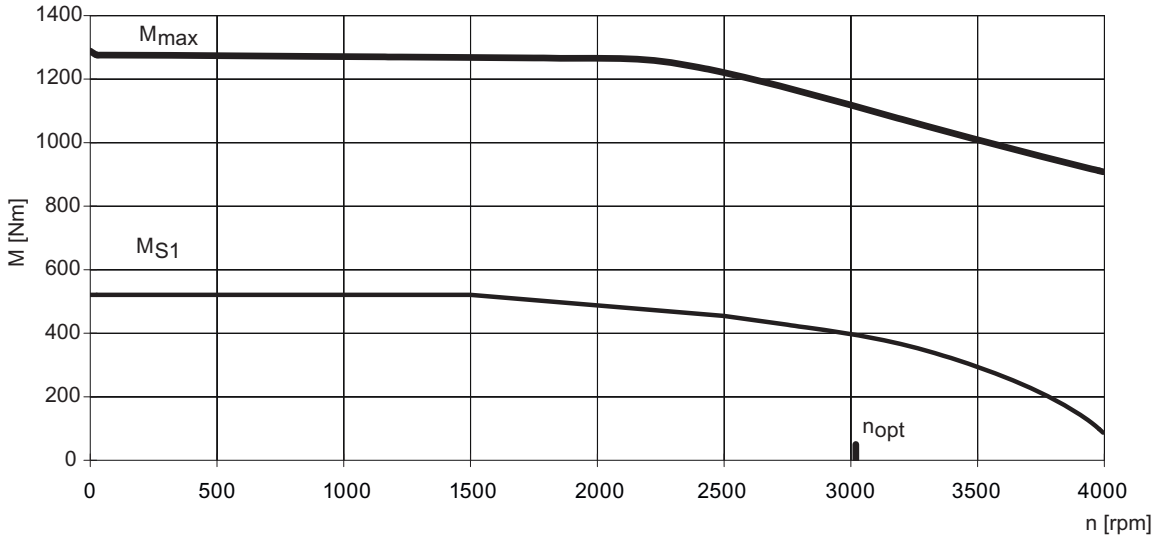


Table 4- 782 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8168-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3000	125.0	395	197	124.8	3020	4000	4000	>4000	1280	661	520	240

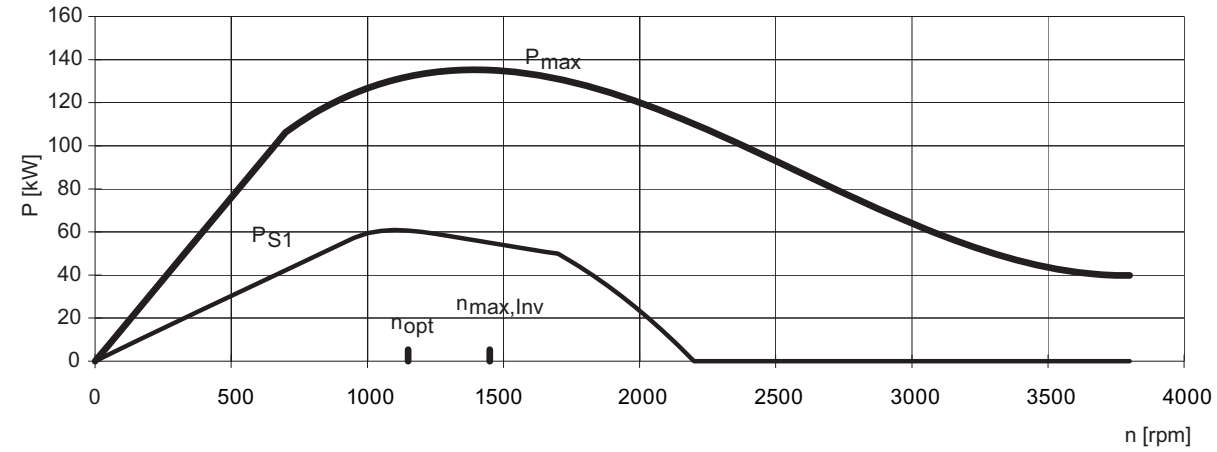




4.2.3.3 Shaft height 180 - water-cooled

Table 4- 783 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	42	573	100	61	1150	3800	3500	1450	1450	260	590	103



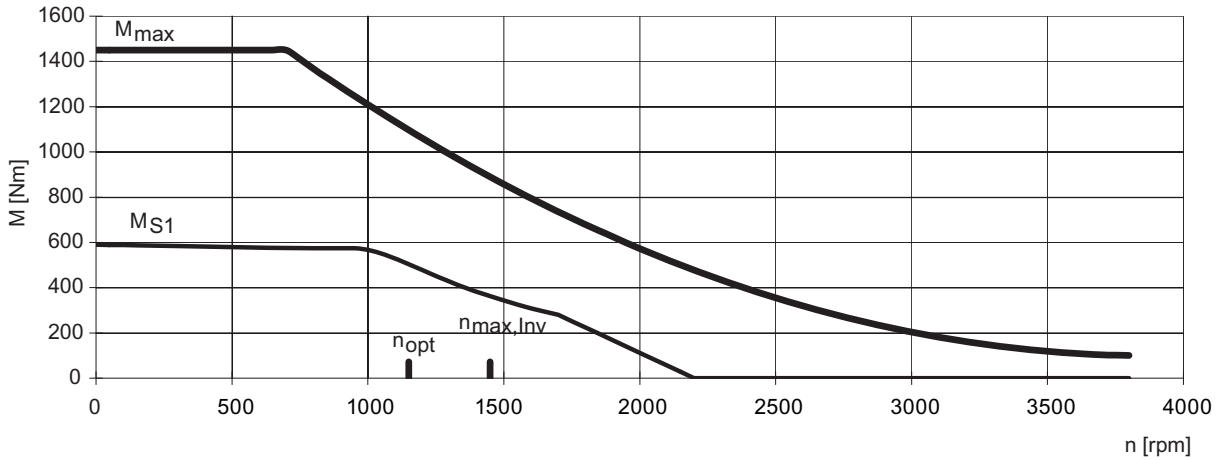


Table 4- 784 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	48	573	102	68	1250	3800	3500	1450	1450	260	590	103

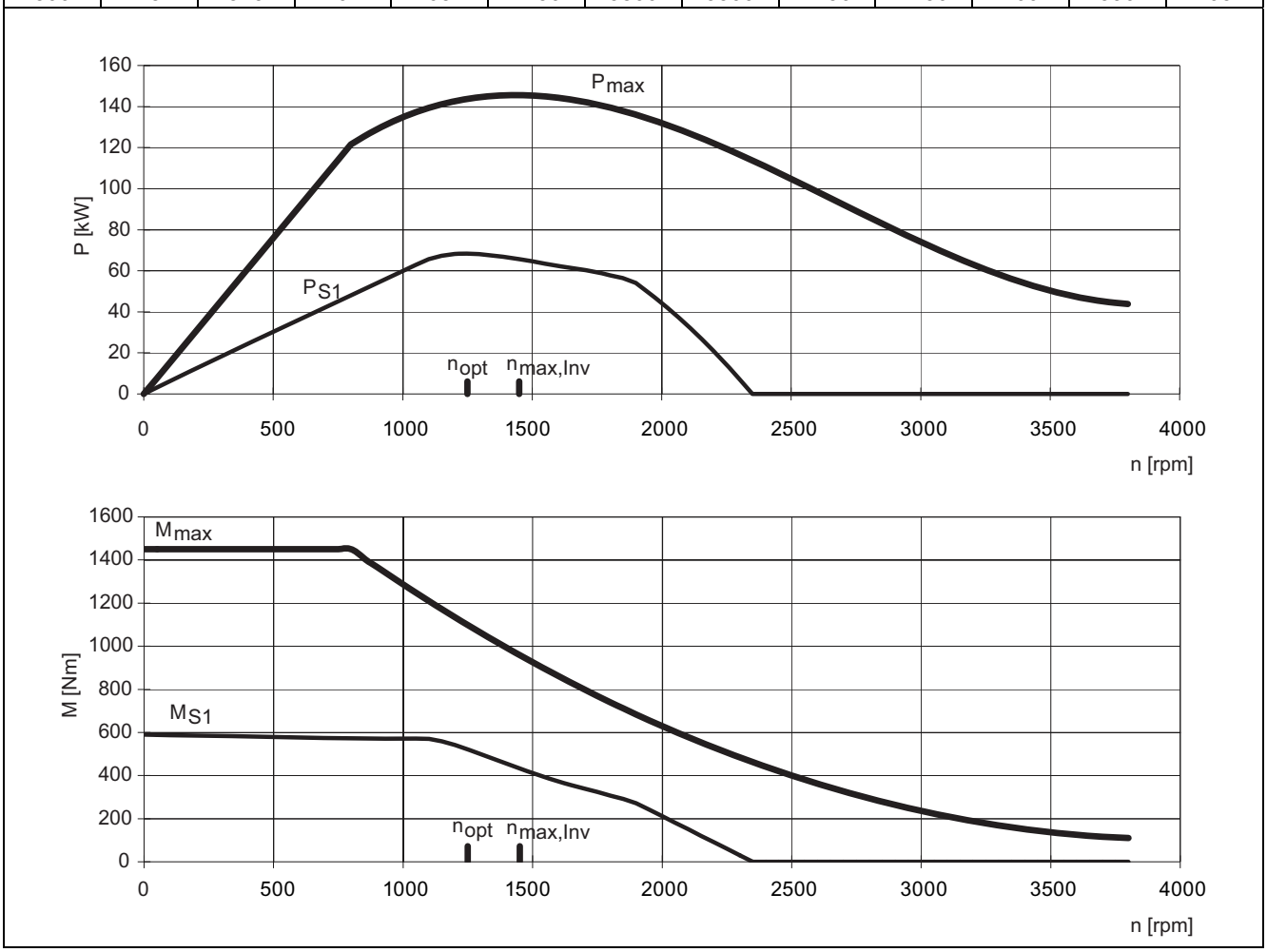
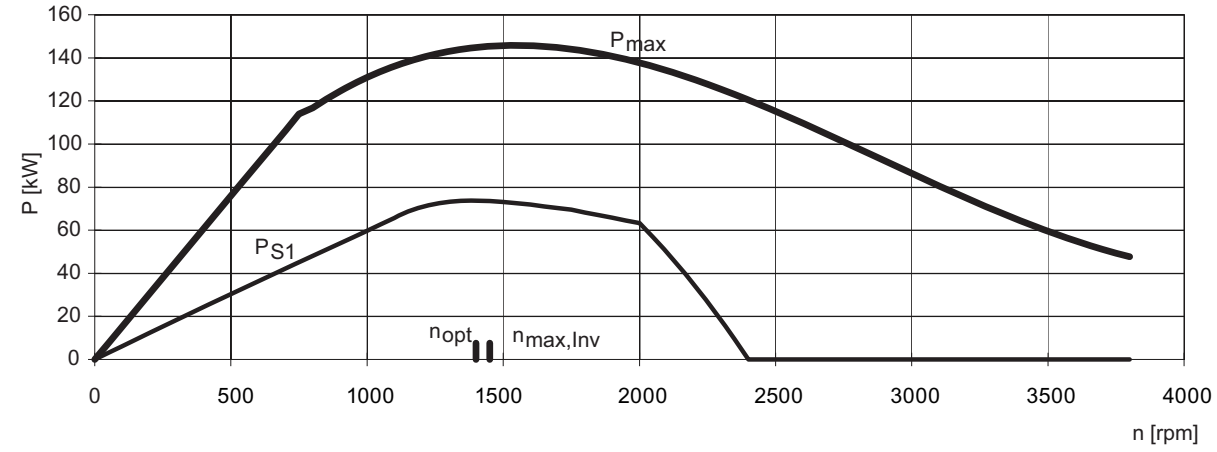


Table 4- 785 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	60	573	102	74	1400	3800	3500	1450	1450	260	590	103



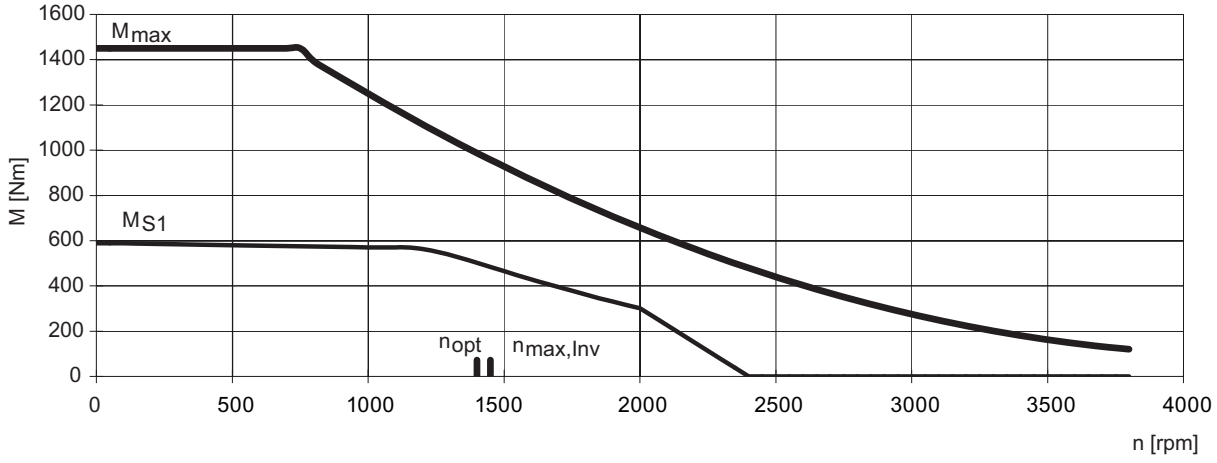


Table 4- 786 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	61	583	140	84	1500	3800	3500	1950	1450	355	600	143

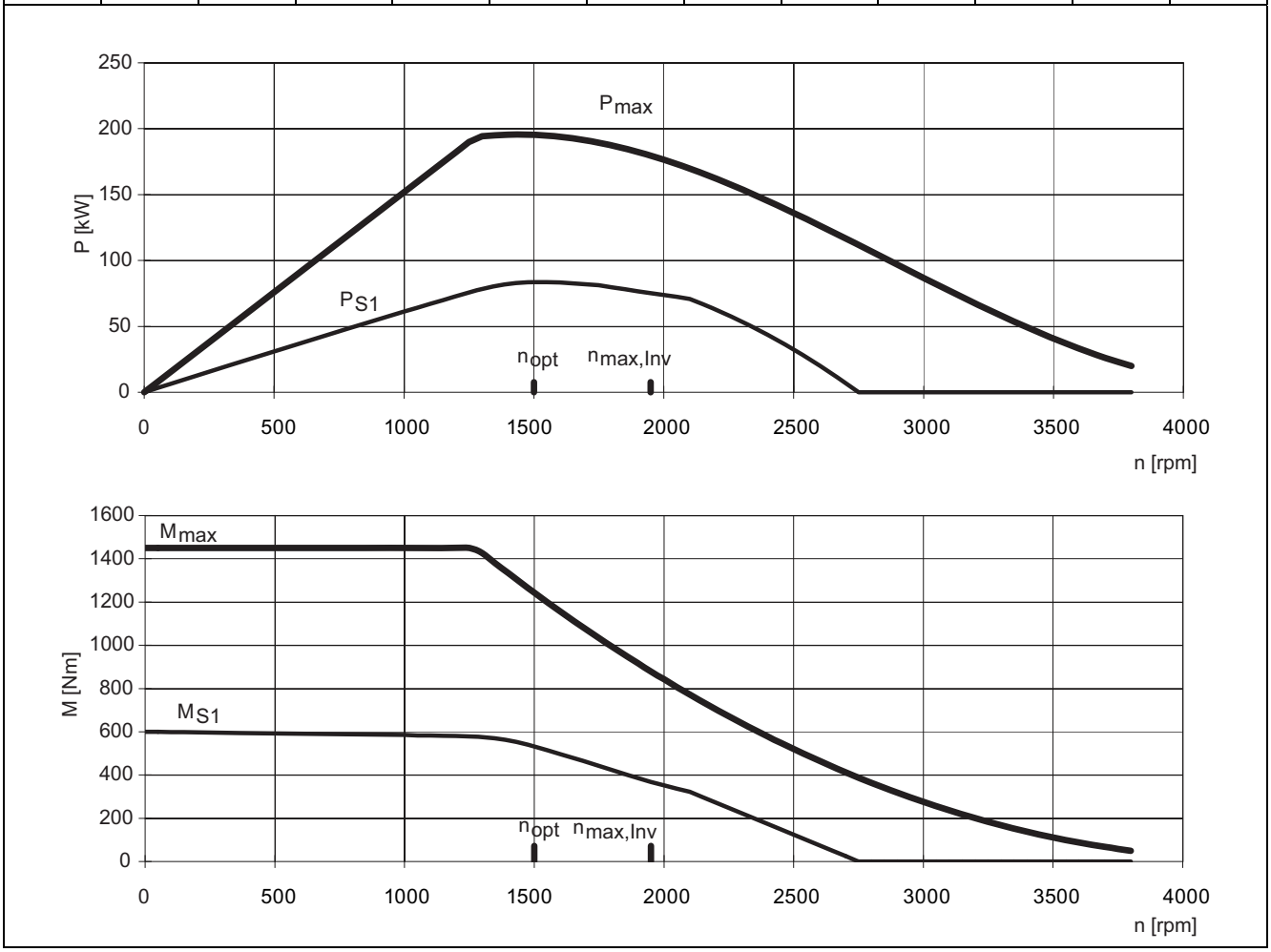


Table 4- 787 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	70	581	140	94	1700	3800	3500	1950	1450	355	600	143

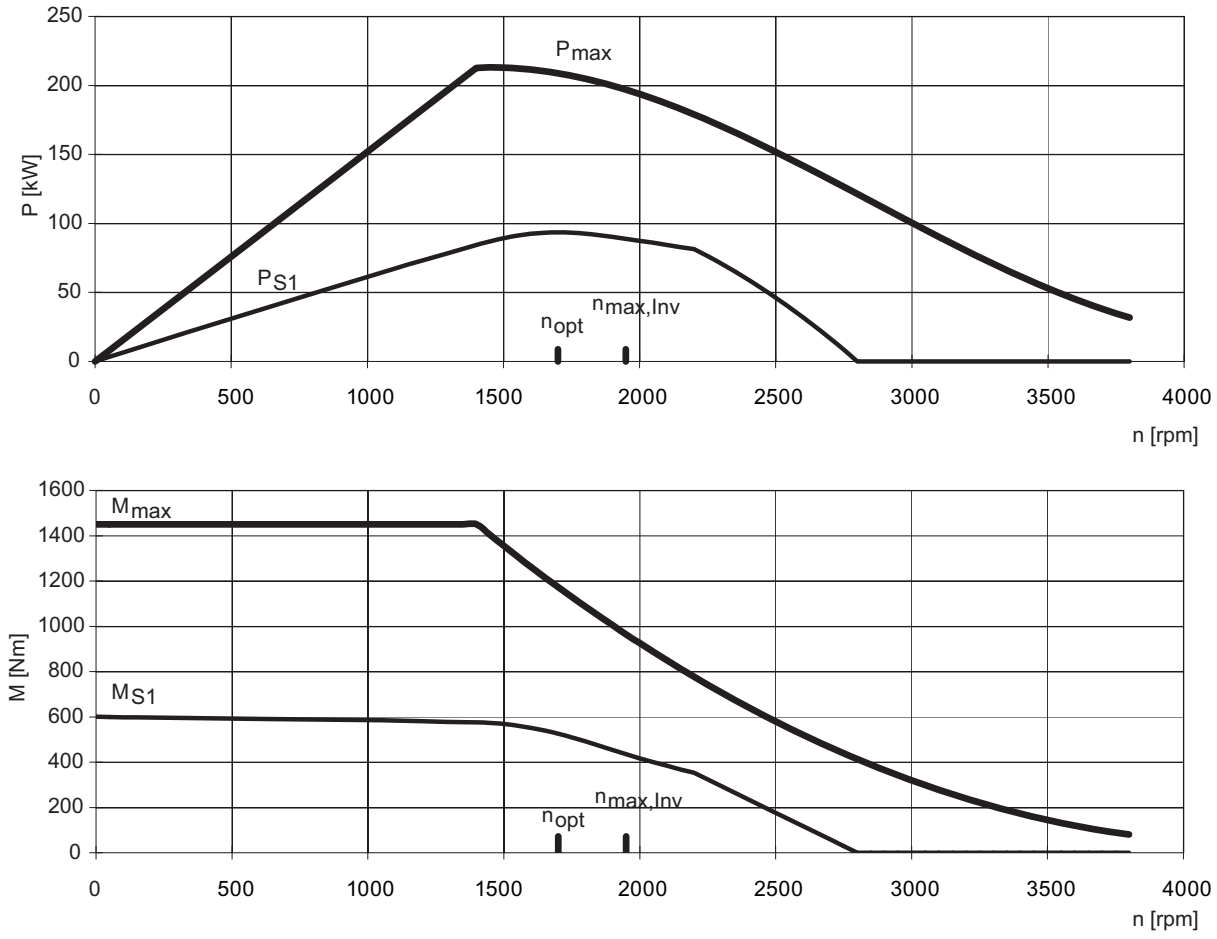


Table 4- 788 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	82	580	140	100	1800	3800	3500	1950	1450	355	600	143

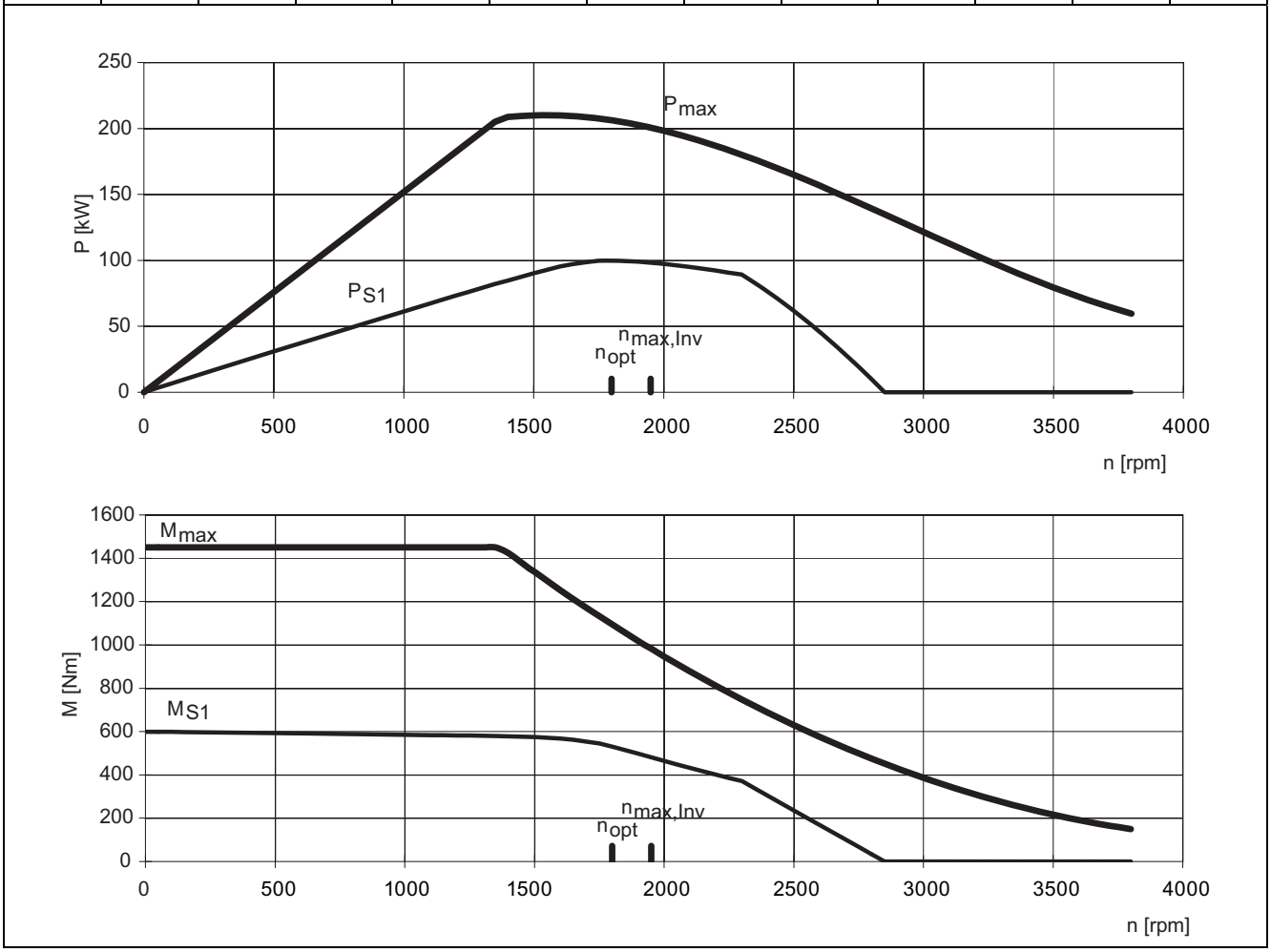


Table 4- 789 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	90	573	190	111	2000	3800	3500	2700	1450	490	600	196

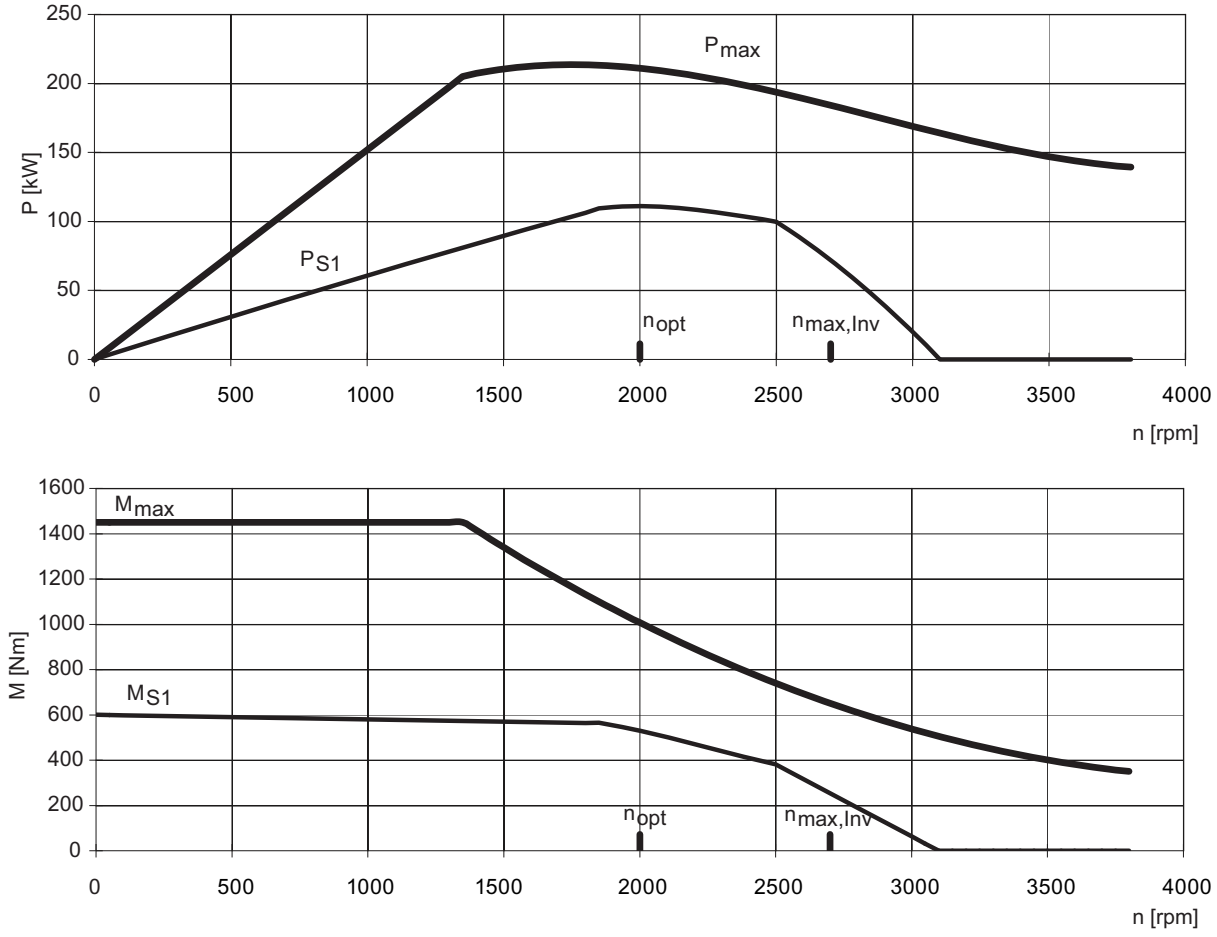


Table 4- 790 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	103	562	186	120	2150	3800	3500	2700	1450	490	600	196

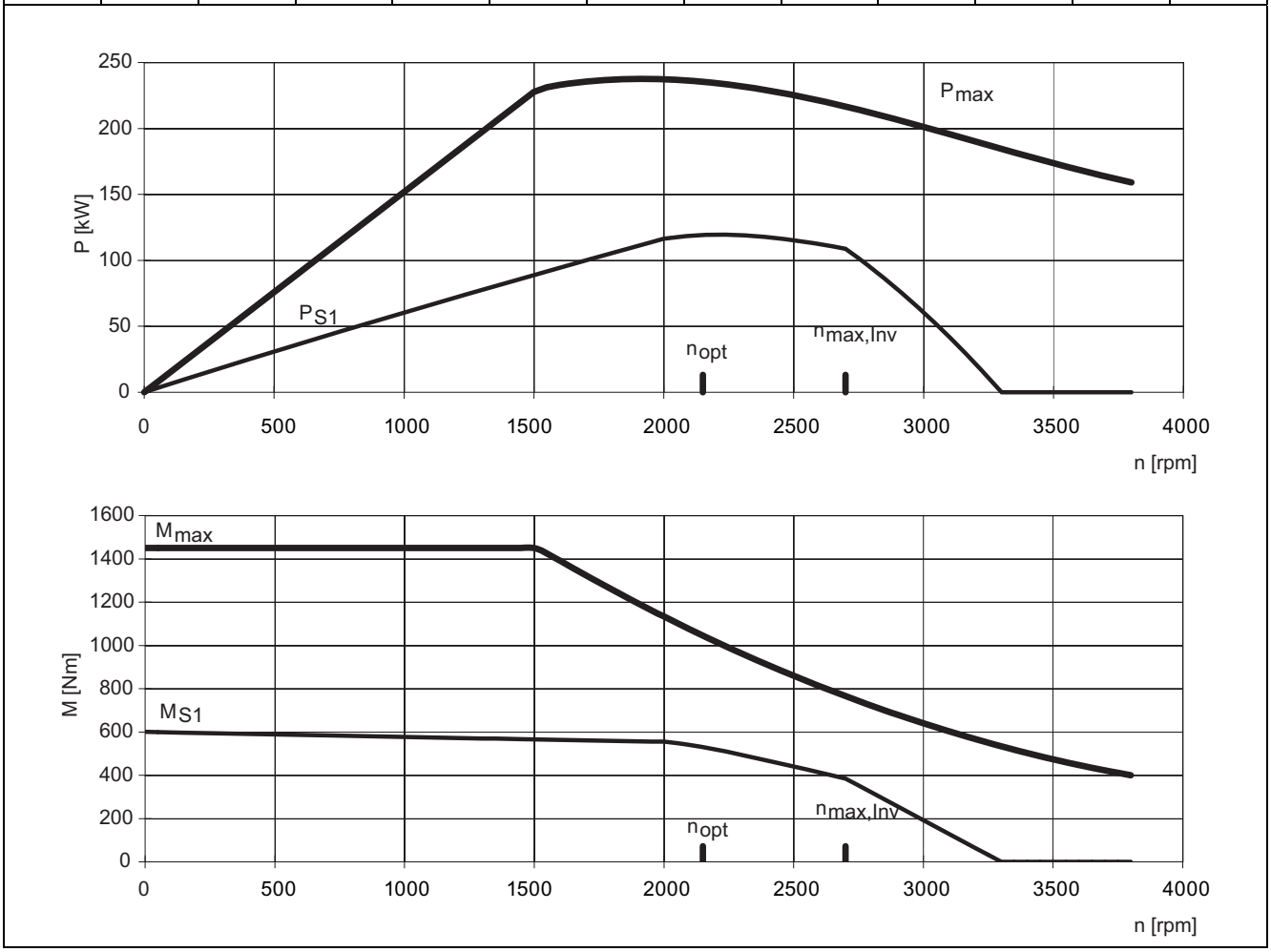


Table 4- 791 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	110	525	176	125	2250	3800	3500	2700	1450	490	600	196

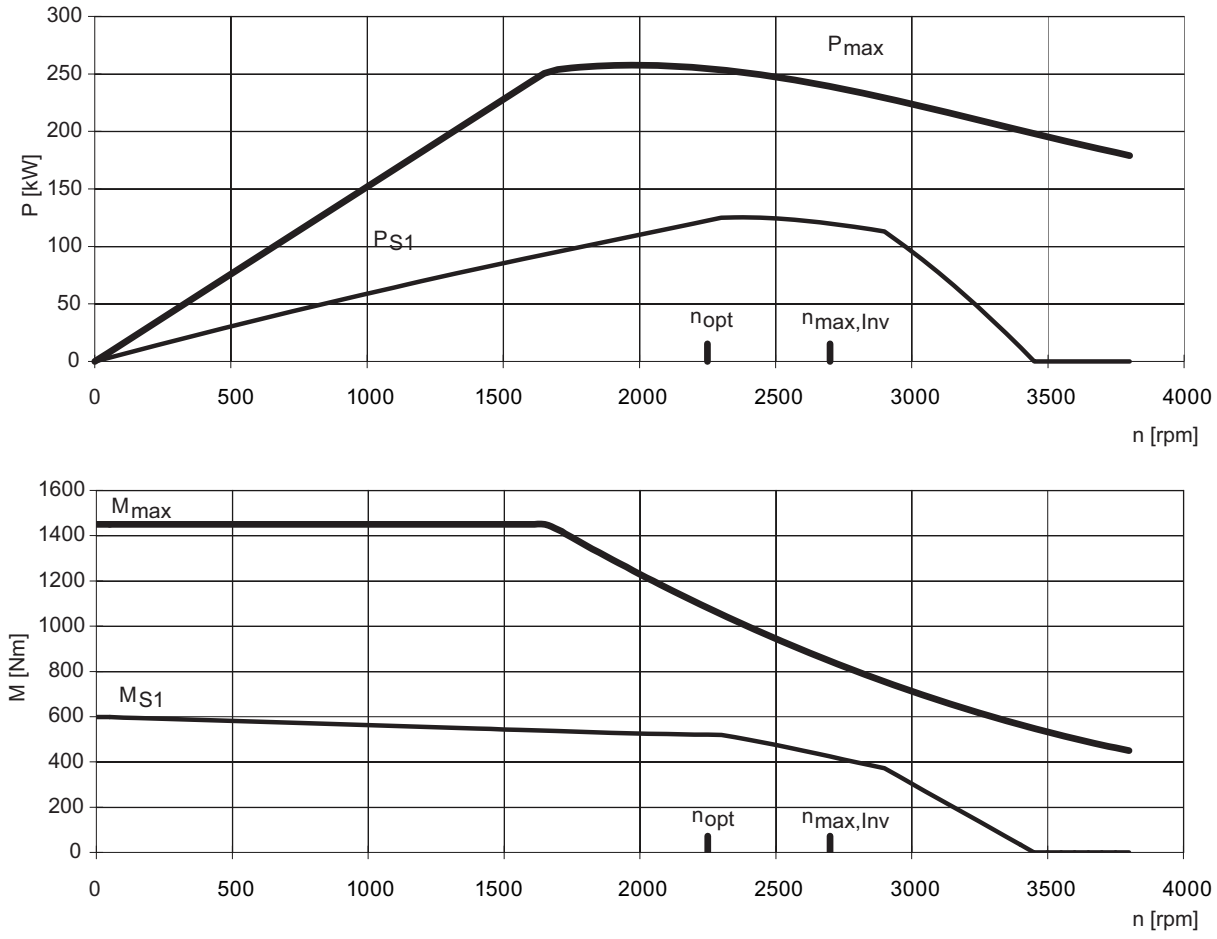


Table 4- 792 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	127	485	260	127	3800	3800	3500	>3800	1450	780	530	278

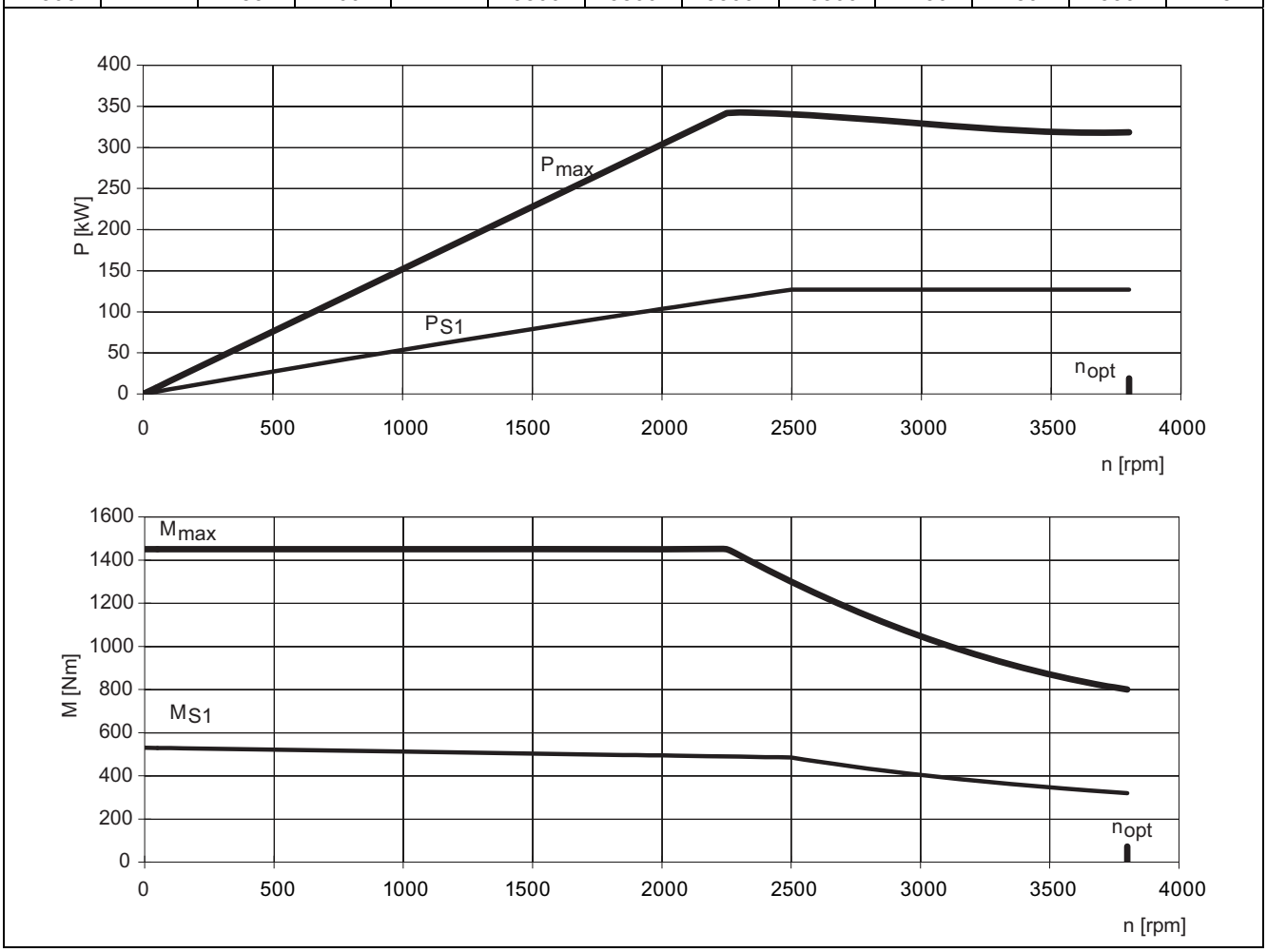
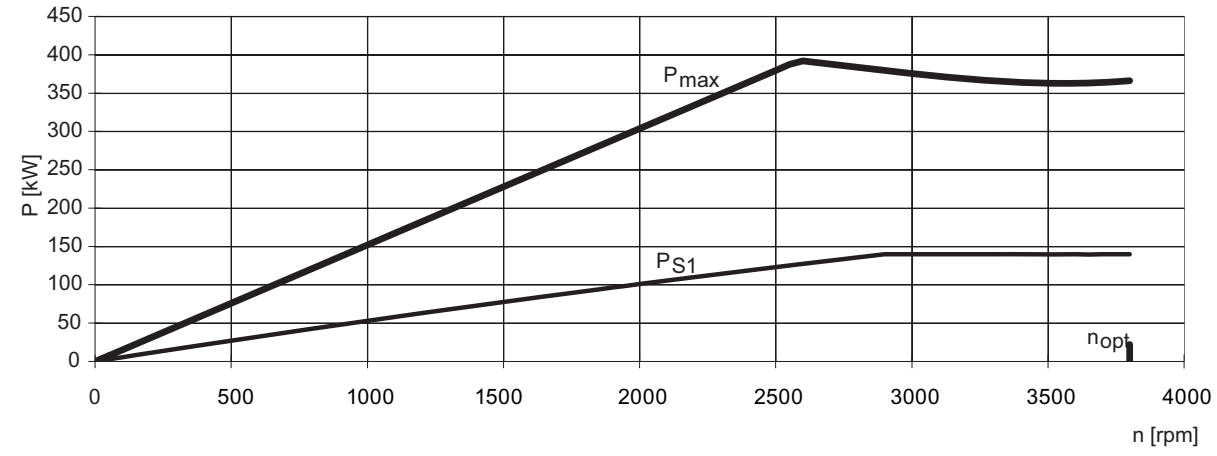


Table 4- 793 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	140	461	250	140	3800	3800	3500	>3800	1450	780	530	278



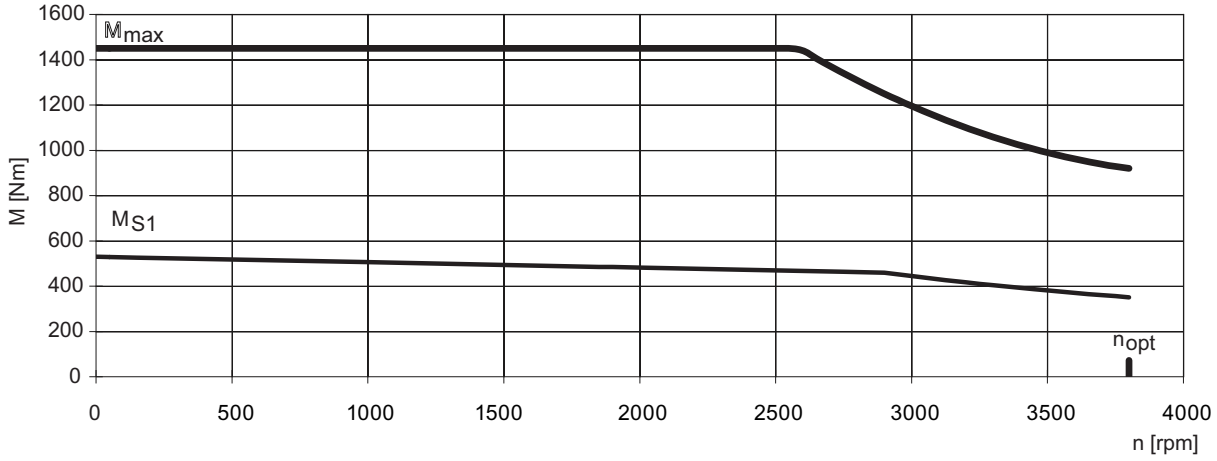


Table 4- 794 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3200	142	424	230	142	3800	3800	3500	>3800	1450	780	530	278

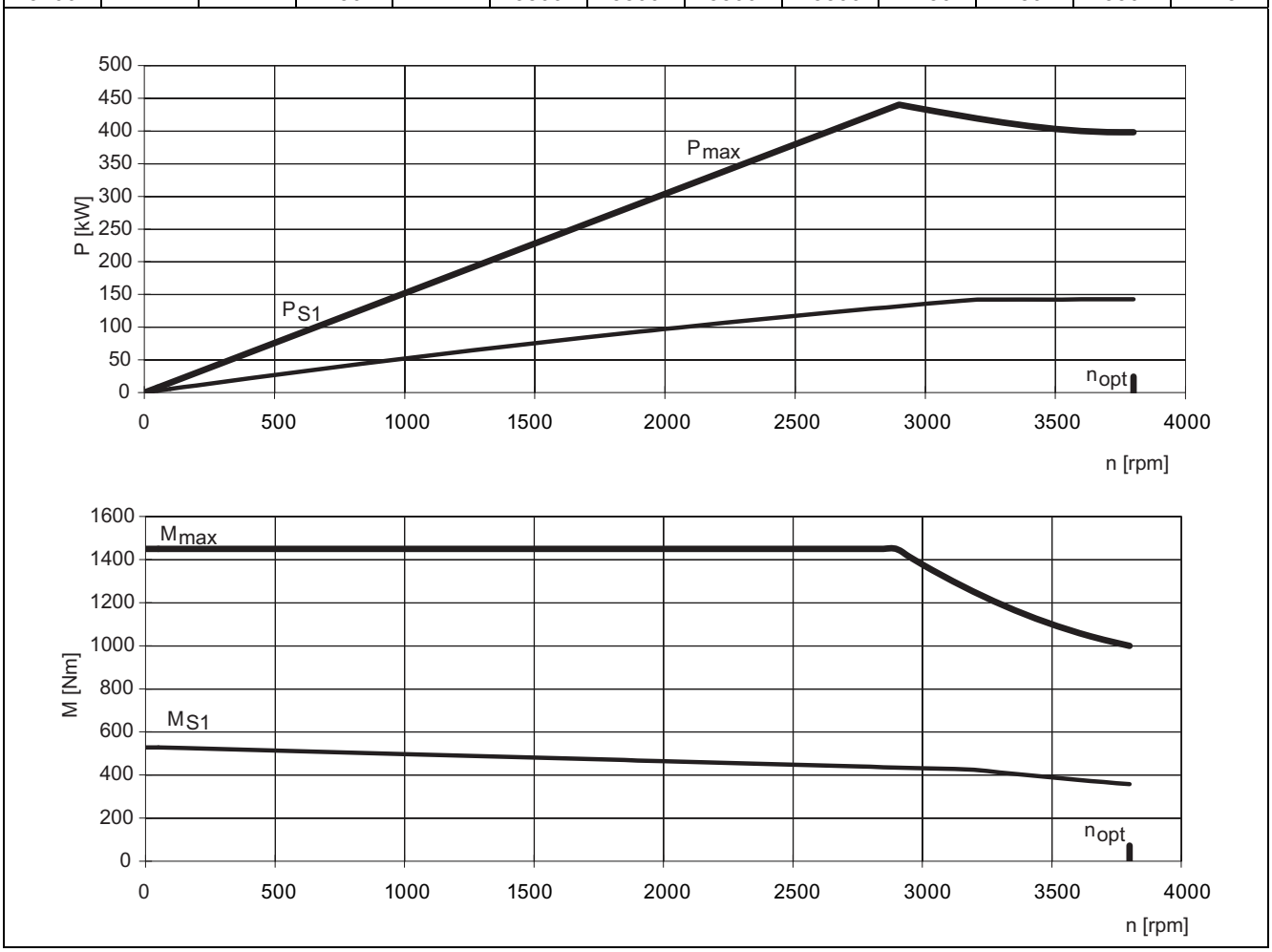


Table 4- 795 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	58	791	142	84	1150	3800	3500	1450	1950	358	800	143

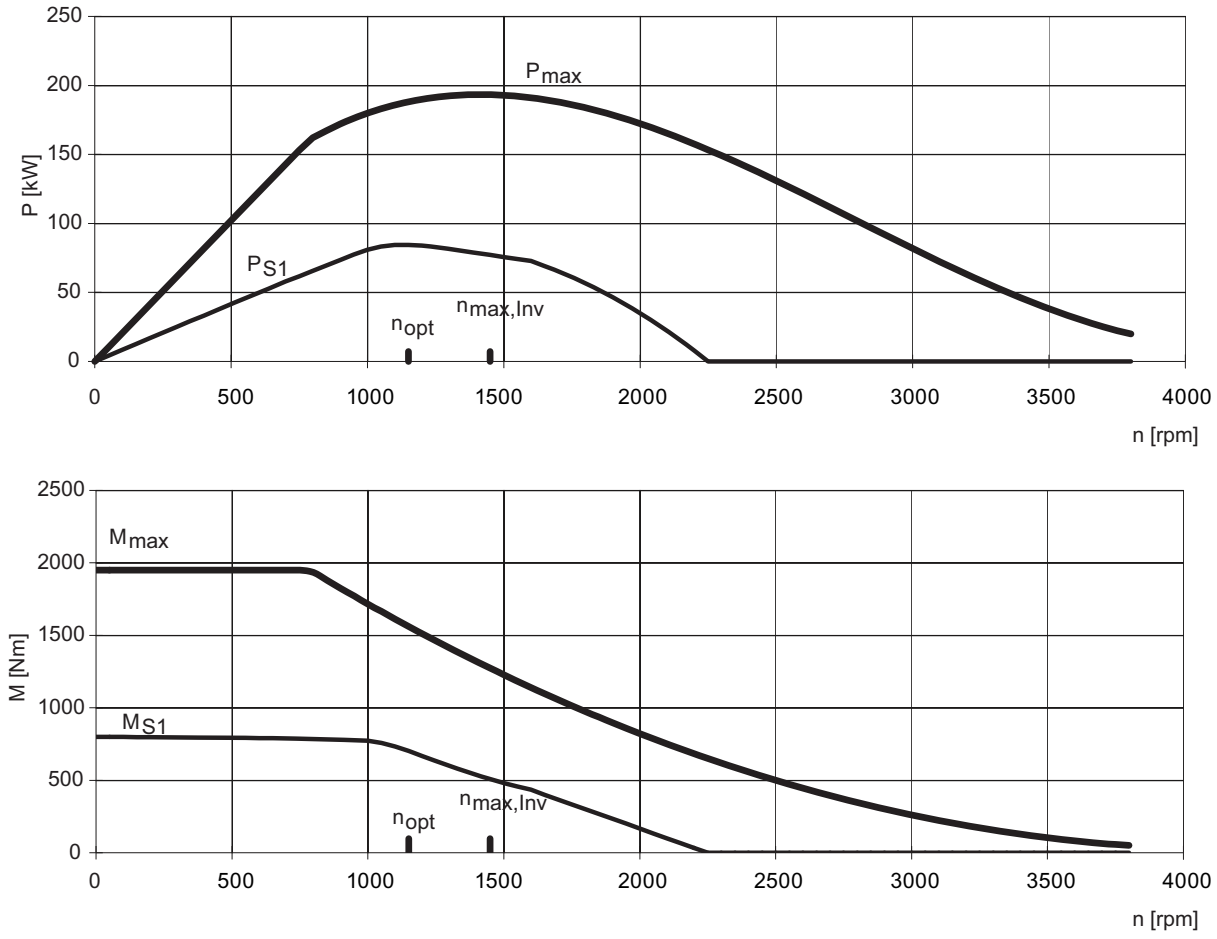


Table 4- 796 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	66	788	142	95	1250	3800	3500	1450	1950	358	800	143

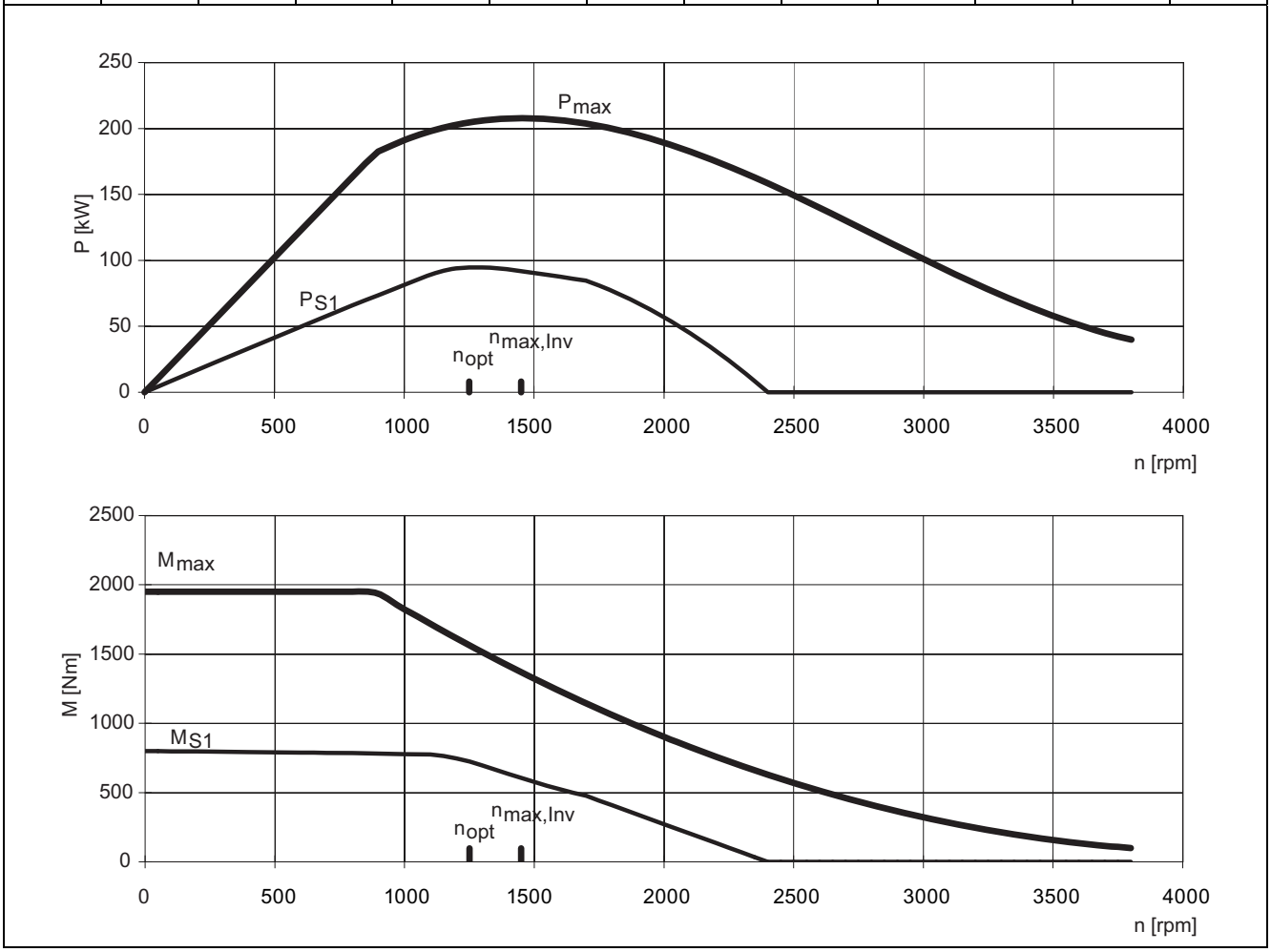
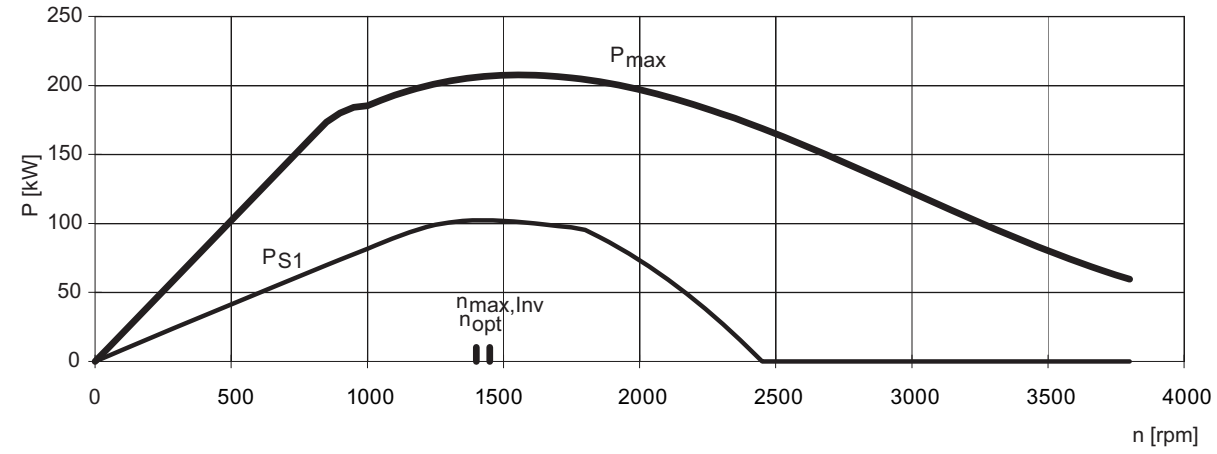


Table 4- 797 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	82	783	141	102	1400	3800	3500	1450	1950	358	800	143



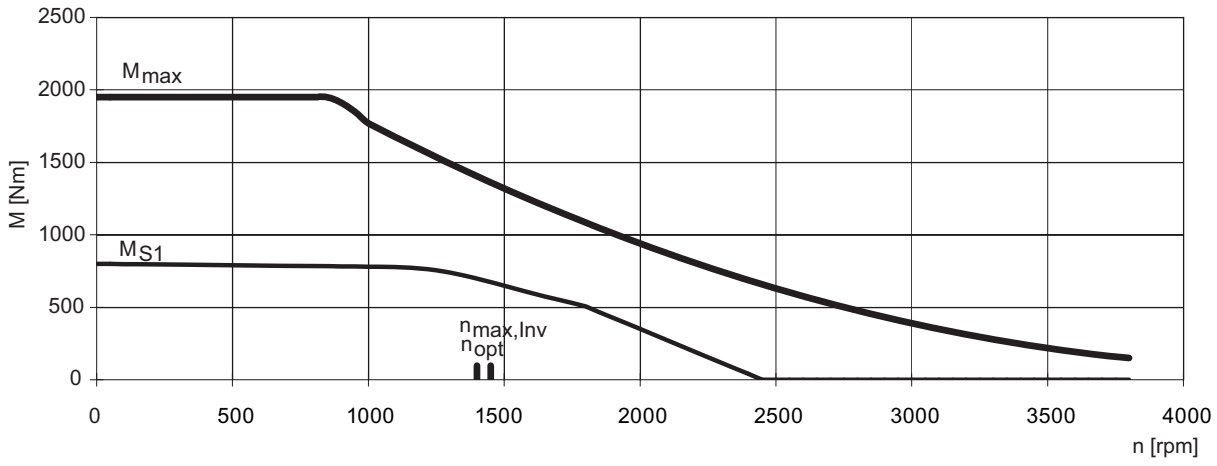


Table 4- 798 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	80	764	190	114	1550	3800	3500	2050	1950	490	800	196

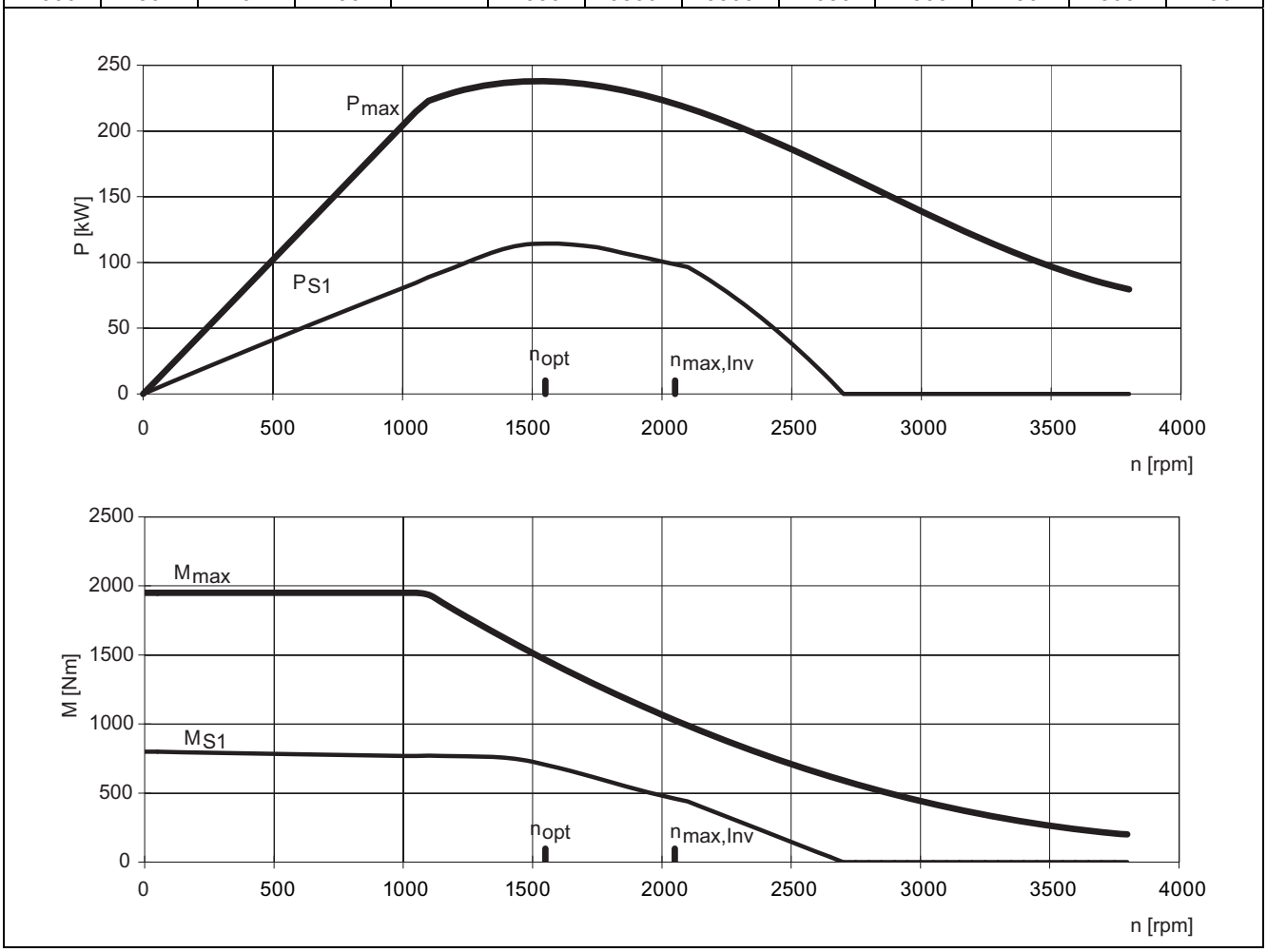


Table 4- 799 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	92	764	190	128	1700	3800	3500	2050	1950	490	800	196

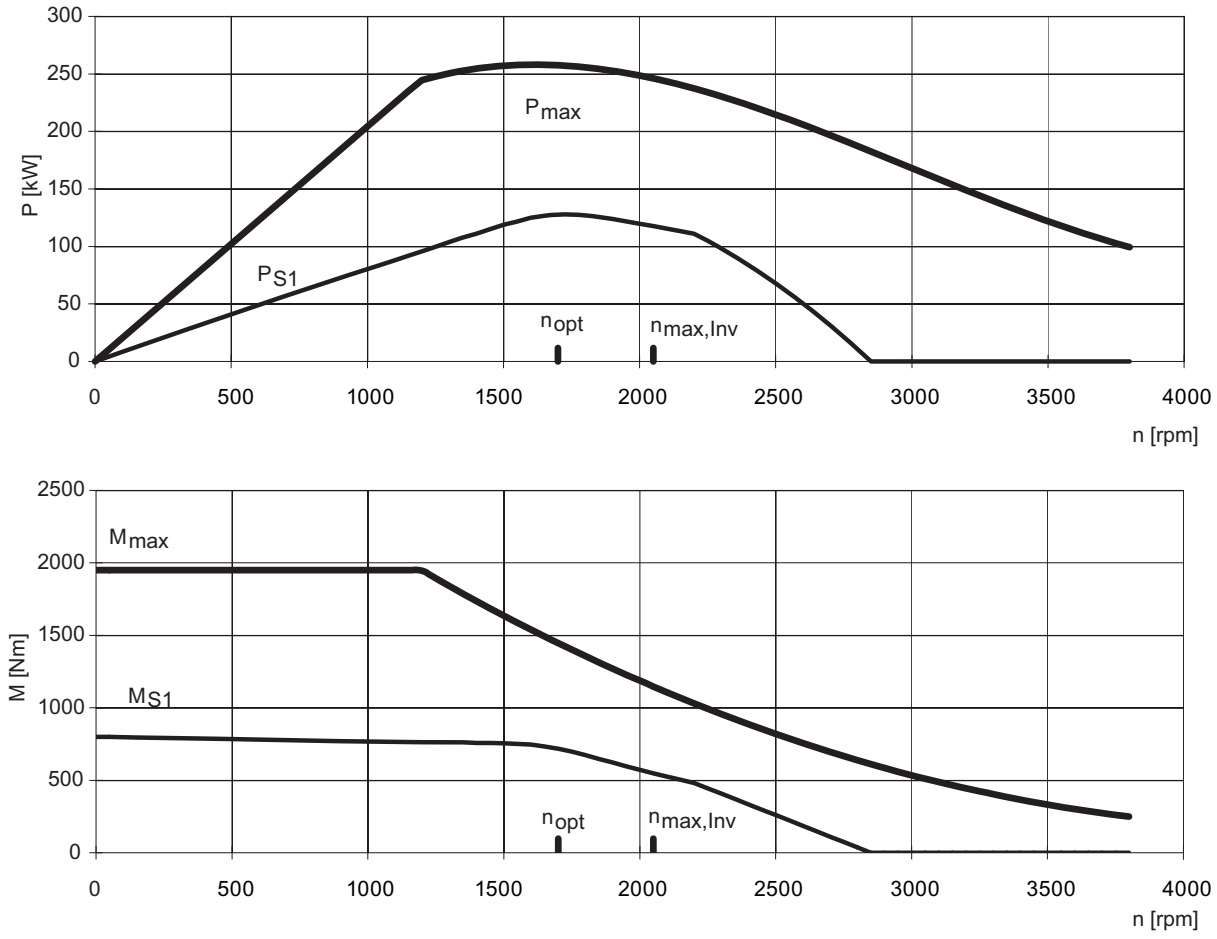


Table 4- 800 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	107	757	190	136	1850	3800	3500	2050	1950	490	800	196

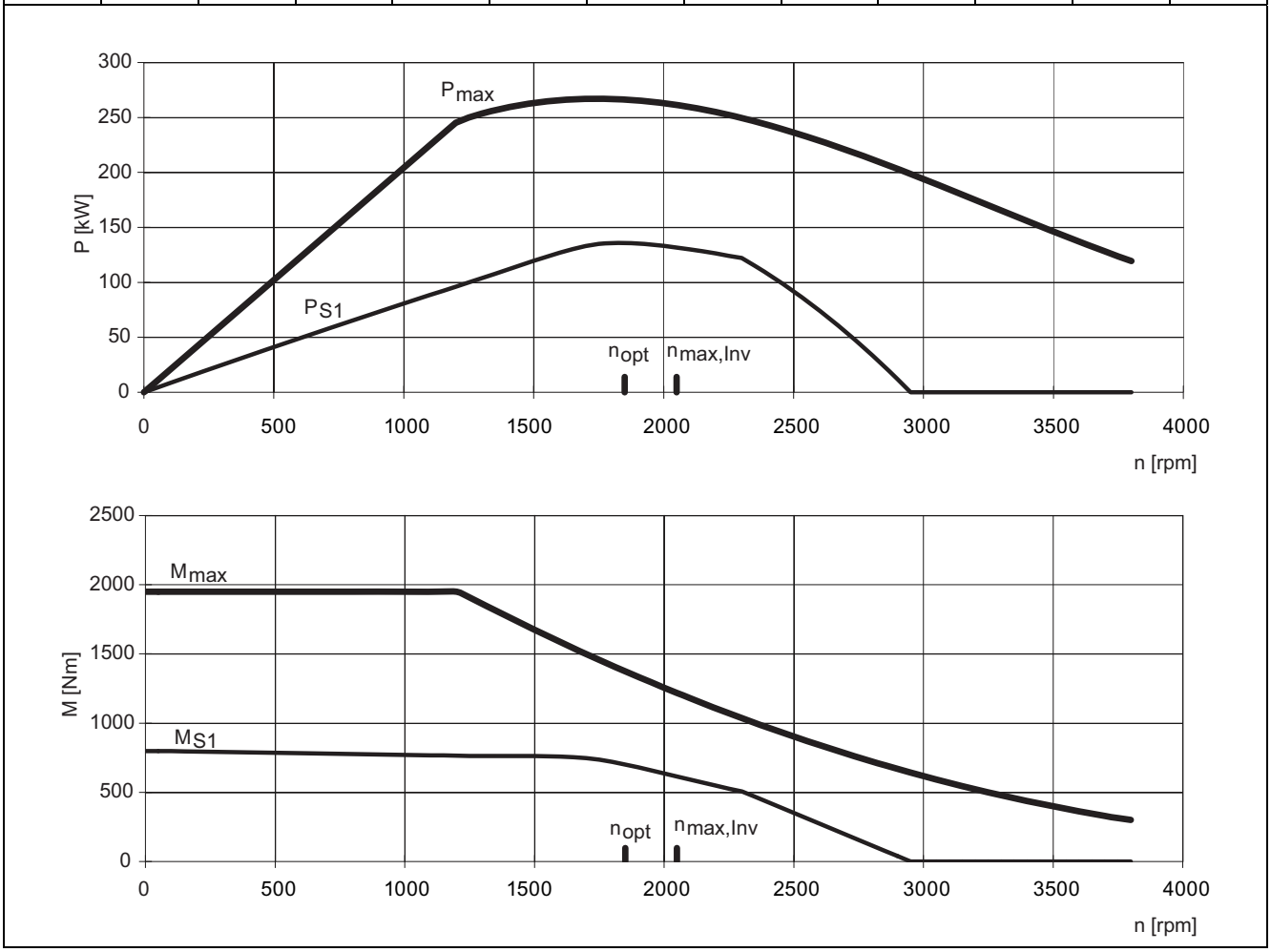
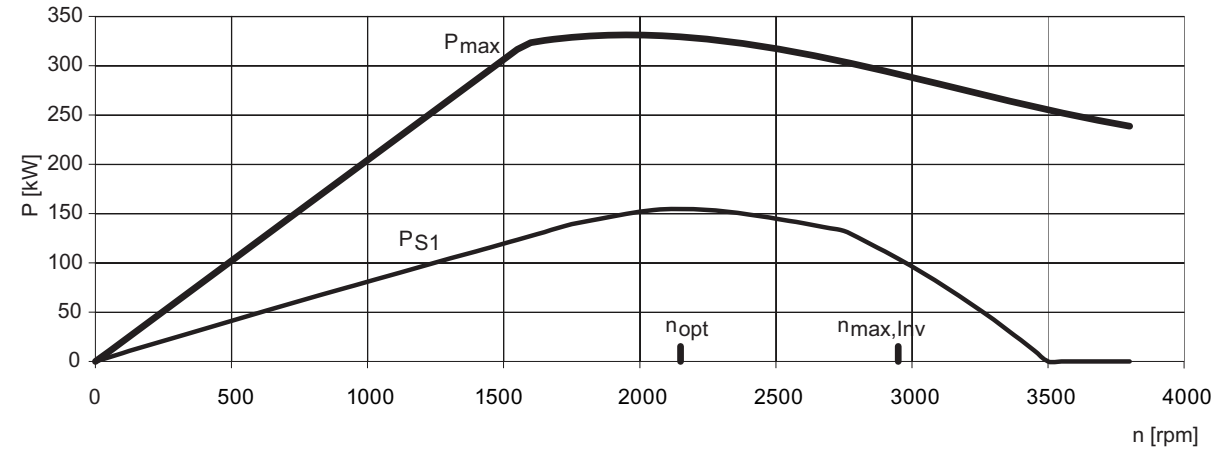


Table 4- 801 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	119	758	275	155	2150	3800	3500	2950	1950	720	800	285



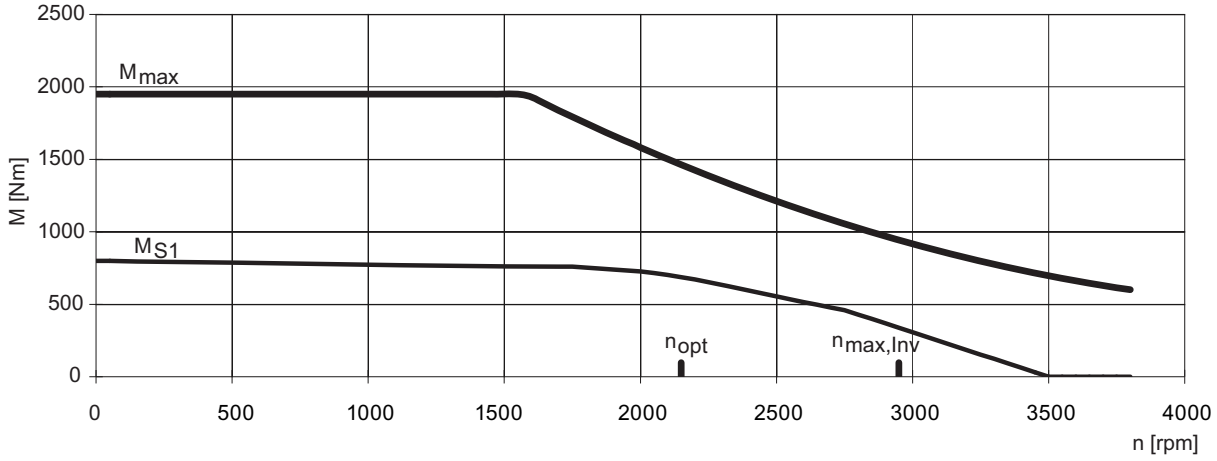


Table 4- 802 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	138	753	275	165	2400	3800	3500	2950	1950	720	800	285

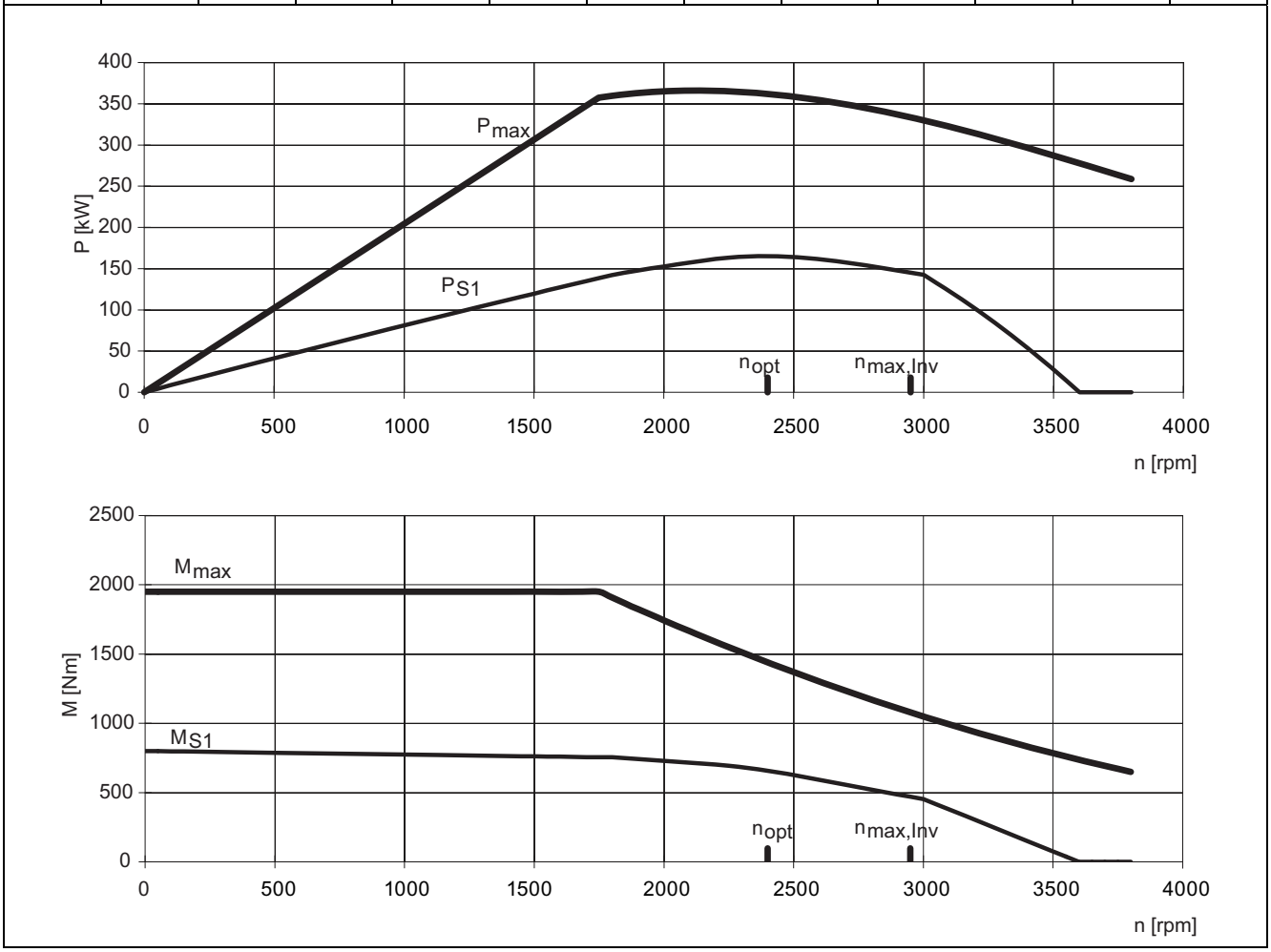
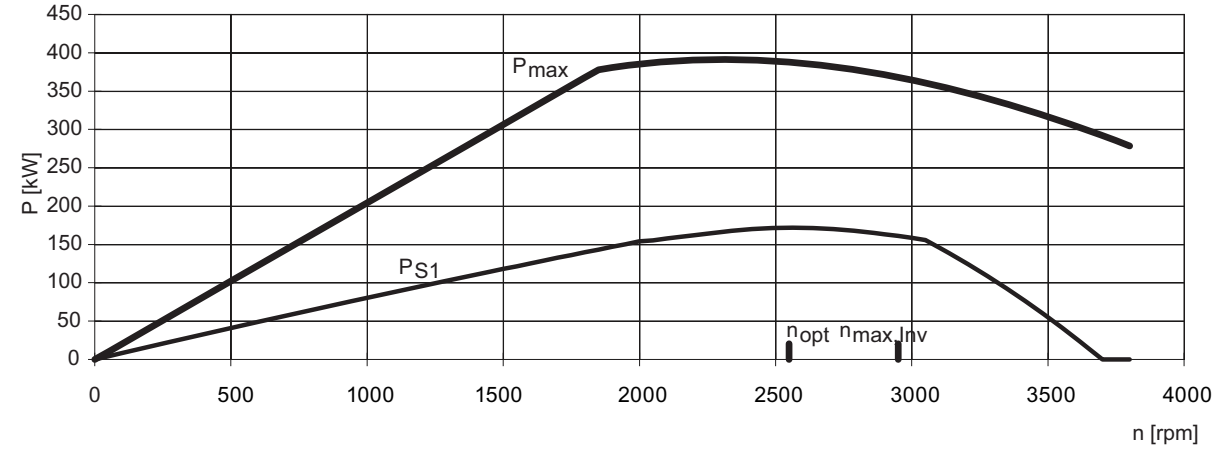


Table 4- 803 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	154	735	265	172	2550	3800	3500	2950	1950	720	800	285



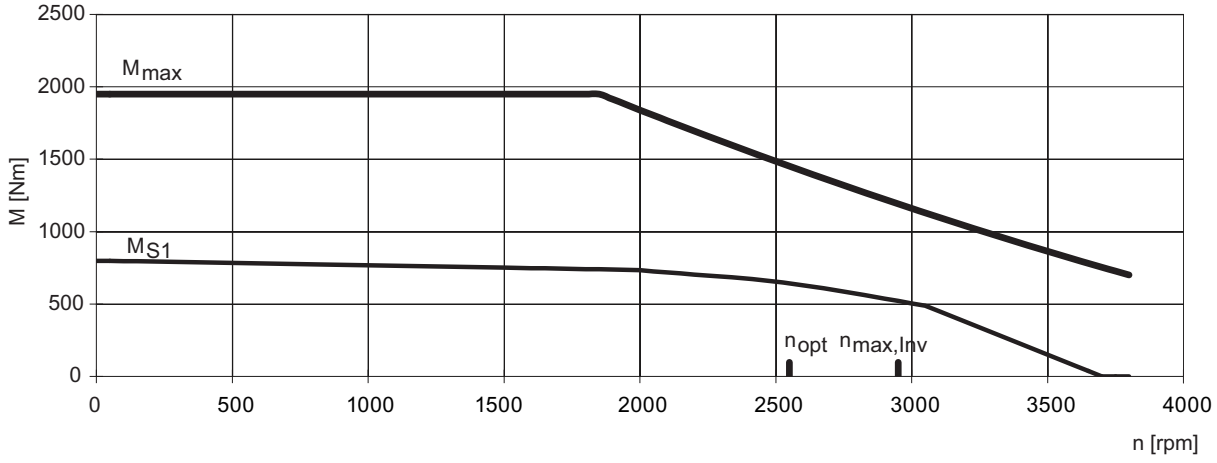


Table 4- 804 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	168	642	370	168	3800	3800	3500	>3800	1950	1125	720	405

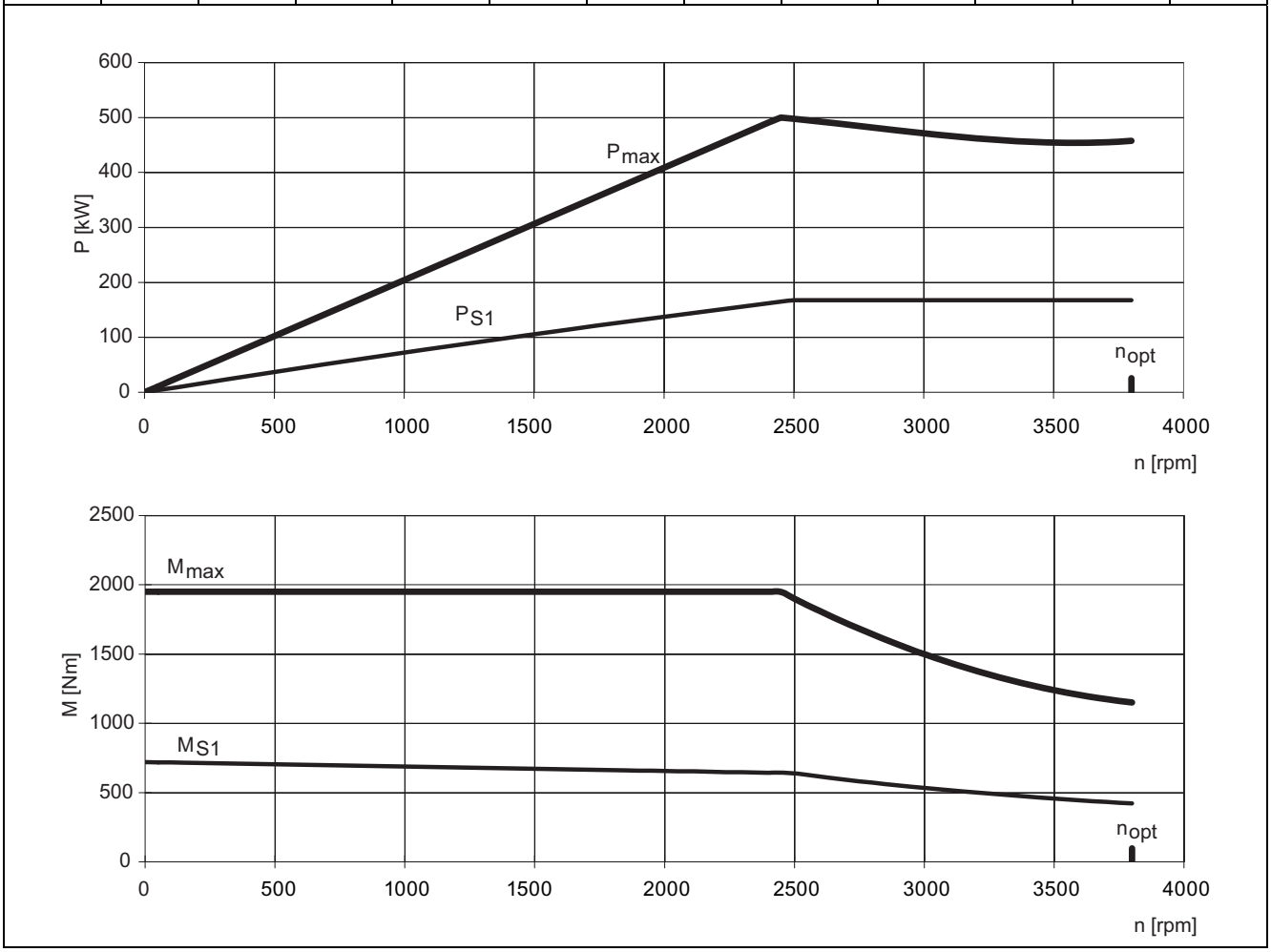


Table 4- 805 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	178	586	340	178	3800	3800	3500	>3800	1950	1125	720	405

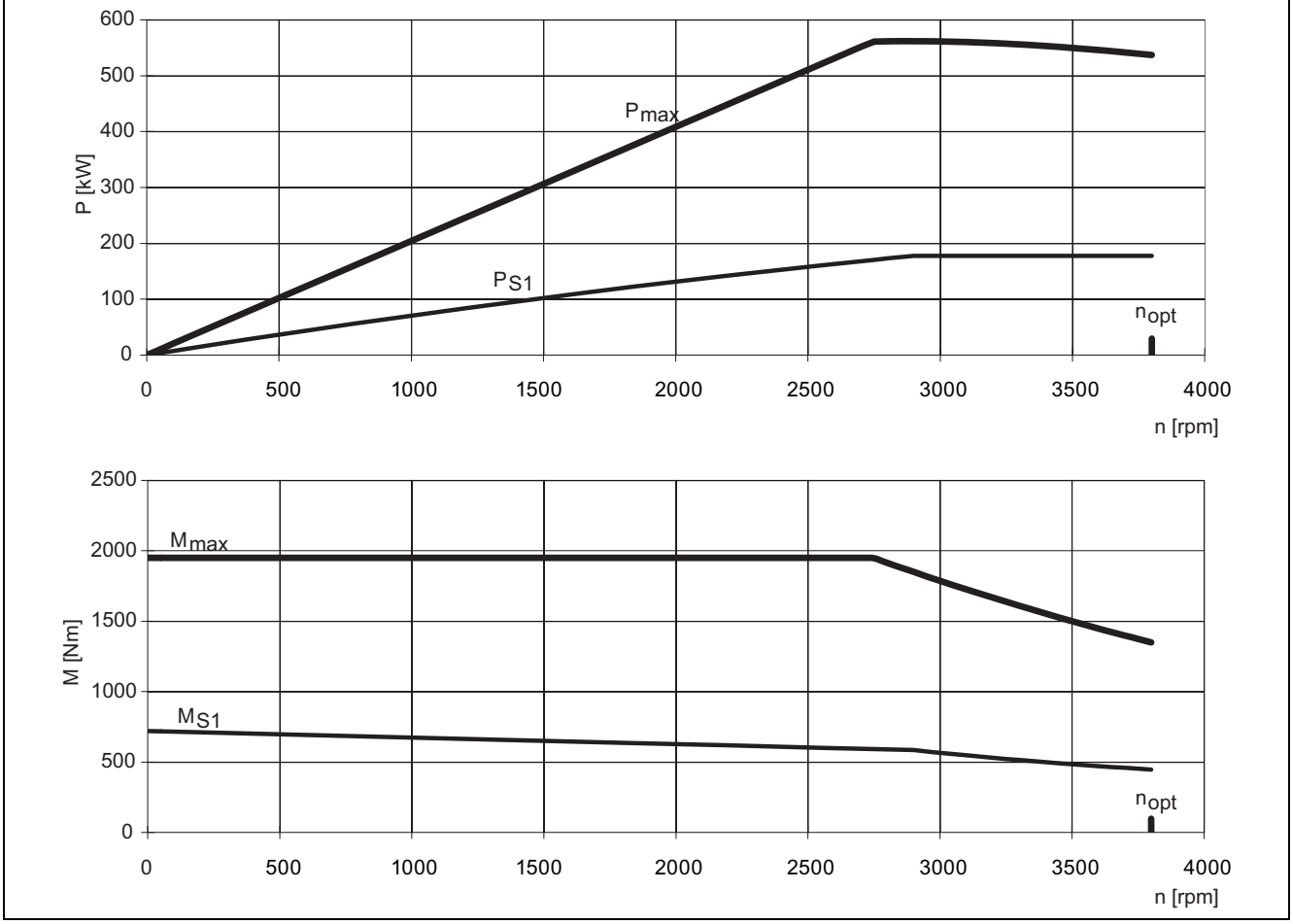
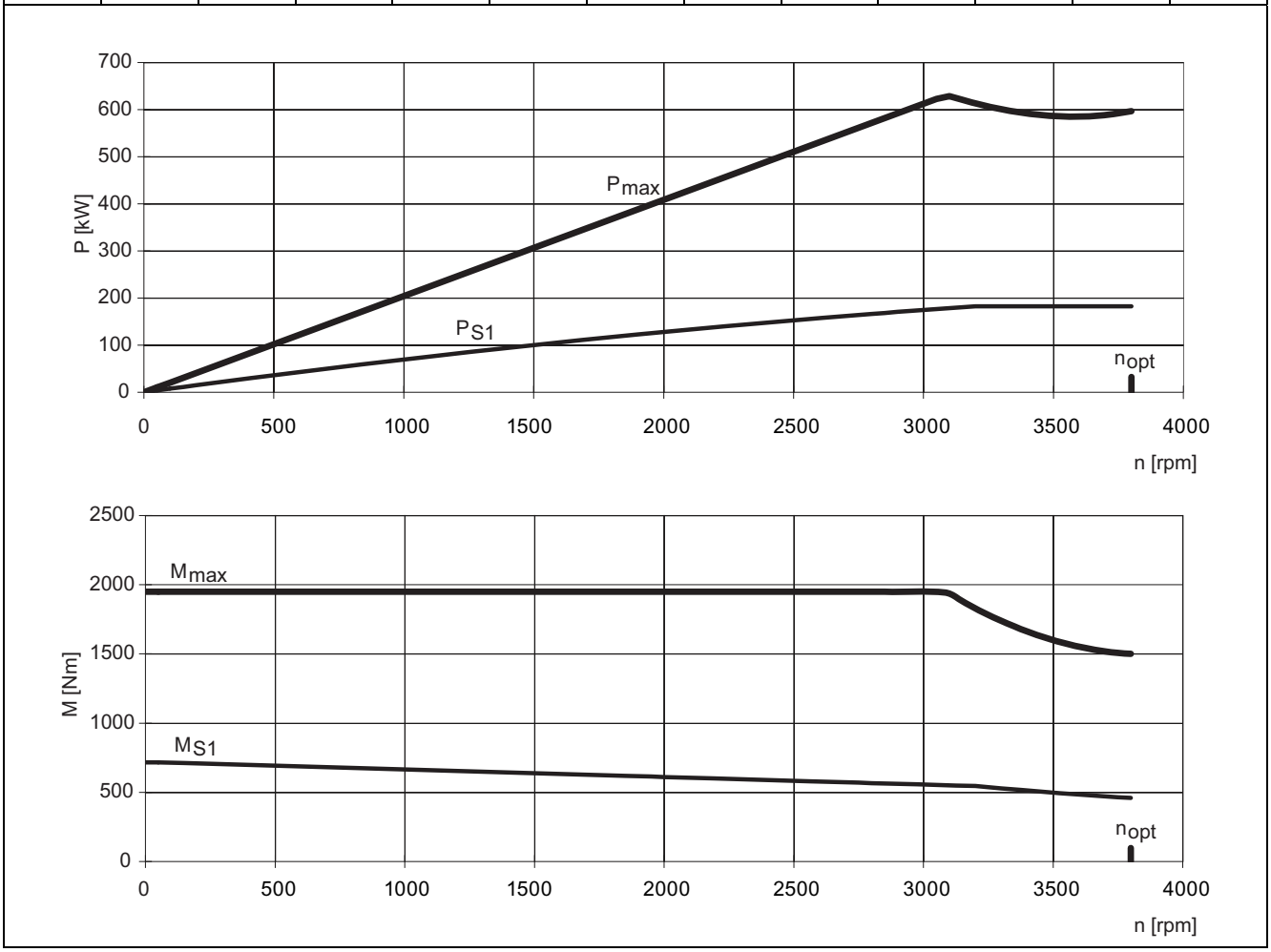


Table 4- 806 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3200	183	546	315	183	3800	3800	3500	>3800	1950	1125	720	405



4.2.3.4 Shaft height 225 - water-cooled

Table 4- 807 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	101	964	178	107	1300	3500	3100	1450	2400	450	1007	183

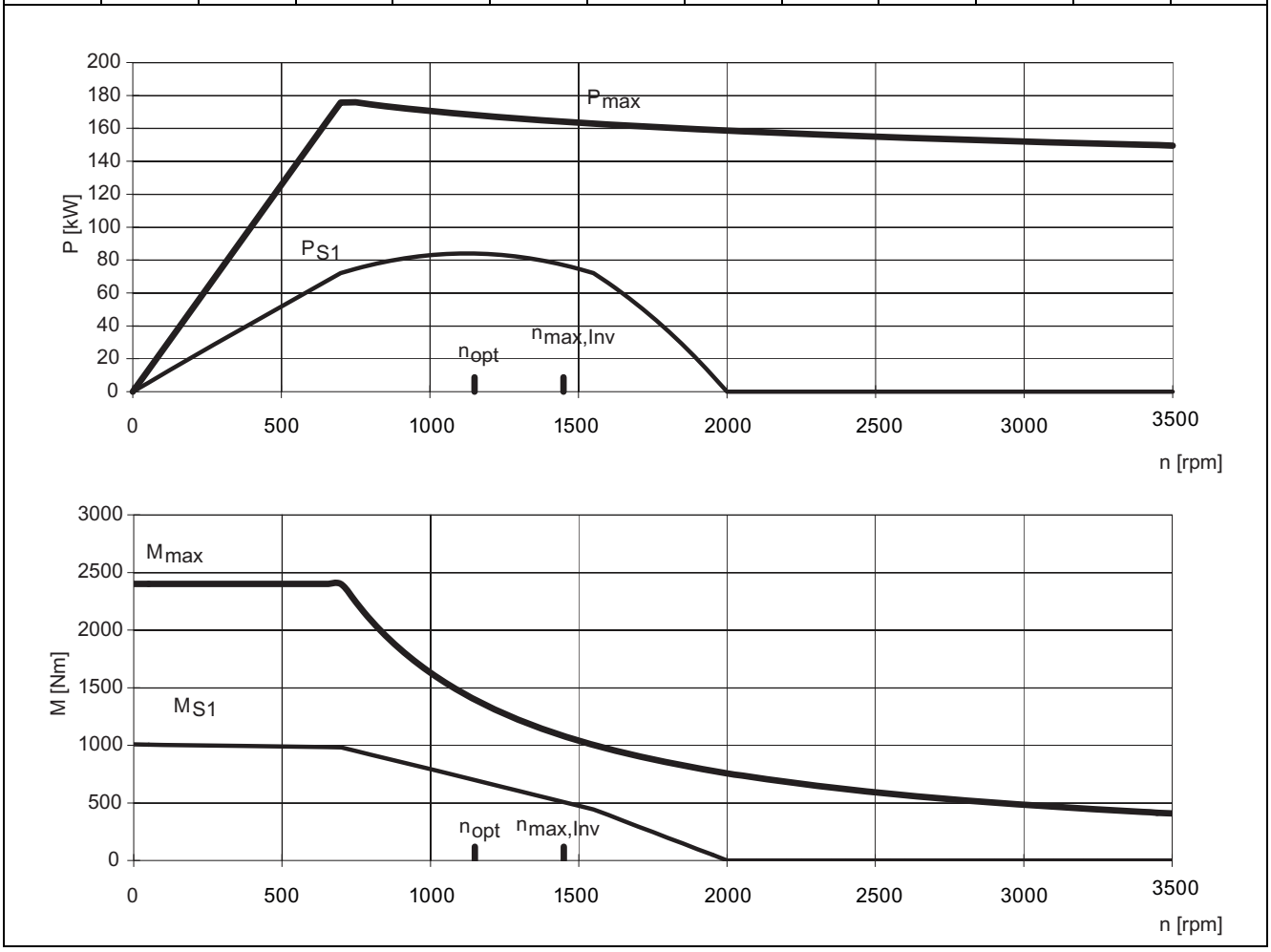
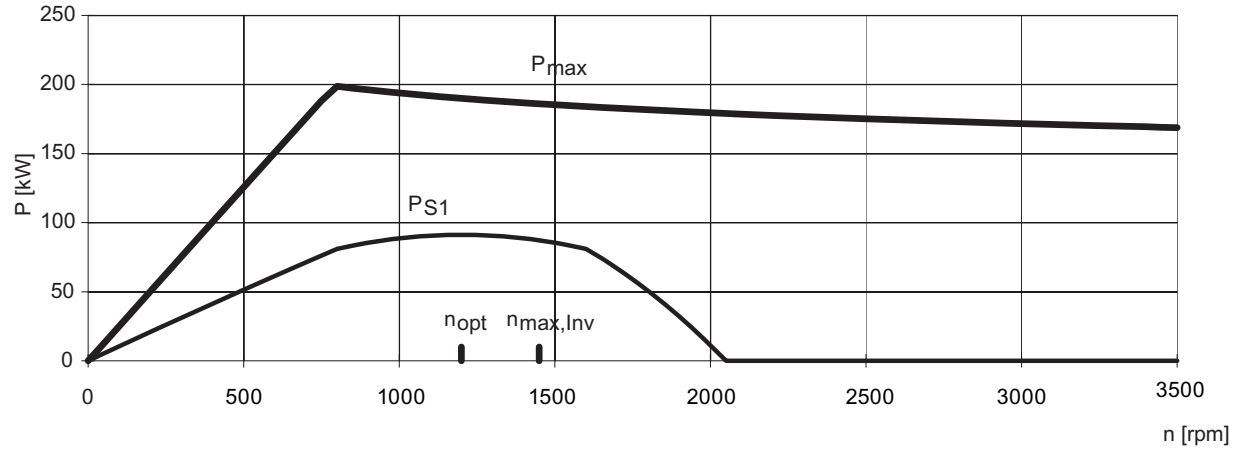


Table 4- 808 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	81	967	178	91	1200	3500	3100	14500	2400	450	1007	183
700	72	982	180									



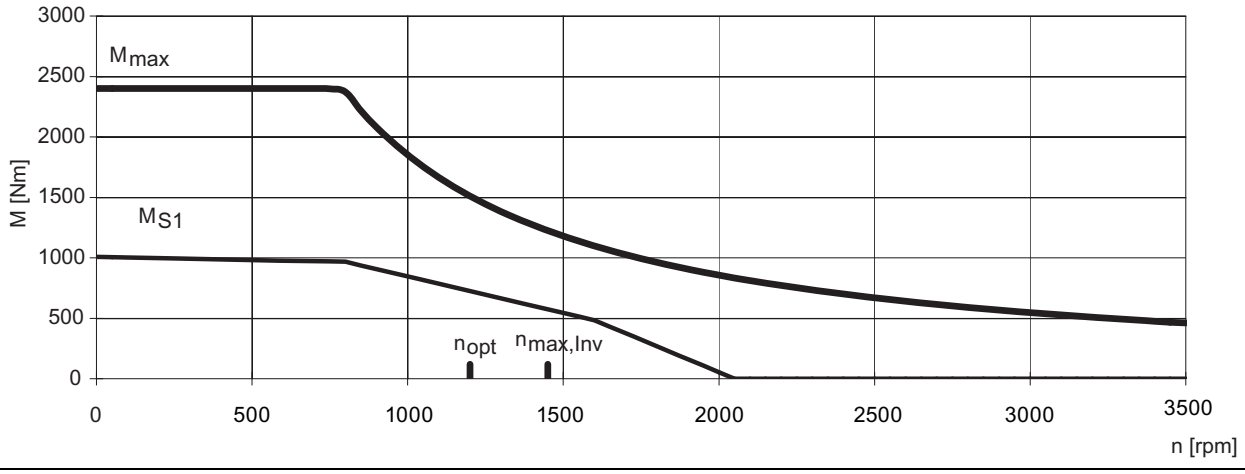


Table 4- 809 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	101	964	178	107	1300	3500	3100	1450	2400	450	1007	183

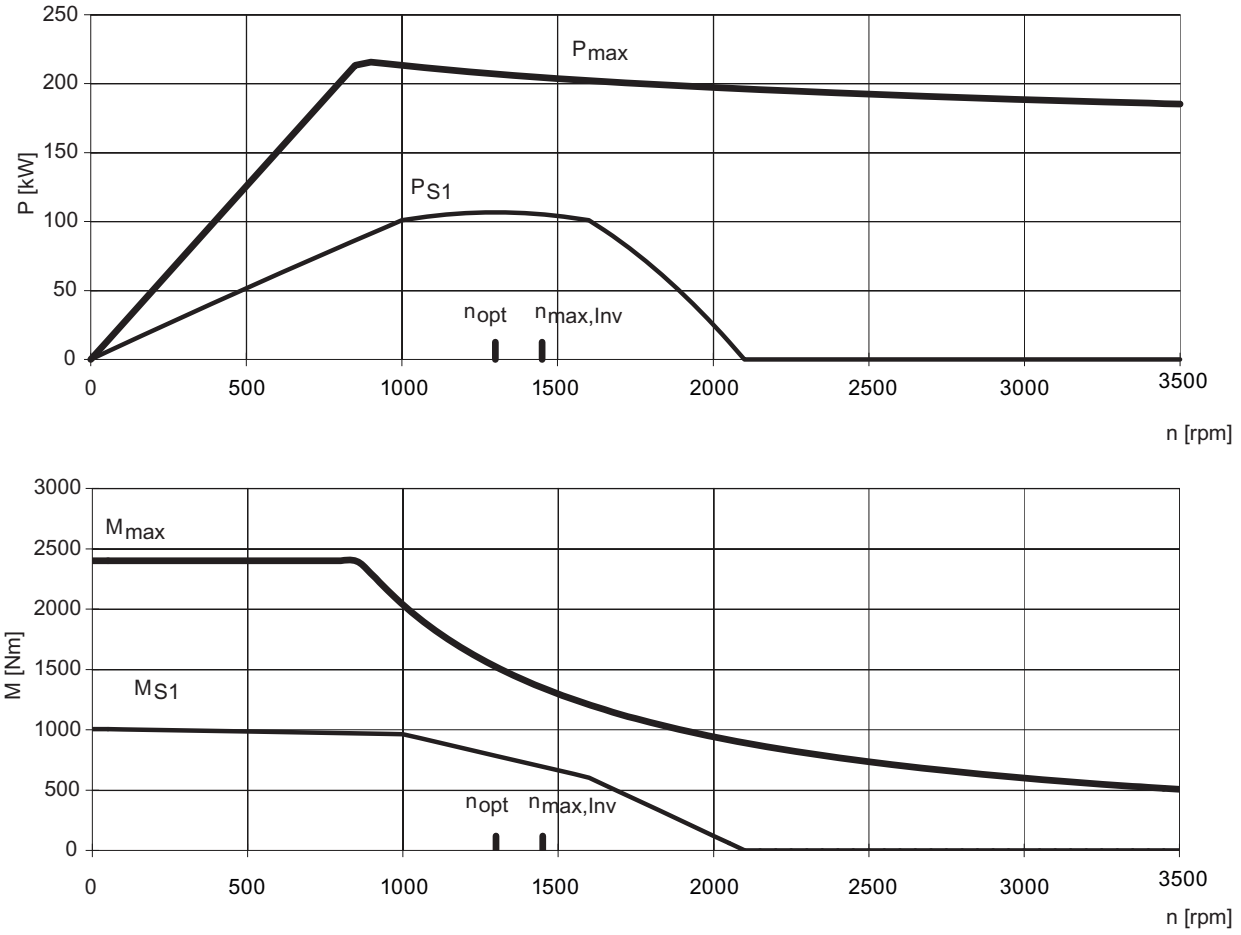
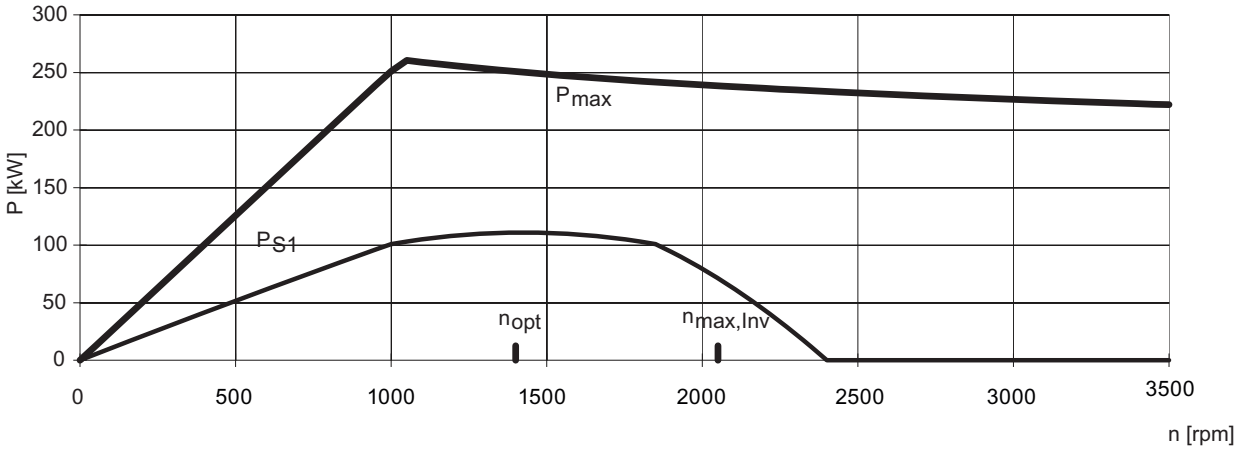


Table 4- 810 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	101	964	255	111	1400	3500	3100	2050	2400	640	1007	262



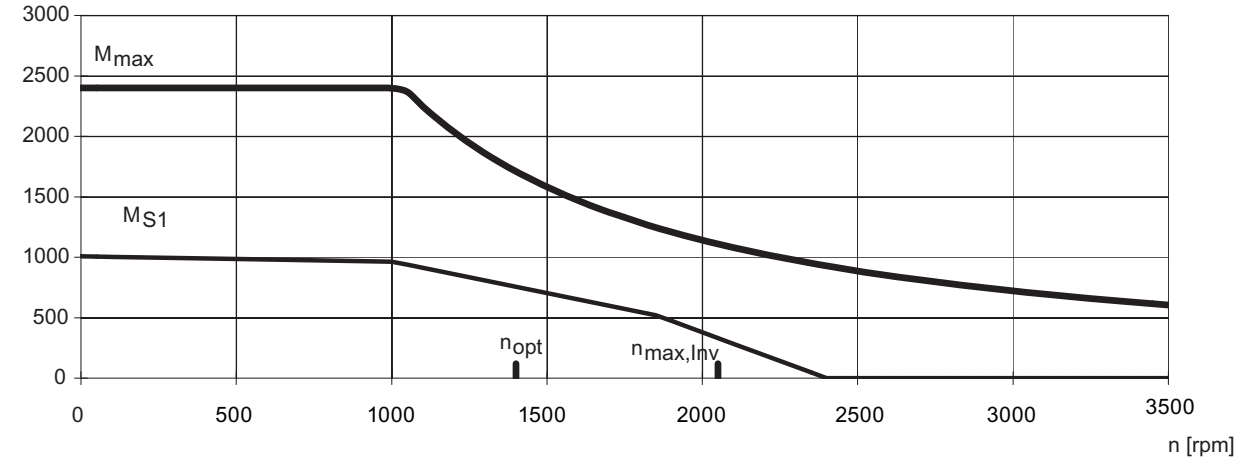
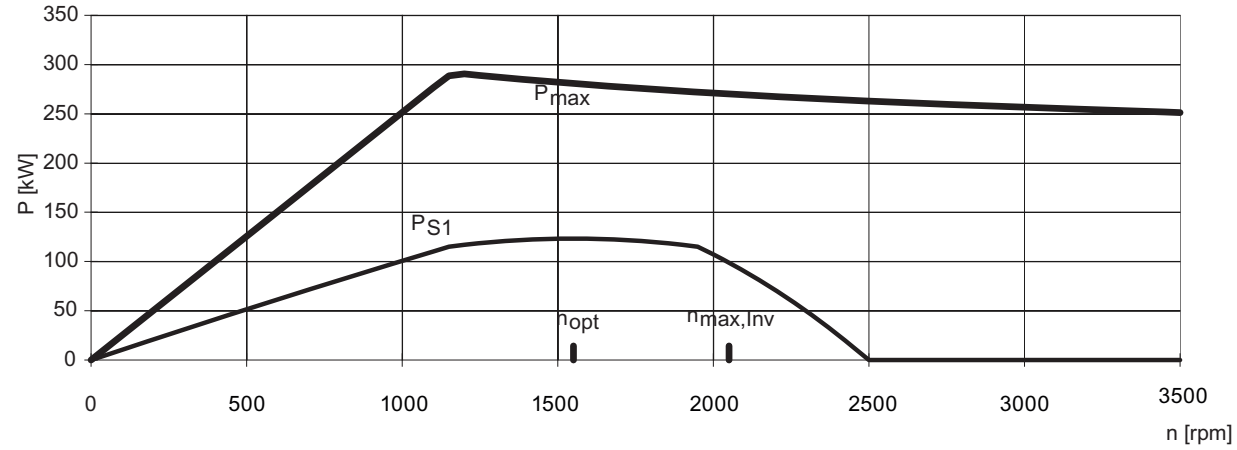


Table 4- 811 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	115	955	250	123	1550	3500	3100	2050	2400	640	1007	262
1000	101	964	255									



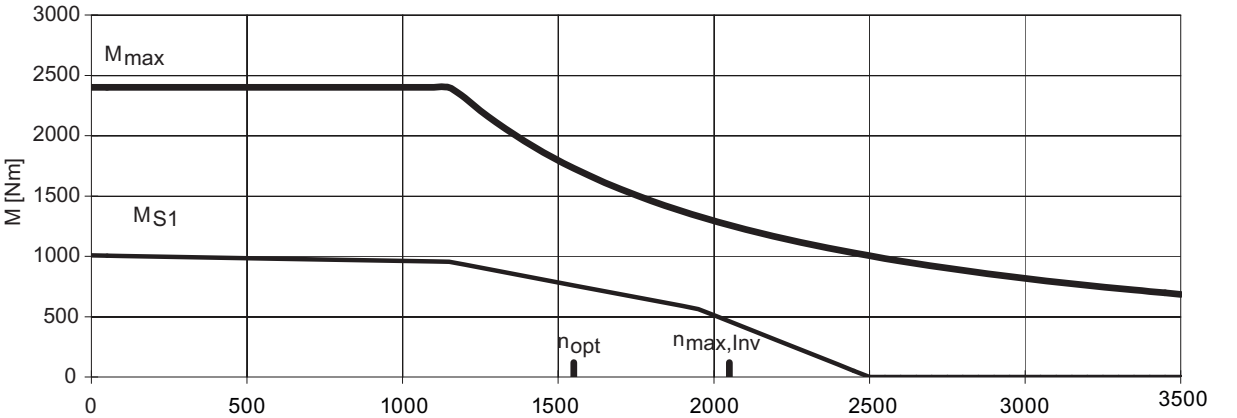


Table 4- 812 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	135	955	250	140	1700	3500	3100	2050	2400	6740	1007	262

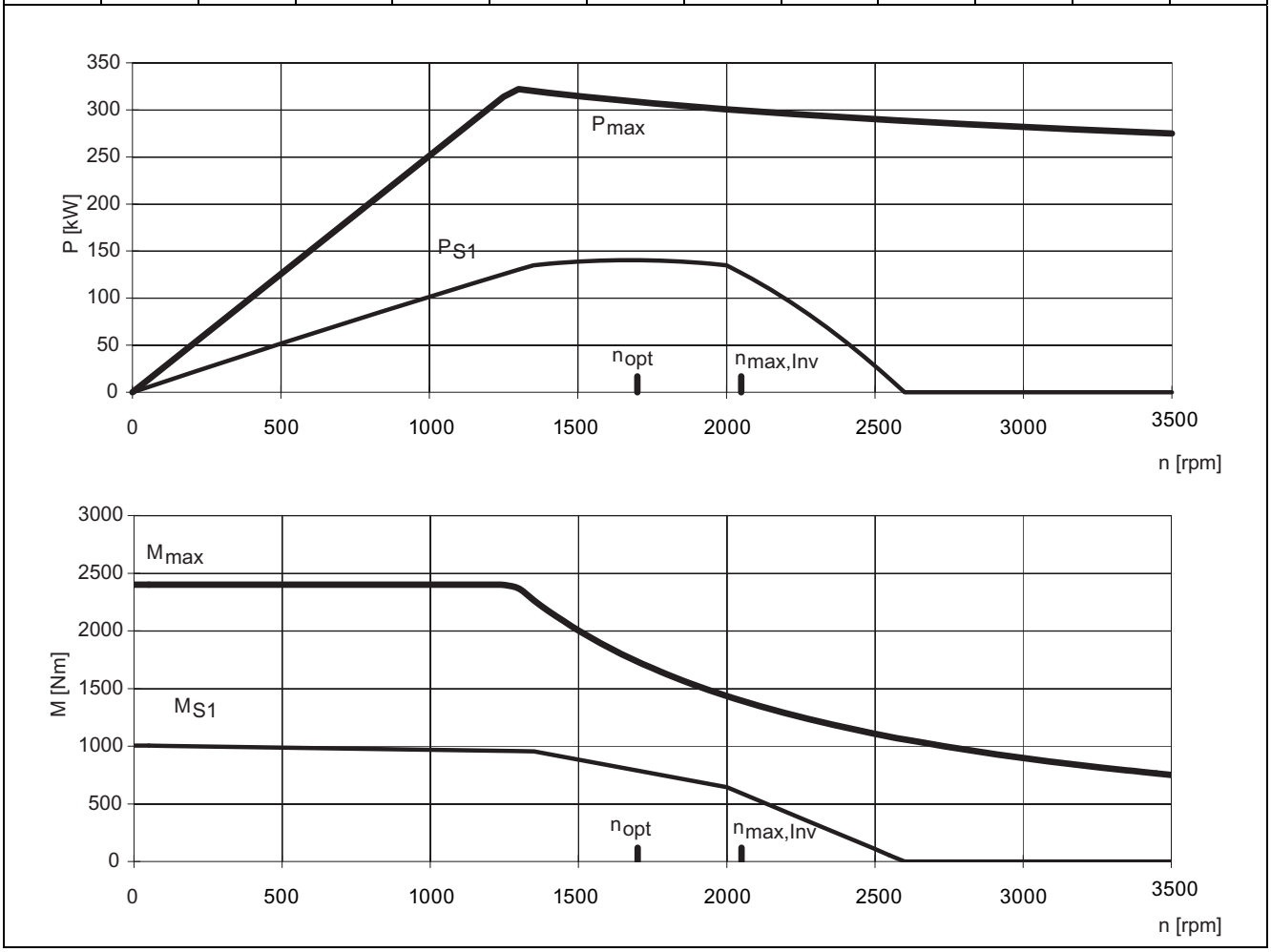


Table 4- 813 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	151	961	355	159	1950	3500	3100	2900	2400	900	1007	367

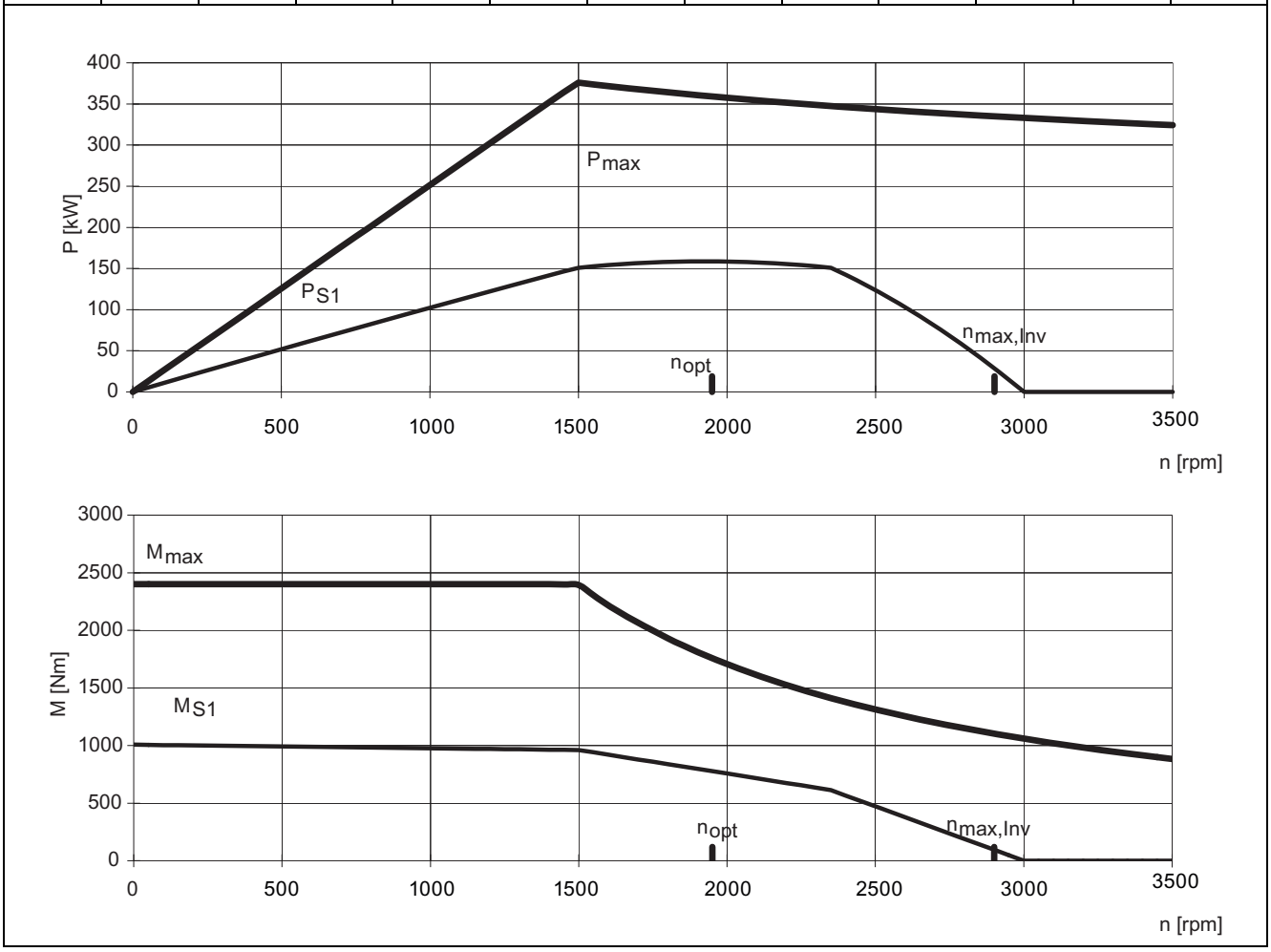
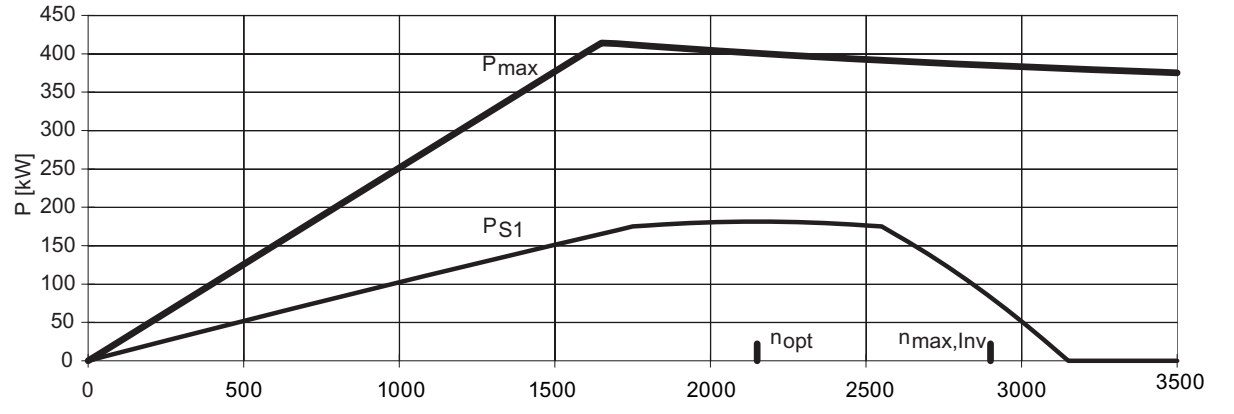


Table 4- 814 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	175	955	355	181	2150	3500	3100	2900	2400	900	1007	367
1500	151	961	355									



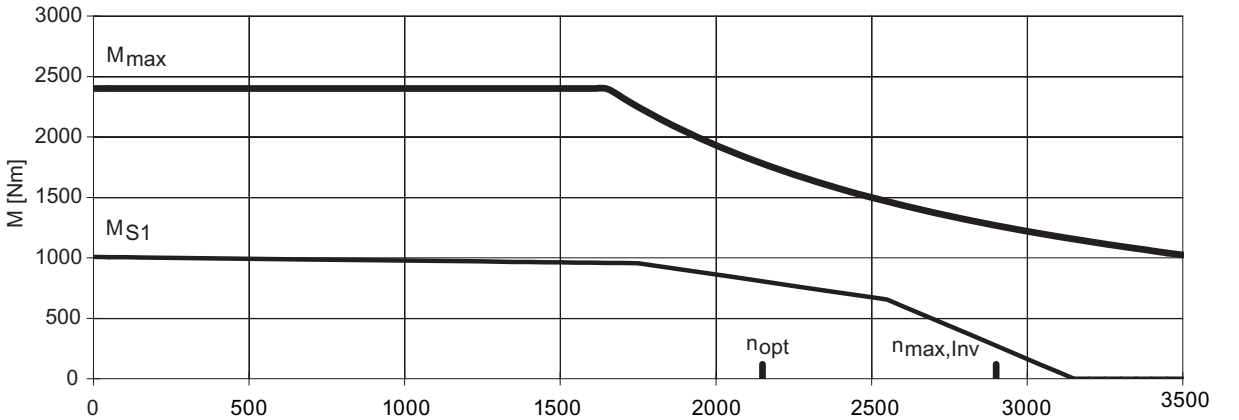


Table 4- 815 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	186	888	330	190	2350	3500	3100	2900	2400	900	1007	367

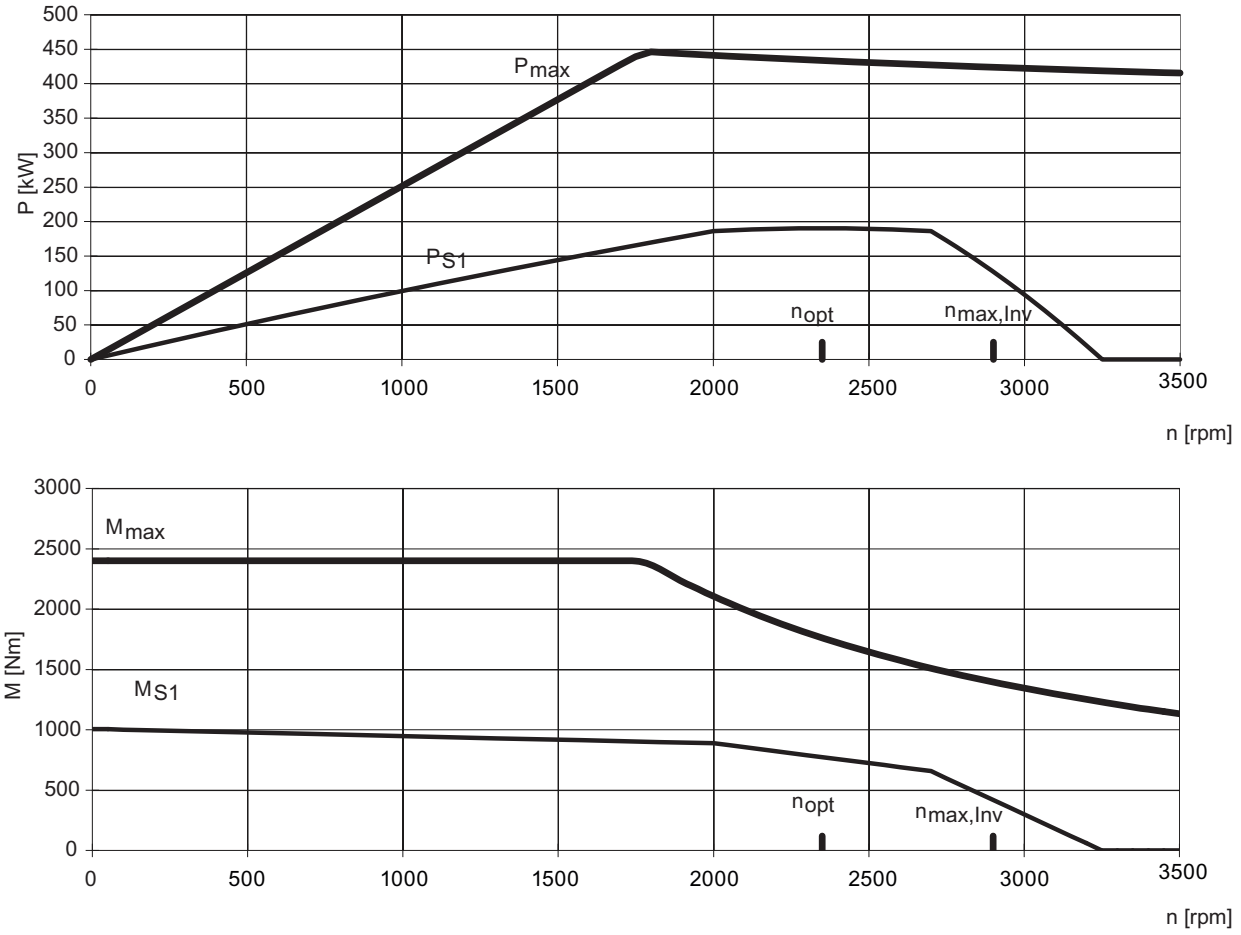


Table 4- 816 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	182	695	365	187	3000	3500	3100	>3500	2400	1280	885	460

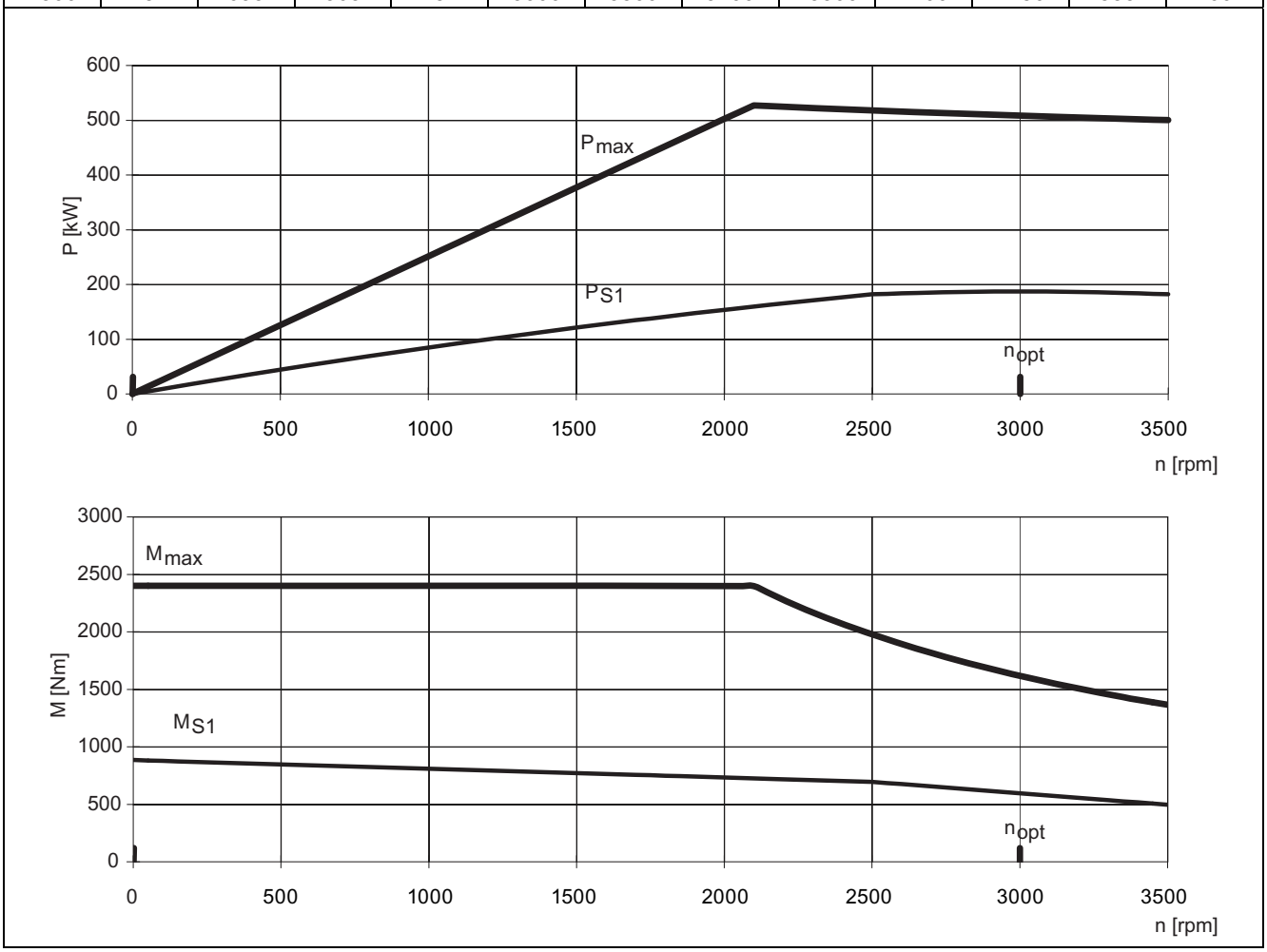


Table 4- 817 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	191	629	335	193	3200	3500	3100	>3500	2400	1280	885	460
2500	182	695	365									

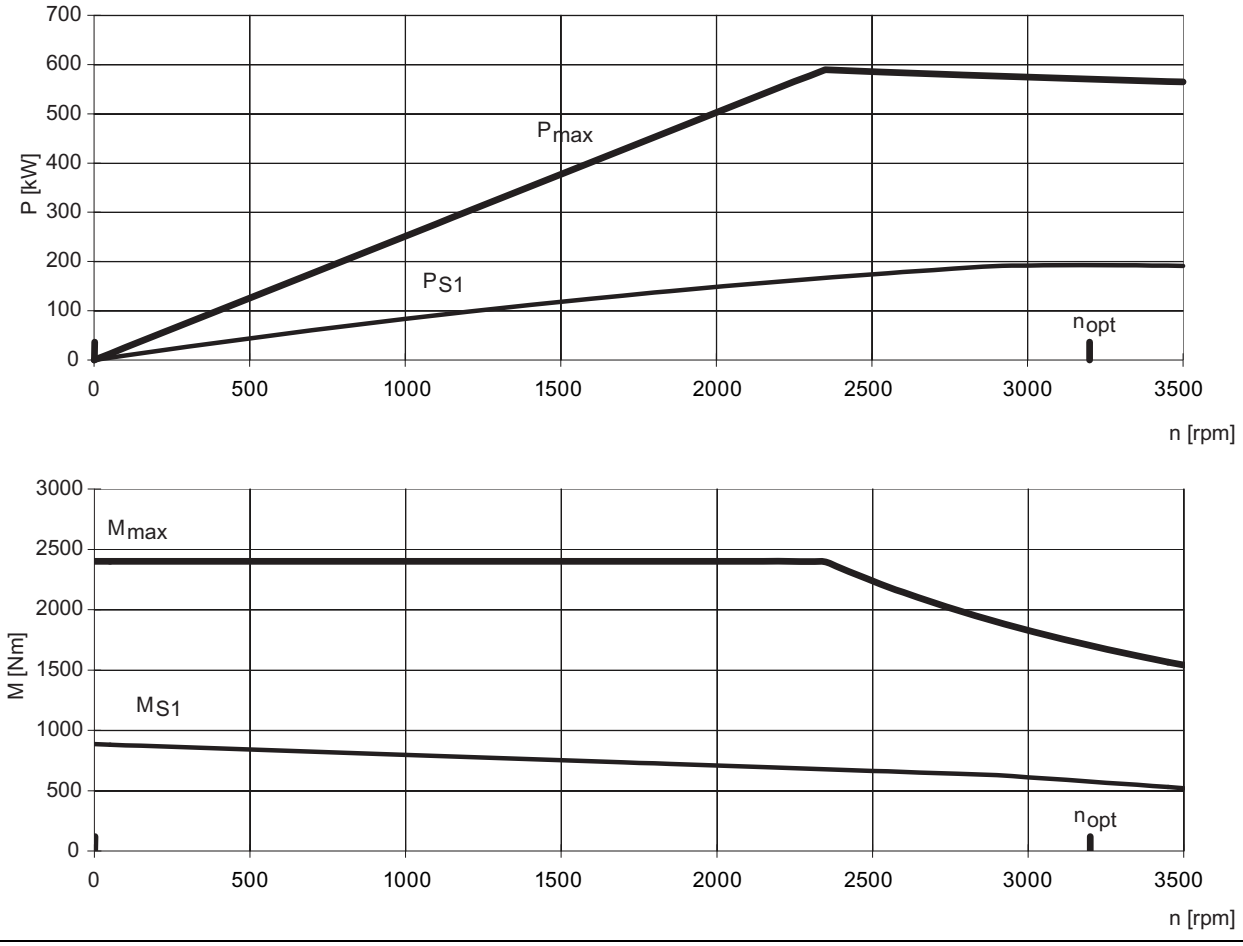


Table 4- 818 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3200	196	585	310	196	3350	3500	3100	>3500	2400	1280	885	460

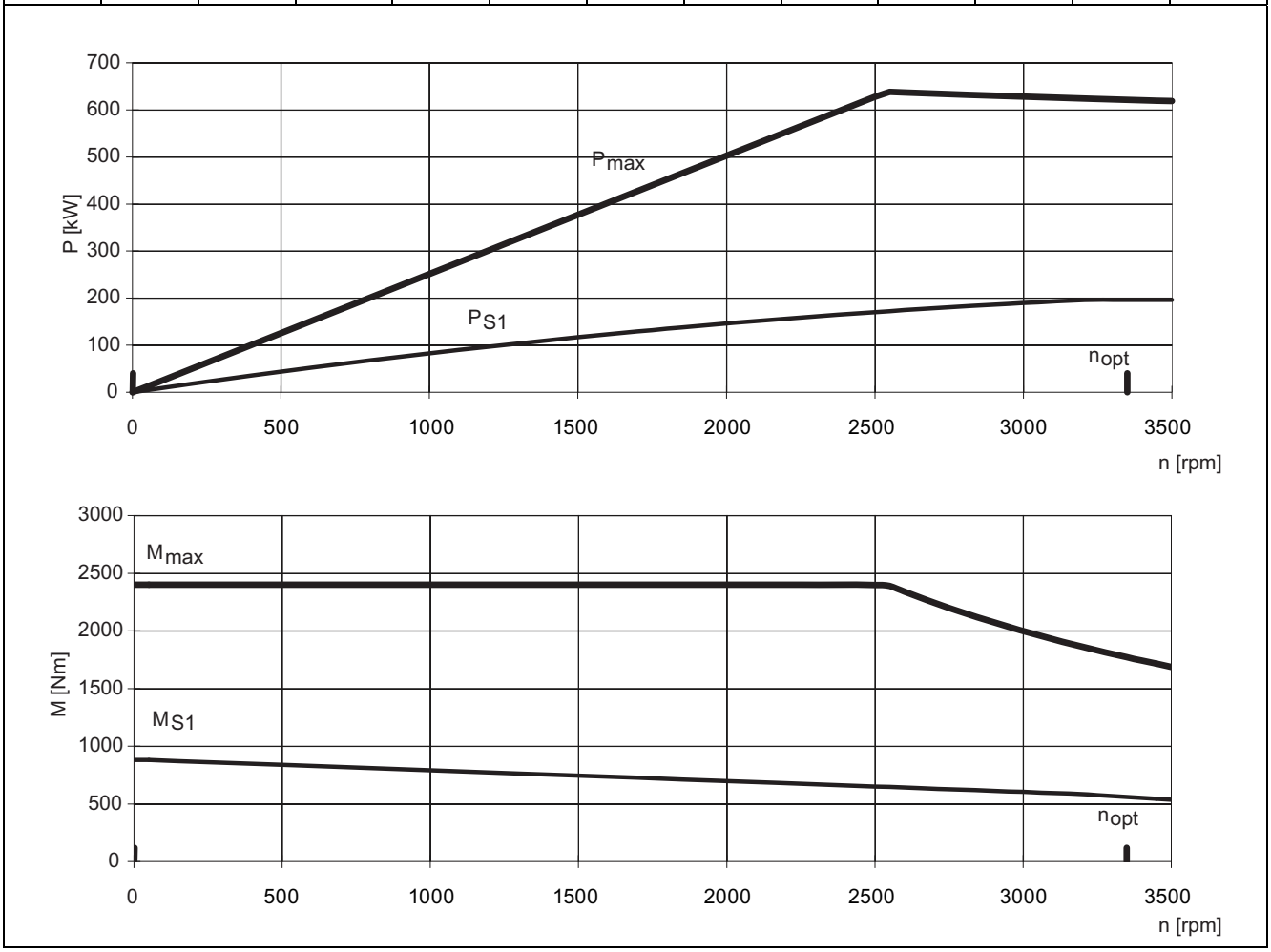
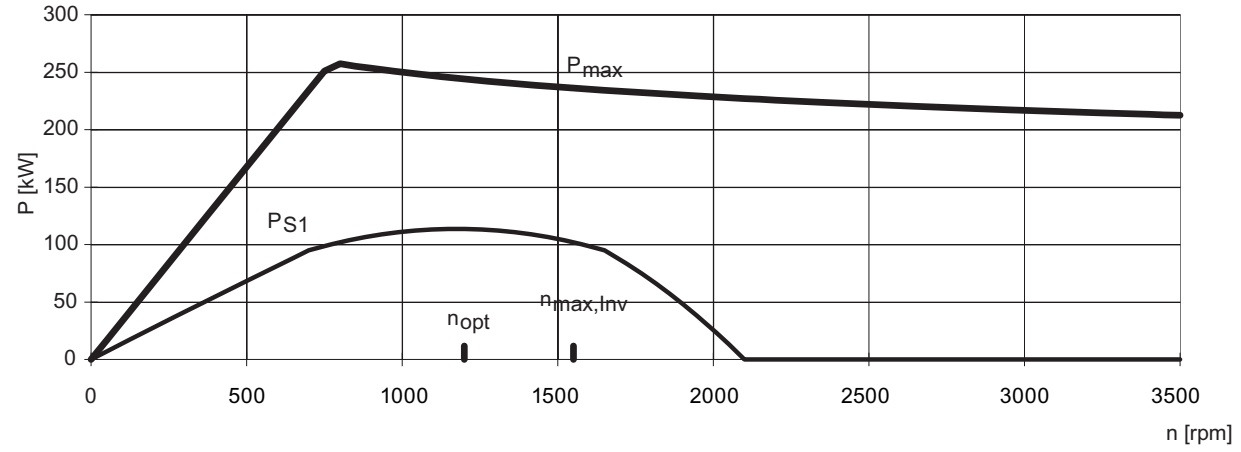


Table 4- 819 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	95	1296	255	114	1200	3500	3100	1550	3200	640	1330	260



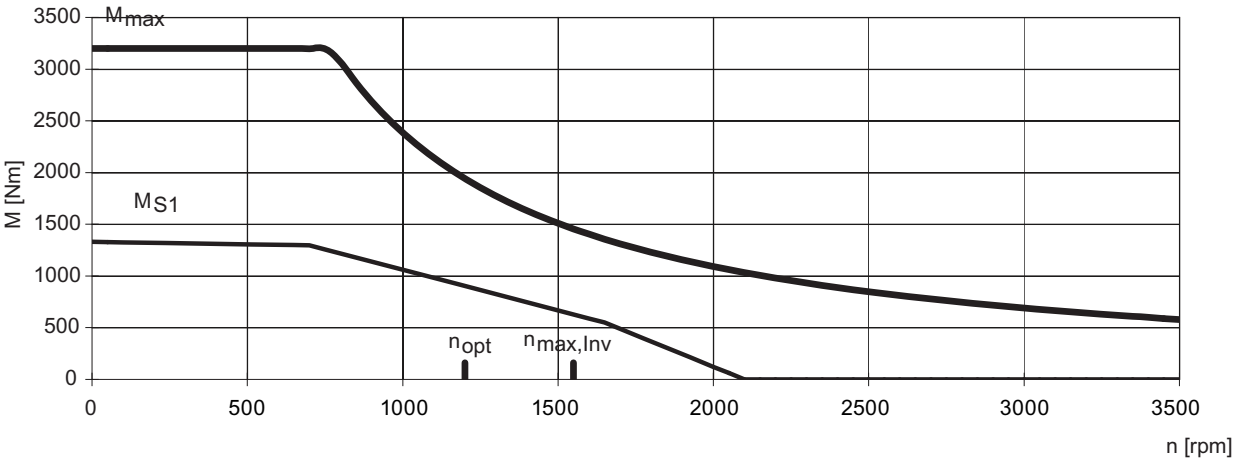


Table 4- 820 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	108	1289	255	125	1250	3500	3100	1550	3200	640	1330	260
700	95	1296	255									

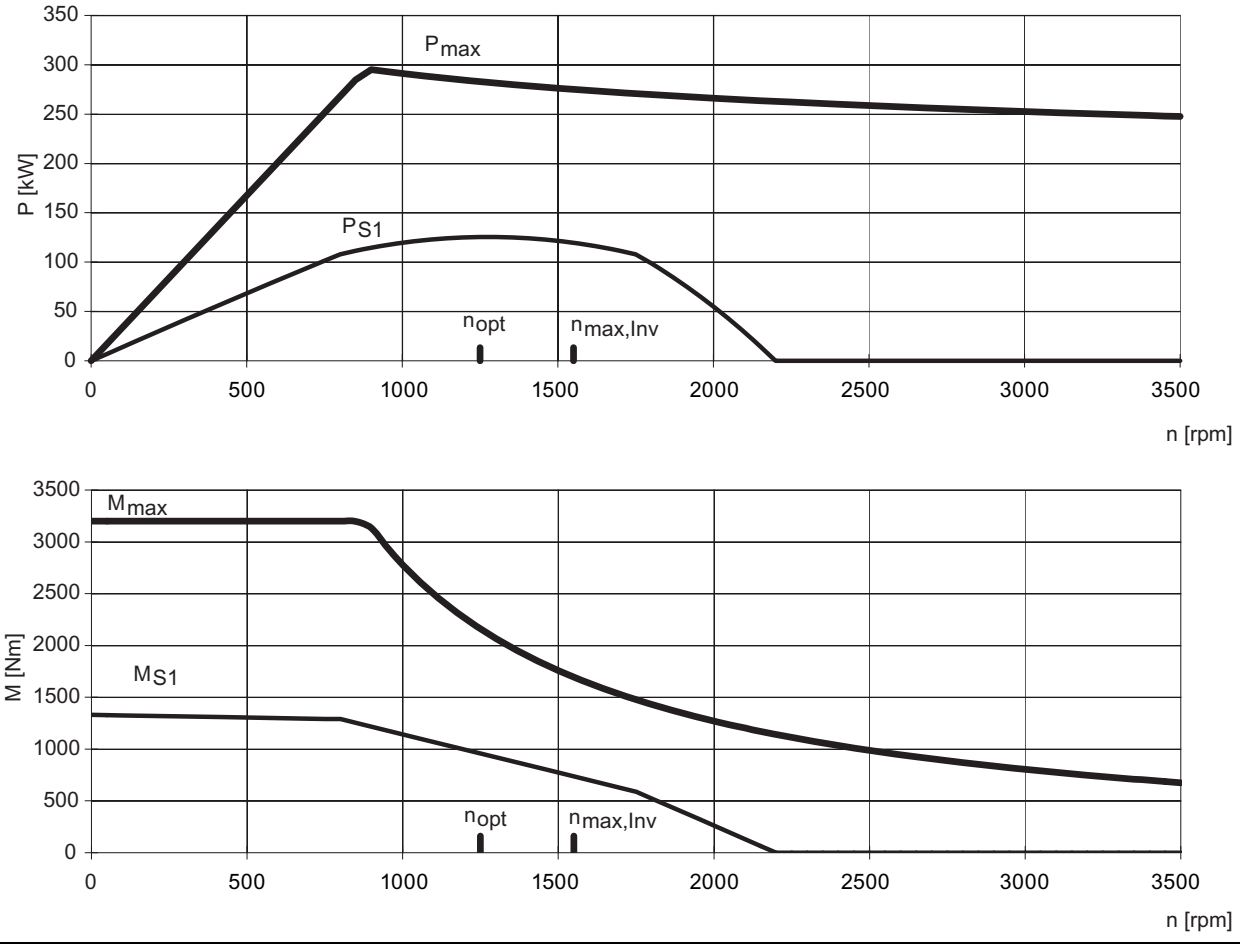


Table 4- 821 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	134	1280	255	145	1400	3500	3100	1550	3200	640	1330	260

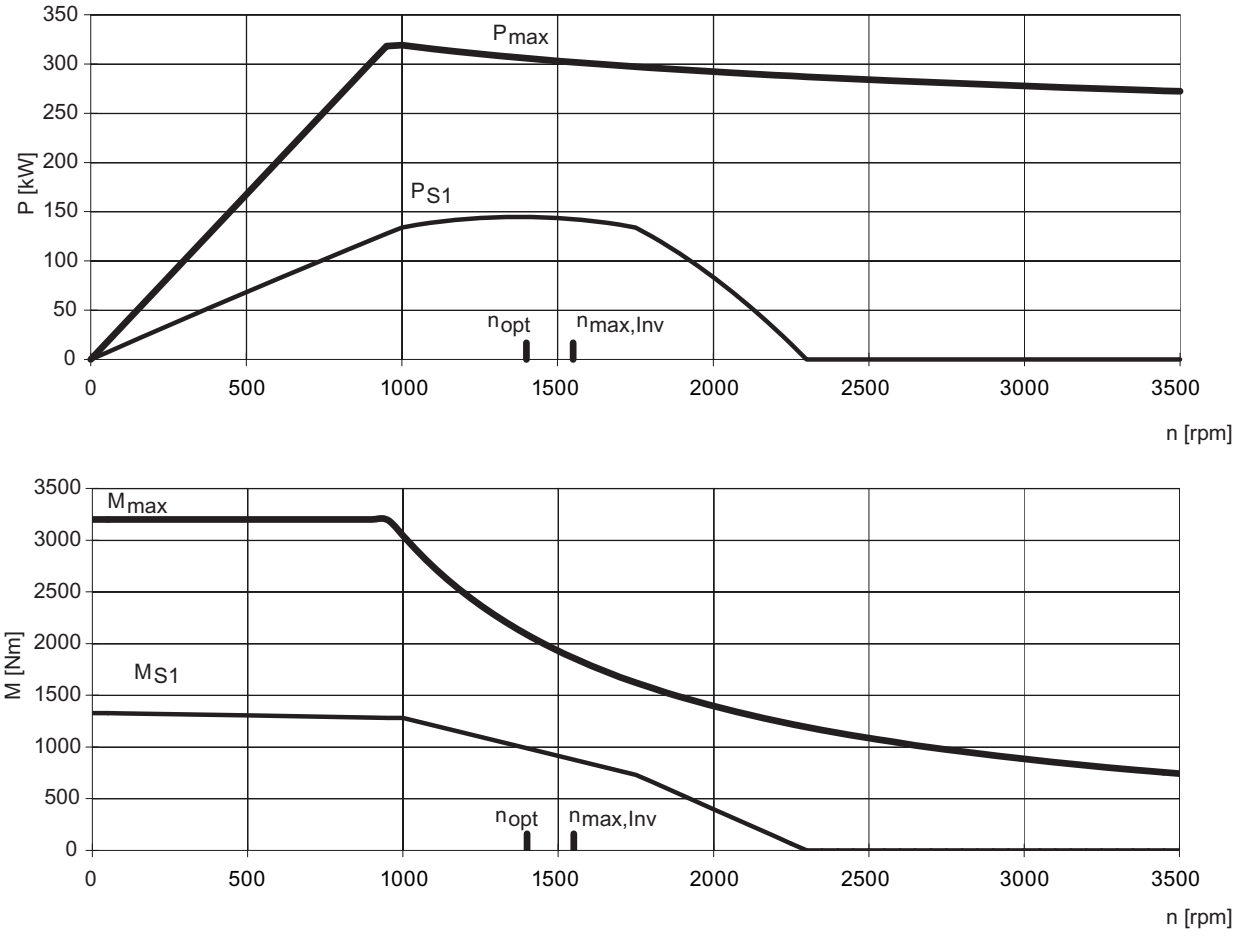


Table 4- 822 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	135	1289	325	148	1450	3500	3100	1950	3200	820	1330	330

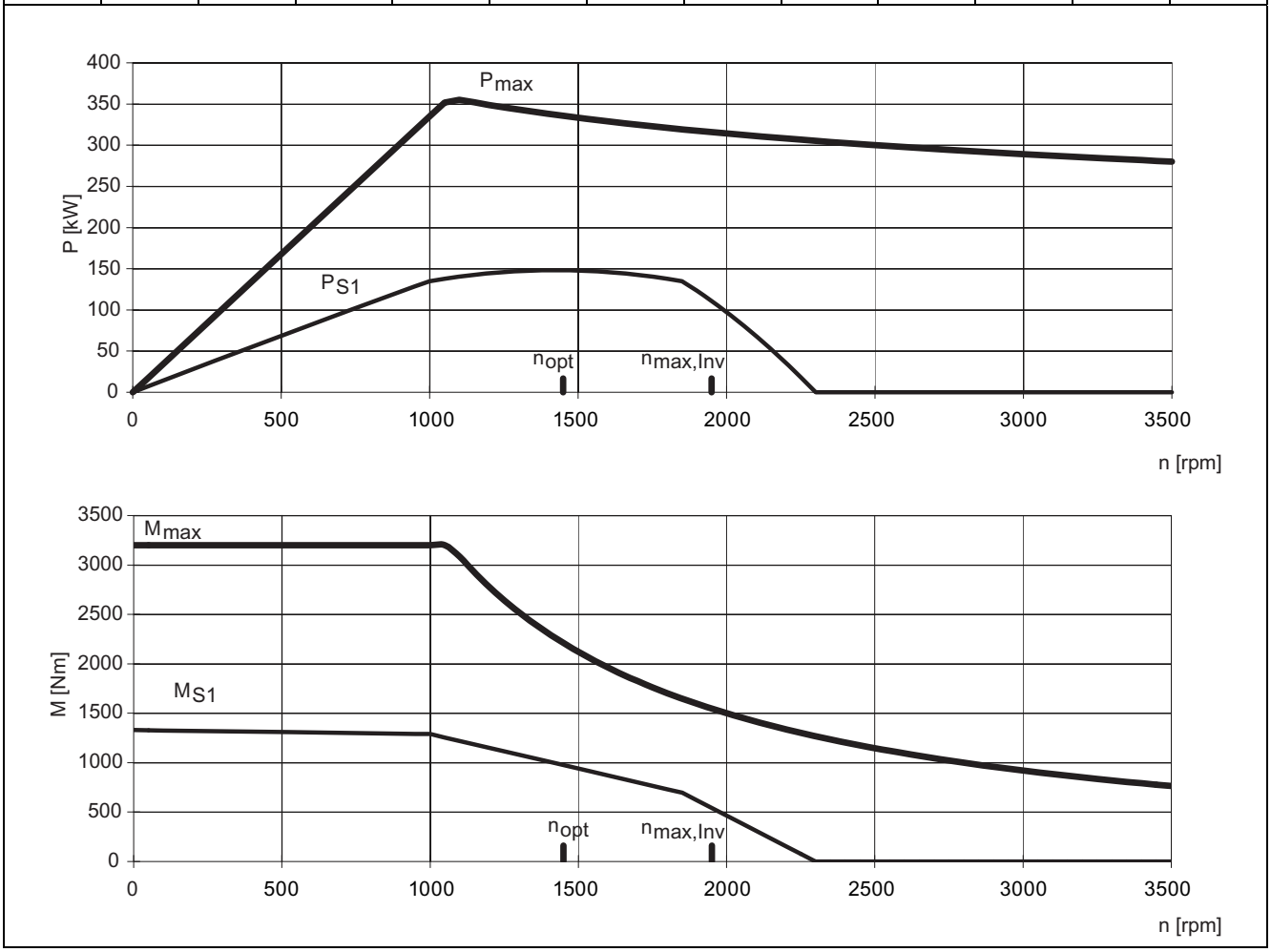


Table 4- 823 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	155	1287	325	165	1550	3500	3100	1950	3200	820	1330	330
1000	135	1289	325									

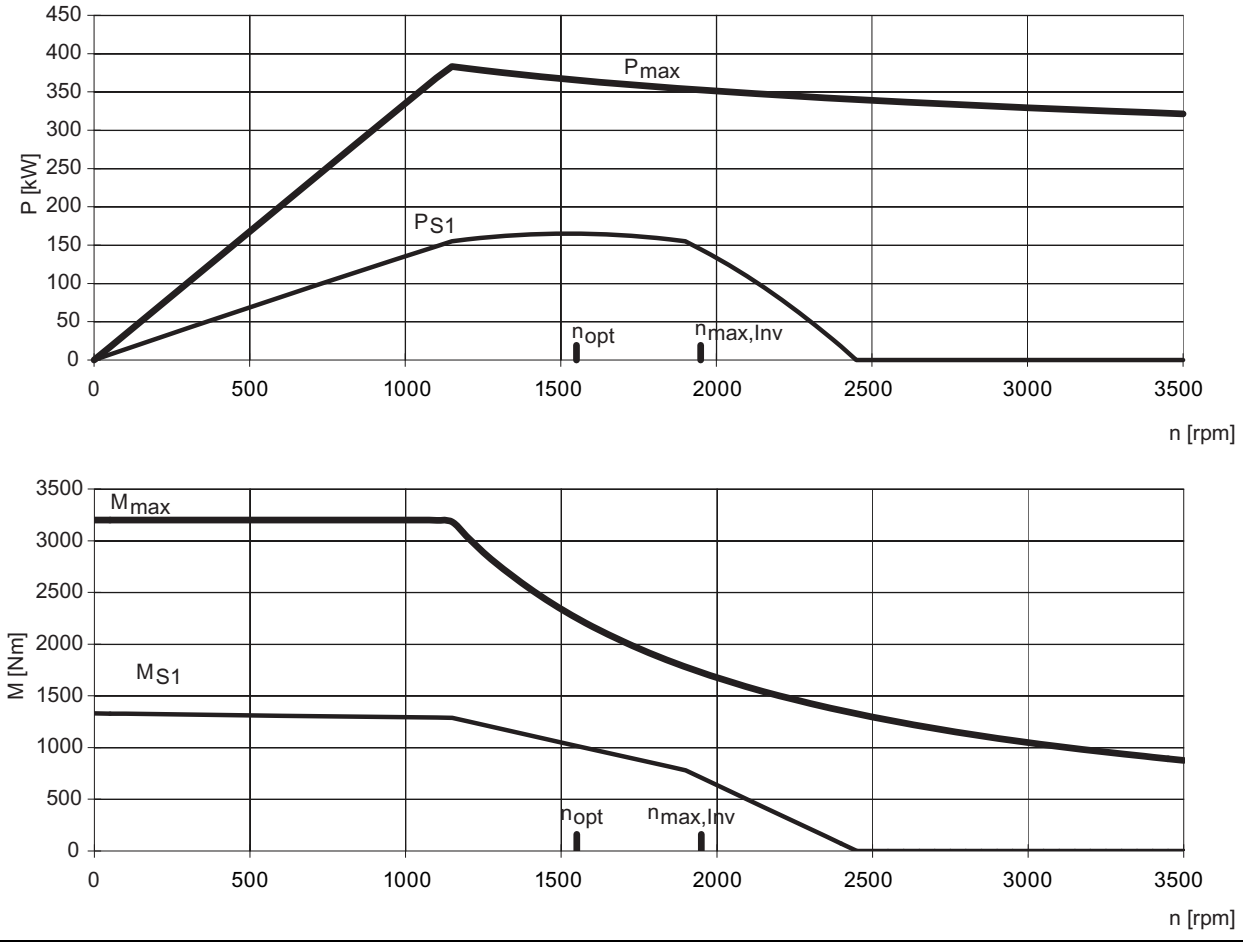


Table 4- 824 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	180	1273	320	187	1650	3500	3100	1950	3200	820	1330	330

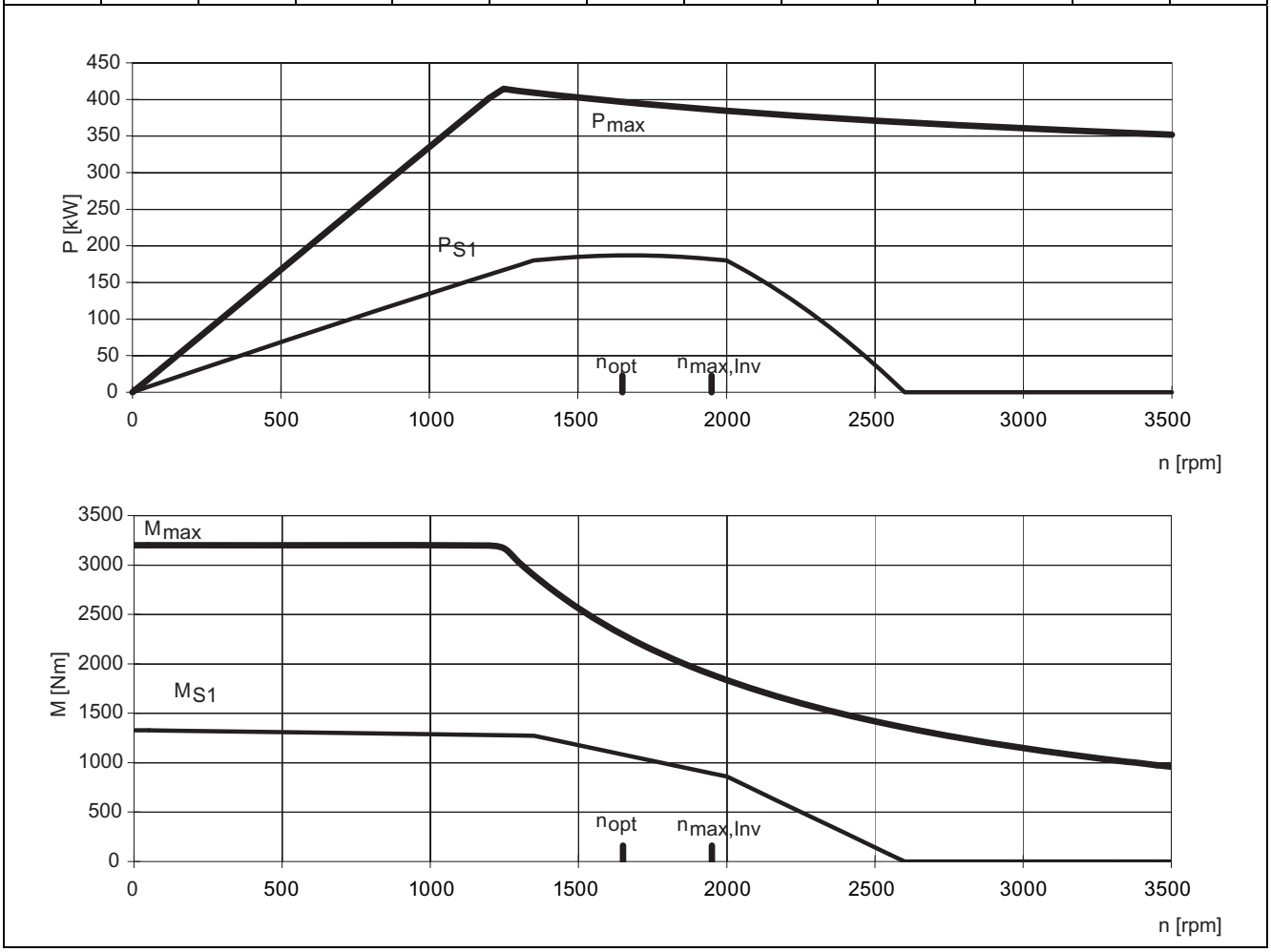


Table 4- 825 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	201	1280	445	209	1850	3500	3100	2700	3200	1120	1330	454

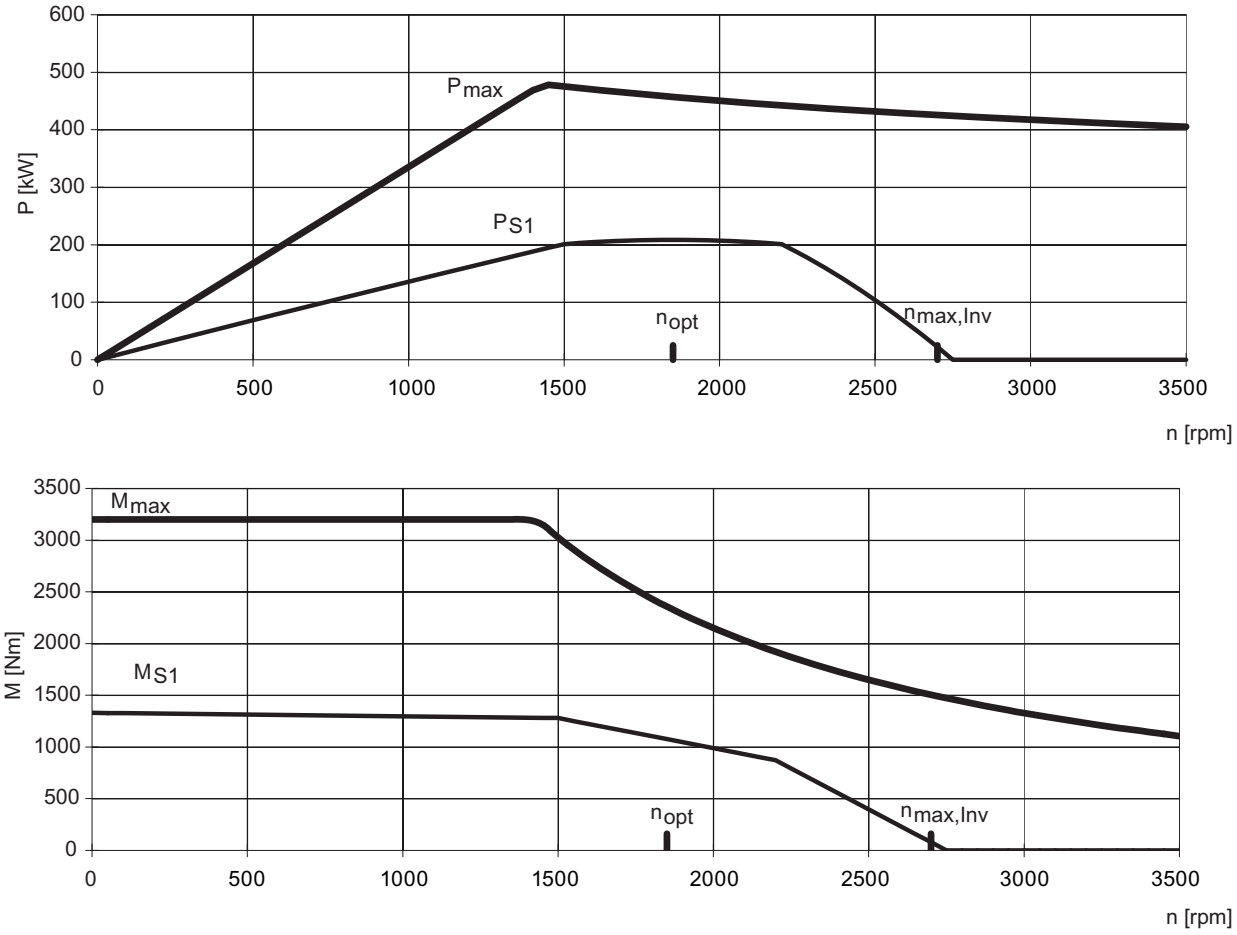


Table 4- 826 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	233	1271	440	239	2100	3500	3100	2700	3200	1120	1330	454
1500	201	1280	445									

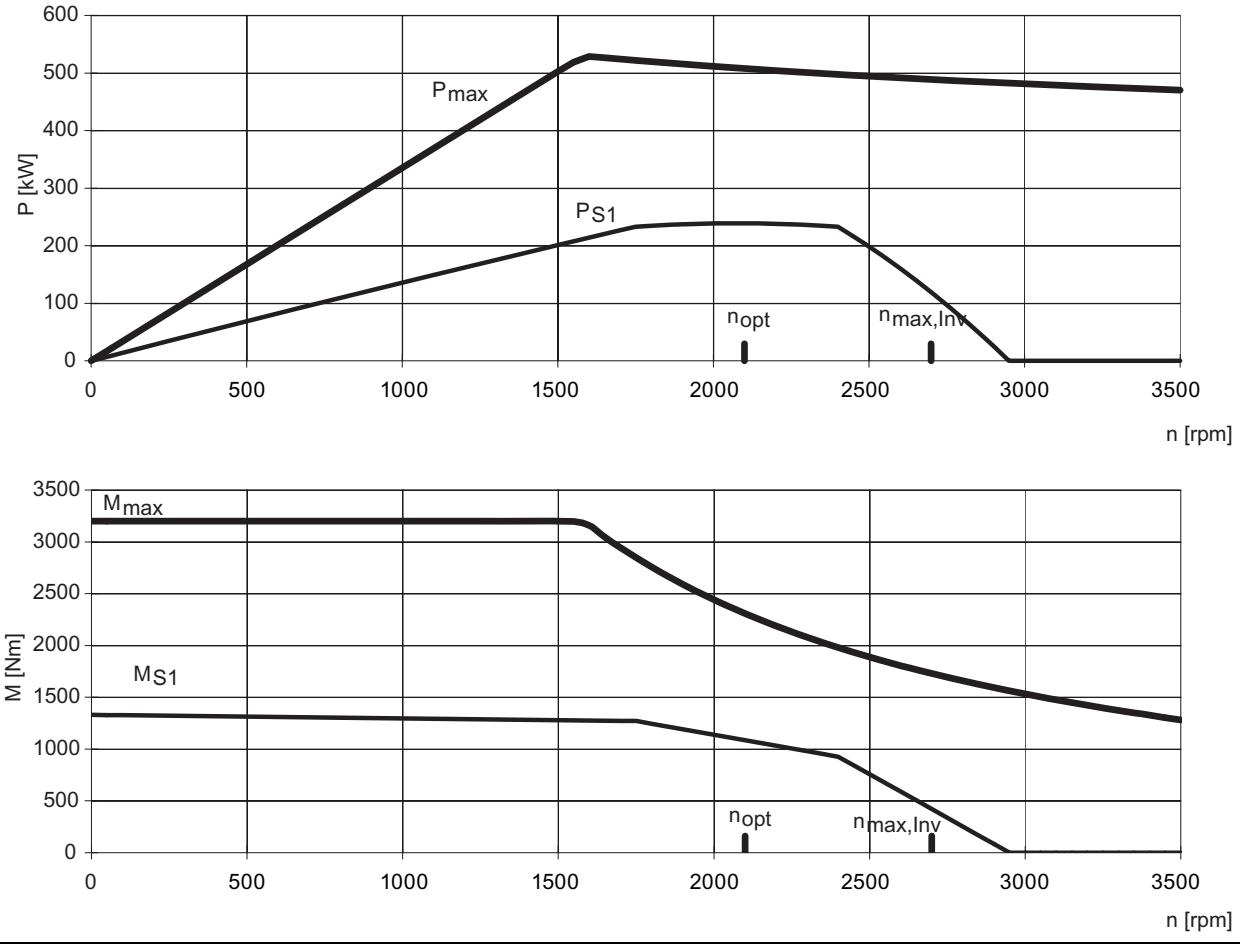


Table 4- 827 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	248	1184	410	252	2300	3500	3100	2700	3200	1120	1330	454

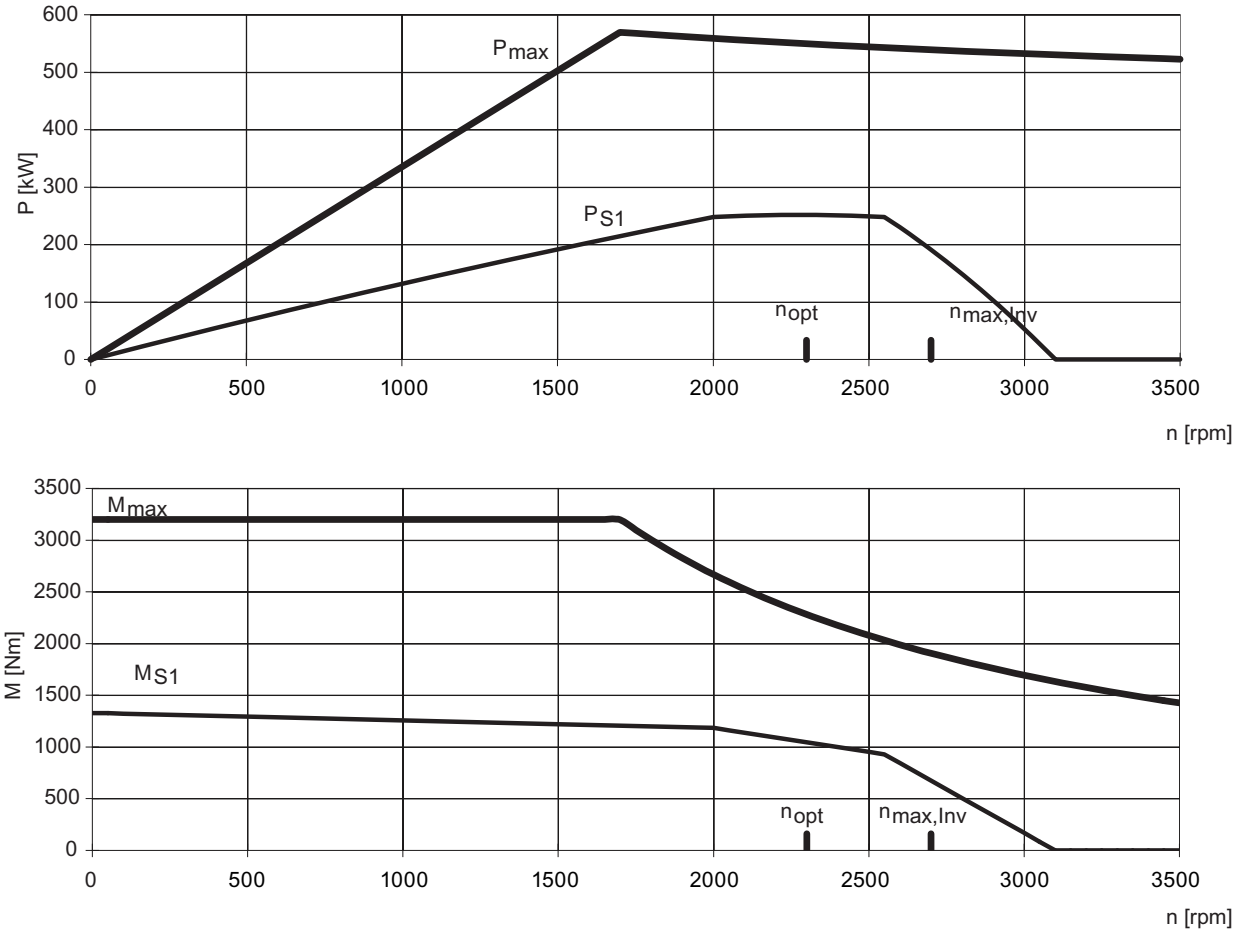


Table 4- 828 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	228	871	400	235	3000	3500	3100	>3500	3200	1500	1170	532

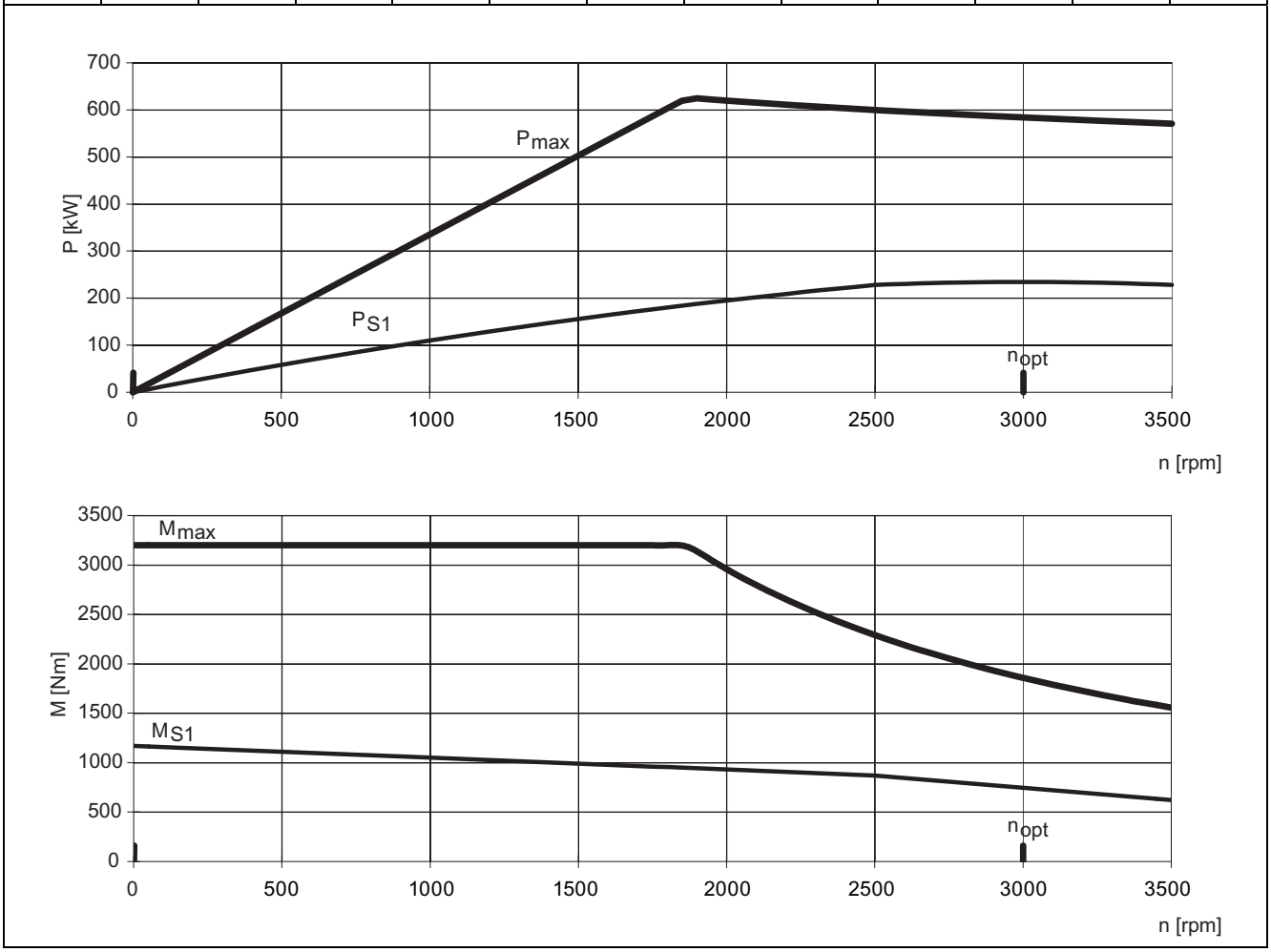
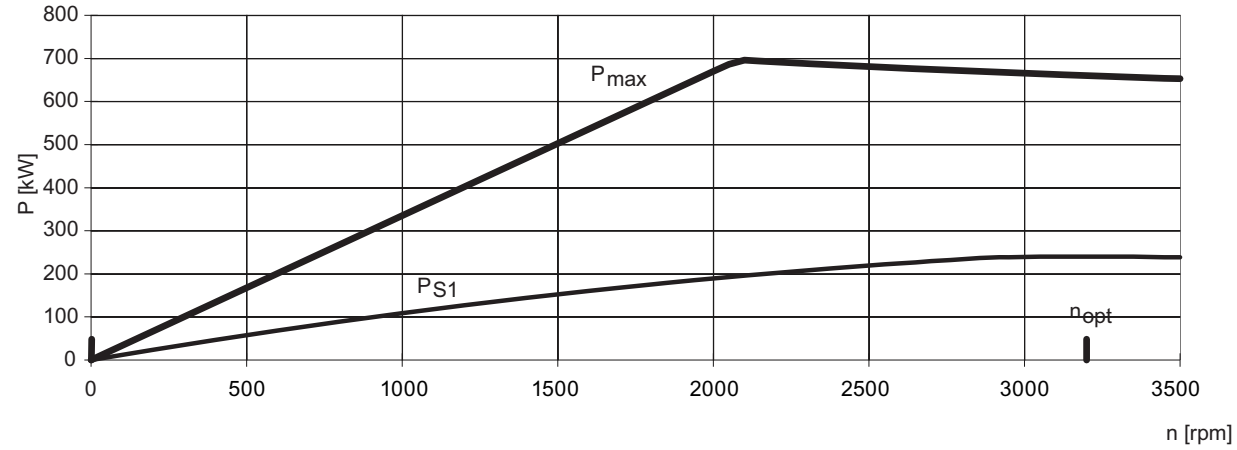


Table 4- 829 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	238	784	365	240	3200	3500	3100	>3500	3200	1500	1170	532
2500	228	871	400									



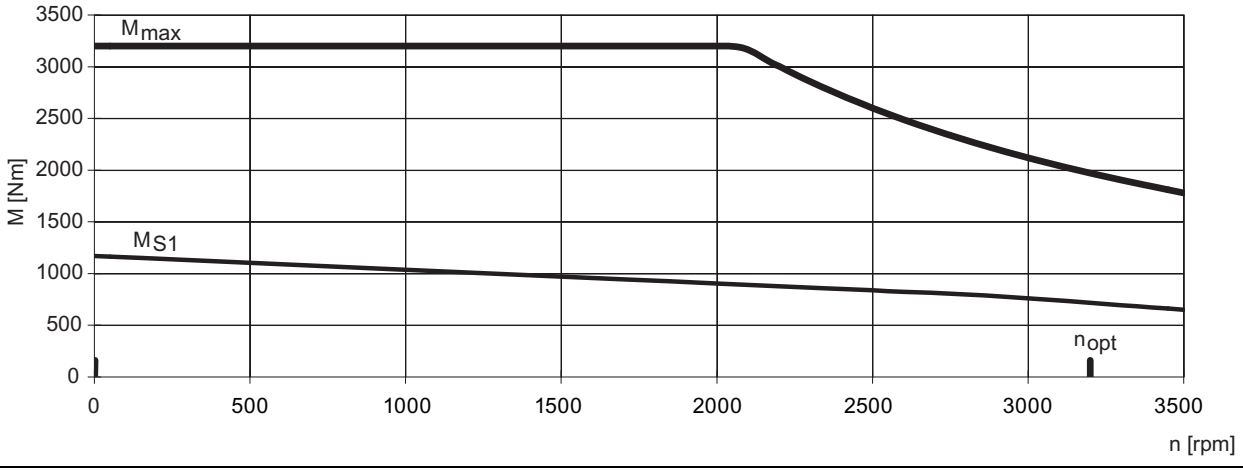


Table 4- 830 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3200	245	731	340	245	3350	3500	3100	>3500	3200	1500	1170	532

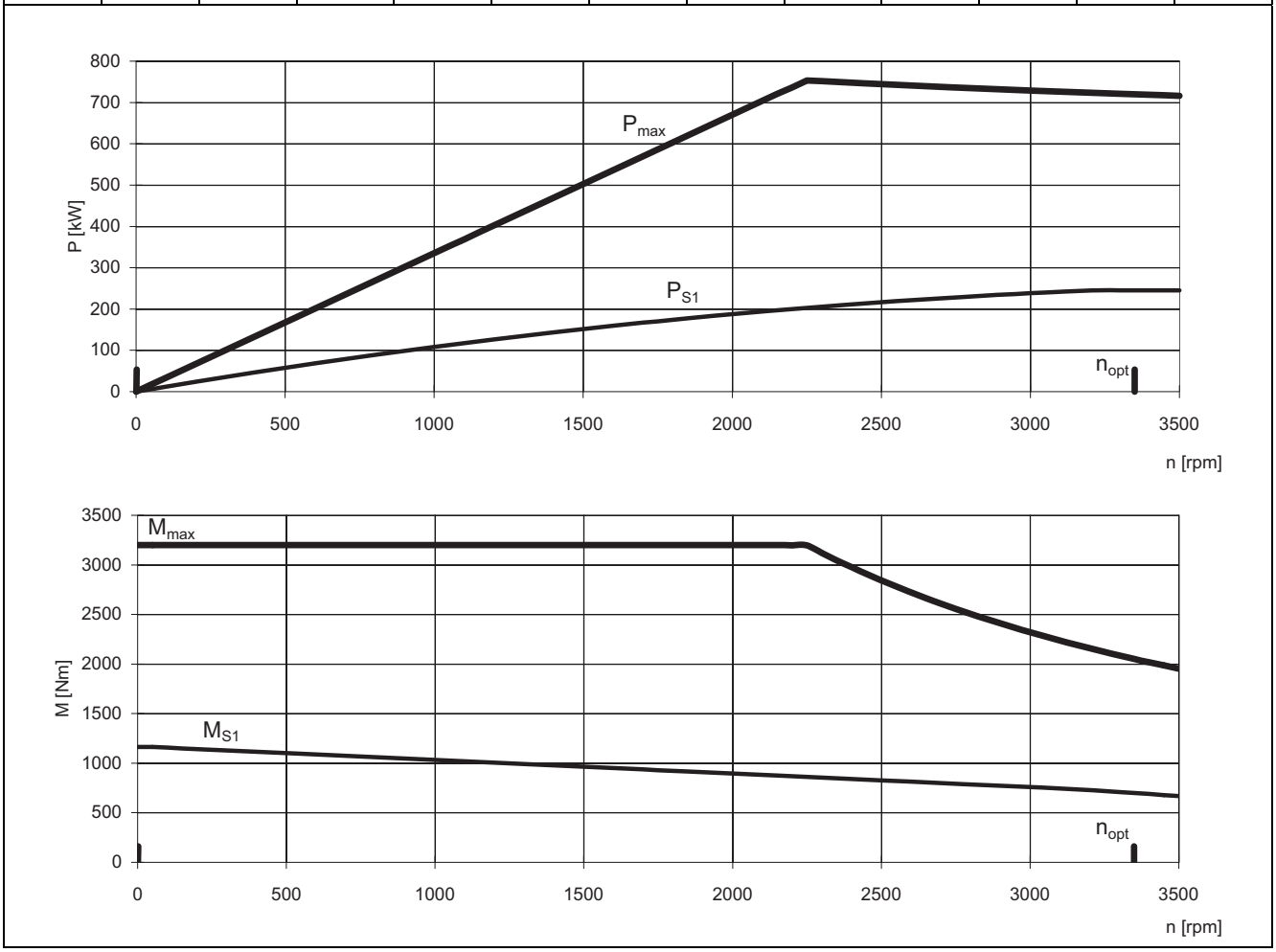


Table 4- 831 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
700	121	1651	305	141	1150	3500	3100	1450	4000	750	1680	306

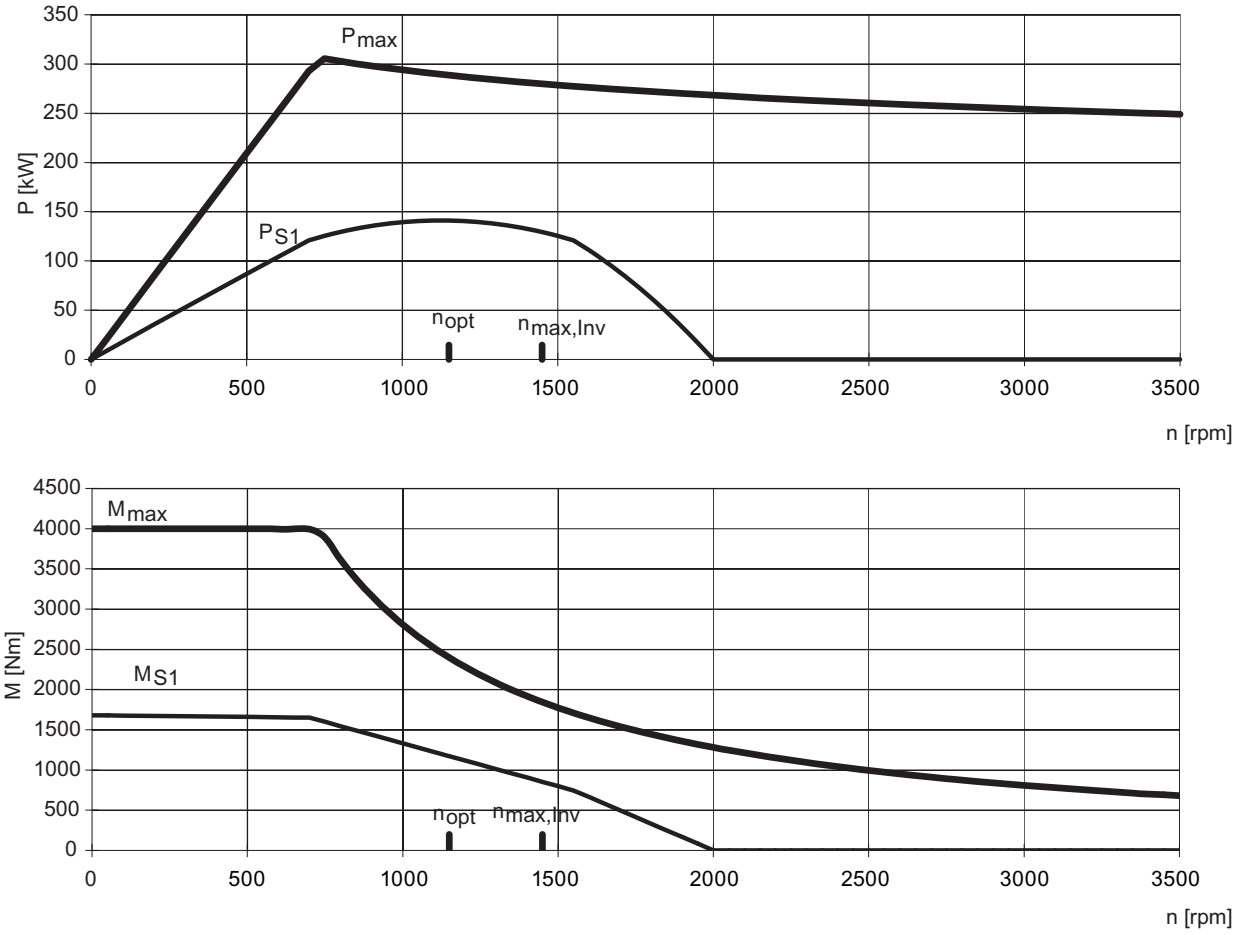


Table 4- 832 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
800	138	1647	305	157	1250	3500	3100	1450	4000	750	1680	306
700	121	1651	305									

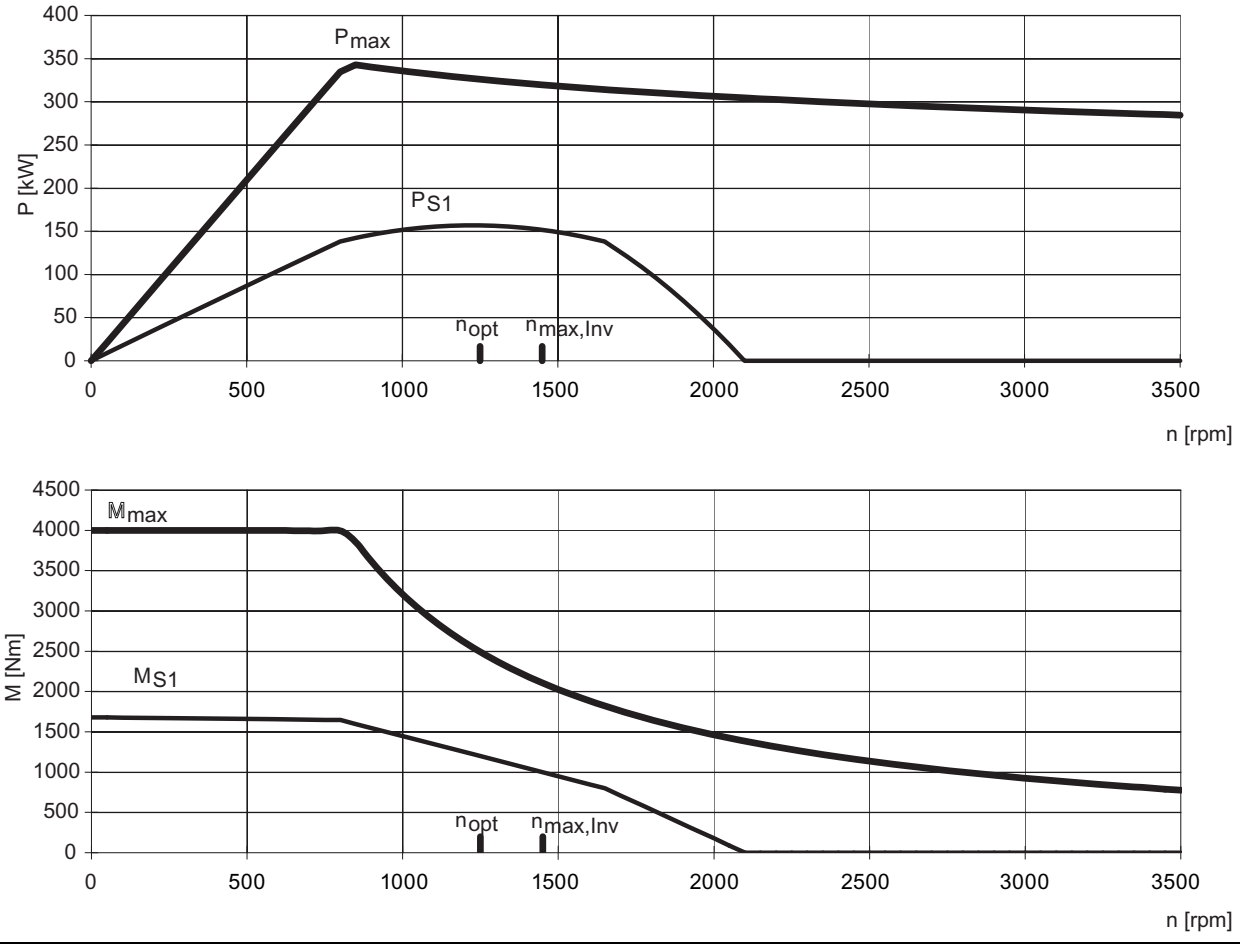


Table 4- 833 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□C2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	172	1642	300	184	1350	3500	3100	1450	4000	750	1680	306

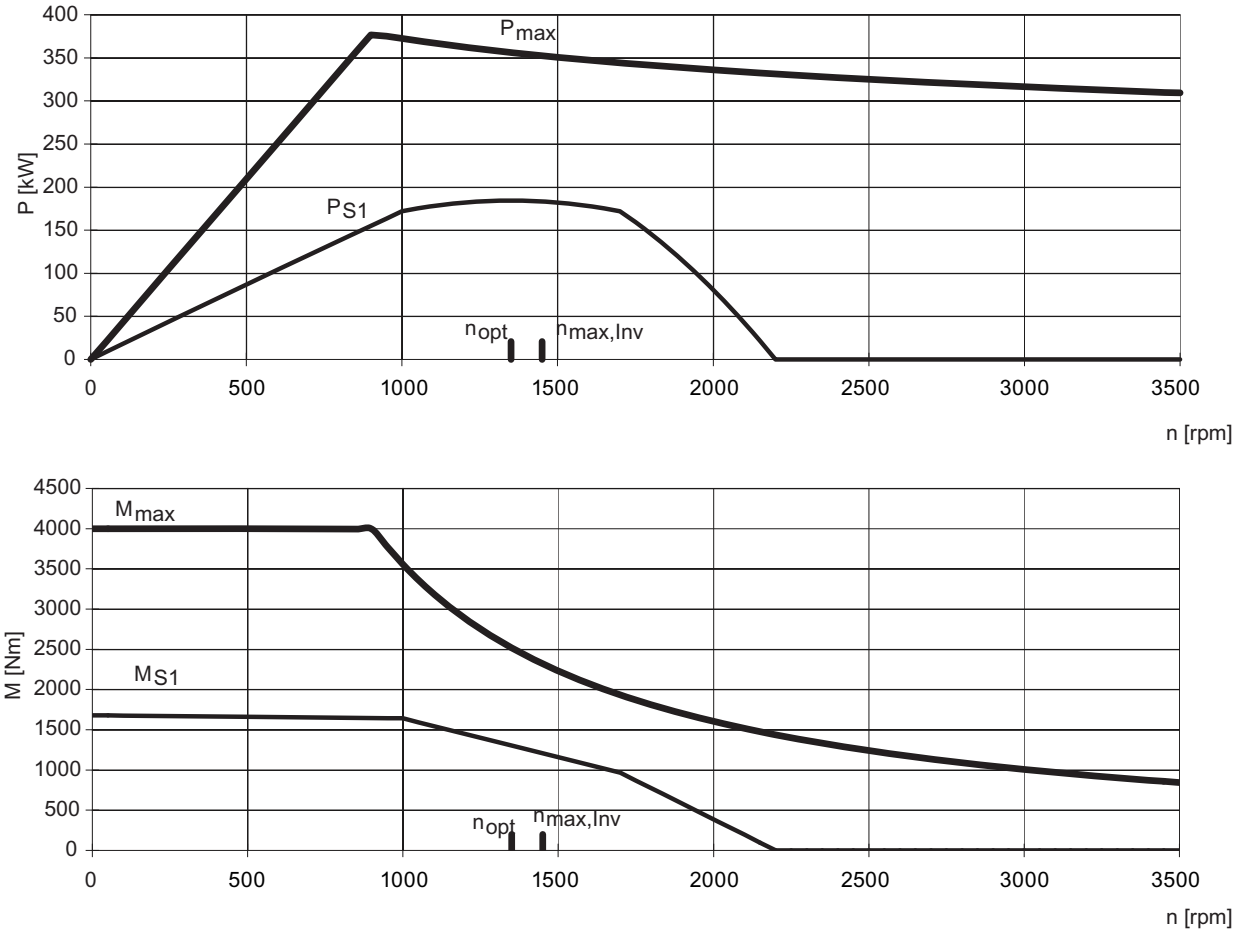
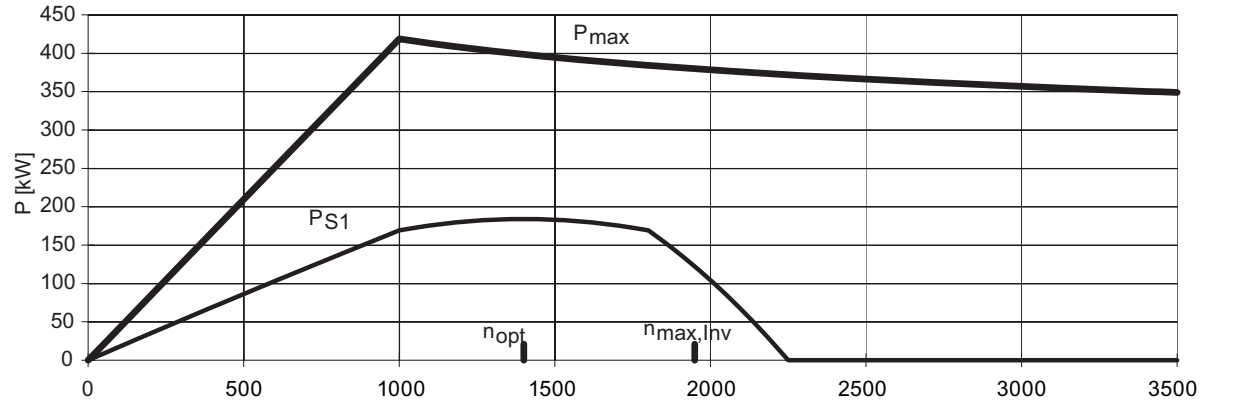


Table 4- 834 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1000	169	1614	395	184	1400	3500	3100	1950	4000	1000	1680	408



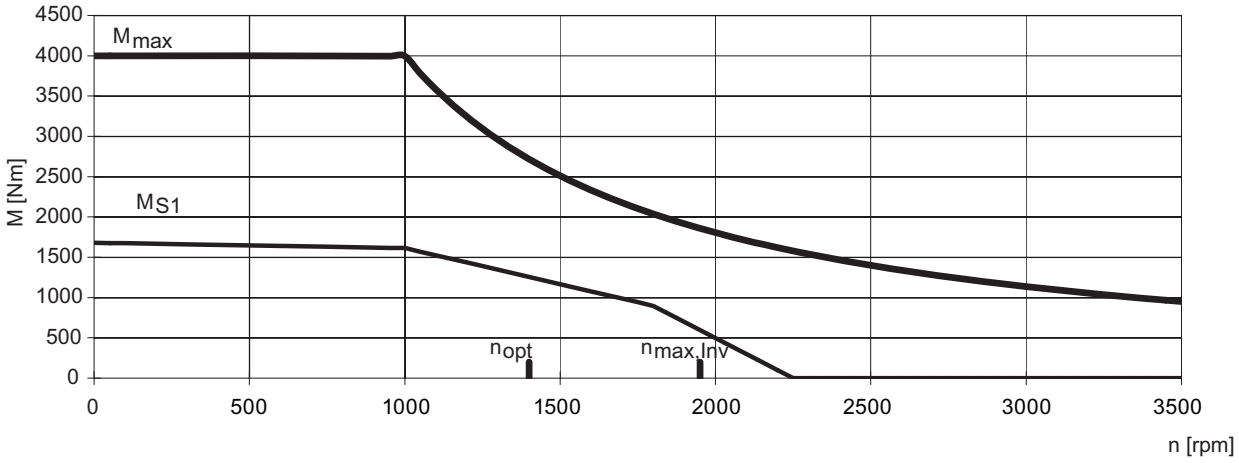


Table 4- 835 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1150	194	1611	395	205	1500	3500	3100	1950	4000	1000	1680	408
1000	169	1614	395									

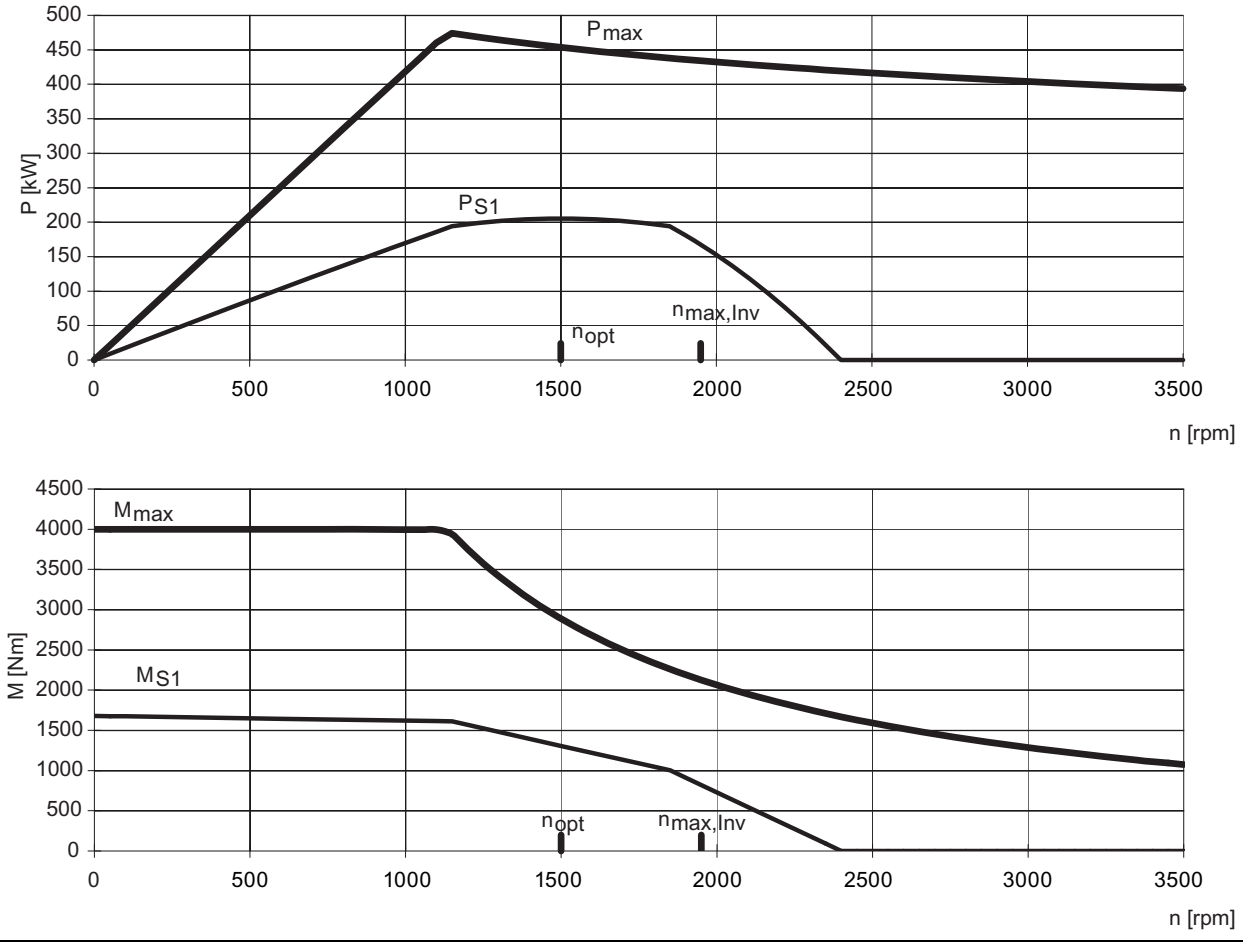


Table 4- 836 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□D2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1350	226	1599	395	235	1700	3500	3100	1950	4000	1000	1680	408

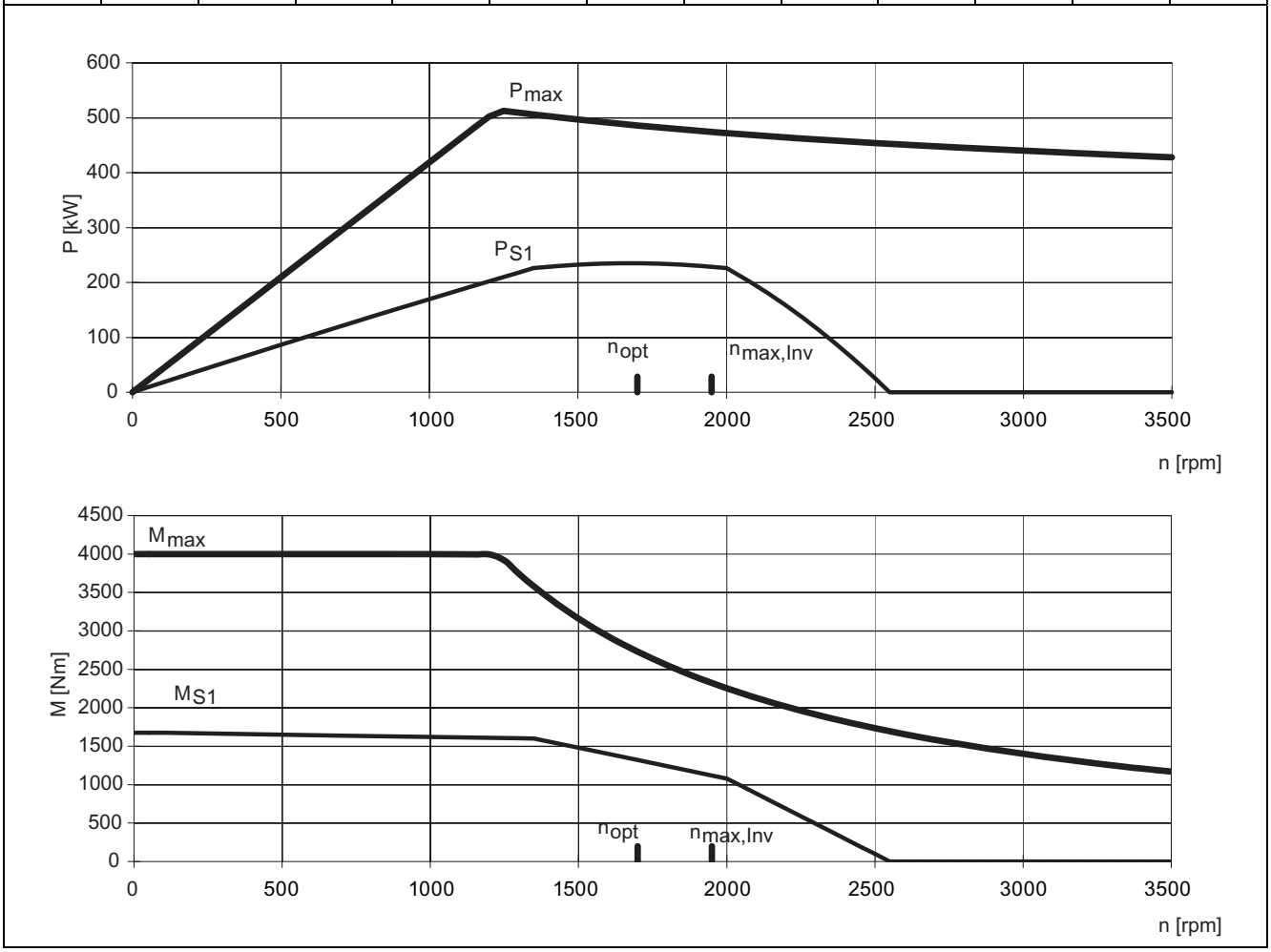


Table 4- 837 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1500	251	1598	590	264	1900	3500	3100	2900	4000	1500	1680	612

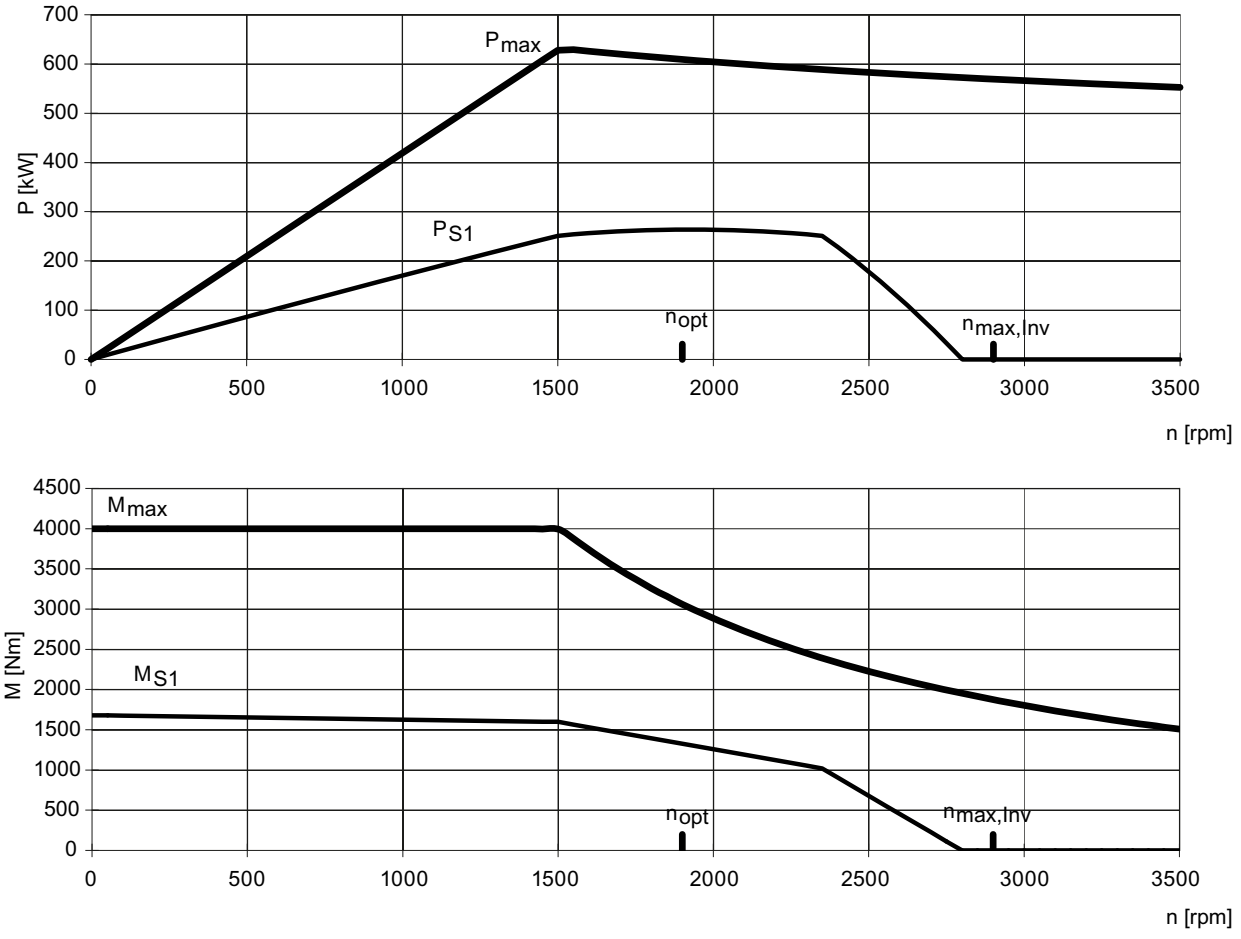


Table 4- 838 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1750	289	1577	580	299	2150	3500	3100	2900	4000	1500	1680	612
1500	251	1598	590									

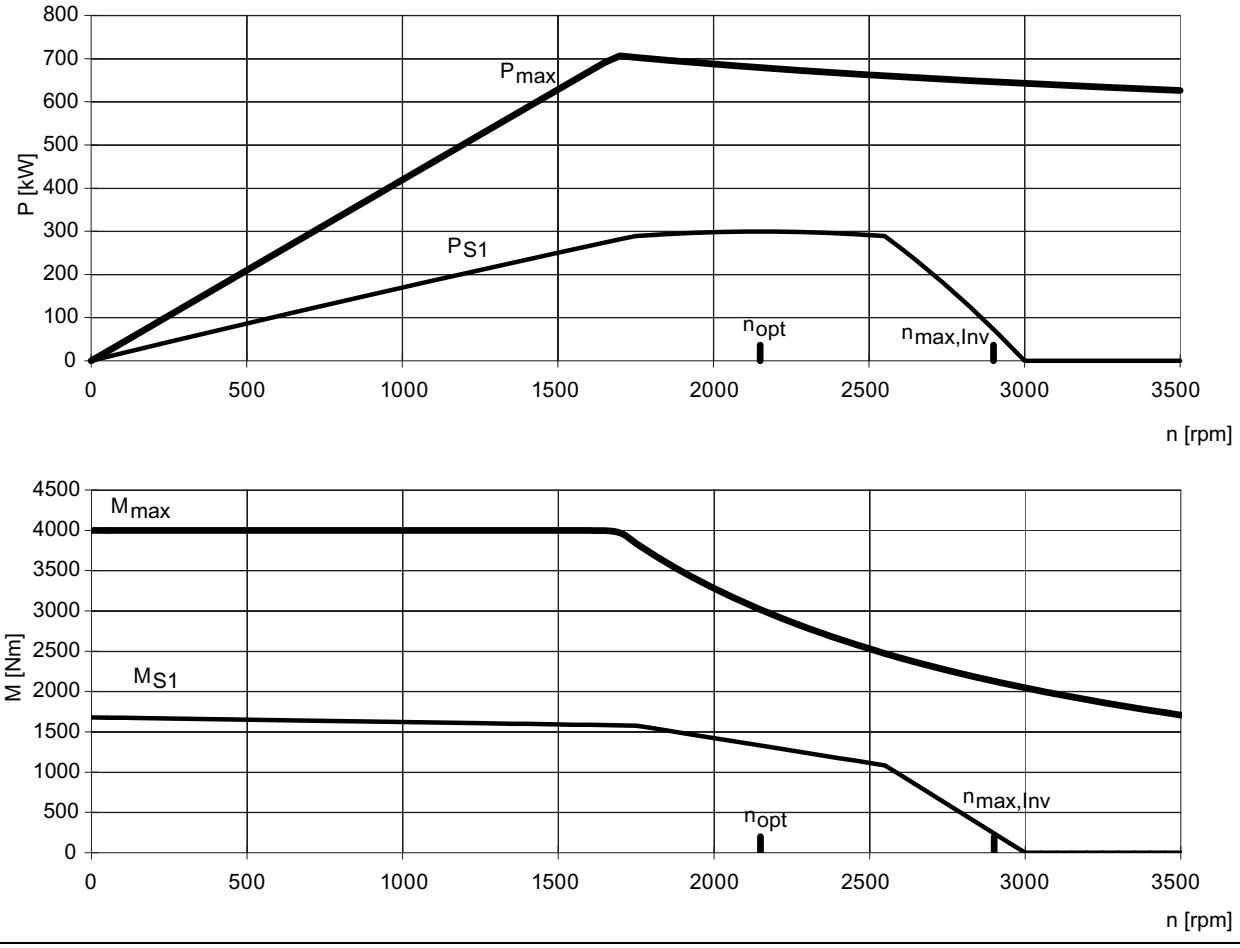


Table 4- 839 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□F2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2000	310	1480	550	318	2400	3500	3100	2900	4000	15000	1680	612

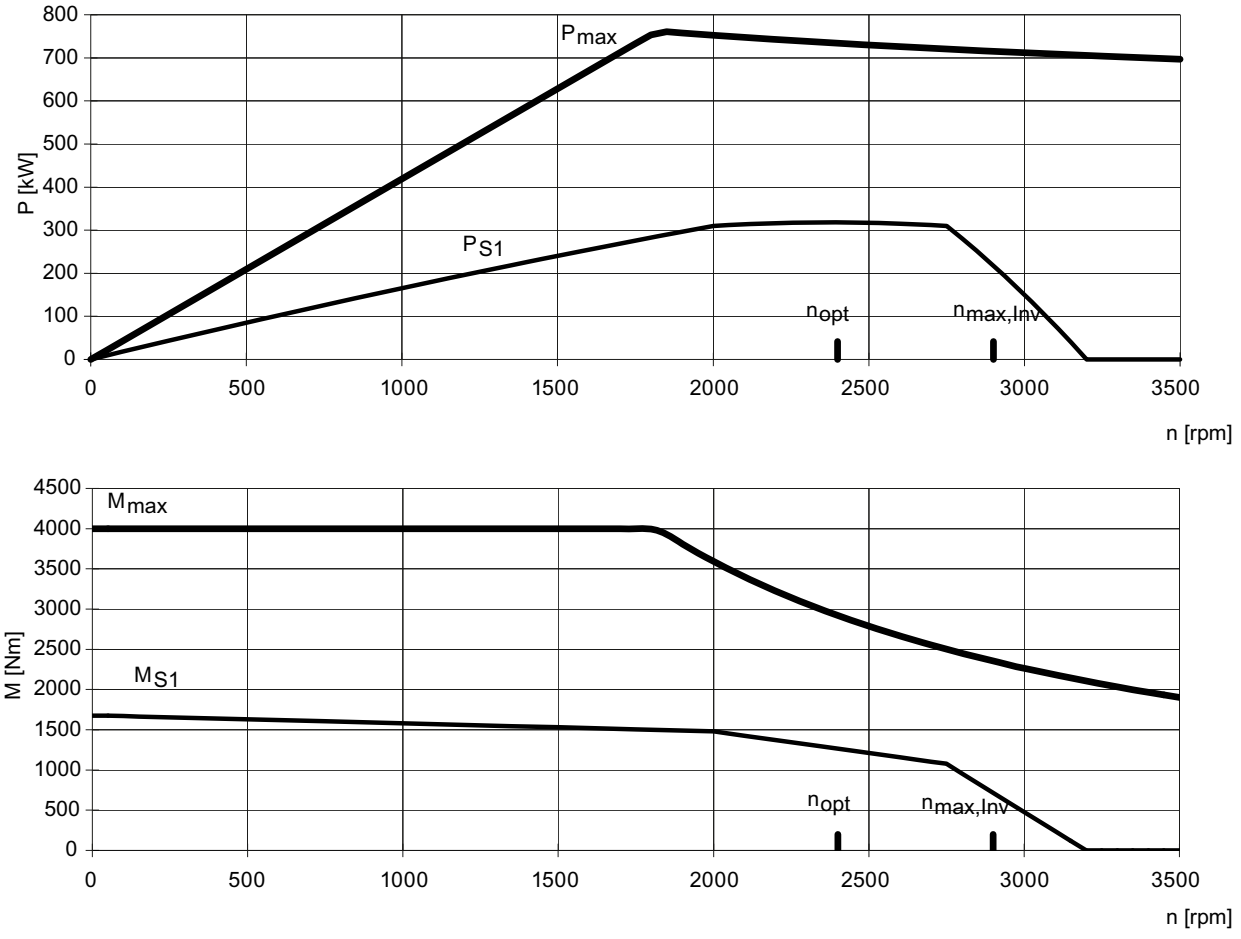


Table 4- 840 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2500	270	1031	570	278	3000	3500	3100	>3500	4000	2250	1400	762

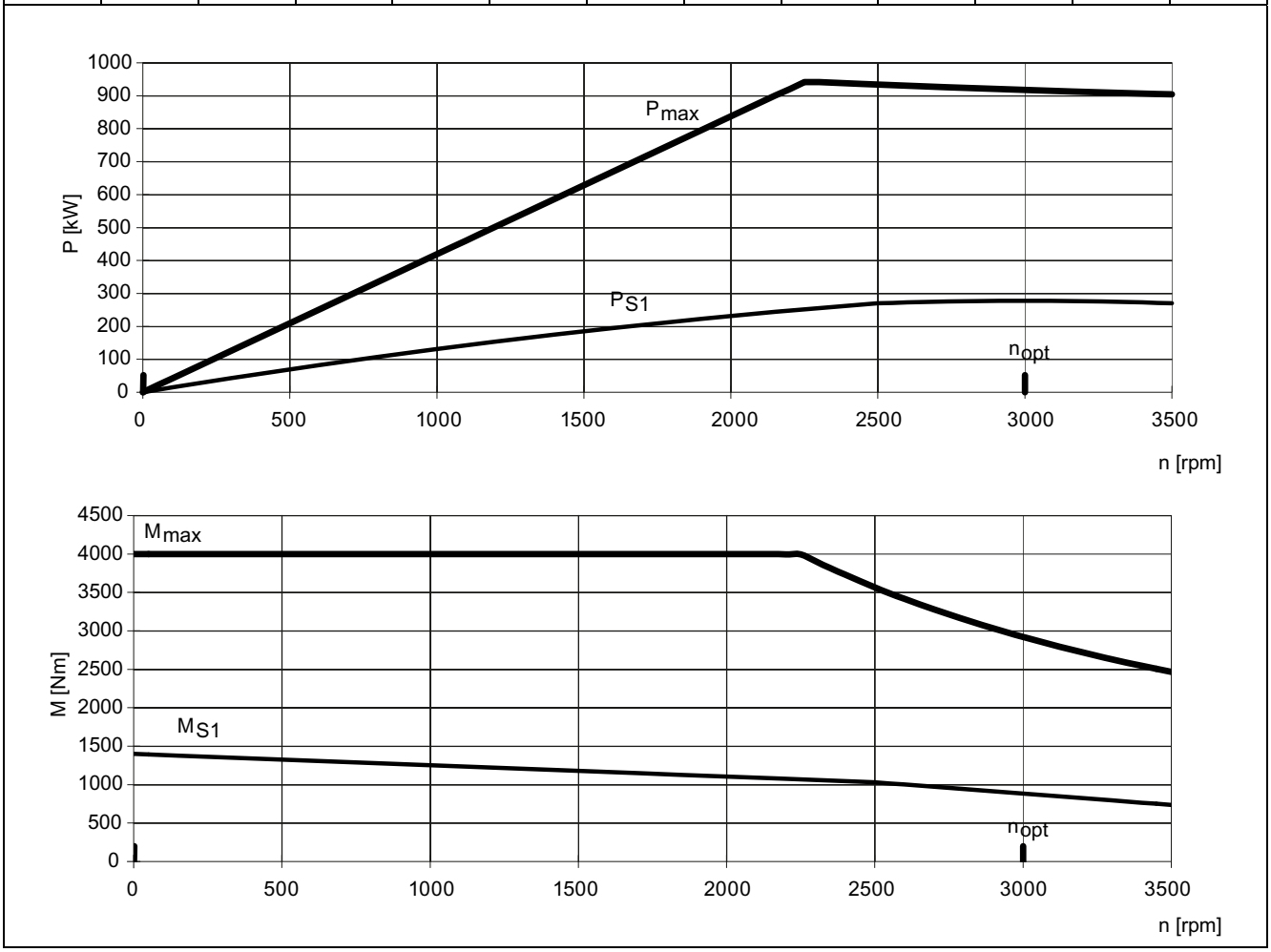


Table 4- 841 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2900	283	932	520	286	3200	3500	3100	>3500	4000	2250	1400	762
2500	270	1031	570									

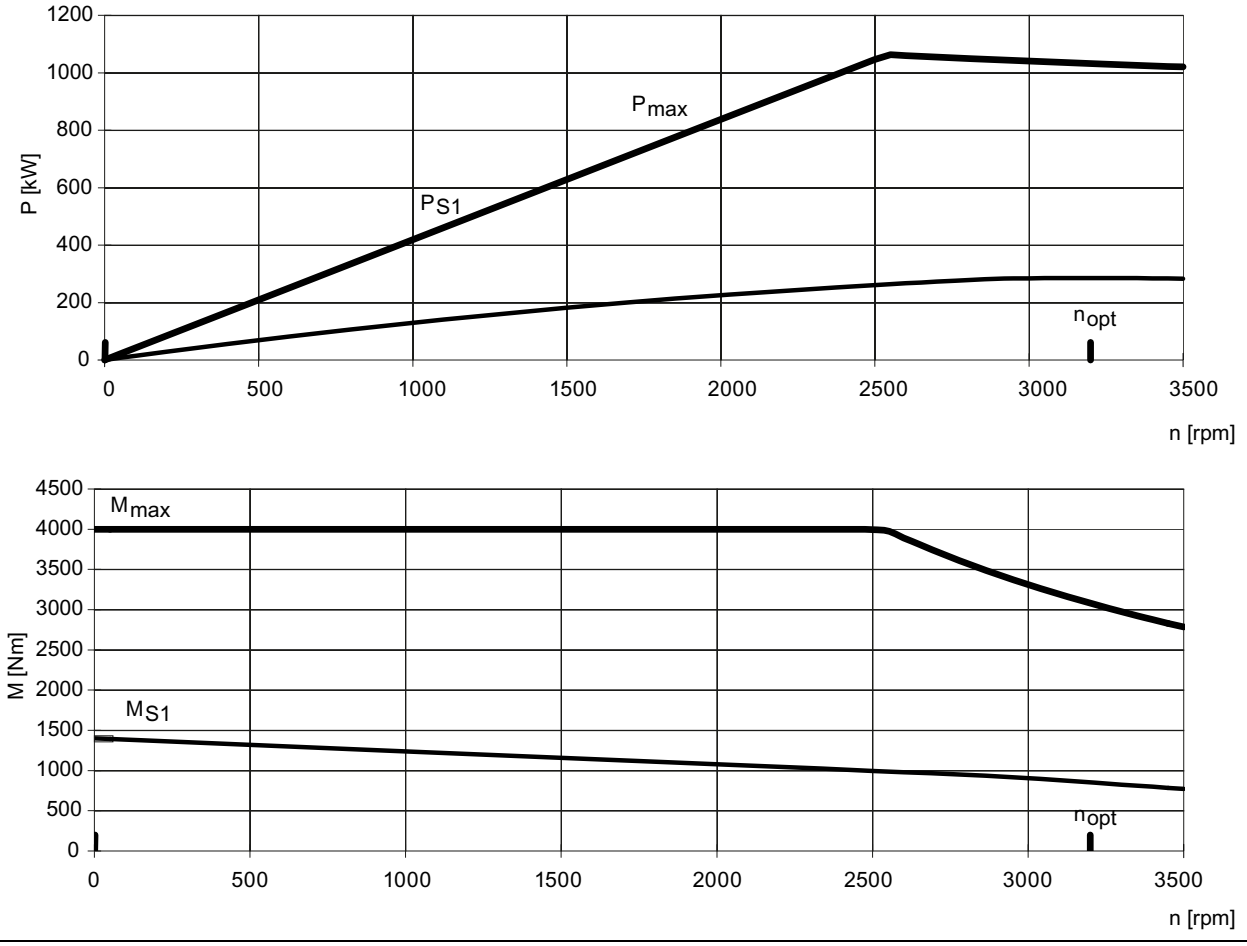
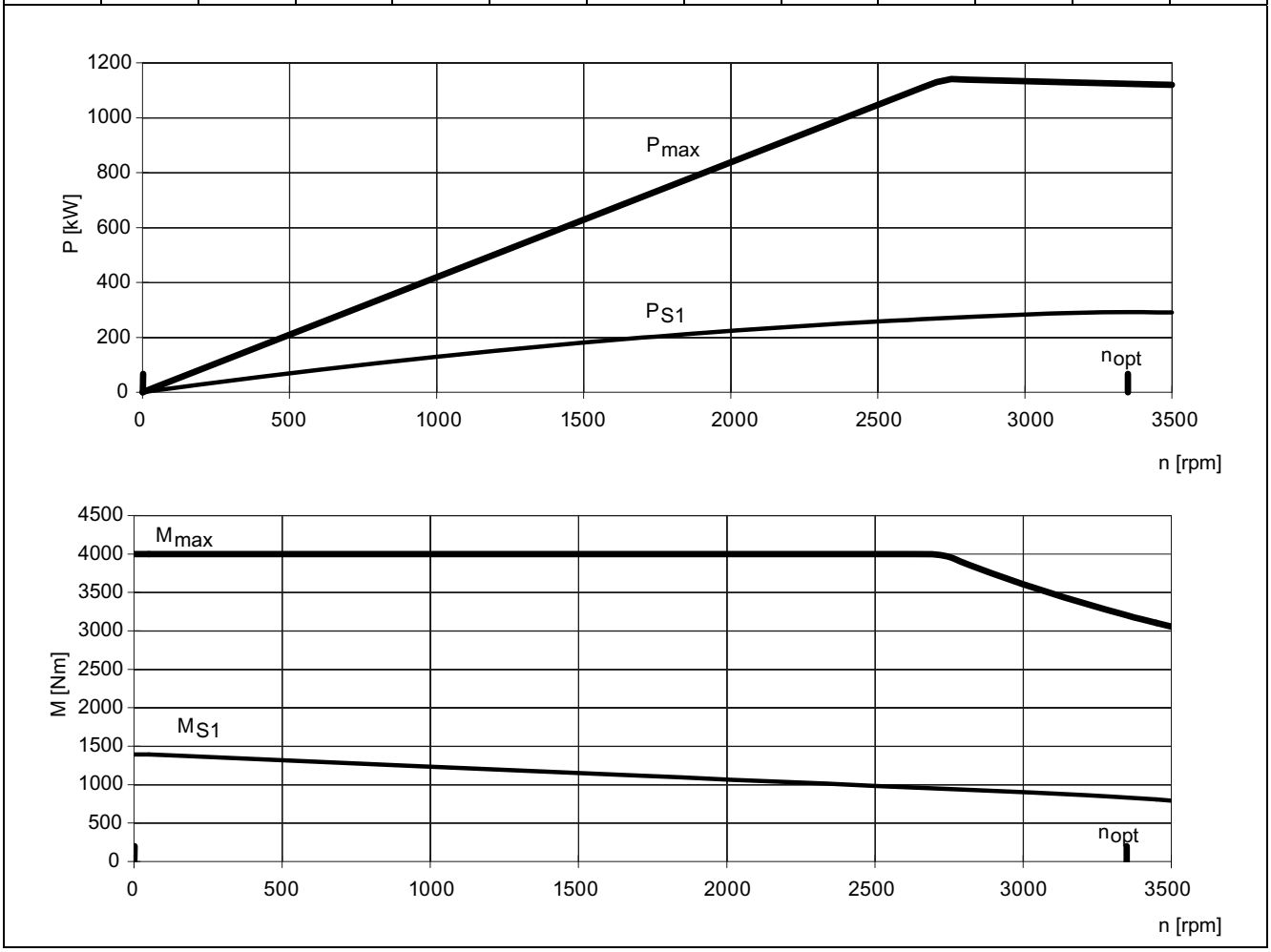


Table 4- 842 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□L2□

n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3200	291	868	485	291	3350	3500	3100	>3500	4000	2250	1400	762



Motor components

5

5.1 Thermal motor protection

Table 5- 1 Properties and technical data

Type	KTY 84
Resistance when cold (20° C)	Approx. 580 Ω
Resistance when hot (100° C)	Approx. 1000 Ω
Connection	Via signal cable
Response temperature	Prewarning< 150° C Alarm/trip at max. 170° C ± 5° C

The resistance change is proportional to the winding temperature change. The temperature characteristic is taken into account in the closed-loop control.

The prewarning signal from the evaluation circuit in the SINAMICS drive converter can be externally evaluated.

High short-term overload conditions require additional protective measures as a result of the thermal coupling time of the sensor.

The conductors for the temperature sensor are routed in a cable together with the encoder conductors.

⚠ WARNING

If the user carries out an additional high-voltage test, then the ends of the temperature sensor cables must be short-circuited before the test is carried out! If the test voltage is connected to only one terminal of the temperature sensor, it will be destroyed.

⚠ WARNING

There is no adequate protection for thermally critical load situations, e.g. a high overload at motor standstill. In this case, other protective measures must be provided, e.g. a thermal overcurrent relay.

Note

The temperature sensor is connected to the signal connector together with the speed encoder signal.

If the 1PH8 motor without encoder (optional only for asynchronous motors) is ordered, then the temperature sensor must be connected via the additional M16 x 1.5 cable entry.

The spare temperature sensor (option A25 for shaft heights 80 to 160) and the chain of PTC thermistors for alarm/trip (option A12) are connected to a signal terminal block in the terminal box.

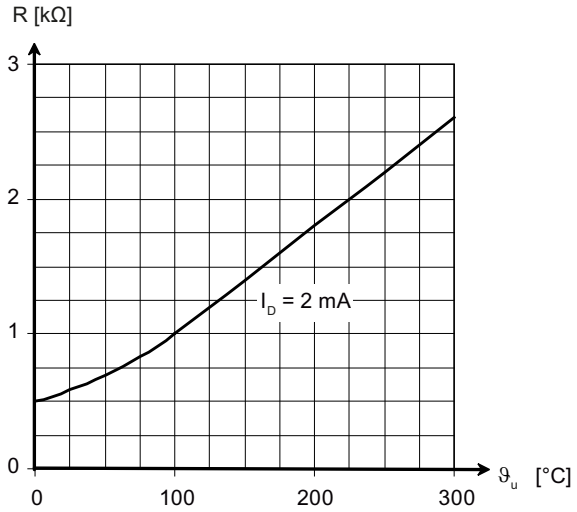


Figure 5-1 Resistance characteristic as a function of the KTY 84 thermistor temperature

5.2 Encoder

5.2.1 Encoder overview

The encoder is selected in the motor Order No. (MLFB) using the appropriate letter at the 9th position.

Note

The letter ID at the 9th position of the Order No. (MLFB) differs for motors with and without DRIVE-CLiQ.

Table 5- 2 Encoder types for motors without DRIVE-CLiQ

Encoder type	9. Position of the Order No. (MLFB)
Without encoder	A
Absolute encoder EnDat 2048 S/R (AM2048S/R encoder)	E
Incremental encoder HTL 1024 S/R (encoder HTL 1024 S/R)	H
Incremental encoder HTL 2048 S/R (encoder HTL 2048 S/R)	J
Incremental encoder sin/cos 1 Vpp 2048 S/R with C and D tracks (encoder IC 2048 S/R)	M
Incremental encoder sin/cos 1 Vpp 512 S/R without C and D tracks (encoder IN 512 S/R)	T
Incremental encoder sin/cos 1 Vpp 256 S/R without C and D tracks (encoder IN 256 S/R)	L

Table 5- 3 Encoder types for motors with DRIVE-CLiQ

Encoder type	9. Position of the Order No. (MLFB)
Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ)	F
Incremental encoder, 22-bit, with commutation position (encoder IC22DQ)	D
Incremental encoder 20-bit without commutation position (encoder N20DQ)	U
Incremental encoder 19-bit without commutation position (encoder IN19DQ)	V

5.2.2 Encoder connection for motors with a DRIVE-CLiQ interface

Motors with DRIVE-CLiQ interface have an internal Sensor Module. This includes an electronic rating plate. This simplifies commissioning for the SINAMICS S110 / S120 drive system, since all the motor parameters are set automatically.

⚠ WARNING

Encoder modules with a DRIVE-CLiQ interface or Sensor Module contain motor and encoder-specific data as well as an electronic rating plate. This is why it may only be operated on the original motor - and must not be mounted onto other motors or replaced by modules from other motors.

The contacts of the DRIVE-CLiQ interface have direct contact to components that can be damaged/destroyed by electrostatic discharge (ESDs). Neither hands nor tools that could be electrostatically charged should come into contact with the connections.

5.2.3 Encoder connection for motors without DRIVE-CLiQ (12/17-pole)

Motors without DRIVE-CLiQ are connected using the 12 or 17-pin flange socket.

5.2.4 Encoder assignment as a function of maximum permissible speeds

Possible assignments of encoders of the 1PH8 motor series as a function of maximum permissible speeds:

Table 5- 4 Encoder types for motors without DRIVE-CLiQ

Encoder type		Without encoder	AM2048 S/R	HTL1024 S/R	HTL2048 S/R	IC2048 S/R	IN512 S/R	IN256 S/R
9th data position		A	E	H	J	M	T	L
Permissible n_{max} speeds (encoder) [rpm]		-	12000	9000	4600	12000	15000	23400
Motor + bearing system	n_{max} (motor) [rpm]							
1PH808□-1□□□□-□□□1	10000	✓	✓	✓1)	✓3)	✓	✓	-
1PH808□-1□□□□-□L□1	15000	✓	✓2)	-	-	✓2)	✓	✓
1PH808□-1□□□□-□M□1	20000	✓	-	-	-	✓2)	✓4)	✓
1PH808□-1□□□□-□Q□1	5000	✓	✓	✓	✓3)	✓	✓	-
1PH810□-1□□□□-□□□1	9000	✓	✓	✓	✓3)	✓	✓	-
1PH810□-1□□□□-□L□1	12000	✓	✓	-	-	✓	✓	✓
1PH810□-1□□□□-□M□1	18000	✓	-	-	-	✓2)	✓4)	✓
1PH810□-1□□□□-□Q□1	5000	✓	✓	✓	✓3)	✓	✓	-
1PH813□-1□□□□-□□□1	8000	✓	✓	✓	✓3)	✓	✓	-
1PH813□-1□□□□-□L□1	10000	✓	✓	-	-	✓	✓	✓
1PH813□-1□□□□-□M□1	15000	✓	-	-	-	✓2)	✓	✓
1PH813□-1□□□□-□Q□1	4500	✓	✓	✓	✓	✓	✓	-
1PH813□-2□□□□-□B□1	4500	-	✓	-	-	✓	-	-
1PH813□-2□□□□-□C□1	4500	-	✓	-	-	✓	-	-
1PH813□-2□□□□-□Q□1	4500	-	✓	-	-	✓	-	-
1PH816□-1□□□□-□□□1	6500	✓	✓	✓	✓3)	✓	✓	-
1PH816□-1□□□□-□L□1	9000	✓	✓	✓	-	✓	✓	✓
1PH816□-1□□□□-□M□1	10000	✓	✓	-	-	✓	✓	✓
1PH816□-1□□□□-□Q□1	4000	✓	✓	✓	✓	✓	✓	-
1PH816□-2□□□□-□□□1	4000	-	✓	-	-	✓	-	-
1PH818□-1□□□□-□□□1	5000	✓	✓	✓	✓3)	✓	-	-
1PH818□-1□□□□-□L□1	7500	✓	✓	✓	-	✓	-	-
1PH818□-2□□□□-□□□1	3800	-	✓	-	-	✓	-	-
1PH822□-1□□□□-□□□1	4500	✓	✓	✓	✓	✓	-	-
1PH8224-1□□□□-□L□1	5500	✓	✓	✓	-	✓	-	-

Encoder type		Without encoder	AM2048 S/R	HTL1024 S/R	HTL2048 S/R	IC2048 S/R	IN512 S/R	IN256 S/R
9th data position		A	E	H	J	M	T	L
Permissible n_{max} speeds (encoder) [rpm]		-	12000	9000	4600	12000	15000	23400
Motor + bearing system	n_{max} (motor) [rpm]							
1PH822□-2□□□□-□□□1	3500	-	✓	-	-	✓	-	-
1PH828□-1□□□□-□□□1	3300	✓	✓	✓	✓	✓	-	-

✓ Assignment possible

1) Motor/encoder assignment limited to 9000 rpm

2) Motor/encoder assignment limited to 12000 rpm

3) Motor/encoder assignment limited to 4600 rpm

4) Motor/encoder assignment limited to 15000 rpm

Table 5- 5 Encoder types for motors with DRIVE-CLiQ

Encoder type		AM22DQ[1)]	IC22DQ[1)]	IN20DQ[1)]	IN19DQ[1)]
9th data position		F	D	U	V
Permissible n_{max} speeds (encoder) [rpm]		12000	12000	15000	23400
Motor + bearing system	n_{max} (motor) [rpm]				
1PH808□-1□□□□-□□□1	10000	✓	✓	✓	-
1PH808□-1□□□□-□L□1	15000	✓[2)]	✓[2)]	✓	✓
1PH808□-1□□□□-□M□1	20000	-	✓[2)]	✓[3)]	✓
1PH808□-1□□□□-□Q□1	5000	✓	✓	✓	-
1PH810□-1□□□□-□□□1	9000	✓	✓	✓	-
1PH810□-1□□□□-□L□1	12000	✓	✓	✓	✓
1PH810□-1□□□□-□M□1	18000	-	✓[2)]	✓[3)]	✓
1PH810□-1□□□□-□Q□1	5000	✓	✓	✓	-
1PH813□-1□□□□-□□□1	8000	✓	✓	✓	-
1PH813□-1□□□□-□L□1	10000	✓	✓	✓	✓
1PH813□-1□□□□-□M□1	15000	-	✓[2)]	✓	✓
1PH813□-1□□□□-□Q□1	4500	✓	✓	✓	-
1PH813□-2□□□□-□B□1	4500	✓	✓	-	-
1PH813□-2□□□□-□C□1	4500	✓	✓	-	-
1PH813□-2□□□□-□Q□1	4500	✓	✓	-	-
1PH816□-1□□□□-□□□1	6500	✓	✓	✓	-
1PH816□-1□□□□-□L□1	9000	✓	✓	✓	✓
1PH816□-1□□□□-□M□1	10000	✓	✓	✓	✓
1PH816□-1□□□□-□Q□1	4000	✓	✓	✓	-
1PH816□-2□□□□-□□□1	4000	✓	✓	-	-
1PH818□-1□□□□-□□□1	5000	✓	✓	-	-
1PH818□-1□□□□-□L□1	7500	✓	✓	-	-
1PH818□-2□□□□-□□□1	3800	✓	✓	-	-
1PH822□-1□□□□-□□□1	4500	✓	✓	-	-
1PH8224-1□□□□-□L□1	5500	✓	✓	-	-
1PH822□-2□□□□-□□□1	3500	✓	✓	-	-
1PH828□-1□□□□-□□□1	3300	✓	✓	-	-

✓ Assignment possible

1) Not possible in combination with winding "S" = star/delta

2) Motor/encoder assignment limited to 12000 rpm

3) Motor/encoder assignment limited to 15000 rpm

5.2.5 Incremental encoder HTL 1024 S/R or HTL 2048 S/R

Function

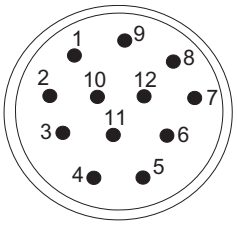
- Speed actual value sensing
- Indirect incremental measuring system for the position control loop
- One zero pulse (reference mark) per revolution

Table 5- 6 Properties and technical data

Properties	Incremental encoder HTL
Coupling at the NDE	• with SH 80 to 225: Integrated in the motor • with SH 280: Built on to the motor
Operating voltage	+10 ... +30 V
Current consumption	max. 150 mA
Incremental resolution (periods per revolution)	1024 S/R or 2048 S/R
Incremental signals	HTL Track A, track B, Zero pulse and inverted signals
Angular error	±1'
Maximum permissible speeds	• With 1024 S/R: 9000 rpm • With 2048 S/R: 4600 rpm

Connection

Table 5- 7 Connection assignment, 12-pin flange-mounted socket

PIN No.	Signal	
1	B*	 When viewing the plug-in side (pins)
2	+1R1	
3	R	
4	R*	
5	A	
6	A*	
7	CTRL TACH	
8	B	
9	not connected	
10	M encoder	
11	-1R2	
12	P encoder	

Cables

Mating connector: 6FX2003-0SU12

Table 5- 8 Pre-fabricated cable for SINAMICS:

6FX	□	002	-	2AH00	-	□□□	0
	↓ ↓ 5 MOTION-CONNECT®500 8 MOTION-CONNECT®800					↓↓↓ Length Max. cable lengths: without transfer of inverted signals,150 m with transfer of inverted signals, 300 m	

For other technical data and length code, refer to catalog, Chapter "MOTION-CONNECT connection system"

5.2.6 Incremental encoders IC 2048 S/R, IN 512 S/R and IN 256 S/R

Function

- Angular measuring system for the commutation
- Speed actual value sensing
- Indirect incremental measuring system for the position control loop
- One zero pulse (reference mark) per revolution

Properties	Incremental encoder sin/cos 1Vpp
Coupling at the NDE	• with SH 80 to 225: Integrated in the motor • with SH 280: Built on to the motor
Operating voltage	+5 V ±5 %
Current consumption	max. 150 mA
Incremental resolution (periods per revolution)	• 2048 S/R • 512 S/R • 256 S/R
Incremental signals	1 Vpp
Angular error	±40"
Maximum permissible speeds	• With 2048 S/R: 12000 rpm • With 512 S/R: 15000 rpm • With 256 S/R: 23400 rpm

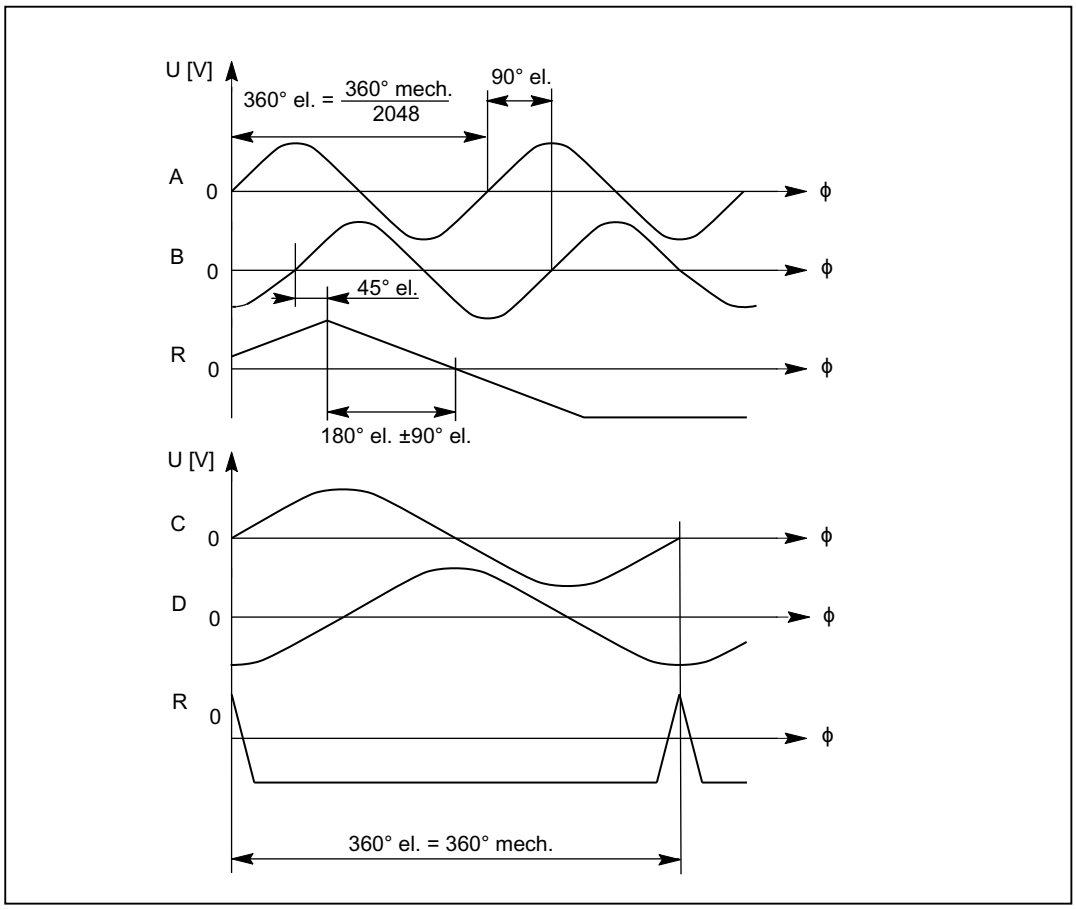
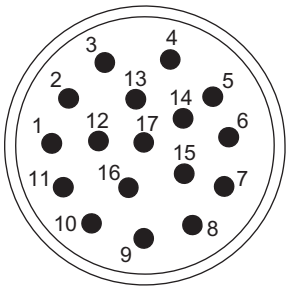


Figure 5-2 Signal sequence and assignment for a positive direction of rotation (clockwise direction of rotation when viewed from the drive end)

Connection

Table 5- 9 Connection assignment, 17-pin flange-mounted socket

PIN No.	Signal	
1	A	 When viewing the plug-in side (pins)
2	A*	
3	R	
4	D*	
5	C	
6	C*	
7	M encoder	
8	+1R1	
9	-1R2	
10	P encoder	
11	B	
12	B*	
13	R*	
14	D	
15	0 V sense	
16	5 V sense	
17	not connected	

Cables

Mating connector: 6FX2003-0SU17

Table 5- 10 Pre-fabricated cable for SINAMICS

6FX	□	002	-	2CA31	-	□□□	0
	↓ ↓ 5 MOTION-CONNECT®500 8 MOTION-CONNECT®800					↓ ↓ ↓ Length Max. cable length 100 m	

For other technical data and length code, refer to catalog, Chapter "MOTION-CONNECT connection system"

5.2.7 Absolute encoder AM 2048 S/R

Function

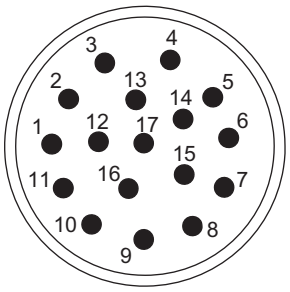
- Angular measuring system for the commutation
- Speed actual value sensing
- Indirect absolute measuring system for the position control loop

Table 5- 11 Properties and technical data

Properties	Absolute encoder (EnDat)
Coupling at the NDE	• with SH 80 to 225: Integrated in the motor • with SH 280: Built on to the motor
Operating voltage	+5 V ±5 %
Current consumption	max. 300 mA
Incremental resolution (periods per revolution)	2048 S/R
Absolute resolution (coded revolution)	4096
Incremental signals	1 Vpp
Serial absolute position interface	EnDat
Angular error	±40"
Maximum permissible speeds	With 2048 S/R: 12000 rpm

Connection

Table 5- 12 Connection assignment, 17-pin flange-mounted socket

PIN No.	Signal	
1	A	 When viewing the plug-in side (pins)
2	A*	
3	data	
4	not connected	
5	clock	
6	not connected	
7	M encoder	
8	+1R1	
9	-1R2	
10	P encoder	
11	B	
12	B*	
13	data*	
14	clock*	
15	0 V sense	
16	5 V sense	
17	not connected	

Cables

Mating connector: 6FX2003-0SU17

Table 5- 13 Pre-fabricated cable for SINAMICS

6FX	□	002	-	2EQ10	-	□□□	0
	↓ ↓ 5 MOTION-CONNECT®500 8 MOTION-CONNECT®800					↓ ↓ ↓ Length Max. cable length 100 m	

For other technical data and length code, refer to catalog, Chapter "MOTION-CONNECT connection system"

5.3 Holding brake (option)

5.3.1 Properties

Operation with holding brake on the SINAMICS S

The SINAMICS S drive system has various types of brake control. A detailed description of the individual functions and corresponding parameter assignment information can be found in the following manuals:

- SINAMICS S120 Function Manual (6SL3097-4AB00-0AP1) Section 6.14
- SINAMICS S120/S150 List Manual (6SL3097-4AP00-0AP3) Section 2.12

Information on the current carrying capacity for the brake outputs/adapters of the individual SINAMICS power units can be found in the corresponding manuals. Control of the brake via additional switching elements may be required.

Make sure the parameter assignments for the brake data in the SINAMICS are correct. This is particularly important for the setting values:

- Maximum motor speed (reduced value for the "holding brake" option)
- Opening and closing times of the holding brake
- Moment of inertia of the holding brake

The corresponding setting values are listed for the specific brakes in the "Technical data of the holding brake" table.

Functional principle of the holding brake

A brake can be mounted at the DE side of 1PH8 motors, shaft heights 80, 100, 132, 160, 180 and 225.

These brakes are electromagnetic units for dry-running operation. An electromagnetic field is used to release the brake which is applied using spring force. They function according to the closed-circuit principle, i.e. the spring-operated brake is triggered when the current is interrupted and holds the drive. When power is applied to the brake, it is released and the drive is free to rotate.

When the power fails or an Emergency Stop is issued, the drive is braked from its actual speed down to standstill.

Connection of the brakes (must be provided by the customer)

- Alternating voltage 230 VAC, 50 ... 60 Hz
- Direct voltage 24 VDC up to shaft height 160

Ambient temperature

The brake module is designed for an ambient temperature of -5° C to +40° C. At temperatures below -5° C and longer periods without power being applied to the brake, then it cannot be excluded that the friction disk freezes. In this case, special measures must be applied after first contacting the manufacturer.

NOTICE
The maximum speed of a motor with brake is limited to the maximum speed of the brake (see $n_{max, Br}$ speed specified in the characteristic curves).

Note

The selection and ordering data can be found in the Section 1.3.

The holding brakes are not UL-approved. Motors with brake mounting therefore do not have the cUR marking!

Technical data of the holding brakes

Shaft height	Motor type	Brake type	Holding torque	Maximum speed	Moment of inertia	Weight	Coil current		Permissible single switching energy	Total moment of inertia (emergency stop)	Speed (emergency stop)	Number of emergency stops 1)	Opening time	Closing time
				nmax	JBr.	mBr.	230 VAC ±10%	24 VDC ± 10%	WE	Jtot	n	z		
			[Nm]	[rpm]	[kgm2]	[kg]	[A]	[A]	[kJ]	[kgm2]	[rpm]		[ms]	[ms]
80	1PH808□	Size 13	56	5000	0.00093	10	0.8	4.1	2.2	0.0174	4800	2000	150	40
100	1PH810□	Size 19	60...150	5000	0.0048	21	1.0	4.7	7	0.063	4500	2000	500	60
132	1PH813□	Size 24	140...310	4500	0.0141	46	1.3	6.3	15.5	0.218	3600	2000	650	100
160	1PH816□	Size 29	280...500	4000	0.0266	66	1.4	6.7	24	0.456	3100	2000	750	150
180	1PH818□	NFF-A 63	1000	3500	0.022	63	2.2	-	98	1.3	3000	2000	300	80
225	1PH822□	NFF-A 100	1600	3100	0.051	88	2.7	-	210	3.9	2800	1200	300	100

1) Max. 3 switching operations per hour

Figure 5-3 Technical data of the mounted holding brake (DE) with emergency stop function

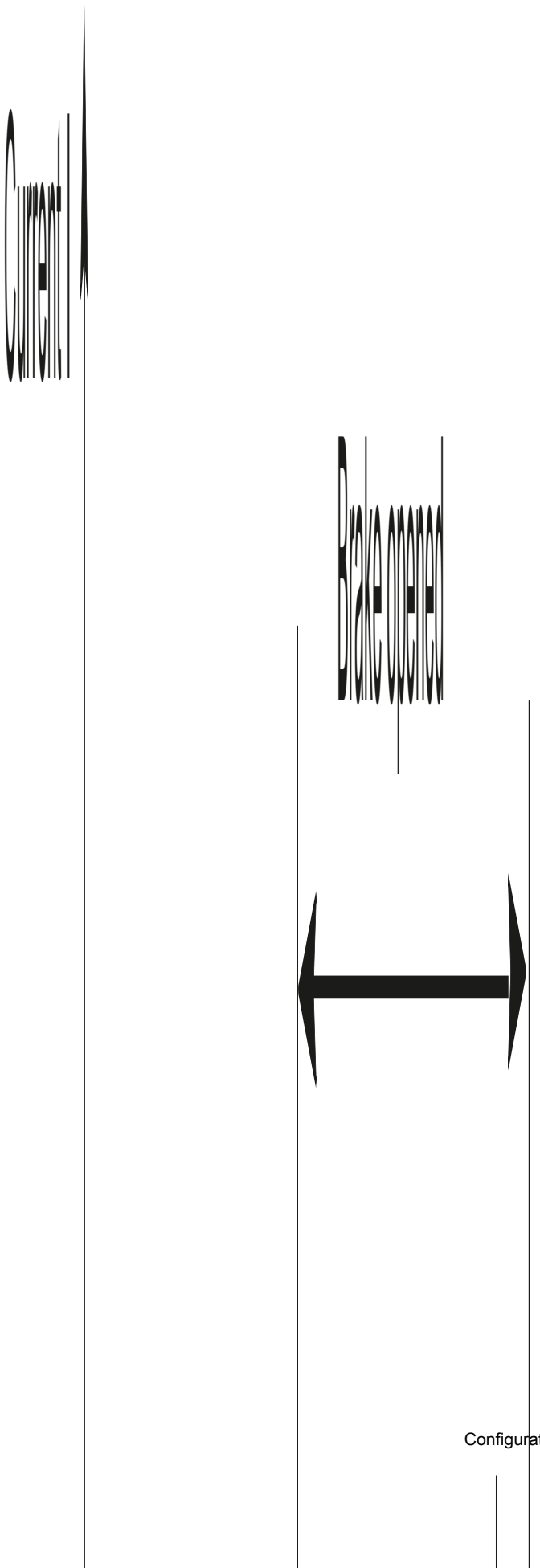


Figure 5-4 Terminology (time) for holding operation

Explanation of terminology in the table

Holding torque [Nm]: For motors, shaft heights 100 ... 160, the holding torque can be continuously set in the specified value range using a setting ring. The dynamic braking torque is approximately 70% of the set holding torque.

Speed n_{max} [rpm]: Maximum permissible speed.

Perm. single switching energy W_E [kJ]: Permissible operating energy during an emergency stop,
$W_E = J_{total}. \times n^2/182.4 \times 10^{-3}$ (J in kgm^2, n in rpm)

Lifetime switching energy W_{max} [MJ]: Max. possible switching energy of the brake (for emergency stop) until the brake linings have to be replaced, $W_{max} = W_E \times z$

Number of emergency stops z: The specified number of emergency stops refer to the specified conditions: A conversion can be made for operation under different conditions: Number of emergency stops $z = W_{max}/W_E$

Coil current [A]: Current to release the brake.

Opening (release) time [ms]: Separating time until the brake opens (the specified values refer to the maximum braking torque and rated voltage).

Closing time [ms]: Interlocking time until the brake closes according to the graphic "Terminology (time) for holding operation" (the values refer to the maximum braking torque and rated voltage).

Use for the intended purpose

"Single-disk spring-operated brake control modules" are for mounting on induction or synchronous motors and intended for use in commercial or industrial systems. It is prohibited to use the brake in hazardous areas and zones. The integrated single-disk spring-operated brake (electromagnetically opening system) is designed as holding brake. Occasional Emergency Stop operations are possible.

CAUTION

It is absolutely imperative that the permissible number of switching operations/h and the max. switching work per switching operation are carefully observed - especially when commissioning/setting-up machines and plants (jog mode), according to the data sheet or table "Mounting a holding brake for 1PH8 motors". If this data is not carefully observed, then the braking effect can be irreversibly reduced which could have a negative impact on the overall function. The brake module can be provided with a manual release function to release the holding torque.

CAUTION

Secure and protect against accidental operation and misuse. The mechanical manual brake release must be in the center position when not actuated (see the graphic "Single-disk spring-operated brake module") because a fully closed brake is only ensured in this position. If this is not achieved, it is not certain that the full braking power of the single-disk spring-operated brake module is attained.

The manual release bar can be removed. Special system-related regulations, e.g. for lifting gear and crane construction, should be carefully observed regarding the permissible use of a manual brake release.
The rated operating conditions refer to DIN VDE 0580: 1994-10. The degree of protection refers to DIN VDE 0470 Part 1. If deviations exist, then possible special measures must be harmonized and coordinated with the manufacturer.

⚠ CAUTION

The brake module is not a safety brake and therefore, depending on the particular application, the appropriate accident prevention regulations must be carefully observed.

CAUTION

Whenever reference is made to special measures and discussions with the manufacturer then these must be carried out while the plant or system is being engineered.

5.3.2 Mounted holding brake for SH 80 to SH 160

Properties

The holding brakes for motors, shaft heights 80, 100, 132 and 160 are brake modules (manufactured by Kendrion Binder Magnete) with their own bearings, flange and shaft extension. The dimensions of the flange and shaft extension of the brake module are identical with those of the motor. If a motor is to be equipped with a brake, then a motor version with a flange-type of construction and a smooth shaft (without keyway and key) is used. The shaft of the brake module can then be shrunk onto the motor shaft (thermal technique). It can be released using pressurized oil. The brake module is bolted to the motor flange.

Note

The specifications for the "standard" bearing version apply for the permissible radial and axial forces.

See also

Radial and axial force diagrams (Page 71)

Method of operation

The brake module is an electromagnetic component with integrated electromagnetically opening single-disk spring-operated brake for dry running, in which the braking effect is applied by the spring force and canceled electromagnetically.

If required, the braking effect can also be canceled by an additional mounted manual release. The brake module is a mounted brake, preferably on the DE end shield of electric motors, as built-on unit with bearing supported driver pin shaft.

Construction

The solenoid housing ⑦ with the cast excitation winding ⑥ is used to accommodate the armature ②, the friction disk ③ and the flange ④ that is attached using cylinder head screws. The compression springs in the solenoid housing that are supported via the thrust studs (size 13) on the adjustment ring ⑨, apply a force to the friction disk via the anchor in the axial direction and thus clamp the friction disk between the rigidly mounted flange and the anchor and produce the braking effect (torque). The tangent torque support of the armature against the solenoid housing is performed by the dowel pins.

When a direct voltage is applied to the excitation winding, the resulting electromagnetic force pulls the armature against the force of the compression springs, the friction disk is released and thus the braking effect canceled.

As the brake module represents a self-contained system, no forces are applied externally.

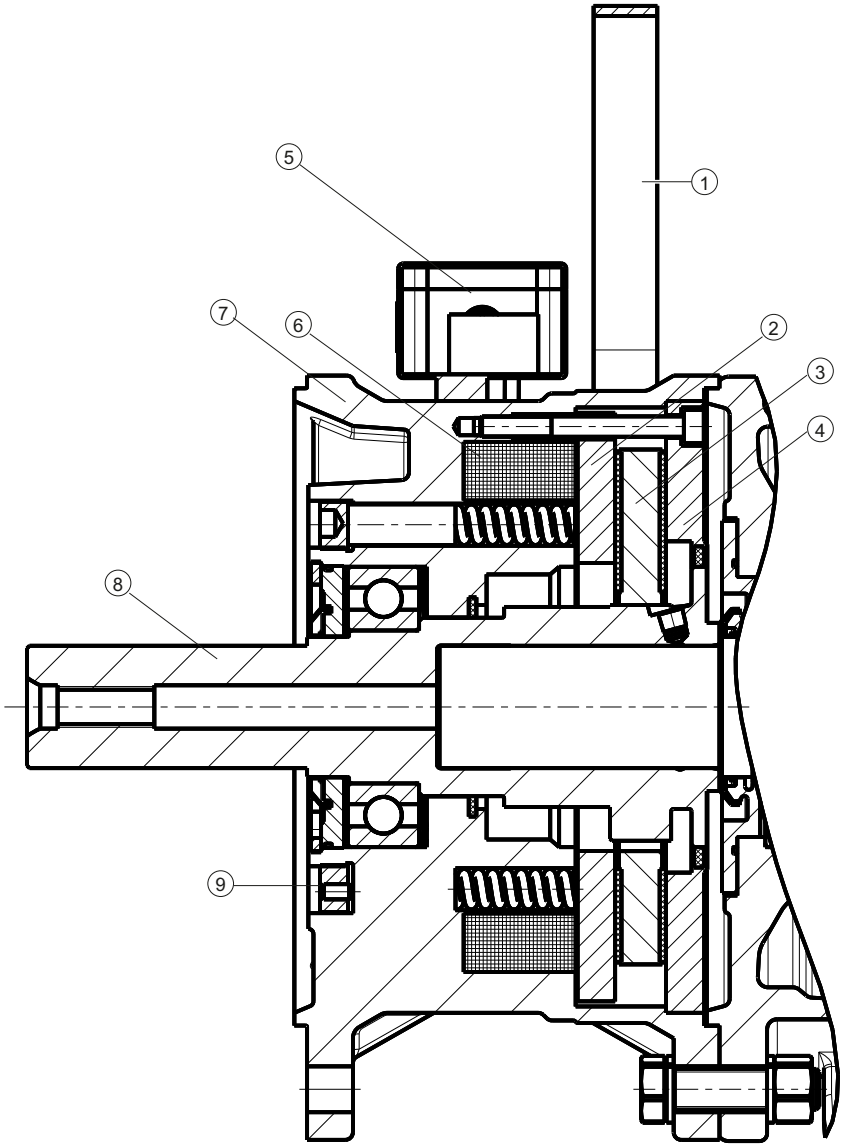
The braking effect of the axial moving friction disk is transmitted to the driver pin shaft ⑧ fixed to the motor shaft via the keyed connection of the internal square socket (sizes 13, 19 and 24) and/or via internal gearing (size 29).

The ball bearing located between the solenoid housing and the driver pin shaft is used to center the brake to the driver pin shaft and therefore to the motor shaft when mounting the brake on the motor flange and also to absorb the transverse forces acting radially on the driver pin shaft.

The ball bearing comes sealed from the factory. As additional protection against pollution and to prevent grease from a defective ball bearing seal reaching the friction disk, a sealing ring is mounted that prevents dirt, grease or oil reaching the area of the friction disk from the outside and abraded particles due to the wear of the friction disk escaping.

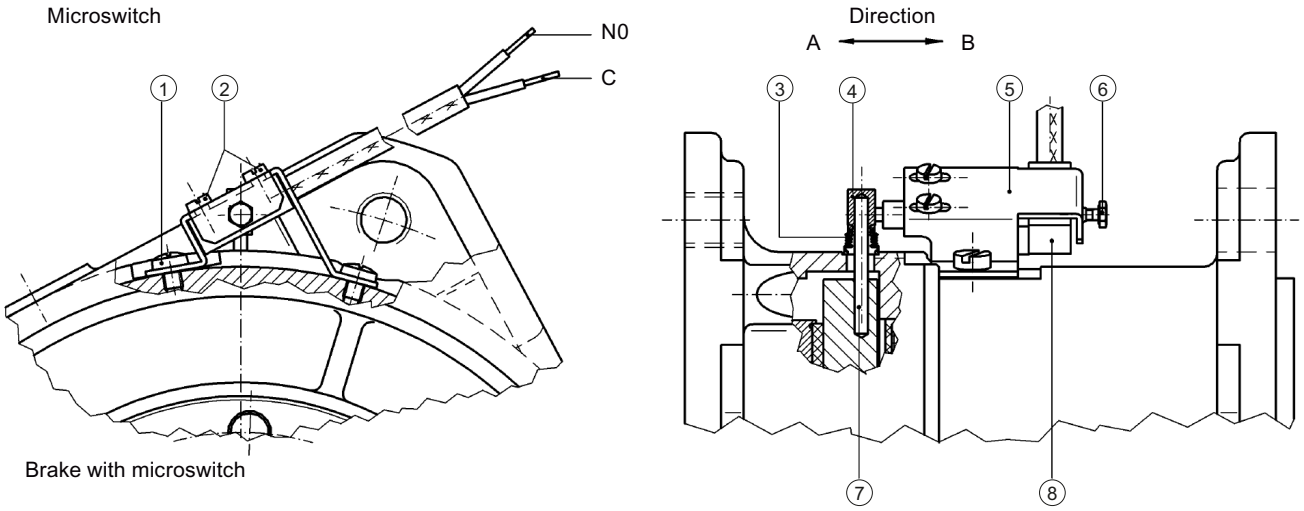
The sealing ring provides the drive-side sealing between the flange and the driver pin shaft. The single-disk spring-operated brake module can be opened mechanically by hand, e.g. in the event of a power failure, via the optional manual release ①. The electrical connection is made directly in the terminal box ⑤.

The transmissible torque of the brake module can be set via the adjustment ring.



①	Manual brake release, optional	⑥	Winding
②	Armature	⑦	Housing
③	Friction disk	⑧	Shaft
④	Flange	⑨	Adjustment ring (not for 1PH808)
⑤	Terminal box		

Figure 5-5 Single-disk spring-operated brake module 77 500...B15



①	Oval head screw (2x)	⑤	Bracket
②	Cylinder head screw (2x)	⑥	Hexagon bolt M2.5x8 (not included in the scope of delivery)
③	Bellows	⑦	Dowel pin
④	Bolt	⑧	Microswitch

Figure 5-6 Microswitch mounting of a single-disk spring-operated brake module 77 500...B15

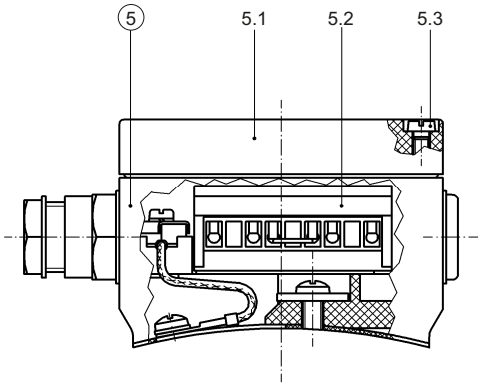
Electrical connection

⚠ WARNING

The brake module is a direct current system. The continuously permitted voltage change at the connection point of the electromagnetic component is +10% to -10% of the rated voltage.

When connecting, always check that:

- The connecting cables are suitable for the type of use and the voltages and currents that occur.
- The connecting cables are connected correctly by means of screws, clamps or other equivalent means so that the electrical connection is maintained permanently.
- Adequately dimensioned connecting cables, torsion, strain and shear relief as well as anti-kink protection are provided for the connection cables.
- The protective conductor (only for protection class I) is connected at the grounding point.
- No foreign bodies, dirt or moisture are in the terminal box.
- Unused cable entries and the terminal box itself are sealed so that the specified degree of protection according to EN 60529 is maintained.



⑤ Terminal box
5.1 Cover
5.2 Connecting terminal or rectifier
5.3 Fixing screw for cover

Figure 5-7 Holding brake terminal box ⑤ optionally with terminal or rectifier

The single-disk spring-operated brake module should be connected to direct voltage.

The electrical connection to an AC system is made via a bridge or half-wave rectifier.

When braking with integrated rectifiers, the single-disk spring-operated brake module can be connected directly to an AC voltage.

The pin assignment is shown in the figure.

When braking with connecting terminal, the brake module must be connected directly to a DC voltage. The customer-specific connecting cable must be connected via a cable gland (M16 x 1.5) to the connecting terminals or the integrated rectifier.

The cover of the terminal box must be dismantled to connect the individual stranded wires of the connecting cable to the connecting terminals or to the terminals of the integrated rectifier.

Table 5- 14 Rectifier for operation on single-phase AC with electrical connection via connection terminal (5.2)

Type	Method	Rated input voltage range U_1 AC (40...60 Hz)	Output voltage U_2 DC	Max. output current I DC	
		[V]	[V]	R-load [A]	L-load [A]
32 07332B40	Half-wave	0...500 (±10%)	$U_1 \cdot 0.445$	1.6	2.0

When braking with integrated rectifiers, rectification is via a half-wave or bridge rectifier.

By appropriately connecting the integrated rectifier, you can switch between AC (normal interlocking time t_1) and DC (short interlocking time t_1).

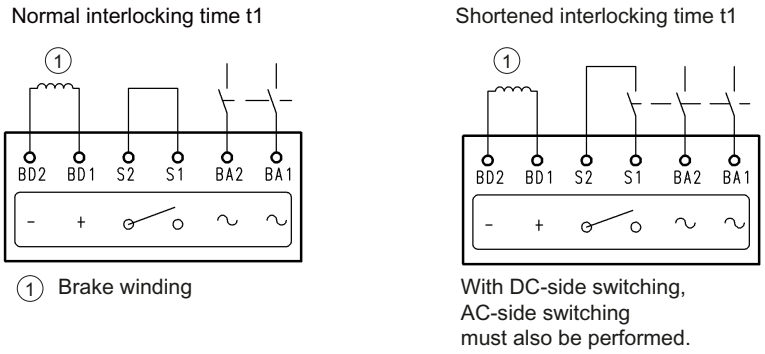


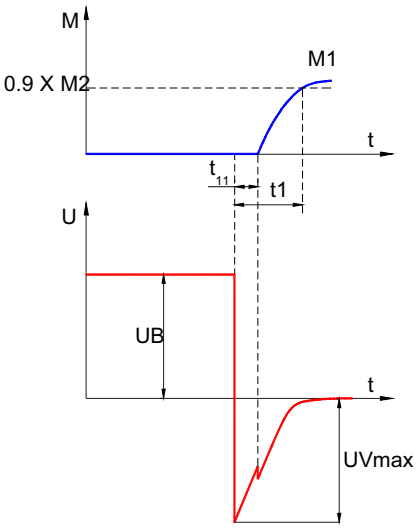
Figure 5-8 Pin assignment of the rectifier

Voltage ripples caused by switched-mode power supplies can cause humming or unintended behavior of the component depending on the size and torque.

The user or the system manufacturer has to ensure proper operation of the electrical control.

DC connection

The basic curve of the voltage when turning off the excitation winding (coil) (1.2) corresponds to the following curve.



U_B Operating voltage (coil voltage)

U Transient voltage

Figure 5-9 Basic curve of the voltage when turning off the excitation winding

NOTICE
The voltage peak U_{Vmax} when switching off can reach several 1000 V in the millisecond range without a protective circuit. The excitation winding (coil) (1.2), switching contacts and electronic components can be destroyed. There is sparking at the switch when switching off. Therefore, when switching off, the current must be reduced via a protective circuit, whereby voltages are then also limited. The maximum permissible overvoltage when switching off must not exceed 1500 V.

When using Kendrion Binder rectifiers, the protective circuit for the internal electronic components and for the excitation winding (coil) (1.2) is integrated. This does not apply for the external contacts required for the DC-side switching because the galvanic isolation of the external contact is then no longer reached.

NOTICE
Sensitive electronic components (e.g. logic components) and mechanical contact elements can also be damaged by the lower voltage.

AC connection

NOTICE
With DC-side circuitry, the brake module must be operated with a protective circuit in order to avoid impermissible overvoltages. Additional protective measures (e.g. varistors, spark extinguishers, etc.) must be provided to avoid damage (e.g. contact erosion, contact welding) of the external contact elements.

Direct connection to an AC voltage is only possible via a rectifier. Depending on the connection method (DC or AC operation), different interlocking times can be achieved.

- Half-wave rectification

  With half-wave rectification, the coil voltage U_2 is less than the input voltage on the rectifier by a factor of 0.445. Half-wave rectifiers have a high residual ripple which have somewhat shorter switching times compared to the bridge rectification, depending on the module size. The half-wave rectifier is therefore preferable (also because of the smaller coil voltages). However, humming can occur in brake modules of small size.

- DC operation

  With DC-side circuitry of the brake module, an additional auxiliary contact is plugged into the motor contactor which interrupts the current supply to the brake module on the DC side.

Electrical connection of brake modules with microswitches

Note

The special regulations regarding the permissible use of microswitches, e.g. for lifting gear and crane construction, must be observed.

⚠ WARNING

The motor circuit should be carefully designed so that when the microswitch closes, the motor cannot accidentally start.

For brake control modules with microswitches for monitoring the operating state (open, closed) of the single-disk spring-operated brake module, the microswitch must be integrated, e.g. in the control circuit for control of the machine (e.g. motor).

With appropriate integration, the microswitch then prevents the machine (e.g. motor) starting against the closed brake module.

When ordering, the microswitch is available as an option. It is not possible to subsequently mount a microswitch.

When the brake module is supplied, the microswitch is adjusted in the factory.

Manual opening of the brake module

⚠ WARNING

Manually opening (in jog mode) the single-disk spring-operated brake module, e.g. during maintenance work on the machine (e.g. motor) or in the event of a failure of the regular supply during UPS operation, should be carried out with particular care because in unbalanced drive systems the effective load accelerates the drive.

The user must ensure that there is no danger from the load torque when opening and closing the brake module in jog mode.

The single-disk spring-operated brake module can be opened "manually" via a built-on mechanical manual brake release (accessory). In the event a failure of the regular power supply, the brake module can also be opened electrically by means of a commercially available UPS. For this purpose, the user must install a UPS with a voltage according to the information on the rating plate of the brake module.

Setting of the transmissible torque M_4

NOTICE

The minimum torque M4 that can be transmitted must not be undershot when adjusting the adjustment ring according to the "Change of the transmissible torque" table.

The changed adjustment ring clearance E must be stamped on the base of the solenoid housing pocket.

The theoretically set torque M_4 that can be transmitted must be added by the user on the rating plate of the component (free field for entry of the transmissible torque M4, see example of rating plate data).

The user must ensure that the adjustment ring is secured with the grub screw after setting the transmissible torque M4. The tightening torque M_A = 3 Nm must be observed.

The adjustment ring must be turned so that the grub screw can be located between the thrust studs. Deviations of the transmissible torque M4 from -5% to +15% are possible.

The brake module is delivered with the transmissible torque M_4 set to the default value according to the data sheet. The set transmissible torque M_4 can be found on the rating plate.

Table 5- 15 Change of the transmissible torque M_4 [%] for an axial travel path of the adjustment ring by 1 mm; transmissible torque (default value) M_4

	Size 19	Size 24	Size 29
Change of the transmissible torque ΔM_4/mm [%]	Approx. 15	Approx. 12	Approx. 14
Transmissible torque (default value) M_4 [Nm]	150	310	500

5.3.3 Mounted holding brake for SH 180 and SH 225

Properties

For these motors, the brake (manufactured by Stromag) is mounted on the DE end shield. In this case, the motor shaft is extended using a shrunk-on stub shaft. The torque is transmitted through a key according to DIN 6885/1. The stub shaft can in addition be axially secured using a spring washer and a central screw (M20). The holding brake does not have its own bearings. The output forces are therefore absorbed by the motor bearings. Belt pulleys cannot be mounted due to space reasons and also due to the high associated cantilever forces. When selecting the coupling to couple to the motor - brake combination - it should be carefully noted that the shaft extension diameter is larger than the diameter of the motor shaft extension. REVOLEX bolt-type couplings 2LF6337 for shaft height 180 and 2LF6338 for shaft height 225 should be preferably used. Ordering data and dimensions, refer to catalog M 11 or D 81.1.

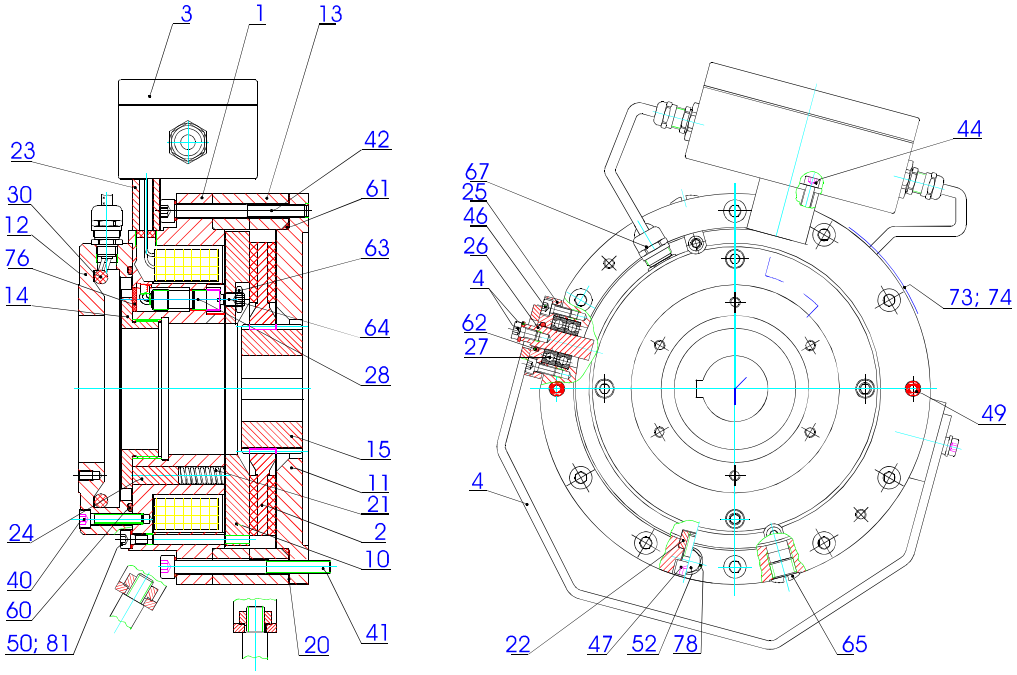
Note

The specifications for the "standard" bearing version apply for the permissible radial and axial forces.

See also

Radial and axial forces (Page 68)

Design, method of operation and construction features



1	Coil form with coil	40	Screw for tacho flange
2	Friction disk with friction lining	41	Fixing screw
3	Terminal box, complete	42	Cylinder head screw
4	Manual brake release, complete	46	Fixing screw for manual release cover
10	Armature disk	47	Screw for sliding block
11	Brake flange	49	Emergency release screw
12	Tacho flange	50	Screw plug for emergency release
13	Socket	52	Screw for blockable manual release
14	Adjustment ring	60	O-ring for tacho
15	Pinion	61	O-ring for brake flange
20	Shim	63	Lock nut for microswitch
21	Compression springs	64	Grub screw (microswitch)
22	Sliding block	65	Screw plug for air gap measurement
23	Spacer for terminal box	67	Screw connection
24	Spring bolt	73	Rating plate
25	Manual release cover	74	Pin (rating plate mounting)
26	Eccentric bolt	76	Adhesive
27	Deep-groove ball bearing	78	Washer for item 52
28	Microswitch	81	Sealing ring for item 50

Figure 5-10 Mounting of holding brake SH 180 and SH 225

The NFF brake is a spring-loaded electromagnetic twin-disk brake that brakes in the de-energized state and releases electromagnetically.

The NFF brake type satisfies the highest requirements for fatigue strength, robustness and resistance to sea water. Construction and testing of the brakes is in accordance with DIN VDE 0580.

The brake is attached to a motor or another machine part using cylinder head screws (fixing screws, item 41).

The coil form contains a coil that is permanently encapsulated in synthetic resin of thermal class 155 (F, max. temperature limit 155° C) .

When the coil is de-energized, the compression springs (21) press the armature disk (10) axially against the friction disk with friction lining (2). This is clamped between the armature disk (10) and the brake flange (11) and thus prevented from rotating. The braking effect is transmitted to the shaft from the friction disk with friction lining (2) via the pinion (15) and a feather key.

If the coil is connected to a rated DC voltage according to the specifications on the rating plate (73), the armature disk (10) is pulled against the spring pressure to the coil form (1) through the electromagnetic force. The friction disk with friction lining (2) is therefore freed and the braking effect is canceled. The brake is released.

Mechanical release using the manual release bar

By pulling the manual release bar (4) through approx. 30° against the rear side of the brake, the armature disk (10) is pulled axially against the coil form (1) and the friction disk with friction lining (2) is then free.

⚠ CAUTION
The emergency release must not be used to maintain provisional operation!

Power supply line and electrical connection of the brake

The electrical connection must be made in compliance with the installation regulations (e.g. DIN 92).

The coil is dimensioned for the DC voltage specified on the rating plate (residual ripple < 0.5) and 100% cyclic duration. The continuously permissible voltage change is +6% to -10% of the rated voltage.

To protect the coil or the power supply, a varistor of the appropriate operating voltage range and the required power should be connected to the coil input.

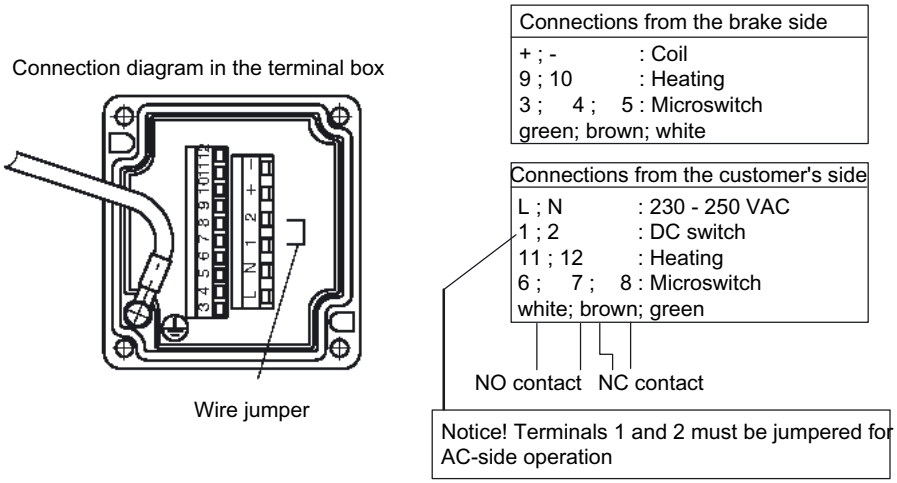


Figure 5-11 Circuit configurations

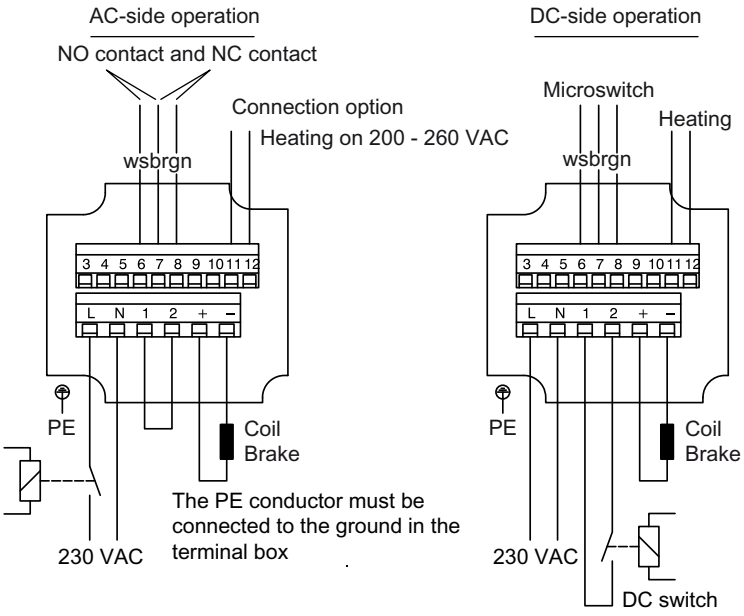


Figure 5-12 Circuit configurations

Version with microswitch

If monitoring of the switching state is required for a brake, a microswitch (28) can be used.

If the armature disk (10) is moved against the coil form (1) through the electromagnetic force of the coil or through the mechanical emergency release, it actuates the microswitch (28) via the grub screw (64).

The microswitch (28) can be integrated as an NC or NO contact in an electrical control or monitoring circuit.

Cables and connections

6

6.1 SINAMICS drive I/O

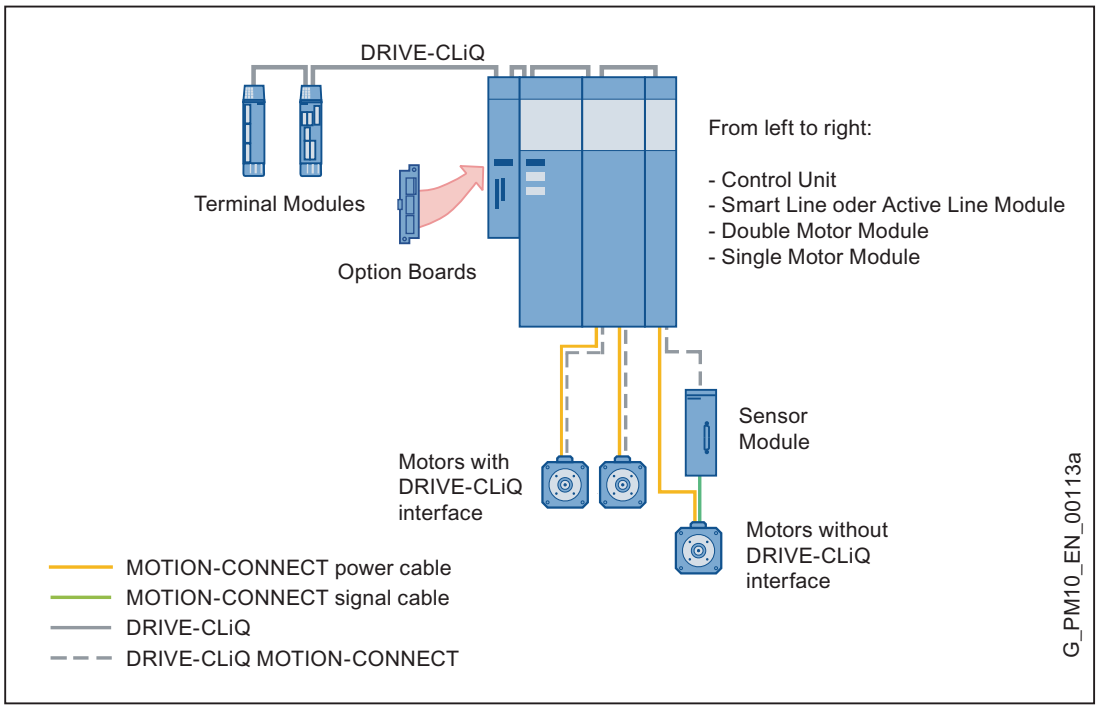


Figure 6-1 SINAMICS S120 system overview

WARNING

Before carrying out any work on the motor, please ensure that it is powered-down and the system is locked-out so that the motor cannot re-start!

The motors may not be connected to the line supply.

6.2 Power connection

CAUTION

Carefully observe the current which the motor draws for your particular application!
Adequately dimension the connecting cables according to IEC 60204-1 or IEC 60364-5-52.

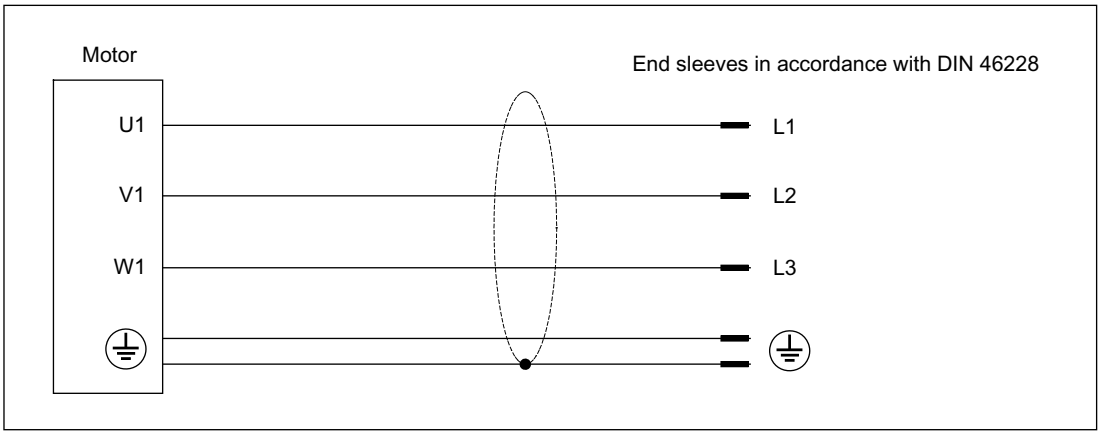


Figure 6-2 Power cable

Terminal box connection

The designation of the mounted terminal box as well as the details on the power connection for the line supply cables can be taken from the following table. A circuit diagram to connect-up the motor winding is provided in the terminal box when the motors are shipped.

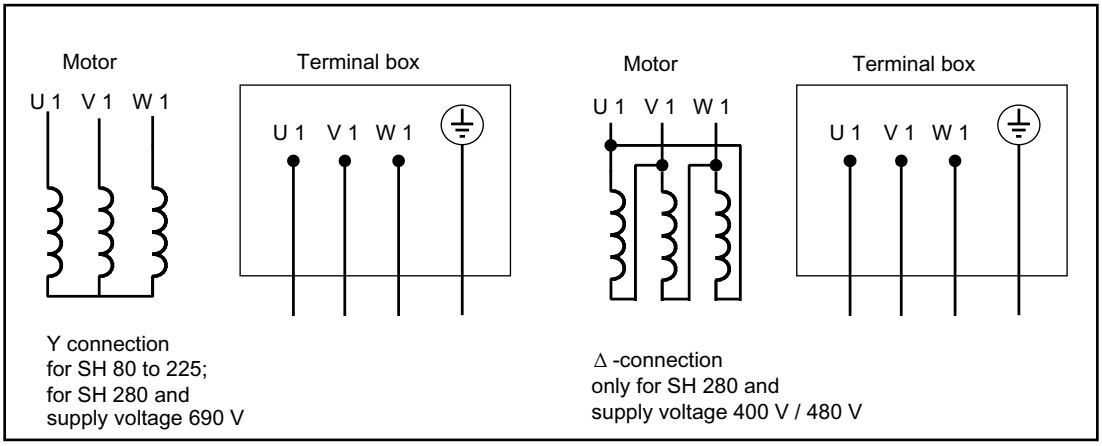


Figure 6-3 Circuit diagram

Note

The spare temperature sensor (option A25 for shaft heights 80 to 160) and the chain of PTC thermistors for alarm/trip (option A12) are connected to a signal terminal block in the terminal box.

Star/delta connection in the terminal box (SH80 to SH160)

The star/delta connection can be implemented via an external contactor circuit or as permanent setting in the terminal box.

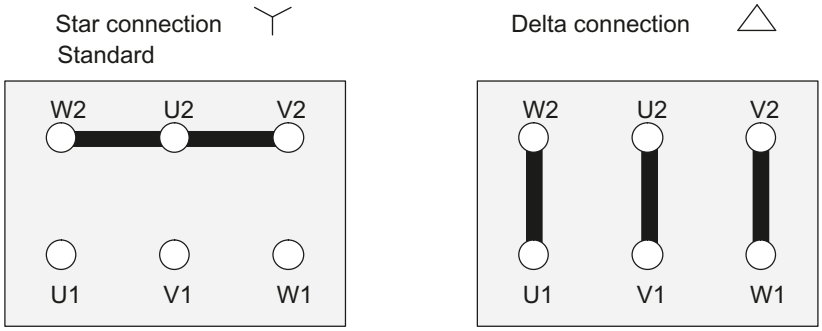


Figure 6-4 Fixed star/delta connection in the terminal box

Star/delta connection via an external contactor circuit

When induction motors are used, it is possible to select one of the following operating modes:

- Star connection
- Delta connection

Circuit to implement star-delta switchover

For induction motors, all six connection leads of the three winding phases are fed out to be able to select the various operating modes.

The changeover is carried out outside the spindle using switching devices and equipment that are not included with the motor spindle (i.e. these devices are not included in the scope of delivery).

NOTICE
When changing over the circuit configuration (star-delta), the appropriate data set for the closed-loop motor control must also be changed-over. A changeover may only be made when the spindle is in a no-load condition and with the power module pulses inhibited.

For information about the circuit to implement the star-delta changeover, refer to the following diagram and SINAMICS S120 Function Manual (FH1).

Using the star connection

The star connection offers some advantages at low speeds. The maximum torque in the star connection is approximately twice as high as in the delta connection. However, due to the higher reactive power requirement of the star connection, the available torque in the uppermost speed range is significantly restricted. This means that the star connection should only be activated when machining which requires a **high torque in the lower speed range.** An example of such a machining operation is roughing.

Using the delta connection

Although the delta connection provides, in the lower speed range, a lower maximum torque than the star connection, the torque remains available up to high speeds. This means that the delta connection should be activated for **all machining operations which are carried out in the medium and high speed ranges**.

Connection diagram for Y/D changeover

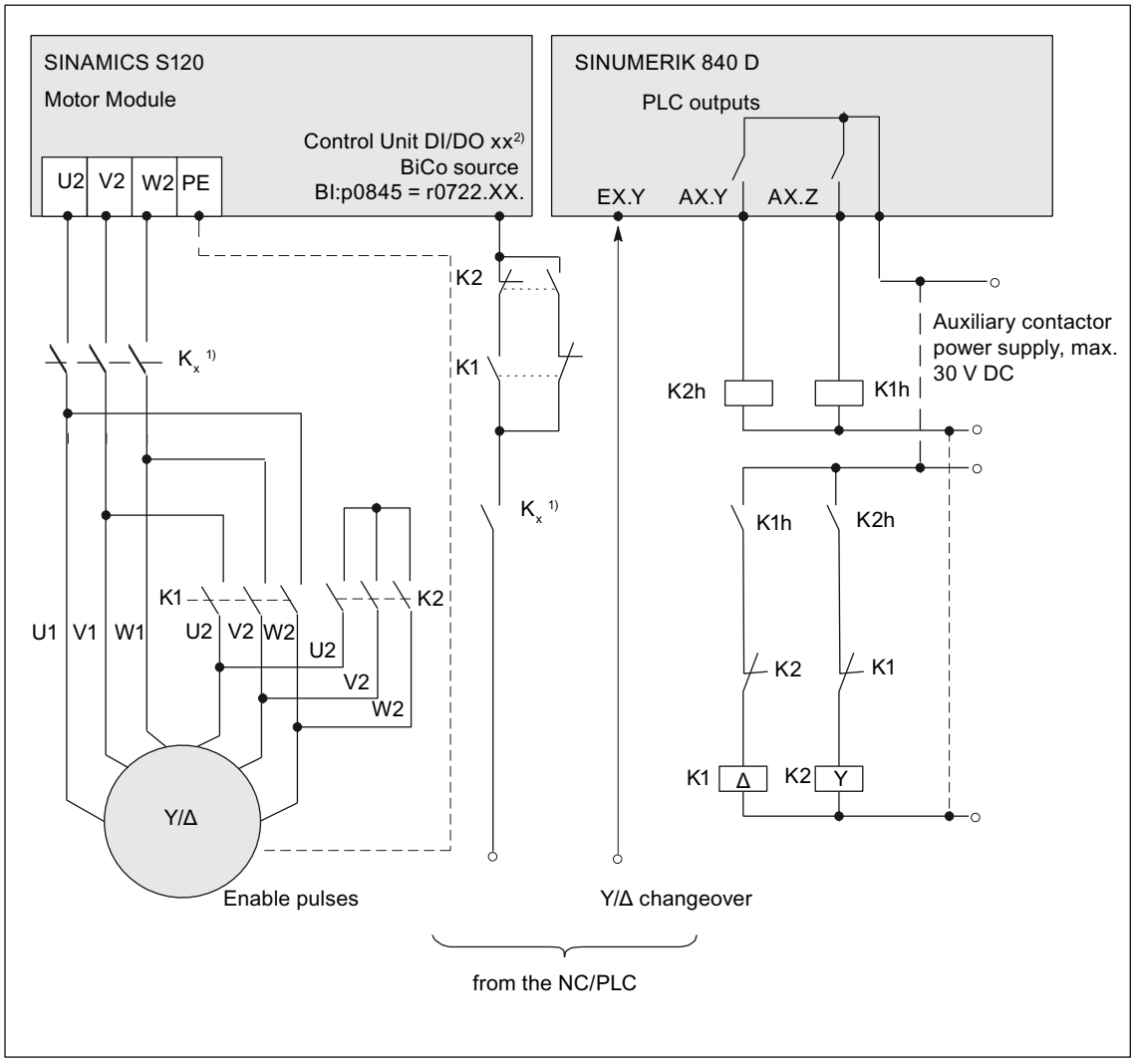


Figure 6-5 Connection diagram for Y/D changeover with SINAMICS

1) Safe operating stop cannot be guaranteed by simply opening K1 and K2. Therefore, for safety reasons there should be electrical isolation provided by contactor K_x. This contactor may only be switched-in the no-current condition, i.e. the pulse enable must be withdrawn 40 ms before the contactor is opened (de-energized).

2) Terminal X3 of the voltage limiting module VPM should be wired to a digital input of the control unit on which the assigned 1PH8 motor spindle is also controlled. For the case that several VPMs are used, each terminal must be wired to a separate digital input of the relevant control unit.
If an armature short-circuit occurs (terminal X3 has opened), the pulses of the relevant axis must be inhibited. To achieve this, the digital input used is interconnected to the control bit OFF2 (pulse inhibit) via p0845 = r0722.xx.
Further information can be found in the SINAMICS S120 Function Manual.

Current-carrying capacity for power and signal cables

The current carrying capacity of PVC/PUR-insulated copper cables is specified for routing types B1, B2, C and E under continuous operating conditions in the table with reference to an ambient air temperature of 40 °C. For other ambient temperatures, the values must be corrected by the factors from the "Derating factors" table.

Table 6- 1 Cable cross section and current-carrying capacity

Cross section	Current-carrying capacity rms; AC 50/60 Hz or DC for routing type			
[mm²]	B1 [A]	B2 [A]	C [A]	E [A]
Electronics (according to EN 60204-1)				
0,20	-	4,3	4,4	4,4
0,50	-	7,5	7,5	7,8
0,75	-	9	9,5	10
Power (according to EN 60204-1)				
0,75	8,6	8,5	9,8	10,4
1,00	10,3	10,1	11,7	12,4
1,50	13,5	13,1	15,2	16,1
2,50	18,3	17,4	21	22
4	24	23	28	30
6	31	30	36	37
10	44	40	50	52
16	59	54	66	70
25	77	70	84	88
35	96	86	104	110
50	117	103	125	133
70	149	130	160	171
95	180	165	194	207
120	208	179	225	240
Power (according to IEC 60364-5-52)				
150	239[1)]	206[1)]	259[1)]	276[1)]
185	274[1)]	235[1)]	296[1)]	315[1)]
> 185	Values must be taken from the standard			

1) Extrapolated values

Table 6- 2 Derating factors for power and signal cables

Ambient air temperature [°C]	Derating factor according to EN 60204-1 Table D1
30	1,15
35	1,08
40	1,00
45	0,91
50	0,82
55	0,71
60	0,58

Assignment, terminal boxes and max. cross-sections

Table 6- 3 Data for terminal box

Terminal box type	Shaft height	Cable entry (power)	Cable entry (external signals)	Max. external cable diameter [2] [mm]	Number of main terminals	Max. cross-section per terminal [mm²]	Max. current per terminal [A][3]
gk803	SH80	1 x M25 x 1.5	1 x M16 x 1.5 [1]	20	Phases: 3 x M5 Grounding: 2 x M5	1 x 10	52
gk806	SH80	1 x M25 x 1.5	1 x M16 x 1.5 [1]	20	Phases: 6 x M5 Grounding: 2 x M5	1 x 10	52
gk813	SH100	1 x M32 x 1.5	1 x M16 x 1.5 [1]	24.2	Phases: 3 x M5 Grounding: 2 x M5	1 x 16	70
gk823	SH100	1 x M32 x 1.5	1 x M16 x 1.5 [1]	24.2	Phases: 3 x M5 Grounding: 2 x M5	1 x 16	70
gk826	SH100	1 x M32 x 1.5	1 x M16 x 1.5 [1]	24.2	Phases: 6 x M5 Grounding: 2 x M5	1 x 10	52
gk833	SH132	1 x M40 x 1.5	1 x M16 x 1.5 [1]	32	Phases: 3 x M6 Grounding: 2 x M6	1 x 35	110
gk843	SH132	1 x M50 x 1.5	1 x M16 x 1.5 [1]	38	Phases: 3 x M6 Grounding: 2 x M6	1 x 50	133
gk846	SH132	1 x M50 x 1.5	1 x M16 x 1.5 [1]	38	Phases: 6 x M6 Grounding: 2 x M6	1 x 25	88
gk863	SH160	1 x M50 x 1.5	1 x M16 x 1.5 [1]	38	Phases: 3 x M6 Grounding: 2 x M6	1 x 50	133
gk873	SH160	1 x M63 x 1.5	1 x M16 x 1.5 [1]	42.6	Phases: 3 x M6 Grounding: 2 x M6	1 x 50	133
gk874	SH160	1 x M63 x 1.5	1 x M16 x 1.5 [1]	42.6	Phases: 3 x M10 Grounding: 2 x M6	2 x 70	240
1XB7322-P05	SH180 to SH280	2 x M50 x 1.5	1 x M16 x 1.5 [4]	38	Phases: 3 x M12 Grounding: 4 X M6e	2 x 50	210

Terminal box type	Shaft height	Cable entry (power)	Cable entry (external signals)	Max. external cable diameter [2] [mm]	Number of main terminals	Max. cross-section per terminal [mm²]	Max. current per terminal [A][3]
1XB7422-P06	SH180 to SH280	2 x M63 x 1.5	1 x M16 x 1.5 [4]	53	Phases: 3 x M12 Grounding: 4 x M8	2 x 70	270
1XB7700-P02	SH225 and SH280	3 x M75 x 1.5	1 x M16 x 1.5 [4]	68	Phases: 3 x 2 x M12 Grounding: 3 x clamping plate	3 x 150	700
1XB7712-P03	SH225 and SH280	4 x M75 x 1.5	1 x M16 x 1.5 [4]	68	Phases: 3 x 4 x M16 Grounding: 4 x M16	4 x 185	1150

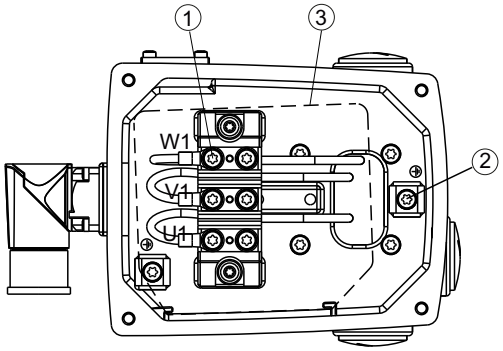
[1] M16 x 1.5 thread arranged at 90° angle to signal connection; thread only with options A12, A25 and encoder version A (without encoder)

[2] Depending on the version of metric cable gland (based on the MOTION-CONNECT cable type and cable glands from HUGRO or from AGRO)

[3] Current-carrying capacity based on EN 60204-1 and IEC 60364-5-52, routing type E

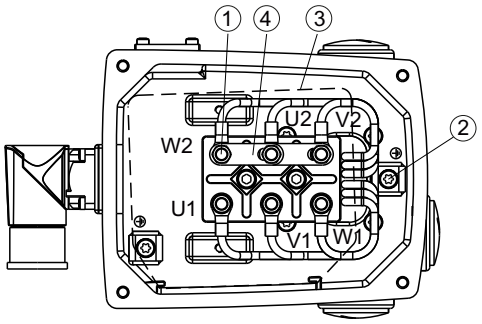
[4] M16 x 1.5 thread arranged opposite to the signal connection (lateral to the cable entry plate); thread only for option A12 and encoder version A (without encoder)

Terminal box version



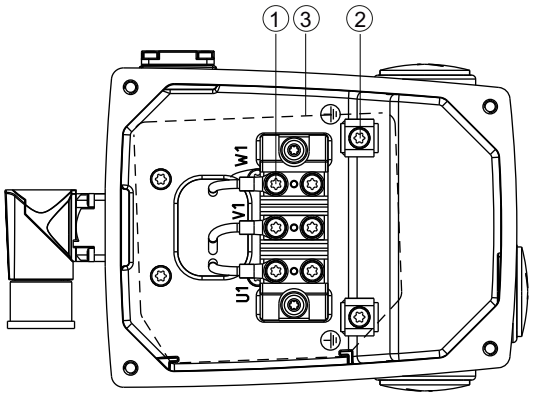
① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 6-6 Terminal box gk803, 3-pole (SH 80)



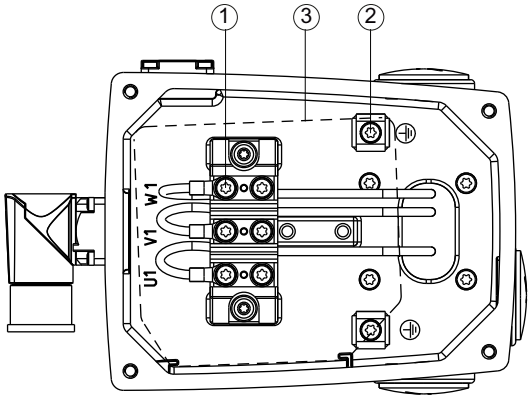
① M5 connecting studs
② Grounding screw M5
③ Insulation strips
④ Jumper

Figure 6-7 Terminal box gk806, 6-pole (SH 80) (can be switched between star and delta)



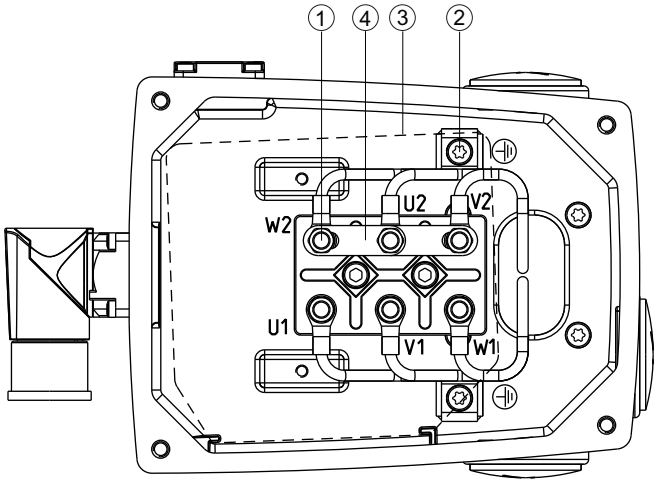
① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 6-8 Terminal box gk813, 3-pole (SH 100)



① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 6-9 Terminal box gk823, 3-pole (SH 100)



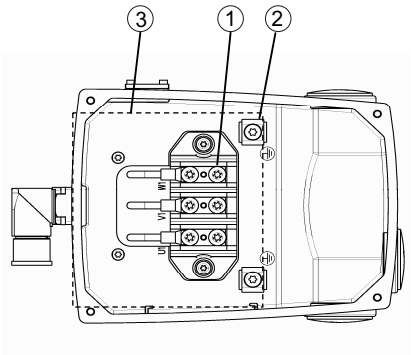
① Terminal screw M5
② Grounding screw M5
③ Insulation strips
④ Jumper

Figure 6-10 Terminal box gk826, 6-pole (SH 100) (can be switched between star and delta)

Note
Star/delta connection

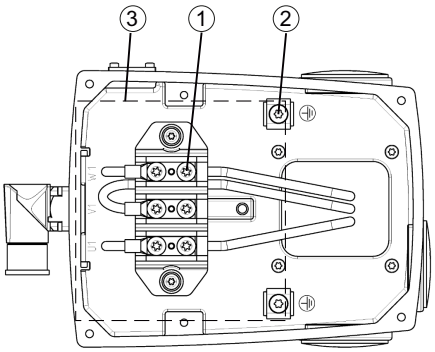
A star/delta connection is implemented by means of an external contactor circuit or as a fixed configuration in terminal box gk806 for SH 80 and in terminal box gk826 for SH 100.

Standard configuration: Star connection via jumpers



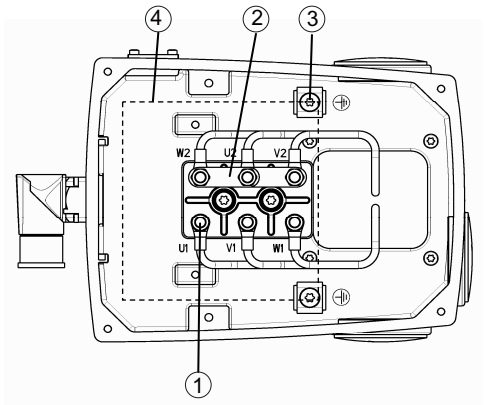
① Terminal screw M6
② M6 grounding screw
③ Insulation strips

Figure 6-11 Terminal box gk833 (SH 132) and gk863 (SH 160), 3-pole



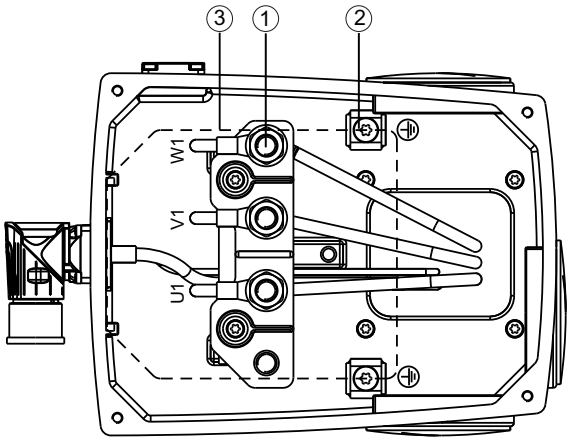
① Terminal screw M6
② M6 grounding screw
③ Insulation strips

Figure 6-12 Terminal box gk843 (SH 132) and gk873 (SH 160), 3-pole



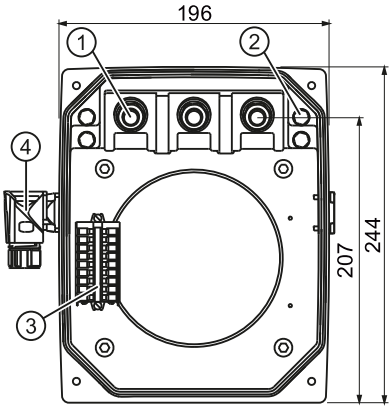
① Terminal stud M6
② Jumper
③ M6 grounding screw
④ Insulation strips

Figure 6-13 Terminal box gk846 (SH 132) and gk876 (SH 160), 6-pole (can be switched between star and delta)



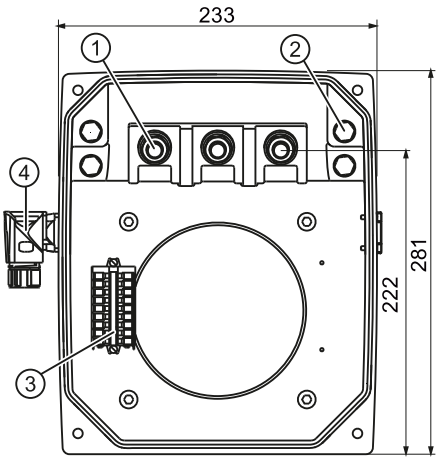
① Terminal screw M10
② M6 grounding screw
③ Insulation strips

Figure 6-14 Terminal box gk874 (SH 160), 3-pole (only for synchronous motors)



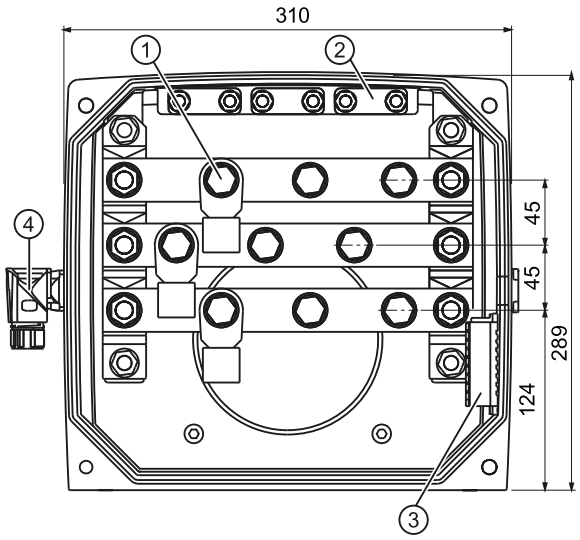
① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 6-15 Terminal box 1XB7322-P05 (SH 180 to SH 280)



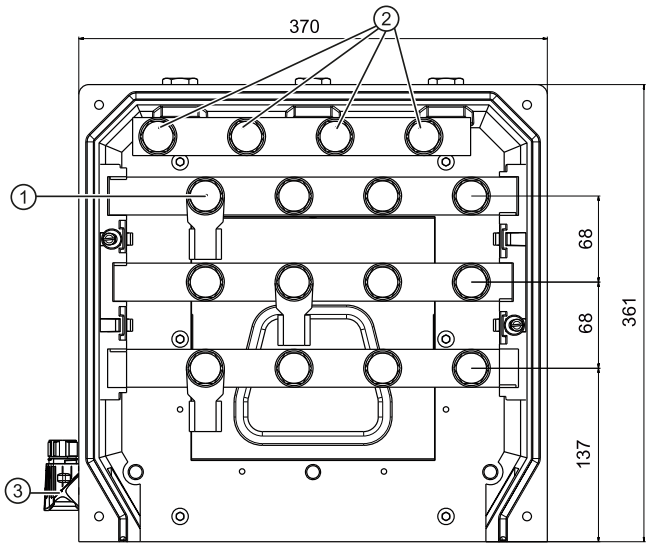
① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 6-16 Terminal box 1XB7422-P06 (SH 180 to SH 280)



① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 6-17 Terminal box 1XB7700-P02 (SH 225 and SH 280)



① Main terminal
② Ground terminal
③ Signal connection terminal

Figure 6-18 Terminal box 1XB7712-P03 (SH 225 and SH 280)

Note

The signal connection may differ from the standard layout in the case of special orders.

In the version without speed encoder, there is a connection thread M16 x 1.5 .

Power connector connection

- Use connector size 1.5.
- Assign the connector as shown in the "Power connector 1.5" diagram. Connect the protective conductor.

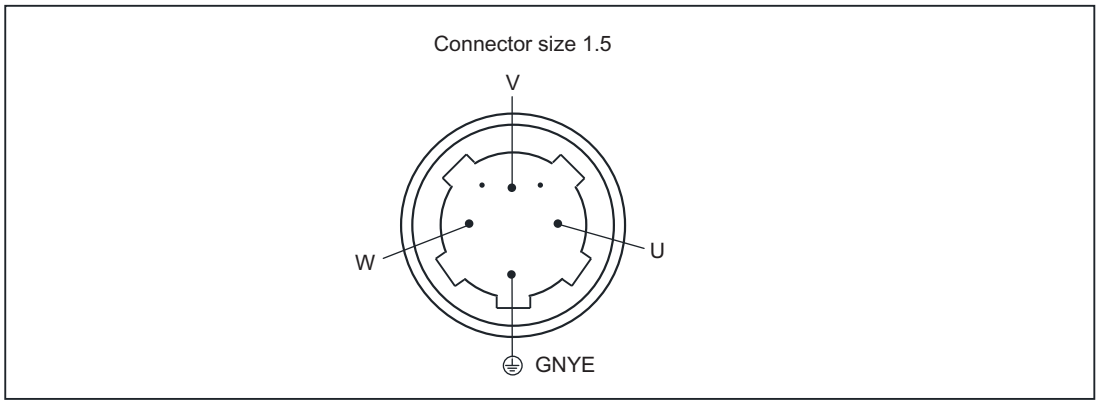


Figure 6-19 Power connector, size 1.5 (view of connector pins)

- Use connector size 3.
- Assign the connector as shown in the "Power connector 3" diagram. Connect the protective conductor.

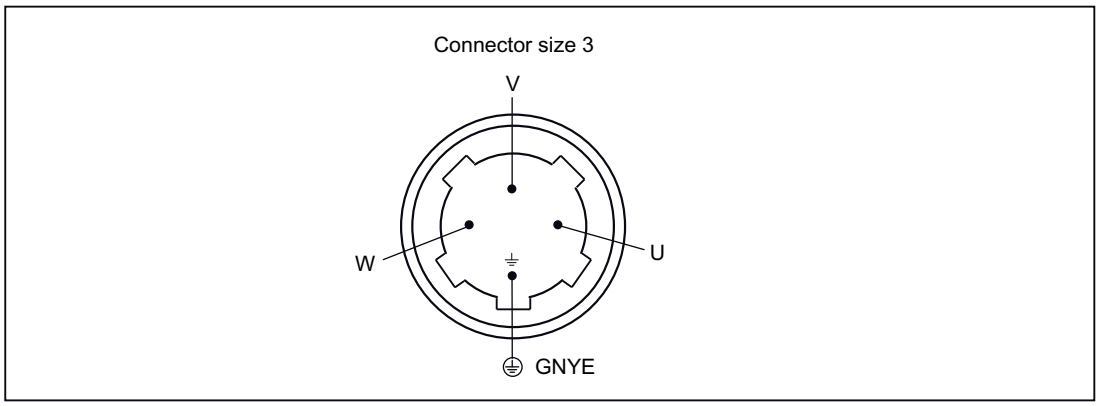


Figure 6-20 Power connector, size 3 (view of connector pins)

6.3 Connecting-up information

Note

System compatibility is guaranteed only if shielded power cables are used and the shield is conductively bonded over a large area to the metal motor terminal box (using metal EMC cable gland) or by a power connector.

Shields must be incorporated in the protective grounding concept. Protective ground should be connected to conductors that are open-circuit and that are not being used and also electrical cables that can be touched. If the brake feeder cables in the SIEMENS cable accessories are not used, then the brake conductor cores and shields must be connected to the cabinet ground (open-circuit cables result in capacitive charges!)

Use EMC cable glands for fixed cable entries. The cable glands are screwed into the threaded holes of the terminal box.

Openings that are not used must be closed using an appropriate metal cap.

⚠ WARNING

Before carrying-out any work on the motor and the fan, please ensure that it is powered-down and the system is locked-out so that the motor cannot re-start!

Please observe the rating plate data (type plate) and circuit diagram in the terminal box. Adequately dimension the connecting cables.

Internal potential bonding

The potential bonding between the ground terminal in the terminal box and the motor frame is established through the retaining bolts of the terminal box. The contact locations underneath the screw/bolt heads are bare and are protected against corrosion.

The standard screws that are used to connect the terminal box cover to the terminal box are sufficient as potential bonding between the terminal box cover and the terminal box enclosure.

Motor and connecting cables

- Twisted or three-core cables with additional ground conductor should be used as motor feeder cables. The insulation should be removed from the ends of the conductors so that the remaining insulation extends up to the cable lug or terminal.
- The connecting cables should be freely arranged in the terminal box so that the protective conductor has an overlength and the cable conductor insulation cannot be damaged. Connecting cables should be appropriately strain relieved.
- Take special care that the required air clearances are actually maintained:
  - Up to SH 160, a minimum of 4.5 mm
  - From SH 180 and above, at least 10 mm

After connecting up, the following should be checked/tested

- The inside of the terminal box must be clean and free of any cable pieces
- All of the terminal screws must be tight
- The minimum air distances must be maintained
- The cable glands must be reliably sealed
- Unused cable glands must be closed and the plugs must be tightly screwed in place
- All of the sealing surfaces must be in a perfect condition

Connecting the ground conductor

The ground conductor cross-section must be in full conformance with the installation regulations, e.g. acc. to IEC/EN 60204-1.

For shaft heights 225 and 280, the ground conductor must be additionally connected to the motor bearing end shield. There is a terminal lug for the ground cable at the designated connection point. This is suitable for connecting multi-conductor cables with cable lugs or ribbon cables with the appropriate conductor terminations.

Please note the following when connecting-up:

- The connecting surface must be bare and must be protected against corrosion using a suitable medium, e.g. with acid-free Vaseline
- There is a spring washer and normal washer underneath the screw head
- The minimum necessary screw-in depth and the tightening torque for the clamping bolts must be maintained

Table 6- 4 Screw-in depth and tightening torque

Screw	Penetration depth:	Tightening torque
M8 x 30	> 8 mm	20 Nm

6.4 Supply data for separately-driven fans

Table 6- 5 Connected loads for external fans

Shaft height SH	**Fan motor: Max. current consumption [A]**			**Air flow direction**
Forced ventilation	**1-ph. 230 VAC / 50 Hz (±10%)**	**1-ph. 230 VAC / 60 Hz (±10%)**	**1-ph. 265 VAC / 60 Hz (±10%)**	
80	0.33	0.25	0.32	NDE --> DE
	0.20	0.16	0.19	DE --> NDE
Forced ventilation	**3-ph. 400 VAC / 50 Hz (±10%)**	**3-ph. 400 VAC / 60 Hz (±10%)**	**3-ph. 480 VAC / 60 Hz (±10%)**	
100	0.12	0.09	0.12	NDE --> DE
	0.13	0.09	0.13	DE --> NDE
132	0.13	0.16	0.17	NDE --> DE
	0.21	0.19	0.23	DE --> NDE
160	0.17	0.22	0.22	NDE --> DE
	0.23	0.30	0.30	DE --> NDE
Forced ventilation (EC fan)	**1-ph. 200 ... 277 VAC / 50 Hz, 60 Hz (±10%)**			
180	1.45 ... 1.05			NDE --> DE DE --> NDE
225	2.3 ... 1.6			NDE --> DE DE --> NDE
Forced ventilation	**3-ph. 400 VAC / 50 Hz (±10%)**	**3-ph. 400 VAC / 60 Hz (+5%, -10%)**	**3-ph. 480 VAC / 60 Hz (+5%, -10%)**	
280	2.55	2.5	2.5	NDE --> DE DE --> NDE

Recommended connection

The fan is connected through its terminal box or with a power connector (optional). The fan should be operated through motor protection circuit breakers. A simple conductor protection is sufficient for the EC fans.

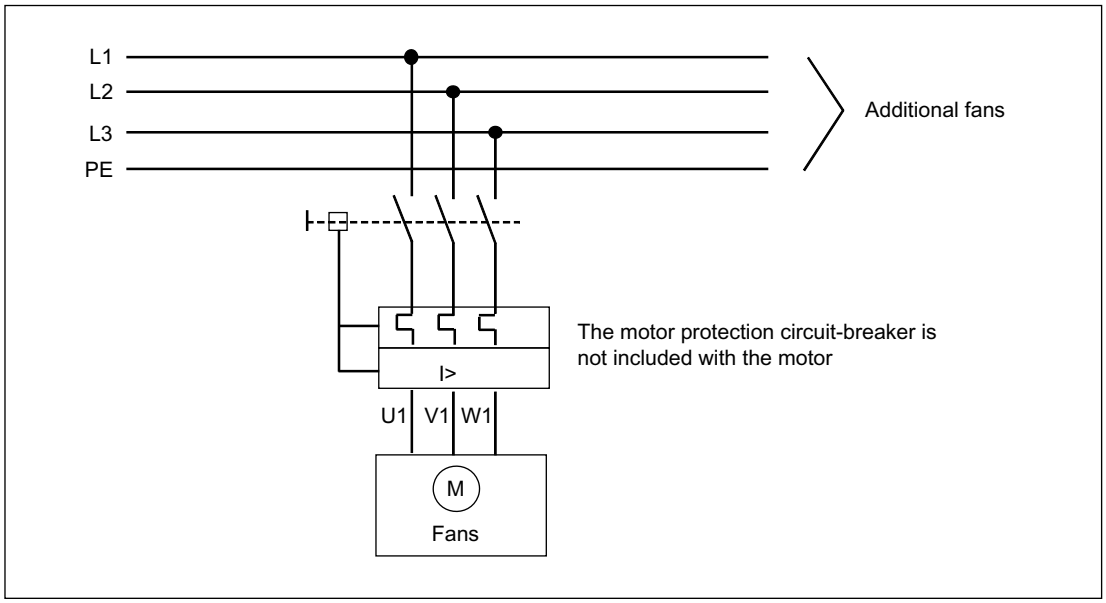


Figure 6-21 Recommended connection

Connection through terminal box

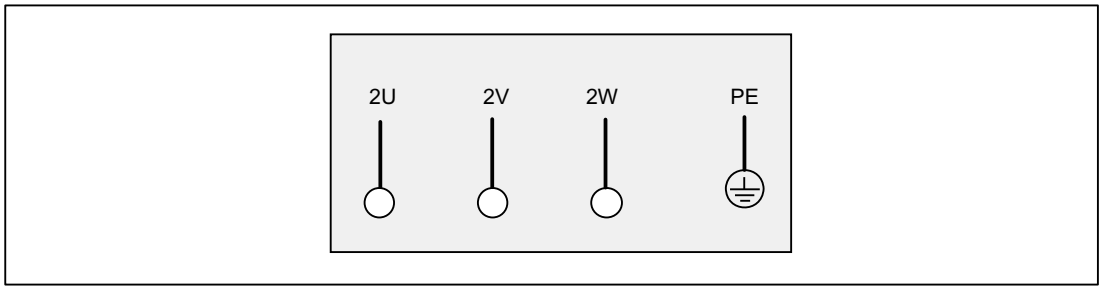


Figure 6-22 Connection external fan terminal box

Connection by power connector

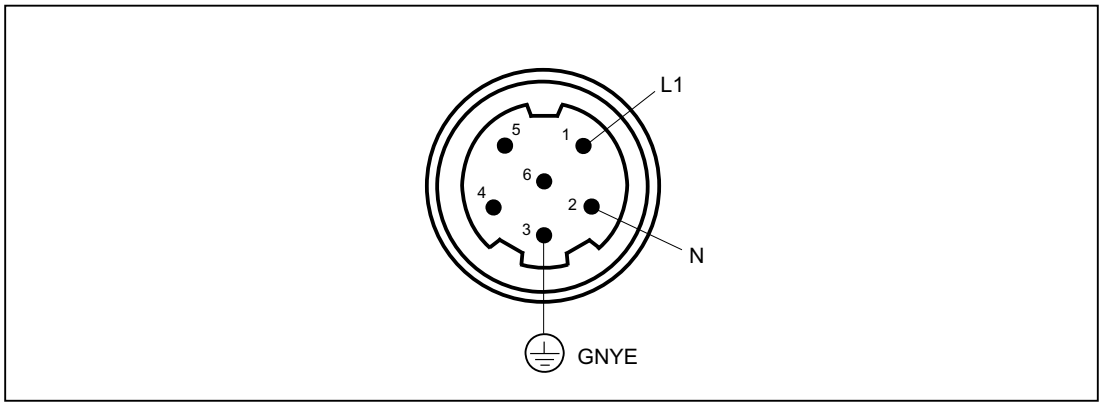


Figure 6-23 Connecting an external fan, SH 80

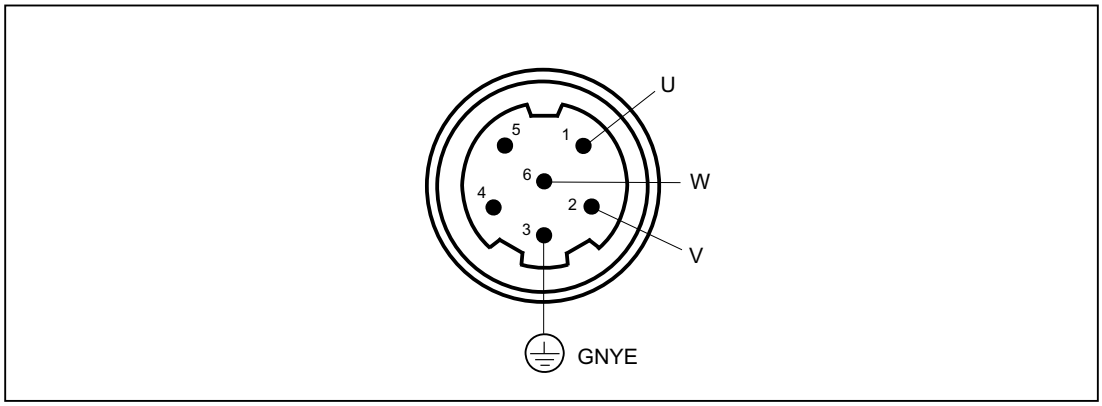


Figure 6-24 Connecting an external fan, SH 100 to SH 132

Note

The mating connector is not included in the scope of delivery.

Order number for size 1 mating connector: 6FX2003-0LU00

Note

Prefabricated cables can be ordered with the following order number:
6FX□002-5CA01-□□□0

EC external fan for shaft heights 180 to 280

Ziehl-Abegg EC external fans are installed in the 1PH8 air-cooled motors. These are especially designed fan units for this motor series, with a permanently set operating speed.

For shaft heights 180 and 225, EC motors with frame size "B" are used, for shaft height 280 (option) frame size "D" is used.

Note

Terminals GND; 10V; D1; I1; O1 and O2 are inactive and are therefore equipped with insulators.

CAUTION
The use in IT systems is not permitted.

Note

For fans equipped with EC motor, the fan motor starts with a delay after the line voltage is connected.

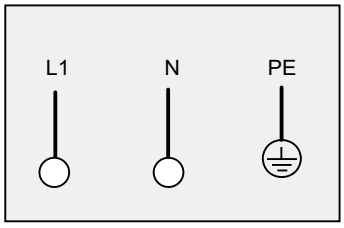


Figure 6-25 Connection in the external fan terminal box (EC external fan)

Connecting an external fan (type 1PH818□, 1PH822□)

The external fan is connected in the external fan terminal box. If necessary, you can rotate the external fan through 90°.

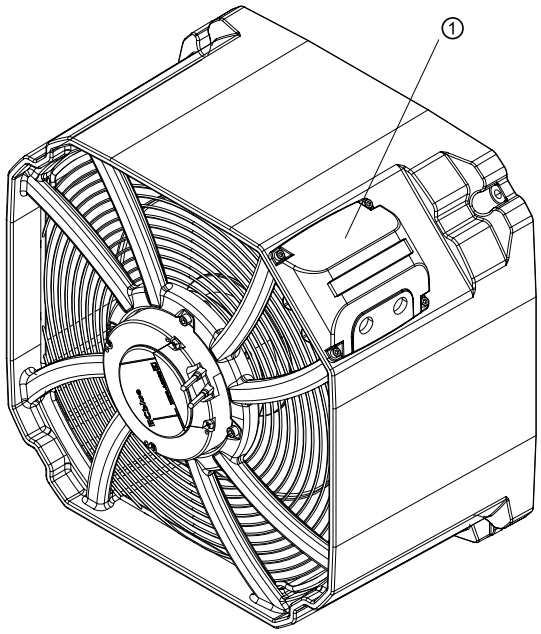
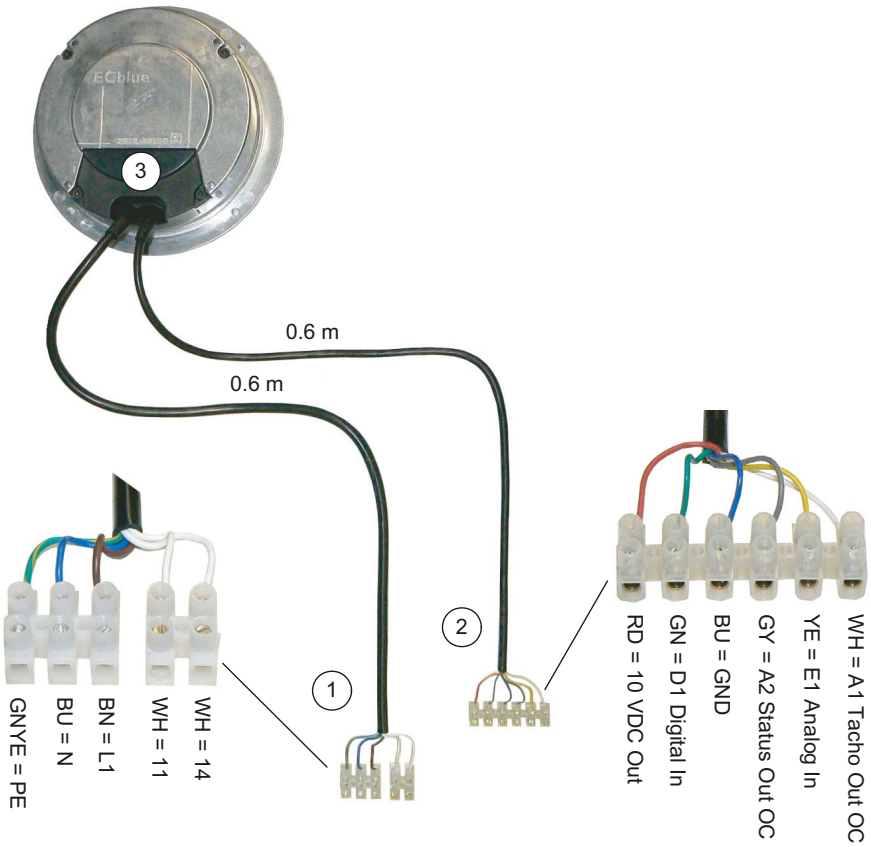


Figure 6-26 External fan terminal box ① (schematic representation)

CAUTION
Rotating the external fan If you rotate the external fan through 90°, then it is not permissible that the cable outlet faces upwards. Water that accumulates at the cable glands can result in a short circuit. Rotate the terminal box cover of the external fan through 180°.

Size "B"

Fans with connecting cable



① Line connection and relay: Light plastic-sheathed cable 18 AWG (length approx. 0.6 m)
② Line connection and relay: Light plastic-sheathed cable 22 AWG (length approx. 0.6 m)
③ Connection cover

Figure 6-27 EC external fan size "B"

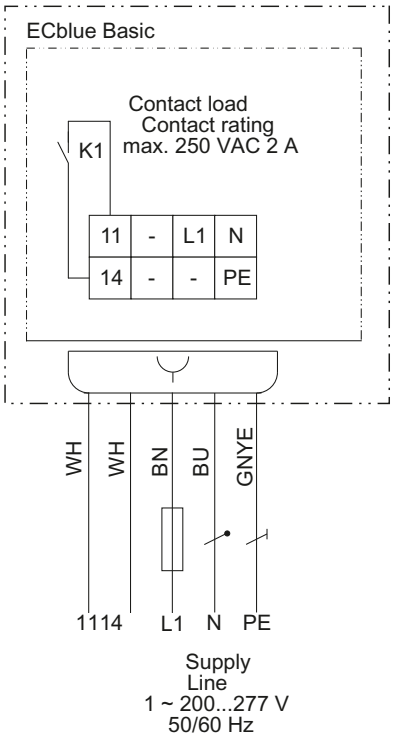
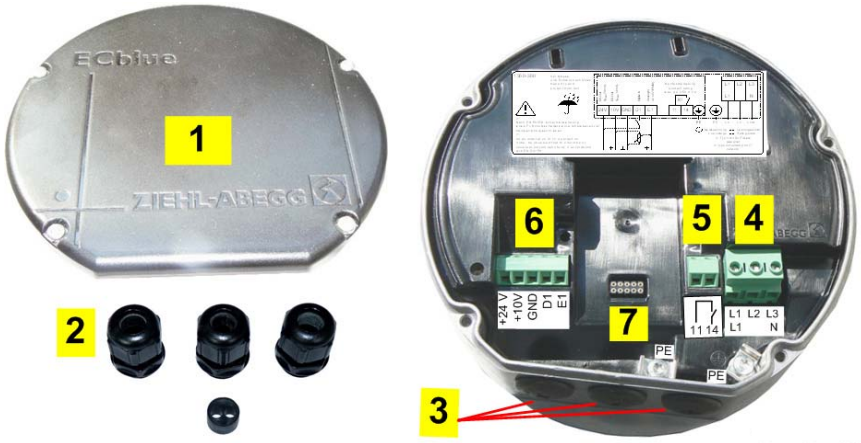


Figure 6-28 Contact load of relay output K1 (size "B")

Size "D" (option for 1PH828□)

Fans with terminal box



① Cover of controller housing
② Cable glands + sealing insert for two cables (can be used when required)
- Size "D": 3 X M16 + 1x sealing insert with two 5 mm holes

③ Cable entry with plastic plug
④ Line supply connection
⑤ Alarm signal relay connection
⑥ Controller connection
⑦ Slot for additional module

Figure 6-29 EC external fan size "D"

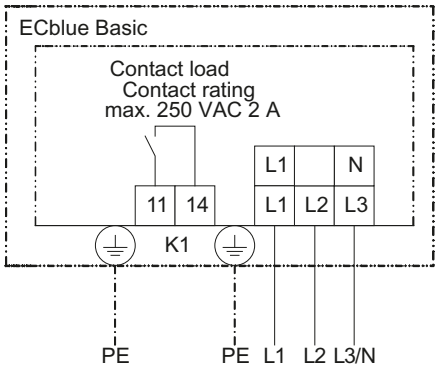


Figure 6-30 Contact load of relay output K1 (size "D")

Note

Relay output (K1)

An external alarm message is possible via the isolated contact of the integrated relay.

During operation the relay picks up, i.e. connections "11" and "14" are jumpered. If there is a fault, the relay drops-out.

With trip via the enable (D1 = digital in 1), the relay remains activated.

6.5 Signal connection

DRIVE-CLiQ is the preferred method for connecting the encoder systems to SINAMICS.

Motors with a DRIVE-CLiQ interface can be ordered for this purpose. Motors with a DRIVE-CLiQ interface can be directly connected to the associated motor module via the available MOTION-CONNECT DRIVE-CLiQ cables. The MOTION-CONNECT DRIVE-CLiQ cable is connected to the motor in degree of protection IP67. The DRIVE-CLiQ interface supplies power to the motor encoder via the integrated 24 VDC supply and transfers the motor encoder and temperature signals and the electronic type plate data, e.g. a unique identification number, rating data (voltage, current, torque) to the control unit. The MOTION-CONNECT DRIVE-CLiQ cable is used universally for connecting the various encoder types. These motors simplify commissioning and diagnostics, as the motor and encoder type are identified automatically.

Encoder connection on motors with DRIVE-CLiQ

Motors with DRIVE-CLiQ interfaces can be directly connected to the corresponding Motor Module via the available MOTION-CONNECT DRIVE-CLiQ cables. This data is transferred directly to the Control Unit.

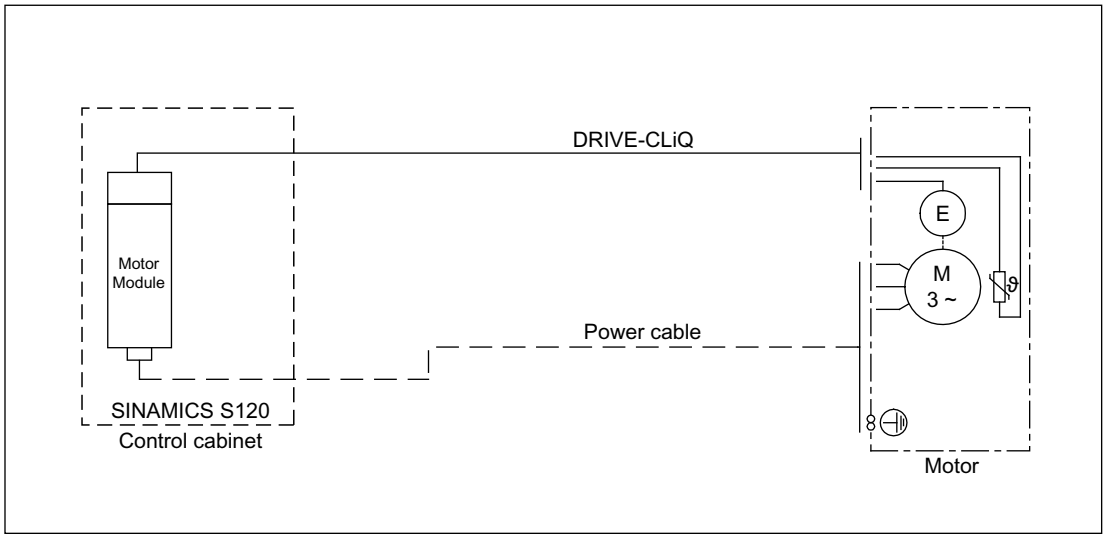


Figure 6-31 Encoder connection on motors with DRIVE-CLiQ

Cables on motors with DRIVE-CLiQ

With DRIVE-CLiQ, the same cable is used for all encoder types. Only pre-assembled cables from Siemens (MOTION-CONNECT) may be used.

Table 6- 6 Pre-assembled cable

6FX	□	002	-	□DC□□	-	□□□	0
	↓					↓↓↓	
	↓					Length	
	5 MOTION-CONNECT®500					max. cable length 100 m	
	8 MOTION-CONNECT®800					max. cable length 50 m	

For other technical data and length code, refer to Catalog, Chapter "MOTION-CONNECT connection system"

Encoder connection on motors without DRIVE-CLiQ

If a motor is not equipped with a DRIVE-CLiQ interface, the speed encoder and temperature sensor are connected via a signal connector.

Motors that are not equipped with DRIVE-CLiQ require a Sensor Module Cabinet-Mounted (SMC) or a Sensor Module External (SME) when operated with SINAMICS S120. The motor is connected to the SMC or the SME via the signal cable. The SMC or SME is connected to the Motor Module via a MOTION-CONNECT DRIVE-CLiQ cable.

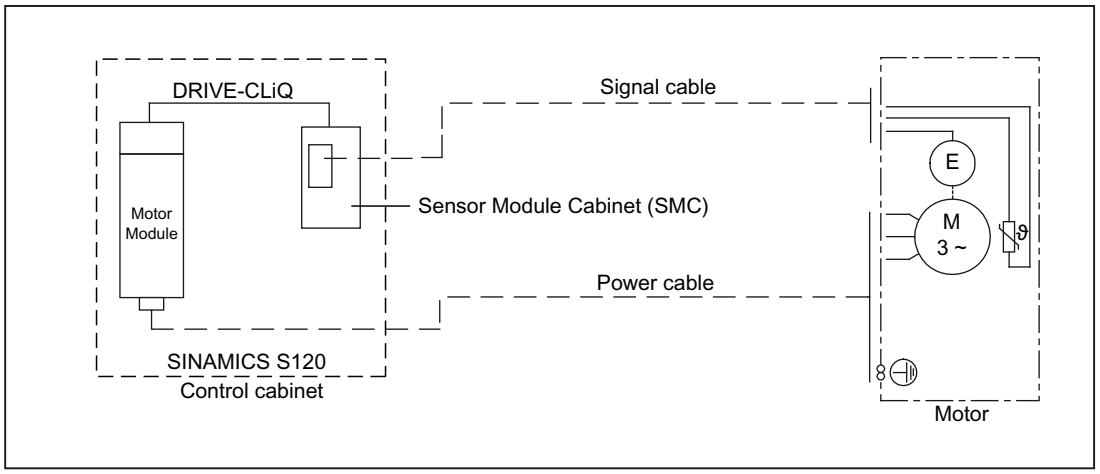


Figure 6-32 Encoder connection on motors without DRIVE-CLiQ

Cables on motors without DRIVE-CLiQ

Prefabricated cables from Siemens (MOTION-CONNECT) must be used. These offer many advantages over self-assembled cables in terms of operational reliability, quality and availability.

For technical data and length code, refer to Chapter "MOTION-CONNECT connection system" in catalog PM 21N or NC 61.

Information about motor application

7

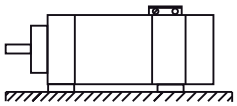
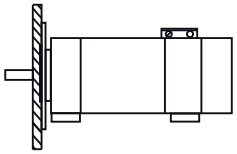
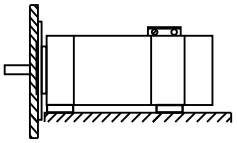
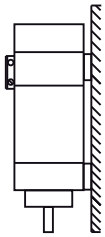
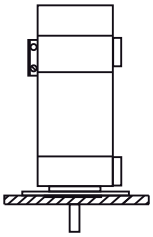
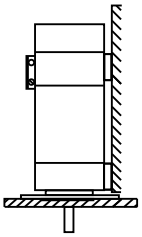
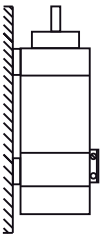
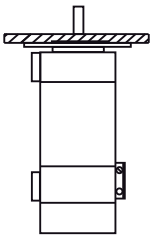
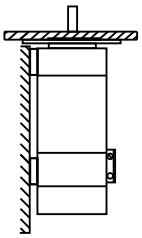
7.1 Transportation / storage before use

The motors should be stored indoors in dry conditions with low dust and low vibration levels (v_{eff} < 0.2 mm/s). The motors should not be stored longer than two years at room temperature (+5° C to +40° C) to retain the service life of the grease.

Observe the information provided in the operating instructions for transport and storage.

7.2 Construction types

Table 7- 1 The various types of construction

Type of construction	Designation	Type of construction	Designation	Type of construction	Designation
	IM B3		IM B5		IM B35
	IM V5		IM V1		IM V15
	IM V6		IM V3		IM V35

7.3 Danger and warning information when mounting

⚠ WARNING

These motors are electrically operated. When electrical equipment is operated, certain parts of these motors are at hazardous voltage levels. If these motors are not correctly handled/operated, this can result in death or severe bodily injury as well as significant material damage. Please carefully observe the warning information in this section and on the product itself.

Only **qualified personnel** may carry out service or repair work on these motors.

Before starting any work, the motor must be disconnected from the line supply and grounded.

Only spare parts certified by the manufacturer may be used.

The specified service/maintenance intervals and measures as well as the procedures for repair and replacement must be carefully maintained and observed.

⚠ WARNING

When transporting the motors, use all of the hoisting lugs provided!

A suitable crane / lifting device must be used. Incorrect execution, unsuitable or damaged equipment and resources can result in injury and material damage. The hoisting and transport equipment as well as the load suspension equipment must be in full compliance with the appropriate regulations.

All work should be undertaken with the system in a no-voltage condition!

Other information and instructions in the Operating Instructions must be carefully observed.

The motor should be connected up according to the circuit diagram provided.

In the terminal box it must be ensured that the connecting cables are insulated with respect to the terminal board cover.

After the motor has been installed, the brake (if one is used) must be checked to ensure that it is functioning perfectly!

⚠ CAUTION

Unfavorable material combinations generate frictional electricity between the belt pulley and the belt. This electrostatic charge (several kV) can discharge via the motor shaft and the encoder which leads to disturbance of the encoder signals (encoder error).

Remedy: Use an antistatic version of the belt (special conductive polyurethane mixture)!

7.4 Natural frequency when mounted

The motor is a system which is capable of vibration at its natural frequency. For all motors, this natural frequency lies above the specified maximum speed.

When the motor is mounted onto a machine, a new system, which is capable of vibration, is created with modified natural frequencies. These can lie within the motor speed range.

This can result in undesirable vibrations in the mechanical drive transmission.

NOTICE
Motors must be carefully mounted on adequately stiff foundations or bedplates. Additional elasticities of the foundation/bedplates can result in resonance effects of the natural frequency at the operating speed and therefore result in inadmissibly high vibration values.

The magnitude of the natural frequency when the motor is mounted depends on various factors and can be influenced by the following points:

- Mechanical transmission elements (gearboxes, belts, couplings, pinions, etc.)
- Stiffness of the machine design to which the motor is mounted
- Stiffness of the motor in the area around the foot or customer flange
- Motor weight
- Machine weight and the weight of the mechanical system in the vicinity of the motor
- Damping properties of the motor and the driven machine
- Mounting type, mounting position (IM B5, IM B3, IM B35, IM V1, etc.)
- Motor weight distribution, i.e. length, shaft height

Note

With the forced-ventilated versions of shaft heights 80 to 160, the plastic covers on the NDE foot removed for the purpose of tightening the mounting bolts must be replaced before the motor is commissioned.

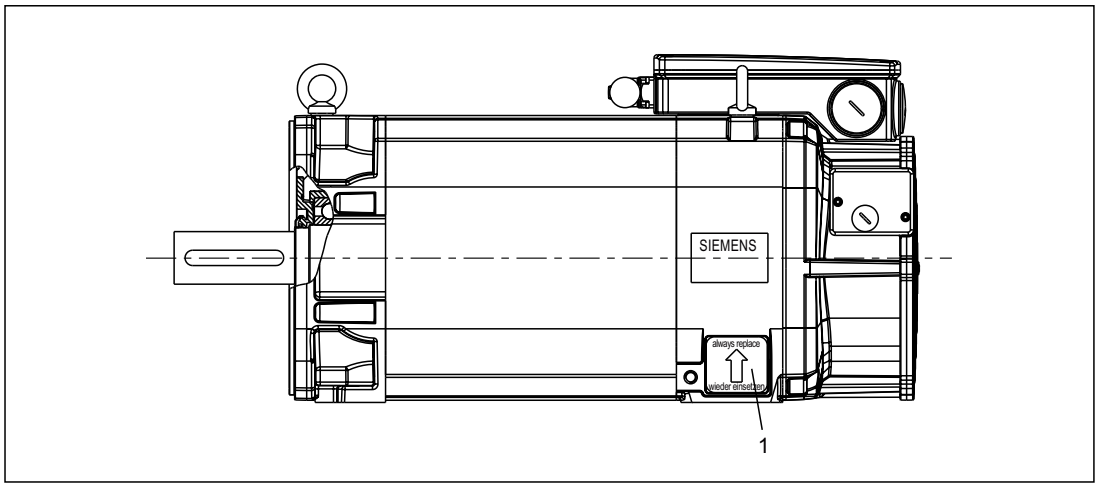


Figure 7-1 Cover for foot mounting (1) at NDE (example)

7.5 Mounting and mounting instructions

In order to ensure smooth, vibration-free motor operation, a stable foundation design is required, the motor must be precisely aligned, and the components that are to be mounted on the shaft extension must be correctly balanced.

The following mounting instructions must be carefully observed:

- For high-speed machines, we recommend that the complete unit is dynamically balanced after couplings or belt pulleys have been mounted.
- Use suitable equipment when mounting drive elements. Use the thread at the shaft extension.
- Do not apply any shocks or axial pressure to the shaft extension.
- Especially for high-speed motors with flange mounting, it is important that the mounting is stiff in order to locate any natural frequency as high as possible so that it remains above the maximum rotational frequency.
- Thin sheets (shims) can be placed under the motor mounting feet to align the motor and to avoid mechanically stressing the motor. The number of shims used should be kept to a minimum.
- In order to securely mount the motors and reliably and safely transfer the drive torque, bolts with strength class 8.8 according to ISO 898-1 should be used.

Note

All flange-mounted motors must have a stable motor suspension assembly and for high field weakening speeds must be supported using the appropriate feet at the bearing end shield (foot/flange type of construction, also refer to Section "Vibration severity limit values").

Support using feet at the bearing end shield is not required if the following conditions are maintained:

- For flange-mounted motors, there is a stable motor suspension design

- The permissible vibration values according to DIN ISO 10816 are maintained

- The maximum speed is limited (refer to Table "Restricting the maximum speed")

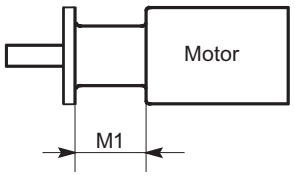
Motors that are mounted, as a result of their type of construction, to the wall using the motor feet, must be fixed in place using an adequately dimensioned positive form fit (e.g. using studs or mounting rails).

When commissioning the motors, it must be ensured that the permissible vibration values according to DIN ISO 10816 are maintained.

Table 7- 2 Limiting the maximum speed

Shaft height [mm]	Max. permissible speed [rpm]
180	3000
225	2500
280	2000

Table 7- 3 Flange mounting with threaded studs and nuts

Shaft height	M1 [mm]	
180	32	
225	45	
280	45	

Note

For SH 180 to SH 280, flange mounting is only possible using studs and nuts. Clearance M1 for threading the nut between the motor flange and motor frame according to DIN 42948.

CAUTION

Liquid must be prevented from collecting in the flange, both in the vertical and horizontal mounting positions. This would have a negative impact on the bearing and bearing grease.

Note

With the forced-ventilated versions of shaft heights 80 to 160, the plastic covers removed for the purpose of tightening the mounting bolts must be replaced before the motor is commissioned.

Note

Mount air-cooled motors so that the cooling air can enter and be discharged without any restrictions (also refer to Section "Cooling").

7.6 Misalignment

In order to avoid misalignment or to keep it as low as possible, a compensating coupling should be used (refer to the diagram).

If possible, the motor should not be directly and rigidly coupled to an output transmission shaft which has its own bearings.

However, if a rigid coupling is absolutely necessary due to mechanical design reasons, misalignment deviations must be avoided. In this case, a careful check must be made by making the appropriate measurements.

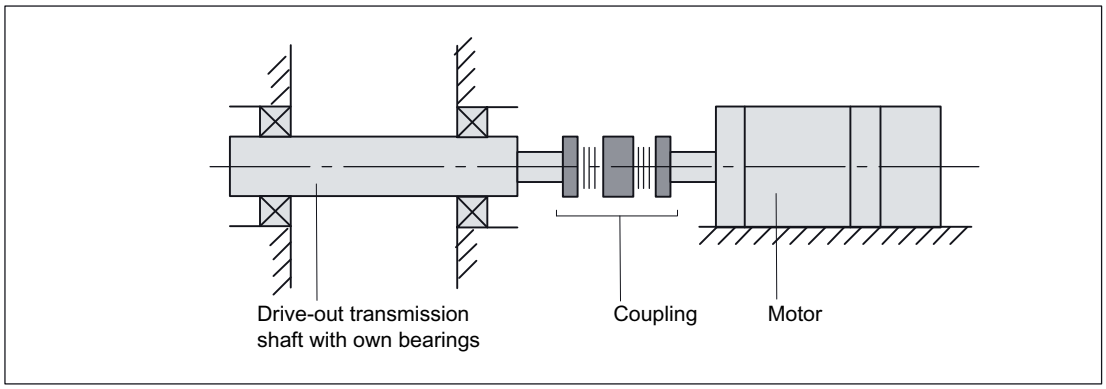


Figure 7-2 Mechanical output transmission shaft with its own bearings and compensating coupling

7.7 Flywheels

Flywheels with a high mass, which are rigidly mounted to the end of the motor shaft, modify the vibration characteristics of the motor and shift the critical rotational frequencies of the motor into the lower speed ranges.

The overall system should be precision balanced in order to minimize/avoid exciting vibration, when external masses are directly mounted onto the motor shaft.

Operation in the resonance range must be avoided.

7.8 Vibration stressing

The on-site system vibration behavior depends on factors such as the output elements, mounting situation, alignment, installation, and external vibration and can increase the level of vibration on the motor.

Under certain circumstances, the rotor may have to be completely balanced with the output element.

To ensure problem-free operation and a long service life, the vibration values according to ISO 10816 must not be exceeded at the defined measuring points on the motor.

Table 7- 4 Maximum permissible radial vibration values for SH 80 to 160[1)]

Vibration frequency	Vibration values
< 6.3 Hz	Vibration amplitude s ≤ 0.16 mm
6.3 ... 250 Hz	Vibration velocity v_{rms} ≤ 4.5 mm/s
> 250 Hz	Vibration acceleration a ≤ 10 m/s²

Table 7- 5 Maximum permissible radial vibration values for SH 180 to 280[1)]

Vibration frequency	Vibration values
< 6.3 Hz	Vibration amplitude s ≤ 0.25 mm
6.3 ... 63 Hz	Vibration velocity v_{rms} ≤ 7.1 mm/s
> 63 Hz	Vibration acceleration a ≤ 4.0 m/s²

Table 7- 6 Maximum permissible axial vibration values for SH 80 to 160[1)]

Vibration velocity	Vibration acceleration
v_{rms} = 4.5 mm/s	a_{peak} = 2.25 m/s²

1) Both values must be maintained simultaneously

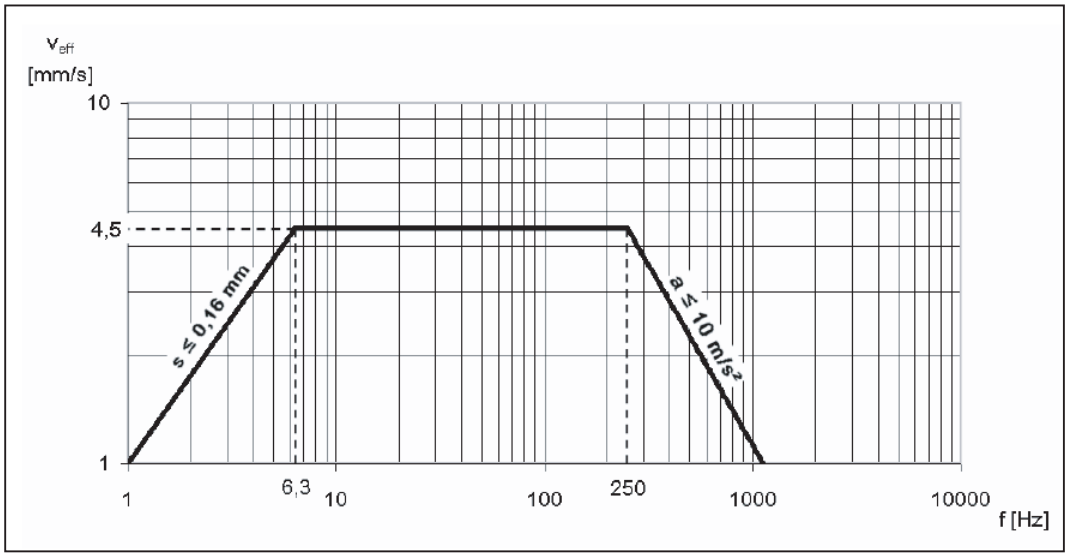


Figure 7-3 Maximum permissible vibration velocity including vibration amplitude and vibration acceleration for SH 80 to 160

Table 7- 7 Maximum permissible axial vibration values for SH 180 to 280[1)]

Vibration velocity	Vibration acceleration
v_{rms} = 7.1 mm/s	a_{peak} = 3.55 m/s²

1) Both values must be maintained simultaneously

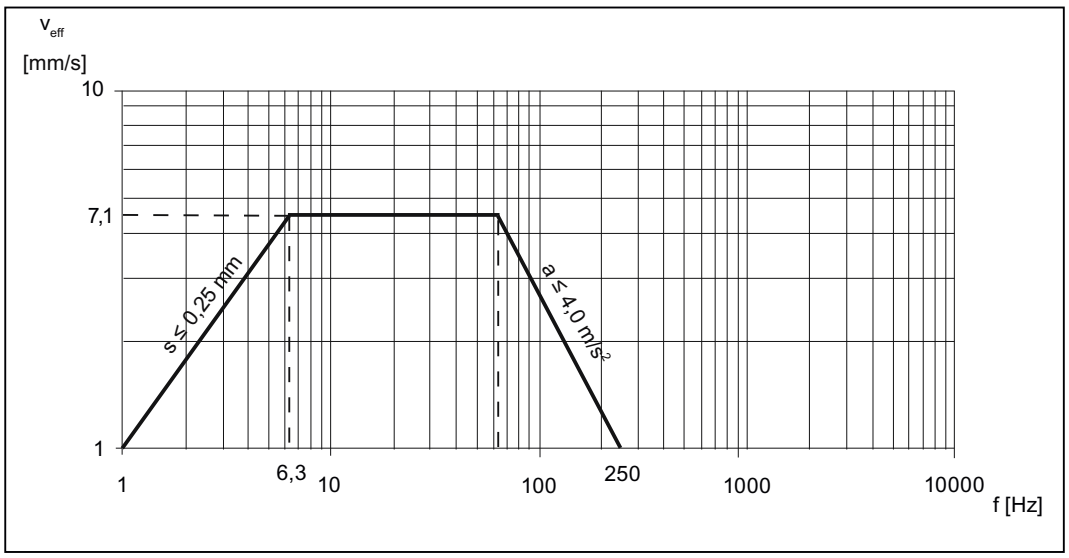


Figure 7-4 Maximum permissible vibration velocity including vibration amplitude and vibration acceleration for SH 180 to 280

To measure the vibration velocity, the measuring equipment must fulfill the requirements of ISO 2954. The vibration acceleration must be measured as a peak value in the time range in a frequency band of 10 to 2000 Hz.

If appreciable vibration excitation in excess of 2000 Hz (e.g. gear teeth meshing frequencies) can be expected, the measurement range must be adapted accordingly. This does not alter the maximum permissible values.

Note

Uninterrupted duty within the natural frequencies

Uninterrupted duty in the natural frequencies of the installed/mounted system should be avoided, as this generally leads to the permissible vibration values being exceeded and the system being damaged. To reduce vibration, flanged-mounted motors can be supported at the NDE.

Note

Vibration must be analyzed and measured (measuring points, etc.) according to standard ISO 10816-3.

7.9 Routing cables in a damp environment

NOTICE
If the motor is mounted in a humid environment, the power and signal cables must be routed as shown in the following figure.

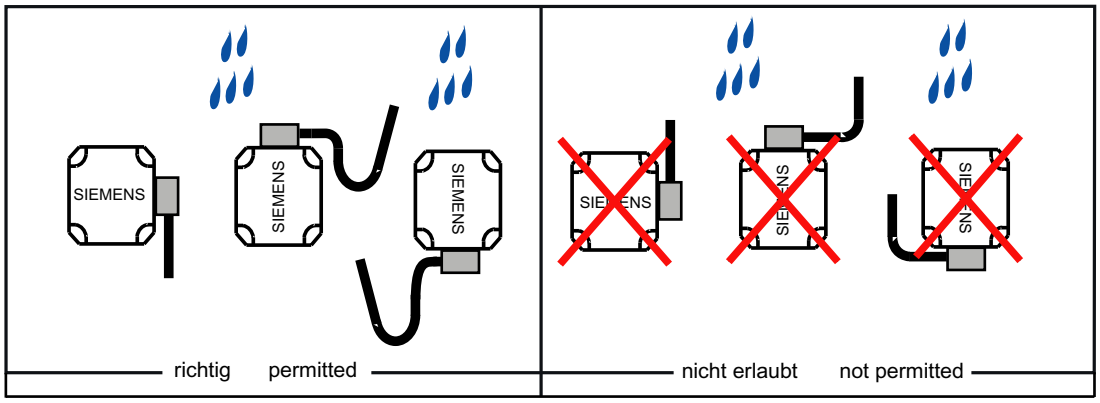


Figure 7-5 Principle of cable routing in a wet/moist environment

7.10 Mounting rotor-supported rotary glands on 1PH8 hollow-shaft motors

7.10.1 Introduction

1PH8 motors with hollow shaft (13th MLFB position: " 3 ") are designed as main spindle motors for machine tools and machining centers with internal tool cooling. A rotary gland is required for the provision of the coolant in the rotating motor shaft. A rotor-supported rotary gland can be mounted on the NDE shaft extension. In addition to coolant, suitable rotary glands can also transfer oil mist (minimum quantity lubrication), cutting oils or even compressed air at standstill.

Rotor-supported rotary glands consist of a rotor with bearings, stator, a housing with the cable connections and the sliding ring seal. Rotor-supported rotary glands are easy to fit and change. They are screwed into the motor shaft via the thread on the rotor. The advantage of these rotary glands is the leading off of the leakage via the housing and the integrated leakage connection. The rotor-supported rotary glands also do not exert any axial forces on the motor shaft. The axial forces caused by the coolant pressure are absorbed by the bearings of the rotary gland.

Depending on the version of the rotary glands, the sealing rings are applied constantly (closed seal, e.g. DEUBLIN series 1116 and 1108) or temporarily (opening seal, e.g. DEUBLIN series 902 and 1109). With opening seals, the sealing surfaces are separated when there is no coolant pressure, e.g. during a tool change. In this case, coolant runs out of the supply line and out of the motor shaft through the opened seal. This leakage and also the leakage from the wear of the sealing rings must be led off via the leakage lines.

NOTICE
To ensure the leakage is led off, the leakage line must always lead downwards so that nothing can run back. Otherwise the rotary gland and motor could be flooded and fail!

Hollow shaft version

Table 7- 8 Hollow shaft version

	1PH808□	1PH810□...1PH816□
Thread on DE	M12 x 1.25-RH	M16 x 1.5-RH
Centering on DE	∅16H7	∅20H7
Thread on NDE	M12 x 1.25-LH	M16 x 1.5-LH
Centering on NDE	∅14 + 0.008/-0.001	∅18 + 0.007/-0.003
Through-hole	∅8	∅11.5
Key surface NDE	SW19	SW27

7.10.2 Mounting

The rotary gland for the coolant must be screwed on to the NDE shaft centering of the motor shaft. The rotary gland must be mounted carefully following the manufacturer's specifications.

NOTICE
When mounting the rotary gland, it must be ensured that the thread is tightly screwed into the NDE shaft extension so that no coolant can leak.

There are differences between air- and water-cooled motors that must be observed when mounting the rotary gland.

Mounting the rotary gland for water-cooled motors (11th MLFB position: 2)

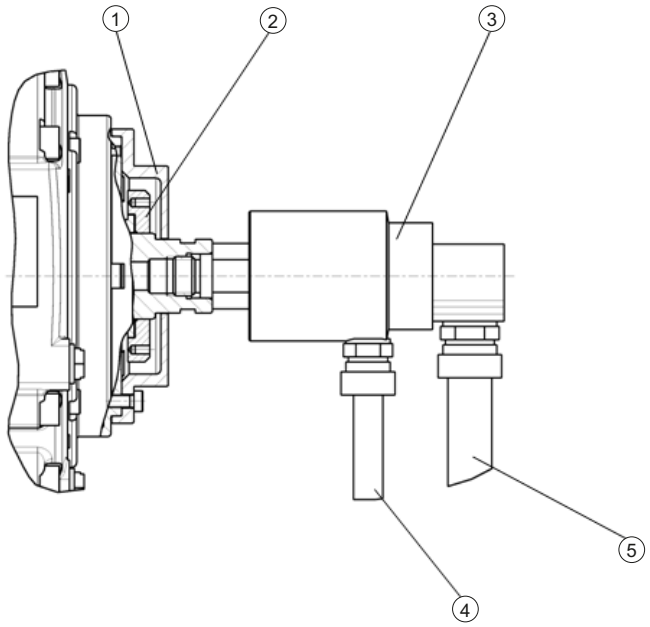
With water-cooled motors, the rotary gland can be mounted directly on the motor. Rotary glands with radial or axial connections can be used.

Mounting steps:

- If necessary, complete balancing of the motor via external balancing disks. Dismantle the sealing cover for this.

NOTICE
The sealing cover must be attached again after the balancing!

- Attach hoses for the inlet and leakage to the rotary gland, if necessary, use angle units.
- Screw the rotary gland into the NDE motor shaft extension and tighten with the appropriate torque (against the key surface on the NDE motor shaft extension).
- Position the rotary gland in such a way that the leakage connection is at the lowest point (with horizontal mounting).
- Always connect the hose for leakage sloping downwards (min. 15°).
- Also connect the hose for the inlet sloping downwards.
- Manually check that the rotor turns easily.
- Check the mounting under pressure for leaks.



① Sealing cover
② Balancing disk
③ Rotor-supported rotary gland, e.g. DEUBLIN 1109-020-188
④ Leakage hose
⑤ Inlet hose

Figure 7-6 Rotary gland for water-cooled motors

Mounting the rotary gland for air-cooled motors (11th MLFB position: 0 or 1)

Air-cooled motors are equipped with an intermediate housing between the motor and the axially mounted fan. The intermediate housing is used to accommodate the rotary gland. It is suitable for rotary glands up to a length (without rotor connection thread and centering) of 120 mm and a diameter of up to 55 mm. Due to limitations of space, rotary glands with radial connections are recommended for air-cooled motors, e.g. DEUBLIN 1109-020-188. Rotary glands with axial connections are not suitable! Before mounting the rotary gland, the fan with the intermediate housing must be removed. A cutout must be made in the intermediate housing for the hoses for the coolant inlet and leakage. The cutout must be free of burrs and the hoses must be protected against abrasion.

The remaining openings between the cutout and the hoses must be closed again, so that cooling air cannot escape.

In addition to the leakage hose, a ventilation hose may be required to compensate for the negative pressure generated by the fan. For this purpose, a hose must be connected to the rotary gland (via an additional ventilation/leakage connection) and led upwards from the intermediate housing.

Mounting steps:

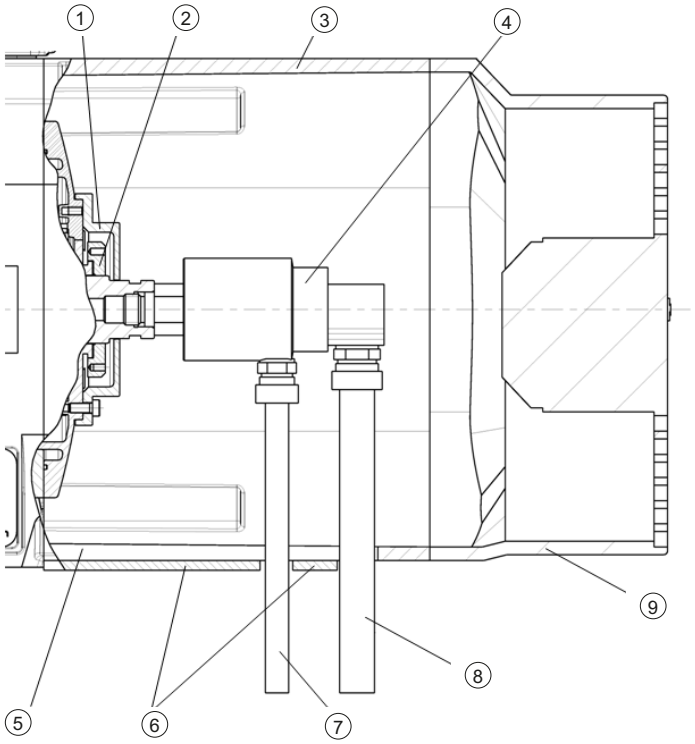
- Disassemble the fan and intermediate housing from the the motor.
- If necessary, complete balancing of the motor via external balancing disks. Dismantle the sealing cover for this.

NOTICE
The sealing cover must be attached again after the balancing!

- Attach hoses for the inlet and leakage to the rotary gland, if necessary, use angle units.

NOTICE
Use a rotary gland with radial connections.

- Screw the rotary gland into the NDE motor shaft extension and tighten with the appropriate torque (against the key surface on the NDE motor shaft extension).
- Position the rotary gland in such a way that the leakage connection is at the lowest point (horizontal mounting).
- Always connect the hose for leakage sloping downwards (min. 15°).
- Also connect the hose for the inlet sloping downwards.
- If required, provide a ventilation hose for the leakage chamber and lead it to the outside.
- Manually check that the rotor turns easily.
- Check the mounting under pressure for leaks.
- Make a cutout for the inlet and leakage hoses in the intermediate housing.
- Push the intermediate housing with the inlet over the hoses and screw it to the motor.
- Screw the fan on to the intermediate housing.
- Seal the remaining openings between the cutout and the hoses.



① Sealing cover
② Balancing disk
③ Intermediate housing
④ Rotor-supported rotary gland, e.g. DEUBLIN 1109-020-188
⑤ Cutout
⑥ Cover
⑦ Leakage hose
⑧ Inlet hose
⑨ Fan

Figure 7-7 Rotary gland for air-cooled motors

Mounting information and instructions

- Do not attach any additional anti-rotation pins.
- Never screw pipes directly to the rotary gland.
- Always use a hose between the rotary gland and the fixed piping. To do this, route the hoses in curves and torsion-free.
- Avoid twisting the hoses.
- First screw the flexible hoses to the rotary gland and then the rotary gland to the shaft with the specified torque.
- Avoid stressing due to incorrect hose lengths and unsuitable mounting material.

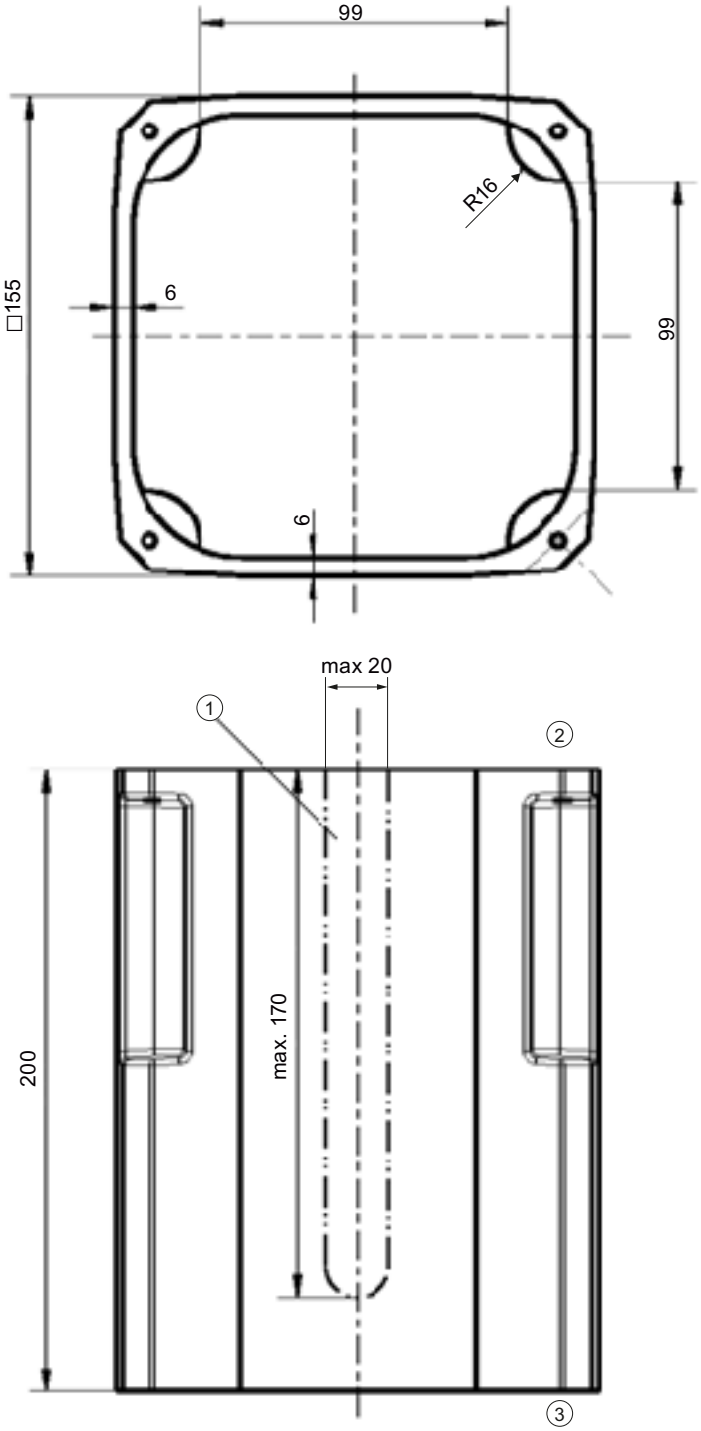
- Always keep the rotary gland and hoses free of tension.
- The rotary gland must be easy to turn when mounted.
- Keep rotary glands free of chips and burs.
- Position the rotary gland in such a way that the leakage connection is at the lowest point (with horizontal mounting).
- Always route the leakage hose downward (min. 15°) with a large cross-section.
- If the leakage hose is higher than the leakage connection and the mechanical seal is open, the rotary gland and possibly also the motor will be flooded and a failure may occur.
- Also route the inlet hose downwards, so that the coolant flows back in the supply line when the mechanical seal is open (e.g. tool change or standstill) and not through the motor shaft and the leakage connection.
- Filter the coolant so that no particles can reach the mechanical seal and damage it.

NOTICE
When mounting the rotary gland, it must be ensured that the thread is tightly screwed into the NDE shaft extension so that no coolant can leak.

- Check the rotary gland and hoses regularly for tightness.

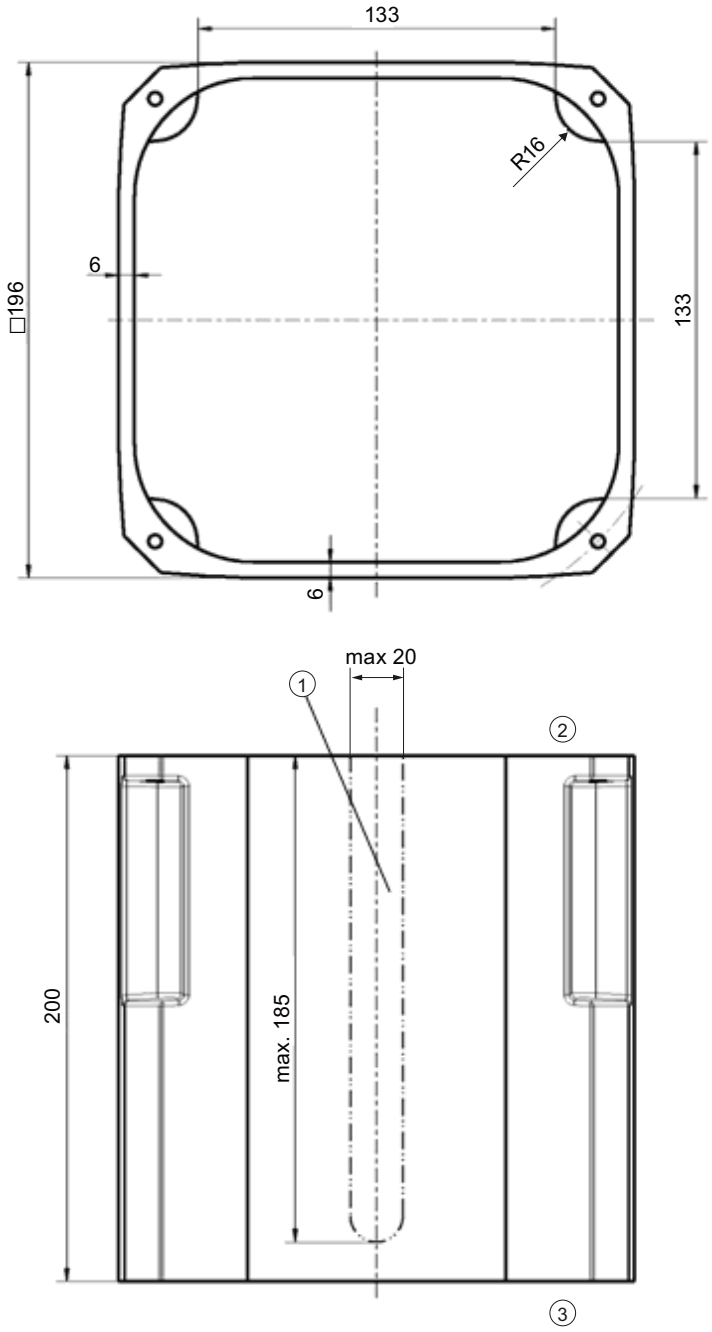
NOTICE
If there are leaks in the rotary gland and the hoses, the motor may be flooded and fail!

Intermediate housing for air-cooled motors



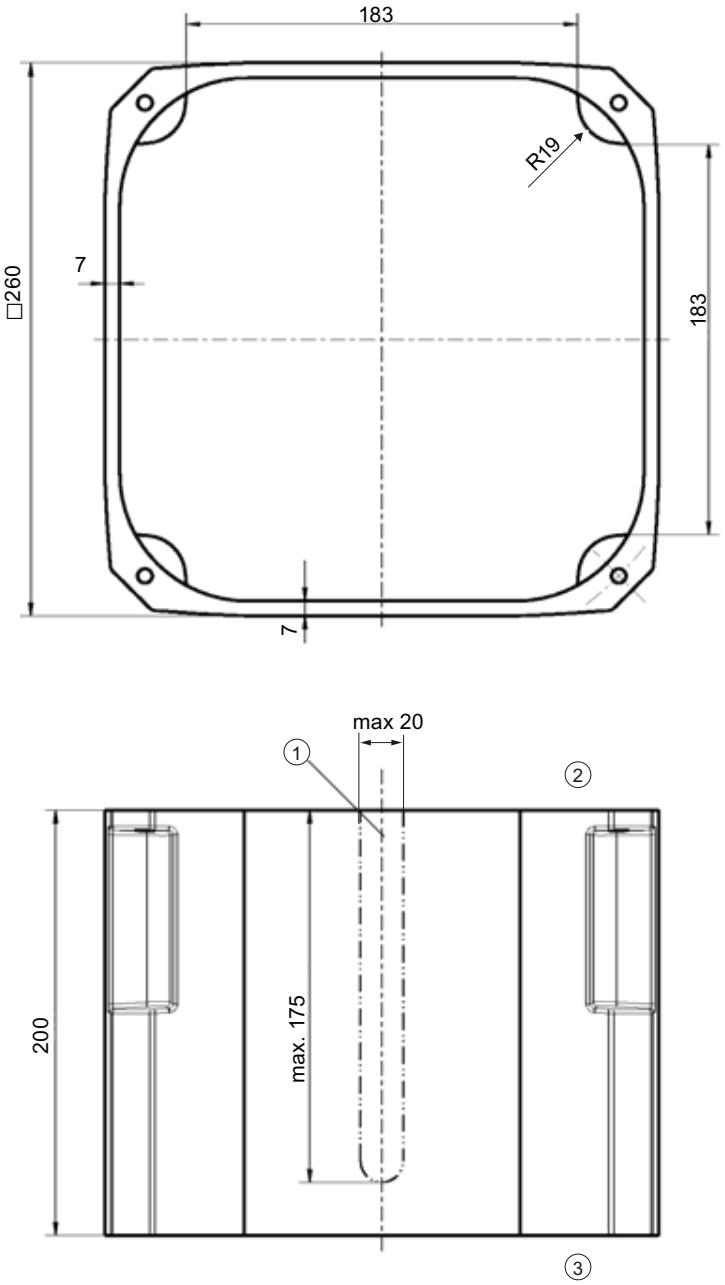
① Cutout for hoses (to be made by the customer)
② Motor side
③ Fan side

Figure 7-8 Intermediate housing SH80



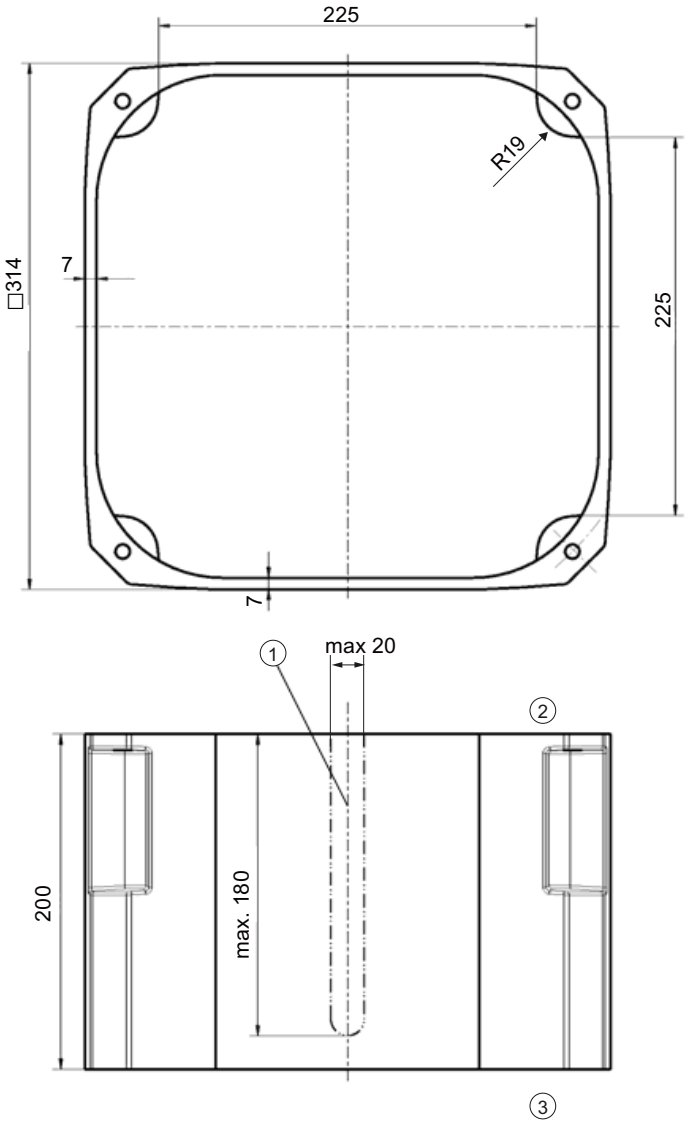
① Cutout for hoses (to be made by the customer)
② Motor side
③ Fan side

Figure 7-9 Intermediate housing SH100



① Cutout for hoses (to be made by the customer)
② Motor side
③ Fan side

Figure 7-10 Intermediate housing SH132



① Cutout for hoses (to be made by the customer)
② Motor side
③ Fan side

Figure 7-11 Intermediate housing SH160

Dimension drawings

8

8.1 CAD CREATOR (title below)

CAD CREATOR

Thanks to its easy to understand interface, the CAD CREATOR allows you to find the following quickly

- dimension drawings
- 2D/3D CAD data

and supports you when generating plant/system documentation regarding project-specific information. The data for motors, drives and CNC controls is currently available in the online version.

You can find further information on the Internet at: http://www.siemens.com/cadcreator

Motors

- 1FK7, 1FT7, 1FT6 synchronous motors
- 1FE1 built-in synchronous motors
- 1FW3 complete torque motors
- 1FW6 built-in torque motors
- 1FK7, 1FT7, 1FT6 geared motors
- 1PH8 synchronous/induction motors
- 1PH7, 1PH4, 1PL6, 1PM4, 1PM6 induction motors
- 2SP1 motor spindles
- 1FN3 linear motors

SINAMICS S120

- Control Units
- Power Modules (blocksize, chassis)
- Line Modules (booksize, chassis)
- Line-side components
- Motor Modules (booksize, chassis)
- DC link components
- Additional system components
- Load-side power components
- Encoder system connection
- MOTION-CONNECT connection system

SIMOTION

- SIMOTION D
- SIMOTION C

SINUMERIK solution line

- Control systems
- Operator components for CNC controls

How up-to-date are the dimension drawings

Note

Siemens AG reserves the right to change the dimensions of the motors as part of mechanical design improvements without prior notice. This means that dimensions drawings can go out-of-date. Up-to-date dimension drawings can be requested at no charge from your local SIEMENS representative.

Appendix

A

A.1 Description of terms

Rated torque M_N

The rated torque is the torque that is mechanically available at the shaft and can be thermally provided corresponding to the specified operating mode (duty type) according to IEC 60034-1.

Rated speed n_N

This is the speed for which the rated power and the rated torque are defined corresponding to the specified operating mode (duty type) according to IEC 60034-1.

Rated voltage V_N

Voltage between two motor phases for which the rating data (P_N, n_N, etc.) is defined. The rated voltage definition takes into account magnetic (iron saturation) and thermal factors.

Rated current I_N

This is the current (rms phase value) that flows at the rated speed and rated torque and can be thermally provided according to the specified operating mode (duty type) according to IEC 60034-1.

Rated frequency f_N

Frequency required to obtain the performance ratings (P_N, n_N, etc.).

Rated power P_N

The rated power is the power that is mechanically available at the shaft and can be thermally provided corresponding to the specified operating mode (duty type) according to IEC 60034-1.

Speed for field weakening with constant power n_2

Maximum achievable speed at rated power corresponding to the specified operating mode (duty type) according to IEC 60034-1.

No-load current I_μ

This is the current (rms phase current) that is required in order to operate the motor under no-load conditions at rated speed without load torque. The no-load current defines the motor magnetization in the base speed range (low speed at the start of field weakening).

Maximum speed n_{max}

The maximum permissible speed n_{max} is determined by mechanical factors. The maximum speed n_{max} must not be exceeded.

⚠ CAUTION

If the speed n_{max} is exceeded, then this can result in damage to the bearings, short-circuit end rings, press fits, etc. It should be ensured that higher speeds are not possible by appropriately designing the control or by activating the speed monitoring in the drive system.

If $n_{S1} < n_{max}$, the motor must not be operated at n_{max} continuously. Unless a different duty cycle (duty cycle duration 10 minutes) is specified, the speed must be reduced as stated below:

Maximum torque M_{max}

Torque which is briefly available for dynamic operations (e.g. when accelerating).

Max. current I_{max}

This is the current (rms phase value) produced at rated speed (n_{rated}) and maximum torque (M_{max}).

S1 duty (continuous operation)

Operation with a constant load, the duration of which is sufficient that the motor goes into a thermal steady-state condition.

S6 duty (intermittent operation)

Operation which comprises a sequence of identical duty cycles; each of these duty cycles comprises a time with constant motor load and a no-load time. Unless otherwise specified, the load period refers to a duty cycle of 10 min.

Table A- 1 For example:

S6-40 % = 4 min load operation, 6 min no-load operation

S6-60 % = 6 min load operation, 4 min no-load operation

Thermal time constant T_{th}

The thermal time constant defines the temperature rise of the motor winding when the motor load is suddenly increased (step increase) up to the permissible S1 torque. The motor has reached 63% of its S1 final temperature after T_{th}.

A.2 References

Overview of publications of planning manuals

An updated overview of publications is available in a number of languages on the Internet at: www.siemens.com/motioncontrol/docu

Catalogs

Order code	Catalog name
NC 61	SINUMERIK & SINAMICS
NC 60	SINUMERIK & SIMODRIVE
PM 21	SIMOTION & SINAMICS
D 31	SINAMICS & MOTORS for Single-axis Drives

Electronic Documentation

Order code	DOC ON CD
CD1	The SINUMERIK System (includes all SINUMERIK 840D/810D and SIMODRIVE 611D)
CD2	The SINAMICS System

Index

A

Absolute encoder AM 2048 S/R, 948
Axial eccentricity, 90
Axial force, 69
Axial force diagrams
SH 100, 81
SH 132, 83
SH 160, 85
SH 180, 87
SH 225, 88
SH 280, 89
SH 80, 79

B

Balancing process, 91
Bearing change interval, 63
Bearing lifetime, 63
Bearing version, 61

C

CAD CREATOR, 1015
Compensating coupling, 1000
Concentricity, 90
Configuring, 31
Connecting-up information, 983
Connection value, external fan, 985
Cooling, 43

D

Danger and warning information, 5
Degree of protection, 59
Disposal, 8
DRIVE-CLIQ interface, 940

E

EC external fan, 987
EC external fan connected load, 987
Efficiency, 95, 735
Encoder, 939
Environmental compatibility, 8
ESDS instructions, 7
External fan, 985

F

Fan mounting, 44
Flywheels, 1000
Forces due to the rotor weight and spring-loading forces, 78

G

Ground conductor, 984

H

Heat loss to be dissipated on water-cooled motors, 95, 735
Holding brakes, 950
Hotline, 4

I

I0, 95
Imax, 95
Incremental encoder HTL 1024 S/R, 944
Incremental encoder HTL 2048 S/R, 944
Incremental encoder IC 2048 S/R, 945
Incremental encoder IN 256 S/R, 945
Incremental encoder IN 512 S/R, 945
Incremental encoder sin/cos 1Vpp, 945

K

KTY, 937

L

Lubrication
Permanent lubrication, 63
Relubrication, 64
Relubrication intervals, 64

M

M0, 95
Magnetizing current, 95
Maximum continuous speed, 735
Maximum current, 95, 735
Maximum permissible operating speed, nmax,Inv, 735
Maximum torque, 95, 735
Misalignment, 1000
Mmax, 95
Moment of inertia, 95, 735
Mounted holding brake
SH 180 and SH 225, 965
SH 180 to SH 225, 964
SH 80 to SH 160, 955, 958
Mounting and mounting instructions, 998

N

n2, 95
Natural frequency when mounted, 997
NDE bearing, 66
nmax,Br, 95
nmax1, 95
nmax2, 95
nmax3, 95
nopt, 735

P

Popt, 735
Power factor, 95

R

Radial eccentricity, 90
Radial force, 68
Radial force diagrams
SH 100, 72
SH 132, 73
SH 160, 74
SH 180, 75
SH 225, 76
SH 280, 77
SH 80, 71
Rated current, 95, 735
Rated frequency, 95, 735
Rated power, 95, 735
Rated speed, 95, 735
Rated torque, 95, 735
Rated voltage, 95, 735
Rating plate, 27
Recommended connection, external fan, 986

S

SinuCom, 34
SIZER for SIEMENS Drives, 31
Star-delta mode, 971
Application, 971
Switchover, 971
STARTER, 33
Static current, 735
Static torque, 735
Storage, 995

T

Technical Support, 4
Terminal box connection, 970
Thermal motor protection, 937
Thermal time constant, 95, 735
Third-party products, 8
Training, 3
Transportation, 995
Type plate, 27

V

Vibration severity limit values, 93
Vibration stressing, 1000
Vibration values, 1000

W

Water cooling, 47
Weight, 95, 735