SIEMENS

Configuration Manual

SIMOTICS

SIMOTICS M-1PH8 main motors

For SINAMICS S120

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SIMOTICS

Drive technology
1PH8 main motors

Configuration Manual

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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

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

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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Disclaimer of Liability

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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Introduction

Standard version

This documentation only describes the functionality of the standard version. The machine OEM documents any extensions or changes to the motor made by it.

For reasons of clarity, this documentation cannot contain all of the detailed information on all of the product types. Moreover, this documentation cannot take into consideration every possible type of installation, operation, and maintenance.

This documentation should be kept in a location where it can be easily accessed and made available to the personnel responsible.

Target group

This documentation addresses project planners and project engineers as well as machine manufacturers and commissioning engineers.

Benefits

The Configuration Manual enables the target group to apply the rules and guidelines to be observed when configuring products and systems.

The Configuration Manual supports you with selecting motors, calculating the drive components, and selecting the required accessories. The Configuration Manual helps the target group to create a system or plant configuration.

Utilization phase

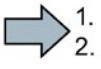
Planning and configuration phase

Text features

In addition to the notes that you must observe for your own personal safety as well as to avoid material damage, in this document you will find the following text features:

Operating instructions

Operating instructions with the specified sequence are designated using the following symbols:



The arrow indicates the start of the operating instructions.

The individual handling steps are numbered.

1. Execute the operating instructions in the specified sequence.

The square indicates the end of the operating instruction.

Operating instructions without a specified sequence are identified using a bullet point:

- Execute the operating instructions.

Enumerations

- Enumerations are identified by a bullet point without any additional symbols.
  - Enumerations at the second level are hyphenated.

Notes

Notes are shown as follows:

Note

A Note is an important item of information about the product, handling of the product or the relevant section of the document. Notes provide you with help or further suggestions/ideas.

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)

More information (https://support.industry.siemens.com/cs/de/en/view/108998034)

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

docu.motioncontrol@siemens.com

Any manuals or operating instructions that you may have in printed or electronic file form could be of an older product version.

Internet address for products

Products (http://www.siemens.com/motioncontrol)

My support

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:

My support (https://support.industry.siemens.com/My/de/en/documentation)

Note

If you want to use this function, you must first register.

Later, you can log on with your login data.

Training

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

SITRAIN (http://siemens.com/sitrain)

Technical Support

Country-specific telephone numbers for technical support are provided on the Internet under Contact:

Technical Support (https://support.industry.siemens.com)

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Information regarding third-party products

Note

Recommendation relating to third-party products

This document contains recommendations relating to third-party products. Siemens accepts the fundamental suitability of these third-party products.

You can use equivalent products from other manufacturers.

Siemens does not accept any warranty for the properties of third-party products.

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Fundamental safety instructions 1

1.1 General safety instructions

DANGER

Danger to life due to live parts and other energy sources

Death or serious injury can result when live parts are touched.

- Only work on electrical devices when you are qualified for this job.
- Always observe the country-specific safety rules.

Generally, six steps apply when establishing safety:

1. Prepare for shutdown and notify all those who will be affected by the procedure.
2. Disconnect the machine from the supply.
   - Switch off the machine.
   - Wait until the discharge time specified on the warning labels has elapsed.
   - Check that it really is in a no-voltage condition, from phase conductor to phase conductor and phase conductor to protective conductor.
   - Check whether the existing auxiliary supply circuits are de-energized.
   - Ensure that the motors cannot move.
3. Identify all other dangerous energy sources, e.g. compressed air, hydraulic systems, or water.
4. Isolate or neutralize all hazardous energy sources by closing switches, grounding or short-circuiting or closing valves, for example.
5. Secure the energy sources against switching on again.
6. Ensure that the correct machine is completely interlocked.

After you have completed the work, restore the operational readiness in the inverse sequence.

WARNING

Danger to life through a hazardous voltage when connecting an unsuitable power supply

Touching live components can result in death or severe injury.

- Only use power supplies that provide SELV (Safety Extra Low Voltage) or PELV-(Protective Extra Low Voltage) output voltages for all connections and terminals of the electronics modules.

WARNING

Danger to life when live parts are touched on damaged motors/devices

Improper handling of motors/devices can damage them.

For damaged motors/devices, hazardous voltages can be present at the enclosure or at exposed components.

- Ensure compliance with the limit values specified in the technical data during transport, storage and operation.
- Do not use any damaged motors/devices.

WARNING

Danger to life through electric shock due to unconnected cable shields

Hazardous touch voltages can occur through capacitive cross-coupling due to unconnected cable shields.

- As a minimum, connect cable shields and the conductors of power cables that are not used (e.g. brake cores) at one end at the grounded housing potential.

WARNING

Danger to life due to electric shock when not grounded

For missing or incorrectly implemented protective conductor connection for devices with protection class I, high voltages can be present at open, exposed parts, which when touched, can result in death or severe injury.

- Ground the device in compliance with the applicable regulations.

WARNING

Danger to life due to electric shock when opening plug connections in operation

When opening plug connections in operation, arcs can result in severe injury or death.

- Only open plug connections when the equipment is in a no-voltage state, unless it has been explicitly stated that they can be opened in operation.

NOTICE

Material damage due to loose power connections

Insufficient tightening torques or vibrations can result in loose electrical connections. This can result in damage due to fire, device defects or malfunctions.

- Tighten all power connections with the specified tightening torques, e.g. line supply connection, motor connection, DC link connections.
- Check all power connections at regular intervals. This applies in particular after transport.

WARNING

Danger to life through unexpected movement of machines when using mobile wireless devices or mobile phones

Using mobile wireless devices or mobile phones with a transmit power > 1 W closer than approx. 2 m to the components may cause the devices to malfunction, influence the functional safety of machines therefore putting people at risk or causing material damage.

- Switch the wireless devices or mobile phones off in the immediate vicinity of the components.

WARNING

Danger of an accident occurring due to missing or illegible warning labels

Missing or illegible warning labels can result in accidents involving death or serious injury.

- Check that the warning labels are complete based on the documentation.
- Attach any missing warning labels to the components, in the national language if necessary.
- Replace illegible warning labels.

WARNING

Danger to life when safety functions are inactive

Safety functions that are inactive or that have not been adjusted accordingly can cause operational faults on machines that could lead to serious injury or death.

- Observe the information in the appropriate product documentation before commissioning.
- Carry out a safety inspection for functions relevant to safety on the entire system, including all safety-related components.
- Ensure that the safety functions used in your drives and automation tasks are adjusted and activated through appropriate parameterizing.
- Perform a function test.
- Only put your plant into live operation once you have guaranteed that the functions relevant to safety are running correctly.

Note

Important safety notices for Safety Integrated functions

If you want to use Safety Integrated functions, you must observe the safety notices in the Safety Integrated manuals.

WARNING

Danger to life from electromagnetic fields

Electromagnetic fields (EMF) are generated by the operation of electrical power equipment, such as transformers, converters, or motors.

People with pacemakers or implants are at particular risk in the immediate vicinity of this equipment.

- If you have a heart pacemaker or implant, maintain the minimum distance specified in chapter "Correct usage" from such motors.

WARNING

Danger to life from permanent-magnet fields

Even when switched off, electric motors with permanent magnets represent a potential risk for persons with heart pacemakers or implants if they are close to converters/motors.

- If you have a heart pacemaker or implant, maintain the minimum distance specified in chapter "Correct usage".
- When transporting or storing permanent-magnet motors always use the original packing materials with the warning labels attached.
- Clearly mark the storage locations with the appropriate warning labels.
- IATA regulations must be observed when transported by air.

WARNING

Risk of injury caused by moving parts or parts that are flung out

Touching moving motor parts or drive output elements and loose motor parts that are flung out (e.g. feather keys) in operation can result in severe injury or death.

- Remove any loose parts or secure them so that they cannot be flung out.
- Do not touch any moving parts.
- Safeguard all moving parts using the appropriate safety guards.

WARNING

Danger to life due to fire if overheating occurs because of insufficient cooling

Inadequate cooling can cause overheating resulting in death or severe injury as a result of smoke and fire. This can also result in increased failures and reduced service lives of motors.

- Comply with the specified coolant requirements for the motor.

WARNING

Danger to life due to fire as a result of overheating caused by incorrect operation

When incorrectly operated and in the case of a fault, the motor can overheat resulting in fire and smoke. This can result in severe injury or death. Further, excessively high temperatures destroy motor components and result in increased failures as well as shorter service lives of motors.

- Operate the motor according to the relevant specifications.
- Only operate the motors in conjunction with effective temperature monitoring.
- Immediately switch off the motor if excessively high temperatures occur.

⚠ CAUTION

Risk of injury due to touching hot surfaces

In operation, the motor can reach high temperatures, which can cause burns if touched.

- Mount the motor so that it is not accessible in operation.

Measures when maintenance is required:

- Allow the motor to cool down before starting any work.
- Use the appropriate personnel protection equipment, e.g. gloves.

1.2 Handling electrostatic sensitive devices (ESD)

Electrostatic sensitive devices (ESD) are individual components, integrated circuits, modules or devices that may be damaged by either electric fields or electrostatic discharge.

NOTICE

Damage through electric fields or electrostatic discharge

Electric fields or electrostatic discharge can cause malfunctions through damaged individual components, integrated circuits, modules or devices.

- Only pack, store, transport and send electronic components, modules or devices in their original packaging or in other suitable materials, e.g conductive foam rubber of aluminum foil.
- Only touch components, modules and devices when you are grounded by one of the following methods:
  - Wearing an ESD wrist strap
  - Wearing ESD shoes or ESD grounding straps in ESD areas with conductive flooring
- Only place electronic components, modules or devices on conductive surfaces (table with ESD surface, conductive ESD foam, ESD packaging, ESD transport container).

1.3 Industrial security

Note

Industrial security

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions only represent one component of such a concept.

The customer is responsible for preventing unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit:

Industrial security (http://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at:

Industrial security (http://www.siemens.com/industrialsecurity).

WARNING

Danger to life as a result of unsafe operating states resulting from software manipulation

Software manipulations (e.g. viruses, trojans, malware or worms) can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
- Make sure that you include all installed products into the holistic industrial security concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.

1.4 Residual risks of power drive systems

When assessing the machine- or system-related risk in accordance with the respective local regulations (e.g., EC Machinery Directive), the machine manufacturer or system installer must take into account the following residual risks emanating from the control and drive components of a drive system:

1. Unintentional movements of driven machine or system components during commissioning, operation, maintenance, and repairs caused by, for example,
   - Hardware and/or software errors in the sensors, control system, actuators, and cables and connections
   - Response times of the control system and of the drive
   - Operation and/or environmental conditions outside the specification
   - Condensation/conductive contamination
   - Parameterization, programming, cabling, and installation errors
   - Use of wireless devices/mobile phones in the immediate vicinity of electronic components
   - External influences/damage
   - X-ray, ionizing radiation and cosmic radiation
2. Unusually high temperatures, including open flames, as well as emissions of light, noise, particles, gases, etc., can occur inside and outside the components under fault conditions caused by, for example:
   - Component failure
   - Software errors
   - Operation and/or environmental conditions outside the specification
   - External influences/damage
3. Hazardous shock voltages caused by, for example:
   - Component failure
   - Influence during electrostatic charging
   - Induction of voltages in moving motors
   - Operation and/or environmental conditions outside 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
6. Influence of network-connected communication systems, e.g. ripple-control transmitters or data communication via the network

For more information about the residual risks of the drive system components, see the relevant sections in the technical user documentation.

Motor description 2

2.1 Highlights and benefits

Overview

The SIMOTICS M-1PH8 motor series, referred to as 1PH8 in the following, is a 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

Highlights and 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 up to 24,000 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

2.2 Use for the intended purpose

WARNING

Danger to life and material damage when incorrectly used

If you do not use the motors or their components correctly, there is a risk of death, severe injury and/or material damage.

- Only use the motors for industrial or commercial plants and systems.
- If, in an exceptional case, you do not use the motors in industrial or commercial plants and systems, ensure that increased requirements are complied with (e.g. regarding touch protection).
- Do not use the motors in hazardous areas (where there is a risk of explosion), if the motors have not been expressly released and authorized for these types of applications. Carefully observe any special supplementary notes that may be attached.
- Only use the motors and their components for the applications specified by Siemens.
- Protect the motors against dirt and contact with aggressive substances.
- Ensure that the site conditions comply with the rating plate data and the conditions specified in this documentation. When necessary, take into account deviations regarding approvals or country-specific regulations.
- If you have any questions regarding the intended use, please contact your local Siemens office.
- If you wish to use special versions and design variants whose specifications vary from the motors described in this document, then first contact your local Siemens office.

WARNING

Danger to life for wearers of active implants due to magnetic and electrical fields

Electric motors pose a danger to people with active medical implants, e.g. cardiac stimulators, who come close to the motors.

- If you are affected, stay at a minimum distance of 500 mm from the motors (tripping threshold for static magnetic fields of 0.5 mT according to the Directive 2013/35/EU).

The motors are designed for use in covered areas, such as production areas (see Chapter Environmental conditions (Page 32))

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

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

- 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

2.3 Technical characteristics and environmental conditions

2.3.1 Directives and standards

Standards that are complied with

SIMOTICS S, SIMOTICS M, SIMOTICS L, SIMOTICS T, SIMOTICS A motors - subsequently called the "SIMOTICS motor series " - comply with the following standards:

- EN 60034-1 - Rotating electrical machines – Dimensioning and operating behavior
- EN 60204-1 - Safety of machinery – Electrical equipment of machines; general requirements

Where applicable, the SIMOTICS motor series are in conformance with the following parts of IEC / EN 60034:

Feature	Standard
Degree of protection [1]	IEC / EN 60034-5
Cooling [2]	IEC / EN 60034-6
Type of construction [1]	IEC / EN 60034-7
Connection designations	IEC / EN 60034-8
Noise levels [2]	IEC / EN 60034-9
Temperature monitoring	IEC / EN 60034-11
Vibration severity levels [2]	IEC / EN 60034-14

[1] The degree of protection and type of construction of the motor are stamped on its rating plate.

[2] Standard component, e.g. cannot be applied to built-in motors

Relevant directives

The following directives are relevant for SIMOTICS motors.

European Low-Voltage Directive

SIMOTICS motors comply with the Low-Voltage Directive 2014/35/EU.

European Machinery Directive

SIMOTICS motors do not fall within the area of validity covered by the Machinery Directive.

However, the use of the products in a typical machine application has been fully assessed for compliance with the main regulations in this directive concerning health and safety.

European EMC Directive

SIMOTICS motors do not fall within the area of validity covered by the EMC Directive. The products are not considered as devices in the sense of the directive.

Eurasian conformity

SIMOTICS motors comply with the requirements of the customs union Russia/Belarus/Kazakhstan (EAC).

China Compulsory Certification

SIMOTICS motors do not fall within the area of validity covered by the China Compulsory Certification (CCC).

CCC product certification (https://support.industry.siemens.com/cs/products?search=CCC&dtp=Certificate&o=DefaultRankingDesc&pnid=13347&lc=de-WW // XmlEditor.InternalXmlClipboard:65c36f4c-2e8c-d8c9-ae3f-9d6074d36b88)

Underwriters Laboratories

SIMOTICS motors are generally in compliance with UL and cUL as components of motor applications, and are appropriately listed.

Specifically developed motors and functions are the exceptions in this case. Here, it is important that you carefully observe the contents of the quotation and that there is a cUL mark on the rating plate (type plate)!

Quality systems

Siemens AG employs a quality management system that meets the requirements of ISO 9001 and ISO 14001.

Certificates for SIMOTICS motors can be downloaded from the Internet at the following link:

Certificates for SIMOTICS motors (https://support.industry.siemens.com/cs/products?dtp=Certificate&pnid=13347&lc=de-WW // XmlEditor.InternalXmlClipboard:8c9b08a9-3f1f-5513-8cf9-8dce082595ac)

2.3.2 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 2- 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	Temperature sensor in the stator winding SH 180 ... SH 280: Additional temperature sensor as a standby

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 at the drive end (DE) in accordance with DIN 748-3 (IEC 60072-1)	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), SPECIAL[2)] 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, SPECIAL/B 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	See Chapter "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
Nameplate (adhesive label)	1 nameplate adhesively attached to motor 1 nameplate 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 centering wheel and axial eccentricity of the mounting flange with respect to the axis of the shaft extension.

2) Applies to the "High Performance" and "Premium Performance" versions

SH = Shaft Height
S/R = Signal/Revolution
DE = Drive End (motor drive end)
NDE = Non-Drive End (motor fan end)

Table 2- 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)[3]	
Cooling in accordance with EN 60034-6 (IEC 60034-6)	Water cooling max. Cooling water pressure at inlet: 6 bar connection thread at NDE (for further data, see Chapter "Mechanical properties of the motors")	
Temperature monitoring	Temperature sensor in the stator winding SH 180 ... SH 280: Additional temperature sensor as a standby	
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 at the drive end (DE) in accordance with DIN 748-3 (IEC 60072-1)	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/A (reduced), SPECIAL[2] 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, SPECIAL[2)] 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	See Chapter "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	
Nameplate (adhesive label)	1 nameplate adhesively attached to motor 1 nameplate 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 centering wheel and axial eccentricity of the mounting flange with respect to the axis of the shaft extension.

2) Applies to the "High Performance" and "Premium Performance" versions

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

SH = Shaft Height
S/R = Signal/Revolution
DE = Drive End (motor drive end)
NDE = Non-Drive End (motor fan end)

2.3.3 Classifying environmental conditions according to climate classes

You can classify the environmental conditions for stationary use at weather-protected locations according to standard DIN IEC 60721-3-3. The environmental parameters and their limit values are defined in various classes in this standard.

You can assign the SIMOTICS M-1PH8 main motors to climate class 3K4 with the exception of the environmental parameter "condensation". Condensation is not permissible.

The higher the last number in the climate class 3K□, the greater the requirements of the motor.

Table 2- 3 **Environmental conditions are based on climate class 3K4**

Environmental parameter		Unit	3K4 class
a)	Low air temperature	°C	+ 5
b)	High air temperature	°C	+ 40
c)	Low relative humidity	%	5
d)	High relative humidity	%	95
e)	Low absolute humidity	g/m^3	1
f)	High absolute humidity	g/m^3	29
g)	Rate of temperature change[1)]	°C/min	0.5
h)	Low air pressure	kPa	70
i)	High air pressure	kPa	106
j)	Solar radiation[3)]	W/m^2	700
k)	Thermal radiation	-	[2)]
l)	Movement of the air	m/s	1.0
m)	Condensation	-	Not permissible
n)	Wind-driven precipitation (rain, snow, hail, etc.)	-	-

Environmental parameter		Unit	3K4 class
o)	Water (other than rain)	-	[2]
p)	Formation of ice	-	-

[1] *Averaged over a period of 5 min*

[2] *See types of protection*

[3] *In Central Europe, the midday sun stands at 60 ° to 65 ° and, in ideal weather conditions, shines with an irradiance of approx. 700 watts/square meter. In winter, the angles are only 13 ° to 18 ° and, even at noon, the irradiance is only approx. 247 watts/square meter.*

You will find additional data on the ambient conditions, such as ambient temperatures or conditions for transport and storage of the motors, in the relevant chapters of this documentation.

2.4 Derating factors

Derating for ambient/coolant temperature

Operation: T = -15 °C bis +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 reduction must be considered (see Chapter "Ambient/coolant temperature (Page 63)")

Derating for coolant inlet temperature

The motors are designed for operation up to a cooling water inlet temperature of +30 °C, provided that all of the specified motor data is complied with. If the inlet temperature of the cooling water deviates from this, the continuous torque will change (see Chapter "Cooling water inlet temperature (Page 67)").

Derating factors for power and signal cables

The current-carrying capacity of PVC/PUR-insulated copper cables is specified for cable installation types B1, B2, C and E under continuous operating conditions with reference to an ambient air temperature of 40° C. For other ambient temperatures, the corresponding derating factors must be considered (see Chapter "Derating factors for power and signal cables (Page 1297)").

2.4.1 Reduction of the max. DC-link voltage

At installation altitudes of 2000 m above sea level or higher, the voltage stress on the motors must be reduced accordingly based on the table "Factors for reducing the maximum DC-link voltage" (reciprocal values from EN 60664-1 Table A. 2).

Table 2- 4 Factors for reducing the maximum DC-link voltage

Installation altitude up to [m] above mean sea level	Factor
2,000	1
3,000	0.877
4,000	0.775
5,000	0.656
6,000	0.588
7,000	0.513
8,000	0.444

As the DC link voltage is reduced, the converter output voltage also decreases. This reduces the working range in the torque-speed diagram.

You will find the torque-speed diagrams in this Chapter "Technical data."

Operation in a vacuum is not permissible because of the low dielectric strength and poor heat dissipation.

2.5 Selection and ordering data

The Article No. suffixes specified in the tables below define the logical system for ordering motors in the 1PH8 series and apply to induction and synchronous motors.

You will also find the Article No. suffixes in the Catalogs NC 62 and D 21.4. These suffixes correspond to the actual technical selection and ordering data of these catalogs.

Supplementary to the information in Catalogs NC 62 and D 21.4, the technical selection and ordering data are integrated in Chapter "Technical data and characteristics" of this Configuration Manual.

Depending on the electrical and mechanical configuration, Z options can be appended to the Article No. suffixes.

2.5.1 Article No. suffixes for shaft height 80 to 160

Descriptions		Data position in Article 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 (cannot be selected, determined by the choice of rated power)																					
Induction version										1											
Synchronous version (only shaft height 132 and 160)										2											
Encoder systems for Motors without a DRIVE-CLiQ interface	Without an encoder [1]										A										
	Absolute encoder EnDat 2048 S/R (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 HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box [1] [3] [17]										W										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box [1] [4] [17]										Y										
	Incremental encoder sin/cos 1 V_{pp} 2048 S/R with C and D tracks (encoder IC2048S/R) [2]										M										
	Incremental encoder sin/cos 1 V_{pp} 512 S/R without C and D tracks (encoder IN512S/R) [1] [5] [10]										D										
	Incremental encoder sin/cos 1 V_{pp} 256 S/R without C and D tracks (encoder IN256S/R) [1] [10]										C										

Descriptions		Data position in Article No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Encoder systems for Motors with DRIVE-CLiQ interfaces	Absolute encoder 22-bit singleturn + 12-bit multiturn (encoder AM22DQ) [2]										F								1		
	Incremental encoder 22-bit with commutation position (encoder IC22DQ) [2]										D								1		
	Incremental encoder 20-bit without commutation position (encoder IN20DQ) [1] [5] [10]										U								1		
	Incremental encoder 19-bit without commutation position (encoder IN19DQ) [1] [10]										S								1		
Winding version	Rated speeds (380 V to 480 V 3 AC)				400 rpm, 500 rpm, 600 rpm, 700 rpm							B									
					1000 rpm, 1150 rpm, 1350 rpm, 1500 rpm							D									
					1500 rpm, 1750 rpm, 2000 rpm, 2200 rpm							F									
					2000 rpm, 2300 rpm, 2650 rpm, 2800 rpm							G									
					2500 rpm, 2800 rpm, 3000 rpm							L									
					3000 rpm, 3300 rpm, 3600 rpm, 3900 rpm							M									
					4500 rpm, 5000 rpm, 5500 rpm, 6000 rpm							N									
	Star-delta (wye-delta) circuit [1] (380 V to 480 V 3 AC))				1500/4000 rpm, 2000/5000 rpm, 2500/6000 rpm							S									
Cooling	Forced ventilation DE -> NDE				(degree of protection IP 55)								0								
	Forced ventilation NDE -> DE				(degree of protection IP 55)								1								
	Water cooling				(degree of protection IP 65)								2								
Type of construction	IM B3 (IM V5, IM V6, IM B6, IM B7, IM B8)													0							
	IM B5 (IM V1, IM V3) [14]													2							
	IM B35 (IM V15, IM V35) [6]													3							

Descriptions		Data position in Article No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Shaft extension (DE)	**Balancing**																				
Smooth shaft (without key-way)	---															0					
Fitted key [11]	Full-key															1					
Fitted key [11]	Half-key															2					
Smooth hollow shaft [1] [10] [19]	---															3					
Bearings	**Vibration quality acc. to Siemens/EN 60034-14**				**Shaft and flange accuracy**																
Standard with location bearing [15]	R/A				R												B				
Standard with location bearing [15]	S/A				R												C				
Standard with location bearing [1] [15]	SR/A				R												D				
Standard [15]	R/A				R												G				
Standard [15]	S/A				R												H				
Increased radial forces [15] [18]	R/A				R												F				
Performance [7]	SPECIAL/B				SPECIAL												L				
High Performance [13]	SPECIAL/B				SPECIAL												M				
Advanced Lifetime [8] [15]	S/A				R												Q				
Power connection	**Cable entry**				**Signal connection (looking onto DE)**																
Terminal box (top)	right				DE													A			
Terminal box (top)	left				DE													B			
Terminal box (top)	NDE				left													C			
Terminal box (top) [16]	DE				left													D			
Power connector (top) [9] [12]	right				DE													E			
Power connector (top) [9] [12]	left				DE													F			
Power connector (top) [9] [12]	NDE				left													G			

Descriptions		Data position in Article No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Power connect-or (top) [9) 12)]	DE				left													H			
Version																					
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																			1		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																			2		
With a DRIVE-CLiQ interface																			1		
Special version (order codes are required for options)																					Z

1) Only possible if the 8th data position is "1" (induction version)

2) Limited to n_{max} = 12,000 rpm

3) Limited to n_{max} = 9000 rpm

4) Limited to n_{max} = 4600 rpm

5) Limited to n_{max} = 15,000 rpm

6) Only possible for shaft height 100, 132, and 160.

7) Only possible if 8th data position is "1" (induction version)
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} = 9000 rpm; not possible if 12th data position is "2" (IM B5)

8) Limited to n_{max} = 5000 rpm, shaft height 132: n_{max} = 4500 rpm, shaft height 160: n_{max} = 4000 rpm

9) Power connector for shaft height 100 only possible up to a maximum stall current of Io = 36 A
Power connector for shaft height 132 only possible up to a maximum stall current of Io = 85 A
Power connector not possible for shaft height 160

10) Only possible if 14th data position: L, M, and 9th data position is C, S.

11) Not possible if 14th data position: M

12) Not possible for motors in a star-delta (wye-delta) circuit if the 10th data position is "S"

13) Only possible if 8th data position is "1" (induction version)
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 nmax = 15,000 rpm
Shaft height 160: limited to n_{max} = 10,000 rpm; not possible if 12th data position is "2" (IM B5)

14) Not possible with shaft height 160 and 14th data position: L, M

15) Not possible if 9th data position: T, U

16) Not possible with shaft height 160 and 8th data position is "2" or "4" (synchronous version).

17) Only possible if 14th data position: B, C, D, G, H, Q, F; and 15th data position: A and B

18) Limited to SH 100: n_{max} = 7000 rpm, shaft height 132: n_{max} = 6500 rpm, shaft height 160: n_{max} = 5300 rpm

19) Only possible if 9th data position: A, C, and S

2.5.2 Article No. suffixes for SH 80 Premium Performance

Descriptions		Data position in Article 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														
Overall length								1													
								3													
								7													
Induction version										1											
Encoder systems for motors without a DRIVE-CLiQ interface	Incremental encoder sin/cos 1 V_{pp} 256 S/R without C and D tracks (encoder N256S/R)										C										
Encoder systems For motors with a DRIVE-CLiQ interface	Incremental encoder 19-bit without commutation position (encoder IN19DQ)										S								1		
Winding version	Rated speeds (380 V to 480 V 3 AC)											D									
												U									
												V									
												W									
Cooling	Forced ventilation DE -> NDE	(degree of protection IP 55)											0								
	Forced ventilation NDE -> DE	(degree of protection IP 55)											1								
	Water cooling	(degree of protection IP 65)											2								

Descriptions		Data position in Article No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Type of construction	IM B5 (IM V1, IM V3)													2							
Shaft extension (DE) 1)	**Balancing**																				
Smooth shaft (without keyway)	---															0					
Plain hollow shaft 2)	---															3					
Bearings	**Vibration severity acc. to Siemens/EN 60034-14**	**Shaft and flange accuracy**																			
Premium Performance 3)	SPECIAL/B	SPECIAL															N				
Terminal box	**Cable entry**	**Signal connection**				**(looking onto DE)**															
top	right	DE																A			
top	left	DE																B			
top	NDE	left																C			
top	DE	left																D			
Power connector	**Cable entry**	**Signal connection**				**(looking onto DE)**															
top	right	DE																E			
top	left	DE																F			
top	NDE	left																G			
top	DE	left																H			
Version																					
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																			1		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																			2		
With a DRIVE-CLiQ interface																			1		
Options for SH 80 Premium Performance:																					
Prepared for bearingless rotary unions																					Y64
Sealing air connection																					Q12
Flange for design IM B5 with 4 x M8 threaded holes																					Q52

1) Shaft extension 24 mm x 50 mm (d x l)

2) Only possible in combination with option Y64.

3) For cooling the greased bearing (to lengthen bearing replacement intervals) and to protect against penetrating liquid, Option Q12 (sealing air connection) is recommended for Premium Performance.

2.5.3 Article No. suffixes for SH 180 to 280

Descriptions		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 induction version and water cooling)							2	8														
Overall length (cannot be selected, determined by the choice of rated power)																						
Induction version											1											
Synchronous version											2											
Encoder systems for motors without a DRIVE-CLiQ interface	Without an 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 HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box [1]											W										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box [1] [4]											Y										
	Incremental encoder sin/cos 1 V_{pp}, 2048 S/R with C and D track (encoder IC2048S/R)											M										
Encoder systems for motors with a DRIVE-CLiQ interface	Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ)											F								1		
	Incremental encoder, 22-bit, with commutation position (encoder IC22DQ)											D								1		
Winding version	Rated speeds (380 V to 480 V 3 AC)	400 rpm, 500 rpm, 600 rpm, 700 rpm											B									
		700 rpm, 800 rpm, 1000 rpm, 1100 rpm											C									
		1000 rpm, 1150 rpm, 1350 rpm, 1500 rpm											D									
		1500 rpm, 1750 rpm, 2000 rpm, 2200 rpm											F									
		2500 rpm, 2900 rpm, 3200 (3400) rpm											L									
	Rated speeds (690 V 3 AC) for shaft height 280	400 rpm, 500 rpm											H									
		700 rpm, 800 rpm											K									
		1000 rpm, 1150 rpm											U									
		1500 rpm, 1750 rpm											W									

Descriptions		Data position of the order No.																			
			1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Cooling	Forced ventilation, DE-->NDE					(degree of protection IP 55)								0								
	Forced ventilation, NDE-->DE					(degree of protection IP 55)								1								
	Water cooling					(degree of protection IP 55)								2								
	Open-circuit ventilation, DE-->NDE (for induction version only)					(degree of protection IP 23)								3								
	Open-circuit ventilation, NDE-->DE (induction version only)													4								
Type of construction	**Shaft height 180**			**Shaft height 225**					**Shaft height 280**													
	IM B3 (IM B6, IM B7, IM B8, IM V6)								IM B3 (IM V6)						0							
	IM V5								M V5 [9]						1							
	IM B5 with A450 flange (IM V3) [5]			IM B5 with A550 flange (IM V3) [6]					IM B5 with A660 flange (IM V3) [7] [9]						2							
	IM B35 with A450 flange (IM V35)			IM B35 with A550 flange (IM V35)					IM B35 with A660 flange (IM V35)						3							
	IM V15 with A450 flange			IM V15 with A550 flange					IM V15 with flange A660 [9]						5							

Descriptions		Data position of the order No.																				
			1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Shaft extension (DE)	**Balancing**																					
Smooth shaft (without key-way)	---																**0**					
Fitted key	Full-key																**1**					
Fitted key	Half-key																**2**					
Bearings	**Vibration severity acc. to Siemens/ EN 60034-14**			**Shaft and flange accuracy**																		
Standard	A			N														**A**				
Standard	R/A			R														**B**				
Increased radial forces	A			N														**E**				
Increased radial forces	R/A			R														**F**				
also possible with shaft heights 180 and 225:																						
Standard	S/A			R														**C**				
Standard [1)]	SR/A			R														**D**				
Performance [1)] [8)]	SR/A			R														**L**				
Power connec-tion	**Cable entry**			**Signal connection**					**(looking onto 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																						
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																				**1**		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																				**2**		
With a DRIVE-CLiQ interface																				**1**		
Special version (order codes are required for options)																						**Z**

Descriptions	Data position of the order No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z

1) Only possible if the 8th data position is "1" (induction version)

4) Limited to n_{max} = 4600 rpm

5) Limited to n_{max} = 3000 rpm, not possible if 14th data position is "L" (Performance)

6) Limited to n_{max} = 2500 rpm, not possible if 14th data position is "L" (Performance)

7) Limited to n_{max} = 2000 rpm

8) Only possible with shaft height 180: Limited to n_{max} = 7500 rpm, not possible if 12th data position is "2" (IM B5) and 11th data position is "3" and "4" (open-circuit ventilation) only possible for shaft height 225: limited to n_{max} = 6000 rpm, not possible if 12th data position is "2" (IM B5) and 11th data position is "3" and "4" (open-circuit ventilation)

9) Only possible if 14th data position is "A" or "B" (standard bearing)

2.5.4 Article No. suffixes for SH 280

Descriptions		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 and open-circuit ventilation)						2	8														
Overall length (cannot be selected, determined by the choice of rated power)																					
Induction version										1											
Encoder systems for motors without a DRIVE-CLiQ interface	Without an 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 HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box 7)										W										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box 7)										Y										
	Incremental encoder sin/cos 1 V_{pp}, 2048 S/R with C and D track (encoder IC2048S/R)										M										
Encoder systems for motors with a DRIVE-CLiQ interface	Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ)										F								1		
	Incremental encoder, 22-bit, with commutation position (encoder IC22DQ)										D								1		

Descriptions		Data position of the order No.																				
			1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
External encoder systems	Incremental encoder HTL 1024 S/R POG 22 (Baumer-Hübner), prepared for mounting [1]											G										
	Incremental encoder HTL 1024 S/R POG 10 (Baumer-Hübner), prepared for mounting [2]											K										
Winding version	Rated speeds (380 V to 480 V 3 AC)	400 rpm, 500 rpm, 600 rpm, 700 rpm											B									
		700 rpm, 800 rpm, 1000 rpm, 1100 rpm											C									
		1000 rpm, 1150 rpm, 1350 rpm, 1500 rpm											D									
		1500 rpm, 1750 rpm, 2000 rpm, 2200 rpm											F									
	Rated speeds (690 V 3 AC)	400 rpm, 500 rpm											H									
		700 rpm, 800 rpm											K									
		1000 rpm, 1150 rpm											U									
		1500 rpm, 1750 rpm											W									
Cooling	Forced ventilation	(degree of protection IP 55)												1								
	Forced ventilation	(open-circuit ventilation with degree of protection IP 23)												4								
Type of construction	IM B3 (IM V6)														0							
	IM V5 [6]														1							
	IM B5 with A660 flange (IM V3) [6]														2							
	IM B35 with A660 flange (IM V35)														3							
	IM V15 with flange A660 [6]														5							
Shaft extension (DE)	**Balancing**																					
Smooth shaft (without keyway)	---																0					
Fitted key	Full-key																1					
Fitted key	Half-key																2					
Bearings	**Vibration severity acc. to Siemens/EN 60034-14**	**Shaft and flange accuracy**																				
Standard	A	N																A				
Standard	R/A	R																B				
Increased radial forces	A	N																E				
Increased radial forces	R/A	R																F				

Descriptions		Data position of the order No.																				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Power connection	**Cable entry**	**Signal connection**				**External fan**															
Terminal box NDE right	bottom	DE																U			
						NDE top, air inlet from NDE, air-flow direction NDE-->DE															---
						NDE left, air inlet from NDE, air-flow direction NDE-->DE															G 00
Terminal box NDE left	bottom	DE																V			
						NDE top, air inlet from NDE, air-flow direction NDE-->DE															---
						NDE right, air inlet from NDE, air-flow direction NDE-->DE															G 02
Terminal box NDE top	right	DE																W			
						NDE left, air inlet from NDE, air-flow direction NDE-->DE															G 00
						NDE right, air inlet from NDE, air-flow direction NDE-->DE															G 02
Terminal box DE top [4]	right	NDE																X			
						NDE top, air inlet from NDE, air-flow direction NDE-->DE [4] [5]															---
						NDE left, air inlet from NDE, air-flow direction NDE-->DE [4]															G 00
						NDE right, air inlet from NDE, air-flow direction NDE-->DE [4]															G 02
Version																					
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																			1		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																			2		
With a DRIVE-CLiQ interface																			1		
For other versions, see options																					Z

1) When ordering, also select option H75

2) When ordering, also select options H56 or G80

4) Only possible if 12th data position is "0" (IM B3) and "1" (IM V5).

5) Only possible for assignments with terminal box 1XB7712-P.

6) Only possible if 14th data position is "A" and "B" (standard bearing); n_{max} limited to 2000 rpm

7) Only possible for the following combinations:

12th data position is "0" or "1" if 15th data position is "W" or "X"

12th data position is "2," "3," or "5" if 15th data position "W"

2.5.5 Article No. suffix for SH80 to 160 + holding brake DE

Descriptions		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 (cannot be selected, determined by the choice of rated power)																					
Induction version with holding brake [1]										3											
Synchronous version with holding brake (only shaft heights 132 and 160) [1]										4											
Encoder systems for motors without a DRIVE-CLiQ interface	without encoder [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 HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box [2] [9]										W										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box [2] [9]										Y										
	Incremental encoder sin/cos 1 V_{pp}, 2048 S/R with C and D track (encoder IC2048S/R)										M										
Encoder systems for motors with a DRIVE-CLiQ interface	Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ)										F								1		
	Incremental encoder, 22-bit, with commutation position (encoder IC22DQ)										D								1		
Winding version																					
Cooling	Forced ventilation DE -> NDE	(degree of protection IP 55)											0								
	Forced ventilation NDE -> DE	(degree of protection IP 55)											1								
	Water cooling	(degree of protection **IP 55**) [4]											2								
Type of construction	IM B5 (IM V1, IM V3) [5]													2							
	IM B35 (IM V15, IM V35) [8]													3							

Descriptions		Data position of the order No.																				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Shaft extension (DE)	**Balancing**																				
Smooth shaft (without key-way)	---															0					
Fitted key	Half-key															2					
Bearings	**Vibration severity 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**				**(looking onto DE)**															
Terminal box (top)	right	DE																A			
Terminal box (top)	left	DE																B			
Terminal box (top)	NDE	left																C			
Terminal box (top) [10]	DE	left																D			
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																					
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																			1		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																			2		
With a DRIVE-CLiQ interface																			1		
Brake versions:																					
Brake supply voltage 230 V 1 AC, 50/60 Hz		Holding brake DE																			U60
		Holding brake DE with microswitch																			U61
		Holding brake DE with manual brake release lever																			U62
		Holding brake DE with microswitch and manual brake release lever																			U63

Descriptions	Data position of the order No.																				
	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Brake supply voltage 24 V DC	Holding brake DE																			U65
	Holding brake DE with microswitch																			U66
	Holding brake DE with manual brake release lever																			U67
	Holding brake DE with microswitch and manual brake release lever																			U68
Z options that cannot be combined with holding brake DE: K18, V91, M03, M39																				

1) A U option must also be stated in the order to specify the holding brake version.
Shaft height 80: limited to n_{max} = 5000 rpm
Shaft height 100: limited to n_{max} = 5000 rpm
Shaft height 132: limited to n_{max} = 4500 rpm
Shaft height 160: limited to n_{max} = 4000 rpm
2) Only possible if 8th data position is "3" (induction version)
4) With holding brake, degree of protection is limited to IP55.
5) Not possible with shaft height 160.
6) Connection for holding brake is only possible via terminal box (top).
7) Power connector for motor only (not with holding brake):
Power connector for shaft height 100 only possible up to a maximum stall current of Io = 36 A.
Power connector for shaft height 132 only possible up to a maximum stall current of Io = 85 A.
Power connector not possible for shaft height 160
8) Not possible for shaft height 80
9) Only possible if 15th data position: A and B
10) Not possible with shaft height 160 and 8th data position is "4" (synchronous version)

2.5.6 Article No. suffix for SH180 to 225 + holding brake

Descriptions		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																					
Induction version with holding brake 1)										3											
Synchronous version with holding brake 1)										4											
Encoder sys-tems for motors with-	without encoder 2)										A										
	Absolute encoder EnDat 2048 S/R (encoder AM2048S/R)										E										

Descriptions		Data position of the order No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
out a DRIVE-CLiQ interface	Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) 2)										H										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) 2)										J										
	Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box 2)										W										
	Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box 2)										Y										
	Incremental encoder sin/cos 1 V_{pp}, 2048 S/R with C and D track (encoder IC2048S/R)										M										
Encoder systems for motors with a DRIVE-CLiQ interface	Absolute encoder, 22-bit singleturn + 12-bit multiturn (encoder AM22DQ)										F								1		
	Incremental encoder, 22-bit, with commutation position (encoder IC22DQ)										D								1		
Winding version																					
Cooling	Forced ventilation, DE-->NDE	(degree of protection IP 55)											0								
	Forced ventilation, NDE-->DE	(degree of protection IP 55)											1								
	Water cooling	(degree of protection IP 55)											2								
	Open-circuit ventilation, NDE-->DE (induction version only)	(degree of protection IP 23)											4								

Descriptions		Data position of the order No.																			
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Type of construction	IM B3 (IM B6, IM B7, IM B8)													0							
Shaft extension (DE)	**Balancing**																				
Fitted key	Half-key															2					
Bearings	**Vibration severity acc. to Siemens/EN 60034-14**	**Shaft and flange accuracy**																			
Standard	A	N															A				
Power connection [3]	**Cable entry**	**Signal connection**				**(looking onto 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																					
Without a DRIVE-CLIQ interface, KTY-84 temperature sensor in the stator winding																			1		
Without a DRIVE-CLIQ interface, PT1000 temperature sensor in the stator winding																			2		
With a DRIVE-CLiQ interface																			1		
Brake versions:																					
Brake supply voltage 230 V 1 AC, 50/60 Hz		Holding brake DE with microswitch and manual brake release lever																			U63
Z options that cannot be combined with holding brake DE: K18, K90, L03, V92, M39																					

1) A U option must also be stated in the order to specify the holding brake version.

Shaft height 180: limited to n_{max} = 3500 rpm

Shaft height 225: limited to n_{max} = 3100 rpm

2) Only possible if 8th data position is "3" (induction version)

3) Connection for holding brake is only possible via brake terminal box (top).

2.5.7 Options

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
A12	Additional chain of PTC thermistors for alarm and trip (only possible for version with terminal box)	✓	✓	✓
A25	Additional temperature sensor as reserve connected to signal terminal strip (only possible for version with terminal box)	✓	Standard	Standard
A72	2 PT100 resistance thermometers for bearing temperature monitoring (DE and NDE)	---	✓	✓
B02	Factory test certificate in accordance with EN 10204 2.3 (for motor ordered)	✓	Standard	Standard
B35	Factory test certificate for vibration log	✓	✓ 5)	✓ 5)
B36	Factory test certificate for run-out log	✓	only for SH 180 and SH 225	---
G00	External fan NDE left, air inlet at NDE (possible if 15th data position is U, W, or X)	---	---	✓
G02	External fan NDE right, air inlet at NDE (possible if 15th data position is V, W, or X)	---	---	✓
G06	External fan DE left, air inlet NDE (possible if 11th position =1 and 15th position = U, V, or W; possible if 11th position =4 and 15th position = W)	---	---	✓
G07	External fan DE left, air inlet DE (possible if 11th position =1 and 15th position = U, V, or W; possible if 11th position =4 and 15th position = W)	---	---	✓
G08	External fan DE right, air inlet NDE (possible if 11th position =1 and 15th position = U, V, or W; possible if 11th position =4 and 15th position = W)	---	---	✓
G09	External fan DE right, air inlet DE (possible if 11th position =1 and 15th position = U, V, or W; possible if 11th position =4 and 15th position = W)	---	---	✓
G11	External fan DE top, air inlet DE (possible if 11th position =1 and 15th position = U, V, or W; possible if 11th position =4 and 15th position = W)	---	---	✓
G14	With external fan (only possible if 11th data position is "1" or "4")	only for SH 132 and SH 160	✓	✓
G50	Nipple for SPM, with M8 adapter	---	✓	✓

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
G80	Mounting of a POG 10 incremental encoder supplied by customer (possible if 9th data position is "K")	---	---	✓
H56	Mounting of an incremental encoder POG 10 D 1024 (encoder HTL1024 S/R) (possible if 9th data position is "K")	---	---	✓
H75	Mounting of a hollow-shaft encoder HOG 22 supplied by customer (possible if 9th data position is "G")	---	---	✓
K08	Encoder connection or DRIVE-CLiQ mounted on the opposite side (not possible if 15th data position is "X")	---	✓	✓
K09	Terminal box or power connector NDE right	only for SH 100 [1] 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] to SH 160	---	---
	Terminal box NDE left, cable entry DE, signal connection top (possible if 15th data position is "A")	---	✓	---
K16	Second shaft extension (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")	---	---	✓
K17	Labyrinth seal DE for Performance version (14th data position "L")	---	Only for SH 180	---
K18	Radial shaft sealing ring DE [2]	✓	✓	---
K40	Regreasing system, DE and NDE	---	only for SH 180 and SH 225	Standard
K45	Anti-condensation heating 230 V AC	---	✓	✓
K69	Pipe connection prepared NDE right (only possible with forced ventilation, not for G00 to G11)	---	---	✓
K70	Pipe connection prepared NDE left (only possible with forced ventilation, not for G00 to G11)	---	---	✓
K71	Pipe connection prepared NDE top (only possible with forced ventilation, not for G00 to G11)	---	---	✓
K80	Axial pipe connection NDE (only possible with forced ventilation)	✓	only for SH 180 and SH 225	Options K69, K70, K71

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
K83	Terminal box rotated through +90 degrees (possible in conjunction with options K09 or K10 or if 15th data position is "U", "V" or "W")	---	✓ 4)	✓
K84	Terminal box rotated through -90 degrees (possible in conjunction with options K09 or K10 or if 15th data position is "U", "V", "W" or "X")	---	✓ 4)	✓
K85	Terminal box rotated through +180 degrees (possible in conjunction with options K09 or K10 or if 15th data position is "U", "V", "W" or "X")	---	✓	✓
K90	Version with flange size A400 (possible if 12th data position is "2", "3" or "5")	---	Only for SH 180	---
L00	Replace terminal box (standard) with the next largest terminal box (note dimension implications in CAD Creator.)	---	✓	✓
L02	Screws locked with Loctite and reinforced fan version	---	---	✓
L03	Increased resistance to vibration	---	only for SH 180 and SH 225	---
L12	Condensation drain hole	---	Standard for water cooling	Only if 11th data position is "1"
L27	NDE bearing in insulated version	---	Only for SH 180	Standard
L37	Increased maximum speed (SH 80: 12,000 rpm, SH 100: 10,000 rpm)	only for SH 80 6) and SH 100	---	---
L29	Enhanced corrosion protection for installation in industrial/marine climates	---	---	✓
L72	Shaft made of special steel (note: option results in longer delivery times)	---	---	✓
L74	Fan version in IP65 degree of protection 3)	✓	---	---
L75	Special fan version for 400 V 3 AC with degree of protection IP65 3) (Note: Filter must be ordered with option Q14)	---	only for SH 180 and SH 225	---
M03	Version for potentially explosive atmospheres Zone 2	✓	---	---
M39	Version for potentially explosive atmospheres Zone 22	✓	only for SH 180 and SH 225	---

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
M83	Additional back-off thread on motor feet (only 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	---	only 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
Q00	Extra grounding terminals in terminal box	---	---	✓
Q12	Sealing air connection	✓	---	---
Q14	Filter for special fan (option L075) (only possible when 11th data position is "1" or "4")	---	only for SH 180 and SH 225	---
Q21	Screw locked with Loctite	---	✓	---
Q31	Metal nameplate instead of adhesive label	✓	✓	✓
Q52	Flange for design IM B5 with 4 x M8 threaded holes (only possible when 14th data position is "N")	Only for SH 80	---	---
Q81	Increased bearing preloading (only possible when 14th data position "B", "C" and "D")	✓	---	---
U60	Holding brake 230 V	✓	---	---
U61	Holding brake 230 V with microswitch	✓	---	---
U62	Holding brake 230 V with manual brake release lever	✓	---	---

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
U63	Holding brake 230 V with microswitch and manual brake release lever	✓	only for SH 180 and SH 225	---
U65	Holding brake 24 V DC	✓	---	---
U66	Holding brake 24 V DC with microswitch	✓	---	---
U67	Holding brake 24 V DC with manual brake release lever	✓	---	---
U68	Holding brake 24 V DC with microswitch and manual brake release lever	✓	---	---
V90	1PH7-compatible shaft extension (d x l: 42 mm (1.65 in) x 110 mm (4.33 in) (Note reduced radial forces; only possible if 8th data position is "1" or "3")	Only for SH 132	---	---
V91	1FT6-compatible shaft extension (d x l: 48 mm x 82 mm) (only possible if 8th data position is "2")	Only for SH 132	---	---
V92	1PH7184-/1PL6184-compatible shaft extension (d x l: 60 mm x 140 mm) (only possible if 8th data position is "1")	---	only with1PH8184	---
Y64	Hollow shaft prepared for bearingless rotating unions with flange diameter 114H6	✓	---	---
Y82	Extra nameplate with customer specifications (plain text required)	---	✓	✓
Y84	Customer specifications on nameplate (max. 30 characters)	✓	✓	✓
---	**Paint finish anthracite RAL 7016**	Standard	Standard	Standard
X01	Paint finish in RAL 9005 (jet black)	✓	✓	✓
X02	Paint finish in RAL 9001 (cream white)	✓	✓	✓
X03	Paint finish in RAL 6011 (reseda green)	✓	✓	✓
X04	Paint finish in RAL 7032 (pebble gray)	✓	✓	✓
X05	Paint finish in RAL 5015 (sky blue)	✓	✓	✓
X06	Paint finish in RAL 1015 (light ivory)	✓	✓	✓
X08	Paint finish in RAL 9006 (white aluminum)	✓	✓	✓
X11	Paint finish in RAL 6019 (pastel green)	✓	✓	✓
X12	Paint finish in RAL 5010 (gentian blue)	✓	✓	✓
X13	Paint finish in RAL 5024 (pastel blue)	✓	✓	✓
X14	Paint finish in RAL 5017 (traffic blue)	✓	✓	✓
X15	Paint finish in RAL 9010 (pure white)	✓	✓	✓
X16	Paint finish in RAL 6018 (yellow green)	✓	✓	✓

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
X17	Paint finish in RAL 5014 (pigeon blue)	✓	✓	✓
X18	Paint finish in RAL 9018 (papyrus white)	✓	✓	✓
X19	Paint finish in RAL 2004 (pure orange)	✓	✓	✓
X20	Paint finish in HWS (gray)	✓	✓	✓
X21	Paint finish in RAL 9003 (signal white)	✓	✓	✓
X22	Paint finish in RAL 9002 (gray white)	✓	✓	✓
X23	Paint finish in RAL 5005 (signal blue)	✓	✓	✓
X24	Paint finish in RAL 7001 (sliver gray)	✓	✓	✓
X25	Paint finish in RAL 1000 (green beige)	✓	✓	✓
X26	Paint finish in RAL 6017 (May green)	✓	✓	✓
X27	Paint finish in RAL 9023 (pearl dark gray)	✓	✓	✓
X28	Paint finish in RAL 5009 (azure blue)	✓	✓	✓
X29	Paint finish in RAL 7005 (mouse gray)	✓	✓	✓
X30	Paint finish in RAL 1014 (ivory)	✓	✓	✓
X31	Paint finish in RAL 5007 (brilliant blue)	✓	✓	✓
X44	Paint finish in RAL 1023 (traffic yellow)	✓	✓	✓
X50	Paint finish in RAL 3004 (purple red)	✓	✓	✓
X51	Paint finish in RAL 2003 (pastel orange)	✓	✓	✓
X52	Paint finish in RAL 3000 (flame red)	✓	✓	✓
X53	Paint finish in RAL 7035 (light gray)	✓	✓	✓
X54	Paint finish in RAL 7004 (signal gray)	✓	✓	✓
X55	Paint finish in RAL 7038 (agate gray)	✓	✓	✓
X56	Paint finish in RAL 1013 (oyster white)	✓	✓	✓
X57	Paint finish in RAL 5012 (light blue)	✓	✓	✓
X58	Paint finish in RAL 2001 (red orange)	✓	✓	✓
X59	Paint finish in RAL 7030 (stone gray)	✓	✓	✓
X91	Paint finish in RAL 7011 (iron gray)	✓	✓	✓
K24	Primer	pale green	light gray	light gray
K23	Special paint finish "Worldwide" (anthracite RAL 7016)	✓	✓	✓

Order code	Option description	For use with motors "✓" = Option possible, "---" = Option not possible		
	When ordering a motor with options, "-Z" should be added to the order number. The order code must also be specified for each additional required option (order codes must not be repeated in plain text in the order)	Shaft height 80 to 160	Shaft height 180 to 280	Shaft height 280 for forced ventilation only (11th data position is "1" or "4")
K23 + X..	Special finish "Worldwide" in another color (X01 to X91)	✓	✓	✓

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

2) Only recommended if oil spray/mist occasionally gets onto the sealing ring. Radial shaft sealing ring not possible if: 14th data position "E", "F" and "L", "M"

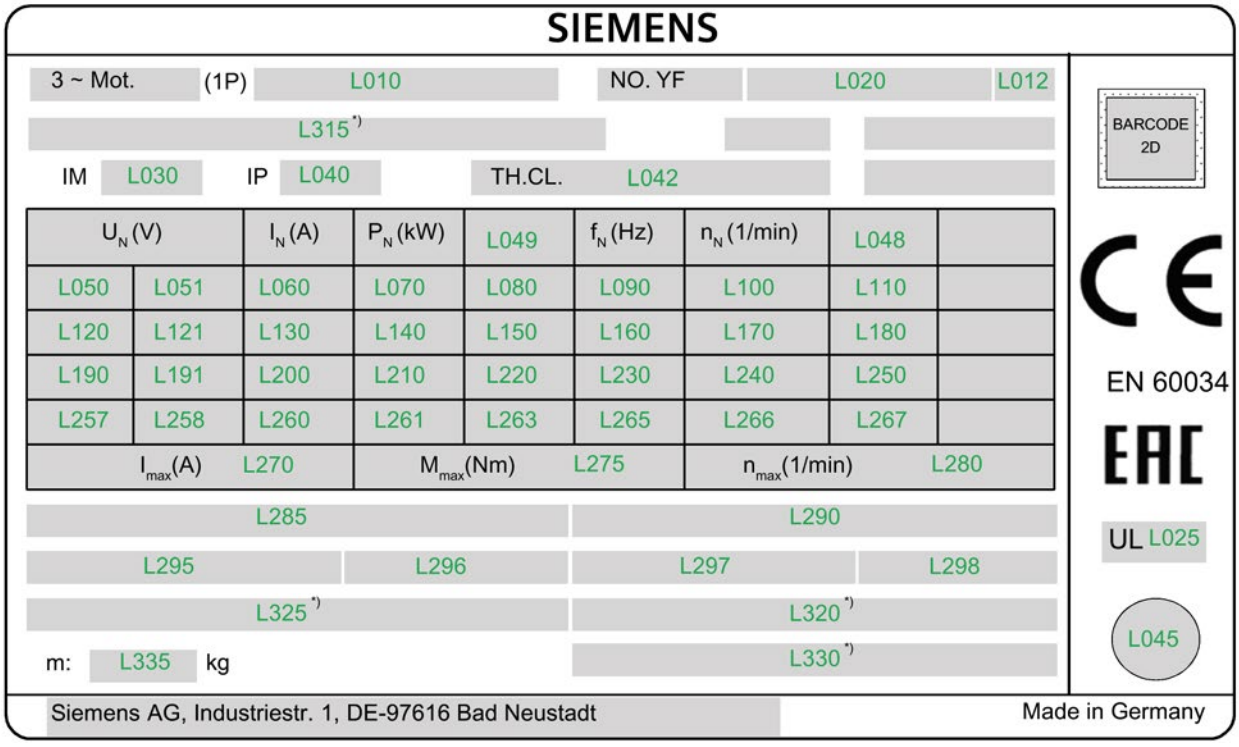
3) Regardless of the degree of protection, at high levels of atmospheric pollution, the fan must be cleaned.

4) Not possible for 1PH822 and terminal box 1XB7712-P03 5) Not possible if 14th data position "E" and "F"

6) Only possible if 9th data position "E", "M", "F" and "D" and 14th data position "D"

2.6 Nameplate data (rating plate)

The nameplate (rating plate) shows the technical specifications for the supplied motor.



*) Some fields may also be empty (options, customer data)

Figure 2-1 Nameplate layout for 1PH808 to 1PH816

Table 2- 5 Elements on the rating plate

No.	Description	No.	Description
L010	Article No.	L210	Rated power P_N (3)
L012	Consecutive number	L220	cos φ (3)
L020	Factory serial number	L230	Rated frequency f_N (3)
L025	UL mark	L240	Rated speed n_N (3)
L030	Type of construction	L250	Operating mode (3)
L040	Degree of protection	L257	Rated voltage U_N (4)
L042	Temperature class	L258	Connection method (4)
L045	Balancing code	L260	Rated current I_N (4)
L048	Operating mode	L261	Rated power P_N (4)
L049	for synchronous motors: induced voltage at rated speed V_{IN}	L263	cos φ (4)
	for induction motors: cos φ	L265	Rated frequency f_N (4)
L050	Rated voltage U_N (1)	L266	Rated speed n_N (4)

No.	Description	No.	Description
L051	Connection method (1)	L267	Operating mode (4)
L060	Rated current I_N (1)	L270	Maximum current I_{max}
L070	Rated power P_N (1)	L275	Maximum torque M_{max}
L080	cos φ (1)	L280	Maximum speed n_{max}
L090	Rated frequency f_N (1)	L285	Temperature sensor
L100	Rated speed n_N (1)	L290	Tachometer/resolver
L110	Operating mode (1)	L295	Cooling method
L120	Rated voltage U_N (2)	L296	Throughput l/min (m^3/s)
L121	Connection method (2)	L297	System pressure
L130	Rated current I_N (2)	L298	Maximum coolant temperature
L140	Rated power P_N (2)	L315	Options (I)
L150	cos φ (2)	L320	Options (II)
L160	Rated frequency f_N (2)	L325	Optional customer information
L170	Rated speed n_N (2)	L330	Anti-condensation heating
L180	Operating mode (2)	L335	Weight
L190	Rated voltage U_N (3)		
L191	Connection method (3)		
L200	Rated current I_N (3)		

The rating plate (type plate) shows the technical specifications for the supplied motor.

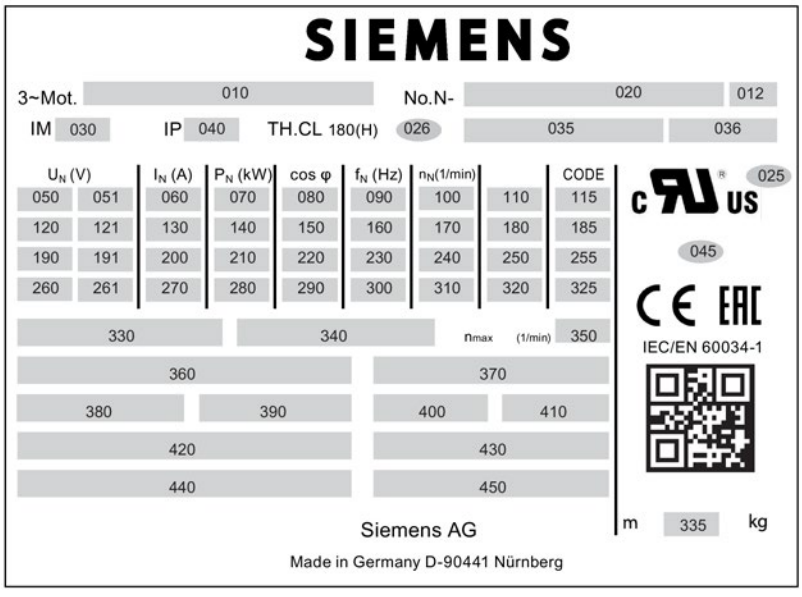


Figure 2-2 Nameplate layout for 1PH818 to 1PH828

Table 2- 6 Elements on the rating plate

No.	Description	No.	Description
010	Article No.	200	Rated current I_N (3)
012	Consecutive number, part of serial number	210	Rated power P_N (3)
020	Serial number	220	cos φ (3)
025	UL mark	230	Rated frequency f_N (3)
026	(blank)	240	Rated speed n_N (3)
030	Type of construction	250	Operating mode (3)
035	(blank)	255	Code for operating point 3
036	(blank)	260	Rated voltage U_N (4)
040	Degree of protection	261	Switching mode 4
045	Type of balancing	270	Rated current I_N (4)
050	Rated voltage U_N (1)	280	Rated power P_N (4)
051	Switching mode 1	290	cos φ (4)
060	Rated current I_N (1)	300	Rated frequency f_N (4)
070	Rated power P_N (1)	310	Rated speed n_N (4)
080	cos φ (1)	320	Operating mode (4)
090	Rated frequency f_N (1)	325	Code for operating point 4
100	Rated speed n_N (1)	330	Maximum current I_{MAX}
110	Operating mode (1)	335	Weight
115	Code for operating point 1	340	Maximum torque M_{MAX}
120	Rated voltage U_N (2)	350	Maximum speed n_{MAX}
121	Switching mode 2	360	Temperature sensor
130	Rated current I_N (2)	370	Tachometer/resolver
140	Rated power P_N (2)	380	Cooling method
150	cos φ (2)	390	Throughput l/min (m^3/s)
160	Rated frequency f_N (2)	400	System pressure
170	Rated speed n_N (2)	410	Maximum coolant temperature
180	Operating mode (2)	420	Options (I)
185	Code for operating point 2	430	Options (II)
190	Rated voltage U_N (3)	440	Optional customer information
191	Switching mode 3	450	Anti-condensation heating / dummy

Mechanical properties 3

3.1 Cooling

3.1.1 General

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	✓	✓

3.1.2 Forced ventilation

When mounting the forced ventilated motor, make sure the motor is well ventilated. Good ventilation is especially important for encapsulated installation. Avoid warm exhaust air being drawn in again. The cooling air must flow in and out without restriction. Avoid accumulated dirt in the cooling ducts as this can reduce the cooling air flow.

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

NOTICE

Thermal damage to temperature-sensitive parts

The motors can have surface temperatures of over +100 °C. Temperature-sensitive parts in contact with the motor or attached to the motor can be damaged. Temperature-sensitive parts include cables and electronic components, for example.

- Never attach temperature-sensitive parts to the motor.
- Ensure that no temperature-sensitive parts are in contact with the motor.

Ambient/coolant temperature

Operation: T = -15 °C bis +40 °C (without restriction)
Under conditions other than those specified above (ambient temperature > 40° C 40 °C or installation altitude > 1000 m above sea level), the permissible torque/power reduction 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)]
1,000	1.00	0.96	0.92	0.87
1,500	0.97	0.93	0.89	0.84
2,000	0.94	0.90	0.86	0.82
2,500	0.90	0.86	0.83	0.78
3,000	0.86	0.82	0.79	0.75
3,500	0.82	0.79	0.75	0.71
4,000	0.77	0.74	0.71	0.67

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

Note

Higher ambient temperatures

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

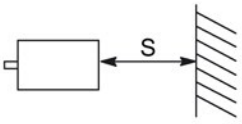
The standard motors are not suitable for use in corrosive atmospheres, atmospheres with a high salt content, or in outdoor applications.

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, different mounting types can be ordered

Table 3- 4 Minimum distance S between the air intake/outlet openings and other adjacent components

Shaft height [mm]	Minimum clearance S [mm]	
80	30	
100	30	
132	60	
160	80	
180/225	100	
280	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 DE → NDE	IP55	0.02	Axial	70[1)]	95
100	NDE → DE DE → NDE	IP55	0.04			110
132	NDE → DE DE → NDE	IP55	0.09			140
160	NDE → DE DE → NDE	IP55	0.16		73[1)]	200
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 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, the preferred air flow direction is NDE → DE.

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

If an additional air filter is required for the three-phase external fan (option L75), the air filter must be ordered with option Q14 (can only be ordered for SH 180 and SH 225).

Cleaning the cooling air ducts

On air-cooled motors, you must regularly clean the cooling air ducts through which the ambient air flows. The degree of pollution depends on the location of use. Clean the air cooling ducts, for example, with dry, oil-free compressed air.

Motors with pipe connection

1PH8 motors with "forced ventilation" can optionally be ordered for "pipe connection." The external fan, which is normally mounted as standard, is omitted in this version. A molded pipe connection replaces the external fan.

The diameter of the pipe connection is based on the standard DIN EN 1506 or DIN EN 13180. This means that commercially available pipes and molded parts for air-conditioning systems can be 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 [m³/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

3.1.3 Water cooling

WARNING

Defective work on the cooling circuit

Defective work on the cooling circuit can cause injury and/or damage to property.

- Only qualified personnel may assemble, install, and commission the cooling circuit.
- Perform installation or service work on the cooling circuit only when the system is de-energized.

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 should be limited to the absolutely essential minimum.

There are 3 types of cooling circuits:

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

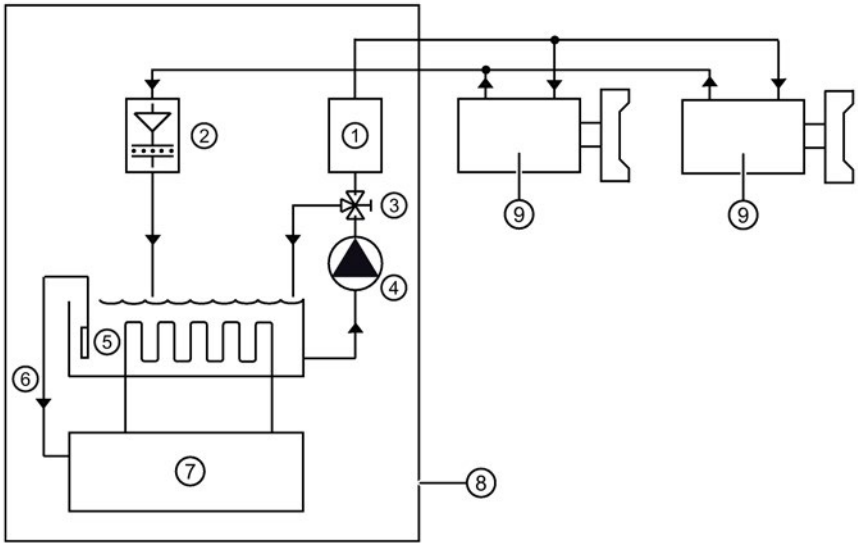
Table 3- 7 Description of the various cooling circuits

Definition	Description
Closed cooling circuit	The pressure equalizing vessel 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 vessel, 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.



1 Filter [1)]
2 Flow meter [1)]
3 Pressure relief valve, setting valve flow rate [1)]
4 Pump
5 Cooling water tank
6 Temperature measurement cooling water
7 Compressor / cooling unit
8 Cooling unit
9 Motor

[1)] These components are not absolutely necessary.

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

Equipotential bonding

Provide all components in the cooling system (motor, heat exchanger, piping system, pump, pressure equalization tank, etc.) with equipotential bonding. Implement the equipotential bonding using a copper rail or finely stranded copper cable with the appropriate conductor cross-sections.

Note

Installation of the cooling water pipes

Electrically conductive cooling water pipes must not come into contact with live components.

- Ensure adequate insulation.
- Securely fasten the pipe.

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).

Material	Used as	Description
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

Other manufacturers

You can also use equivalent products from other manufacturers.

Responsibility for the properties of third-party products resides with the plant manufacturer.

Consider the following pressure conditions when designing the cooling circuit.

Permissible pressure

- Define the working pressure based on the flow conditions in the supply and return pipes of the cooling circuit.
- Set the required cooling water flow rate per time unit as appropriate for the technical specifications of the equipment and motors.

The maximum permitted pressure in the cooling circuit is 0.6 MPa (6 bar).

Note

If you use a pump that reaches a higher pressure, maintain a maximum pressure of 0.6 MPa by taking appropriate measures (pressure relief valve, pressure control, etc.).

- Design the cooling circuit to have the smallest possible pressure difference between the supply and return pipes so that pumps with a shallow characteristic curve can be used.
- Design the cooling circuit with a self-cleaning filter to avoid blockage and corrosion.

Pressure drop in the motor

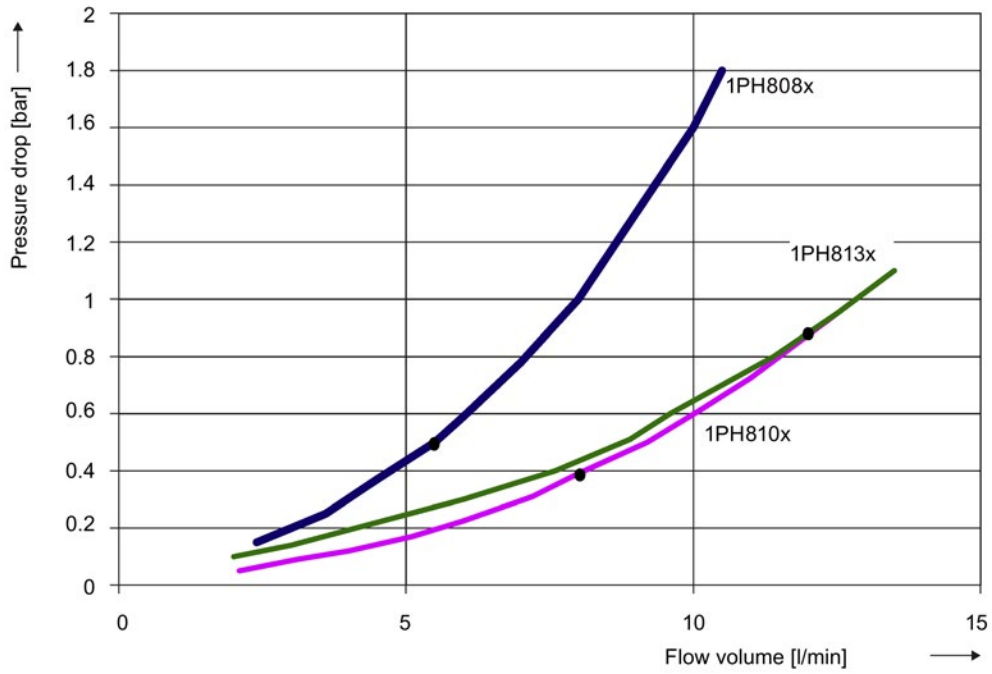


Figure 3-2 Pressure drop in the cooling pipe system, shaft heights 80 to 132

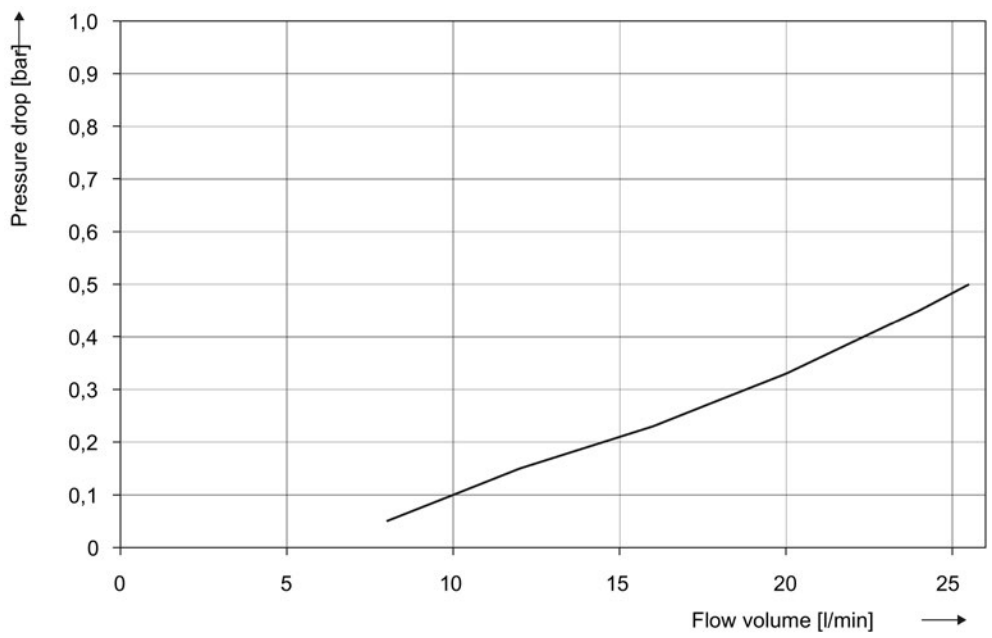


Figure 3-3 Pressure drop in the cooling pipe system, shaft height 160

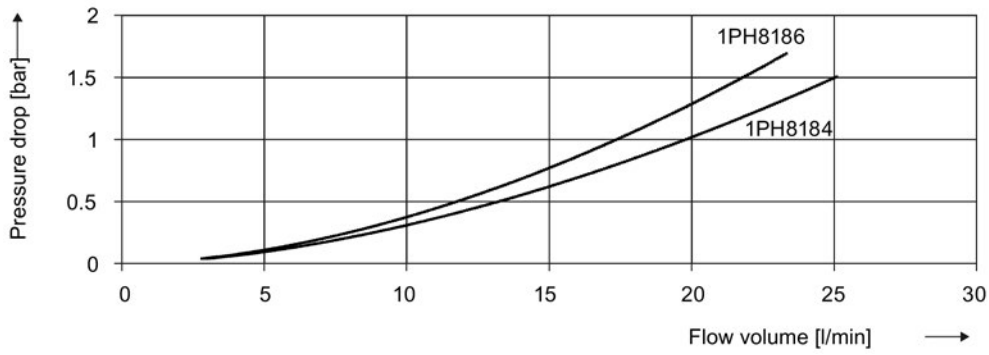


Figure 3-4 Pressure drop in the cooling pipe system, shaft height 180

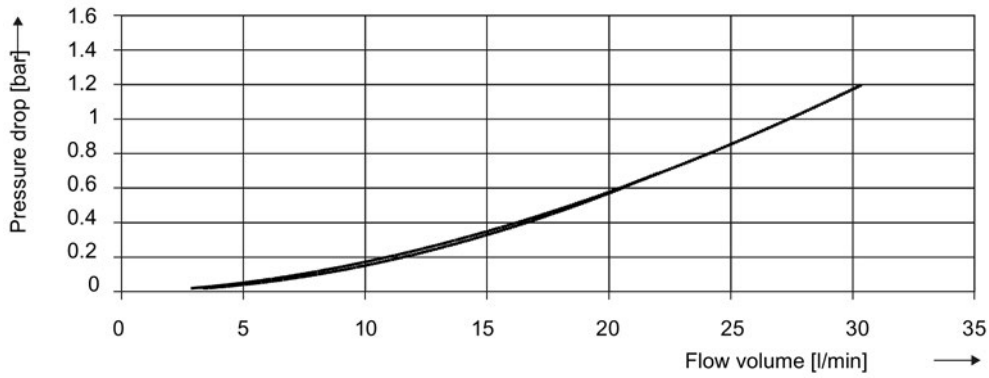


Figure 3-5 Pressure drop in the cooling pipe system, shaft height 225

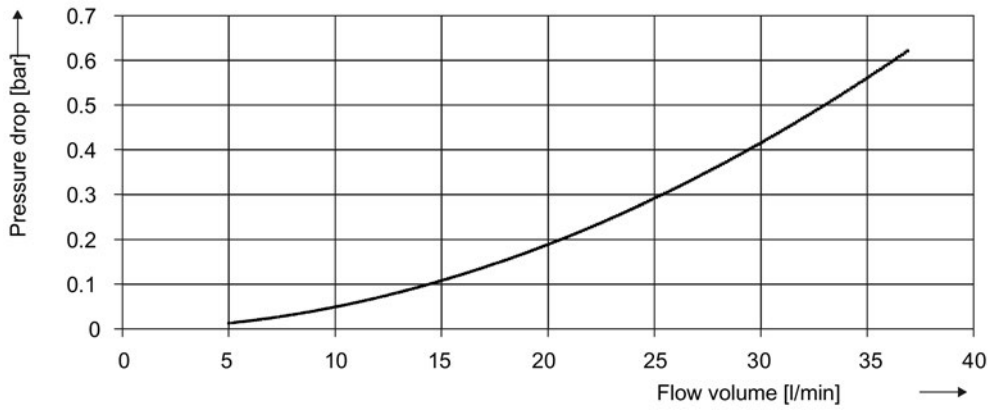


Figure 3-6 Pressure drop in the cooling pipe system, shaft height 280

Note

Ensuring adequate cooling

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

Arrangement of the reactor element

Flow restrictors must be mounted on the cooling water outlet of the motor or the relevant component!

Avoiding cavitation

During uninterrupted duty, the pressure drop across 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, Siemens only conditionally recommends connecting motors in series:

- 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

Cooling water inlet temperature

Select the cooling water inlet temperature so that condensation does not form on the surface of the motor.

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 depends on the relative air humidity. For instance, 50 % air humidity at an ambient temperature of 40 °C corresponds to a temperature difference of 10 K:
$T_{cool} > T_{ambient}$ – temperature difference

Please note that you must also shut off the flow of cooling water when the motor is not operational for prolonged periods of time.

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

Table 3- 10 Derating factors

Installation altitude above sea level [m]	Cooling water inlet temperature			
	≤ 30 °C	35 °C	40 °C	45 °C
1,000	1.00	0.95	0.90	0.84
1,500	0.97	0.92	0.87	0.81
2,000	0.93	0.88	0.84	0.78
2,500	0.91	0.86	0.82	0.76
3,000	0.89	0.85	0.80	0.75
3,500	0.87	0.83	0.78	0.73
4,000	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 the rated point in Chapter "Technical tables and characteristics."

Water specification

Cooling water quality

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

A filter can be used to ensure smooth operation. The grade of filtration should be no less than 100 µm.

Cooling water inlet temperature

The maximum cooling water inlet temperature is 30 °C (86 °F)

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
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

Component	Quality of the water used as coolant for motors with stainless steel pipes
Chloride ions	< 250 ppm, can be obtained 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
Anti-freeze protection / corrosion protection	20 … 30 %
NALCO 00GE056 inhibitor	0.2 ... 0.25%

Note

Deionized water (for Cooling water specifications tables)

We recommend using deionized water with reduced conductivity (5 ... 10 µS/cm). If necessary, ask your water utility to provide 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 content 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.

Note

Compatibility of coolant additives

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	ν	[m^2/s]
Flow rate	V	[rpm]

Please send your enquiry to Technical support.

Note

Power reduction when using a different coolant

Derating is required for water-oil mixtures with more than 10% oil.

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

Information regarding third-party products

Note

Recommendation relating to third-party products

This document contains recommendations relating to third-party products. Siemens accepts the fundamental suitability of these third-party products.

You can use equivalent products from other manufacturers.

Siemens does not accept any warranty for the properties 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.

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

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.

Note

Suitability of the motor depending on the ambient conditions

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.

Note

Liquids that have collected and/or oil jets

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

Note

Routing cables in humid/moist environments

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

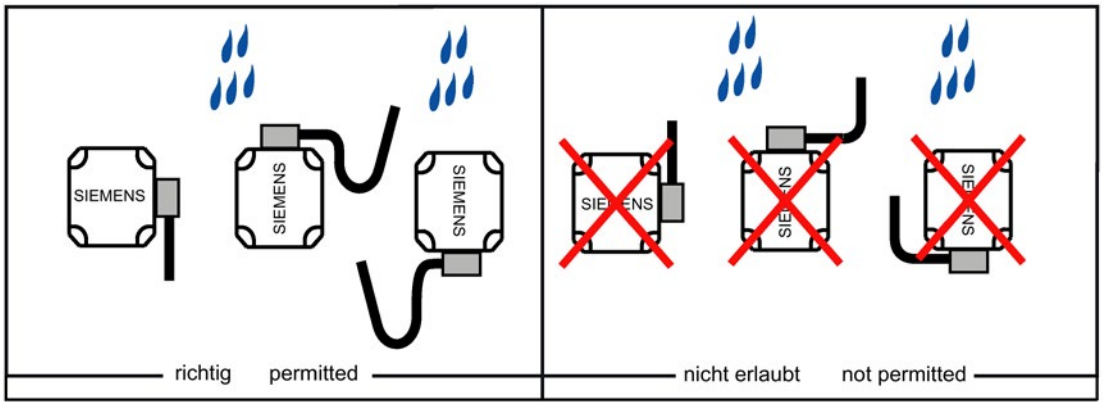
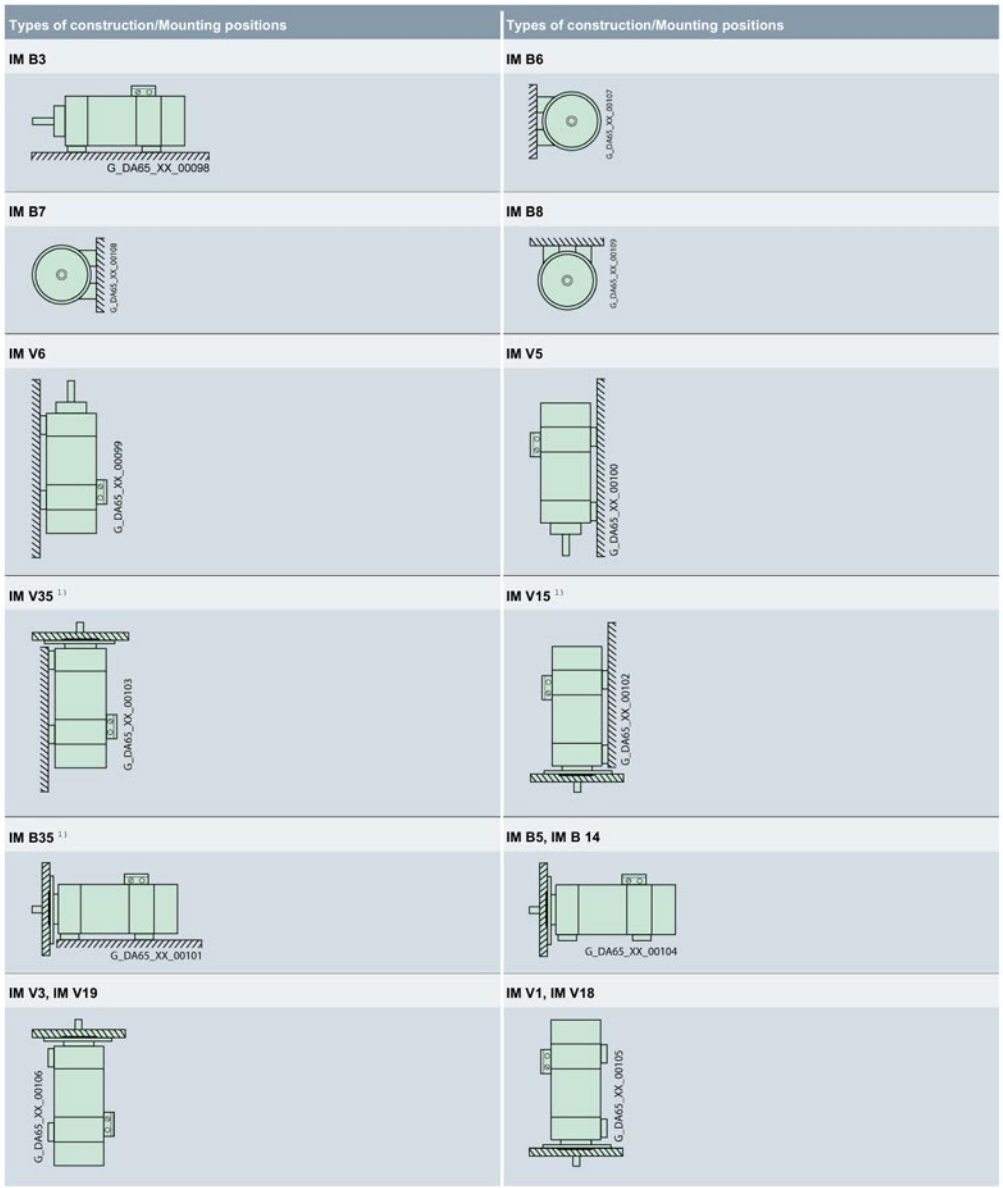


Figure 3-7 Principle of cable routing in a wet/moist environment

3.3 Construction types

For correct motor selection, the following types of construction according to EN 60034-7 (IEC 60034-7) apply:



1) Fixing on the flange and feet is necessary.

Figure 3-8 Types of construction

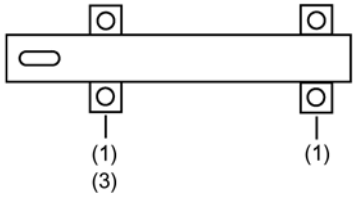
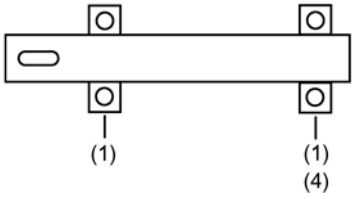
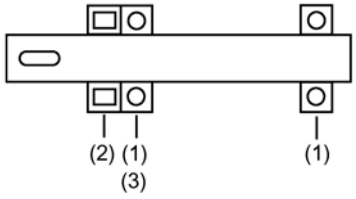
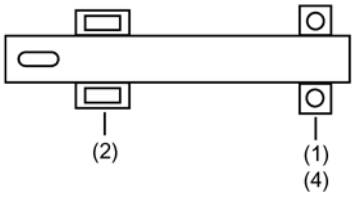
You will find the available types of construction in Chapter "Selection and ordering data."

3.4 Types of bearing

3.4.1 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 100 to 160 	SH 180 to 280 

1) Deep-groove ball bearing

2) Cylindrical-roller bearings (only in versions for increased radial forces - 14th data position = E or F)

3) For the bearing version G or H as a floating bearing (as for 1PH7); all other bearing types have a location bearing at the drive end - 14th data position = A, B, C, D, F, L, M, P, Q, or N

4) Version as a location bearing

Bearing version, maximum speed and bearing change intervals

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

Shaft height	Bearing version	Maximum speed n_{max} [rpm]	Average operating speed n_m [rpm]	Statistical bearing service life L_{10h} [h]	Recommended bearing change interval t_{LW} [h]	
					Permanent lubrication	Relubrication
80	Standard with locating bearing:	10,000	≤ 8000	20,000	20,000	-
	Standard with locating bearing: and option L37	12,000	≤ 8500	12,000	12,000	-
	Standard	10,000	≤ 6000	20,000	20,000	-
	Performance	15,000	≤ 11,500	12,000	12,000	-
	High Performance	20,000	≤ 13,000	12,000	12,000	-
	Advanced Lifetime	5,000	≤ 3500	40,000	40,000	-
100	Standard with locating bearing:	9,000	≤ 7000	20,000	20,000	-
	Standard with locating bearing: and option L37	10,000	≤ 7300	12,000	12,000	-
	Standard	9,000	≤ 5000	20,000	20,000	-
	Performance	12,000	≤ 10,500	12,000	12,000	-
	High Performance	18,000	≤ 11,500	12,000	12,000	-
	Advanced Lifetime	5,000	≤ 3000	40,000	40,000	-
	Increased radial forces	7,000	≤ 2300	20,000	20,000	-
132	Standard with locating bearing:	8,000	≤ 6500	20,000	20,000	-
	Standard	8,000	≤ 4500	20,000	20,000	-
	Performance	10,000	≤ 8500	12,000	12,000	-
	High Performance	15,000	≤ 10,000	12,000	12,000	-
	Advanced Lifetime	4,500	≤ 2500	40,000	40,000	-
	Increased radial forces	6,500	≤ 1800	20,000	20,000	-
160	Standard with locating bearing:	6,500	≤ 5400	20,000	20,000	-
	Standard	6,500	≤ 3500	20,000	20,000	-
	Performance	9,000	≤ 7000	12,000	12,000	-
	High Performance	10,000	≤ 8000	12,000	12,000	-
	Advanced Lifetime	4,000	≤ 2300	40,000	40,000	-
	Increased radial forces	5,300	≤ 1500	16,000	16,000	-

Shaft height	Bearing version	Maximum speed n_{max} [rpm]	Average operating speed n_m [rpm]	Statistical bearing service life L_{10h} [h]	Recommended bearing change interval t_{LW} [h]	
					Permanent lubrication	Relubrication
180	Standard with locating bearing:	5000 (3000)[2]	≤ 2000	40,000 (24,000)[1]	20,000	40,000 (24,000)[1]
	Increased radial forces	5000 (3000)[2]	≤ 2000	20,000 (12,000)[1]	12,000	20,000 (12,000)[1]
	Performance	7,500	≤ 5000	20,000	12,000	20,000
225	Standard with locating bearing:	4500 (2500)[2]	≤ 1800	40,000 (24,000)[1]	20,000	40,000 (24,000)[1]
	Increased radial forces	4500 (2500)[2]	≤ 1800	20,000 (12,000)[1]	12,000	20,000 (12,000)[1]
	Performance	6,000	≤ 4000	20,000	12,000	20,000
280	Standard with locating bearing:	3300 (2000)[2]	≤ 1500	40,000 (24,000)[1]	20,000	40,000 (24,000)[1]
	Increased radial forces	3300 (2000)[2]	≤ 1500	20,000 (12,000)[1]	12,000	20,000 (12,000)[1]

[1] When vertically mounted

[2] For types of construction IM V3, IM B5, and IM V1

You can calculate the average operating speed n_m for alternating bearing load by the following formula:

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

Formula symbol	Unit	Description
$t_1 \ldots t_n$	%	Time percentage of the bearing load
$n_1 \ldots n_n$	min^{-1}	Operating speed

You therefore calculate an average speed from the different speeds according to their time percentages.

Table 3- 17 Recommended bearing change intervals at maximum speed

Shaft height	Bearing version	Maximum speed n_{max} [rpm]	Statistical bearing service life L_{10h} [h]	Recommended bearing change interval t_{LW} [h]	
				Permanent lubrication	Relubrication
80	Option L37	12,000	8,000	8,000	-
	Performance	15,000	8,000	8,000	-
	High Performance	20,000	8,000	8,000	-
100	Option L37	10,000	8,000	8,000	-
	Performance	12,000	8,000	8,000	-
	High Performance	18,000	8,000	8,000	-

Shaft height	Bearing version	Maximum speed n_{max} [rpm]	Statistical bearing service life L_{10h} [h]	Recommended bearing change interval t_{LW} [h]	
				Permanent lubrication	Relubrication
132	Performance	10,000	8,000	8,000	-
	High Performance	15,000	8,000	8,000	-
160	Performance	9,000	8,000	8,000	-
	High Performance	10,000	8,000	8,000	-

Table 3- 18 "Premium Performance" bearing version, maximum speed and bearing change intervals

Shaft height	Maximum speed n_{max} [rpm]	Average operating speed n_m [rpm]	Recommended bearing change interval t_{LW} [h]	
			with sealing air (Option Q12)	without sealing air
80	24,000	≤ 16,000	12,000	
		≤ 19,200*	10,000	8,000
		24,000	7,000	4,000

Speed backlash with:

t1 = 10 min, n1 = 0

t2 = 30 min, n2 = 16,000 rpm

t3 = 60 min, n3 = 24,000 rpm

Note

Difficult operating conditions in operation at n_{max}

Under difficult operating conditions, the bearing replacement intervals t_{LW} are reduced by up to 50 %.

Difficult operating conditions include

- large vibrations and shocks
- frequent reversing operation

Note

Reduced maximum motor speeds

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 the table "Encoder types for motors with DRIVE-CLiQ" in Chapter Encoder assignment as a function of maximum permissible speeds (Page 163).

Note

Permanently switching on the sealing air

For the "Premium Performance" bearing version, Siemens recommends that the sealing air be permanently switched on during continuous operation at n_{max}. Sealing air connection and conditioning are described in Chapter "Sealing air connection (option Q12) (Page 174)."

3.4.2 Bearing lifetime

The bearing lifetime is limited by material fatigue (fatigue service life) and/or lubrication failure (grease service life). The fatigue lifetime (statistical bearing lifetime L_{10h}) mainly depends the mechanical load. The correlation 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)

Note

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 3-16
  - continuous operation at n_{max}
  - Vibration and shock load
  - Frequent reversing operation

Note

Replacing the motor bearings

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

The fatigue life and the grease consumption time are calculated, statistical values and cannot be warranted.

Note

Axial bearing loads for vertical mounting

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

In motors that can be relubricated, the bearing life can be extended by complying with fixed relubrication intervals.

Depending on the frame size, some 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"

Note

Longer time periods between delivering and commissioning the motor

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 to the same conditions as are described above for bearing change intervals:

Table 3- 19 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	7,000	15	80	5
	Increased radial forces	4,000	20	80	4
	Performance	4,000	15	80	5
225	Standard	7,000	30	180	6
	Increased radial forces	4,000	40	180	4
	Performance	4,000	30	180	6
280	Standard	7,000	40	400	10
	Increased radial forces	4,000	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 re-lubricating intervals; the bearing lifetime is specified statistically by means of the L_{10h} definition.

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

Note

Adapting relubricating intervals

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.

3.4.3 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- 20 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.

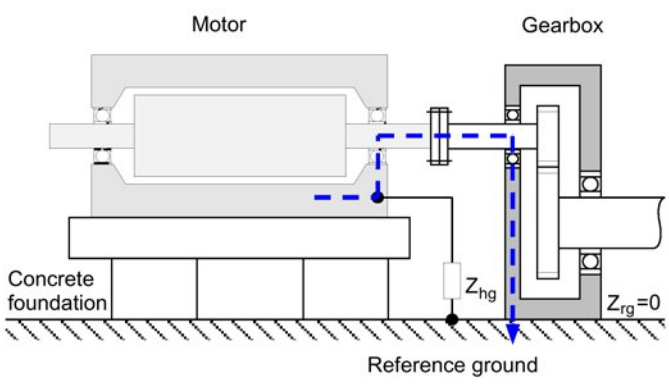


Figure 3-9 Bearing current due to the grounding situation (=rotor ground current)

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.

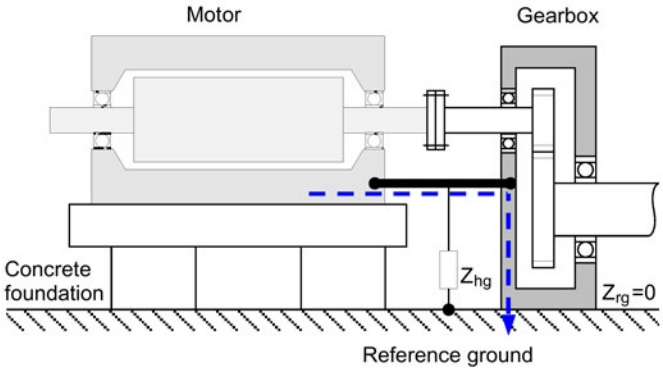


Figure 3-10 Connection between the motor frame and load to avoid rotor ground currents

3.5 Shaft end

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

3.6 Mounting of rotating unions on 1PH8 hollow-shaft motors

General information

1PH8 main motors with a hollow shaft (13th position in the Article No.: " 3 ") are designed as main spindle motors for machine tools and machining centers with internal tool cooling. A rotating union is required for the provision of the coolant in the rotating motor shaft. A rotor-supported or, for a motor ordered with option Y64, a bearingless, frame-supported rotating union can be mounted on the NDE shaft extension. In addition to coolant, suitable rotating unions can also transfer oil mist (minimum quantity lubrication), cutting oils or even compressed air at standstill.

Rotor-supported rotating unions consist of the following components:

- Rotor with bearing
- Stator
- Enclosure with cable connections
- Floating-ring shaft seal

Rotor-supported rotating unions are easy to fit and change. They are screwed into the motor shaft via the thread on the rotor. The advantage of these rotating unions is the leading off of the leakage via the housing and the integrated leakage connection.

Bearingless, frame-supported rotating unions are made up of two separate parts, the rotating part with a mechanical seal and the static part with a mechanical seal and supply connection. By eliminating the bearings, higher speeds can be achieved and the rotating union is less sensitive to vibrations and lateral loads. However, an adapter such as is described in Ch. "Suggestion for an adapter for bearingless, frame-supported rotating unions" for installing the rotating union is required.
Installation must be performed very carefully because the sealing surfaces of the mechanical seal are not protected.

The rotating part is bolted into the NDE end of the motor shaft. The static part is mounted on the encoder cover of the motor via an adapter. The adapter must include a facility for draining leakage. The adapter must be designed in such a way that the motor is not flooded by the leakage and the degree of protection of the motor is complied with. It may be necessary to use sealing air.

For use of a bearingless rotating union, the motor must be ordered with option Y64 and the interface on the encoder cover must be located concentrically with respect to the shaft. The mounting conditions stated by the manufacturer of the rotating union must be met.

Depending on the type of rotating unions, the sealing rings may be permanently or temporarily in contact.

Example of a closed seal: DEUBLIN series 1116 and 1108

Example of an opening seal: 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 due to wear of the sealing rings must be guided away via the leakage lines.

NOTICE
Motor failure due to incorrectly mounted leakage line If the leakage line does not lead downward, the leakage can flood the rotating union and the motor. This can result in failure of the rotating union and motor. To ensure the leakage is led away, the leakage line must always lead downward so that nothing can flow back. • When mounting, ensure that the leakage line always leads downward.

NOTICE
Axial forces due to coolant pressure Coolant under high pressure (usually 40 to 90 bar) flows via the mounted rotating union through the sequence of holes in the drive train: • Rotating union • Motor • Spindle • Tool. Due to the different hole diameters and the gap, different cross sections (areas) occur along the coolant flow, which can produce axial forces due to the coolant pressure. These can be 4 to 12.7 N/mm^2, depending on the coolant pressure.

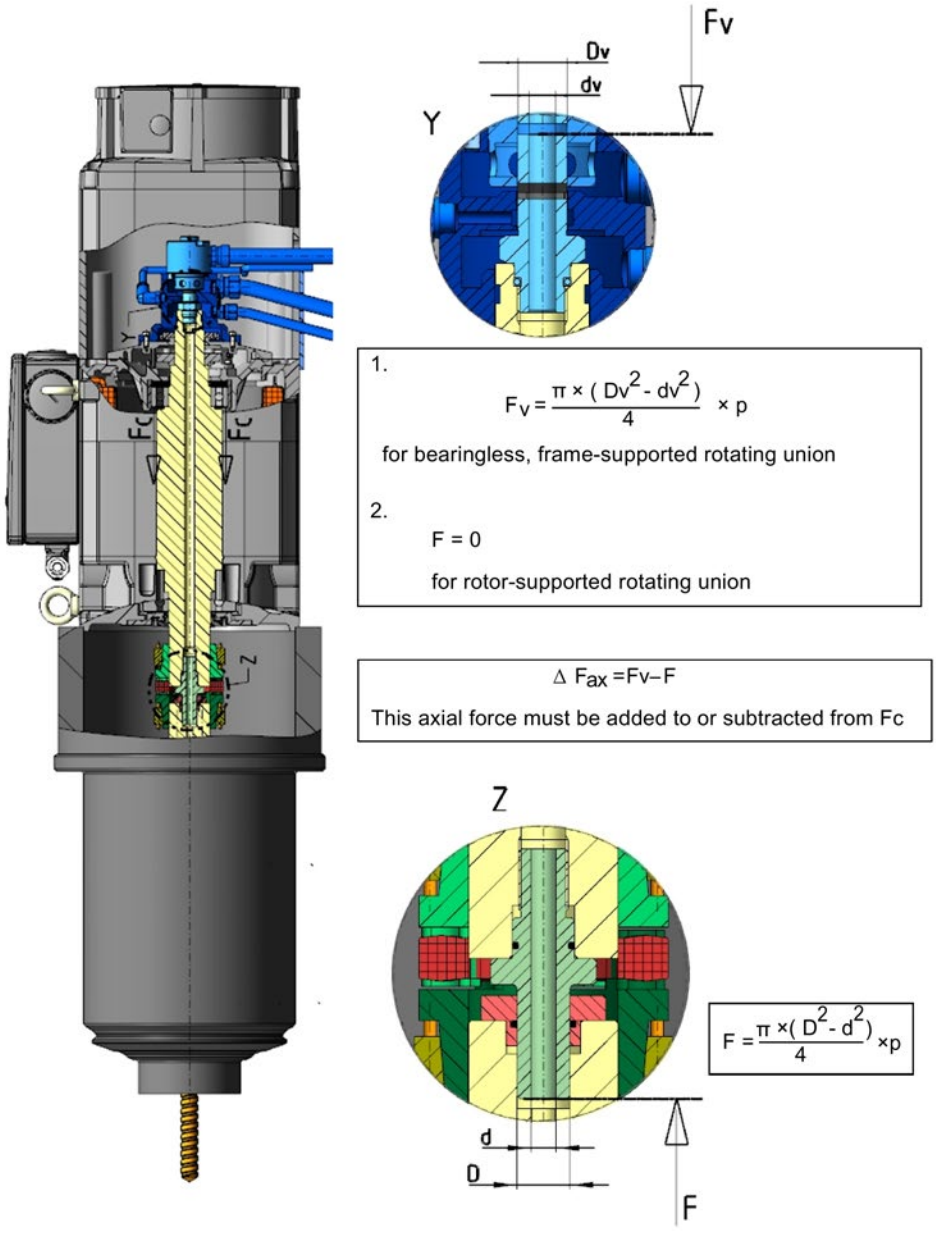


Figure 3-11 Mounting the rotating union

Figure "Mounting the rotating union," illustrates how an axial force arises due to joint pressure, for example, in the gap between the motor shaft (hole bolt) and the spindle shaft. This acts upon the motor shaft against the bearing preloading force F_c. This reduces or even eliminates the preloading force of the motor bearing.
For bearingless, frame-supported rotating unions, axial forces can also arise depending on the internal differing hole diameters. These act against the forces from the joint, so they have a smaller effect on the bearing preloading force. Ensure that the axial forces from the rotating union are greater than those from the joint (see case 1 in the graphic). This has the advantage that the bearing preloading force remains unchanged. The bearing preloading force is important for non-slip running of the motor bearing and must not be eliminated.

This advantage does not apply to rotor-supported rotating unions. It is important to ensure that the preloading force of the motor bearing is not eliminated (see figure "Mounting the rotating union" case 2). The axial force toward the motor must not be in the interval $F_{AZ} = F_c$ +/- 25% for horizontally mounted motors and $F_{AZ} = (F_c$ +/-25%) + FL for vertically mounted motors with the shaft extension pointing downward. For maximum permissible axial forces at the shaft extension, the specifications stated in Chapter "Radial and axial forces" apply. The axial forces that act in the rotating union must be requested from the manufacturer.

Hollow shaft version

Table 3- 21 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

3.6.1 Rotor-supported rotating union

NOTICE
Leaks in the rotating union If there are leaks in the rotating union and the hoses, the motor may be flooded and fail! • Avoid leaks in the rotating union.

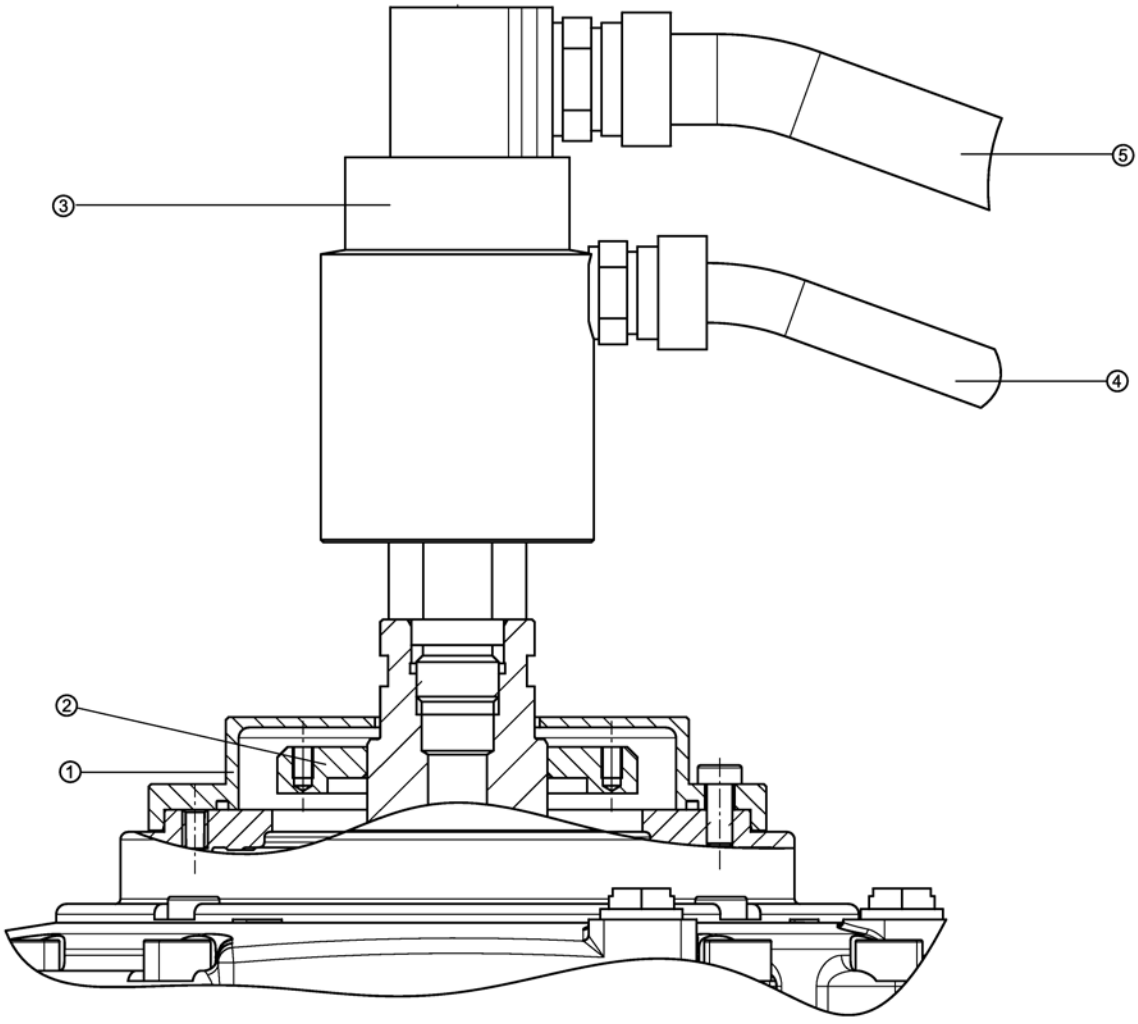
Note the following points when mounting the rotating union:

- When you mount the rotating union, pay attention to special aspects that differ between air-cooled and water-cooled motors.
- When installing the rotating union, observe the manufacturer’s data.

Mounting on water-cooled motors

Water-cooled motors have a “2” in the 11th position in the Article No. With water-cooled motors, you can mount the rotating union directly on the motor. Use rotating unions with radial or axial connections.

Mounting rotor-supported rotating union on water-cooled motors



① Sealing cover
② Balancing disk
③ Rotor-supported rotating union, e.g. DEUBLIN 1109-020-188
④ Leakage hose
⑤ Inlet hose

Mounting on air-cooled motors

Air-cooled motors have a “0” or a “1” in the 11th position of the Article No. 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 rotating union.

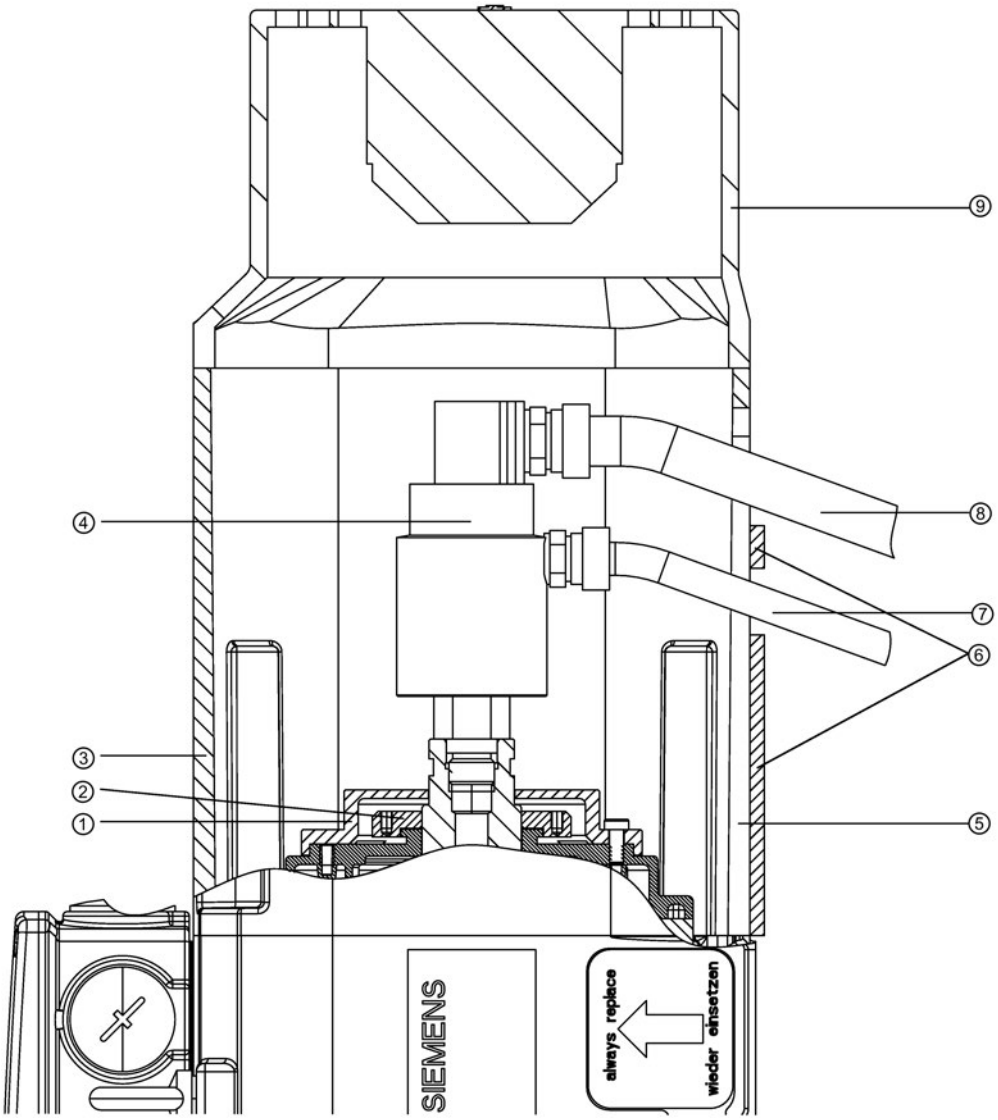
The intermediate housing is suitable for rotating unions with the following dimensions:

- Length up to 120 mm (without rotor connection thread and centering)
- Diameter up to 55 mm

Due to limitations of space, rotating unions with radial connections are advisable for air-cooled motors, e.g. DEUBLIN 1109-020-188.

Rotating unions with axial connections are not suitable!

Mounting rotor-supported rotating unions on air-cooled motors



① Sealing cover
② Balancing disk
③ Intermediate housing
④ Rotor-supported rotating union, e.g. DEUBLIN 1109-020-188
⑤ Cutout
⑥ Cover (openings for connections must be closed again)
⑦ Leakage hose
⑧ Inlet hose
⑨ Fan

Note

When air-cooled motors are connected, only rotating unions with a radial connection are used.

Mounting steps

1.
2.

Note

Mounting steps for air-cooled motors

The mounting steps 1, 11, 12, 13, and 14 are only required for air-cooled motors.

1. Remove the fan and intermediate housing from the motor.
2. If necessary, perform complete balancing of the motor using the exterior balancing disks. To do this, remove the sealing cover.

   Note

   Sealing cover

   - Remount the sealing cover after balancing.
   - The sealing cover is required to comply with the degree of protection.

3. Attach hoses for the inlet and leakage to the rotating union. Use angle elements if necessary.

   Note

   Rotating union to be used

   - Use a rotating union with radial connections.

4. Screw the rotating union into the NDE motor shaft extension. Tighten the rotating union with the correct tightening torque. For this, use the wrench grip surface on the NDE motor shaft extension to hold the other side.
5. Position the rotating union horizontally in such a way that the leakage connection is at the lowest point.
6. Always connect the hose for leakage sloping downward at least 15°.
7. Also connect the hose for the inlet sloping downward.
8. If necessary, provide a ventilation hose for the leakage chamber. It equalizes the negative pressure caused by the fan. Lead the ventilation hose upward.
9. Manually check that the rotor turns easily.
10. Test the mounting under pressure for leaks.
11. Make a burr-free cutout in the intermediate housing for the inlet and leakage hoses.

12. Push the intermediate housing with the cutout over the hoses. Screw the intermediate housing onto the motor. Protect the hoses from mechanical stresses.
13. Screw the fan onto the intermediate housing.
14. Seal the remaining openings between the cutout and the hoses.

3.6.2 Bearingless, frame-supported rotating union

The bearingless frame-supported rotating union cannot be mounted directly on the motor. An adapter is required for the static part of the rotating union. The adapter is not included in the scope of delivery and must be made by the customer to match the rotating union to be used.

Please follow the following design instructions:

- The adapter for holding the static part must be matched to the rotating union to be used. For this purpose, the dimensions of the manufacturer of the rotating union must be complied with. The adapter should be designed as shown in Chapter "Suggestion for an adapter for bearingless, frame-supported rotating unions".
- The gap between the adapter and the NDE shaft extension in the radial direction must be as small as possible (approx. 0.25mm) and be as long as possible in the axial direction so that exiting coolant cannot penetrate the motor. The leakage connections must be as large as possible and must be provided at the lowest point in the leakage chamber. The leakage connection (G3/8") located nearest the static part of the rotating union is for draining leakage away during operation. The second leakage connection (G1/4") is a backup for draining away increased leakage due to faults.

NOTICE
Monitoring the backup line To detect a fault in the rotating union in good time and to protect the motor from flooding, it is necessary to monitor the flow rate of the backup line. • Make sure that a signal is output in the event of leakage. • Make sure that the system (coolant supply) is switched off in case of a fault.

- The star-shaped drainage holes in the mounting surface with the encoder cover should be implemented as shown in Chapter "Suggestion for an adapter for bearingless, frame-supported rotating unions" so that no liquid can penetrate the motor through the labyrinth seal between the encoder cover and the balancing disk. If the motor is mounted vertically, all 6 drainage holes should be opened; if the motor is mounted horizontally, it is enough to open the two lower drainage holes.

Note

It is advantageous to provide a sealing air connection to protect the motor from penetration of coolant.

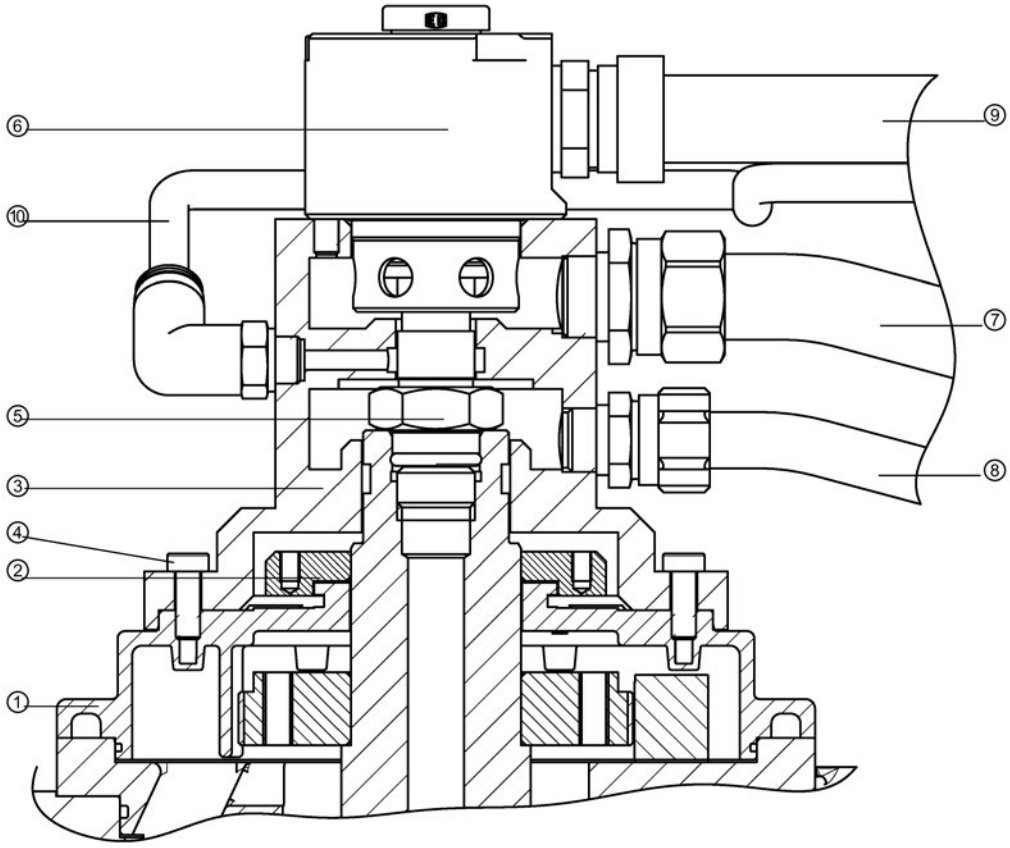
- The diameters and end faces of the adapter for supporting the encoder cover or the static part of the rotating union should be turned in one clamping if possible. For simpler machining, the adapter can be axially split. It is important that the finish-machining of the support diameter and end faces is performed in the assembled condition and in one clamping.

Mounting on water-cooled motors

Water-cooled motors have a “2” in the 11th position of Article No. together with option Y64.

Rotating unions with radial or axial connections can be used.

Mounting a bearingless rotating union on a water-cooled motor



1 Encoder cover
2 Balancing disk
3 Adapter
4 6 x M5 bolts
5 Rotating part of the rotating union, e.g. DEUBLIN 1129-050-301
6 Static part of the rotating union, e.g. DEUBLIN 1129-050-301
7 Leakage hose (min. diam. 12mm inside)
8 Leakage hose as backup and for faults
9 Inlet hose
10 Sealing air connection

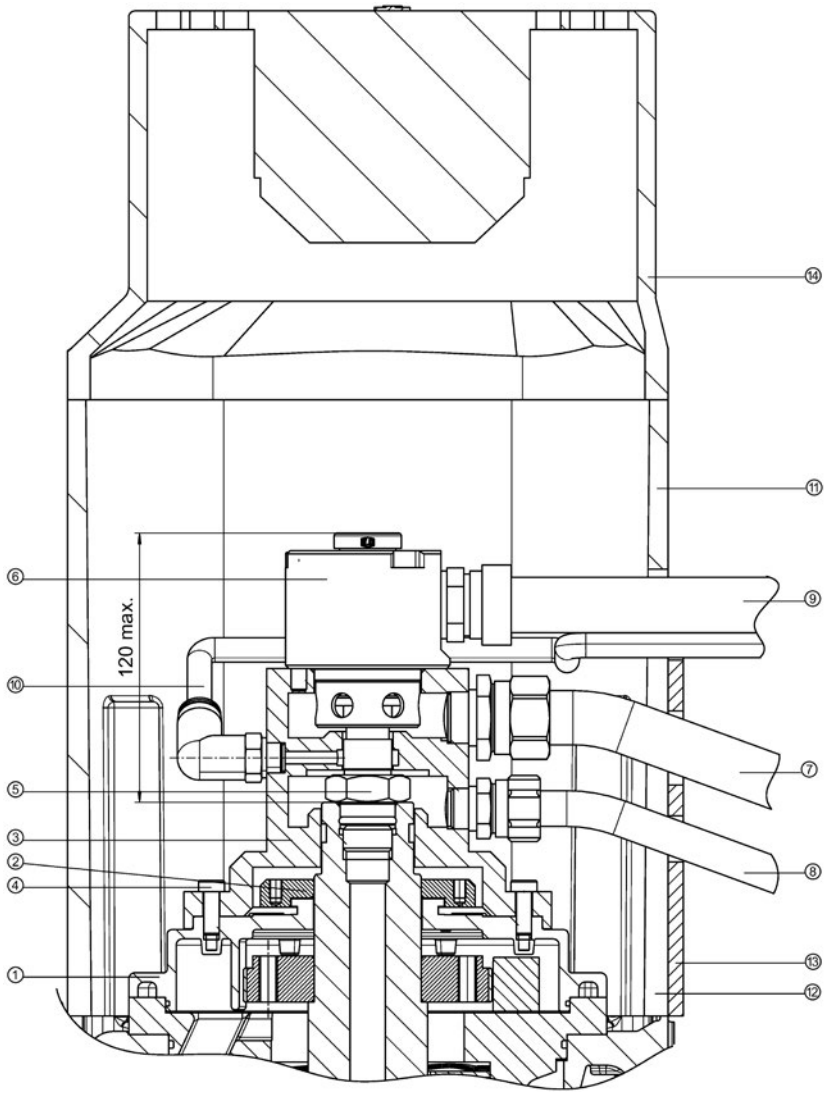
Mounting on air-cooled motors

Air-cooled motors have a “0” or a “1” in the 11th position of Article No. together with option Y64.

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 rotating union. It is suitable for rotating unions up to a length (without rotor connection thread and centering) of 120mm and a diameter of up to 55mm. Due to limitations of space, rotating unions with radial connections are recommended for air-cooled motors, e.g. DEUBLIN 1129-050-301. Rotating unions with axial connections are also possible in short versions, e.g. DEUBLIN 1129-730-731. In that case, an angled element must be used on the axial connection to which the supply hose is connected. The dimension 120mm must not be exceeded with the angled element.

NOTICE
Sealing the remaining holes Seal the remaining holes again between the cutout and the hoses to ensure that motor cooling is still effective.

Mounting of bearingless rotating union on an air-cooled motor



1 Encoder cover
2 Balancing disk
3 Adapter
4 6 x M5 bolts
5 Rotating part of the rotating union, e.g. DEUBLIN 1129-050-301
6 Static part of the rotating union, e.g. DEUBLIN 1129-050-301
7 Leakage hose (min. diam. 12mm inside)
8 Leakage hose as backup and for faults
9 Inlet hose
10 Sealing air connection
11 Intermediate housing
12 Cutout
13 Cover (openings for connections must be closed again)
14 Fan

Mounting steps

1.
2.

Note

Mounting steps for air-cooled motors

The mounting steps 1, 13, 14, 15, and 16 are only required for air-cooled motors.

1. Disassemble the fan and intermediate housing from the the motor.
2. Removing the sealing cover
3. If necessary, perform complete balancing of the motor with external balancing disks
4. Screw the rotating part of the rotating union into the NDE motor shaft extension and tighten with the appropriate torque (against the wrench grip surface on the NDE motor shaft extension).
5. Mount the adapter for the static part (not included in the scope of delivery) on the encoder cover with 6x M5 screws. Position the adapter in such a way that the leakage connection is at the lowest point (with horizontal mounting).
6. Mount the hoses for leakage and sealing air on the adapter, if necessary using angled elements
7. Mount the hose for the supply to the static part of the rotating union, if necessary using angled elements
8. Screw the static part onto the adapter
9. Always connect the hoses for leakage sloping downward (min. 15°).
10. Also connect the hose for the inlet sloping downward.
11. Manually check that the rotor turns easily.
12. Perform a hydrostatic test for leaks
13. Make a cutout for the inlet and leakage hoses in the intermediate housing.
14. Push the intermediate housing with the inlet over the hoses and screw it to the motor. Protect the hoses from mechanical loads
15. Screw the fan on to the intermediate housing
16. Seal the remaining openings between the cutout and the hoses

3.6.3 Mounting information and instructions

- Do not mount any additional anti-rotation pins on rotor-supported rotating unions
- Never screw pipes directly to the rotating union.
- Always use a hose between the rotating union and the fixed piping. To do this, route the hoses in curves and torsion-free.
- First screw the flexible hoses onto the rotor-supported rotating union. Then screw the rotating union onto the shaft with the specified torque.
- Avoid stressing due to incorrect hose lengths and unsuitable mounting material.
- The rotating union must be easy to turn when mounted.
- Keep rotating unions free of chips and burrs.
- Position the rotating union horizontally in such a way that the leakage connection is at the lowest point.
- Always route the leakage hose downward at at least 15° with a large cross-section.
- If the leakage hose is higher than the leakage connection and the mechanical seal is open, the rotating union and possibly also the motor will be flooded. The motor can fail.
- Also route the inlet hose downward. This causes the coolant to flow 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 or chips can reach the mechanical seal and damage it.

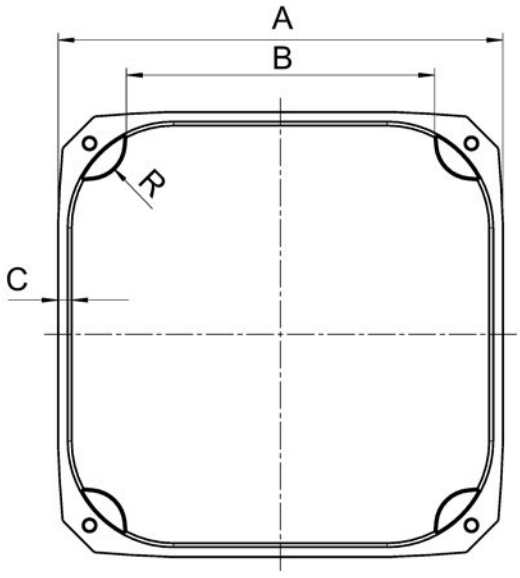
Note

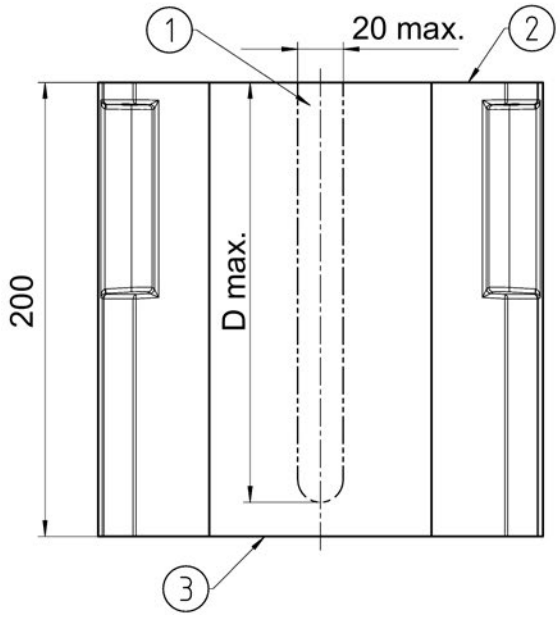
Mounting the rotating union

- During assembly, screw the thread absolutely tightly into the NDE shaft extension. Ensure that no coolant can leak.

- Check the rotating union and hoses regularly for tightness.

Intermediate housing for air-cooled motors





① Cutout for hoses (to be made by the customer)
② Motor side
③ Fan side

Slot dimensions for the intermediate housing

	SH 80	SH100	SH132	SH160
A	155	196	260	314
B	99	133	183	225
C	6	6	7	7
R	16	16	19	19
D	170	185	175	180

3.6.4 Suggestion for an adapter for bearingless, frame-supported rotating unions

Note

Comply with the manufacturer's specifications

Comply with the specifications and instructions provided by the manufacturer when installing the rotating union.

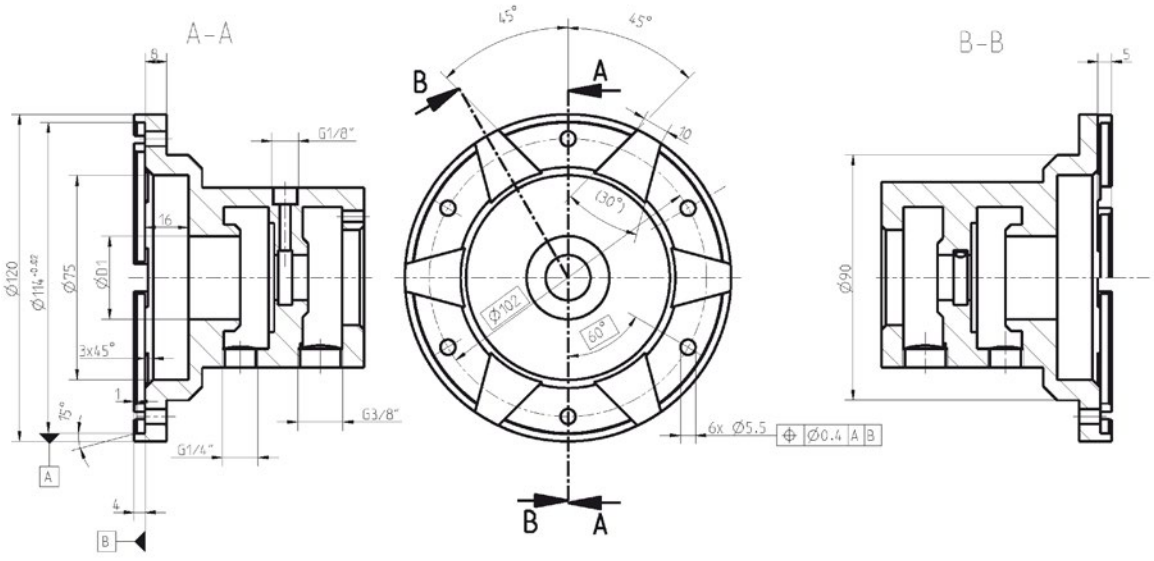


Figure 3-12 Example of the version of an adapter for supporting the static part of a bearingless, frame-supported rotating union

	1PH808.	1PH810.-1PH816.
Diameter D1	Diam. 22.5 H7	Diam. 30.5 H7

3.7 Radial and axial forces

3.7.1 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 minimum force 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, contact your local Siemens office.

NOTICE
Premature damage to bearings and shaft breakage due to strong radial forces Bearings can be prematurely damaged and shafts may break if force transmission elements apply too much load to the shaft end as a result of radial forces. • When using mechanical transmission elements, ensure that the maximum limit values specified in the radial force diagrams are not exceeded.

NOTICE
Premature damage to bearings due to insufficient radial forces Only for bearings with increased radial force (shaft height 100 to 280): Insufficiently high radial forces can cause the bearings to roll in an undefined fashion. This results in increased bearing wear. • For applications with an extremely low radial force load, ensure that the motor shaft is subject to at least the minimum radial force specified in the diagrams. Where the radial force load is less than the minimum radial force, e.g. on a coupling drive, you must not use the bearings for increased radial force. Use a motor with standard bearings for these applications.

NOTICE
Destruction of bearing seats 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. Rotating forces and imbalance can also occur on coupling drives. • Avoid rotating forces and imbalance.

NOTICE
Mechanical destruction of the motor If the motor supports the higher forces when force/torque boosting elements are used, the flange or the feet of the motor, for example, can be torn off. • Make sure that the force/torque boosting elements, e.g. gearbox or brakes, absorb the greater forces. Examples of remedies: – Choose the correct type of construction. – Pay attention to correct mechanical mounting of the force/torque boosting elements.

Note

Complying with the belt manufacturer's guidelines

- When dimensioning the radial forces at the shaft extension, ensure that you comply with the regulations of the belt manufacturers.
- Set the belt tension by means of appropriate measuring instruments.

Calculating the total radial force F_R for belt couplings

If the belt manufacturer has not provided precise radial force data, the radial force can be determined approximately by the following formula:

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

Table 3- 22 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

3.7.2 Axial force

The axial force acting on the locating bearings comprises the following components:

- Axial force in operation

- Axial forces acting externally on the motor (e.g. gearbox with helical gearing, machining forces through the tool)
- Axial forces from the coolant pressure of the coolant fed through the rotating union

- Force due to spring loading of the bearing

- Where applicable, force exerted by the rotor weight when the motor is vertically mounted

This results in a maximum axial force that is a function of the direction.

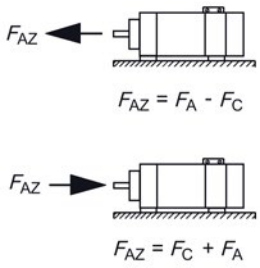
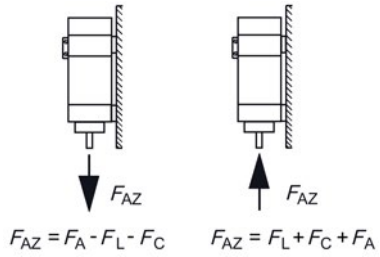
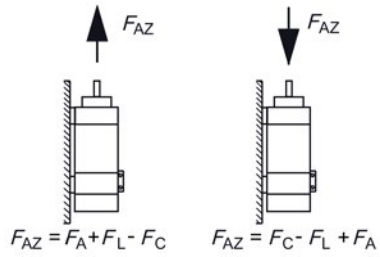
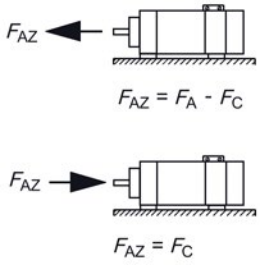
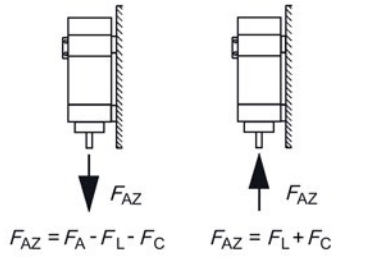
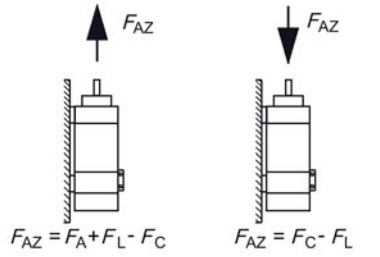
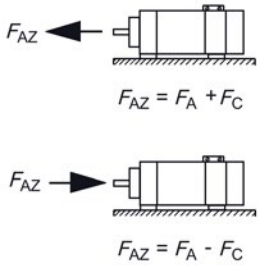
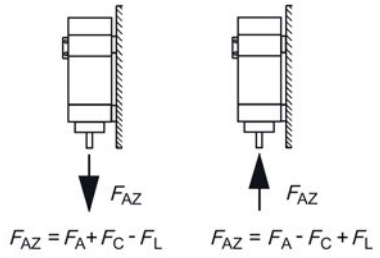
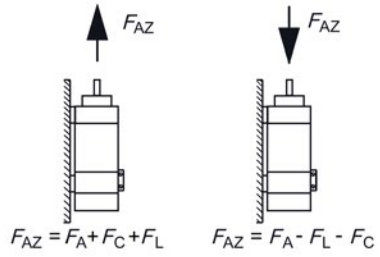
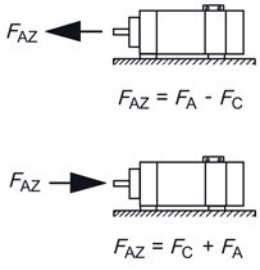
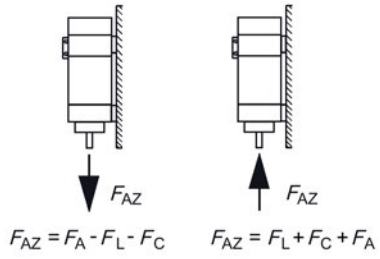
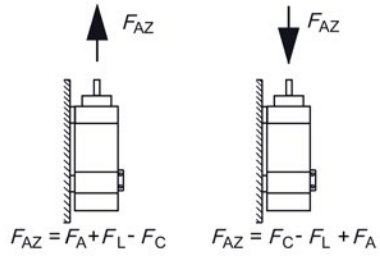
⚠ CAUTION
Axial force due to effective hydraulic diameter of the rotating union Pay attention to the axial force due to the effective hydraulic diameter (area) of the rotating union. **Force = A x p** • Force = F[N] • A = area [m²] • p = coolant pressure [N/m²] 1 bar = 10^5 N/m²

For axial forces in the direction of the motor, the spring-loading of the bearings can be overcome so that the rotor moves in accordance with the axial bearing play (up to 0.2mm). The permissible axial force F_{AZ} in operation depends on the motor mounting position.

When, for example, helical toothed wheels are used as the drive element, an axial force is exerted on the motor bearings in addition to the radial force. 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 "Calculating the permissible axial force").

Table 3- 23 Calculating the permissible axial force

Horizontal arrangement	Shaft end facing downwards	Shaft end facing upwards
SH 80 - SH 160 with bearing version Standard with locating bearing, Performance, High Performance, Advanced Lifetime		
		
SH 80 - SH 160 with bearing version Standard		
		
SH 180 and SH 225		
		
SH 280		
		
F_{AZ}	Permissible axial force in operation	
F_A	Permissible axial force as a function of the average operating speed nm in each case, ignoring the preloading force and the force due to the weight of the rotor	
F_C	Pre-loading force	
F_L	Force due to weight of rotor	

3.7.3 Permissible radial and axial forces for 1PH808 Premium Performance

For the Premium Performance version of the 1PH808, the following radial and axial forces of the motor shaft are permissible:

Radial force = 100 N	Axial force = 1400 N
The axial force address comprises:	
Rotating union = 950 N	Preloading F_c = 450 N

Maximum permissible mechanical load

		DE shaft extension	NDE shaft extension
Maximum radial force		100 N	100 N
Maximum radial force	Solid shaft		
	1 Toward the motor	350 N	-
	2 Away from the motor	950 N	-
	Hollow shaft		
	1 Toward the motor	350 N	950 N
	2 Away from the motor	950 N	350 N

3.7.4 Radial and axial force diagrams

Permissible radial forces for SH 80

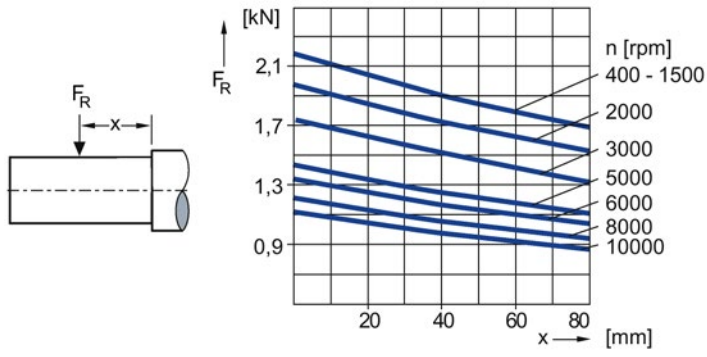


Figure 3-13 SH 80, Standard, and Standard with locating bearing, 20000 h bearing lifetime

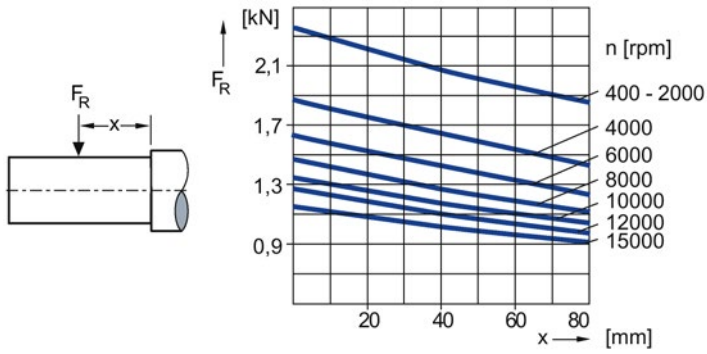


Figure 3-14 SH 80, Performance, High Performance, 12000 h bearing lifetime

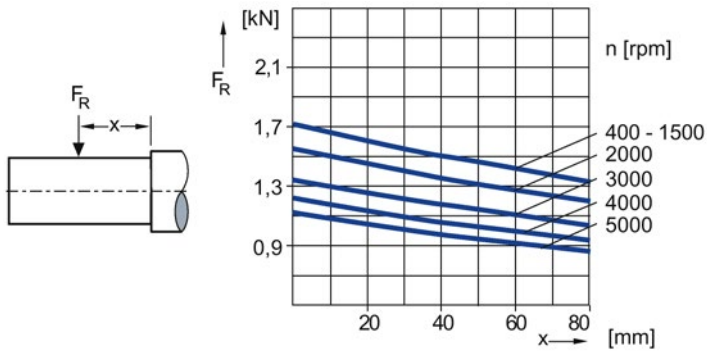


Figure 3-15 SH 80, Advanced Lifetime, 40000 h bearing lifetime

Permissible radial forces for SH 100

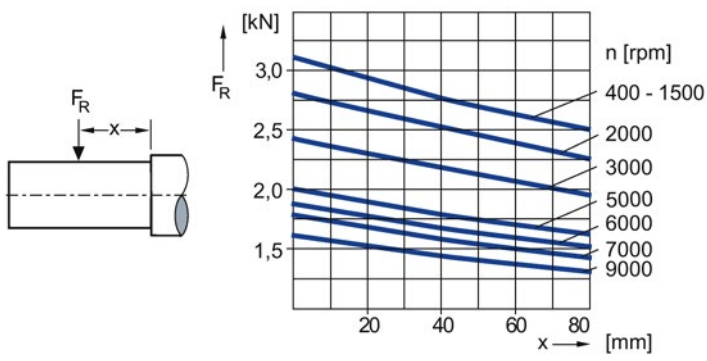


Figure 3-16 SH 100, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

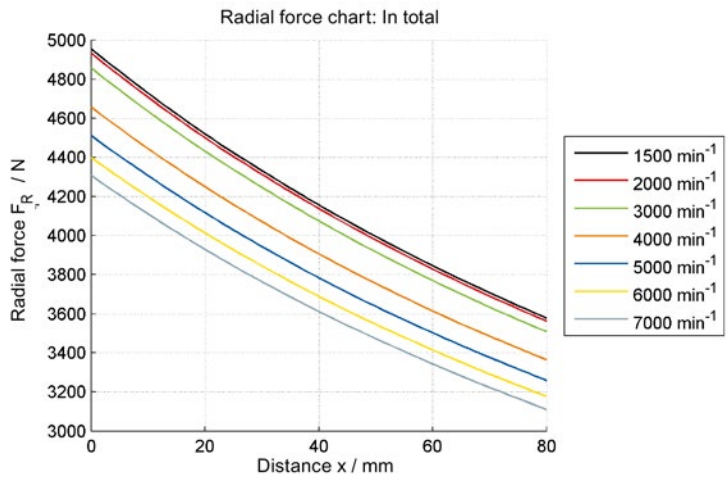


Figure 3-17 SH 100, increased radial force, 20,000 h bearing lifetime, minimum radial force: 0.5 kN

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!

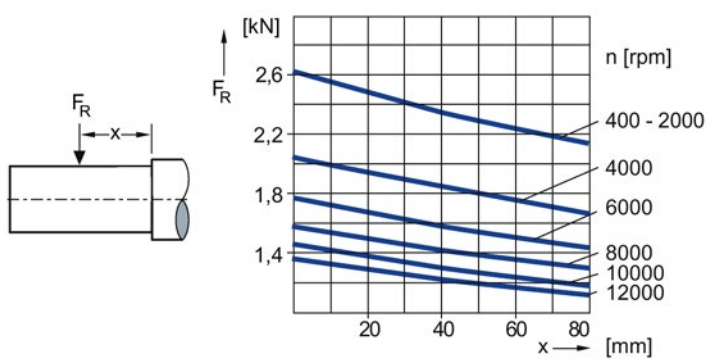


Figure 3-18 SH 100, Performance, 12,000 h bearing lifetime

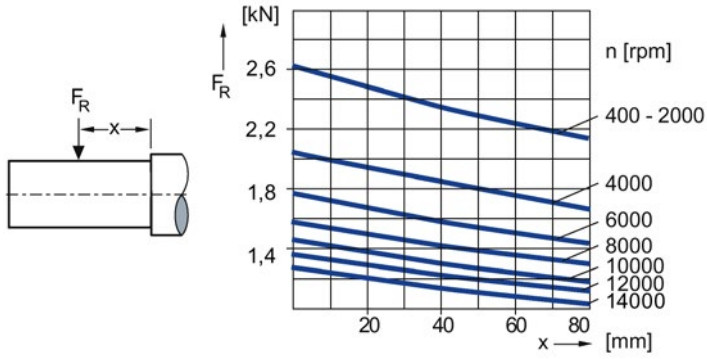


Figure 3-19 SH 100, High Performance, 12,000 h bearing lifetime

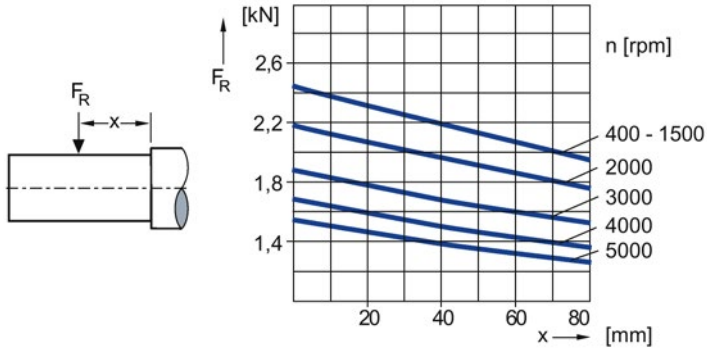


Figure 3-20 SH 100, Advanced Lifetime, 40,000 h bearing lifetime

Permissible radial forces for SH 132

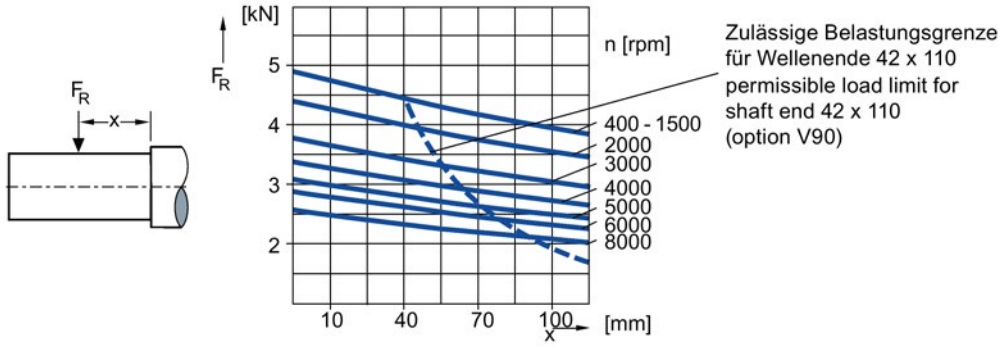


Figure 3-21 SH 132, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

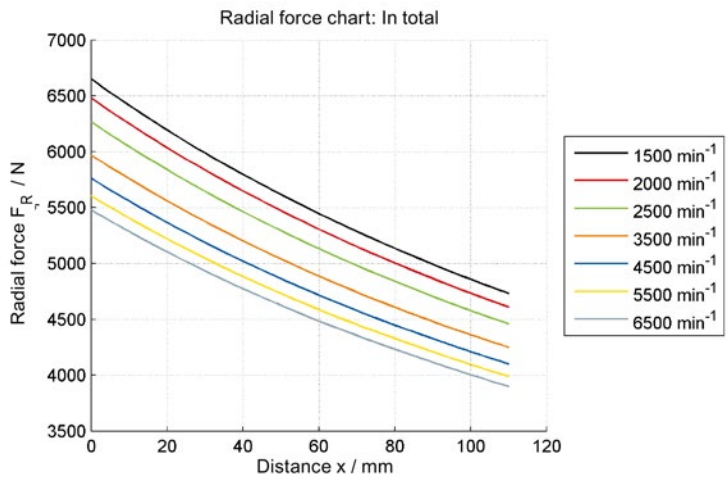


Figure 3-22 SH 132, increased radial force, 20,000 h bearing lifetime, minimum radial force: 0.7 kN

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!

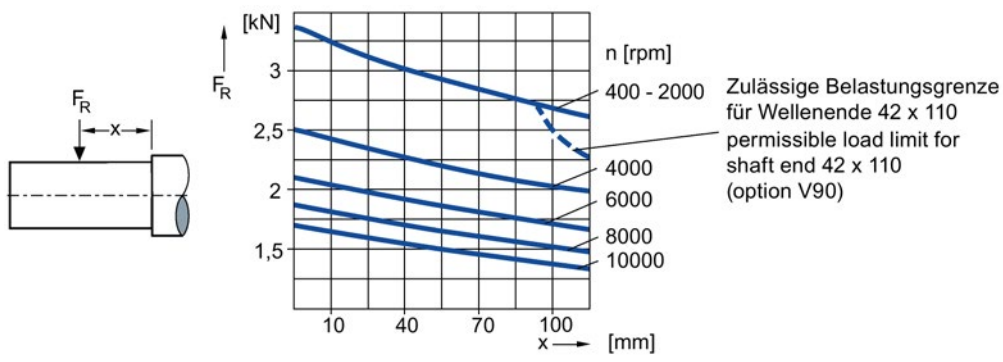


Figure 3-23 SH 132, Performance, 12,000 h bearing lifetime

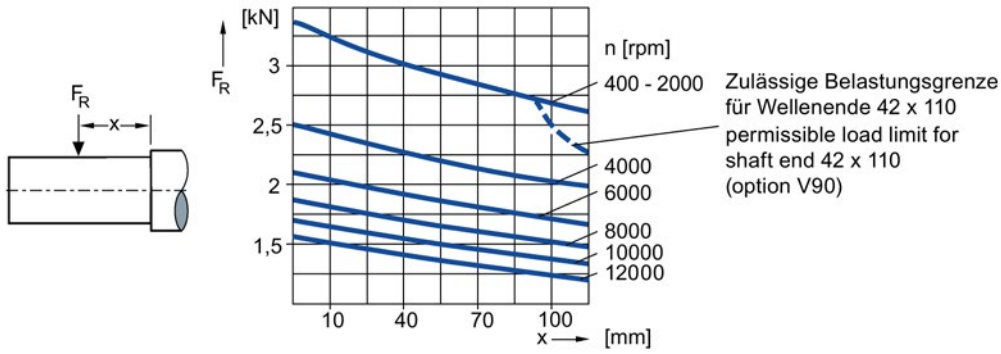


Figure 3-24 SH 132, High Performance, 12,000 h bearing lifetime

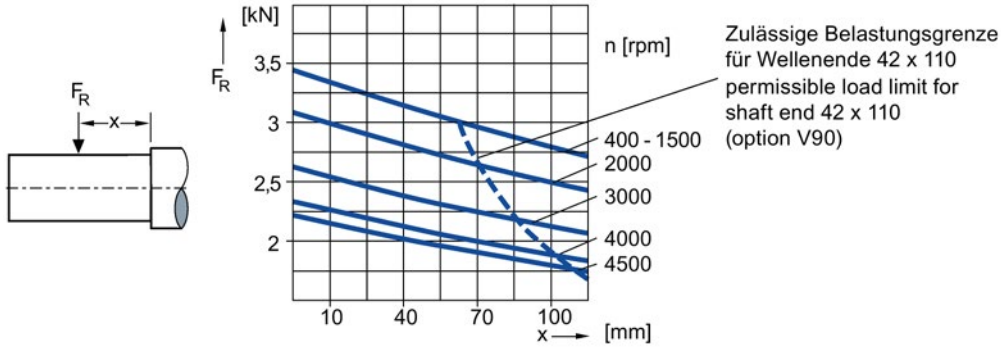


Figure 3-25 SH 132, Advanced Lifetime, 40,000 h bearing lifetime

Permissible radial forces for SH 160

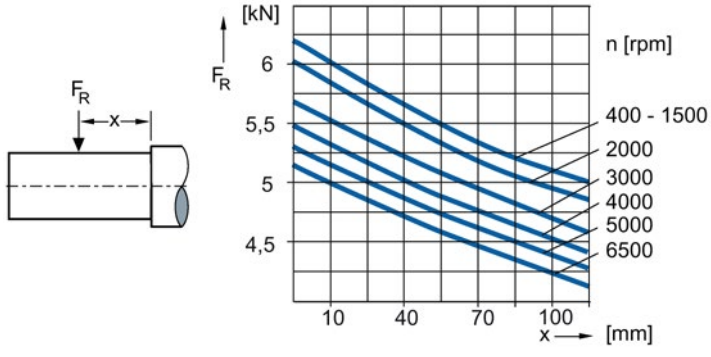


Figure 3-26 SH 160, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

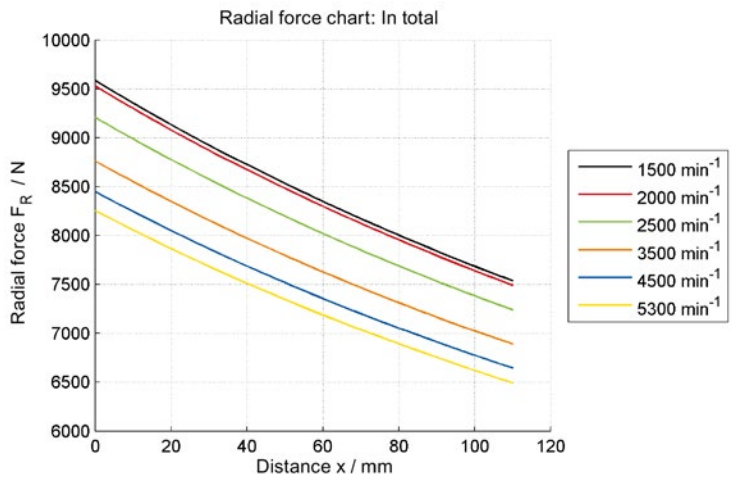


Figure 3-27 SH 160, increased radial force, 16,000 h bearing lifetime, minimum radial force: 1 kN

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!

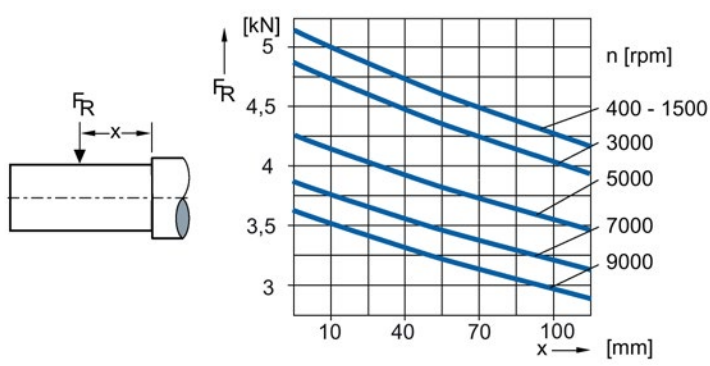


Figure 3-28 SH 160, Performance, 12,000 h bearing lifetime

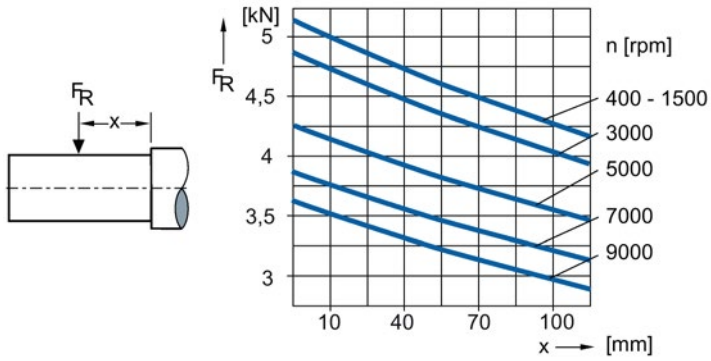


Figure 3-29 SH 160, High Performance, 12,000 h bearing lifetime

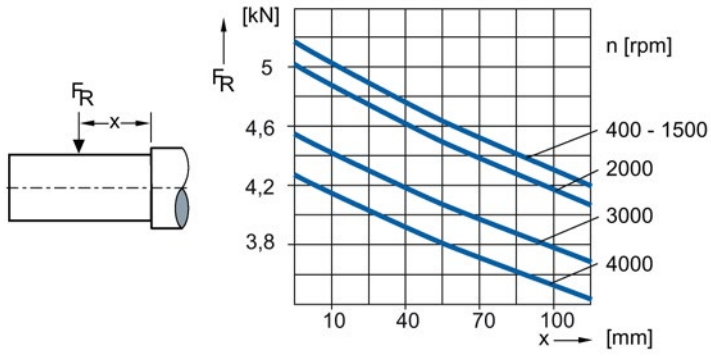


Figure 3-30 SH 160, Advanced Lifetime, 40,000 h bearing lifetime

Permissible radial forces for SH 180

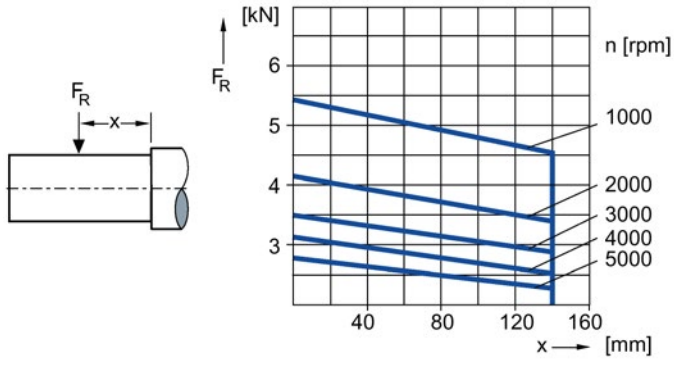


Figure 3-31 SH 180, Standard with locating bearing, 20000 h bearing lifetime

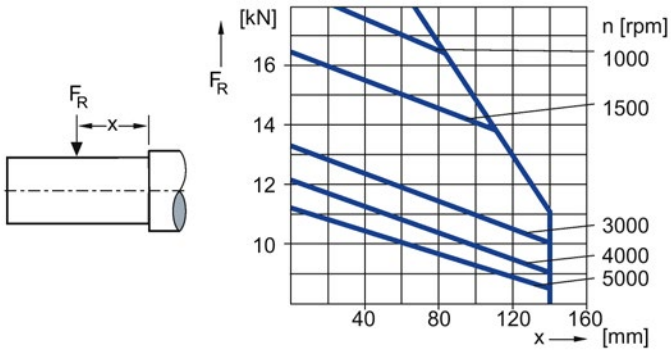


Figure 3-32 SH 180, increased radial force, 12000 h bearing lifetime, minimum radial force: 4 kN

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!

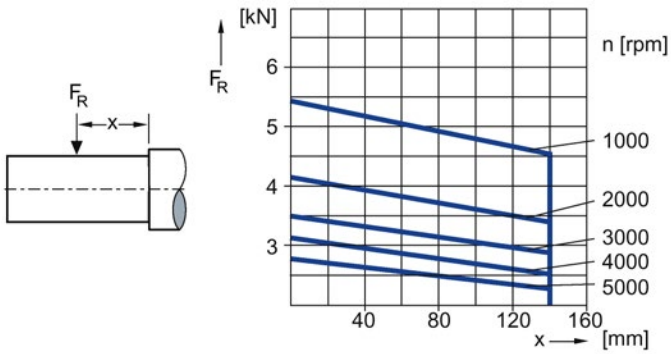


Figure 3-33 SH 180, Performance, 12,000 h bearing lifetime

Permissible radial forces for SH 225

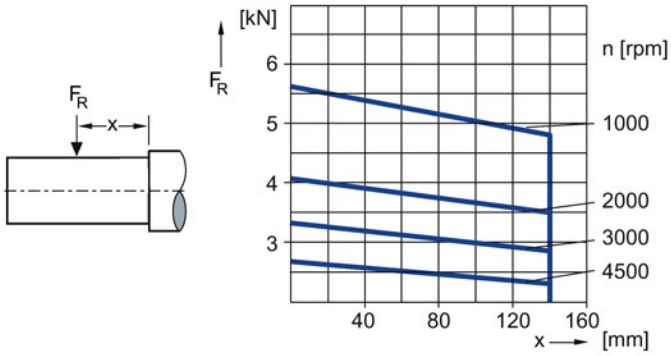


Figure 3-34 SH 225, Standard with locating bearing, 20,000 h bearing lifetime

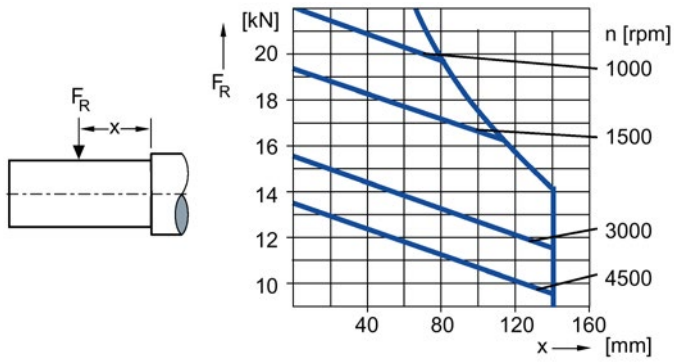


Figure 3-35 SH 225, increased radial force, 12,000 h bearing lifetime, minimum radial force: 5 kN

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!

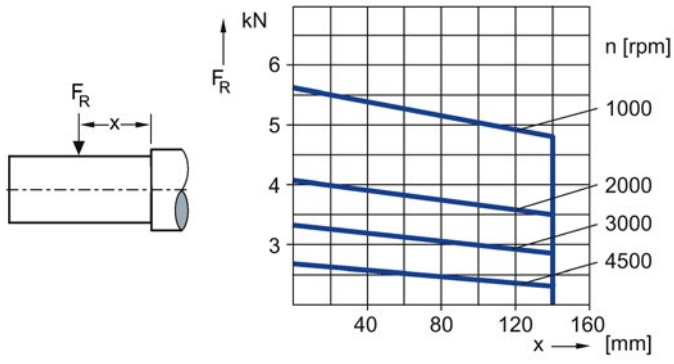


Figure 3-36 SH 225, Performance, 12,000 h bearing lifetime

Permissible radial forces for SH 280

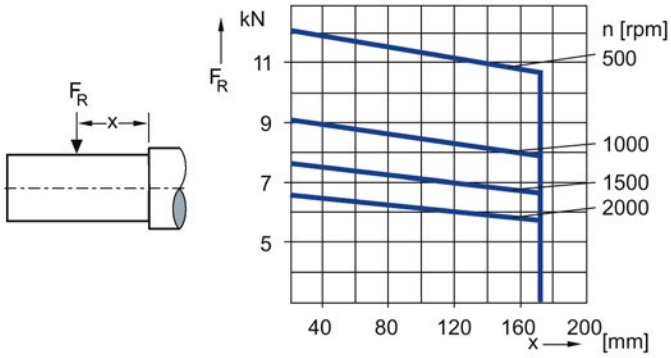


Figure 3-37 SH 280, Standard with locating bearing, 20000 h bearing lifetime

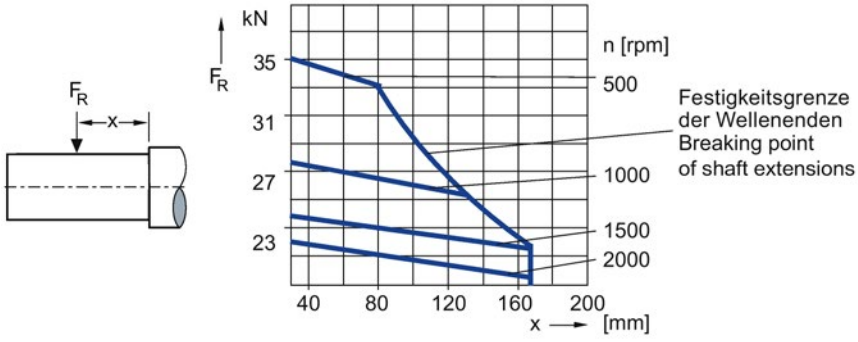


Figure 3-38 SH 280, increased radial force, 12000 h bearing lifetime, minimum radial force: 9 kN

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

Determining the permissible axial forces

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- 24 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%
1PH8081	65	450
1PH8083	90	
1PH8087	115	
1PH8101	120	550
1PH8103	150	
1PH8105	195	
1PH8107	220	
1PH8131	270	900
1PH8133	330	
1PH8135	390	
1PH8137	445	
1PH8138		
1PH8163	600	1,200
1PH8164		
1PH8165	715	
1PH8166		
1PH8167	655	
1PH8168		
1PH8184	900	880
1PH8184 (type of construction IM V5, V15)		2,300
1PH8186	1,150	880
1PH8186 (type of construction IM V5, V15)		2,300

Motor type	Force due to weight F_L [N]	Force due to spring-loading F_C [N] +/- 25%
1PH8224	1710	880
1PH8226	2,160	
1PH8228	2,570	
1PH8284	3,300	1,100
1PH8286	4,000	
1PH8288	4,700	

Permissible axial forces for shaft height 80

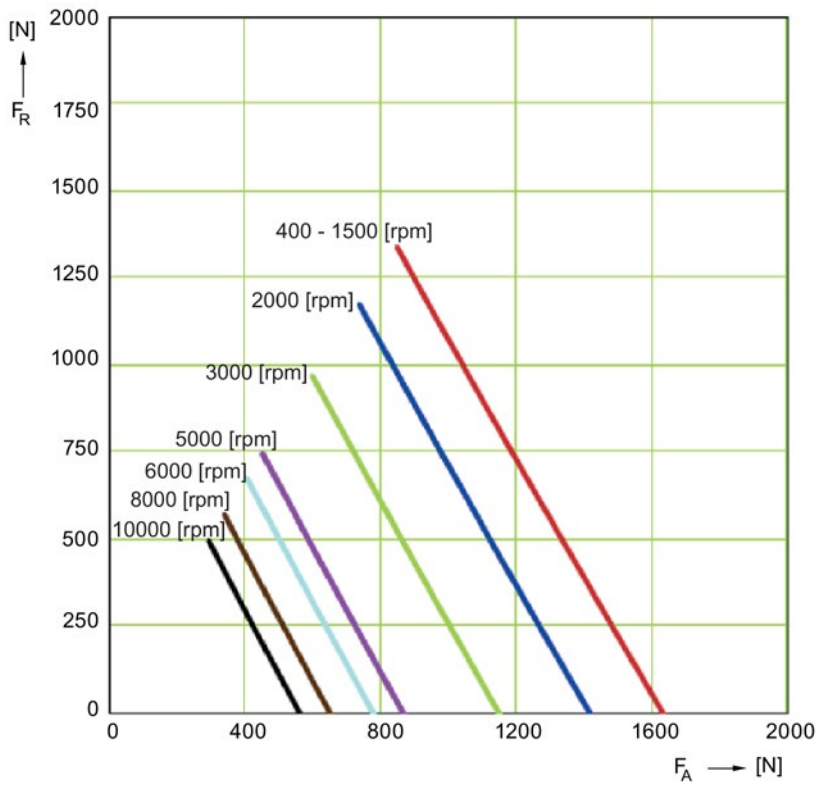


Figure 3-39 SH 80, Standard, and Standard with locating bearing, 20000 h bearing lifetime

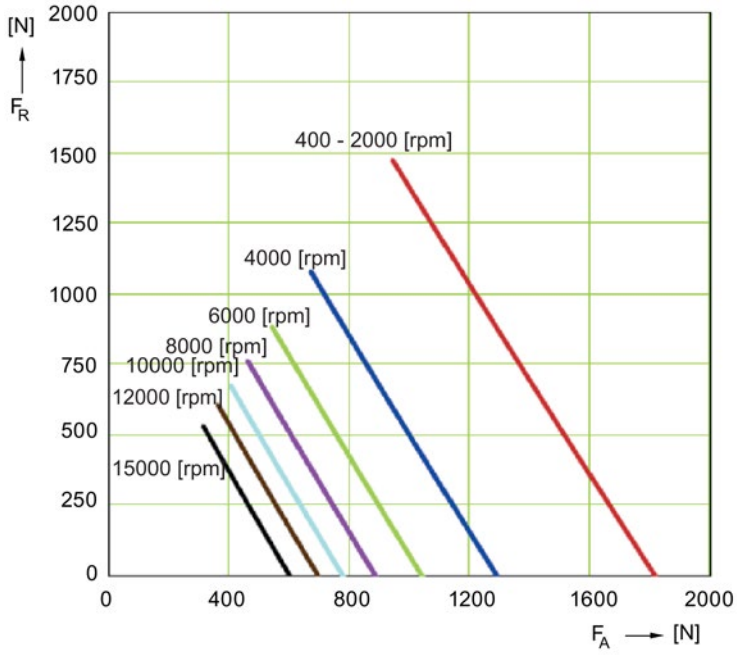


Figure 3-40 SH 80, Performance, High Performance, 12000 h bearing lifetime

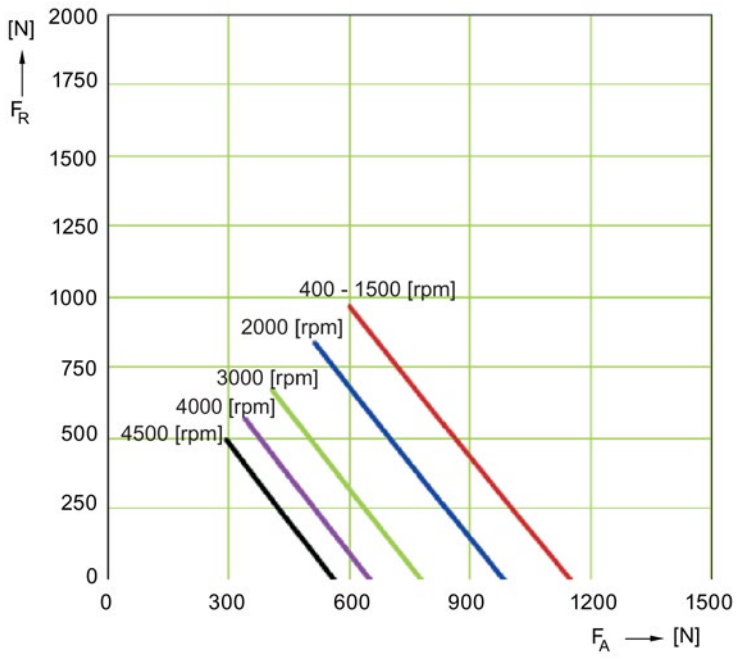


Figure 3-41 SH 80, Advanced Lifetime, 40000 h bearing lifetime

Permissible axial forces for shaft height 100

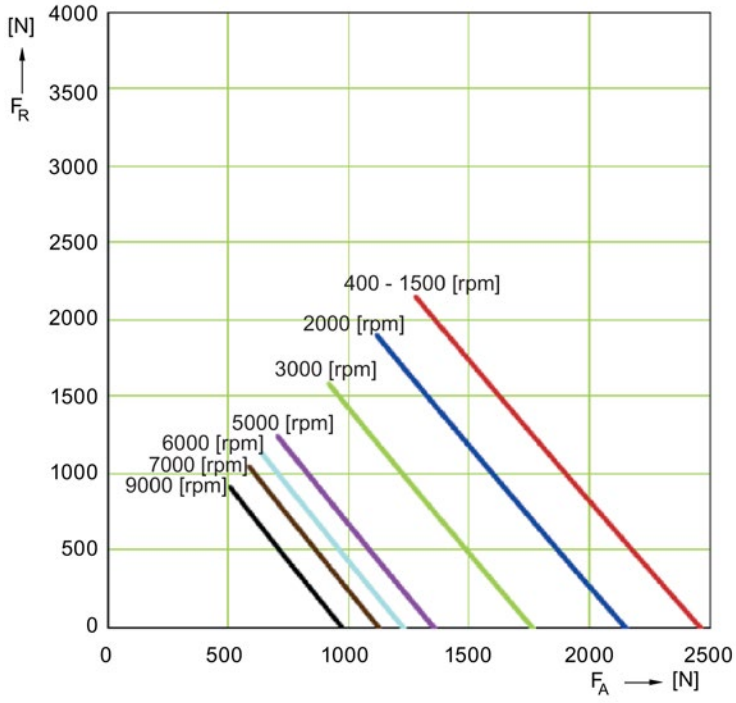


Figure 3-42 SH 100, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

Table 3- 25 SH 100, increased radial force, 20,000 h bearing lifetime

Motor type		Max. permissible axial force as a function of speed						
1PH810	Speed n (rpm)	1,500	2,000	3,000	4,000	5,000	6,000	7,000
	Axial force F_A (N)	2,100	2,050	1,950	1,850	1,750	1,700	1,650

Note

The permissible axial force is absorbed exclusively by the deep-groove ball bearing of the duplex bearing. The cylindrical roller bearing absorbs the radial force. The axial force F_{AZ} that is permissible during operation is calculated as stated in table "Calculating the permissible axial force (Page 112)."

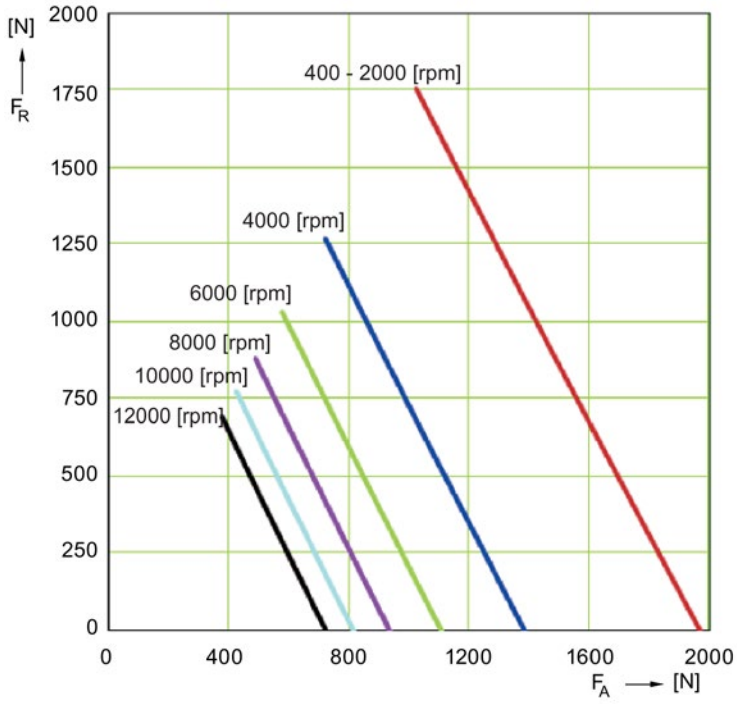


Figure 3-43 SH 100, Performance, 12,000 h bearing lifetime

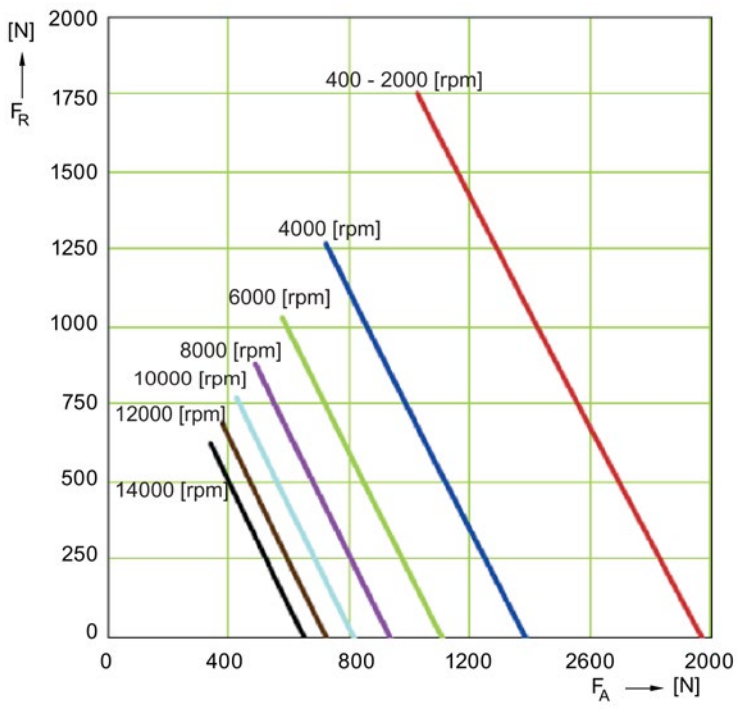


Figure 3-44 SH 100, High Performance, 12,000 h bearing lifetime

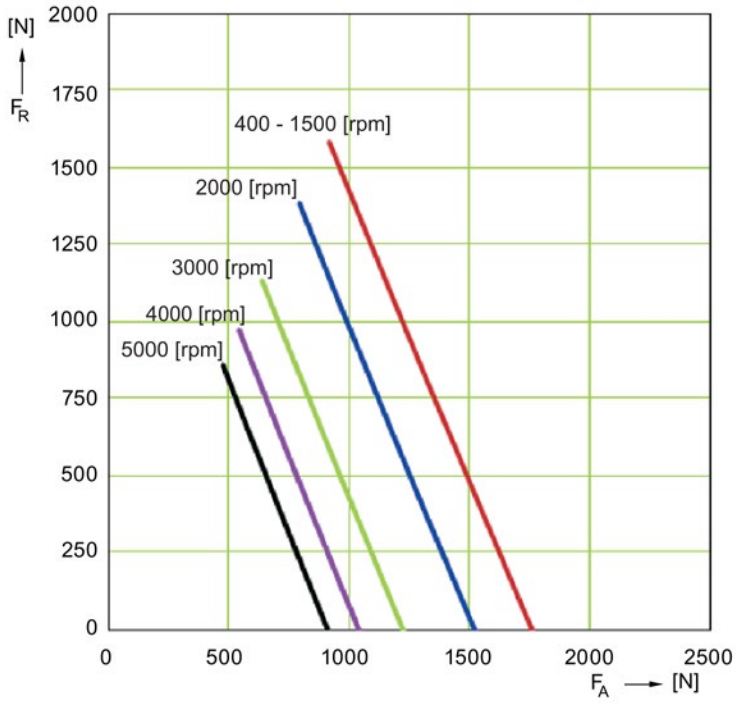


Figure 3-45 SH 100, Advanced Lifetime, 40,000 h bearing lifetime

Permissible axial forces for SH 132

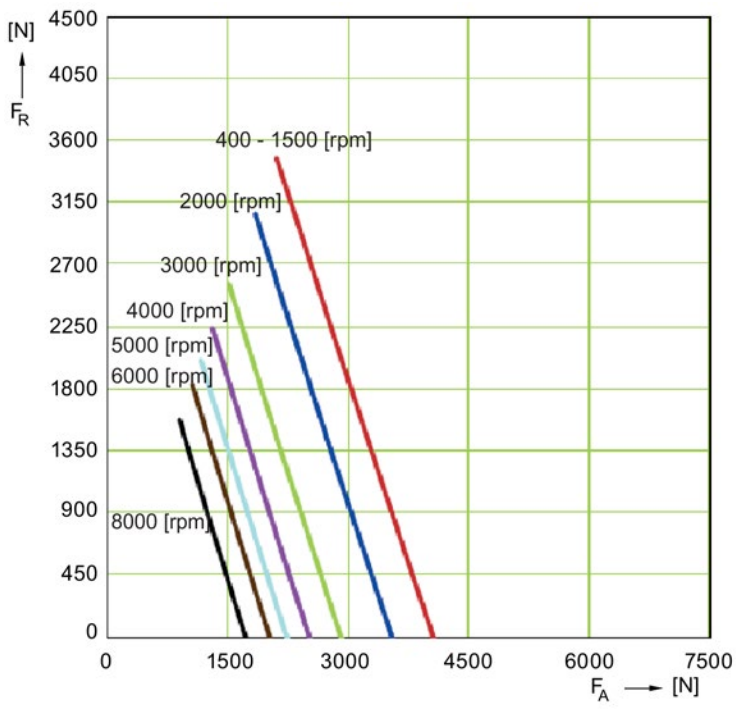


Figure 3-46 SH 132, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

Table 3- 26 SH 132, increased radial force, 20,000 h bearing lifetime

Motor type		Max. permissible axial force as a function of speed						
1PH813	Speed n (rpm)	1,500	2,000	3,000	4,000	5,000	6,500	-
	Axial force F_A (N)	2,600	2,550	2,400	2,250	2,200	2,100	-

Note

The permissible axial force is absorbed exclusively by the deep-groove ball bearing of the duplex bearing. The cylindrical roller bearing absorbs the radial force. The axial force F_{AZ} that is permissible during operation is calculated as stated in table "Calculating the permissible axial force (Page 112)."

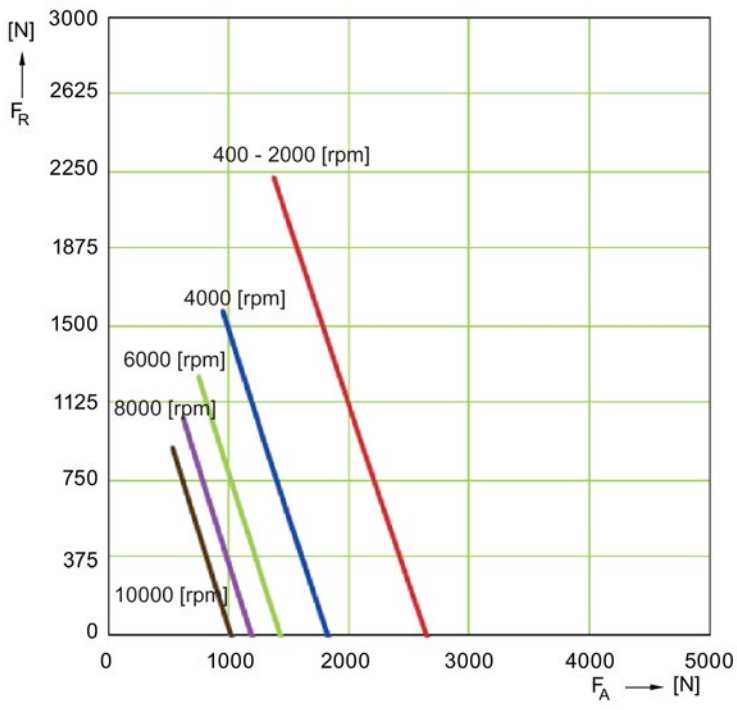


Figure 3-47 SH 132, Performance, 12,000 h bearing lifetime

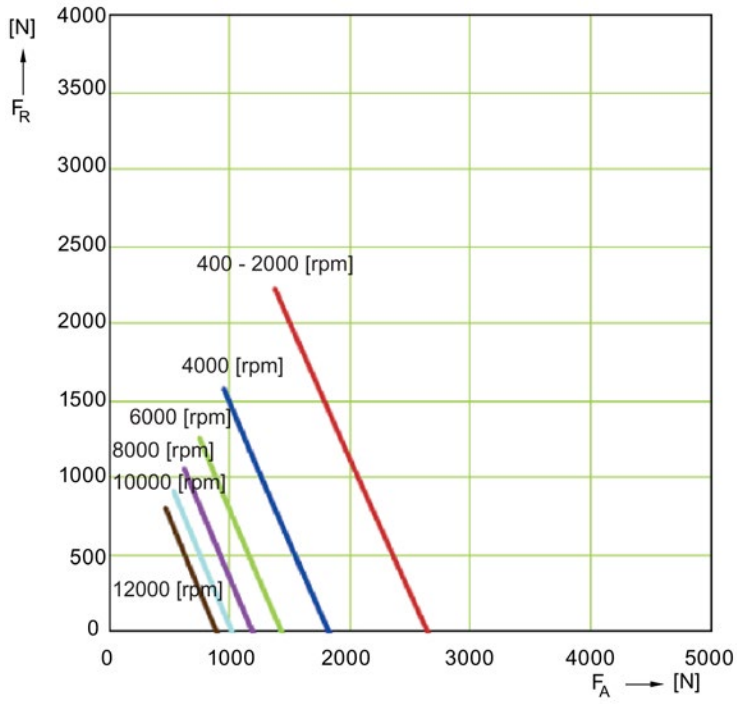


Figure 3-48 SH 132, High Performance, 12,000 h bearing lifetime

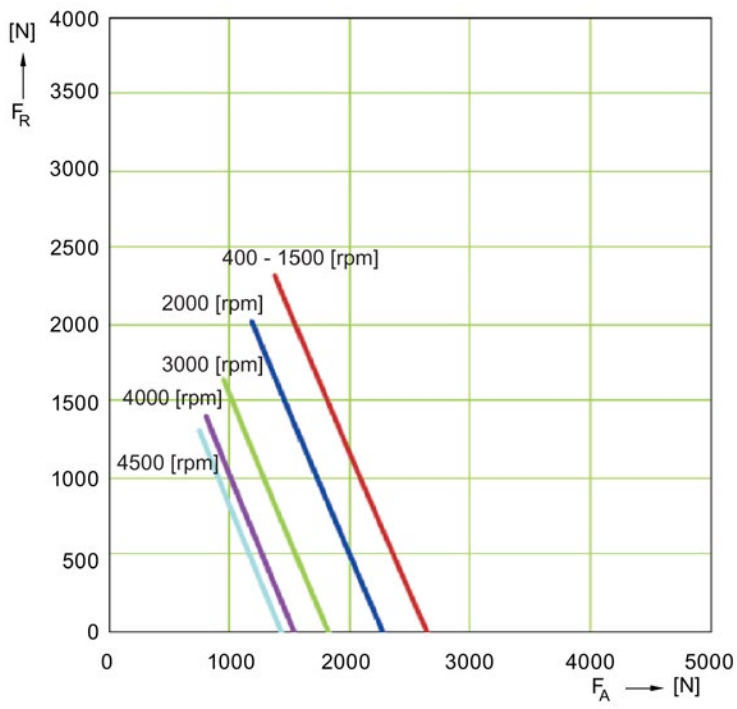


Figure 3-49 SH 132, Advanced Lifetime, 40,000 h bearing lifetime

Permissible axial forces for SH 160

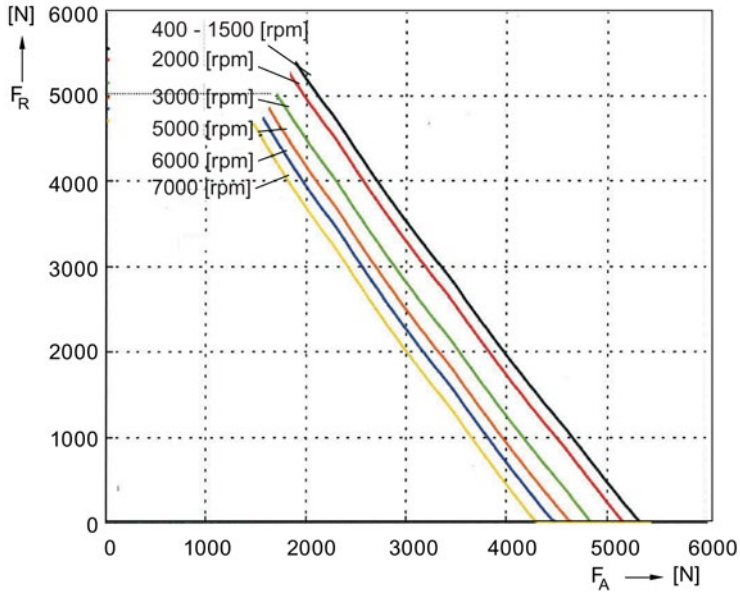


Figure 3-50 SH 160, Standard, and Standard with locating bearing, 20,000 h bearing lifetime

Table 3- 27 SH 160, increased radial force, 16,000 h bearing lifetime

Motor type		Max. permissible axial force as a function of speed						
1PH816	Speed n (rpm)	1,500	2,000	3,000	4,000	5,300	-	-
	Axial force F_A (N)	4,000	3,800	3,550	3,400	3,250	-	-

Note

The permissible axial force is absorbed exclusively by the deep-groove ball bearing of the duplex bearing. The cylindrical roller bearing absorbs the radial force. The axial force F_{AZ} that is permissible during operation is calculated as stated in table "Calculating the permissible axial force."

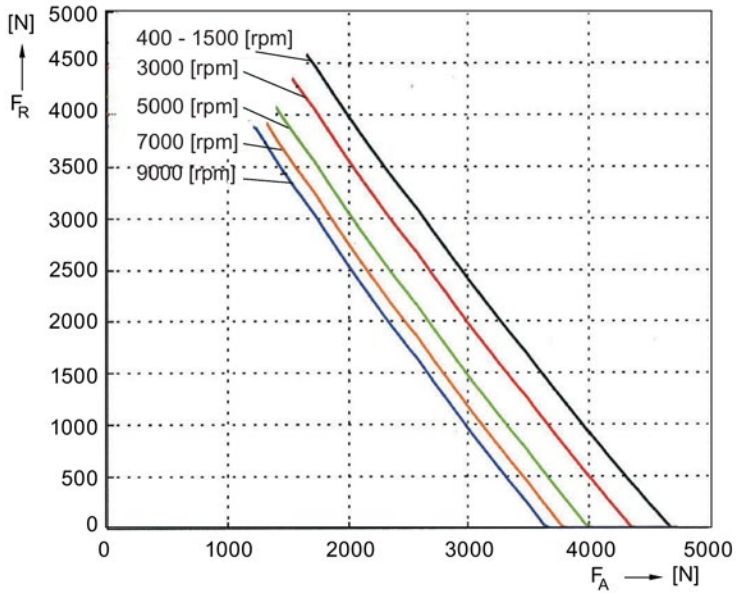


Figure 3-51 SH 160, Performance, 12,000 h bearing lifetime

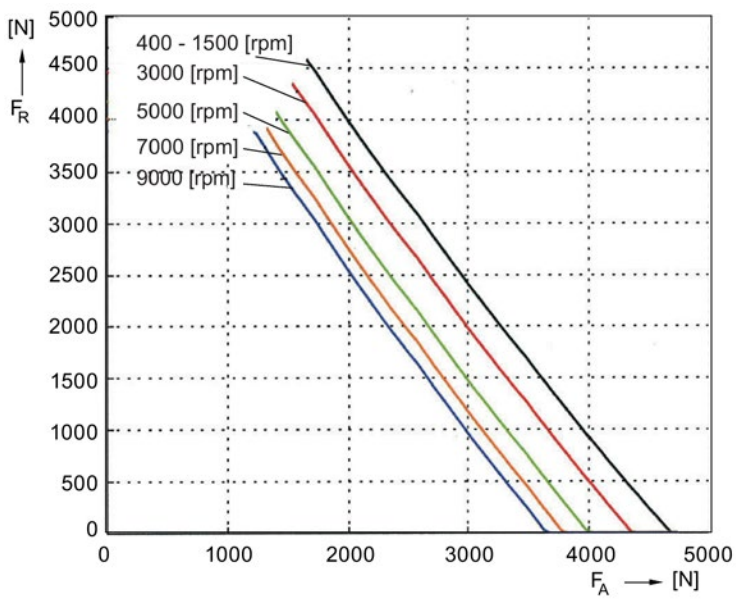


Figure 3-52 SH 160, High Performance, 12,000 h bearing lifetime

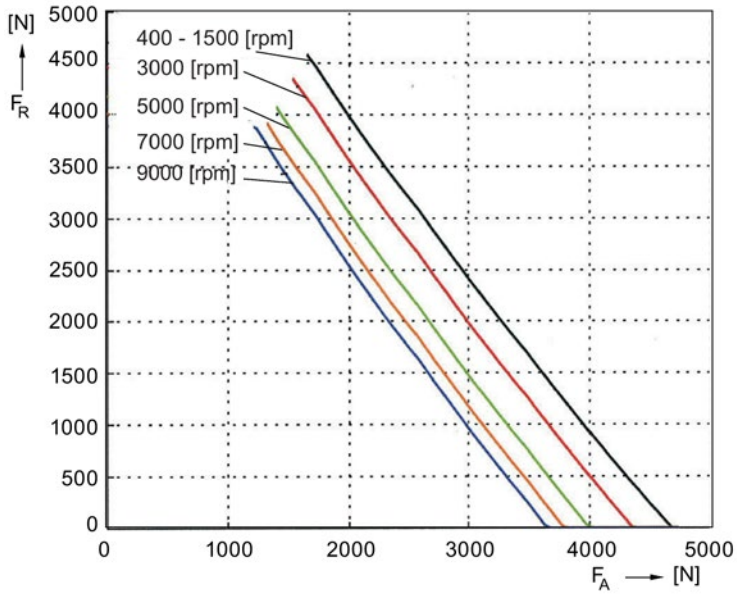


Figure 3-53 SH 160, Performance, 12,000 h bearing lifetime

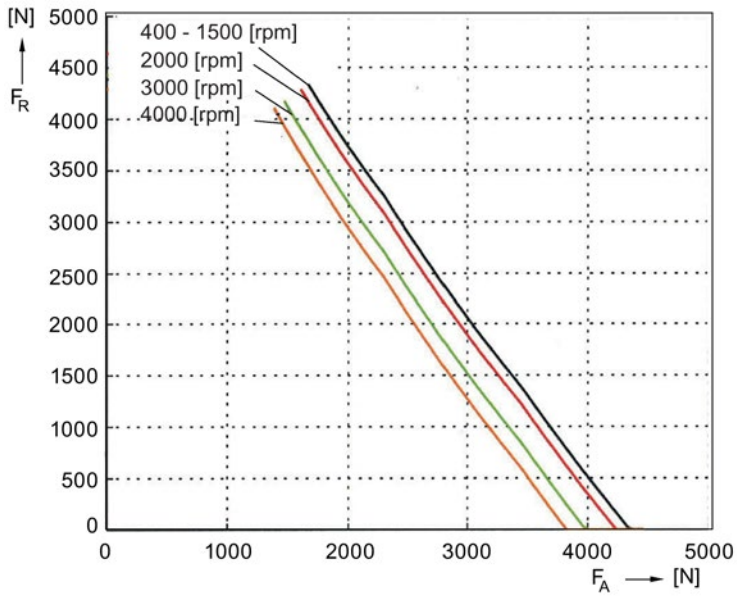


Figure 3-54 SH 160, Advanced Lifetime, 40,000 h bearing lifetime

See also

Axial force (Page 112)

Permissible axial forces for SH 180

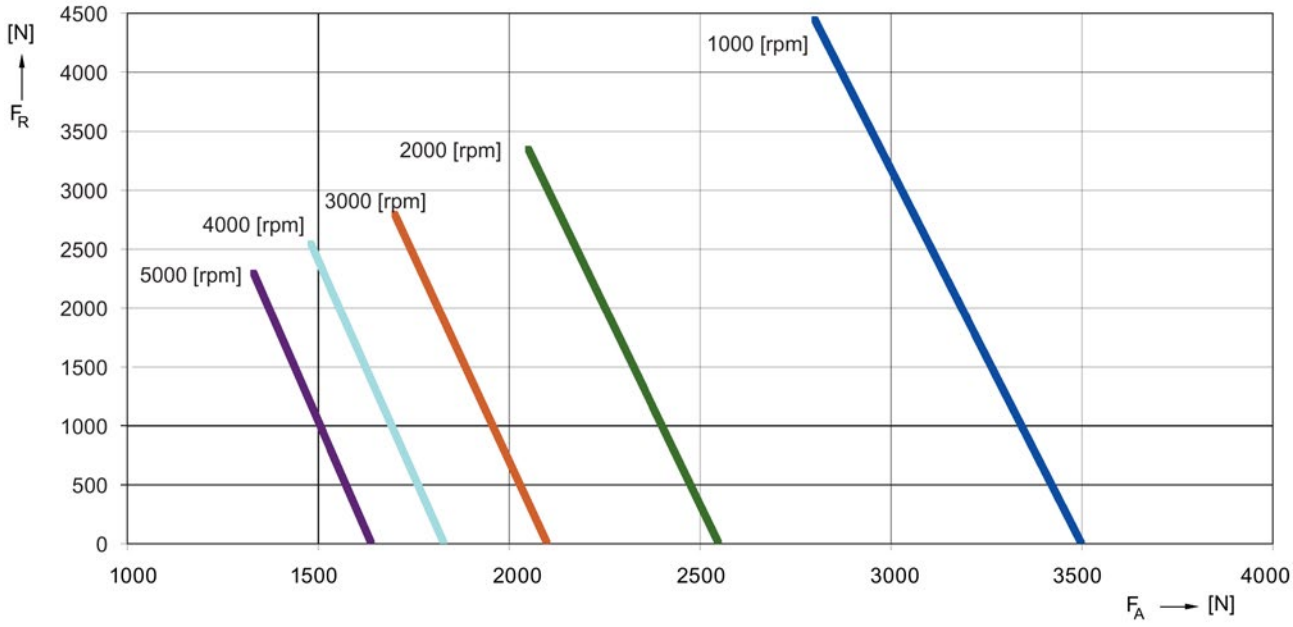


Figure 3-55 SH 180, Standard/Performance, 20000/12000 h bearing lifetime

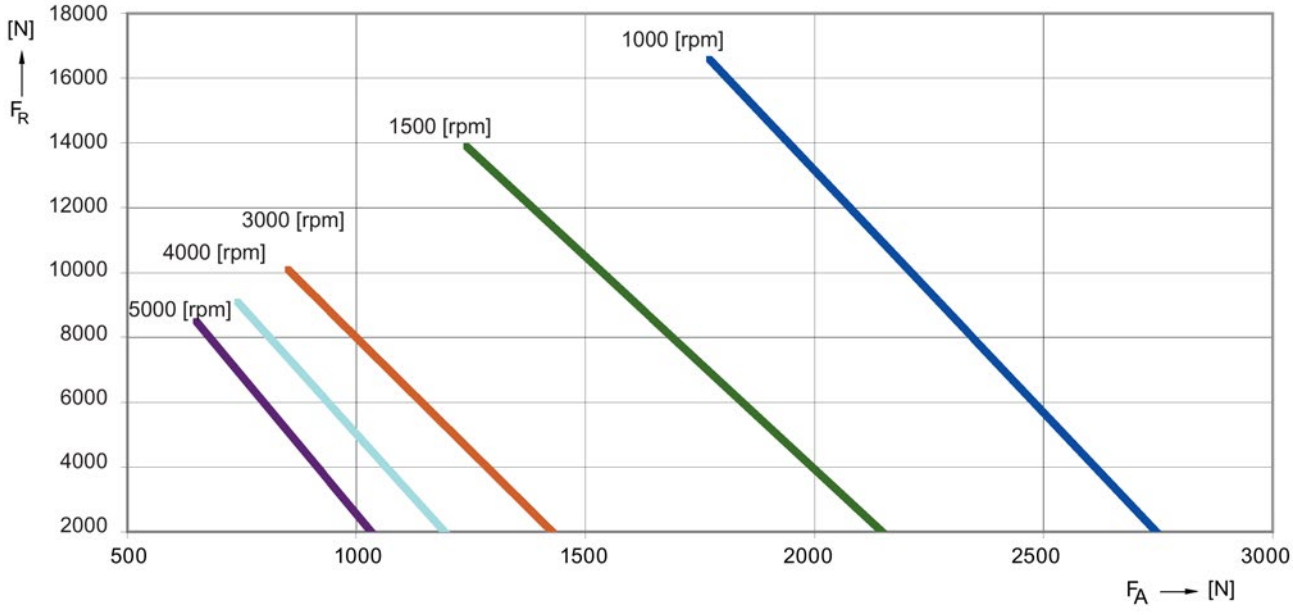


Figure 3-56 SH 180, increased cantilever forces, 12000 h bearing lifetime

Permissible axial forces for SH 225

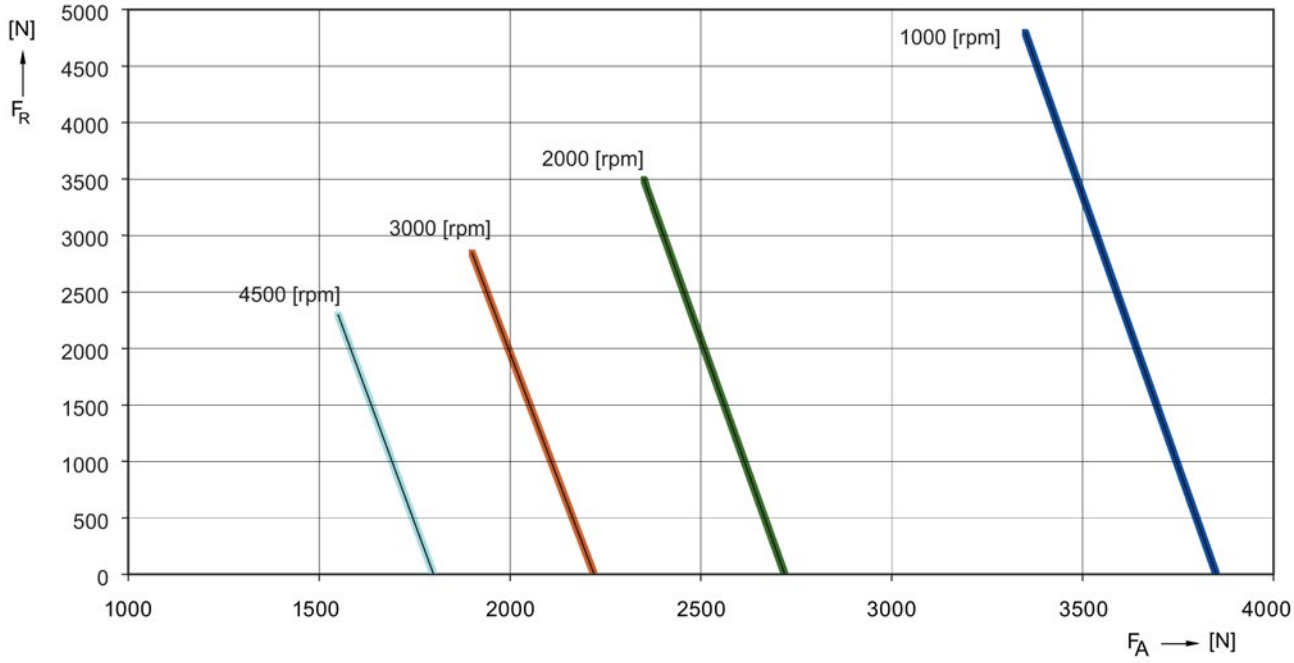


Figure 3-57 SH 225, Standard/Performance, 20000/12000 h bearing lifetime

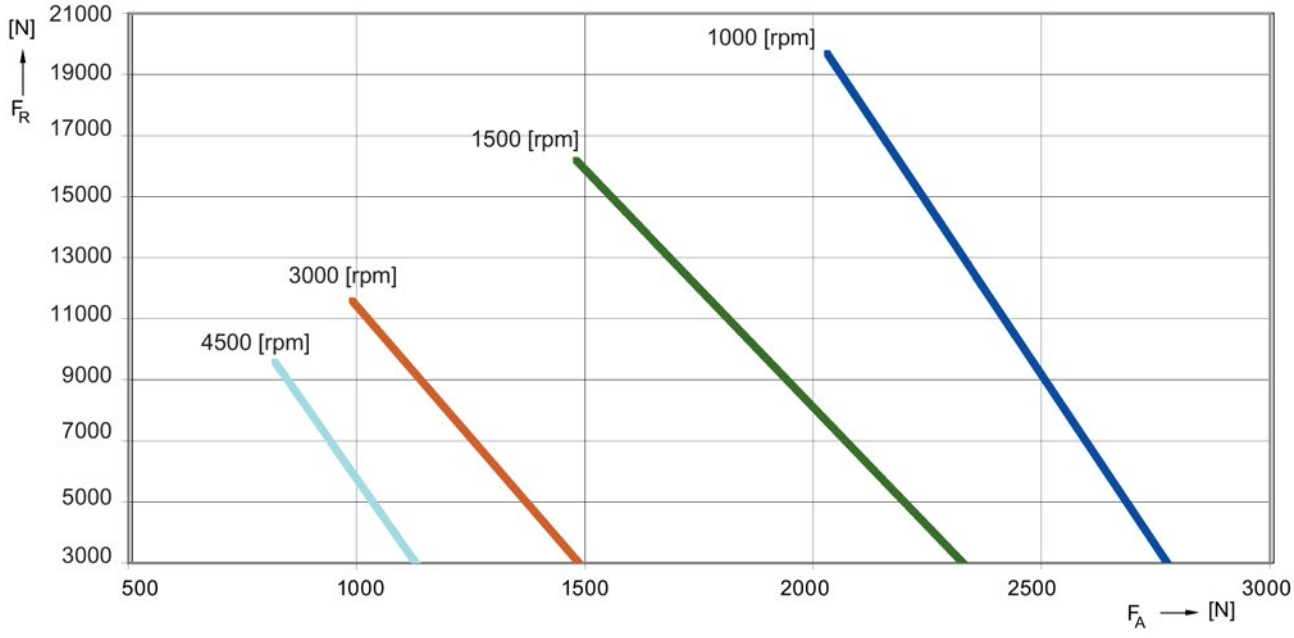


Figure 3-58 SH 225, increased cantilever forces, 12000 h bearing lifetime

Permissible axial forces for SH 280

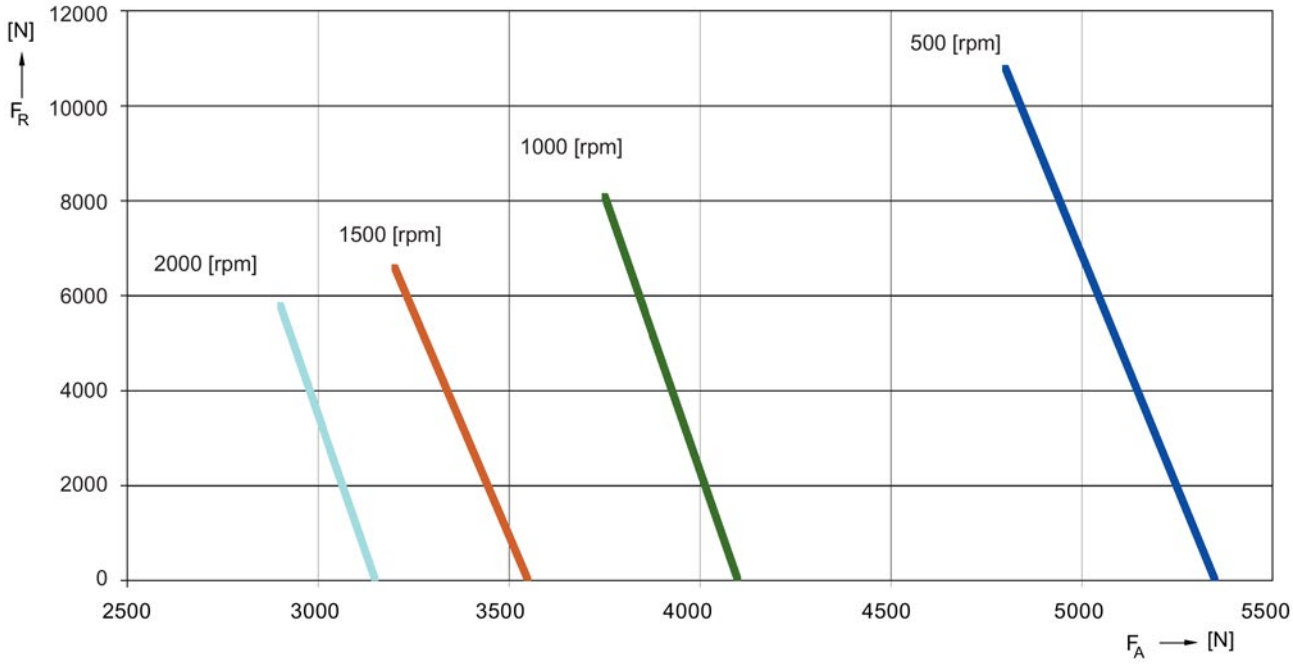


Figure 3-59 SH 280, Standard, 20000 h bearing lifetime

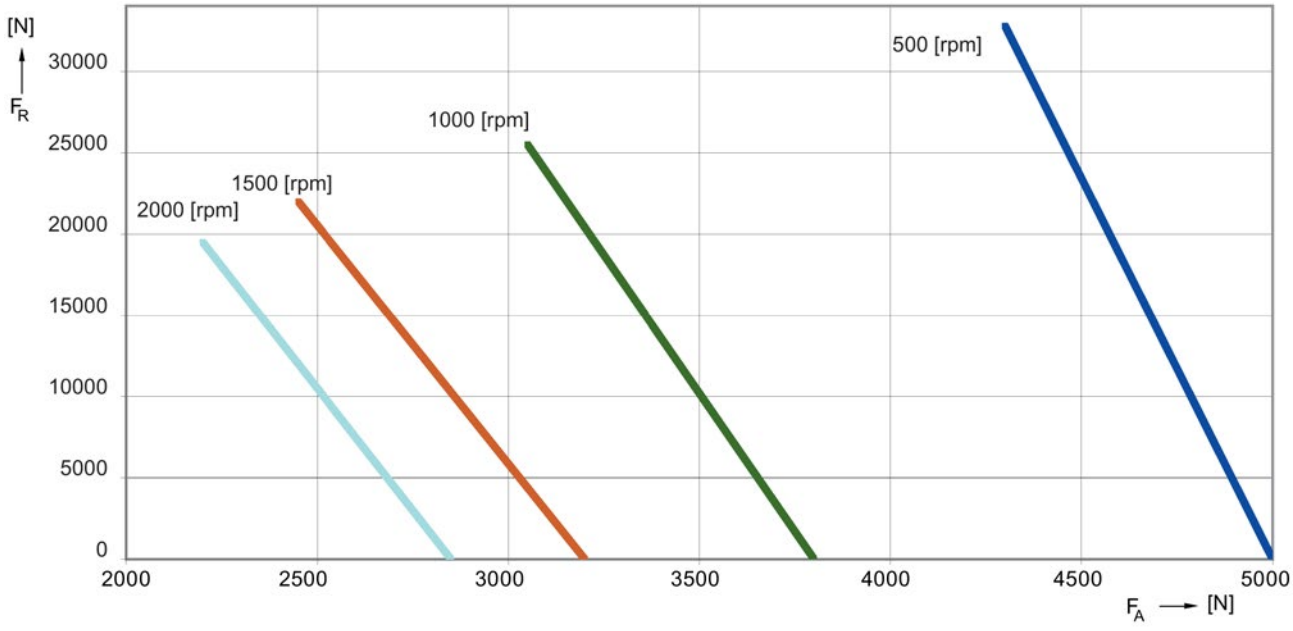


Figure 3-60 SH 280, increased cantilever forces, 12000 h bearing lifetime

3.8 Radial eccentricity, concentricity and axial eccentricity

The shaft and flange accuracies are always checked in accordance with DIN 42955, IEC 60072. For shaft heights 180, 225 and 280, however, the flange accuracy is checked in accordance with DIN 50347. Data deviating from these values are indicated in the dimension drawings.

Table 3- 28 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	-

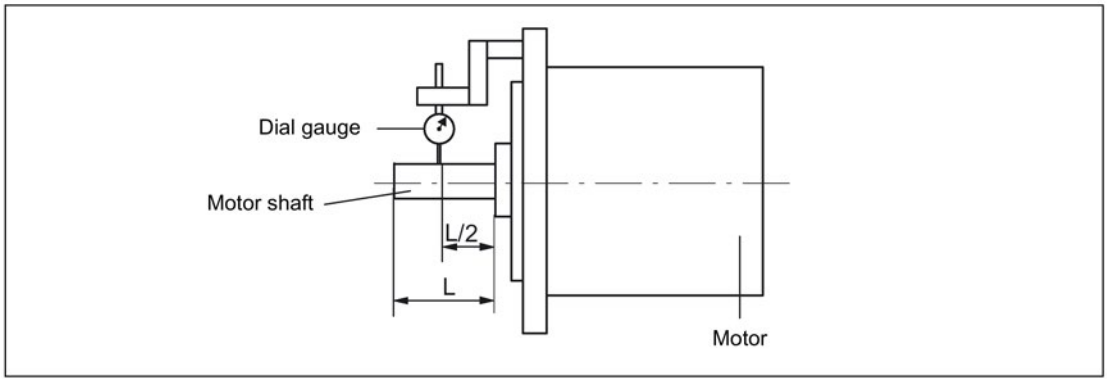


Figure 3-61 Checking the radial eccentricity

Table 3- 29 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	-

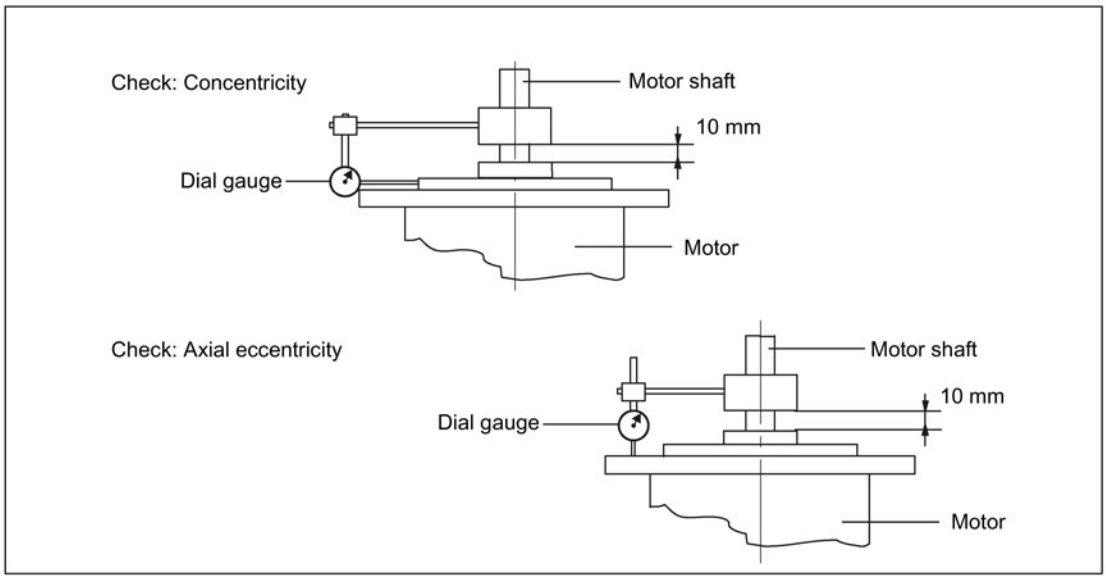


Figure 3-62 Checking the concentricity and axial eccentricity

Note

Acceptance test certificate

The runout, concentricity and axial eccentricity are tested in the Siemens factories as standard. For 1PH8 motors, an acceptance test certificate with the values actual measured can be ordered with option B36.

3.9 Balancing

3.9.1 Requirements

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

Machining the feather key

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- 30 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

Balancing equipment/ Process step	Motor Half key balanced	Motor balanced with full key	Motor with plain shaft end
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.

3.9.2 Balancing 1PH8 motors with "Premium Performance" bearing version

The on-site mechanical system vibration characteristics depend on factors such as the output elements, mounting situation, alignment, installation, and external vibration and can increase the level of motor vibration. Under certain circumstances, the rotor may have to be balanced completely with the output element.

1PH8 motors are supplied with "special" vibration severity. Mounting a coupling element on the shaft extension changes the rotor balancing state. As a consequence, after mounting coupling elements, the rotor must be completely balanced. The following description shows, using an example, the procedure for 1PH8 motors with "Premium Performance" bearing version. You must determine the vibration severity and the position of the imbalance by making the appropriate measurements. You can then remove the imbalance.

Measuring unit required

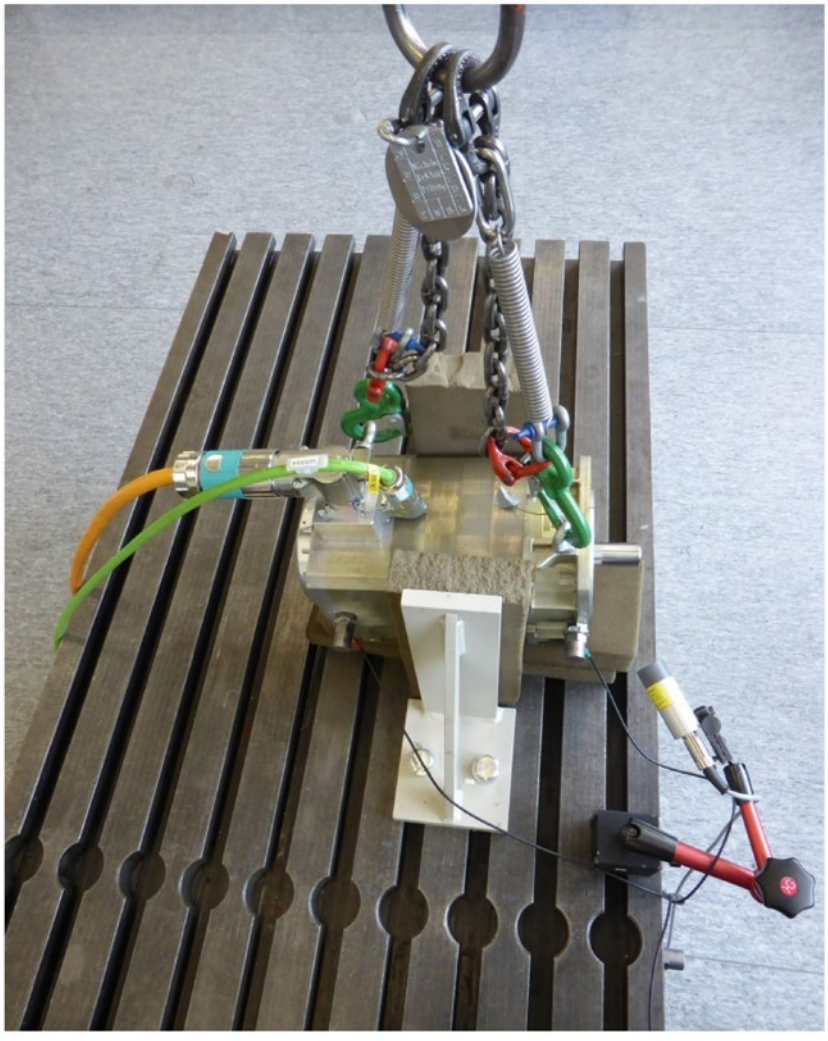
2-channel vibration measuring unit

Frequency bandwidth: 10 Hz to 1000 Hz

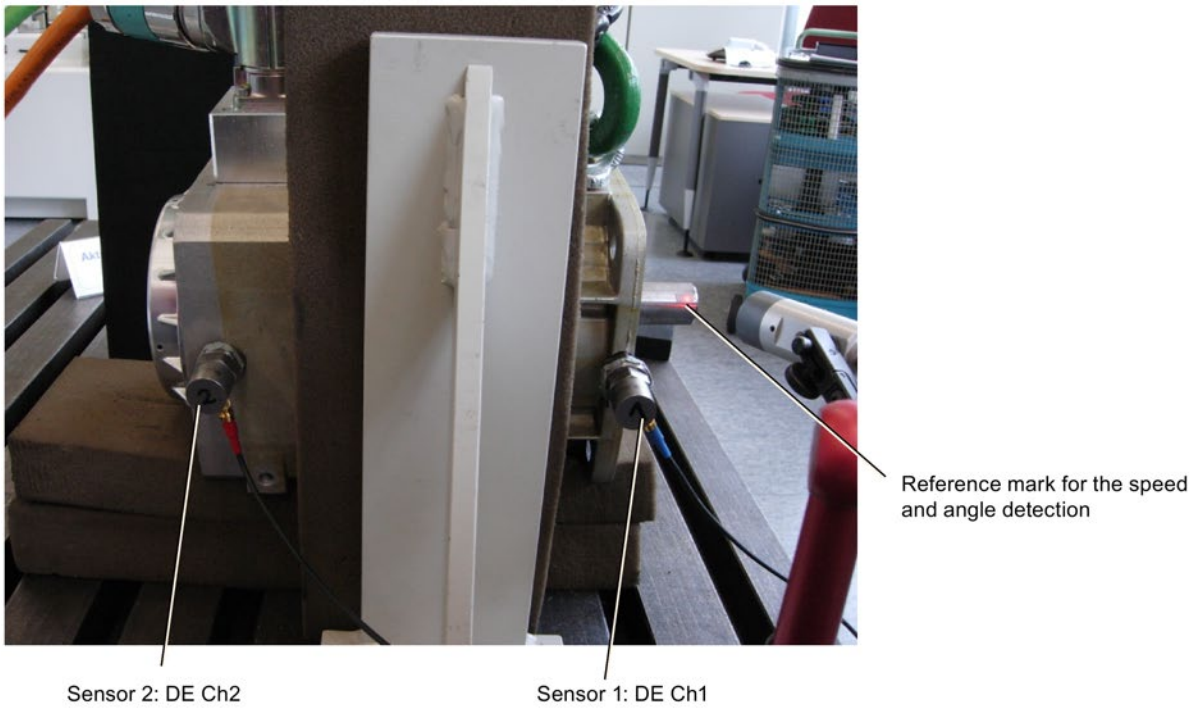
The measuring unit must be equipped with a function to analyze orders of frequency components. Using this function, you can display the imbalance (1st order vibration component).

Typical approach

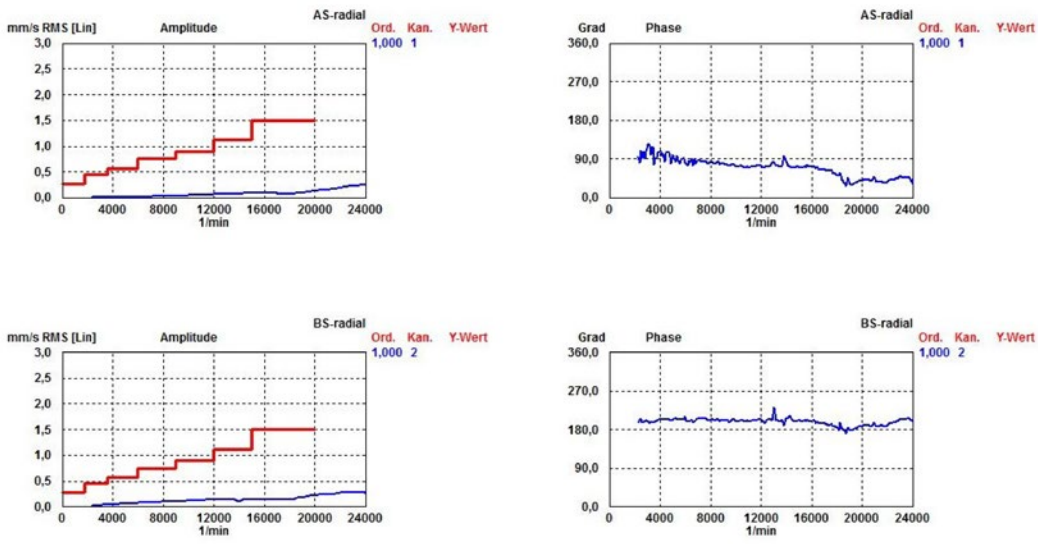
1. Prepare to make the reference measurement. Freely suspended the motor according to IEC 60034-14.
   The natural frequency of the motor-spring system must be less than 3 Hz. As a consequence, use springs that are adapted to the motor mass. The motor must be freely suspended so that the reference measurement can provide a correct measurement result.



2. Make a reference mark on the shaft (DE) for the speed and angle detection.



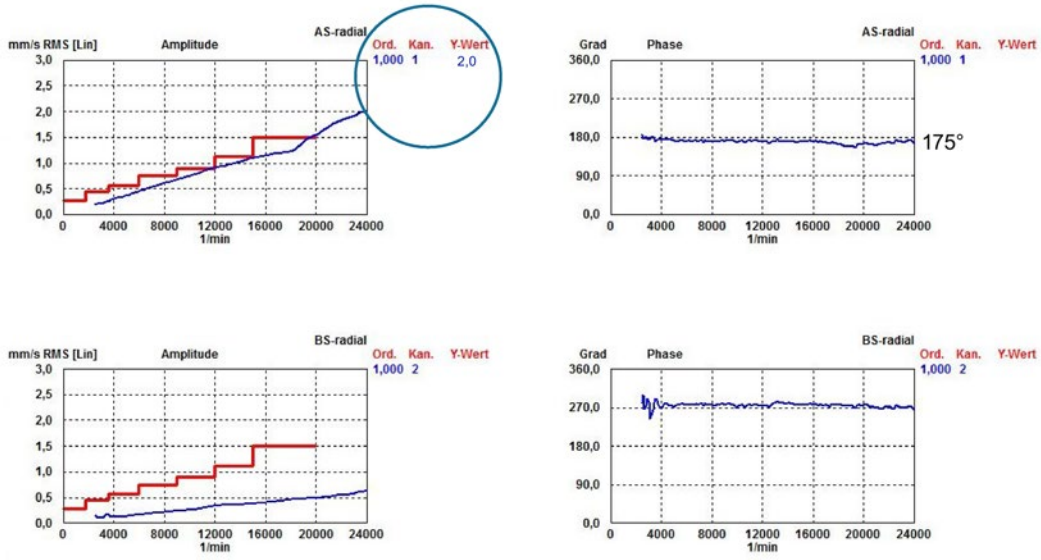
3. Position the measuring sensors: Sensor 1 for the DE, sensor 2 for the NDE.
4. Perform the reference measurement on the freely suspended motor for the DE and the NDE. Measure the absolute value and angular position of the imbalance (1st order).

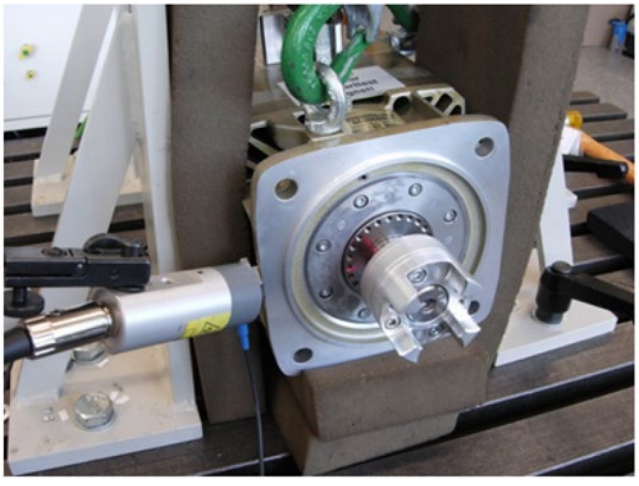


5. Attach the coupling to the shaft extension (DE).

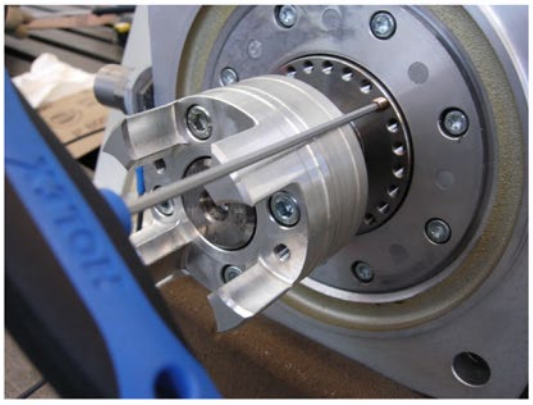
6. Perform the measurement on the coupled motor for the DE and the NDE. Also in this case, measure the absolute value and angular position of the imbalance (1st order).

largest imbalance amount

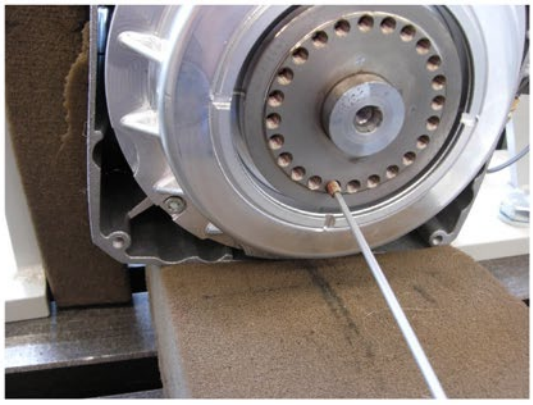




7. Remove the imbalance. To do this, screw one or several balancing screws into the rotor. Start at the side with the highest absolute imbalance. For instance, if you detect an imbalance at the DE at an angle of 175°, then you must screw in a balancing screw on the opposite side at an angle of 355° (175° + 180° = 355°).



Insert balancing screw at the DE



Insert balancing screw at the NDE

8. It may be necessary to repeat Point 6 and Point 7 several times until the imbalance has been completely removed.

3.10 Vibration response

3.10.1 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

Comply with permissible vibration values

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")

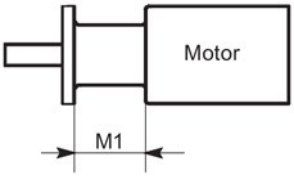
Motors that are mounted, as a result of their type of construction, to the wall using the motor feet, must be fixed in place using an adequately dimensioned positive form fit (e.g. using studs or mounting rails).

When commissioning the motors, it must be ensured that the permissible vibration values according to DIN ISO 10816 are maintained.

Table 3- 31 Limiting the maximum speed

Shaft height [mm]	Max. permissible speed [rpm]
180	3,000
225	2,500
280	2,000

Table 3- 32 Flange mounting with threaded studs and nuts

Shaft height	M1 [mm]	
180	32	
225	45	
280	45	

Note

Flange mounting SH 180 to SH 280

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.

NOTICE

Check the bearing

If liquid accumulates at the flange because of vertical or horizontal mounting, the bearing and the bearing grease may be adversely affected.

- Prevent liquid from collecting at the flange.

Note

Attaching plastic covers for SH 80 up to SH 160

- With the forced-ventilated versions of shaft heights 80 to 160, before the motor is commissioned you must replace the plastic covers that were removed so that the mounting bolts could be tightened.

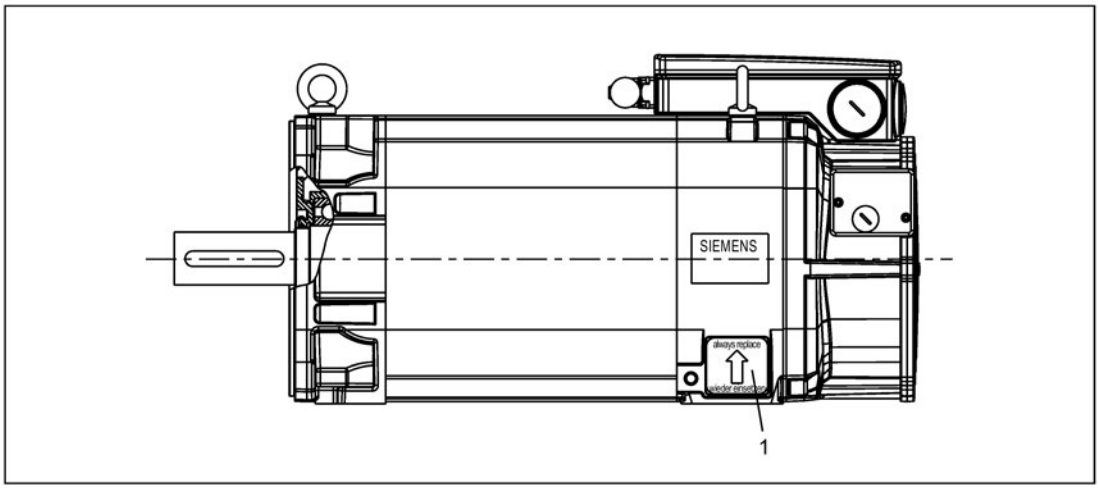


Figure 3-63 Cover for mounting foot

Note

Mounting air-cooled motors

- Air-cooled motors must be mounted in such a way that the cooling air can enter and be discharged without any obstruction (see also Chapter "Cooling").

3.10.2 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.

Note

Avoiding natural frequencies when mounting

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

3.10.3 Misalignment

To avoid or minimize misalignment, a compensating coupling should be used (see the diagram).

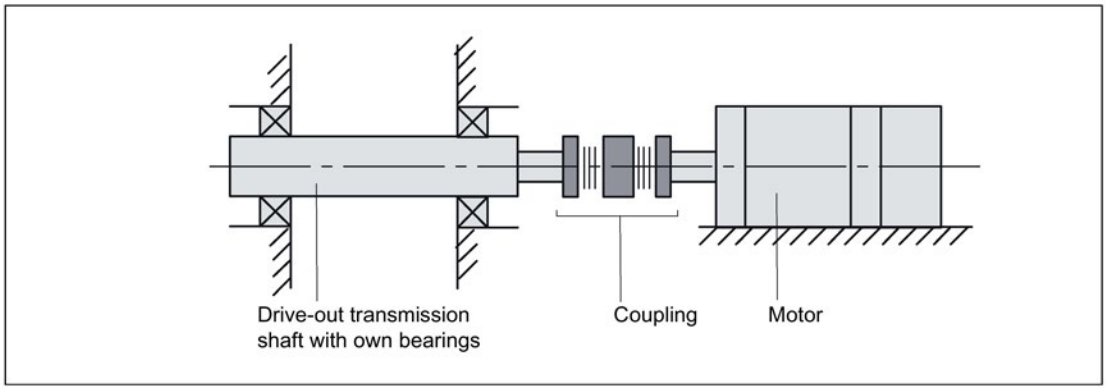


Figure 3-64 Mechanical output transmission shaft with its own bearings and compensating coupling

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 for mechanical design reasons, misalignment deviations must be avoided. In this case, a careful check must be made by making the appropriate measurements.

Vertical and horizontal alignment

The following measures are required to compensate for any radial offset at the coupling and to horizontally adjust the electric motor with respect to the driven load:

- Place shims under the motor feet to position it vertically and to prevent stress in the machine. The number of shims should be kept as low as possible, so use as few thicker shims as possible instead of several thinner shims.
- For horizontal positioning, push the motor sideways on the foundation Pay attention to maintaining the axial position.
- When positioning the motor, ensure that a uniform axial gap is maintained around the coupling. Note on alignment accuracy: Remember to take account of data concerning the alignment accuracy of the driven load and the coupling.

Alignment accuracy

1. Align the motors with coupling output in such a manner that the center lines of the shafts are parallel with no offset. This ensures that no additional forces affect their bearings during operation.
2. Perform the fine adjustments with shims under the entire motor foot.

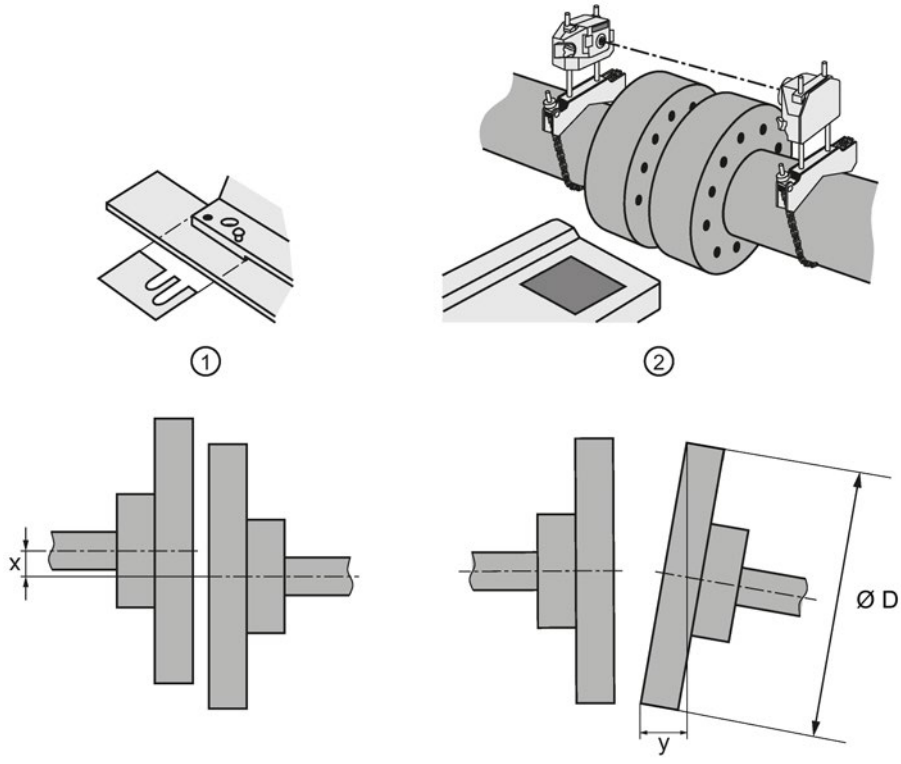


Figure 3-65 Aligning the drive

Table 3- 33 Permissible deviations when aligning the motor

Permissible deviations	Radial shaft offset [x]	Axial shaft offset [y]
Flexible coupling	0.05 mm	0.05 mm

3.10.4 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.

3.10.5 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 3- 34 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/s^2

Table 3- 35 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/s^2

Table 3- 36 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/s^2

1) Both values must be maintained simultaneously

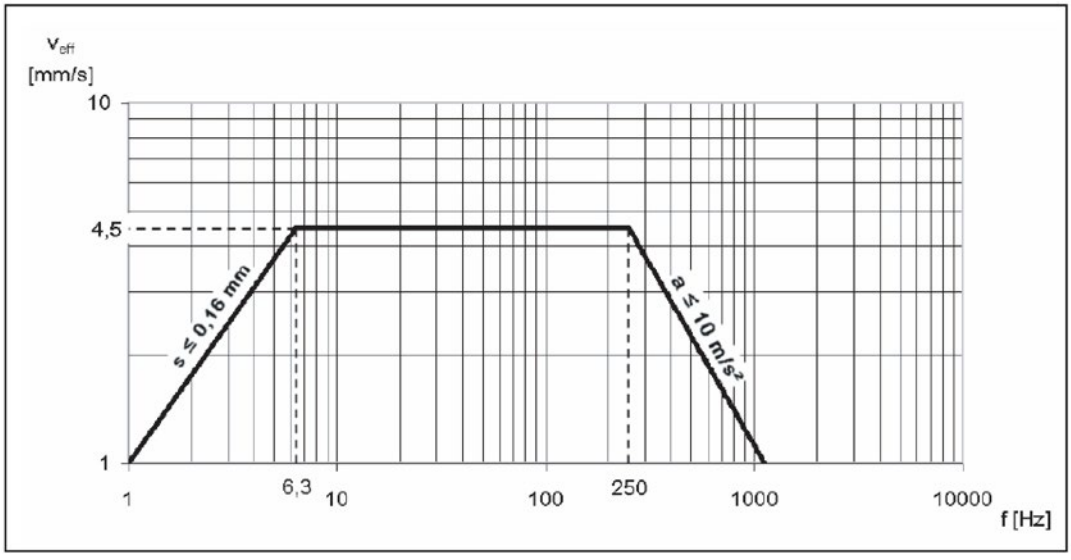


Figure 3-66 Maximum permissible vibration velocity including vibration amplitude and vibration acceleration for SH 80 to 160

Table 3- 37 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/s^2

1) Both values must be maintained simultaneously

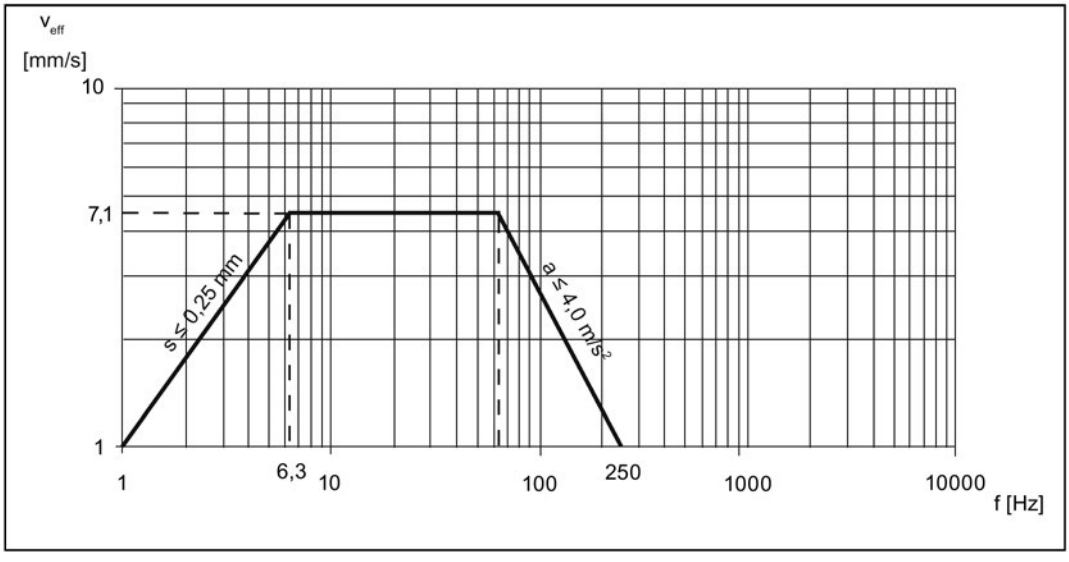


Figure 3-67 Maximum permissible vibration velocity including vibration amplitude and vibration acceleration for SH 180 to 280

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

Avoiding continuous operation at 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

Measuring vibration values according to the standard

Vibration must be analyzed and measured (measuring points, etc.) according to standard ISO 10816-3.

Note

Increased resistance to vibration

1PH8 motors with shaft heights 180 and 225 and with the option L03 can be used in compliance with certain operating conditions for applications with increased resistance to vibration (see Chapter "Increased resistance to vibration (Page 182)"). Possible applications are, for example, applications such as servo presses.

3.11 Vibration severity grade

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. The system vibration response depends on the conditions at the installation location and can result in higher vibration values at the motor.

Note

Vibration severity limit values

According to the vibration severity limit value diagrams below, 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).

The balance quality depending on the bearing is encoded in the Article No., see Chapter "Selection and ordering data."

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

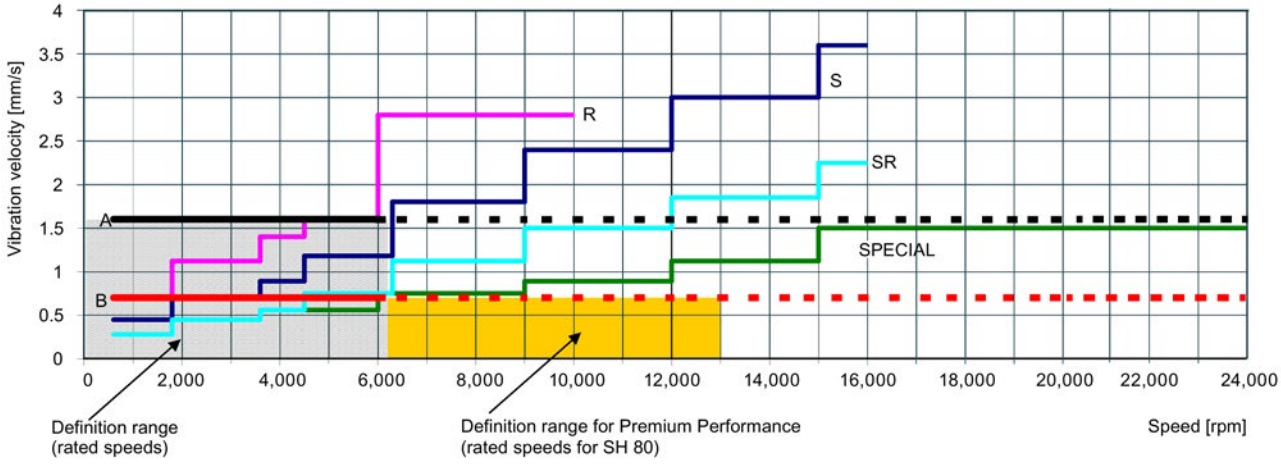


Figure 3-68 Vibration severity limit values for SH 80 to 132

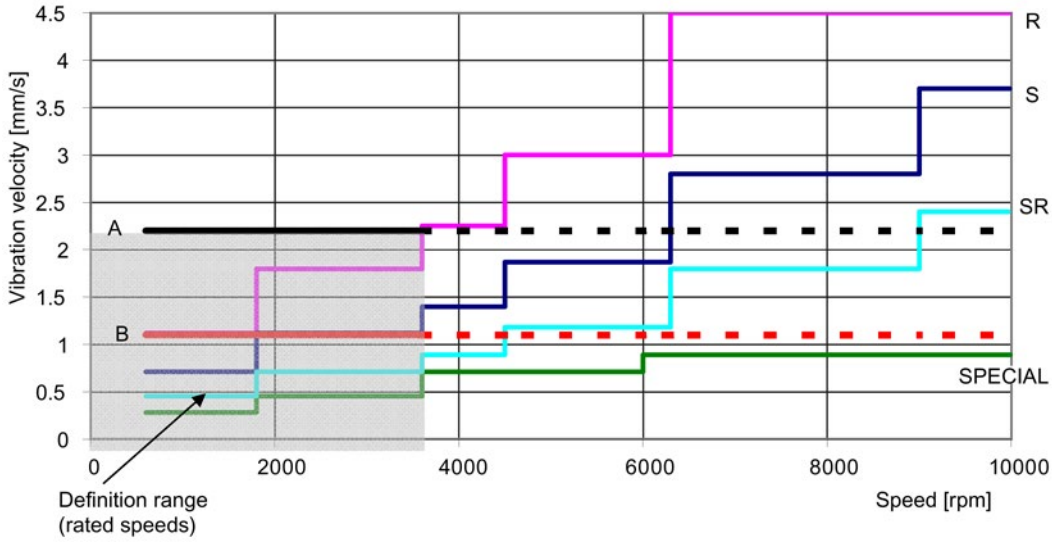


Figure 3-69 Vibration severity limit values for SH 160 to 280

Note

Acceptance test certificate

Compliance with the limits, depending on the vibration severity grade ordered, is ensured in the Siemens factories as standard. For 1PH8 motors, an acceptance test certificate with the vibration velocities actually measured can be ordered with option B35.

3.12 Noise emission

The noise emissions of the 1PH8 depend on the type of cooling and are therefore described in Chapter "Cooling."

Motor components and options 4

4.1 Motor components

4.1.1 Thermal motor protection

A KTY84-130 or Pt1000 temperature sensor is integrated in the stator winding to monitor the winding temperature. The exact type of temperature sensor is stated on the nameplate.

Table 4- 1 Features and technical data

Type	KTY 84-130	Pt1000
Resistance when cold (20 °C)	Approx. 580 Ω	Approx. 1090 Ω
Resistance when hot (100 °C)	Approx. 1000 Ω	Approx. 1390 Ω
Connection	Via signal cable	Via signal cable
Response temperature [1]	Prewarning < 150 °C Alarm/trip at max. 170 °C ±5 °C	Prewarning < 150 °C Alarm/trip at max. 170 °C ±5 °C

[1] With SH80: Prewarning < 130 °C; Alarm/trip at max. 150 °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 temperature sensor.

The conductors for the temperature sensor are routed in one cable together with the encoder conductors.

NOTICE
Destruction of the temperature sensor if the insulation resistance is tested improperly. If the test voltage is connected to only one temperature sensor terminal, the temperature sensor will be destroyed. • Short-circuit the ends of the temperature sensor cables before applying the test voltage.

NOTICE
Destruction of the motor for a thermally critical load There is no adequate protection during a thermally critical load, e.g. a high overload at motor standstill. • Take additional protective measures, e.g. an overcurrent relay. • The "thermal motor model i2t monitoring" function must be activated in the converter.

Note

Connector for temperature sensors

The temperature sensor is connected to the signal connector together with the speed encoder signal.

1PH8 motors without an encoder can only be ordered as induction motors. For connecting the temperature sensors of these motors, an additional cable entry M16 x 1.5 is required.

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.

The following diagram shows the resistance characteristic as a function of the temperature for KTY 84-130 and Pt1000 temperature sensors.

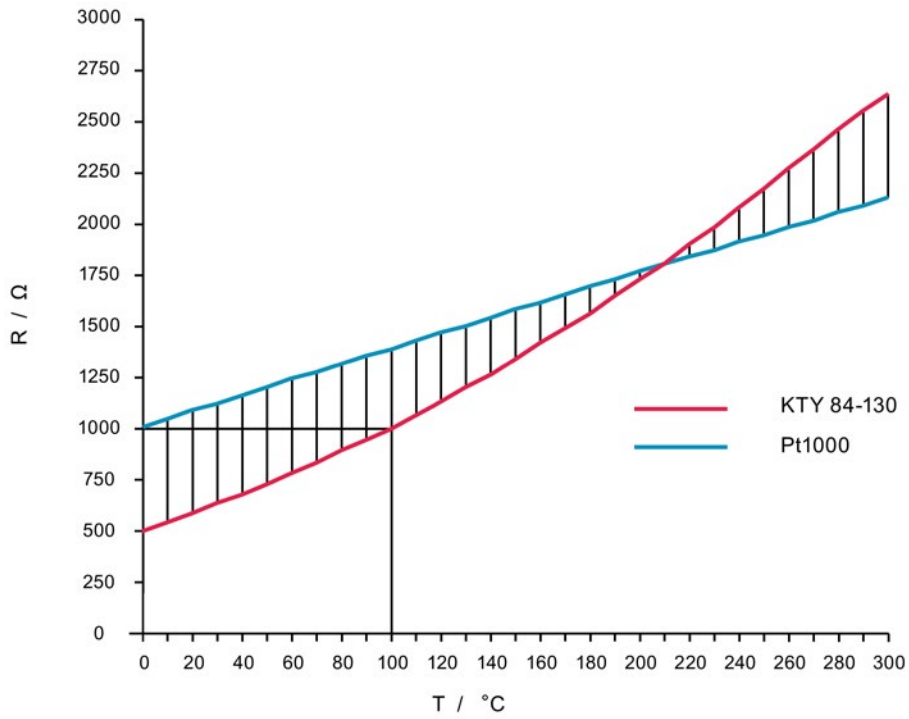


Figure 4-1 Comparison of KTY 84-130 and Pt1000 temperature sensors

4.1.2 Encoder

4.1.2.1 Encoder overview

The encoder is specified with the corresponding letter in the 9th position of the article number of the motor.

Note

Different encoder types for motors with or without DRIVE-CLiQ

The letter code in the 9th position of the article number for the required encoder type is different for motors with and without DRIVE-CLiQ.

Table 4- 2 Encoder types for motors without DRIVE-CLiQ

Encoder type	9th position of the Article No.
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)	C
Incremental encoder HTL 1024 S/R (encoder HTL1024S/R) with connection via additional terminal box	W
Incremental encoder HTL 2048 S/R (encoder HTL2048S/R) with connection via additional terminal box	Y

Table 4- 3 Encoder types for motors with DRIVE-CLiQ

Encoder type	9th position of the Article No.
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)	S
External encoder (only possible for shaft height 280 and forced ventilation)	

Encoder type	9th position of the Article No.
Incremental encoder HTL 1024 S/R HOG 22 (Baumer-Hübner) Mounting prepared (additional Z options must be considered)	G
Incremental encoder HTL 1024 pulses/revolution POG 10 (Baumer-Hübner) Mounting prepared (additional Z options must be considered)	K

4.1.2.2 Encoder connection for motors with a DRIVE-CLiQ interface

WARNING

Danger to life when using an incorrect encoder module

The DRIVE-CLiQ encoder contains motor and encoder-specific data and an electronic type plate. If you use an incorrect DRIVE-CLiQ encoder, this can result in death, severe injury and severe material damage.

- Only use the DRIVE-CLiQ encoder and the electronic type plate for the original motor.
- Do not mount the DRIVE-CLiQ encoder onto other motors.
- Do not replace a DRIVE-CLiQ encoder by a DRIVE-CLiQ encoder belonging to another motor.
- Only appropriately trained Siemens service personnel should replace DRIVE-CLiQ encoders.

NOTICE

Electrostatic discharge

Electronic modules contain components that can be destroyed by electrostatic discharge. These modules can be easily destroyed if they are not handled properly.

- To protect your equipment against damage, follow the instructions given in the chapter ESD Guidelines.

Motors with DRIVE-CLiQ interface have an internal Sensor Module. This Sensor Module includes an electronic rating plate. This simplifies commissioning for the SINAMICS S110 / S120 drive system, since all the motor parameters are set automatically.

4.1.2.3 Encoder connection for motors without DRIVE-CLiQ (12/17-pole)

Motors without DRIVE-CLiQ are connected using the 12 or 17-pin flange socket by default. You can equip induction motors with an additional terminal box, see Incremental encoder HTL 1024 S/R or HTL 2048 S/R (Page 166)

4.1.2.4 Encoder assignment as a function of maximum permissible speeds

The following tables show the possible assignments of encoders to the 1PH8 motor series as a function of maximum permissible speeds.

Table 4- 4 Encoder types for motors without DRIVE-CLiQ

Encoder type		Without an encoder	AM2048 S/R	HTL1024 S/R	HTL1024 S/R	HTL2048 S/R	HTL2048 S/R	IC2048 S/R	IN512 S/R	IN256 S/R
9th data position		A	E	H	W	J	Y	M	T	C
Permissible n_{max} speeds (encoder) in rpm		-	12,000	9,000	9,000	4600	4600	12,000	15,000	24,000
Motor version and bearing system	n_{max} (motor) rpm									
1PH808□-1□□□□-□□□1	10,000	✓	✓	✓[2]	✓[2]	✓[4]	✓[4]	✓	-	-
1PH808□-1□□□□-□L□1	15,000	✓	-	-	-	-	-	✓[3]	✓	✓
1PH808□-1□□□□-□M□1	20,000	✓	-	-	-	-	-	✓[3]	✓[5]	✓
1PH808□-1□□□□-□N□1	24,000	-	-	-	-	-	-	-	-	✓
1PH808□-1□□□□-□Q□1	5,000	✓	✓	✓	✓	✓[4]	✓[4]	✓	-	-
1PH810□-1□□□□-□□□1	9,000	✓	✓	✓	✓	✓[4]	✓[4]	✓	-	-
1PH810□-1□□□□-□L□1	12,000	✓	✓	-	-	-	-	✓	✓	✓
1PH810□-1□□□□-□M□1	18,000	✓	-	-	-	-	-	✓[3]	✓[5]	✓
1PH810□-1□□□□-□Q□1	5,000	✓	✓	✓	✓	✓[4]	✓[4]	✓	-	-
1PH813□-1□□□□-□□□1	8,000	✓	✓	✓	✓	✓[4]	✓[4]	✓	-	-

Encoder type		Without an encoder	AM2048 S/R	HTL1024 S/R	HTL1024 S/R	HTL2048 S/R	HTL2048 S/R	IC2048 S/R	IN512 S/R	IN256 S/R
9th data position		A	E	H	W	J	Y	M	T	C
Permissible n_{max} speeds (encoder) in rpm		-	12,000	9,000	9,000	4600	4600	12,000	15,000	24,000
Motor version and bearing system	n_{max} (motor) rpm									
1PH813□-1□□□□-□L□1	10,000	✓	✓	-	-	-	-	✓	✓	✓
1PH813□-1□□□□-□M□1	15,000	✓	-	-	-	-	-	✓[3)]	✓	✓
1PH813□-1□□□□-□Q□1	4,500	✓	✓	✓	✓	✓	✓	✓	-	-
1PH813□-2□□□□-□□□1	4,500	-	✓	-	-	-	-	✓	-	-
1PH816□-1□□□□-□□□1	6,500	✓	✓	✓	✓	✓[4)]	✓[4)]	✓	-	-
1PH816□-1□□□□-□L□1	9,000	✓	✓	✓	✓	-	-	✓	✓	✓
1PH816□-1□□□□-□M□1	10,000	✓	-	-	-	-	-	✓	✓	✓
1PH816□-1□□□□-□Q□1	4,000	✓	✓	✓	✓	✓	✓	✓	-	-
1PH816□-2□□□□-□□□1	4,000	-	✓	-	-	-	-	✓	-	-
1PH818□-1□□□□-□□□1	5,000	✓	✓	✓	✓	✓[4)]	✓[4)]	✓	-	-
1PH818□-1□□□□-□L□1	7,500	✓	✓	✓	✓	-	-	✓	-	-
1PH818□-2□□□□-□□□1	3,800	-	✓	-	-	-	-	✓	-	-

Encoder type		Without an encoder	AM2048 S/R	HTL1024 S/R	HTL1024 S/R	HTL2048 S/R	HTL2048 S/R	IC2048 S/R	IN512 S/R	IN256 S/R
9th data position		A	E	H	W	J	Y	M	T	C
Permissible n_{max} speeds (encoder) in rpm		-	12,000	9,000	9,000	4600	4600	12,000	15,000	24,000
Motor version and bearing system	n_{max} (motor) rpm									
1PH822□-1□□□□-□□□1	4,500	✓	✓	✓	✓	✓	✓	✓	-	-
1PH822□-1□□□□-□L□1	6,000	✓	✓	✓	✓	-	-	✓	-	-
1PH822□-2□□□□-□□□1	3,500	-	✓	-	-	-	-	✓	-	-
1PH828□-1□□□□-□□□1	3,300	✓	✓	✓	✓	✓	✓	✓	-	-

✓ Assignment possible

2) Motor/encoder assignment limited to 9000 rpm

3) Motor/encoder assignment limited to 12,000 rpm

4) Motor/encoder assignment limited to 4600 rpm

5) Motor/encoder assignment limited to 15,000 rpm

Table 4- 5 Encoder types for motors with DRIVE-CLiQ

Encoder type		AM22DQ	IC22DQ	IN20DQ	IN19DQ
9th data position		F	D	U	S
Permissible n_{max} speeds (encoder) in rpm		12,000	12,000	15,000	24,000
Motor version and bearing system	n_{max} (motor) rpm				
1PH808□-1□□□□-□□□1	10,000	✓	✓	-	-
1PH808□-1□□□□-□L□1	15,000	-	✓3)	✓	✓
1PH808□-1□□□□-□M□1	20,000	-	✓3)	✓5)	✓
1PH808□-1□□□□-□N□1	24,000	-	-	-	✓
1PH808□-1□□□□-□Q□1	5,000	✓	✓	-	-
1PH810□-1□□□□-□□□1	9,000	✓	✓	-	-
1PH810□-1□□□□-□L□1	12,000	✓	✓	✓	✓
1PH810□-1□□□□-□M□1	18,000	-	✓3)	✓5)	✓

Encoder type		AM22DQ	IC22DQ	IN20DQ	IN19DQ
9th data position		F	D	U	S
Permissible n_{max} speeds (encoder) in rpm		12,000	12,000	15,000	24,000
Motor version and bearing system	n_{max} (motor) rpm				
1PH810□-1□□□□-□Q□1	5,000	✓	✓	-	-
1PH813□-1□□□□-□□□1	8,000	✓	✓	-	-
1PH813□-1□□□□-□L□1	10,000	✓	✓	✓	✓
1PH813□-1□□□□-□M□1	15,000	-	✓3)	✓	✓
1PH813□-1□□□□-□Q□1	4,500	✓	✓	-	-
1PH813□-2□□□□-□□□1	4,500	✓	✓	-	-
1PH816□-1□□□□-□□□1	6,500	✓	✓	-	-
1PH816□-1□□□□-□L□1	9,000	✓	✓	✓	✓
1PH816□-1□□□□-□M□1	10,000	-	✓	✓	✓
1PH816□-1□□□□-□Q□1	4,000	✓	✓	-	-
1PH816□-2□□□□-□□□1	4,000	✓	✓	-	-
1PH818□-1□□□□-□□□1	5,000	✓	✓	-	-
1PH818□-1□□□□-□L□1	7,500	✓	✓	-	-
1PH818□-2□□□□-□□□1	3,800	✓	✓	-	-
1PH822□-1□□□□-□□□1	4,500	✓	✓	-	-
1PH822□-1□□□□-□L□1	6,000	✓	✓	-	-
1PH822□-2□□□□-□□□1	3,500	✓	✓	-	-
1PH828□-1□□□□-□□□1	3,300	✓	✓	-	-

✓ Assignment possible

3) Motor/encoder assignment limited to 12,000 rpm

5) Motor/encoder assignment limited to 15,000 rpm

4.1.2.5 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

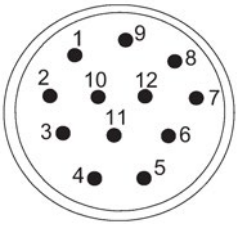
Table 4- 6 Properties and technical data

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

Properties	Incremental encoder HTL
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 4- 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 4- 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"

4.1.2.6 Incremental encoder HTL for operation on SINAMICS G

Encoder connection with terminal block using an additional terminal box

Induction motors can be equipped with an additional terminal box. This means that you can connect the following HTL incremental encoders for operation with a SINAMICS G via a terminal block:

- HTL1024 S/R and
- HTL2048 S/R

The additional terminal box is shown in the following diagram.

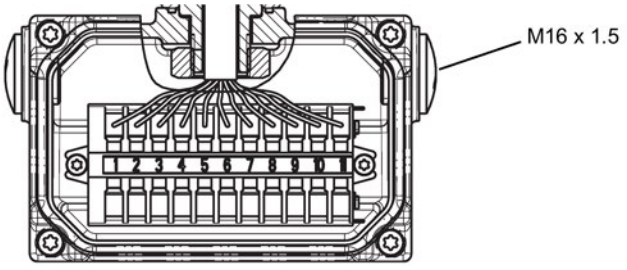


Figure 4-2 Encoder connection via additional terminal box

The following signal assignment applies for connecting an HTL incremental encoder:

Terminal	Signal assignment
1	-1R2
2	+1R1
3	B*
4	R
5	R*
6	A
7	A*
8	CTRL
9	B
10	M encoder
11	P encoder

Note

Additionally supplied sensors

Connect the following additional sensors in the terminal box according to Chapter "Terminal boxes":

- Temperature sensor as a standby or
- PTC thermistor circuit for warning and shutdown

Note

Temperature sensor

The temperature sensor type is stated on the nameplate (see Chapter "Thermal motor protection (Page 159)")

4.1.2.7 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 ", for 256 S/R: ±93 "
Maximum permissible speeds	• With 2048 S/R: 12000 rpm • With 512 S/R: 15000 rpm • With 256 S/R: 24000 rpm

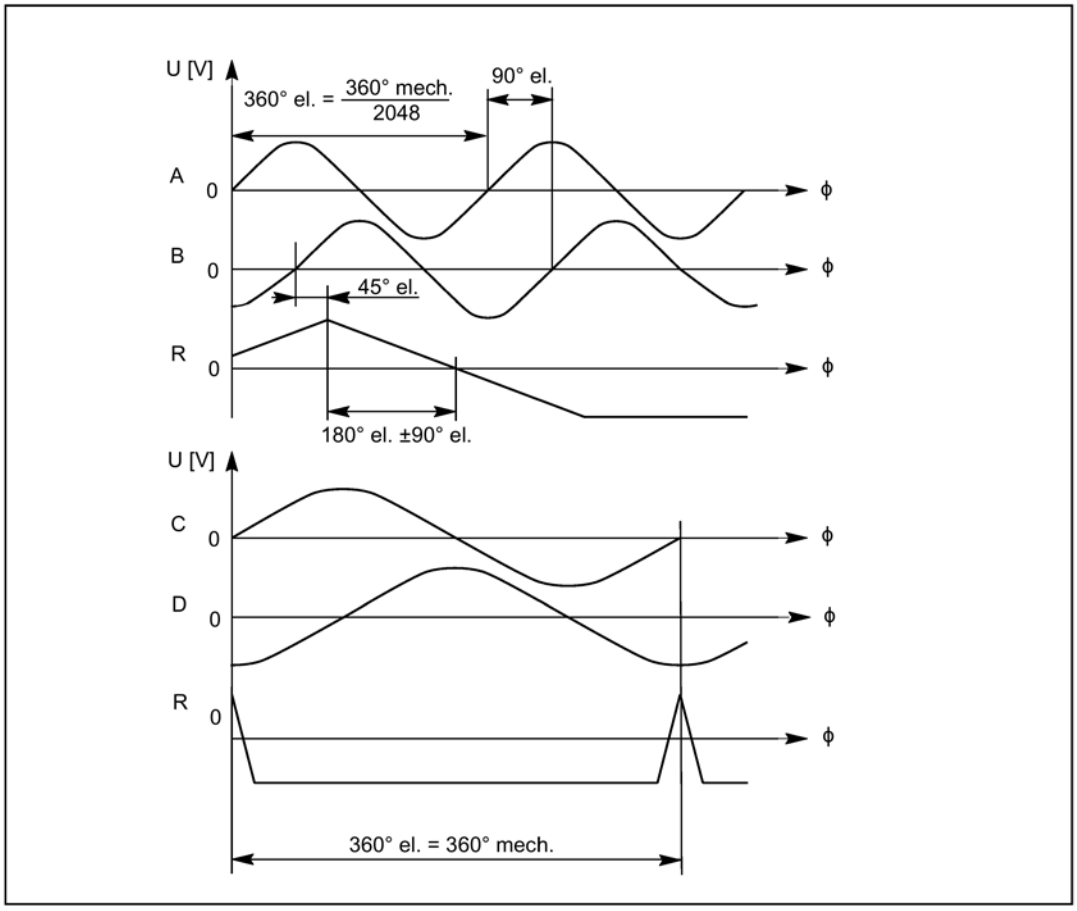
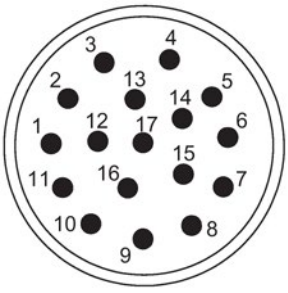


Figure 4-3 Signal sequence and assignment for a positive direction of rotation (clockwise direction of rotation when viewed from the drive end)

Connection

Table 4- 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 4- 10 Pre-fabricated cable for SINAMICS

6FX	③	002	-	2CA31	-	↑↑↑	0
	③ ③ 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"

4.1.2.8 Absolute encoder AM 2048 S/R

Function

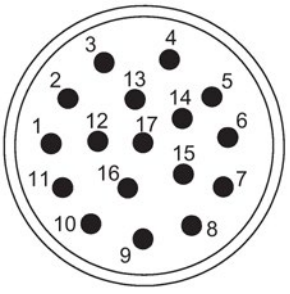
- Angular measuring system for the commutation
- Speed actual value sensing
- Indirect absolute measuring system for the position control loop

Table 4- 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 4- 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 4- 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"

4.2 Options

4.2.1 Overview of options

Chapter "Selection and ordering data" contains an overview of which options are available for which shaft heights.

4.2.2 Sealing air connection (option Q12)

Cooling lubricants containing oil capable of creepage, which can also be corrosive, are mainly used for machine tools and transfer machines. For critical applications involving media with extremely high creepage rates, generally degree of protection against water (according to EN 60034-5/IEC 60034-5) alone is not sufficient. To address these particular applications, 1PH8 main motors can be ordered with sealing air connection by specifying option Q12. The sealing air connection can be implemented in conjunction with terminal boxes or power connectors.

Note

Improved protection against oils and media that can creep

Sealing air does not increase the IP degree of protection against water. It does, however, improve protection against oils and media that can creep.

Note

This option is only permissible for motors without relubrication.

Note

Increase the pressure for "Premium Performance" bearing version

For the "Premium Performance" bearing version, you must increase the supply pressure to min. 2.0 x 10^5 Pa up to max. 5 x 10^5 Pa.

Conditioning: A Main drives without a shaft sealing ring

Min. inlet temperature (°C)	Ambient temperature
Max. inlet temperature (°C)	40
Max. residual water content (g/m³)	0.12

Max. residual oil content (g/m³)	0.01
Max. residual dust (mg/m³)	0.1
Min. supply pressure (Pa)	2.0 x 10^5
Max. supply pressure (Pa)	3 x 10^5
Particle size for hollow shaft encoder (µm)	< 8
Particle size for optical encoders (µm)	< 3

Conditioning: B Main drives with a shaft sealing ring

Min. inlet temperature (°C)	Ambient temperature
Max. inlet temperature (°C)	40
Max. residual water content (g/m³)	0.12
Max. residual oil content (g/m³)	0.01
Max. residual dust (mg/m³)	0.1
Min. supply pressure (Pa)	0.05 x 10^5
Max. supply pressure (Pa)	0.1 x 10^5
Particle size for hollow shaft encoder (µm)	< 8
Particle size for optical encoders (µm)	< 3

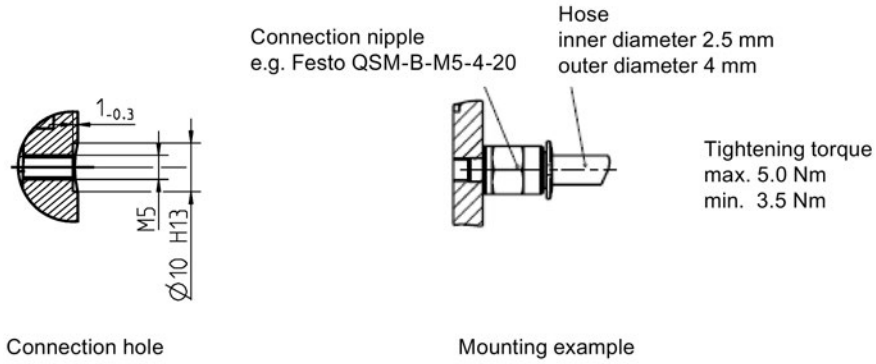


Figure 4-4 Sealing air connection (option Q12)

Necessary sealing air volume

Volume (Nm³/h) (Nm = standard cubic meter)	Approx. 2.3 (at 2 bar)

Note

The volume data refers to the specified minimum supply pressure. For higher supply pressures, the flow rate increases corresponding to the motor flow resistance.

4.2.3 Protection against explosion (options M03 and M39)

Overview

The 1PH8 motors can be used in hazardous areas if certain operating conditions are met.

Explosion protection zone	Option	Shaft heights
2	M03	SH 80 to SH 160
22	M39	SH 80 to SH 160 SH 180 and SH 225

This use as intended in an hazardous area Zone 2 or Zone 22 complies with directives 2014/34/EU and 1999/92/EC – as well as the series of IEC/EN 60079 standards.

Design criteria for shaft heights 80 to 160

Descriptions		(data position in Article 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 (cannot be selected, determined by the choice of rated power)																					
Induction version										1											
Synchronous version (only shaft height 132 and 160)										2											
Encoder systems for motors without a DRIVE-CLiQ interface	Without an encoder [1]										A										
	Absolute encoder EnDat 2048 S/R (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 tracks (encoder IC2048S/R) [2]										M										
Winding version	Rated speeds (380 V to 480 V 3 AC)	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									
Cooling	Forced ventilation NDE -> DE	(degree of protection IP 55)											1								
	Water cooling	(degree of protection IP 55)											2								
Type of construction	IM B3 (IM V5, IM V6)													0							
	IM B5 (IM V1, IM V3)													2							

Descriptions		(data position in Article No.)																				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
	IM B35 (IM V15, IM V35) [5]													3							
Shaft extension (DE)	**Balancing**																				
Smooth shaft (without key-way)	---															0					
Fitted key	Full-key															1					
Fitted key	Half-key															2					
Bearings	**Vibration severity acc. to Siemens/EN 60034-14**	**Shaft and flange accuracy**																			
Standard with locating bearing	R/A	R															B				
Standard with locating bearing	S/A	R															C				
Standard with location bearing[1]	SR/A	R															D				
Standard	R/A	R															G				
Standard	S/A	R															H				
Advanced Lifetime [6]	S/A	R															Q				
Power connection	**Cable entry**	**Signal connection**					**(looking onto DE)**														
Terminal box (top)	right	DE																A			
Terminal box (top)	left	DE																B			
Terminal box (top)	NDE	left																C			
Version																					
Version for potentially explosive atmospheres Zone 2																					M 03
Version for potentially explosive atmospheres Zone 22																					M 39
In the version for hazardous areas zone 2 and zone 22, the following options are not possible: A12, A25, G14, K80, L74, Q12, U60, U61, U62, U63, U65, U66, U67, U68, Y64,																					Z

1) Only possible if the 8th data position is "1" (induction version)

2) Limited to n_{max} = 12,000 rpm

3) Limited to n_{max} = 9000 rpm

4) Limited to n_{max} = 4600 rpm

5) Only possible for shaft height 100, 132, and 160.

6) Limited to n_{max} = 5,000 rpm, shaft height 132: n_{max} = 4500 rpm, shaft height 160: n_{max} = 4000 rpm

The motors for these hazardous areas have been released for SINAMICS S120 or SINAMICS G120 converters/inverters (version with PM 240). The following basic conditions must be met when operating the motors with third-party converters/inverters:

- Converters/inverters with pulse width modulation (PWM)
- Pulse frequency of at least 4 kHz
- Converter/inverter output voltage according to the following table:

Line connection voltage	Line Module (line-side converter/inverter infeed type)	Converter output voltage [1])
400 V 3 AC	Smart Line Module (SLM) unregulated	380 V
	Active Line Module (ALM) regulated	425 V
480 V 3 AC	Smart Line Module (SLM) unregulated	460 V
	Active Line Module (ALM) regulated	500 V

[1]) Minimum output voltage required for motor operation in order to achieve data according to data sheet.

The rated powers for motors for use in hazardous zones are reduced both in S1 and S6 duty in relation to the non-explosion protected version (standard version). The deratings are taken into account in the rating plate data:

Article No.	Version	Derating
1PH8xxx-1xx1x-xxx1-Z, M03, or M39	Induction, forced ventilation	10 %
1PH8xxx-1xx2x-xxx1-Z, M03, or M39	Induction, water cooling	20 %
1PH8xxx-2xx1x-xxx1-Z, M03, or M39	Synchronous, forced ventilation	20 %
1PH8xxx-2xx2x-xxx1-Z, M03, or M39	Synchronous, water cooling	20 %

In a Zone 2 hazardous area (option M03), for the induction motor versions, the permissible maximum speed (n_{max}) must be reduced:

Article No.	Version	Maximum speed n_{max}
1PH808x-1xxxx-xxx1-Z, M03	Induction	6100 rpm
1PH810x-1xxxx-xxx1-Z, M03	Induction	4350 rpm
1PH813x-1xxxx-xxx1-Z, M03	Induction	3000 rpm
1PH816x-1xxxx-xxx1-Z, M03	Induction	2250 rpm

The motors with forced ventilation have newly developed external fans for use in hazardous areas. These are in conformance with the applicable directives and standards. The altered dimensions are provided in the dimension drawings (Tool CAD CREATOR).

The supply values for the external fans are specified in the following table:

Article No.	Max. current consumption at		
	400 V 3 AC / 50 Hz (±10 %) [A]	400 V 3 AC / 60 Hz (±10 %) [A]	480 V 3 AC / 60 Hz (±10 %) [A]
1PH808x-1xx1x-xxx1-Z, M03 or M39	0.09	0.07	0.09
1PH810x-1xx1x-xxx1-Z, M03 or M39	0.16	0.13	0.17

1PH813x-1xx1x-xxx1-Z, M03 or M39 1PH813x-2xx1x-xxx1-Z, M03, or M39	0.18	0.25	0.23
1PH816x-1xx1x-xxx1-Z, M03 or M39 1PH816x-2xx1x-xxx1-Z, M03 or M39	0.35	0.53	0.47

Note

All of the external fans are equipped with three-phase motors.

Operating conditions for shaft heights 80 to 160

The following operating conditions must be carefully taken into consideration when operating SIMOTICS M-1PH8 motors in Zone 2 or Zone 22 hazardous areas:

- Specific operating instructions for use in hazardous areas must be provided with the motors (see link and documentation in the Intranet/Internet).
- Motor versions for use in hazardous areas are not UL-approved. As a consequence, these motors do not bear the cUR marking.
- Zone 2 (option M03):
  - Marking: II 3 G Ex nA IIB T3 Gc -15 °C ≤ Ta ≤ +40 °C
  - Device group II, category 3G, temperature class T3
  - Type of protection "nA" (non-sparking)
  - Use in ambient temperatures -15 °C up to +40 °C at installation altitudes up to 1000 m
- Zone 22 (option M39):
  - Marking: II 3D Ex tc IIIB T160 °C Dc IP55 -15 °C ≤ Ta ≤ +40 °C
  - Device group II, category 3D
  - Protection afforded by the enclosure, tc
  - Maximum surface temperature 160 °C (according to EN 60079-0: 2012 general requirements)
  - Use in ambient temperatures -15 °C up to +40 °C at installation altitudes up to 1000 m
- The temperature sensor embedded in the motor winding must be evaluated.
- The trip temperature of the temperature sensor must be set to 135 °C.
- For overload conditions, the explosion-protected external fans must be safely shut down. PTC sensors are integrated as standard for overload protection, which must be evaluated according to EN 60079-14. Alternatively, a suitable motor circuit breaker can be used for overload protection.
- The explosion-protected, forced ventilated and water-cooled SIMOTICS M-1PH8 motors have degree of protection IP55.
- The anti-twist protection provided for the signal connector must be correctly installed.
- Cable glands certified for hazardous areas must be used when connecting the cables. Unused threads must be sealed using an Ex-certified screw plug.

- The connecting cables must have a temperature rating of at least 80 °C. Plastic-insulated, flexible cables must have the same durability as heavy-duty, rubber-insulated cables. SIEMENS MOTION-CONNECT power and signal cables meet these requirements.
- The motors have a ground connection at the bearing shield/enclosure. The motors must be additionally grounded at this connection point.
- Belt drives are only permissible if buildup of a static charge is ruled out in the machinery.
- If possible, explosion-protected motors should not be repainted. However, where this is unavoidable, the following requirements must be met:
  - Limit the surface resistance of the paint used: Surface resistance ≤ 1 GΩ for motors belonging to device group III
  - Breakdown voltage ≤4 kV for device group III
- Please contact the Siemens Service Center (see Chapter "Introduction (Page 5)") regarding correct paint system (type, thickness, etc.)

Design criteria for shaft heights 180 to 225

The motors with option M39 can be selected with the following article number suffix.

1PH818x-1Ax1x-xxx1-Z, Z=M39

1PH818x-1Ex1x-xxx1-Z, Z=M39

1PH818x-1Hx1x-xxx1-Z, Z=M39

1PH818x-1Jx1x-xxx1-Z, Z=M39

1PH818x-1Mx1x-xxx1-Z, Z=M39

1PH822x-1Ax1x-xxx1-Z, Z=M39

1PH822x-1Ex1x-xxx1-Z, Z=M39

1PH822x-1Hx1x-xxx1-Z, Z=M39

1PH822x-1Jx1x-xxx1-Z, Z=M39

1PH822x-1Mx1x-xxx1-Z, Z=M39

The listed motors cannot be supplied with the Performance bearing
(14th data position = "L").
The 1PH8 motors of shaft height 180 and 225 with the option M39 are implemented with insulated NDE bearings as standard.

The supply values for the external fans are specified in the following table:

Article No.	Max. current consumption at		
	400 V 3 AC (±10%); 50 Hz [A]	400 V 3 AC (±10%); 60 Hz [A]	480 V 3 AC (+5% / -10%); 60 Hz [A]
1PH818□-	0.6	0.65	0.6
1PH822□-	1.6	1.3	1.5

Note

All of the external fans are equipped with three-phase motors.

Operating conditions for shaft heights 180 and 225

The following operating conditions must be considered for motors operated in a Zone 22 hazardous area:

- Specific operating instructions for use in hazardous areas must be provided with the motors (see link and documentation in the Intranet/Internet).
- Zone 22 (option M39):
  - Marking: II 3D Ex tc IIIB T155 °C Dc IP55 -15 °C ≤ Ta ≤ +40 °C
  - Device group II, category 3D
  - Protection afforded by the enclosure, tc
  - Maximum surface temperature 155 °C (according to EN 60079-0: 2012 general requirements)
  - Use in ambient temperatures -15 °C up to +40 °C at installation altitudes up to 1000 m
- The temperature sensor embedded in the motor winding must be evaluated.
- For overload conditions, the explosion-protected external fans must be safely shut down. PTC sensors are integrated as standard for overload protection, which must be evaluated according to EN 60079-14.
- The anti-twist protection provided for the signal connector must be correctly installed.
- Cable glands certified for hazardous areas must be used when connecting the cables. Unused threads must be sealed using an Ex-certified screw plug.
- The connecting cables must have a temperature rating of at least 80 °C. Plastic-insulated, flexible cables must have the same durability as heavy-duty, rubber-insulated cables. SIEMENS MOTION-CONNECT power and signal cables meet these requirements.
- The motors have a ground connection at the bearing shield/enclosure. The motors must be additionally grounded at this connection point.
- Belt drives are only permissible if buildup of a static charge is ruled out in the machinery.
- The motors must be kept free of dust deposits > 5 mm.
- The type of construction IM V5 is only permissible with a protective roof (protection from falling parts)
- If possible, explosion-protected motors should not be repainted. However, where this is unavoidable, the following requirements must be met:
  - Limit the surface resistance of the paint used: Surface resistance ≤ 1 GΩ for motors belonging to device group III
  - Breakdown voltage ≤4 kV for device group III

For the correct paint system, consult the Siemens Service Center (see Chapter "Introduction").

Note

For further information, contact Technical Support or your Siemens branch.

4.2.4 Increased resistance to vibration (option L03)

Overview

1PH8 motors with shaft heights 180 and 225 and with the option L03 can be used in compliance with certain operating conditions for applications with an increased vibration load. Possible applications are, for example, applications such as servo presses.

Design criteria for shaft heights 180 and 225

In conjunction with the option L03, the following motors can be selected:

1PH818x-1Ax00-xxx1-Z, Z=L03

1PH818x-1Ax10-xxx1-Z, Z=L03

1PH818x-1Ex00-xxx1-Z, Z=L03

1PH818x-1Ex10-xxx1-Z, Z=L03

1PH818x-1Hx00-xxx1-Z, Z=L03

1PH818x-1Hx10-xxx1-Z, Z=L03

1PH818x-1Jx00-xxx1-Z, Z=L03

1PH818x-1Jx10-xxx1-Z, Z=L03

1PH818x-1Mx00-xxx1-Z, Z=L03

1PH818x-1Mx10-xxx1-Z, Z=L03

1PH818x-2Ex00-xxx1-Z, Z=L03

1PH818x-2Ex10-xxx1-Z, Z=L03

1PH818x-2Mx00-xxx1-Z, Z=L03

1PH818x-2Mx10-xxx1-Z, Z=L03

1PH822x-1Ax00-xxx1-Z, Z=L03

1PH822x-1Ax10-xxx1-Z, Z=L03

1PH822x-1Ex00-xxx1-Z, Z=L03

1PH822x-1Ex10-xxx1-Z, Z=L03

1PH822x-1Hx00-xxx1-Z, Z=L03

1PH822x-1Hx10-xxx1-Z, Z=L03

1PH822x-1Jx00-xxx1-Z, Z=L03

1PH822x-1Jx10-xxx1-Z, Z=L03

1PH822x-1Mx00-xxx1-Z, Z=L03

1PH822x-1Mx10-xxx1-Z, Z=L03

1PH822x-2Ex00-xxx1-Z, Z=L03

1PH822x-2Ex10-xxx1-Z, Z=L03

1PH822x-2Mx00-xxx1-Z, Z=L03

1PH822x-2Mx10-xxx1-Z, Z=L03

Operating conditions of shaft heights 180 and 225

The vibration load that is permissible by default for the 1PH8 main motors is described in Chapter "Vibration response." The maximum permissible vibration accelerations in conjunction with option L03 are given in the following table:

Table 4- 14 Maximum permissible vibration accelerations

	Standard SH 180 and SH 225	Option L03 SH 180	Option L03 SH 225
Vertical	1.0 g	4.0 g	3.5 g
Horizontal	1.0 g	3.5 g	3.2 g
Axial	1.0 g	3.5 g	3.2 g

The vibration acceleration rates (0 peak) in the frequency range from 0 Hz to 1 kHz at the bearings must not exceed the values stated in the table. The position of the measuring points is defined in ISO 10816-1. The 1PH8 motor must be pinned with a grooved pin according to ISO 8740 at the DE and NDE end. The motor should be standing on a metal base while you do so. For easier disassembly, no blind holes in the base must be used for the pinning (recommendation: through holes for pressing through the grooved pins).

Grooved pins acc. to ISO 8740	SH 180	SH 225
Grooved pin diameter	5 mm	6 mm

Measures included

- Reinforced version of a DE bearing shield
- Fan unit (EC fan) with upgraded electronic components
- Screws locked with Loctite 270

Otherwise, the statements and regulations in this configuration manual apply.

Note

For further information, contact Technical Support or your Siemens branch.

4.2.5 Holding brake (option)

4.2.5.1 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.

Note

Restricted maximum motor speed for a motor equipped with brake ///start here

The maximum speed of a motor with holding brake is limited to the maximum speed of the holding brake (see $n_{max, Br}$ speed specified in the characteristic curves).

Note

Selection and ordering data

The selection and ordering data is contained in the chapter of the same name.

Note

No UL approval for the holding brakes

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 [Nm]	Maximum speed n_{max} [rpm]	Moment of inertia $J_{Br.}$ [kgm²]	Weight $m_{Br.}$ [kg]	Coil current 230 V AC ±10% [A]	Coil current 24 V DC ±10% [A]	Permitted single switched energy W_E [kJ]	Moment of inertia, total (emergency stop) J_{tot} [kgm²]	Speed (emergency n [rpm]	No. of emergency z	Opening time [ms]	Closing time [ms]
80	1PH808□	Size 13	29	5000	0,00093	10	0,8	4,1	2,2	0,0174	4800	2000	15	4
100	1PH810□	Size 19	60...150	5000	0,0048	21	1,0	4,7	7	0,063	4500	2000	50	6
132	1PH813□	Size 24	140...310	4500	0,0141	46	1,3	6,3	15,5	0,218	3600	2000	65	10
160	1PH816□	Size 29	280...500	4000	0,0266	66	1,4	6,7	24	0,456	3100	2000	75	15
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	10

1) max. 3 switching operations per

Figure 4-5 Technical data of the mounted holding brake (DE) with emergency stop function

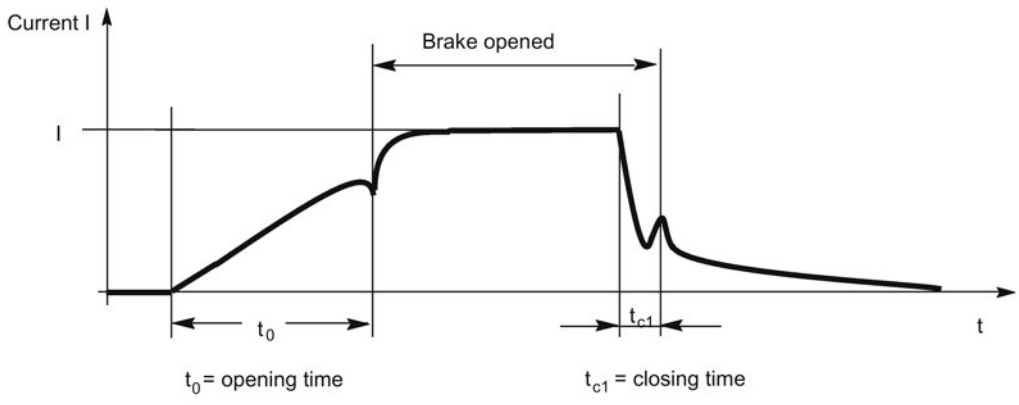


Figure 4-6 Terminology (time) for holding operation

Explanation of terminology in the table

Holding torque [Nm]: on motors with shaft heights 100 ... 160, the holding torque can be continuously set in the specified value range using an adjusting 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 kgm², 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 refers 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.

Release time [ms]: Separating time until the brake releases (the specified values refer to the maximum braking torque and rated voltage).

Engaging time [ms]: Connecting time until the brake engages according to the diagram "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.

NOTICE
Irreversible reduction of the braking effect The braking effect can be irreversibly reduced if you do not observe the permissible number of braking operations per hour and/or the maximum permissible operating energy per hour. Further, this can have a negative impact on the function of the holding brake. • When setting up machines and systems (when using the jog mode), observe the information provided in the Table "Technical data of holding brakes". • The holding brake can be equipped with a manual release to remove the holding torque.

NOTICE

Inadvertent operation of the holding brake

Material damage can occur if you inadvertently apply or release the holding brake.

- Secure the holding brake against inadvertent operation and misuse. The mechanical manual brake release must always be in the center position when not operated (see the diagram “Spring-applied single-disk brake module"). Only then is the brake completely engaged, and it is ensured that the spring-applied single-disk brake module can provide its full braking effect.
- You can remove the manual release lever. Observe the application-specific regulations on whether manual release is permissible, e.g. in manufacturing lifting equipment.
- For the rated operating conditions, see DIN VDE 0580: 1994-10. For the degree of protection see DIN VDE 0470, part 1. Coordinate possible special measures with the manufacturer if deviations are found.

WARNING

Danger to life if the holding brake is used incorrectly

If you use the holding brake incorrectly, e.g. you use it as safety brake, this can result in severe accidents with personal injury and/or material damage.

- Observe the accident prevention regulations applicable to the specific application.

Note

Special measures

If you find references to special measures and/or it is necessary to consult the manufacturer, already obtain the manufacturer's advice when you configure the system.

4.2.5.2 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

Radial and axial forces

The specifications for the "standard" bearing version apply for the permissible radial and axial forces.

See also

Radial and axial force diagrams (Page 114)

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.

Structure

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.

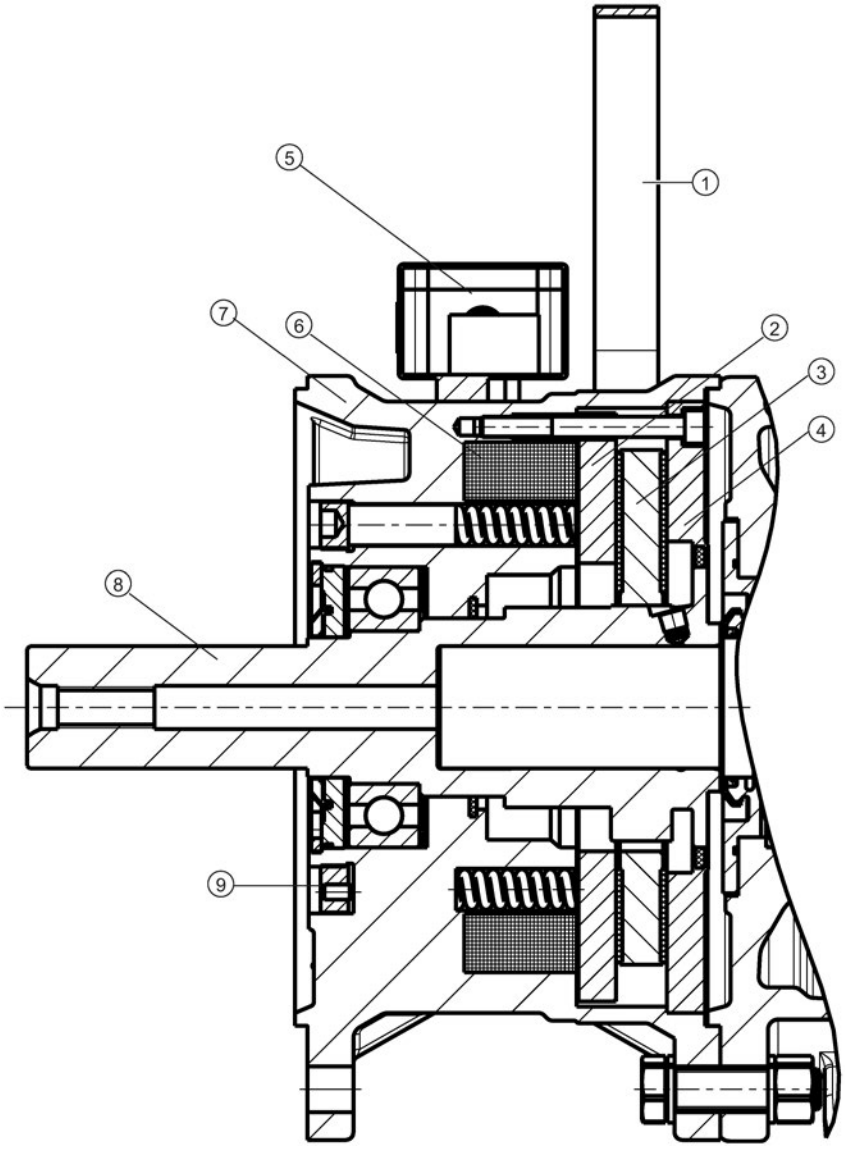
The braking effect of the axial moving friction disk is transmitted to the driver pin shaft ⑧ fixed to the motor shaft via the keyed connection of the internal square socket (sizes 13, 19 and 24) and/or via internal gearing (size 29).

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.

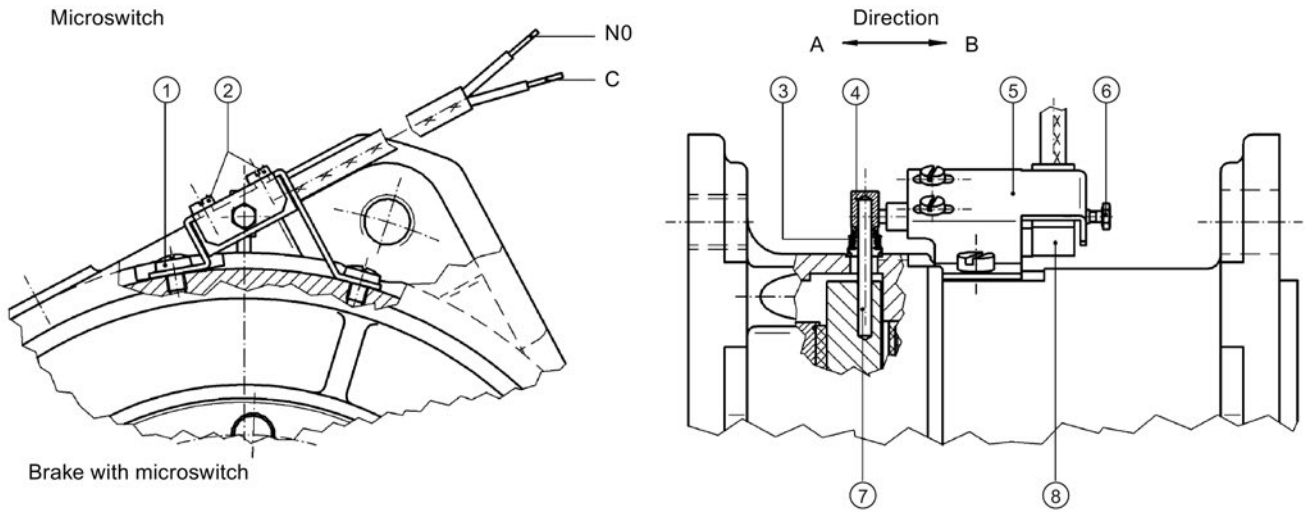
The sealing ring provides the drive-side sealing between the flange and the driver pin shaft. The single-disk spring-operated brake module can be opened mechanically by hand, e.g. in the event of a power failure, via the optional manual release ①. The electrical connection is made directly in the terminal 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 4-7 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 4-8 Microswitch mounting of a single-disk spring-operated brake module 77 500...B15

Electrical connection

⚠ WARNING

Fire hazard and risk of destroying the brake module

The brake module is an electromagnetic component and a DC system. An impermissibly high connection voltage at the brake module can cause the rectifier or the winding to burn. This can block the brake module, causing it to overheat.

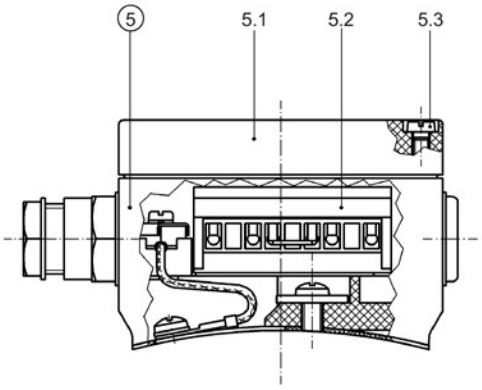
If the connection voltage is too low, the magnetic excitation will also be too low, preventing the brake from being released. The brake goes into the brake mechanism although this is not wanted.

- Make sure that the connection voltage of the brake module remains within the permissible tolerance of +10 % to -10 % of the nominal voltage. Comply with the legal standards for connection to the grid. Pay attention to the correct dimensioning of the cable lengths and conductor cross-sections in the connection cables.

- Check the electrical connection of the holding brake based on the following checklist.

Table 4- 15 Checklist for checking the electrical connection of the holding brake

Check	OK
The connection cables are suitable for the type of use and the voltages and currents that occur.	
The connection 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.	
There is no foreign matter, dirt or moisture 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 4-9 Holding brake terminal box ⑤ optionally with terminal or rectifier

- Connect the spring-applied single-disk brake module to the direct voltage. Use a rectifier bridge or half-wave rectifier for electrical connection to an AC power system.
- For brakes with integrated rectifiers, you can connect the spring-applied single-disk brake module directly to alternating voltage.
- See the figure for the terminal assignment.
- For brakes with a connecting terminal, you must connect the brake module directly to direct voltage. Connect the customer-specific connection cable to the terminals or to the integrated rectifier. Use a screwed cable gland (M16 x 1.5) for the connection.
- You must remove the cover of the terminal box to connect the individual stranded wires of the connecting cable to the connecting terminals or to the terminals of the integrated rectifier.

Table 4- 16 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

Brakes with integrated rectifiers are either equipped with a half-wave rectifier or with a rectifier bridge.

By appropriately connecting the integrated rectifier, you switch between AC (normal interlocking time t_1) or DC (short interlocking time t_1).

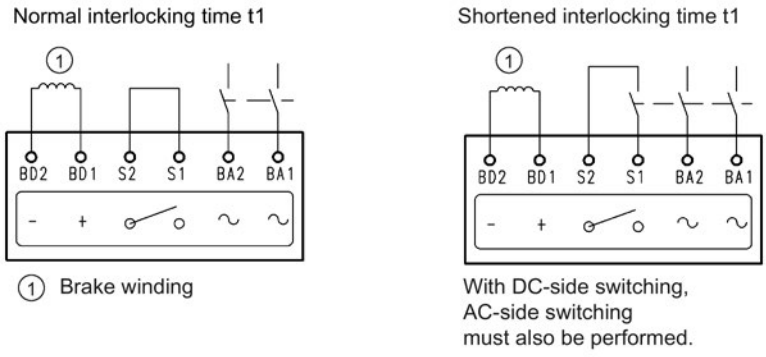


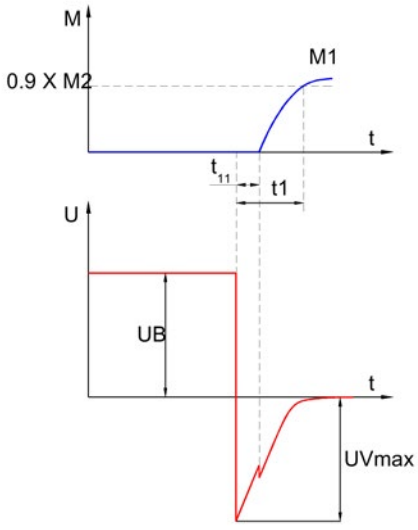
Figure 4-10 Pin assignment of the rectifier

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 by means of the electrical control.

DC connection

The basic curve of the voltage when the excitation winding (coil) (1.2) is switched off is as follows.



U_B Operating voltage (coil voltage)

U Transient voltage

Figure 4-11 Basic curve of the voltage when turning off the excitation winding

NOTICE
Overvoltages when switching off 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. Sparks form at the switch on switch-off. • When it is switched off, the current must therefore be reduced via a snubber circuit. This also limits the voltages. The maximum permissible overvoltage when switching off must not exceed 1500 V.

If Kendrion Binder rectifiers are used, 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 achieved.

NOTICE
Component damage resulting from a lower voltage Sensitive electronic components (e.g. logic components) and mechanical contact elements can also be damaged by the lower voltage. • Make sure that the voltage does not fall below the specified value, e.g. due to insufficient conductor cross-sections.

AC connection

NOTICE
Impermissible overvoltages If you operate the brake module without a snubber circuit in a circuit on the DC side, impermissible overvoltages can arise. • Use a snubber circuit. • Avoid damage, e.g. due to contact erosion or contact welding of the external contact elements by taking additional protection measures, e.g. varistors or spark suppression 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

Use of microswitches

- Observe the special regulations regarding the permissible use of microswitches, e.g. for lifting gear and crane construction.

WARNING

Accidental motor starting

In an unsecured motor circuit, the motor can start accidentally when the microswitch is closed. This can result in injury and/or material damage.

- Secure the motor circuit accordingly.

In brake modules with microswitches, the microswitch monitors the operating state of the spring-applied single-disk brake module. The brake module is either open or closed.

- For example, integrate the microswitch into the control circuit for controlling the machine or the motor.

The microswitch prevents the machine or motor from starting against a closed brake module if it is integrated correctly.

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

Accidental drive acceleration after manually operating the brake control module

If you manually open the spring-applied single-disk brake module, the load torque will accelerate an unbalanced drive. This can result in injury and/or material damage.

- Take special care when inching the brake module open or closed. Make sure that no danger is posed by the load torque.

Examples of situations in which manual operation of the brake module is necessary include

- Maintenance on the machine or the motor
- Failure of the regular power supply during UPS operation

The spring-applied single-disk brake module can be manually opened via an externally mounted mechanical manual brake release (accessory).

If you use a commercially available UPS power supply, e.g. a UPS battery system, the brake module can be opened electrically during a failure of the regular power supply.

- Observe the voltage stated on the nameplate of the brake module when installing a UPS power supply.

Setting of the transmissible torque M_4

Note

Torque M_4

The transmissible torque must not fall below the minimum value M_4 when you adjust the adjustment ring according to table "Change of the transmissible torque."

- Always mark the modified adjustment ring distance E in the base of the solenoid housing pocket using a punch prick.
- Mark the theoretically set transmissible torque M_4 on the nameplate of the motor. The empty field "Optional customer information" on the nameplate is available for this.
- After you have set the transmissible torque M_4, make sure that you secure the adjustment ring with a threaded pin. Comply with the tightening torque of M_A = 3 Nm.
- Turn the adjustment ring in such a way that the threaded pin can be located between the thrust studs. Deviations of the transmissible torque M_4 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. You will find the transmissible torque M_4 on the nameplate of the brake module.

Table 4- 17 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

4.2.5.3 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

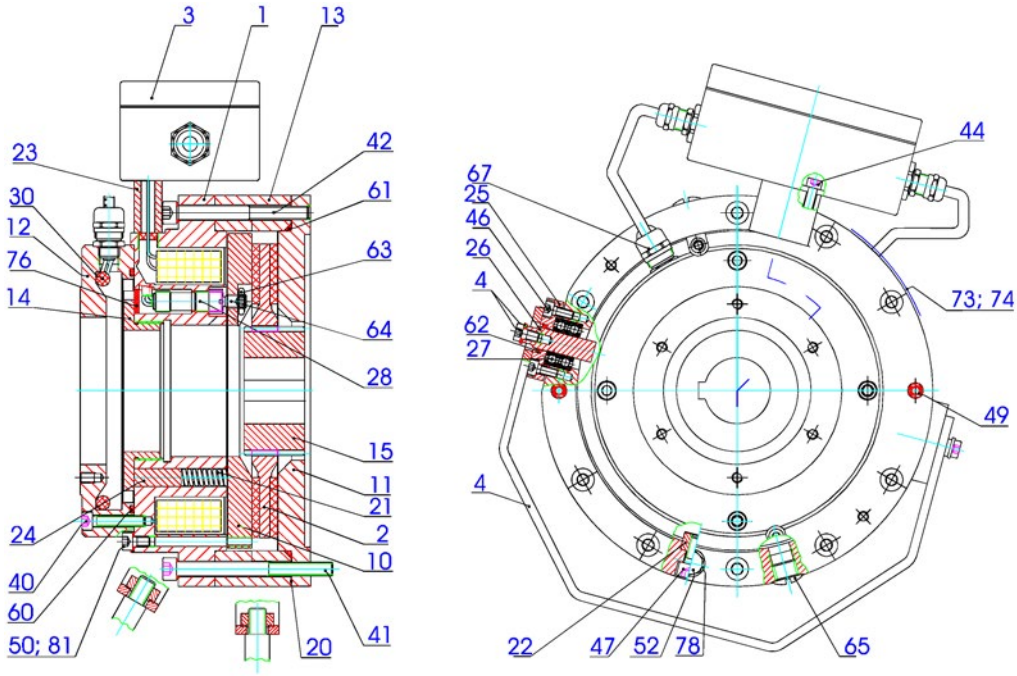
Radial and axial forces

The specifications for the "standard" bearing version apply for the permissible radial and axial forces.

See also

Radial and axial forces (Page 110)

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 4-12 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. The brakes are constructed and tested in compliance with DIN VDE 0580.

The brake is attached to a motor or another machine part using cylinder head screws (fixing screws, item 41).

The bobbin 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.

WARNING

Incorrect use of the emergency release

If you use the emergency release to maintain operation temporarily, you may damage the brake. This can result in personal injury and damage to property.

- Only ever use the emergency release in an emergency.

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 power connection provided by the customer is 230 V AC +/- 10%.

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.

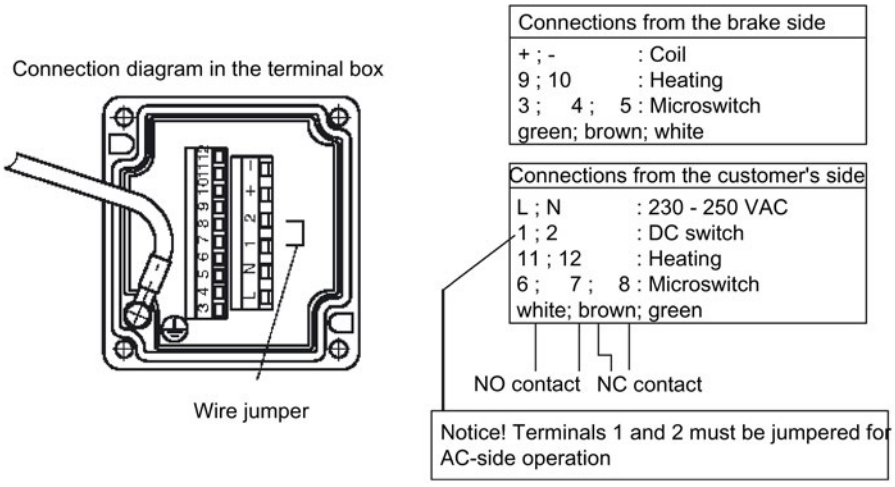


Figure 4-13 Circuit configurations

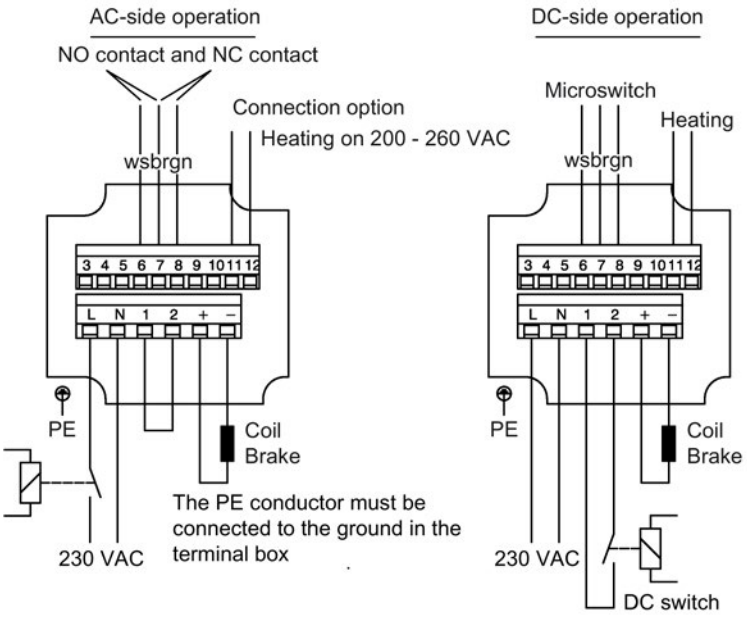


Figure 4-14 Circuit configurations

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.

4.2.6 Anti-condensation heating (option K45)

Larger motors are prone to more frequent condensation on the winding caused by the climatic conditions because of the larger surfaces. Condensation can occur, for example, on non-rotating motors in a humid environment or on motors that are exposed to severe temperature fluctuations. Anti-condensation heaters heat the air in the motor by a few Kelvin above the ambient temperature and thus prevent precipitation inside the motor.

On the 1PH8 motors, an anti-condensation heater can be ordered with option K45 for shaft heights 180, 225, and 280. Option K45 comprises a strip heater mounted on the winding overhang with a heating power of 100 W for a supply voltage of 230 V AC (50/60 Hz). The two terminals are routed into the main terminal box of the motor and can be connected via the auxiliary terminal strip. The terminals are identified as "1HE1" and "1HE2."

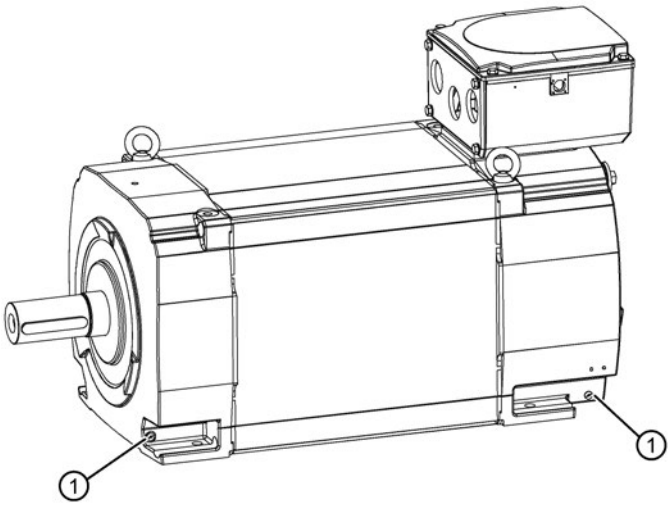
Note:

- For shaft heights 180, 225, 280, the same strip heater is used.
- The anti-condensation heating must not be switched on while the motor is running.
- The anti-condensation heaters for 1PH8 motors are UL-approved.
- In addition to the anti-condensation heating, motors with degree of protection IP55 should also have condensation drain holes (see Chapter "Condensation drain hole (option L12)").

4.2.7 Condensation drain hole (option L12)

In larger motors, there is a risk of condensation or accumulation of condensed water inside the motor due to the climatic conditions. Condensation drain holes prevent the accumulation of a damaging quantity of water in the motor and are often used as the primary measure against condensed water as they are easy to implement in the design.

In 1PH8 motors, the condensation drain holes are located at the lowest point in the NDE and DE bearing shields and are therefore only suitable for horizontal installation (type of construction IM B3, IM B5, and IM B35). The condensation drain holes for shaft height 180 and 225 are provided with a special insert (drainage plug); this insert is not required for shaft height 280.



① Water drainage hole

Figure 4-15 1PH8 motor with condensation drain holes

Table 4- 18 1PH8 motors that can be equipped with condensation drain holes

Article No.	Cooling	Degree of protection	Required option	Comment
1PH818x-xxx0 1PH818x-xxx1	Forced ventilation	IP 55	L12	Bearing shield NDE and DE
1PH822x-xxx0 1PH822x-xxx1				
1PH828x-xxx1				
1PH818x-xxx2	Water cooling	IP 55	-	NDE and DE bearing shield (condensation drain hole always included as standard)
1PH822x-xxx2				
1PH828x-xxx2				

Note:

- Condensation drain holes are only used in motors with degree of protection IP 55. In motors with degree of protection IP 23 (open-circuit ventilation), the open design does not require condensation drain holes. (A harmful quantity of condensed water cannot accumulate.)
- Anti-condensation heating (see Chapter "Anti-condensation heaters") can be used in addition to the condensed water holes for a greater anti-condensation effect.

4.2.8 Extra grounding terminals in terminal box (Q00)

For option Q00 (higher number of ground terminals in the terminal box), symmetrical power cables with a grounding conductor split into 3 can be connected more easily in the terminal box for large transmission powers. The grounding bar in the terminal box has a larger number of terminals in option Q00.

Table 4- 19 Definition of Q00 according to the type of terminal box:

Shaft height SH	Terminal box type	Number of terminals (grounding) standard	Number of terminals (grounding) option Q00
280	1XB7712-P..	4 x M16	12 x M6

Option Q00 has no influence on the dimension drawings, 3D drawings, and electrical configuration. For this reason, this option has not been included in CAD Creator or in SIZER.

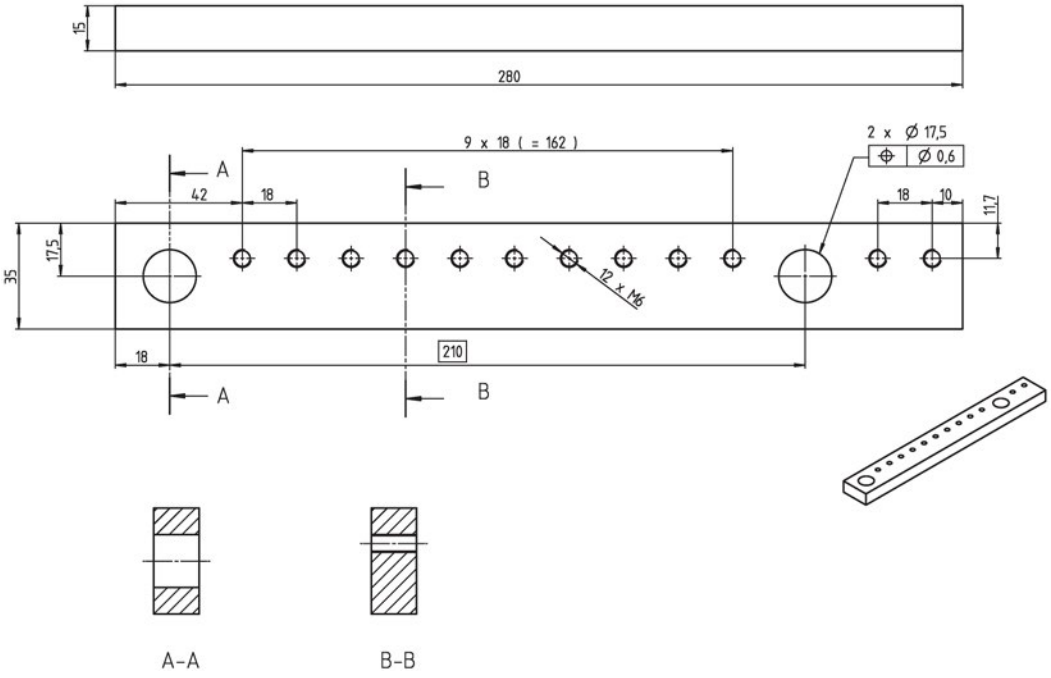


Figure 4-16 Grounding bar with option Q00

4.2.9 Three-phase external fan (option L75)

Technical data and connection

The external fan has a terminal box that is mounted on the external fan motor.

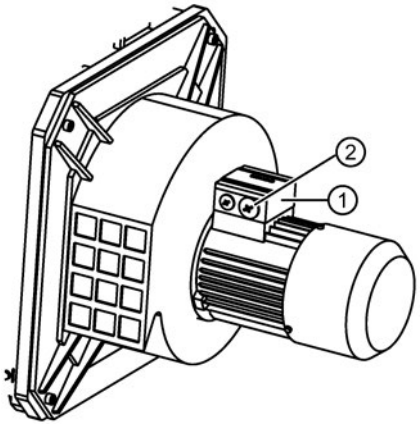
	Air flow direction	3 AC 400 V / 50 Hz (± 10 %)	3 AC 400 V / 60 Hz (1) (± 10 %)	3 AC 480 V / 60 Hz (1) (+5 %, - 10 %)	Sound pressure level LpA (1 m) Motor + external fan unit 50 Hz operation Tolerance + 3 dB Rated pulse frequency 2 kHz	Air flow rate at 50 Hz, approx.
		[A]	[A]	[A]	[dB]	[m³/s]
1PH8 forced ventilation, degree of protection IP55, L75						
1PH818.-...0.-...1-Z 1PH818.-...1.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (2)	0.17
1PH822.-...0.-...1-Z 1PH822.-...1.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (2)	0.31
1PH8 open-circuit ventilation, degree of protection IP23, L75						
1PH818.-...3.-...1-Z 1PH818.-...4.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (3)	0.21
1PH822.-...3.-...1-Z 1PH822.-...4.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (3)	0.33

(1) 60 Hz operation only permissible with throttle plate

(2) Speed ranges: 1PH818. up to 5000 rpm, 1PH822. up to 3500 rpm

(3) Speed ranges: 1PH818. up to 3000 rpm, 1PH822. up to 2000 rpm

1. Connect the power supply in the terminal box. The terminal diagram is in the terminal box cover.



① Terminal box of the external fan

② Cable entry

NOTICE
Incorrect direction of rotation The external fan is only suitable for one direction of rotation. Operation with the wrong direction of rotation can destroy the motor. • If necessary, change the direction of rotation by interchanging two phase conductors in the terminal box. The direction of rotation arrow and the direction of rotation of the fan impeller can be seen at the rear of the fan.

Throttle plate for operation at 60 Hz

When operated from a 60 Hz line supply, you require the air discharge throttle plate provided in the terminal box.

NOTICE
Operation at 60 Hz The external fan motor can be damaged if it is operated on a 60 Hz line supply without an air discharge throttle plate. • Screw the air discharge throttle plate to the air discharge mesh.

4.2.10 Chain of PTC thermistors for alarm and trip (option A12)

Overview

In the 1PH8 motors, in addition to the standard temperature sensor in the stator winding (see Ch. "Thermal motor protection"), a chain of PTC thermistors for alarm and trip can be ordered with option A12.

The chain of PTC thermistors can also monitor the winding temperature. PTC thermistors are thermistors that exhibit a sudden increase in resistance at a certain trigger temperature. The trip units detect this resistance change and signal the trigger temperature. PTC thermistors are standardized in DIN 44081.

Circuit design

Option A12 consists of two chains of PTC thermistors, each with 3 PTC thermistors for alarm and trip. The chain of PTC thermistors is installed in the phase elements on the winding overhang. The temperature difference between alarm and trip is 10 K.

The terminal designations for the two connection ends of the chain of PTC thermistors for alarm are 1TP1 and 1TP2; the terminal designations for the two connection ends of the PTC thermistor circuit for tripping are 2TP1 and 2TP2.

The circuit diagram and the terminal assignments are provided in the terminal box of the 1PH8 motor.

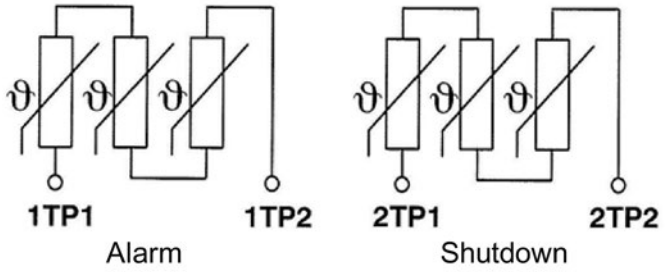


Figure 4-17 Chains of PTC thermistors option A12

Configuration 5

5.1 Configuring software

5.1.1 SIZER configuration tool

Overview

The SIZER calculation tool supports you in the technical dimensioning of the hardware and firmware components required for a drive task.

SIZER supports the following configuration steps:

- 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

The configuration process produces the following results:

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

You will find further information on the Internet at: SIZER (https://support.industry.siemens.com/cs/document/54992004/sizer-for-siemens-drives?dti=0&pnid=13434&lc=en-WW)

Table 5- 1 Article number for SIZER for SIEMENS Drives

Configuration tool	Article no. 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

5.2 Procedure when engineering

5.2.1 SINAMICS configuring procedure

Motion Control

1PH8 motors are optimized for motion control applications. They execute linear or rotary movements within a defined movement cycle. All movements must be performed in a time-optimized manner. As a result of these considerations, 1PH8 motors must meet the following requirements:

- High dynamic response, e.g. short rise times
- Capable of overload, i.e. high acceleration margin
- Wide control range, i.e. high resolution for precise positioning.

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

General procedure when engineering

The function description of the machine provides the basis when engineering the drive application. The components are selected according to physical interdependencies and the selection process is usually carried out in the following sequence of steps:

Table 5- 2 Planning

Step	Description of configuration activity	
1.	Clarification of type of drive	See 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	See catalog
5.	Repetition of steps 3 and 4 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 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 that can be used as a basis for selecting the motor depending on the load.

5.2.2 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.

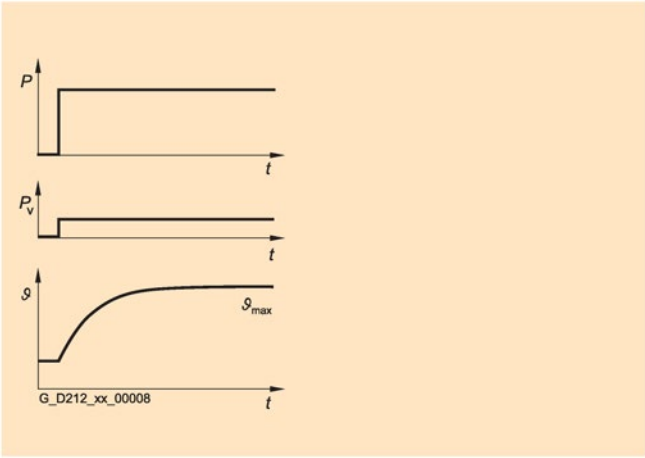


Figure 5-1 S1 duty (continuous operation)

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. An overload rating is provided for transient overloads (e.g. during acceleration). 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.

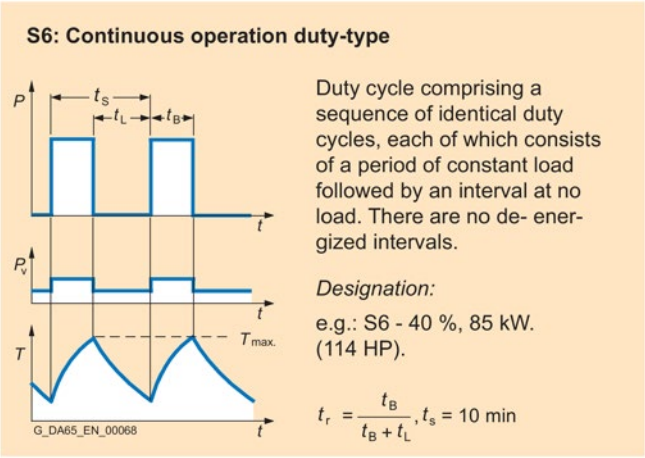


Figure 5-2 S6 duty (continuous duty with intermittent load)

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 "Technical data and characteristics."

For the induction motors, the S6 characteristics are shown in addition to the S1 characteristic (see Chapter "Technical data and characteristics").

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 load duty cycle defines the characteristics of the motor speed and the torque with respect to time.

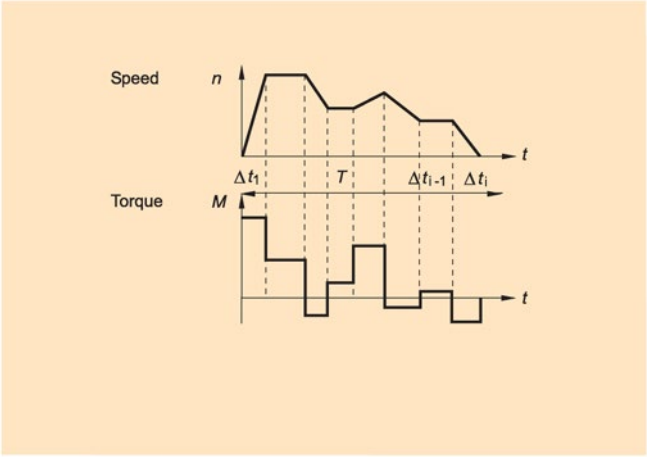


Figure 5-3 Example of a duty cycle

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.

For gearbox mounting:
In determining the load and acceleration torque required by the motor, the gear ratio and the gear efficiency must be considered. 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

Duty cycles in the field weakening range

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

Permissible motor torque

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!

5.2.3 Selecting induction motors

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 Chapter "Technical data and characteristics").

Depending on the motor variant, the S1 characteristic (continuous operation) is available from standstill to rated 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.

For the induction motors, the S6 characteristics are shown in addition to the S1 characteristic (see Chapter "Technical data and characteristics").

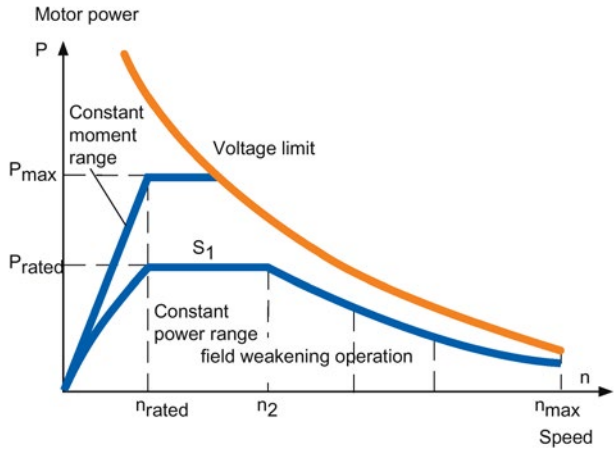


Figure 5-4 Typical speed/power diagram for 1PH8 asynchronous motors

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.

Note

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 rated points with which extended field-weakening operation can be configured. In this case, the range of constant power starts at the ancillary rated 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}.

5.2.4 Selecting synchronous motors

Characteristic curves for synchronous motors

The S1 characteristic (continuous operation) up to rated 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.

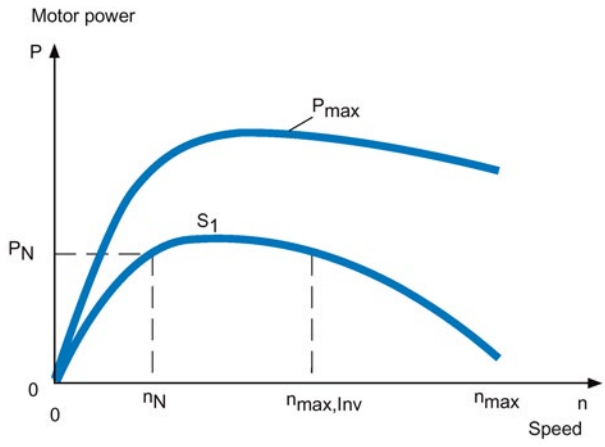


Figure 5-5 Typical speed/power diagram for 1PH8 three-phase synchronous motors

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Note

Like those for induction motors, the data sheets for the supply voltage "ALM 400V" include additional ancillary rated 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.

5.3 Different rated points for induction motors

Basically, all 1PH8 induction motors can be configured based on a total of 4 characteristics and therefore also 4 rated points (operating points). The rated points are also stamped on the motor nameplate.
For correct configuration, the line voltage and the line infeed are relevant for choosing the characteristics and rated points.

Table 5- 3 Definition of the characteristics and rated points:

Characteristics order	Converter system	Line voltage	Supply infeed	Remarks
1	SINAMICS	400 V 3 AC	Smart/Basic Line Module (SLM/BLM)	Infeed with Smart/Basic Mode non-regulated (converter output voltages up to 380 V)
2	SINAMICS	400 V 3 AC	Active Line Module (ALM)	Infeed with Active Mode regulated (converter output voltages up to 425 V)
3	SINAMICS	480 V 3 AC	Smart/Basic Line Module (SLM/BLM)	Infeed with Smart/Basic Mode non-regulated (converter output voltages up to 460 V)
4	SINAMICS	480 V 3 AC	Active Line Module (ALM)	Infeed with Active Mode regulated (converter output voltages up to 500 V)

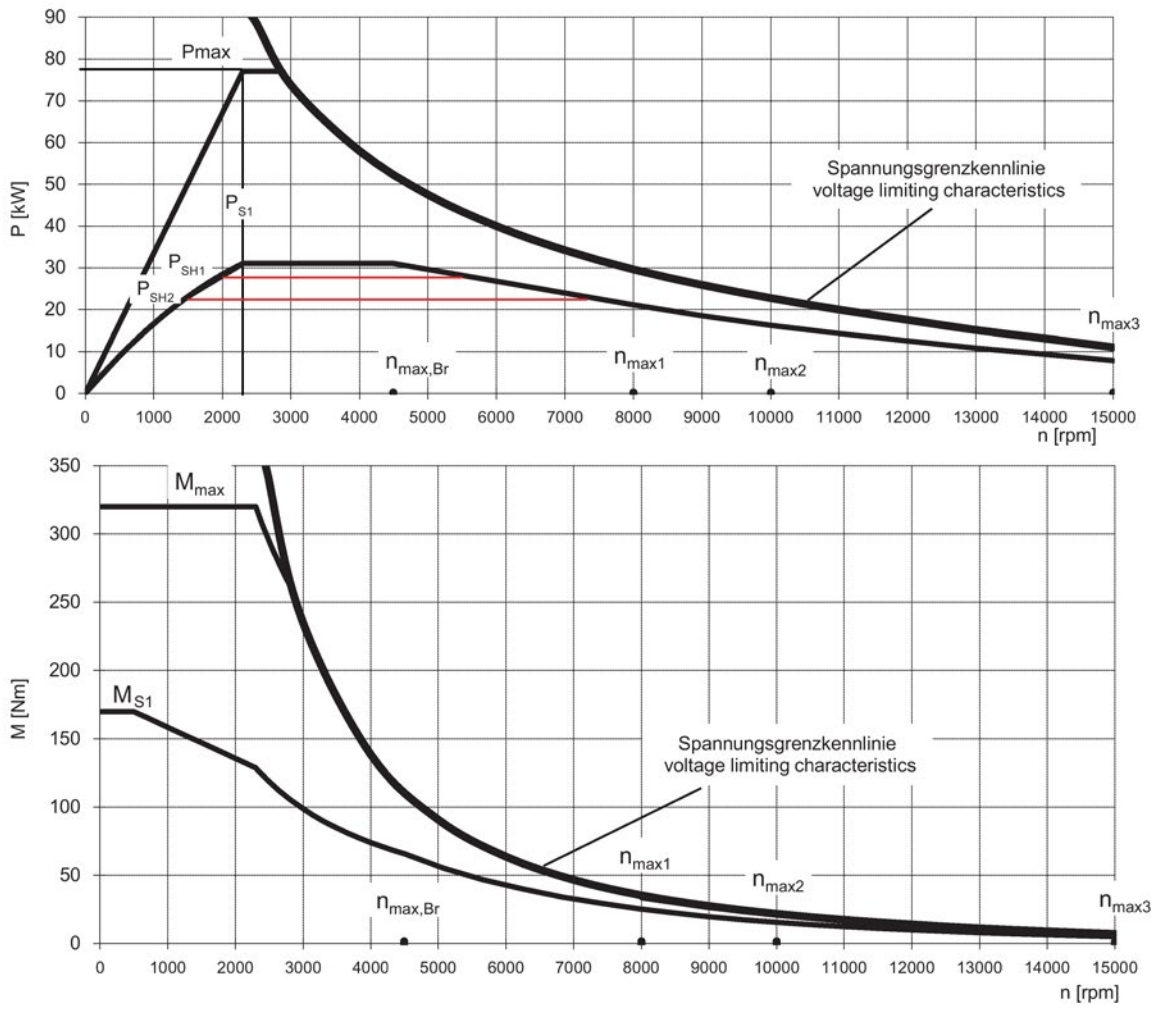
Note

For water-cooled induction motors with shaft heights 180, 225, and 280, the characteristic order "4" is not shown. These motors therefore do not have a 4th rated point for "ALM 480V" on the motor nameplate. For configuration of the line infeed "ALM 480V," the data of the characteristic order "3" must be accepted.

Within the characteristic for SINAMICS, 400V 3 AC, ALM (2nd order, see table), two (sometimes also three) different rated speeds are stated. The rated speeds that are additional to the first rated speed stated are termed ancillary rated points and enable configuration for extended field weakening operation. This type of configuration is often used for main-spindle applications on machine tools. It is especially important for the migration from old products, such as 1PH4, 1PH7, 1PM4/6, and 1PL6.

Table 5- 4 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]
2,300	31.0	129	61	8,000	10,000	15,000	4,500	4,500	320	148	170	73
2,000 1)	29.0	138	64					5,250				
1,500 1)	23.1	147	63					7,300				



1) Ancillary rated point that permits configuration for extended field-weakening operation (e.g. main-spindle application for machine tools). In this case, the range of constant power starts at the ancillary rated point and ends at the associated point n2. The rest of the characteristic is the same as the S1 characteristic in the diagram.

The ancillary rated points have the following advantages for configuration:

- Direct comparability of the power and torque at a rated speed with the old products such as 1PH4, 1PH7, 1PM4/6, and 1PL6. (For the old products, lower rated speeds than for 1PH8 are usually specified.)
- Configuration for an extended field-weakening operation.

Note

For the motor data for SINAMICS, only the rated point is stored. The ancillary rated points cannot be entered; they are only required for better configuration.

Example of migration from 1PH7 to 1PH8:

Motor 1PH7226-__F	Rated point for SINAMICS, 400 V 3 AC, ALM	130 kW, 1500 rpm, 828 Nm
Motor 1PH8226-1_F	Rated point for SINAMICS, 400 V 3 AC, ALM Ancillary rated point for SINAMICS, 400 V 3 AC, ALM	135 kW, 1750 rpm, 737 Nm 130 kW, 1500 rpm, 828 Nm (comparable with 1PH7226-__F)

5.4 Configuration for SINAMICS G

Configuration conditions

The 1PH8 induction motors can also be configured for operation on SINAMICS G120, G130, and G150 if certain configuration conditions are met:

- 1PH8 in induction version
- SINAMICS G120 with PM240 or PM240-2 and CU modules CU240B-2 and CU240E-2 with firmware version ≥ 4.5 or CU250, vector control (encoderless)
- SINAMICS G130/G150 and CU module CU320-2 with firmware version ≥ 4.5, vector control (encoderless or with incremental encoder HTL)
- System restrictions:
- 1PH8 SH 80 to SH 160 Pulse frequency ≥ 4 kHz
- 1PH8 SH 180 to SH 280 Pulse frequency ≥ 2 kHz
- Maximum permissible output frequency for PM240 or PM240-2: 240 Hz (means n_max = 7000 rpm)
- System classification - characteristics:
  Only the characteristics of 1PH8 can be used for the non-regulated infeed.

Character-istics order	Converter sys-tem	Line voltage	Supply infeed	Remarks
1	SINAMICS	400 V 3 AC	Smart/Basic Line Module (SLM/BLM)	Infeed with Smart/Basic Mode non-regulated (converter output voltages up to 380 V)
3	SINAMICS	480 V 3 AC	Smart/Basic Line Module (SLM/BLM)	Infeed with Smart/Basic Mode non-regulated (converter output voltages up to 460 V)

5.5 Configuration for 1PH808 Premium Performance

The 1PH8 motors in the "Premium Performance" variant have been developed specially for spindle drives for modern "drilling & tapping centers" and are characterized by higher performance data, such as:

- High maximum speeds (24,000 rpm)
- Low intrinsic moment of inertia
- High overload capability

Due to the higher performance data, the 1PH8 motors have been designed for better configuration, in particular, for the SINAMICS S120 Motor Module Booksize, Booksize Combi, and the new Booksize Combi Module.

In the characteristics (Chapter "Technical data and characteristics"), in addition to the rated point and the necessary pulse frequency, the maximum torques, maximum currents, and maximum powers permissible for the specific Motor Module are specified. In this way, different overload requirements can be simply configured. The typical intermittent duties S6-10%, S6-25%, and S6-40% for a "Drilling & Tapping Center" are also stated in the characteristics.

Table 5- 5 Explanation of the symbols in the characteristic curves

Abbreviation	Unit	Description
n_N	rpm	Rated speed
P_N	kW	Rated power
M_N	Nm	Rated torque
I_N	A	Rated current
n_2	rpm	Maximum operating speed in field-weakening range (limits range of constant power)
n_{max}	rpm	Maximum permissible speed with version "Premium Performance"
I_{max1}	A	Maximum permissible short-time current at M_{max1} for Motor Module Booksize
I_{max2}	A	Maximum permissible short-time current at M_{max2} for Motor Module Booksize Combi
I_{max3}	A	Maximum permissible short-time current at M_{max3} for Motor Module Booksize Combi (upgrade)
M_{max1}	Nm	Maximum permissible short-time torque for Motor Module Booksize
M_{max2}	Nm	Maximum permissible short-time torque for Motor Module Booksize Combi
M_{max3}	Nm	Maximum permissible short-time torque for Motor Module Booksize Combi (upgrade)
P_{max1}	Nm	Maximum permissible short-time power for Motor Module Booksize
P_{max2}	Nm	Maximum permissible short-time power for Motor Module Booksize Combi

P_{max3}	Nm	Maximum permissible short-time power for Motor Module Booksize Combi (upgrade)
f_{cycle}	kHz	Rated pulse frequency

Note

Parameters must be adapted when commissioning

Motors with the "Premium Performance" bearing version are presently not plug & play components. Even after automatically commissioning the motors with DRIVE-CLiQ, the commissioning engineer must adapt the appropriate parameters.

Example: Motors with V and W winding versions (10th position of the Article No.) require a 8 kHz pulse frequency. Presently, this value is not automatically set. Further, for these motors, the current controller must be adapted. These parameters are currently not saved in the DRIVE-CLiQ interface data and must be modified manually by the commissioning engineer. These motors may only be operated with a fast current controller (p1810.11=yes) when connected to the SINAMICS S120 drive system.

In order that you can proceed precisely when commissioning the motors, please request the commissioning regulations from your Siemens Service Center. The contact data is provided in the introduction under Technical support.

Technical data and characteristics 6

6.1 Induction motors

6.1.1 Technical data

The technical data of the relevant motor version are defined by four rated operating points in the tables.

These four rated 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 NC 62 and D21.4.

Table 6- 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 (rated 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}

Abbreviation	Unit	Description
M_0	Nm	Torque (S1) at zero speed
I_0	A	Current (S1) at M_0

*) With the bearing for increased radial forces (14th data position = F), the maximum permissible speed for shaft heights 100, 132, and 160 is smaller than the maximum permissible speed stated in the characteristics for the bearings for Standard or increased speed.

Maximum permissible speed with the bearing for increased radial forces:

Shaft height 100: n_{max1} = 7,000 rpm

Shaft height 132: n_{max1} = 6,500 rpm

Shaft height 160: n_{max1} = 5,300 rpm

6.1.1.1 Shaft height 80 – forced ventilation

Table 6- 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	1,500	0.80	0.809	0.0064	10	3.8	32
Y connection	ALM 400 V	3.3	18	7.5	398	61.9	1,750	0.80	0.831			3.8	
	SLM/BLM 480 V	3.7	18	7.6	447	70.0	2,000	0.79	0.850			3.7	
	ALM 480 V	4.1	18	7.6	480	76.2	2,200	0.82	0.850			3.6	
1PH8083-1□G□□	SLM/BLM 400 V	3.7	18	11.6	293	70.2	2,000	0.79	0.832			5.7	
Y connection	ALM 400 V	4.1	17	11.3	332	80.0	2,300	0.78	0.852			5.7	
	SLM/BLM 480 V	4.6	17	11.2	376	91.6	2,650	0.78	0.862			5.7	
	ALM 480 V	4.8	16	11.3	400	96.4	2,800	0.76	0.868			5.8	
1PH8083-1□M□□	SLM/BLM 400 V	4.1	13	13.6	298	102.6	3,000	0.74	0.869			7.3	
Y connection	ALM 400 V	4.5	13	13.5	327	113.8	3,300	0.74	0.875			7.3	
	SLM/BLM 480 V	4.9	13	14	355	122.6	3,600	0.74	0.881			7.3	
	ALM 480 V	5.3	13	14	372	132.8	3,900	0.76	0.870			7.2	
1PH8083-1□N□□	SLM/BLM 400 V	4.8	10	17	300	152.3	4,500	0.70	0.860			9.5	
Y connection	ALM 400 V	5.3	10	17	335	168.9	5,000	0.69	0.870			9.7	
	SLM/BLM 480 V	5.5	10	16.5	350	185.7	5,500	0.71	0.870			9.0	
	ALM 480 V	5.0	8	15.9	382	202.1	6,000	0.66	0.850			9.1	
1PH8087-1□F□□	SLM/BLM 400 V	3.7	24	10	336	53.2	1,500	0.81	0.817	0.0089	10	4.9	39
Y connection	ALM 400 V	4.3	23	10	396	61.4	1,750	0.78	0.838			5.3	
	SLM/BLM 480 V	4.9	23	10	435	69.9	2,000	0.80	0.864			4.9	
	ALM 480 V	5.3	23	10	480	76.3	2,200	0.78	0.870			5.1	
1PH8087-1□G□□	SLM/BLM 400 V	4.9	23	14.1	320	69.8	2,000	0.78	0.853			7.3	
Y connection	ALM 400 V	5.4	22	13.7	353	79.8	2,300	0.78	0.859			6.8	
	SLM/BLM 480 V	6.0	22	13.6	390	91.6	2,650	0.79	0.884			6.5	
	ALM 480 V	6.3	21	13.5	425	96.5	2,800	0.77	0.870			6.8	
1PH8087-1□M□□	SLM/BLM 400 V	4.8	15	17.3	284	102.2	3,000	0.72	0.871			9.6	
Y connection	ALM 400 V	5.2	15	17.1	303	112.4	3,300	0.73	0.878			9.2	
	SLM/BLM 480 V	5.7	15	17.1	329	122.4	3,600	0.73	0.878			9.2	

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]	m [kg]
	ALM 480 V	6.0	15	17.1	357	132.4	3,900	0.73	0.890			9.2	
1PH8087-1□N□□ Y connection	SLM/BLM 400 V	5.8	12	19.5	315	152.1	4,500	0.70	0.871			11.0	
	ALM 400 V	6.5	12	19.5	335	169.0	5,000	0.73	0.878			10.4	
	SLM/BLM 480 V	6.9	12	19	370	185.6	5,500	0.71	0.878			10.5	
	ALM 480 V	7.0	11	19	415	202.1	6,000	0.68	0.860			10.5	

Table 6- 3 1PH8 shaft height 80 forced ventilation – Premium Performance (supplementary basic data)

Motor type	J [kgm²]	T_{th} [min]
1PH8081-1□U□□ Y connection	0.0045	10
1PH8081-1□W□□ Y connection	0.0045	10
1PH8081-1□V□□ Y connection	0.0045	10
1PH8083-1□W□□ Y connection	0.0064	10
1PH8083-1□V□□ Y connection	0.0064	10
1PH8087-1□V□□ Y connection	0.0089	10

6.1.1.2 Shaft height 100 – forced ventilation

Table 6- 4 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□□ Y connection	SLM/BLM 400 V	3.7	24	12.5	265	52.4	1,500	0.80	0.835	0.0138	20	6.0	42
	ALM 400 V	4.3	23	12.5	304	60.9	1,750	0.80	0.852			6.0	
	SLM/BLM 480 V	4.7	22	12.5	343	69.0	2,000	0.79	0.871			6.0	
	ALM 480 V	5.1	22	12.5	363	76.0	2,200	0.82	0.870			6.0	
1PH8101-1□S□□ Y connection	SLM/BLM 400 V	3.7	24	13.2	253	52.4	1,500	0.80	0.830			6.3	
	ALM 400 V	4.9	23	13.2	328	69.2	2,000	0.80	0.870			6.3	
	SLM/BLM 480 V	6.2	24	13.2	404	85.9	2,500	0.80	0.890			6.2	
	ALM 480 V	7.4	24	13.2	480	102.5	3,000	0.79	0.900			6.3	
1PH8101-1□S□□ Δ connection	SLM/BLM 400 V	3.7	9	13.5	289	134.6	4,000	0.69	0.890			7.8	
	ALM 400 V	4.9	9	13.5	360	168.0	5,000	0.70	0.900			7.8	
	SLM/BLM 480 V	6.2	10	13	460	201.3	6,000	0.68	0.910			8.5	
	ALM 480 V	7.2	10	13	503	234.8	7,000	0.72	0.910			7.8	

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	333	35.8	1,000	0.82	0.814	0.0172	20	4.6	51
Y connection	ALM 400 V	4.3	36	10	380	40.9	1,150	0.81	0.824			4.8	
	SLM/BLM 480 V	4.7	33	9.7	423	47.3	1,350	0.82	0.848			4.4	
	ALM 480 V	5.2	33	9.7	470	52.2	1,500	0.81	0.850			4.6	
1PH8103-1□F□□	SLM/BLM 400 V	5.5	35	13.5	368	52.4	1,500	0.80	0.852			6.5	
Y connection	ALM 400 V	6.3	34	13.1	412	60.8	1,750	0.81	0.859			6.0	
	SLM/BLM 480 V	7.0	33	12.7	460	69.1	2,000	0.81	0.894			5.8	
	ALM 480 V	7.7	33	12.7	480	76.1	2,200	0.83	0.880			5.8	
1PH8103-1□G□□	SLM/BLM 400 V	7.0	33	17.5	345	69.0	2,000	0.79	0.877			8.7	
Y connection	ALM 400 V	7.5	31	17	382	78.9	2,300	0.79	0.891			8.1	
	SLM/BLM 480 V	8.0	29	16	434	90.4	2,650	0.78	0.913			8.1	
	ALM 480 V	8.5	29	16	455	95.3	2,800	0.78	0.900			8.1	
1PH8103-1□M□□	SLM/BLM 400 V	8.4	27	25.7	297	102.1	3,000	0.78	0.900			12.2	
Y connection	ALM 400 V	9.3	27	25.7	326	112.1	3,300	0.78	0.900			12.2	
	SLM/BLM 480 V	10.0	27	25.4	355	122.1	3,600	0.77	0.910			12.3	
	ALM 480V	10.8	26	25	383	132.1	3,900	0.77	0.900			12.2	
1PH8105-1□F□□	SLM/BLM 400 V	7.0	45	17.5	348	51.9	1,500	0.79	0.867	0.0252	20	8.8	65
Y connection	ALM 400 V	8.0	44	17.5	400	60.2	1,750	0.78	0.878			8.8	
	SLM/BLM 480 V	9.0	43	17	453	68.5	2,000	0.78	0.911			8.7	
	ALM 480 V	9.9	43	17	485	75.3	2,200	0.79	0.900			8.7	
1PH8105-1□S□□	SLM/BLM 400 V	7.5	18	24	308	134.6	4,000	0.73	0.907			12.7	
Δ connection	ALM 400 V	9.3	18	24	398	168.0	5,000	0.71	0.914			13.2	
	SLM/BLM 480 V	11.2	18	22	460	201.3	6,000	0.73	0.932			12.7	
	ALM 480 V	13.0	18	22	500	234.9	7,000	0.76	0.920			12.7	
1PH8105-1□S□□	SLM/BLM 400 V	7.5	48	23	285	52.1	1,500	0.79	0.864			11.5	
Y connection	ALM 400 V	10.0	48	23	366	68.9	2,000	0.80	0.891			10.9	
	SLM/BLM 480 V	12.5	48	23	451	85.5	2,500	0.80	0.922			10.9	
	ALM 480 V	14.5	46	22.8	495	102.7	3,000	0.83	0.910			10.0	
1PH8107-1□B□□	SLM/BLM 400 V	2.5	60	8.8	290	15.5	400	0.85	0.690	0.0289	20	4.1	73
Y connection	ALM 400 V	3.2	61	8.8	347	19.0	500	0.85	0.730			4.3	
	SLM/BLM 480 V	3.8	60	8.8	406	22.0	600	0.82	0.760			4.4	
	ALM 480 V	4.4	60	8.7	452	25.5	700	0.83	0.790			4.0	
1PH8107-1□D□□	SLM/BLM 400 V	6.3	60	17.5	307	35.5	1,000	0.82	0.834			8.2	
Y connection	ALM 400 V	7.2	60	17.5	348	40.6	1,150	0.82	0.852			8.2	
	SLM/BLM 480 V	8.0	57	17	400	47.1	1,350	0.80	0.867			8.2	
	ALM 480 V	8.8	56	17	440	52.0	1,500	0.80	0.860			8.2	
1PH8107-1□F□□	SLM/BLM 400 V	9.0	57	23.5	330	52.2	1,500	0.81	0.869			10.8	
Y connection	ALM 400 V	10.0	55	22	380	60.4	1,750	0.80	0.878			10.9	
	SLM/BLM 480 V	11.0	53	21.5	428	68.6	2,000	0.79	0.901			10.8	
	ALM 480 V	12.1	53	21.5	470	75.2	2,200	0.78	0.900			10.9	
1PH8107-1□G□□	SLM/BLM 400 V	10.5	50	26	355	68.6	2,000	0.78	0.897			12.9	
Y connection	ALM 400 V	12.0	50	26	406	78.6	2,300	0.78	0.909			13.0	
	SLM/BLM 480 V	13.0	47	24	460	90.0	2,650	0.77	0.932			12.8	
	ALM 480 V	13.7	47	24	480	95.1	2,800	0.77	0.920			12.8	

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]
1PH8107-1□M□□ Y connection	SLM/BLM 400 V	12.0	38	38	294	101.6	3,000	0.76	0.900			19.2	
	ALM 400 V	13.0	38	38	314	111.7	3,300	0.77	0.900			18.3	
	SLM/BLM 480 V	14.0	37	37.5	350	121.6	3,600	0.77	0.910			19.1	
	ALM 480 V	14.0	34	35	380	131.5	3,900	0.73	0.900			19.4	
1PH8107-1□S□□ Δ connection	SLM/BLM 400 V	8.5	20	28	323	134.4	4,000	0.68	0.898			16.4	
	ALM 400 V	11.0	21	28	410	167.8	5,000	0.68	0.909			16.7	
	SLM/BLM 480 V	12.8	20	28	460	201.3	6,000	0.73	0.931			15.5	
	ALM 480 V	15.0	20	28	500	234.8	7,000	0.75	0.920			16	
1PH8107-1□S□□ Y connection	SLM/BLM 400 V	8.5	54	27	275	52.0	1,500	0.80	0.861			13.1	
	ALM 400 V	11.0	53	26.7	368	68.5	2,000	0.76	0.894			14.2	
	SLM/BLM 480 V	14.0	53	26.5	454	85.2	2,500	0.77	0.923			14.1	
	ALM 480 V	16.0	51	26	500	102.2	3,000	0.81	0.910			14.0	

6.1.1.3 Shaft height 132 – forced ventilation

Table 6- 5 1PH8 shaft height 132, forced ventilation (basic data)

Motor type	Supply voltage	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	U_{rat-ed} [V]	f_{rated} [Hz]	n_{rated} [rpm]	cos Φ	η	J [kgm²]	T_{th} [min]	I_{μ} [A]	m [kg]
1PH8131-1□B□□ Y connection	SLM/BLM 400 V	2.9	69	9	272	14.7	400	0.88	0.770	0.059	30	3.5	89
	ALM 400 V	3.6	69	9	328	18.0	500	0.88	0.810			3.5	
	SLM/BLM 480 V	4.3	68	9	384	21.3	600	0.88	0.830			3.5	
	ALM 480 V	4.9	67	9	450	24.6	700	0.85	0.834			3.5	
1PH8131-1□D□□ Y connection	SML/BLM 400 V	7.9	75	20	316	34.8	1,000	0.86	0.870			8.0	
	ALM 400 V	9.0	75	20	360	39.8	1,150	0.85	0.880			8.1	
	SML/BLM 480 V	10.6	75	20	416	46.5	1,350	0.86	0.900			7.9	
	ALM 480 V	11.7	74	20	460	51.5	1,500	0.85	0.910			8.0	
1PH8131-1□F□□ Y connection	SLM/BLM 400 V	11.0	70	24	360	51.4	1,500	0.84	0.899			10.4	
	ALM 400 V	13.0	71	24	416	59.9	1,750	0.85	0.914			10.3	
	SLM/BLM 480 V	15.0	72	24	460	68.2	2,000	0.86	0.931			9.2	
	ALM 480 V	16.5	72	24	500	75.0	2,200	0.87	0.920			10.0	
1PH8131-1□S□□ Δ connection	SLM/BLM 400 V	11.0	26	40	285	134.1	4,000	0.75	0.893			18.1	
	ALM 400 V	14.6	28	40	360	167.5	5,000	0.78	0.897			18.5	
	SLM/BLM 480 V	18.0	29	35	453	200.8	6,000	0.75	0.908			20.2	
	ALM 480 V	19.8	27	34	500	234.2	7,000	0.78	0.880			18.3	
1PH8131-1□S□□ Y connection	SLM/BLM 400 V	11.0	70	39	227	51.5	1,500	0.85	0.884			15.1	
	ALM 400 V	14.6	70	39	302	68.2	2,000	0.85	0.908			15.9	
	SLM/BLM 480 V	18.0	69	38	372	84.8	2,500	0.84	0.922			15.6	
	ALM 480 V	19.8	63	36.5	446	101.4	3,000	0.82	0.920			16	
1PH8133-1□B□□ Y connection	SLM/BLM 400 V	5.2	124	15.5	309	15.0	400	0.88	0.750	0.076	30	6.2	106
	ALM 400 V	6.5	124	15.5	363	18.5	500	0.89	0.780			5.4	
	SLM/BLM 480 V	7.8	124	15.5	421	21.8	600	0.89	0.810			5.3	
	ALM 480 V	9.1	124	15.5	480	25.2	700	0.89	0.830			5.0	

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]	m [kg]
1PH8133-1□D□□ Y connection	SLM/BLM 400 V	12.0	115	30	319	35.0	1,000	0.88	0.871			10.1	
	ALM 400 V	13.5	112	29	361	40.1	1,150	0.88	0.884			10.7	
	SLM/BLM 480 V	15.0	106	28	417	46.5	1,350	0.86	0.904			10.7	
	ALM 480 V	16.6	106	28	459	51.5	1,500	0.86	0.900			10.6	
1PH8133-1□F□□ Y connection	SLM/BLM 400 V	15.0	96	34	342	51.3	1,500	0.85	0.899			14.2	
	ALM 400 V	17.5	96	34	392	59.8	1,750	0.85	0.913			13.6	
	SLM/BLM 480 V	20.0	96	34	445	68.2	2,000	0.85	0.933			13.5	
	ALM 480 V	22.0	96	34	480	74.8	2,200	0.87	0.930			13.6	
1PH8133-1□G□□ Y connection	SLM/BLM 400 V	20.0	96	45	350	68.1	2,000	0.85	0.919			18.1	
	ALM 400 V	22.5	93	44	400	78.1	2,300	0.84	0.933			18.1	
	SLM/BLM 480 V	24.0	86	41	456	89.6	2,650	0.83	0.949			18.1	
	ALM 480 V	25.0	85	41	480	94.7	2,800	0.83	0.920			18.1	
1PH8135-1□B□□ Y connection	SLM/BLM 400 V	6.4	153	18	320	15.2	400	0.90	0.740	0.094	30	5.2	125
	ALM 400 V	8.0	153	18	405	18.5	500	0.90	0.780			5.6	
	SLM/BLM 480 V	9.6	153	18	443	21.9	600	0.90	0.810			5.6	
	ALM 480 V	11.2	153	18	500	25.3	700	0.90	0.830			5.3	
1PH8135-1□F□□ Y connection	SLM/BLM 400 V	18.5	118	43	330	51.3	1,500	0.85	0.898			18.1	
	ALM 400 V	21.5	117	43	383	59.7	1,750	0.85	0.909			18.3	
	SLM/BLM 480 V	24.0	115	43	434	67.9	2,000	0.84	0.929			18.1	
	ALM 480 V	26.4	115	43	468	74.7	2,200	0.84	0.920			18.3	
1PH8135-1□G□□ Y connection	SML/BLM 400 V	21.5	103	51	323	68.0	2,000	0.85	0.912			20.9	
	ALM 400 V	24.0	100	50	370	77.9	2,300	0.85	0.919			20.6	
	SML/BLM 480 V	26.0	94	48	424	89.6	2,650	0.84	0.923			20.6	
	ALM 480 V	26.0	89	47	440	94.6	2,800	0.84	0.924			20.0	
1PH8135-1□S□□ Δ connection	SLM/BLM 400 V	18.5	44	51	364	134.0	4,000	0.76	0.912			23.3	
	ALM 400 V	24.5	47	52	425	167.5	5,000	0.81	0.939			22.8	
	SLM/BLM 480 V	30.5	49	50	460	201.0	6,000	0.86	0.941			20.0	
	ALM 480 V	32.0	44	51	510	235.0	7,000	0.85	0.910			20.0	
1PH8135-1□S□□ Y connection	SLM/BLM 400 V	18.5	118	51	283	51.3	1,500	0.85	0.901			21.1	
	ALM 400 V	24.5	117	51	372	68.0	2,000	0.85	0.917			20.9	
	SLM/BLM 480 V	30.5	117	50	460	84.6	2,500	0.85	0.949			20.8	
	ALM 480 V	35.0	111	51	510	102.0	3,000	0.88	0.940			20.0	
1PH8137-1□B□□ Y connection	SLM/BLM 400 V	6.9	165	18	323	14.7	400	0.88	0.790	0.109	30	6.7	141
	ALM 400 V	8.6	165	18	391	18.1	500	0.88	0.820			6.7	
	SLM/BLM 480 V	10.3	165	18	458	21.4	600	0.88	0.850			6.8	
	ALM 480 V	11.5	157	17.5	500	24.9	700	0.89	0.860			5.5	
1PH8137-1□D□□ Y connection	SLM/BLM 400 V	17.0	162	43	307	34.8	1,000	0.88	0.881			15.1	
	ALM 400 V	19.5	162	43	350	39.9	1,150	0.88	0.891			16.1	
	SLM/BLM 480 V	22.0	156	42	404	46.4	1,350	0.86	0.902			15.9	
	ALM 480 V	24.0	153	41	447	51.5	1,500	0.86	0.890			15.9	
1PH8137-1□F□□ Y connection	SLM/BLM 400 V	22.0	140	56	308	51.3	1,500	0.84	0.904			24.2	
	ALM 400 V	25.0	136	56	352	59.6	1,750	0.85	0.907			23.1	
	SLM/BLM 480 V	28.0	134	55	401	67.9	2,000	0.84	0.931			23.1	
	ALM 480 V	30.0	130	53	440	74.6	2,200	0.83	0.920			23.2	

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]	m [kg]
1PH8137-1□G□□	SLM/BLM 400 V	28.0	134	60	350	68.1	2,000	0.87	0.924			21.5	
Y connection	ALM 400 V	29.0	120	56	398	77.9	2,300	0.86	0.929			21.9	
	SLM/BLM 480 V	30.0	108	52	460	89.4	2,650	0.83	0.941			22.4	
	ALM 480 V	31.0	106	52	494	94.4	2,800	0.82	0.920			22.0	
1PH8137-1□S□□	SLM/BLM 400 V	22.0	53	55	383	134.0	4,000	0.76	0.907			27.6	
Δ connection	ALM 400 V	27.5	53	56	425	167.5	5,000	0.83	0.919			22.5	
	SLM/BLM 480 V	33.0	53	55	460	201.0	6,000	0.87	0.942			20.0	
	ALM 480 V	37.0	50	53	510	235.0	7,000	0.87	0.920			20.0	
1PH8137-1□S□□	SLM/BLM 400 V	22.0	140	56	308	51.3	1,500	0.84	0.902			24.2	
Y connection	ALM 400 V	29.0	138	56	400	68.0	2,000	0.85	0.931			22.7	
	SLM/BLM 480 V	36.0	138	56	460	84.9	2,500	0.89	0.951			17.4	
	ALM 480 V	37.0	118	54	510	101.5	3,000	0.89	0.940			16.0	

6.1.1.4 Shaft height 160 - forced ventilation

Table 6- 6 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	0.89	0.819			8.9	
	SLM/BLM 480 V	14.5	231	30	370	21.0	600	0.90	0.851			8.1	
	ALM 480 V	16.9	231	30	427	24.4	700	0.90	0.880			8.1	
1PH8163-1□D□□	SLM/BLM 400 V	22	210	55	300	34.2	1,000	0.89	0.909			17.3	
Y connection	ALM 400 V	25	208	55	343	39.2	1,150	0.88	0.915			17.5	
	SLM/BLM 480 V	28	198	52	400	45.8	1,350	0.88	0.924			17.7	
	ALM 480 V	31.0	197	52	442	50.9	1,500	0.88	0.930			17.5	
1PH8163-1□F□□	SLM/BLM 400 V	30	191	71	319	50.8	1,500	0.87	0.923			25.6	
Y connection	ALM 400 V	34	186	70	366	59.2	1,750	0.87	0.926			24.6	
	SLM/BLM 480 V	37	177	68	416	67.4	2,000	0.86	0.932			24.6	
	ALM 480 V	40.7	177	68	456	74.2	2,200	0.88	0.940			24.5	
1PH8163-1□G□□	SLM/BLM 400 V	36	172	83	324	67.5	2,000	0.88	0.929			28.1	
Y connection	ALM 400 V	38	158	78	370	77.4	2,300	0.86	0.935			28.2	
	SLM/BLM 480 V	40	144	76	390	89.2	2,650	0.89	0.936			23.1	
	ALM 480 V	42.0	143	75	447	94.1	2,800	0.85	0.930			28.1	
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 480 V	19	302	35	420	20.8	600	0.88	0.850			12.0	
	ALM 480 V	22.0	300	35	475	24.3	700	0.88	0.900			14.5	
1PH8165-1□D□□	SLM/BLM 400 V	28	267	71	292	34.2	1,000	0.89	0.914			22.2	
Y connection	ALM 400 V	31	257	69	333	39.2	1,150	0.88	0.921			20.9	
	SLM/BLM 480 V	34	241	66	387	45.8	1,350	0.86	0.928			22.5	
	ALM 480 V	37.7	240	65	430	50.8	1,500	0.88	0.930			22.5	

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]
1PH8165-1□F□□ Y connection	SLM/BLM 400 V	37	236	78	350	50.8	1,500	0.88	0.926			27.0	
	ALM 400 V	41	224	76	400	59.1	1,750	0.88	0.934			25.8	
	SLM/BLM 480 V	45	215	75	440	67.5	2,000	0.89	0.936			23.6	
	ALM 480 V	49.5	215	75	493	74.2	2,200	0.88	0.950			25.1	
1PH8165-1□G□□ Y connection	SLM/BLM 400 V	41	196	88	350	67.4	2,000	0.87	0.927			32.4	
	ALM 400 V	44	183	85	394	77.4	2,300	0.86	0.932			31.0	
	SLM/BLM 480 V	50	180	85	440	89.0	2,650	0.87	0.932			28.9	
	ALM 480 V	50.0	171	81	483	94.1	2,800	0.87	0.940			31.9	

6.1.1.5 Shaft height 180 - forced ventilation

Table 6- 7 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 480 V	25	398	49	410	20.7	600	0.81	0.882			26	
	ALM 480 V	29	396	49	475	24.0	700	0.81	0.895			26	
1PH8184-1□C□□ Y connection	SLM/BLM 400 V	27	368	65	320	24.0	700	0.84	0.889			30	
	ALM 400 V	31	370	65	365	27.4	800	0.84	0.901			30	
	SLM/BLM 480 V	39	372	65	460	34.0	1,000	0.82	0.917			32	
	ALM 480 V	42	365	64	500	37.3	1,100	0.82	0.923			32	
1PH8184-1□D□□ Y connection	SLM/BLM 400 V	39	372	87	340	34.0	1,000	0.83	0.920			42	
	ALM 400 V	44	365	86	390	39.0	1,150	0.82	0.928			42	
	SLM/BLM 480 V	50	354	84	450	45.7	1,350	0.82	0.936			41	
	ALM 480 V	53	337	80	500	50.6	1,500	0.81	0.940			42	
1PH8184-1□F□□ Y connection	SLM/BLM 400 V	51	325	116	335	50.6	1,500	0.80	0.940			63	
	ALM 400 V	60	327	120	390	58.9	1,750	0.79	0.944			64	
	SLM/BLM 480 V	68	325	118	450	67.2	2,000	0.78	0.947			65	
	ALM 480 V	68	295	110	500	73.8	2,200	0.75	0.948			68	
1PH8184-1□L□□ Y connection	SLM/BLM 400 V	78	298	166	340	84.0	2,500	0.84	0.952			75	
	ALM 400 V	81	267	152	395	97.3	2,900	0.82	0.952			76	
	SLM/BLM/ALM 480 V	65	183	120	460	113.7	3,400	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 480 V	32	509	66	400	20.6	600	0.79	0.892			37	
	ALM 480 V	37	505	65	470	23.9	700	0.77	0.904			39	
1PH8186-1□C□□ Y connection	SLM/BLM 400 V	35	478	83	330	23.9	700	0.81	0.909			44	
	ALM 400 V	40	478	83	360	27.3	800	0.84	0.916			41	
	SLM/BLM 480 V	50	478	83	450	33.9	1,000	0.83	0.929			42	
	ALM 480 V	55	478	83	500	37.3	1,100	0.82	0.934			43	

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]
1PH8186-1□D□□ Y connection	SLM/BLM 400 V	51	487	112	340	34.0	1,000	0.83	0.926			56	
	ALM 400 V	58	482	112	390	38.9	1,150	0.82	0.933			57	
	SLM/BLM 480 V	67	474	112	450	45.6	1,350	0.82	0.939			55	
	ALM 480 V	73	465	110	500	50.6	1,500	0.82	0.943			56	
1PH8186-1□F□□ Y connection	SLM/BLM 400 V	74	471	166	330	50.6	1,500	0.83	0.945			82	
	ALM 400 V	85	464	164	385	58.9	1,750	0.82	0.949			83	
	SLM/BLM 480 V	94	449	160	445	67.2	2,000	0.80	0.952			86	
	ALM 480 V	94	408	140	490	74.1	2,200	0.84	0.948			63	
1PH8186-1□L□□ Y connection	SLM/BLM 400 V	106	405	230	335	83.9	2,500	0.84	0.955			107	
	ALM 400 V	101	333	198	385	97.2	2,900	0.80	0.954			106	
	SLM/BLM/ALM 480 V	81	228	158	455	113.7	3,400	0.69	0.943			109	

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

Table 6- 8 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 480 V	36	573	64	440	20.9	600	0.85	0.863			28	
	ALM 480 V	42	573	65	500	24.2	700	0.85	0.877			27	
1PH8184-1□C□□ Y connection	SLM/BLM 400 V	40	546	94	320	24.5	700	0.90	0.852			27	
	ALM 400 V	45	537	91	365	27.8	800	0.90	0.872			28	
	SLM/BLM 480 V	57	544	90	460	34.4	1,000	0.89	0.896			30	
	ALM 480 V	62	538	89	500	37.7	1,100	0.88	0.921			30	
1PH8184-1□D□□ Y connection	SLM/BLM 400 V	57	544	120	340	34.4	1,000	0.89	0.899			39	
	ALM 400 V	65	540	120	390	39.4	1,150	0.88	0.911			39	
	SLM/BLM 480 V	74	523	118	450	46.0	1,350	0.88	0.922			39	
	ALM 480 V	76	484	108	500	50.9	1,500	0.87	0.931			40	
1PH8184-1□F□□ Y connection	SLM/BLM 400 V	76	484	162	335	50.9	1,500	0.87	0.931			61	
	ALM 400 V	89	486	162	390	59.3	1,750	0.87	0.937			61	
	SLM/BLM 480 V	98	468	156	450	67.5	2,000	0.85	0.943			63	
	ALM 480 V	98	425	144	500	74.1	2,200	0.83	0.947			66	
1PH8184-1□L□□ Y connection	SLM/BLM 400 V	100	382	205	340	84.2	2,500	0.87	0.949			74	
	ALM 400 V	113	372	200	395	97.5	2,900	0.87	0.952			75	
	SLM/BLM/ALM 480 V	113	317	176	460	114.1	3,400	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 480 V	48	764	88	430	20.8	600	0.84	0.874			41	
	ALM 480 V	56	764	88	500	24.1	700	0.83	0.889			43	
1PH8186-1□C□□ Y connection	SLM/BLM 400 V	52	709	116	330	24.3	700	0.89	0.885			41	
	ALM 400 V	60	716	120	360	27.7	800	0.90	0.891			38	
	SLM/BLM 480 V	74	707	116	450	34.3	1,000	0.89	0.912			39	
	ALM 480 V	80	695	114	500	37.6	1,100	0.88	0.921			41	

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]
1PH8186-1□D□□ Y connection	SLM/BLM 400 V	74	707	156	340	34.3	1,000	0.89	0.908			53	
	ALM 400 V	85	706	154	390	39.3	1,150	0.89	0.918			54	
	SLM/BLM 480 V	98	693	152	450	45.9	1,350	0.89	0.928			53	
	ALM 480 V	105	669	148	500	50.9	1,500	0.88	0.935			54	
1PH8186-1□F□□ Y connection	SLM/BLM 400 V	108	688	225	330	50.9	1,500	0.89	0.936			79	
	ALM 400 V	125	682	225	385	59.2	1,750	0.88	0.942			80	
	SLM/BLM 480 V	135	645	210	445	67.5	2,000	0.87	0.948			83	
	ALM 480 V	135	586	196	490	74.1	2,200	0.85	0.952			85	
1PH8186-1□L□□ Y connection	SLM/BLM 400 V	130	497	270	335	84.1	2,500	0.87	0.954			105	
	ALM 400 V	150	494	270	385	97.4	2,900	0.87	0.955			105	
	SLM/BLM/ALM 480 V	130	365	210	455	113.9	3,400	0.82	0.954			108	

6.1.1.7 Shaft height 225 - forced ventilation

Table 6- 9 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 480 V	45	716	83	405	20.5	600	0.85	0.912			37	
	ALM 480 V	52	709	82	470	23.9	700	0.84	0.923			37	
1PH8224-1□C□□ Y connection	SLM/BLM 400 V	55	750	136	310	23.8	700	0.82	0.925			67	
	ALM 400 V	57	681	126	350	27.1	800	0.80	0.934			67	
	SLM/BLM 480 V	71	678	126	425	33.8	1,000	0.81	0.943			64	
	ALM 480 V	78	677	126	470	37.1	1,100	0.80	0.946			65	
1PH8224-1□D□□ Y connection	SLM/BLM 400 V	71	678	158	335	33.8	1,000	0.82	0.942			77	
	ALM 400 V	81	673	156	385	38.8	1,150	0.82	0.946			78	
	SLM/BLM 480 V	92	651	154	450	45.5	1,350	0.81	0.951			78	
	ALM 480 V	92	586	142	500	50.4	1,500	0.78	0.953			79	
1PH8224-1□F□□ Y connection	SLM/BLM 400 V	95	605	200	340	50.5	1,500	0.85	0.953			87	
	ALM 400 V	110	600	198	395	58.9	1,750	0.85	0.956			87	
	SLM/BLM 480 V	124	592	196	460	67.2	2,000	0.83	0.957			90	
	ALM 480 V	110	478	168	500	73.7	2,200	0.79	0.957			90	
1PH8224-1□L□□ Y connection	SLM/BLM 400 V	142	542	295	340	83.9	2,500	0.86	0.958			113	
	ALM 400 V	149	491	270	395	97.2	2,900	0.85	0.957			115	
	SLM/BLM/ALM 480 V	85	239	168	460	113.6	3,400	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 480 V	59	939	110	395	20.5	600	0.85	0.921			49	
	ALM 480 V	68	928	108	465	23.8	700	0.84	0.931			51	
1PH8226-1□C□□ Y connection	SLM/BLM 400 V	68	928	162	310	23.8	700	0.84	0.932			76	
	ALM 400 V	73	872	154	350	27.1	800	0.83	0.940			75	
	SLM/BLM 480 V	92	879	156	440	33.8	1,000	0.82	0.948			77	
	ALM 480 V	101	877	154	500	37.1	1,100	0.80	0.951			83	

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]
1PH8226-1□D□□ Y connection	SLM/BLM 400 V	92	879	194	340	33.8	1,000	0.85	0.944			86	
	ALM 400 V	105	872	192	390	38.8	1,150	0.85	0.949			86	
	SLM/BLM 480 V	120	849	188	460	45.5	1,350	0.84	0.954			88	
	ALM 480 V	120	764	174	500	50.4	1,500	0.83	0.957			85	
1PH8226-1□F□□ Y connection	SLM/BLM 400 V	130	828	270	340	50.5	1,500	0.85	0.957			119	
	ALM 400 V	135	737	250	395	58.8	1,750	0.83	0.960			119	
	SLM/BLM 480 V	153	731	245	450	67.1	2,000	0.83	0.961			119	
	ALM 480 V	130	564	205	500	73.7	2,200	0.76	0.958			123	
1PH8226-1□L□□ Y connection	SLM/BLM 400 V	168	642	350	335	83.8	2,500	0.86	0.961			151	
	ALM 400 V	185	609	335	390	97.1	2,900	0.85	0.960			152	
	SLM/BLM/ALM 480 V	90	253	205	460	113.5	3,400	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 480 V	72	1146	130	410	20.5	600	0.84	0.927			62	
	ALM 480 V	84	1146	130	480	23.8	700	0.83	0.935			63	
1PH8228-1□C□□ Y connection	SLM/BLM 400 V	82	1119	188	315	23.8	700	0.86	0.933			80	
	ALM 400 V	92	1098	182	360	27.2	800	0.86	0.941			80	
	SLM/BLM V	115	1098	182	450	33.8	1,000	0.85	0.949			82	
	ALM 480 V	126	1094	182	500	37.1	1,100	0.84	0.952			84	
1PH8228-1□D□□ Y connection	SLM/BLM 400 V	113	1079	235	340	33.9	1,000	0.87	0.948			97	
	ALM 400 V	129	1071	235	390	38.8	1,150	0.86	0.953			97	
	SLM/BLM 480 V	147	1040	225	460	45.5	1,350	0.86	0.957			99	
	ALM 480 V	147	936	210	500	50.5	1,500	0.85	0.960			96	
1PH8228-1□F□□ Y connection	SLM/BLM 400 V	160	1019	340	340	50.4	1,500	0.83	0.959			170	
	ALM 400 V	179	977	330	395	58.7	1,750	0.82	0.961			170	
	SLM/BLM 480 V	196	936	325	450	67.1	2,000	0.81	0.962			169	
	ALM 480 V	170	738	275	500	73.6	2,200	0.74	0.959			174	
1PH8228-1□L□□ Y connection	SLM/BLM 400 V	205	783	420	340	83.8	2,500	0.86	0.963			181	
	ALM 400 V	215	708	390	395	97.1	2,900	0.84	0.961			183	
	SLM/BLM/ALM 480 V	95	267	225	460	113.5	3,400	0.57	0.922			183	

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

Table 6- 10 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 480 V	67	1066	118	410	20.9	600	0.90	0.883			35	
	ALM 480 V	67	914	98	500	24.0	700	0.86	0.914			41	
1PH8224-1□C□□ Y connection	SLM/BLM 400 V	80	1091	188	310	24.1	700	0.88	0.904			63	
	ALM 400 V	90	1074	184	350	27.4	800	0.88	0.914			63	
	SLM/BLM 480 V	105	1003	174	425	34.1	1,000	0.88	0.929			61	
	ALM 480 V	105	912	160	470	37.3	1,100	0.86	0.938			63	

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□D□□ Y connection	SLM/BLM 400 V	105	1003	220	335	34.1	1,000	0.88	0.926			73	
	ALM 400 V	120	997	220	385	39.1	1,150	0.88	0.934			74	
	SLM/BLM 480 V	137	969	215	450	45.7	1,350	0.87	0.941			75	
	ALM 480 V	137	872	194	500	50.6	1,500	0.86	0.947			77	
1PH8224-1□F□□ Y connection	SLM/BLM 400 V	142	904	290	340	50.8	1,500	0.89	0.942			84	
	ALM 400 V	165	900	285	395	59.2	1,750	0.89	0.946			84	
	SLM/BLM 480 V	178	850	265	460	67.4	2,000	0.88	0.952			88	
	ALM 480 V	178	773	250	500	74.0	2,200	0.87	0.954			88	
1PH8224-1□L□□ Y connection	SLM/BLM 400 V	178	680	355	340	84.1	2,500	0.89	0.954			112	
	ALM 400 V	205	675	355	395	97.4	2,900	0.89	0.955			113	
	SLM/BLM/ALM 480 V	205	576	310	460	114.0	3,400	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 480 V	87	1385	152	410	20.8	600	0.90	0.899			49	
	ALM 480 V	87	1187	128	500	23.9	700	0.85	0.924			58	
1PH8226-1□C□□ Y connection	SLM/BLM 400 V	106	1446	240	310	24.2	700	0.90	0.907			71	
	ALM 400 V	118	1409	235	350	27.5	800	0.90	0.918			71	
	SLM/BLM 480 V	146	1394	230	440	34.1	1,000	0.89	0.932			74	
	ALM 480 V	146	1268	205	500	37.3	1,100	0.87	0.942			81	
1PH8226-1□D□□ Y connection	SLM/BLM 400 V	135	1289	275	340	34.1	1,000	0.90	0.929			82	
	ALM 400 V	155	1287	270	390	39.1	1,150	0.90	0.936			83	
	SLM/BLM 480 V	172	1217	255	460	45.7	1,350	0.89	0.945			85	
	ALM 480 V	172	1095	240	500	50.7	1,500	0.88	0.950			83	
1PH8226-1□F□□ Y connection	SLM/BLM 400 V	175	1114	350	340	50.7	1,500	0.89	0.950			117	
	ALM 400 V	200	1091	350	390	59.0	1,750	0.89	0.954			114	
	SLM/BLM 480 V	220	1051	335	450	67.3	2,000	0.88	0.957			117	
	ALM 480 V	220	955	305	500	73.9	2,200	0.87	0.959			120	
1PH8226-1□L□□ Y connection	SLM/BLM 400 V	235	898	475	335	84.0	2,500	0.89	0.957			149	
	ALM 400 V	270	889	470	390	97.3	2,900	0.89	0.958			150	
	SLM/BLM/ALM 480 V	270	758	405	460	113.9	3,400	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 480 V	108	1719	188	410	20.8	600	0.90	0.902			57	
	ALM 480 V	108	1473	156	500	23.9	700	0.86	0.926			67	
1PH8228-1□C□□ Y connection	SLM/BLM 400 V	120	1637	265	315	24.1	700	0.91	0.91			75	
	ALM 400 V	135	1612	260	360	27.4	800	0.91	0.922			77	
	SLM/BLM 480 V	165	1576	250	450	34.1	1,000	0.90	0.936			79	
	ALM 480 V	165	1433	225	500	37.3	1,100	0.89	0.944			82	
1PH8228-1□D□□ Y connection	SLM/BLM 400 V	165	1576	330	340	34.1	1,000	0.91	0.933			93	
	ALM 400 V	190	1578	330	390	39.1	1,150	0.91	0.940			94	
	SLM/BLM 480 V	218	1542	320	460	45.7	1,350	0.90	0.947			96	
	ALM 480 V	218	1388	295	500	50.7	1,500	0.90	0.952			94	
1PH8228-1□F□□ Y connection	SLM/BLM 400 V	230	1464	465	340	50.6	1,500	0.88	0.953			166	
	ALM 400 V	265	1446	460	390	59.0	1,750	0.89	0.956			162	
	SLM/BLM 480 V	288	1375	440	450	67.3	2,000	0.88	0.959			166	

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]
	ALM 480 V	288	1250	405	500	73.9	2,200	0.86	0.960			171	
1PH8228-1□L□□ Y connection	SLM/BLM 400 V	265	1012	530	340	83.9	2,500	0.89	0.960			180	
	ALM 400 V	300	988	510	395	97.3	2,900	0.89	0.960			182	
	SLM/BLM/ALM 480 V	300	843	450	460	113.8	3,400	0.87	0.958			181	

6.1.1.9 Shaft height 280 - forced ventilation

Table 6- 11 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]
1PH8284-1□B1□ Δ connection	SLM/BLM 400 V	63	1504	154	325	13.6	400	0.79	0.924	4.20	47	86	1,200
	ALM 400 V	80	1529	154	395	17.0	500	0.81	0.935			81	
	SLM/BLM 480 V	95	1519	154	460	20.3	600	0.82	0.943			77	
	ALM 480 V	105	1433	150	500	23.7	700	0.85	0.948			66	
1PH8284-1□C1□ Δ connection	SLM/BLM 400 V	110	1501	240	330	23.7	700	0.85	0.947			106	
	ALM 400 V	125	1492	235	400	27.0	800	0.81	0.952			124	
	SLM/BLM 480 V	150	1433	230	455	33.7	1,000	0.86	0.957			101	
	ALM 480 V	155	1346	220	500	37.0	1,100	0.84	0.959			102	
1PH8284-1□D1□ Δ connection	SLM/BLM 400 V	150	1433	315	335	33.7	1,000	0.85	0.958			143	
	ALM 400 V	170	1414	310	400	38.6	1,150	0.82	0.960			157	
	SLM/BLM 480 V	200	1416	315	460	45.3	1,350	0.83	0.962			151	
	ALM 480 V	200	1273	290	500	50.3	1,500	0.82	0.963			145	
1PH8284-1□F1□ Δ connection	SLM/BLM 400 V	196	1248	390	345	50.4	1,500	0.87	0.963			162	
	ALM 400 V	225	1228	390	400	58.7	1,750	0.86	96.4			162	
	SLM/BLM 480 V	255	1218	390	455	67.0	2,000	0.86	0.965			162	
	ALM 480 V	230	998	330	500	73.6	2,200	0.83	0.963			163	
1PH8284-1□H1□ Y connection	BLM 690 V	61	1456	82	555	13.7	400	0.84	0.920			39	
	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			53	
	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	1,000	0.82	0.956			89	
	ALM 690 V	164	1362	174	690	38.6	1,150	0.82	0.959			90	
1PH8284-1□W1□ Y connection	BLM 690 V	186	1184	220	590	50.3	1,500	0.86	0.962			92	
	ALM 690 V	217	1184	220	690	58.7	1,750	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	1,400
	ALM 400 V	100	1909	188	400	17.0	500	0.82	0.939			96	
	SLM/BLM 480 V	120	1916	188	460	20.3	600	0.85	0.945			88	
	ALM 480 V	132	1801	184	500	23.7	700	0.87	0.950			76	
1PH8286-1□C1□ Δ connection	SLM/BLM 400 V	138	1883	295	325	23.7	700	0.87	0.949			121	
	ALM 400 V	155	1850	285	385	27.0	800	0.85	0.955			133	
	SLM/BLM 480 V	185	1767	280	460	33.7	1,000	0.86	0.960			122	
	ALM 480 V	191	1658	270	500	37.0	1,100	0.85	0.962			120	
1PH8286-1□D1□ Δ connection	SLM/BLM 400 V	182	1738	410	330	33.6	1,000	0.81	0.960			215	
	ALM 400 V	210	1745	410	380	38.6	1,150	0.81	0.962			217	

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]
	SLM/BLM 480 V	245	1733	410	445	45.3	1,350	0.81	0.963			217	
	ALM 480 V	245	1560	380	495	50.3	1,500	0.78	0.963			219	
1PH8286-1□F1□	SLM/BLM 400 V	250	1592	490	345	50.4	1,500	0.89	0.965			182	
Δ connection	ALM 400 V	270	1474	460	400	58.7	1,750	0.88	0.966			183	
	SLM/BLM 480 V	310	1481	460	455	67.0	2,000	0.88	0.967			182	
	ALM 480 V	279	1211	395	500	73.6	2,200	0.85	0.965			183	
1PH8286-1□H1□	BLM 690 V	77	1838	100	555	13.7	400	0.87	0.921			43	
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			83	
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	1,000	0.81	0.959			124	
Y connection	ALM 690 V	203	1686	230	655	38.6	1,150	0.81	0.961			124	
1PH8286-1□W1□	BLM 690 V	224	1426	260	590	50.3	1,500	0.88	0.965			104	
Y connection	ALM 690 V	261	1424	260	690	58.7	1,750	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	1,650
Δ connection	ALM 400 V	130	2481	245	395	17.0	500	0.82	0.941			127	
	SLM/BLM 480 V	155	2474	245	460	20.3	600	0.84	0.948			121	
	ALM 480 V	165	2251	230	500	23.7	700	0.86	0.953			104	
1PH8288-1□C1□	SLM/BLM 400 V	166	2265	365	325	23.6	700	0.85	0.953			171	
Δ connection	ALM 400 V	190	2268	365	370	27.0	800	0.85	0.957			171	
	SLM/BLM 480 V	230	2197	355	460	33.6	1,000	0.84	0.962			172	
	ALM 480 V	238	2066	345	500	37.0	1,100	0.83	0.963			168	
1PH8288-1□D1□	SLM/BLM 400 V	226	2158	495	335	33.6	1,000	0.82	0.962			252	
Δ connection	ALM 400 V	260	2160	495	385	38.6	1,150	0.82	0.964			253	
	SLM/BLM 480 V	305	2158	495	450	45.3	1,350	0.82	0.965			251	
	ALM 480 V	305	1942	455	500	50.3	1,500	0.80	0.965			253	
1PH8288-1□F1□	SLM/BLM 400 V	320	2037	620	345	50.4	1,500	0.89	0.966			233	
Δ connection	ALM 400 V	340	1856	580	400	58.7	1,750	0.88	0.967			233	
	SLM/BLM 480 V	385	1838	570	455	67.0	2,000	0.88	0.967			232	
	ALM 480 V	347	1506	495	500	73.6	2,200	0.84	0.966			233	
1PH8288-1□H1□	BLM 690 V	100	2388	130	555	13.7	400	0.87	0.924			55	
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			75	
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	1,000	0.82	0.961			145	
Y connection	ALM 690 V	251	2084	275	665	38.6	1,150	0.82	0.963			145	
1PH8288-1□W1□	BLM 690 V	282	1795	325	590	50.3	1,500	0.88	0.966			133	
Y connection	ALM 690 V	329	1795	325	690	58.7	1,750	0.87	0.967			134	

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

Table 6- 12 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□ Δ connection	SLM/BLM 400 V	171	2333	355	330	23.9	700	0.91	0.930	4.20	18	101	1,200
	ALM 400 V	195	2328	335	400	27.2	800	0.89	0.942			117	
	SLM/BLM 480 V	235	2244	345	455	33.9	1,000	0.91	0.946			97	
	ALM 480 V	250	2170	335	500	37.2	1,100	0.90	0.951			98	
1PH8284-1□D4□ Δ connection	SLM/BLM 400 V	243	2321	490	335	33.9	1,000	0.90	0.947			137	
	ALM 400 V	280	2325	475	400	38.9	1,150	0.89	0.953			150	
	SLM/BLM 480 V	325	2299	475	460	45.5	1,350	0.90	0.957			146	
	ALM 480 V	325	2069	440	500	50.5	1,500	0.89	0.960			140	
1PH8284-1□F4□ Δ connection	SLM/BLM 400 V	319	2031	620	345	50.6	1,500	0.91	0.957			157	
	ALM 400 V	370	2019	610	400	58.9	1,750	0.91	0.960			158	
	SLM/BLM 480 V	415	1981	600	455	67.3	2,000	0.91	0.962			157	
	ALM 480 V	394	1710	520	500	73.8	2,200	0.90	0.964			159	
1PH8284-1□K4□ Y connection	BLM 690 V	162	2210	184	605	23.9	700	0.91	0.927			50	
	ALM 690 V	185	2208	182	690	27.2	800	0.91	0.934			51	
1PH8284-1□U4□ Y connection	BLM 690 V	236	2254	265	600	33.9	1,000	0.90	0.947			85	
	ALM 690 V	272	2255	270	690	38.9	1,150	0.89	0.951			86	
1PH8284-1□W4□ Y connection	BLM 690 V	307	1955	345	590	50.6	1,500	0.91	0.956			89	
	ALM 690 V	359	1959	345	690	58.9	1,750	0.91	0.959			91	
1PH8286-1□C4□ Δ connection	SLM/BLM 400 V	219	2988	455	325	23.9	700	0.92	0.931	5.20	20	115	1,400
	ALM 400 V	250	2984	435	385	27.2	800	0.91	0.942			126	
	SLM/BLM 480 V	310	2961	450	460	33.9	1,000	0.91	0.948			117	
	ALM 480 V	330	2865	440	500	37.2	1,100	0.91	0.952			115	
1PH8286-1□D4□ Δ connection	SLM/BLM 400 V	309	2951	630	330	33.8	1,000	0.90	0.952			207	
	ALM 400 V	355	2944	630	380	38.8	1,150	0.89	0.956			209	
	SLM/BLM 480 V	410	2901	620	445	45.5	1,350	0.89	0.960			210	
	ALM 480 V	410	2610	560	495	50.4	1,500	0.88	0.963			214	
1PH8286-1□F4□ Δ connection	SLM/BLM 400 V	382	2432	730	345	50.6	1,500	0.92	0.959			177	
	ALM 400 V	445	2429	730	400	58.9	1,750	0.92	0.962			178	
	SLM/BLM 480 V	500	2387	720	455	67.2	2,000	0.92	0.963			178	
	ALM 480 V	475	2062	620	500	73.8	2,200	0.91	0.966			180	
1PH8286-1□K4□ Y connection	BLM 690 V	210	2865	235	605	23.8	700	0.90	0.938			79	
	ALM 690 V	240	2865	235	690	27.2	800	0.90	0.944			79	
1PH8286-1□U4□ Y connection	BLM 690 V	299	2855	355	570	33.8	1,000	0.89	0.952			119	
	ALM 690 V	344	2860	355	655	38.8	1,150	0.89	0.956			119	
1PH8286-1□W4□ Y connection	BLM 690 V	370	2356	410	590	50.6	1,500	0.92	0.958			101	
	ALM 690 V	432	2356	410	690	58.9	1,750	0.92	0.961			102	

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□C4□ Δ connection	SLM/BLM 400 V	272	3711	570	325	23.9	700	0.91	0.939	6.30	22	161	1,650
	ALM 400 V	310	3701	560	370	27.2	800	0.91	0.945			164	
	SLM/BLM 480 V	385	3677	560	460	33.9	1,000	0.91	0.953			164	
	ALM 480 V	405	3516	540	500	37.2	1,100	0.91	0.956			162	
1PH8288-1□D4□ Δ connection	SLM/BLM 400 V	379	3619	760	335	33.8	1,000	0.90	0.955			242	
	ALM 400 V	435	3607	760	385	38.8	1,150	0.90	0.958			244	
	SLM/BLM 480 V	505	3573	750	450	45.5	1,350	0.90	0.962			243	
	ALM 480 V	505	3215	680	500	50.4	1,500	0.89	0.965			247	
1PH8288-1□F4□ Δ connection	SLM/BLM 400 V	480	3056	910	345	50.6	1,500	0.92	0.961			229	
	ALM 400 V	560	3055	910	400	58.9	1,750	0.92	0.963			228	
	SLM/BLM 480 V	630	3009	900	455	67.2	2,000	0.92	0.965			230	
	ALM 480 V	599	2600	790	500	73.8	2,200	0.91	0.967			230	
1PH8288-1□K4□ Y connection	BLM 690 V	263	3588	295	605	23.9	700	0.92	0.929			71	
	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	580	33.8	1,000	0.90	0.954			140	
	ALM 690 V	422	3504	425	665	38.8	1,150	0.90	0.958			140	
1PH8288-1□W4□ Y connection	BLM 690 V	465	2961	520	590	50.5	1,500	0.92	0.960			130	
	ALM 690 V	543	2964	510	690	58.9	1,750	0.92	0.963			131	

6.1.1.11 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 6- 13 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 6- 14 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

6.1.1.12 Shaft height 80 - water-cooled

Table 6- 15 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	1,500	0.84	0.784	0.0064	8	3.6	0.7	36
	ALM 400 V	4.0	22	8.7	416	62.4	1,750	0.82	0.808			4.0		
	SLM/BLM 480 V	4.6	22	8.7	457	71.0	2,000	0.83	0.839			3.8		
	ALM 480 V	5.0	22	8.7	500	77.4	2,200	0.82	0.850			3.8		
1PH8083-1□G2□ Y connection	SLM/BLM 400 V	4.3	21	12.0	322	70.4	2,000	0.80	0.833			5.9		
	ALM 400 V	4.9	20	12.0	362	80.4	2,300	0.80	0.846			5.8		
	SLM/BLM 480 V	5.6	20	12.0	425	91.8	2,650	0.76	0.862			6.5		
	ALM 480 V	6.0	20	12.0	450	96.4	2,800	0.75	0.870			6.6		
1PH8083-1□N2□ Y connection	SLM/BLM 400 V	6.7	14	18.0	347	152.9	4,500	0.76	0.877			9.2		
	ALM 400 V	7.5	14	18.0	383	169.7	5,000	0.76	0.891			9.2		
	SLM/BLM 480 V	8.2	14	18.0	430	186.1	5,500	0.74	0.909			9.6		
	ALM 480 V	8.9	14	18.0	460	203.0	6,000	0.75	0.880			9.3		
1PH8087-1□F2□ Y connection	SLM/BLM 400 V	4.6	29	13.7	316	53.3	1,500	0.78	0.814	0.0089	8	7.2	1.2	44
	ALM 400 V	5.4	29	13.7	358	61.2	1,750	0.77	0.831			6.8		
	SLM/BLM 480 V	6.1	29	13.7	402	70.0	2,000	0.79	0.868			6.8		
	ALM 480 V	6.7	29	13.7	435	76.4	2,200	0.78	0.860			6.7		
1PH8087-1□G2□ Y connection	SLM/BLM 400 V	6.1	29	17.5	312	70.3	2,000	0.80	0.843			8.4		
	ALM 400 V	7.0	29	17.7	355	80.3	2,300	0.79	0.860			8.6		
	SLM/BLM 480 V	8.1	29	17.8	400	91.9	2,650	0.80	0.871			8.4		
	ALM 480 V	8.5	29	17.8	420	97.0	2,800	0.80	0.870			8.5		
1PH8087-1□N2□ Y connection	SLM/BLM 400 V	8.5	18	24.0	345	152.5	4,500	0.74	0.891			12.4		
	ALM 400 V	9.5	18	24.0	380	169.3	5,000	0.75	0.894			12.3		
	SLM/BLM 480 V	10.5	18	24.0	420	186.0	5,500	0.74	0.898			12.4		
	ALM 480 V	11.4	18	24.0	450	202.3	6,000	0.75	0.890			12.3		

Table 6- 16 1PH8 shaft height 80 forced ventilation – Premium Performance (supplementary basic data)

Motor type	J [kgm²]	T_{th} [min]	P_cool [kW]
1PH8081-1□T2□ Y connection	0.0045	8	1.2
1PH8081-1□U2□ Y connection	0.0045	8	1.2
1PH8081-1□W2□ Y connection	0.0045	8	1.2
1PH8081-1□V2□ Y connection	0.0045	8	1.2
1PH8083-1□T2□ Y connection	0.0064	8	1.2
1PH8083-1□U2□ Y connection	0.0064	8	1.2
1PH8087-1□U2□ Y connection	0.0089	8	1.3

6.1.1.13 Shaft height 100 - water-cooled

Table 6- 17 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	0.82	0.834			5.4		
	SLM/BLM 480 V	6.6	32	12.5	450	69.9	2000	0.82	0.858			4.4		
	ALM 480 V	7.2	31	12.5	480	76.6	2,200	0.80	0.860			6.0		
1PH8101-1□G2□ Y connection	SLM/BLM 400 V	6.4	31	16.8	335	69.8	2000	0.81	0.857			7.6		
	ALM 400 V	7.3	30	16.8	382	79.7	2300	0.80	0.874			7.8		
	SLM/BLM 480 V	8.4	30	16.8	435	91.4	2650	0.80	0.888			7.7		
	ALM 480 V	8.3	28	16.5	448	96.1	2,800	0.76	0.890			7.8		
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	61.3	1750	0.82	0.851			8.6		
	SLM/BLM 480 V	9.4	45	19.7	411	69.7	2000	0.82	0.869			8.5		
	ALM 480 V	10.3	45	19.7	430	76.8	2,200	0.84	0.860			8.6		
1PH8103-1□G2□ Y connection	SLM/BLM 400 V	9.5	45	23.8	343	69.8	2000	0.82	0.857			10.3		
	ALM 400 V	10.9	45	23.8	392	79.8	2300	0.82	0.883			10.3		
	SLM/BLM 480 V	12.5	45	23.5	454	91.2	2650	0.79	0.904			11.3		
	ALM 480 V	12.8	44	22.5	470	96.2	2,800	0.80	0.890			10.7		
1PH8103-1□M2□ Y connection	SLM/BLM 400 V	10.6	34	30.0	309	102.4	3000	0.80	0.900			13.0		
	ALM 400 V	11.7	34	30.0	340	112.4	3300	0.80	0.900			13.2		
	SLM/BLM 480 V	12.7	34	29.7	368	122.5	3600	0.80	0.910			13.0		
	ALM 480 V	13.0	32	29.0	397	132.4	3,900	0.79	0.900			13.0		
1PH8105-1□F2□	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	60.6	1750	0.81	0.862			12.1		

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]
Y connection	SLM/BLM 480 V	14.0	67	27.5	426	69.5	2000	0.82	0.894			11.7		
	ALM 480 V	15.4	67	27.5	458	76.3	2,200	0.83	0.880			12.0		
1PH8105-1□G2□ Y connection	SLM/BLM 400 V	13.0	62	34.5	326	69.3	2000	0.81	0.879			15.6		
	ALM 400 V	15.0	62	34.0	370	79.3	2300	0.81	0.891			15.1		
	SLM/BLM 480 V	17.0	61	33.5	424	90.9	2650	0.81	0.911			15.3		
	ALM 480 V	18.0	61	33.5	450	96.0	2,800	0.80	0.890			15.6		
1PH8105-1□M2□ Y connection	SLM/BLM 400 V	16.8	53	45.0	324	102.3	3000	0.80	0.900			20.3		
	ALM 400 V	18.5	54	45.0	355	112.4	3300	0.80	0.910			20.2		
	SLM/BLM 480 V	20.0	53	45.0	375	122.5	3600	0.81	0.920			18.6		
	ALM 480 V	21.0	51	43.5	405	132.5	3,900	0.81	0.910			18.6		
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		
	SLM/BLM 480 V	18.0	86	42.6	363	69.7	2000	0.81	0.873			19.1		
	ALM 480 V	19.8	86	42.6	381	76.3	2,200	0.84	0.880			17.0		
1PH8107-1□M2□ Y connection	SLM/BLM 400 V	18.0	57	60.0	264	102.2	3000	0.80	0.900			26.0		
	ALM 400 V	20.0	58	60.0	290	112.2	3300	0.80	0.900			26.1		
	SLM/BLM 480 V	21.0	56	59.0	315	122.1	3600	0.79	0.910			26.1		
	ALM 480 V	21.6	53	58.0	329	131.9	3,900	0.80	0.900			24.5		

6.1.1.14 Shaft height 132 - water-cooled

Table 6- 18 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	0.059	12	9.2	2.6	105
	ALM 400 V	17.0	93	30	425	60.6	1750	0.89	0.897			8.2		
	SLM/BLM 480 V	18.5	88	30	460	68.7	2000	0.90	0.912			7.2		
	ALM 480 V	20.0	87	29	500	75.9	2,200	0.90	0.910			7.2		
1PH8131-1□G2□ Y connection	SLM/BLM 400 V	18.0	86	40	352	69.1	2000	0.85	0.908			15.5		
	ALM 400 V	20.0	83	39	400	78.4	2300	0.85	0.920			15.4		
	SLM/BLM 480 V	23.0	83	39	458	90.1	2650	0.85	0.938			15.4		
	ALM 480 V	24.0	82	39	472	95.2	2,800	0.86	0.920			15.0		
1PH8133-1□F2□ Y connection	SLM/BLM 400 V	17.0	108	38	345	51.5	1500	0.86	0.883	0.076	12	14.2	2.8	123
	ALM 400 V	19.5	106	38	403	59.9	1750	0.85	0.913			14.9		
	SLM/BLM 480 V	22.5	107	38	452	68.2	2000	0.86	0.938			14.4		
	ALM 480 V	24.0	104	37	495	74.8	2,200	0.86	0.930			14.1		
1PH8133-1□G2□ Y connection	SLM/BLM 400 V	22.0	105	52	336	68.2	2000	0.84	0.909			22.2		
	ALM 400 V	25.0	104	52	373	78.3	2300	0.86	0.923			19.4		
	SLM/BLM 480 V	28.0	101	50	427	89.9	2650	0.85	0.933			19.5		
	ALM 480 V	29.0	99	50	450	94.9	2,800	0.85	0.920			19.5		

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]	P_cool [kW]	m [kg]
1PH8135-1□F2□ Y connection	SLM/BLM 400 V	22.0	140	51	342	51.5	1500	0.85	0.901	0.094	12	20.3	3.3	141
	ALM 400 V	25.5	139	51	395	59.9	1750	0.85	0.914			20.1		
	SLM/BLM 480 V	29.0	138	52	448	68.2	2000	0.85	0.931			19.9		
	ALM 480 V	31.0	135	50	480	74.9	2,200	0.85	0.920			20.0		
1PH8135-1□G2□ Y connection	SLM/BLM 400 V	29.0	138	64	348	68.3	2000	0.86	0.924			23.9		
	ALM 400 V	31.0	129	61	381	78.3	2300	0.88	0.933			23.3		
	SLM/BLM 480 V	32.0	115	58	448	89.6	2650	0.84	0.942			23.0		
	ALM 480 V	33.0	113	57	462	94.7	2,800	0.84	0.920			23.1		
1PH8137-1□F2□ Y connection	SLM/BLM 400 V	27.0	172	67	315	51.6	1500	0.86	0.900	0.109	12	25.3	3.8	157
	ALM 400 V	31.5	172	67	364	59.9	1750	0.86	0.911			24.8		
	SLM/BLM 480 V	36.0	172	67	415	68.3	2000	0.86	0.928			25.4		
	ALM 480 V	39.0	169	66	456	74.9	2,200	0.85	0.920			25.5		
1PH8138-1□F2□ Y connection	SLM/BLM 400 V	30.0	191	80	289	51.9	1500	0.88	0.882	0.109	12	27.1	4.2	160
	ALM 400 V	33.0	180	77	332	60.1	1750	0.87	0.898			27.1	4.2	
	SLM/BLM 480 V	37.0	177	76	380	68.4	2000	0.86	0.920			28.4	4.2	
	ALM 480 V	39.0	169	72	410	75.0	2,200	0.86	0.910			27.0	4.2	

6.1.1.15 Shaft height 160 - water cooling

Table 6- 19 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 480 V	49	234	84	430	67.7	2000	0.88	0.925			26.9	3.6	
	ALM 480 V	53	230	83	460	74.4	2,200	0.88	0.920			26.5	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 480 V	55	198	90	450	89.2	2650	0.86	0.940			33.6	4.1	
	ALM 480 V	56	191	89	462	94.3	2,800	0.88	0.940			30.2	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 480 V	60	287	103	426	67.6	2000	0.88	0.940			34.0	4.8	
	ALM 480 V	66	287	103	457	74.4	2,200	0.89	0.940			33.0	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 480 V	65	234	100	460	89.2	2650	0.89	0.948			31.9	4.8	
	ALM 480 V	68	232	100	494	94.2	2,800	0.88	0.940			33.5	4.8	
1PH8166-1□F2□ Y connection	SLM/BLM 400 V	52	331	116	332	51.2	1500	0.88	0.936	0.232	14	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 480 V	68	325	116	426	67.9	2000	0.89	0.941			32.8	5.8	

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]
	ALM 480 V	75	326	116	470	74.5	2,200	0.89	0.940			34.4	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 480 V	83	299	125	460	89.6	2650	0.90	0.948			35.7	5.9	
	ALM 480 V	87	297	124	500	94.5	2,800	0.90	0.950			35.5	5.9	

6.1.1.16 Shaft height 180 - water-cooled

Table 6- 20 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	51.0	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	196	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	
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	0.87	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	114	3400	0.81	0.942			110	10.4	

6.1.1.17 Shaft height 225 - water-cooled

Table 6- 21 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	1,000	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	
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□	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	

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]
Y connection	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	

6.1.1.18 Shaft height 280 - water-cooled

Table 6- 22 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	33.6	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	

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□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	
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	23.6	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	

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]
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	

6.1.1.19 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 6- 23 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

6.1.2 Characteristics forced ventilation

6.1.2.1 Shaft height 80 – forced ventilation

Table 6- 24 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]
1,500	2.8	18	7.5	10,000	12,000	-	5,000	4,700	34	18	21	8

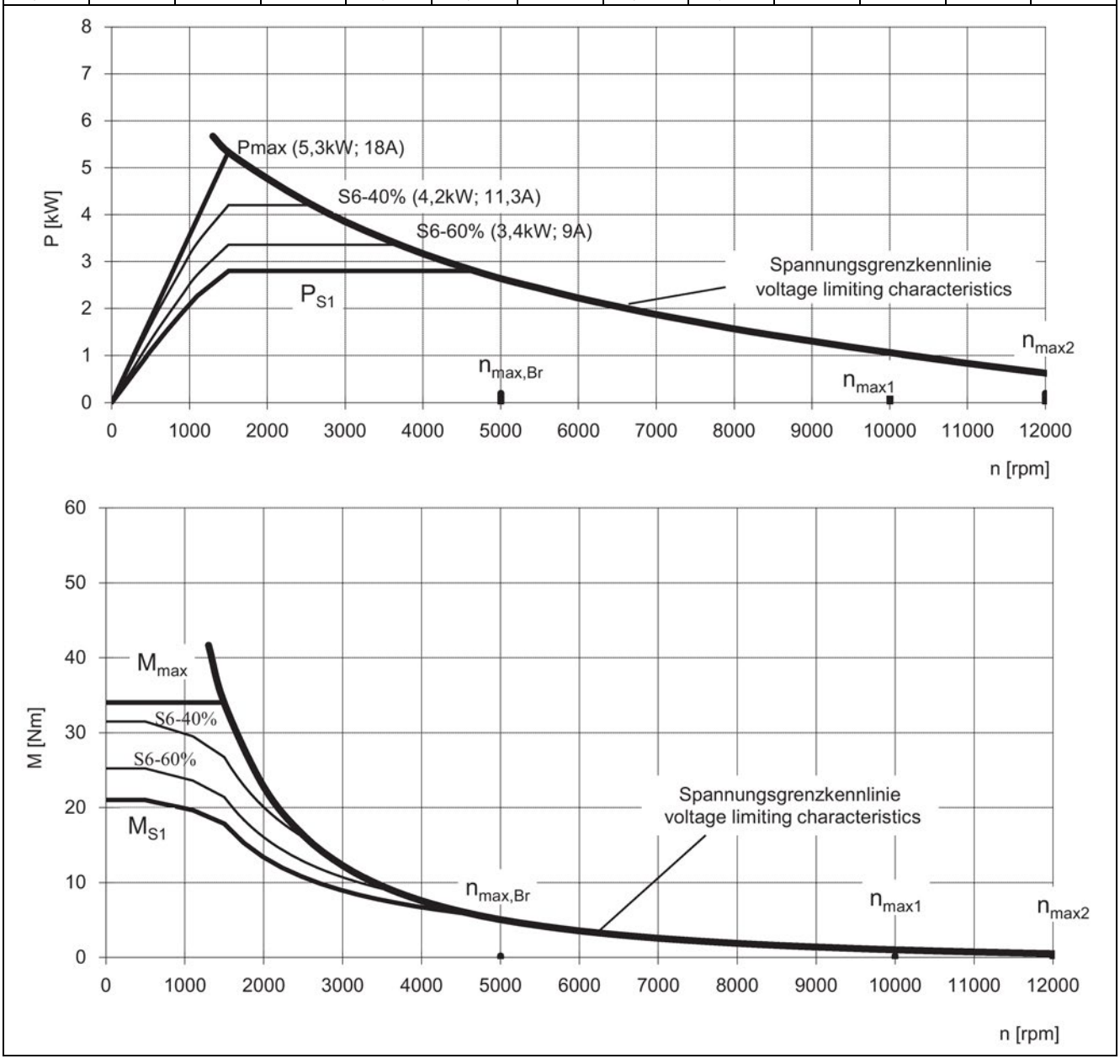
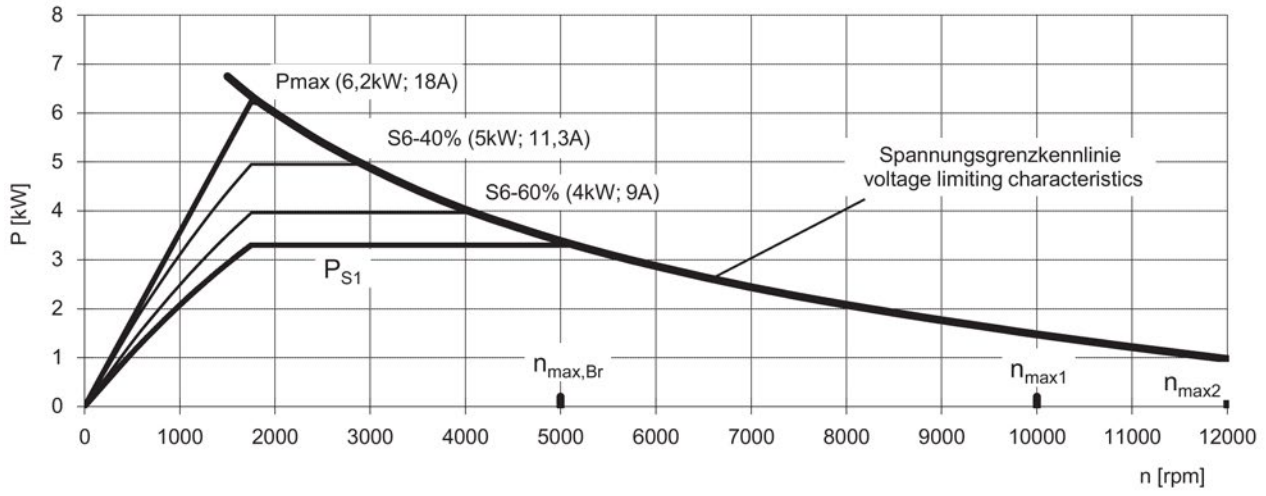


Table 6- 25 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□F□□

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]
1,750	3.3	18	7.5	10,000	12,000	-	5,000	5,200	34	18	21	8
1,500	2.8	18	7.5	10,000				6,200				



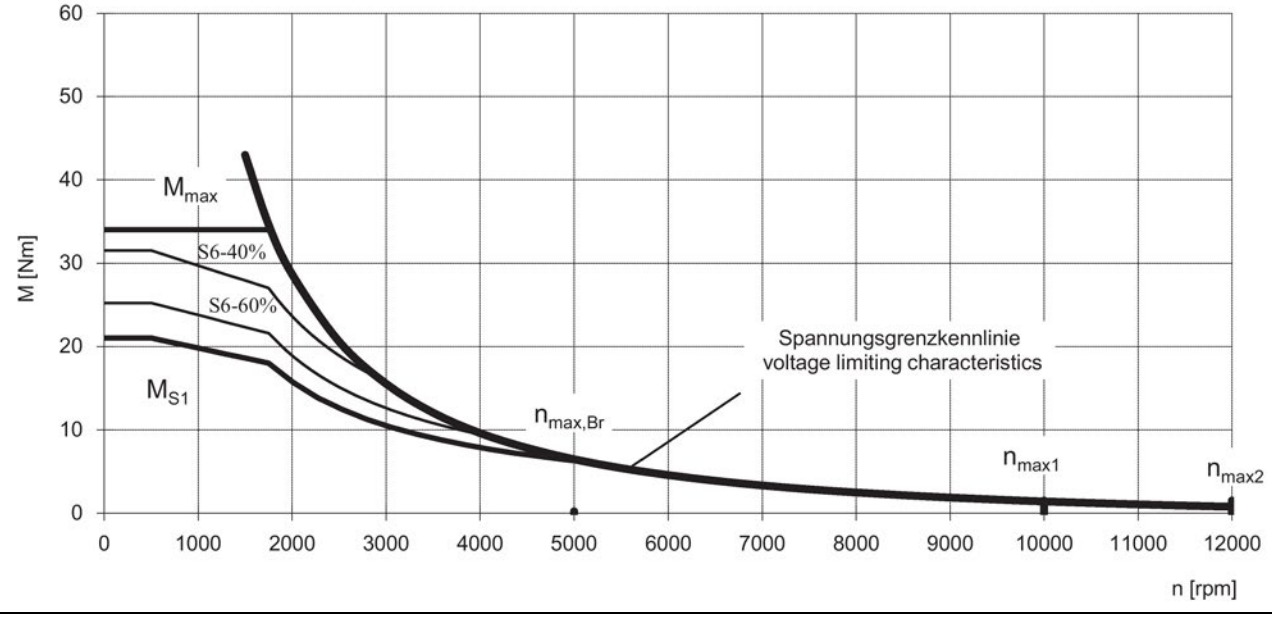


Table 6- 26 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□F□□

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]
2,000	3.7	18	7.6	10,000	12,000	-	5,000	5,550	34	18	21	8

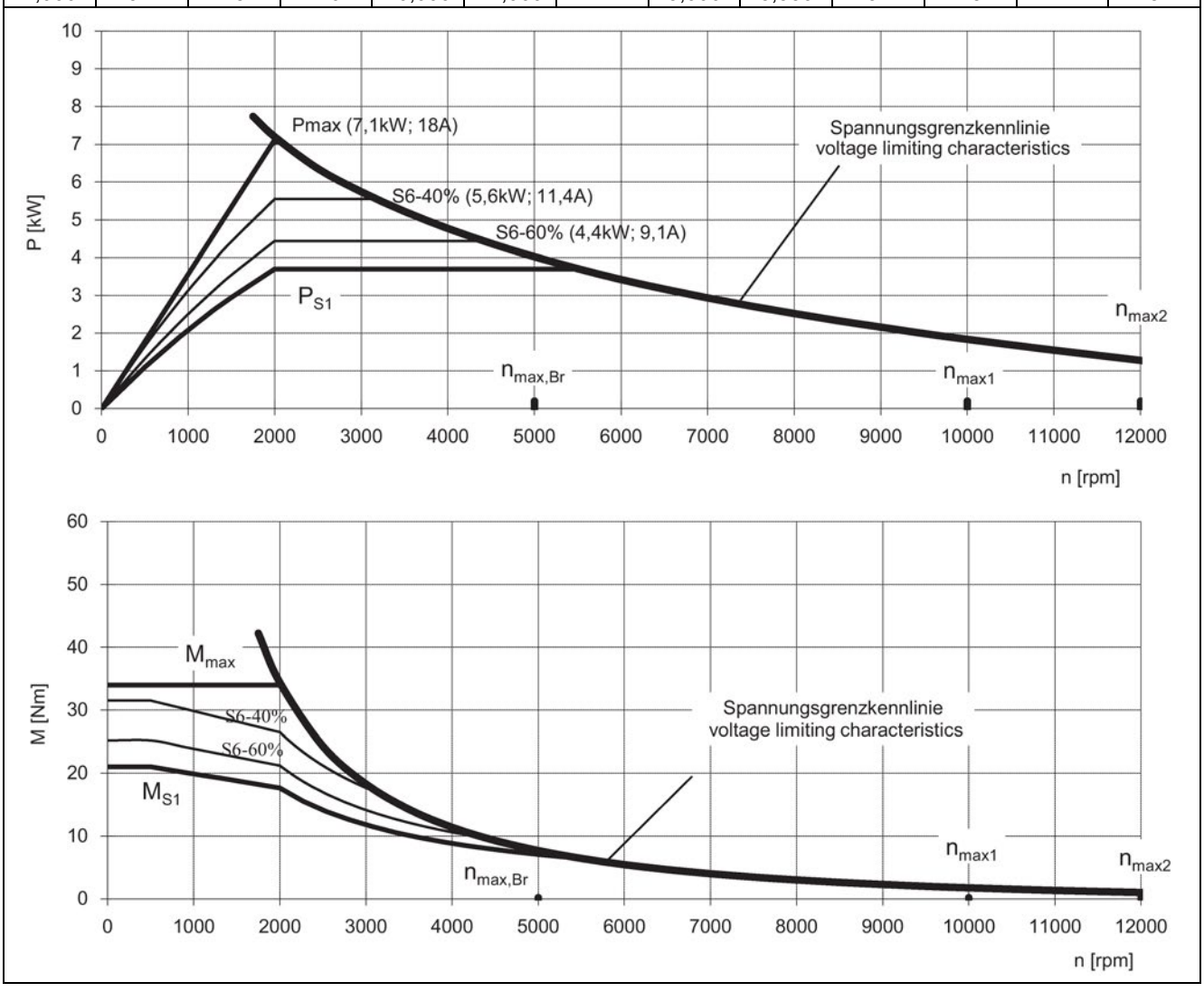
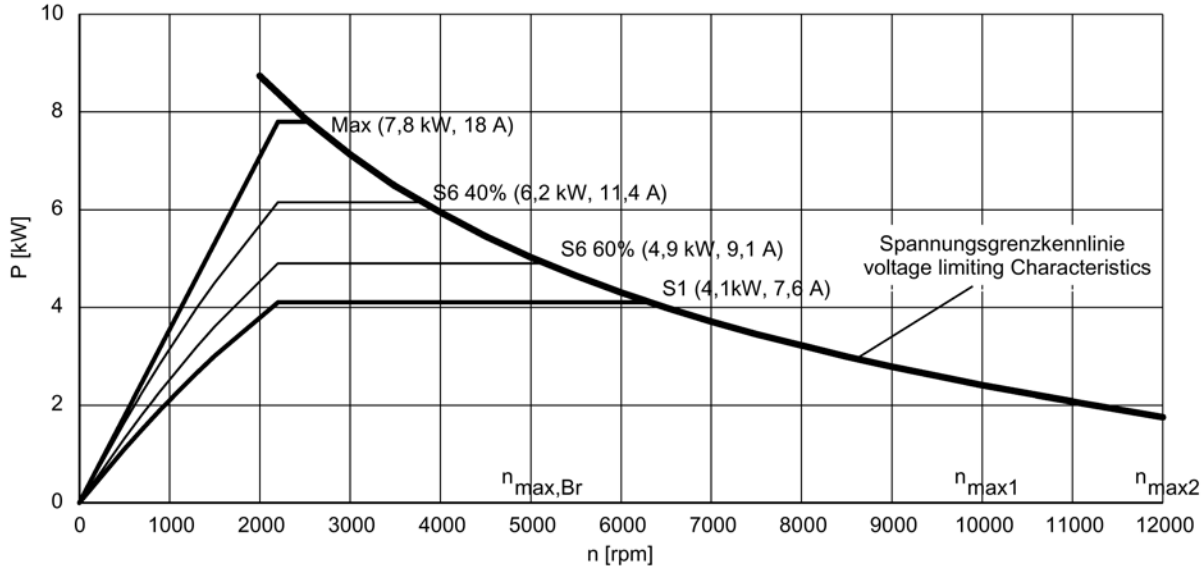


Table 6- 27 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	4.1	18	7.6	10,000	12,000	--	5,000	6,300	34	18	21	8



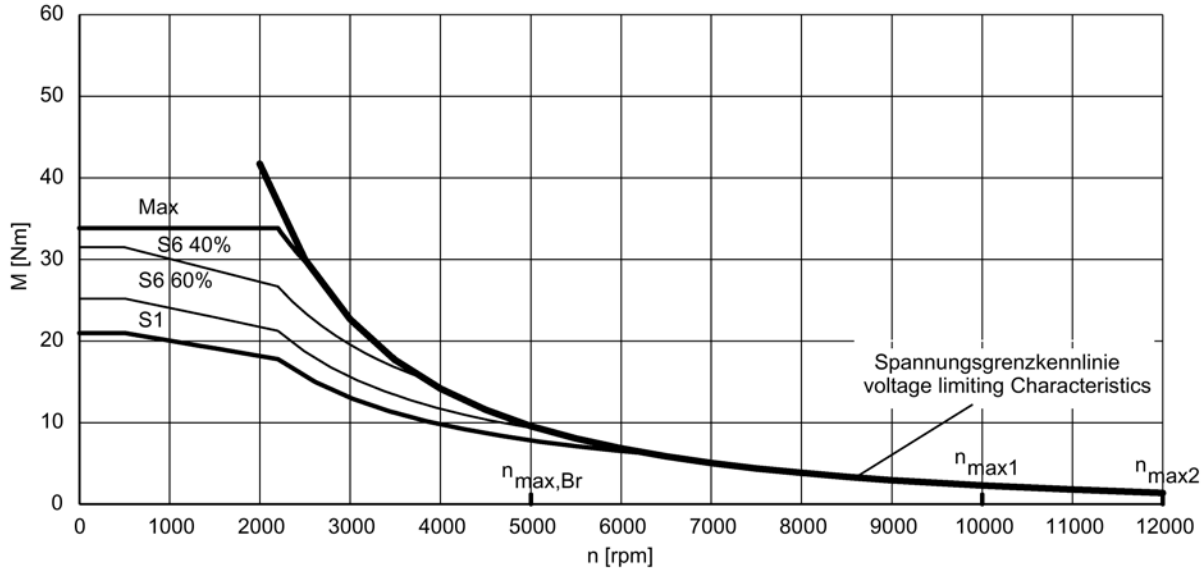


Table 6- 28 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G□□,

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]
2,000	3.7	18	11.6	10,000	15,000	17,000	5,000	9,200	45	24	21	12

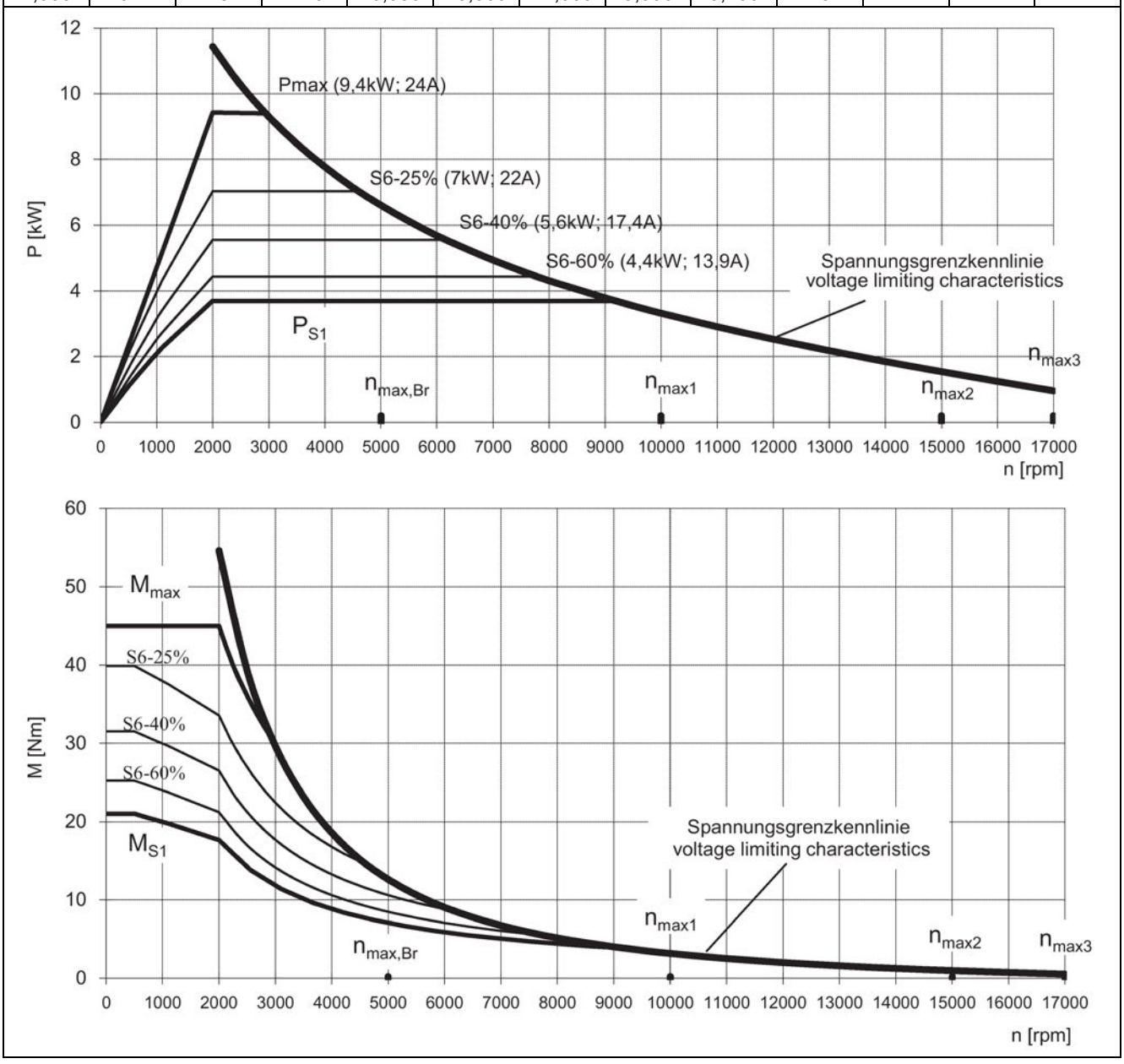
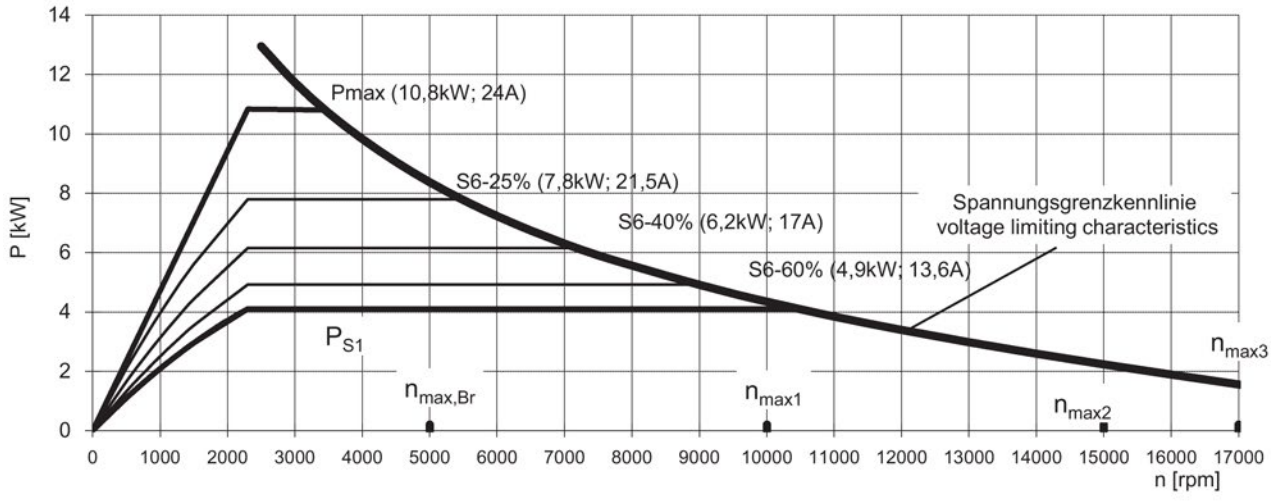


Table 6- 29 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□G□□,

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]
2,300	4.1	17	11.3	10,000	15,000	17,000	5,000	10,550	45	24	21	12
2,000	3.7	18	11.6					11,350				



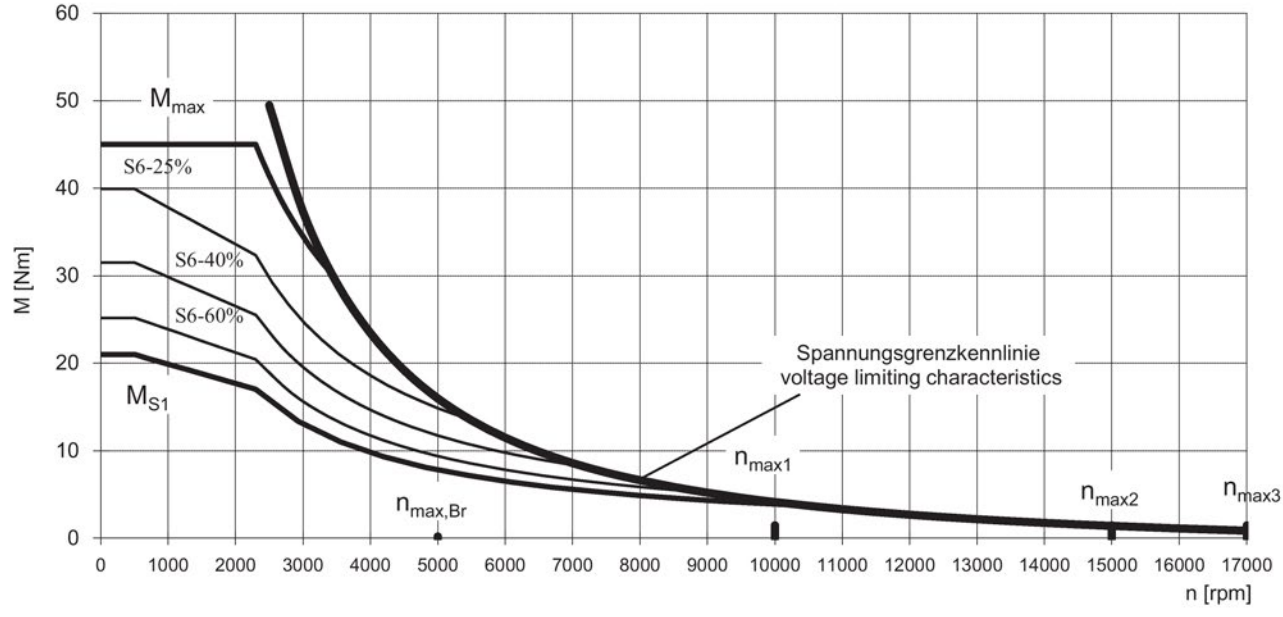
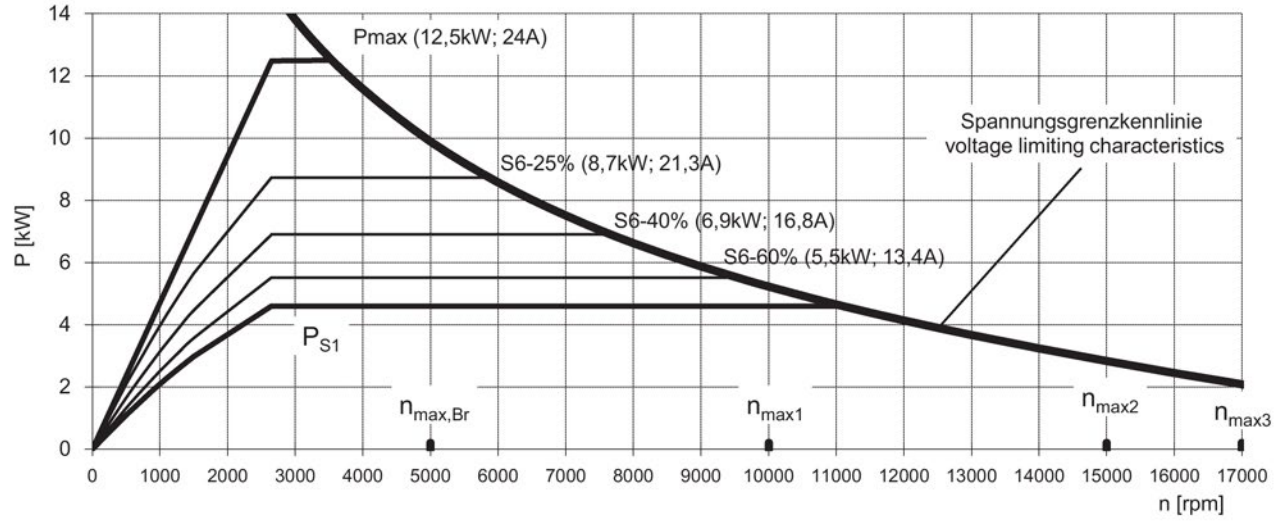


Table 6- 30 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G□□,

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]
2,650	4.6	17	11.2	10,000	15,000	17,000	5,000	11,150	45	24	21	12



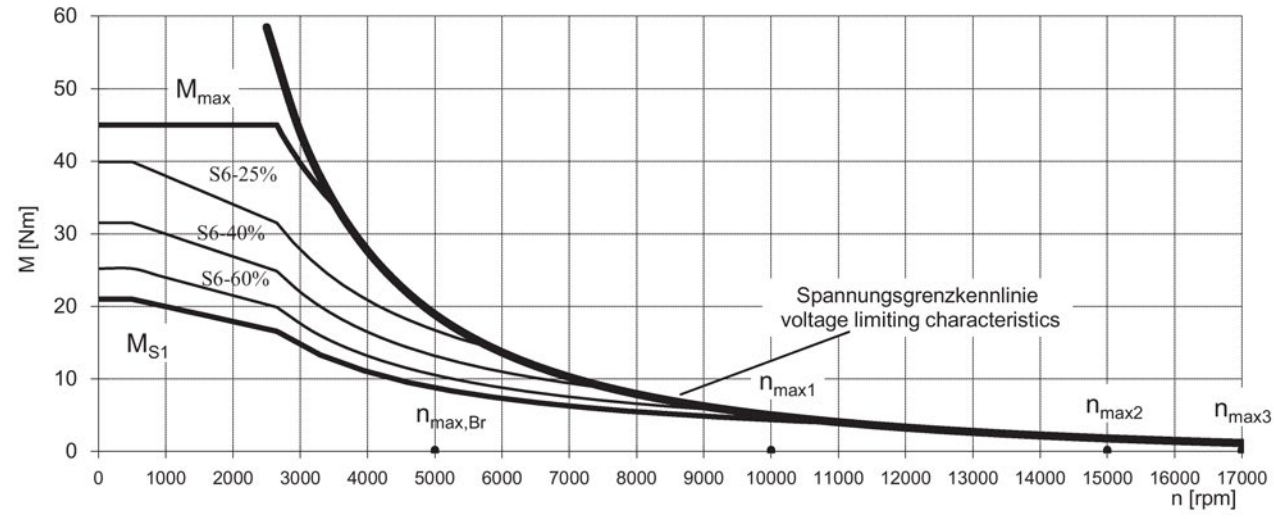
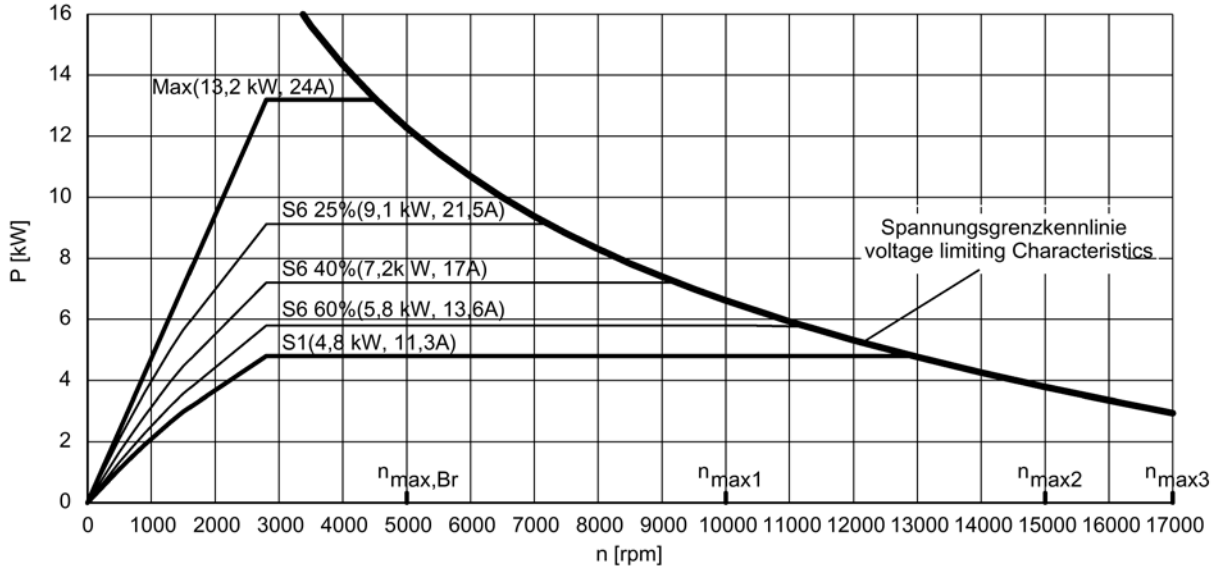


Table 6- 31 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□G□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	4.8	16	11.3	10,000	15,000	17,000	5,000	12,950	45	24	21	12



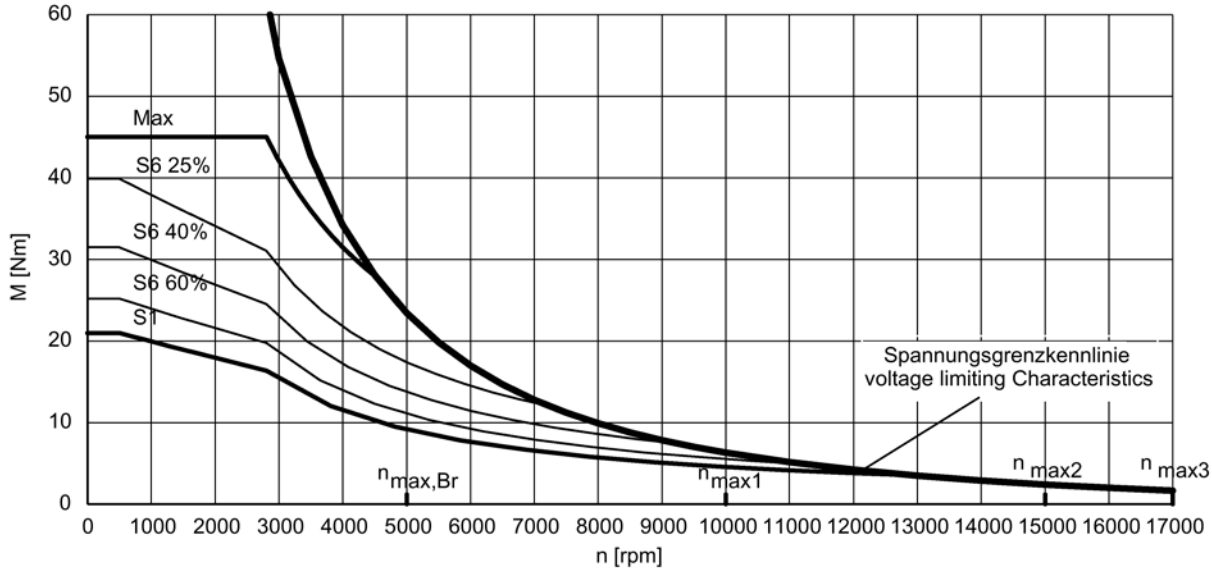
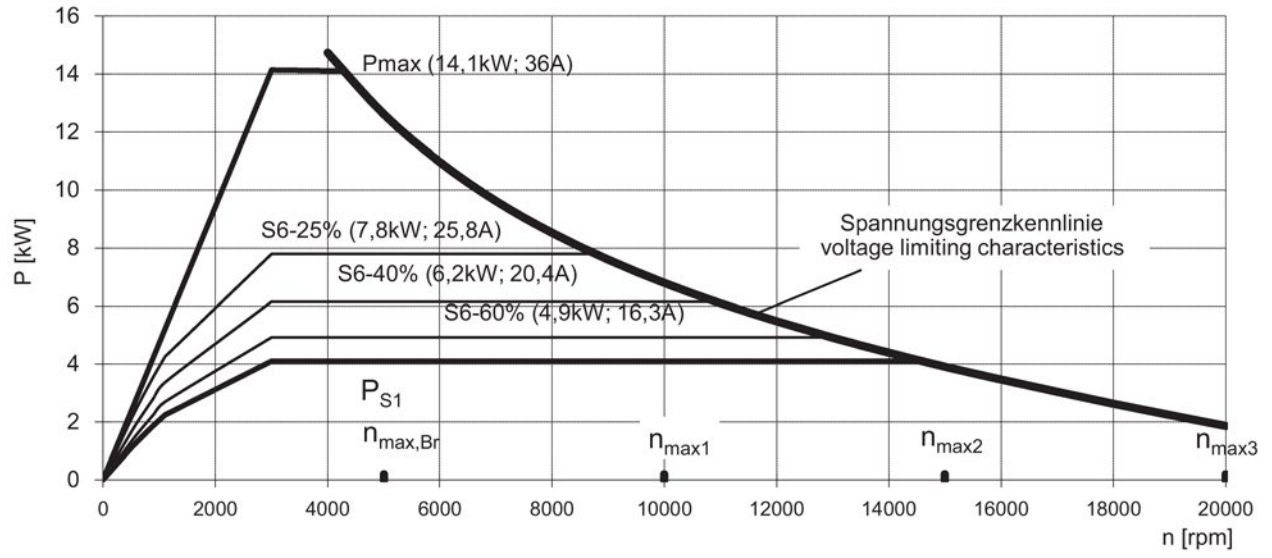


Table 6- 32 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□M□□,

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]
3,000	4.1	13	13.6	10,000	15,000	20,000	5,000	14,650	45	36	21	17



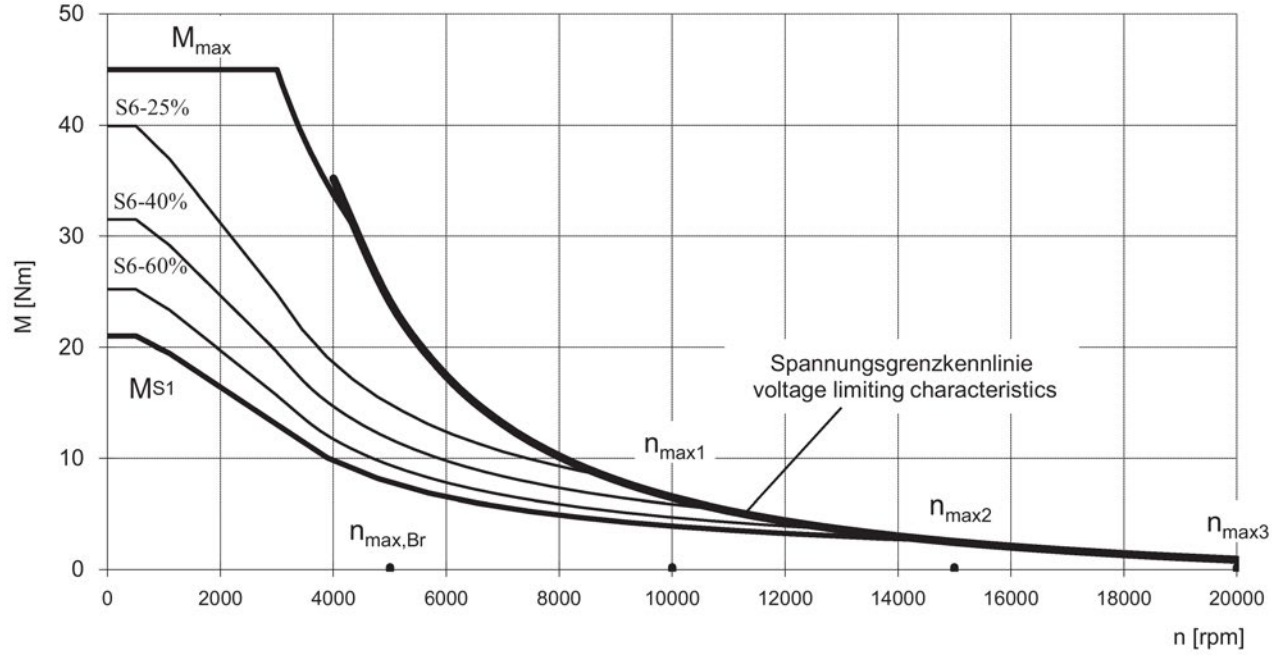
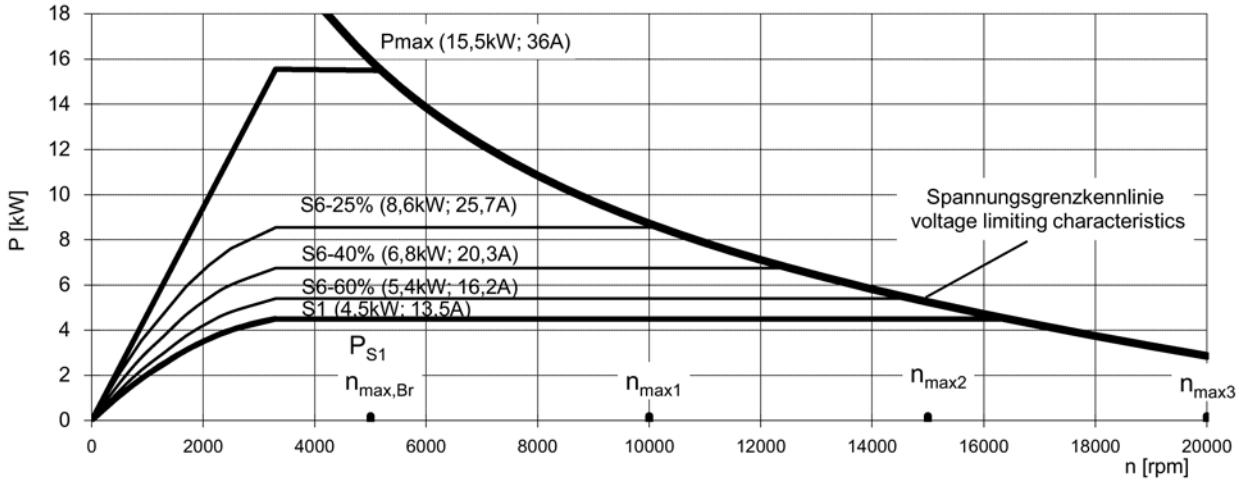


Table 6- 33 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□M□□,

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]
3,300	4.5	13	13.5	10,000	15,000	20,000	5,000	16,500	45	36	21	17
3,000	4.1	13	13.6					17,300				



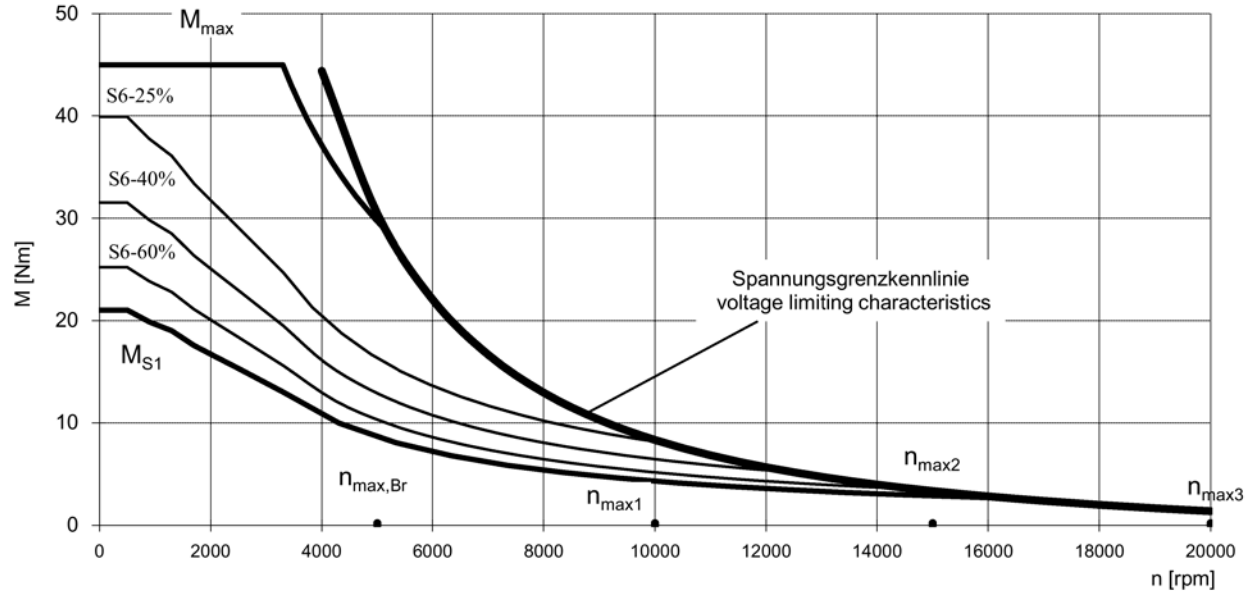


Table 6- 34 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□M□□,

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]
3,600	4.9	13	14	10,000	15,000	20,000	5,000	17,650	45	36	21	17

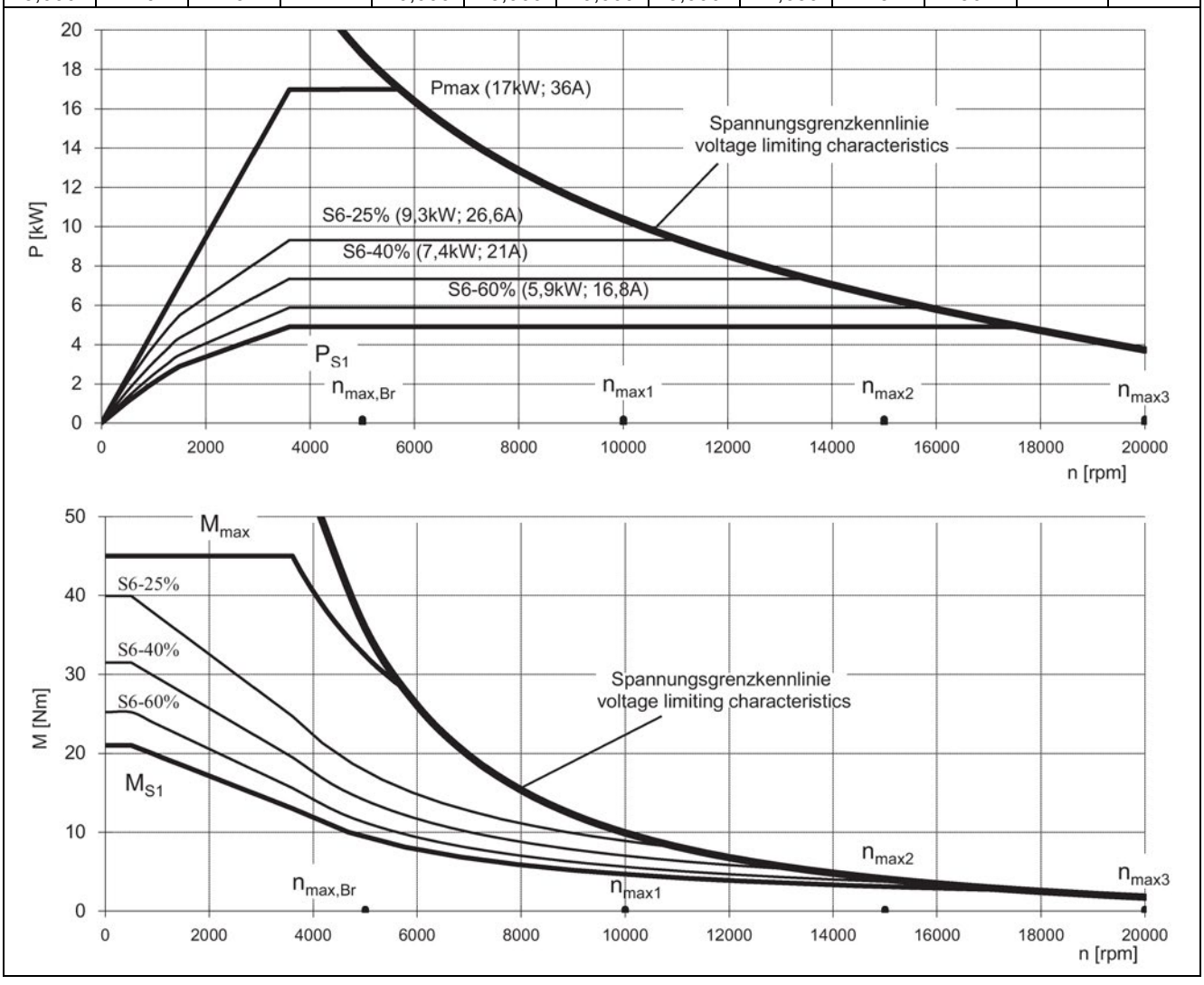
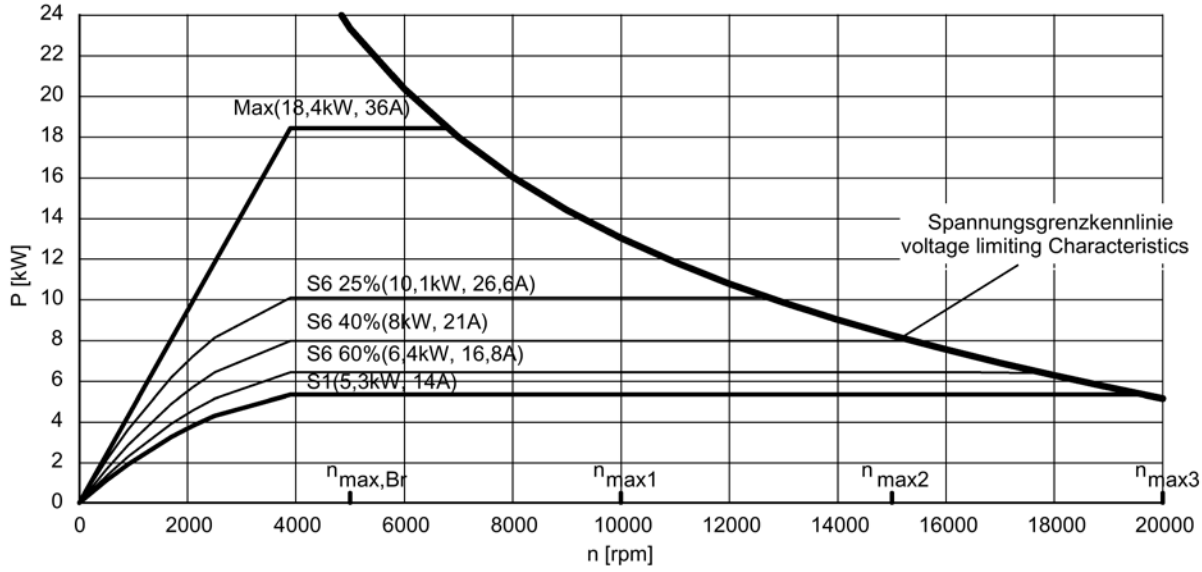


Table 6- 35 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□M□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	5.3	13	14	10,000	15,000	20,000	5,000	19,650	45	36	21	17



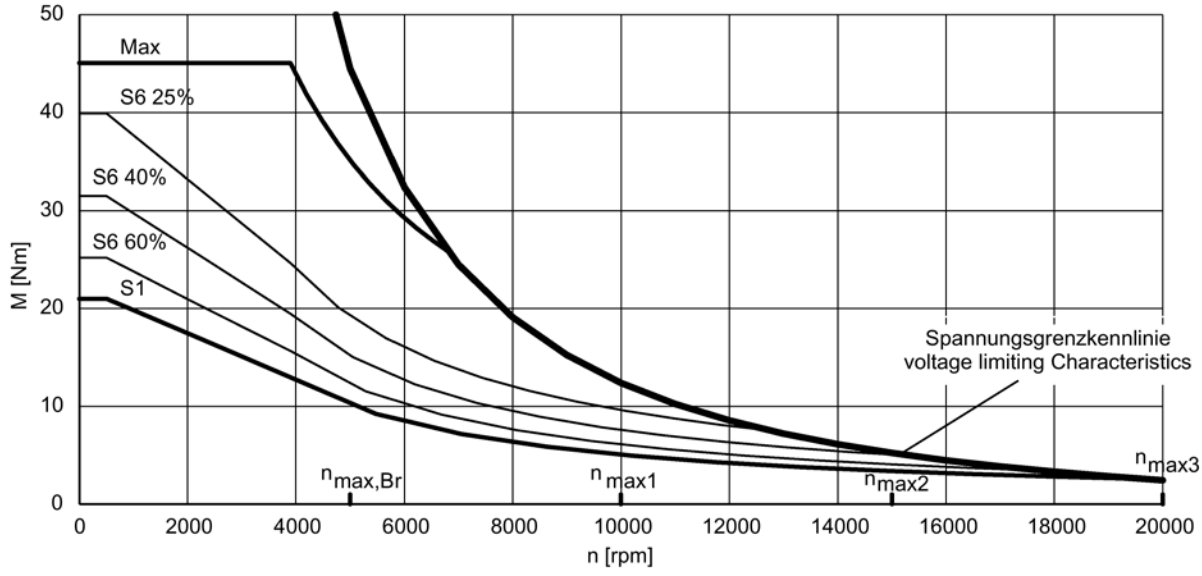
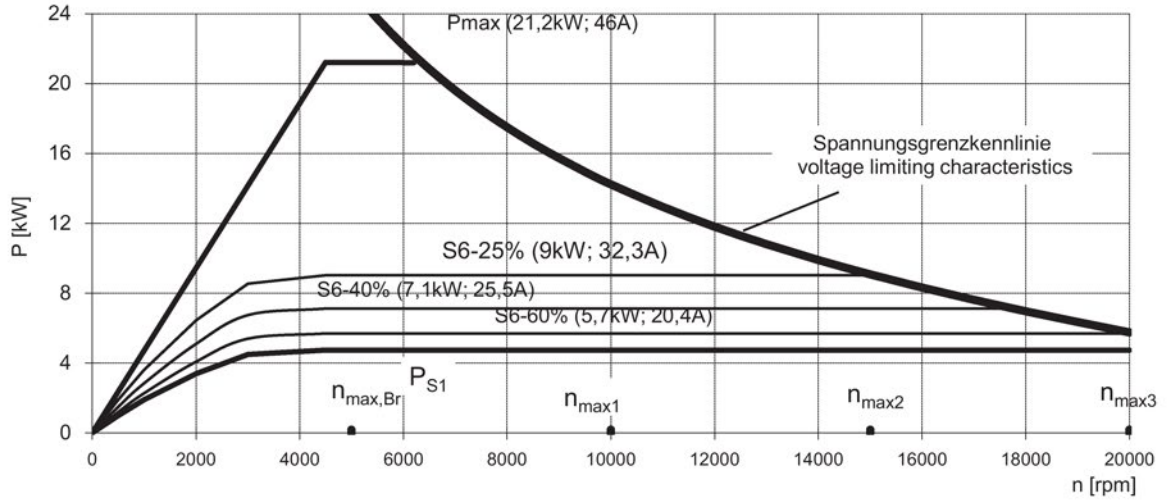


Table 6- 36 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□N□□,

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]
4,500	4.8	10	17	10,000	15,000	20,000	5,000	20,000	45	46	19	23



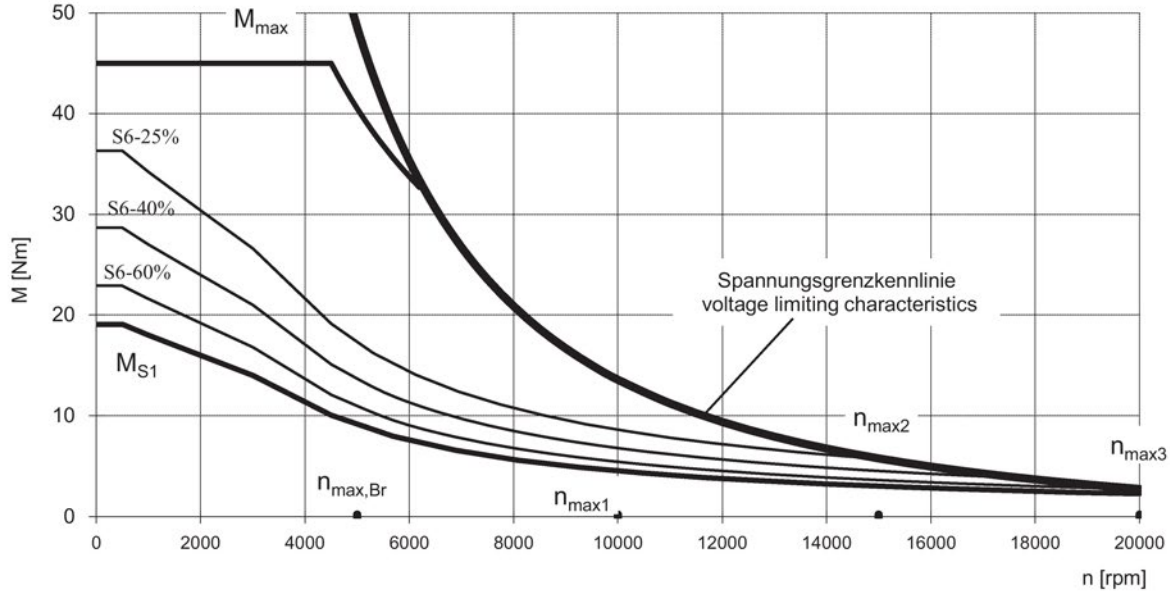
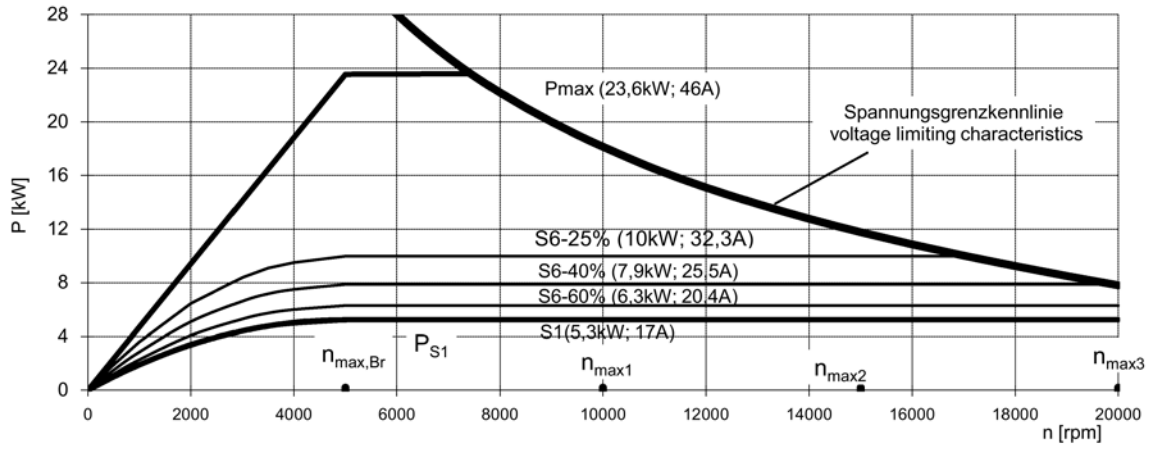


Table 6- 37 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□N□□,

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]
5,000	5.3	10	17	10,000	15,000	20,000	5,000	20,000	45	46	19	23
4,500	4.8	10	17					20,000				



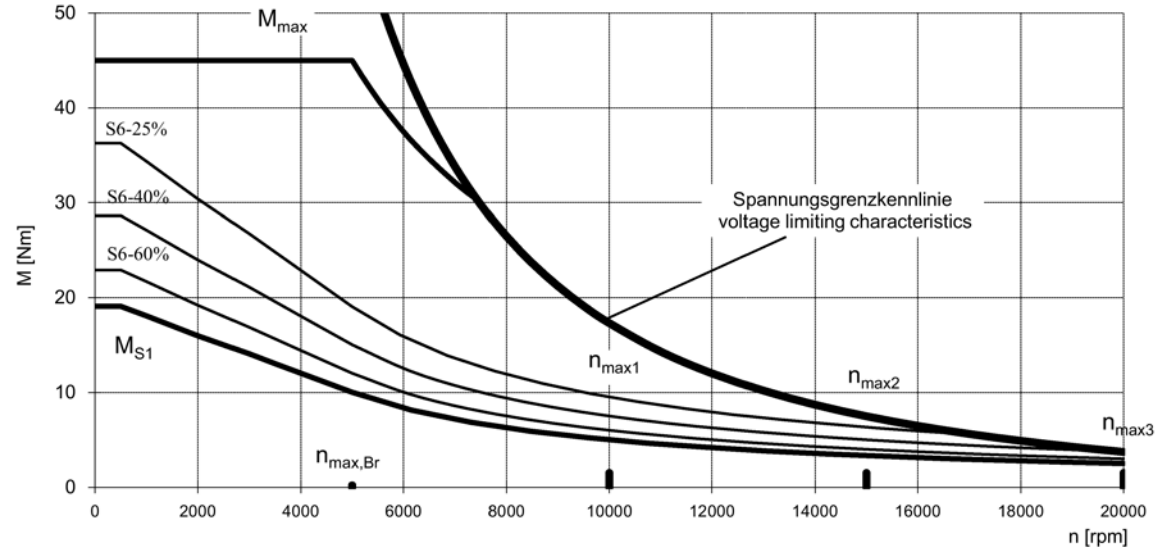


Table 6- 38 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□N□□,

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]
5,500	5.5	10	16.5	10,000	15,000	20,000	5,000	20,000	45	46	19	23

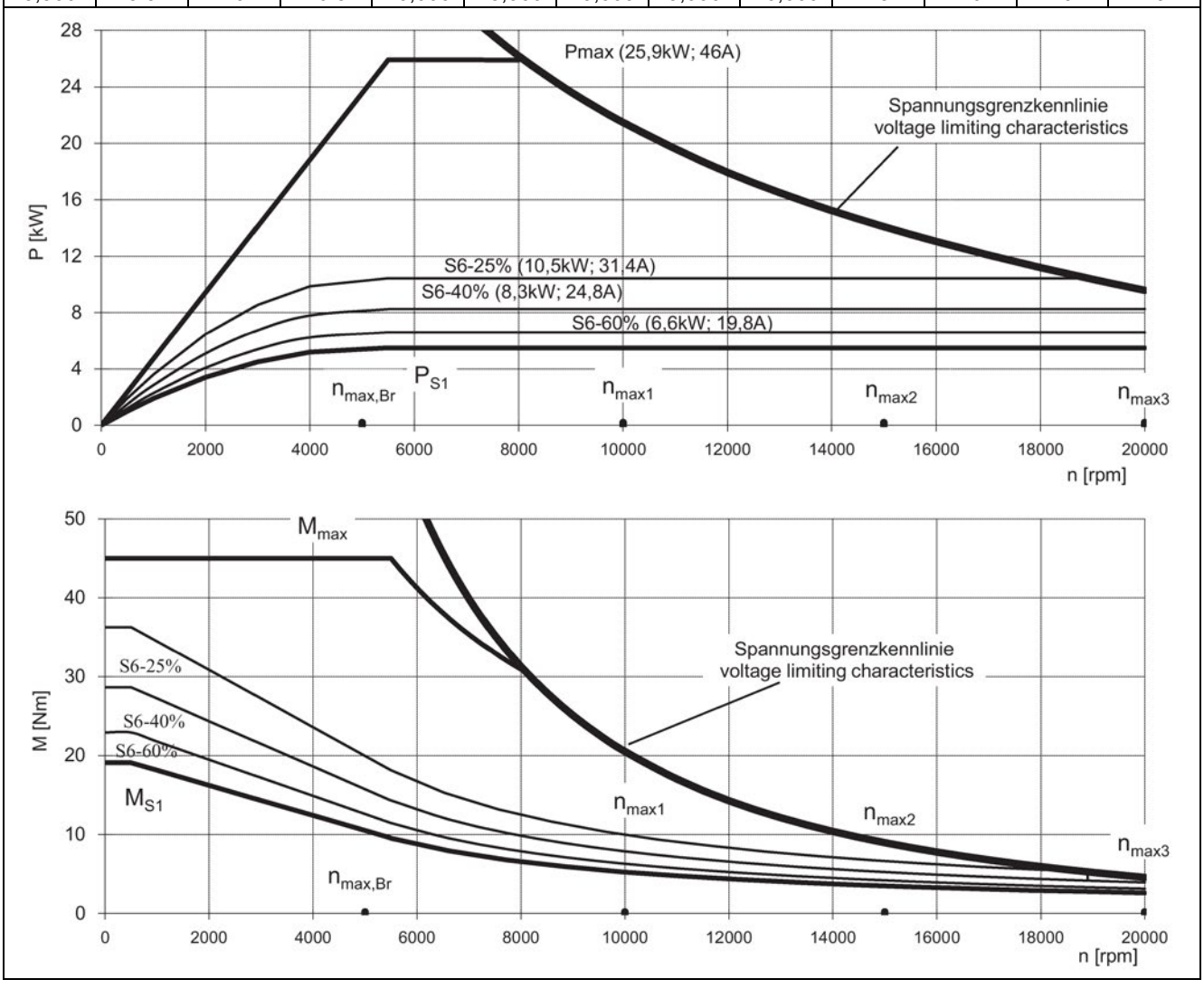
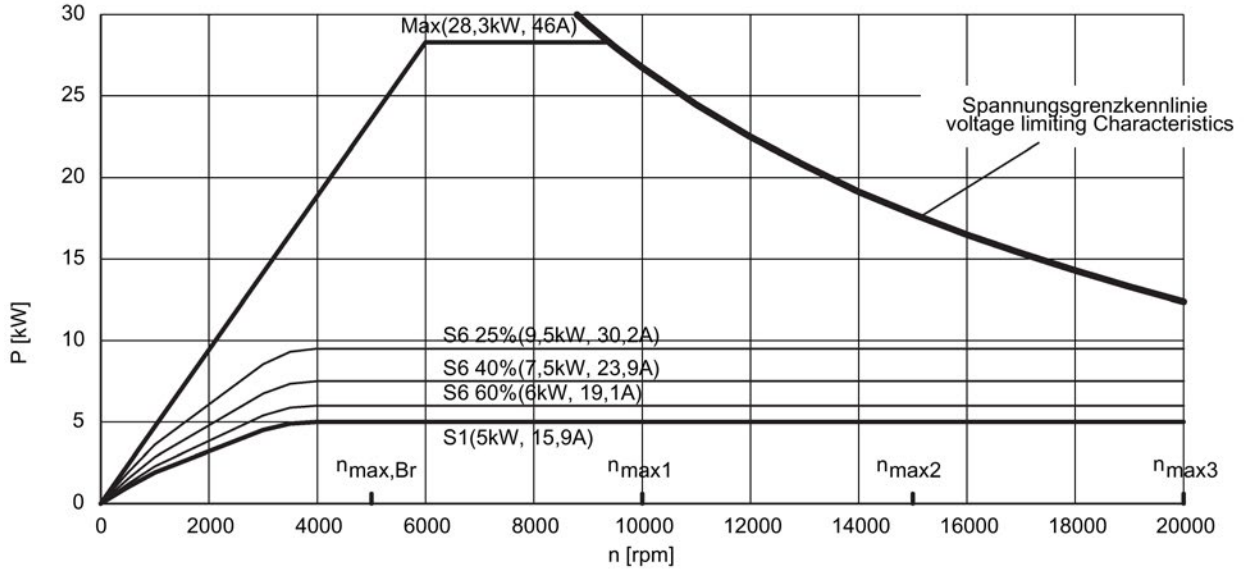


Table 6- 39 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□N□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6,000	5	8	15.9	10,000	15,000	20,000	5,000	20,000	45	46	19	23



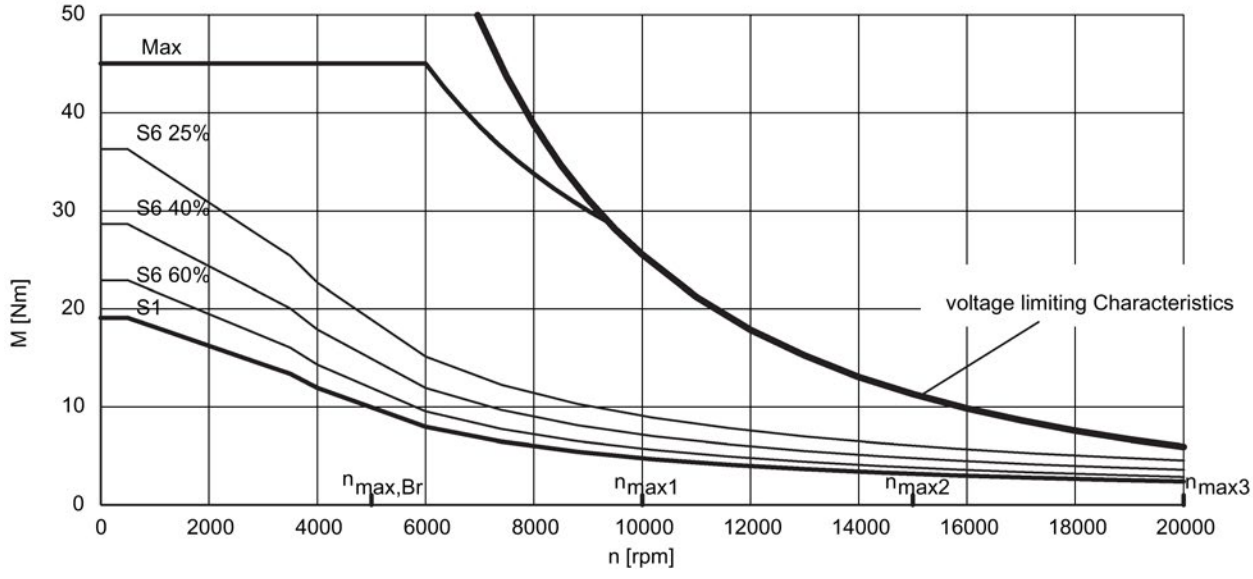
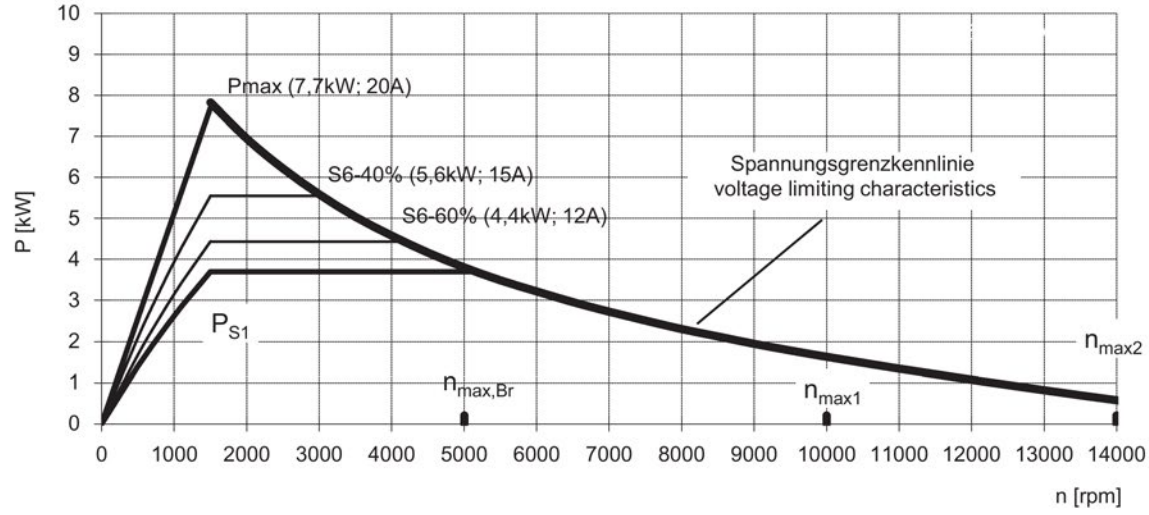


Table 6- 40 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F□□

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]
1,500	3.7	24	10	10,000	14,000	-	5,000	5,200	49	20	27	11



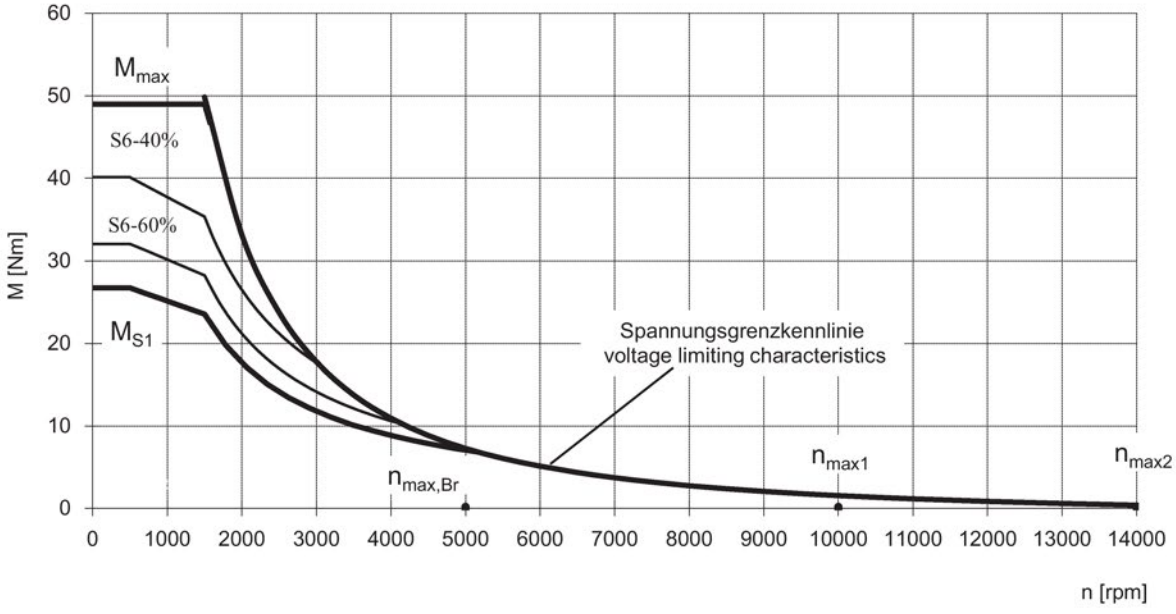
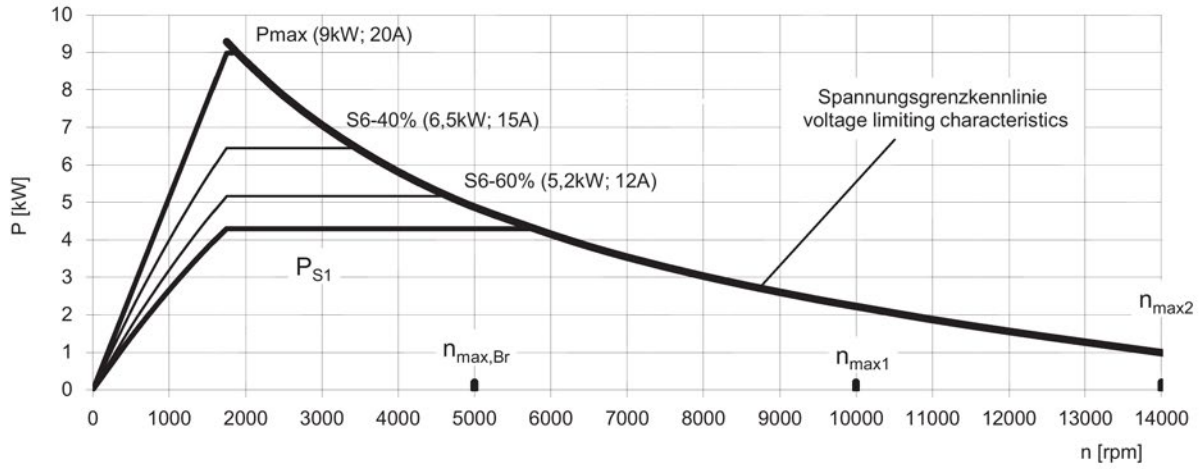


Table 6- 41 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□F□□

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]
1,750	4.3	23	10	10,000	14,000	-	5,000	5,850	49	20	27	11
1,500	3.7	24	10					6,750				



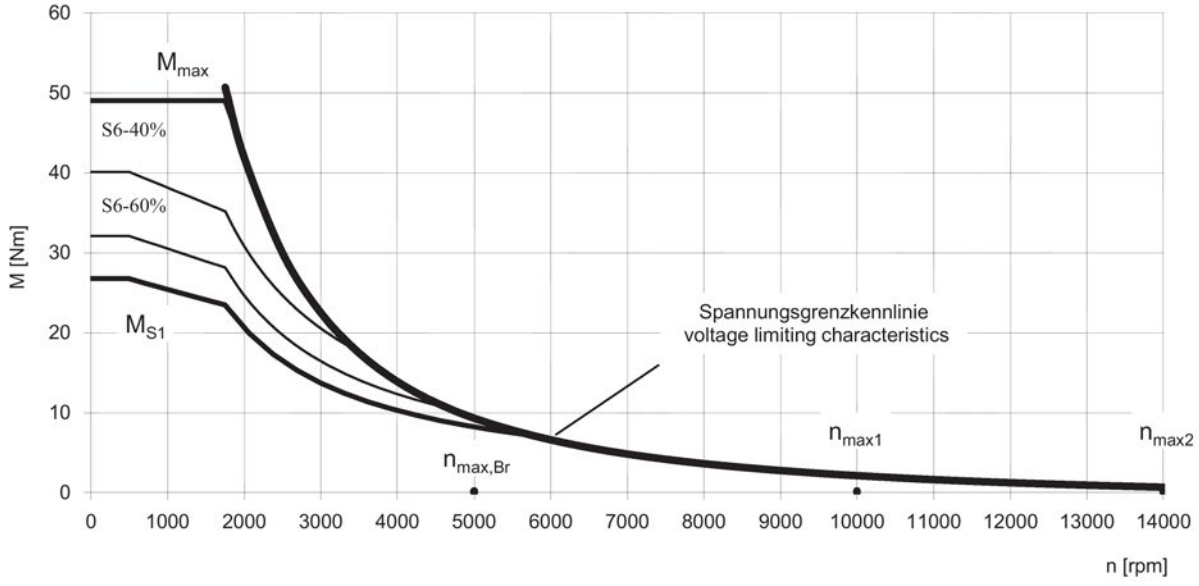
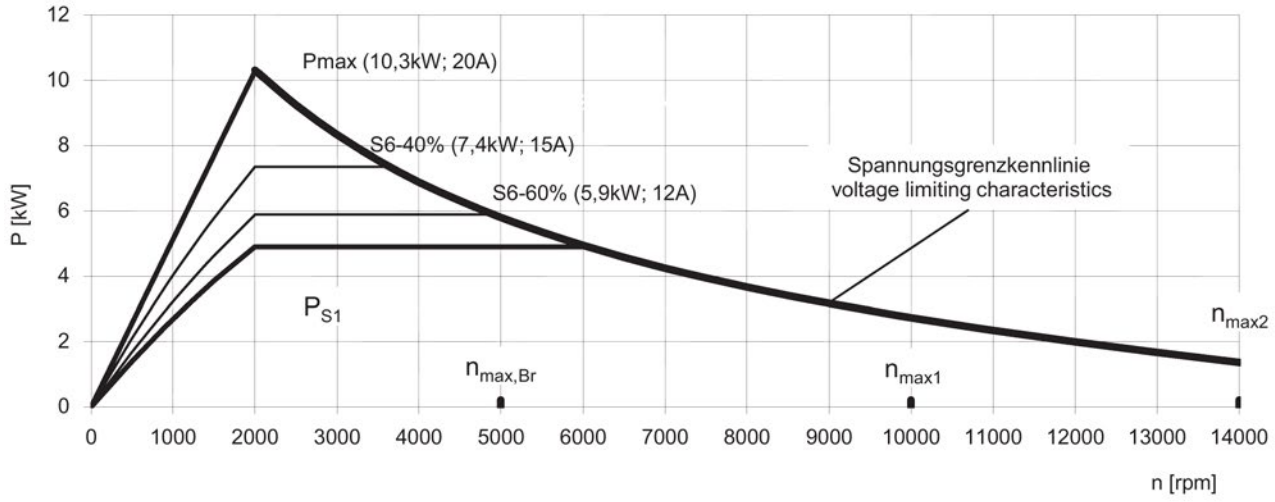


Table 6- 42 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F□□

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]
2,000	4.9	23	10	10,000	14,000	-	5,000	6,100	49	20	27	11



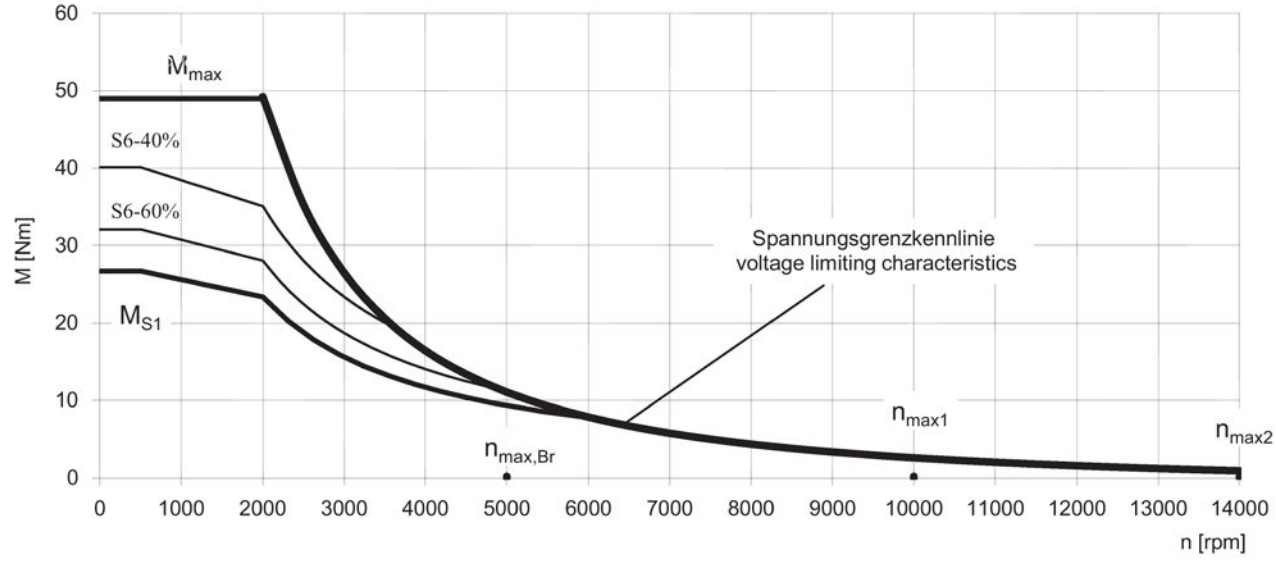
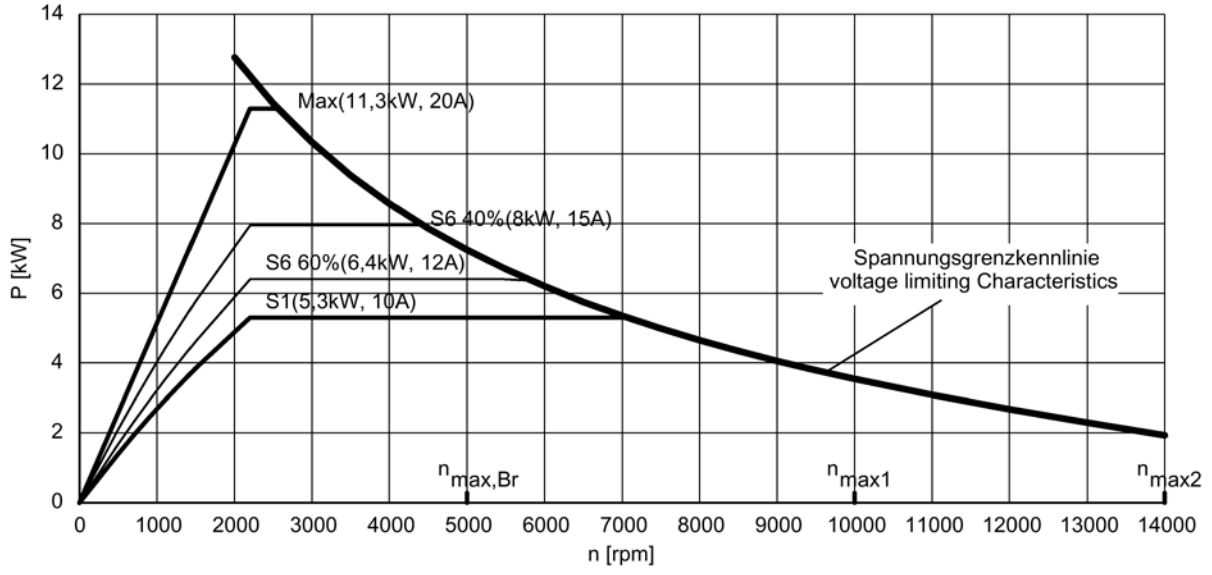


Table 6- 43 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8087-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	5.3	23	10	10,000	14,000	--	5,000	7,100	49	20	27	11



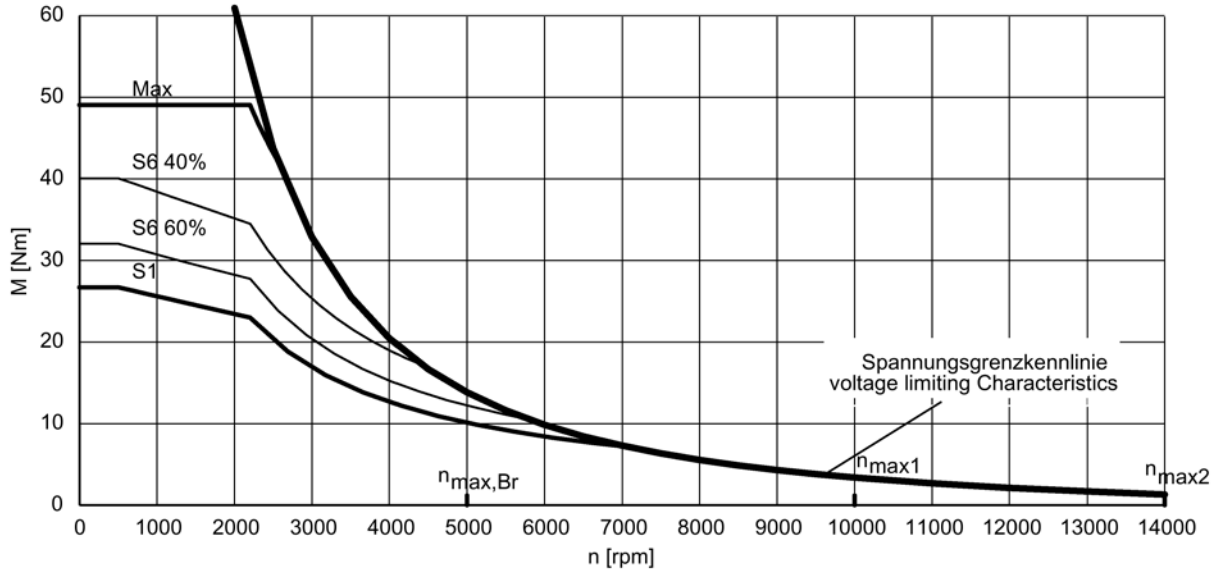
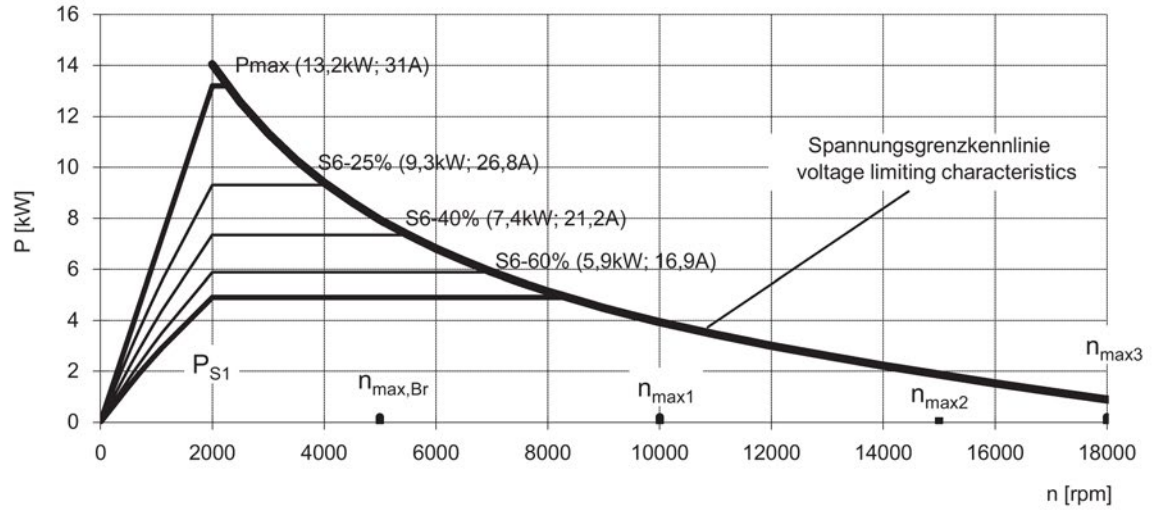


Table 6- 44 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G□□,

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]
2,000	4.9	23	14.1	10,000	15,000	18,000	5,000	8,400	63	31	27	15



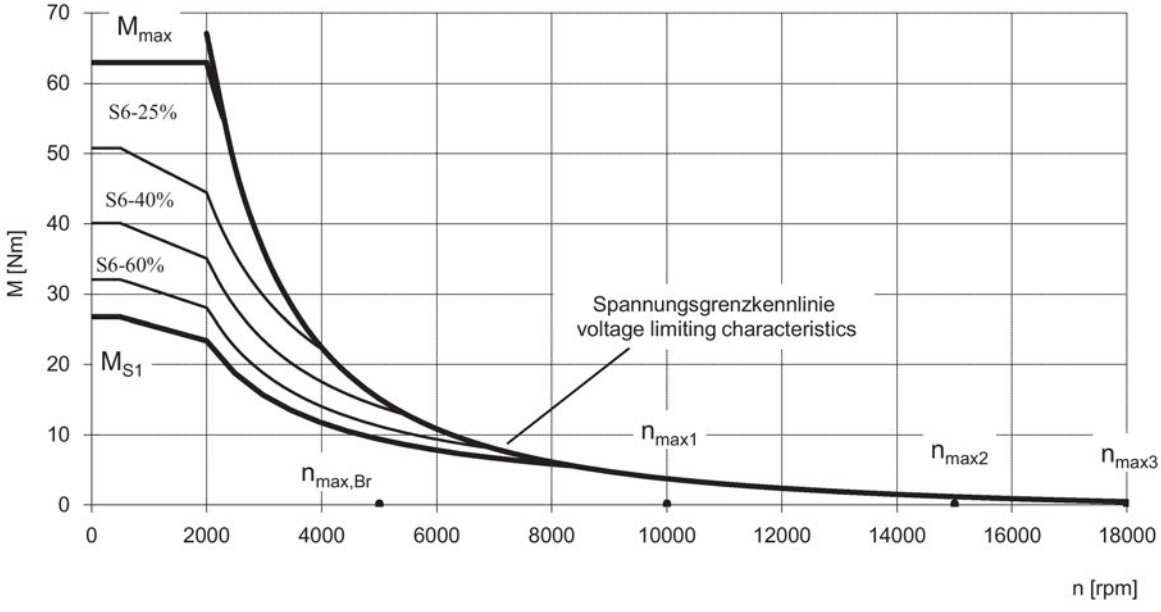


Table 6- 45 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□G□□,

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]
2,300	5.4	22	13.7	10,000	15,000	18,000	5,000	9,650	63	31	27	15
2,000	4.9	23	14.1					10,450				

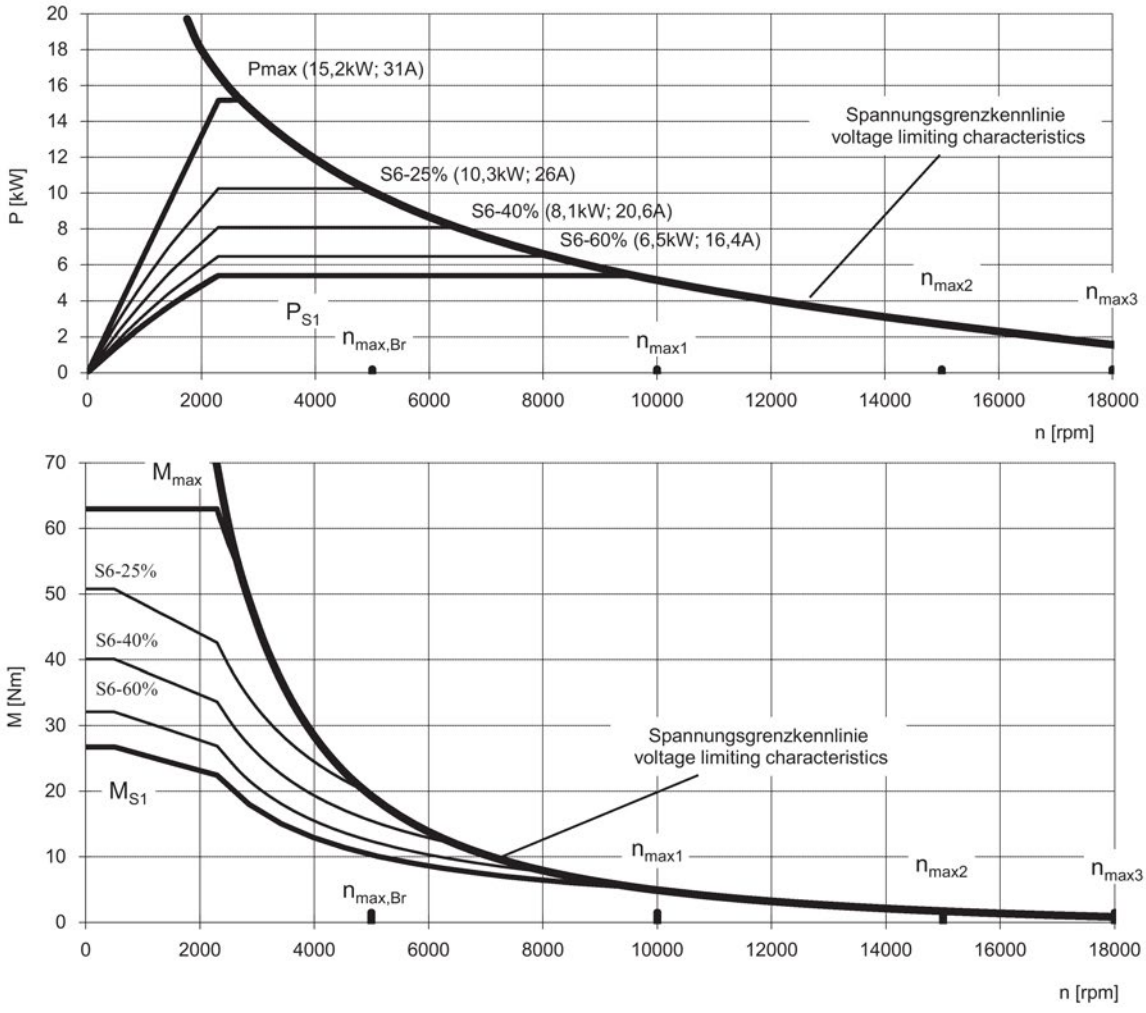
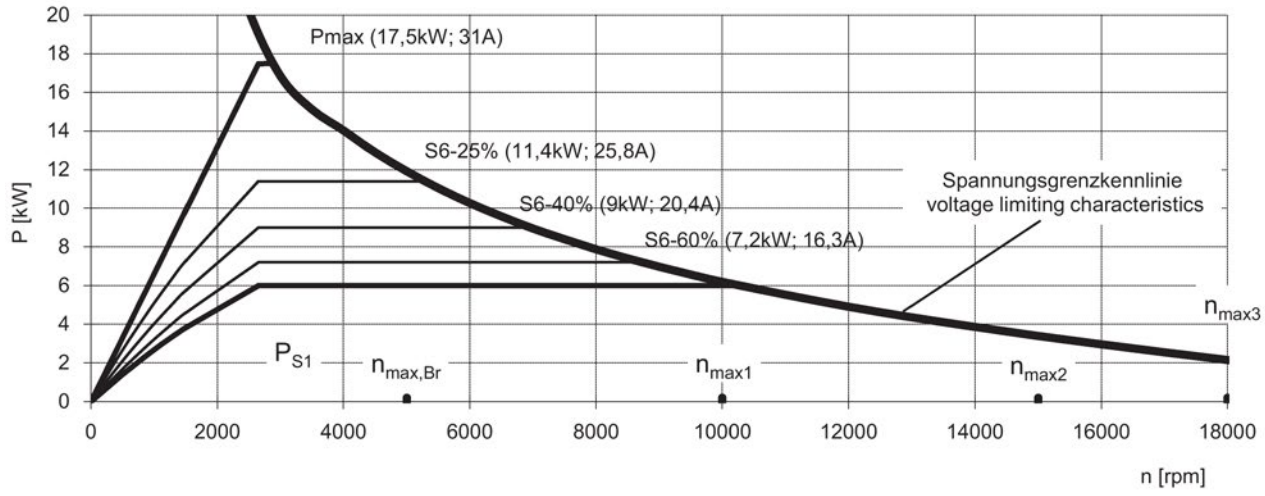


Table 6- 46 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G□□,

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]
2,650	6	22	13.6	10,000	15,000	18,000	5,000	10,300	63	31	27	15



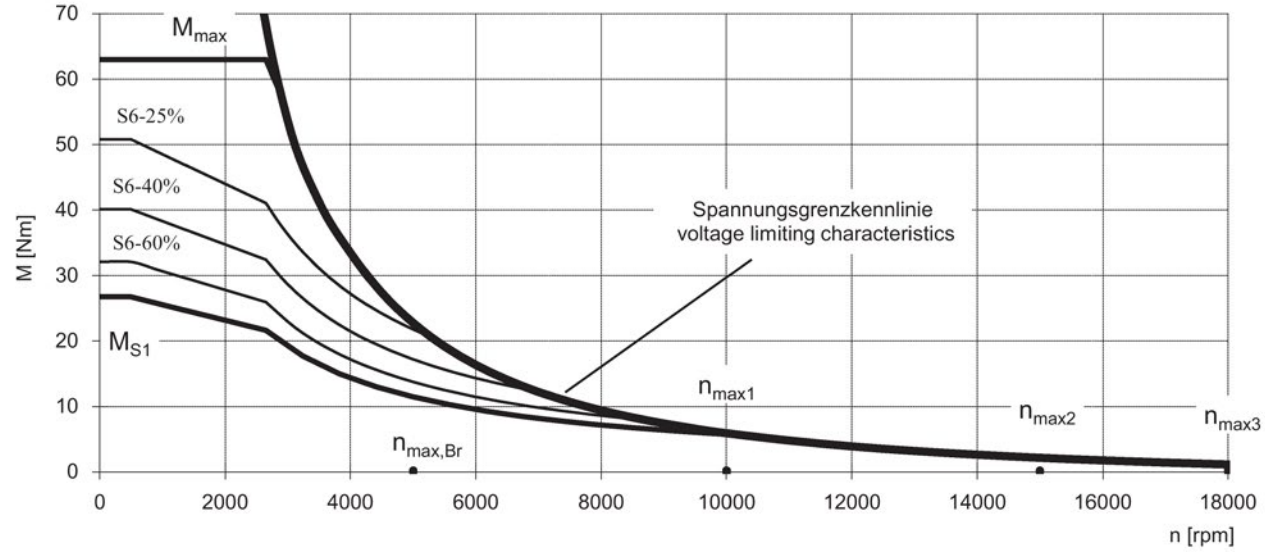
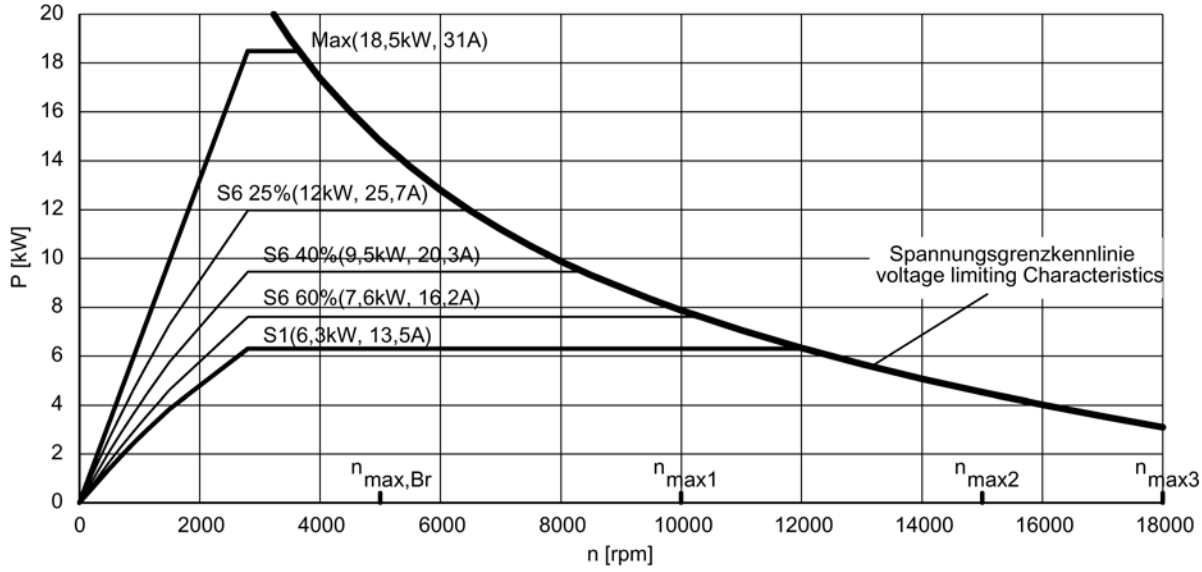


Table 6- 47 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8087-□□G□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	6.3	21	13.5	10,000	15,000	18,000	5,000	12,000	63	31	27	15



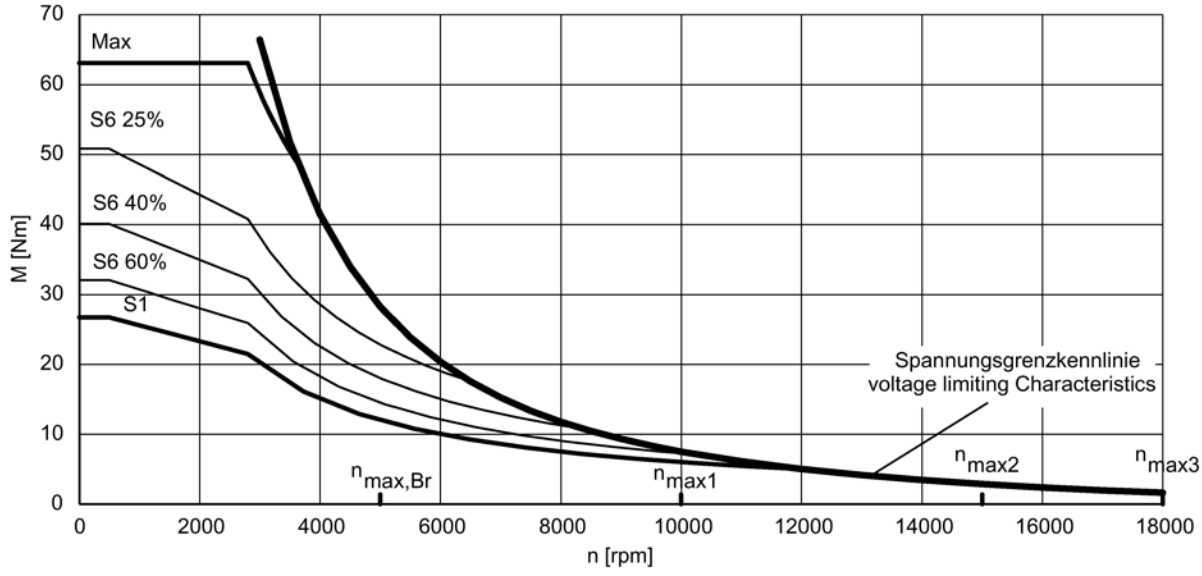
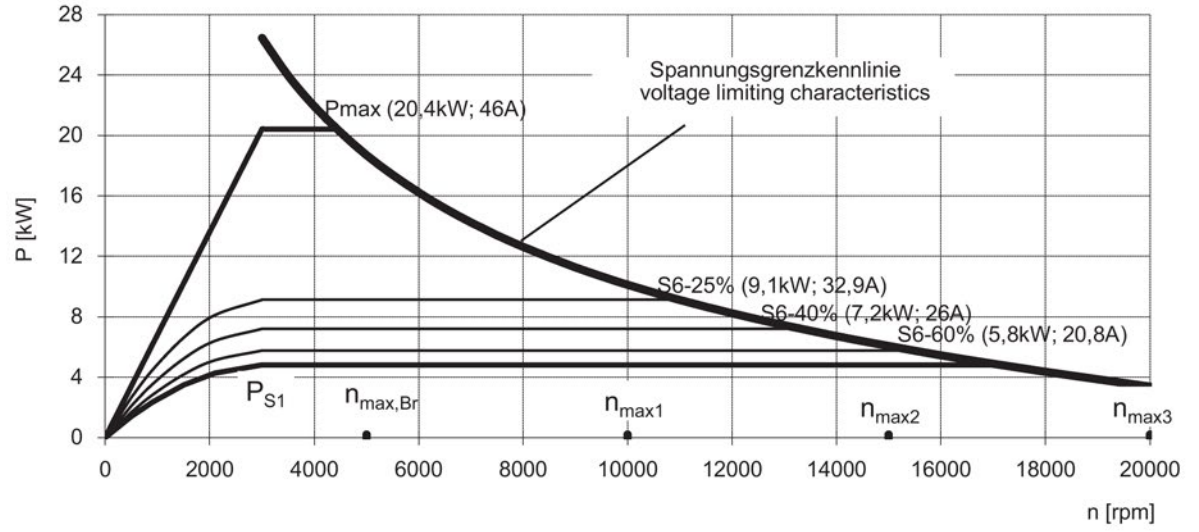


Table 6- 48 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□M□□,

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]
3,000	4.8	15	17.3	10,000	15,000	20,000	5,000	17,200	65	46	27	23



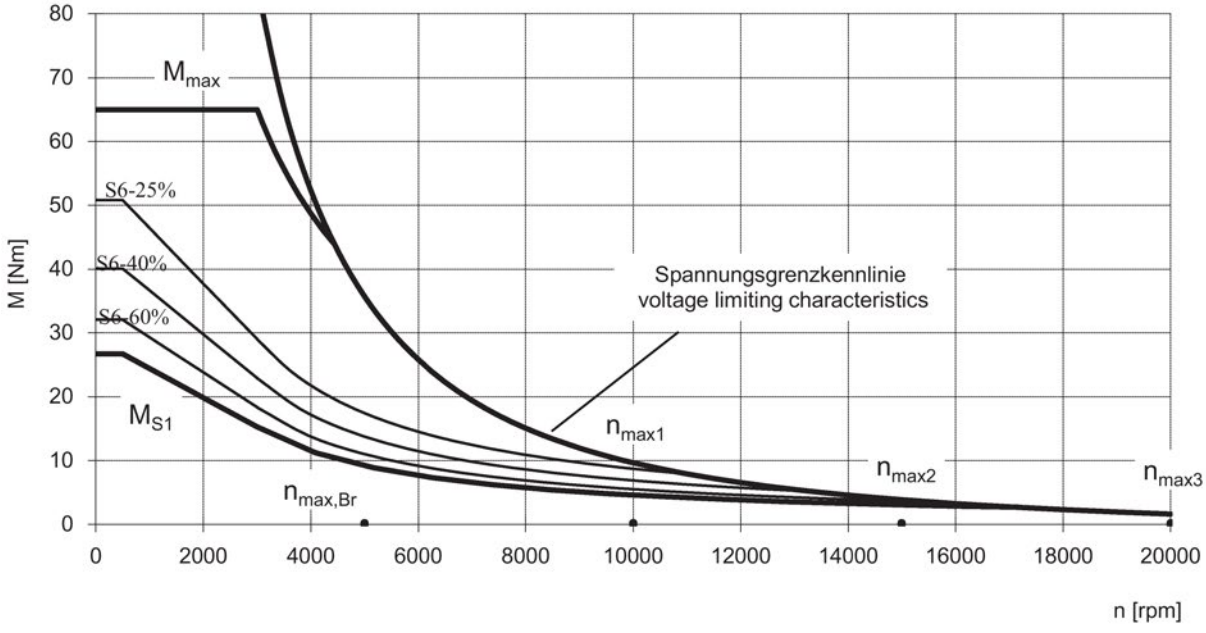
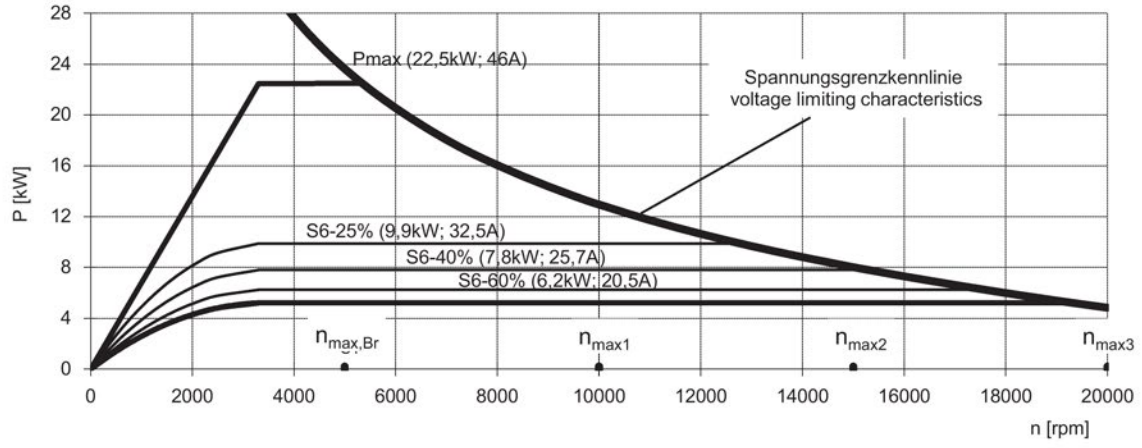


Table 6- 49 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□M□□,

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]
3,300	5.2	15	17.1	10,000	15,000	20,000	5,000	19,400	65	46	27	23
3,000	4.8	15	17.3					20,000				



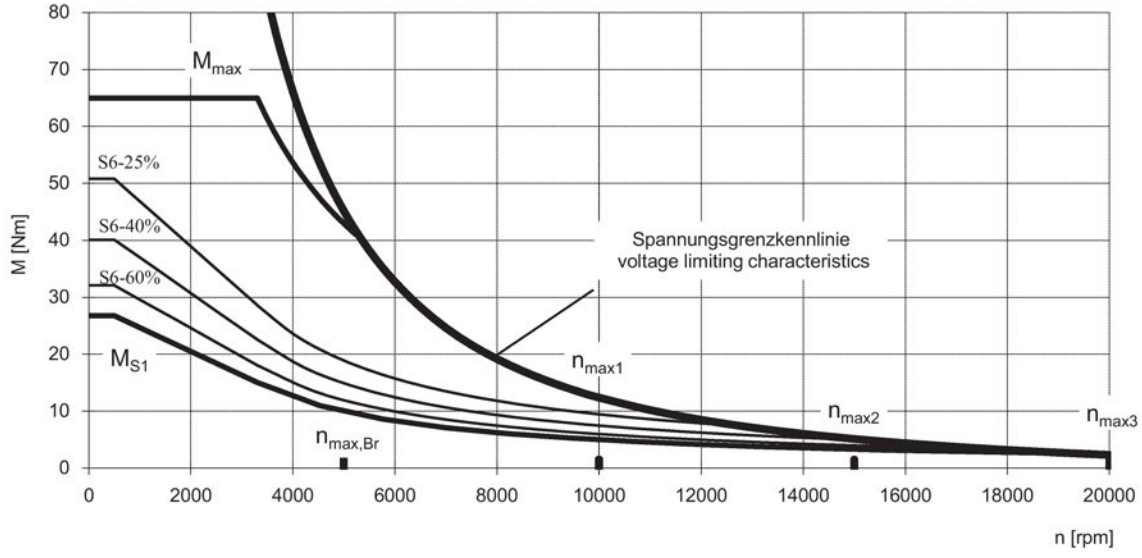


Table 6- 50 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□M□□,

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]
3,600	5.7	15	17.1	10,000	15,000	20,000	5,000	20,000	65	46	27	23

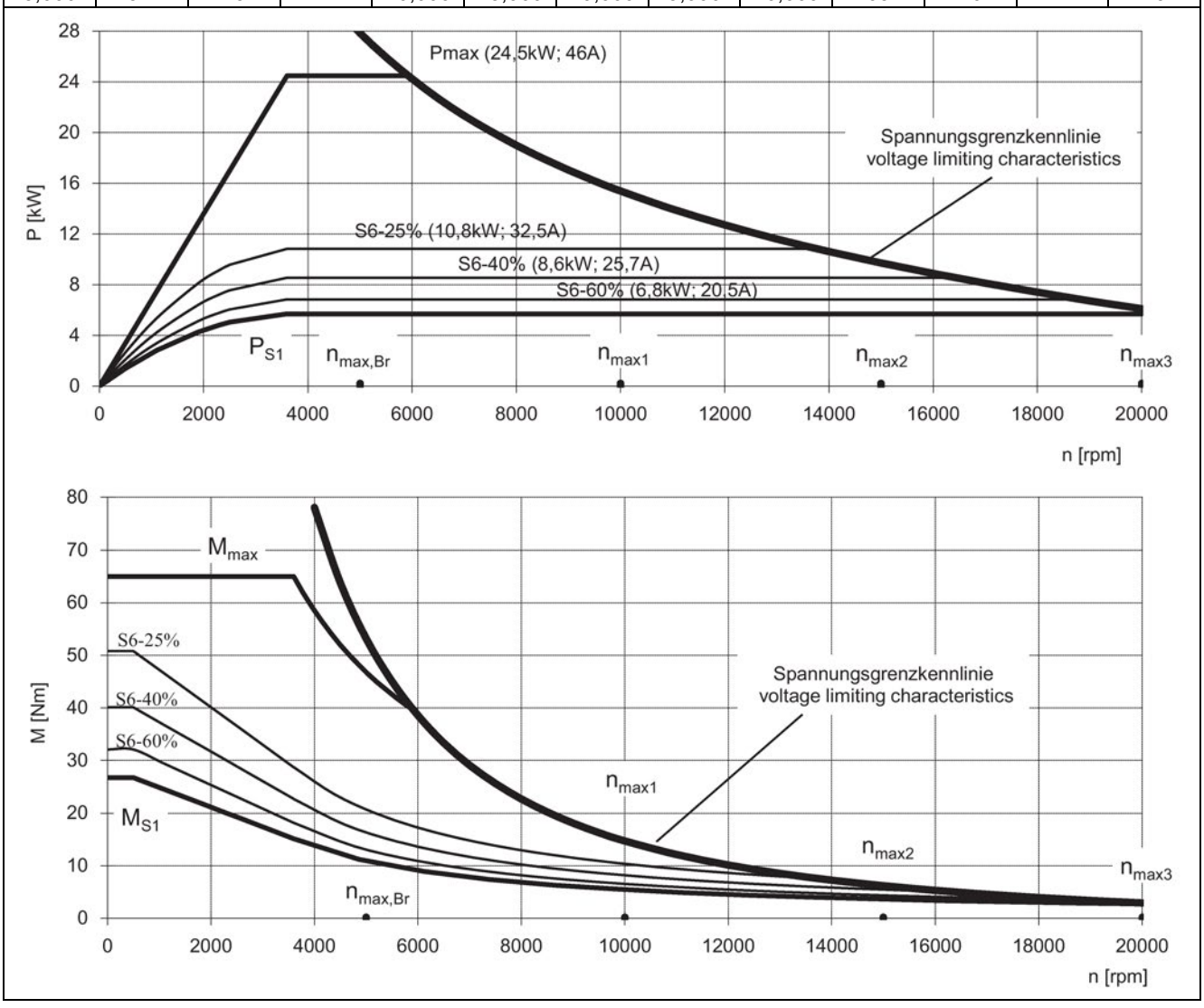
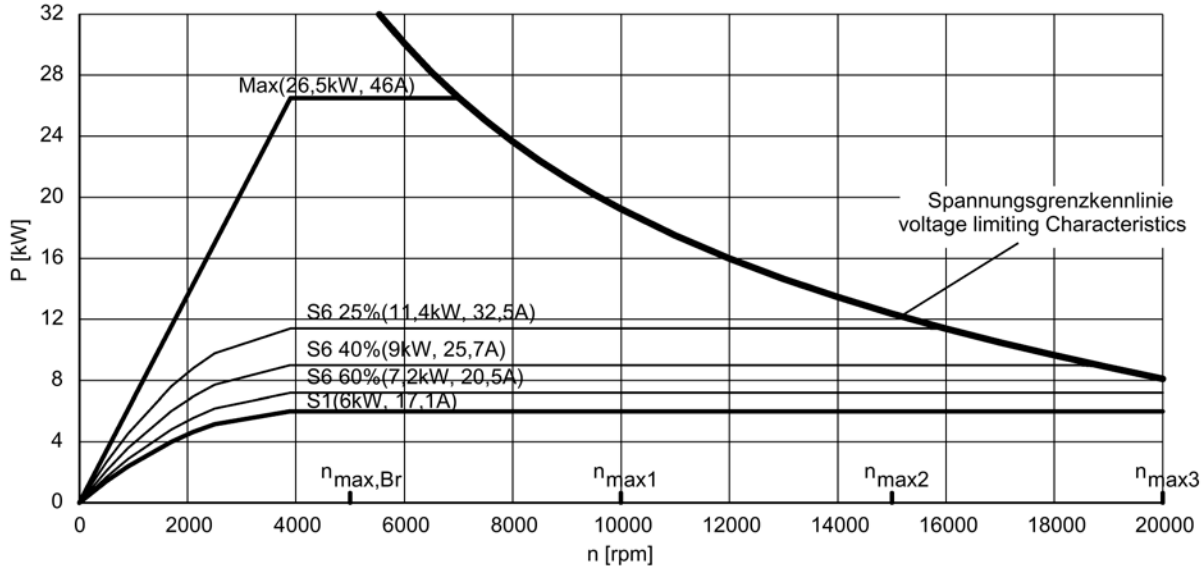


Table 6- 51 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8087-□□M□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	6	15	17.1	10,000	15,000	20,000	5,000	20,000	65	46	27	23



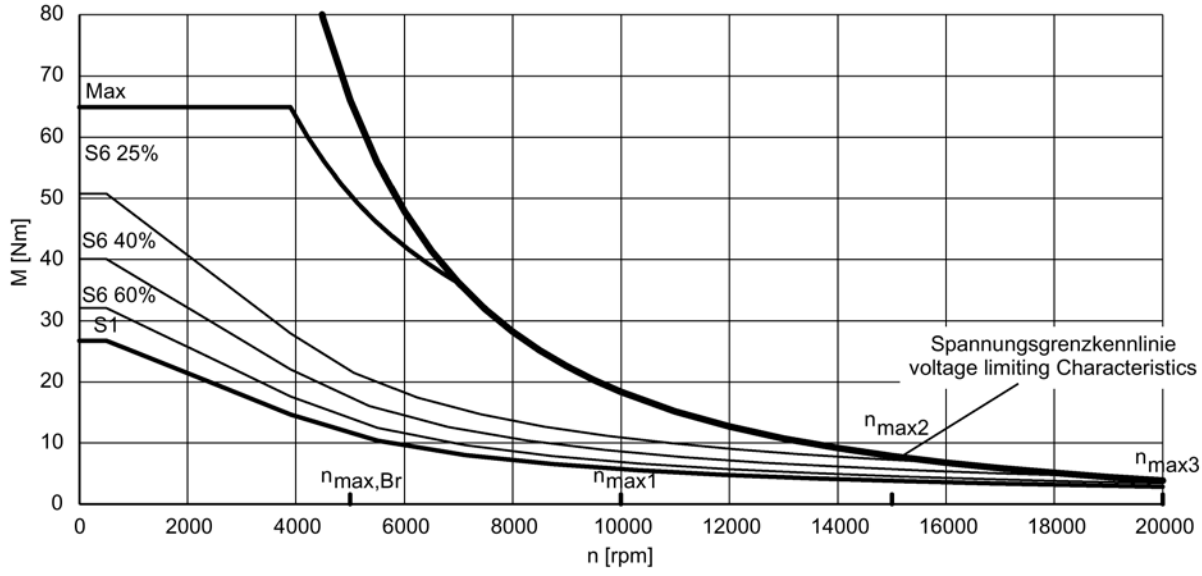
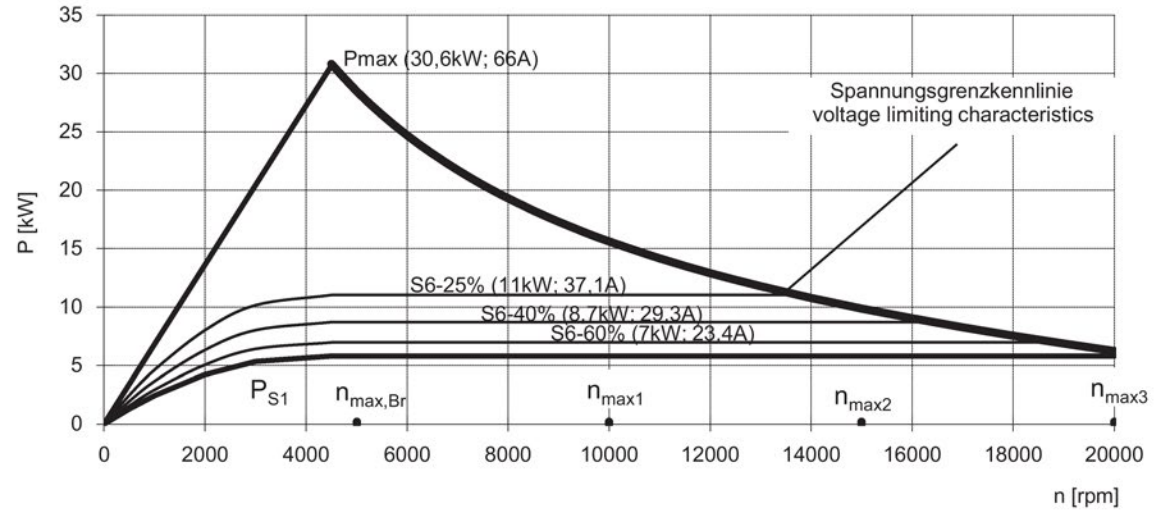


Table 6- 52 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N□□,

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]
4,500	5.8	12	19.5	10,000	15,000	20,000	5,000	20,000	65	66	25	28



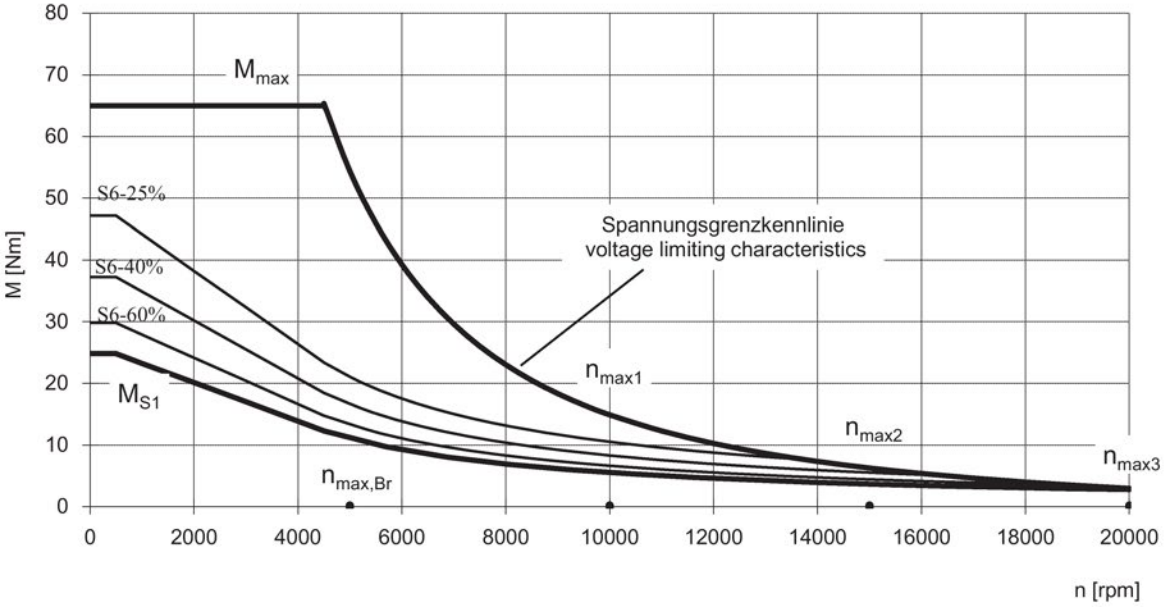
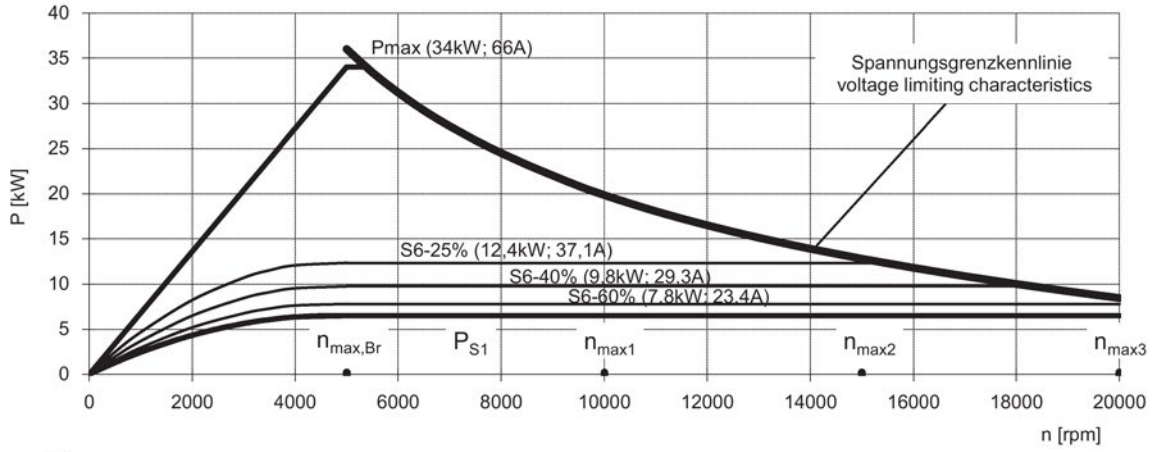


Table 6- 53 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□N□□,

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]
5,000	6.5	12	19.5	10,000	15,000	20,000	5,000	20,000	65	66	25	28
4,500	5.8	12	19.5					20,000				



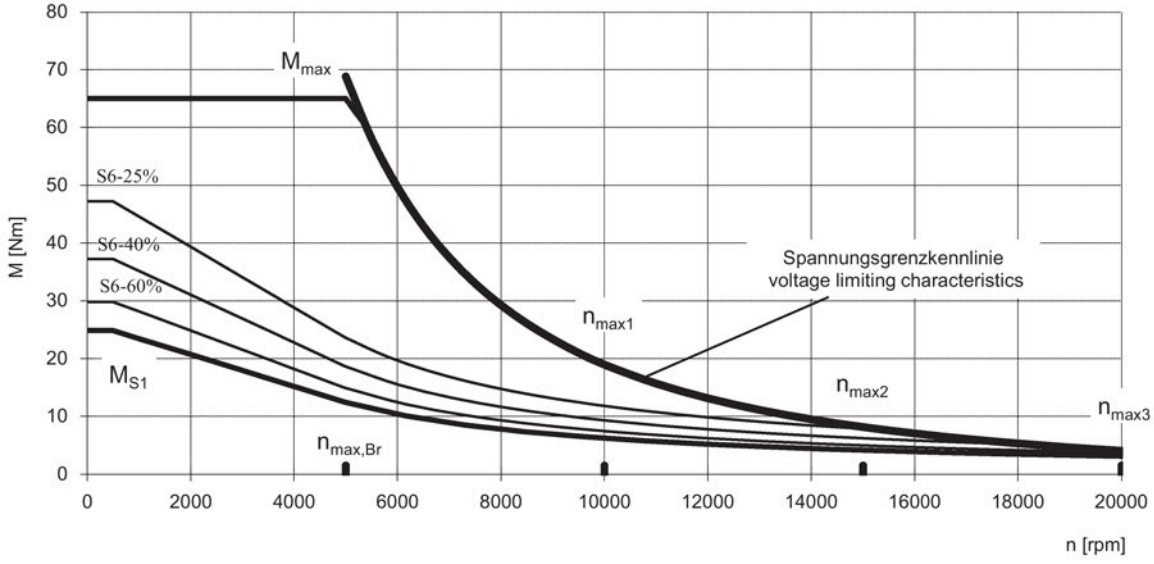


Table 6- 54 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N□□,

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]
5,500	6.9	12	19	10,000	15,000	20,000	5,000	20,000	65	66	25	28

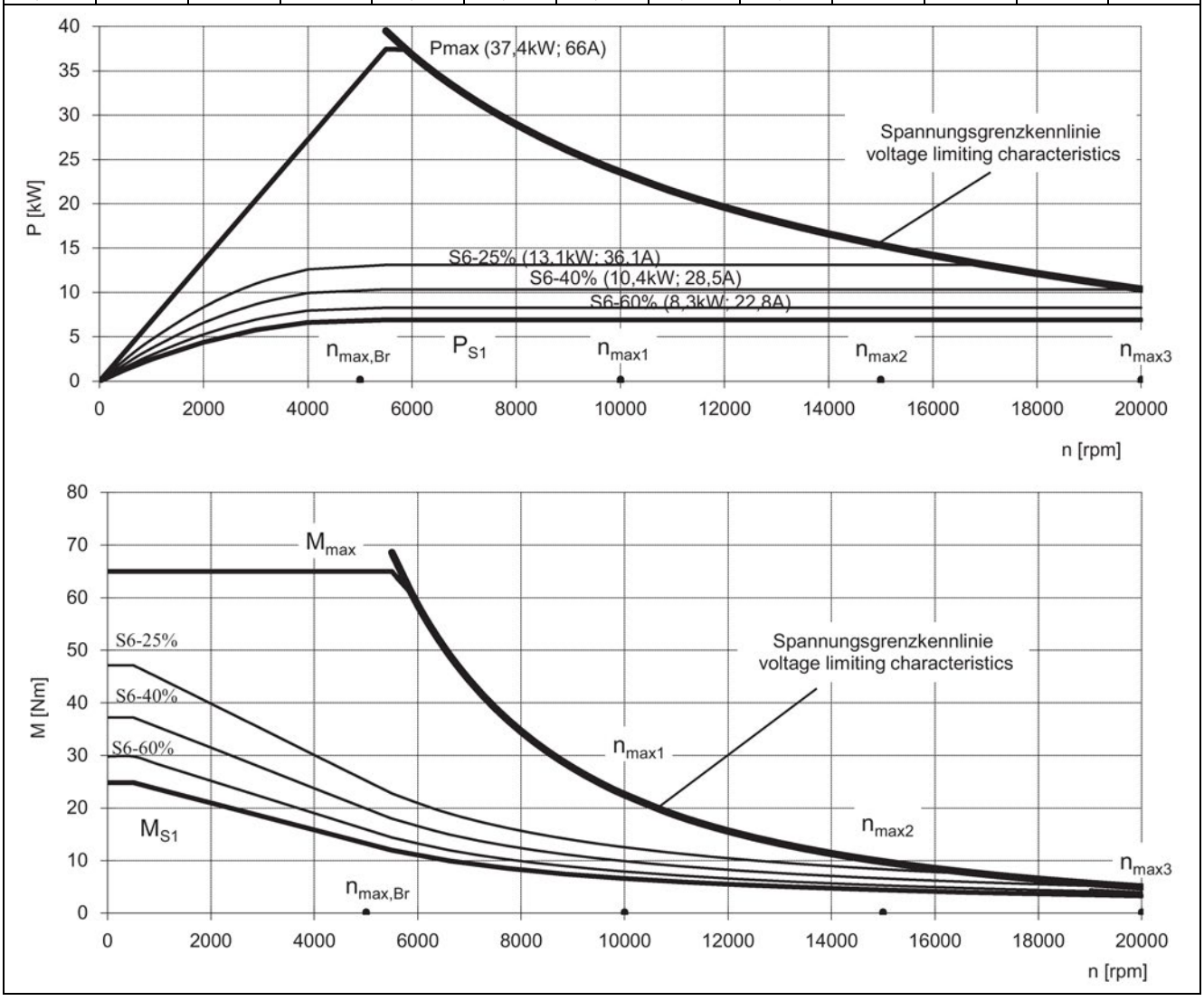
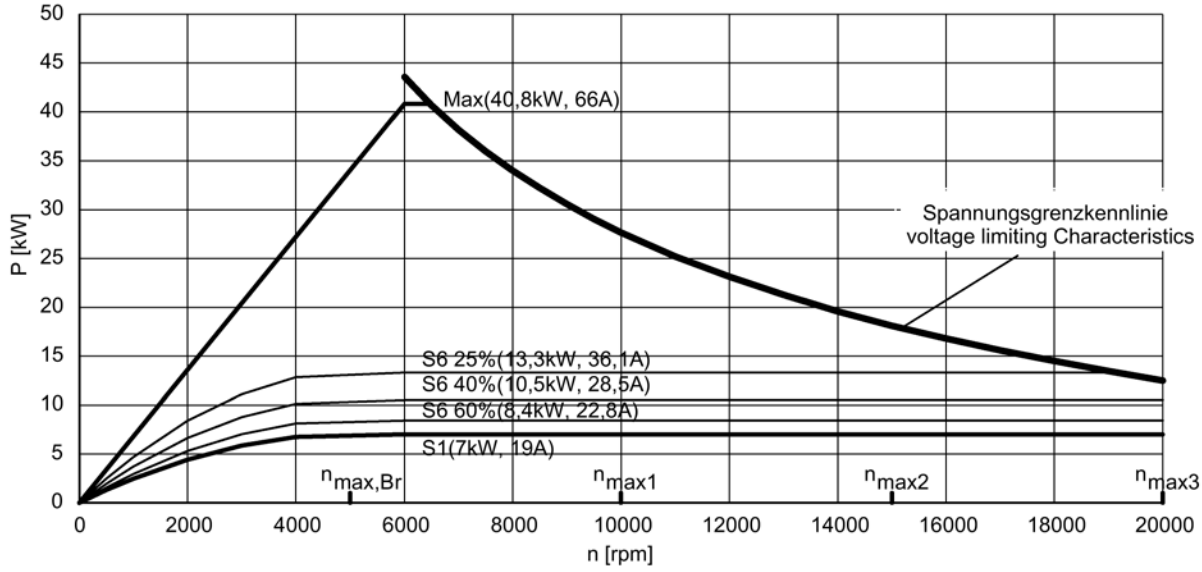
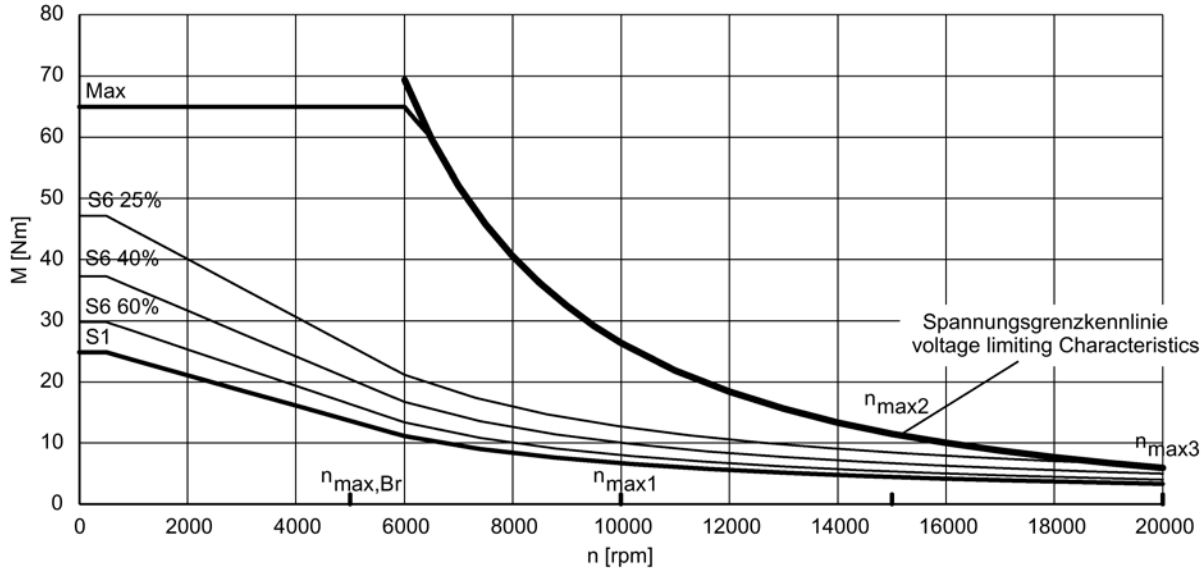


Table 6- 55 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8087-□□N□□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6,000	7	11	19	10,000	15,000	20,000	5,000	20,000	65	66	25	28





6.1.2.2 Shaft height 80 - forced ventilation - Premium Performance

Note on symbols in the characteristic curves

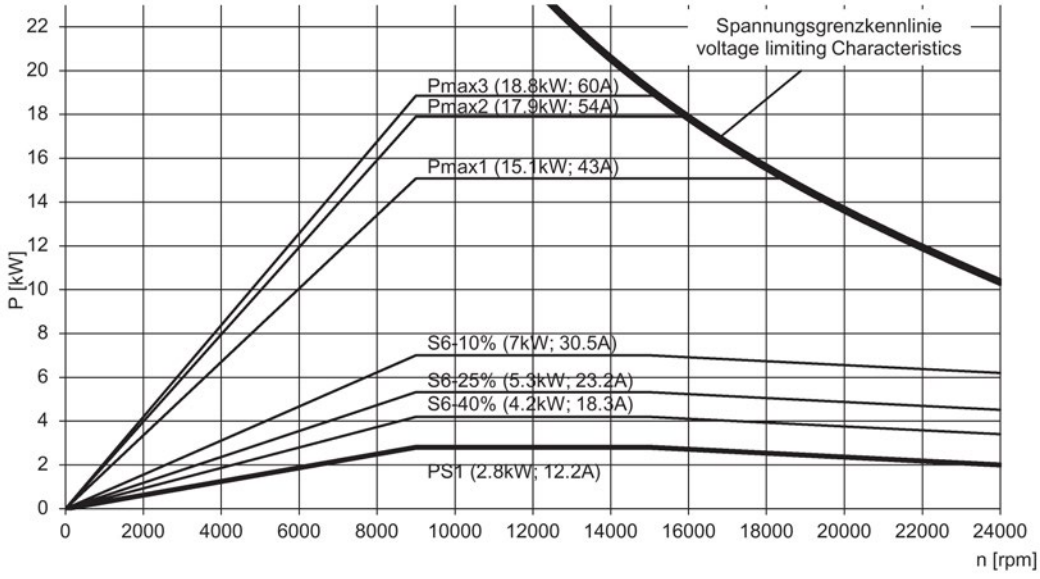
Note

Symbols of the characteristic curves for 1PH808 Premium Performance

You will find the explanation of the symbols for these motors in Chapter "Configuration for 1PH808 Premium Performance (Page 223)."

Table 6- 56 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	2.8	3	12.2	15,000	24,000	43	54	60	16	19	20	4



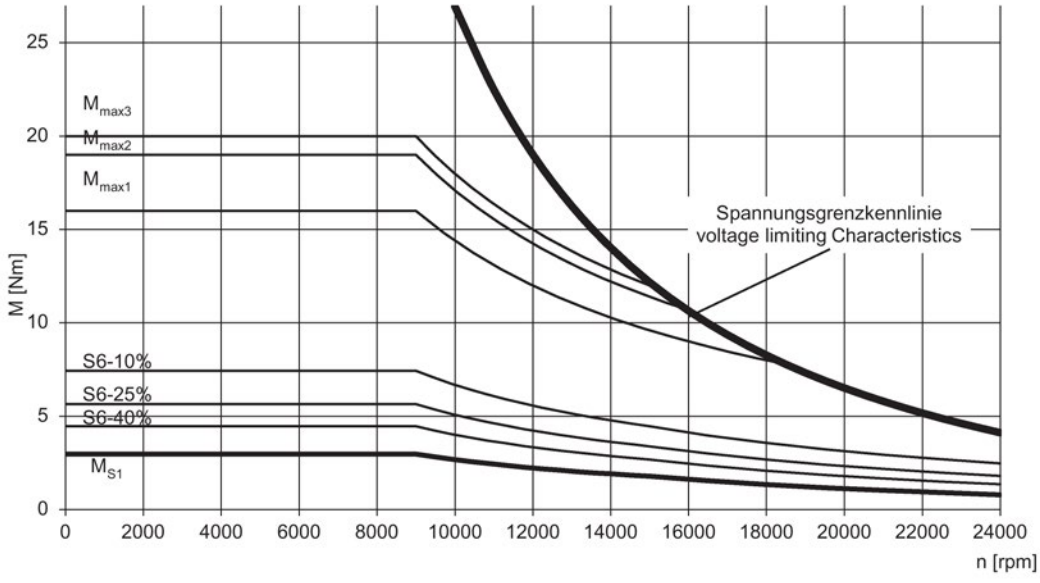
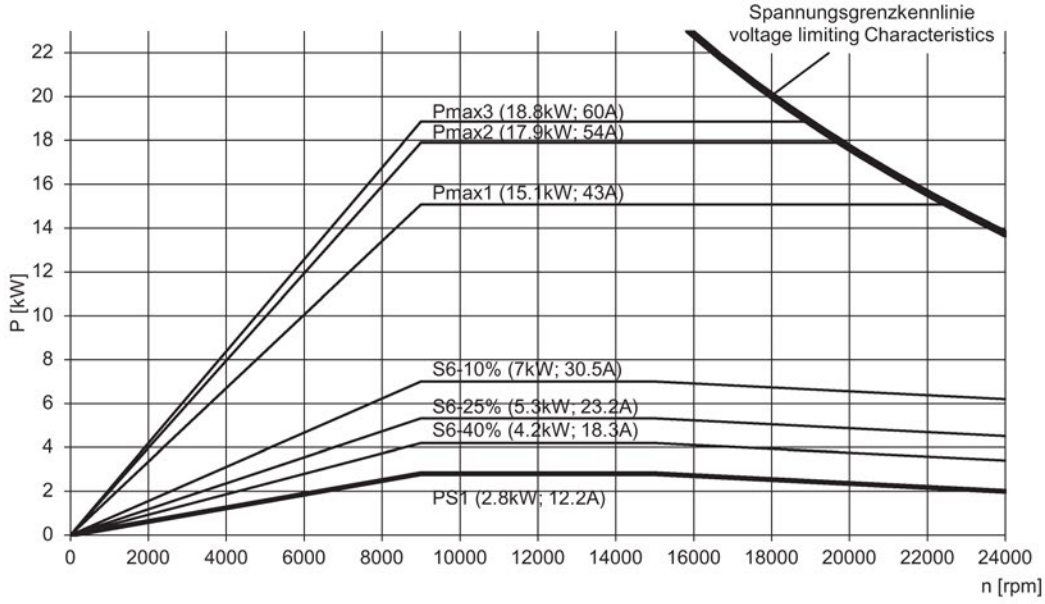


Table 6- 57 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	2.8	3	12.2	15,000	24,000	43	54	60	16	19	20	4



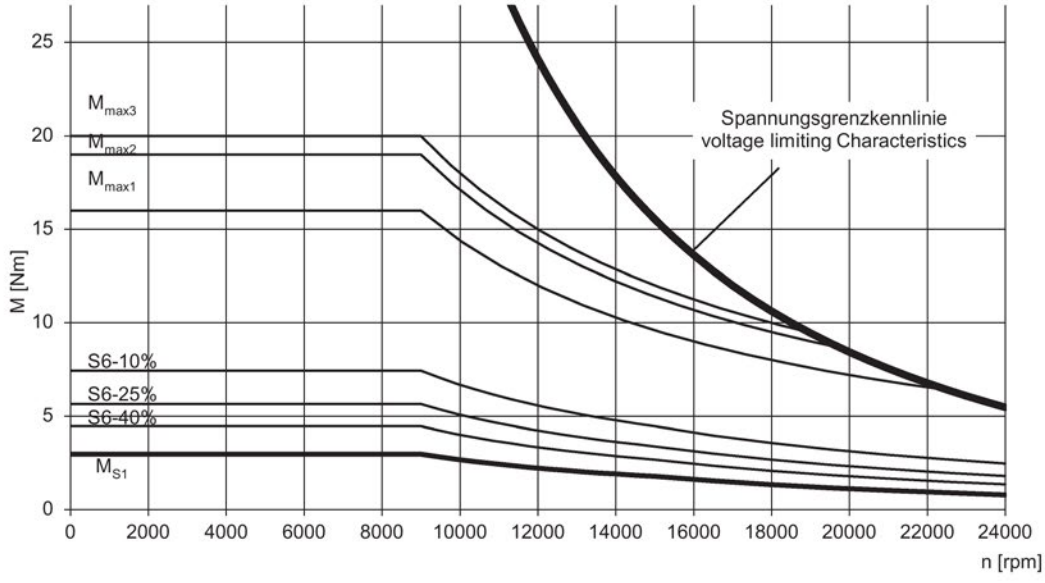
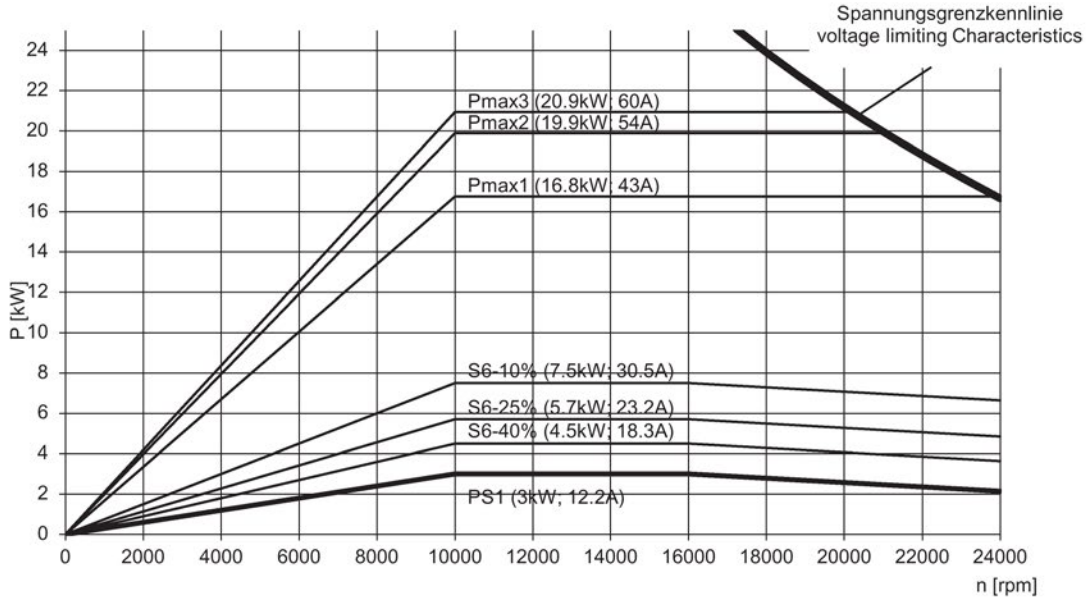


Table 6- 58 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3	2.9	12.2	16,000	24,000	43	54	60	16	19	20	4



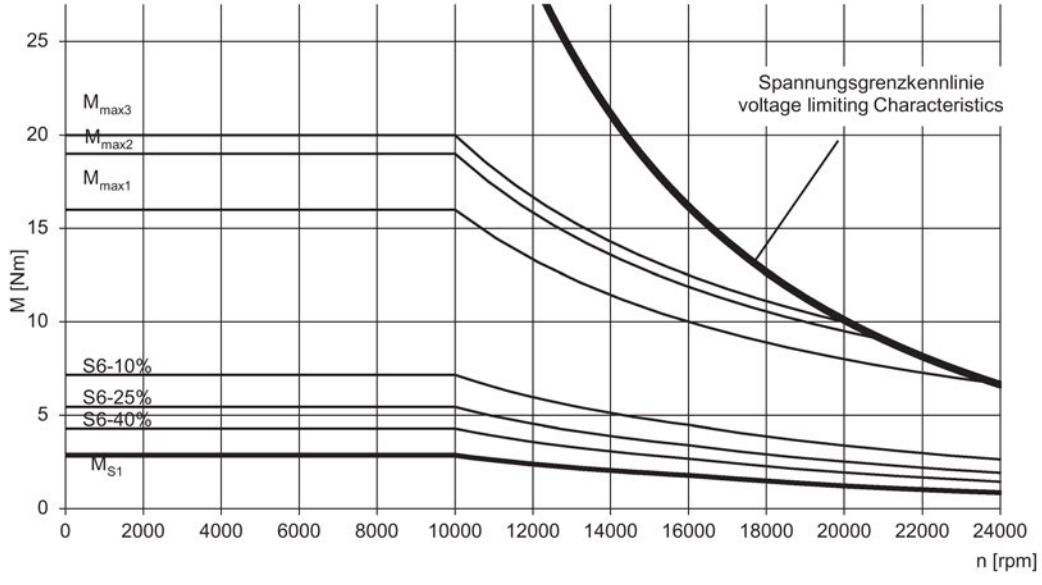
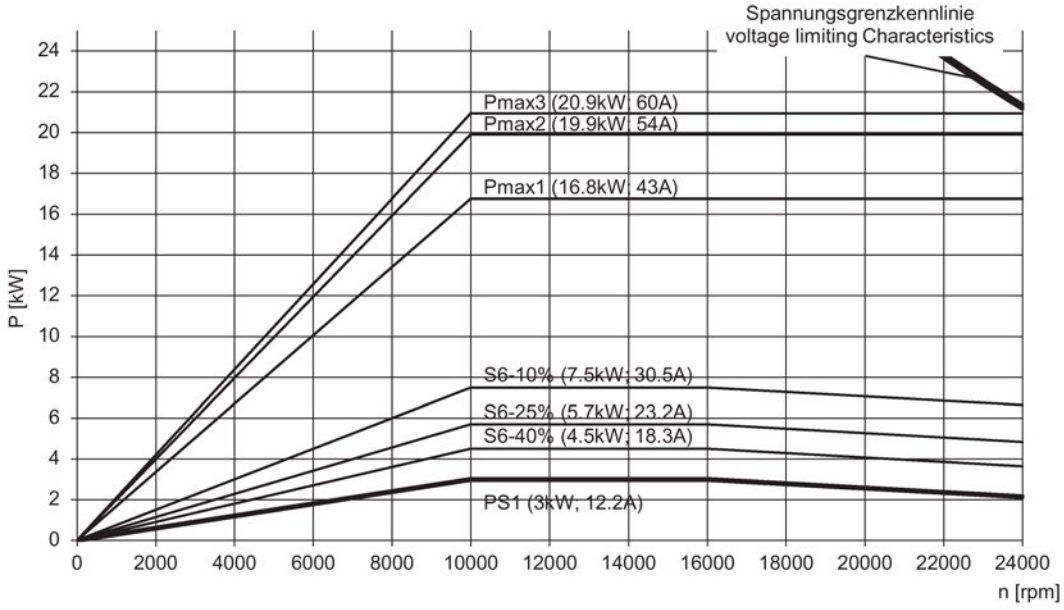


Table 6- 59 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3	2.9	12.2	16,000	24,000	43	54	60	16	19	20	4



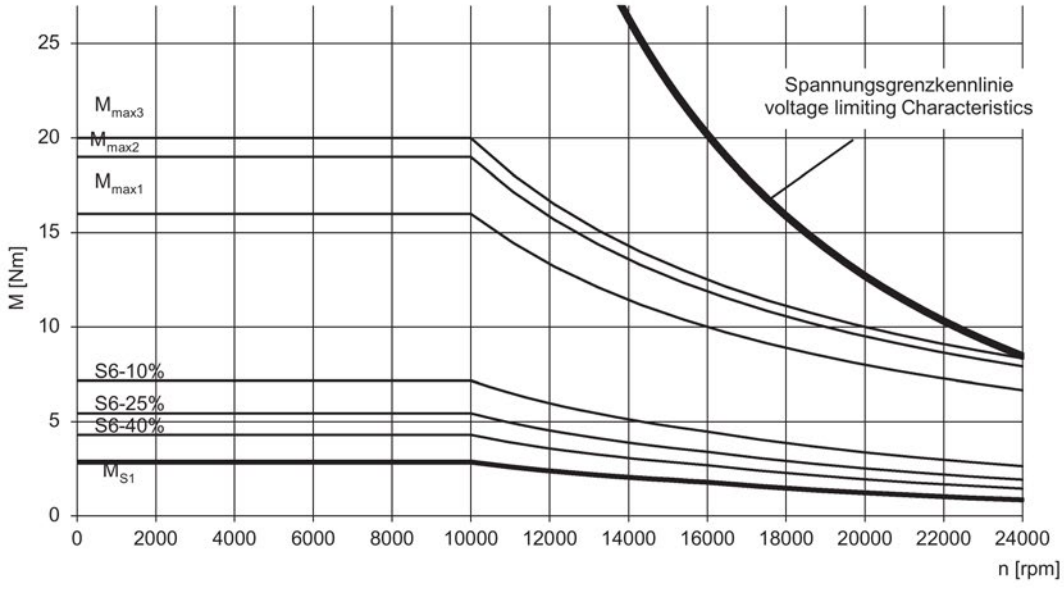
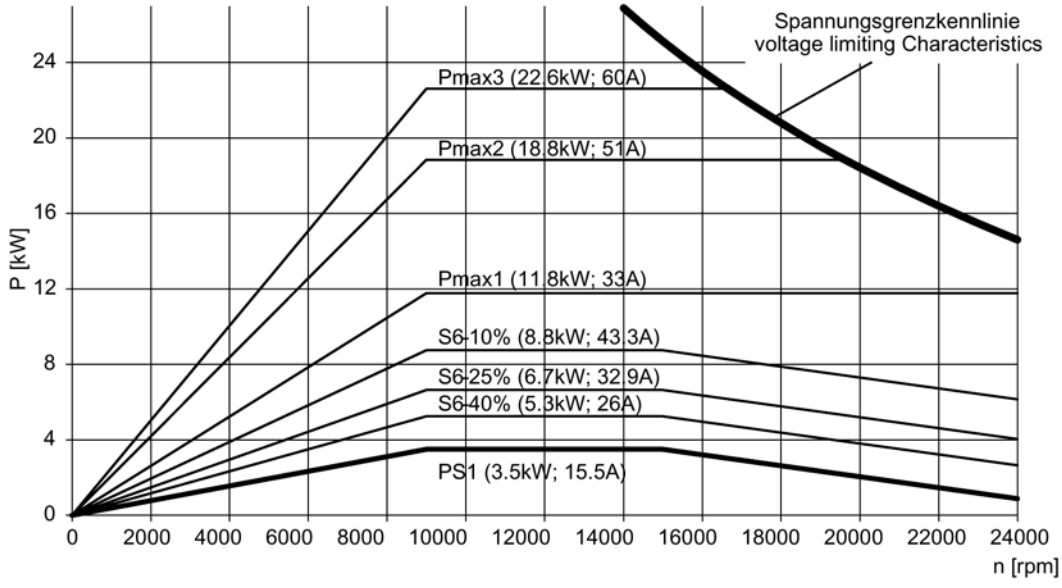


Table 6- 60 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	3.5	3.7	15.5	15,000	24,000	33	51	60	13	20	24	8



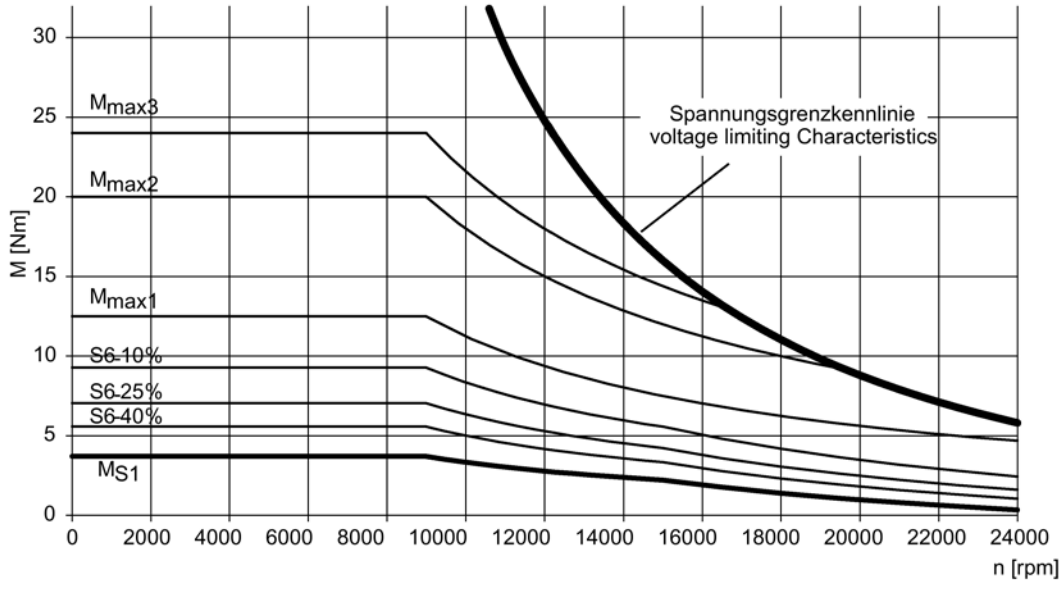
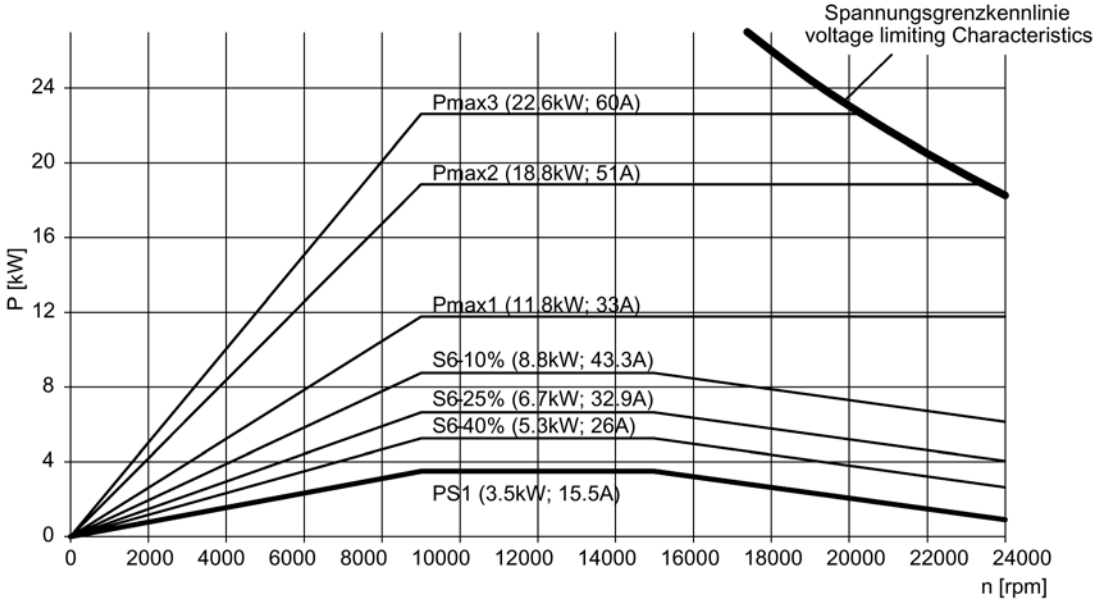


Table 6- 61 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	3.5	3.7	15.5	15,000	24,000	33	51	60	13	20	24	8



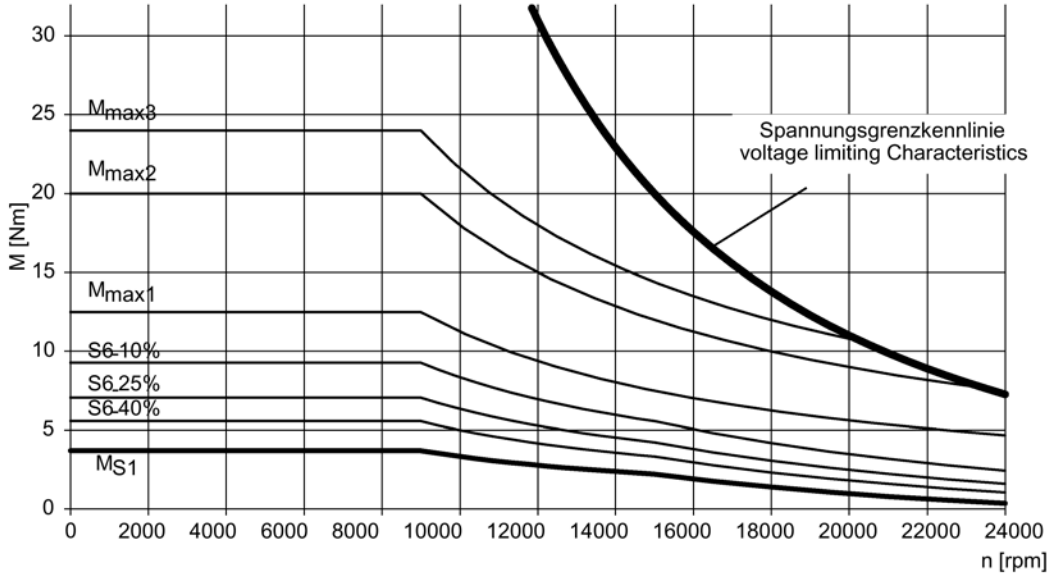
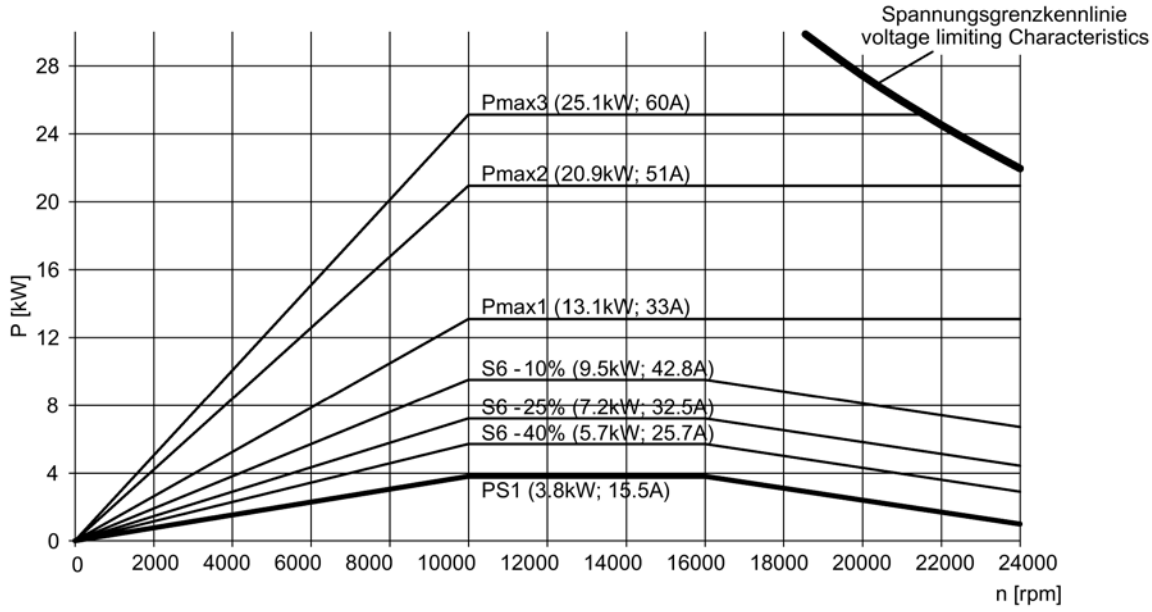


Table 6- 62 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3.8	3.6	15.5	16,000	24,000	33	51	60	13	20	24	8



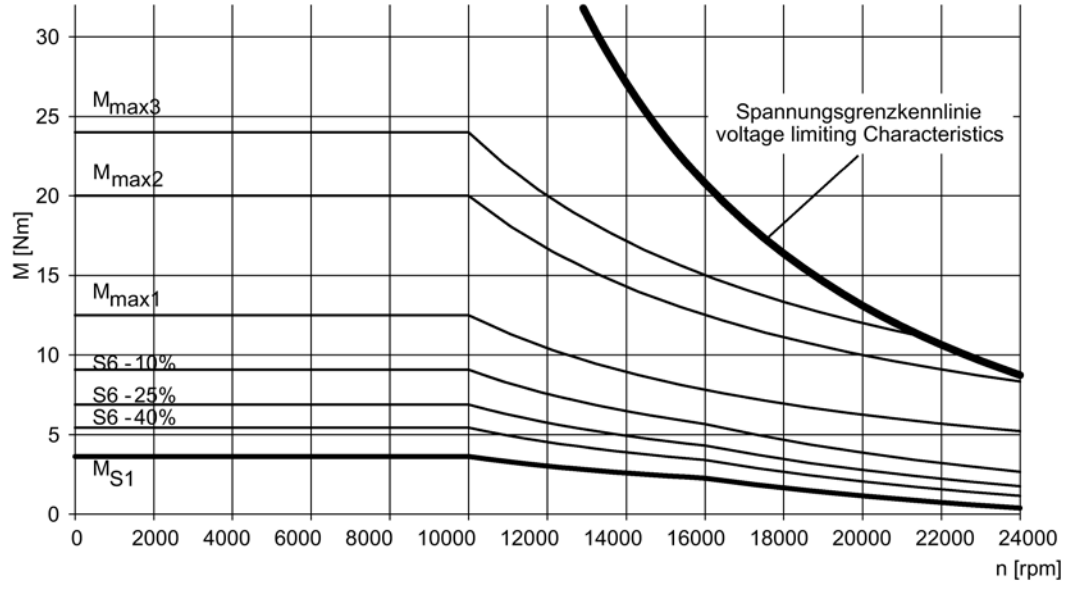
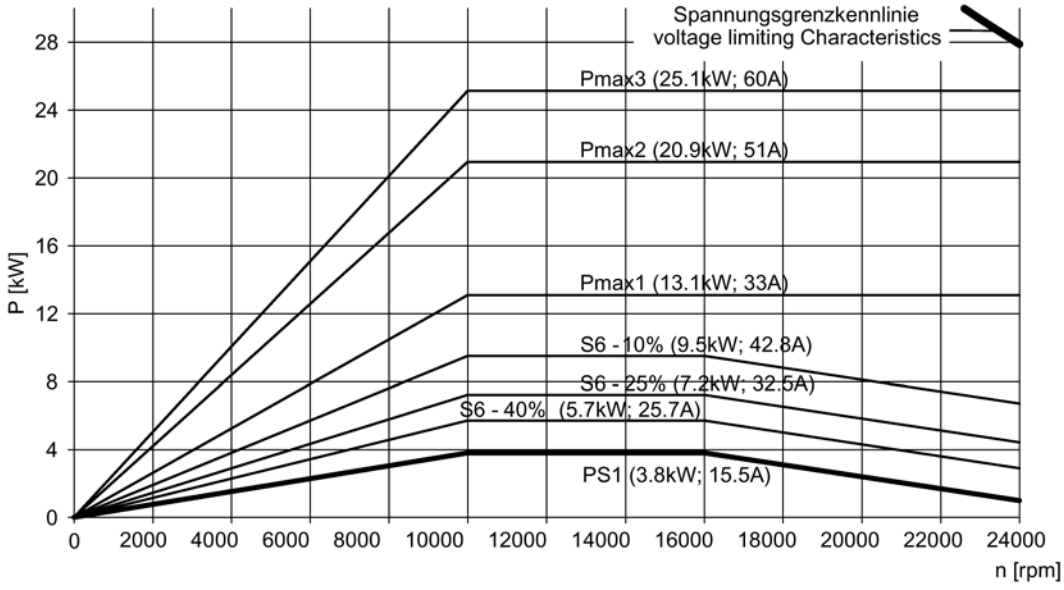


Table 6- 63 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3.8	3.6	15.5	16,000	24,000	33	51	60	13	20	24	8



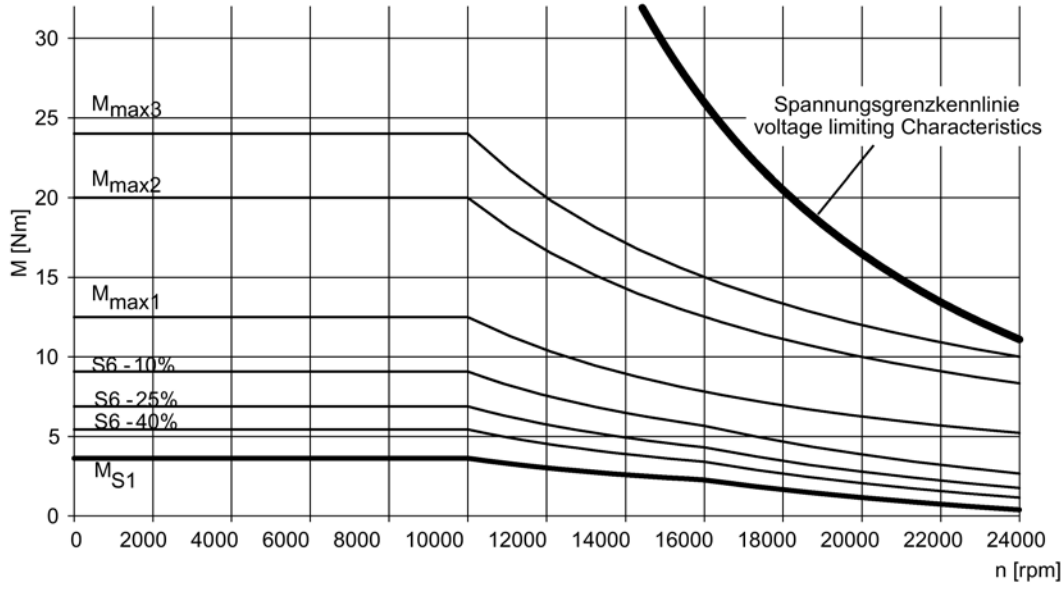
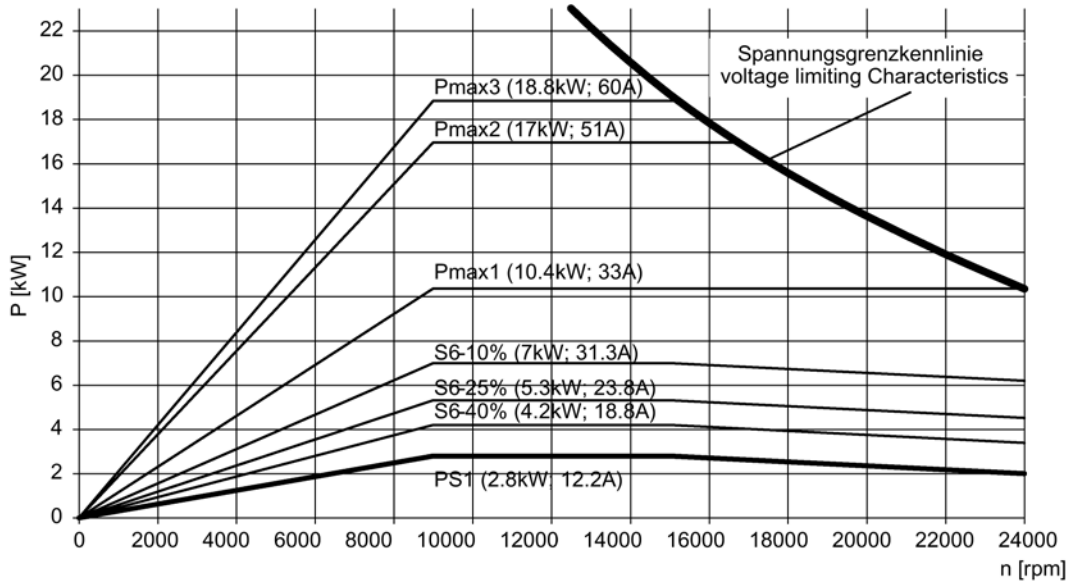


Table 6- 64 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	2.8	3	12.2	15,000	24,000	33	51	60	11	18	20	8



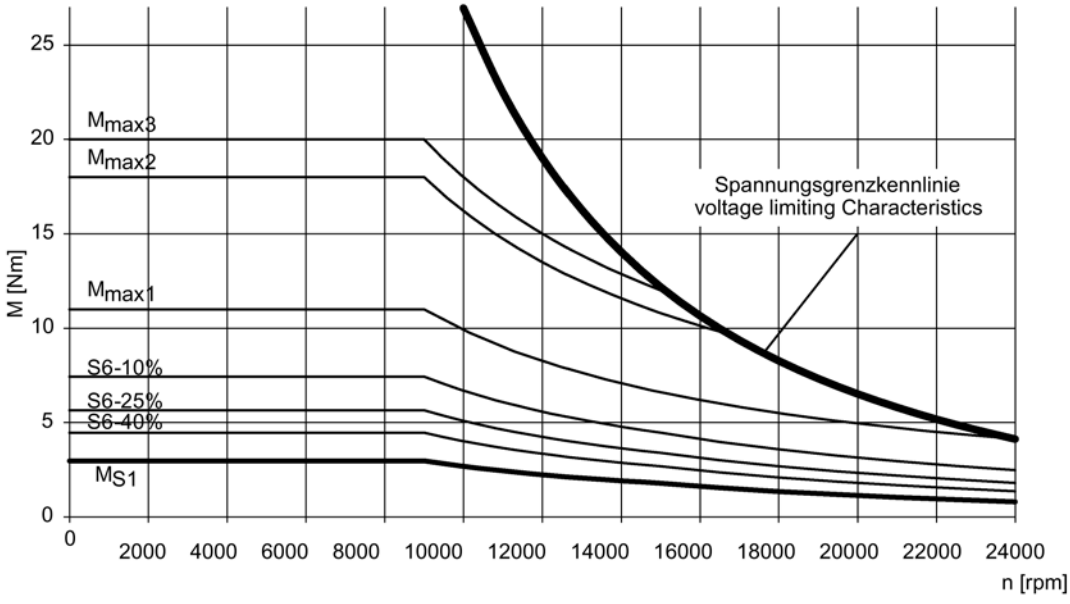
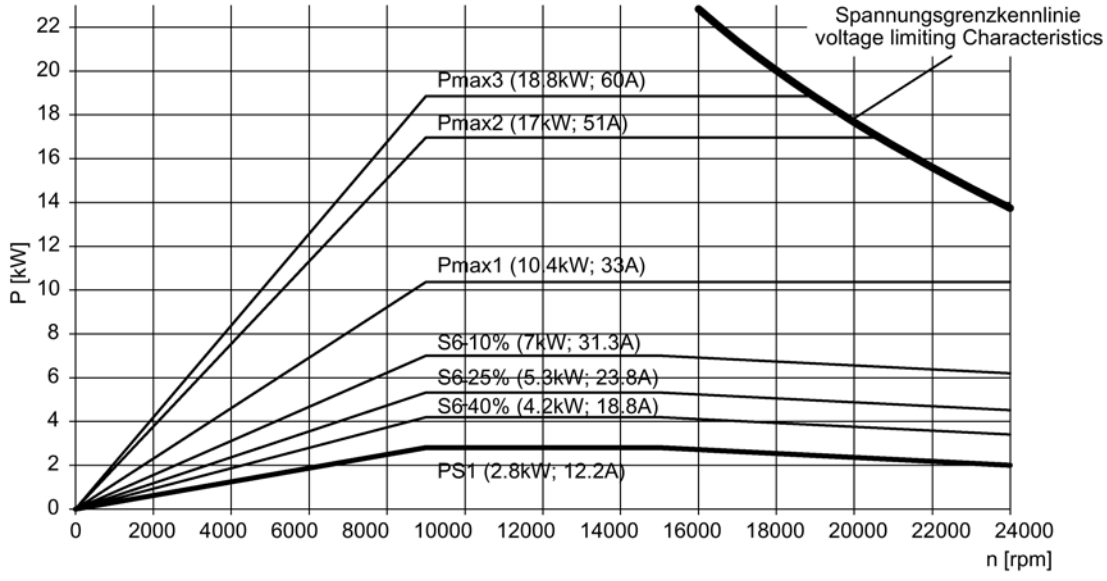


Table 6- 65 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	2.8	3	12.2	15,000	24,000	33	51	60	11	18	20	8



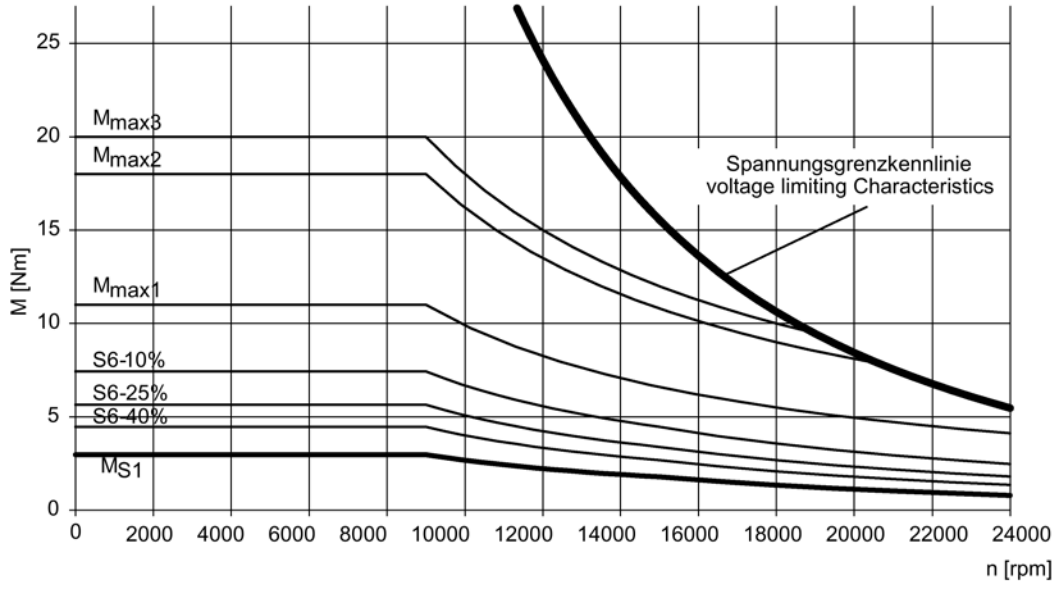
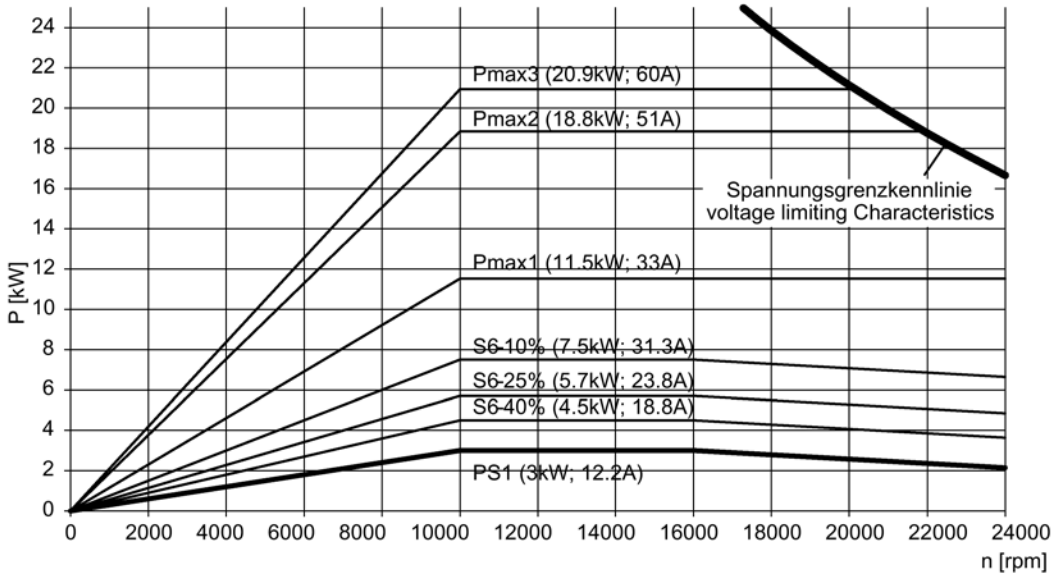


Table 6- 66 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3.0	2.9	12.2	16,000	24,000	33	51	60	11	18	20	8



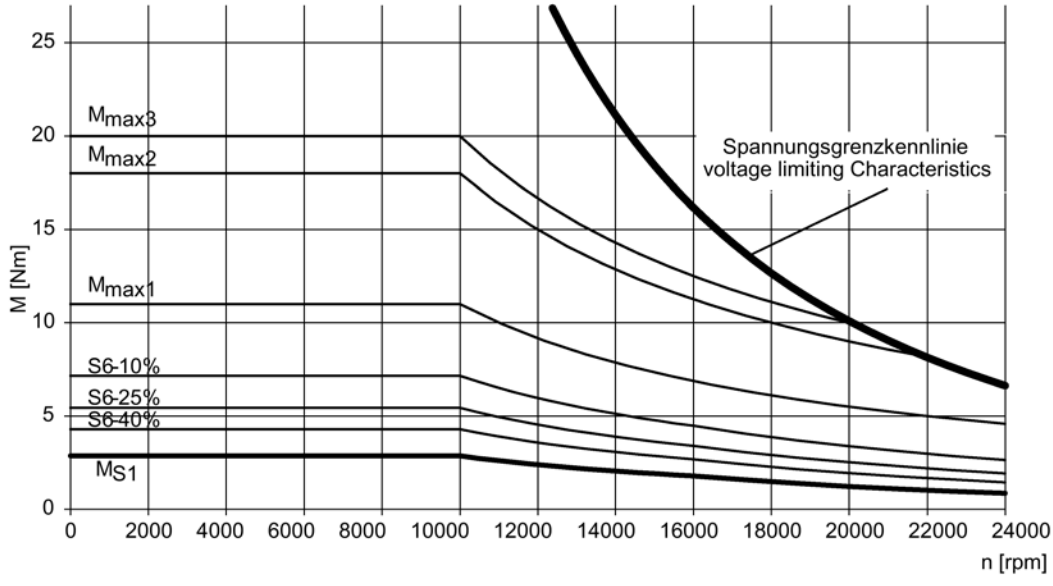
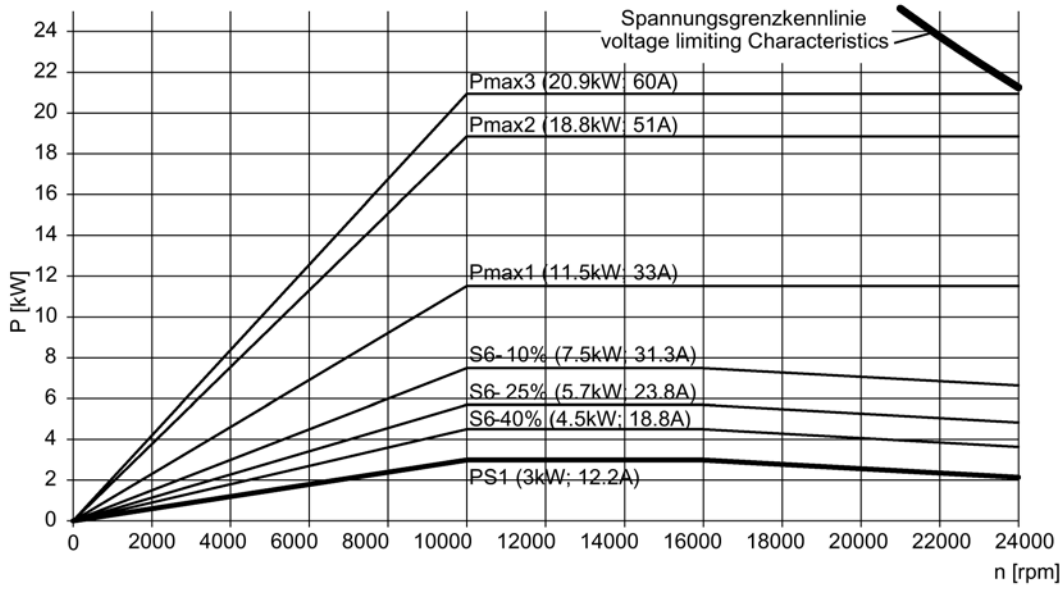


Table 6- 67 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	3.0	2.9	12.2	16,000	24,000	33	51	60	11	18	20	8



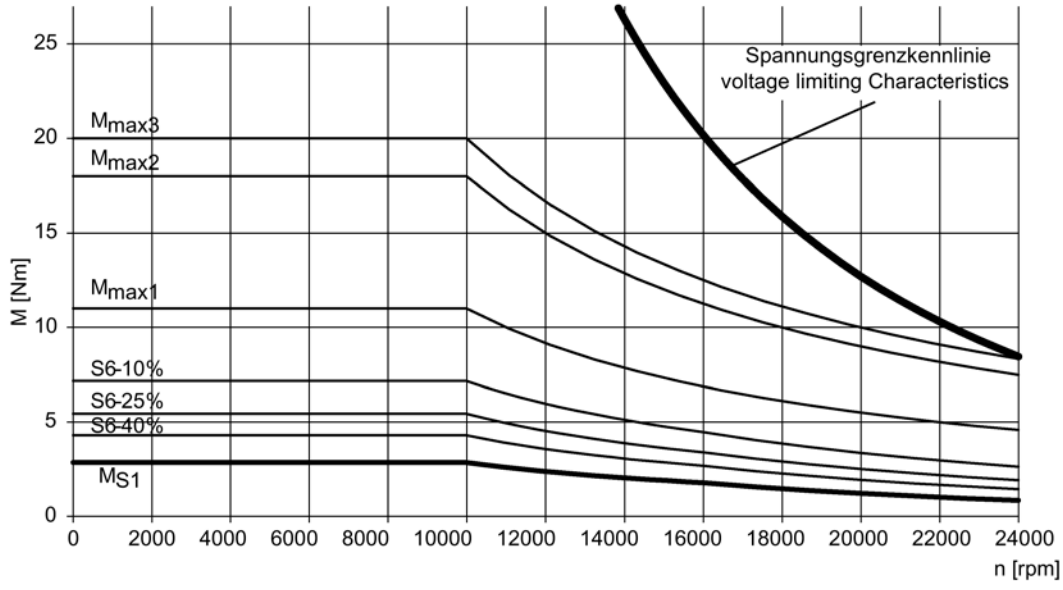
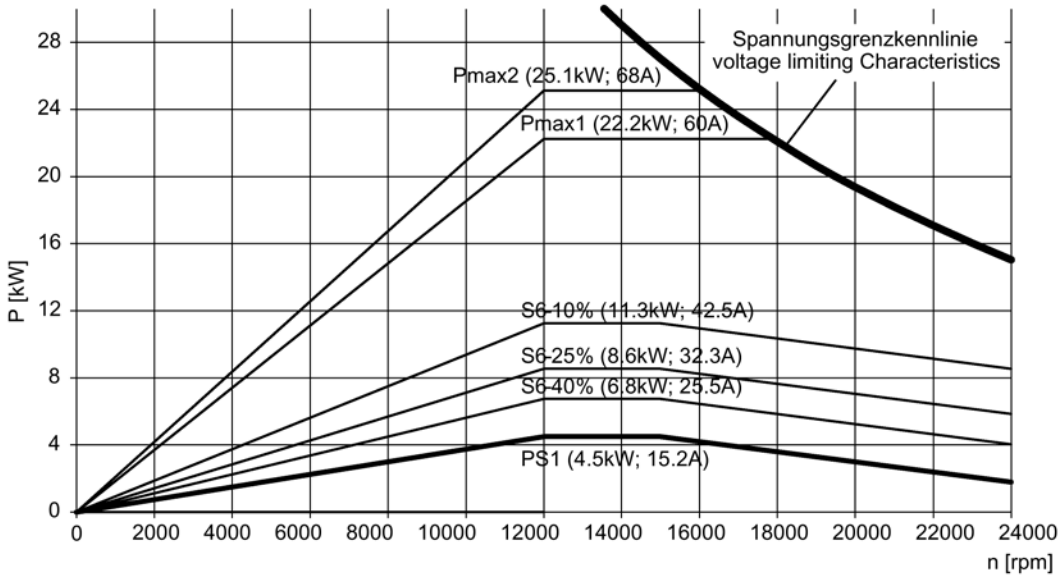


Table 6- 68 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	4.5	3.6	15.2	15,000	24,000	60	68	--	18	20	--	8



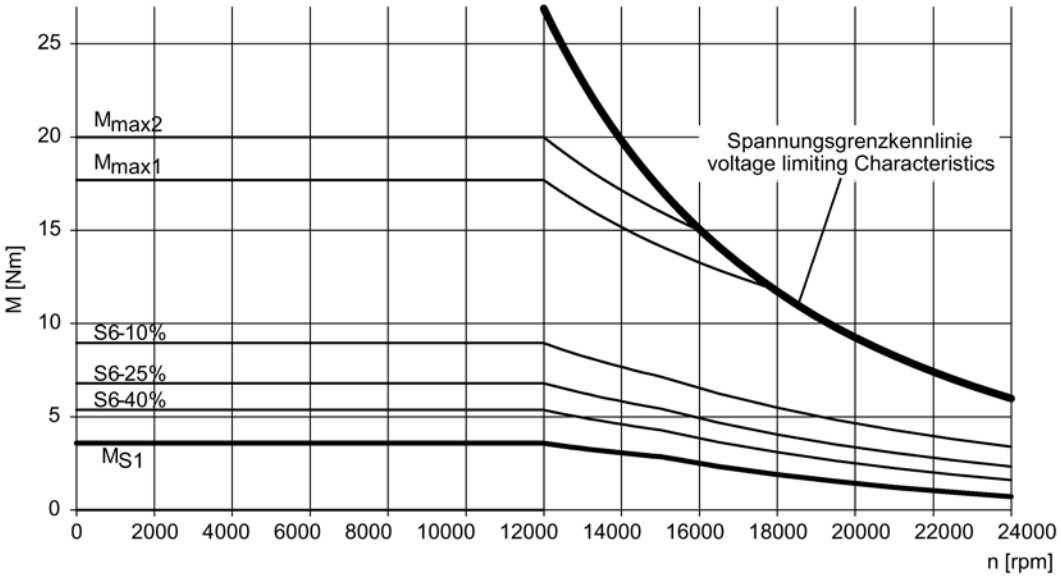
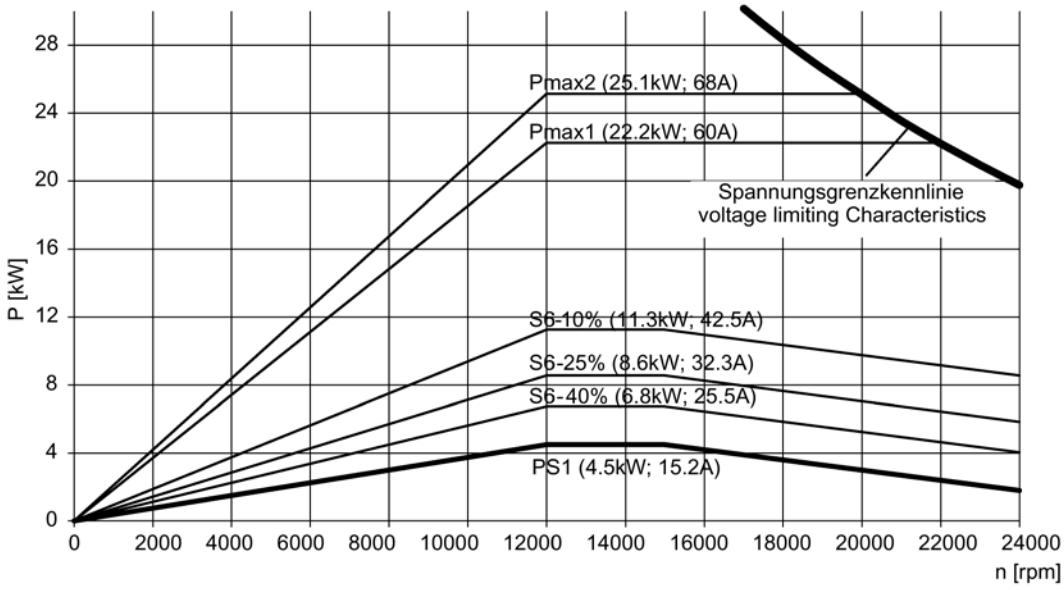


Table 6- 69 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	4.5	3.6	15.2	15,000	24,000	60	68	--	18	20	--	8



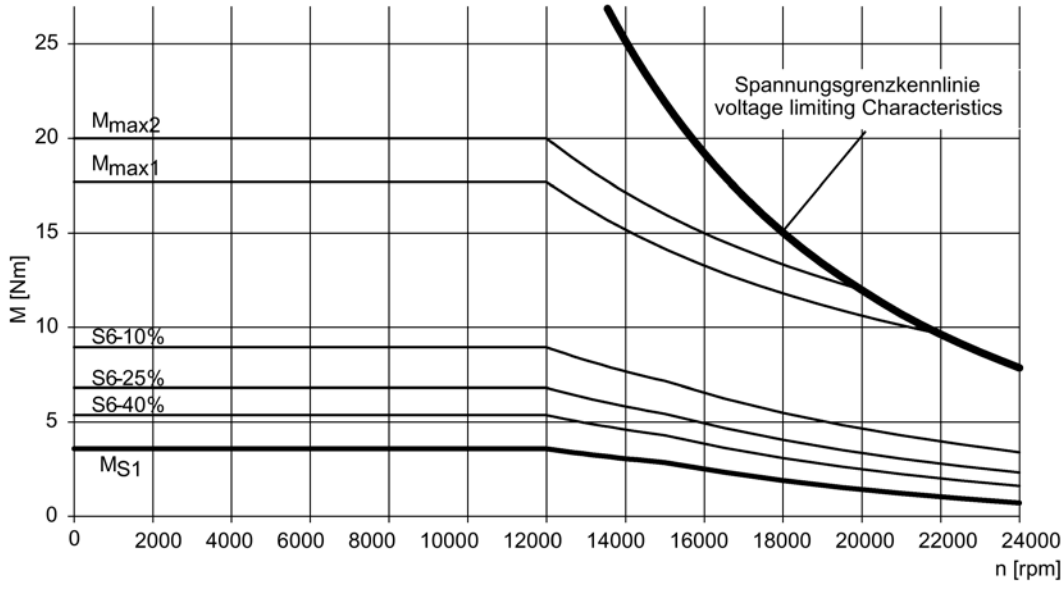
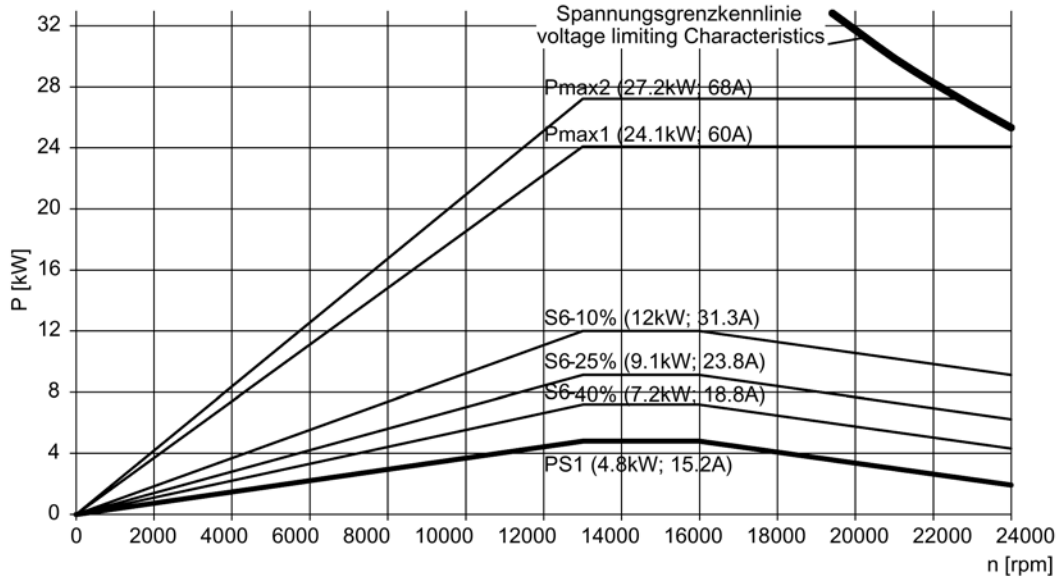


Table 6- 70 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	4.8	3.5	15.2	16,000	24,000	60	68	--	18	20	--	8



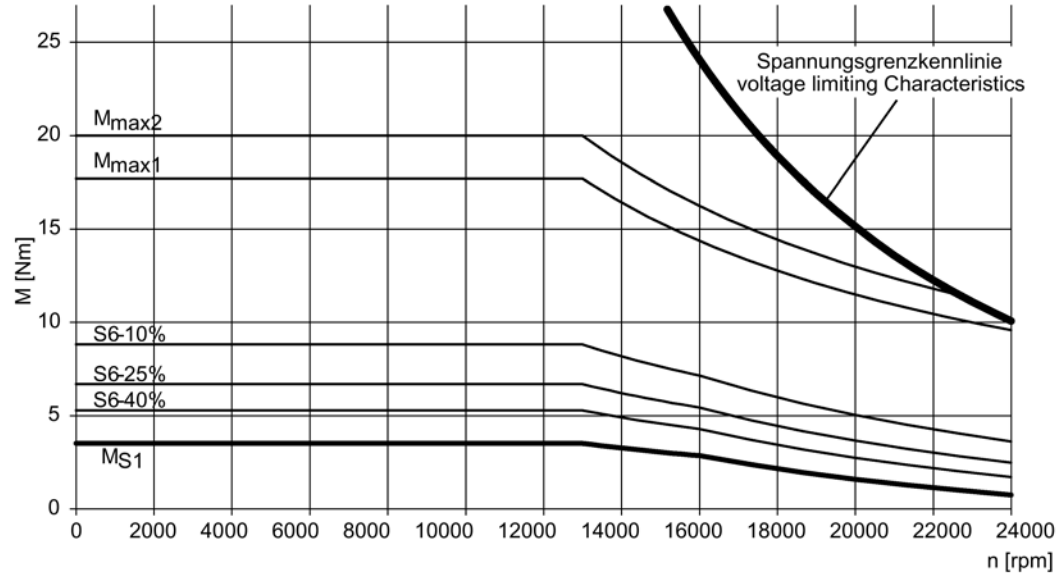
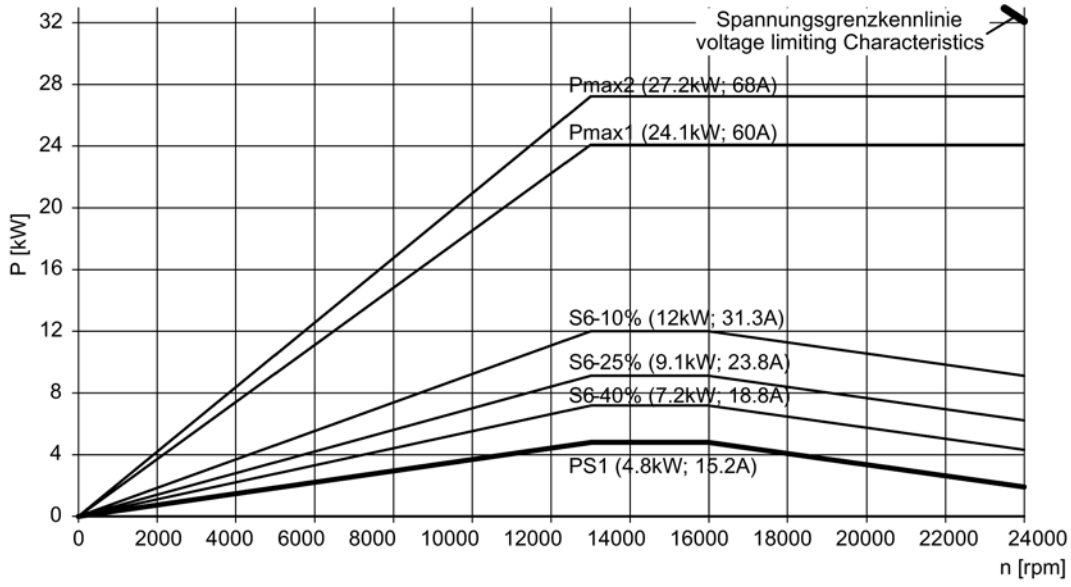


Table 6- 71 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	4.8	3.5	15.2	16,000	24,000	60	68	--	18	20	--	8



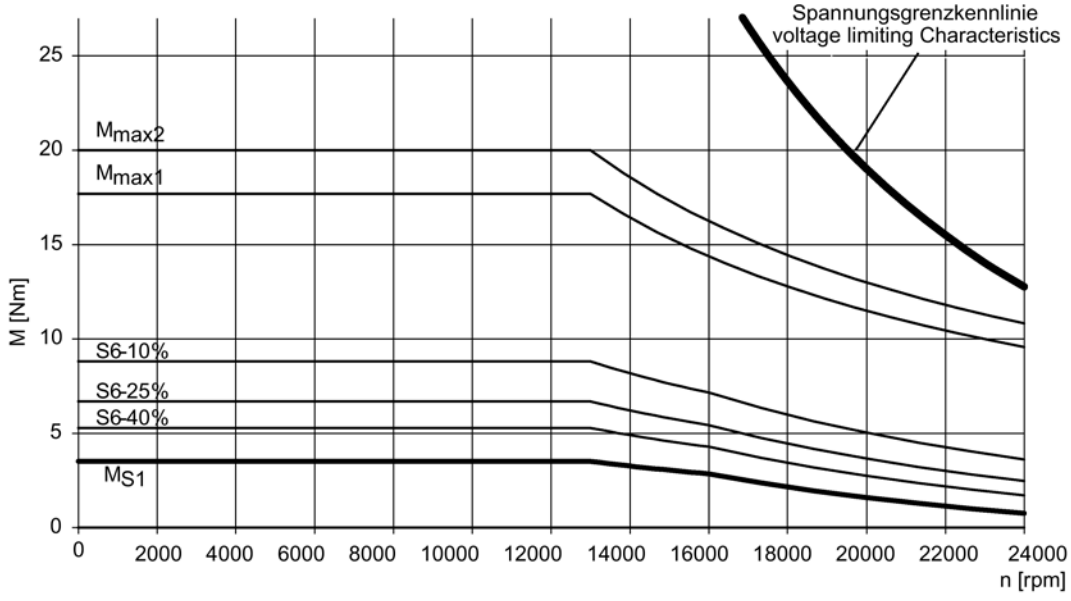
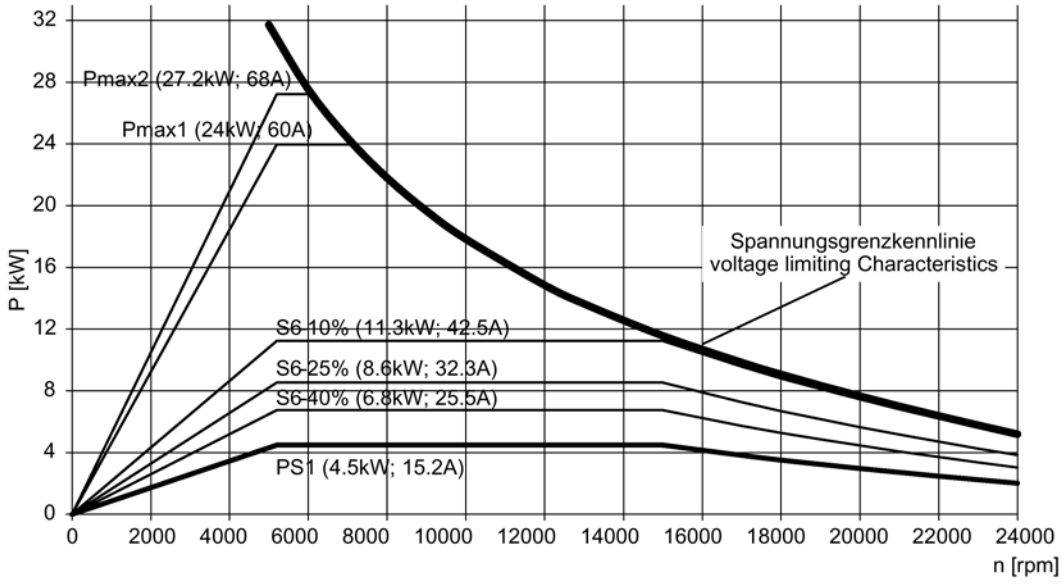


Table 6- 72 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,200	4.5	8.3	15.2	15,000	24,000	60	68	--	44	50	--	8



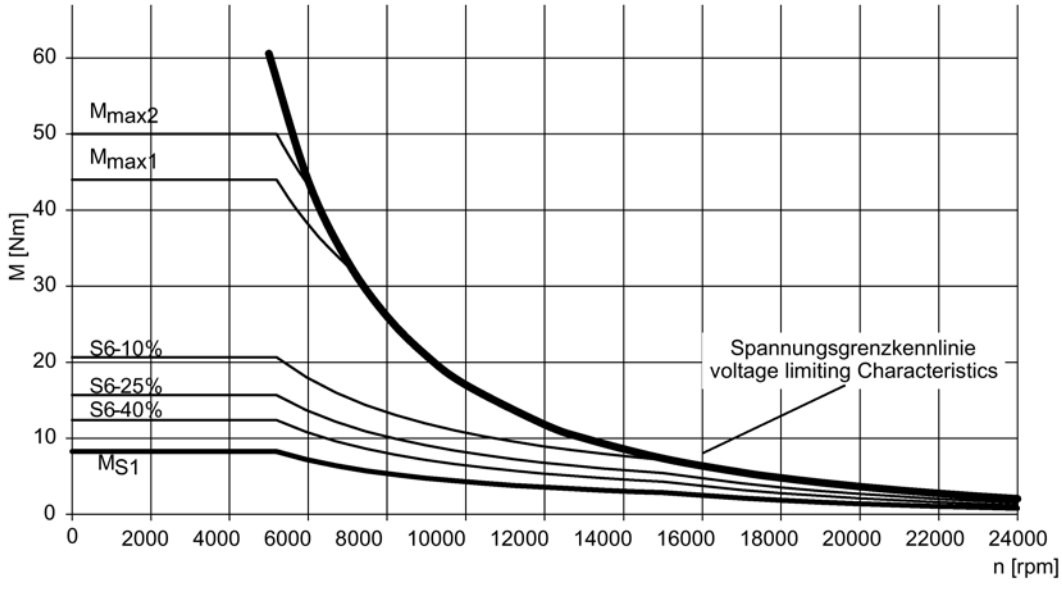
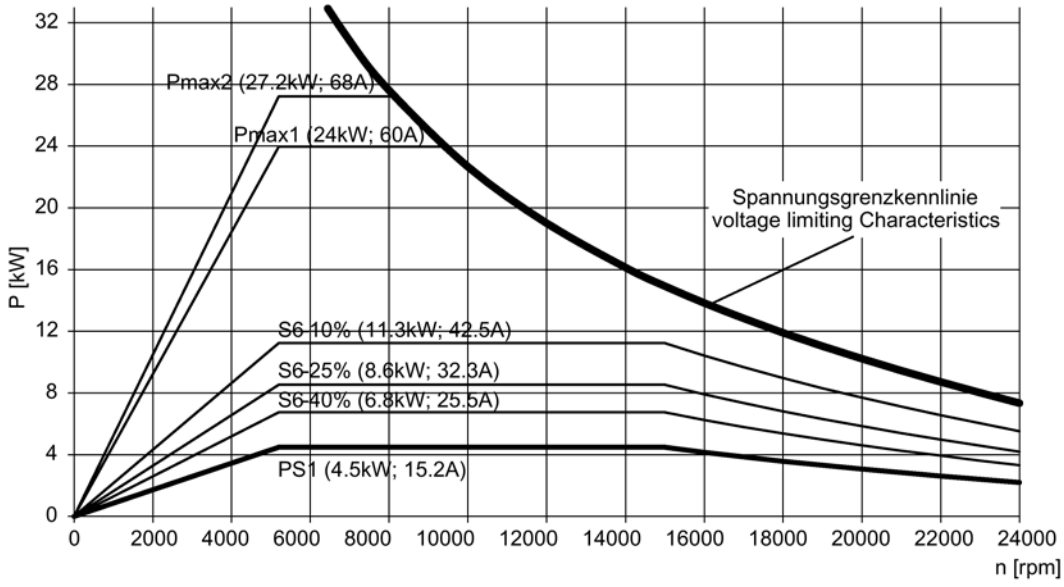


Table 6- 73 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,200	4.5	8.3	15.2	15,000	24,000	60	68	--	44	50	--	8



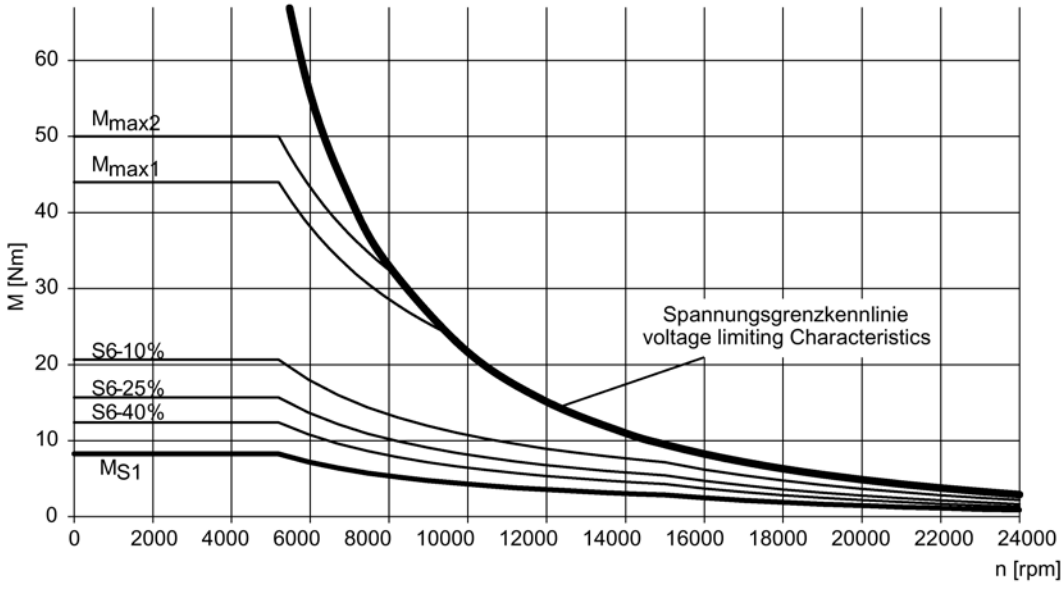
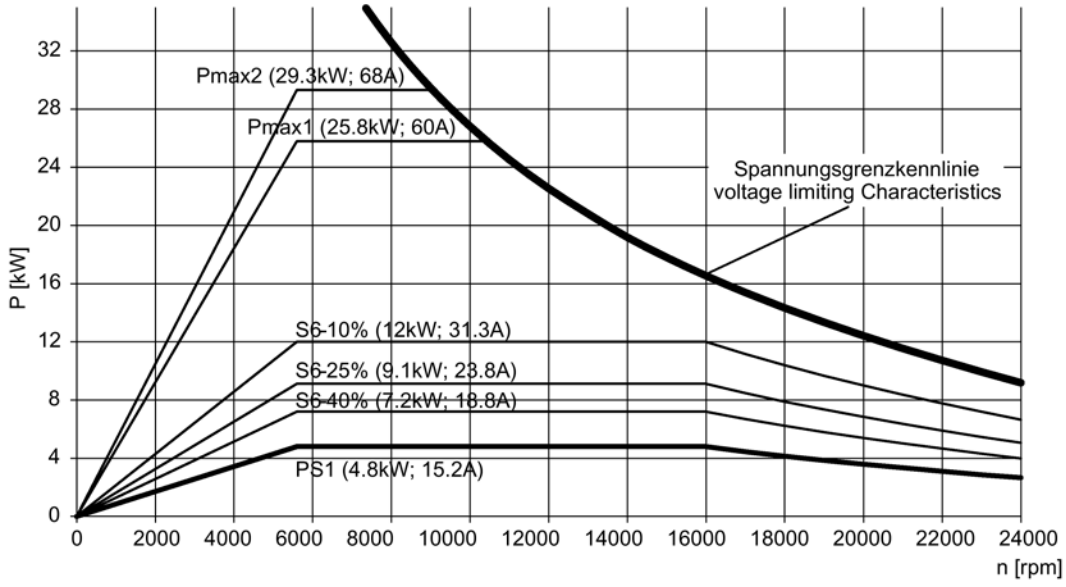


Table 6- 74 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,600	4.8	8.2	15.2	16,000	24,000	60	68	--	44	50	--	8



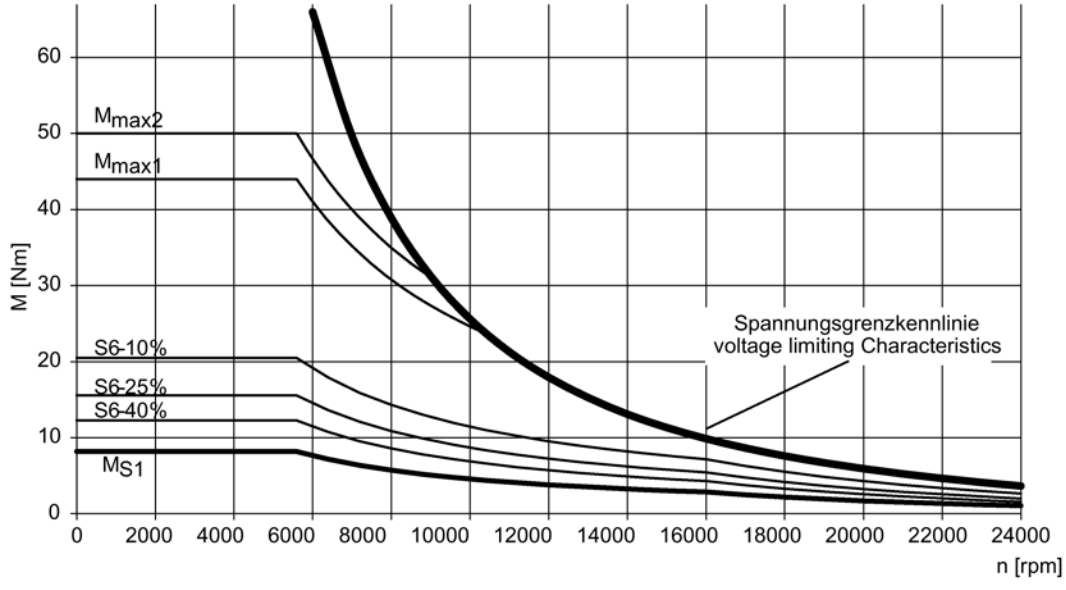
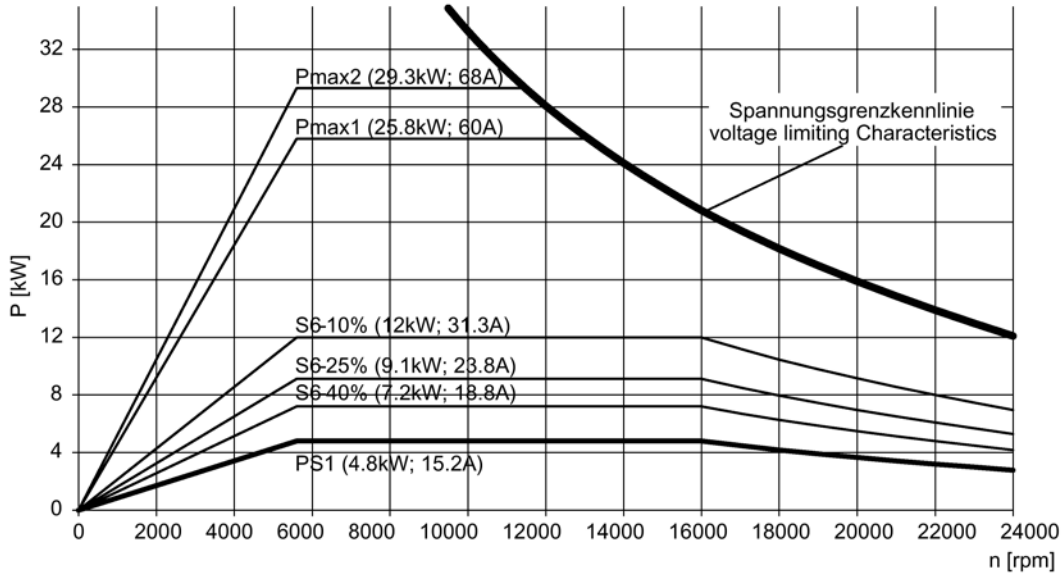


Table 6- 75 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,600	4.8	8.2	15.2	16,000	24,000	60	68	--	44	50	--	8



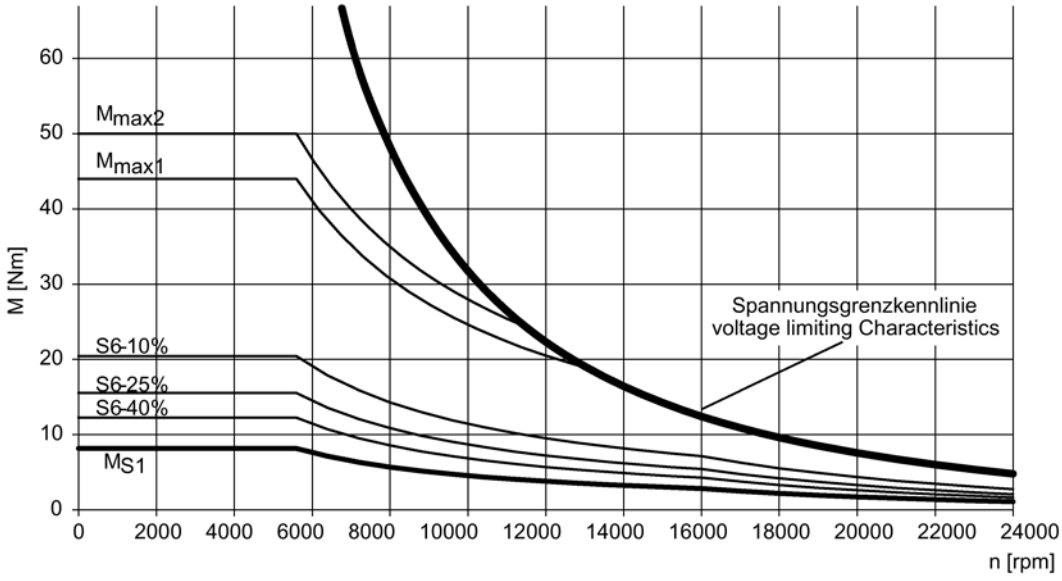
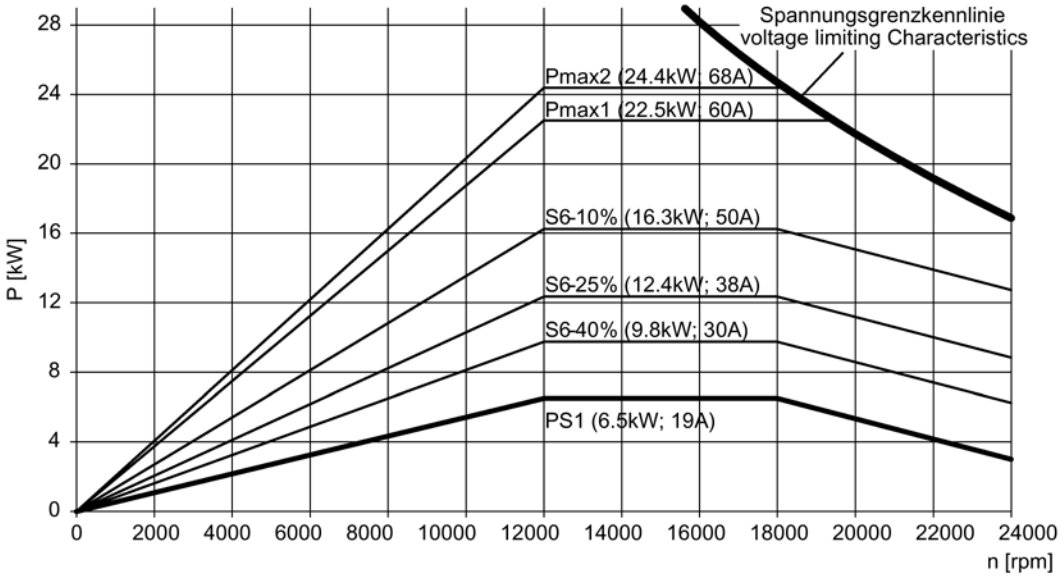


Table 6- 76 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	6.5	5.2	19.0	18,000	24,000	60	68	--	18	19	--	8



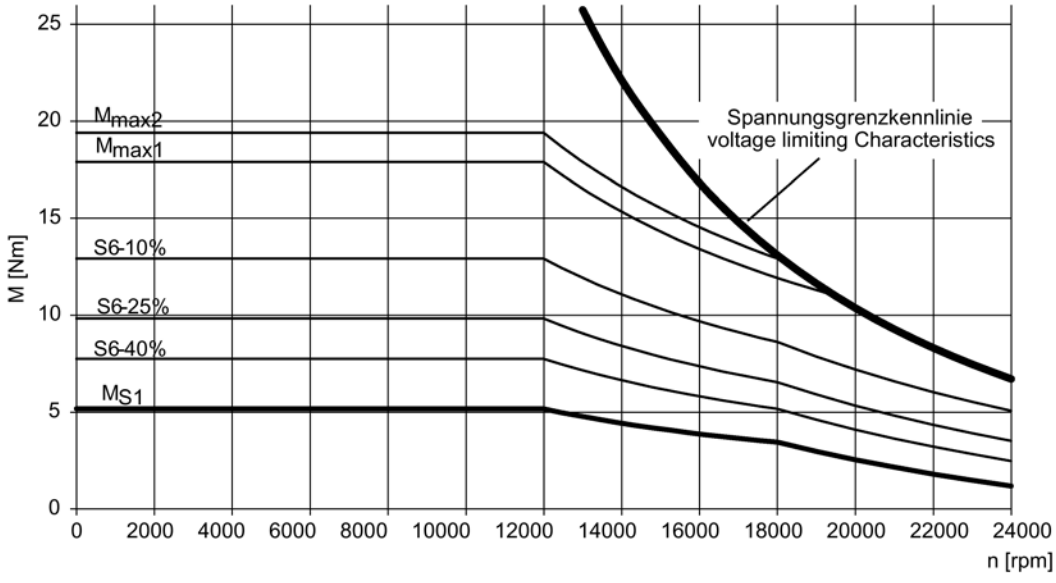
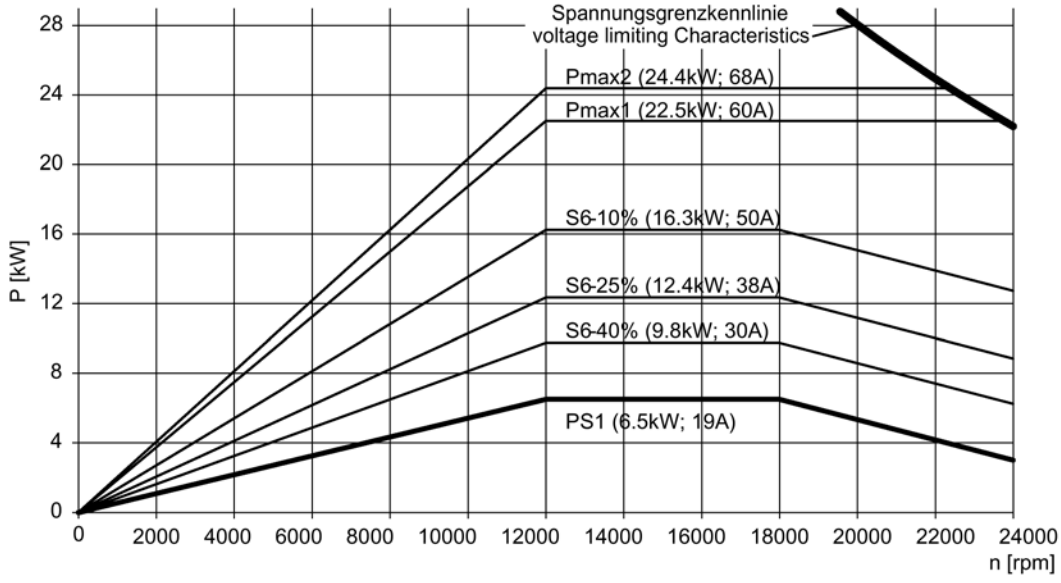


Table 6- 77 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8087-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	6.5	5.2	19.0	18,000	24,000	60	68	--	18	19	--	8



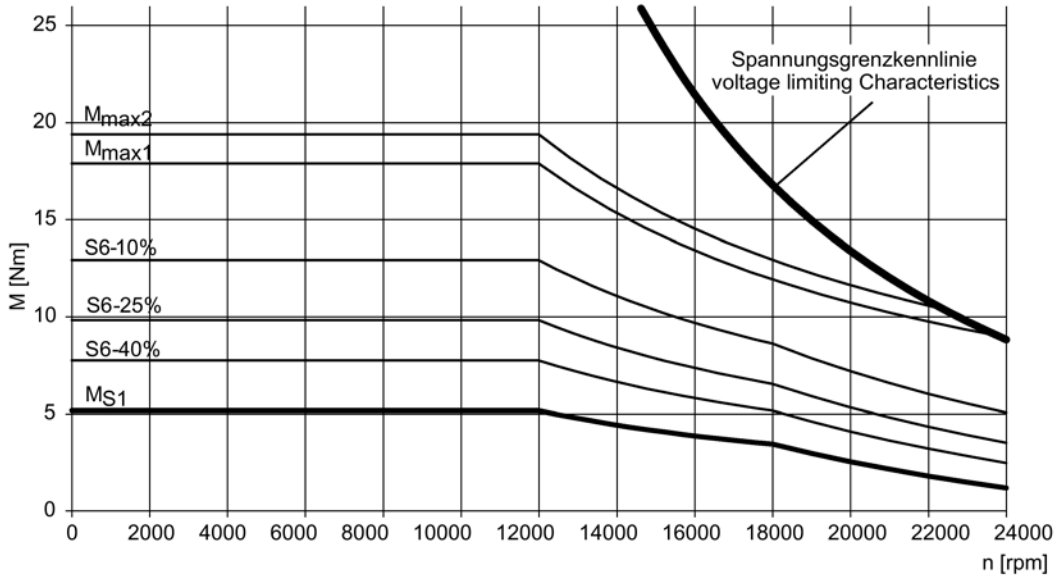
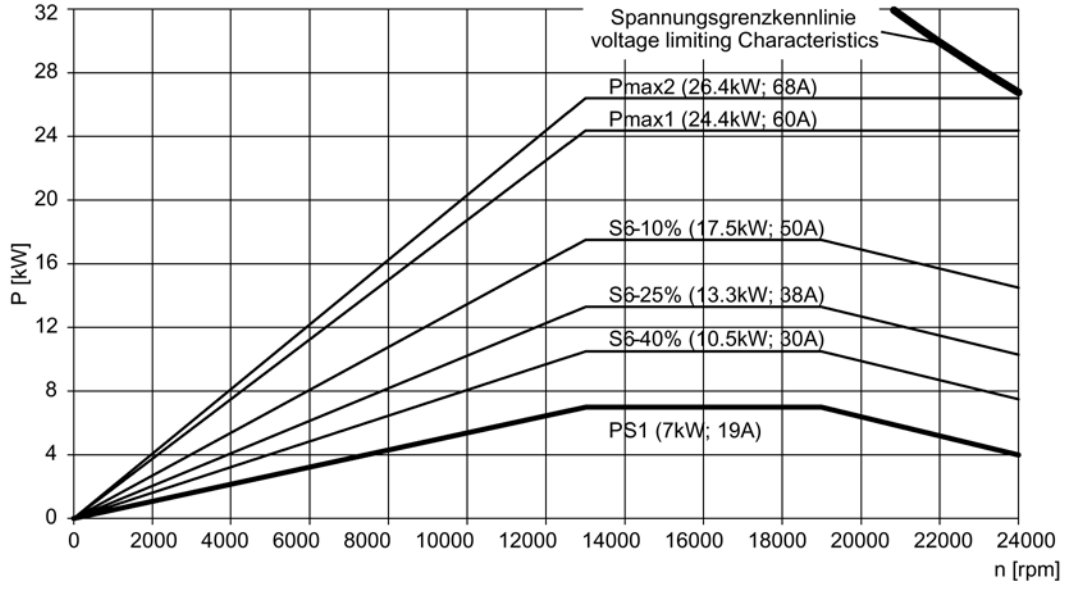


Table 6- 78 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	7.0	5.1	19.0	19,000	24,000	60	68	--	18	19	--	8



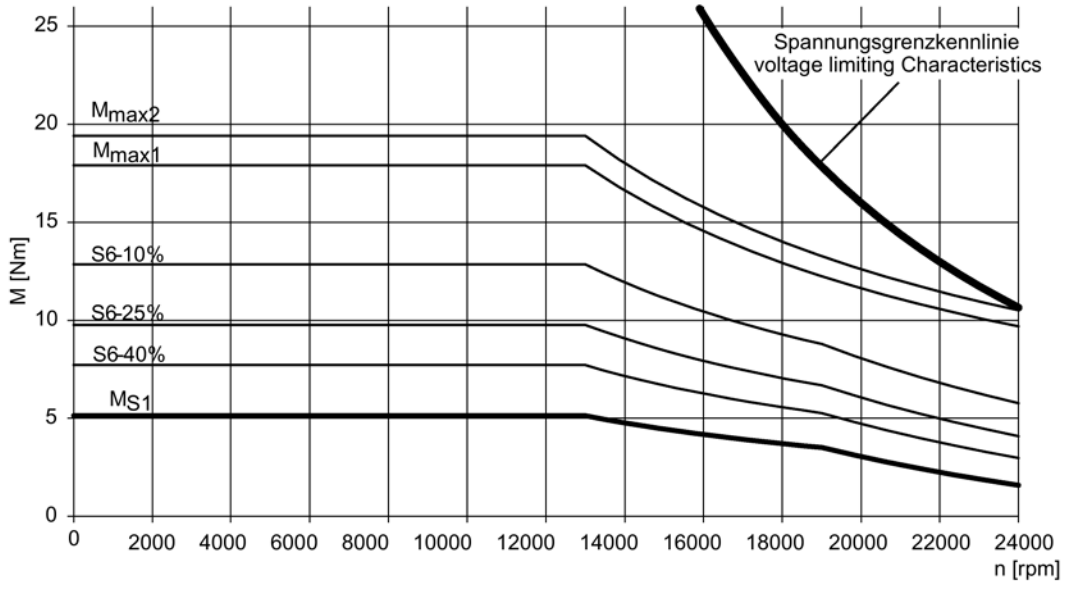
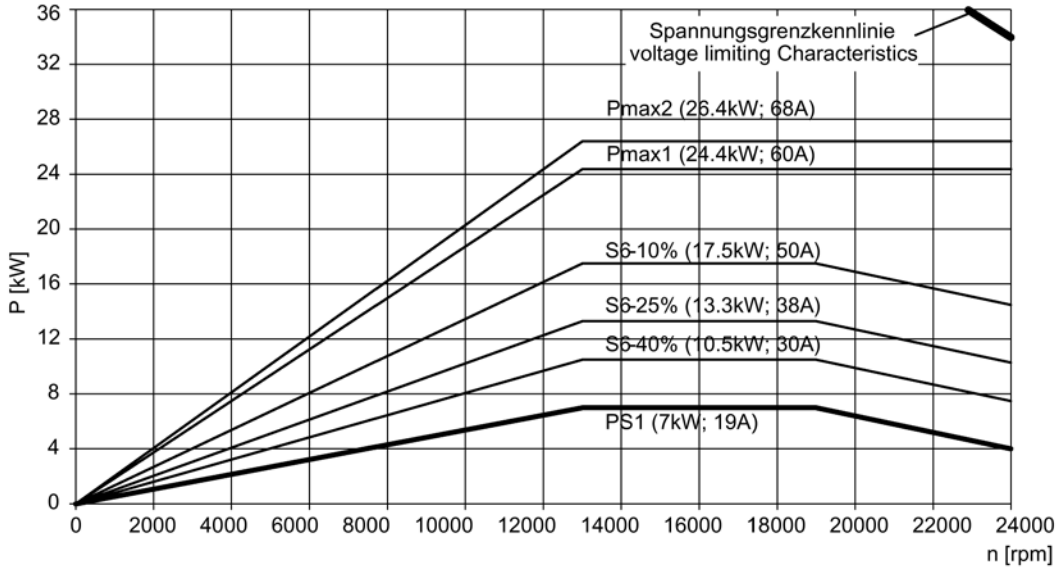
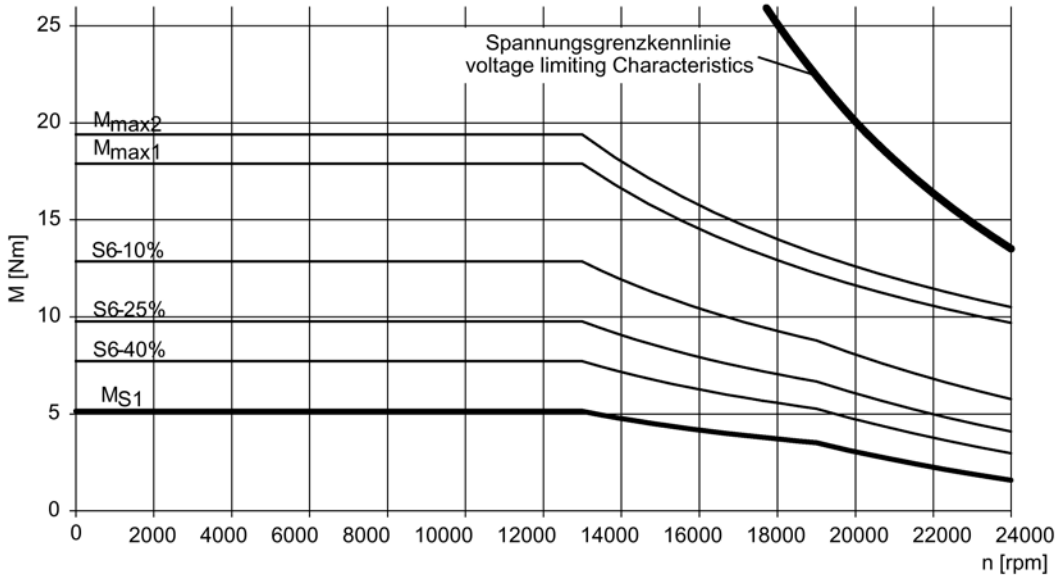


Table 6- 79 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8087-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	7.0	5.1	19.0	16,000	24,000	60	68	--	18	19	--	8

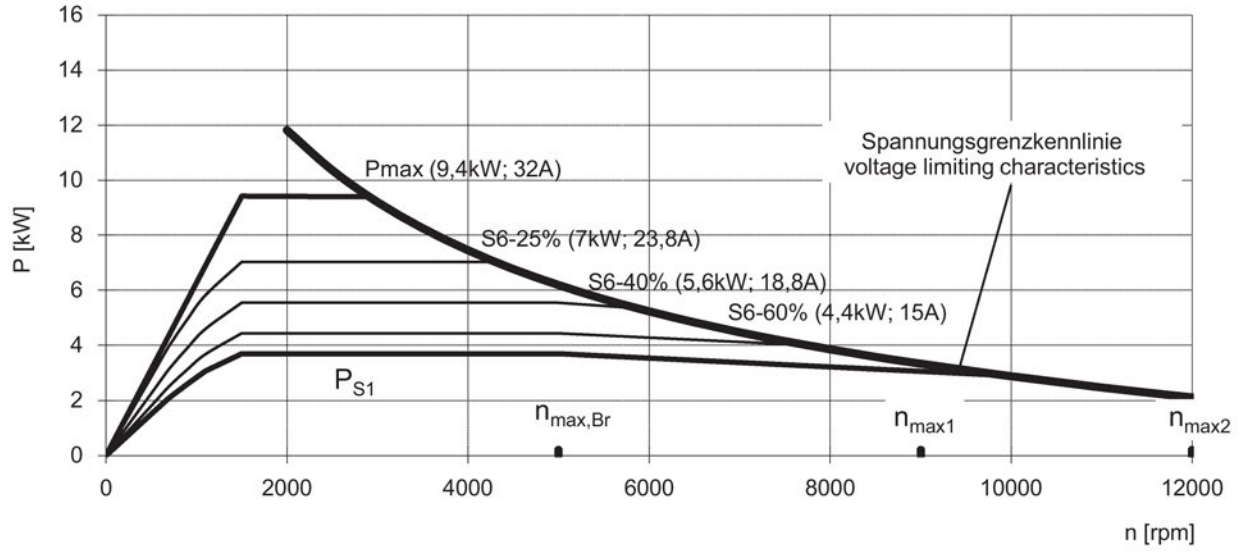




6.1.2.3 Shaft height 100 – forced ventilation

Table 6- 80 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]
1,500	3.7	24	12.5	9,000	12,000	-	5,000	5,000	60	32	29	14



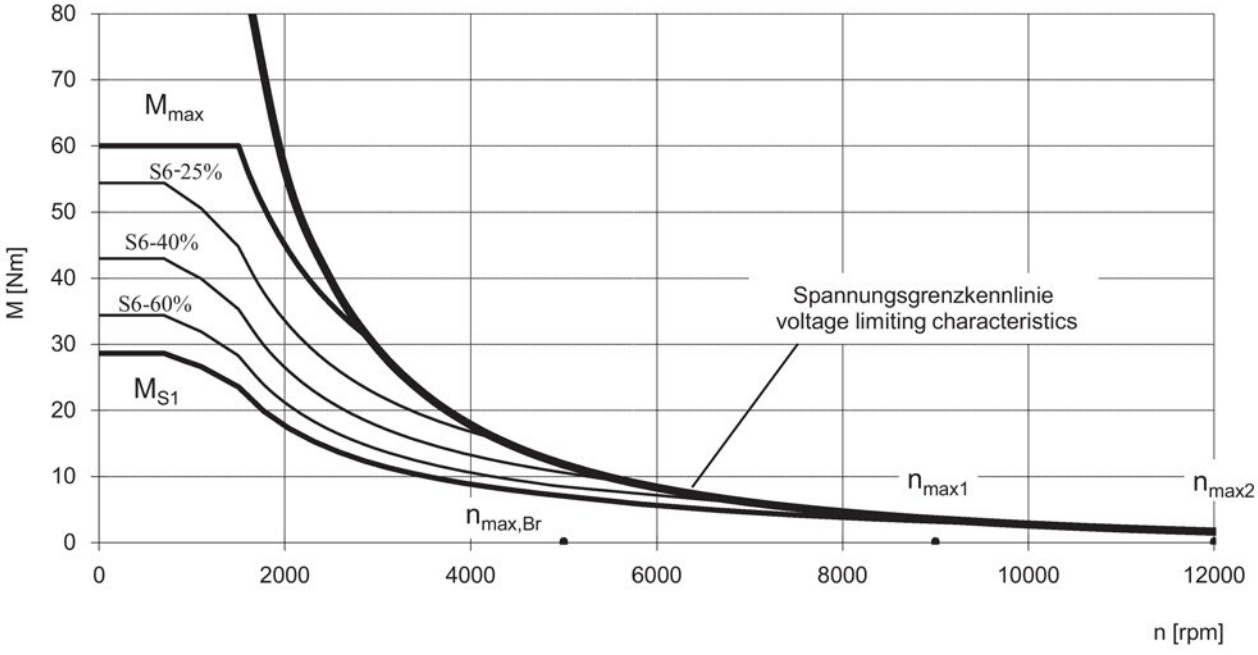


Table 6- 81 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□F□□

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]
1,750	4.3	23	12.5	9,000	12,000	-	5,000	5,000	60	32	29	14
1,500	3.7	24	12.5					8,350				

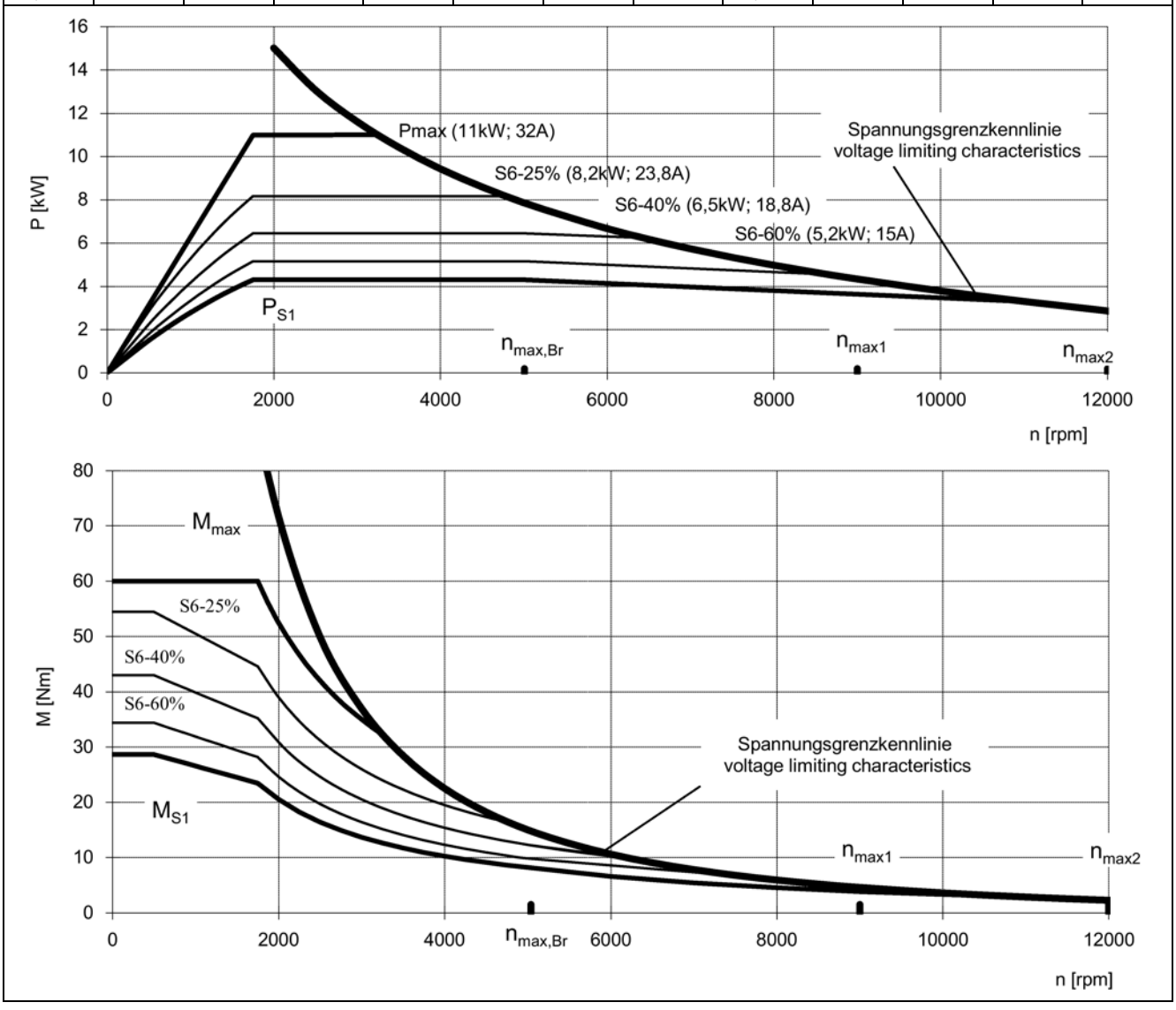
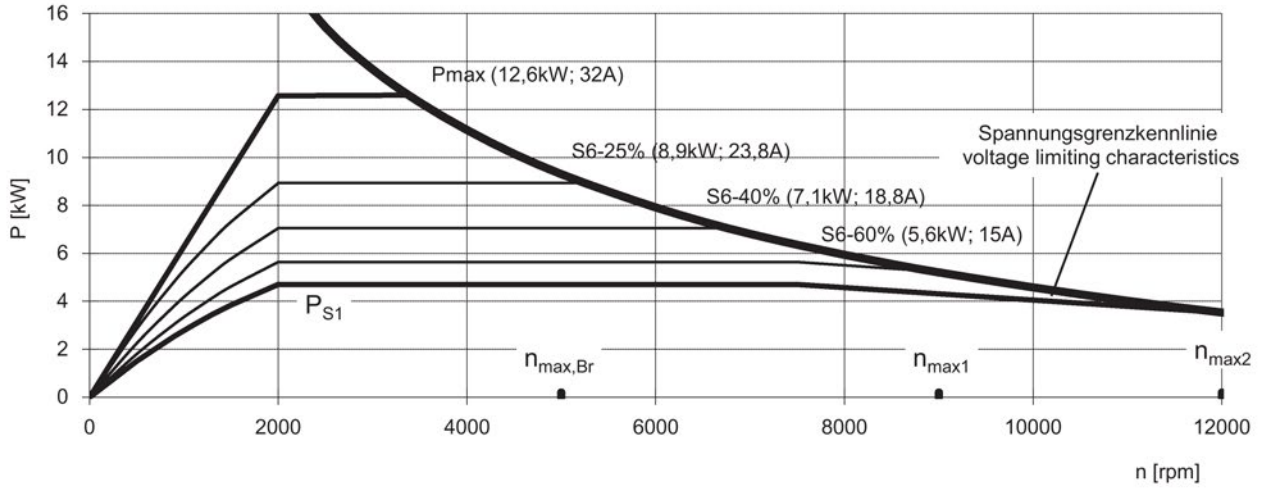


Table 6- 82 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□F□□

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]
2,000	4.7	22	12.5	9,000	12,000	-	5,000	7,500	60	32	29	14



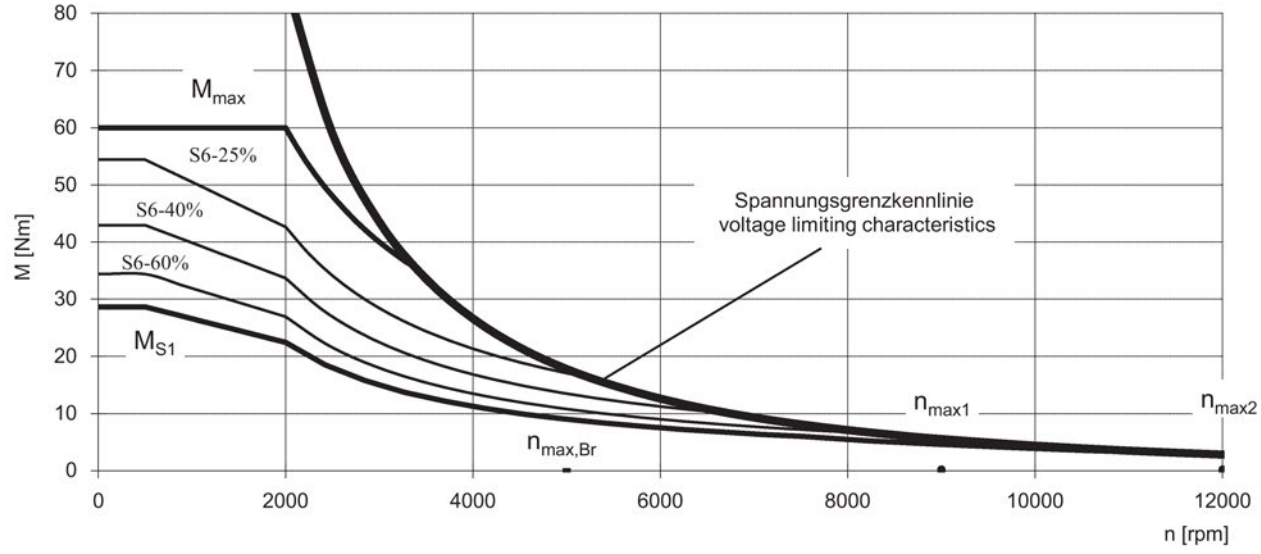
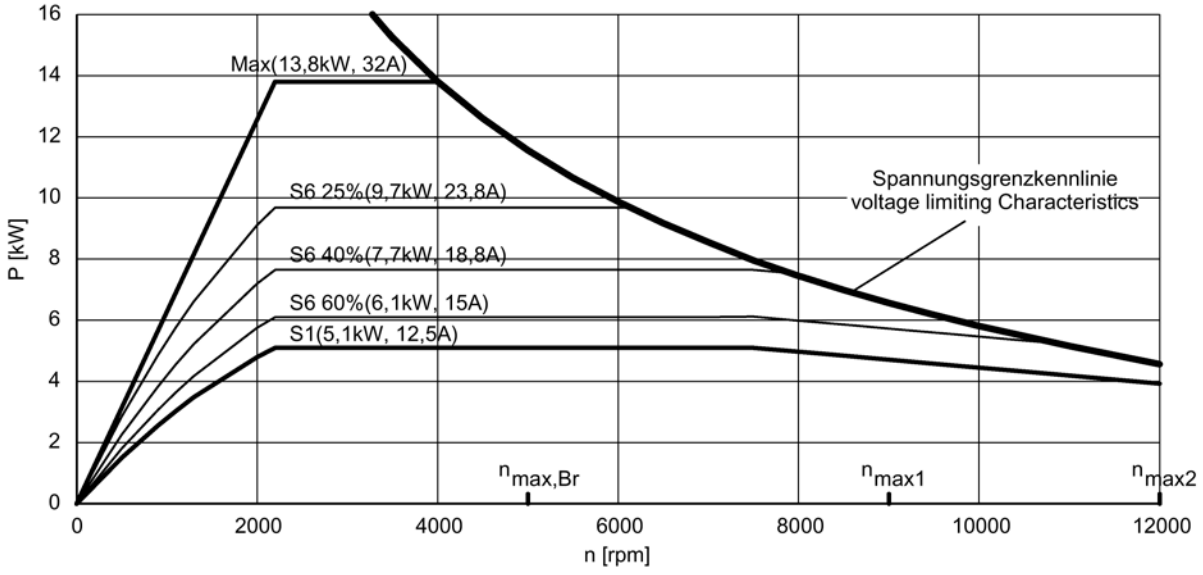


Table 6- 83 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8101-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	5.1	22	12.5	9,000	12,000	--	5,000	7,500	60	32	29	14



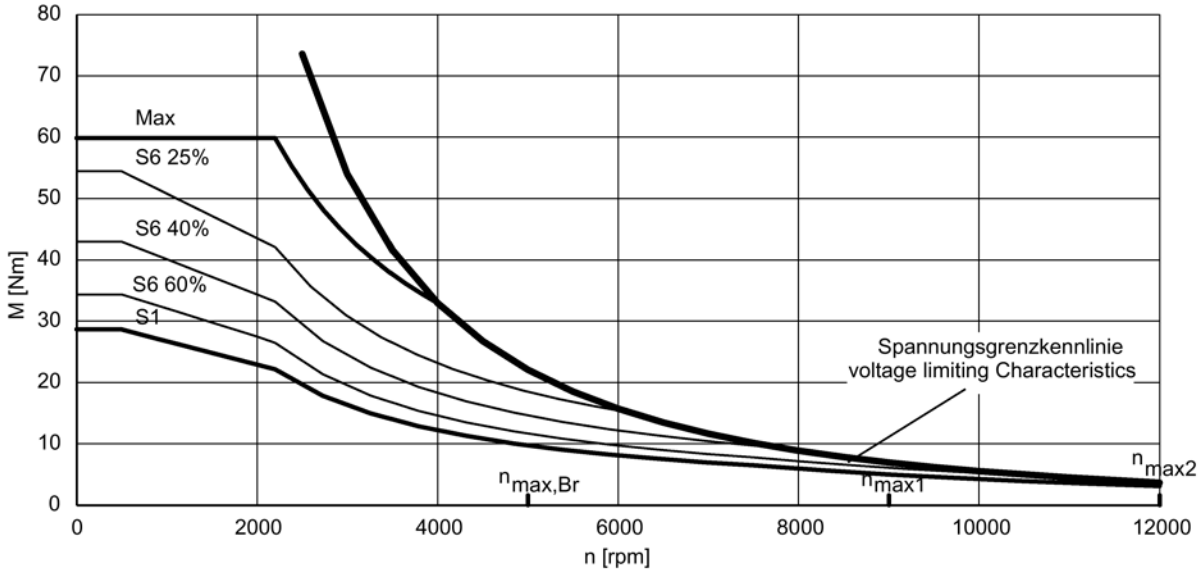
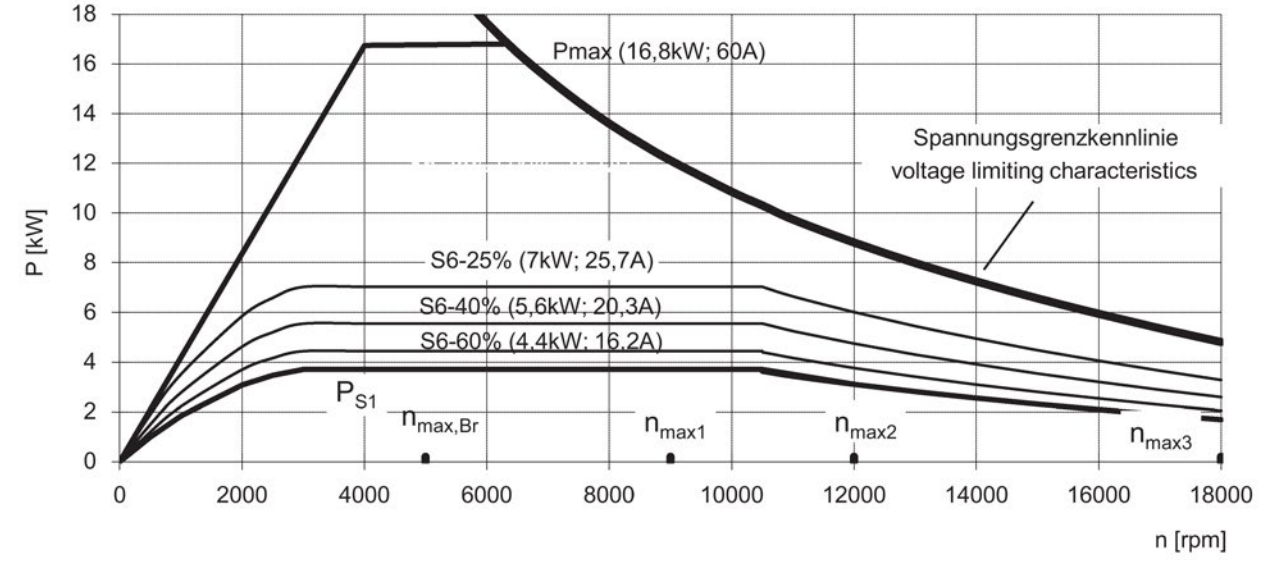


Table 6- 84 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Δ connection

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]
4,000	3.7	9	13.5	9,000	12,000	18,000	5,000	10,500	40	60	19	20



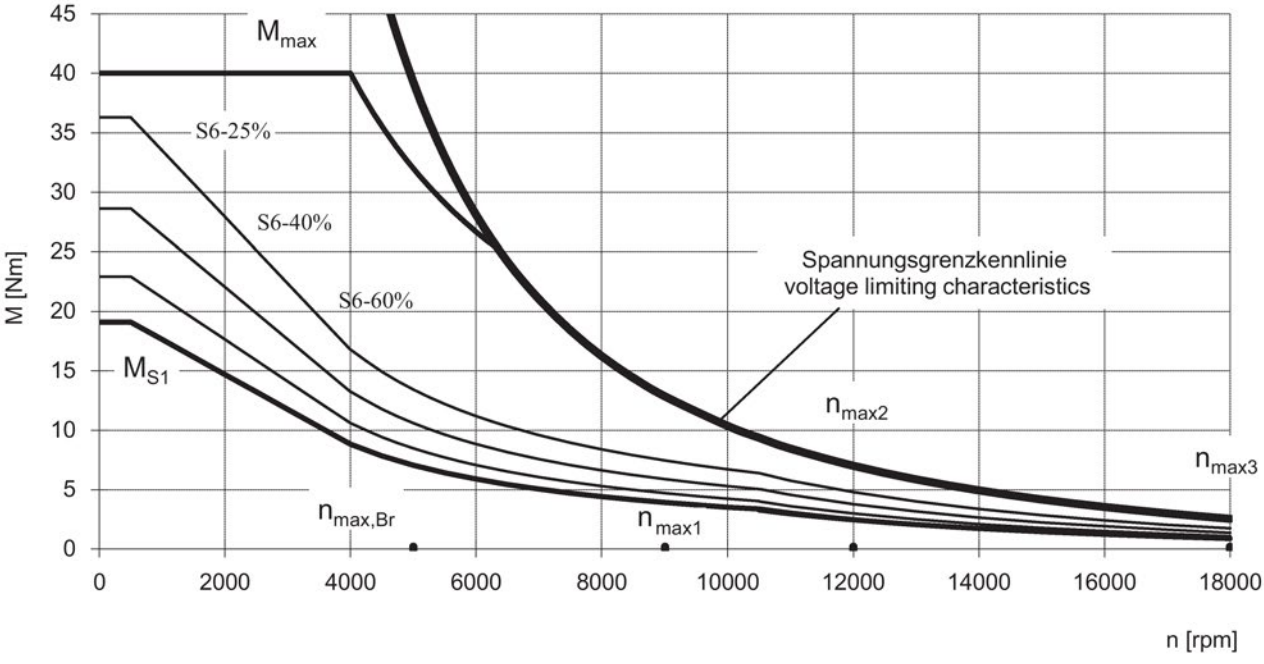
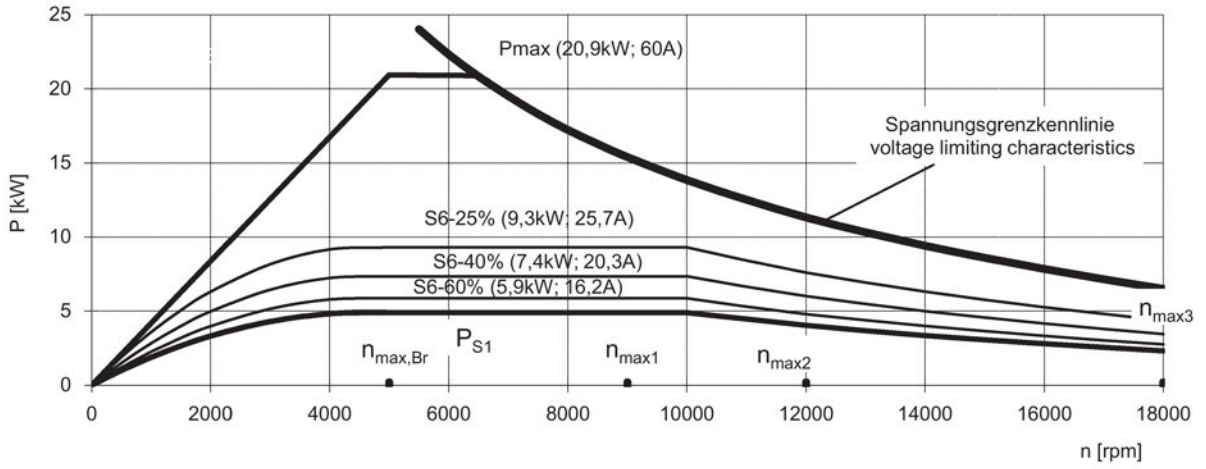


Table 6- 85 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Δ connection

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]
5,000	4.9	9	13.5	9,000	12,000	18,000	5,000	10,000	40	60	19	20
4,000	3.7	9	13.5					13,000				



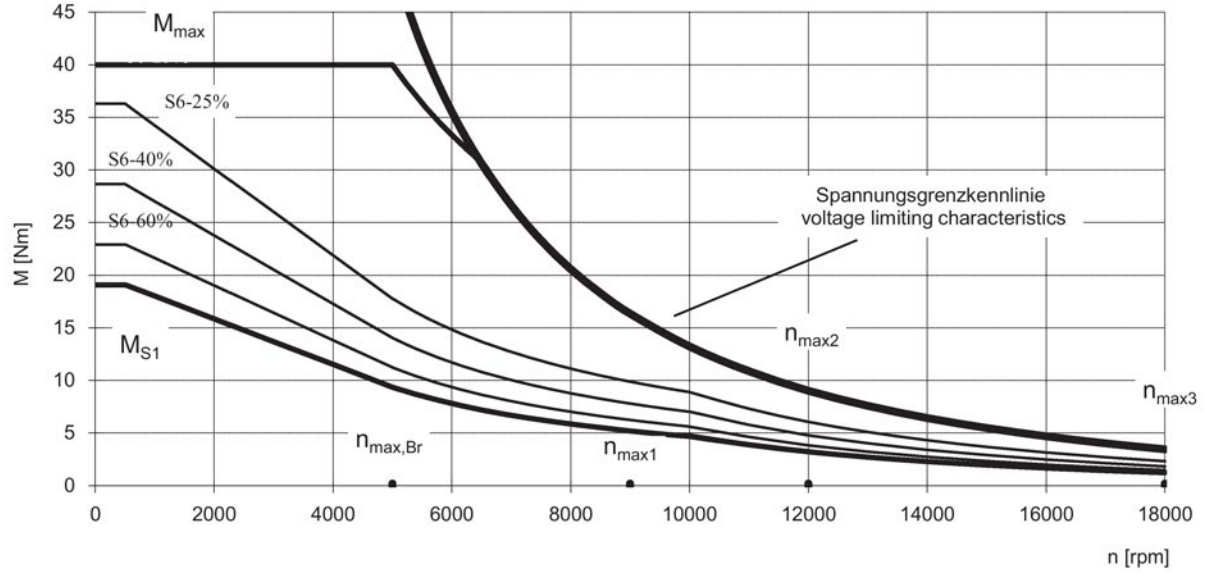
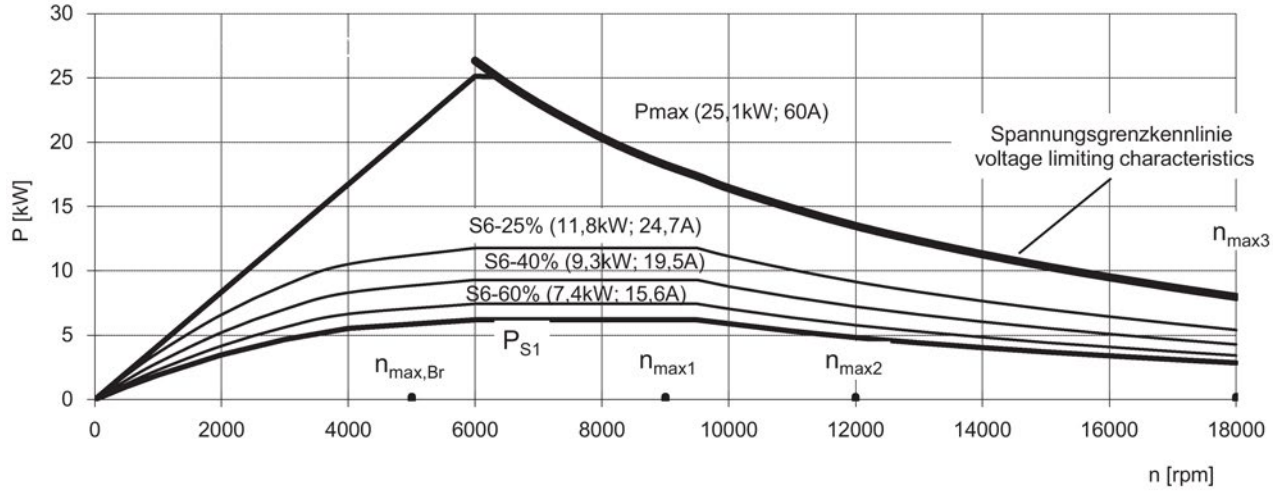


Table 6- 86 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Δ connection

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]
6,000	6.2	10	13	9,000	12,000	18,000	5,000	9,500	40	60	19	20



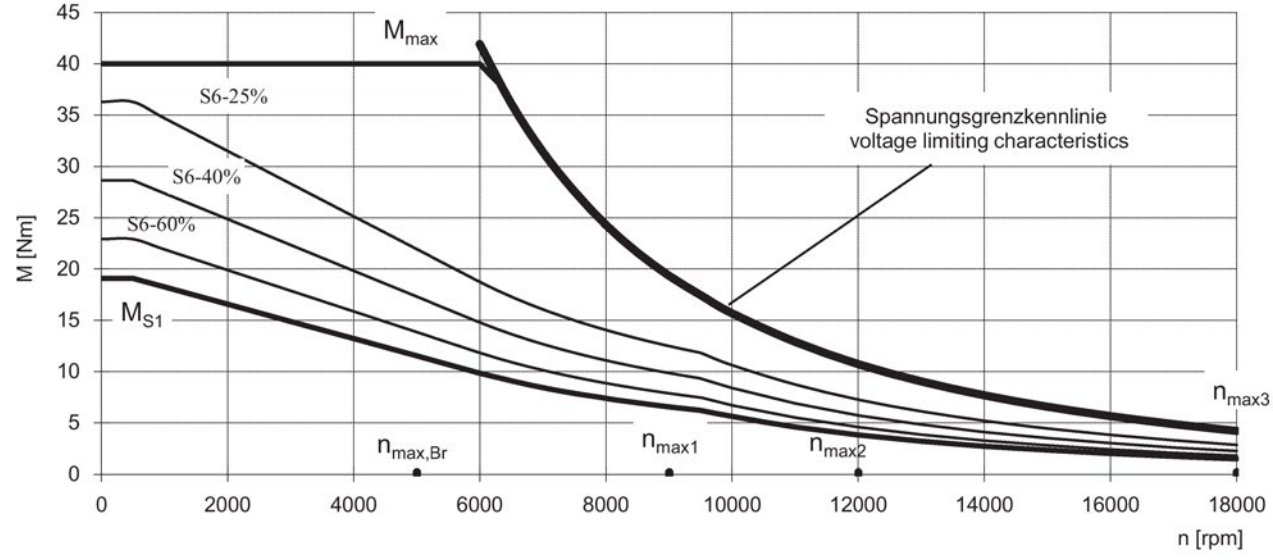
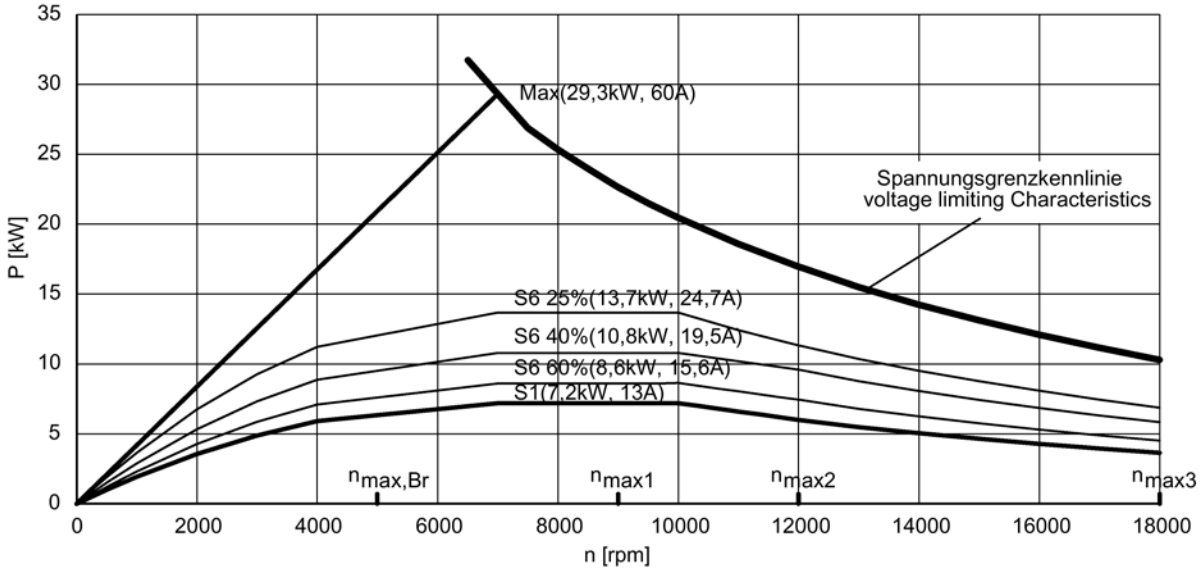


Table 6- 87 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	7.2	10	13	9,000	12,000	18,000	5,000	10,000	40	60	19	20



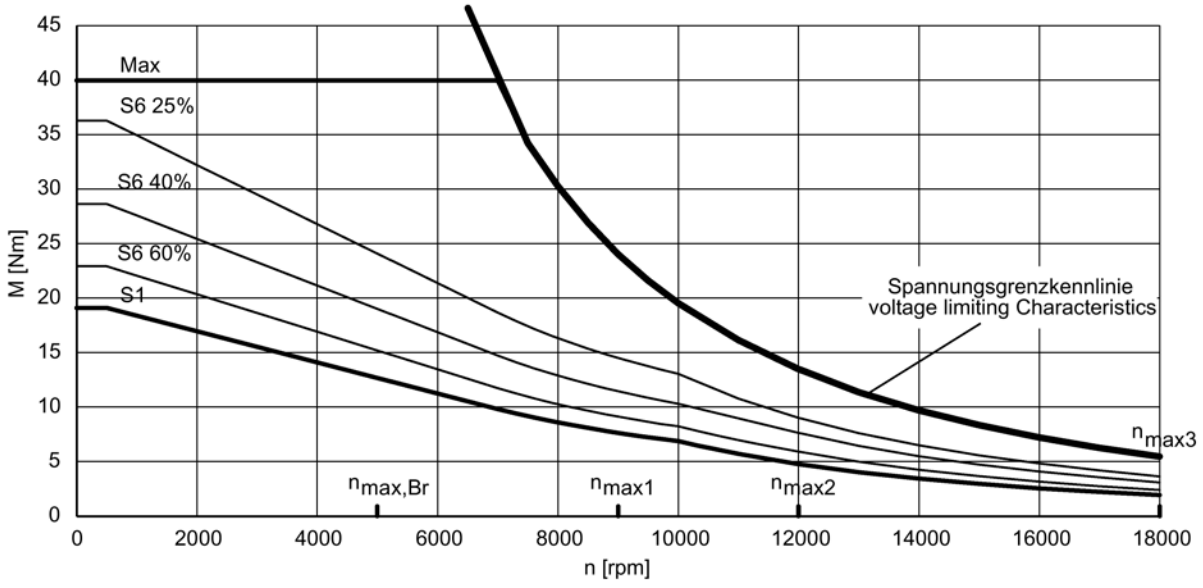
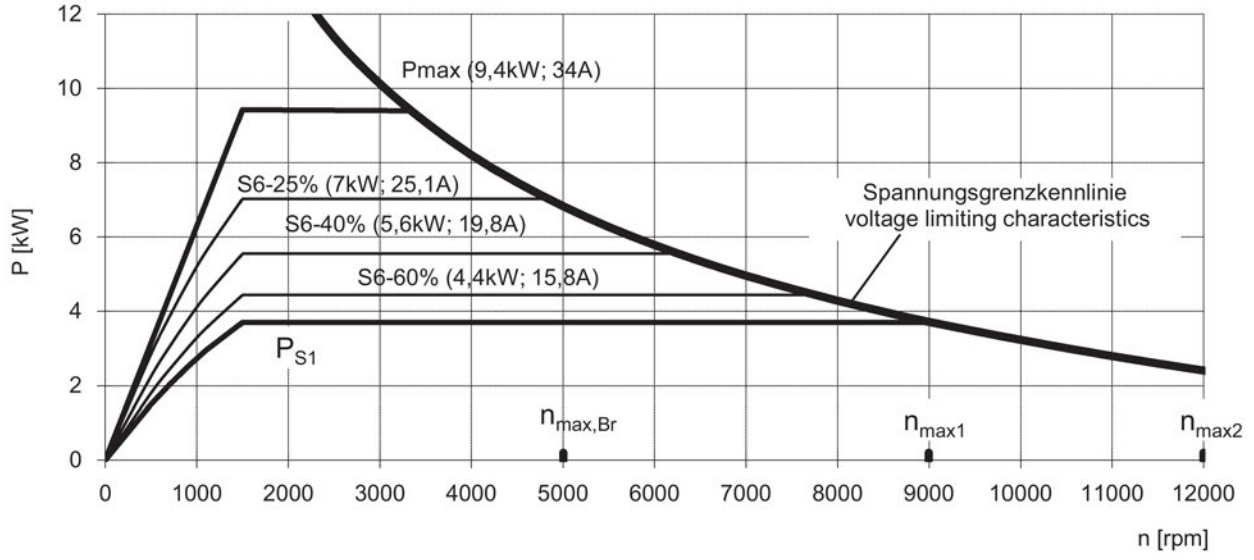


Table 6- 88 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Y connection

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]
1,500	3.7	24	13.2	9,000	12,000	-	5,000	9,100	60	34	29	15



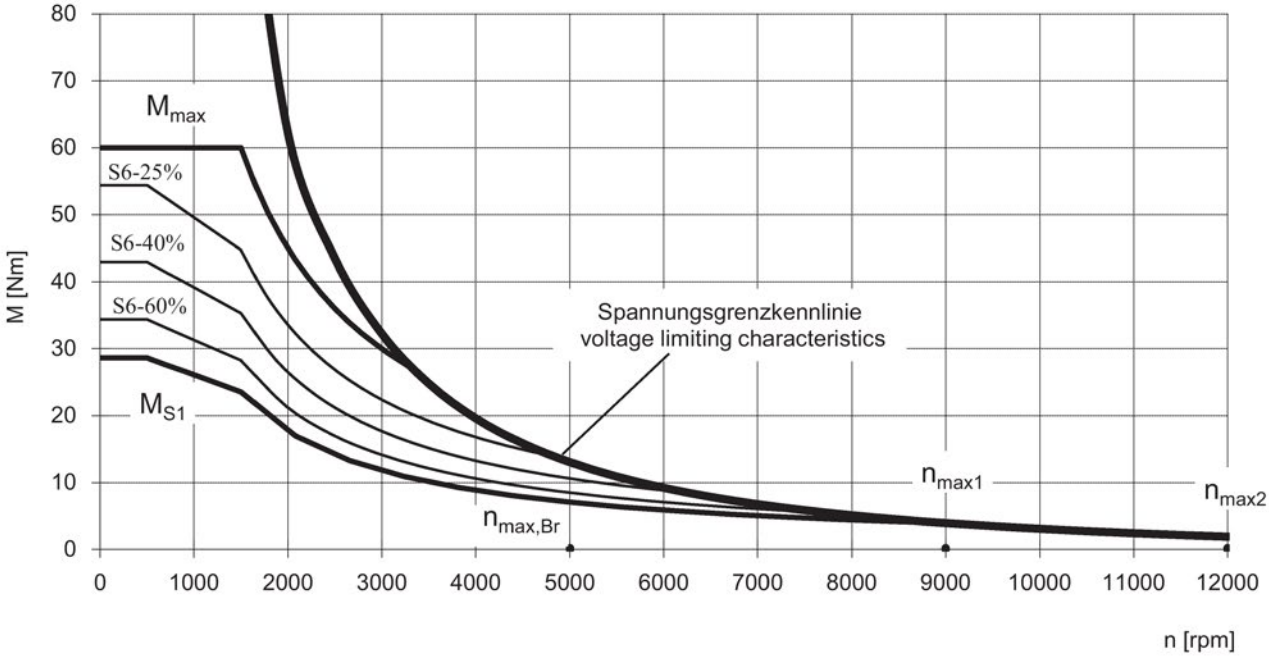
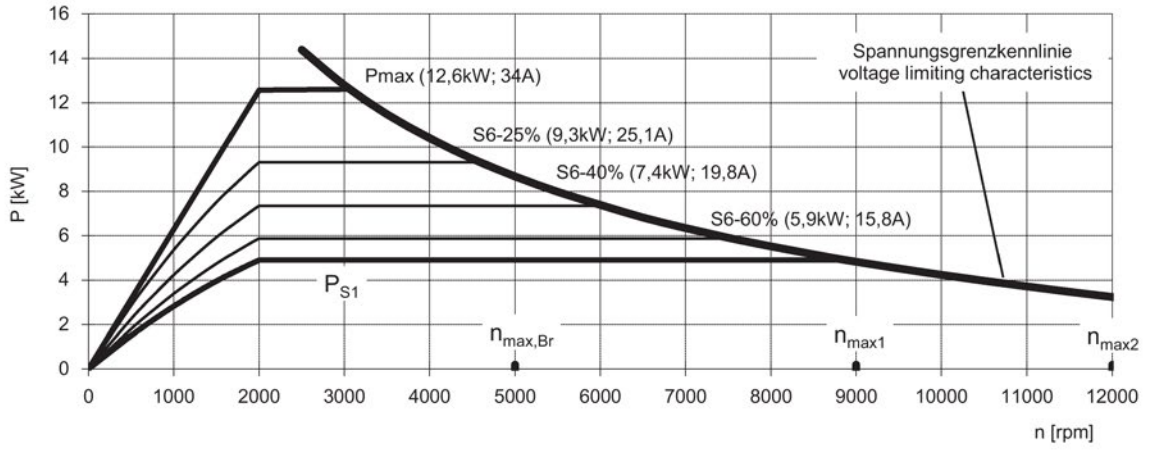


Table 6- 89 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Y connection

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]
2,000	4.9	23	13.2	9,000	12,000	-	5,000	8,950	60	34	29	15
1,500	3.7	24	13.2					11,000				



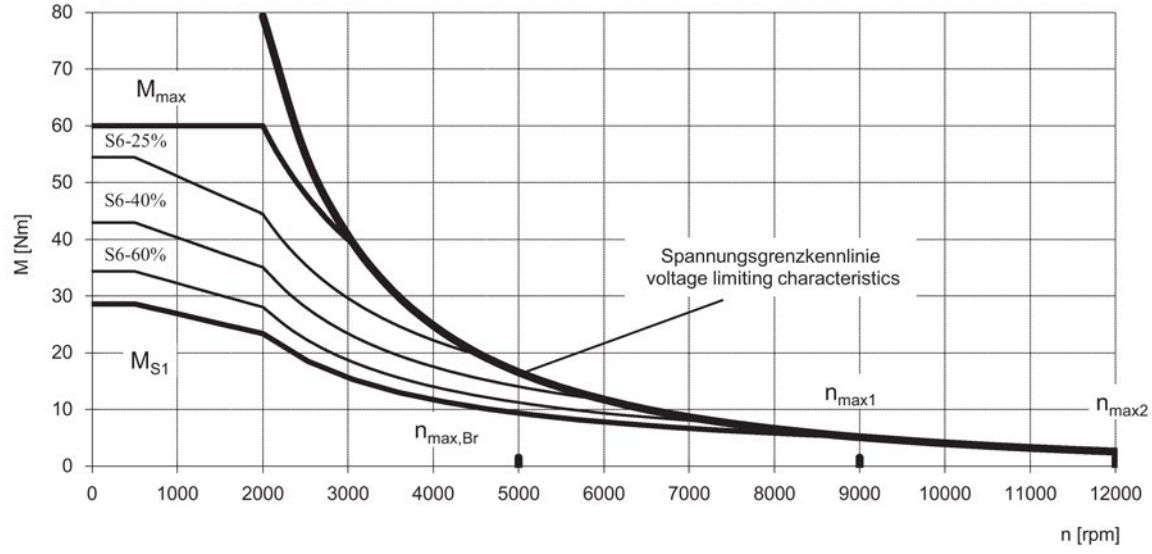
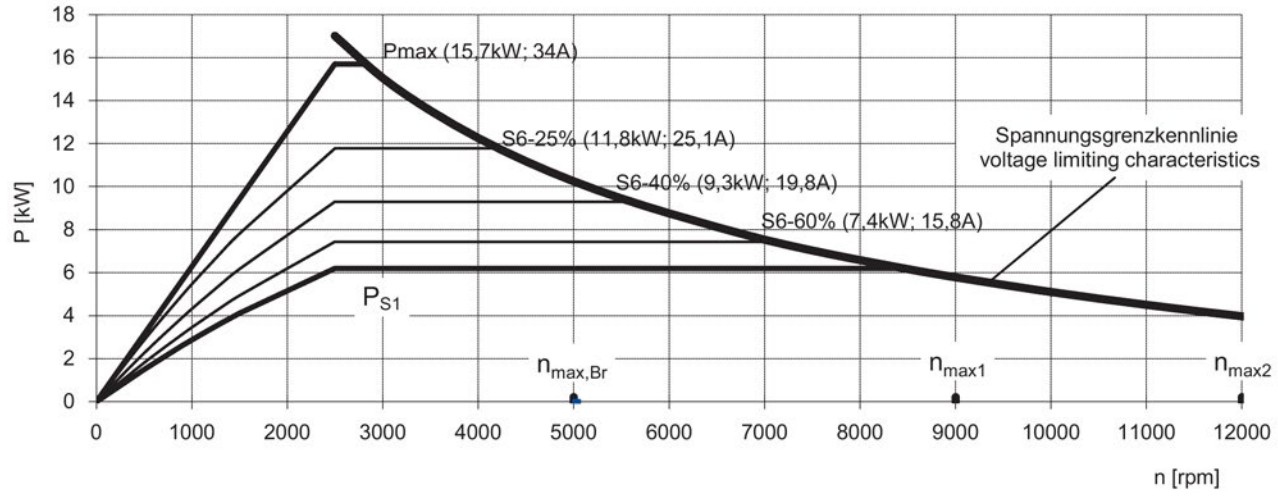


Table 6- 90 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□S□□, Y connection

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]
2,500	6.2	24	13.2	9,000	12,000	-	5,000	8,500	60	34	29	15



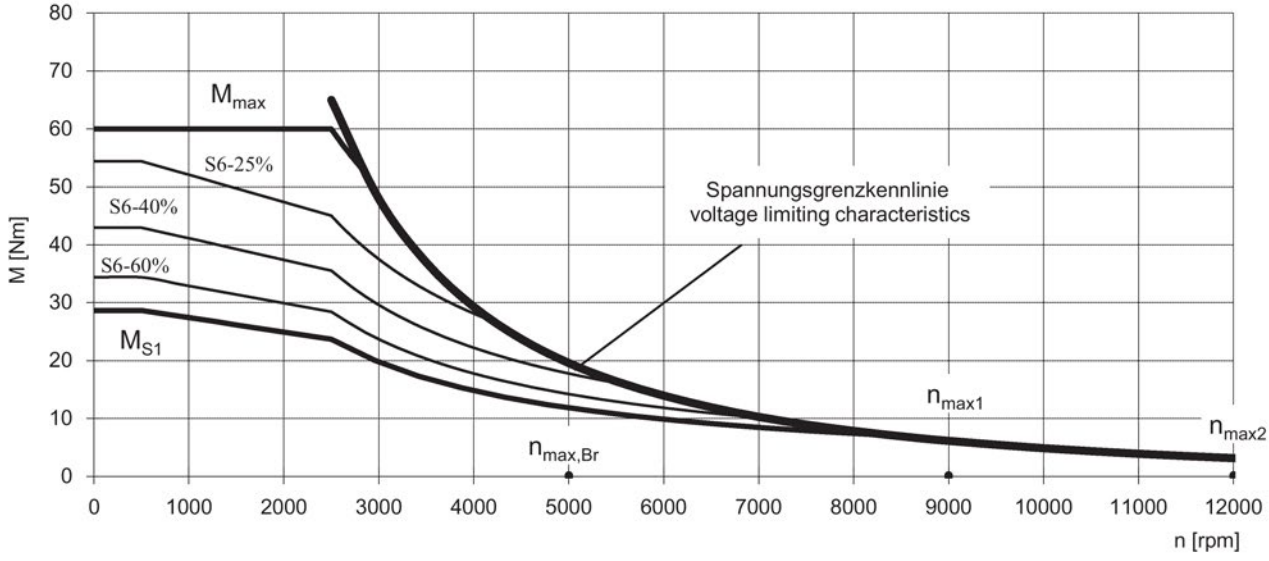
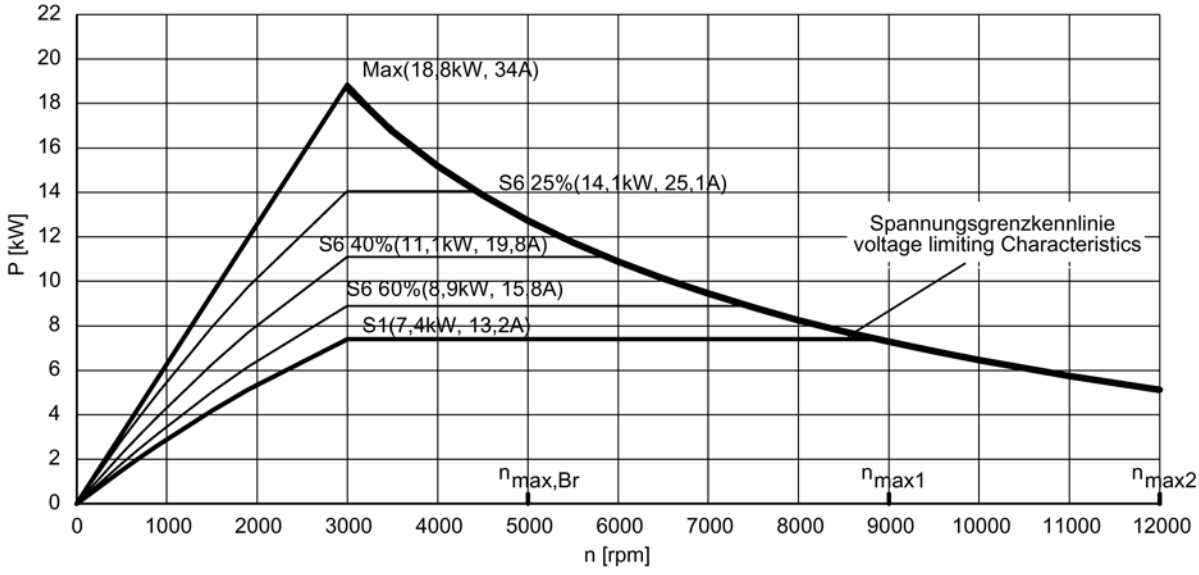


Table 6- 91 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8101-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	7.4	24	13.2	9,000	12,000	--	5,000	8,900	60	34	29	15



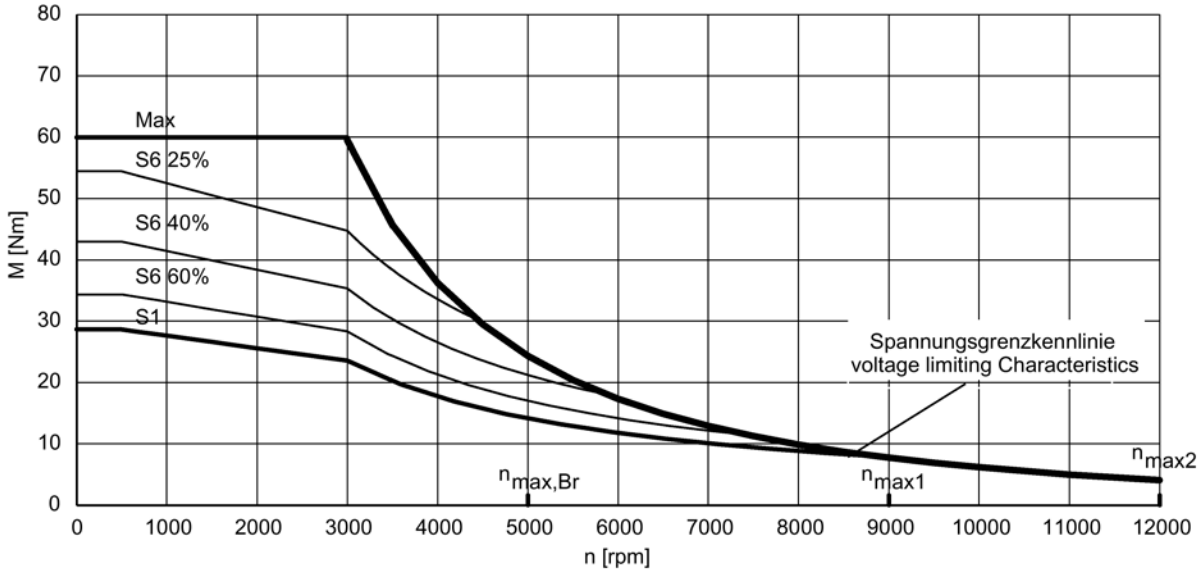
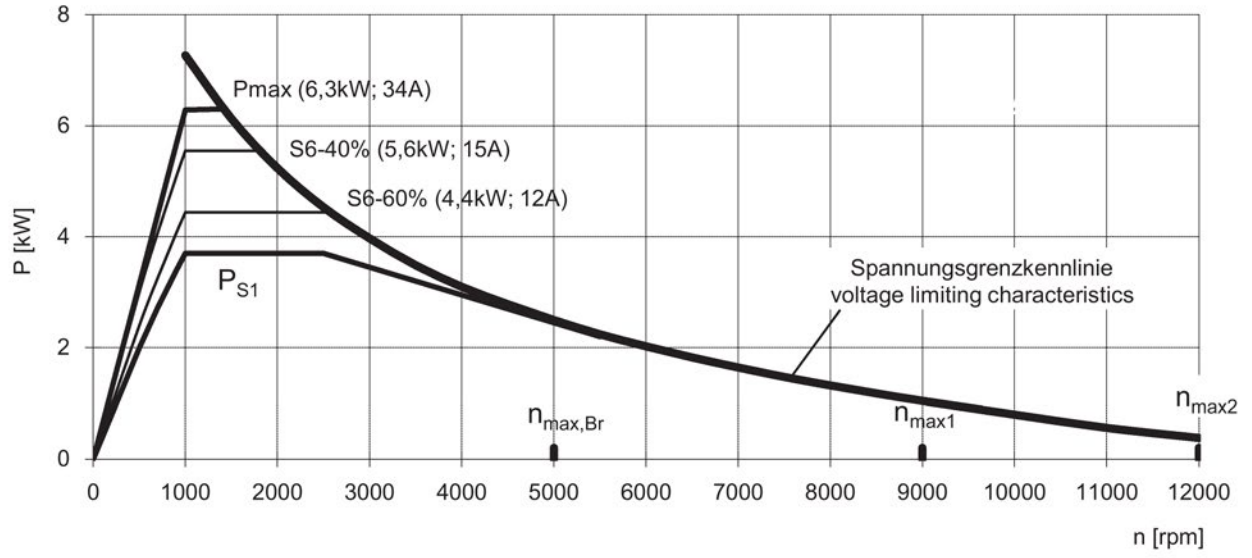


Table 6- 92 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□D□□

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]
1,000	3.7	35	10	9,000	12,000	-	5,000	2,550	60	34	38	11



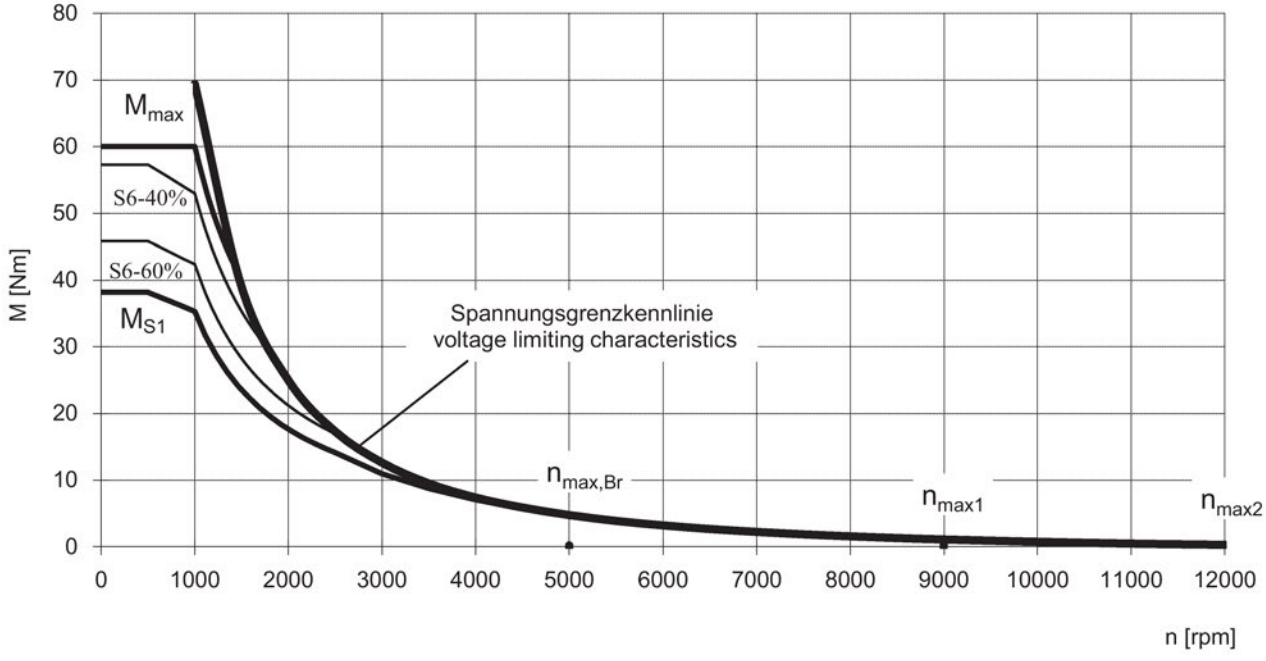
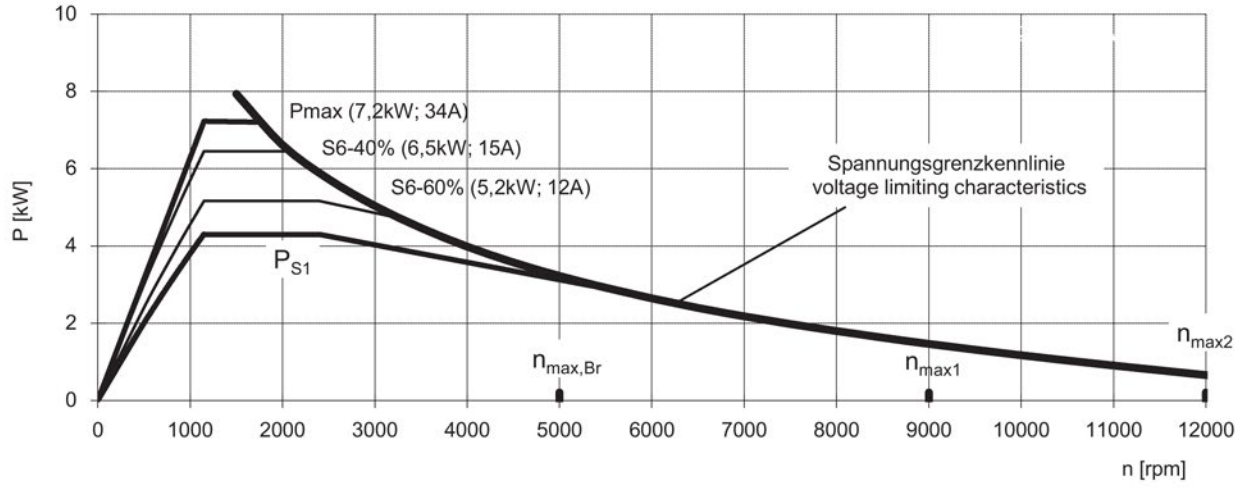


Table 6- 93 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□D□□

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]
1,150	4.3	36	10	9,000	12,000	-	5,000	2,450	60	34	38	11
1,000	3.7	35	10					3,800				



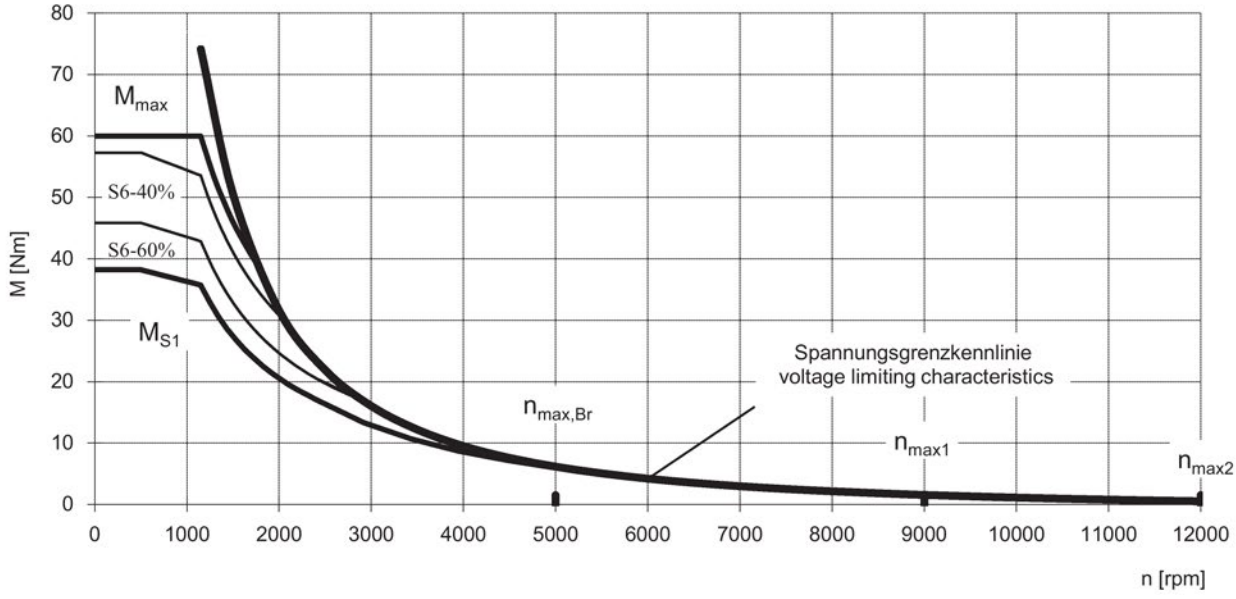


Table 6- 94 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□D□□

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]
1,350	4.7	33	9.7	9,000	12,000	-	5,000	3,500	60	34	38	11

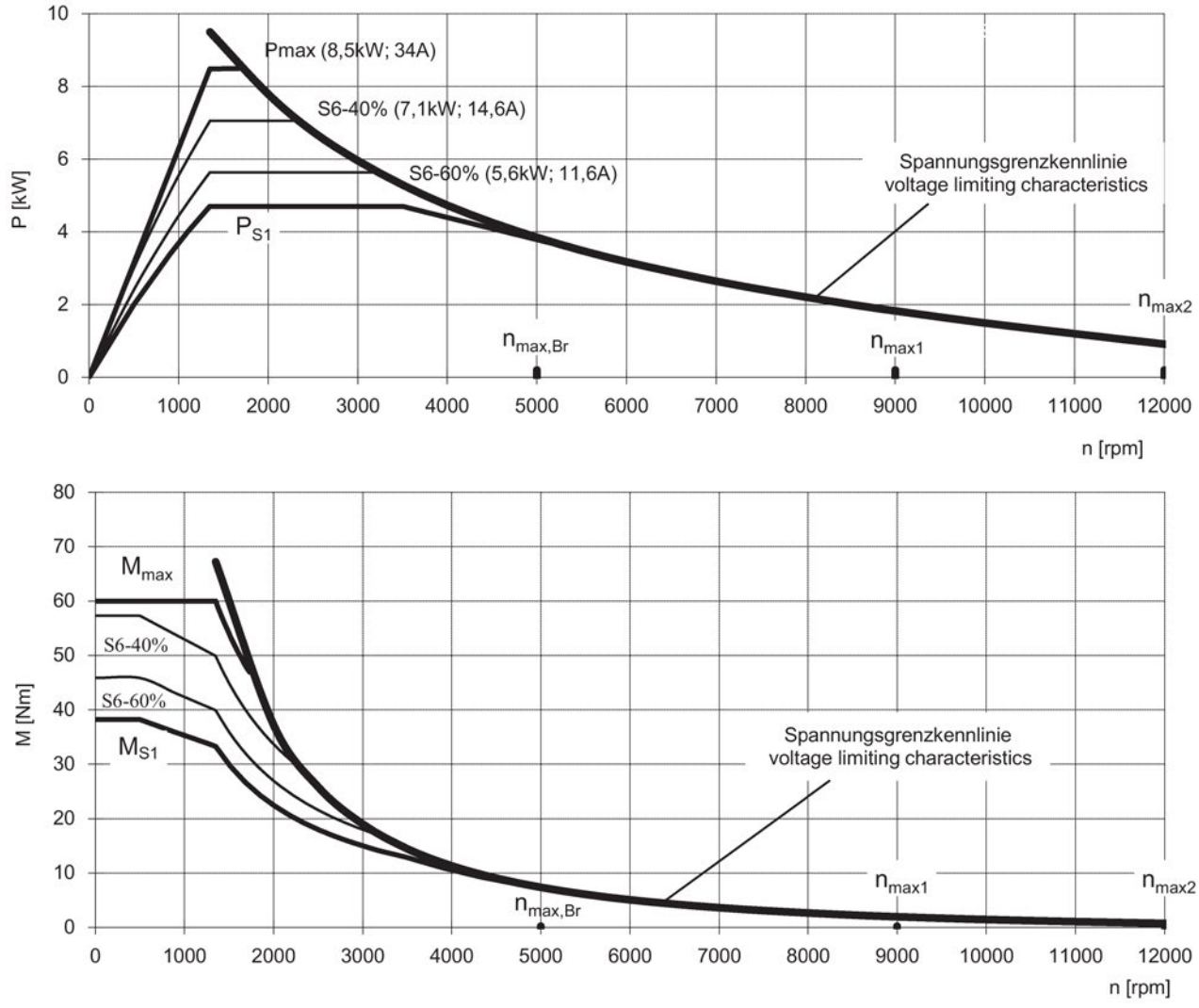
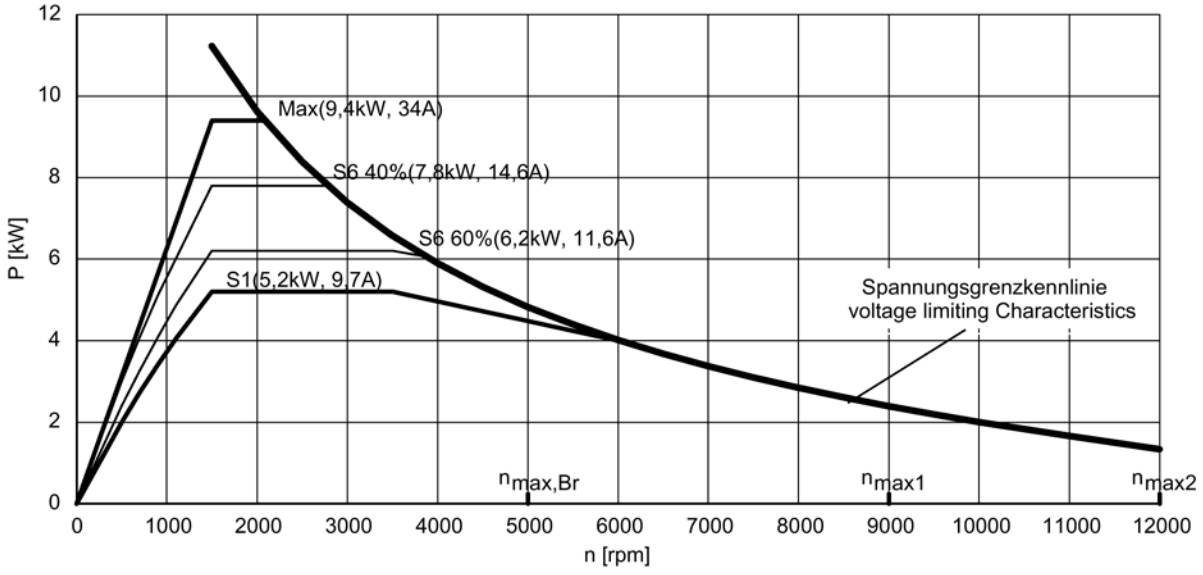


Table 6- 95 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	5.2	33	9.7	9,000	12,000	--	5,000	3,500	60	34	38	11



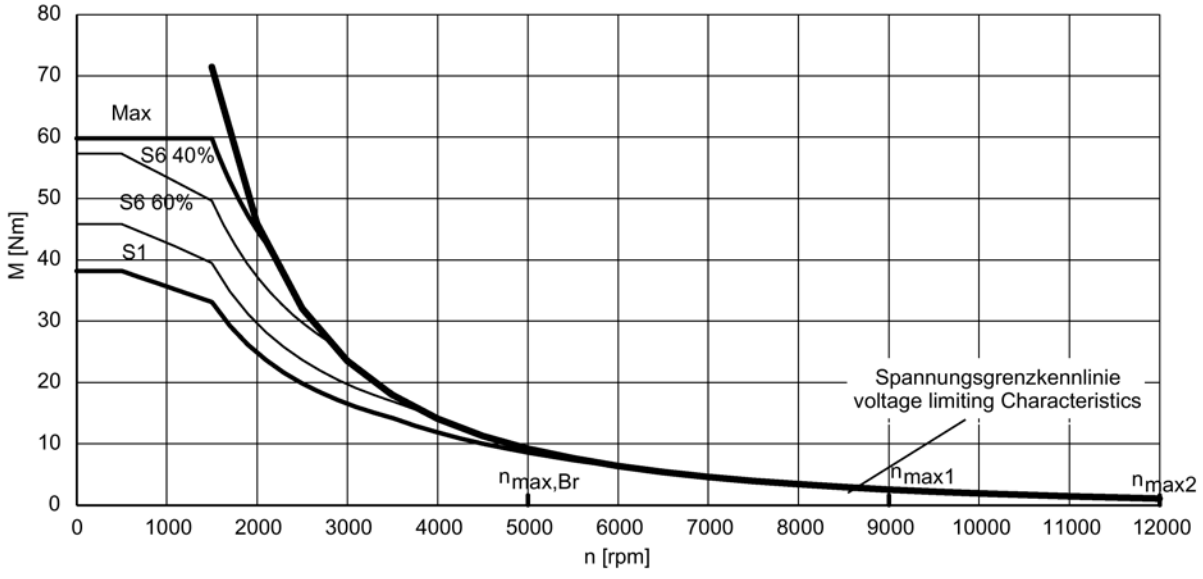
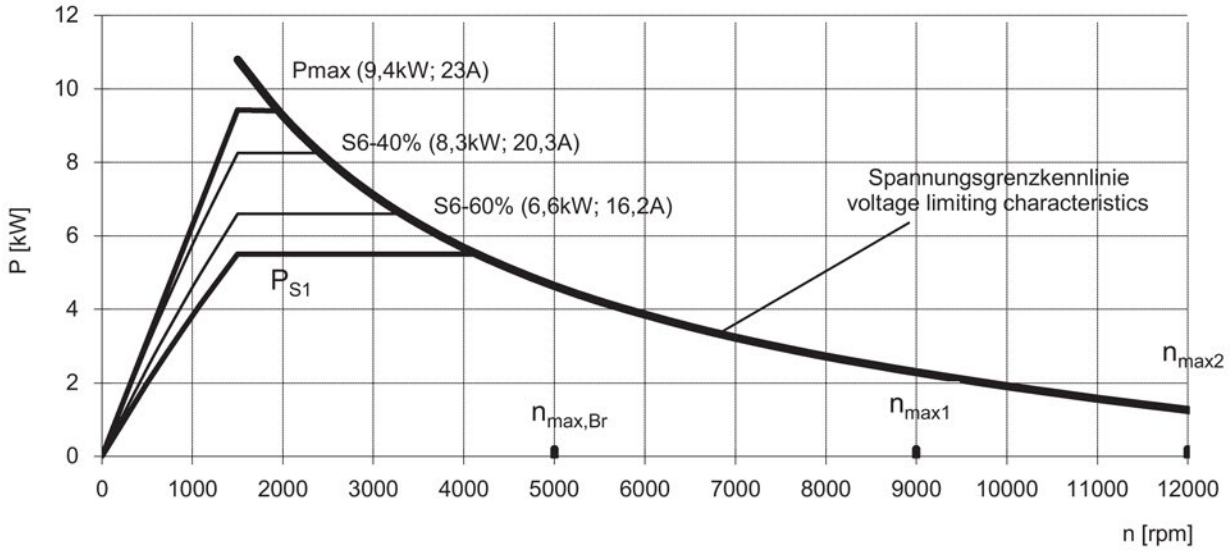


Table 6- 96 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F□□

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]
1,500	5.5	35	13.5	9,000	12,000	-	5,000	4,200	60	23	38	14



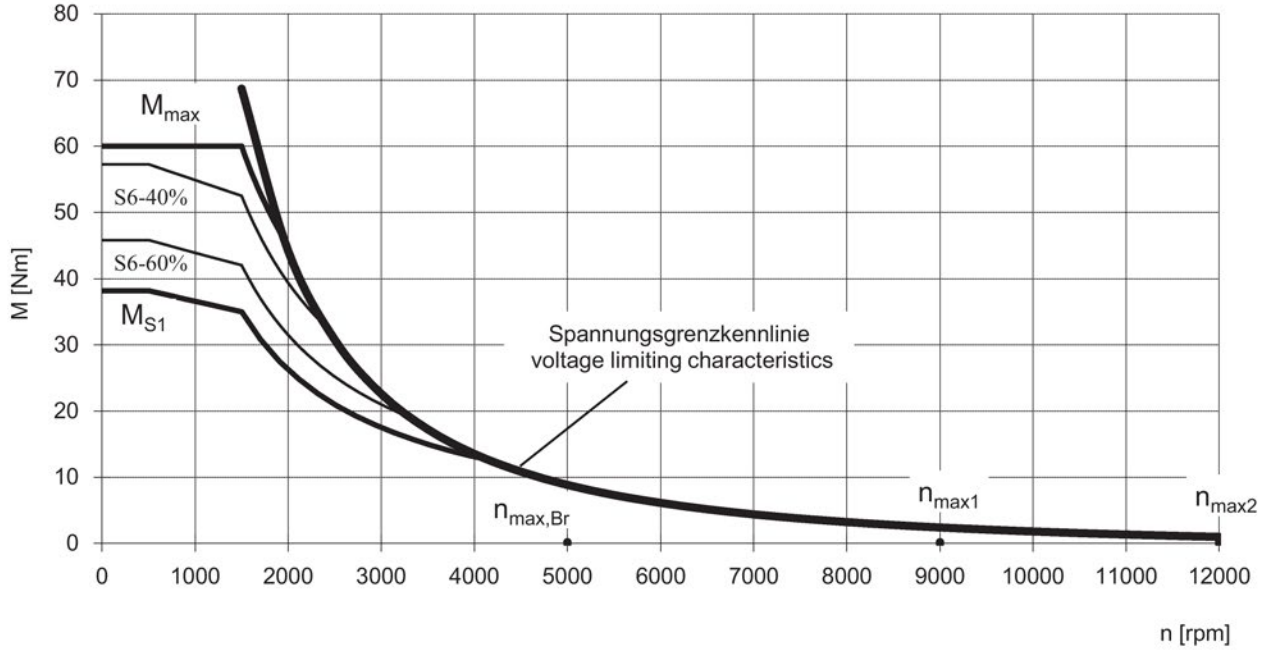
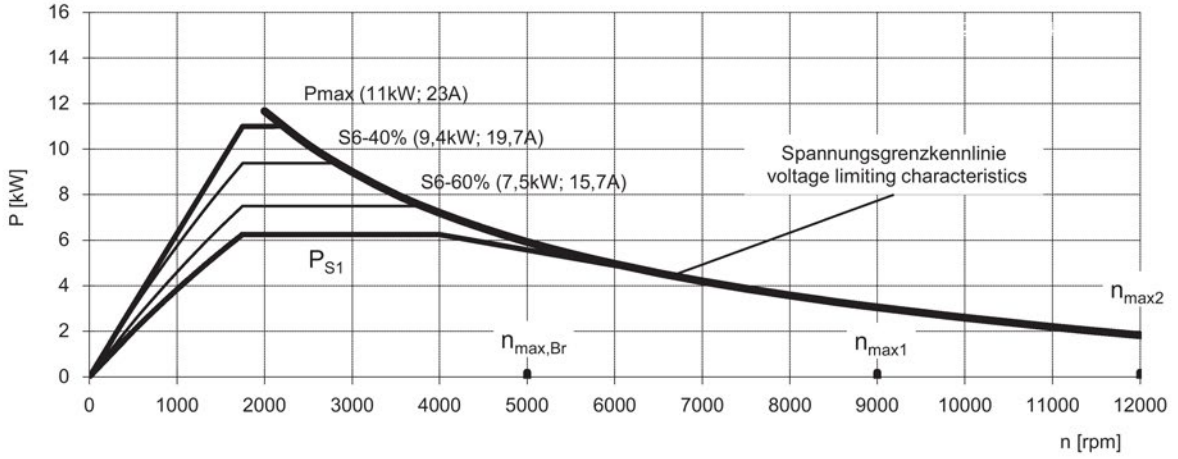


Table 6- 97 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□F□□

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]
1,750	6.3	34	13.1	9,000	12,000	-	5,000	4,000	60	23	38	14
1,500	5.5	35	13.5					5,200				



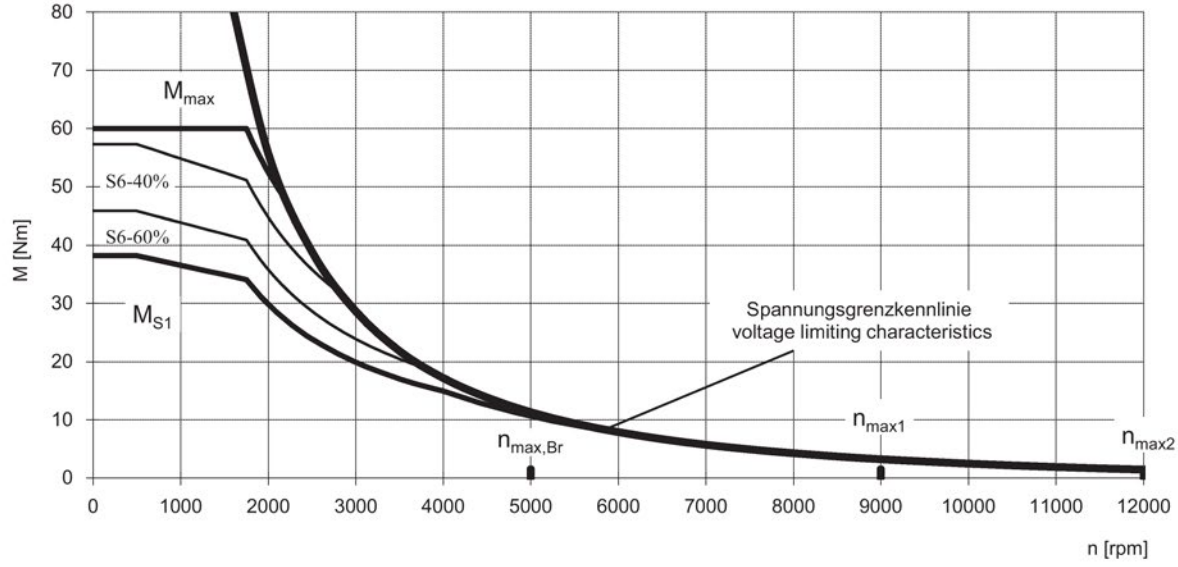
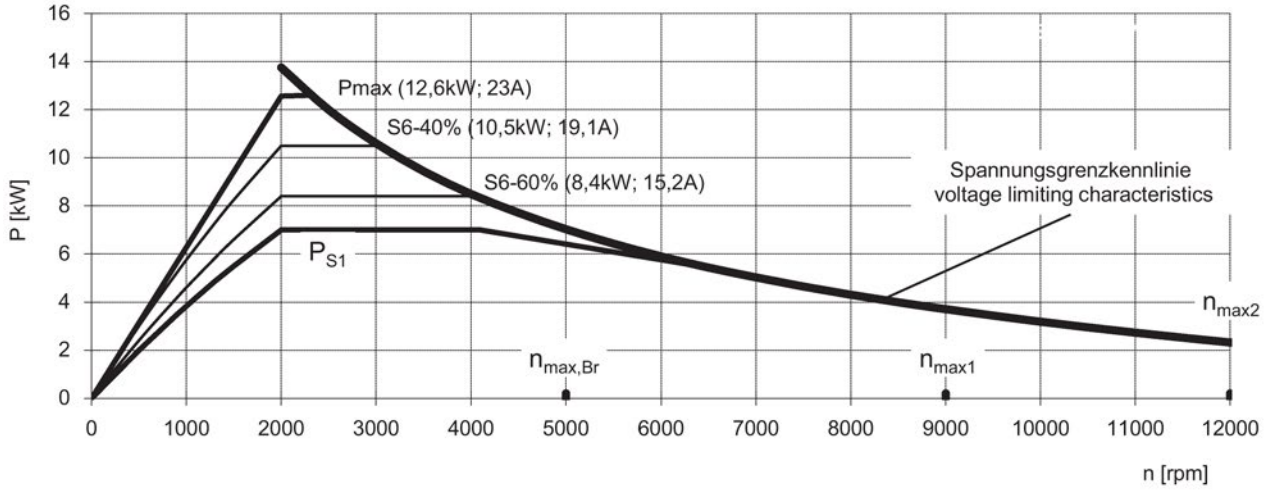


Table 6- 98 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F□□

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]
2,000	7	33	12.7	9,000	12,000	-	5,000	4,100	60	23	38	14



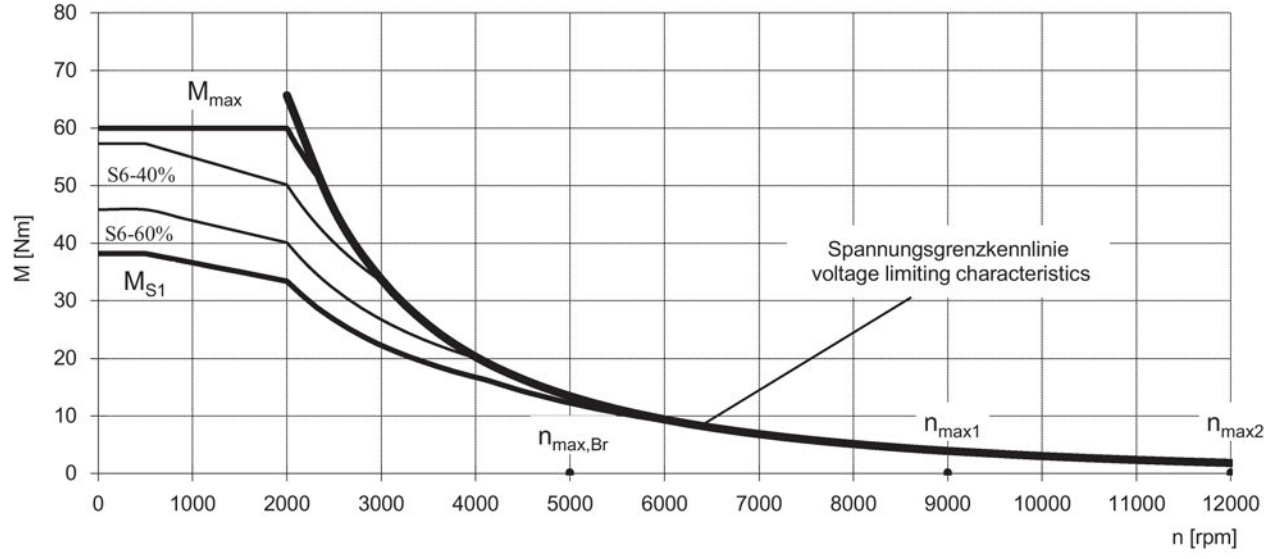
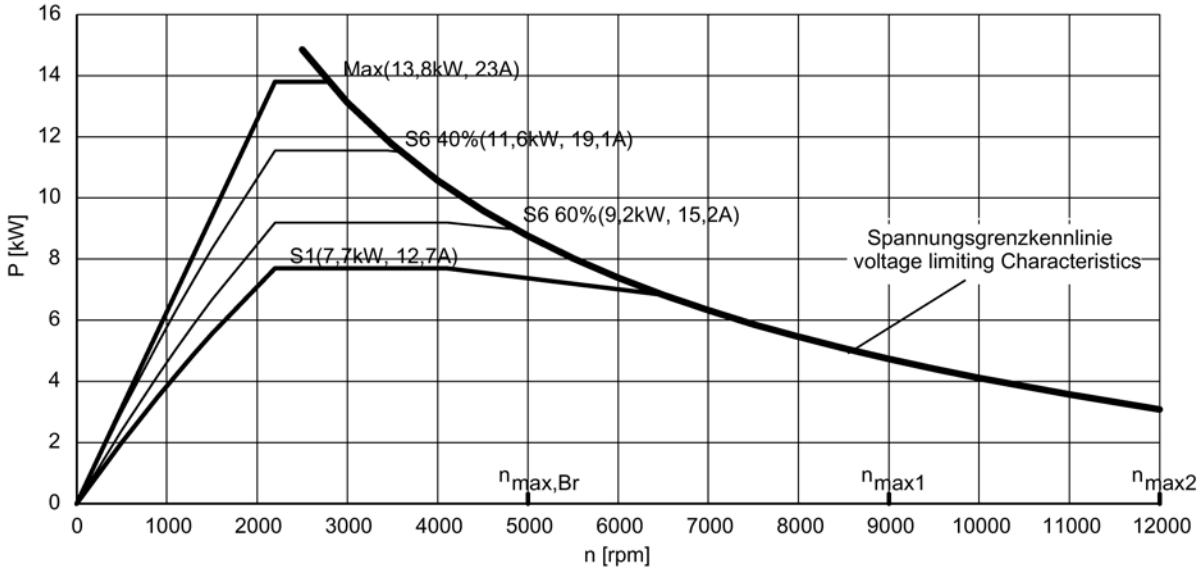


Table 6- 99 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	7.7	33	12.7	9,000	12,000	--	5,000	4,100	60	23	38	14



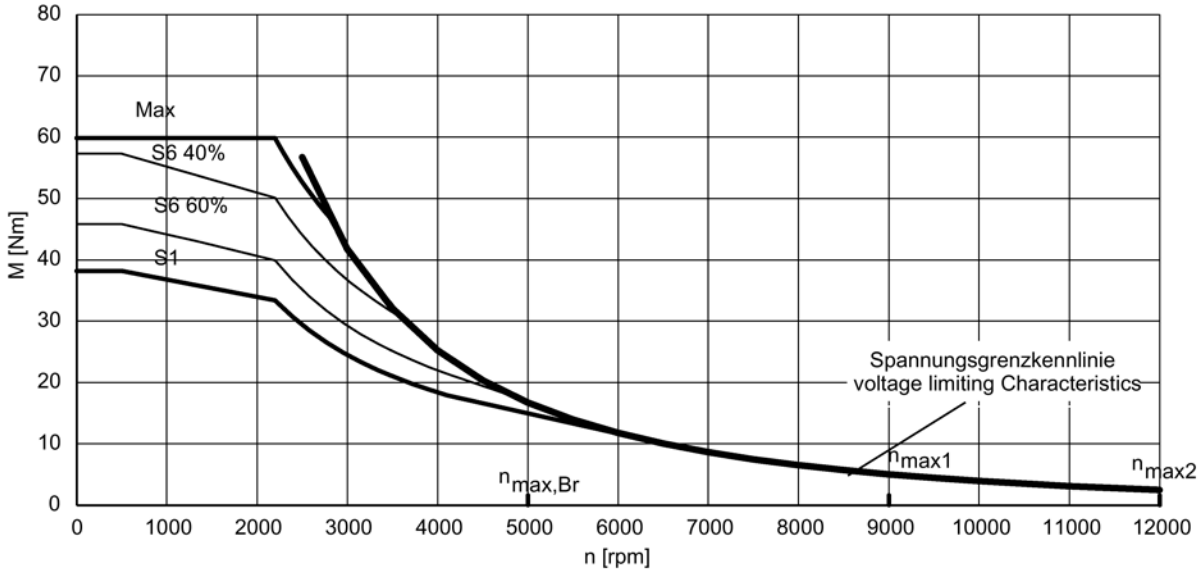
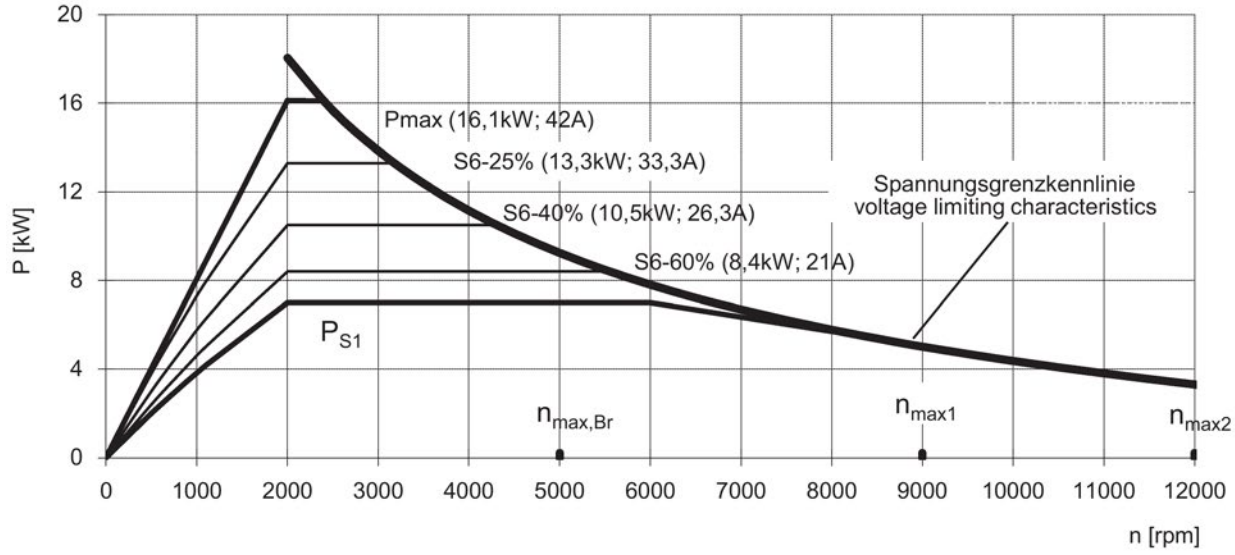


Table 6- 100 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G□□

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]
2,000	7.0	33	17.5	9,000	12,000	-	5,000	6,000	77	42	38	19



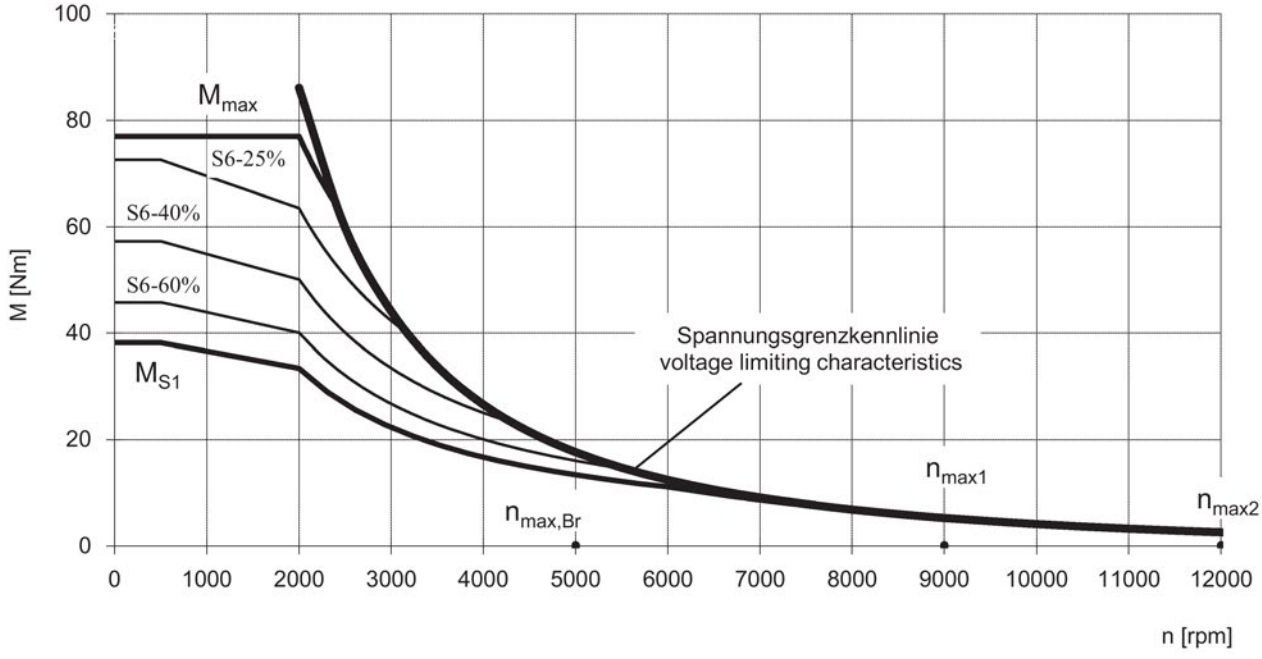


Table 6- 101 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□G□□

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]
2,300	7.5	31	17	9,000	12,000	-	5,000	6,000	77	42	38	19
2,000	7	33	17.5					7,200				

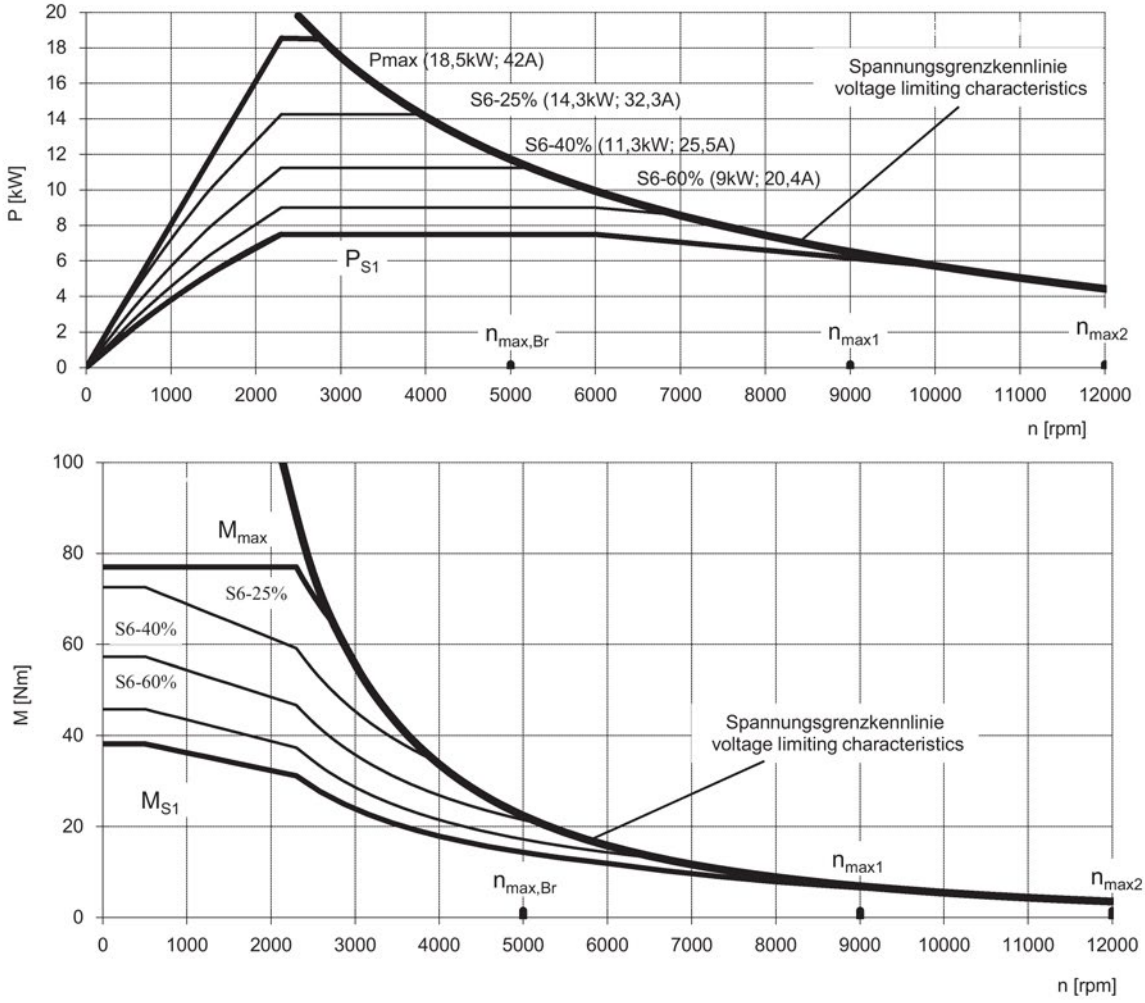
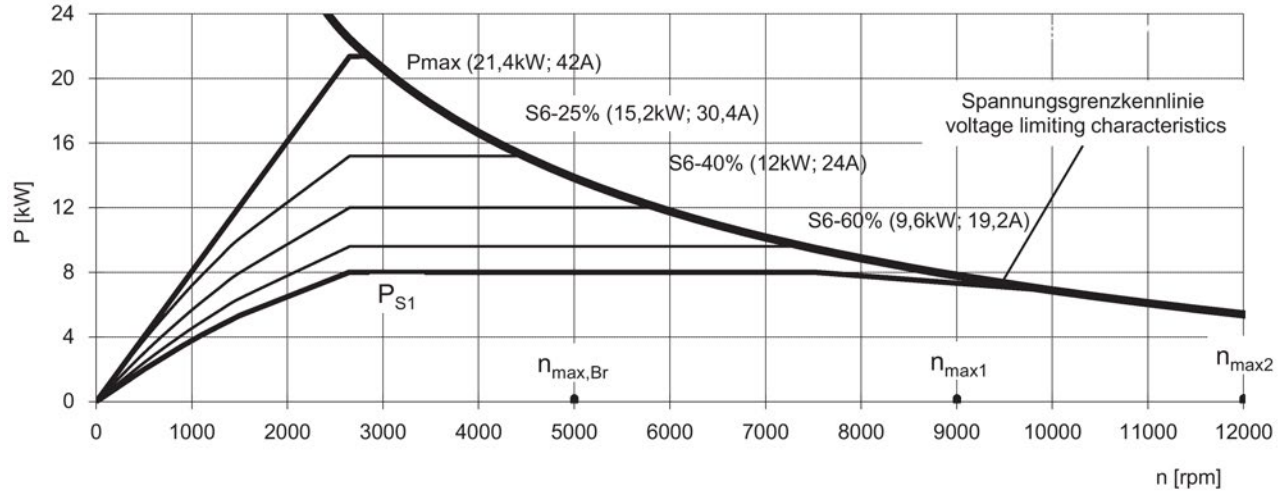


Table 6- 102 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G□□

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]
2,650	8	29	16	9,000	12,000	-	5,000	7,500	77	42	38	19



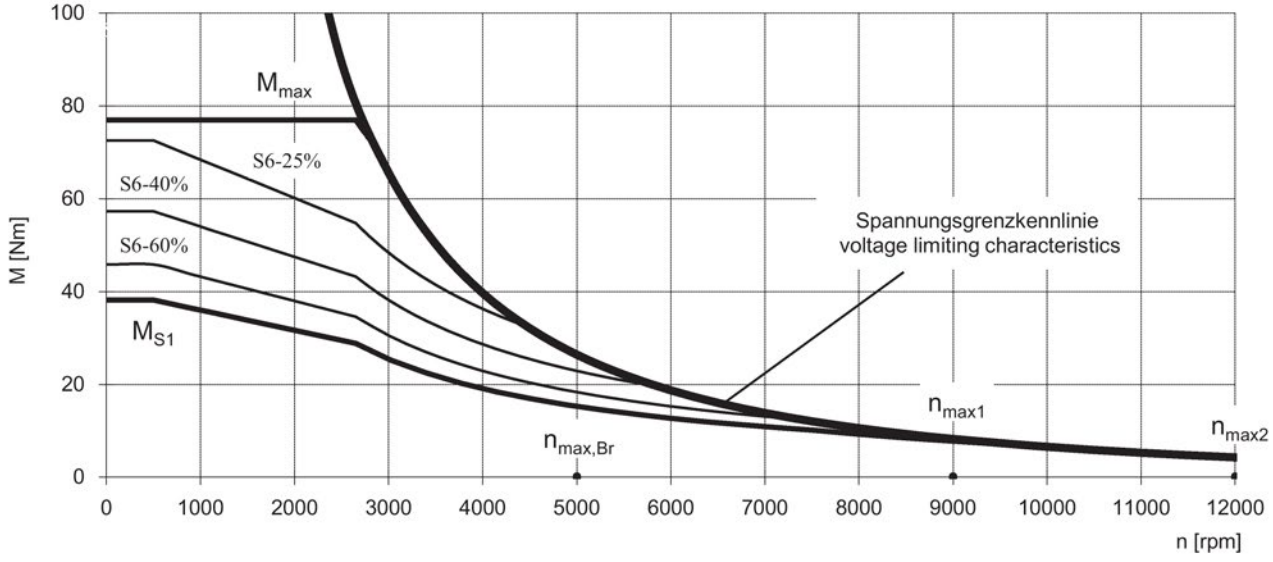
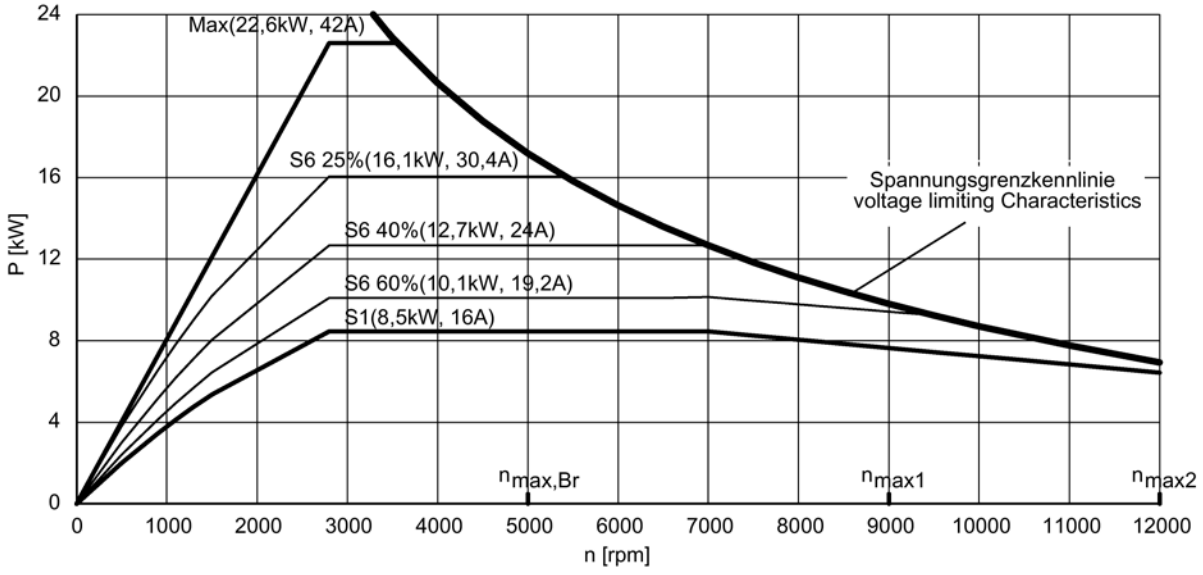


Table 6- 103 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	8.5	29	16	9,000	12,000	--	5,000	7,000	77	42	38	19



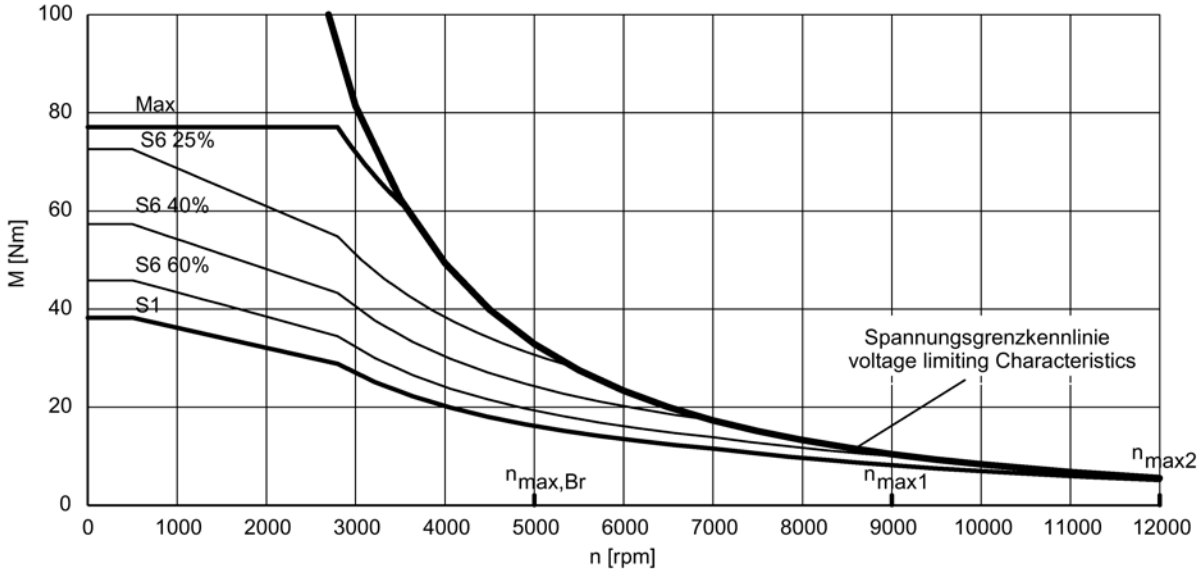
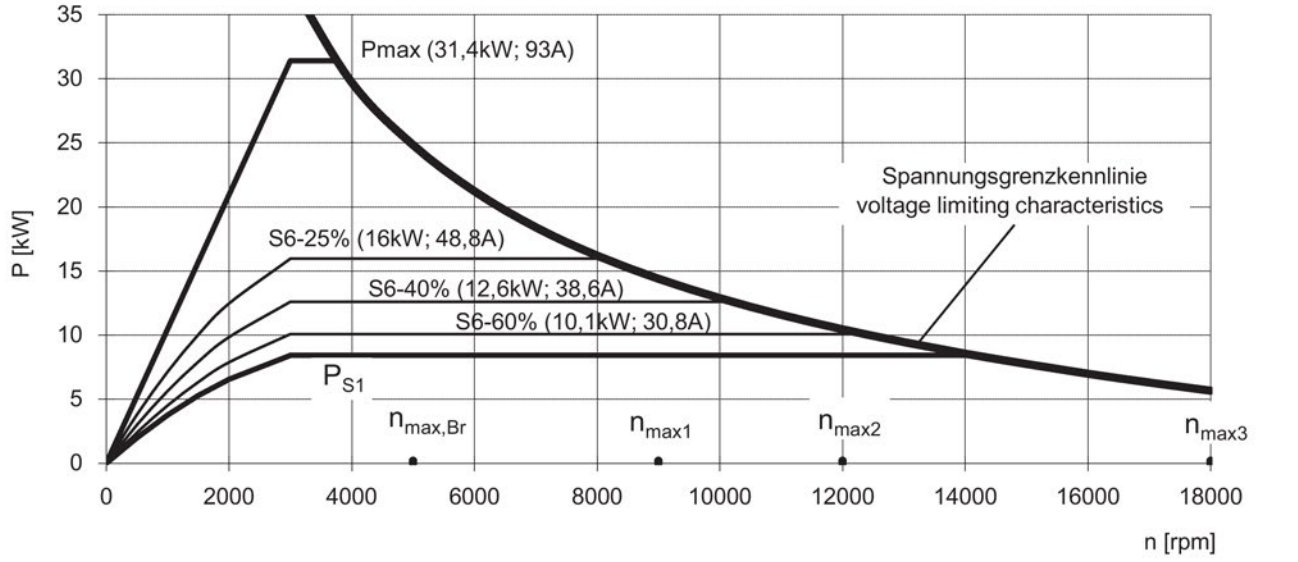


Table 6- 104 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M□□

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]
3,000	8.4	27	25.7	9,000	12,000	18,000	5,000	14,250	100	93	38	31



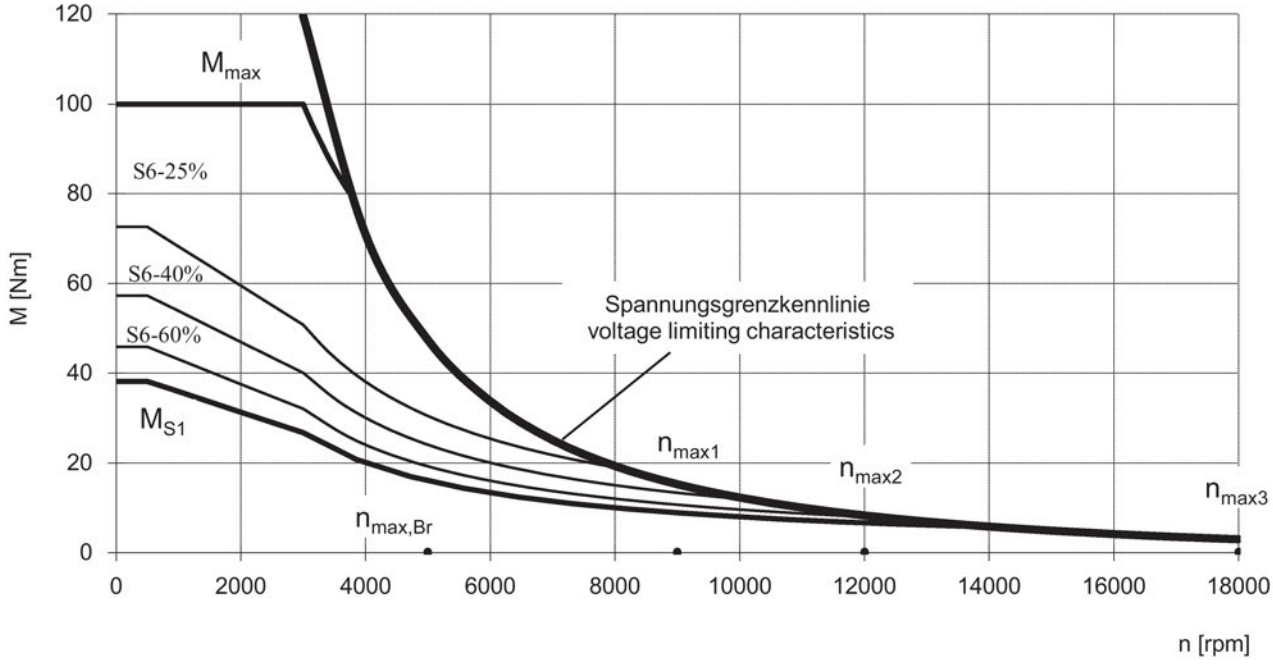
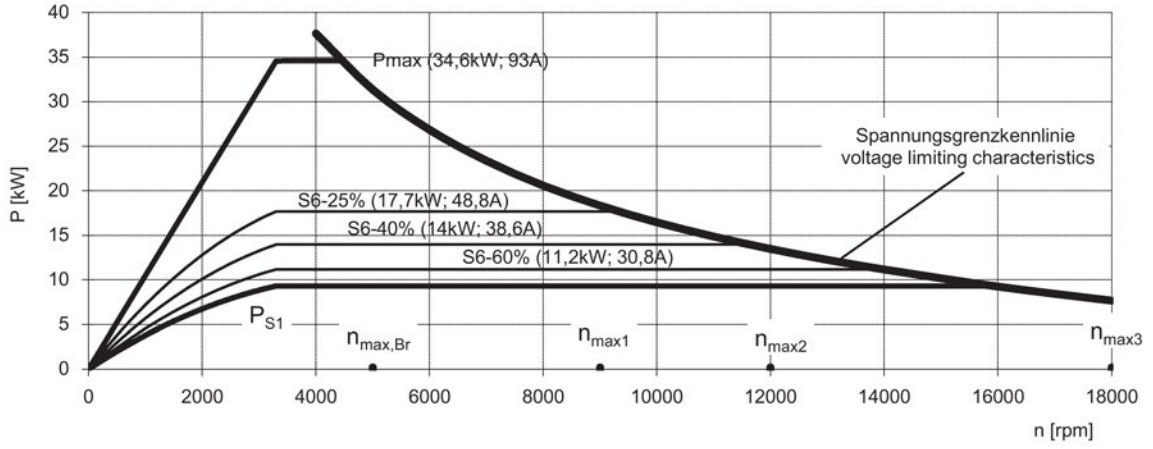


Table 6- 105 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□M□□

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]
3,300	9.3	27	25.7	9,000	12,000	18,000	5,000	16,000	100	93	38	31
3,000	8.4	27	25.7					17,100				



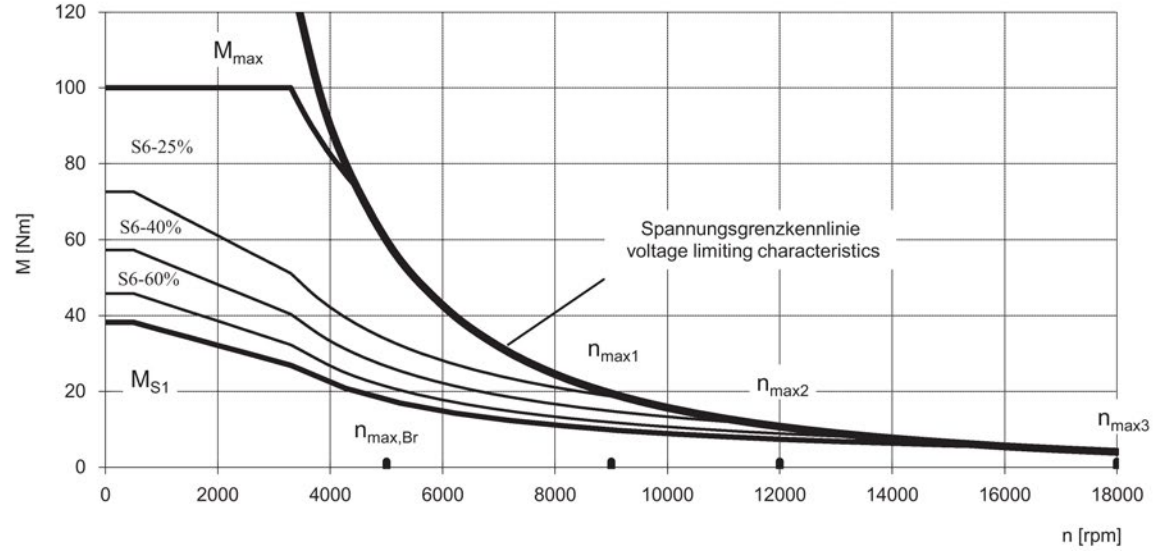
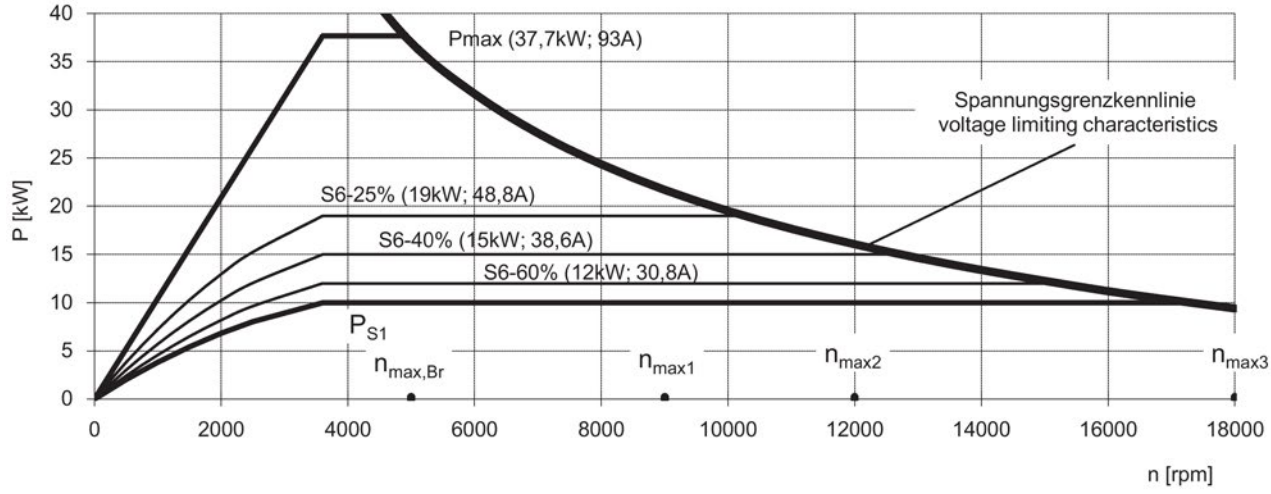


Table 6- 106 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M□□

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]
3,600	10	27	25.4	9,000	12,000	18,000	5,000	17,650	100	93	38	31



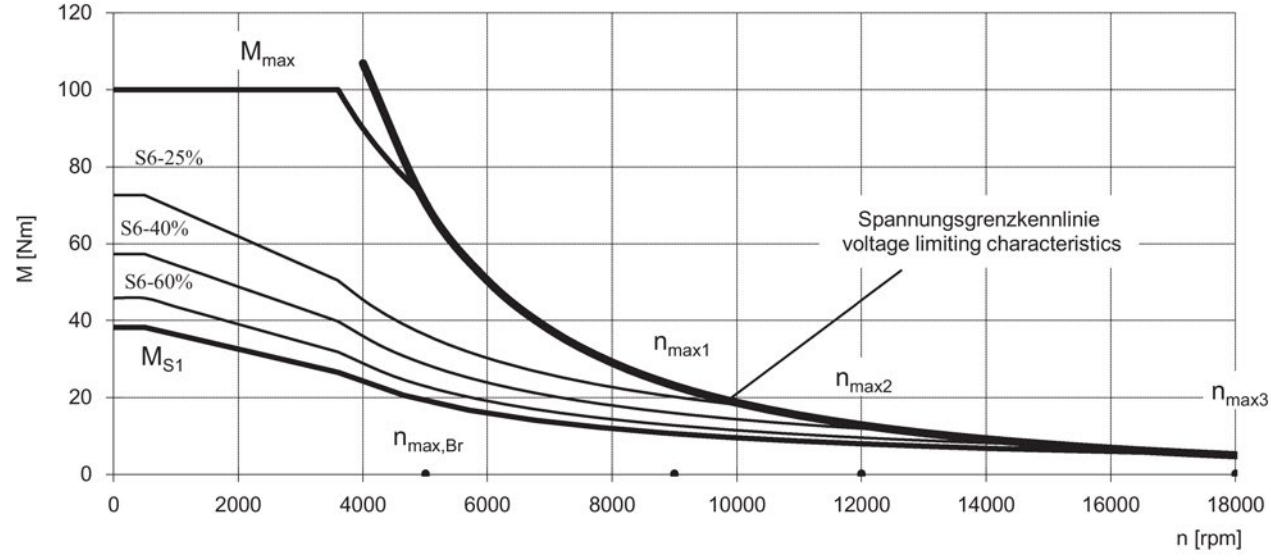
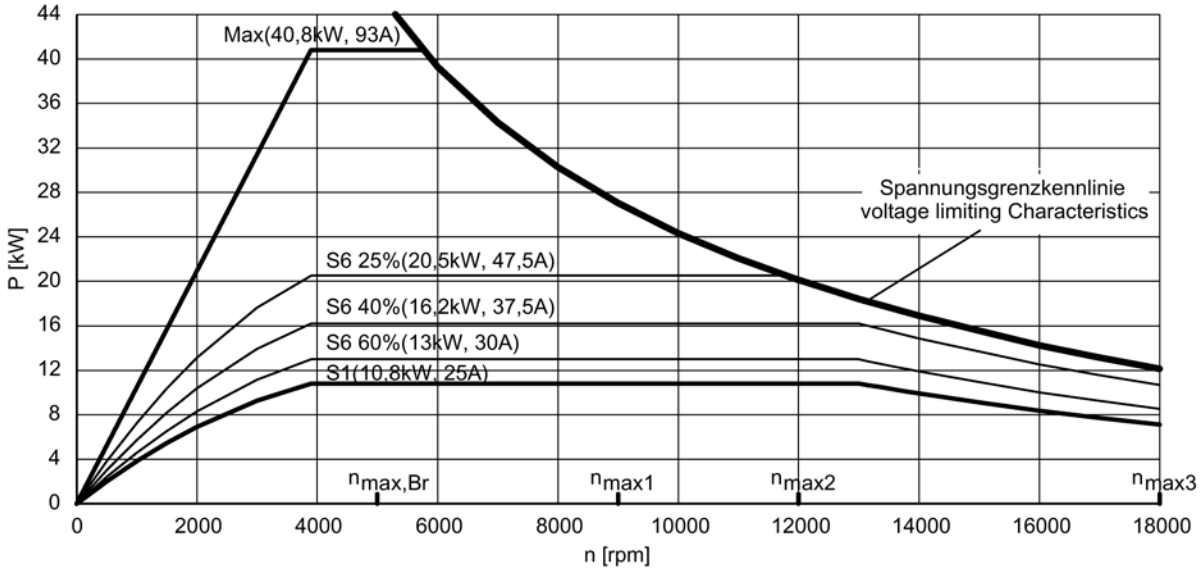


Table 6- 107 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□M□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	10.8	26	25	9,000	12,000	18,000	5,000	13,000	100	93	38	31



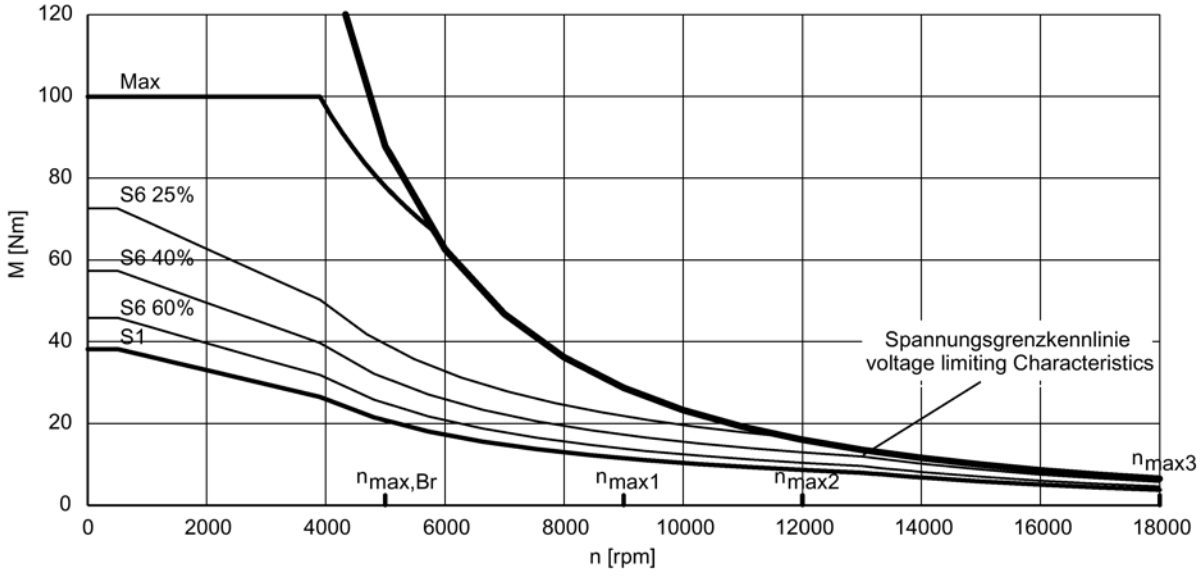
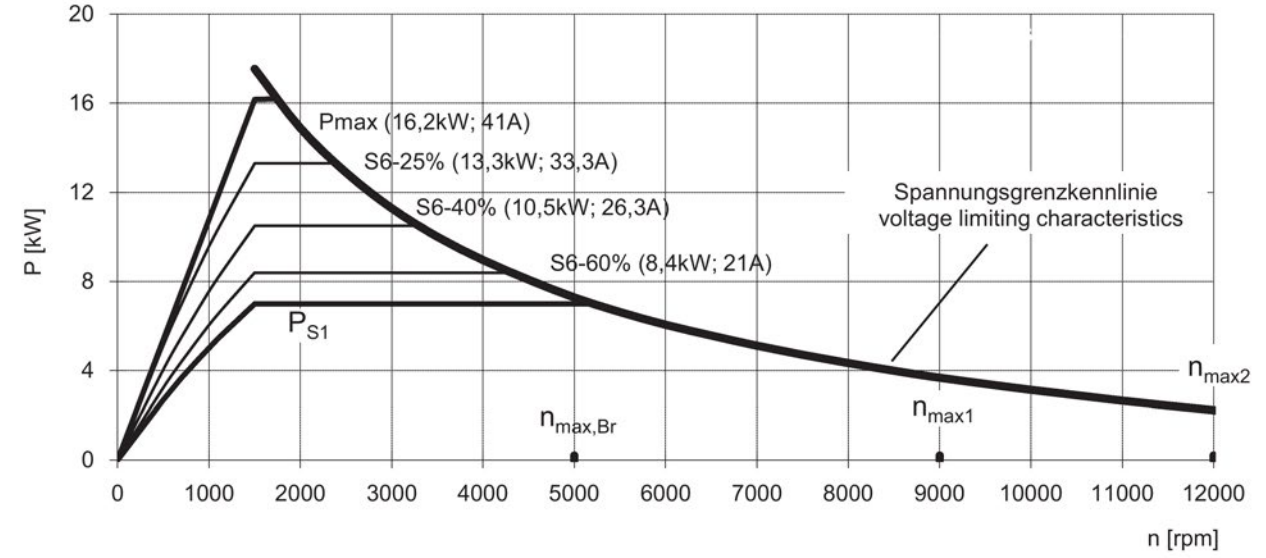


Table 6- 108 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F□□

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]
1,500	7	45	17.5	9,000	12,000	-	5,000	5,250	103	41	52	20



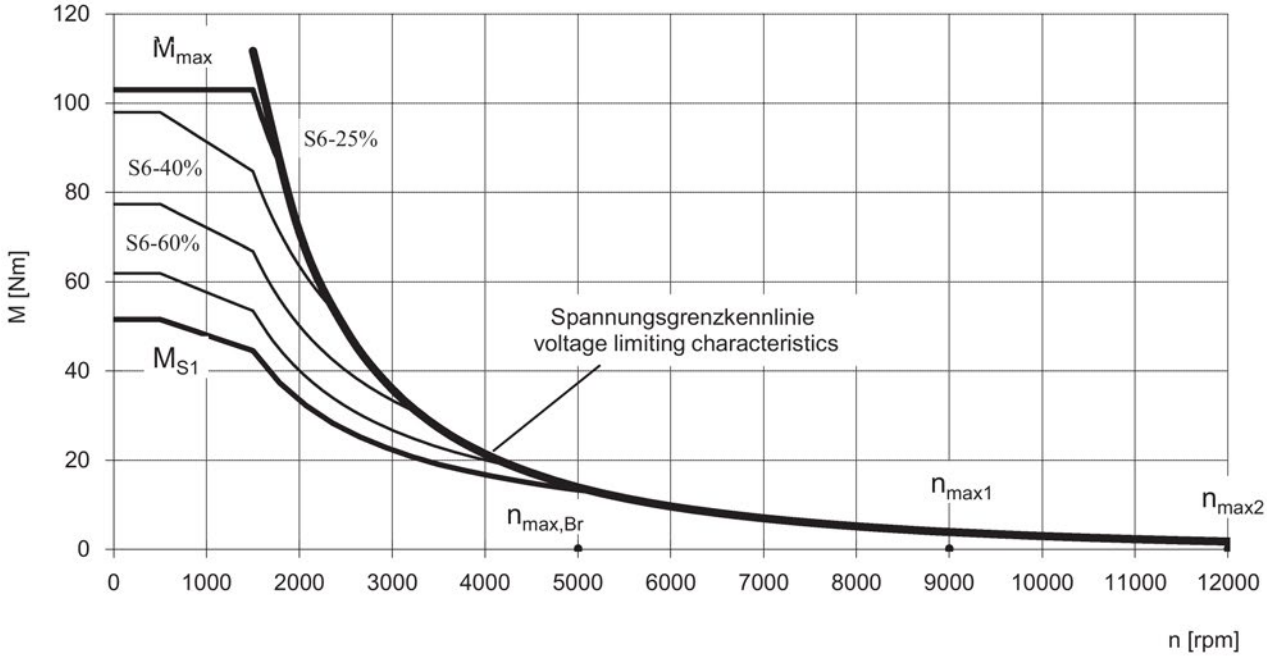
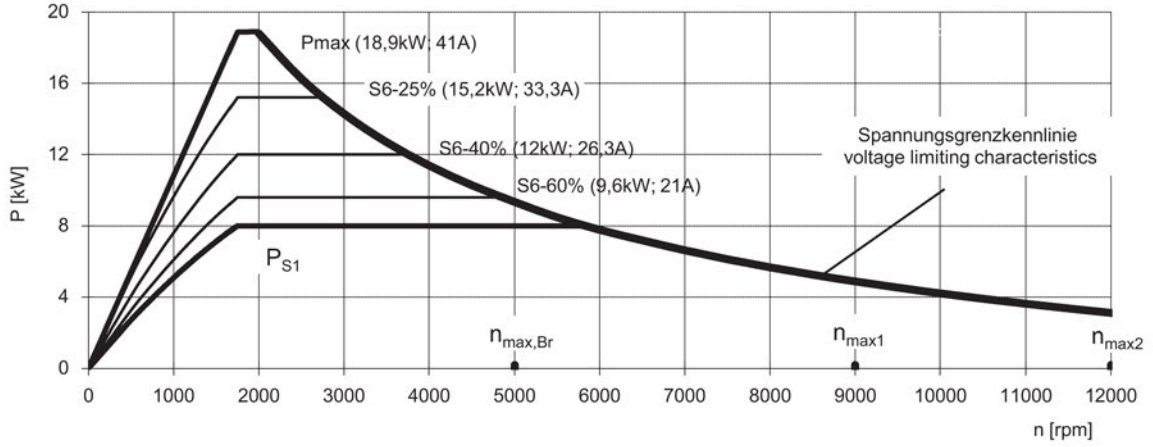


Table 6- 109 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□F□□

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]
1,750	8	44	17.5	9,000	12,000	-	5,000	5,900	103	41	52	20
1,500	7	45	17.5					6,700				



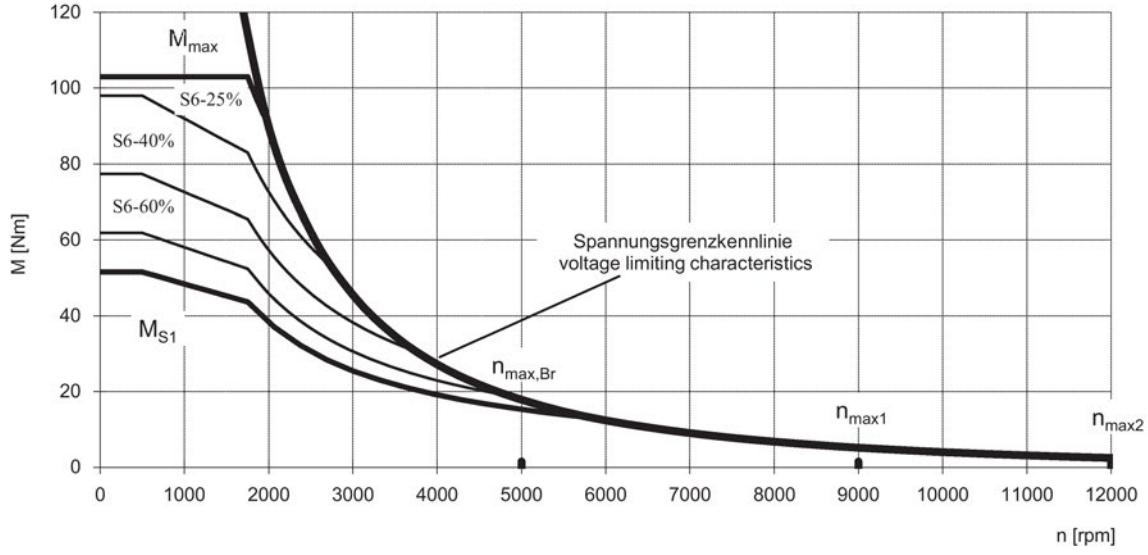
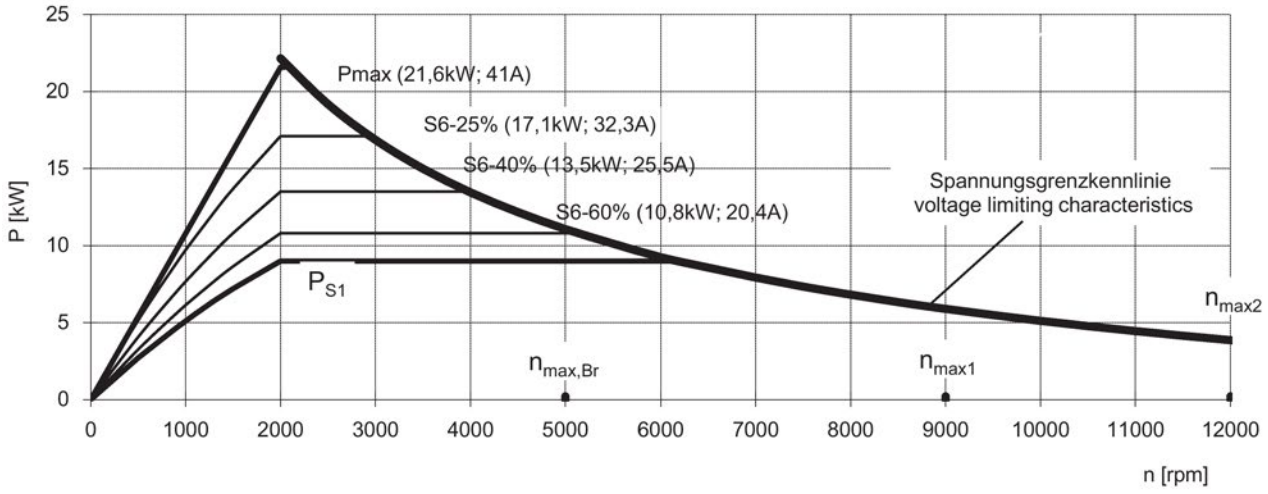


Table 6- 110 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F□□

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]
2,000	9	43	17	9,000	12,000	-	5,000	6,250	103	41	52	20



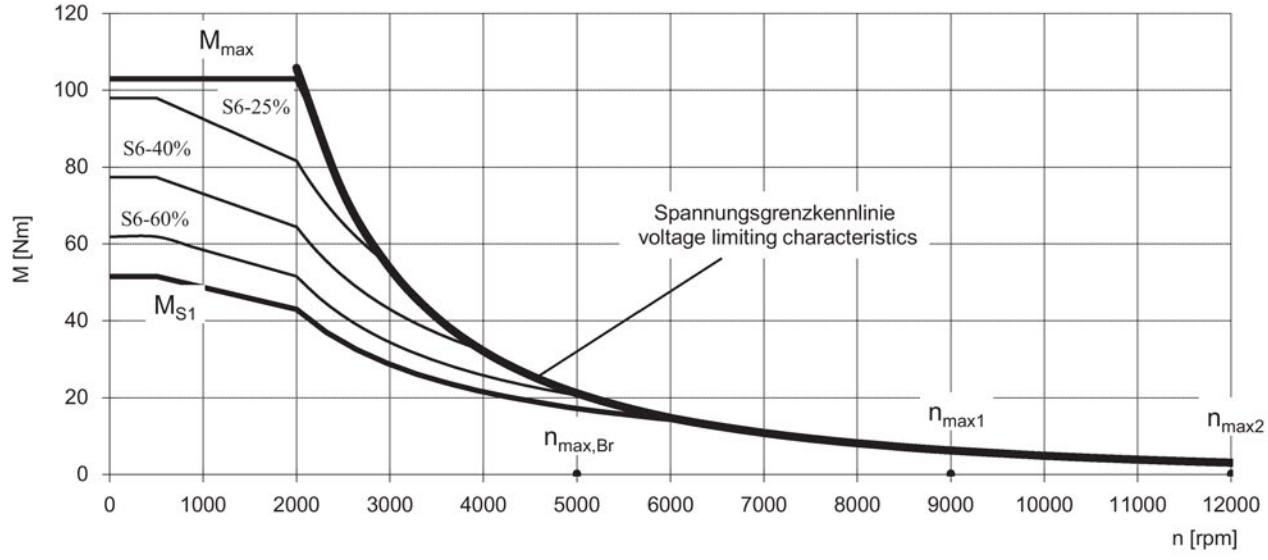
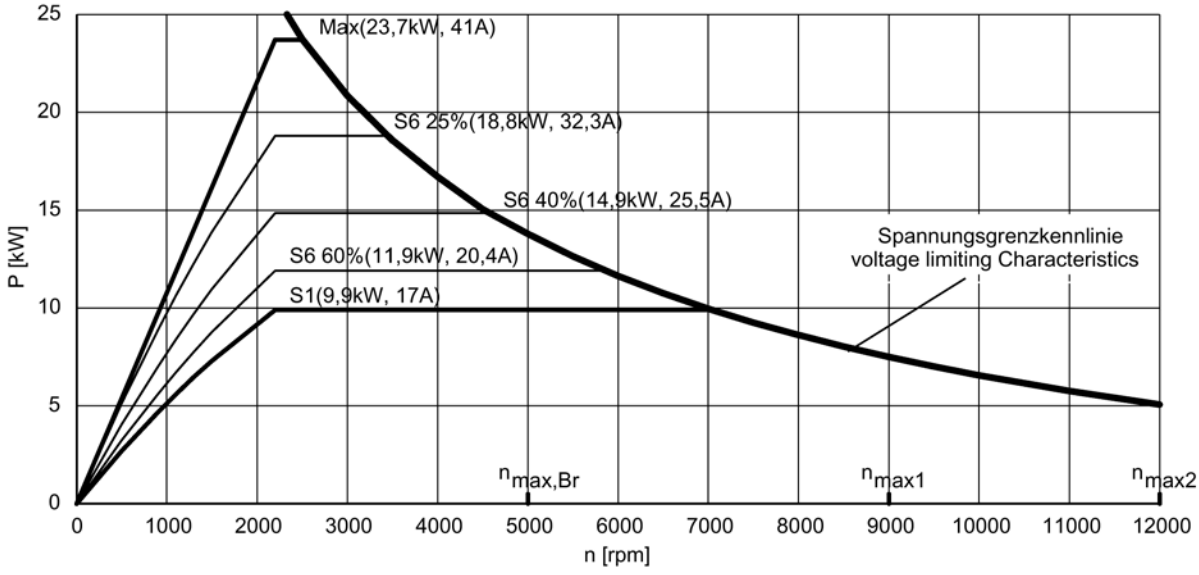


Table 6- 111 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8105-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	9.9	43	17	9,000	12,000	--	5,000	7,000	103	41	52	20



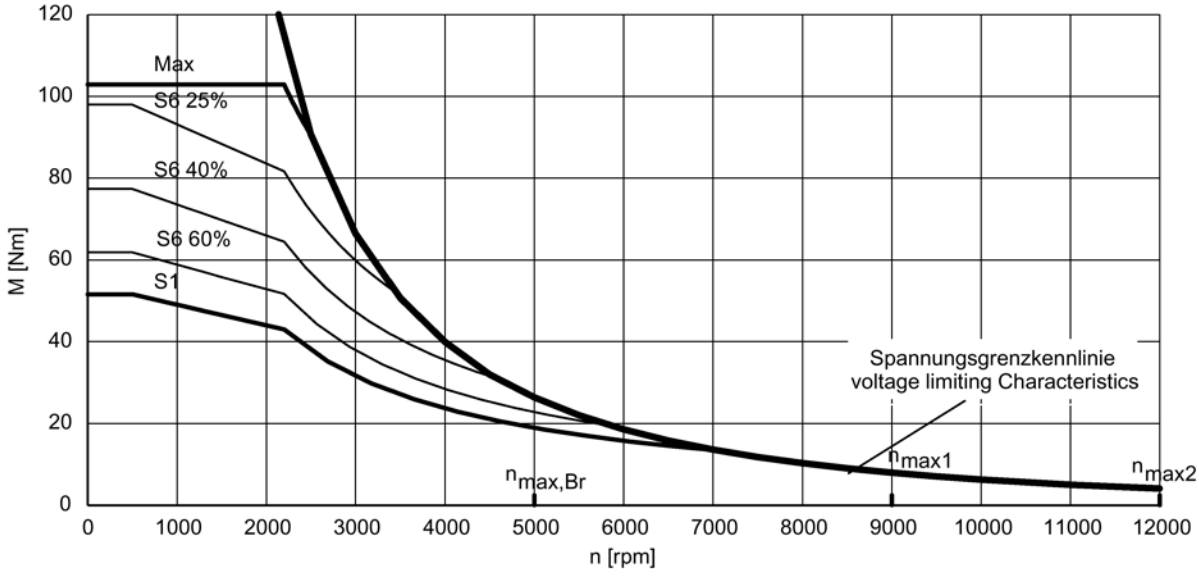
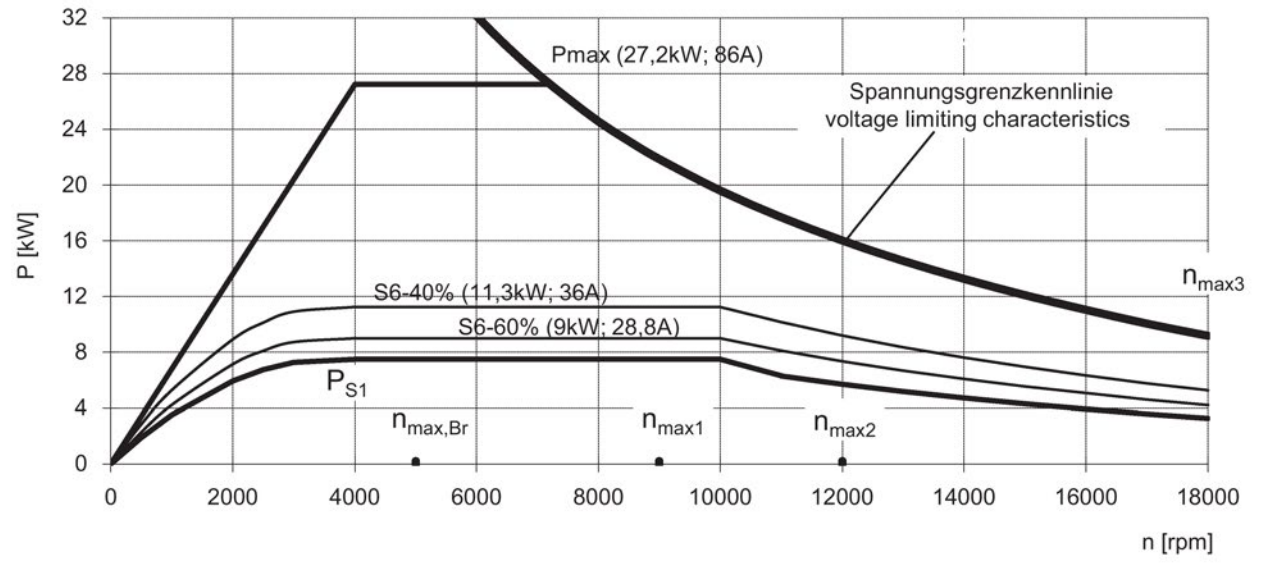


Table 6- 112 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Δ connection

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]
4,000	7.5	18	24	9,000	12,000	18,000	5,000	10,000	65	86	36	35



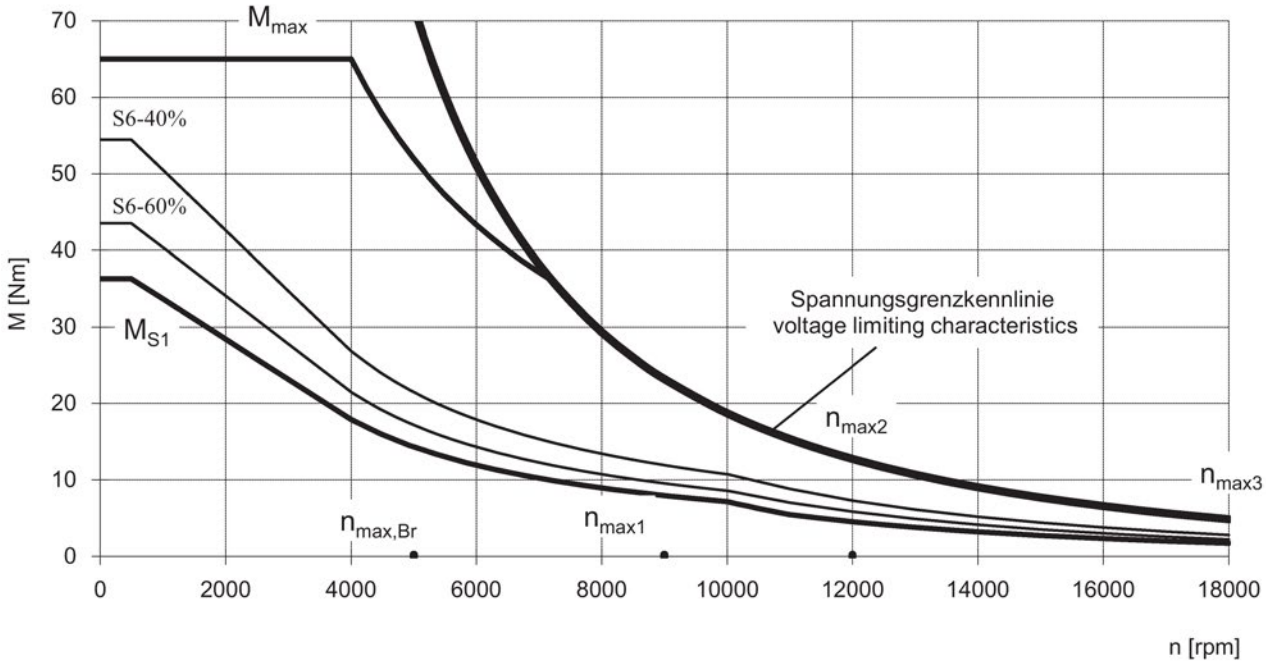
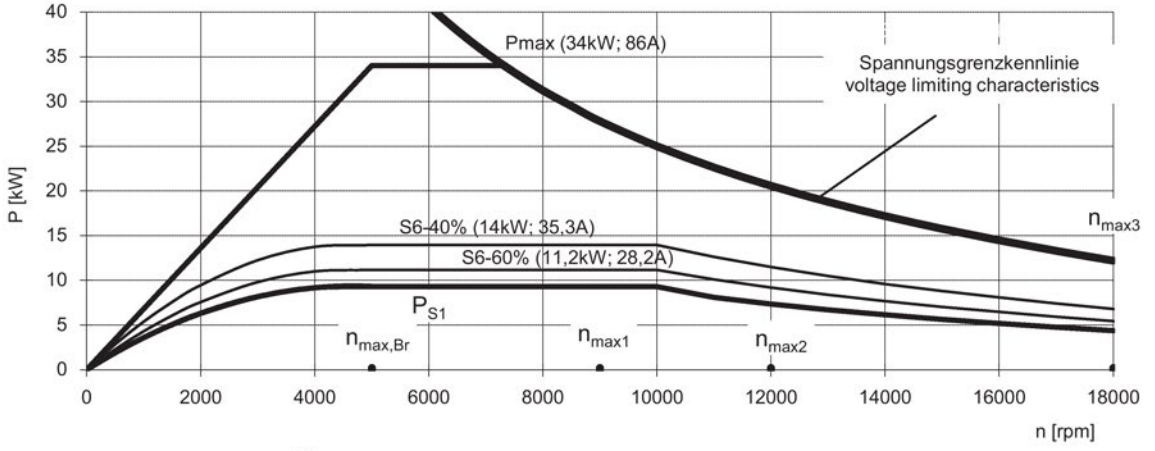


Table 6- 113 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Δ connection

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]
5,000	9.3	18	24	9,000	12,000	18,000	5,000	10,000	65	86	36	34
4,000	7.5	18	24					11,500				



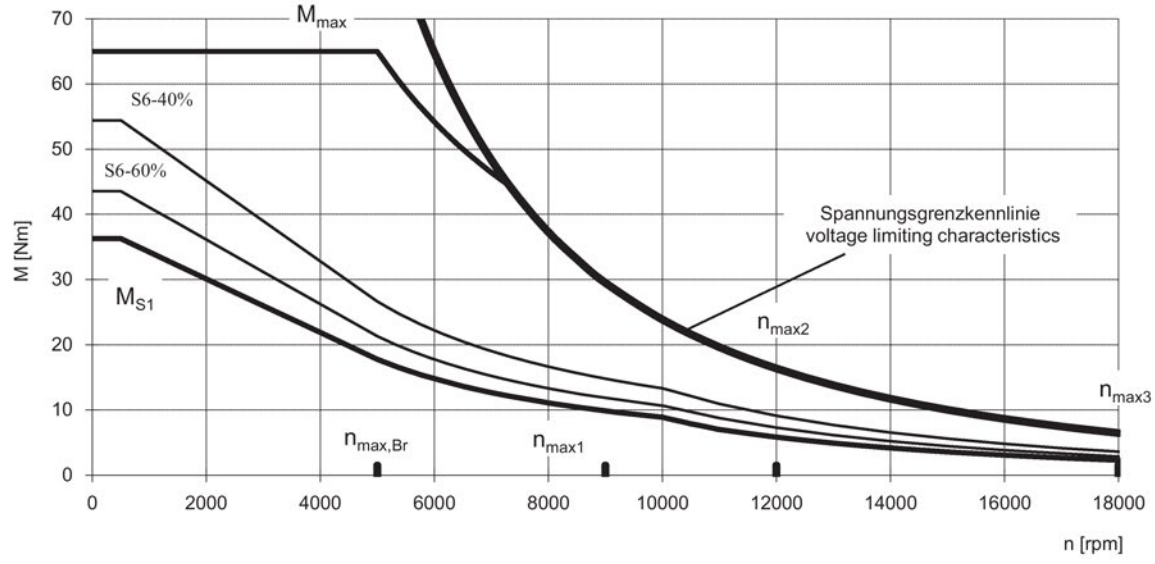


Table 6- 114 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Δ connection

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]
6,000	11.2	18	22	9,000	12,000	18,000	5,000	10,000	65	86	36	35

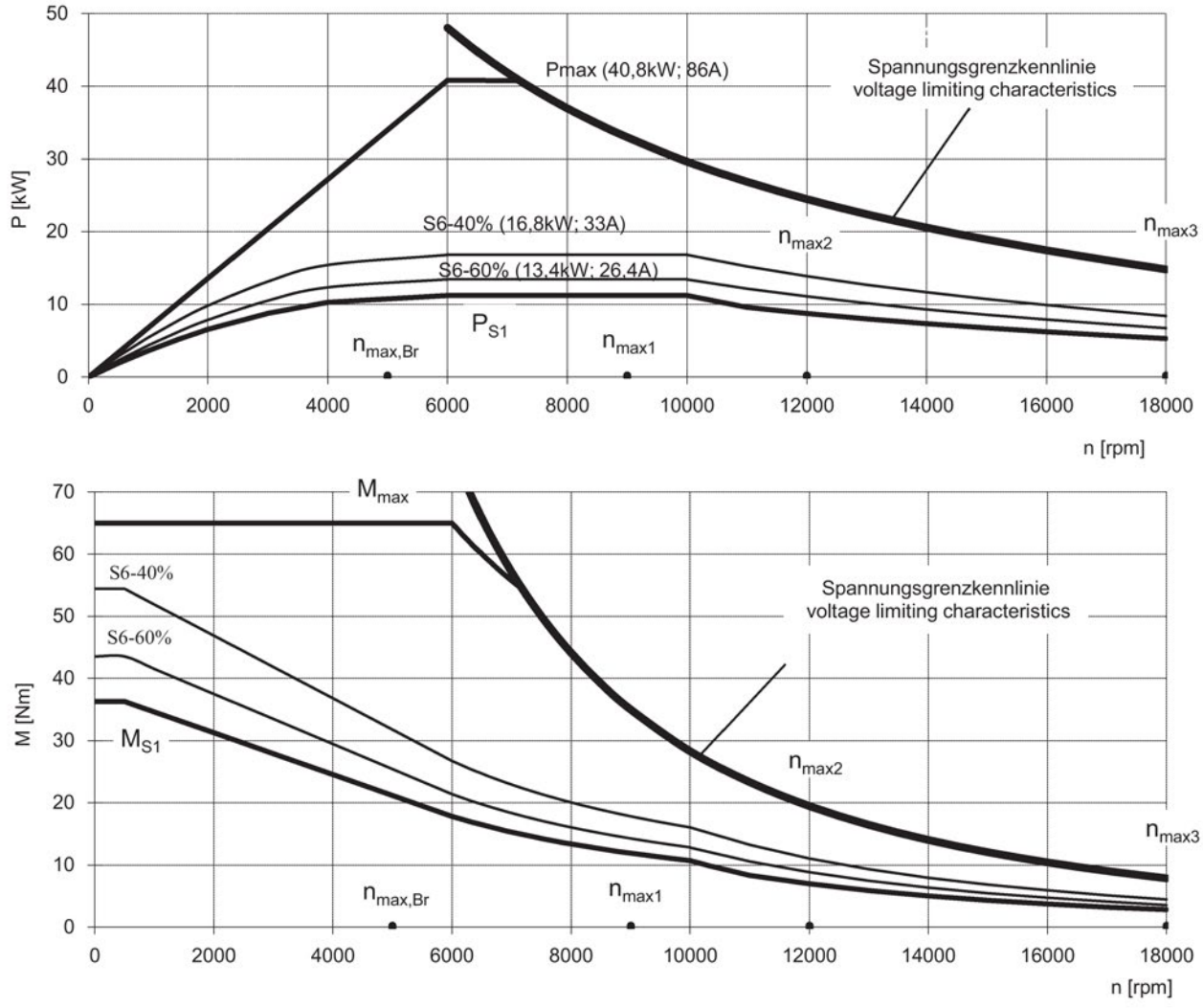
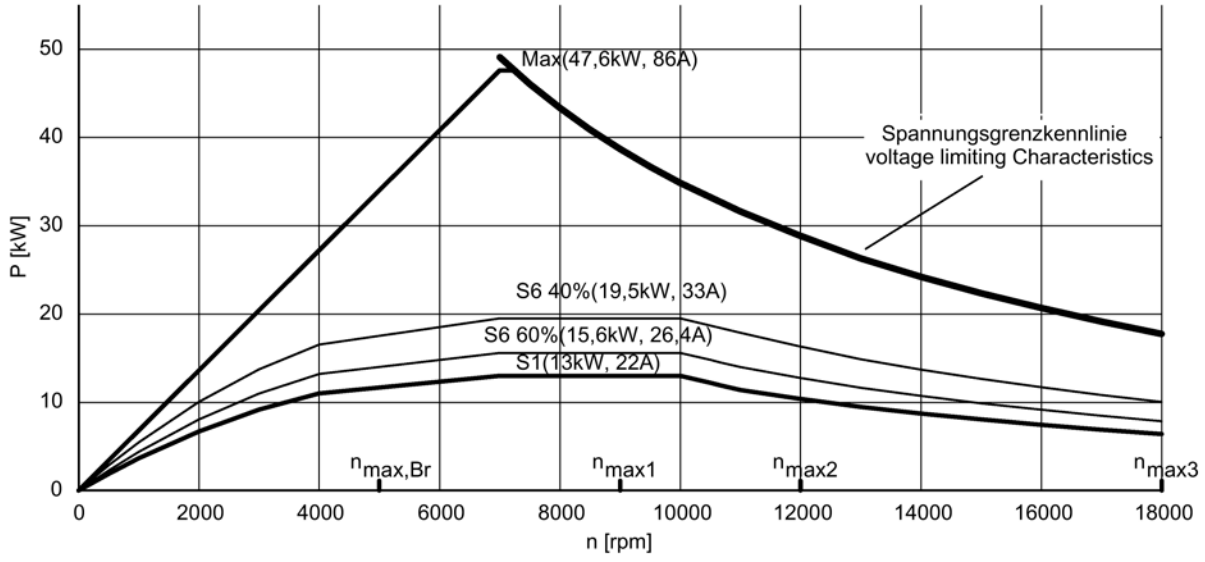


Table 6- 115 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	13	18	22	9,000	12,000	18,000	5,000	10,000	65	86	36	35



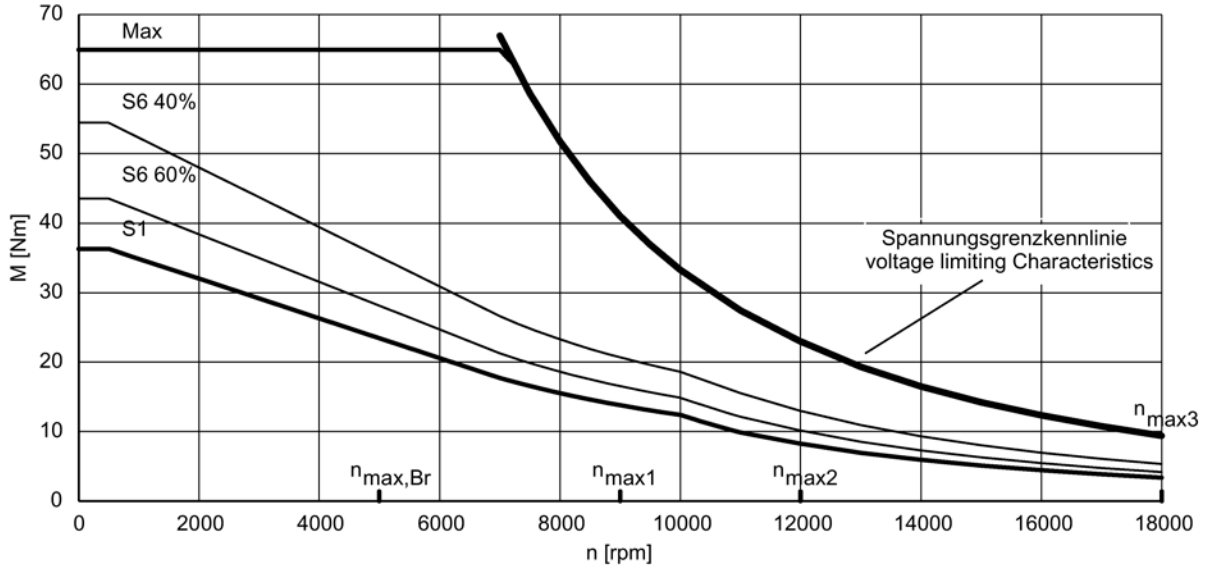


Table 6- 116 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Y connection

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]
1,500	7.5	48	23	9,000	12,000	-	5,000	7,900	100	46	55	25

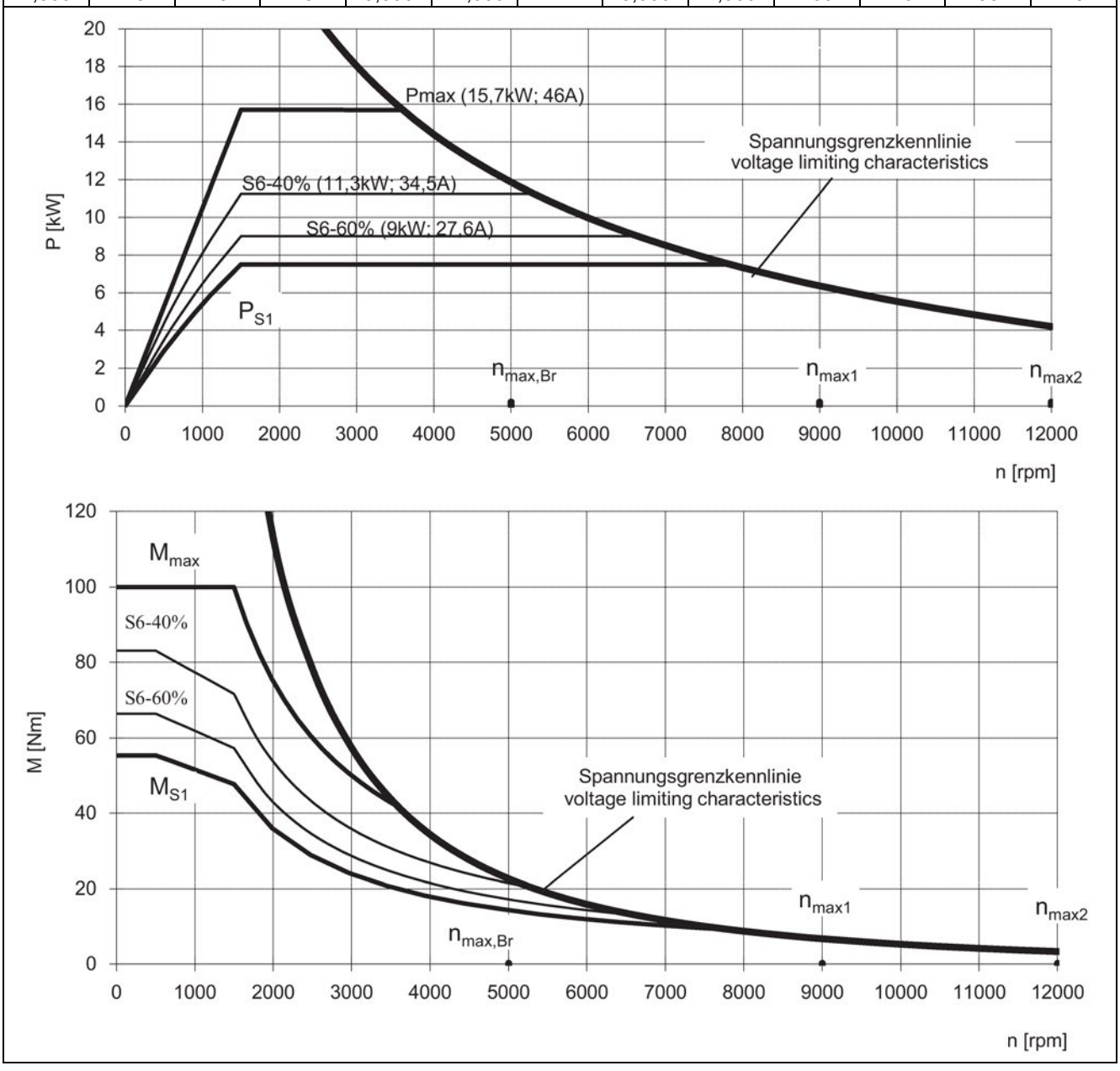
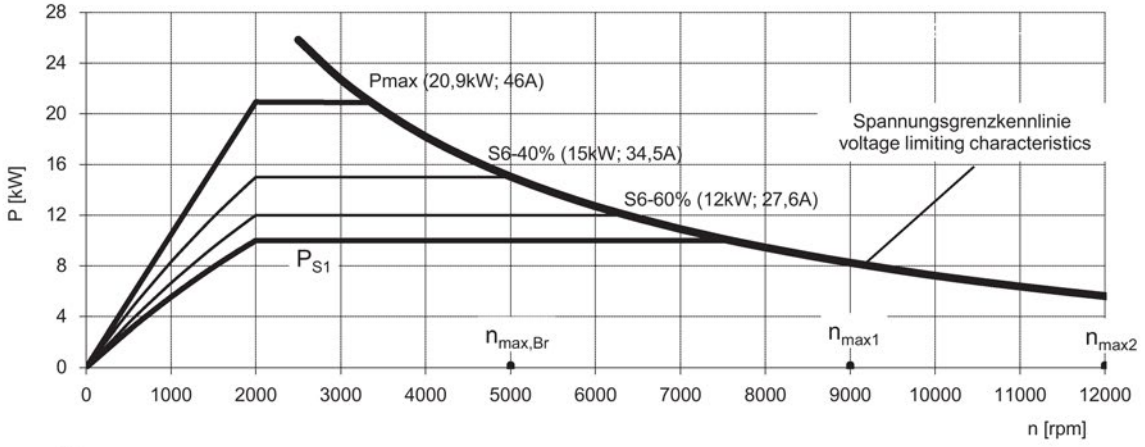


Table 6- 117 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Y connection

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]
2,000	10	48	23	9,000	12,000	-	5,000	7,650	100	46	55	25
1,500	7.5	48	23					9,800				



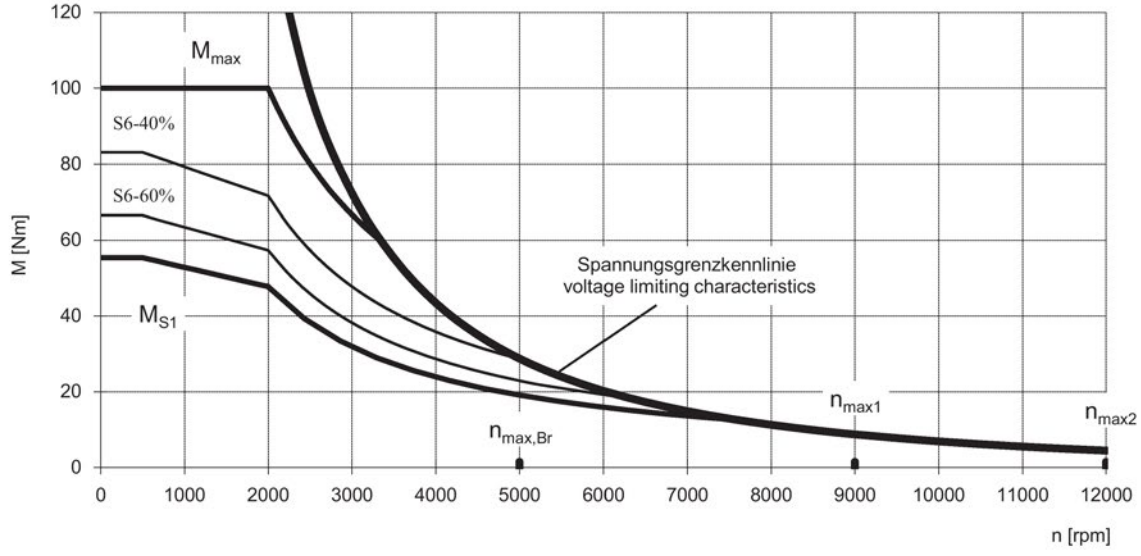
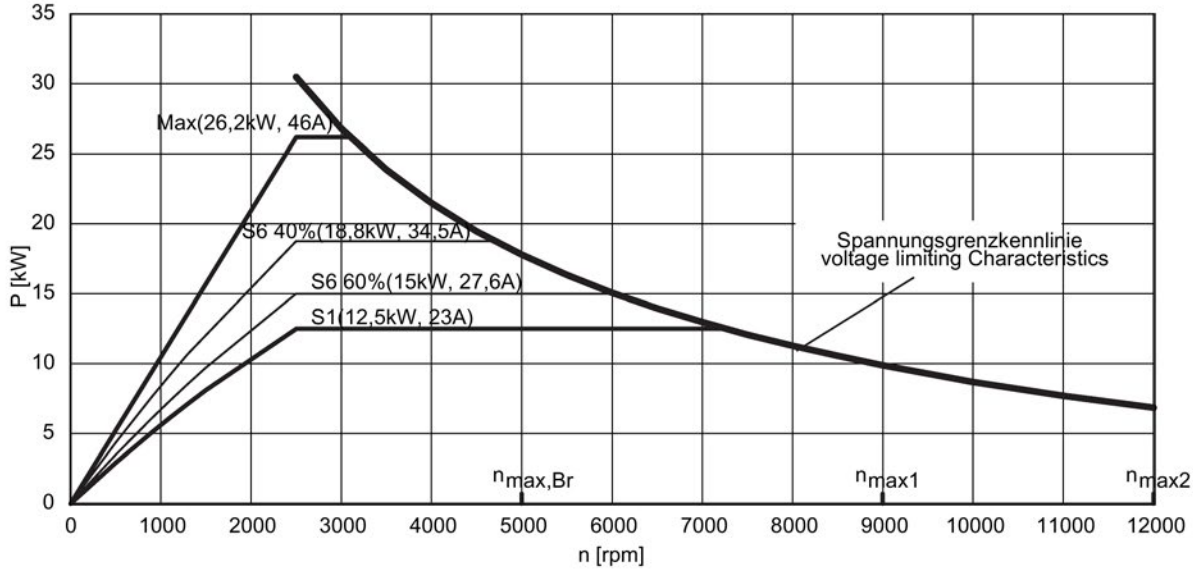


Table 6- 118 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□S□□, Y connection

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]
2,500	12.5	48	23	9,000	12,000	-	5,000	7,300	100	46	55	25



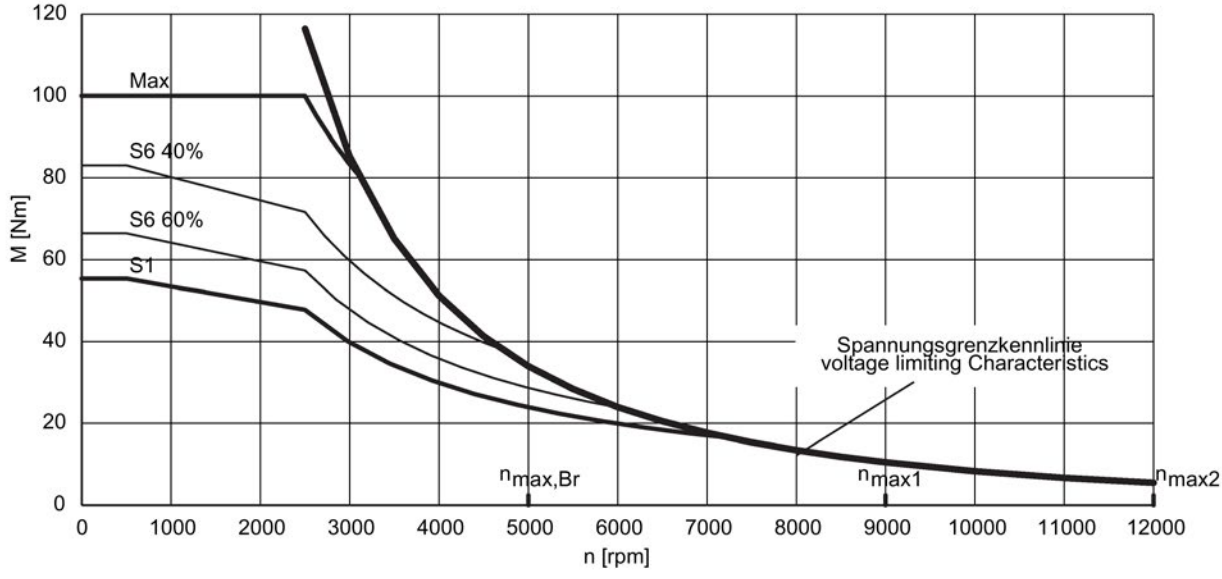
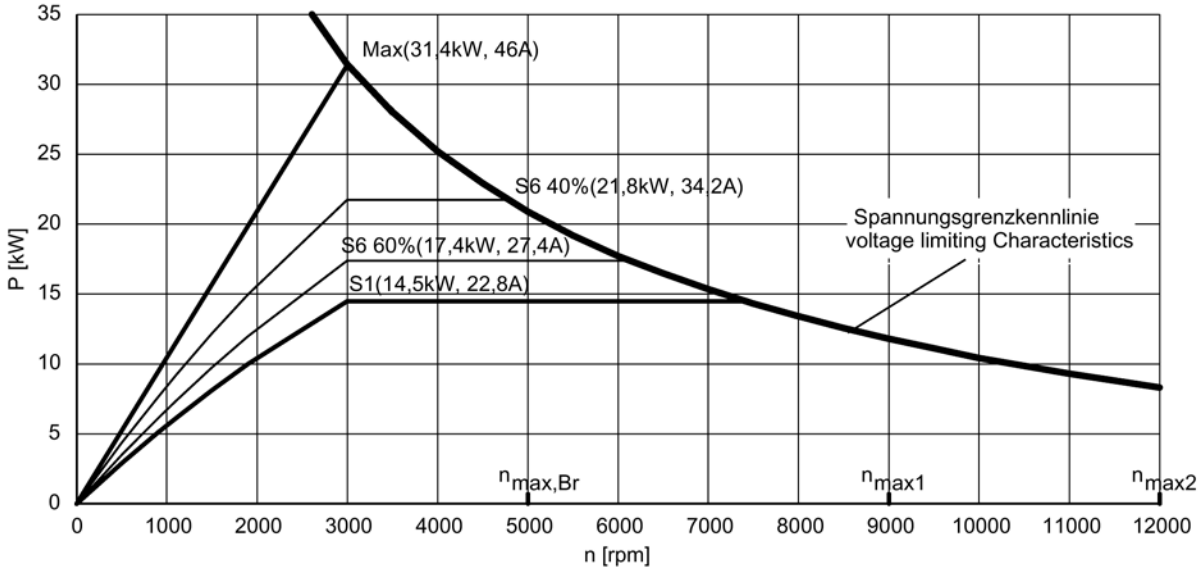


Table 6- 119 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8105-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	14.5	46	22.8	9,000	12,000	--	5,000	7,400	100	46	55	25



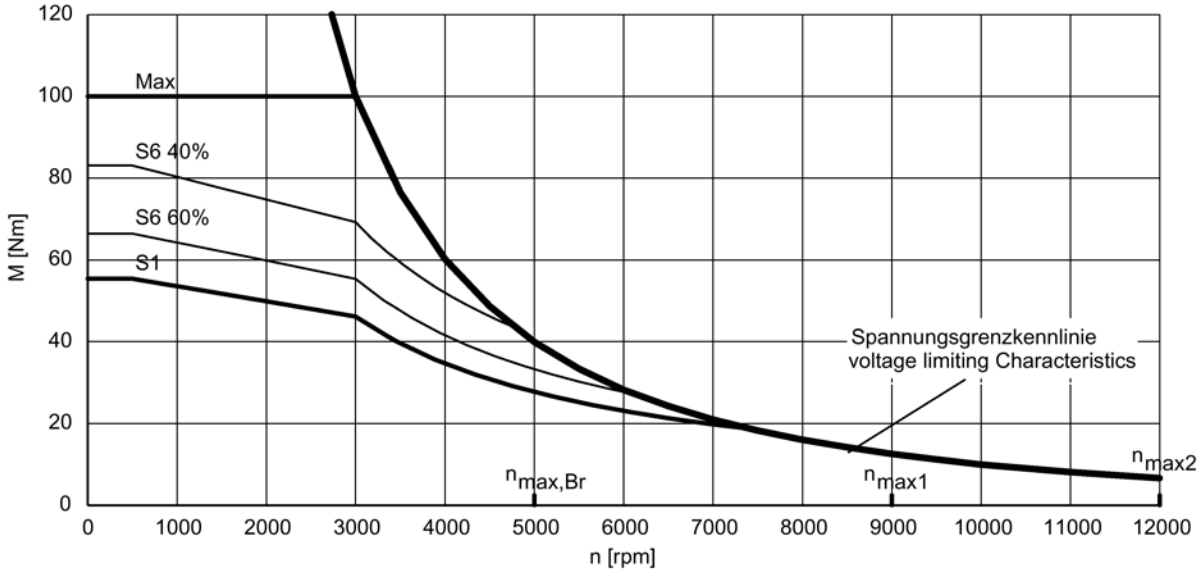


Table 6- 120 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	2.5	60	8.8	-	-	-	5,000	1,500	100	15	62	9

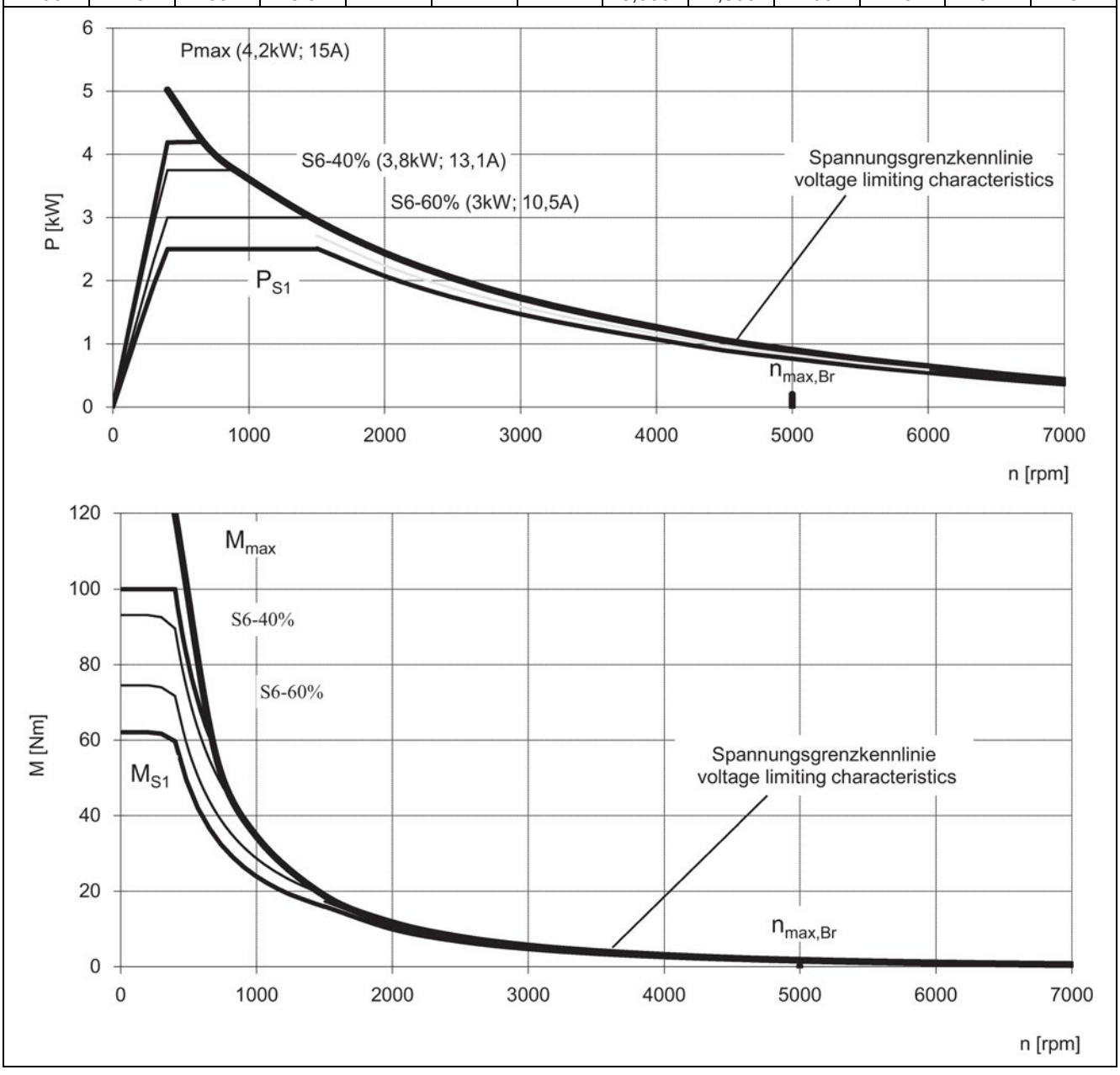


Table 6- 121 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	3.2	61	8.8	-	-	-	5,000	1,500	100	15	62	9
400	2.5	60	8.8					2,000				

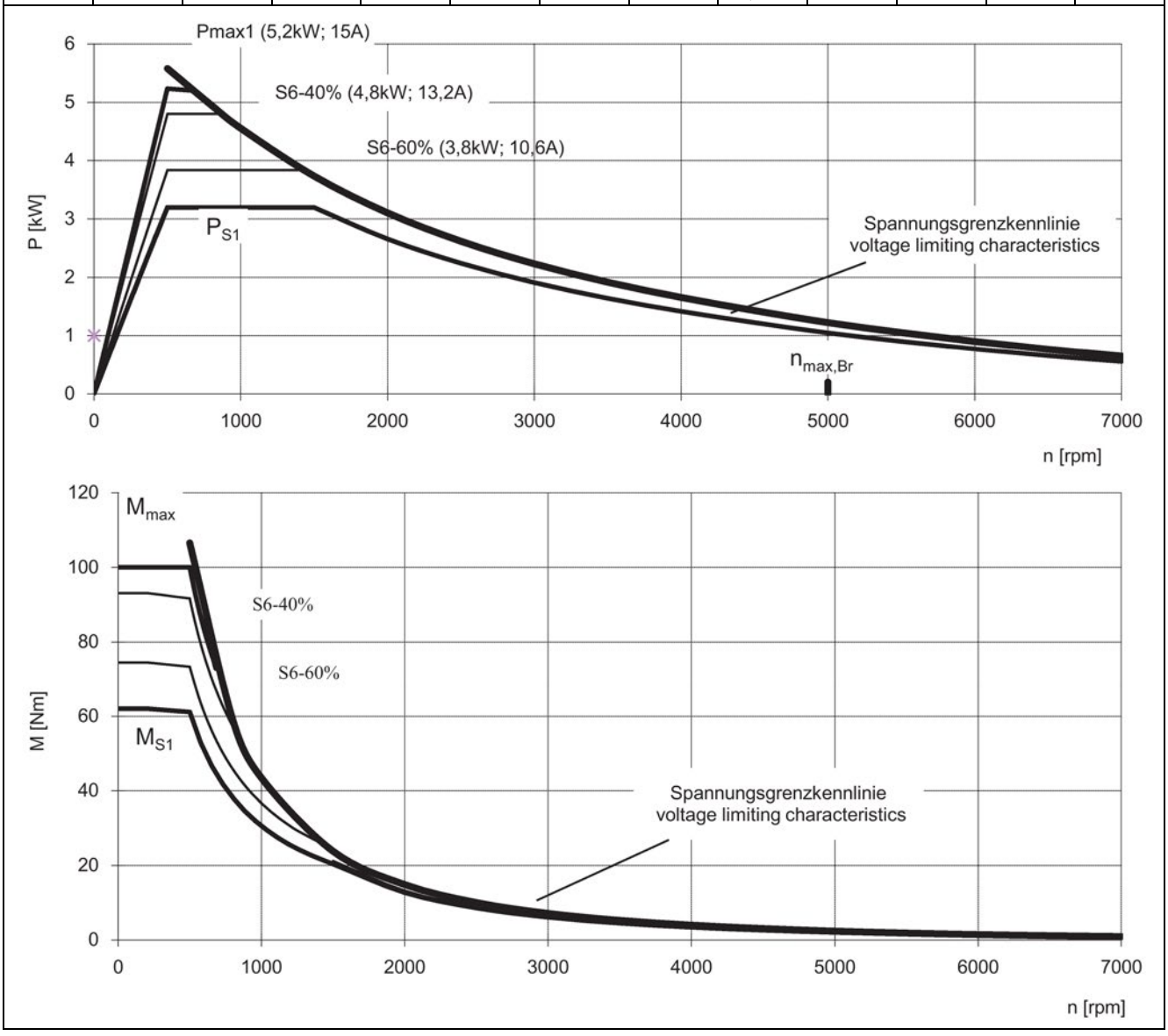
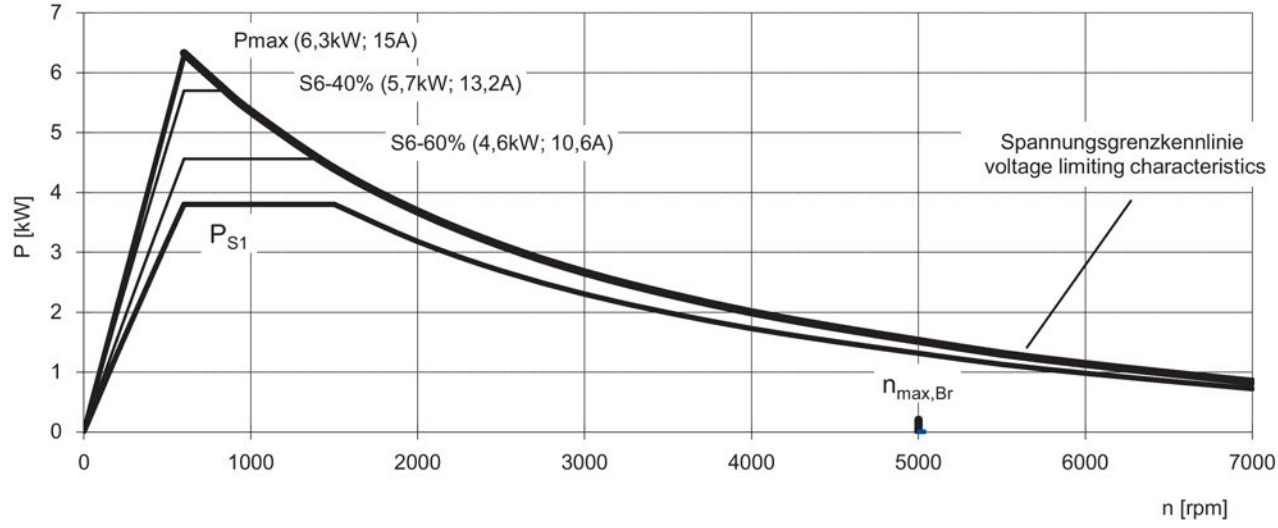


Table 6- 122 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	3.8	60	8.8	-	-	-	5,000	1,500	100	15	62	9



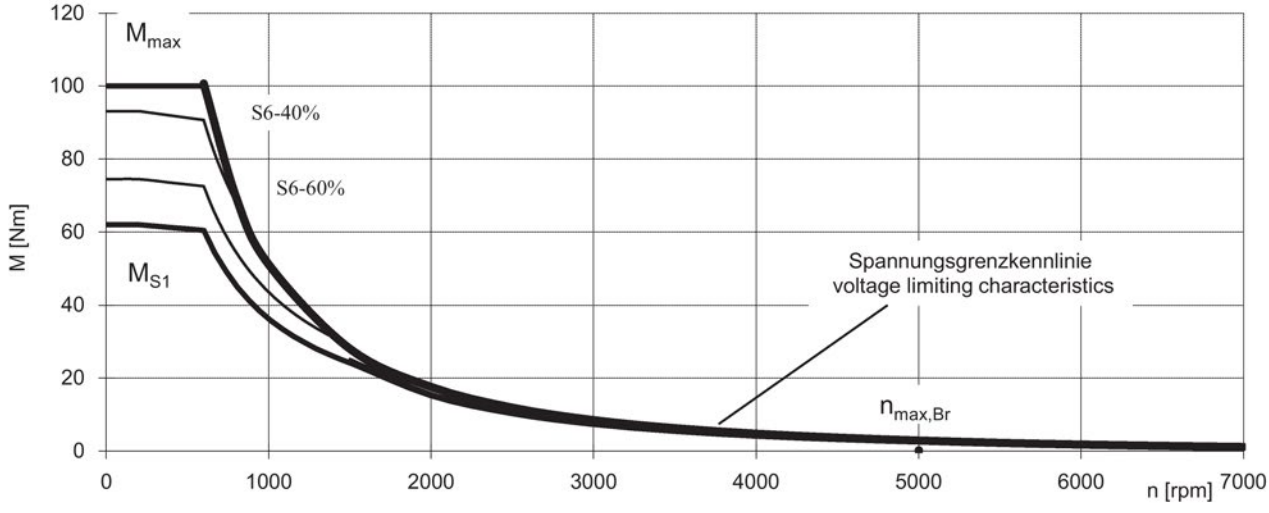
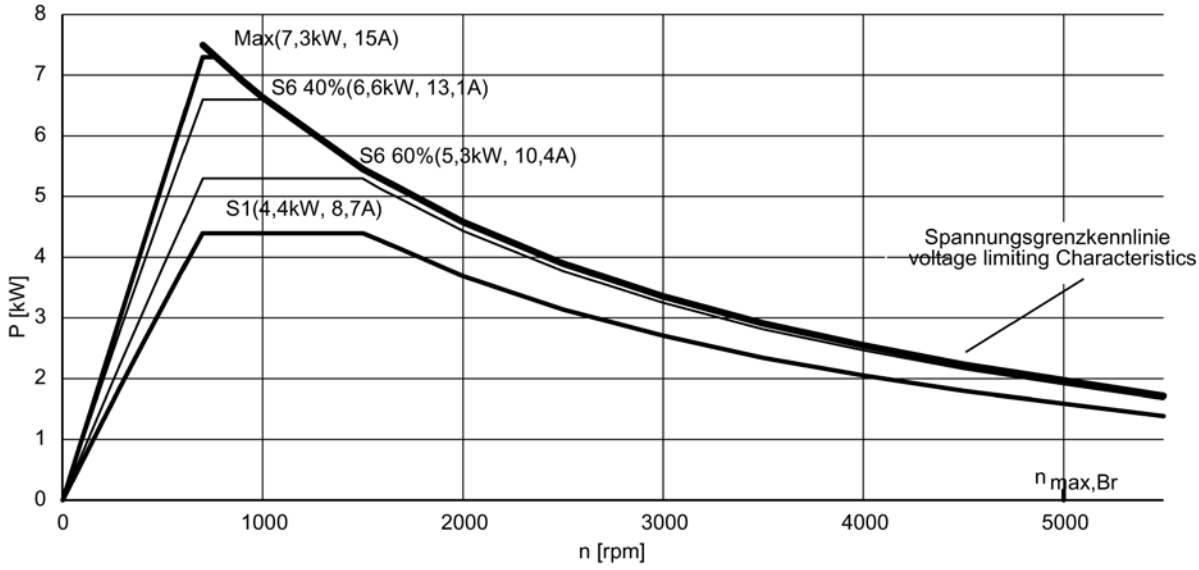


Table 6- 123 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	4.4	60	8.7	--	--	--	5,000	1,500	100	15	62	9



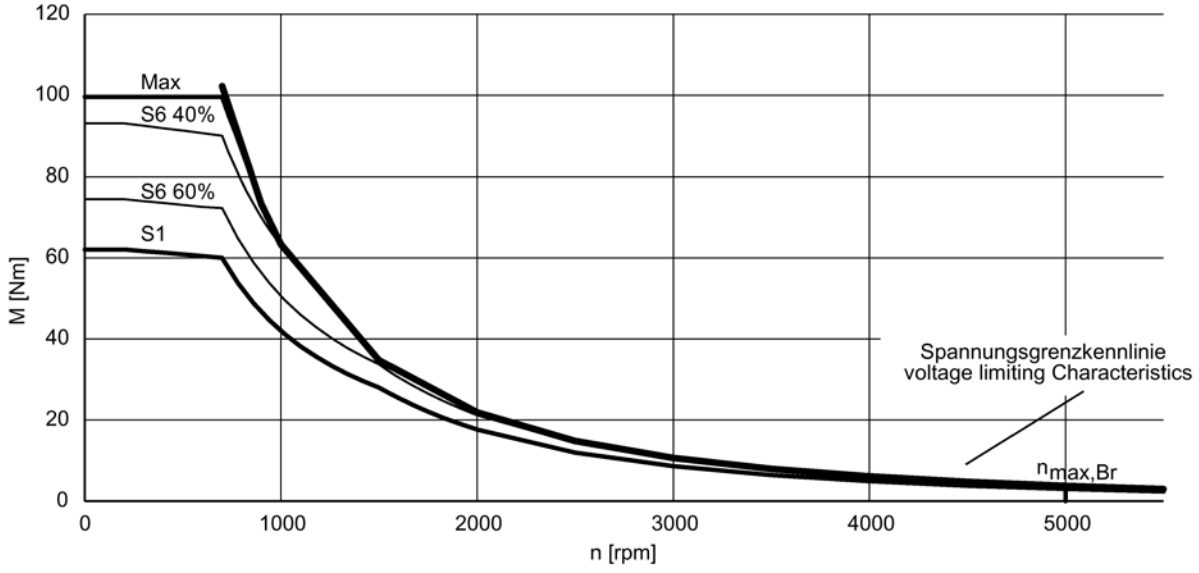
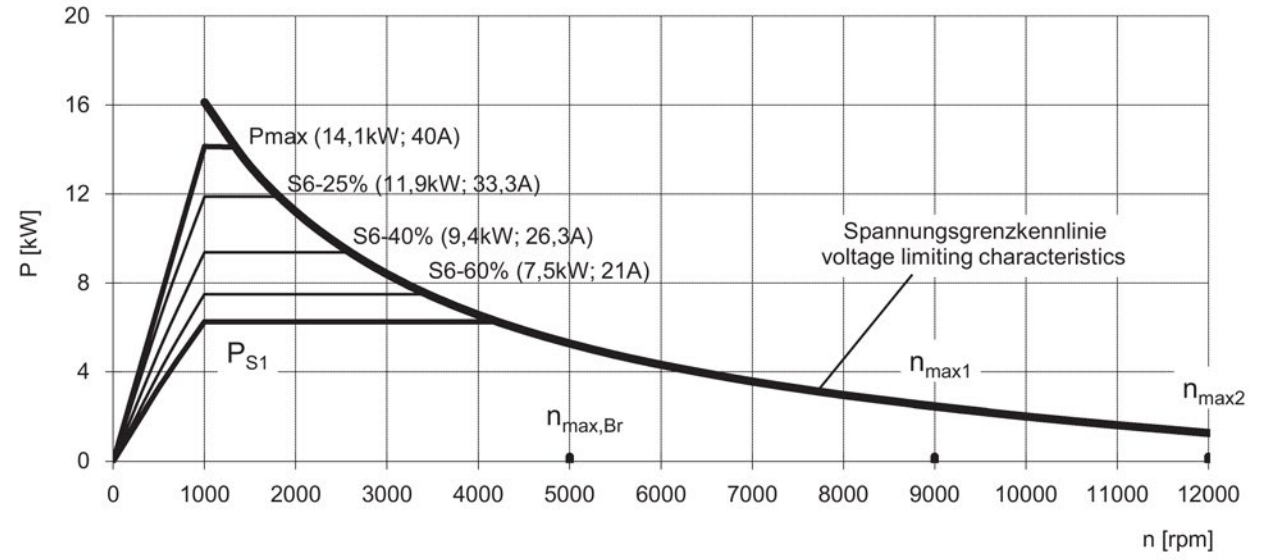


Table 6- 124 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□D□□

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]
1,000	6.3	60	17.5	9,000	12,000	-	5,000	4,300	135	40	63	25



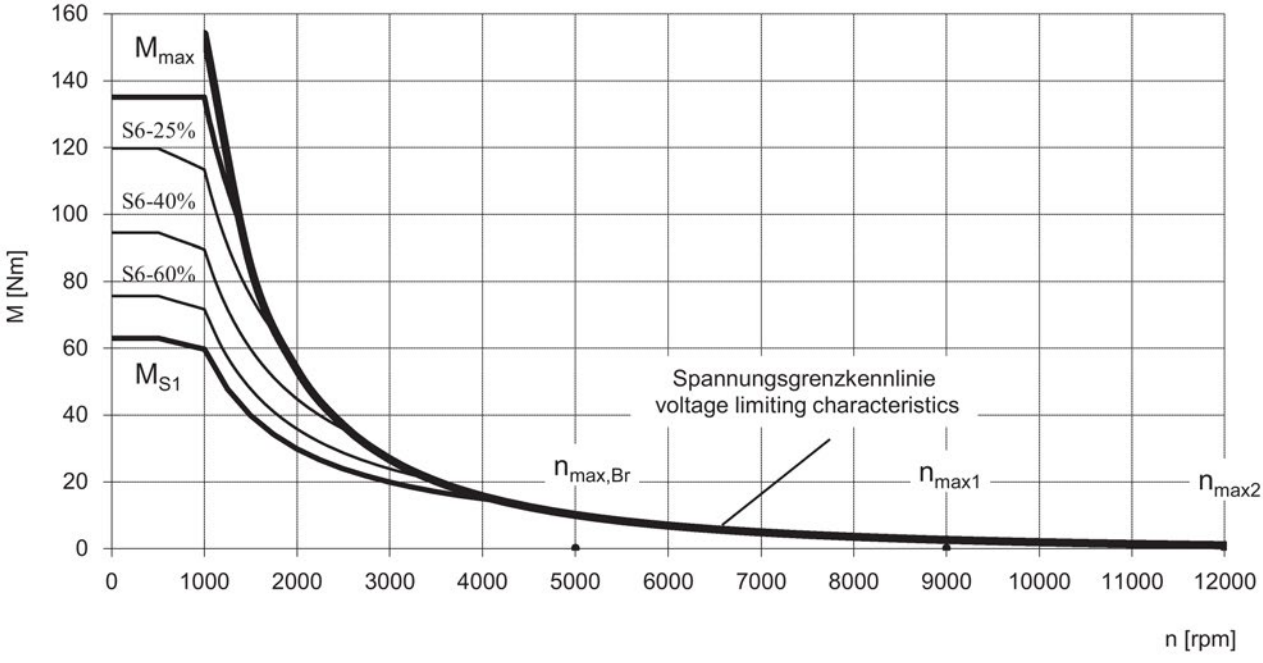
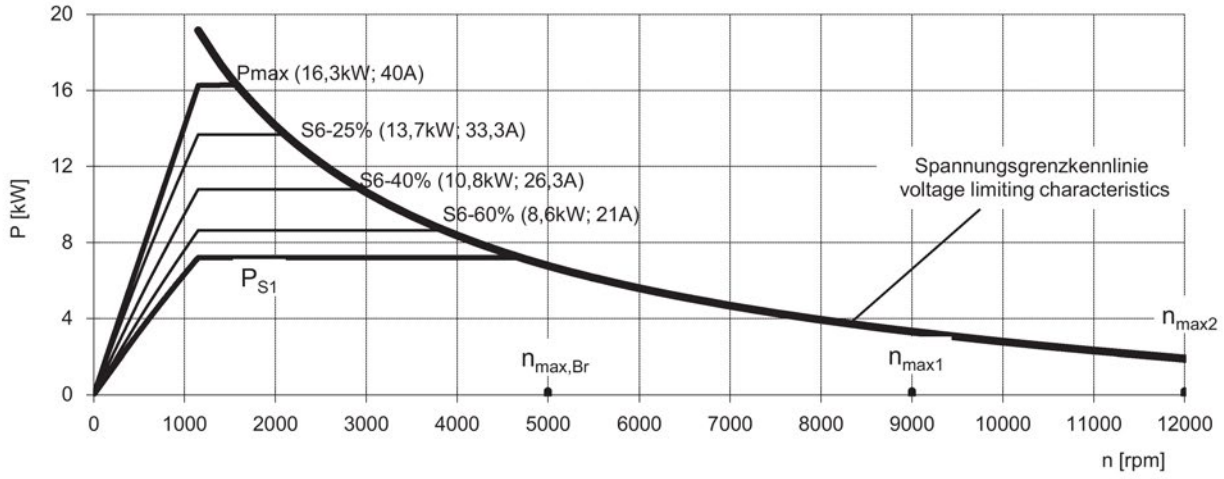


Table 6- 125 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□D□□

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]
1,150	7.2	60	17.5	9,000	12,000	-	5,000	4,750	135	40	63	25
1,000	6.3	60	17.5					5,450				



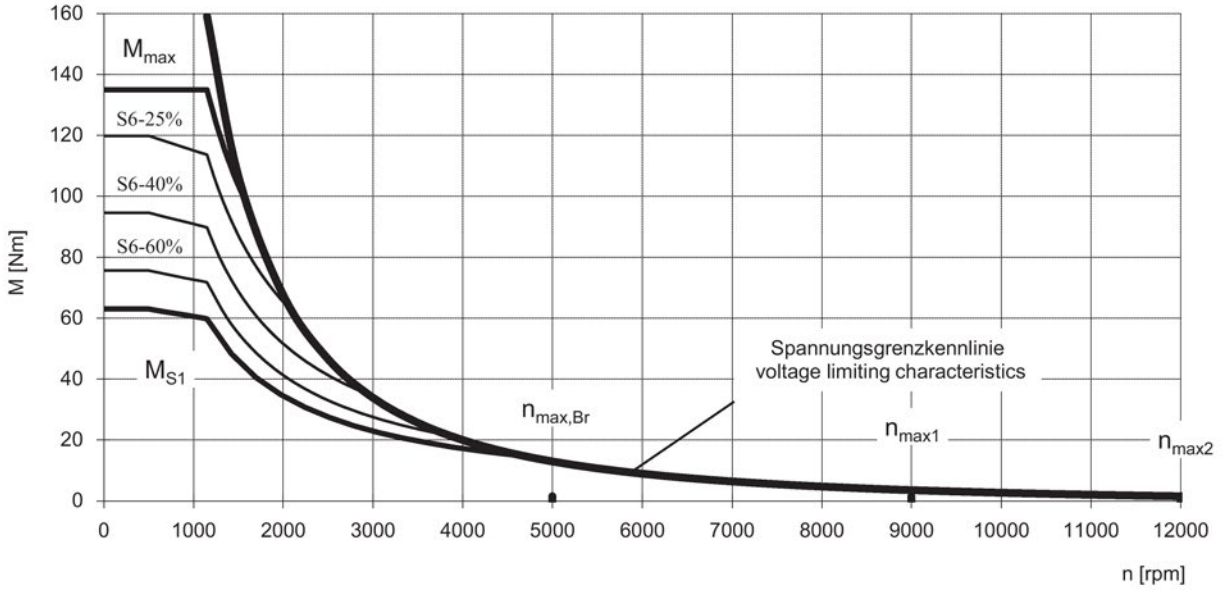
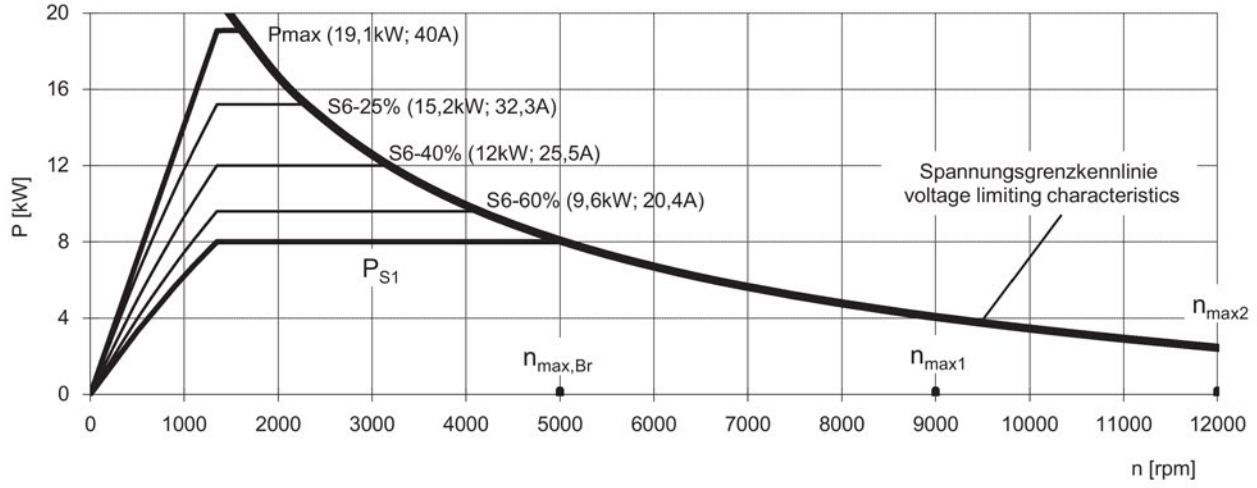


Table 6- 126 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□D□□

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]
1,350	8	57	17	9,000	12,000	-	5,000	5,045	135	40	63	25



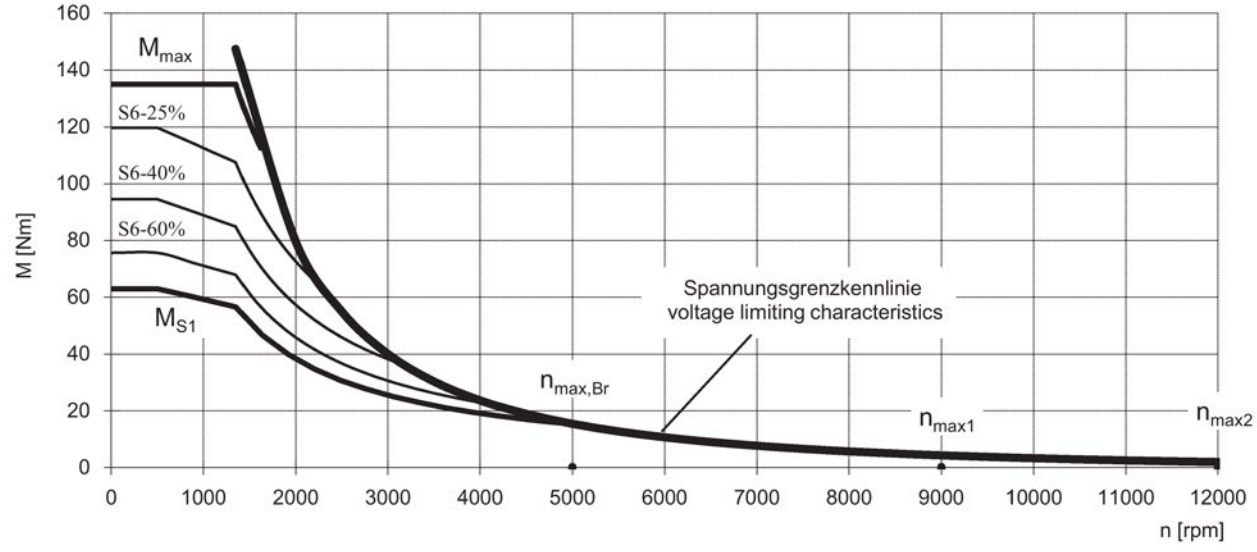
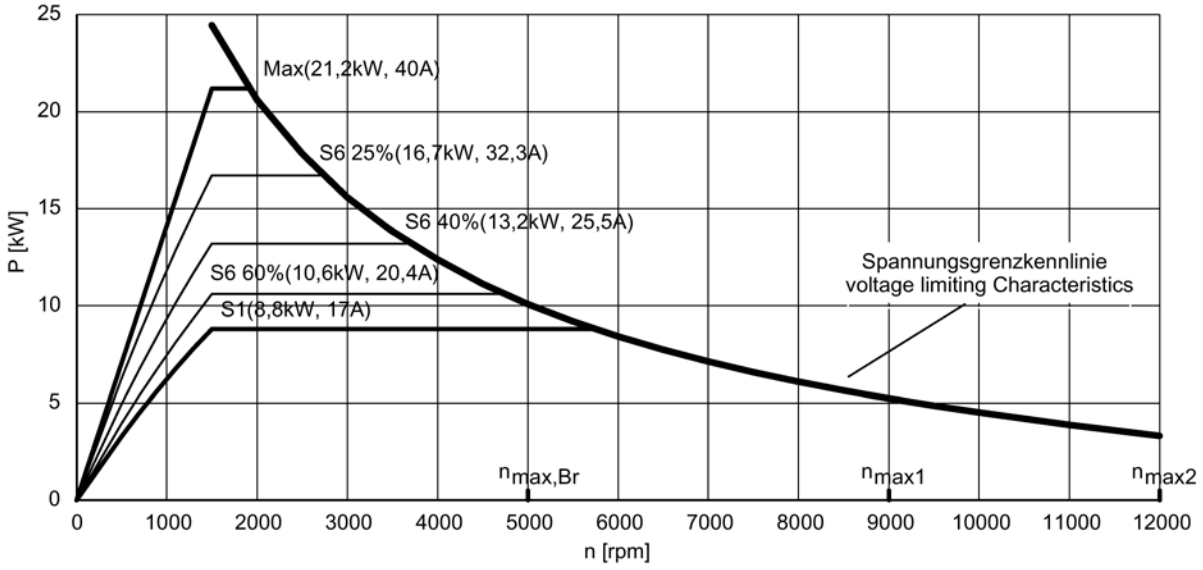


Table 6- 127 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	8.8	56	17	9,000	12,000	--	5,000	5,750	135	40	63	25



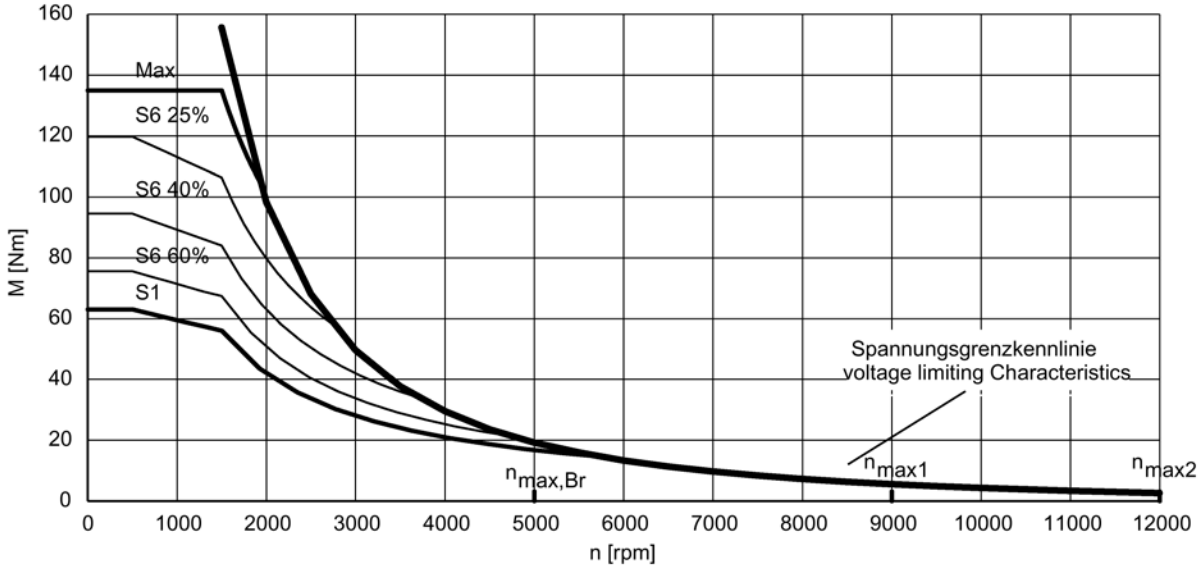
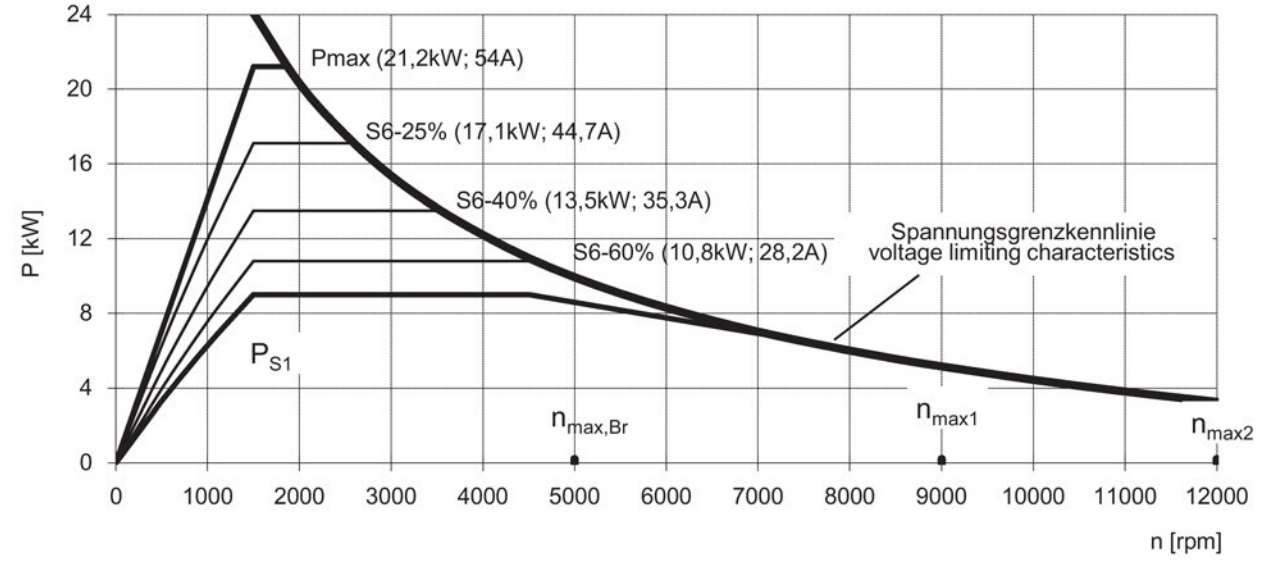


Table 6- 128 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F□□

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]
1,500	9	57	23.5	9,000	12,000	-	5,000	4,500	135	54	63	25



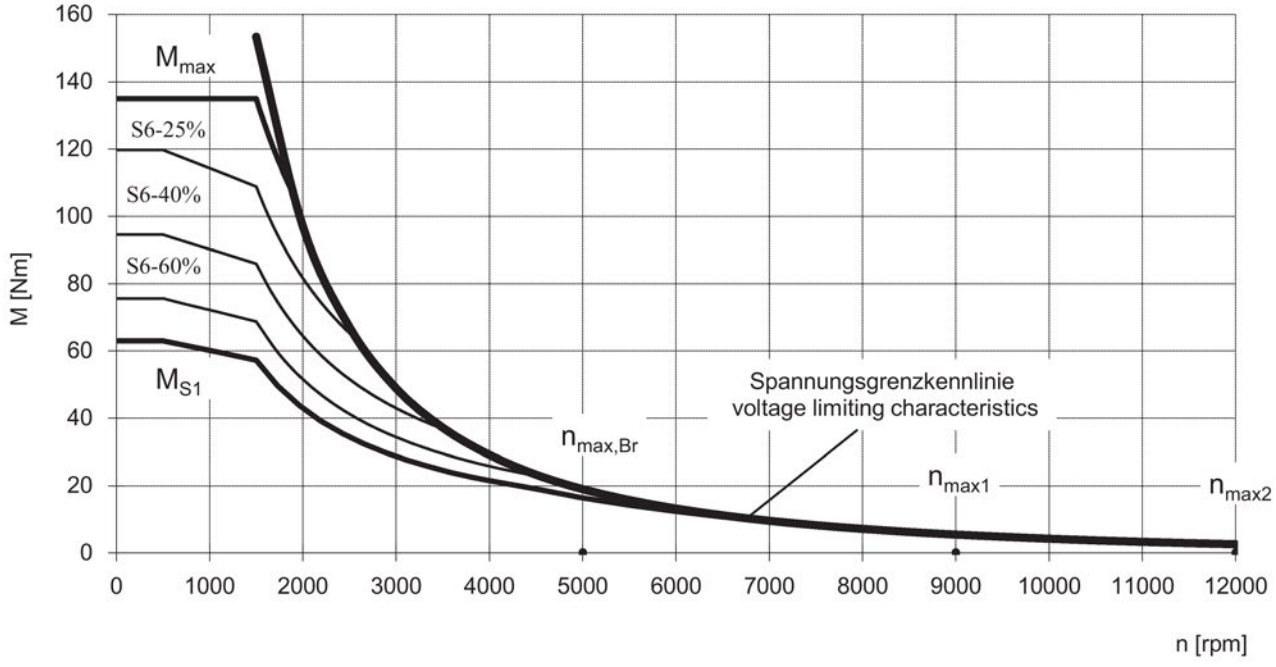
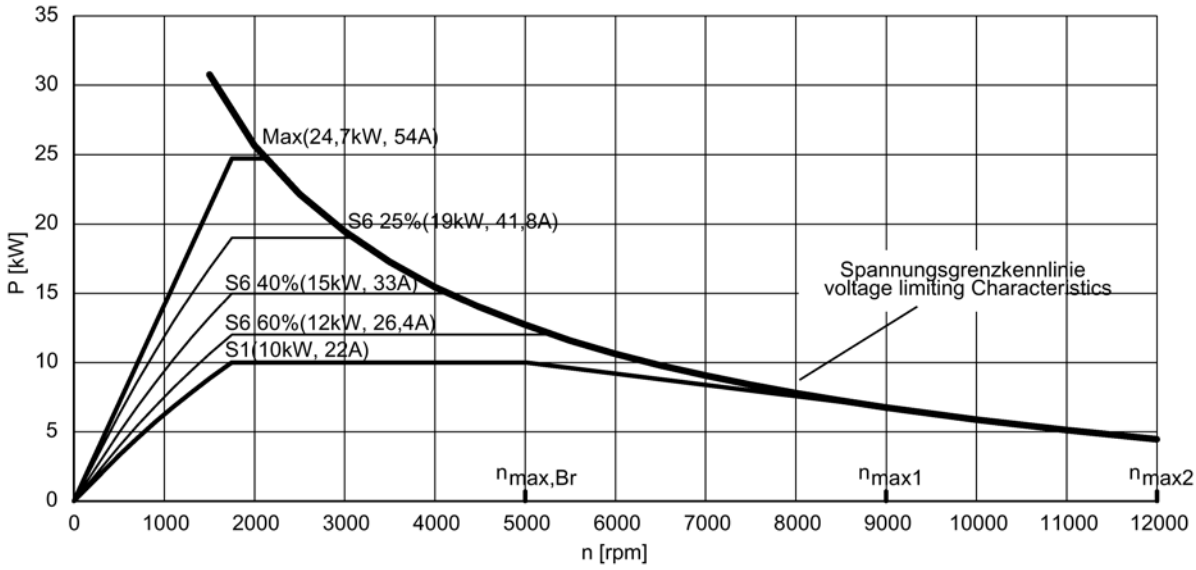


Table 6- 129 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□F□□

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]
1,750	10	55	22	9,000	12,000	-	5,000	5,000	135	54	63	25
1,500	9	57	23.5					6,250				



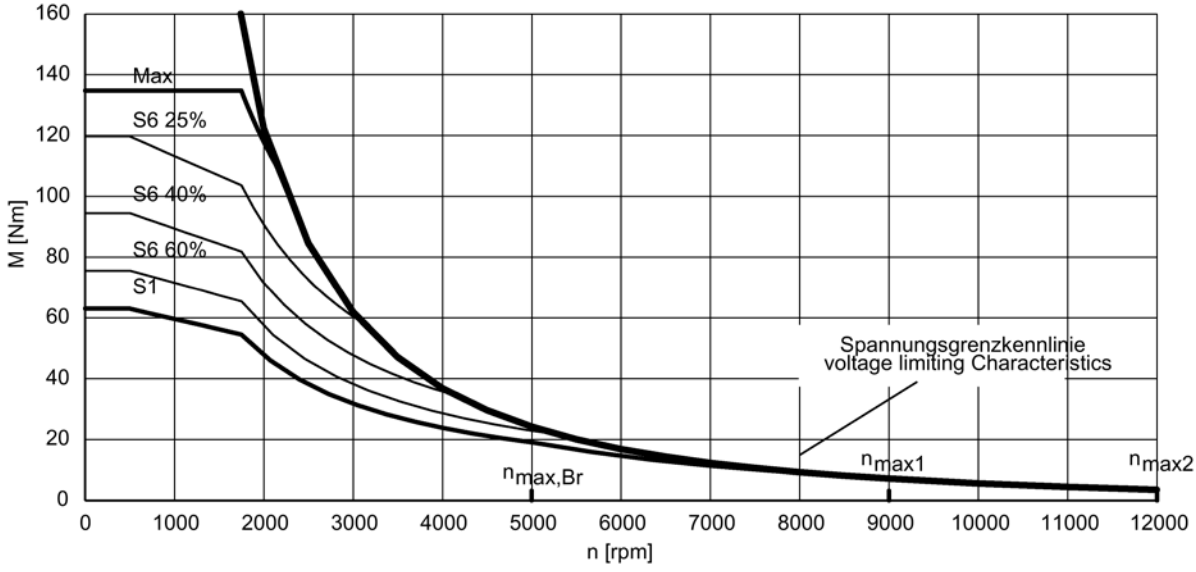
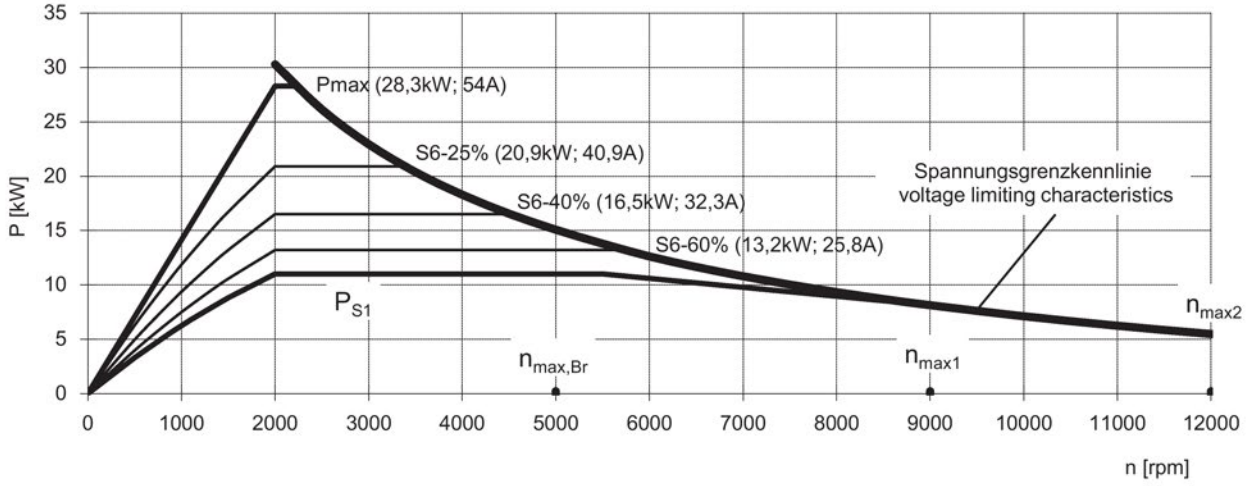


Table 6- 130 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F□□

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]
2,000	11	53	21.5	9,000	12,000	-	5,000	5,500	135	54	63	25



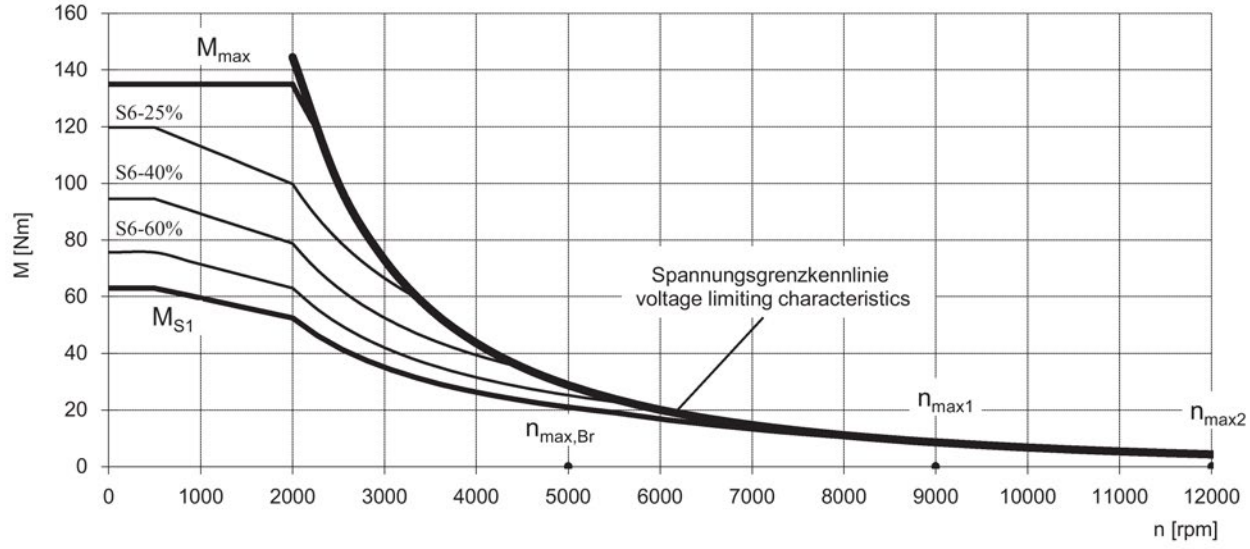
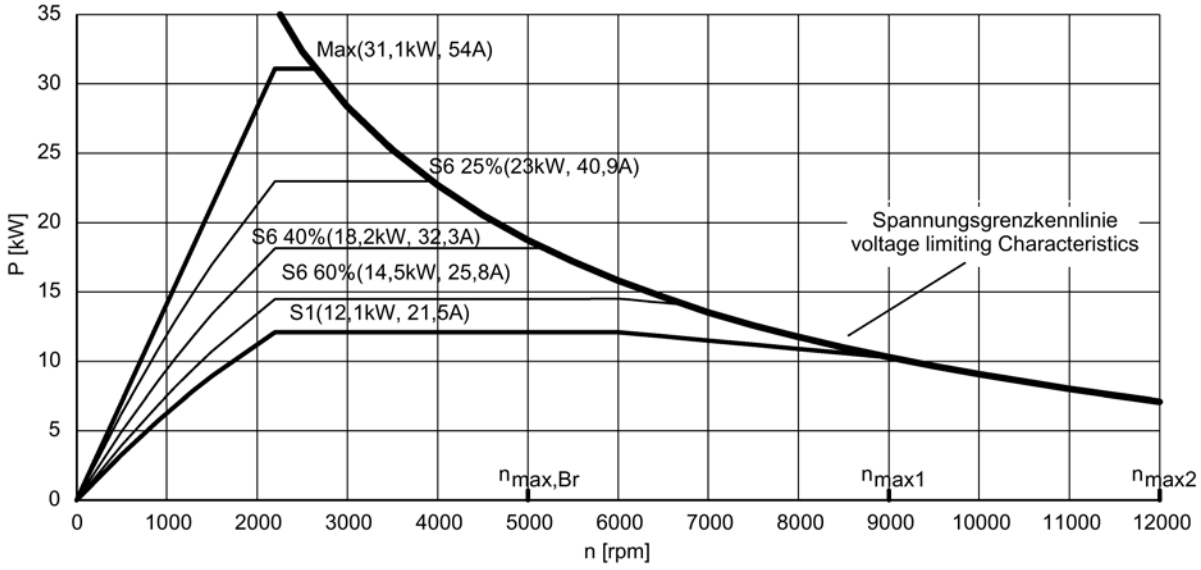


Table 6- 131 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	12.1	53	21.5	9,000	12,000	--	5,000	6,000	135	54	63	25



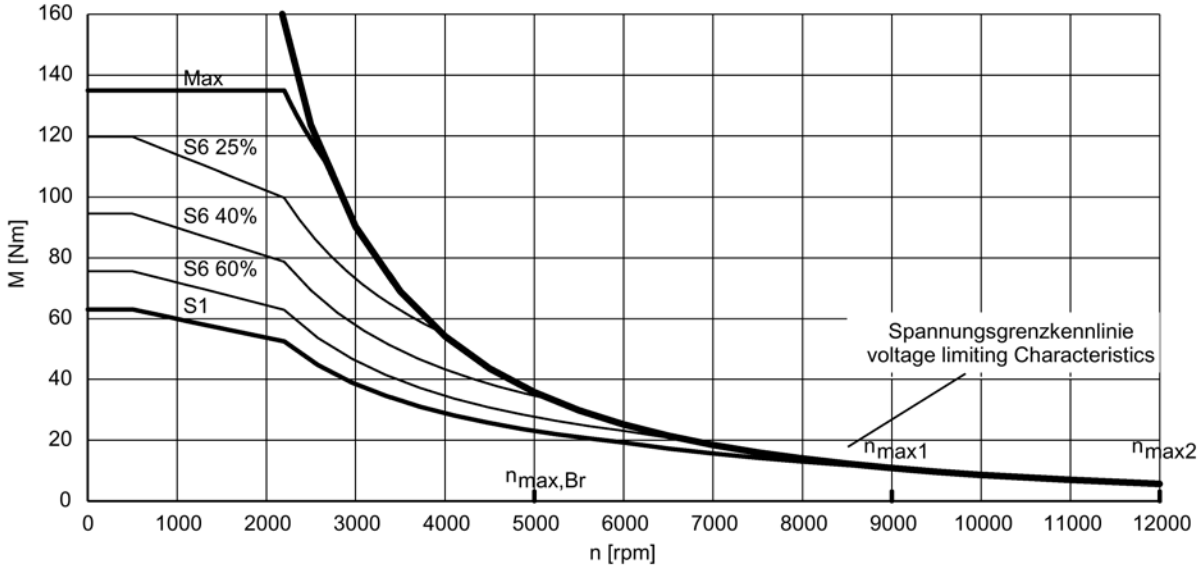
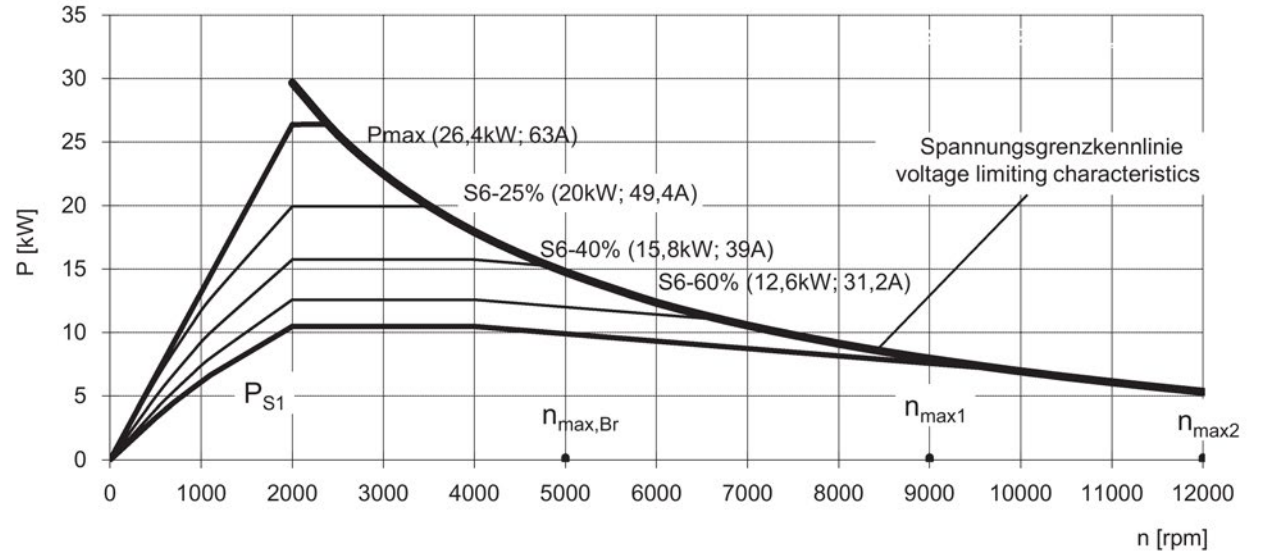


Table 6- 132 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□G□□

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]
2,000	10.5	50	26	9,000	12,000	-	5,000	4,000	126	63	63	29



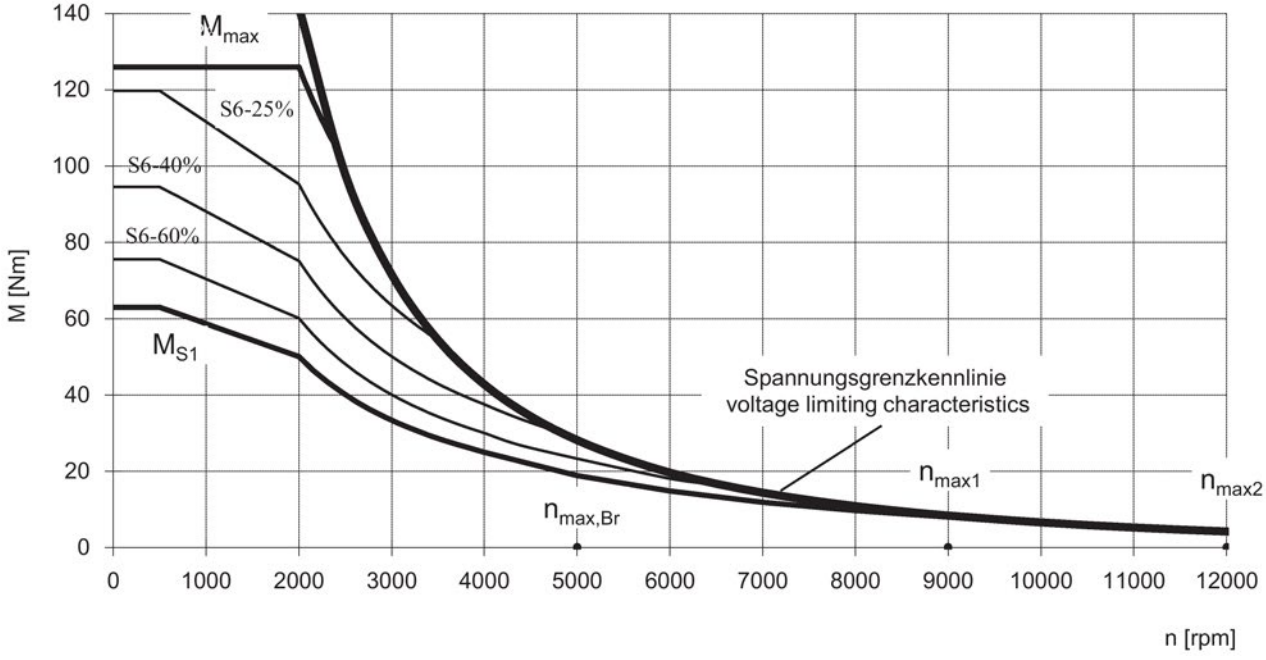
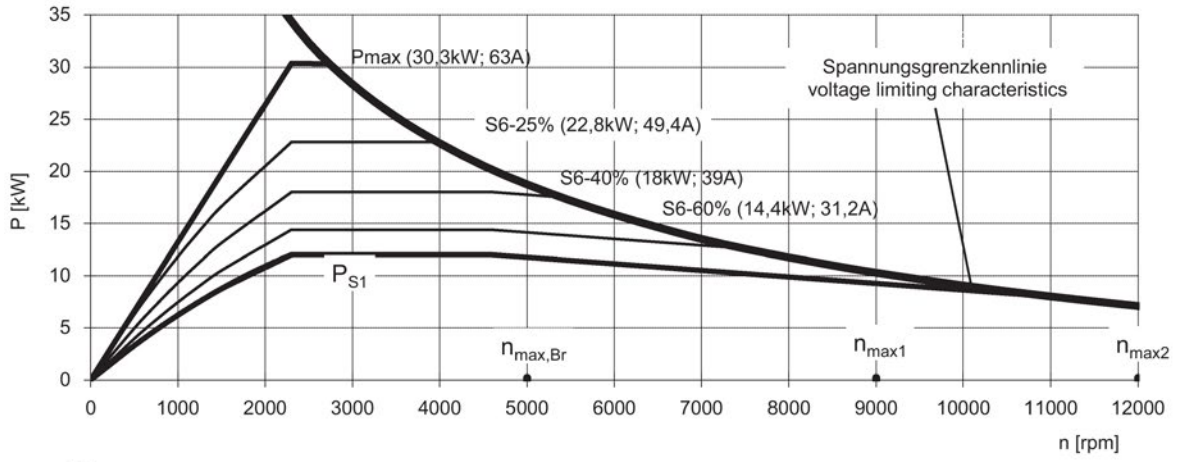


Table 6- 133 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□G□□

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]
2,300	12	50	26	9,000	12,000	-	5,000	4,600	126	63	63	29
2,000	10.5	50	26					7,000				



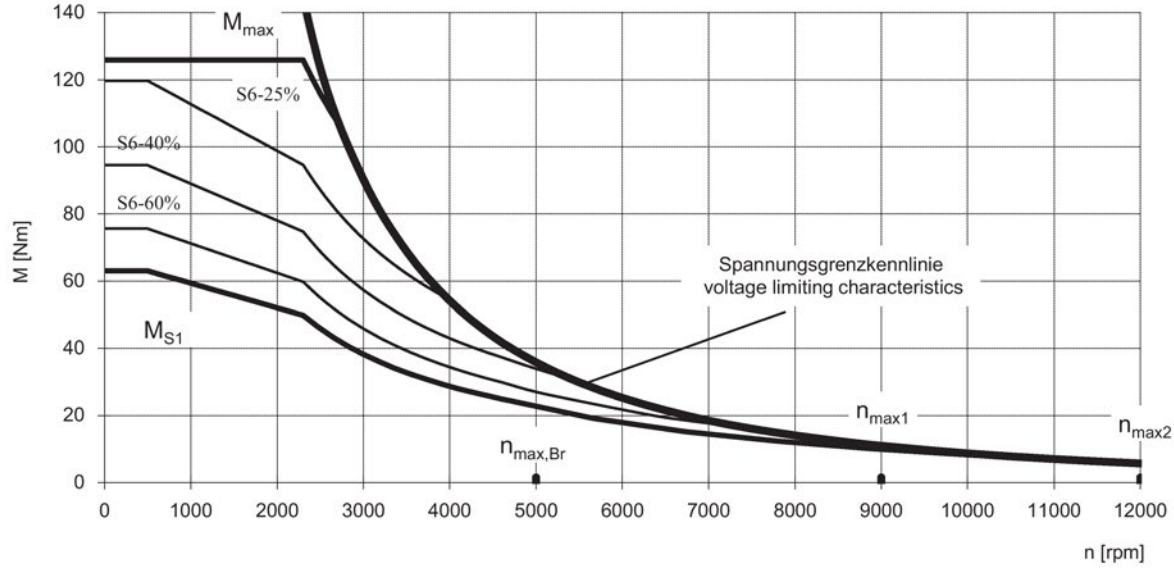
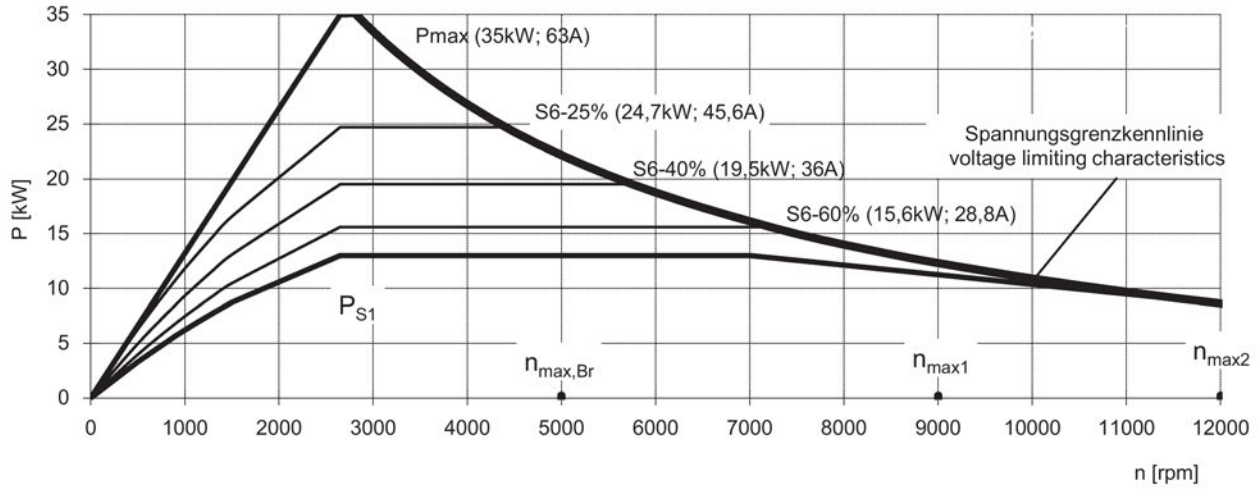


Table 6- 134 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□G□□

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]
2,650	13	47	24	9,000	12,000	-	5,000	7,000	126	63	63	29



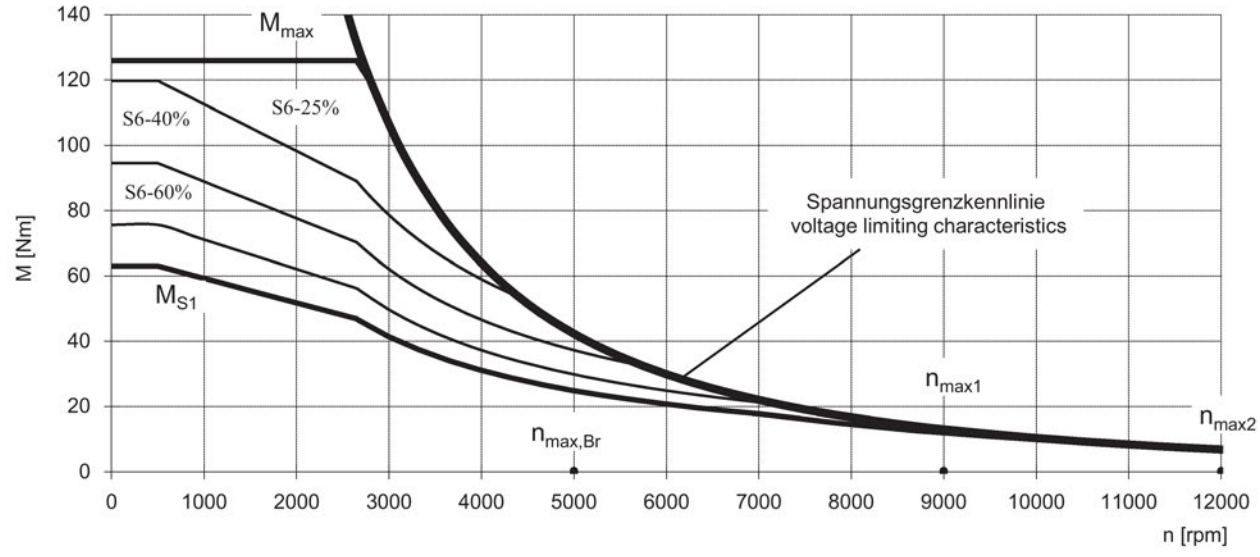
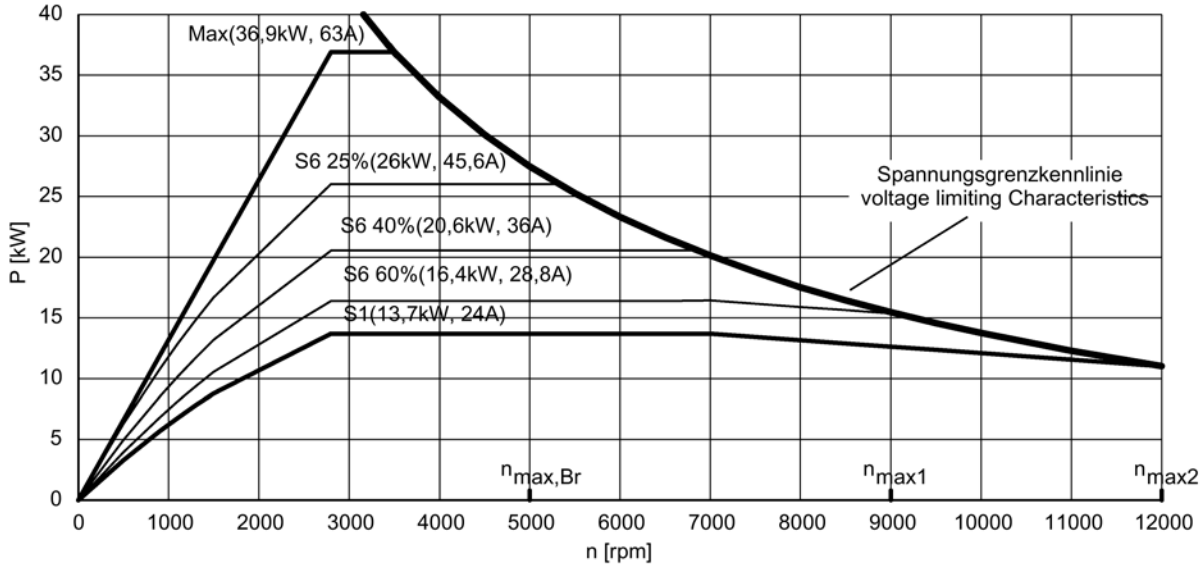


Table 6- 135 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	13.7	47	24	9,000	12,000	--	5,000	7,000	126	63	63	29



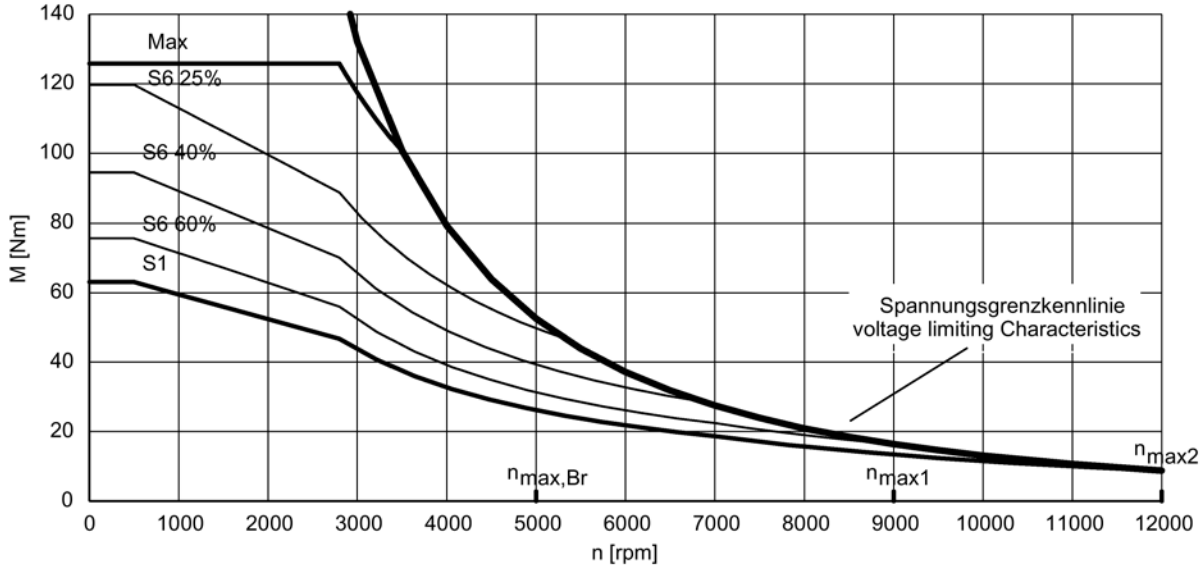
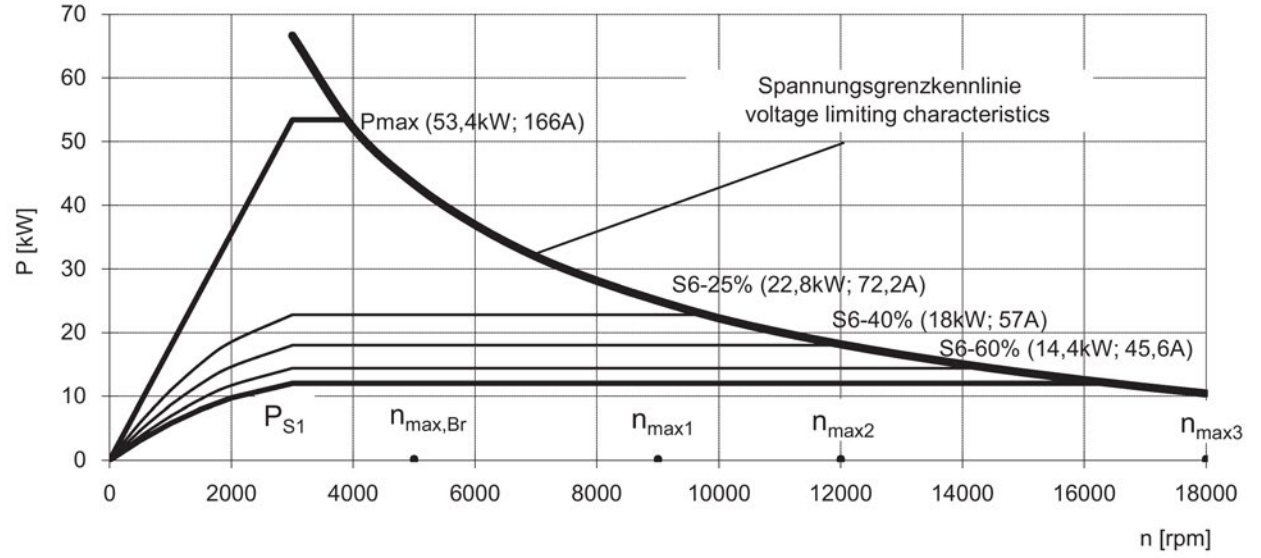


Table 6- 136 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M□□

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]
3,000	12	38	38	9,000	12,000	18,000	5,000	16,500	170	166	59	48



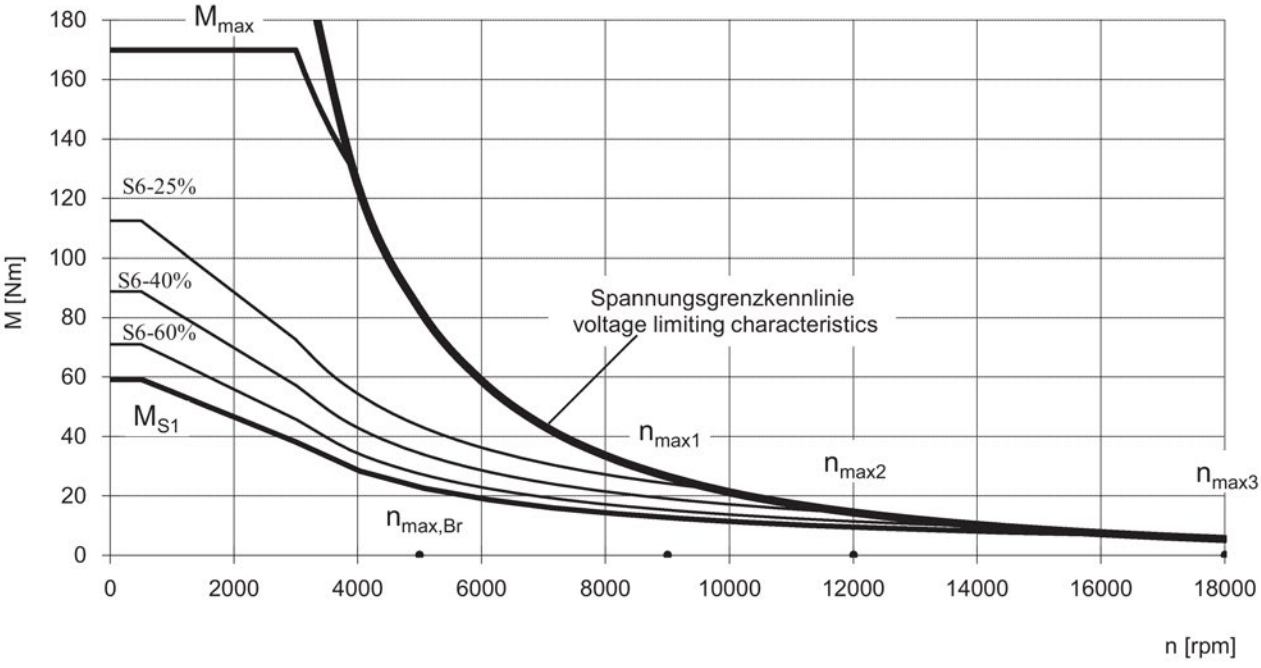


Table 6- 137 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□M□□

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]
3,300	13	38	38	9,000	12,000	18,000	5,000	18,000	170	166	59	48
3,000	12	38	38					18,000				

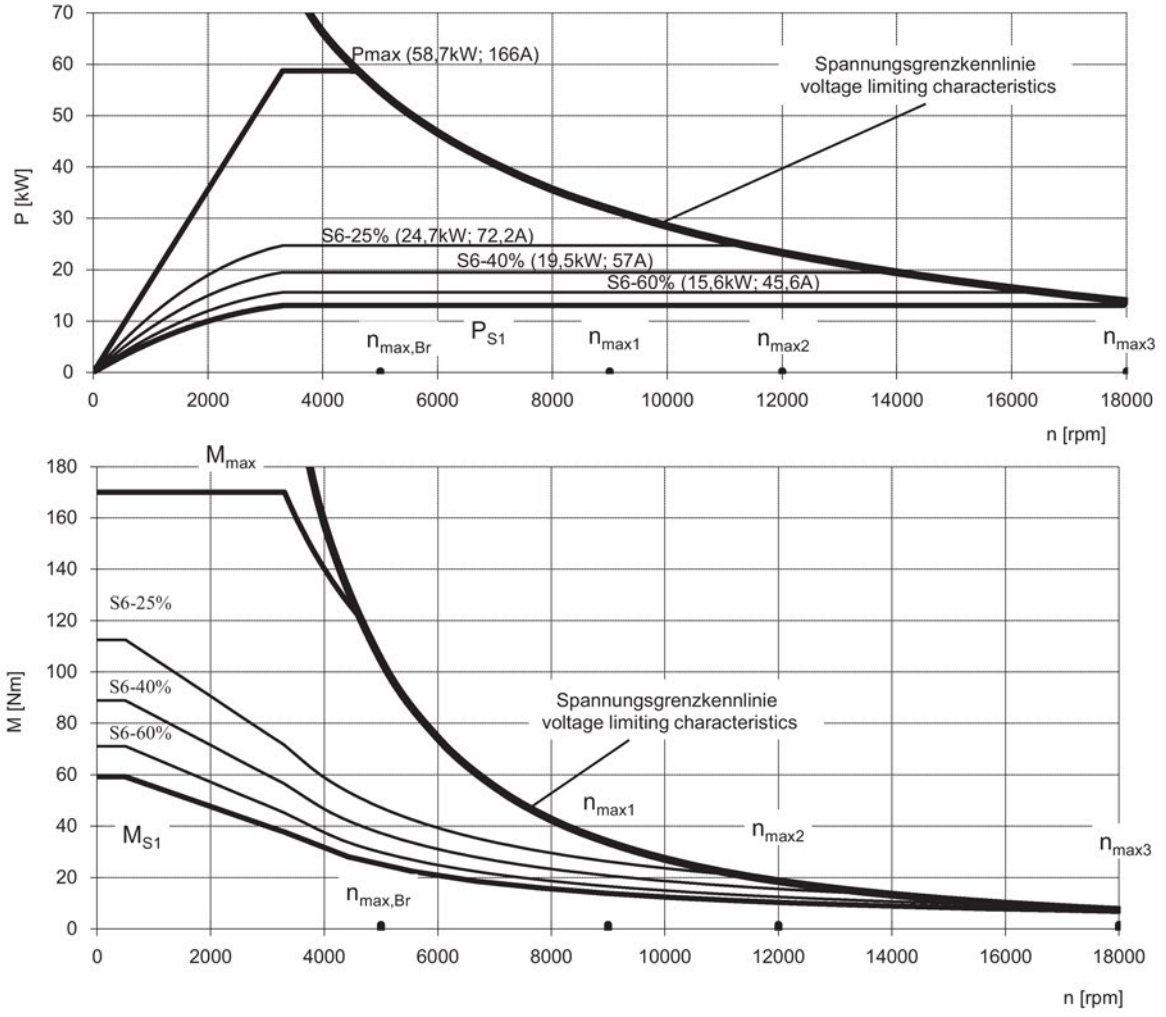
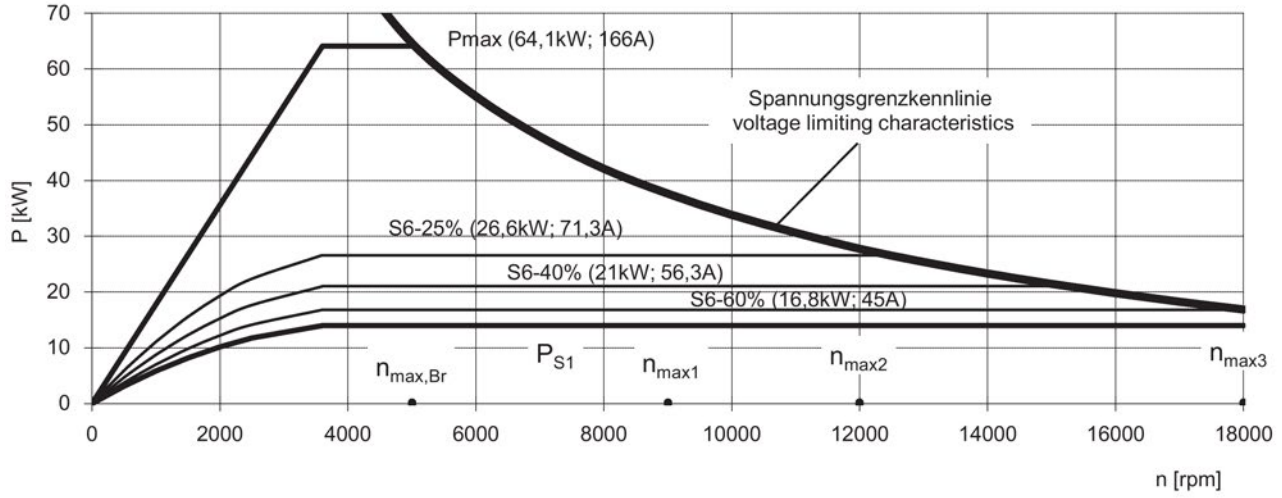


Table 6- 138 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M□□

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]
3,600	14	37	37.5	9,000	12,000	18,000	5,000	18,000	170	166	59	48



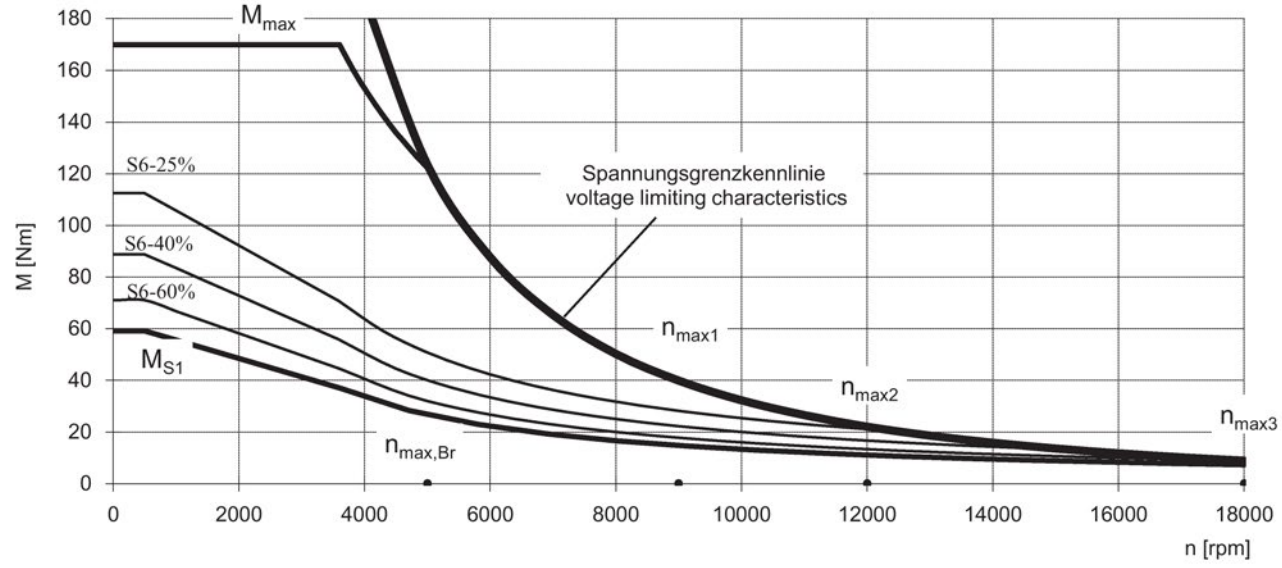
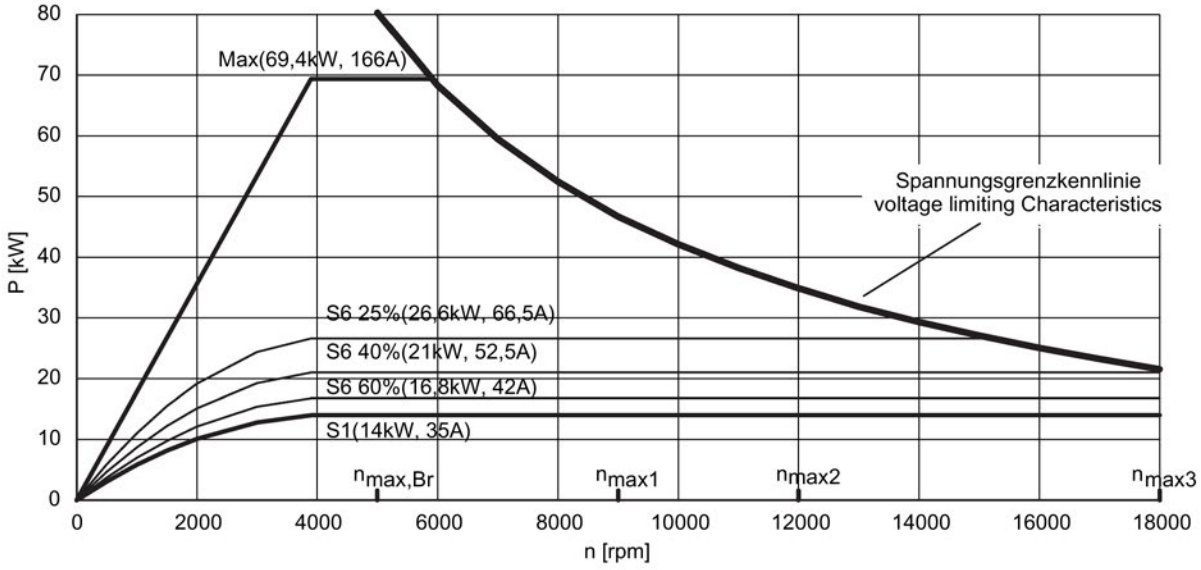


Table 6- 139 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□M□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	14	34	35	9,000	12,000	18,000	5,000	18,000	170	166	59	48



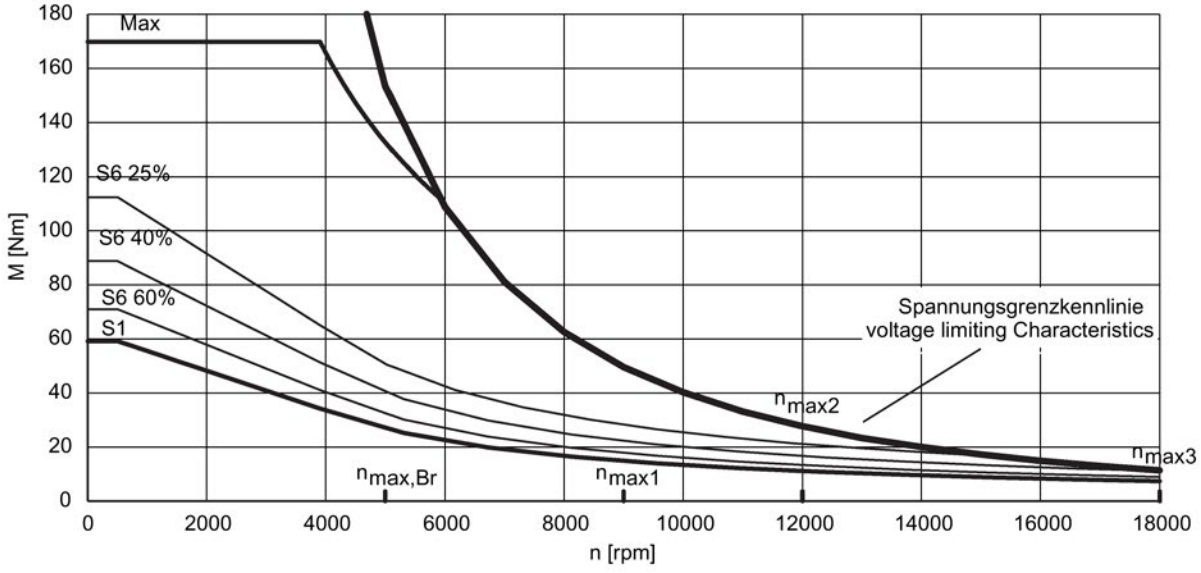
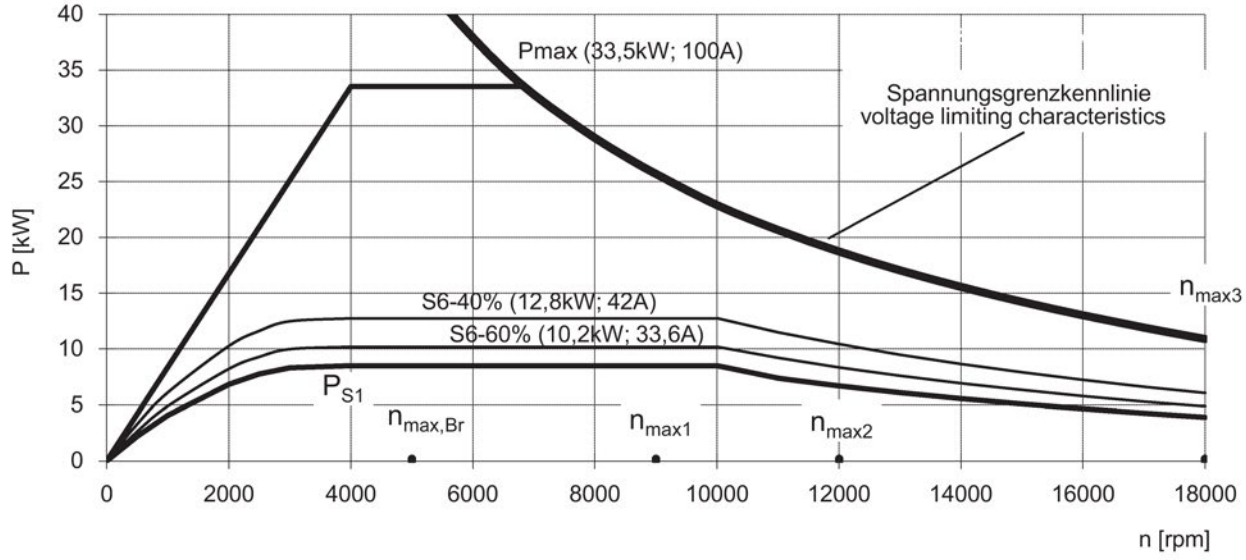


Table 6- 140 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Δ connection

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]
4,000	8.5	20	28	9,000	12,000	18,000	5,000	10,000	80	100	42	40



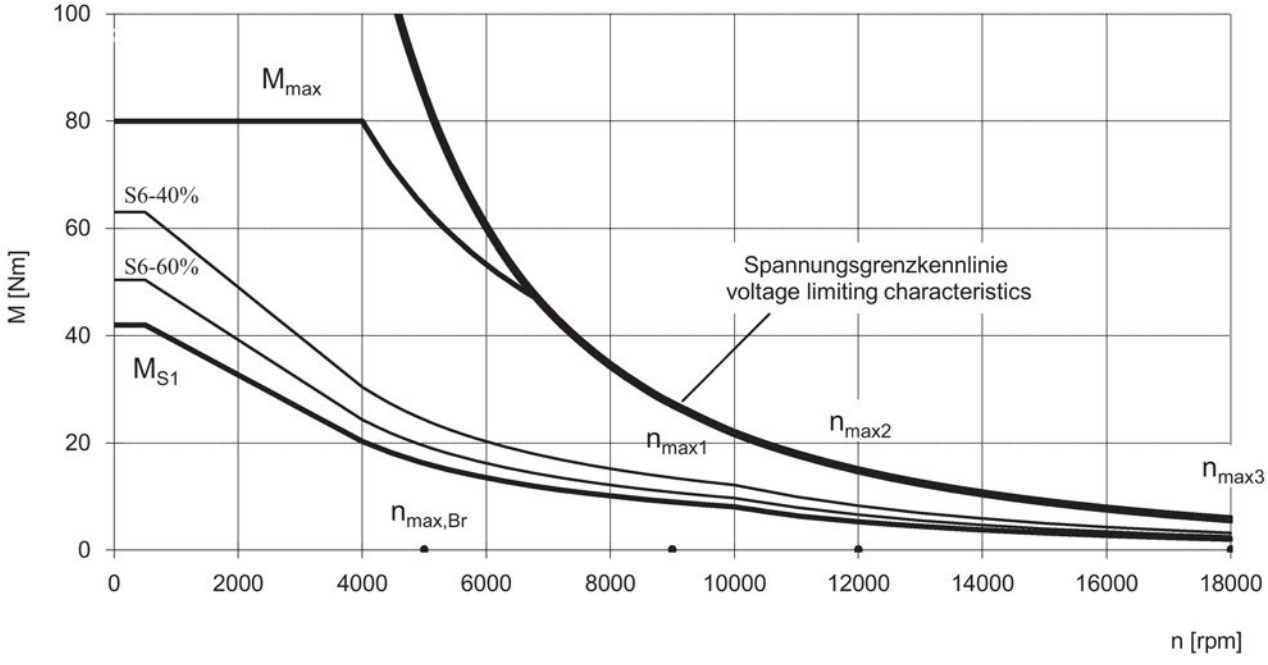


Table 6- 141 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Δ connection

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]
5,000	11	21	28	9,000	12,000	18,000	5,000	10,000	80	100	42	40
4,000	8.5	20	28					12,000				

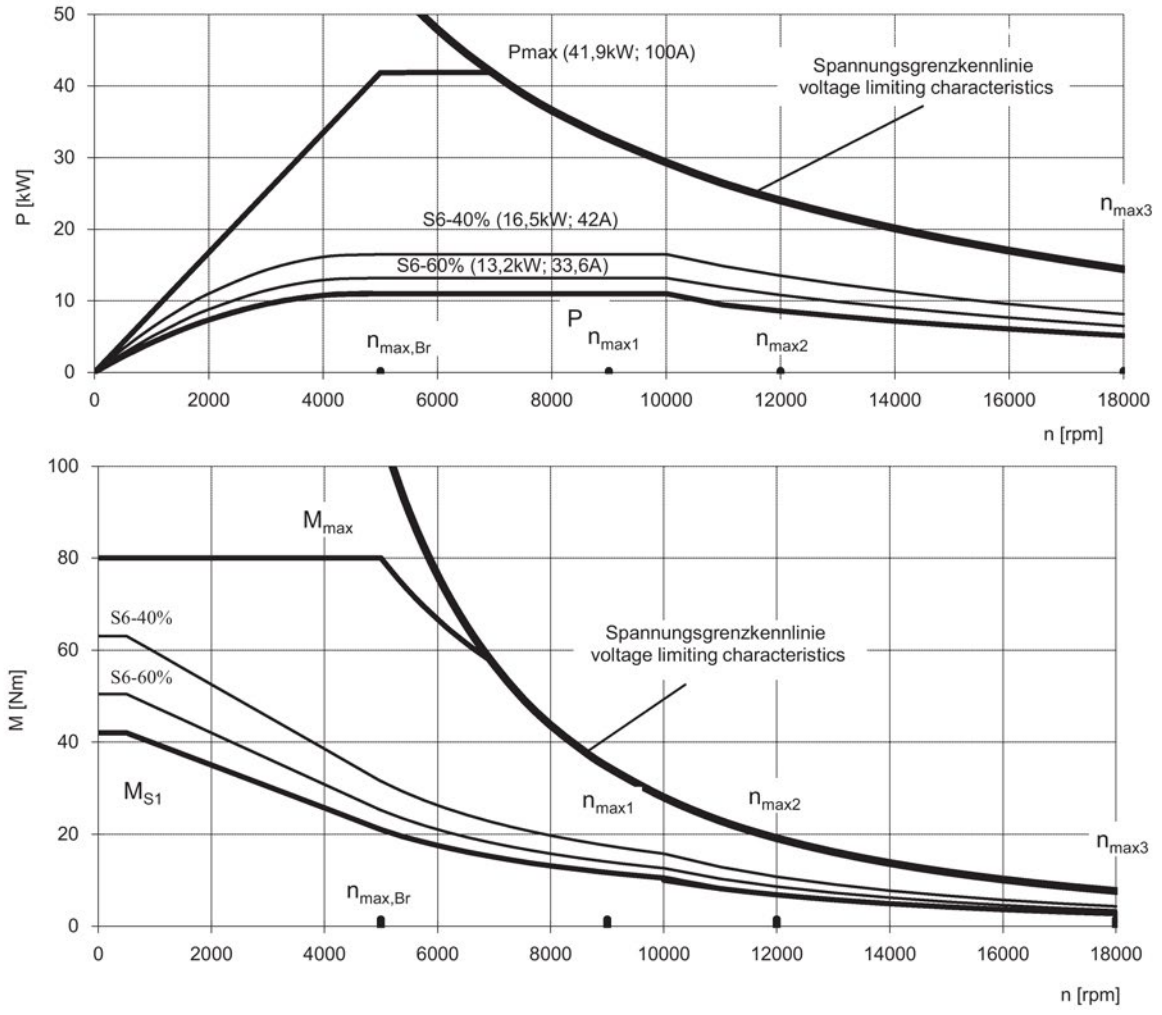
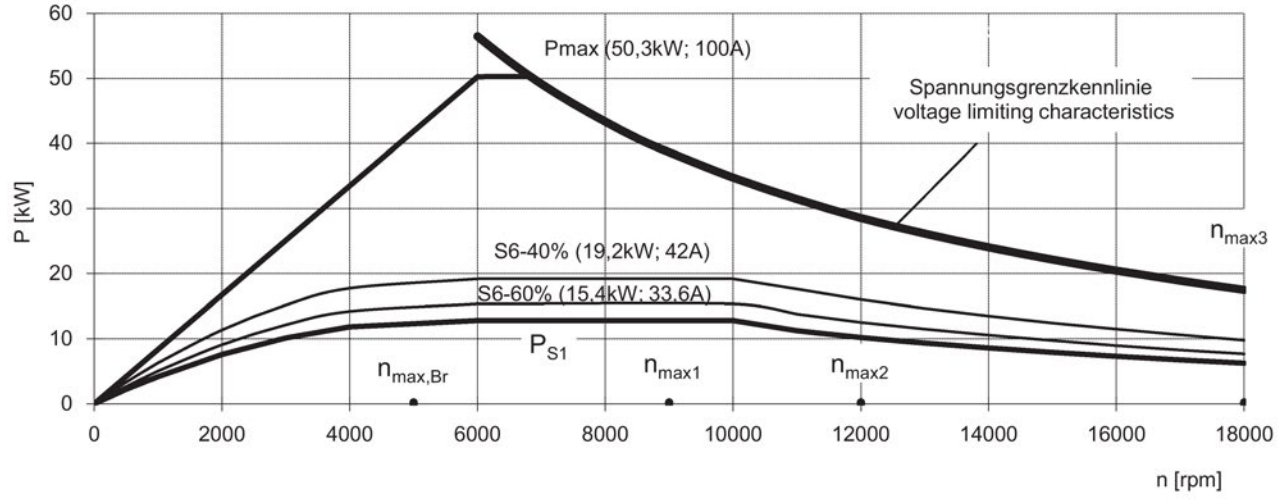


Table 6- 142 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Δ connection

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]
6,000	12.8	20	28	9,000	12,000	18,000	5,000	10,000	80	100	42	40



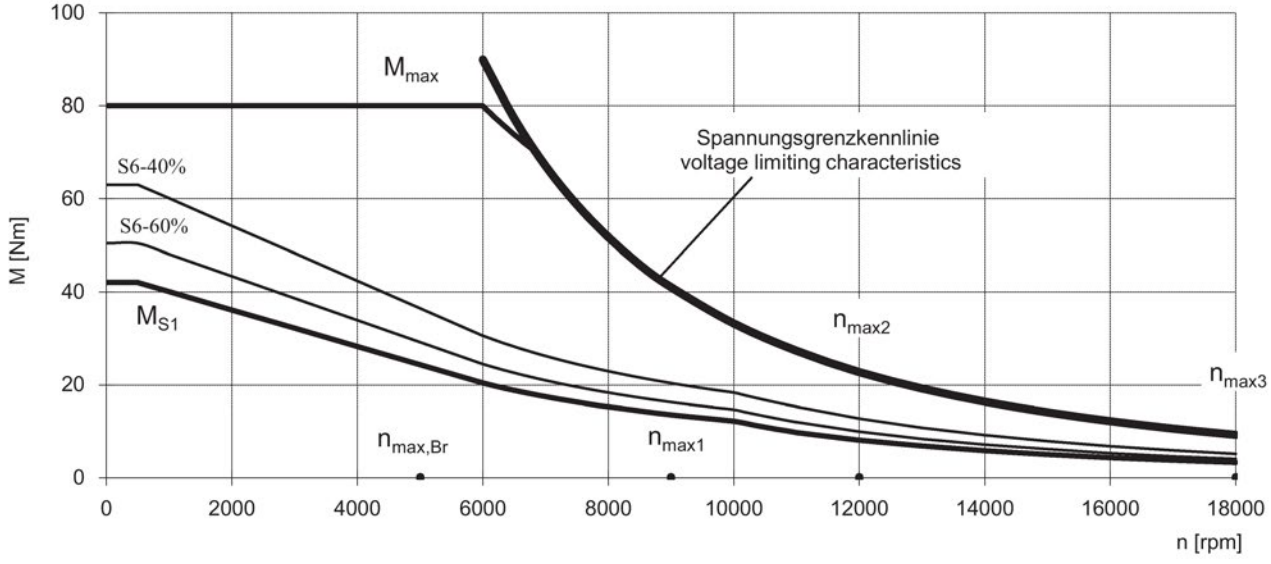
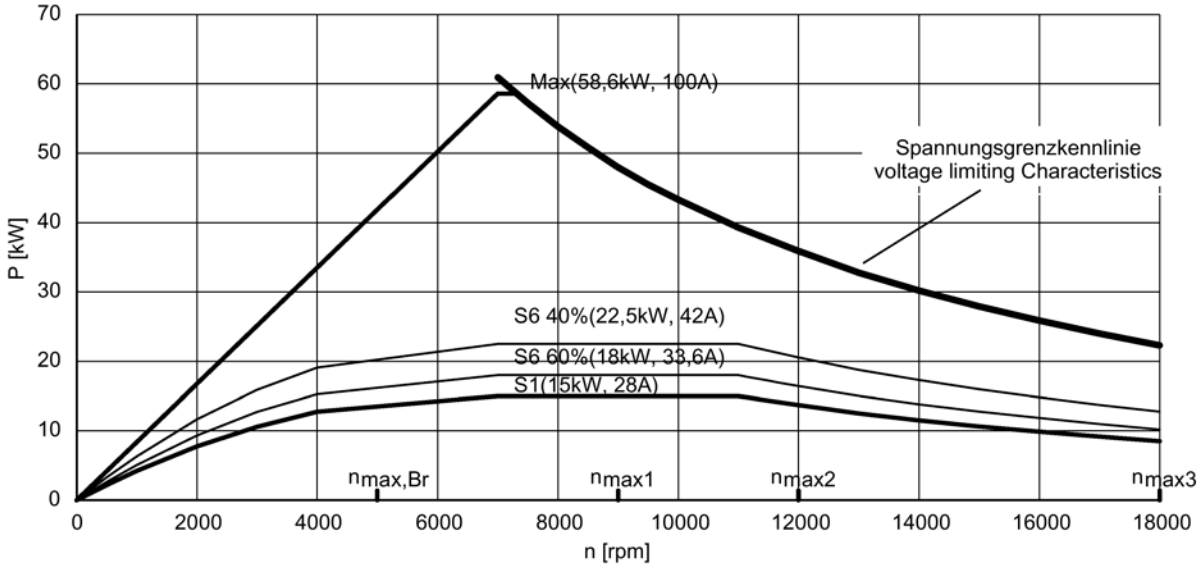


Table 6- 143 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	15	20	28	9,000	12,000	18,000	5,000	11,000	80	100	42	40



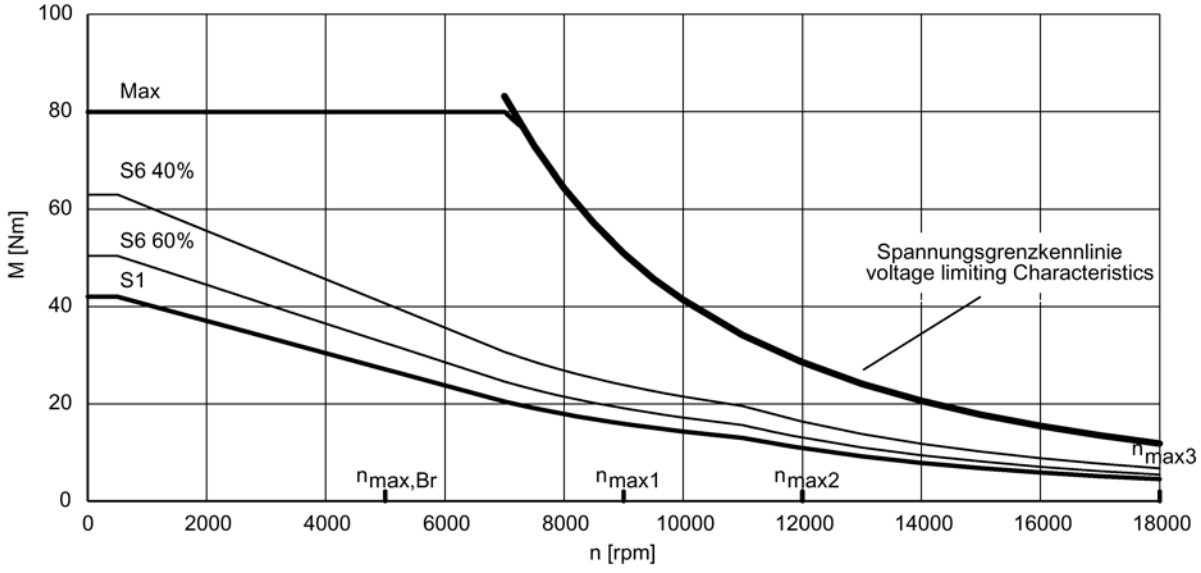
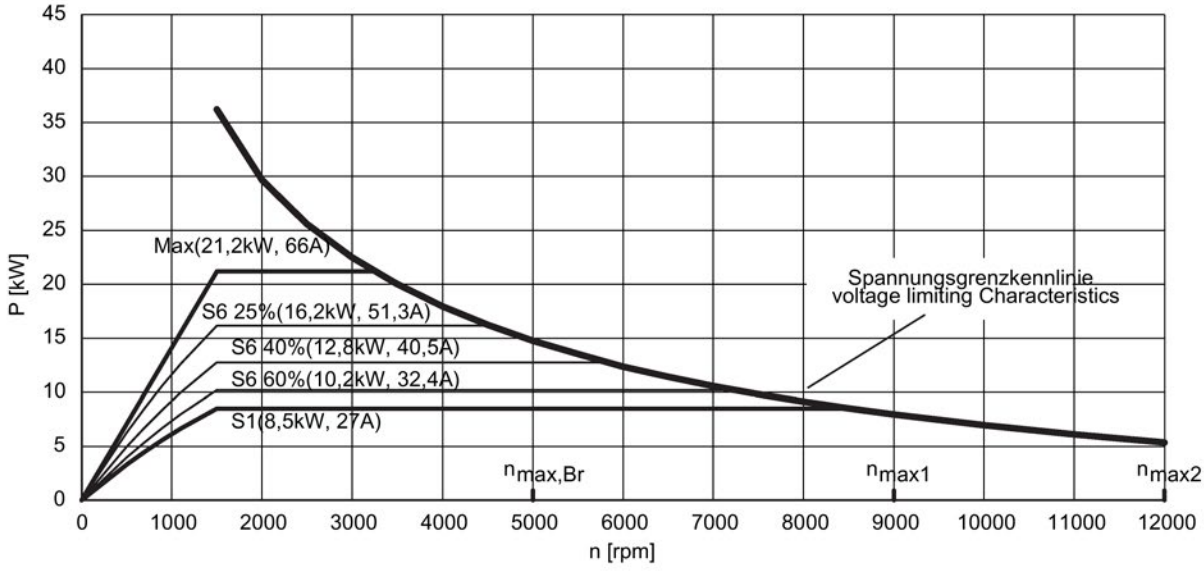


Table 6- 144 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Y connection

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]
1,500	8.5	54	27	9,000	12,000	-	5,000	8,550	135	66	63	30



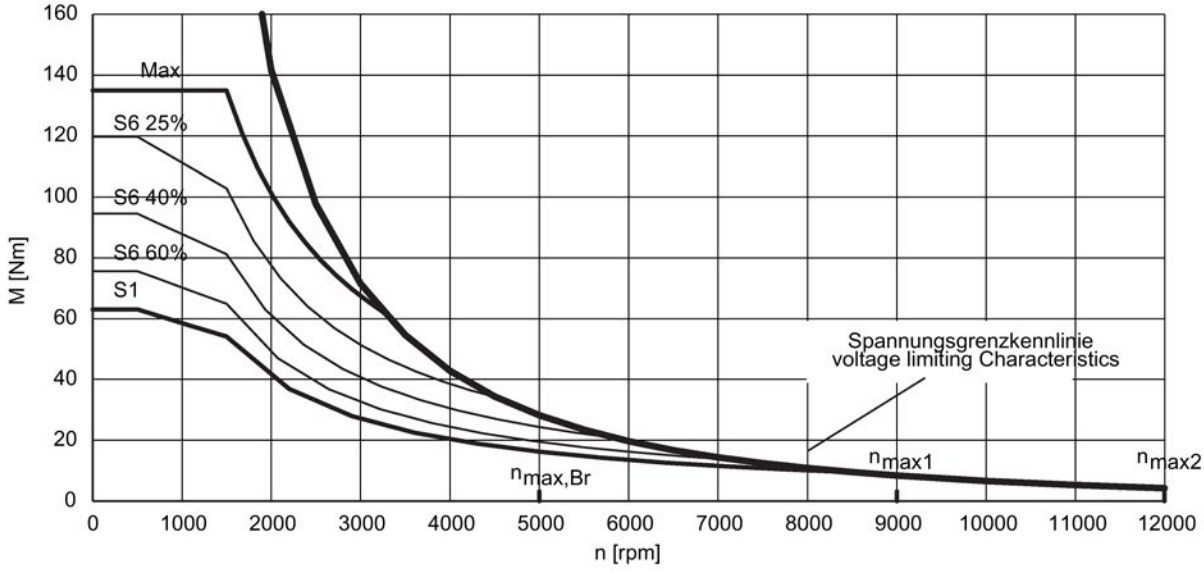
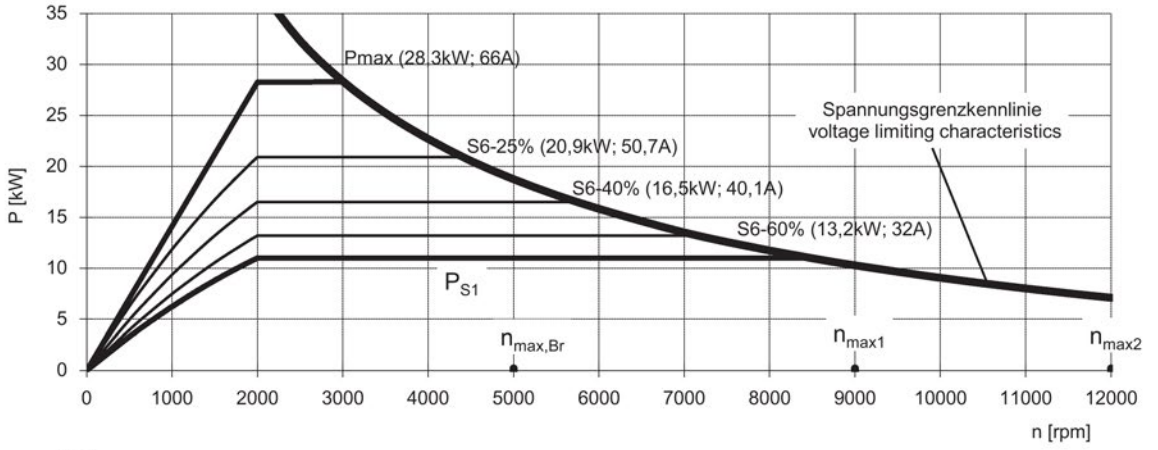


Table 6- 145 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Y connection

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]
2,000	11	53	26.7	9,000	12,000	-	5,000	8,550	135	66	63	30
1,500	8.5	54	27					10,600				



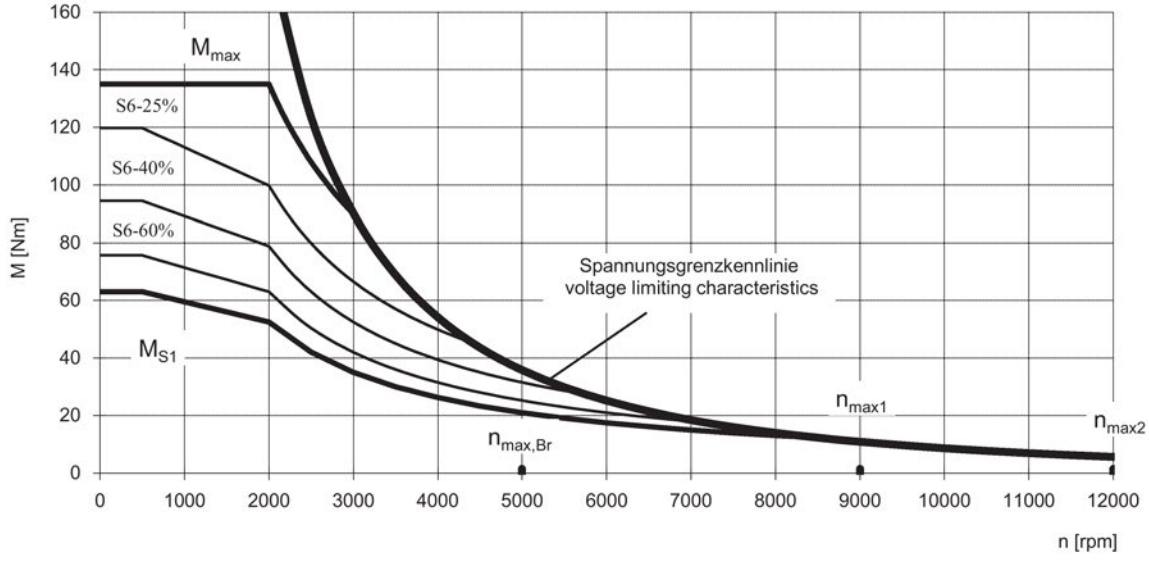
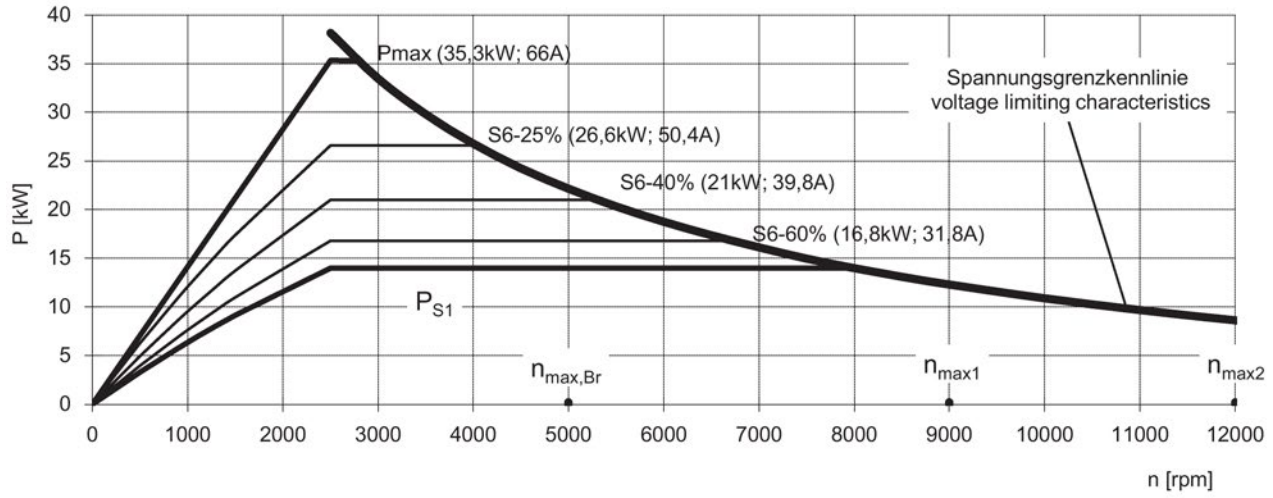


Table 6- 146 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□S□□, Y connection

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]
2,500	14	53	26.5	9,000	12,000	-	5,000	8,050	135	66	63	30



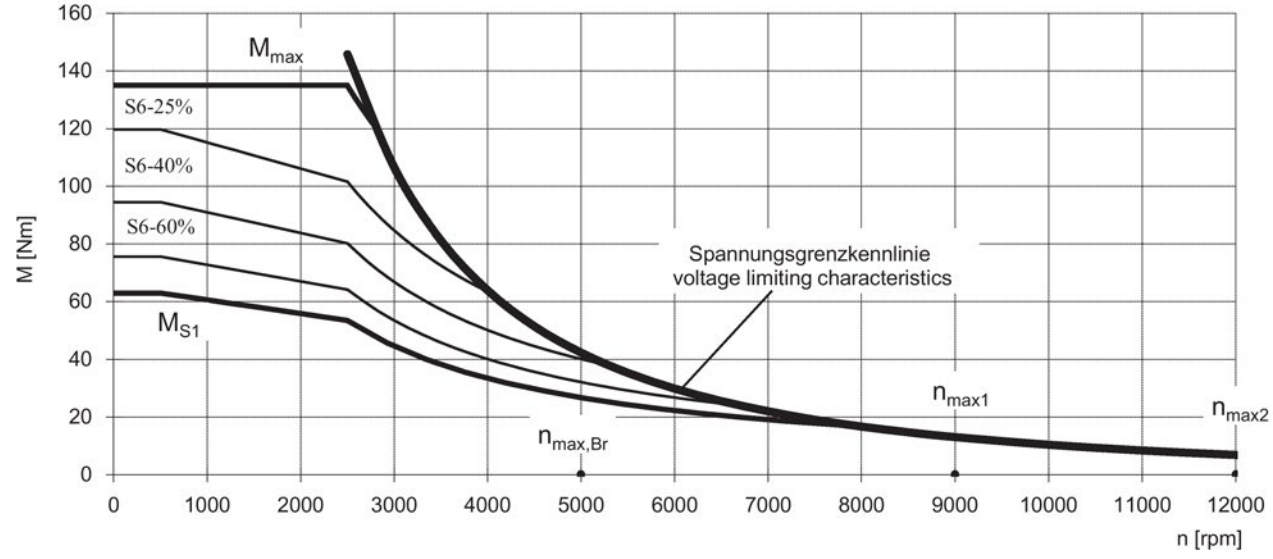
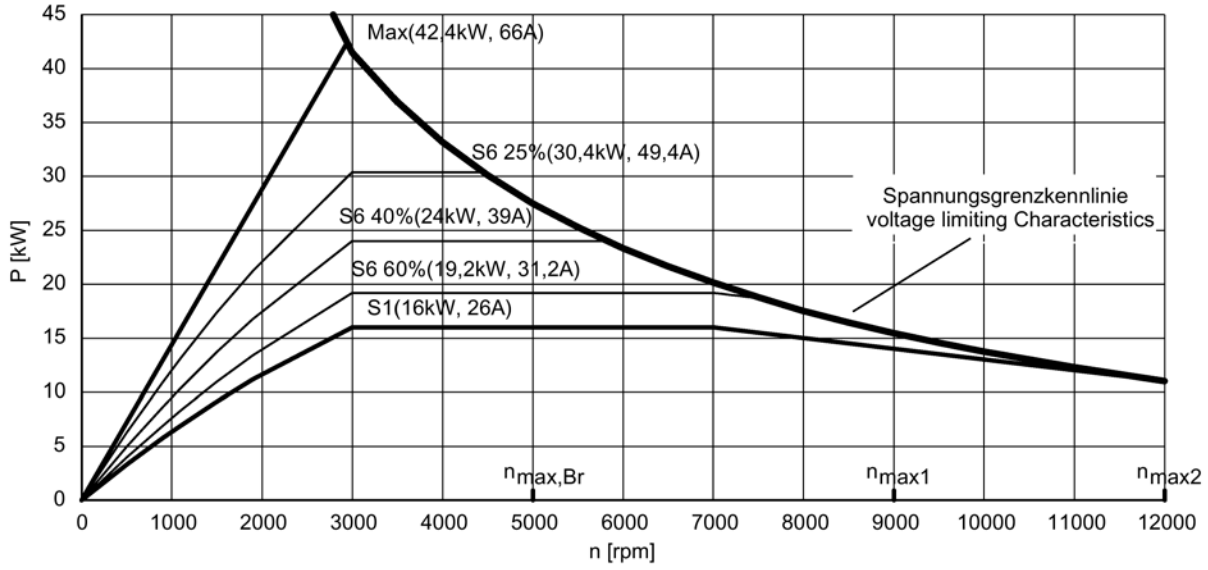
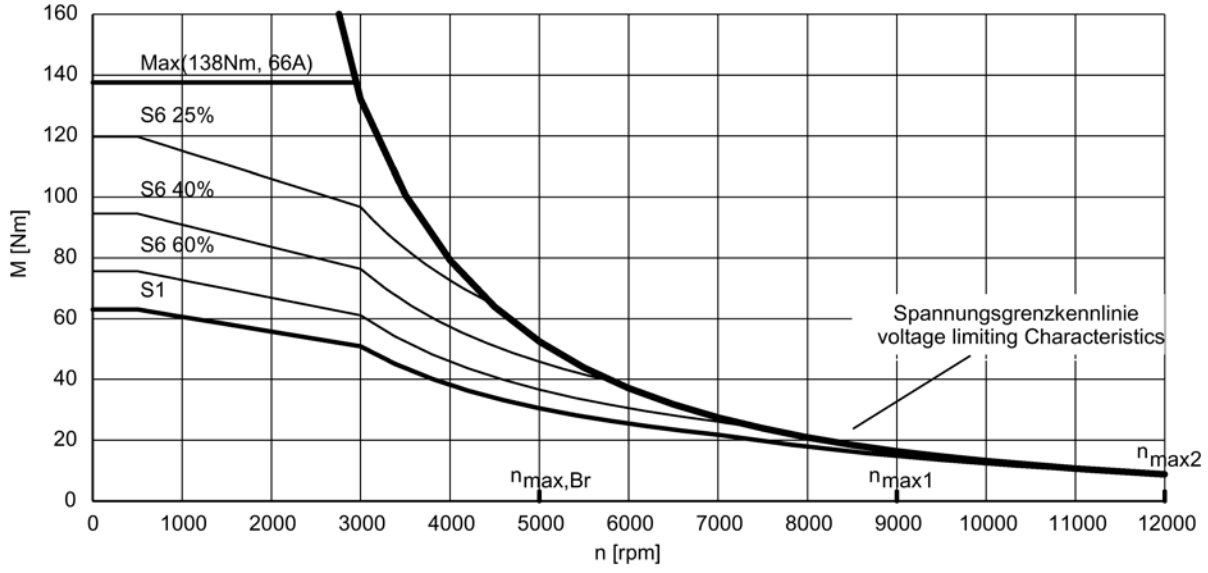


Table 6- 147 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	16	51	26	9,000	12,000	--	5,000	7,000	135	66	63	30





6.1.2.4 Shaft height 132 – forced ventilation

Table 6- 148 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	2.9	69	9	-	-	-	4,500	1,500	134	22	76	10

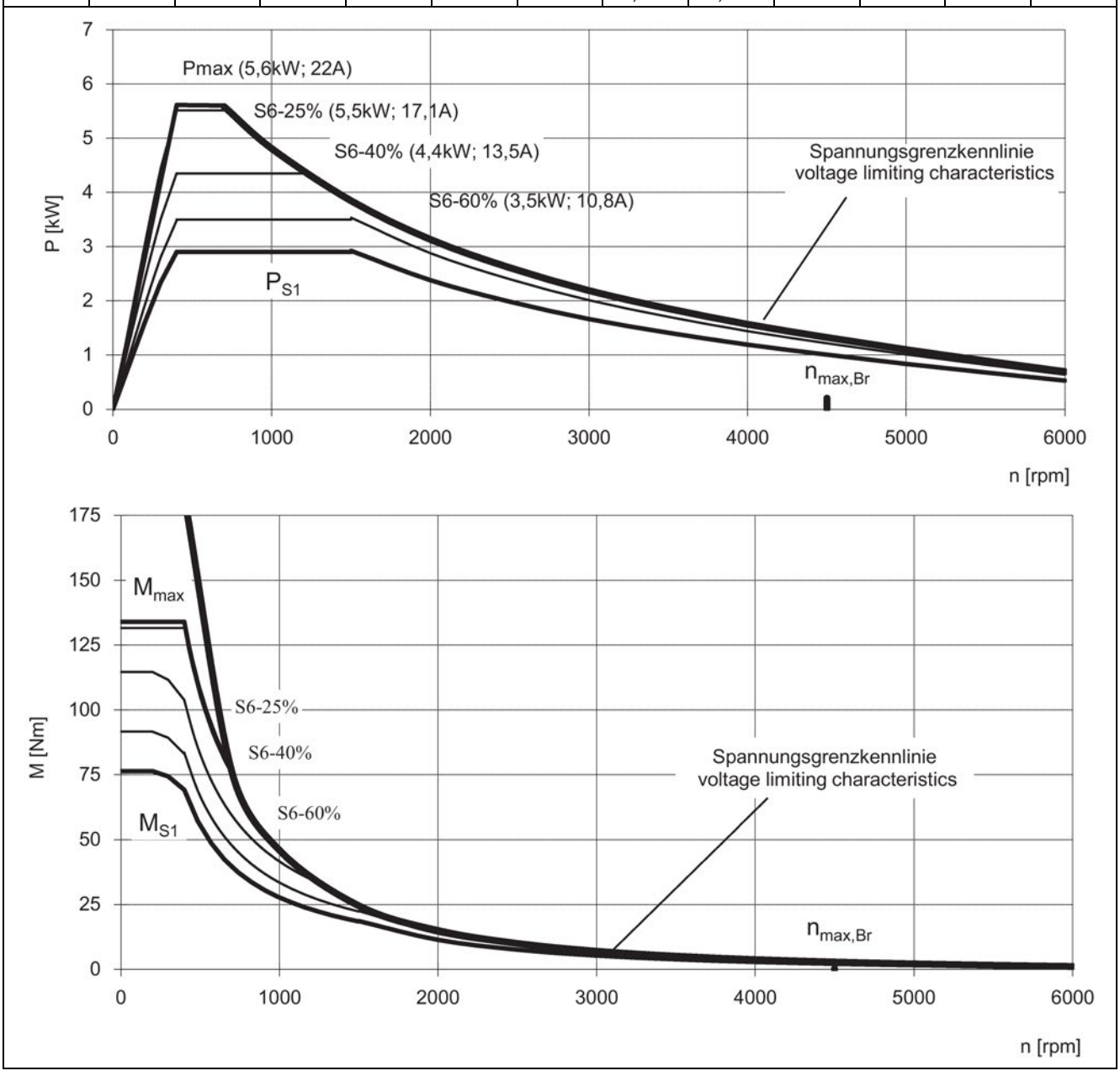


Table 6- 149 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8131-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	3.6	69	9	-	-	-	4,500	1,500	134	22	76	10
400	2.9	69	9					2,000				

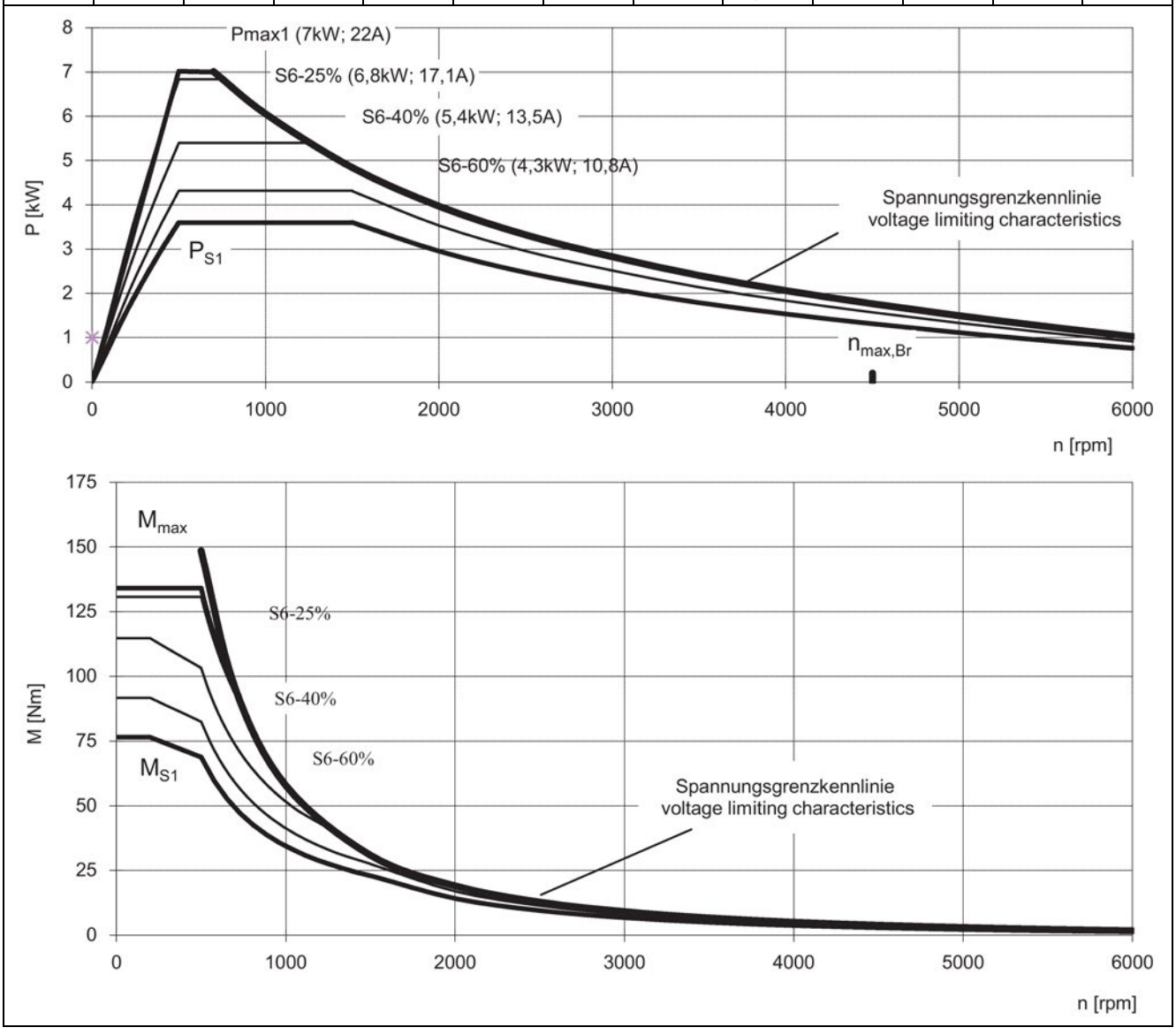
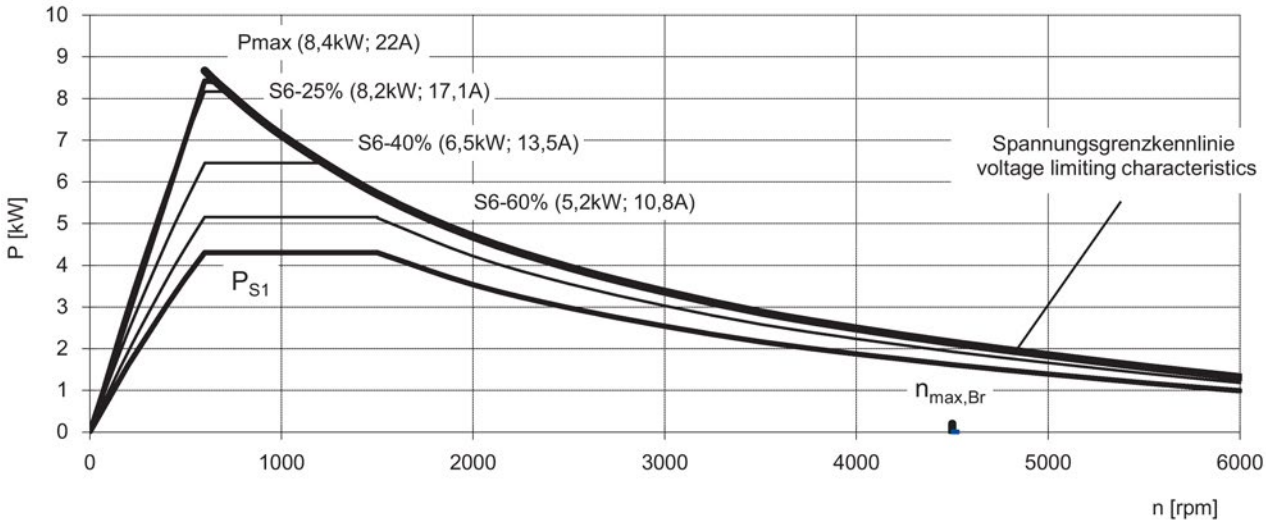


Table 6- 150 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	4.3	68	9	-	-	-	4,500	1,500	134	22	76	10



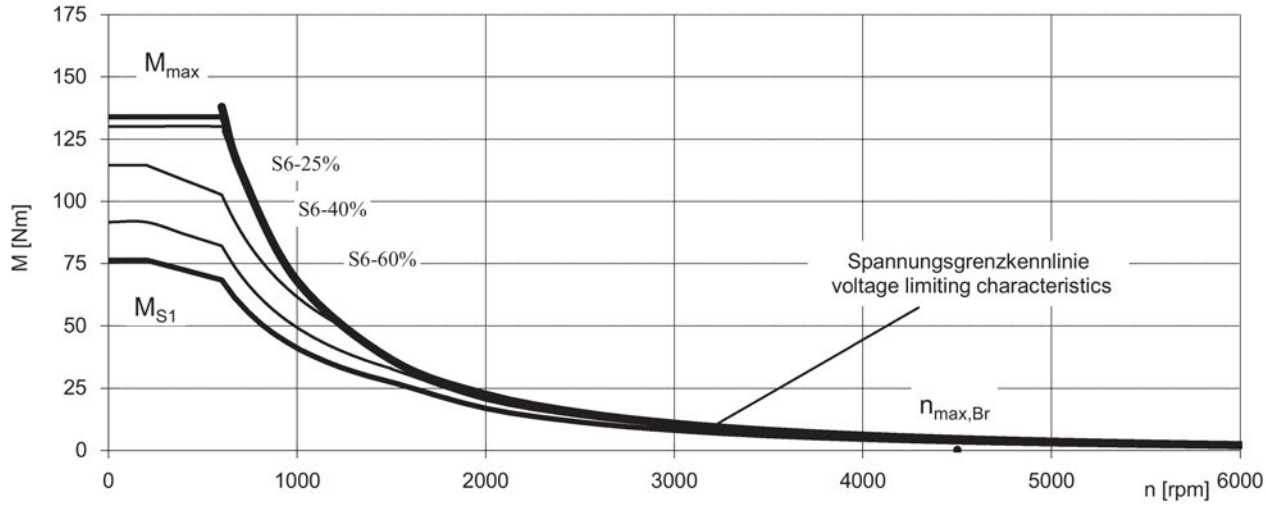
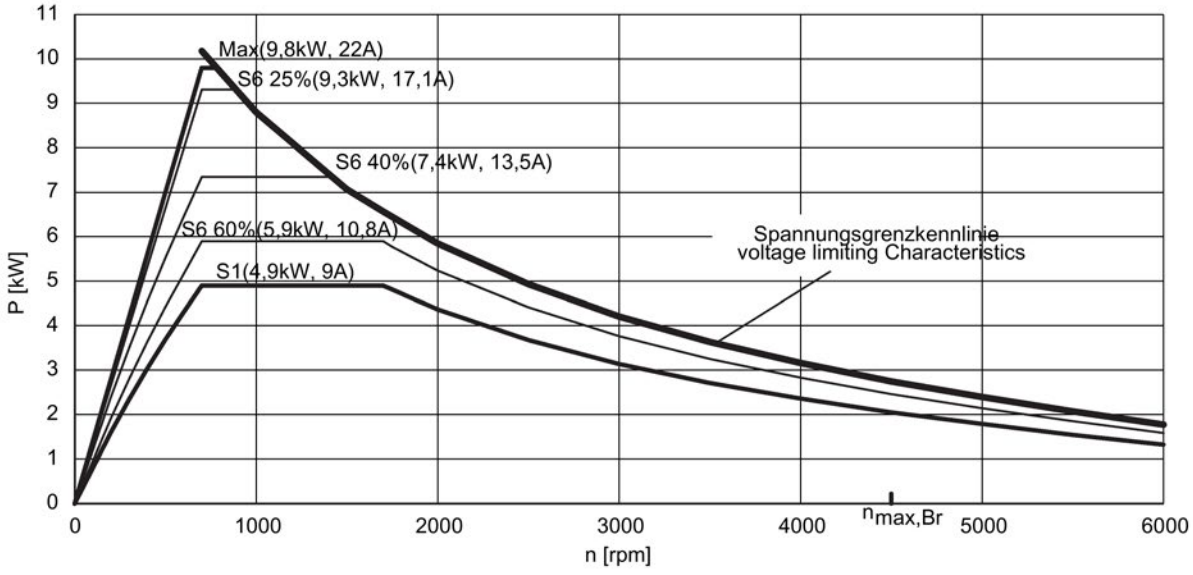


Table 6- 151 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8131-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	4.9	67	9	--	--	--	4,500	1,700	134	22	76	10



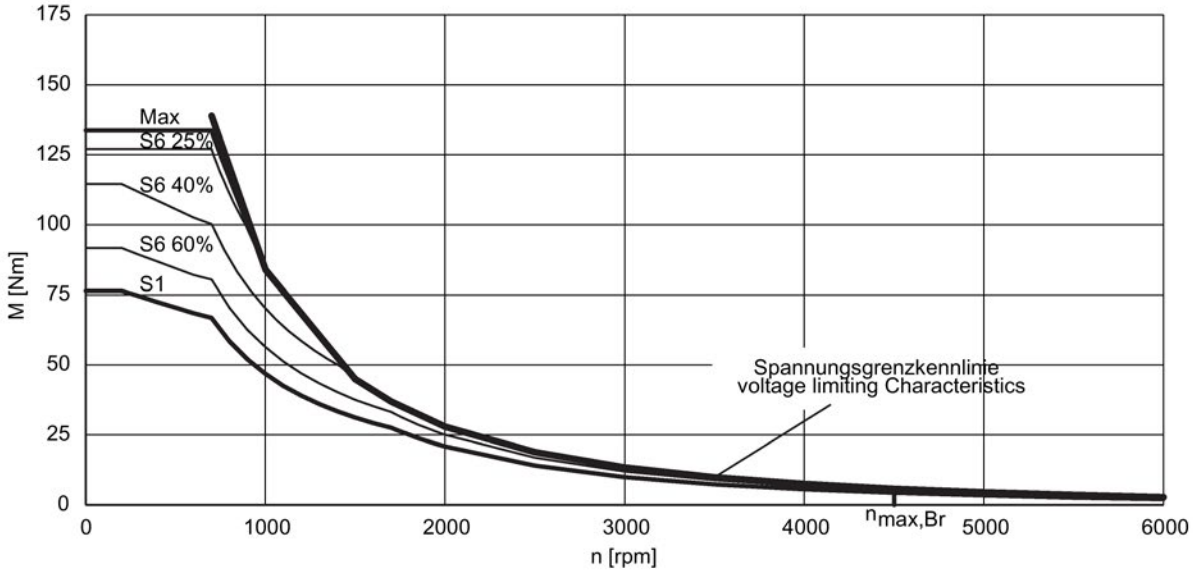
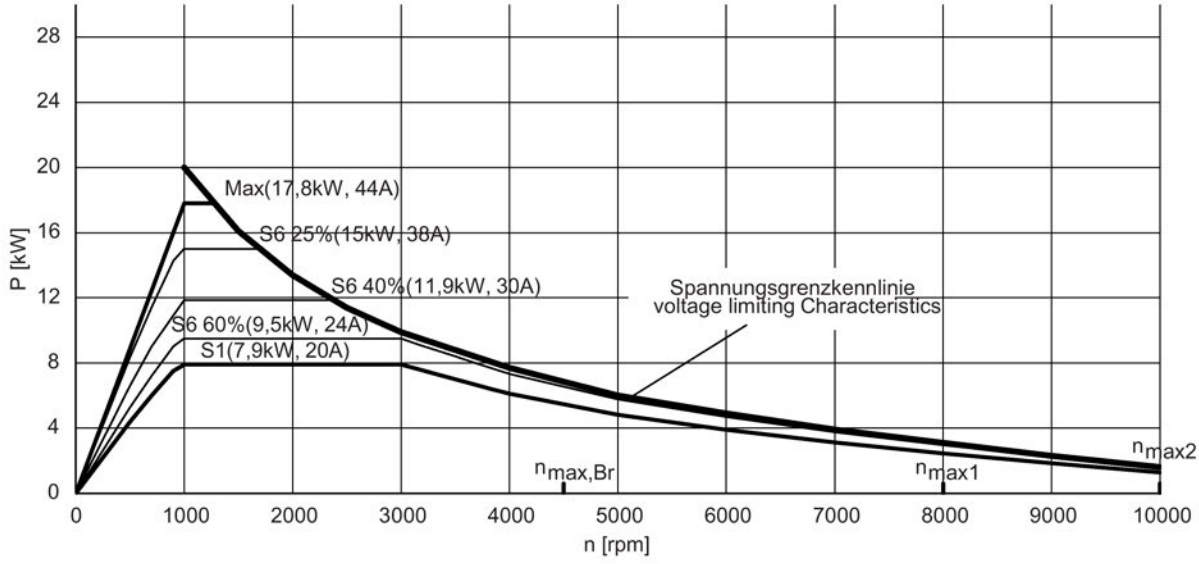


Table 6- 152 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□D□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,000	7.9	75	20	8,000	10,000	--	4,500	3,000	170	44	84	21



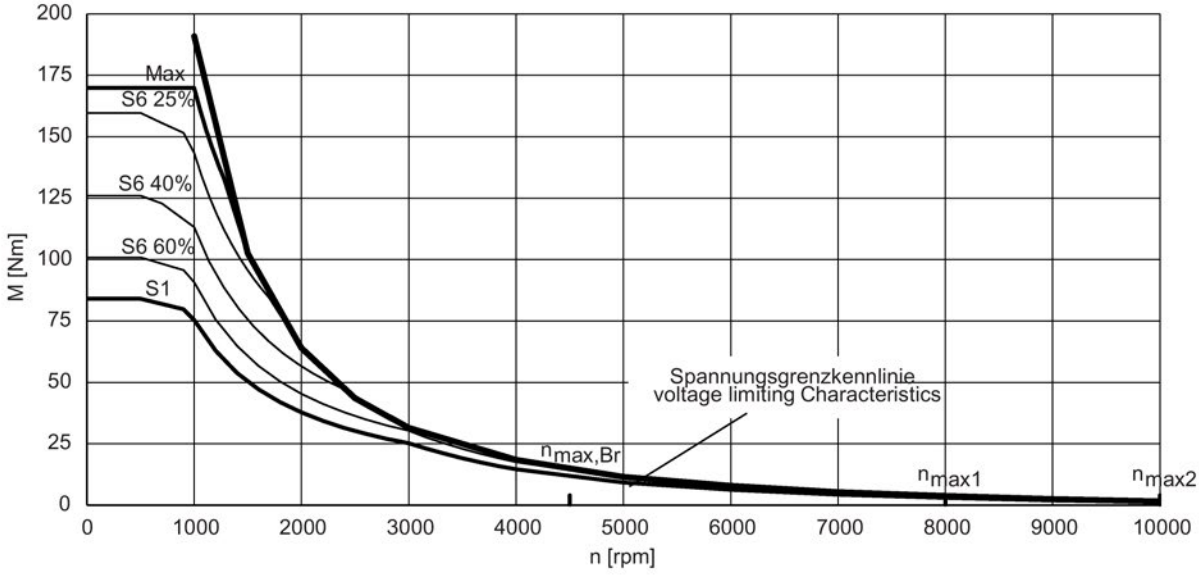
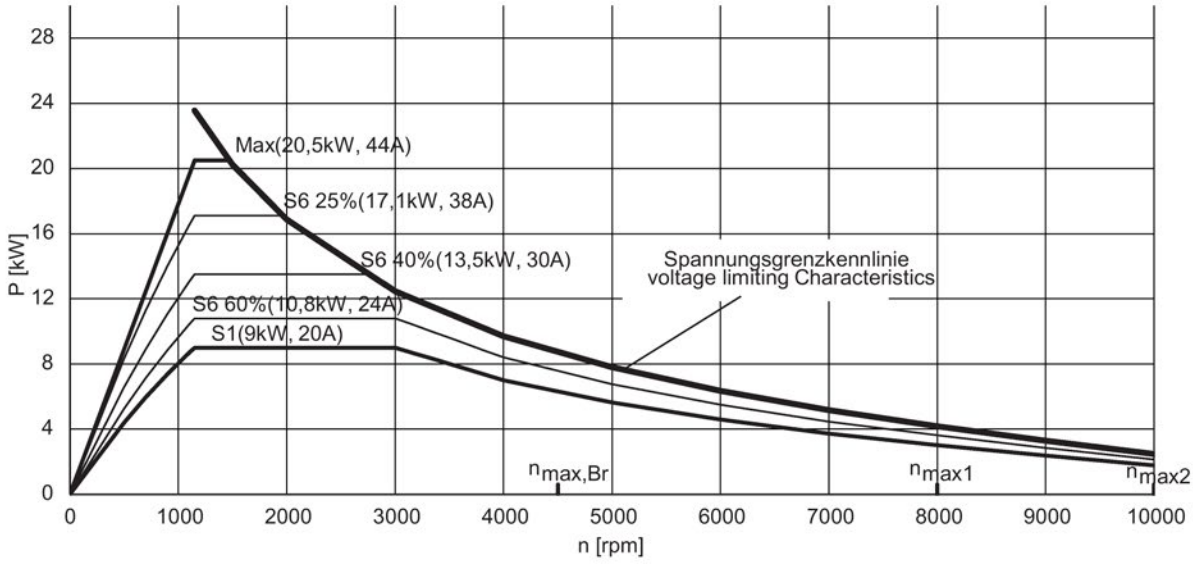


Table 6- 153 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□D□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,150	9	75	20	8,000	10,000	--	4,500	3,000	170	44	84	21
1,000	7.9	75	20					3,550				



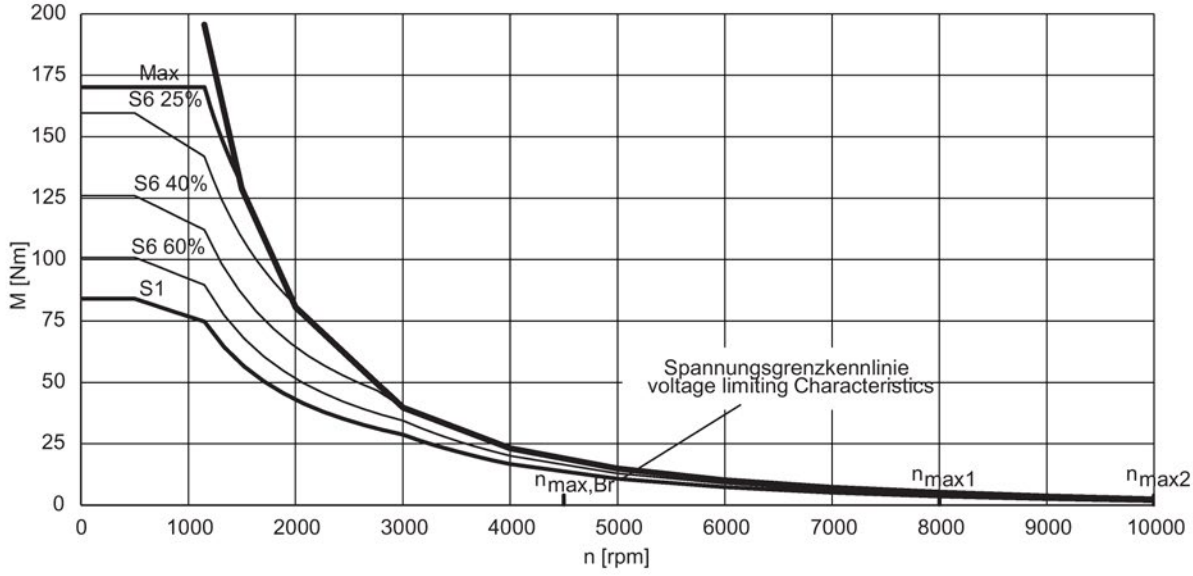
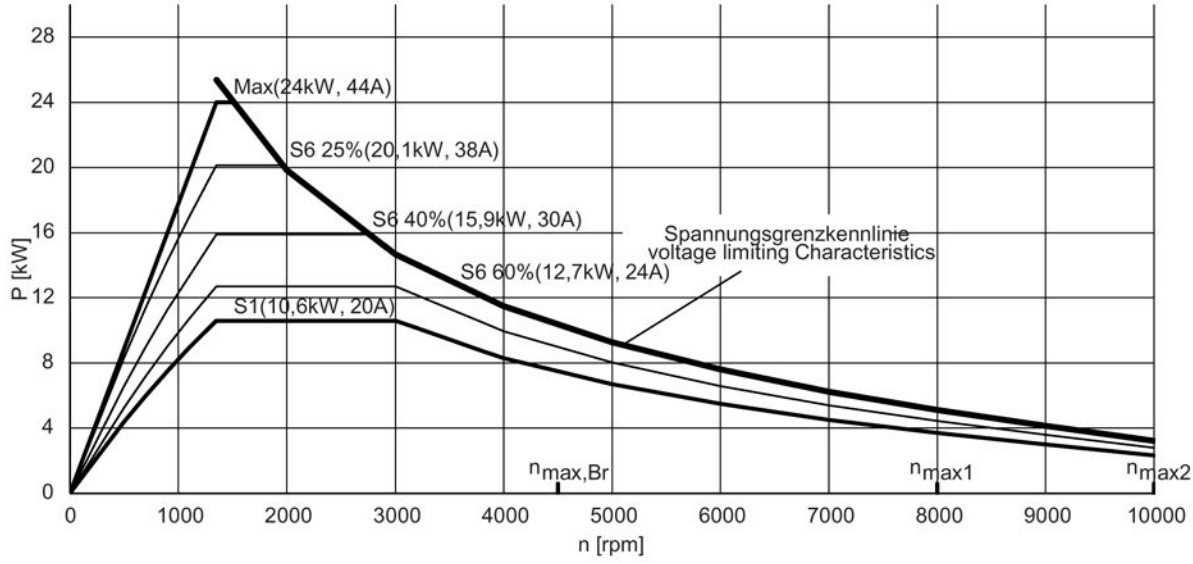


Table 6- 154 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□D□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,350	10.6	75	20	8,000	10,000	--	4,500	3,000	170	44	84	21



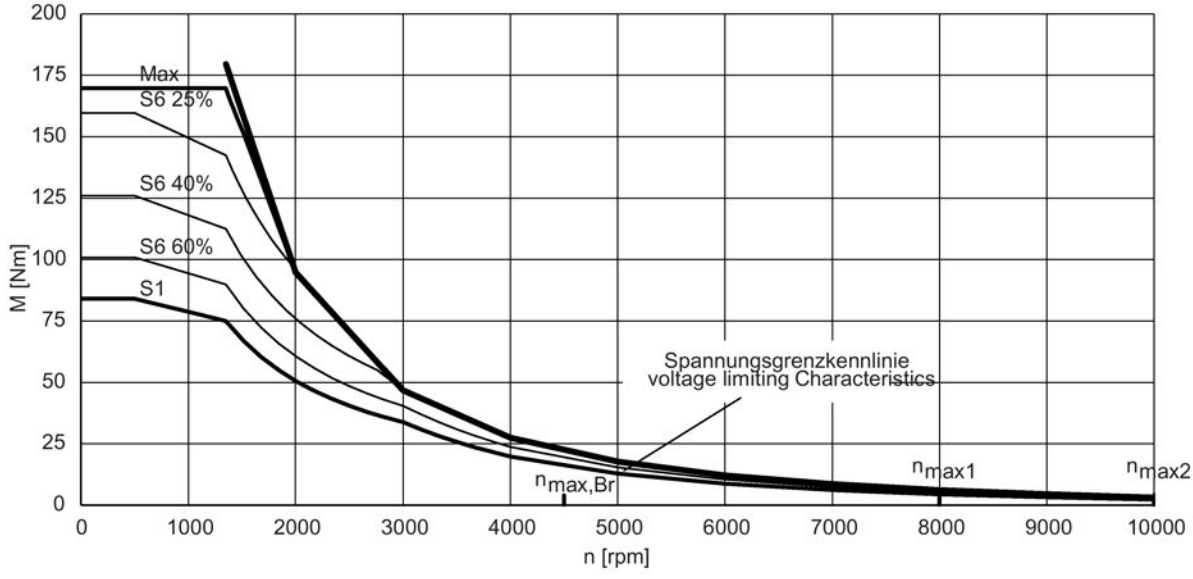
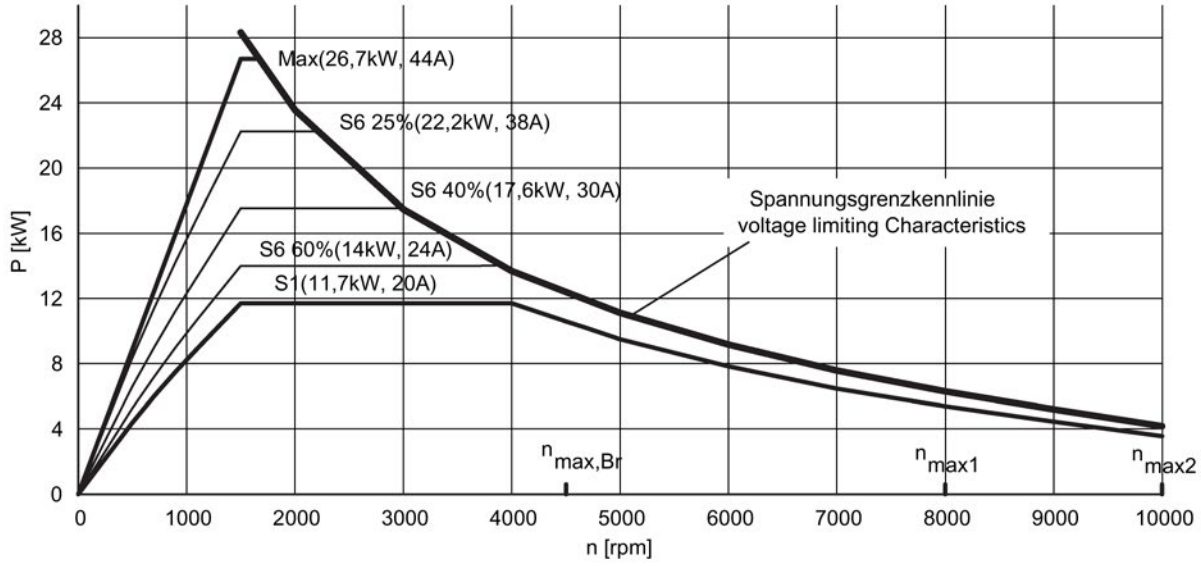


Table 6- 155 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□D□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	11.7	74	20	8,000	10,000	--	4,500	4,000	170	44	84	21



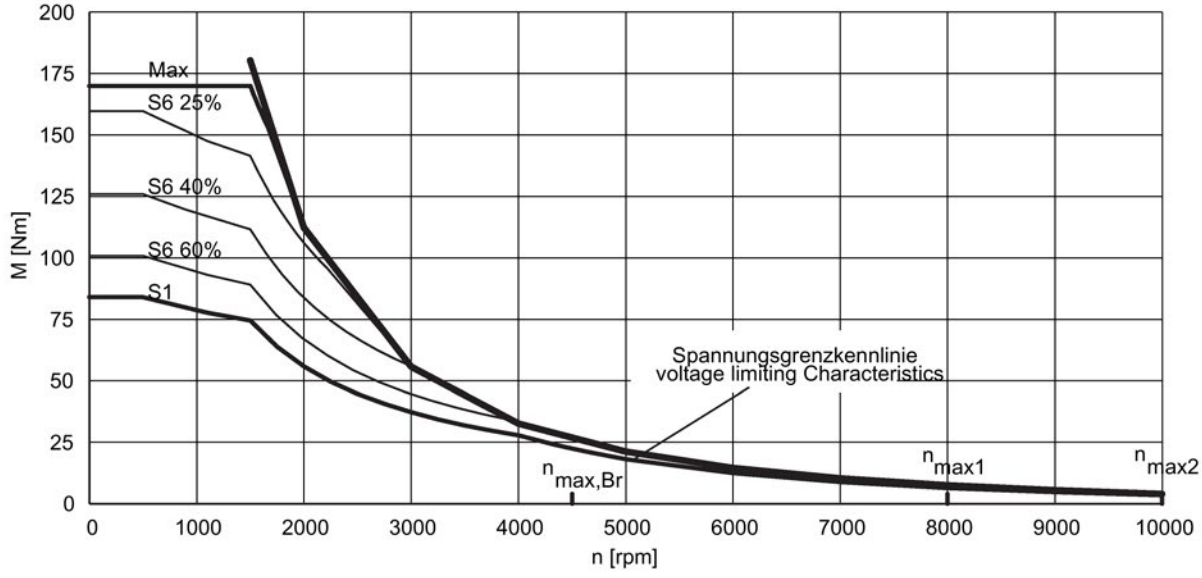


Table 6- 156 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F□□

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]
1,500	11	70	24	8,000	10,000	11,000	4,500	4,800	148	50	96	30

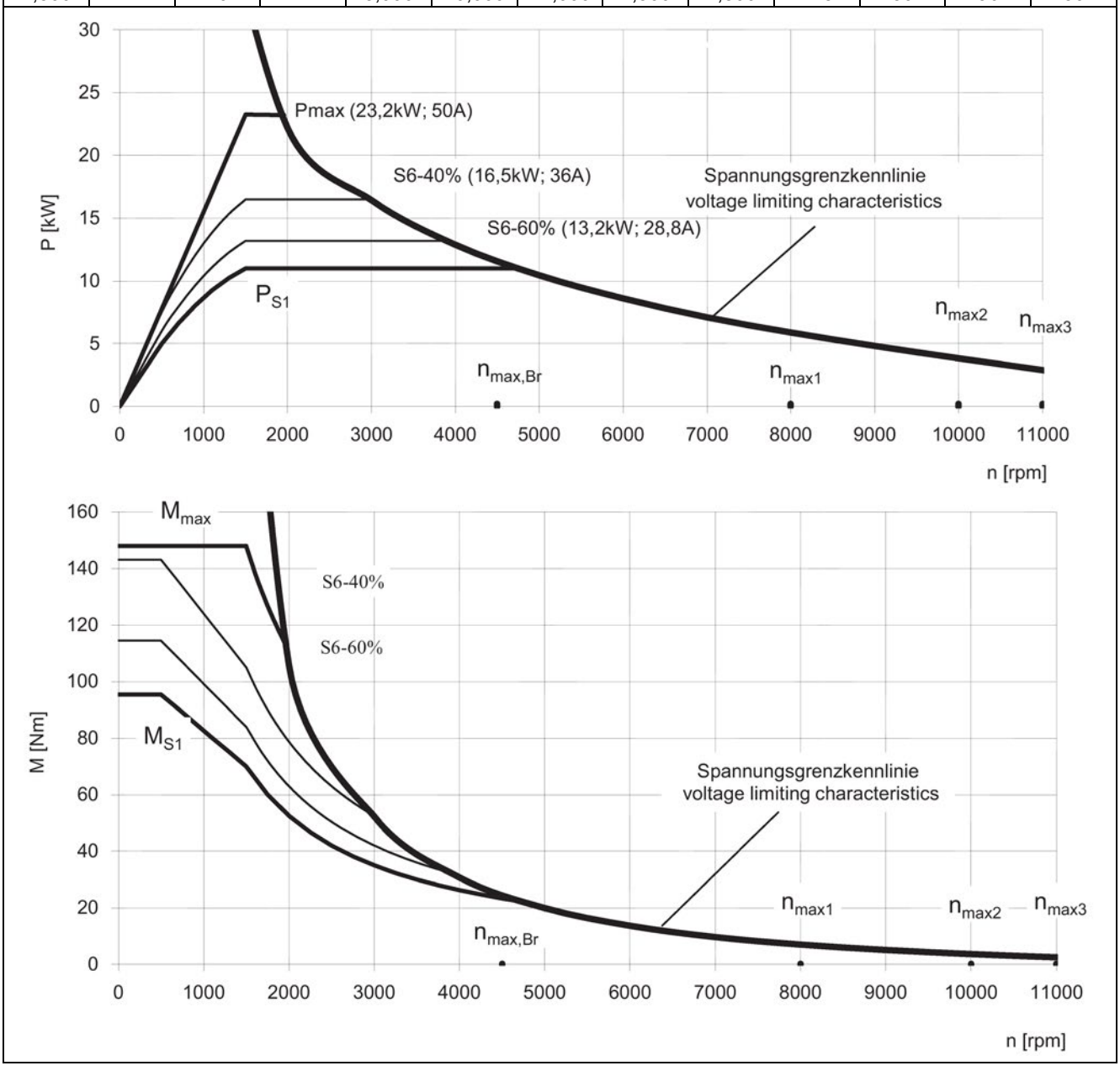


Table 6- 157 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F□□

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]
1,750	13	71	24	8,000	10,000	11,000	4,500	5,150	148	50	96	30
1,500	11	70	24					6,050				

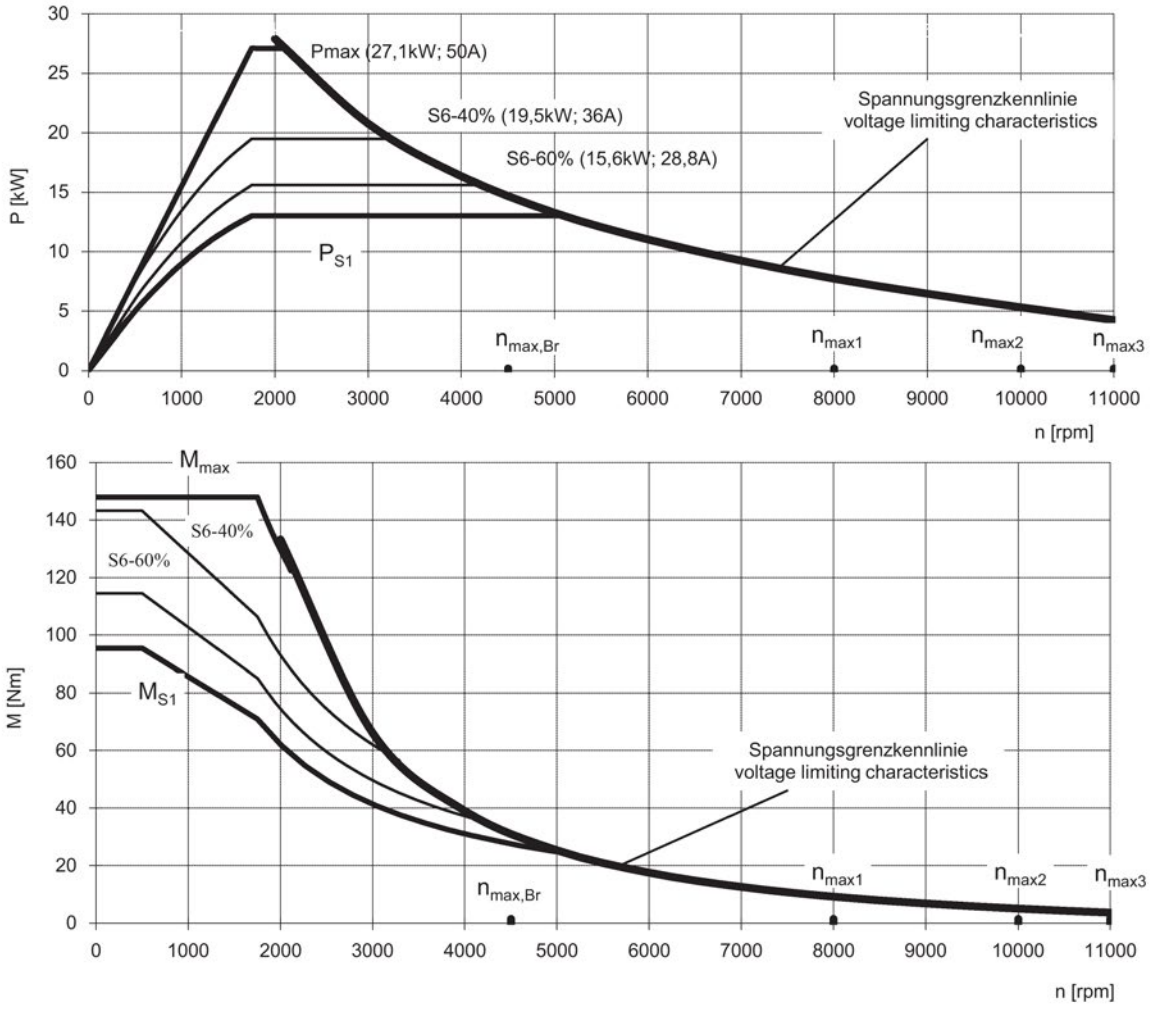
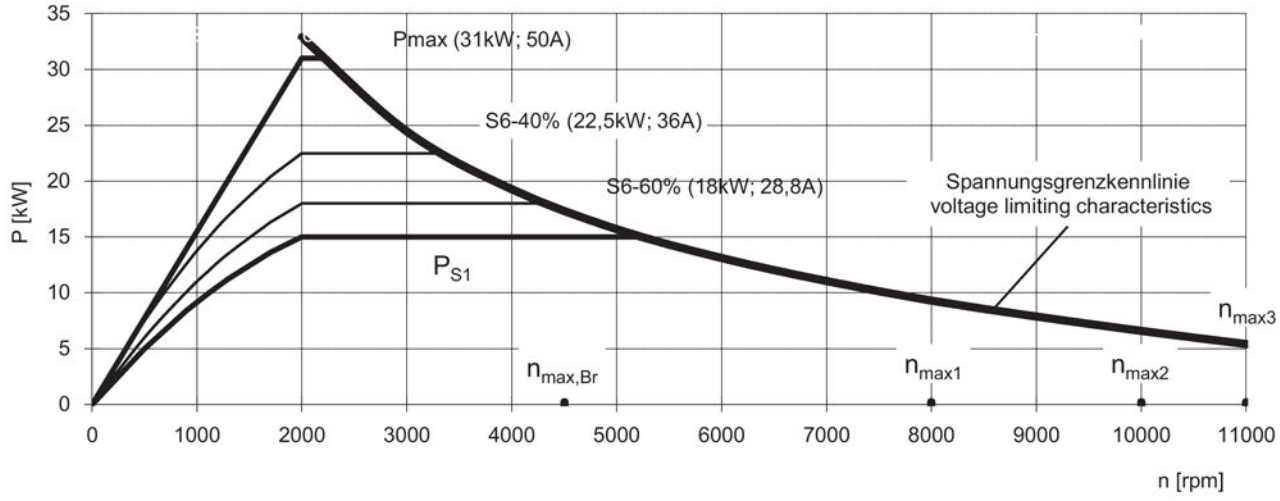


Table 6- 158 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F□□

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]
2,000	15	72	24	8,000	10,000	11,000	4,500	5,300	148	50	96	30



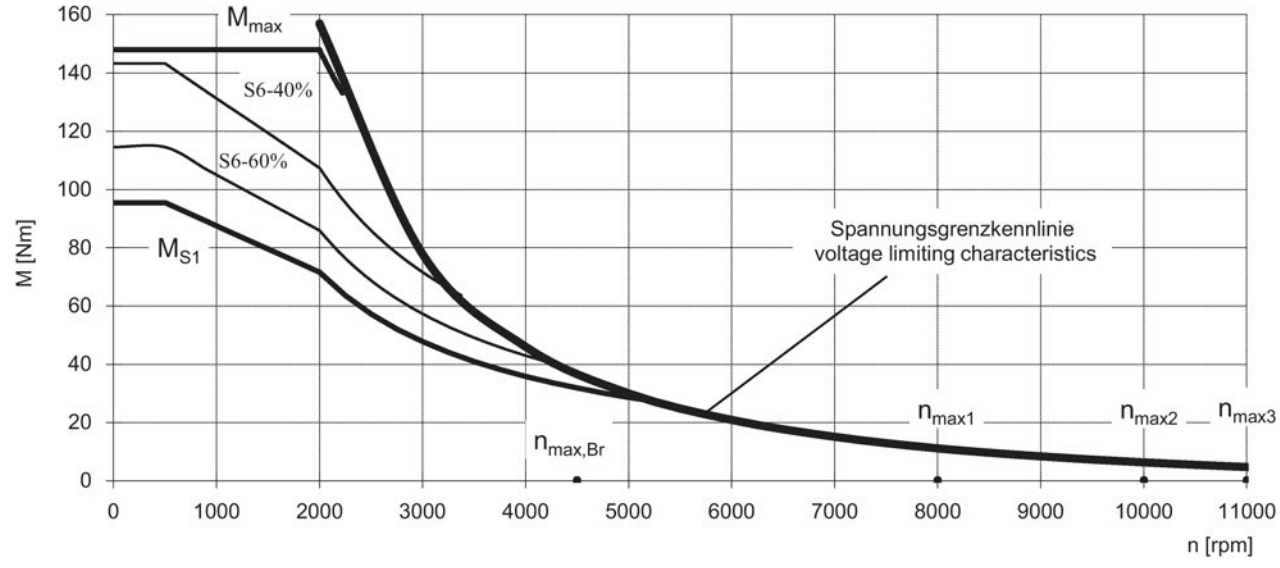
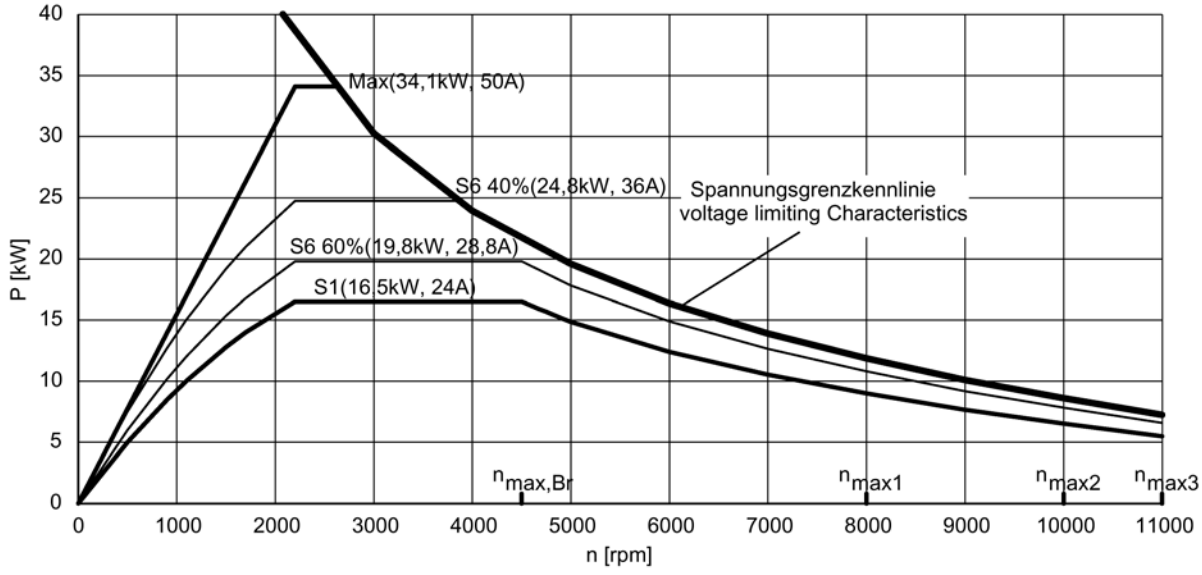


Table 6- 159 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	16.5	72	24	8,000	10,000	11,000	4,500	4,500	148	50	96	30



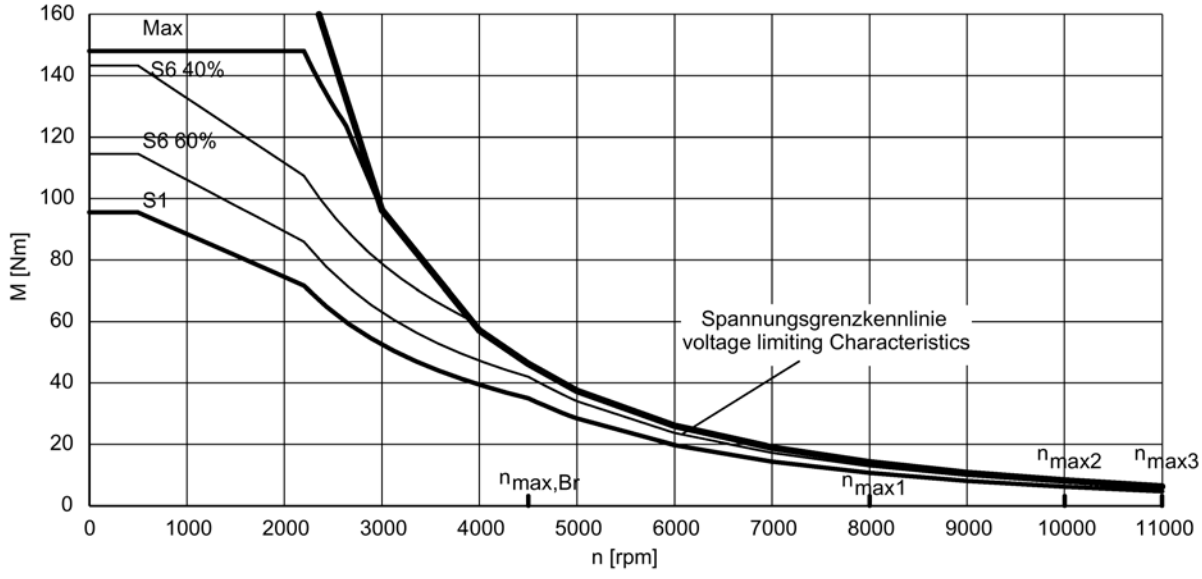
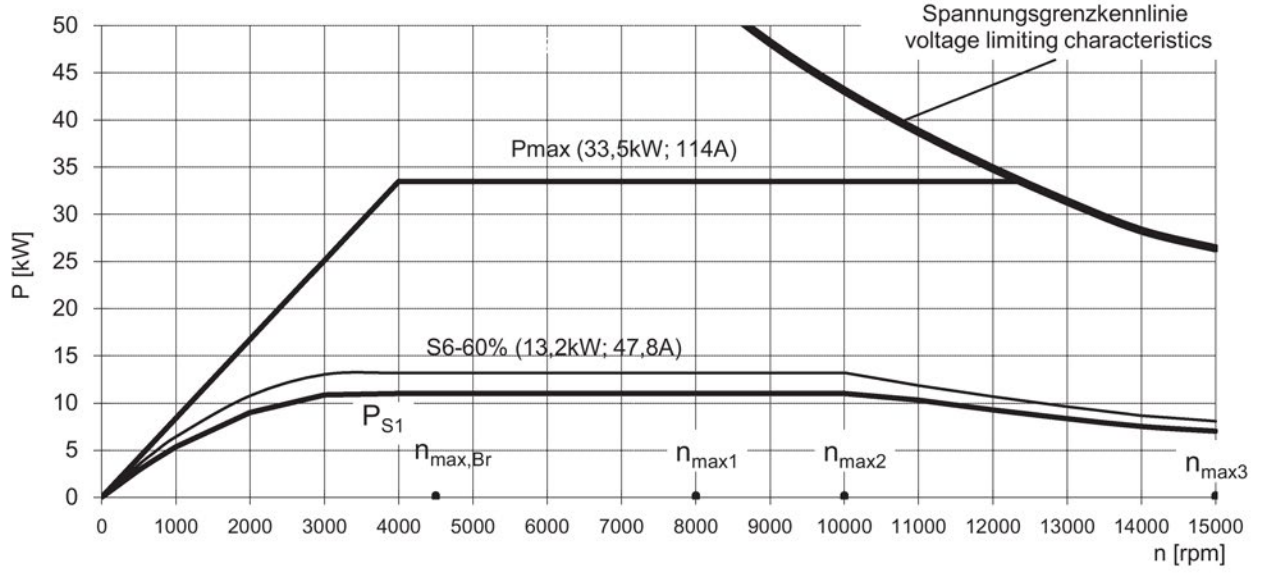


Table 6- 160 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Δ connection

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]
4,000	11	26	40	8,000	10,000	15,000	4,500	10,000	80	114	55	56



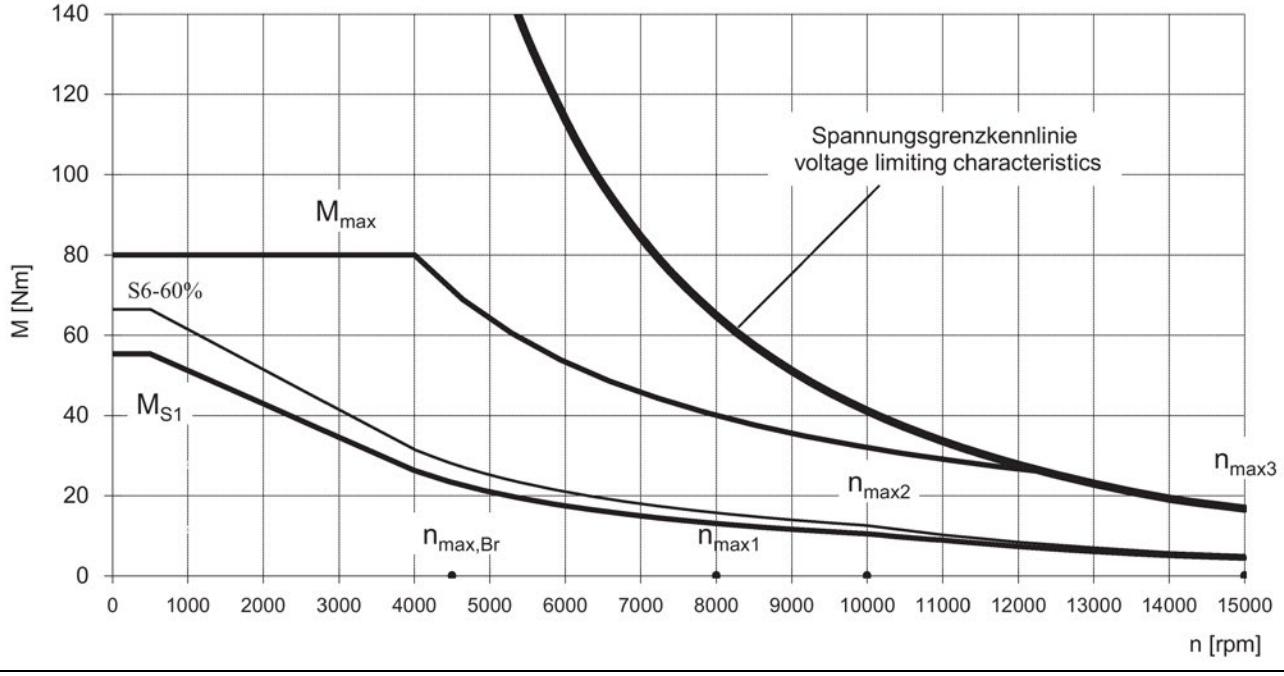
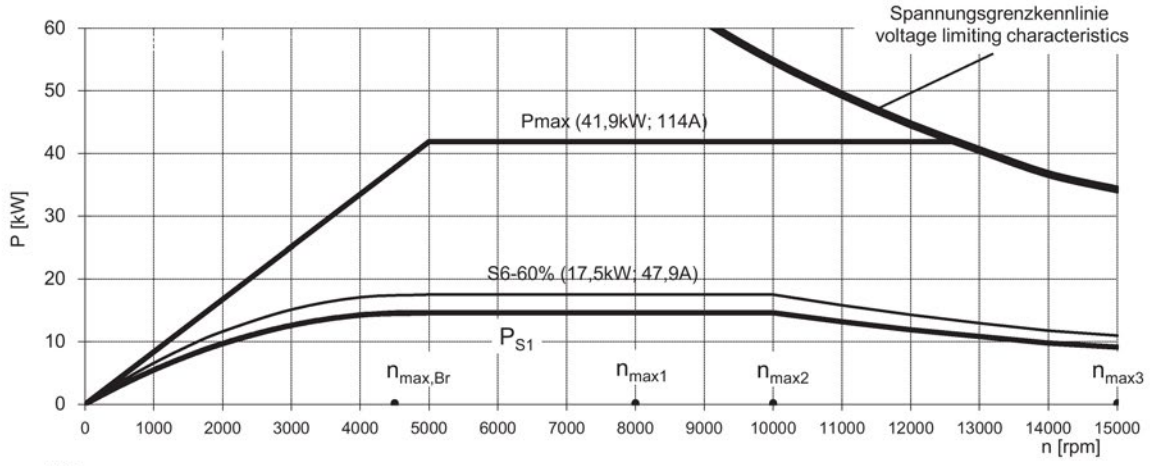


Table 6- 161 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Δ connection

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]
5,000	14.6	28	40	8,000	10,000	15,000	4,500	10,000	80	114	55	56
4,000	11	28	40					13,000				



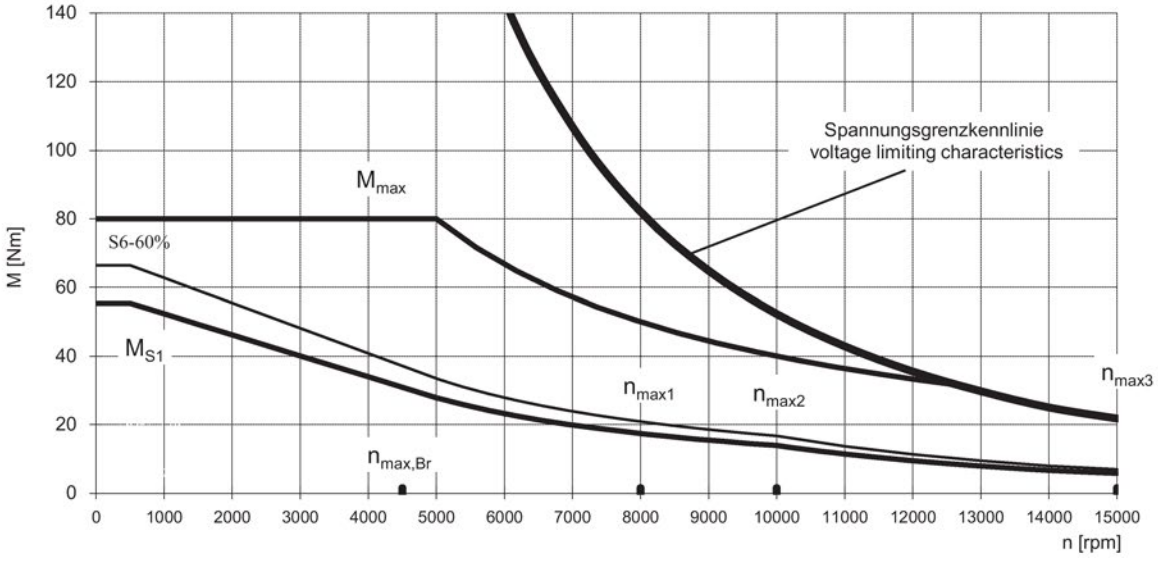
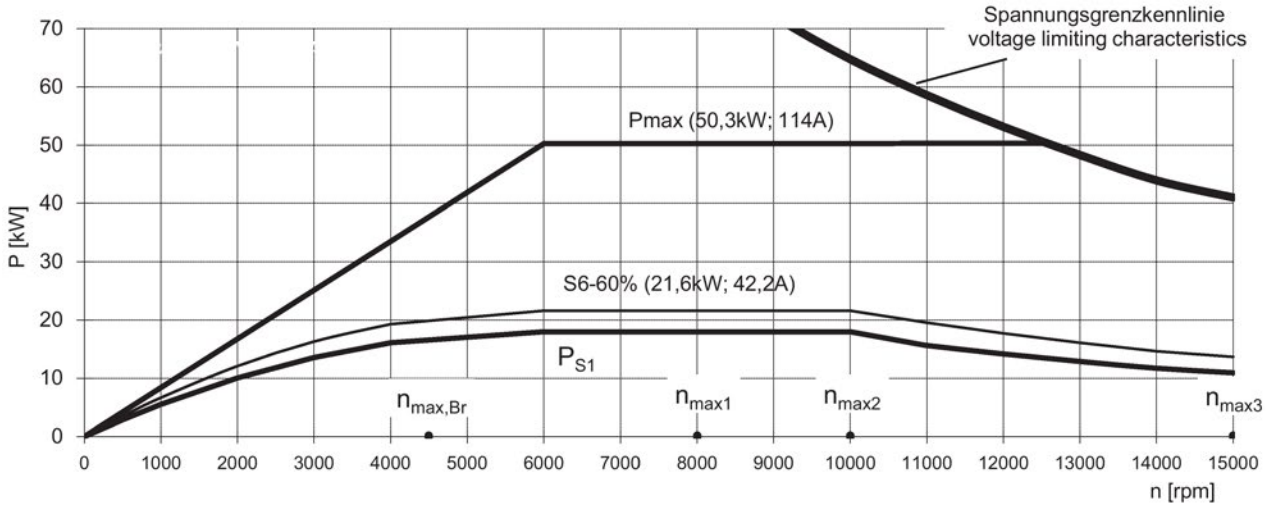


Table 6- 162 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Δ connection

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]
6,000	18	29	35	8,000	10,000	15,000	4,500	10,000	80	114	55	56



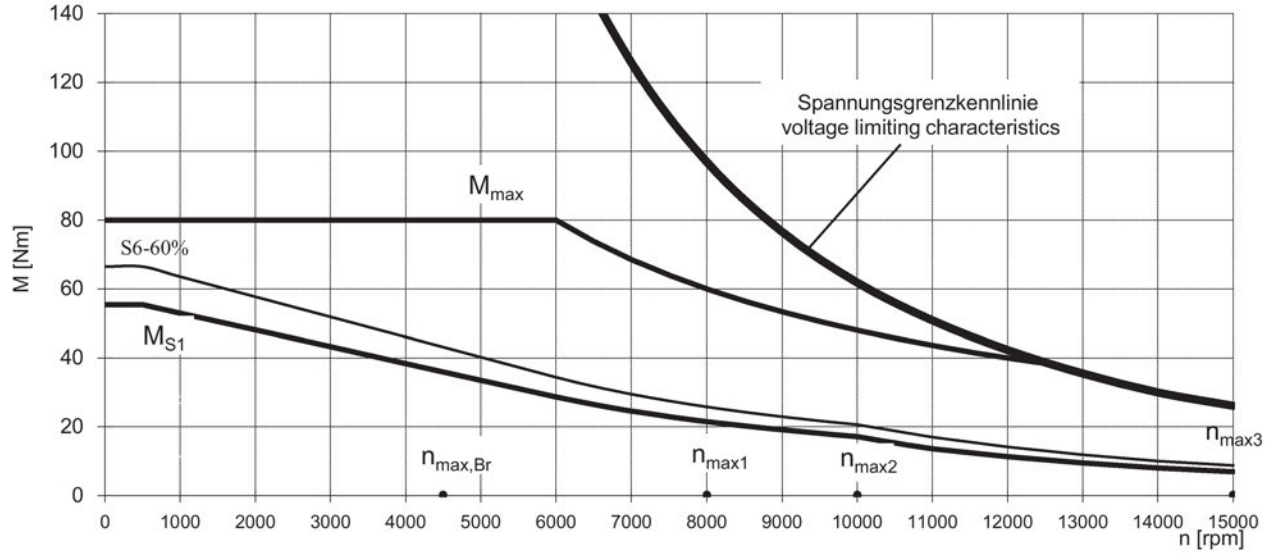
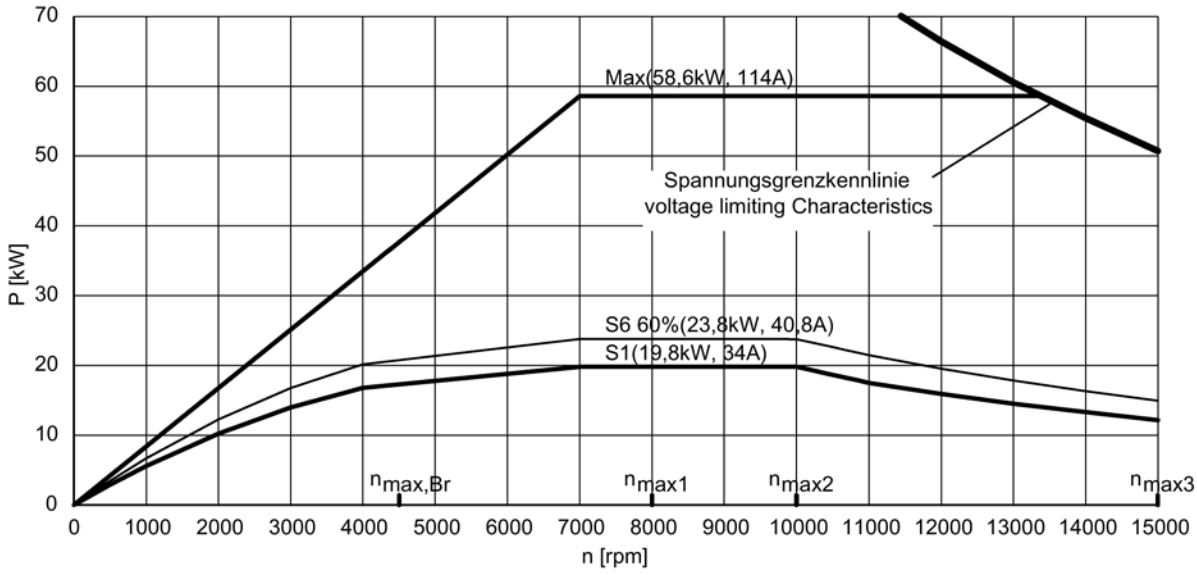


Table 6- 163 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	19.8	27	34	8,000	10,000	15,000	4,500	10,000	80	114	55	56



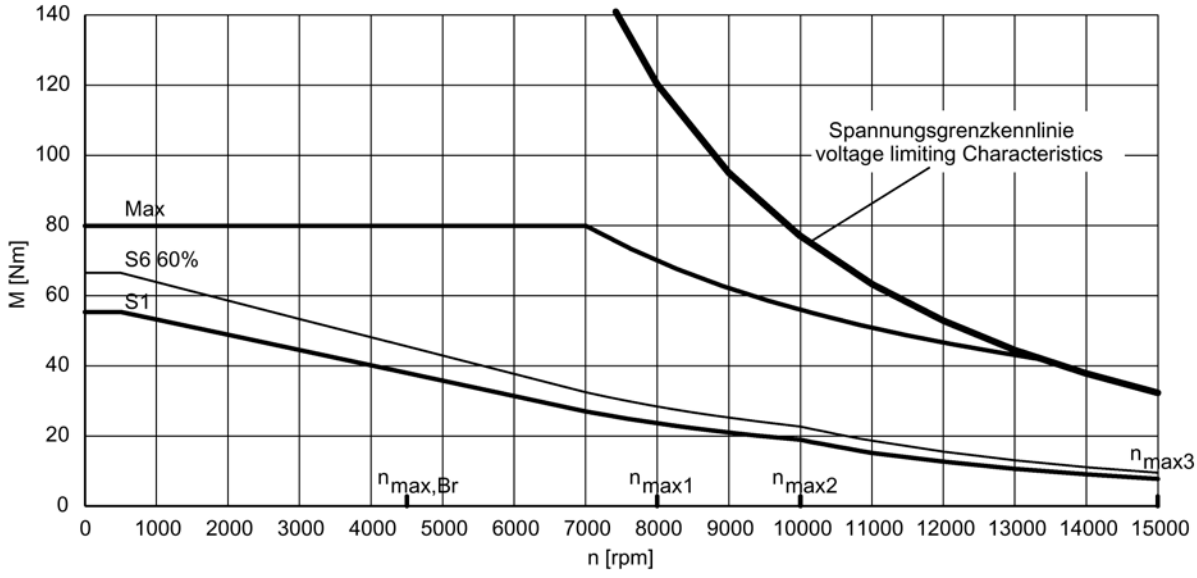
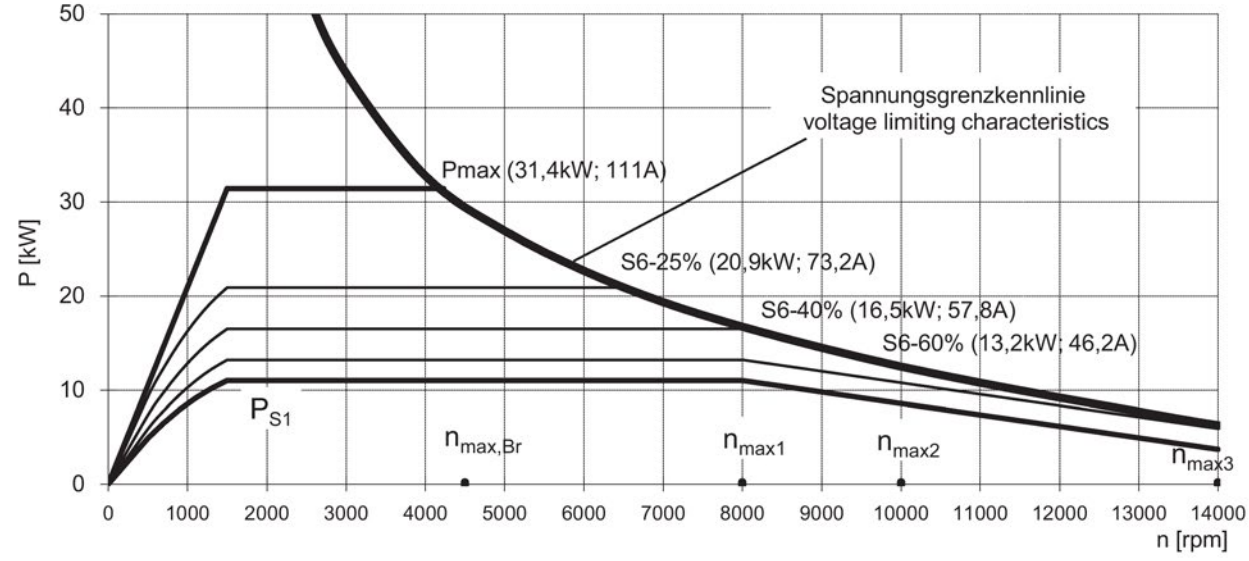


Table 6- 164 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Y connection

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]
1,500	11	70	39	8,000	10,000	14,000	4,500	8,000	200	111	94	47



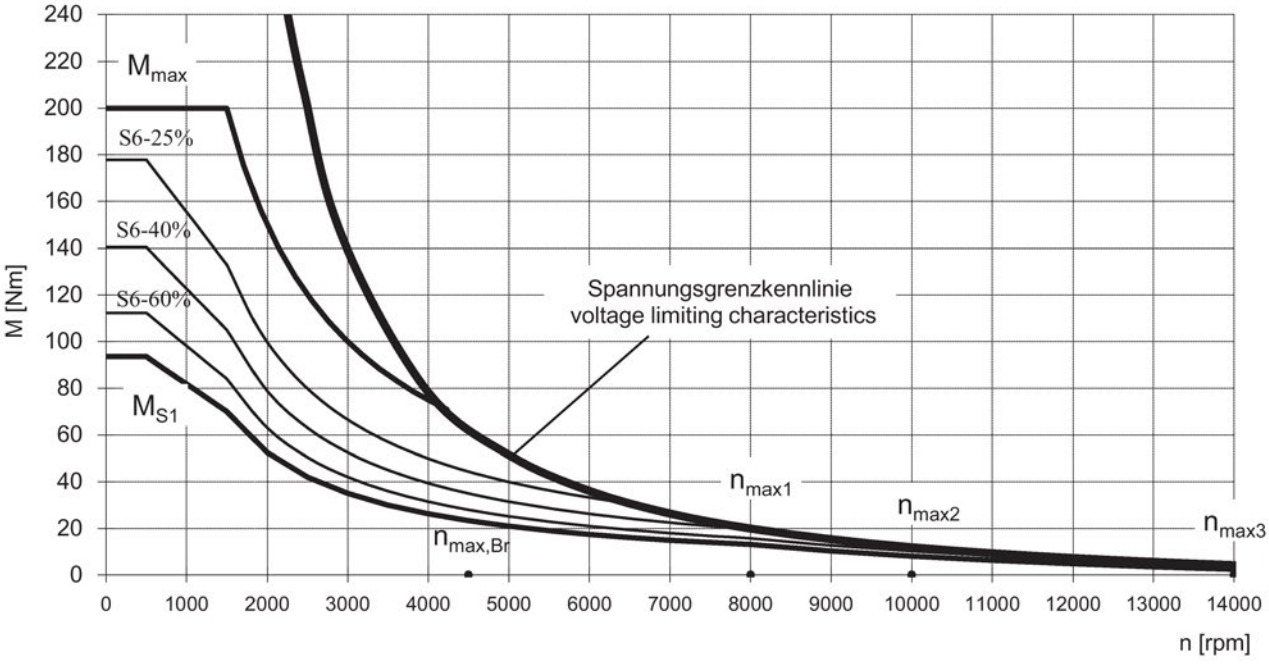


Table 6- 165 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Y connection

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]
2,000	14.6	70	39	8,000	10,000	14,000	4,500	8,000	200	111	94	47
1,500	11	70	39					10,000				

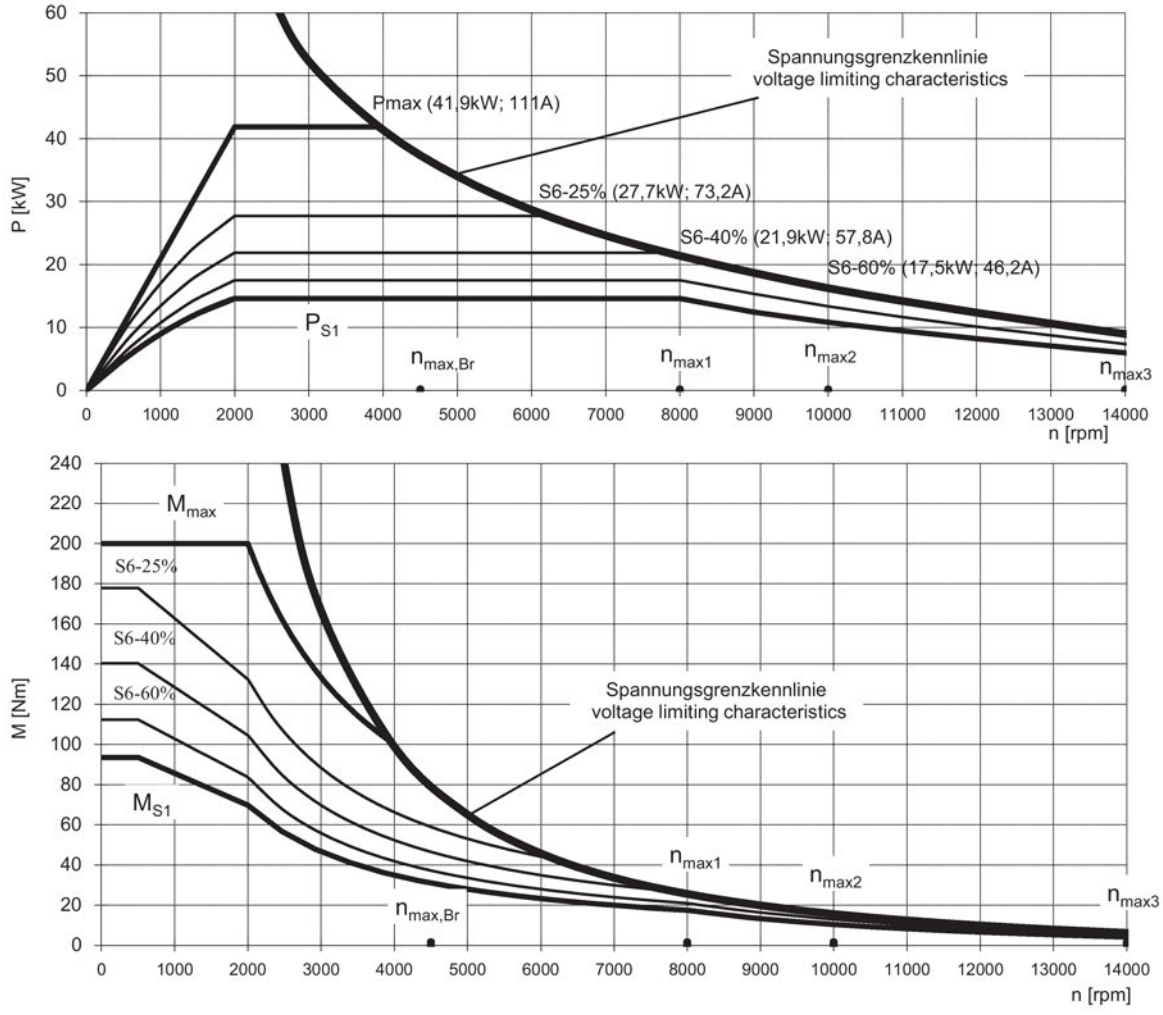
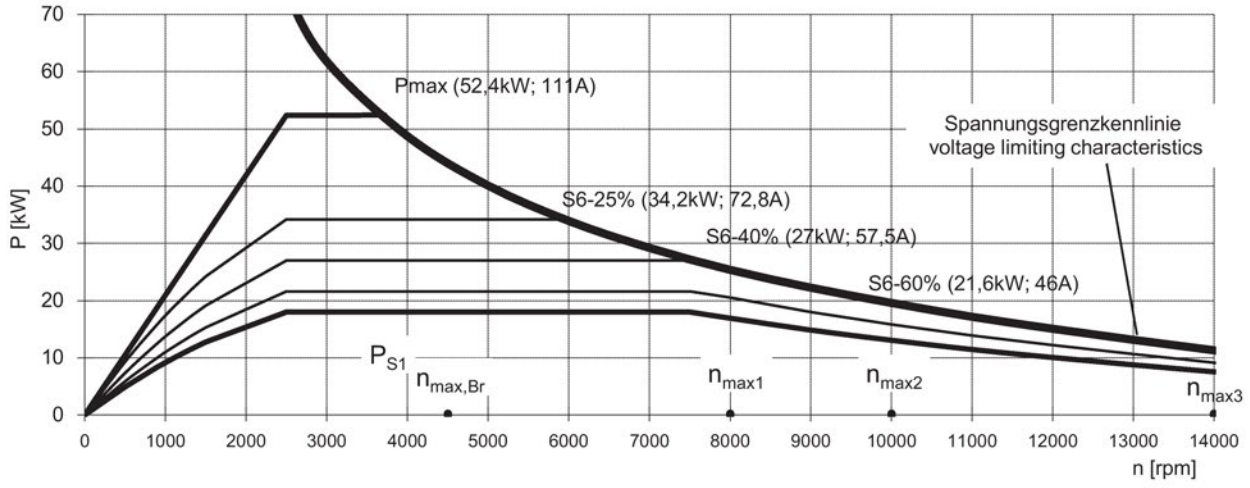


Table 6- 166 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□S□□, Y connection

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]
2,500	18	69	38	8,000	10,000	14,000	4,500	7,500	200	111	94	47



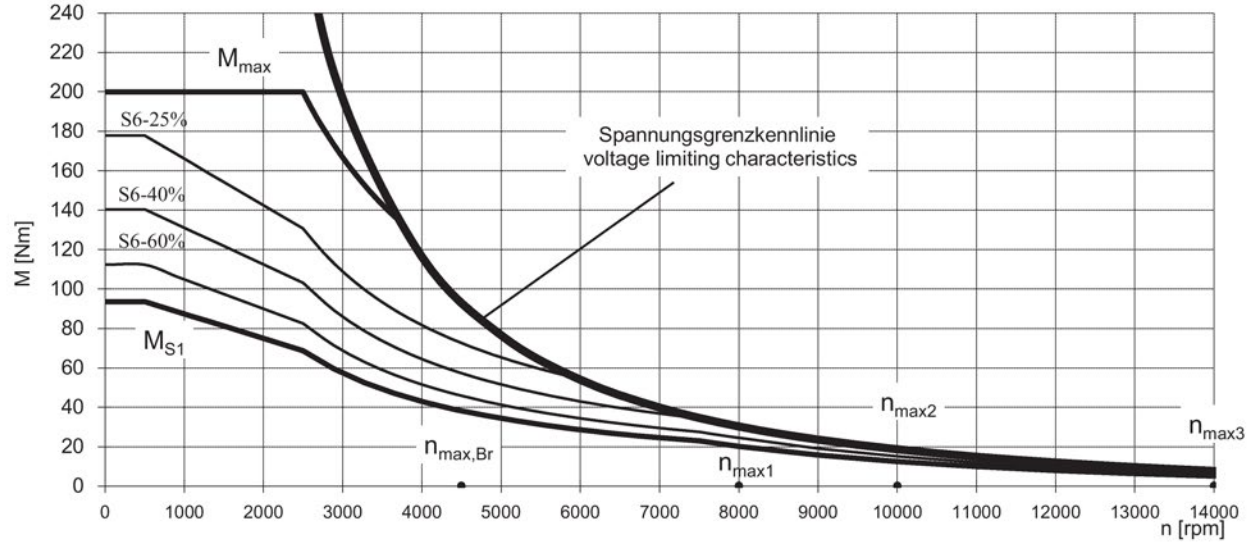
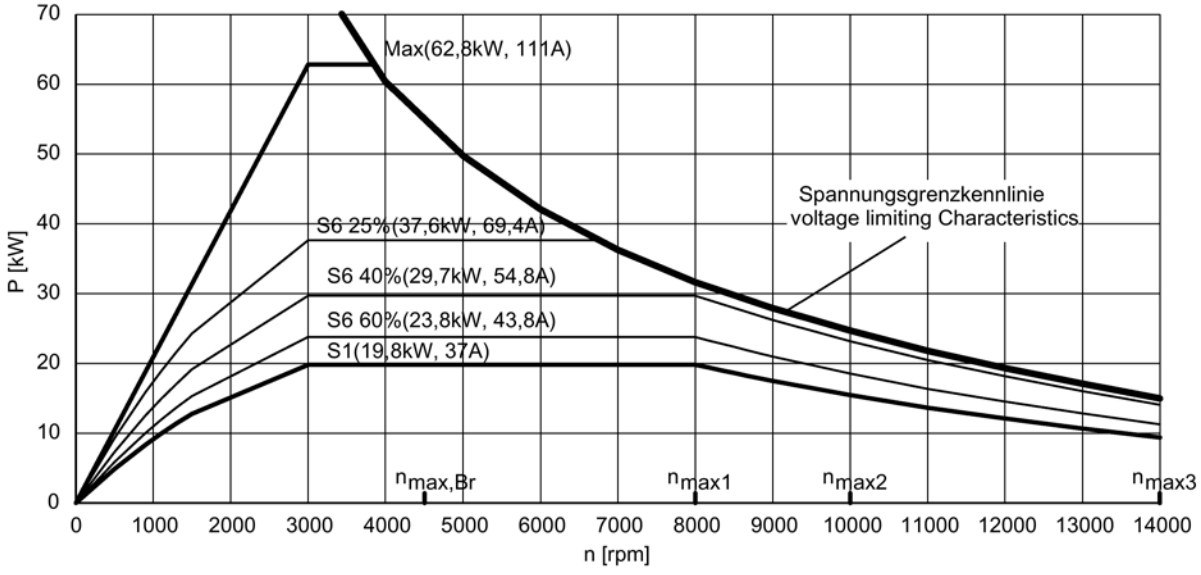


Table 6- 167 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	19.8	63	36.5	8,000	10,000	14,000	4,500	8,000	200	111	94	47



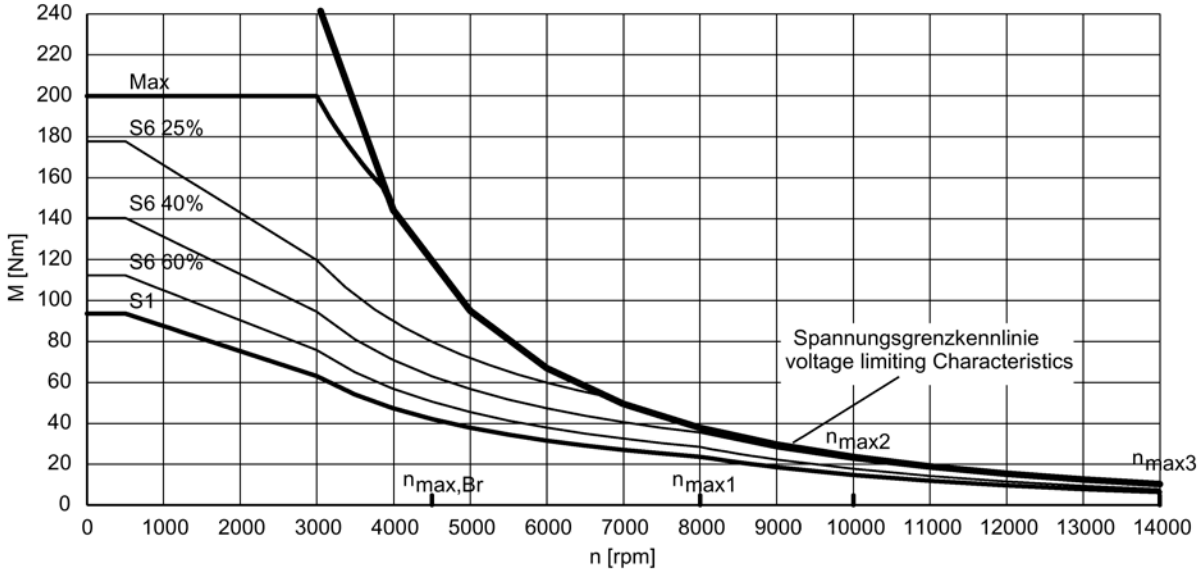
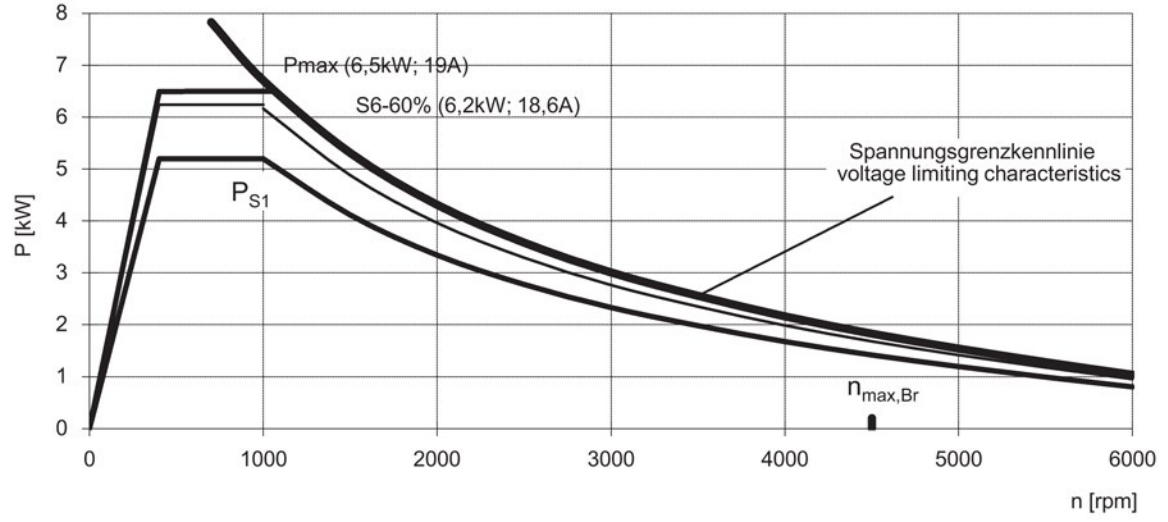


Table 6- 168 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	5.2	124	15.5	-	-	-	4,500	1,000	155	19	124	16



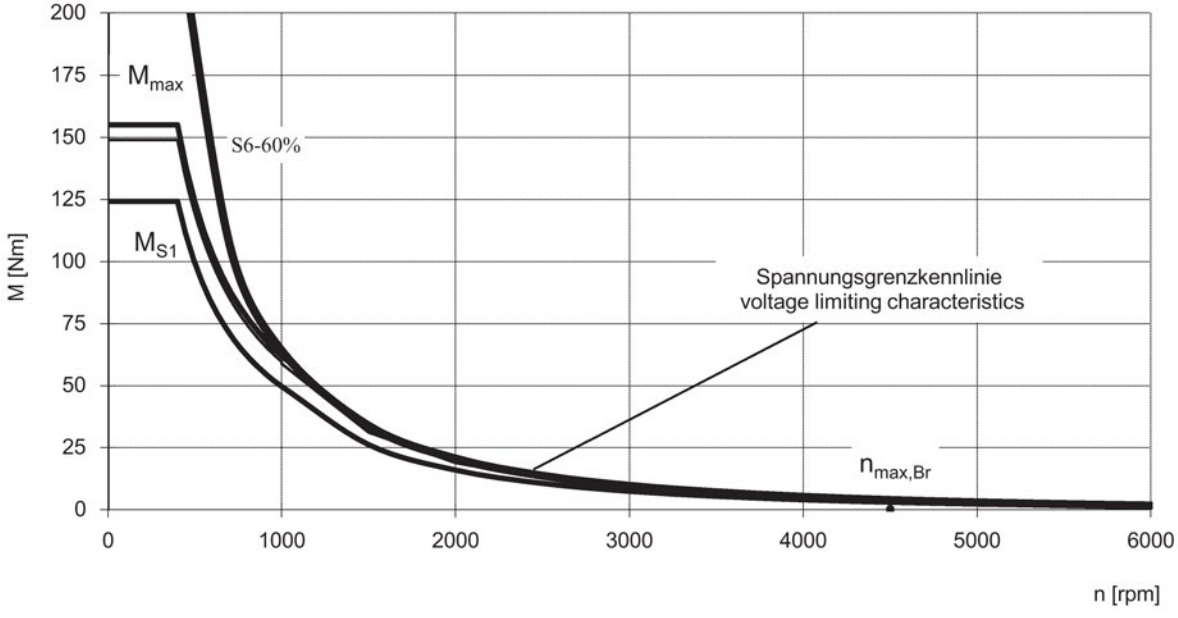


Table 6- 169 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8133-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	6.5	124	15.5	-	-	-	4,500	1,200	155	19	124	16
400	5.2	124	15.5					1,650				

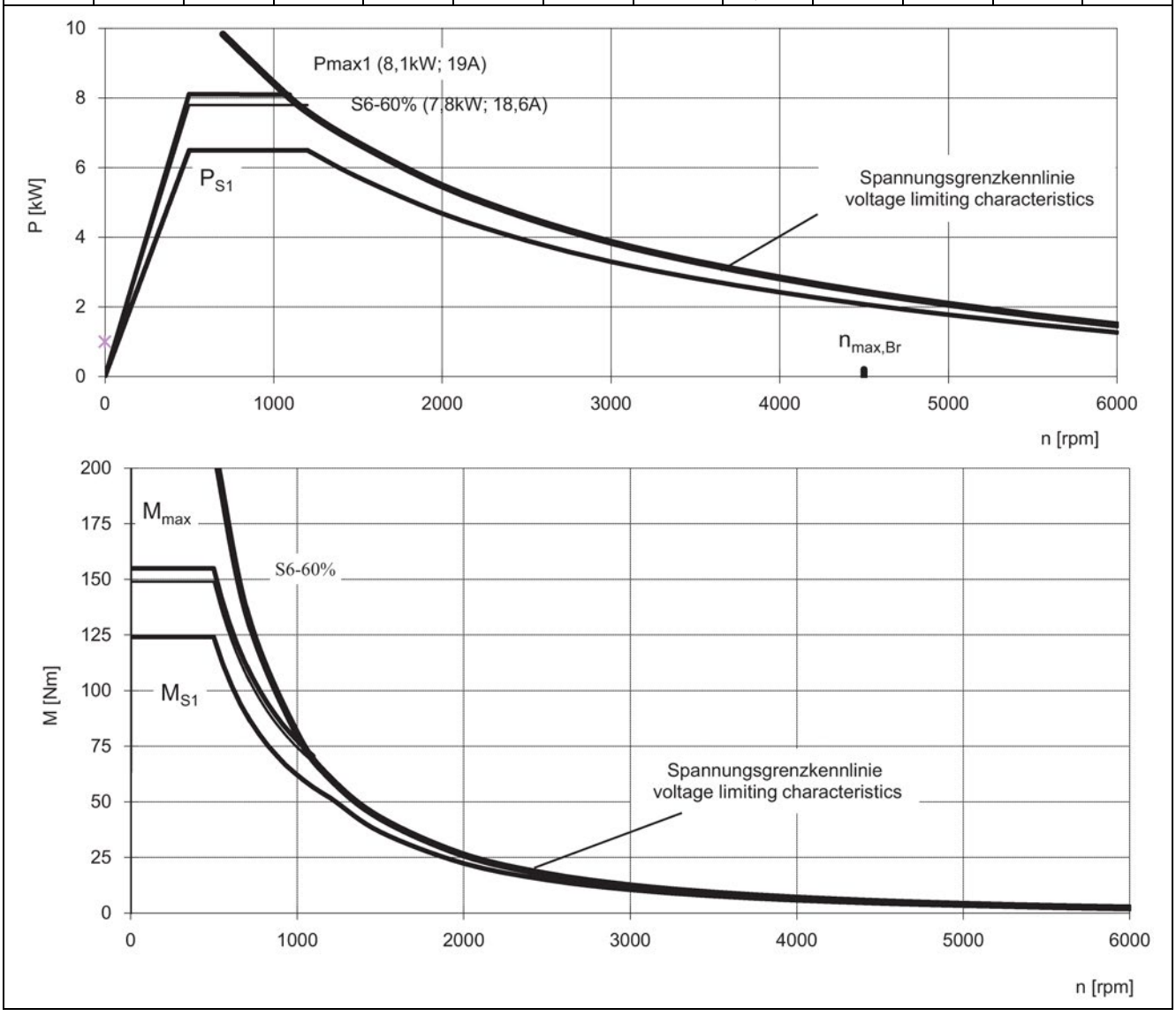
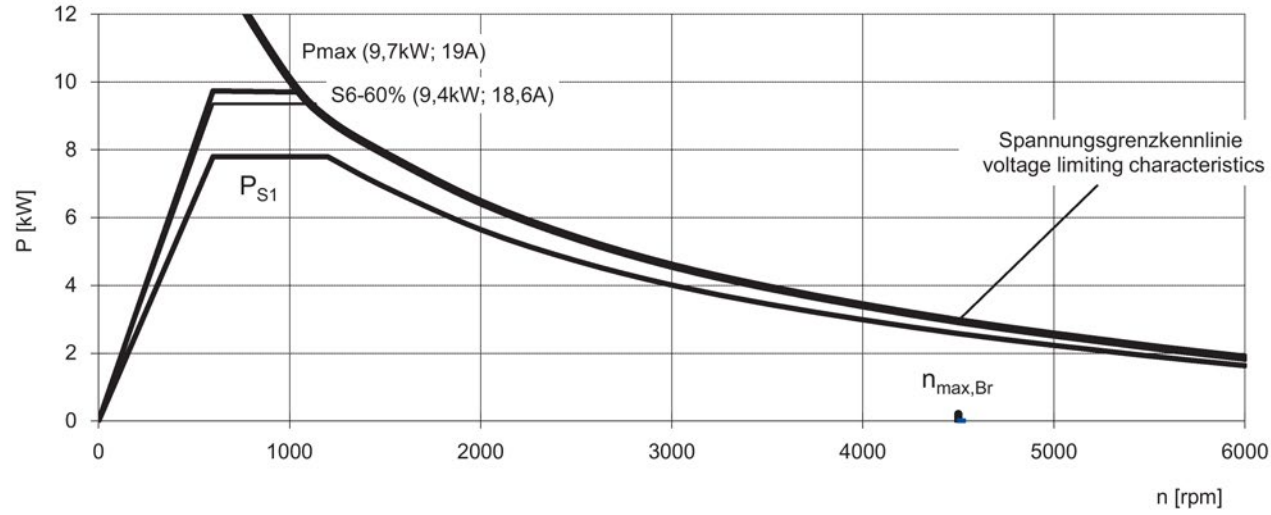


Table 6- 170 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	7.8	124	15.5	-	-	-	4,500	1,200	155	19	124	16



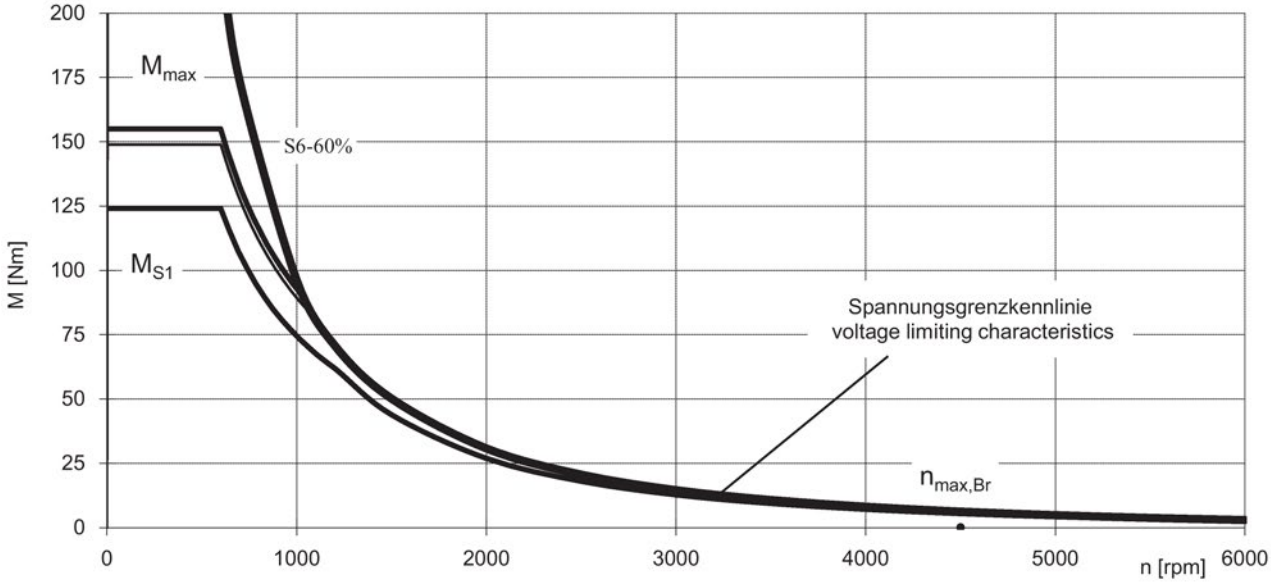
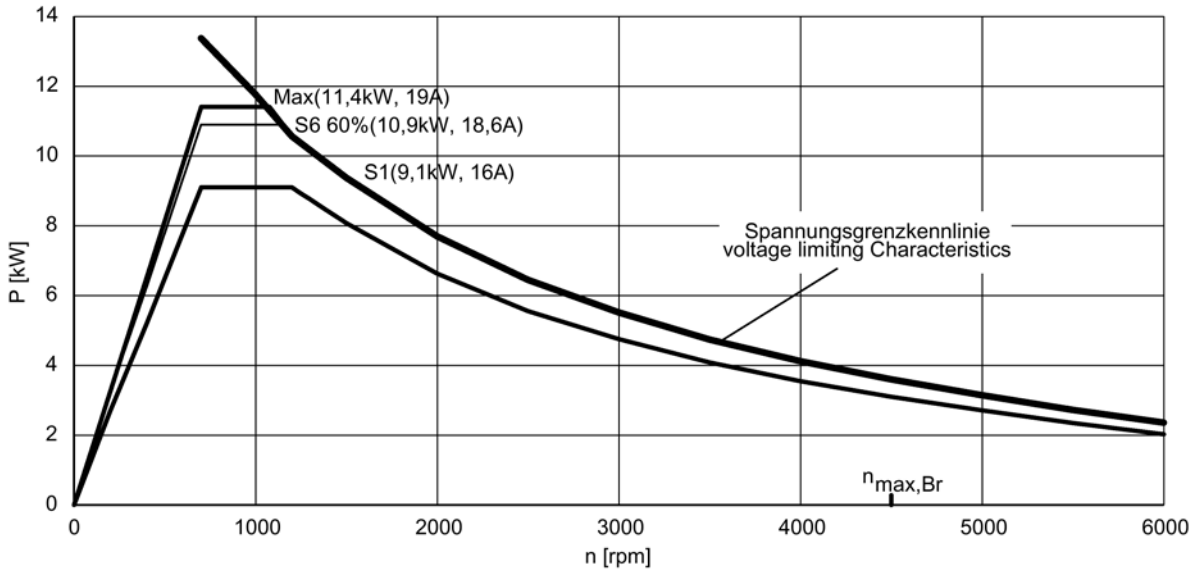


Table 6- 171 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8133-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	9.1	124	15.5	--	--	--	4,500	1,200	155	19	124	16



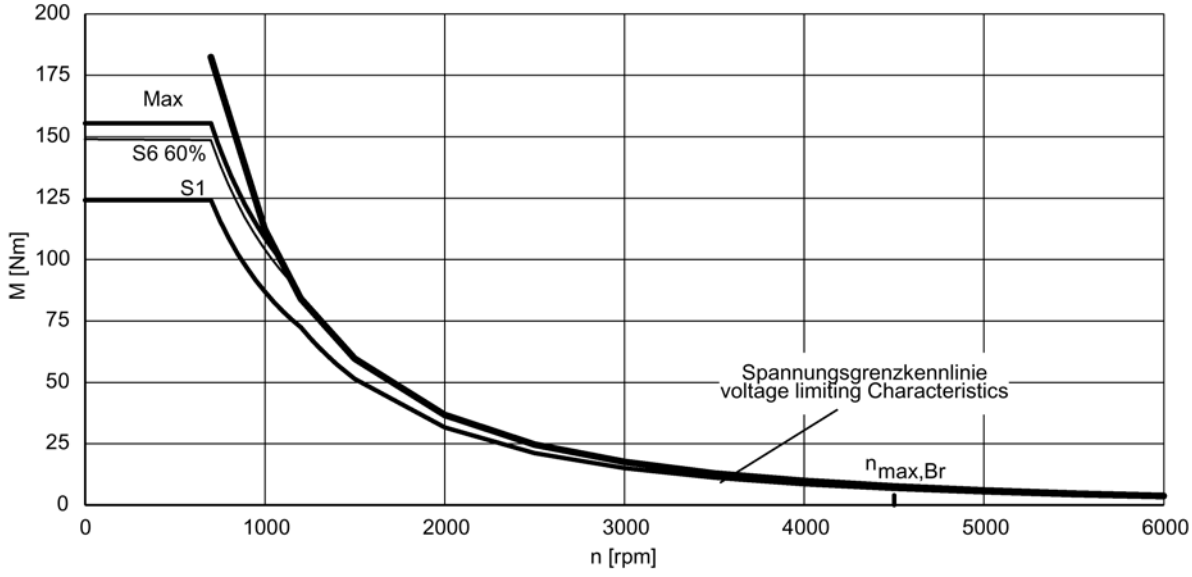
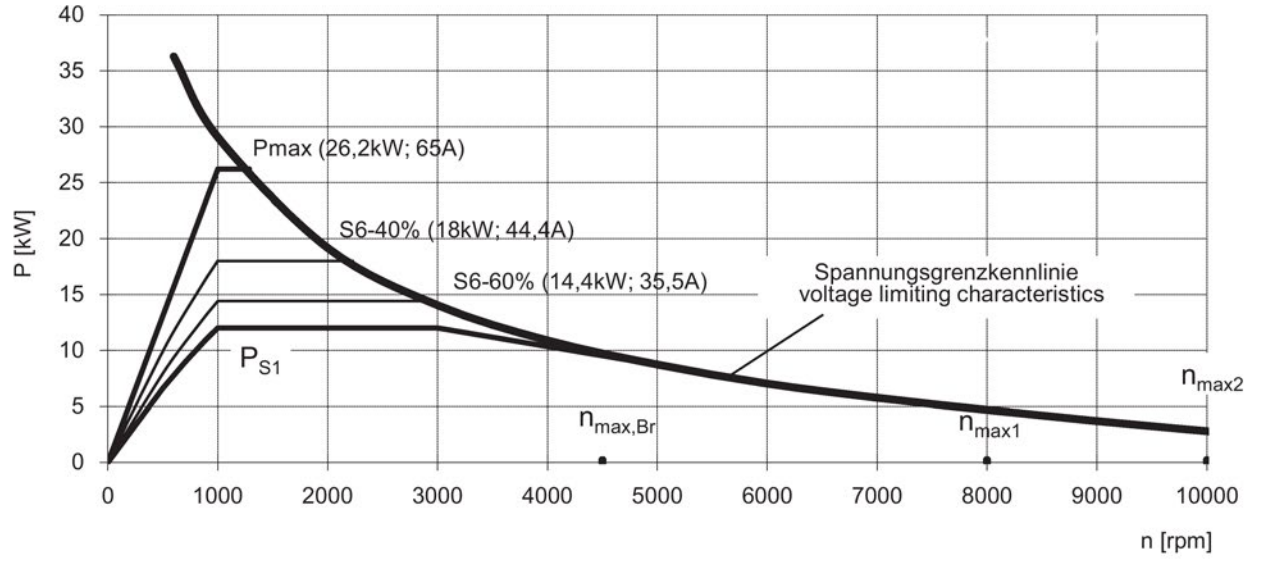


Table 6- 172 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□D□□

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]
1,000	12	115	30	8,000	10,000	-	4,500	3,000	250	65	126	32



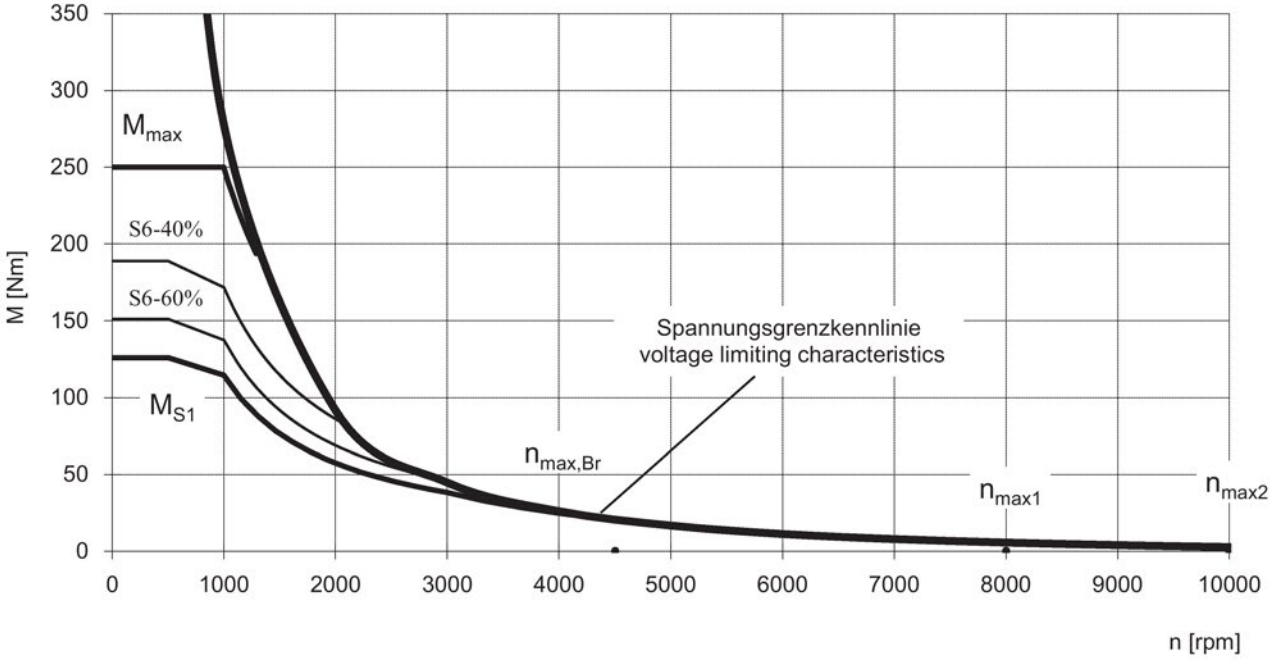
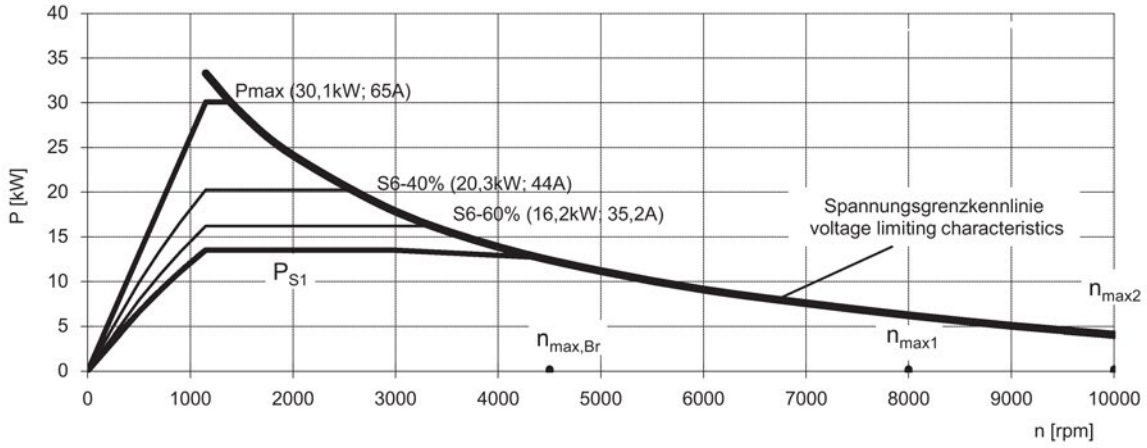


Table 6- 173 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□D□□

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]
1,150	13.5	112	29	8,000	10,000	-	4,500	3,000	250	65	126	32
1,000	12	115	30					4,600				



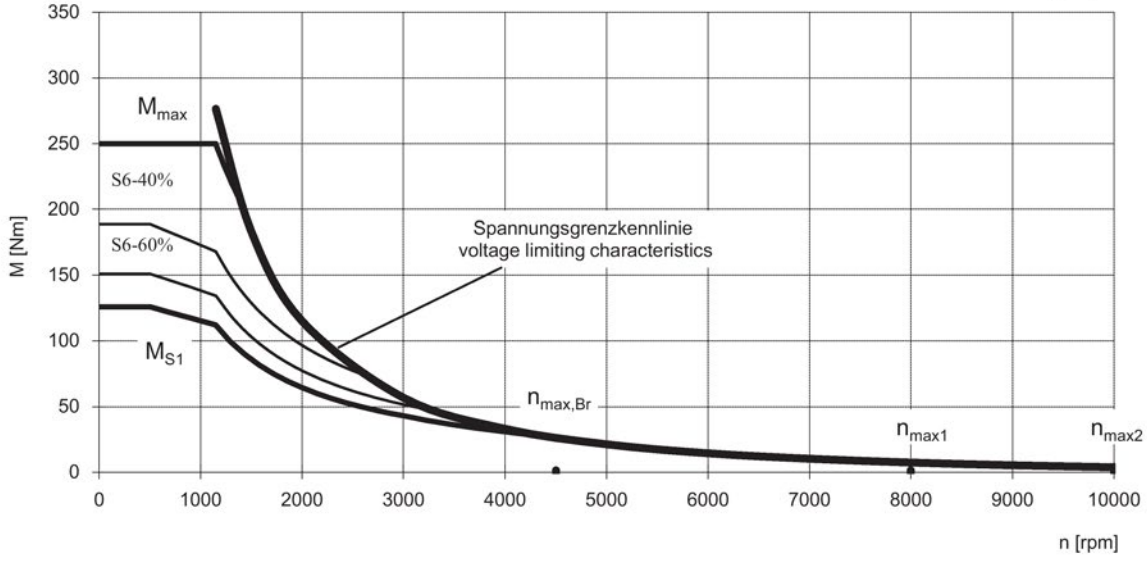
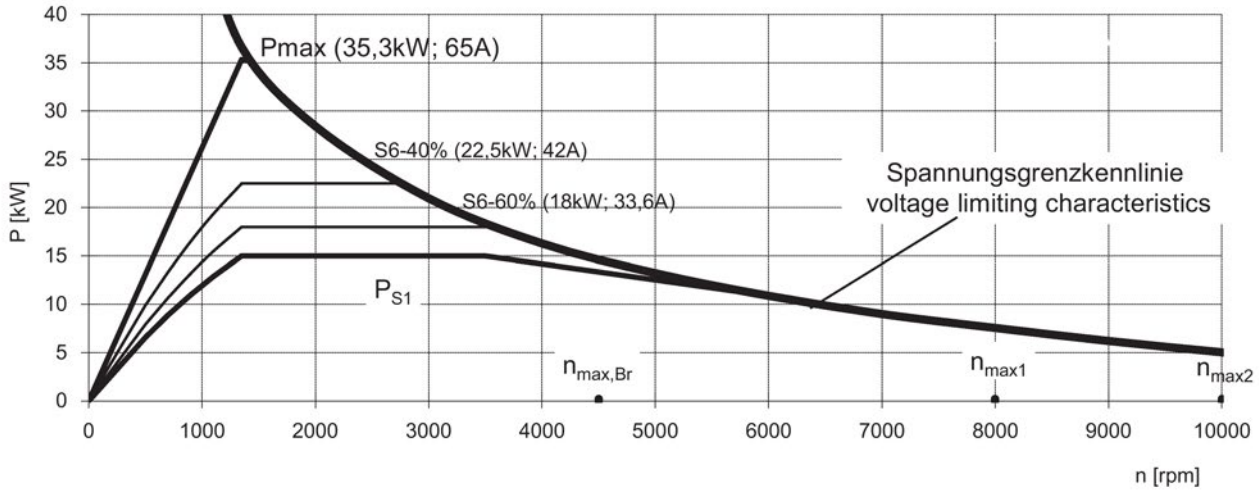


Table 6- 174 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□D□□

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]
1,350	15	106	28	8,000	10,000	-	4,500	3,500	250	65	126	32



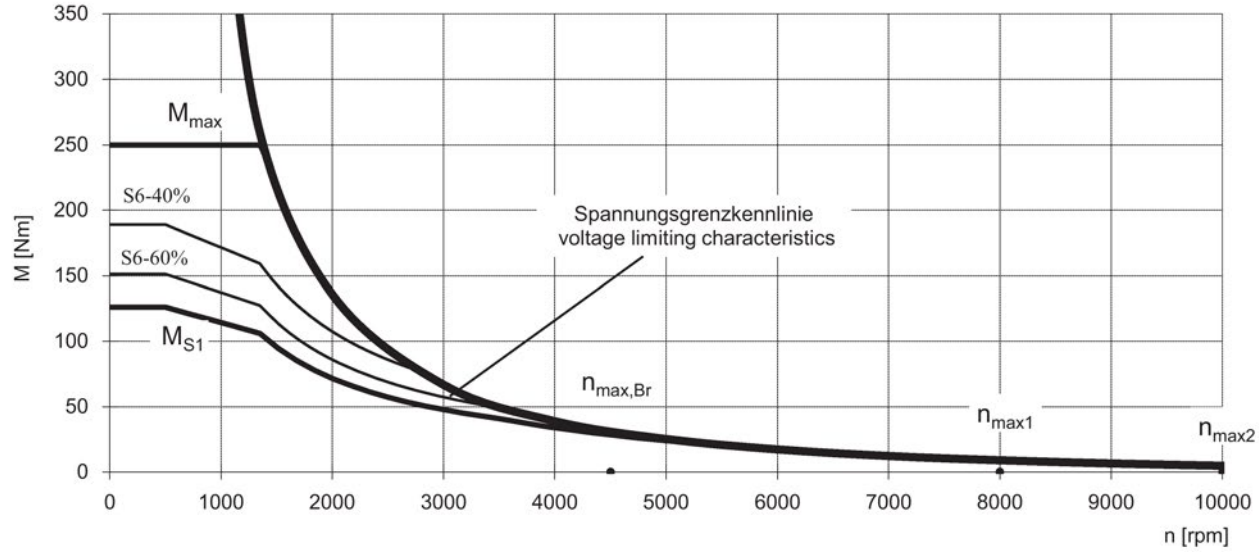
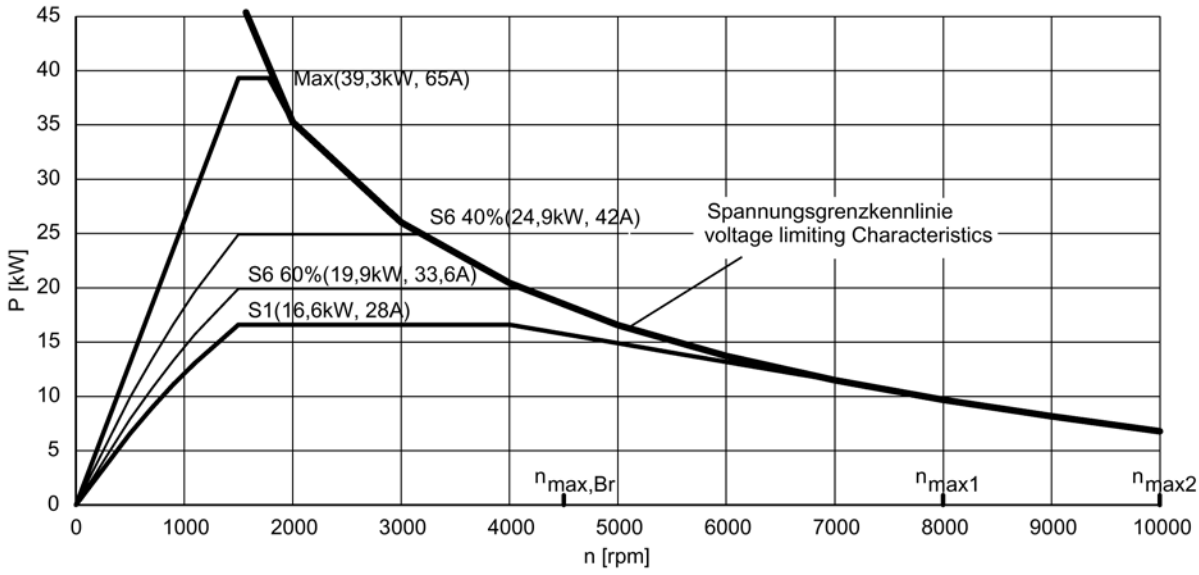


Table 6- 175 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8133-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	16.6	106	28	8,000	10,000	--	4,500	4,000	250	65	126	32



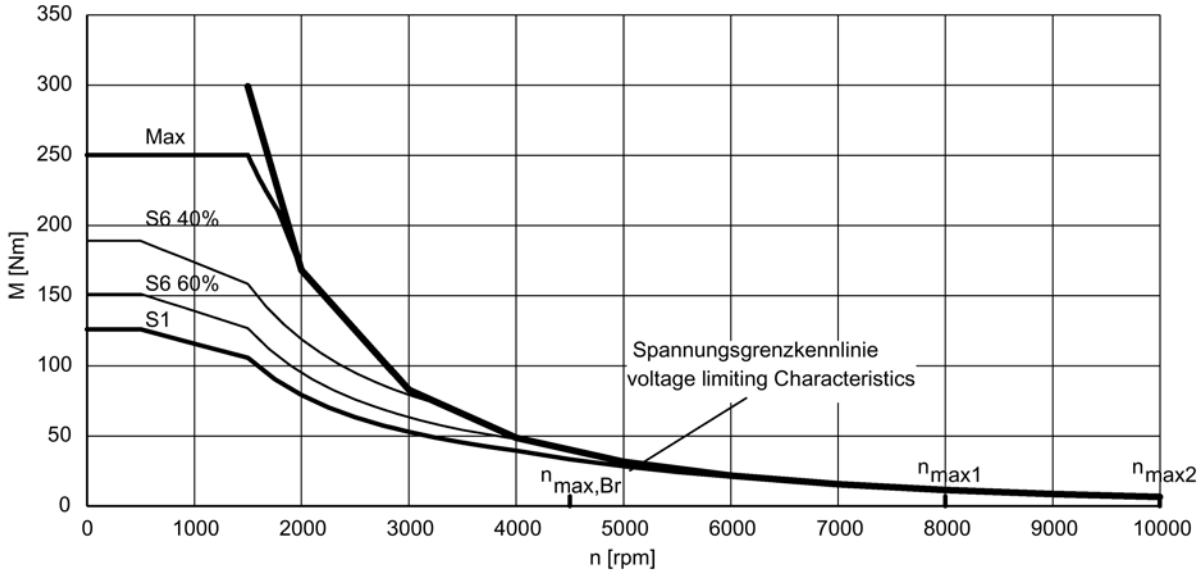
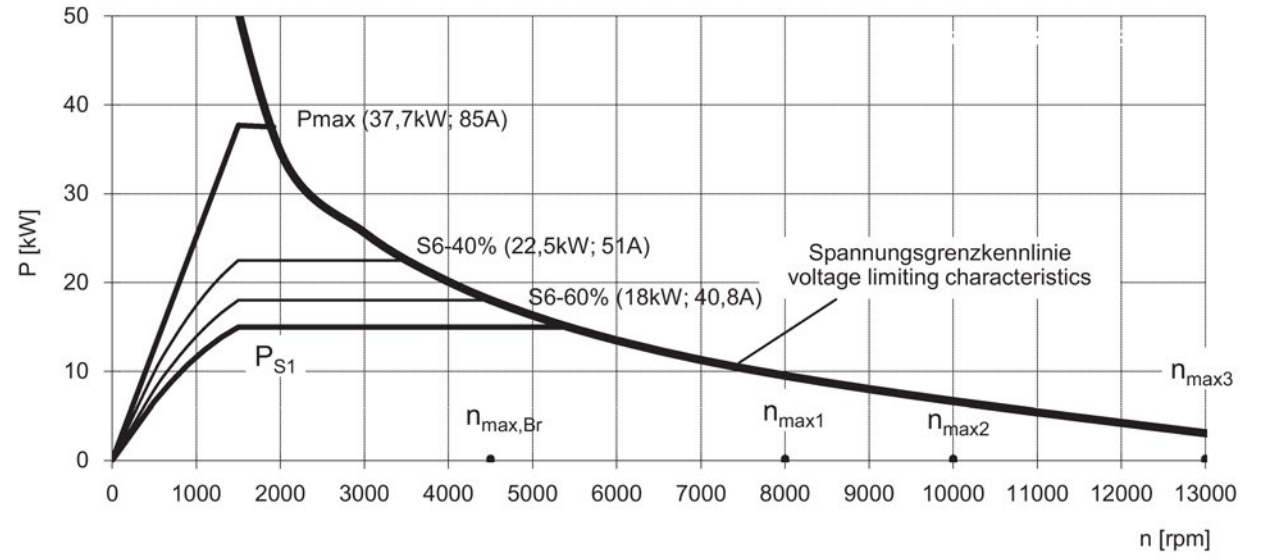


Table 6- 176 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F□□

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]
1,500	15	96	34	8,000	10,000	13,000	4,500	5,500	240	85	126	42



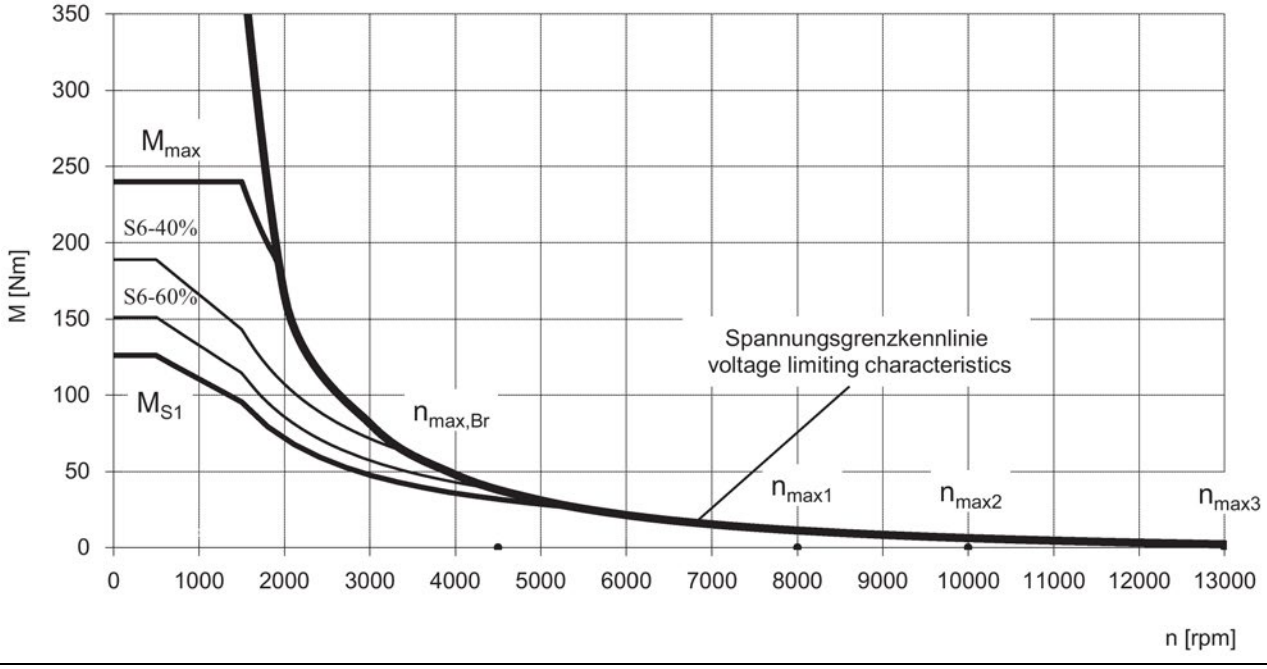
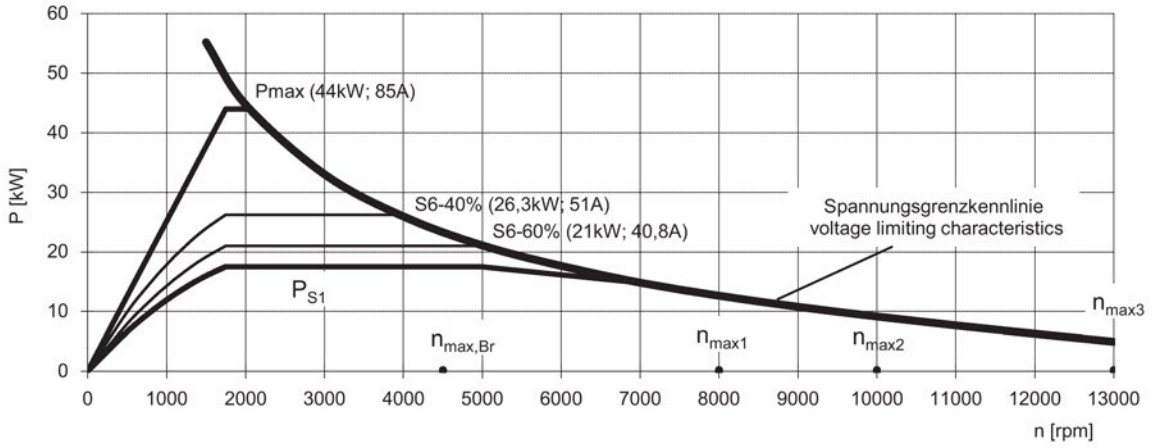


Table 6- 177 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F□□

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]
1,750	17.5	96	34	8,000	10,000	13,000	4,500	5,000	240	85	126	42
1,500	15	96	34					6,900				



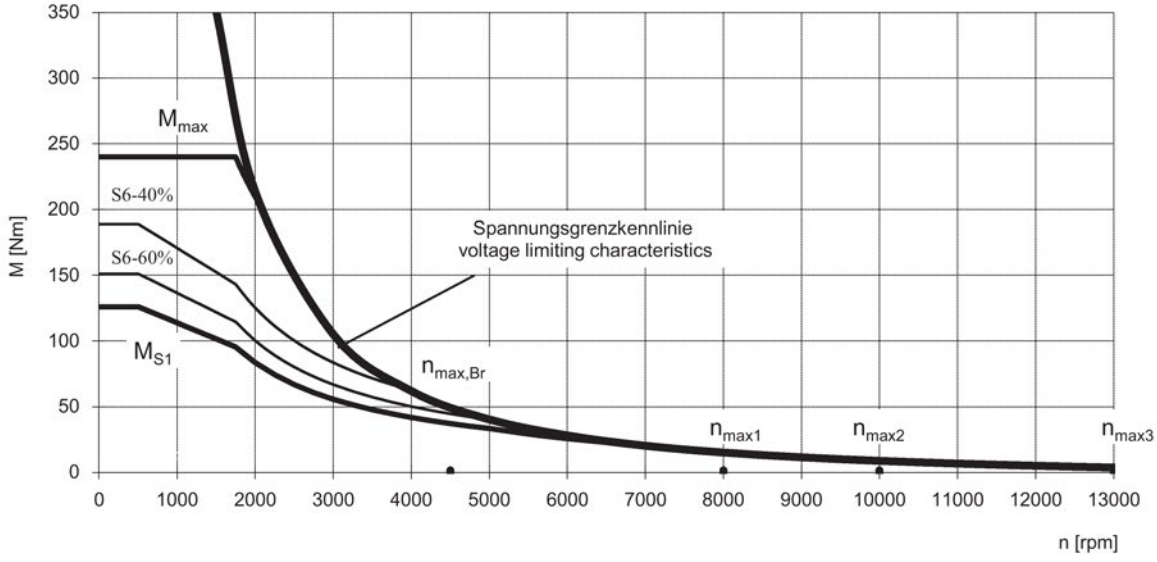
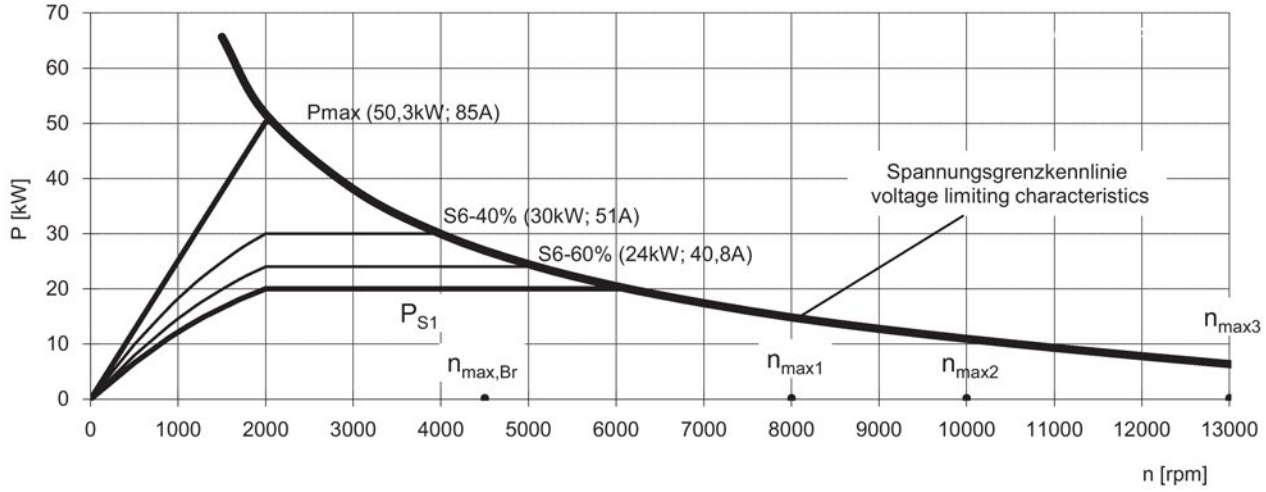


Table 6- 178 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F□□

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]
2,000	20	96	34	8,000	10,000	13,000	4,500	6,200	240	85	126	42



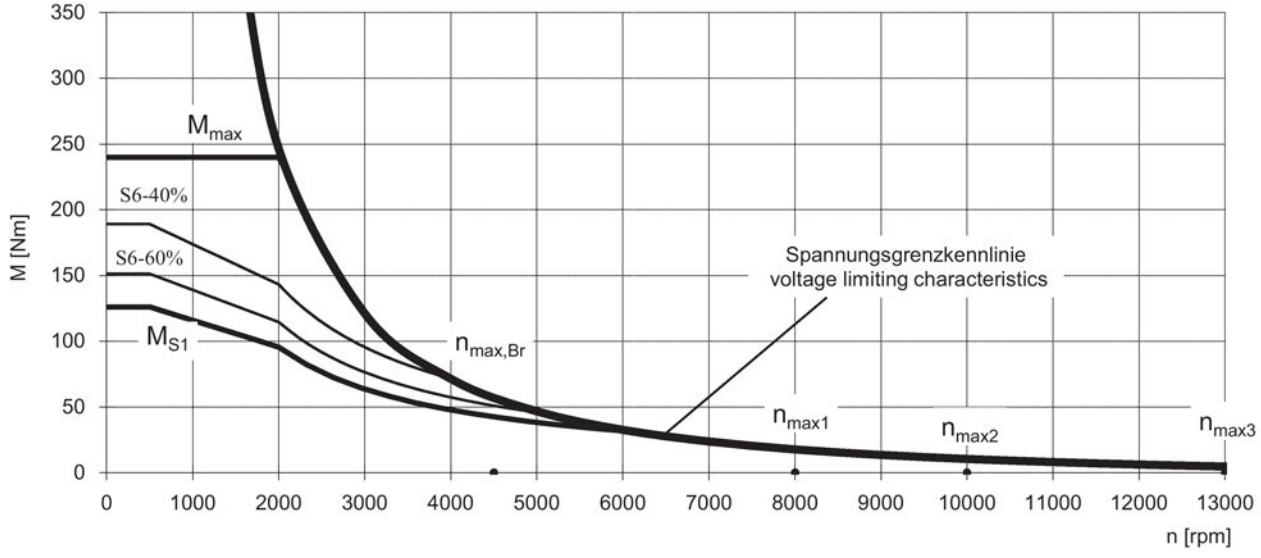
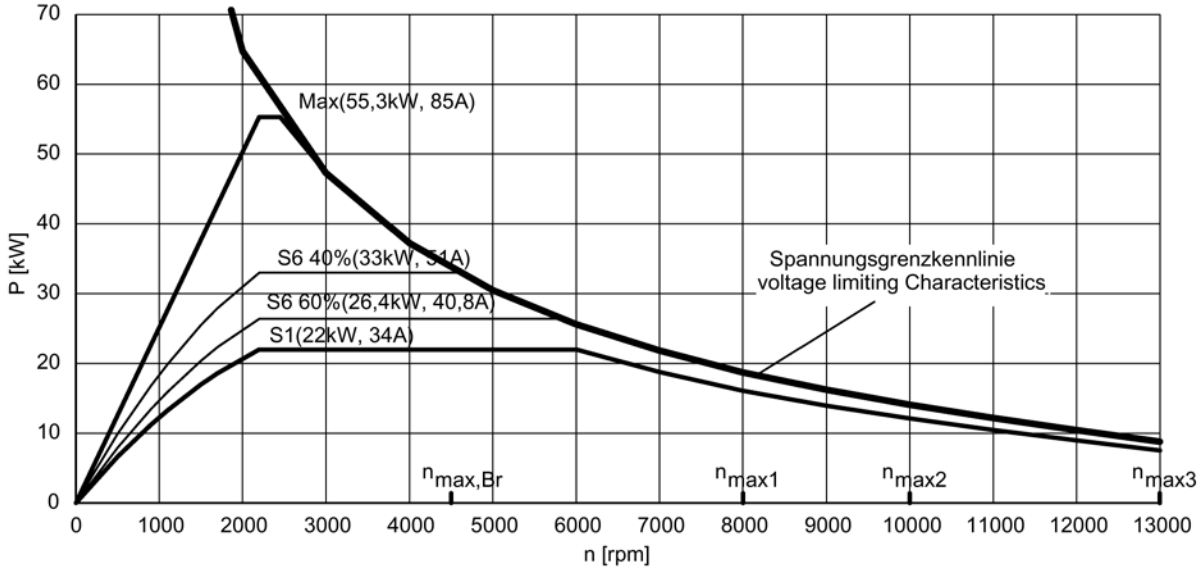


Table 6- 179 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8133-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	22	96	34	8,000	10,000	13,000	4,500	6,000	240	85	126	42



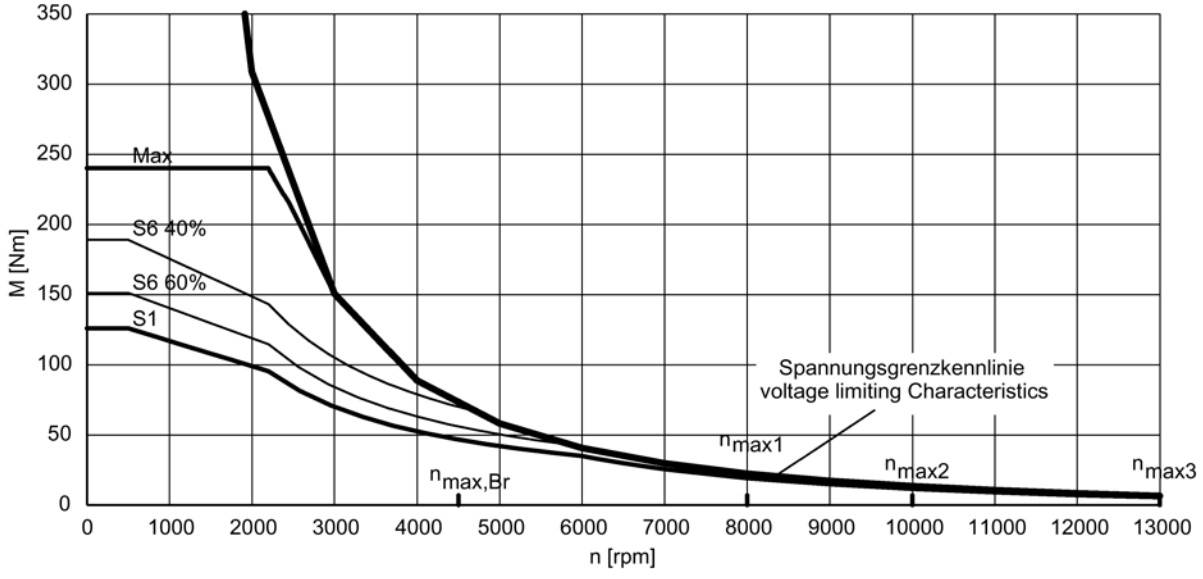
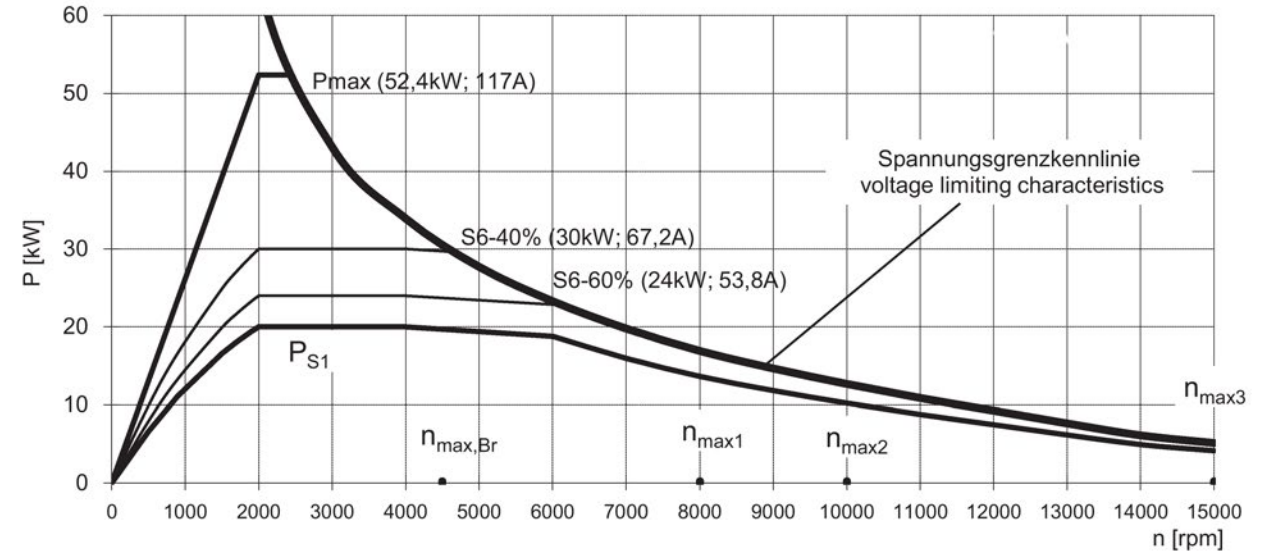


Table 6- 180 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G□□

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]
2,000	20	96	45	8,000	10,000	15,000	4,500	4,000	250	117	126	54



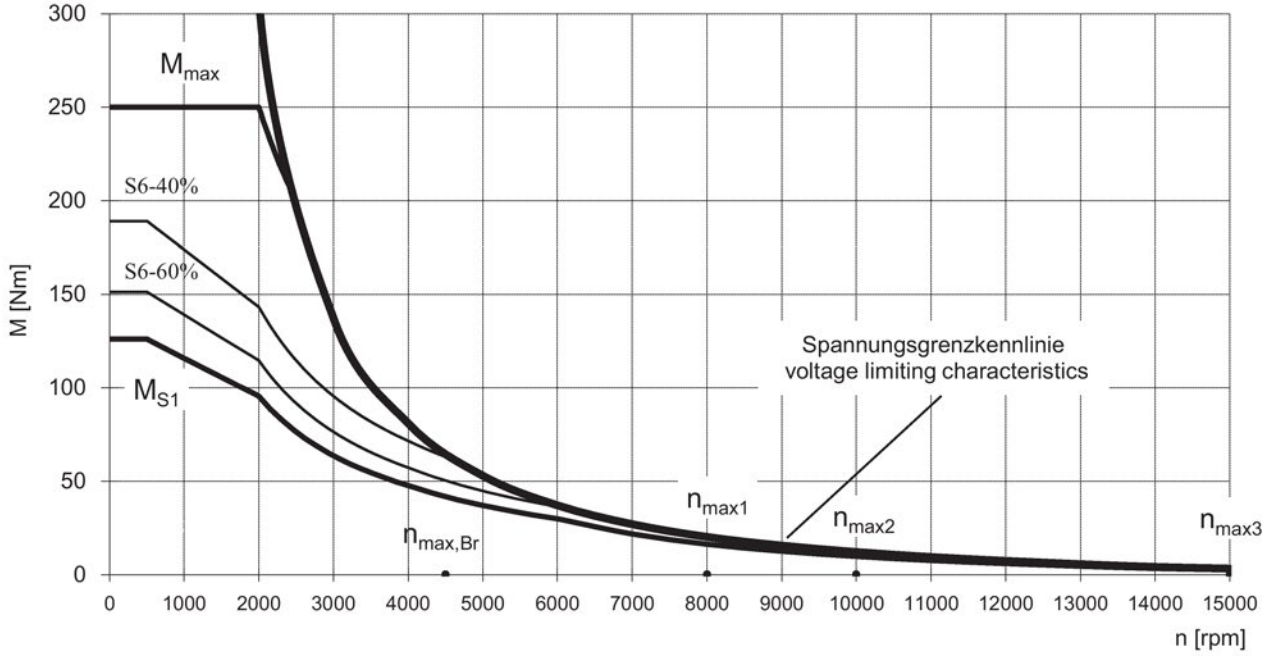


Table 6- 181 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□G□□

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]
2,300	22.5	93	44	8,000	10,000	15,000	4,500	5,000	250	117	126	54
2,000	20	96	45					6,500				

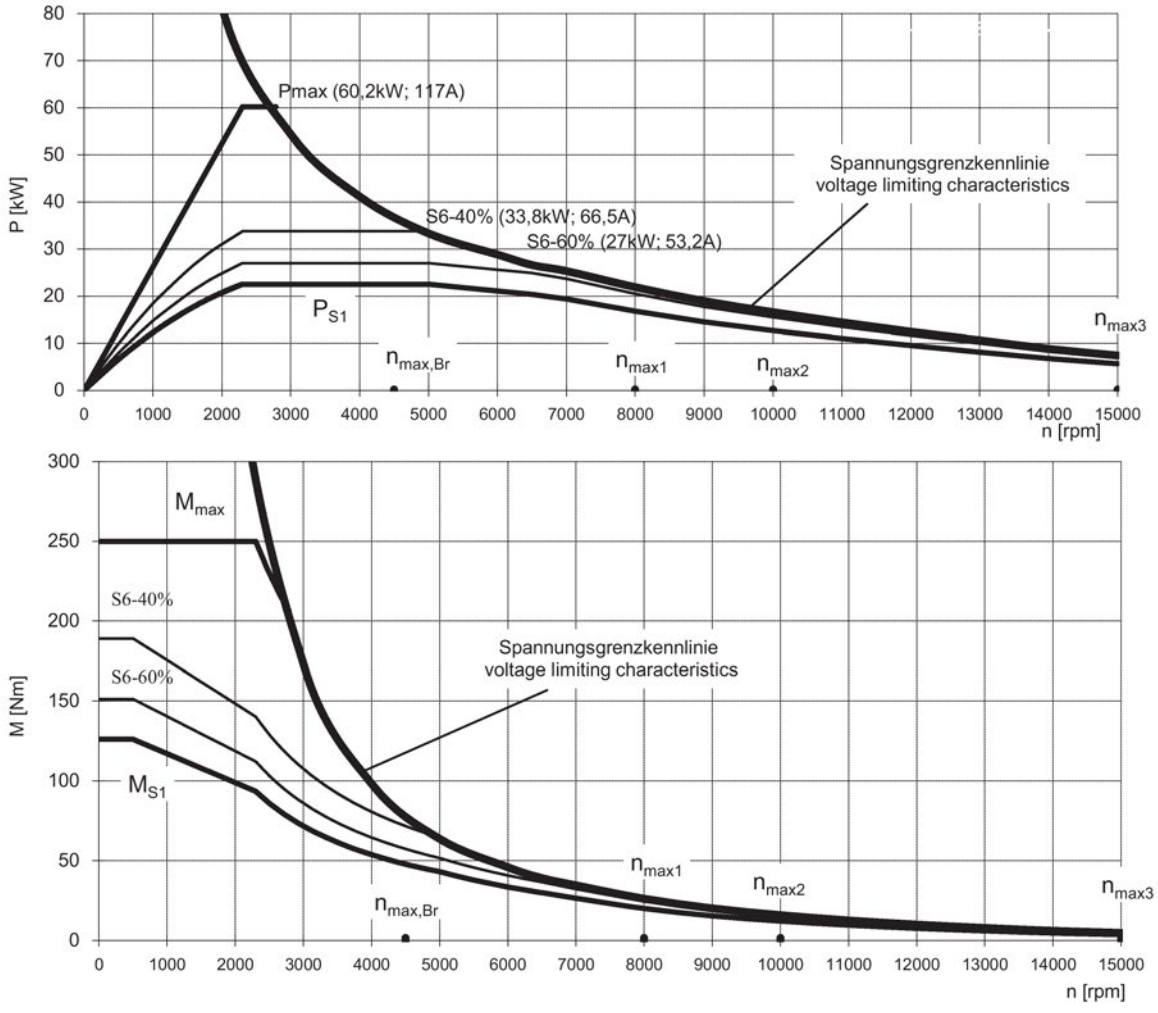


Table 6- 182 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G□□

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]
2,650	24	86	41	8,000	10,000	15,000	4,500	7,000	250	117	126	54

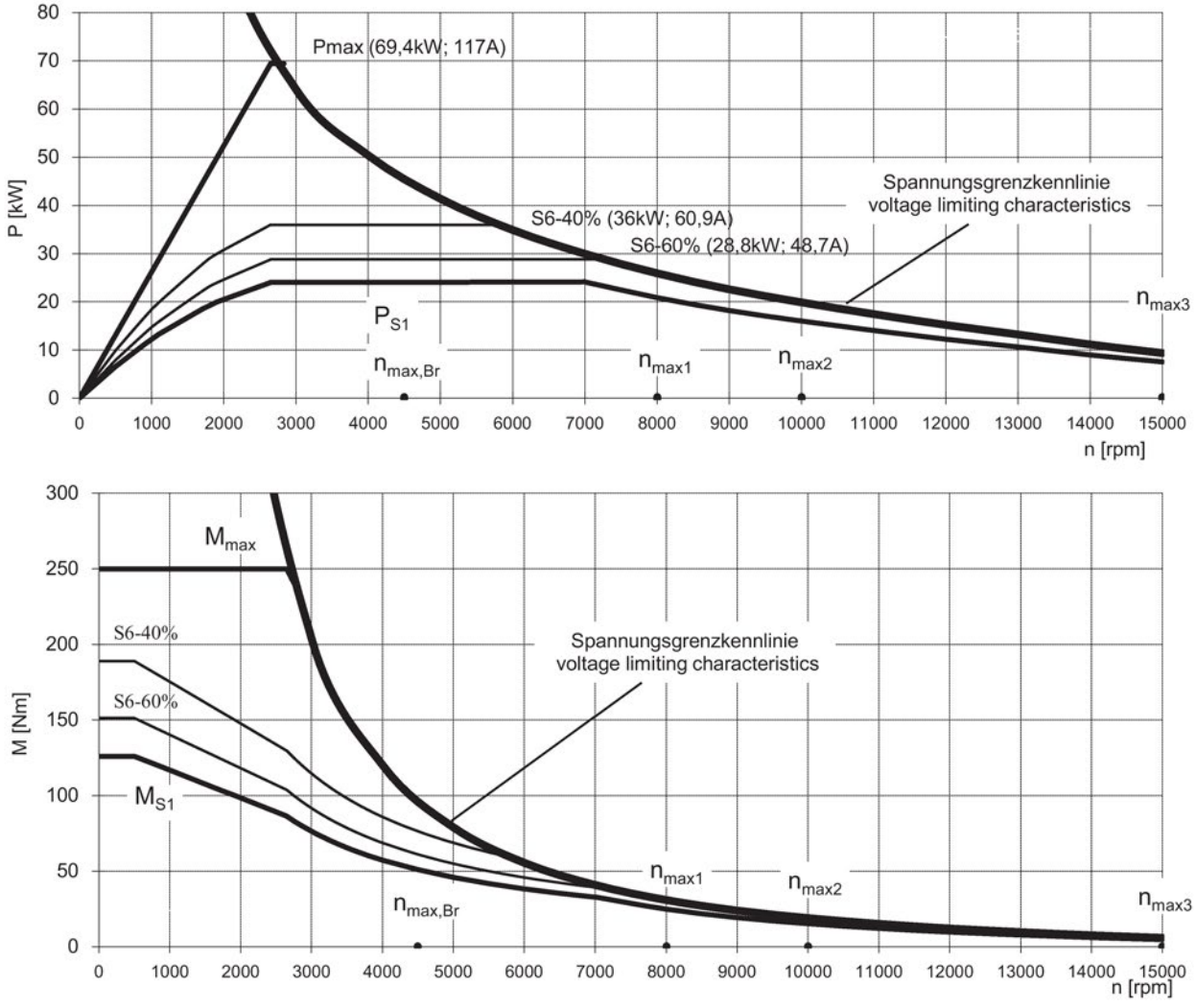
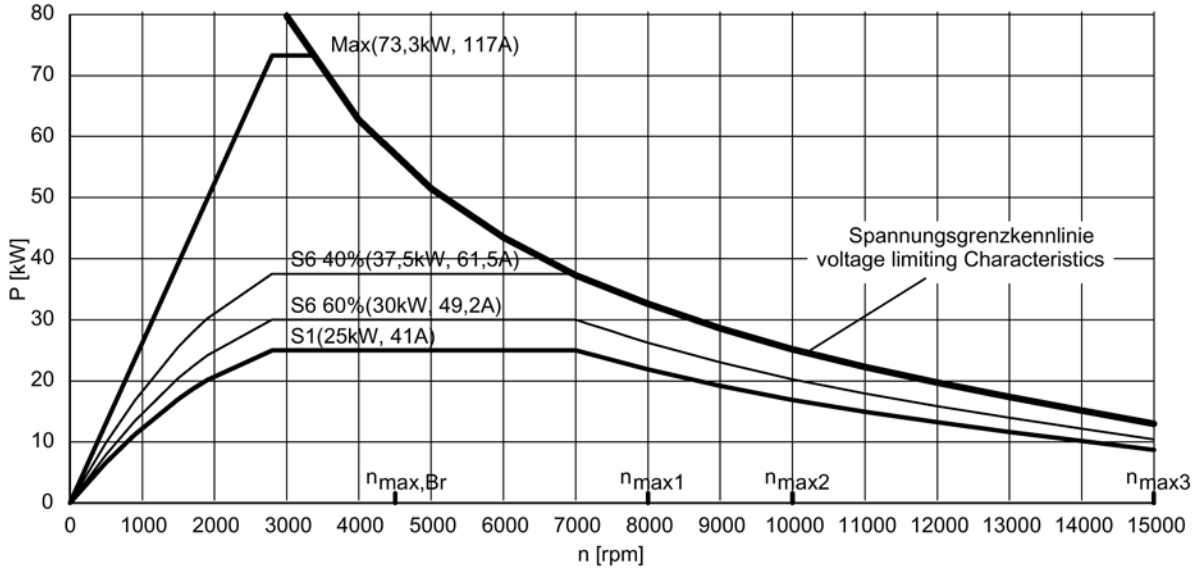


Table 6- 183 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8133-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	25	85	41	8,000	10,000	15,000	4,500	7,000	250	117	126	54



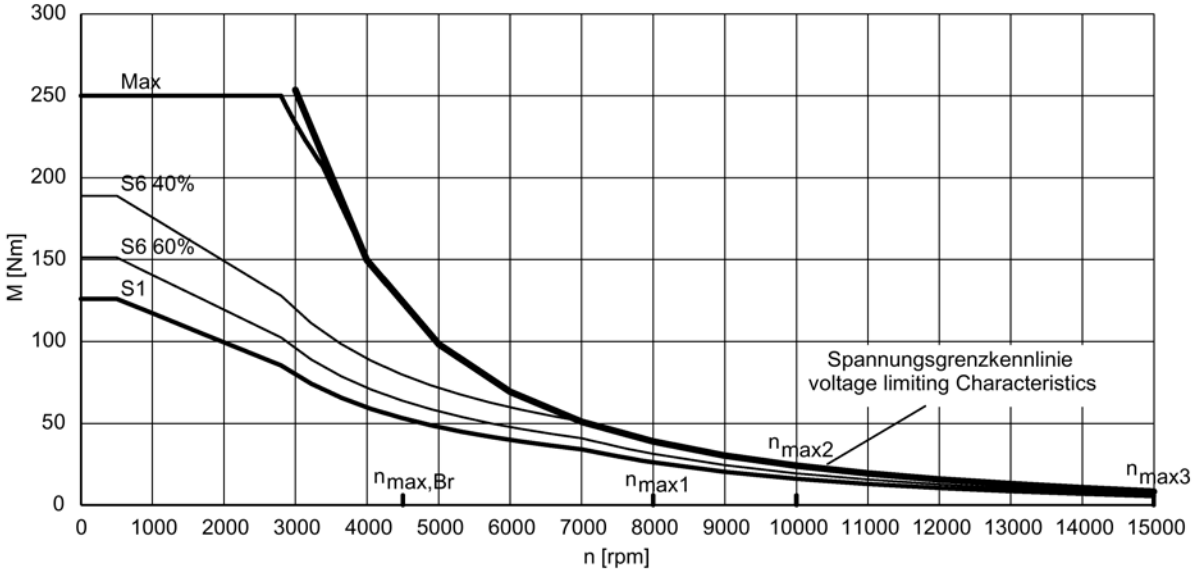
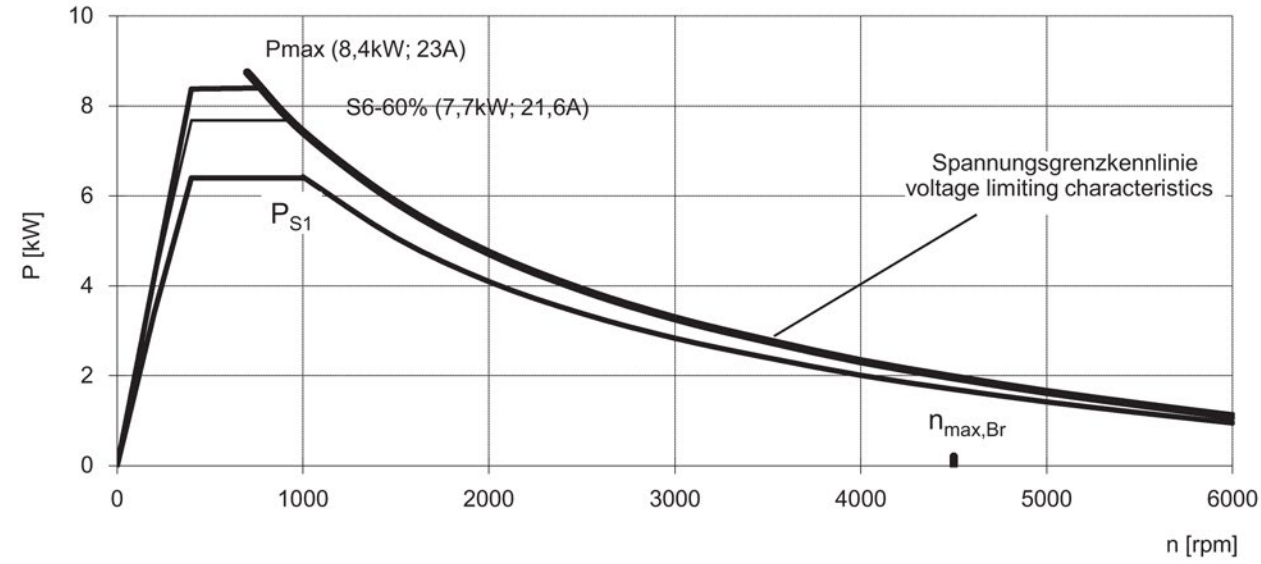


Table 6- 184 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	6.4	153	18	-	-	-	4,500	1,000	200	23	162	19



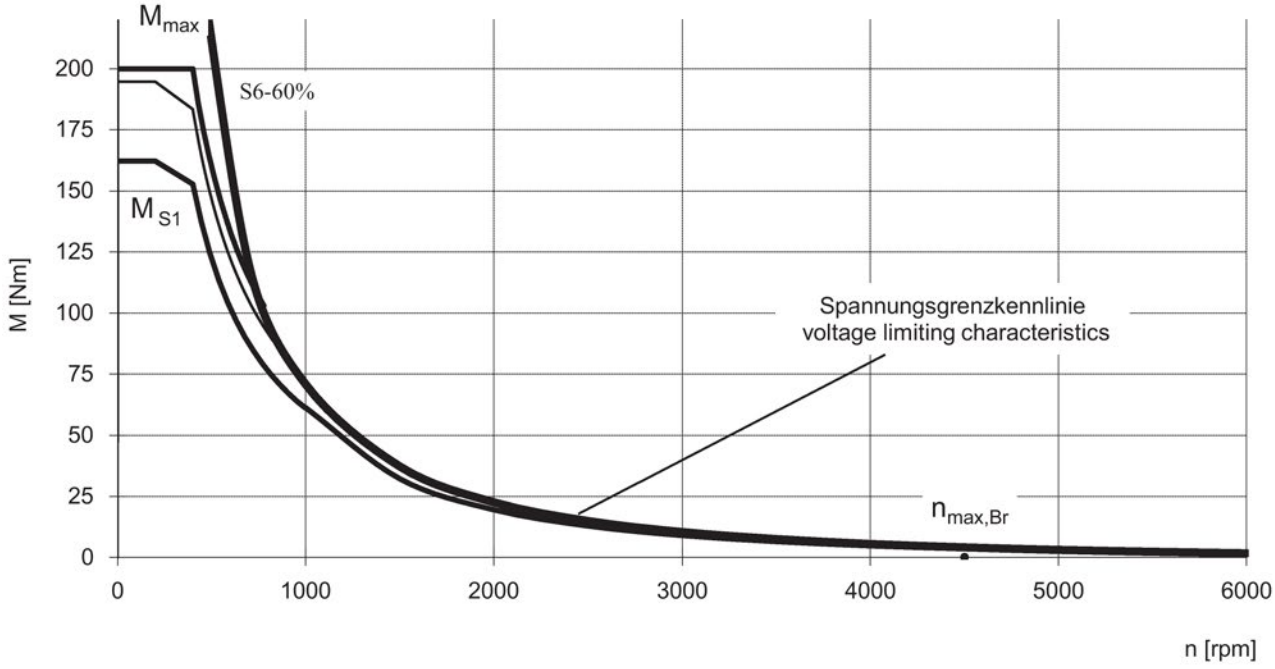


Table 6- 185 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	8	153	18	-	-	-	4,500	1,000	200	23	162	19
400	6.4	153	18					1,900				

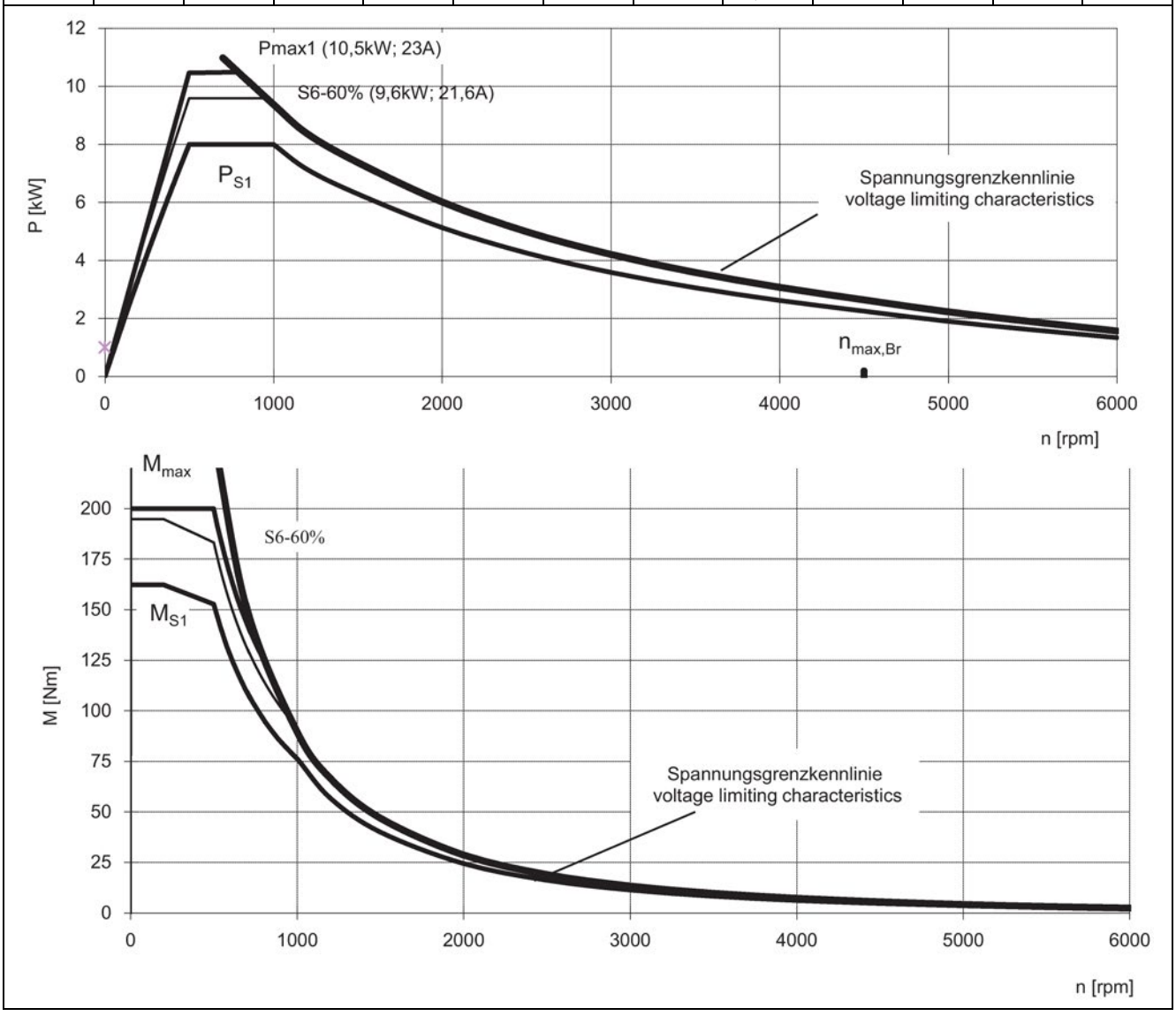
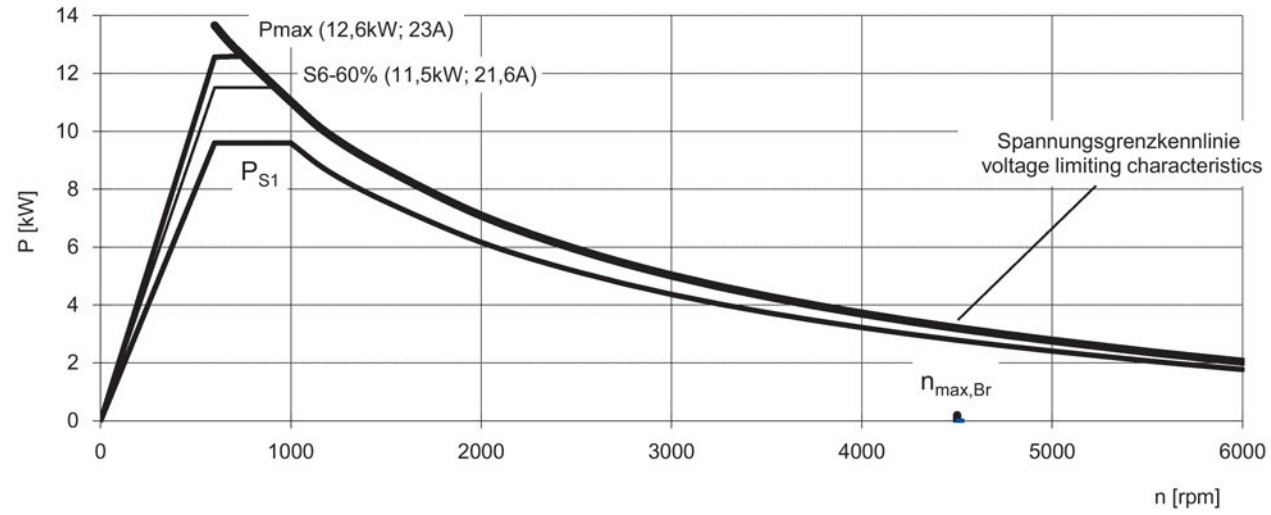


Table 6- 186 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	9.6	153	18	-	-	-	4,500	1,000	200	23	153	19



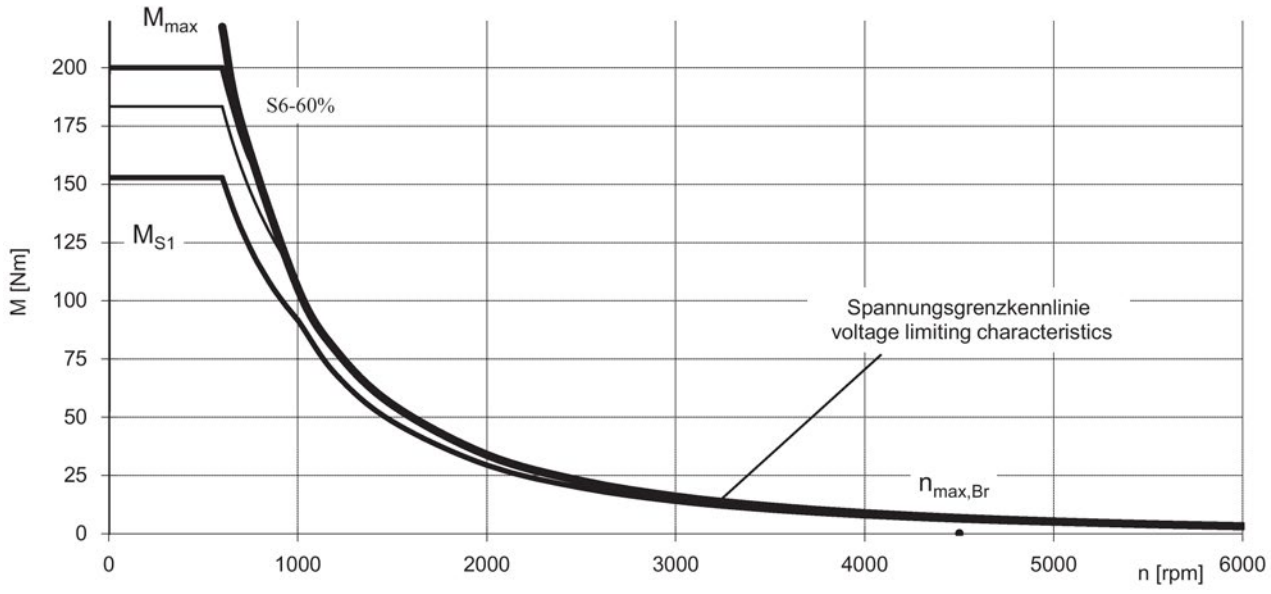
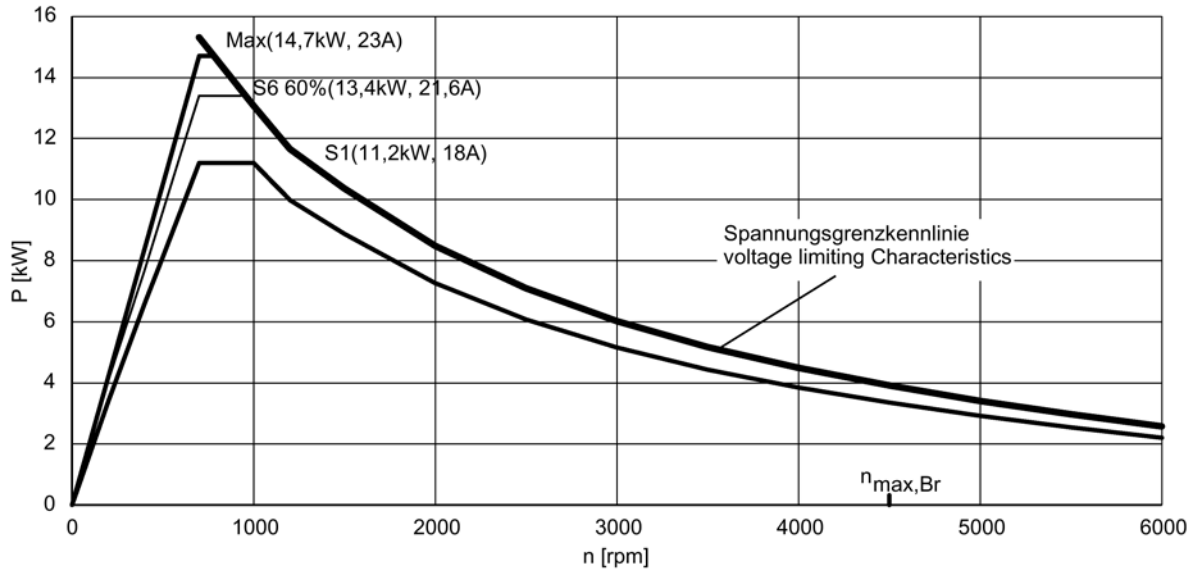


Table 6- 187 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8135-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	11.2	153	18	--	--	--	4,500	1,000	200	23	162	19



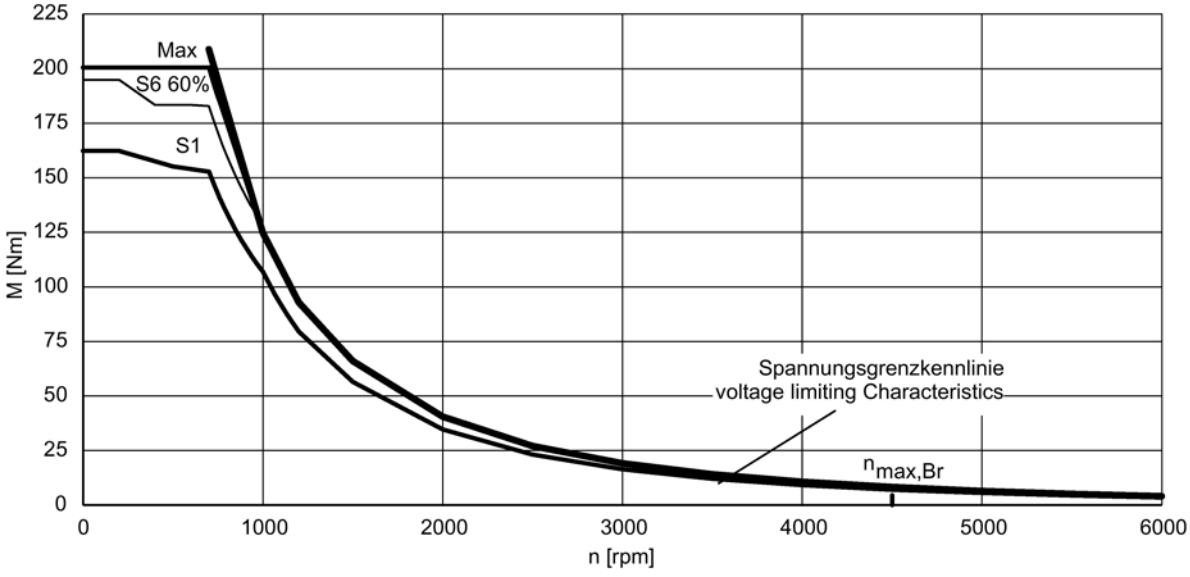
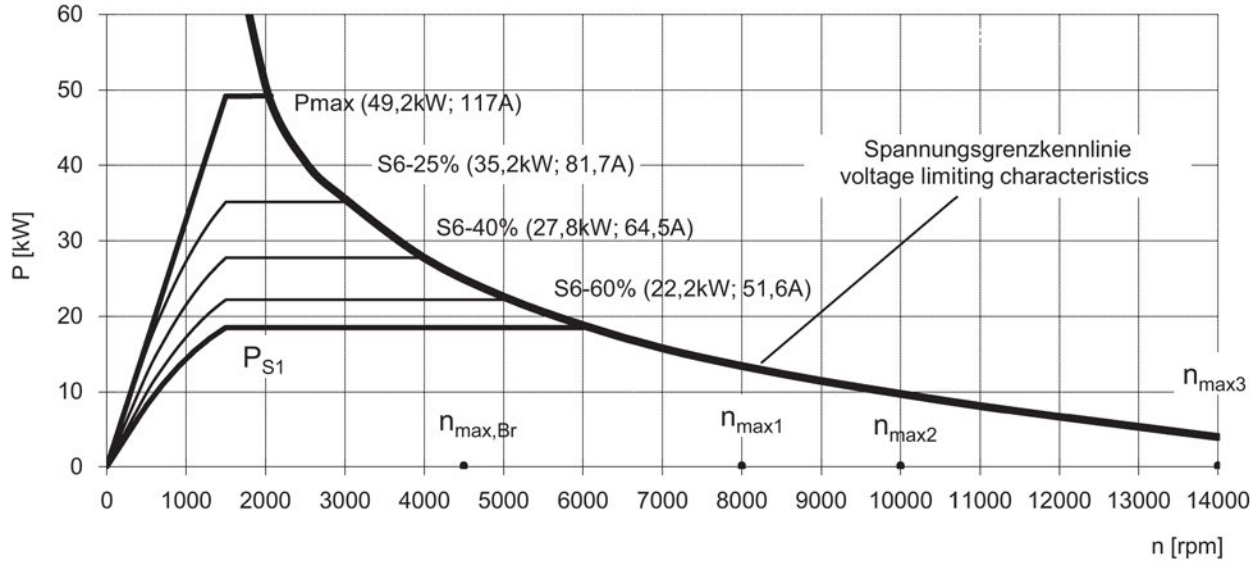


Table 6- 188 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F□□

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]
1,500	18.5	118	43	8,000	10,000	14,000	4,500	6,150	313	117	157	53



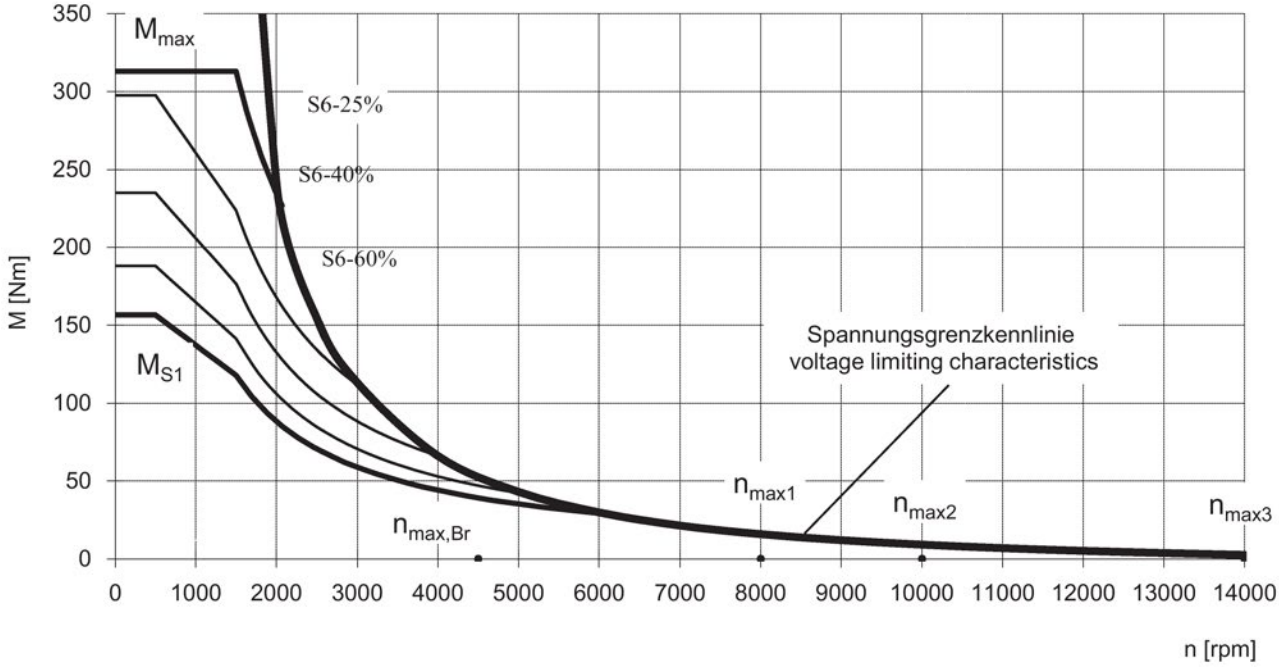
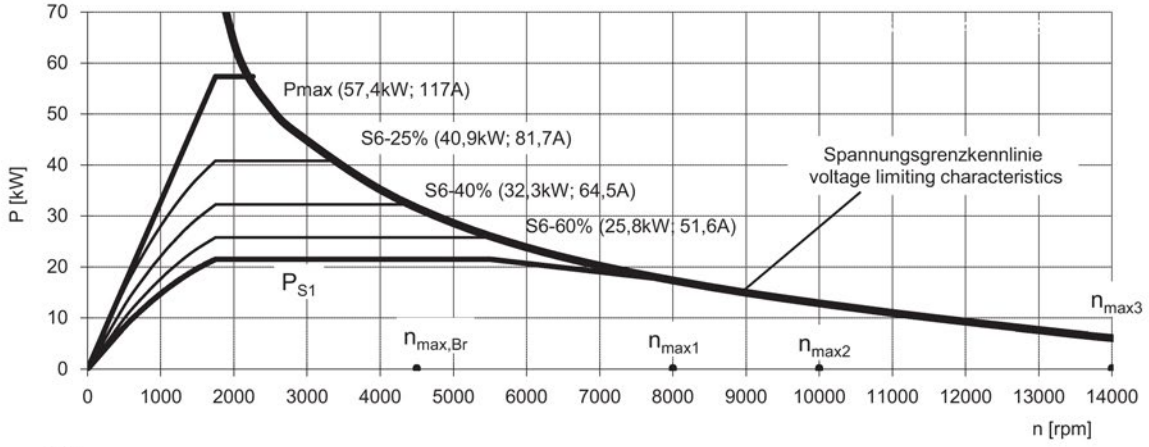


Table 6- 189 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□F□□

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]
1,750	21.5	117	43	8,000	10,000	14,000	4,500	5,500	313	117	157	53
1,500	18.5	118	43					7,500				



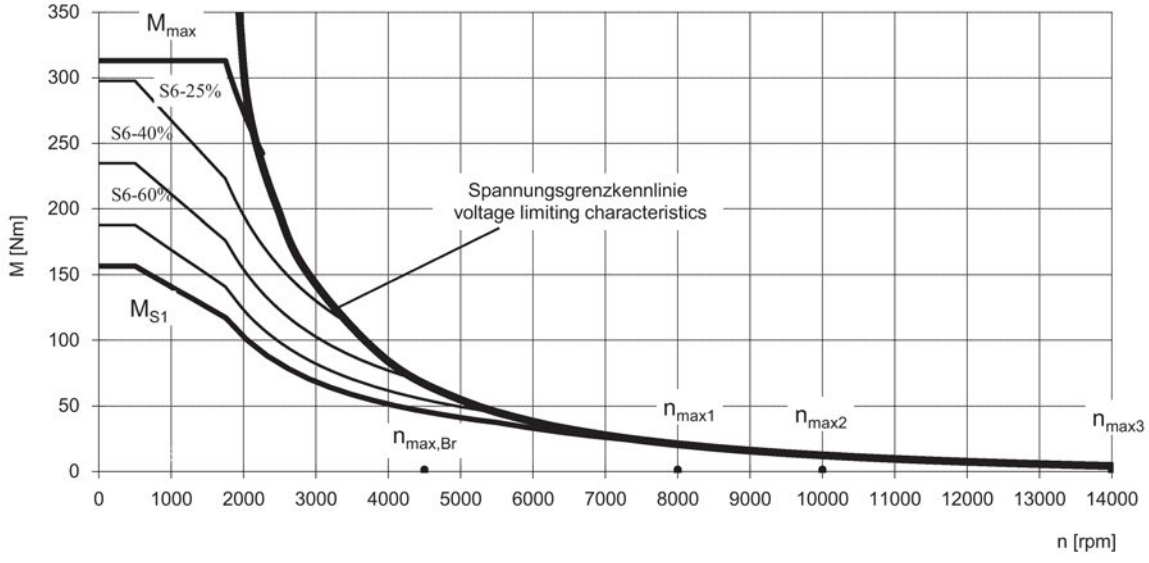
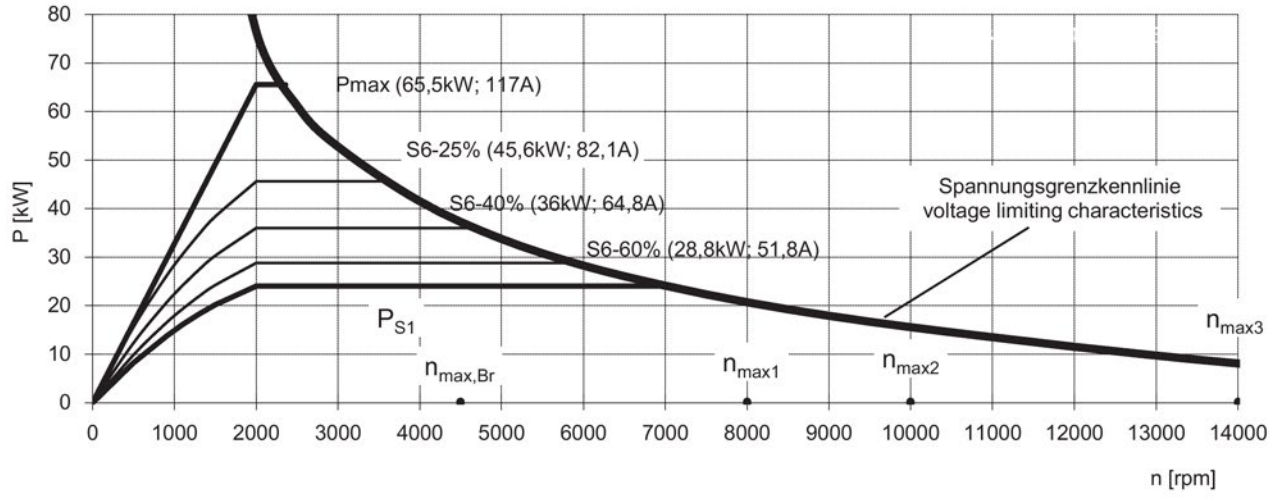


Table 6- 190 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F□□

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]
2,000	24	115	43	8,000	10,000	14,000	4,500	7,100	313	117	157	53



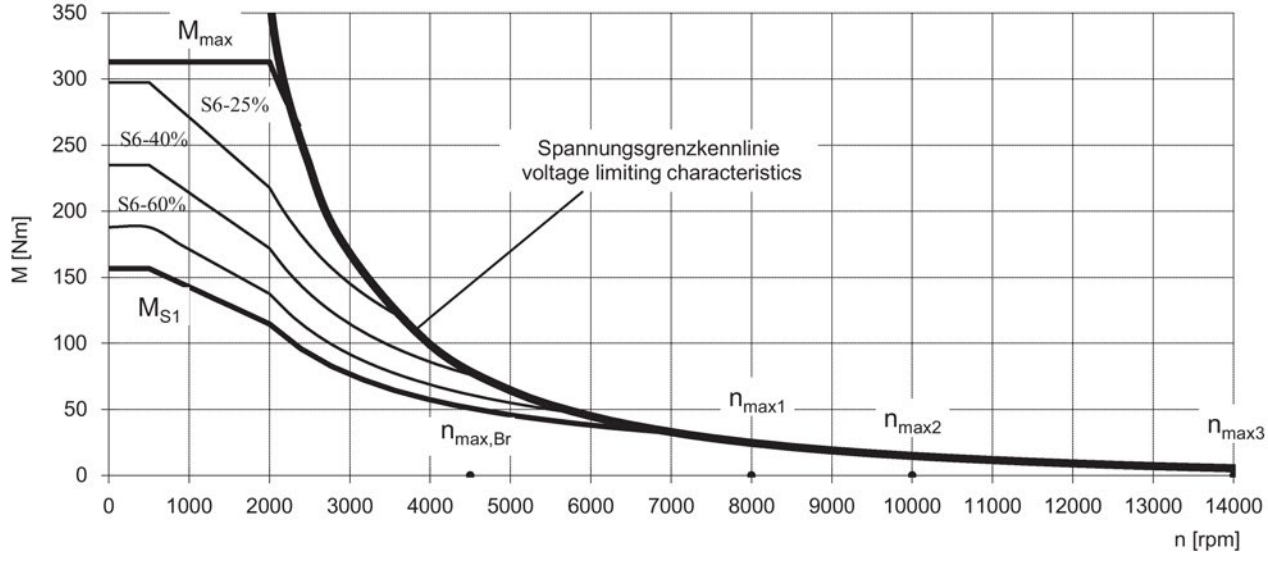
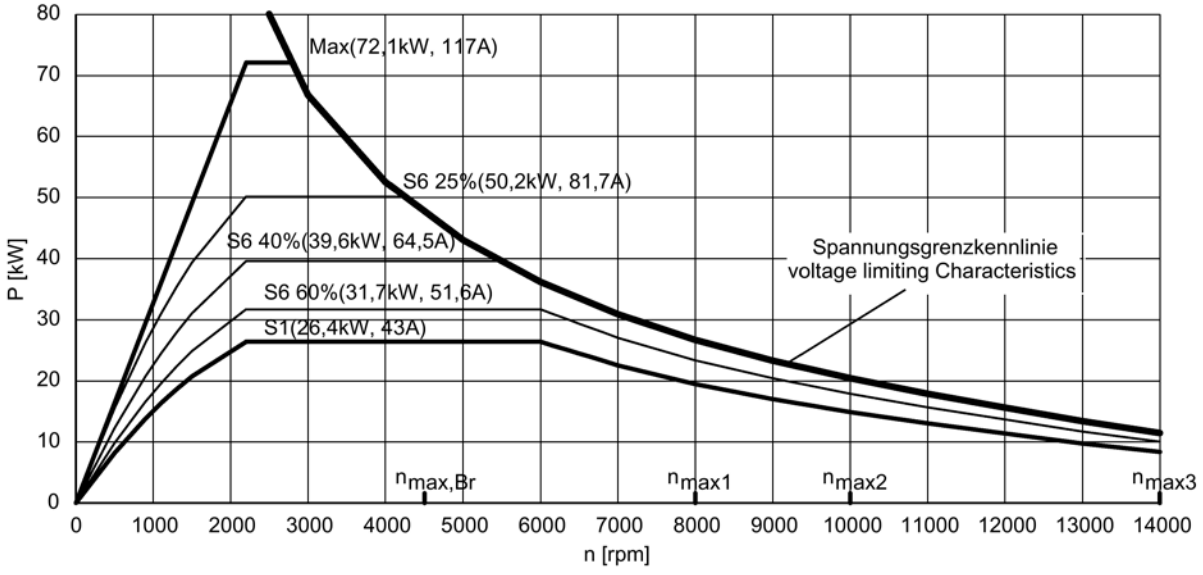


Table 6- 191 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8135-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	26.4	115	43	8,000	10,000	14,000	4,500	6,000	313	117	157	53



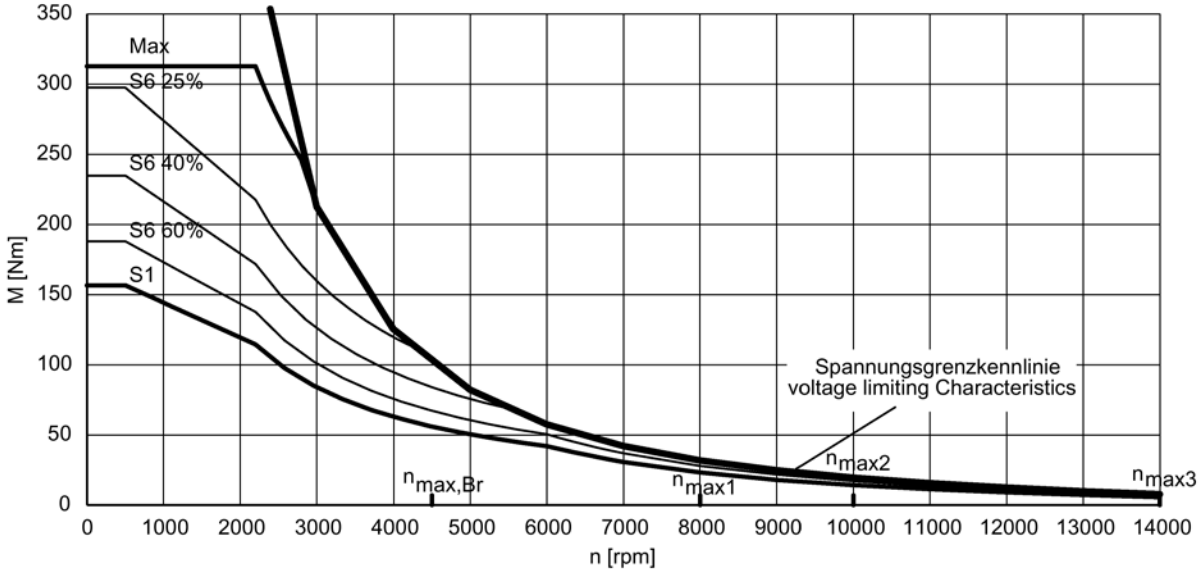
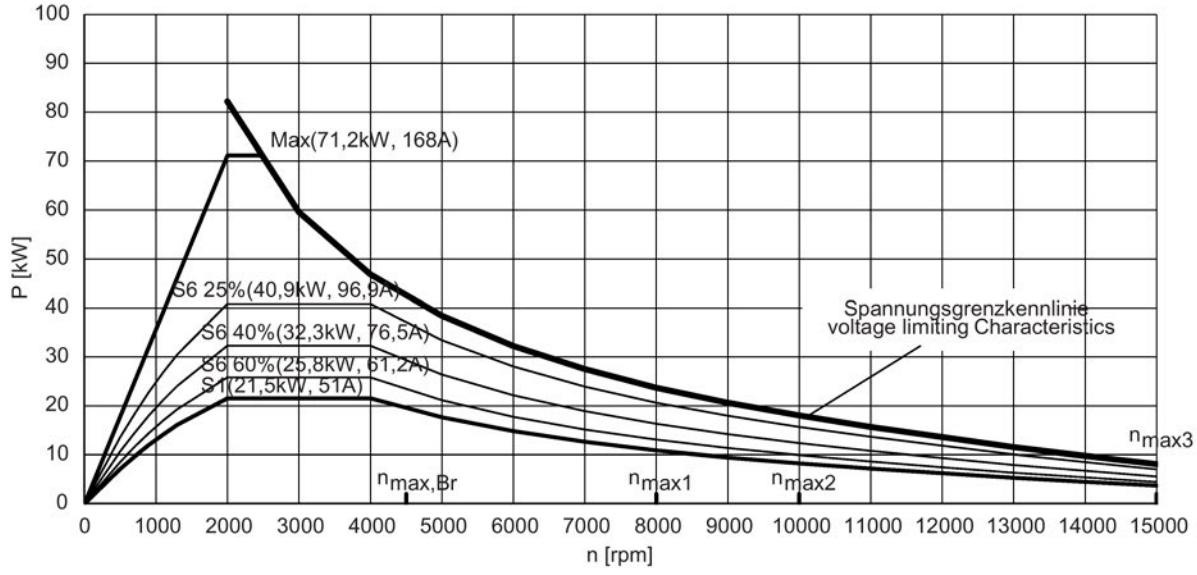


Table 6- 192 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,000	21.5	103	51	8,000	10,000	15,000	4,500	4,000	340	168	136	63



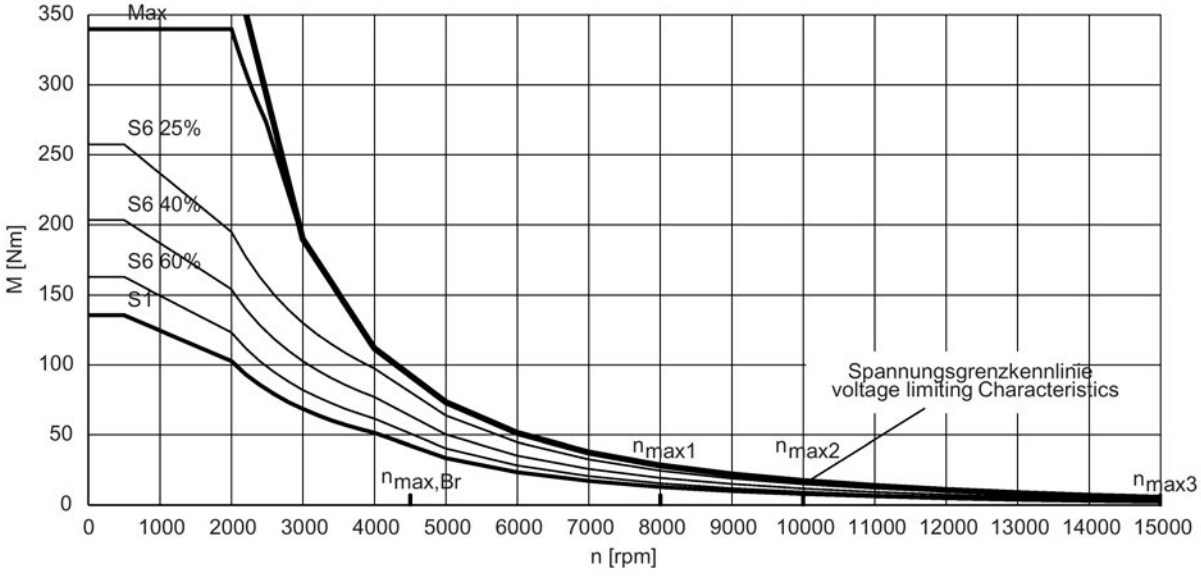
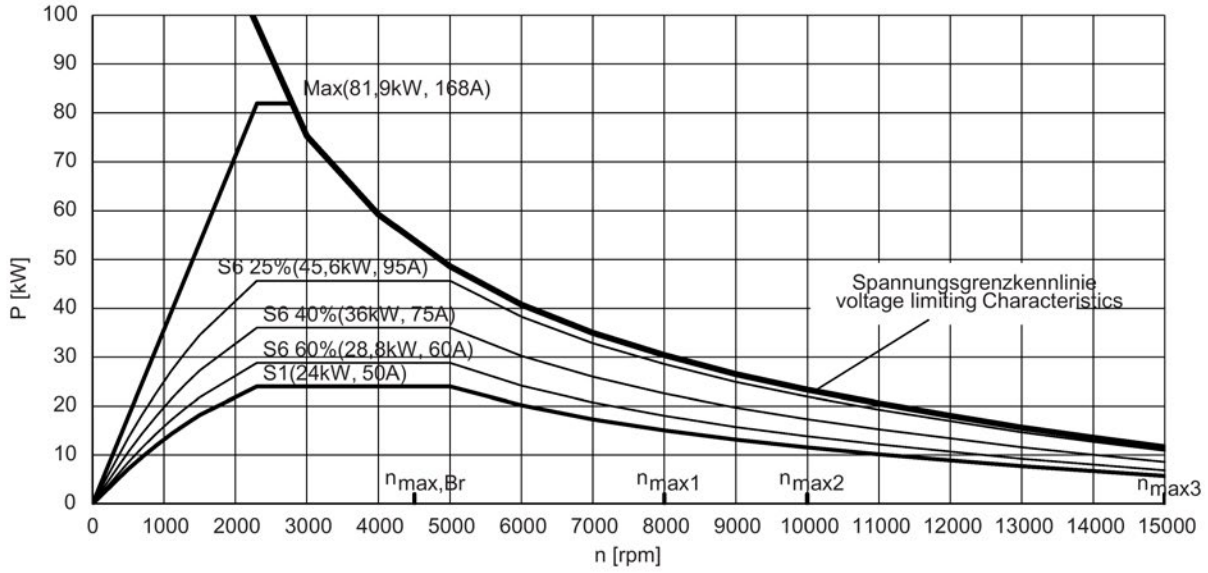


Table 6- 193 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,300	24	100	50	8,000	10,000	15,000	4,500	5,000	340	168	136	63
2,000	21.5	103	51					5,500				



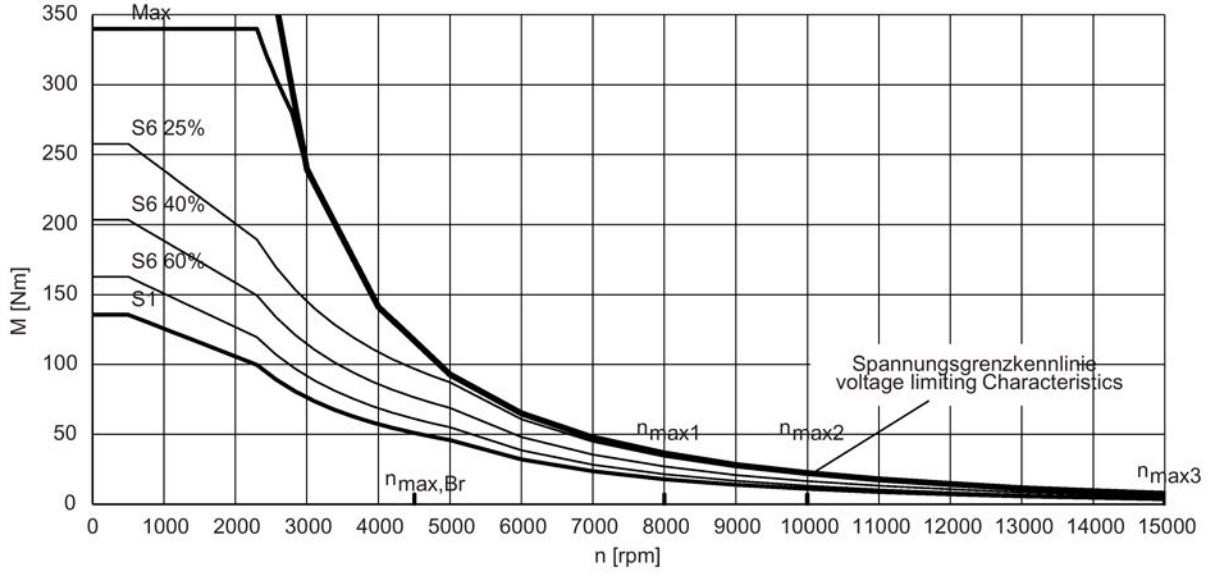
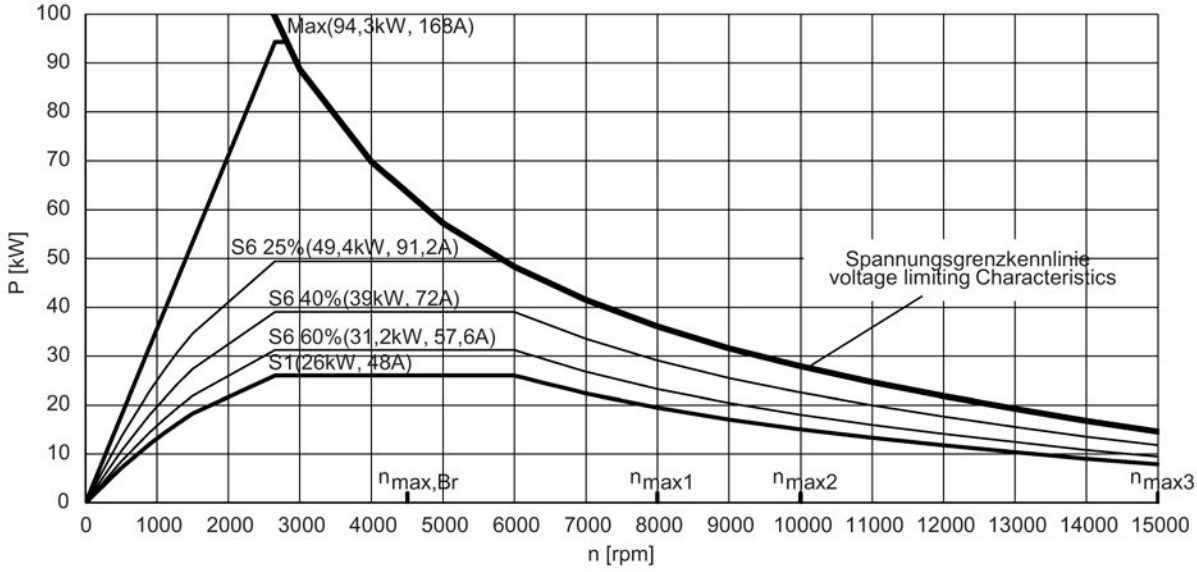


Table 6- 194 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,650	26	94	48	8,000	10,000	15,000	4,500	6,000	340	168	136	63



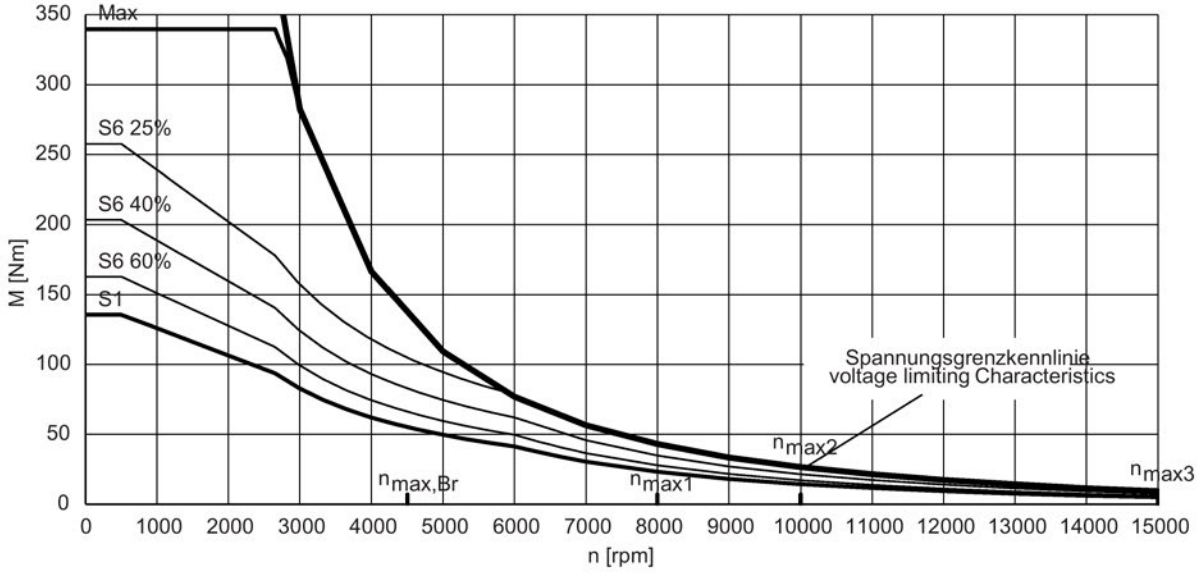
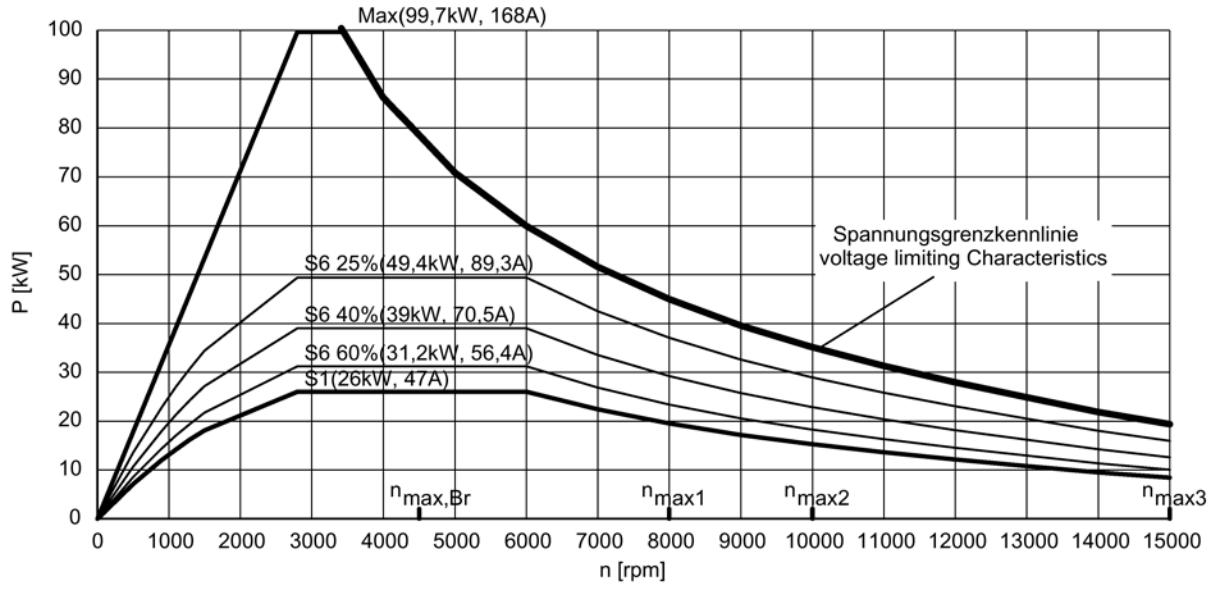


Table 6- 195 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8135-□□G□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	26	89	47	8,000	10,000	15,000	4,500	6,000	340	168	136	63



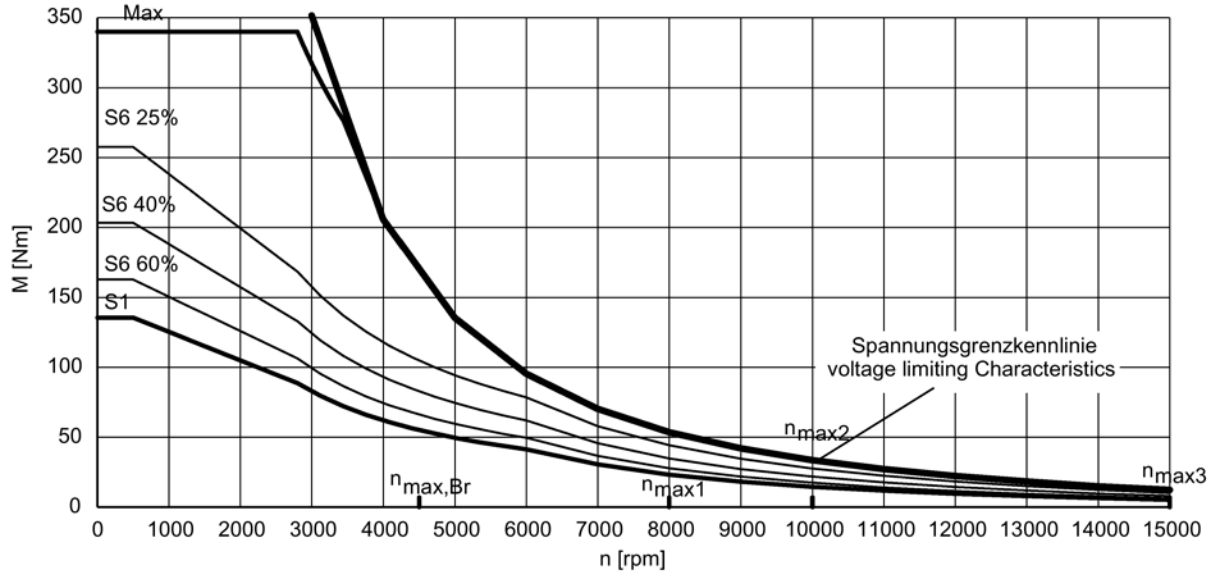
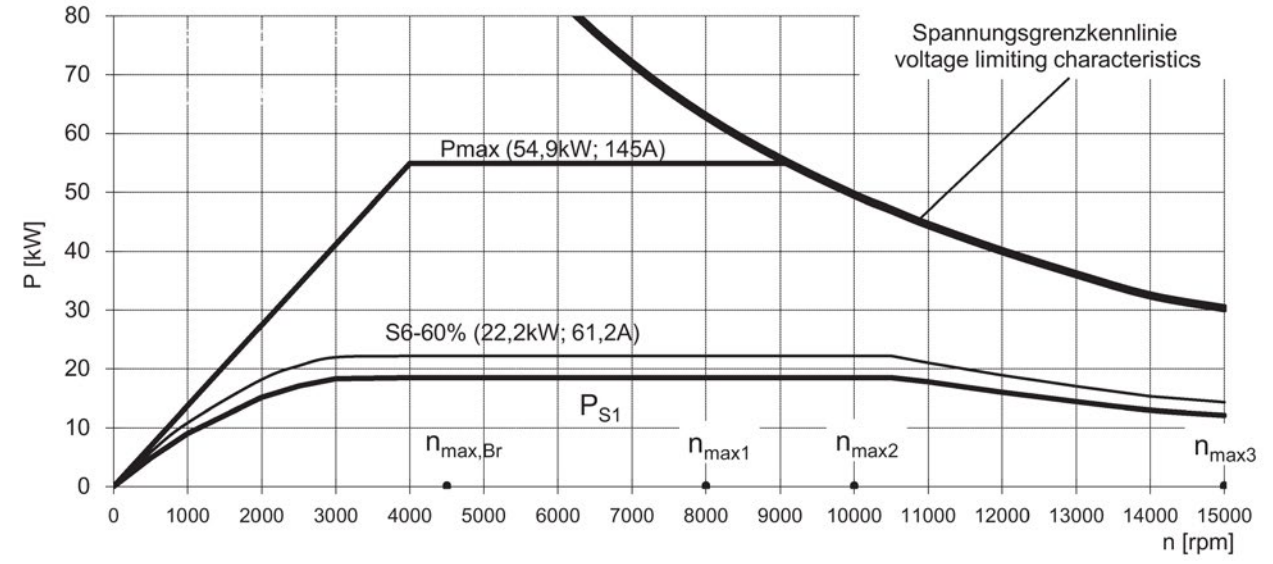


Table 6- 196 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Δ connection

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]
4,000	18.5	44	51	8,000	10,000	15,000	4,500	10,500	131	145	94	78



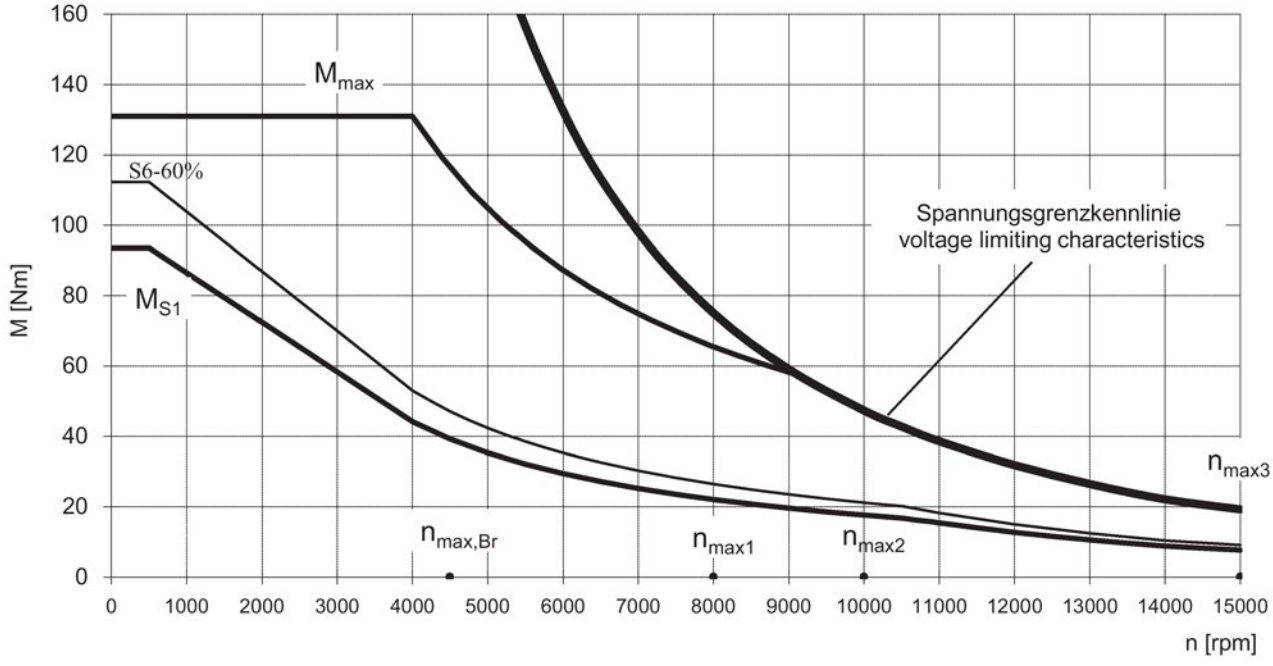


Table 6- 197 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Δ connection

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]
5,000	24.5	47	52	8,000	10,000	15,000	4,500	10,000	131	145	94	78
4,000	18.5	44	51					13,000				

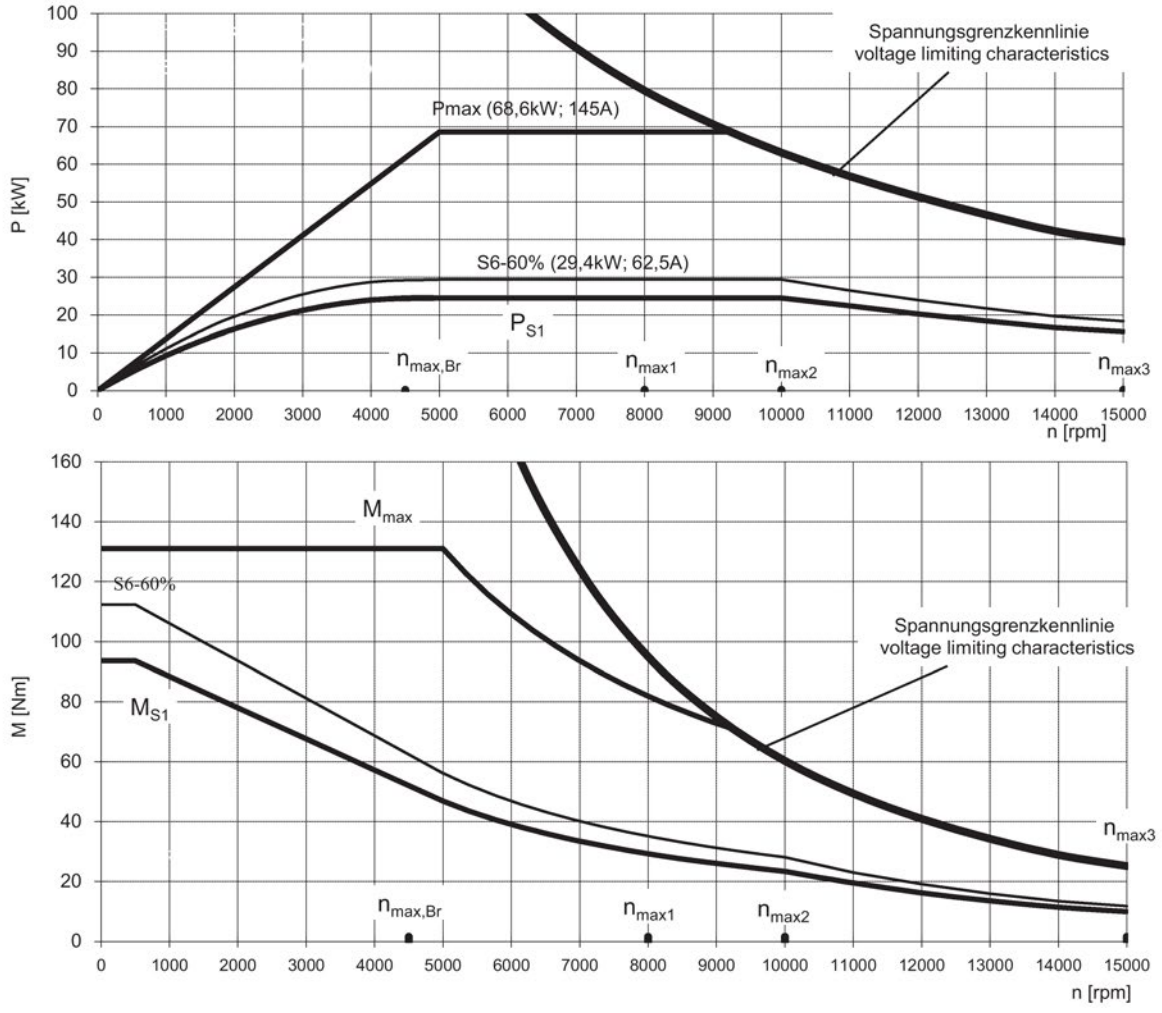
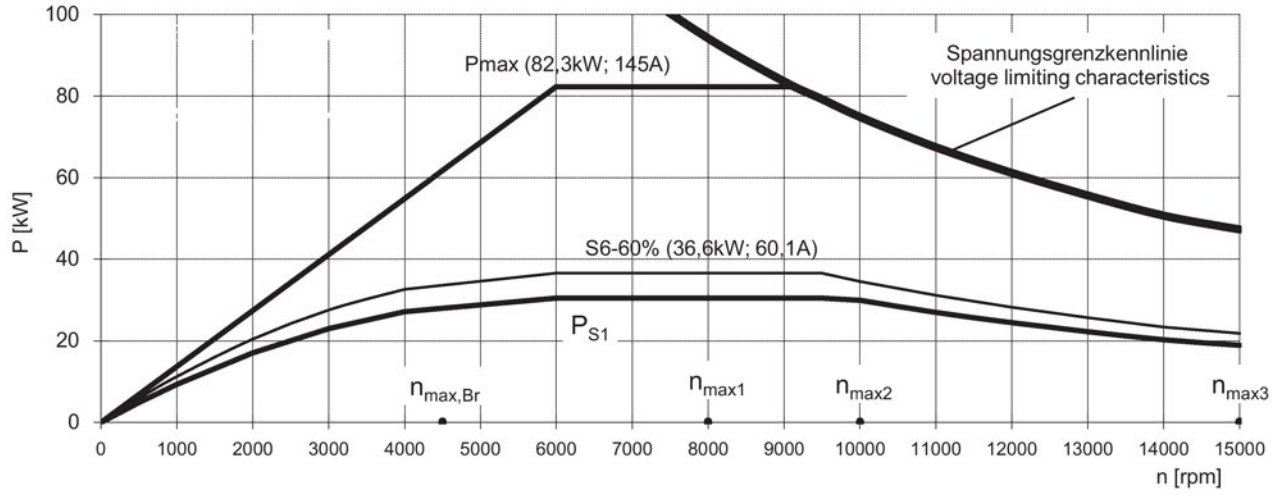


Table 6- 198 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Δ connection

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]
6,000	30.5	49	50	8,000	10,000	15,000	4,500	9,500	131	145	94	78



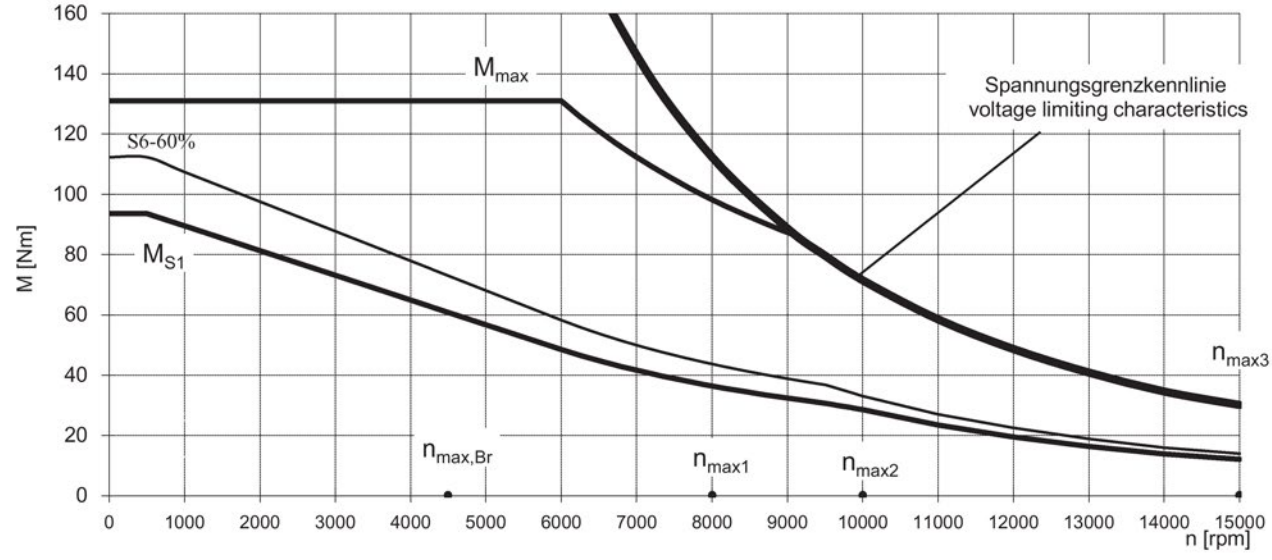
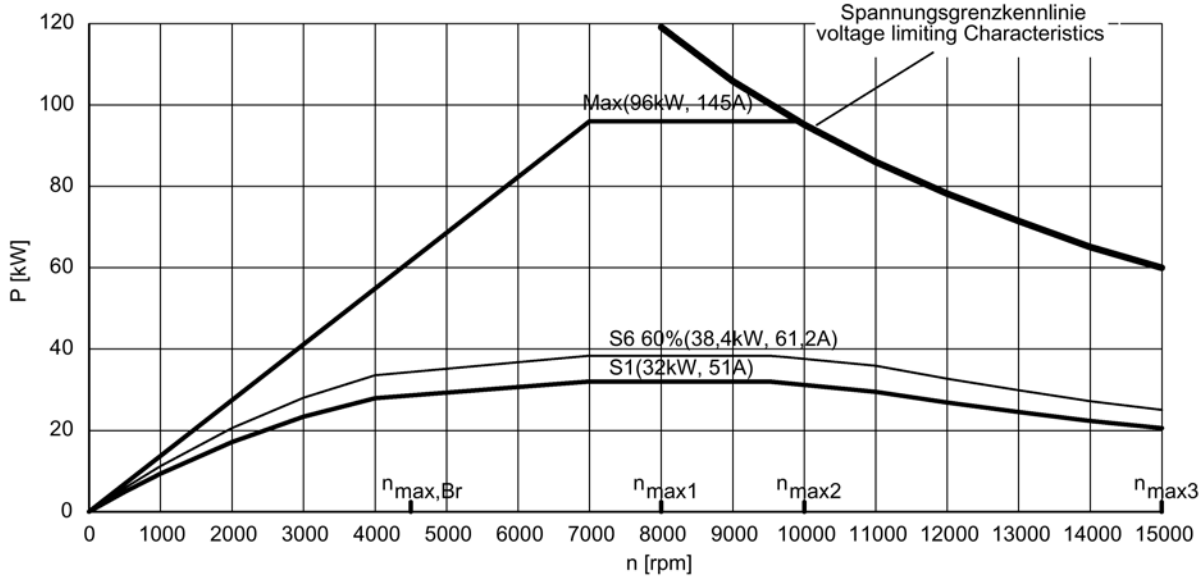


Table 6- 199 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	32	44	51	8,000	10,000	15,000	4,500	9,500	131	145	94	78



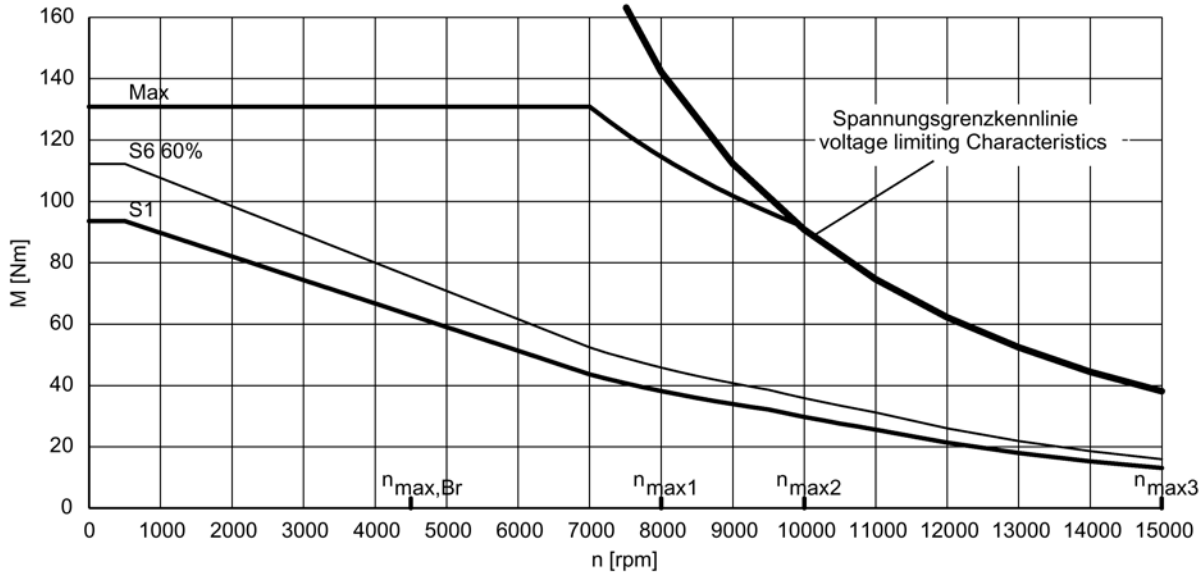
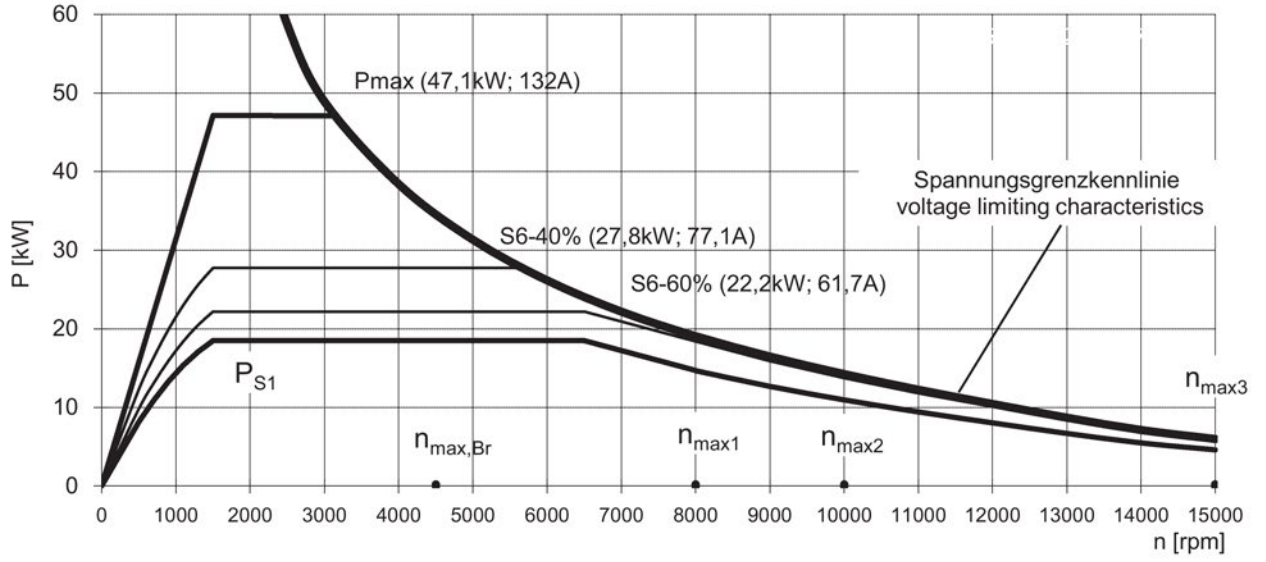


Table 6- 200 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Y connection

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]
1,500	18.5	118	51	8,000	10,000	15,000	4,500	6,500	300	132	157	62



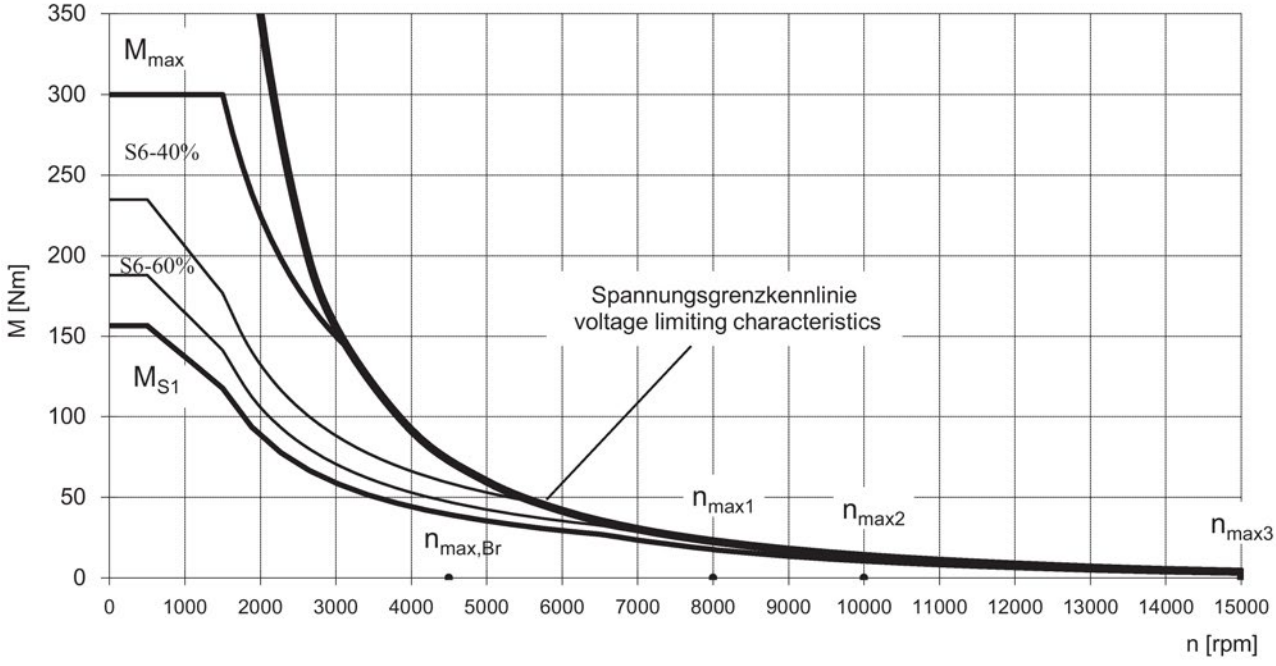


Table 6- 201 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Y connection

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]
2,000	24.5	117	51	8,000	10,000	15,000	4,500	6,500	300	132	157	62
1,500	18.5	118	51					8,000				

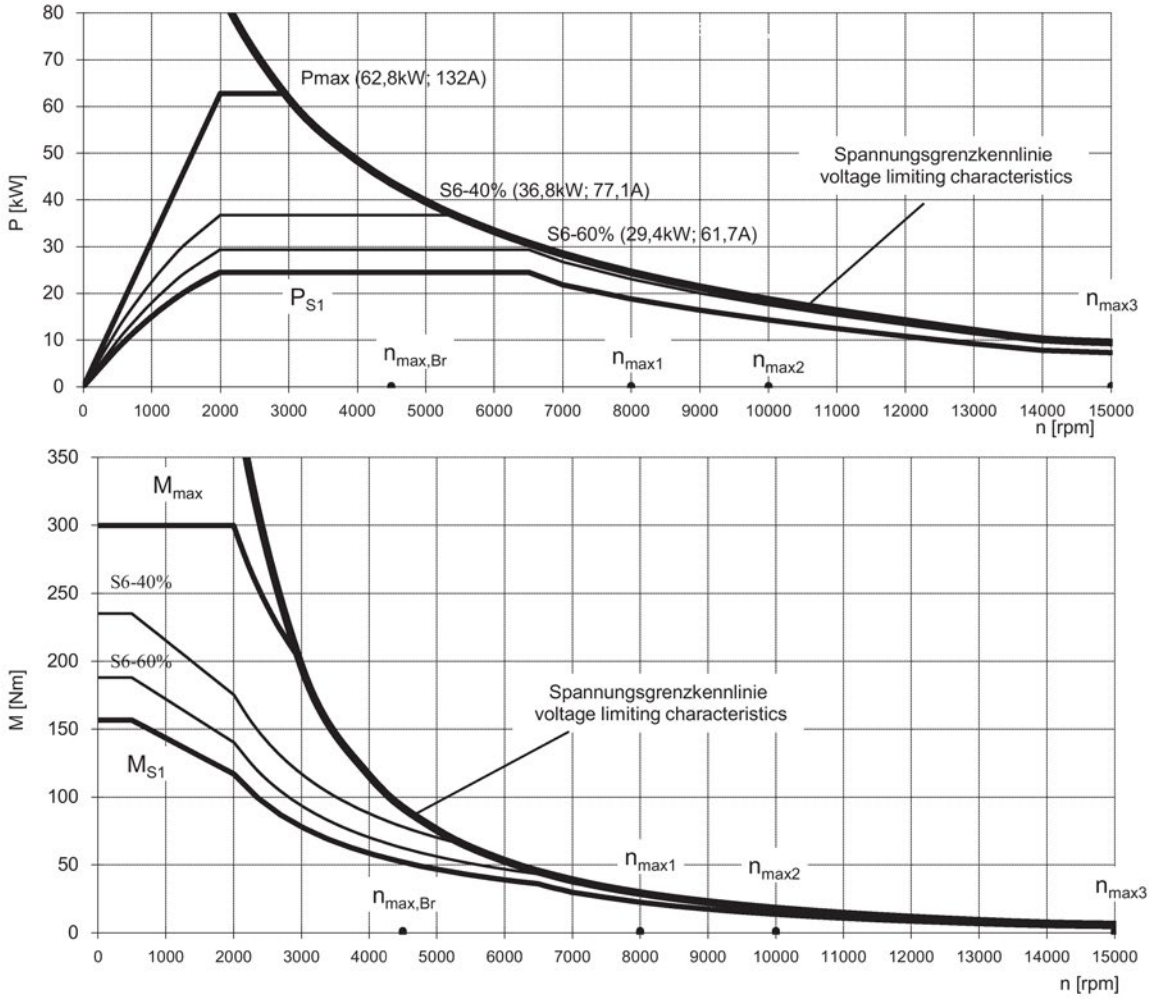
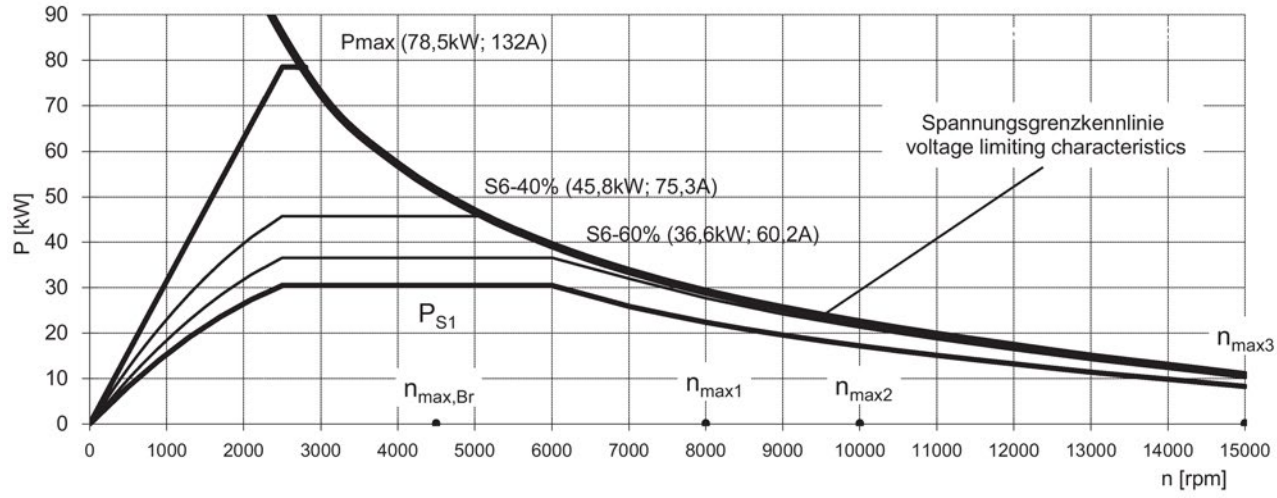


Table 6- 202 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□S□□, Y connection

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]
2,500	30.5	117	50	8,000	10,000	15,000	4,500	6,000	300	132	157	62



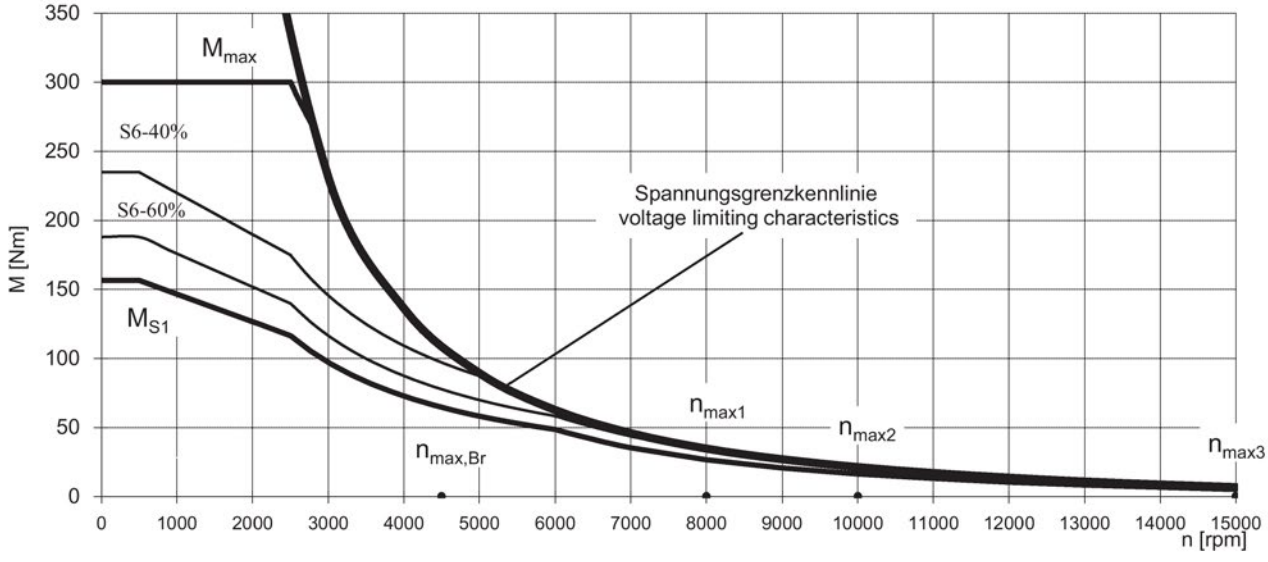
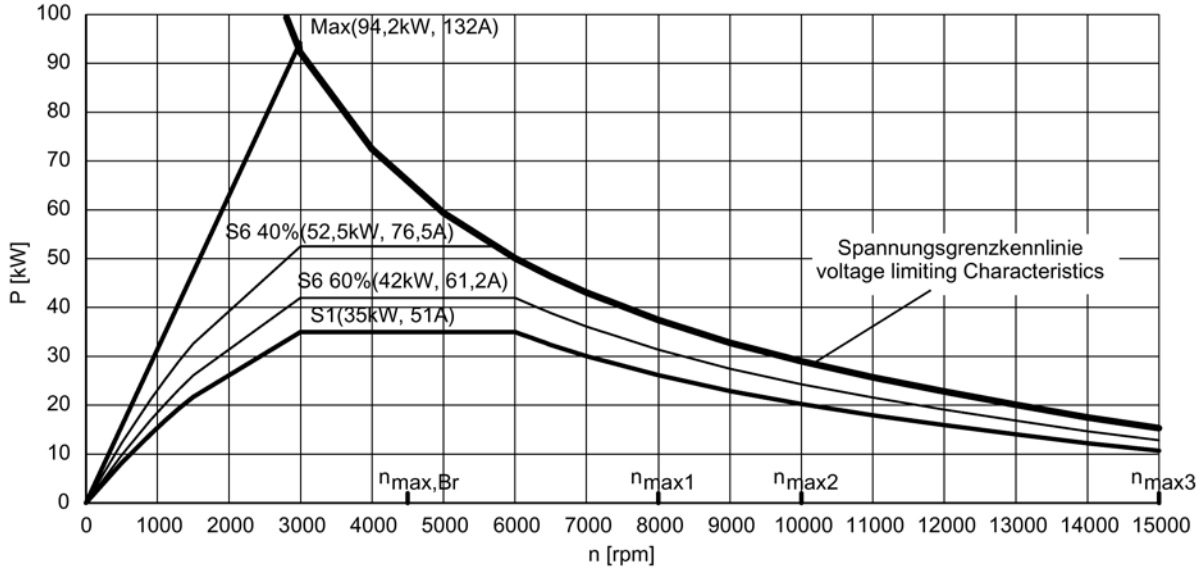


Table 6- 203 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8135-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	35	111	51	8,000	10,000	15,000	4,500	6,000	300	132	157	62



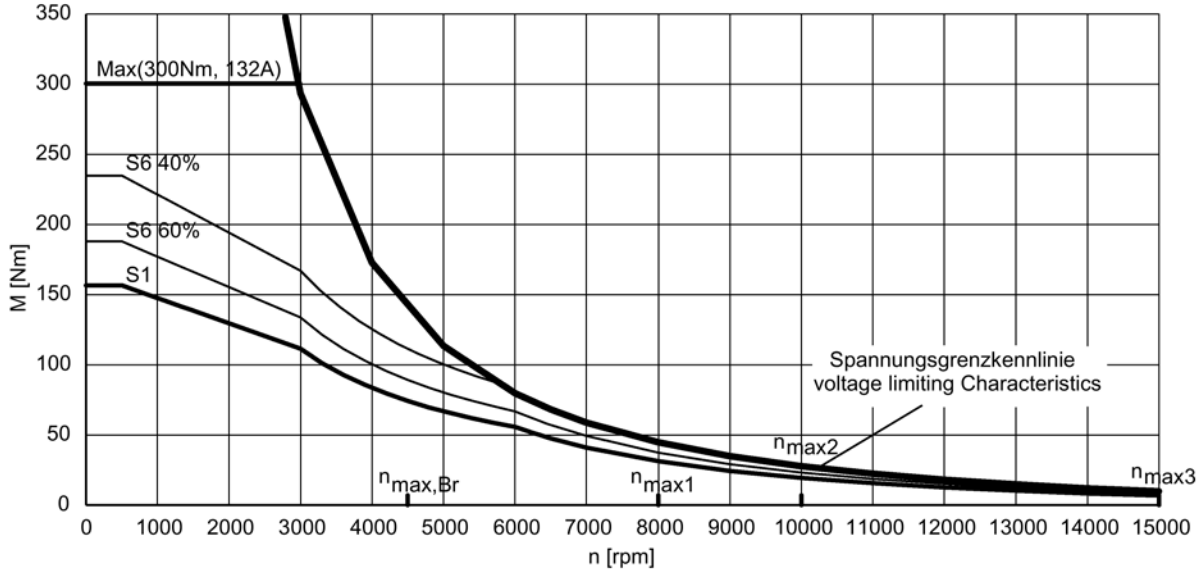
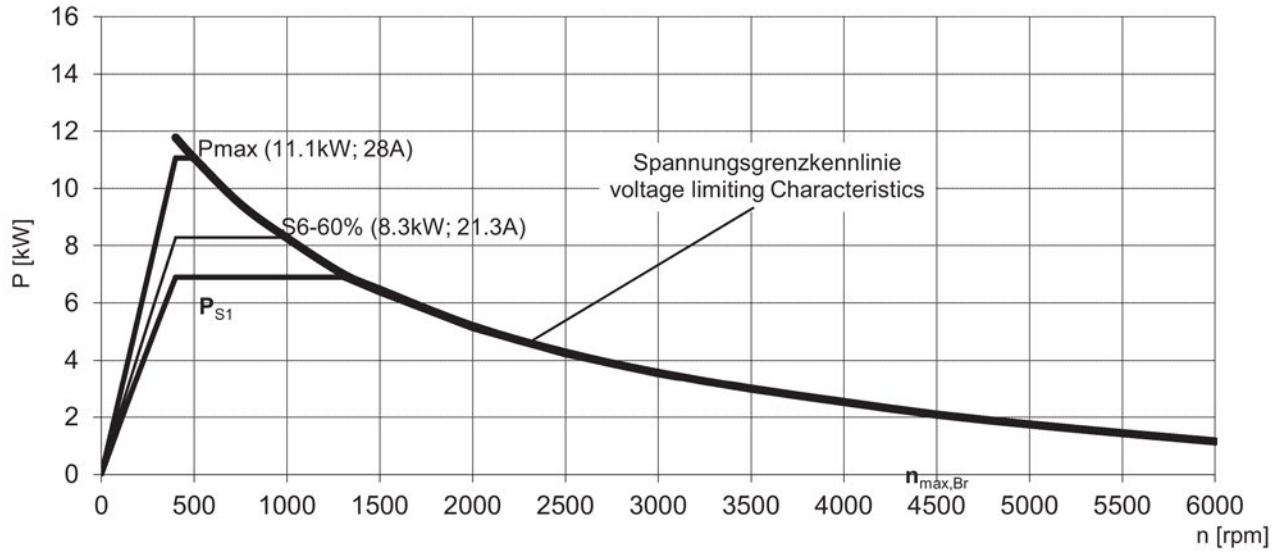


Table 6- 204 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	6.9	165	18	-	-	-	4,500	1,300	264	28	171	19



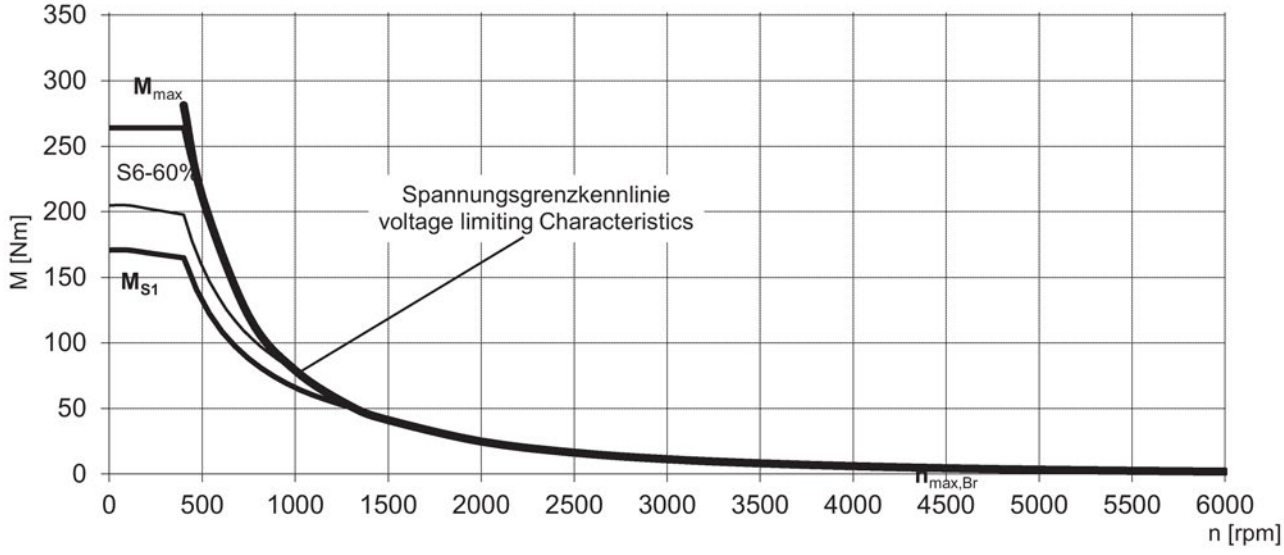
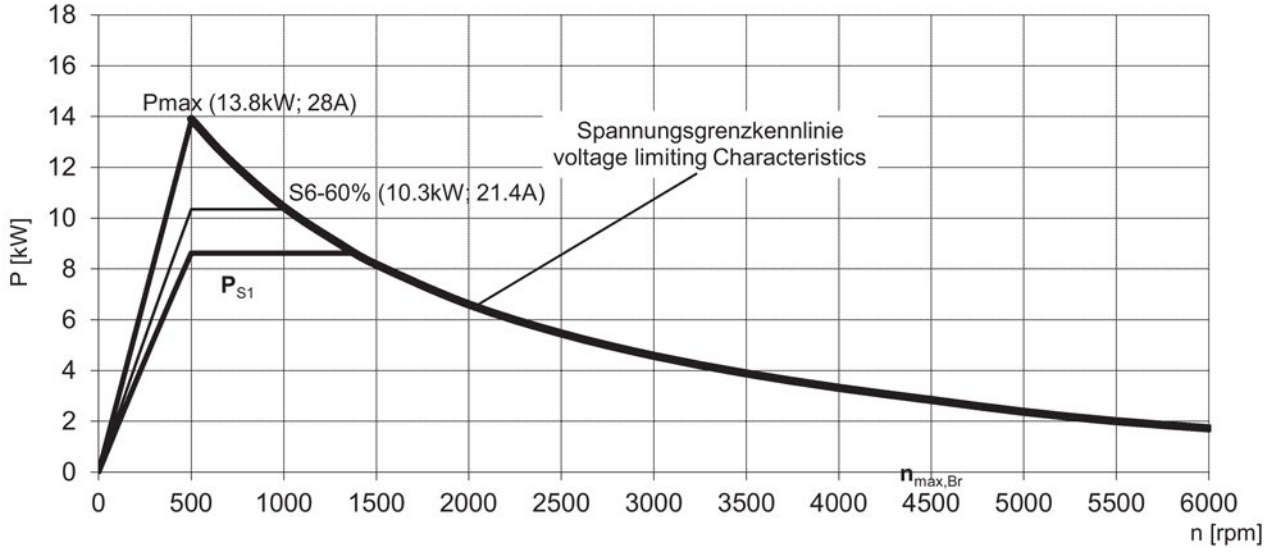


Table 6- 205 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	8.6	165	18	-	-	-	4,500	1,400	264	28	171	19
400	6.9	165	18					1,900				



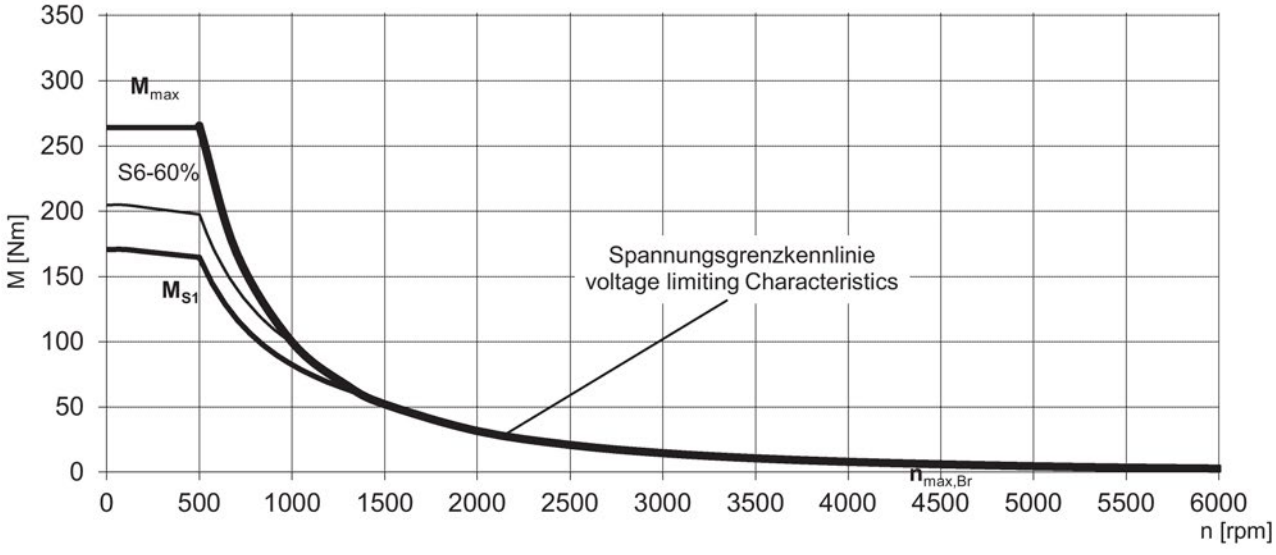
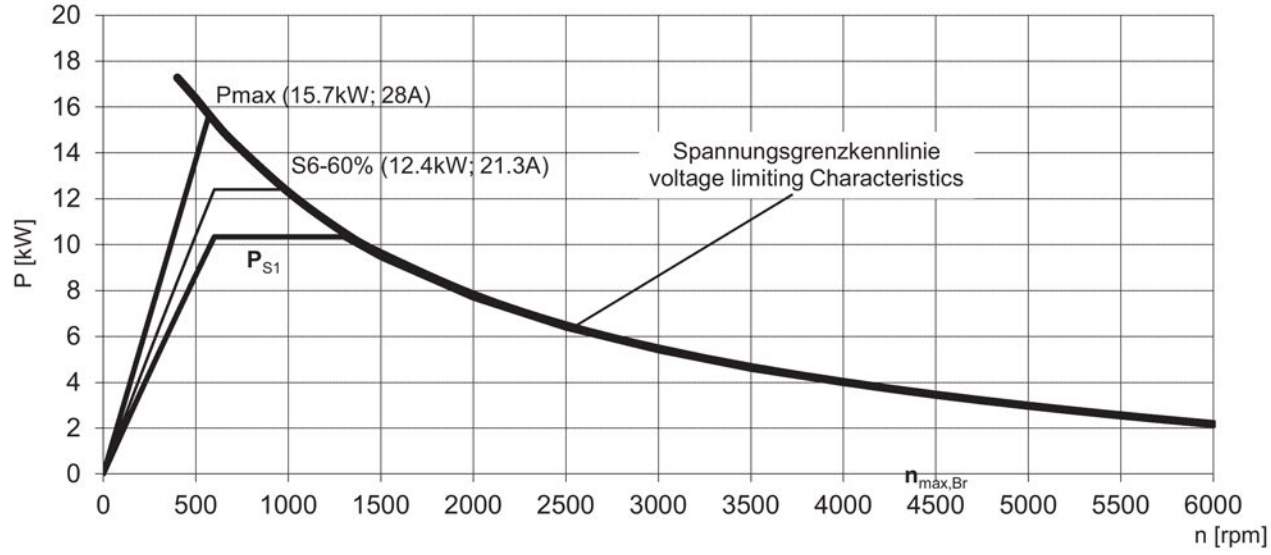


Table 6- 206 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	10.3	165	18	-	-	-	4,500	1,300	264	28	171	19



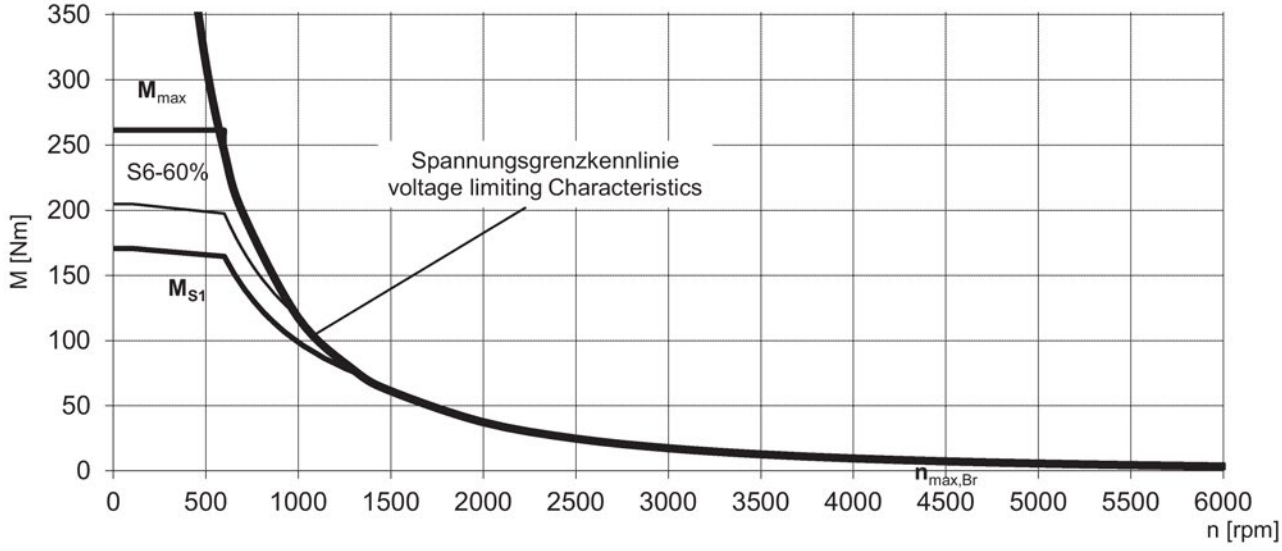
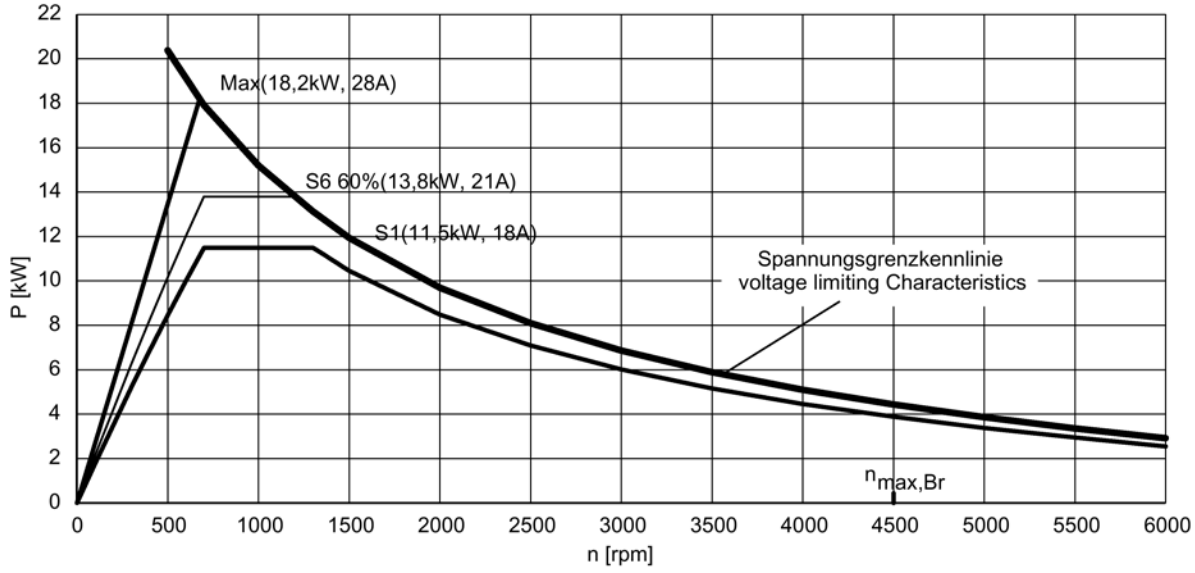


Table 6- 207 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	11.5	157	17.5	--	--	--	4,500	1,300	264	28	171	19



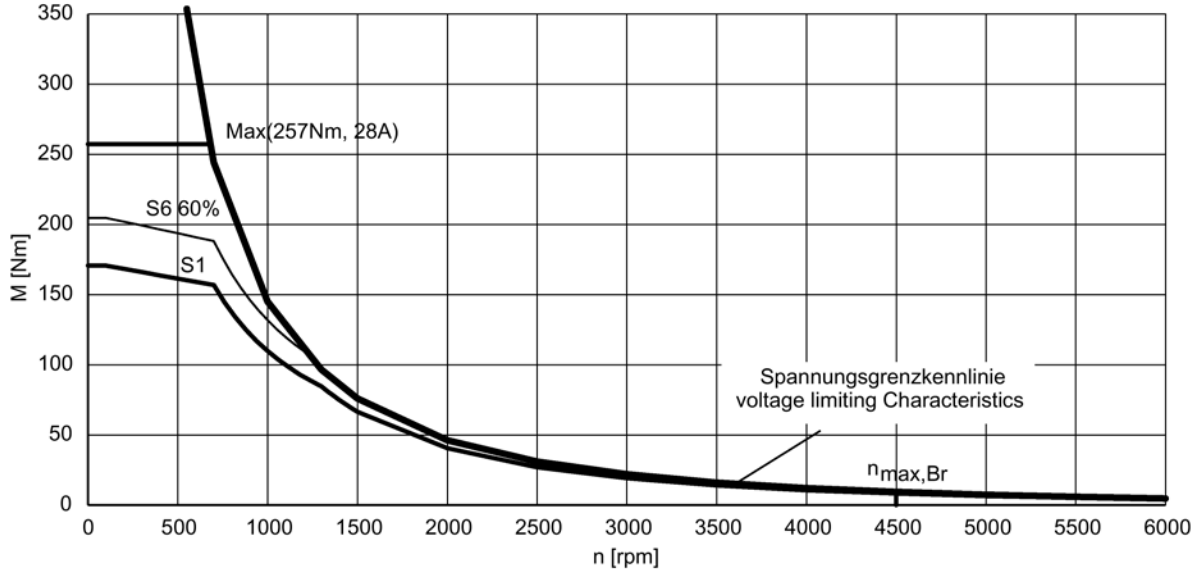
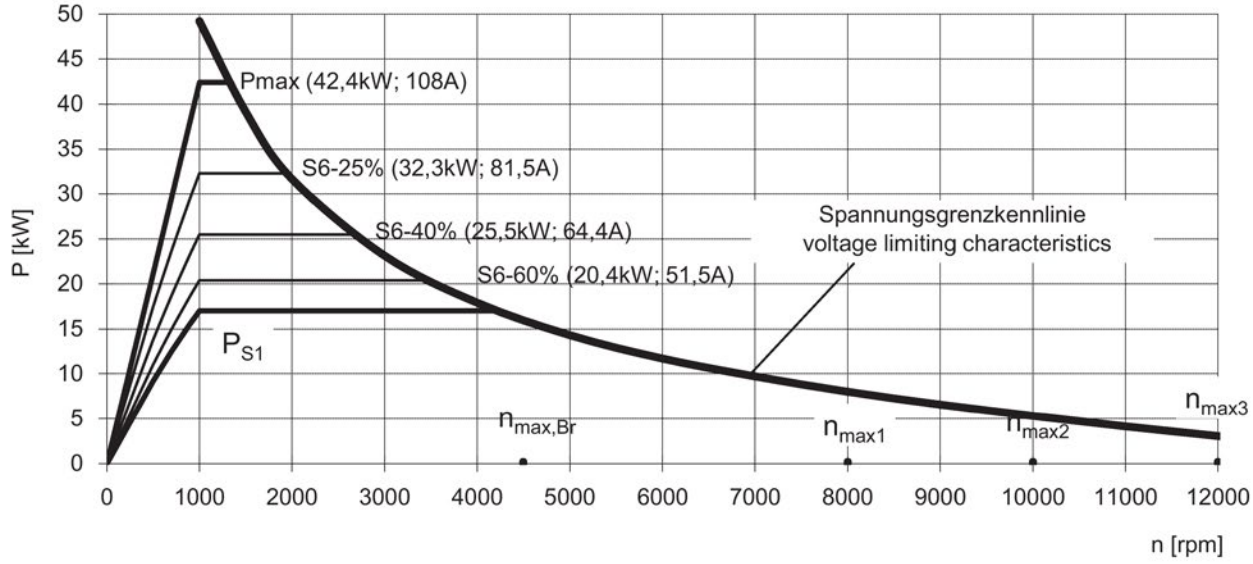


Table 6- 208 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□D□□

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]
1,000	17	162	43	8,000	10,000	12,000	4,500	4,300	405	108	176	45



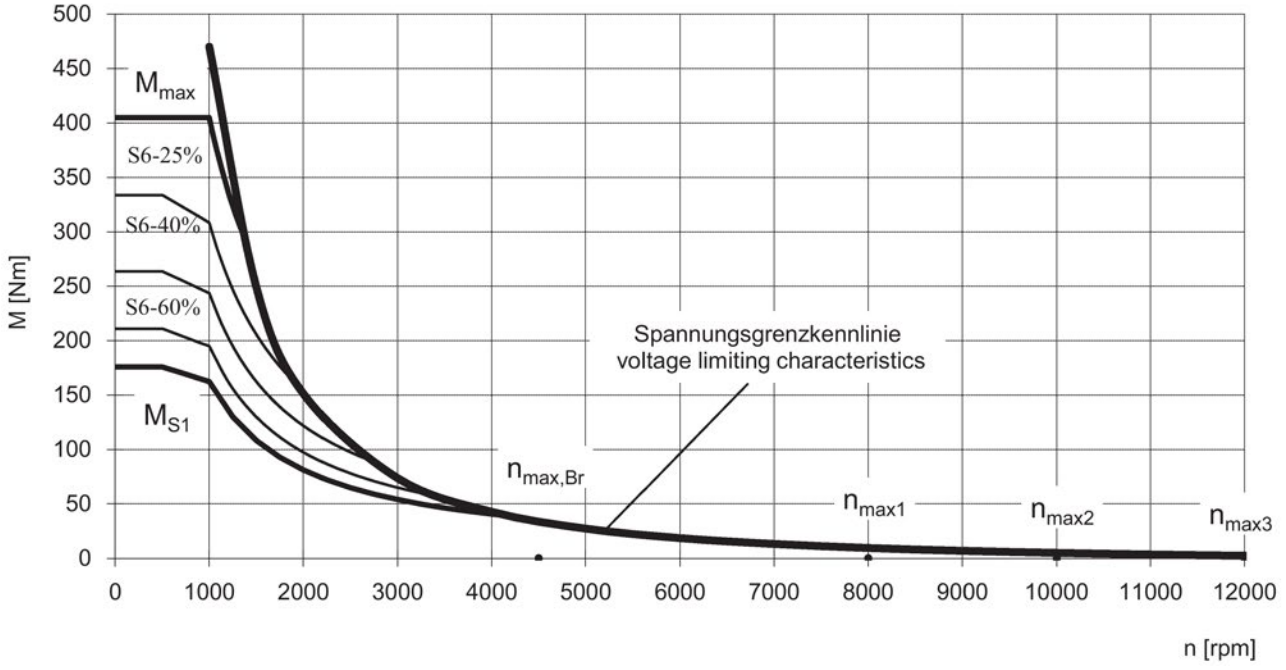


Table 6- 209 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□D□□

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]
1,150	19.5	162	43	8,000	10,000	12,000	4,500	4,000	405	108	176	45
1,000	17	162	43					5,400				

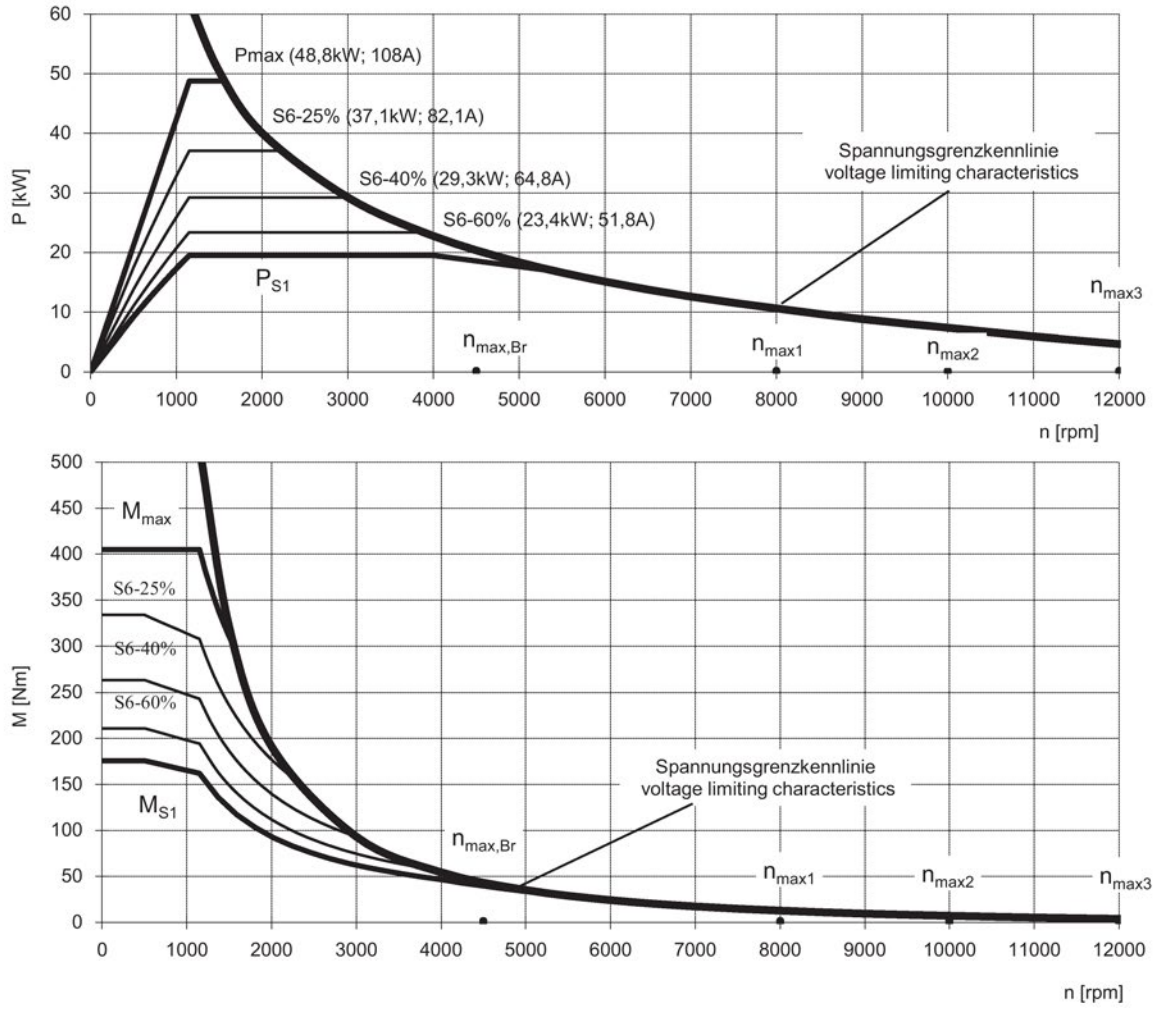
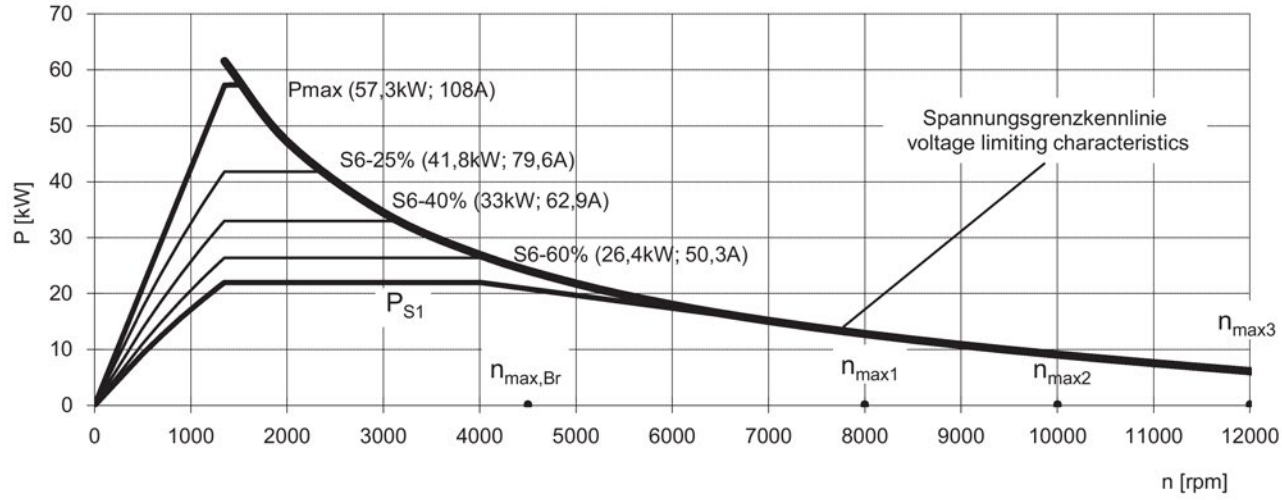


Table 6- 210 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□D□□

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]
1,350	22	156	42	8,000	10,000	12,000	4,500	4,000	405	108	176	45



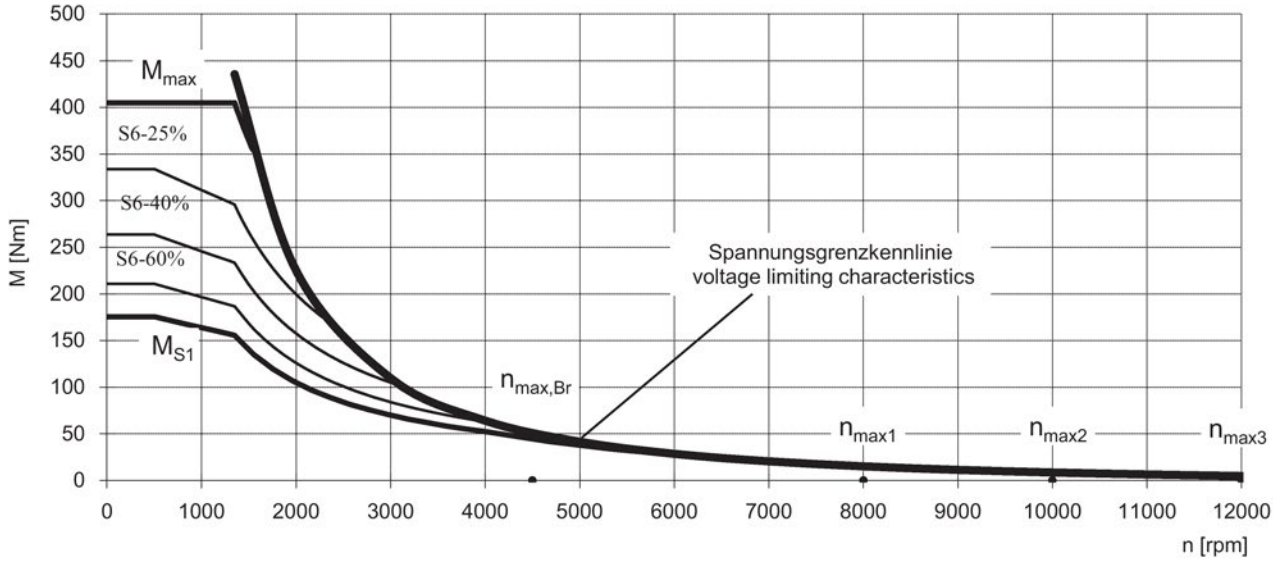
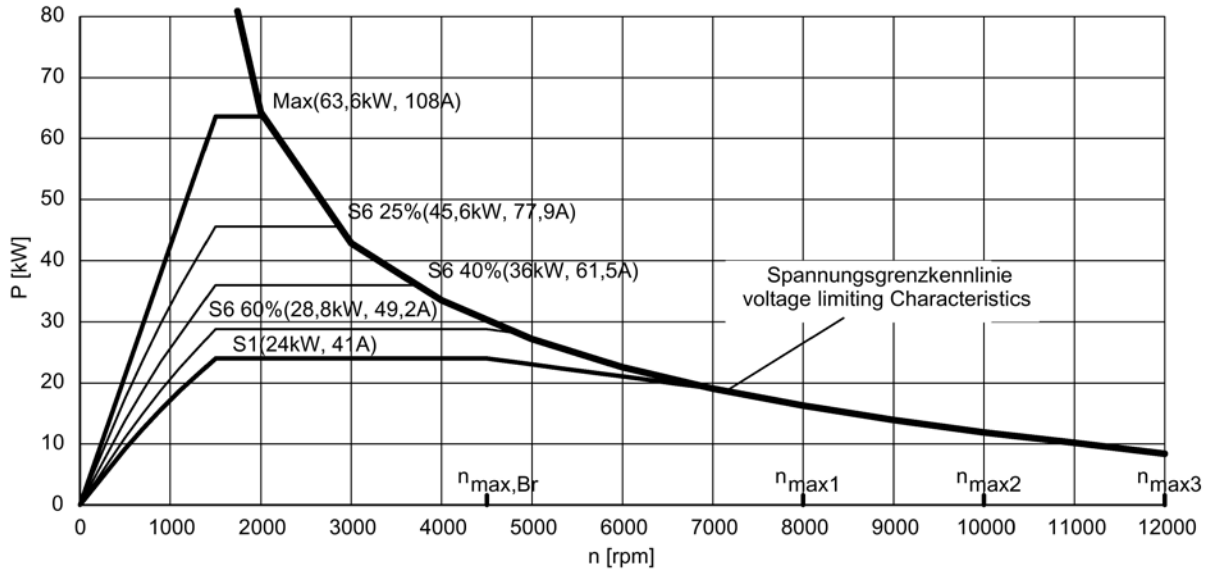


Table 6- 211 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	24	153	41	8,000	10,000	12,000	4,500	4,500	405	108	176	45



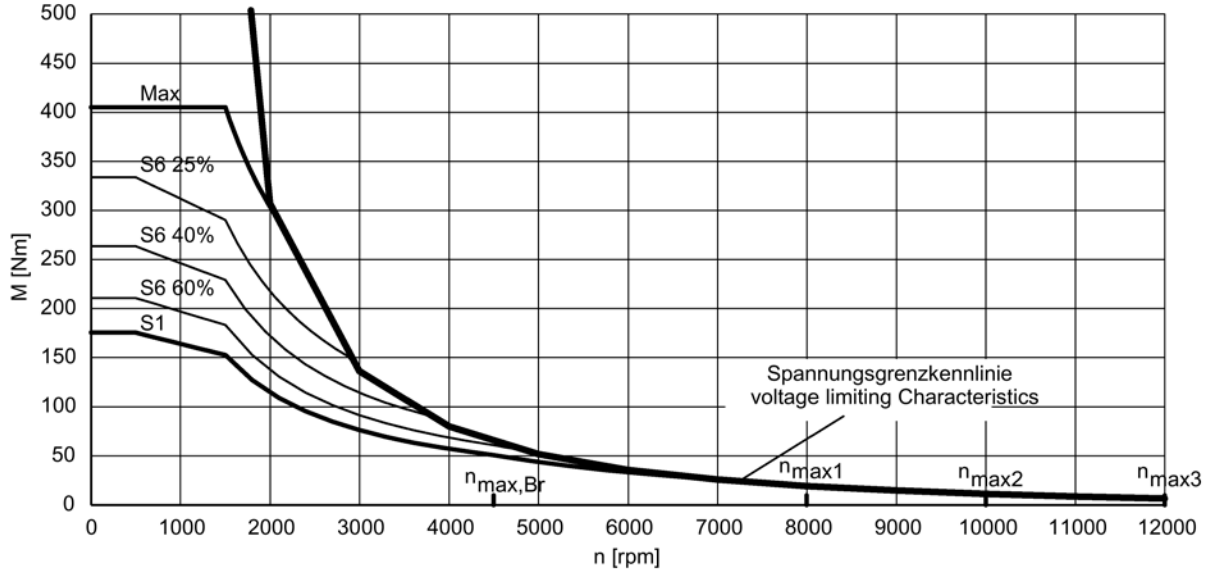
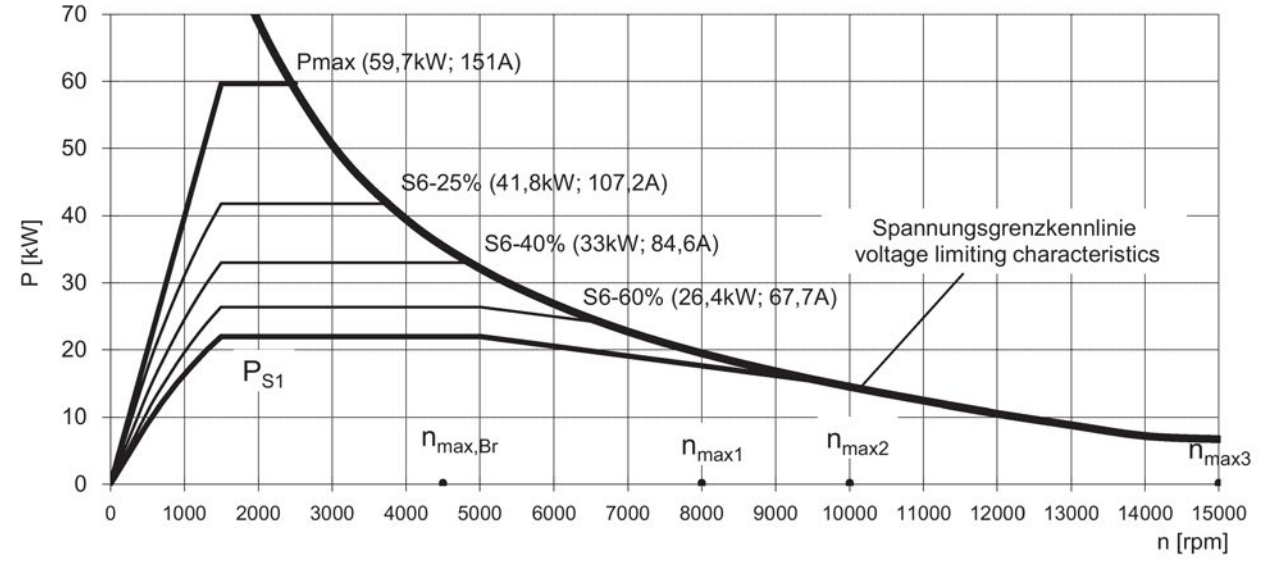


Table 6- 212 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F□□

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]
1,500	22	140	56	8,000	10,000	15,000	4,500	5,000	380	151	172	68



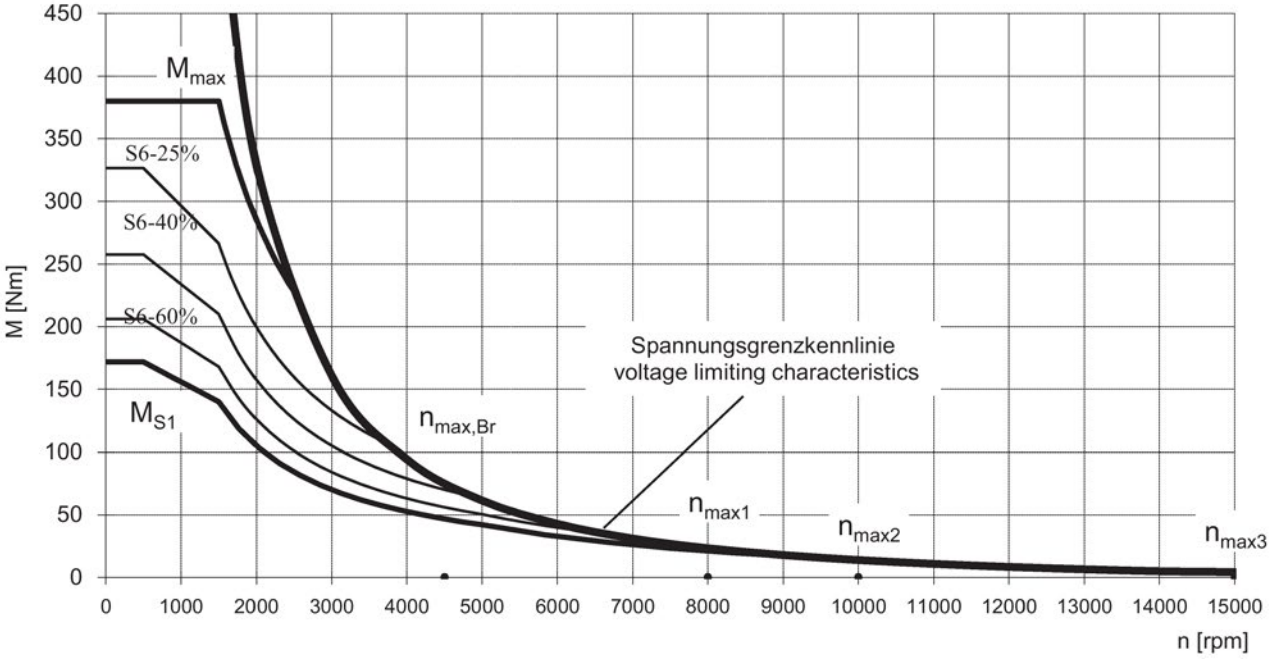


Table 6- 213 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□F□□

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]
1,750	25	136	56	8,000	10,000	15,000	4,500	5,000	380	151	172	68
1,500	22	140	56					7,000				

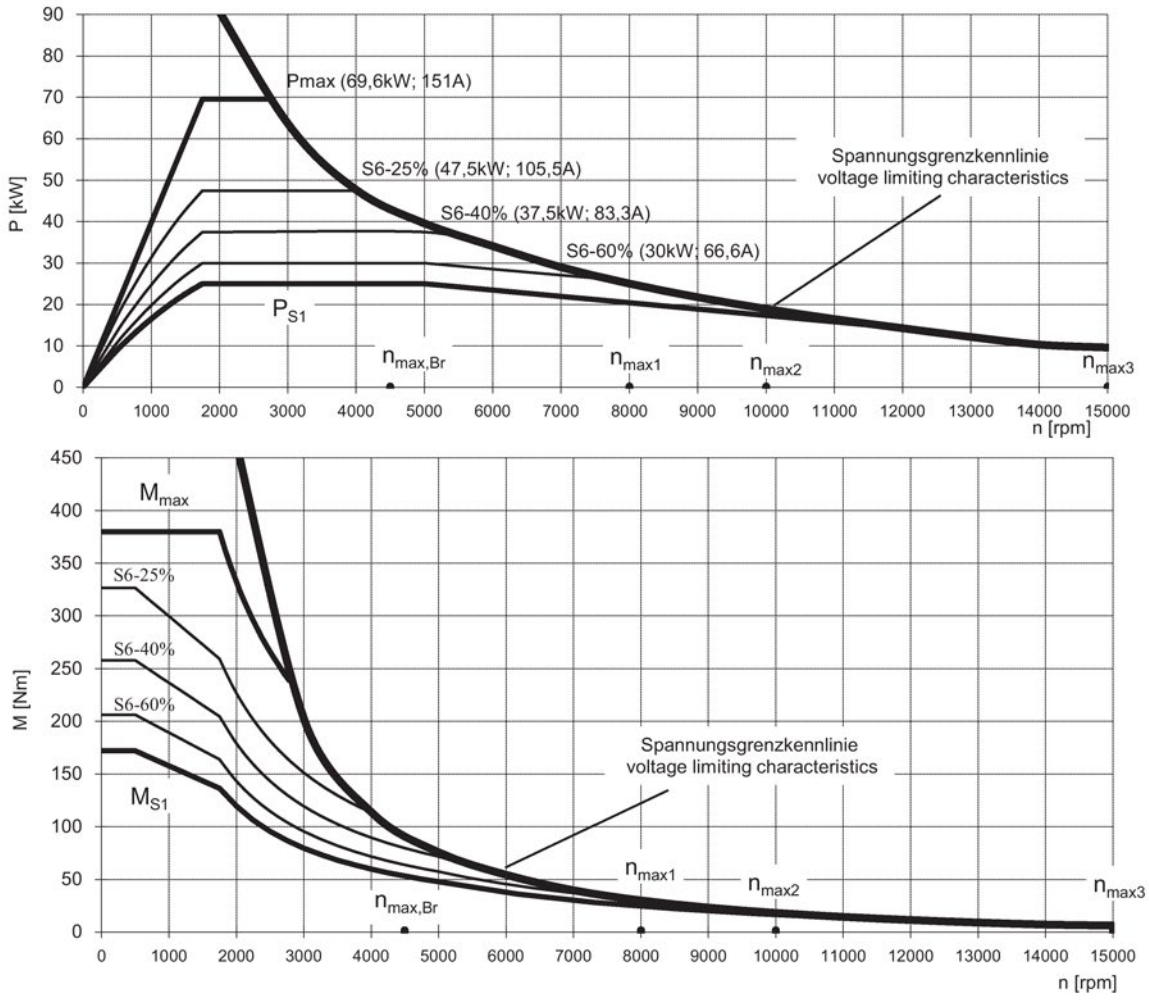
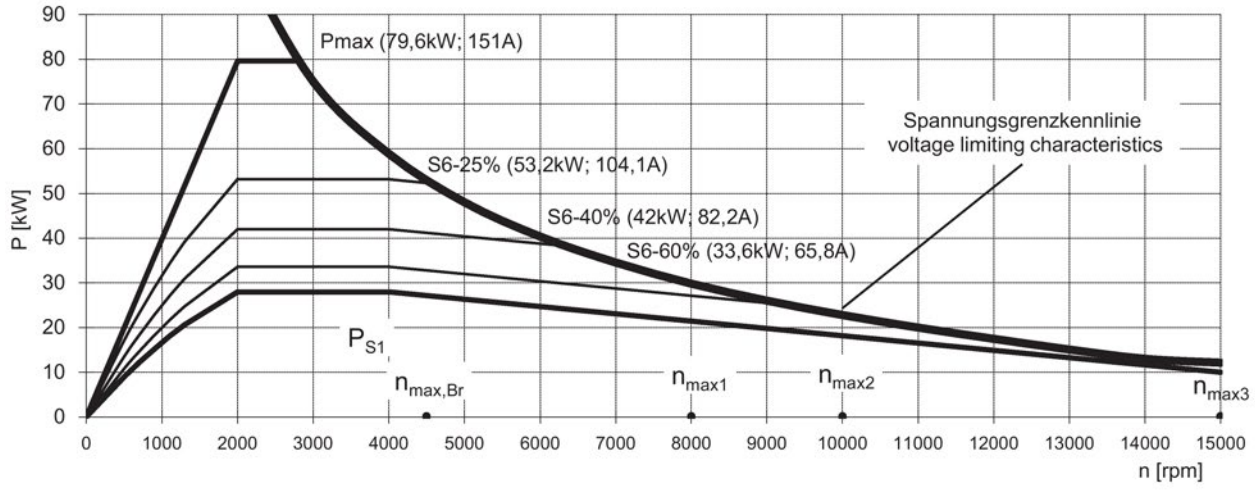


Table 6- 214 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F□□

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]
2,000	28	134	55	8,000	10,000	15,000	4,500	4,000	380	151	172	68



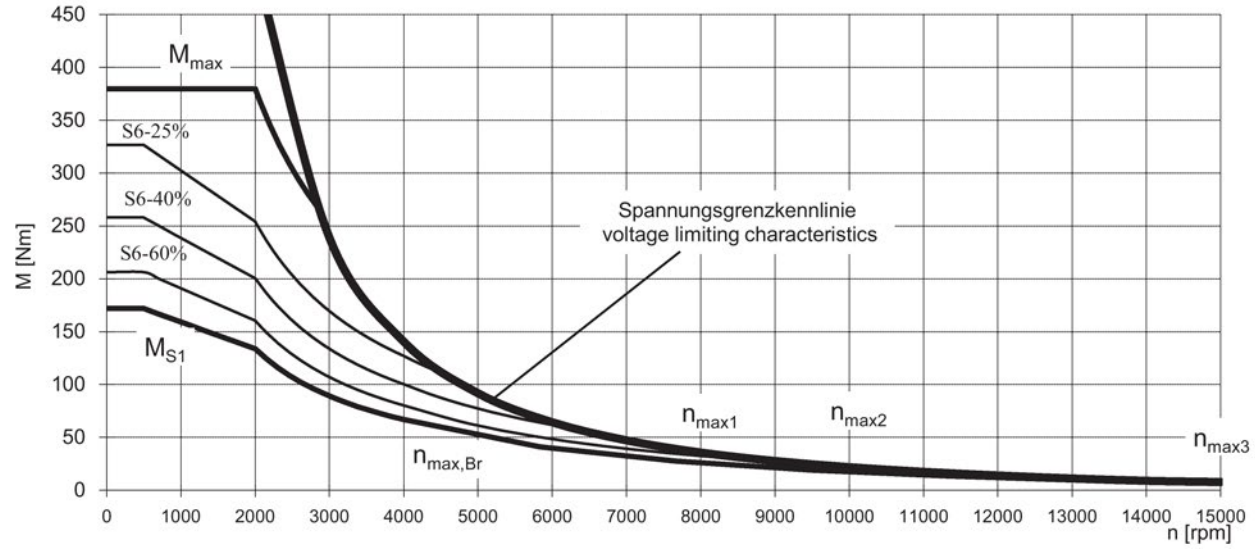
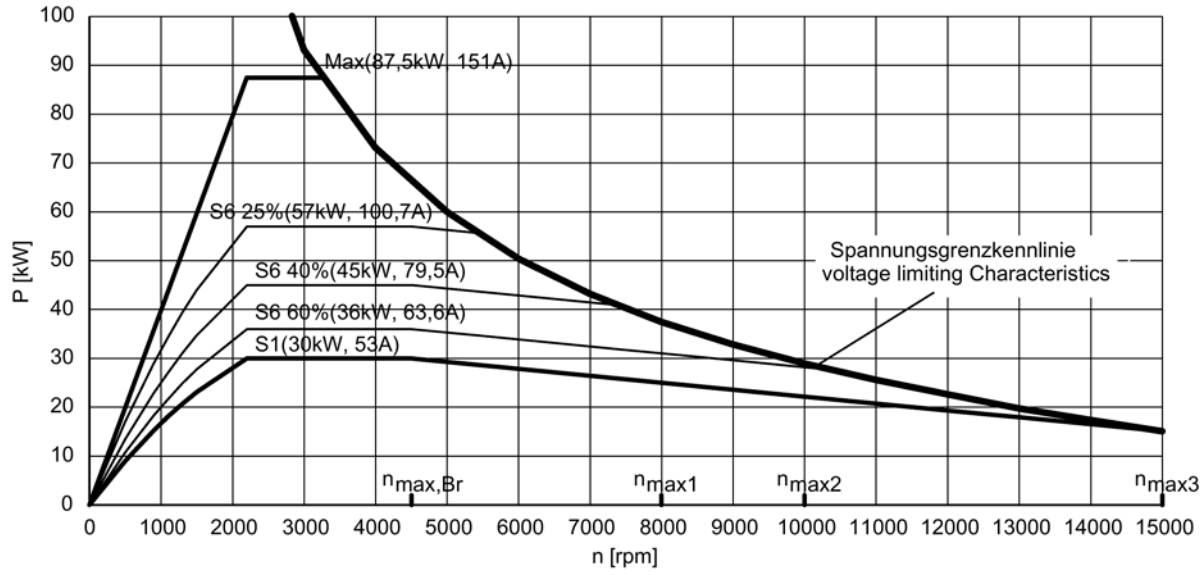


Table 6- 215 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	30	130	53	8,000	10,000	15,000	4,500	4,500	380	151	172	68



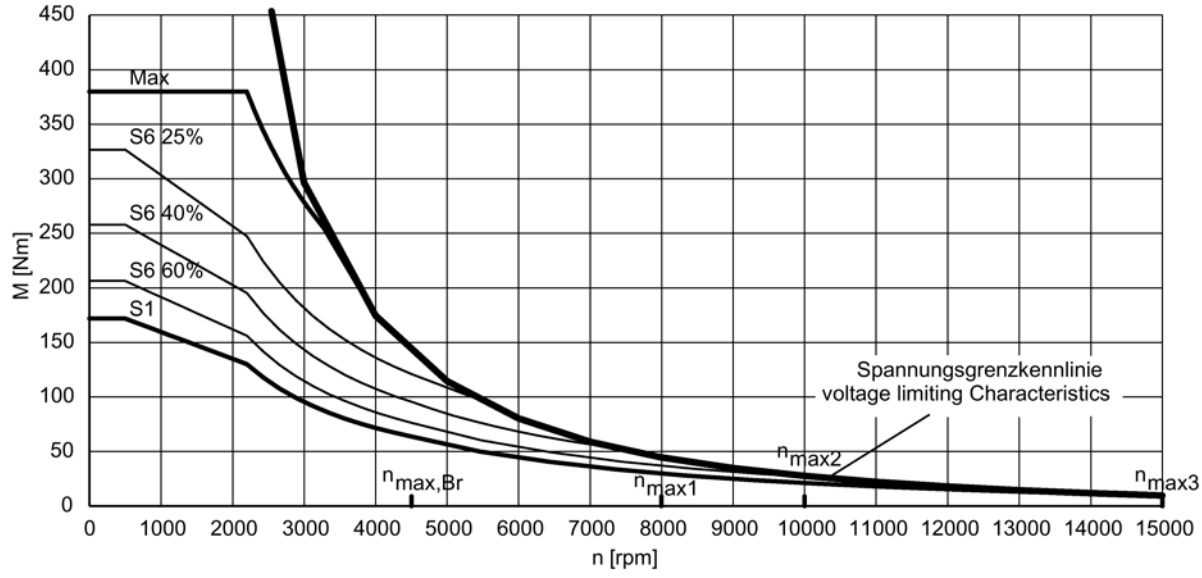
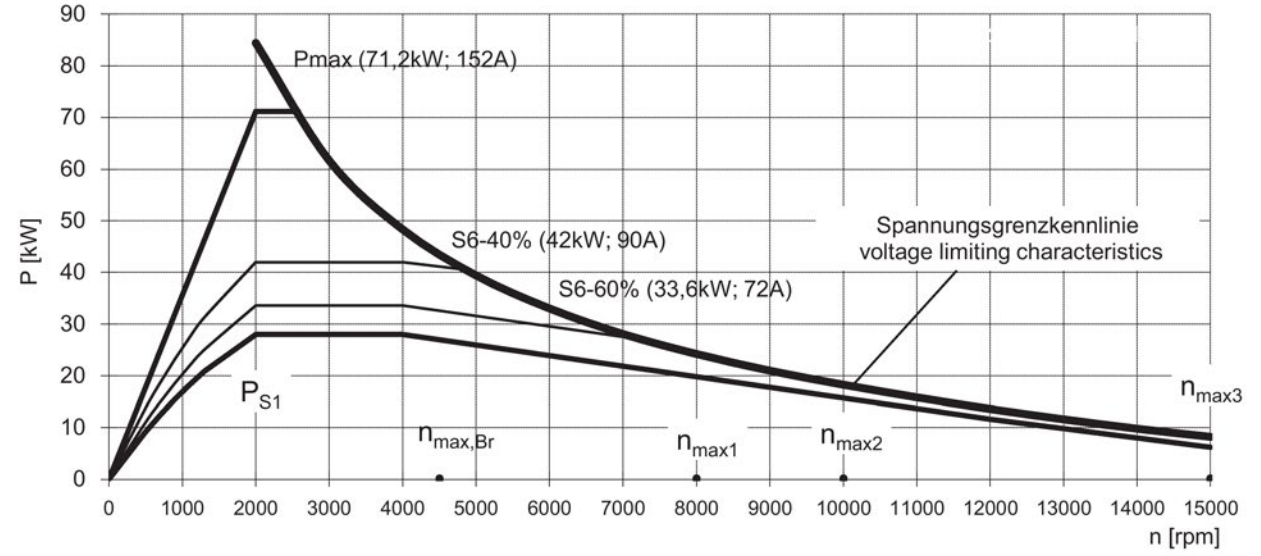


Table 6- 216 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□G□□

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]
2,000	28	134	60	8,000	10,000	15,000	4,500	4,000	340	152	176	73



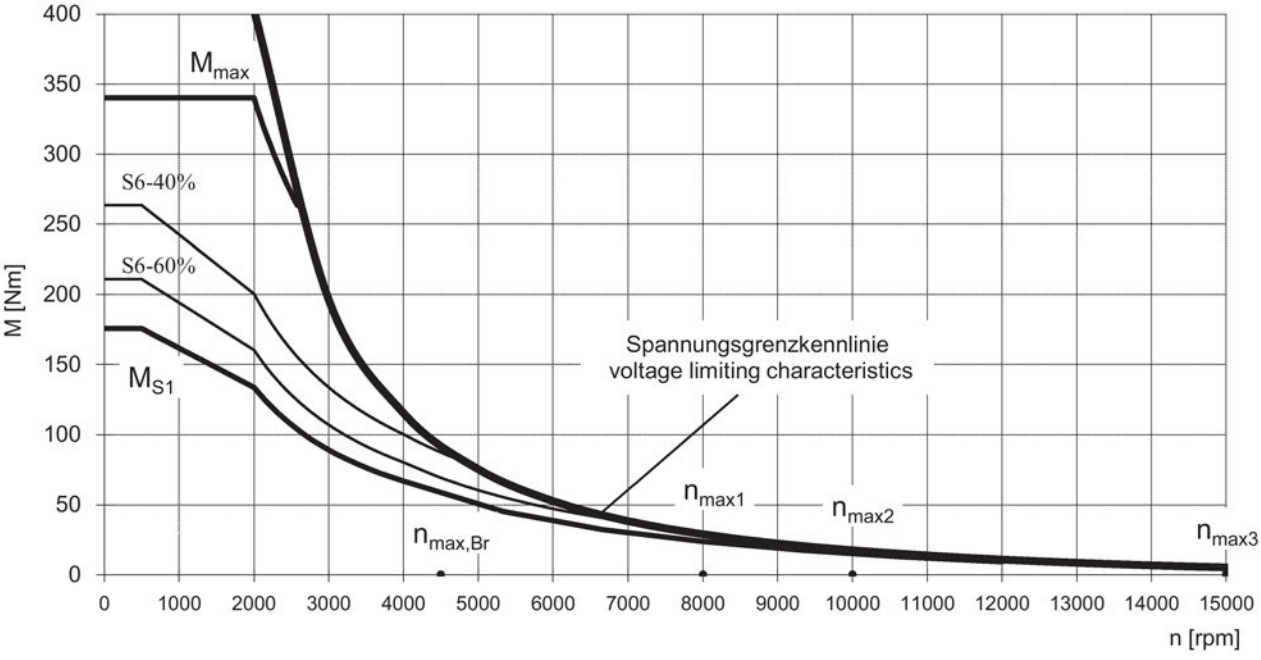


Table 6- 217 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□G□□

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]
2,300	29	120	56	8,000	10,000	15,000	4,500	5,000	340	152	176	73
2,000	28	134	60					5,500				

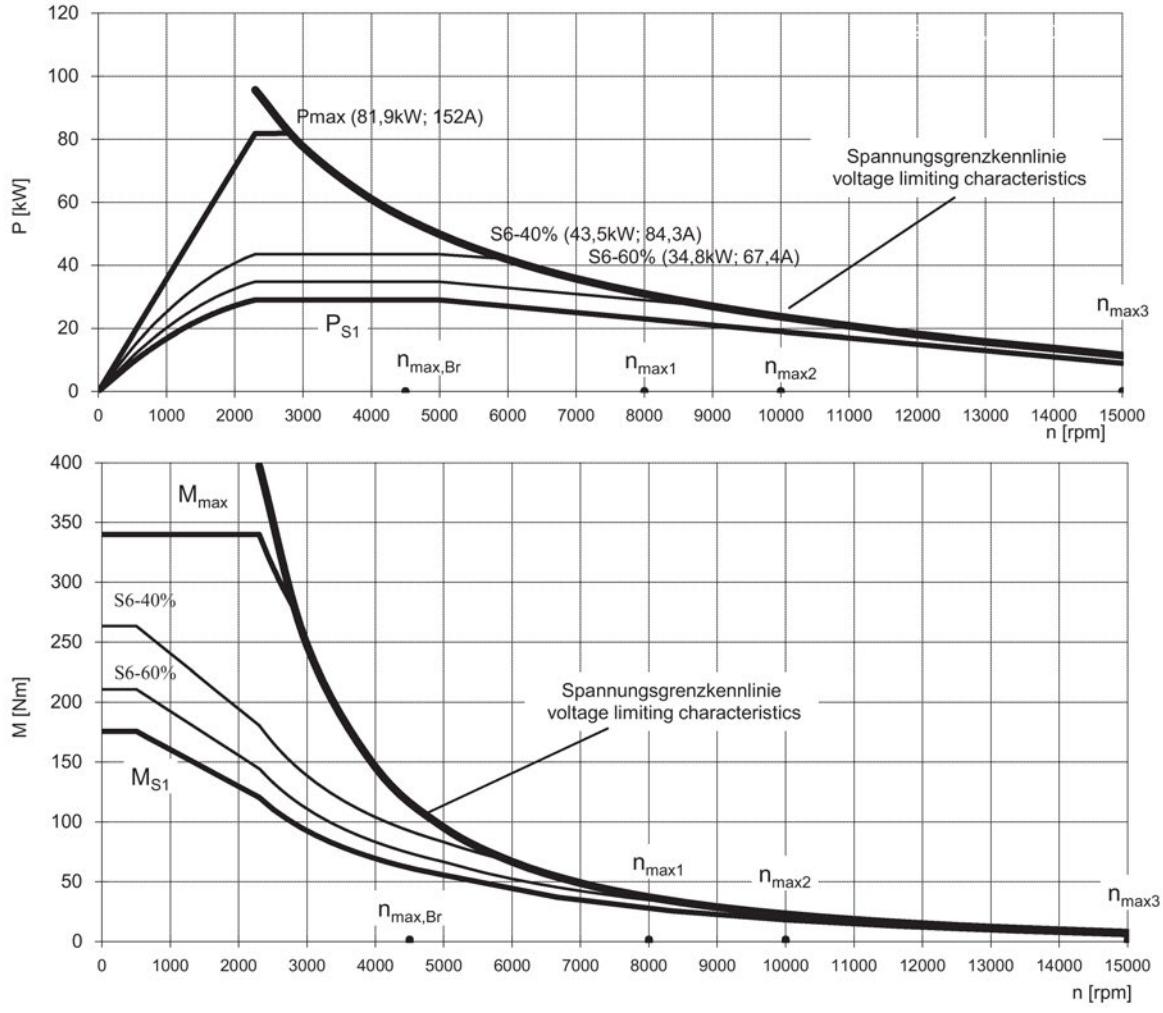
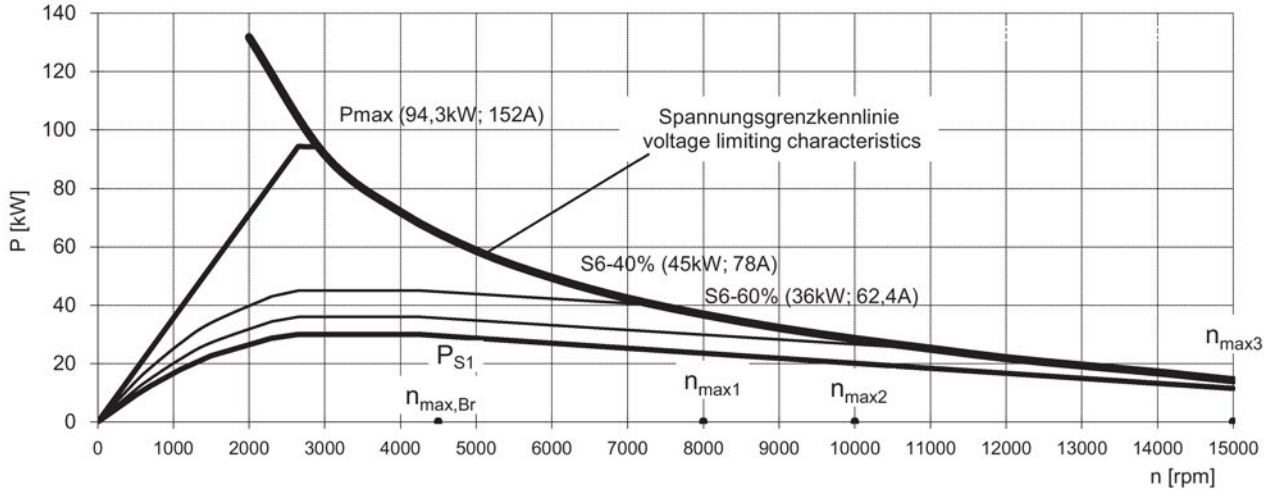


Table 6- 218 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□G□□

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]
2,650	30	108	52	8,000	10,000	15,000	4,500	4,250	340	152	176	73



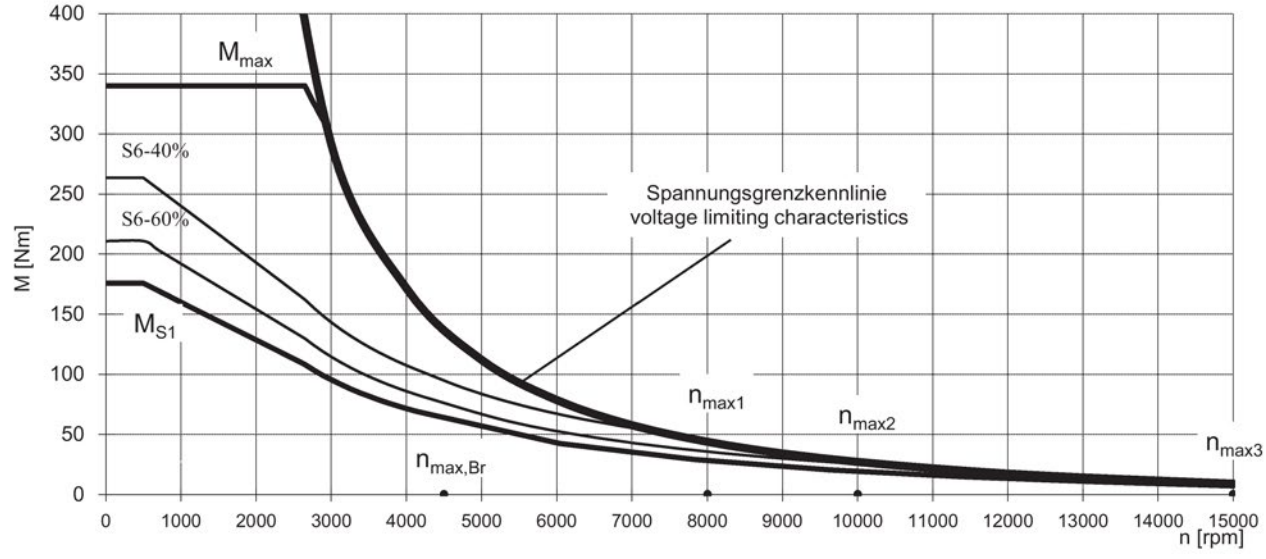
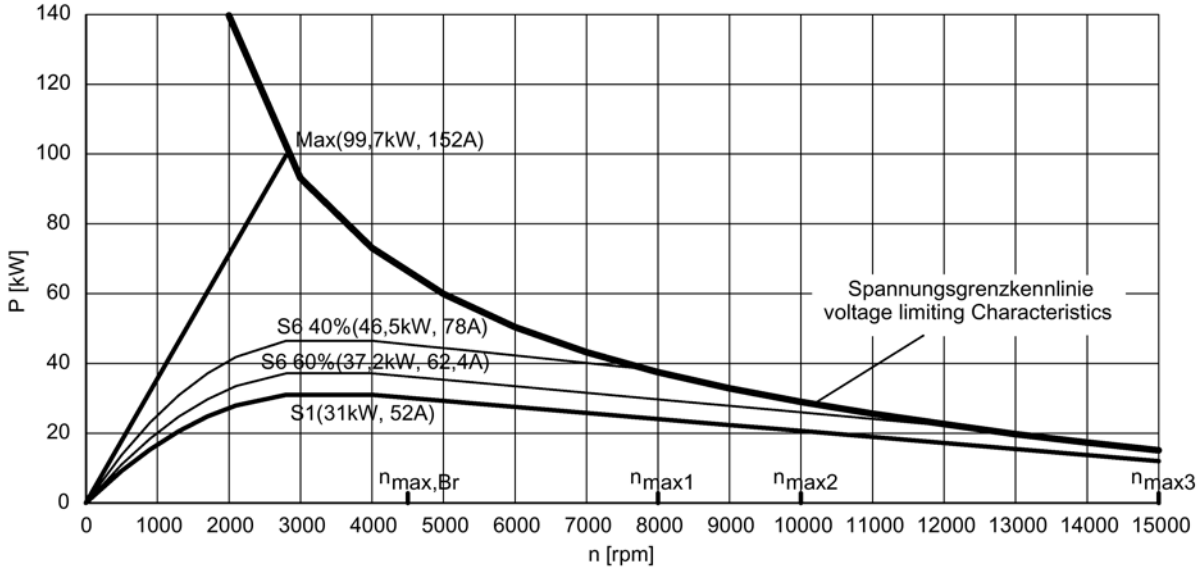


Table 6- 219 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	31	106	52	8,000	10,000	15,000	4,500	4,000	340	152	176	73



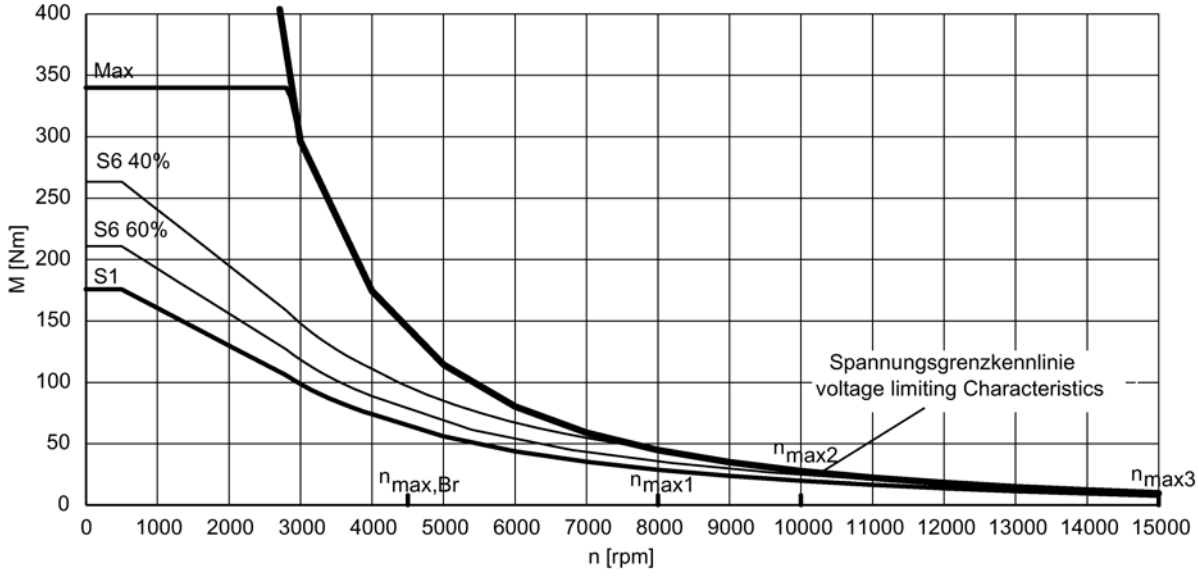
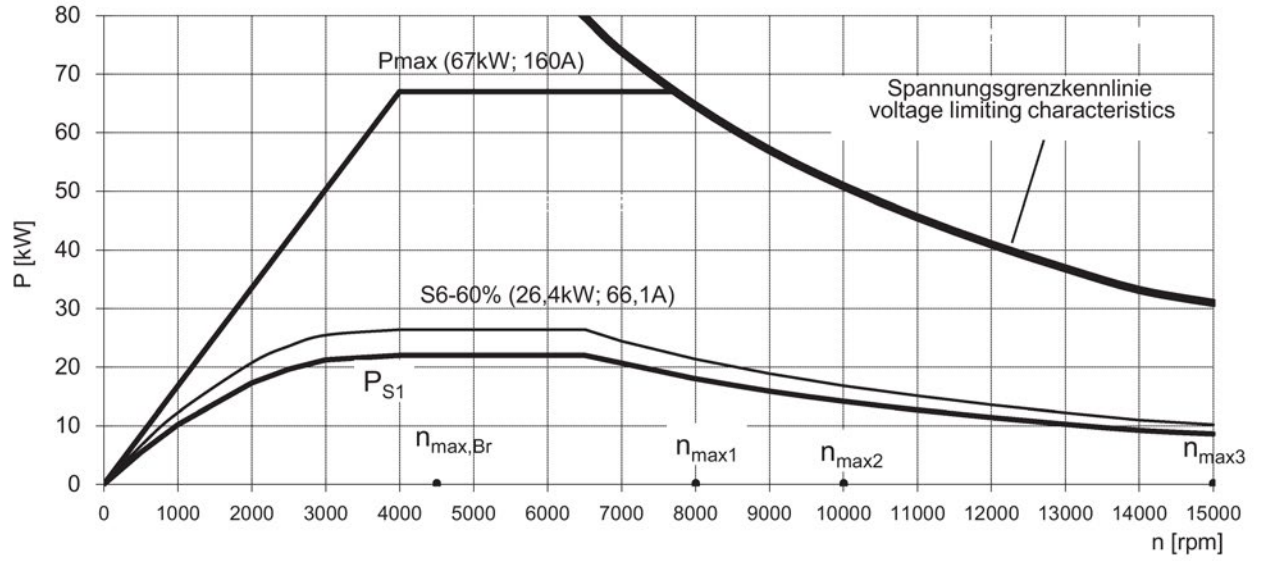


Table 6- 220 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Δ connection

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]
4,000	22	53	55	8,000	10,000	15,000	4,500	6,500	160	160	105	87



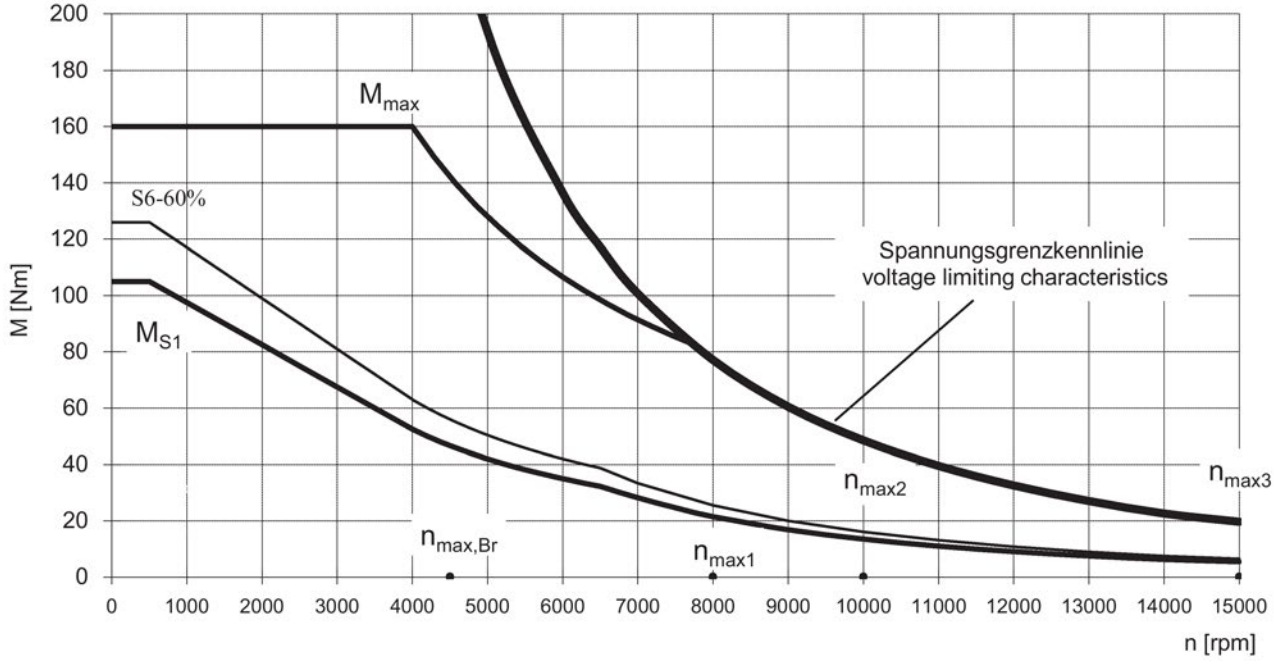
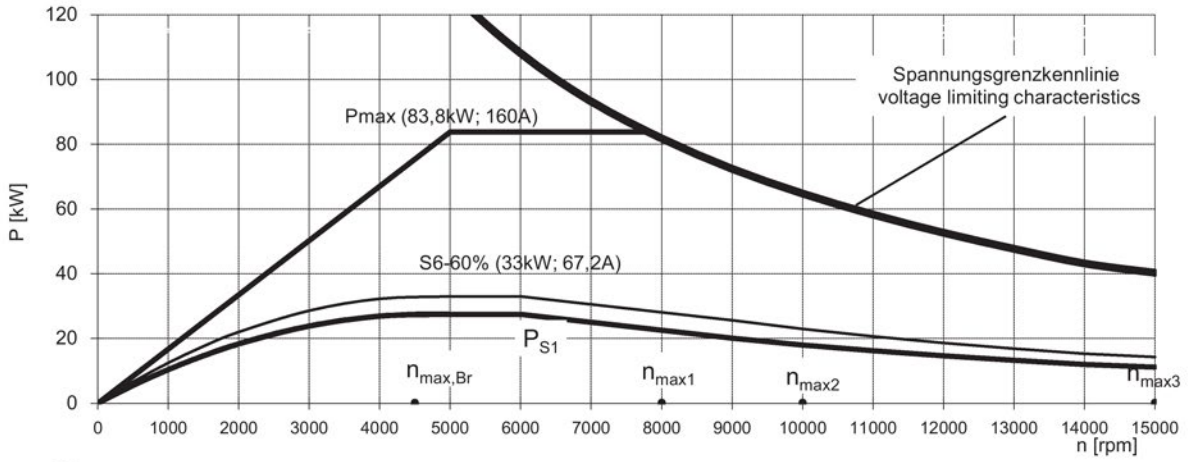


Table 6- 221 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Δ connection

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]
5,000	27.5	53	56	8,000	10,000	15,000	4,500	6,000	160	160	105	87
4,000	22	53	55					8,000				



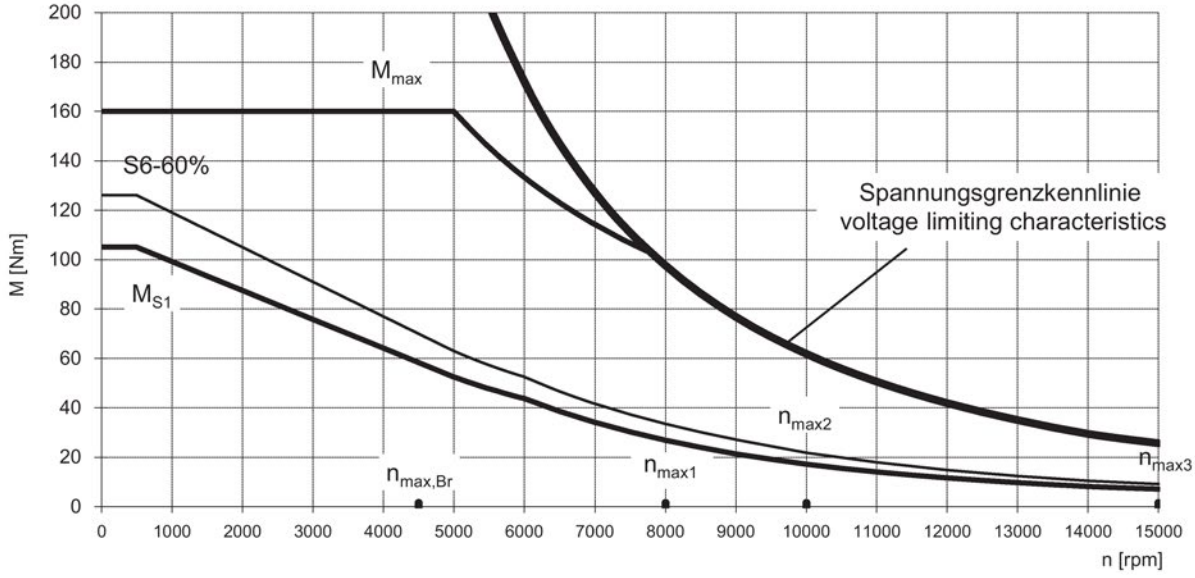
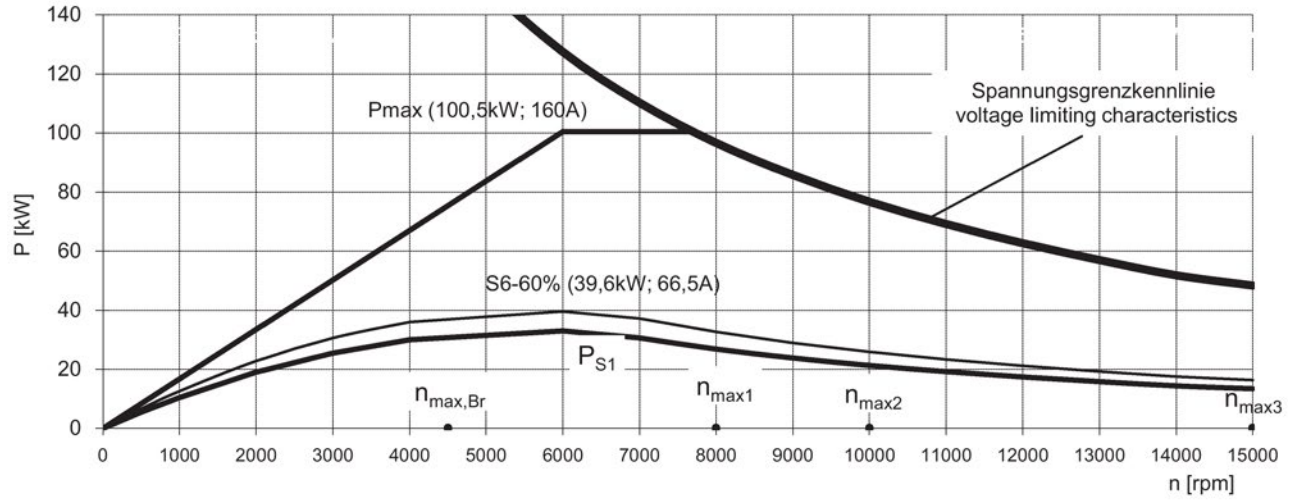


Table 6- 222 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Δ connection

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]
6,000	33	53	55	8,000	10,000	15,000	4,500	6,000	160	160	105	87



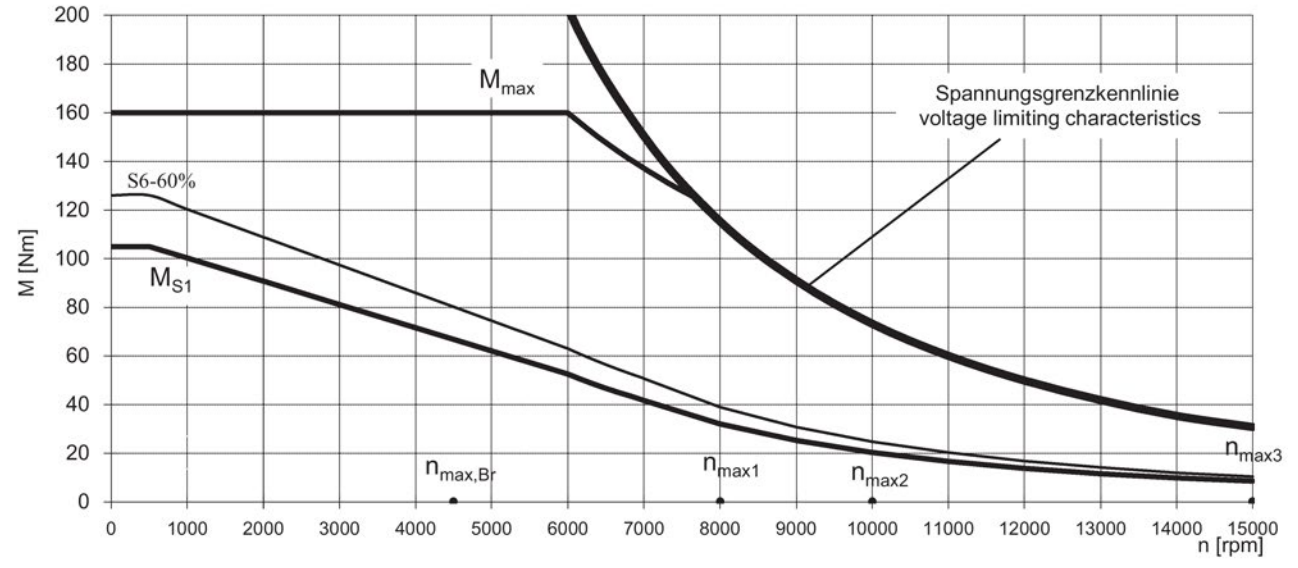
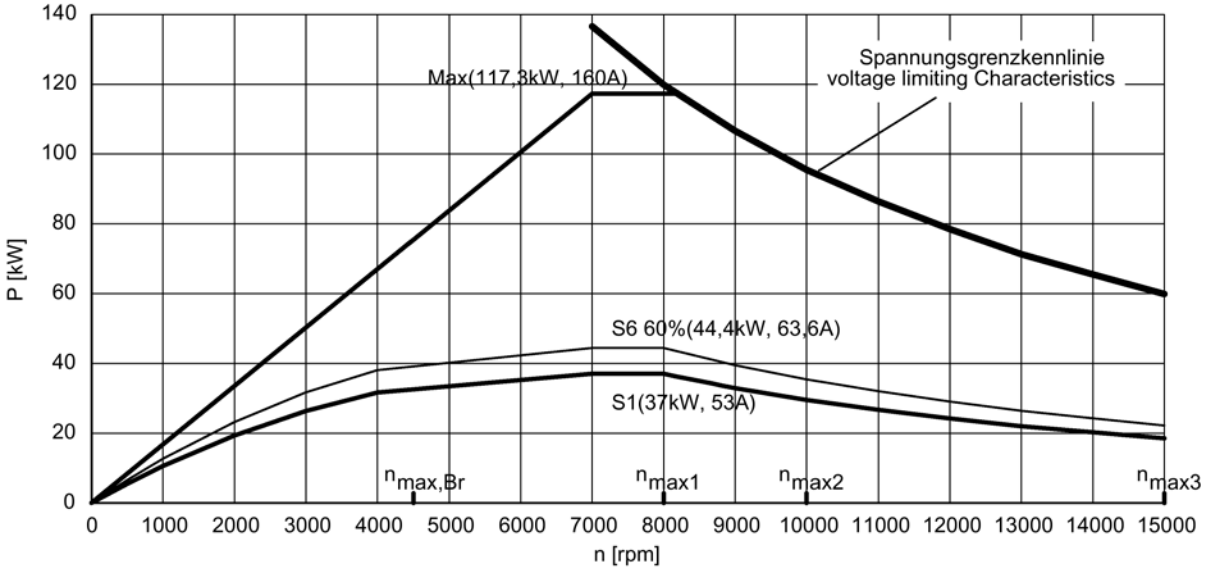


Table 6- 223 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Δ connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
7,000	37	50	53	8,000	10,000	15,000	4,500	8,000	160	160	105	87



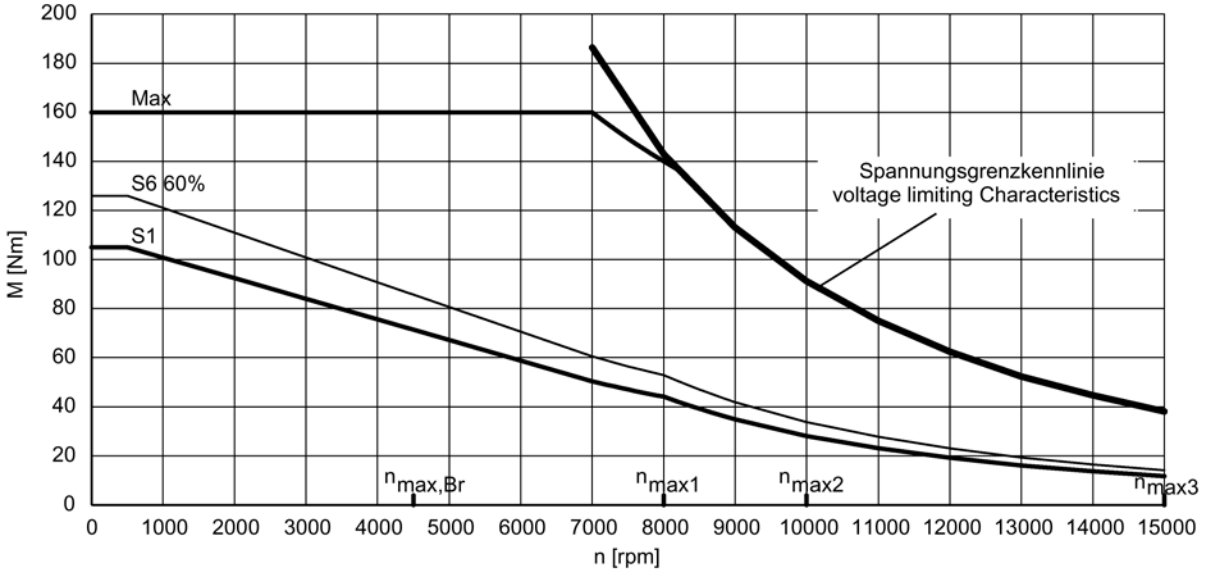
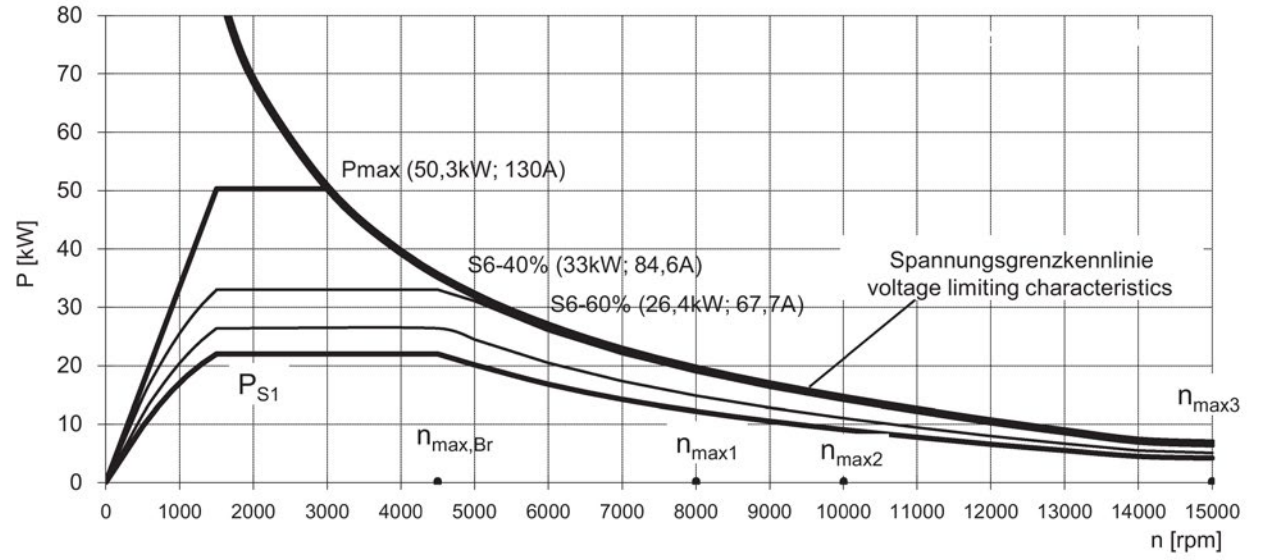


Table 6- 224 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Y connection

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]
1,500	22	140	56	8,000	10,000	15,000	4,500	4,500	320	130	185	68



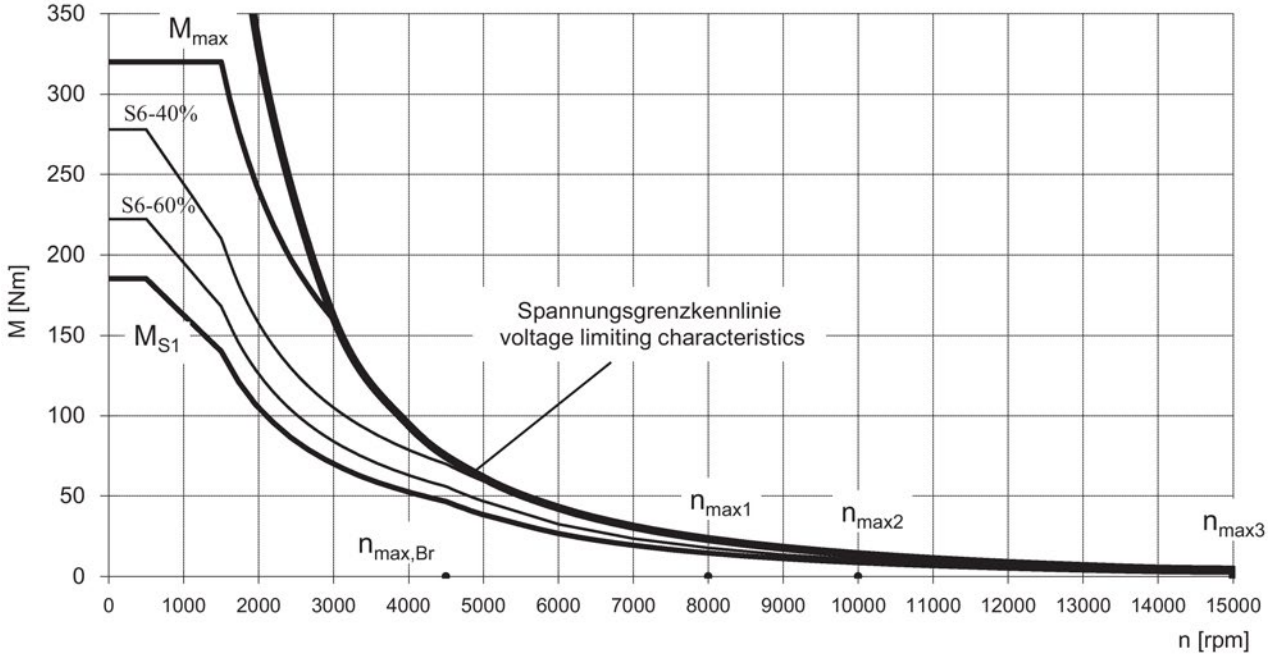
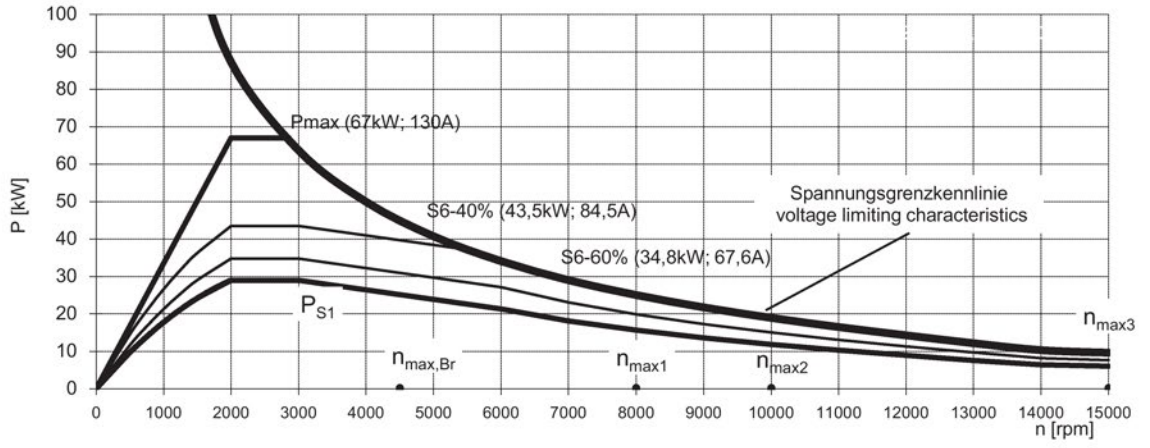


Table 6- 225 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Y connection

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]
2,000	29	138	56	8,000	10,000	15,000	4,500	3,000	320	130	185	68
1,500	22	140	56					5,700				



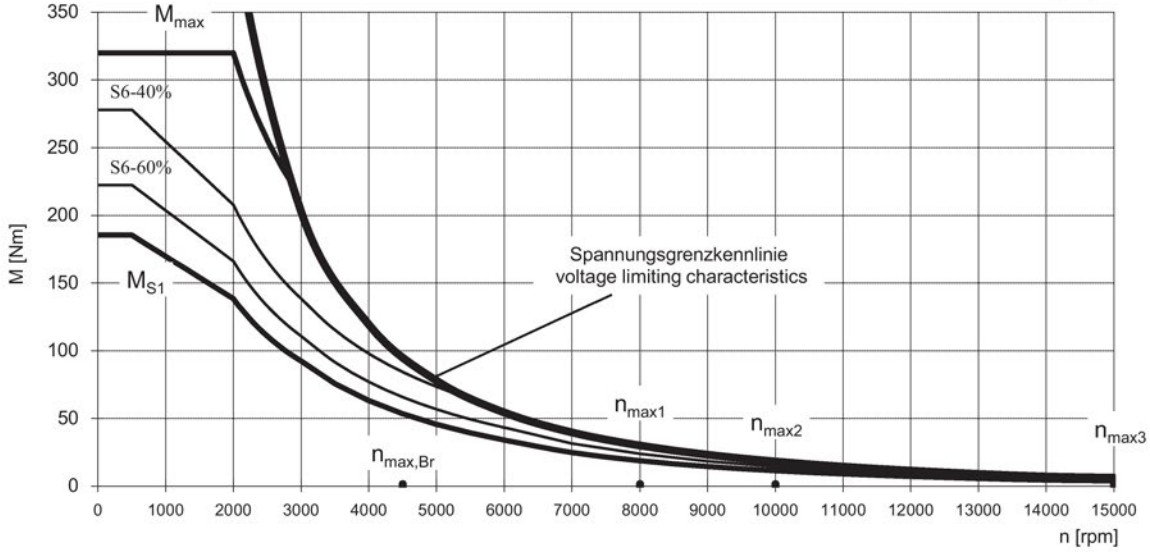
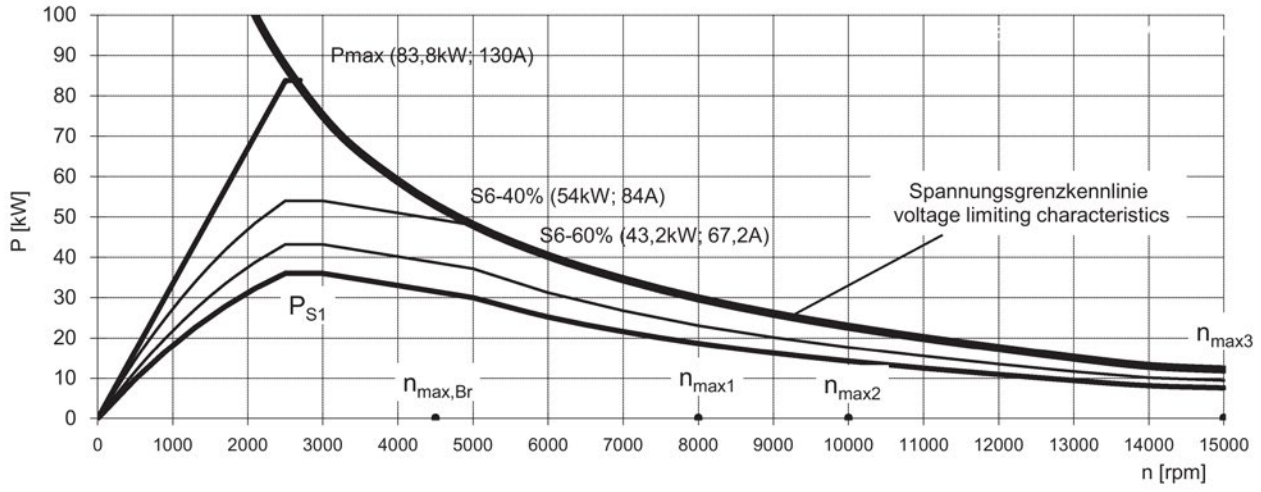


Table 6- 226 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□S□□, Y connection

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]
2,500	36	138	50	8,000	10,000	15,000	4,500	3,000	320	130	185	68



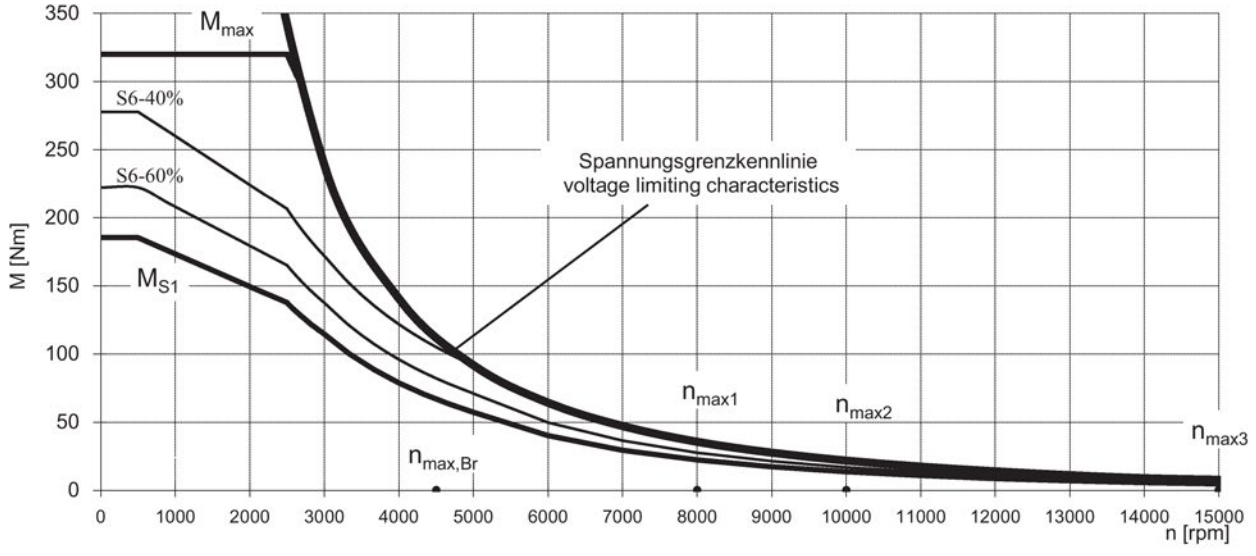
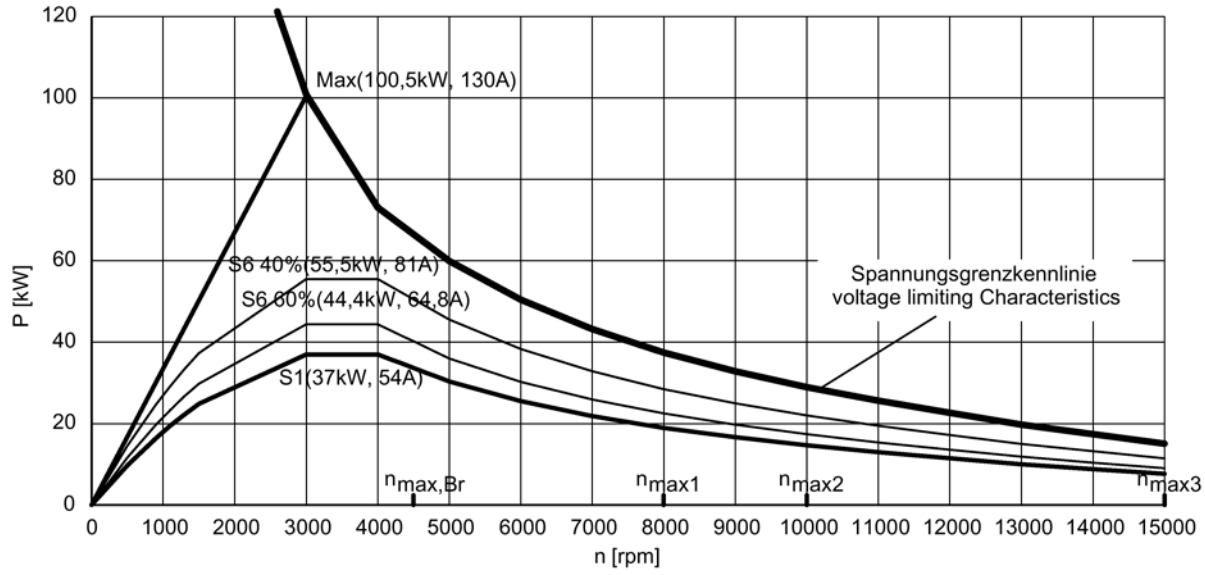
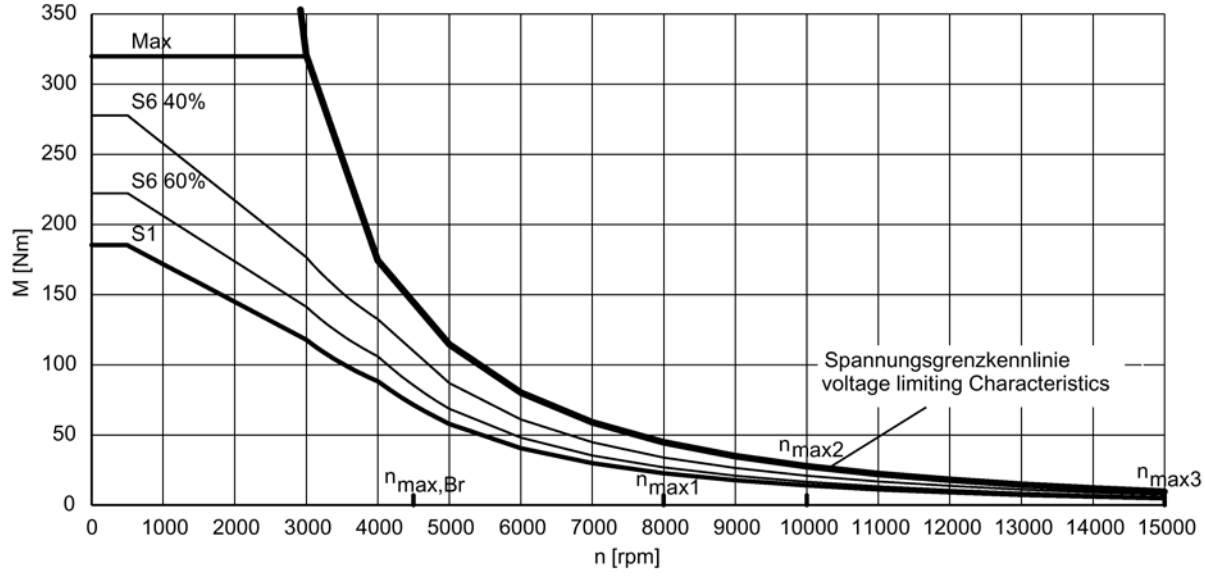


Table 6- 227 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8137-□□S□□, Y connection

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,000	37	118	54	8,000	10,000	15,000	4,500	4,000	320	130	185	68





6.1.2.5 Shaft height 160 - forced ventilation

Table 6- 228 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	6,500	-	-	4,000	2,150	570	70	253	32

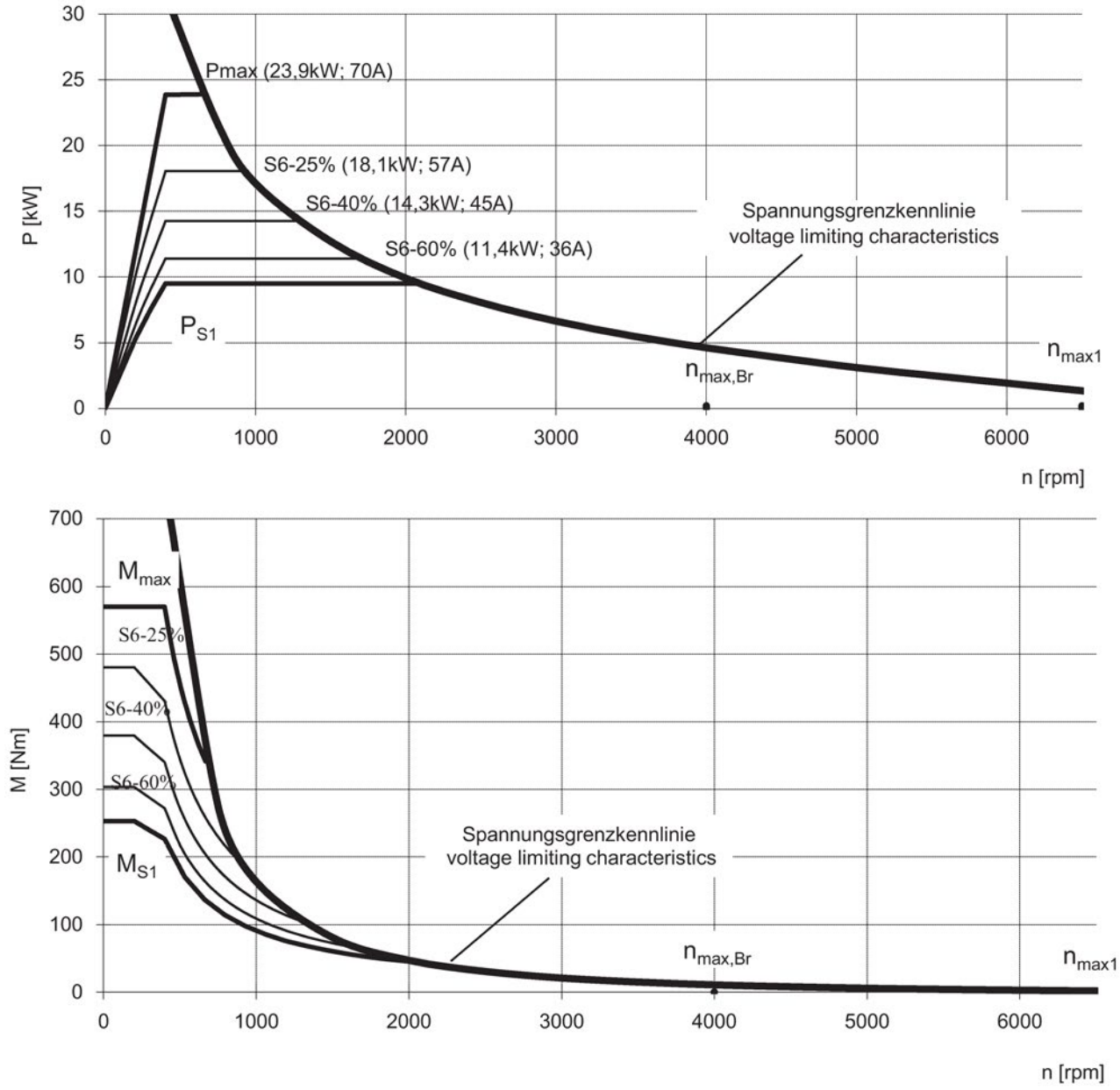
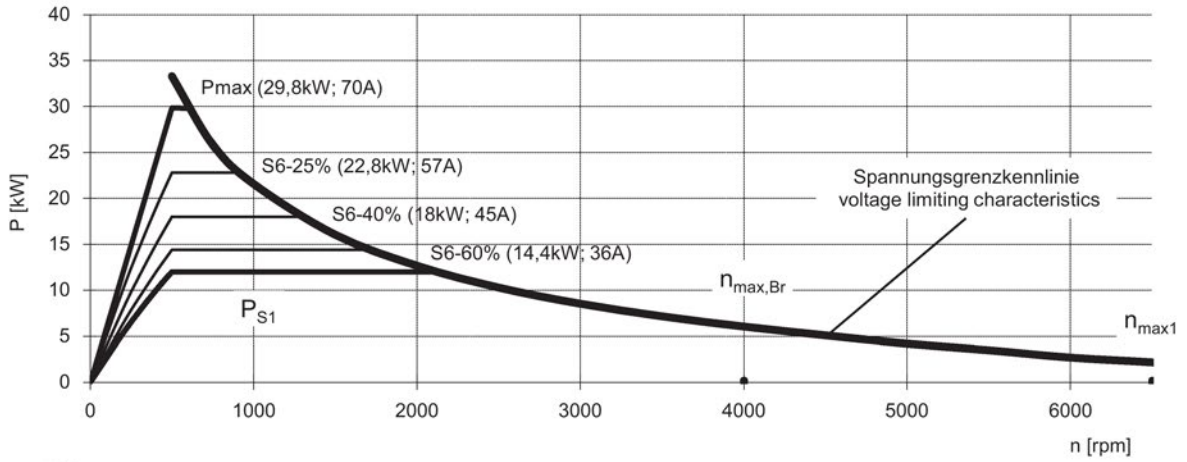


Table 6- 229 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□B□□,

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	12	229	30	6,500	-	-	4,000	2,200	570	70	253	32
400	9.5	227	30					2,750				



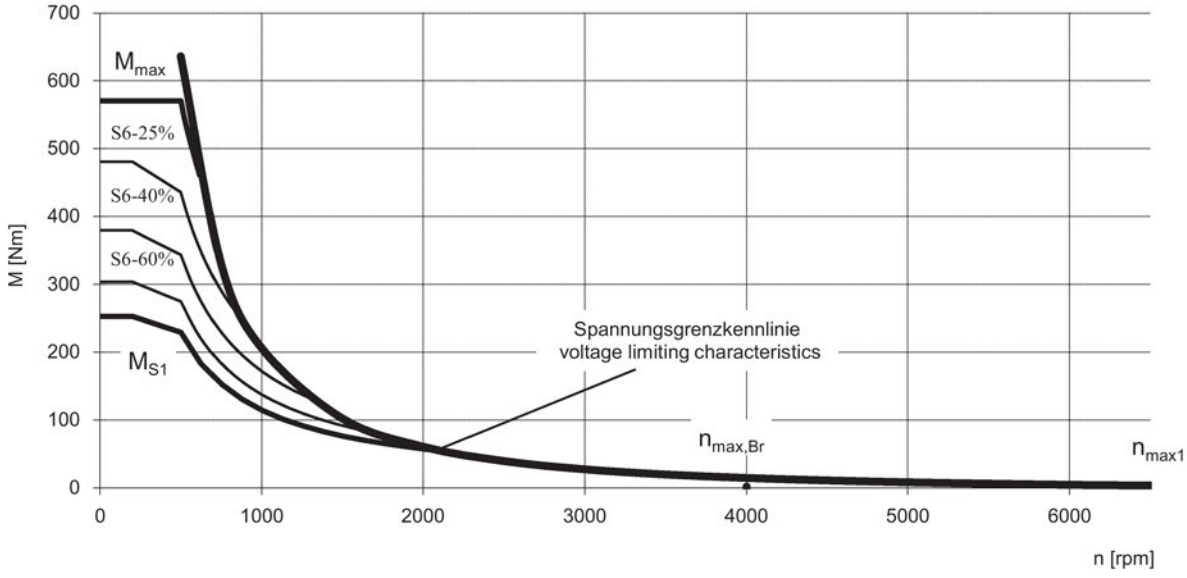
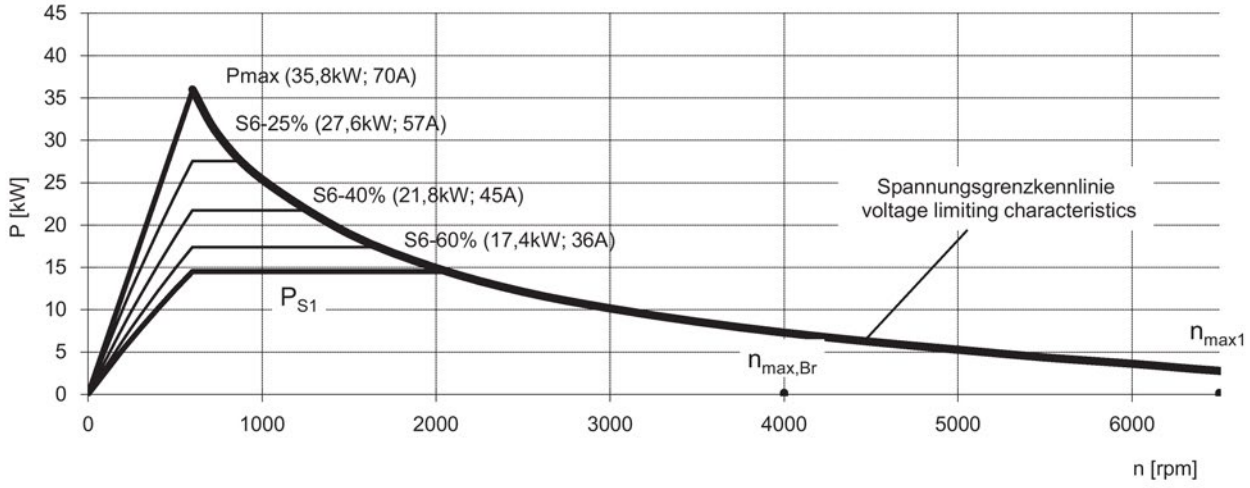


Table 6- 230 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□B□□

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	6,500	-	-	4,000	2,150	570	70	253	32



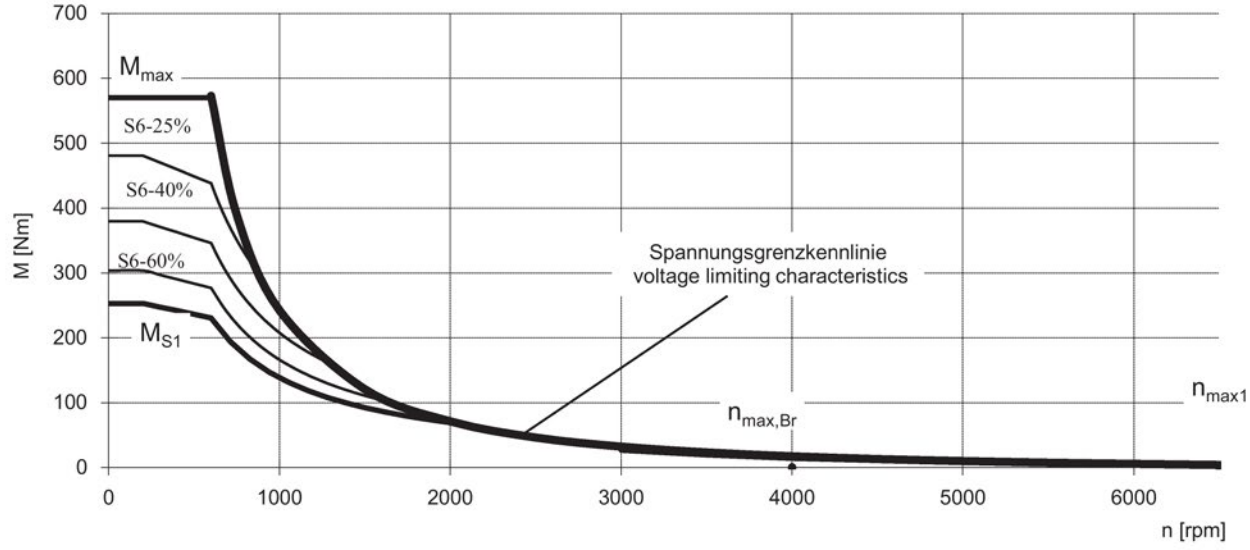
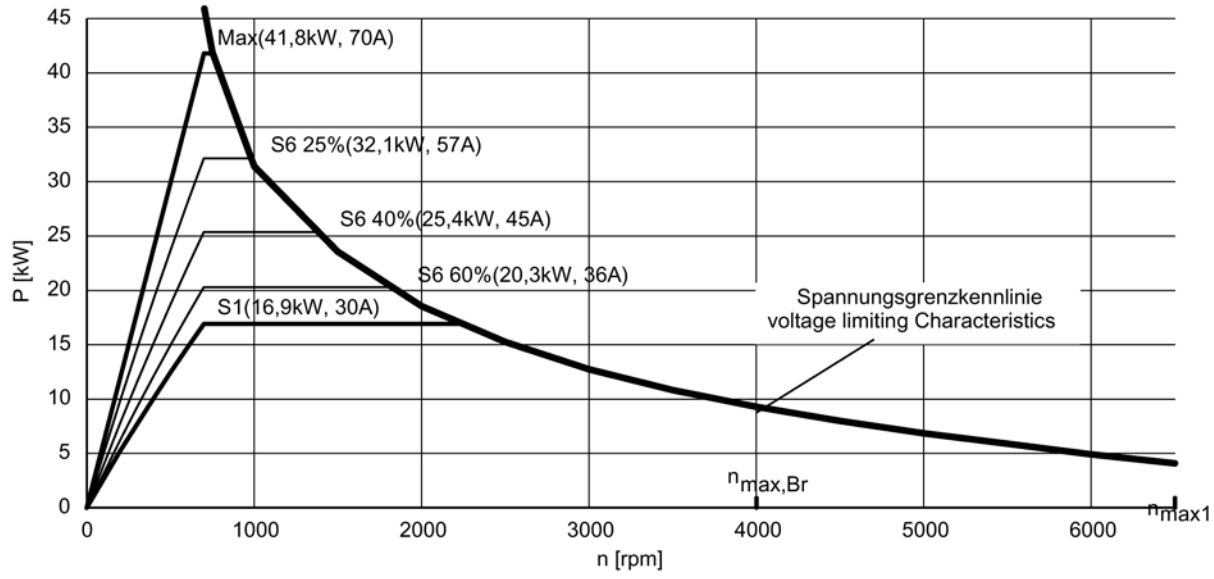


Table 6- 231 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	16.9	231	30	6,500	--	--	4,000	2,250	570	70	253	32



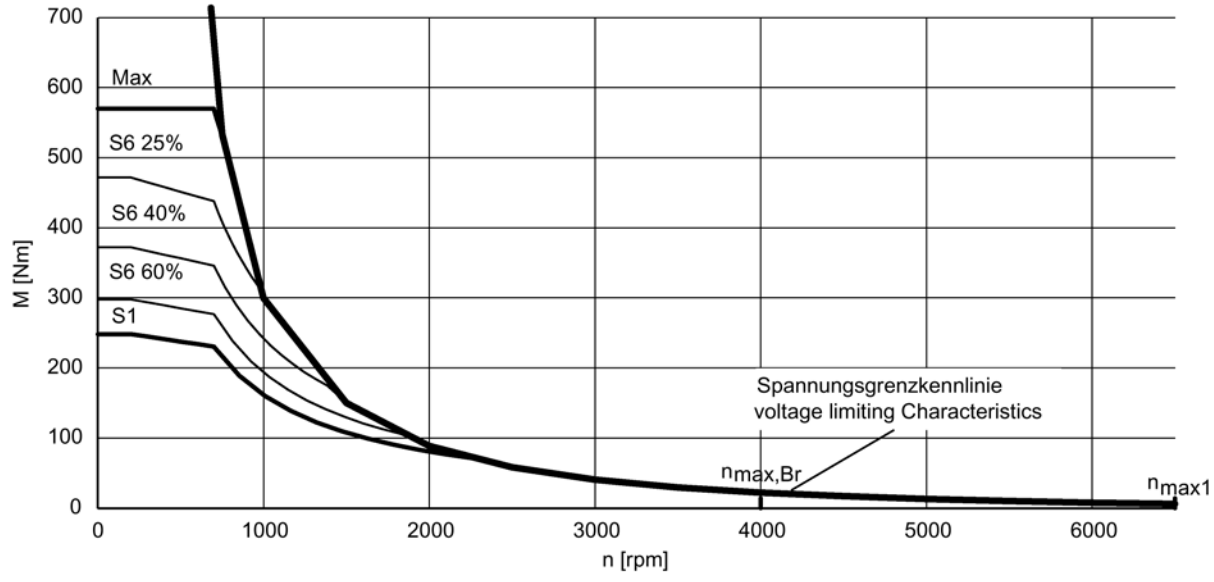
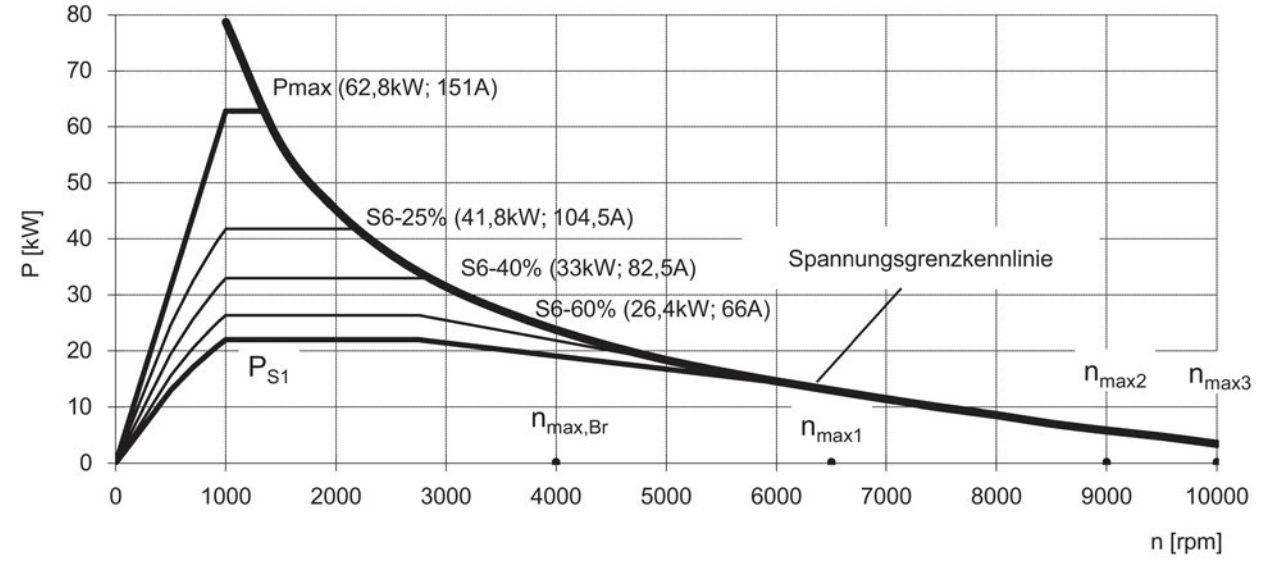


Table 6- 232 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□D□□

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]
1,000	22	210	55	6,500	9,000	10,000	4,000	2,800	600	151	248	61



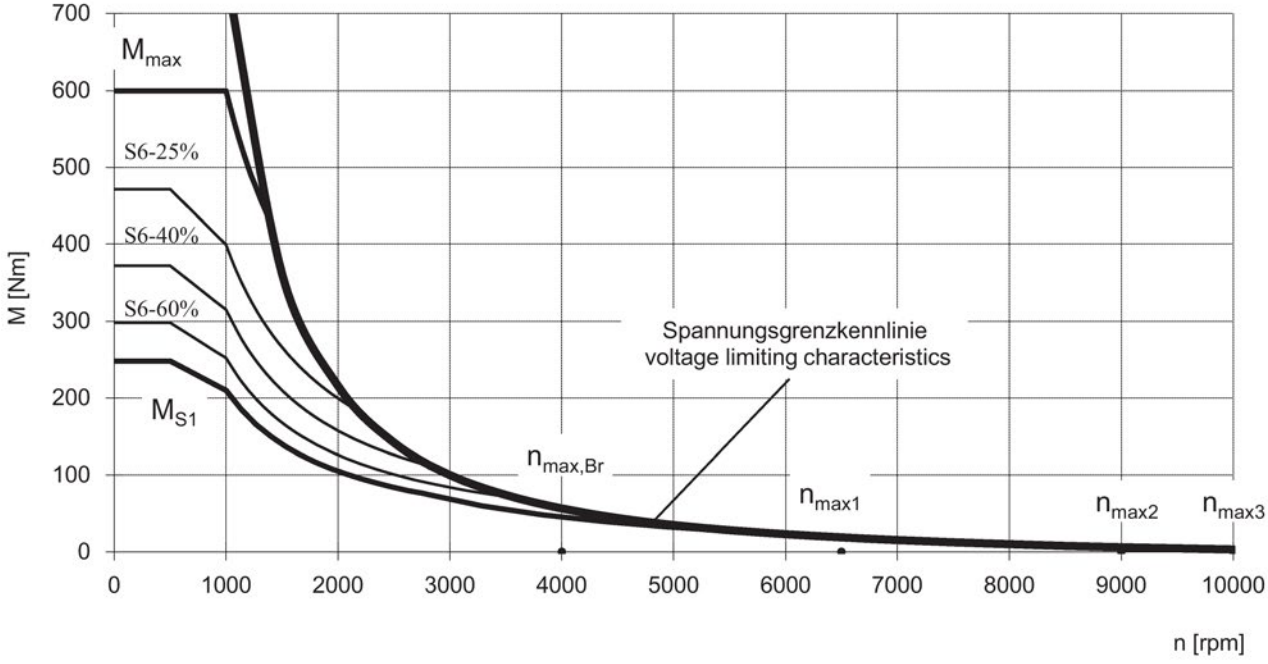


Table 6- 233 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□D□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,150	25	208	55	6,500	9,000	10,000	4,000	3,550	600	151	248	61
1,000	22	210	55					4,550				

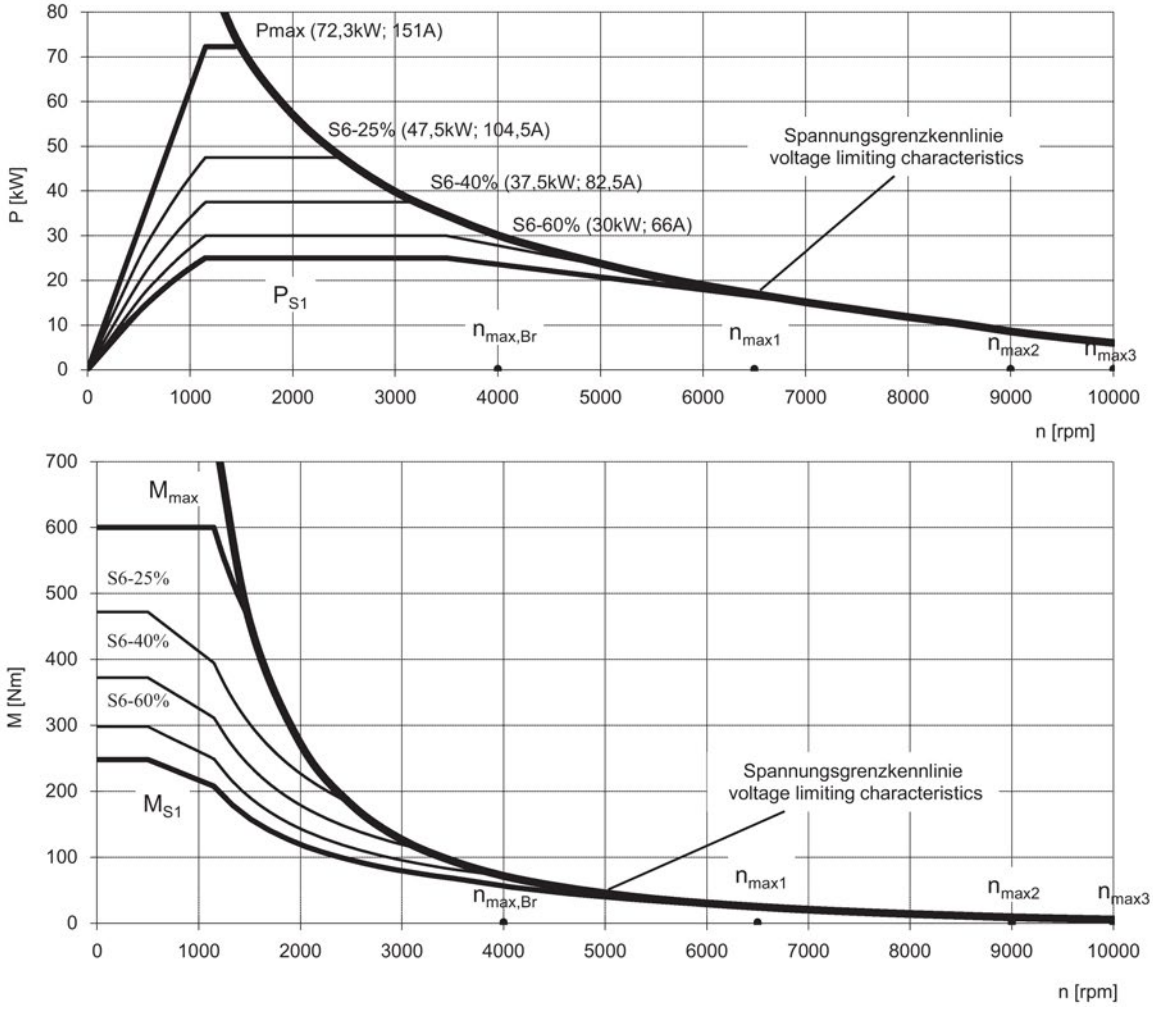
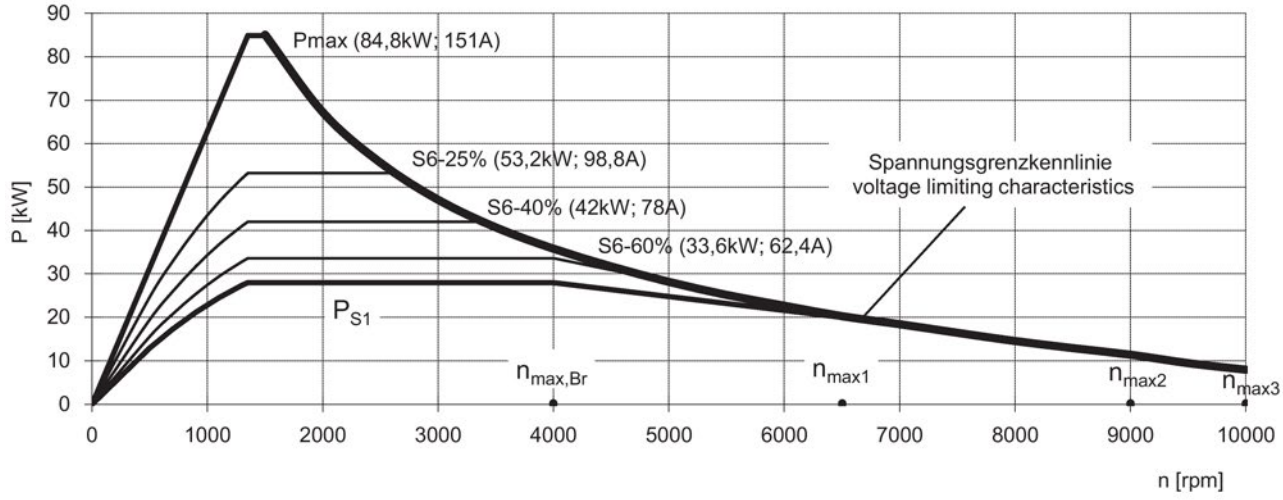


Table 6- 234 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□D□□

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]
1,350	28	198	52	6,500	9,000	10,000	4,000	4,000	600	151	248	61



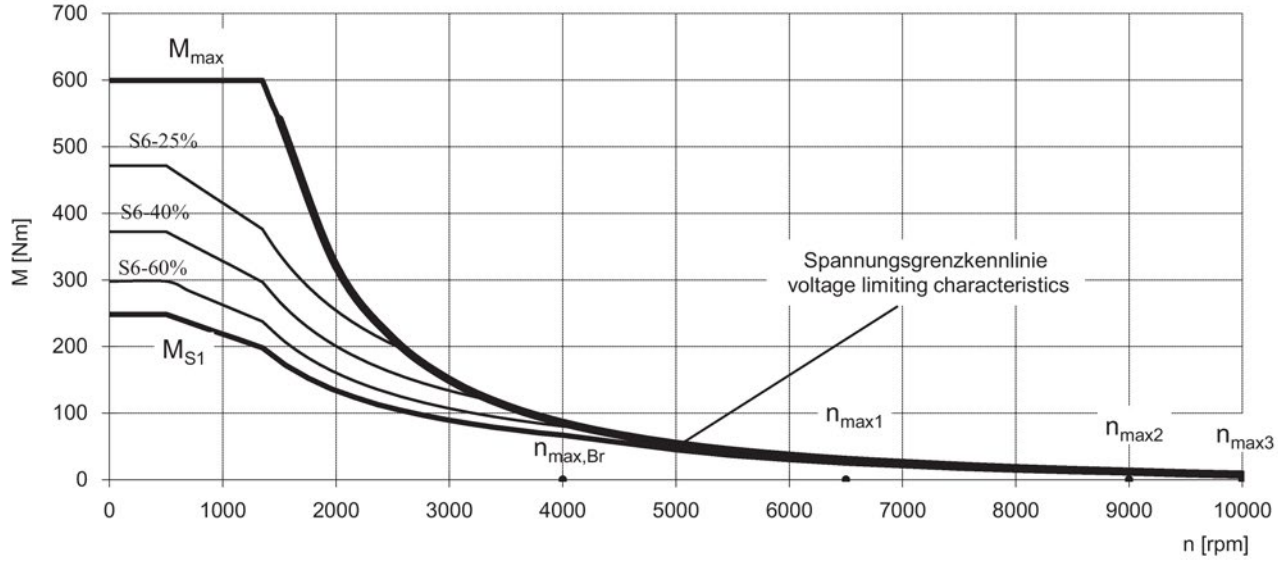
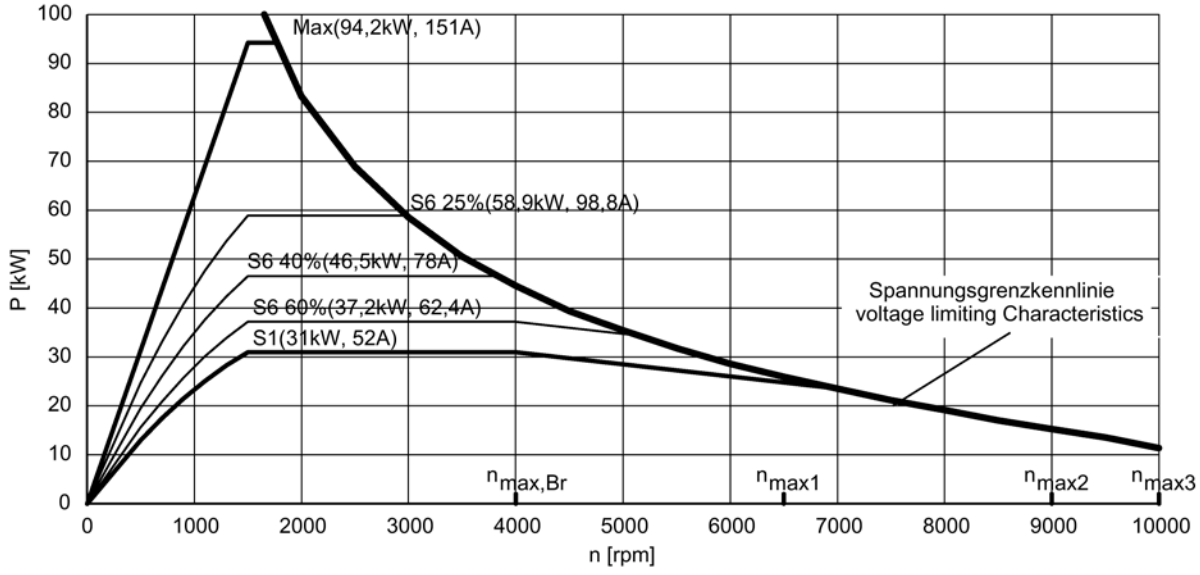


Table 6- 235 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	31	197	52	6,500	9,000	10,000	4,000	4,000	600	151	248	61



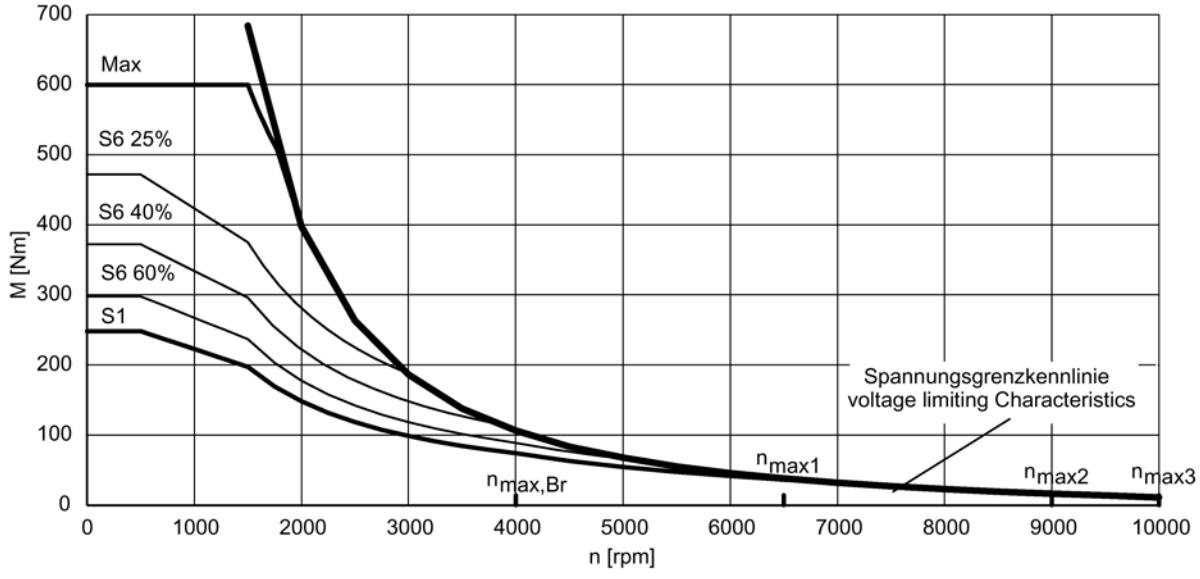
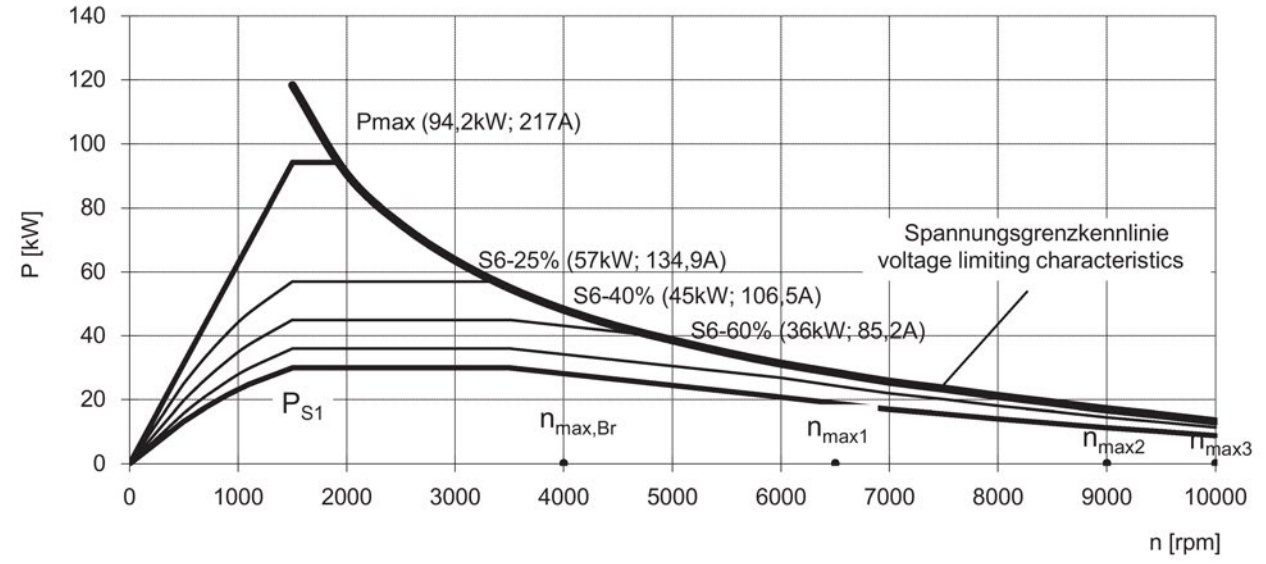


Table 6- 236 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□F□□

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]
1,500	30	191	71	6,500	9,000	10,000	4,000	3,500	600	217	252	87



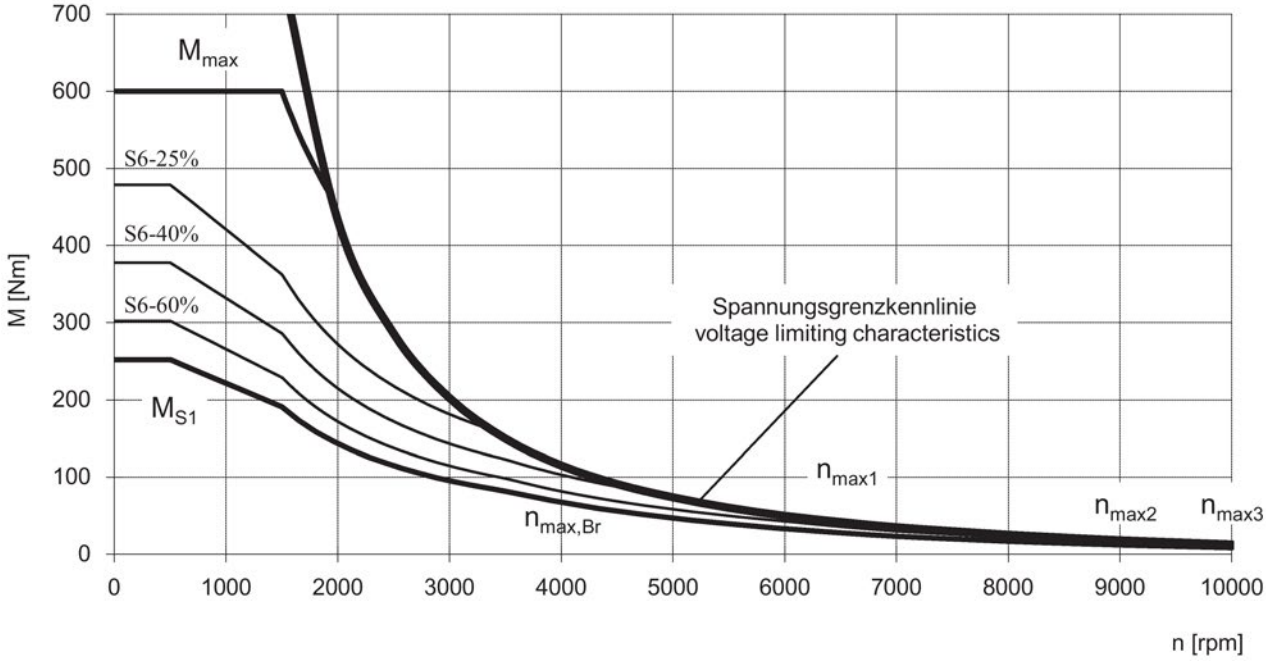
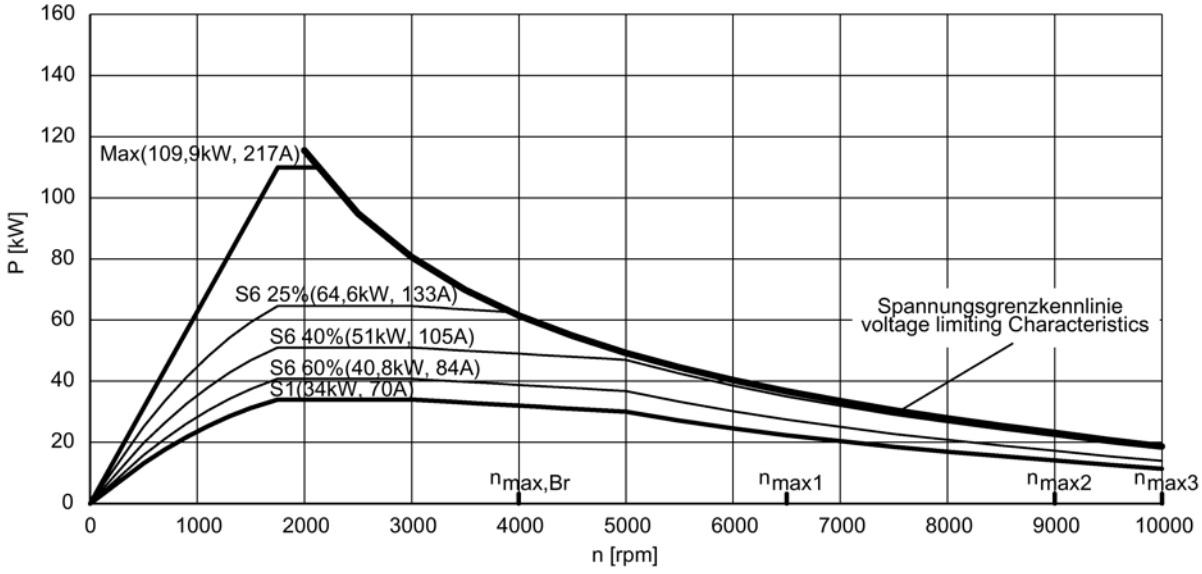


Table 6- 237 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□F□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,750	34	186	70	6,500	9,000	10,000	4,000	3,050	600	217	252	87
1,500	30	191	71					5,000				



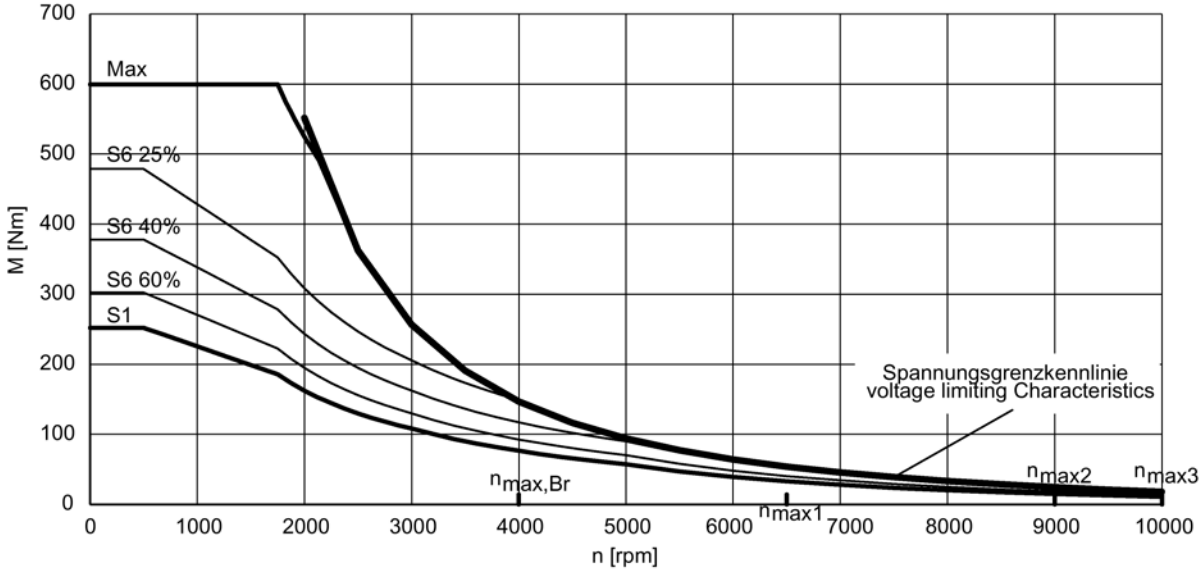
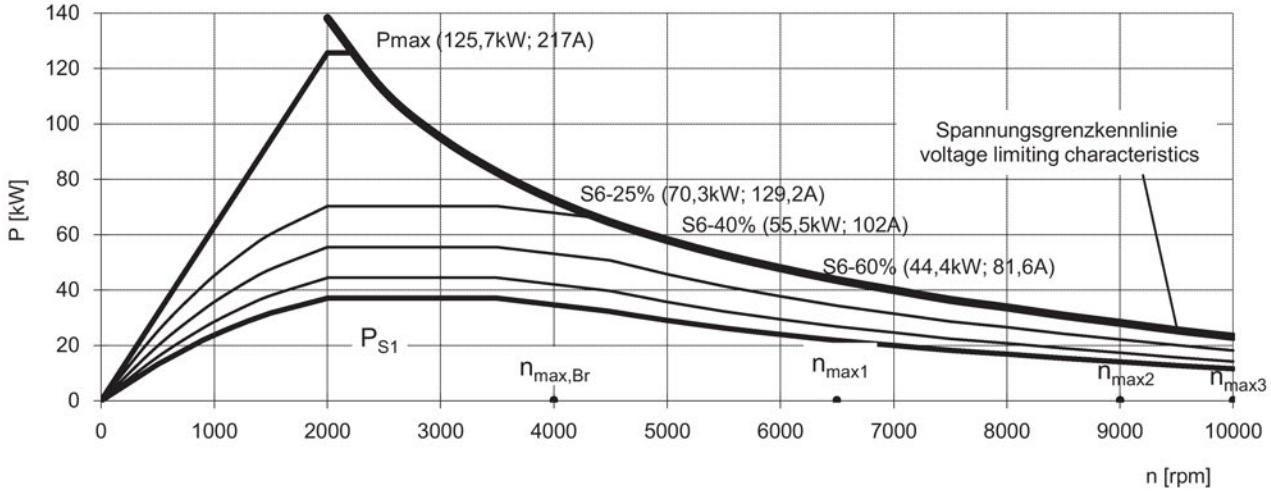


Table 6- 238 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□F□□

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]
2,000	37	177	68	6,500	9,000	10,000	4,000	3,550	600	217	252	87



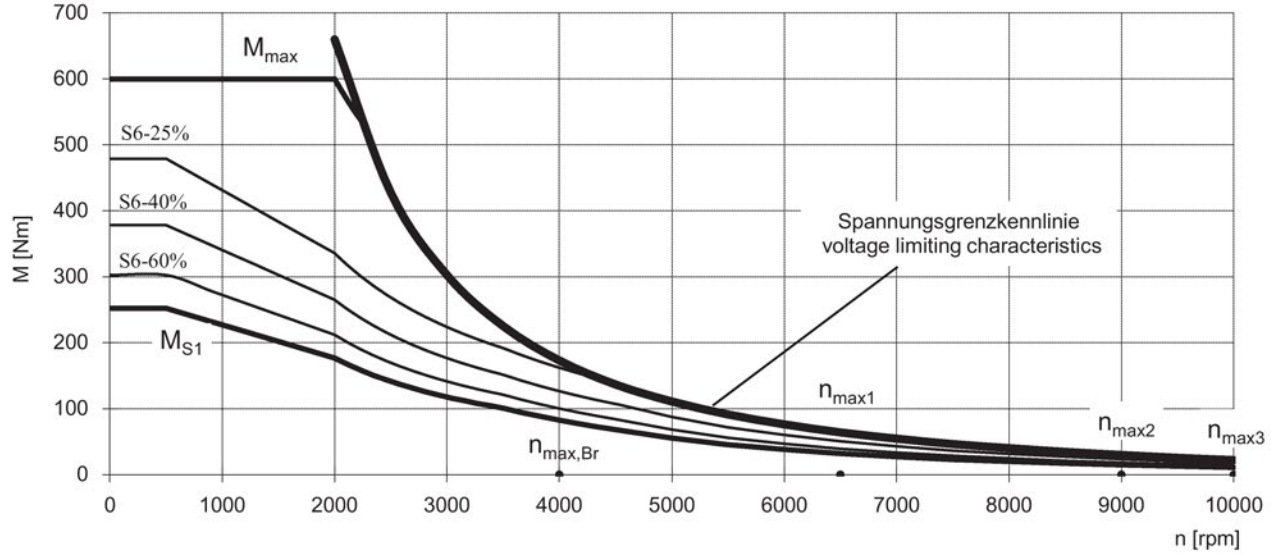
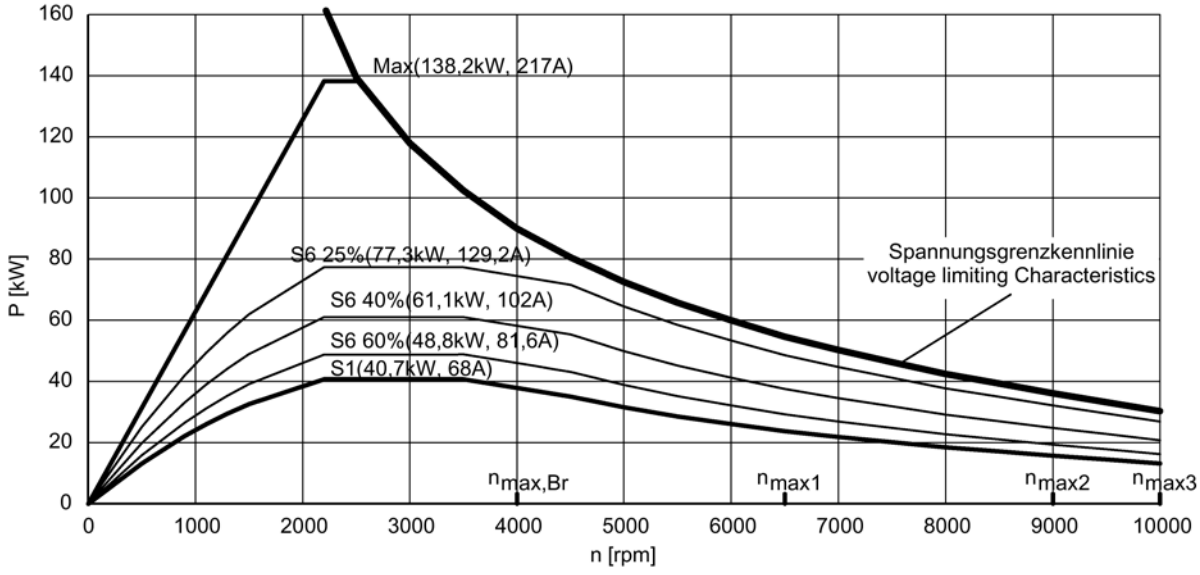


Table 6- 239 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	40.7	177	68	6,500	9,000	10,000	4,000	3,500	600	217	252	87



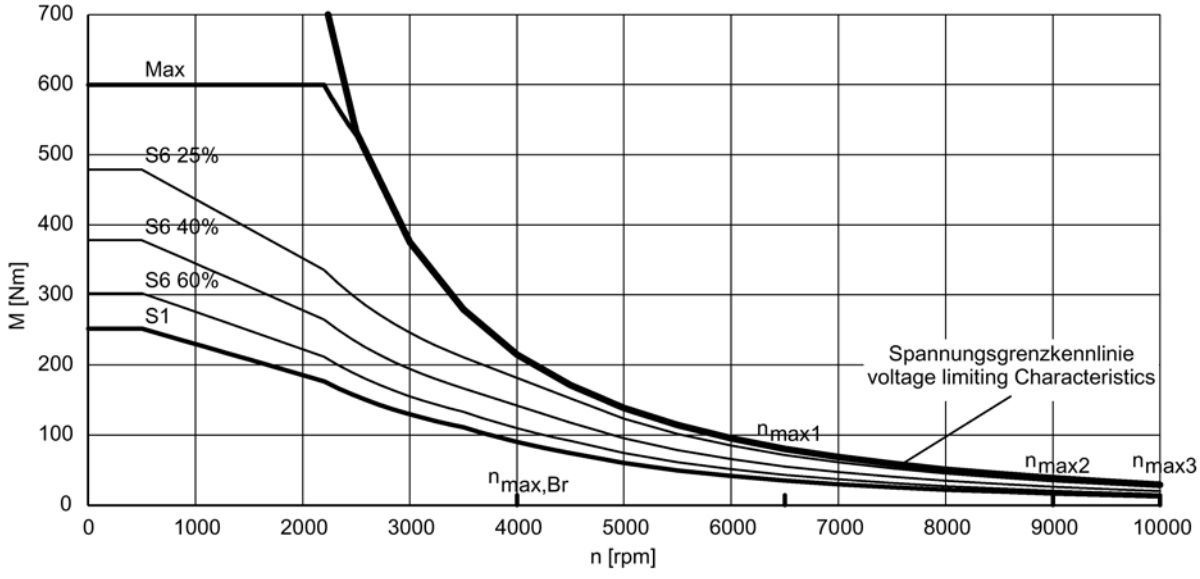
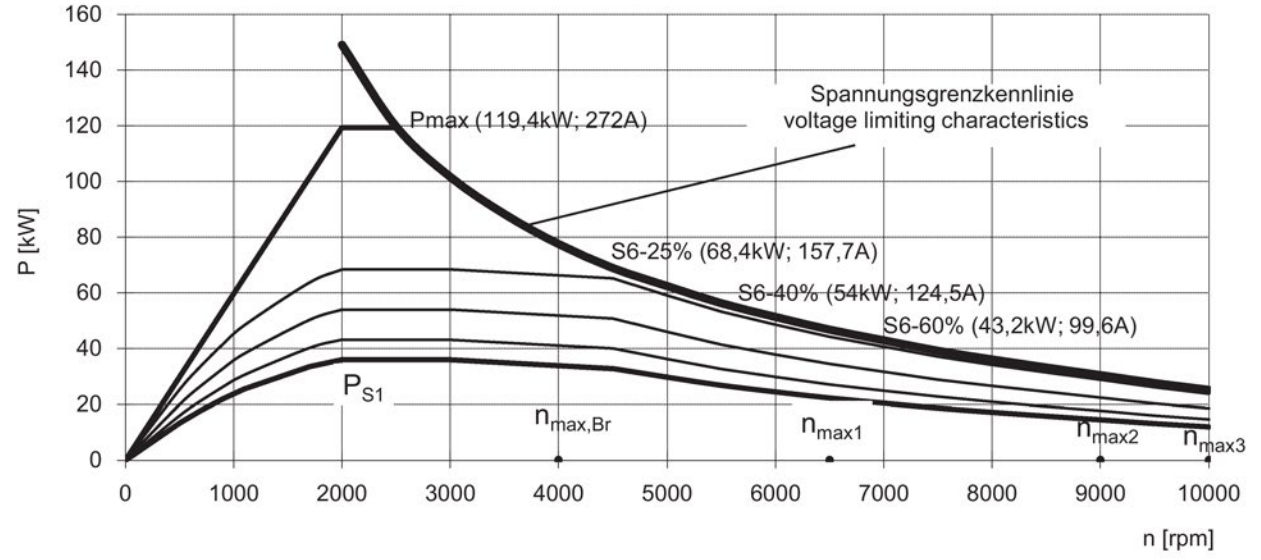


Table 6- 240 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G□□

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]
2,000	36	172	83	6,500	9,000	10,000	4,000	3,000	570	272	254	111



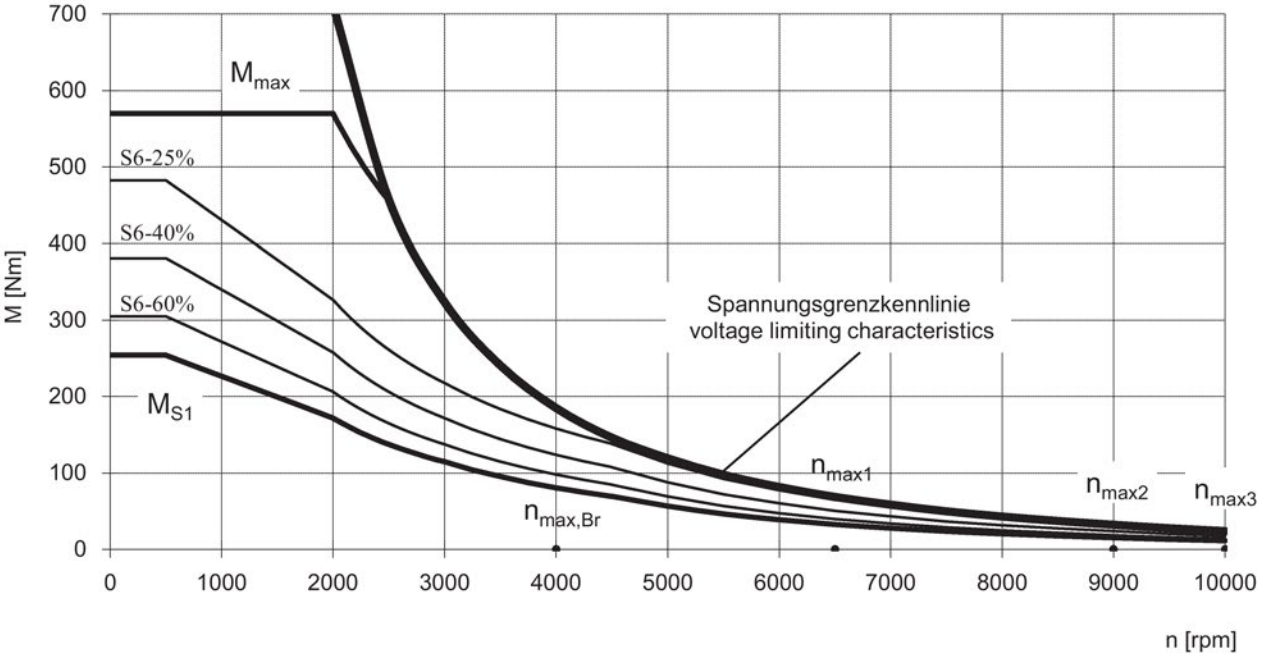
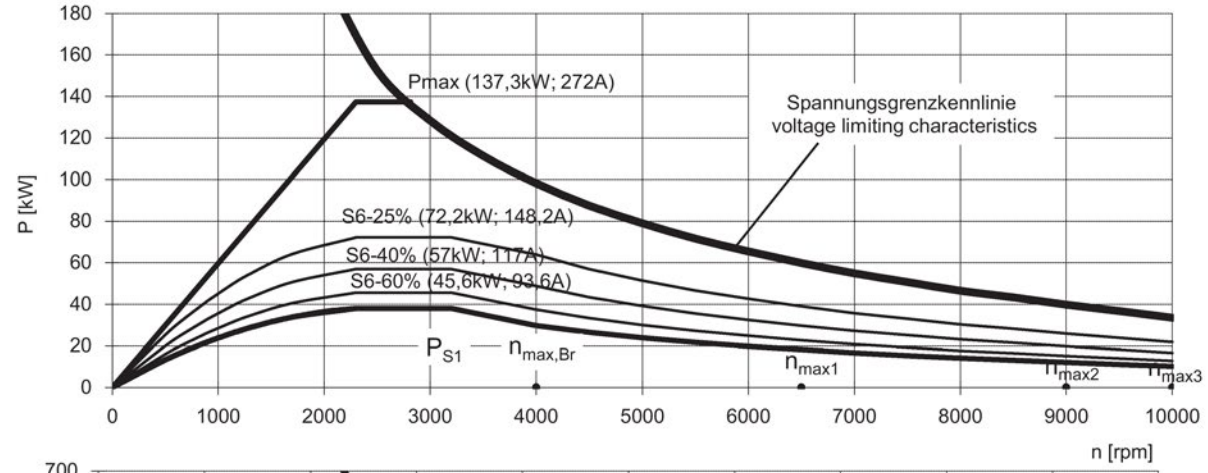


Table 6- 241 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□G□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,300	38	158	78	6,500	9,000	10,000	4,000	3,200	570	272	245	111
2,000	36	172	83					3,500				



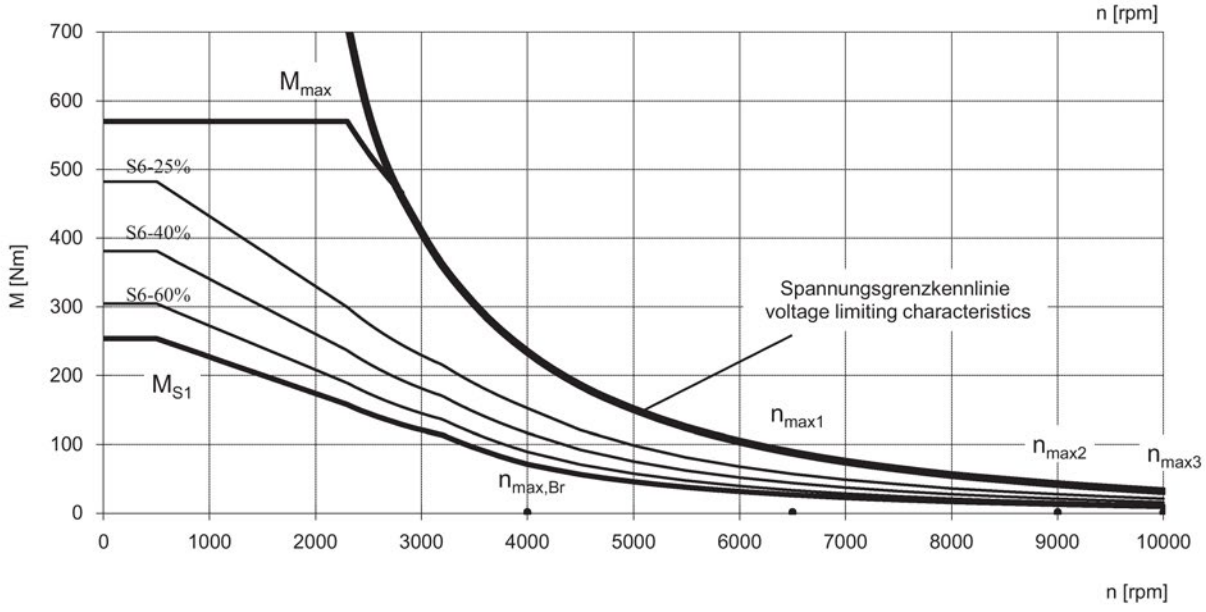
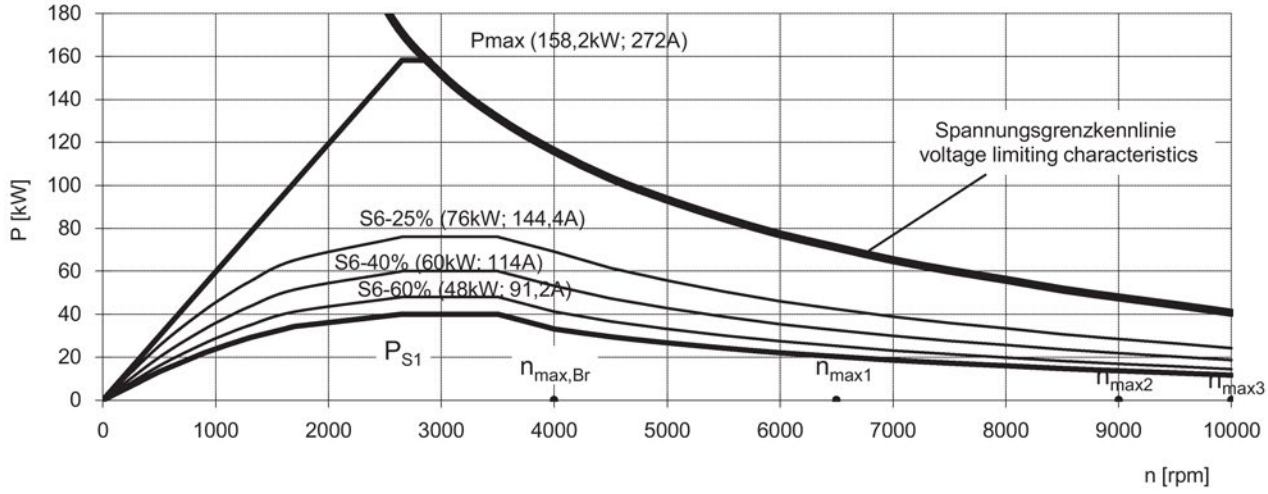


Table 6- 242 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G□□

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]
2,650	40	144	76	6,500	9,000	10,000	4,000	3,500	570	272	254	111



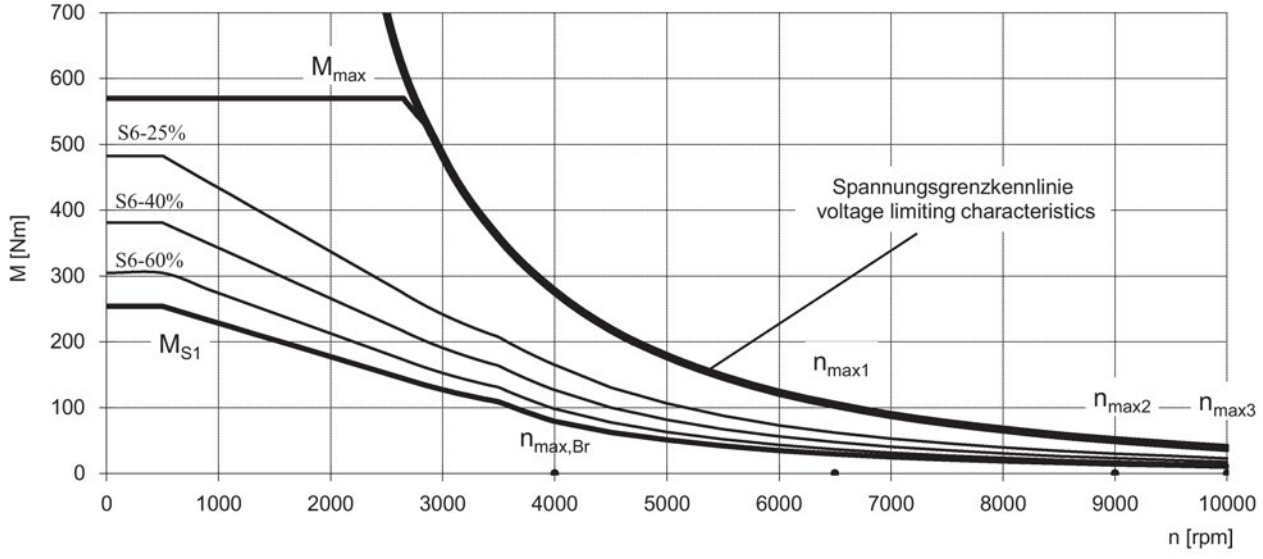
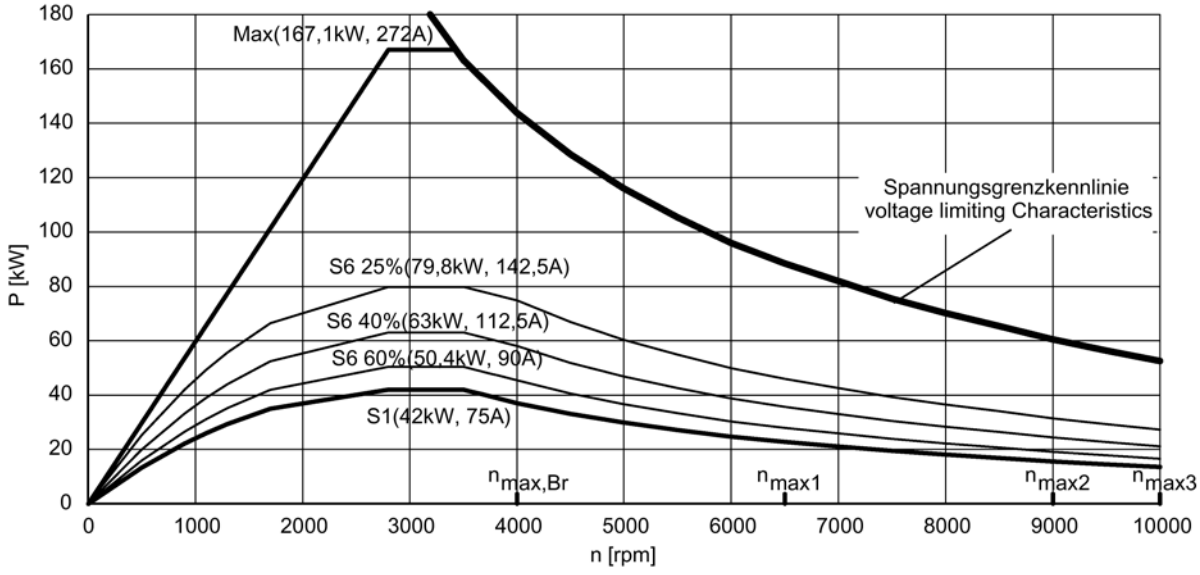


Table 6- 243 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	42	143	75	6,500	9,000	10,000	4,000	3,500	570	272	254	111



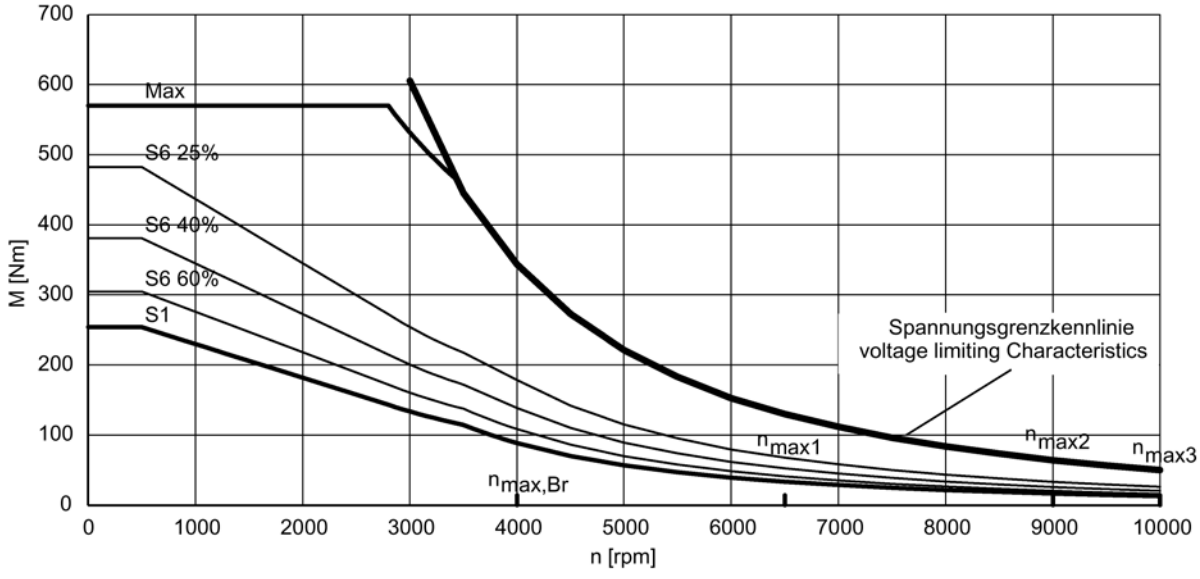
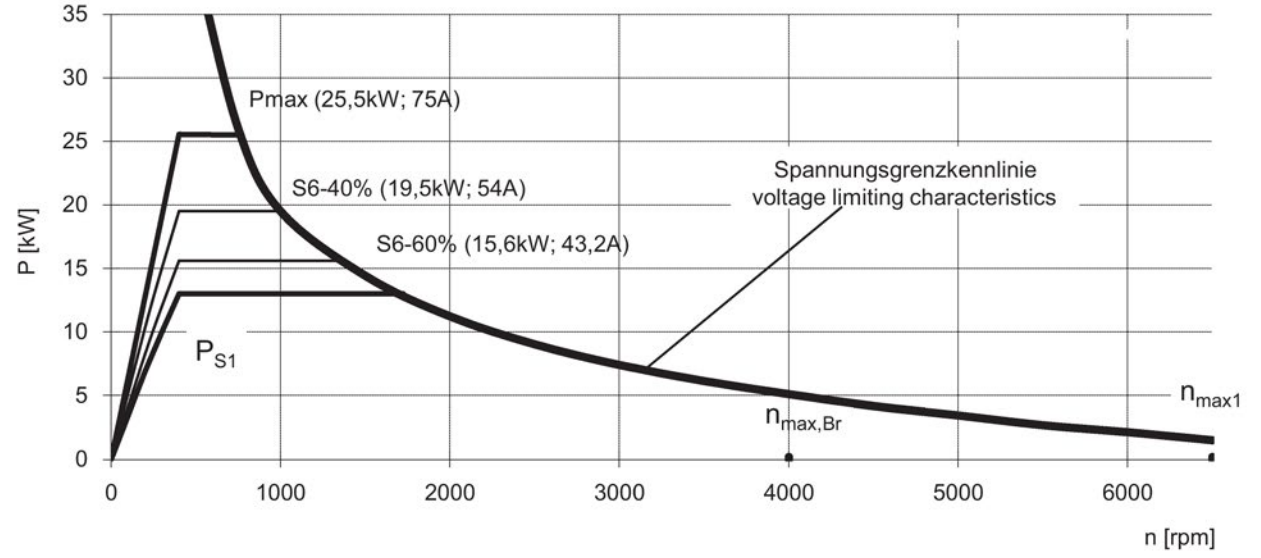


Table 6- 244 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□B□□

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	310	36	6,500	-	-	4,000	1,750	610	75	329	37



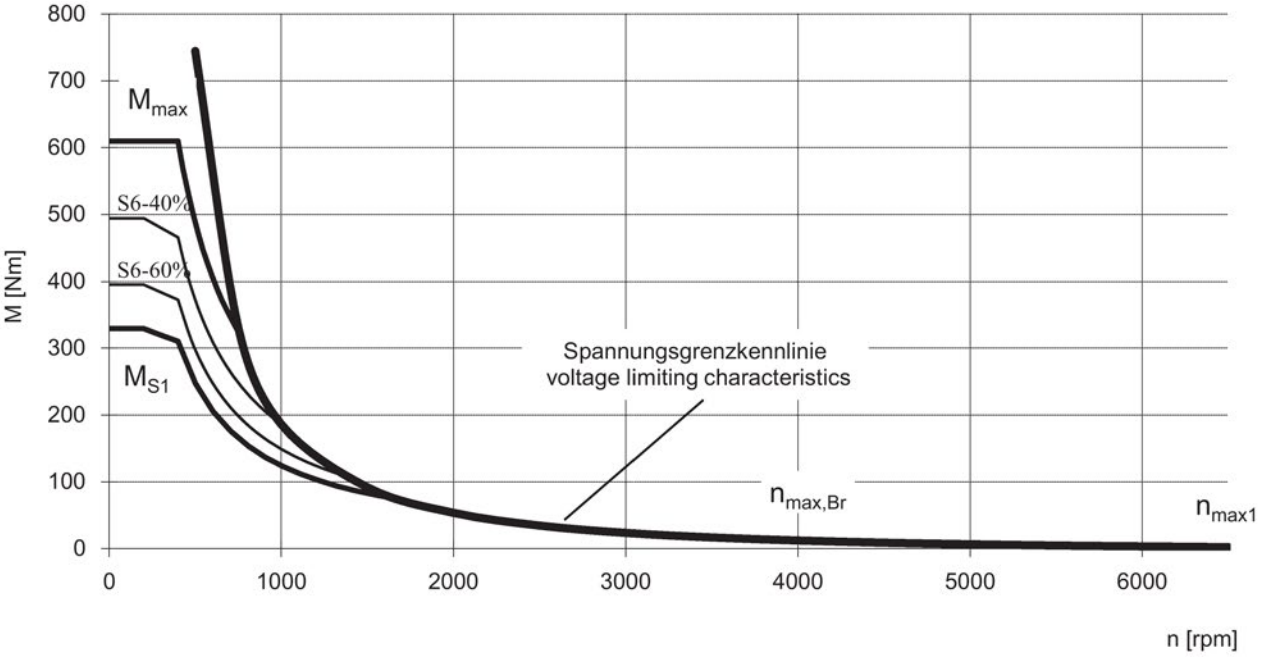
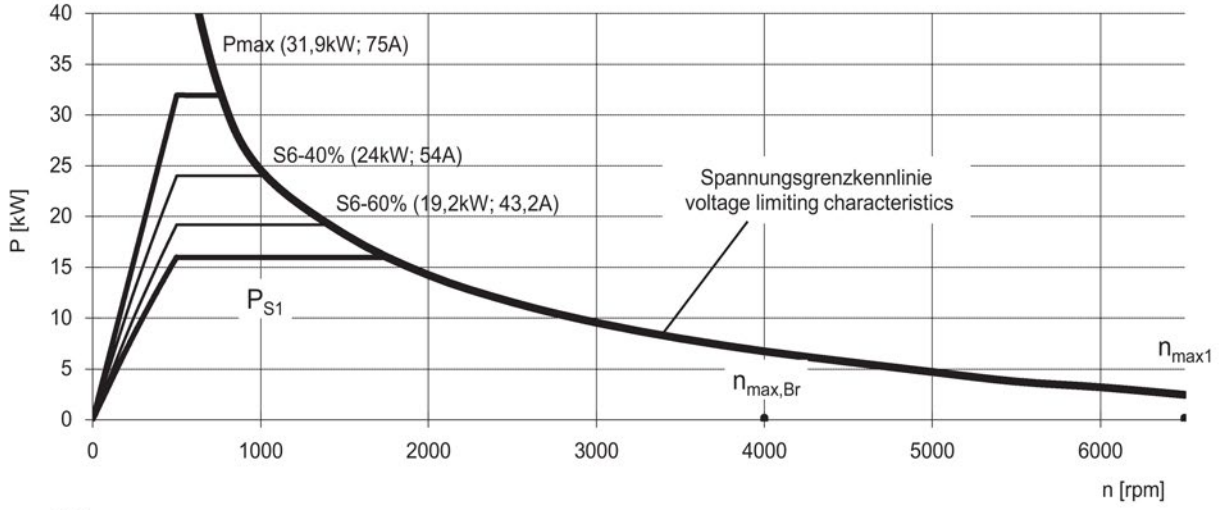


Table 6- 245 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□B□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
500	16	306	36	6,500	-	-	4,000	1,850	610	75	329	37
400	13	310	36					2,300				



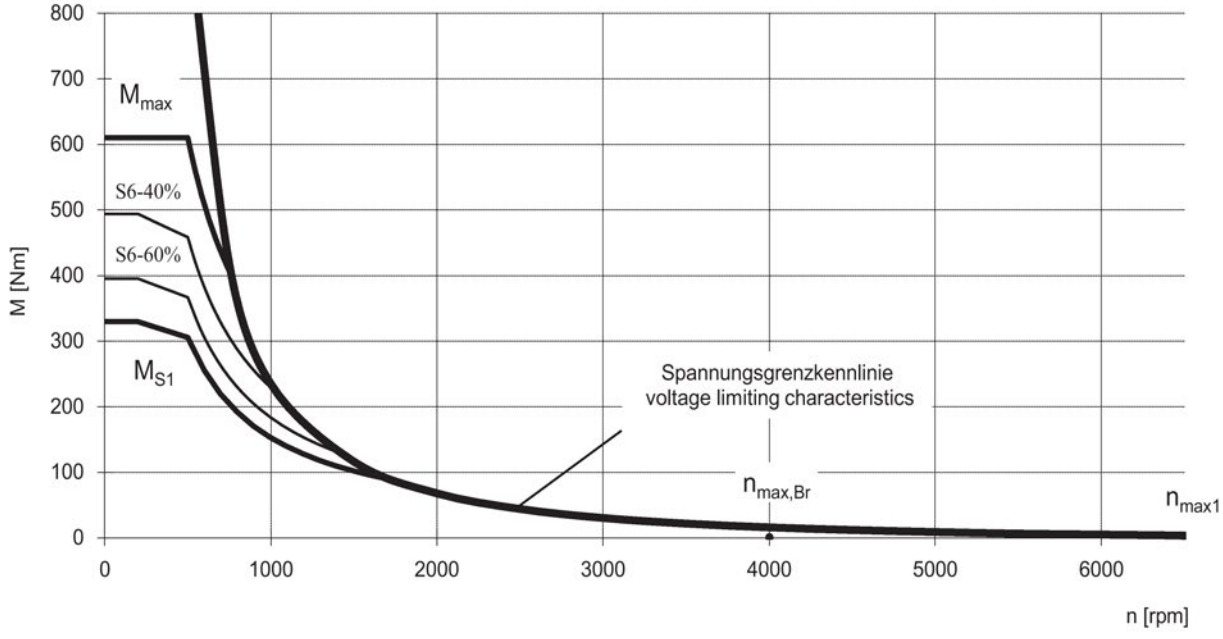


Table 6- 246 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□B□□

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	302	35	6,500	-	-	4,000	1,800	610	75	329	37

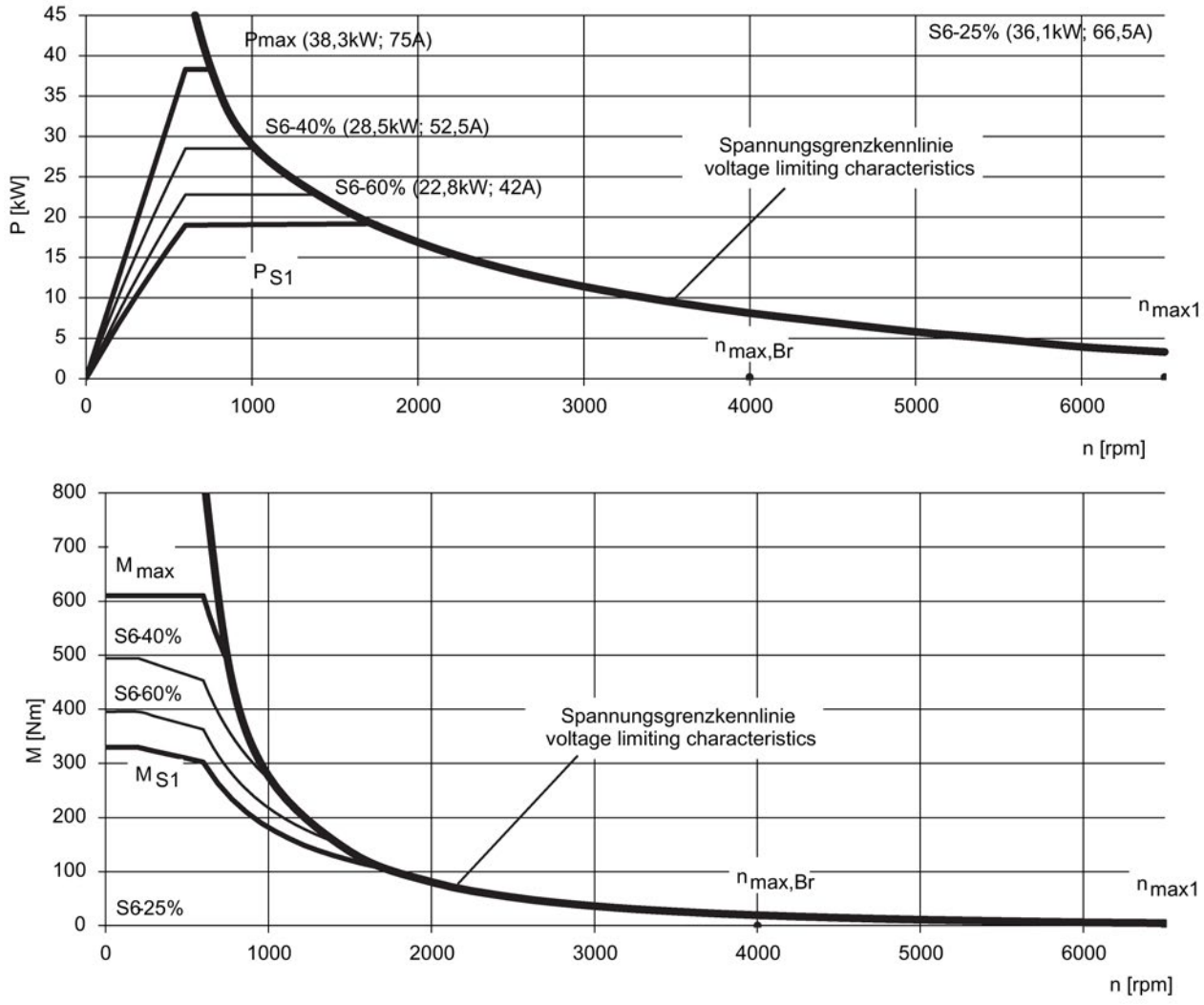
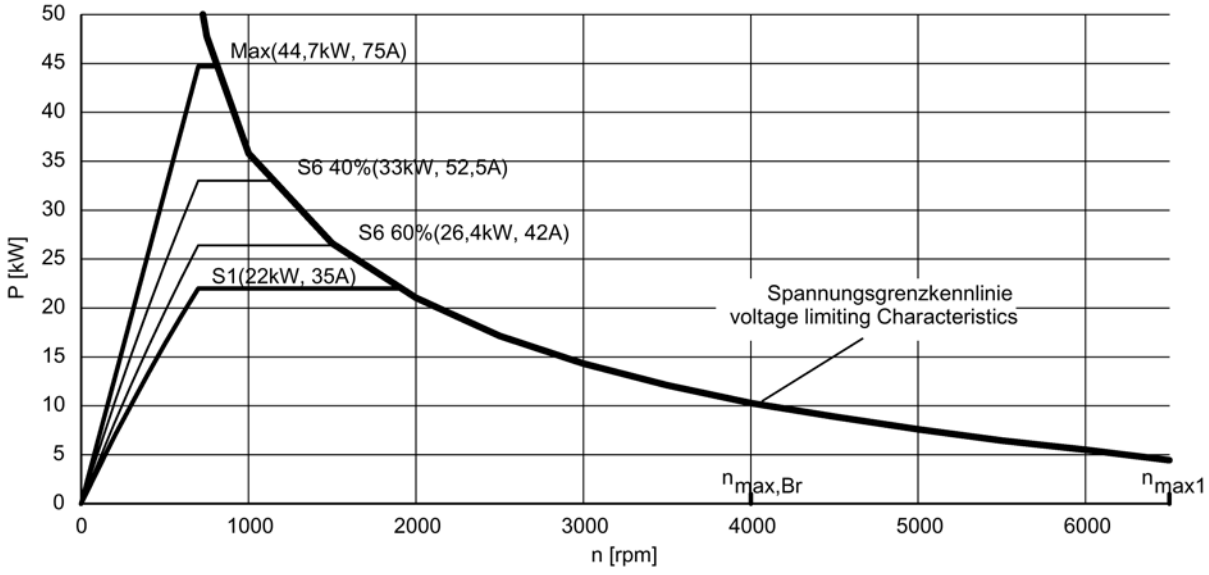


Table 6- 247 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□B□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	22	300	35	6,500	--	--	4,000	1,900	610	75	329	37



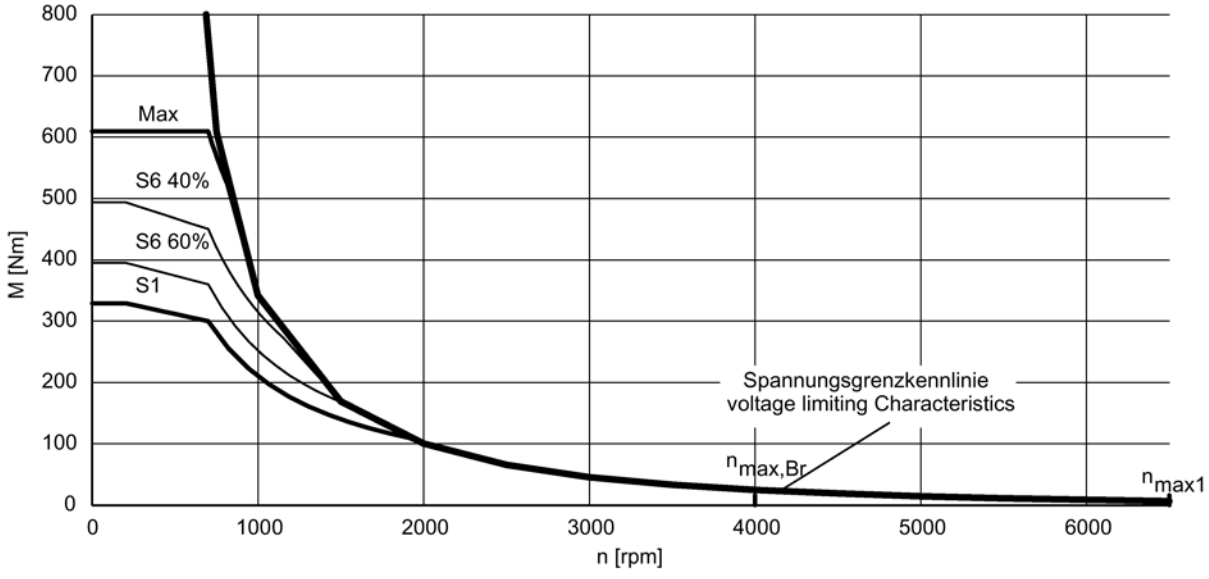
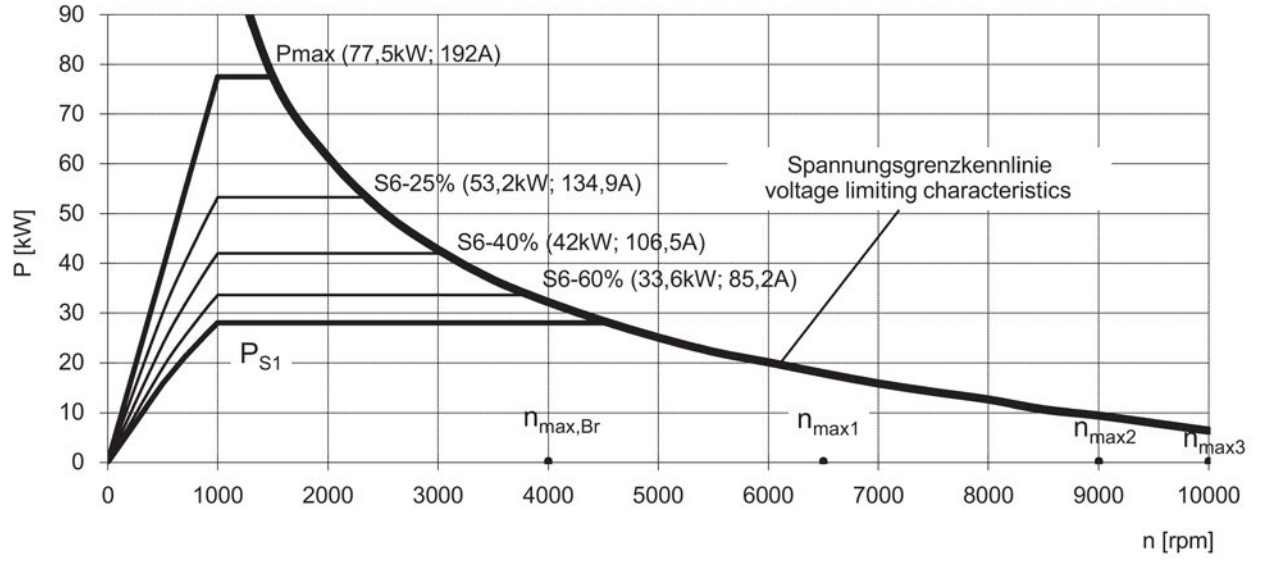


Table 6- 248 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□D□□

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]
1,000	28	267	71	6,500	9,000	10,000	4,000	4,600	740	192	302	77



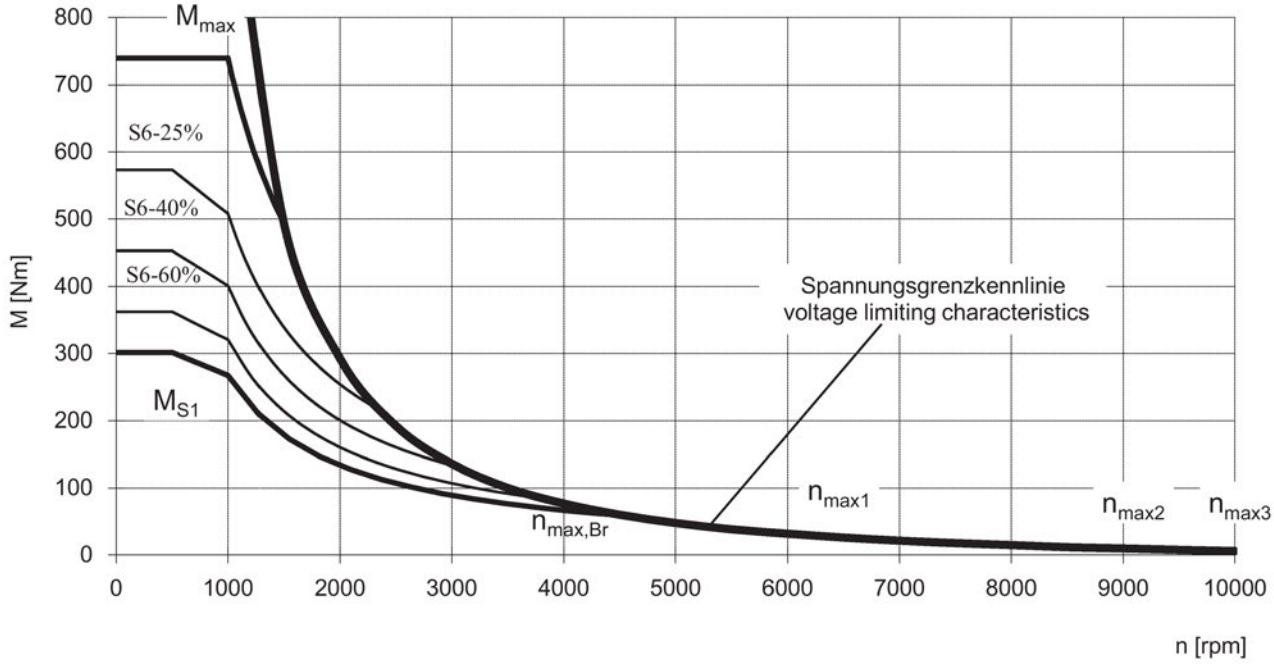


Table 6- 249 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□D□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,150	31	257	69	6,500	9,000	10,000	4,000	4,850	740	192	302	77
1,000	28	267	71					5,550				

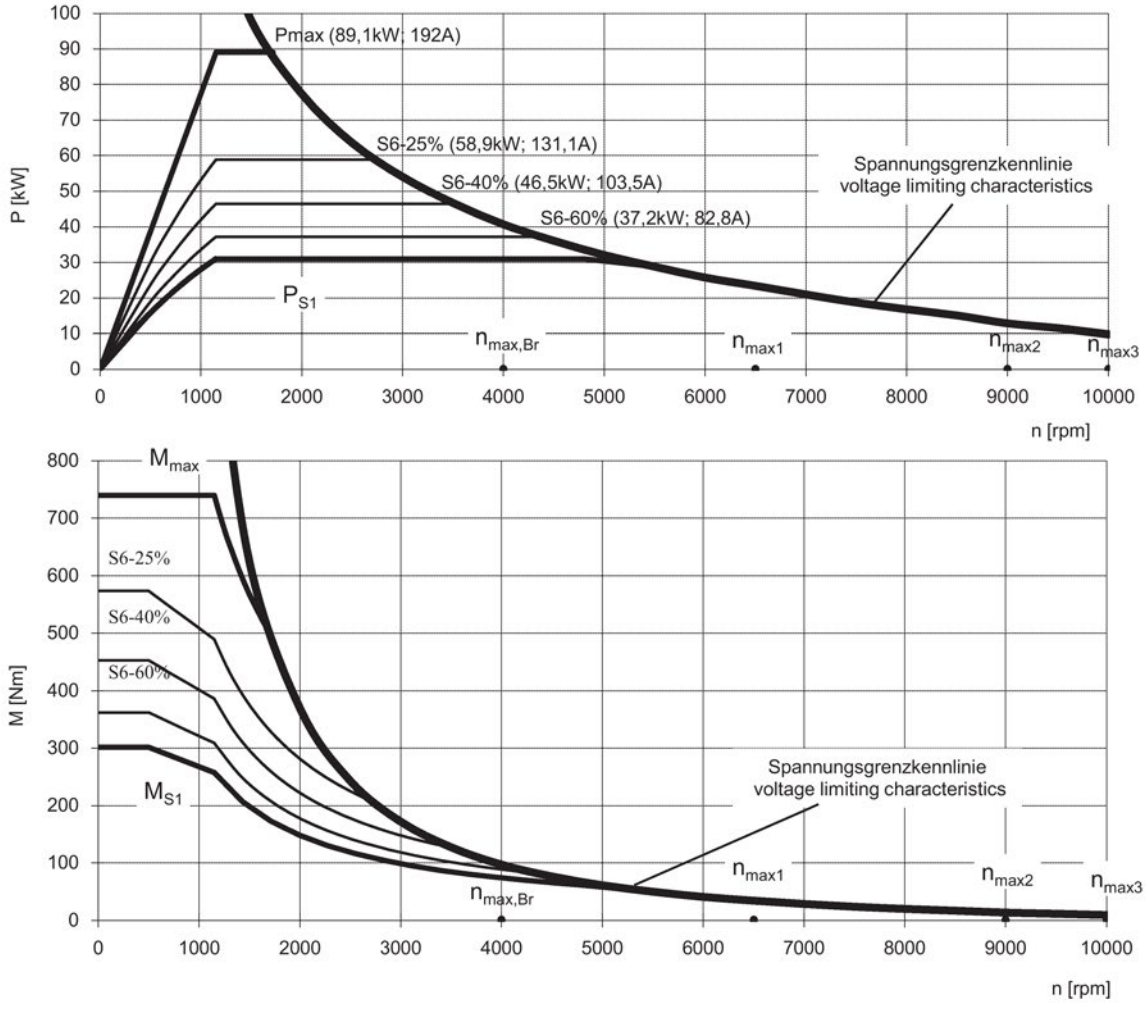
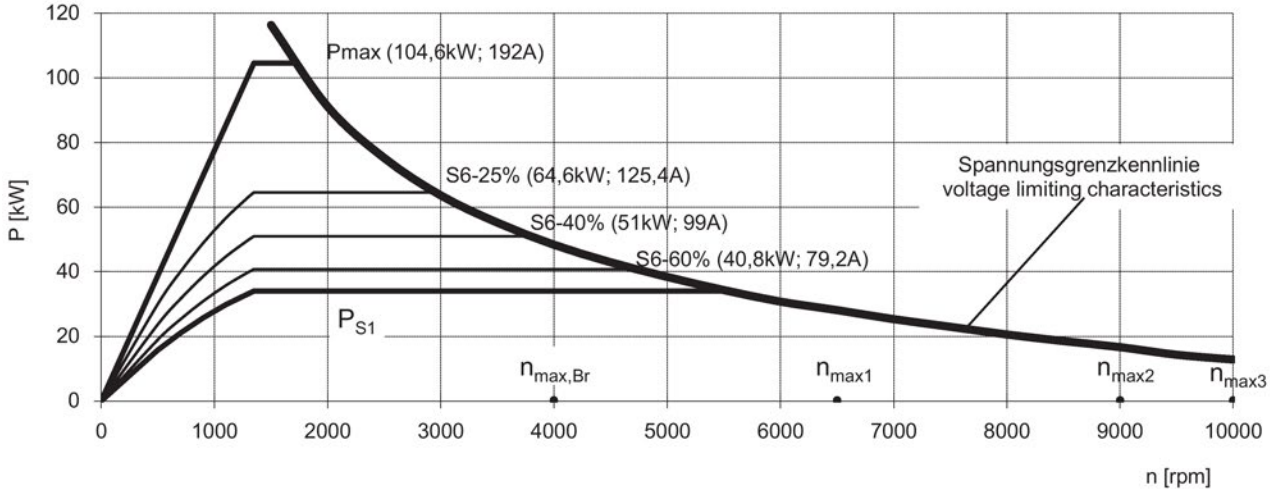


Table 6- 250 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□D□□

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]
1,350	34	241	66	6,500	9,000	10,000	4,000	5,600	740	192	302	77



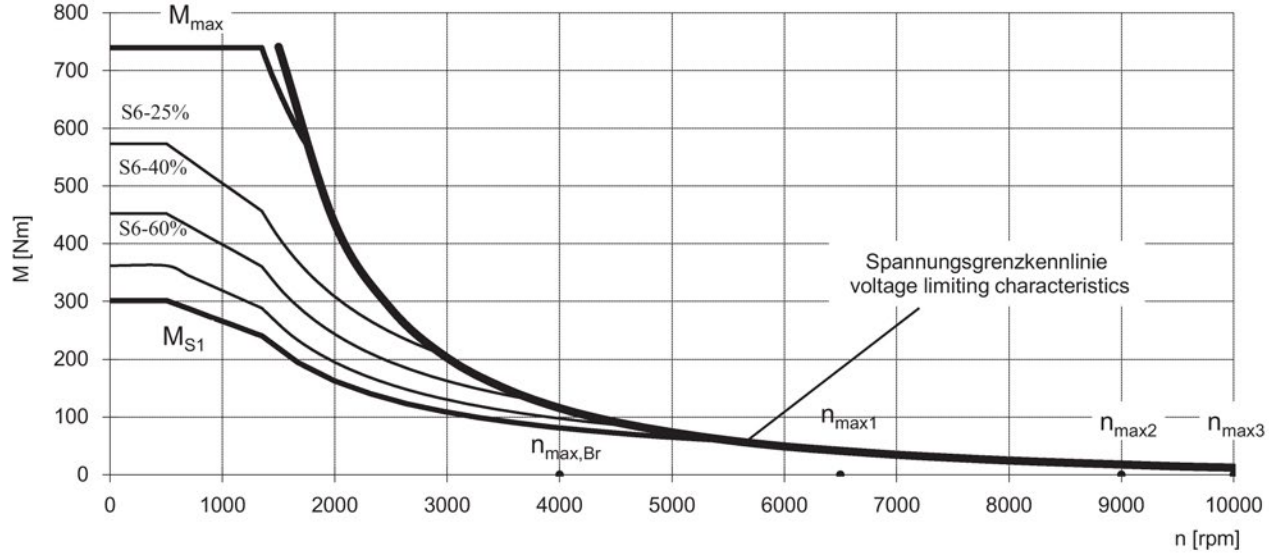
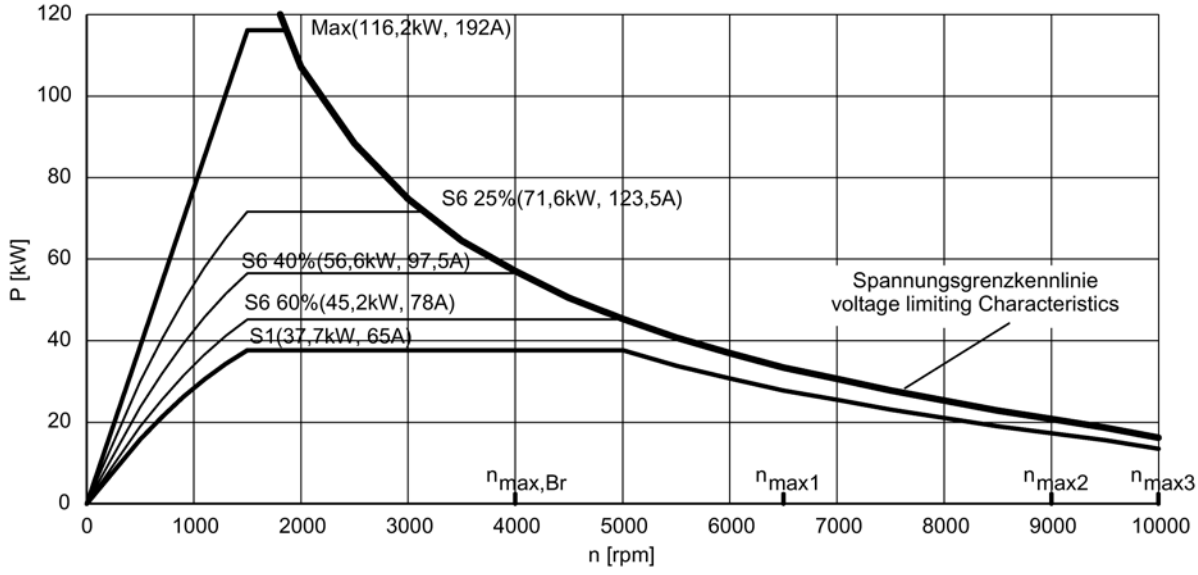


Table 6- 251 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□D□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	37.7	240	65	6,500	9,000	10,000	4,000	5,000	740	192	302	77



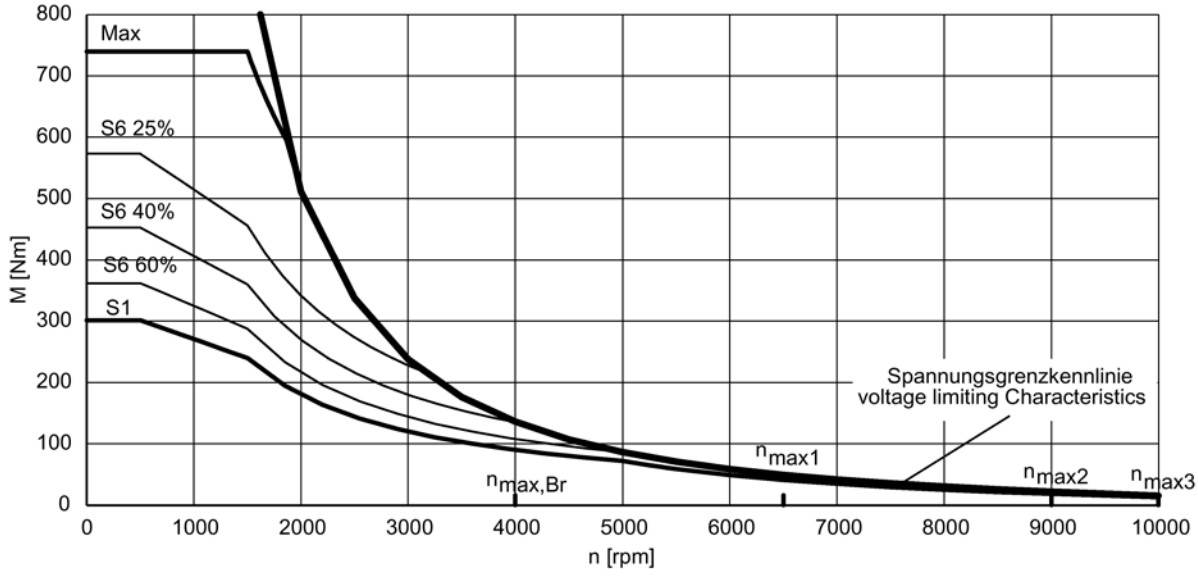
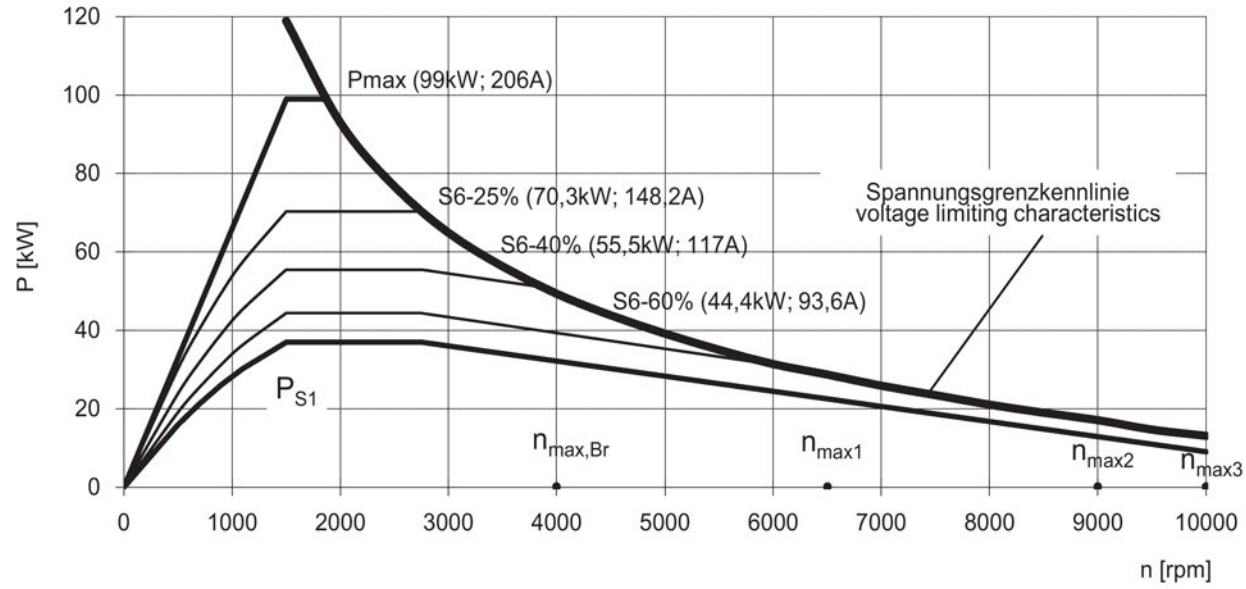


Table 6- 252 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F□□

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]
1,500	37	236	78	6,500	9,000	10,000	4,000	2,800	630	206	304	95



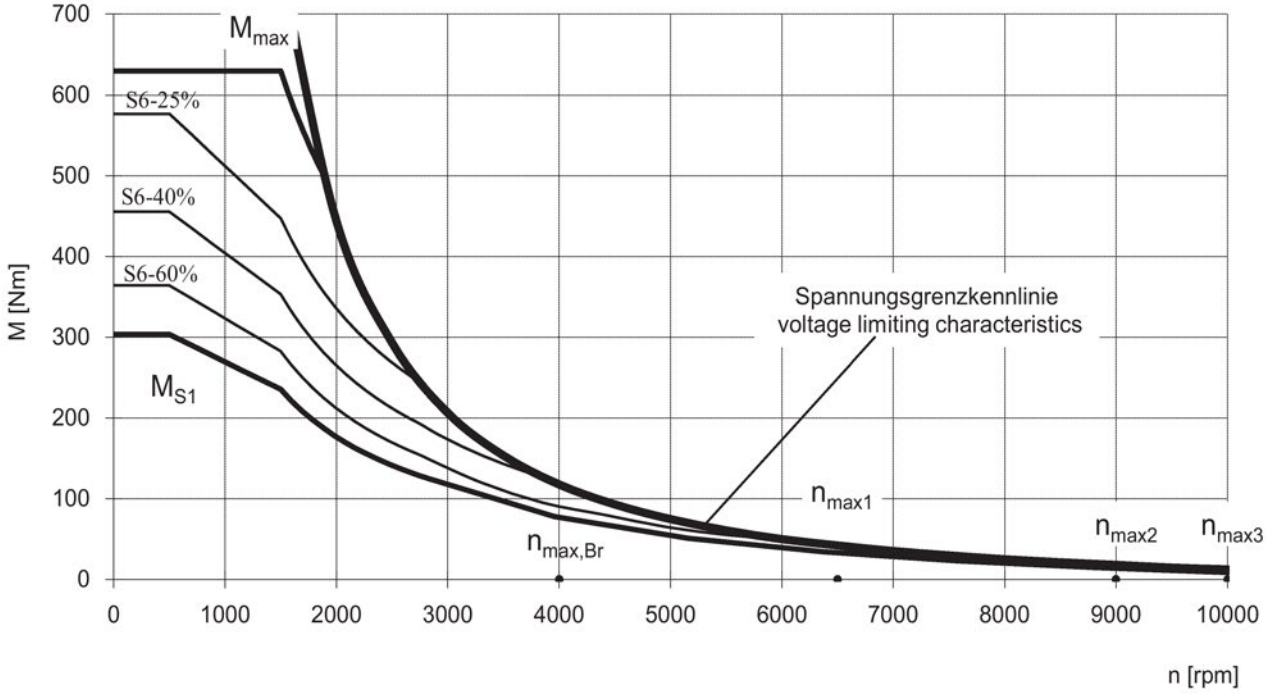
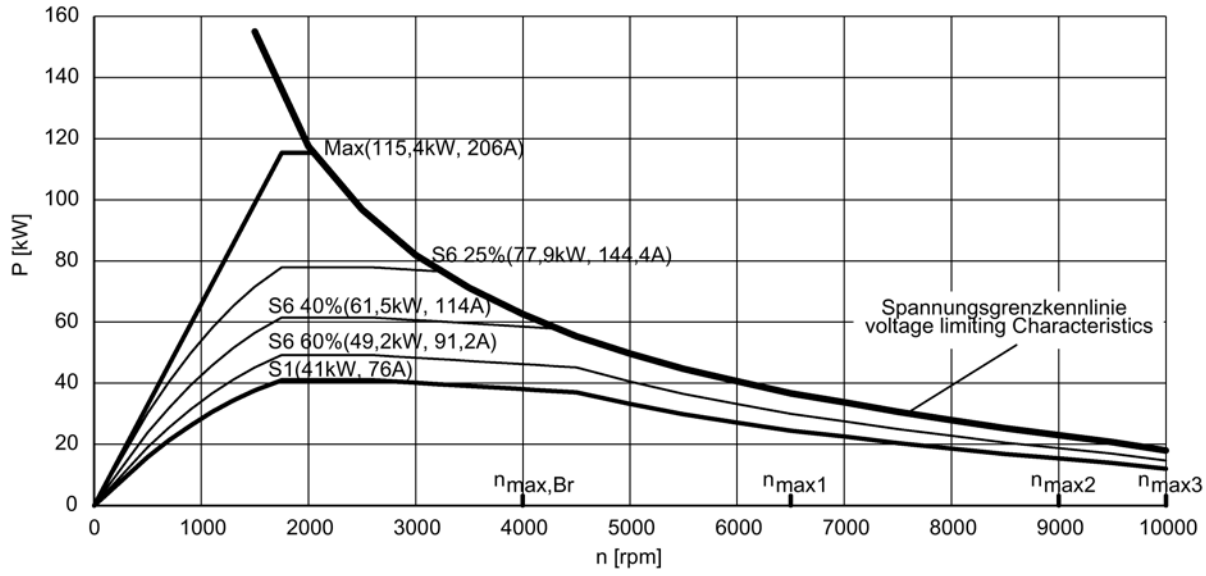


Table 6- 253 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,750	41	224	76	6,500	9,000	10,000	4,000	2,650	630	206	304	95
1,500	37	236	78					4,550				



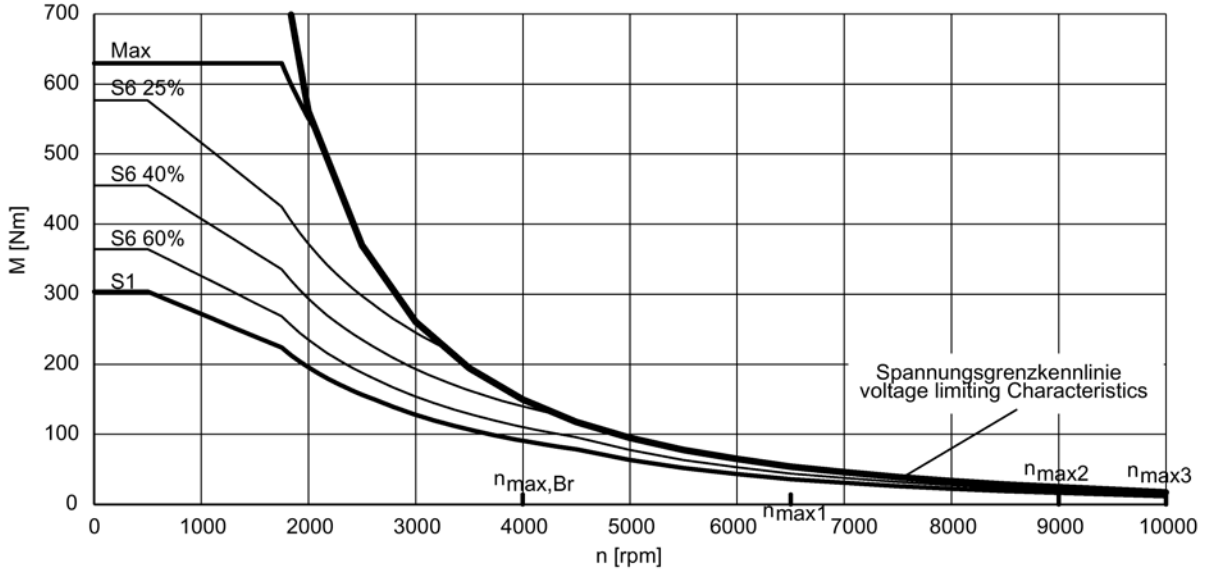
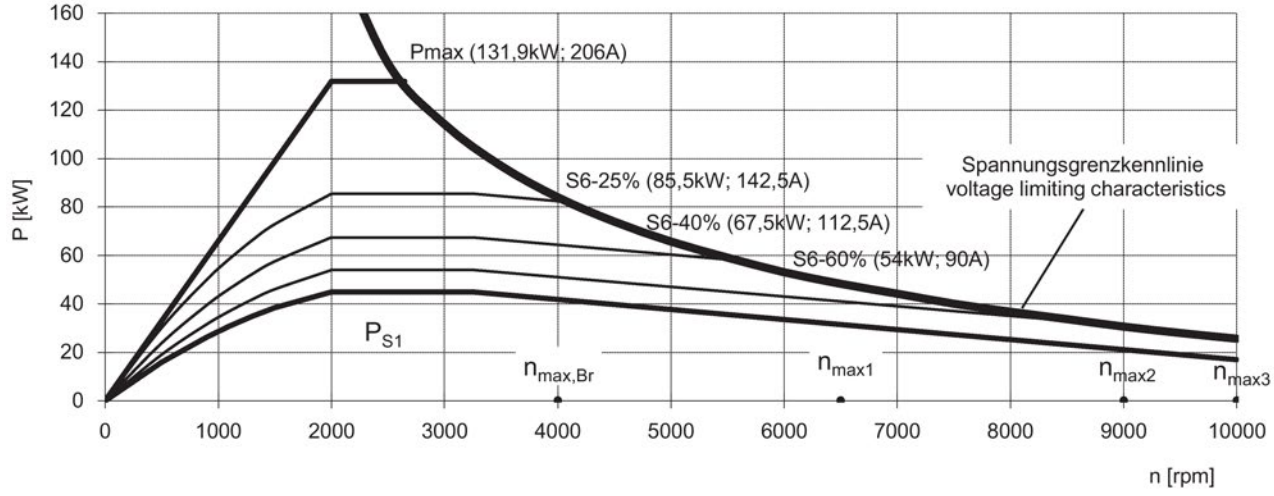


Table 6- 254 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F□□

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]
2,000	45	215	75	6,500	9,000	10,000	4,000	3,300	630	206	304	95



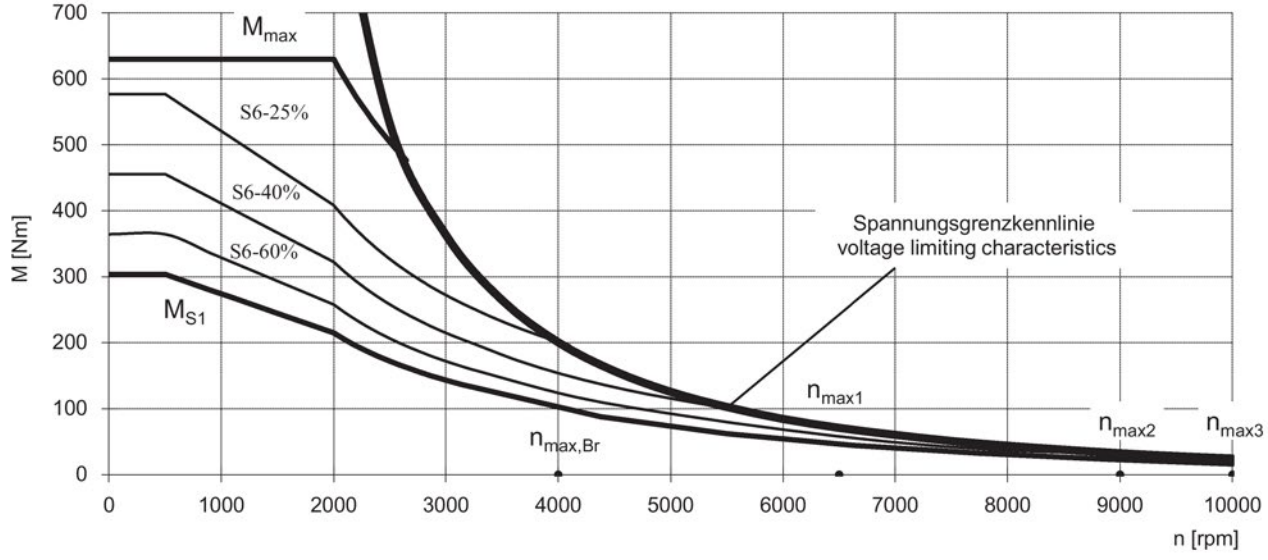
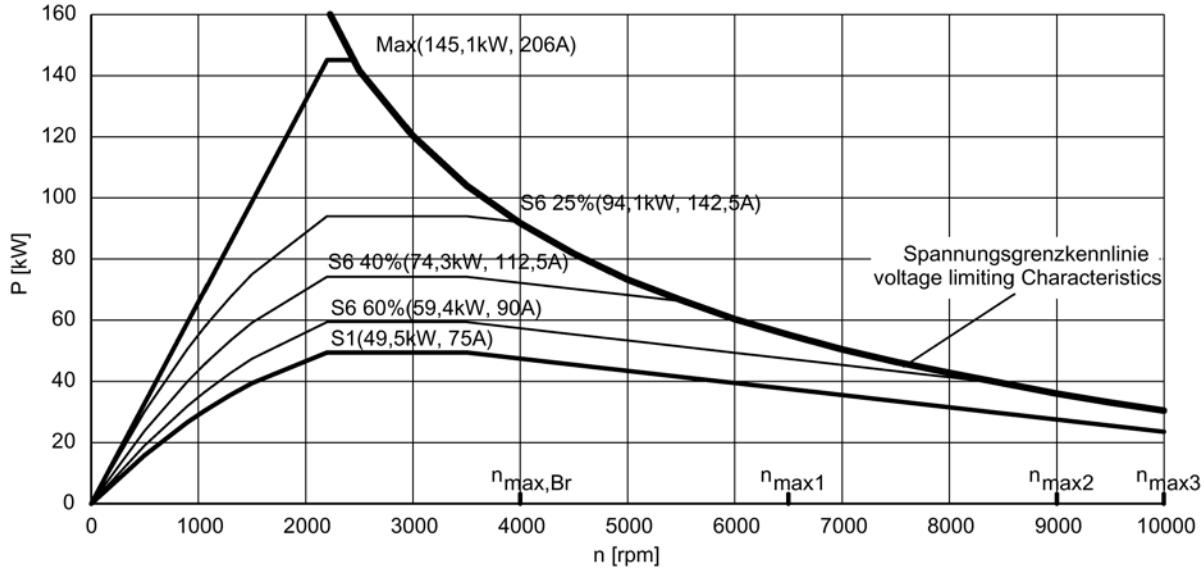


Table 6- 255 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□F□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	49.5	215	75	6,500	9,000	10,000	4,000	3,500	630	206	304	95



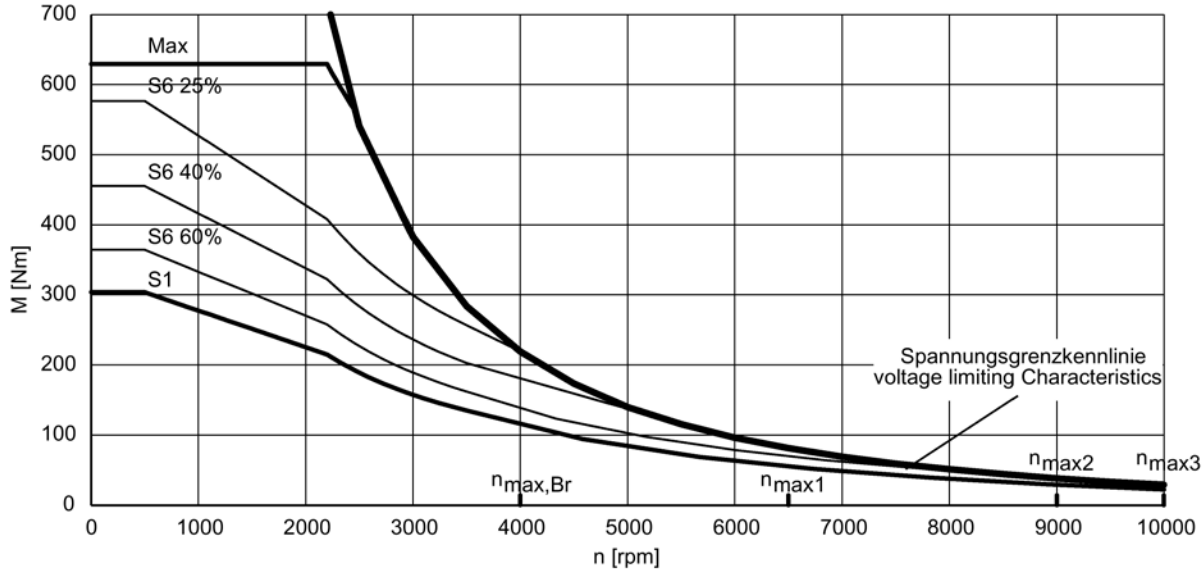
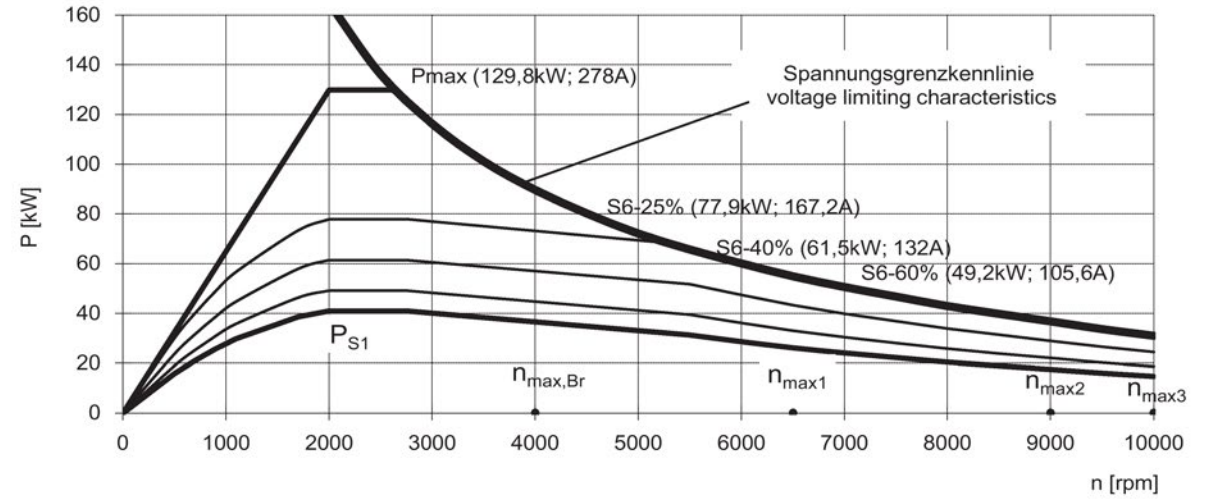


Table 6- 256 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G□□

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]
2,000	41	196	88	6,500	9,000	10,000	4,000	2,750	620	278	302	122



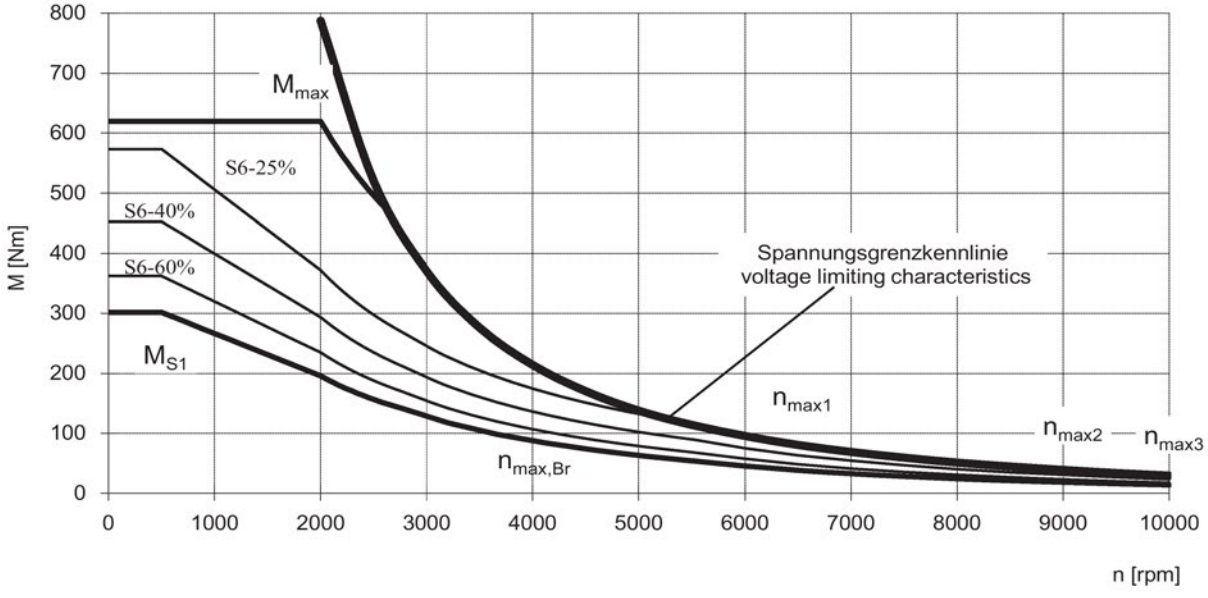
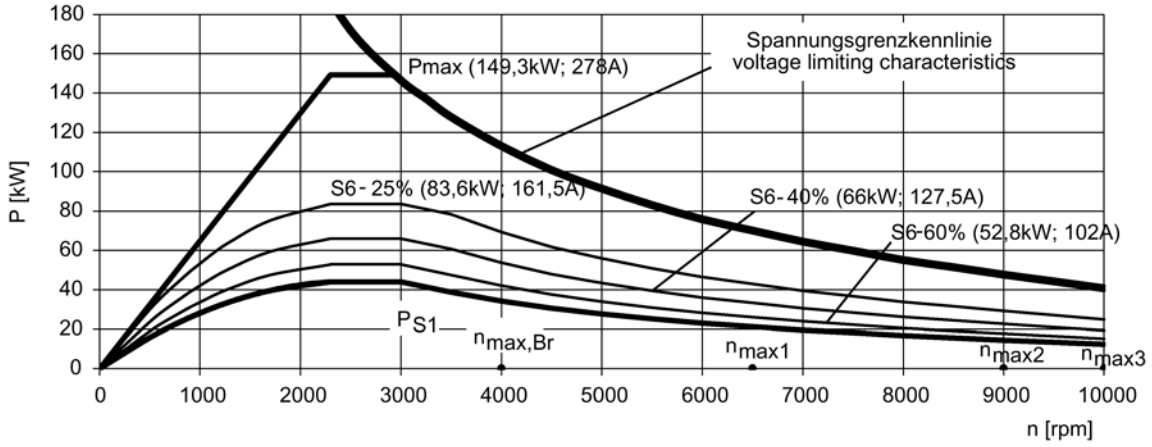


Table 6- 257 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□G□□

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_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,300	44	183	85	6,500	9,000	10,000	4,000	3,000	620	278	302	122
2,000	41	196	88					3,200				



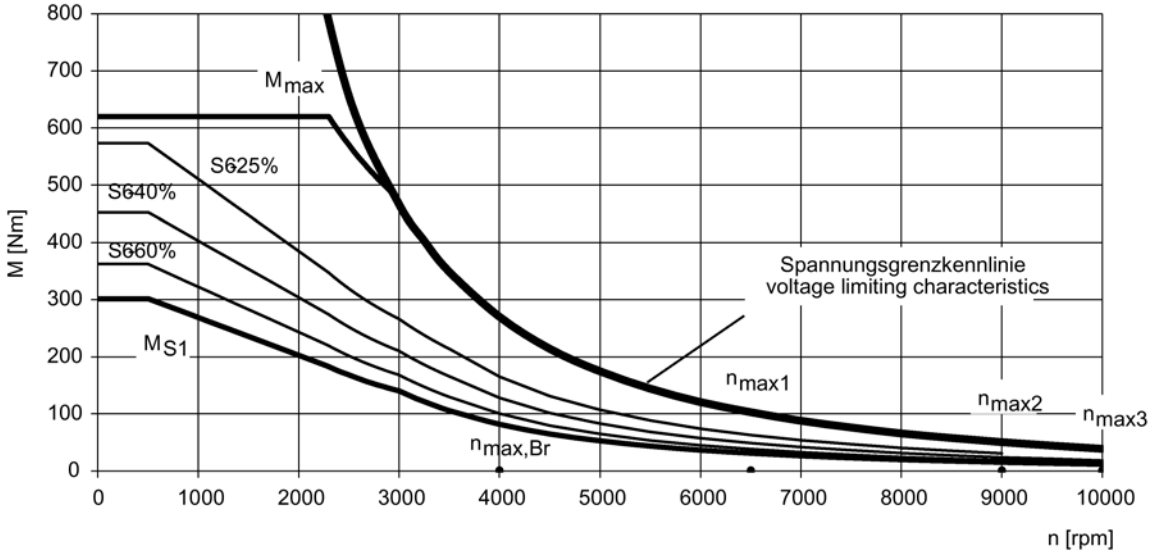
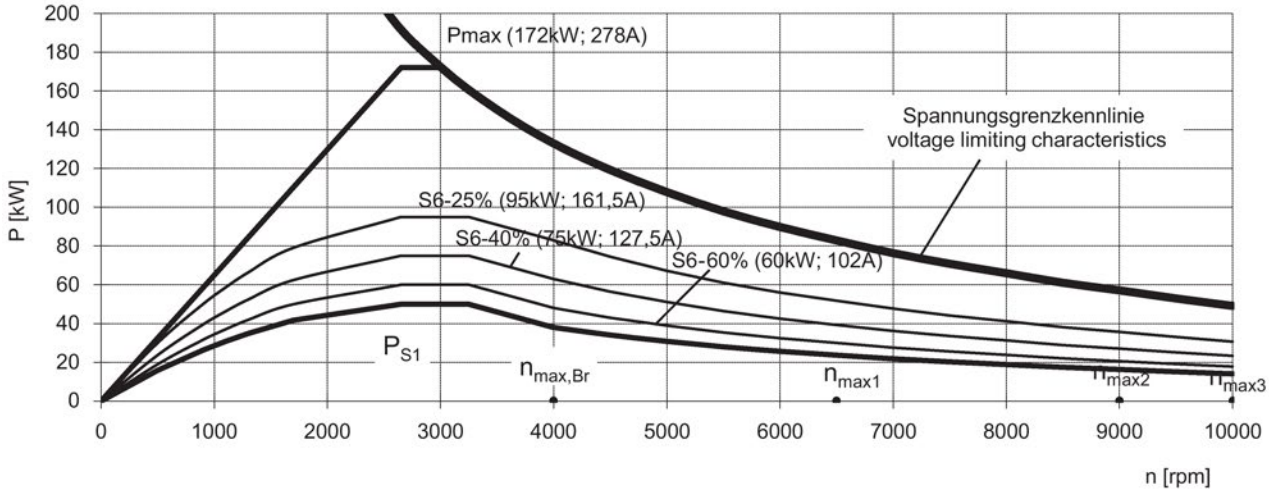


Table 6- 258 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G□□

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]
2,650	50	180	85	6,500	9,000	10,000	4,000	3,250	620	278	302	122



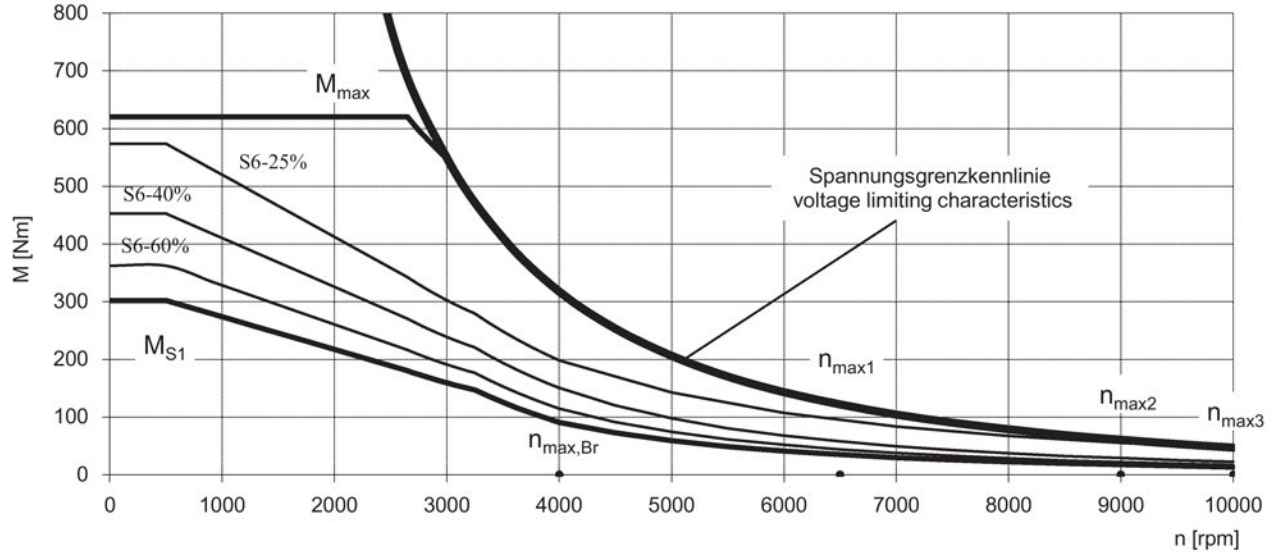
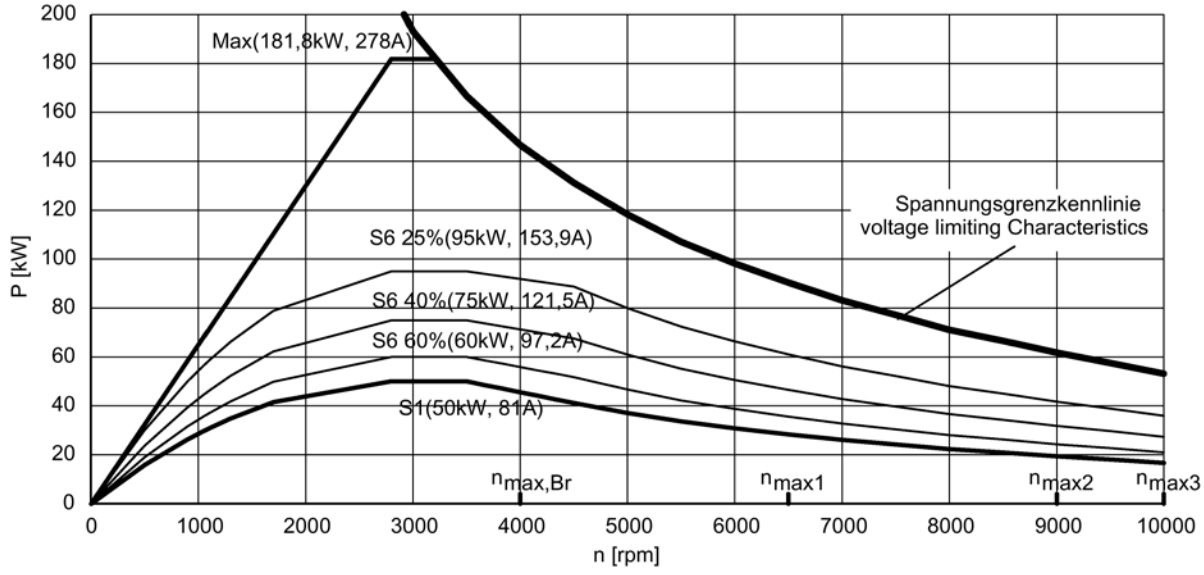
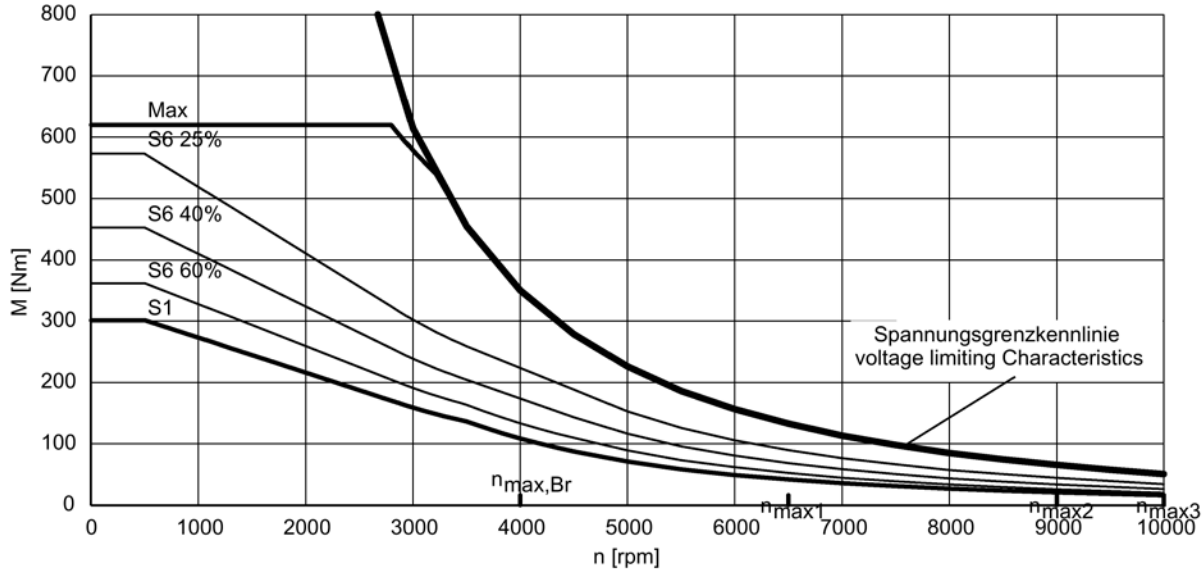


Table 6- 259 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□G□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	50	171	81	6,500	9,000	10,000	4,000	3,500	620	278	302	122

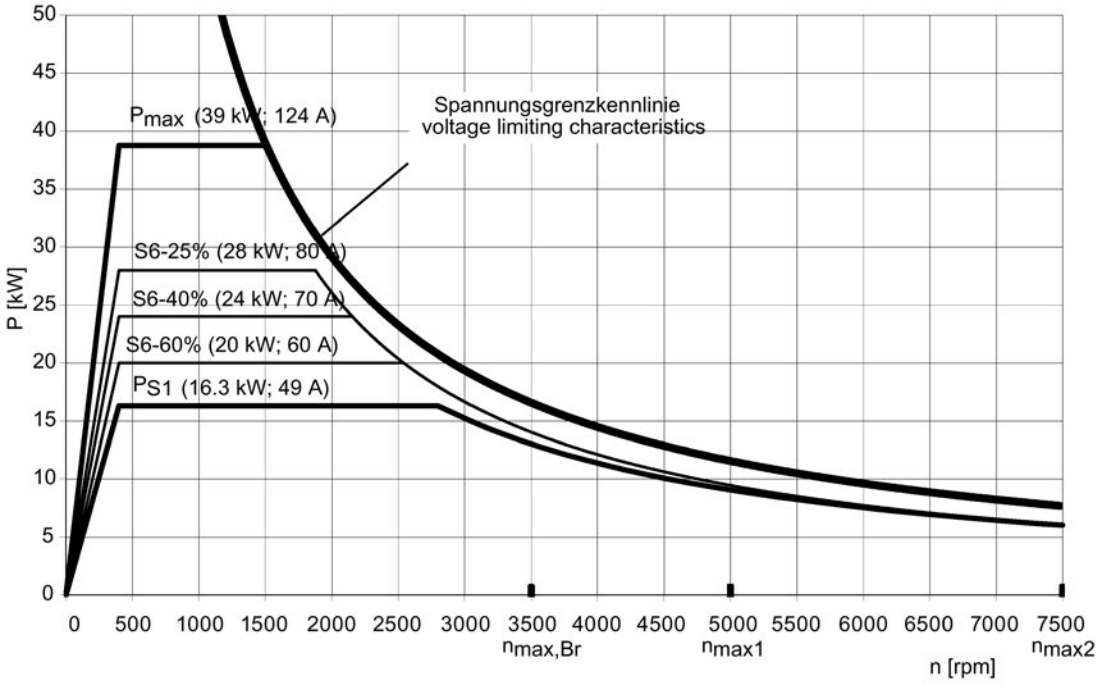




6.1.2.6 Shaft height 180 - forced ventilation

Table 6- 260 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	5,000	7,500	-	3,500	2,800	925	124	389	49



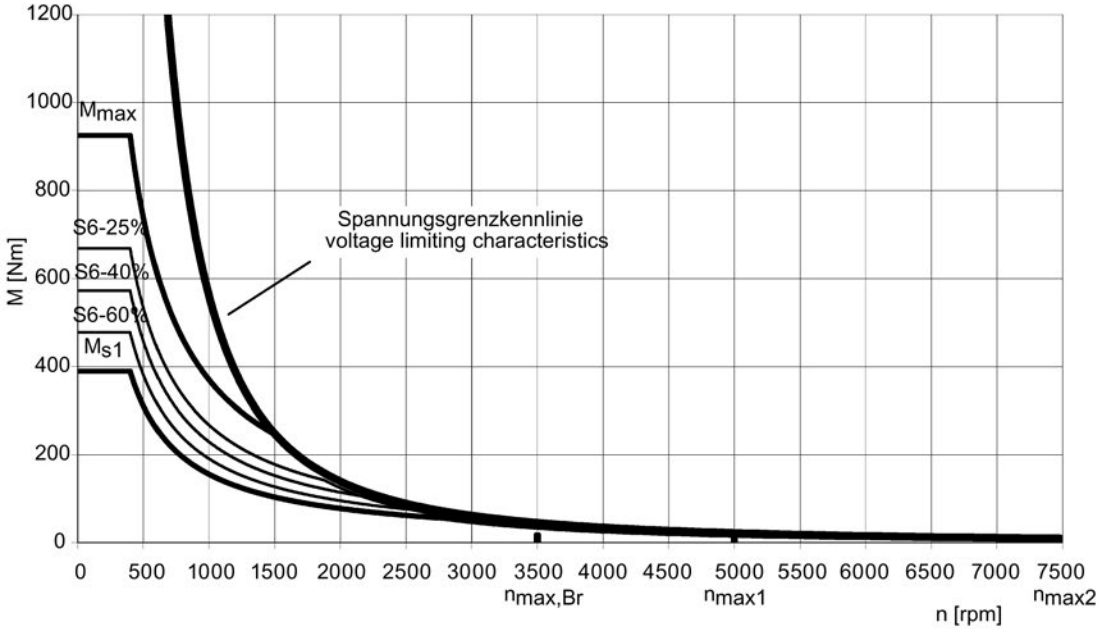
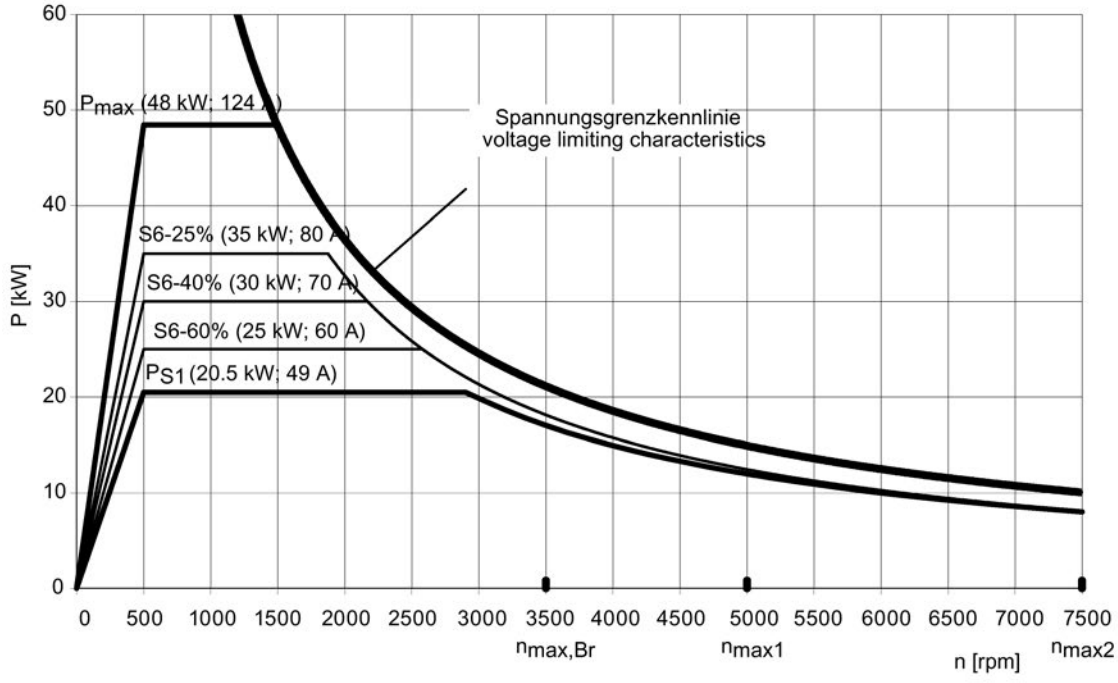


Table 6- 261 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP55)

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	5,000	7,500	-	3,500	2,900	925	124	392	49
400	16.3	389	49					3,700				



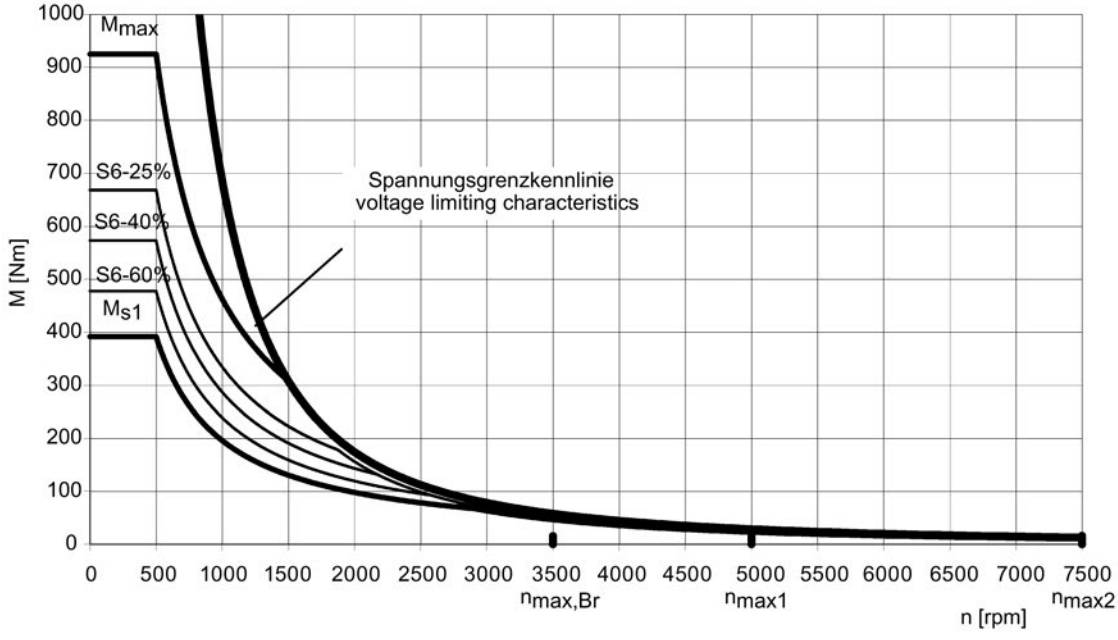
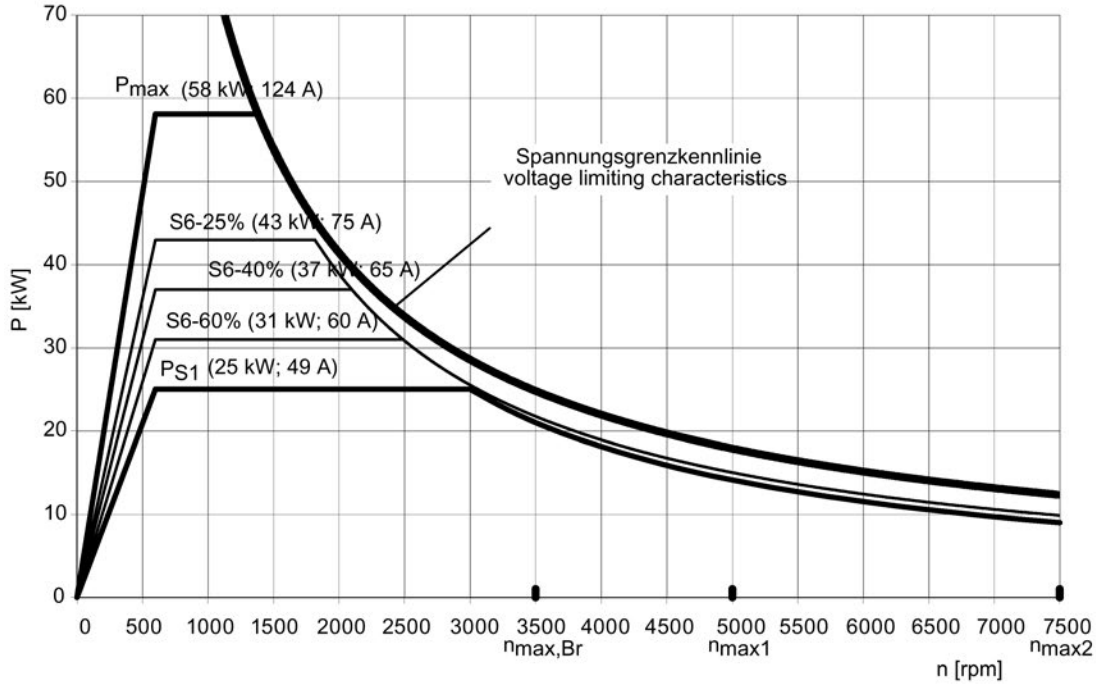


Table 6- 262 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□B□□, (IP55)

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	5,000	7,500	-	3,500	3,000	925	124	398	49



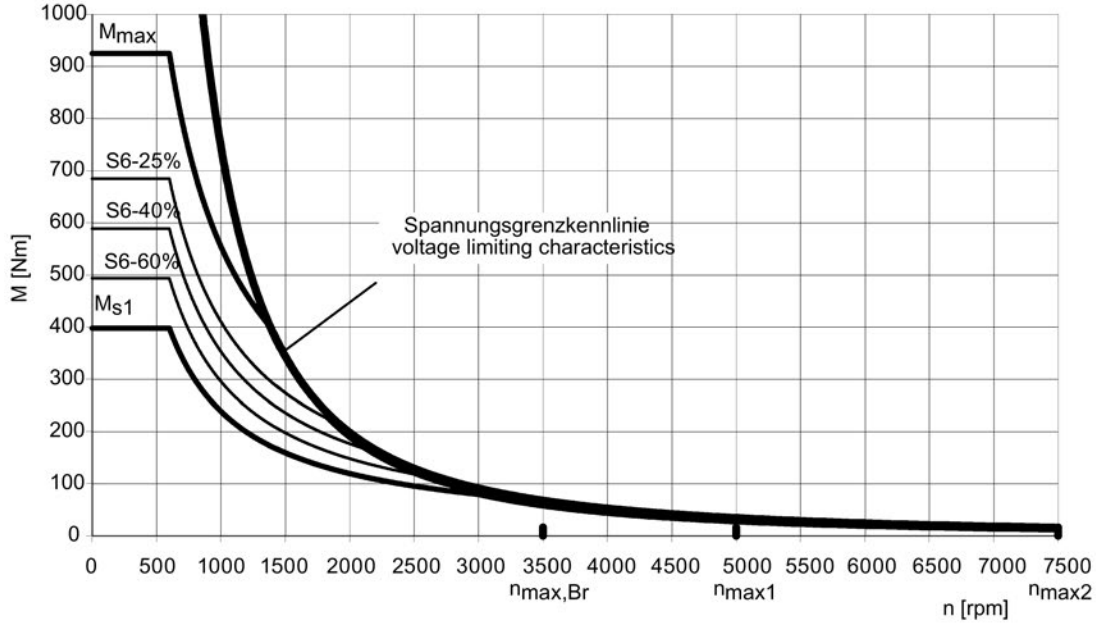
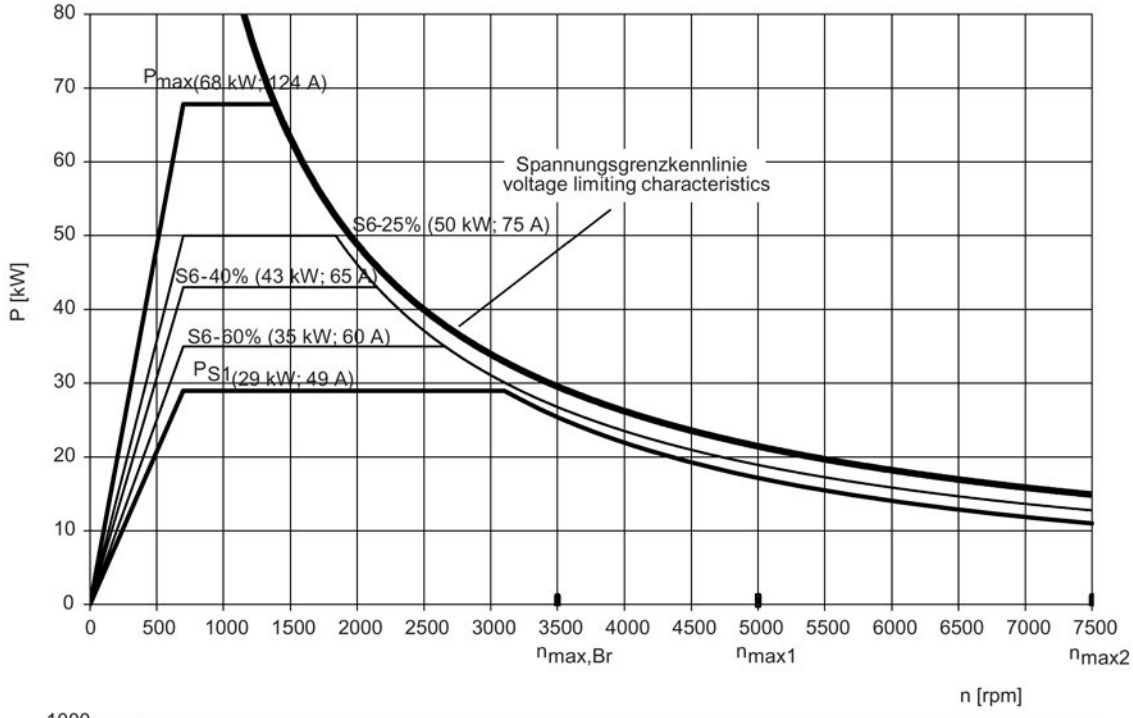


Table 6- 263 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	29	396	49	5,000	7,500	-	3,500	3,100	925	124	389	49



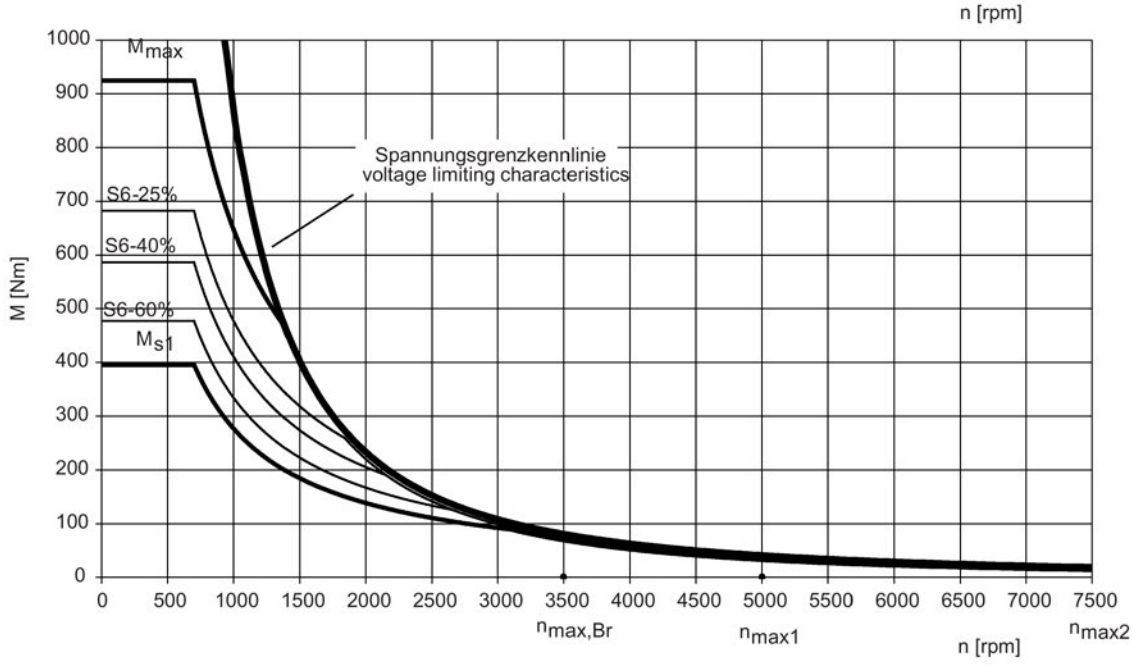
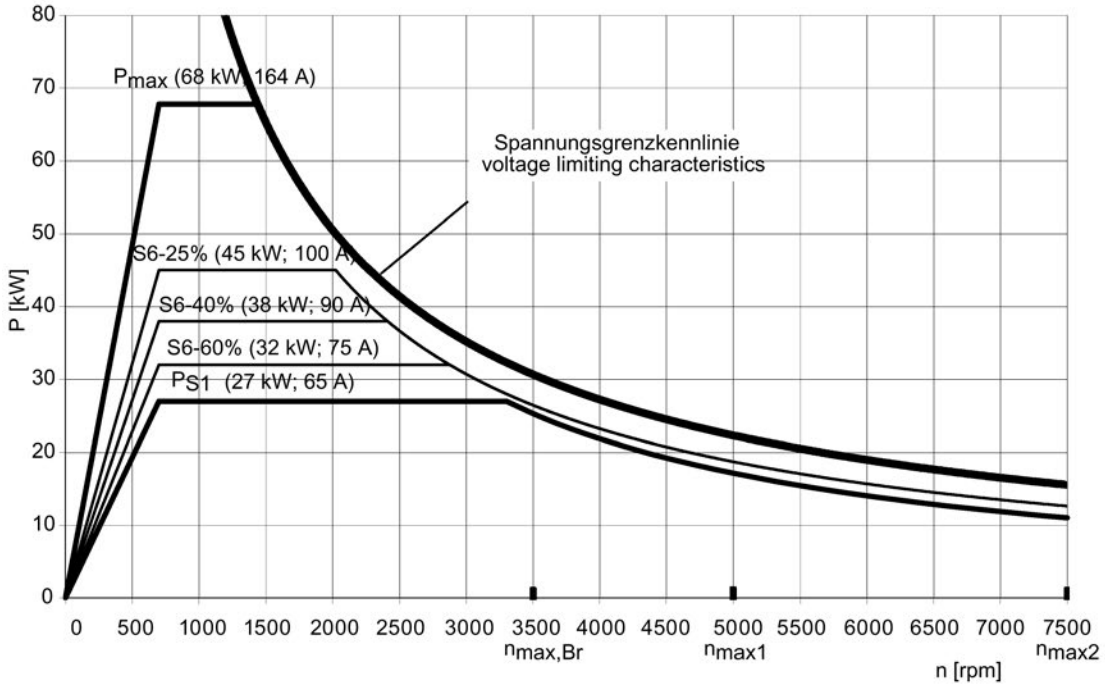


Table 6- 264 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP55)

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	5,000	7,500	-	3,500	3,300	925	164	368	65



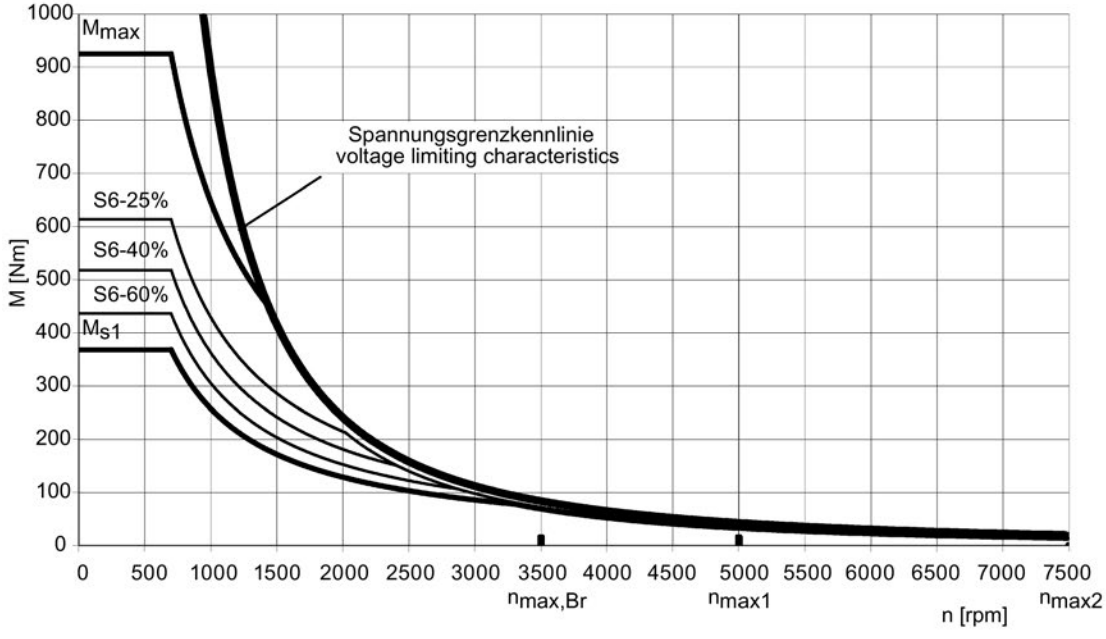
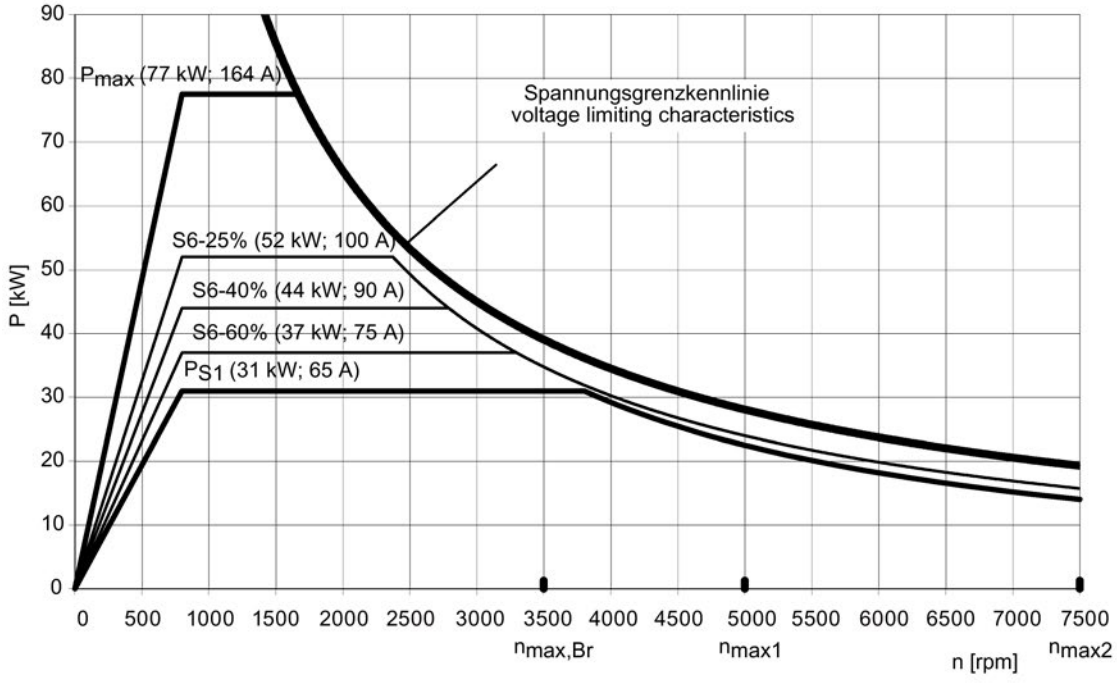


Table 6- 265 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP55)

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	5,000	7,500	-	3,500	3,800	925	164	370	65
700	27	368	65					4,300				



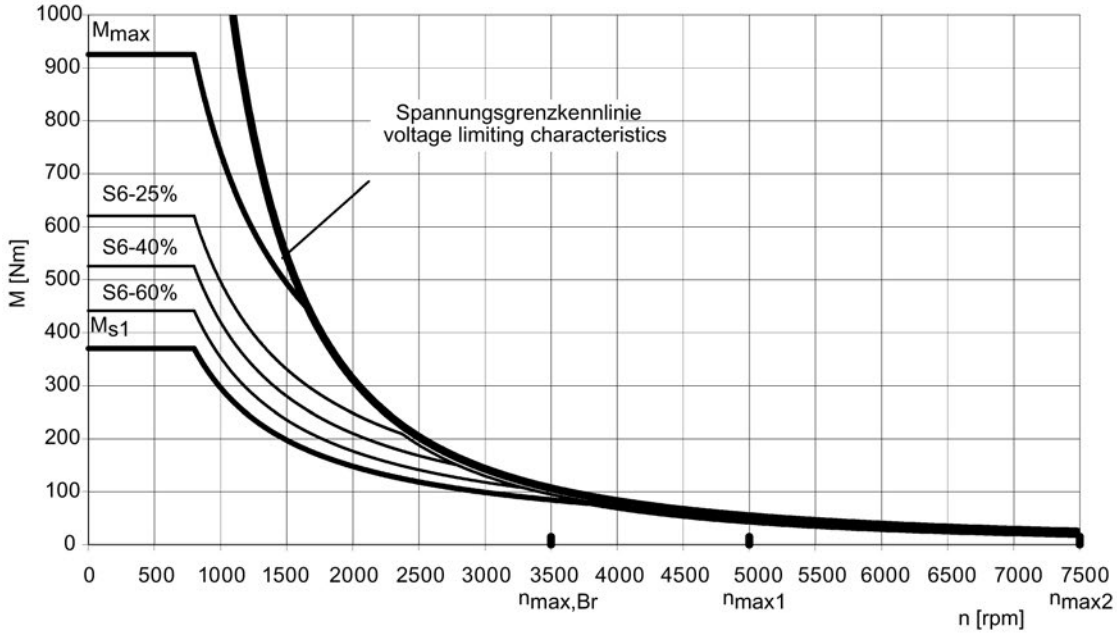
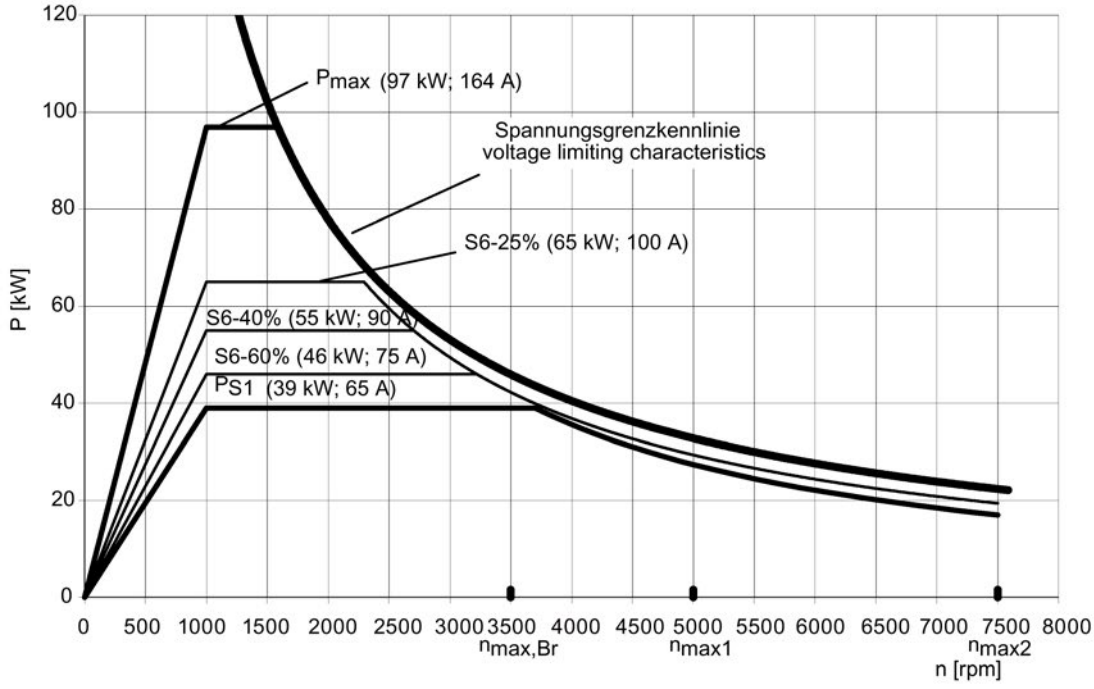


Table 6- 266 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP55)

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]
1,000	39	372	65	5,000	7,500	-	3,500	3,700	925	164	372	65



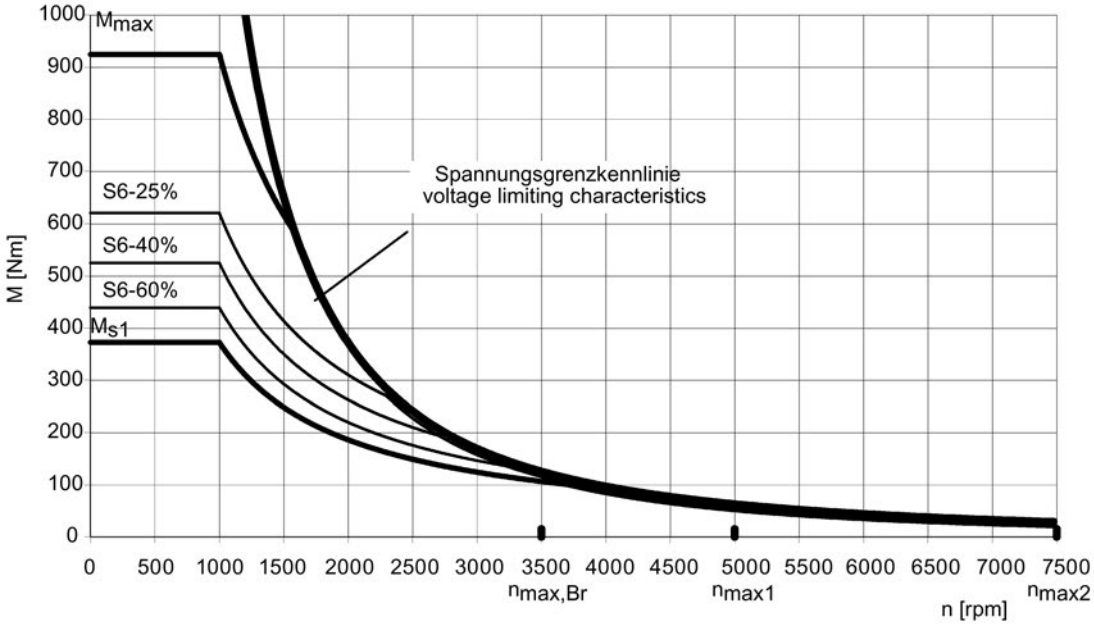
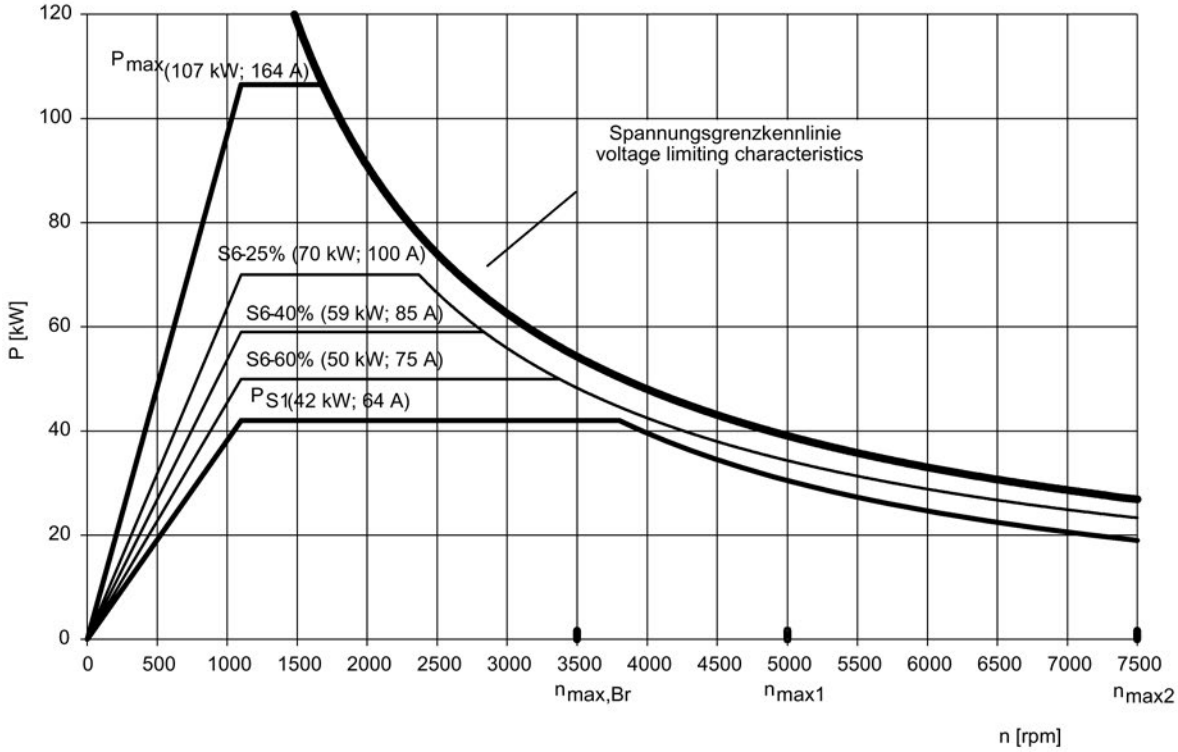


Table 6- 267 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	42	365	64	5,000	7,500	-	3,500	3,800	925	164	368	64



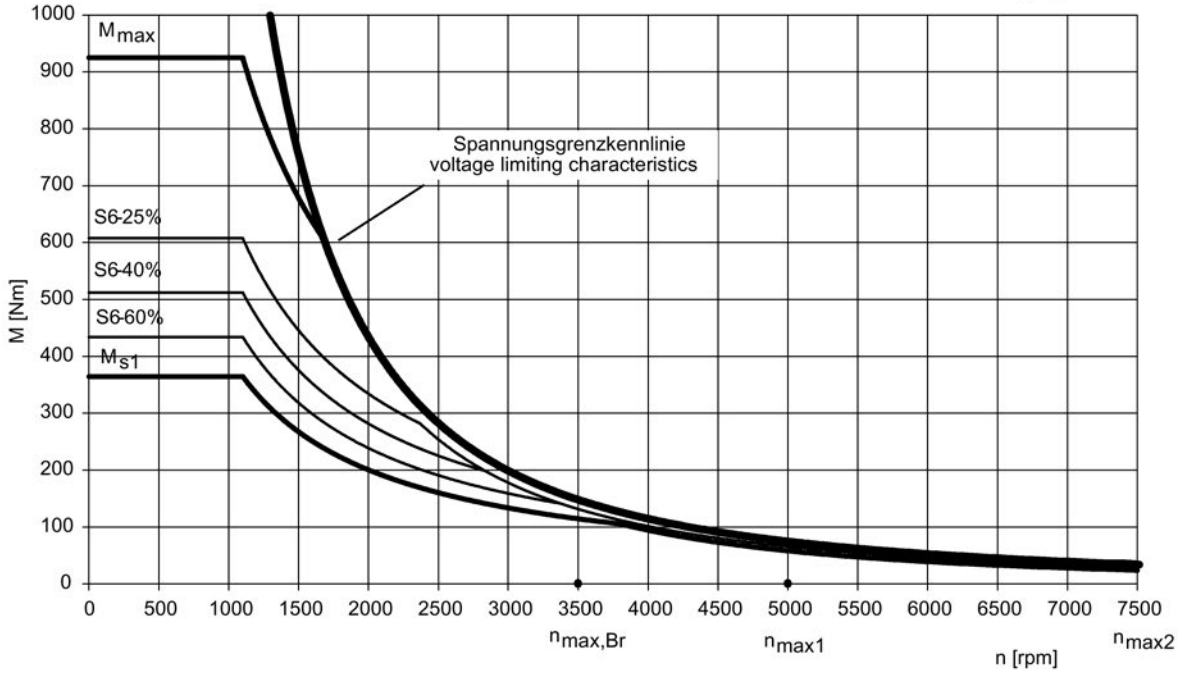
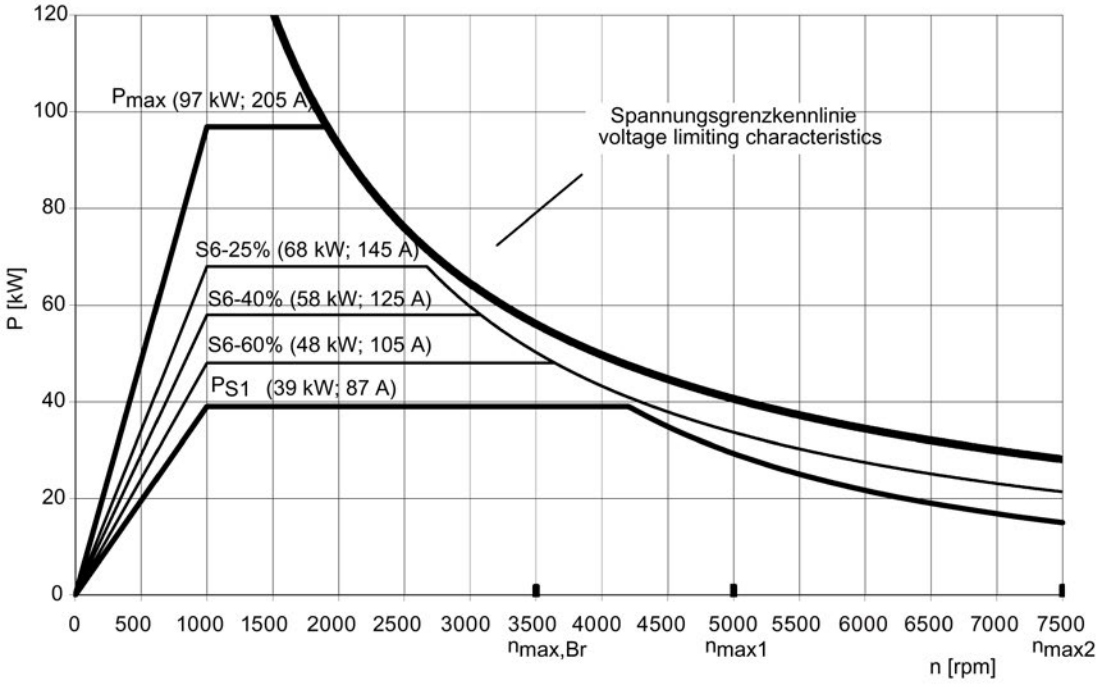


Table 6- 268 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP55)

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]
1,000	39	372	87	5,000	7,500	-	3,500	4,200	925	205	372	87



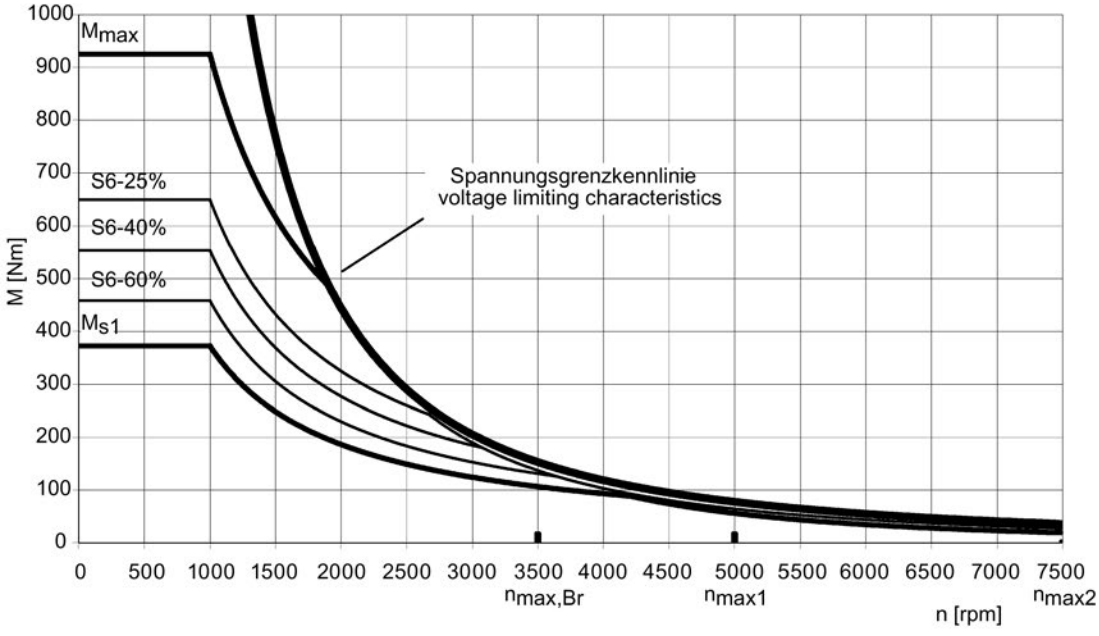
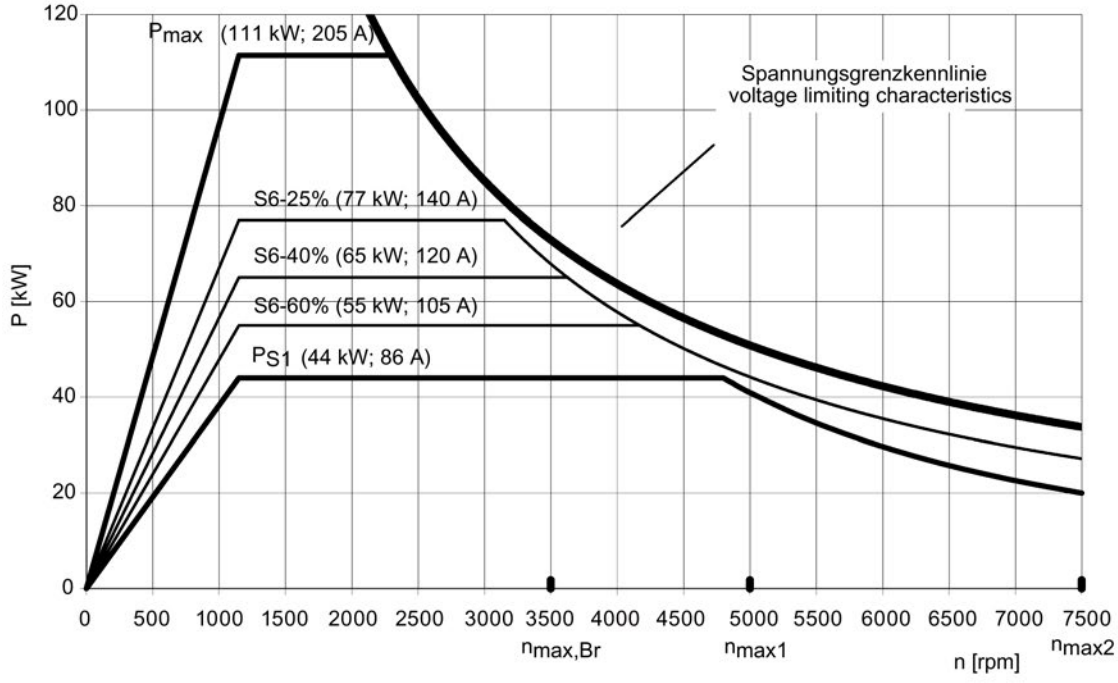


Table 6- 269 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP55)

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]
1,150	44	365	86	5,000	7,500	-	3,500	4,800	925	205	365	86
1,000	39	372	87					5,100				



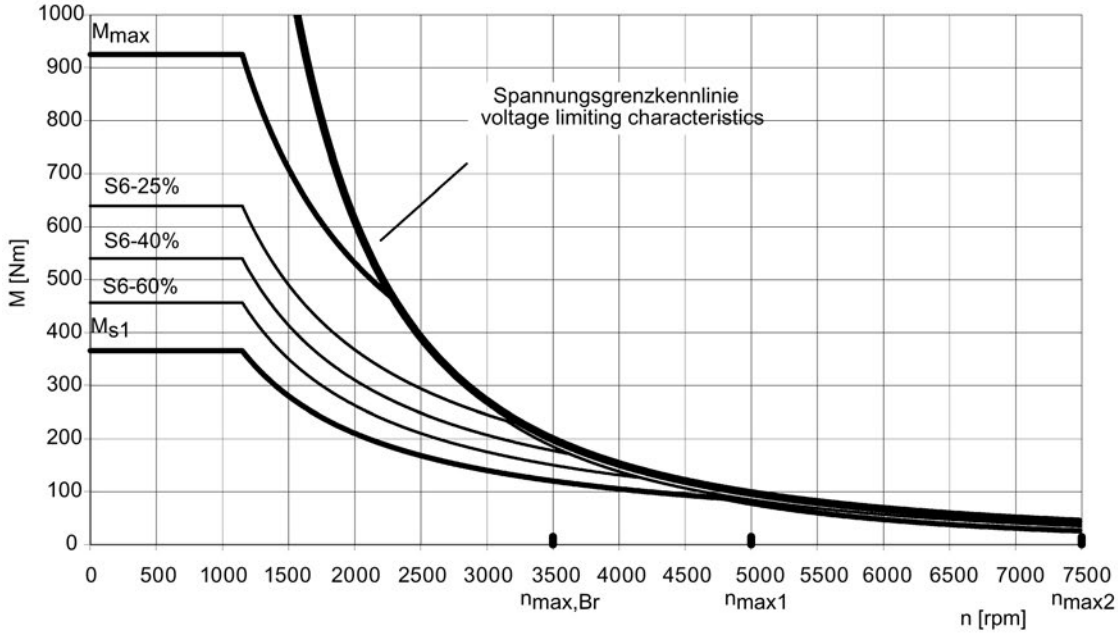
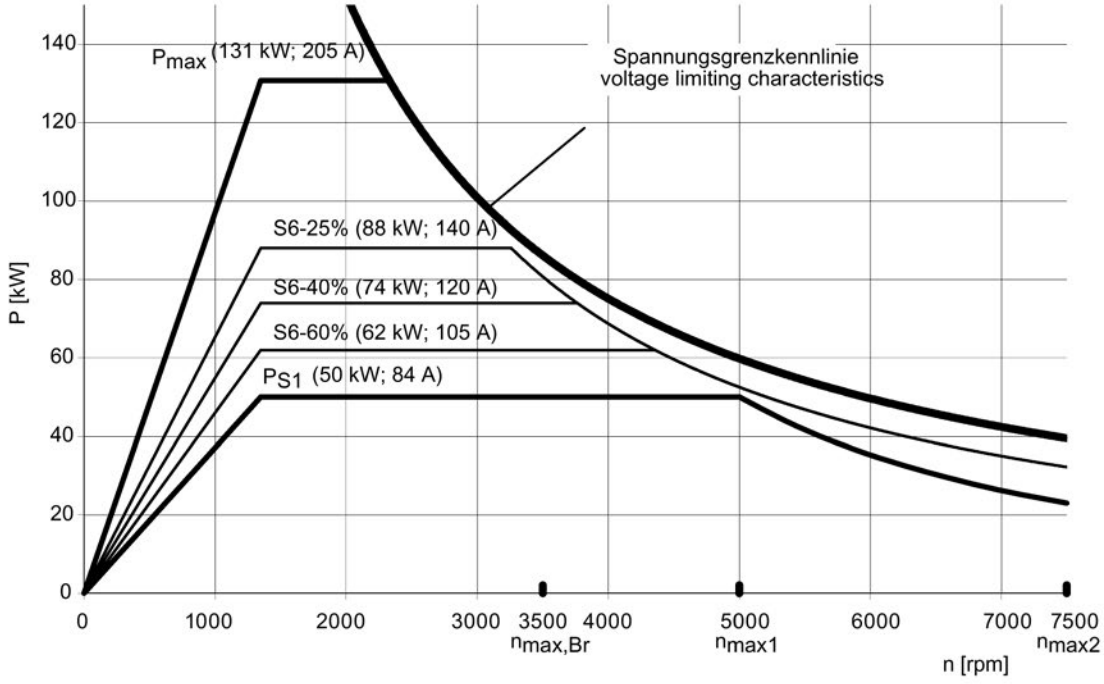


Table 6- 270 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP55)

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]
1,350	50	354	84	5,000	7,500	-	3,500	5,000	925	205	354	84



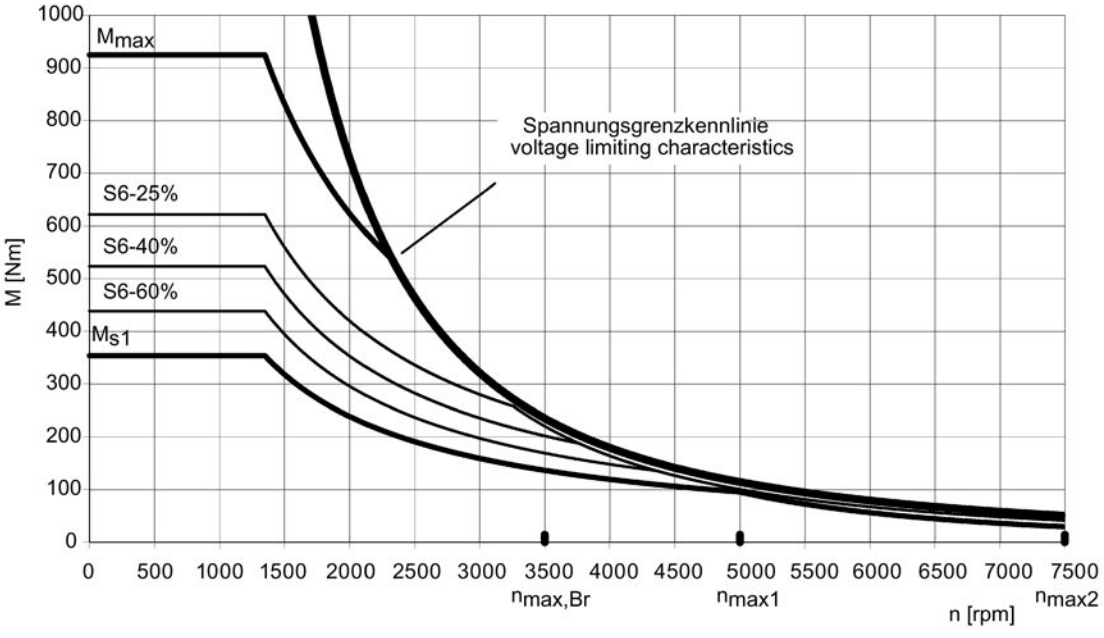
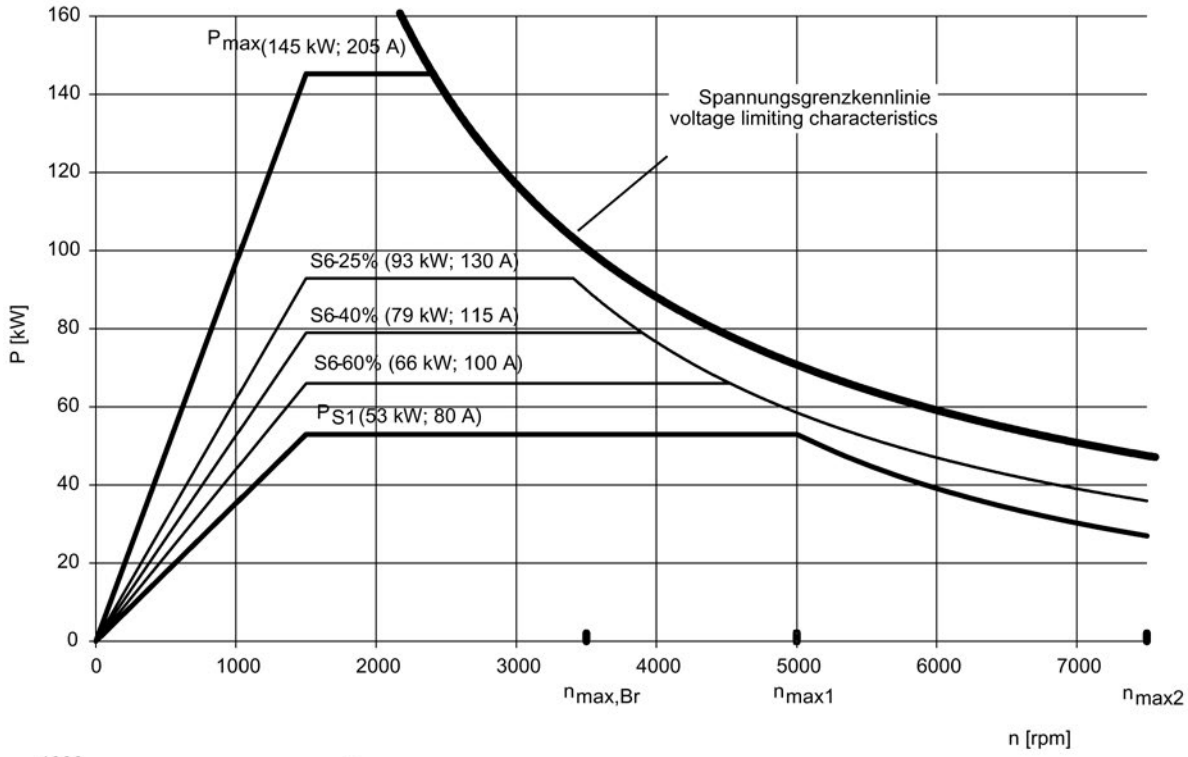


Table 6- 271 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	53	337	80	5,000	7,500	-	3,500	5,000	925	205	372	80



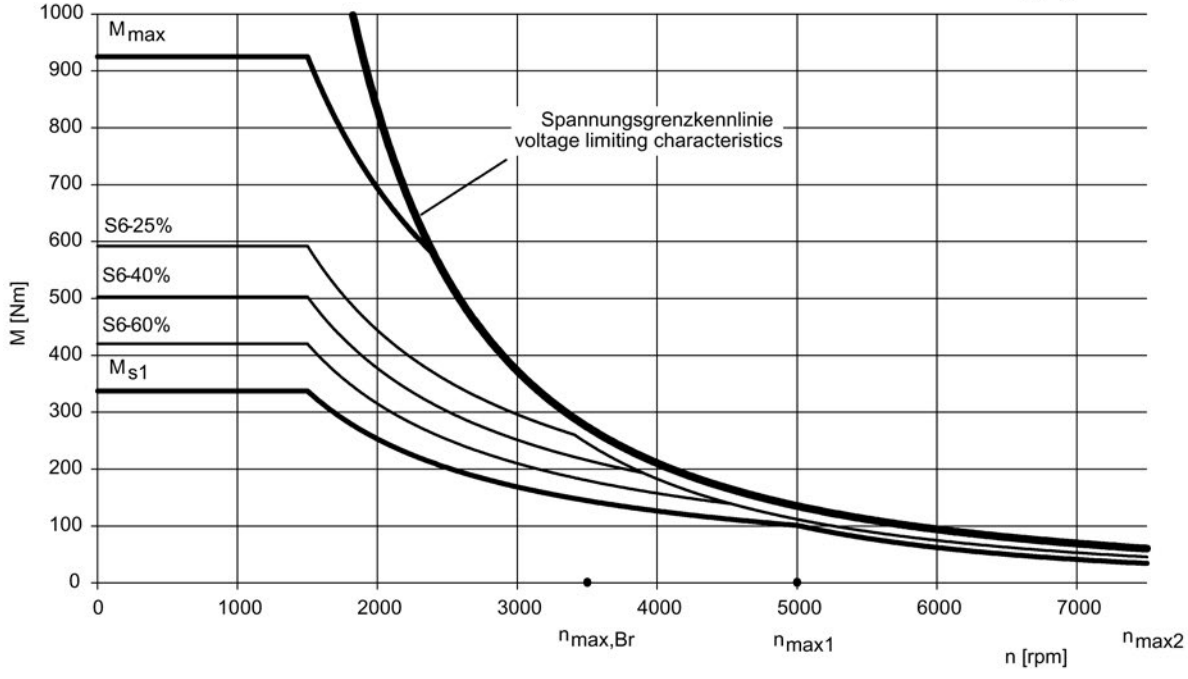
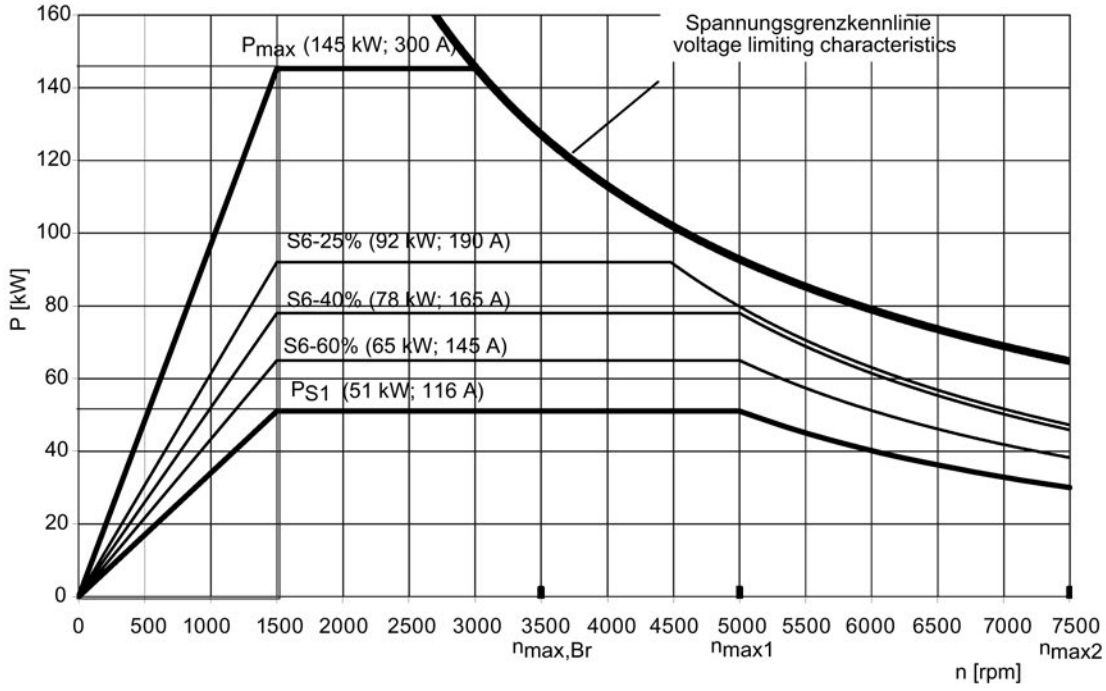


Table 6- 272 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP55)

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]
1,500	51	325	116	5,000	7,500	-	3,500	5,000	925	300	325	116



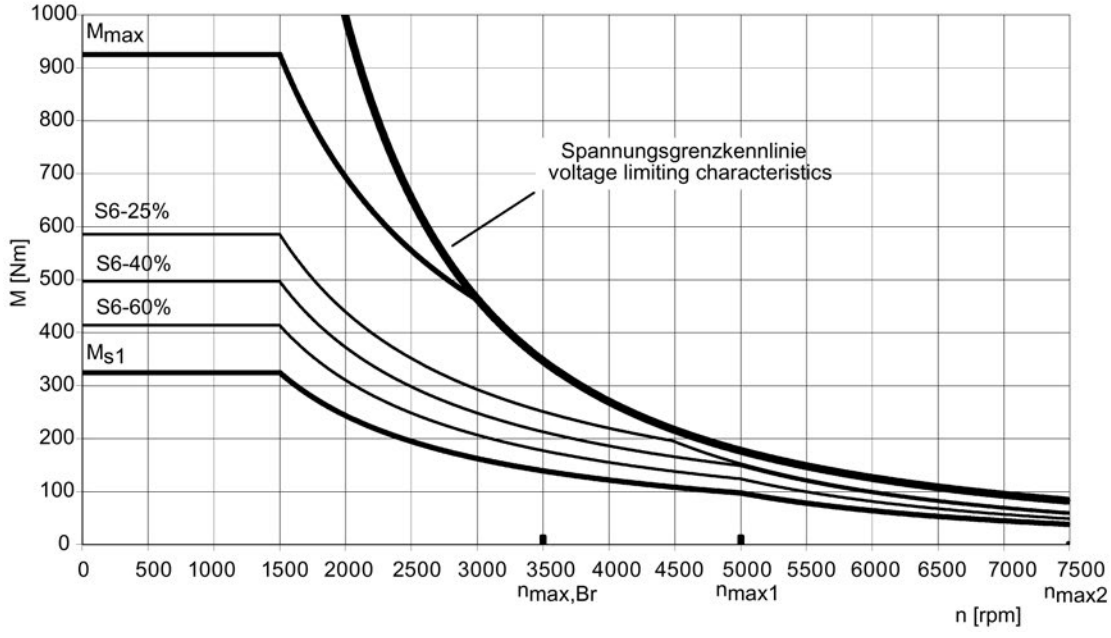
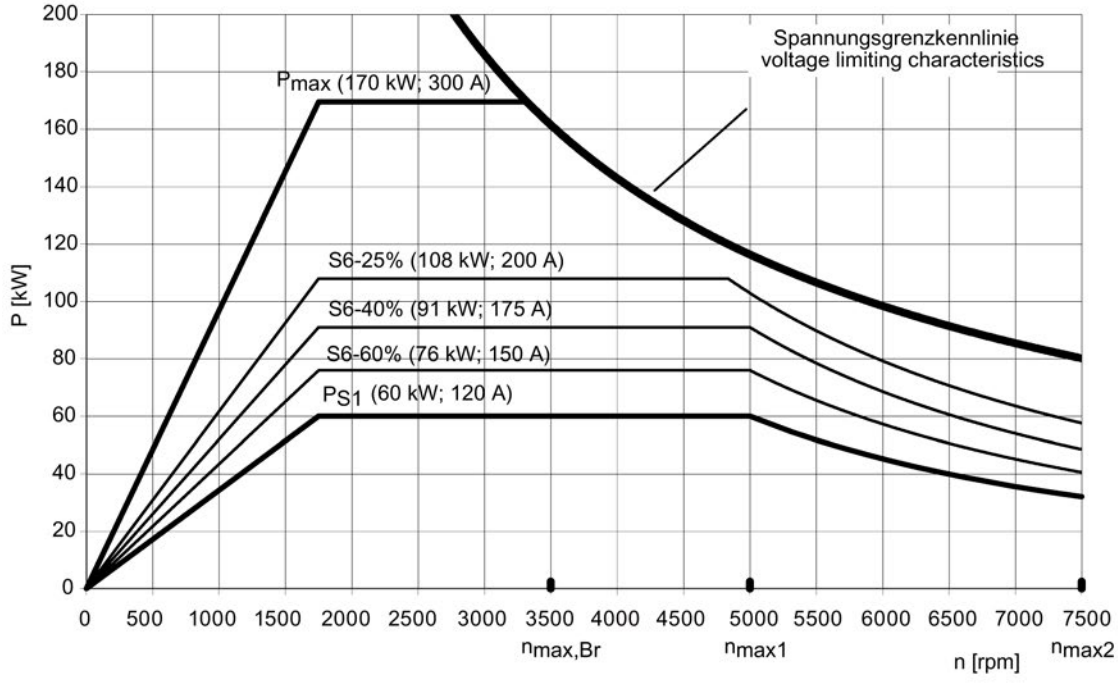


Table 6- 273 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP55)

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]
1,750	60	327	120	5,000	7,500	-	3,500	5,000	925	300	327	120
1,500	51	325	116					5,600				



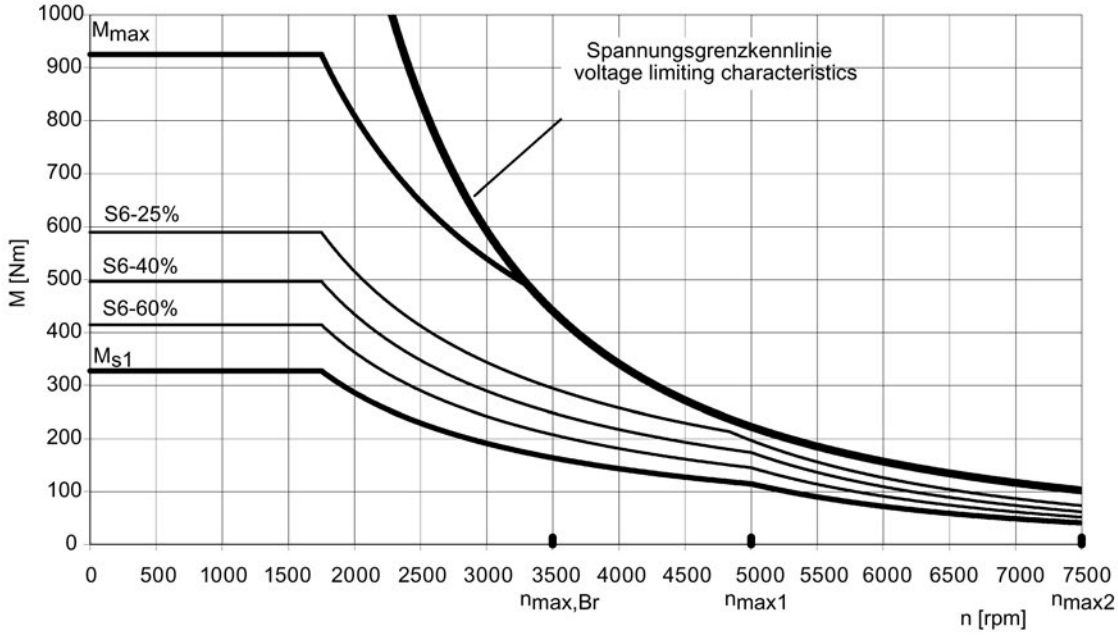
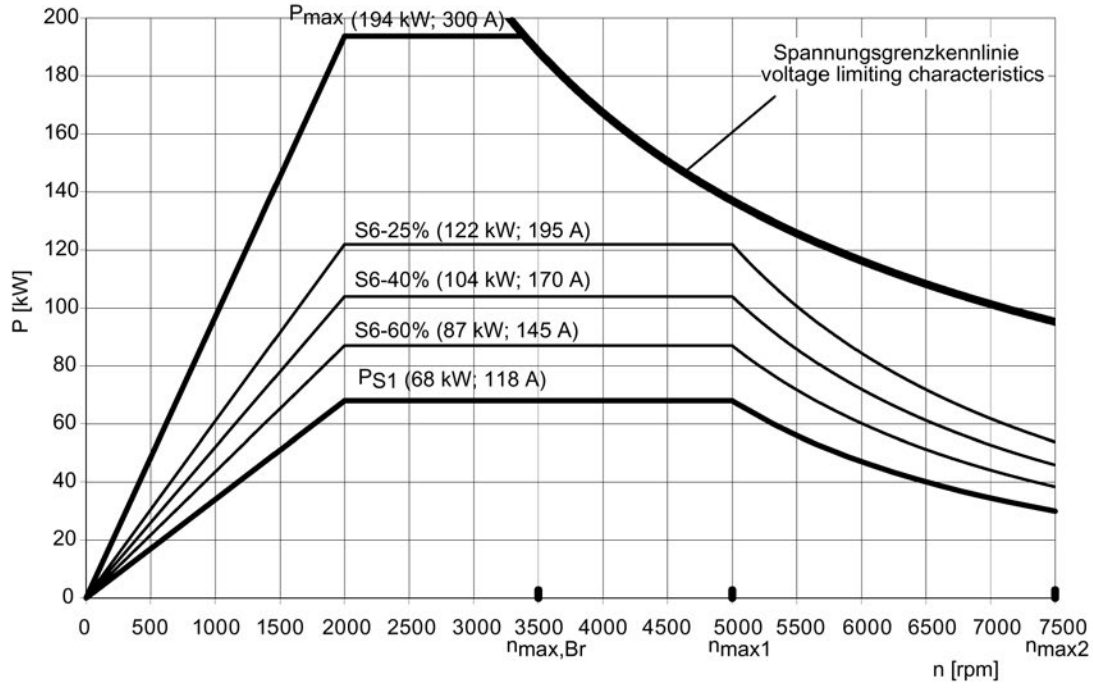


Table 6- 274 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP55)

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]
2,000	68	325	118	5,000	7,500	-	3,500	5,000	925	300	325	118



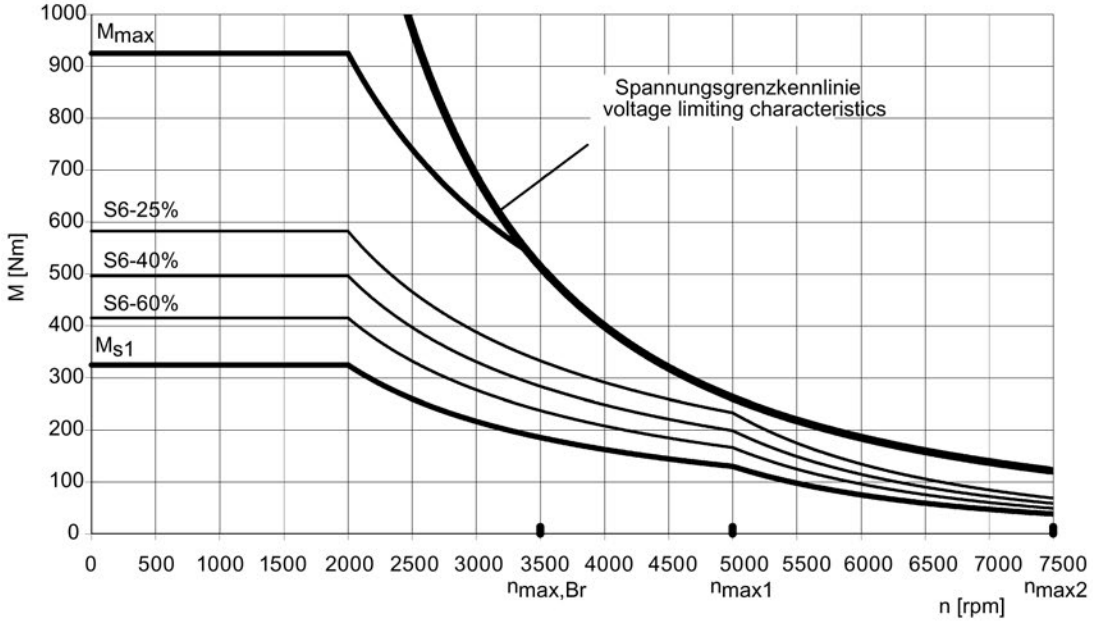
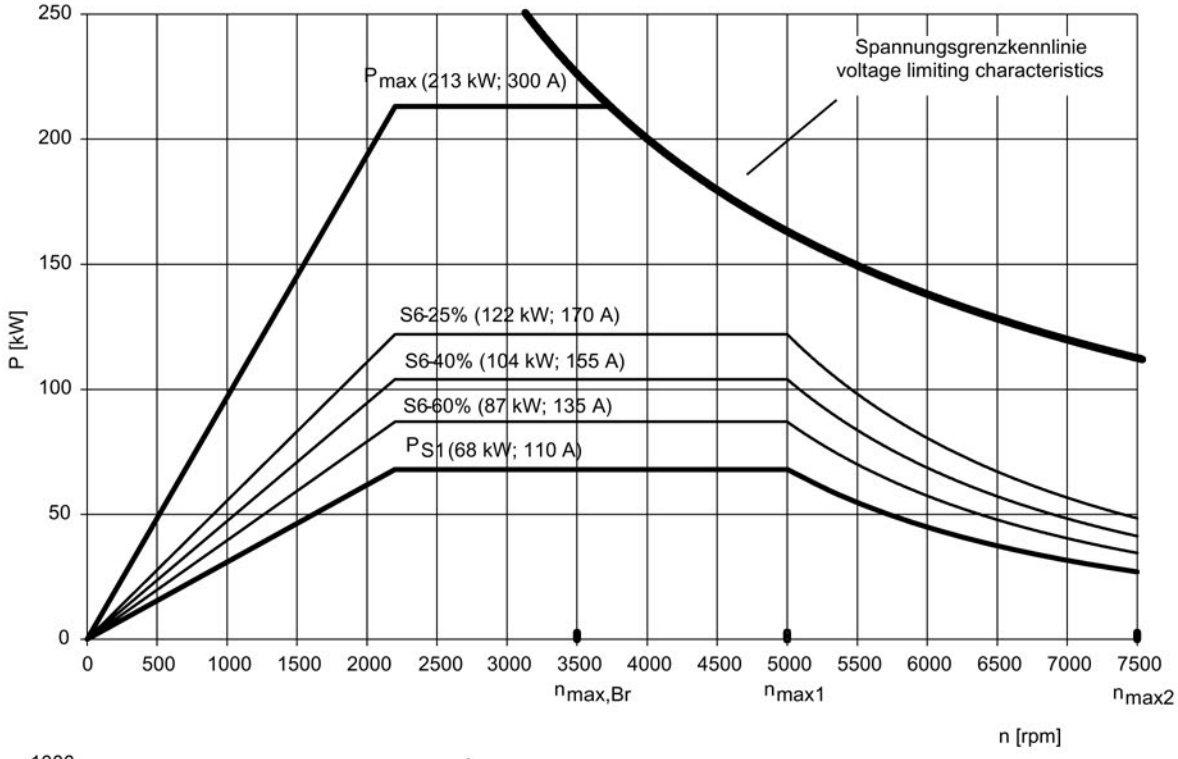


Table 6- 275 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	68	295	110	5,000	7,500	-	3,500	5,000	925	300	325	110



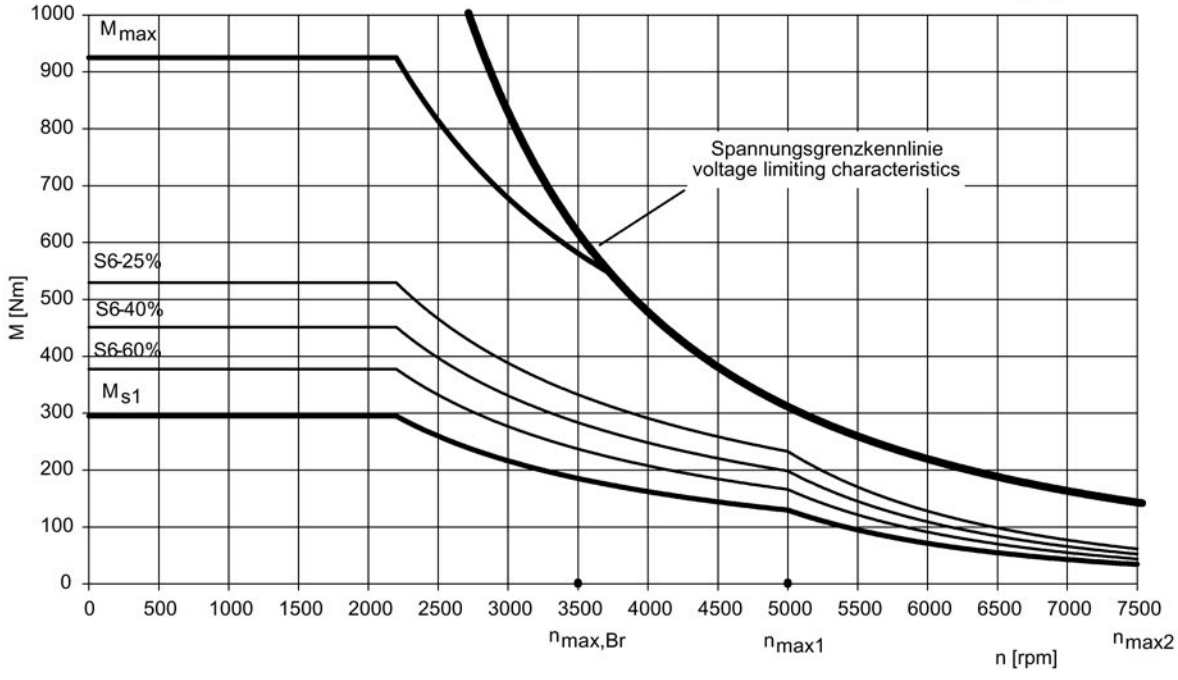
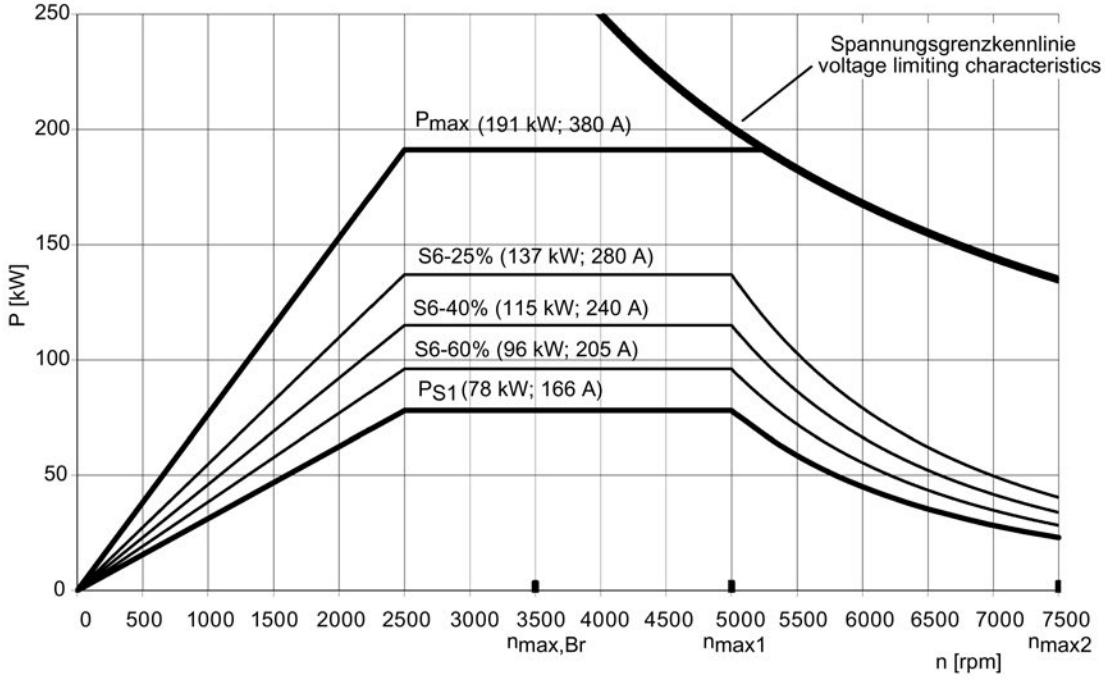


Table 6- 276 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L□□, (IP55)

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]
2,500	78	298	166	5,000	7,500	-	3,500	5,000	730	380	298	166



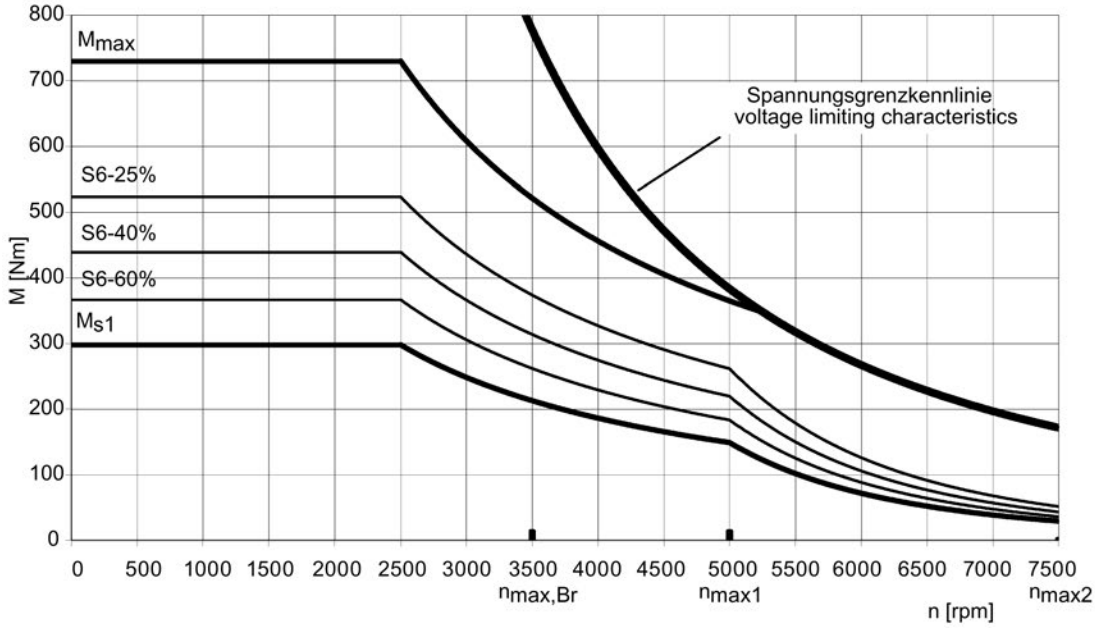
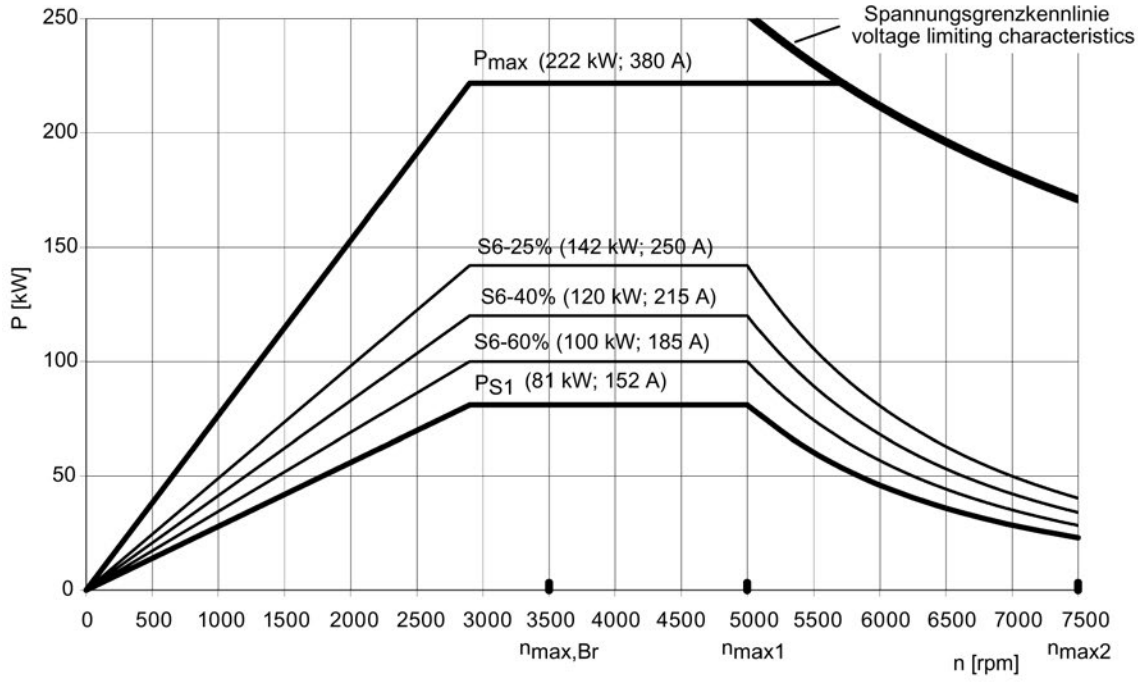


Table 6- 277 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L□□, (IP55)

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]
2,900	81	267	152	5,000	7,500	-	3,500	5,000	730	380	267	152
2,500	78	298	166					5,100				



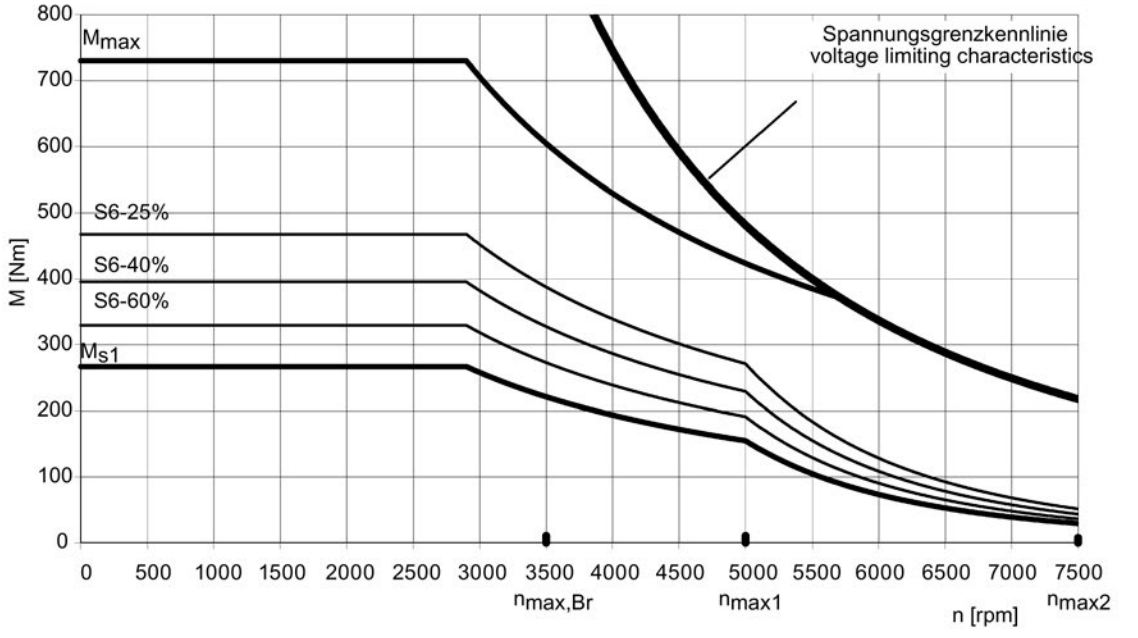
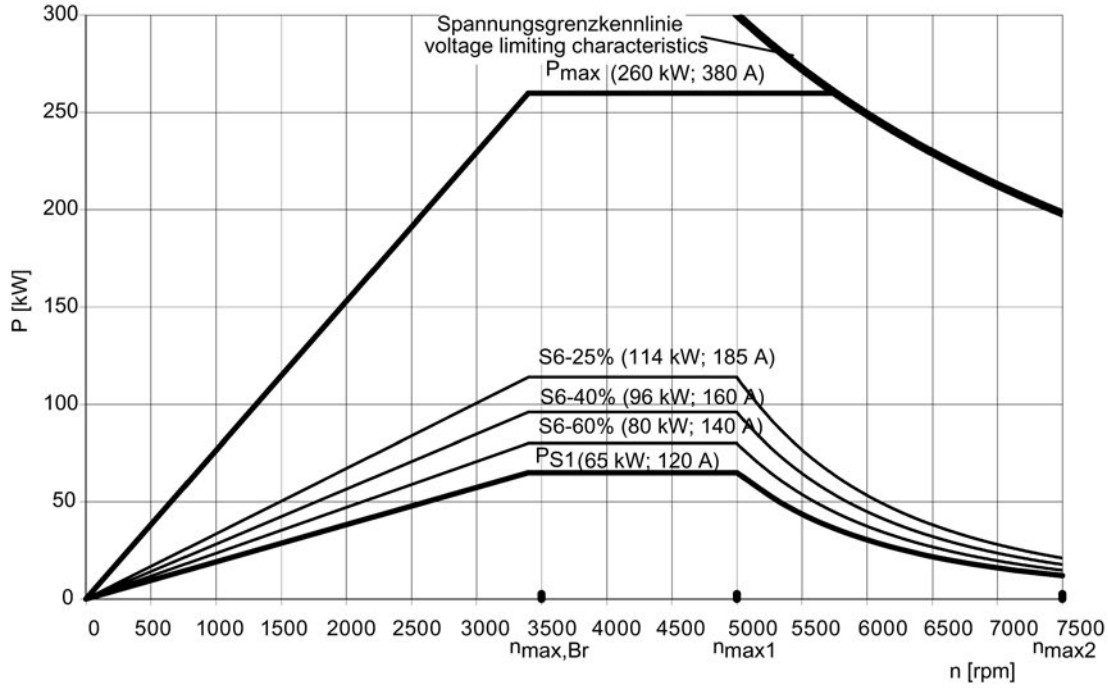
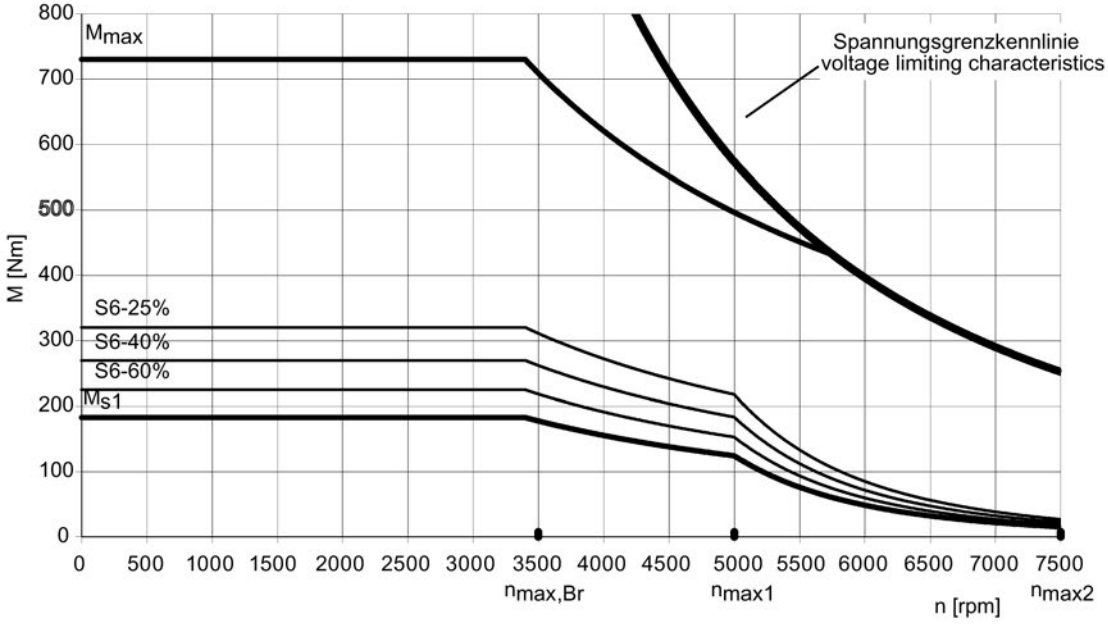


Table 6- 278 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L□□, (IP55)

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]
3,400	65	183	120	5,000	7,500	-	3,500	5,000	730	380	183	120

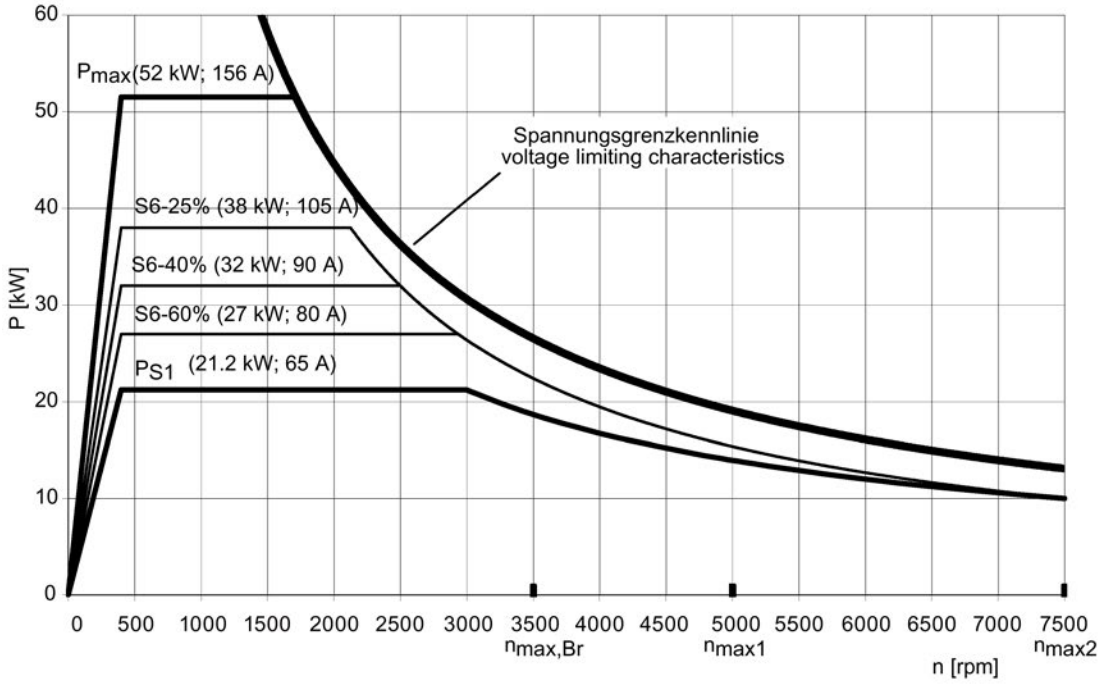




Note: In this electrical version (L winding), supplementary losses that are disproportionately high relative to the speed occur at high connection voltages (480 V 3AC), depending on the modulation depth of the converter. To comply with the permissible motor temperature, a power reduction must be considered in the configuration.

Table 6- 279 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	5,000	7,500	-	3,500	3,000	1,230	156	506	65



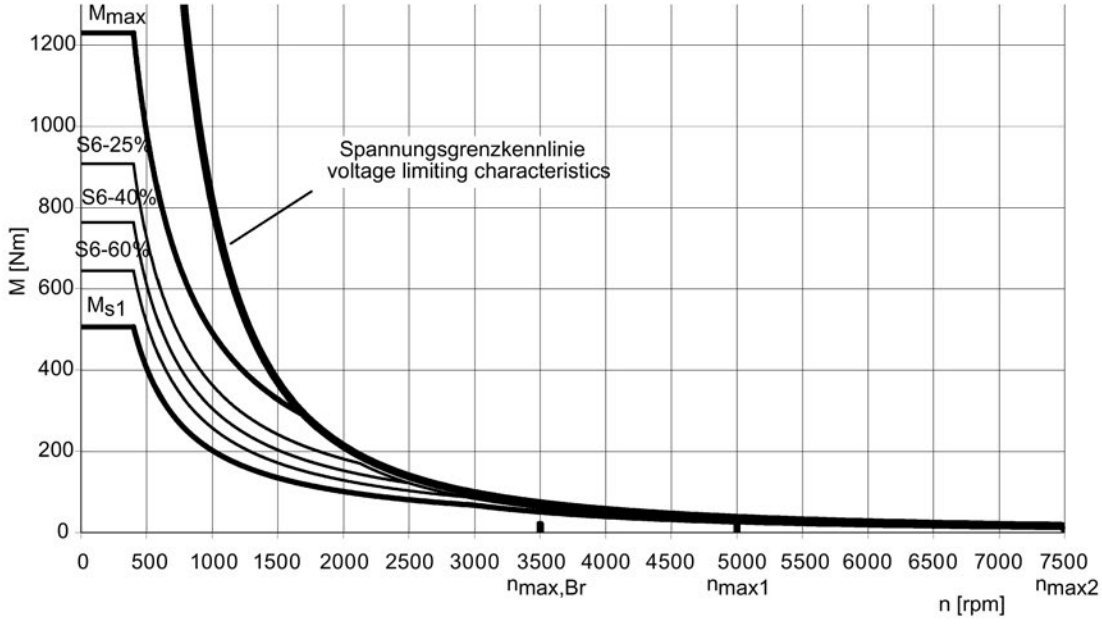
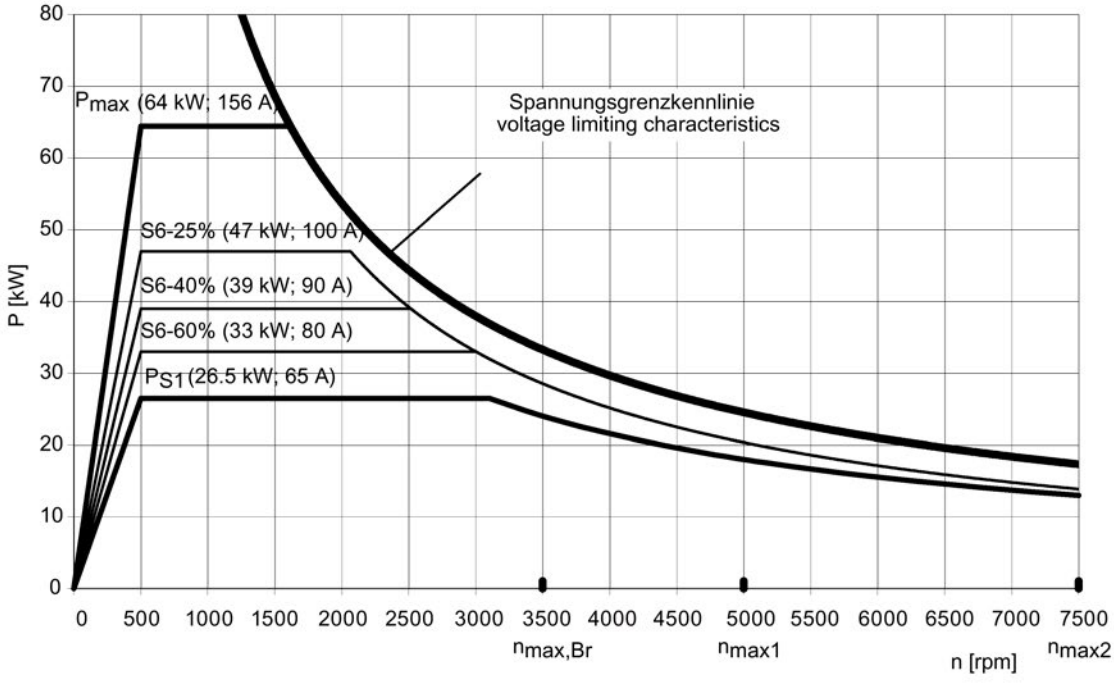


Table 6- 280 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP55)

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	5,000	7,500	-	3,500	3,100	1,230	156	506	65
400	21.2	506	65					4,100				



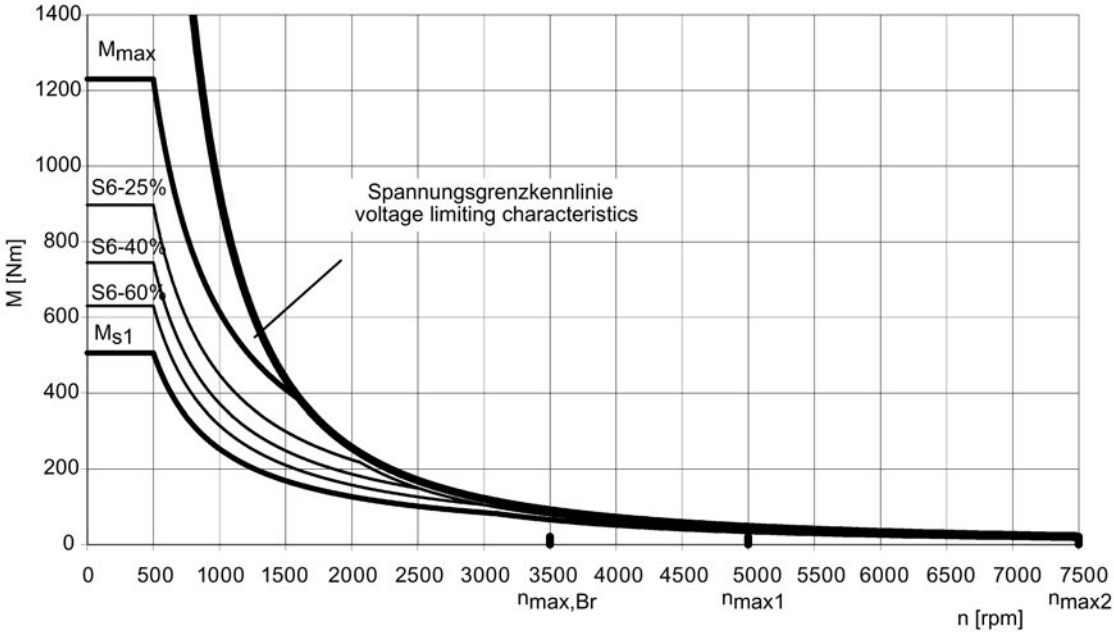
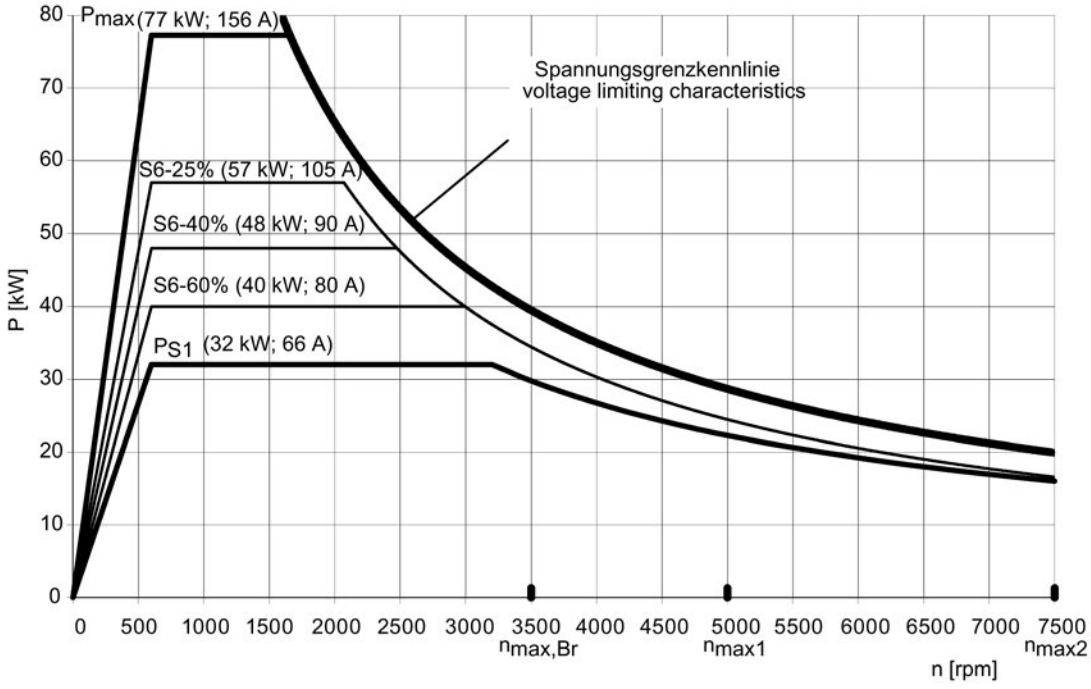


Table 6- 281 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B□□, (IP55)

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	5,000	7,500	-	3,500	3,200	1,230	156	509	66



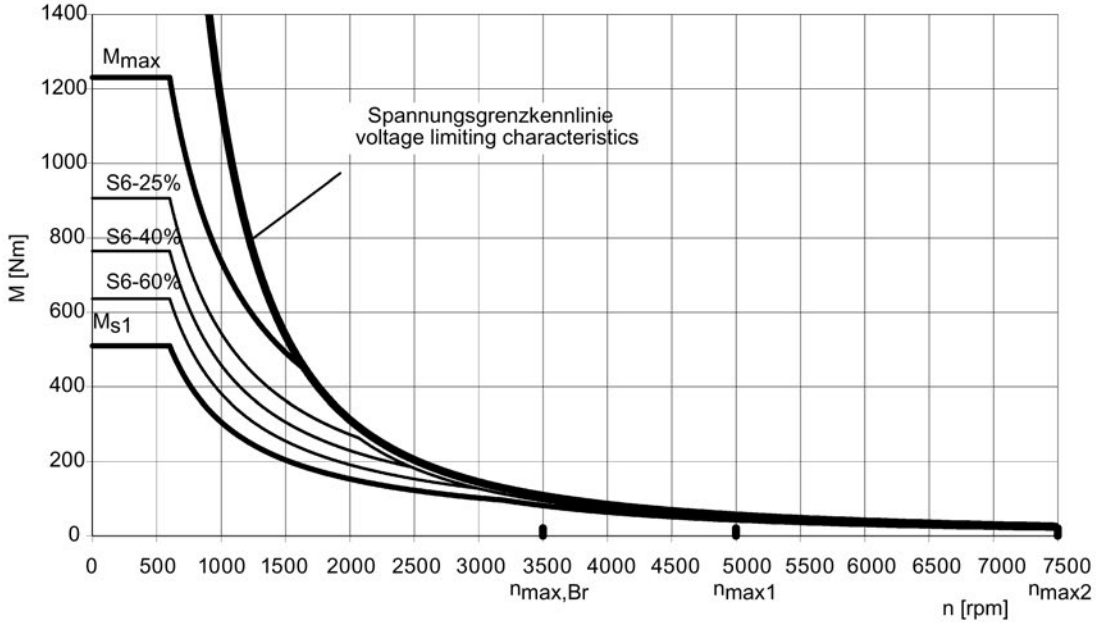
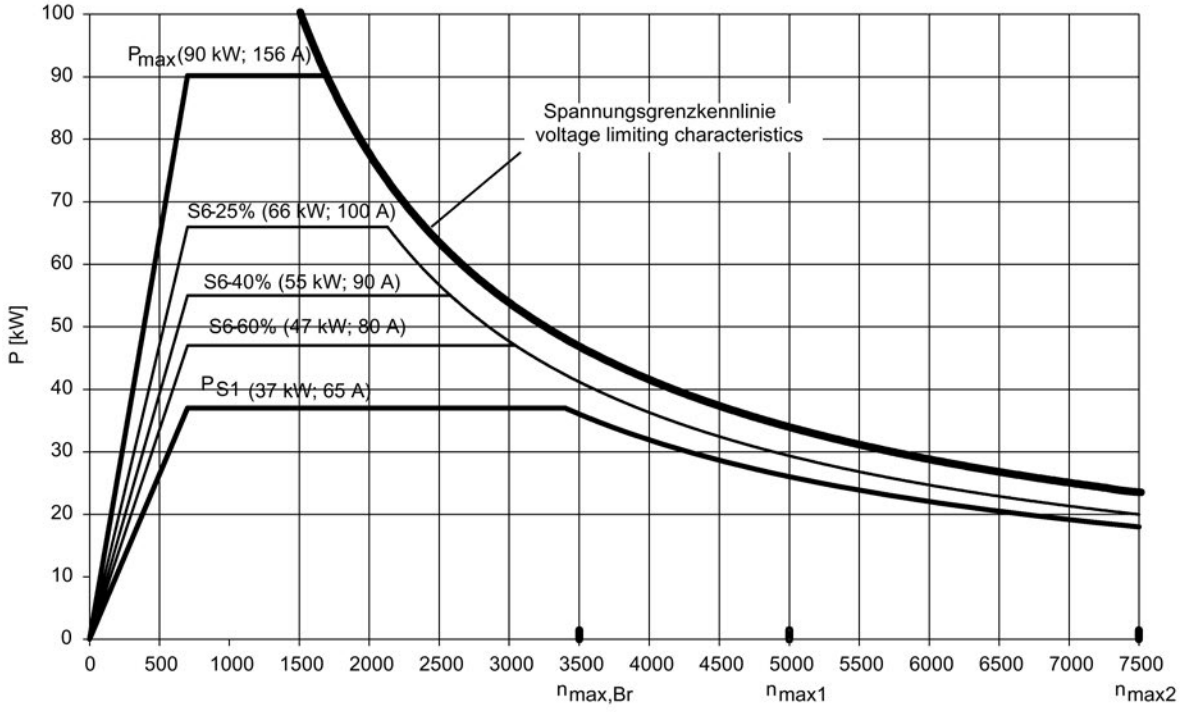


Table 6- 282 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	37	505	65	5,000	7,500	-	3,500	3,400	1,230	156	506	65



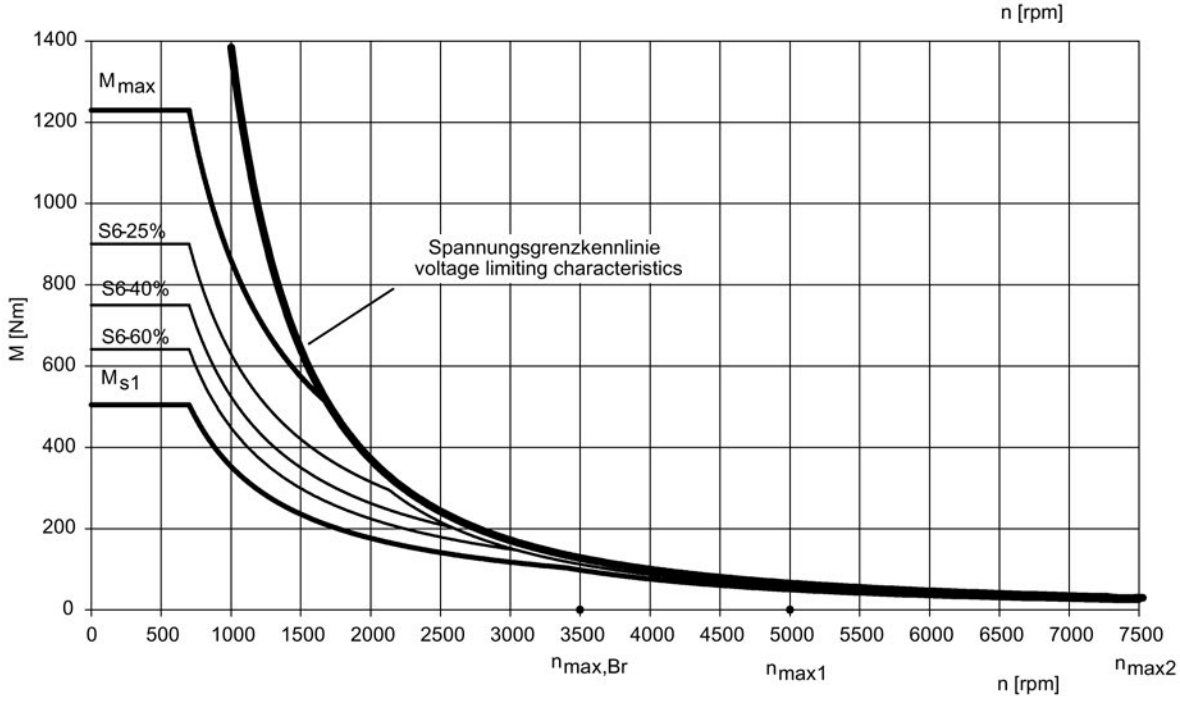
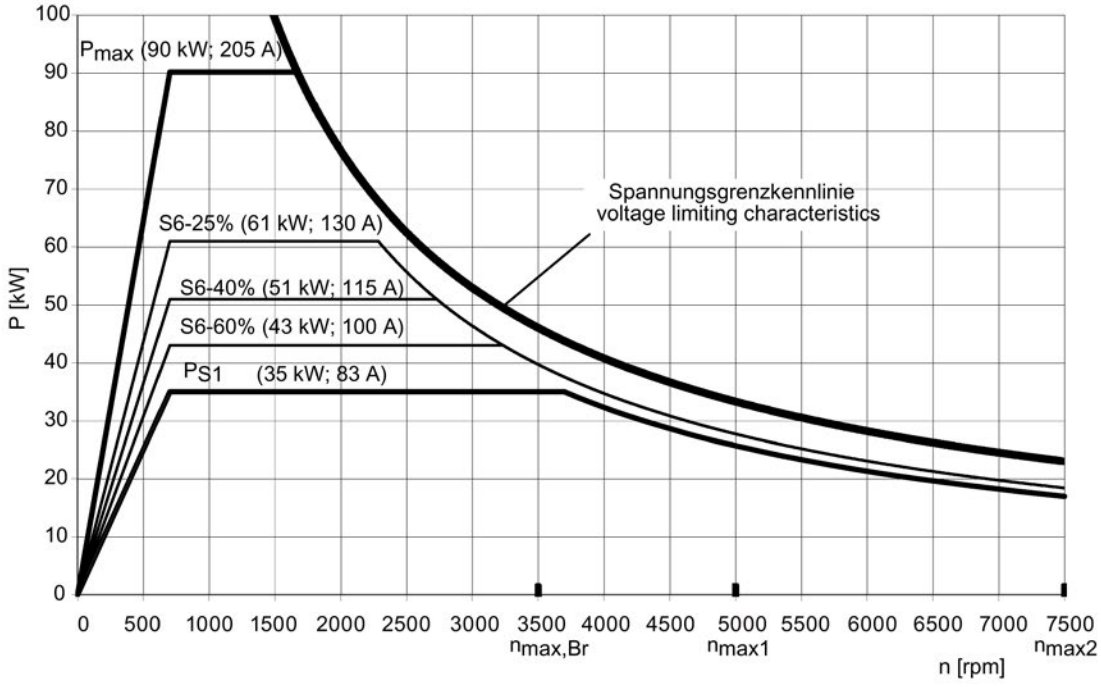


Table 6- 283 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP55)

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	5,000	7,500	-	3,500	3,700	1,230	205	478	83



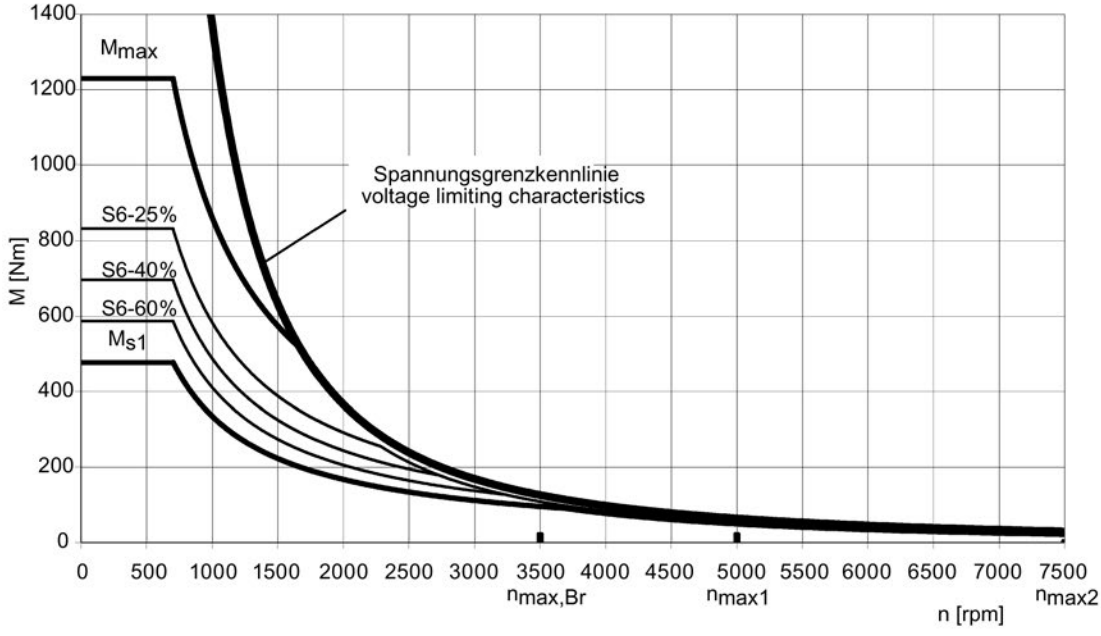
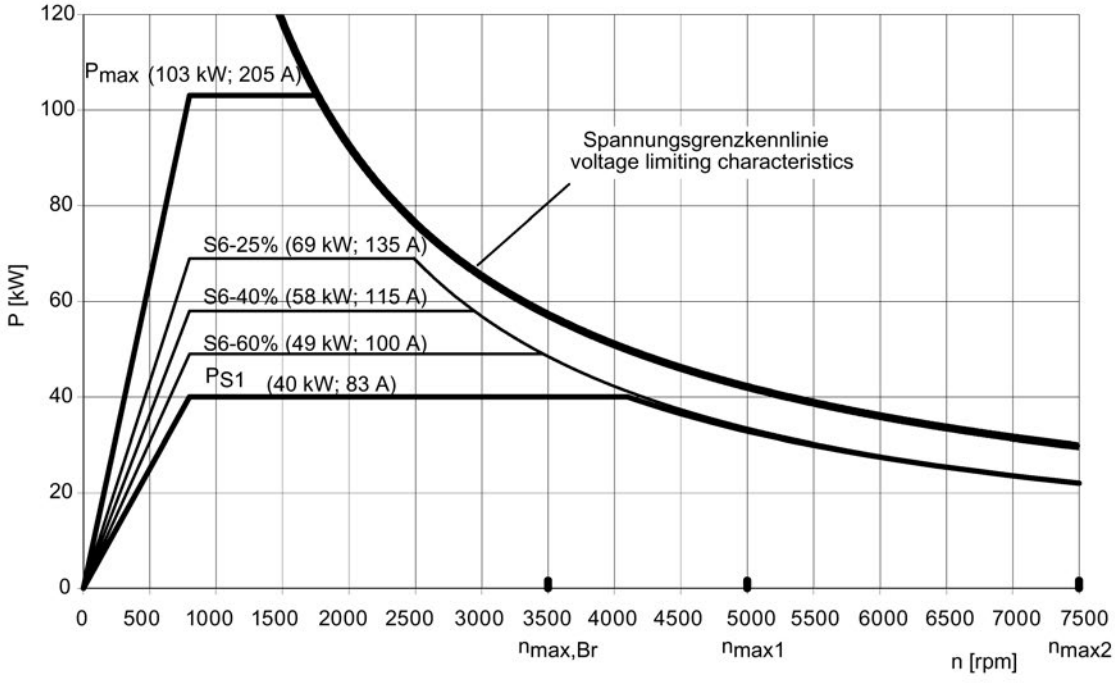


Table 6- 284 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP55)

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	5,000	7,500	-	3,500	4,100	1,230	205	478	83
700	35	478	83					4,700				



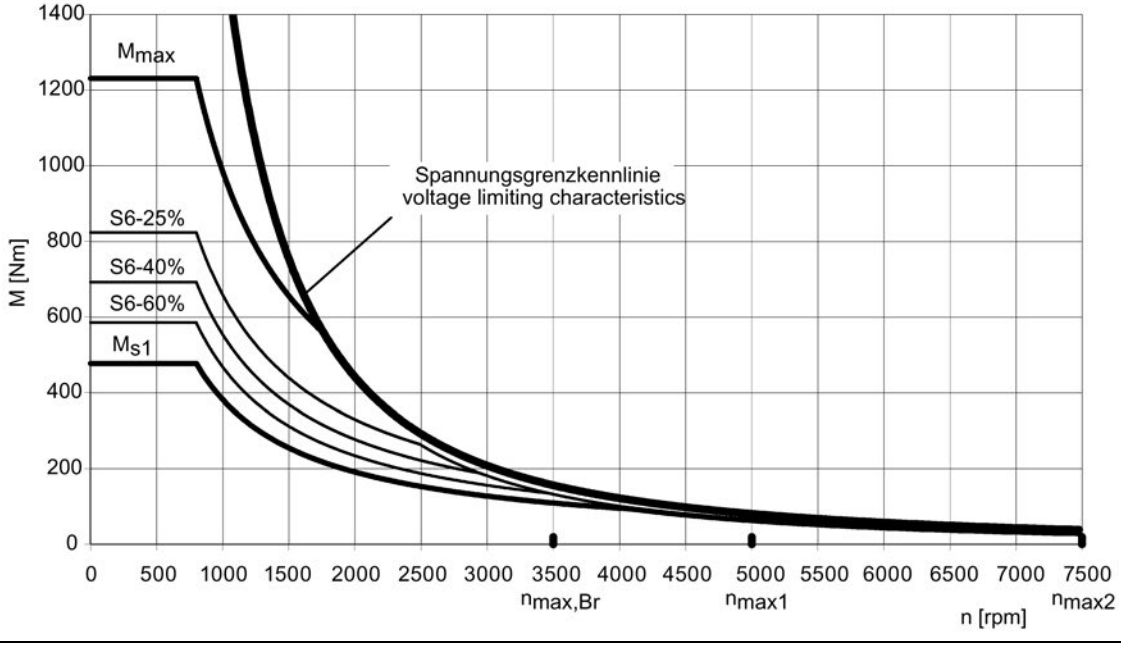
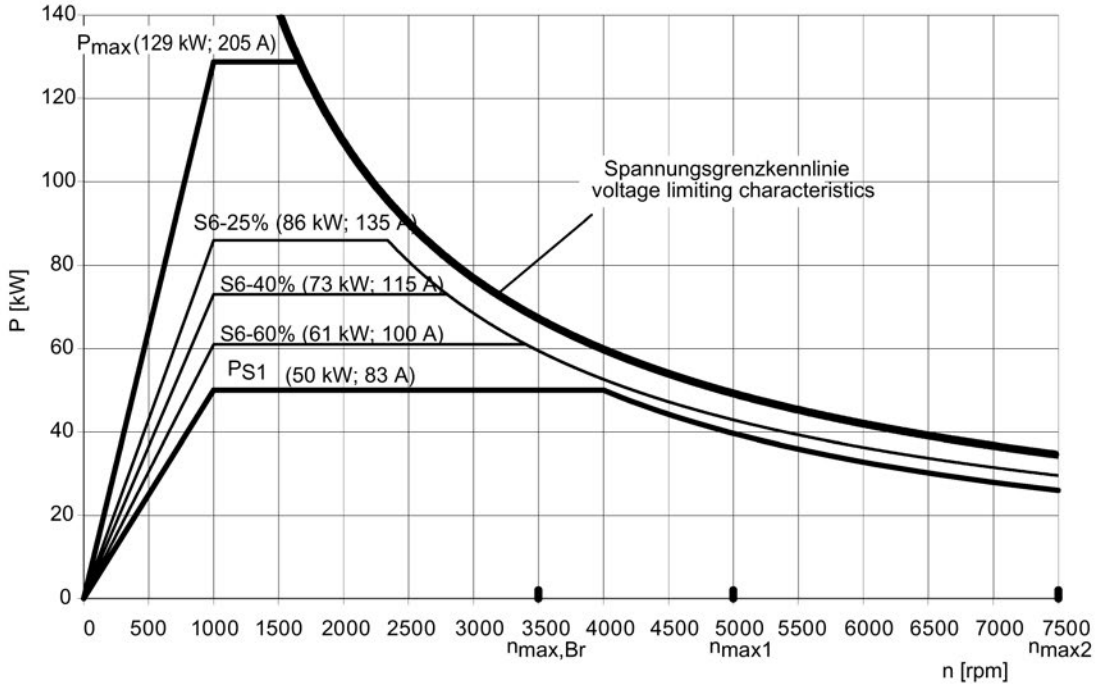


Table 6- 285 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP55)

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]
1,000	50	478	83	5,000	7,500	-	3,500	4,000	1,230	205	478	83



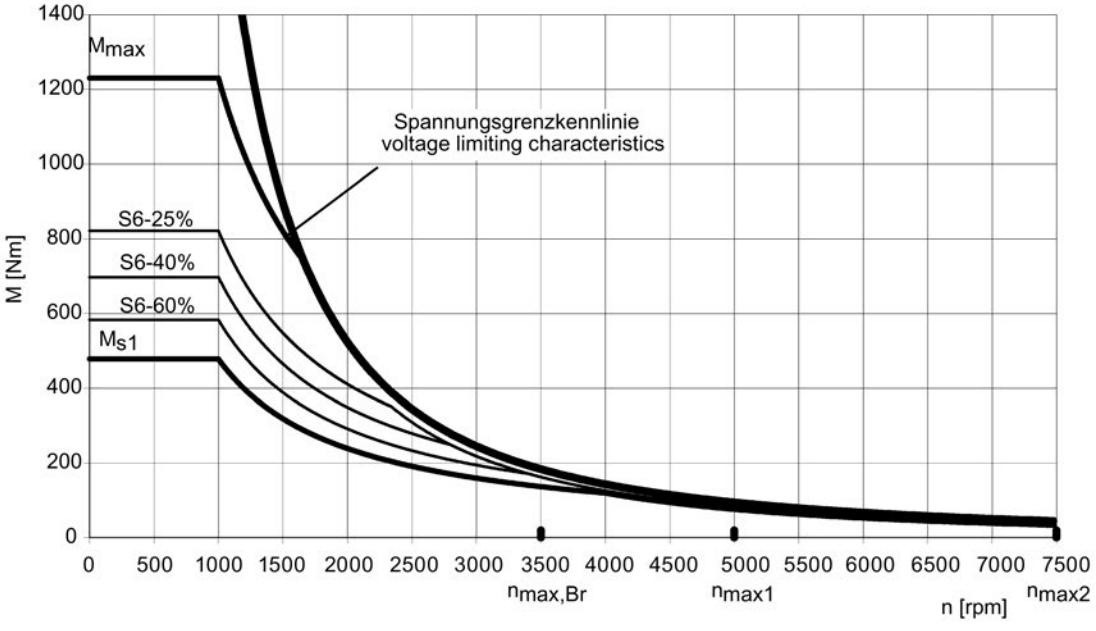
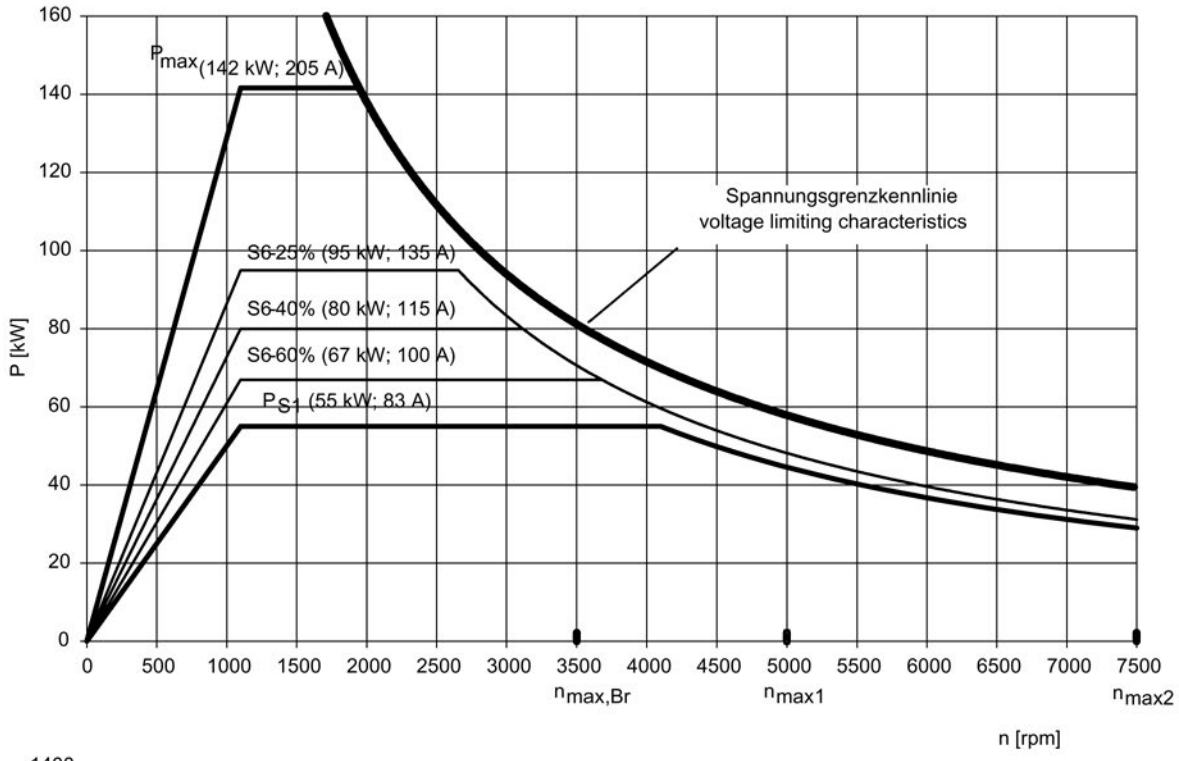


Table 6- 286 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	55	478	83	5,000	7,500	-	3,500	4,100	1,230	205	478	83



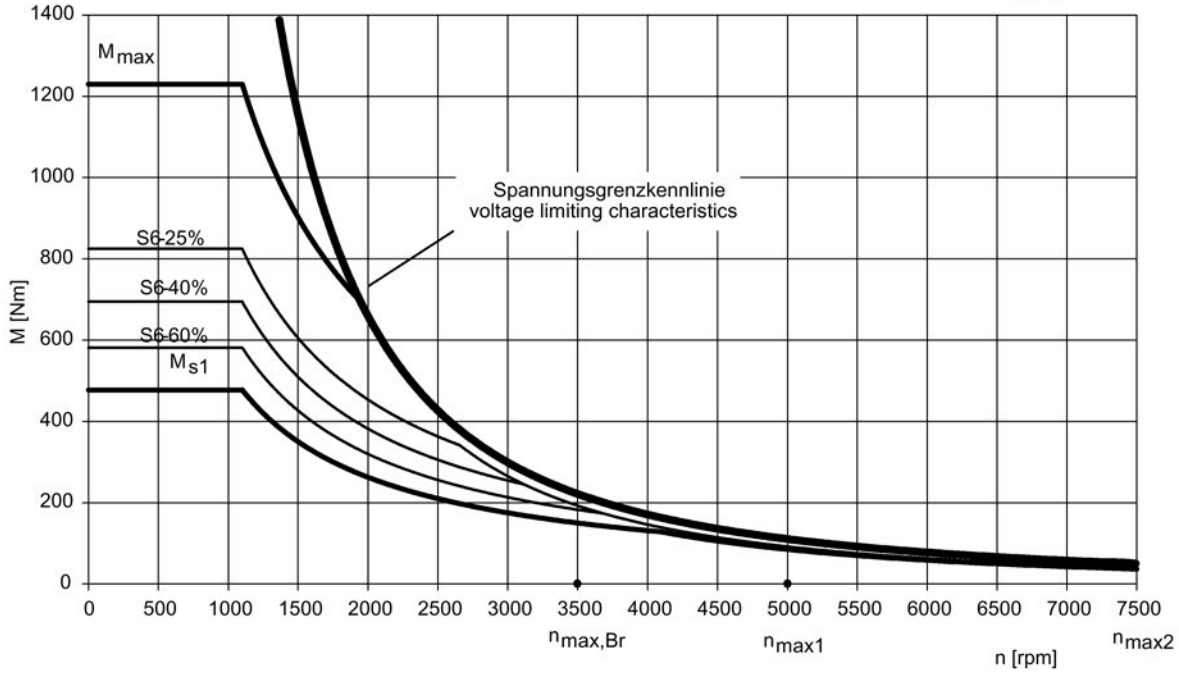
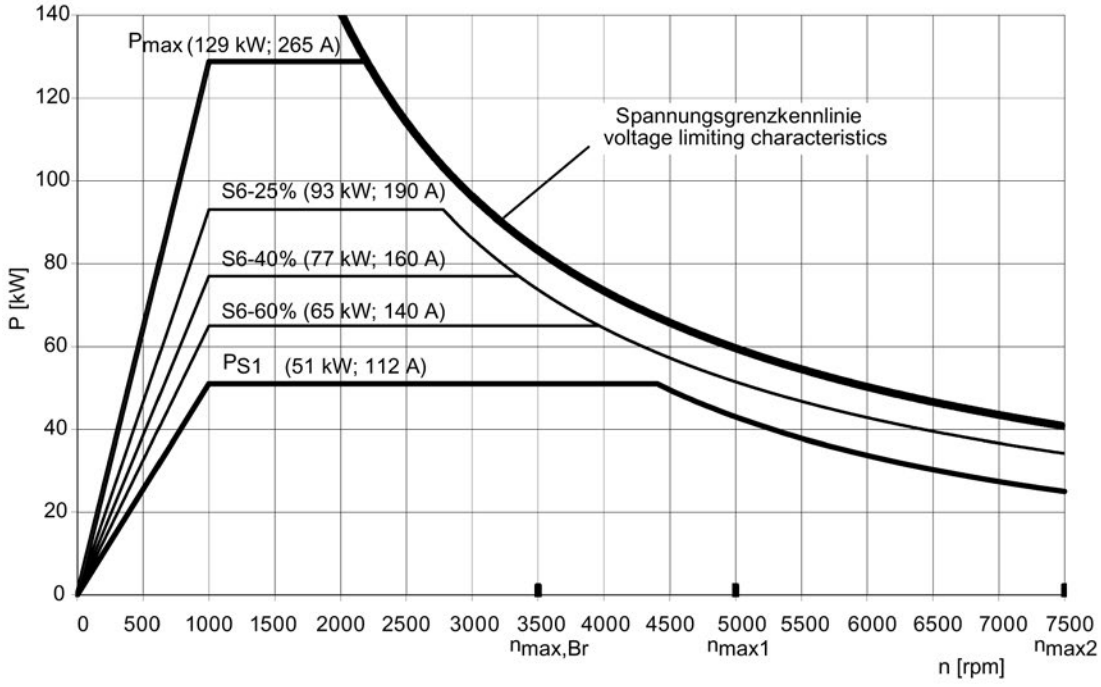


Table 6- 287 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP55)

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]
1,000	51	487	112	5,000	7,500	-	3,500	4,400	1,230	265	487	112



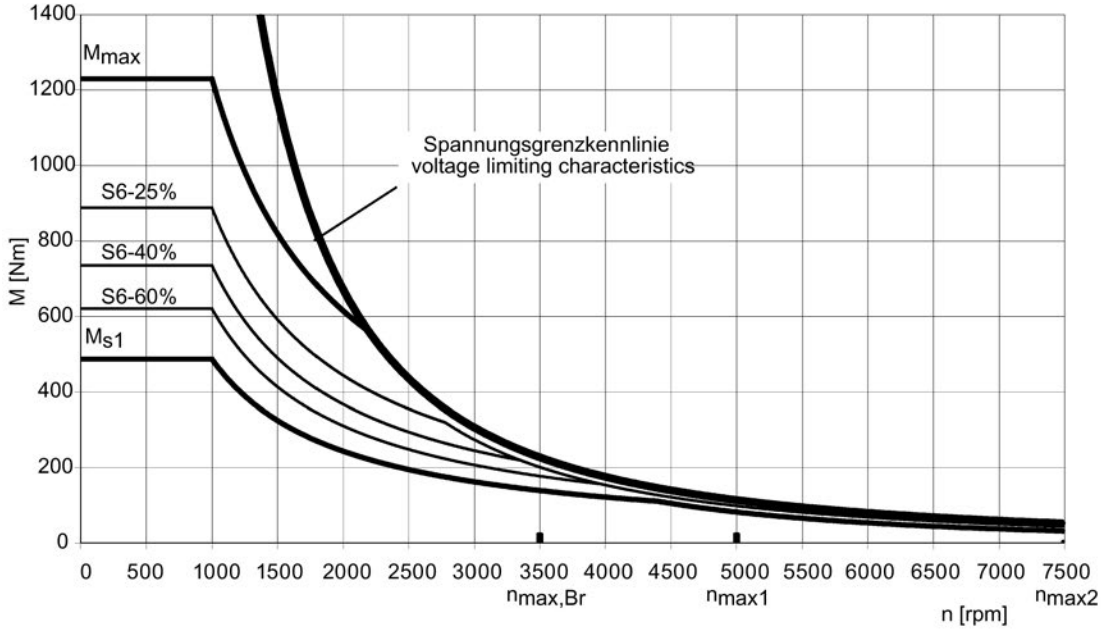
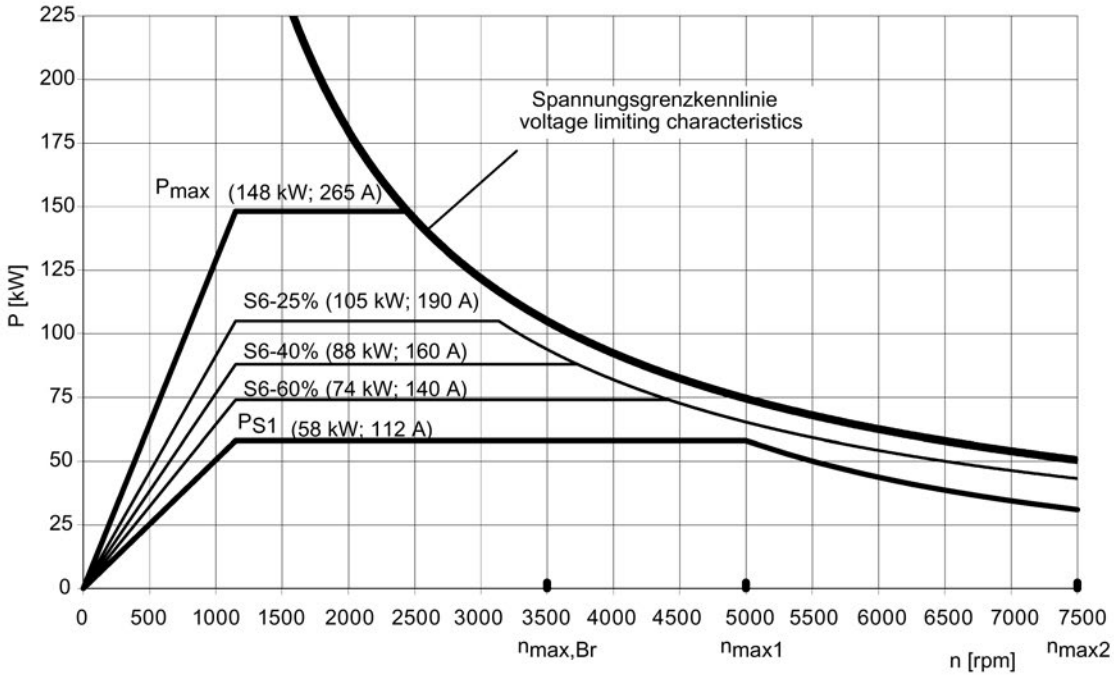


Table 6- 288 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP55)

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]
1,150	58	482	112	5,000	7,500	-	3,500	5,000	1,230	265	482	112
1,000	51	487	112					5,400				



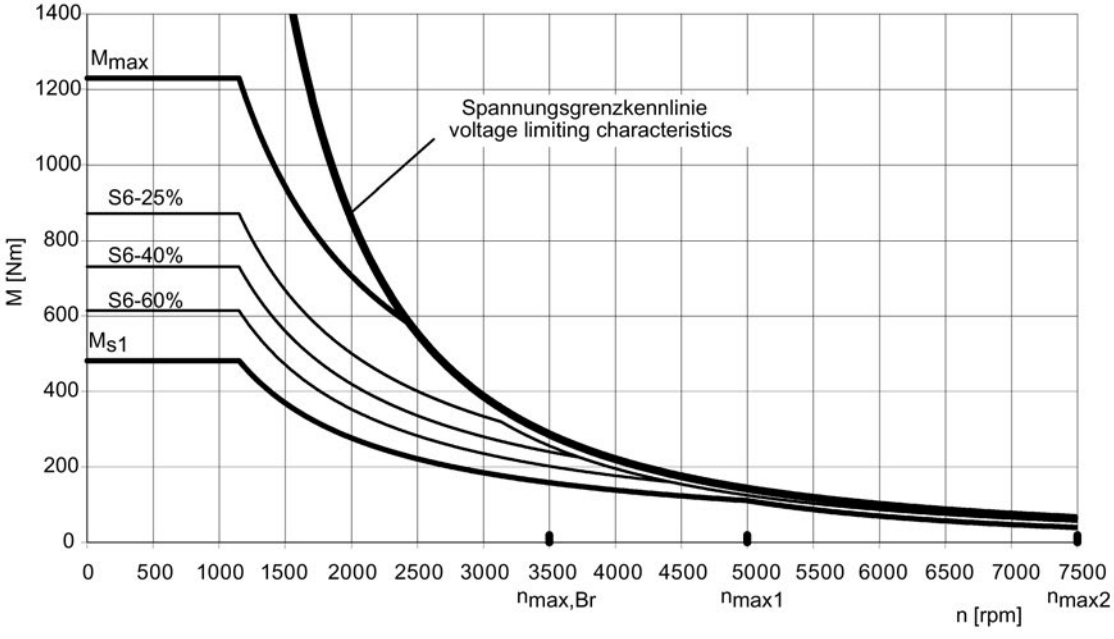
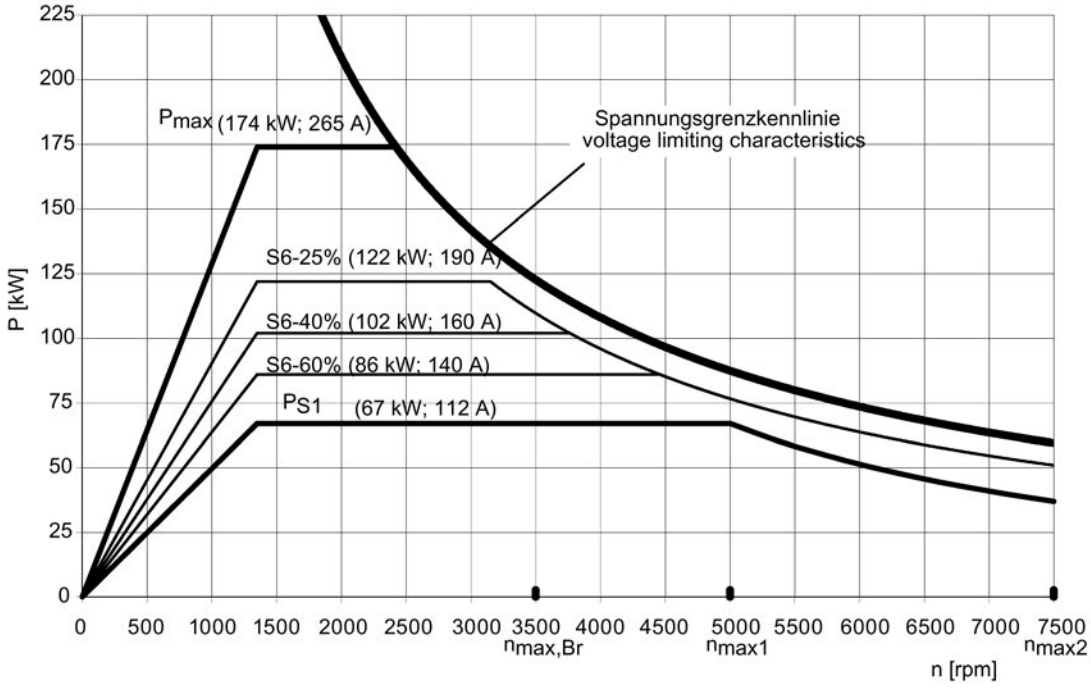


Table 6- 289 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP55)

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]
1,350	67	474	112	5,000	7,500	-	3,500	5,000	1,230	265	474	112



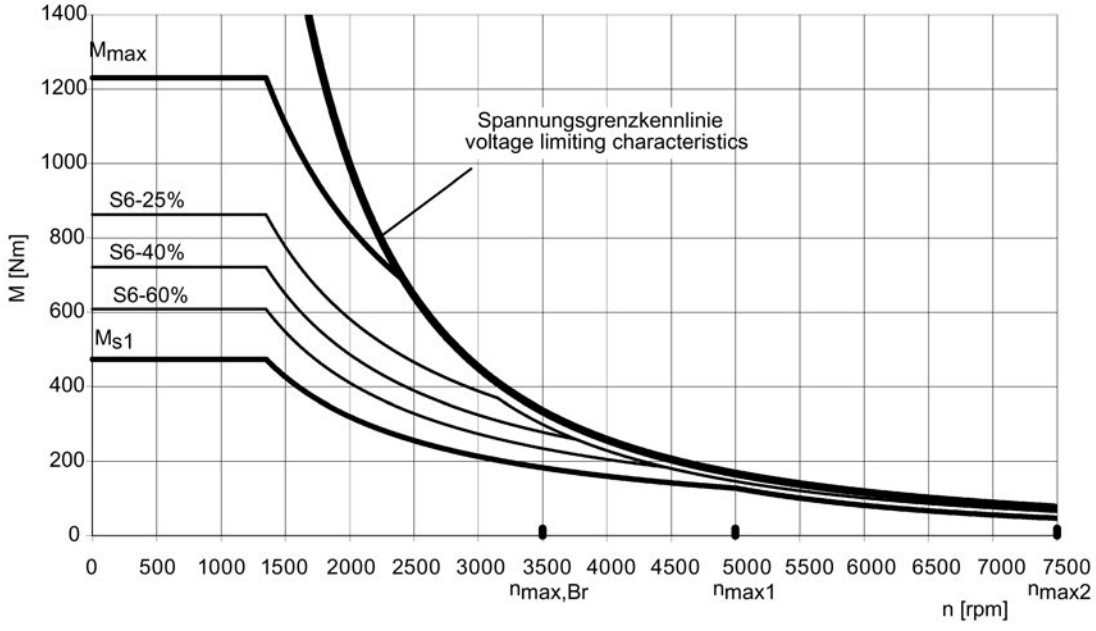
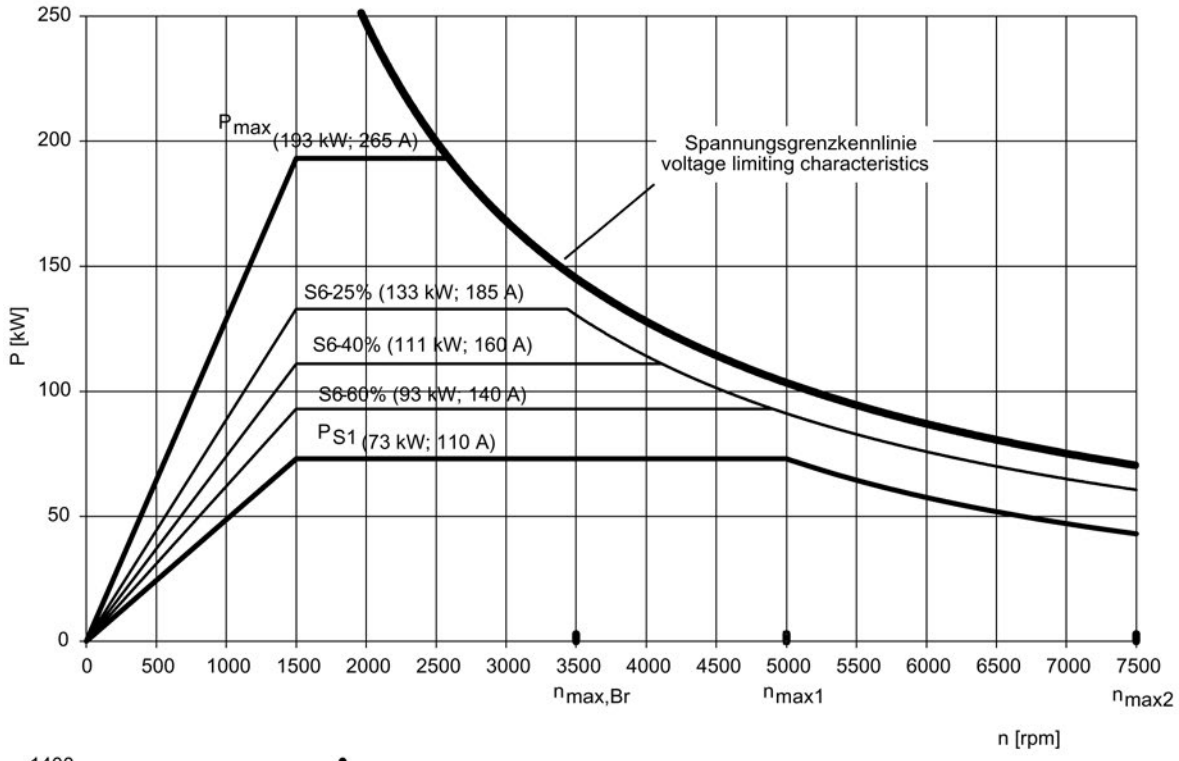


Table 6- 290 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	73	465	110	5,000	7,500	-	3,500	5,000	1,230	265	487	110



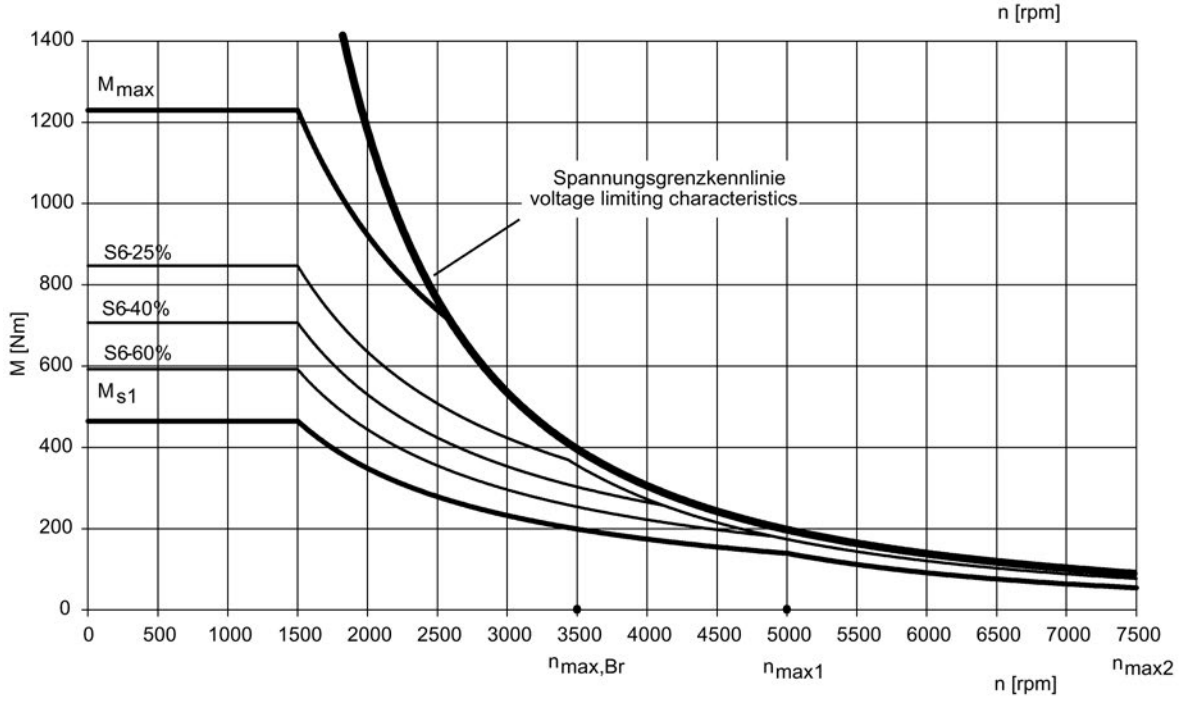
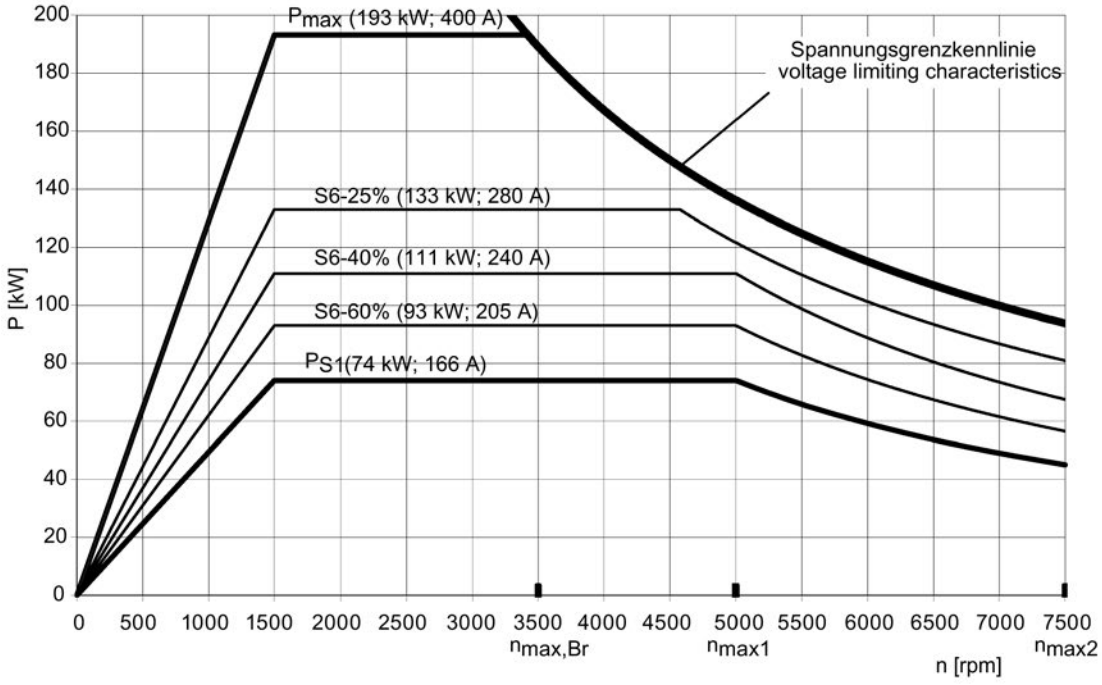


Table 6- 291 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP55)

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]
1,500	74	471	166	5,000	7,500	-	3,500	5,000	1,230	400	471	166



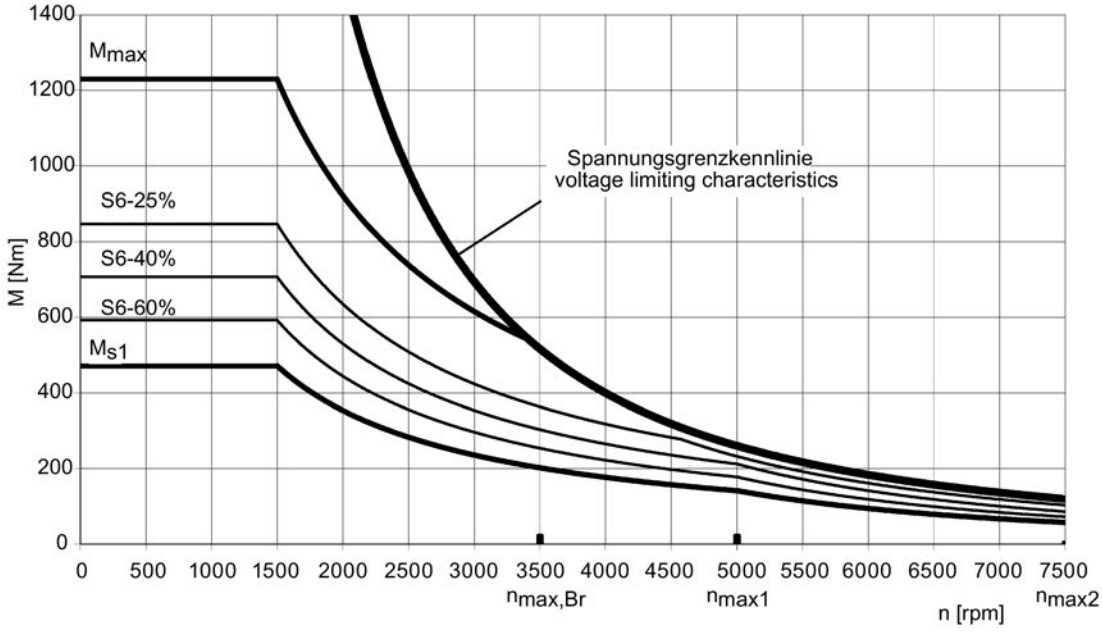
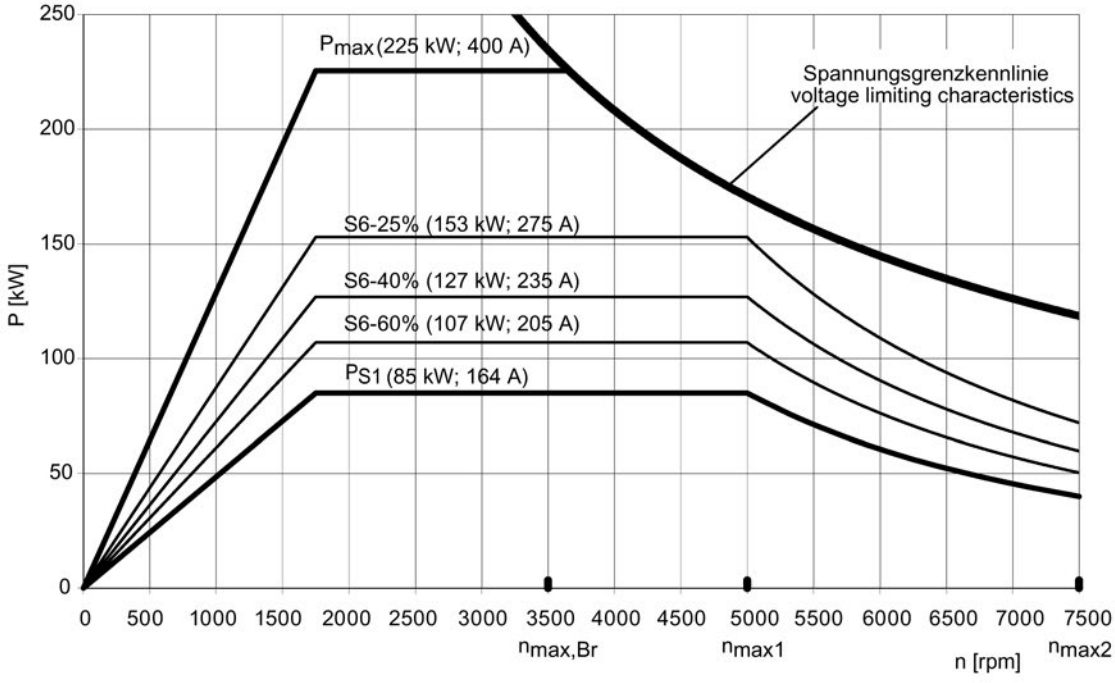


Table 6- 292 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP55)

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]
1,750	85	464	164	5,000	7,500	-	3,500	5,000	1,230	400	464	164
1,500	74	471	166					5,400				



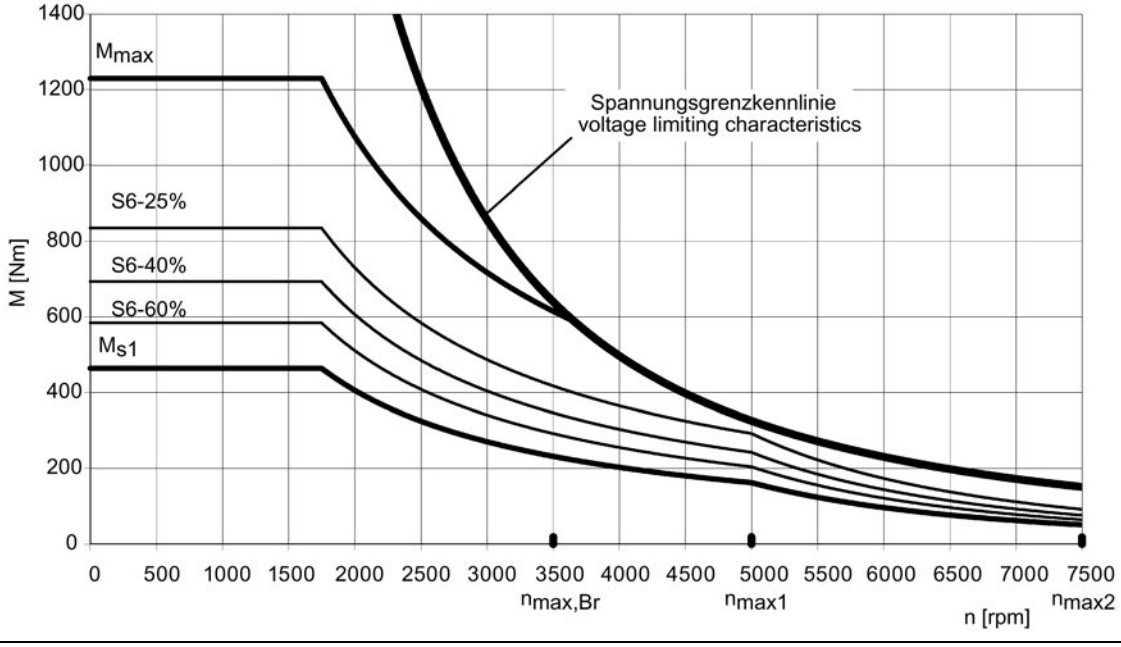
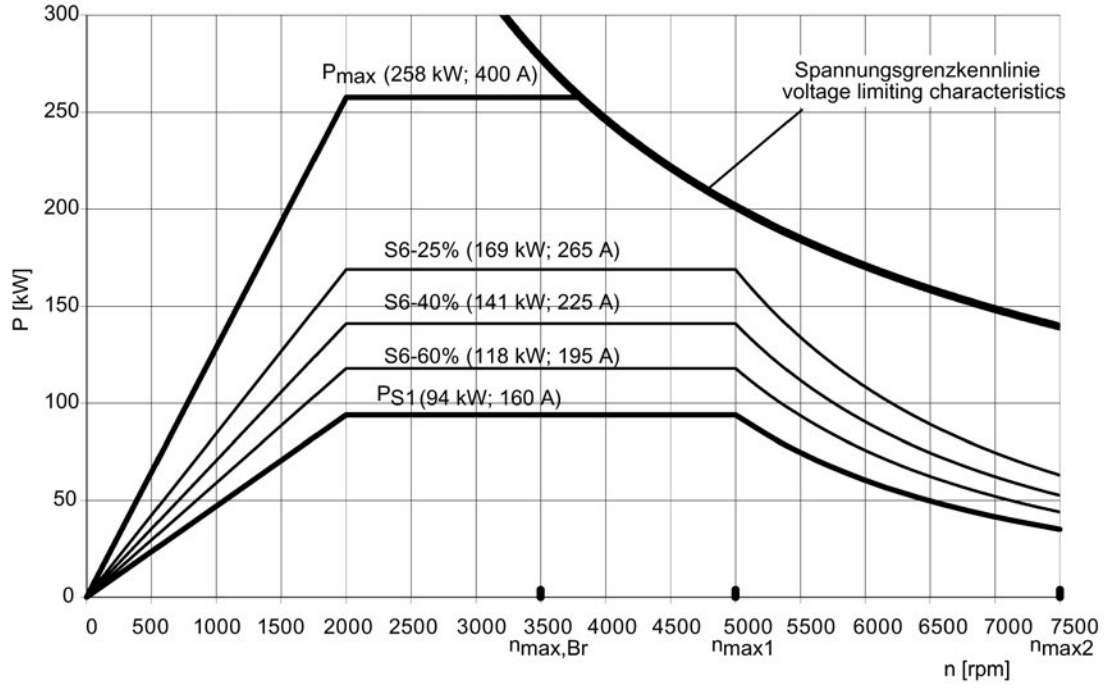


Table 6- 293 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP55)

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]
2,000	94	449	160	5,000	7,500	-	3,500	5,000	1,230	400	449	160



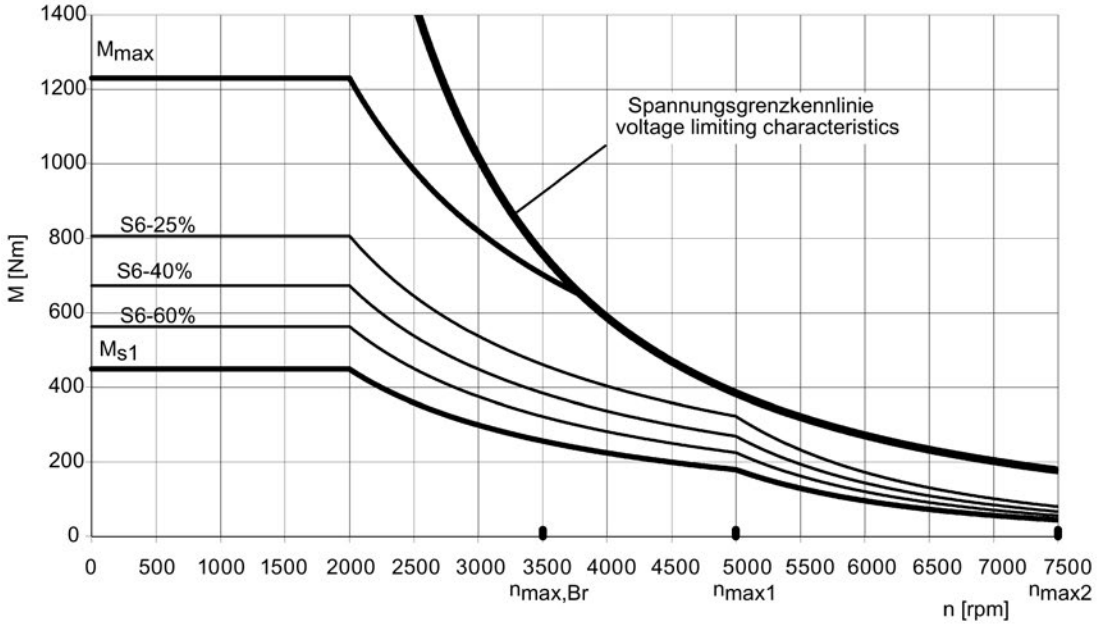
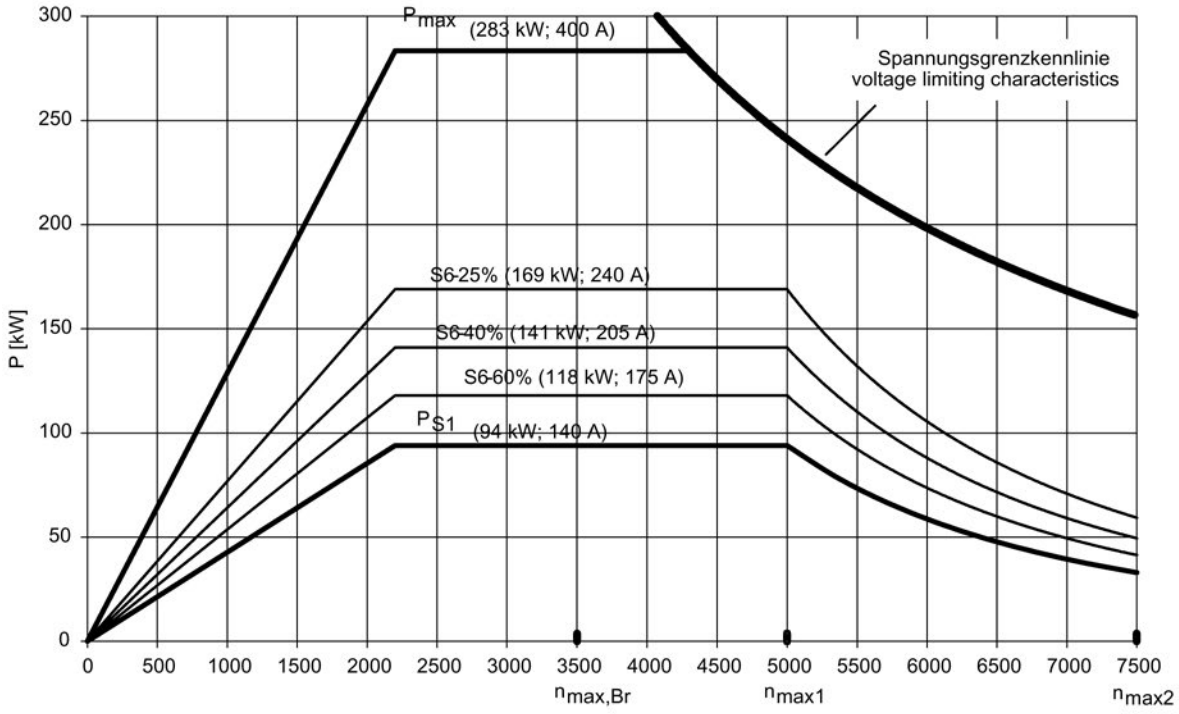


Table 6- 294 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	94	408	140	5,000	7,500	-	3,500	5,000	1,230	400	471	140



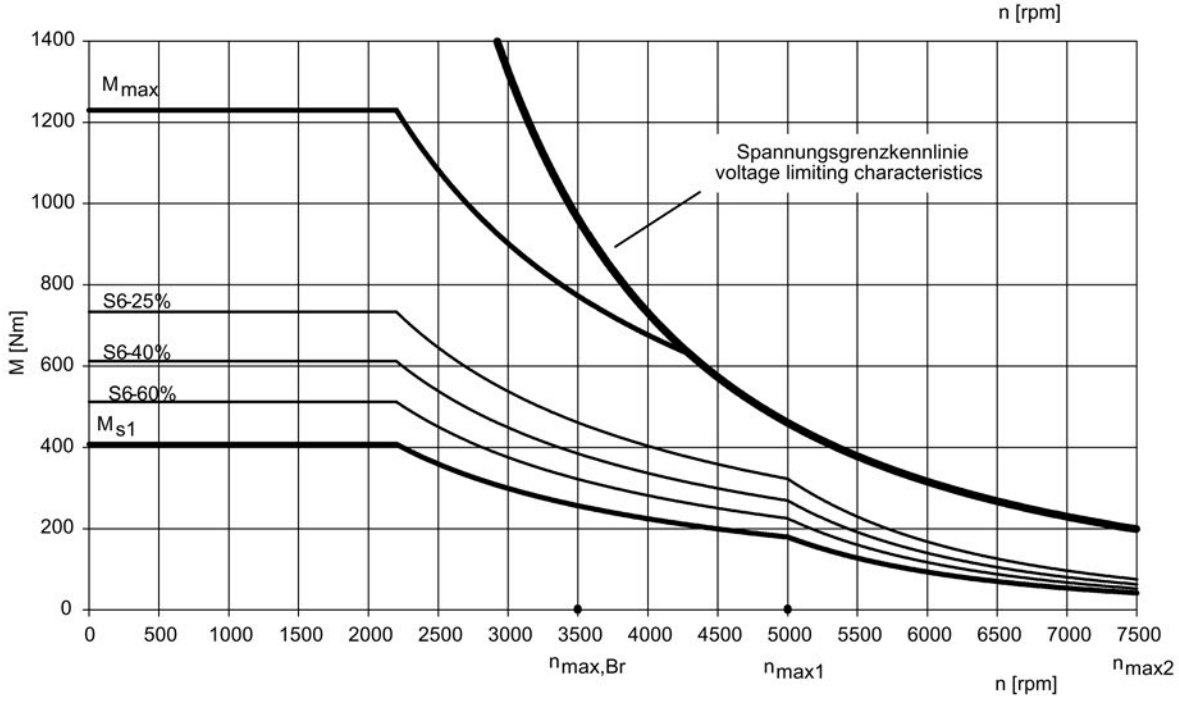
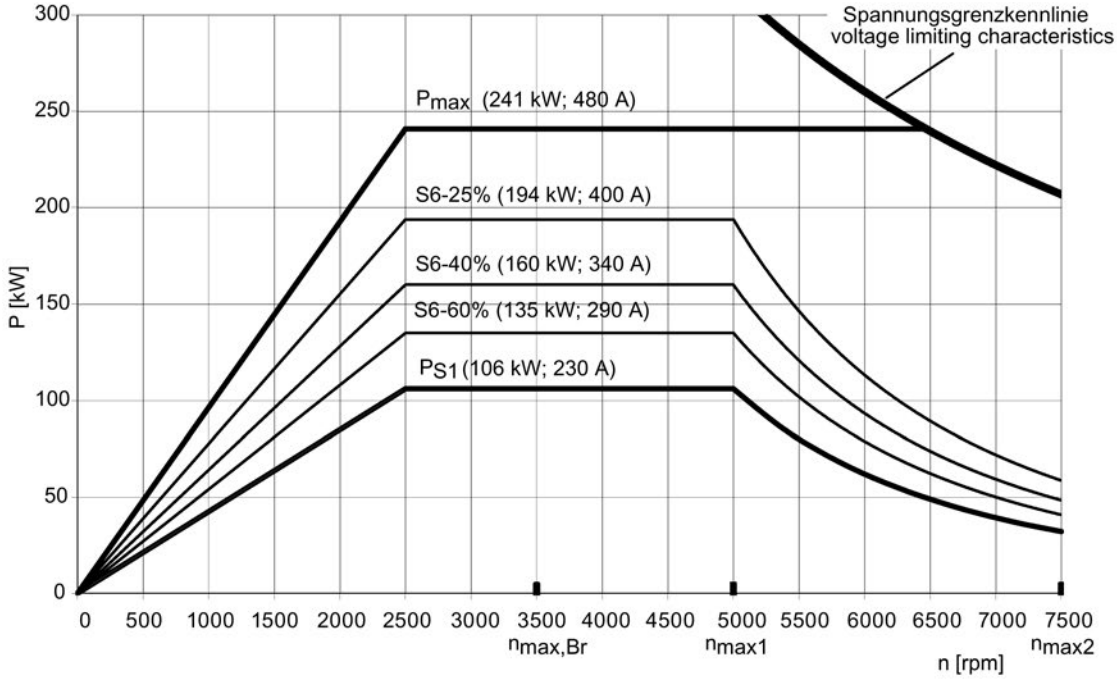


Table 6- 295 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L□□, (IP55)

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]
2,500	106	405	230	5,000	7,500	-	3,500	5,000	920	480	405	230



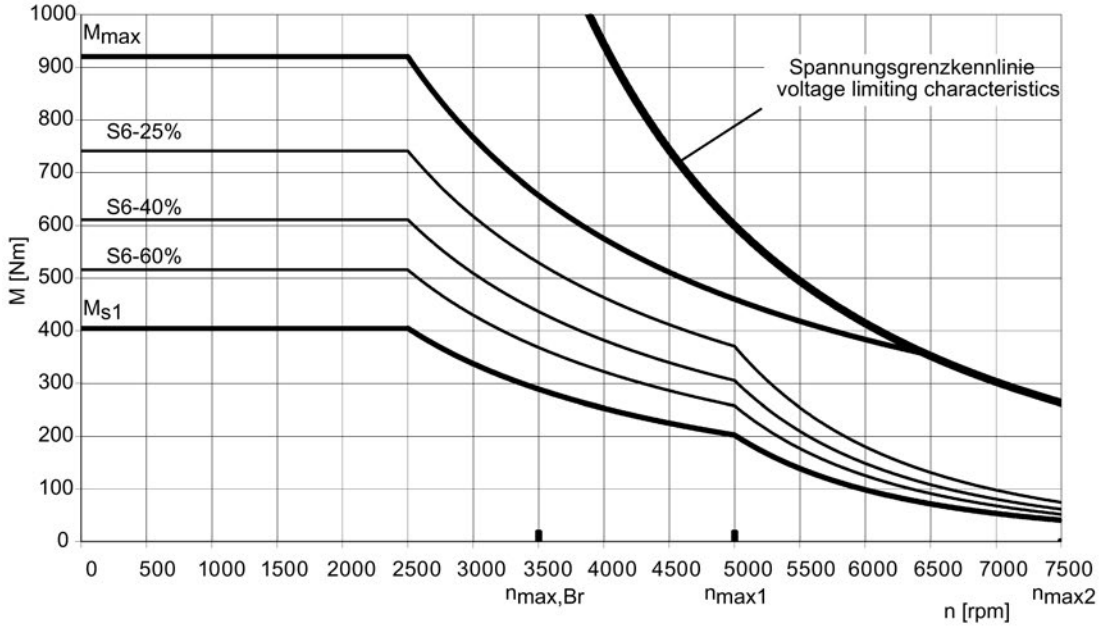
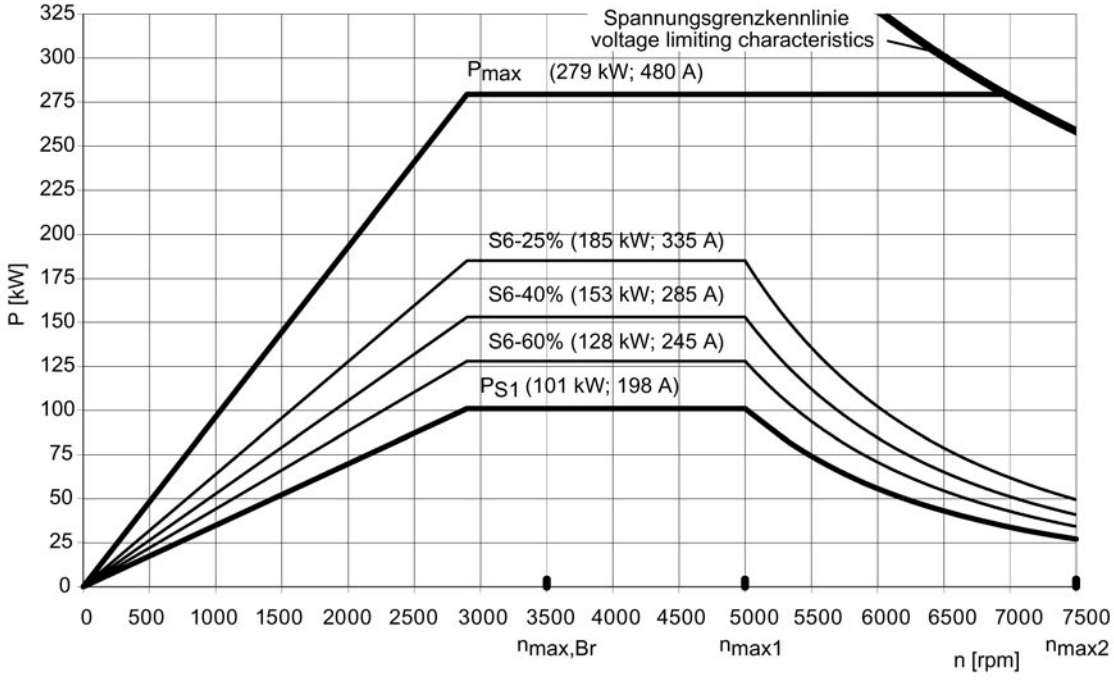


Table 6- 296 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L□□, (IP55)

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]
2,900	101	333	198	5,000	75,000	-	3,500	5,000	920	480	333	198
-	-	-	-					-				



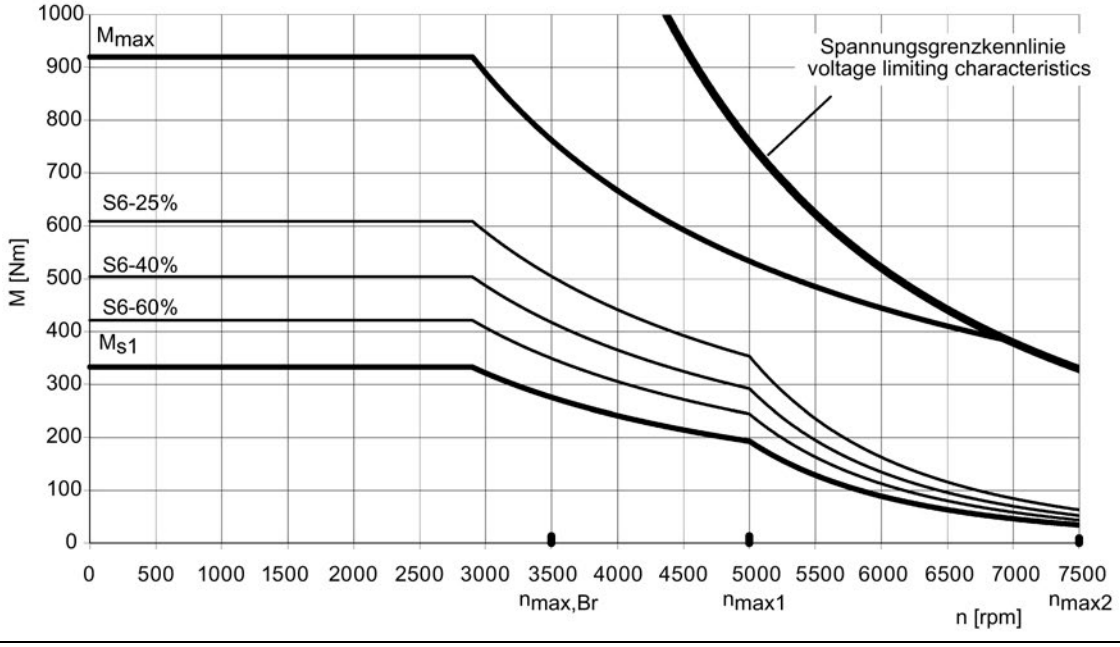
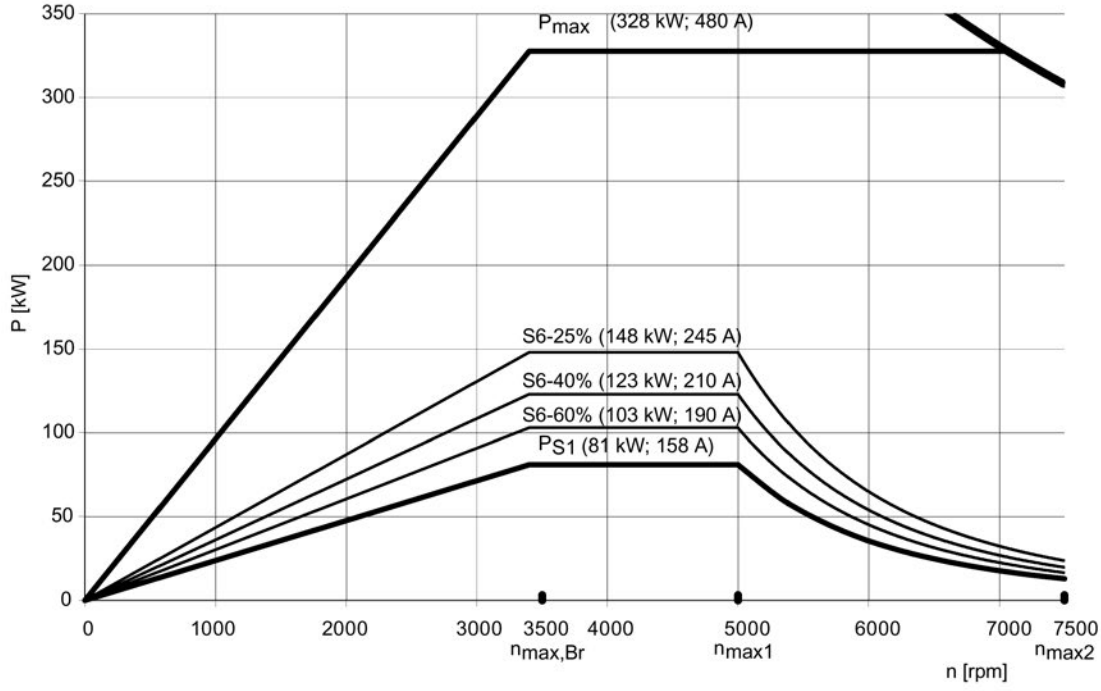
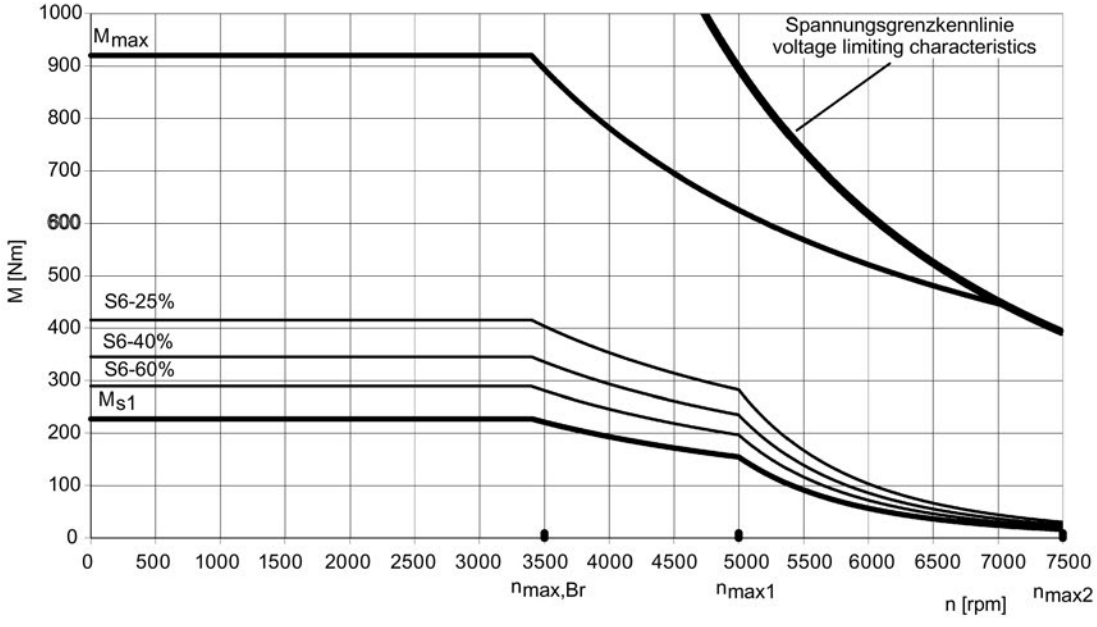


Table 6- 297 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L□□, (IP55)

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]
3,400	81	228	158	5,000	7,500	-	3,500	5,000	920	480	228	158



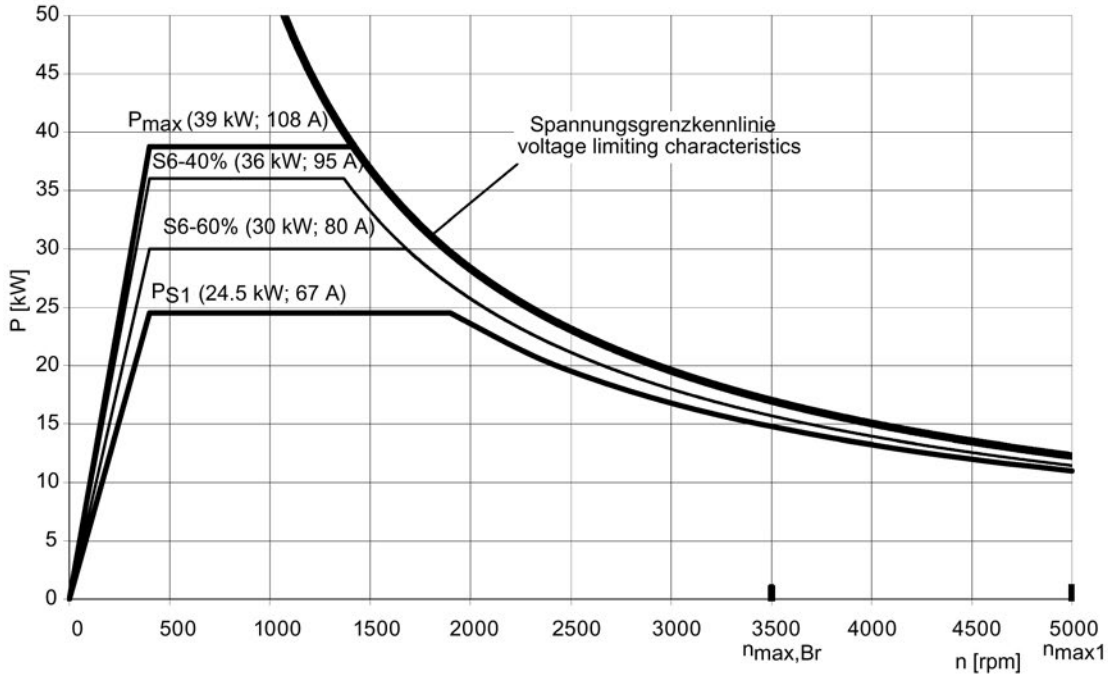


Note: In this electrical version (L winding), supplementary losses that are disproportionately high relative to the speed occur at high connection voltages (480 V 3AC), depending on the modulation depth of the converter. To comply with the permissible motor temperature, a power reduction must be considered in the configuration.

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

Table 6- 298 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	5,000	-	-	3,500	1,900	925	108	585	67



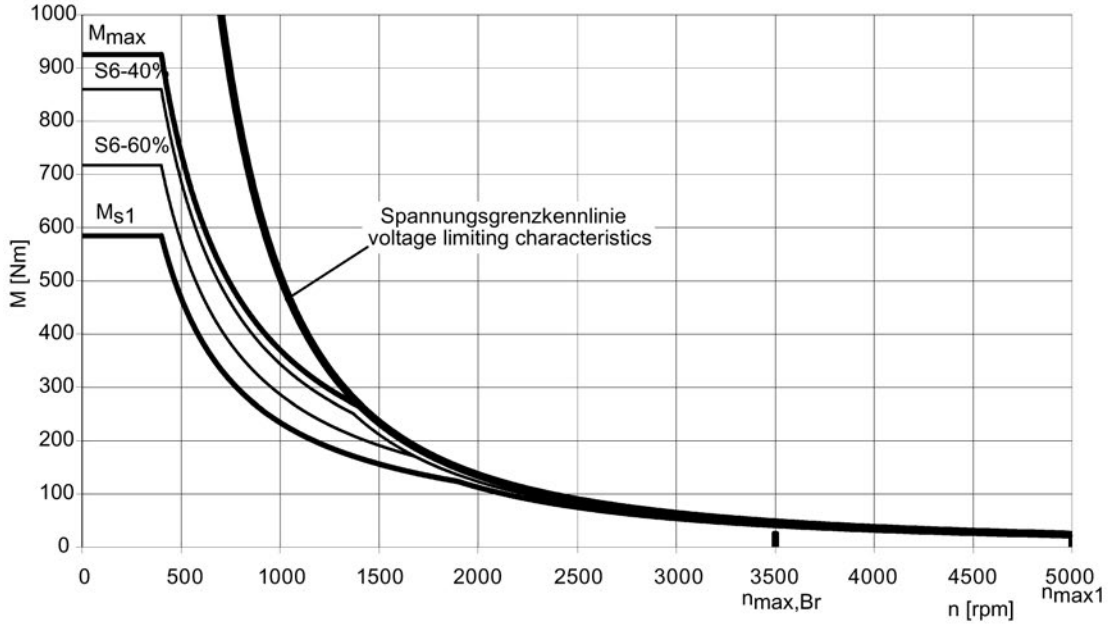
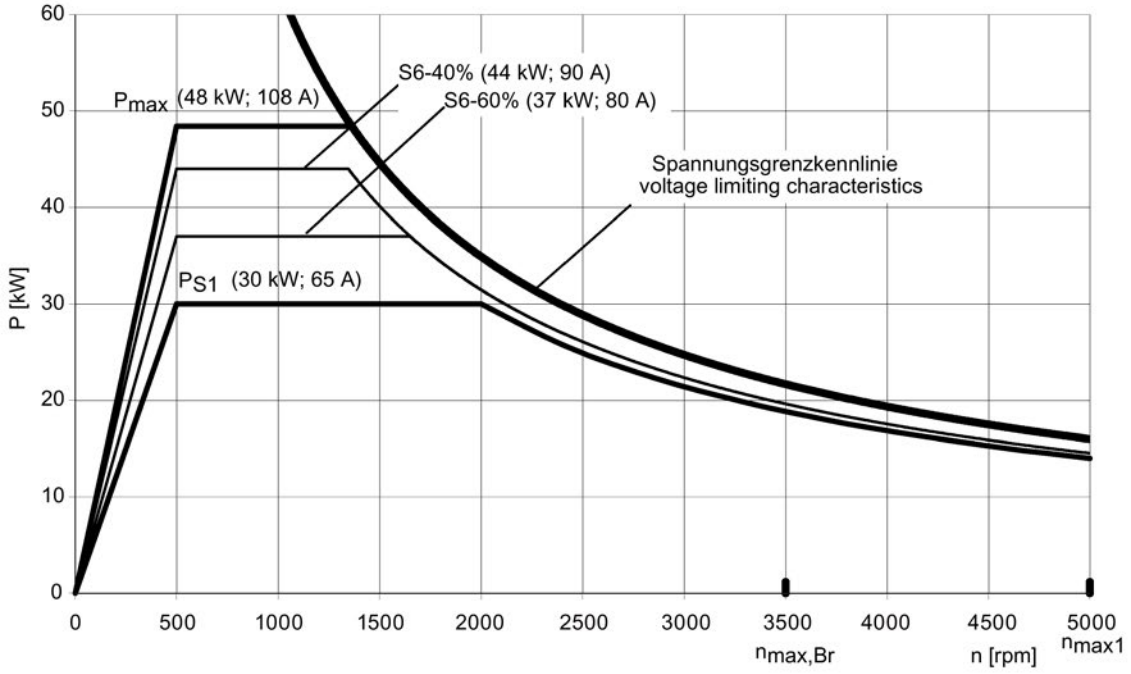


Table 6- 299 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP23)

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	5,000	-	-	3,500	2,000	925	108	573	65
400	24.5	585	67					2,600				



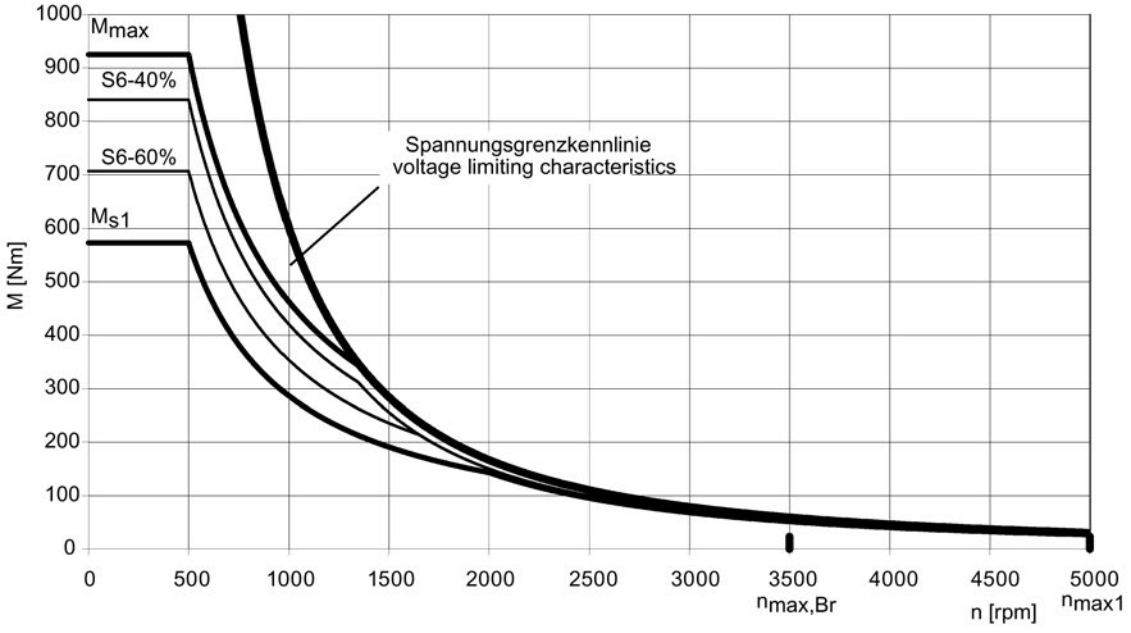
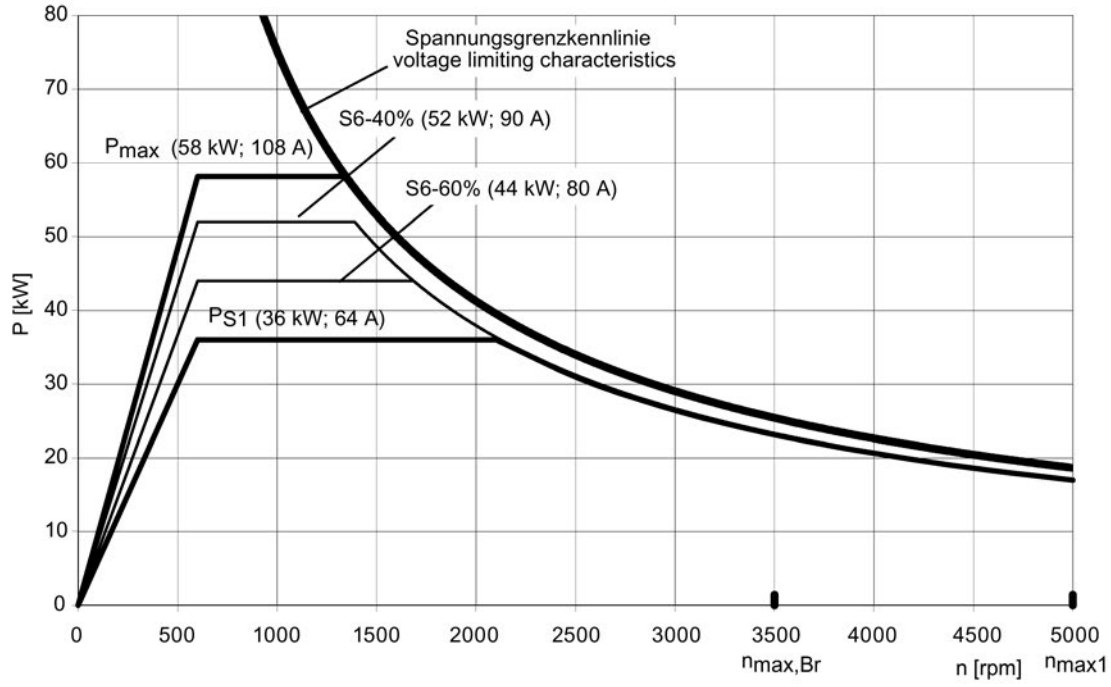


Table 6- 300 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□B□□, (IP23)

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	5,000	-	-	3,500	2,100	925	108	573	64



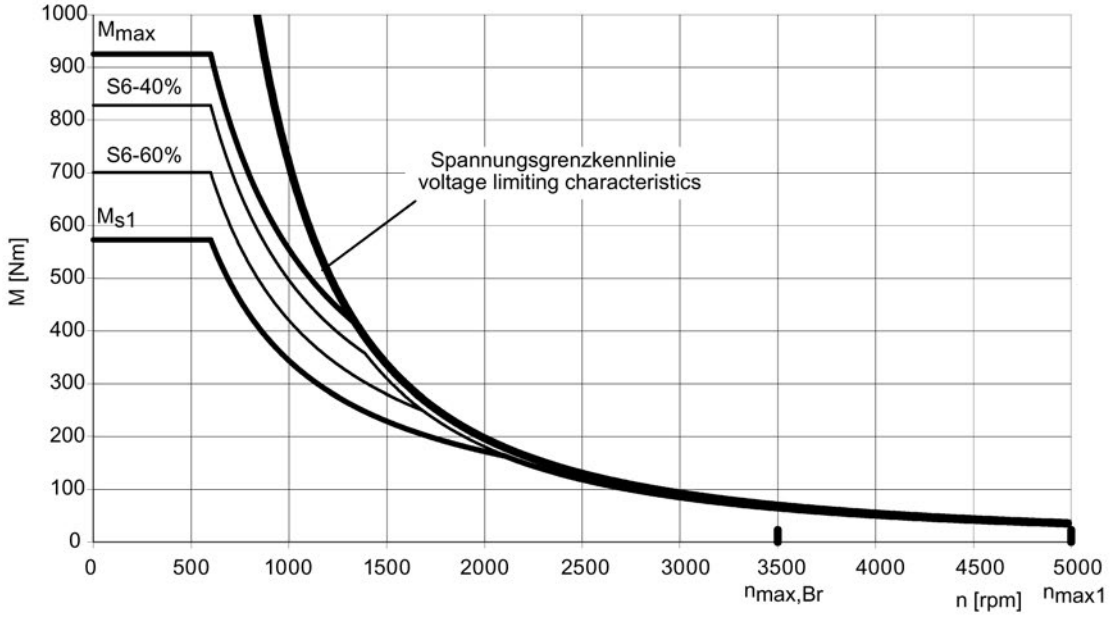
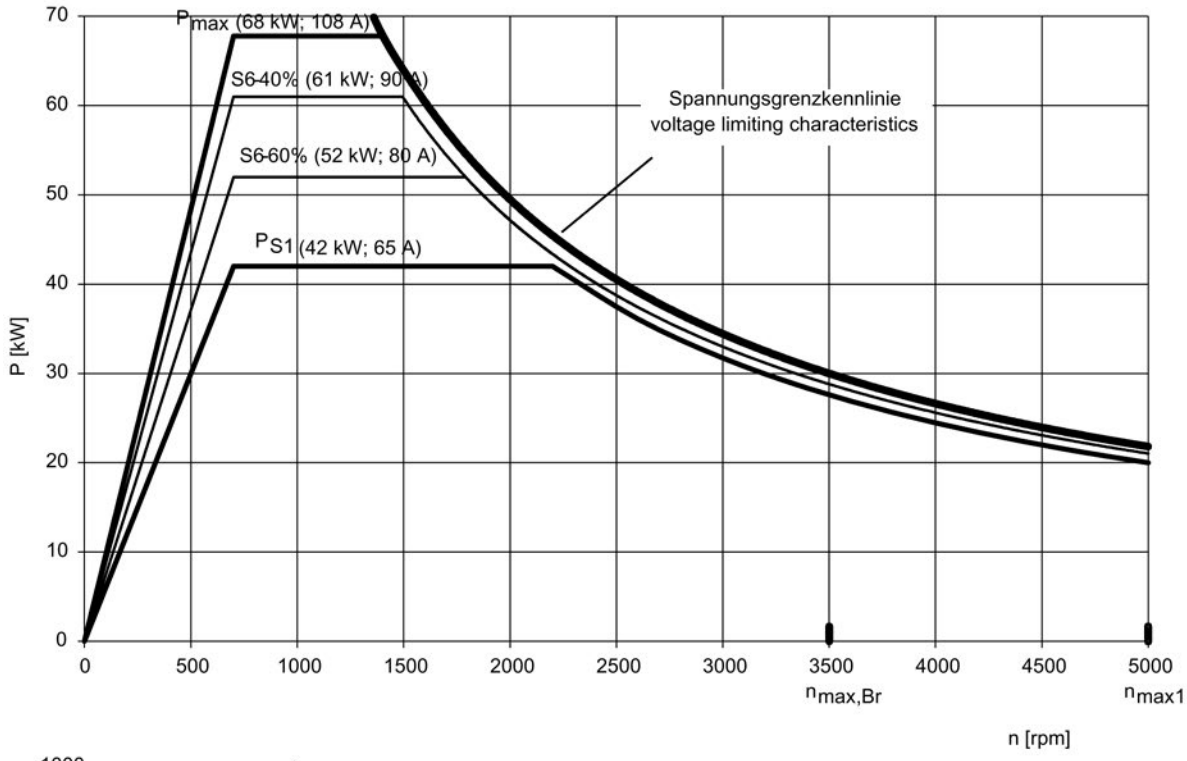


Table 6- 301 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□B□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	42	573	65	5,000	-	-	3,500	2,200	925	108	585	65



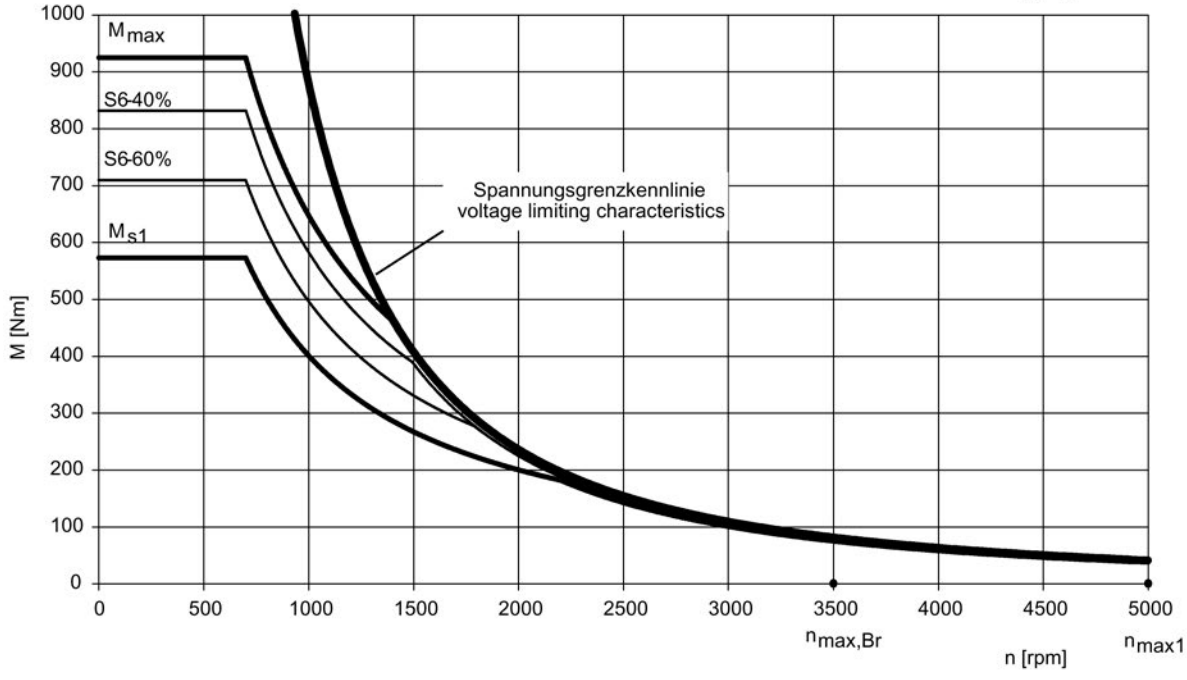
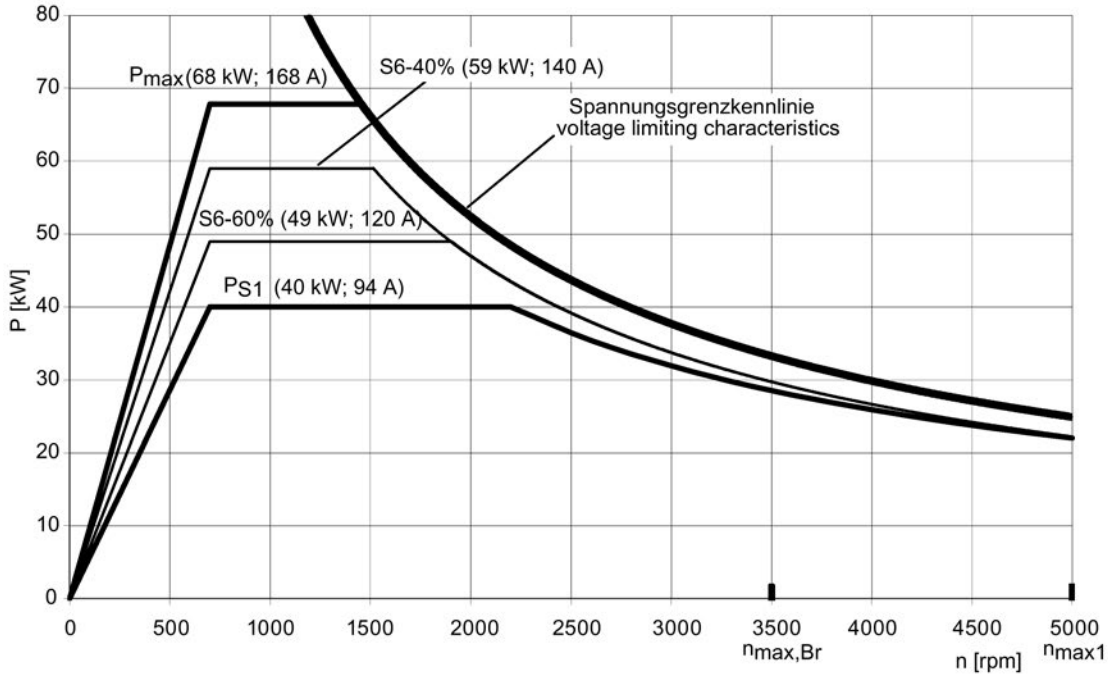


Table 6- 302 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP23)

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	5,000	-	-	3,500	2,200	925	168	546	94



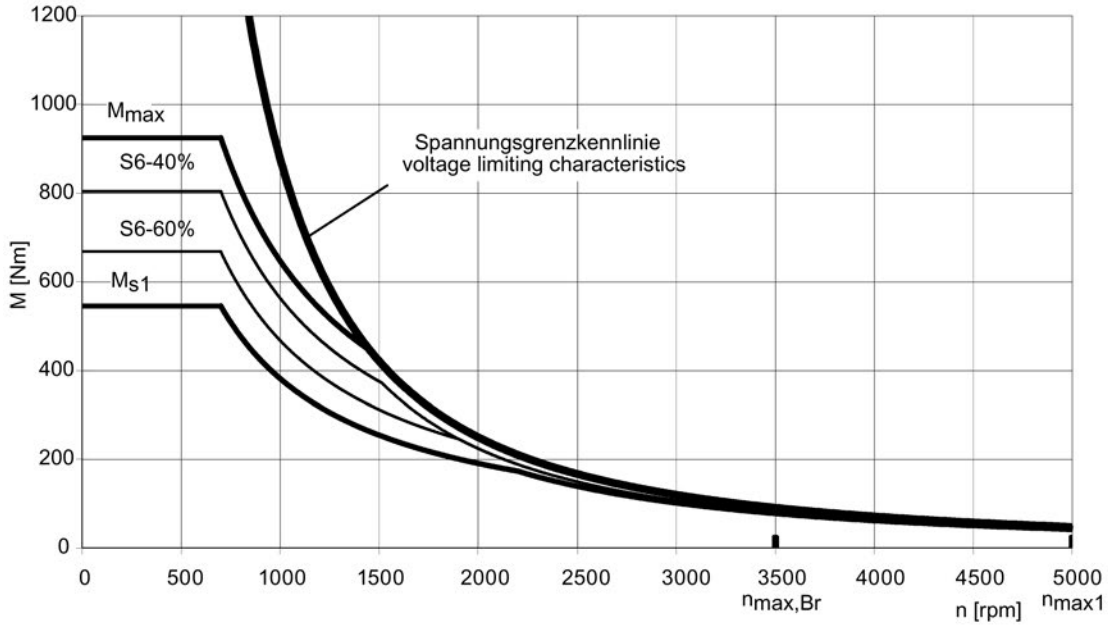
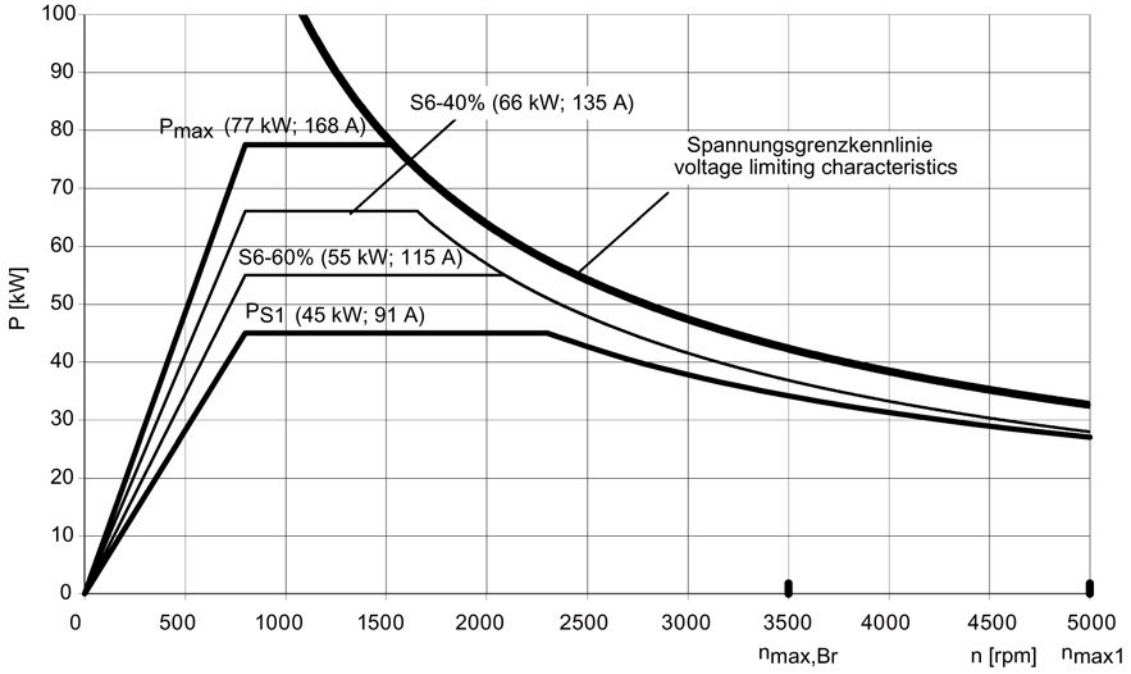


Table 6- 303 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP23)

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	5,000	-	-	3,500	2,300	925	168	537	91
700	40	546	94					2,800				



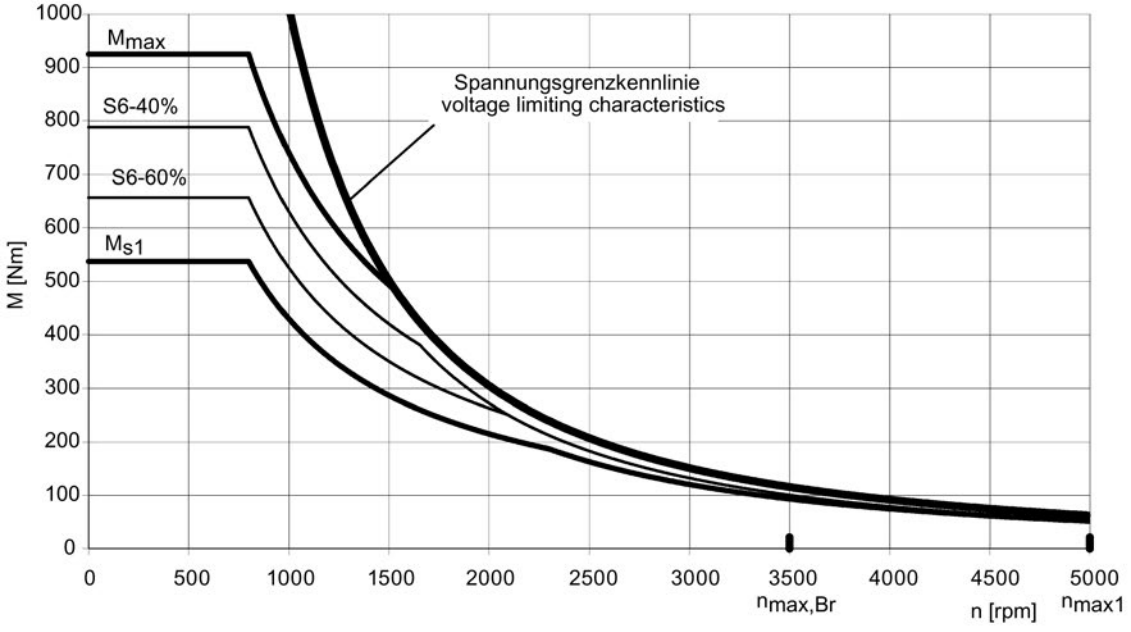
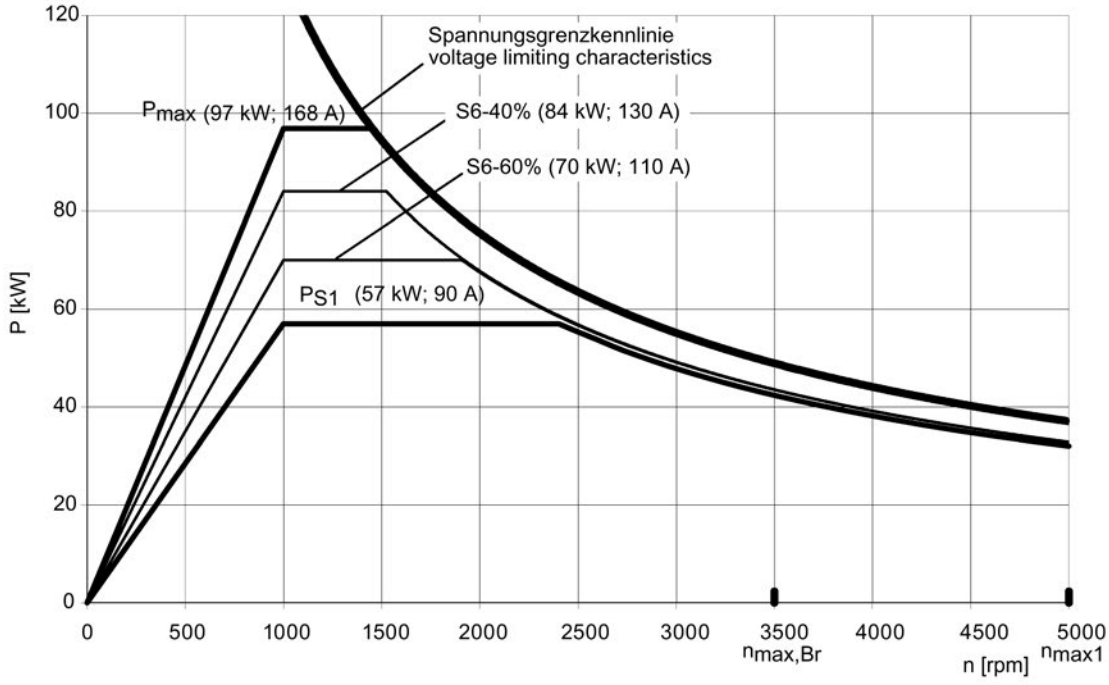


Table 6- 304 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C□□, (IP23)

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]
1,000	57	544	90	5,000	-	-	3,500	2,400	925	168	544	90



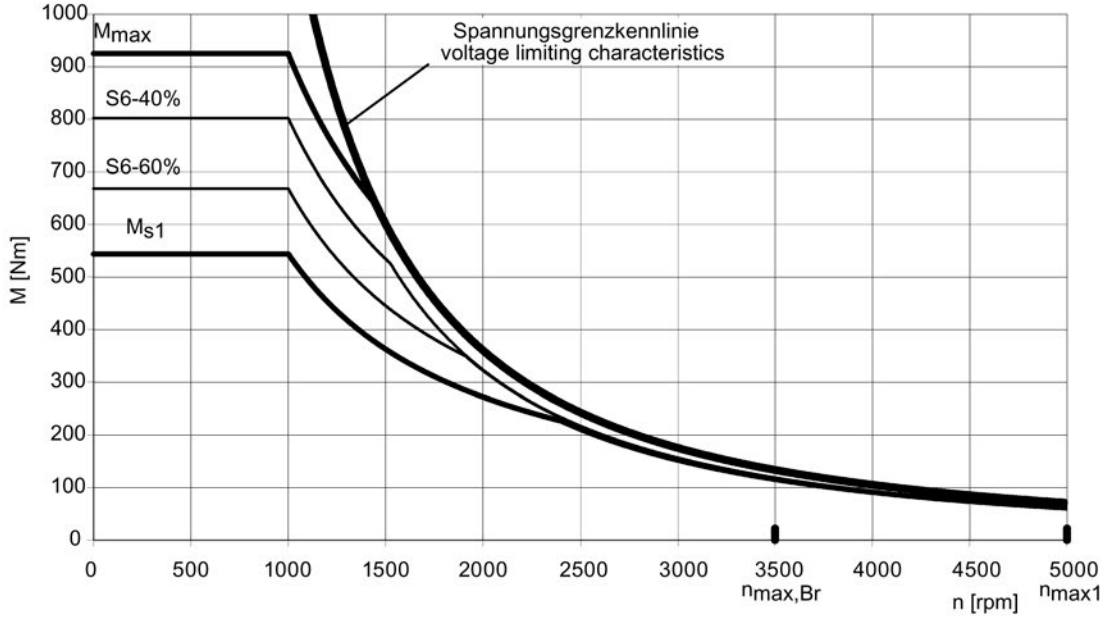
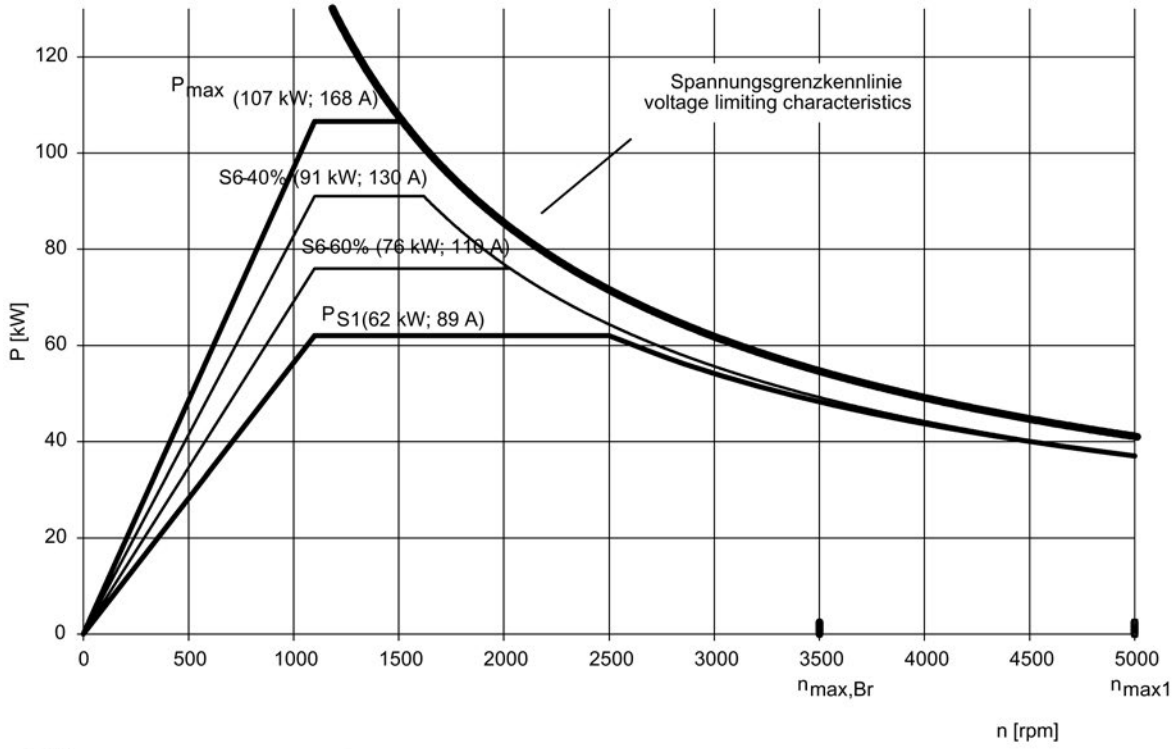


Table 6- 305 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□C□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	62	538	89	5,000	-	-	3,500	2,500	925	168	546	89



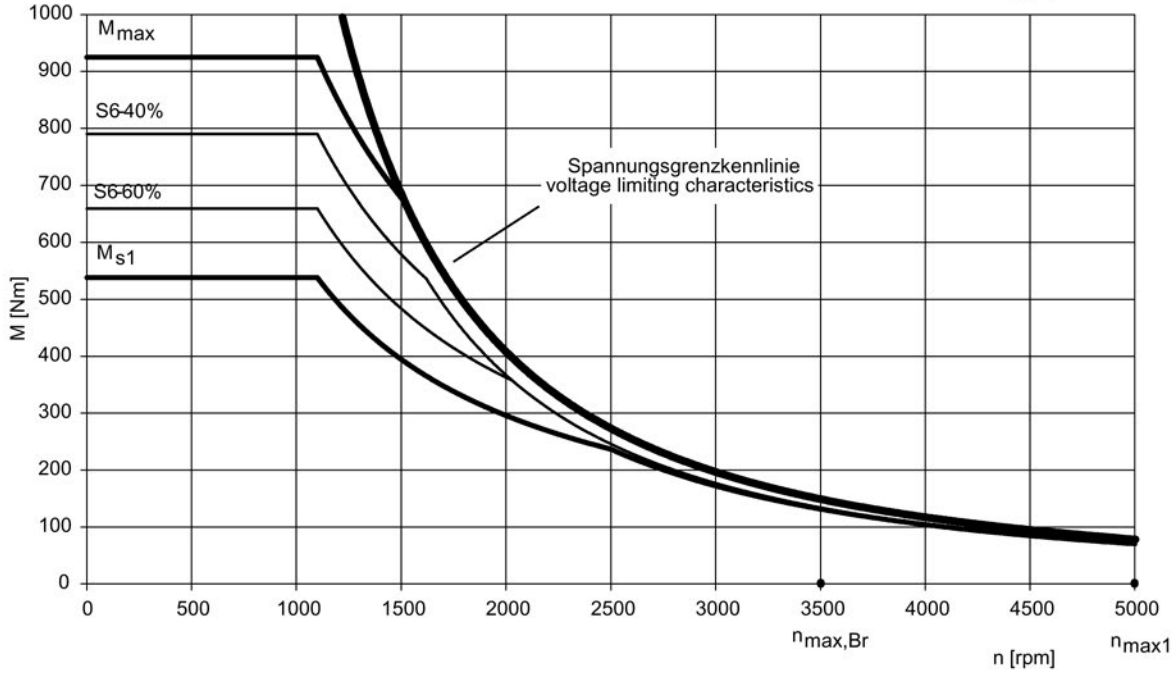
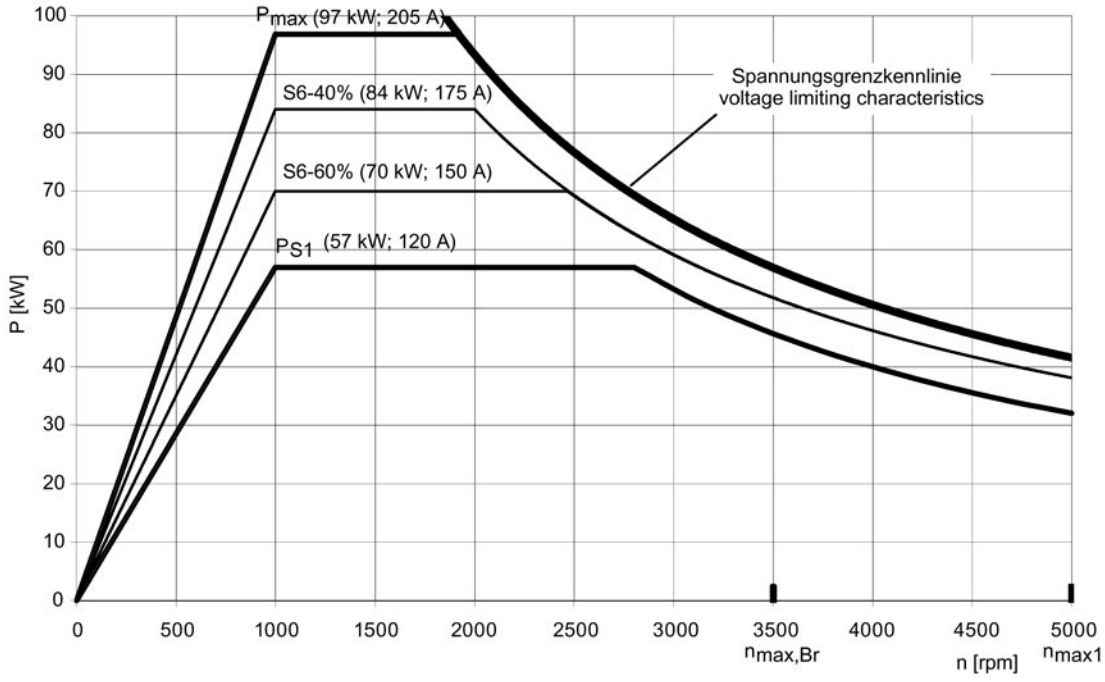


Table 6- 306 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP23)

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]
1,000	57	544	120	5,000	-	-	3,500	2,800	925	205	544	120



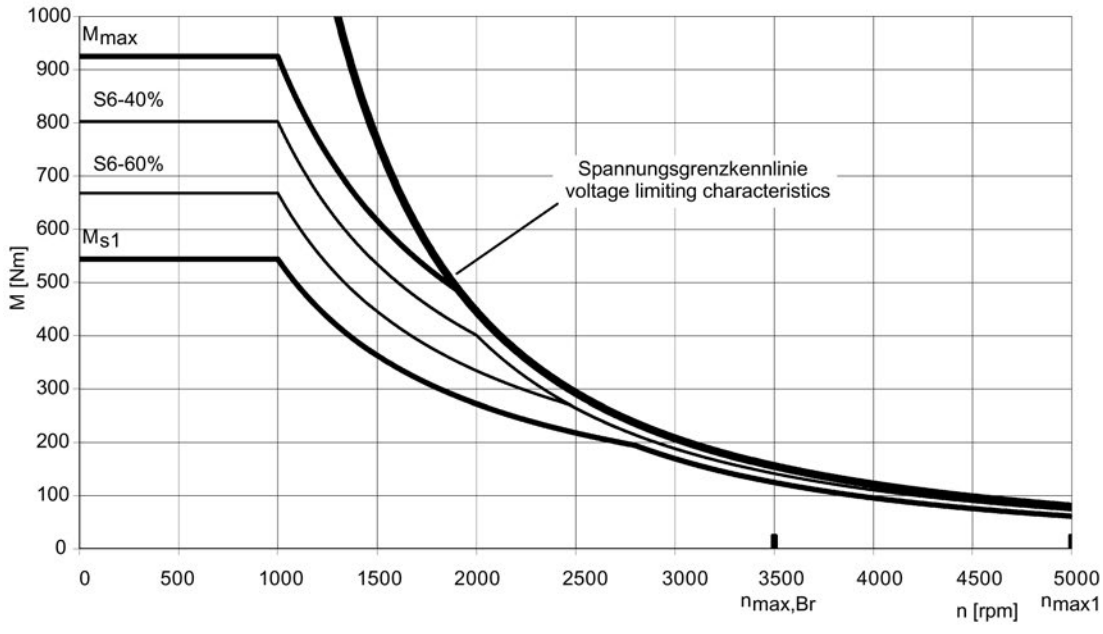
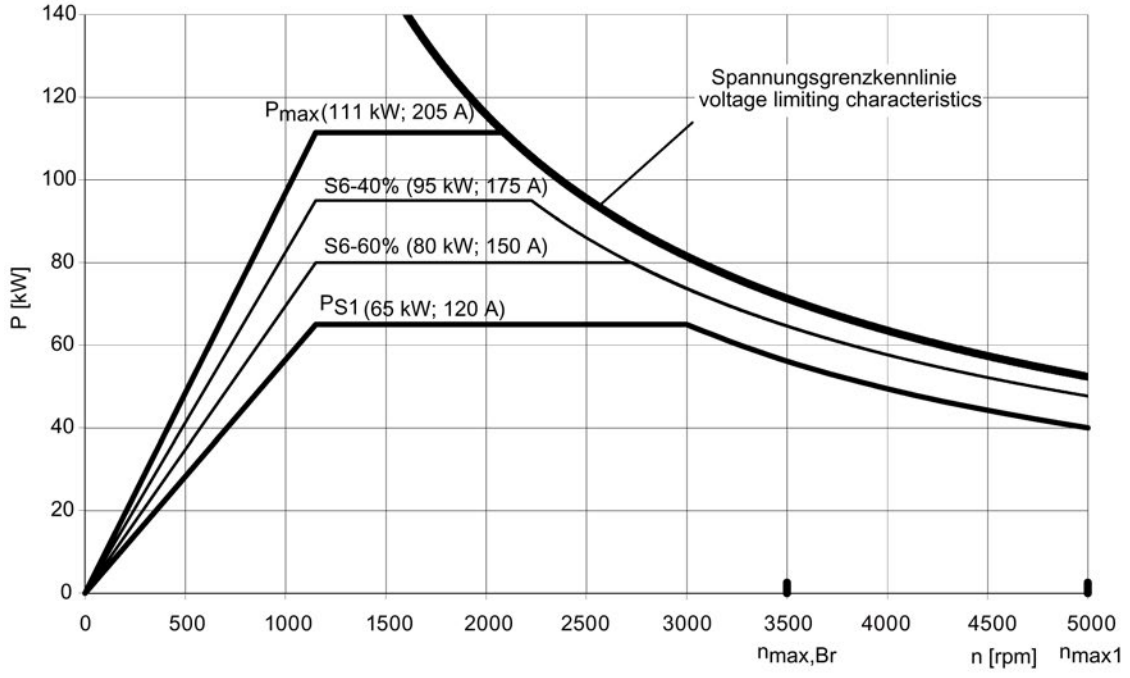


Table 6- 307 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP23)

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]
1,150	65	540	120	5,000	-	-	3,500	3,000	925	205	540	120
1,000	57	544	120					3,400				



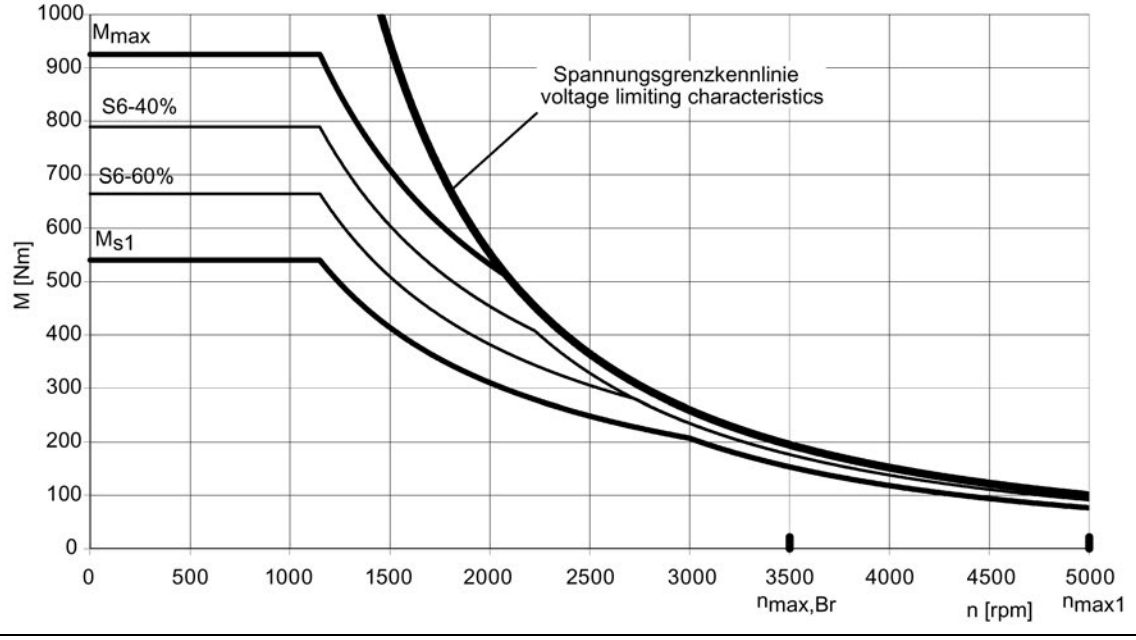
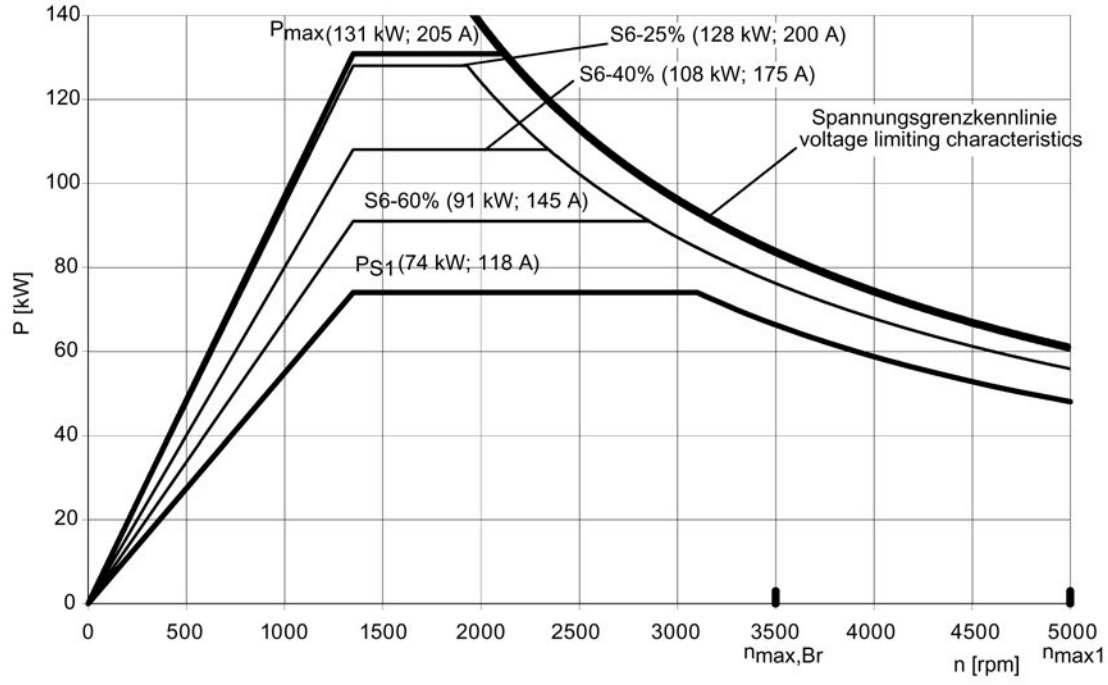


Table 6- 308 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D□□, (IP23)

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]
1,350	74	523	118	5,000	-	-	3,500	3,100	925	205	523	118



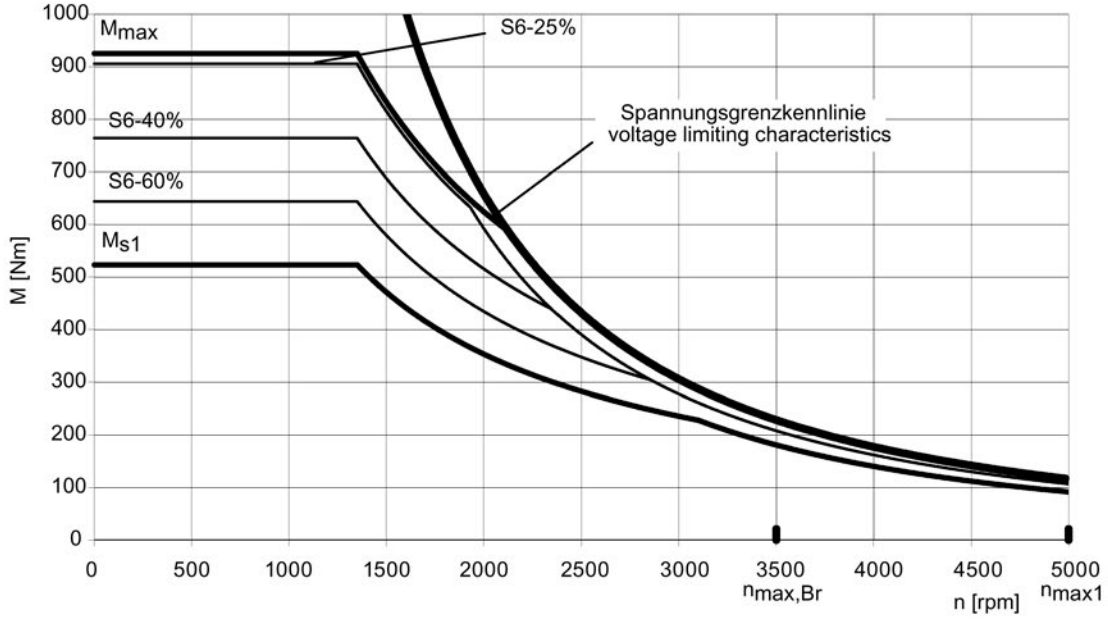
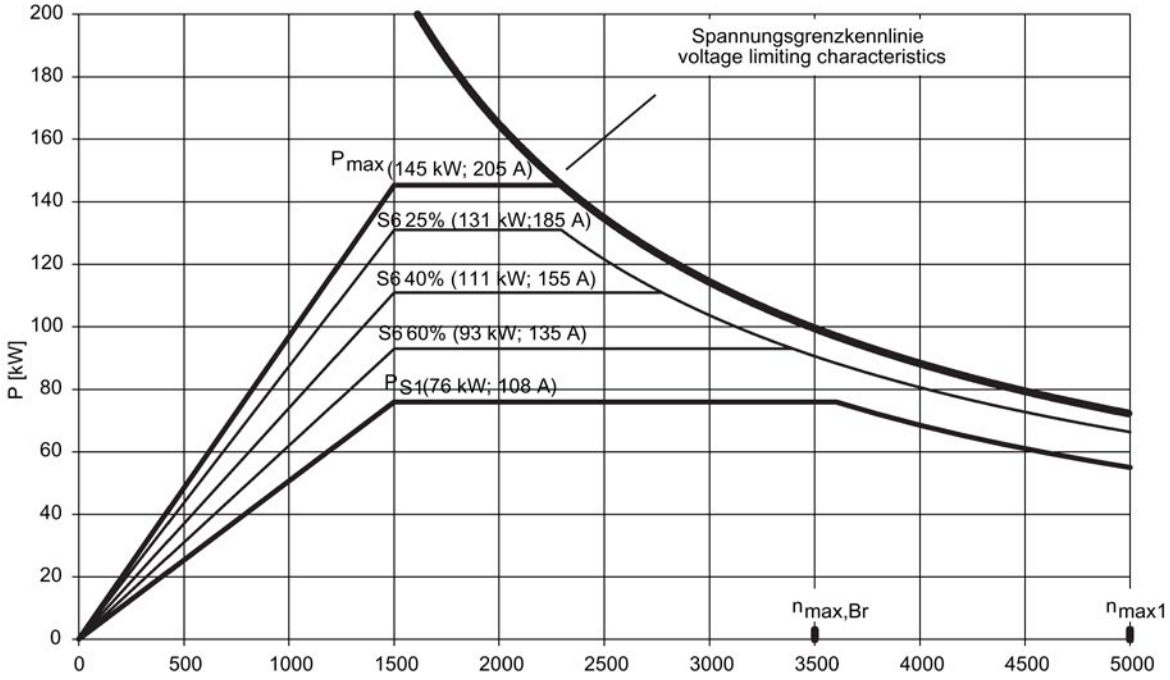


Table 6- 309 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□D□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	76	484	108	5,000	-	-	3,500	3,600	925	205	544	108



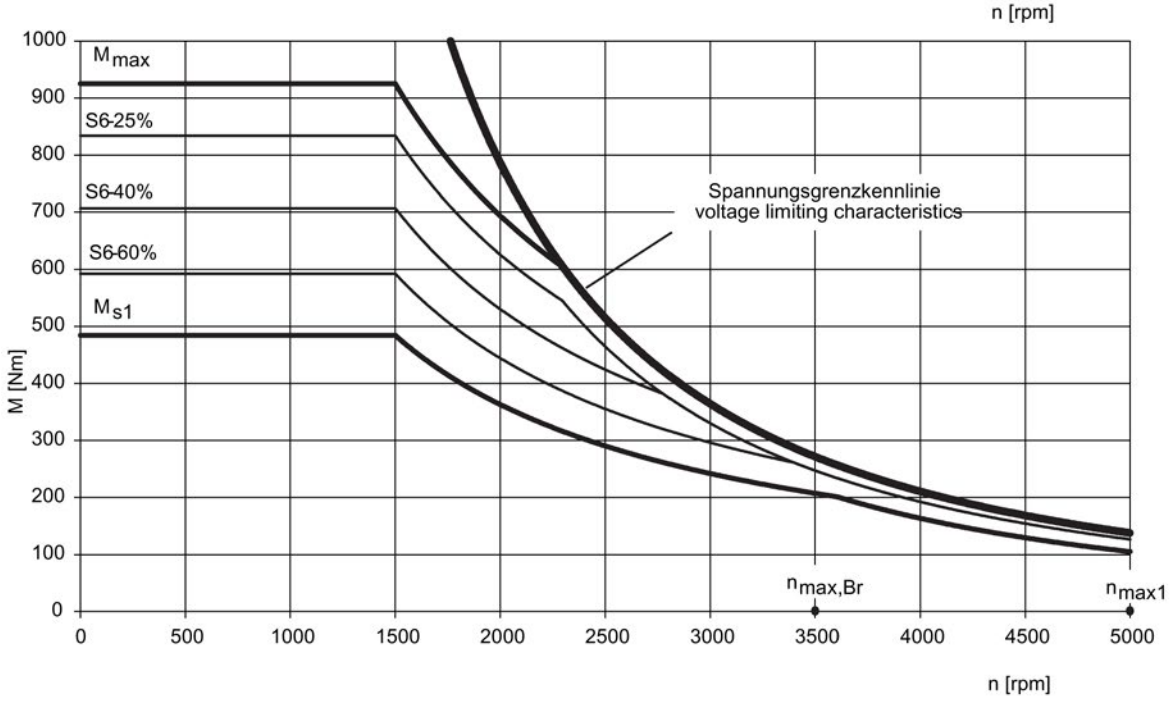
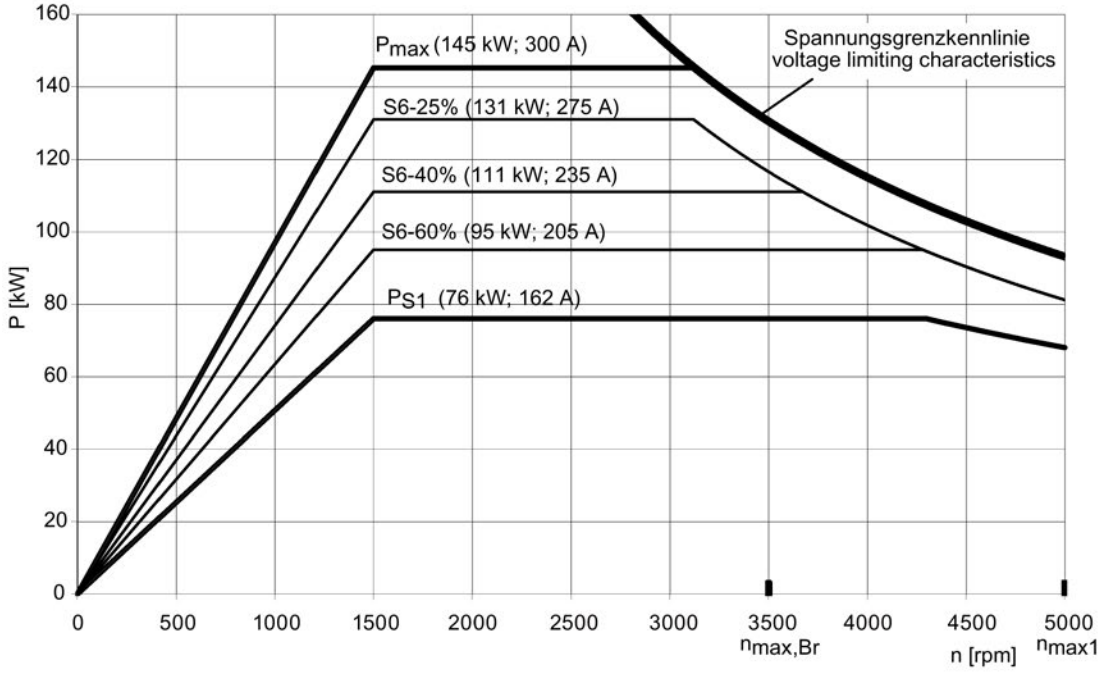


Table 6- 310 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP23)

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]
1,500	76	484	162	5,000	-	-	3,500	4,300	925	300	484	162



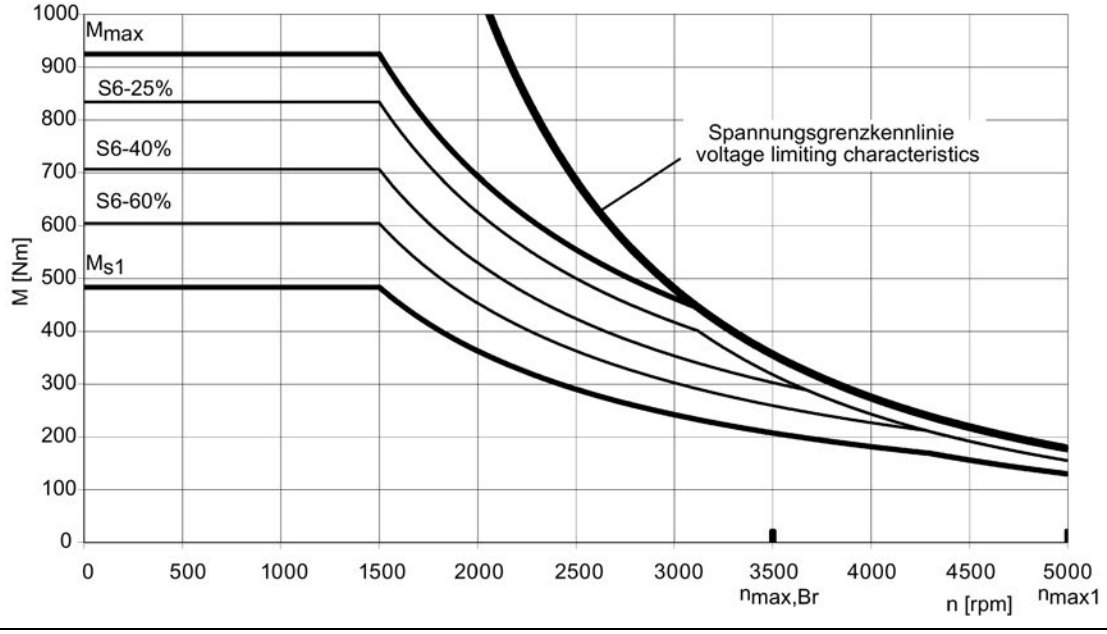
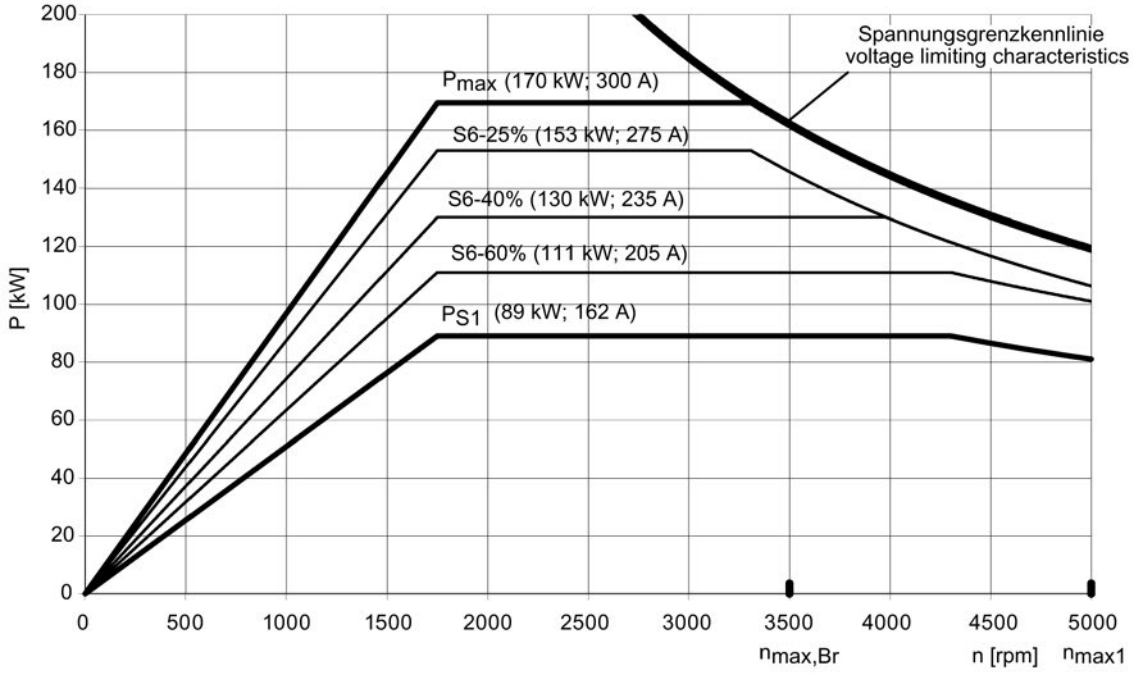


Table 6- 311 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP23)

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]
1,750	89	486	162	5,000	-	-	3,500	4,300	925	300	486	162
1,500	76	484	162					5,000				



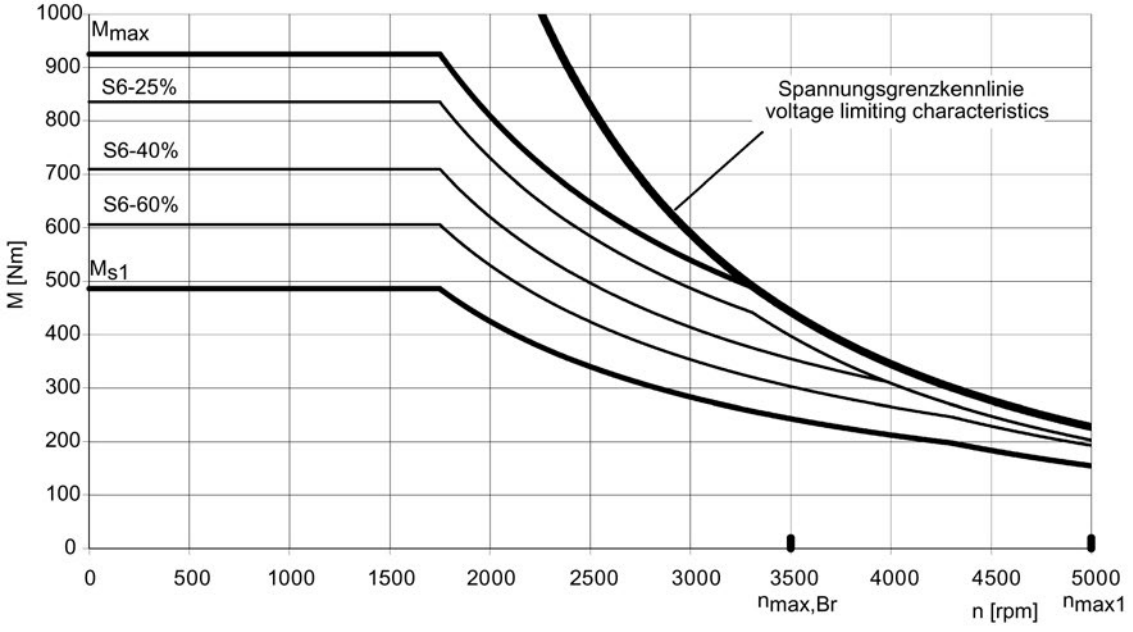
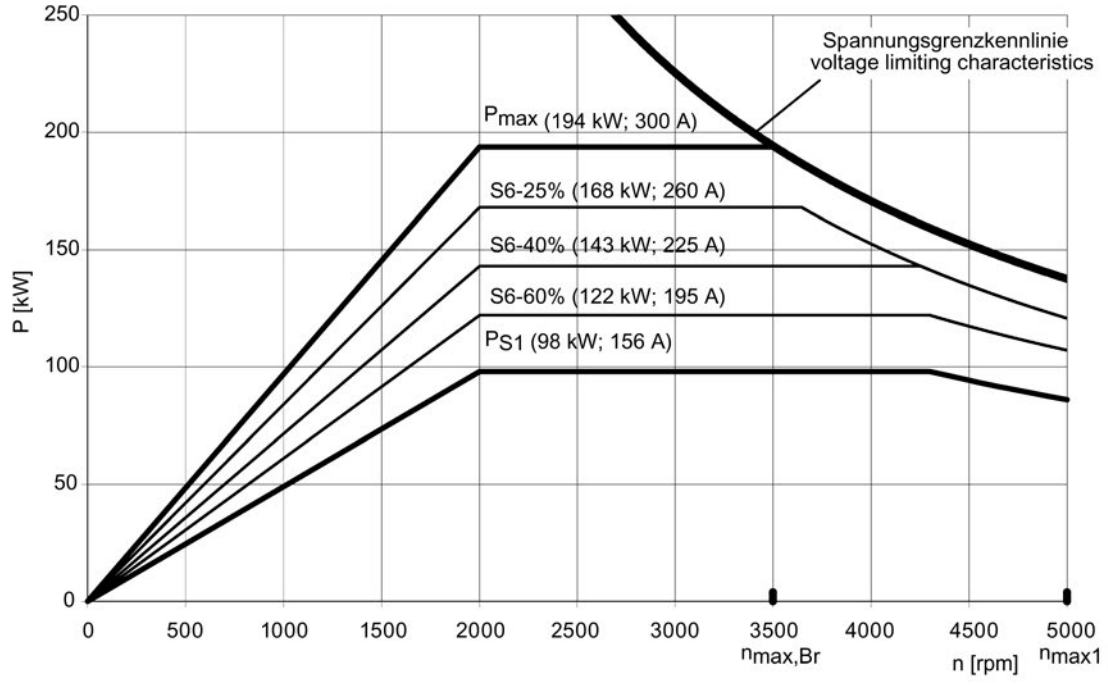


Table 6- 312 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F□□, (IP23)

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]
2,000	98	468	156	5,000	-	-	3,500	4,300	925	300	468	156



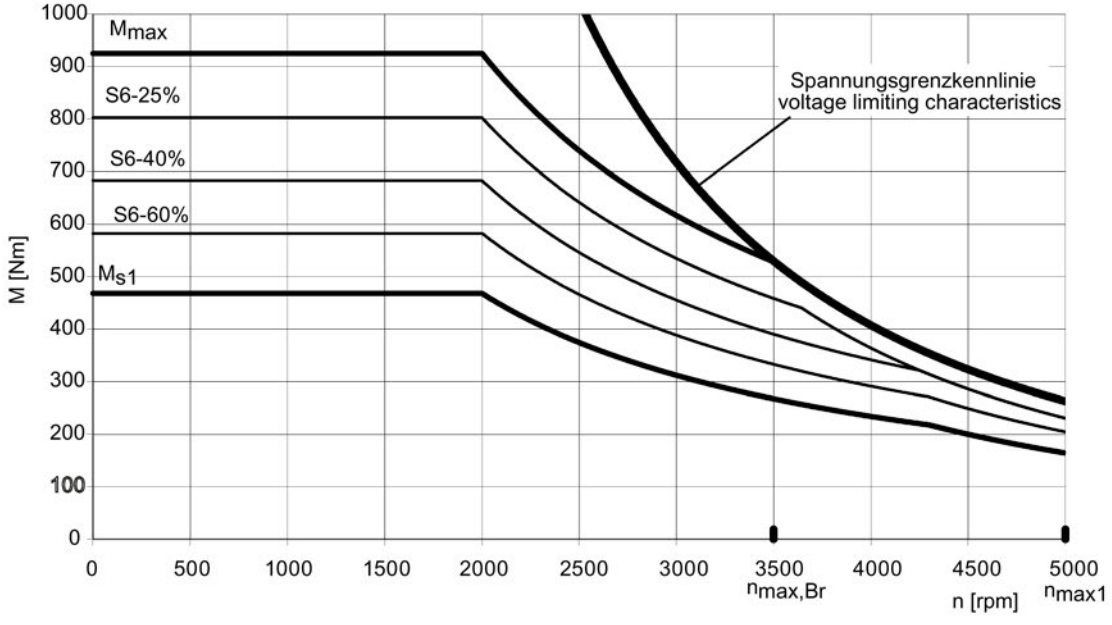
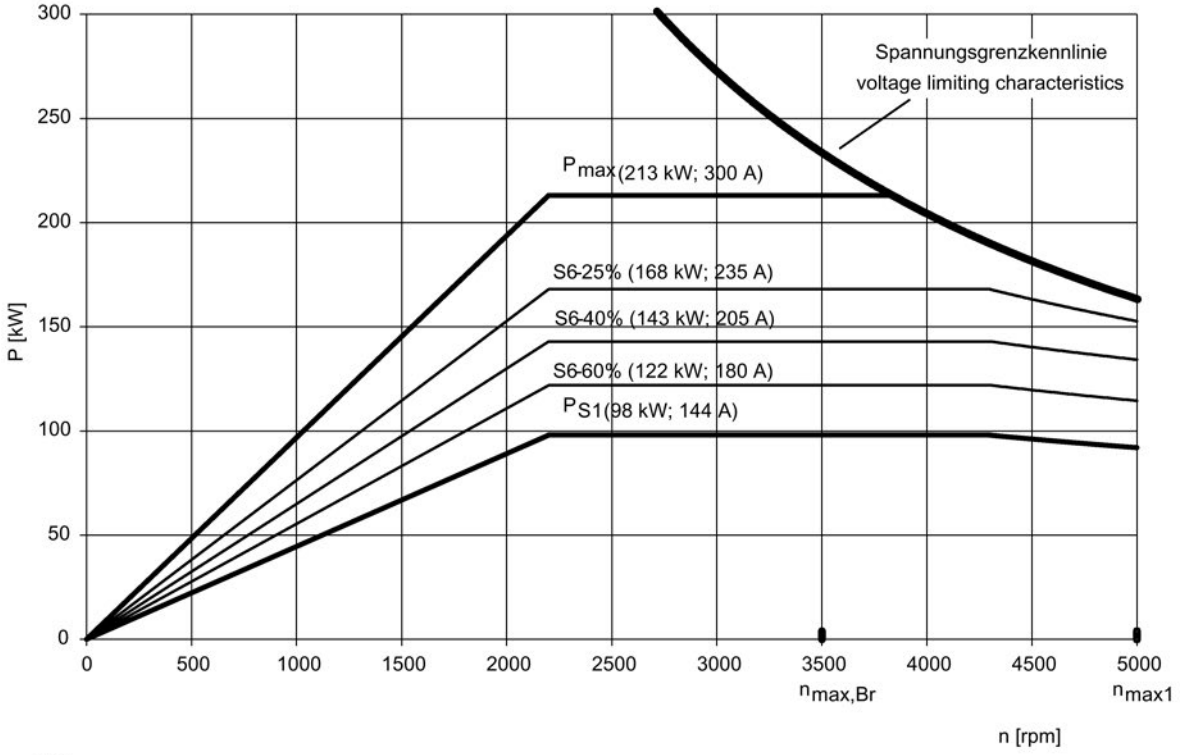


Table 6- 313 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8184-□□F□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	98	425	144	5,000	-	-	3,500	4,300	925	300	484	144



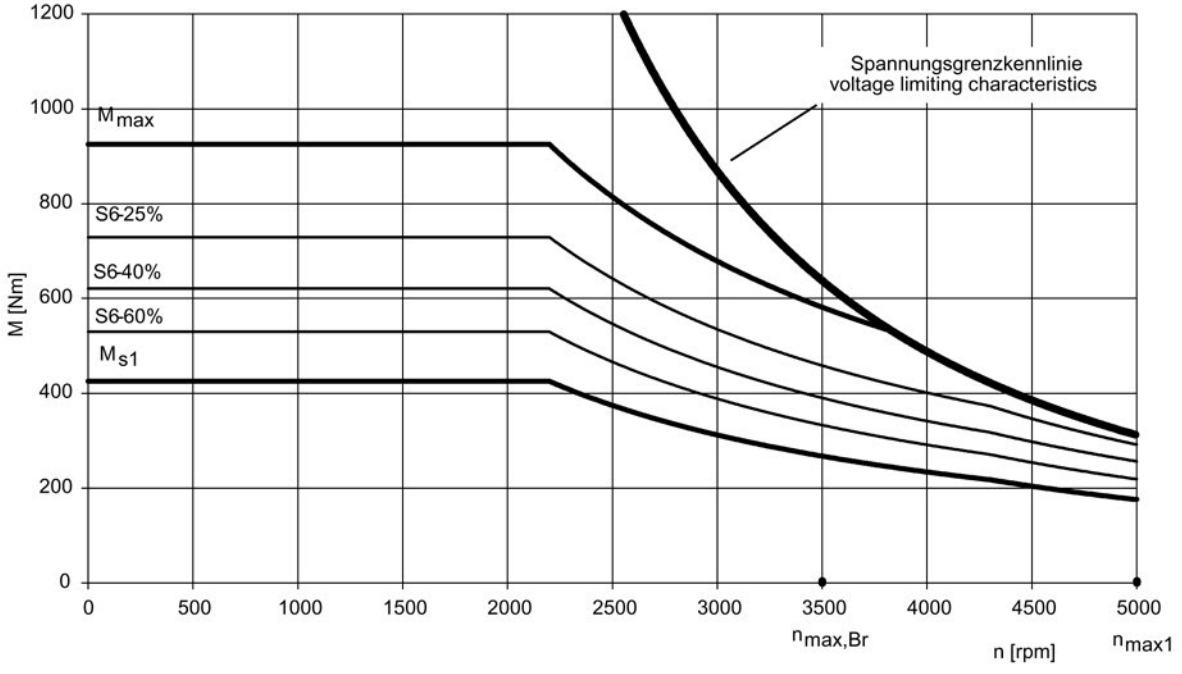
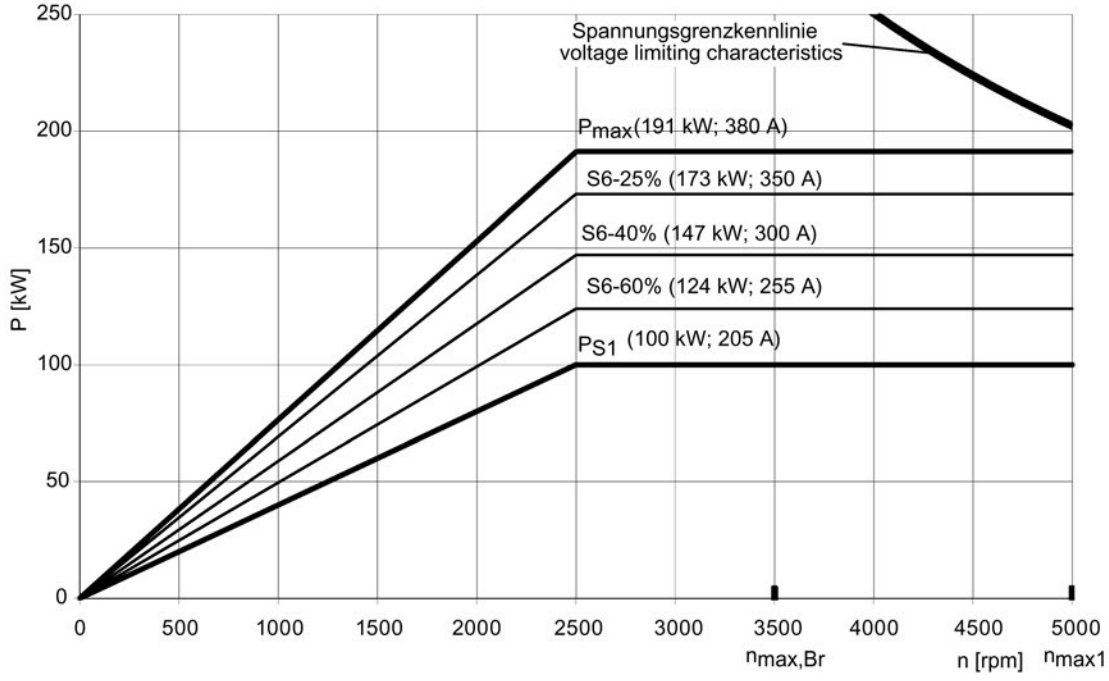


Table 6- 314 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L□□, (IP23)

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]
2,500	100	382	205	5,000	-	-	3,500	5,000	730	380	382	205



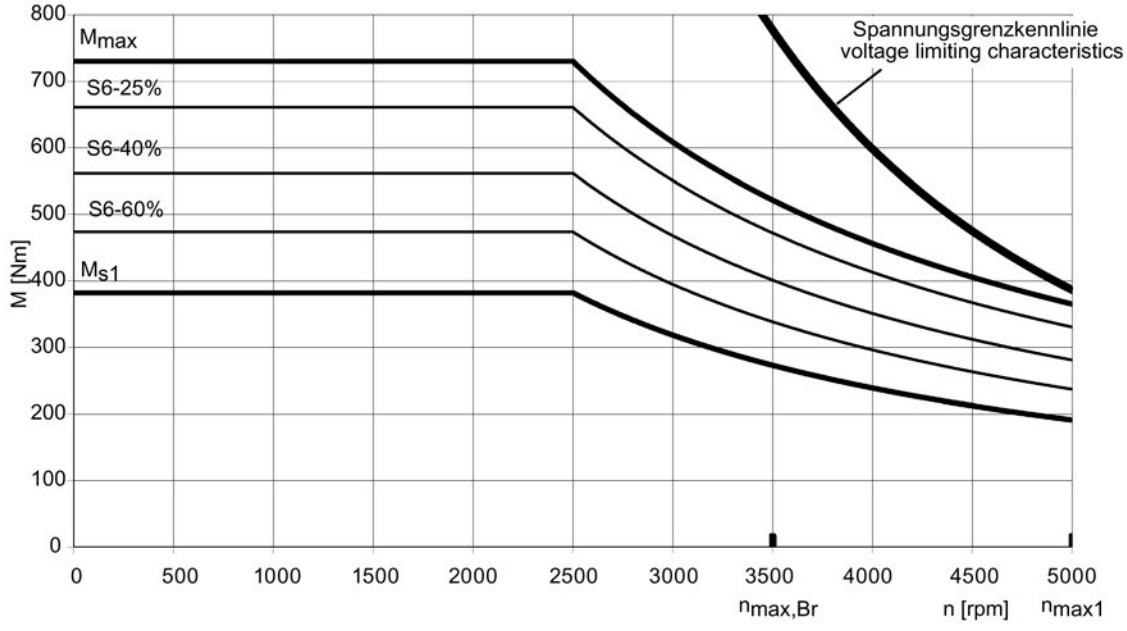
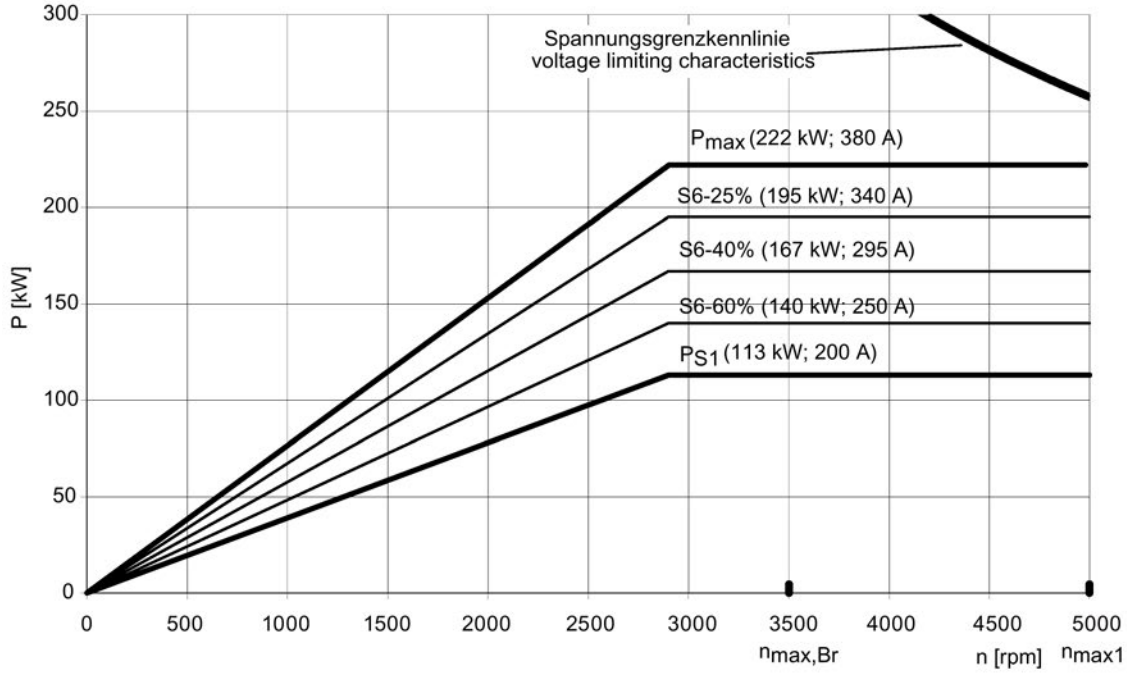


Table 6- 315 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L□□, (IP23)

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]
2,900	113	372	200	5,000	-	-	3,500	5,000	730	380	372	200
2,500	100	382	205					5,000				



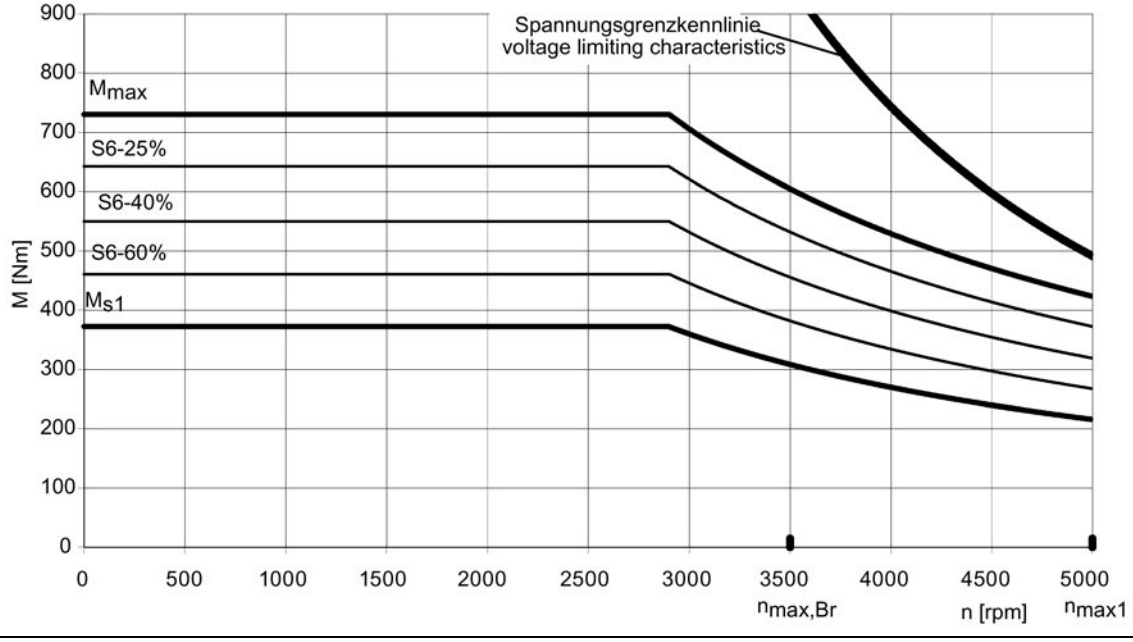
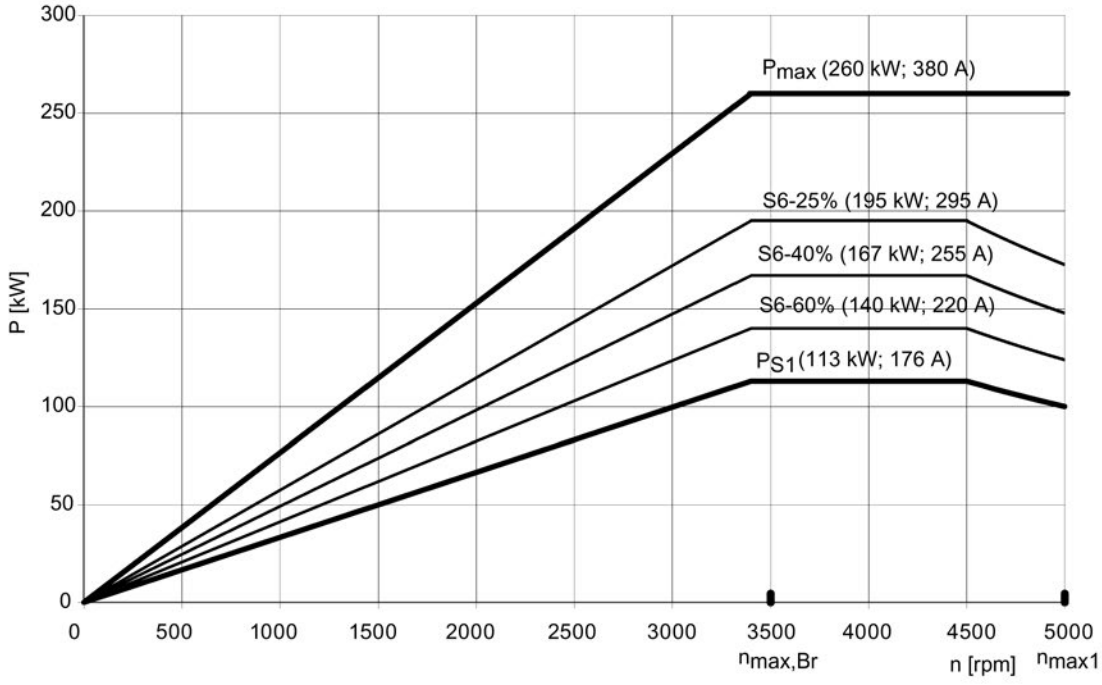


Table 6- 316 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L□□, (IP23)

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]
3,400	113	317	176	5,000	-	-	3,500	4,500	730	380	317	176



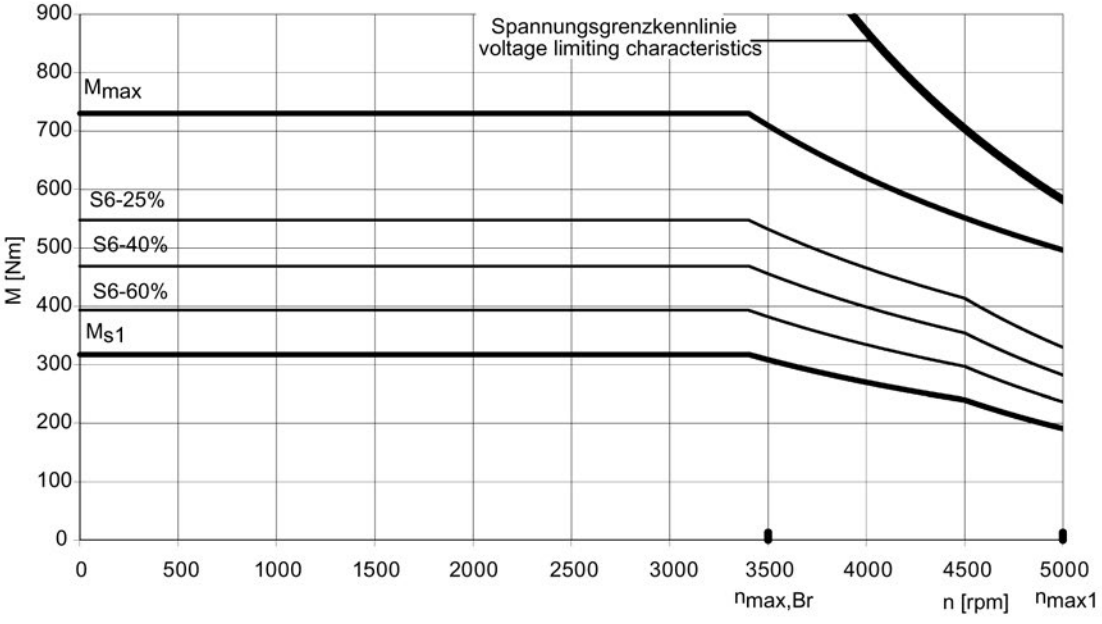
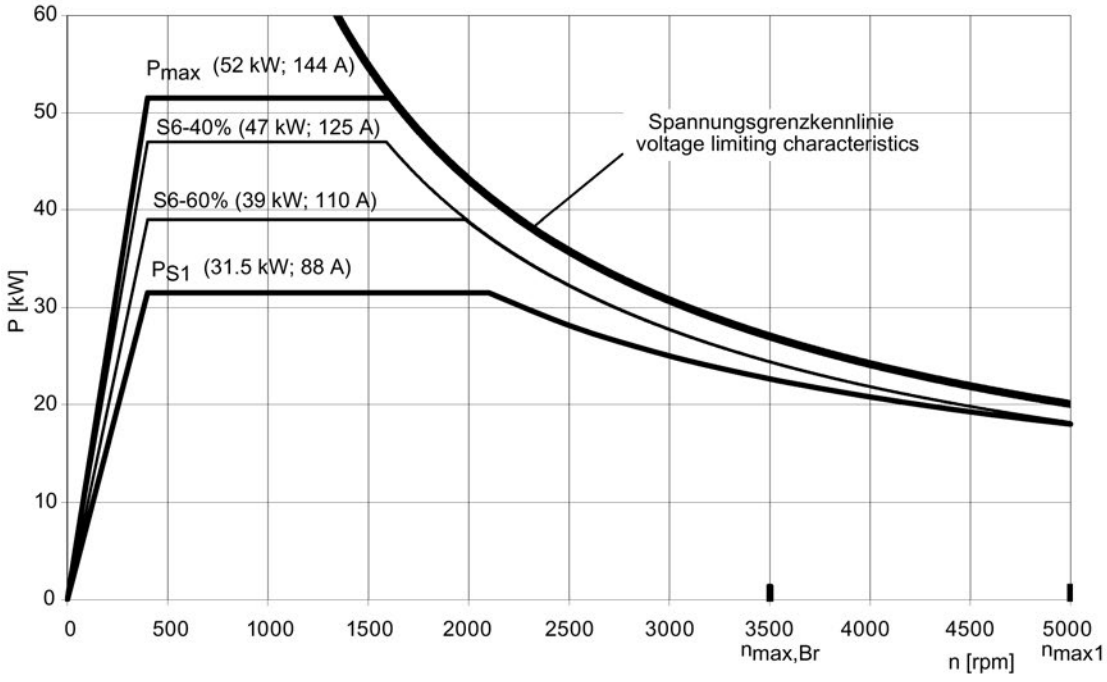


Table 6- 317 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B□□, (IP23)

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	5,000	-	-	3,500	2,100	1,230	144	752	88



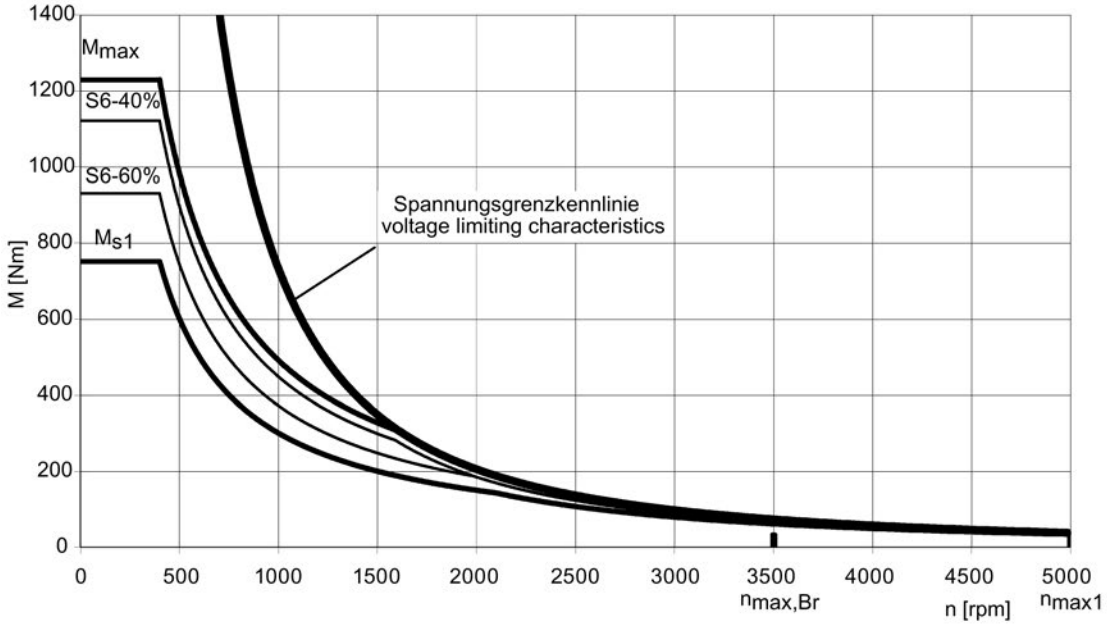
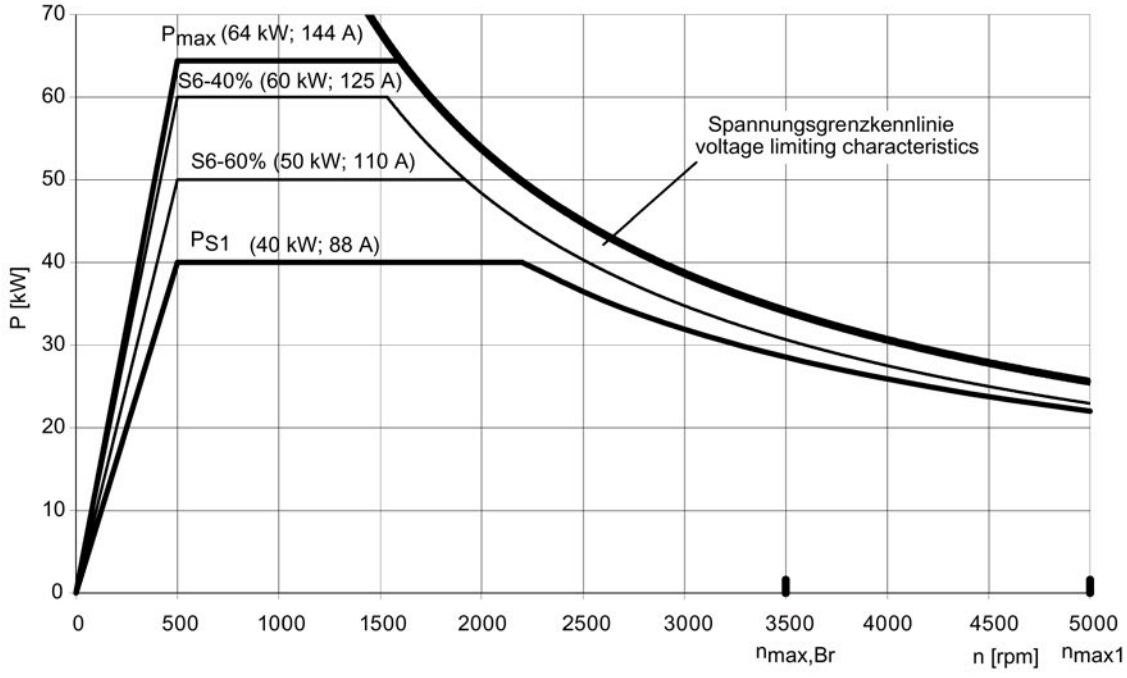


Table 6- 318 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP23)

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	5,000	-	-	3,500	2,200	1,230	144	764	88
400	31.5	752	88					3,100				



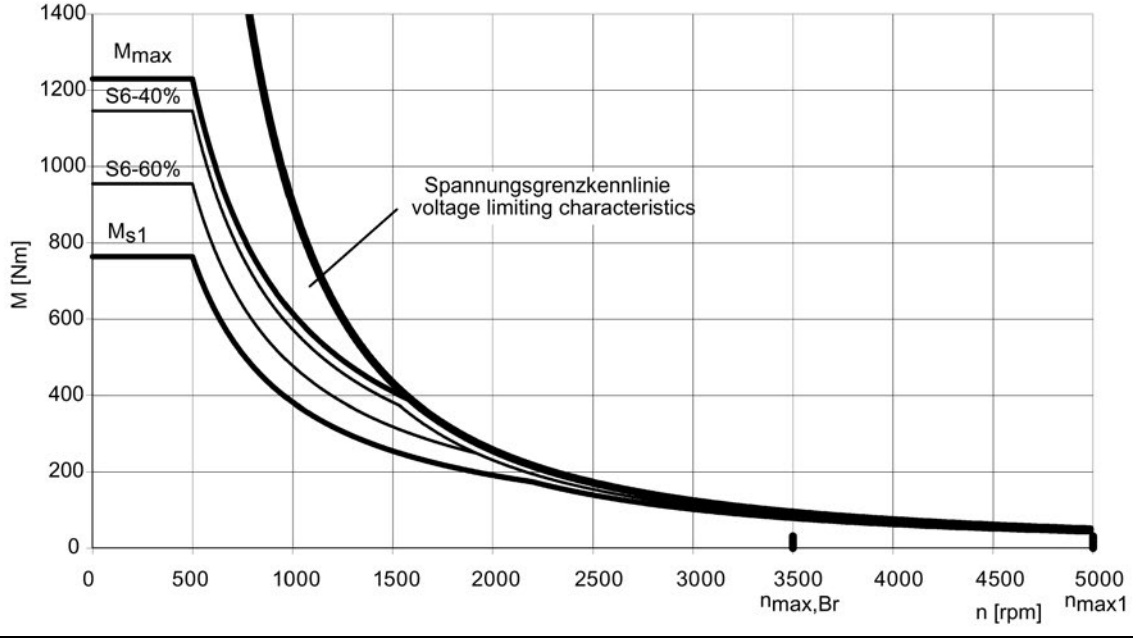
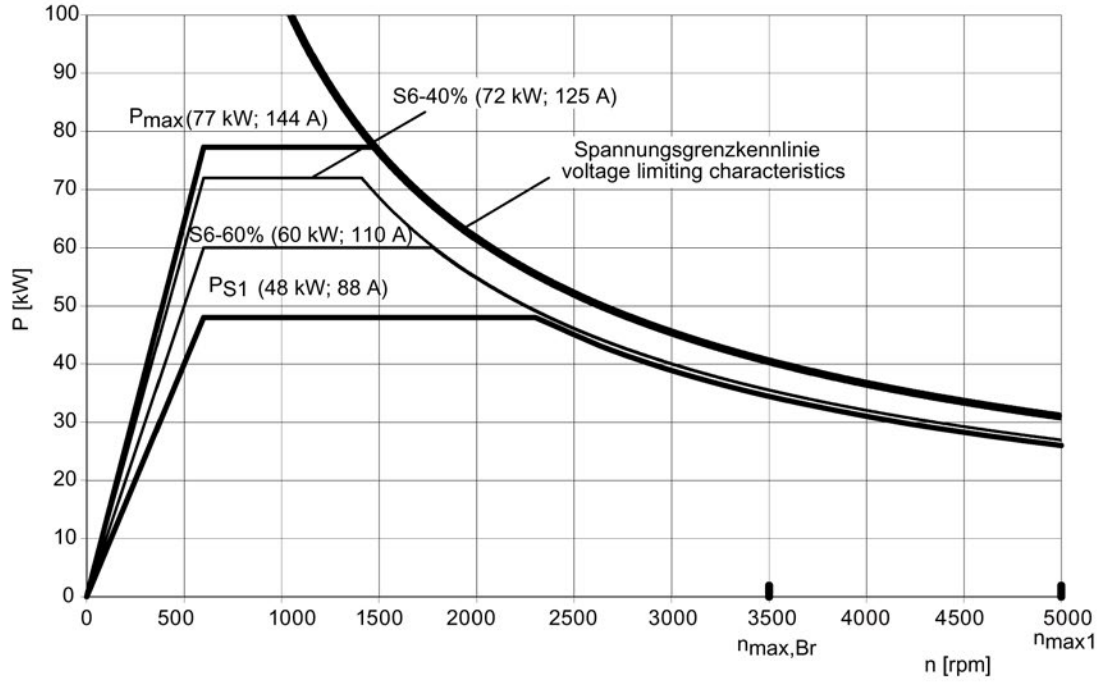


Table 6- 319 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B□□, (IP23)

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	5,000	-	-	3,500	2,300	1,230	144	764	88



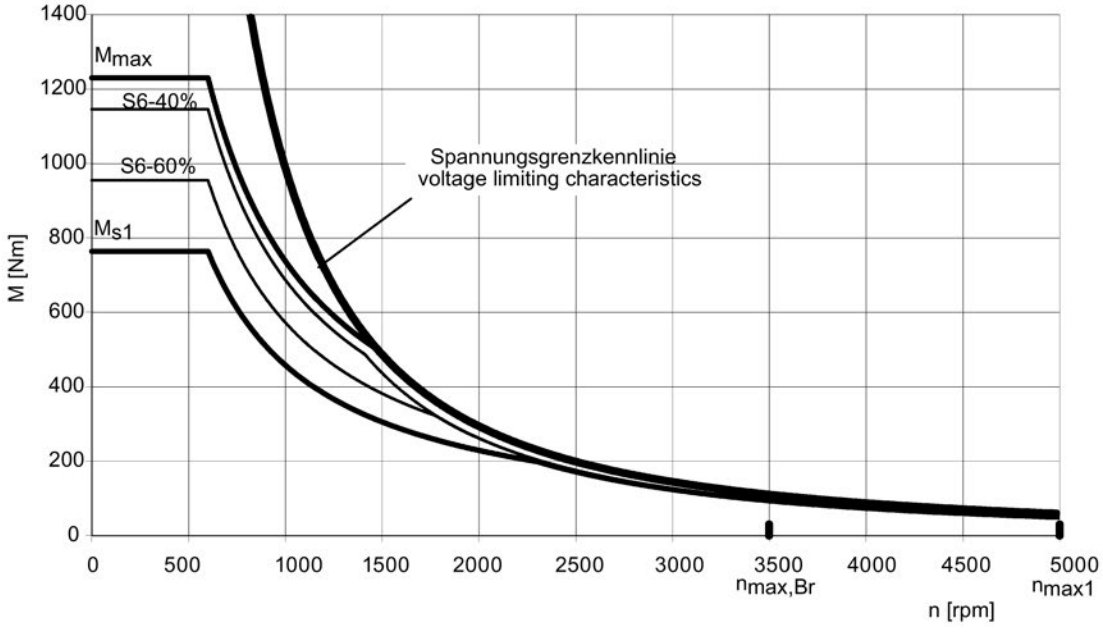
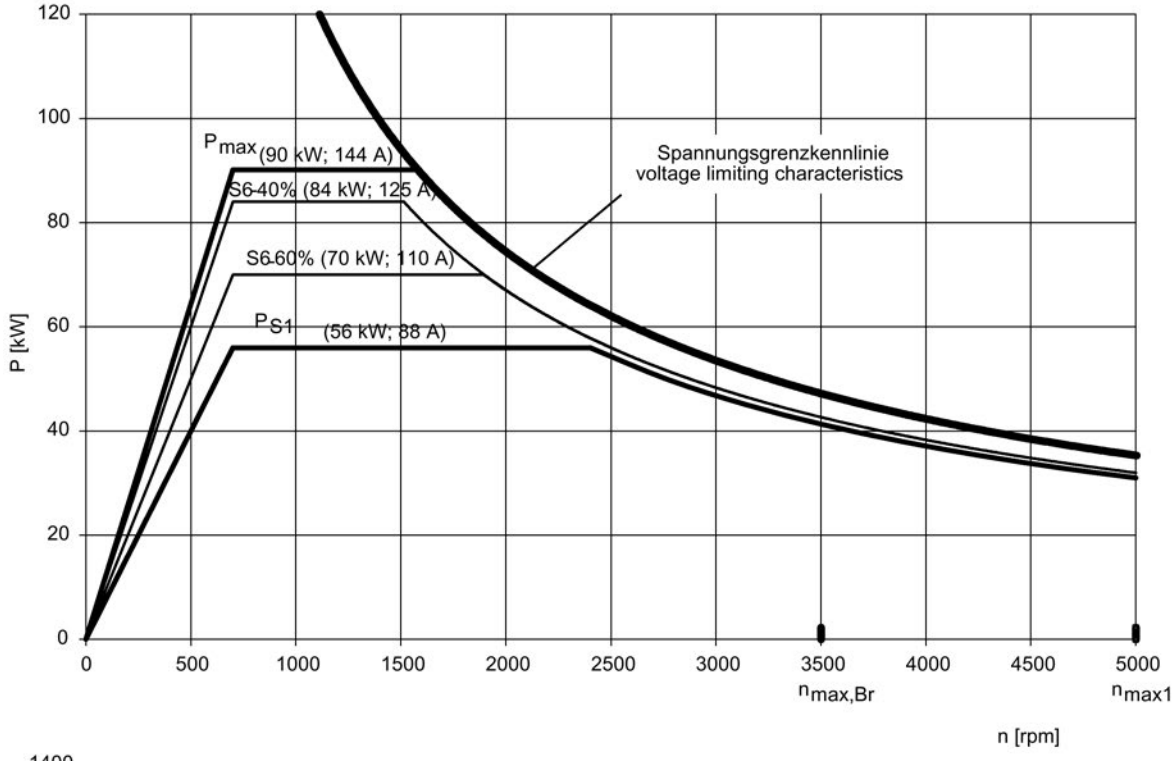


Table 6- 320 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□B□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	56	764	88	5,000	-	-	3,500	2,400	1,230	144	752	88



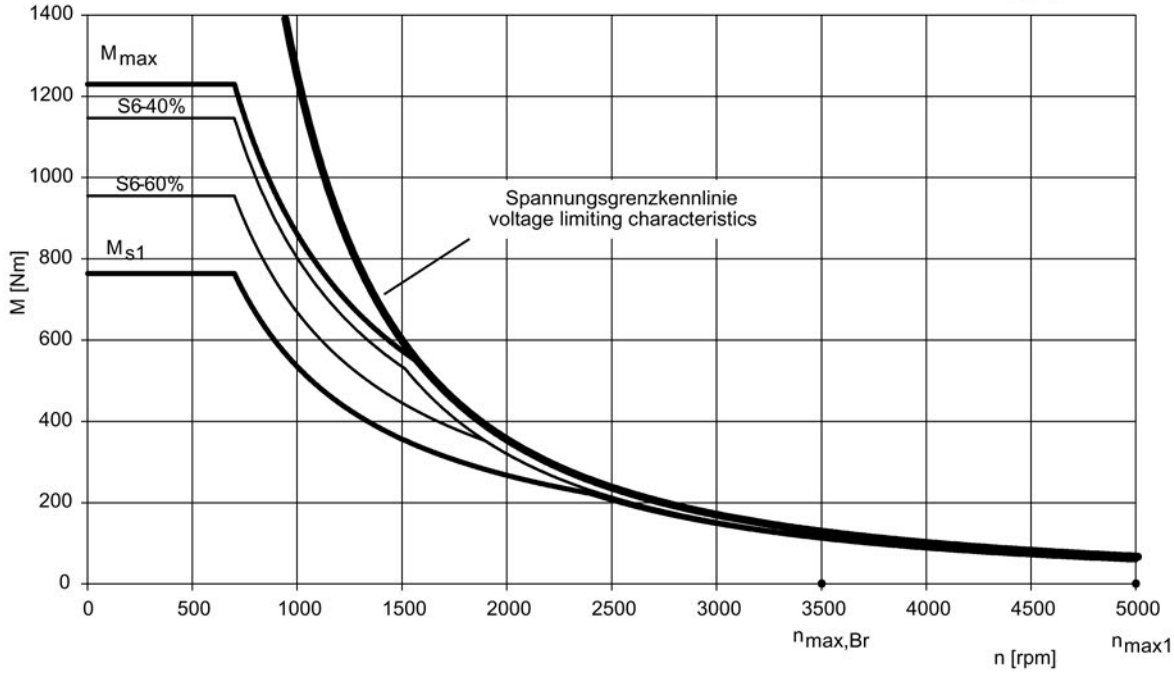
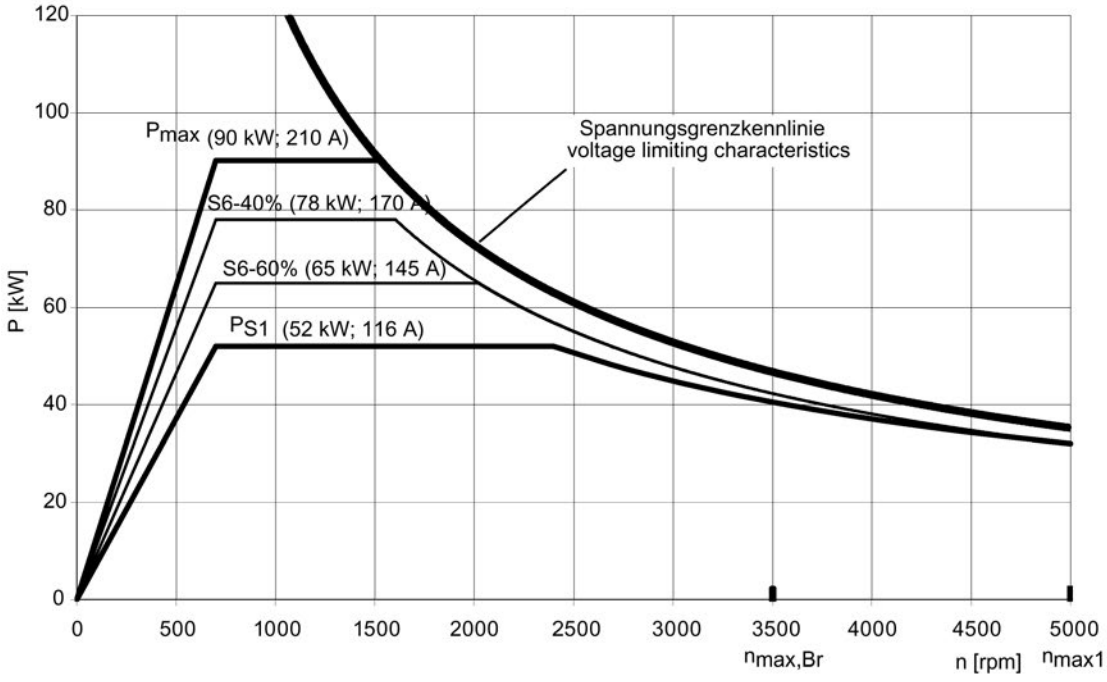


Table 6- 321 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP23)

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	5,000	-	-	3,500	2,400	1,230	210	709	116



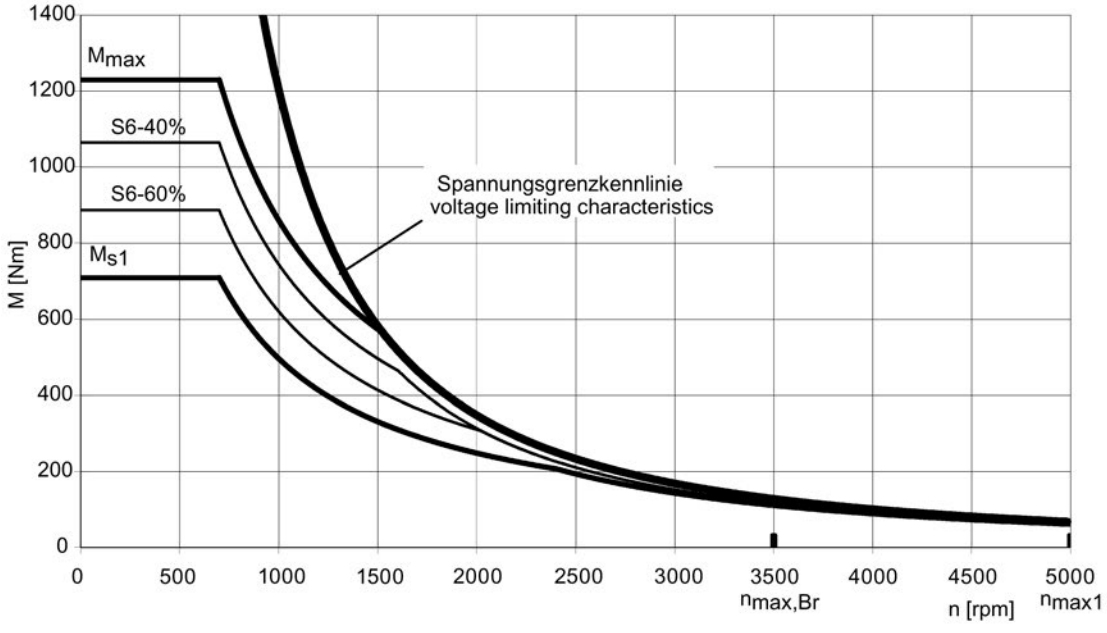
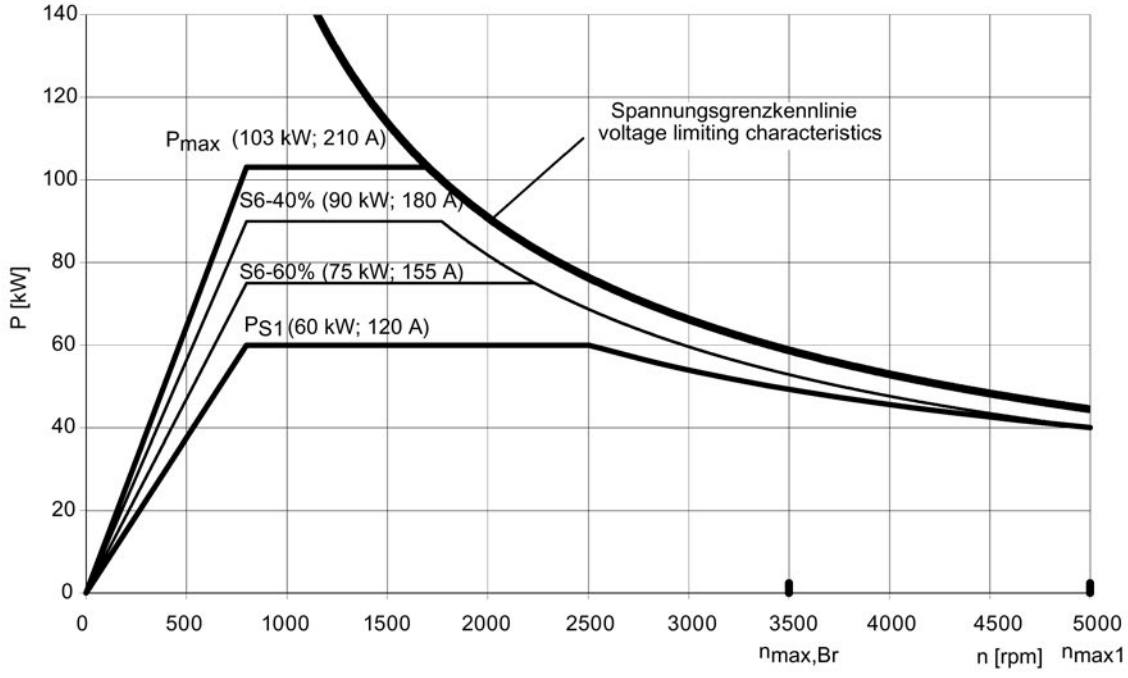


Table 6- 322 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP23)

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	5,000	-	-	3,500	2,500	1,230	210	716	120
700	52	709	116					3,200				



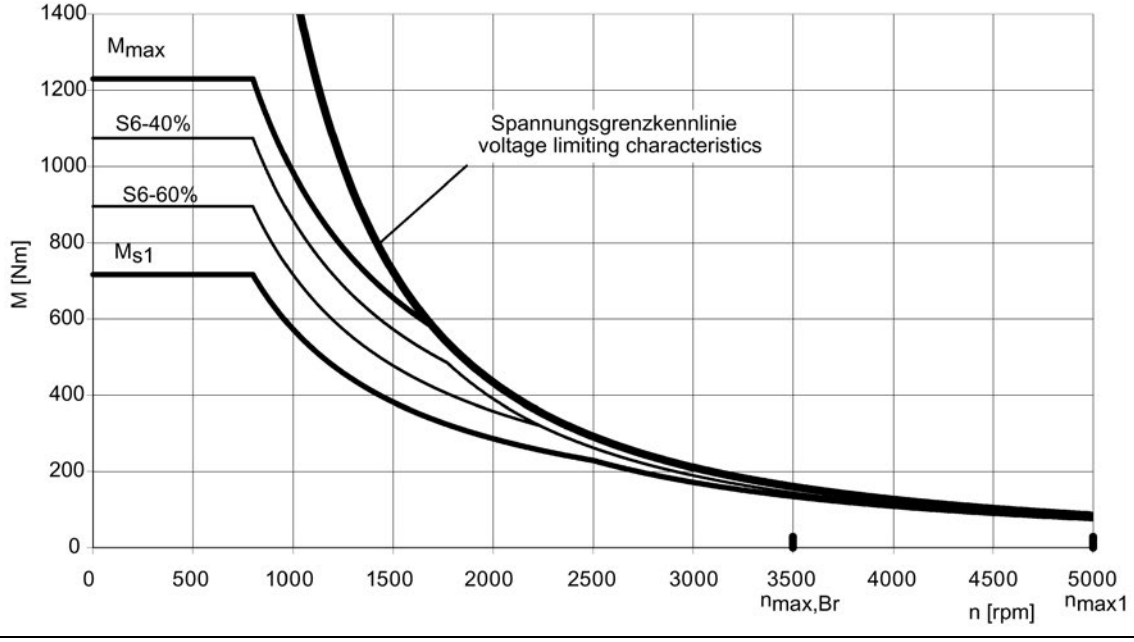
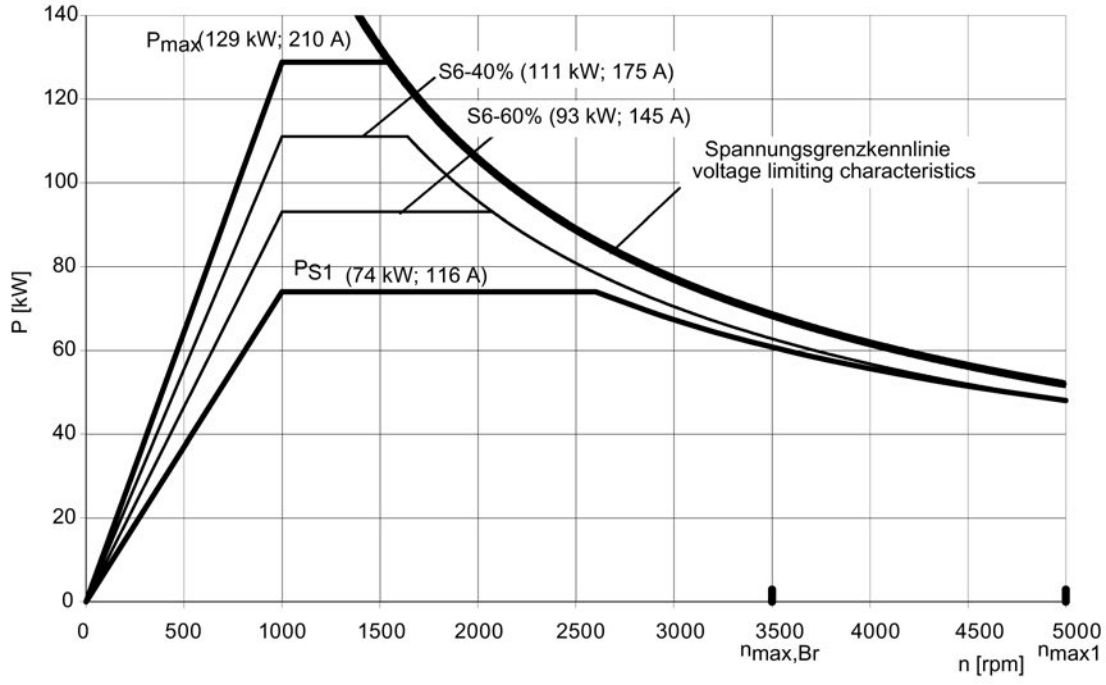


Table 6- 323 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C□□, (IP23)

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]
1,000	74	707	116	5,000	-	-	3,500	2,600	1,230	210	707	116



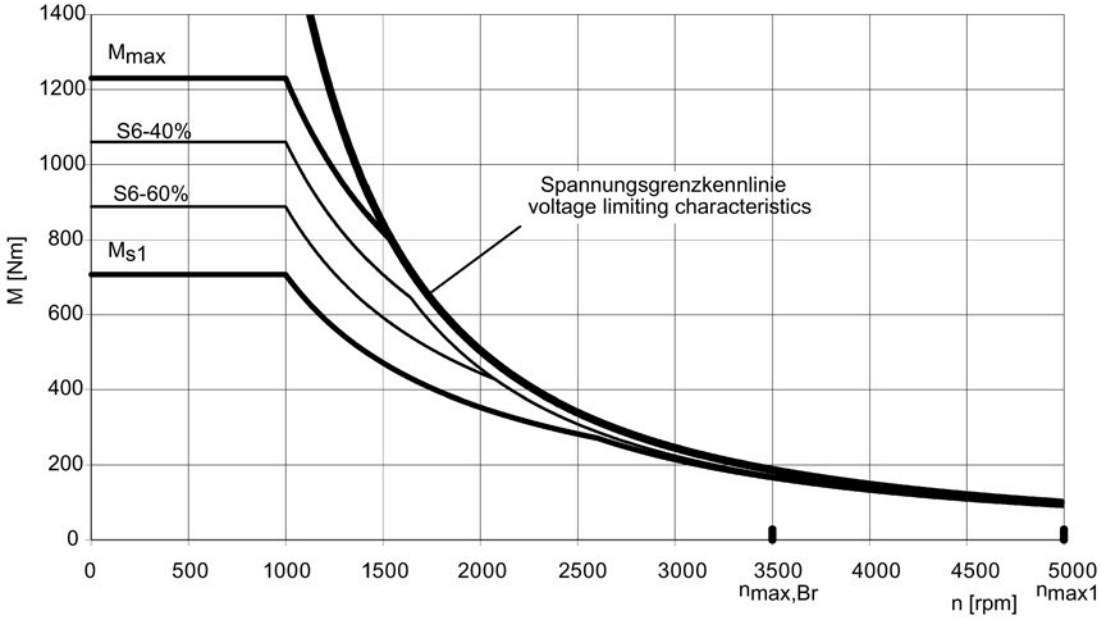
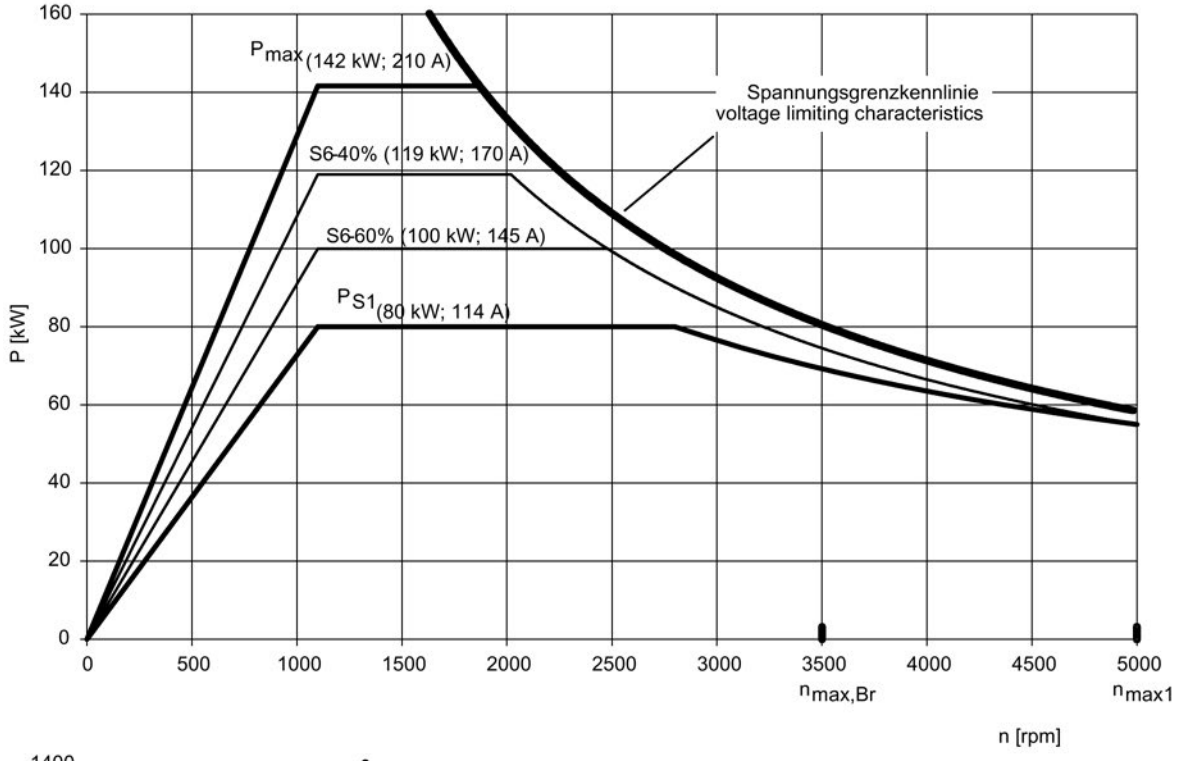


Table 6- 324 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□C□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	80	695	114	5,000	-	-	3,500	2,800	1,230	210	709	114



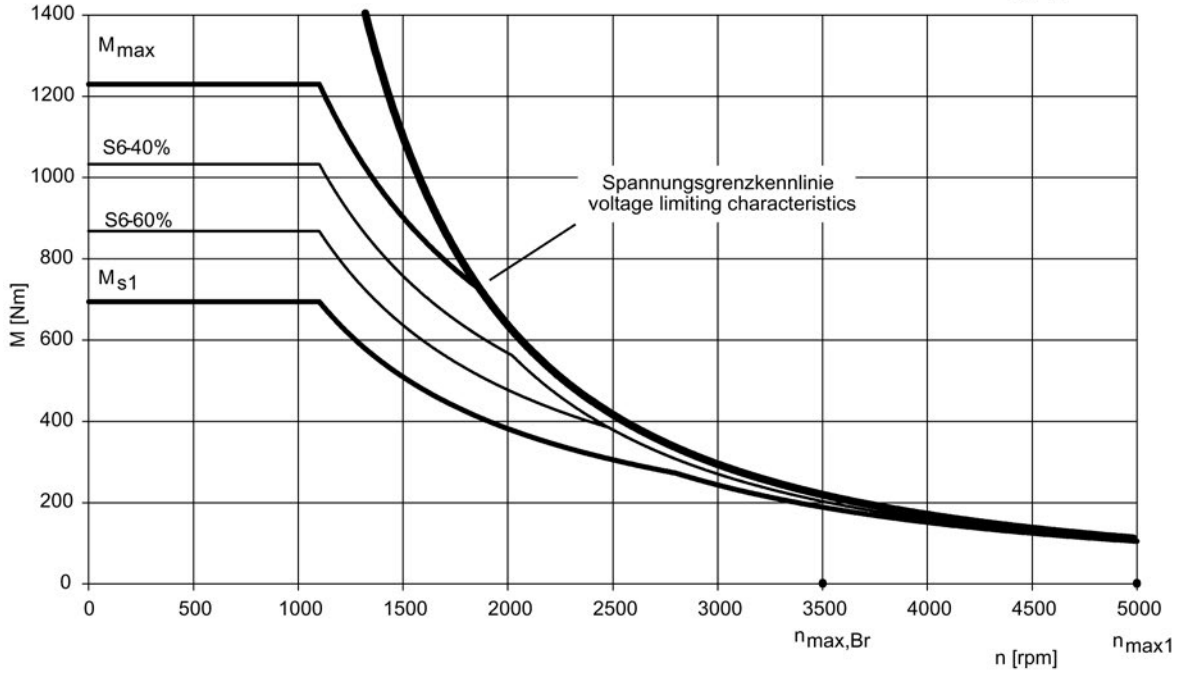
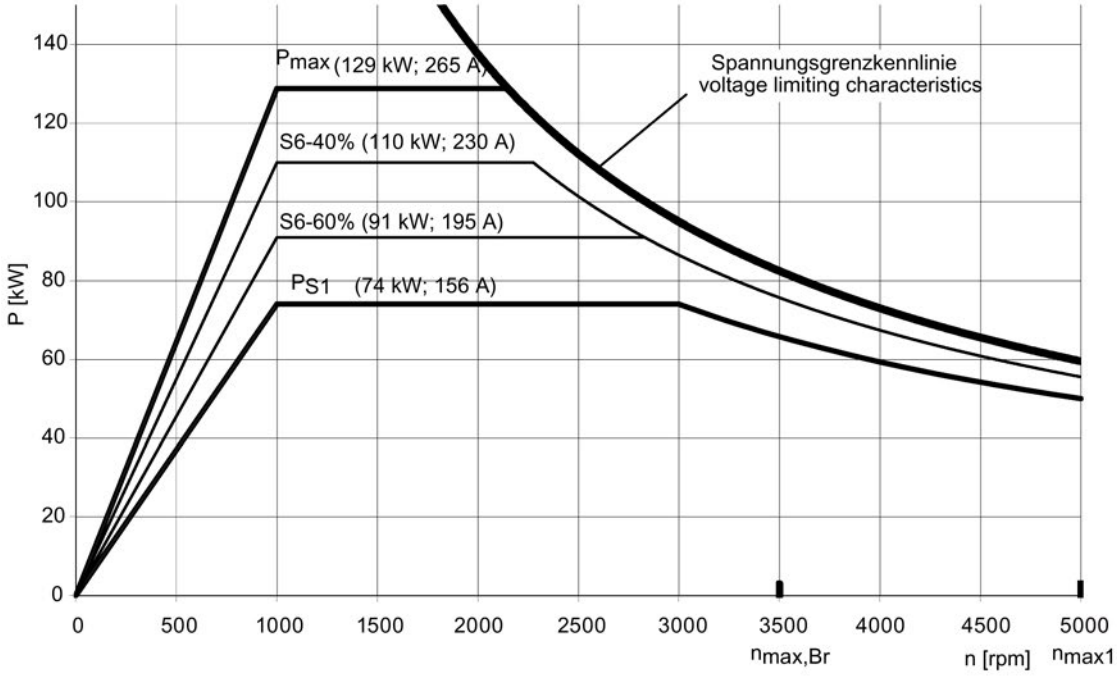


Table 6- 325 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP23)

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]
1,000	74	707	156	5,000	-	-	3,500	3,000	1,230	265	707	156



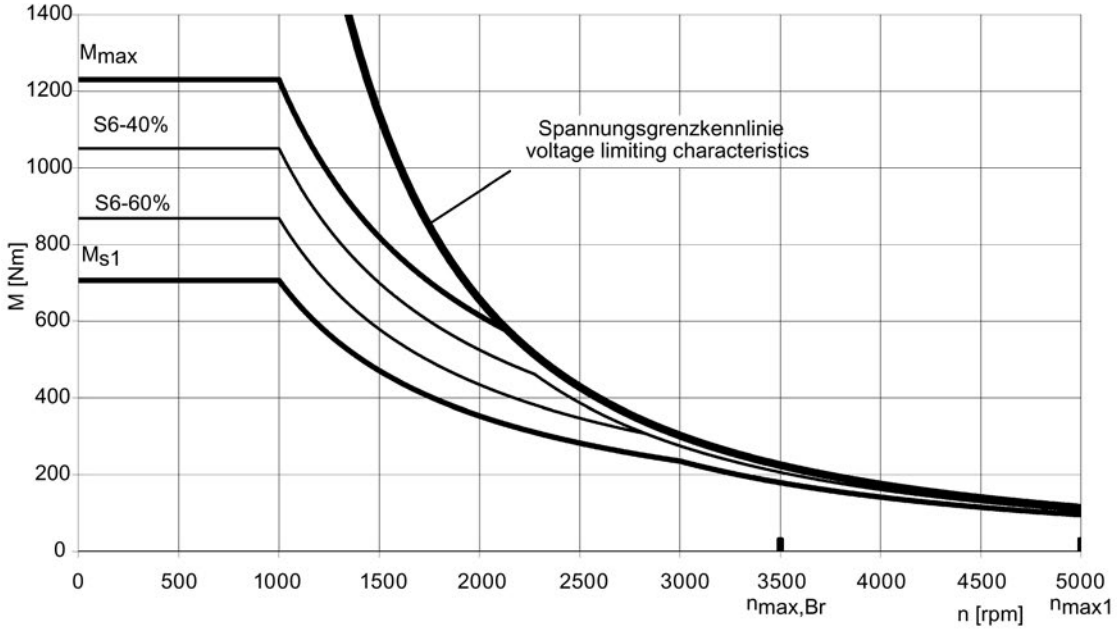
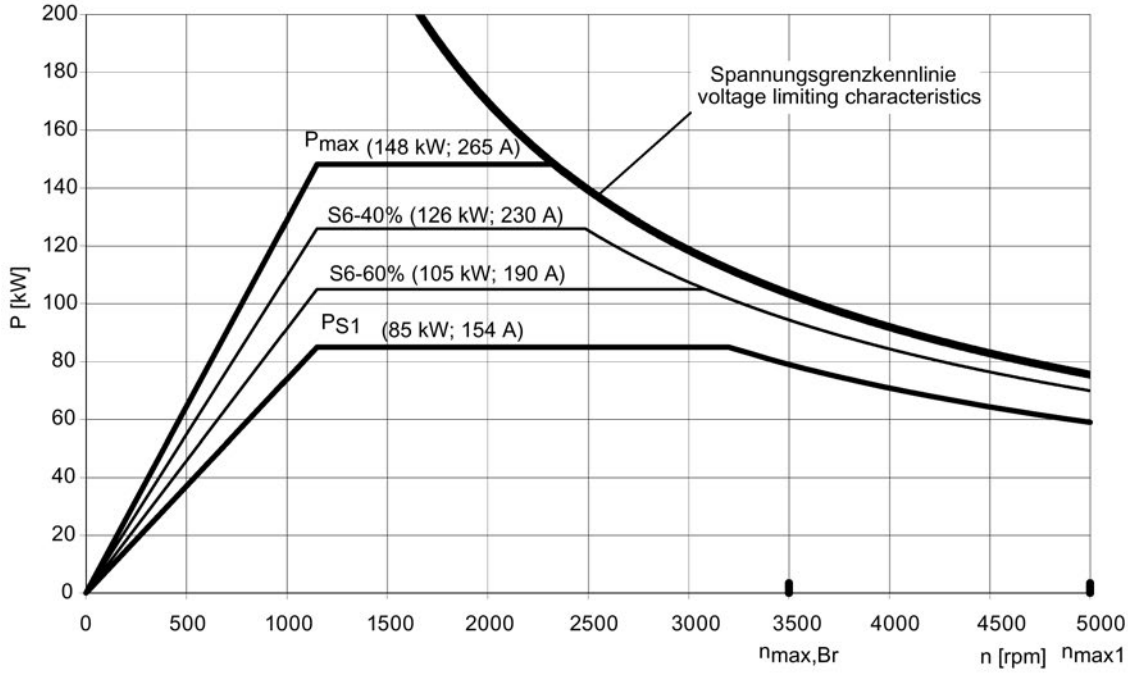


Table 6- 326 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP23)

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]
1,150	85	706	154	5,000	-	-	3,500	3,200	1,230	265	706	154
1,000	74	707	156					3,800				



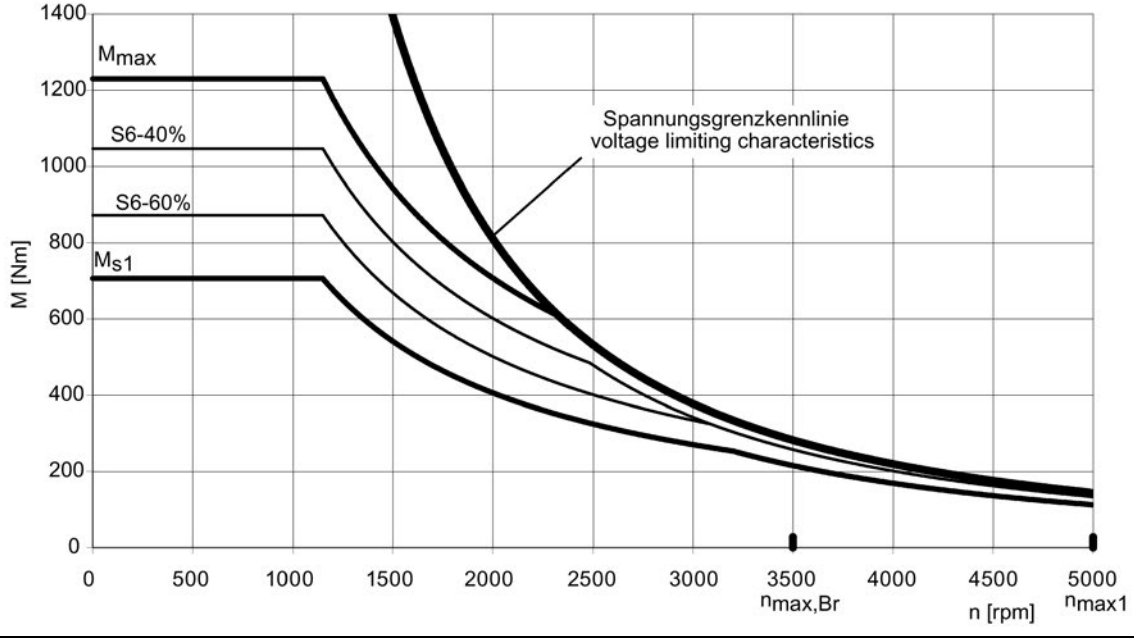
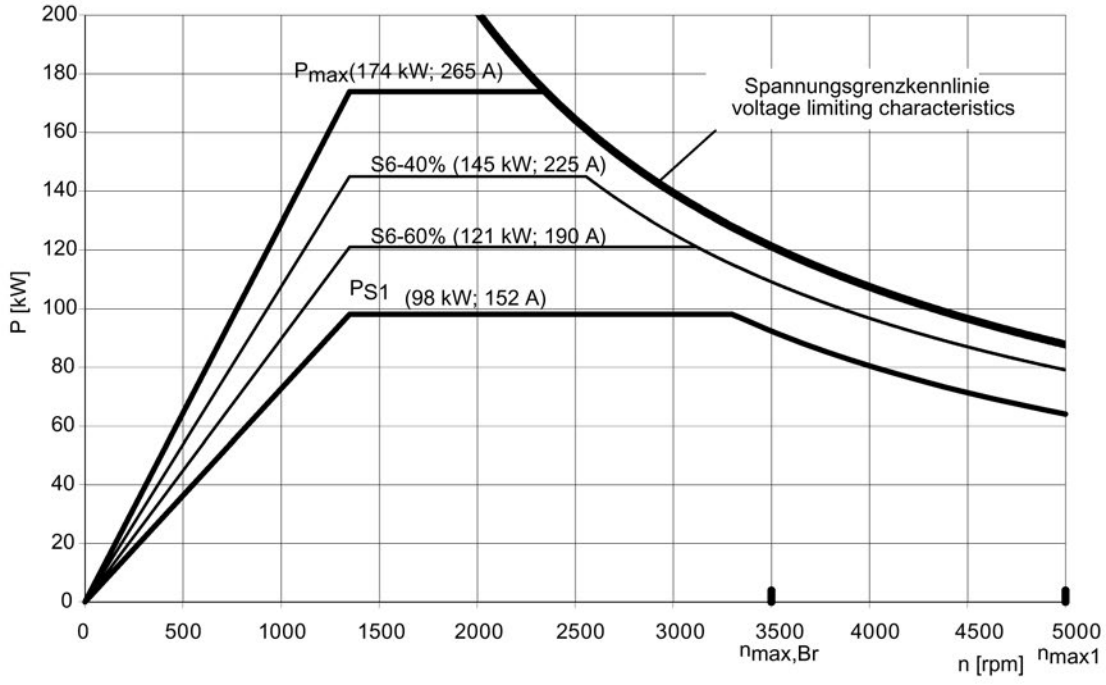


Table 6- 327 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D□□, (IP23)

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]
1,350	98	693	152	5,000	-	-	3,500	3,300	1,230	265	693	152



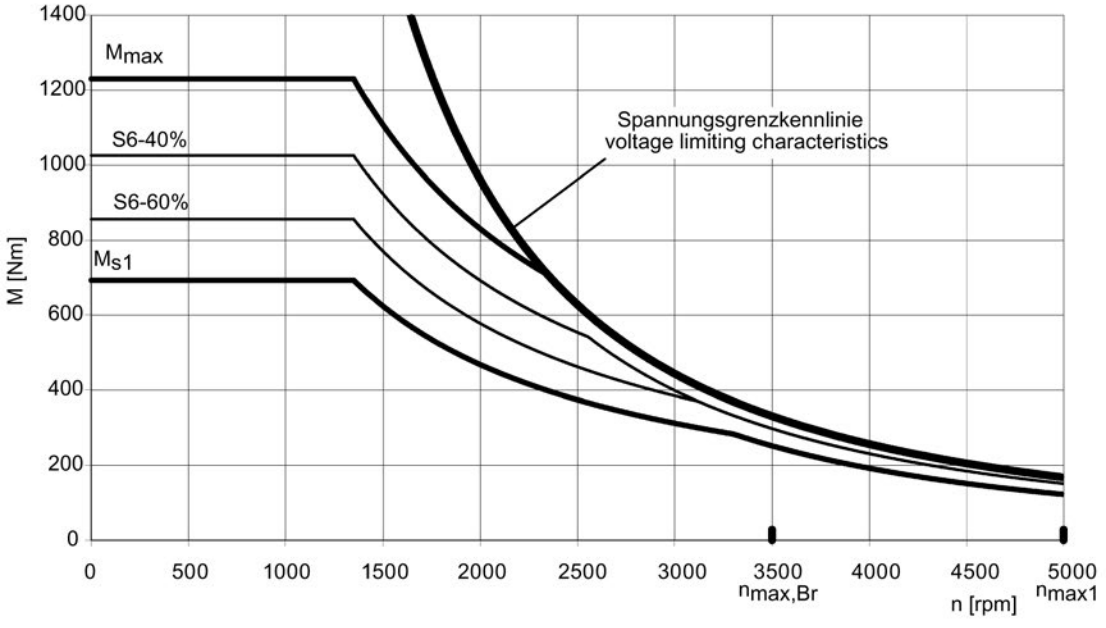
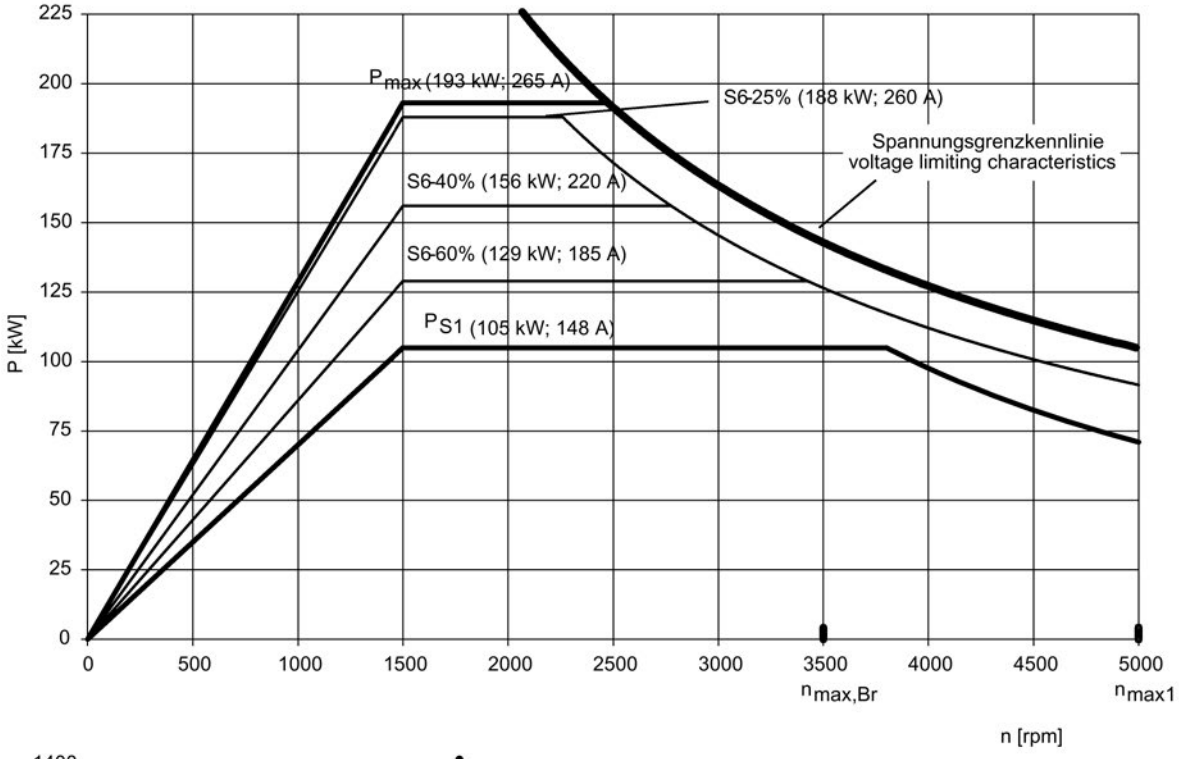


Table 6- 328 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□D□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	105	669	148	5,000	-	-	3,500	3,800	1,230	265	707	148



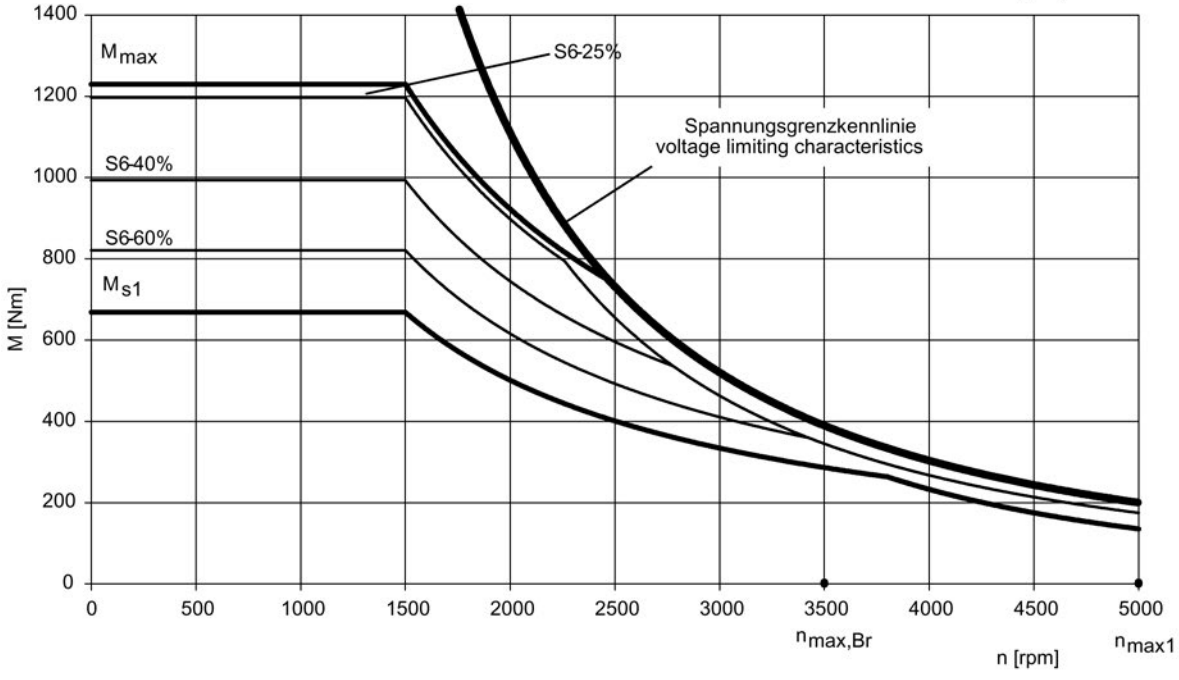
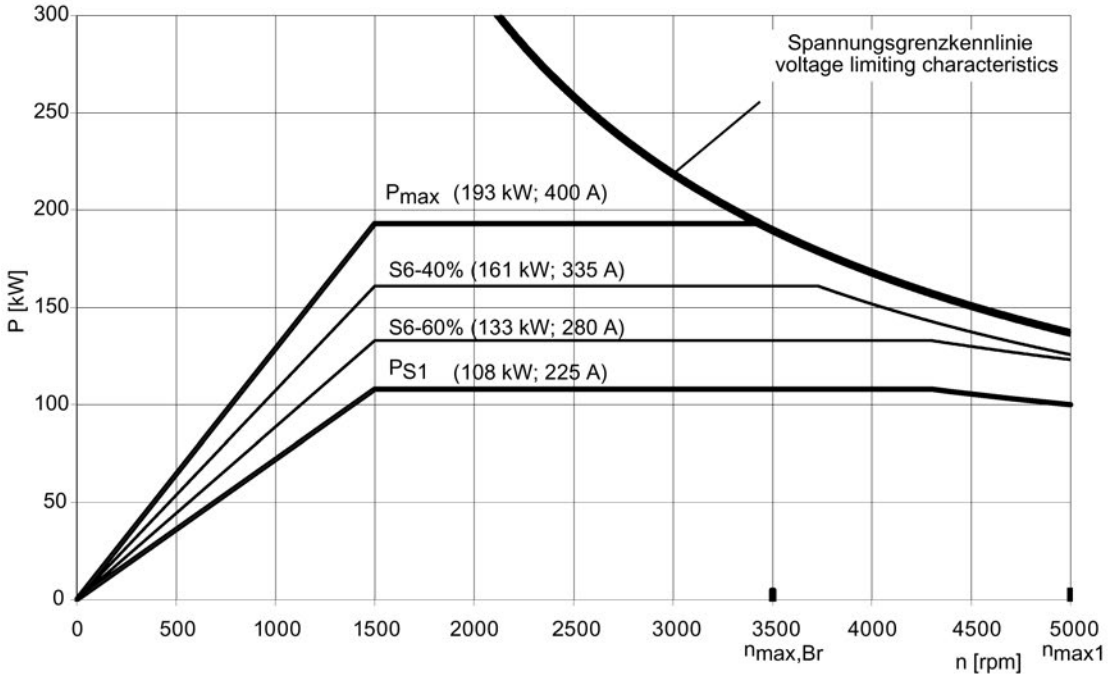


Table 6- 329 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP23)

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]
1,500	108	688	225	5,000	-	-	3,500	4,300	1,230	400	688	225



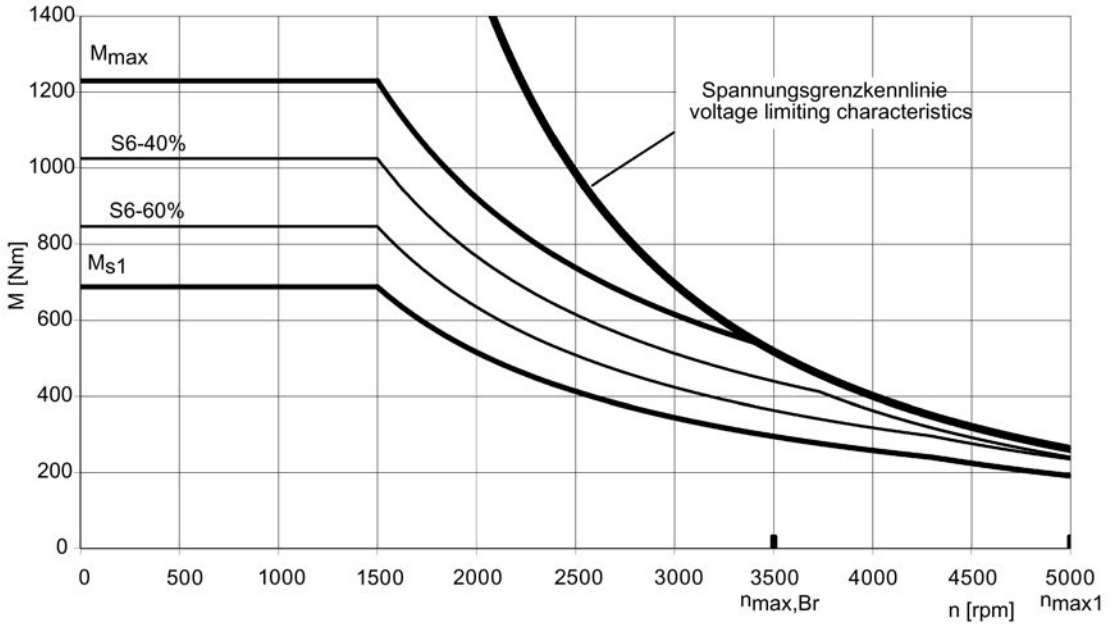
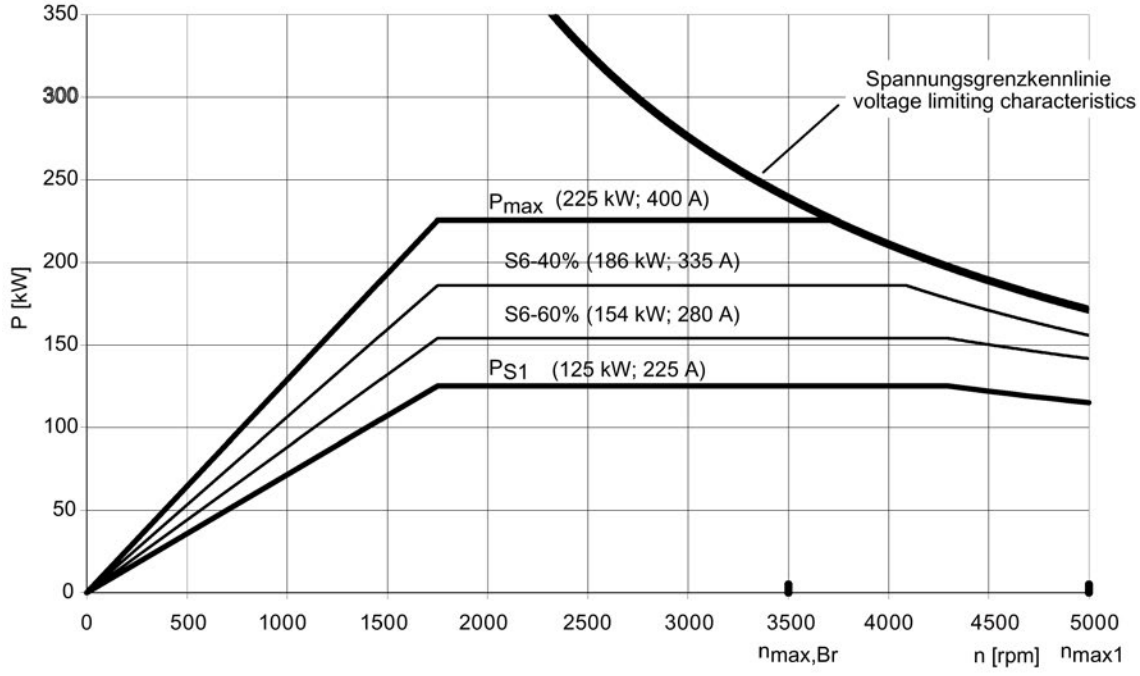


Table 6- 330 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP23)

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]
1,750	125	682	225	5,000	-	-	3,500	4,300	1,230	400	682	225
1,500	108	688	225					5,000				



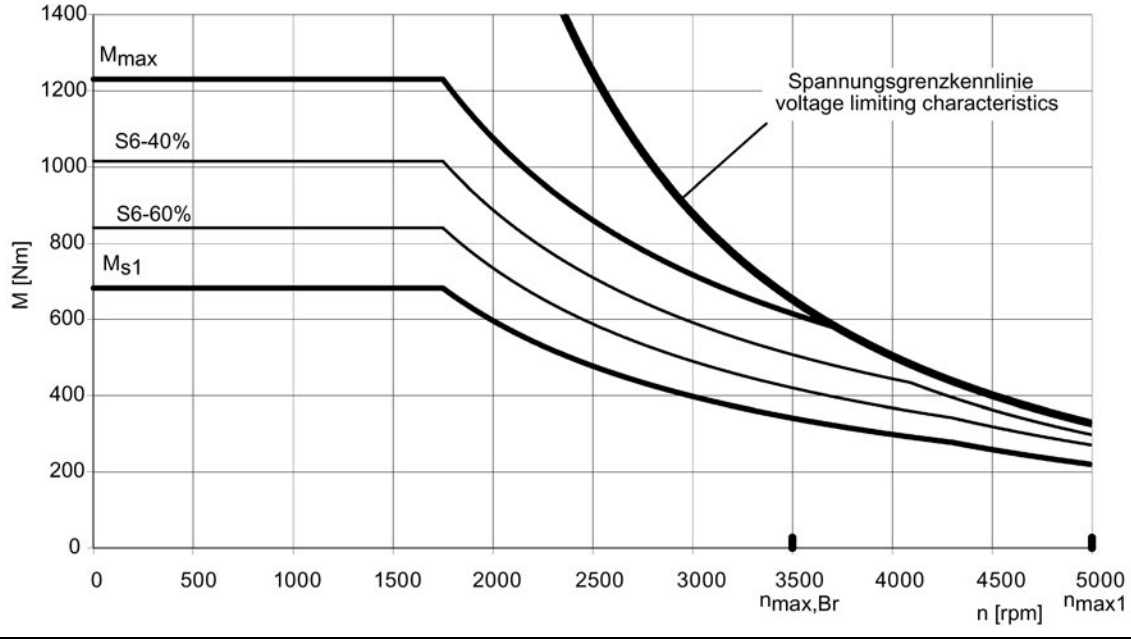
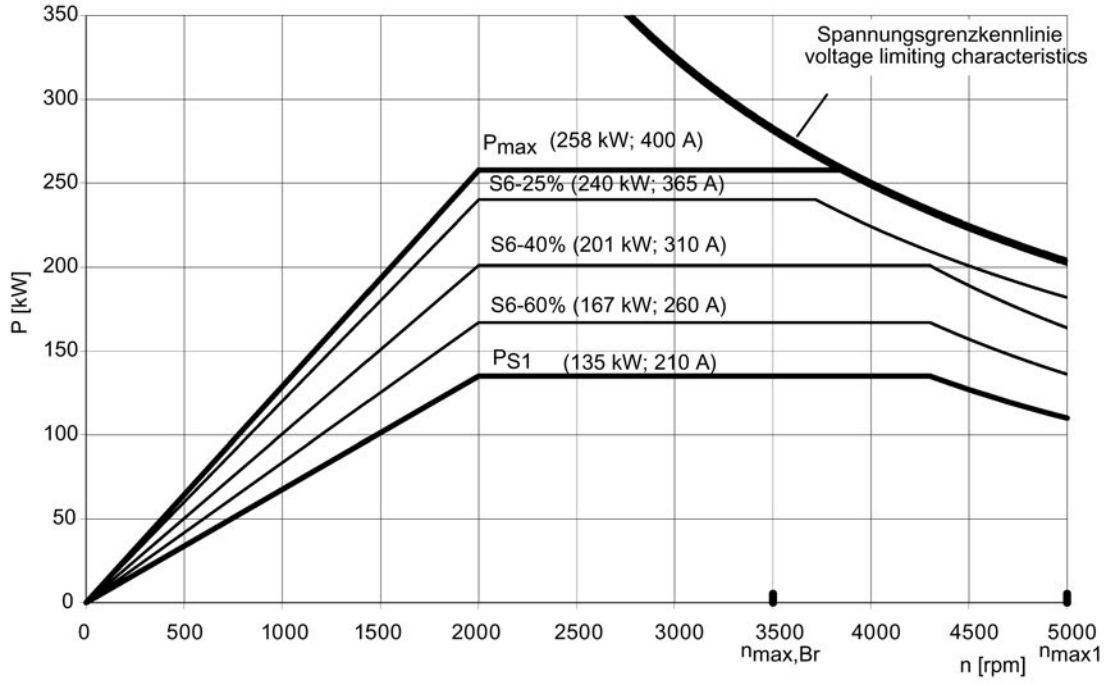


Table 6- 331 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F□□, (IP23)

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]
2,000	135	645	210	5,000	-	-	3,500	4,300	1,230	400	645	210



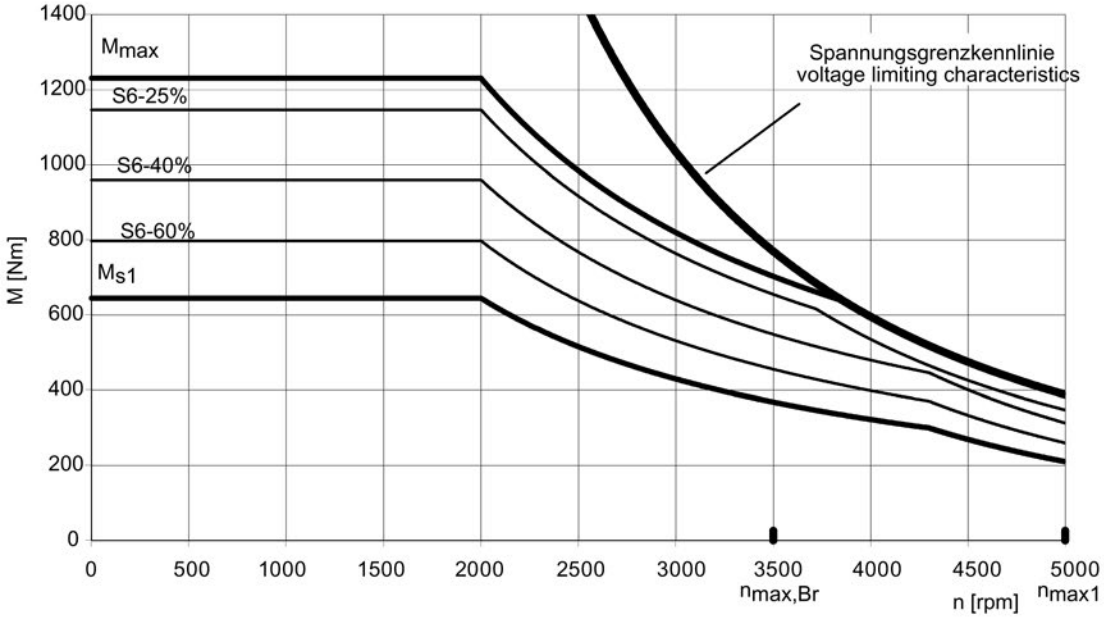
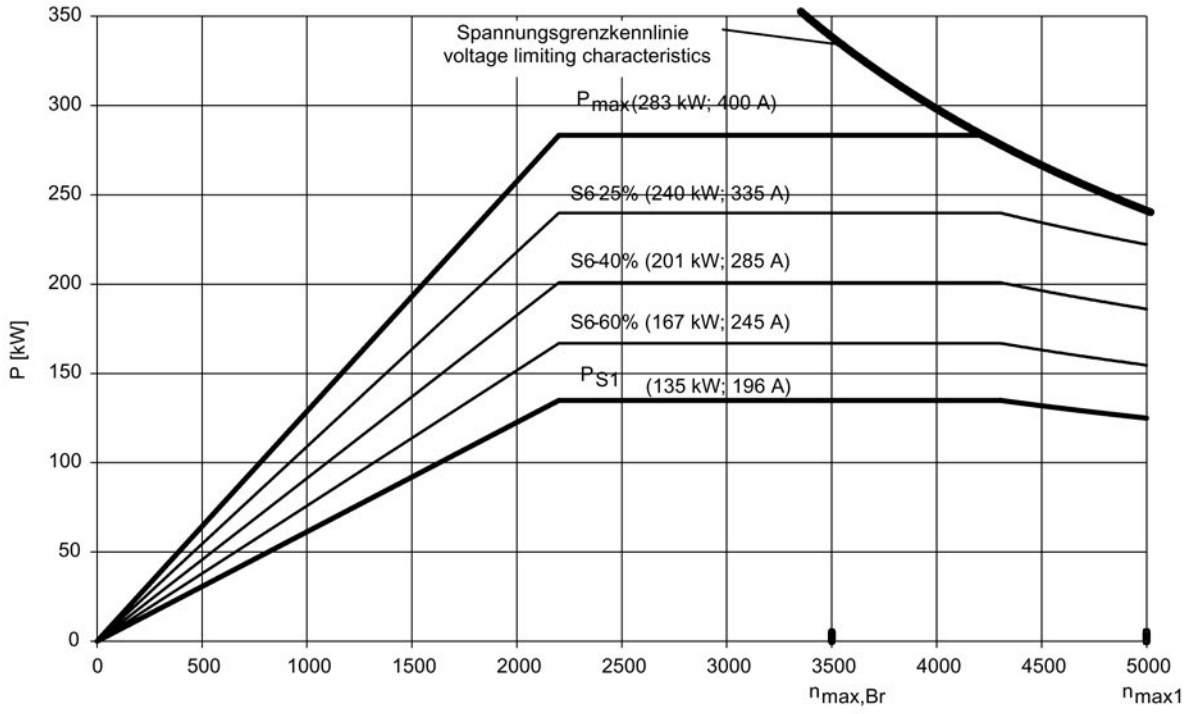


Table 6- 332 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8186-□□F□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	135	586	196	5,000	-	-	3,500	4,300	1,230	400	688	196



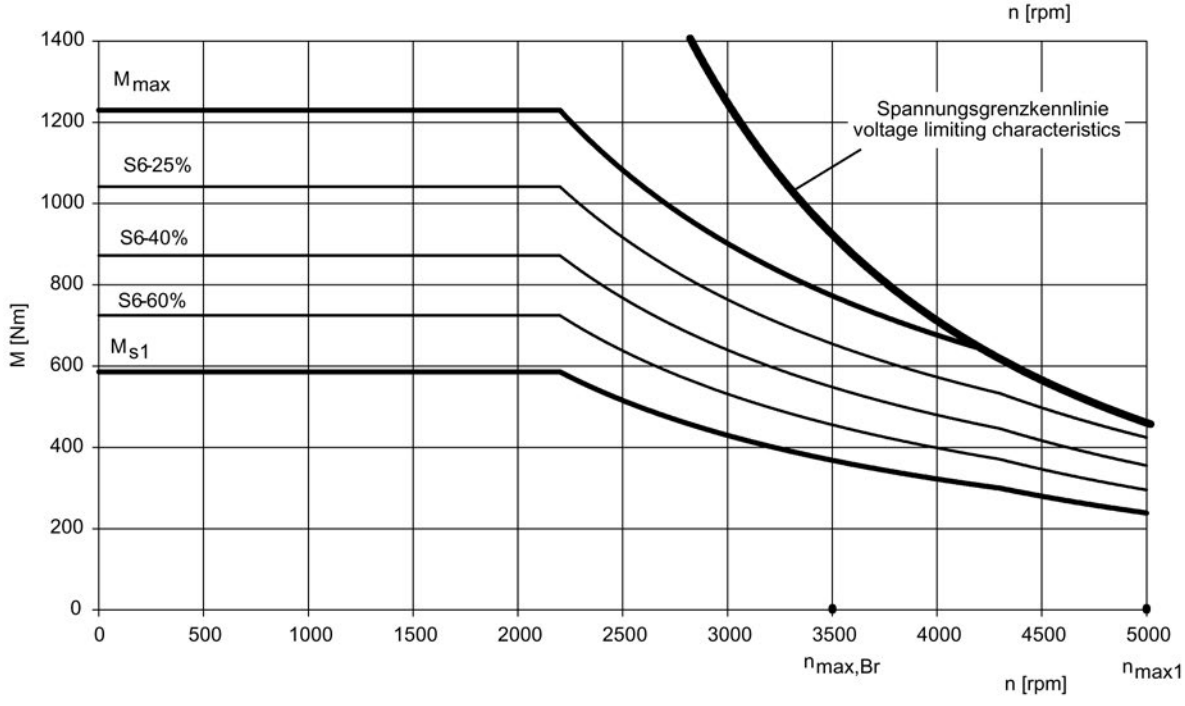
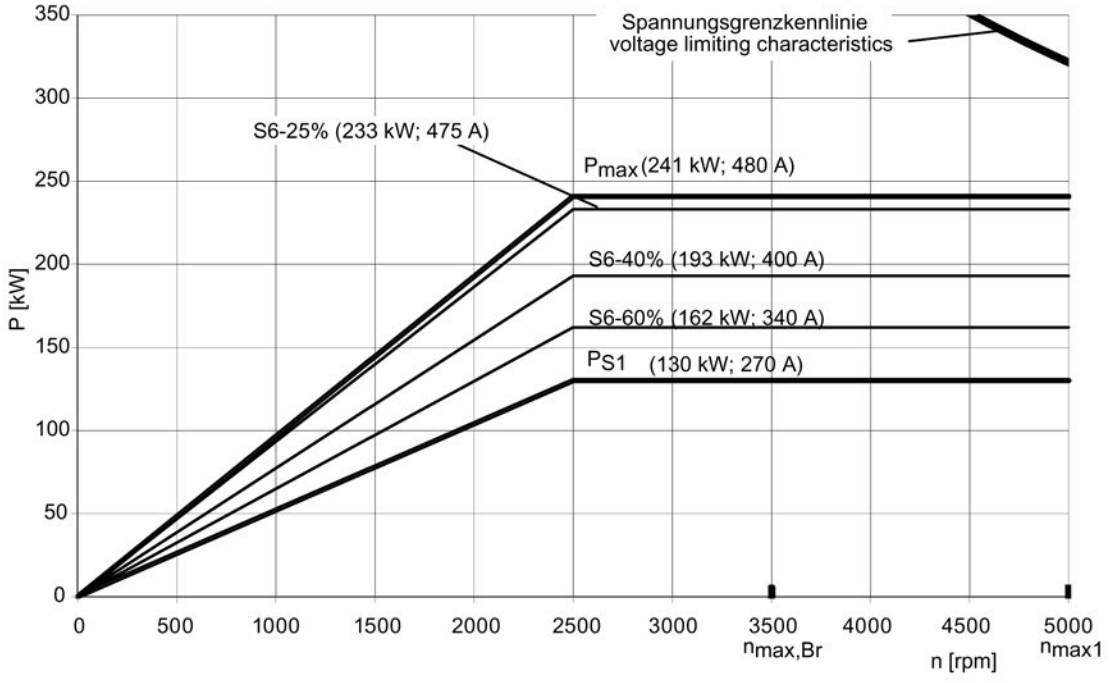


Table 6- 333 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L□□, (IP23)

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]
2,500	130	497	270	5,000	-	-	3,500	5,000	920	480	497	270



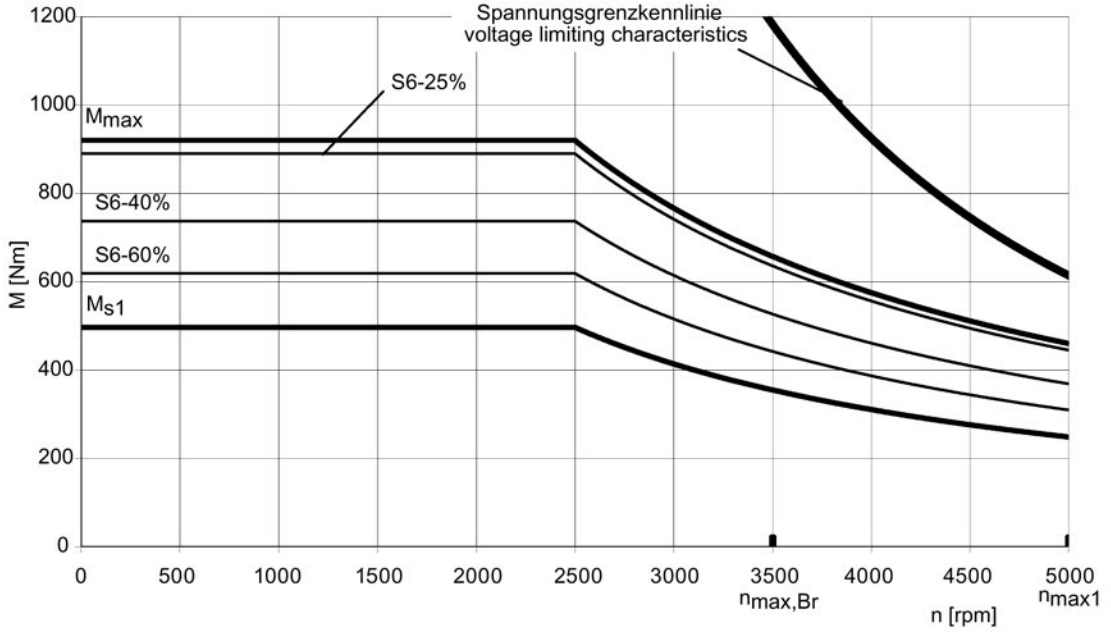
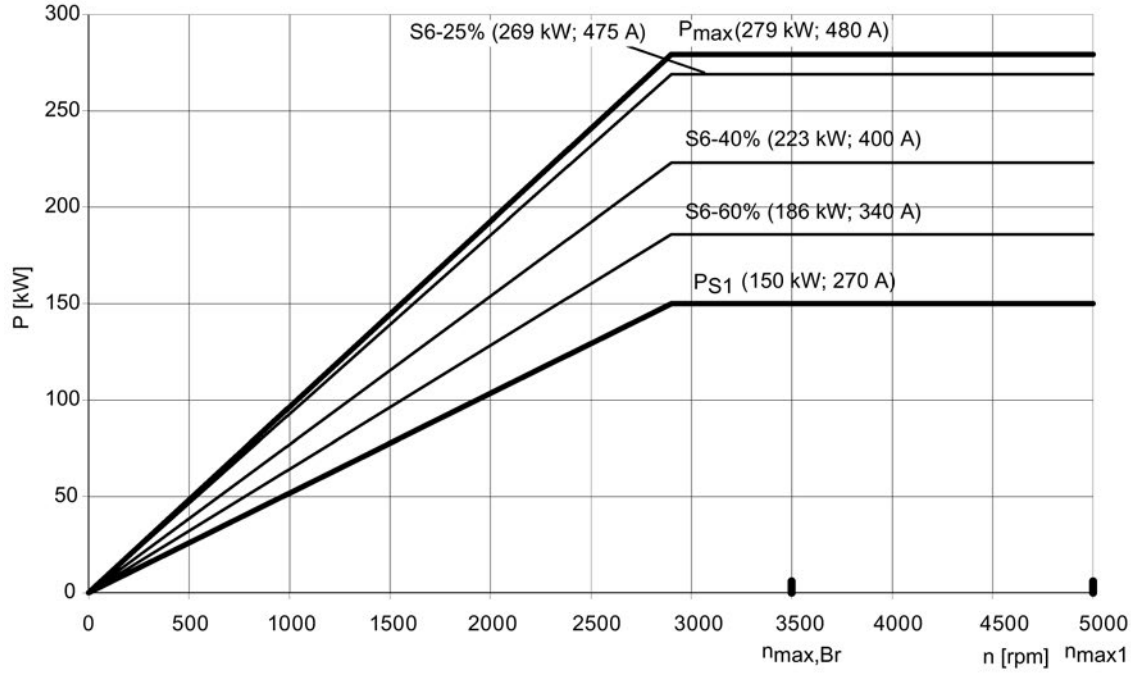


Table 6- 334 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L□□, (IP23)

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]
2,900	150	494	270	5,000	-	-	3,500	5,000	920	480	494	270
2,500	130	497	270					5,000				



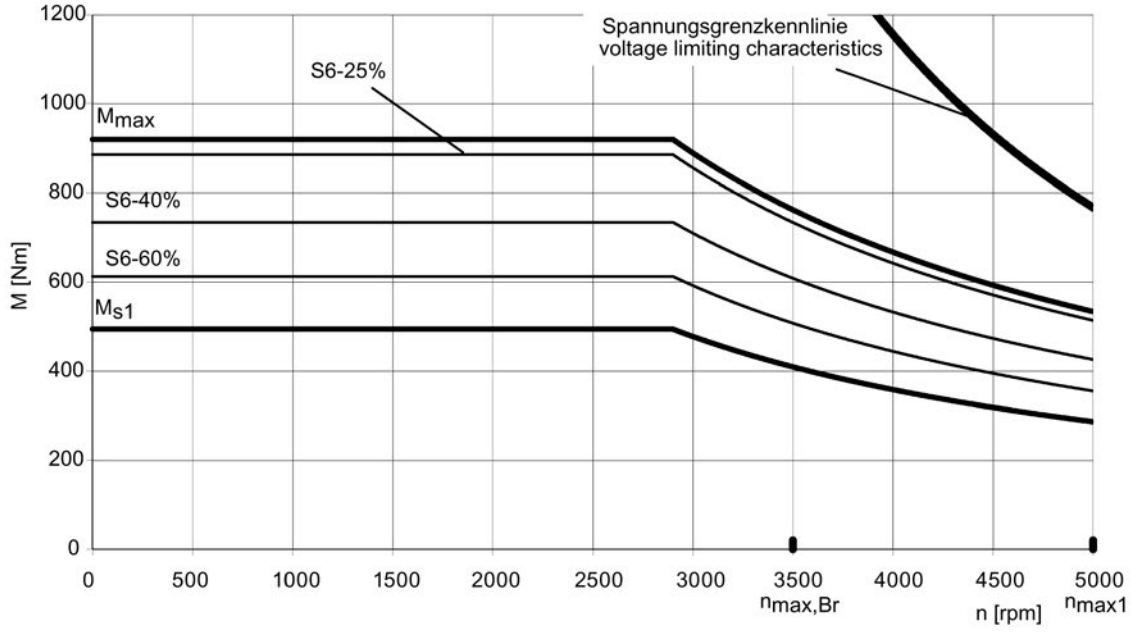
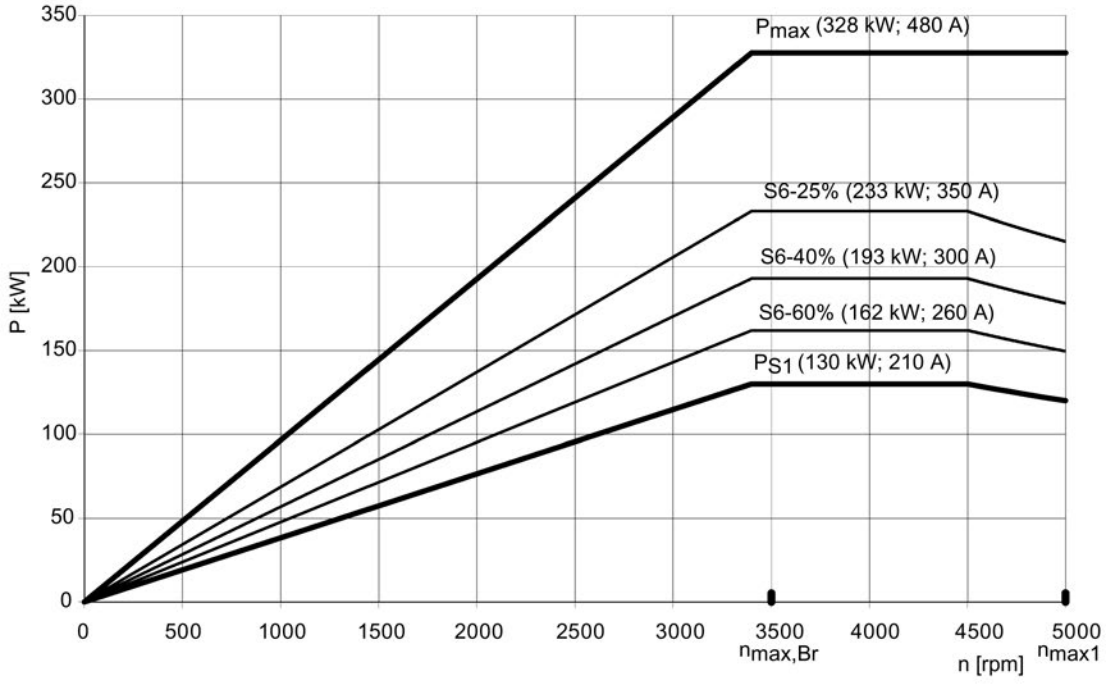
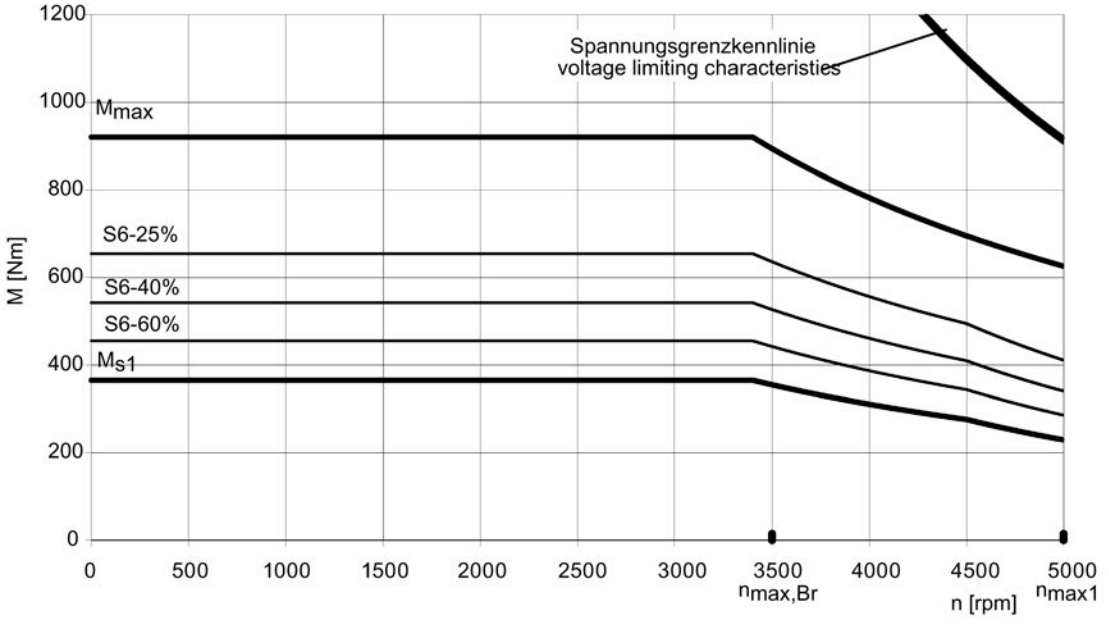


Table 6- 335 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L□□, (IP23)

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]
3,400	130	365	210	5,000	-	-	3,500	4,500	920	480	365	210

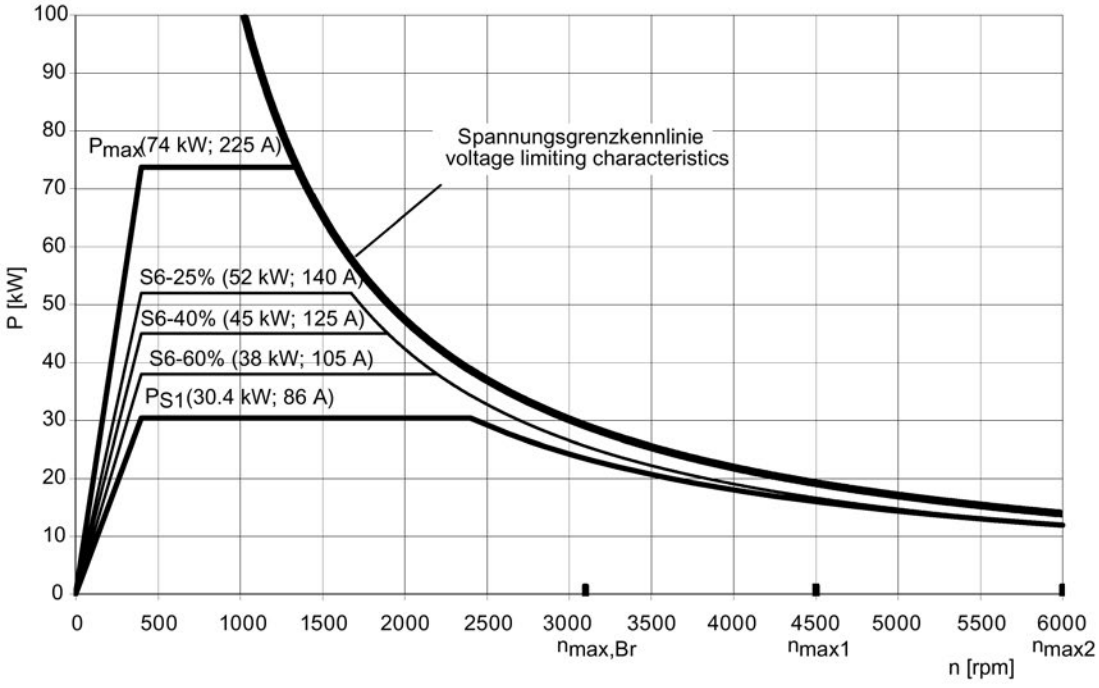




6.1.2.8 Shaft height 225 - forced ventilation

Table 6- 336 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	4,500	6,000	-	3,100	2,400	1,760	225	726	86



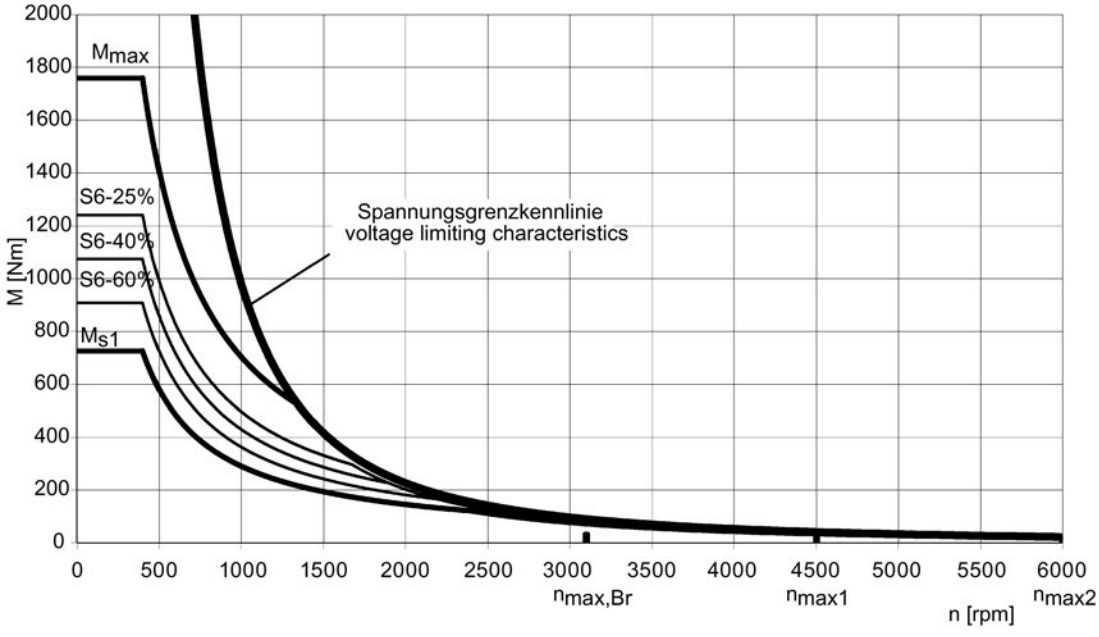
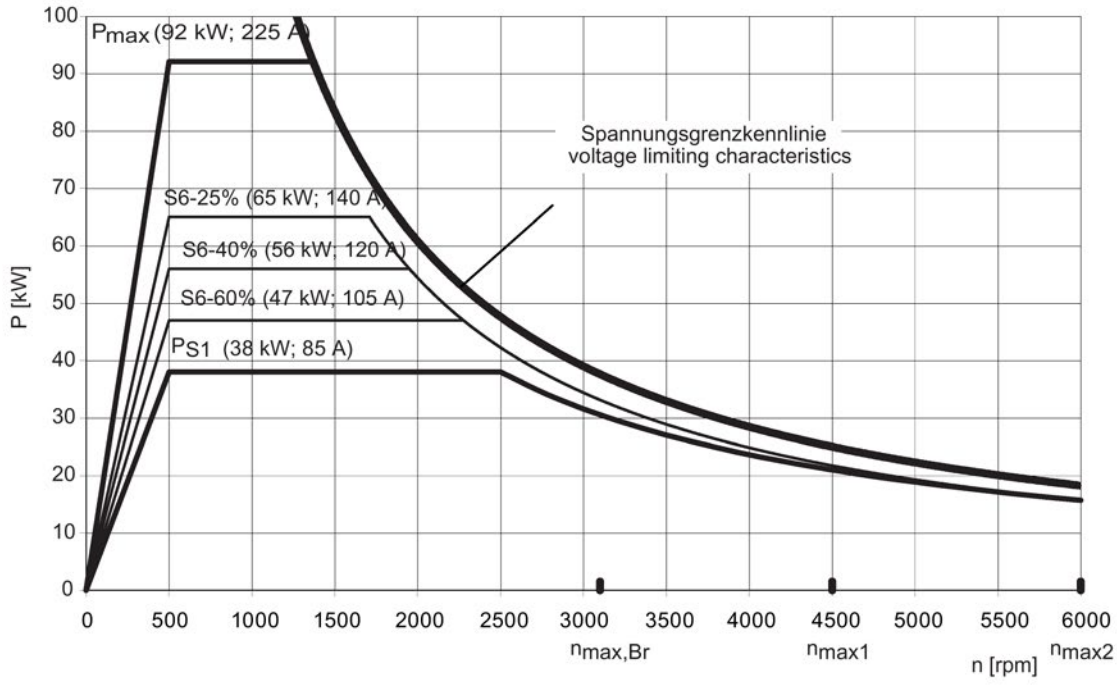


Table 6- 337 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP55)

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	4,500	6,000	-	3,100	2,500	1,760	225	726	85
400	30	726	86					3,100				



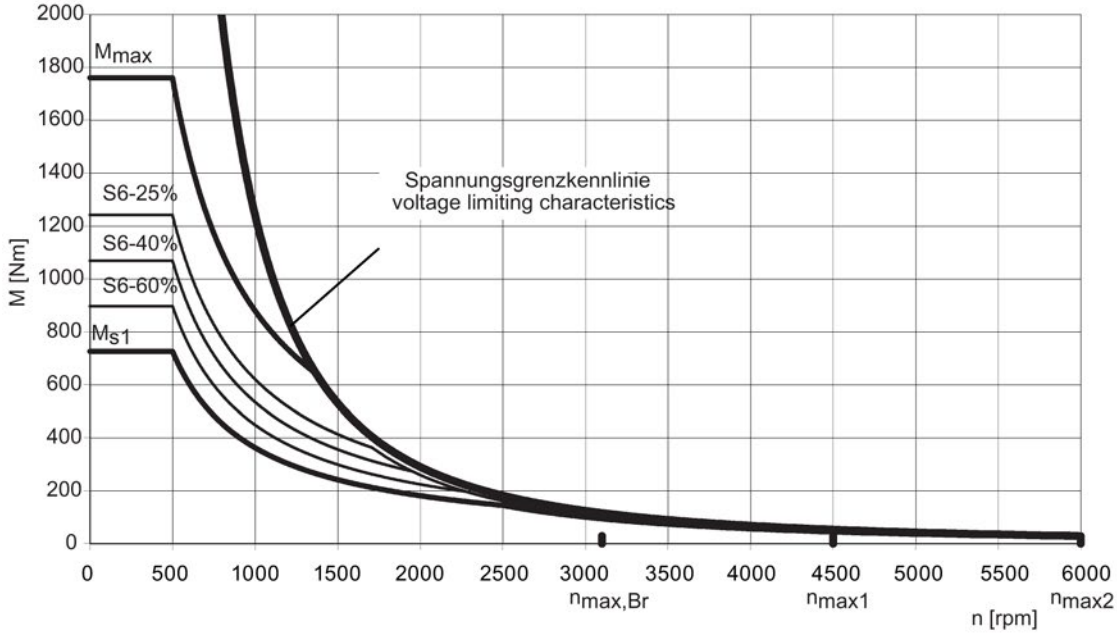
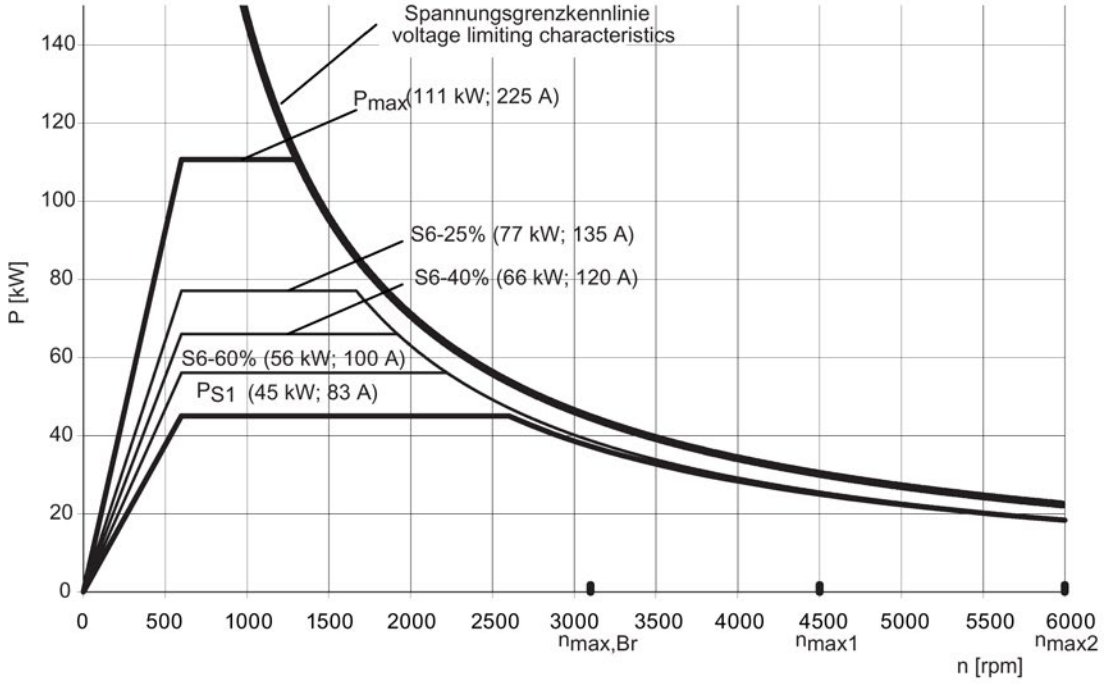


Table 6- 338 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□B□□, (IP55)

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	4,500	6,000	-	3,100	2,600	1,760	225	716	83



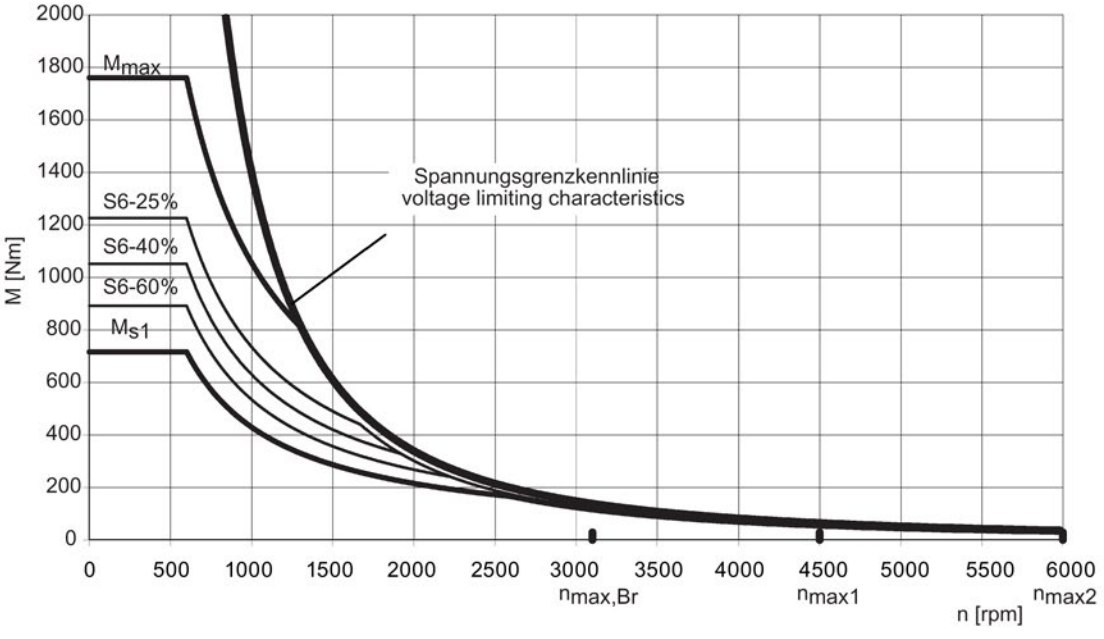
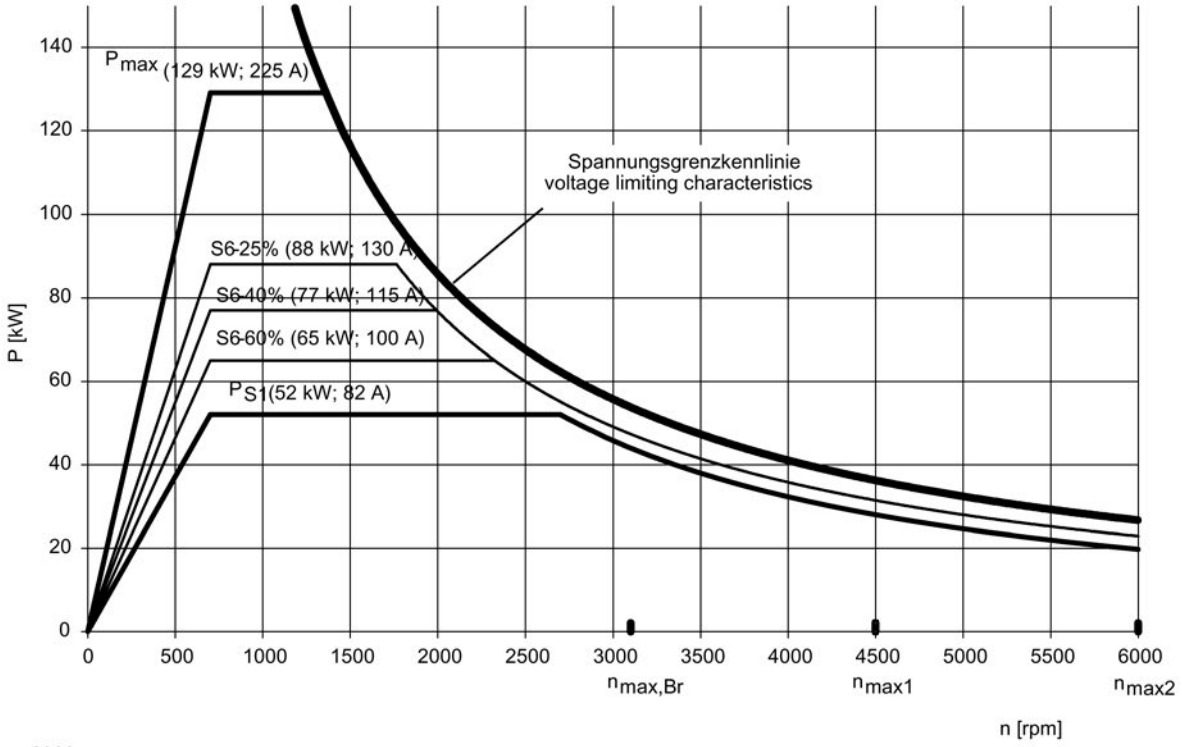


Table 6- 339 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	82	4,500	6,000	-	3,100	2,700	1,760	225	726	82



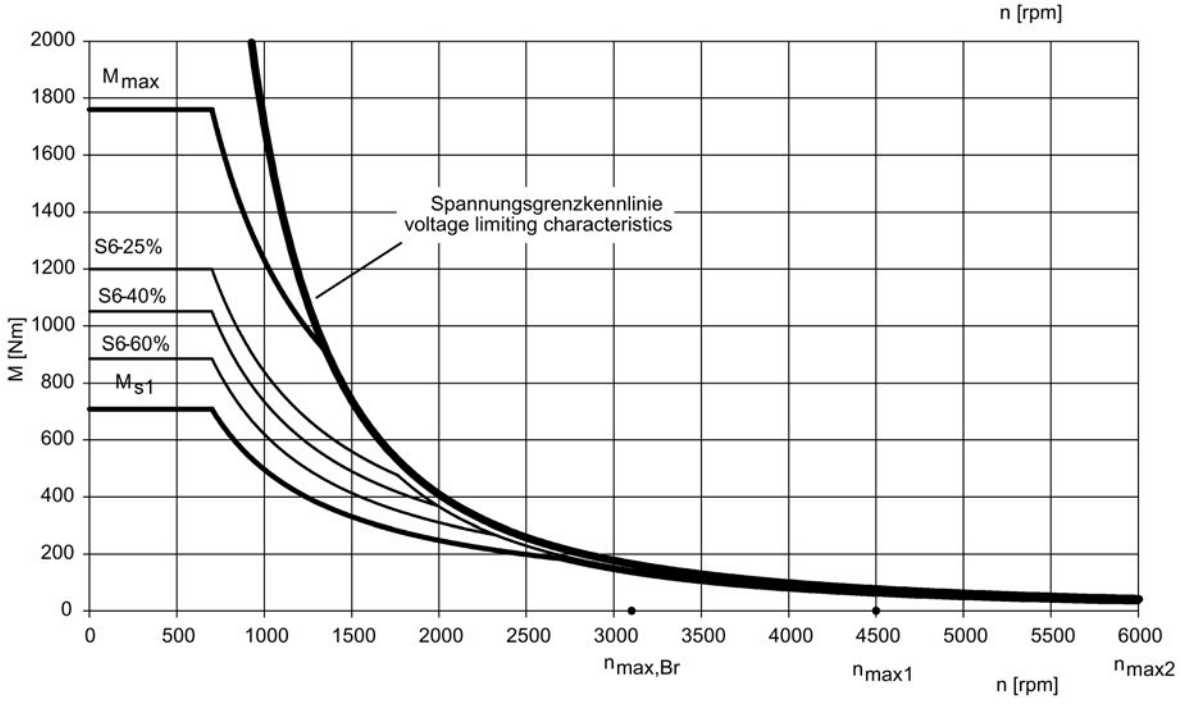
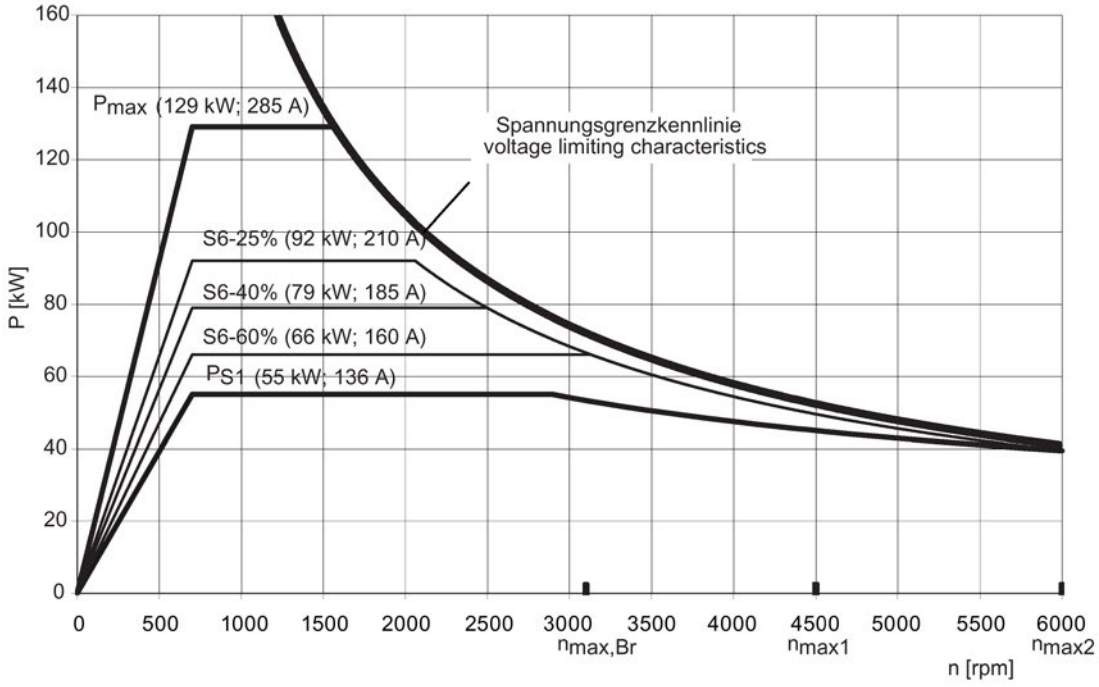


Table 6- 340 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP55)

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	4,500	6,000	-	3,100	2,900	1,760	285	750	136



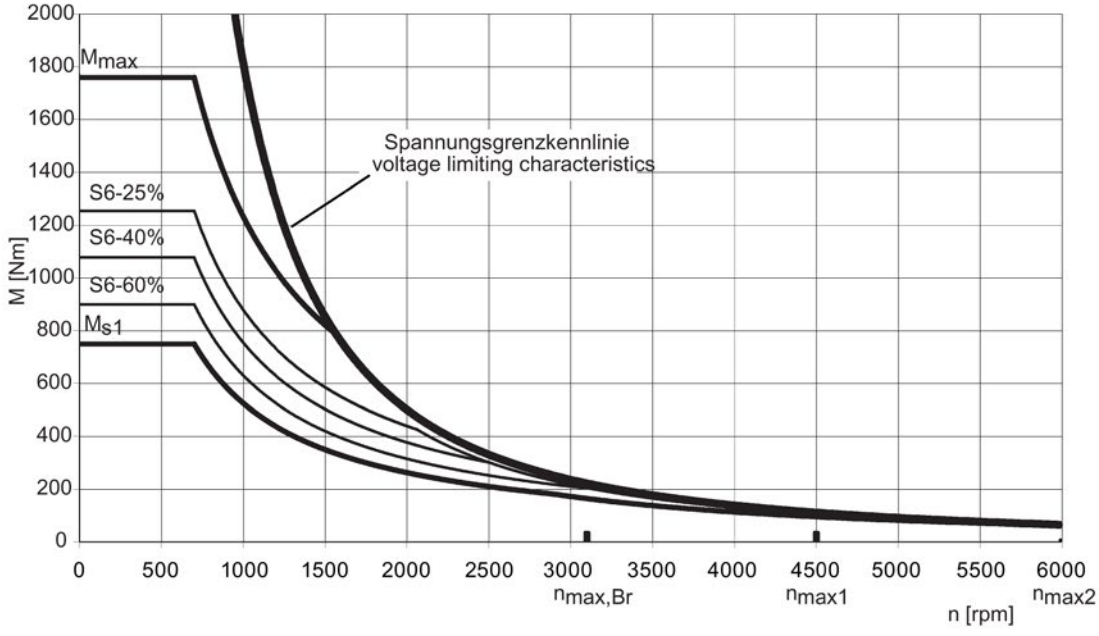
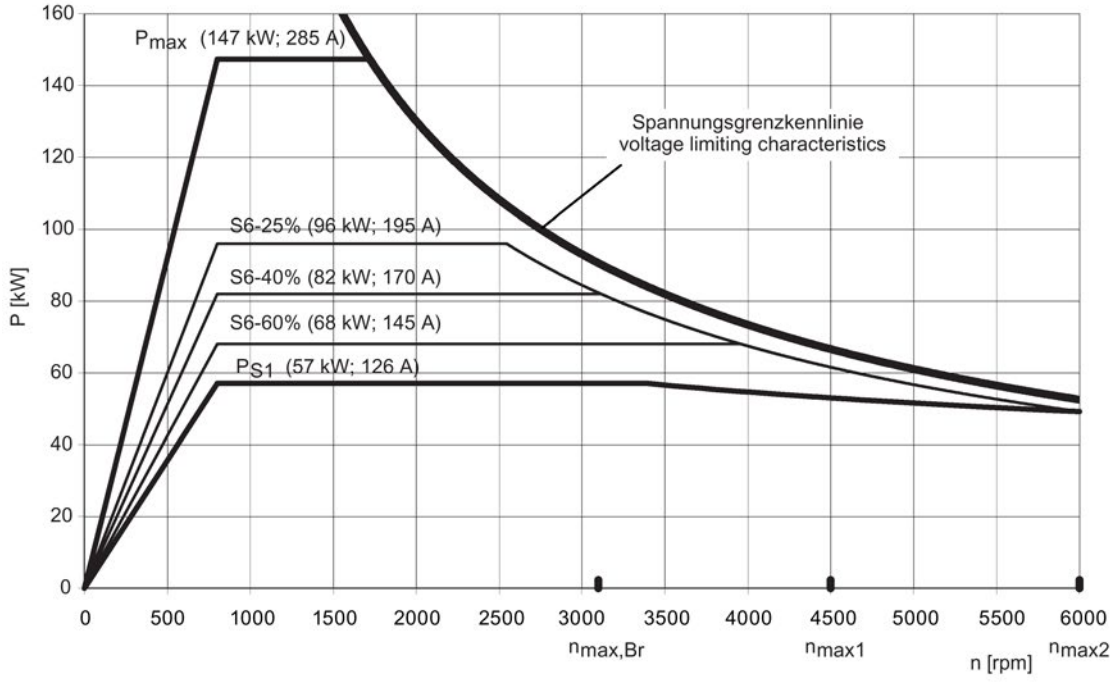


Table 6- 341 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP55)

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	4,500	6,000	-	3,100	3,400	1,760	285	681	126
700	55	750	136					3,900				



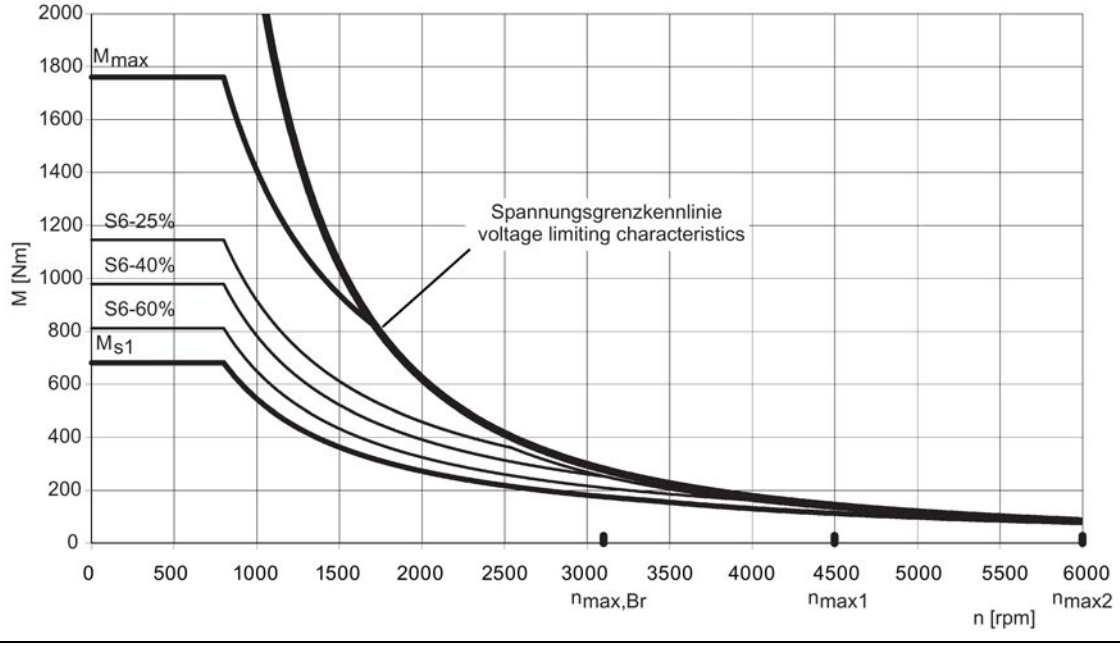
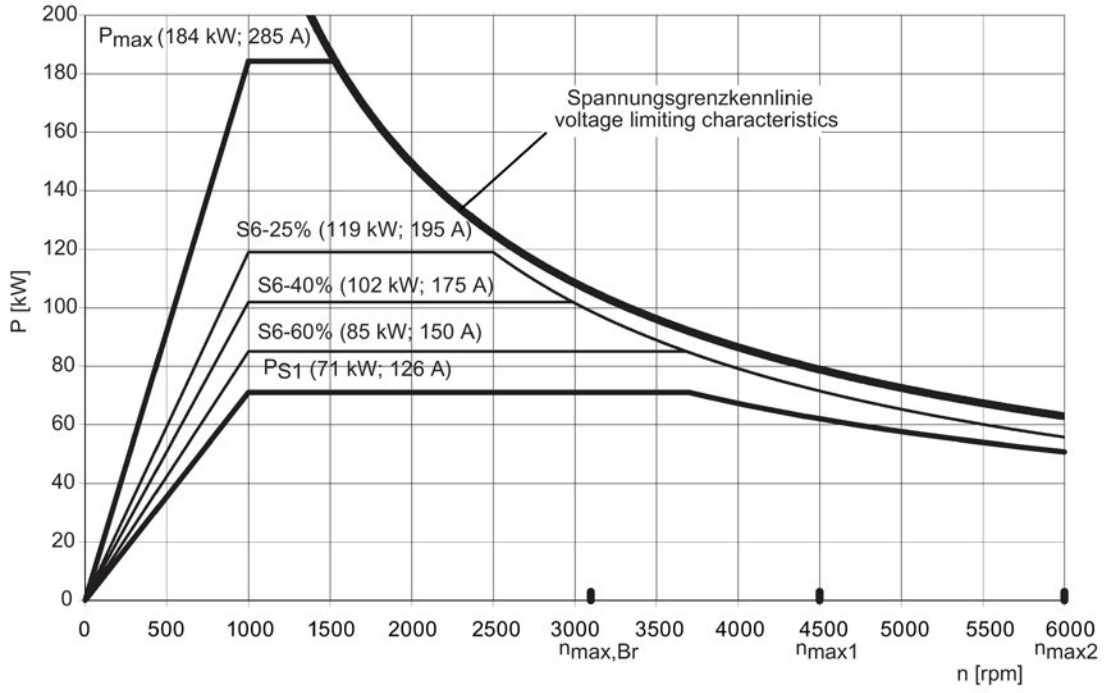


Table 6- 342 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP55)

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]
1,000	71	678	126	4,500	6,000	-	3,100	3,700	1,760	185	678	126



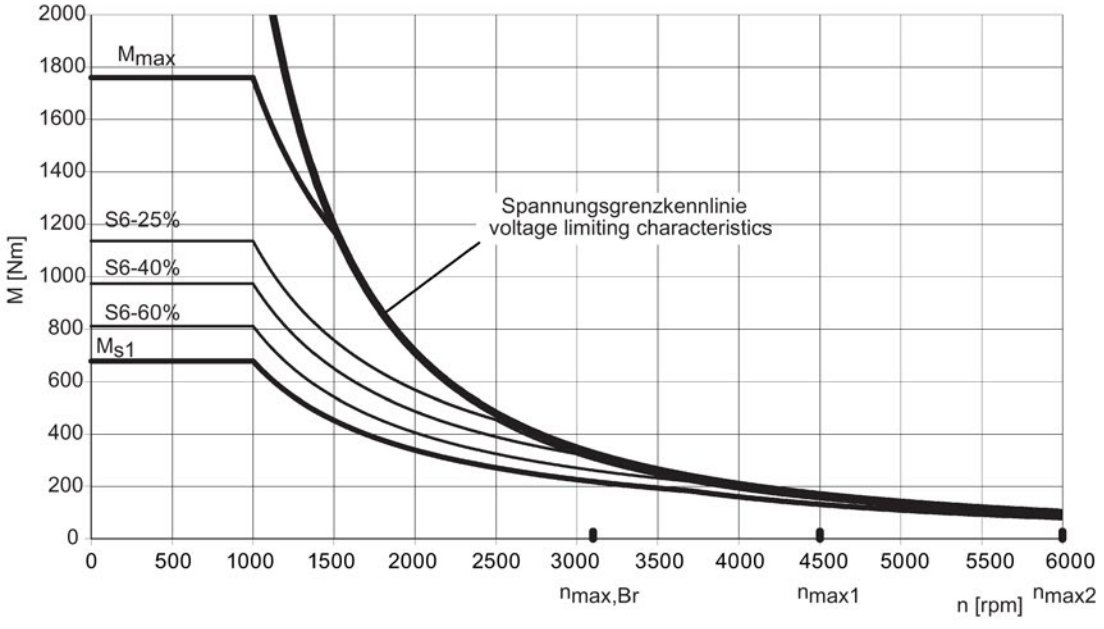
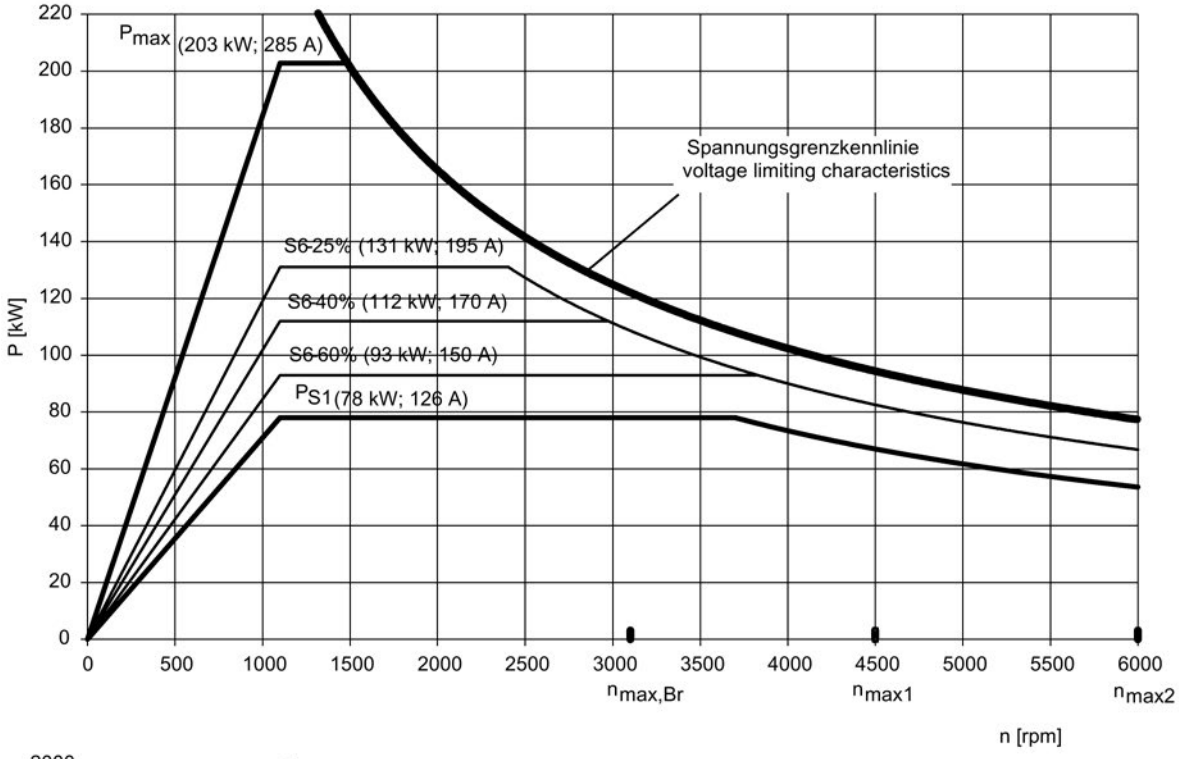


Table 6- 343 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	78	677	126	4,500	6,000	-	3,100	3,700	1,760	285	750	126



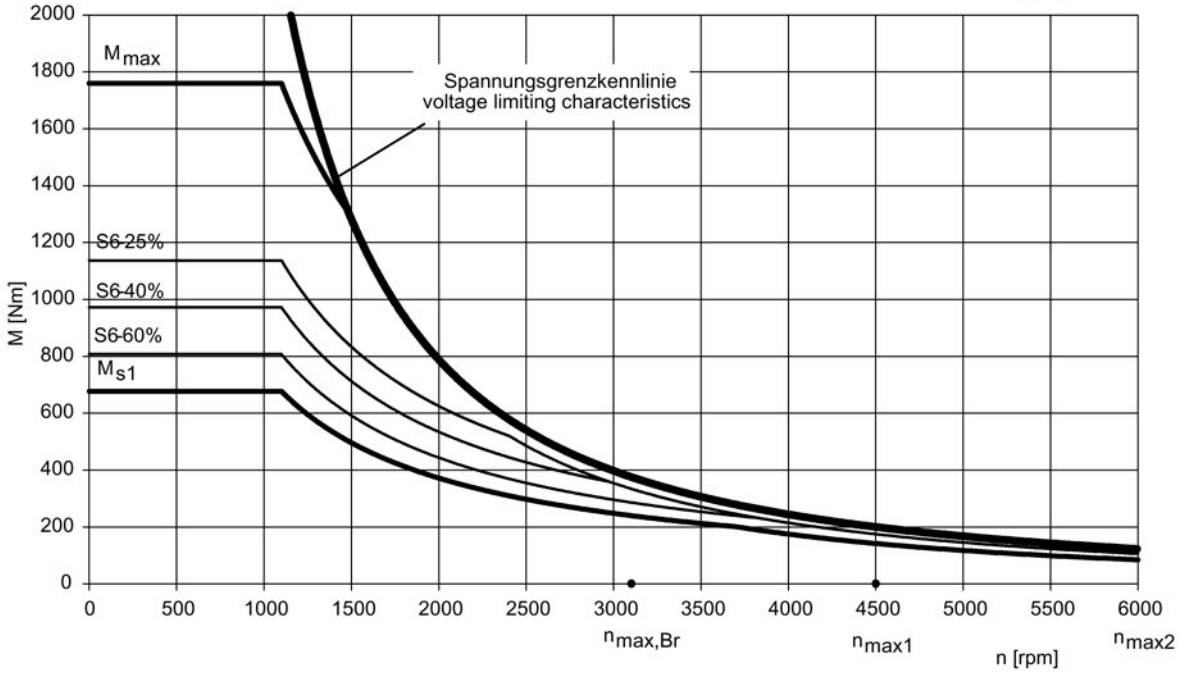
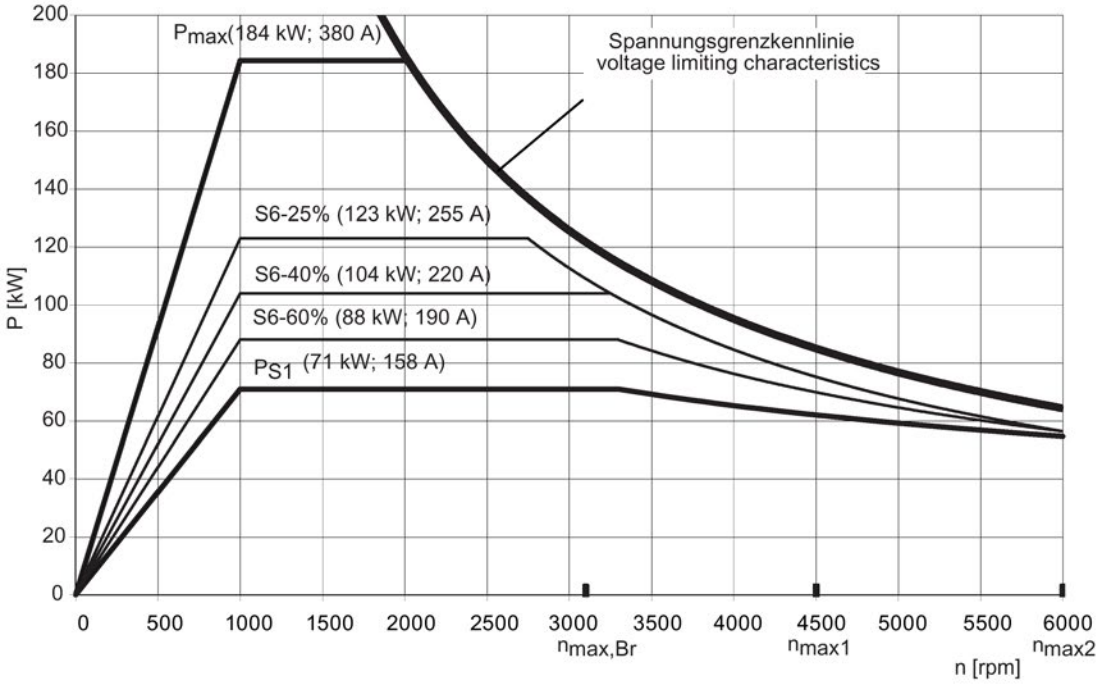


Table 6- 344 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP55)

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]
1,000	71	678	158	4,500	6,000	-	3,100	3,300	1,760	380	678	158



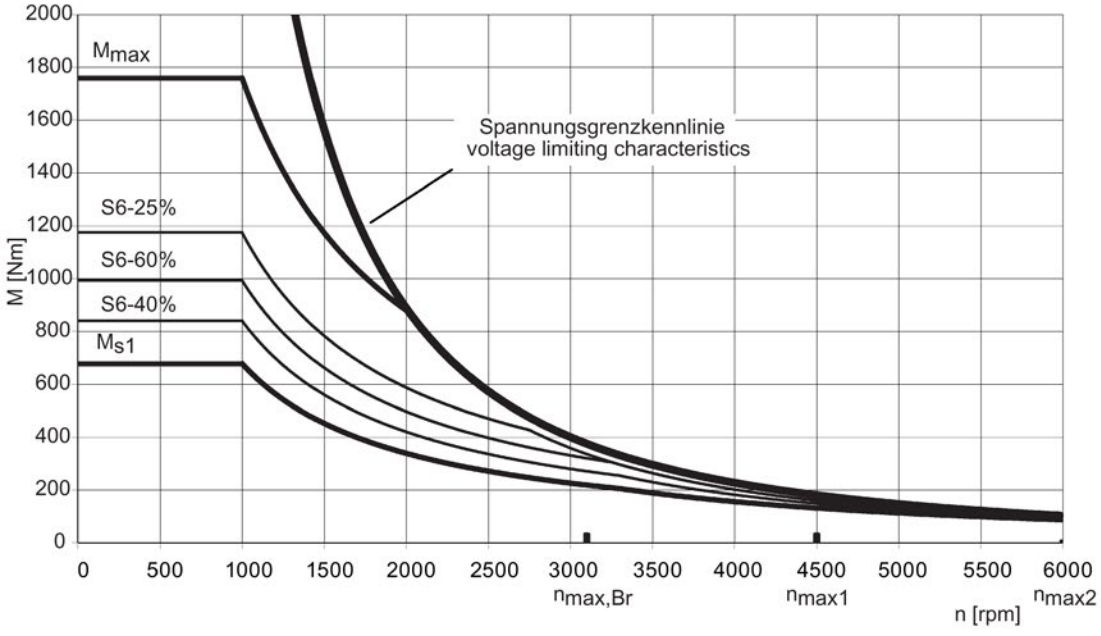
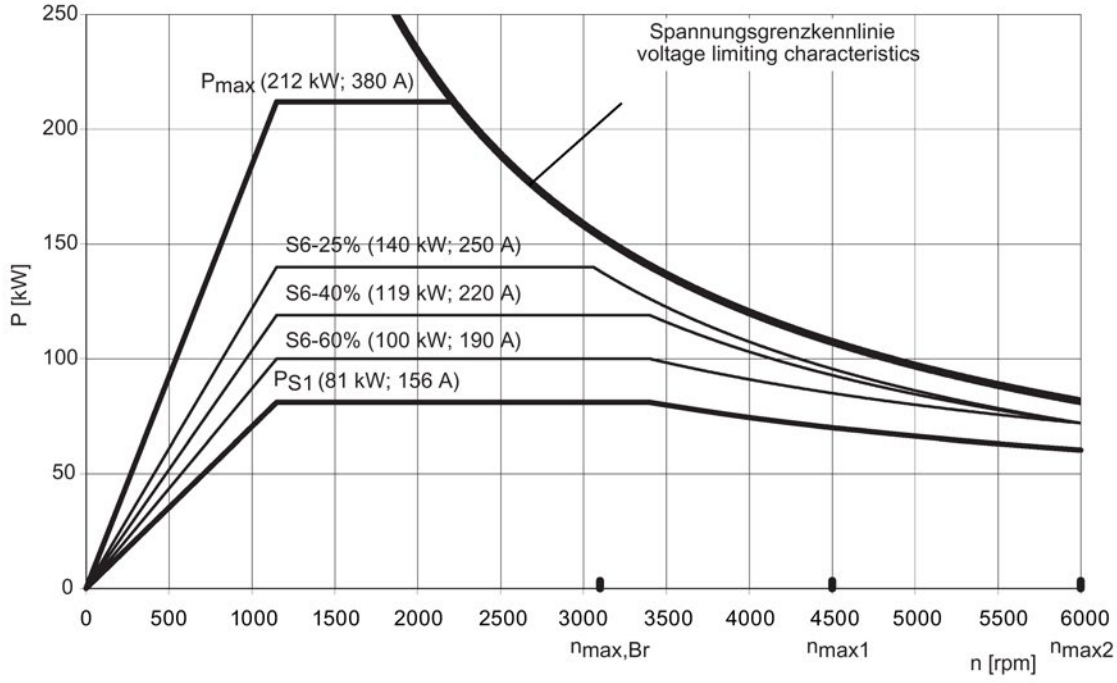


Table 6- 345 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP55)

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]
1,150	81	673	156	4,500	6,000	-	3,100	3,400	1,760	380	673	156
1,000	71	678	158					4,400				



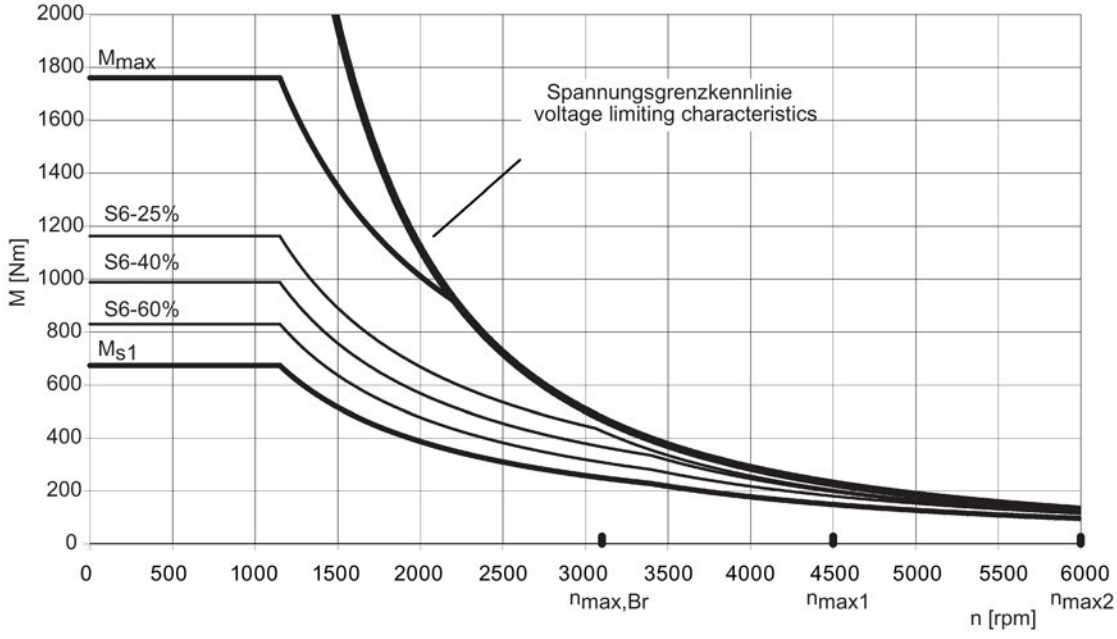
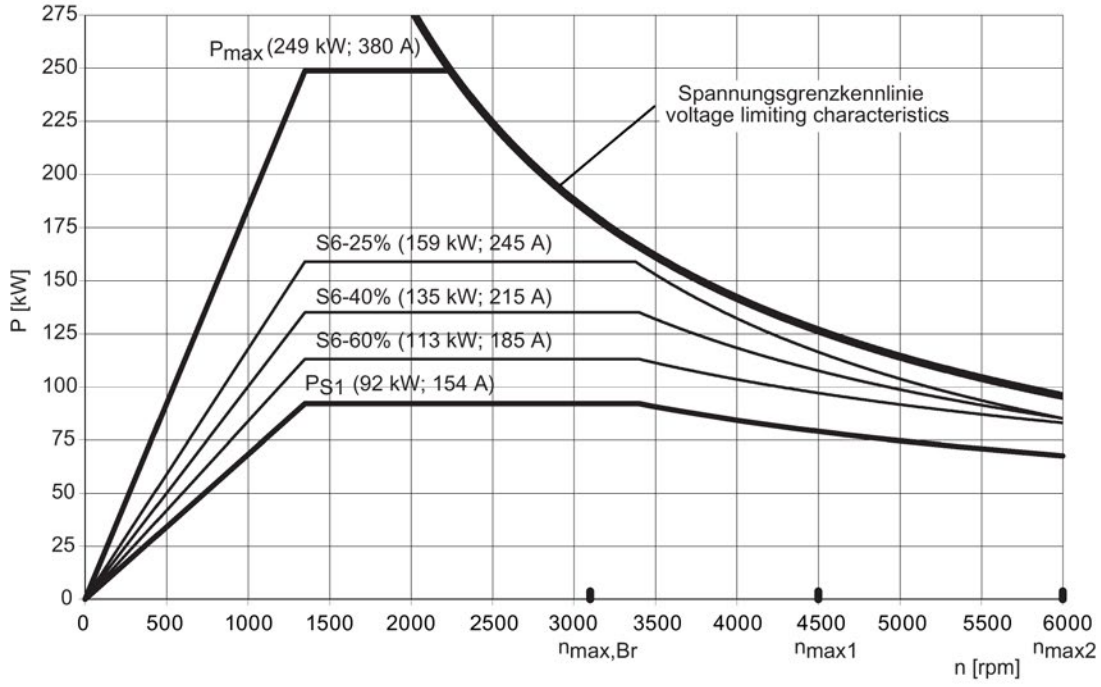


Table 6- 346 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP55)

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]
1,350	92	651	154	4,500	6,000	-	3,100	3,400	1,760	380	651	154



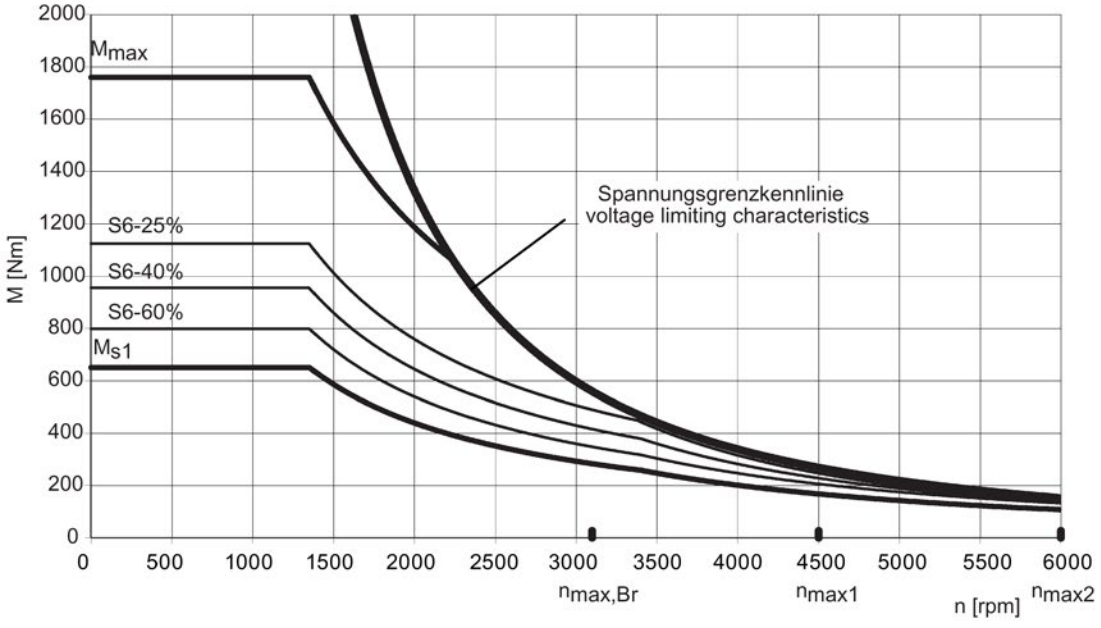
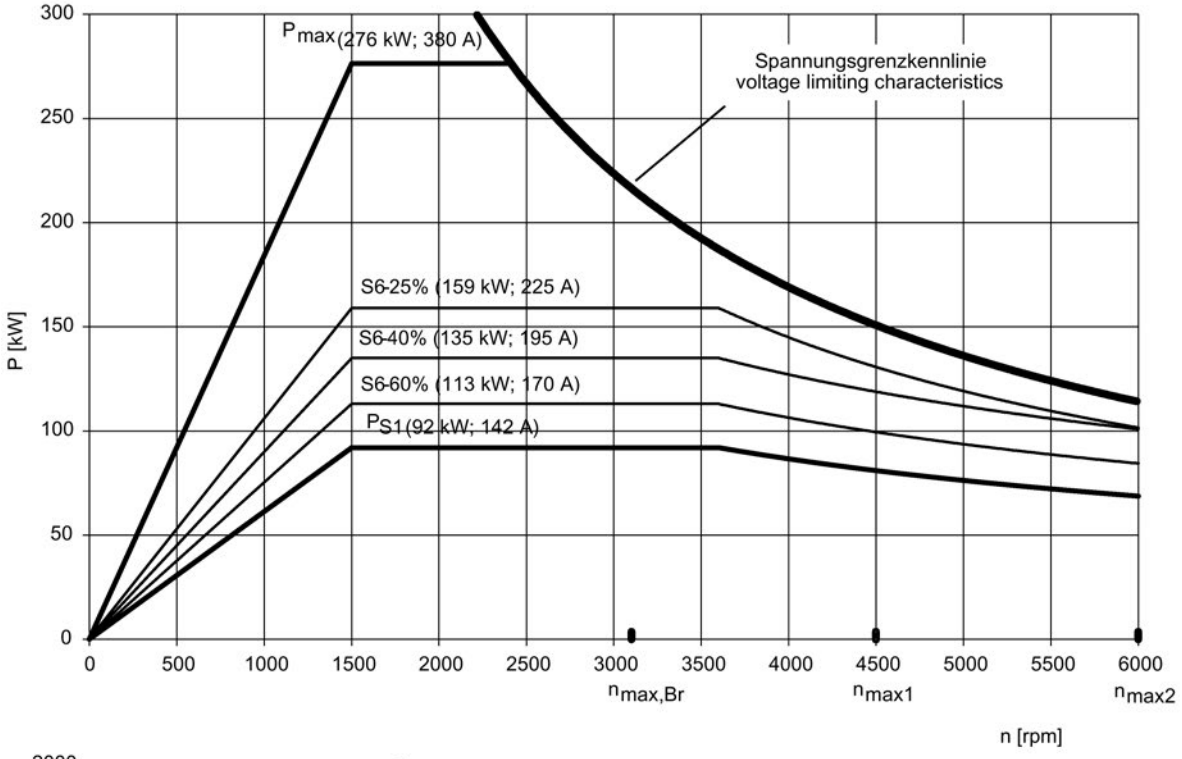


Table 6- 347 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	92	586	142	4,500	6,000	-	3,100	3,600	1,760	380	678	142



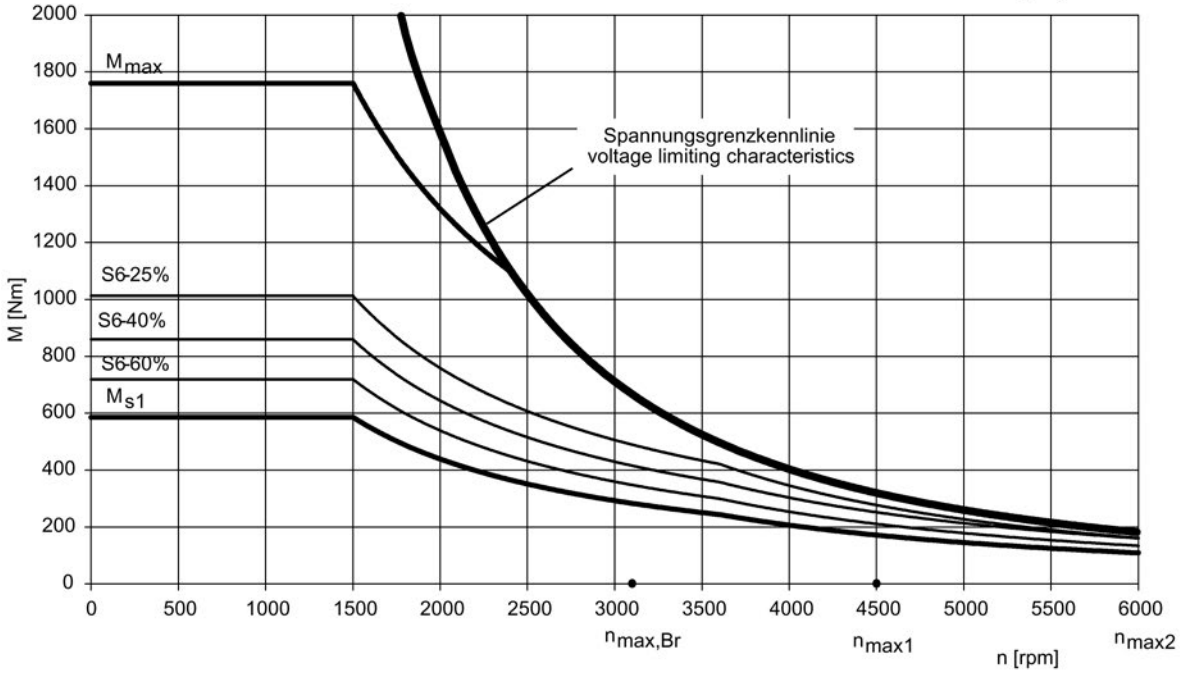
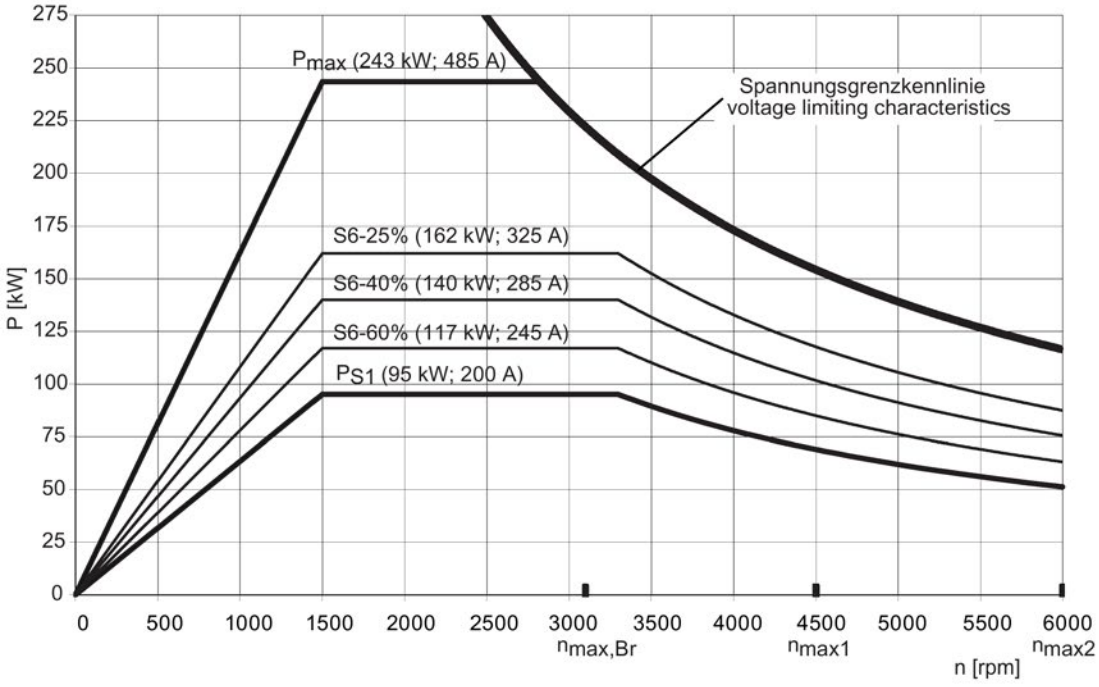


Table 6- 348 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP55)

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]
1,500	95	605	200	4,500	6,000	-	3,100	3,300	1,550	485	605	200



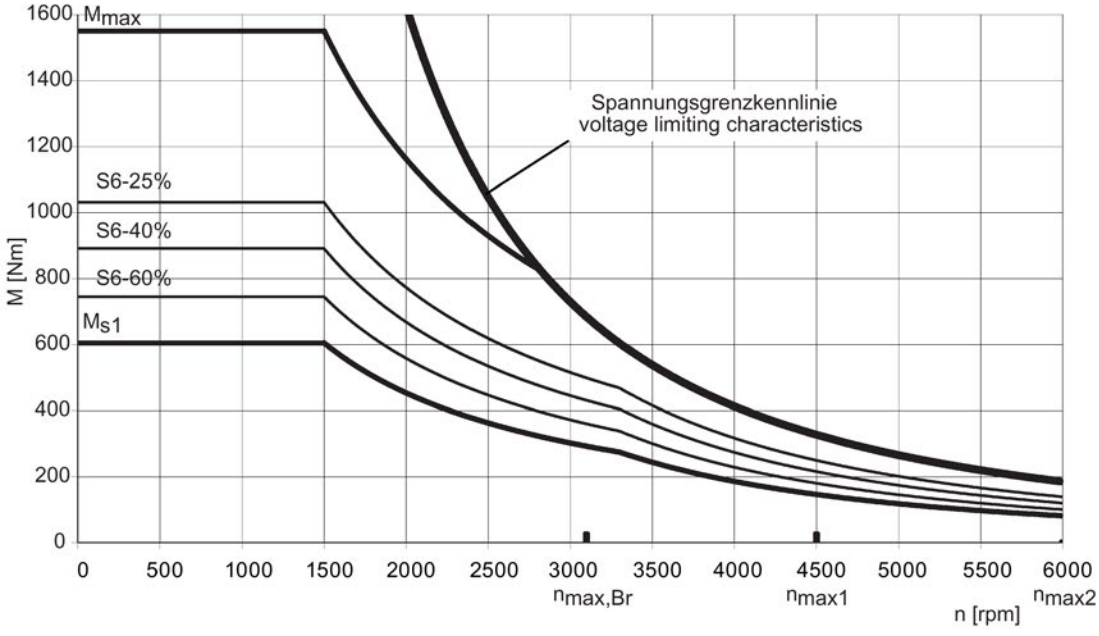
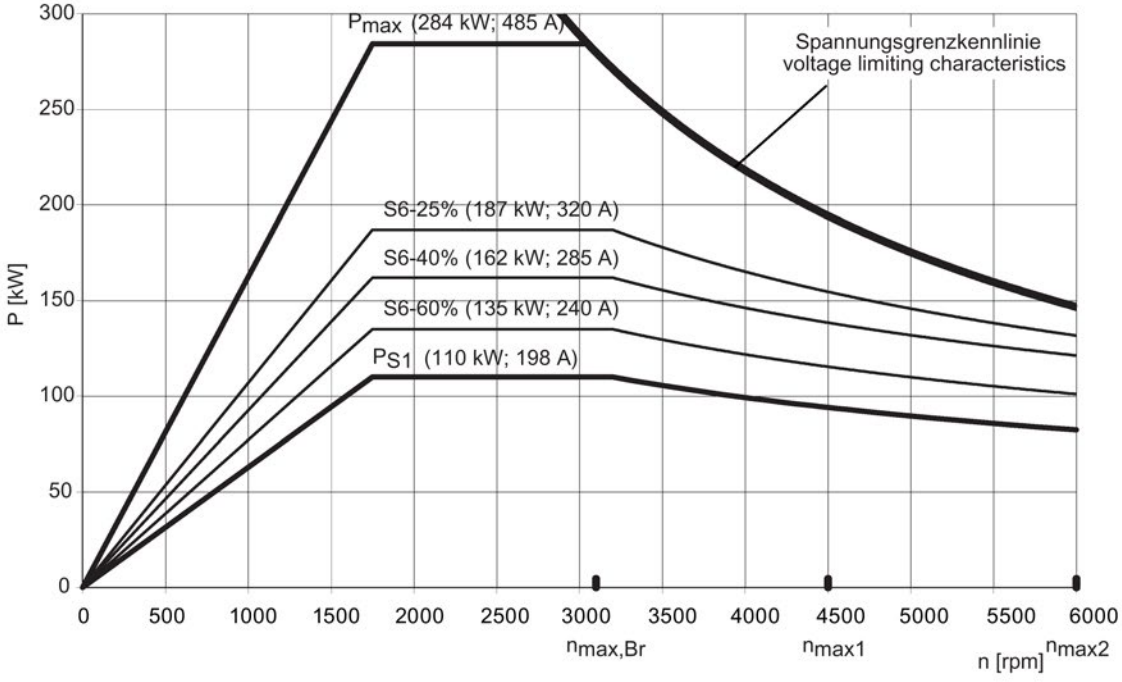


Table 6- 349 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP55)

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]
1,750	110	600	198	4,500	6,000	-	3,100	3,200	1,550	485	600	198
1,500	95	605	200					4,400				



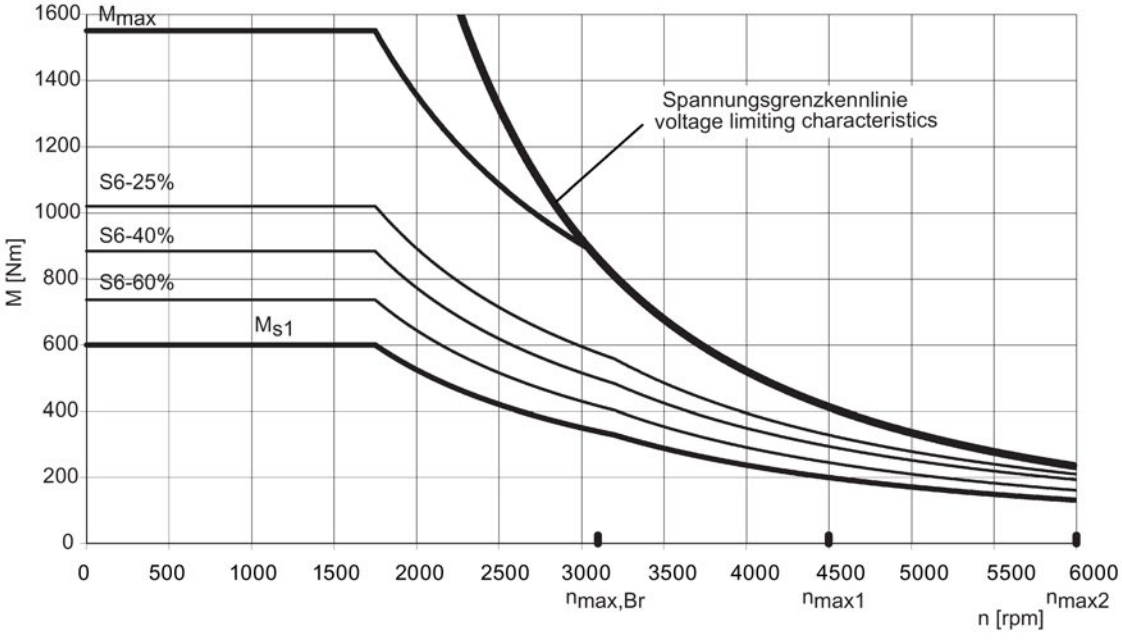
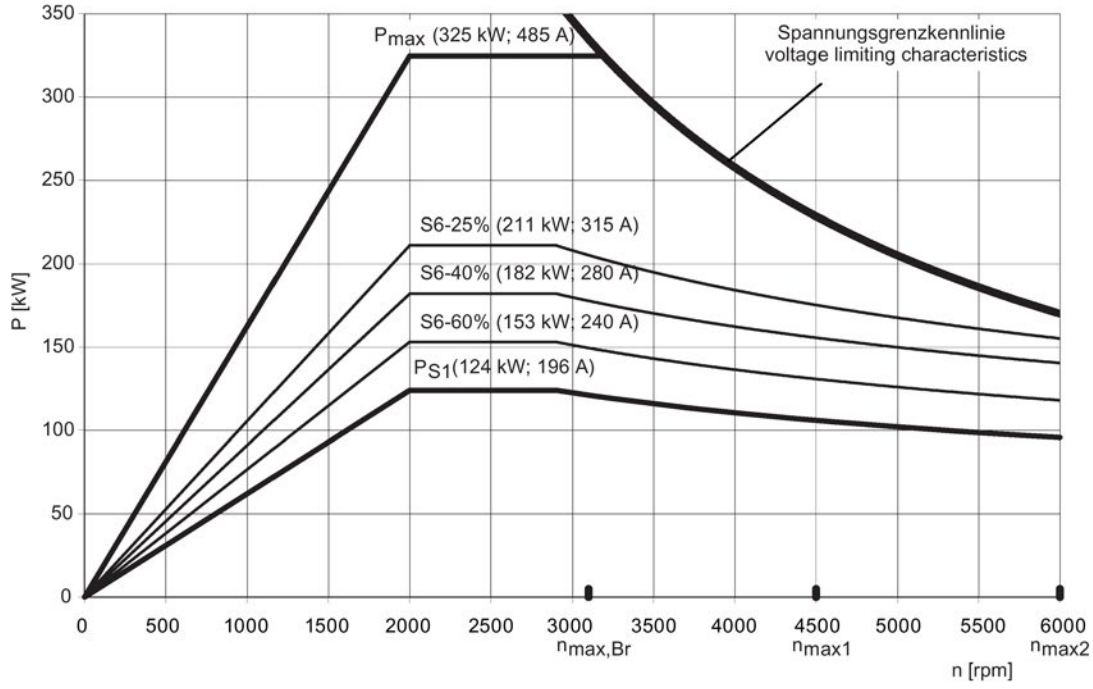


Table 6- 350 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP55)

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]
2,000	124	592	196	4,500	6,000	-	3,100	2,900	1,550	485	592	196



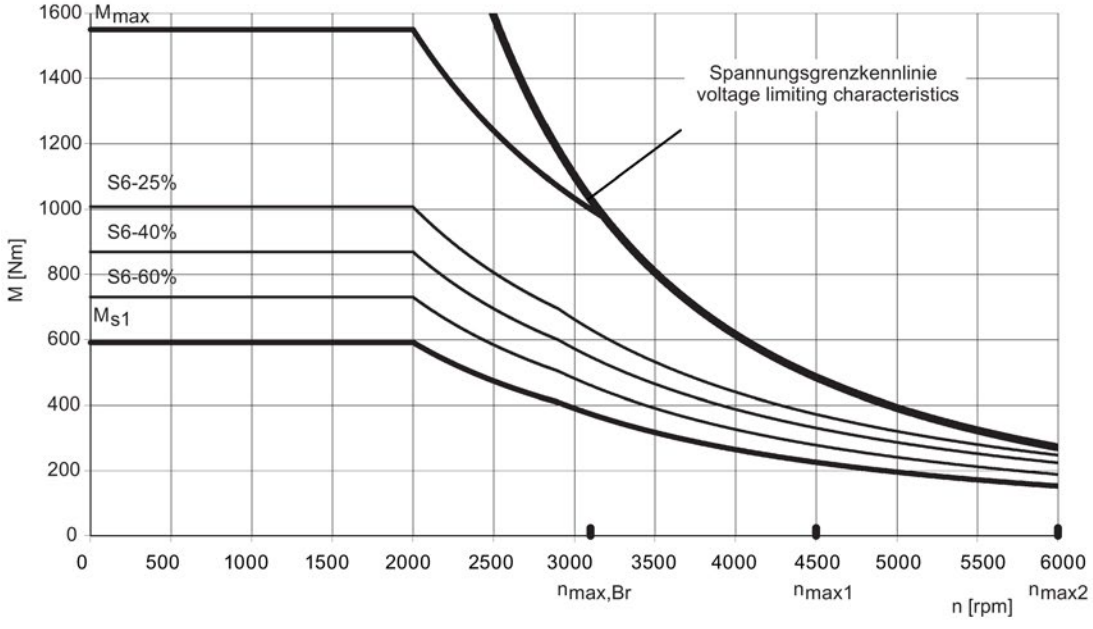
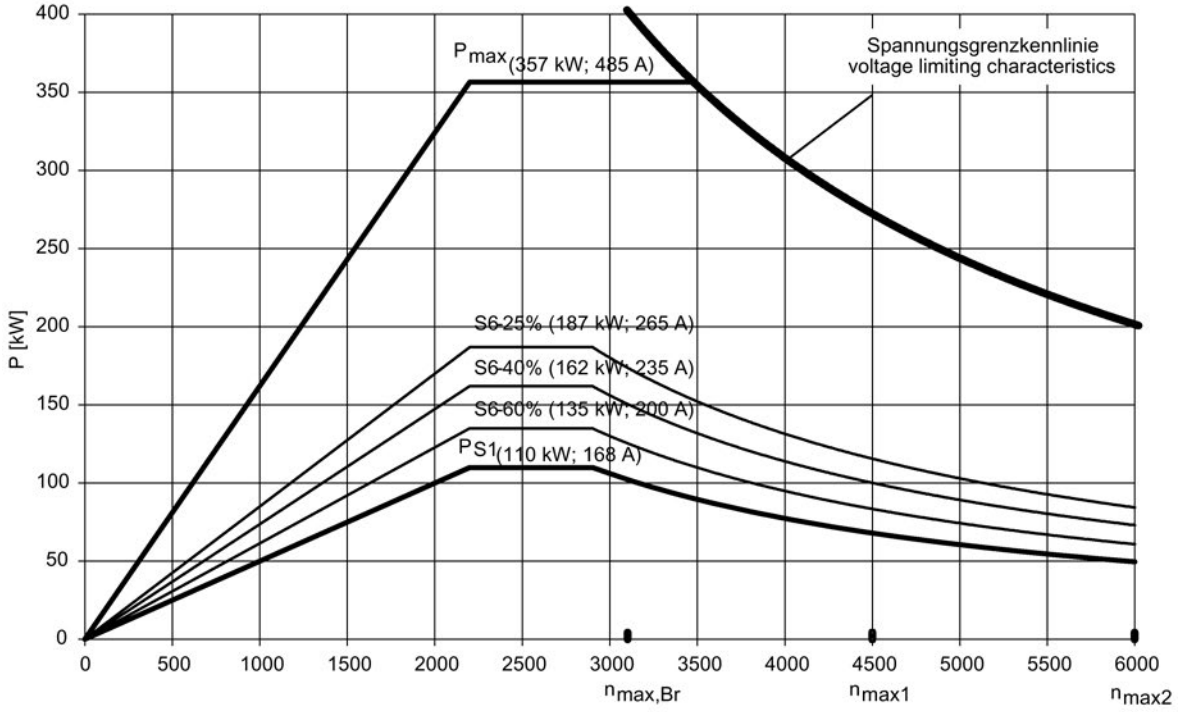


Table 6- 351 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	110	478	168	4,500	6,000	-	3,100	2,900	1,550	485	605	168



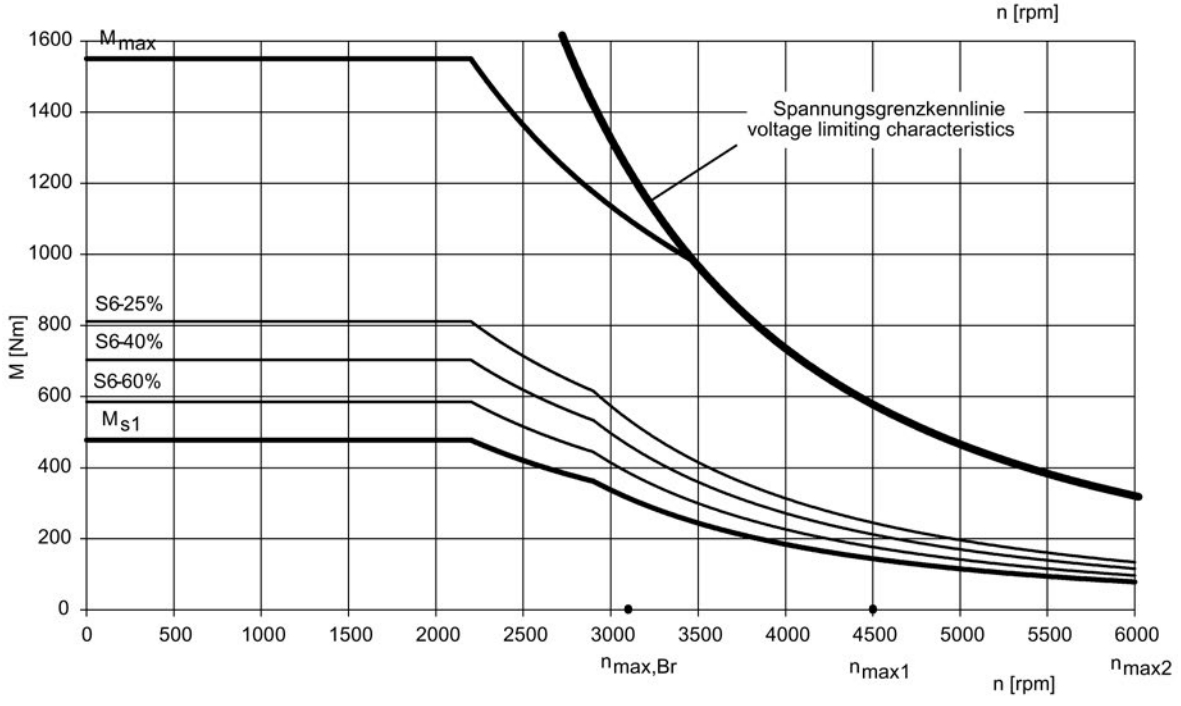
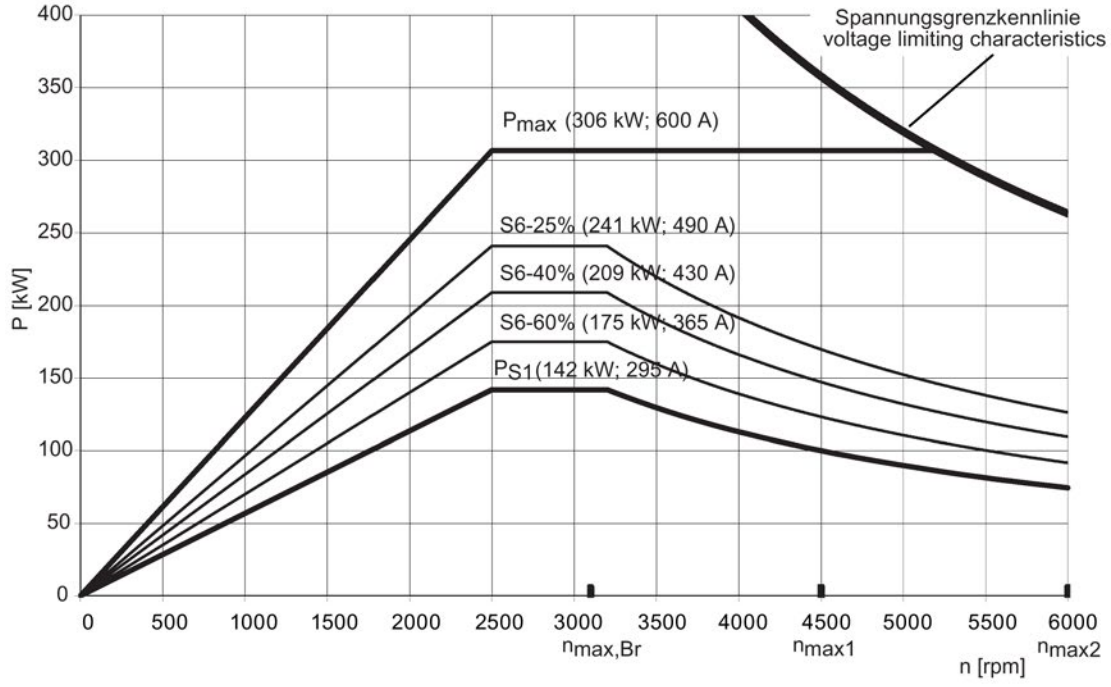


Table 6- 352 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L□□, (IP55)

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]
2,500	142	542	295	4,500	6,000	-	3,100	3,200	1,170	600	542	295



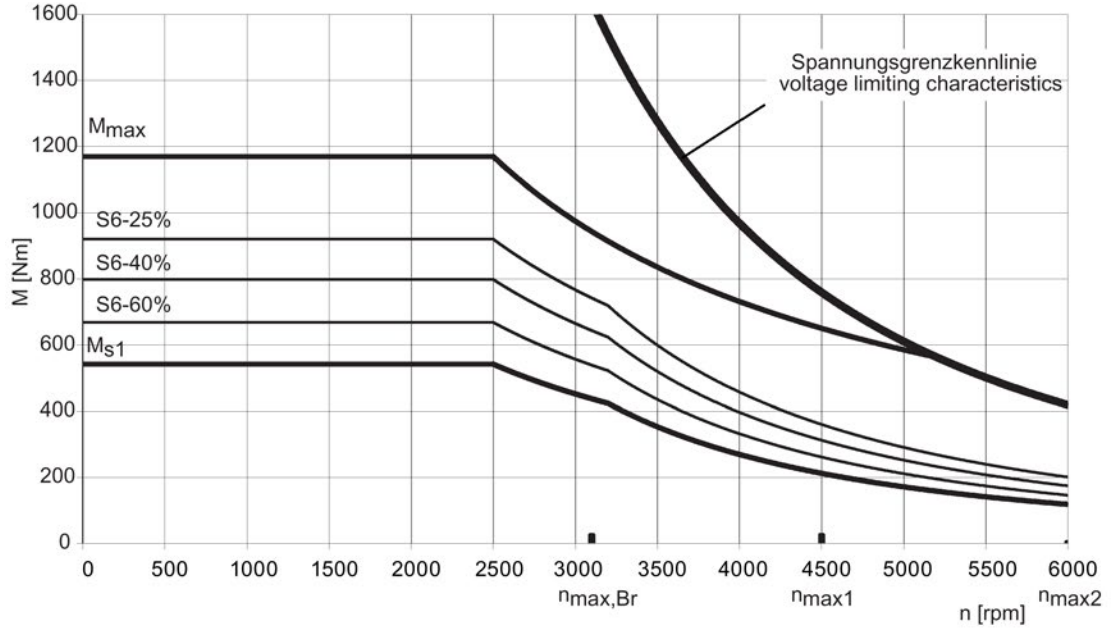
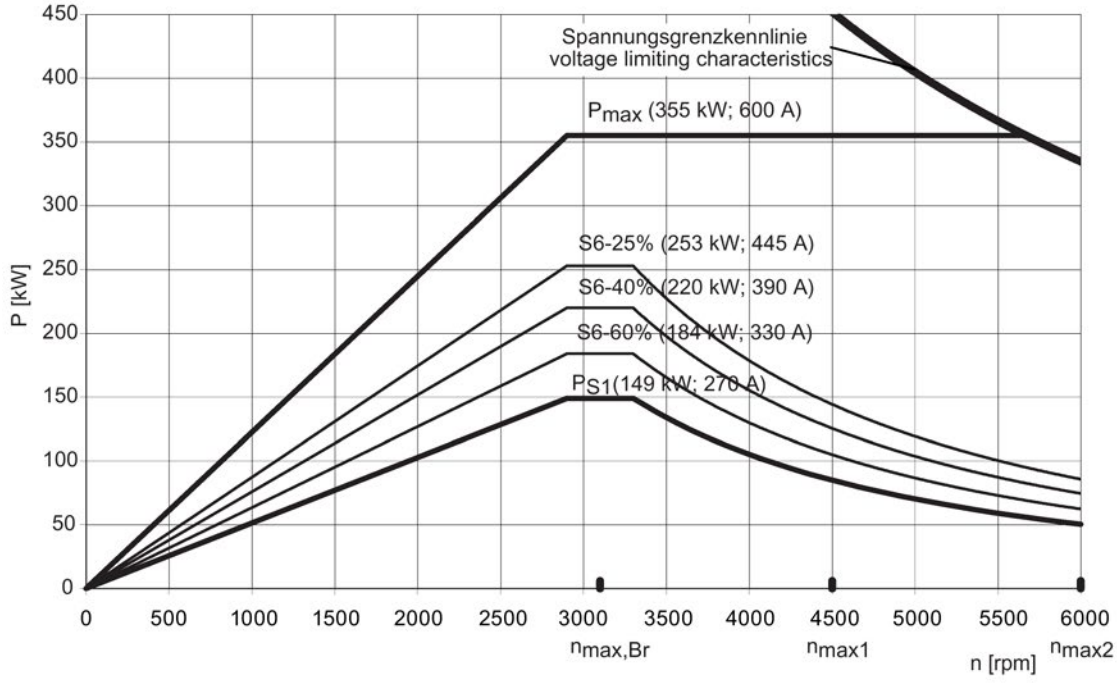


Table 6- 353 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L□□, (IP55)

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]
2,900	149	491	270	4,500	6,000	-	3,100	3,300	1,170	600	491	270
2,500	142	542	295					3,400				



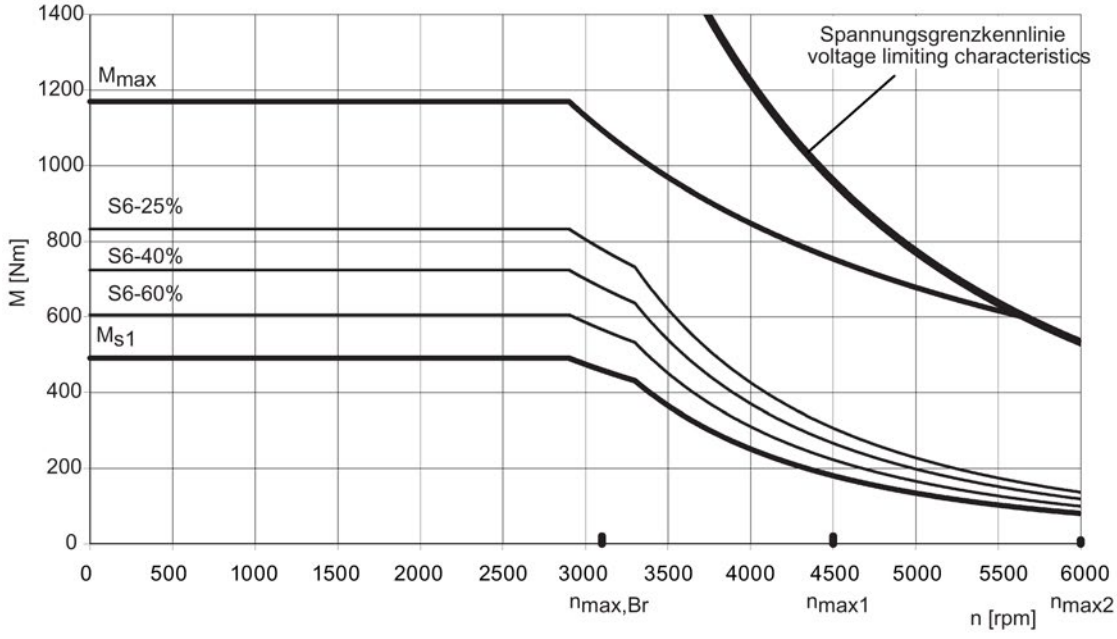
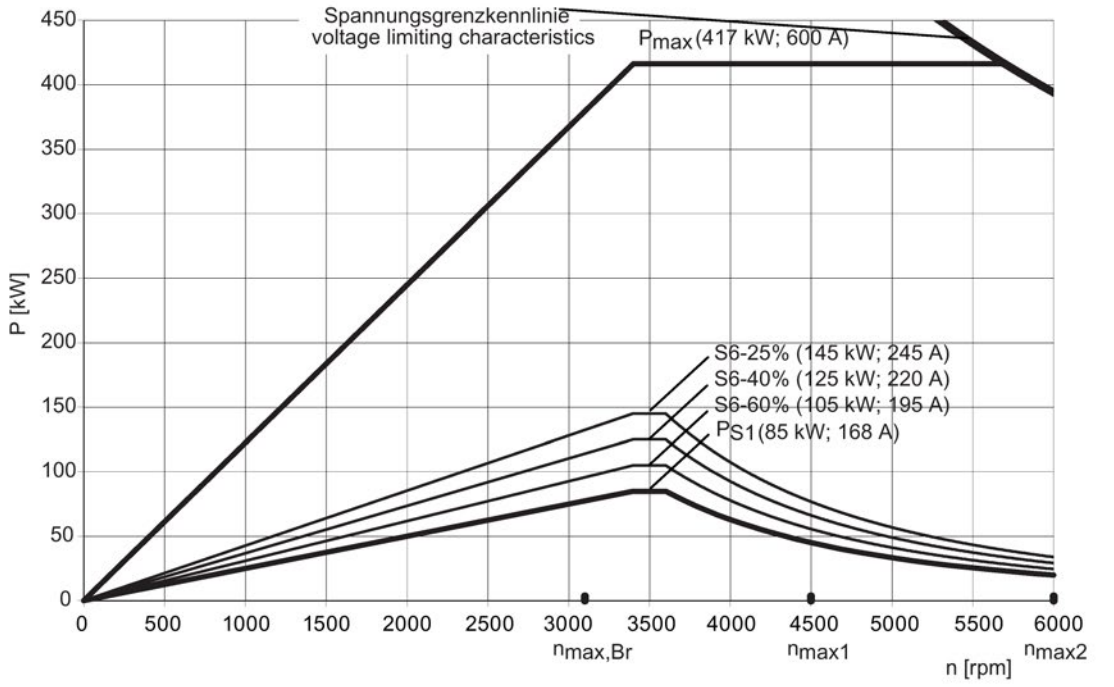
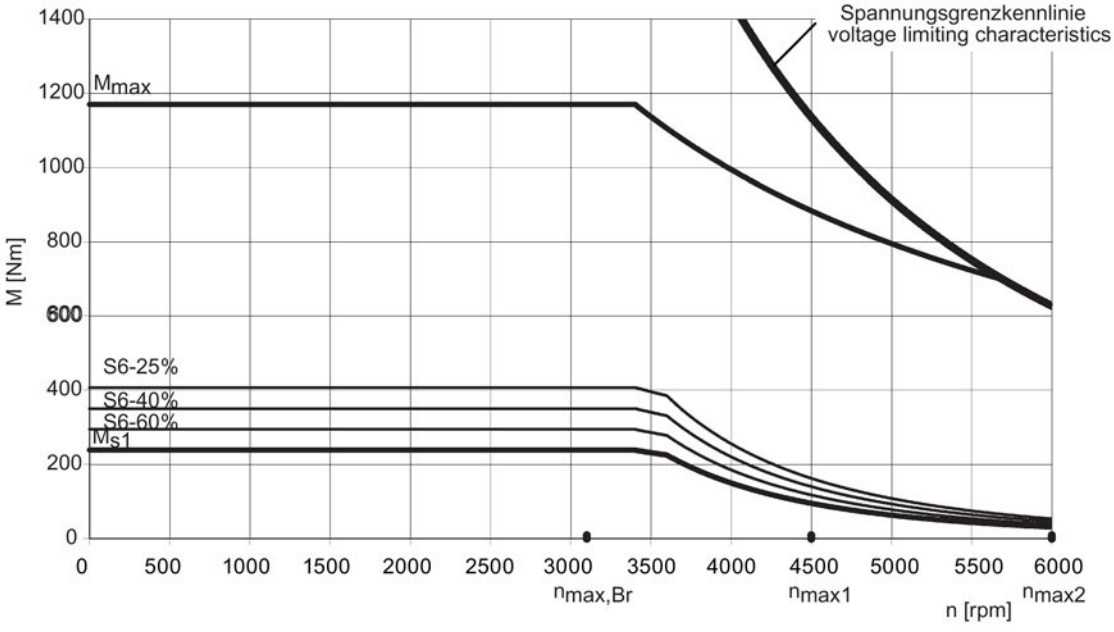


Table 6- 354 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L□□, (IP55)

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]
3,400	85	239	168	4,500	6,000	-	3,100	3,600	1,170	600	239	168

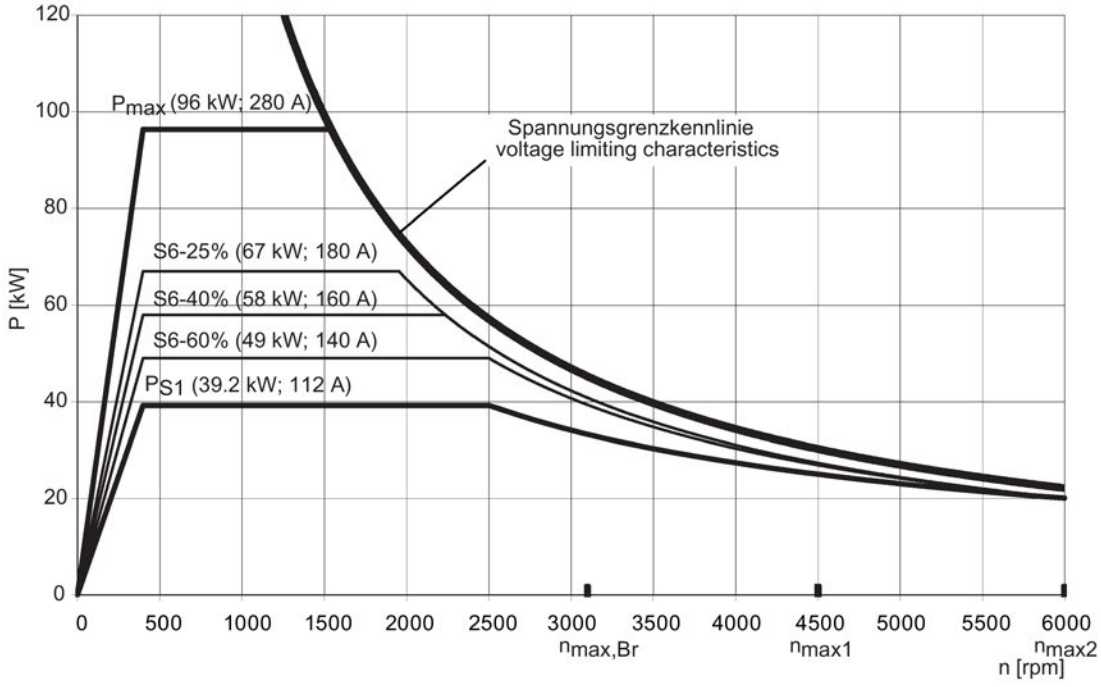




Note: In this electrical version (L winding), supplementary losses that are disproportionately high relative to the speed occur at high connection voltages (480 V 3AC), depending on the modulation depth of the converter. To comply with the permissible motor temperature, a power reduction must be considered in the configuration.

Table 6- 355 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	4,500	6,000	-	3,100	2,500	2,300	280	936	112



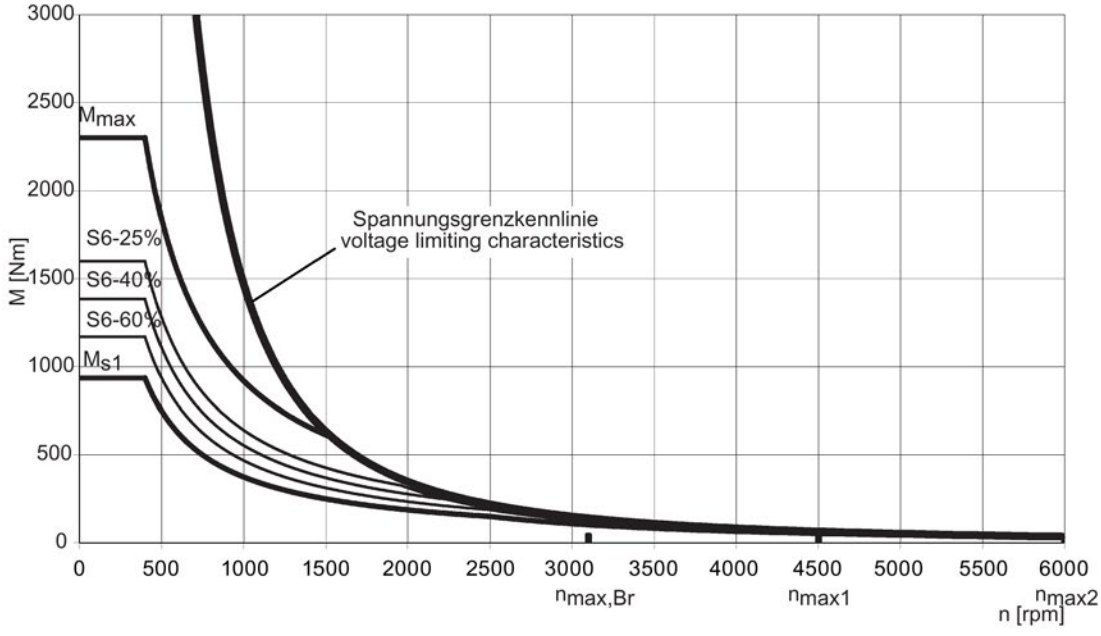
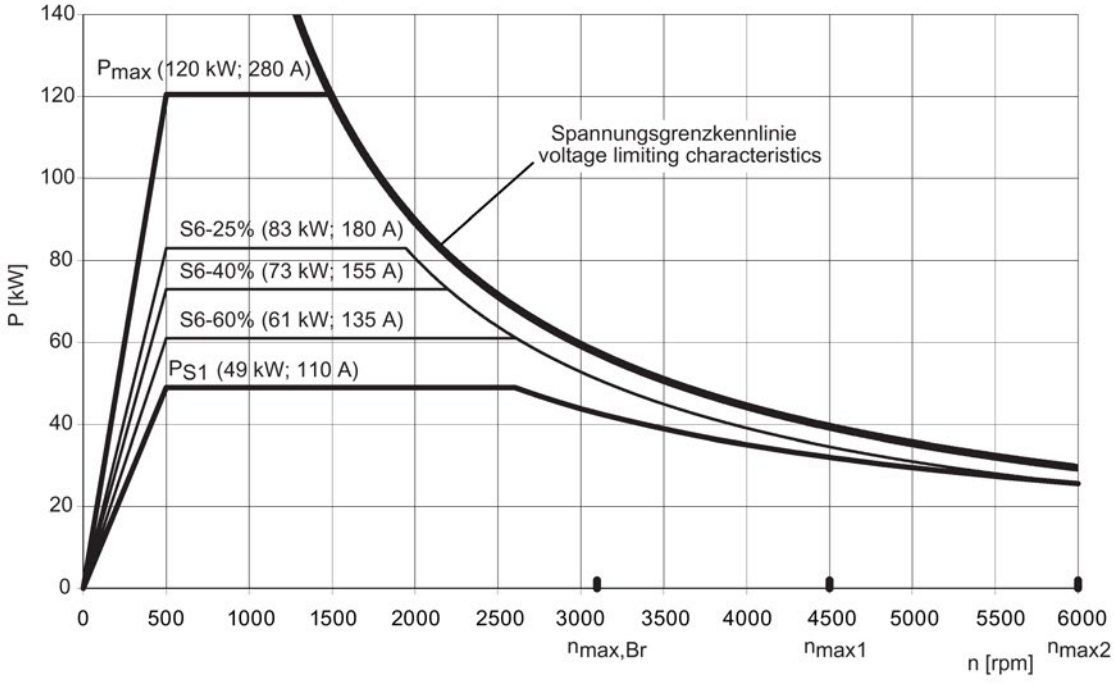


Table 6- 356 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP55)

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	4,500	6,000	-	3,100	2,600	2,300	280	936	110
400	39	936	112					3,500				



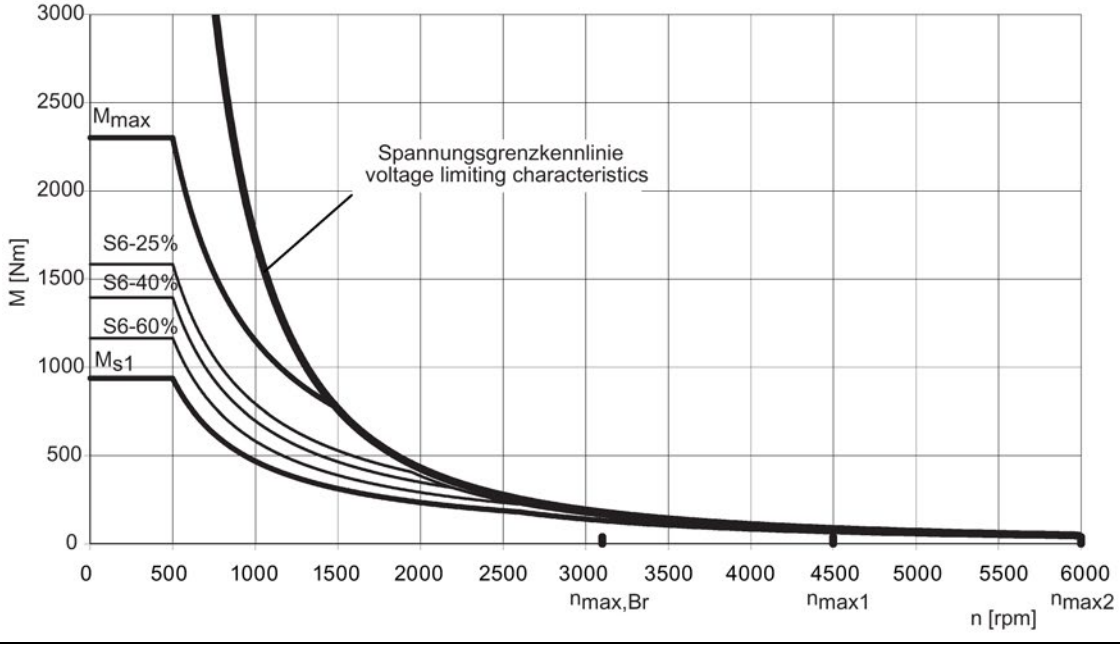
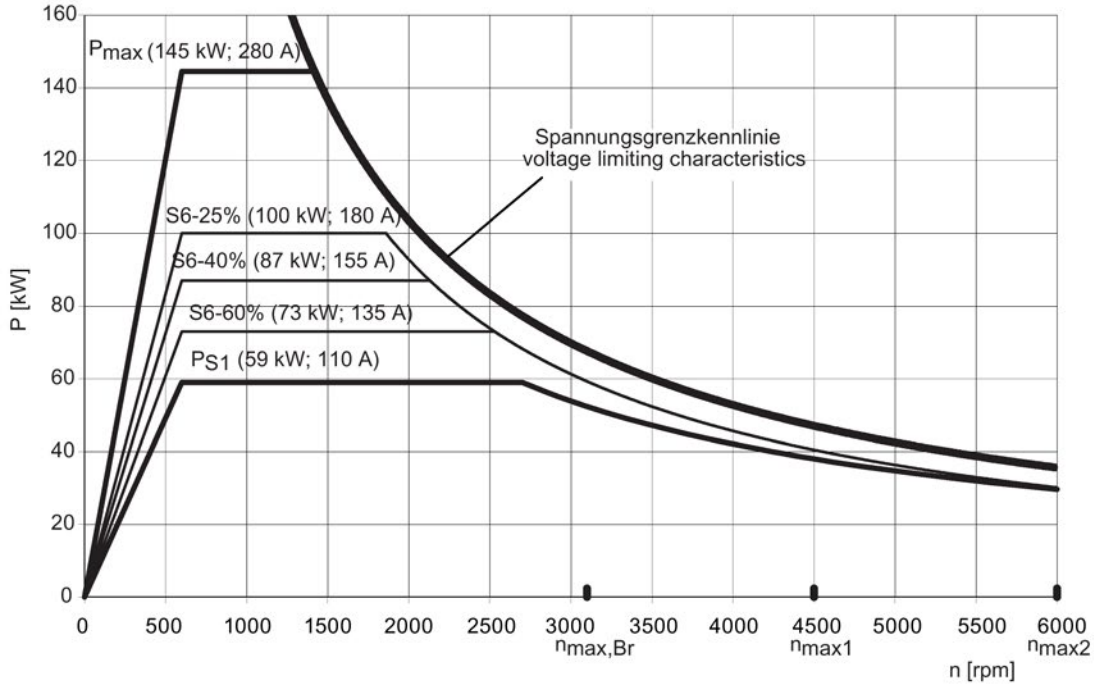


Table 6- 357 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B□□, (IP55)

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	4,500	6,000	-	3,100	2,700	2,300	280	939	110



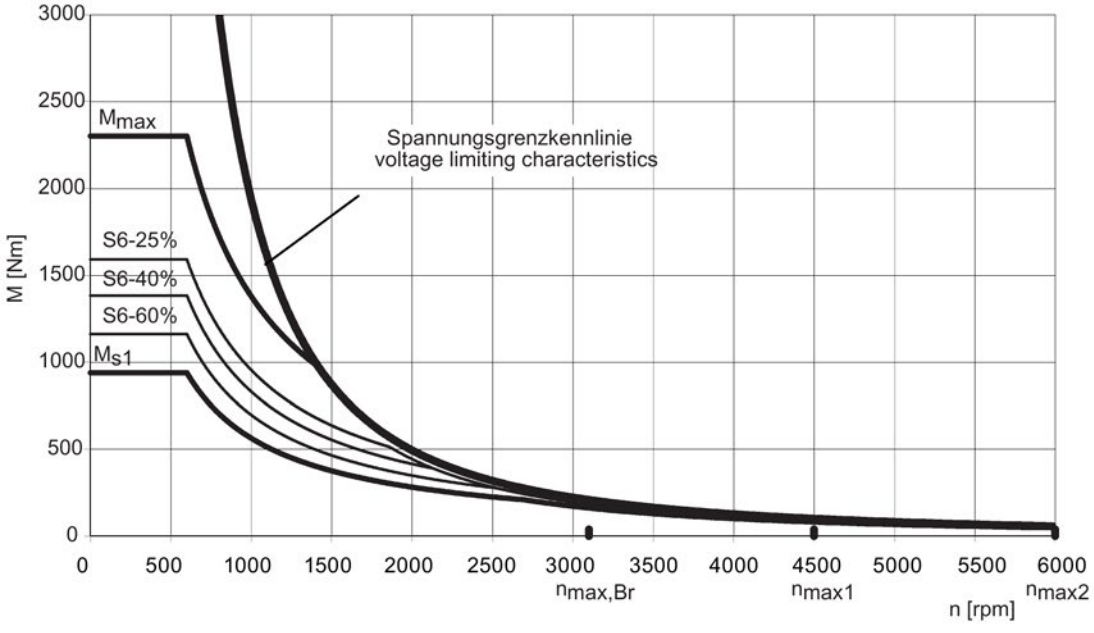
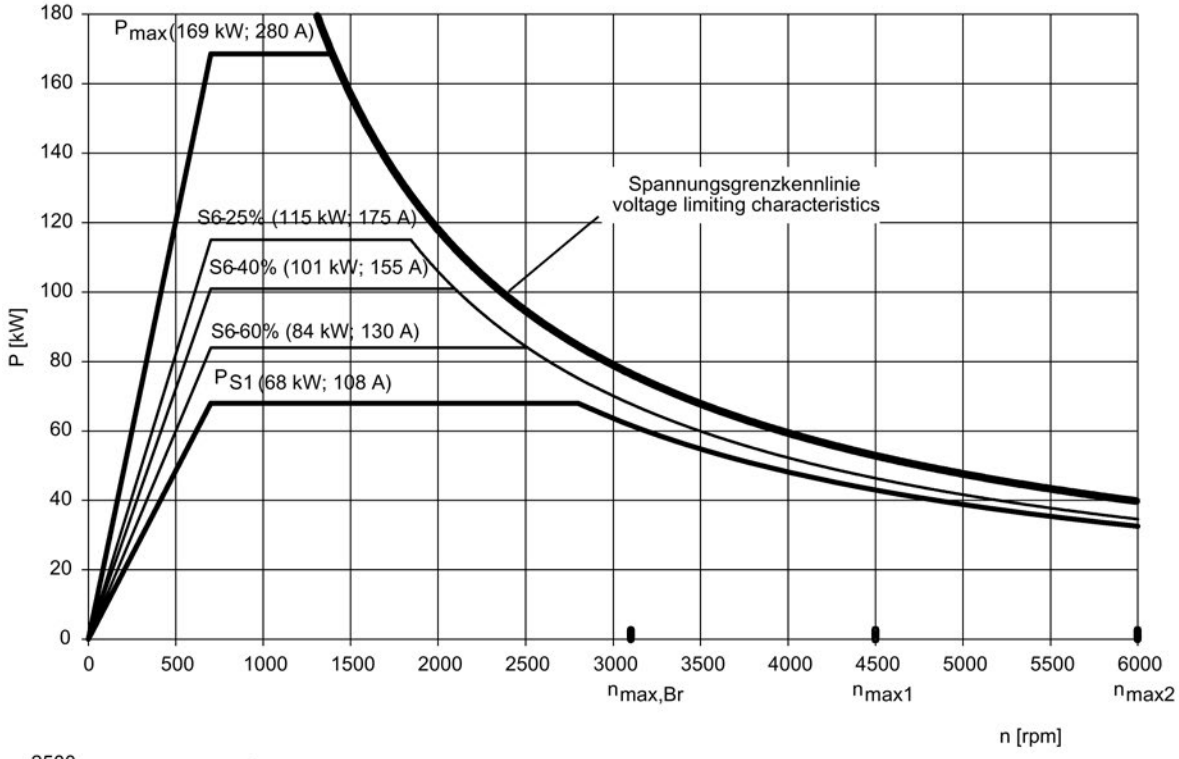


Table 6- 358 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	108	4,500	6,000	-	3,100	2,800	2,300	280	936	108



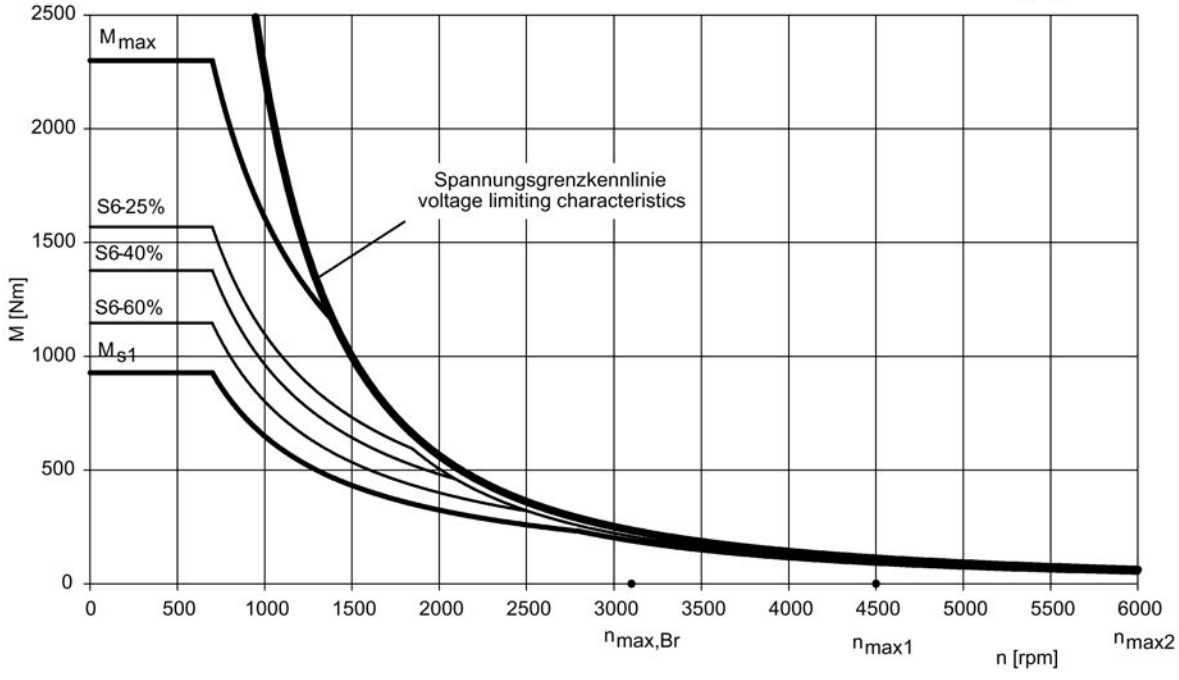
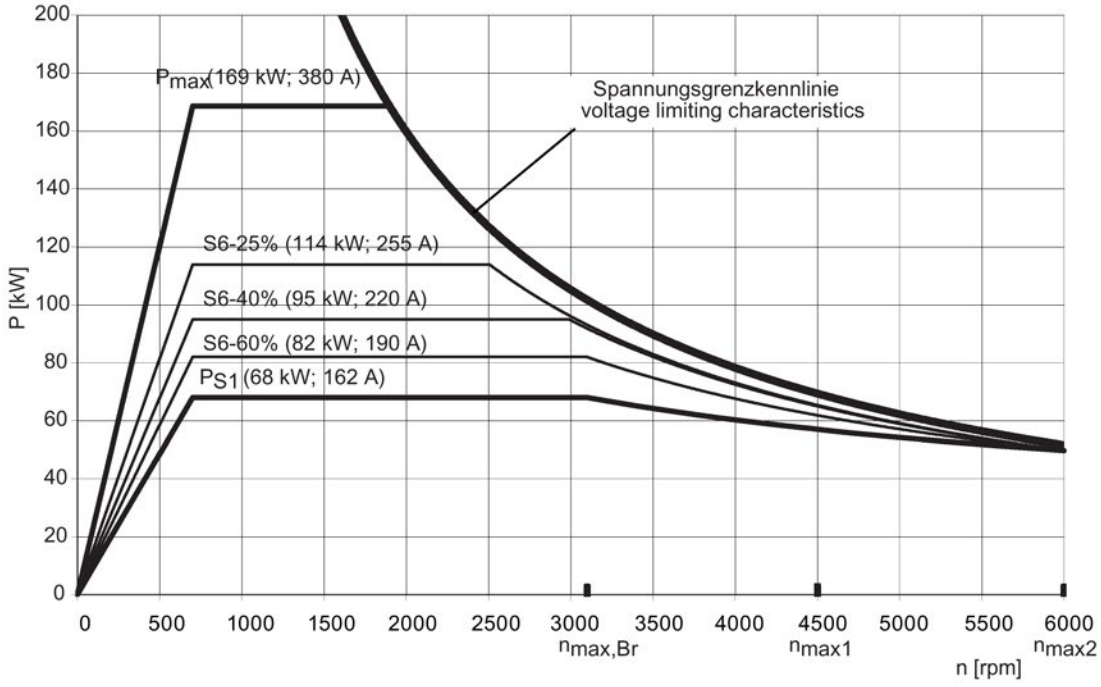


Table 6- 359 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP55)

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	4,500	6,000	-	3,100	3,100	2,300	380	928	162



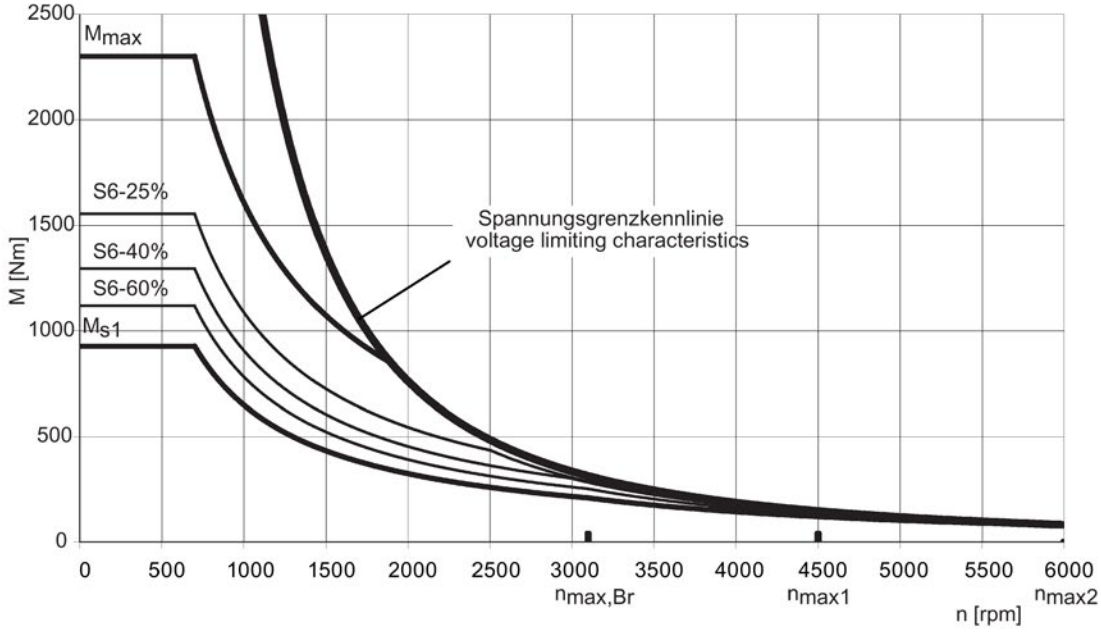
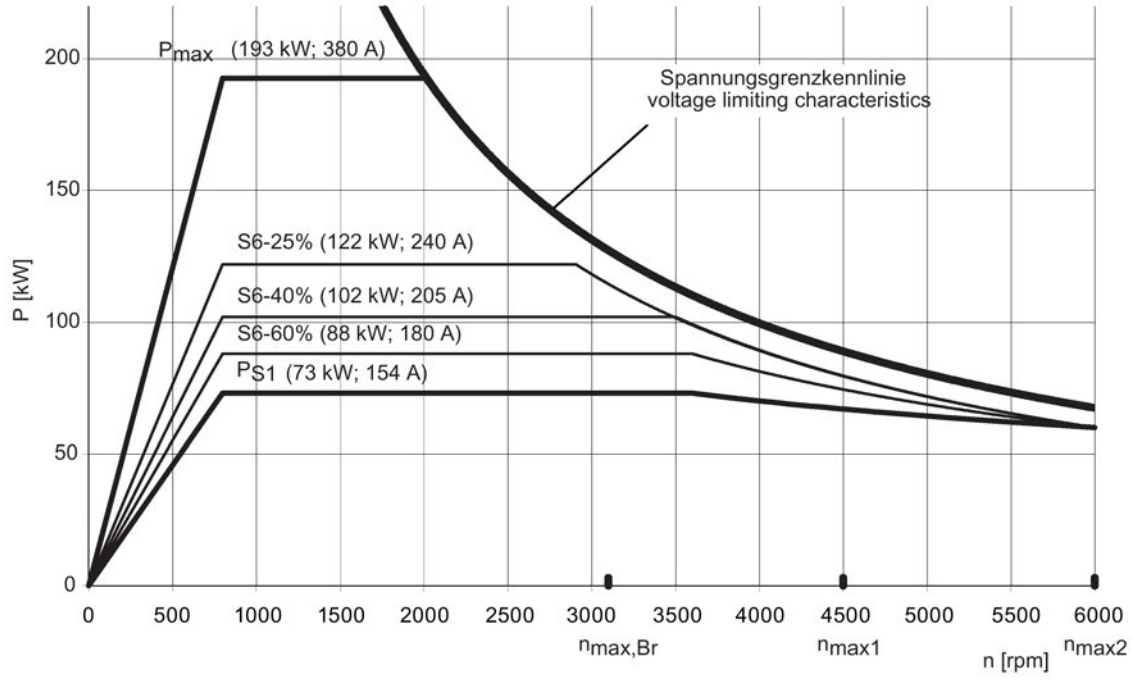


Table 6- 360 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP55)

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	4,500	6,000	-	3,100	3,600	2,300	380	872	154
700	68	928	162					4,300				



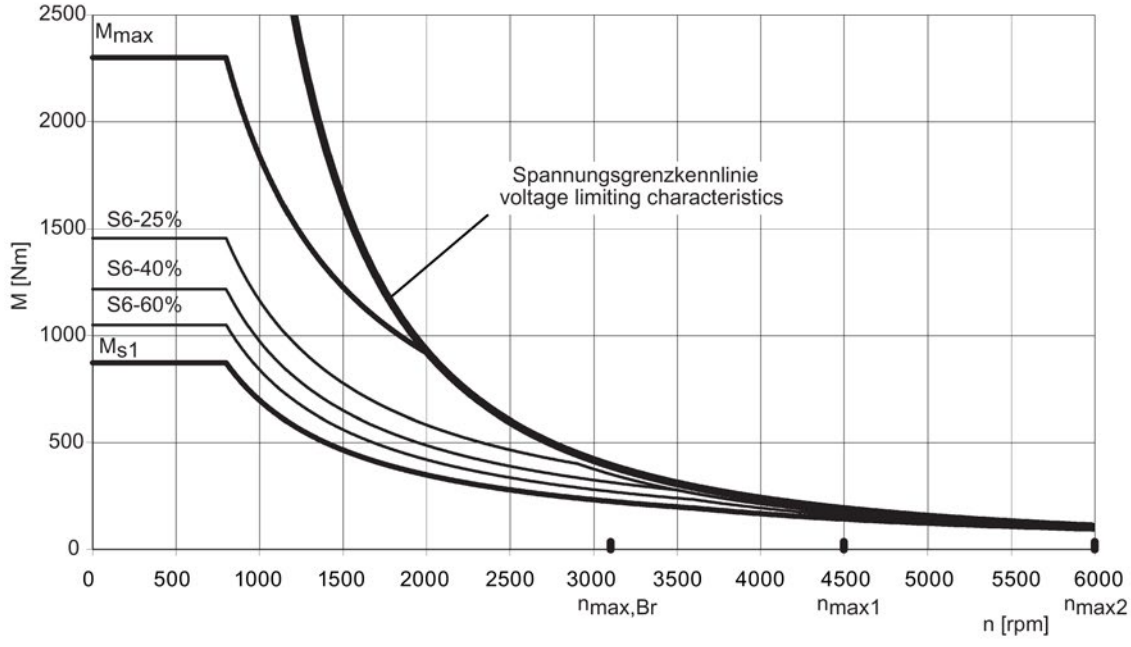
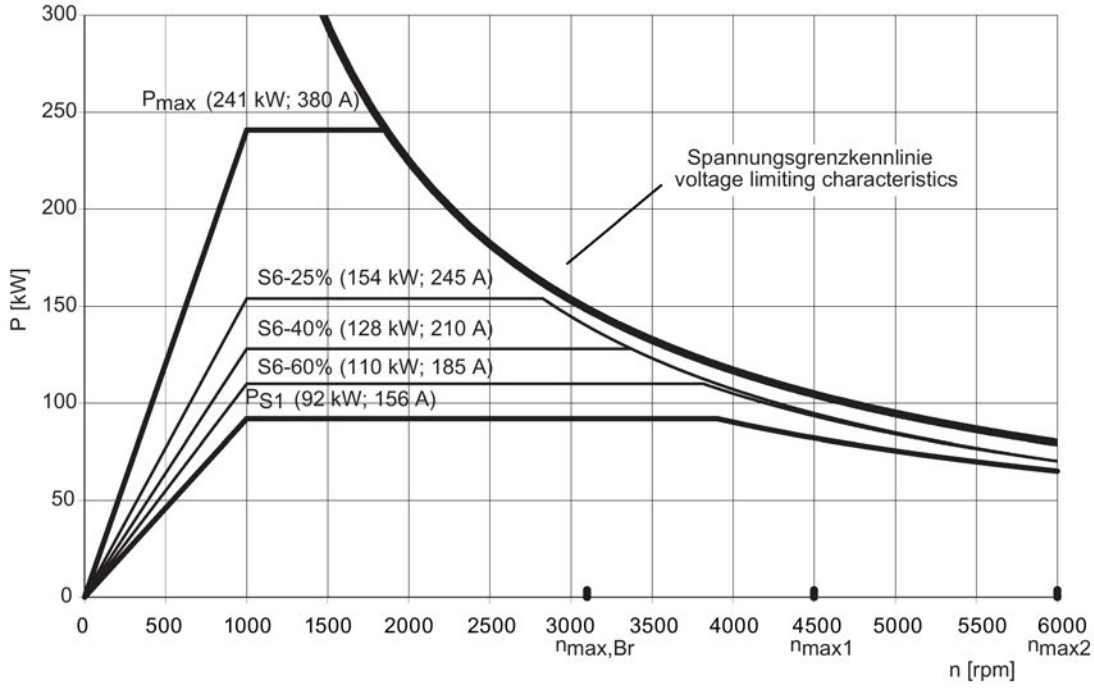


Table 6- 361 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP55)

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]
1,000	92	879	156	4,500	6,000	-	3,100	3,900	2,300	380	879	156



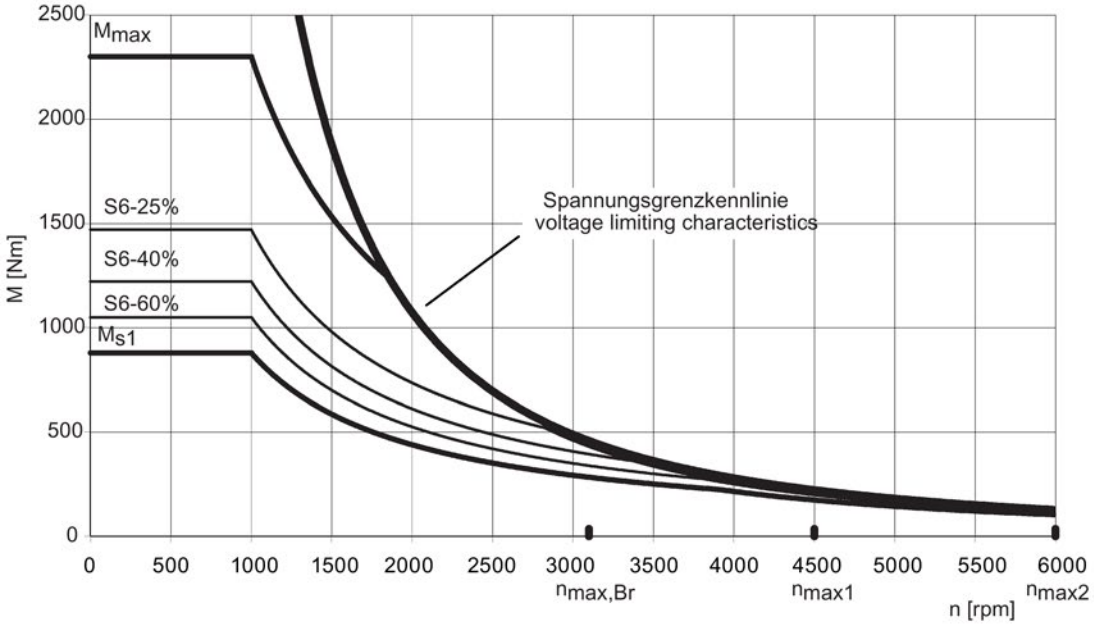
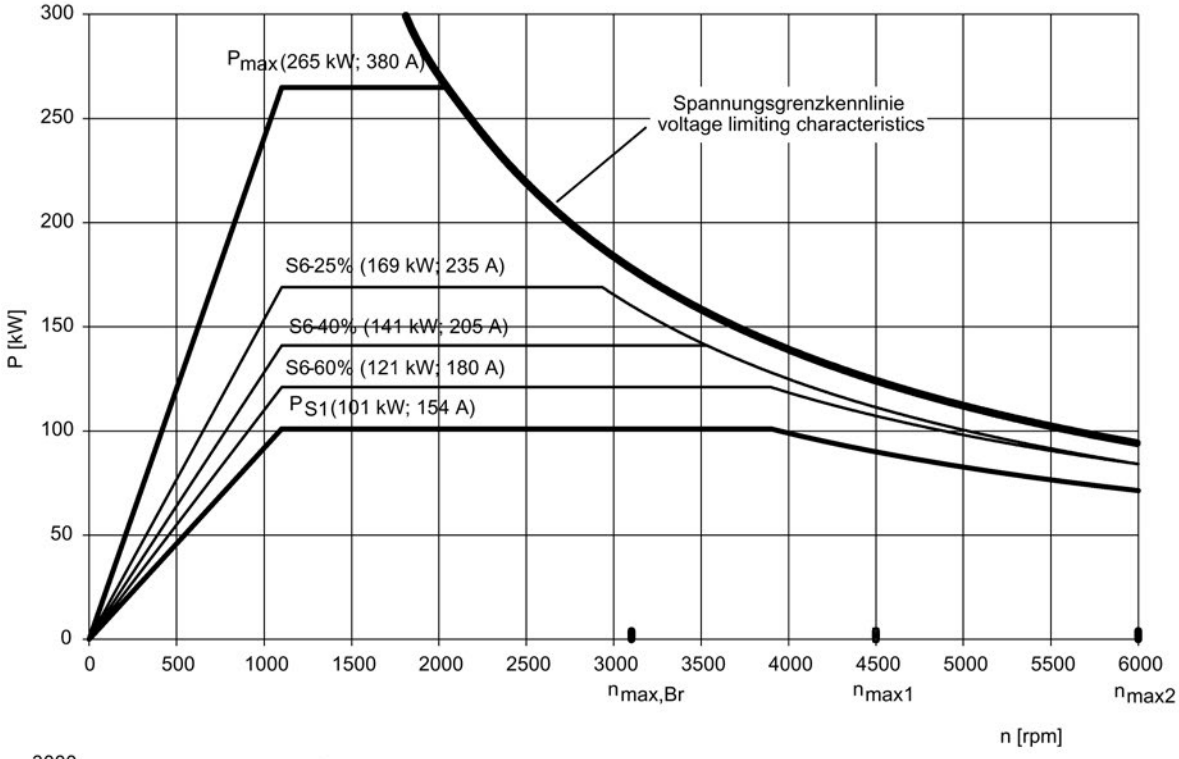


Table 6- 362 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	101	877	154	4,500	6,000	-	3,100	3,900	2,300	380	928	154



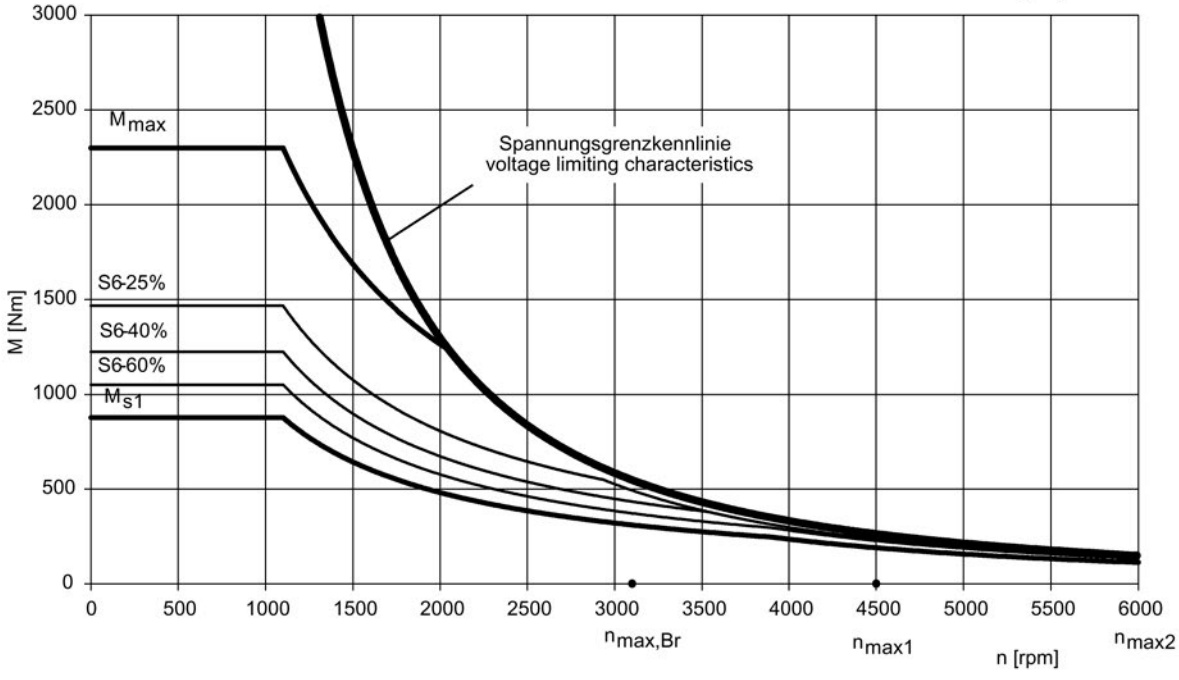
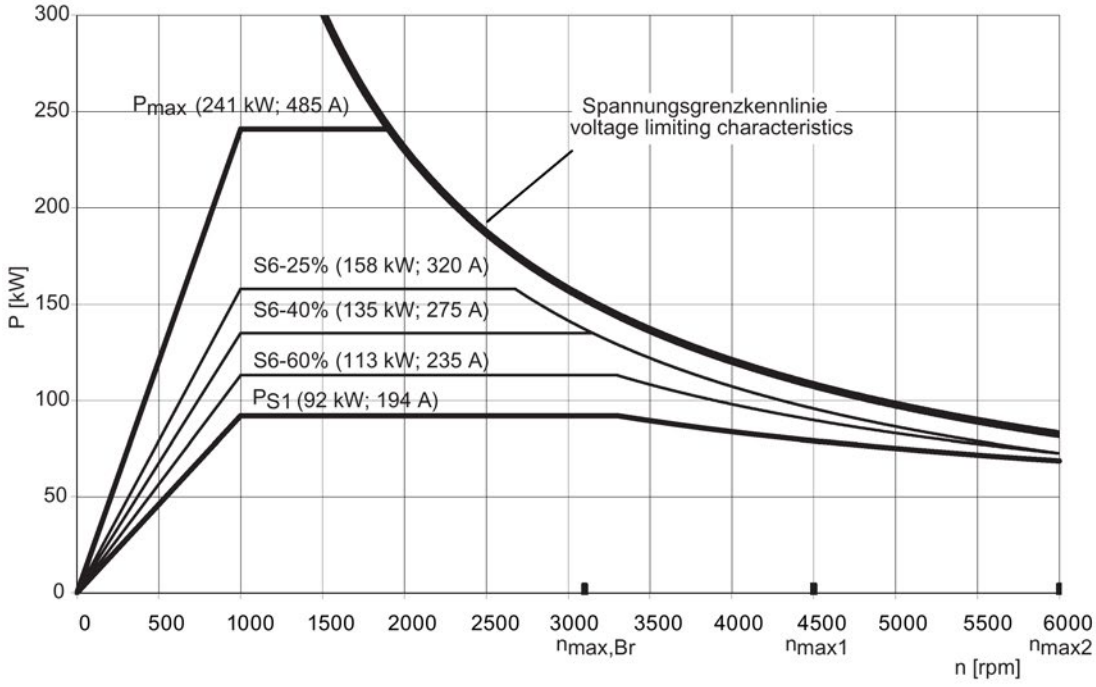


Table 6- 363 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP55)

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]
1,000	92	879	194	4,500	6,000	-	3,100	3,300	2,300	485	879	194



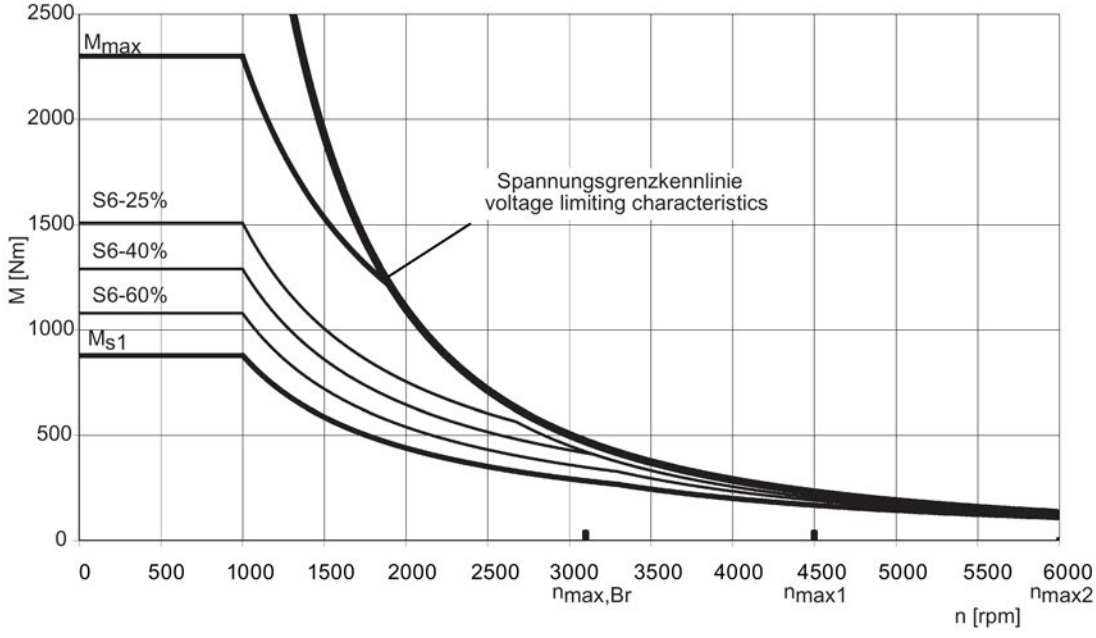
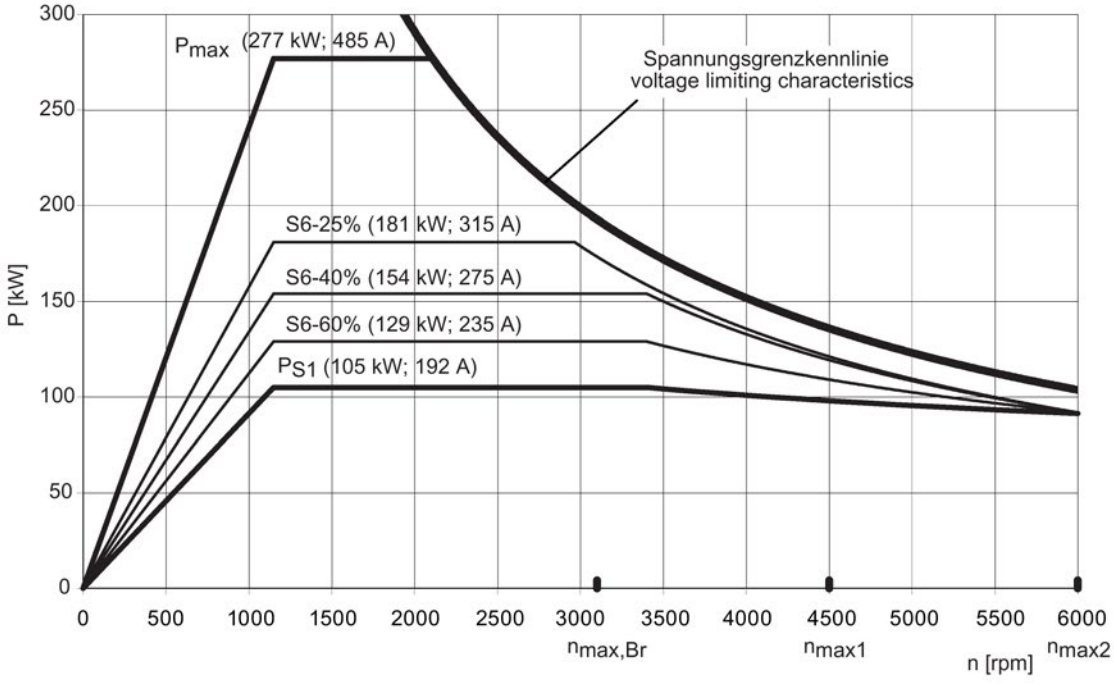


Table 6- 364 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP55)

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]
1,150	105	872	192	4,500	6,000	-	3,100	3,400	2,300	485	872	192
1,000	92	879	194					5,800				



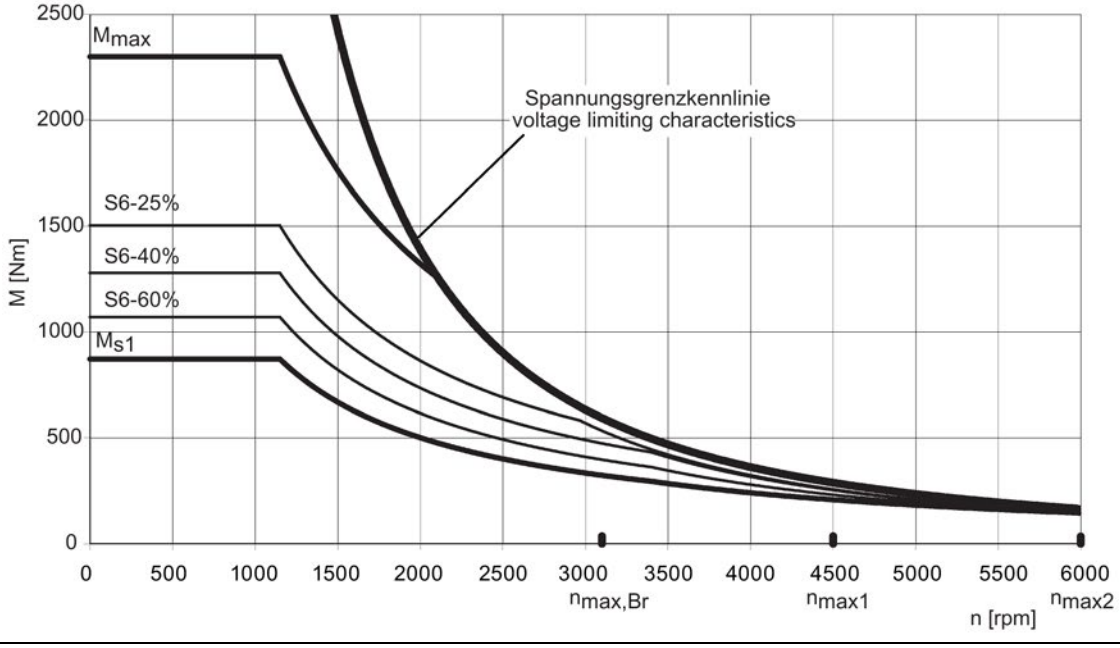
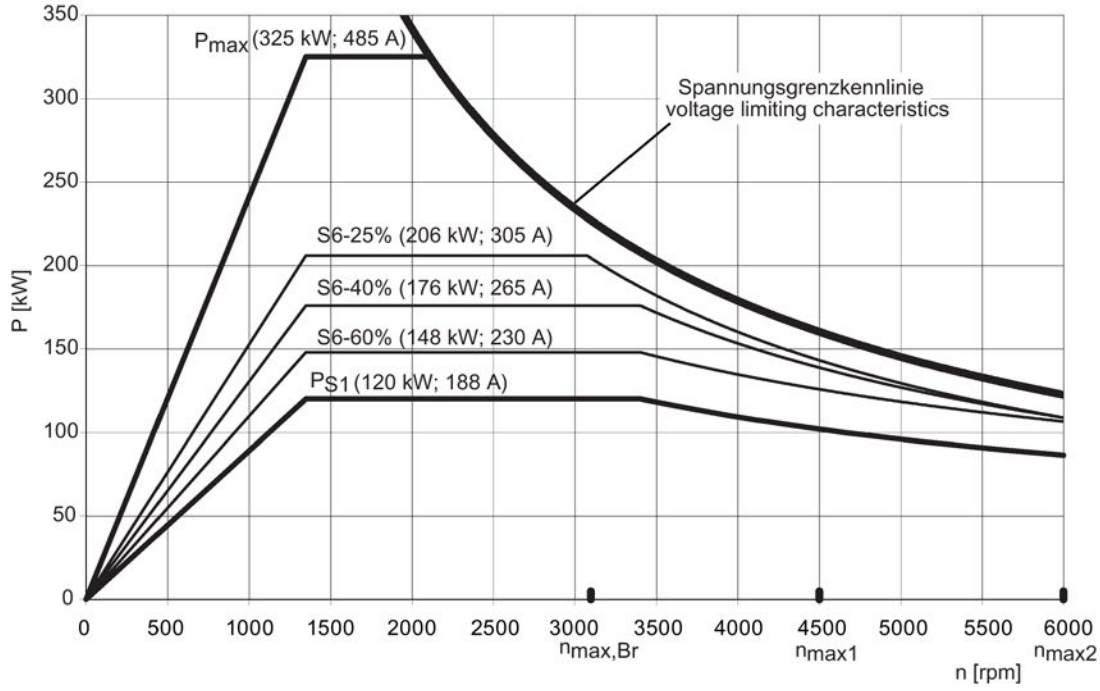


Table 6- 365 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP55)

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]
1,350	120	849	188	4,500	6,000	-	3,100	3,400	2,300	485	849	188



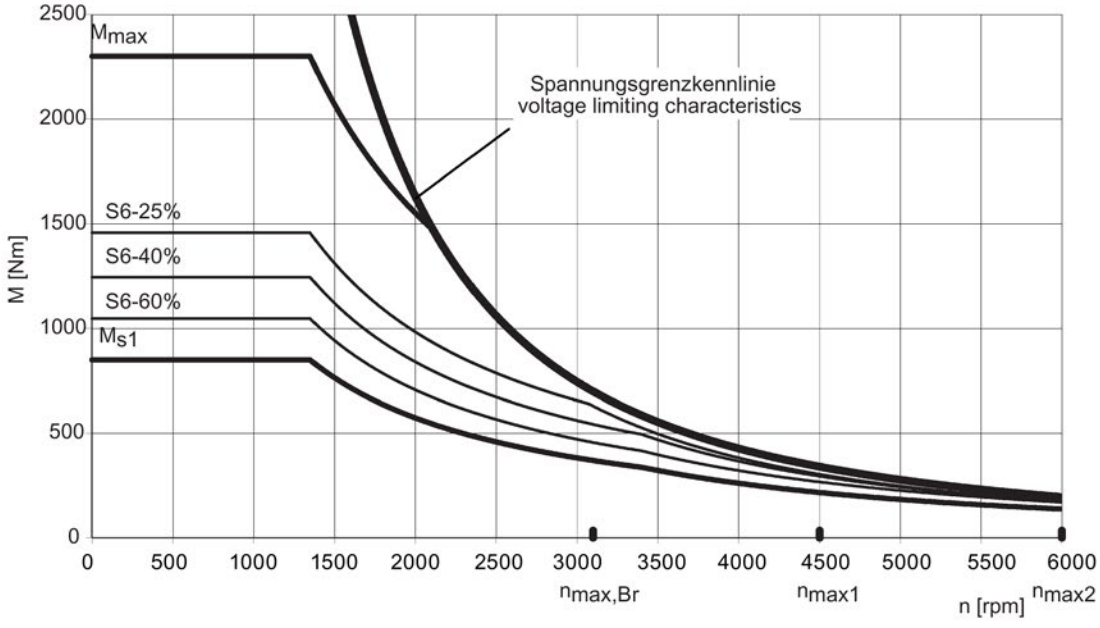
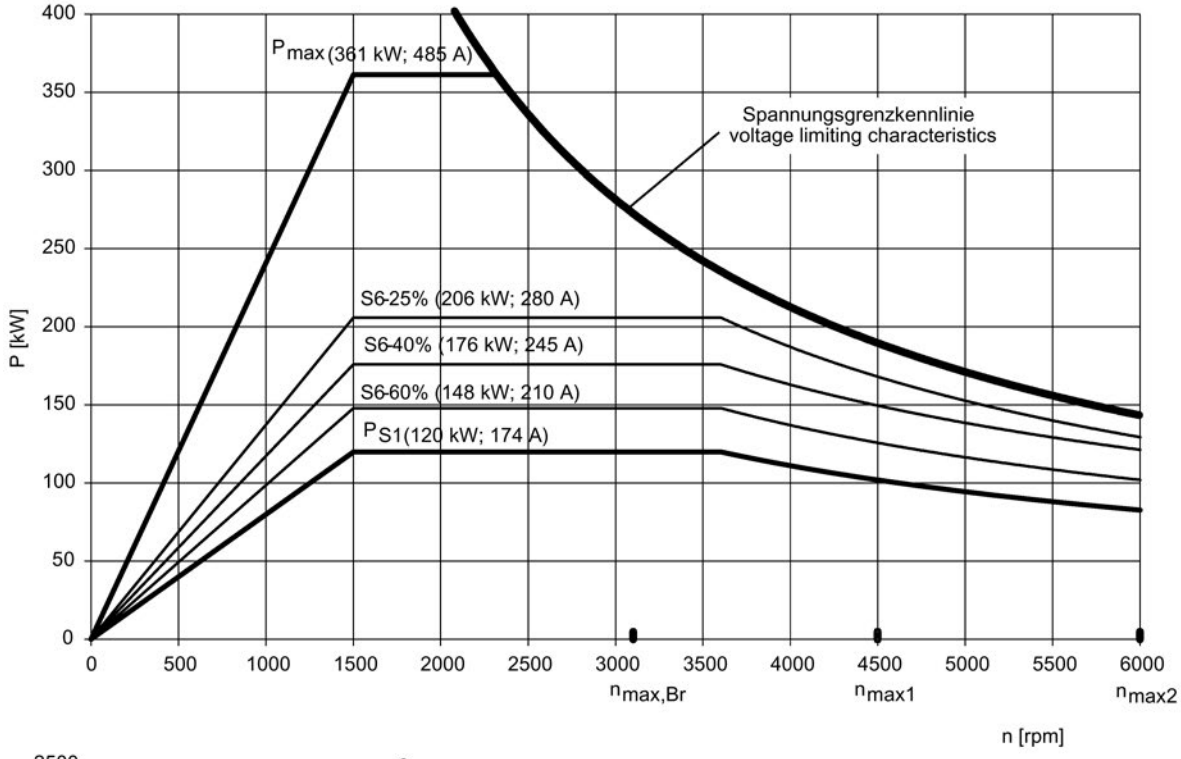


Table 6- 366 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	120	764	174	4,500	6,000	-	3,100	3,600	2,300	485	879	174



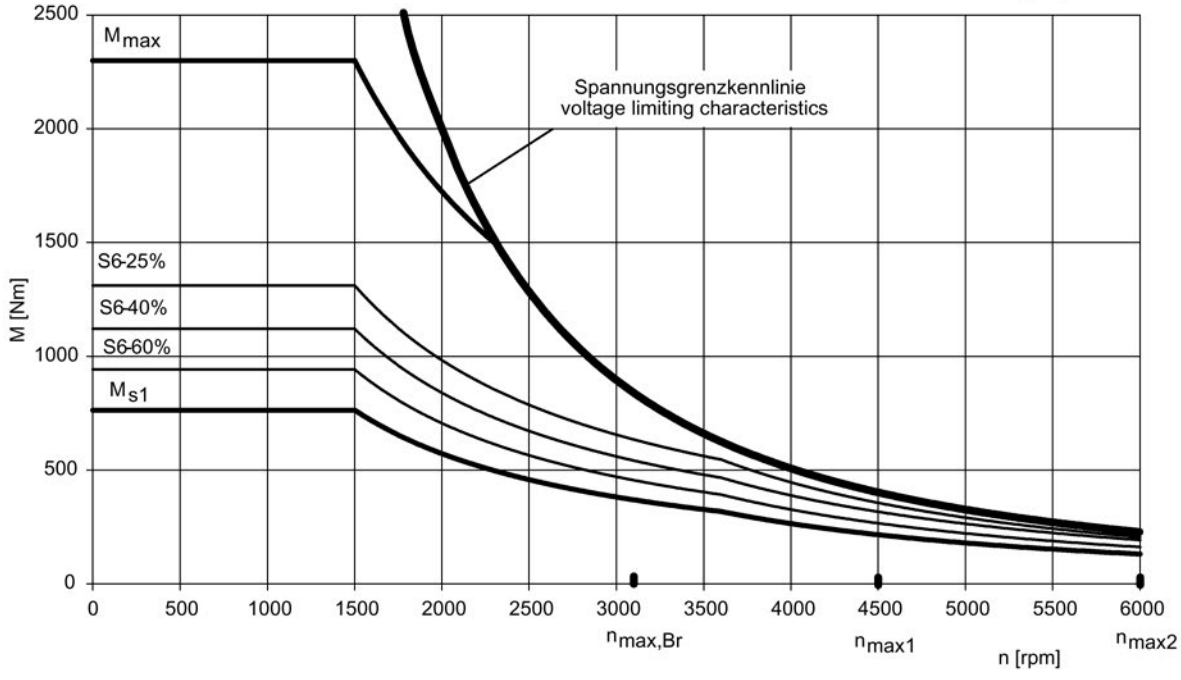
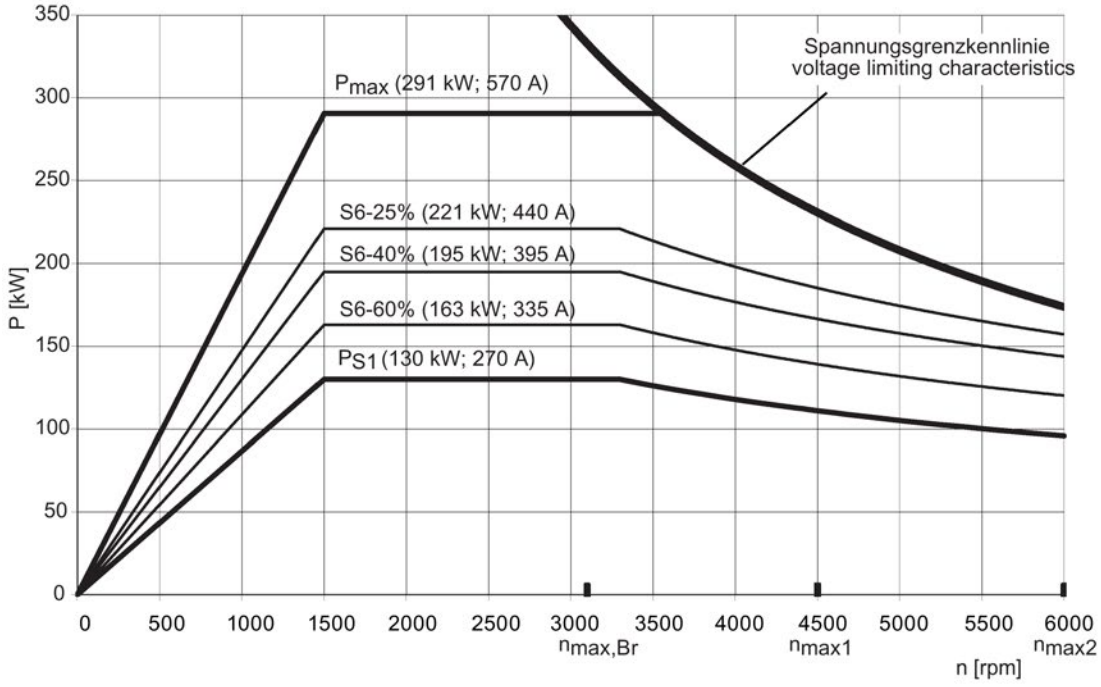


Table 6- 367 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP55)

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]
1,500	130	828	270	4,500	6,000	-	3,100	3,300	1,850	570	828	270



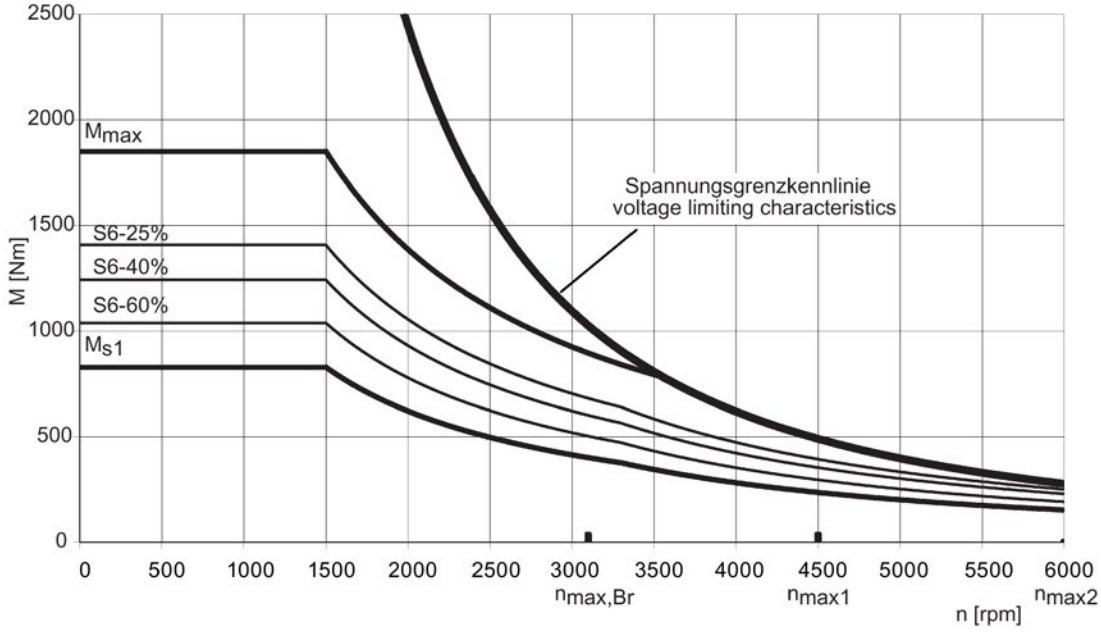
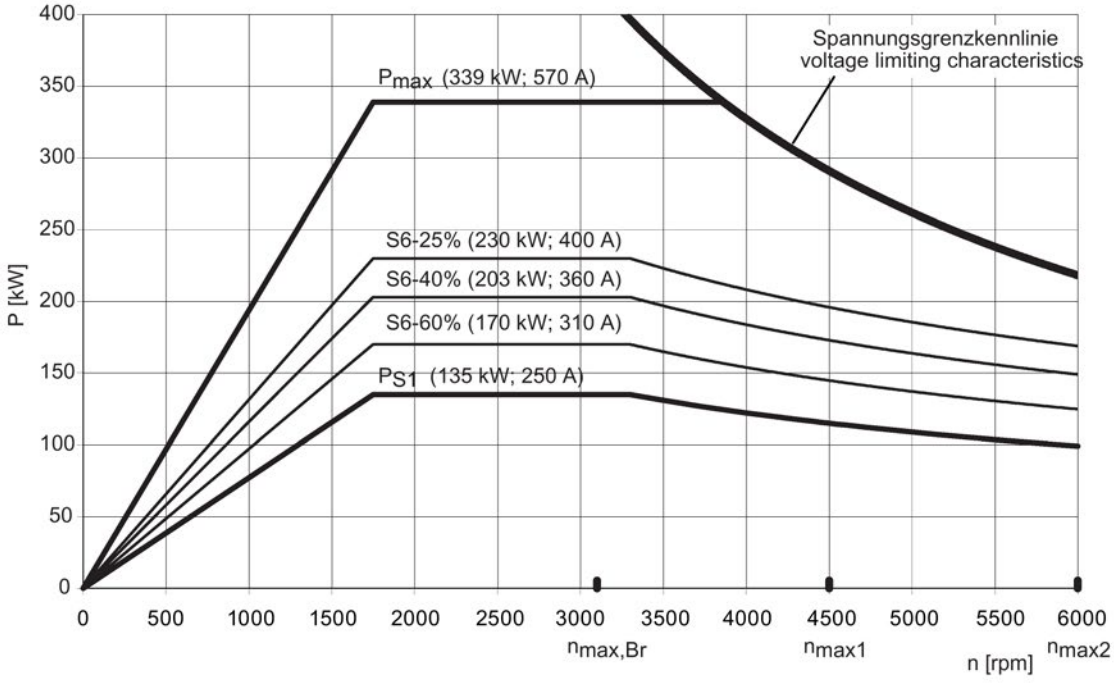


Table 6- 368 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP55)

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]
1,750	135	737	250	4,500	6,000	-	3,100	3,300	1,850	570	737	250
1,500	130	828	270					3,500				



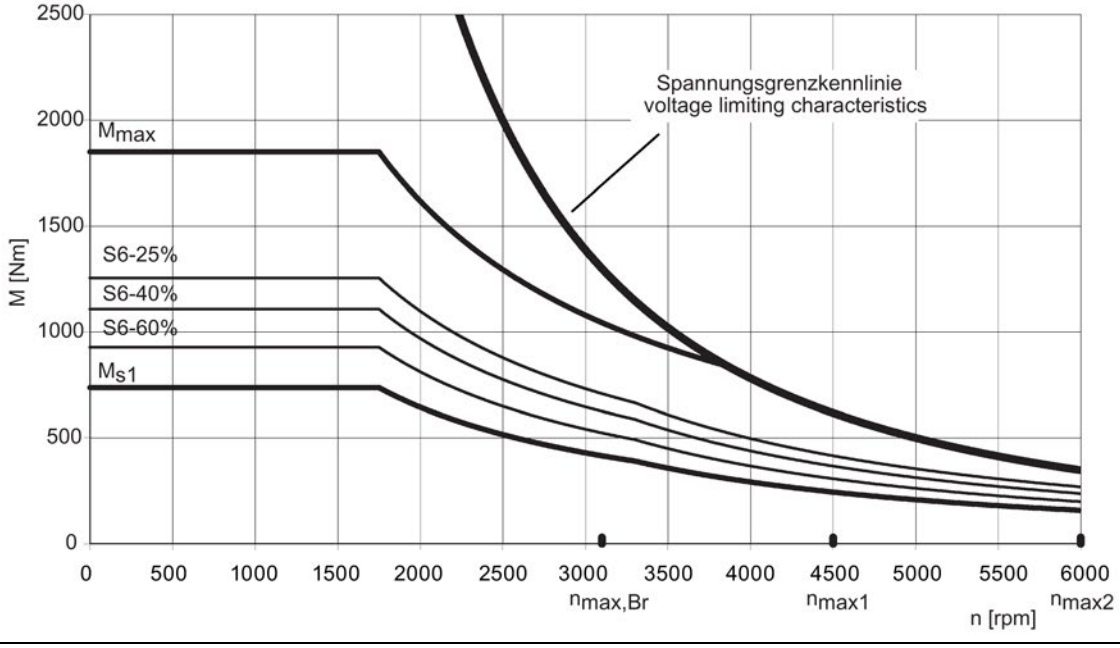
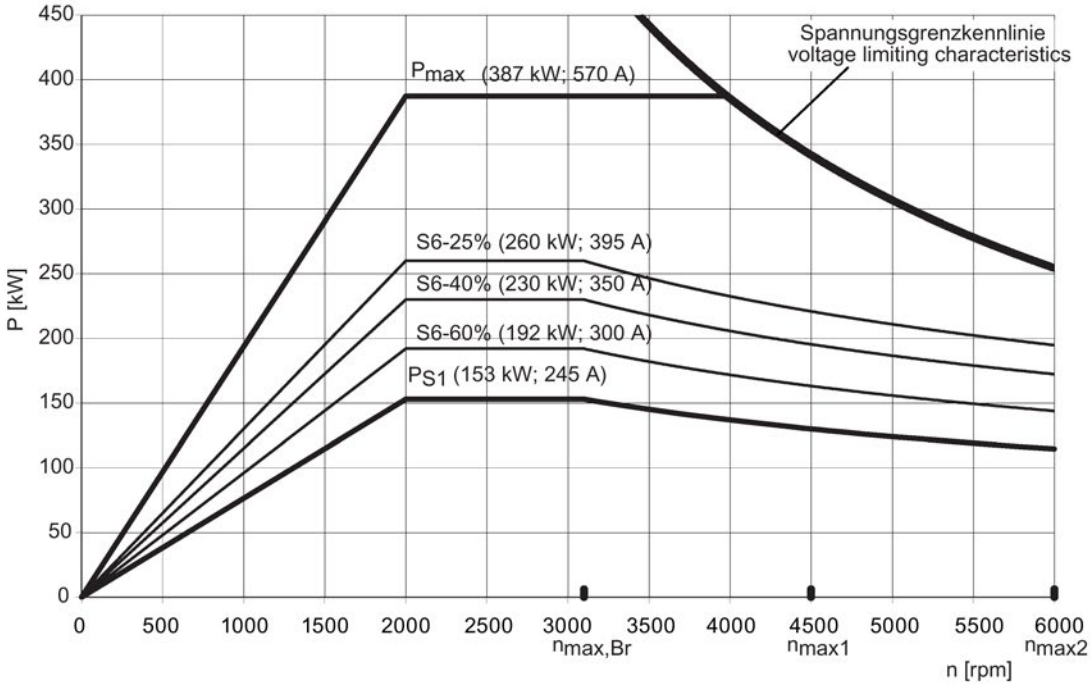


Table 6- 369 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP55)

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]
2,000	153	731	245	4,500	6,000	-	3,100	3,100	1,850	570	731	245



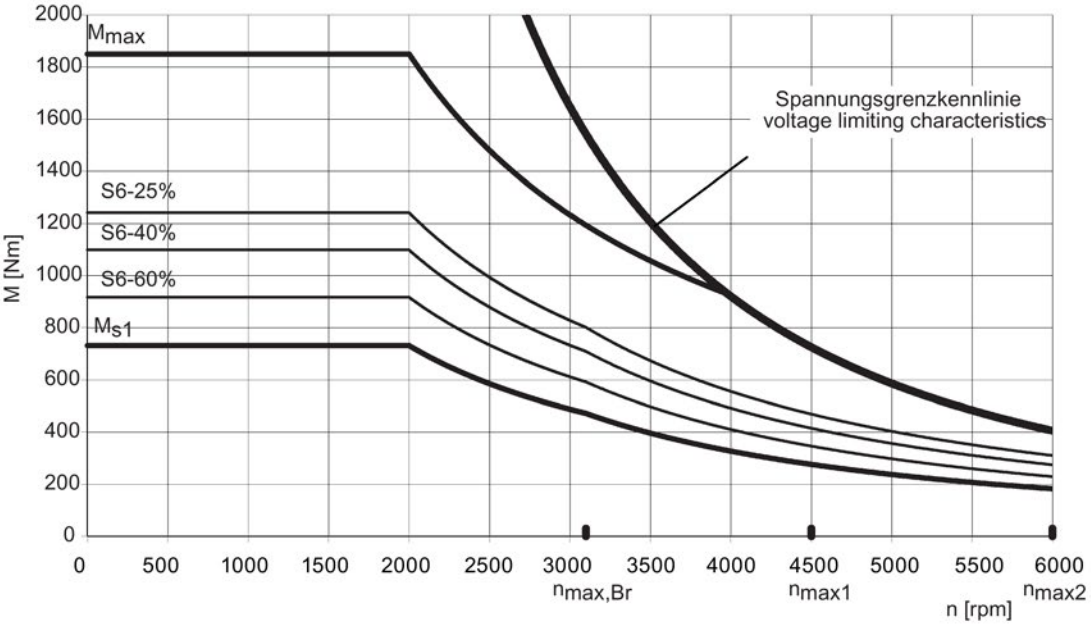
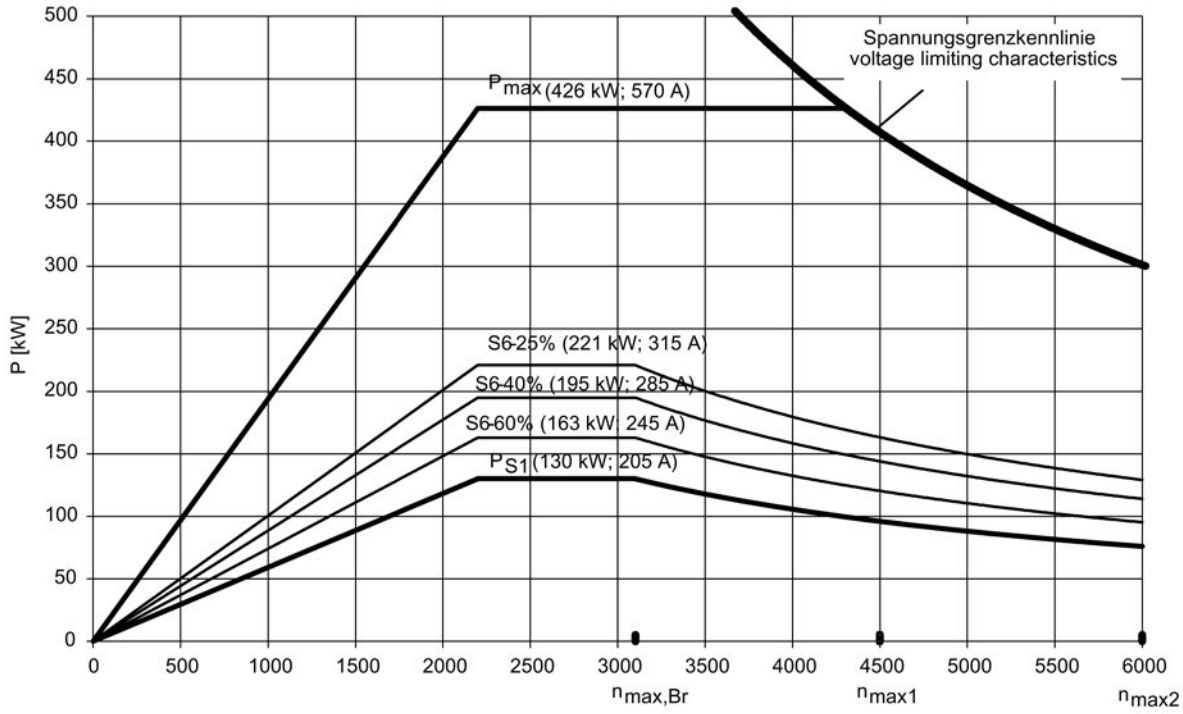


Table 6- 370 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	130	564	205	4,500	6,000	-	3,100	3,100	1,850	570	828	205



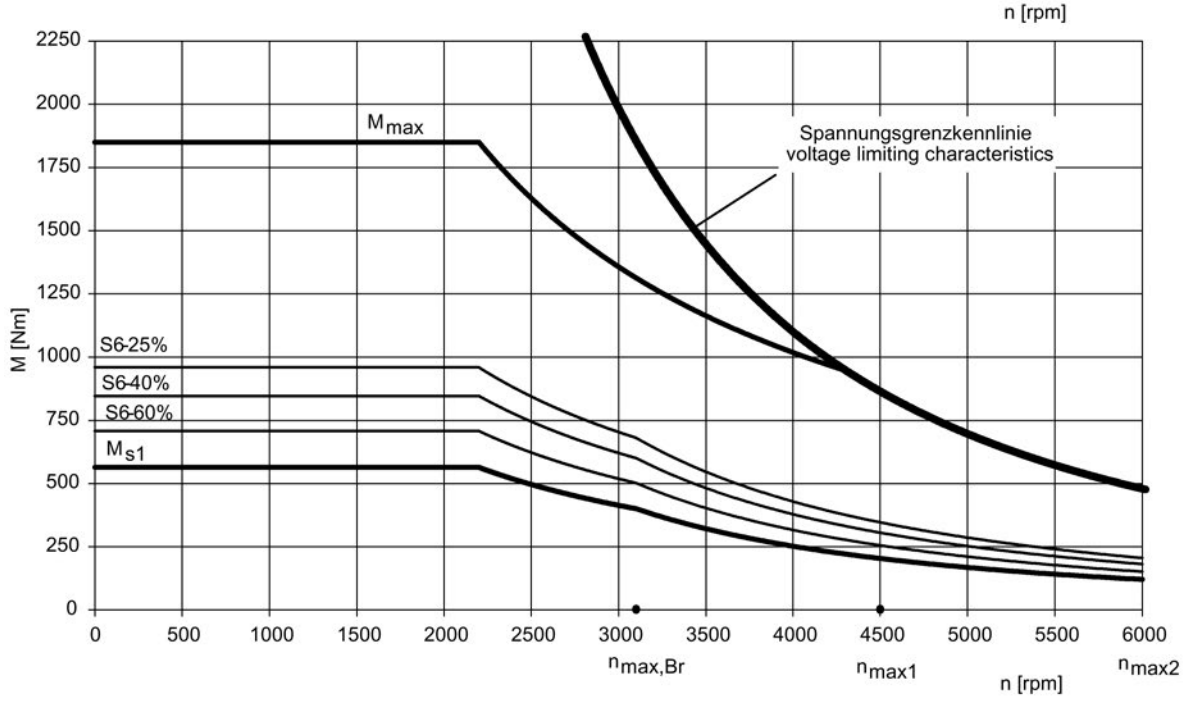
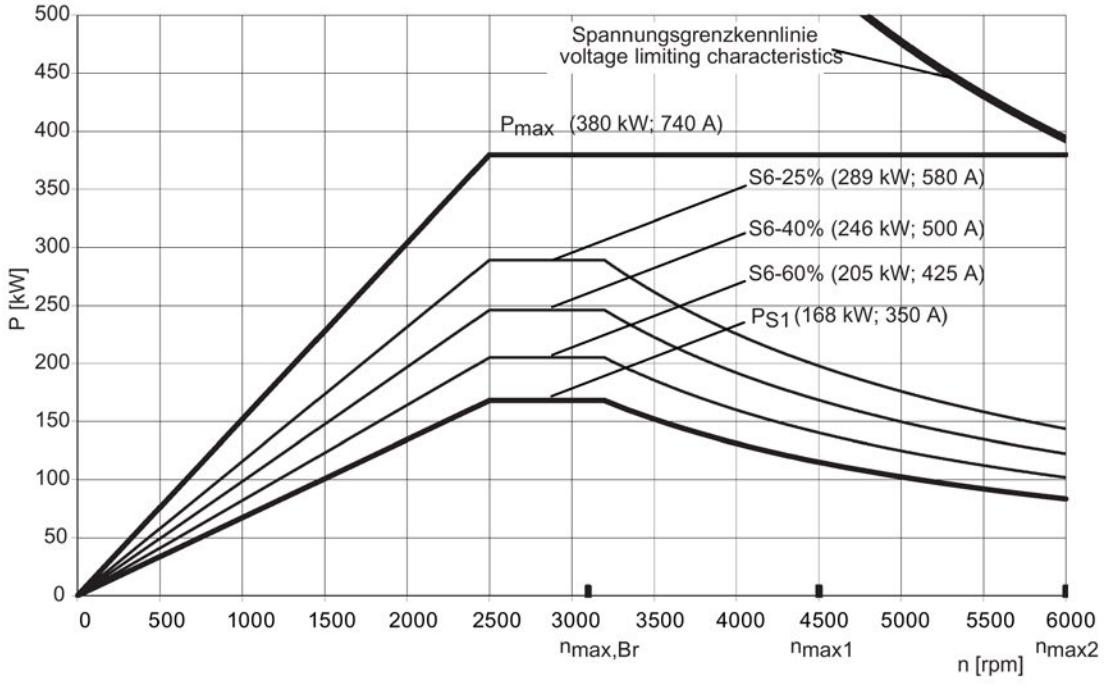


Table 6- 371 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L□□, (IP55)

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]
2,500	168	642	350	4,500	6,000	-	3,100	3,200	1,450	740	642	350



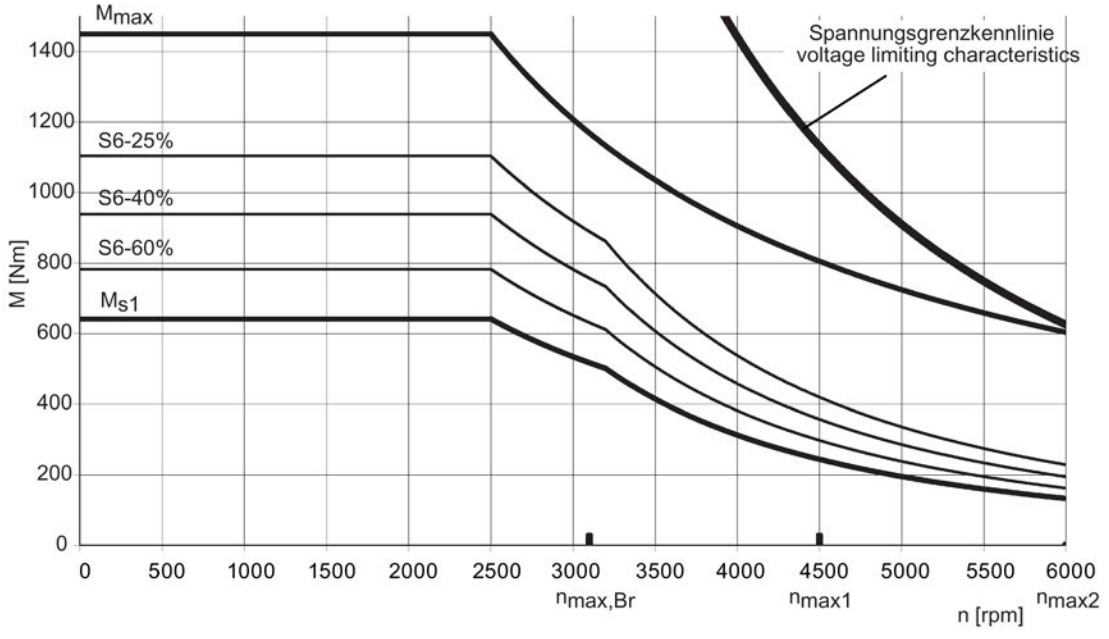
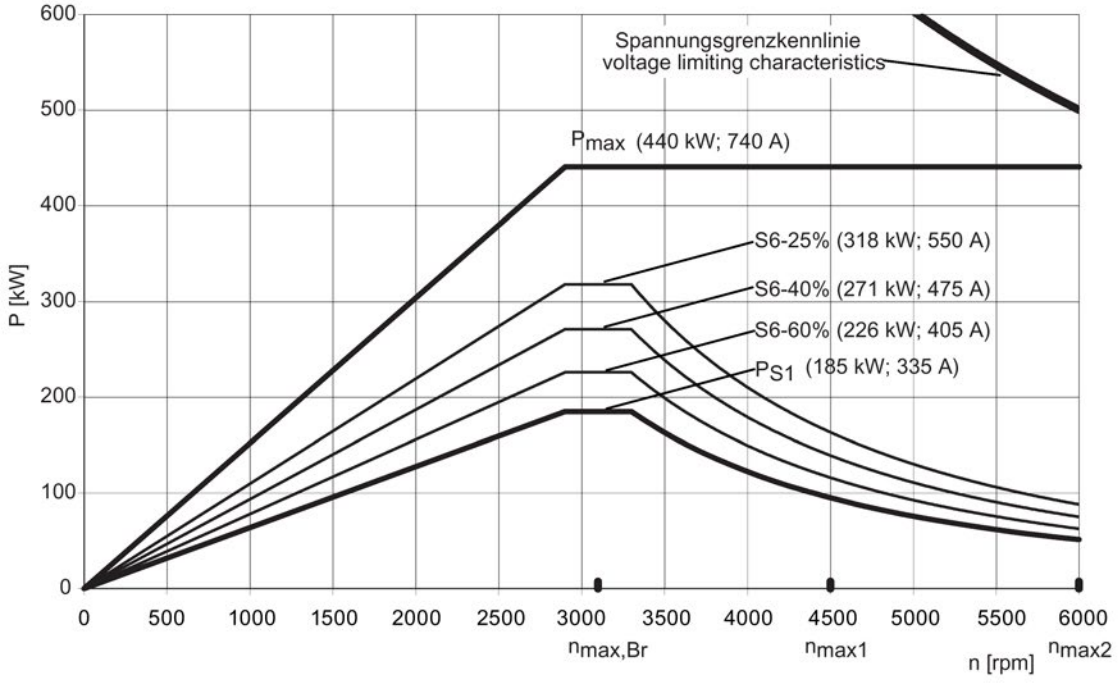


Table 6- 372 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L□□, (IP55)

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]
2,900	185	609	335	4,500	6,000	-	3,100	3,300	1,450	740	609	335
2,500	168	642	350					3,500				



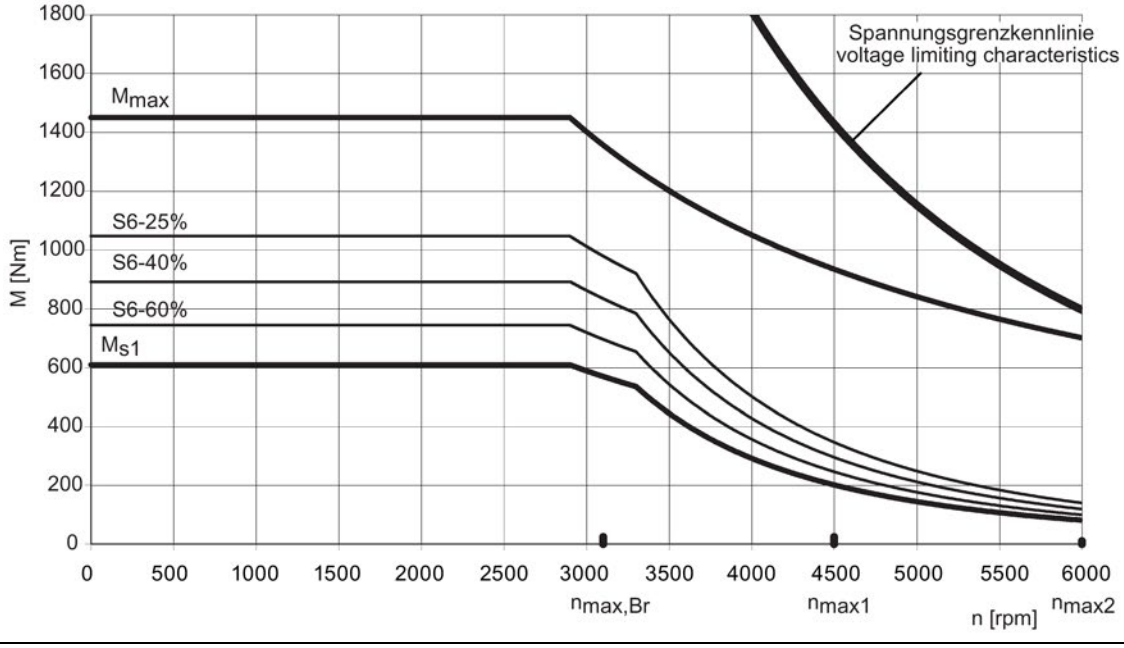
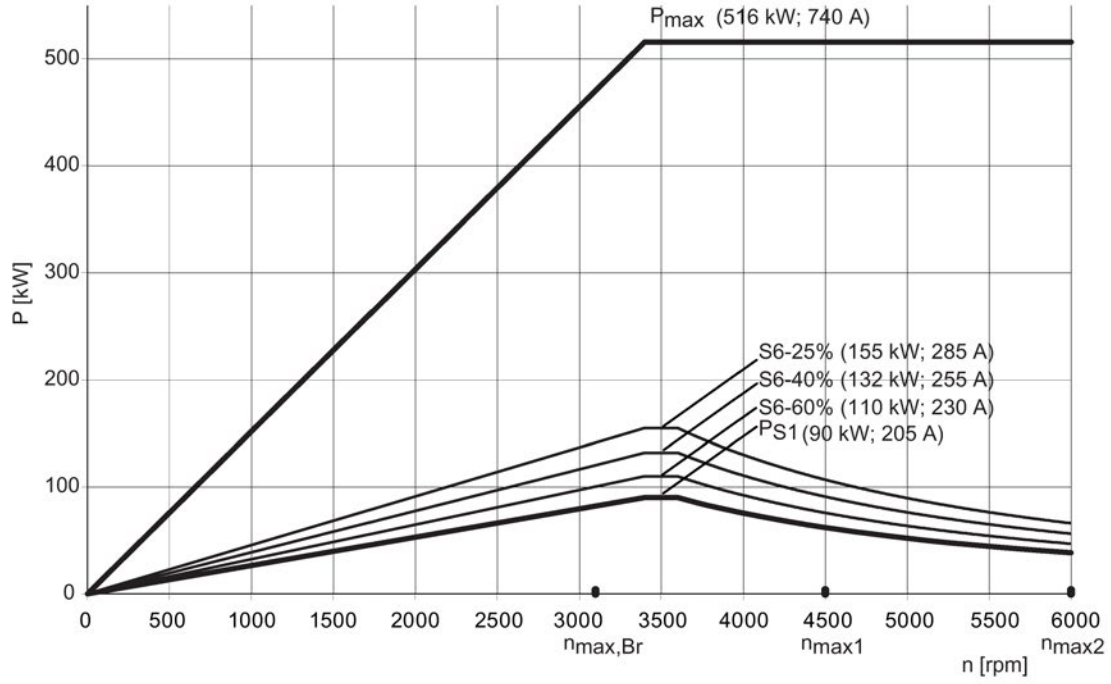
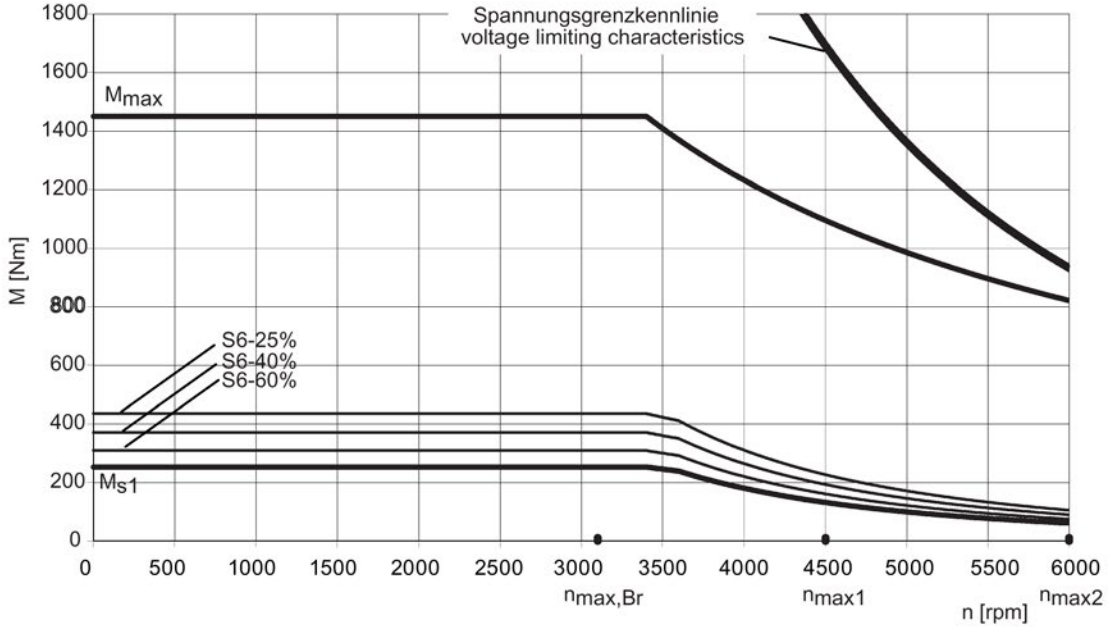


Table 6- 373 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L□□, (IP55)

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]
3,400	90	253	205	4,500	6,000	-	3,100	3,600	1,450	740	253	205

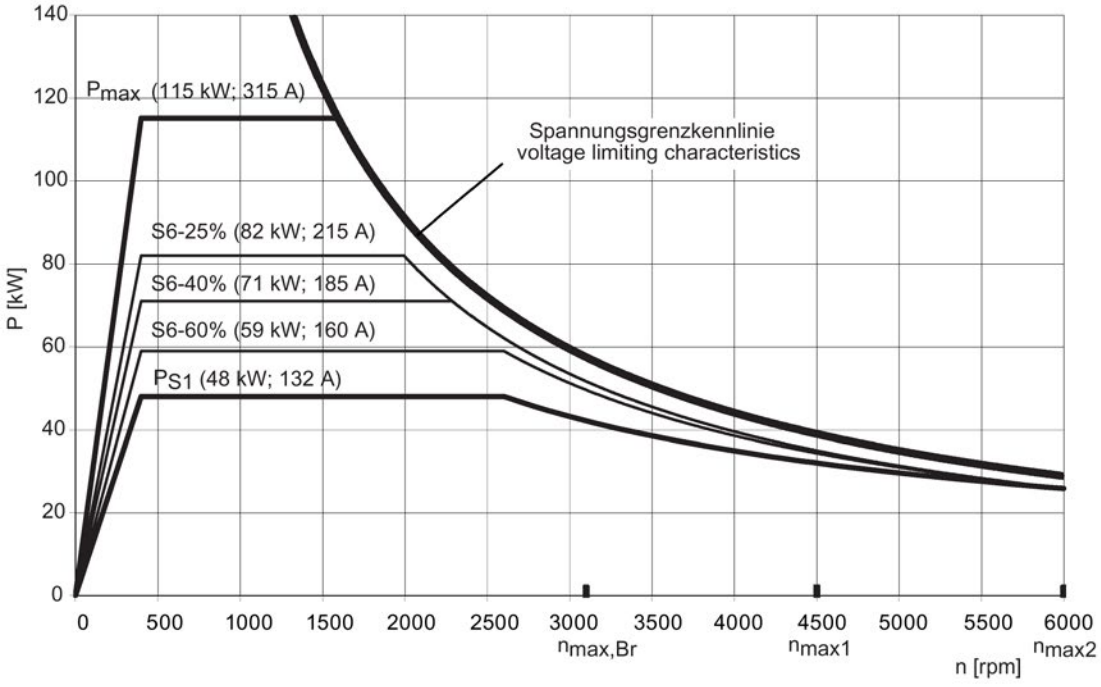




Note: In this electrical version (L winding), supplementary losses that are disproportionately high relative to the speed occur at high connection voltages (480 V 3AC), depending on the modulation depth of the converter. To comply with the permissible motor temperature, a power reduction must be considered in the configuration.

Table 6- 374 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	1,146	132	4,500	6,000	-	3,100	2,600	2,750	315	1,146	132



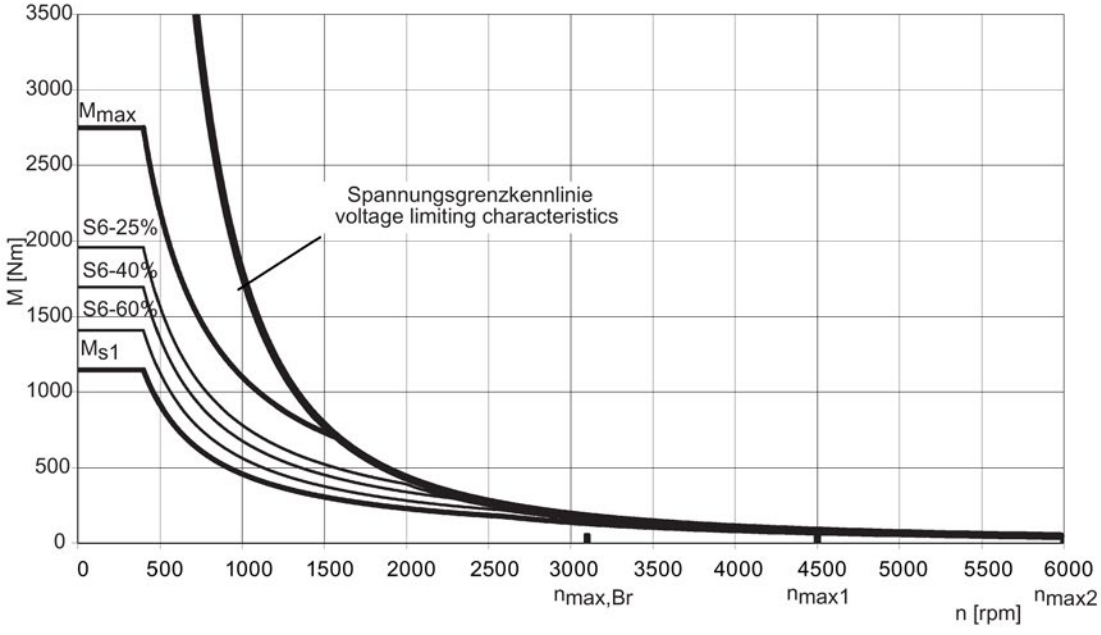
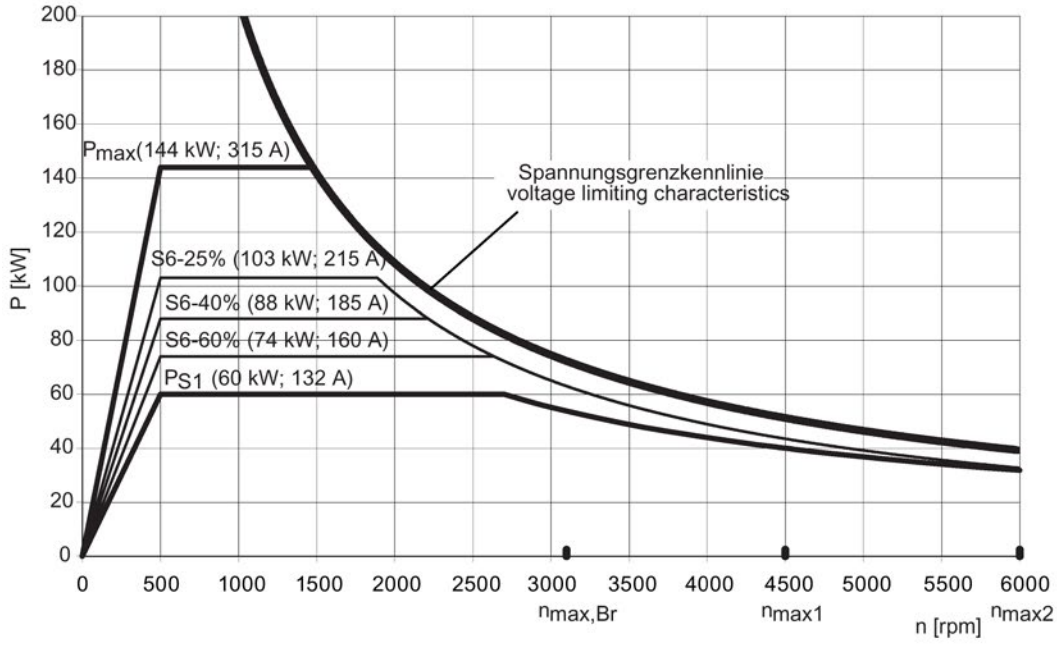


Table 6- 375 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP55)

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	1,146	132	4,500	6,000	-	3,100	2,700	2,750	315	1,146	132
400	48	1,146	132					3,600				



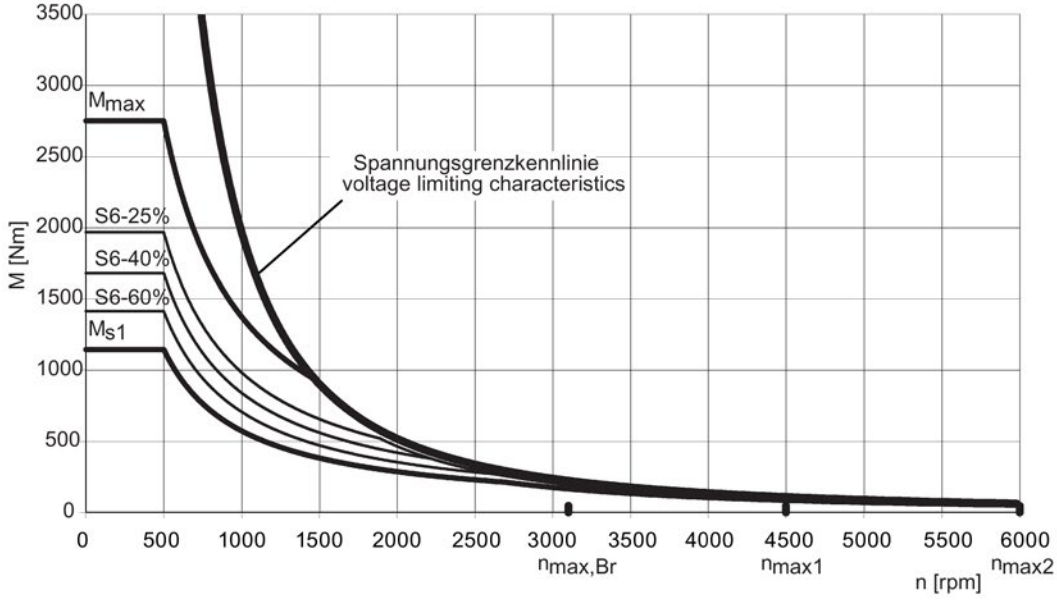
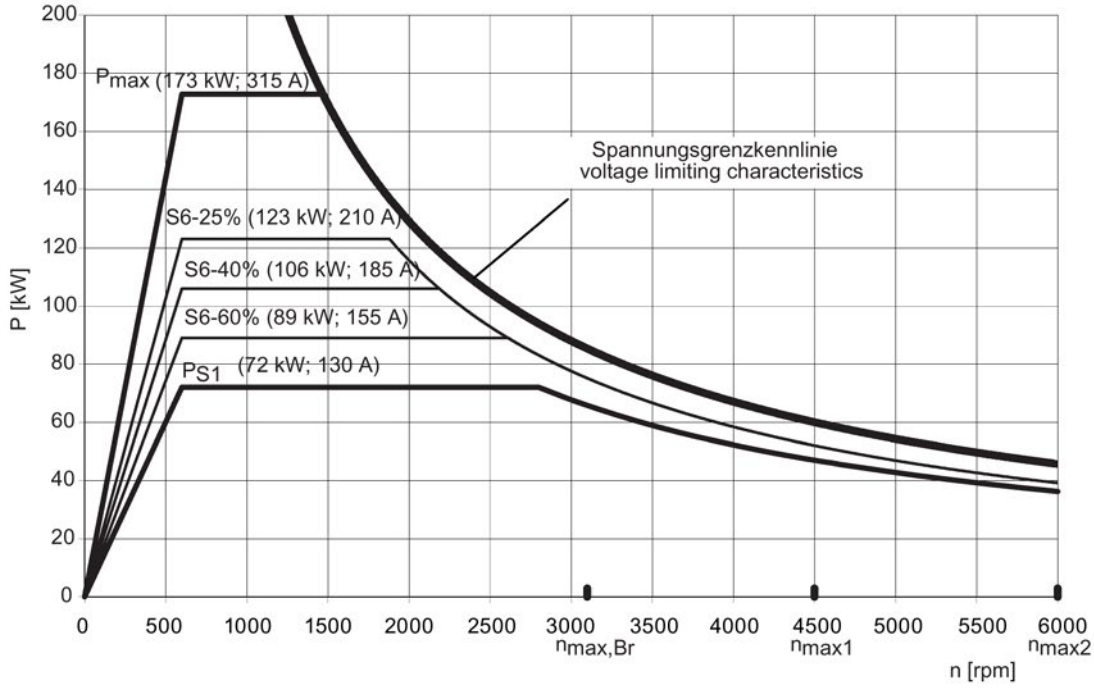


Table 6- 376 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B□□, (IP55)

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	1,146	130	4,500	6,000	-	3,100	2,800	2,750	315	1,146	130



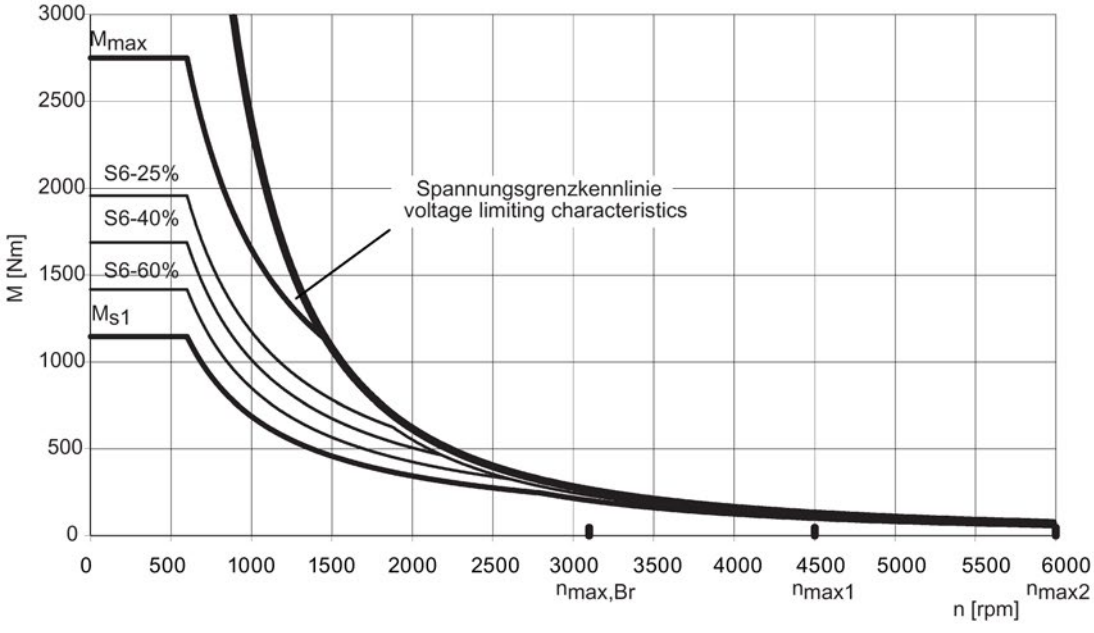
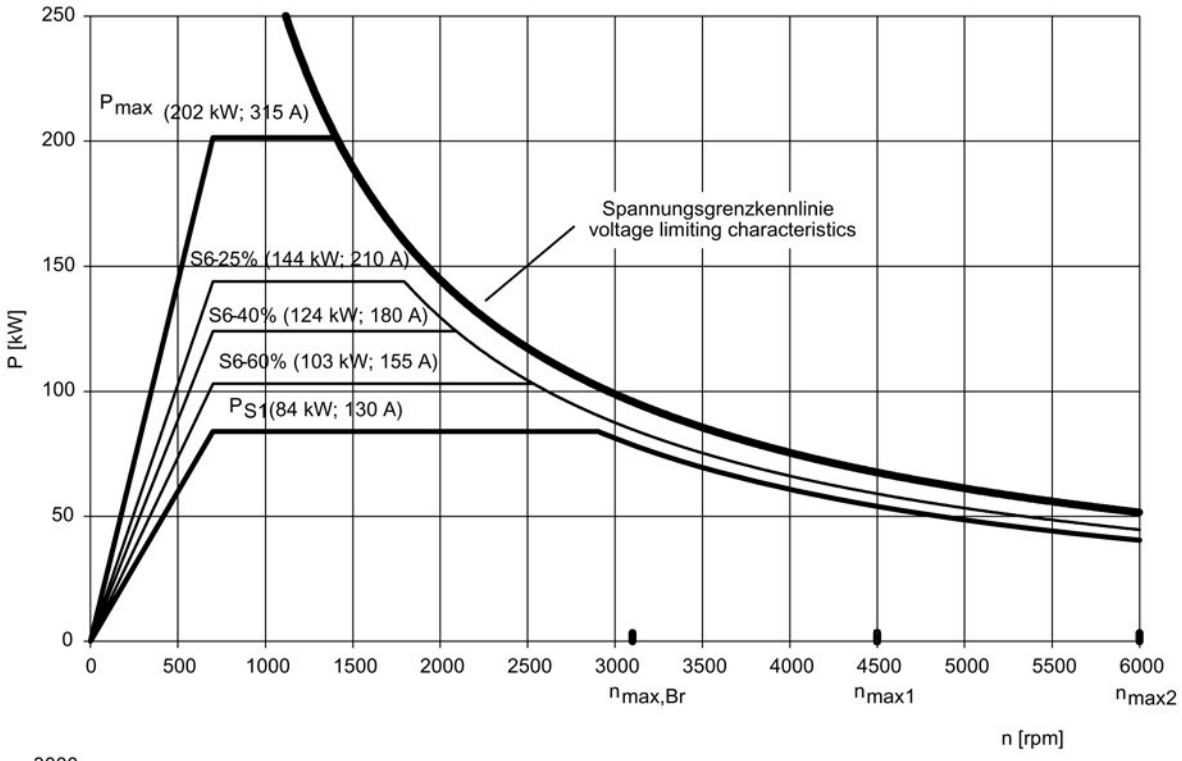


Table 6- 377 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	84	1,146	130	4,500	6,000	-	3,100	2,900	2,750	315	1,146	130



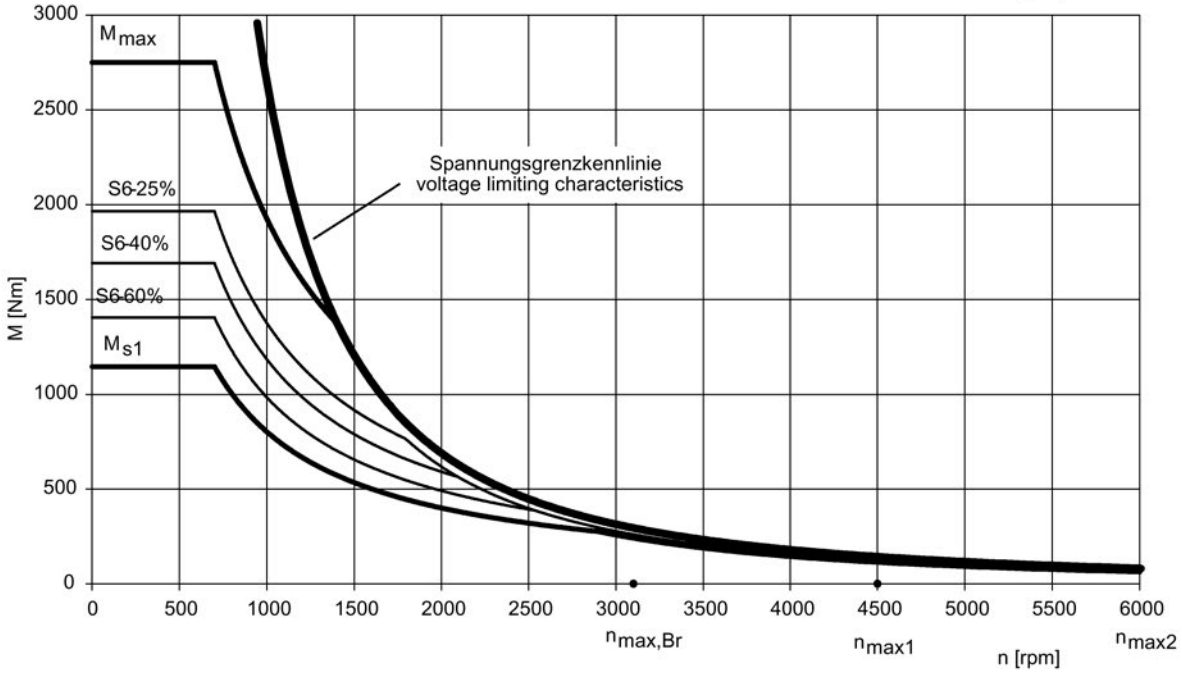
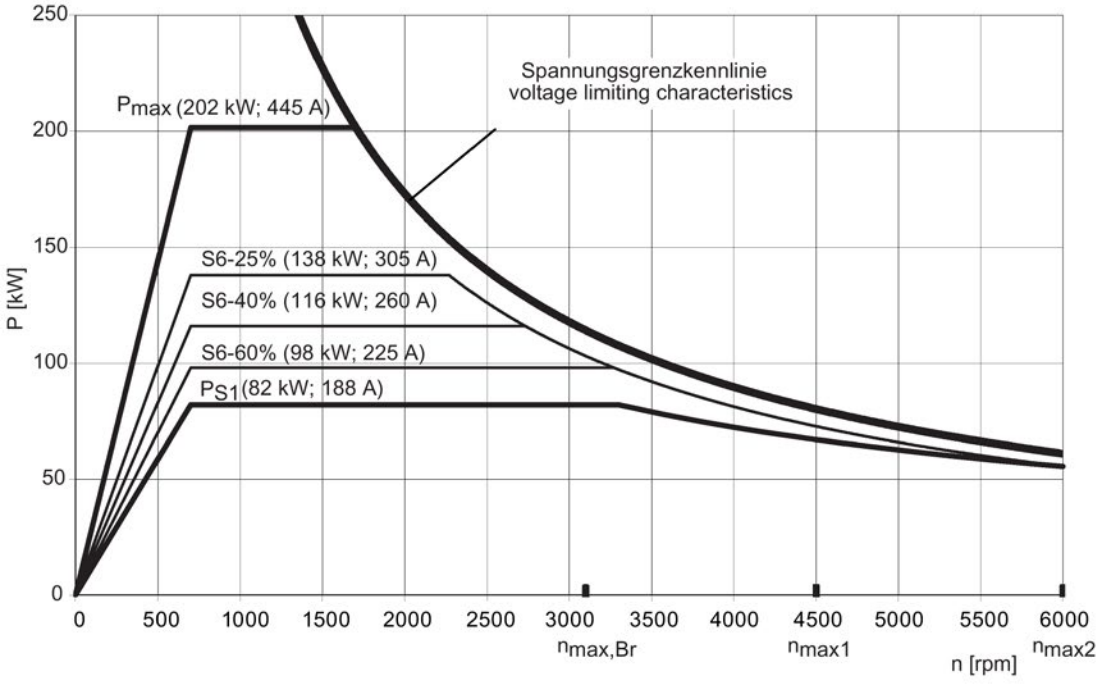


Table 6- 378 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP55)

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	1,119	188	4,500	6,000	-	3,100	3,300	2,750	445	1,119	188



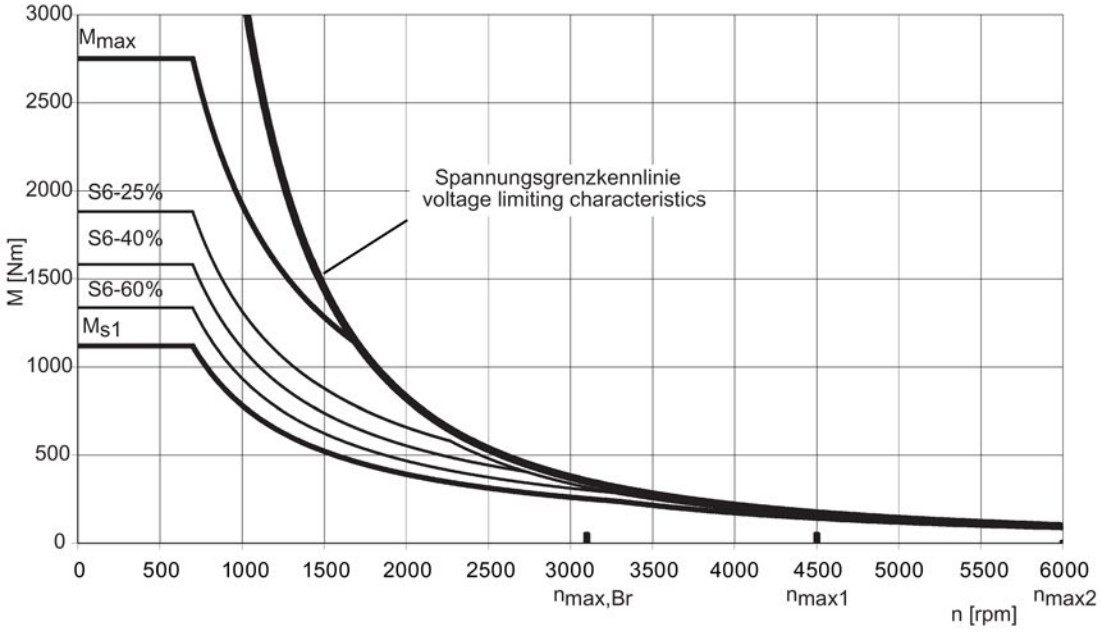
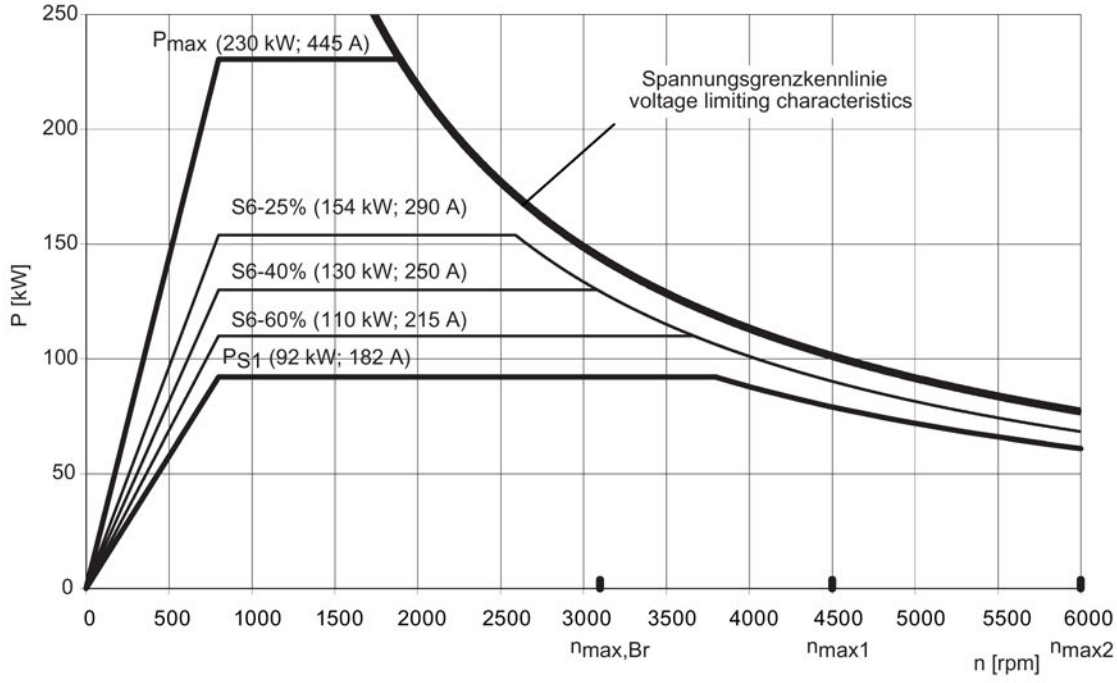


Table 6- 379 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP55)

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	1,098	182	4,500	6,000	-	3,100	3,800	2,750	445	1,098	182
700	82	1,119	188					4,300				



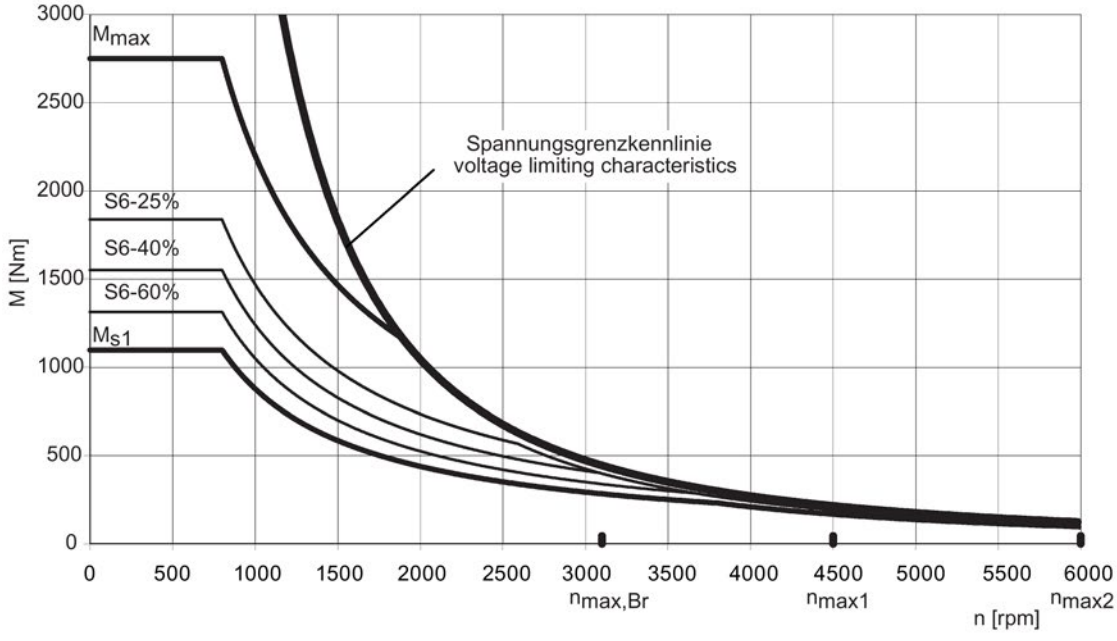
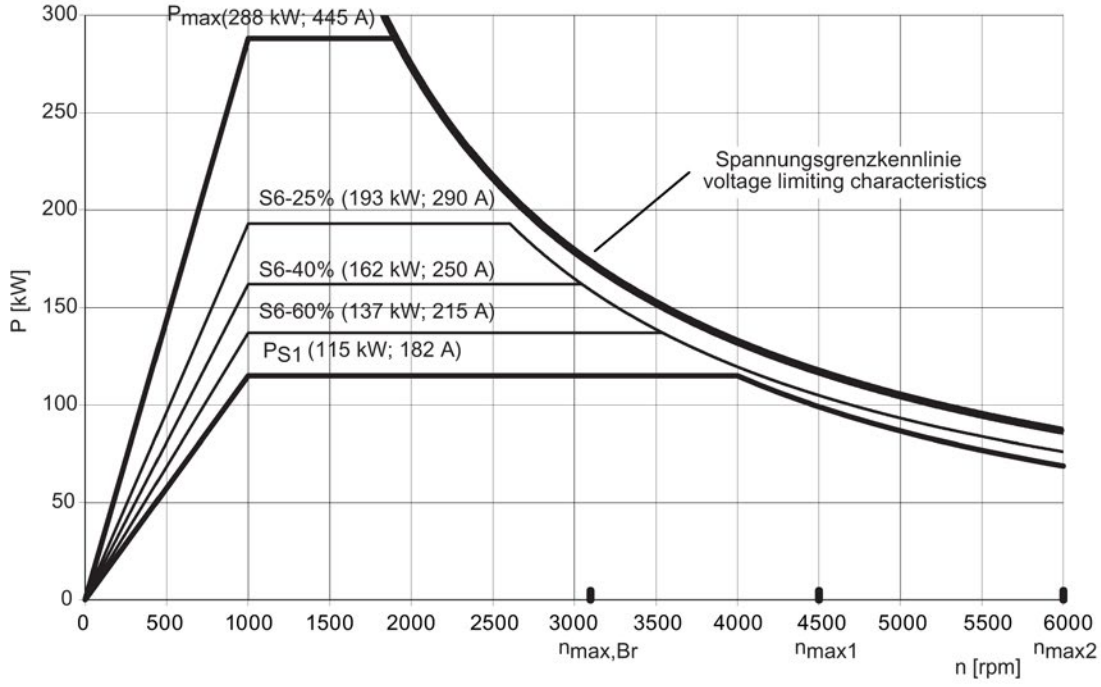


Table 6- 380 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP55)

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]
1,000	115	1,098	182	4,500	6,000	-	3,100	4,000	2,750	445	1,098	182



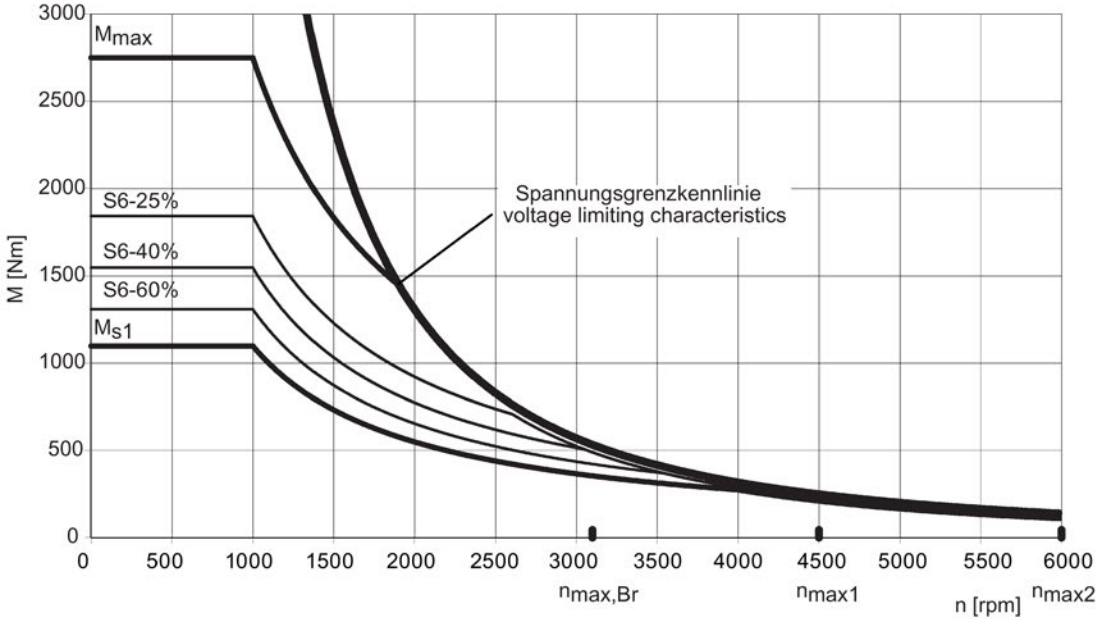
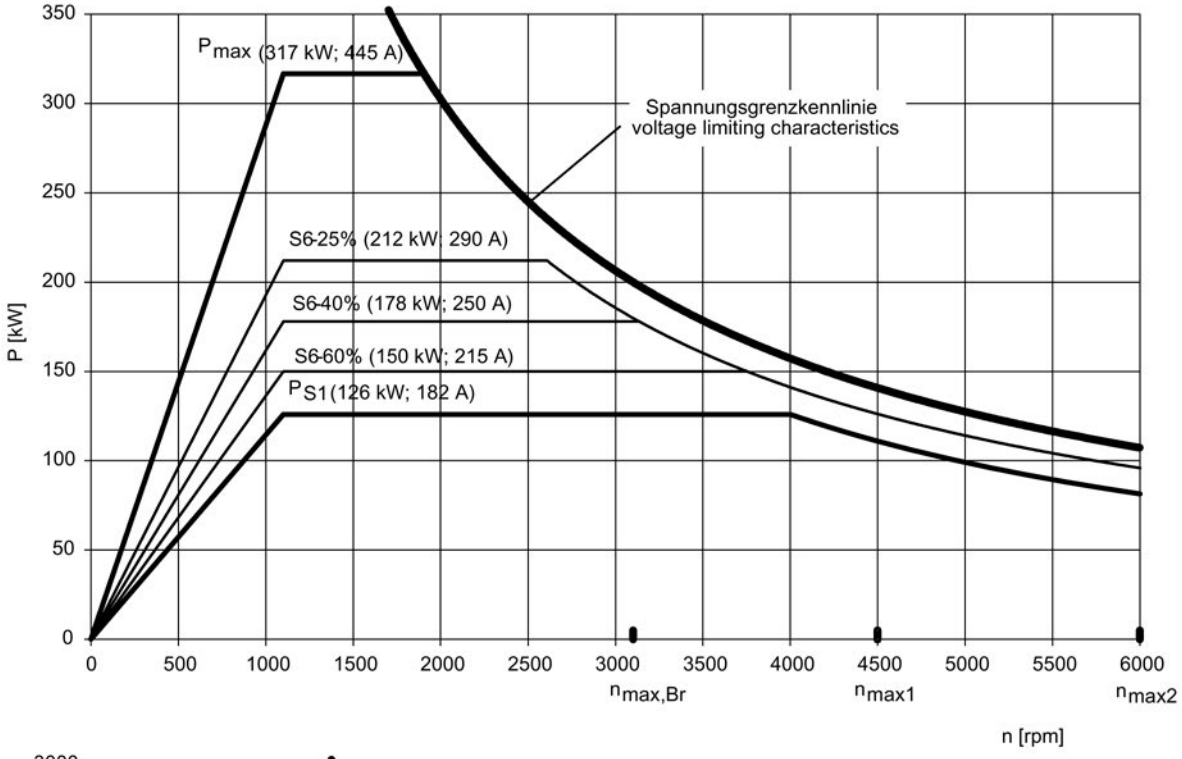


Table 6- 381 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	126	1,094	182	4,500	6,000	-	3,100	4,000	2,750	445	1,119	182



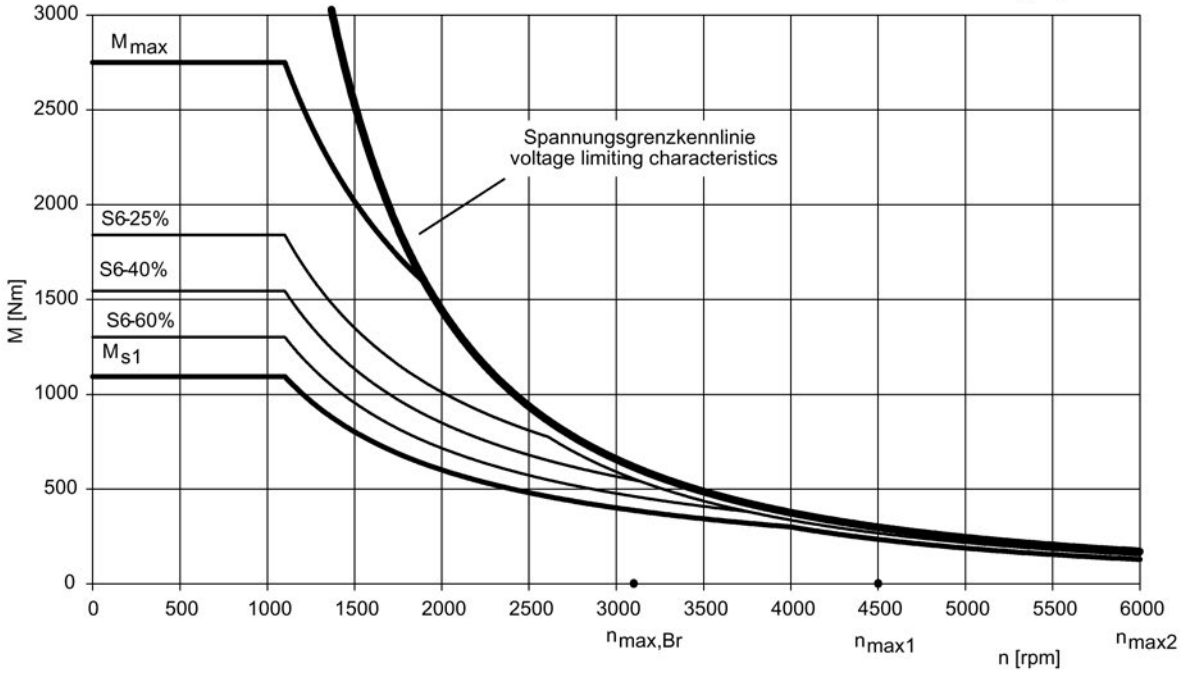
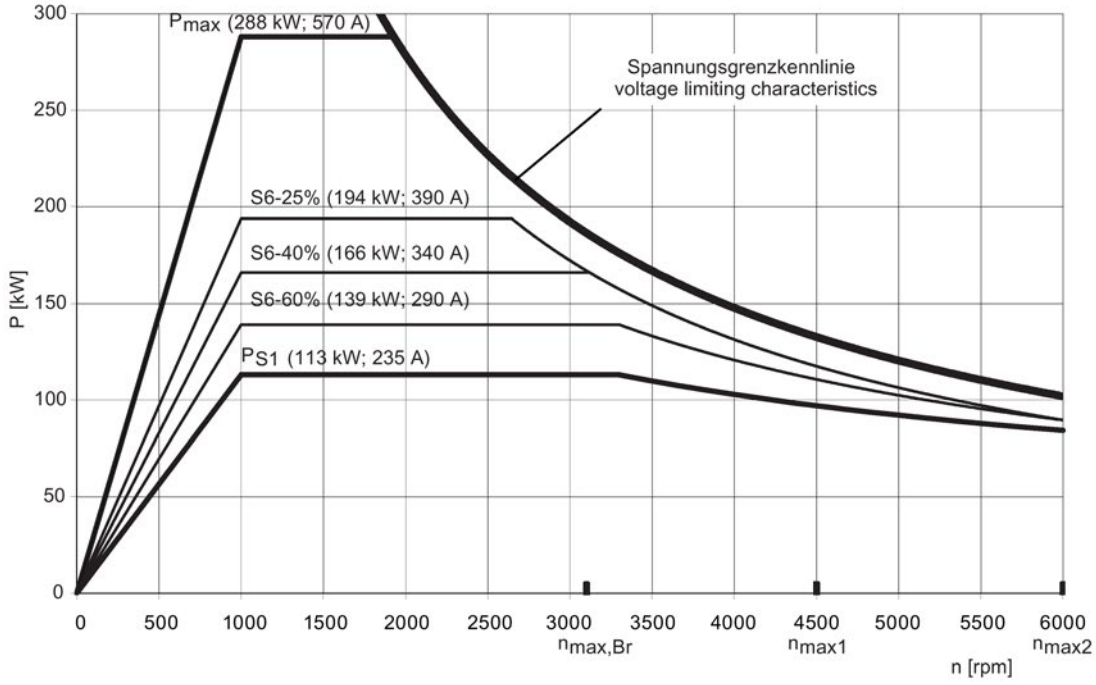


Table 6- 382 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP55)

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]
1,000	113	1,079	235	4,500	6,000	-	3,100	3,300	2,750	570	1,079	235



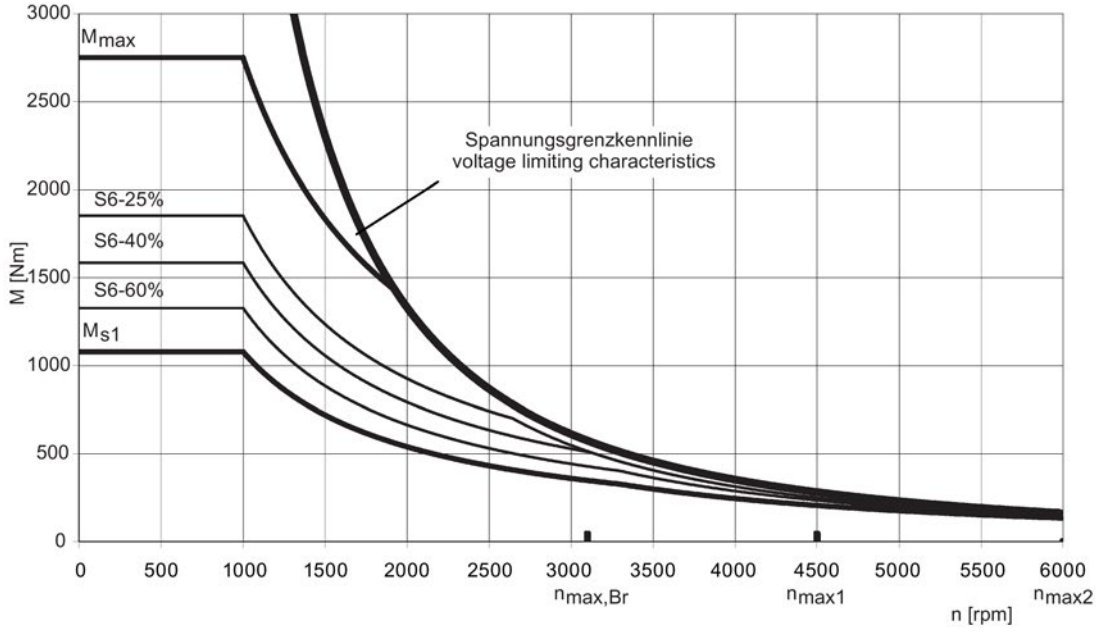
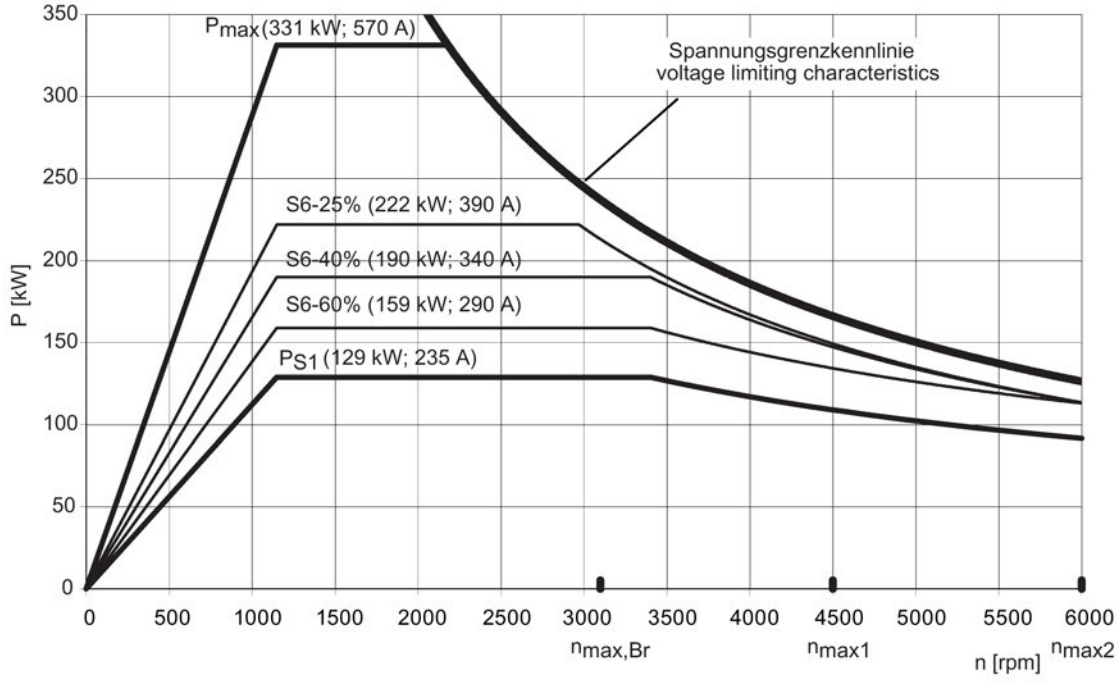


Table 6- 383 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP55)

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]
1,150	129	1,071	235	4,500	6,000	-	3,100	3,400	2,750	570	1,071	235
1,000	113	1,079	235					4,200				



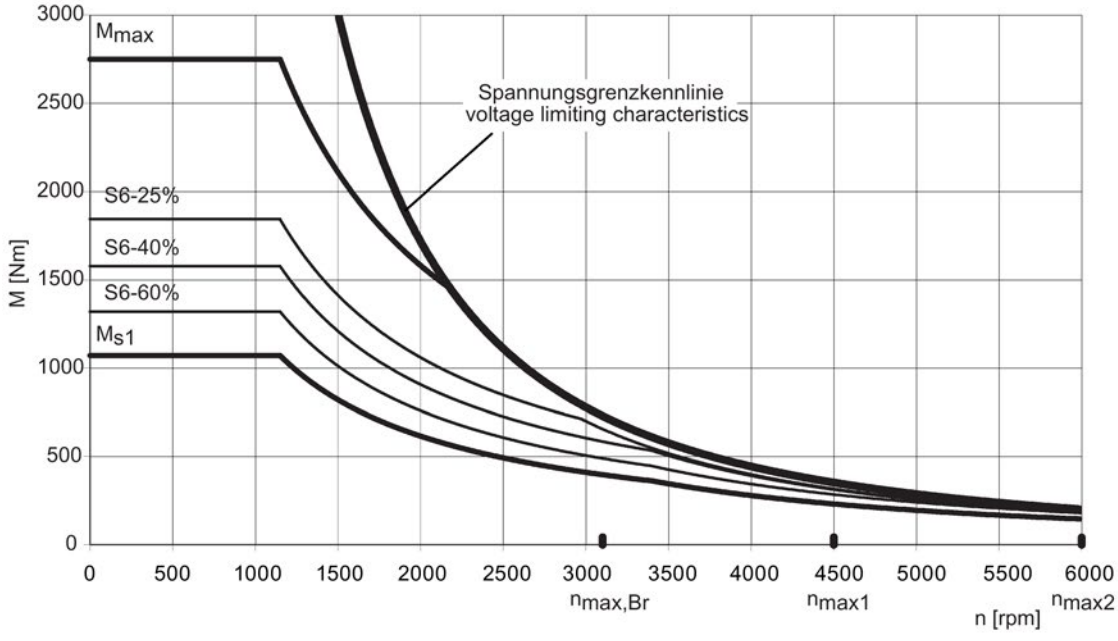
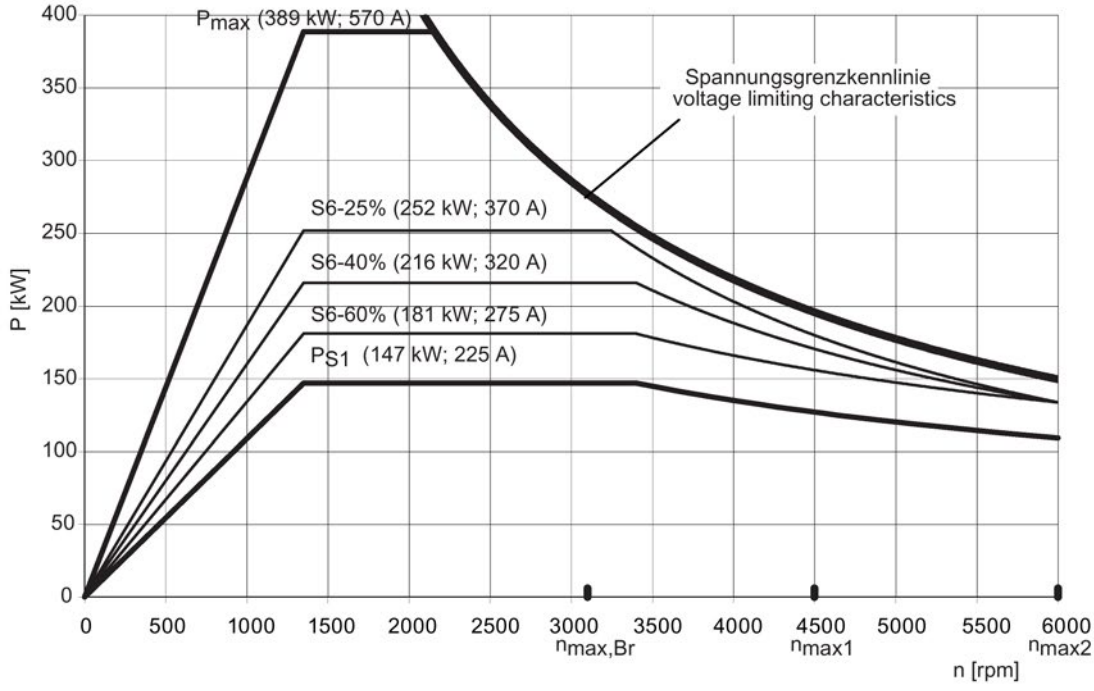


Table 6- 384 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP55)

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]
1,350	147	1,040	225	4,500	6,000	-	3,100	3,400	2,750	570	1,040	225



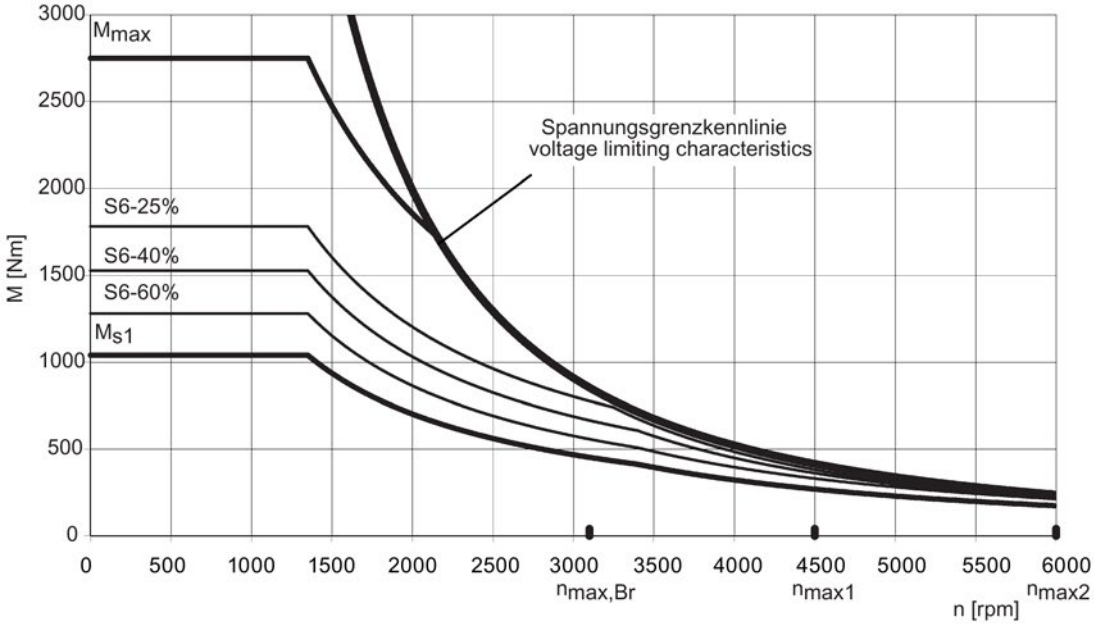
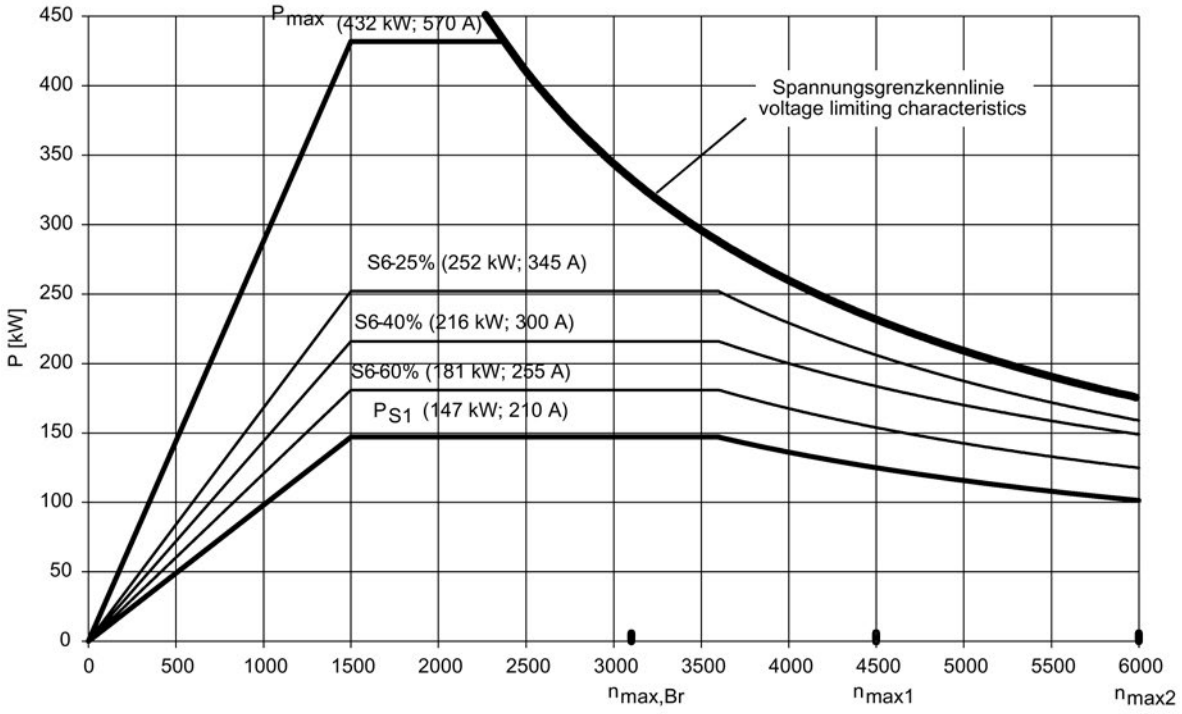


Table 6- 385 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	147	936	210	4,500	6,000	-	3,100	3,600	2,750	570	1,079	210



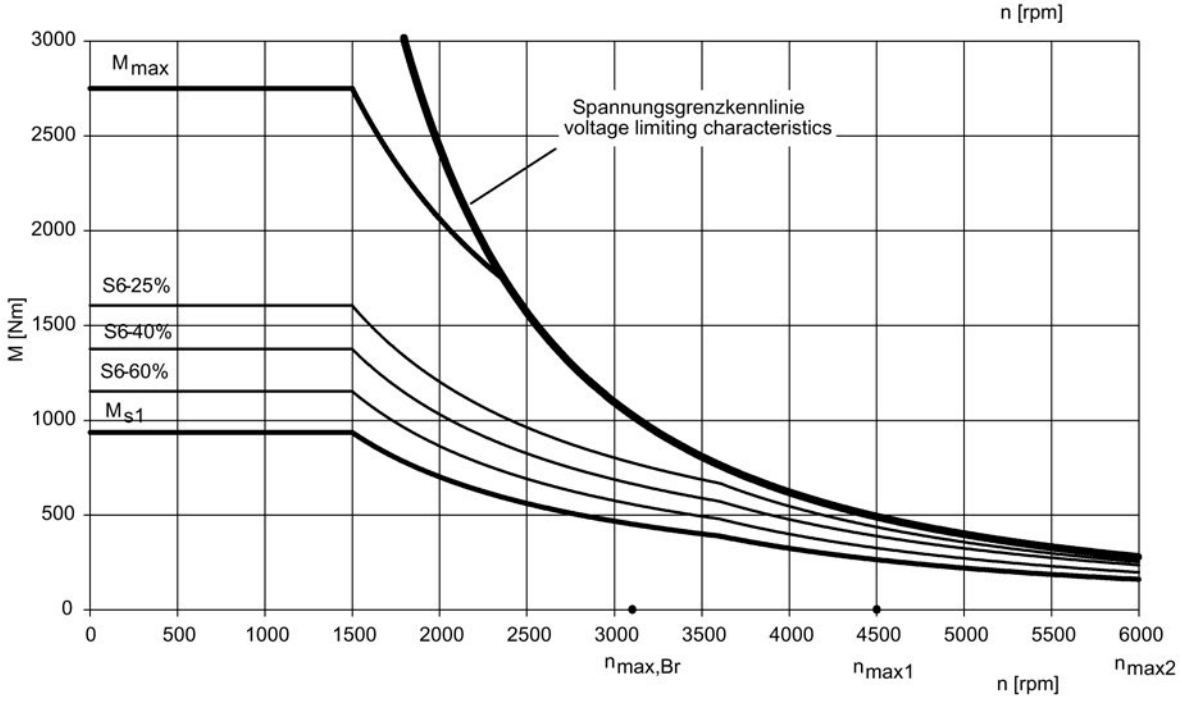
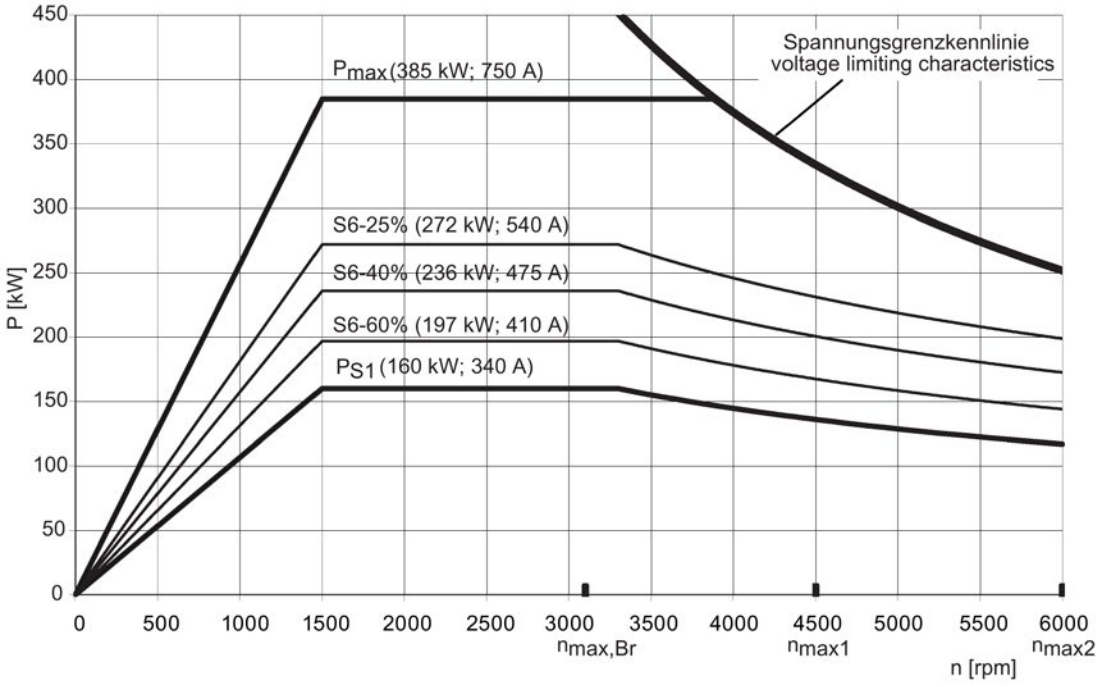


Table 6- 386 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP55)

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]
1,500	160	1,019	340	4,500	6,000	-	3,100	3,300	2,450	750	1,019	340



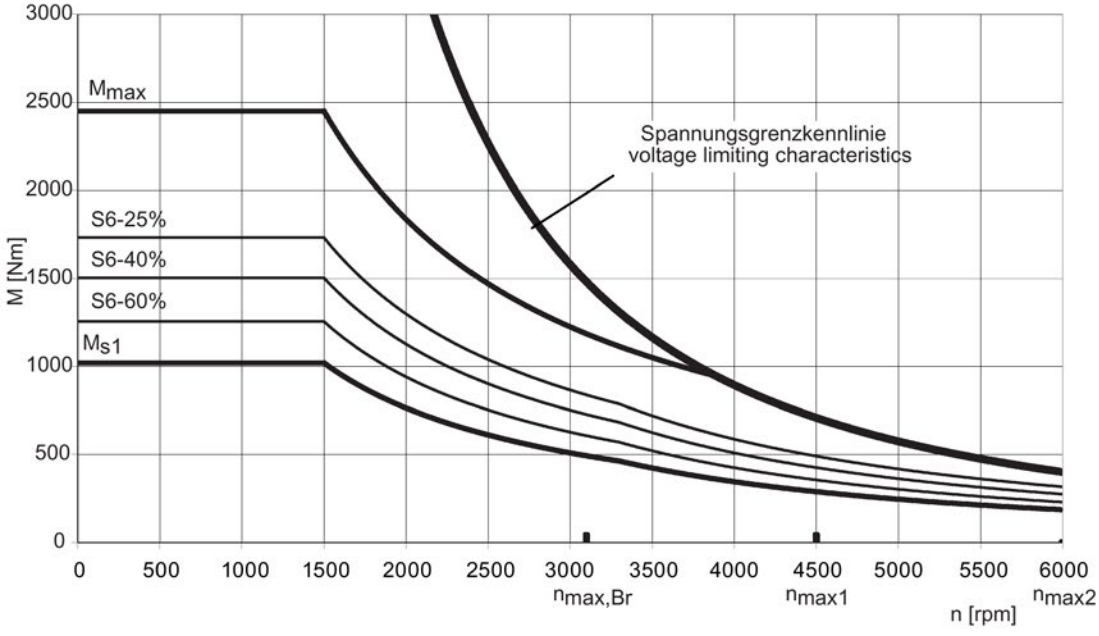
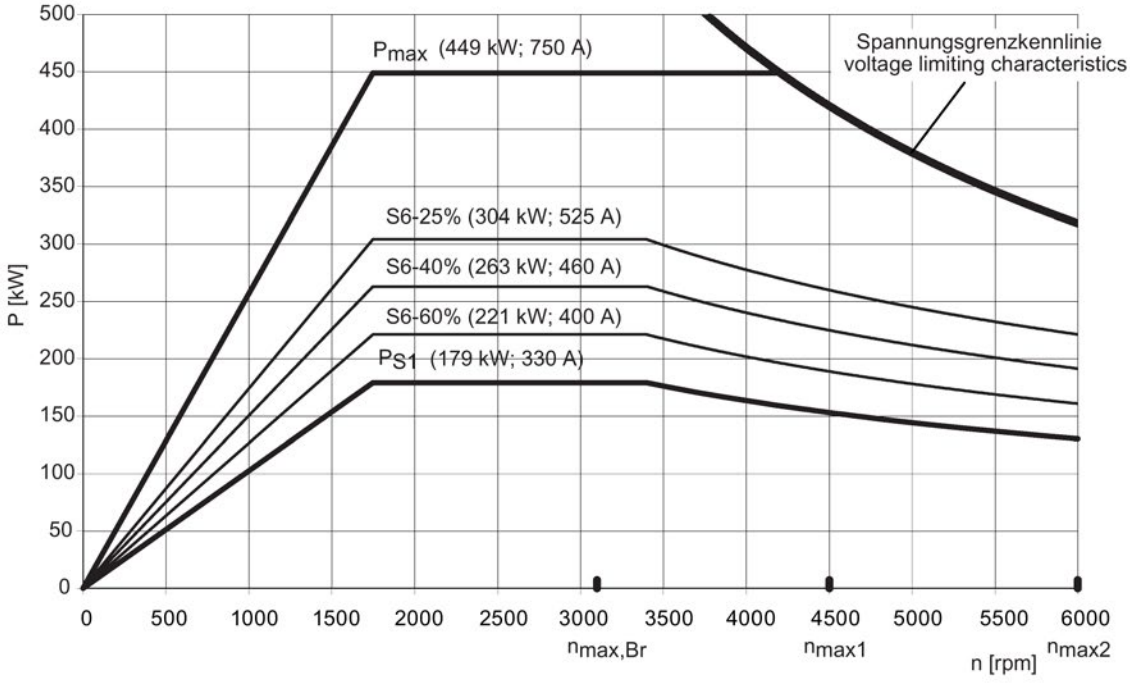


Table 6- 387 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP55)

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]
1,750	179	977	330	4,500	6,000	-	3,100	3,400	2,450	750	977	330
1,500	160	1,019	340					4,200				



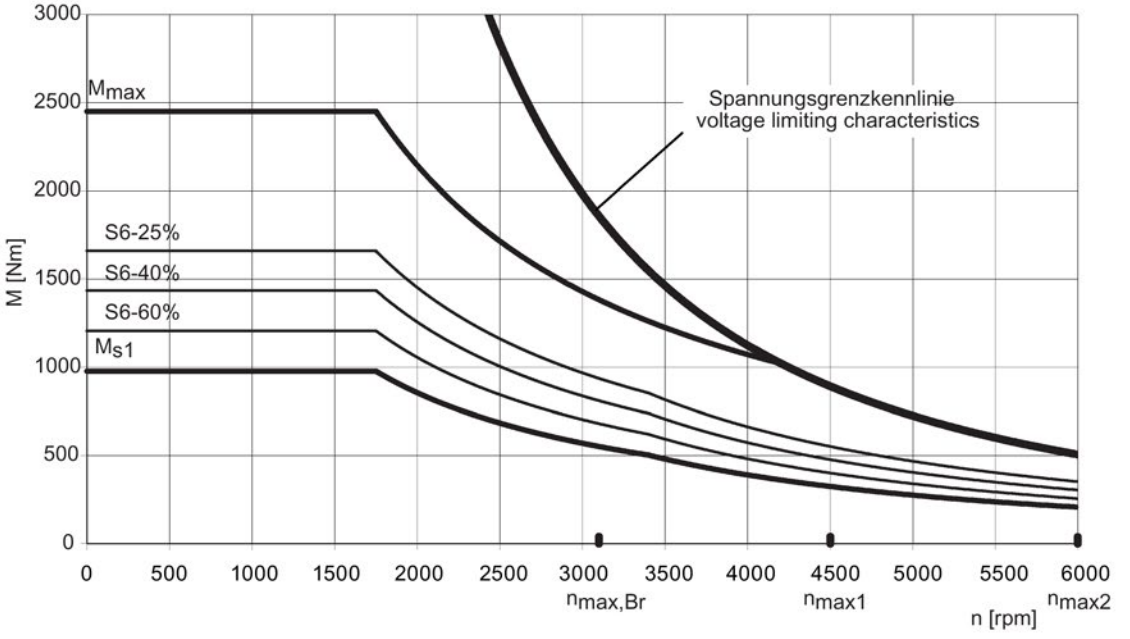
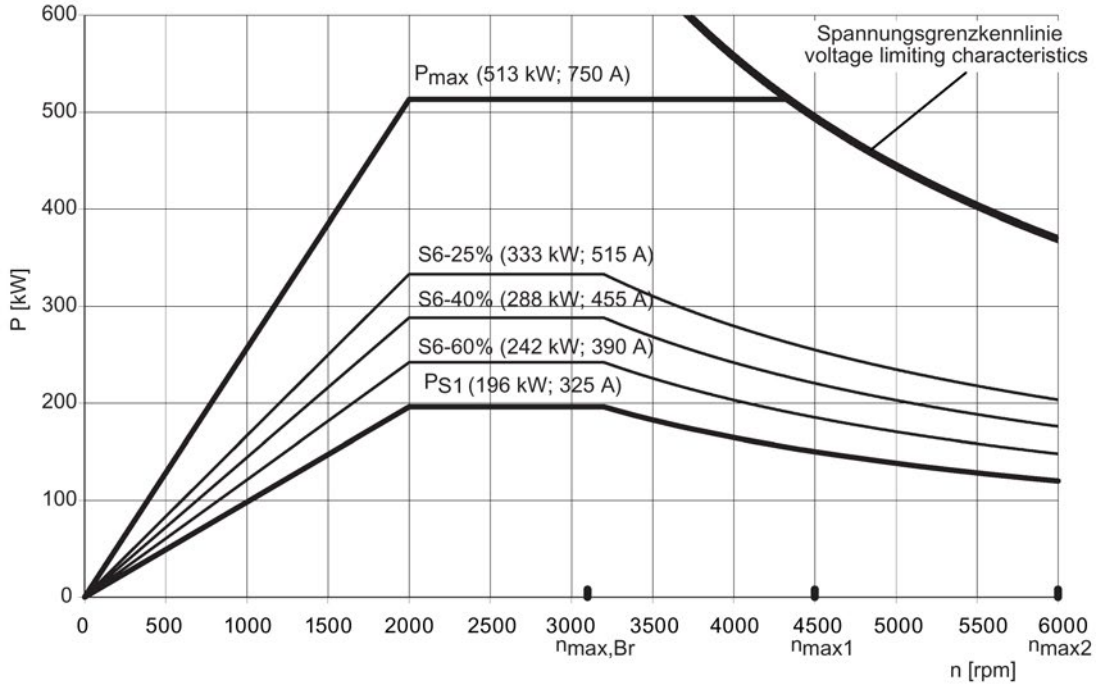


Table 6- 388 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP55)

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]
2,000	196	936	325	4,500	6,000	-	3,100	3,200	2,450	750	936	325



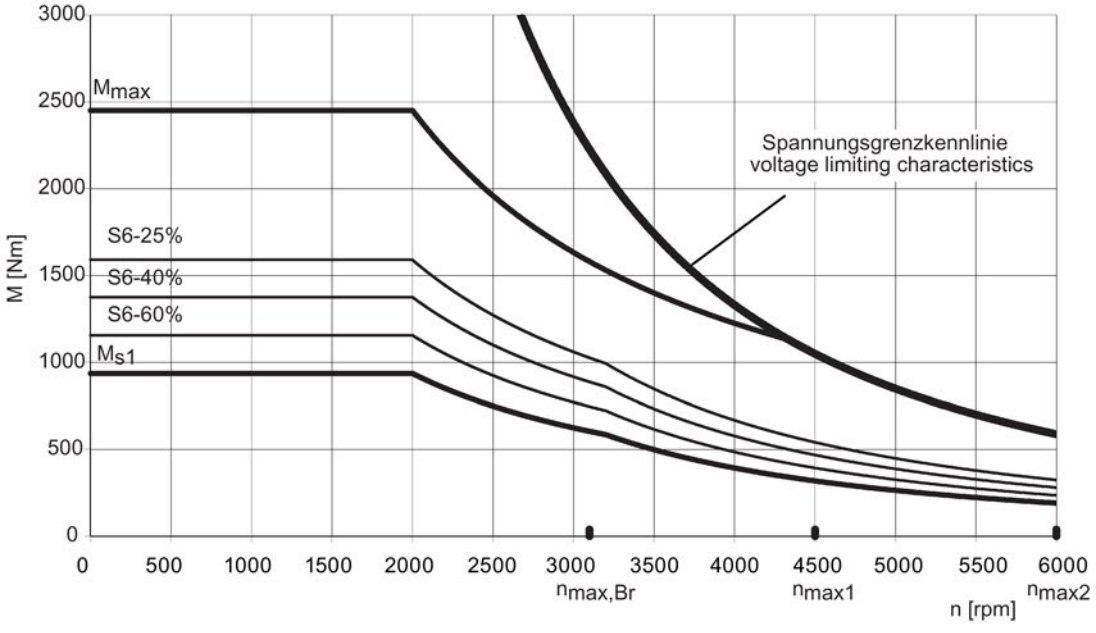
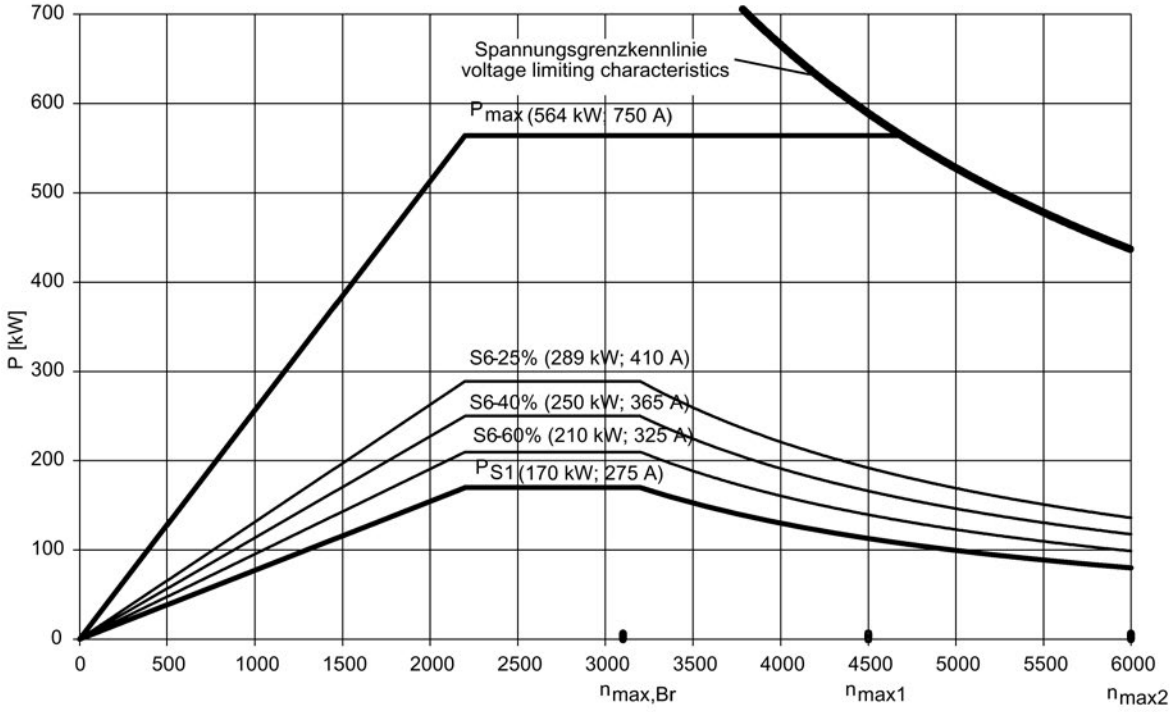


Table 6- 389 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	170	738	275	4,500	6,000	-	3,100	3,200	2,450	750	1,019	275



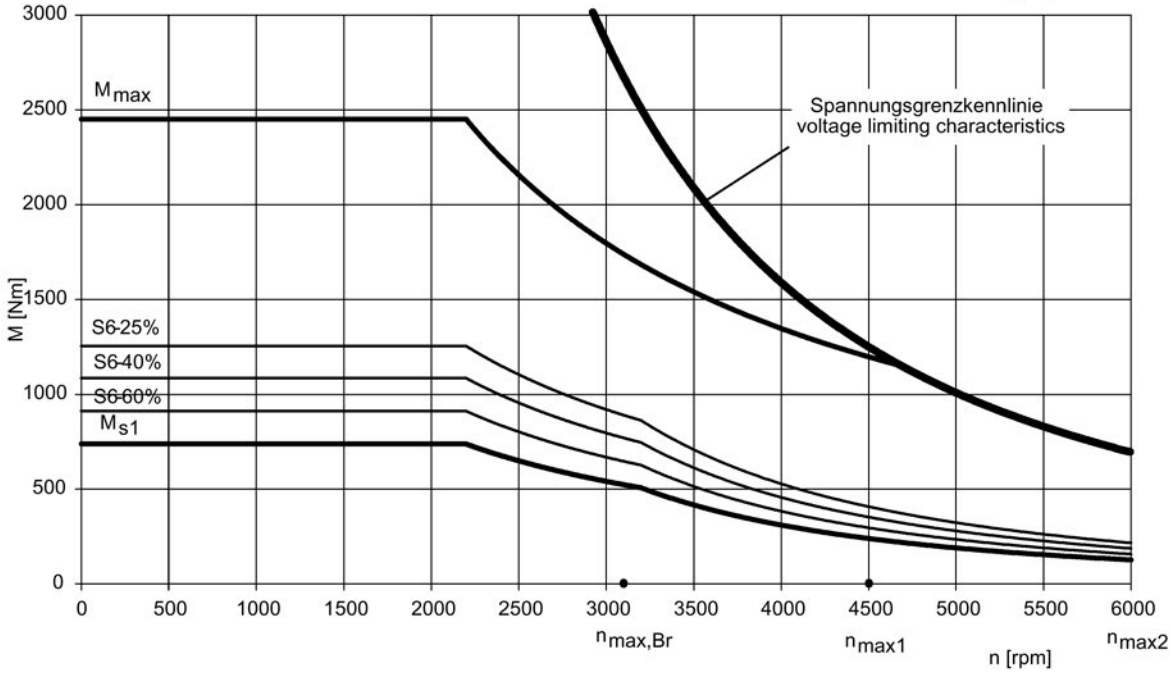
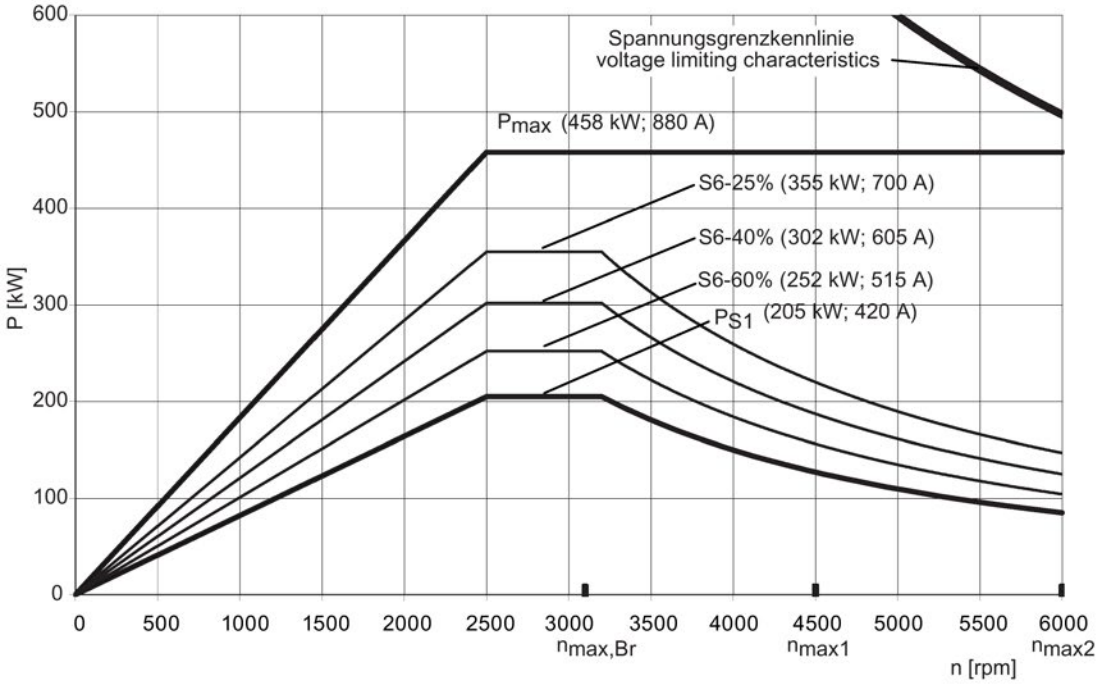


Table 6- 390 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L□□, (IP55)

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]
2,500	205	783	420	4,500	6,000	-	3,100	3,200	1,750	880	783	420



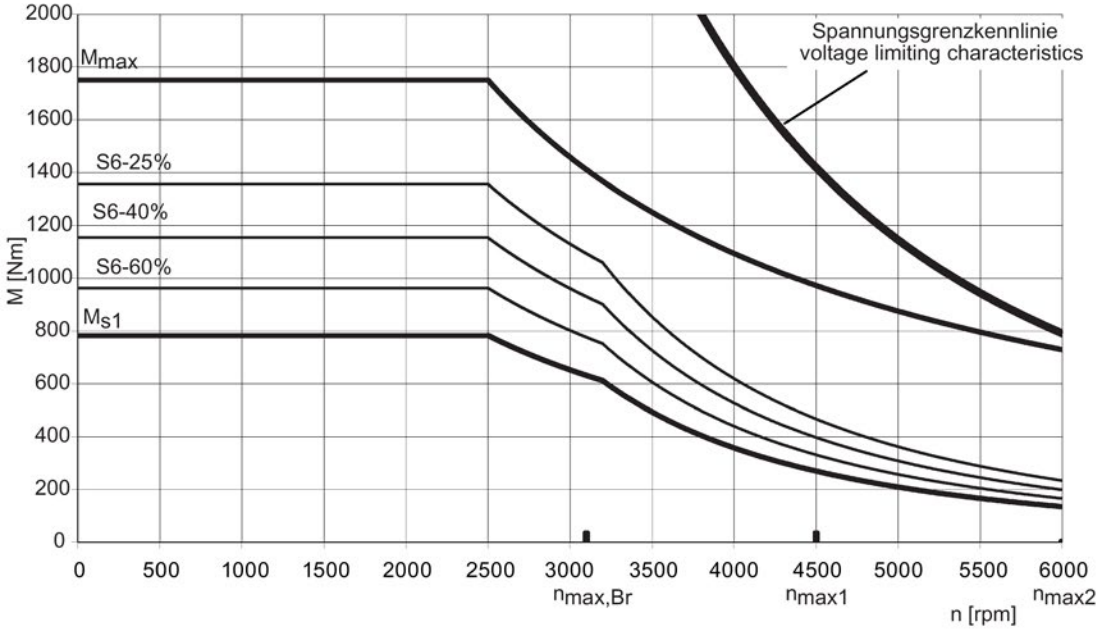
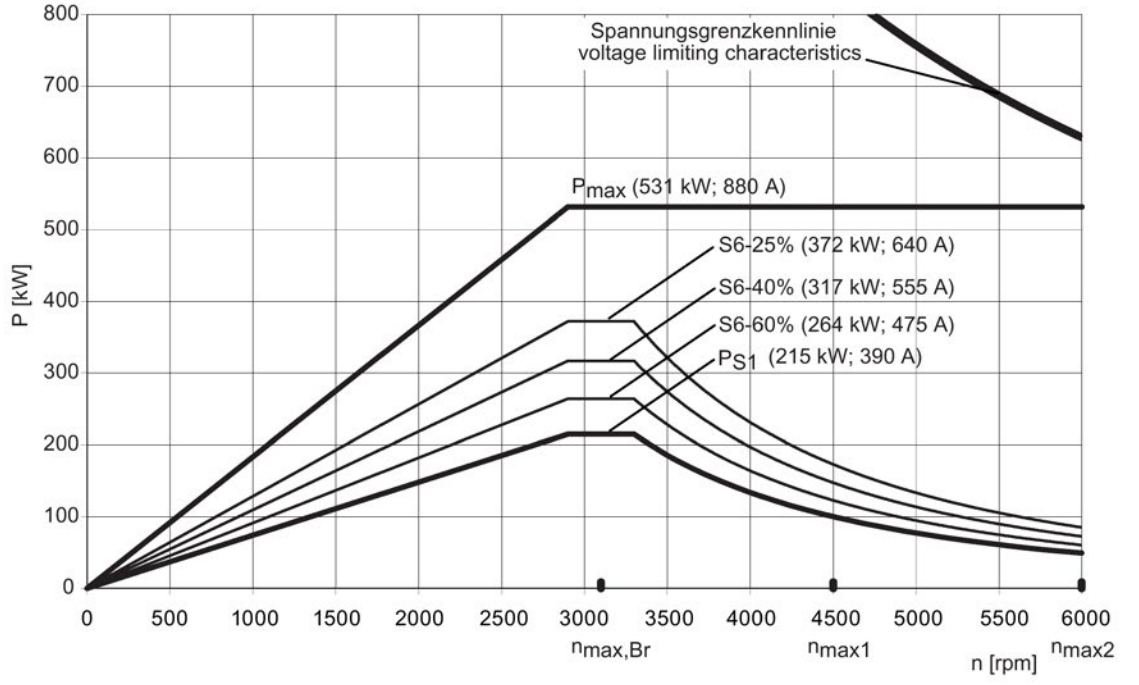


Table 6- 391 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L□□, (IP55)

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]
2,900	215	708	390	4,500	6,000	-	3,100	3,300	1,750	880	708	390
2,500	205	783	420					3,400				



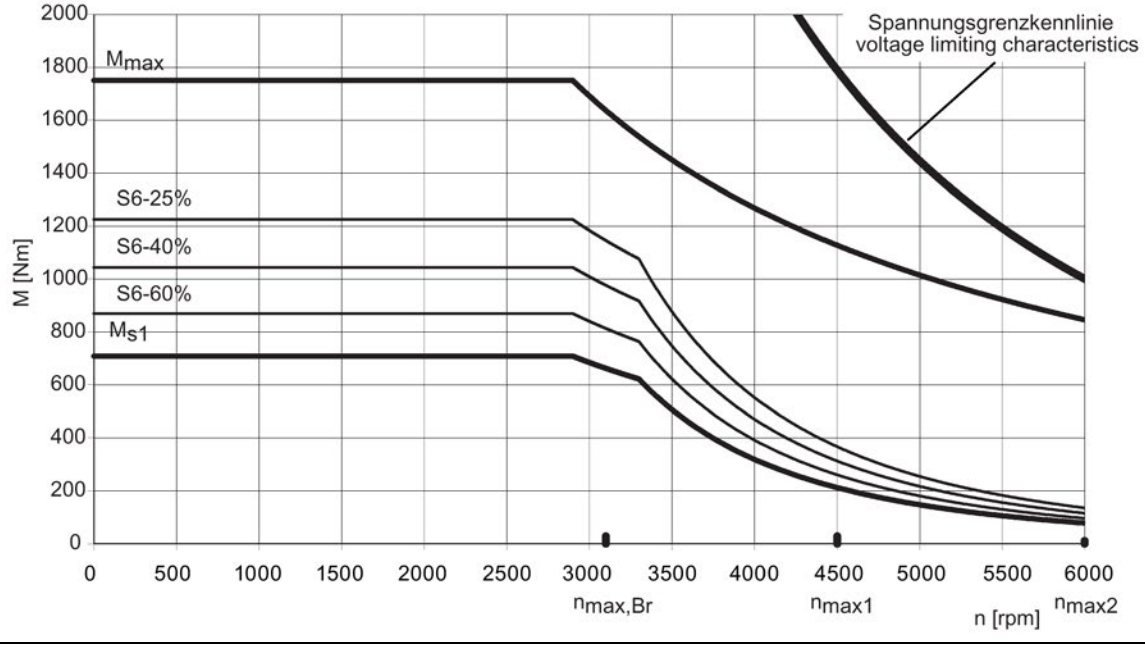
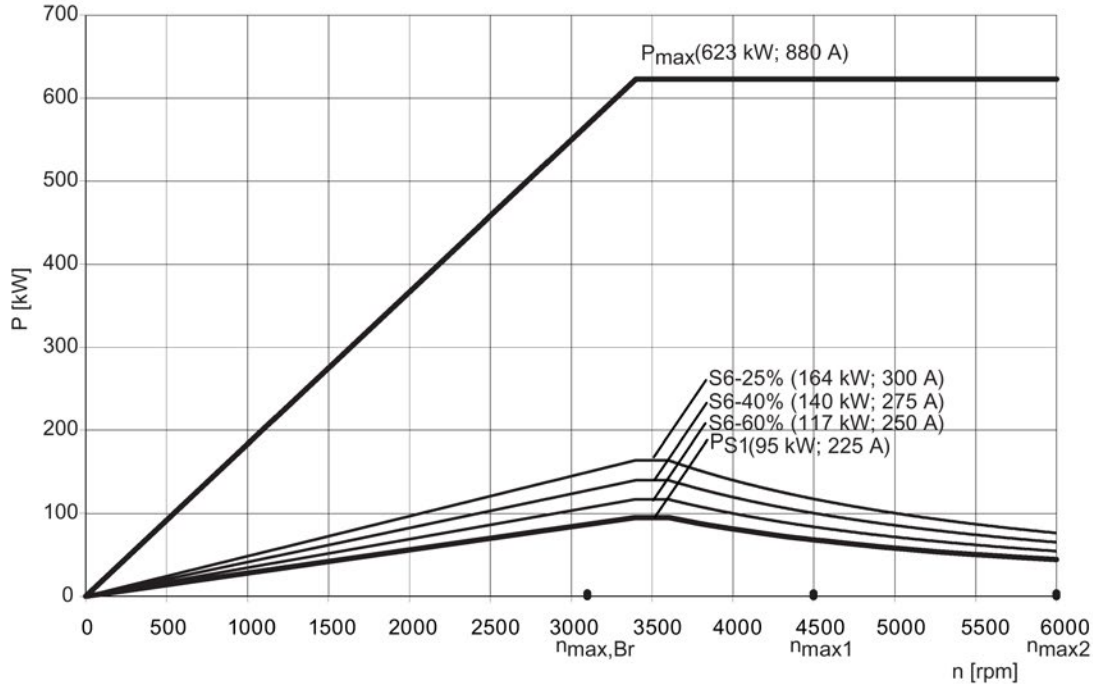
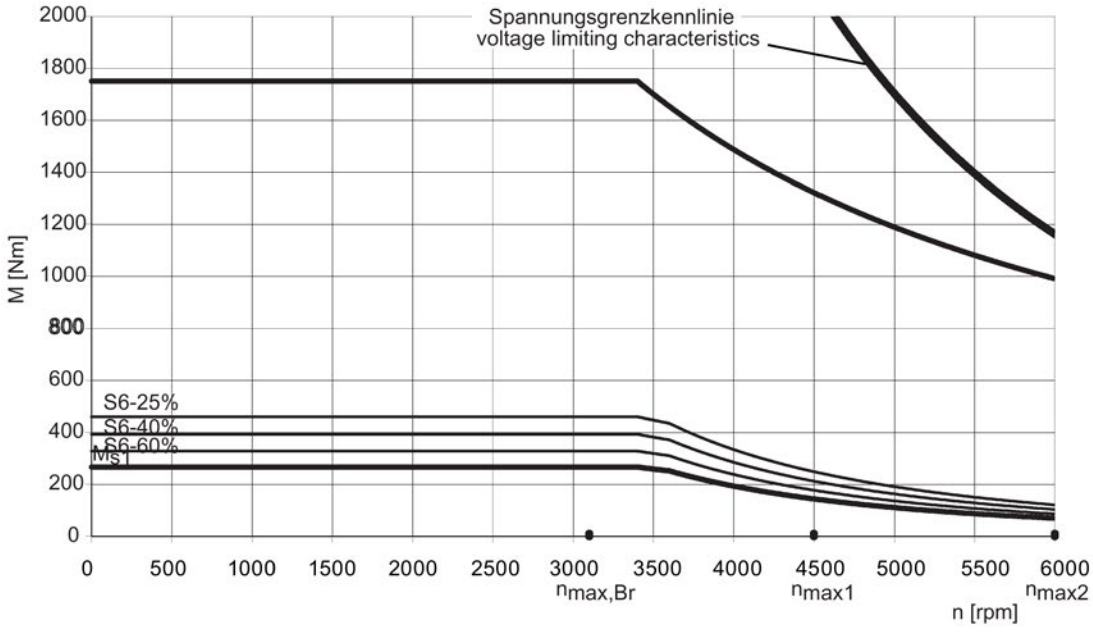


Table 6- 392 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L□□, (IP55)

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]
3,400	95	267	225	4,500	6,000	-	3,100	3,600	1,750	880	267	225



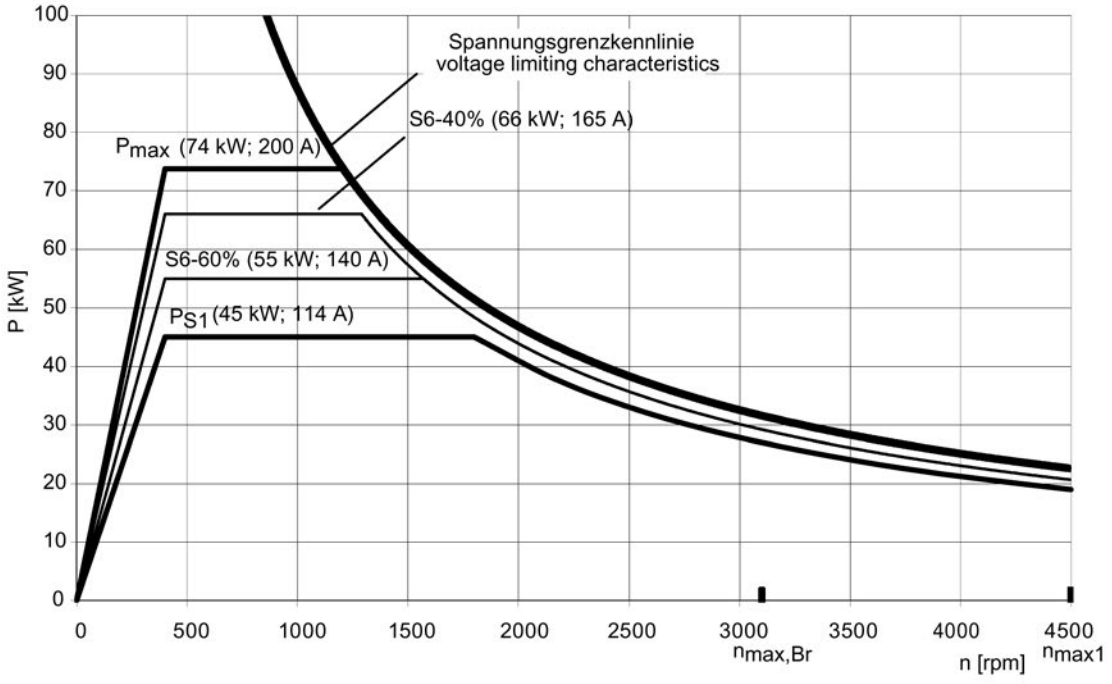


Note: In this electrical version (L winding), supplementary losses that are disproportionately high relative to the speed occur at high connection voltages (480 V 3AC), depending on the modulation depth of the converter. To comply with the permissible motor temperature, a power reduction must be considered in the configuration.

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

Table 6- 393 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	1,074	114	4,500	-	-	3,100	1,800	1,760	200	1,074	114



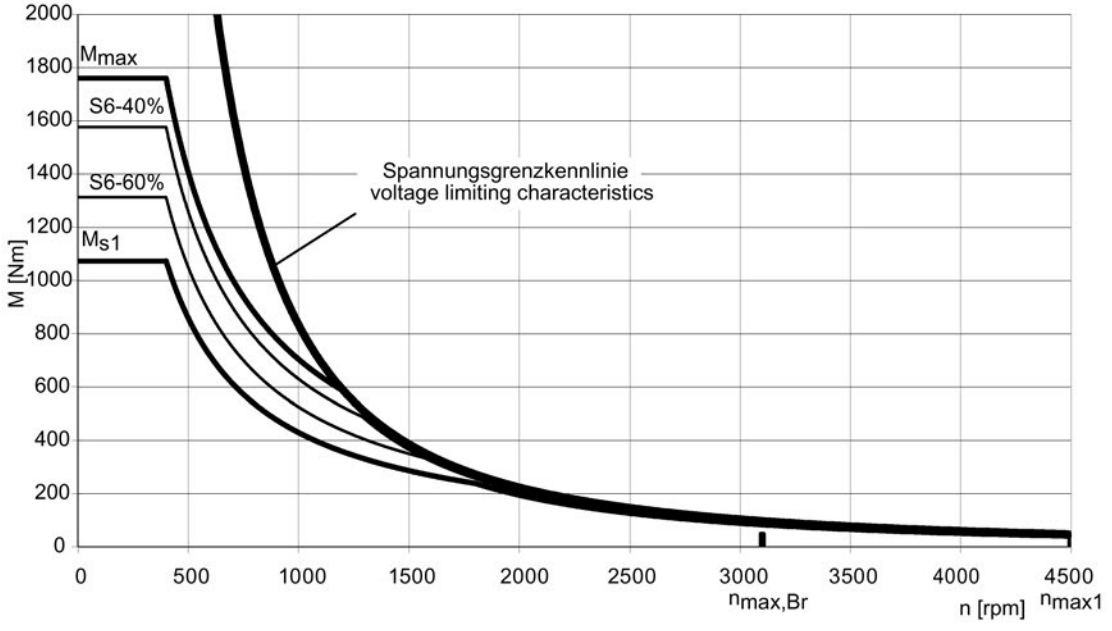
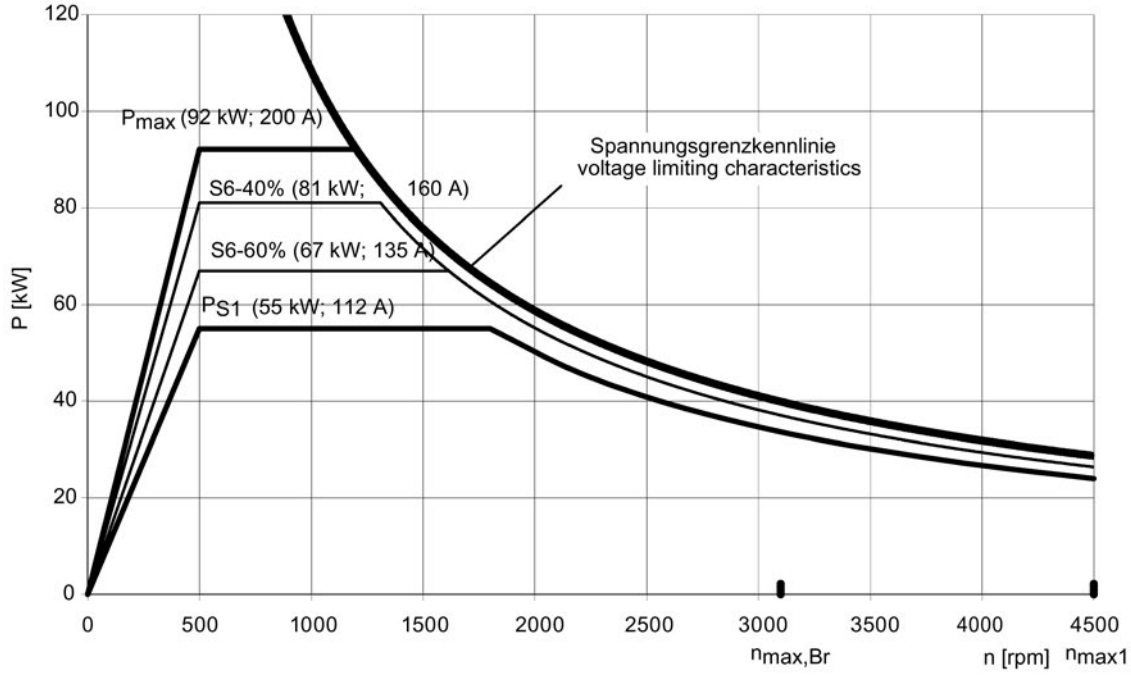


Table 6- 394 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP23)

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	1,051	112	4,500	-	-	3,100	1,800	1,760	200	1,051	112
400	45	1,074	114					2,200				



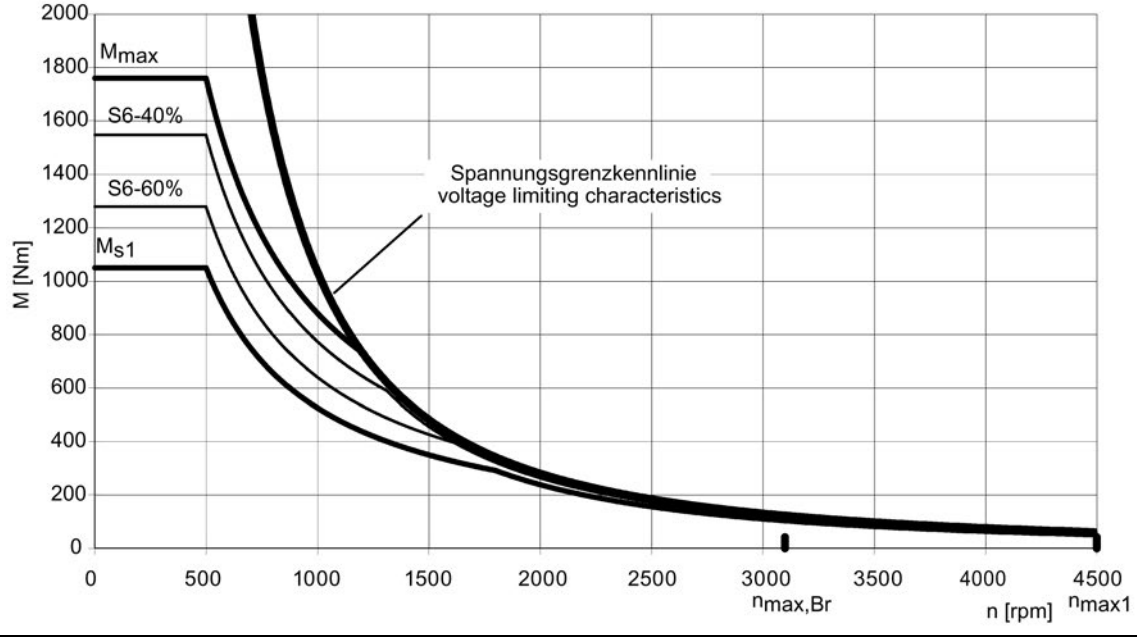
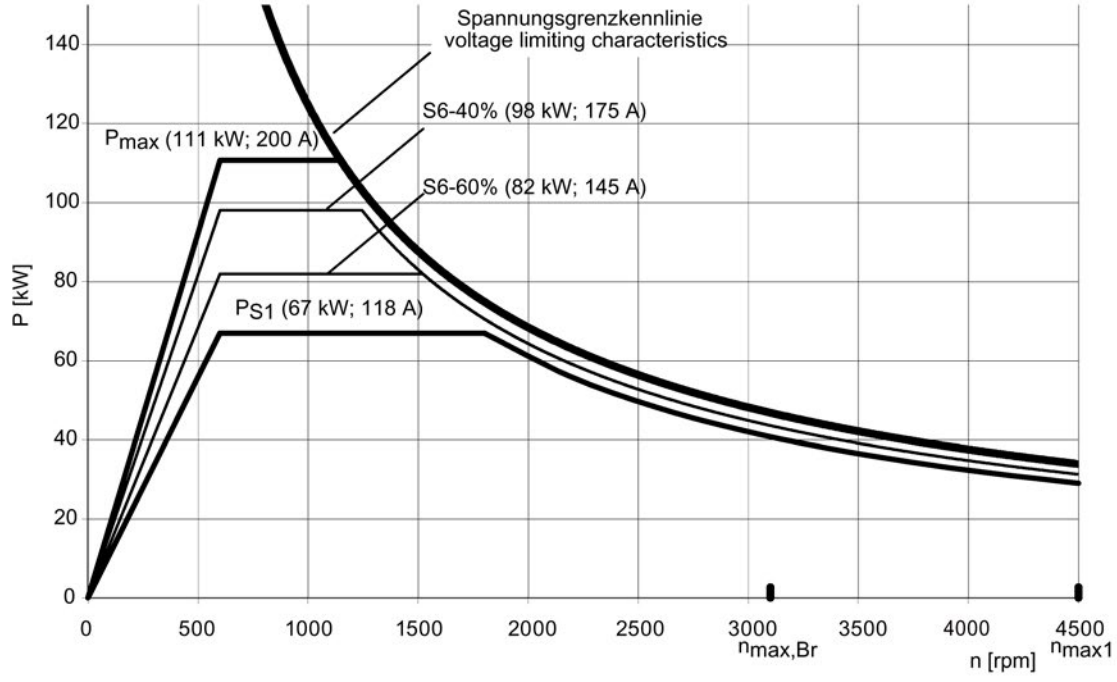


Table 6- 395 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□B□□, (IP23)

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	1,066	118	4,500	-	-	3,100	1,800	1,760	200	1,066	118



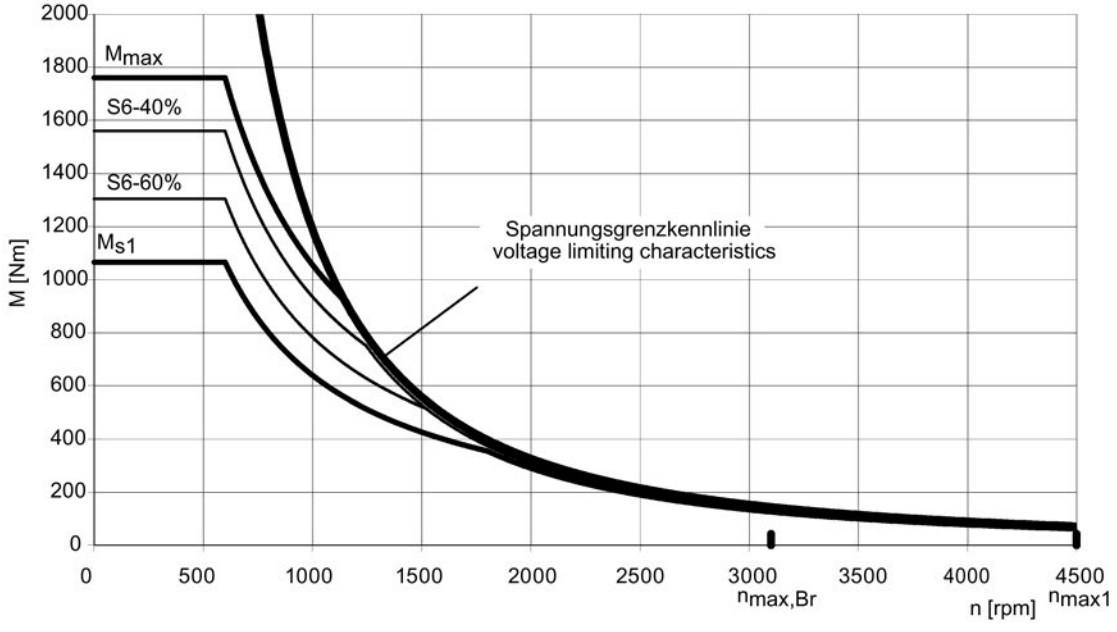
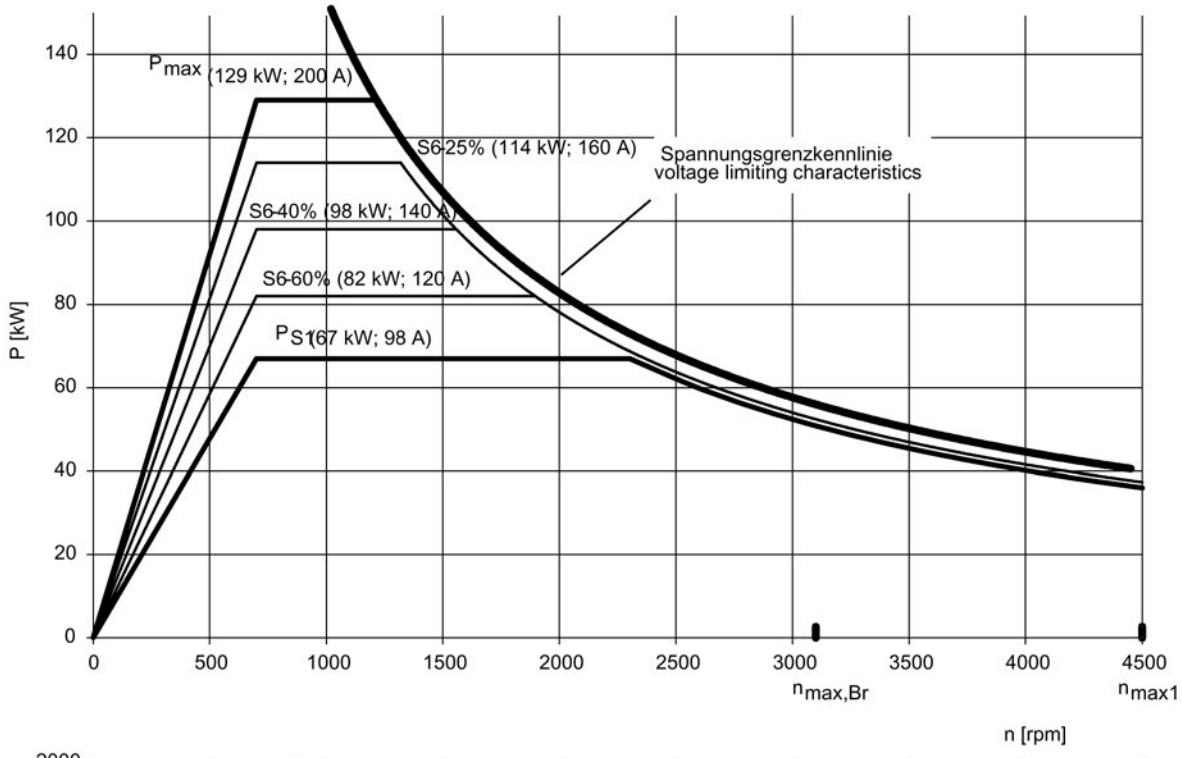


Table 6- 396 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□B□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	67	914	98	4,500	-	-	3,100	2,300	1,760	200	1,074	98



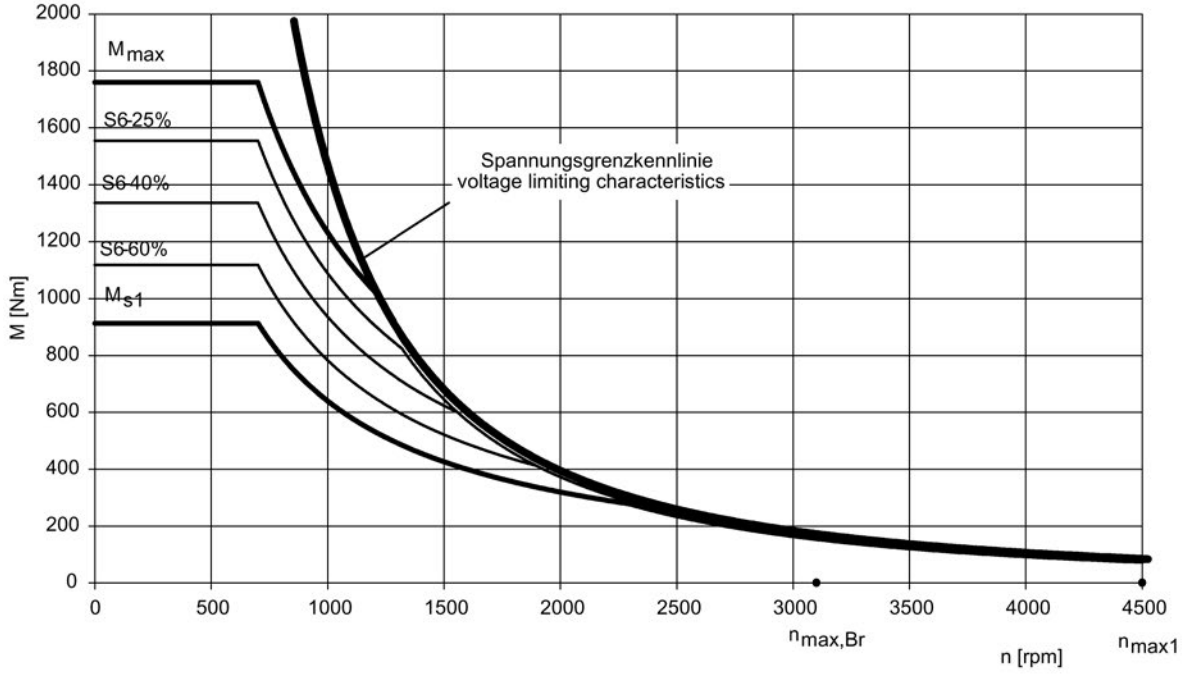
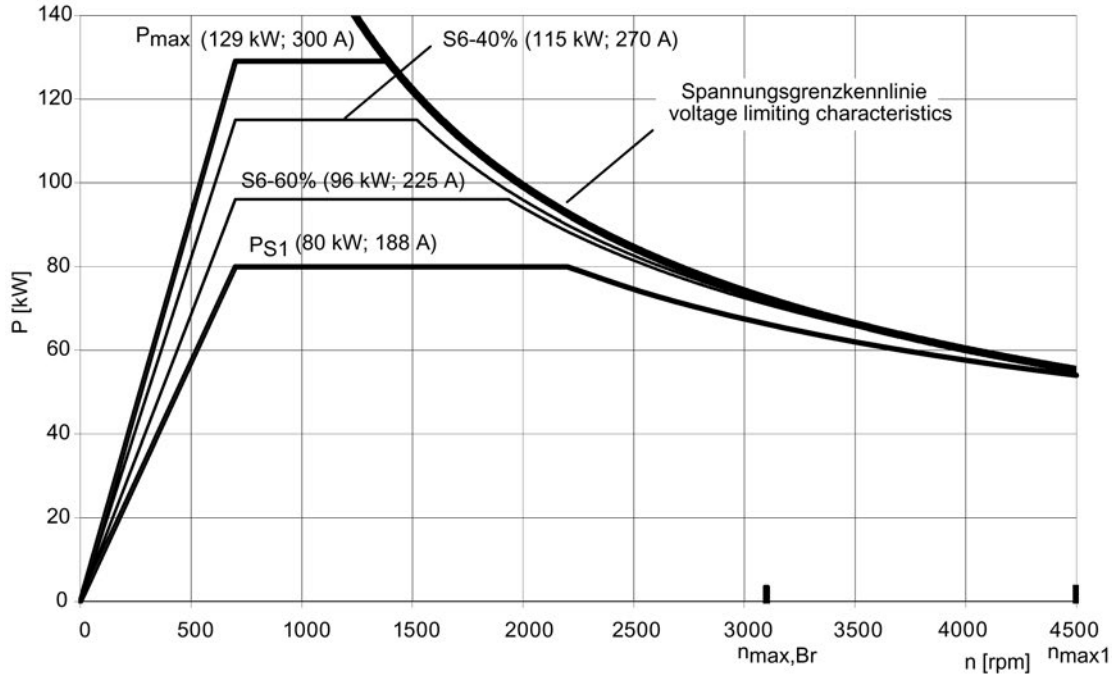


Table 6- 397 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP23)

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	1,091	188	4,500	-	-	3,100	2,200	1,760	300	1,091	188



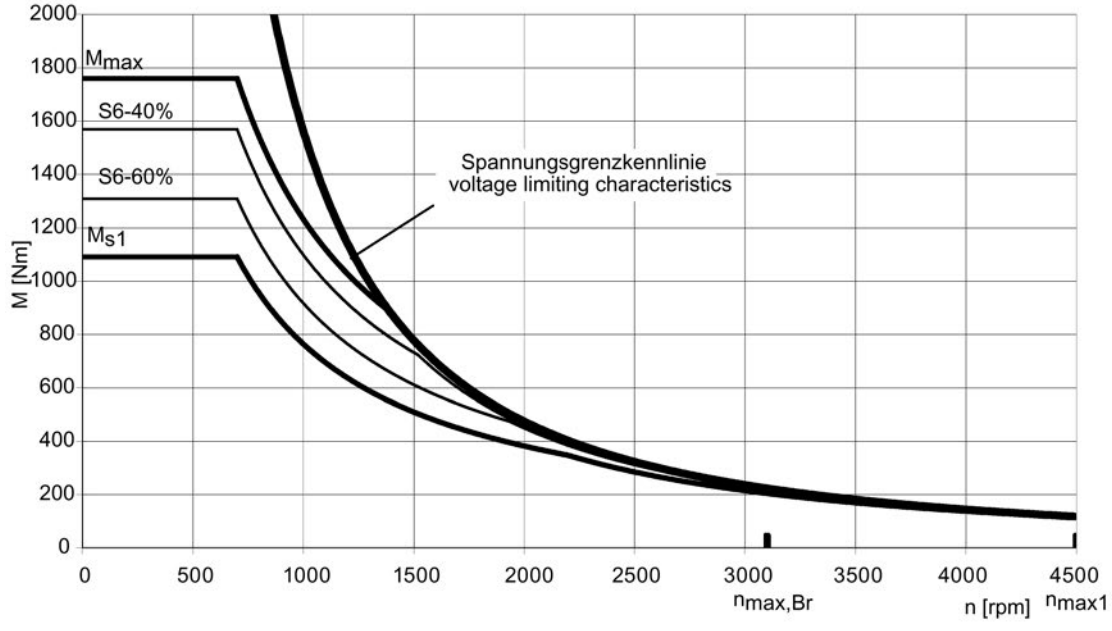
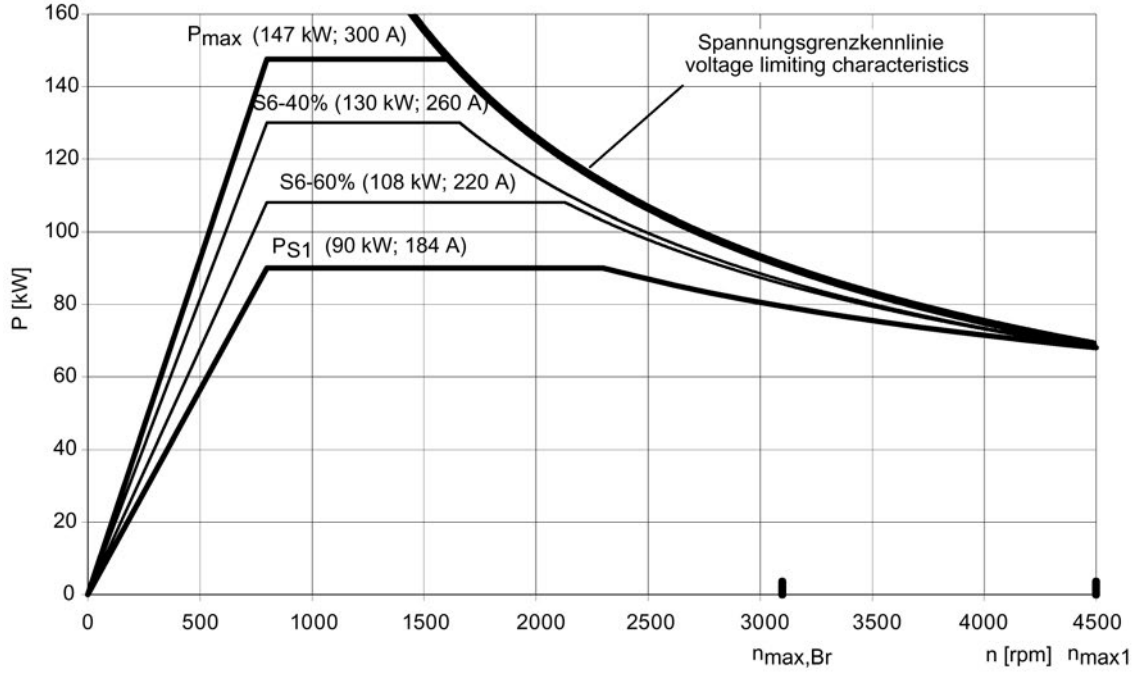


Table 6- 398 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP23)

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	1,074	184	4,500	-	-	3,100	2,300	1,760	300	1,074	184
700	80	1,091	188					3,000				



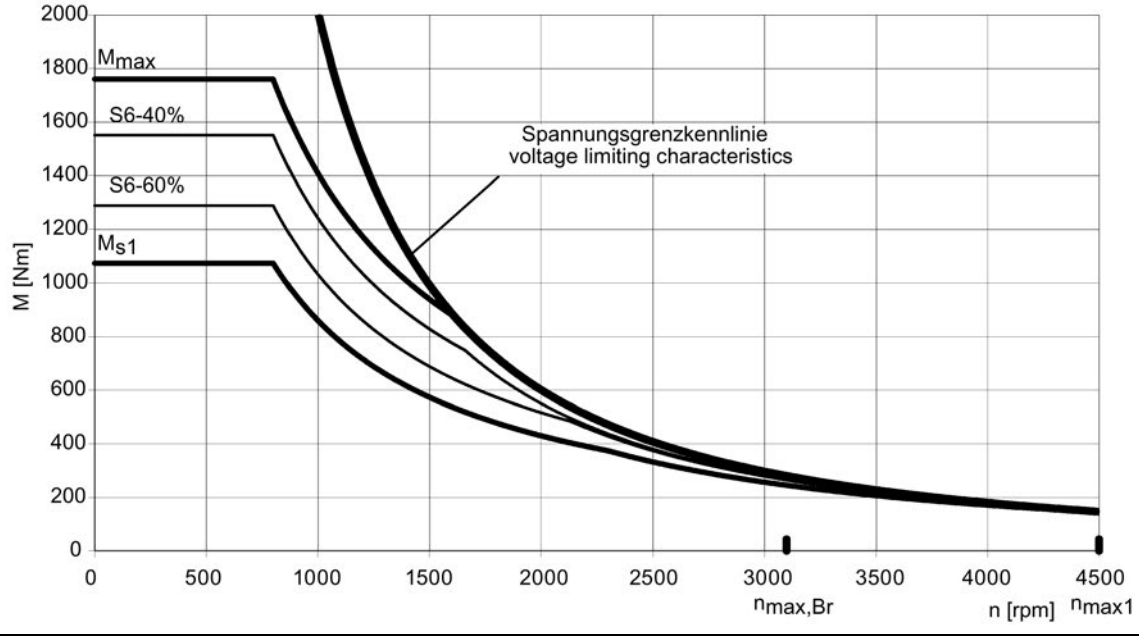
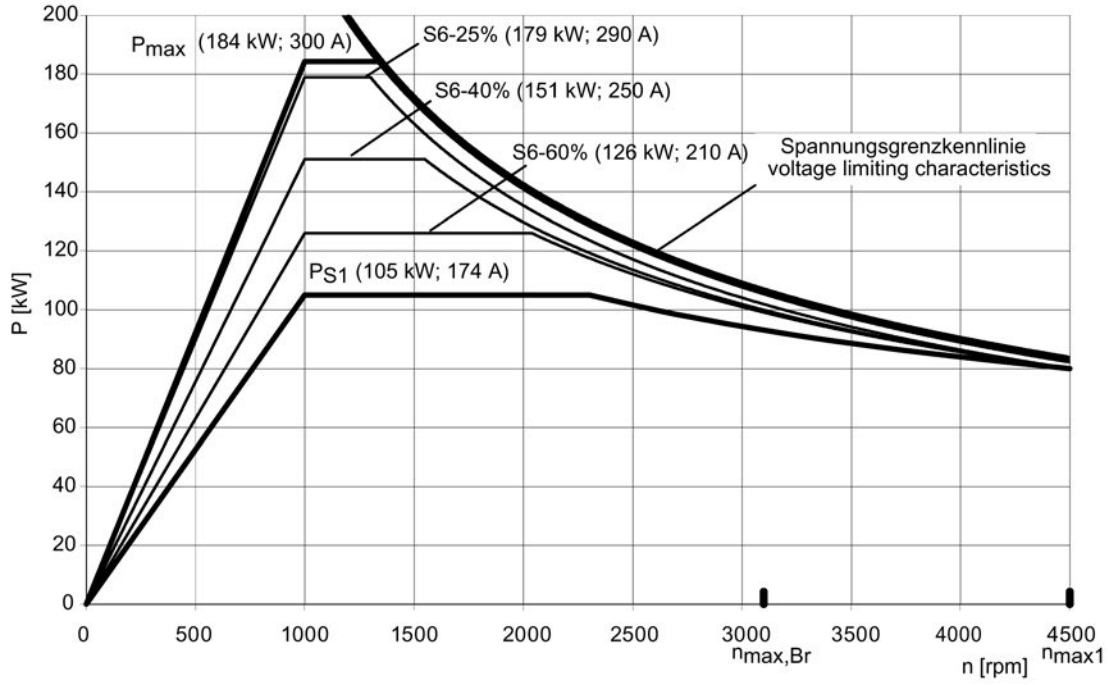


Table 6- 399 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C□□, (IP23)

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]
1,000	105	1,003	174	4,500	-	-	3,100	2,300	1,760	300	1,003	174



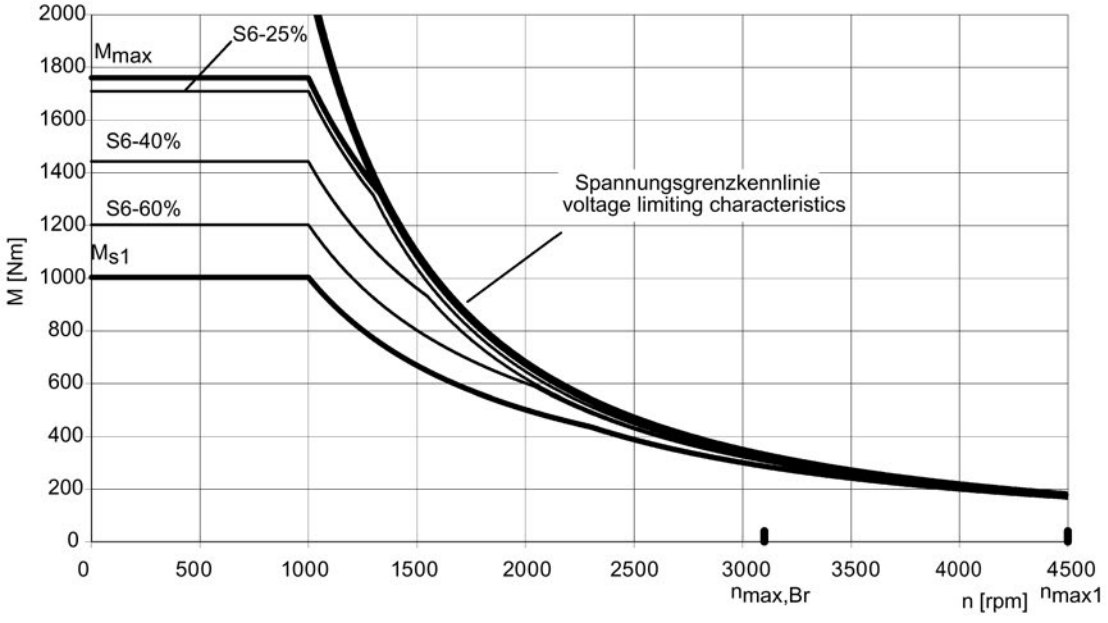
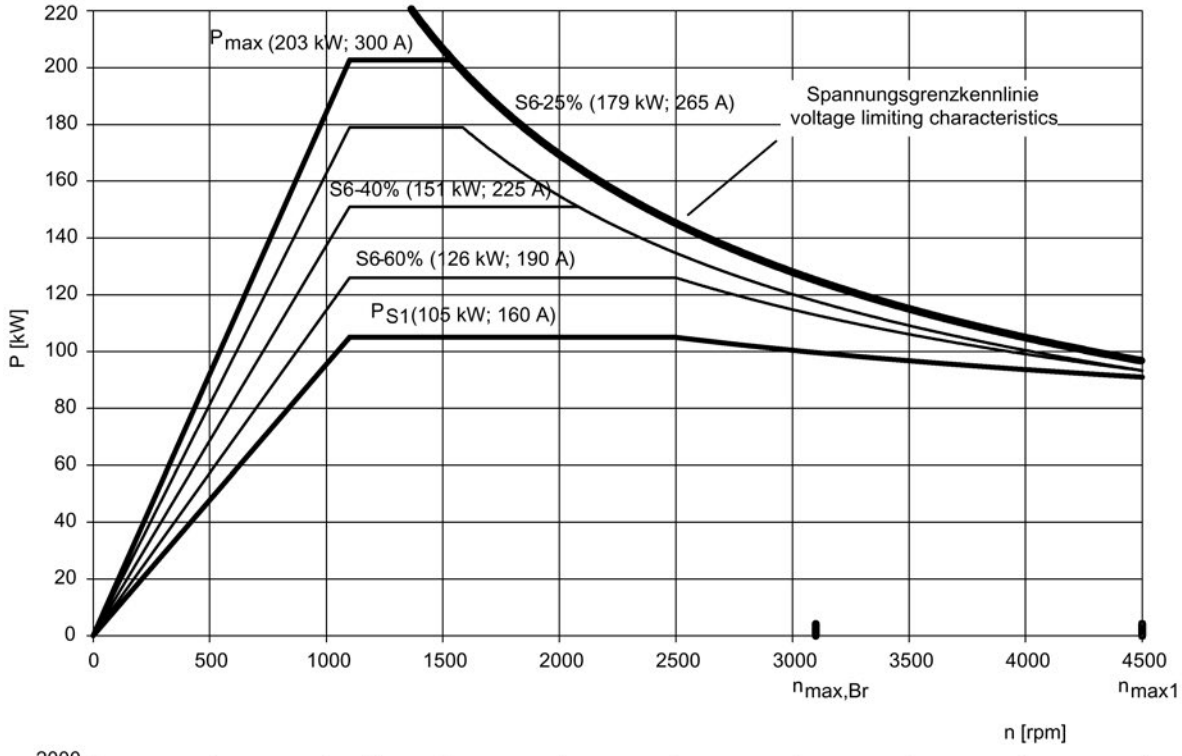


Table 6- 400 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□C□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	105	912	160	4,500	-	-	3,100	2,500	1,760	300	1,091	160



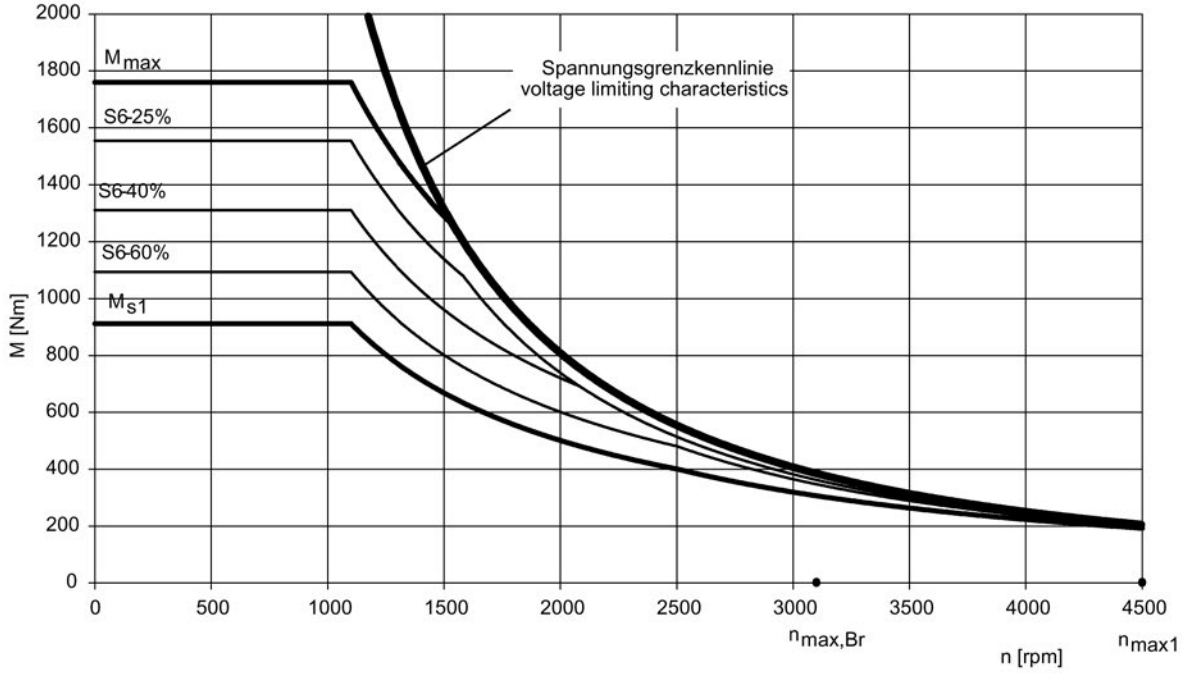
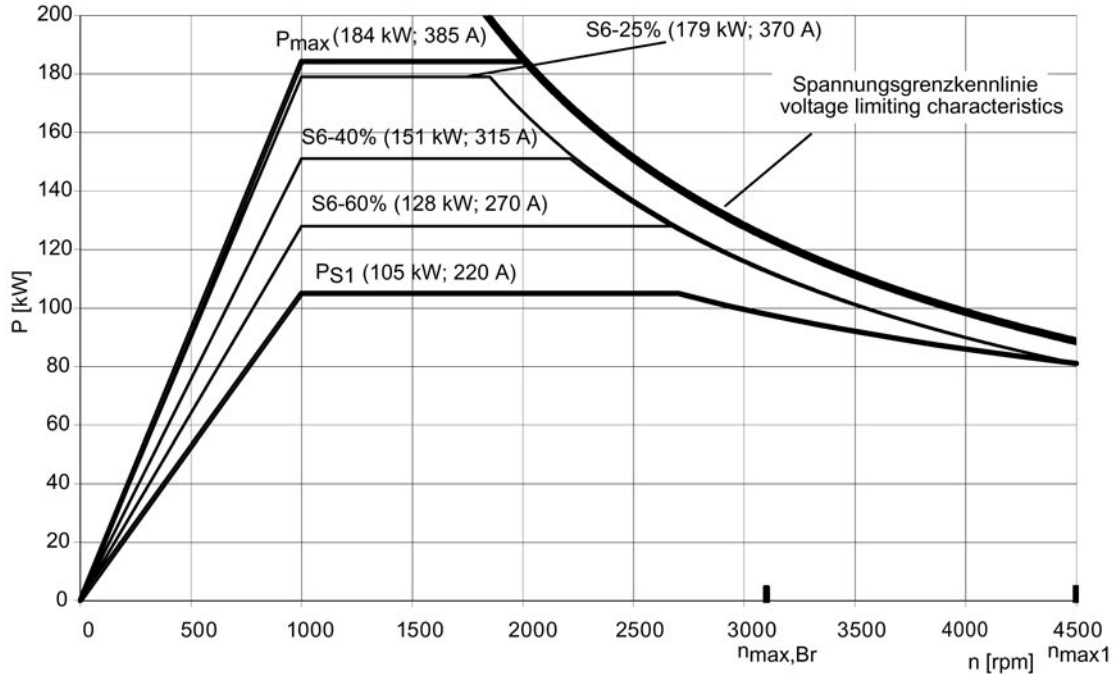


Table 6- 401 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP23)

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]
1,000	105	1,003	220	4,500	-	-	3,100	2,700	1,760	385	1,003	2,200



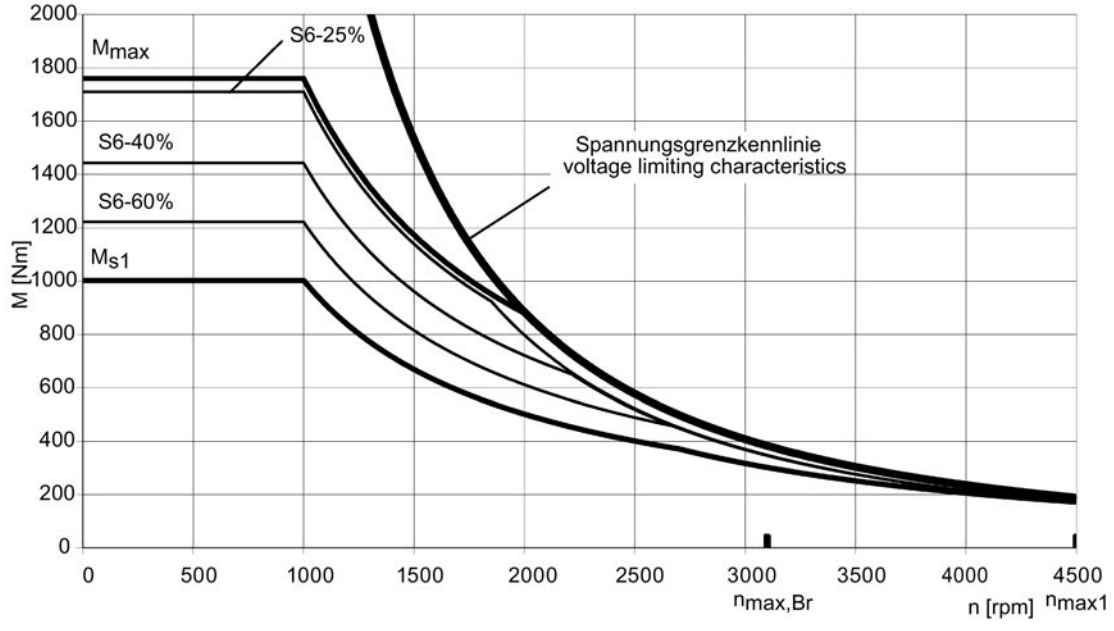
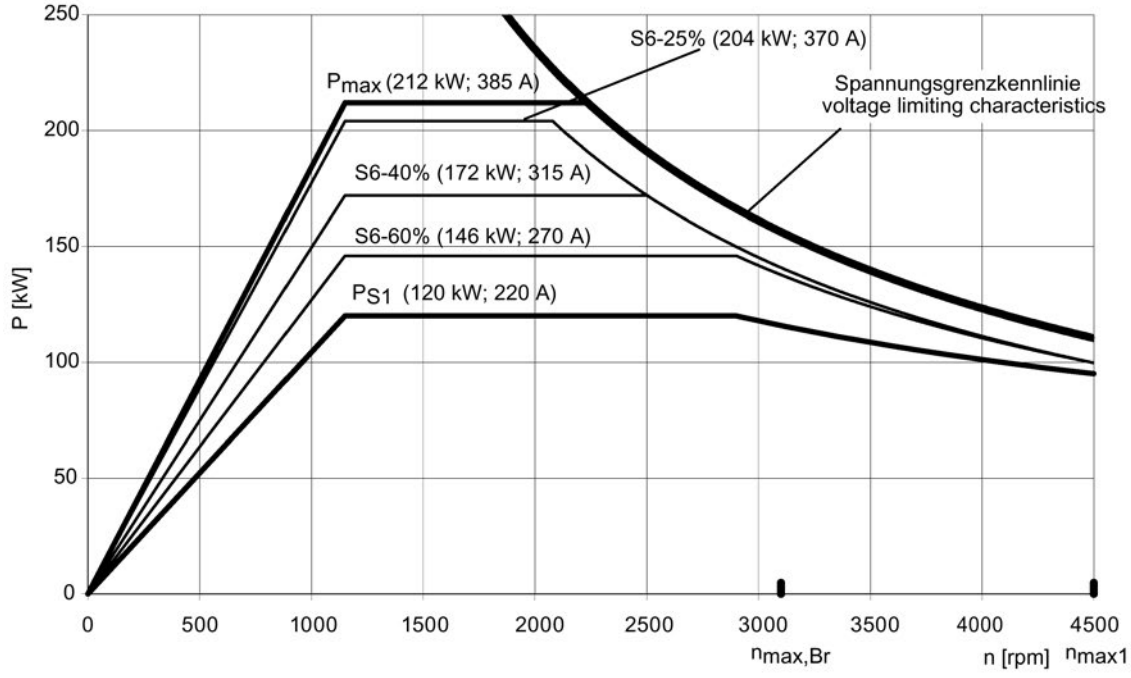


Table 6- 402 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP23)

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]
1,150	120	997	220	4,500	-	-	3,100	2,900	1,760	385	997	220
1,000	105	1,003	220					3,700				



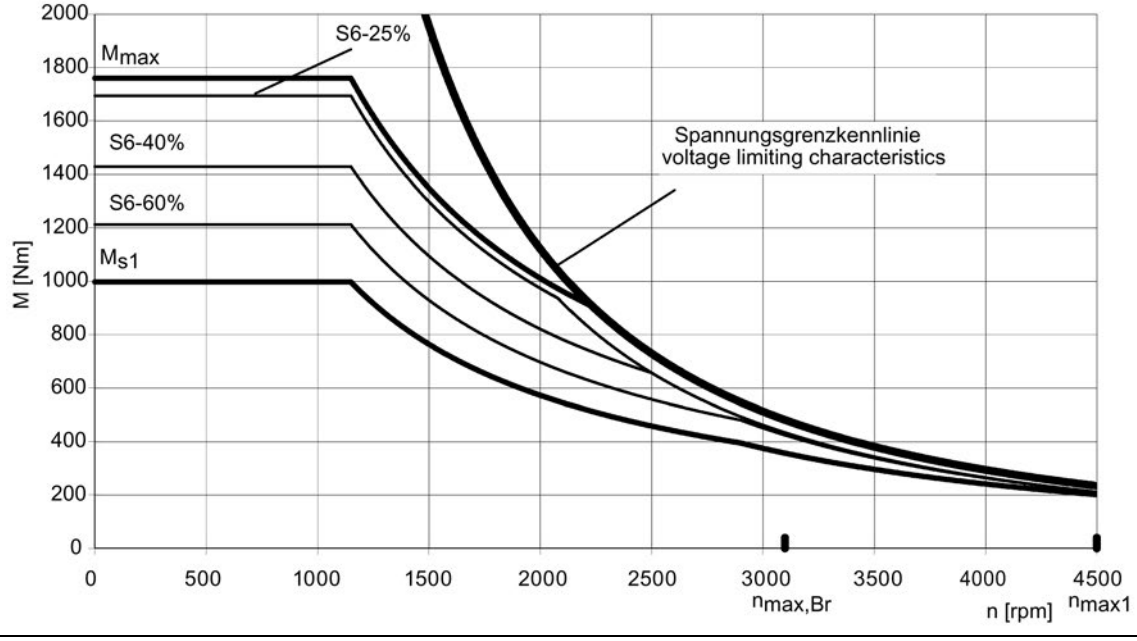
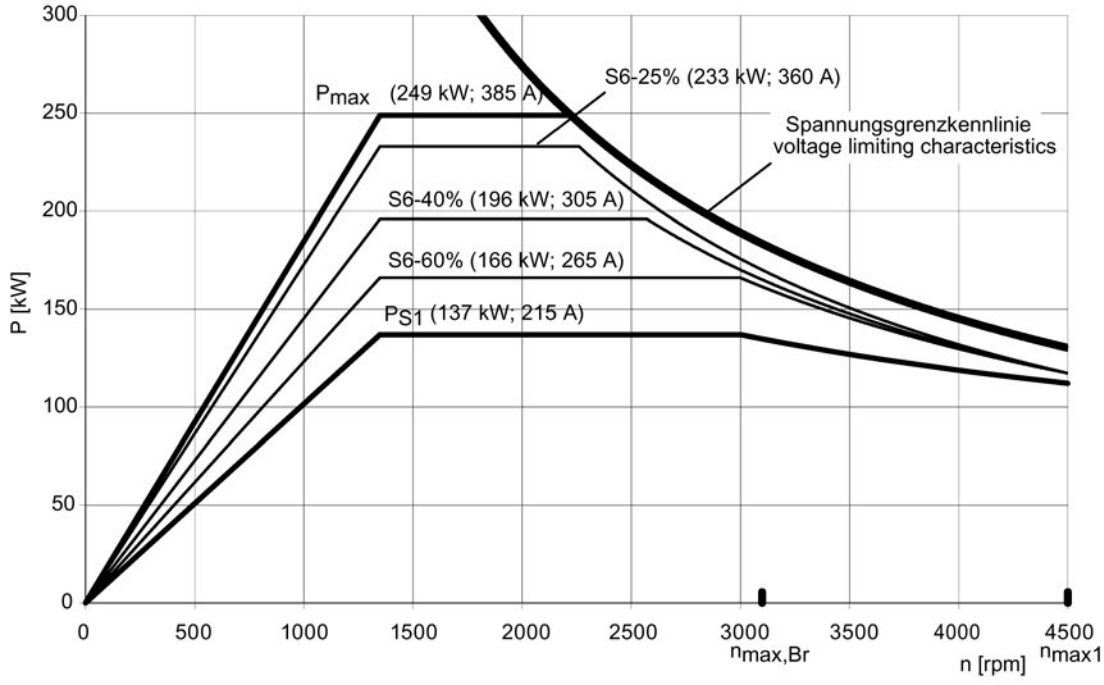


Table 6- 403 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D□□, (IP23)

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]
1,350	137	969	215	4,500	-	-	3,100	3,000	1,760	385	969	215



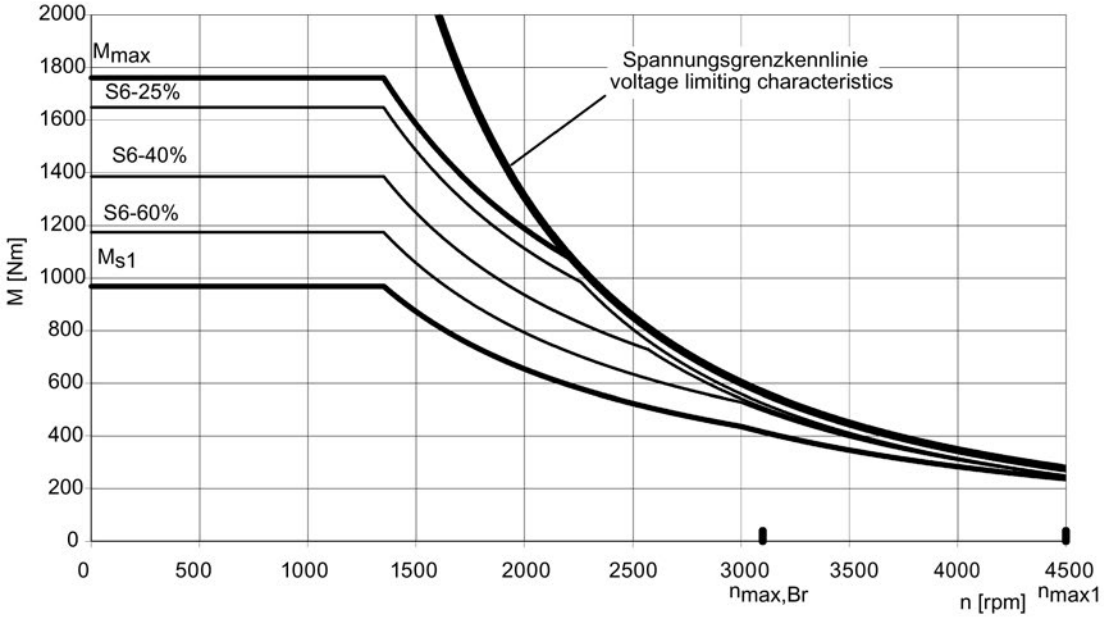
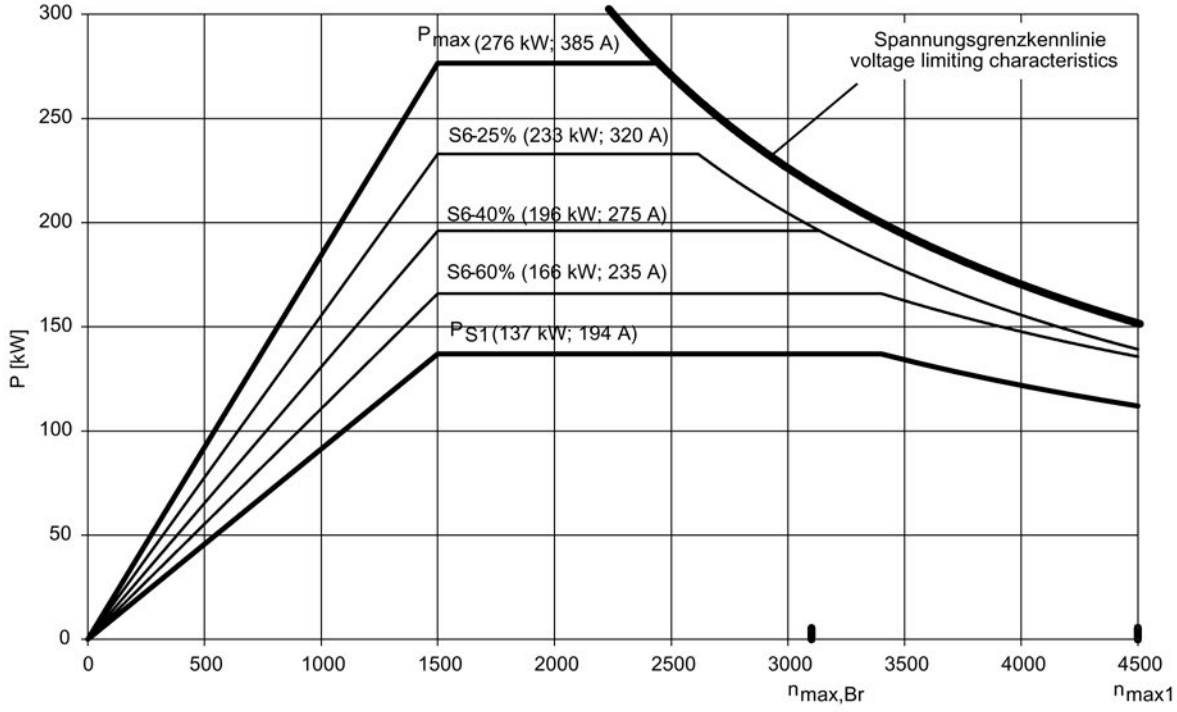


Table 6- 404 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□D□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	137	872	194	4,500	-	-	3,100	3,400	1,760	385	1,003	194



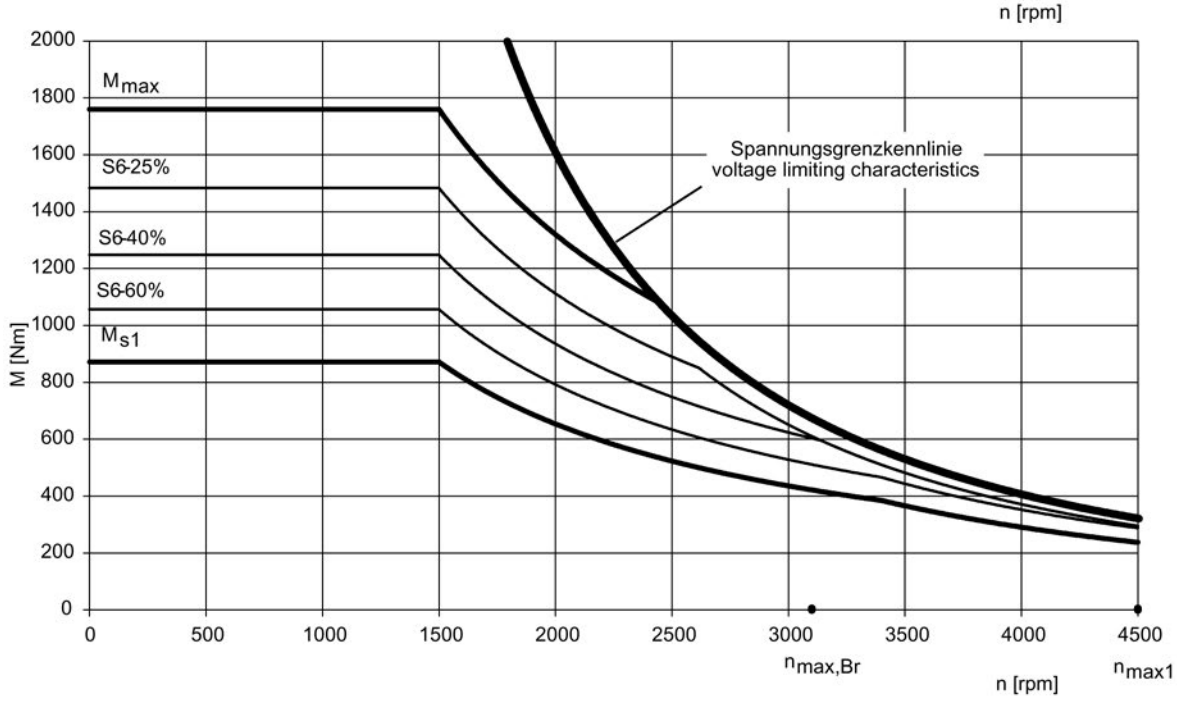
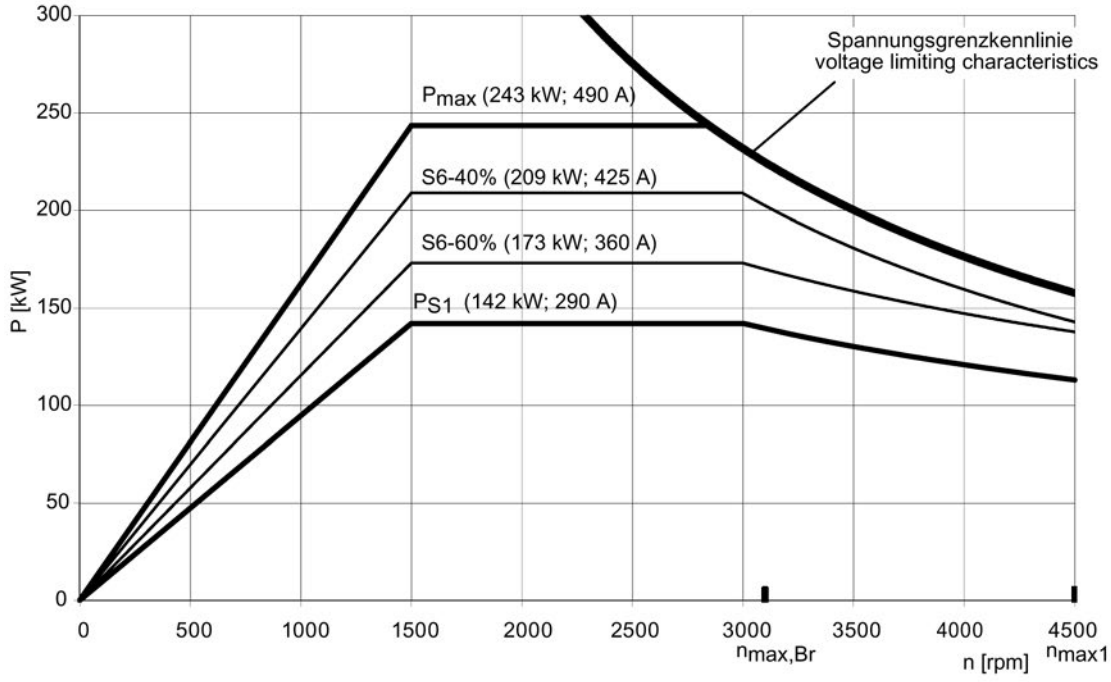


Table 6- 405 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP23)

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]
1,500	142	904	290	4,500	-	-	3,100	3,000	1,550	490	904	290



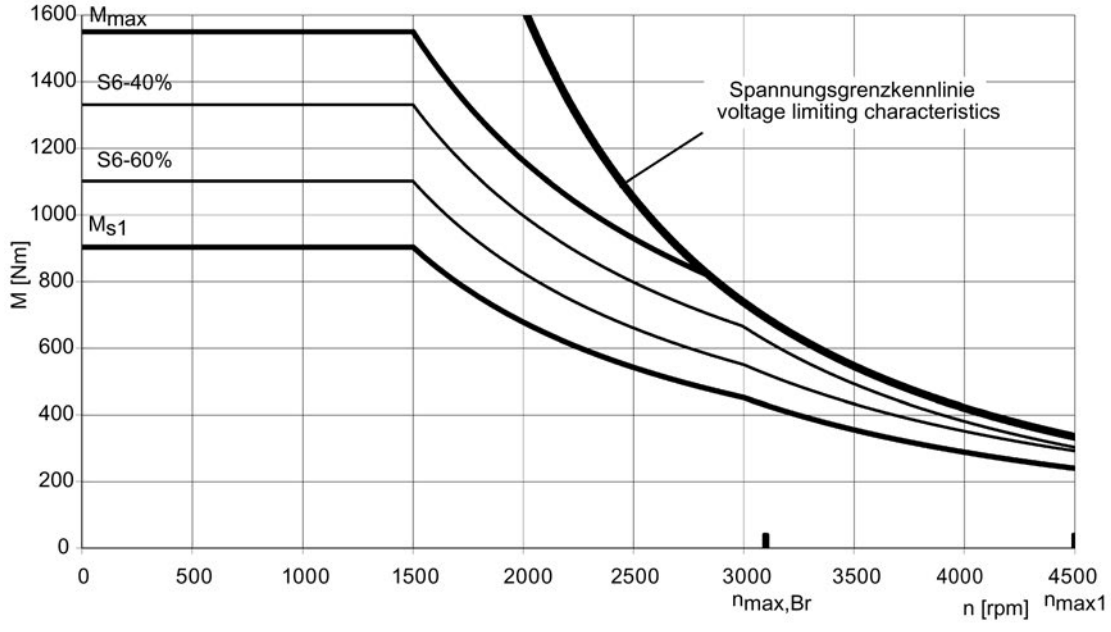
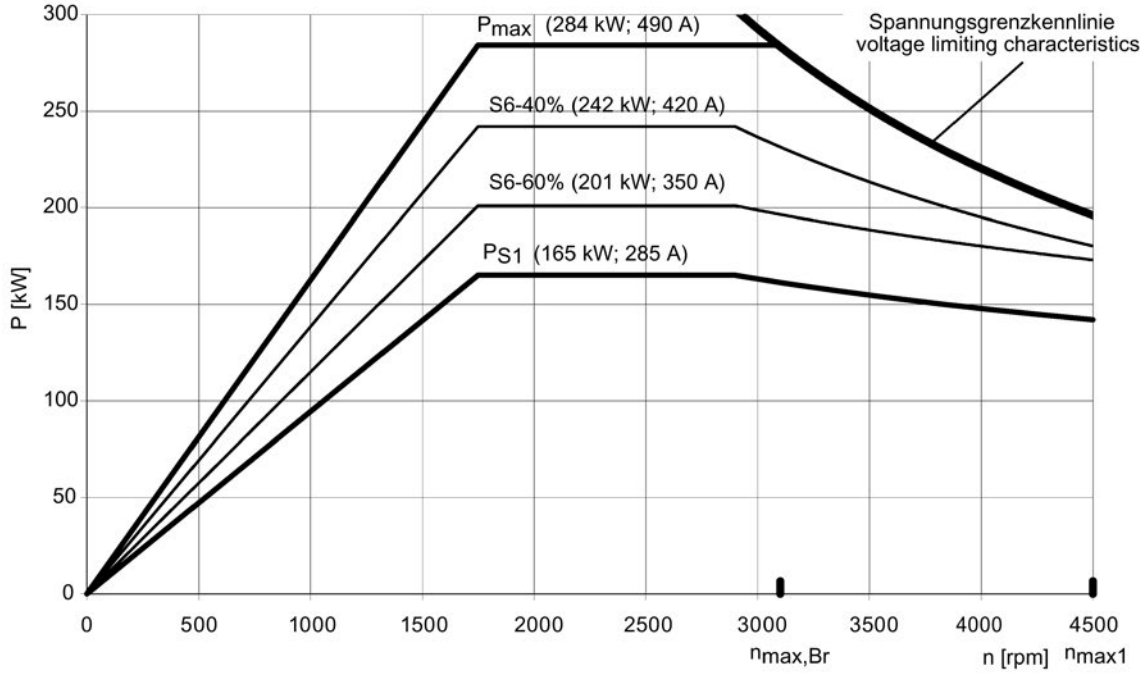


Table 6- 406 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP23)

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]
1,750	165	900	285	4,500	-	-	3,100	2,900	1,550	490	900	285
1,500	142	904	290					4,500				



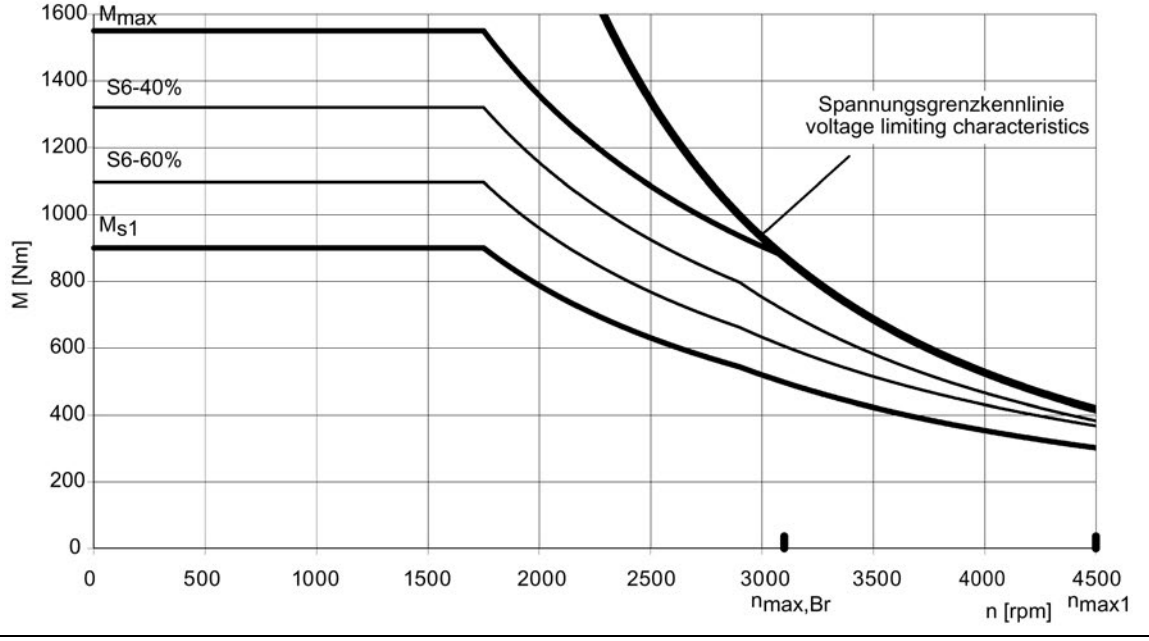
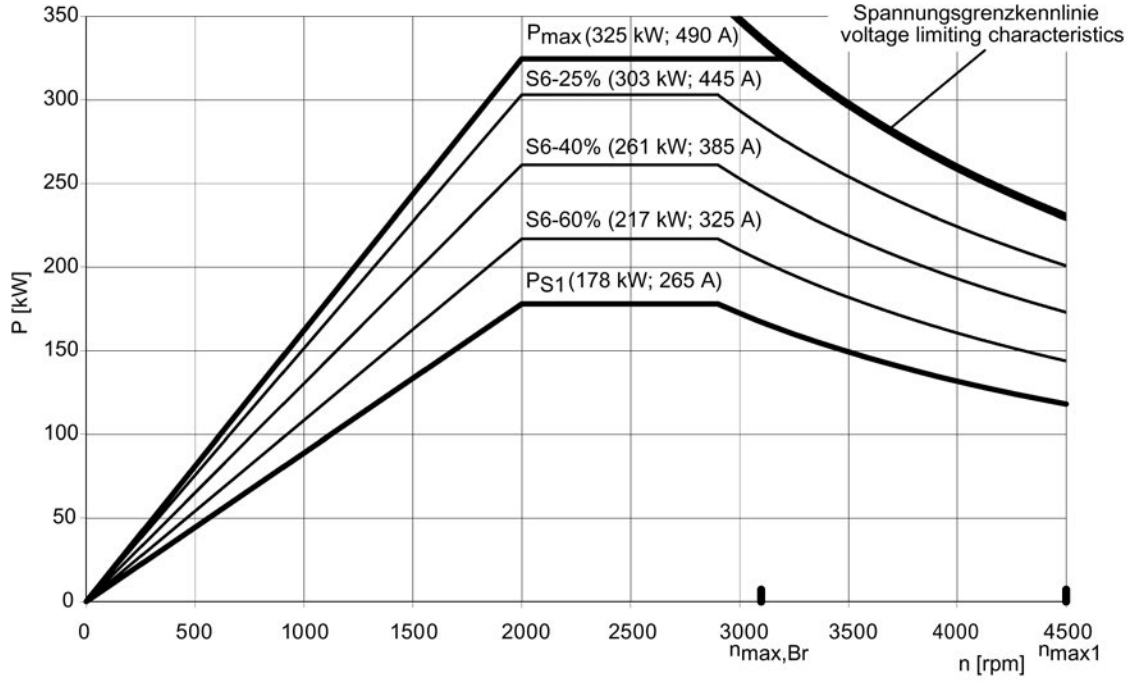


Table 6- 407 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F□□, (IP23)

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]
2,000	178	850	265	4,500	-	-	3,100	2,900	1,550	490	850	265



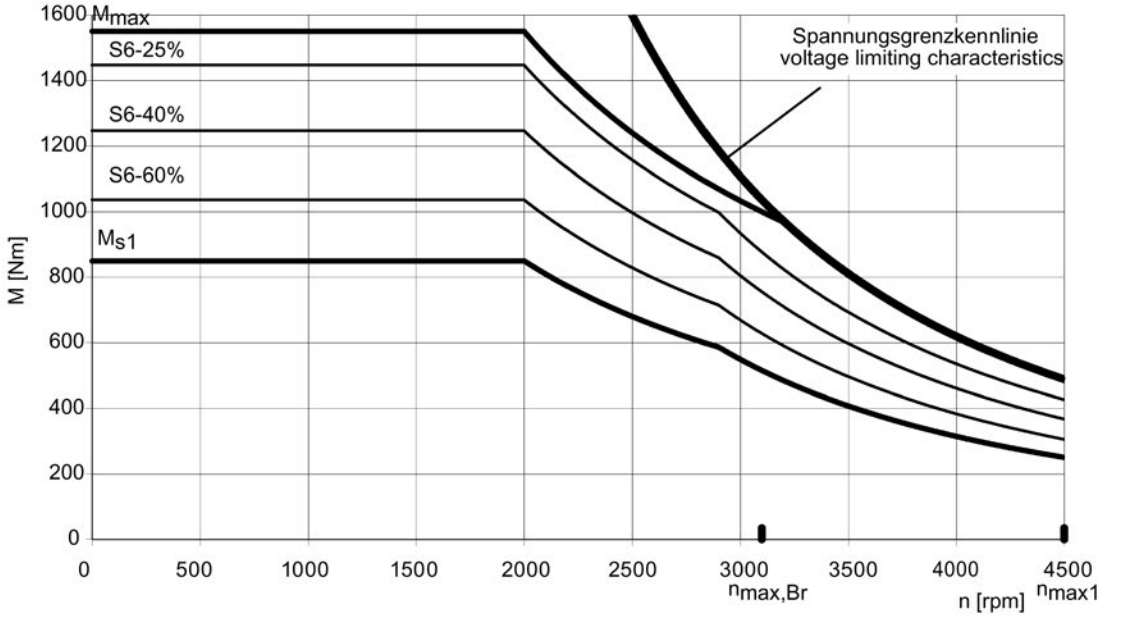
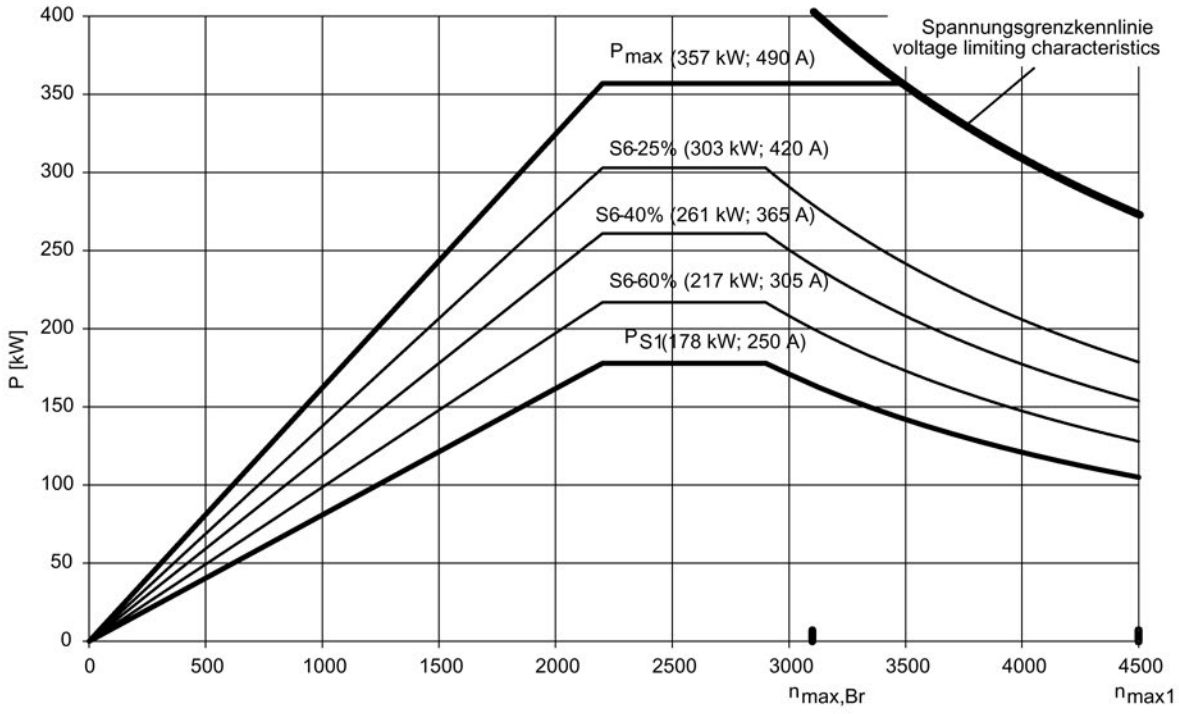


Table 6- 408 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8224-□□F□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	178	773	250	4,500	-	-	3,100	2,900	1,550	490	904	250



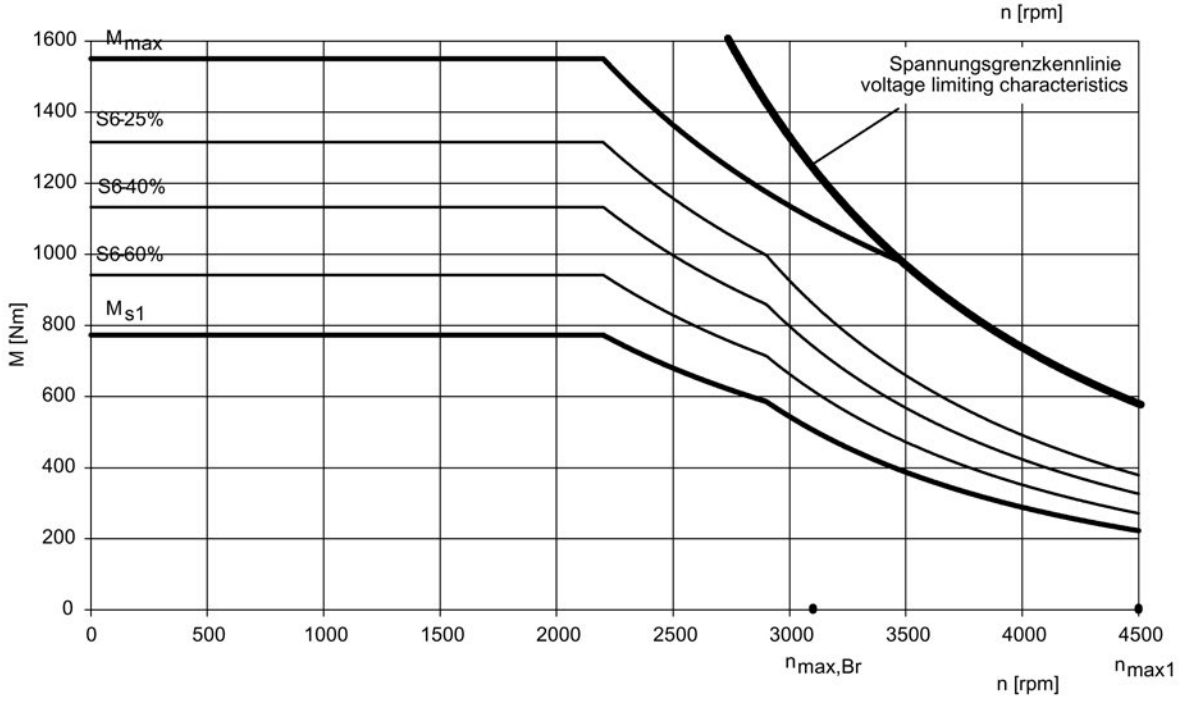
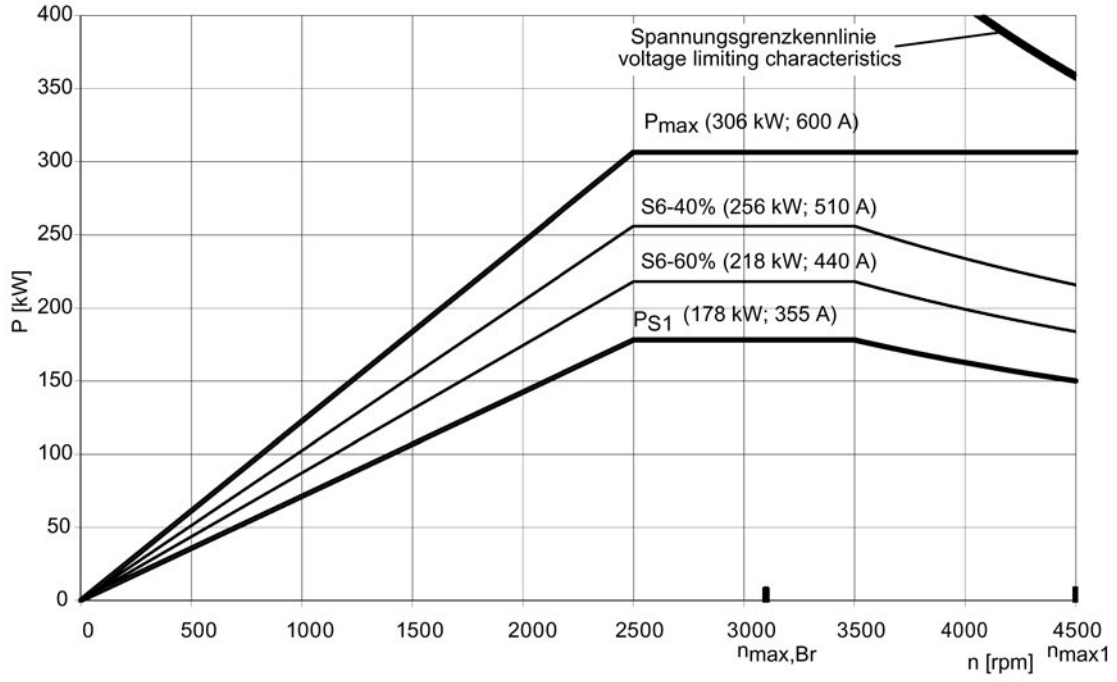


Table 6- 409 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L□□, (IP23)

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]
2,500	178	680	355	4,500	-	-	3,100	3,500	1,170	600	680	355



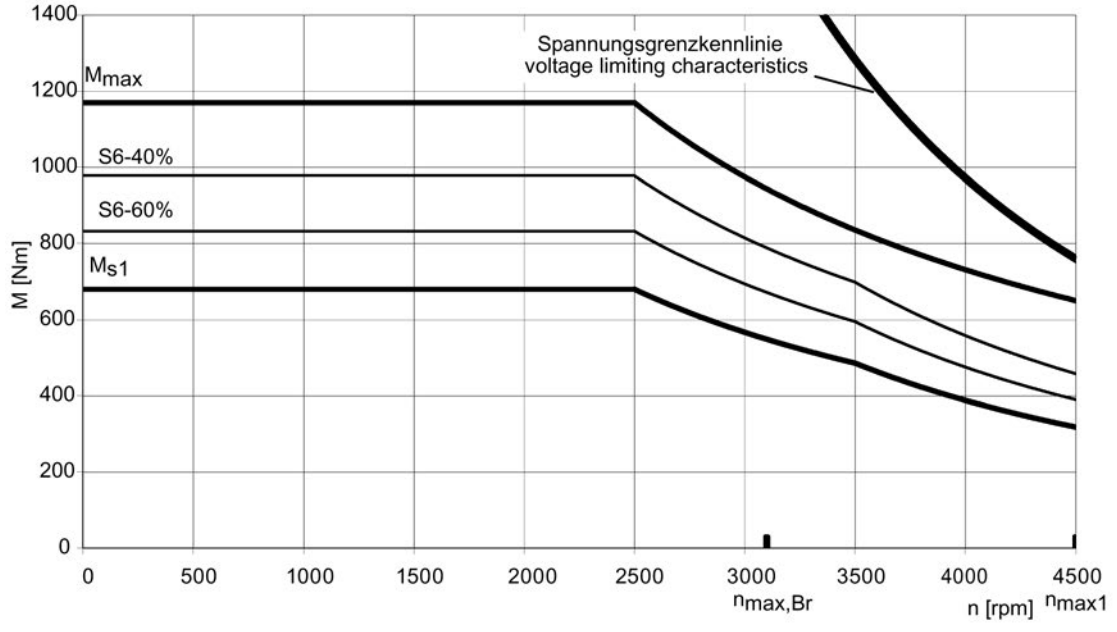
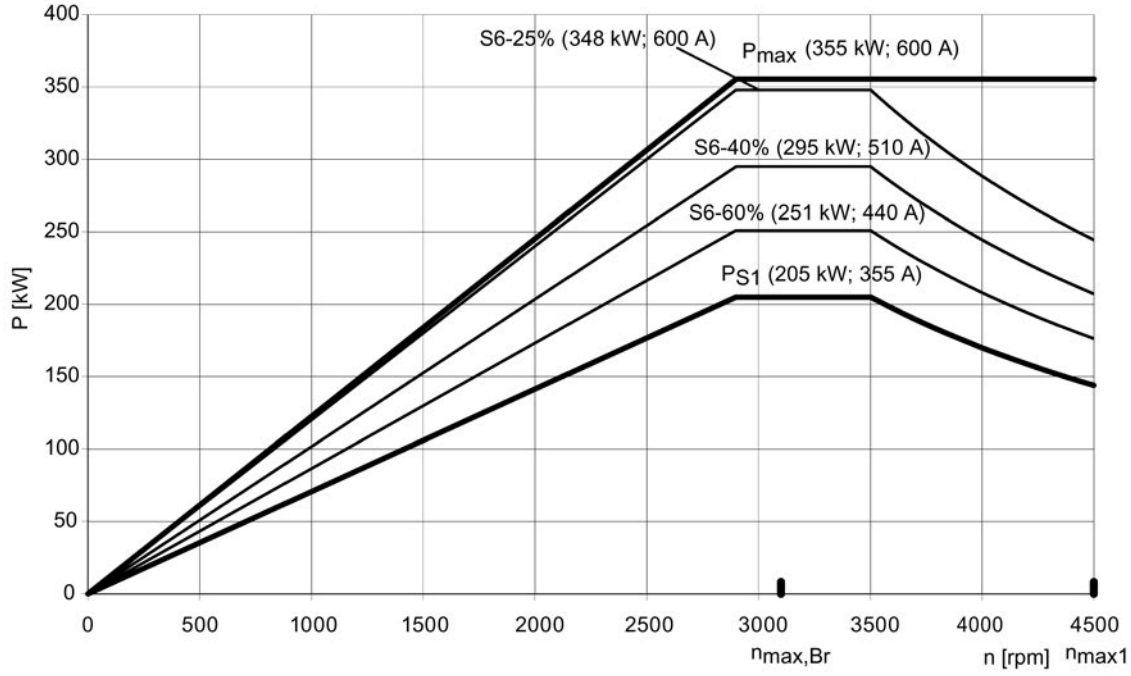


Table 6- 410 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L□□, (IP23)

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]
2,900	205	675	355	4,500	-	-	3,100	3,500	1,170	600	675	355
2,500	178	680	355					3,900				



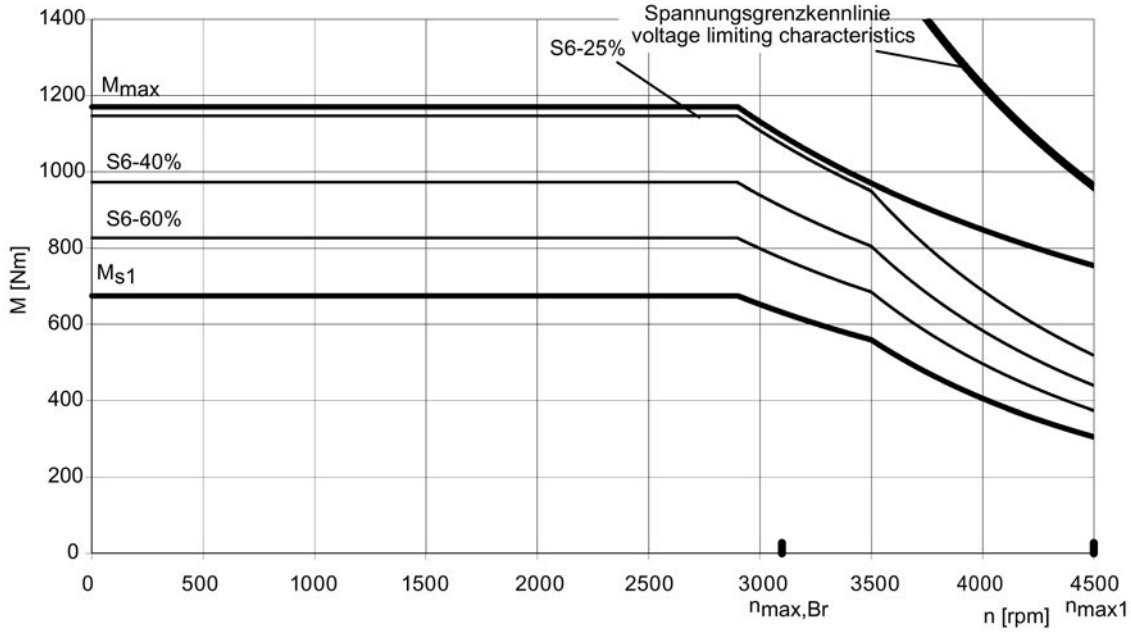
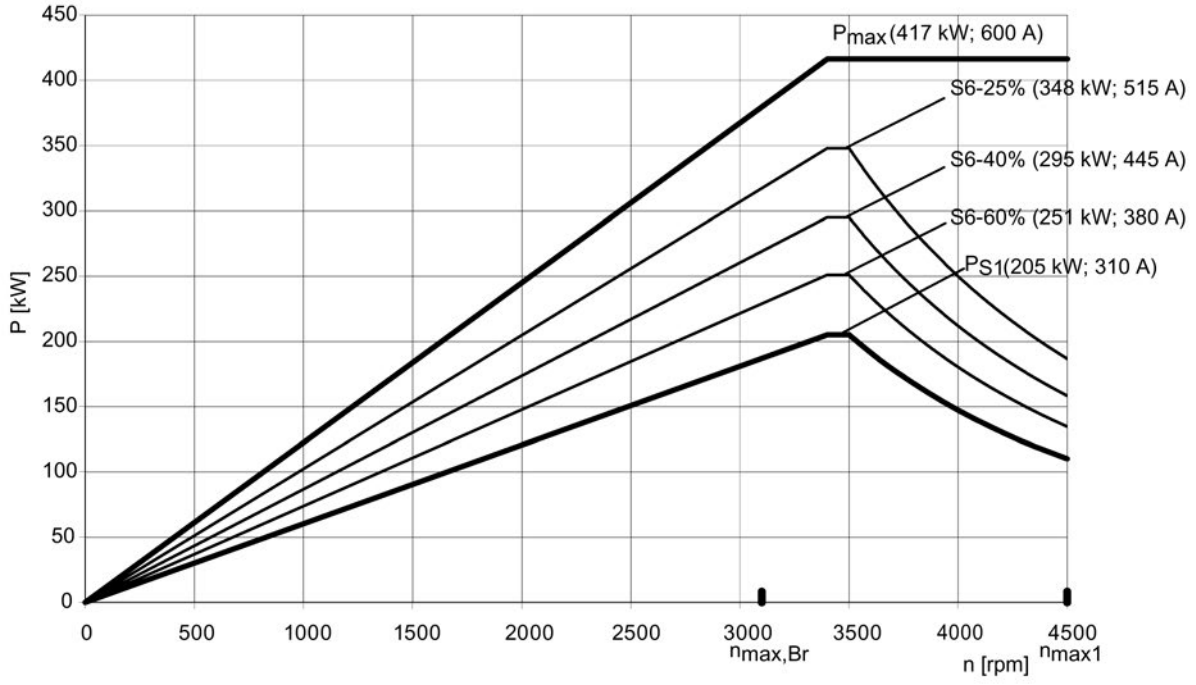


Table 6- 411 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L□□, (IP23)

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]
3,400	205	576	310	4,500	-	-	3,100	3,500	1,170	600	576	310



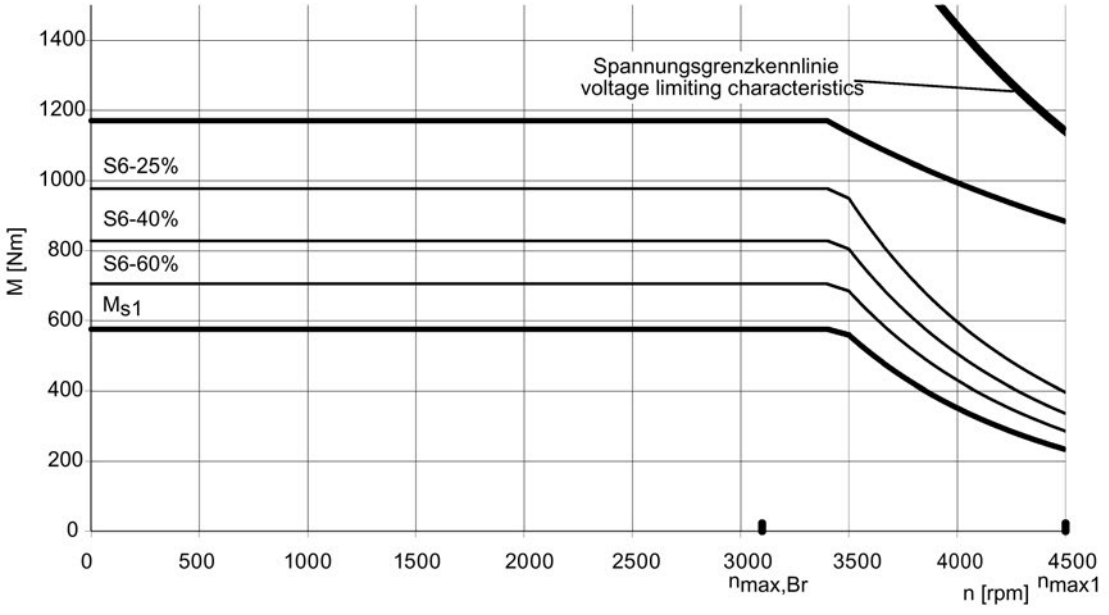
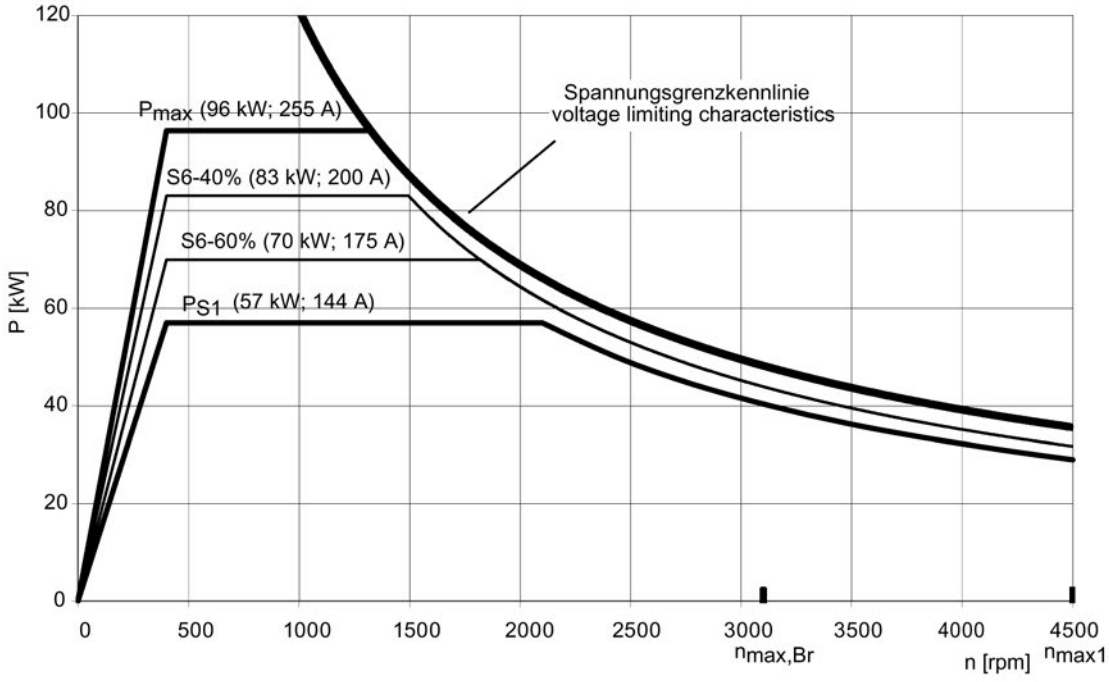


Table 6- 412 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B□□, (IP23)

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	1,361	144	4,500	-	-	3,100	2,100	2,300	255	1,361	144



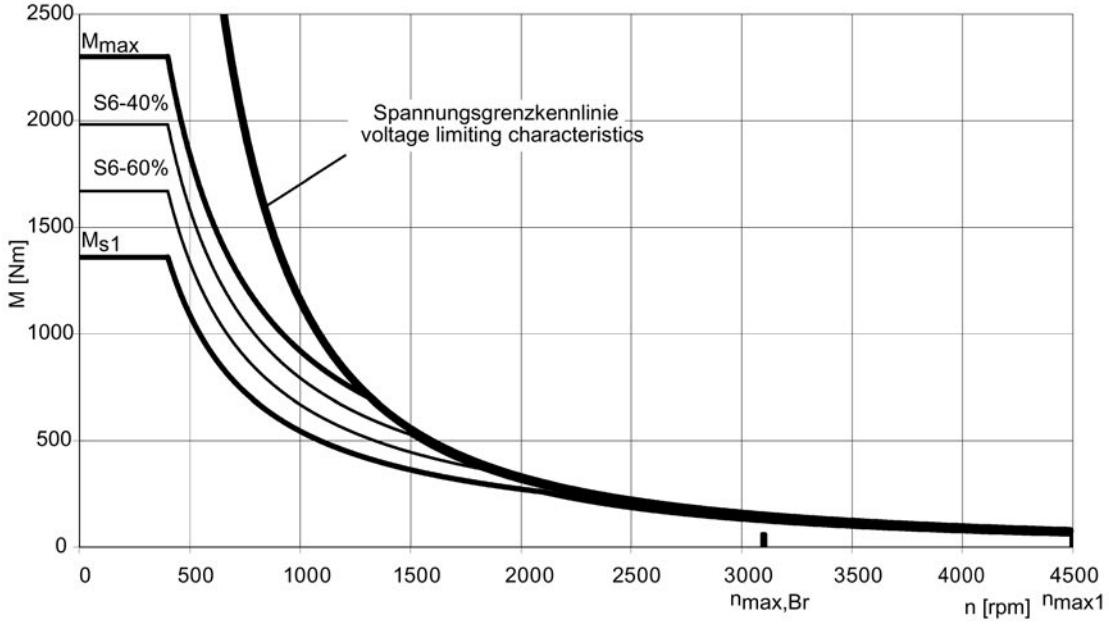
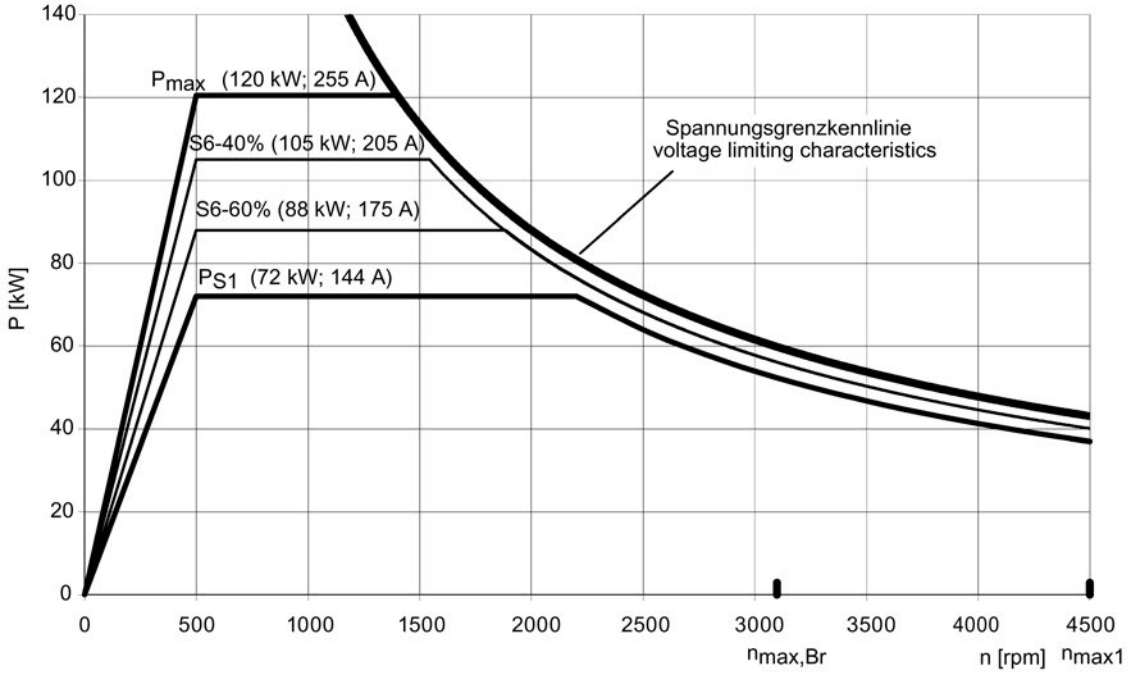


Table 6- 413 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP23)

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	1,375	144	4,500	-	-	3,100	2,200	2,300	255	1,375	144
400	57	1,361	144					2,800				



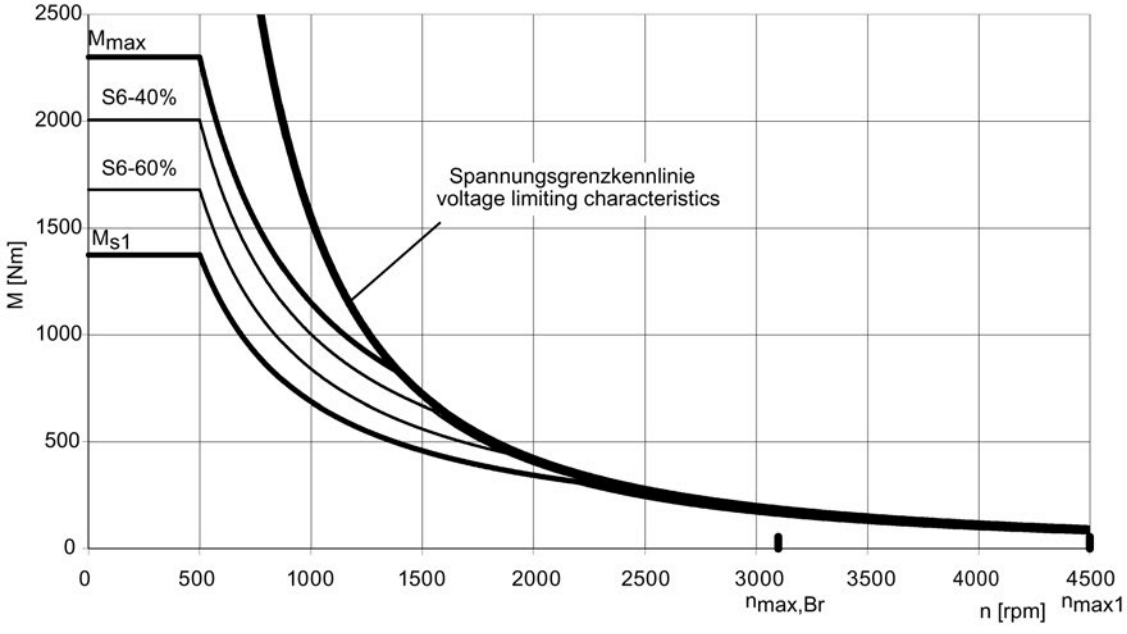
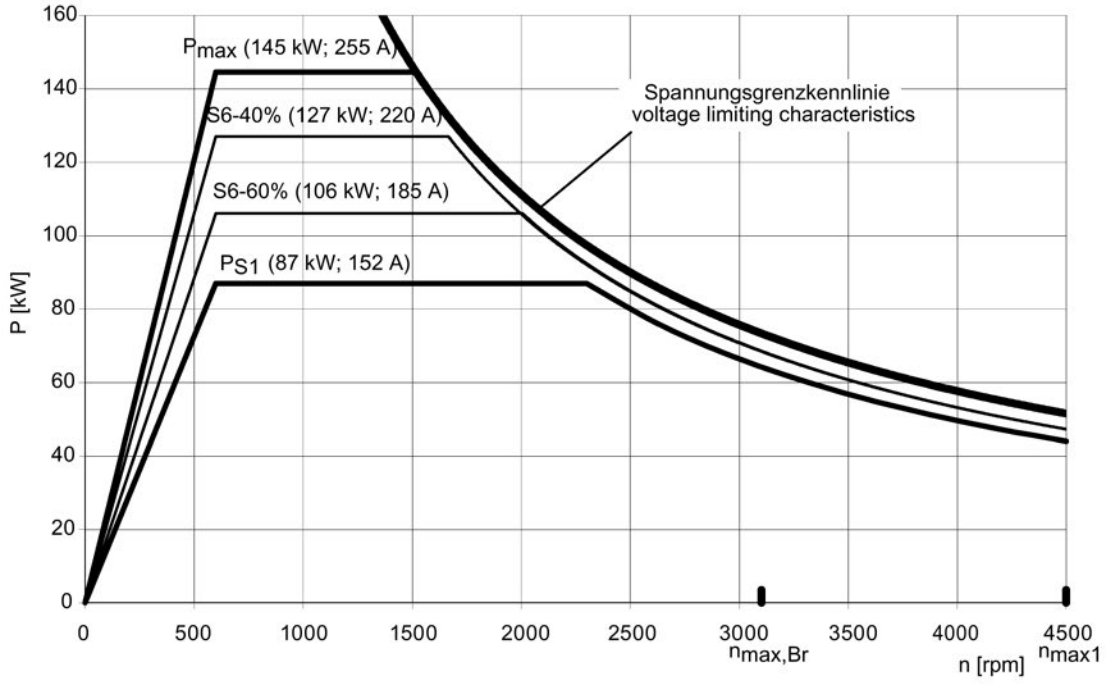


Table 6- 414 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B□□, (IP23)

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	1,385	152	4,500	-	-	3,100	2,300	2,300	255	1,385	152



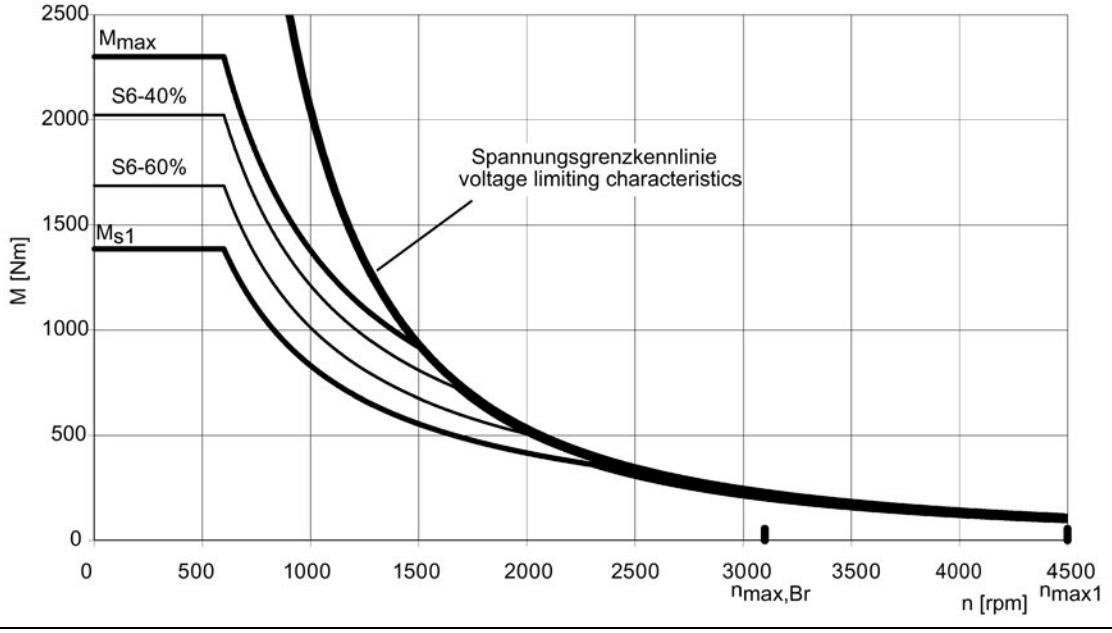
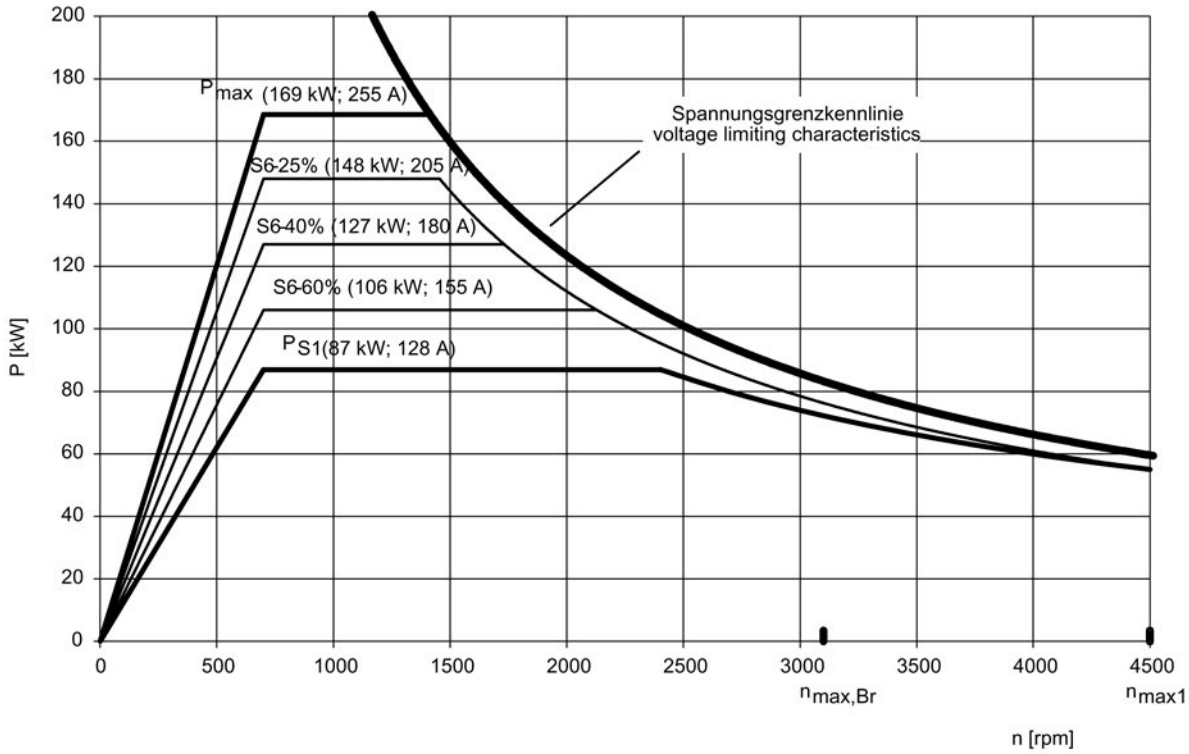


Table 6- 415 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□B□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	87	1,187	128	4,500	-	-	3,100	2,400	2,300	255	1,361	128



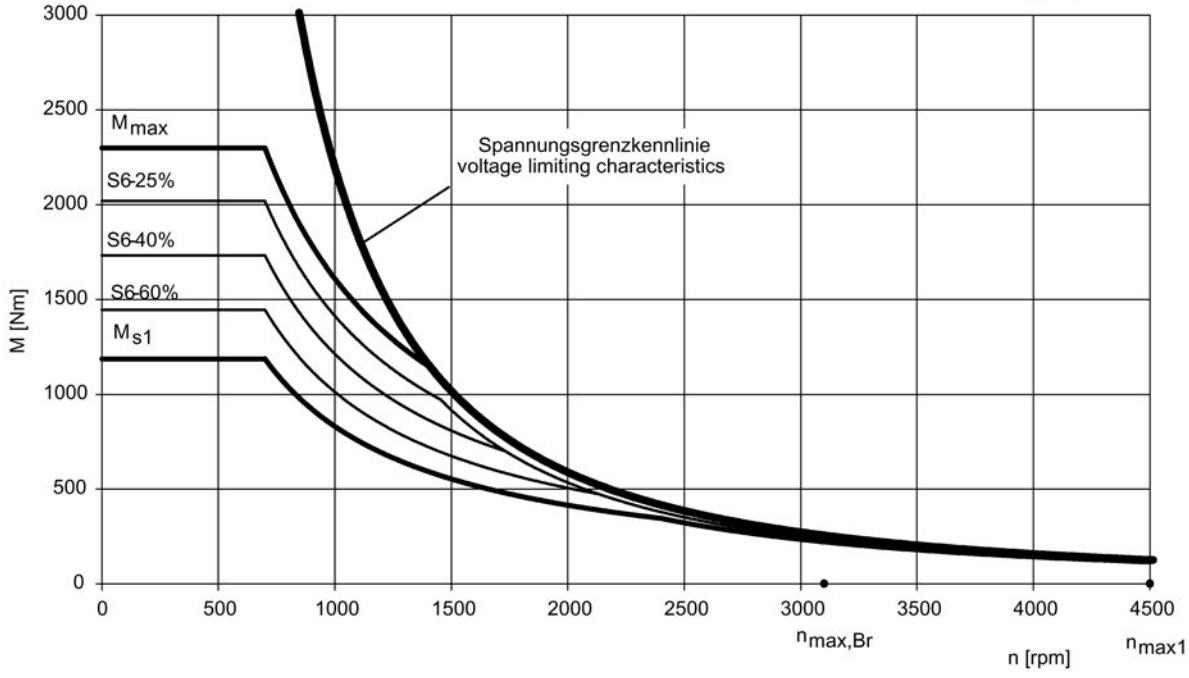
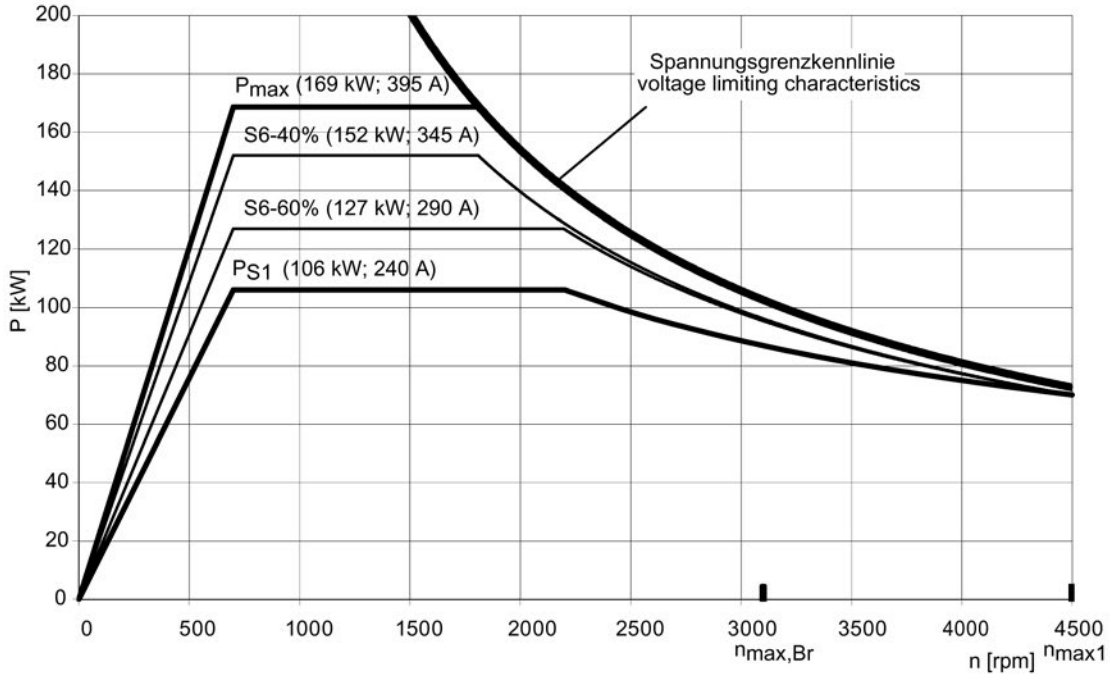


Table 6- 416 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP23)

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	1,446	240	4,500	-	-	3,100	2,200	2,300	395	1,446	240



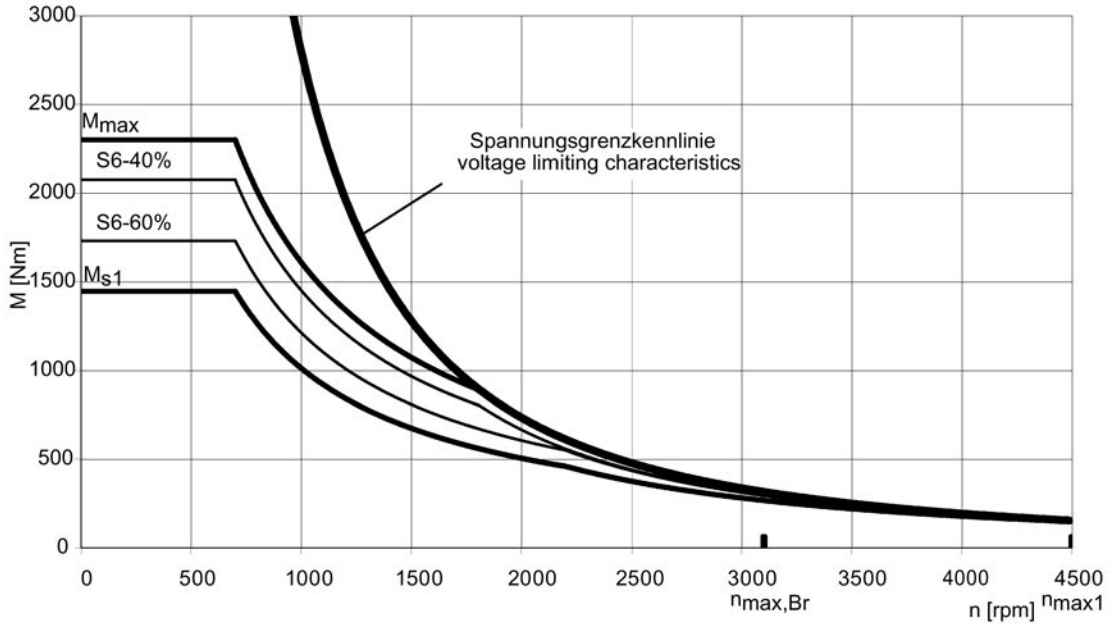
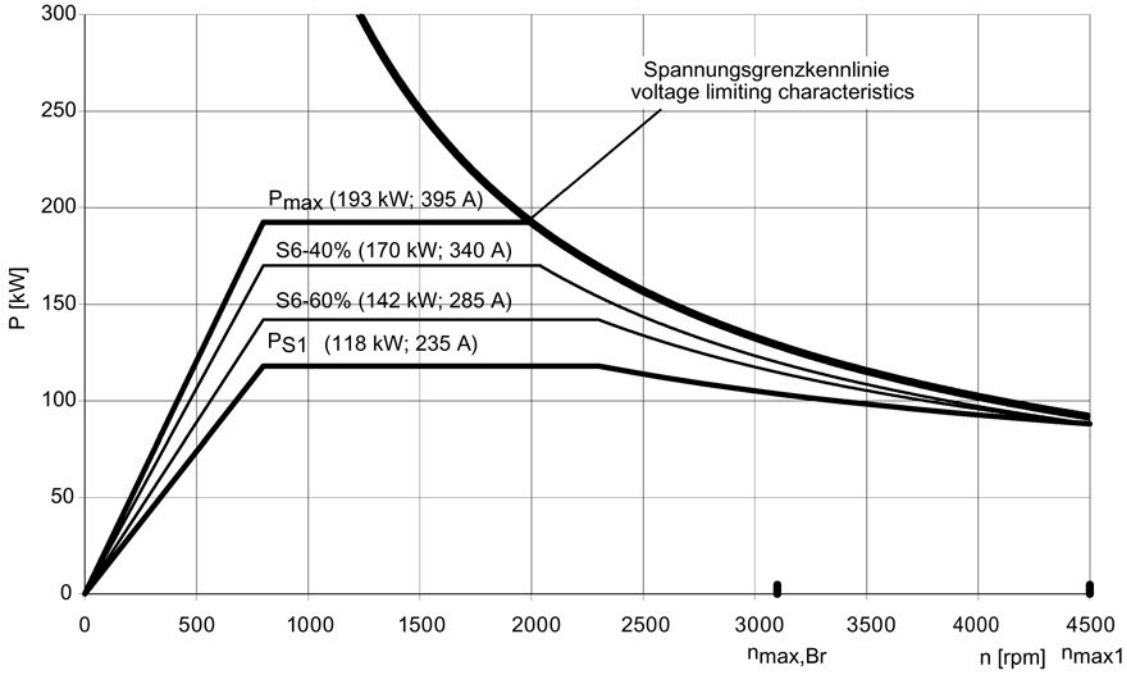


Table 6- 417 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP23)

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	1,409	235	4,500	-	-	3,100	2,300	2,300	395	1,409	235
700	106	1,446	240					2,900				



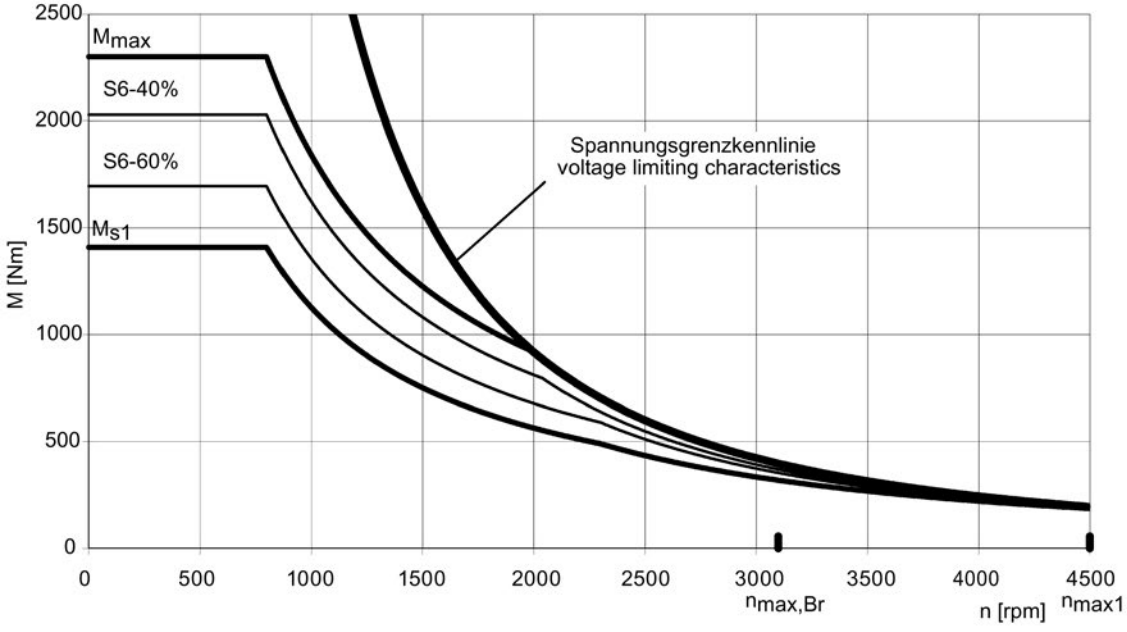
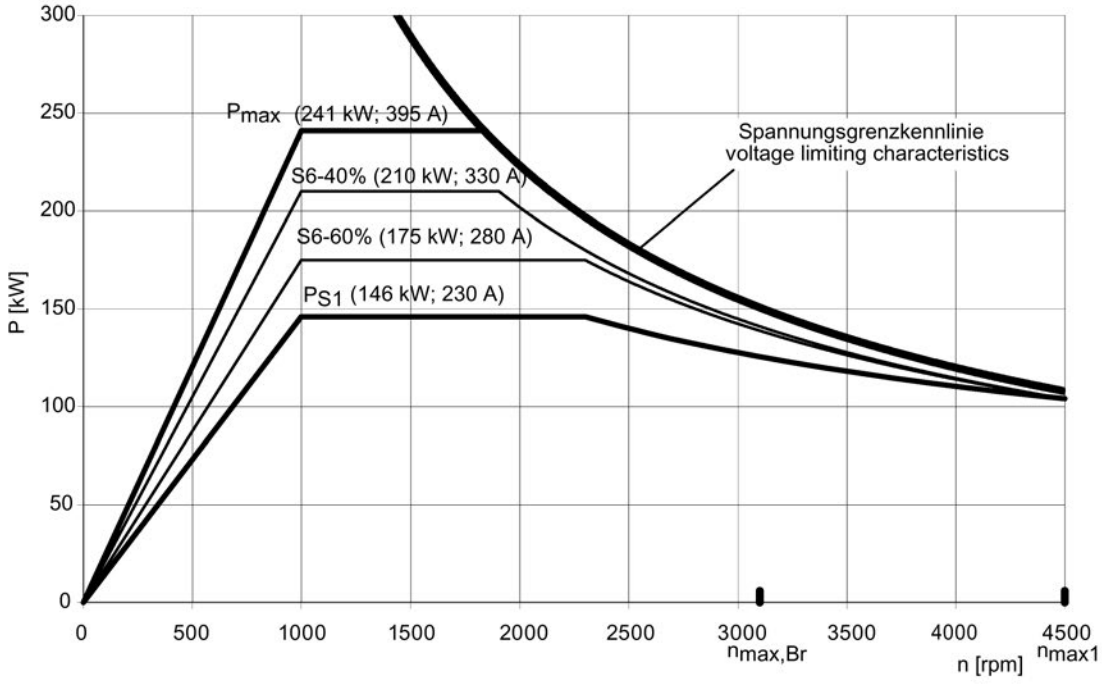


Table 6- 418 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C□□, (IP23)

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]
1,000	146	1,394	230	4,500	-	-	3,100	2,300	2,300	395	1,394	230



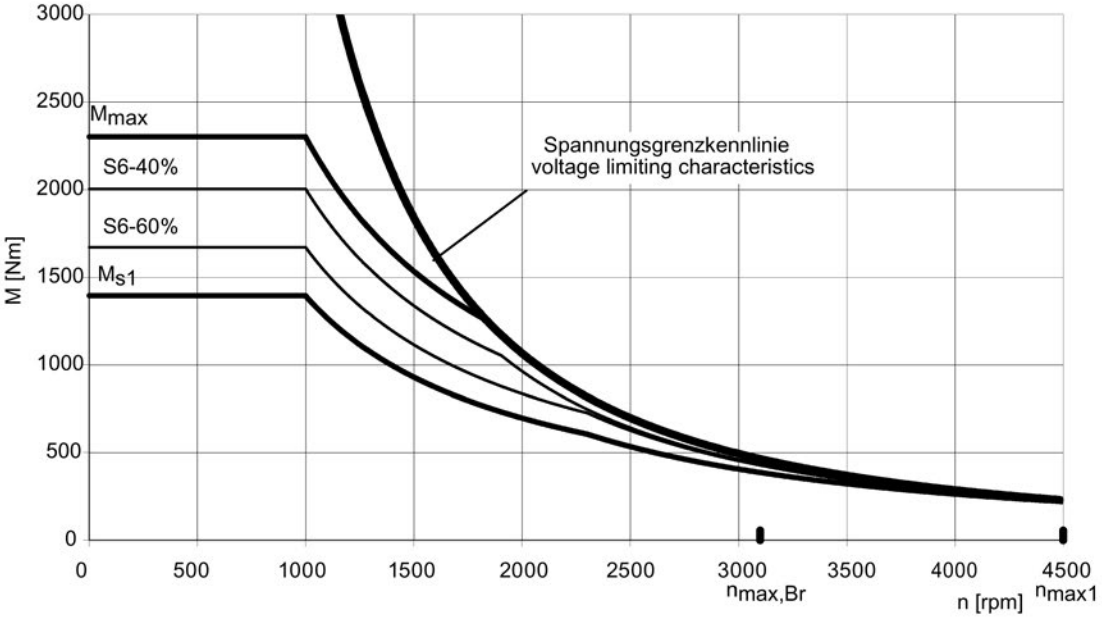
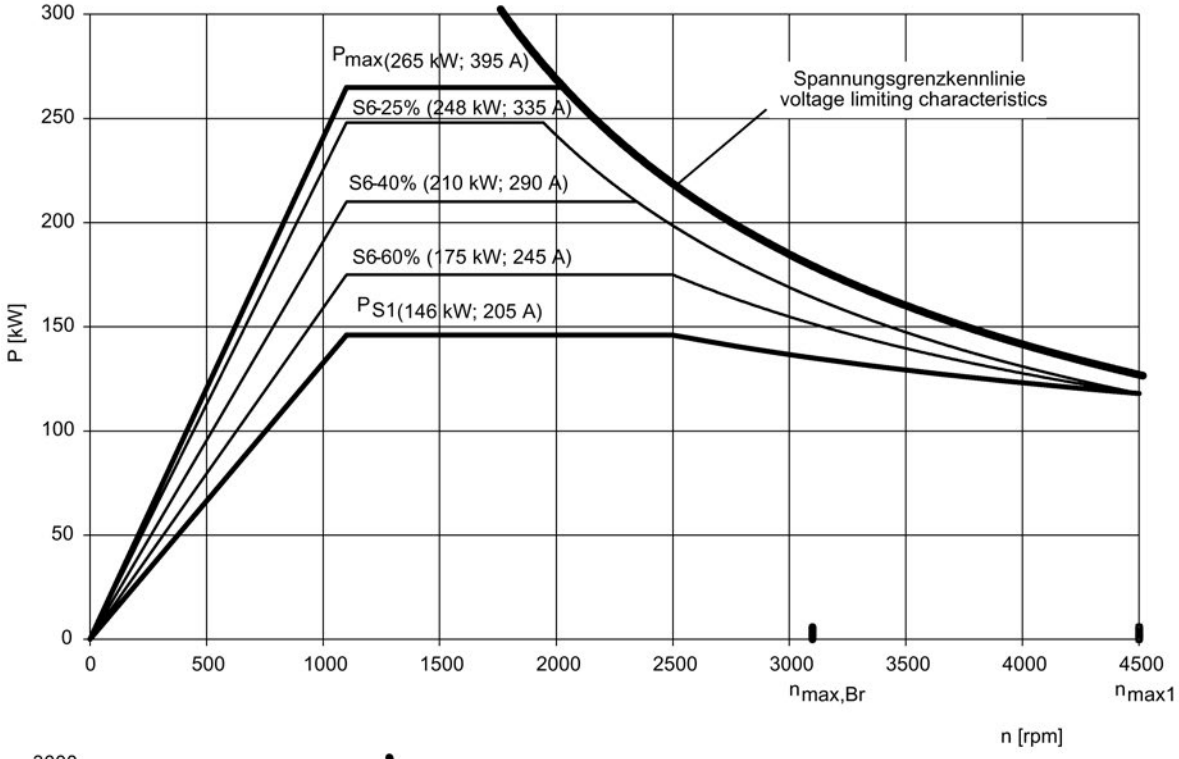


Table 6- 419 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□C□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	146	1,268	205	4,500	-	-	3,100	2,500	2,300	395	1,446	205



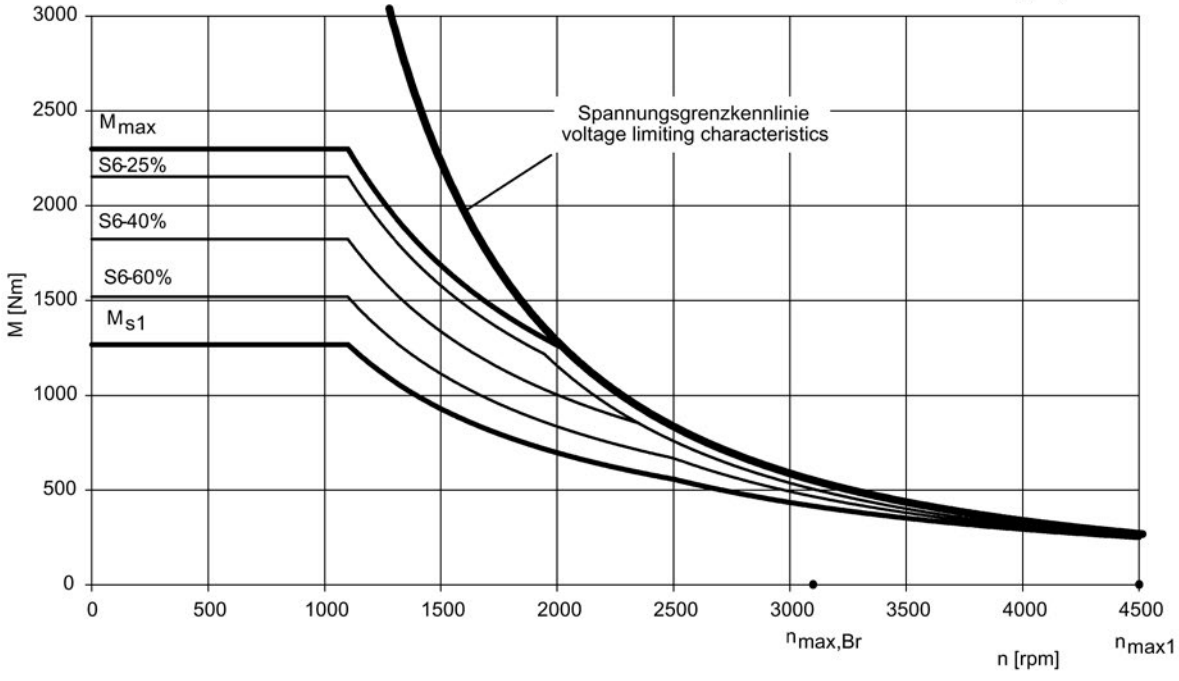
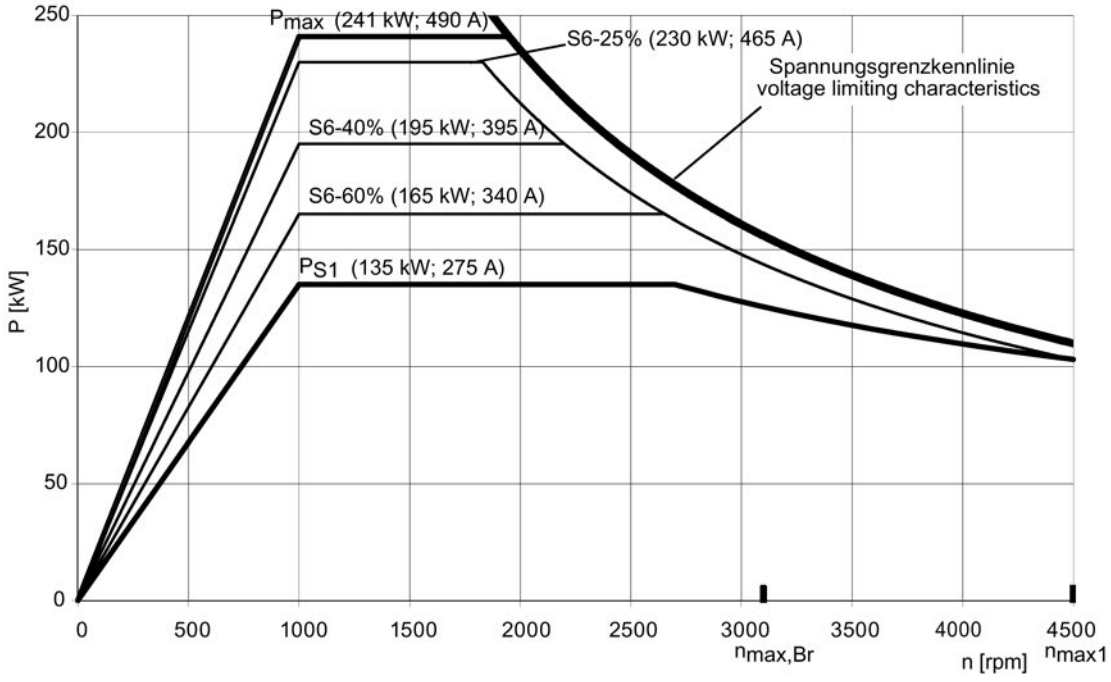


Table 6- 420 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP23)

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]
1,000	135	1,289	275	4,500	-	-	3,100	2,700	2,300	490	1,289	275



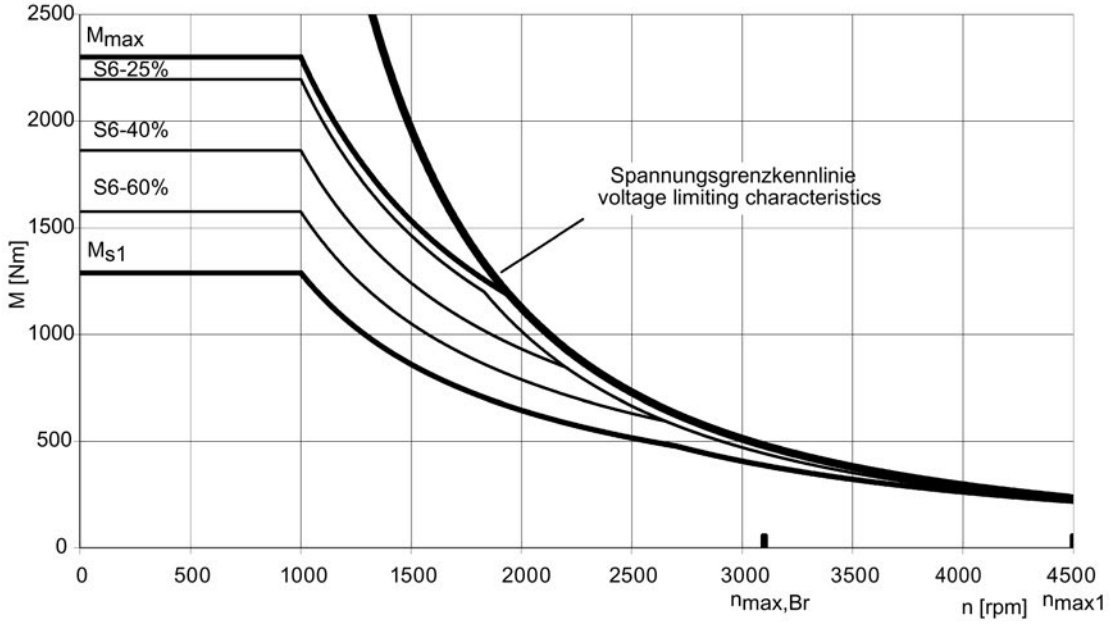
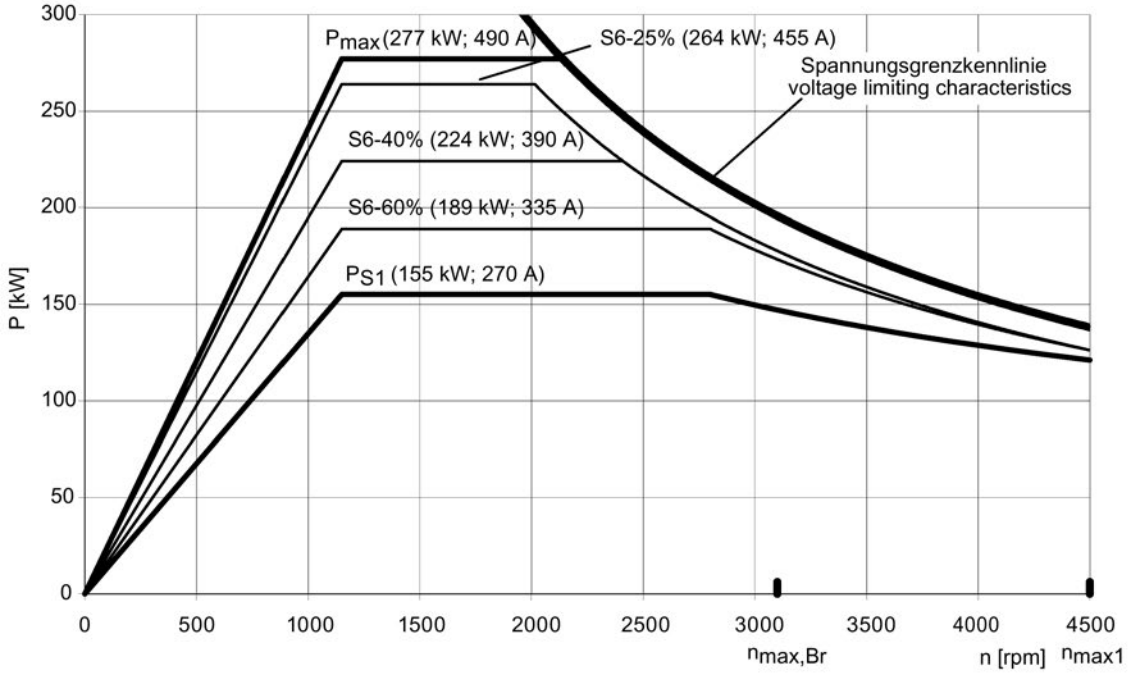


Table 6- 421 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP23)

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]
1,150	155	1,287	270	4,500	-	-	3,100	2,800	2,300	490	1,287	270
1,000	135	1,289	275					3,600				



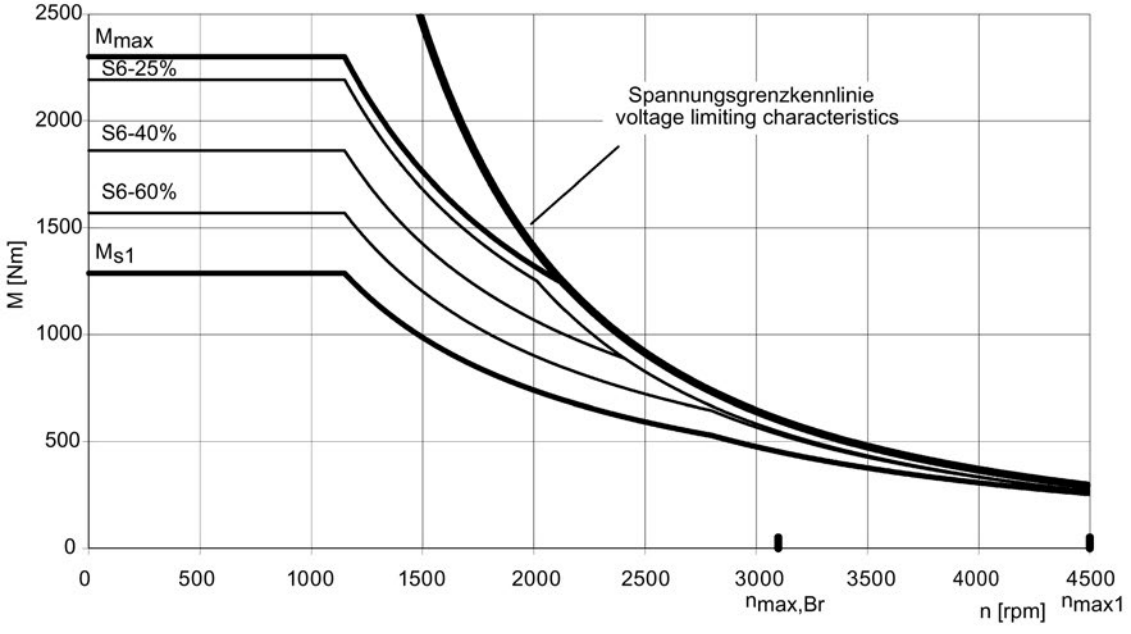
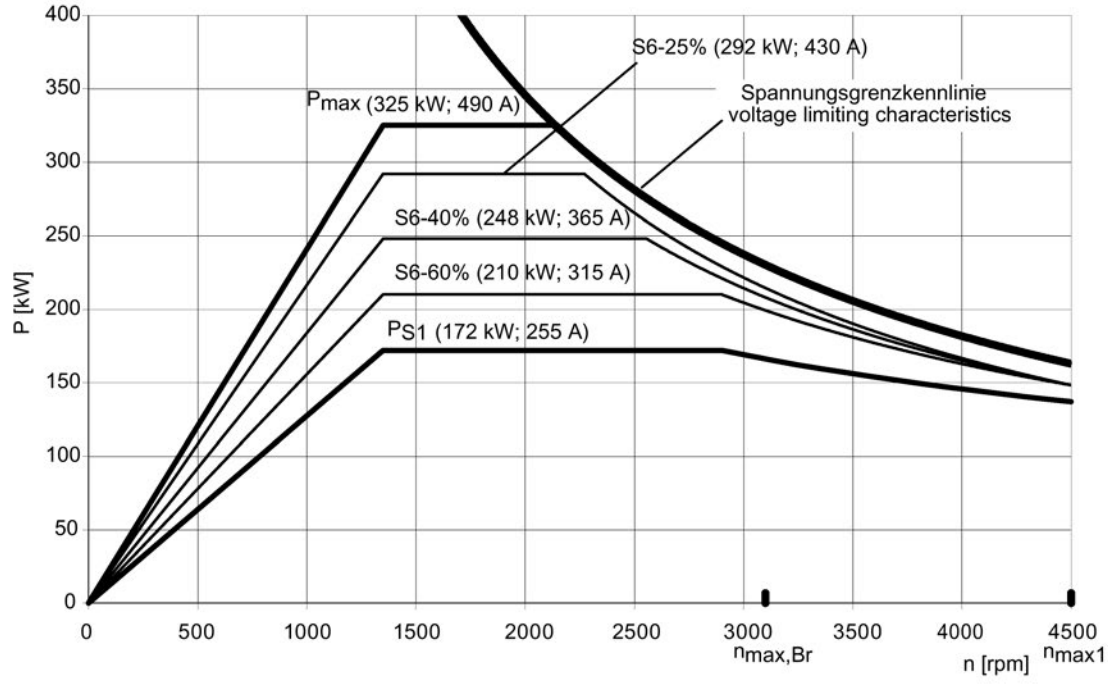


Table 6- 422 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D□□, (IP23)

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]
1,350	172	1,217	255	4,500	-	-	3,100	2,900	2,300	490	1,217	255



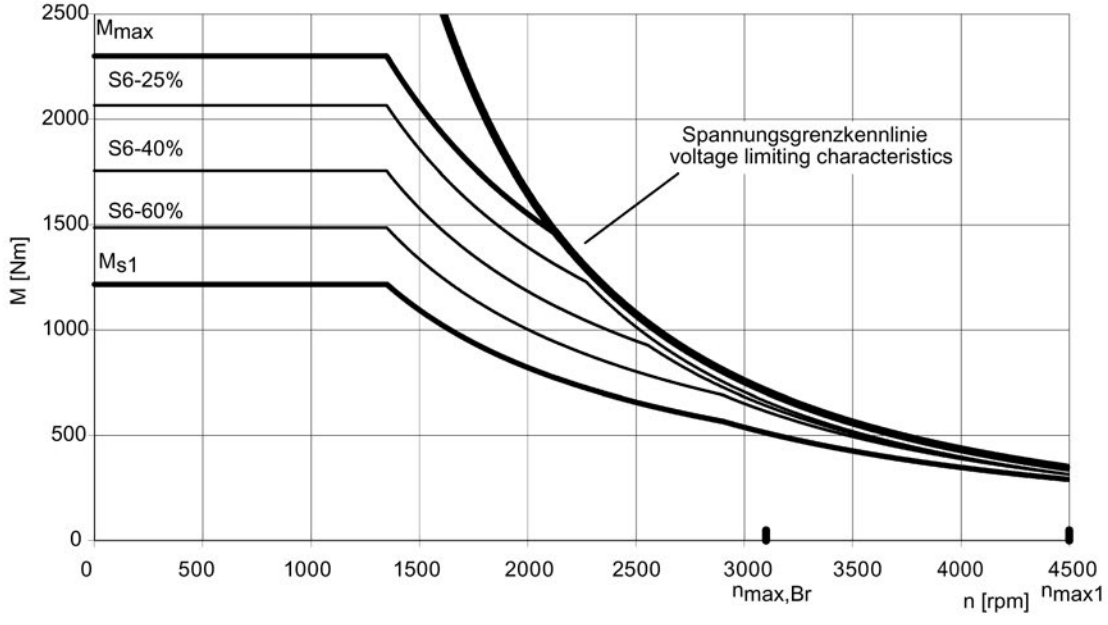
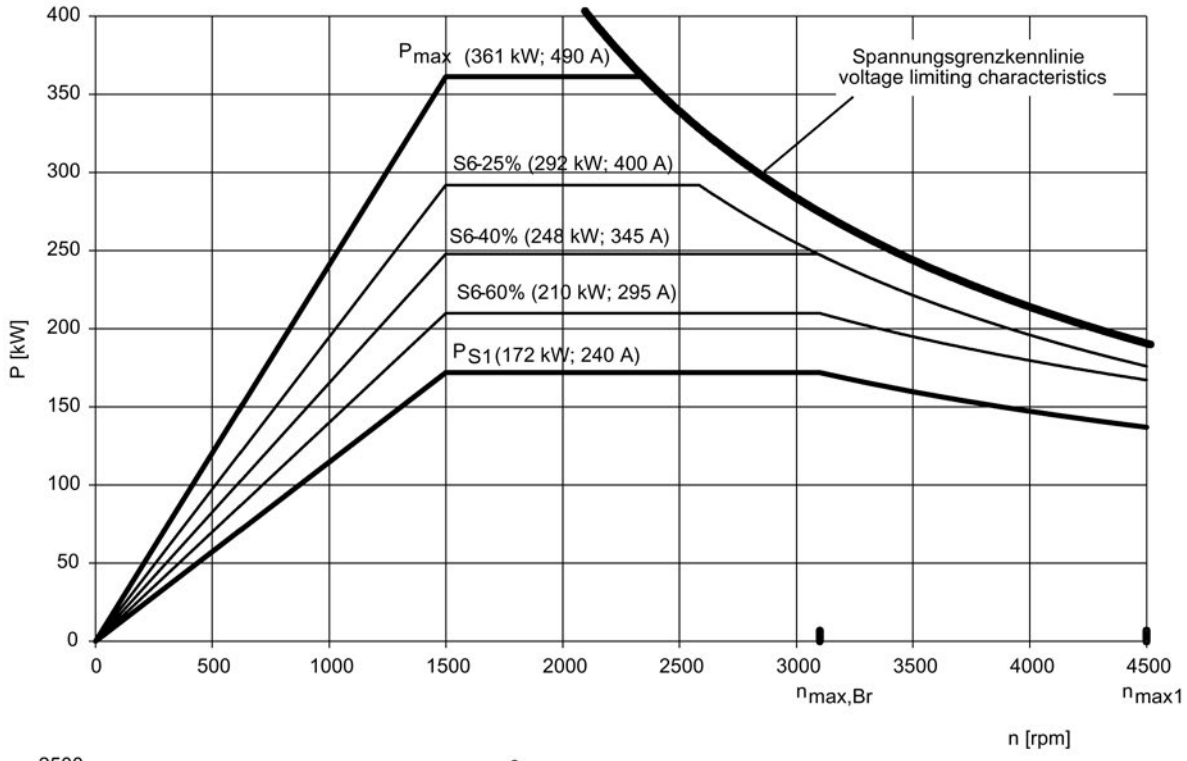


Table 6- 423 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□D□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	172	1,095	240	4,500	-	-	3,100	3,100	2,300	490	1,289	240



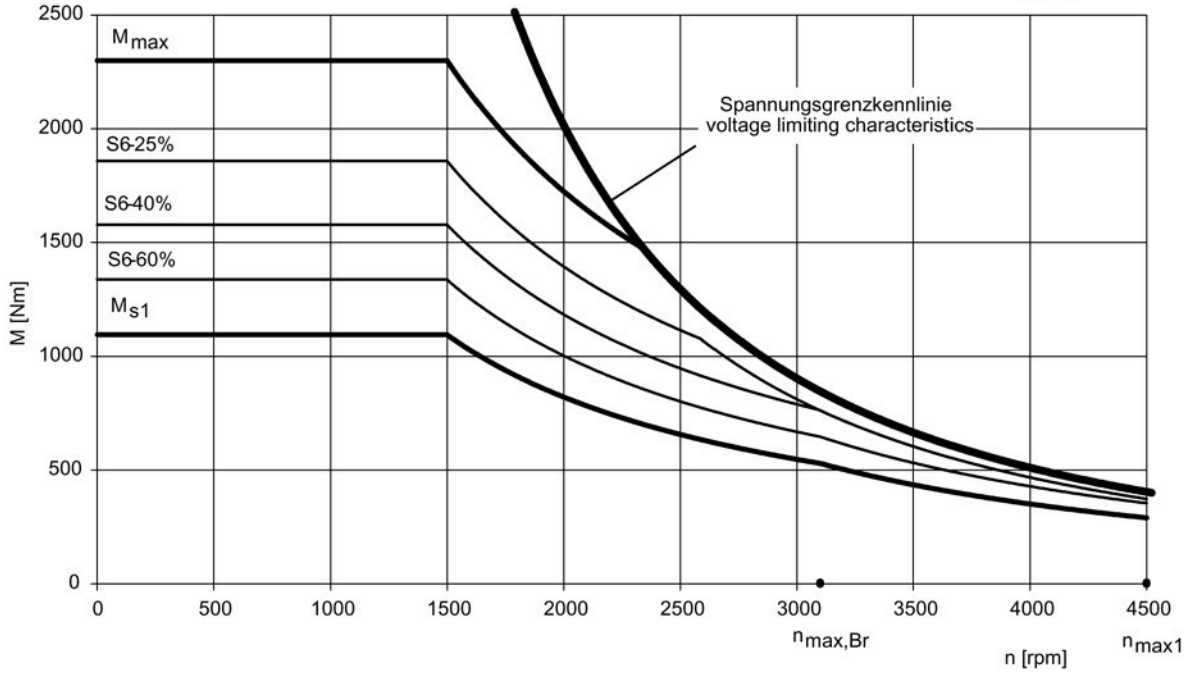
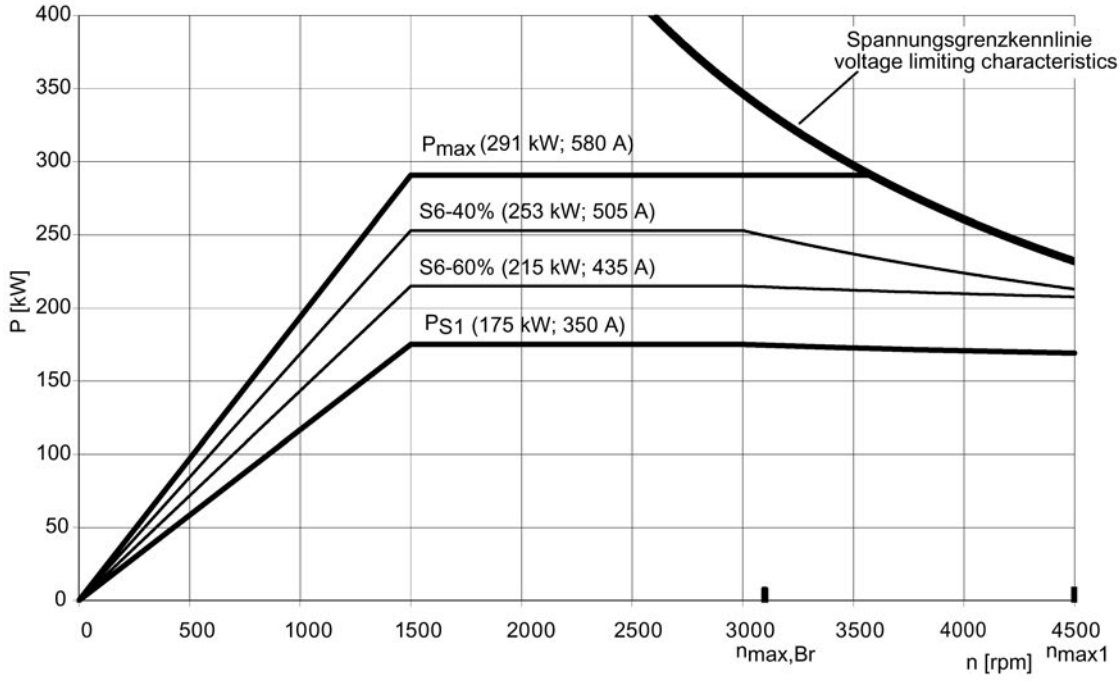


Table 6- 424 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP23)

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]
1,500	175	1,114	350	4,500	-	-	3,100	3,000	1,850	580	1,114	350



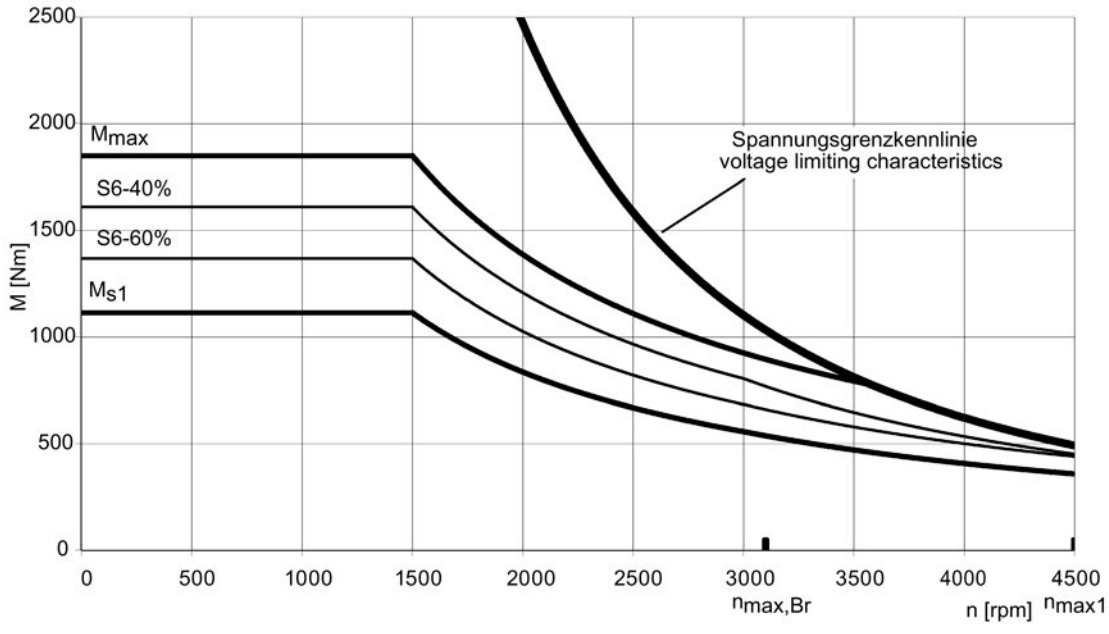
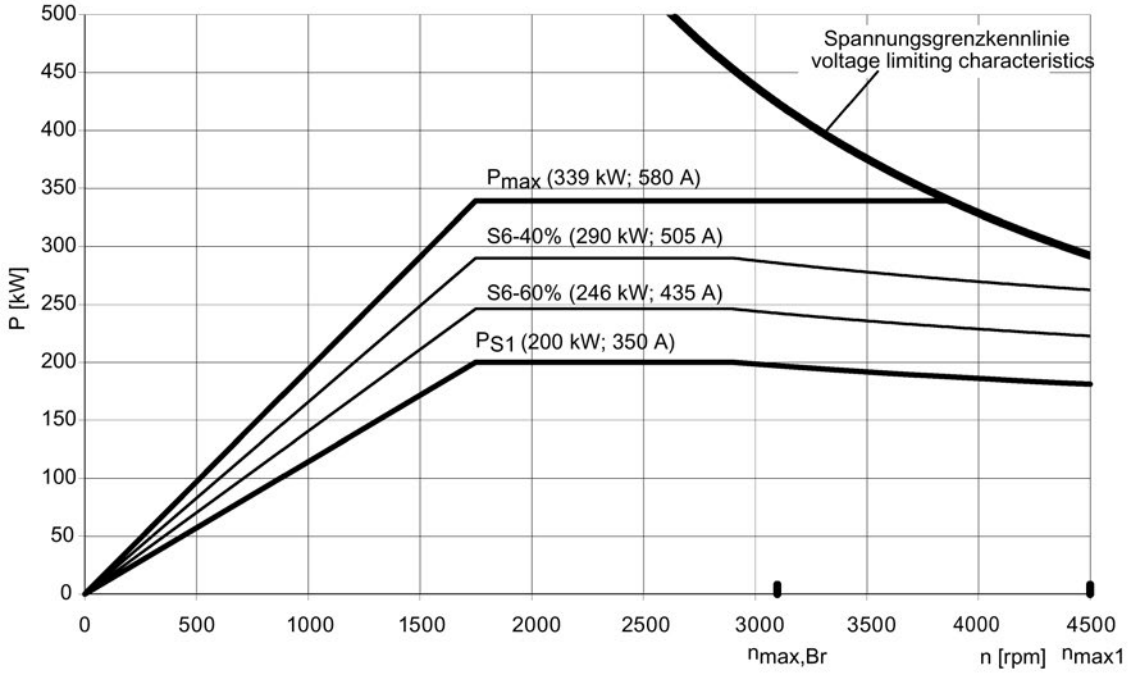


Table 6- 425 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP23)

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]
1,750	200	1,091	350	4,500	-	-	3,100	2,900	1,850	580	1,091	350
1,500	175	1,114	350					4,500				



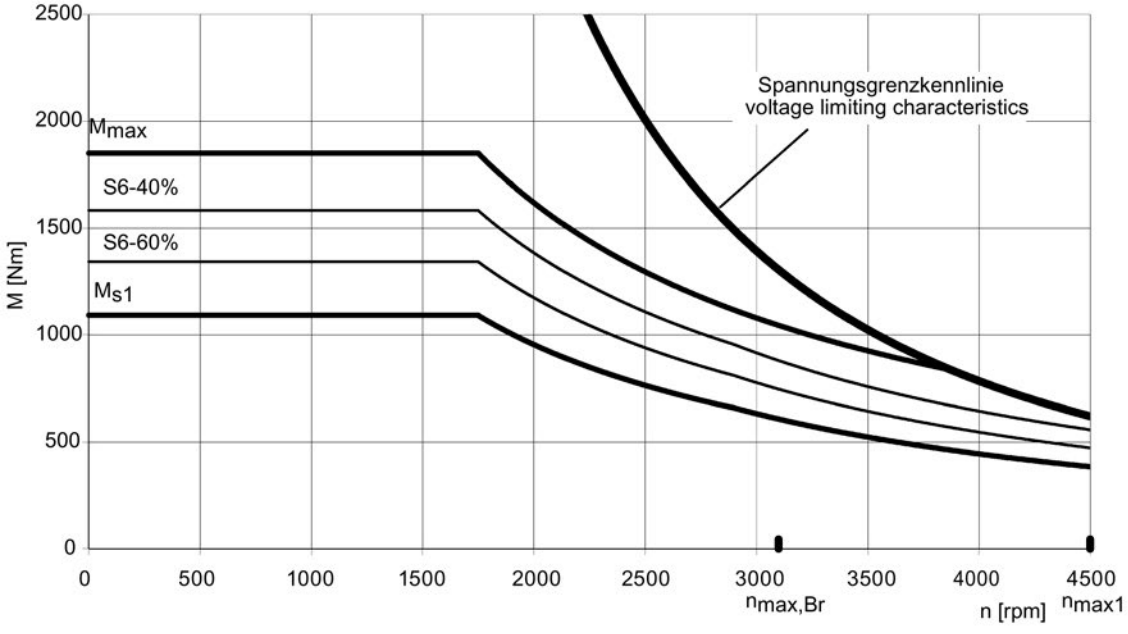
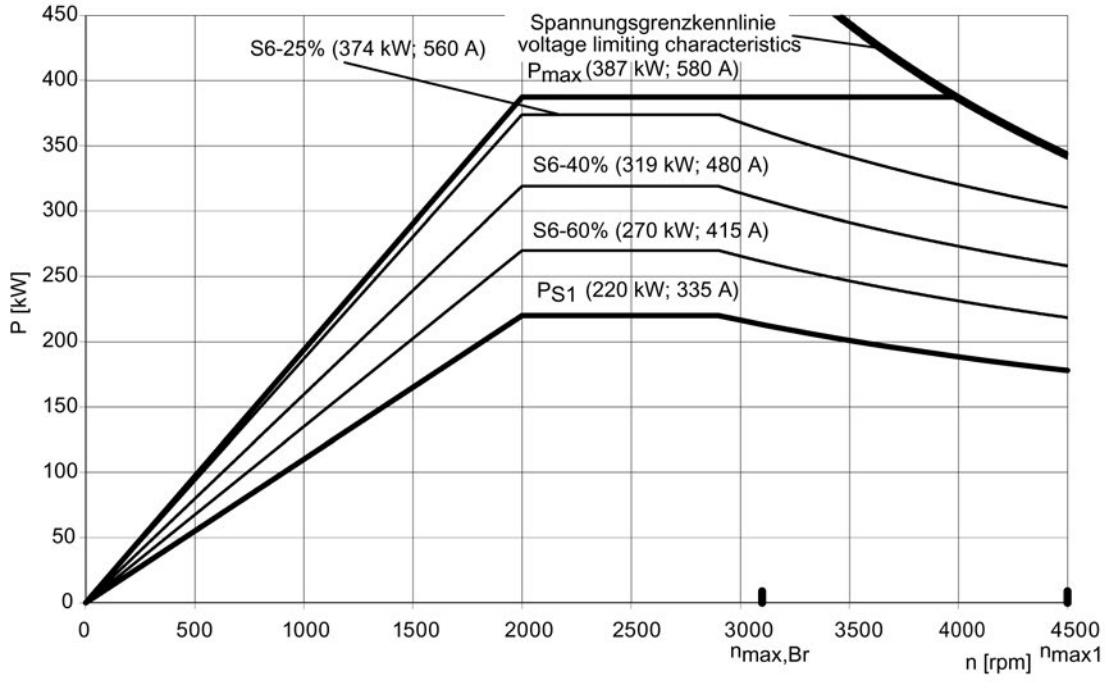


Table 6- 426 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F□□, (IP23)

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]
2,000	220	1,051	335	4,500	-	-	3,100	2,900	1,850	580	1,051	335



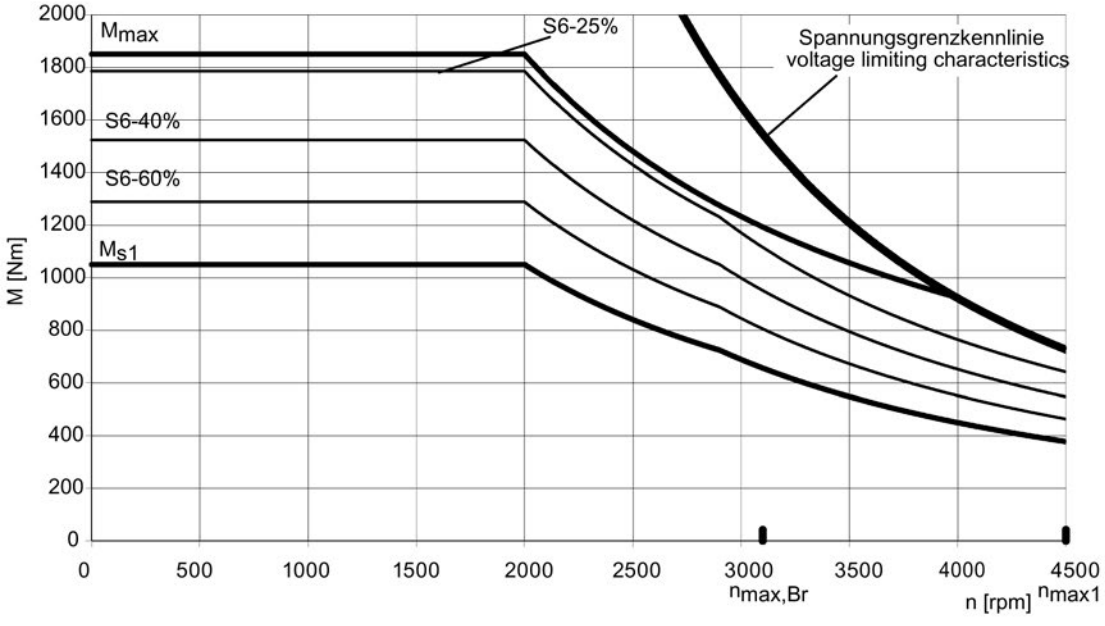
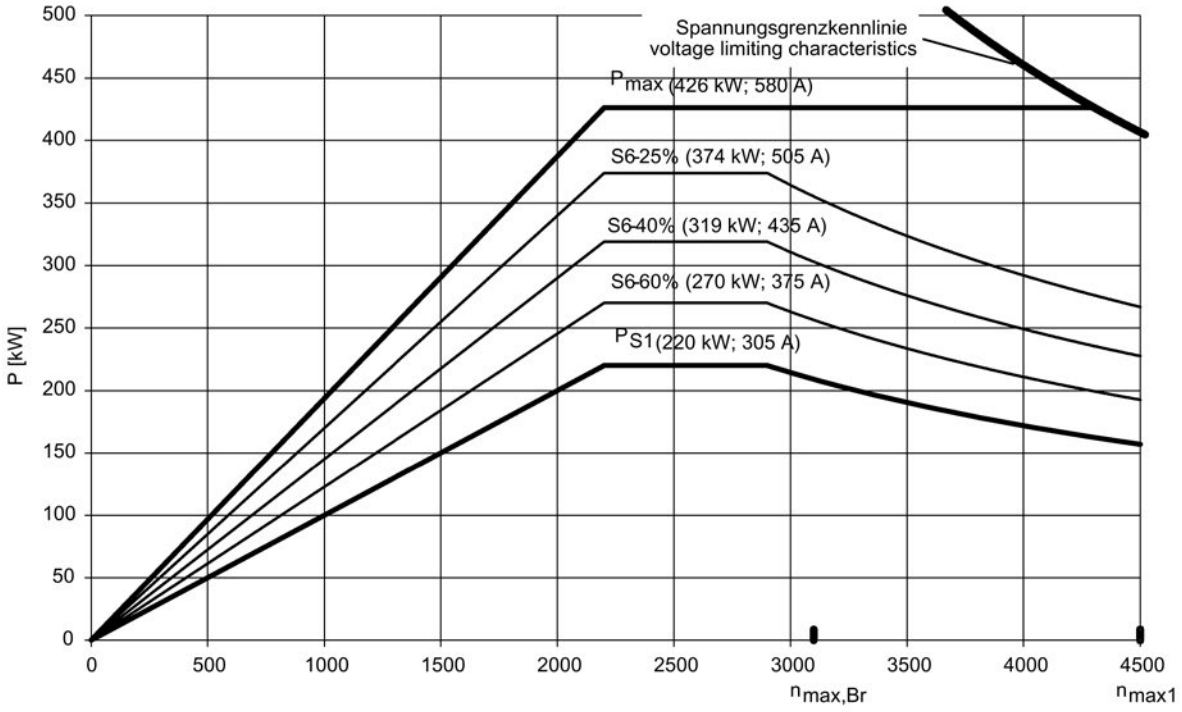


Table 6- 427 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8226-□□F□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	220	955	305	4,500	-	-	3,100	2,900	1,850	580	1,114	305



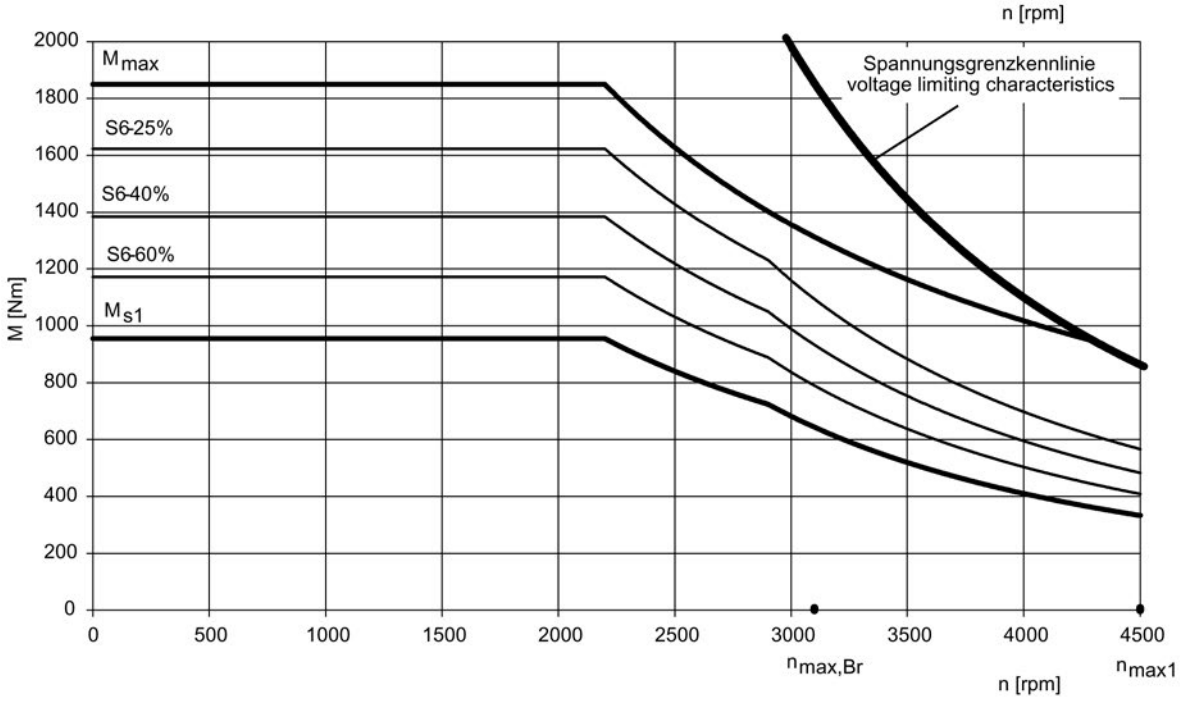
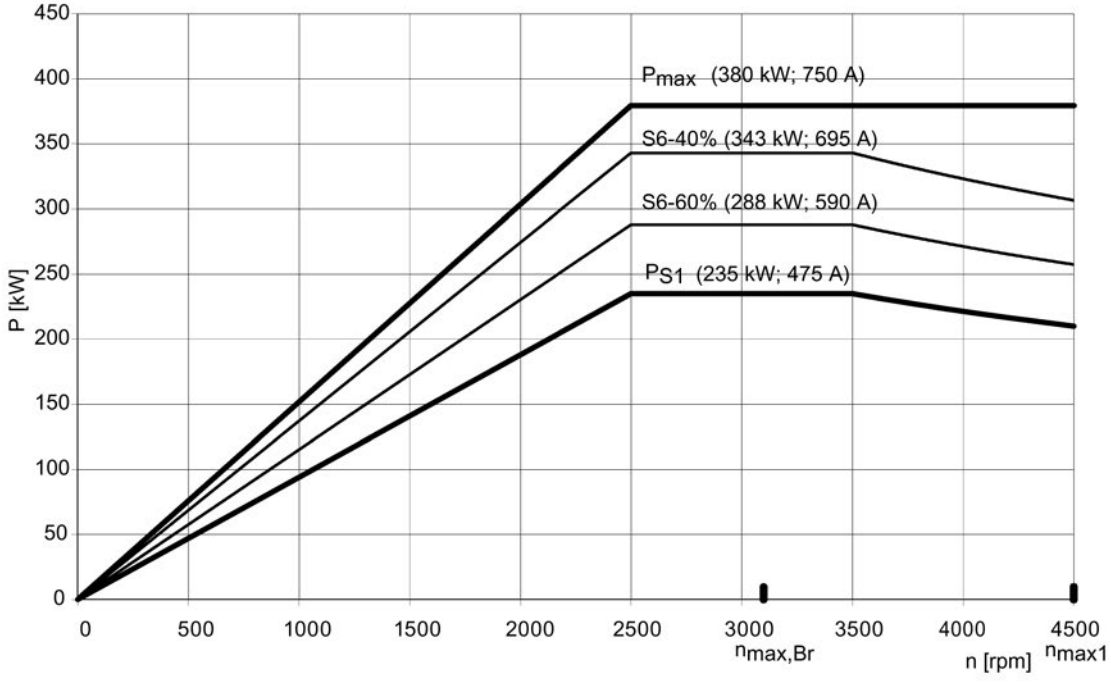


Table 6- 428 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L□□, (IP23)

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]
2,500	235	898	475	4,500	-	-	3,100	3,500	1,450	750	898	475



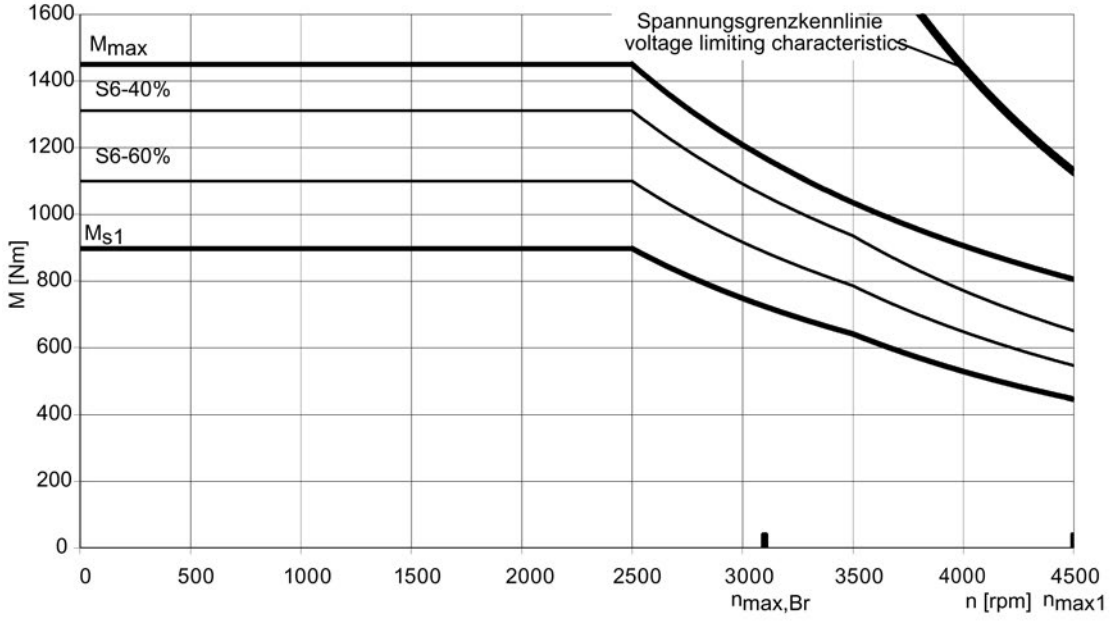
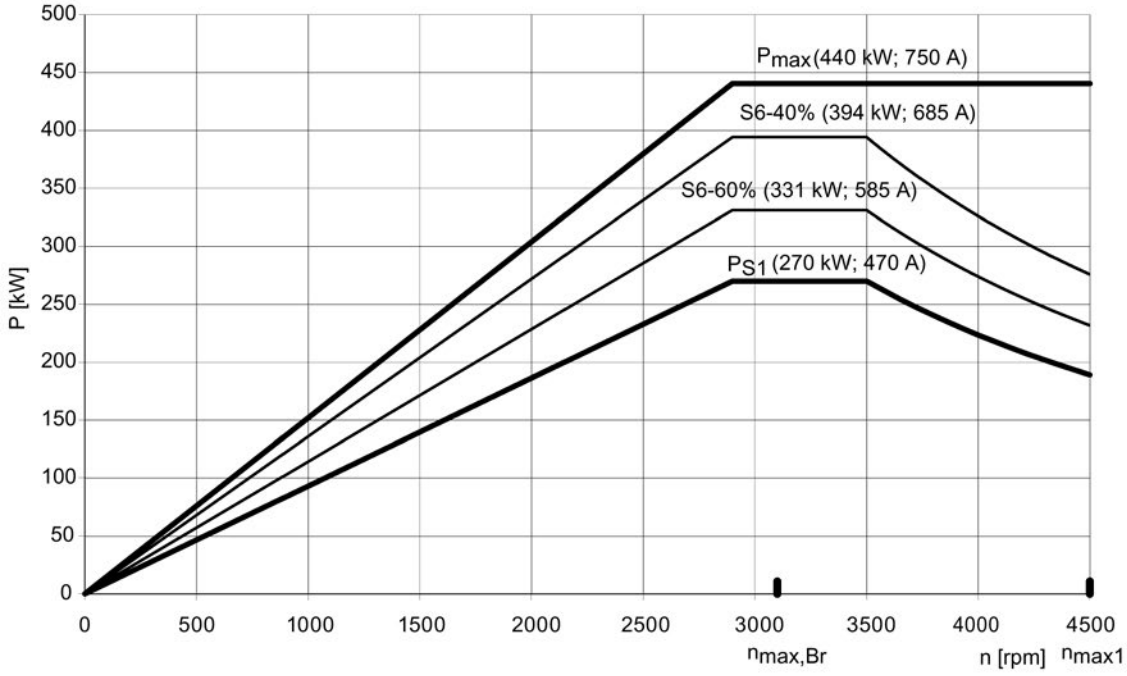


Table 6- 429 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L□□, (IP23)

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]
2,900	270	889	470	4,500	-	-	3,100	3,500	1,450	750	889	470
2,500	235	898	475					3,900				



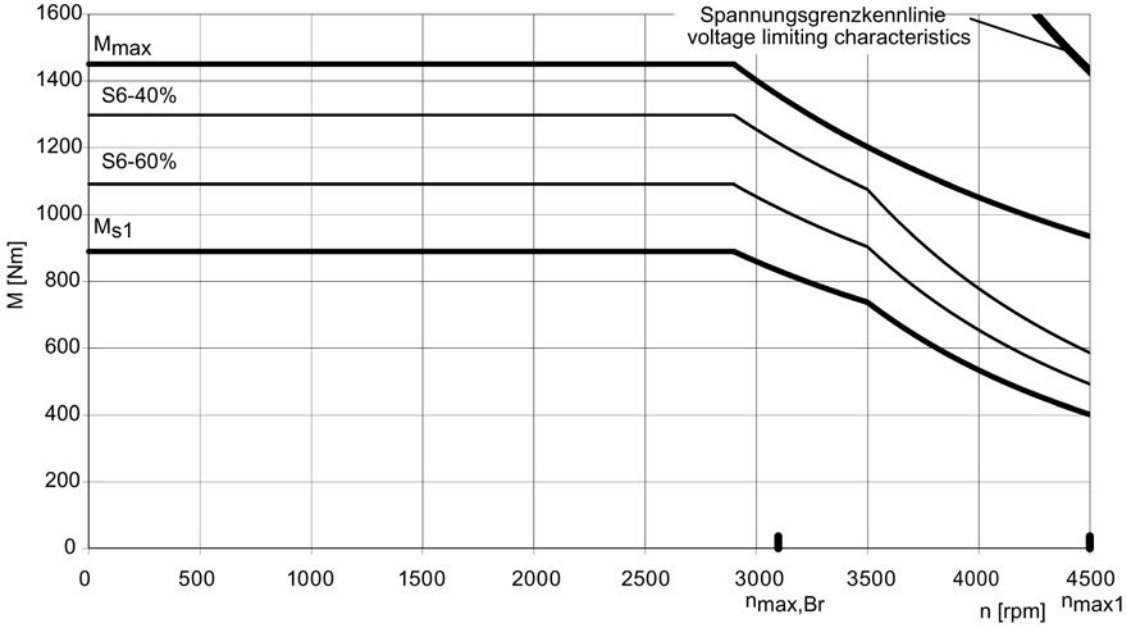
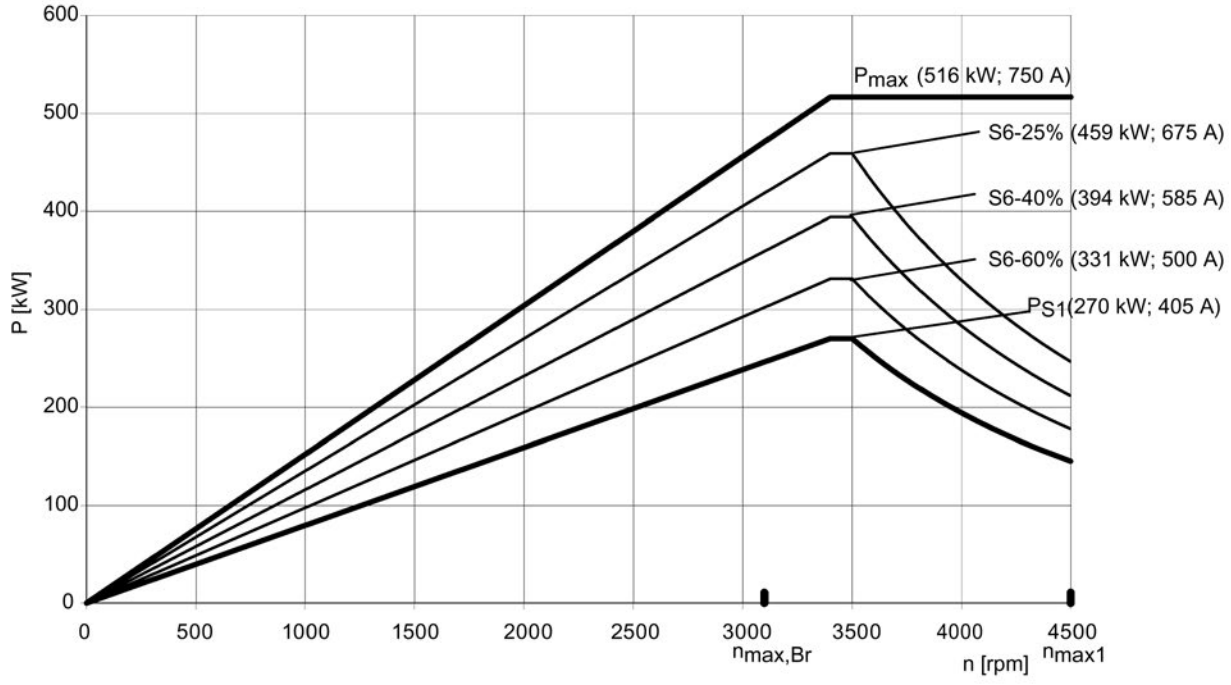


Table 6- 430 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L□□, (IP23)

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]
3,400	270	758	405	4,500	-	-	3,100	3,500	1,450	750	758	405



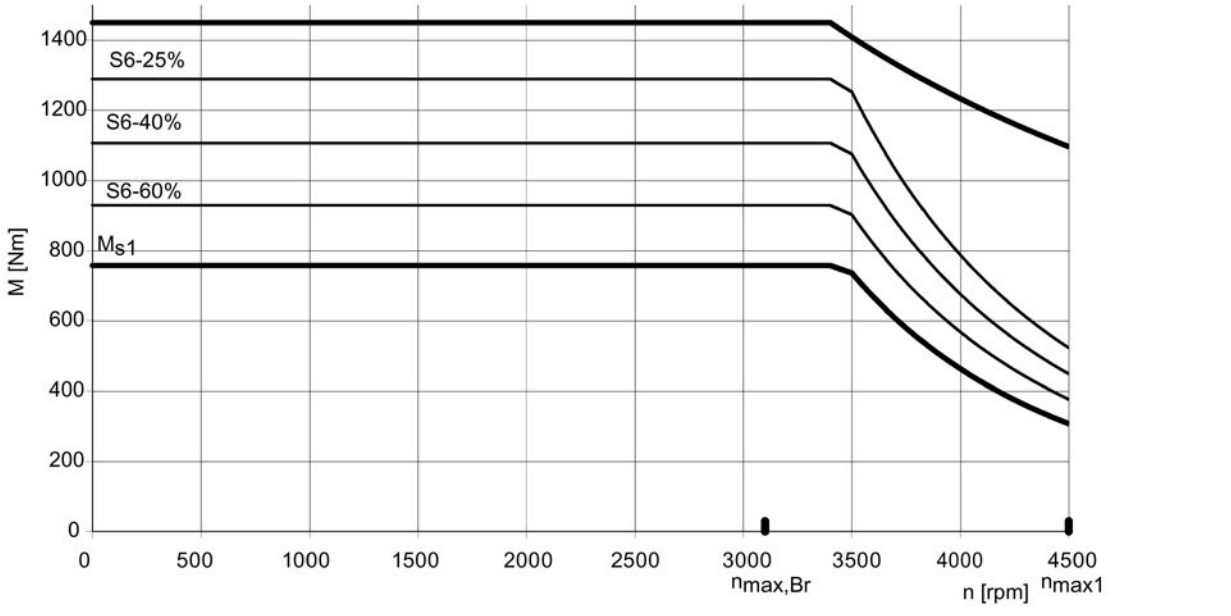
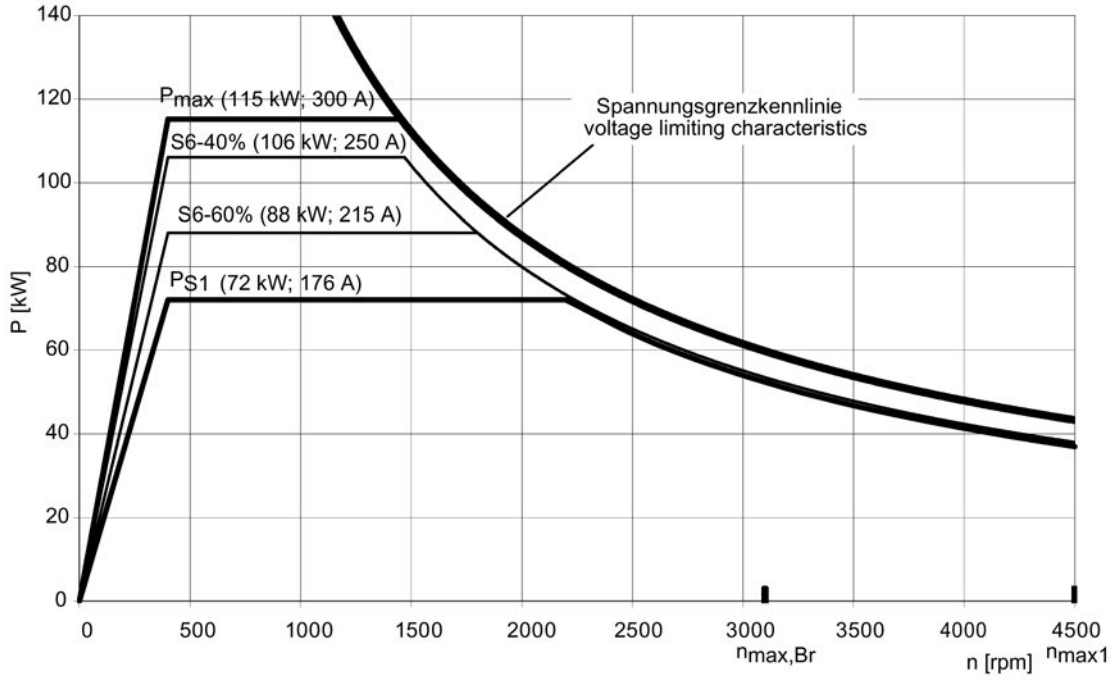


Table 6- 431 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B□□, (IP23)

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	1,719	176	4,500	-	-	3,100	2,200	2,750	300	1,719	176



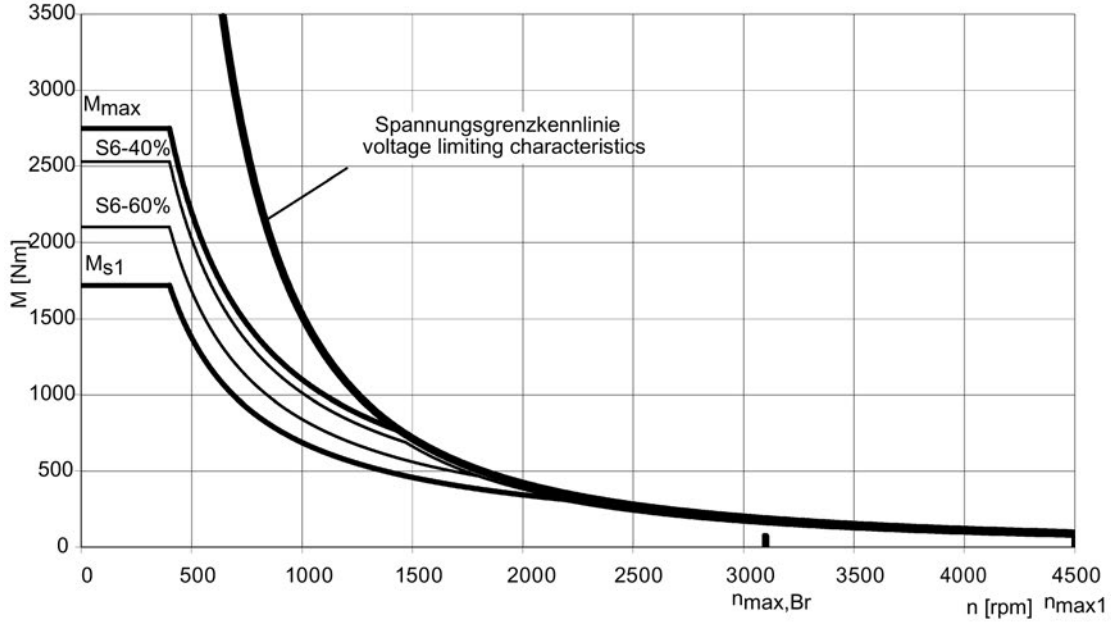
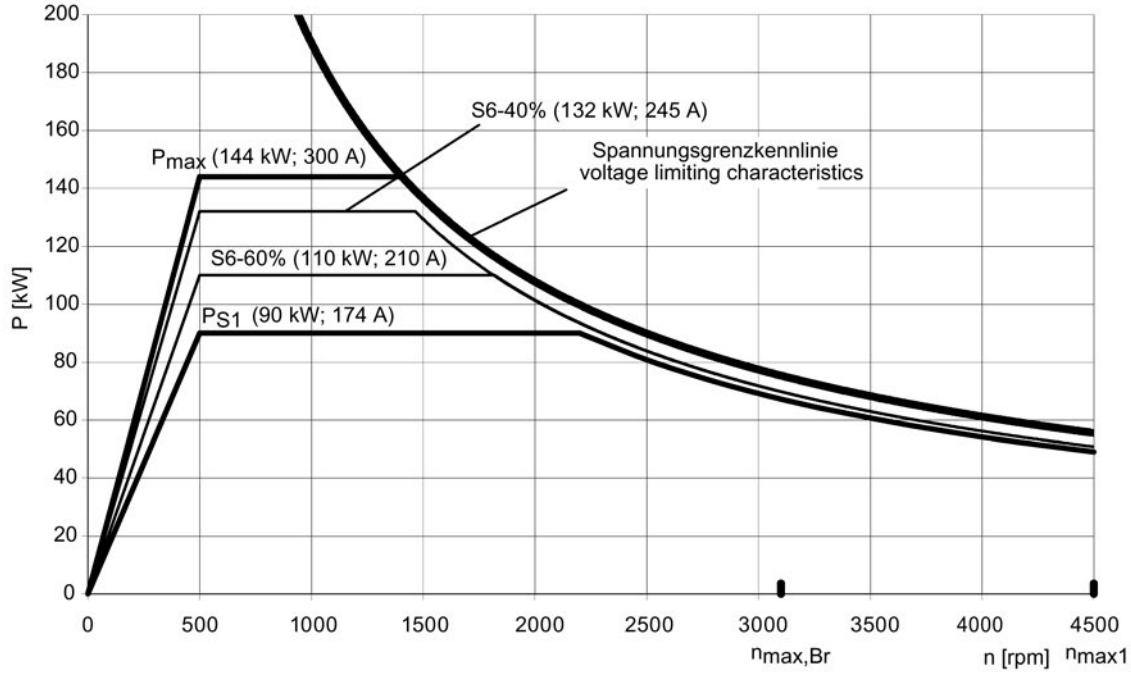


Table 6- 432 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP23)

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	1,719	174	4,500	-	-	3,100	2,200	2,750	300	1,719	174
400	72	1,719	176					2,900				



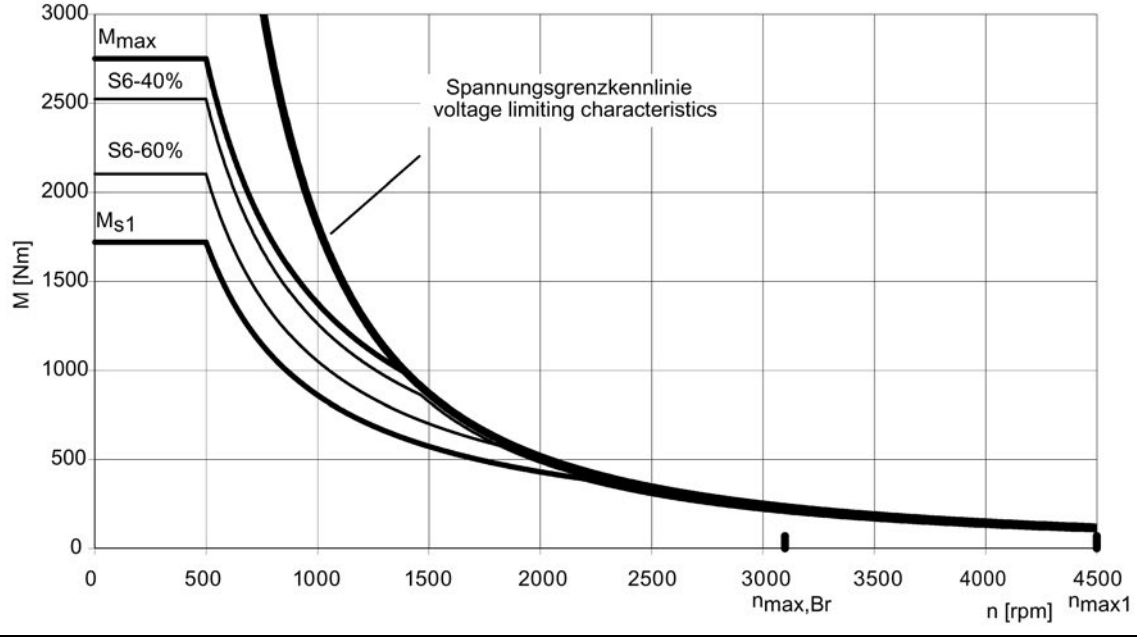
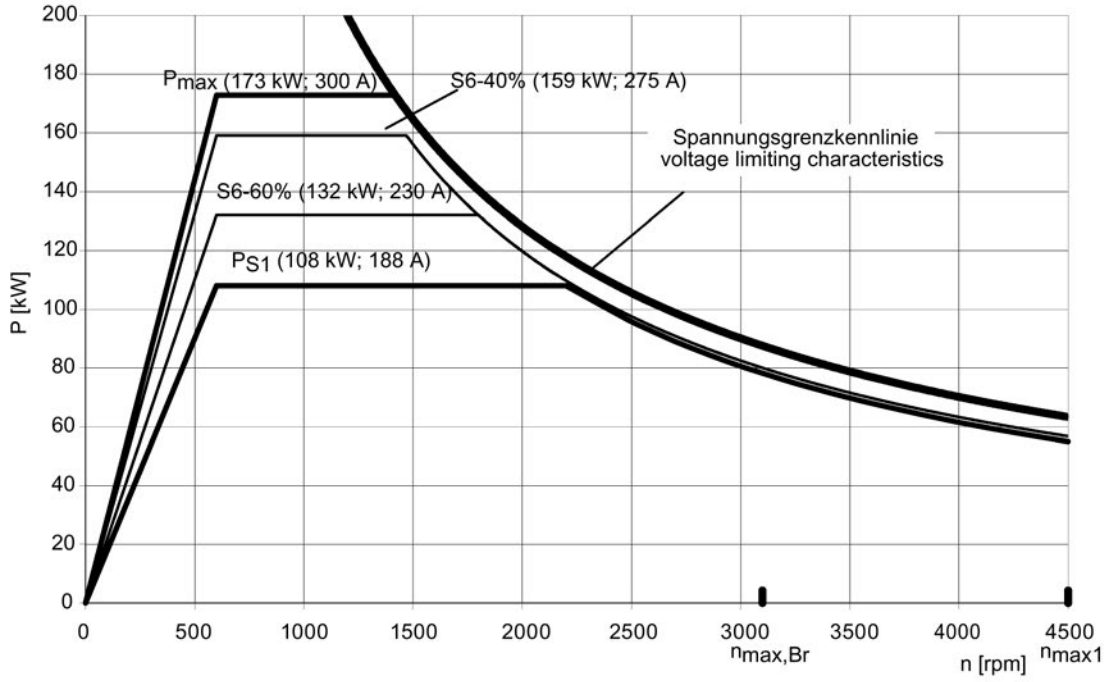


Table 6- 433 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B□□, (IP23)

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	1,719	188	4,500	-	-	3,100	2,200	2,750	300	1,719	188



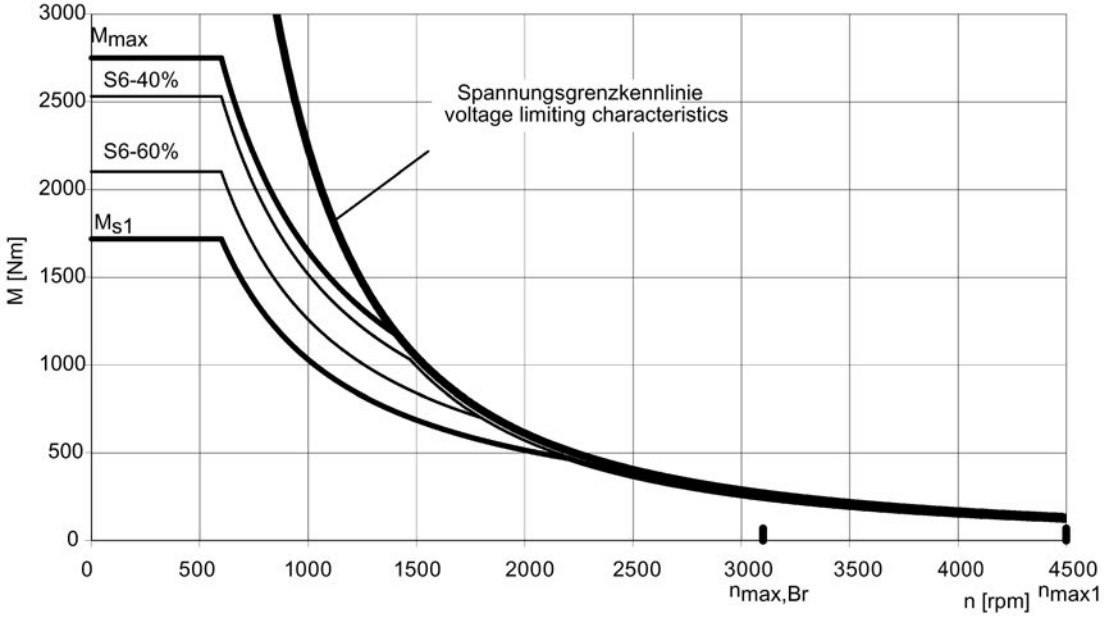
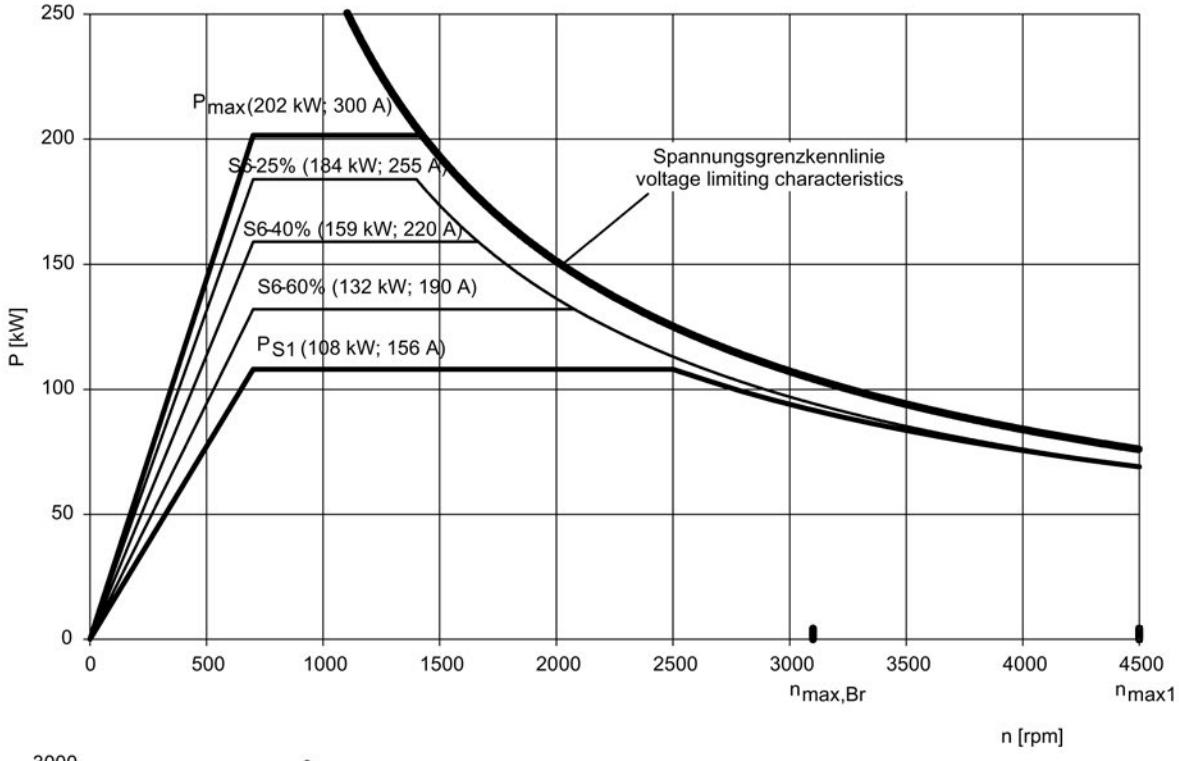


Table 6- 434 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□B□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	108	1,473	156	4,500	-	-	3,100	2,500	2,750	300	1,719	156



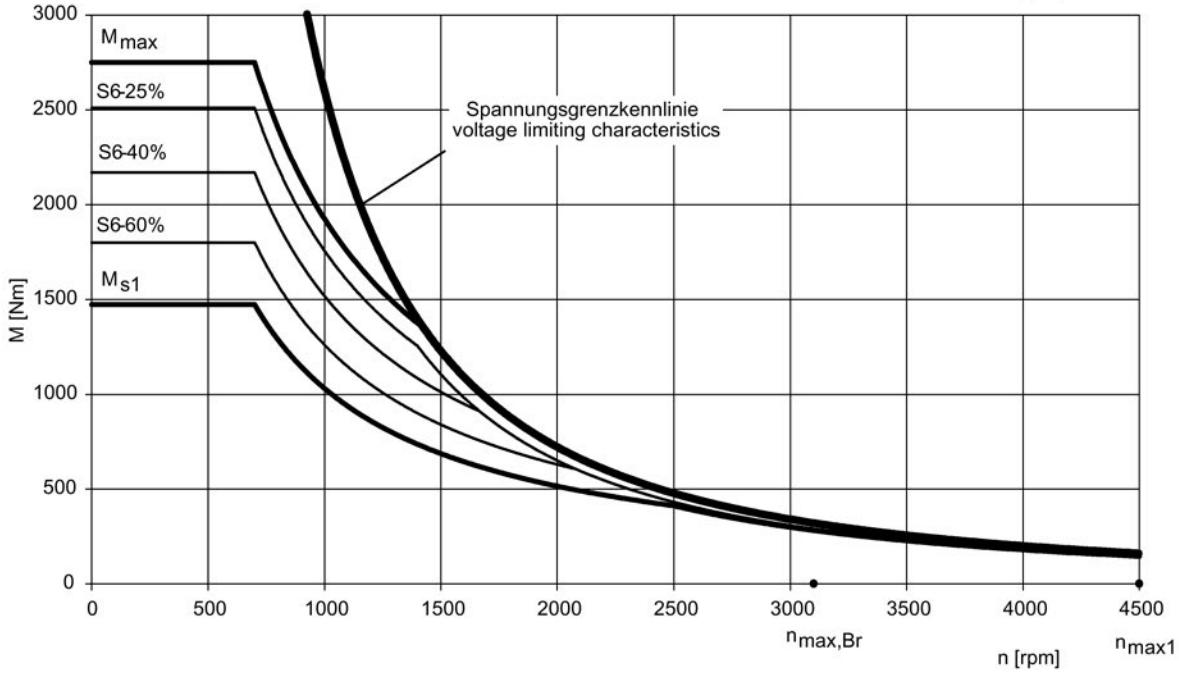
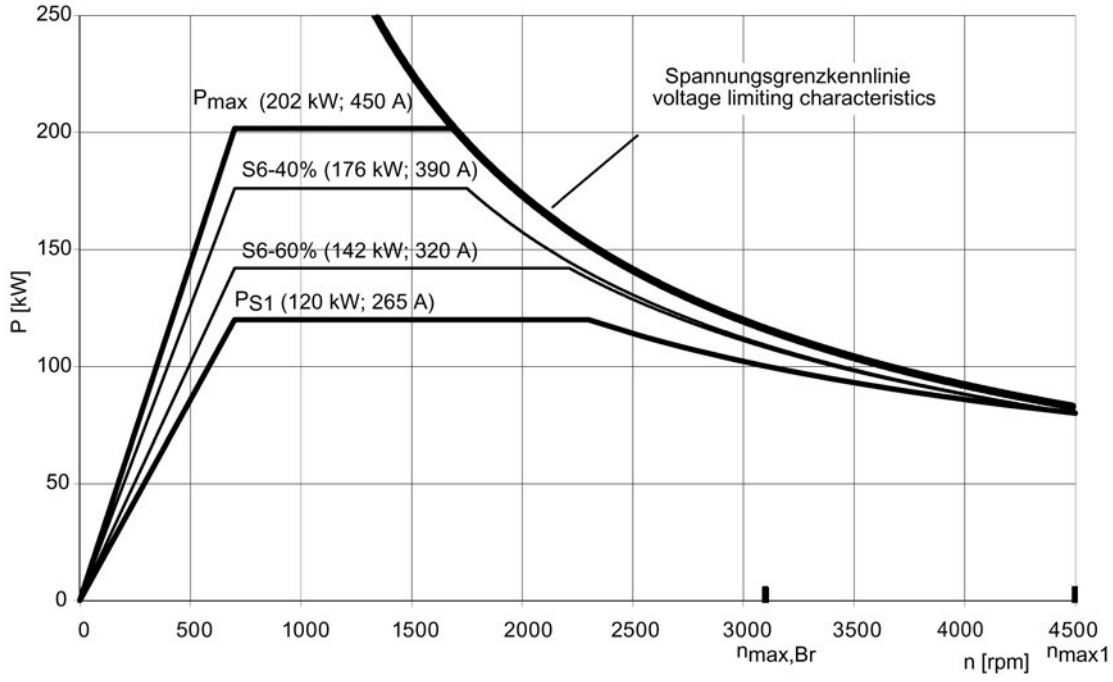


Table 6- 435 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP23)

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	1,637	265	4,500	-	-	3,100	2,300	2,750	450	1,637	265



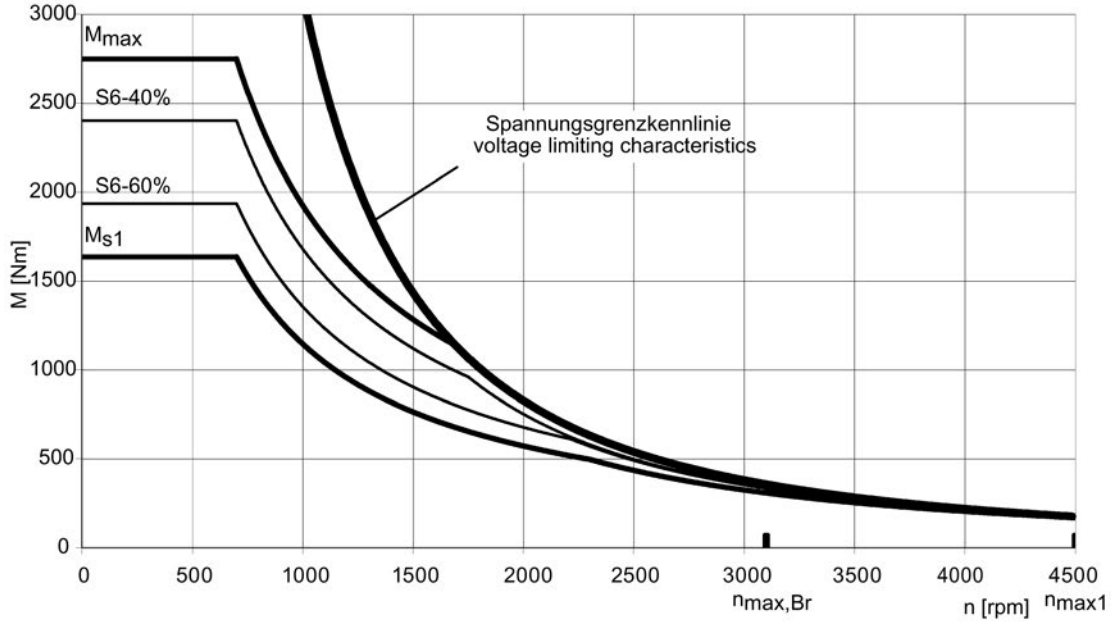
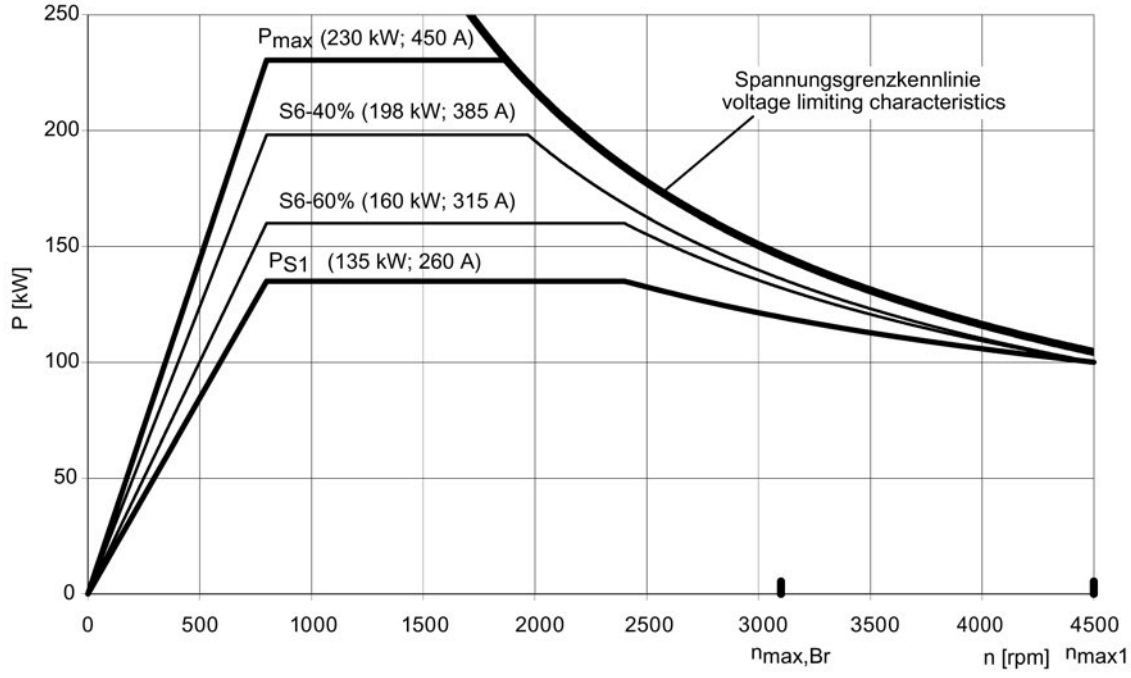


Table 6- 436 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP23)

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	1,612	260	4,500	-	-	3,100	2,400	2,750	450	1,612	260
700	120	1,637	265					3,100				



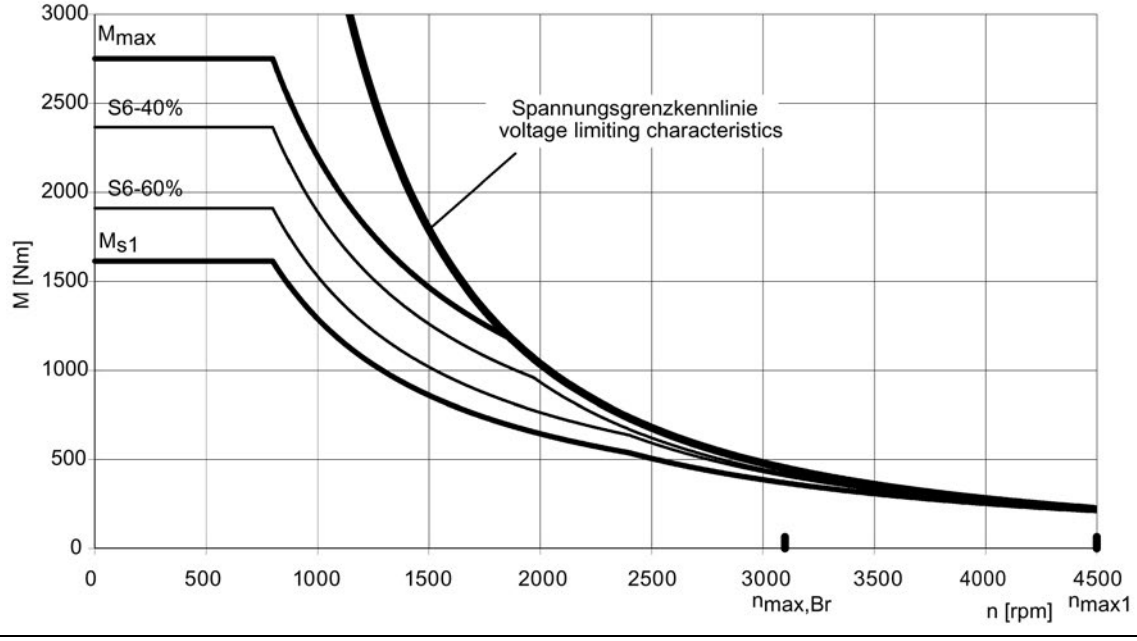
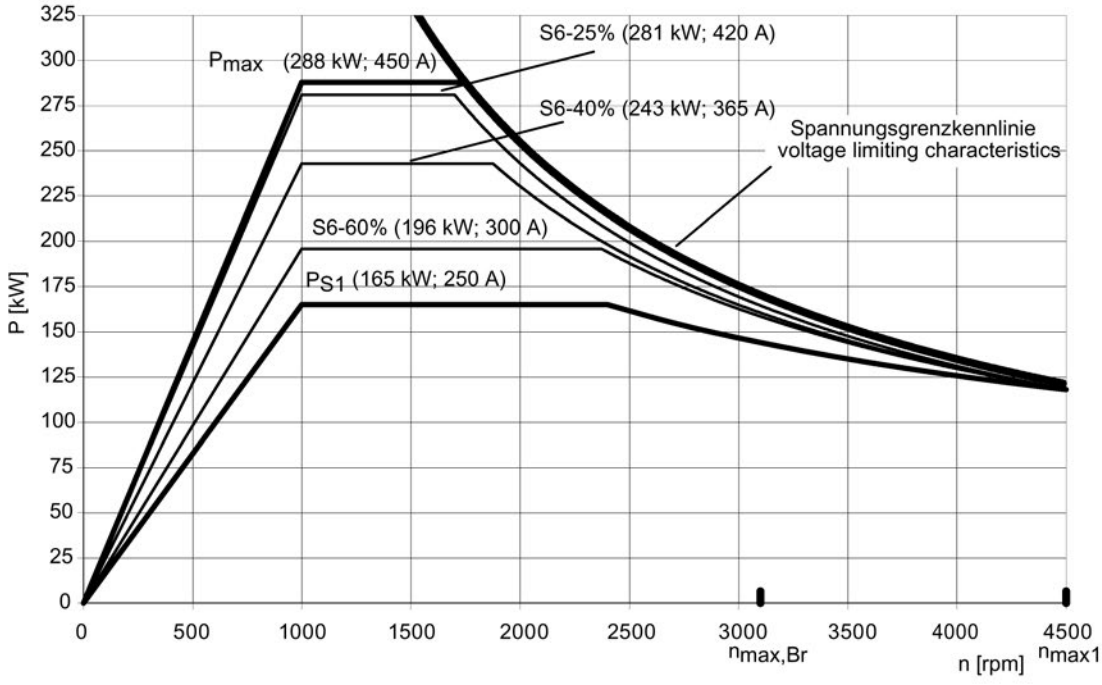


Table 6- 437 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C□□, (IP23)

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]
1,000	165	1,576	250	4,500	-	-	3,100	2,400	2,750	450	1,576	250



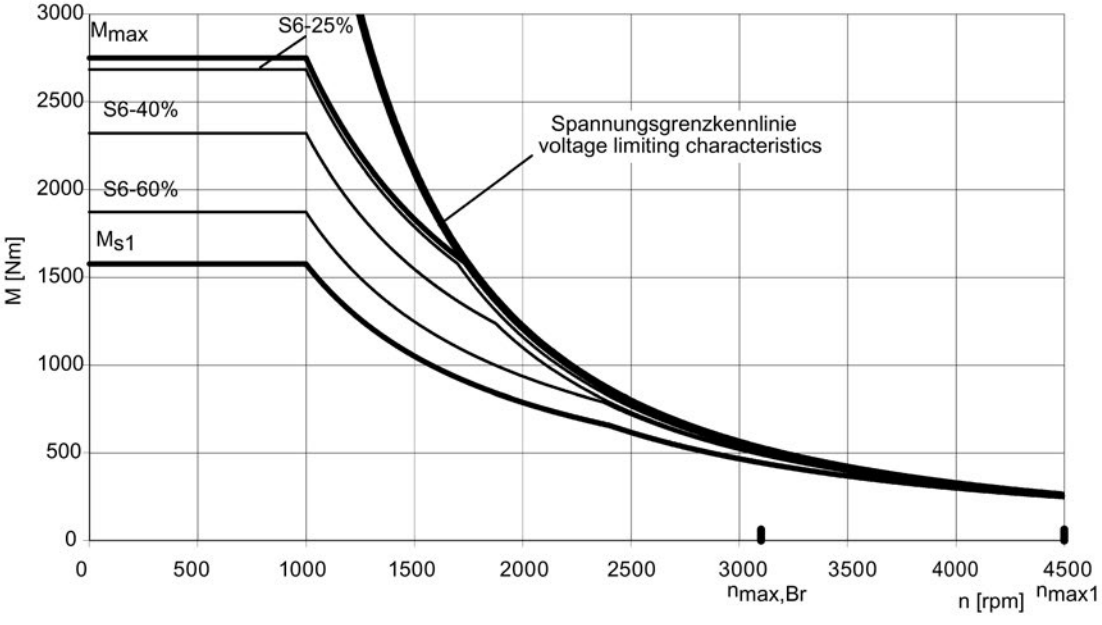
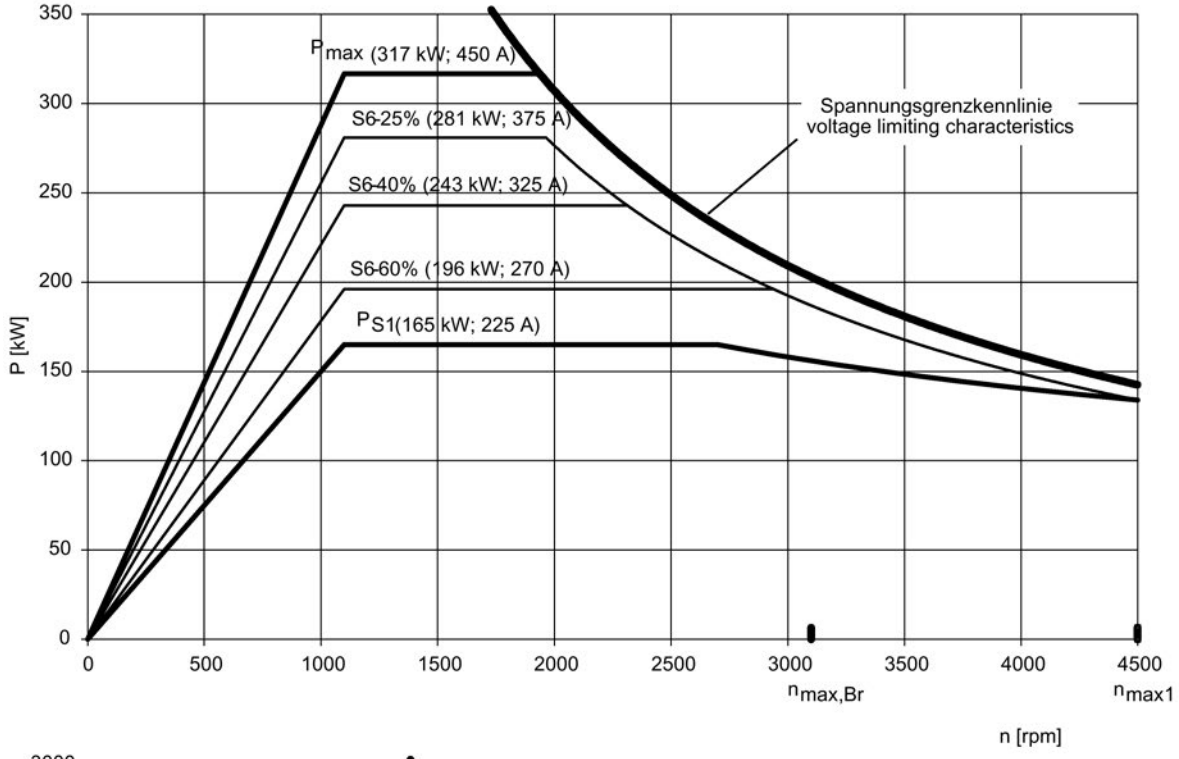


Table 6- 438 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□C□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	165	1,433	225	4,500	-	-	3,100	2,700	2,750	450	1,637	225



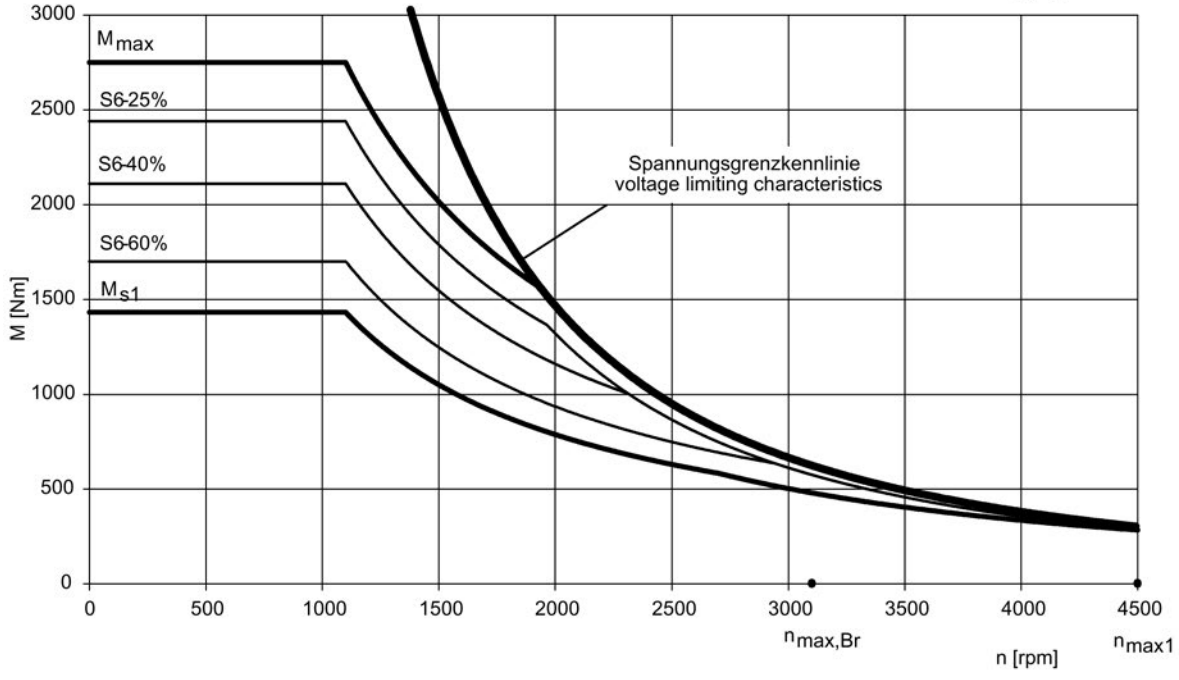
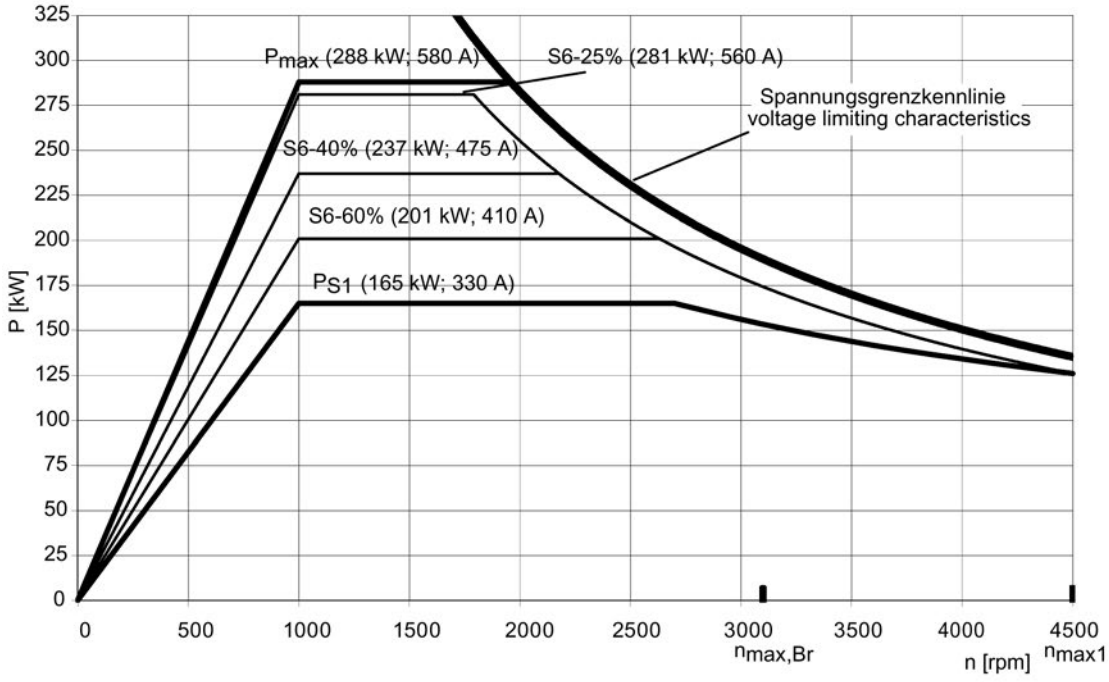


Table 6- 439 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP23)

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]
1,000	165	1,576	330	4,500	-	-	3,100	2,700	2,750	580	1,576	330



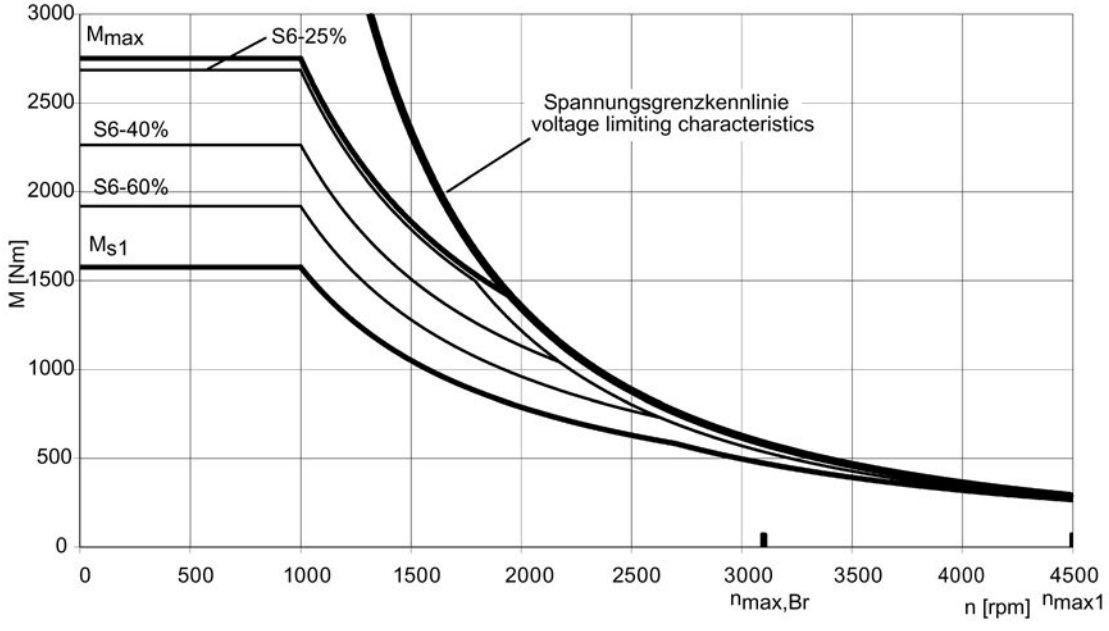
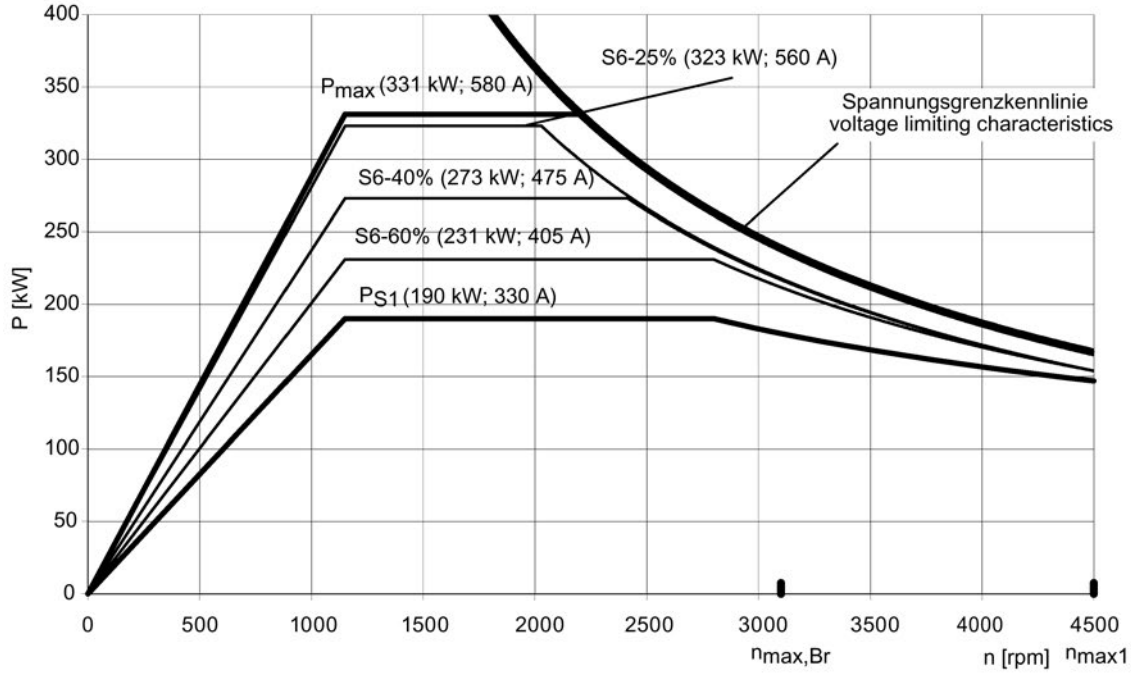


Table 6- 440 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP23)

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]
1,150	190	1,578	330	4,500	-	-	3,100	2,800	2,750	580	1,578	330
1,000	165	1,576	330					3,600				



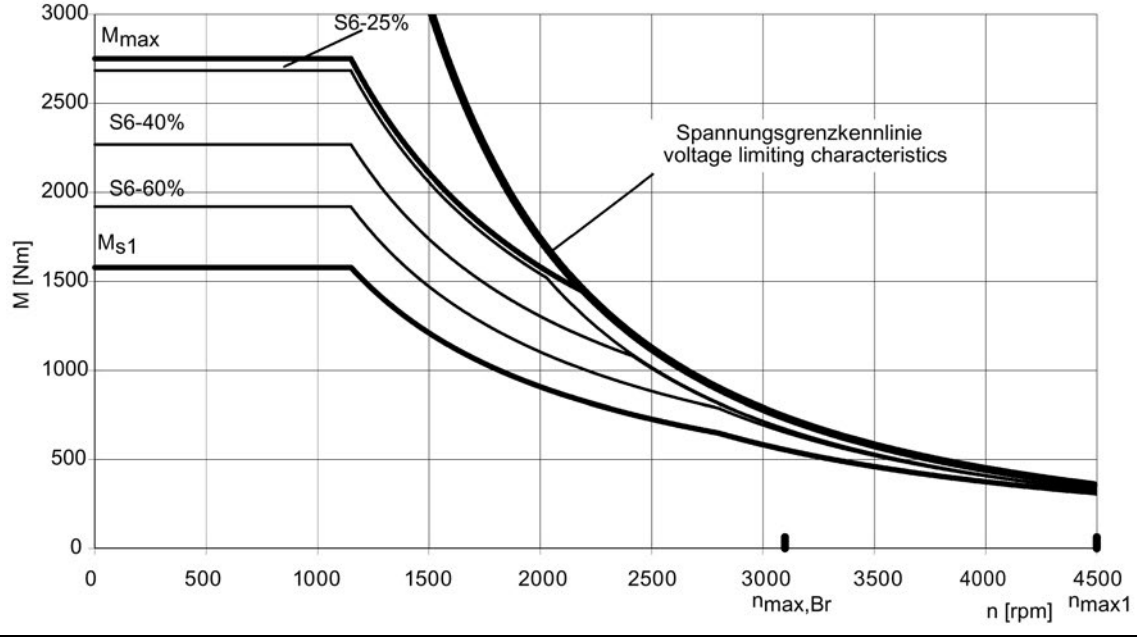
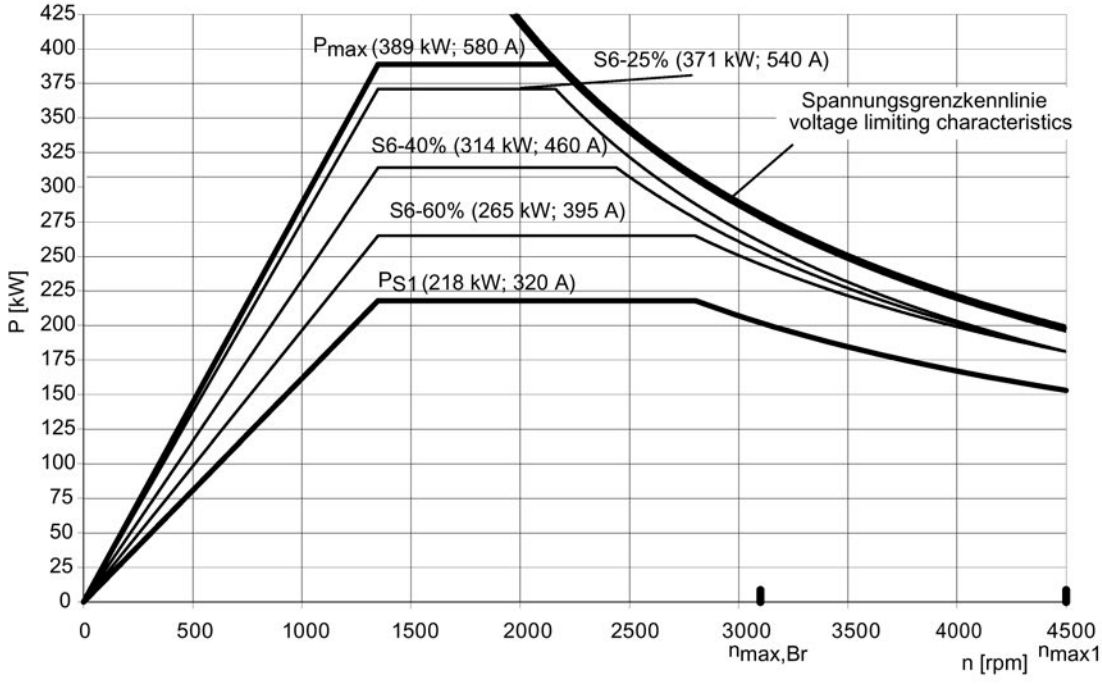


Table 6- 441 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D□□, (IP23)

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]
1,350	218	1,542	320	4,500	-	-	3,100	2,800	2,750	580	1,542	320



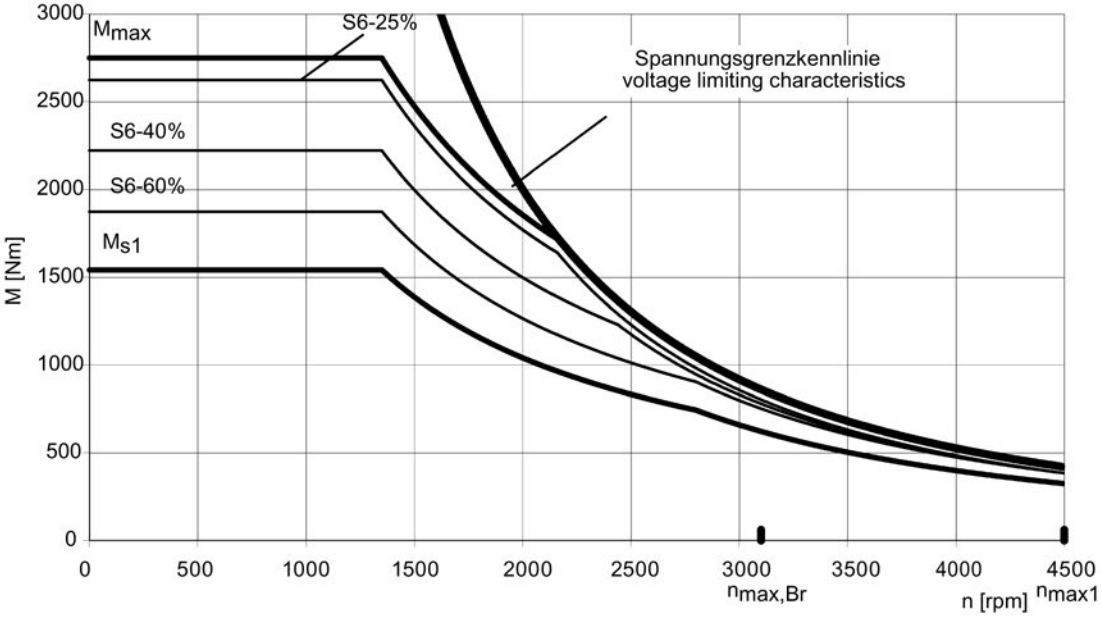
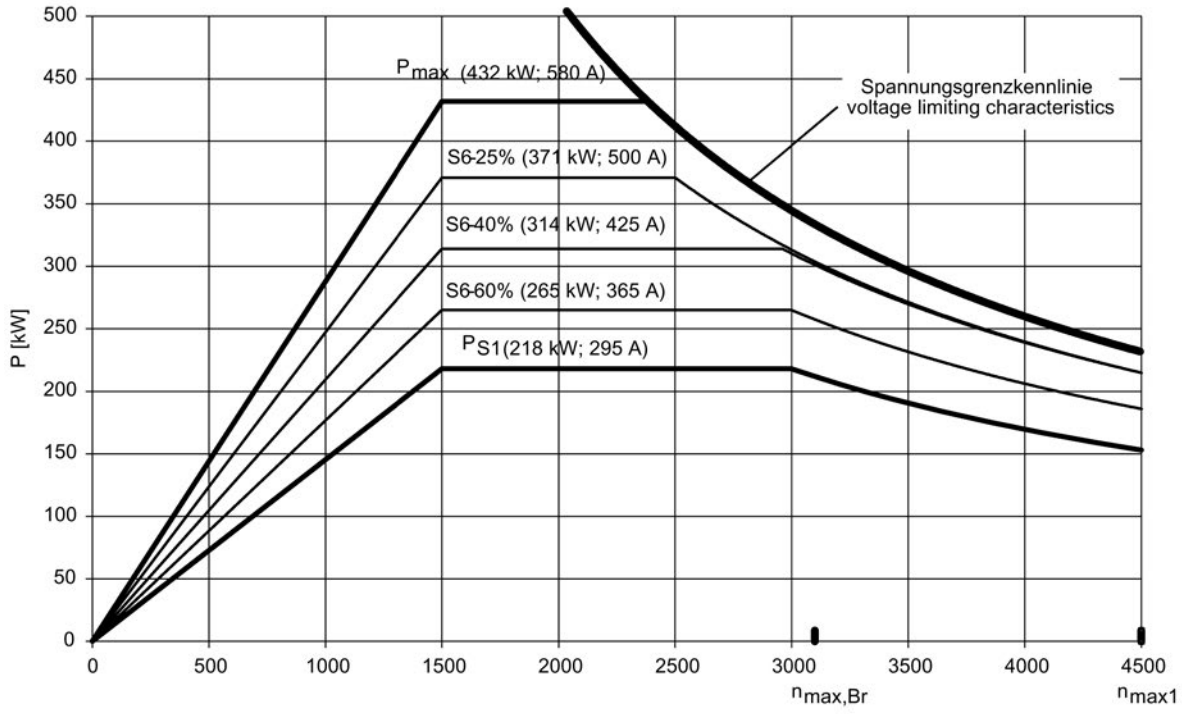


Table 6- 442 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□D□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	218	1,388	295	4,500	-	-	3,100	3,000	2,750	580	1,576	295



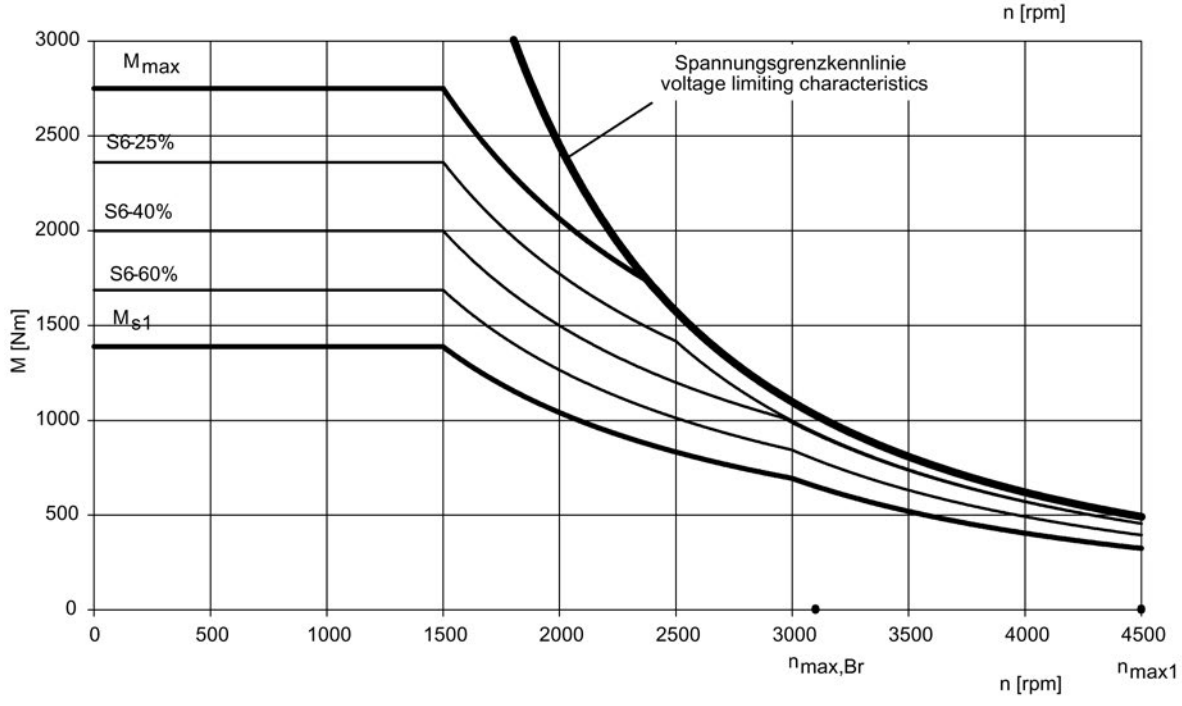
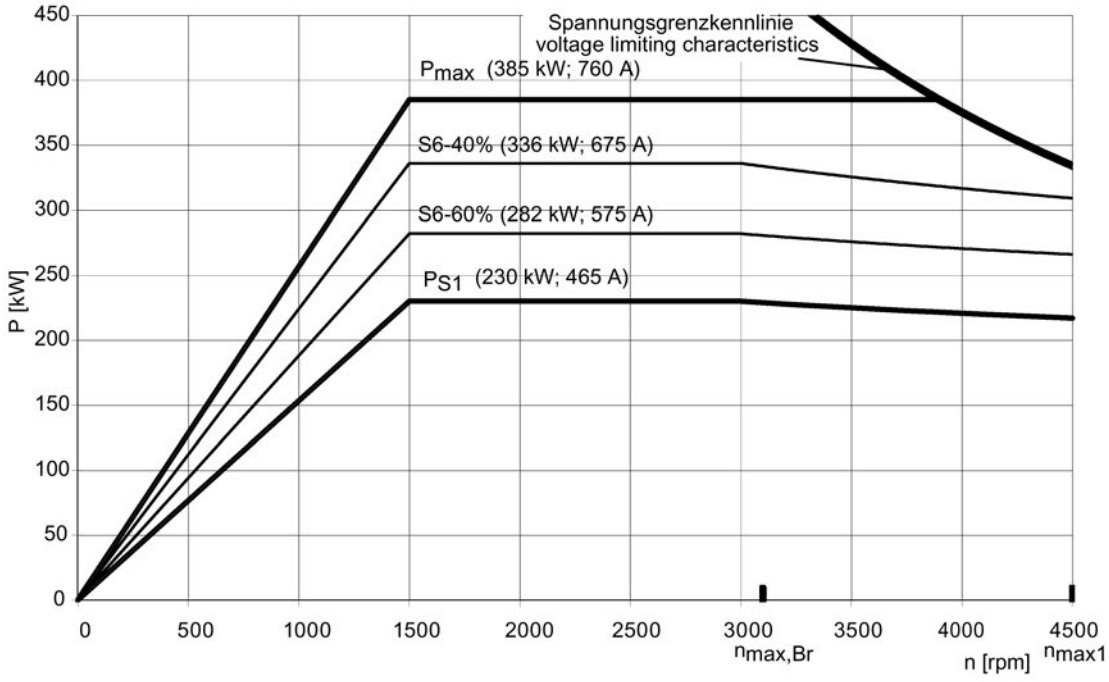


Table 6- 443 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP23)

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]
1,500	230	1,464	465	4,500	-	-	3,100	3,000	2,450	760	1,464	465



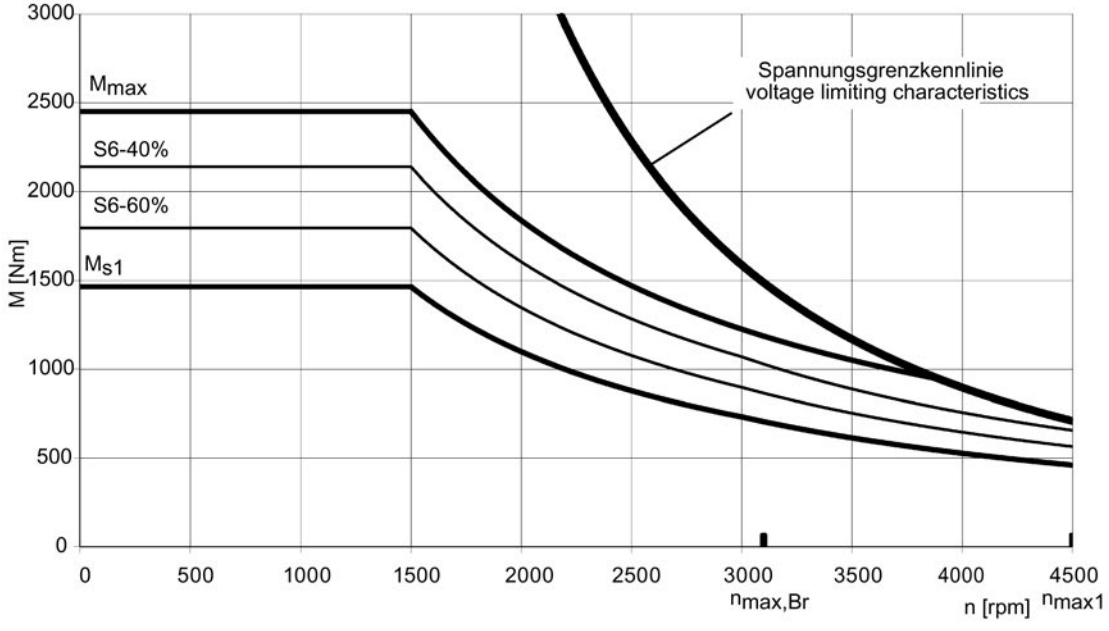
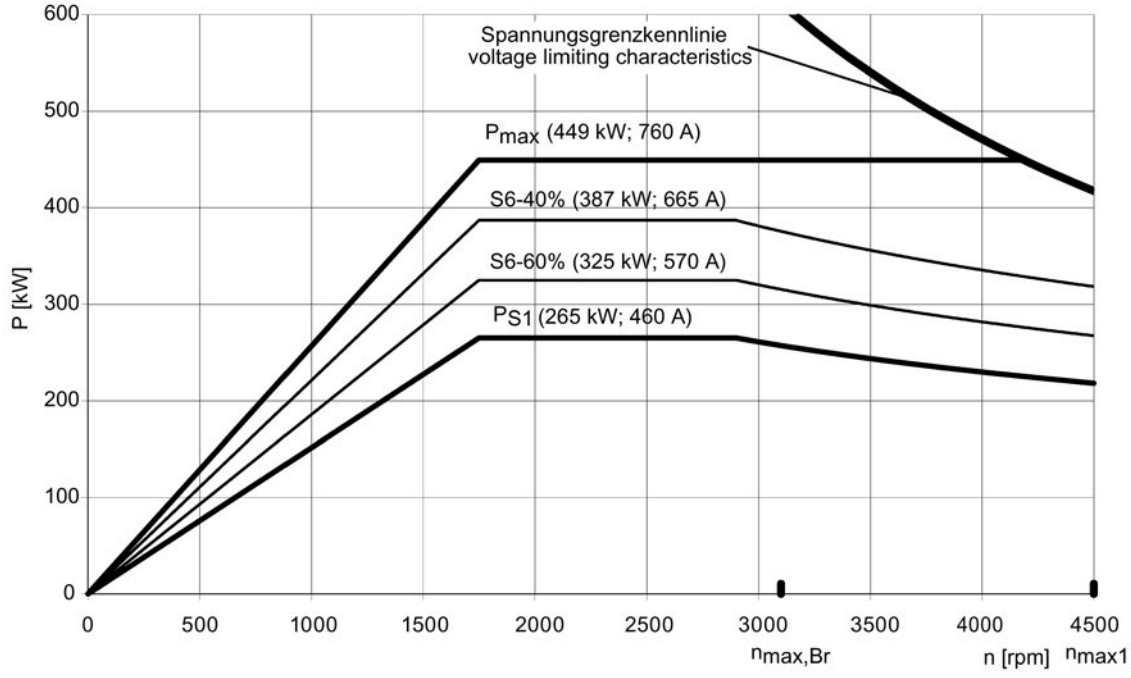


Table 6- 444 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP23)

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]
1,750	265	1,446	460	4,500	-	-	3,100	2,900	2,450	760	1,446	460
1,500	230	1,464	465					4,000				



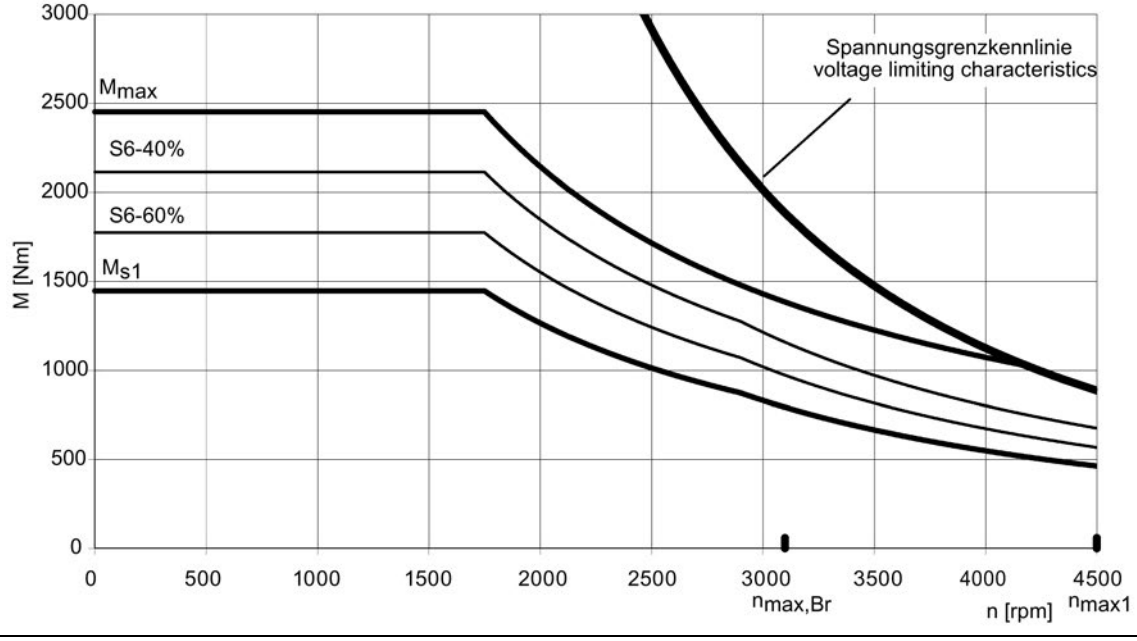
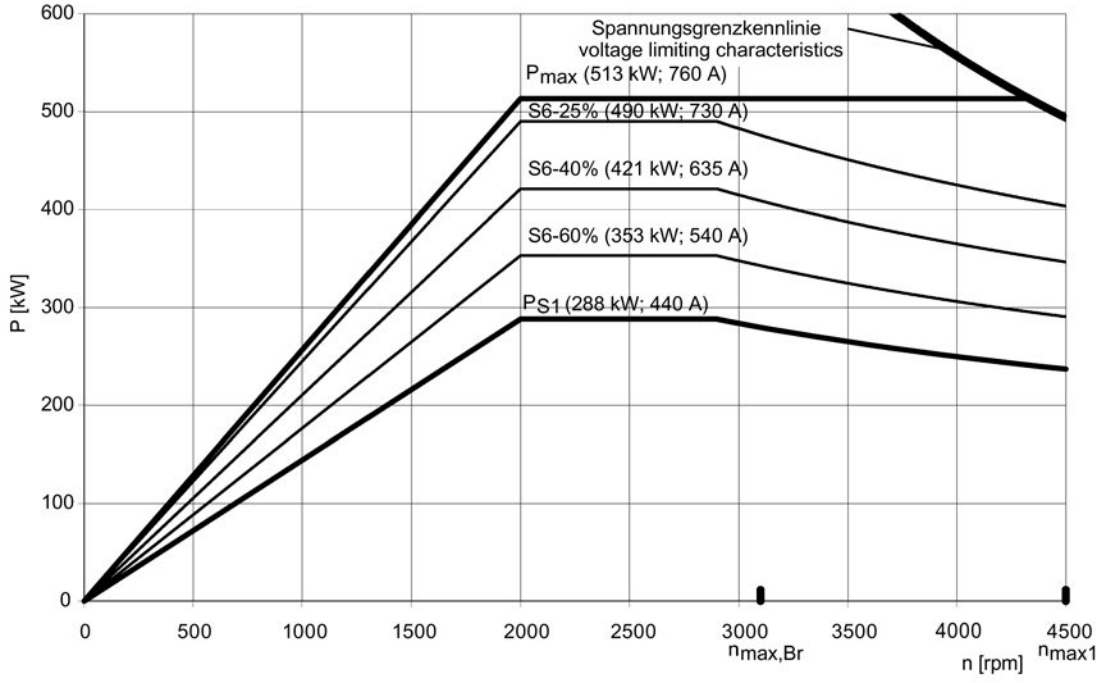


Table 6- 445 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F□□, (IP23)

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]
2,000	288	1,375	440	4,500	-	-	3,100	2,900	2,450	760	1,375	440



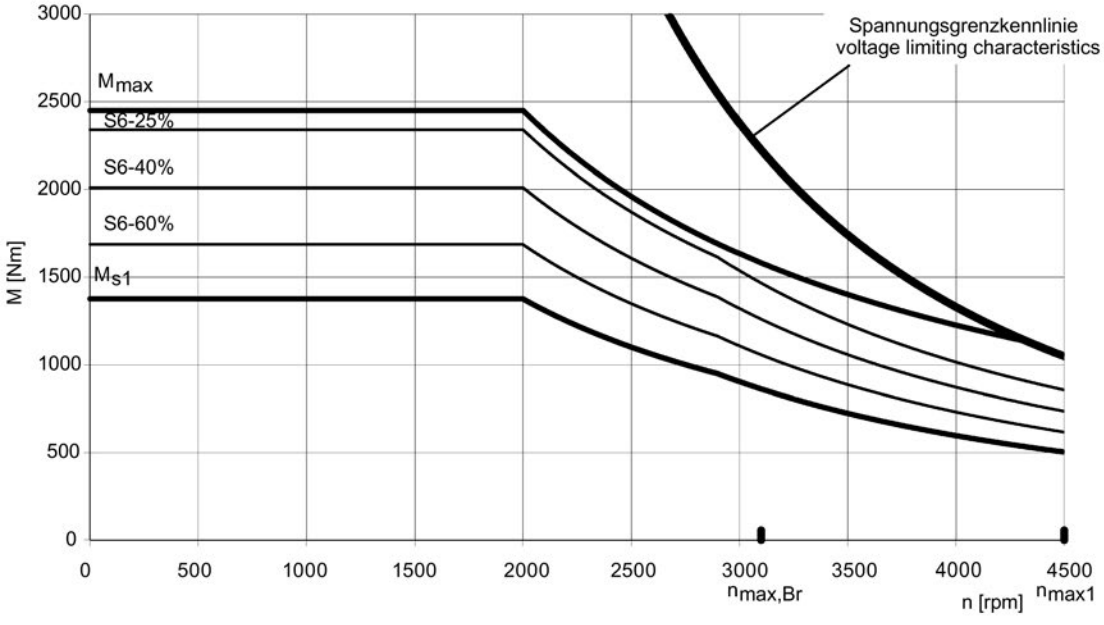
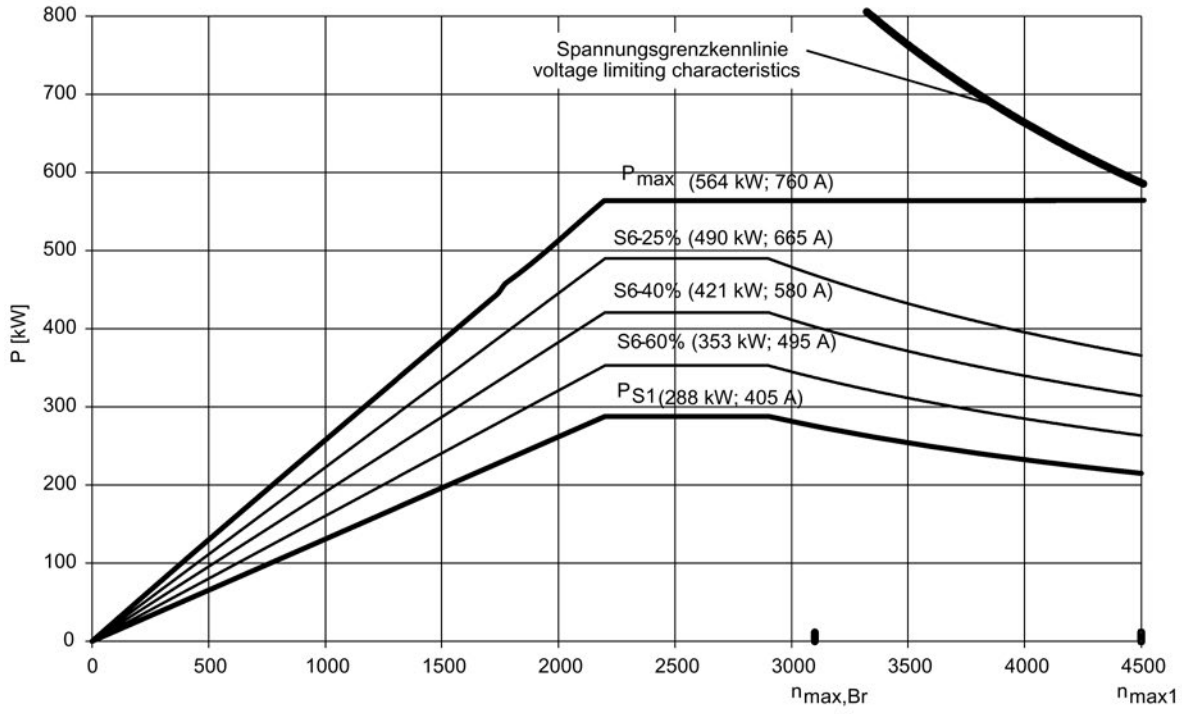


Table 6- 446 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8228-□□F□□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	288	1,250	405	4,500	-	-	3,100	2,900	2,450	760	1,464	405



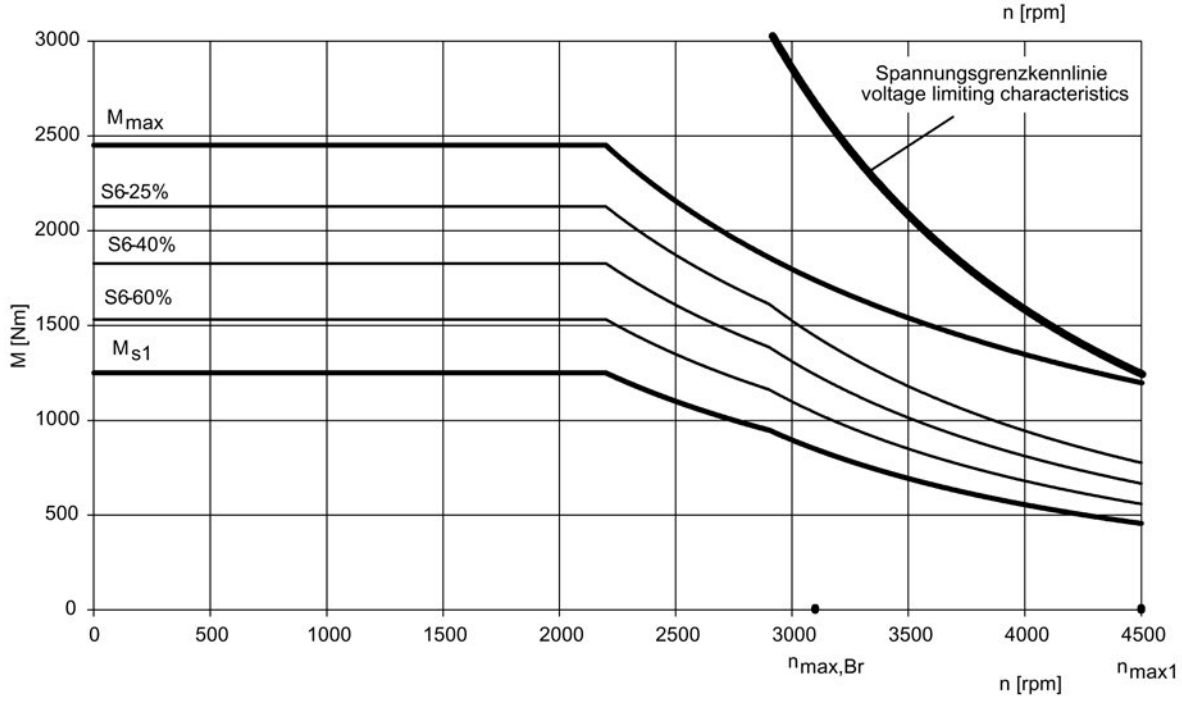
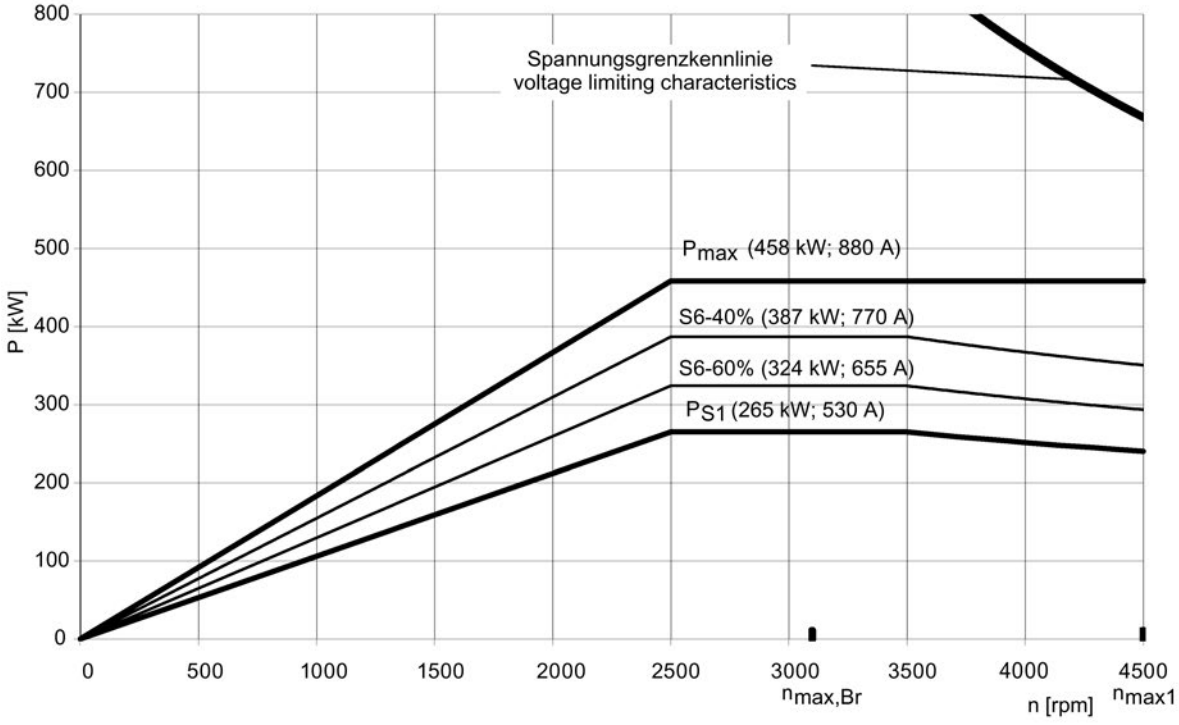


Table 6- 447 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L□□, (IP23)

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]
2,500	265	1,012	530	4,500	-	-	3,100	3,500	1,750	880	1,012	530



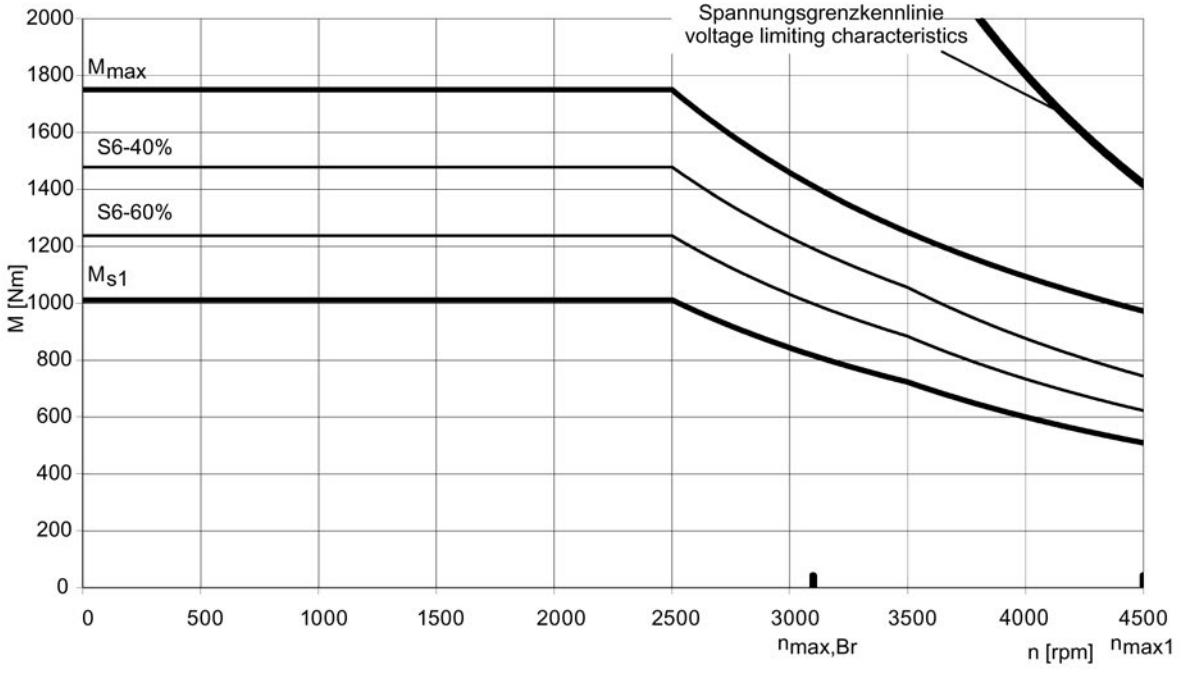
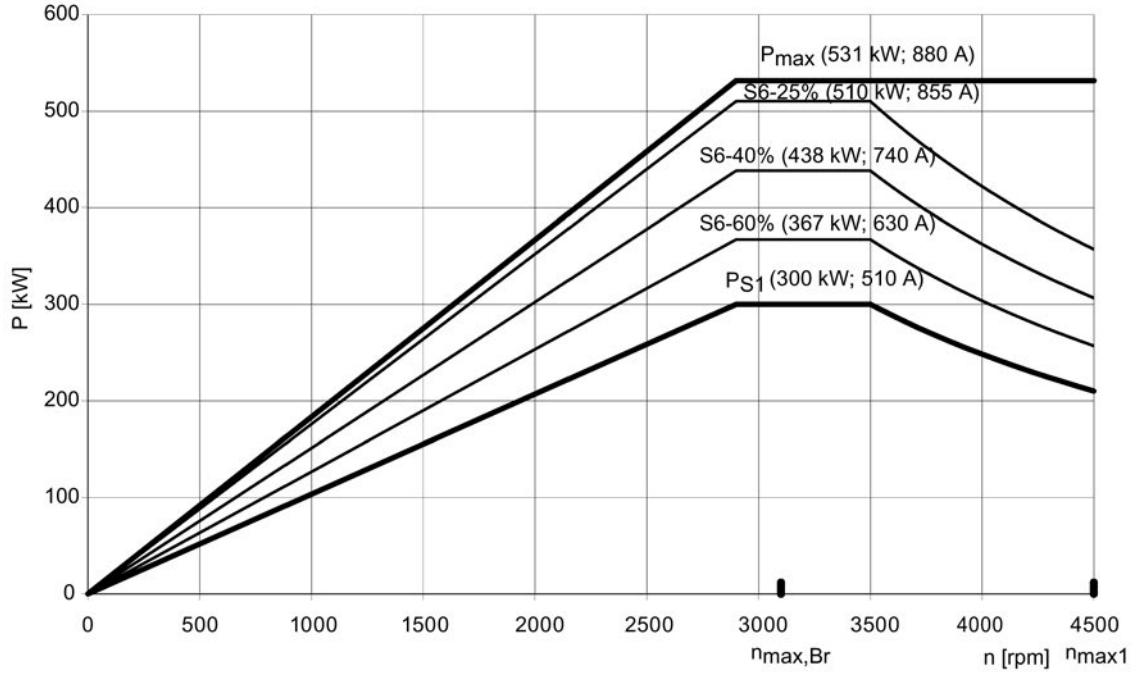


Table 6- 448 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L□□, (IP23)

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]
2,900	300	988	510	4,500	-	-	3,100	3,500	1,750	880	988	510
2,500	265	1,012	530					3,800				



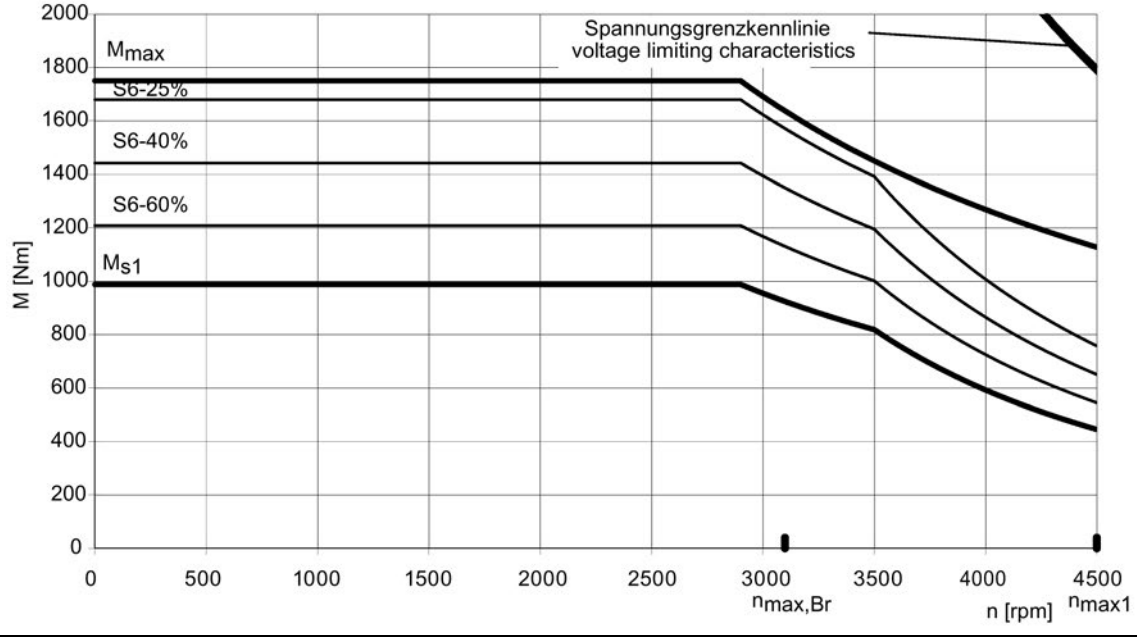
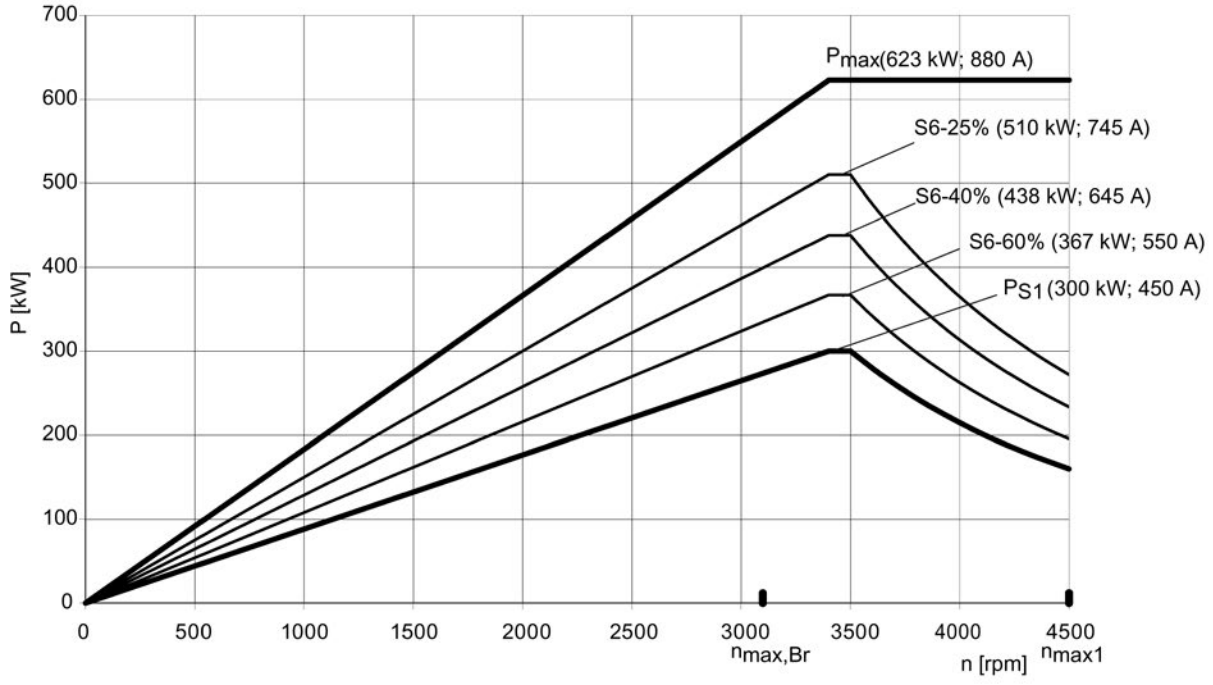
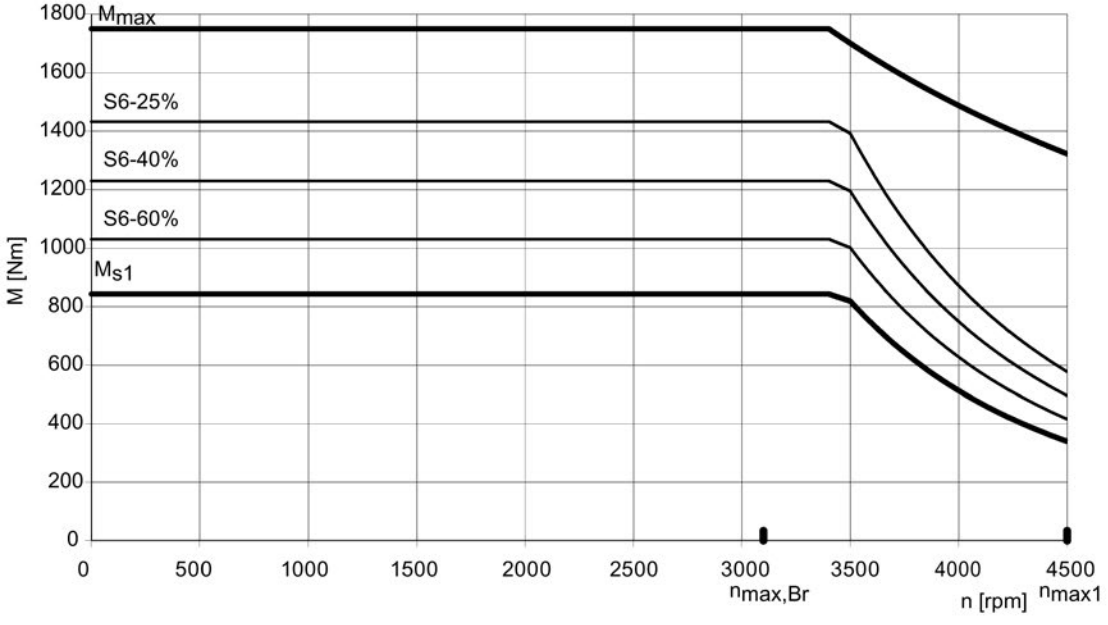


Table 6- 449 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L□□, (IP23)

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]
3,400	300	843	450	4,500	-	-	3,100	3,500	1,750	880	843	450

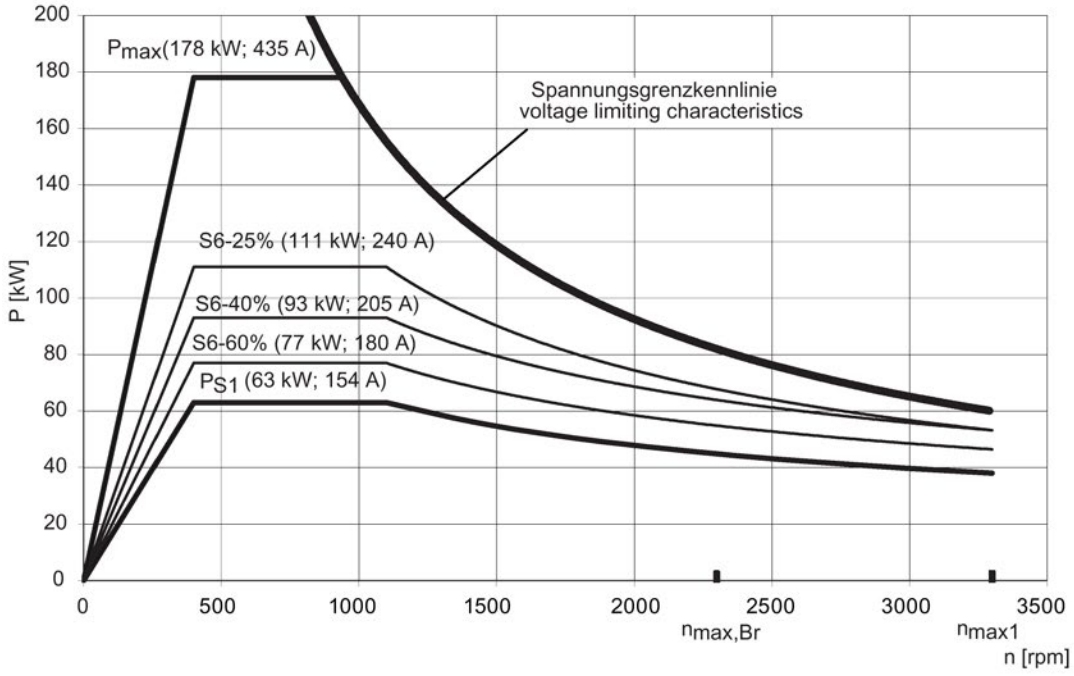




6.1.2.10 Shaft height 280 - forced ventilation

Table 6- 450 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	1,504	154	3,300	-	-	2,300	1,100	4,250	435	1,504	154



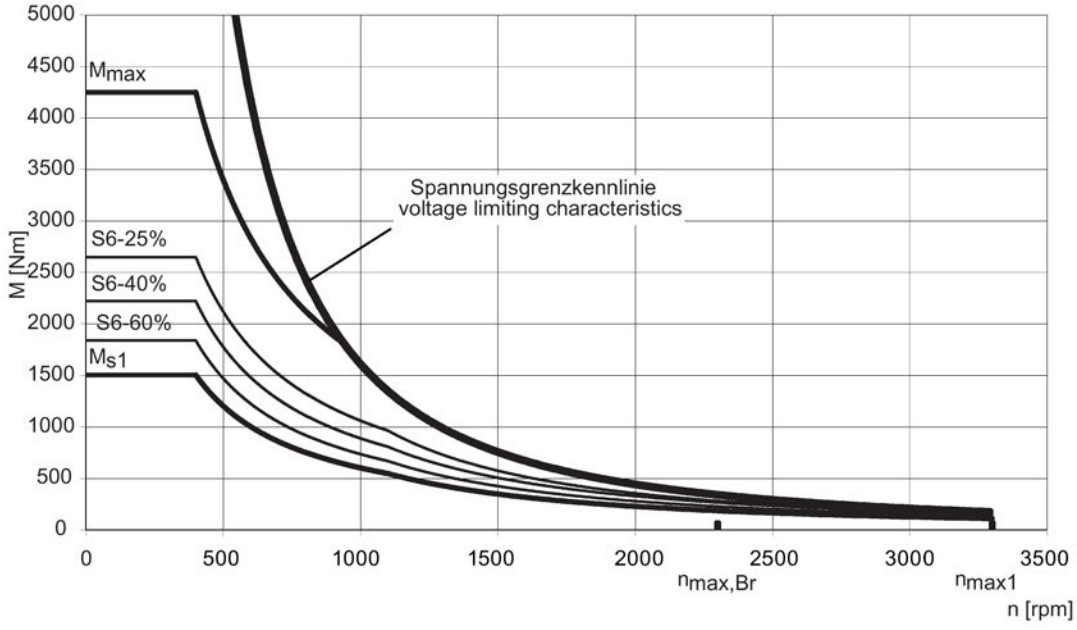
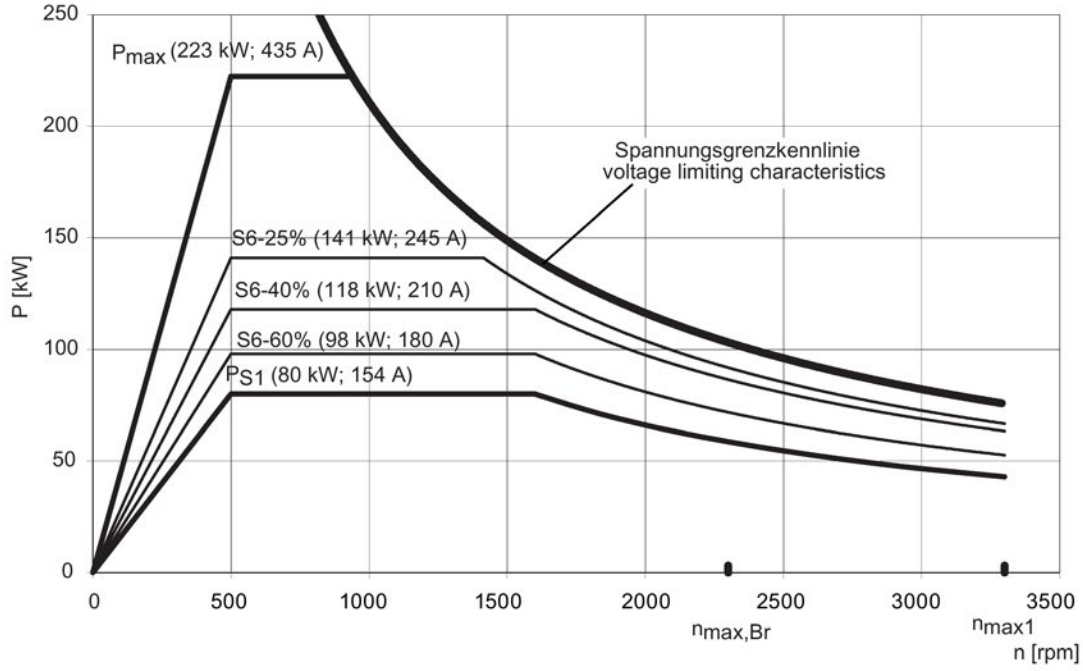


Table 6- 451 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□B1□, (IP55)

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	1,529	154	3,300	-	-	2,300	1,600	4,250	435	1,529	154
400	63	1,504	154					2,100				



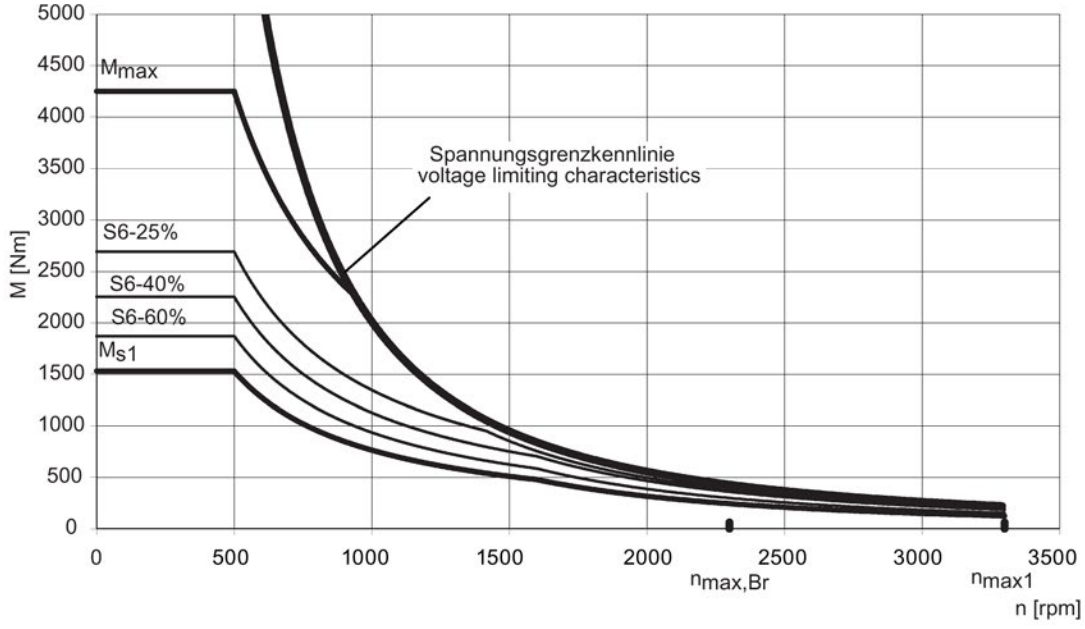
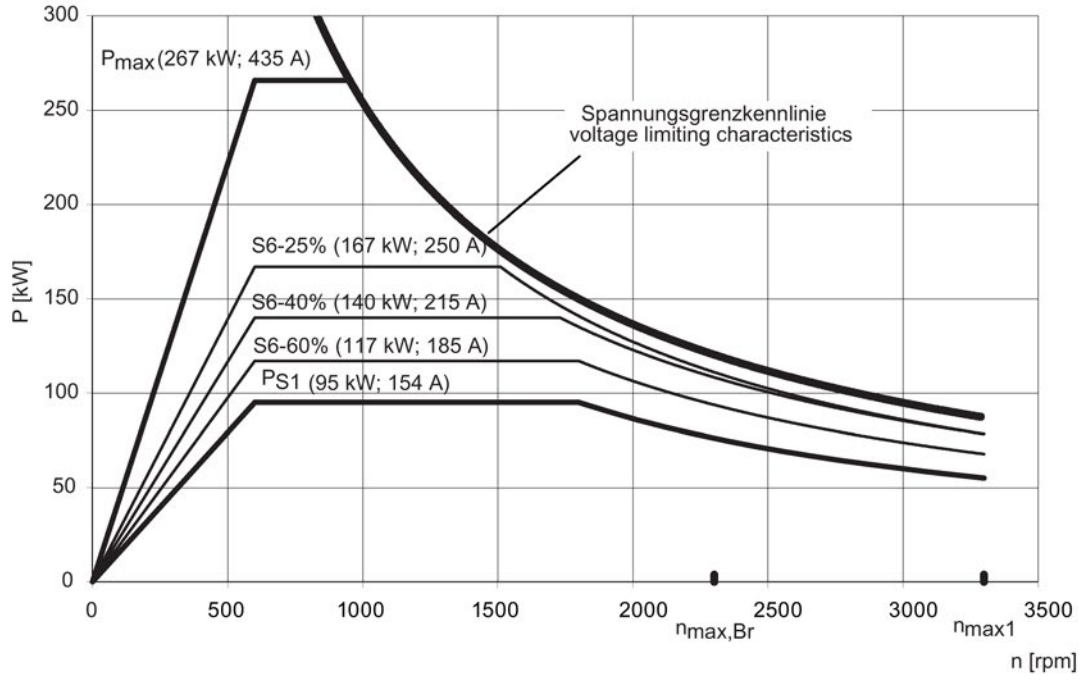


Table 6- 452 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□B1□, (IP55)

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	1,519	154	3,300	-	-	2,300	1,800	4,250	435	1,519	154



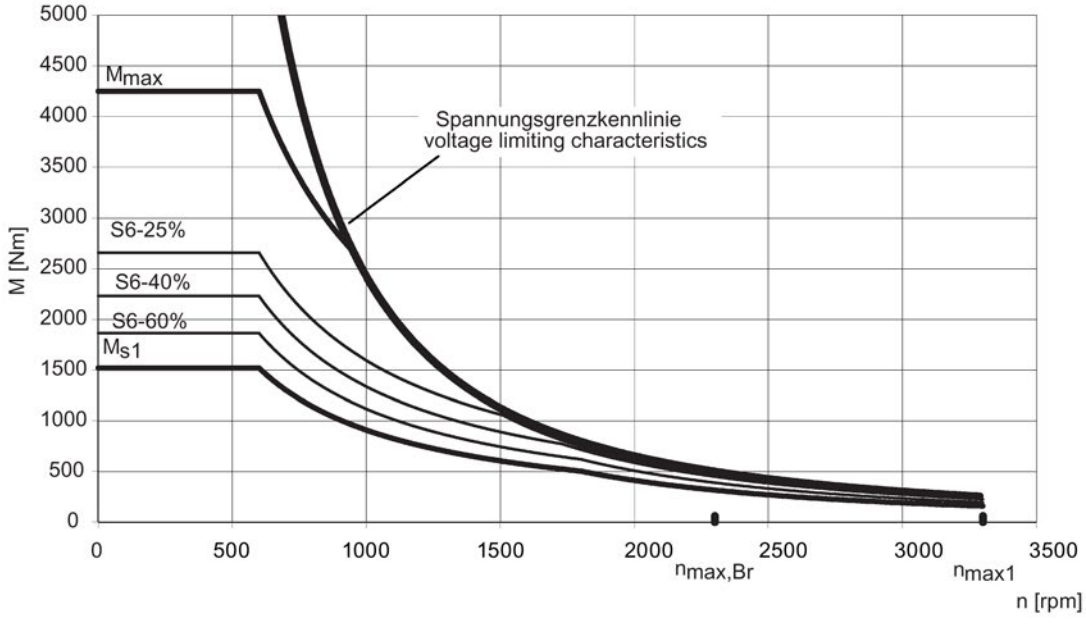
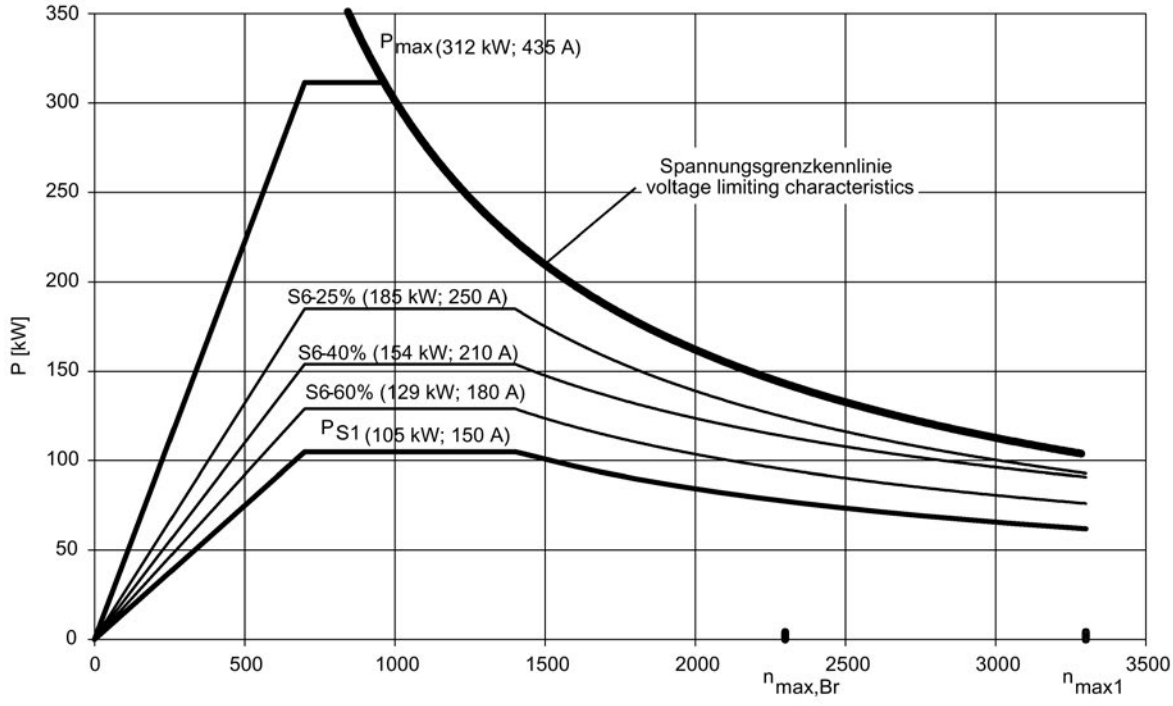


Table 6- 453 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□B1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	105	1,433	150	3,300	-	-	2,300	1,400	4,250	435	1,504	150



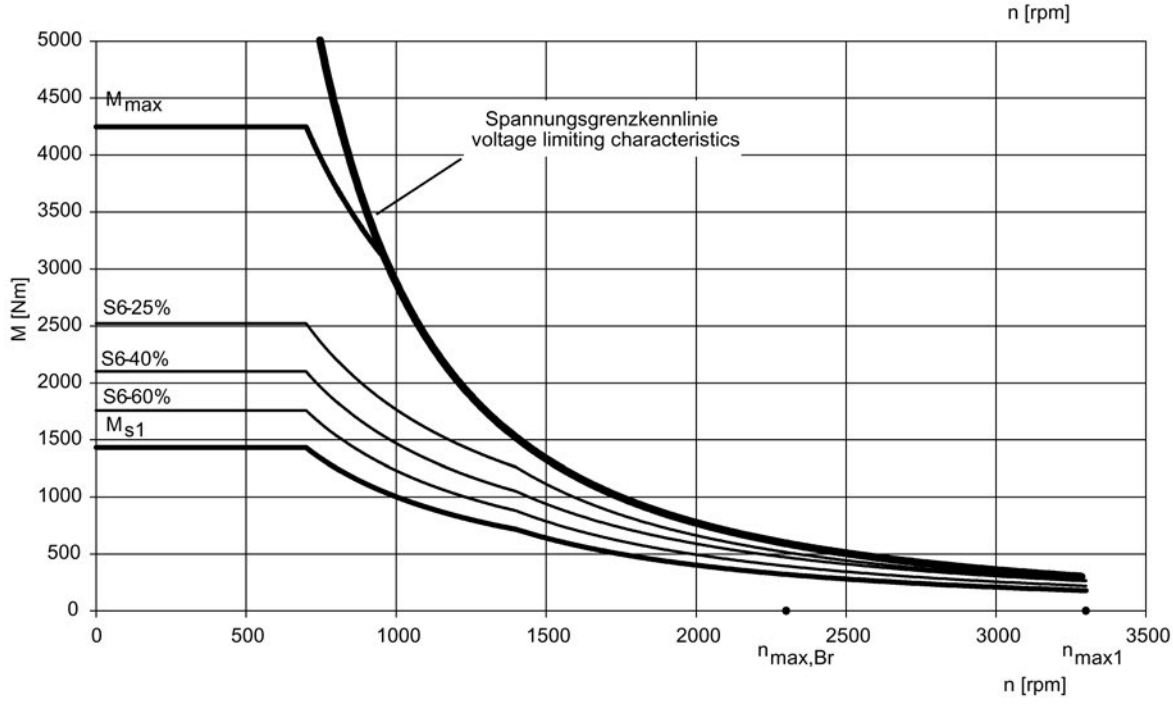
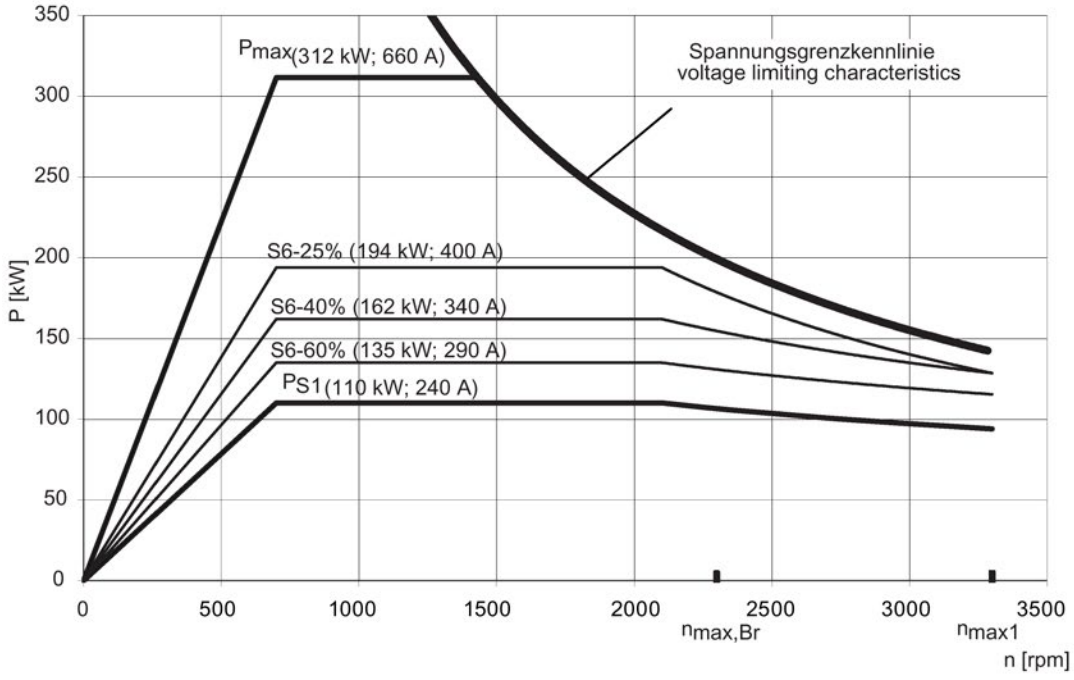


Table 6- 454 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C1□, (IP55)

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	1,501	240	3,300	-	-	2,300	2,100	4,250	660	1,501	240



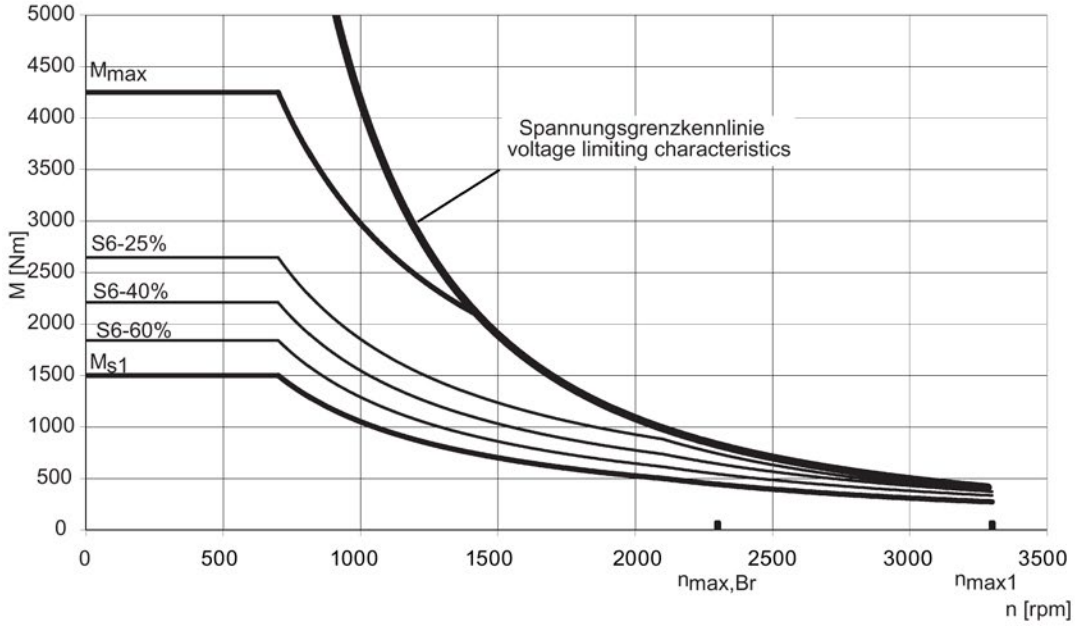
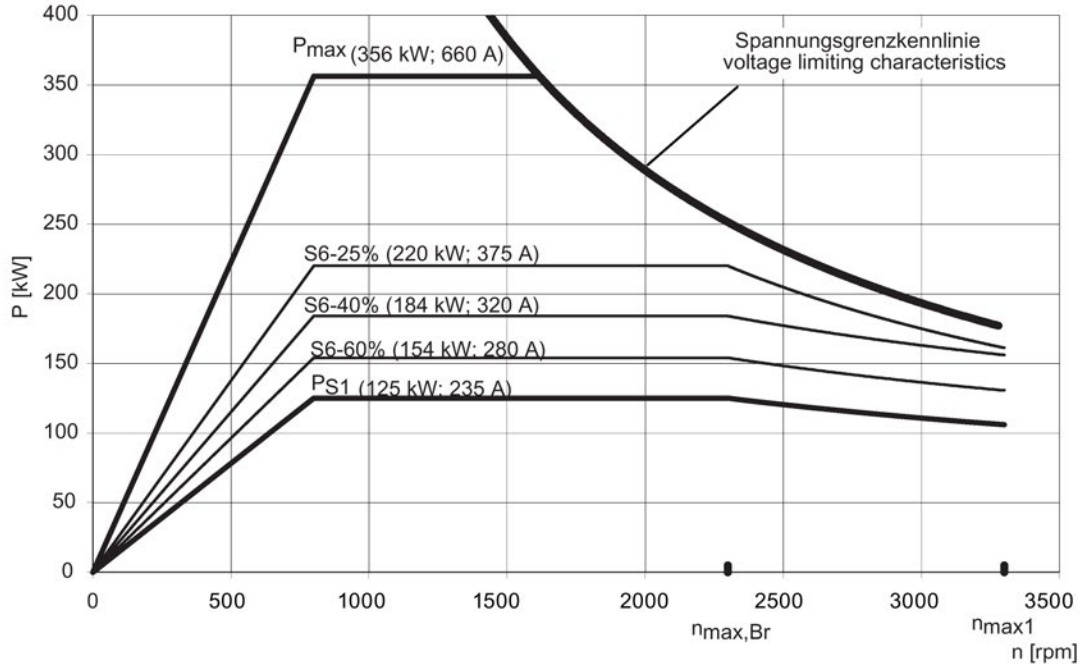


Table 6- 455 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□C1□, (IP55)

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	1,492	235	3,300	-	-	2,300	2,300	4,250	660	1,492	235
700	110	1,501	240					3,000				



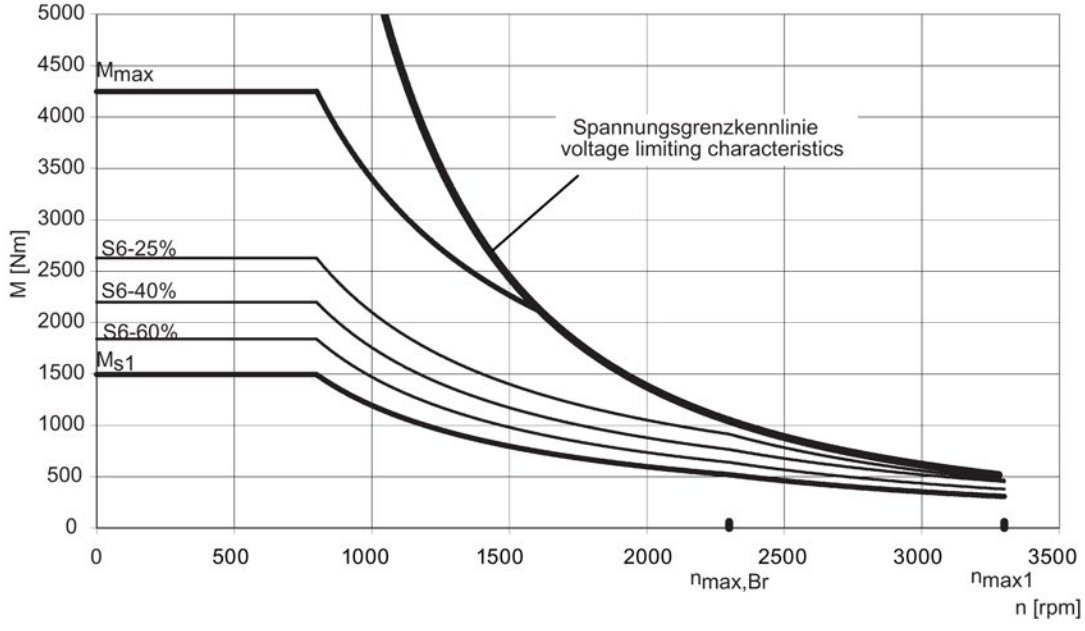
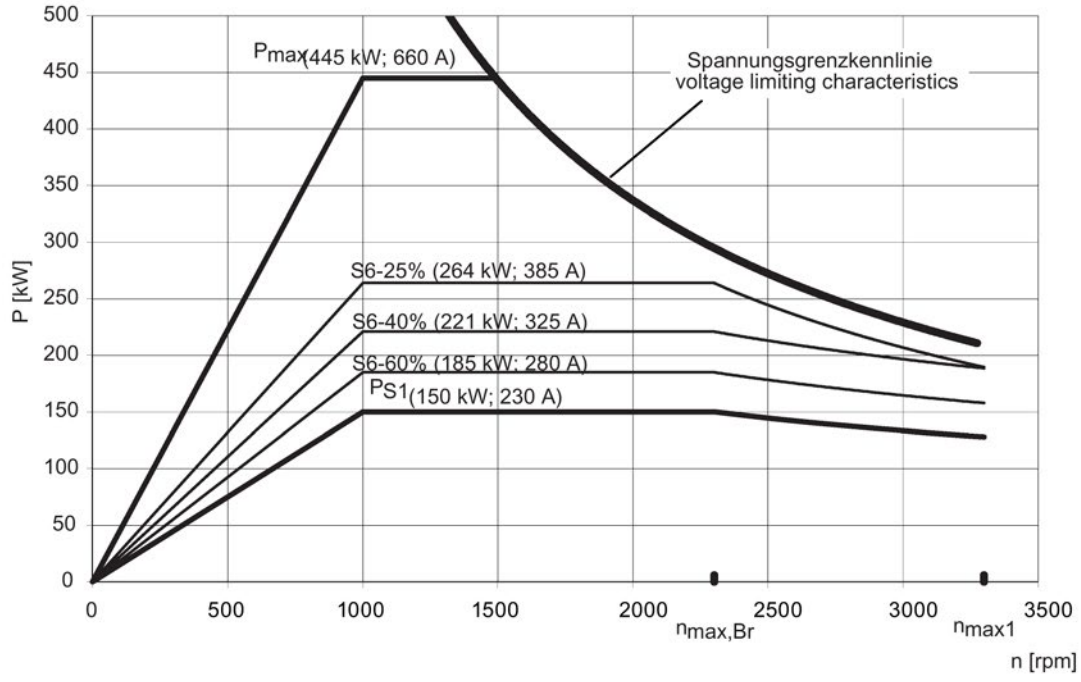


Table 6- 456 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C1□, (IP55)

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]
1,000	150	1,433	230	3,300	-	-	2,300	2,300	4,250	660	1,433	230



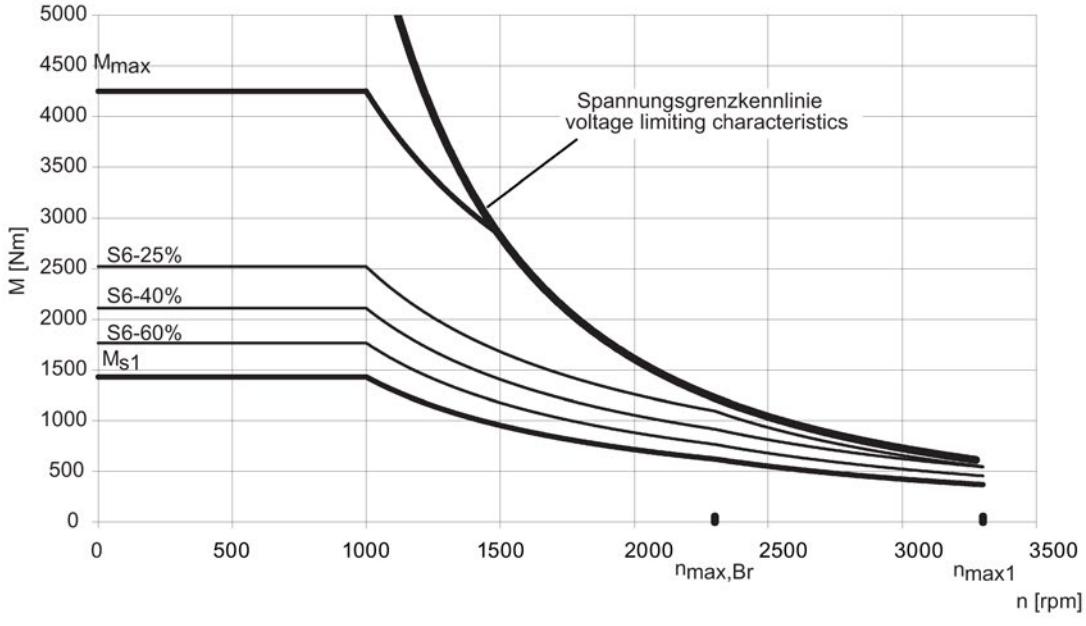
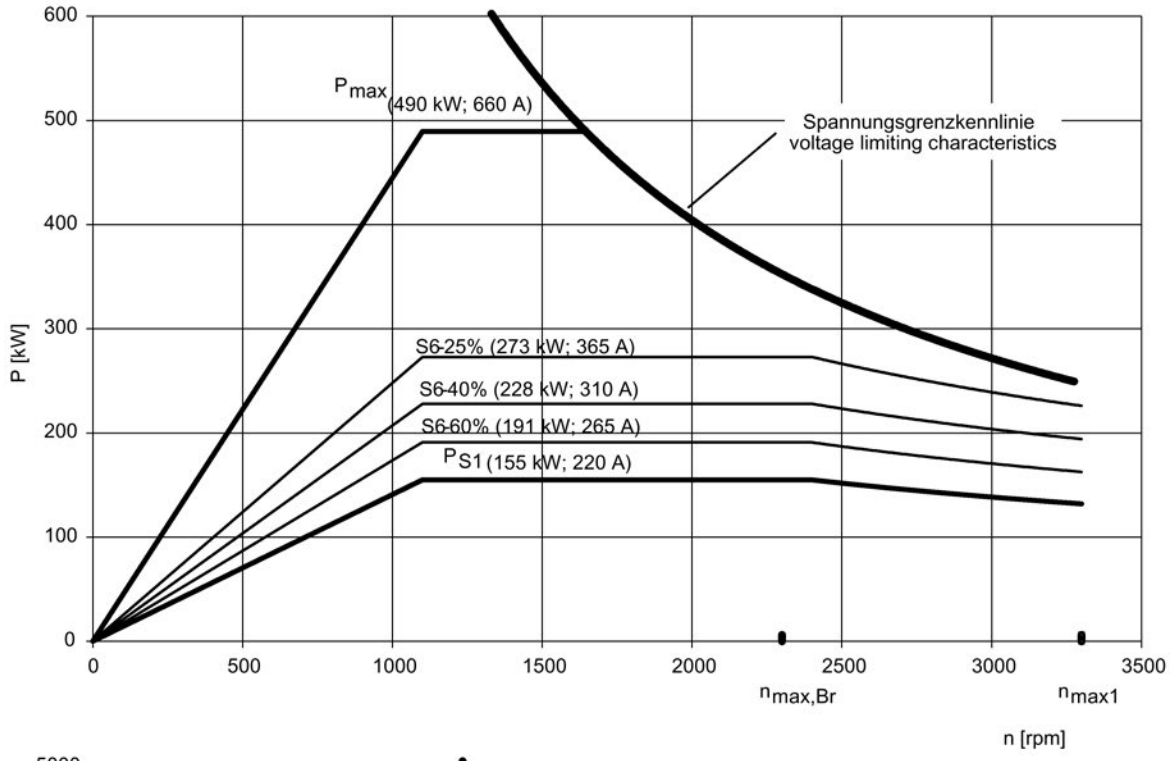


Table 6- 457 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□C1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	155	1,346	220	3,300	-	-	2,300	2,400	4,250	660	1,501	220



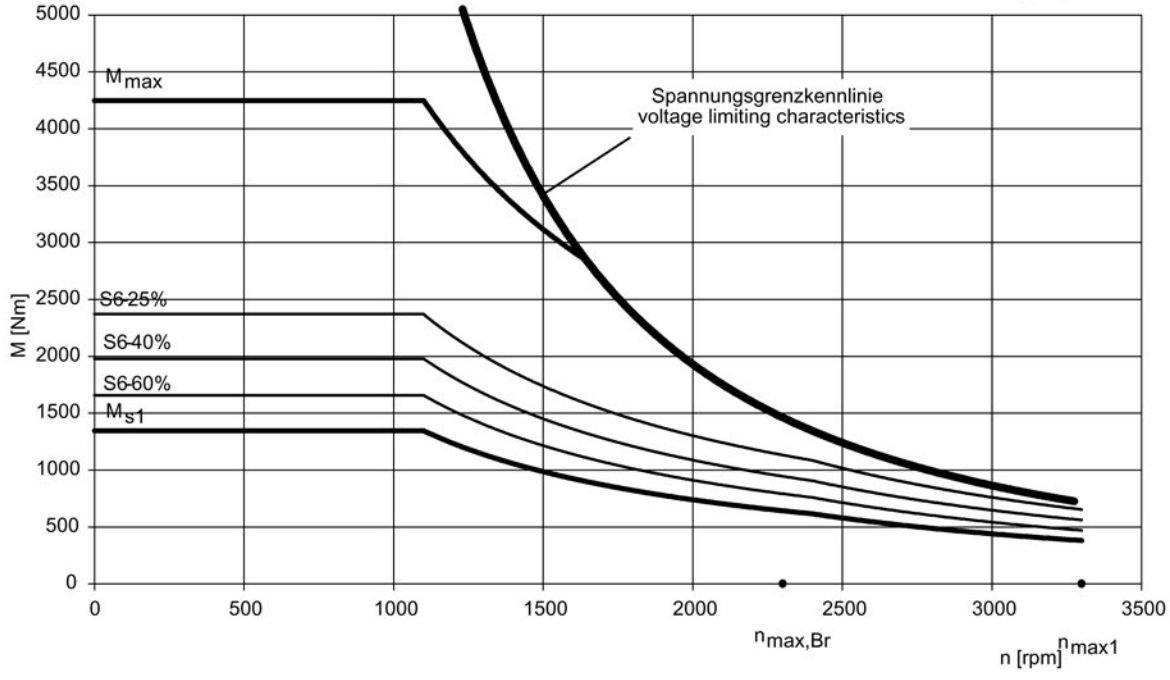
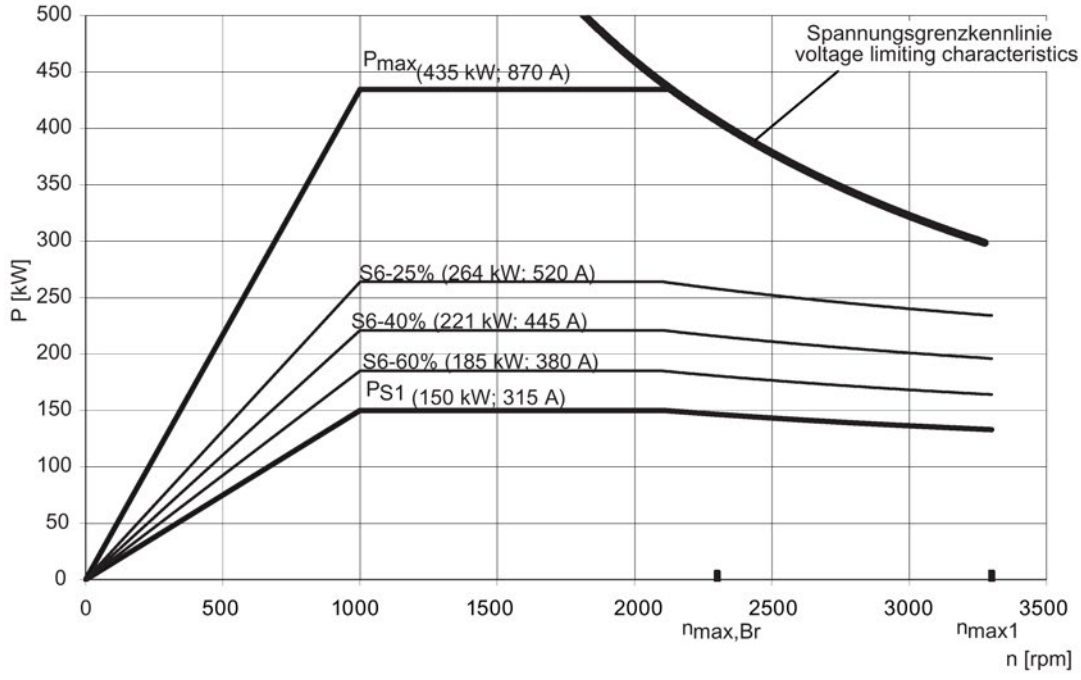


Table 6- 458 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D1□, (IP55)

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]
1,000	150	1,433	315	3,300	-	-	2,300	2,100	4,150	870	1,433	315



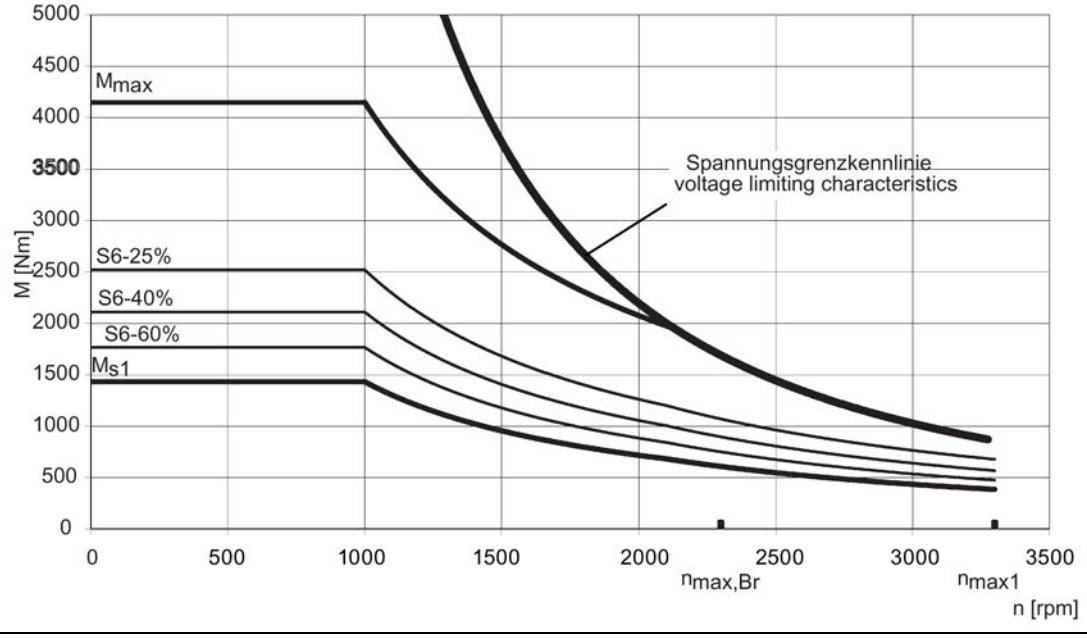
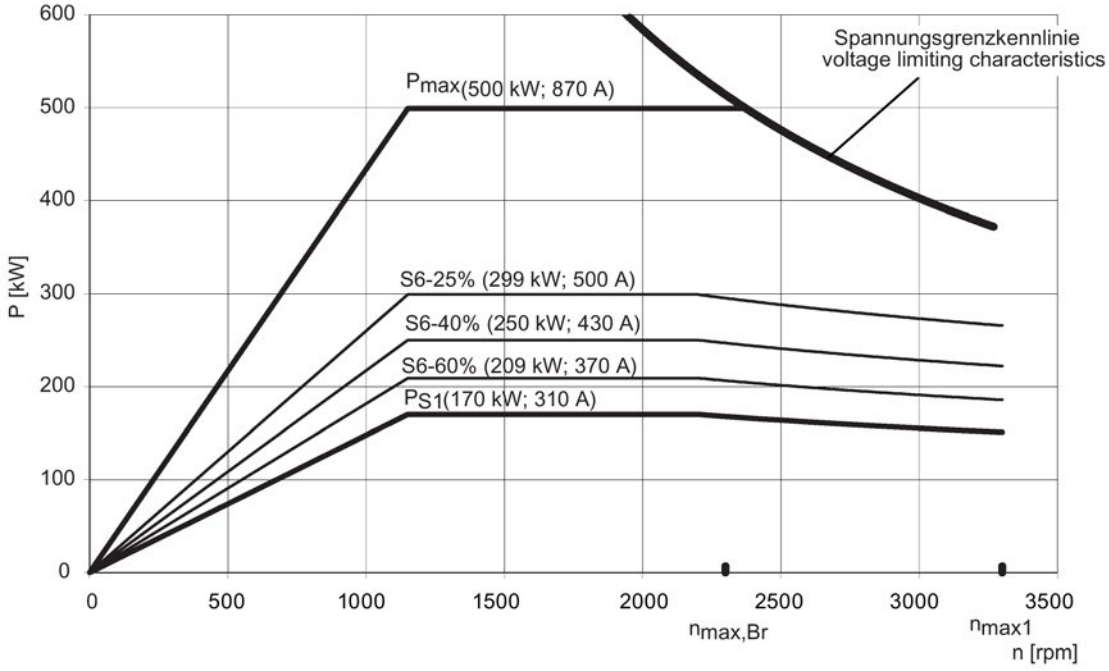


Table 6- 459 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□D1□, (IP55)

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]
1,150	170	1,414	310	3,300	-	-	2,300	2,200	4,150	870	1,414	310
1,000	150	1,433	315					3,300				



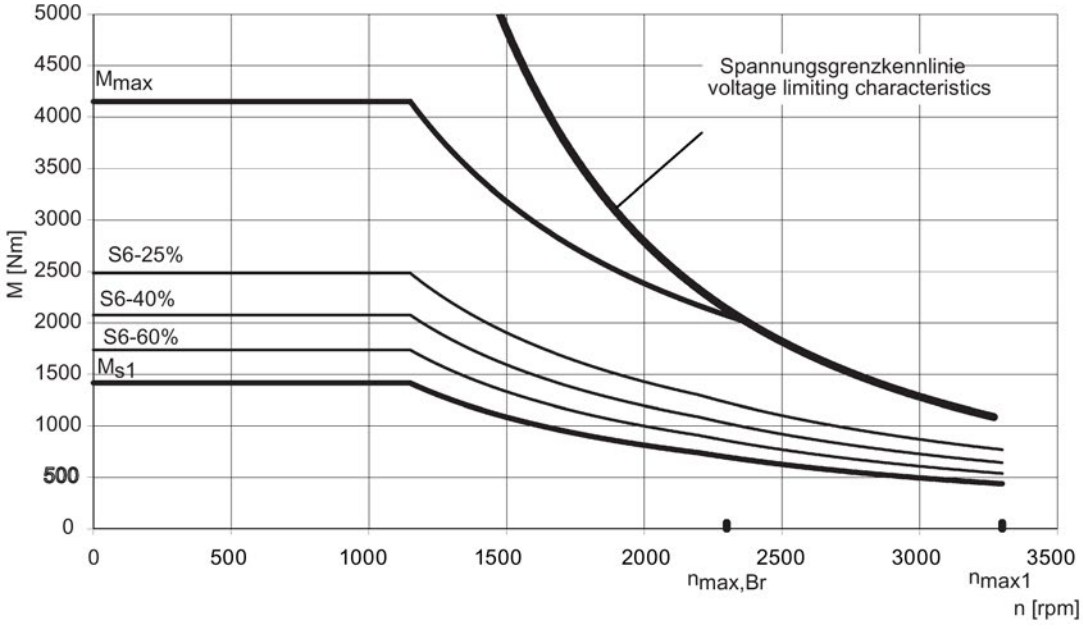
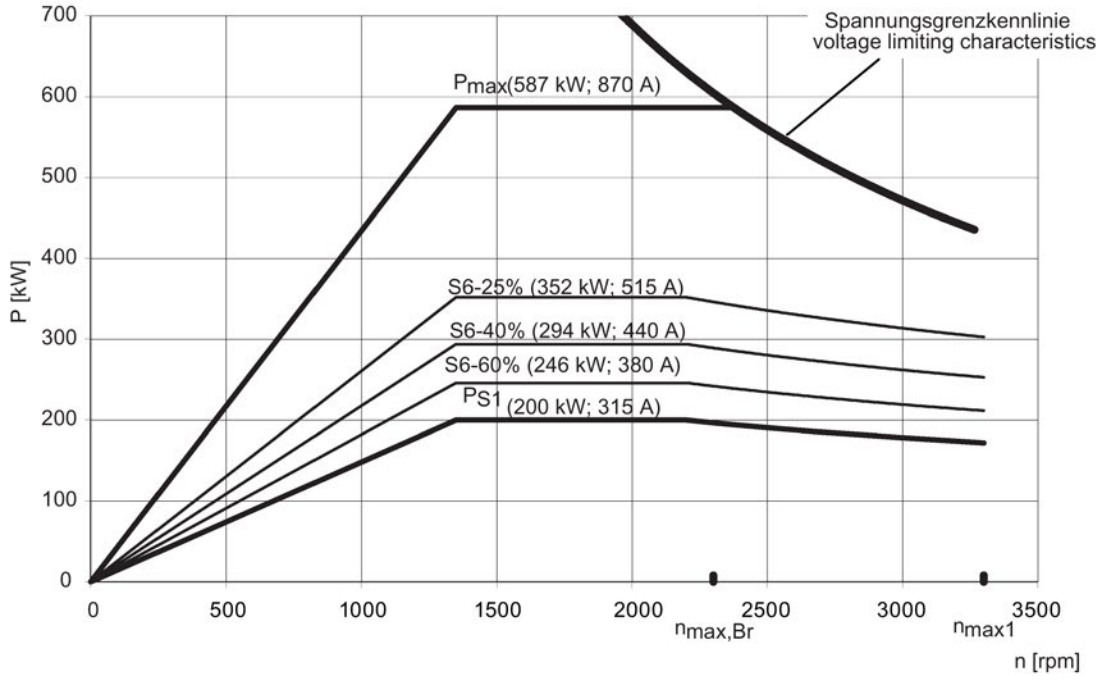


Table 6- 460 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D1□, (IP55)

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]
1,350	200	1,416	315	3,300	-	-	2,300	2,200	4,150	870	1,416	315



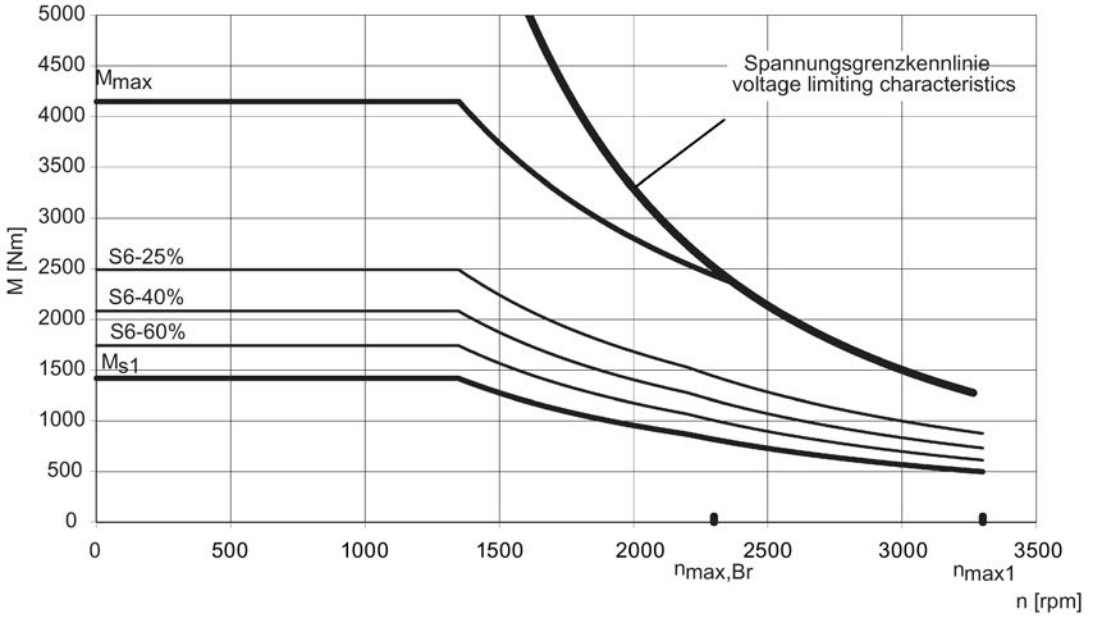
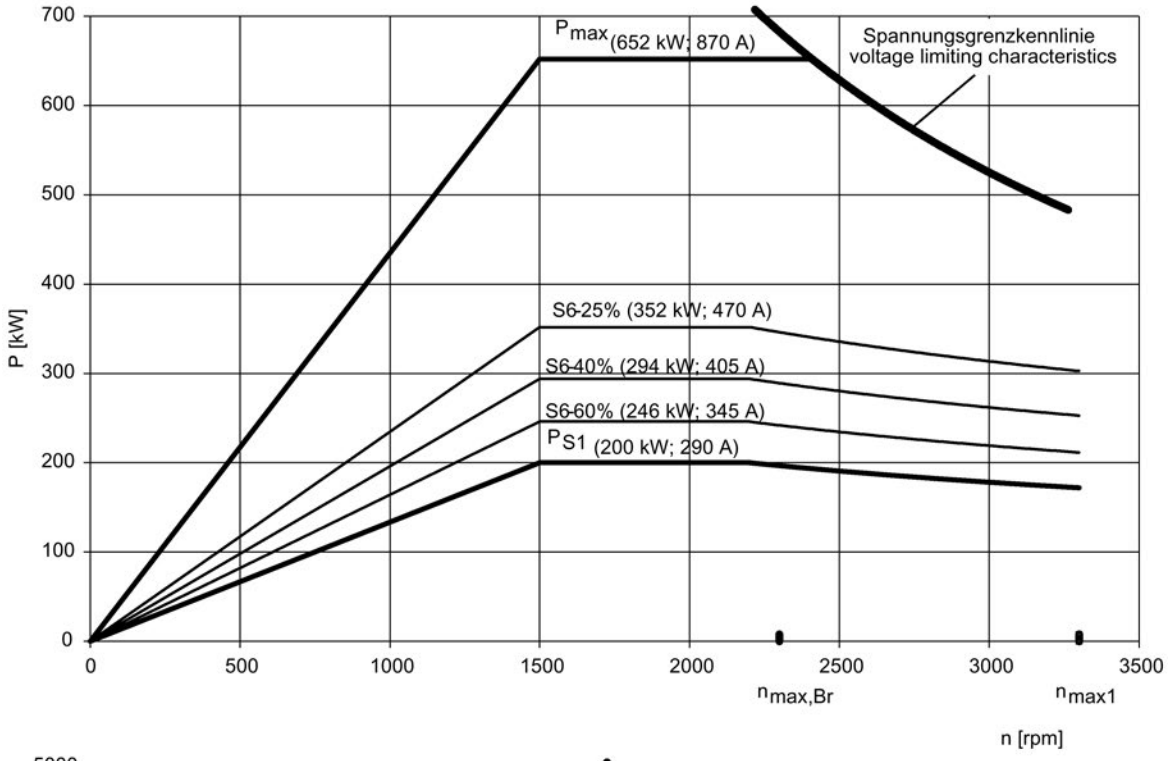


Table 6- 461 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□D1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	200	1,273	290	3,300	-	-	2,300	2,200	4,150	870	1,433	290



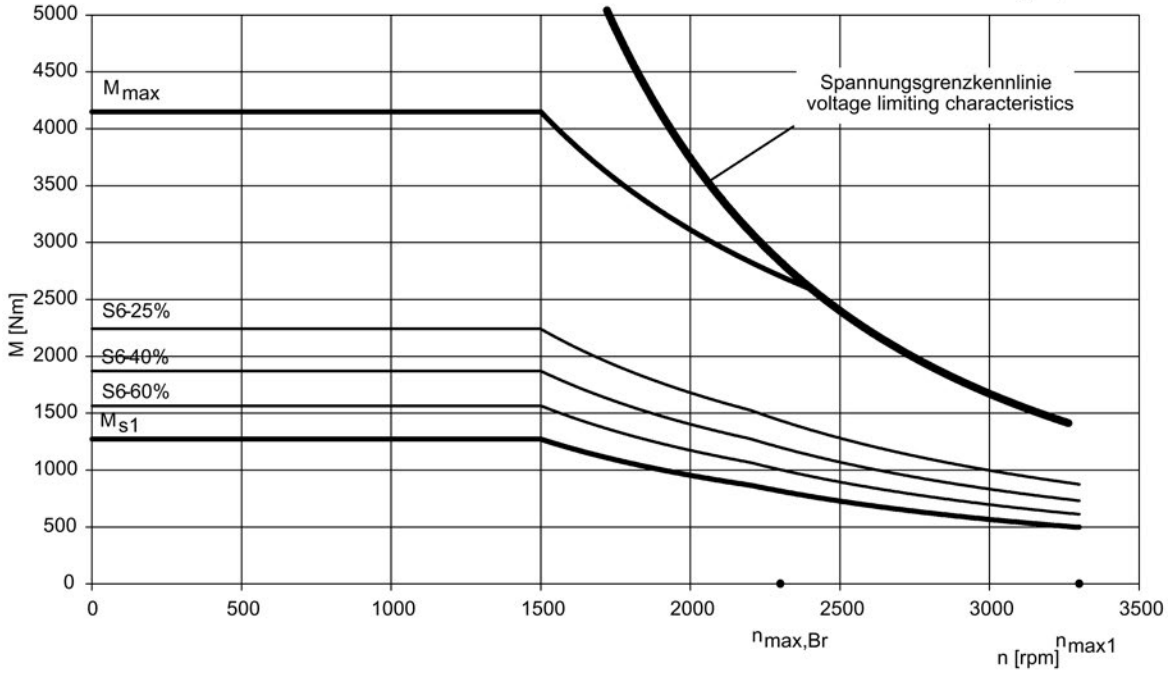
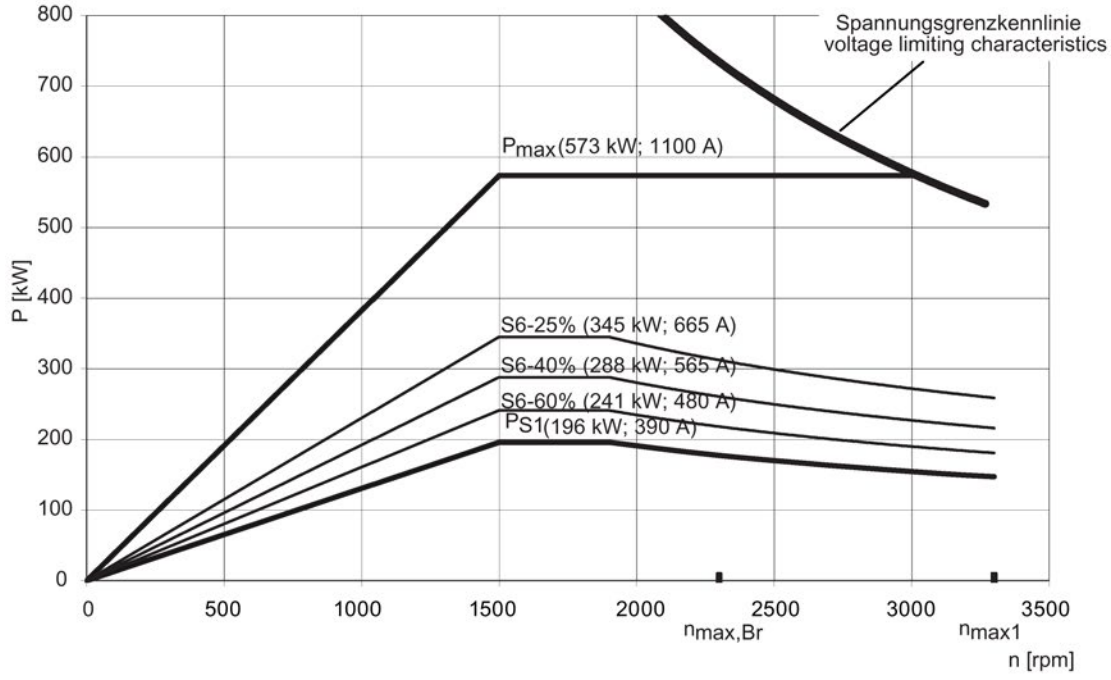


Table 6- 462 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F1□, (IP55)

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]
1,500	196	1,248	390	3,300	-	-	2,300	1,900	3,650	1,100	1,248	390



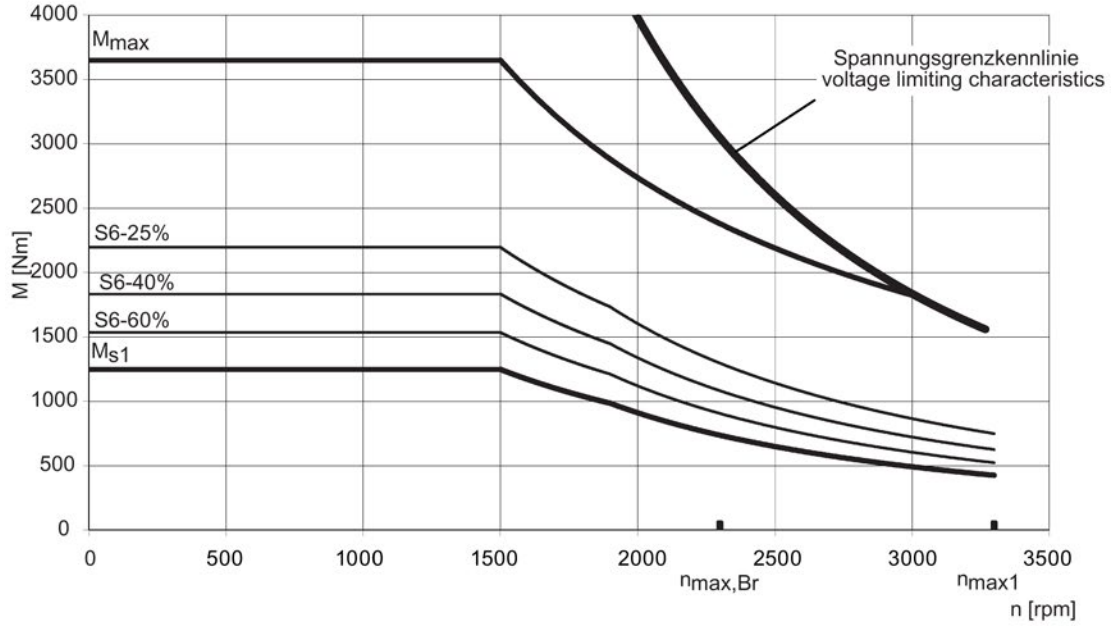
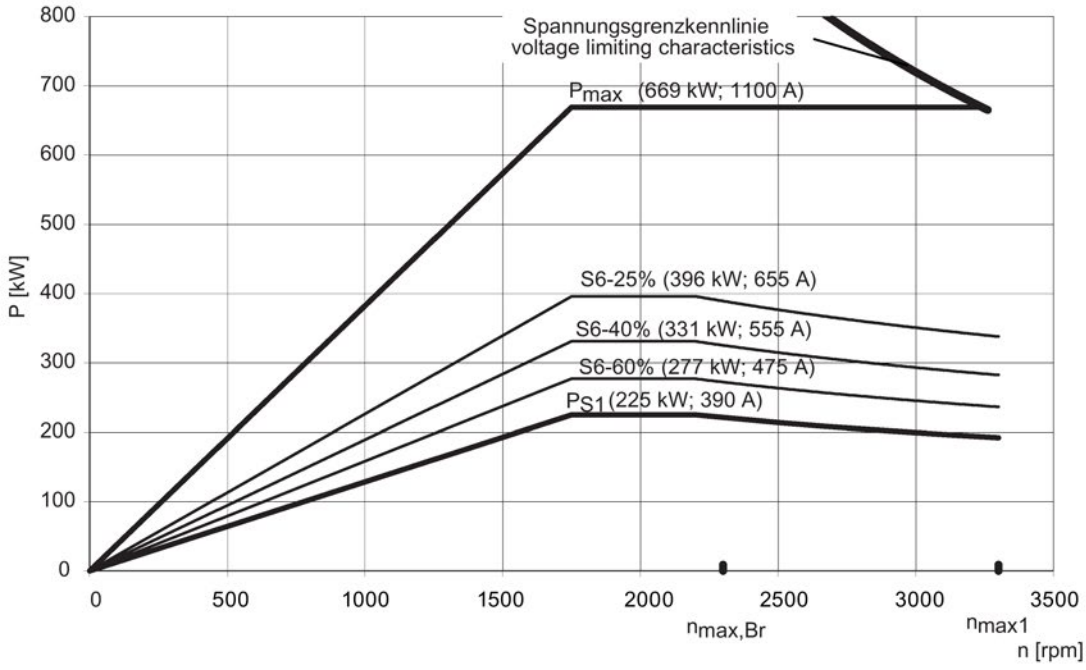


Table 6- 463 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□F1□, (IP55)

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]
1,750	225	1,228	390	3,300	-	-	2,300	2,200	3,650	1,100	1,228	390
1,500	196	1,248	390					3,100				



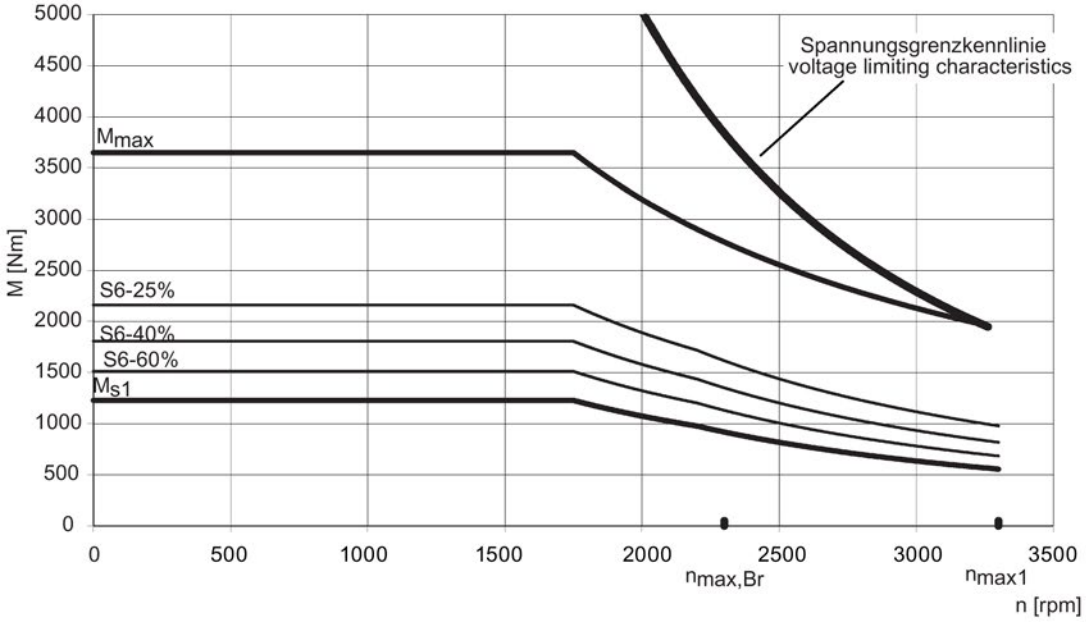
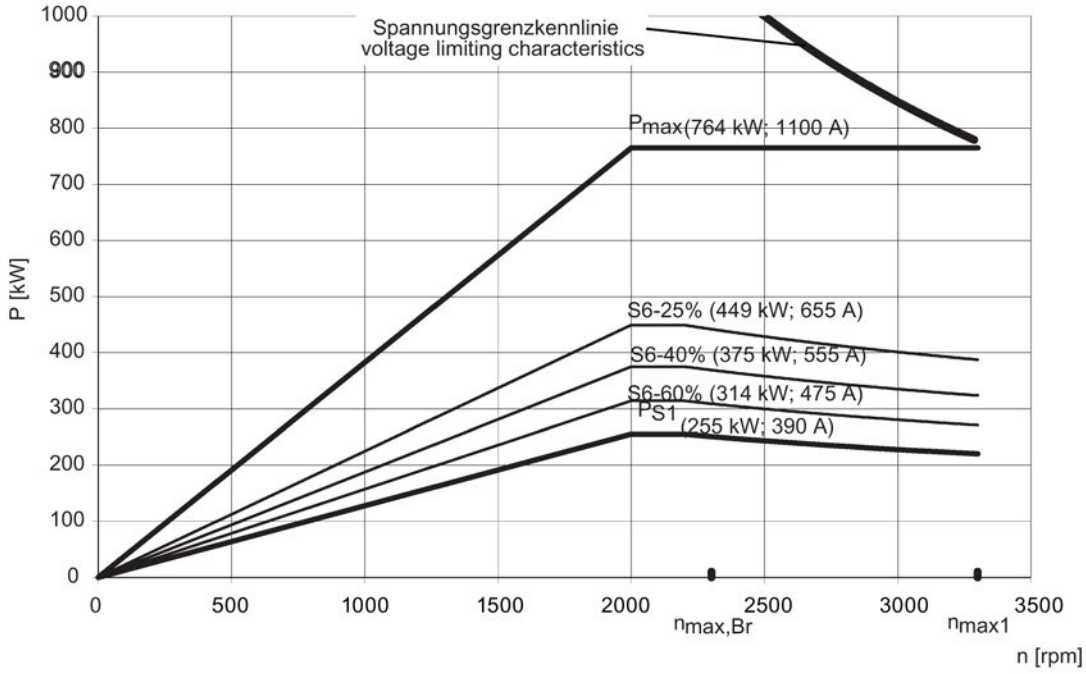


Table 6- 464 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F1□, (IP55)

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]
2,000	255	1,218	390	3,300	-	-	2,300	2,200	3,650	1,100	1,218	390



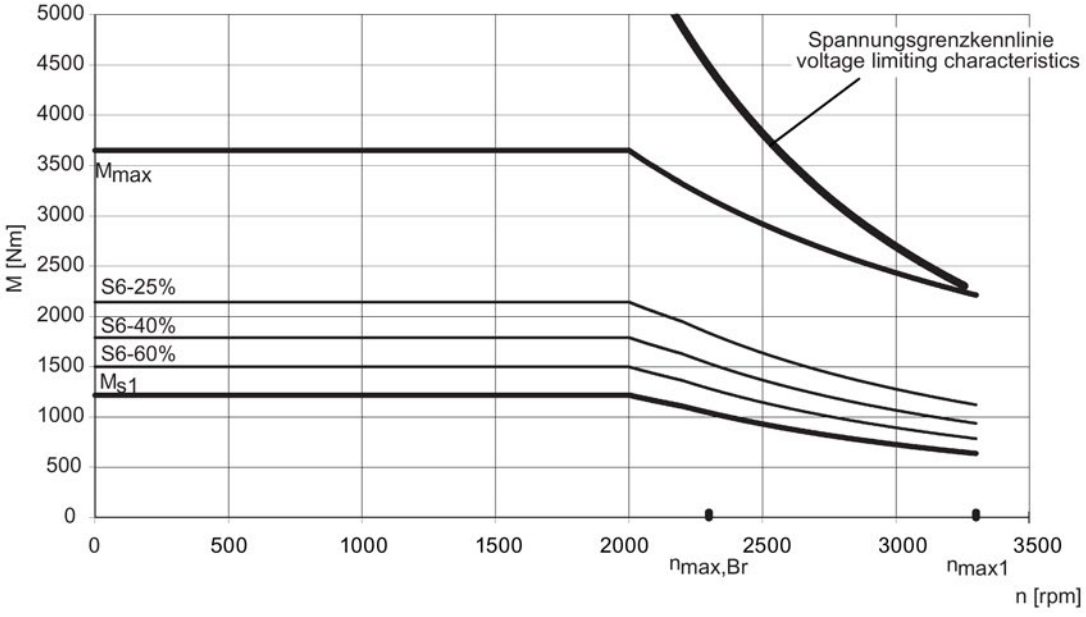
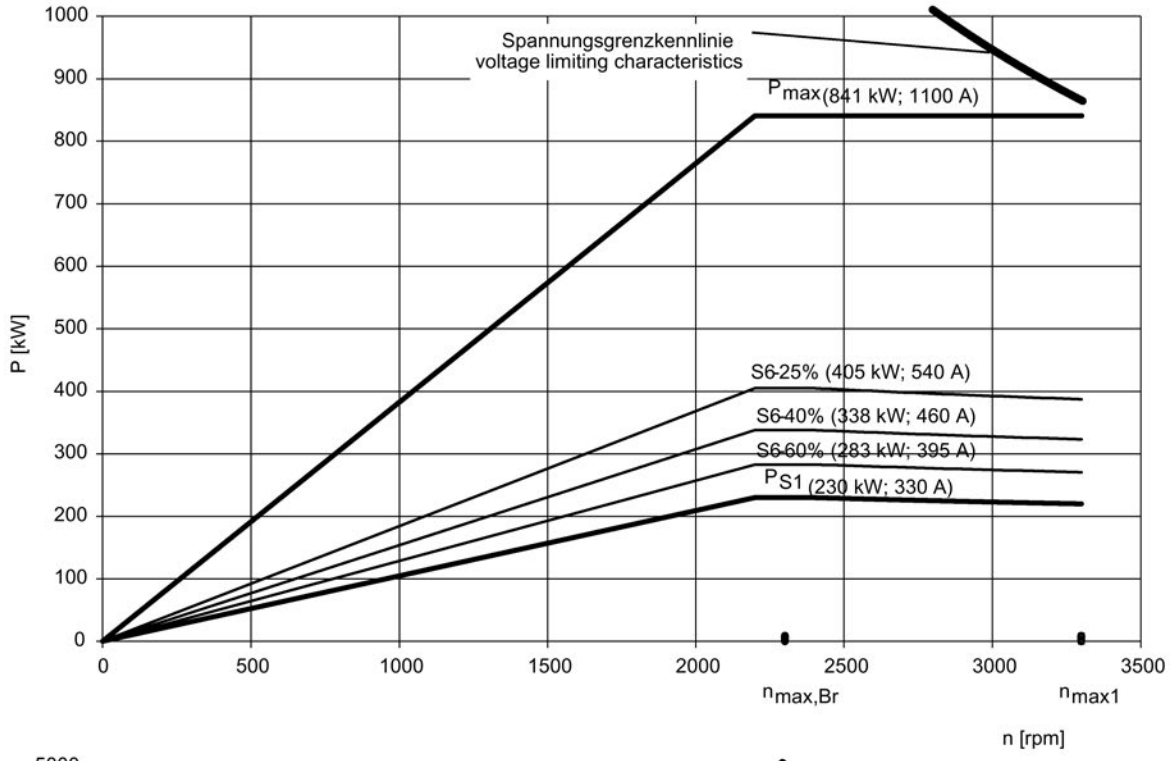


Table 6- 465 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□F1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	230	998	330	3,300	-	-	2,300	2,400	3,650	1,100	1,248	330



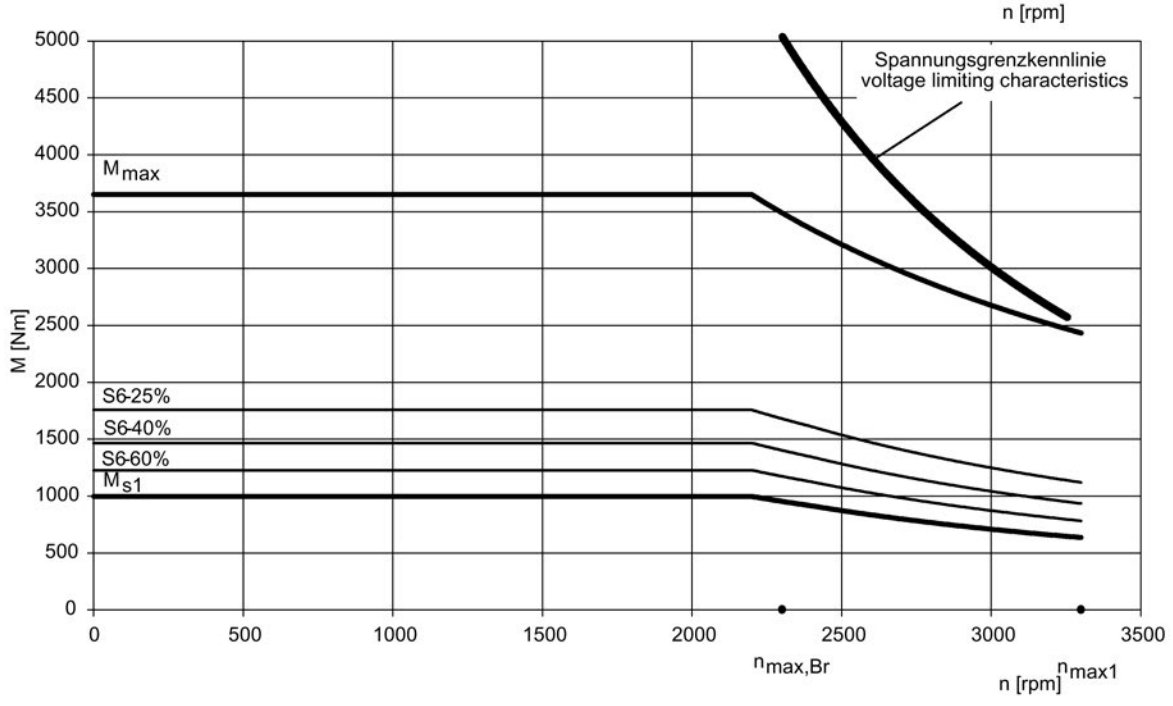
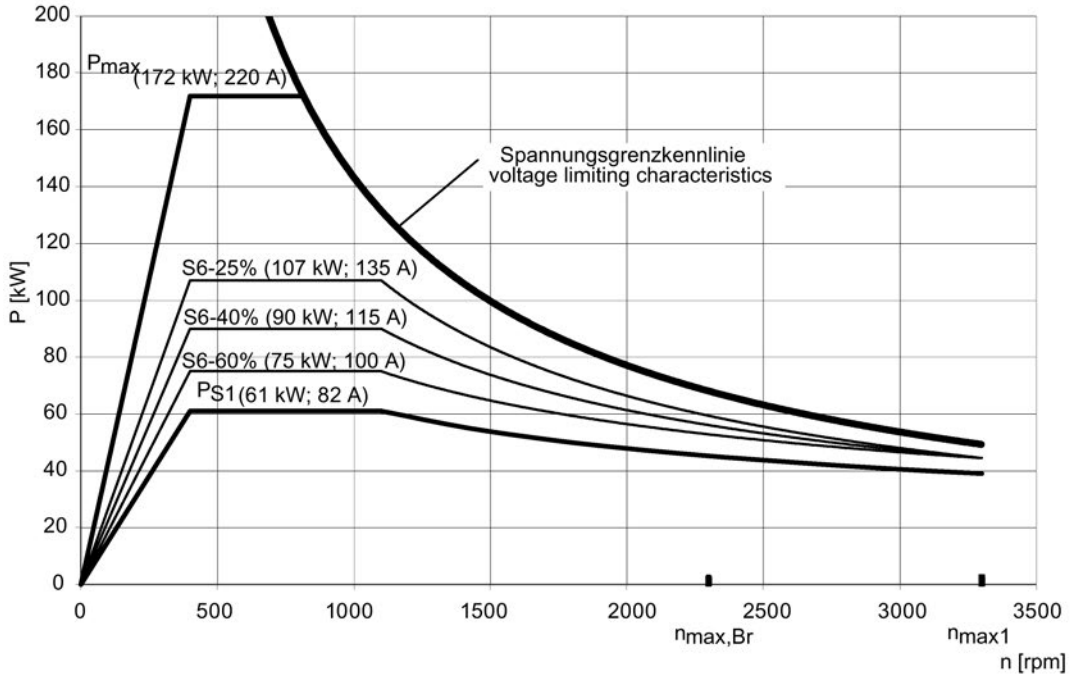


Table 6- 466 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□H1□, (IP55)

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	1,456	82	3,300	-	-	2,300	1,100	4,100	220	1,456	82



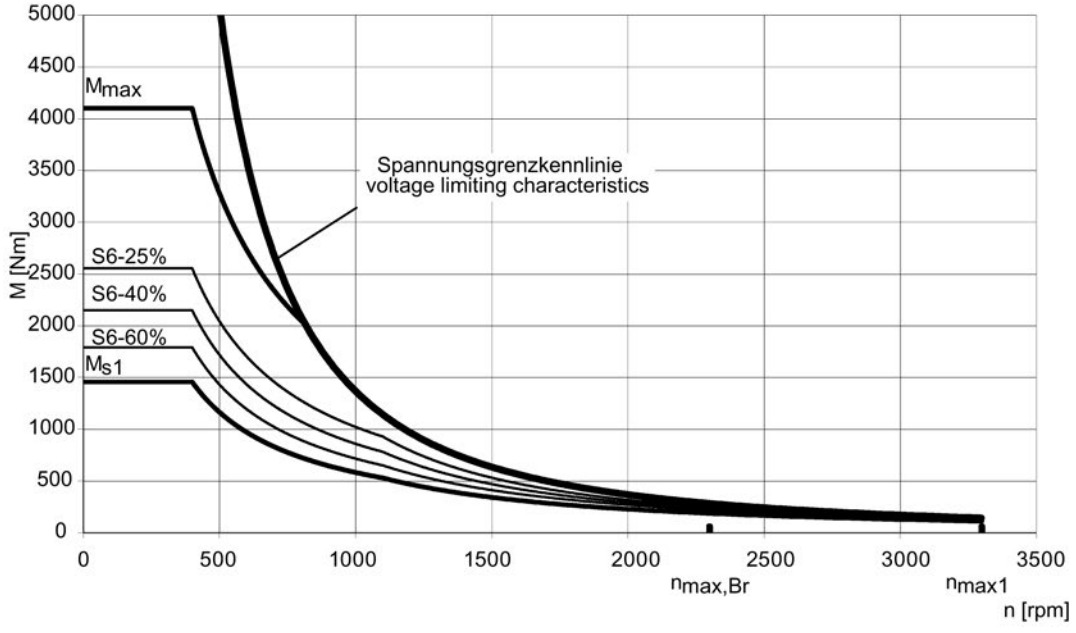
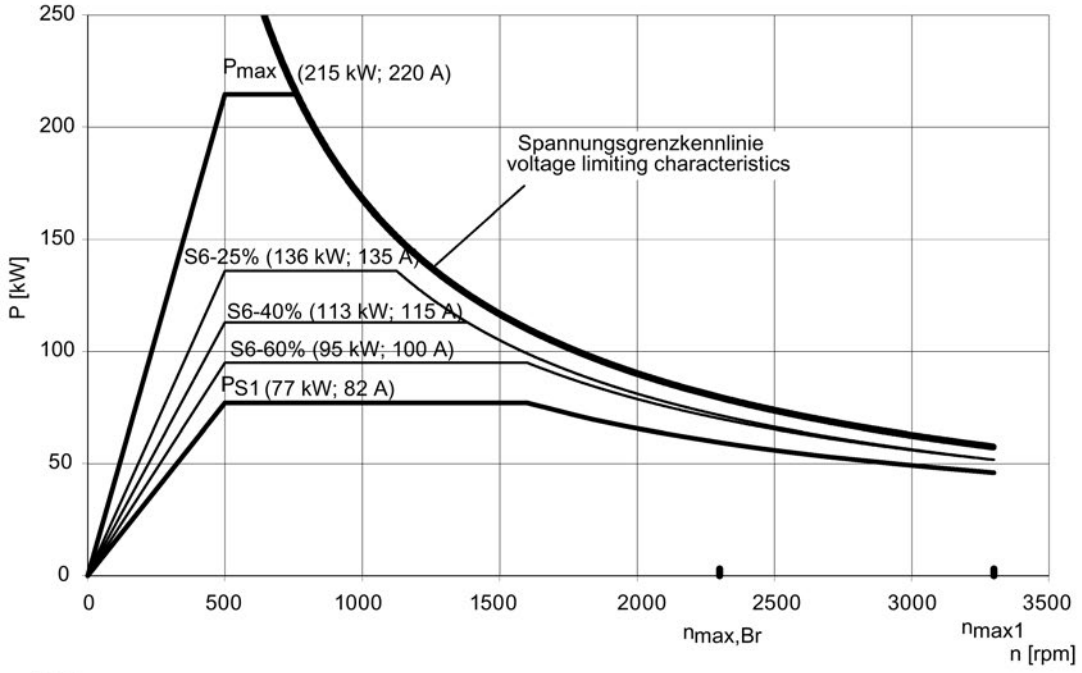


Table 6- 467 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□H1□, (IP55)

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	1,471	82	3,300	-	-	2,300	1,600	4,100	220	1,471	82
400	61	1,456	82					2,200				



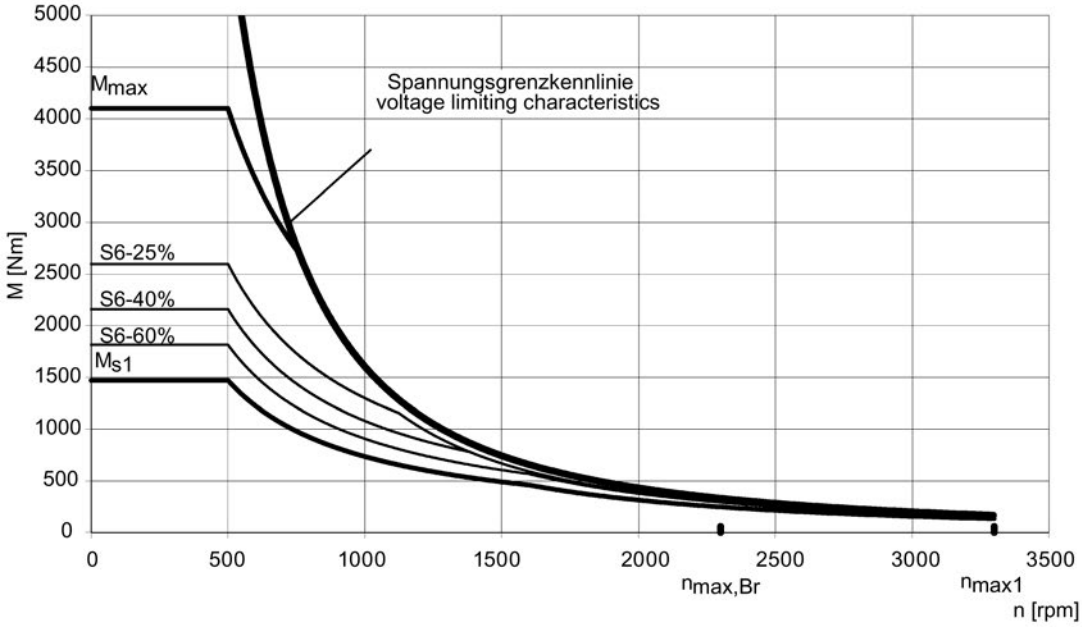
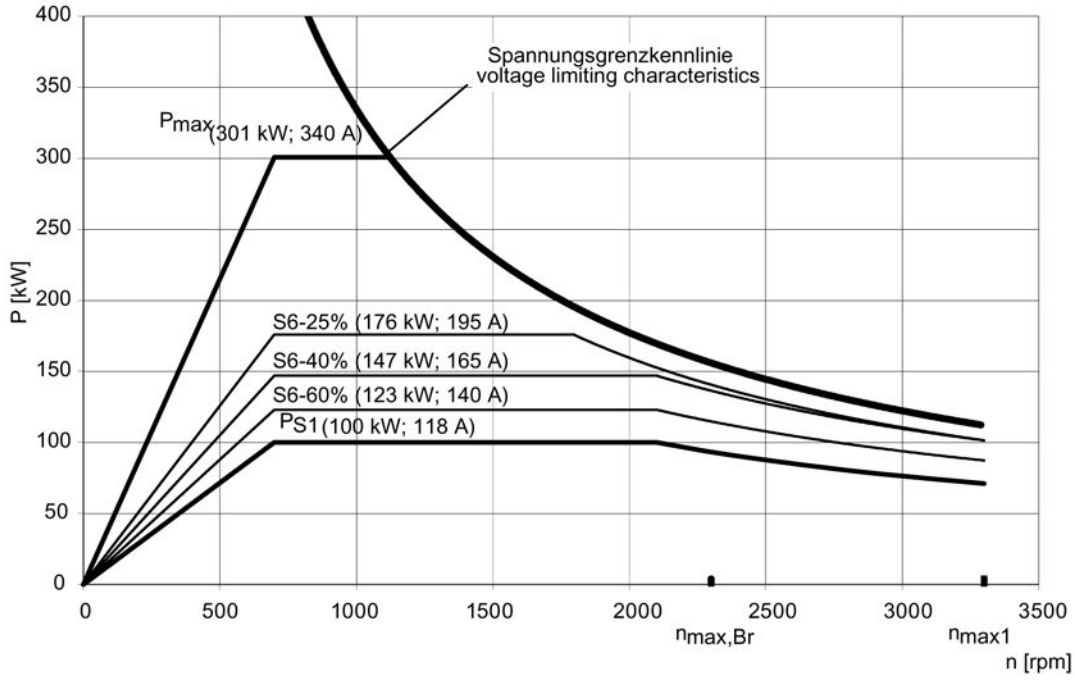


Table 6- 468 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□K1□, (IP55)

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	1,364	118	3,300	-	-	2,300	2,100	4,100	340	1,364	118



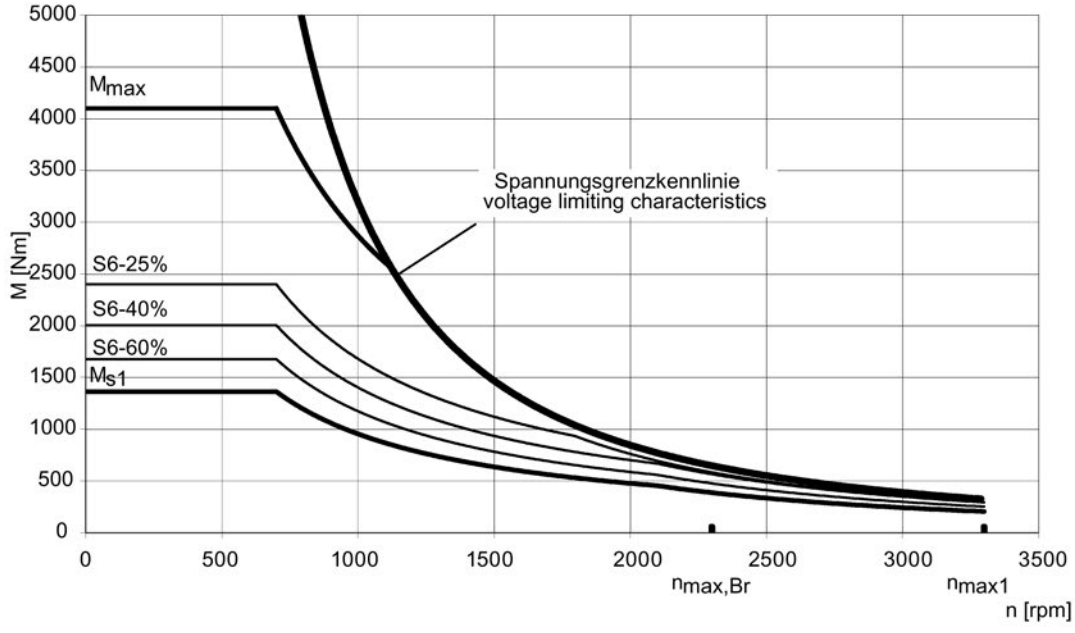
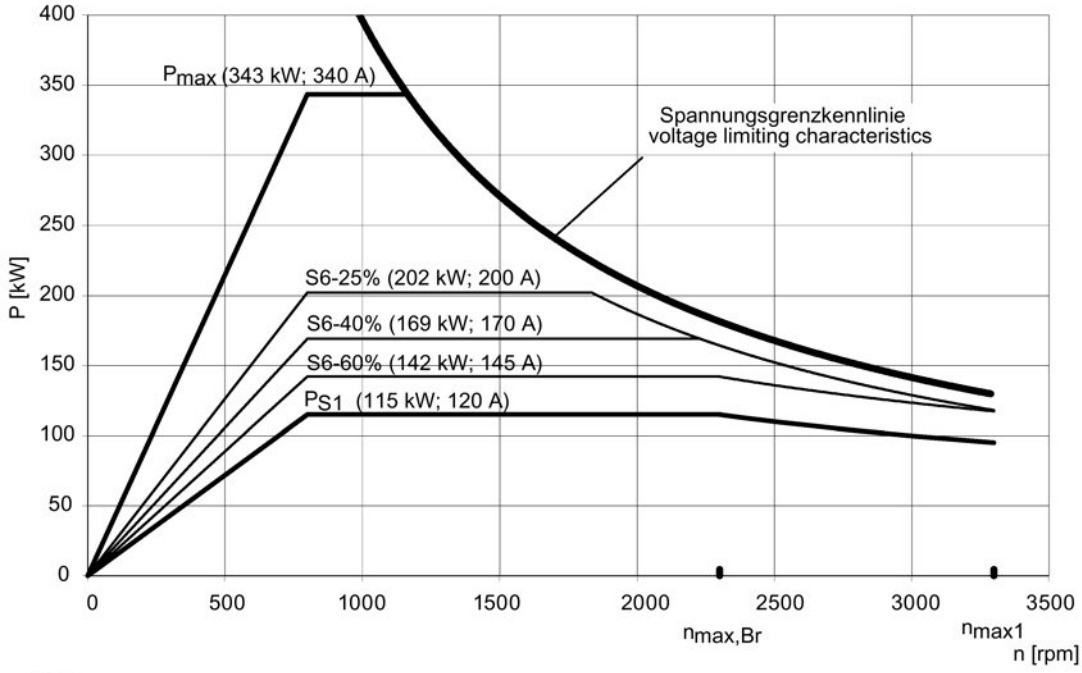


Table 6- 469 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□K1□, (IP55)

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	1,373	120	3,300	-	-	2,300	2,300	4,100	340	1,373	120
700	100	1,364	118					3,000				



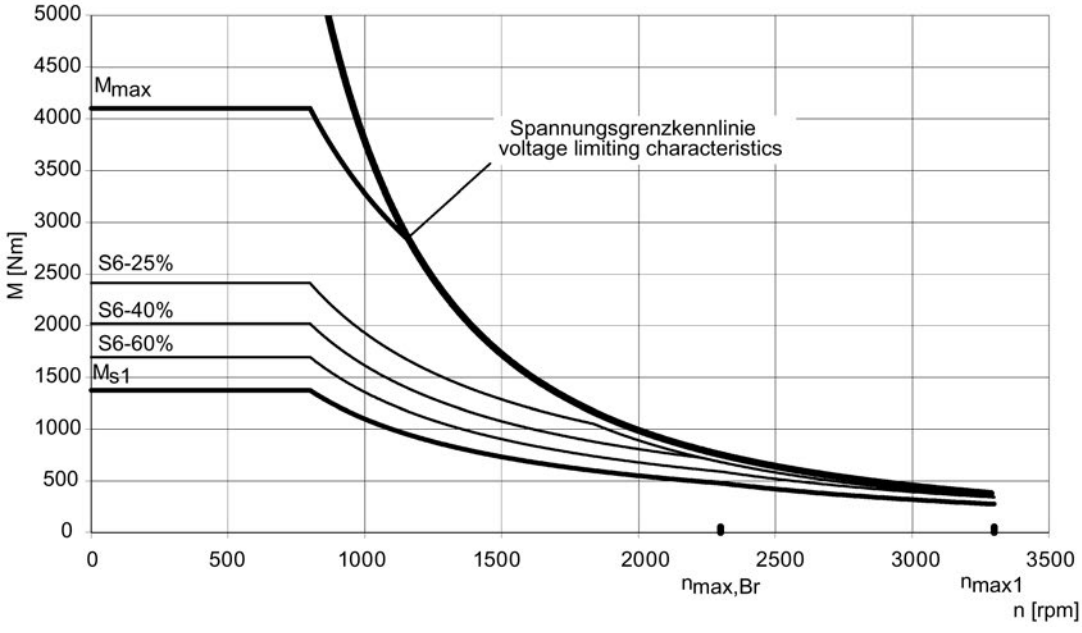
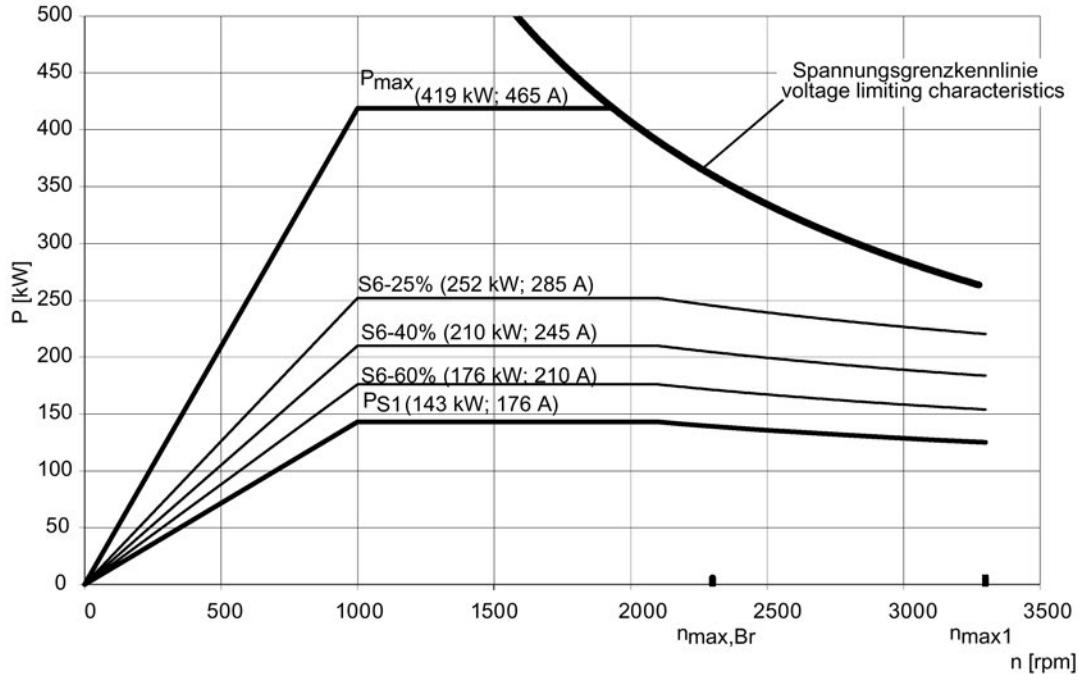


Table 6- 470 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□U1□, (IP55)

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]
1,000	143	1,366	176	3,300	-	-	2,300	2,100	4,000	465	1,366	176



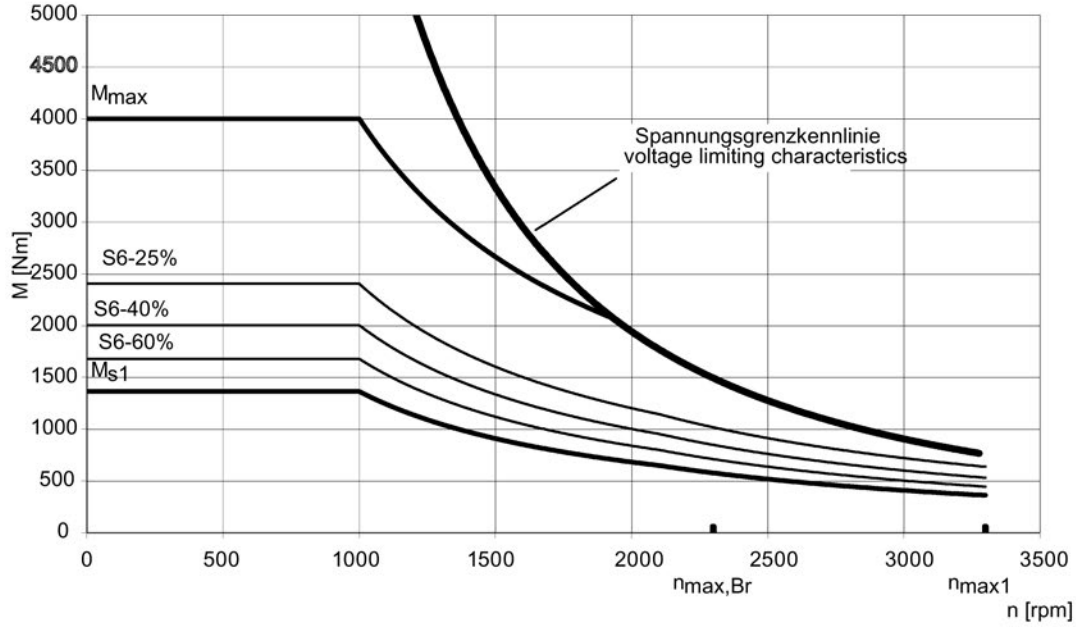
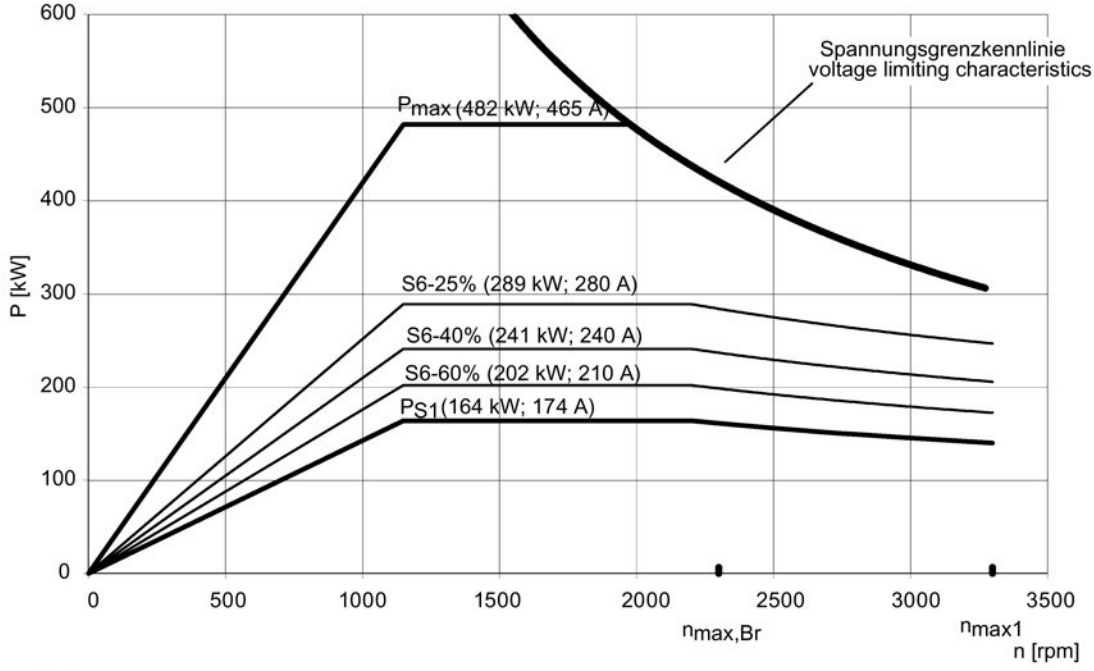


Table 6- 471 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□U1□, (IP55)

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]
1,150	164	1,362	174	3,300	-	-	2,300	2,200	4,000	465	1,362	174
1,000	143	1,366	176					3,100				



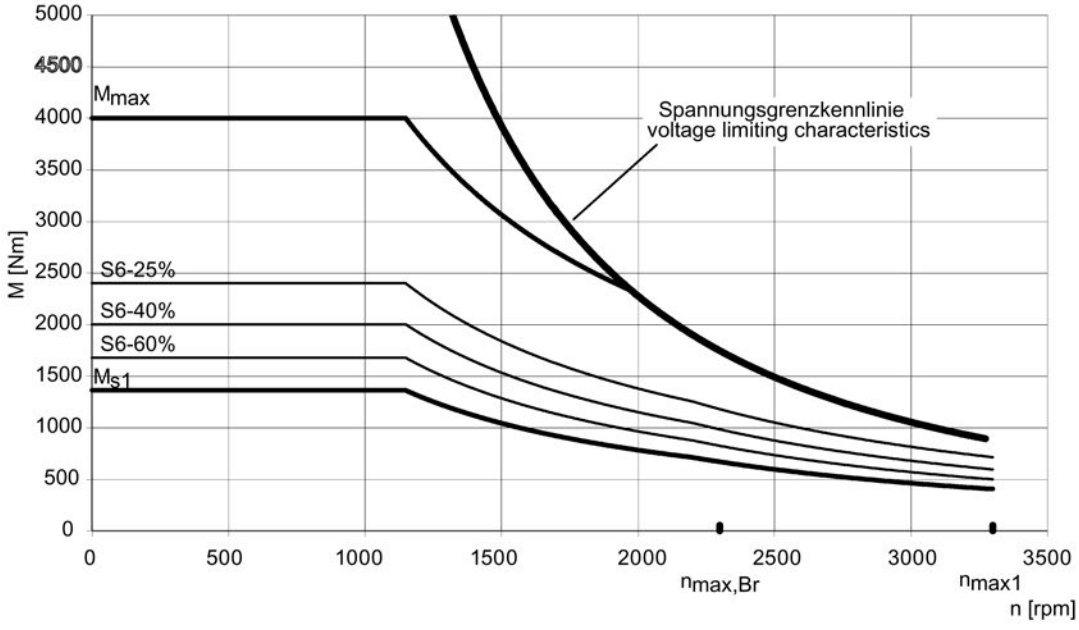
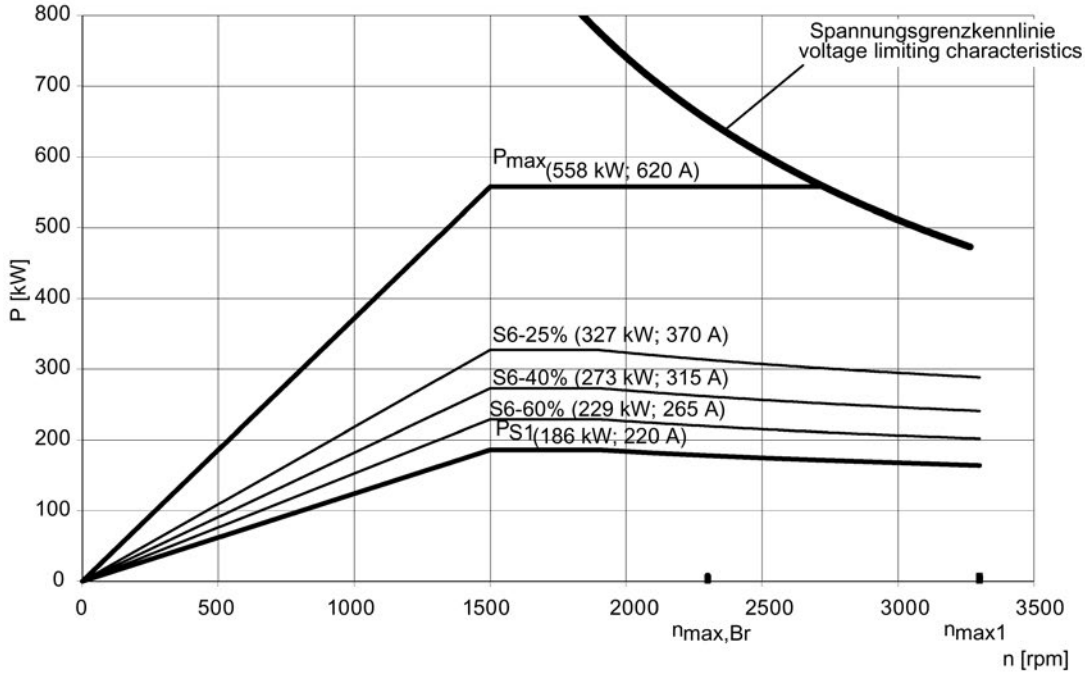


Table 6- 472 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□W1□, (IP55)

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]
1,500	186	1,184	220	3,300	-	-	2,300	1,900	3,550	620	1,184	220



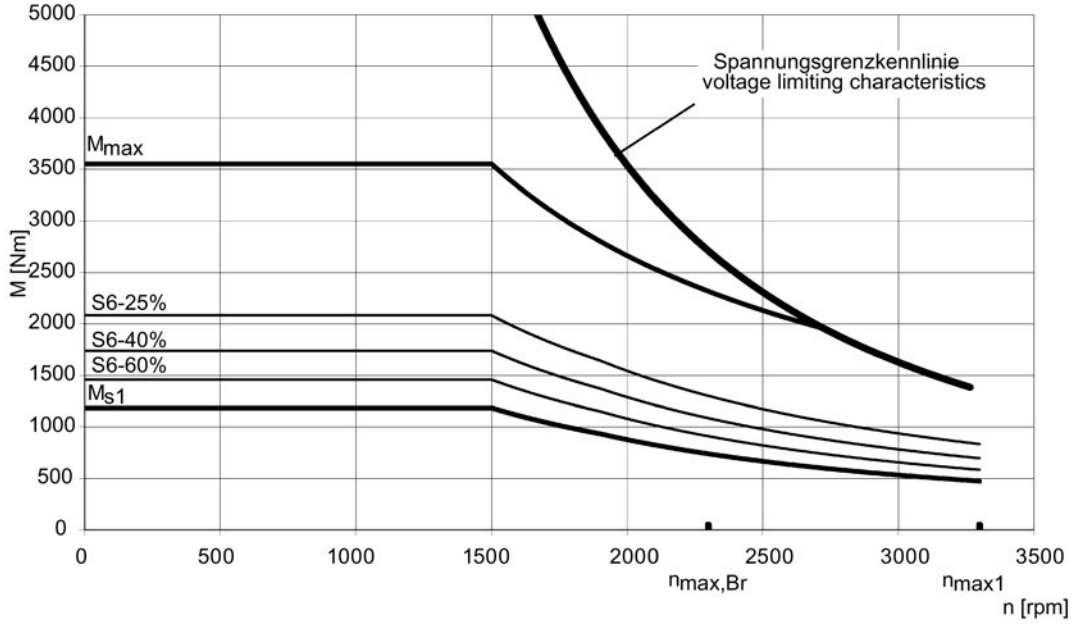
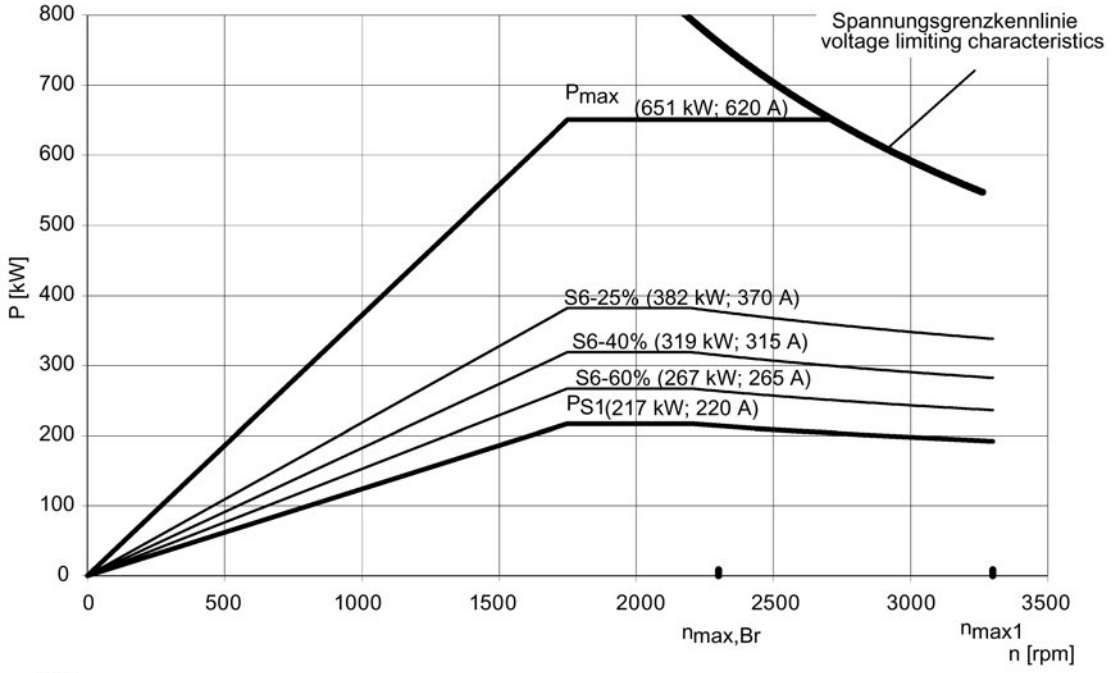


Table 6- 473 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□W1□, (IP55)

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]
1,750	217	1,184	220	3,300	-	-	2,300	2,200	3,550	620	1,184	220
1,500	186	1,184	220					3,300				



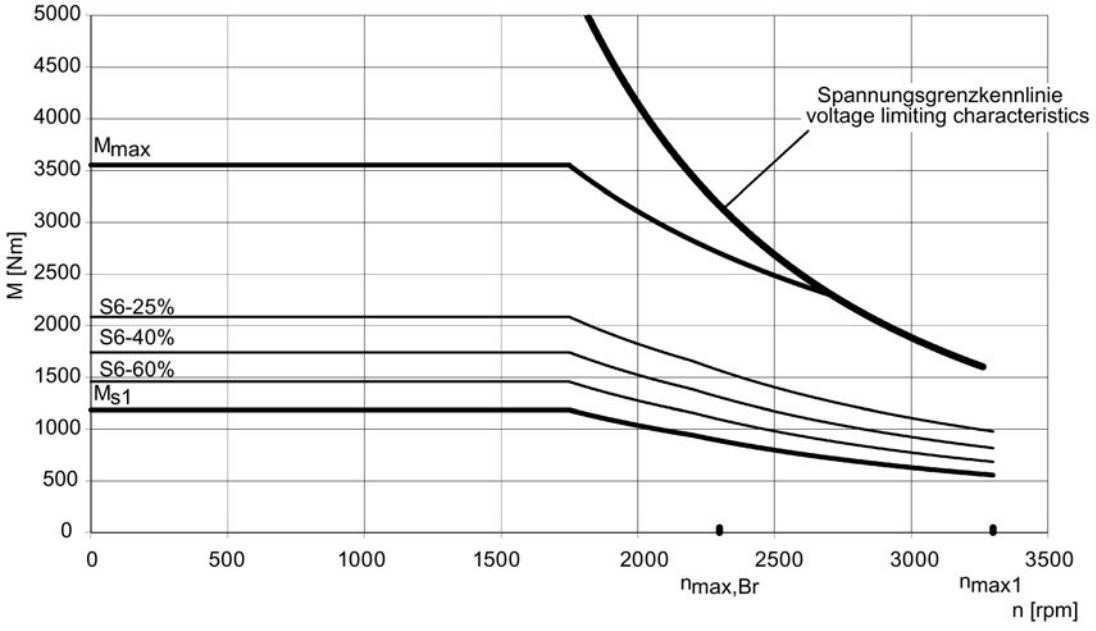
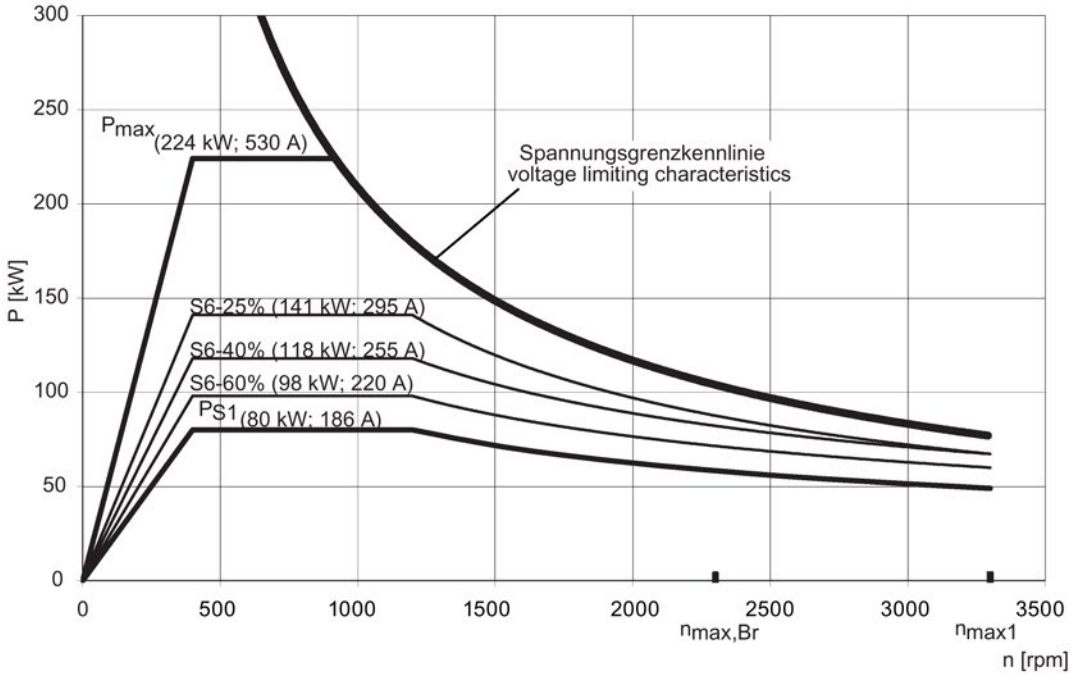


Table 6- 474 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□B1□, (IP55)

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	1,910	186	3,300	-	-	2,300	1,200	5,350	530	1,910	186



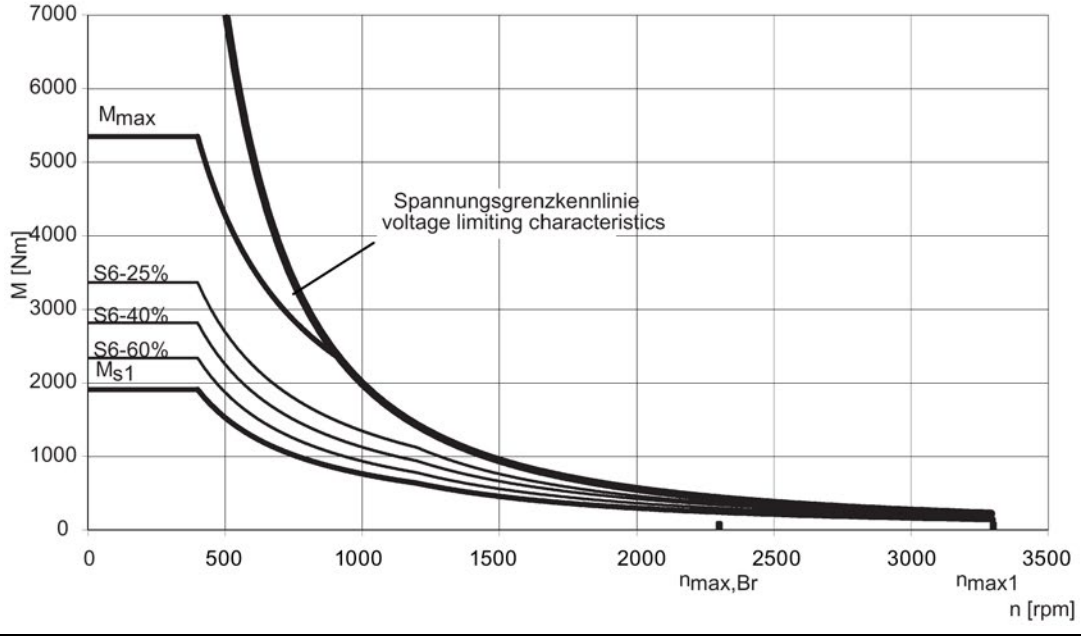
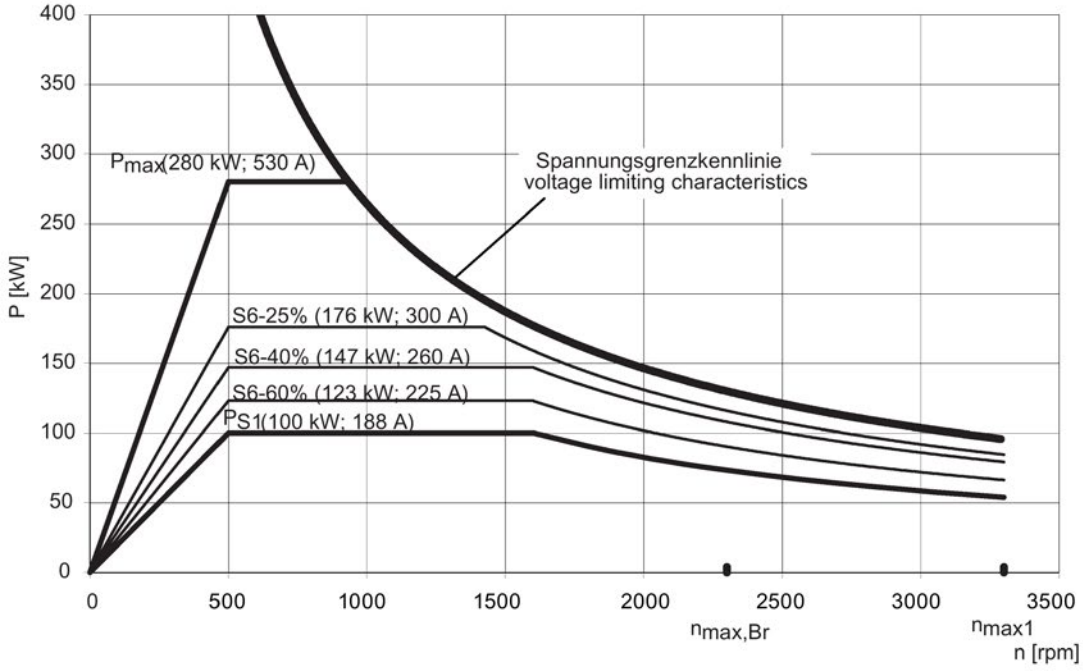


Table 6- 475 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□B1□, (IP55)

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	1,909	188	3,300	-	-	2,300	1,600	5,350	530	1,909	188
400	80	1,910	186					2,100				



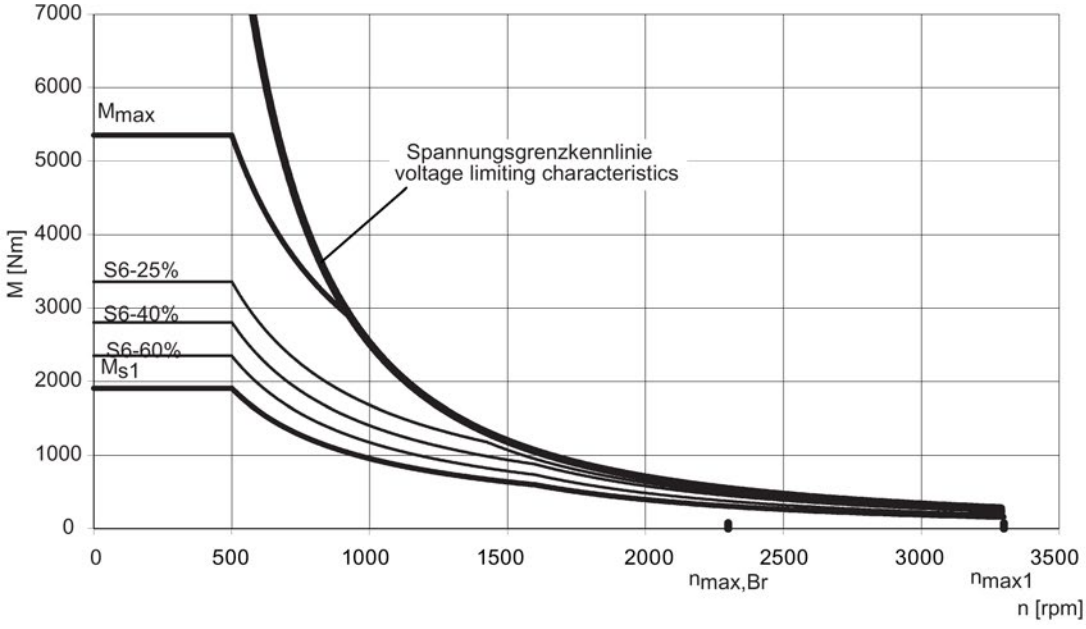
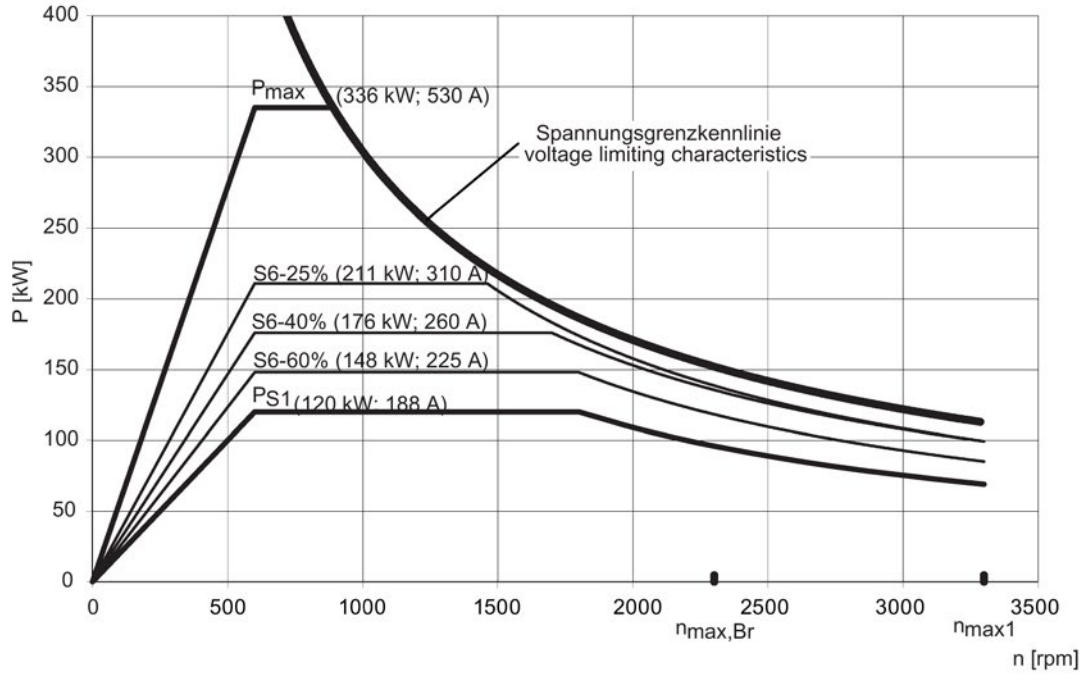


Table 6- 476 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□B1□, (IP55)

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	1,916	188	3,300	-	-	2,300	1,800	5,350	530	1,916	188



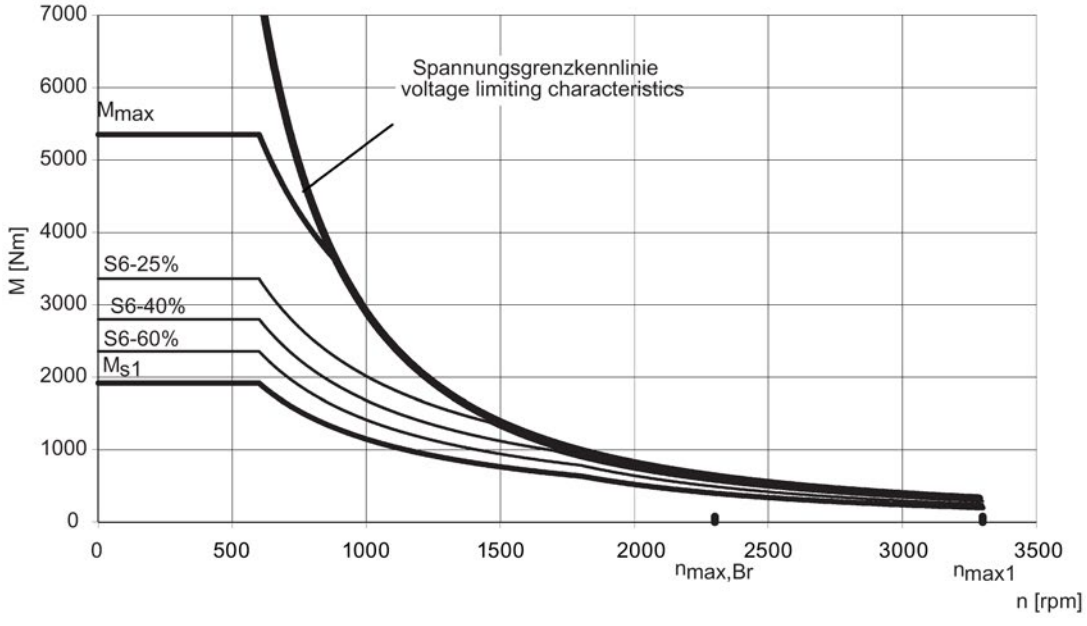
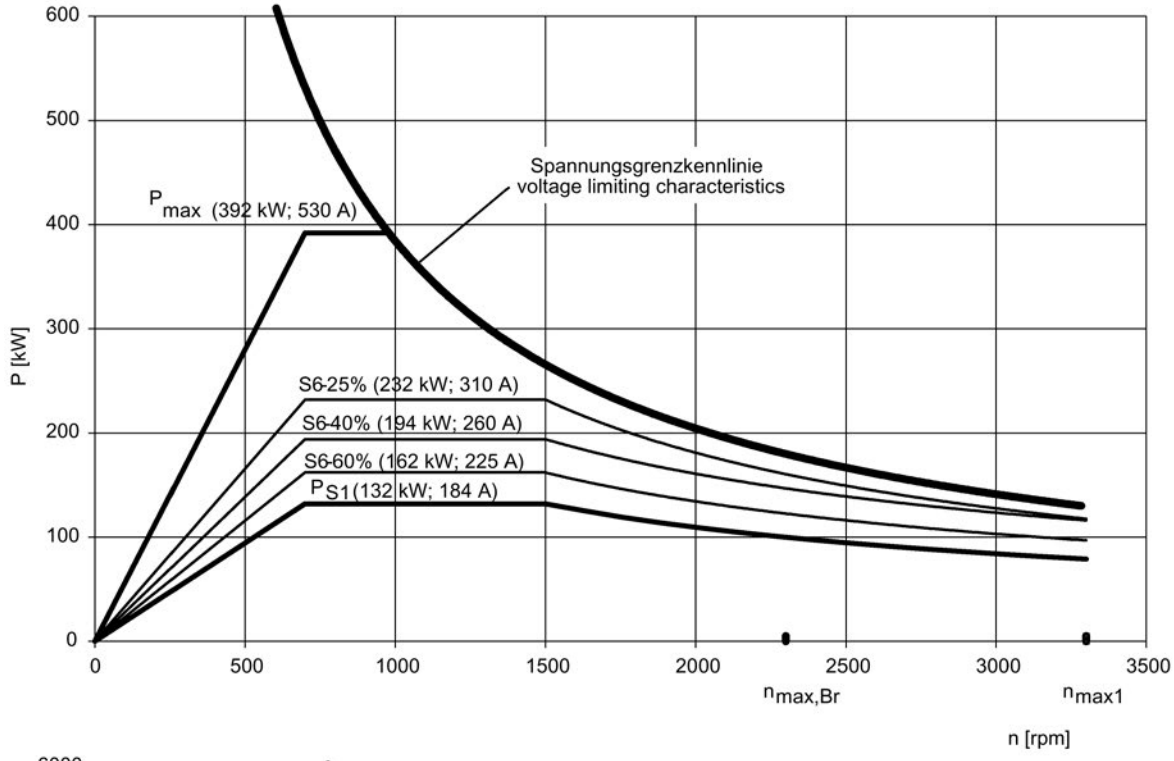


Table 6- 477 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□B1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	132	1,801	184	3,300	-	-	2,300	1,500	5,350	530	1,910	184



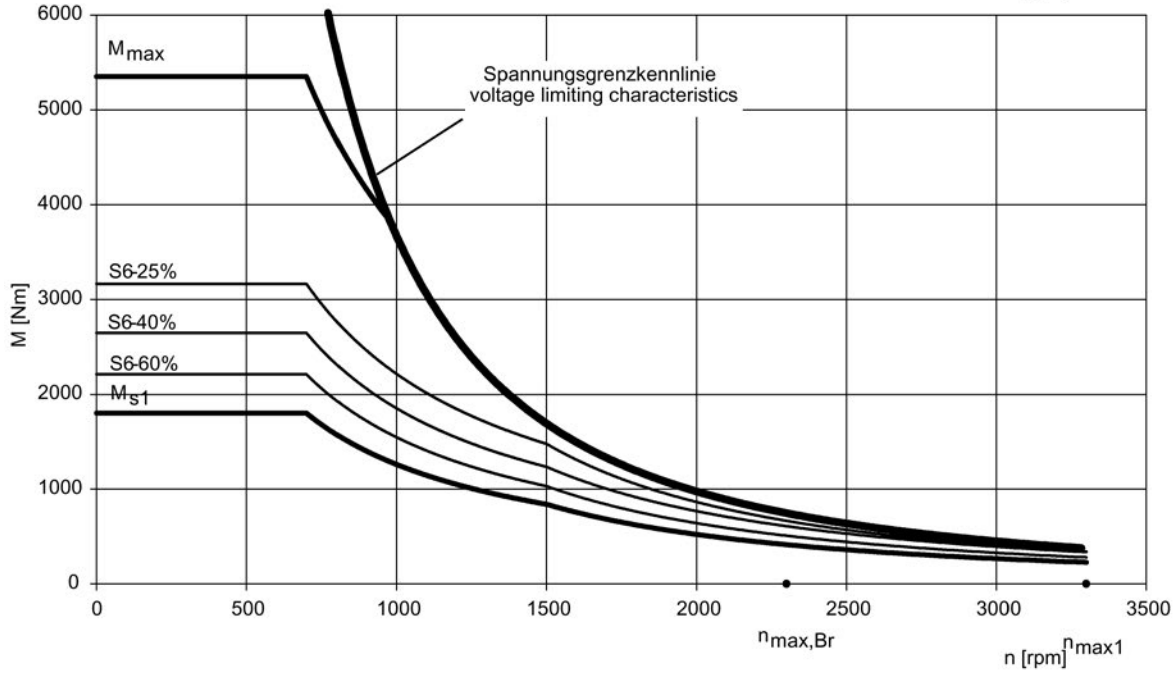
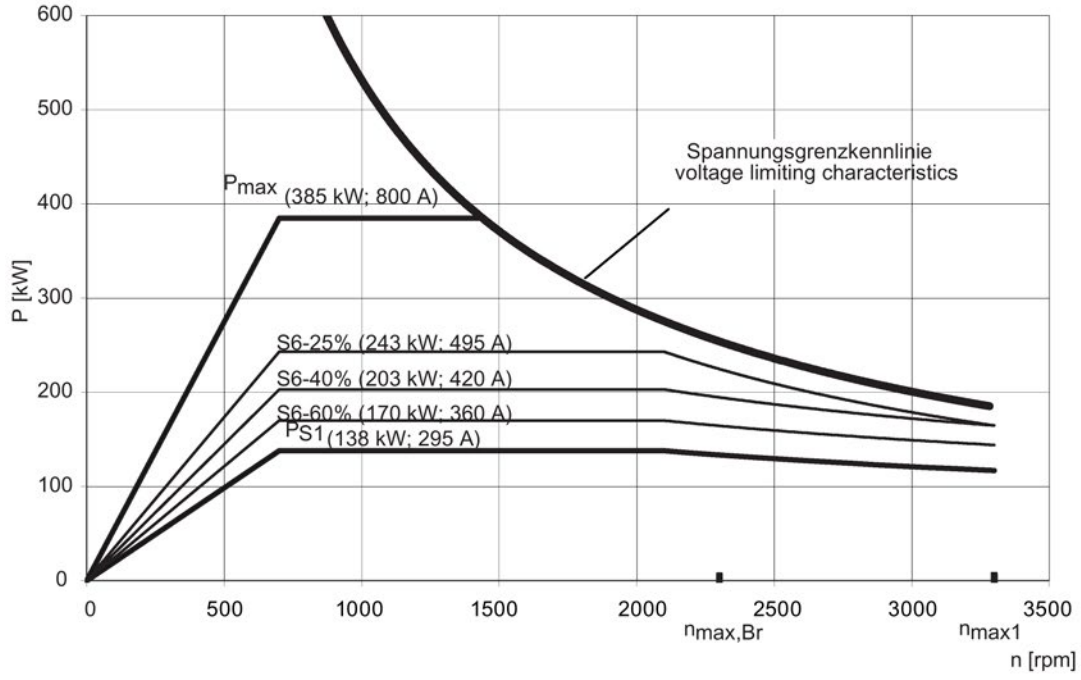


Table 6- 478 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C1□, (IP55)

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	1,883	295	3,300	-	-	2,300	2,100	5,250	800	1,883	295



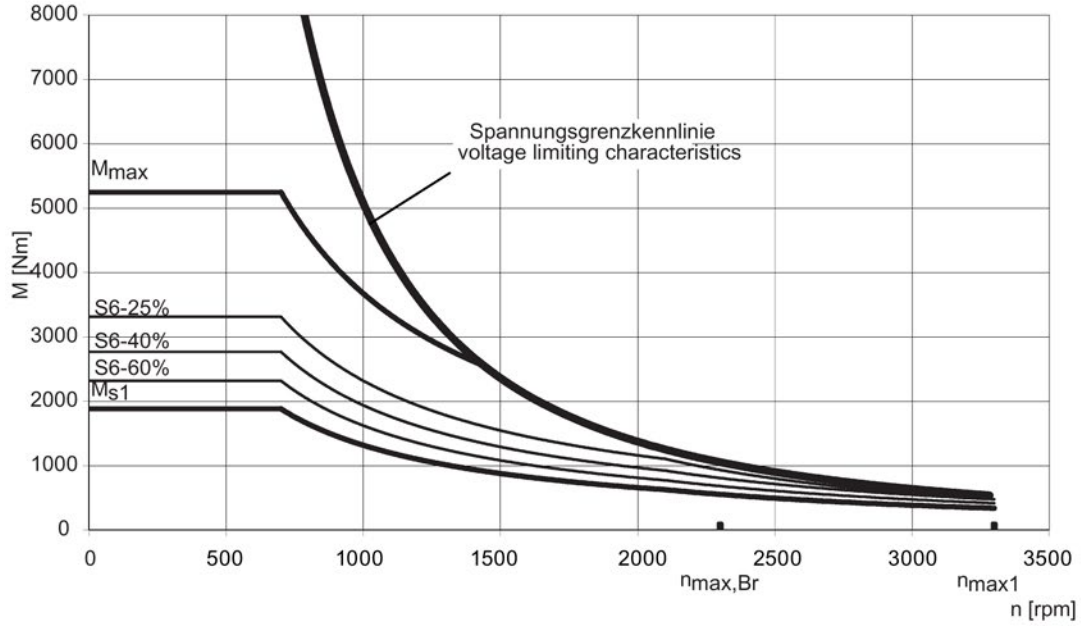
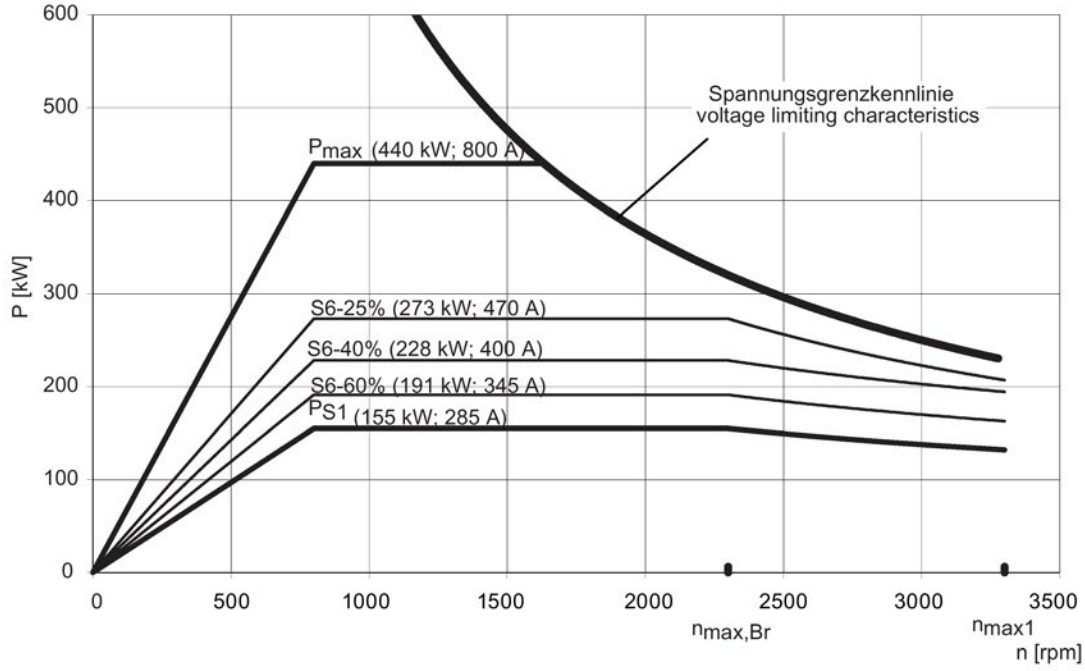


Table 6- 479 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□C1□, (IP55)

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	1,850	285	3,300	-	-	2,300	2,300	5,250	800	1,850	285
700	138	1,883	295					3,000				



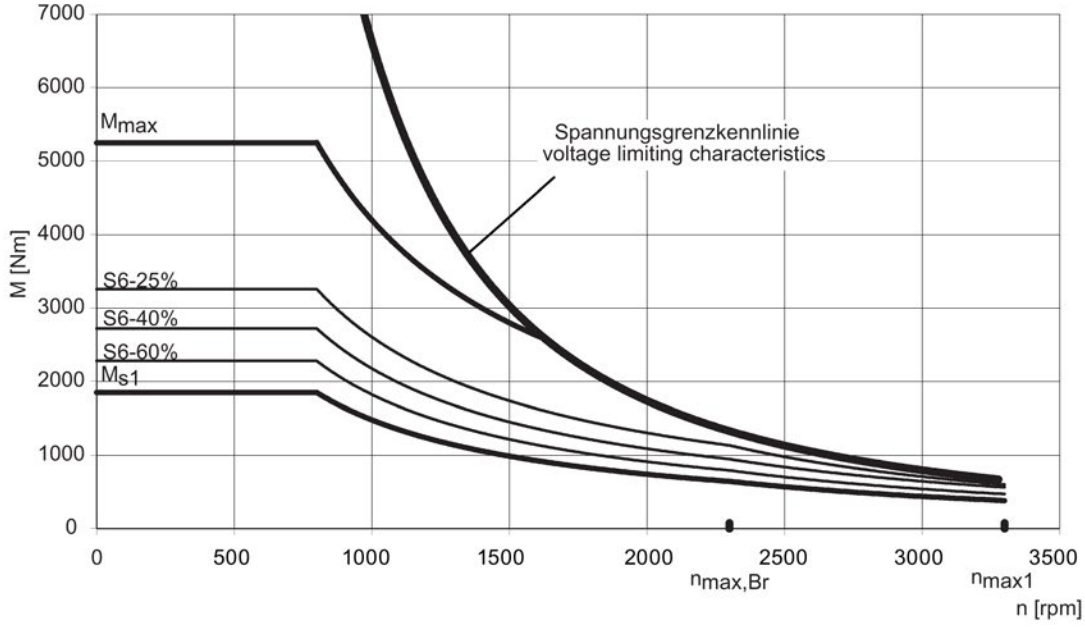
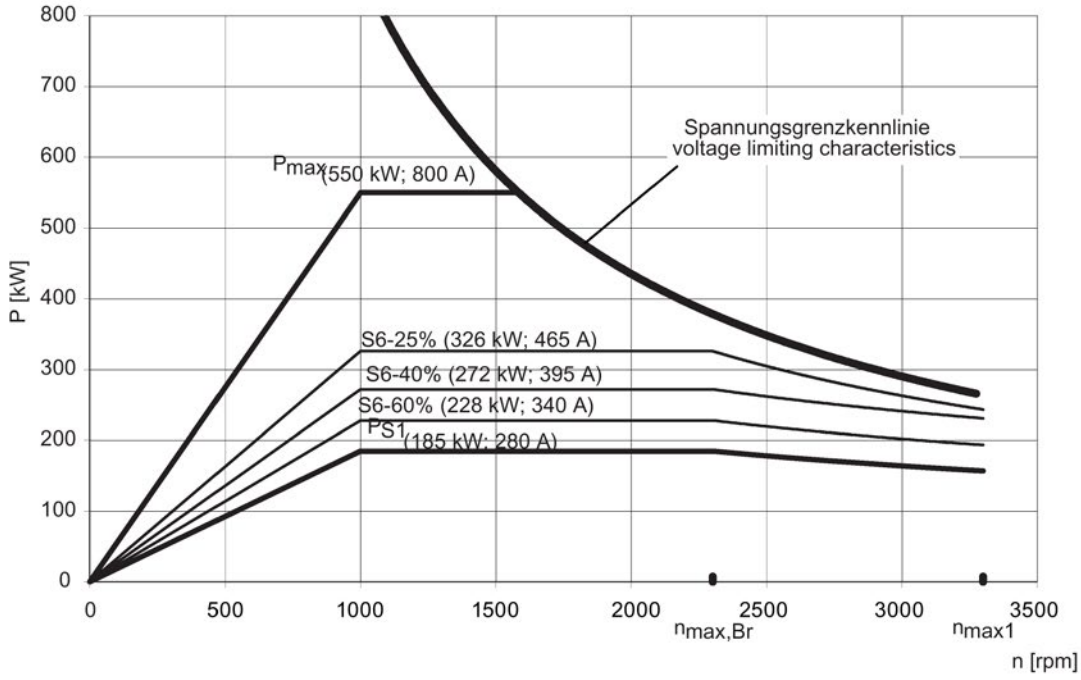


Table 6- 480 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C1□, (IP55)

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]
1,000	185	1,767	280	3,300	-	-	2,300	2,300	5,250	800	1,767	280



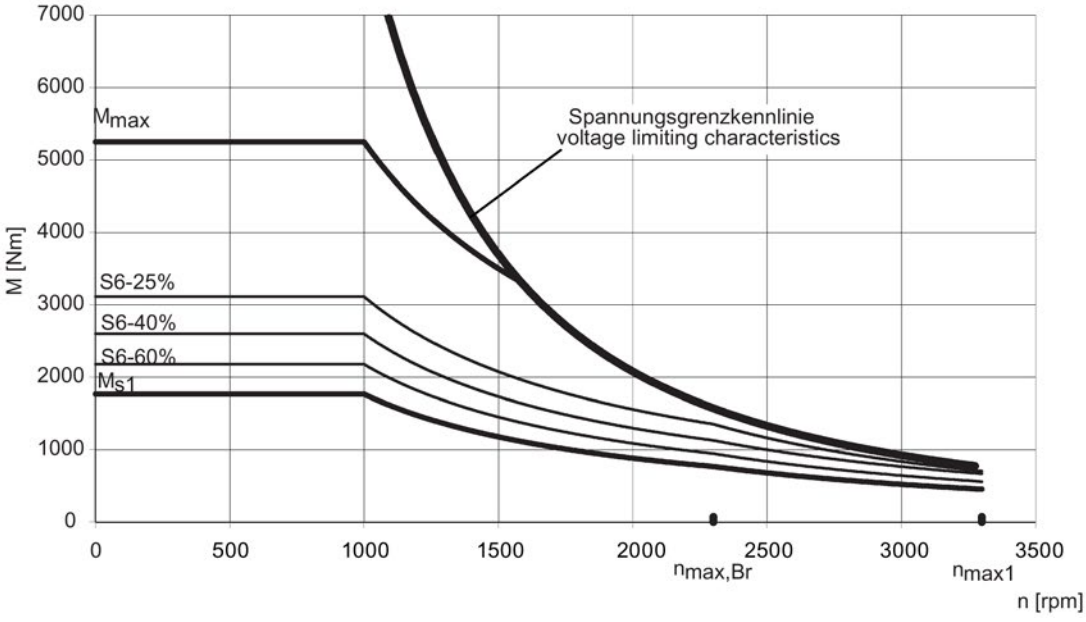
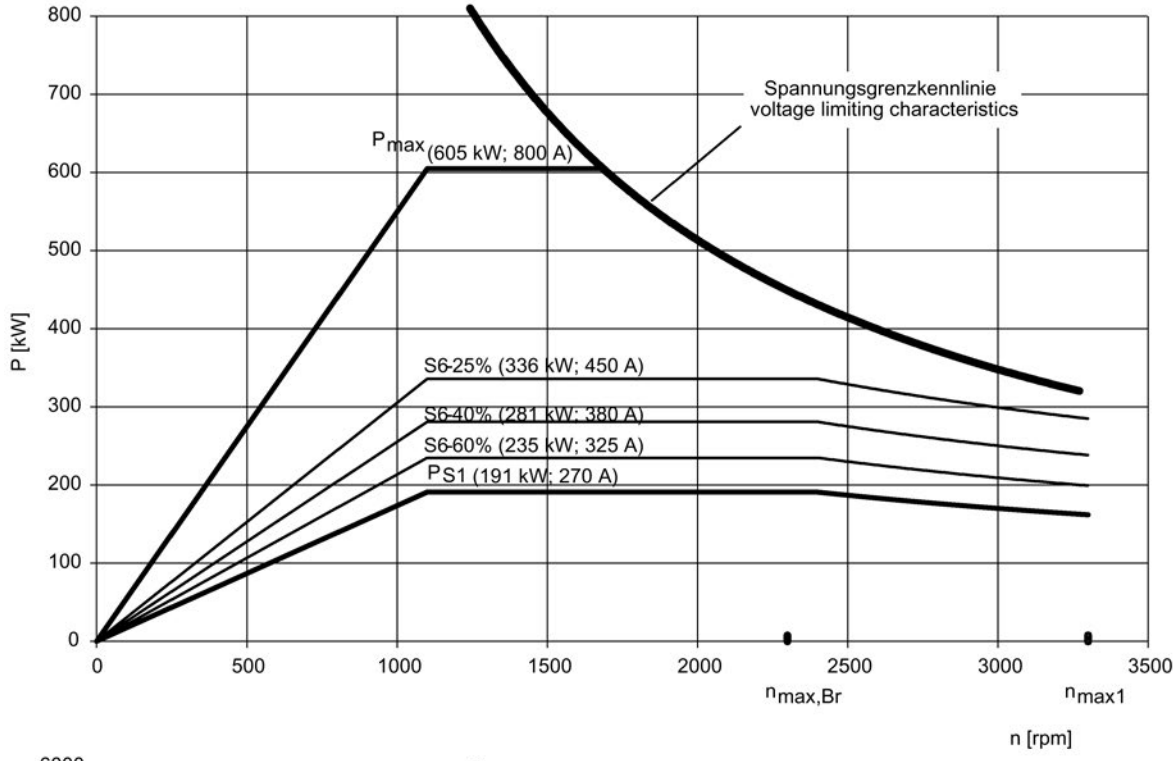


Table 6- 481 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□C1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	191	1,658	270	3,300	-	-	2,300	2,400	5,250	800	1,883	270



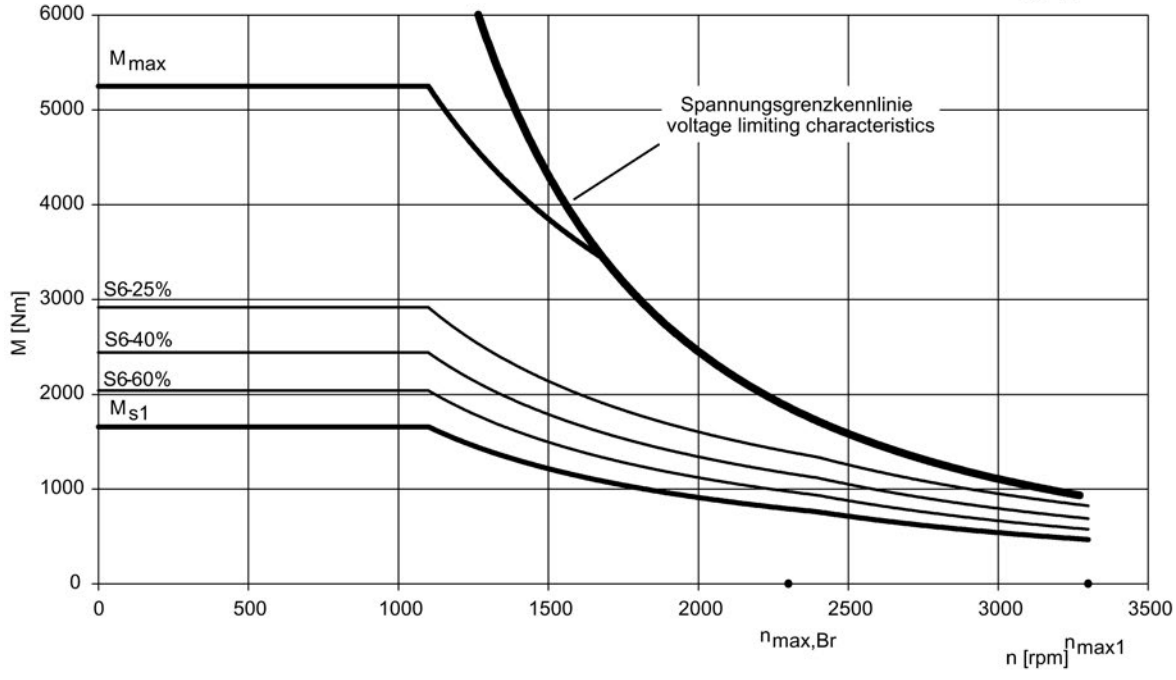
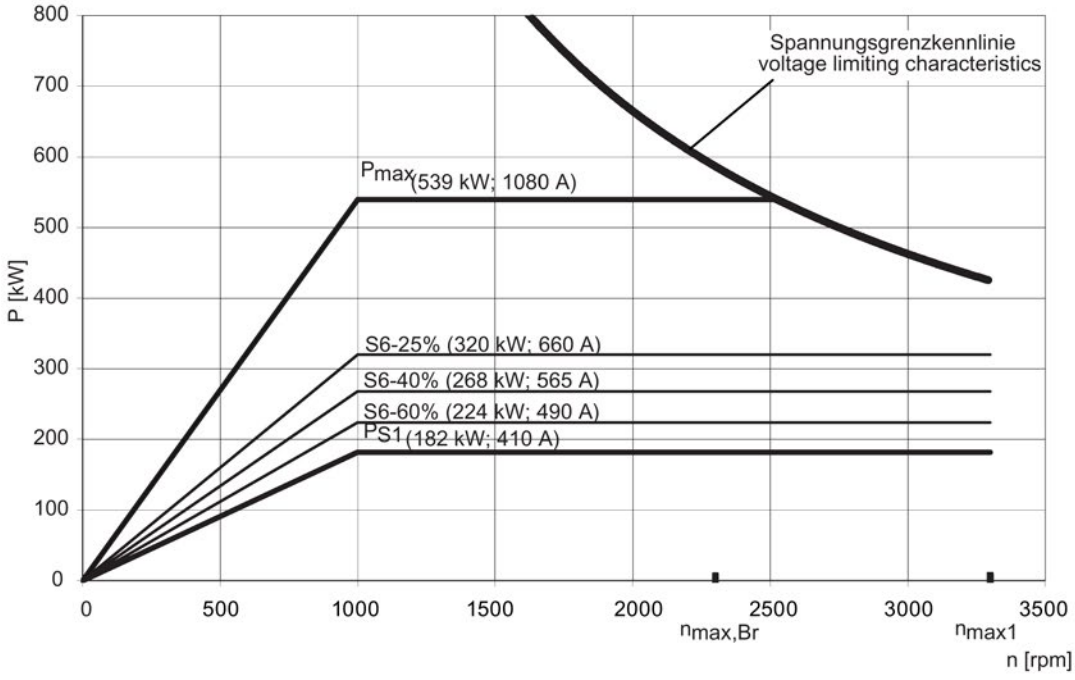


Table 6- 482 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D1□, (IP55)

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]
1,000	182	1,738	410	3,300	-	-	2,300	2,100	5,150	1,080	1,738	410



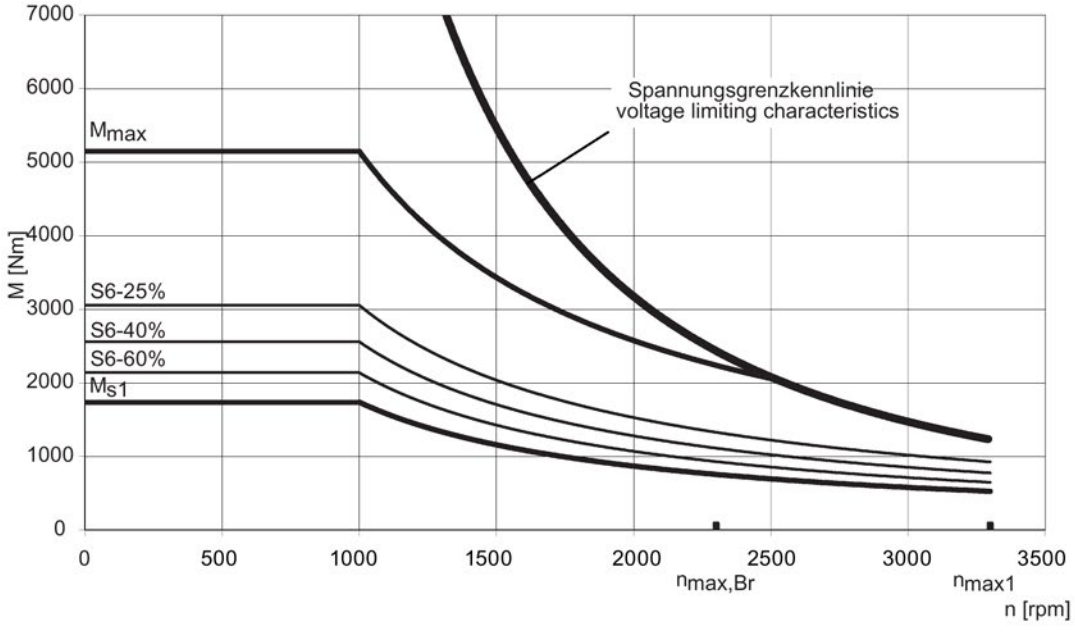
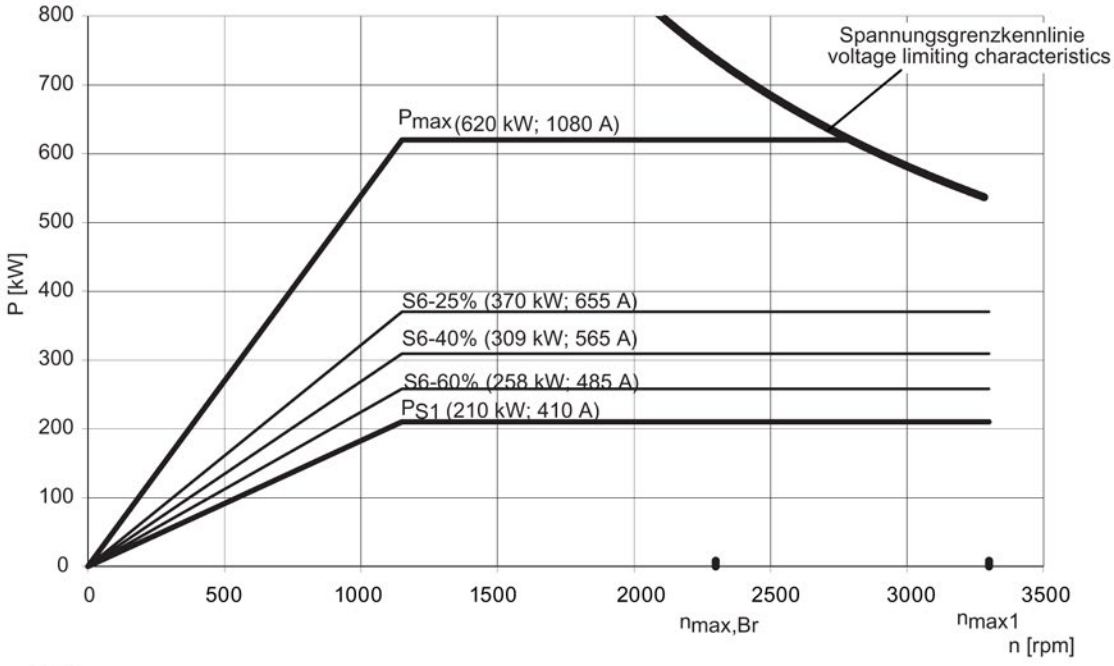


Table 6- 483 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□D1□, (IP55)

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]
1,150	210	1,745	410	3,300	-	-	2,300	2,200	5,150	1,080	1,745	410
1,000	182	1,738	410					3,300				



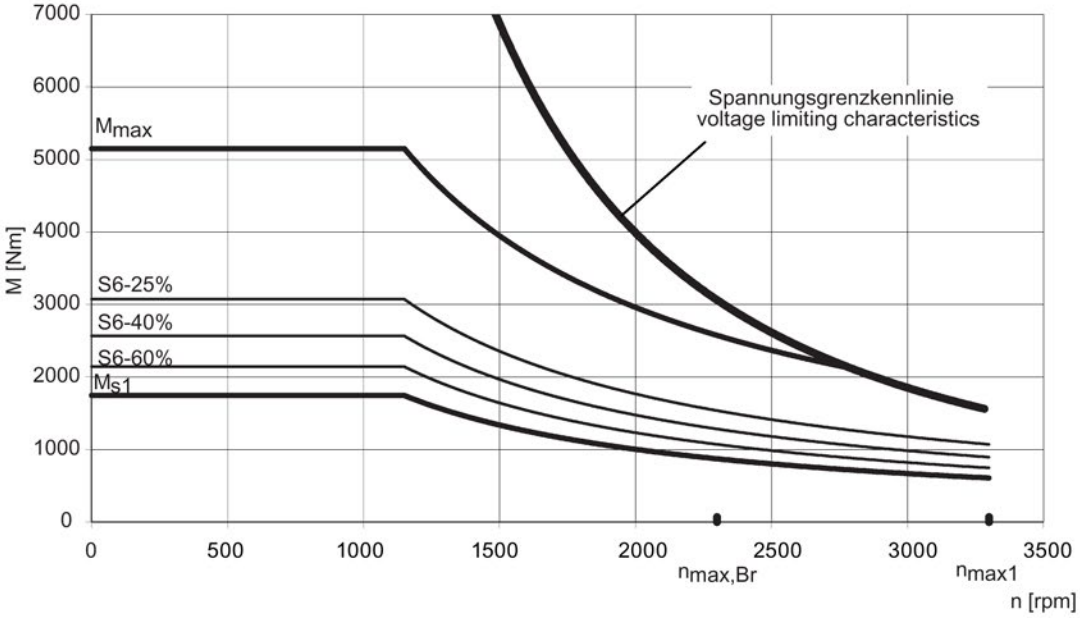
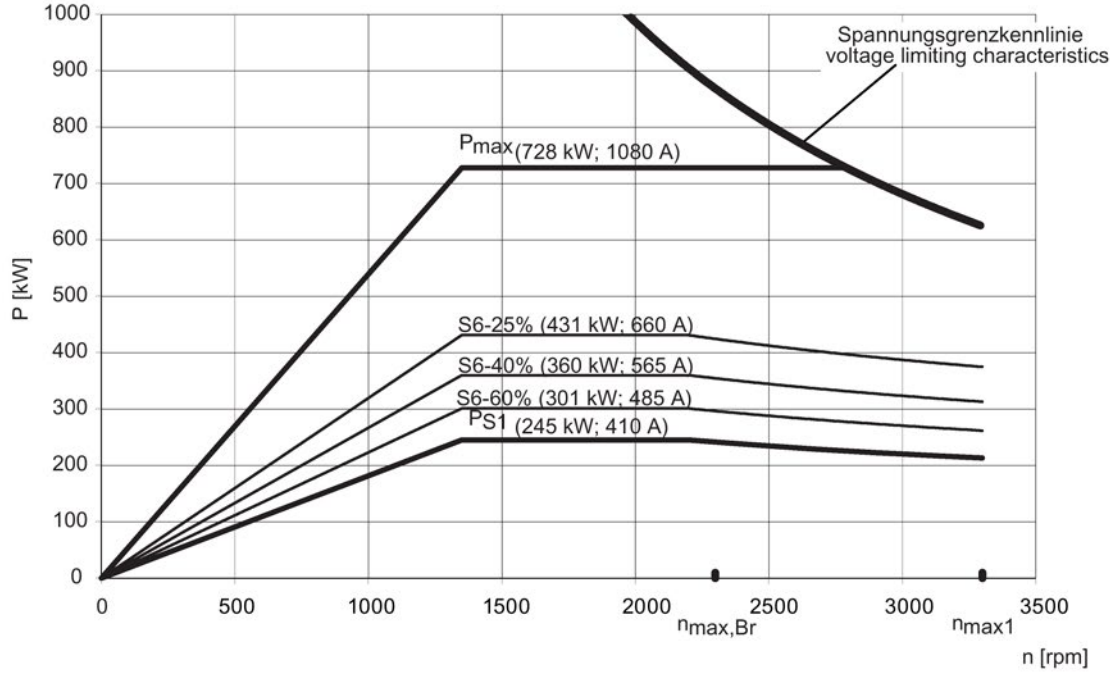


Table 6- 484 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D1□, (IP55)

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]
1,350	245	1,733	410	3,300	-	-	2,300	2,200	5,150	1,080	1,733	410



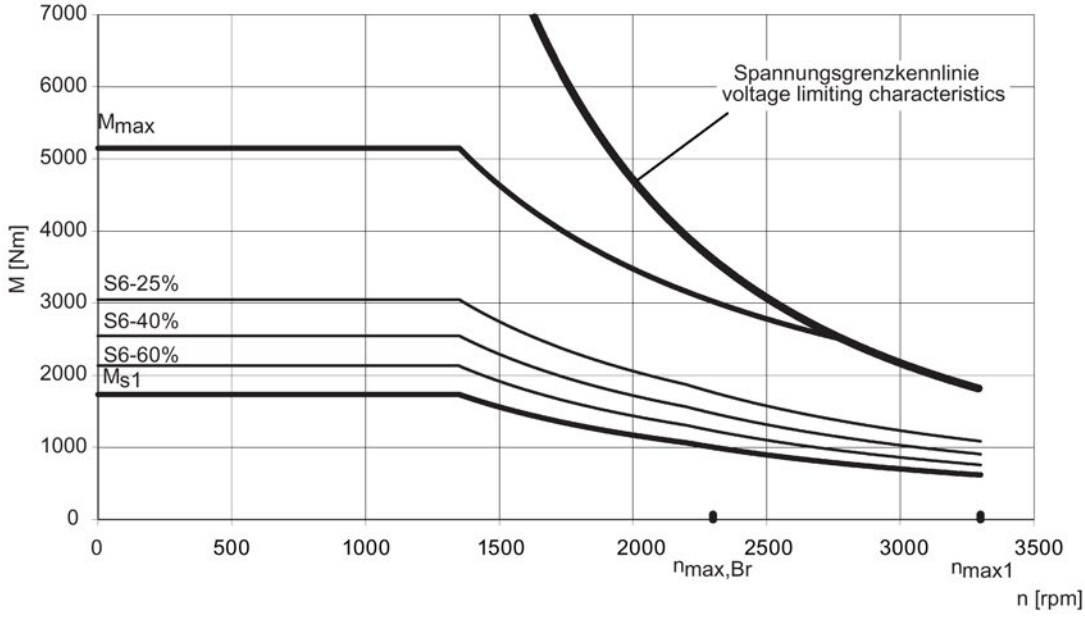
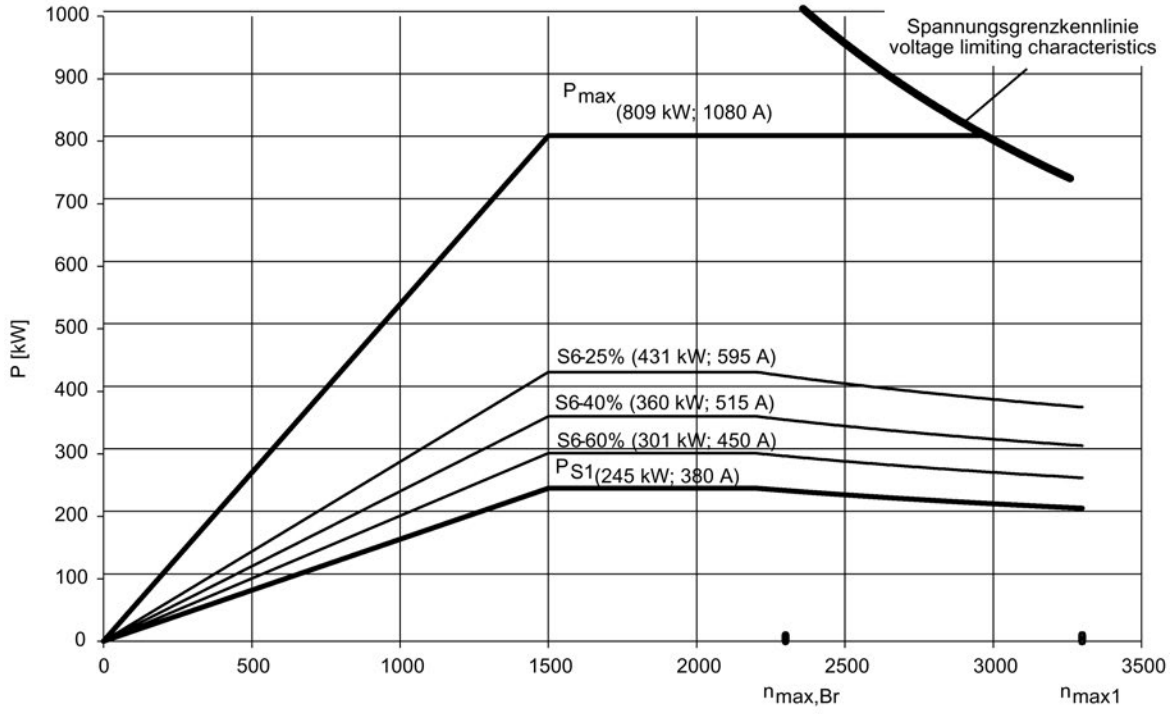


Table 6- 485 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□D1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	245	1,560	380	3,300	-	-	2,300	2,200	5,150	1,080	1,738	380



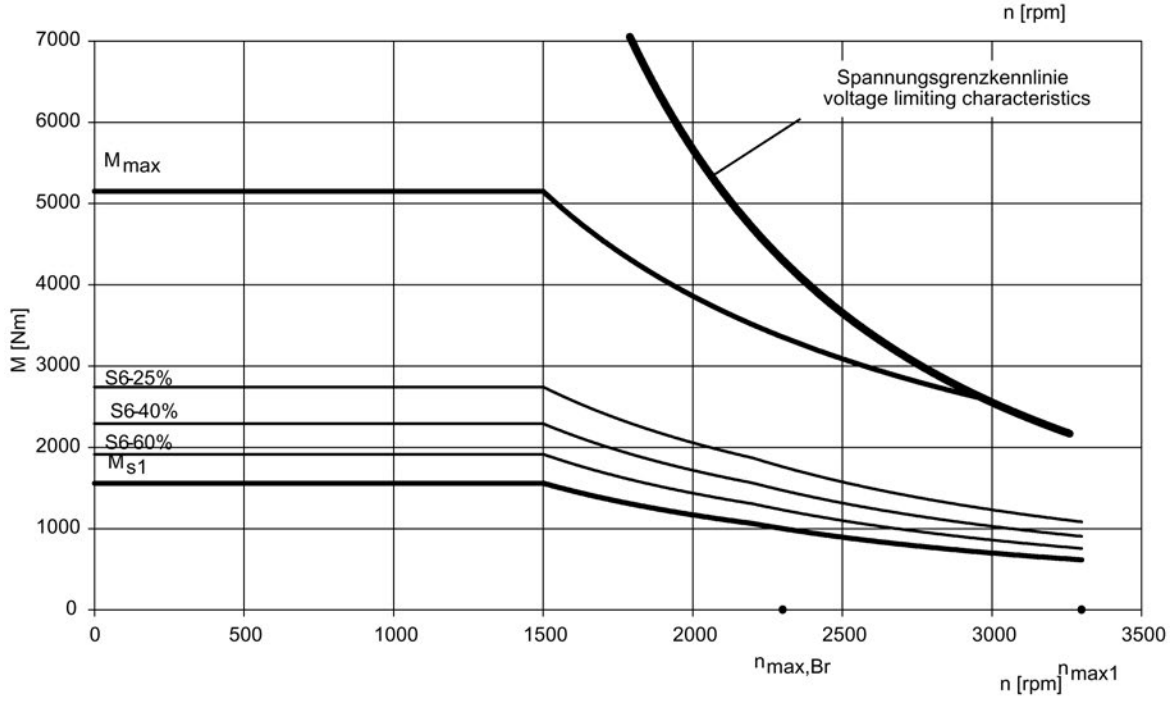
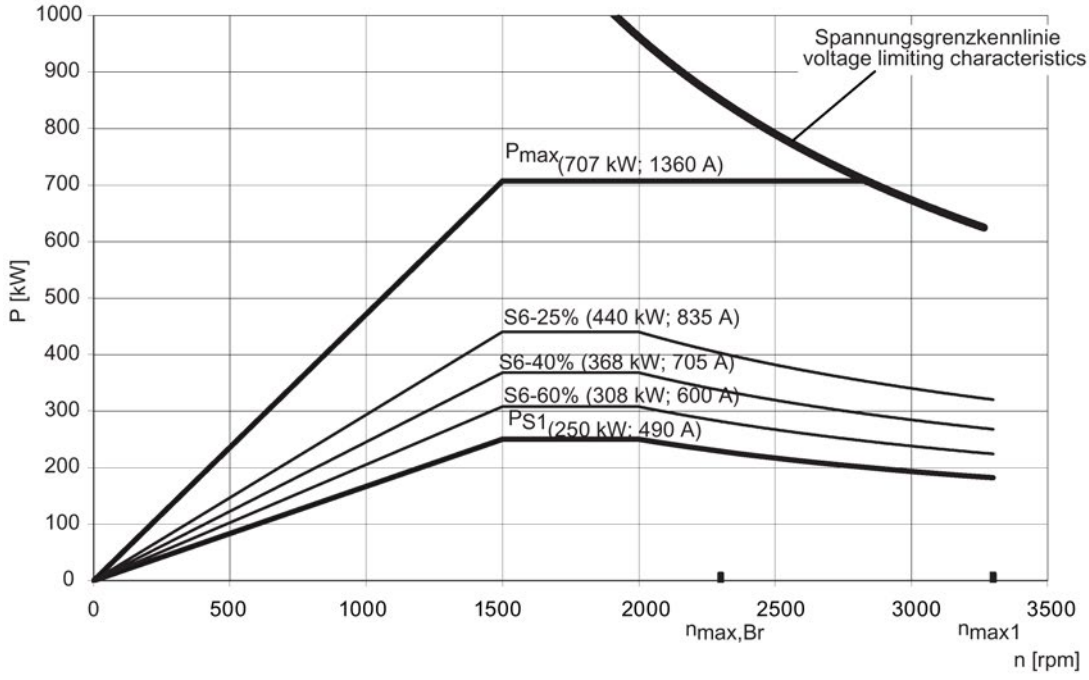


Table 6- 486 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F1□, (IP55)

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]
1,500	250	1,592	490	3,300	-	-	2,300	2,000	4,500	1,360	1,592	490



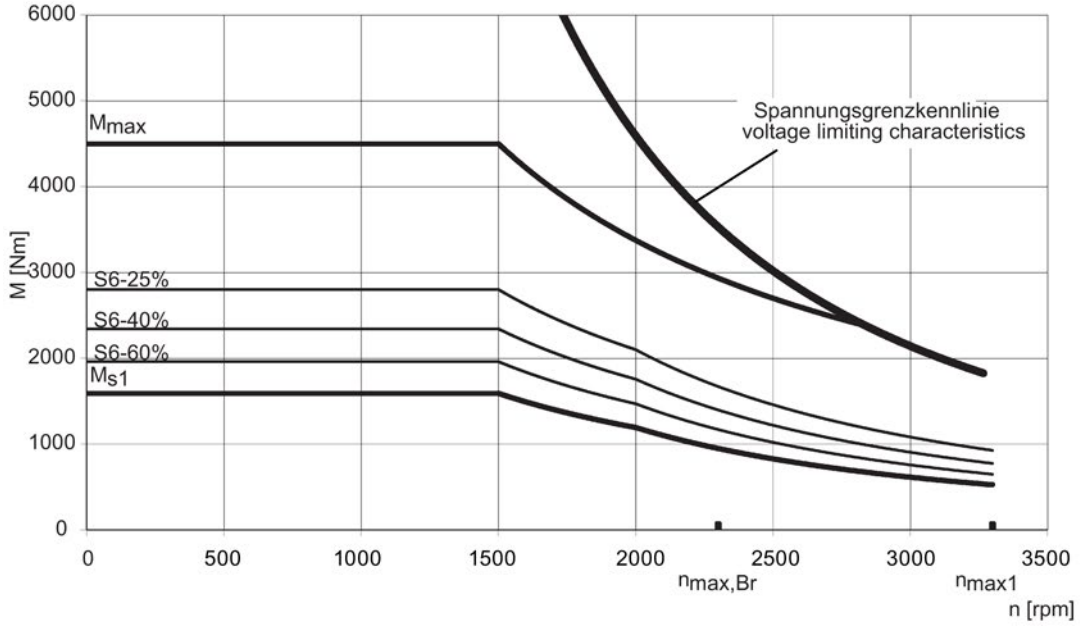
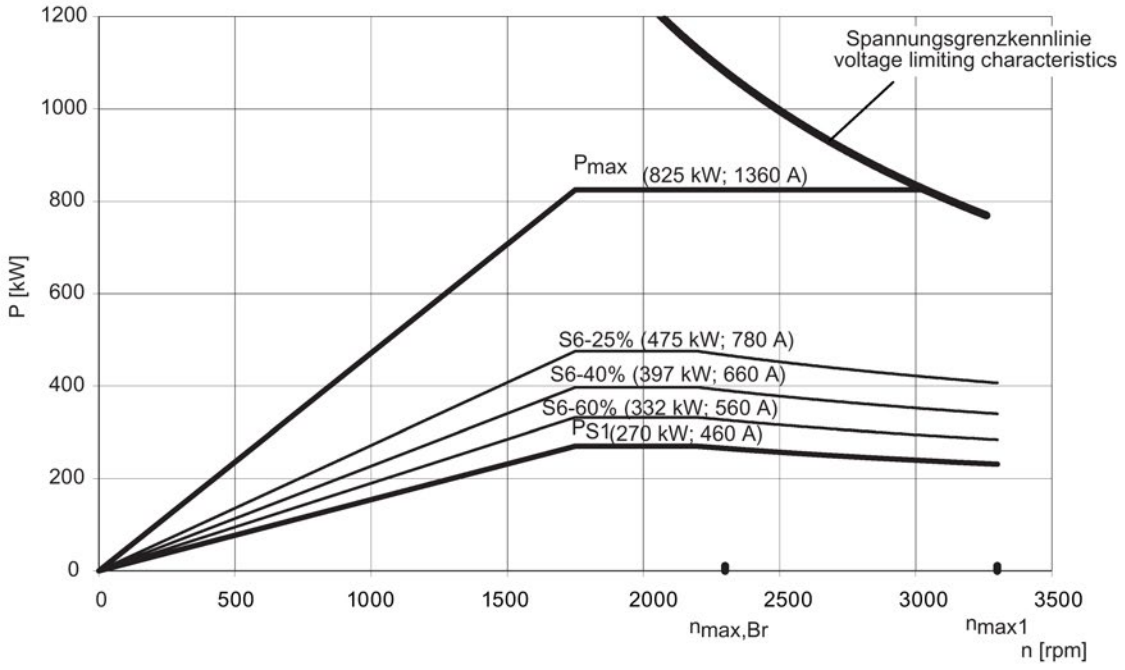


Table 6- 487 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□F1□, (IP55)

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]
1,750	270	1,474	460	3,300	-	-	2,300	2,200	4,500	1,360	1,474	460
1,500	250	1,592	490					2,700				



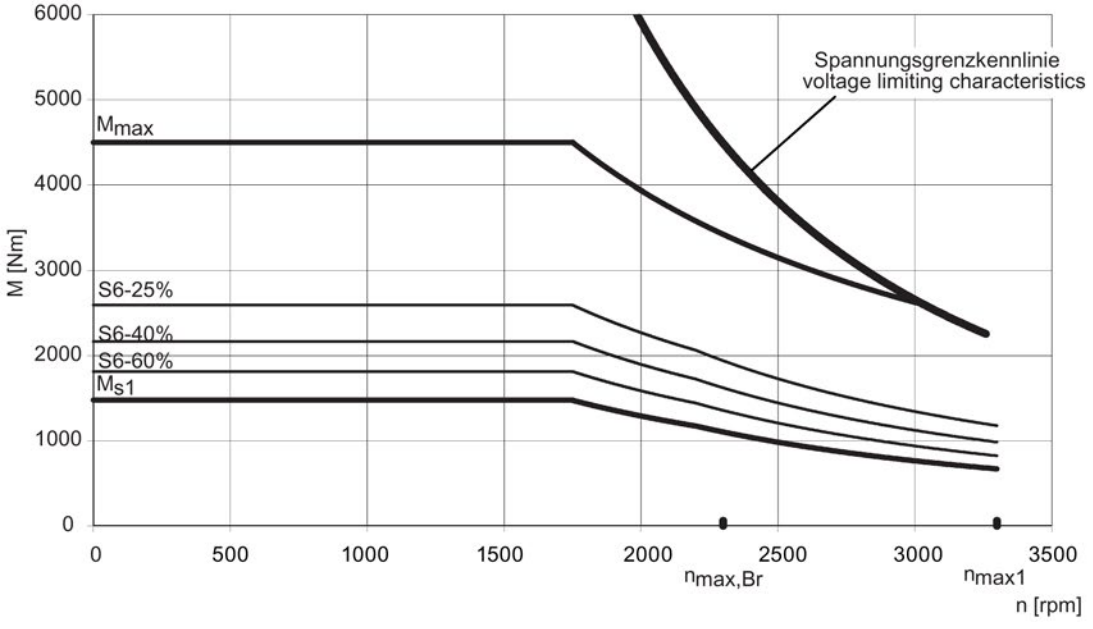
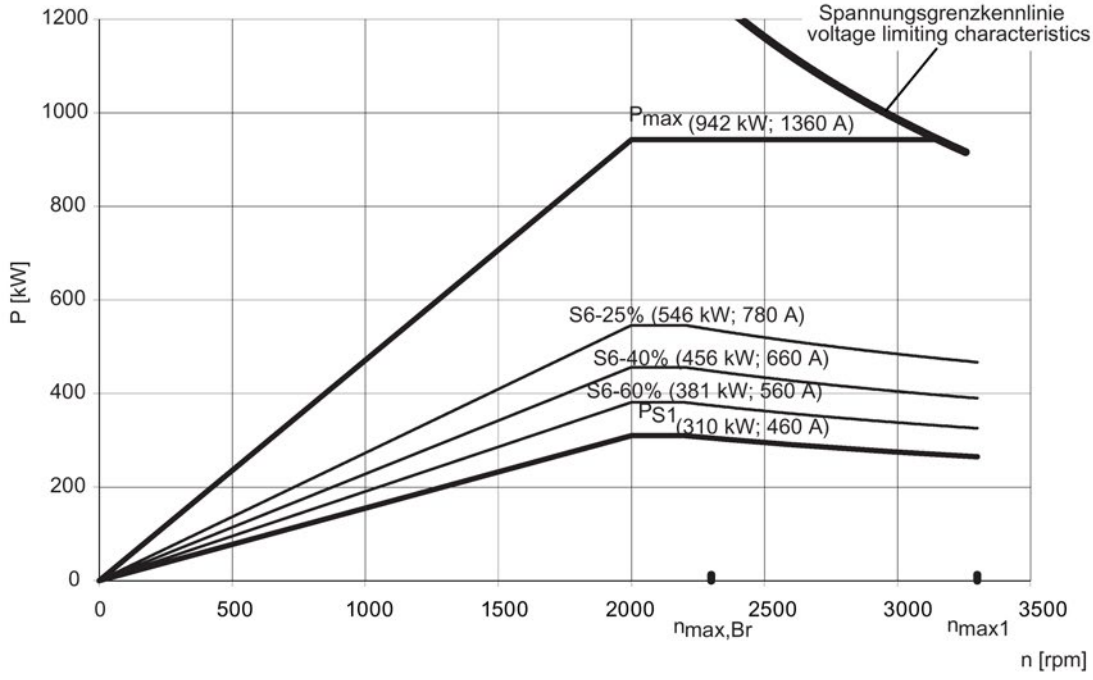


Table 6- 488 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F1□, (IP55)

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]
2,000	310	1,481	460	3,300	-	-	2,300	2,200	4,500	1,360	1,481	460



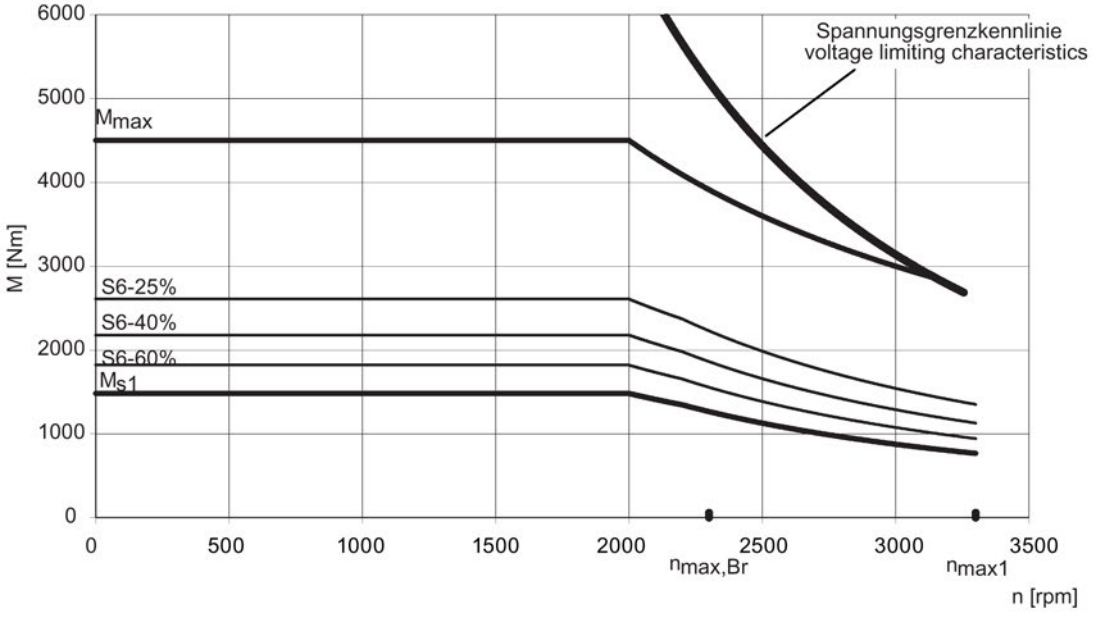
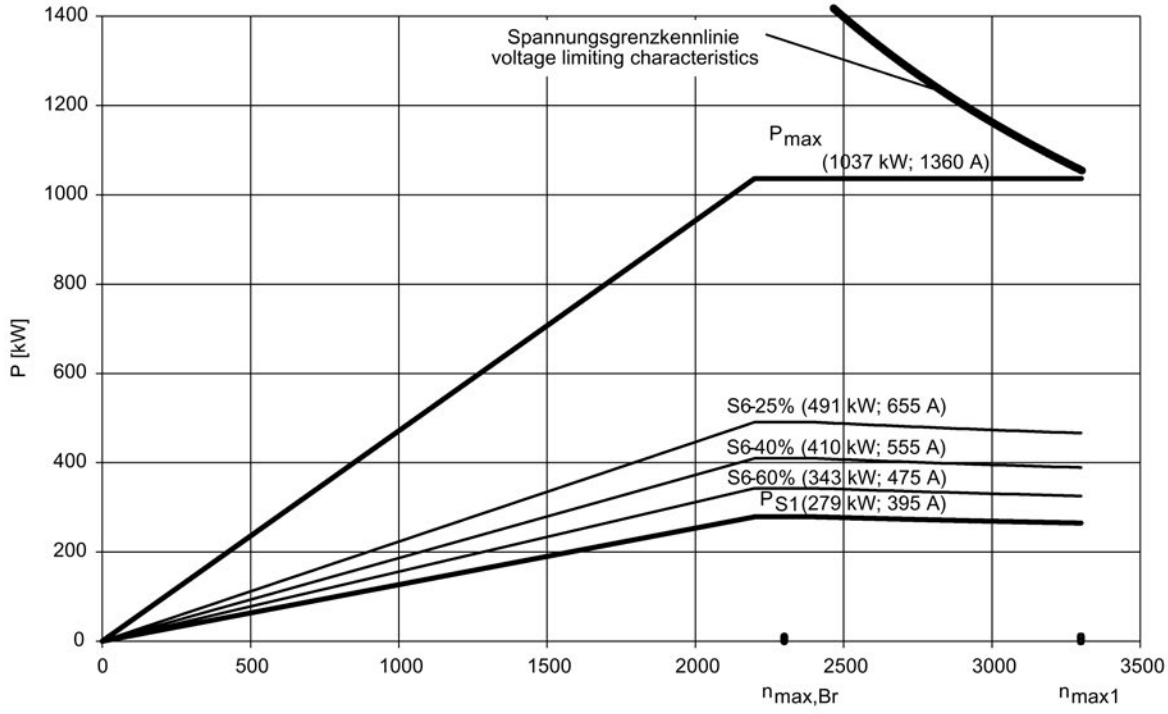


Table 6- 489 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□F1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	279	1,211	395	3,300	-	-	2,300	2,400	4,500	1,360	1,592	395



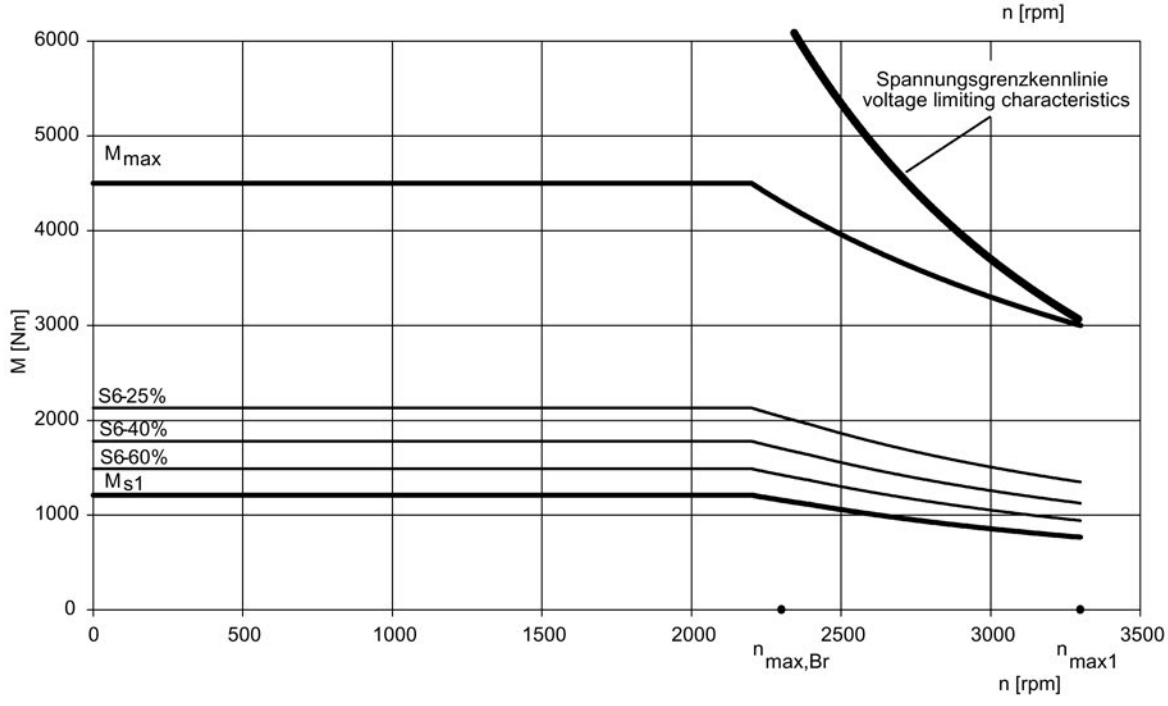
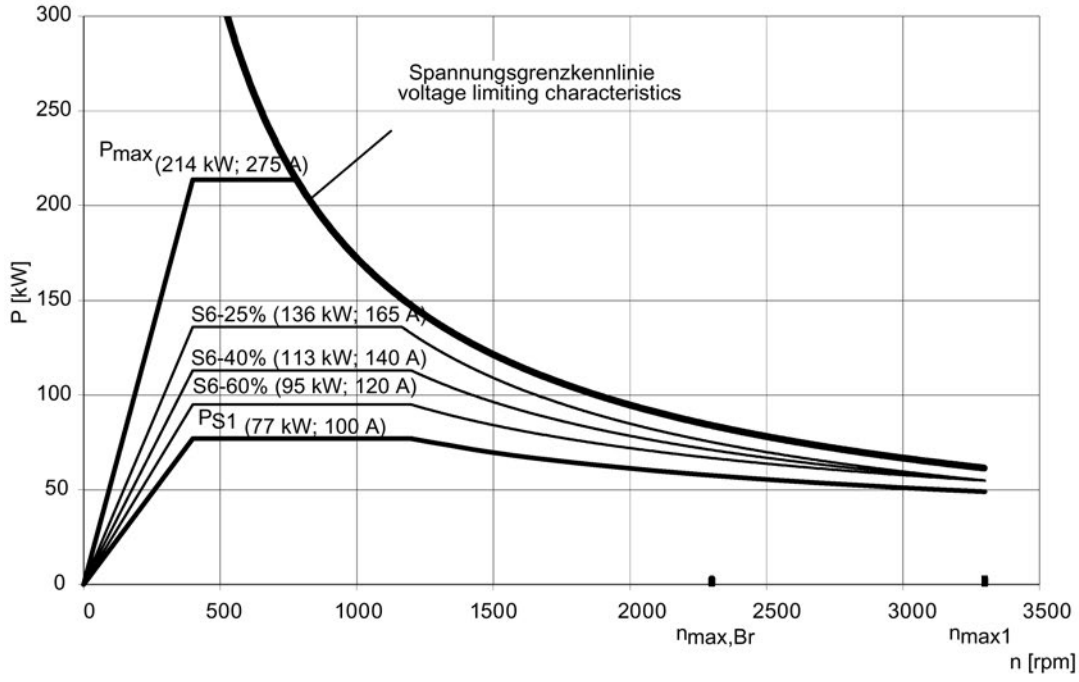


Table 6- 490 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□H1□, (IP55)

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	1,838	100	3,300	-	-	2,300	1,200	5,100	275	1,838	100



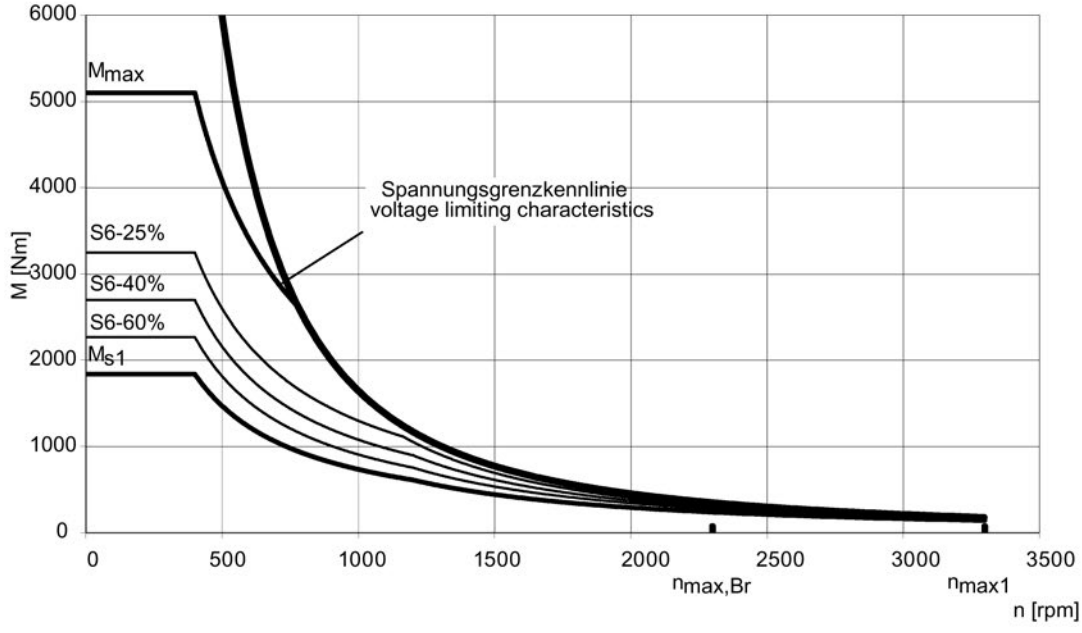
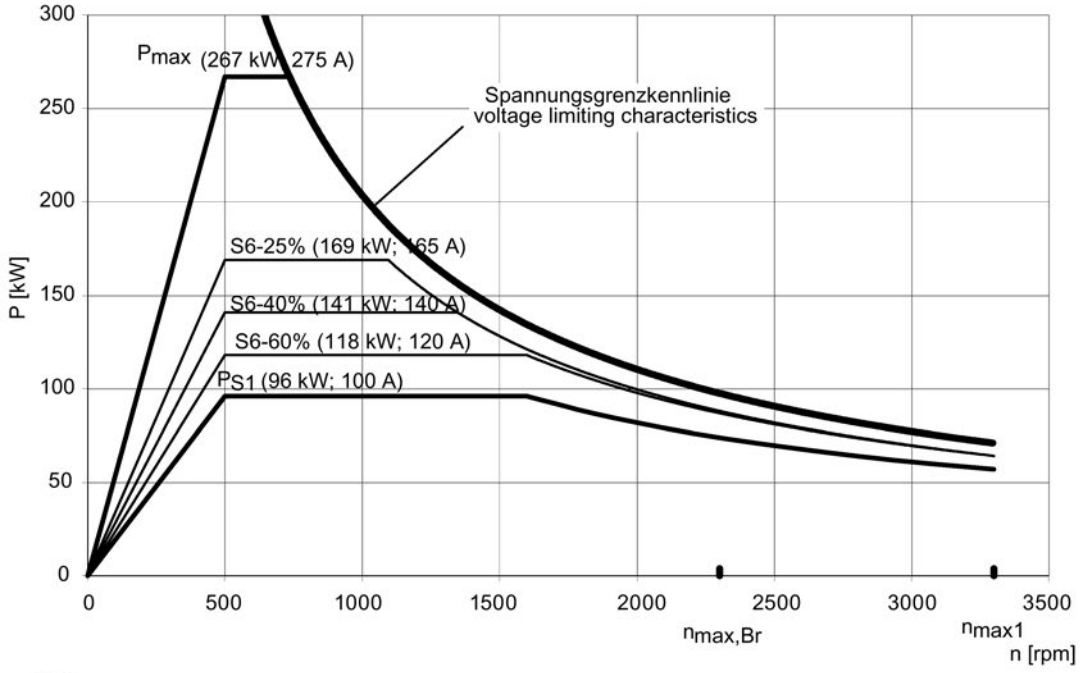


Table 6- 491 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□H1□, (IP55)

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	1,834	100	3,300	-	-	2,300	1,600	5,100	275	1,834	100
400	77	1,838	100					2,200				



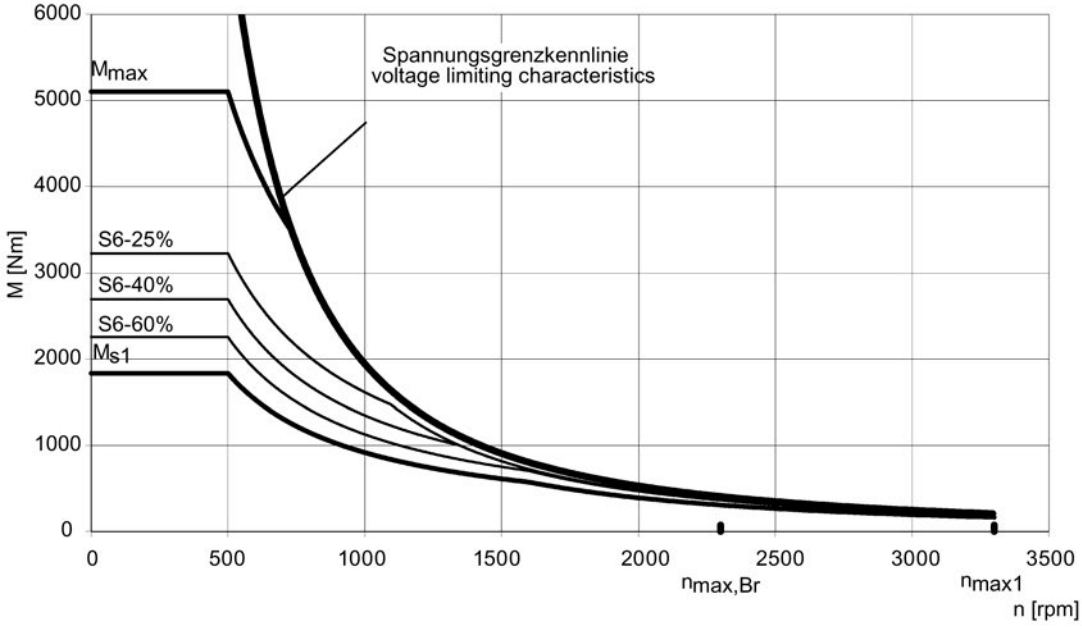
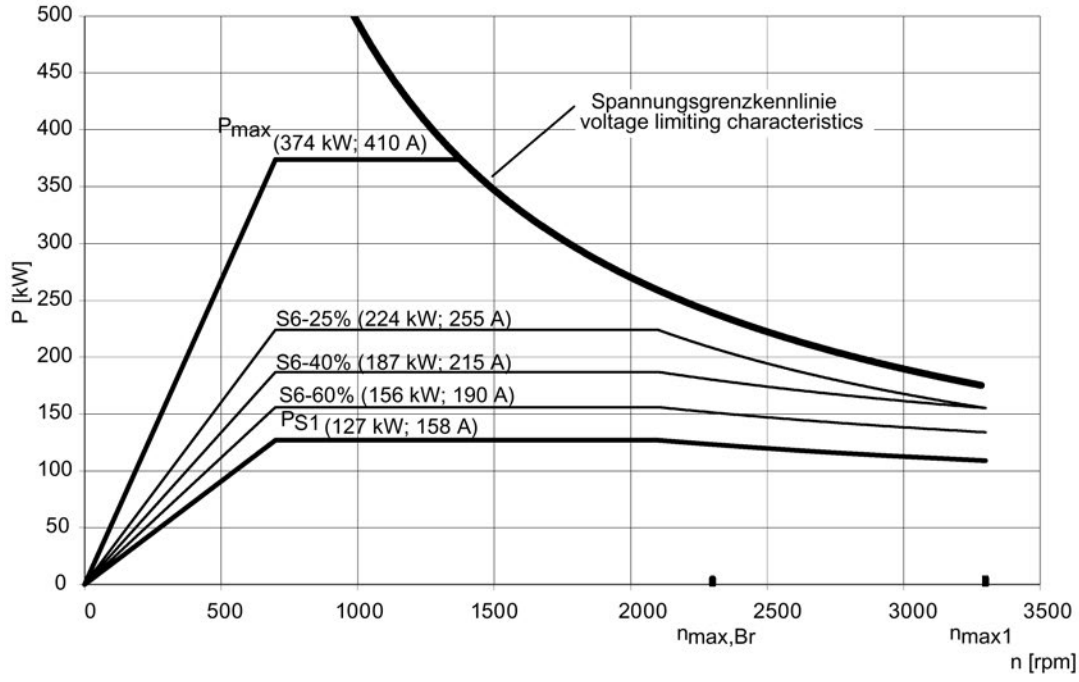


Table 6- 492 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□K1□, (IP55)

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	1,733	158	3,300	-	-	2,300	2,100	5,100	410	1,733	158



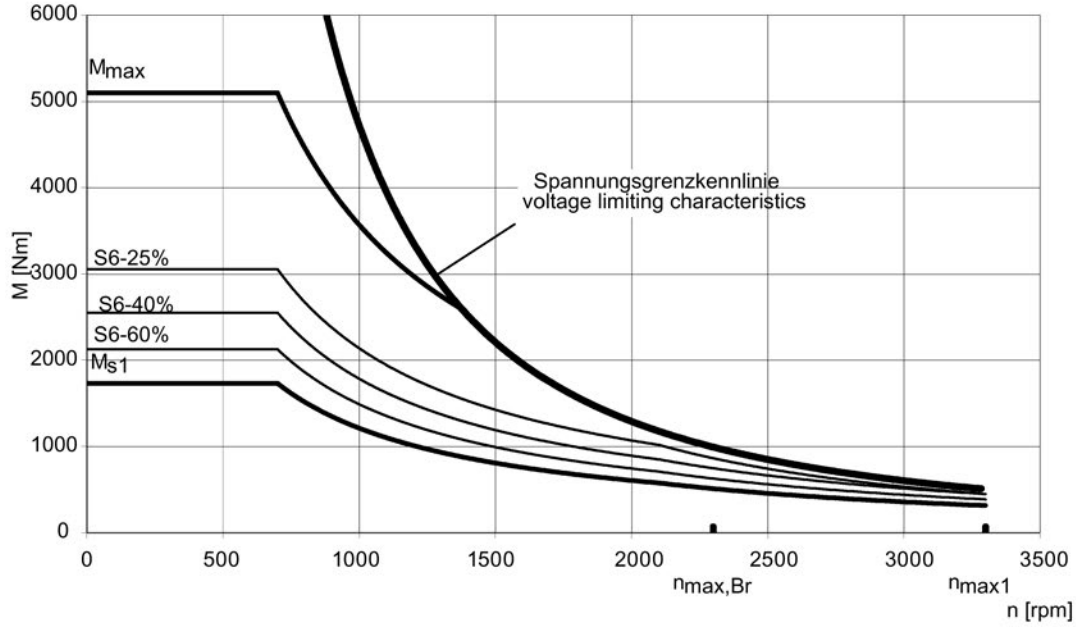
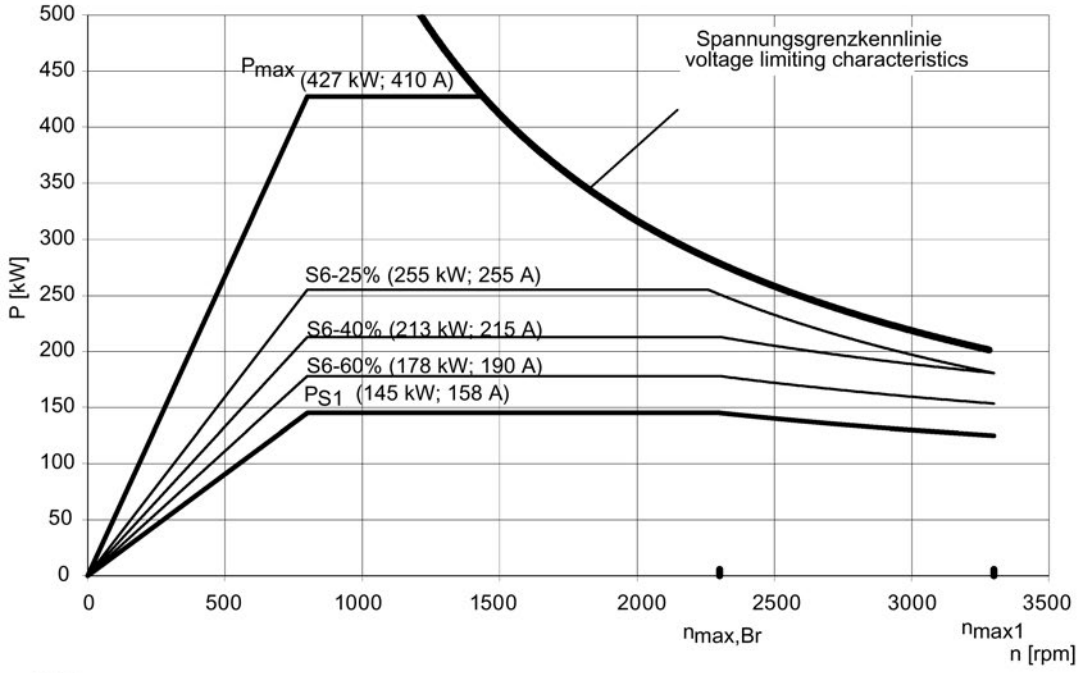


Table 6- 493 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□K1□, (IP55)

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	1,731	158	3,300	-	-	2,300	2,300	5,100	410	1,731	158
700	127	1,733	158					3,200				



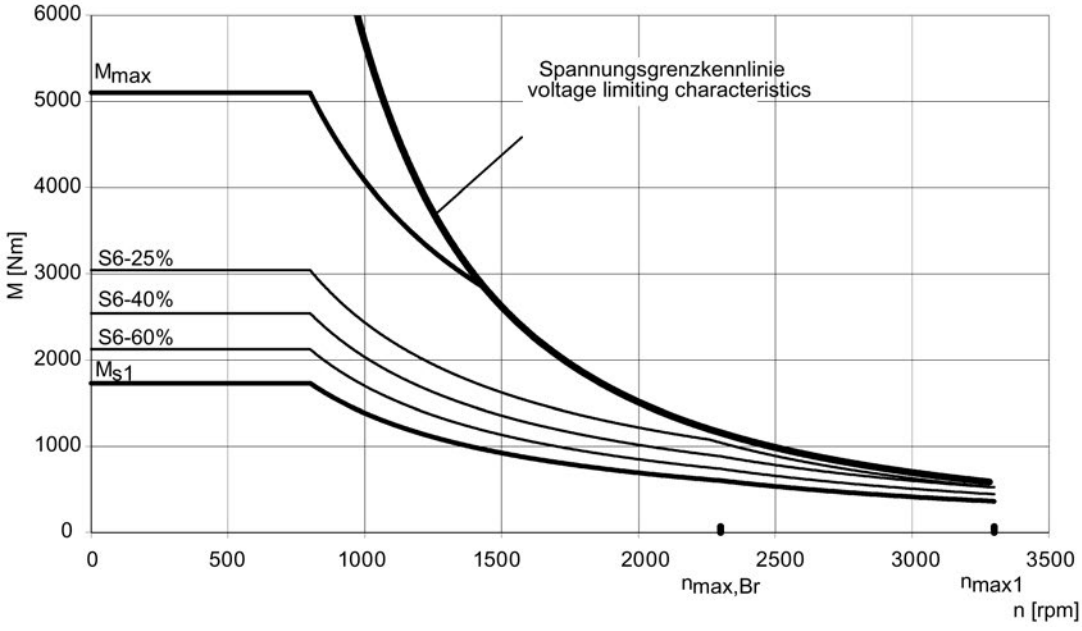
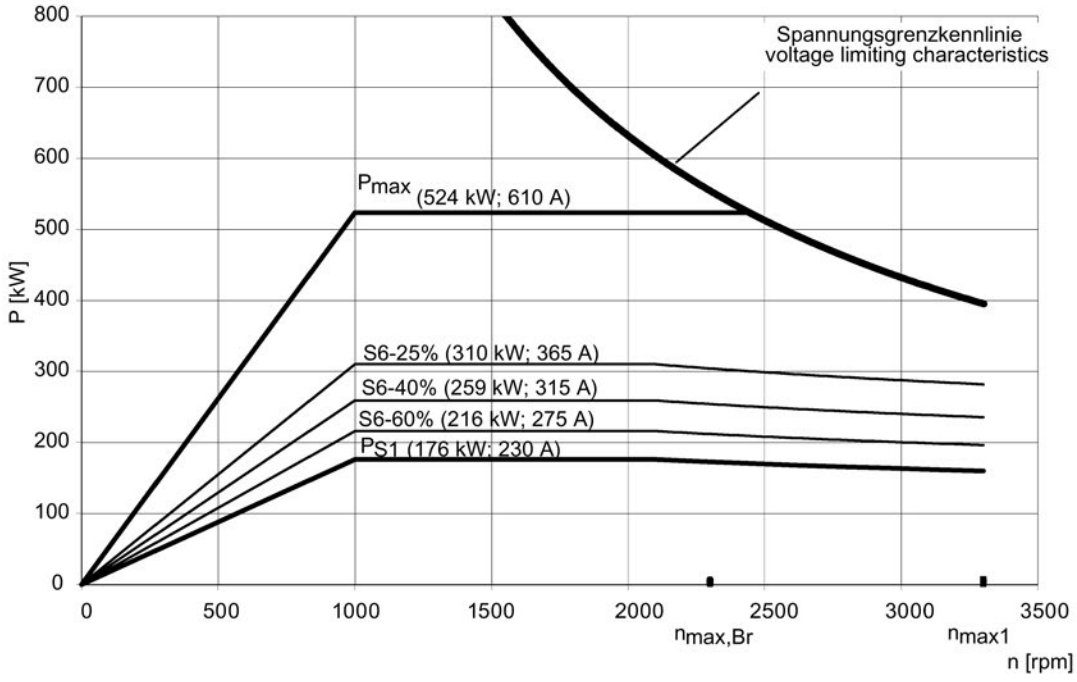


Table 6- 494 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□U1□, (IP55)

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]
1,000	176	1,681	230	3,300	-	-	2,300	2,100	5,000	610	1,681	230



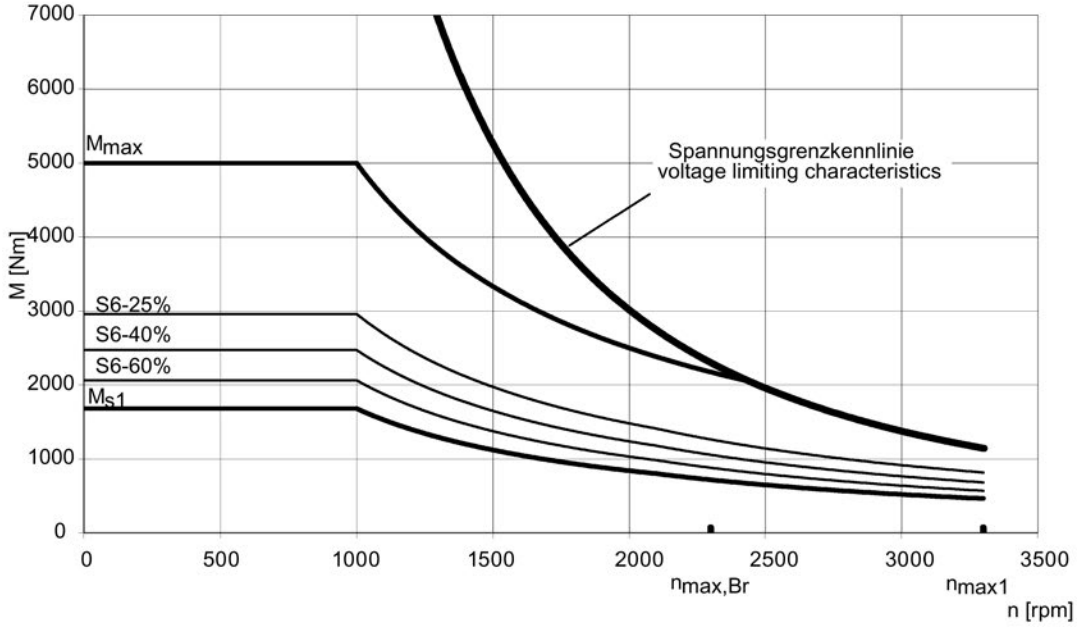
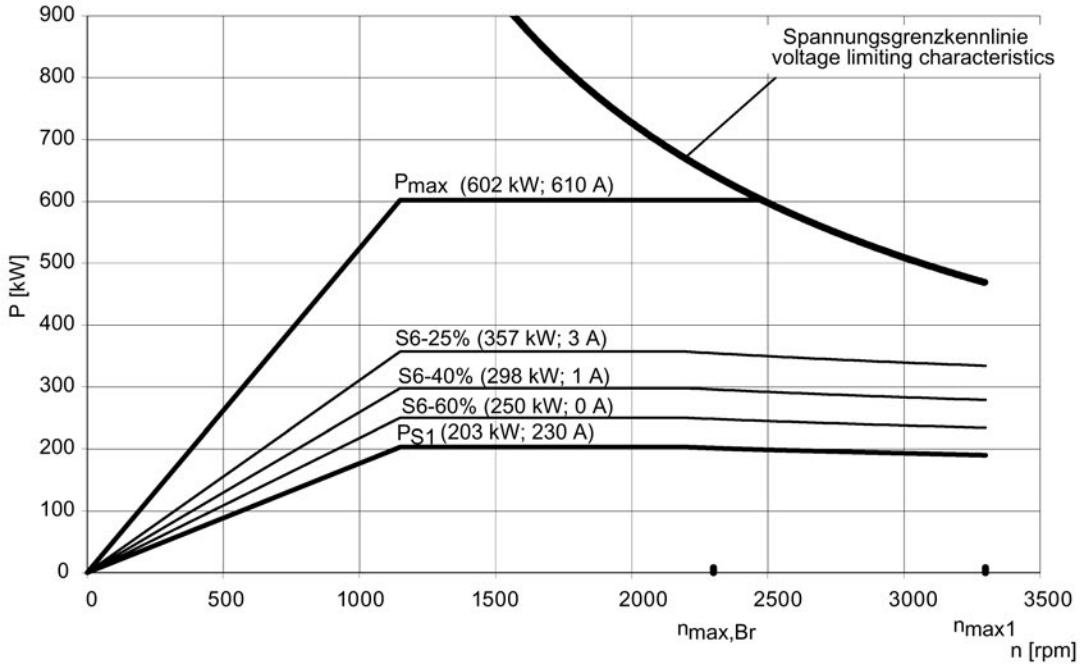


Table 6- 495 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□U1□, (IP55)

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]
1,150	203	1,686	230	3,300	-	-	2,300	2,200	5,000	610	1,686	230
1,000	176	1,681	230					3,300				



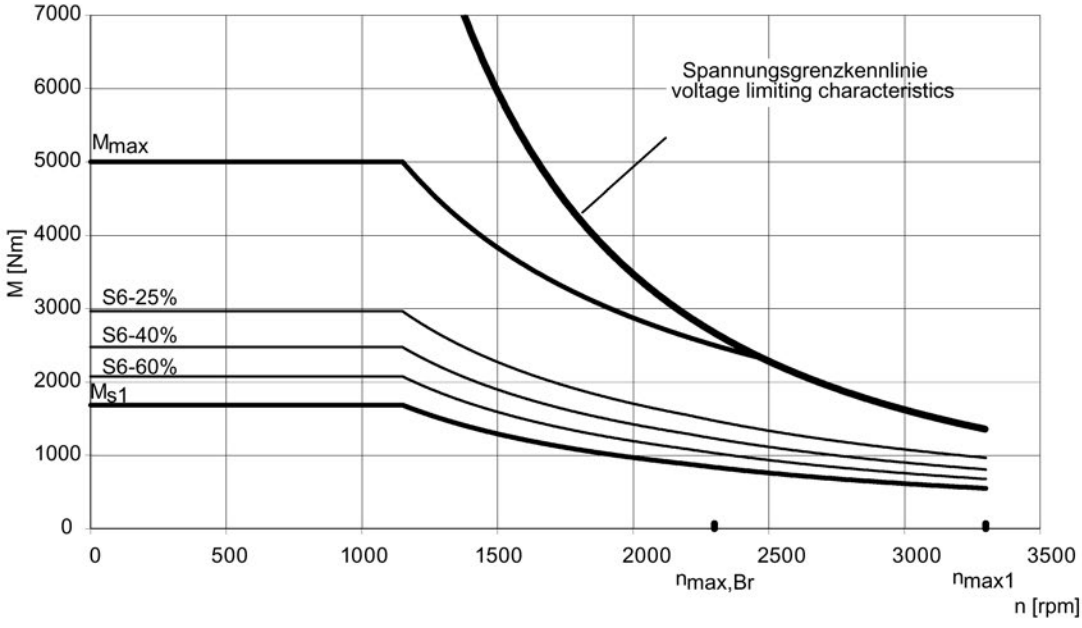
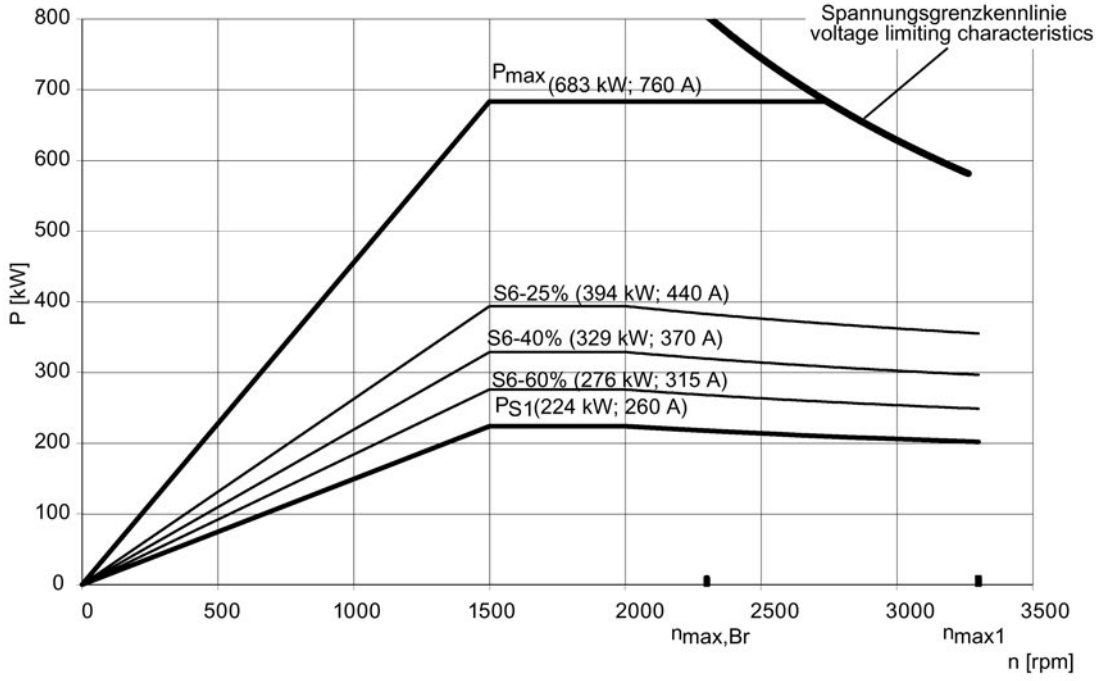


Table 6- 496 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□W1□, (IP55)

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]
1,500	224	1,426	260	3,300	-	-	2,300	2,000	4,350	760	1,426	260



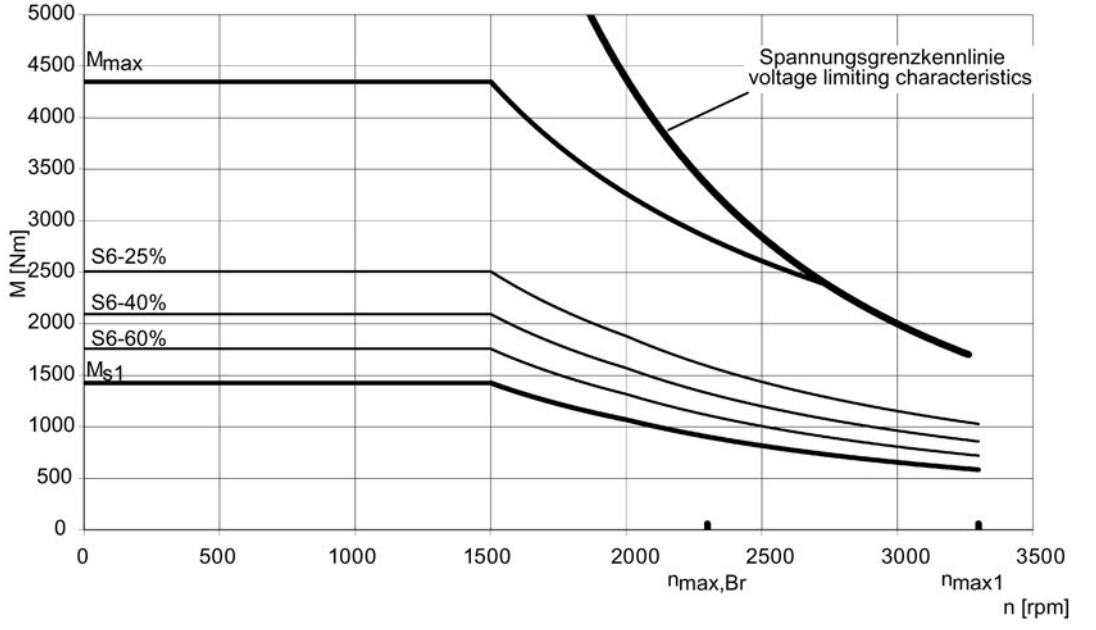
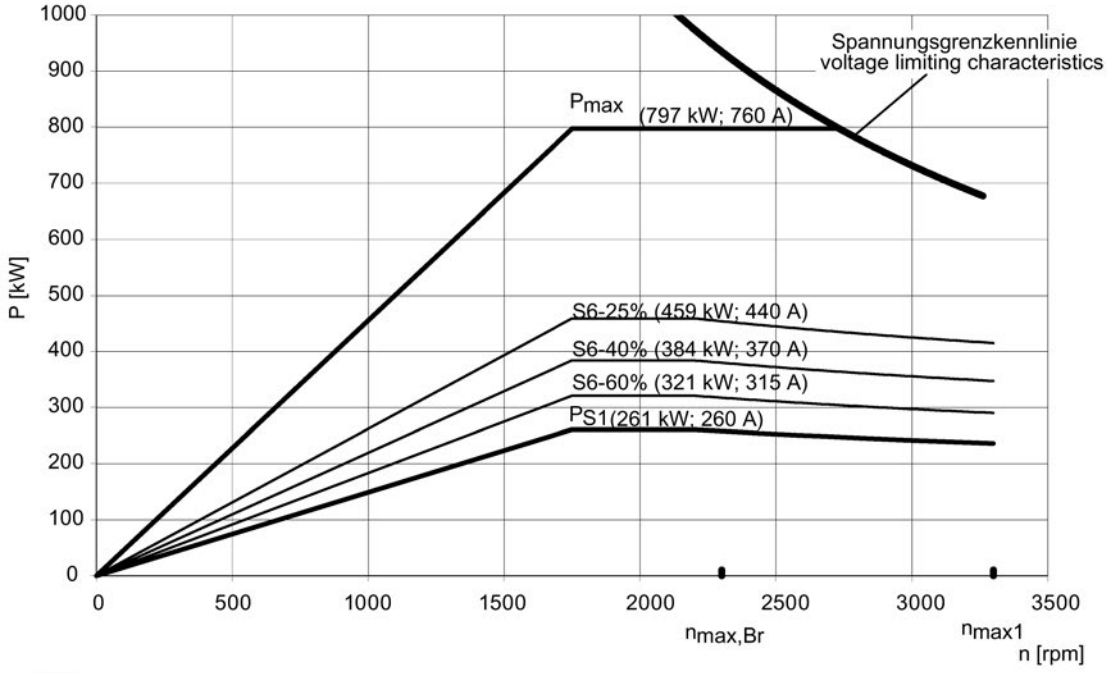


Table 6- 497 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□W1□, (IP55)

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]
1,750	261	1,424	260	3,300	-	-	2,300	2,200	4,350	760	1,424	260
1,500	224	1,426	260					3,300				



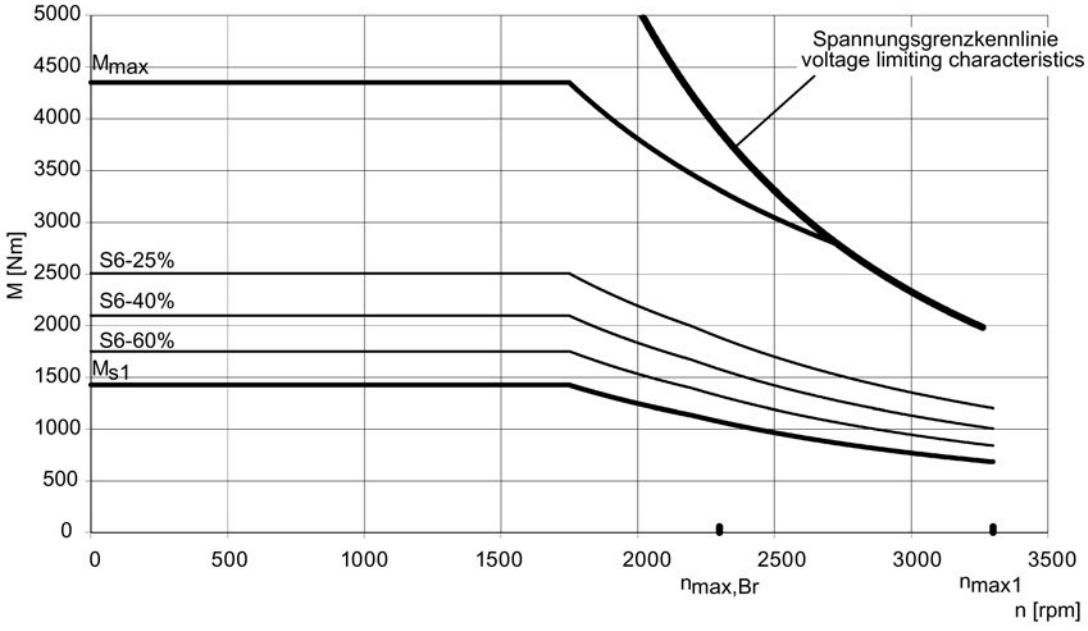
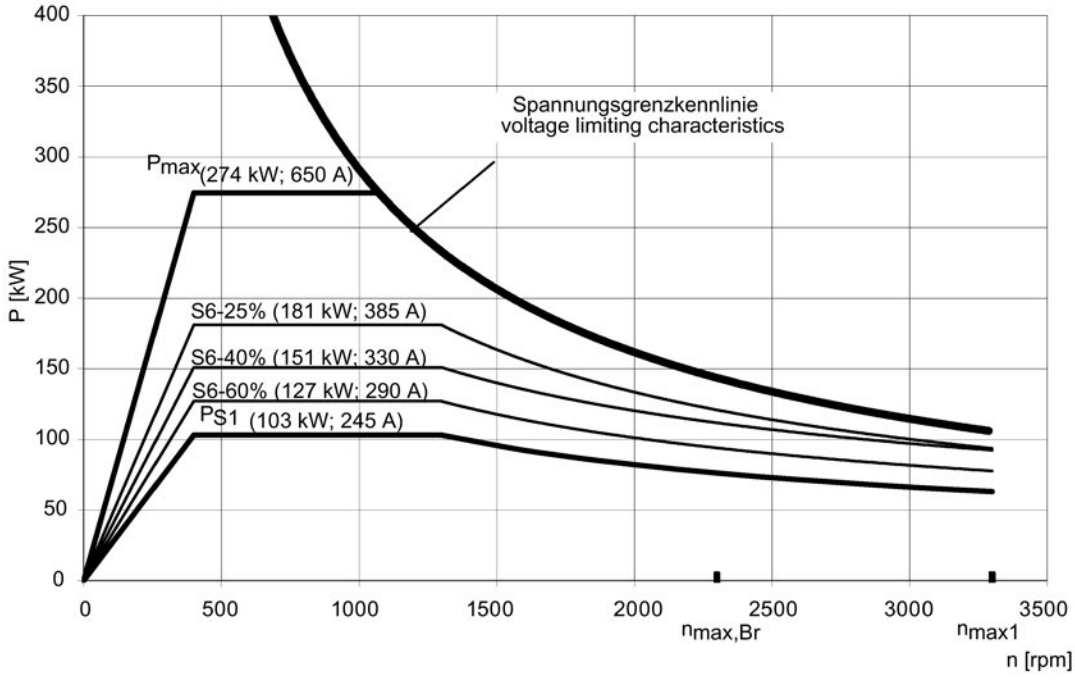


Table 6- 498 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□B1□, (IP55)

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	2,459	245	3,300	-	-	2,300	1,300	6,550	650	2,459	245



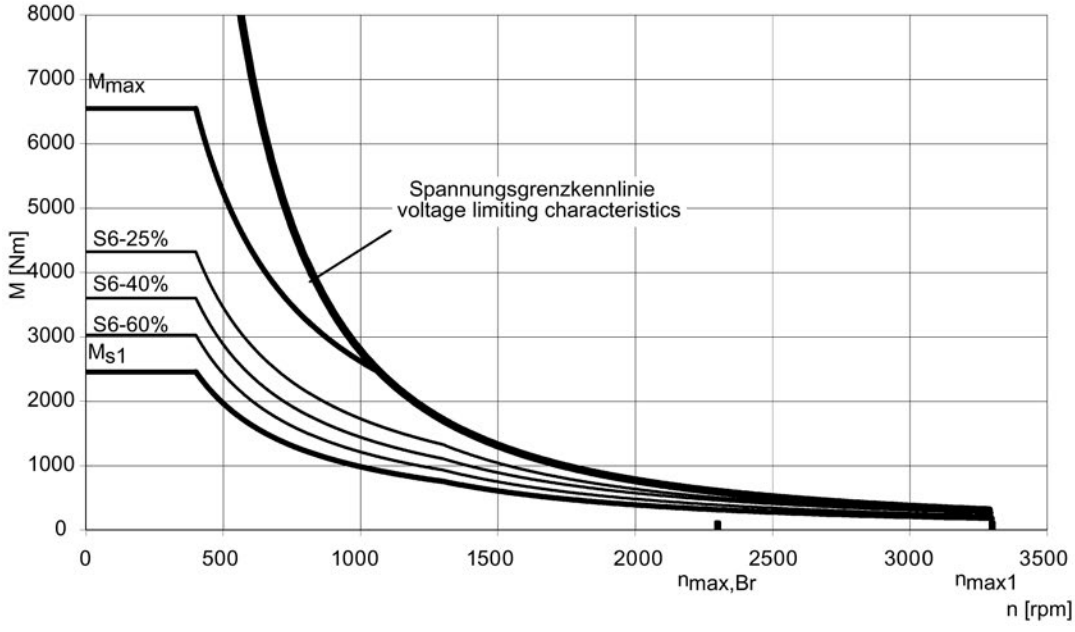
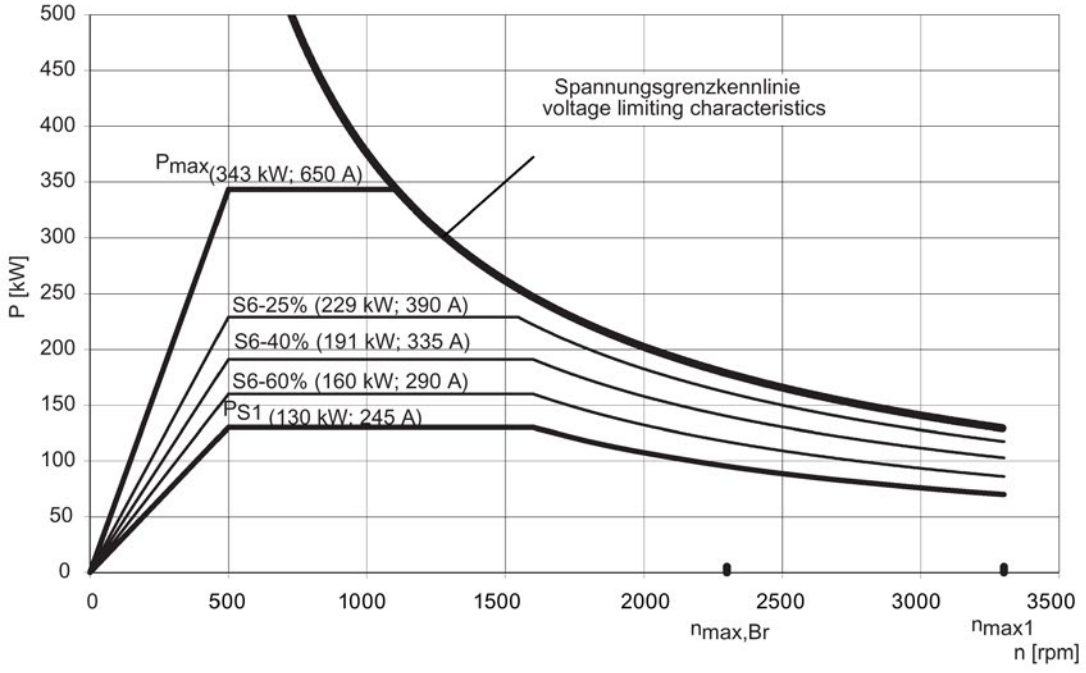


Table 6- 499 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□B1□, (IP55)

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	2,481	245	3,300	-	-	2,300	1,600	6,550	650	2,481	245
400	104	2,481	245					2,100				



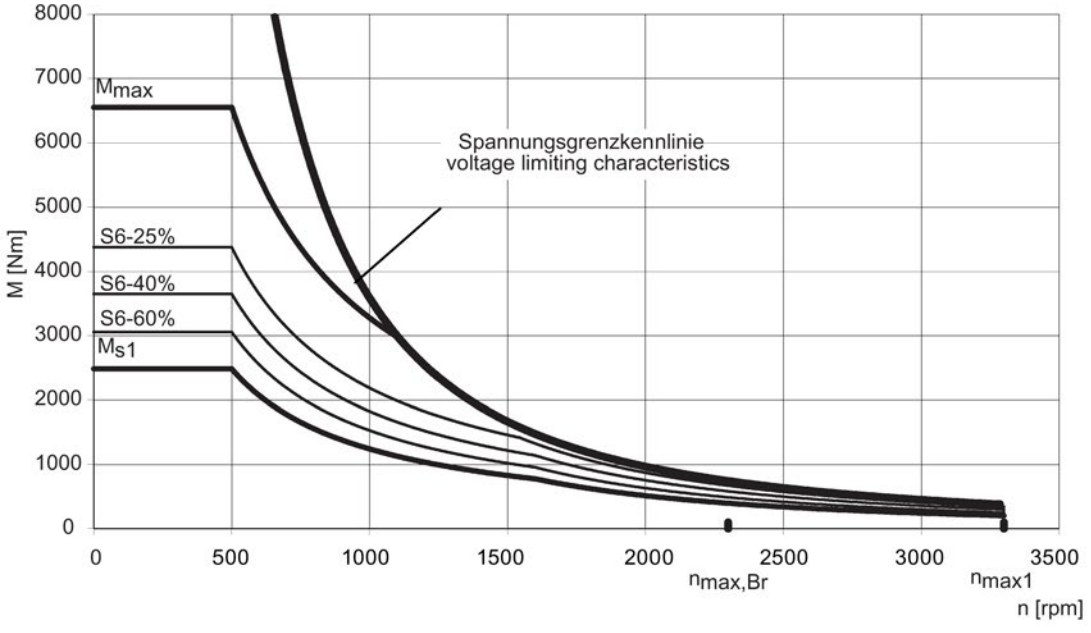
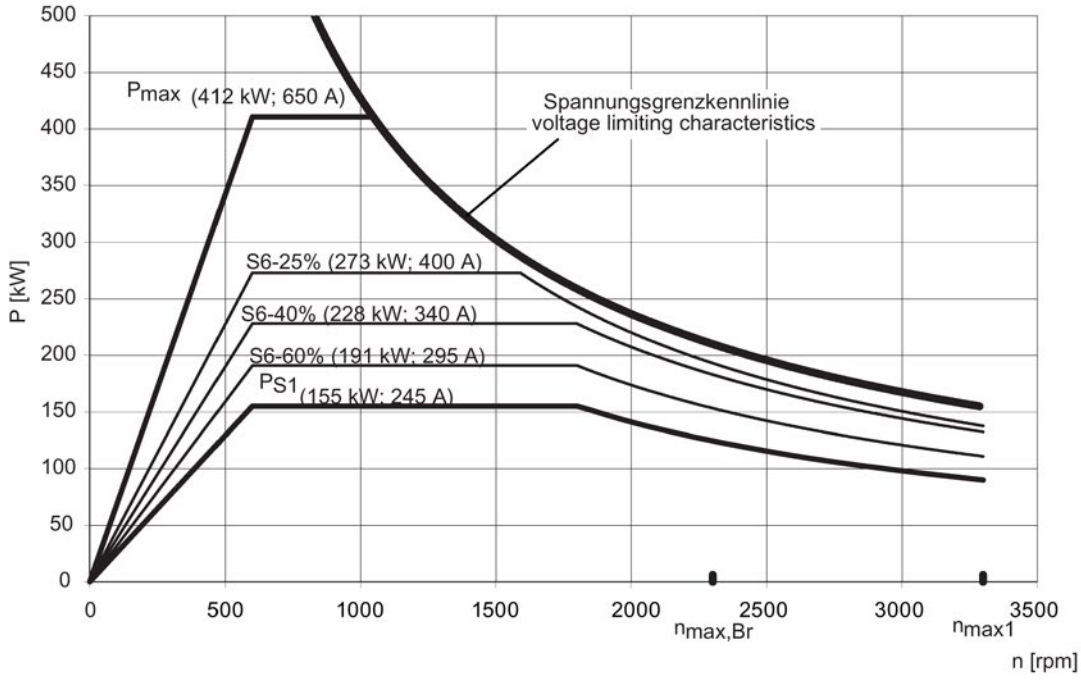


Table 6- 500 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□B1□, (IP55)

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	2,474	245	3,300	-	-	2,300	1,800	6,550	650	2,474	245



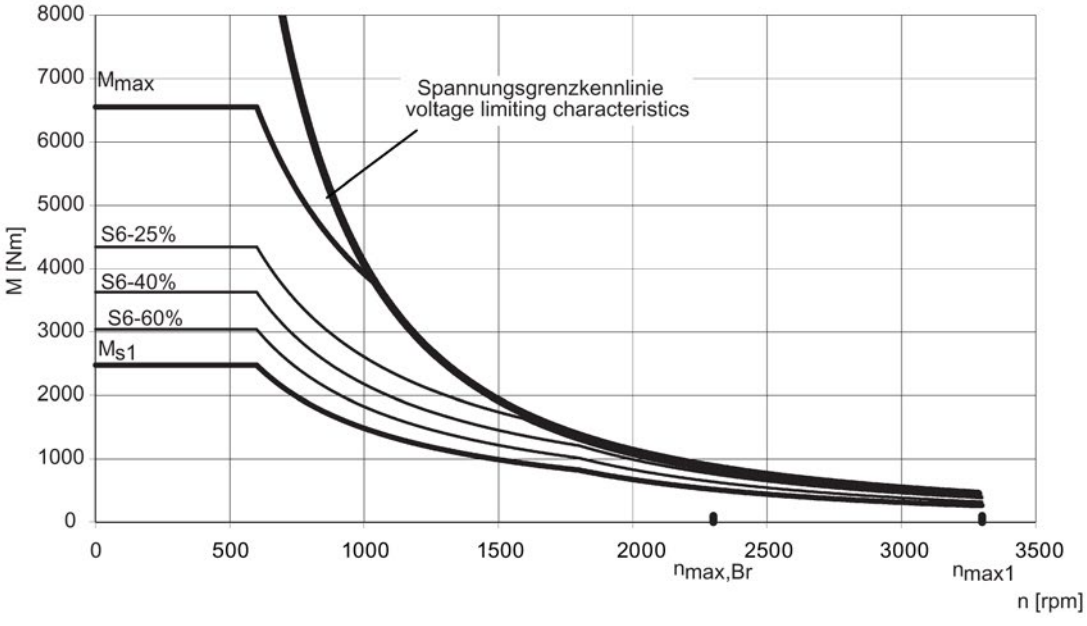
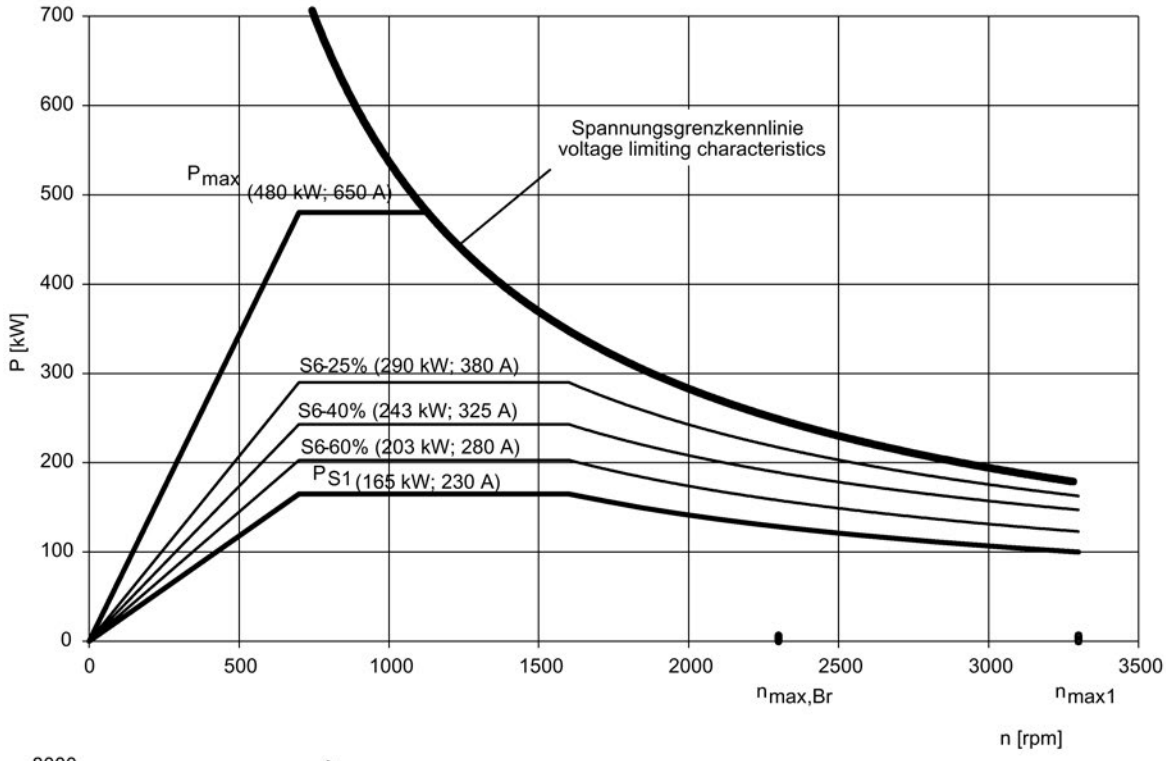


Table 6- 501 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□B1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{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	165	2,251	230	3,300	-	-	2,300	1,600	6,550	650	2,459	230



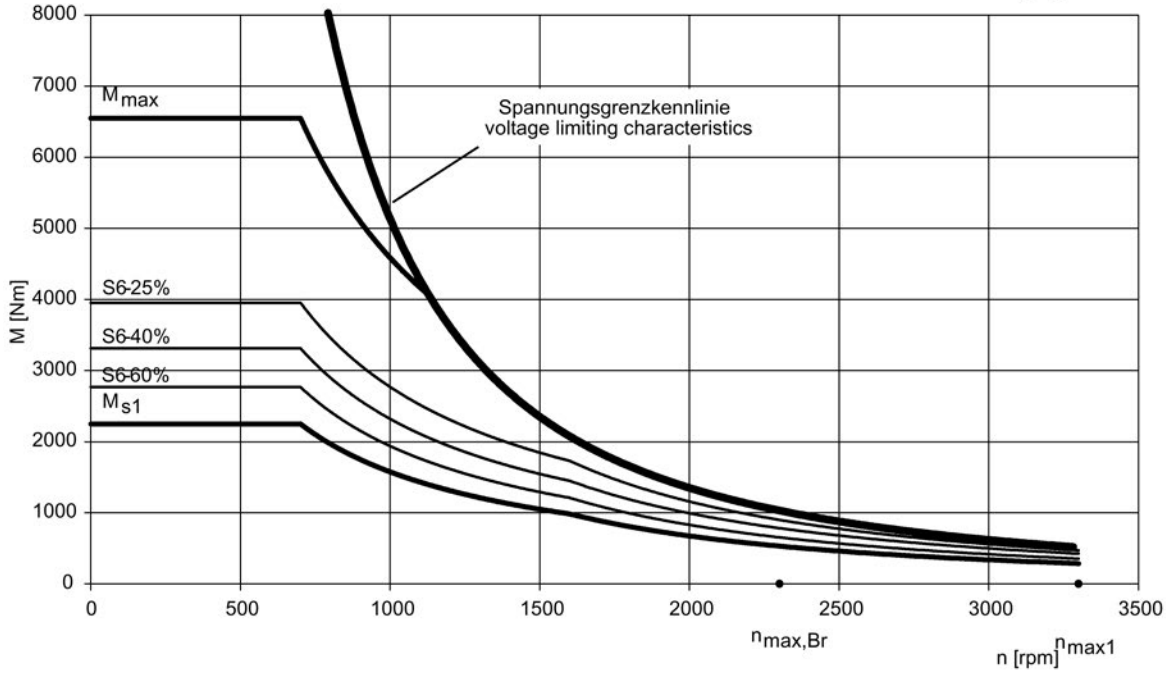
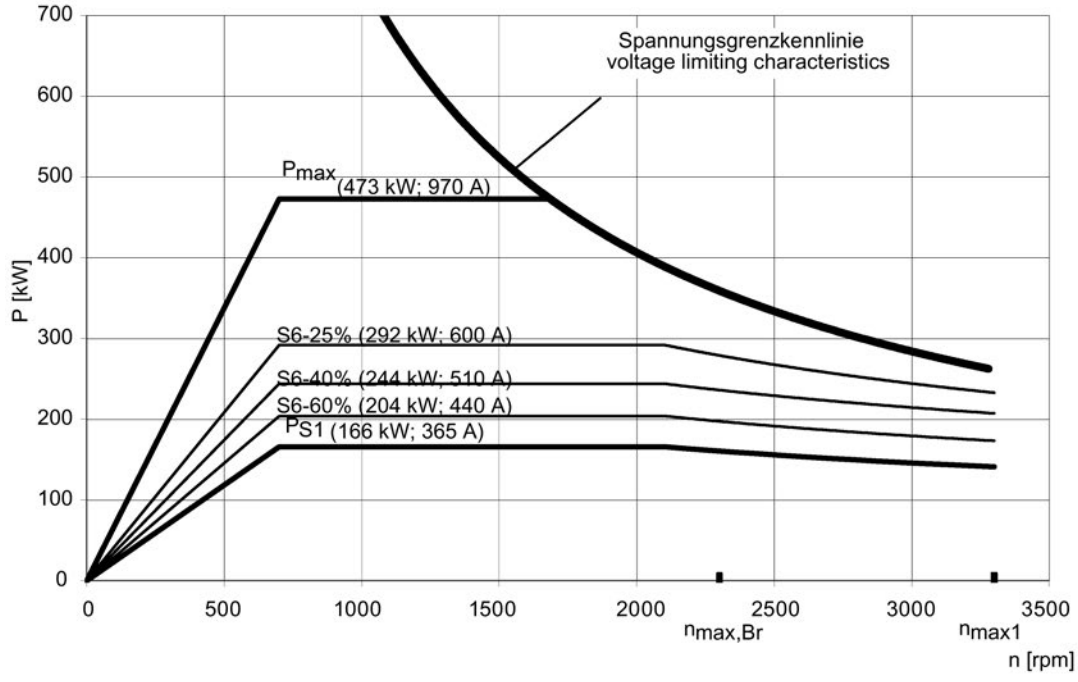


Table 6- 502 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C1□, (IP55)

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	2,265	365	3,300	-	-	2,300	2,100	6,450	970	2,265	365



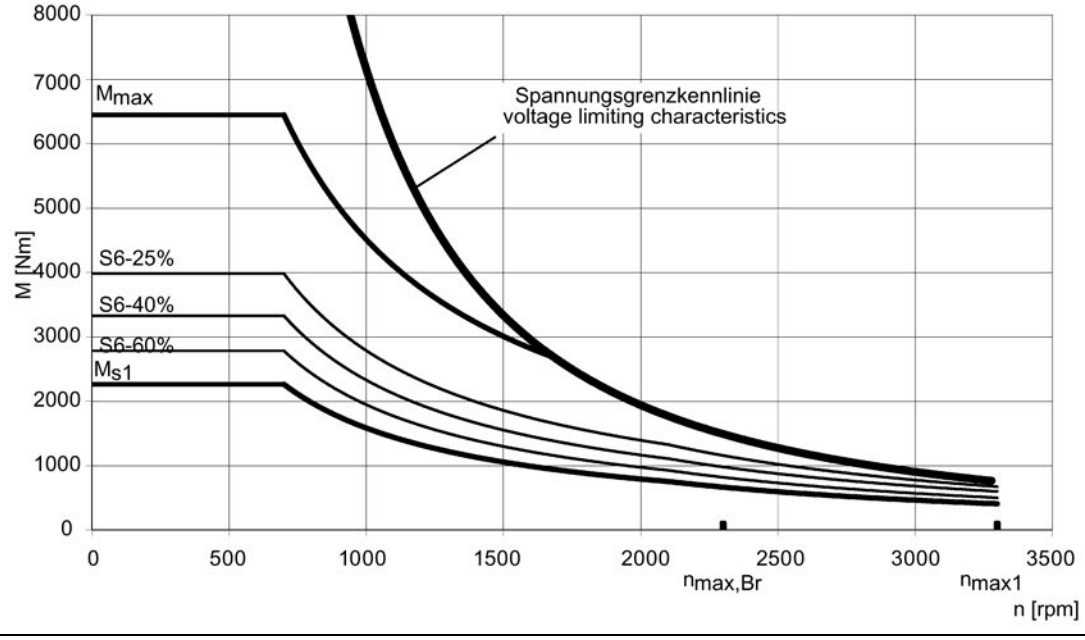
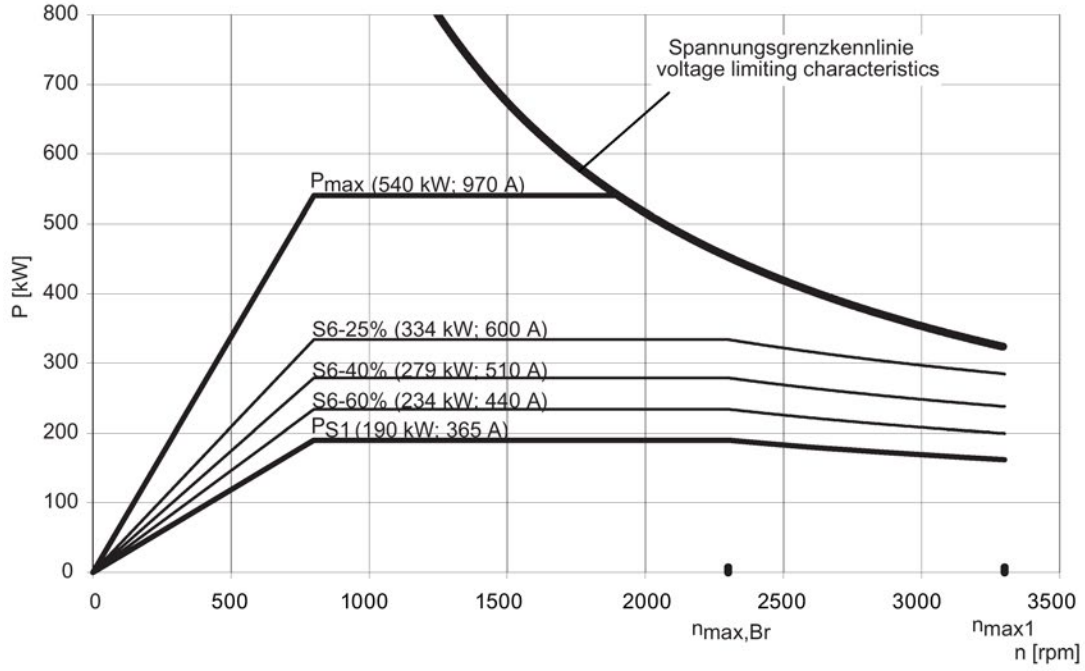


Table 6- 503 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□C1□, (IP55)

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	2,268	365	3,300	-	-	2,300	2,300	6,450	970	2,268	365
700	166	2,268	365					3,100				



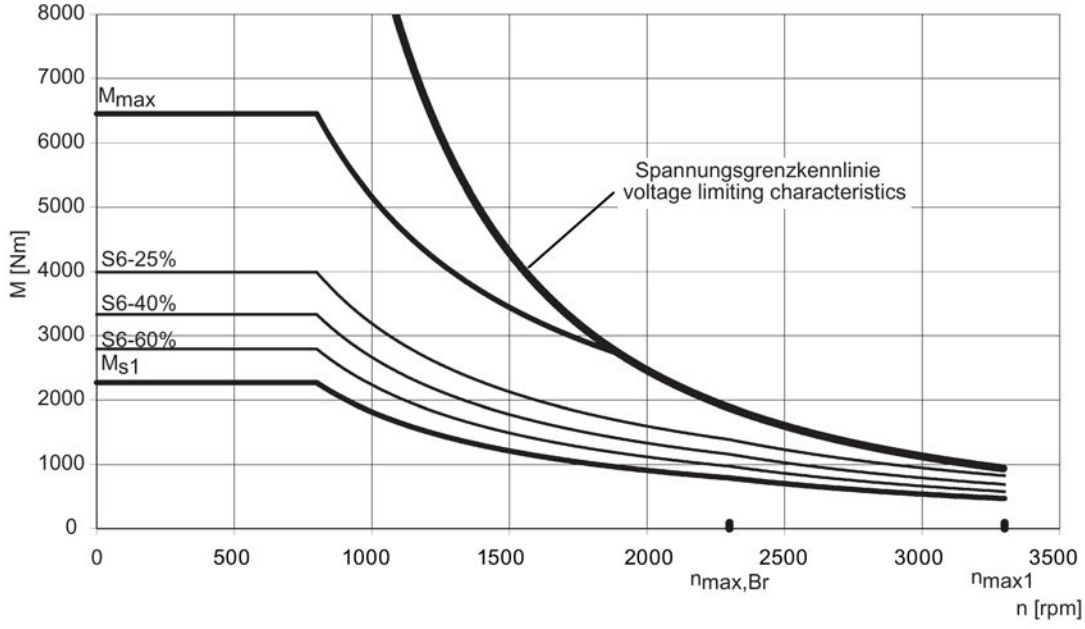
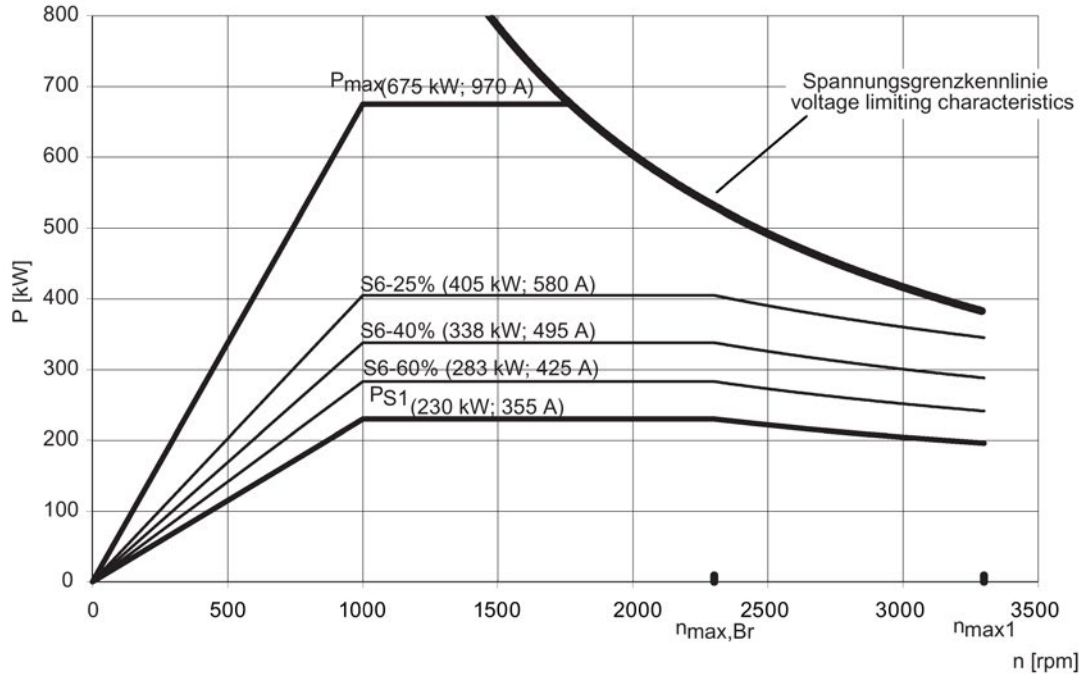


Table 6- 504 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C1□, (IP55)

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]
1,000	230	2,197	355	3,300	-	-	2,300	2,300	6,450	970	2,197	355



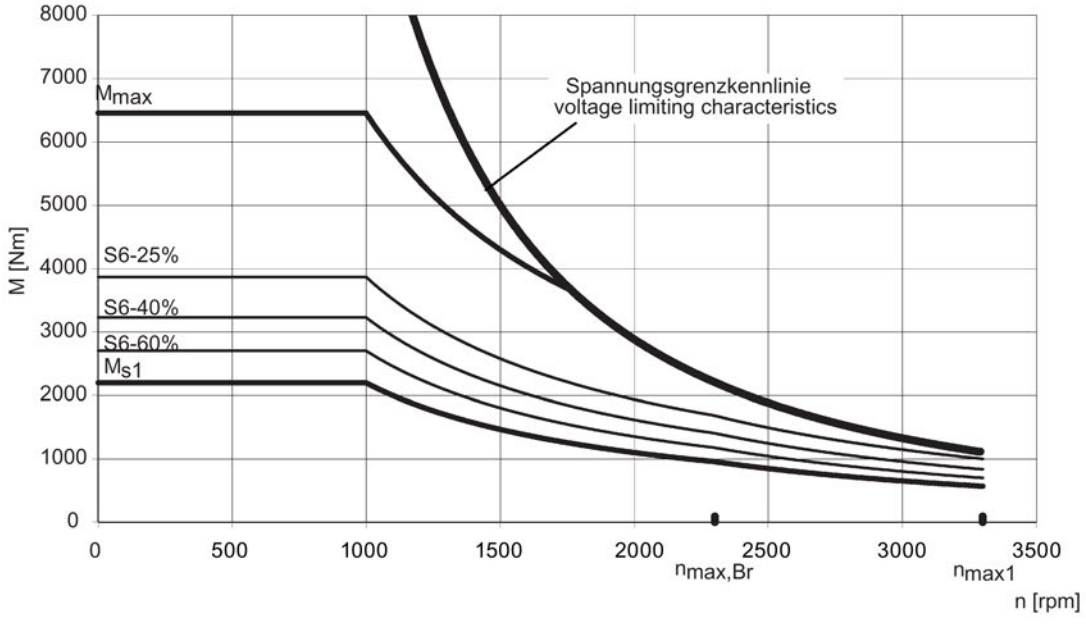
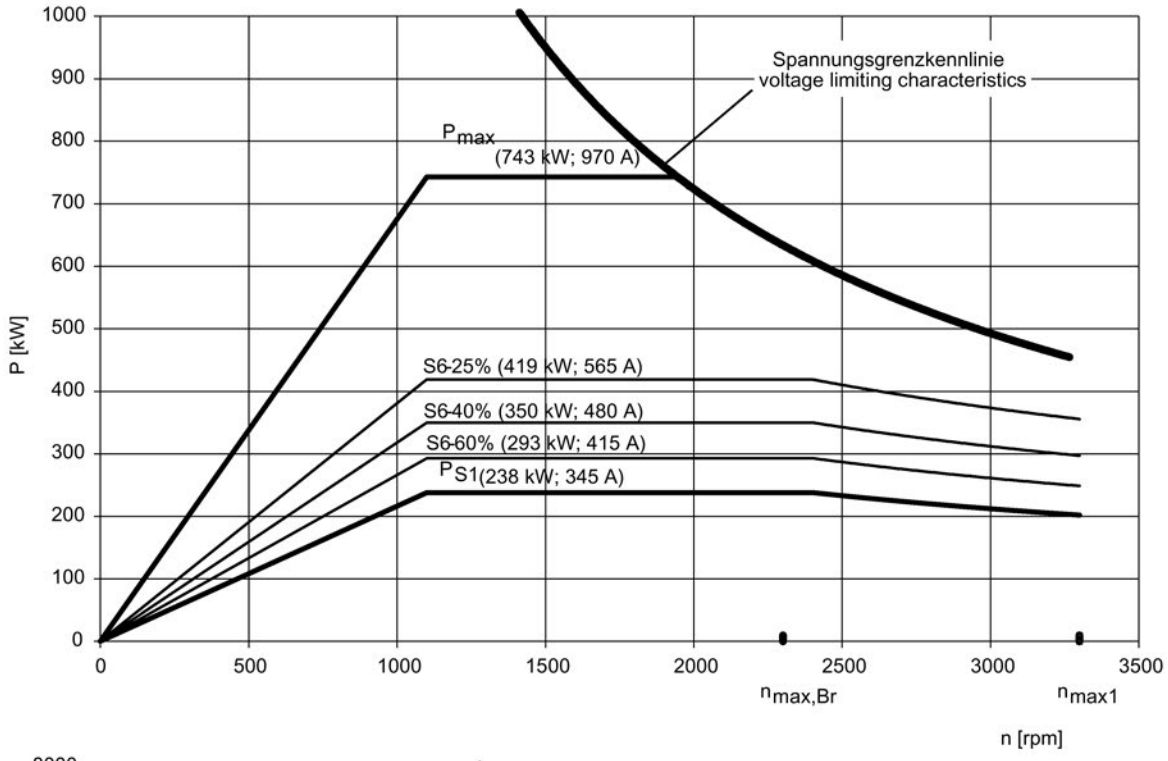


Table 6- 505 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□C1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	238	2,066	345	3,300	-	-	2,300	2,400	6,450	970	2,265	345



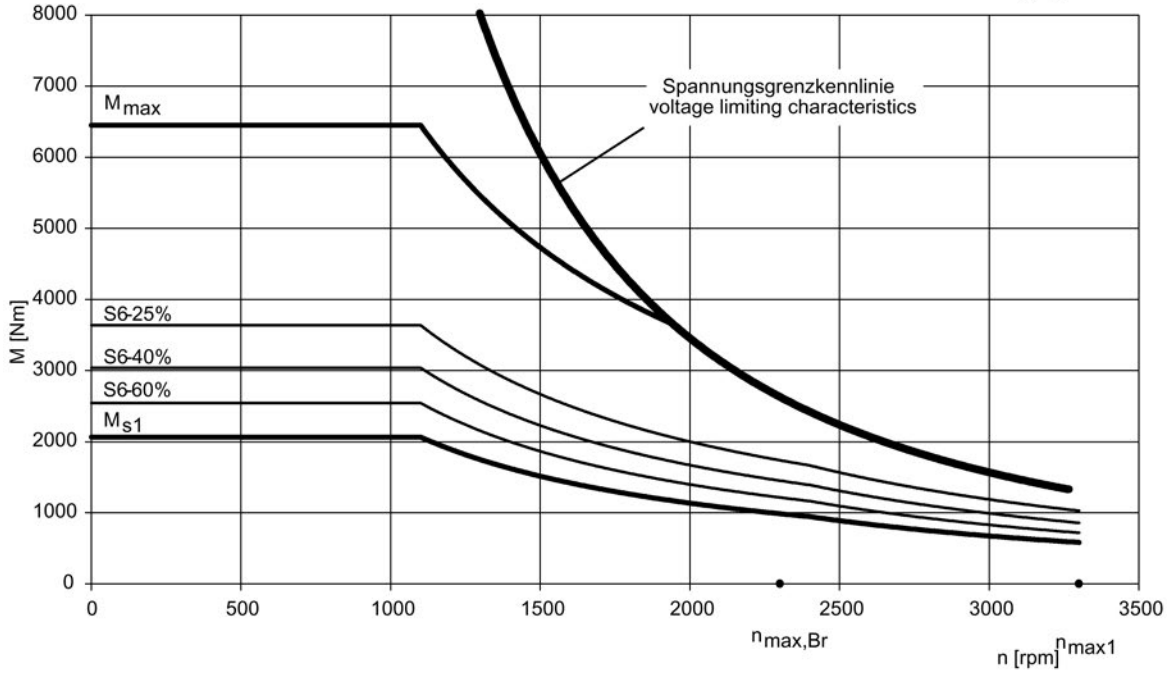
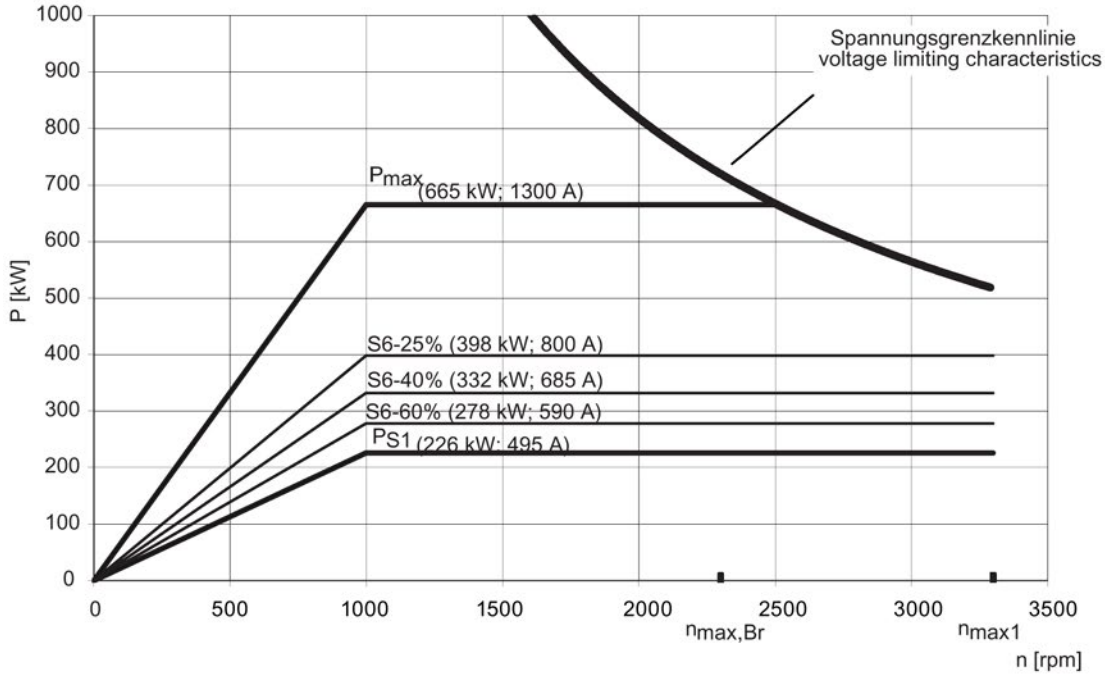


Table 6- 506 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D1□, (IP55)

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]
1,000	226	2,158	495	3,300	-	-	2,300	2,100	6,350	1,300	2,158	495



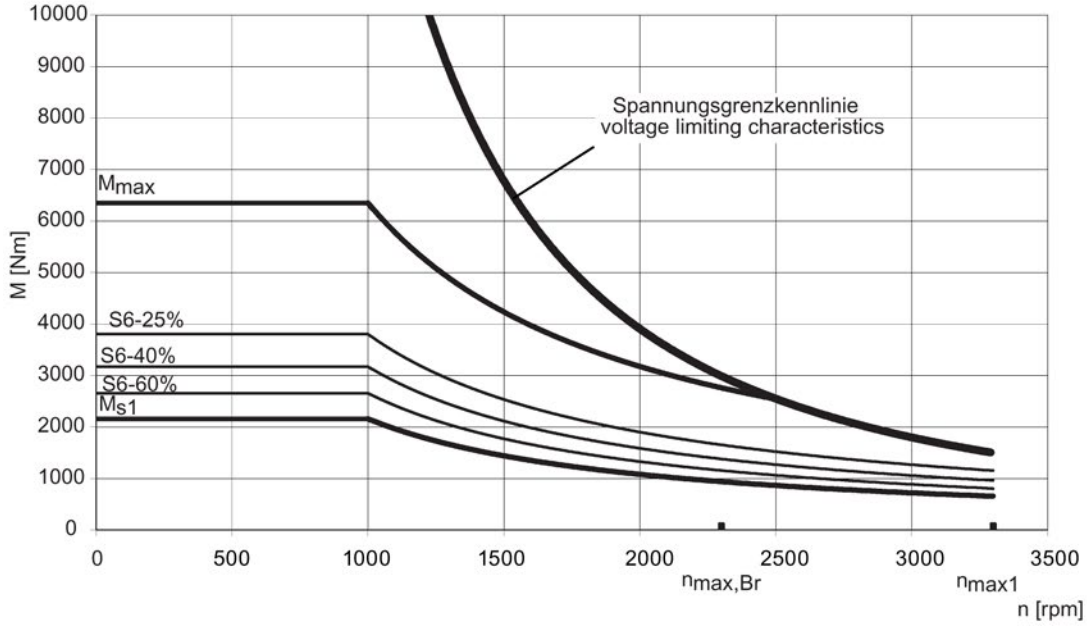
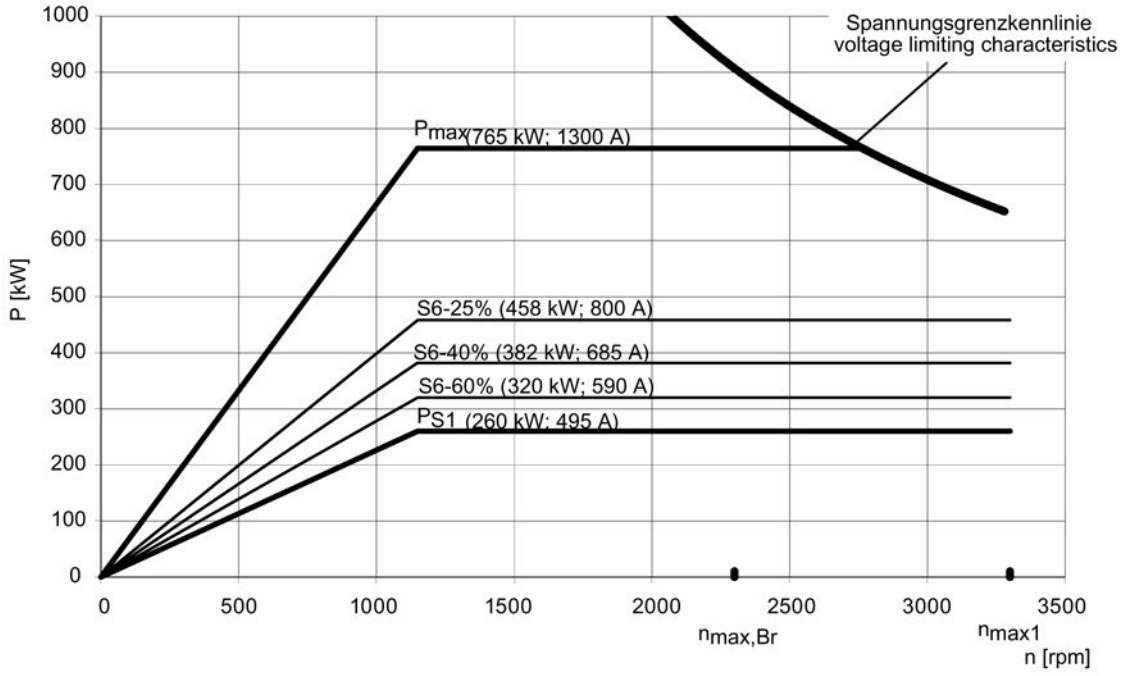


Table 6- 507 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□D1□, (IP55)

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]
1,150	260	2,160	495	3,300	-	-	2,300	2,200	6,350	1,300	2,160	495
1,000	226	2,160	495					3,300				



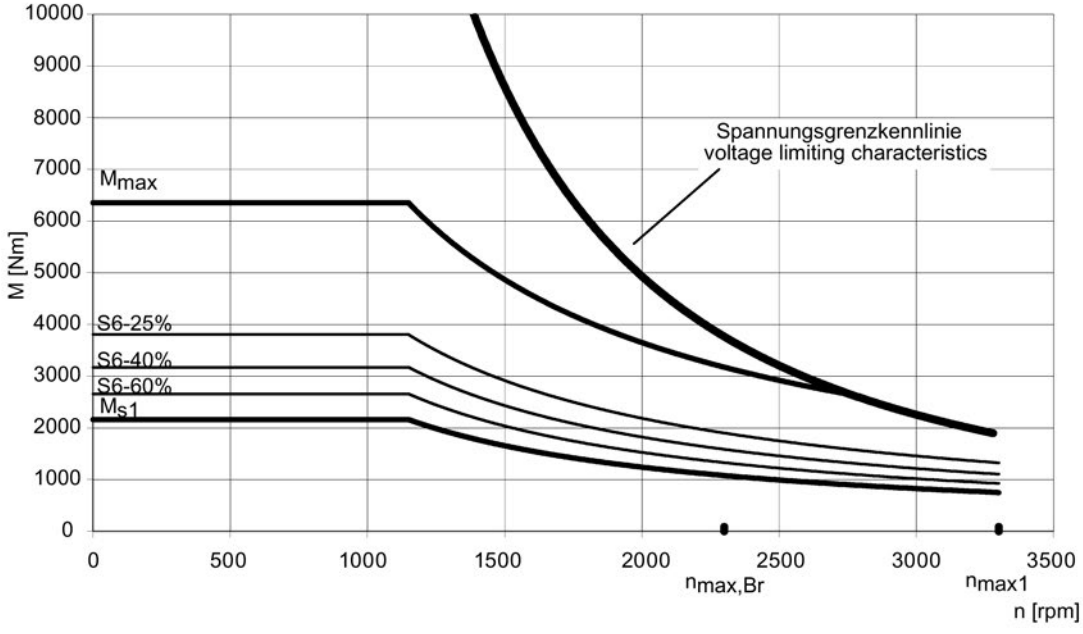
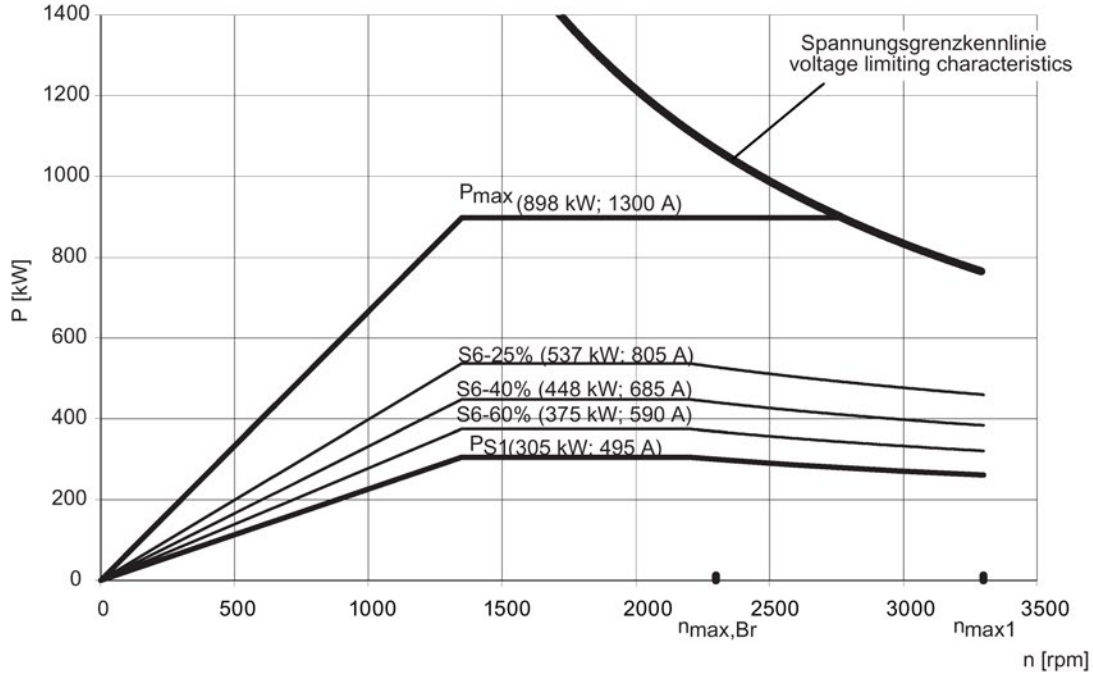


Table 6- 508 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D1□, (IP55)

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]
1,350	305	2,158	495	3,300	-	-	2,300	2,200	6,350	1,300	2,158	495



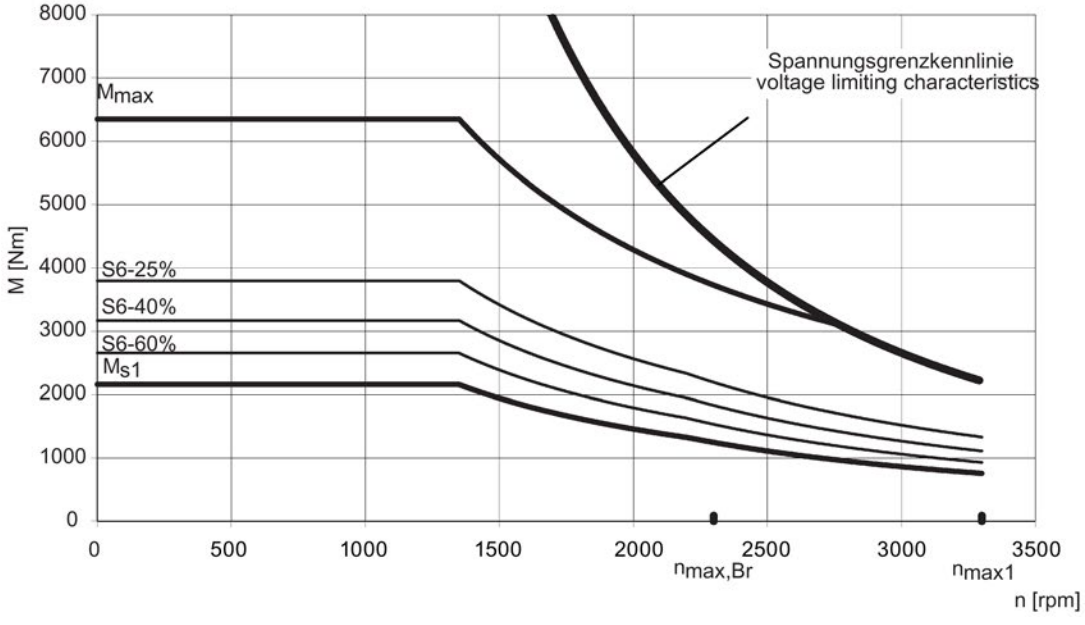
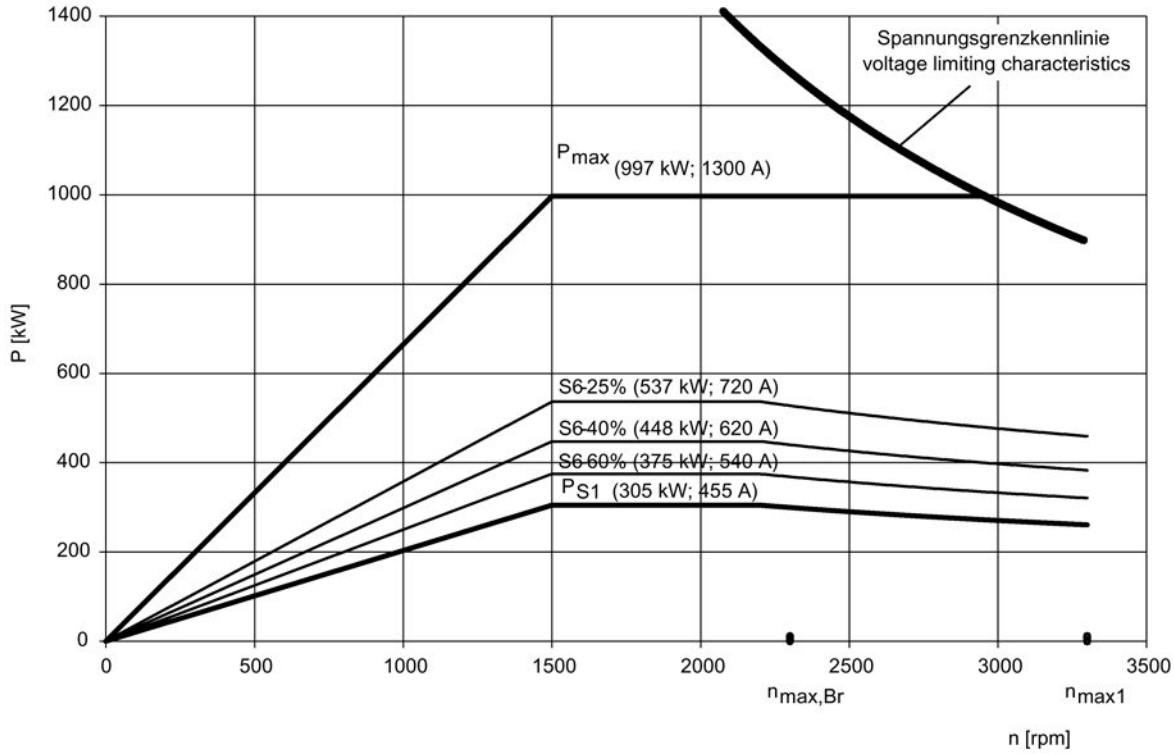


Table 6- 509 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□D1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	305	1,942	455	3,300	-	-	2,300	2,200	6,350	1,300	2,158	455



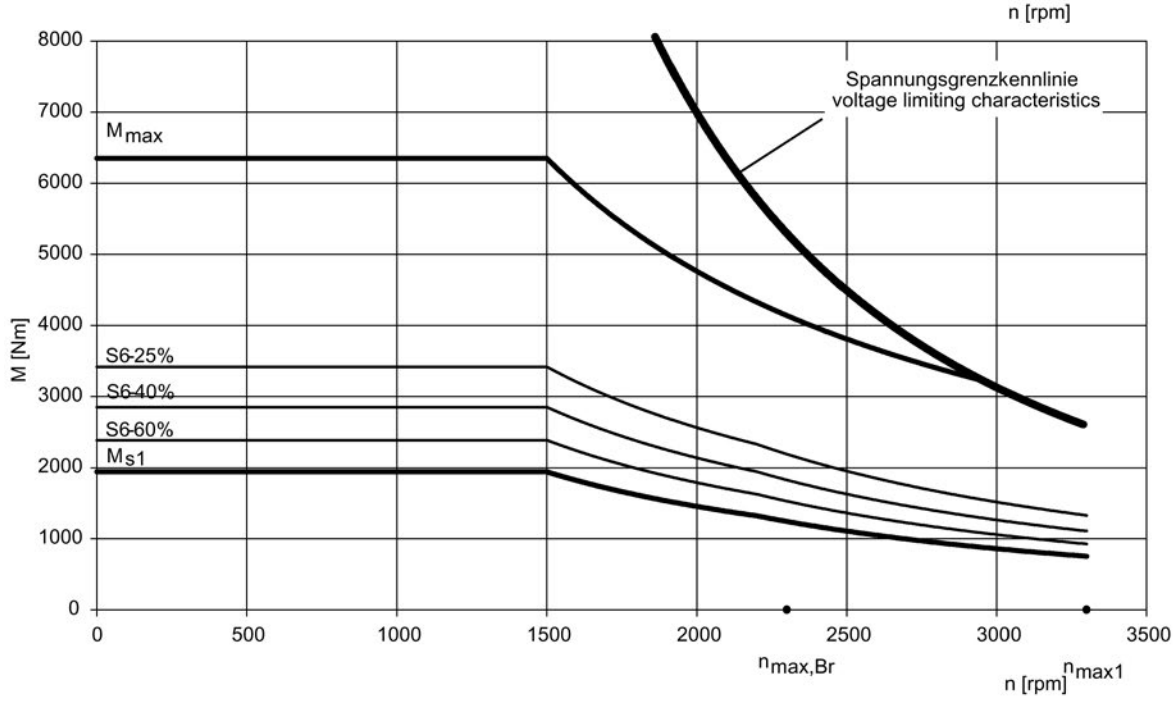
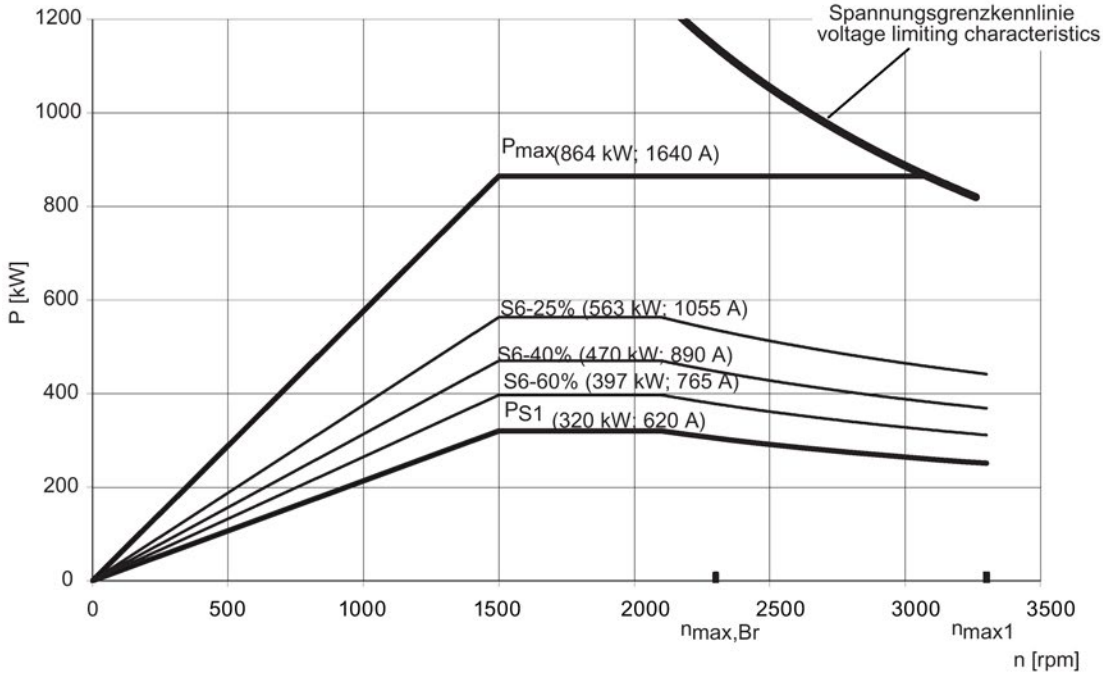


Table 6- 510 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F1□, (IP55)

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]
1,500	320	2,037	620	3,300	-	-	2,300	2,100	5,500	1,640	2,037	1,640



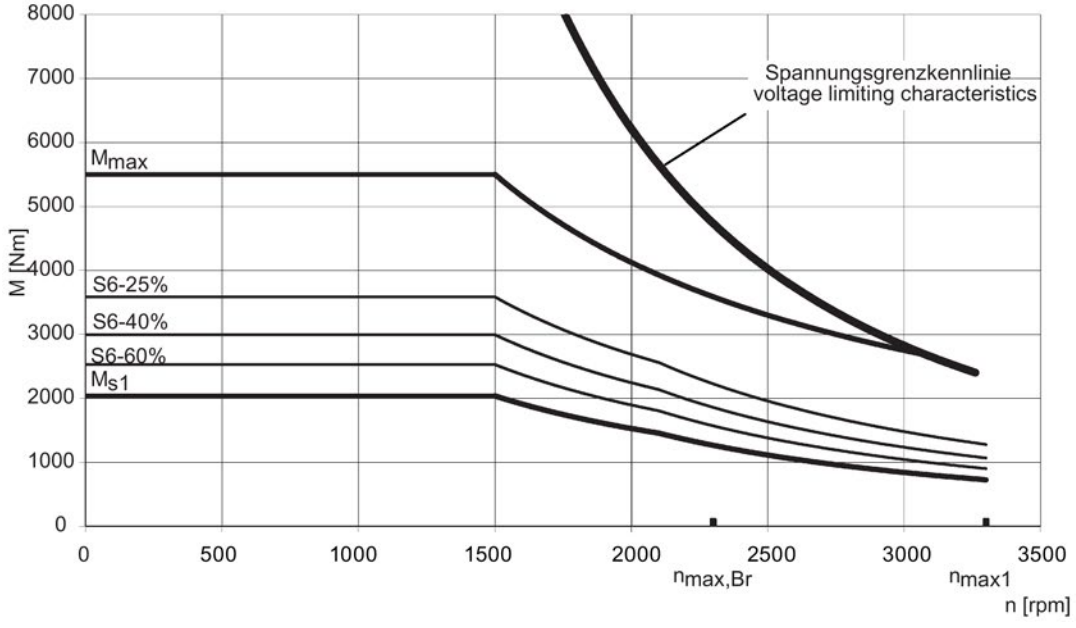
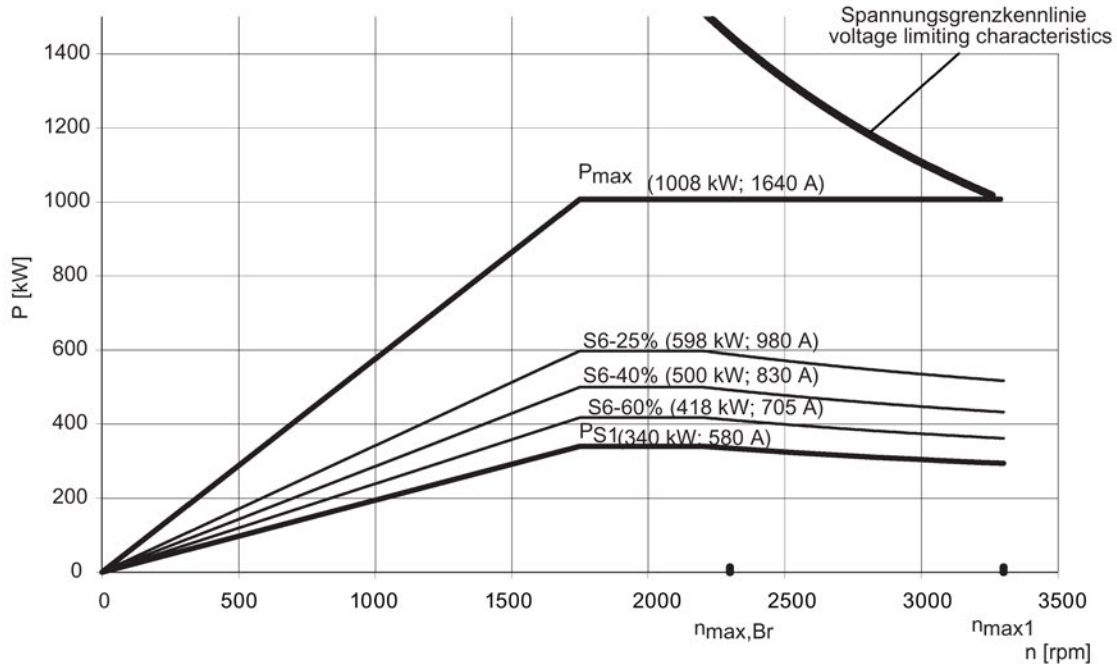


Table 6- 511 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□F1□, (IP55)

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]
1,750	340	1,856	580	3,300	-	-	2,300	2,200	5,500	1,640	1,856	1,640
1,500	292	1,856	580					3,300				



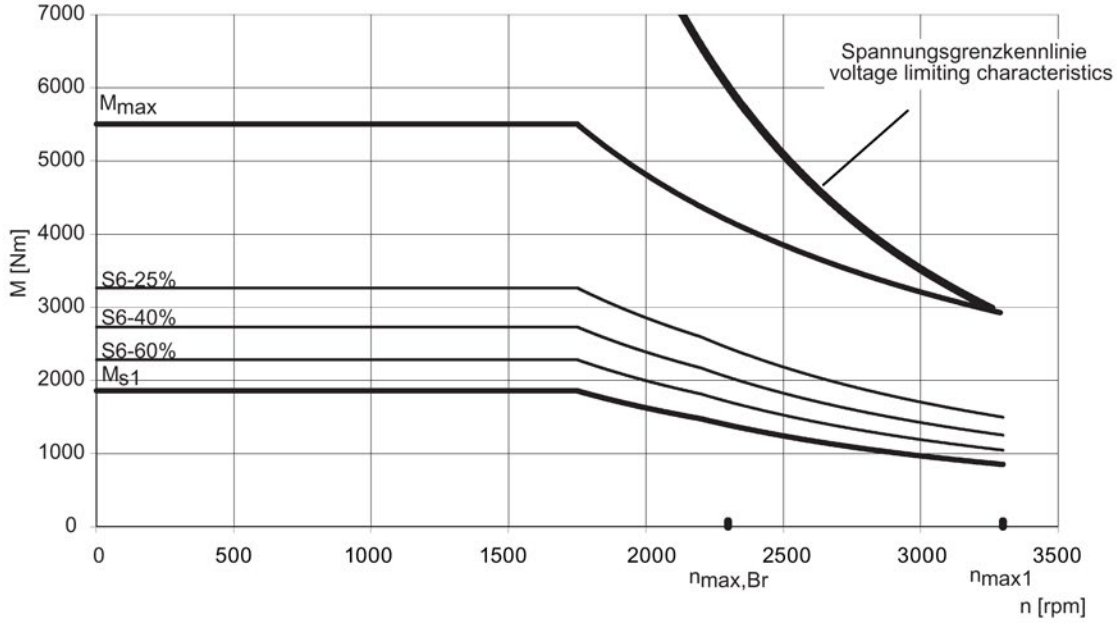
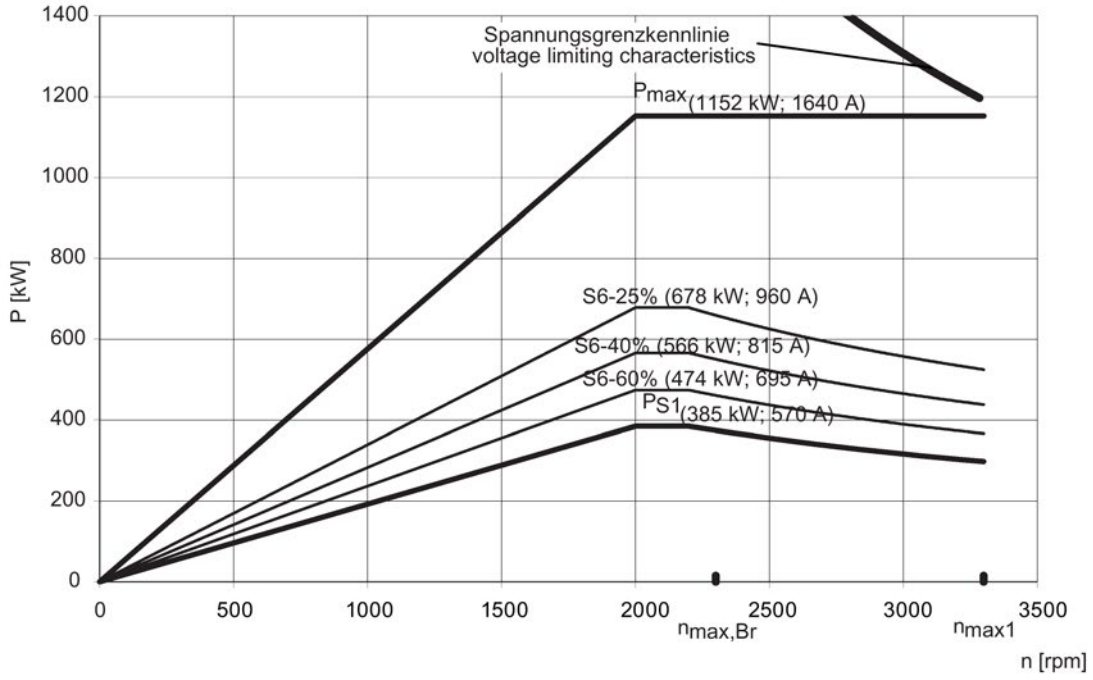


Table 6- 512 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F1□, (IP55)

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]
2,000	385	1,838	570	3,300	-	-	2,300	2,200	5,500	1,640	1,838	1,640



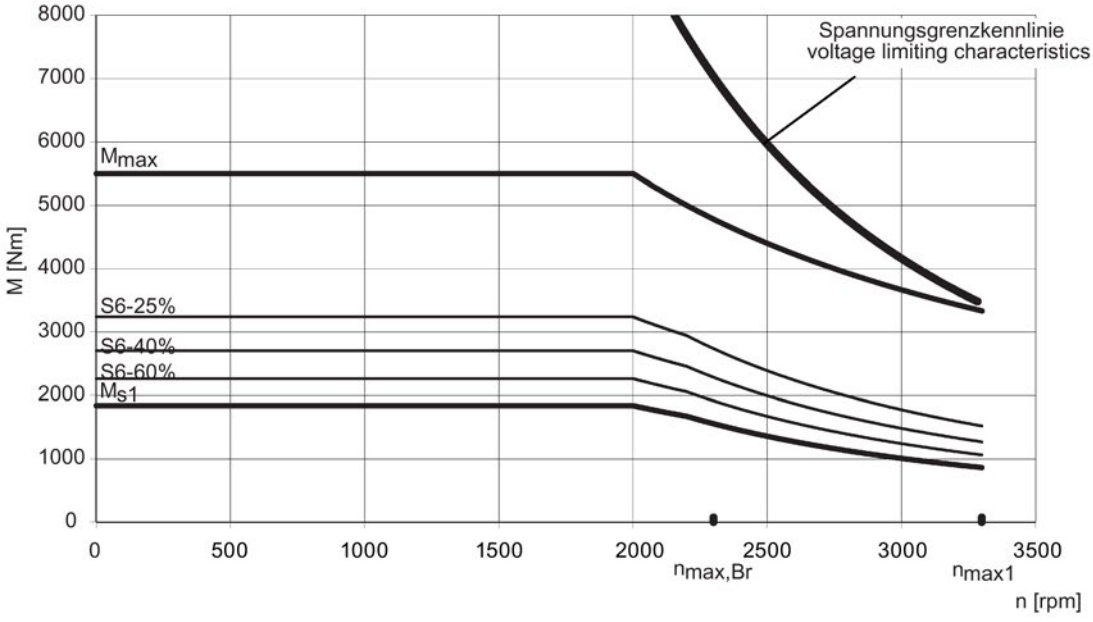
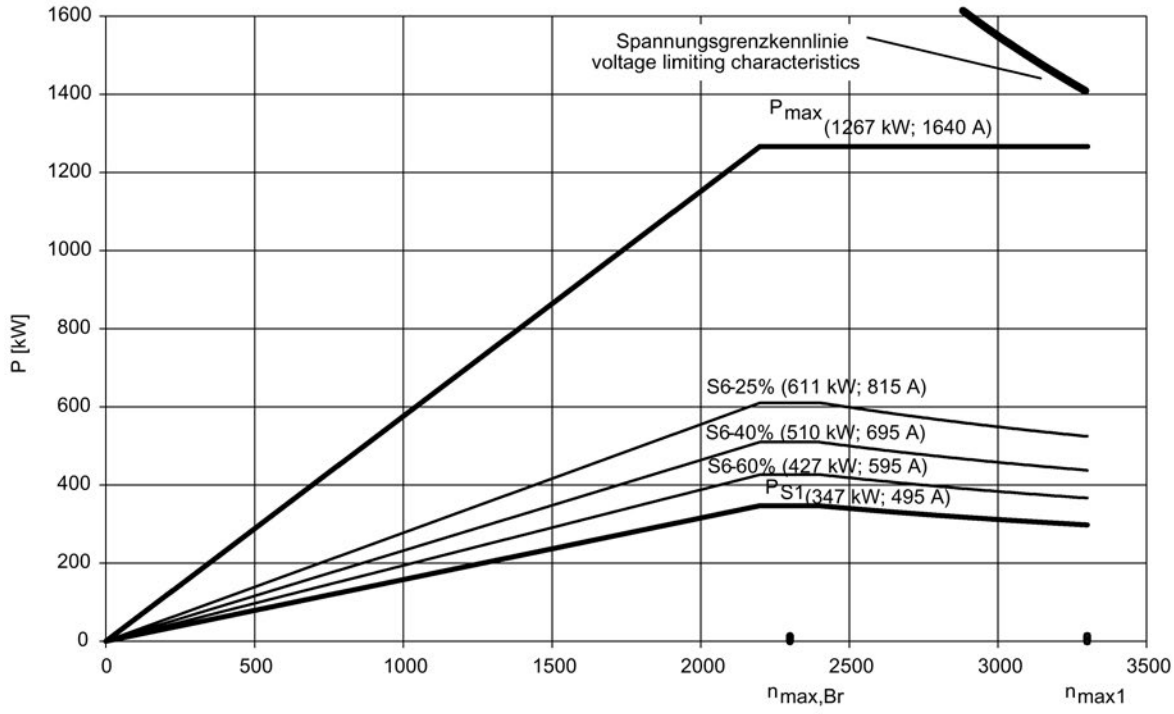


Table 6- 513 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□F1□, (IP55)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	347	1,506	495	3,300	-	-	2,300	2,400	5,500	1,640	2,037	1,640



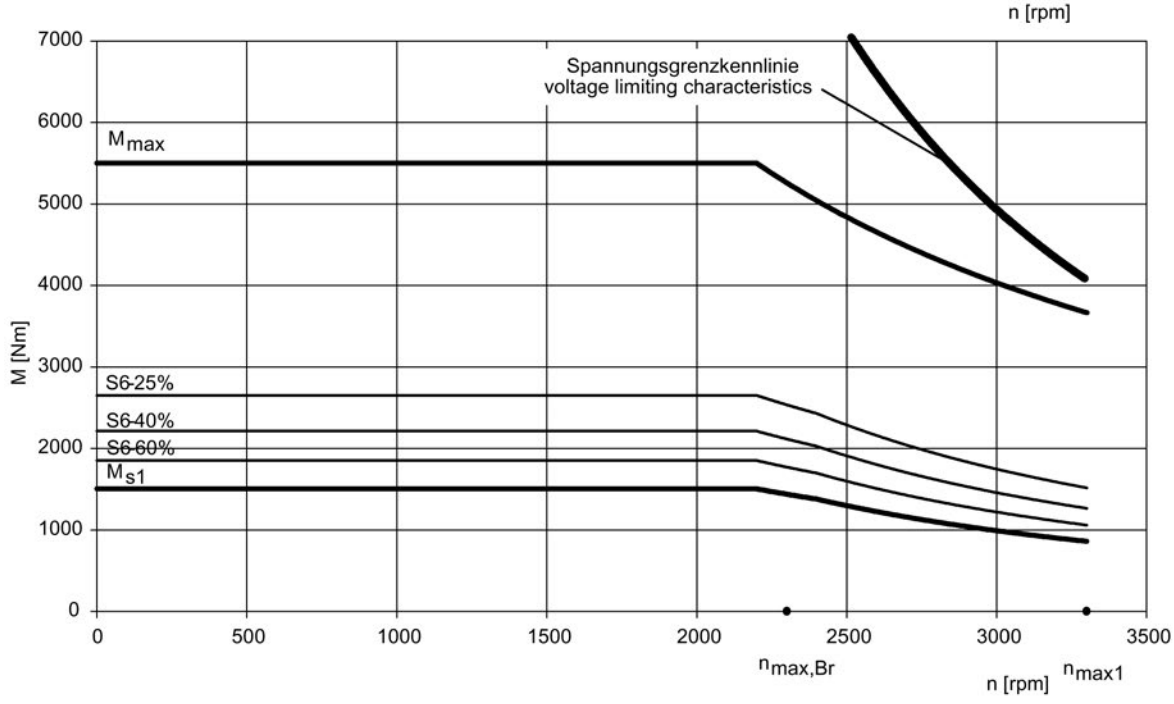
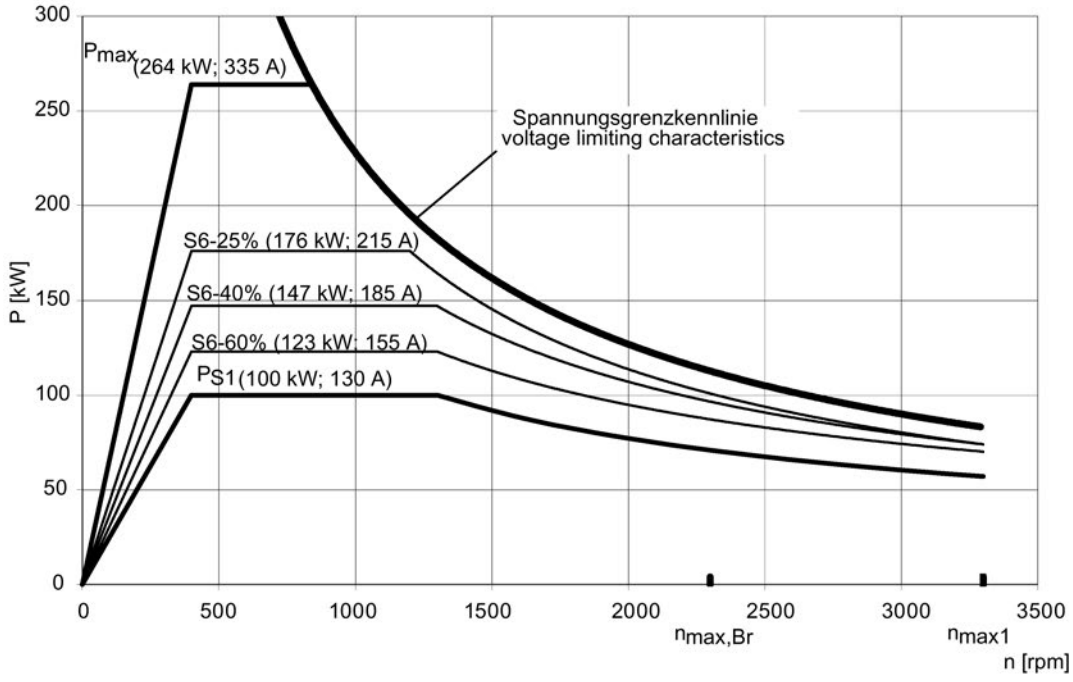


Table 6- 514 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□H1□, (IP55)

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	2,388	130	3,300	-	-	2,300	1,300	6,300	335	2,388	130



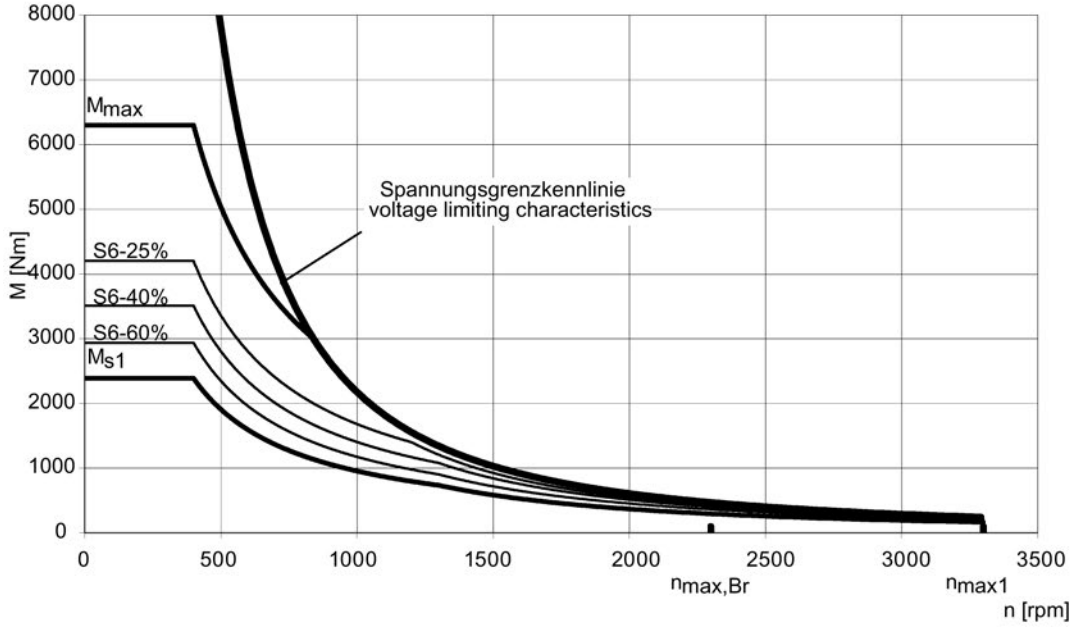
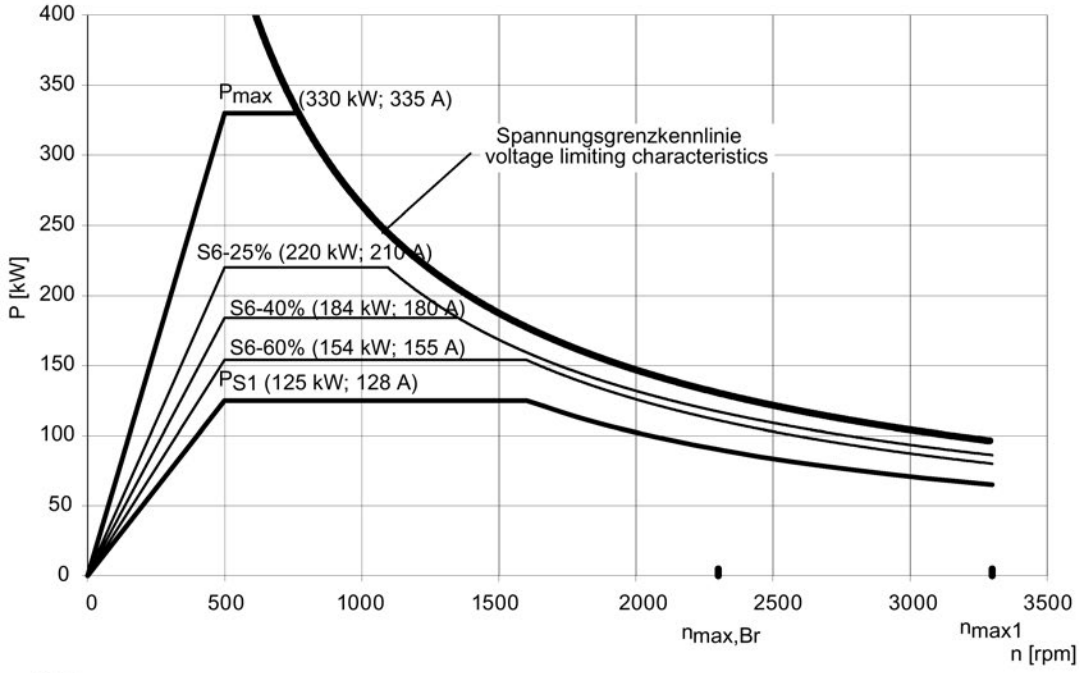


Table 6- 515 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□H1□, (IP55)

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	2,388	128	3,300	-	-	2,300	1,600	6,300	335	2,388	128
400	100	2,388	128					2,000				



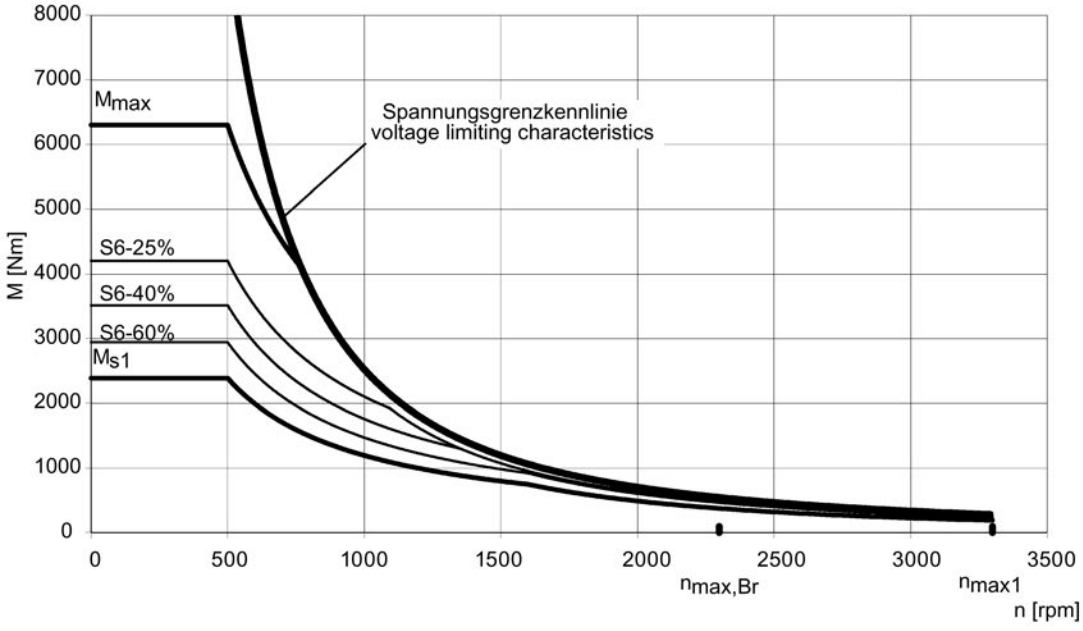
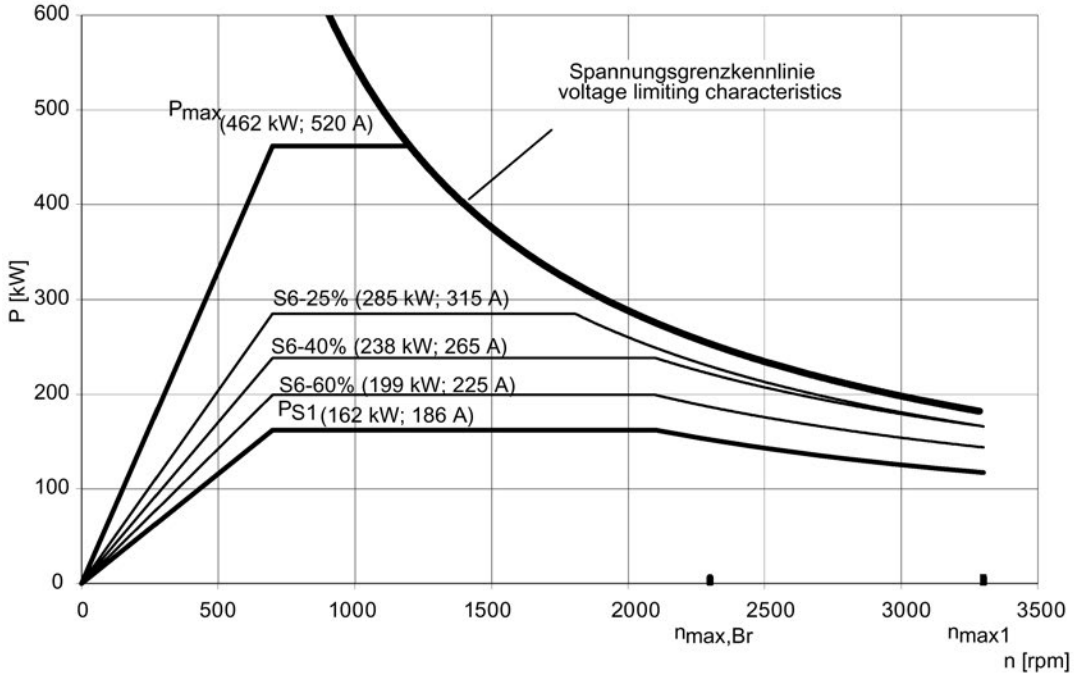


Table 6- 516 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□K1□, (IP55)

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	2,210	186	3,300	-	-	2,300	2,100	6,300	520	2,210	186



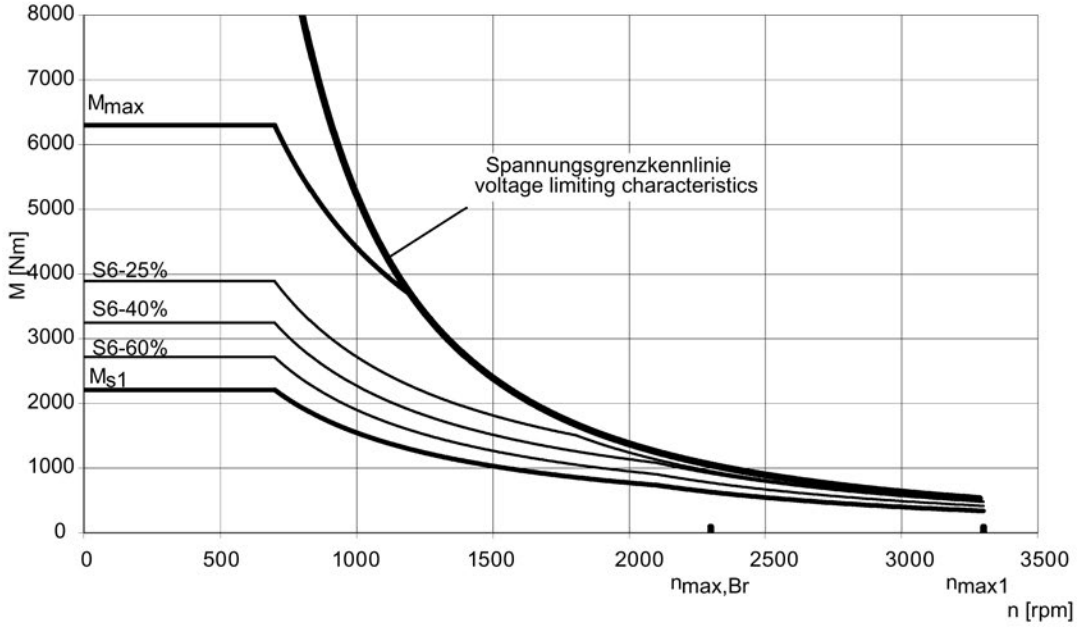
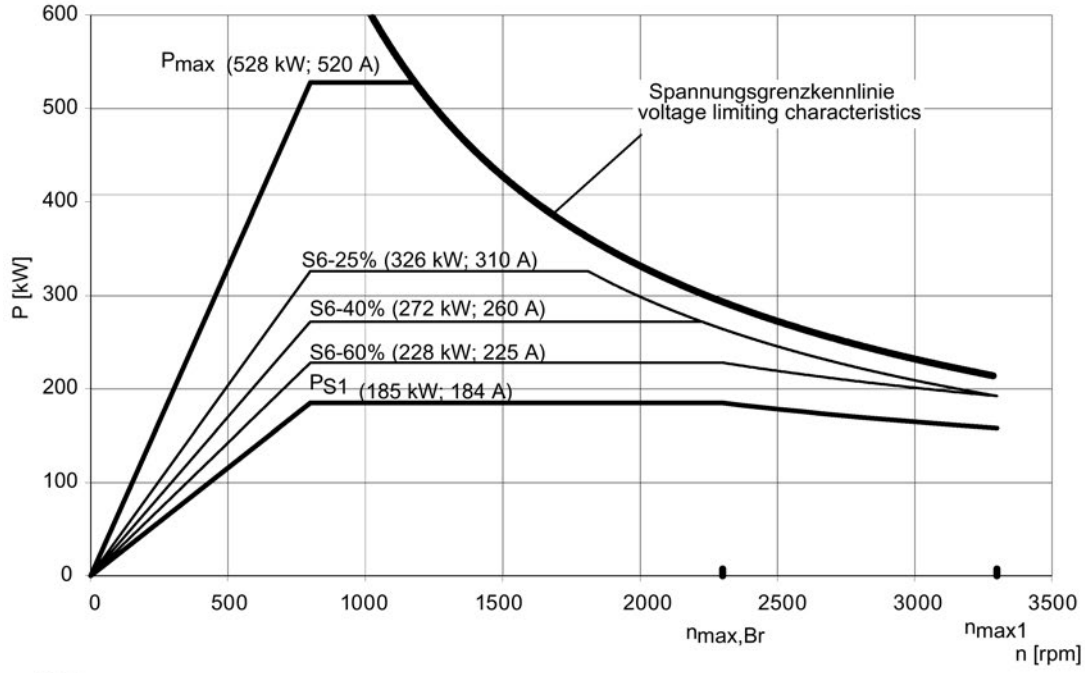


Table 6- 517 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□K1□, (IP55)

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	2,208	184	3,300	-	-	2,300	2,300	6,300	520	2,208	184
700	162	2,208	184					3,100				



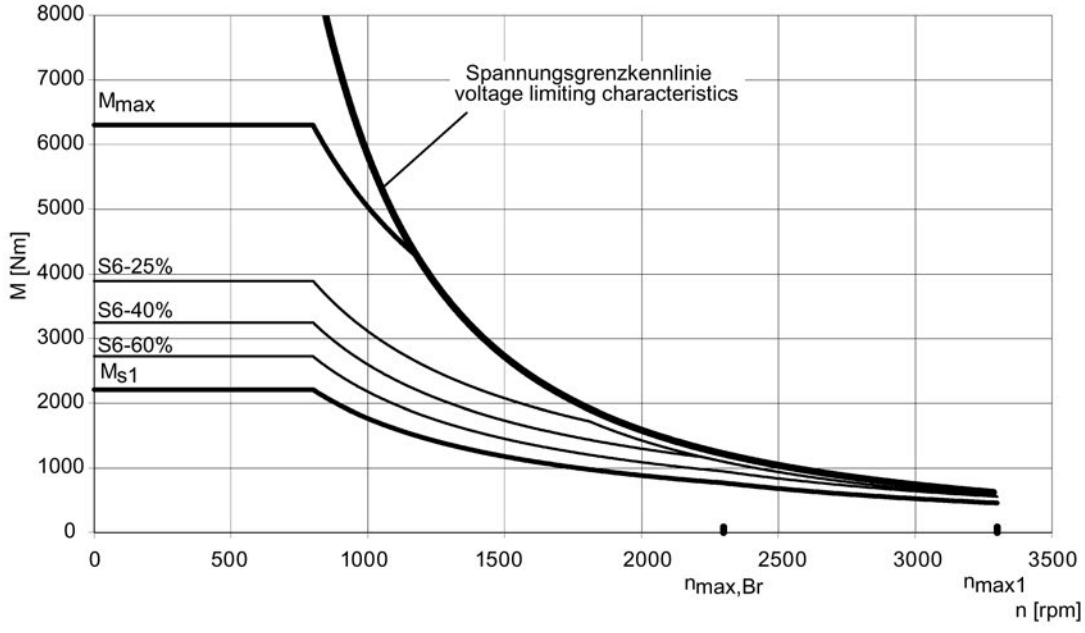
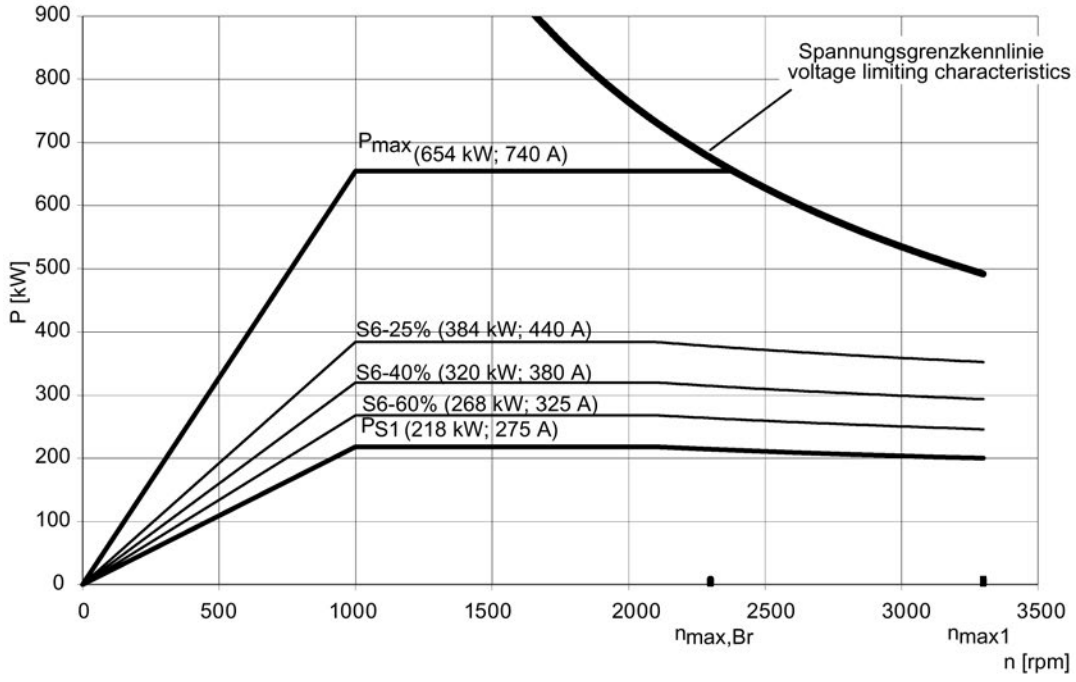


Table 6- 518 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□U1□, (IP55)

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]
1,000	218	2,082	275	3,300	-	-	2,300	2,100	6,250	740	2,082	275



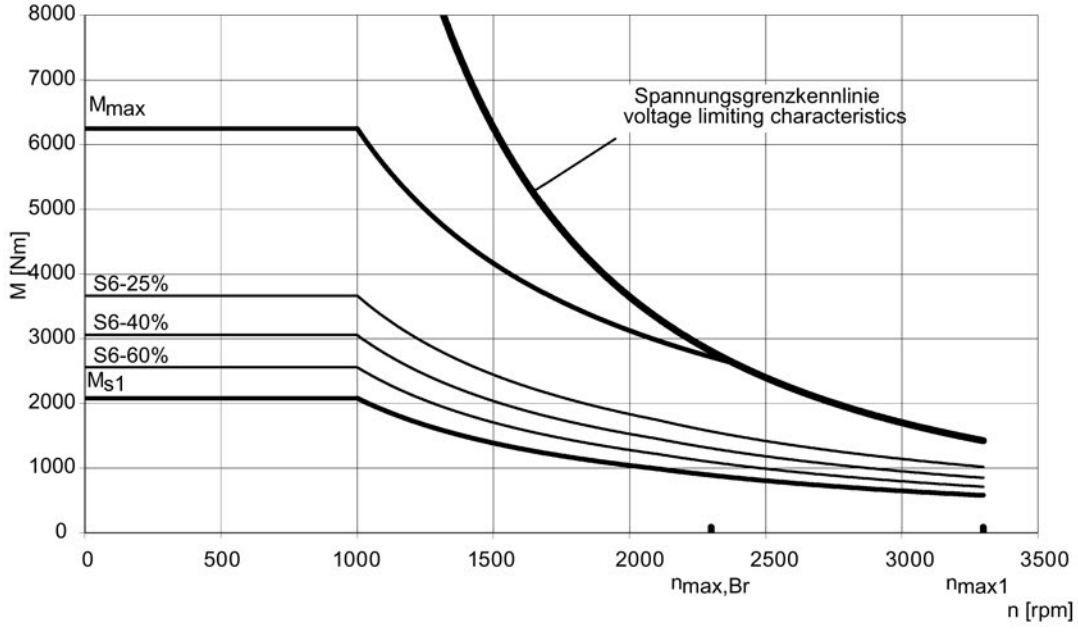
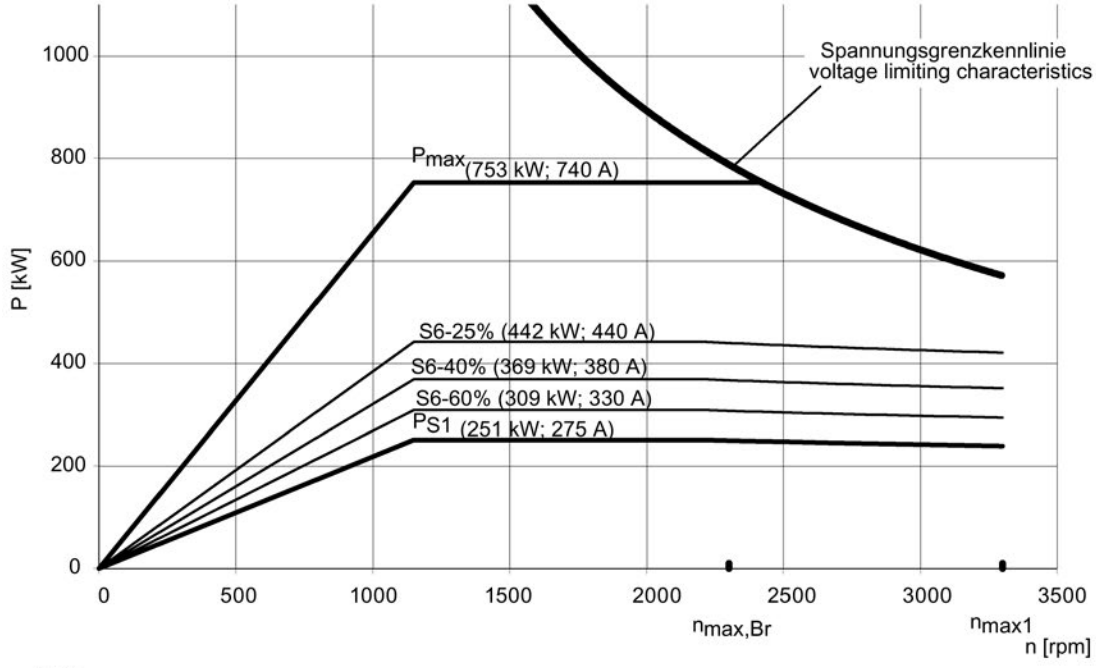


Table 6- 519 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□U1□, (IP55)

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]
1,150	251	2,084	275	3,300	-	-	2,300	2,200	6,250	740	2,084	275
1,000	218	2,084	275					3,300				



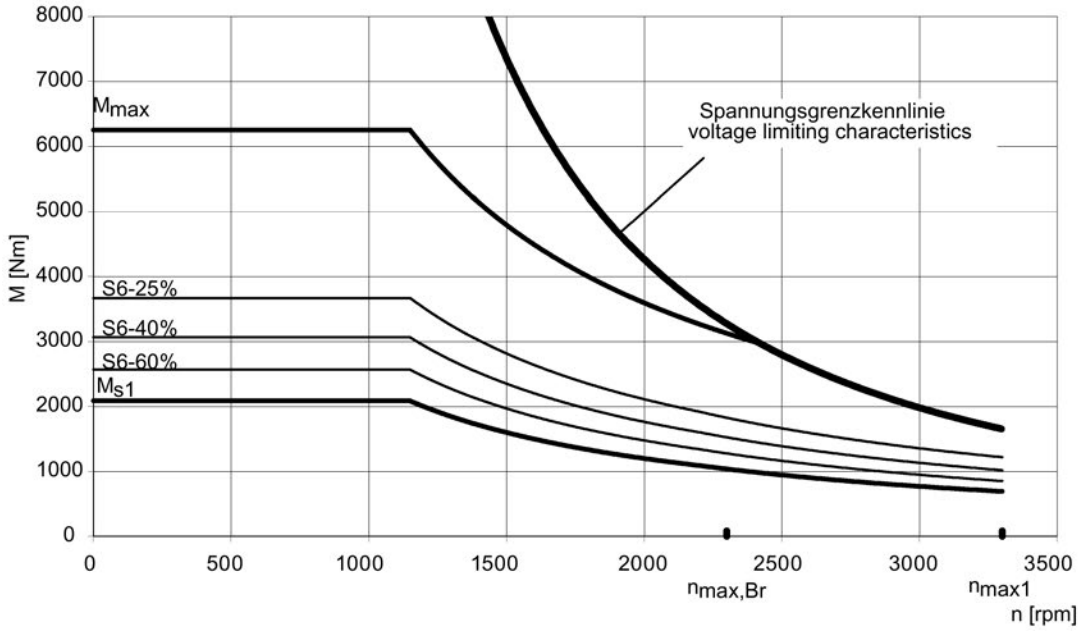
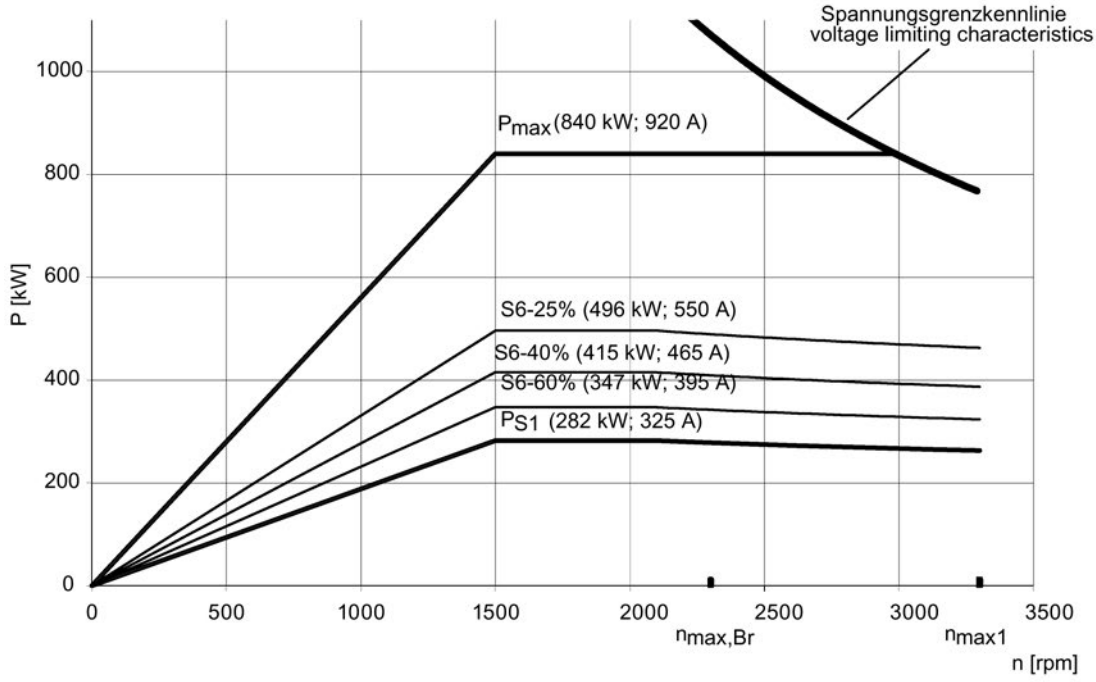


Table 6- 520 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□W1□, (IP55)

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]
1,500	282	1,795	325	3,300	-	-	2,300	2,100	5,350	920	1,795	325



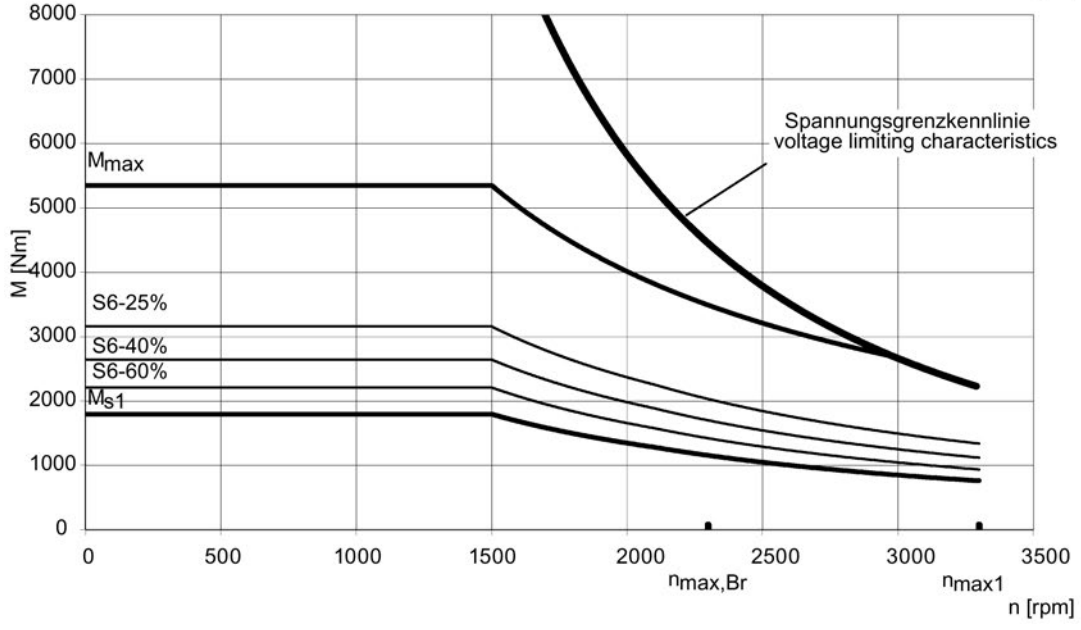
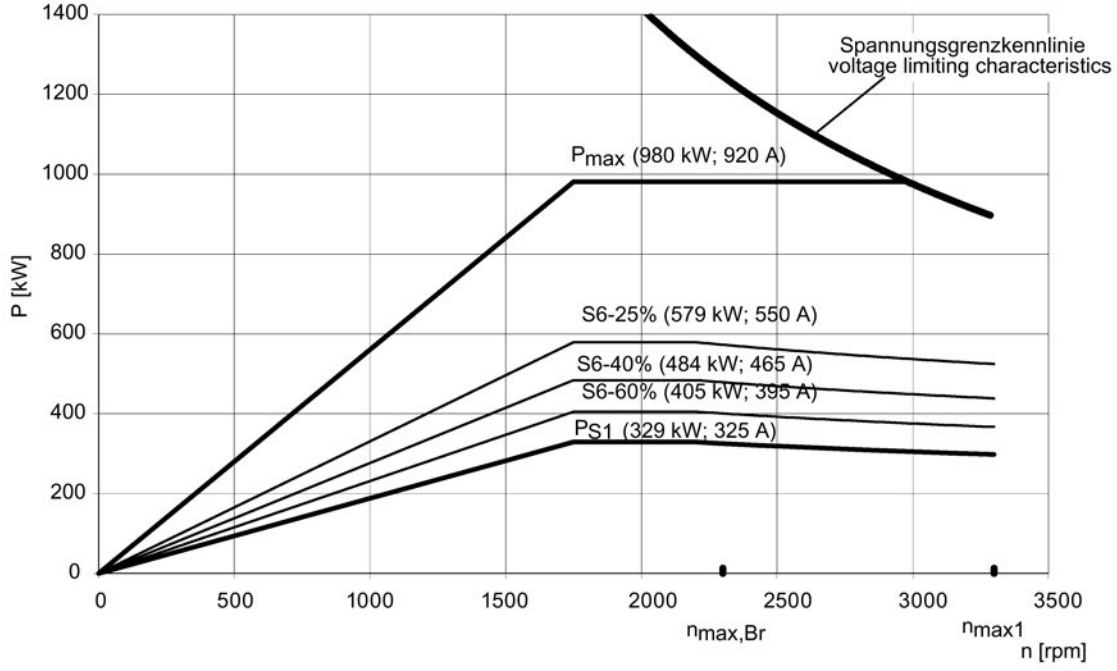
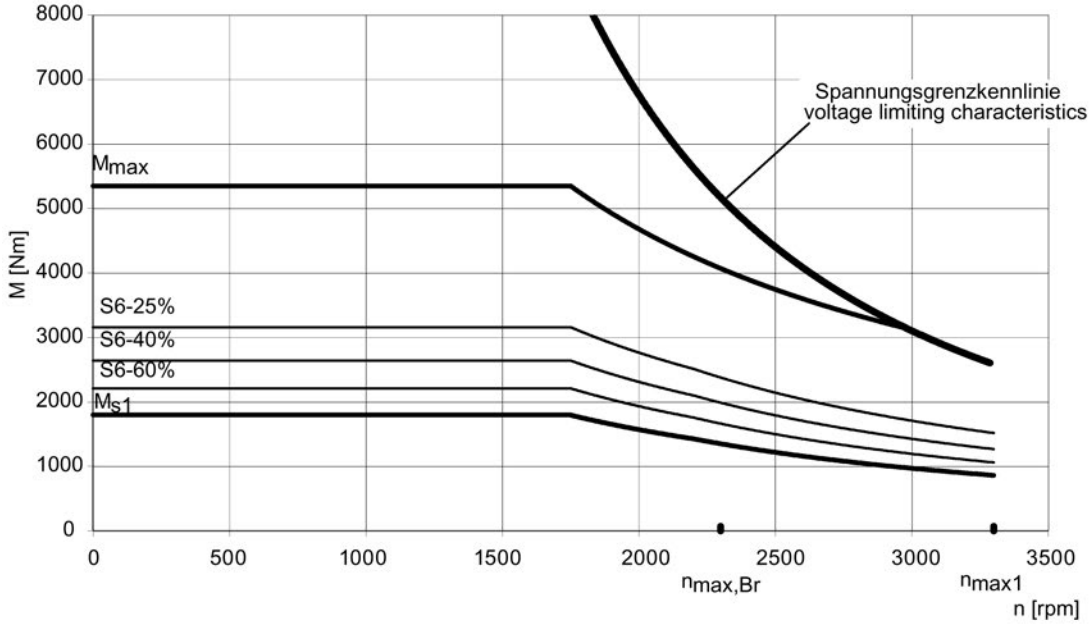


Table 6- 521 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□W1□, (IP55)

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]
1,750	329	1,795	325	3,300	-	-	2,300	2,200	5,350	920	1,795	325
1,500	282	1,795	325					3,300				

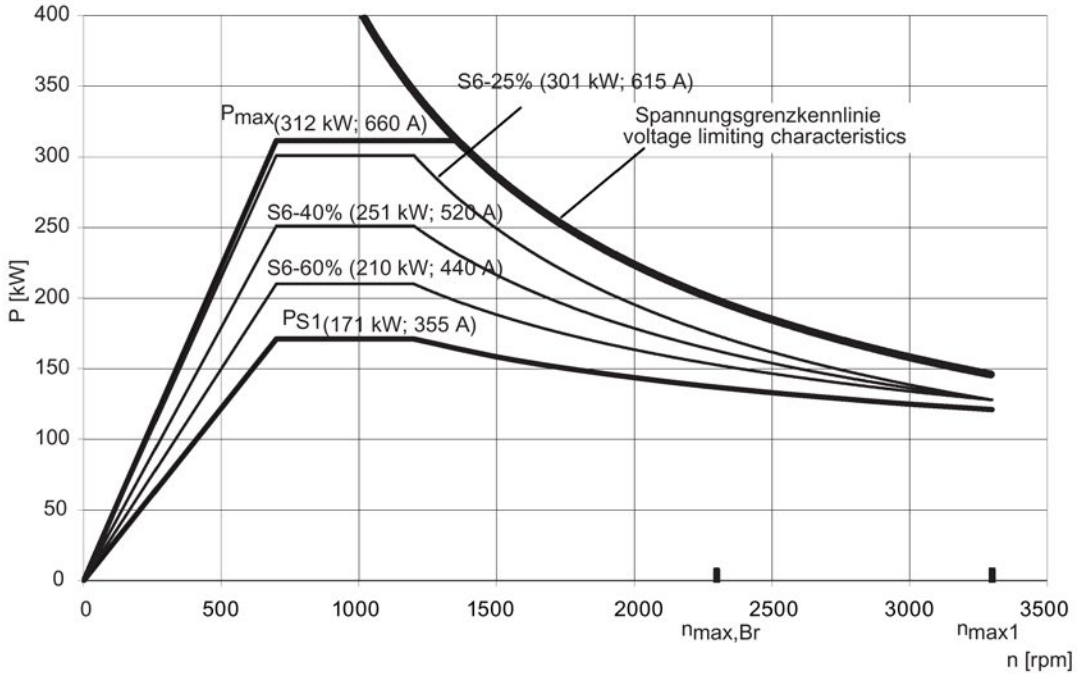




6.1.2.11 Shaft height 280 - forced ventilation (open-circuit ventilation)

Table 6- 522 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	2,333	355	3,300	-	-	2,300	1,200	4,250	660	2,333	355



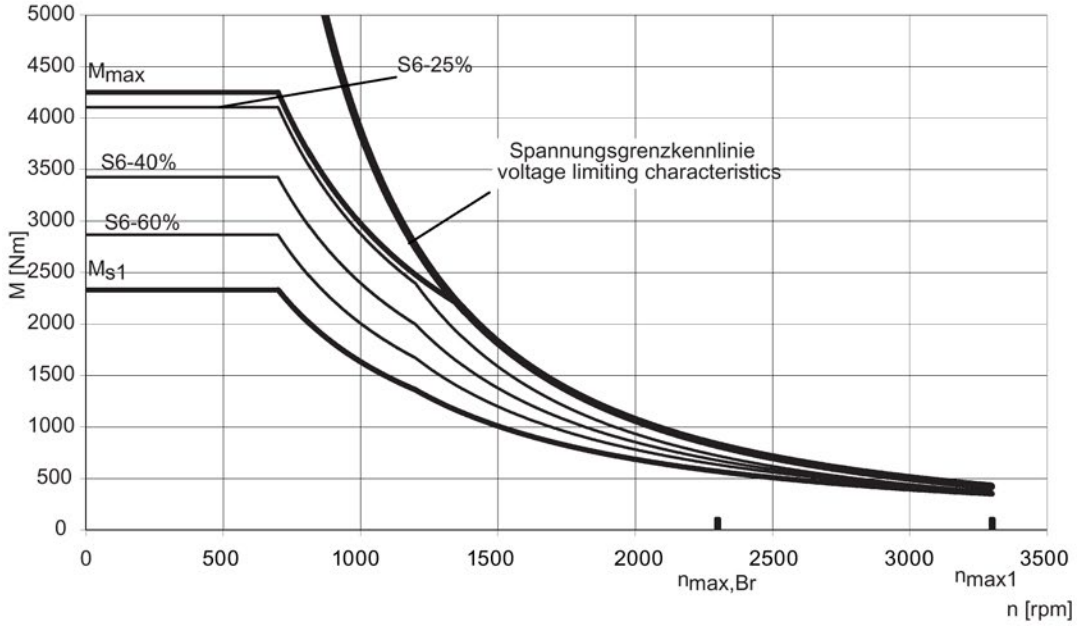
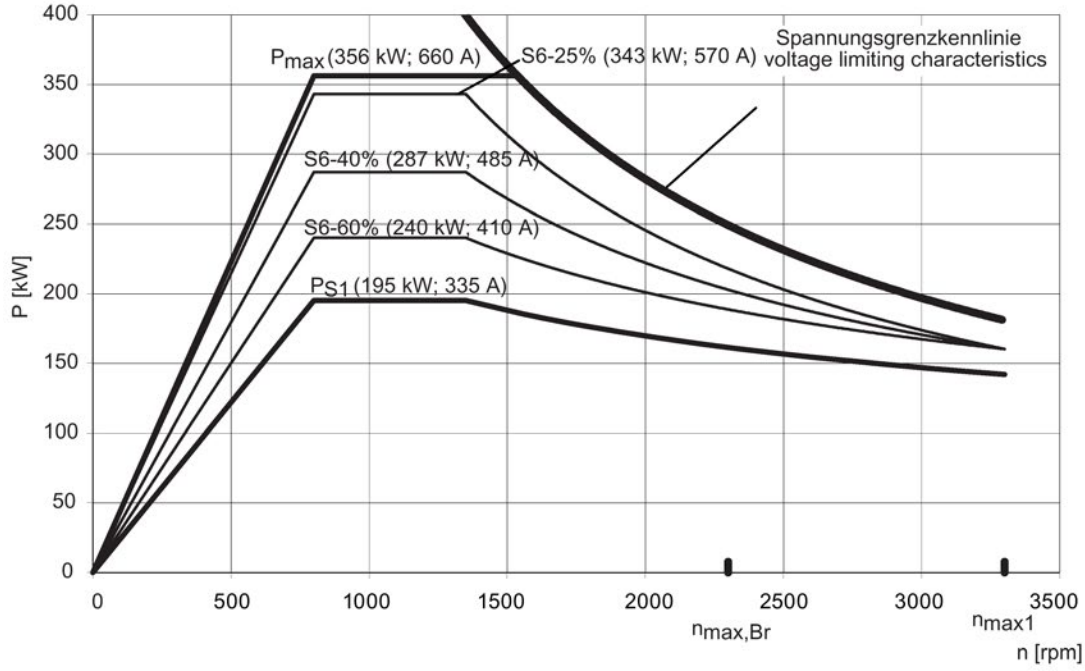


Table 6- 523 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□C4□, (IP23)

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	2,328	335	3,300	-	-	2,300	1,350	4,250	660	2,328	335
700	171	2,333	355					2,000				



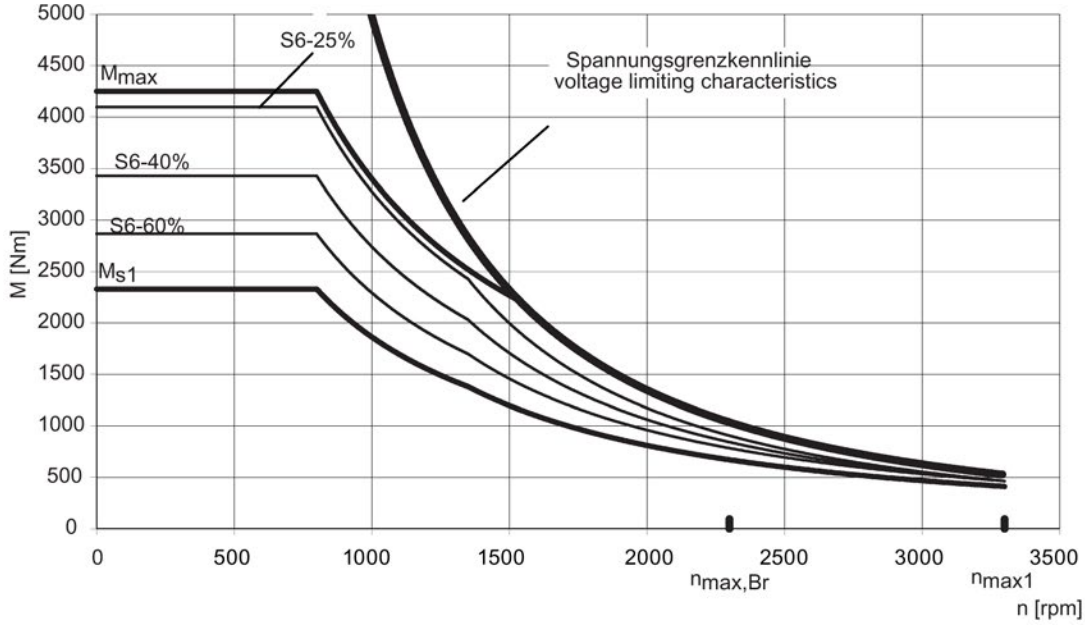
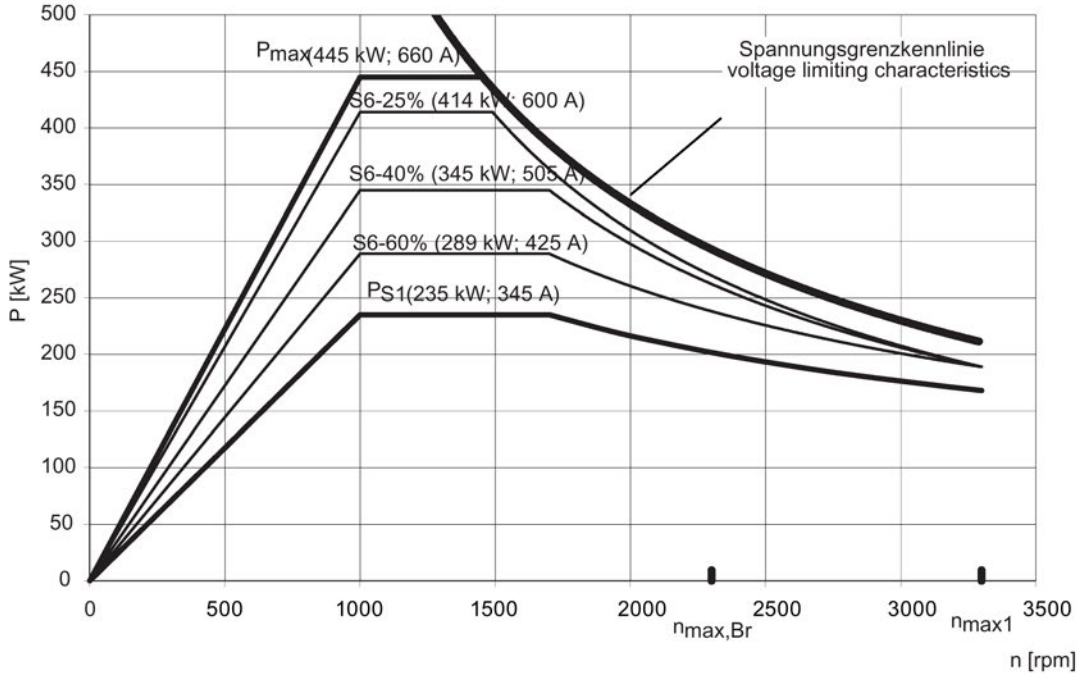


Table 6- 524 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C4□, (IP23)

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]
1,000	235	2,244	345	3,300	-	-	2,300	1,700	4,250	660	2,244	345



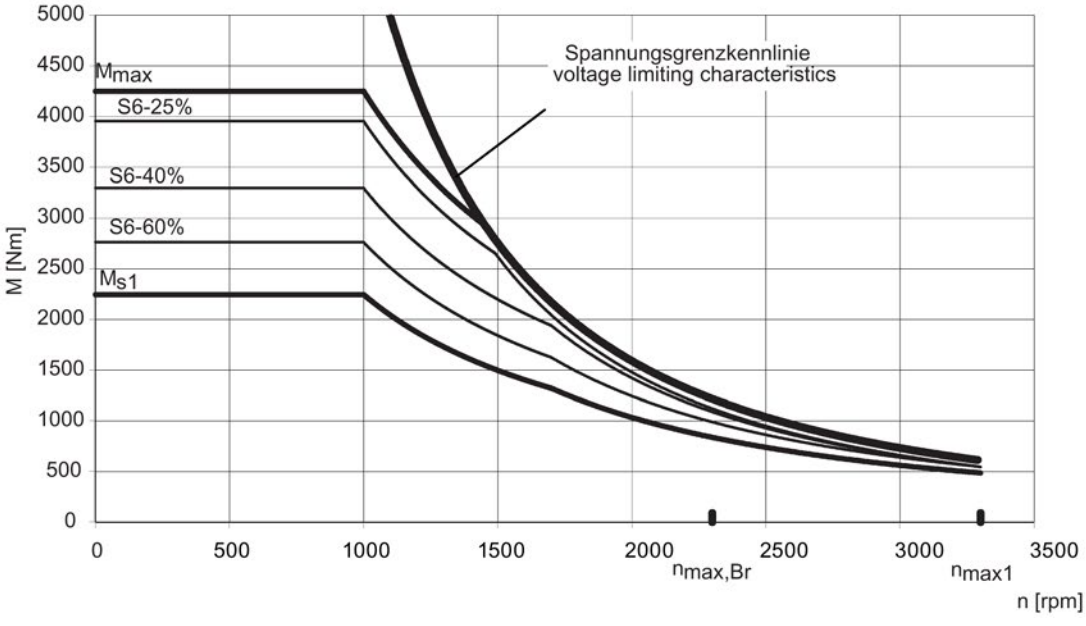
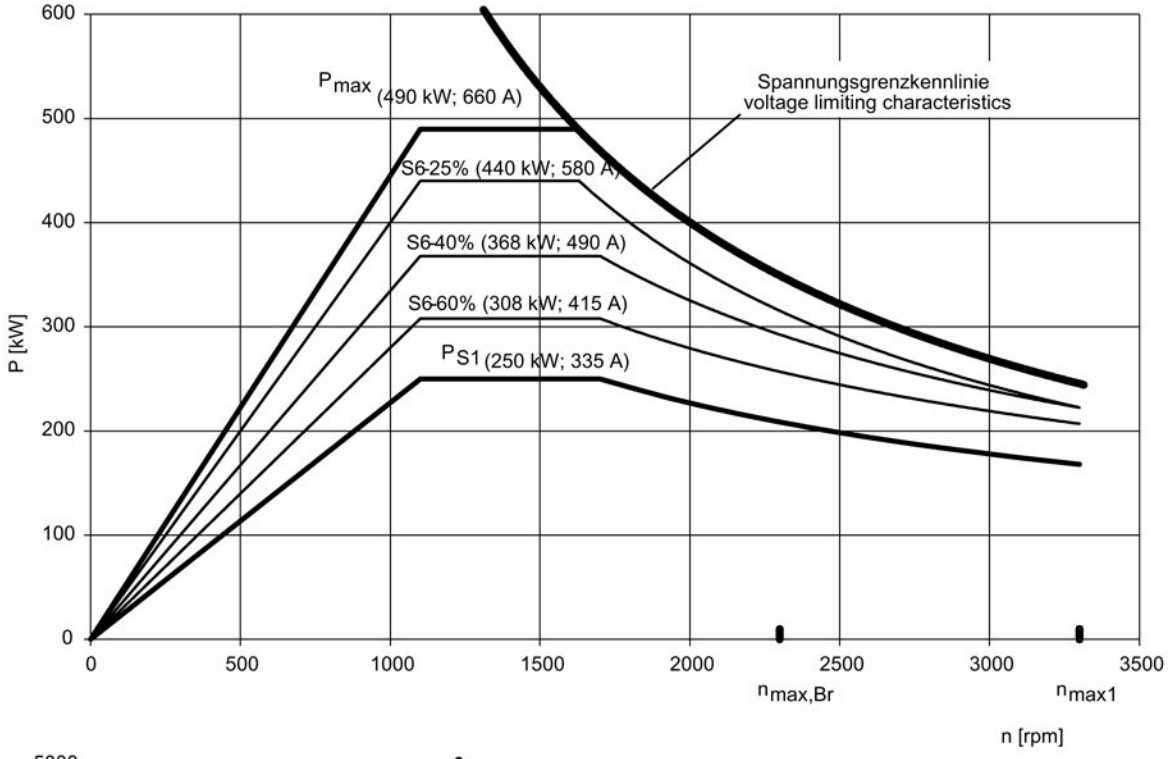


Table 6- 525 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□C4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	250	2,170	335	3,300	-	-	2,300	1,700	4,250	660	2,333	335



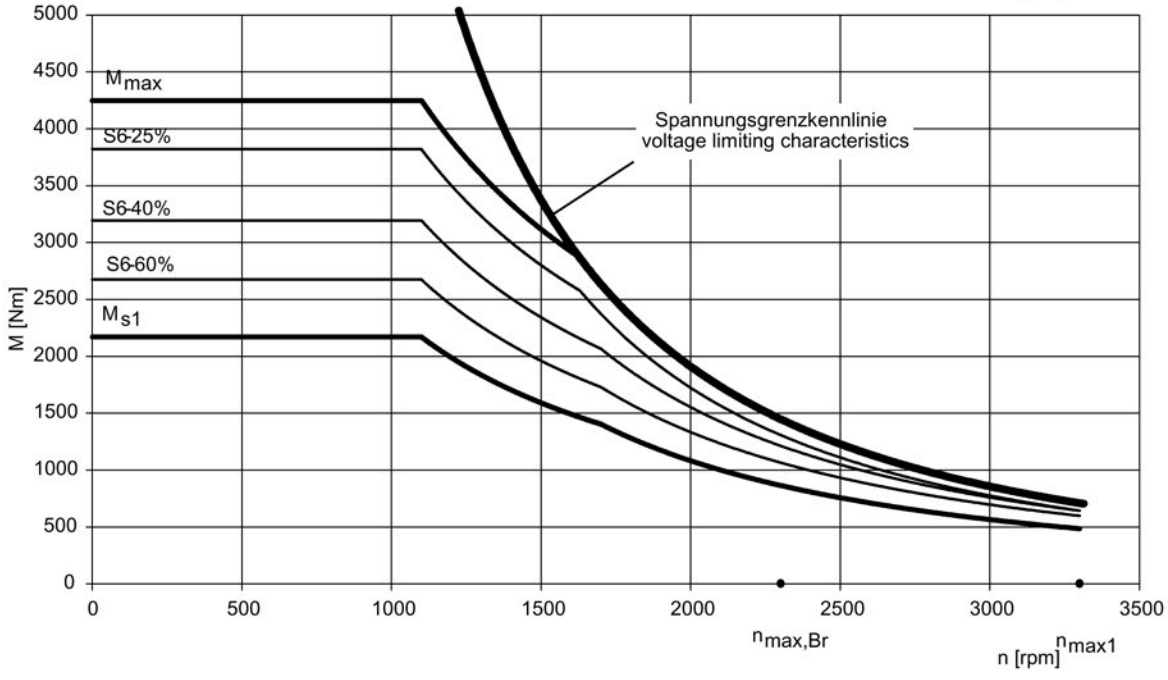
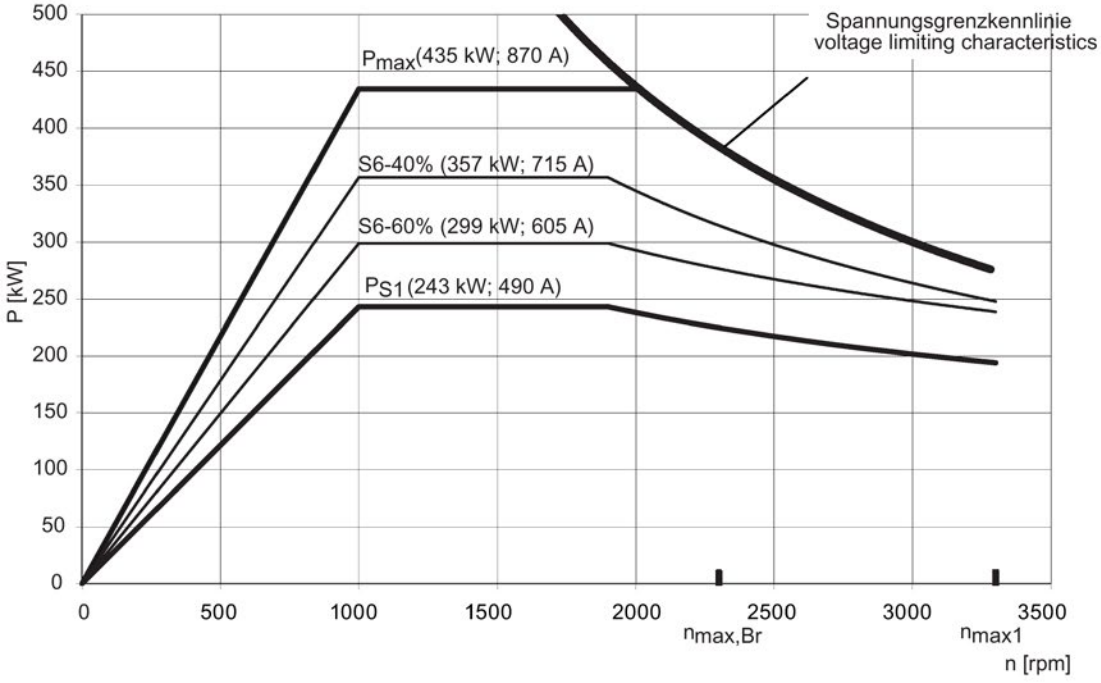


Table 6- 526 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D4□, (IP23)

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]
1,000	243	2,321	490	3,300	-	-	2,300	1,900	4,150	870	2,321	490



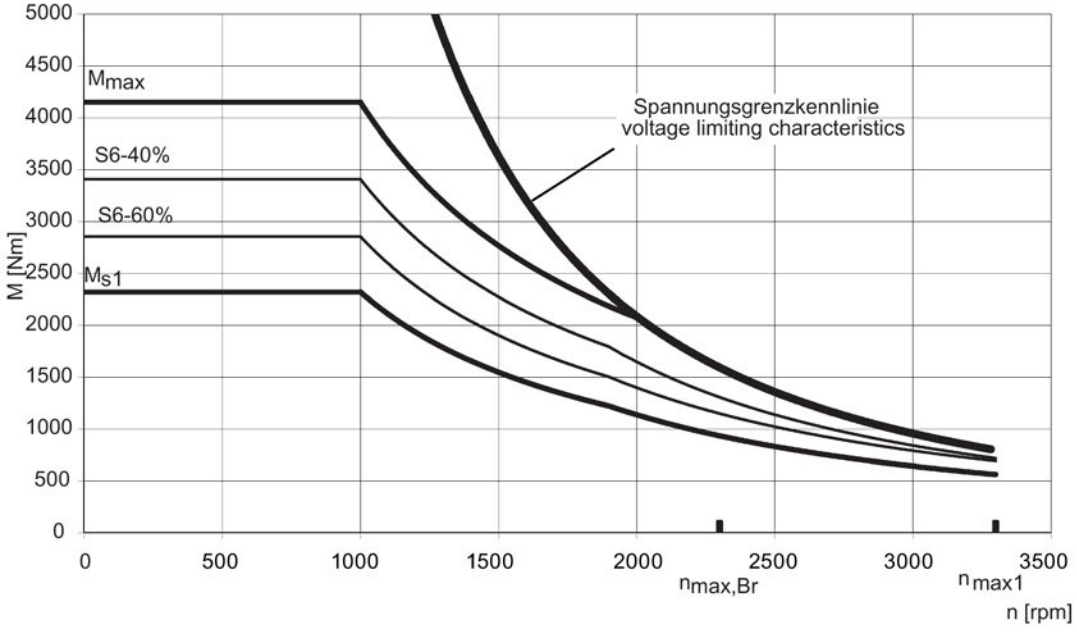
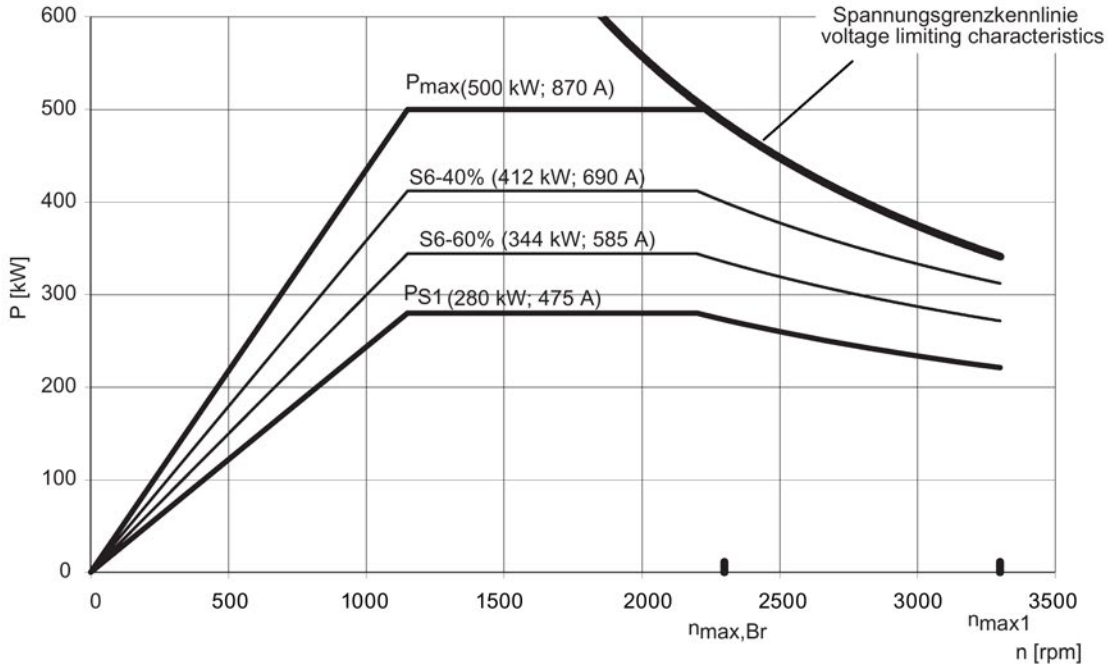


Table 6- 527 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□D4□, (IP23)

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]
1,150	280	2,325	475	3,300	-	-	2,300	2,200	4,150	870	2,325	475
1,000	243	2,321	490					2,800				



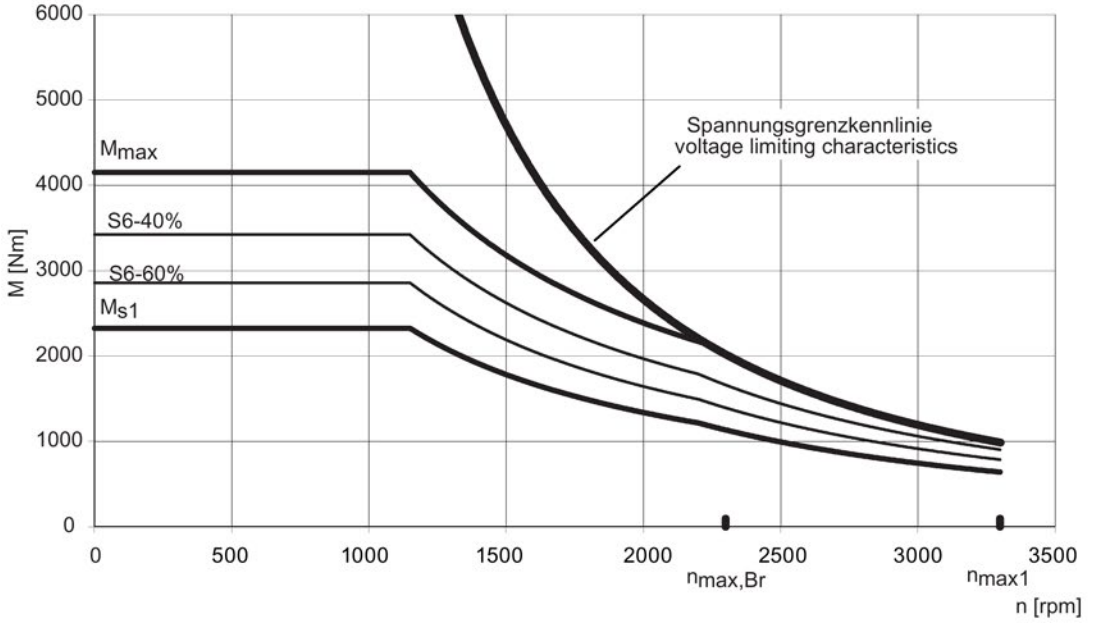
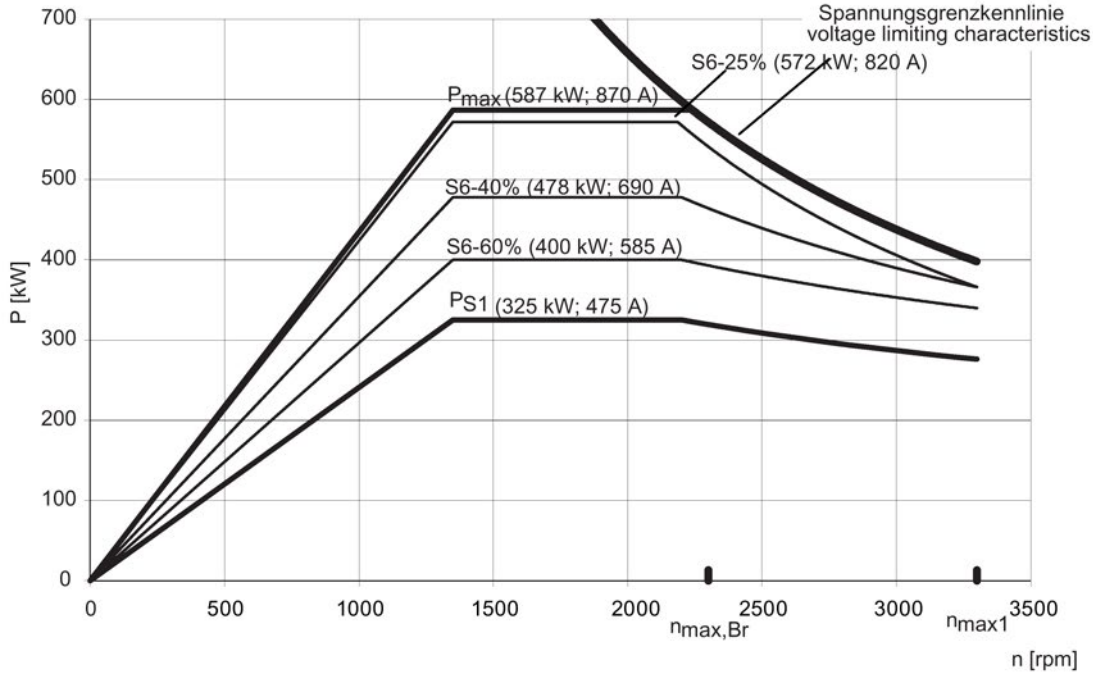


Table 6- 528 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D4□, (IP23)

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]
1,350	325	2,299	475	3,300	-	-	2,300	2,200	4,150	870	2,299	475



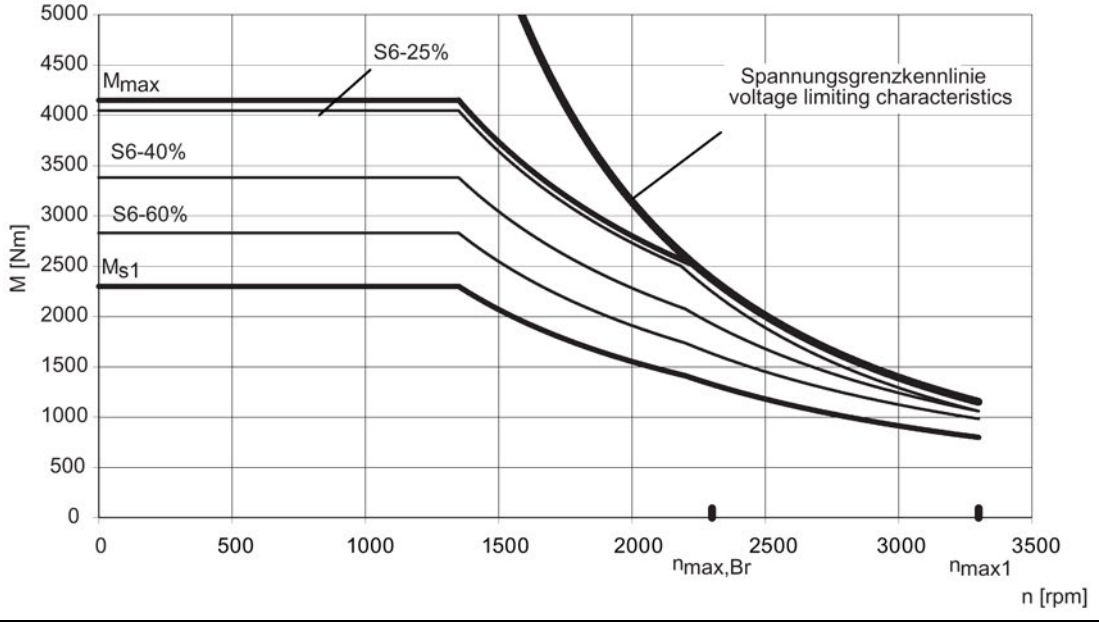
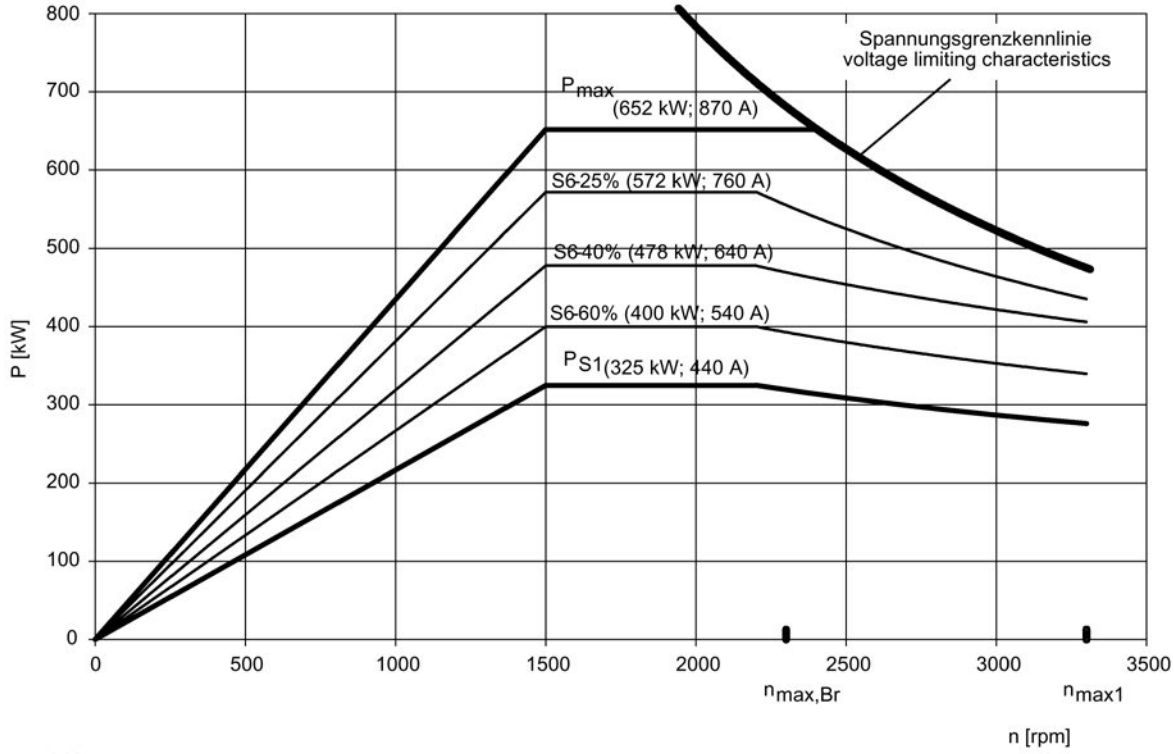


Table 6- 529 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□D4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	325	2,069	440	3,300	-	-	2,300	2,200	4,150	870	2,321	440



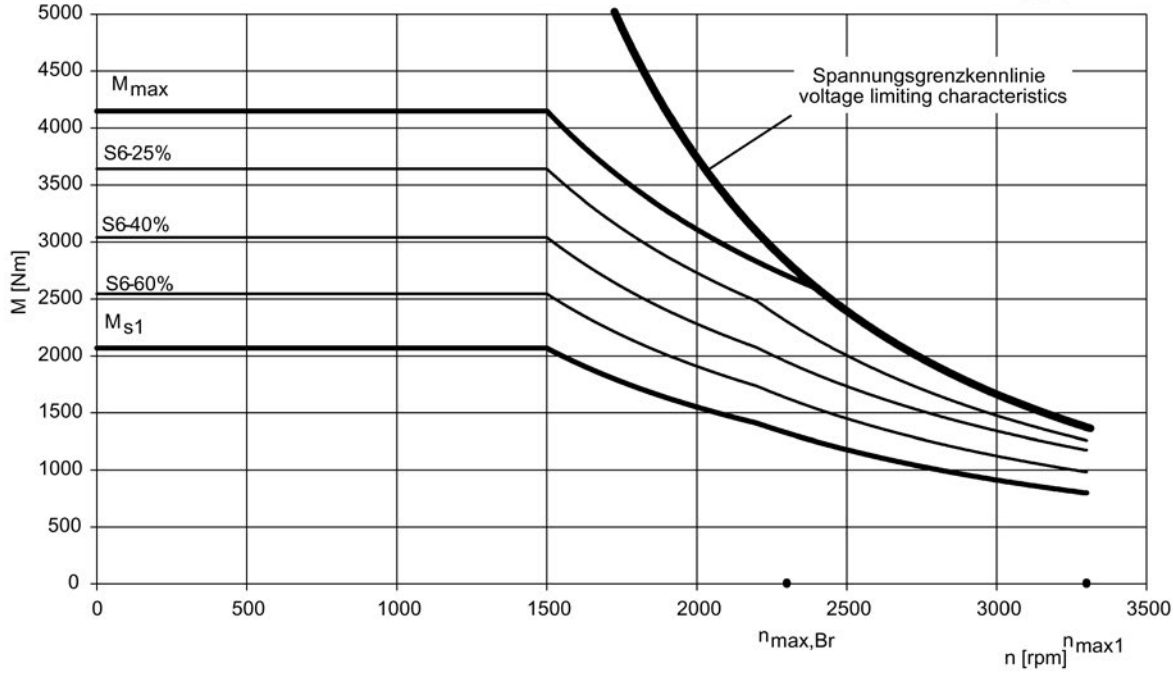
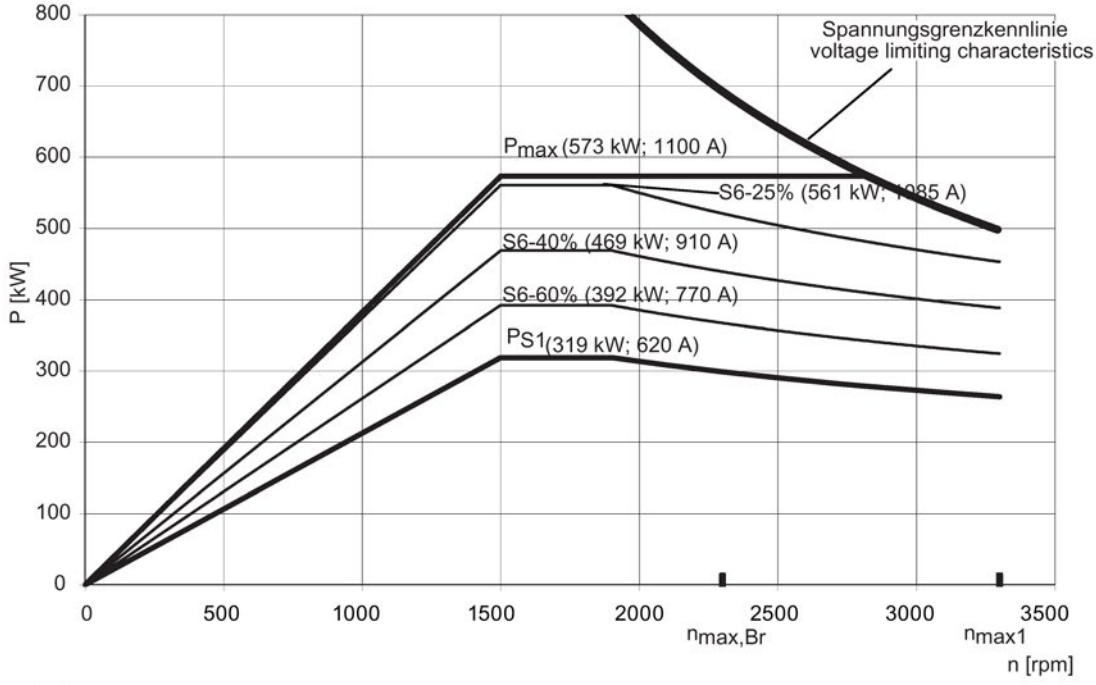


Table 6- 530 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F4□, (IP23)

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]
1,500	319	2,031	620	3,300	-	-	2,300	1,900	3,650	1,100	2,031	620



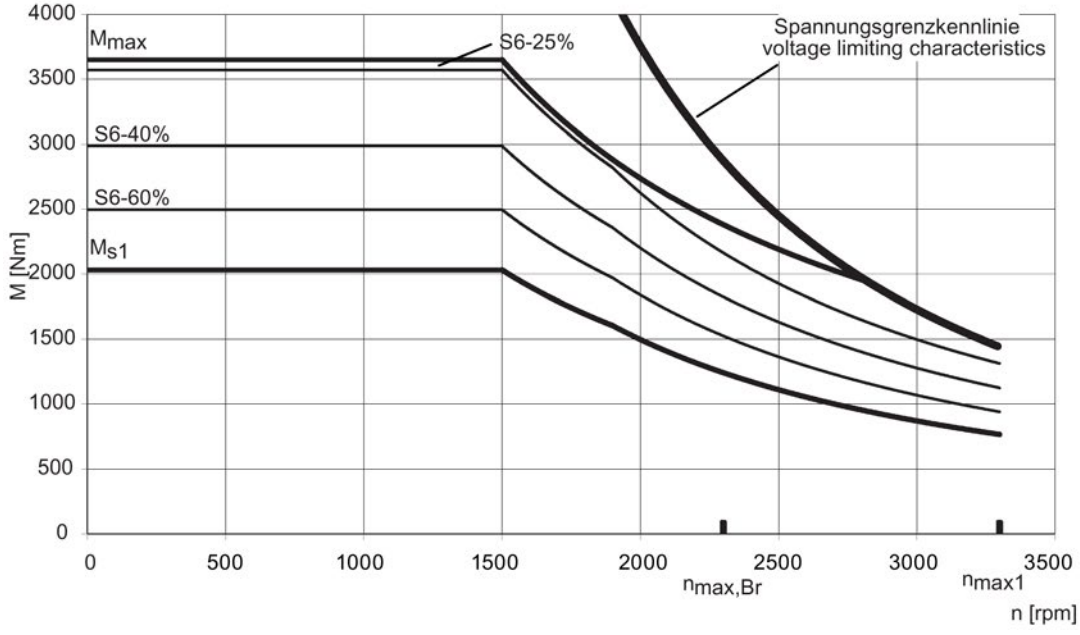
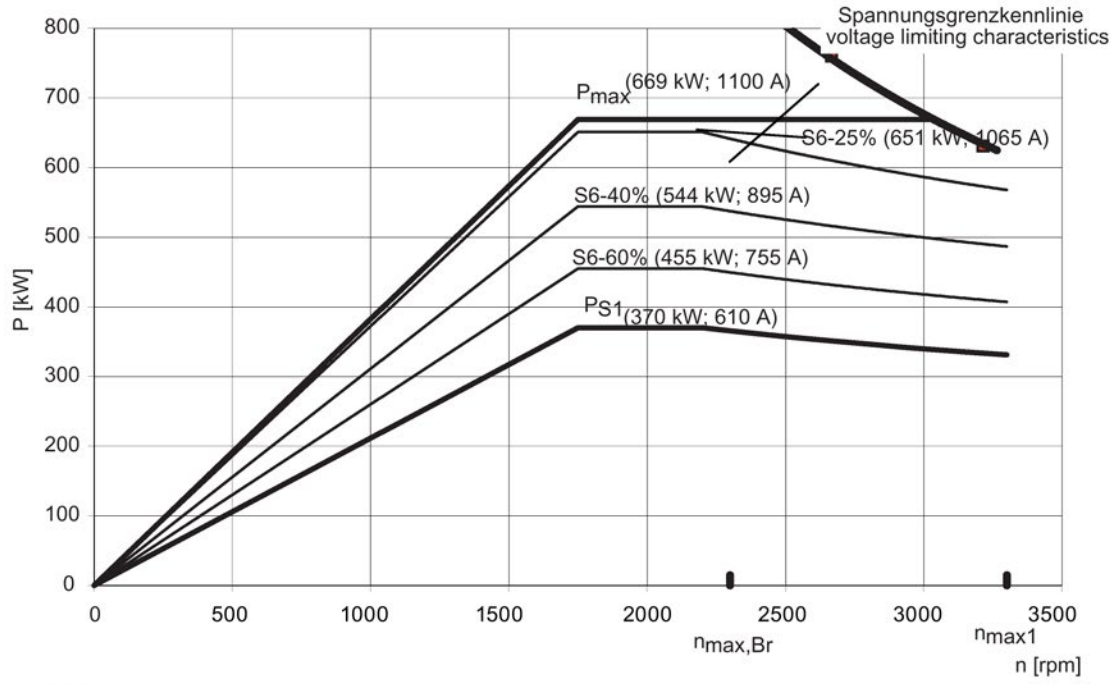


Table 6- 531 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8284-□□F4□, (IP23)

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]
1,750	370	2,019	610	3,300	-	-	2,300	2,200	3,650	1,100	2,019	610
1,500	319	2,031	620					3,300				



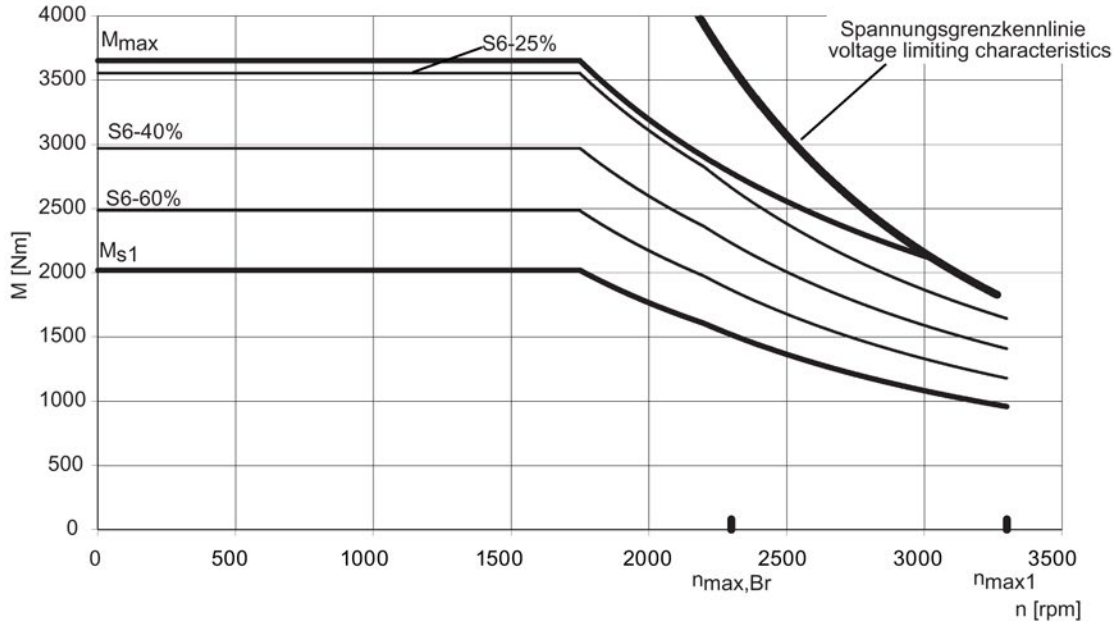
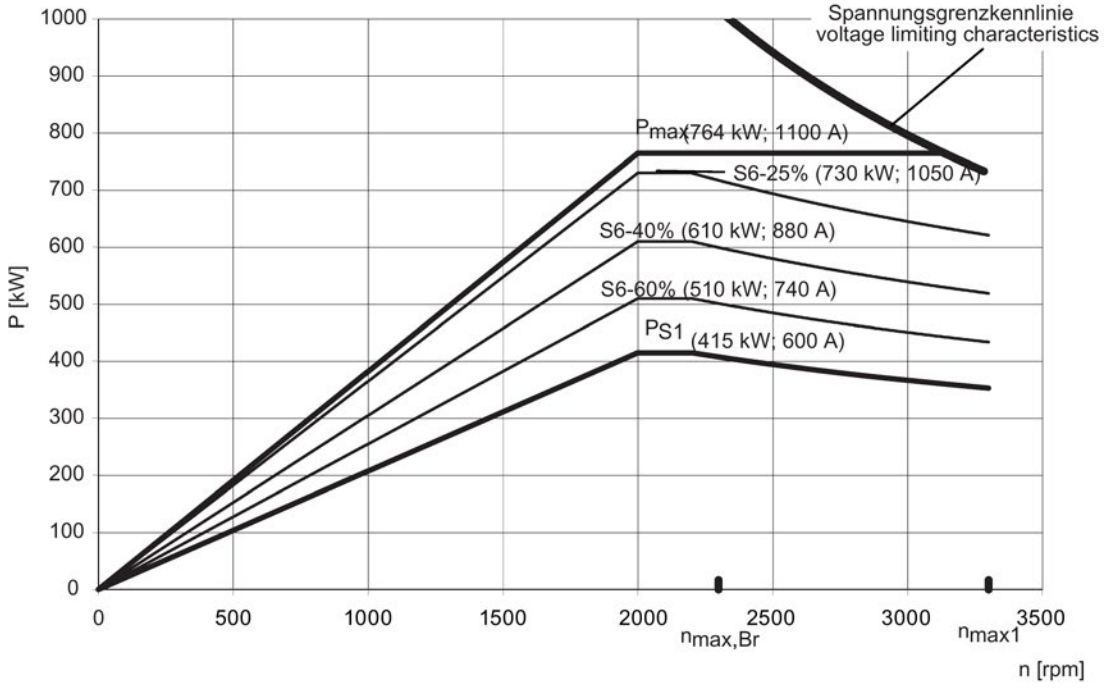


Table 6- 532 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F4□, (IP23)

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]
2,000	415	1,981	600	3,300	-	-	2,300	2,200	3,650	1,100	1,981	600



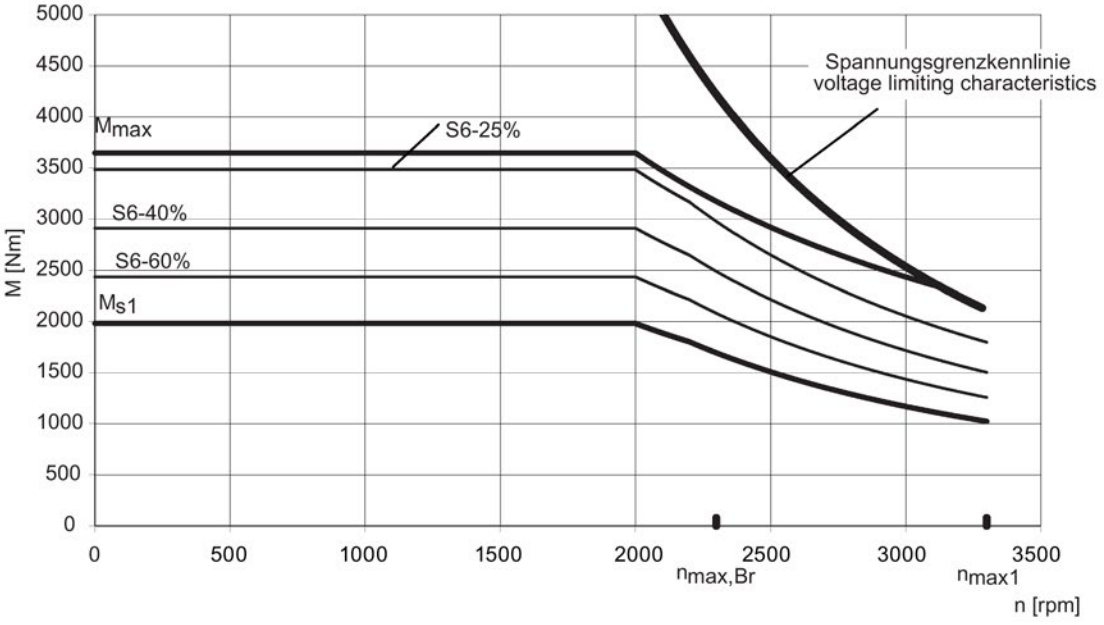
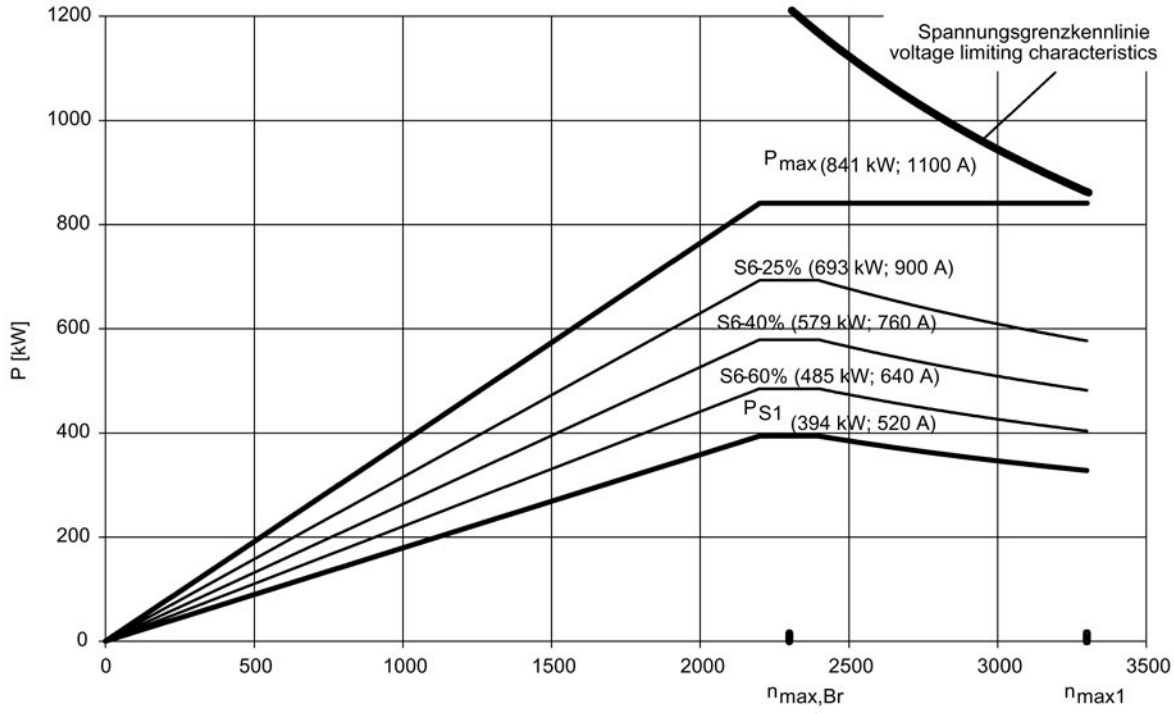


Table 6- 533 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8284-□□F4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	394	1710	520	3,300	-	-	2,300	2,400	3,650	1,100	2,031	520



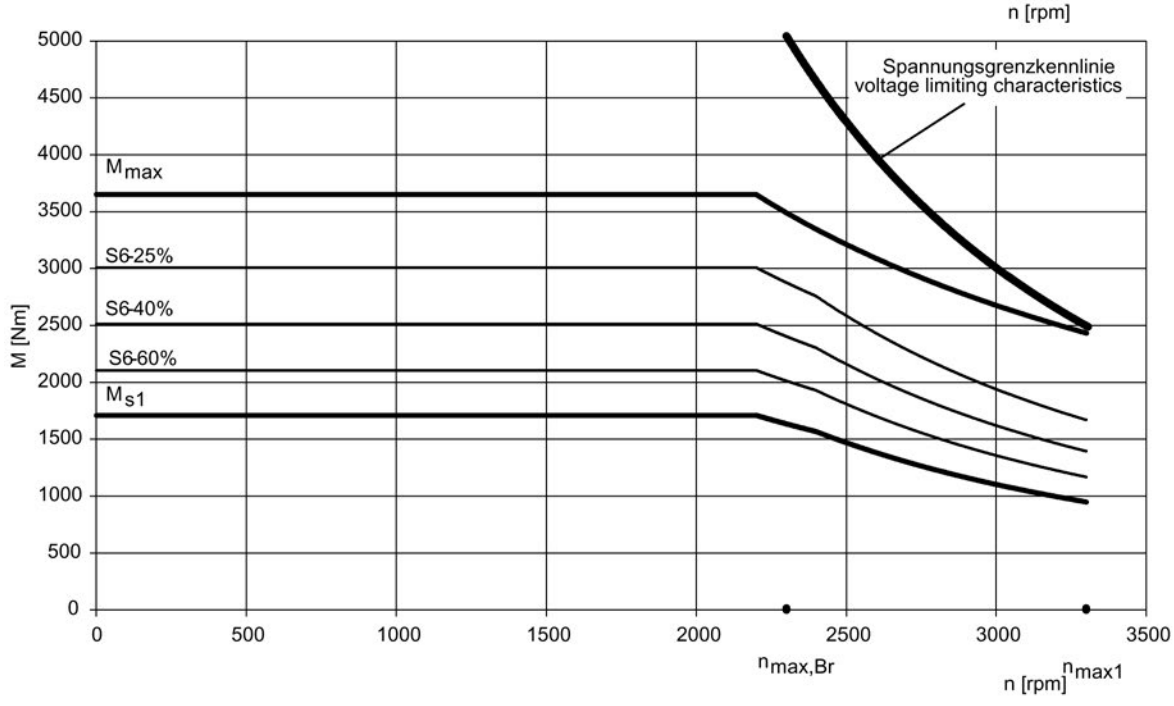
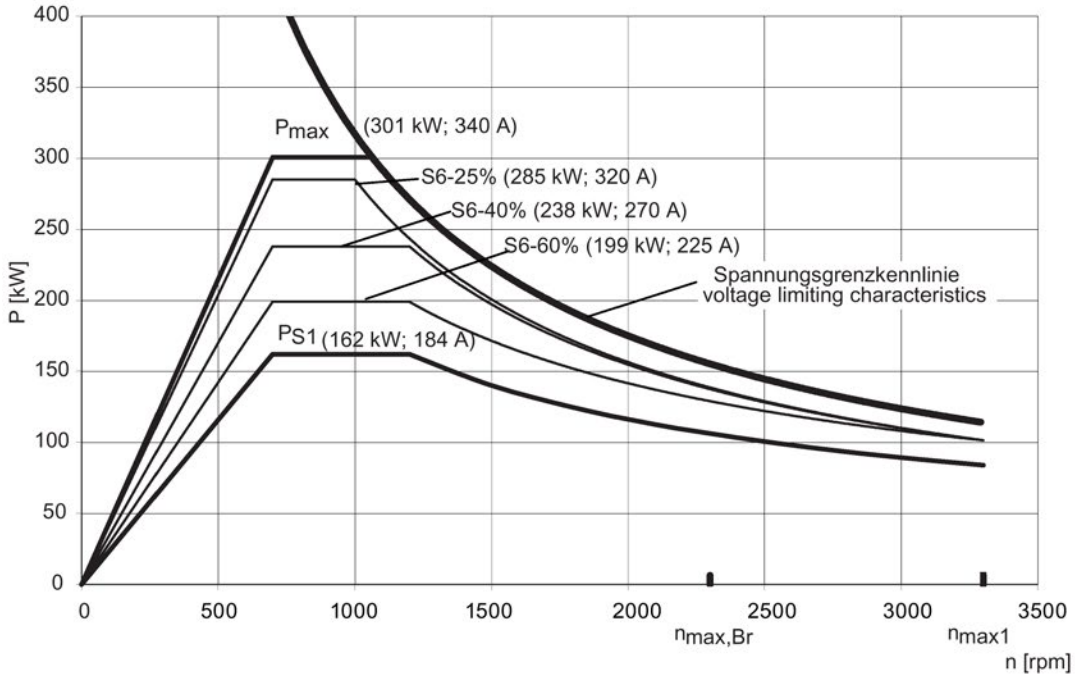


Table 6- 534 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□K4□, (IP23)

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	2,210	184	3,300	-	-	2,300	1,200	4,100	340	2,210	184



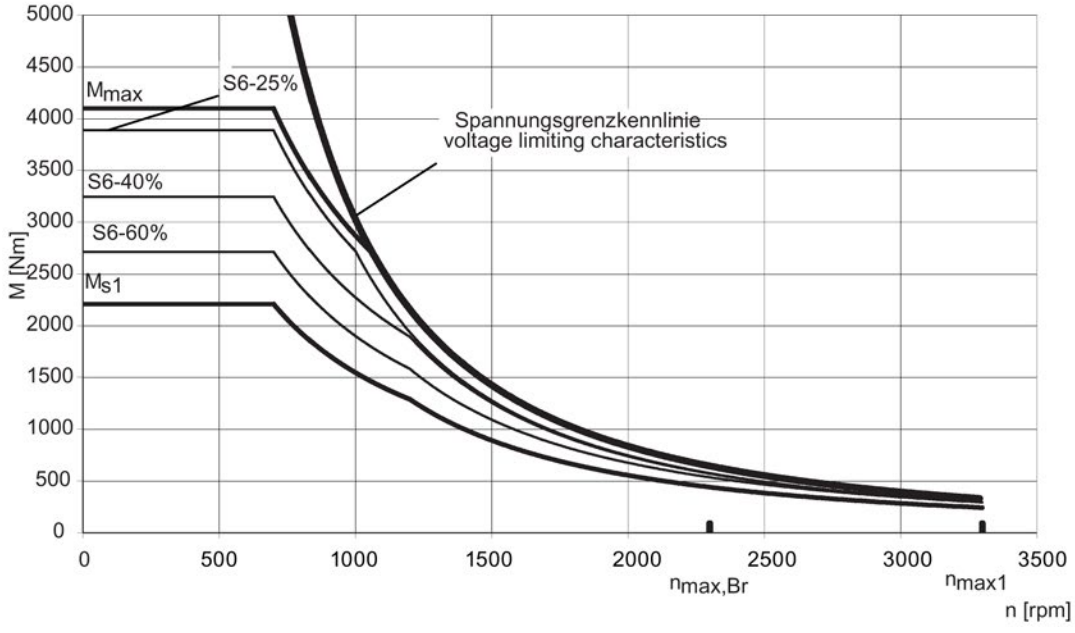
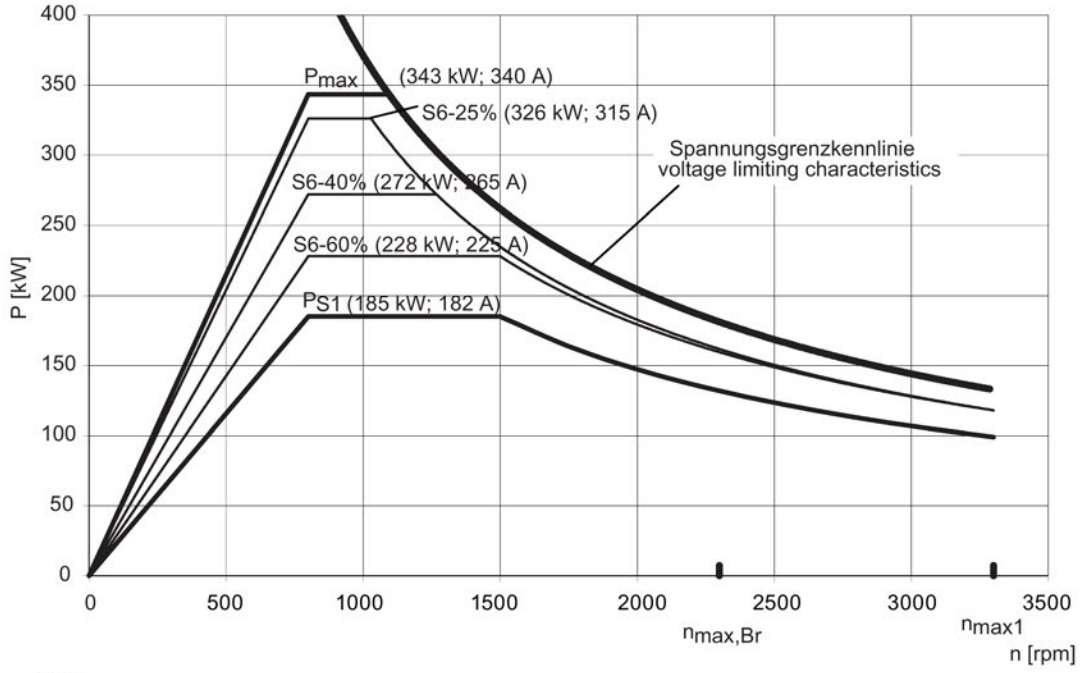


Table 6- 535 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□K4□, (IP23)

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	2,208	182	3,300	-	-	2,300	1,500	4,100	340	2,208	182
700	162	2,210	184					1,800				



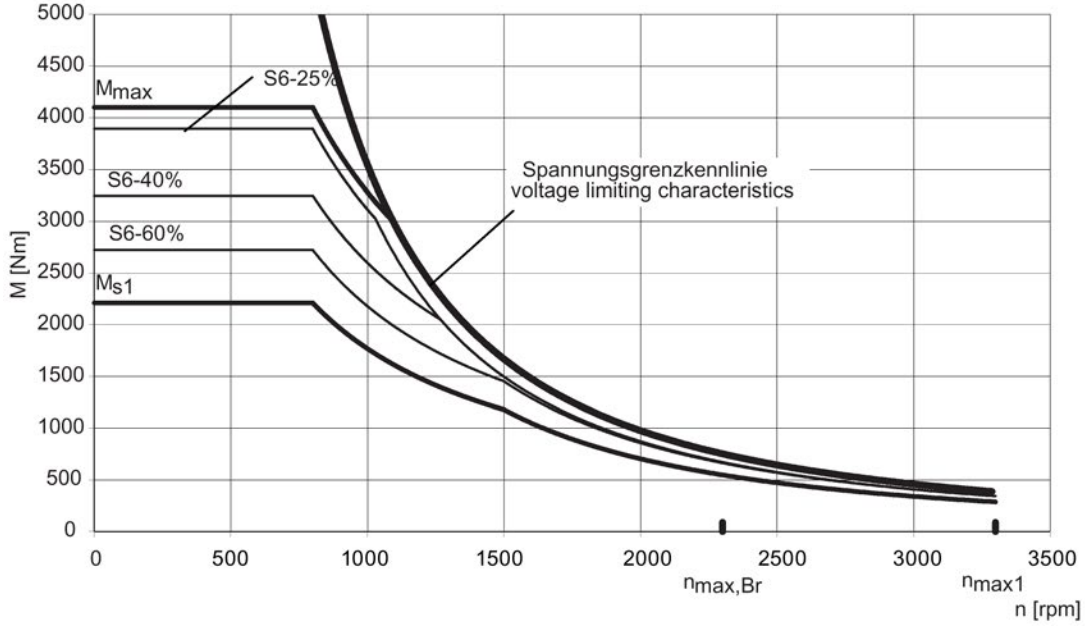
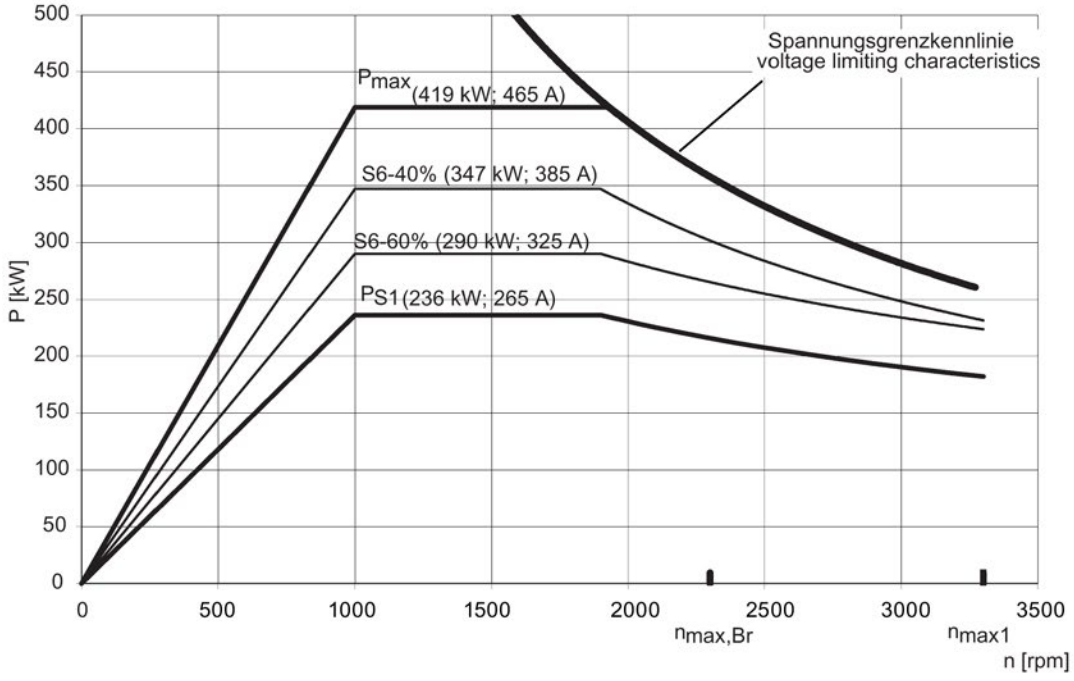


Table 6- 536 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□U4□, (IP23)

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]
1,000	236	2,254	265	3,300	-	-	2,300	1,900	4,000	465	2,254	265



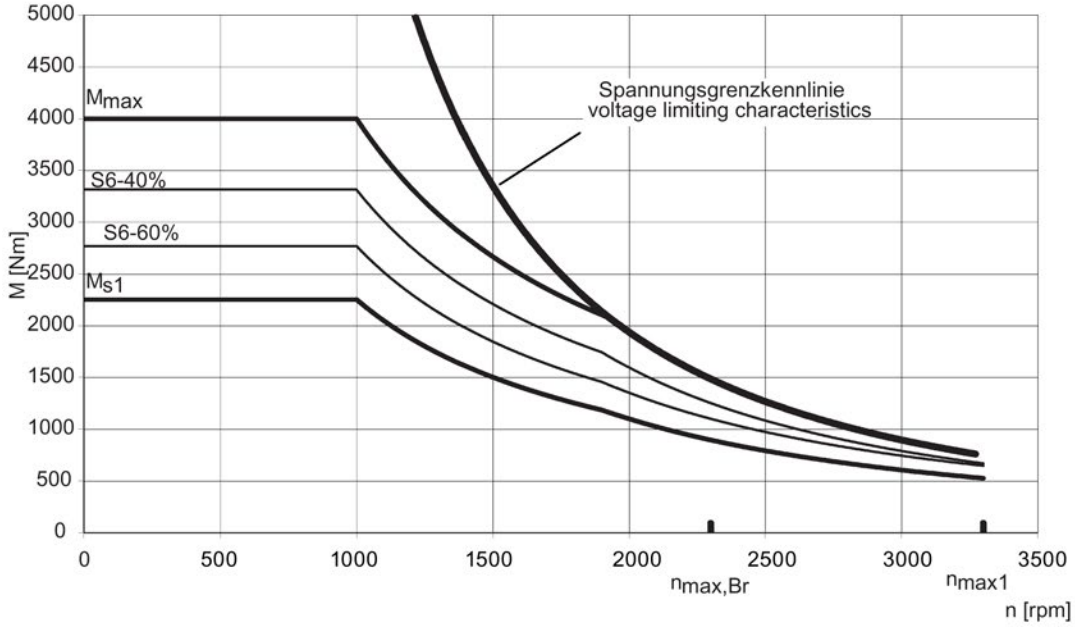
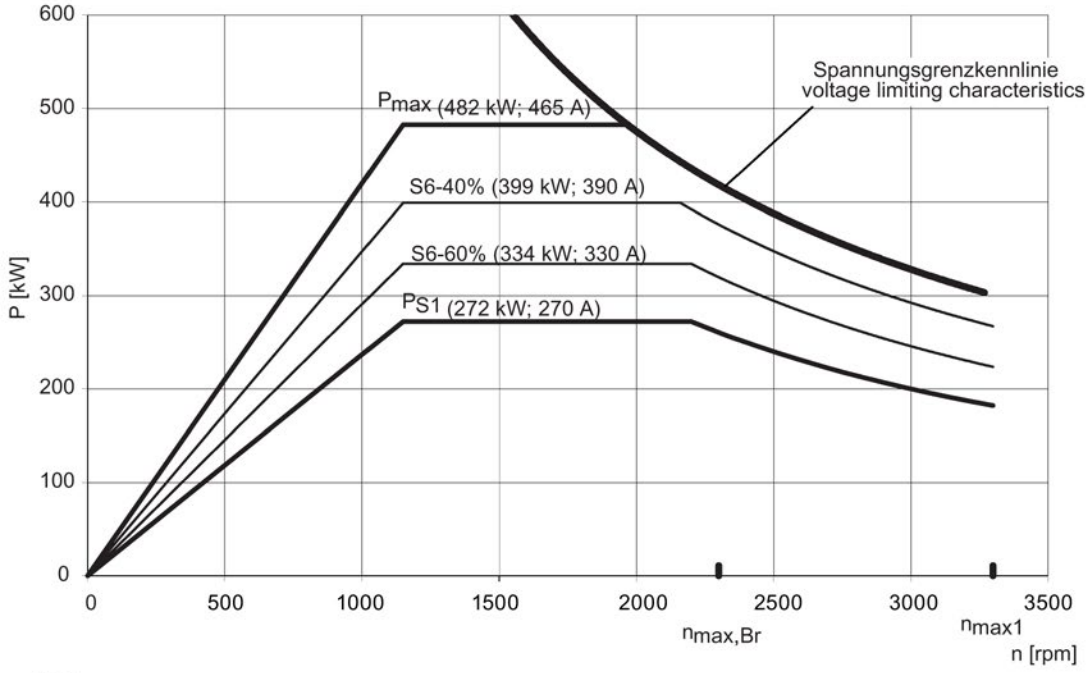


Table 6- 537 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□U4□, (IP23)

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]
1,150	272	2,255	270	3,300	-	-	2,300	2,200	4,000	465	2,255	270
1,000	236	2,254	265					2,500				



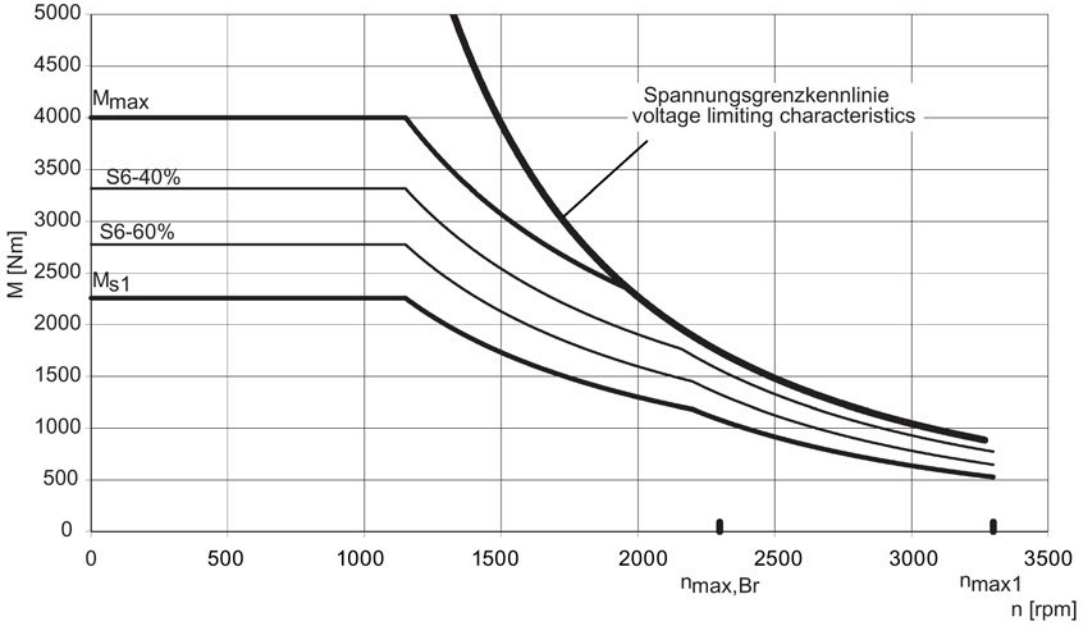
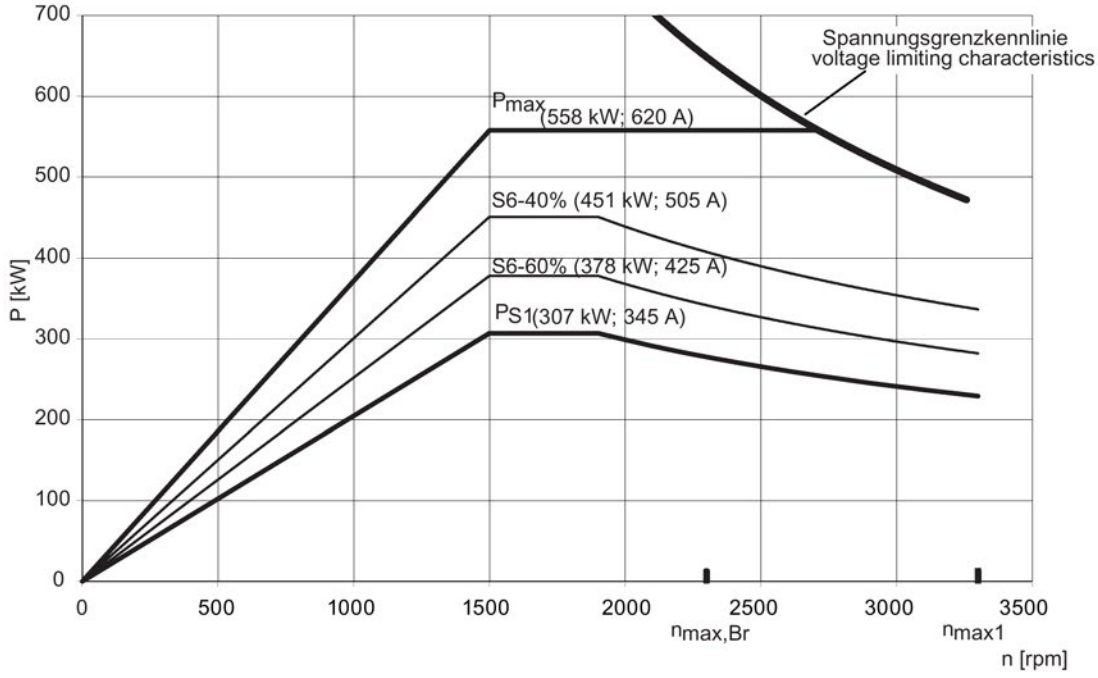


Table 6- 538 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8284-□□W4□, (IP23)

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]
1,500	307	1,955	345	3,300	-	-	2,300	1,900	3,550	620	1,955	345



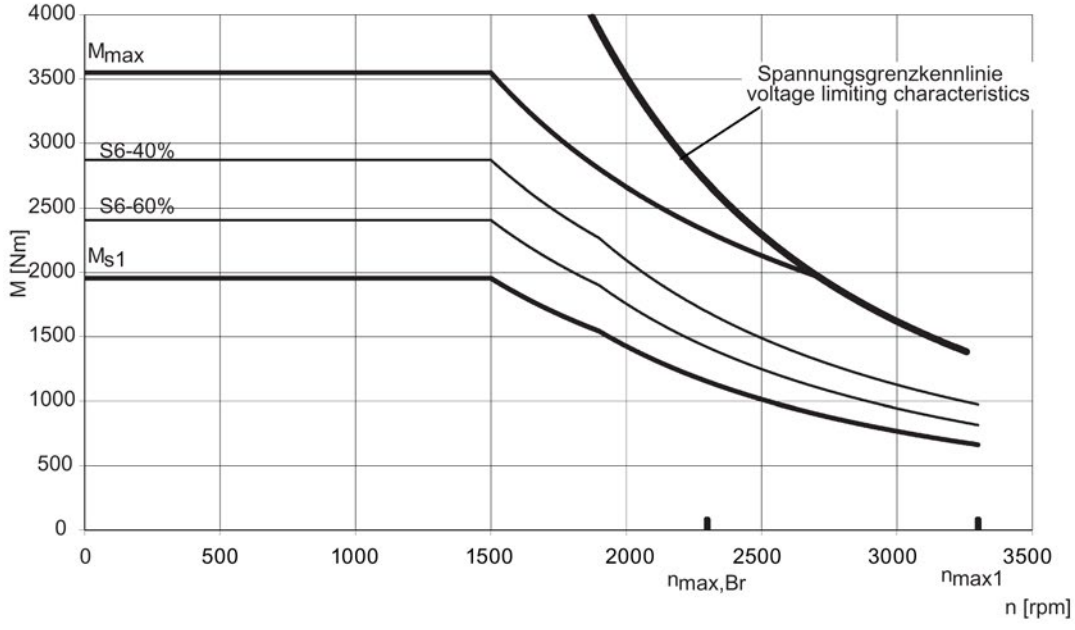
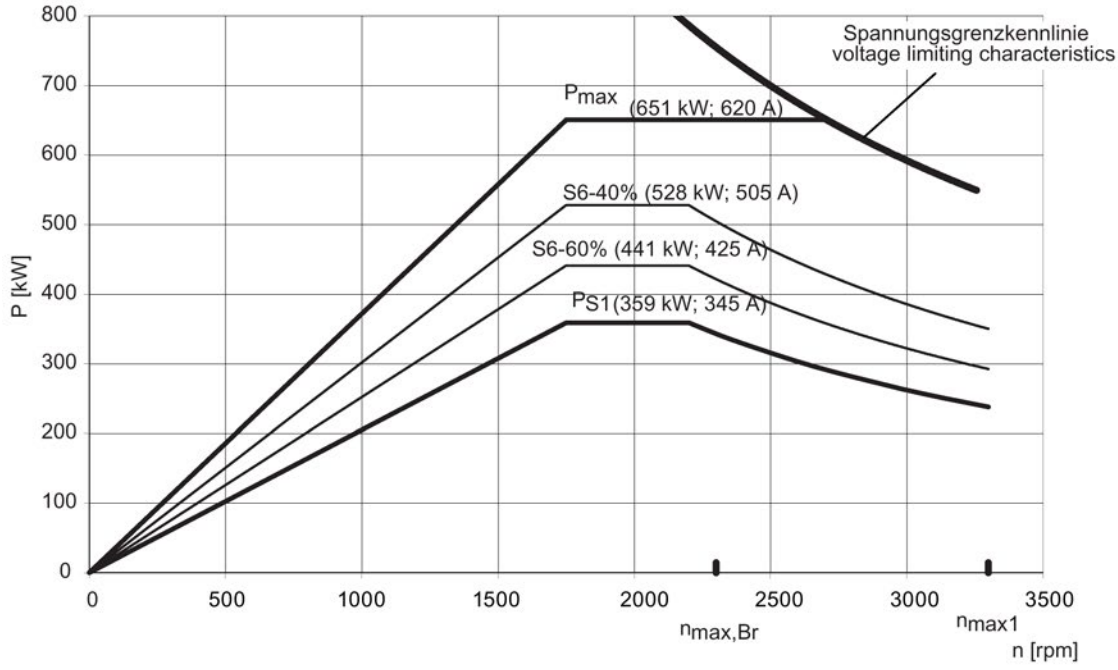


Table 6- 539 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8284-□□W4□, (IP23)

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]
1,750	359	1,959	345	3,300	-	-	2,300	2,200	3,550	620	1,959	345
1,500	307	1,955	345					2,600				



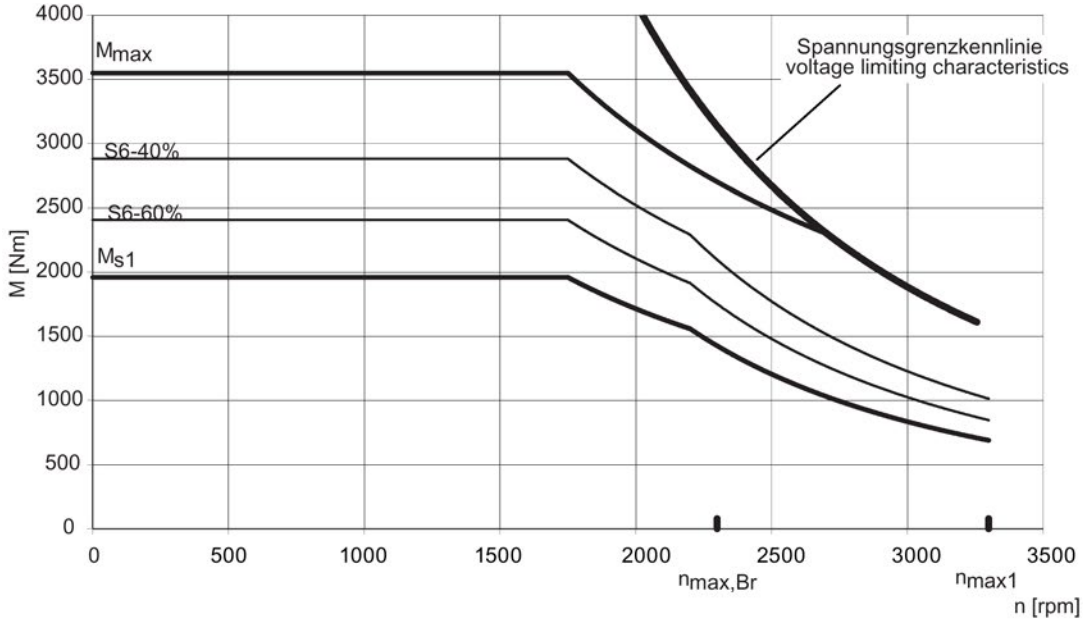
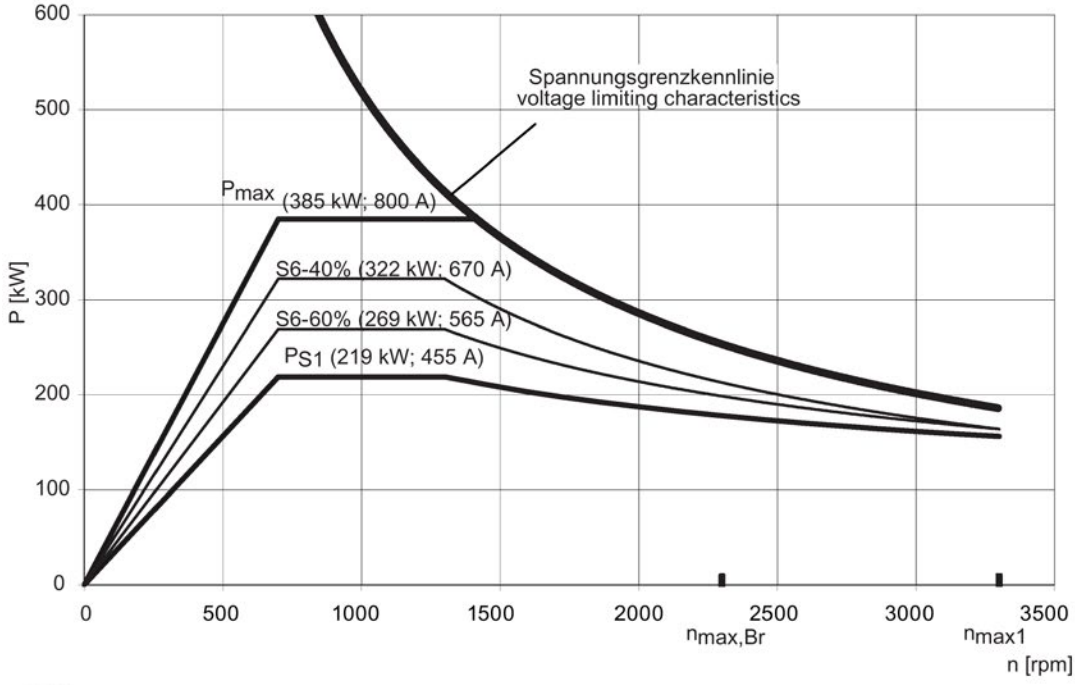


Table 6- 540 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C4□, (IP23)

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	2,988	455	3,300	-	-	2,300	1,300	5,250	800	2,988	455



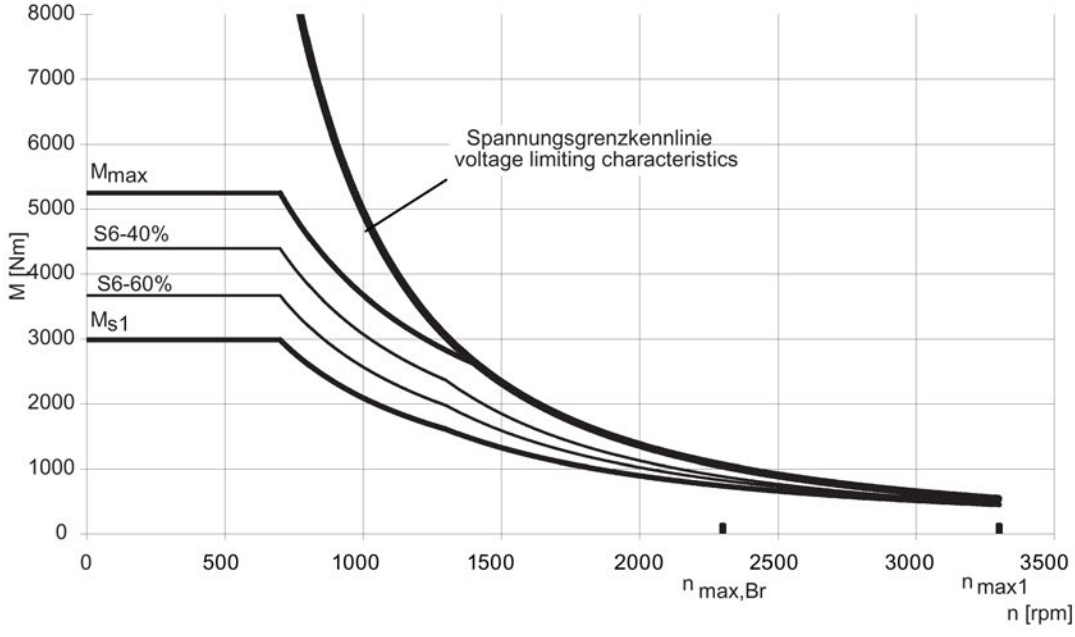
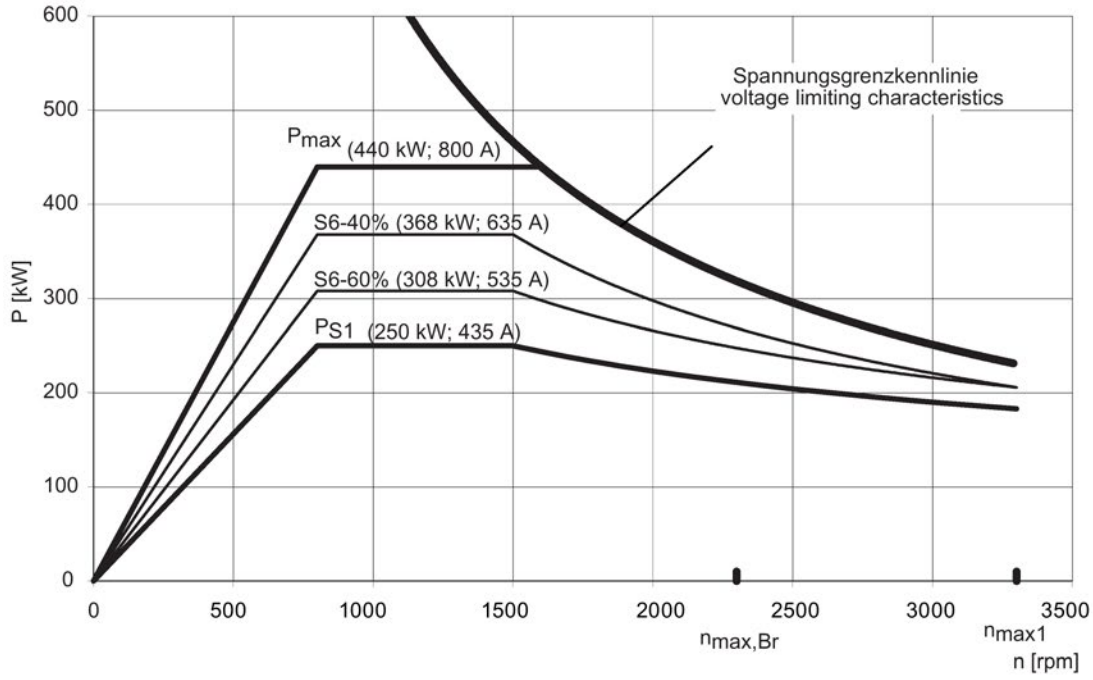


Table 6- 541 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□C4□, (IP23)

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	2,984	435	3,300	-	-	2,300	1,500	5,250	800	2,984	435
700	219	2,988	455					2,100				



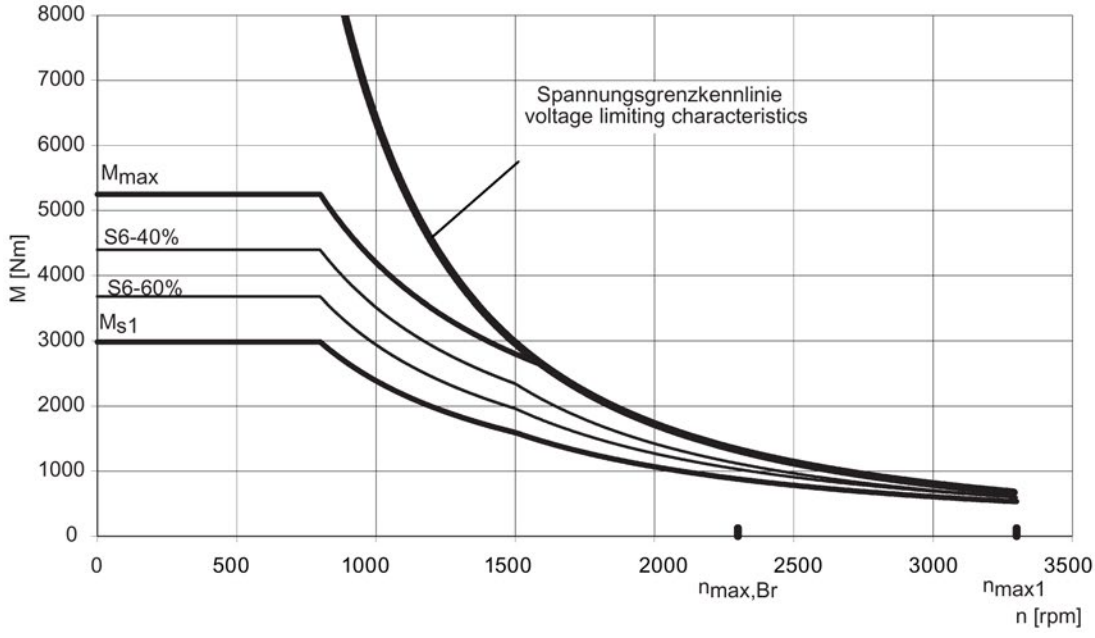
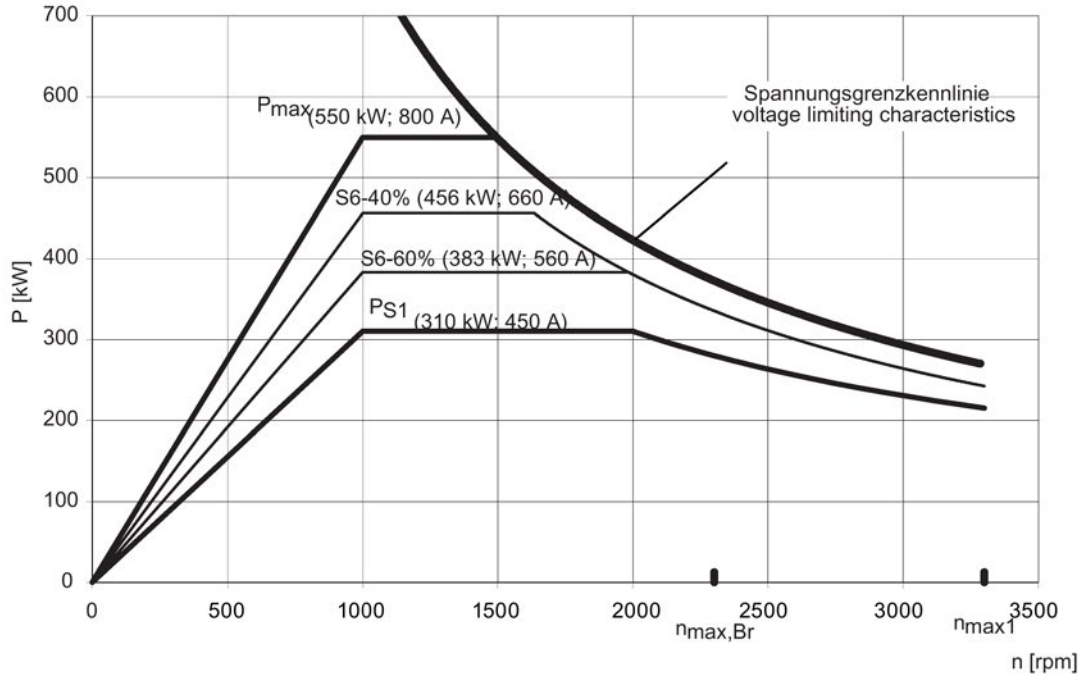


Table 6- 542 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C4□, (IP23)

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]
1,000	310	2,961	450	3,300	-	-	2,300	2,000	5,250	800	2,961	450



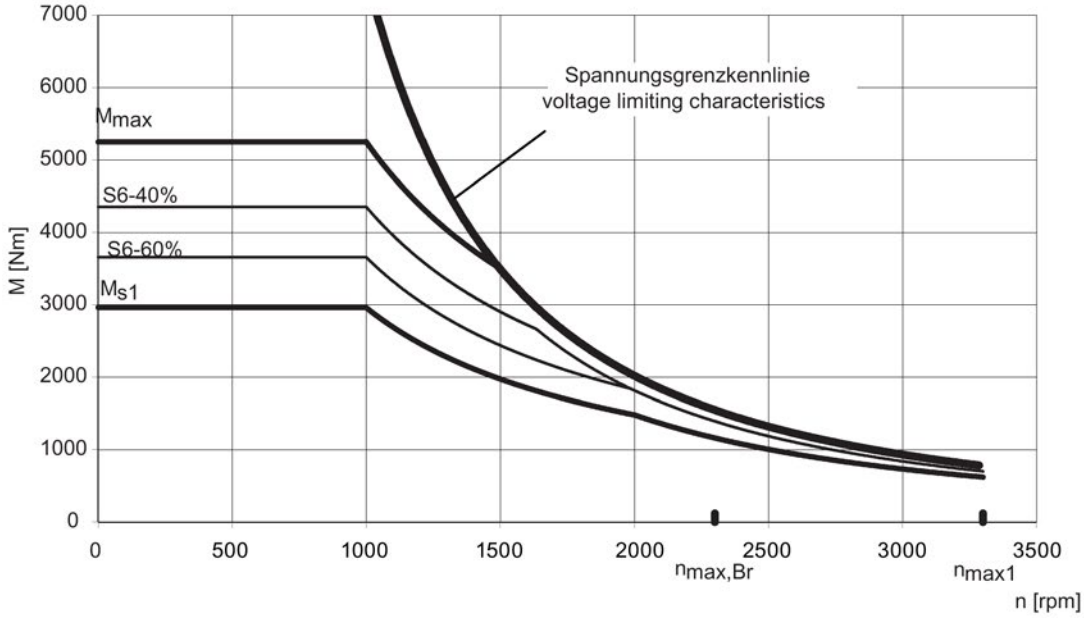
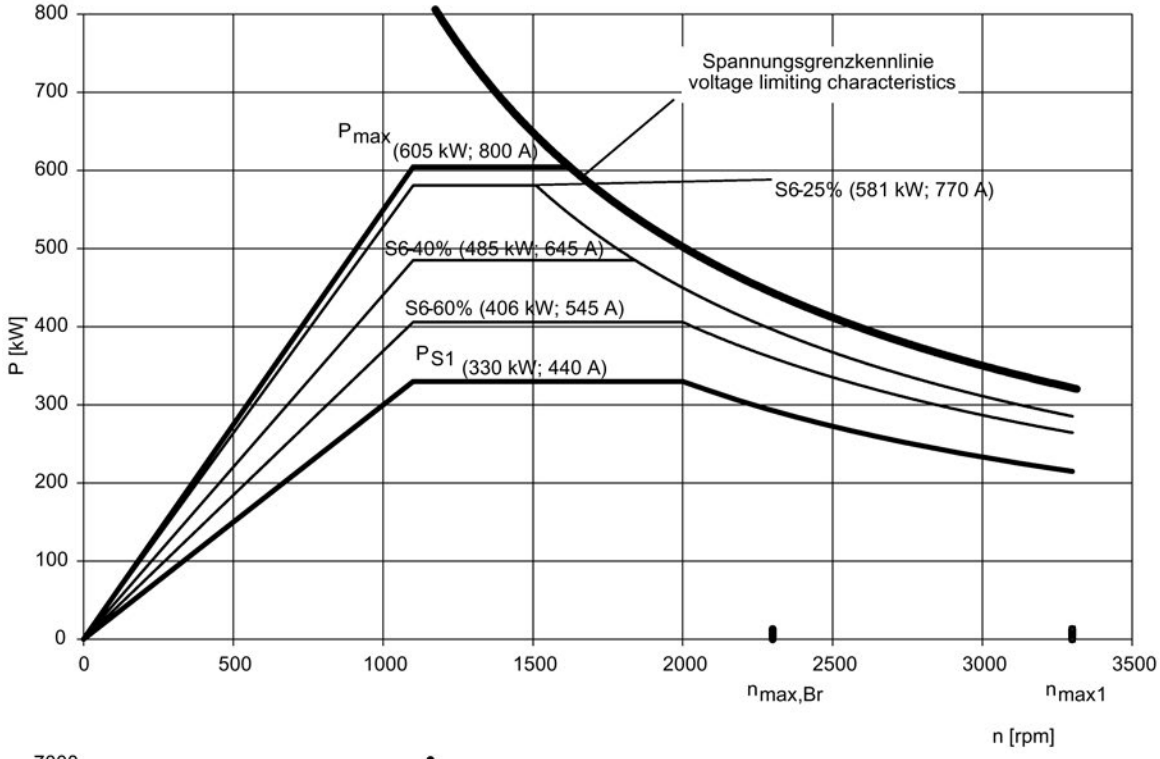


Table 6- 543 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□C4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	330	2,865	440	3,300	-	-	2,300	2,000	5,250	800	2,988	440



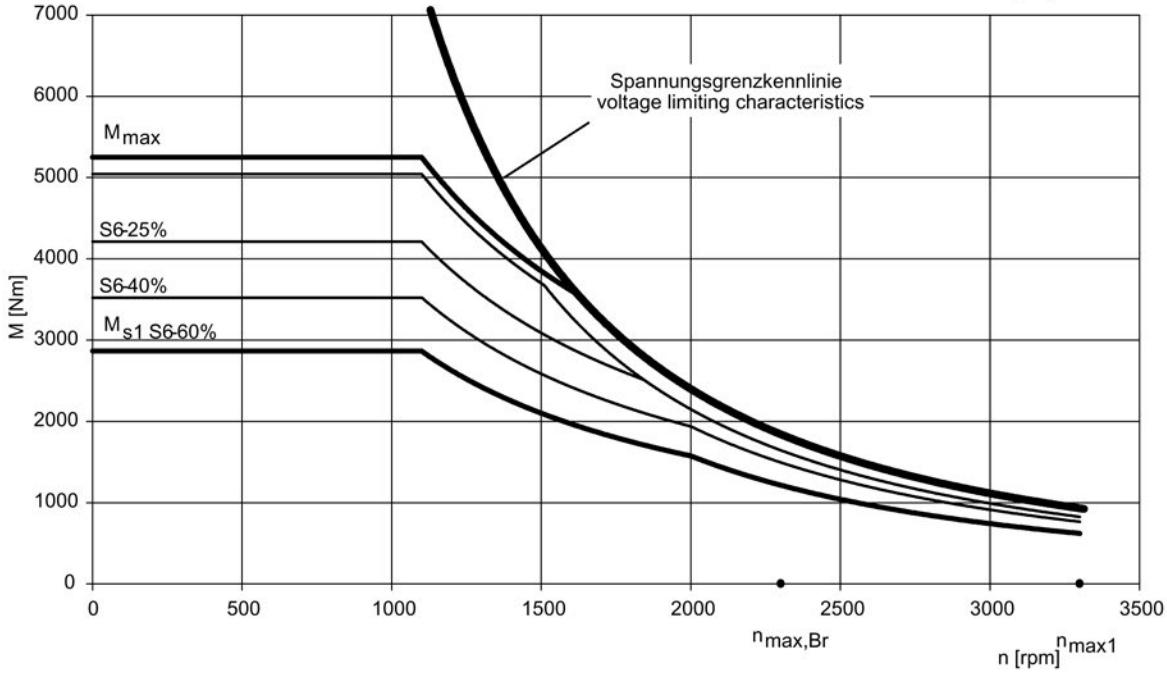
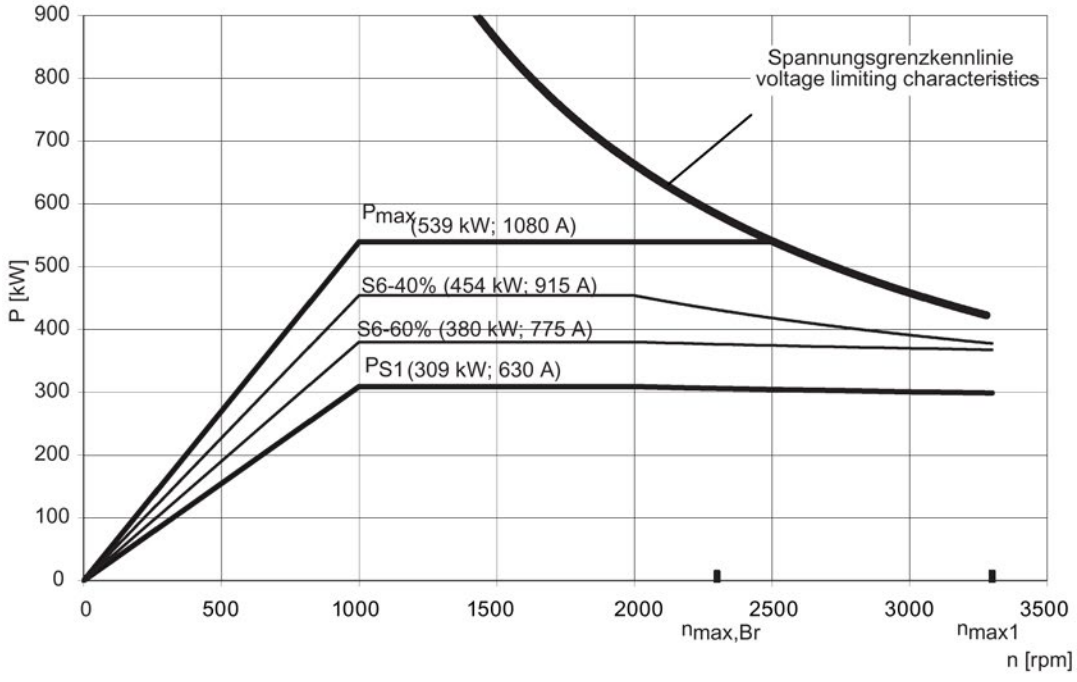


Table 6- 544 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D4□, (IP23)

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]
1,000	309	2,951	630	3,300	-	-	2,300	2,000	5,150	1,080	2,951	630



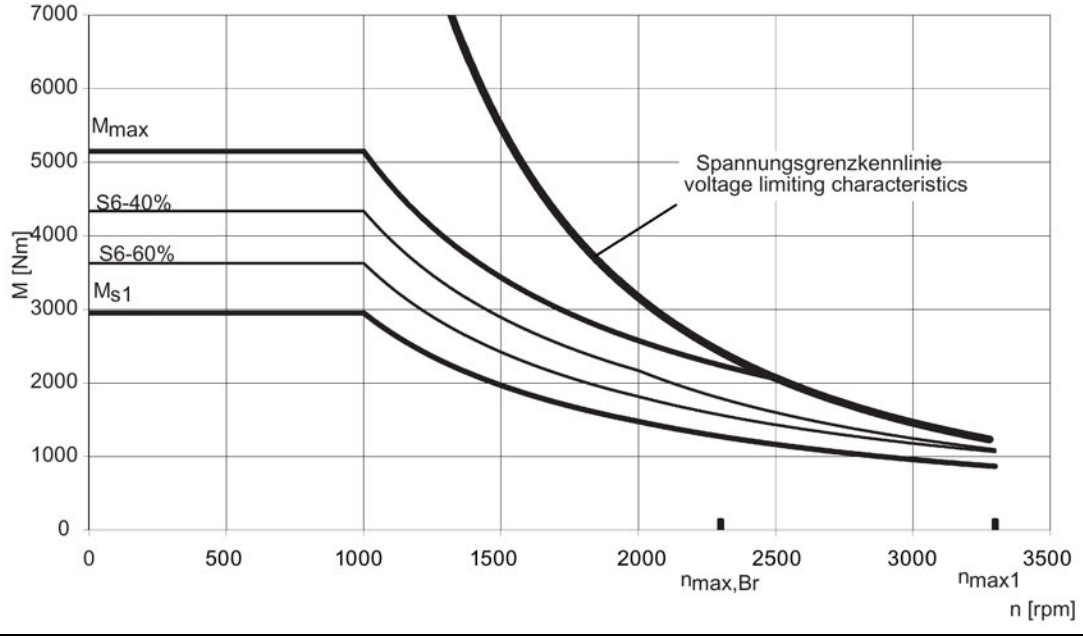
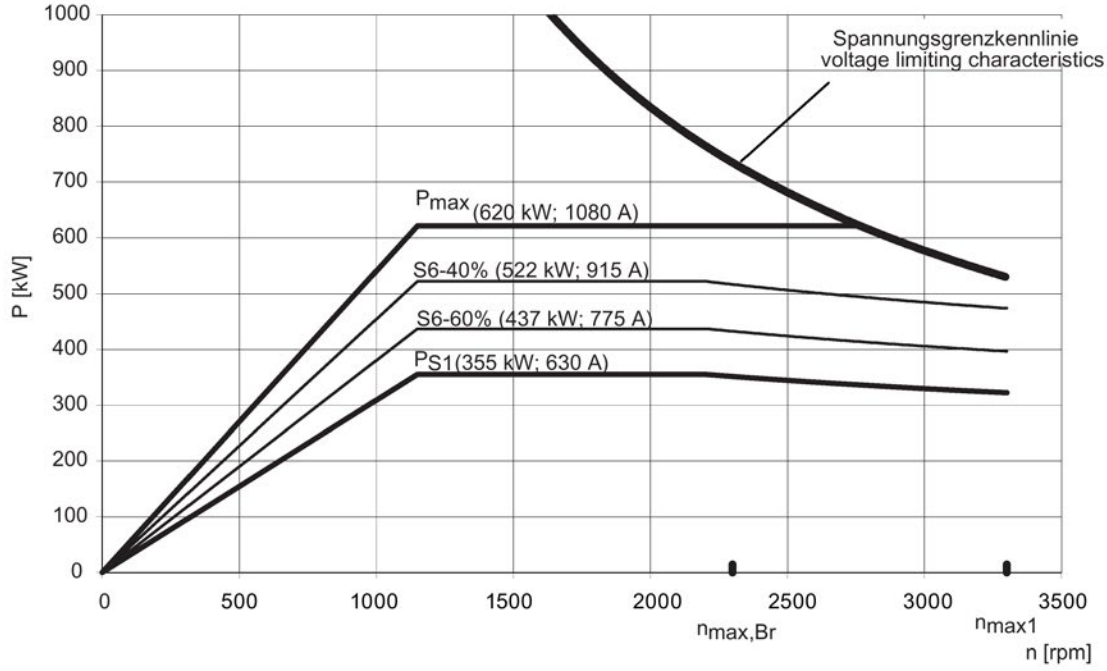


Table 6- 545 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□D4□, (IP23)

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]
1,150	355	2,944	630	3,300	-	-	2,300	2,200	5,150	1,080	2,944	630
1,000	309	2,951	630					3,300				



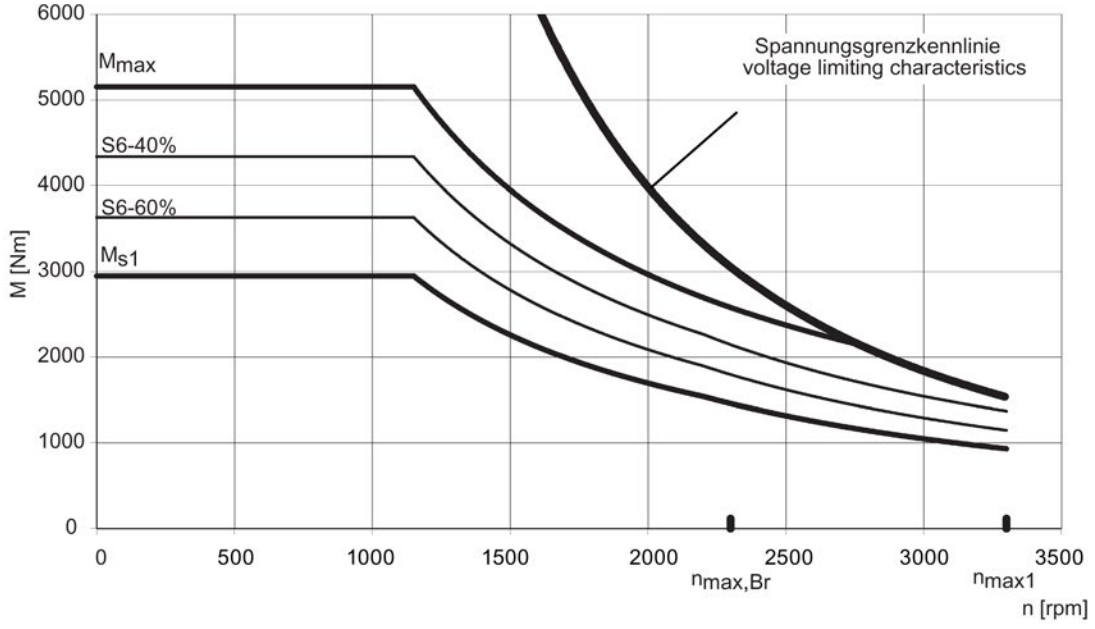
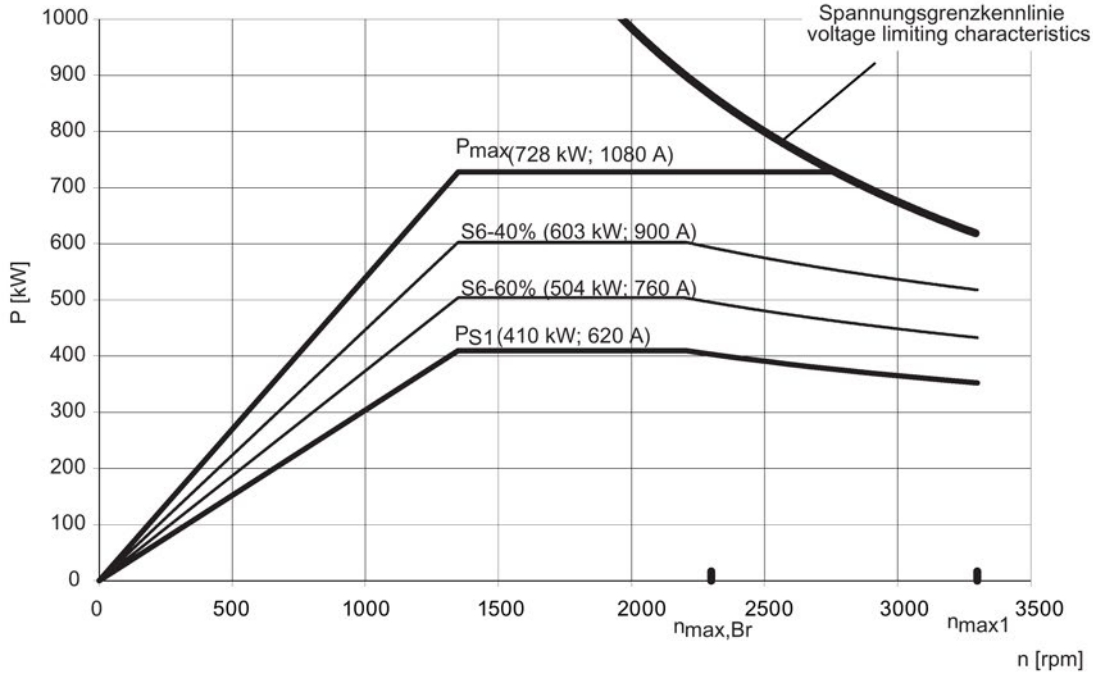


Table 6- 546 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D4□, (IP23)

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]
1,350	410	2,901	620	3,300	-	-	2,300	2,200	5,150	1,080	2,901	620



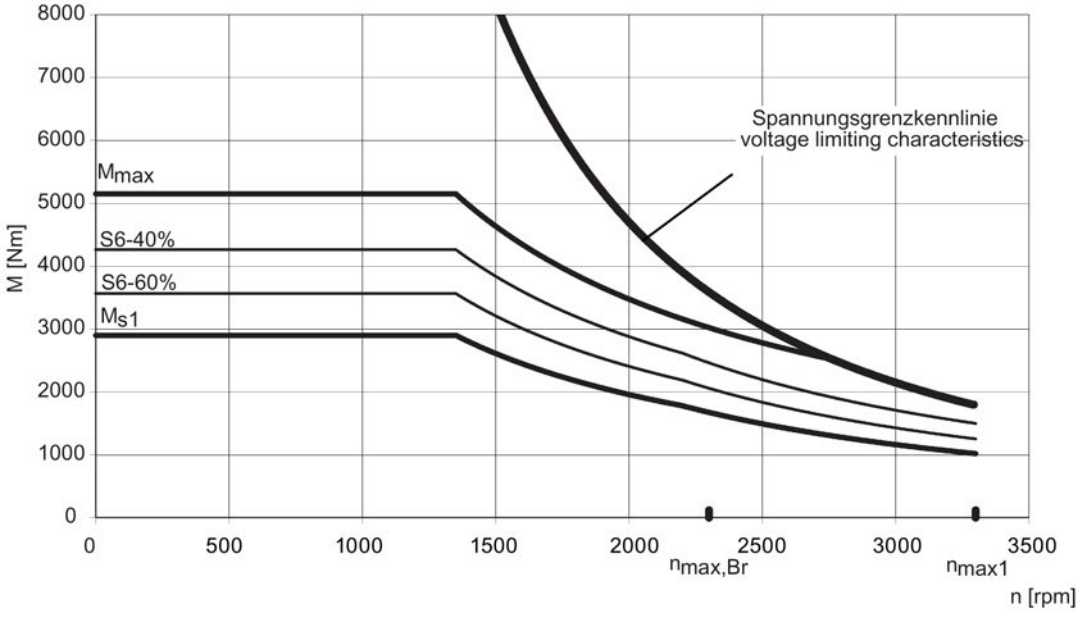
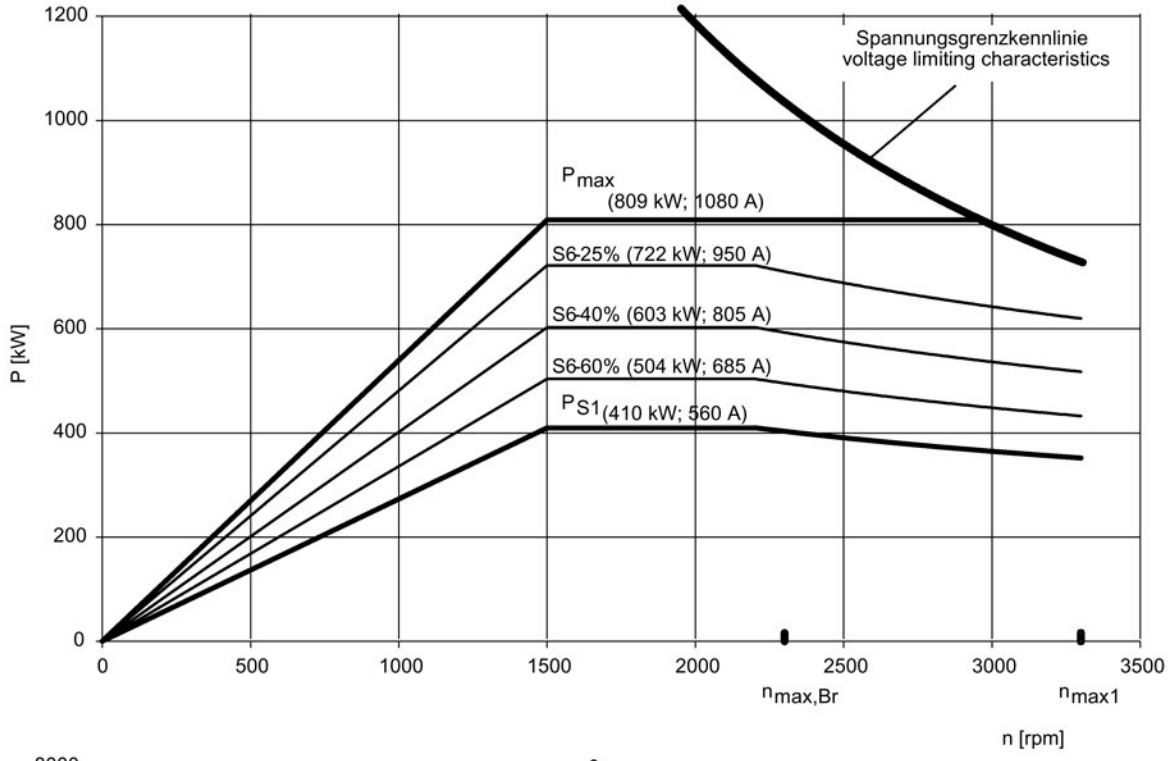


Table 6- 547 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8286-□□D4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	410	2,610	560	3,300	-	-	2,300	2,200	5,150	1,080	2,951	560



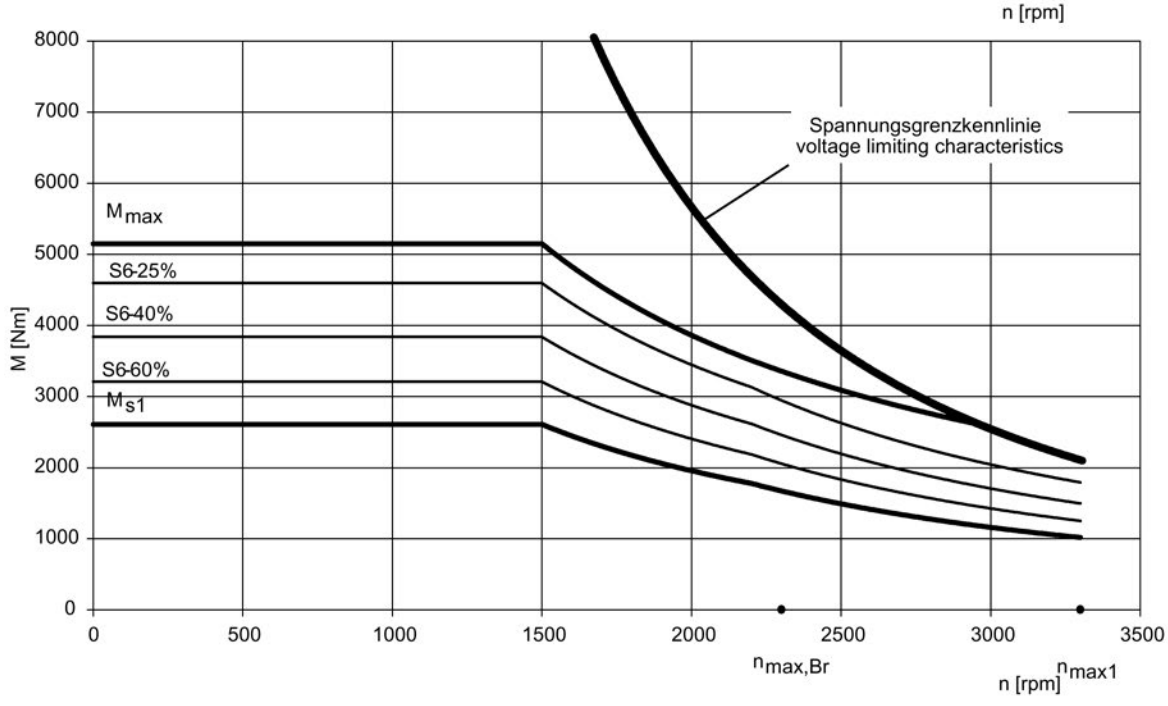
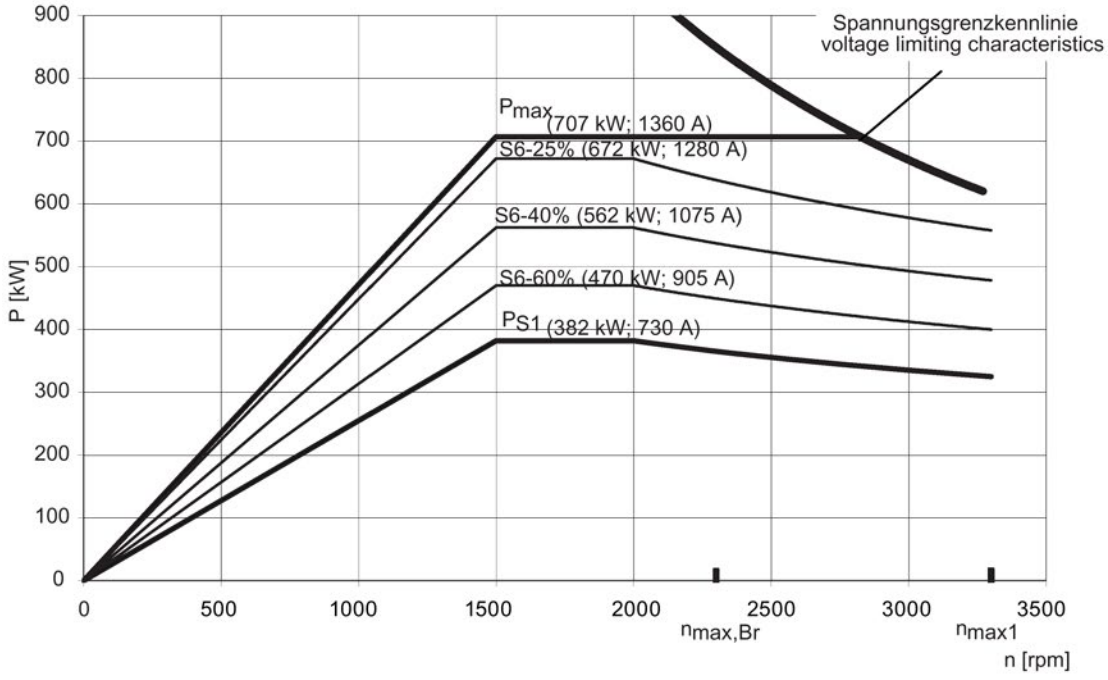


Table 6- 548 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F4□, (IP23)

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]
1,500	382	2,432	730	3,300	-	-	2,300	2,000	4,500	1,360	2,432	730



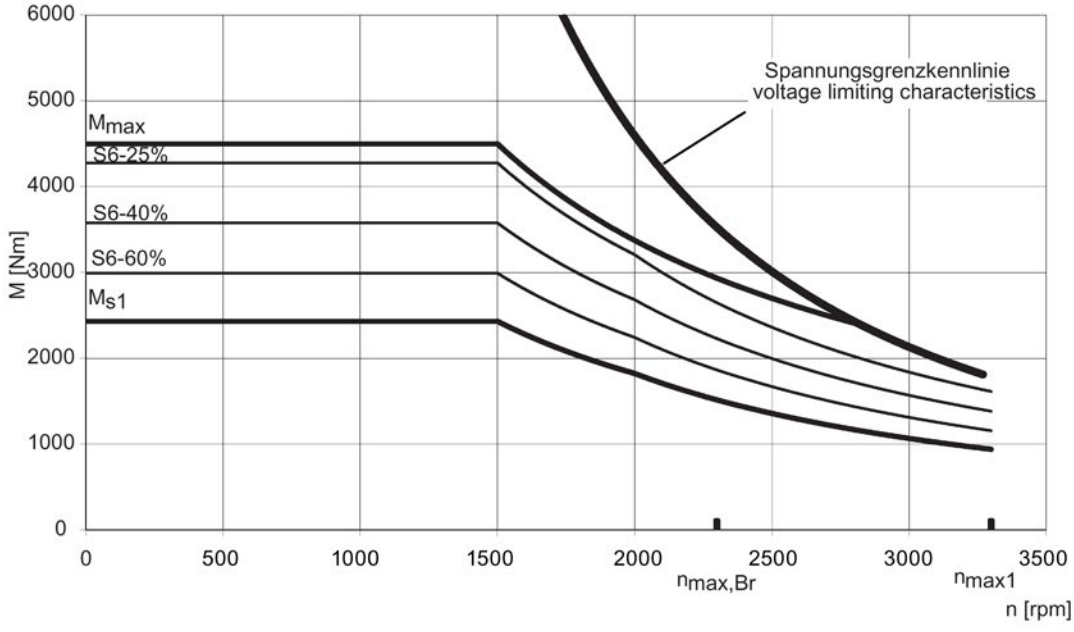
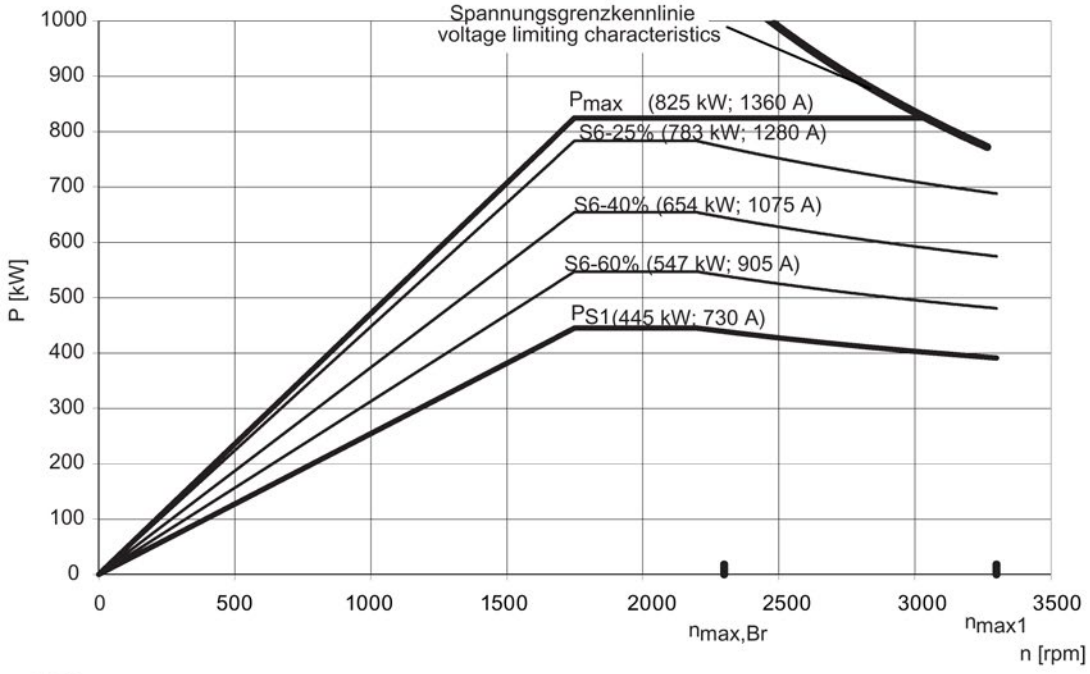


Table 6- 549 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8286-□□F4□, (IP23)

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]
1,750	445	2,429	730	3,300	-	-	2,300	2,200	4,500	1,360	2,429	730
1,500	382	2,432	730					3,300				



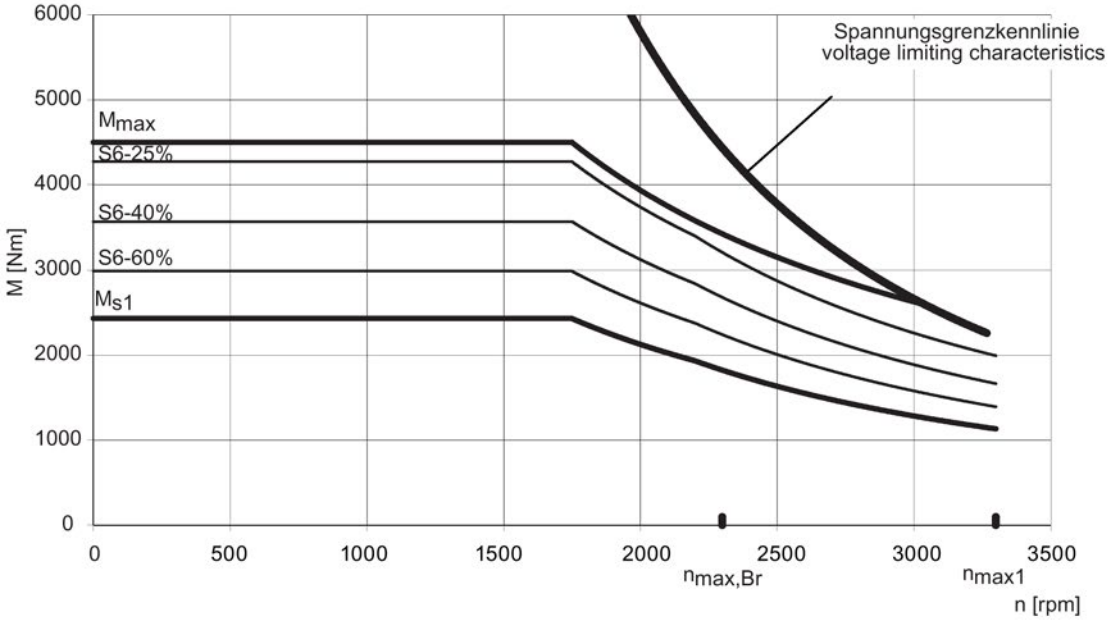
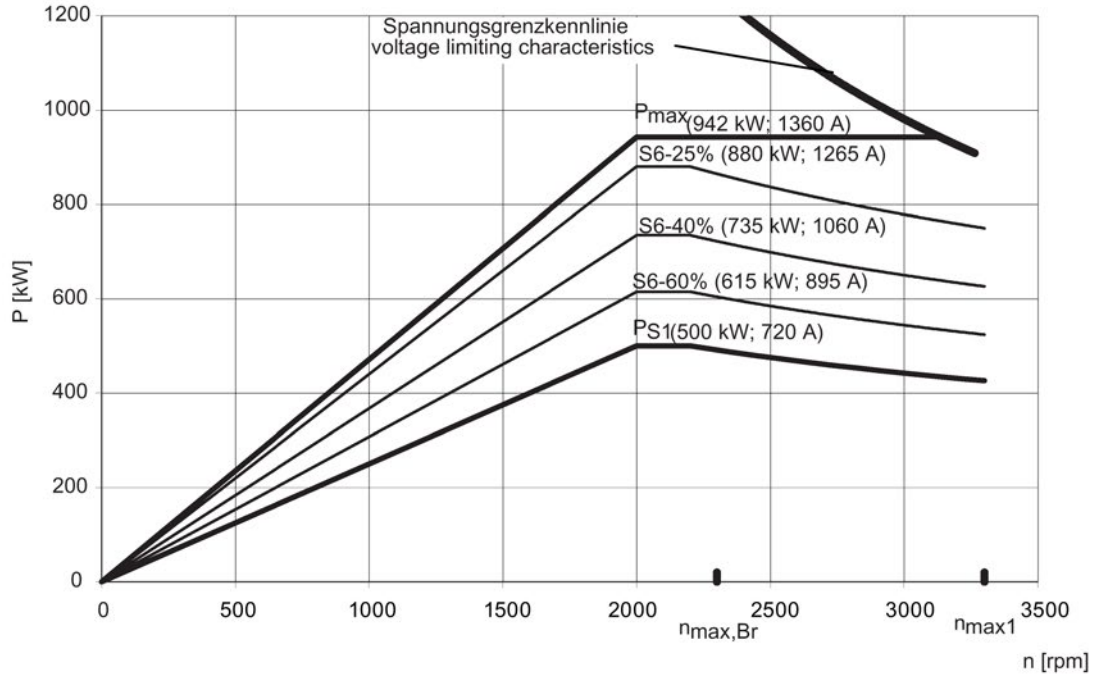


Table 6- 550 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F4□, (IP23)

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]
2,000	500	2,387	720	3,300	-	-	2,300	2,200	4,500	1,360	2,387	720



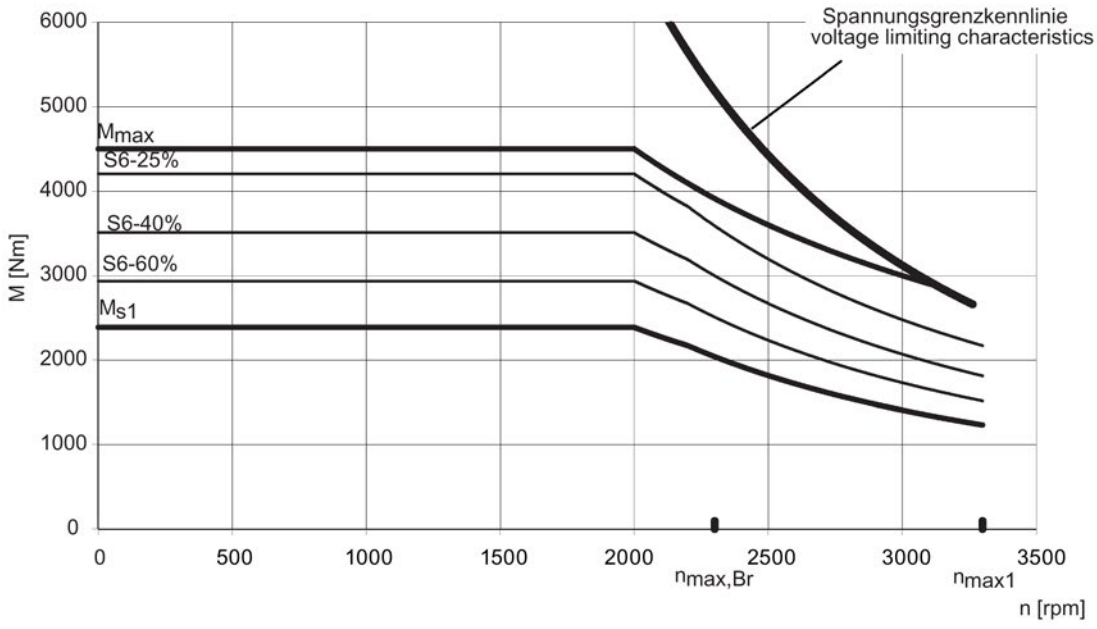
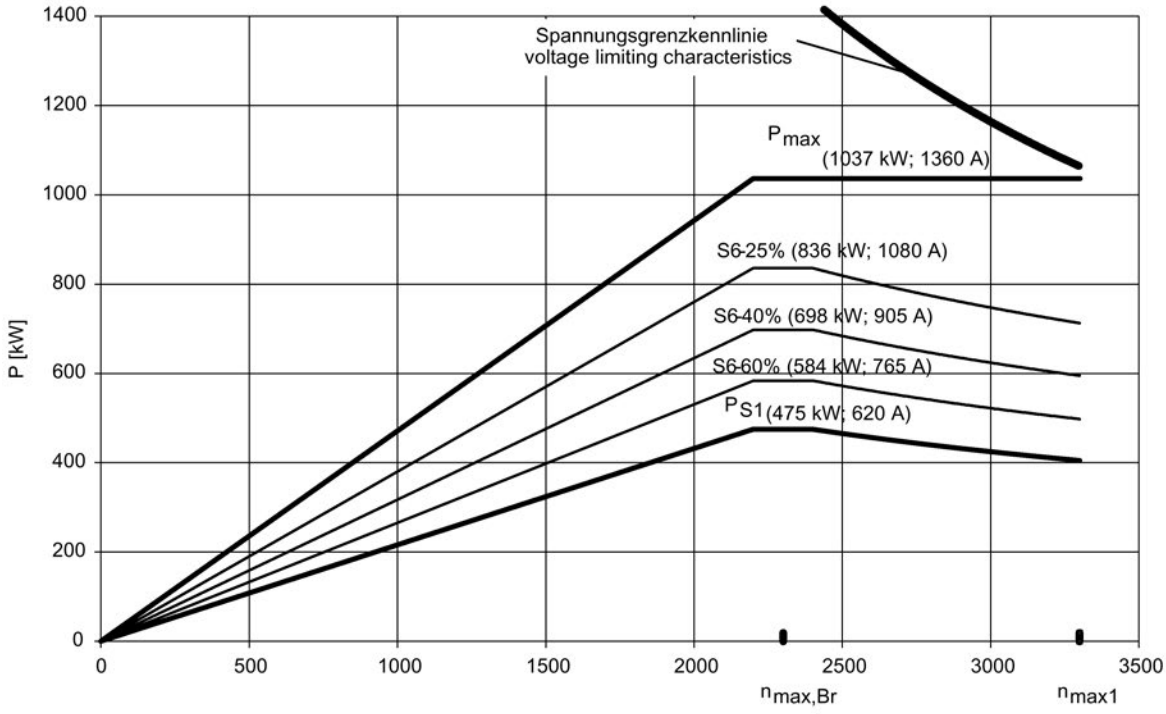


Table 6- 551 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	475	2,062	620	3,300	-	-	2,300	2,400	4,500	1,360	2,432	620



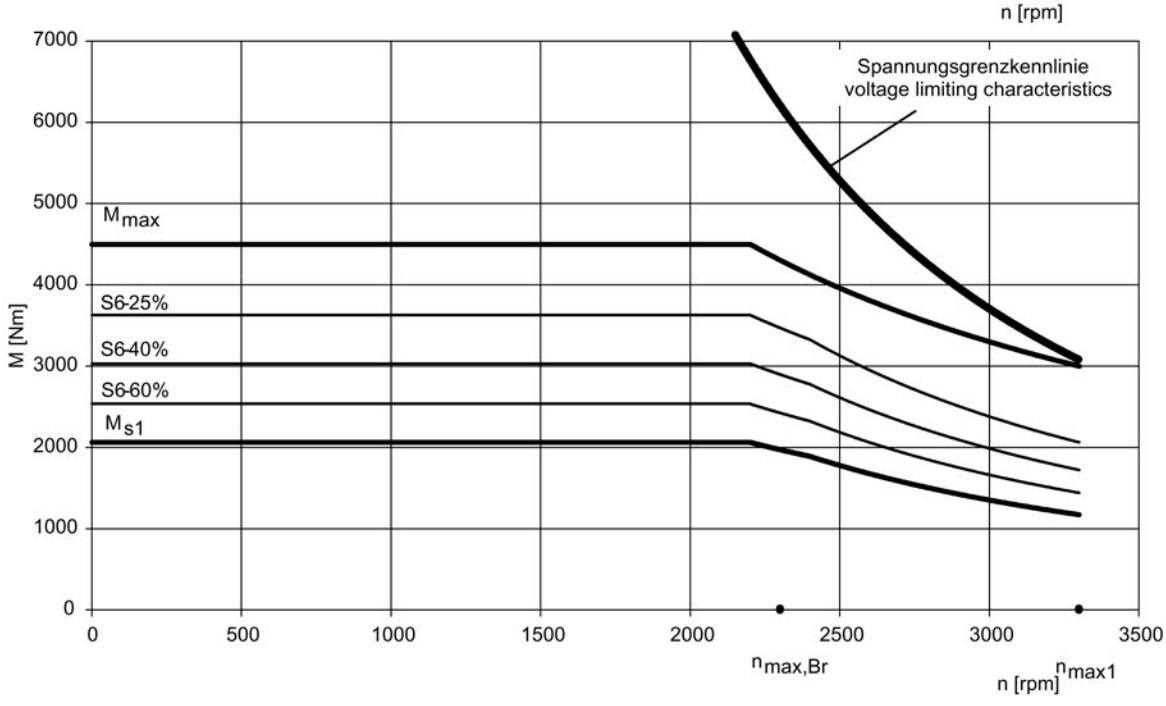
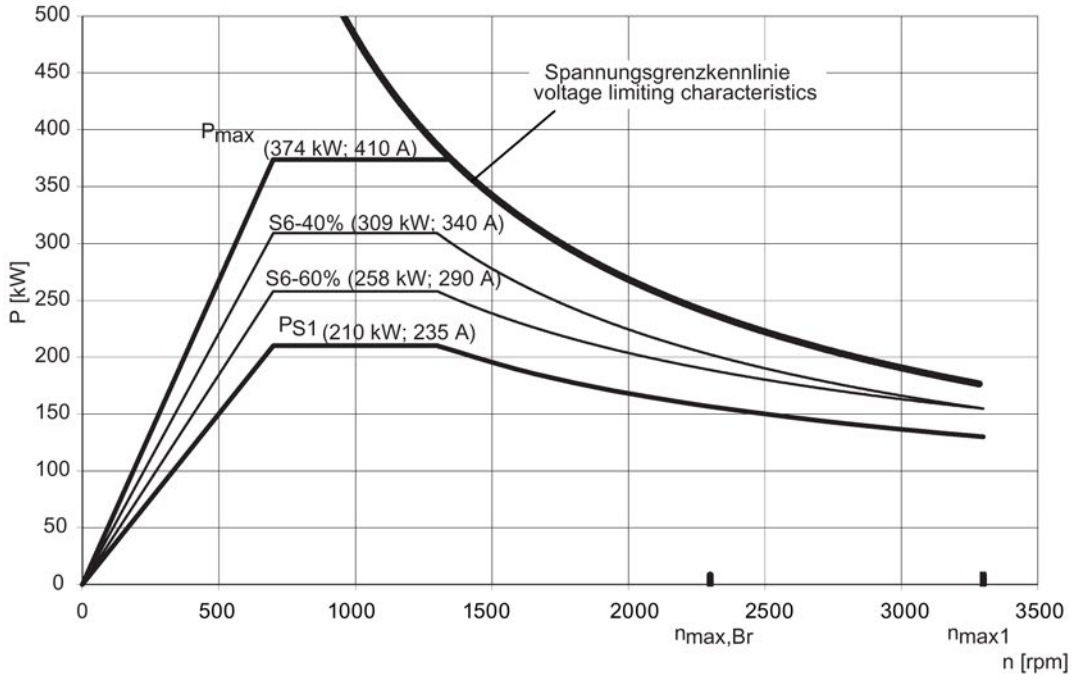


Table 6- 552 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□K4□, (IP23)

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	2,865	235	3,300	-	-	2,300	1,300	5,100	410	2,865	235



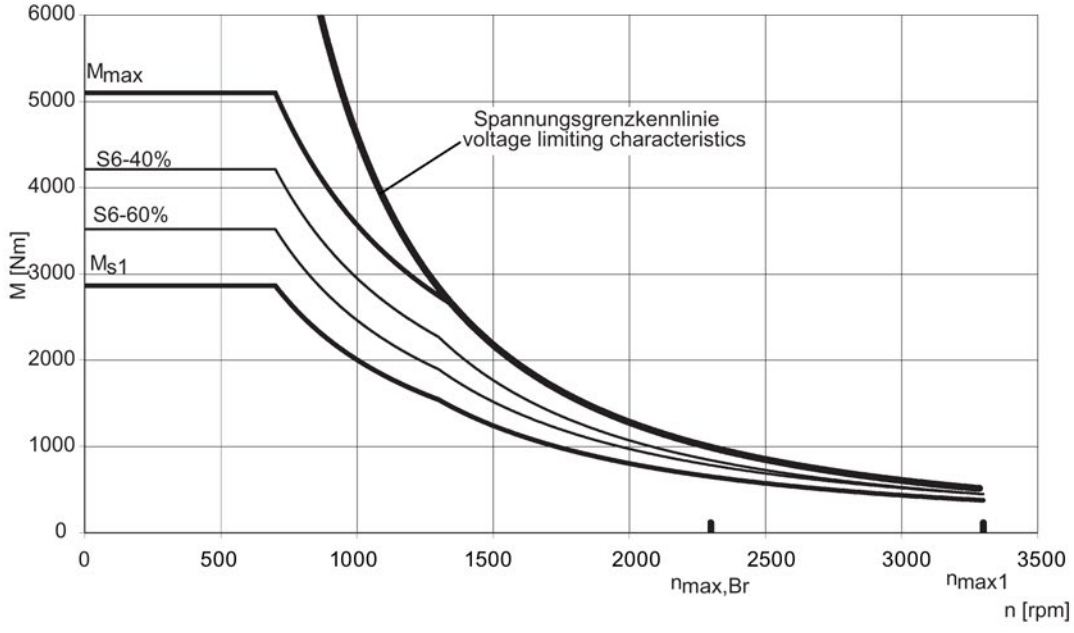
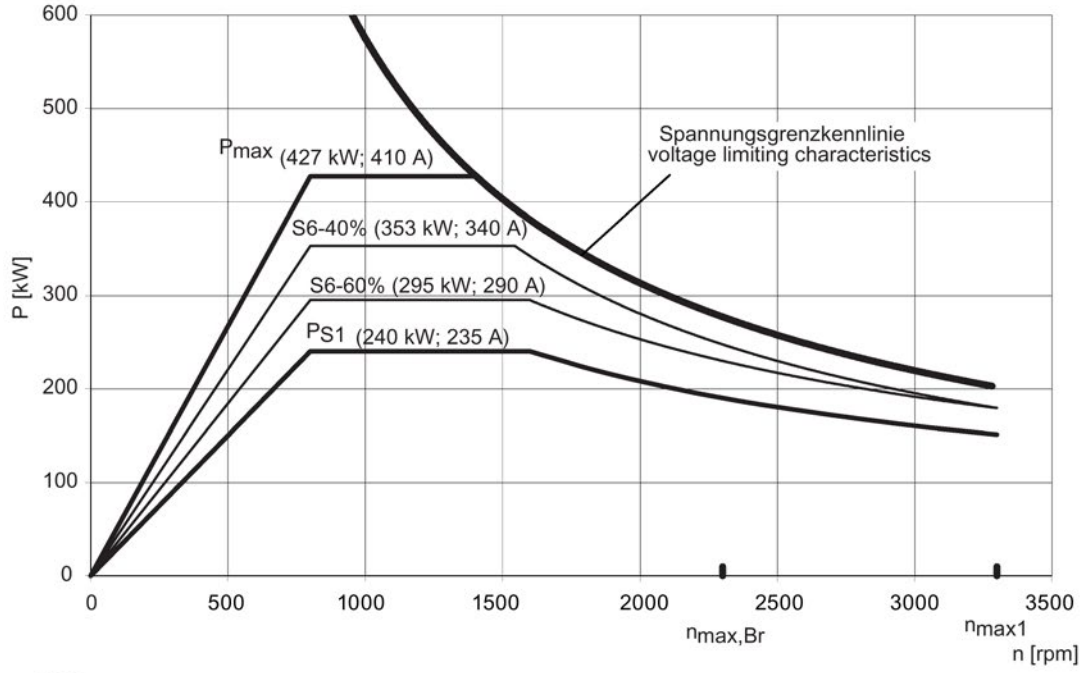


Table 6- 553 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□K4□, (IP23)

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	2,865	235	3,300	-	-	2,300	1,600	5,100	410	2,865	235
700	210	2,865	235					2,000				



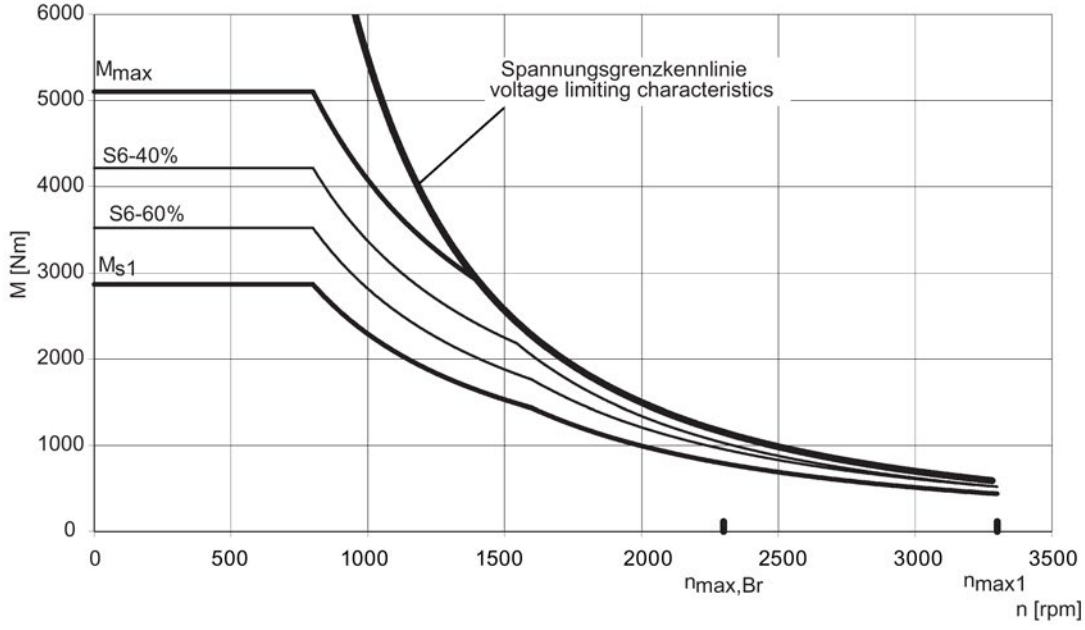
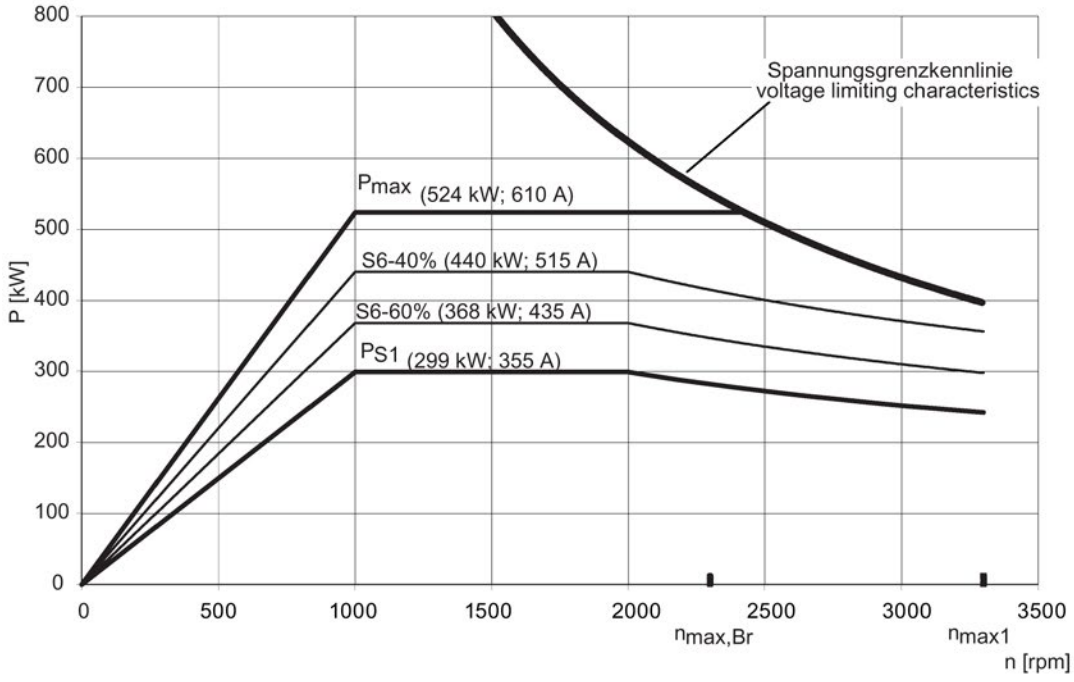


Table 6- 554 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□U4□, (IP23)

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]
1,000	299	2,855	355	3,300	-	-	2,300	2,000	5,000	610	2,855	355



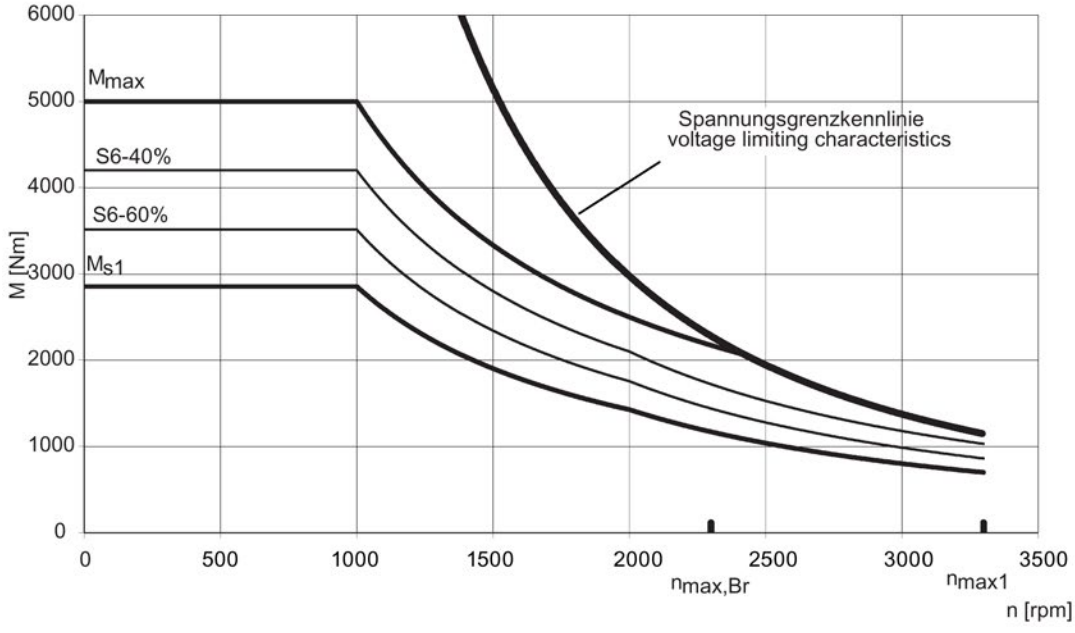
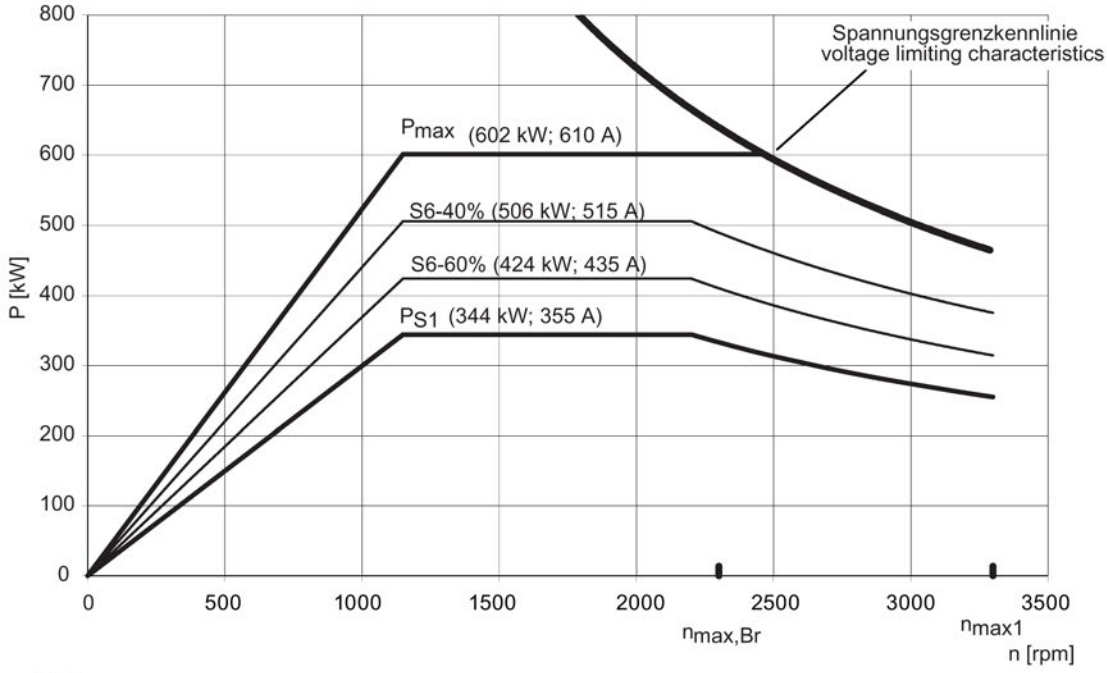


Table 6- 555 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□U4□, (IP23)

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]
1,150	344	2,860	355	3,300	-	-	2,300	2,200	5,000	610	2,860	355
1,000	299	2,855	355					2,700				



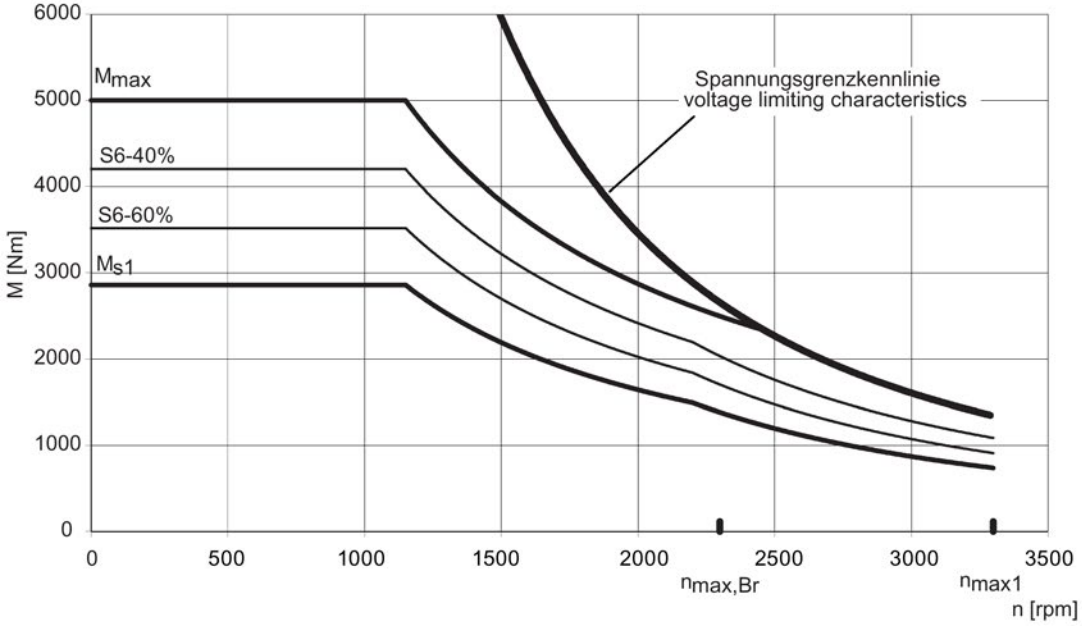
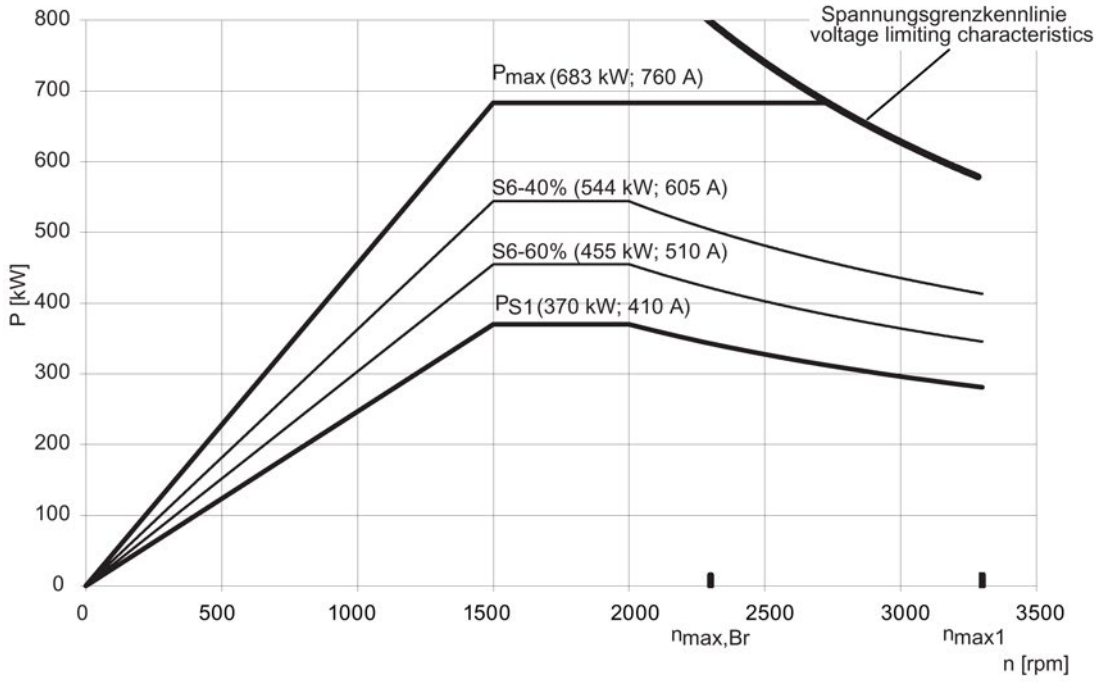


Table 6- 556 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8286-□□W4□, (IP23)

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]
1,500	370	2,356	410	3,300	-	-	2,300	2,000	4,350	760	2,356	410



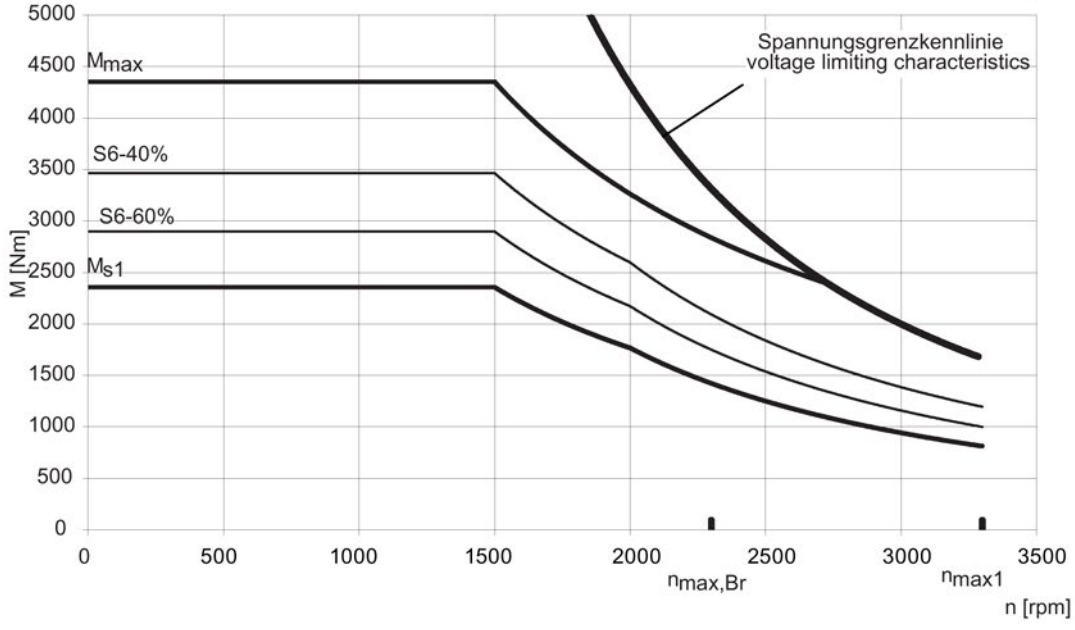
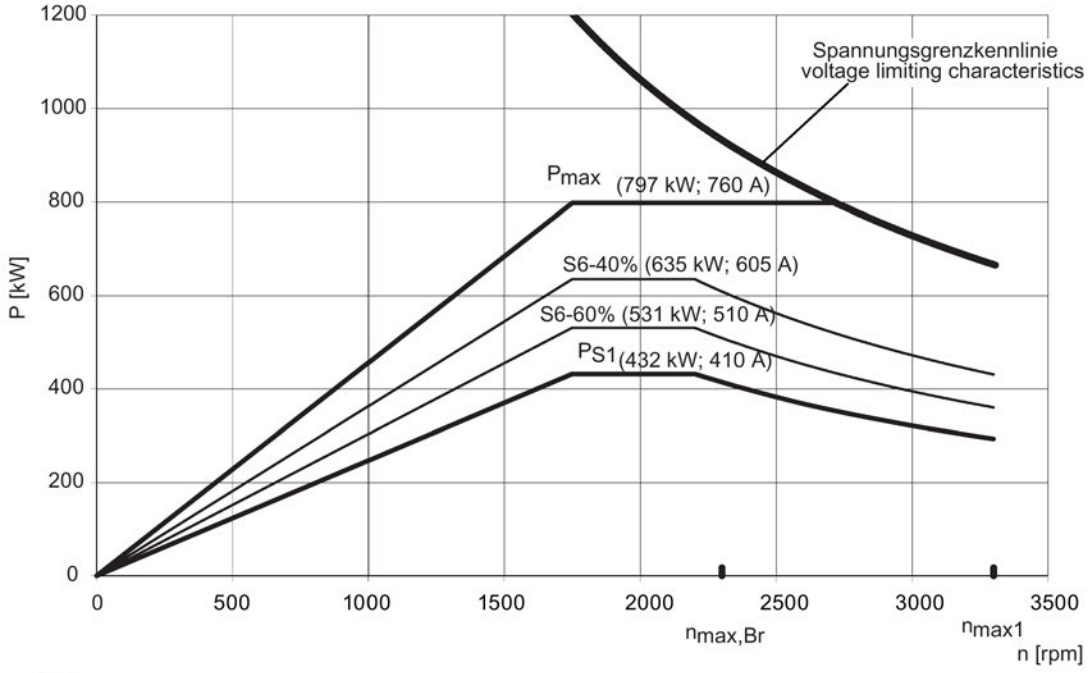


Table 6- 557 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8286-□□W4□, (IP23)

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]
1,750	432	2,356	410	3,300	-	-	2,300	2,200	4,350	760	2,356	410
1,500	370	2,356	410					2,600				



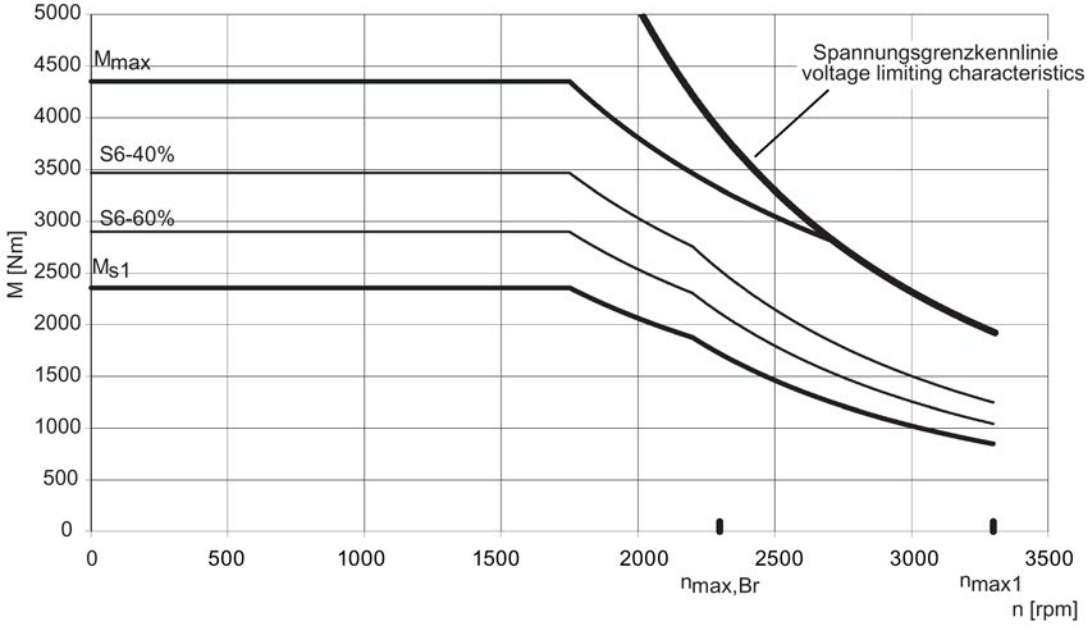
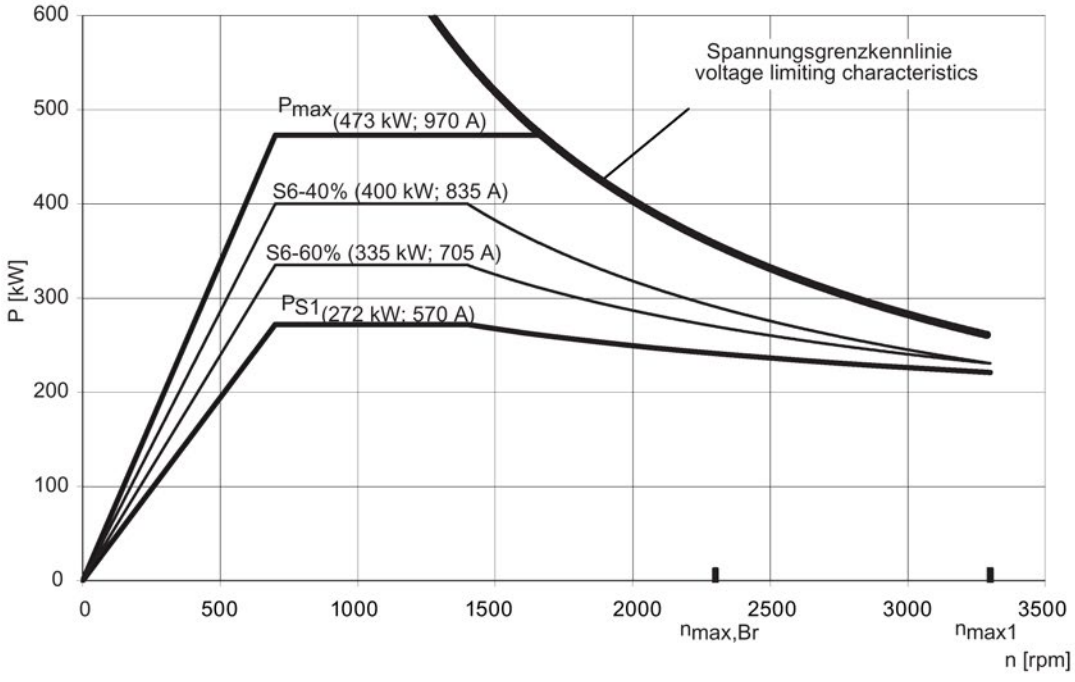


Table 6- 558 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C4□, (IP23)

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	3,711	570	3,300	-	-	2,300	1,400	6,450	970	3,711	570



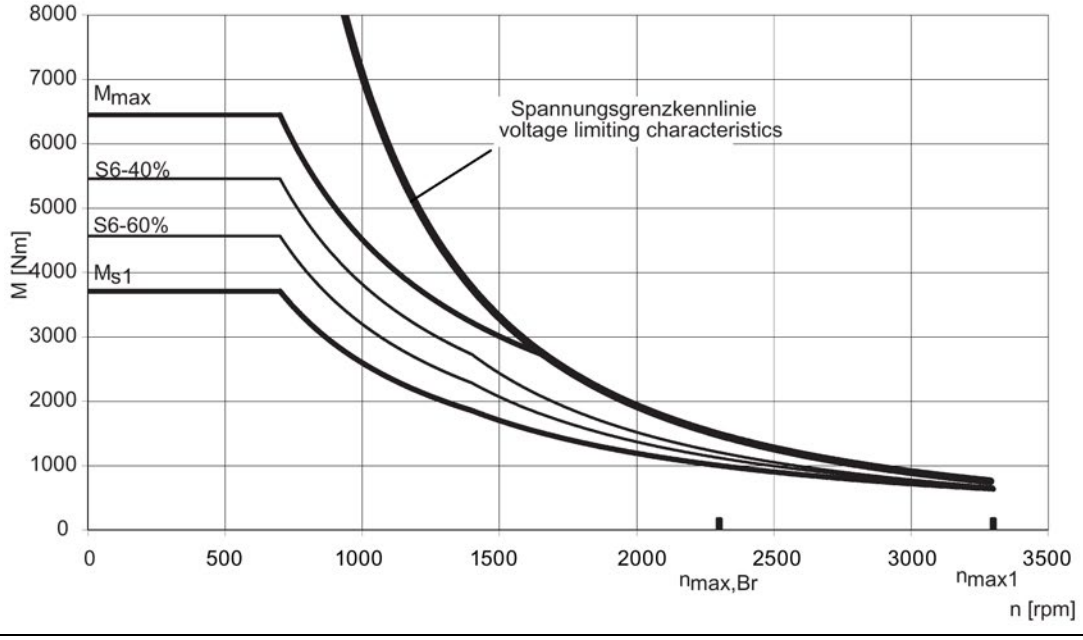
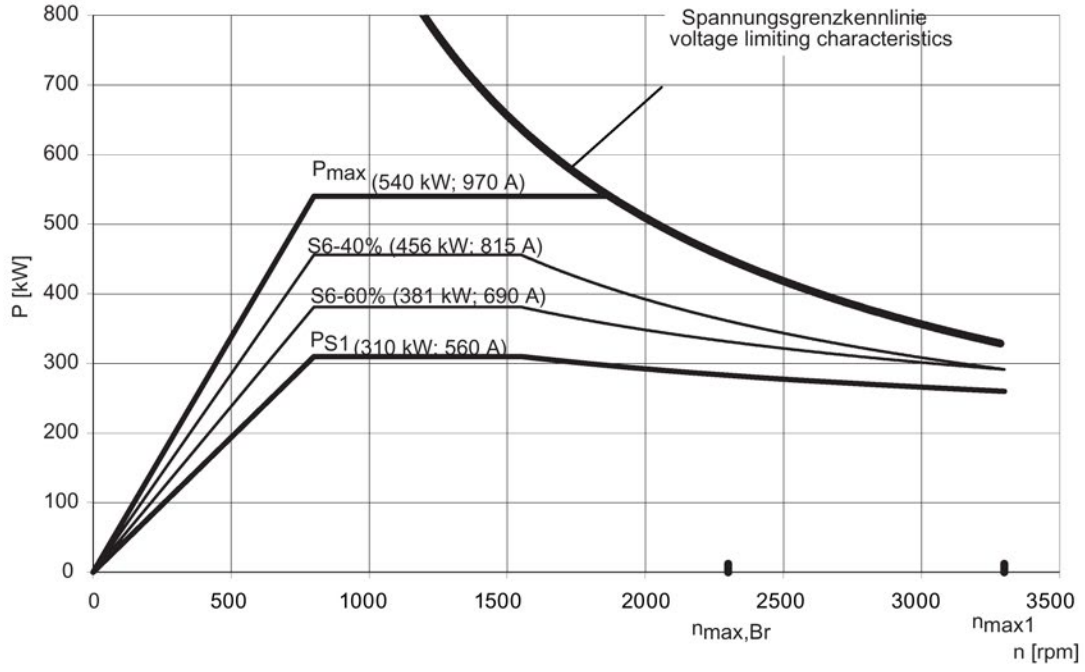


Table 6- 559 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□C4□, (IP23)

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	3,701	560	3,300	-	-	2,300	1,550	6,450	970	3,701	560
700	271	3,701	560					2,800				



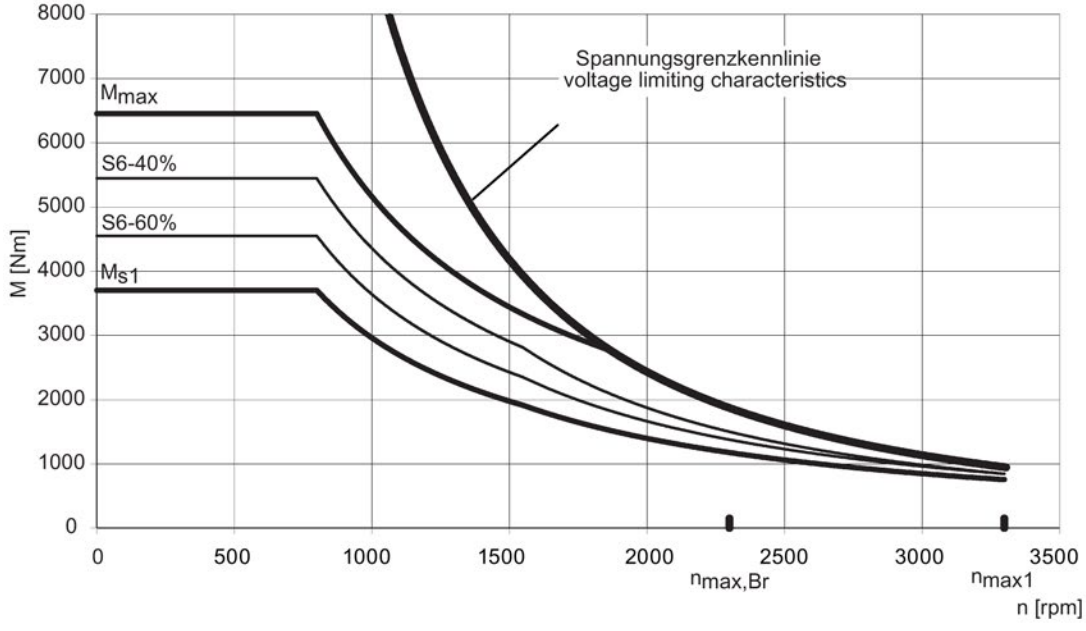
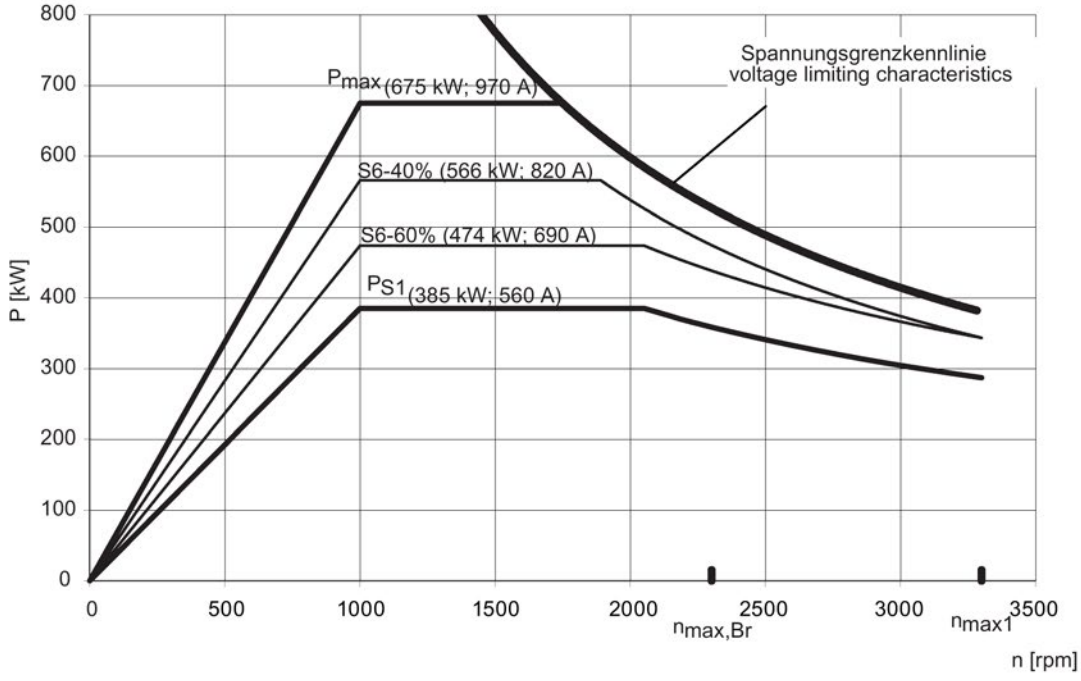


Table 6- 560 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C4□, (IP23)

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]
1,000	385	3,677	560	3,300	-	-	2,300	2,050	6,450	970	3,677	560



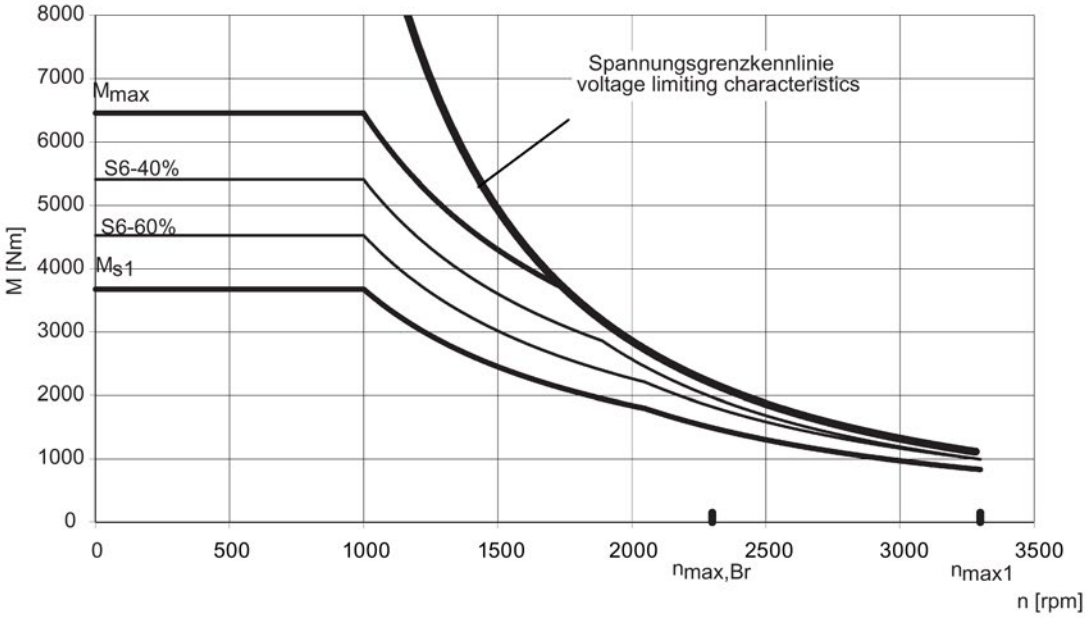
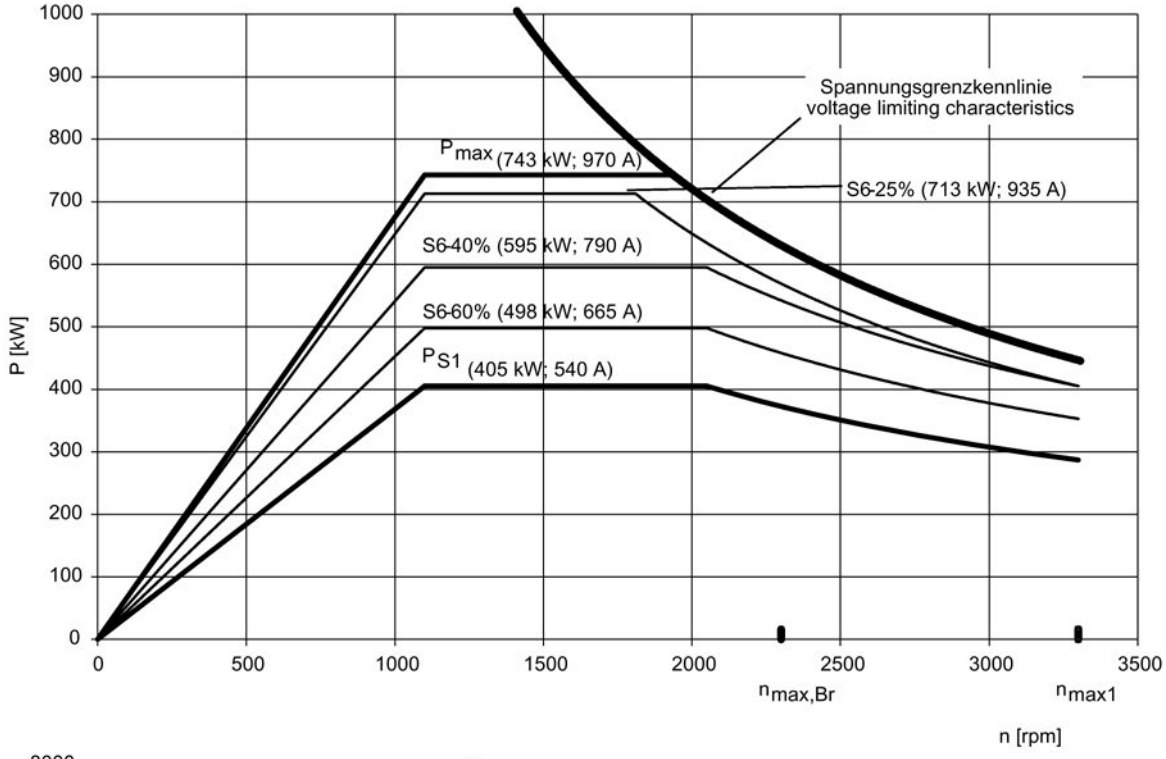


Table 6- 561 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□C4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,100	405	3,516	540	3,300	-	-	2,300	2,050	6,450	970	3,711	540



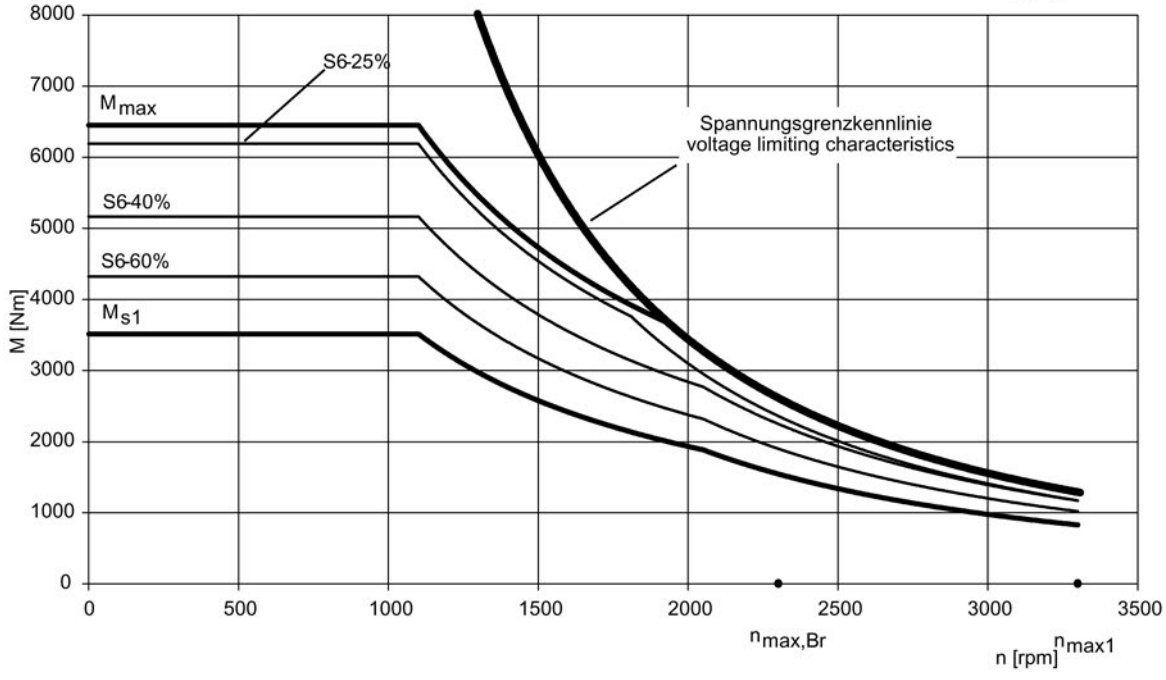
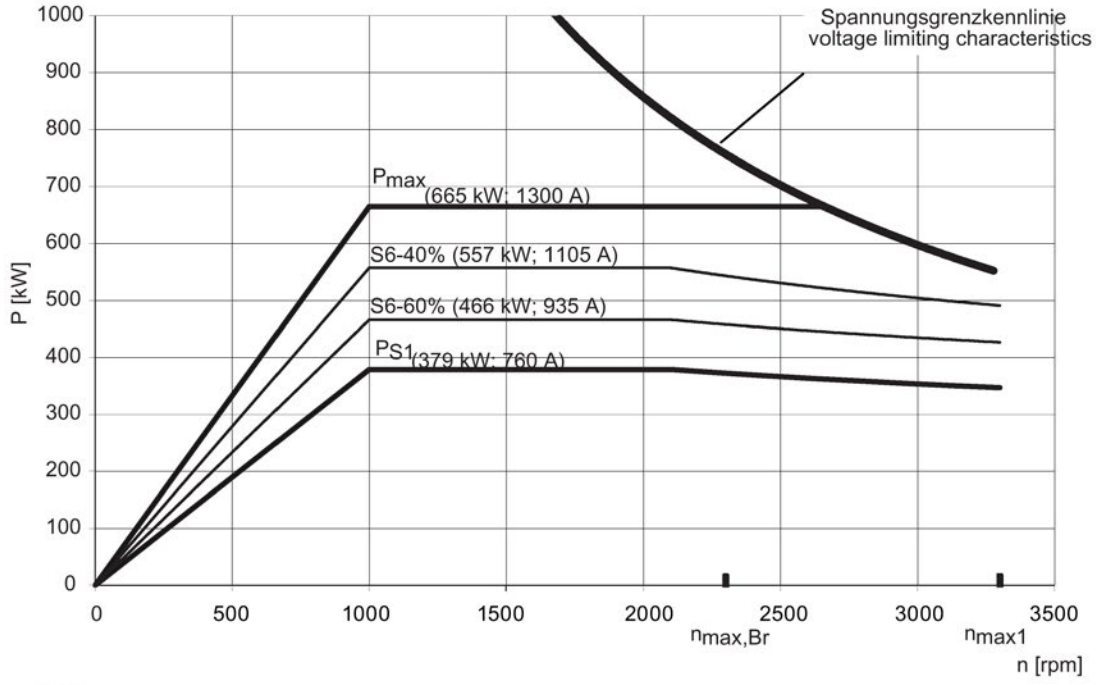


Table 6- 562 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D4□, (IP23)

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]
1,000	379	3,619	760	3,300	-	-	2,300	2,100	6,350	1,300	3,619	760



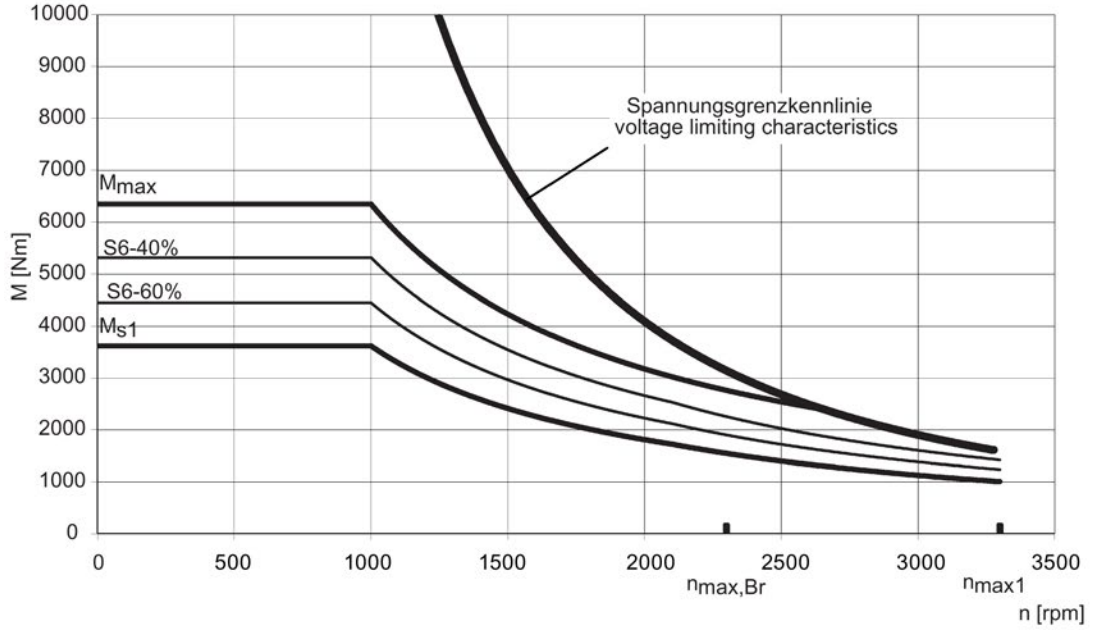
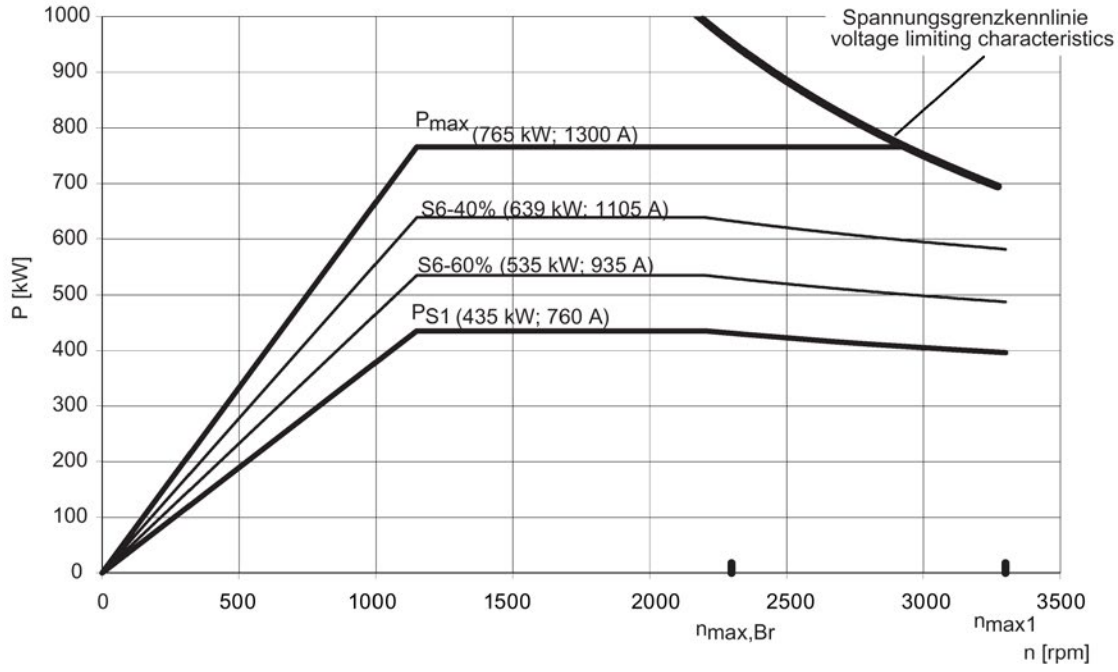


Table 6- 563 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□D4□, (IP23)

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]
1,150	435	3,607	760	3,300	-	-	2,300	2,200	6,350	1,300	3,607	760
1,000	378	3,607	760					3,300				



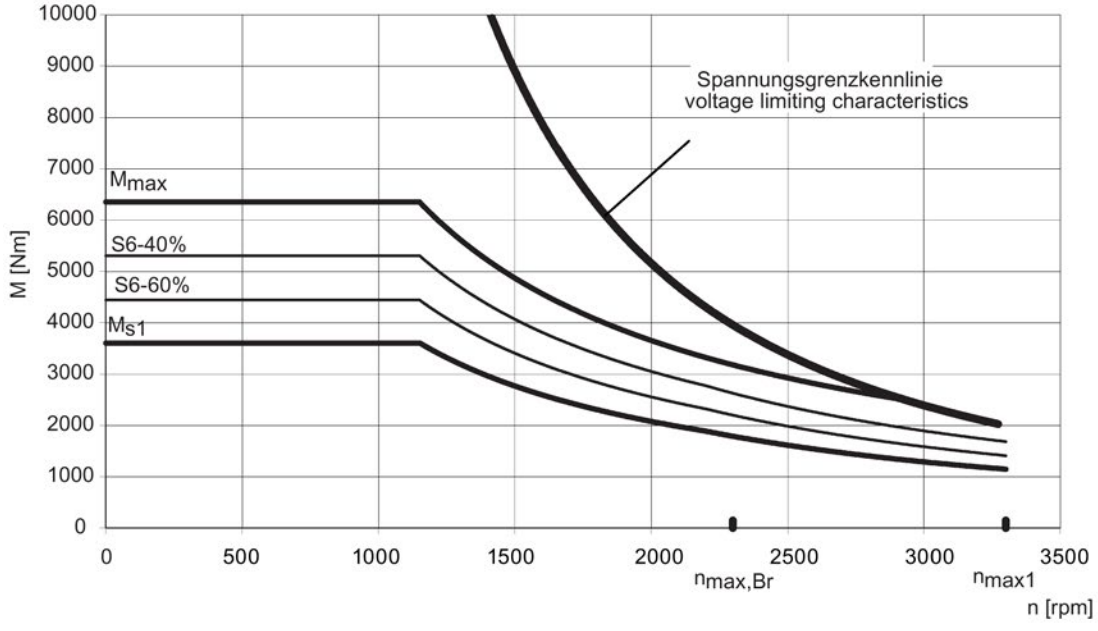
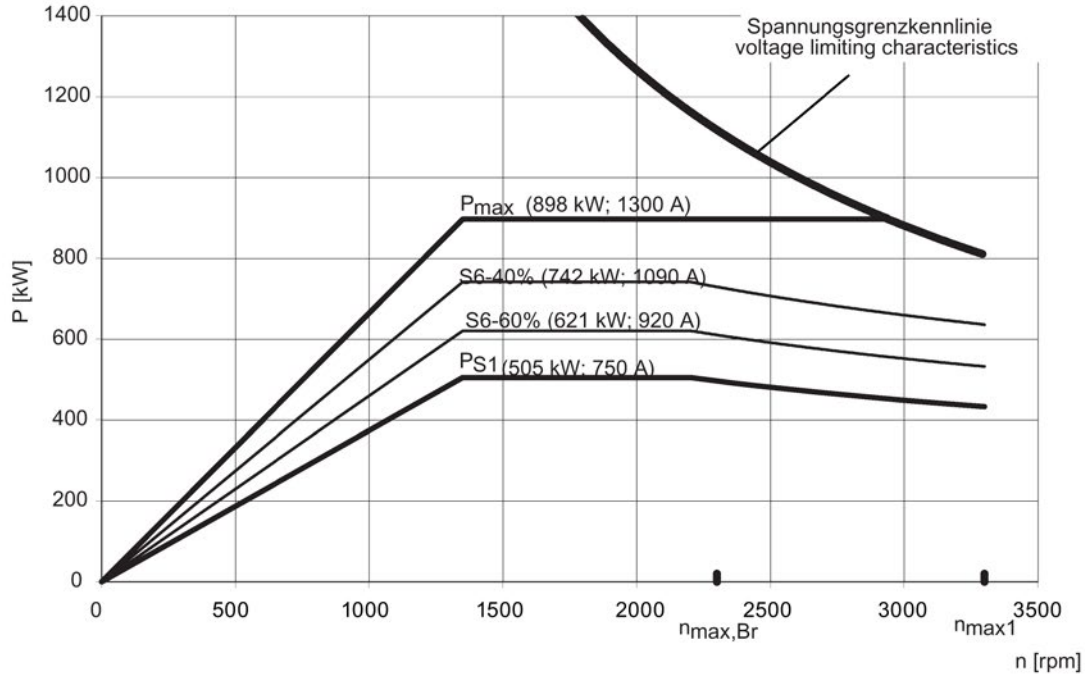


Table 6- 564 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D4□, (IP23)

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]
1,350	505	3,573	750	3,300	-	-	2,300	2,200	6,350	1,300	3,573	750



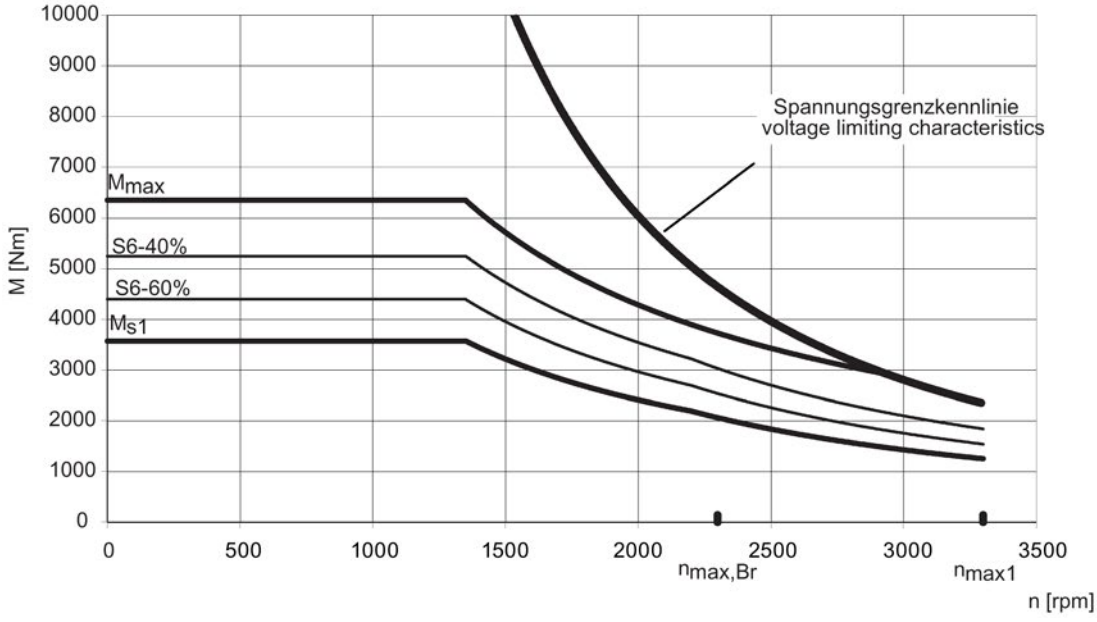
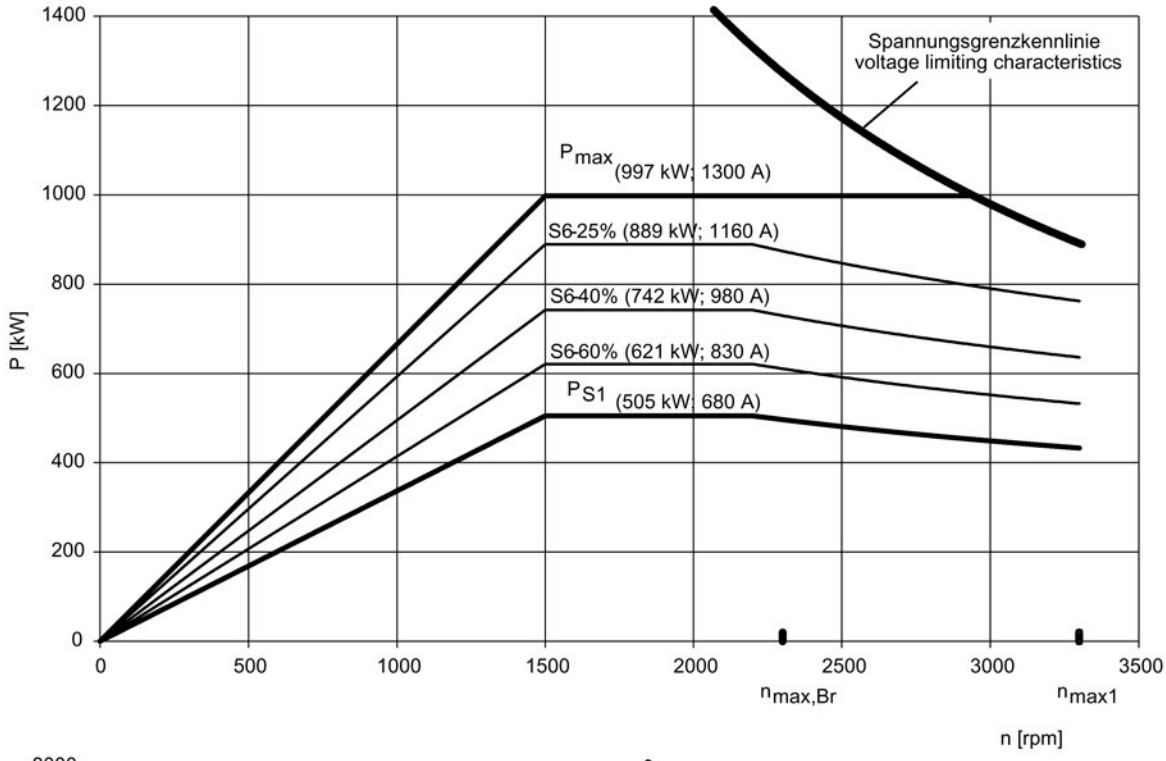


Table 6- 565 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□D4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
1,500	505	3,215	680	3,300	-	-	2,300	2,200	6,350	1,300	3,619	680



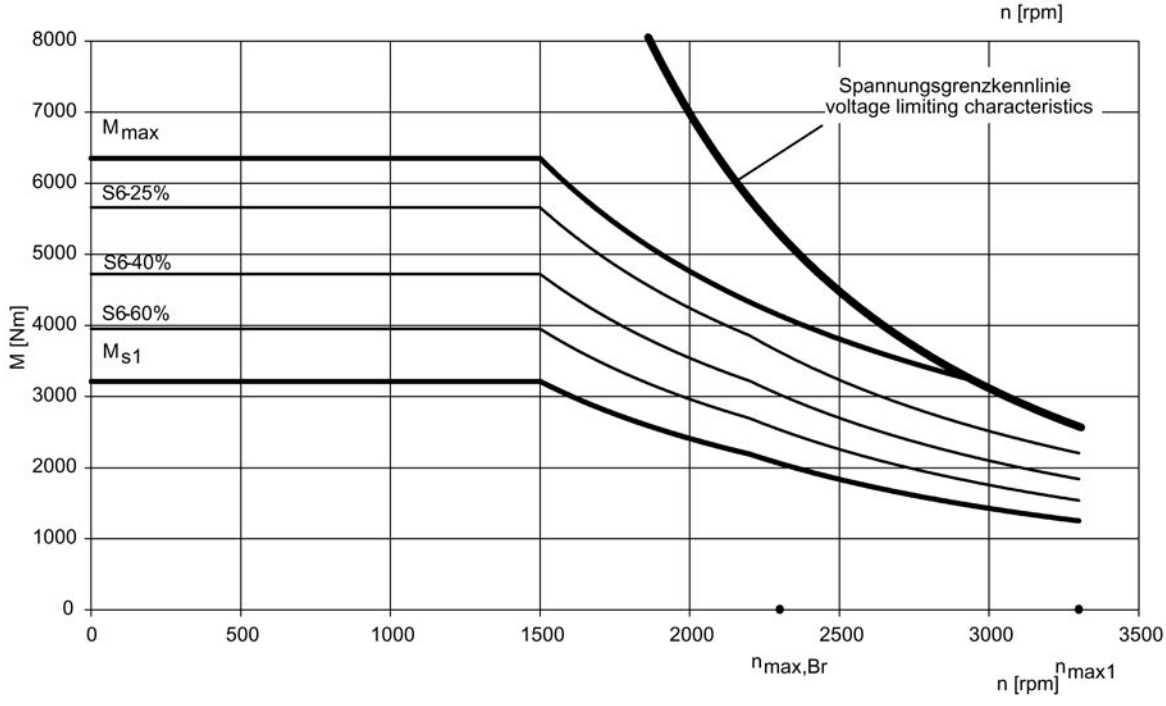
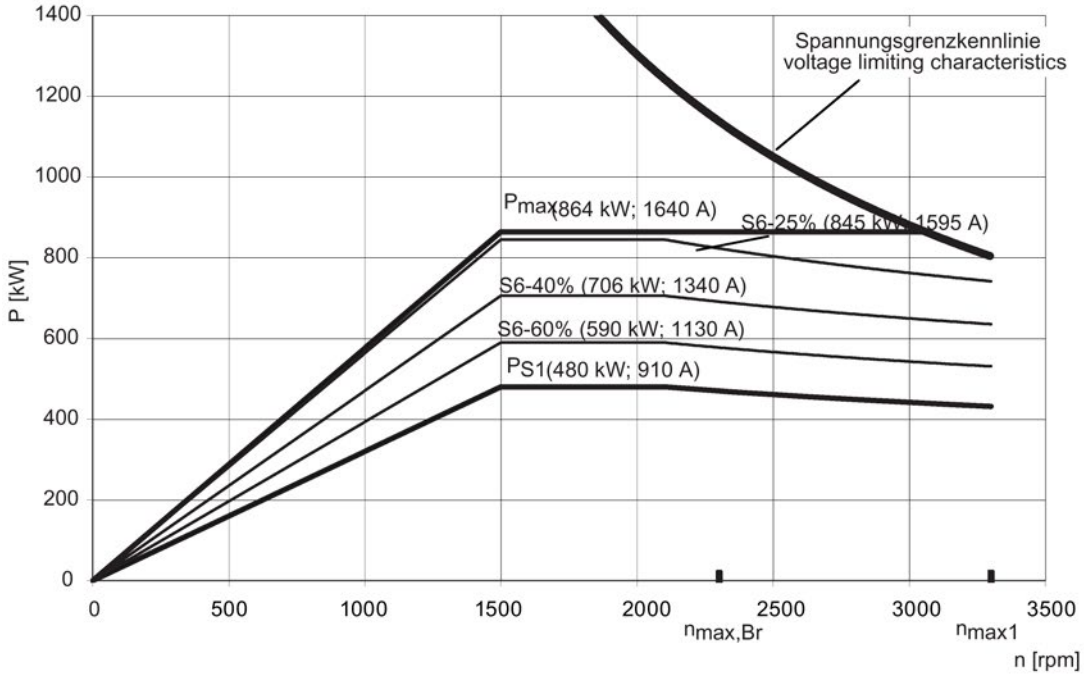


Table 6- 566 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F4□, (IP23)

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]
1,500	480	3,056	910	3,300	-	-	2,300	2,100	5,500	1,640	3,056	910



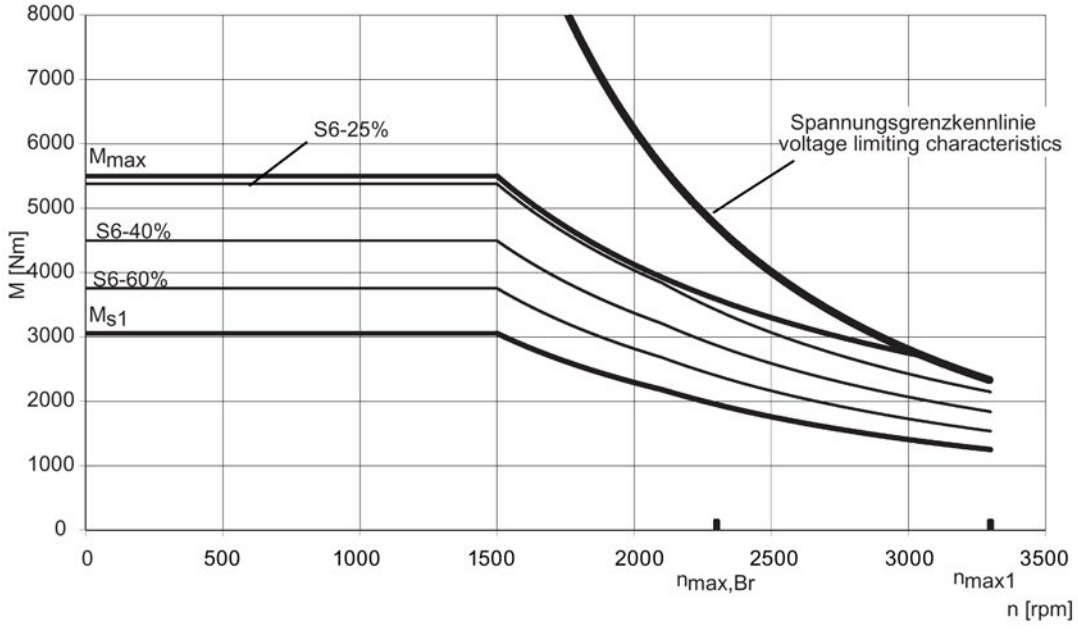
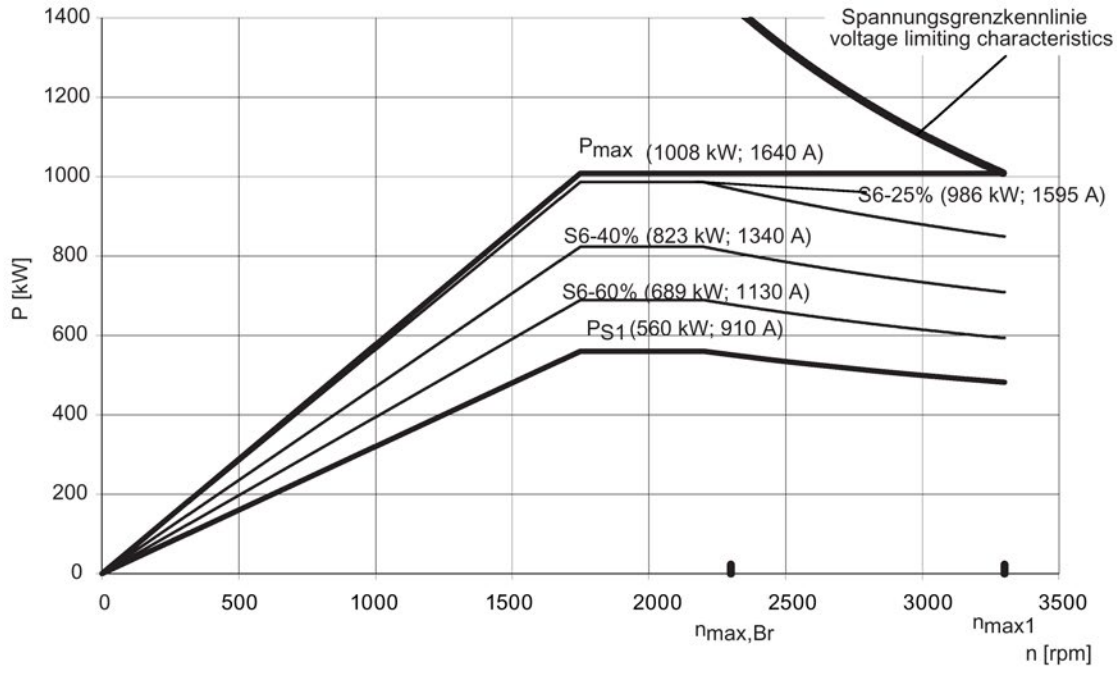


Table 6- 567 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8288-□□F4□, (IP23)

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]
1,750	560	3,055	910	3,300	-	-	2,300	2,200	5,500	1,640	3,055	910
1,500	480	3,055	910					3,300				



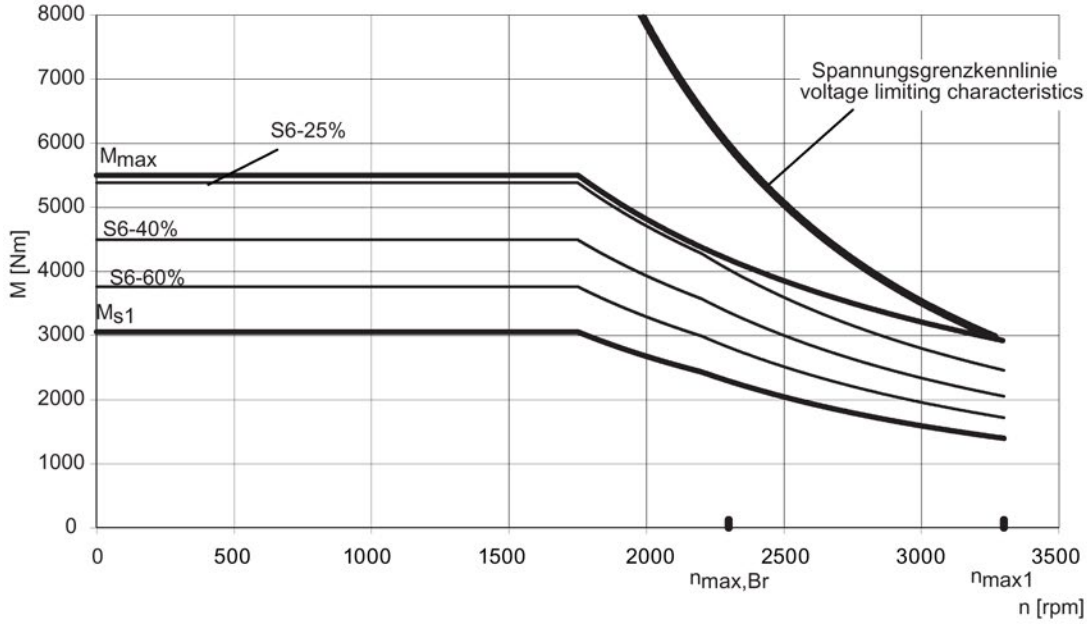
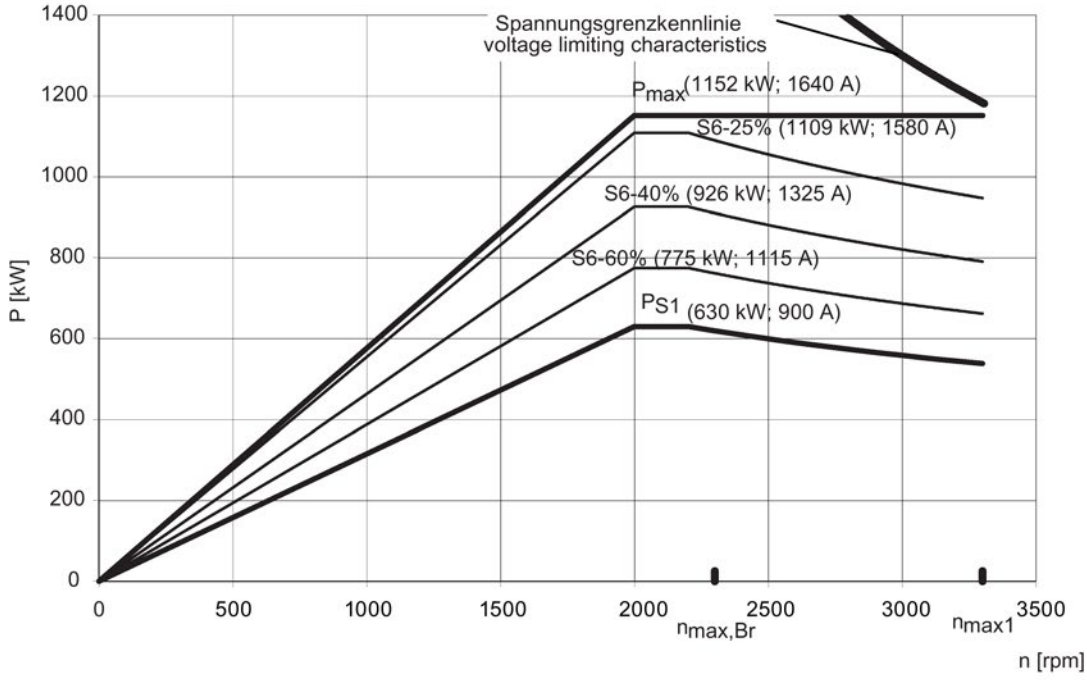


Table 6- 568 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F4□, (IP23)

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]
2,000	630	3,009	900	3,300	-	-	2,300	2,200	5,500	1,640	3,009	900



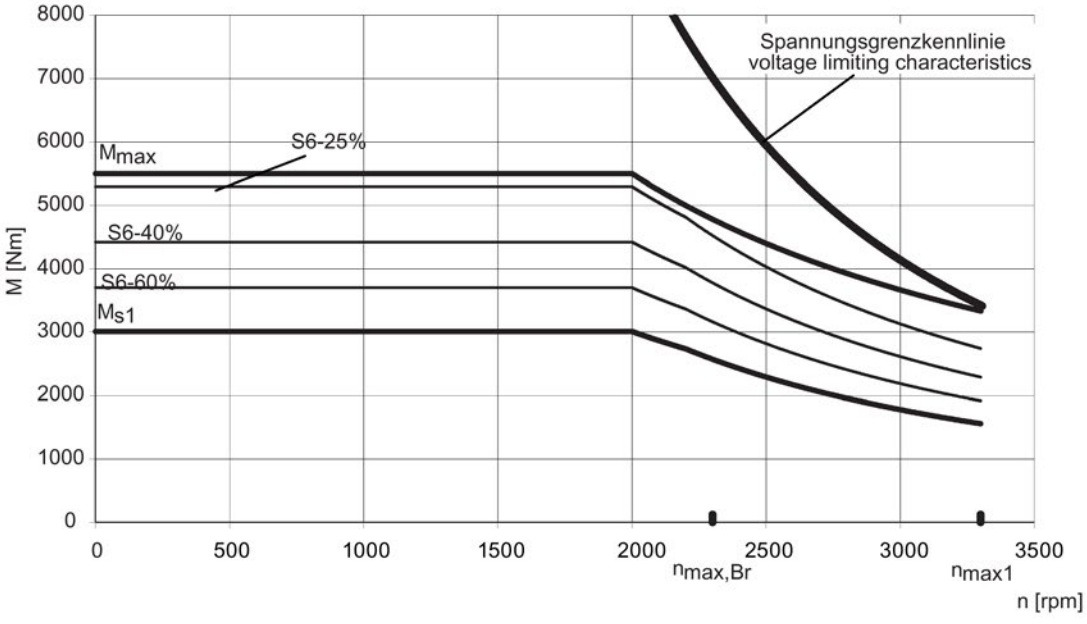
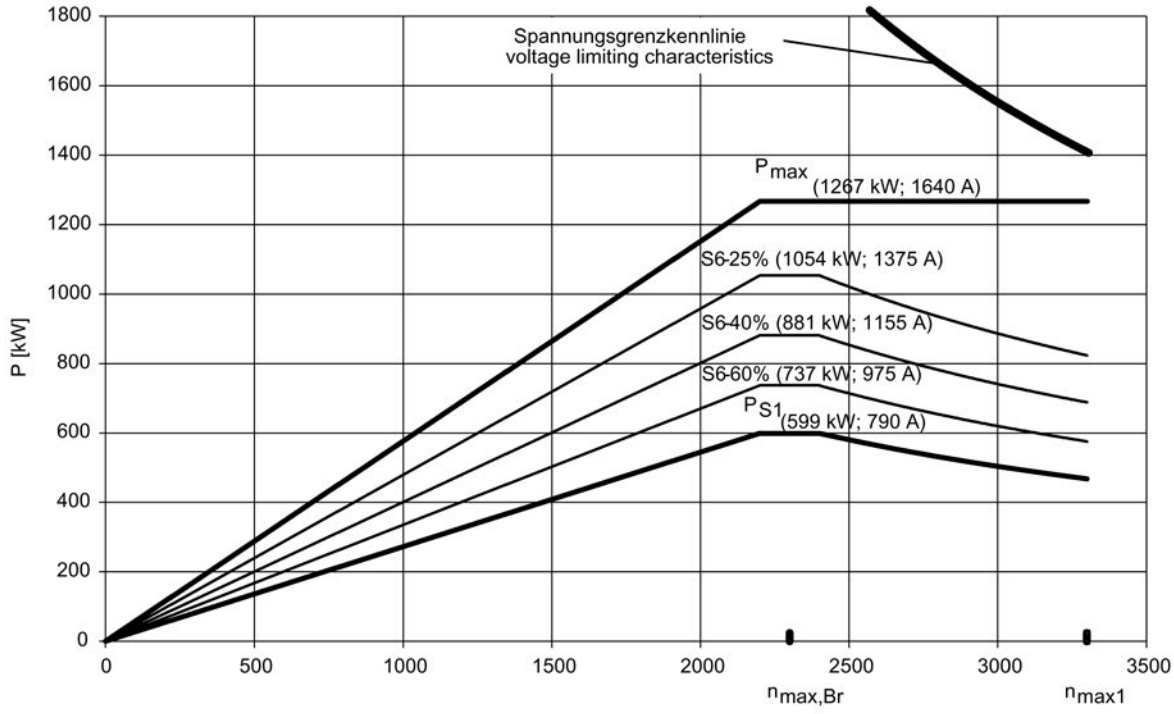


Table 6- 569 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8288-□□F4□, (IP23)

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	599	2,600	790	3,300	-	-	2,300	2,400	5,500	1,640	3,056	790



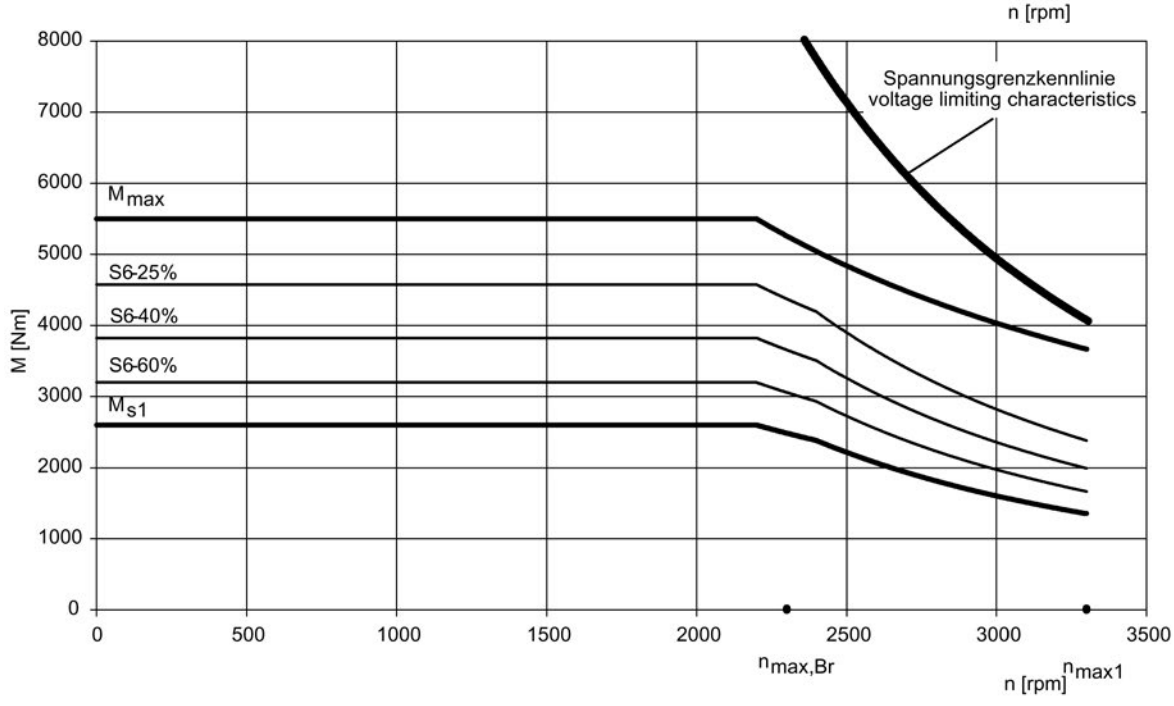
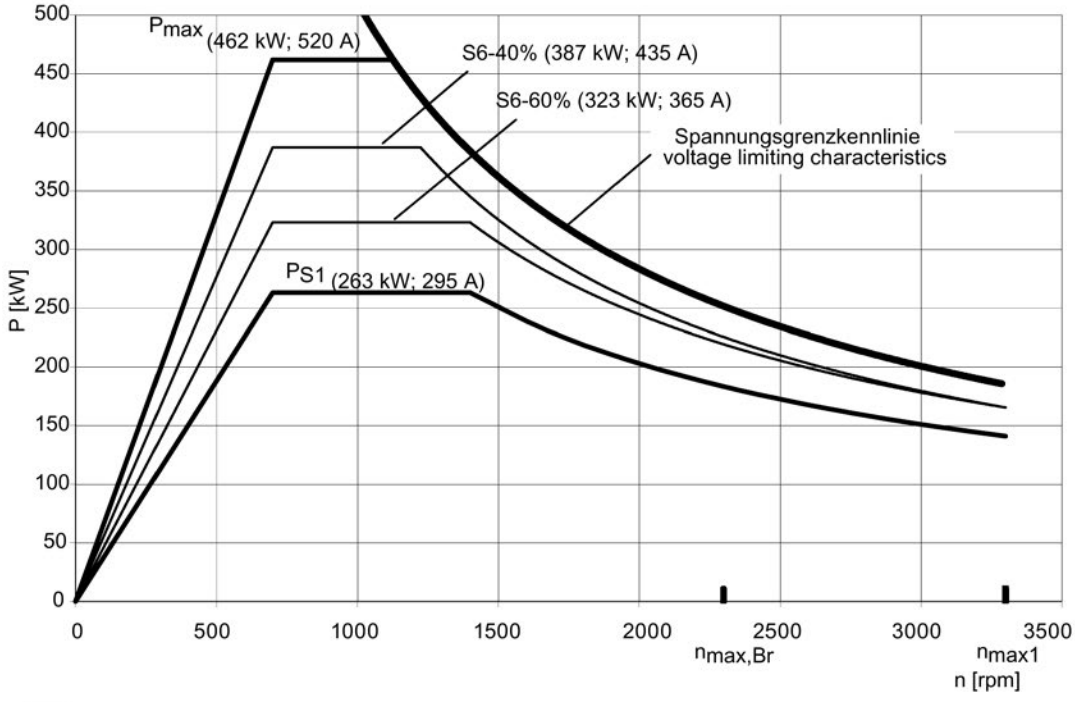


Table 6- 570 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□K4□, (IP23)

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	3,588	295	3,300	-	-	2,300	1,400	6,300	520	3,588	295



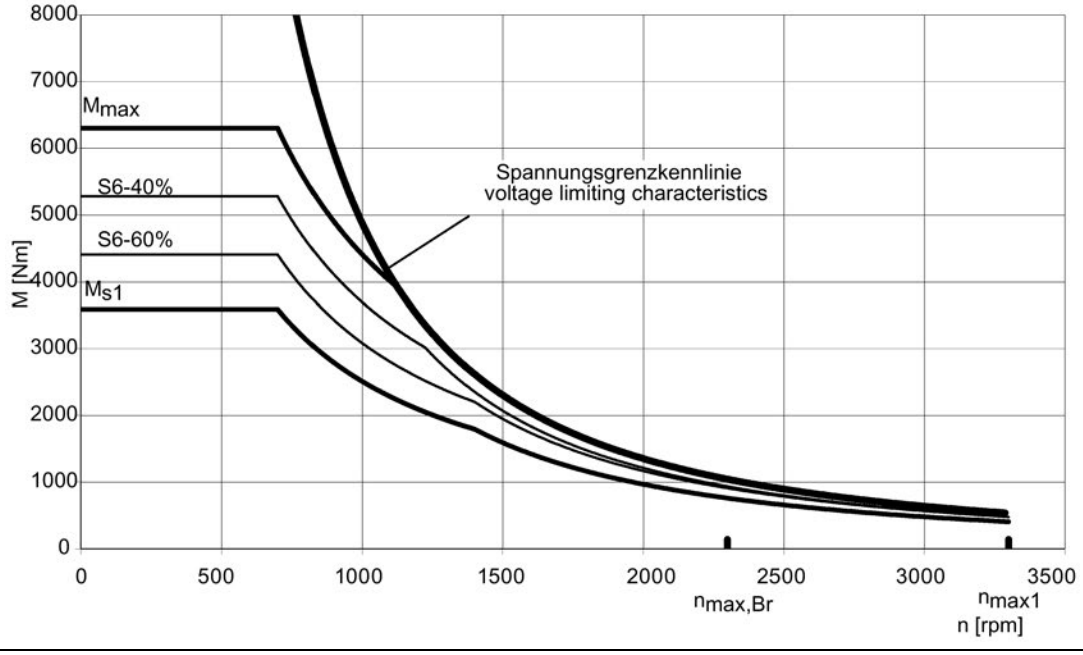
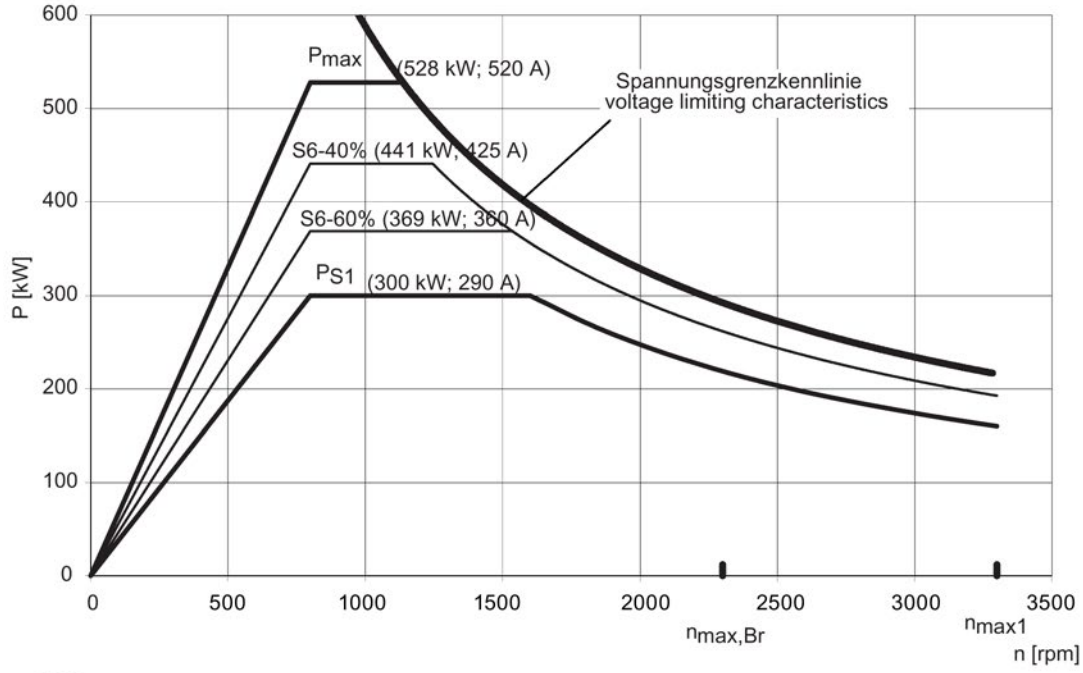


Table 6- 571 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□K4□, (IP23)

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	3,581	290	3,300	-	-	2,300	1,600	6,300	520	3,581	290
700	263	3,581	290					1,900				



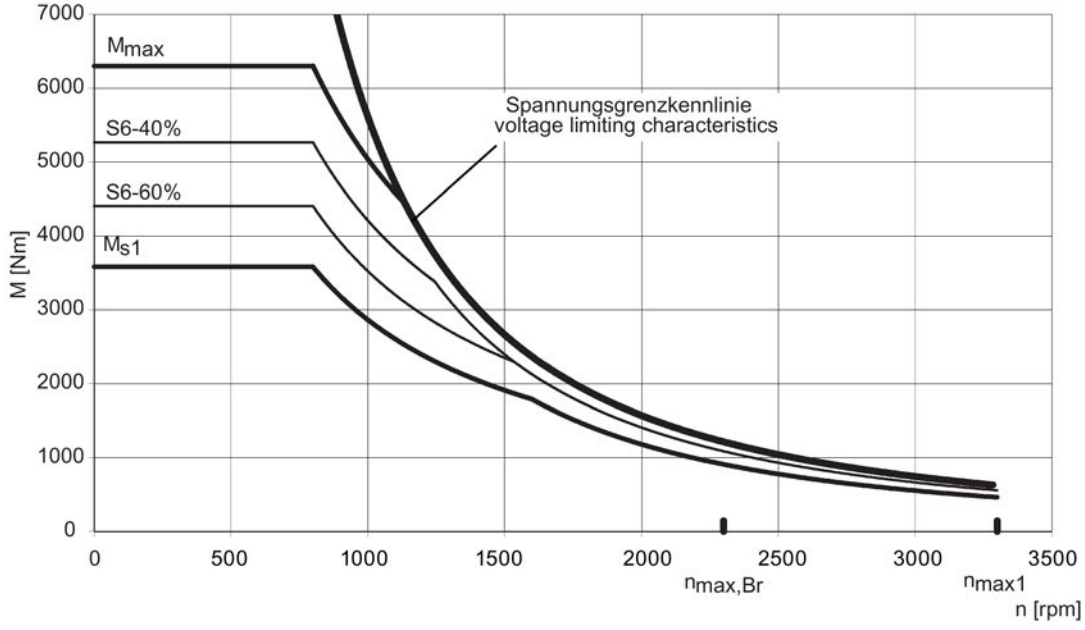
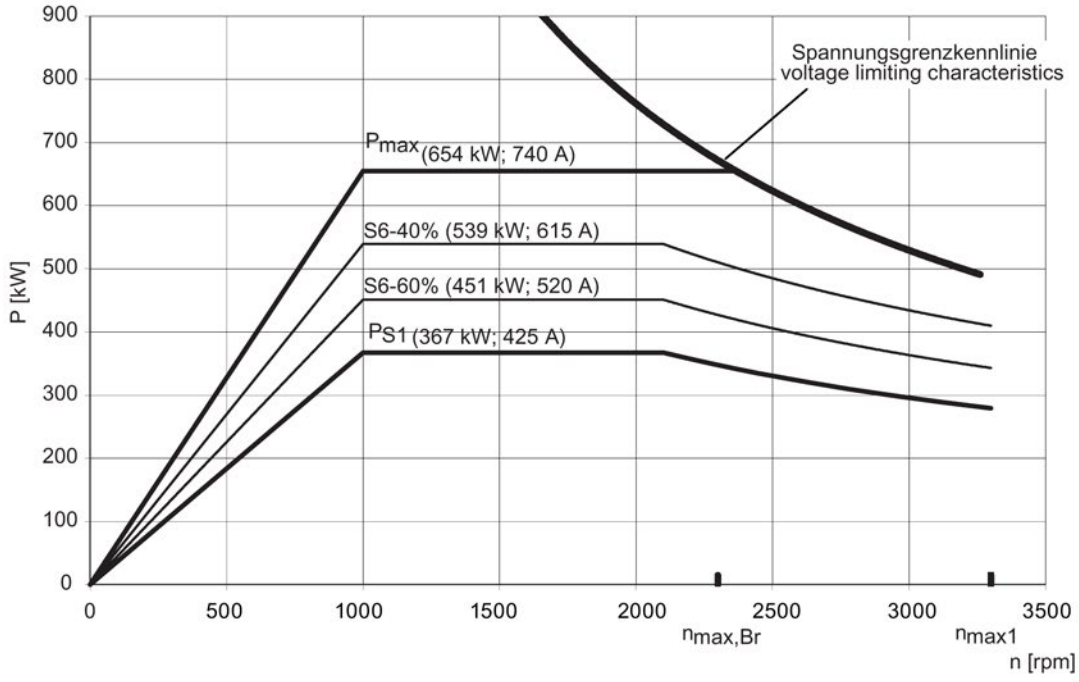


Table 6- 572 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□U4□, (IP23)

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]
1,000	367	3,505	425	3,300	-	-	2,300	2,100	6,250	740	3,505	425



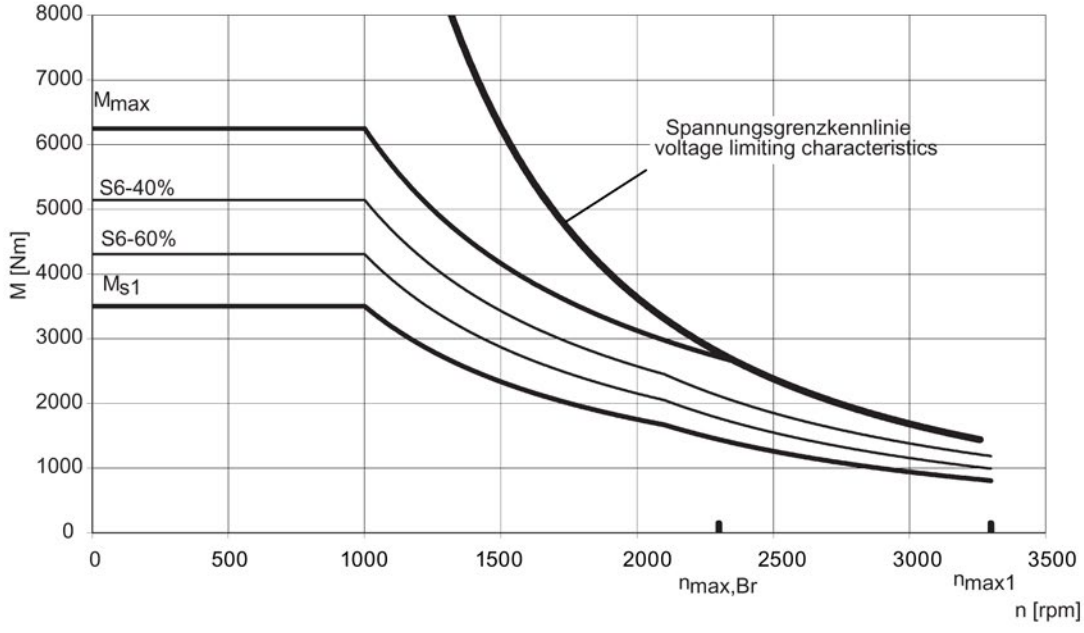
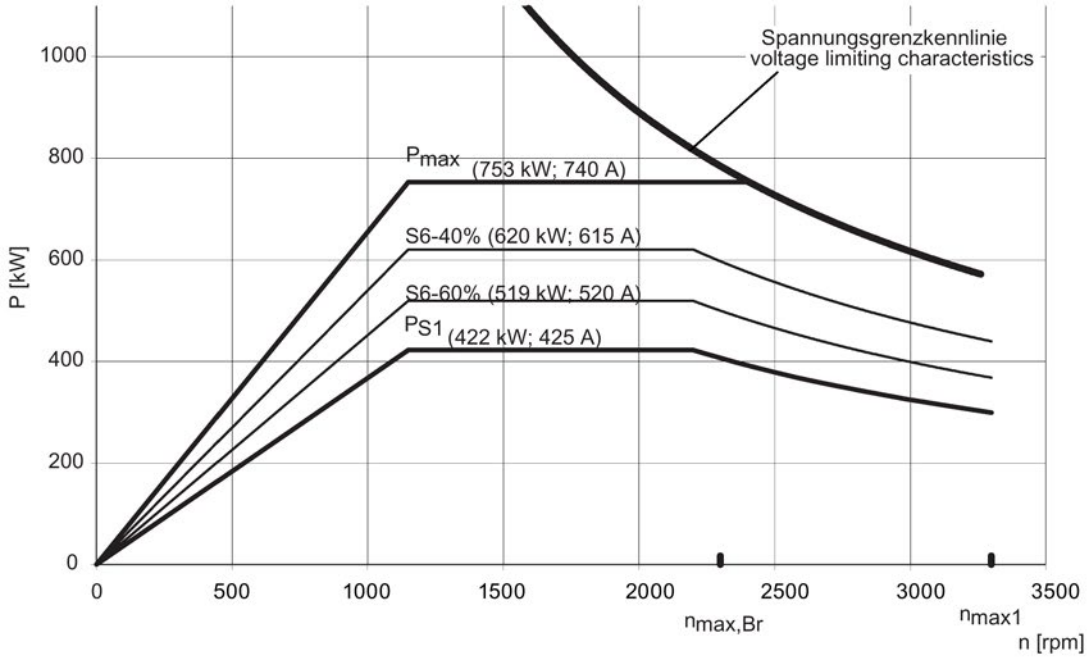


Table 6- 573 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□U4□, (IP23)

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]
1,150	422	3,504	425	3,300	-	-	2,300	2,200	6,250	740	3,504	425
1,000	367	3,504	425					2,600				



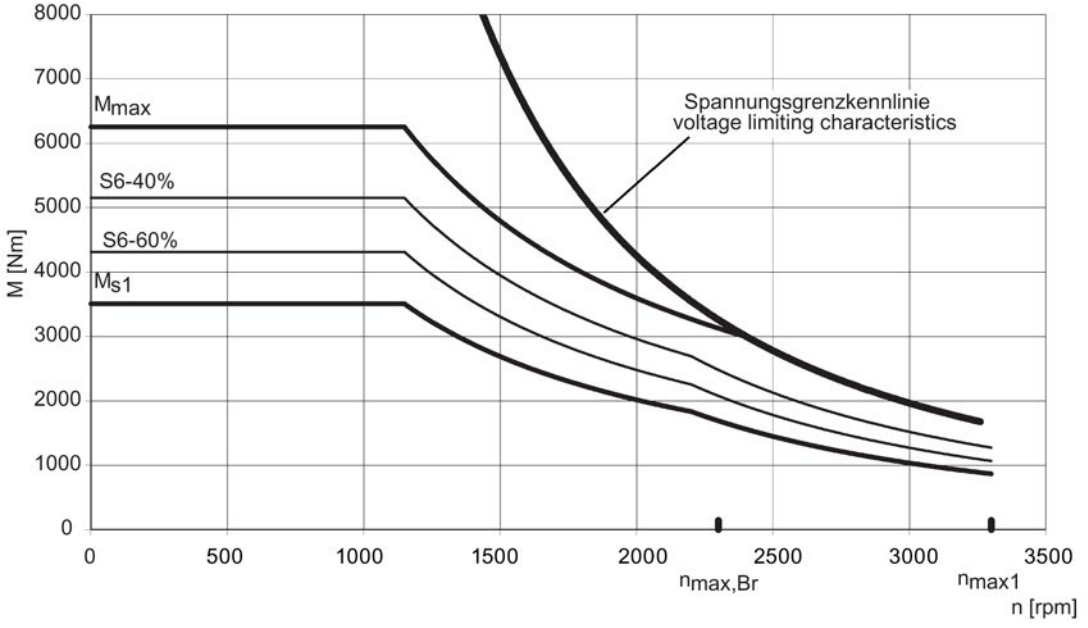
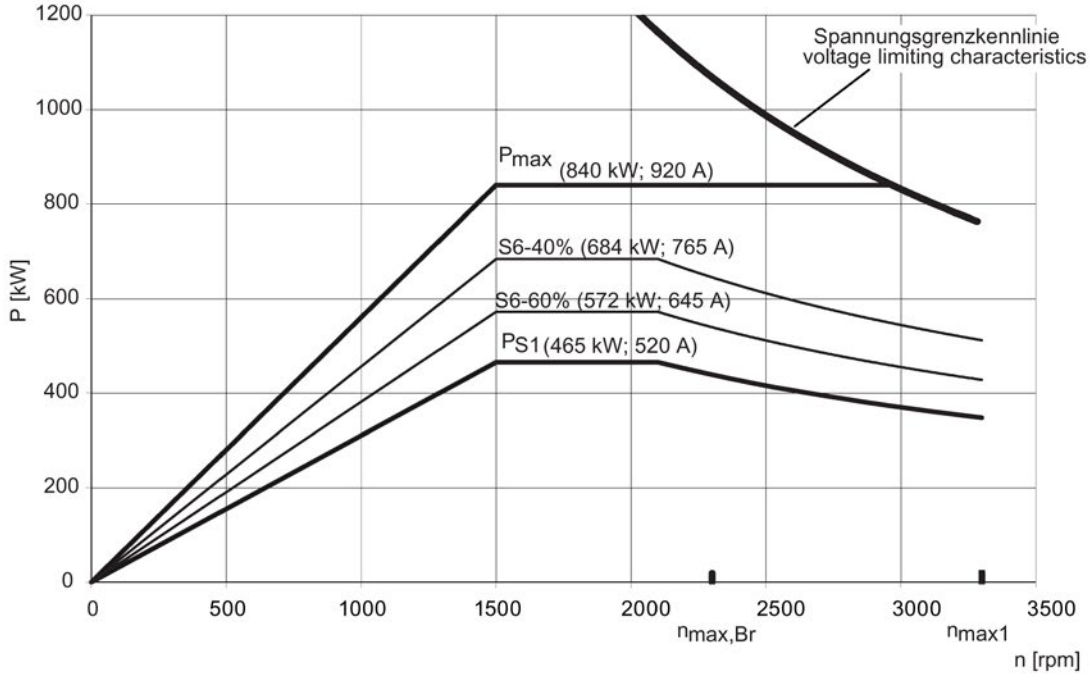


Table 6- 574 SINAMICS, 3-ph. 690 VAC, Basic Line Module, (BLM), 1PH8288-□□W4□, (IP23)

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]
1,500	465	2,961	520	3,300	-	-	2,300	2,100	5,350	920	2,961	520



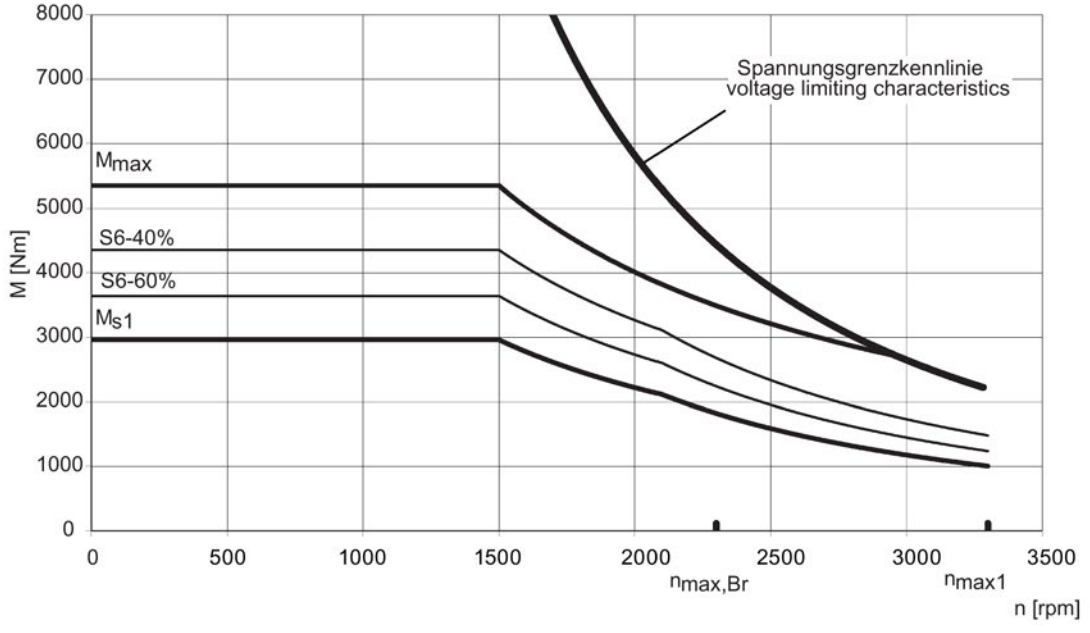
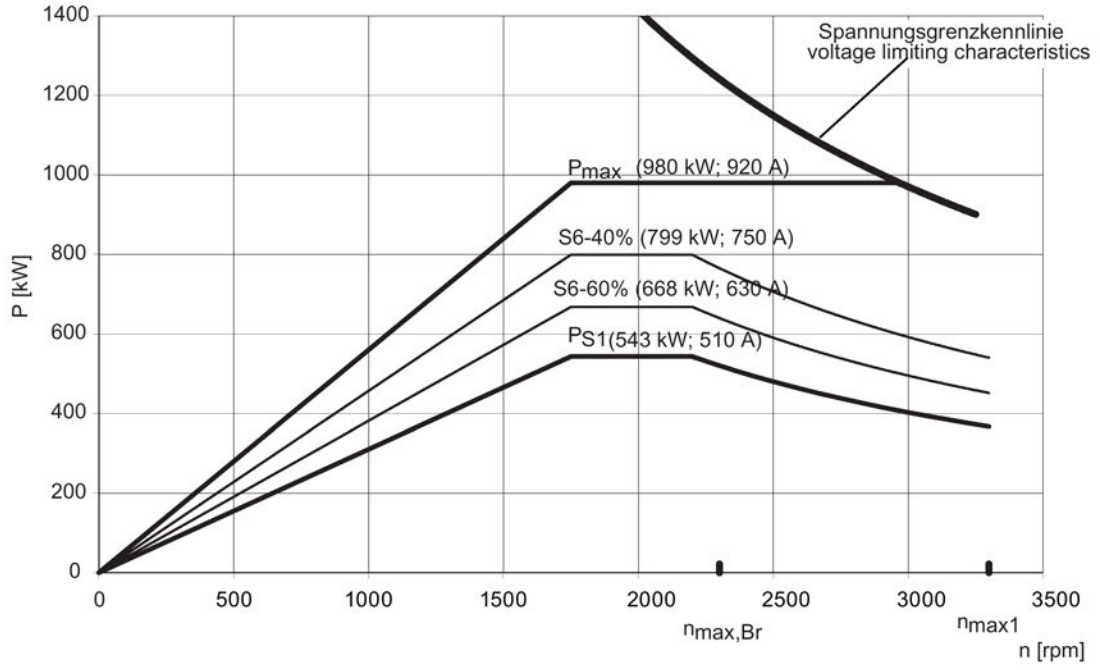
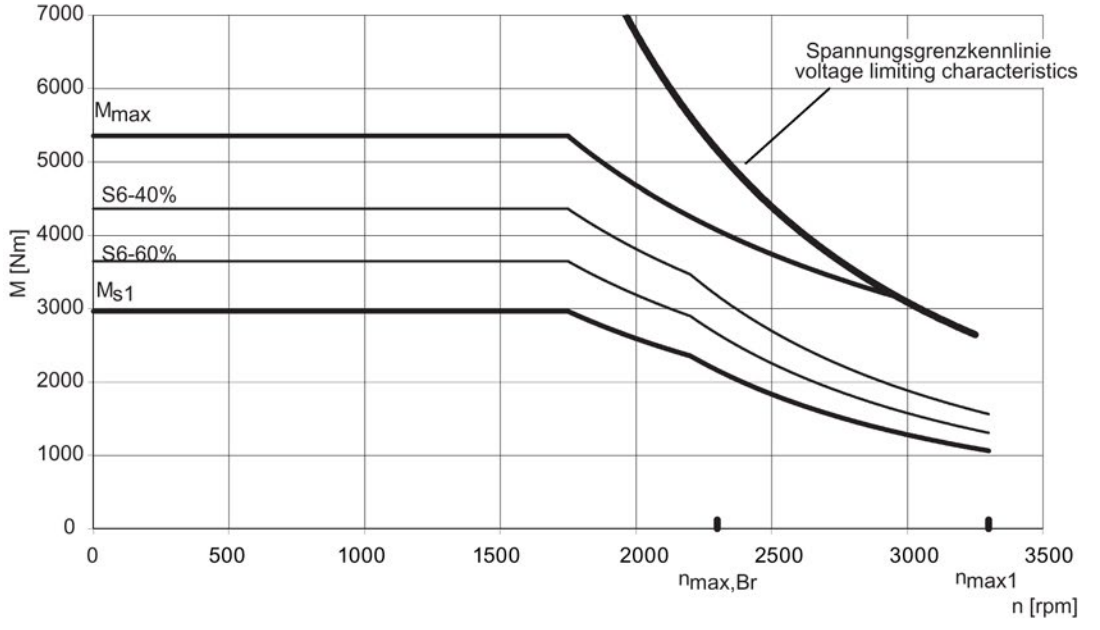


Table 6- 575 SINAMICS, 3-ph. 690 VAC, Active Line Module, (ALM), 1PH8288-□□W4□, (IP23)

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]
1,750	543	2,964	510	3,300	-	-	2,300	2,200	5,350	920	2,964	510
1,500	466	2,964	510					2,600				





6.1.3 Characteristics water cooling

6.1.3.1 Shaft height 80 - water-cooled

Table 6- 576 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]
1,500	3.5	22	8.9	10,000	12,000	-	5,000	3,550	32	13	23	9

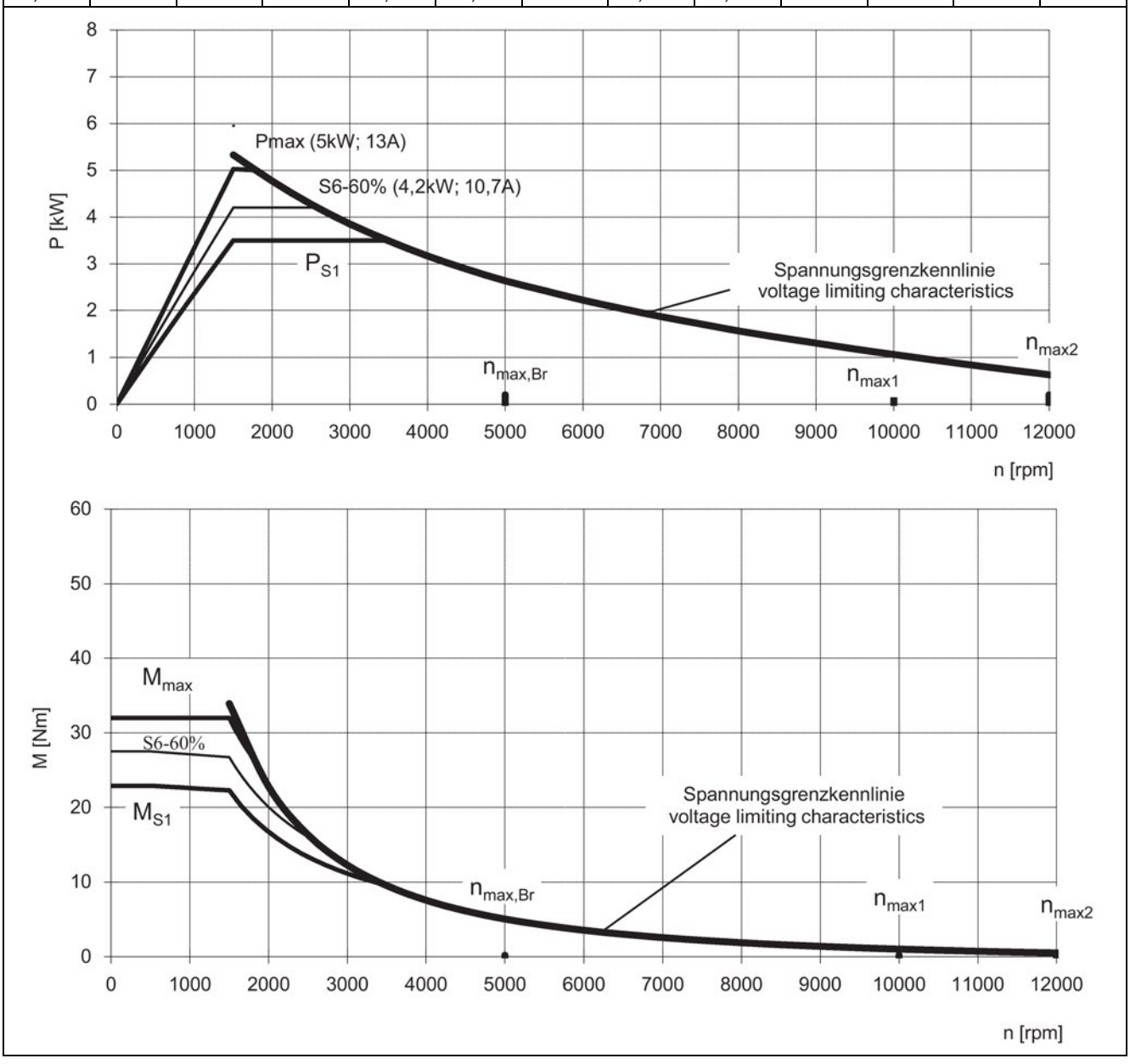


Table 6- 577 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□F2□

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]
1,750	4	22	8.7	10,000	12,000	-	5,000	4,100	32	13	23	9
1,500	3.5	22	8.9					4,850				

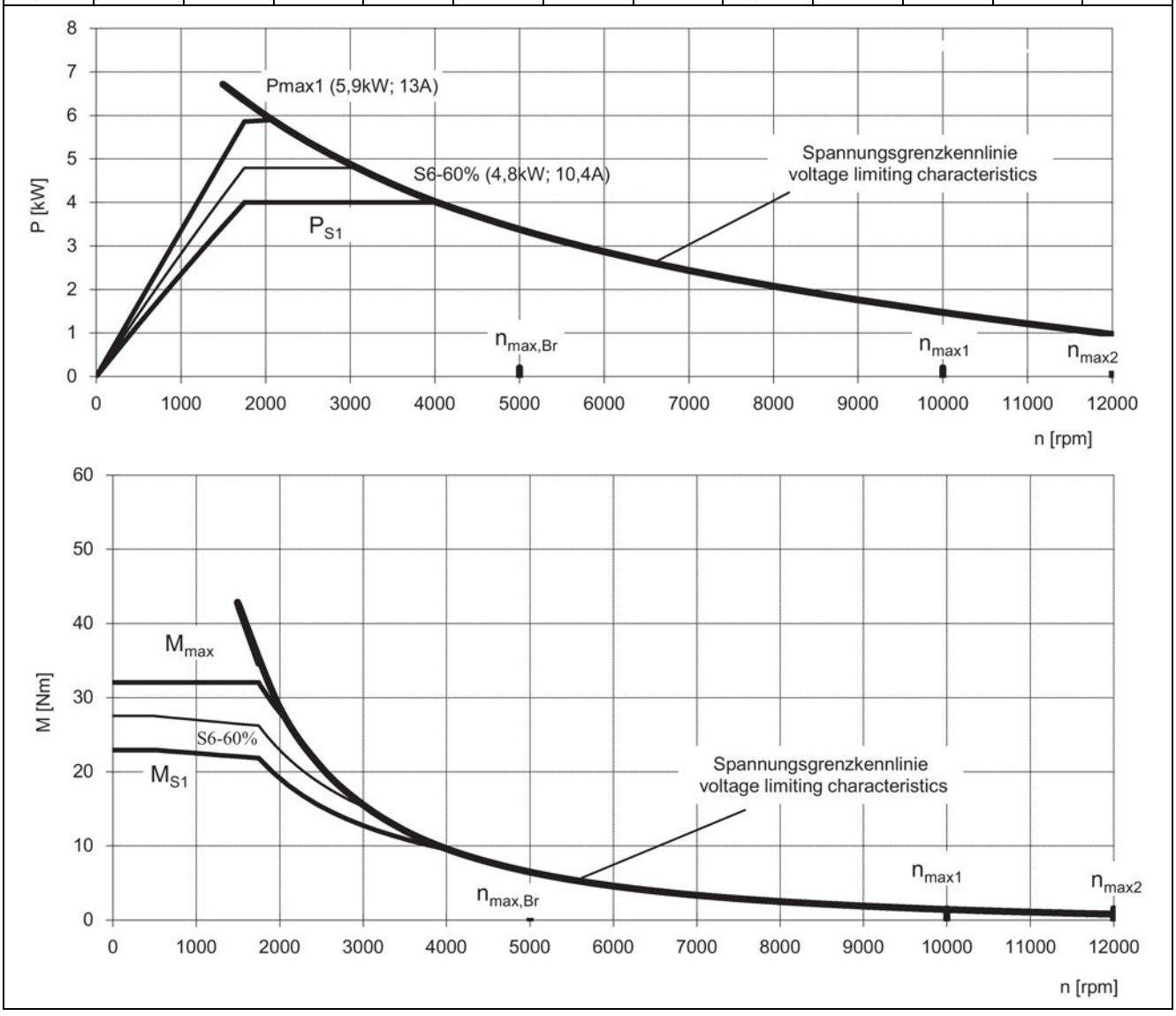
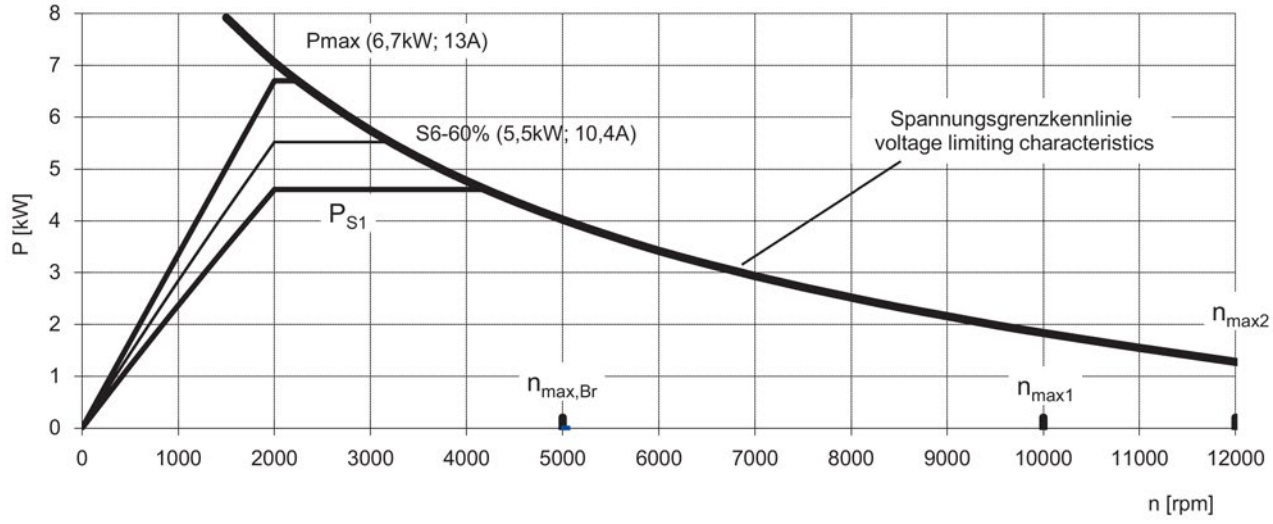


Table 6- 578 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□F2□

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]
2,000	4.6	22	8.7	10,000	12,000	-	5,000	4,250	32	13	23	9



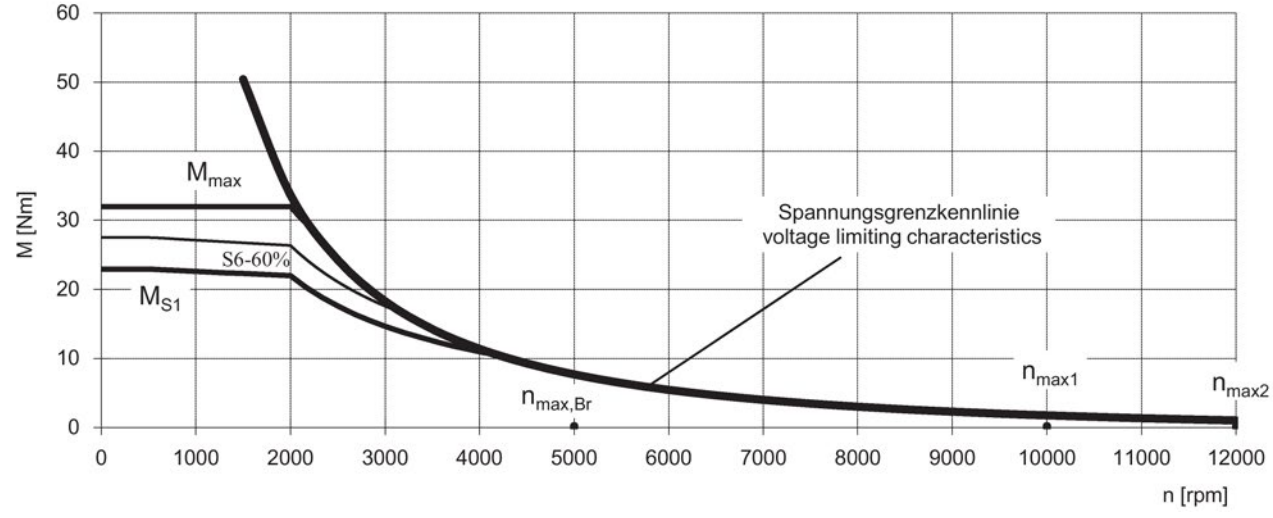
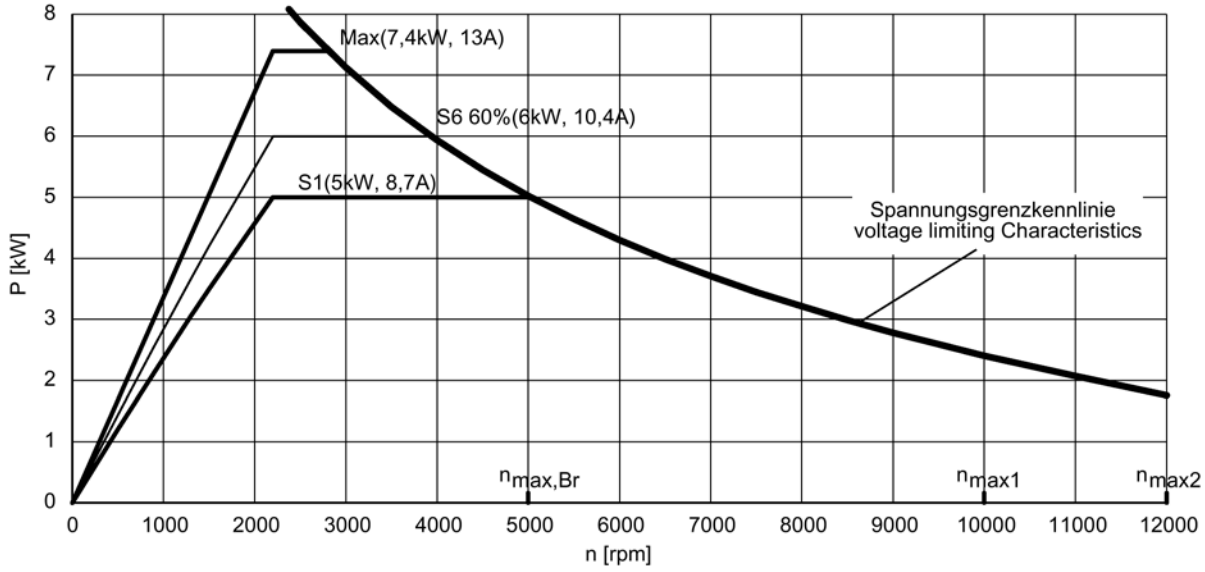


Table 6- 579 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	5	22	8.7	10,000	12,000	--	5,000	5,050	32	13	23	9



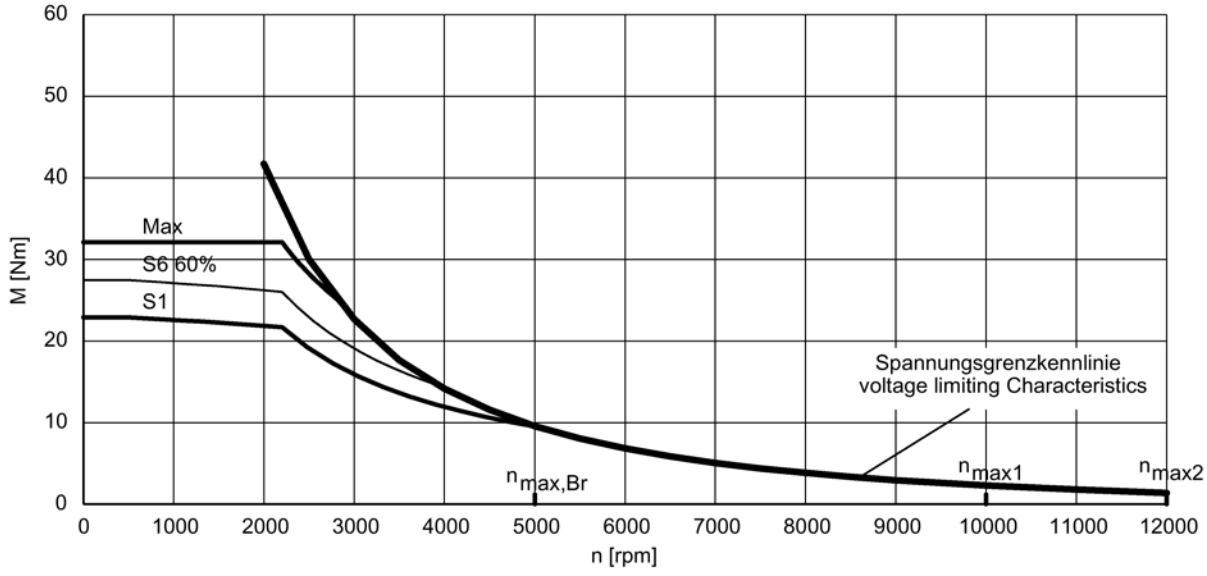
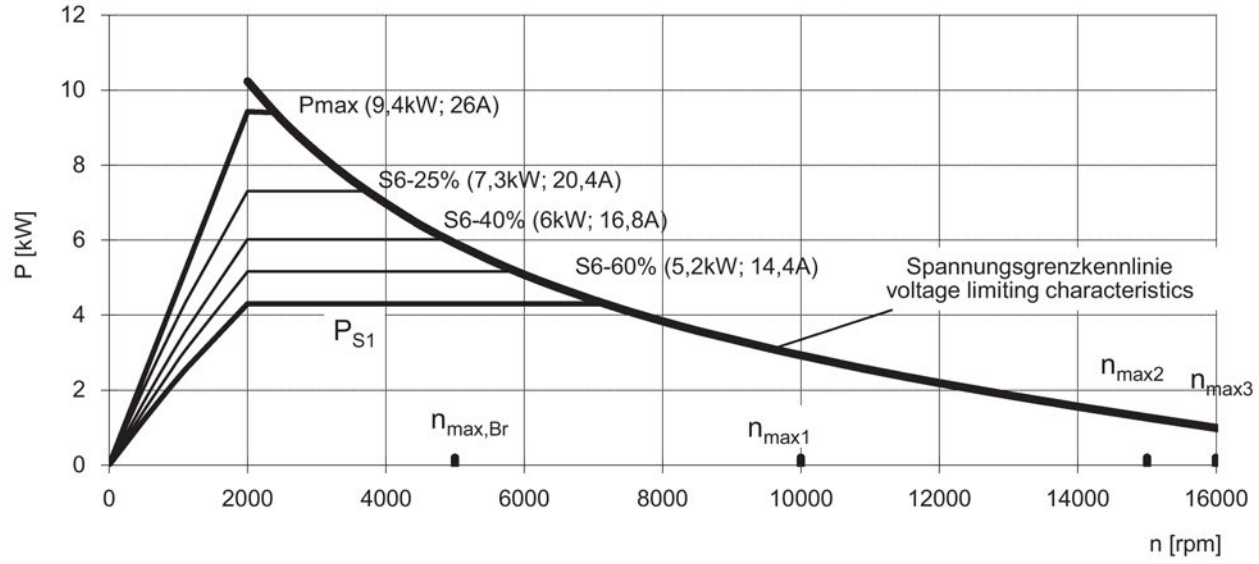


Table 6- 580 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G2□,

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]
2,000	4.3	21	12	10,000	15,000	16,000	5,000	7,200	45	26	23	13



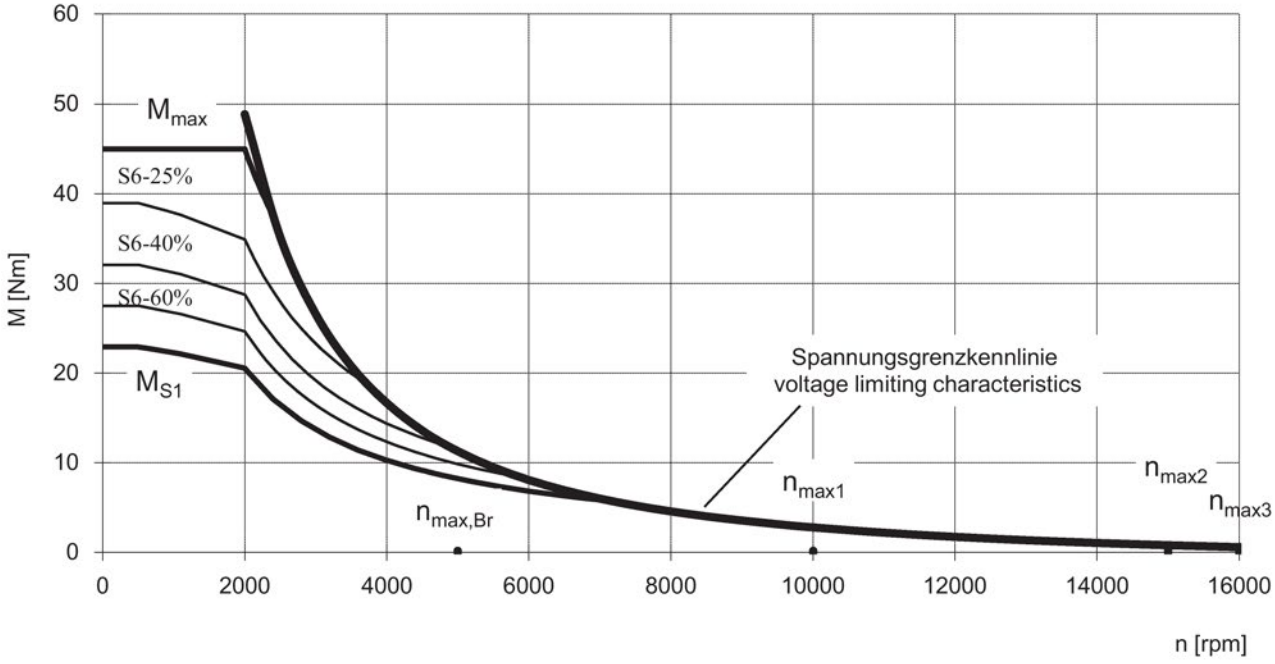


Table 6- 581 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□G2□,

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]
2,300	4.9	20	12	10,000	15,000	16,000	5,000	8,150	45	26	23	13
2,000	4.3	21	12					9,150				

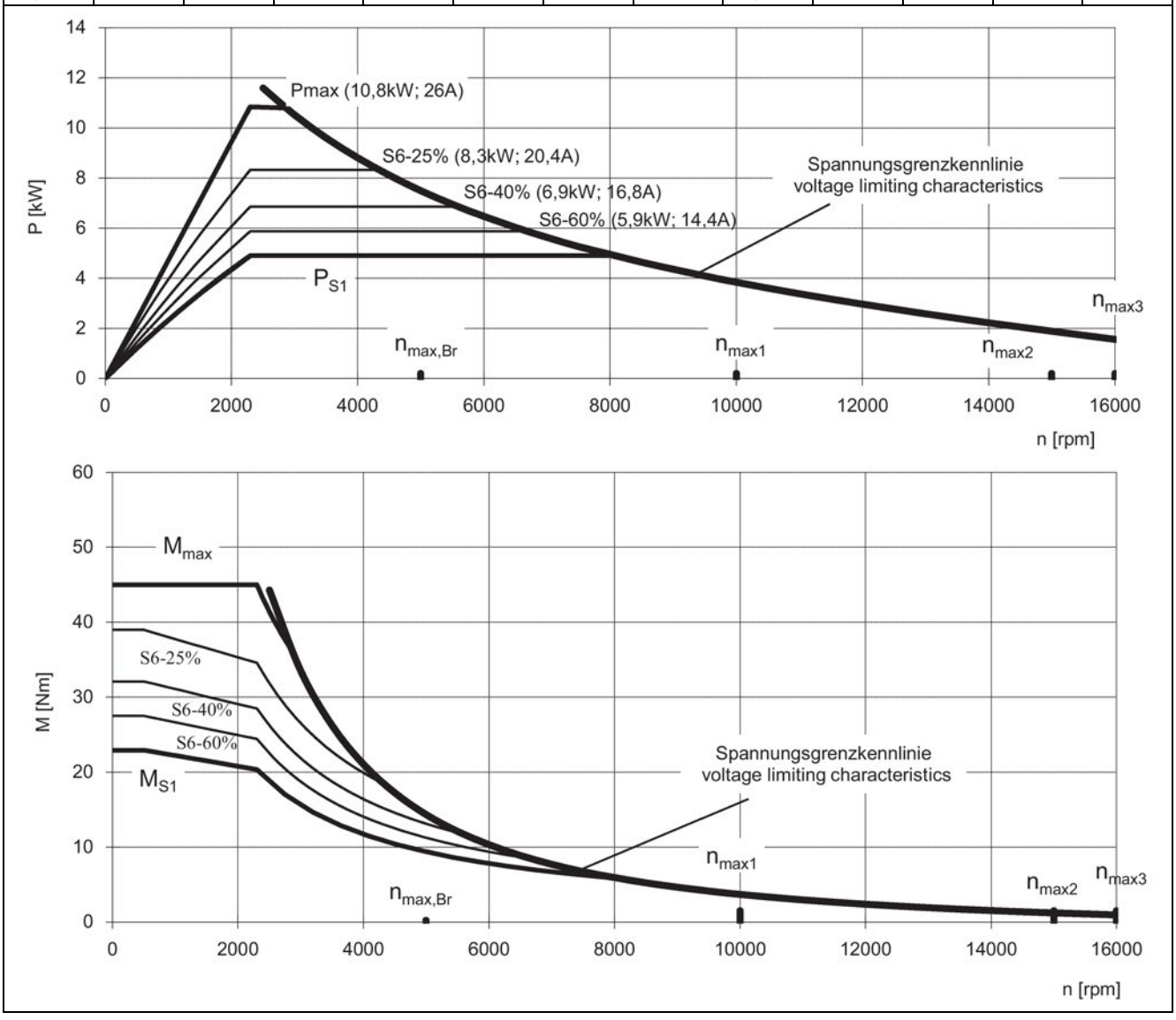
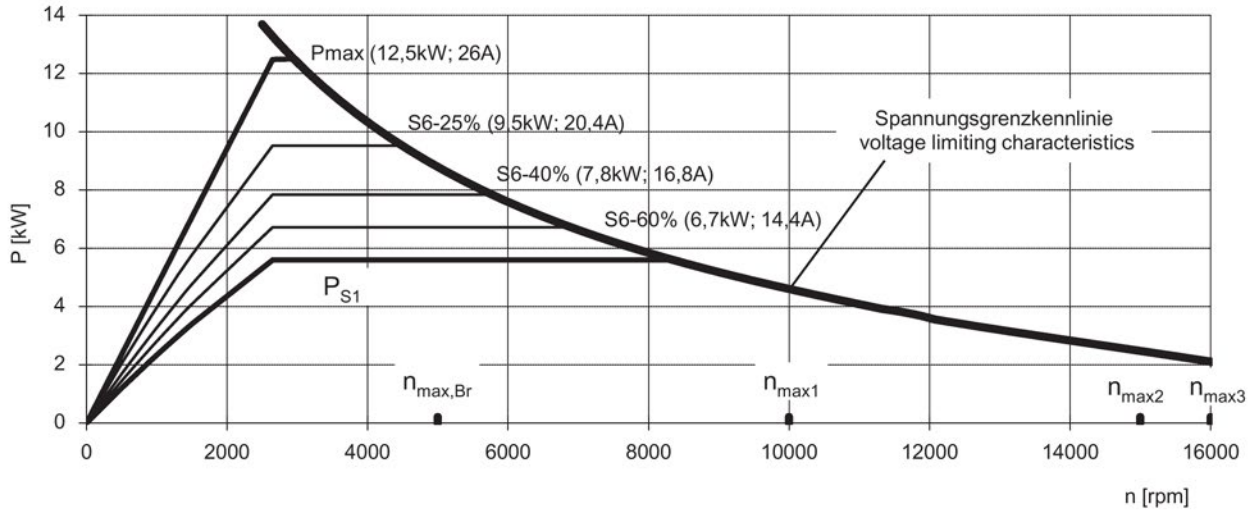


Table 6- 582 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□G2□,

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]
2,650	5.6	20	12	10,000	15,000	16,000	5,000	8,500	45	26	23	13



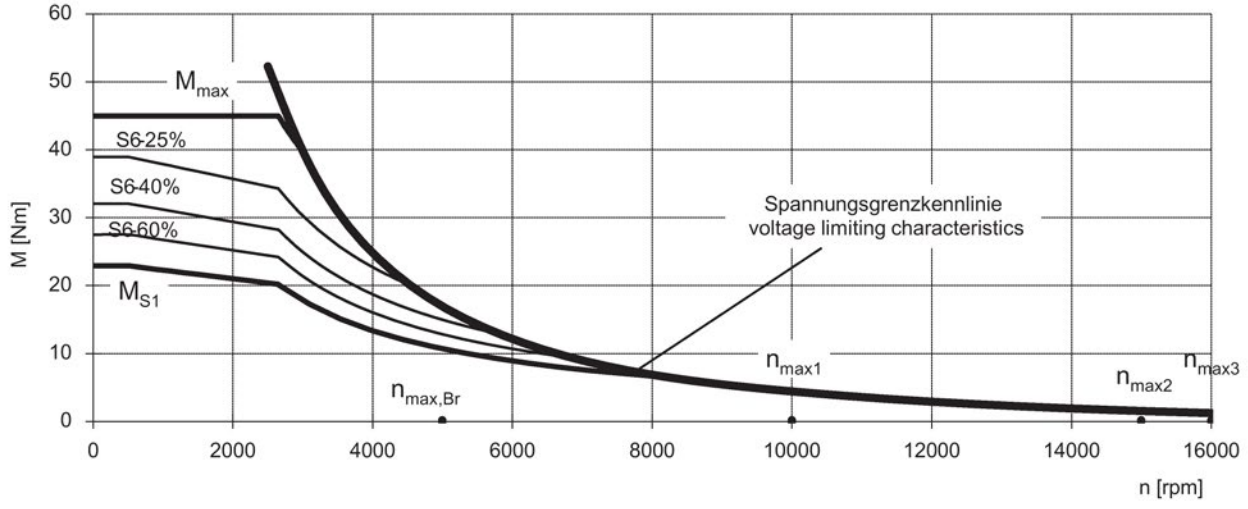
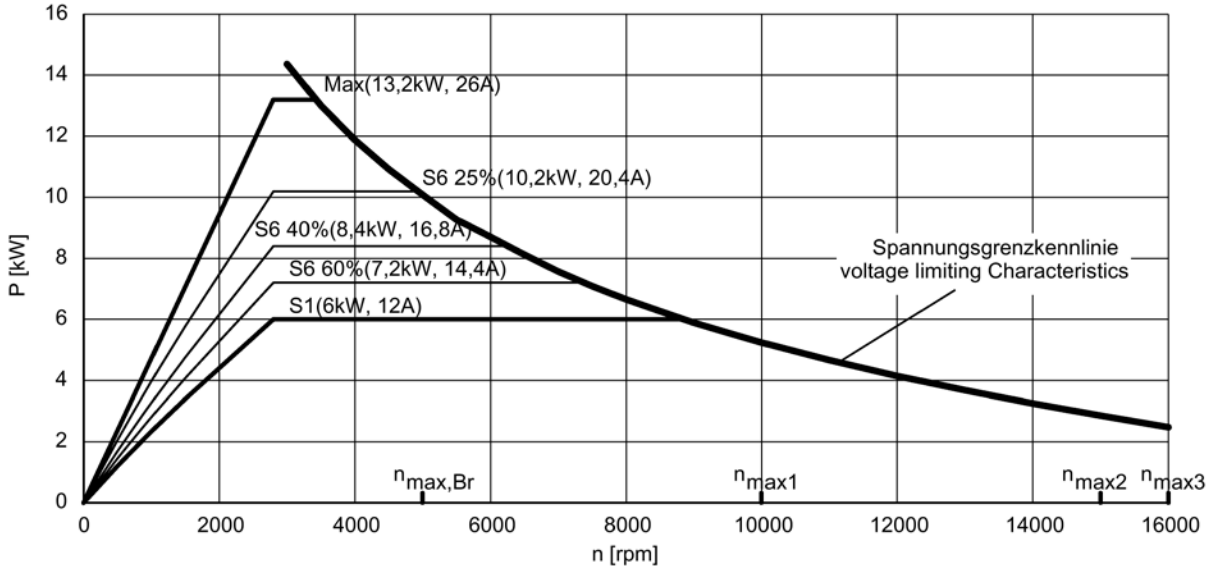


Table 6- 583 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□G2□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	6	20	12	10,000	15,000	16,000	5,000	8,900	45	26	23	13



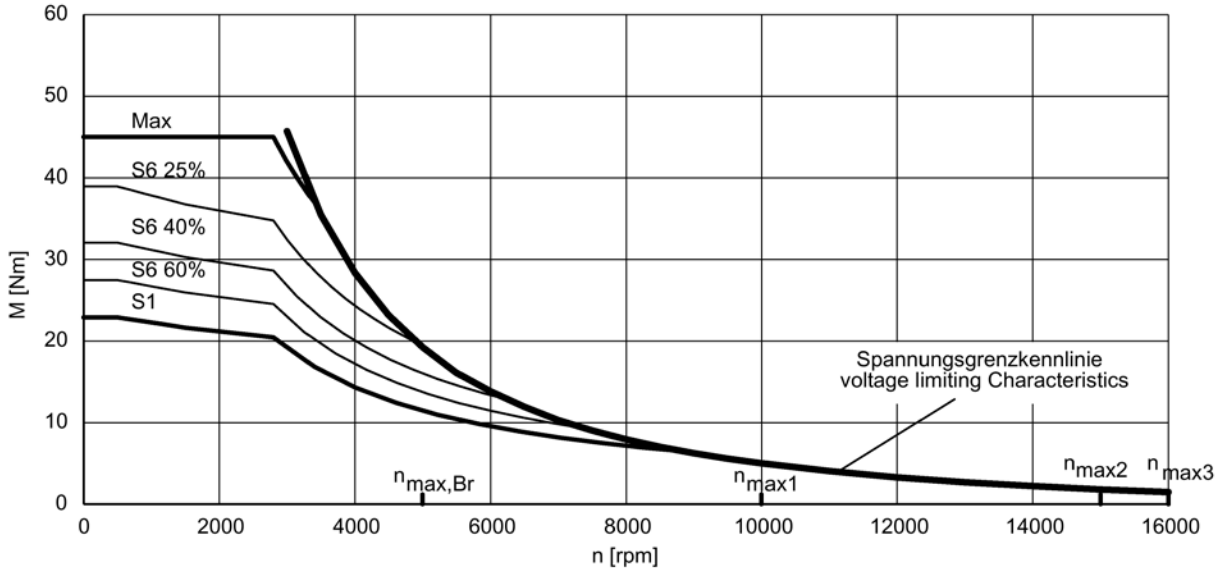
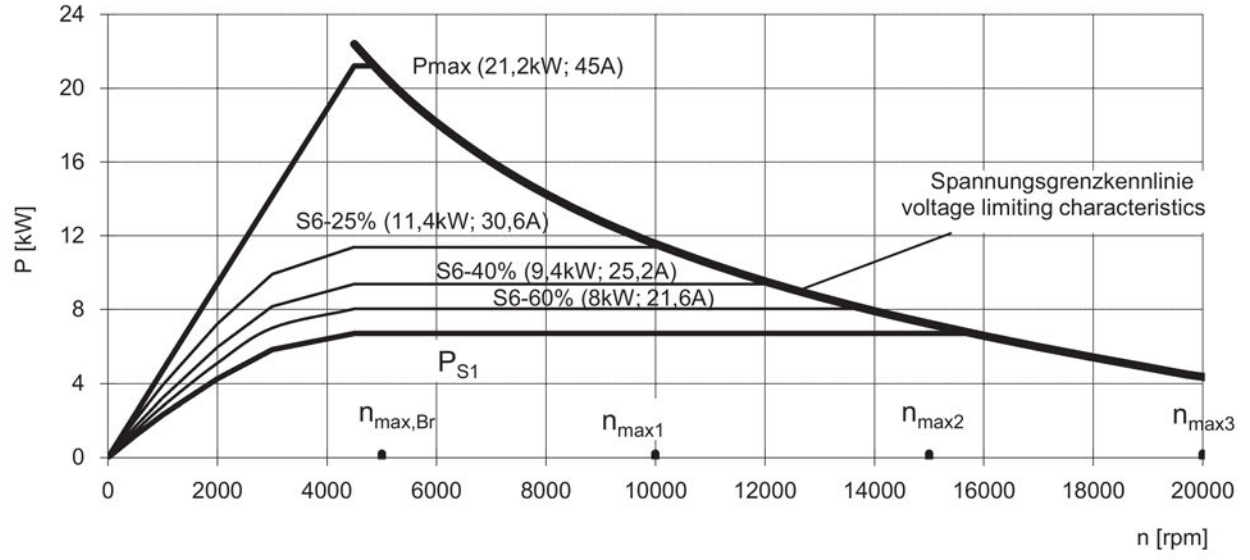


Table 6- 584 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□N2□,

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]
4,500	6.7	14	18	10,000	15,000	20,000	5,000	15,850	45	45	23	23



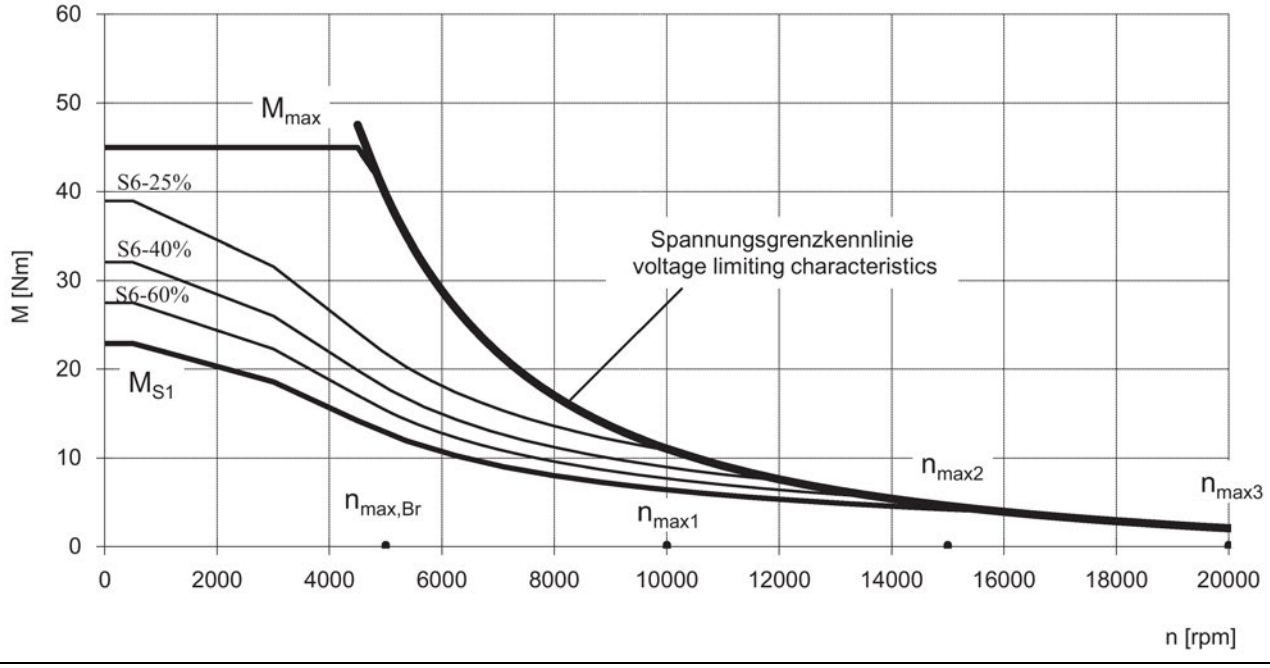


Table 6- 585 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□N2□,

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]
5,000	7.5	14	18	10,000	15,000	20,000	5,000	17,700	45	45	23	23
4,500	6.7	14	18					18,950				

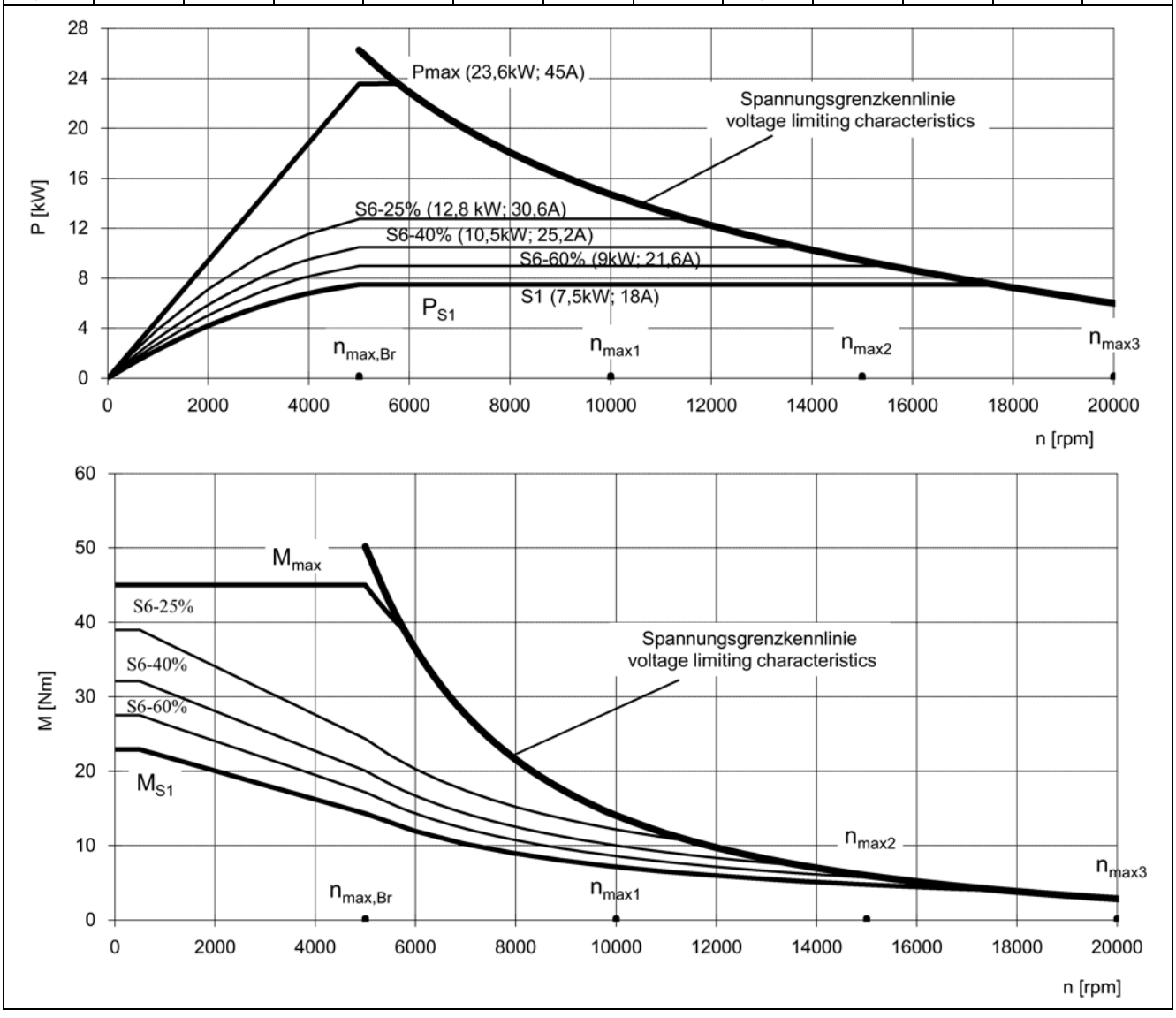
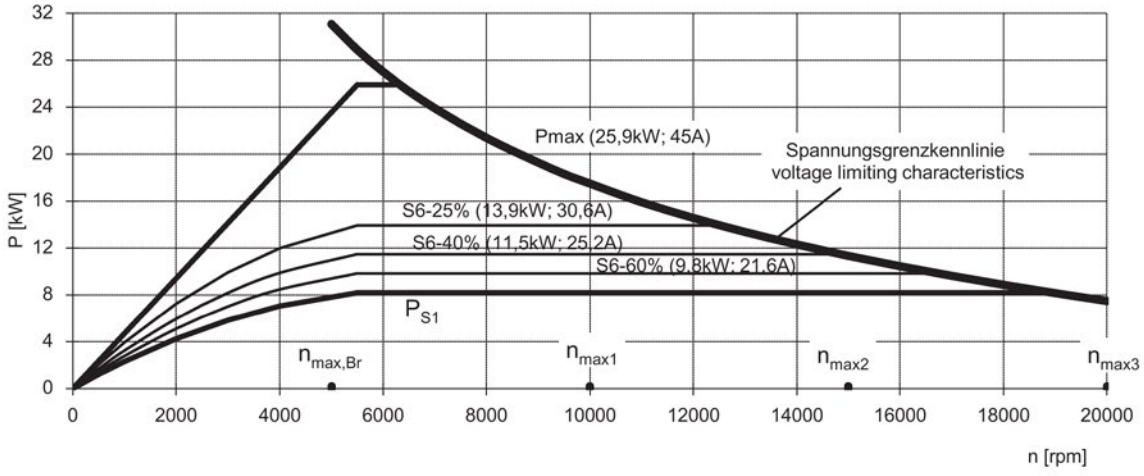


Table 6- 586 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Line Module, (SLM/BLM), 1PH8083-□□N2□,

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]
5,500	8.2	14	18	10,000	15,000	20,000	5,000	19,500	45	45	23	23



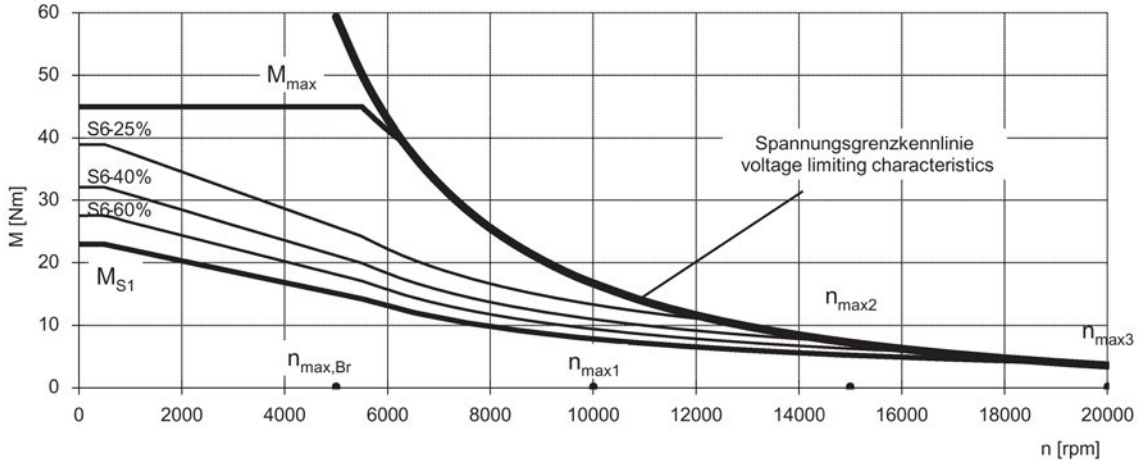
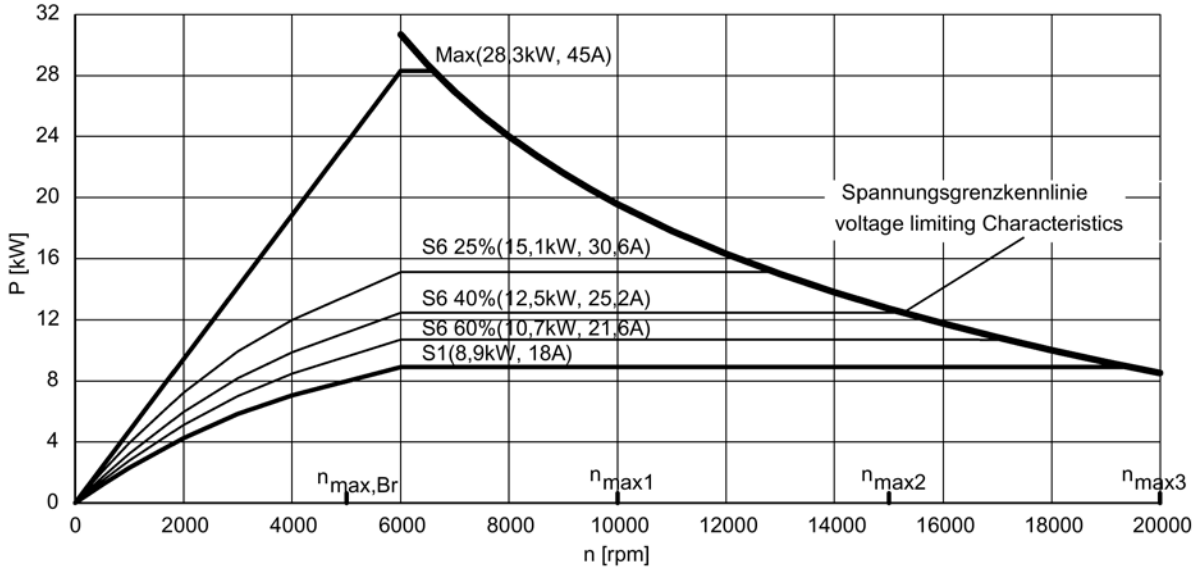


Table 6- 587 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□N2□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6,000	8.9	14	18	10,000	15,000	20,000	5,000	19,450	45	45	23	23



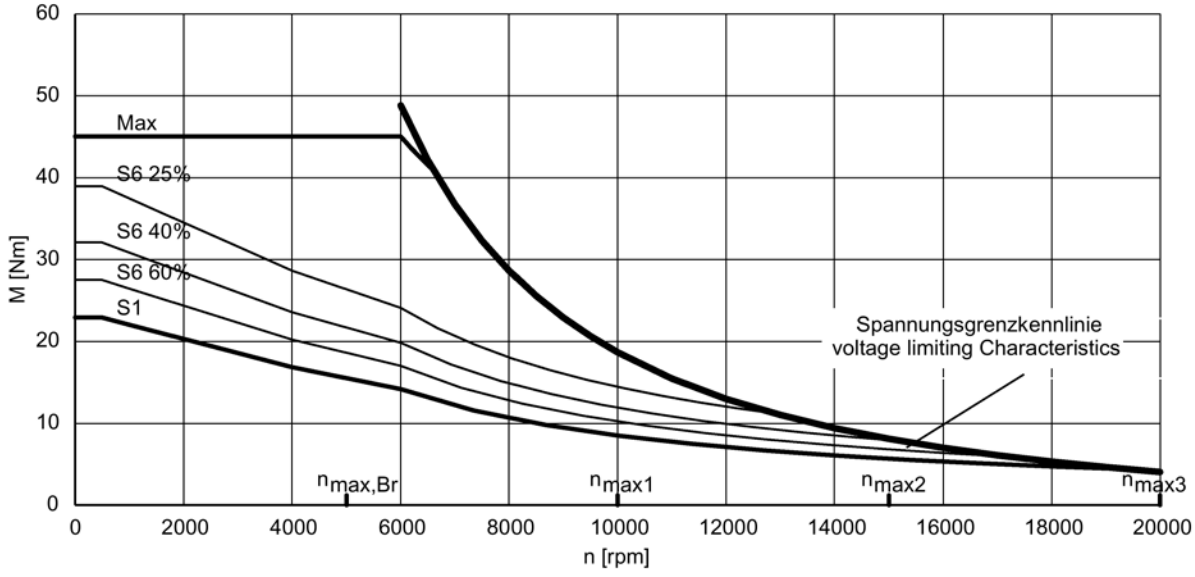
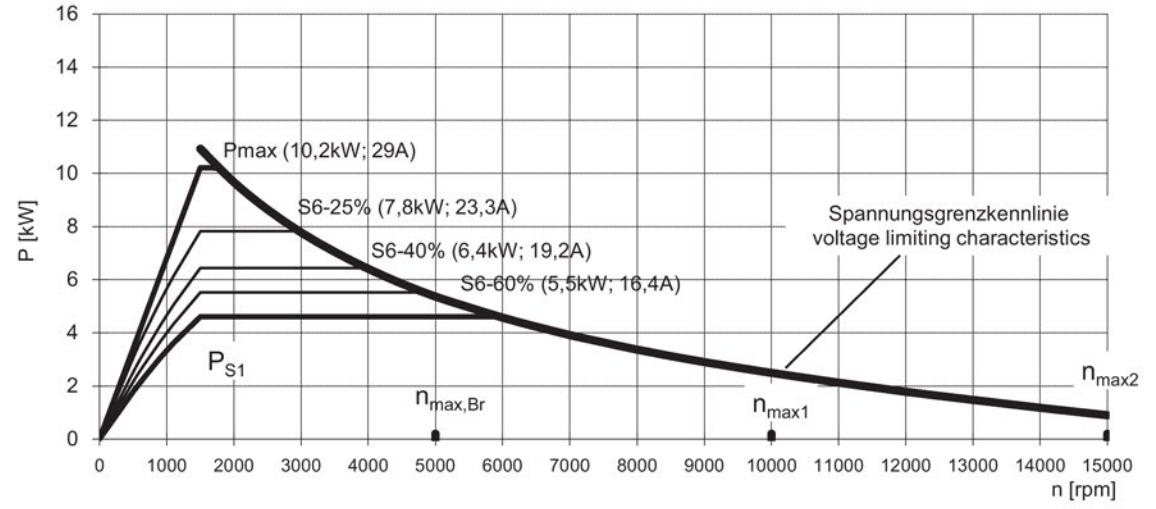


Table 6- 588 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F2□

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]
1,500	4.6	29	13.7	10,000	15,000	-	5,000	6,000	65	29	34	15



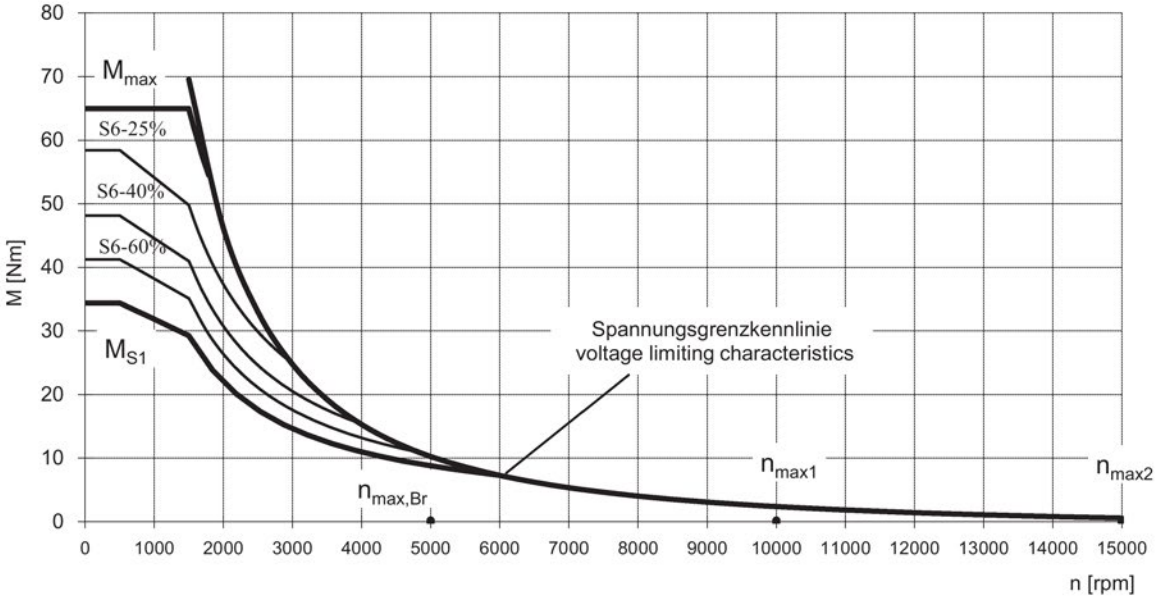
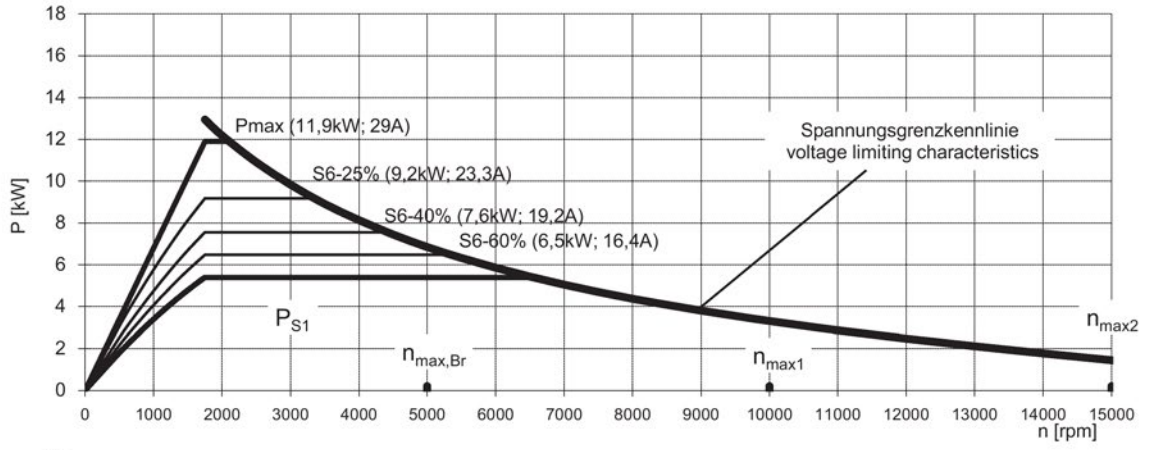


Table 6- 589 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□F2□

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]
1,750	5.4	29	13.7	10,000	15,000	-	5,000	6,600	65	29	34	15
1,500	4.6	29	13.7					7,700				



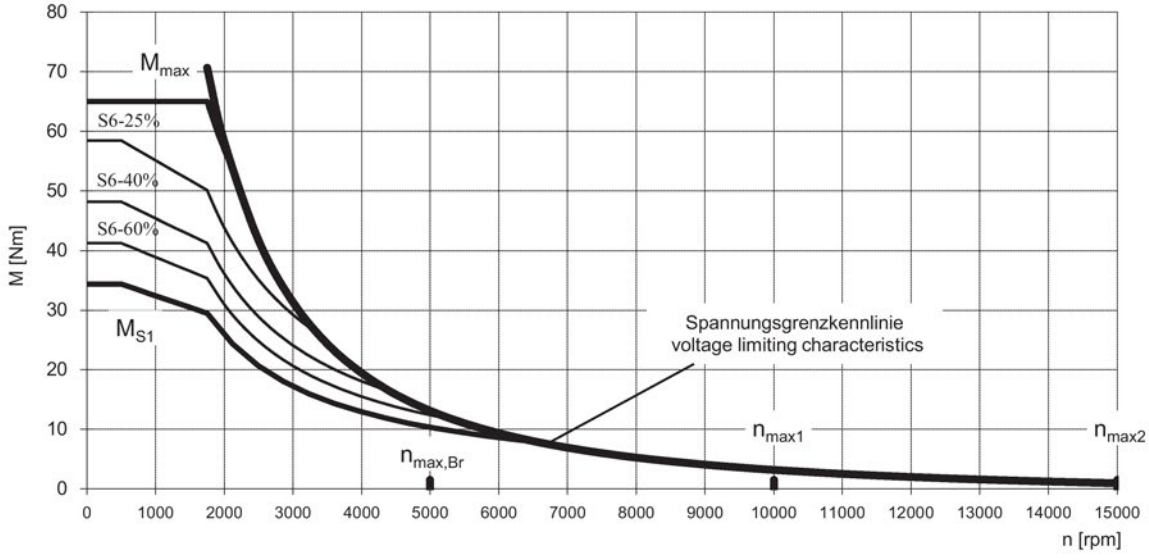
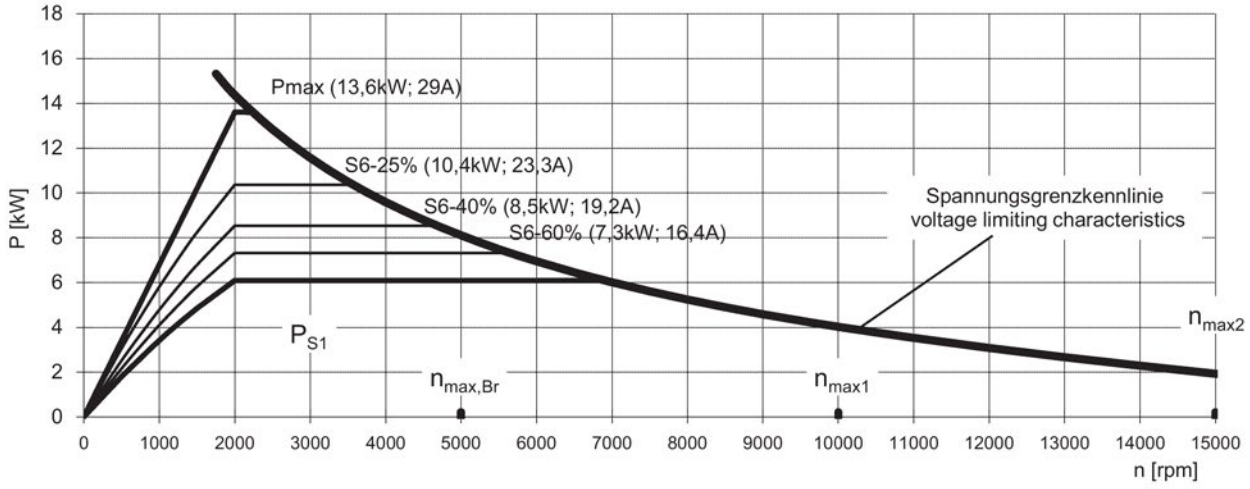


Table 6- 590 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□F2□

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]
2,000	6.1	29	13.7	10,000	15,000	-	5,000	6,950	65	29	34	15



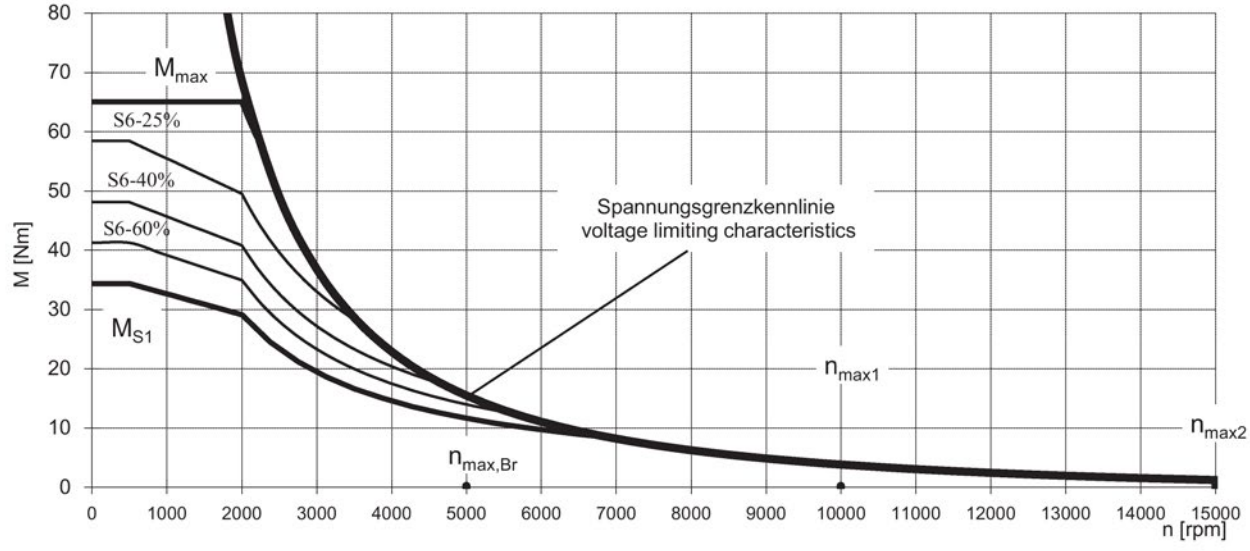
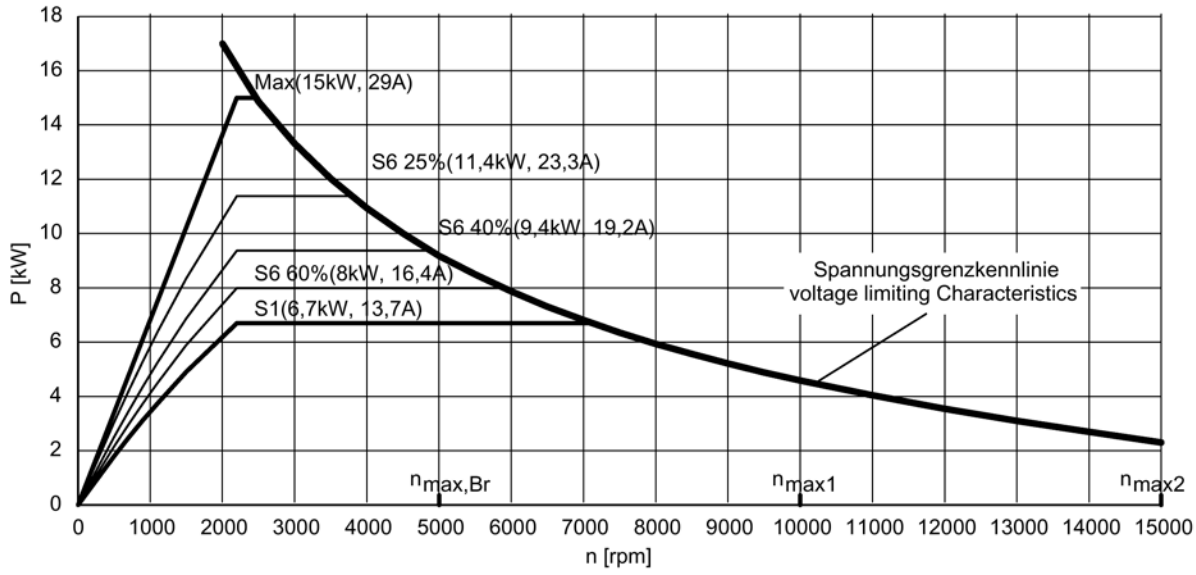


Table 6- 591 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8087-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	6.7	29	13.7	10,000	15,000	--	5,000	7,100	65	29	34	15



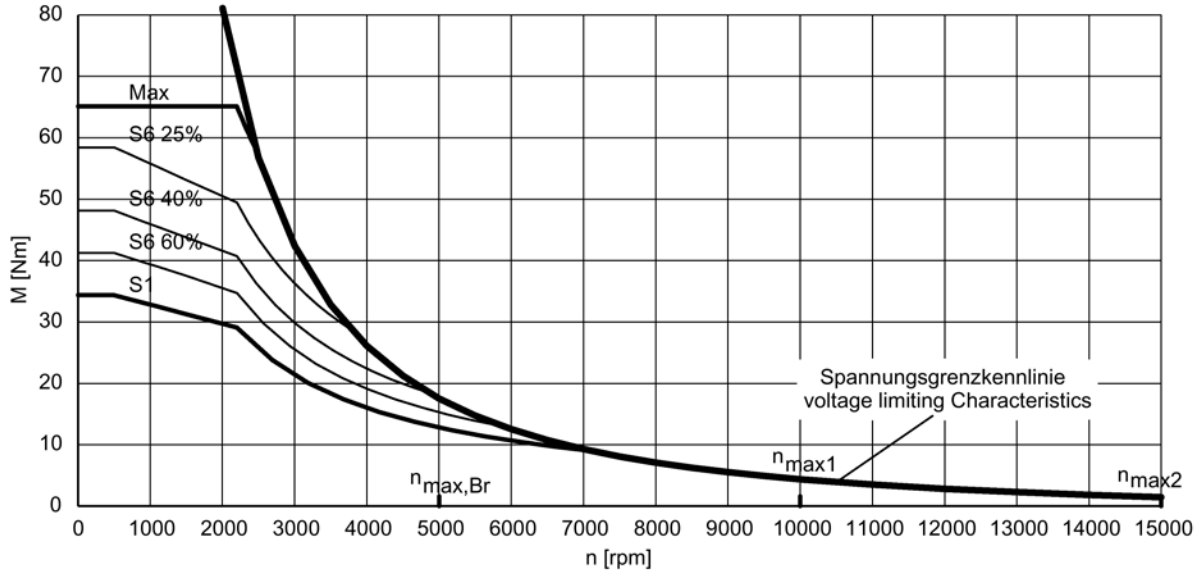
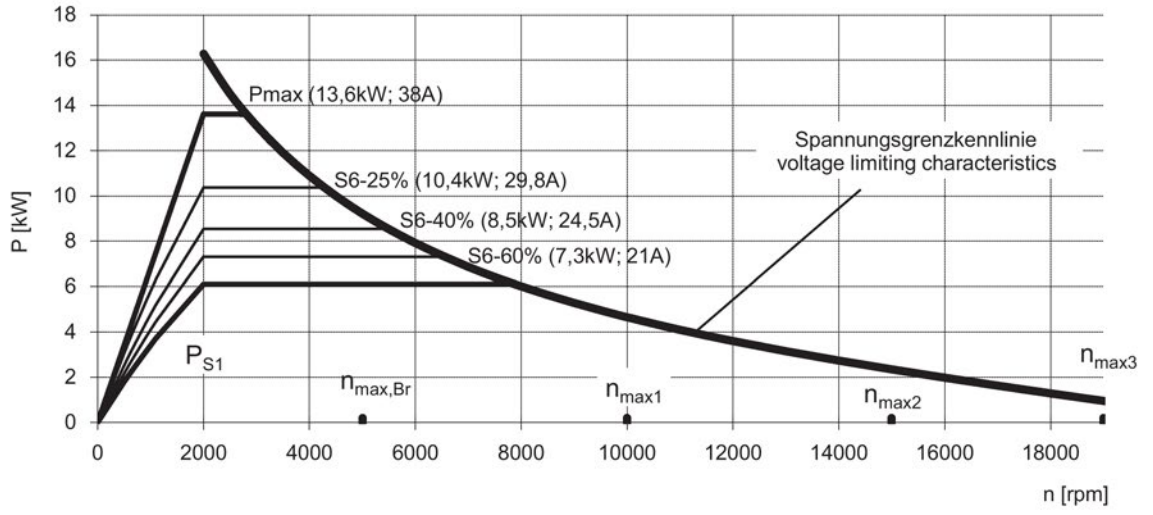


Table 6- 592 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G2□,

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]
2,000	6.1	29	17.5	10,000	15,000	19,000	5,000	7,950	65	38	34	19



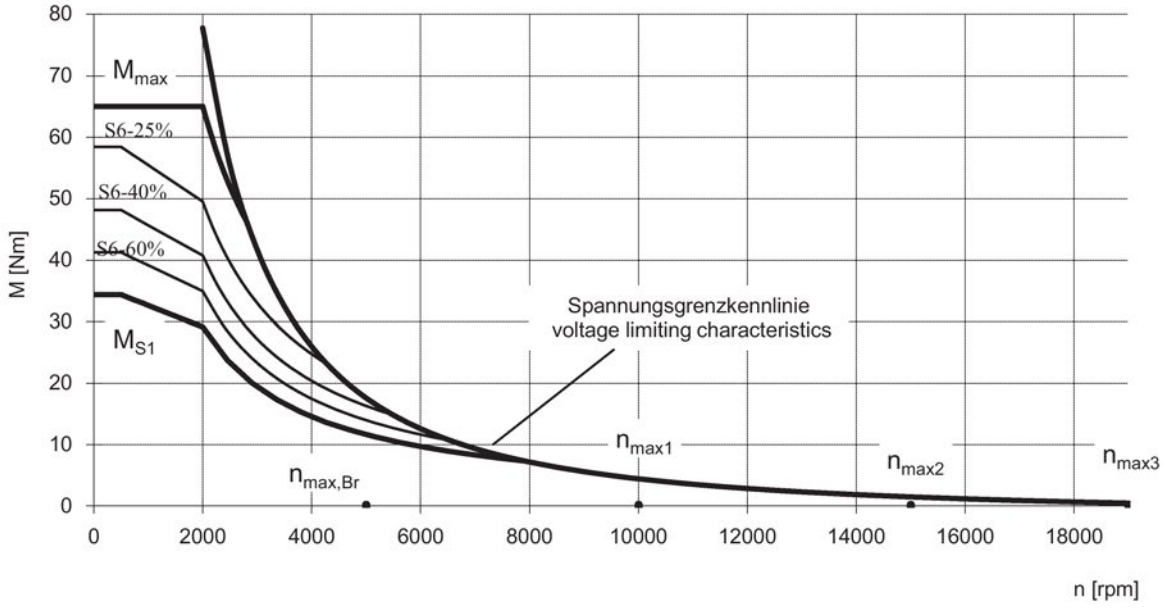


Table 6- 593 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□G2□,

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]
2,300	7	29	17.7	10,000	15,000	19,000	5,000	8,850	65	38	34	19
2,000	6.1	29	17.5					10,000				

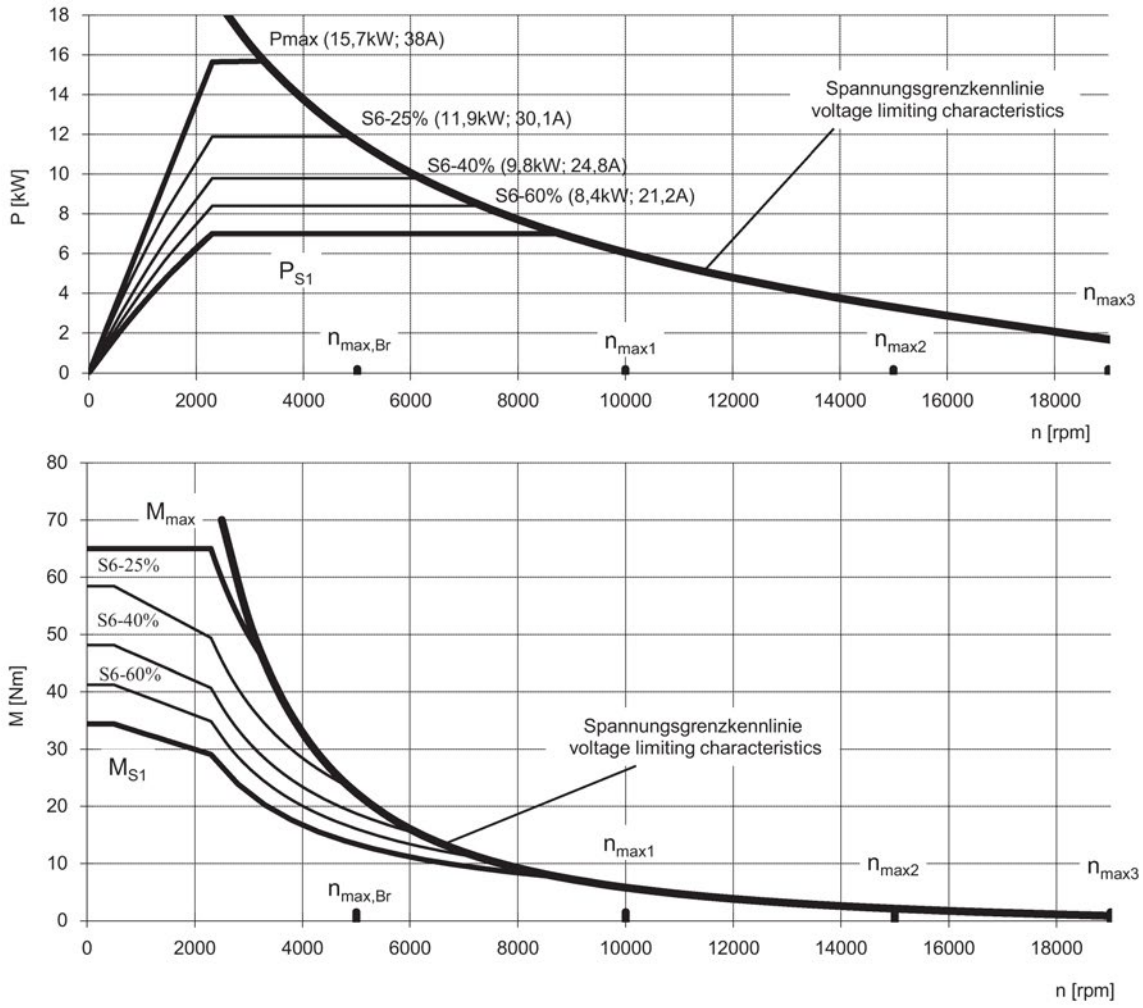
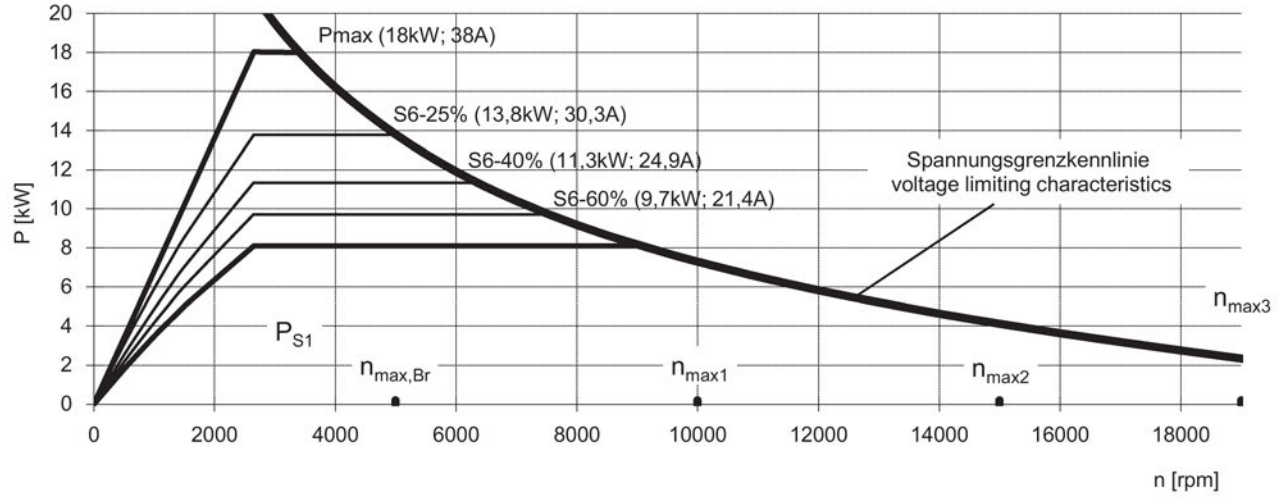


Table 6- 594 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□G2□,

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]
2,650	8.1	29	17.8	10,000	15,000	19,000	5,000	9,150	65	38	34	19



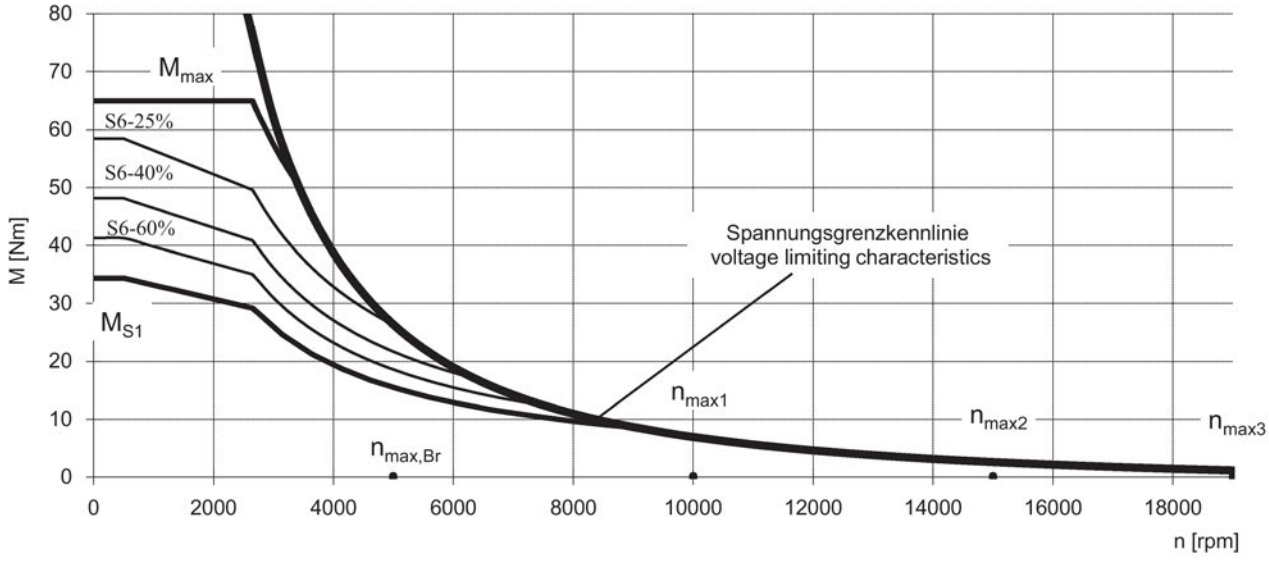
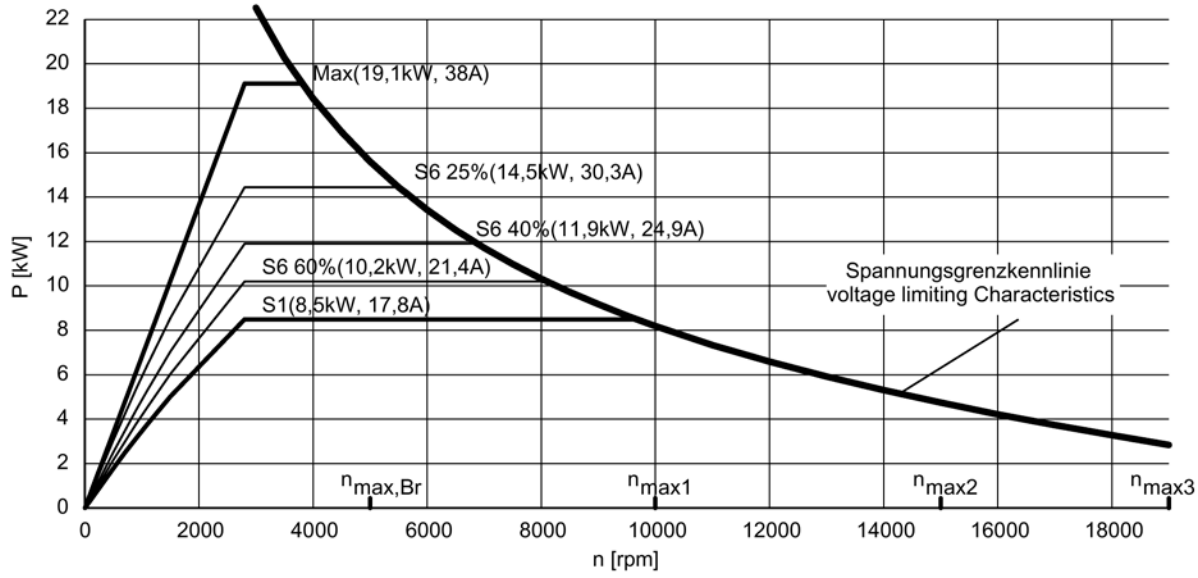


Table 6- 595 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8087-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	8.5	29	17.8	10,000	15,000	19,000	5,000	9,700	65	38	34	19



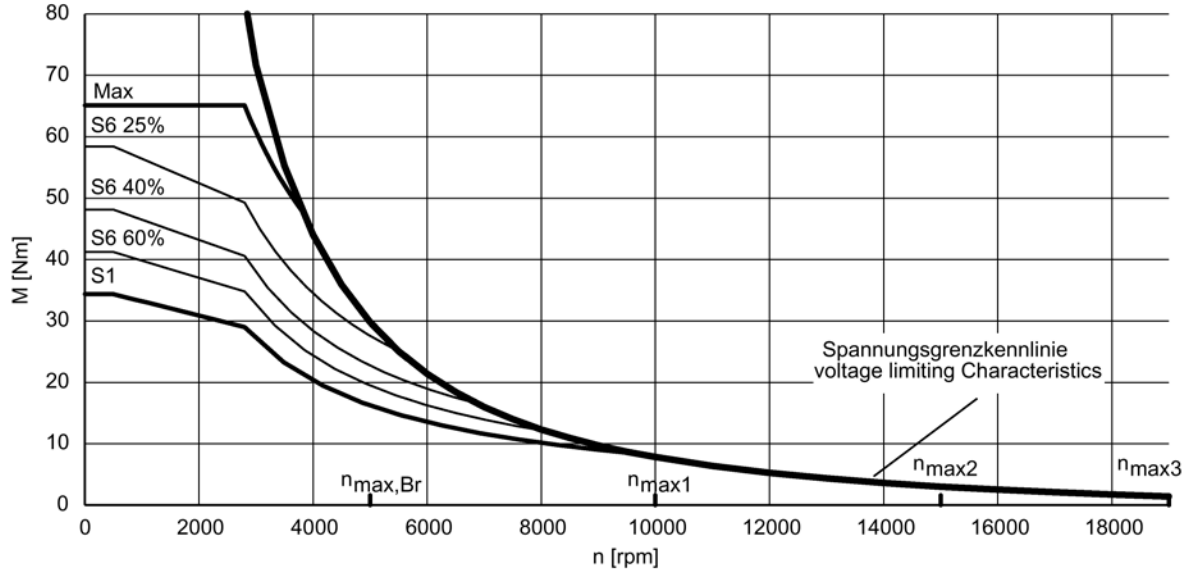


Table 6- 596 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N2□

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]
4,500	8.5	18	24	10,000	15,000	20,000	5,000	16,750	65	69	27	31

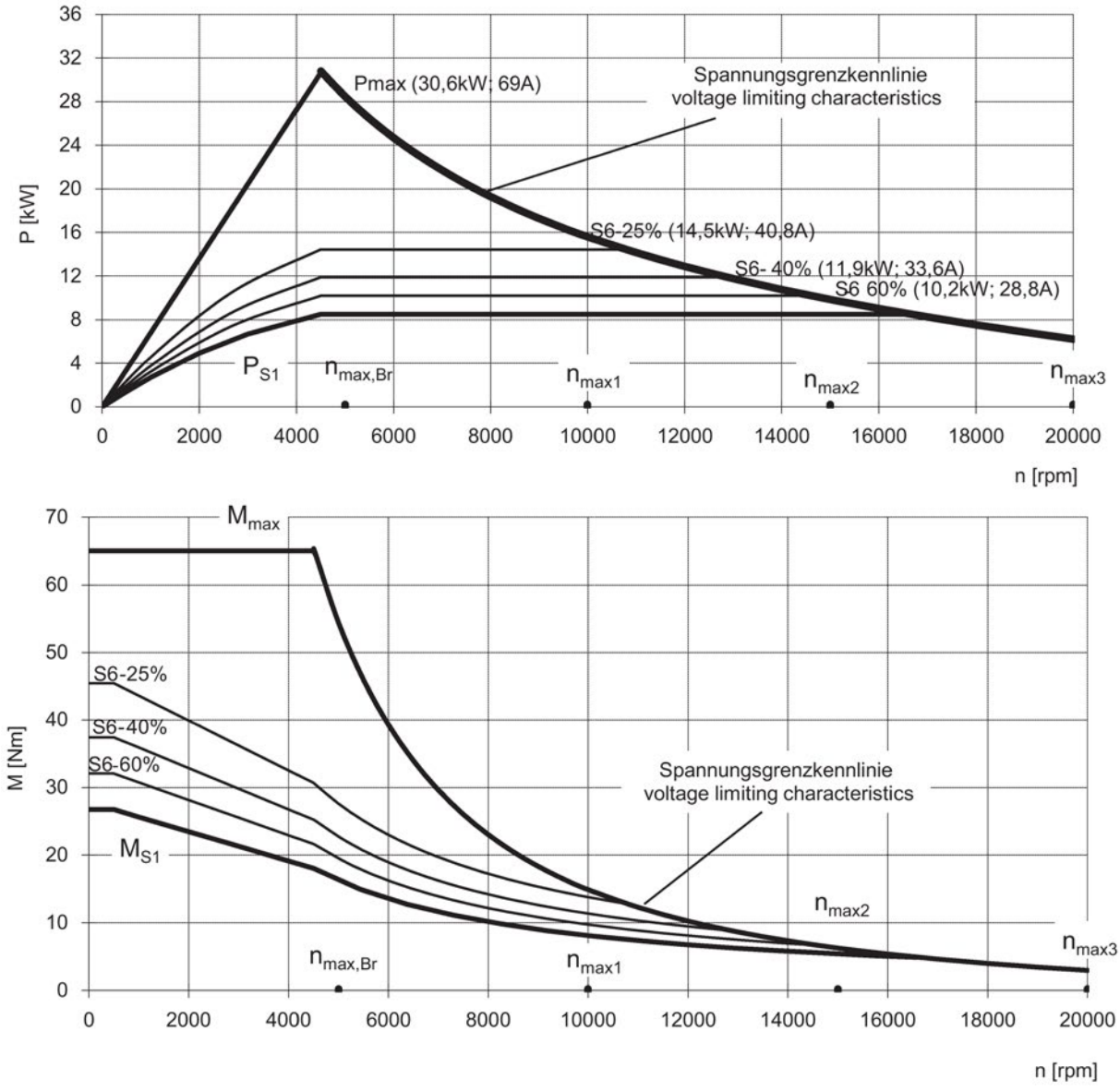
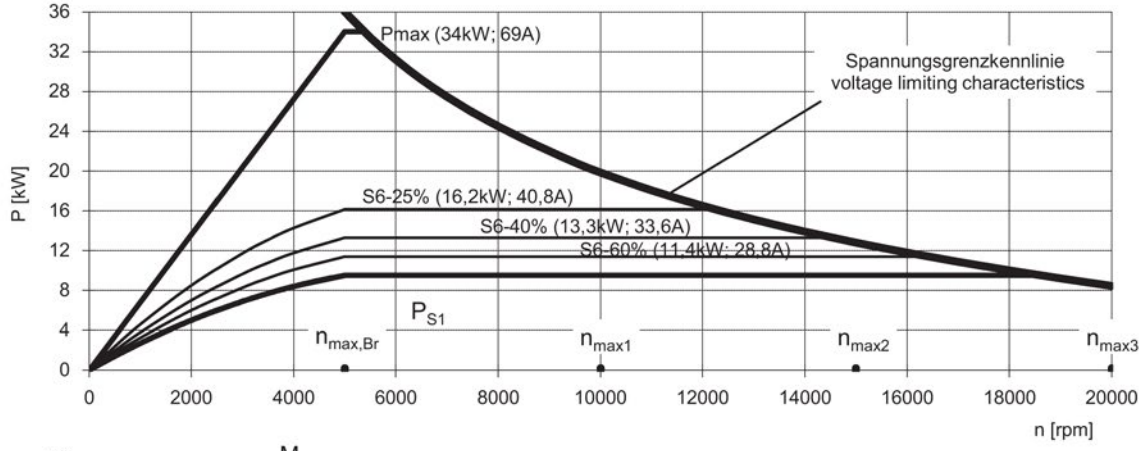


Table 6- 597 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□N2□

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]
5,000	9.5	18	24	10,000	15,000	20,000	5,000	18,700	65	69	27	31
4,500	8.5	18	24					20,000				



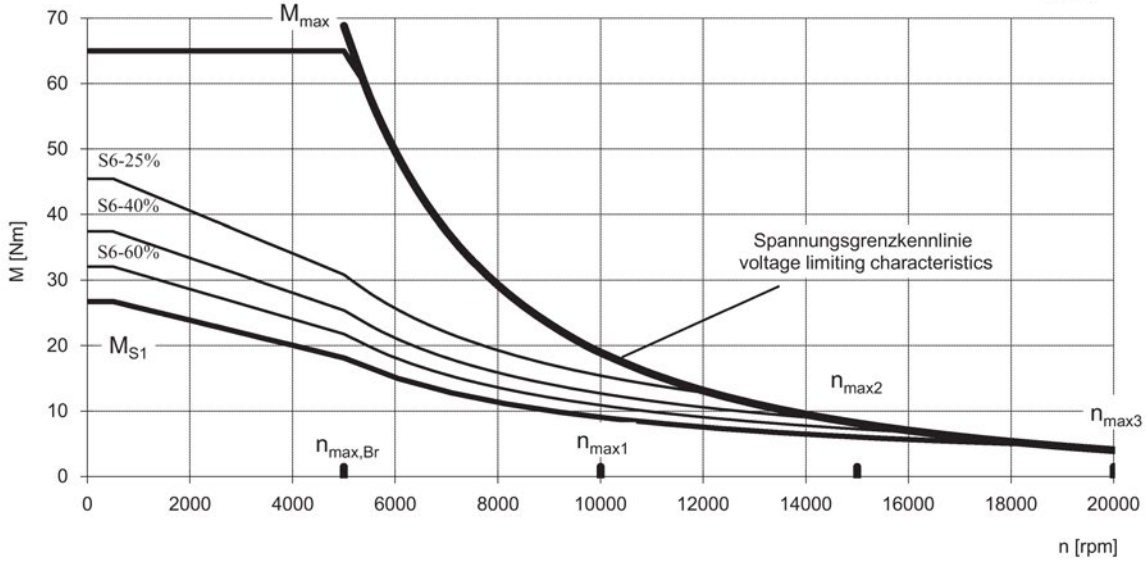
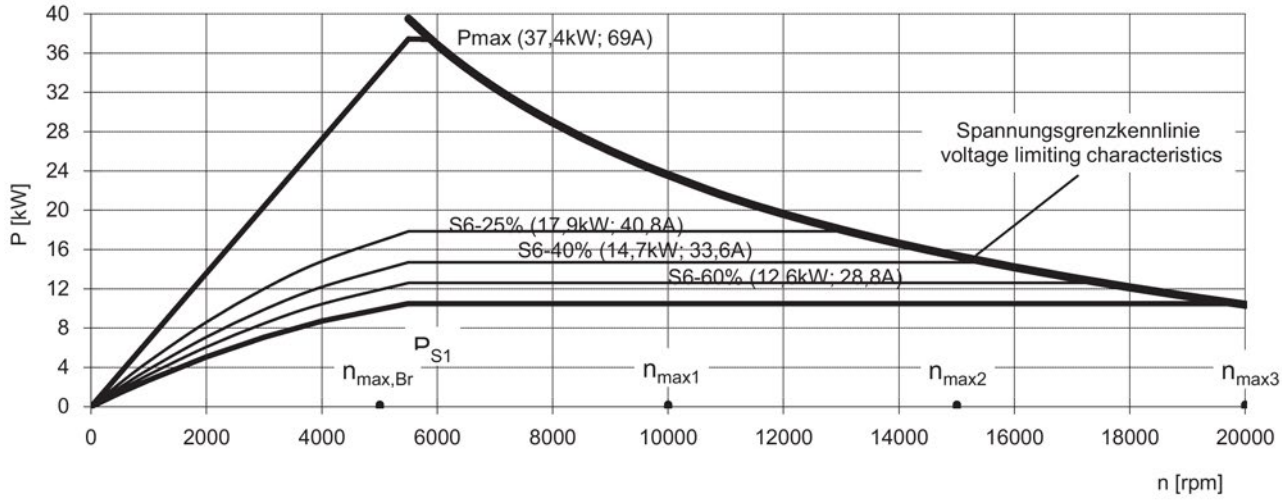


Table 6- 598 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□N2□

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]
5,500	10.5	18	24	10,000	15,000	20,000	5,000	19,900	65	69	27	31



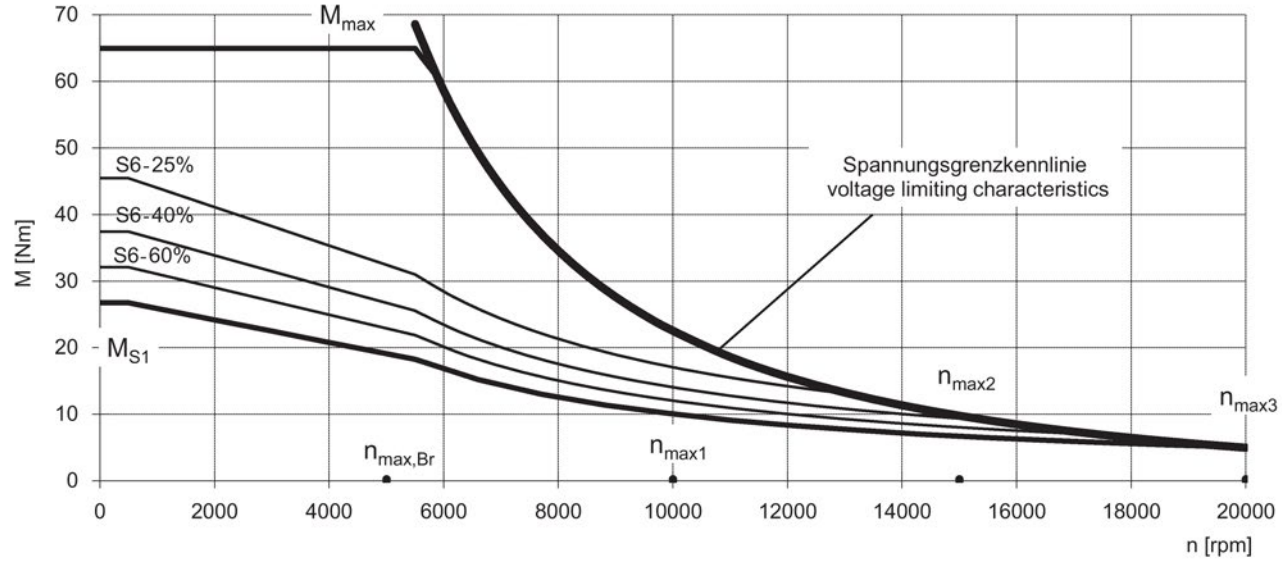
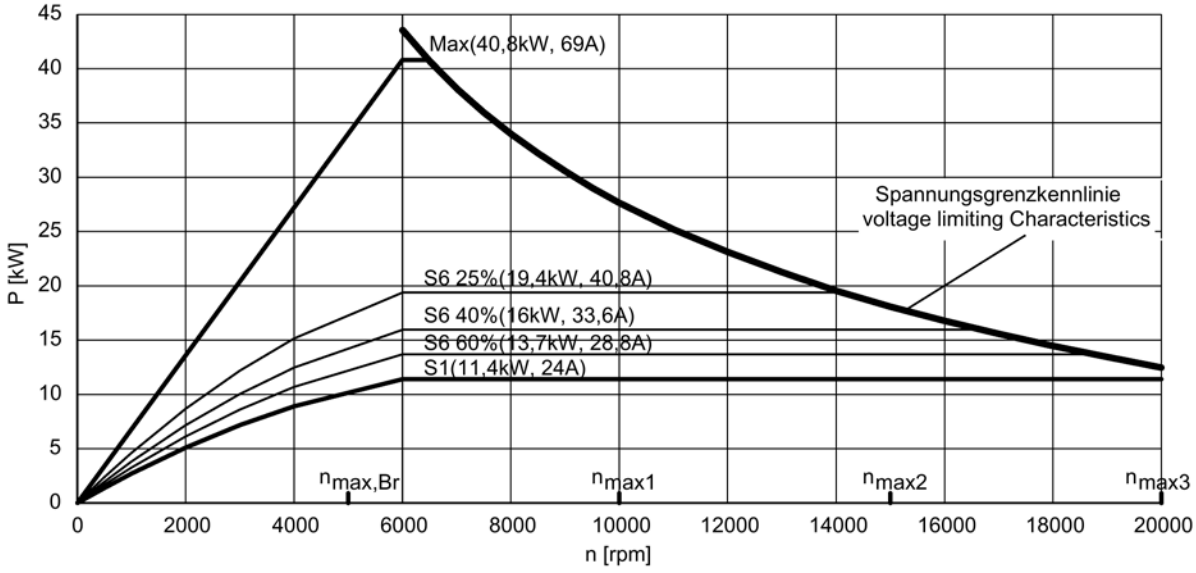
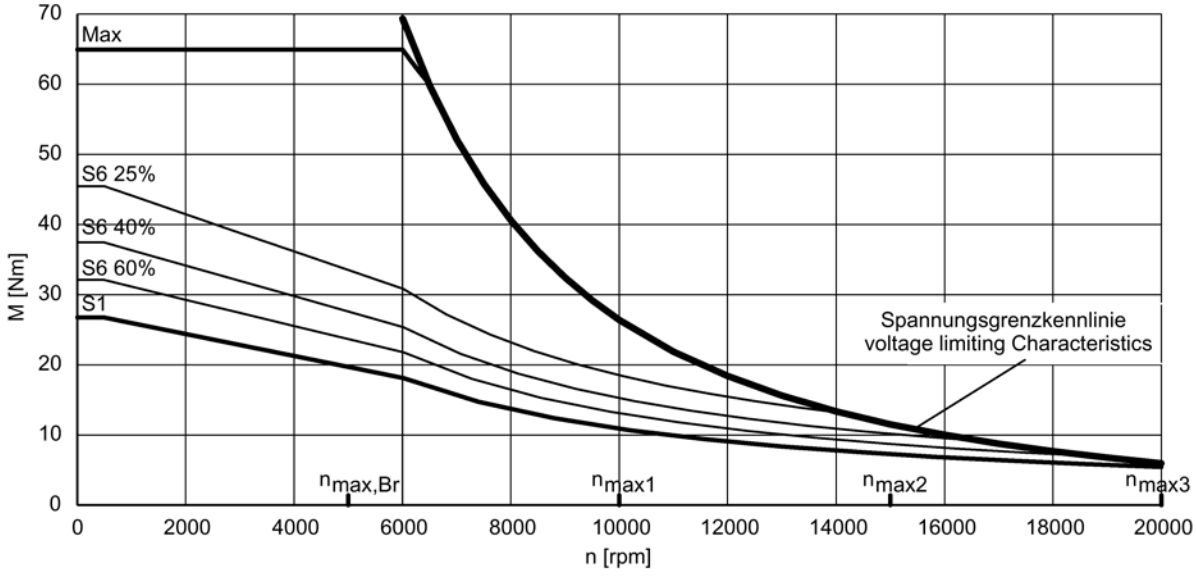


Table 6- 599 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8087-□□N2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
6,000	11.4	18	24	10,000	15,000	20,000	5,000	20,000	65	69	27	31





6.1.3.2 Shaft height 80 – Water cooling - Premium Performance

Note

Symbols of the characteristic curves for 1PH808 Premium Performance

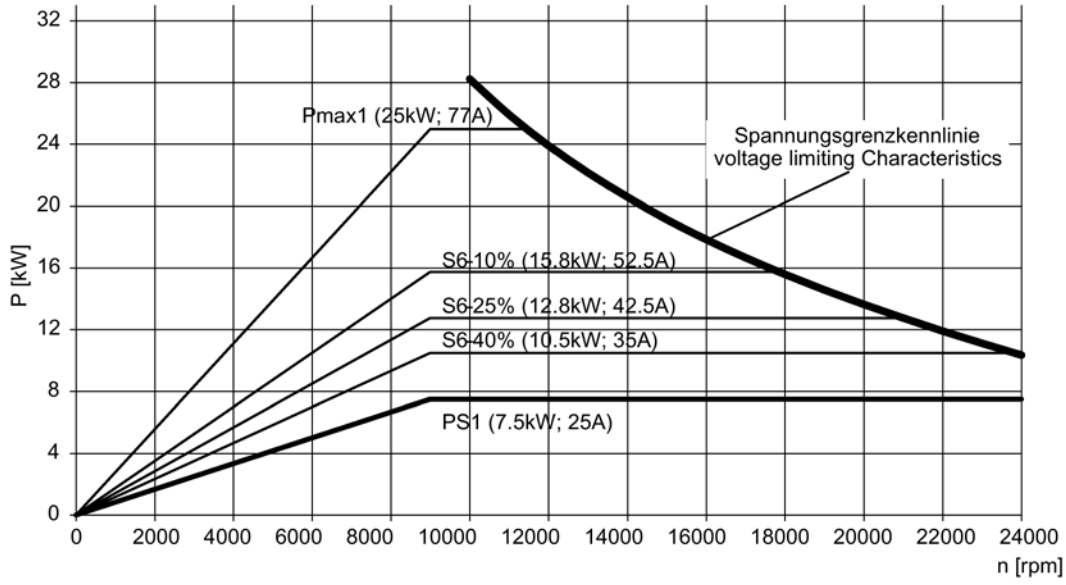
You will find the explanation of the symbols for these motors in Chapter "Configuration for 1PH808 Premium Performance."

See also

Configuration for 1PH808 Premium Performance (Page 223)

Table 6- 600 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.5	8	25	24,000	24,000	77	--	--	27	--	--	4



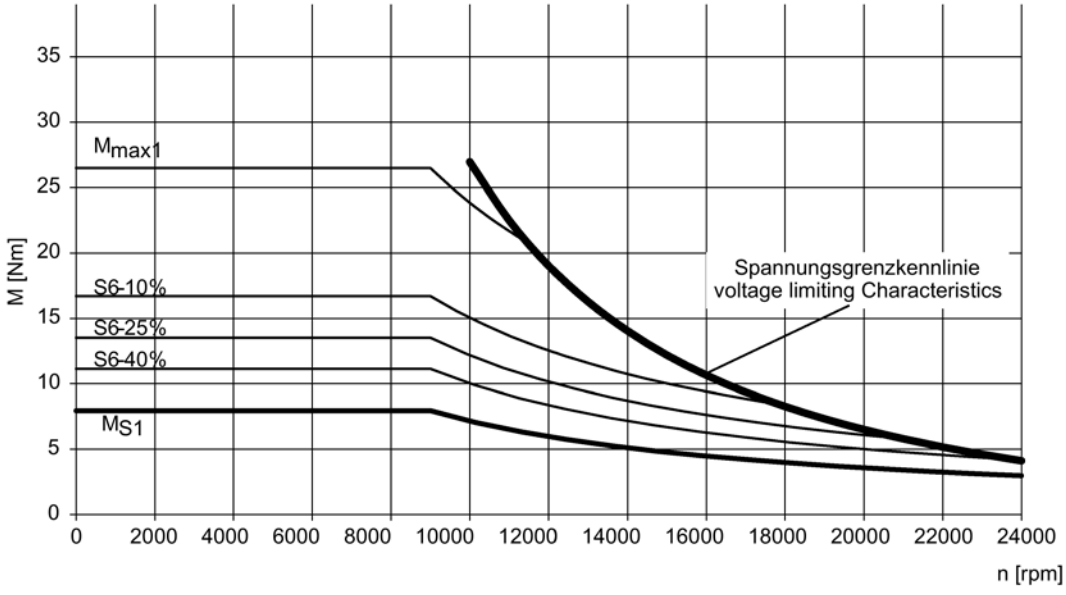
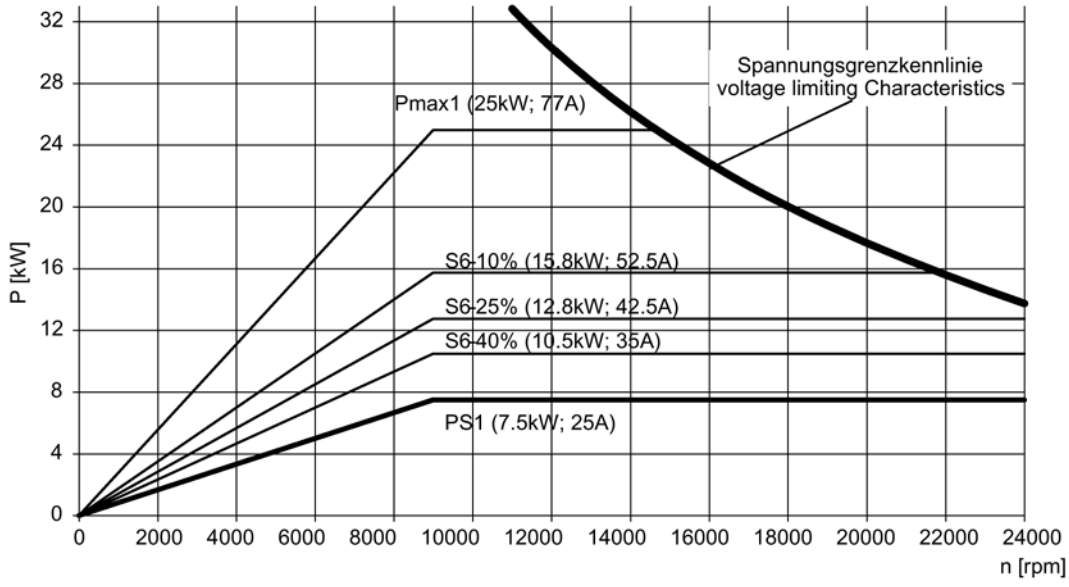


Table 6- 601 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.5	8	25	15,000	24,000	77	--	--	27	--	--	4



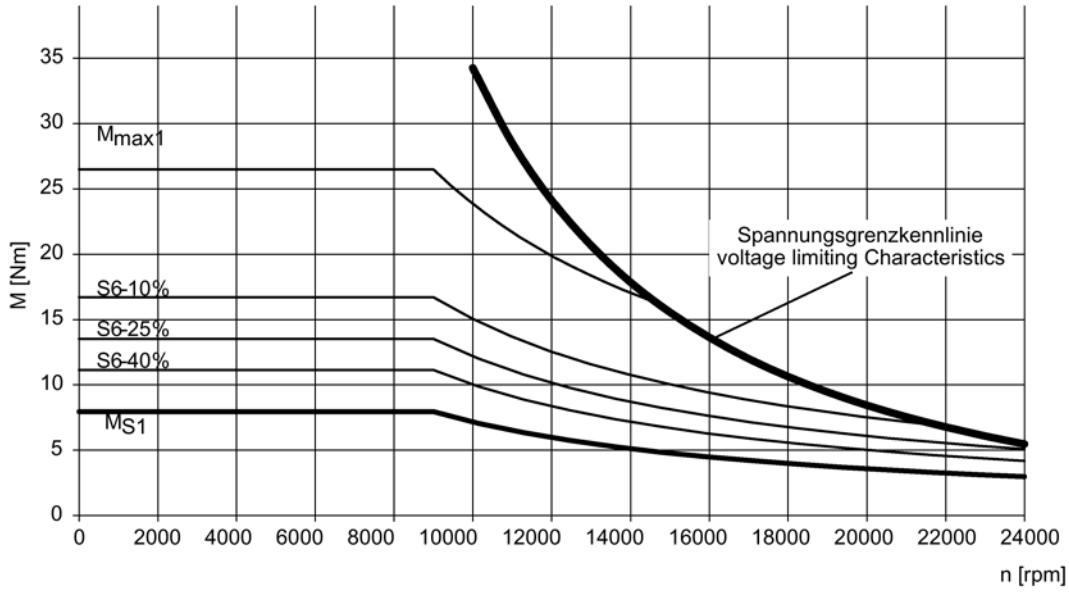
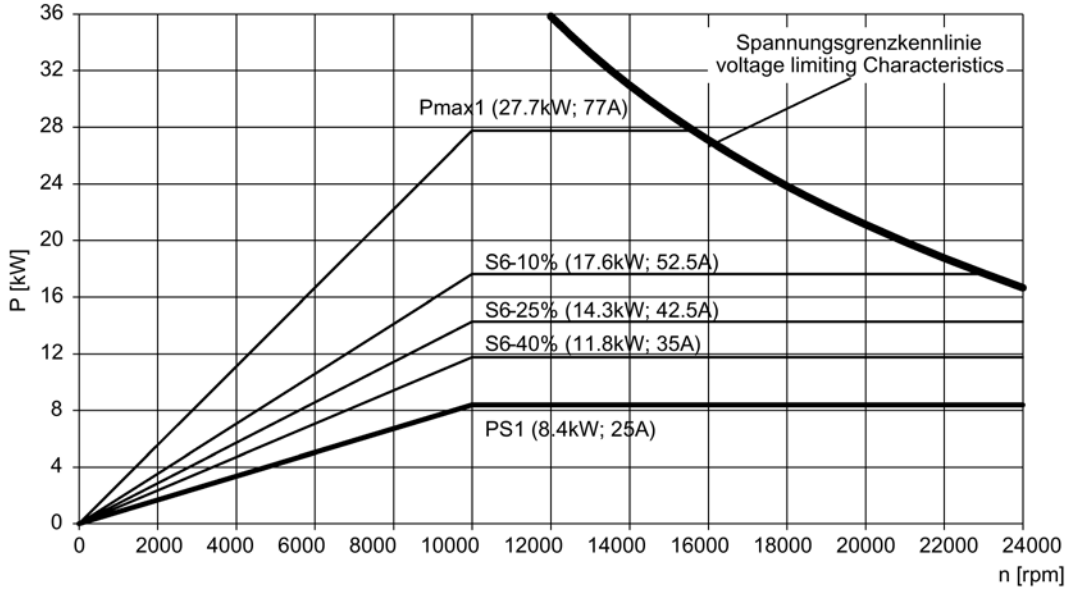


Table 6- 602 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.4	8	25	24,000	24,000	77	--	--	27	--	--	4



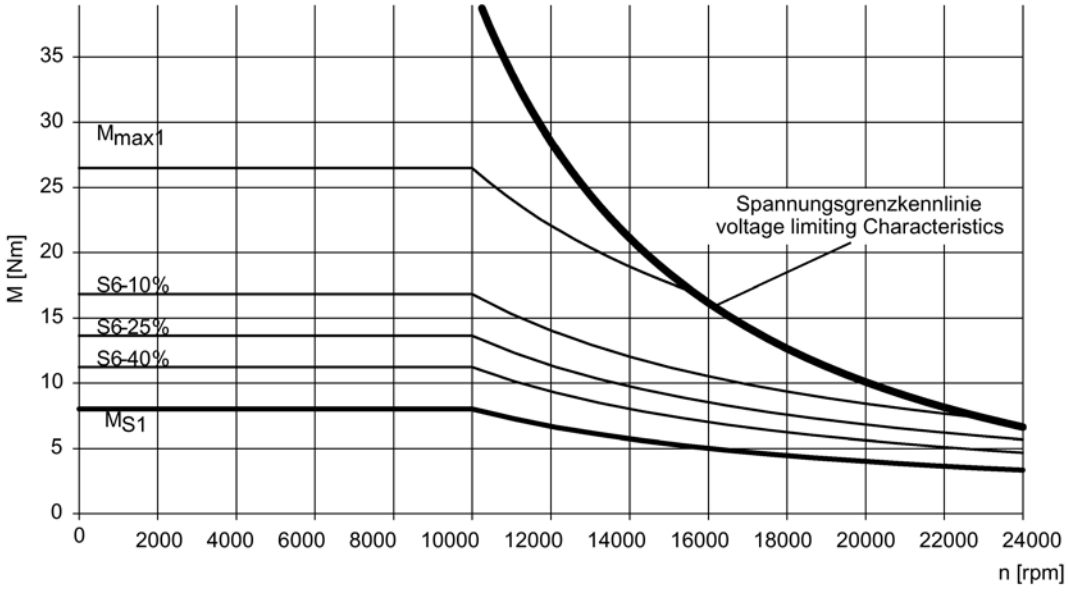
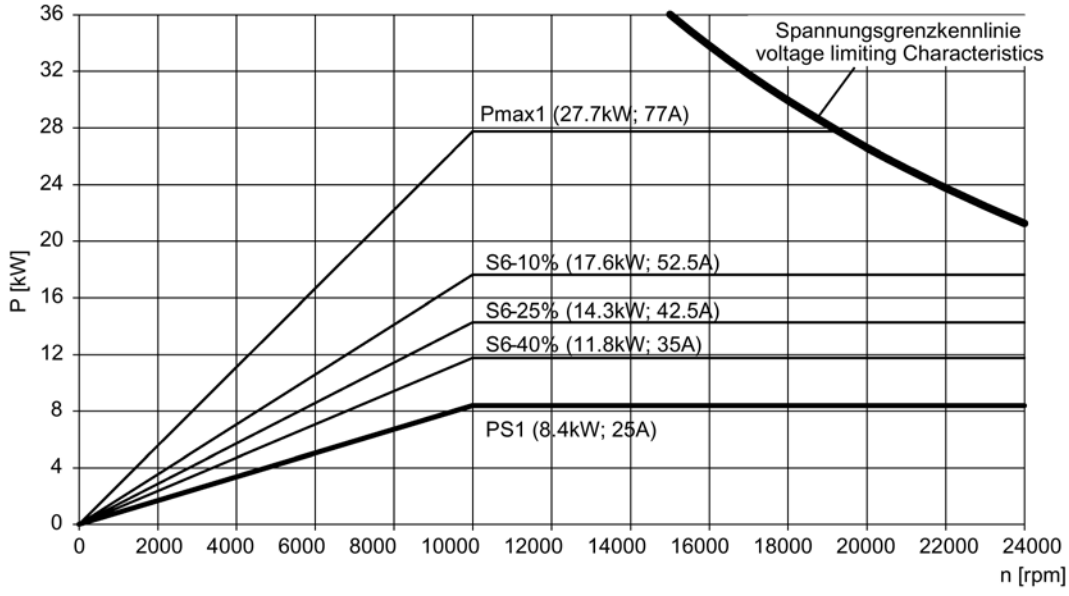


Table 6- 603 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.4	8	25	16,000	24,000	77	--	--	27	--	--	4



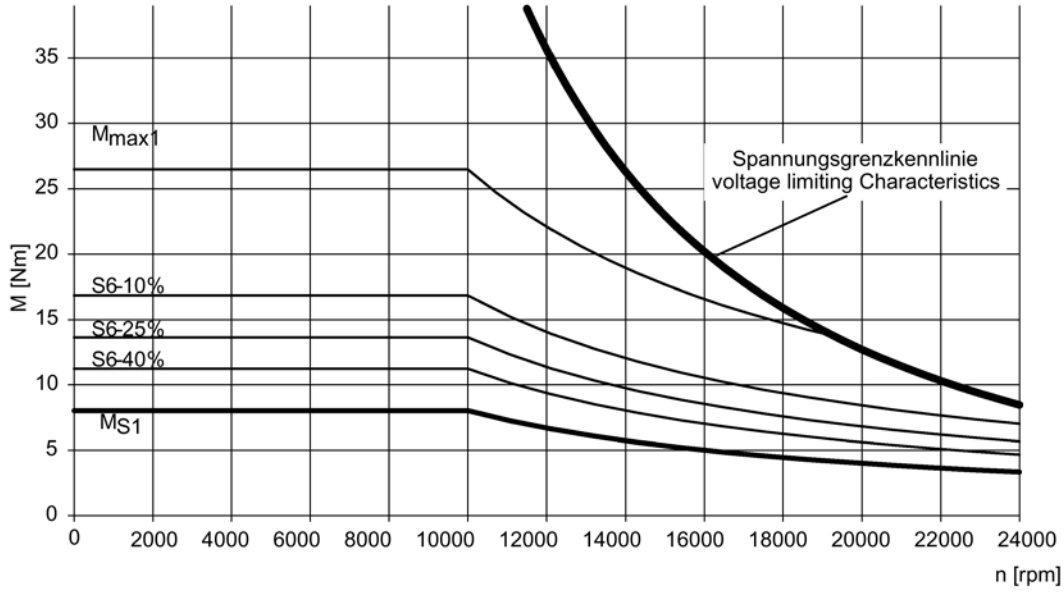
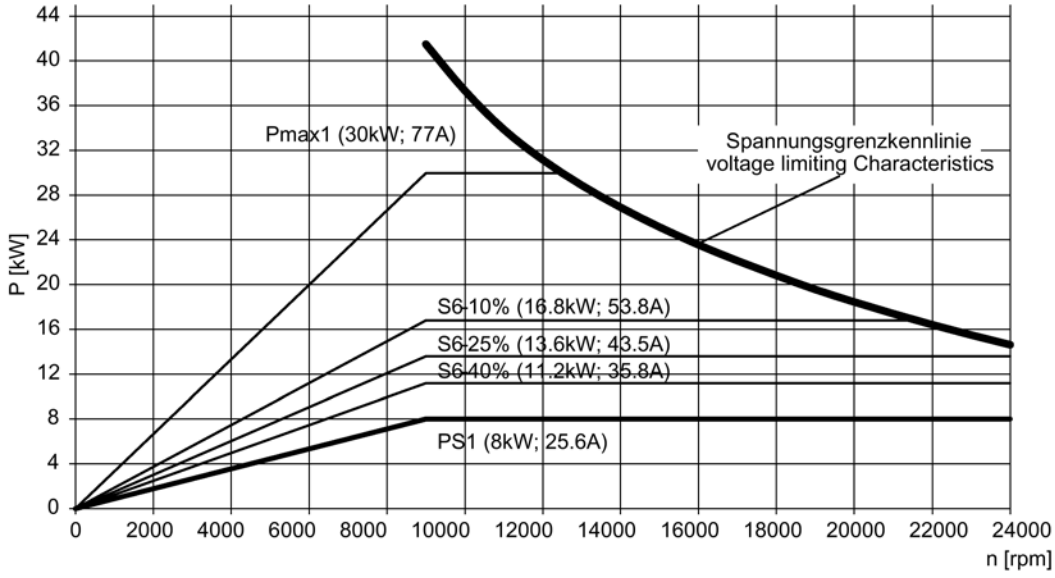


Table 6- 604 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	8	8.5	25.6	24,000	24,000	77	--	--	32	--	--	4



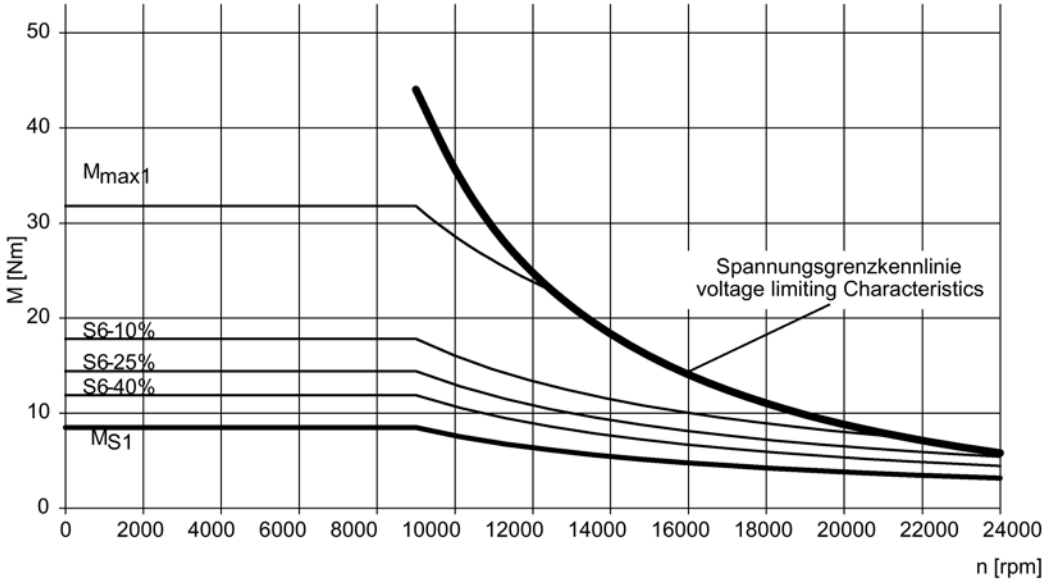
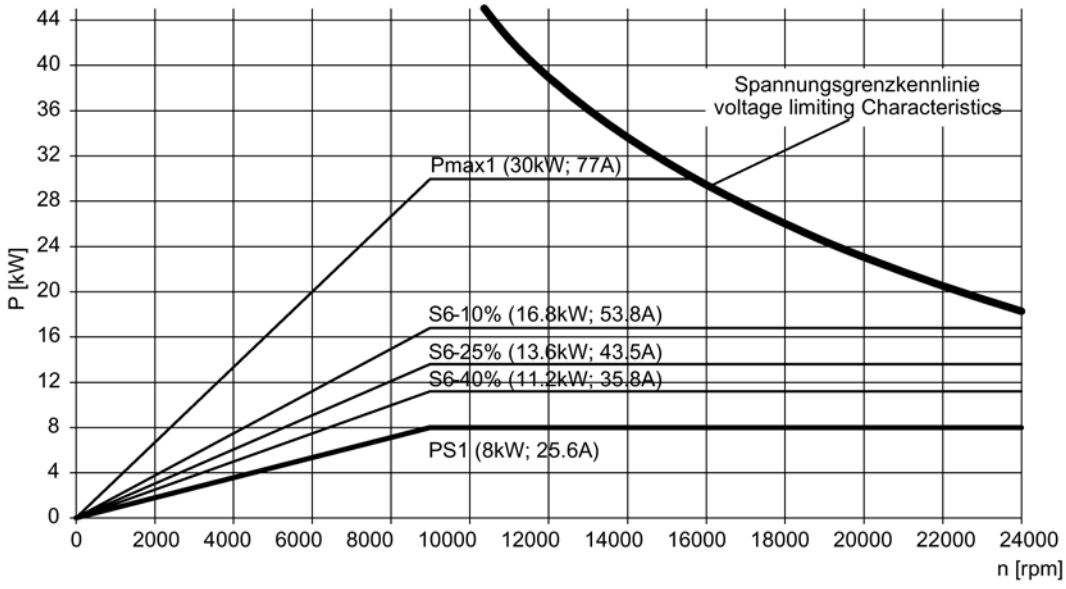


Table 6- 605 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8081-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	8	8.5	25.6	24,000	24,000	77	--	--	32	--	--	4



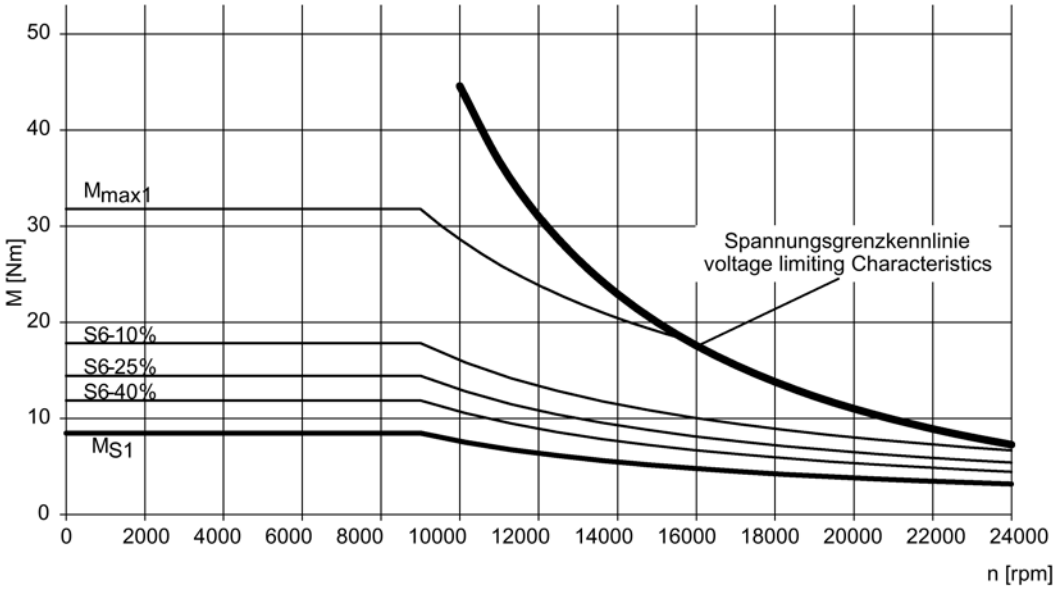
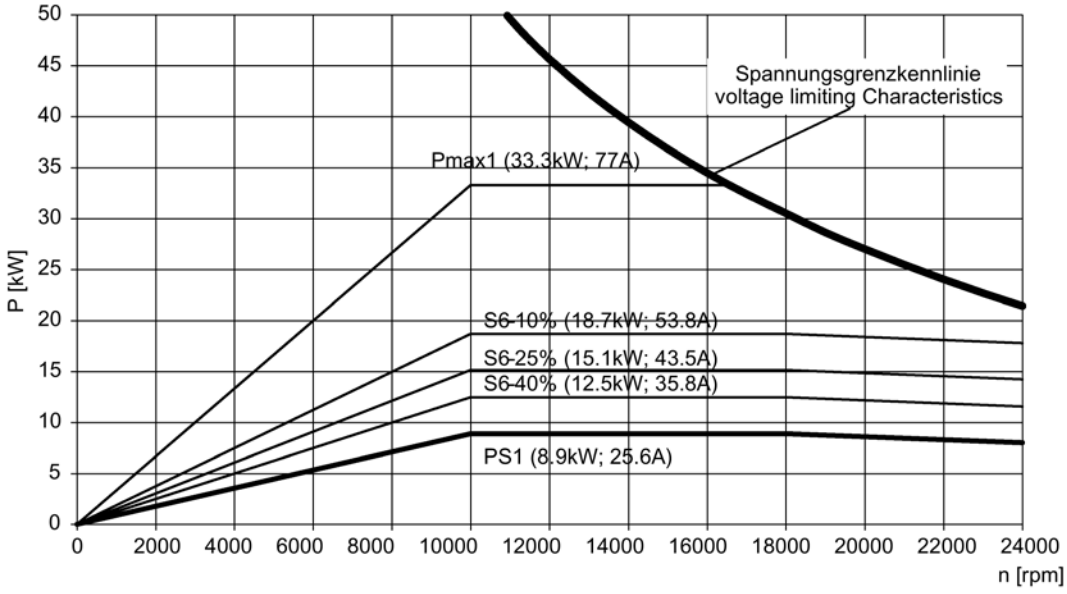


Table 6- 606 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.9	8.5	25.6	18,000	24,000	77	--	--	32	--	--	4



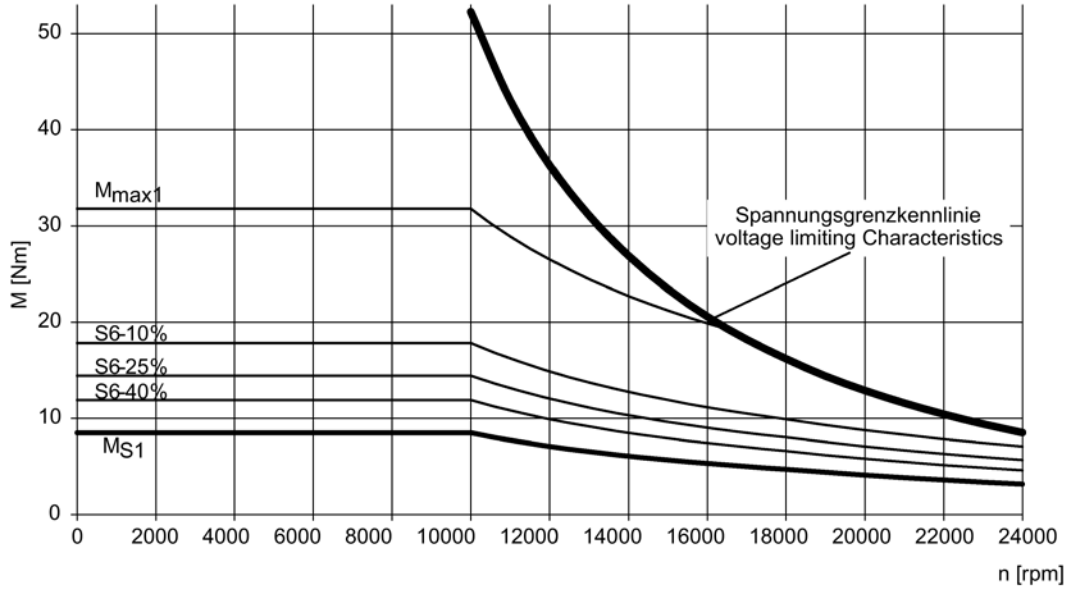
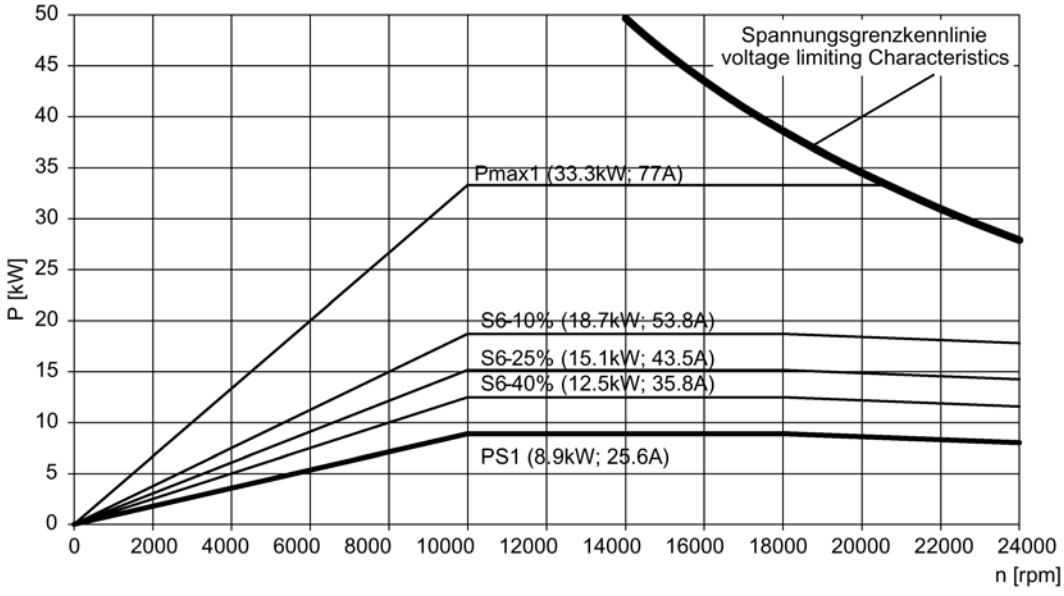


Table 6- 607 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8081-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.9	8.5	25.6	18,000	24,000	77	--	--	32	--	--	4



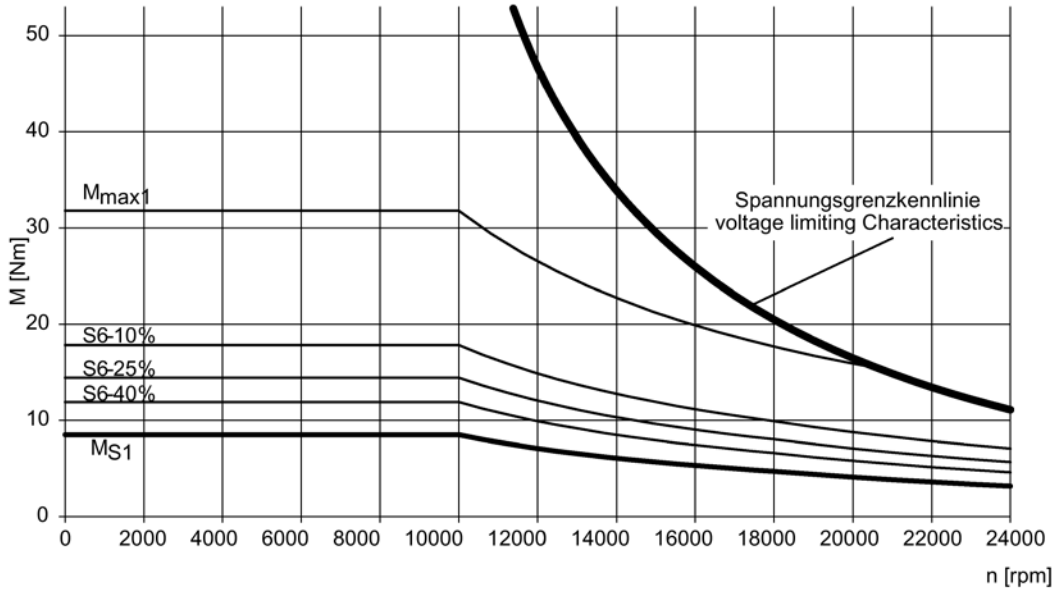
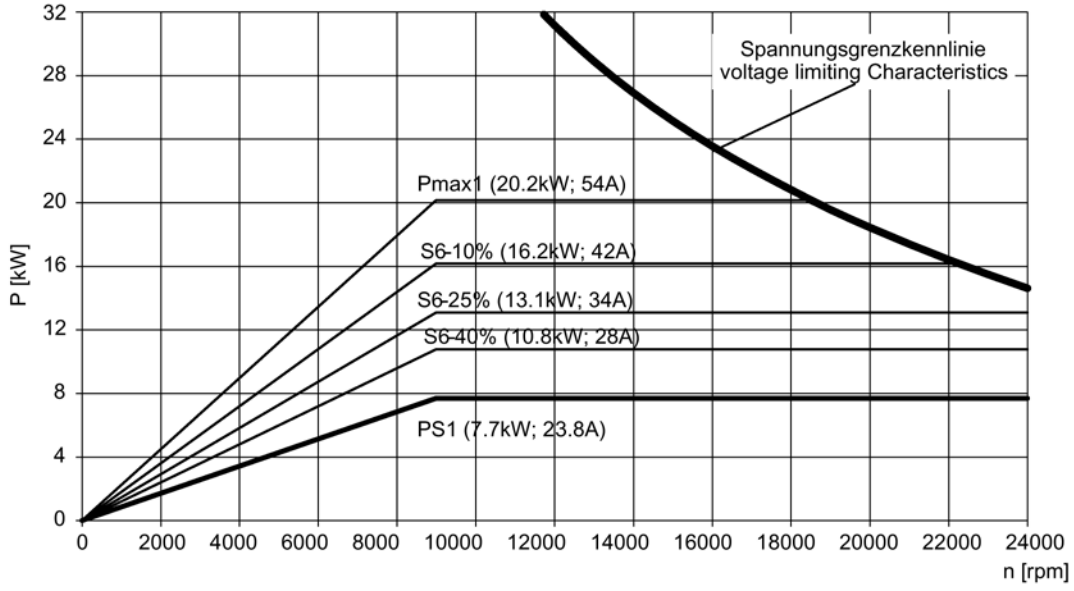


Table 6- 608 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.7	8.2	23.8	24,000	24,000	54	--	--	21	--	--	8



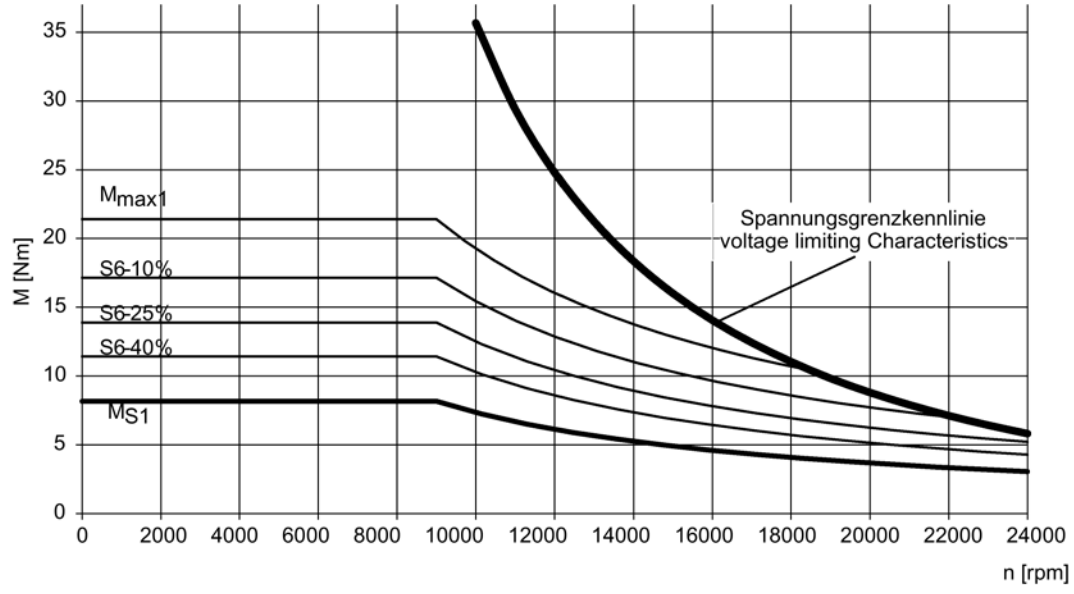
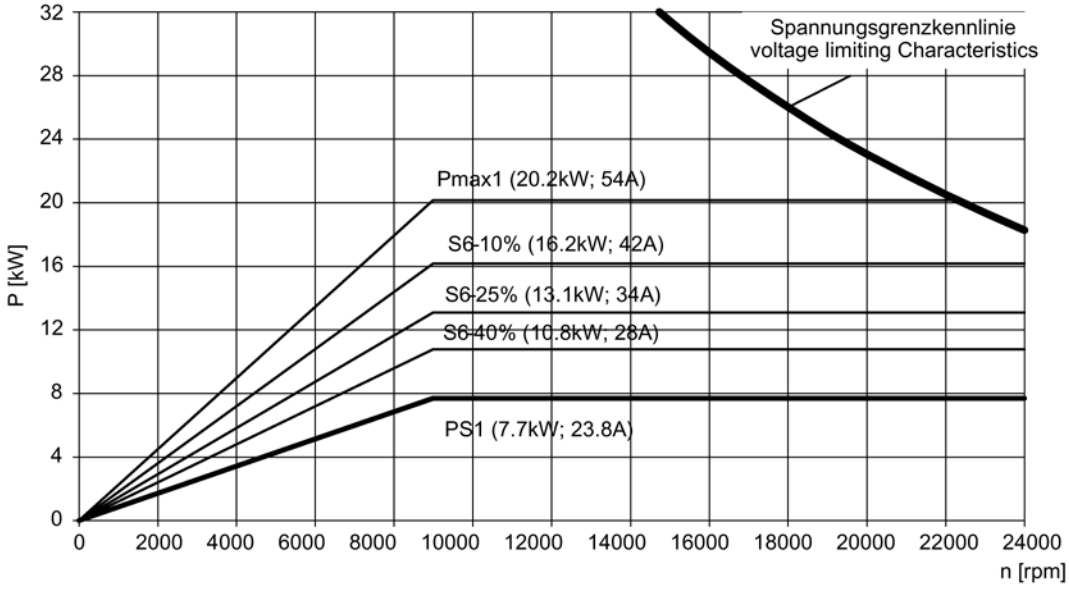


Table 6- 609 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.7	8.2	23.8	18,000	24,000	54	--	--	21	--	--	8



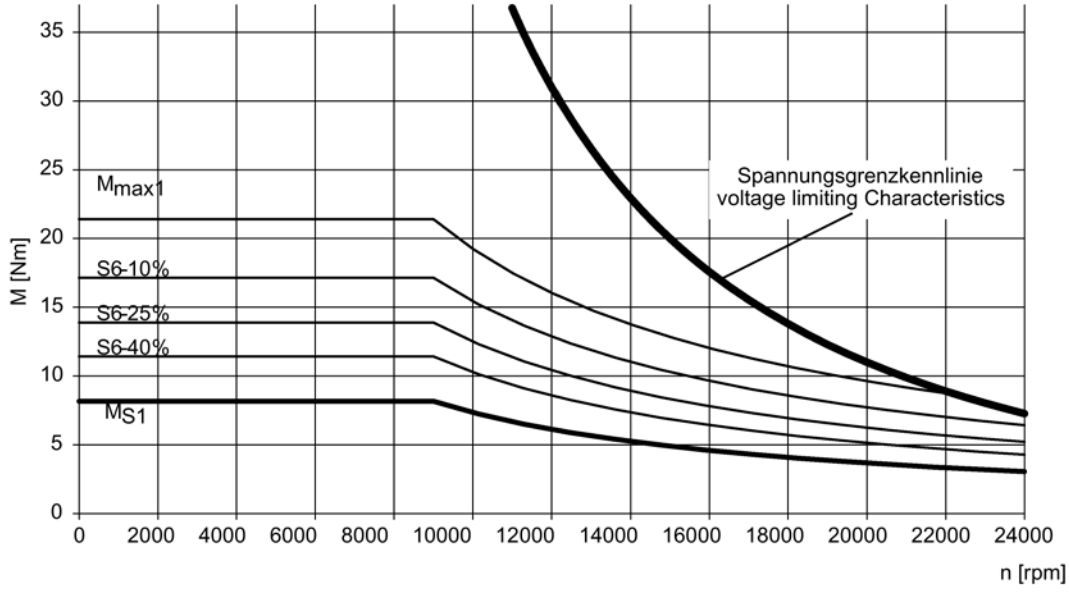
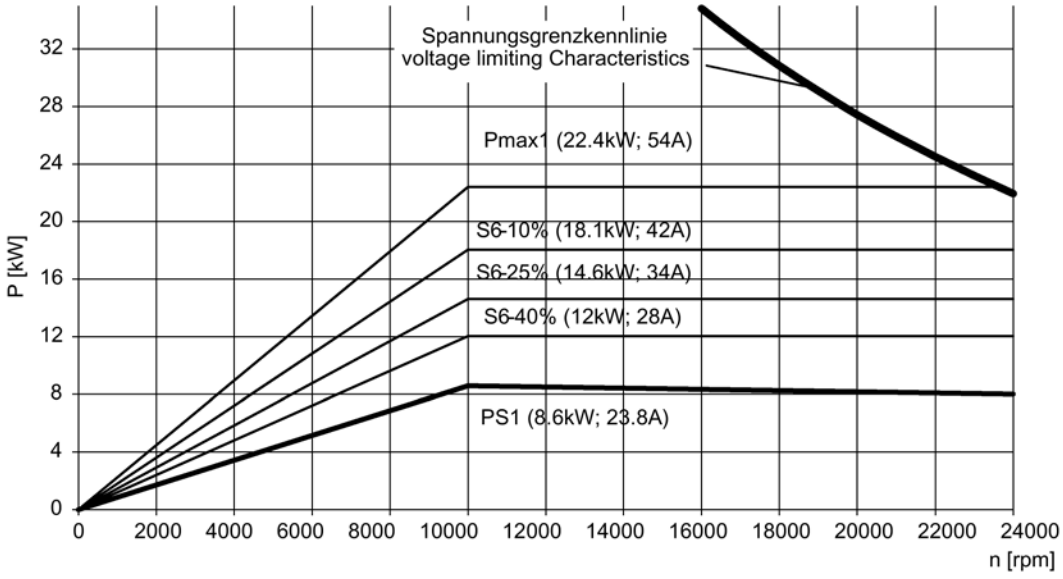


Table 6- 610 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.6	8.2	23.8	24,000	24,000	54	--	--	21	--	--	8



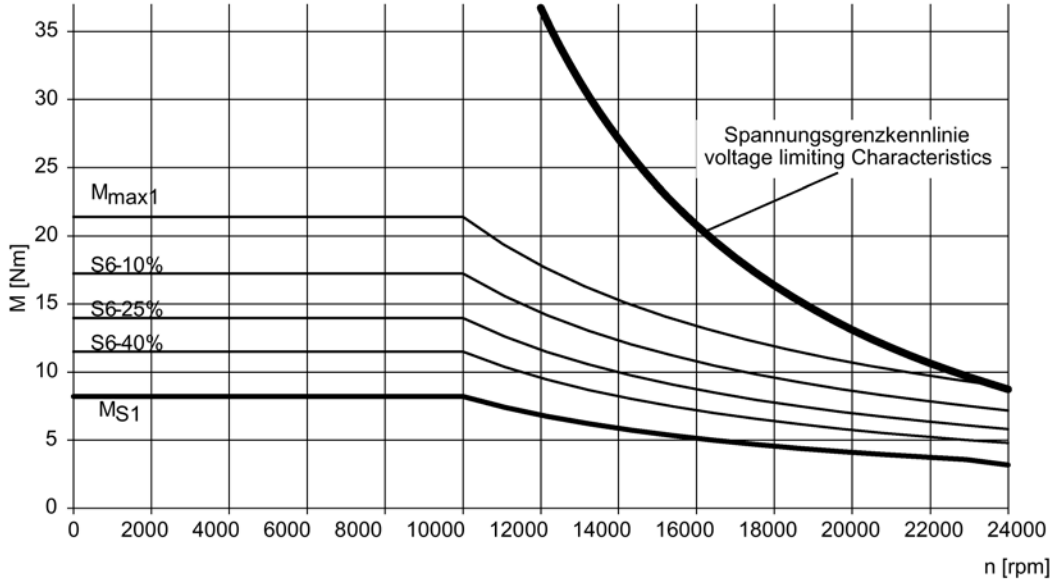
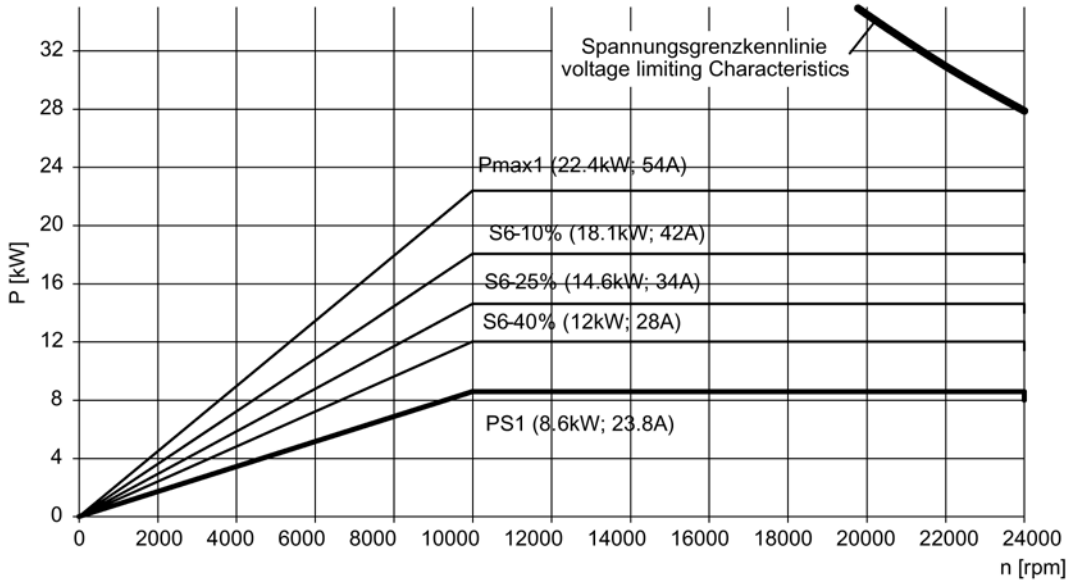


Table 6- 611 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□V□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.6	8.2	23.8	16,000	24,000	54	--	--	21	--	--	8



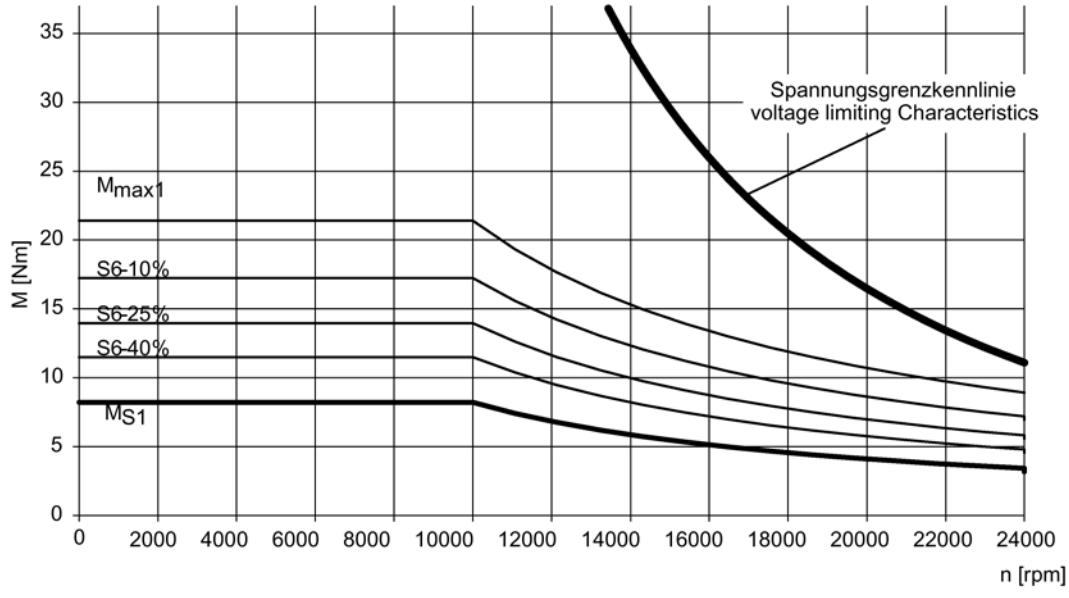
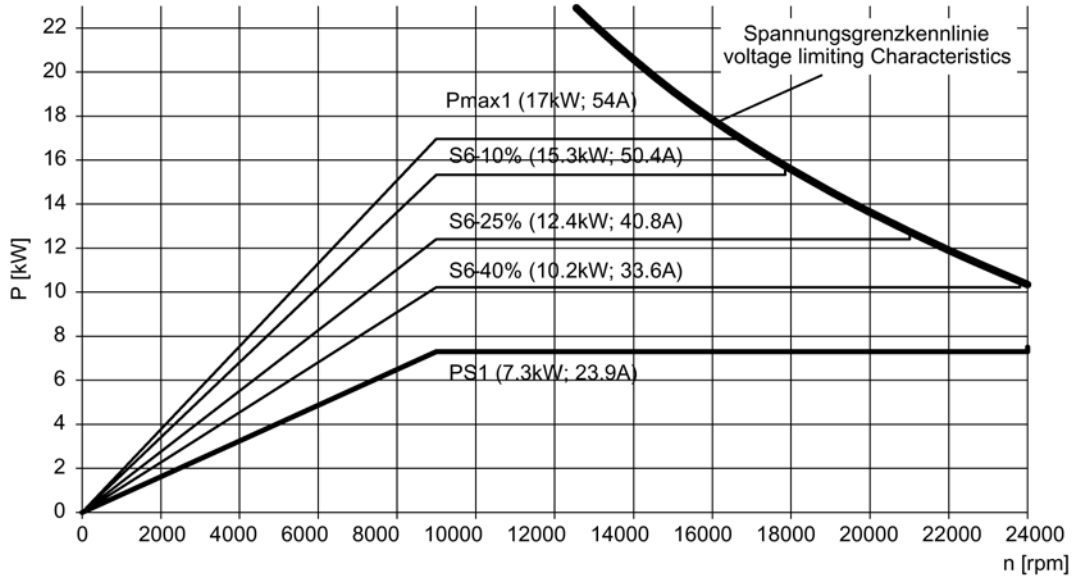


Table 6- 612 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.3	7.7	23.9	24,000	24,000	54	--	--	18	--	--	8



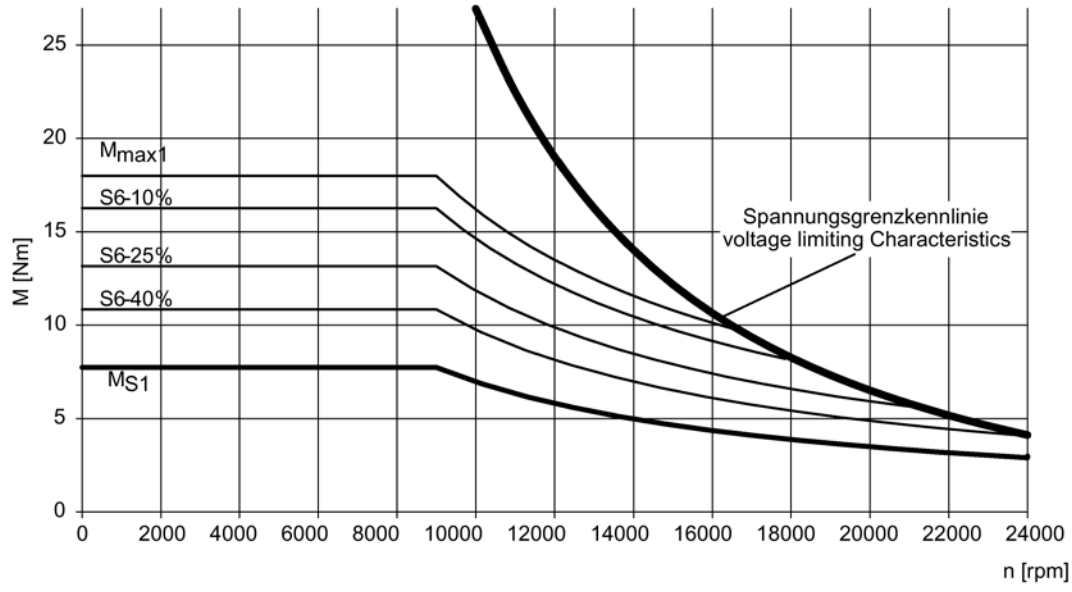
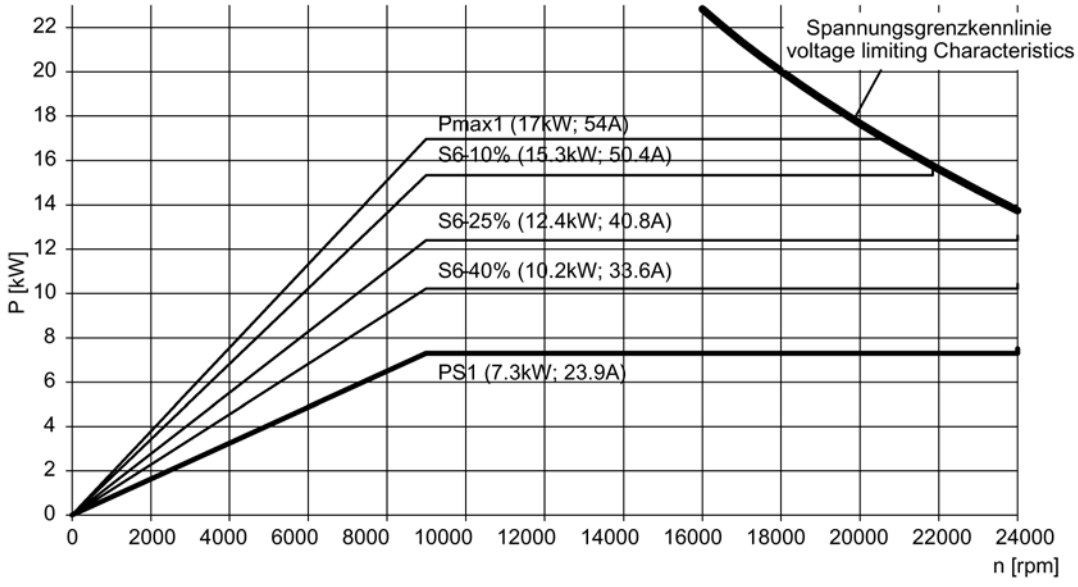


Table 6- 613 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
9,000	7.3	7.7	23.9	24,000	24,000	54	--	--	18	--	--	8



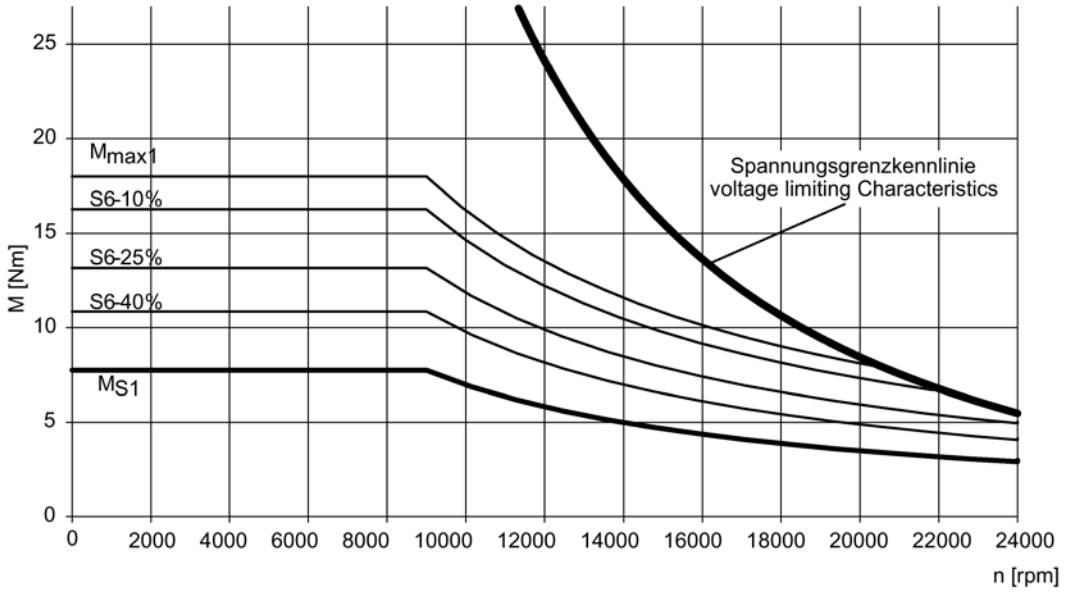
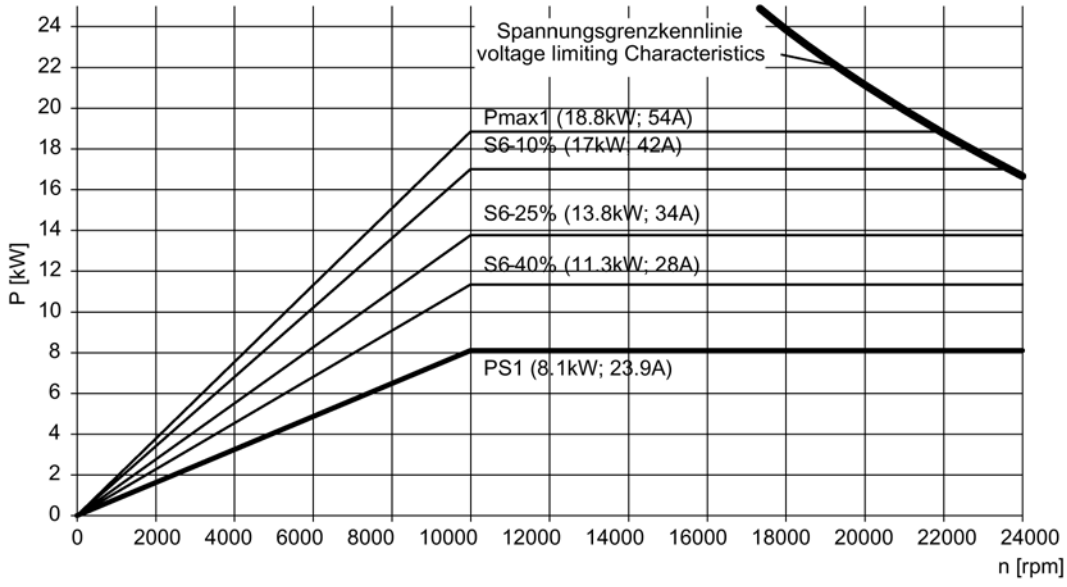


Table 6- 614 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.1	7.7	23.9	24,000	24,000	54	--	--	18	--	--	8



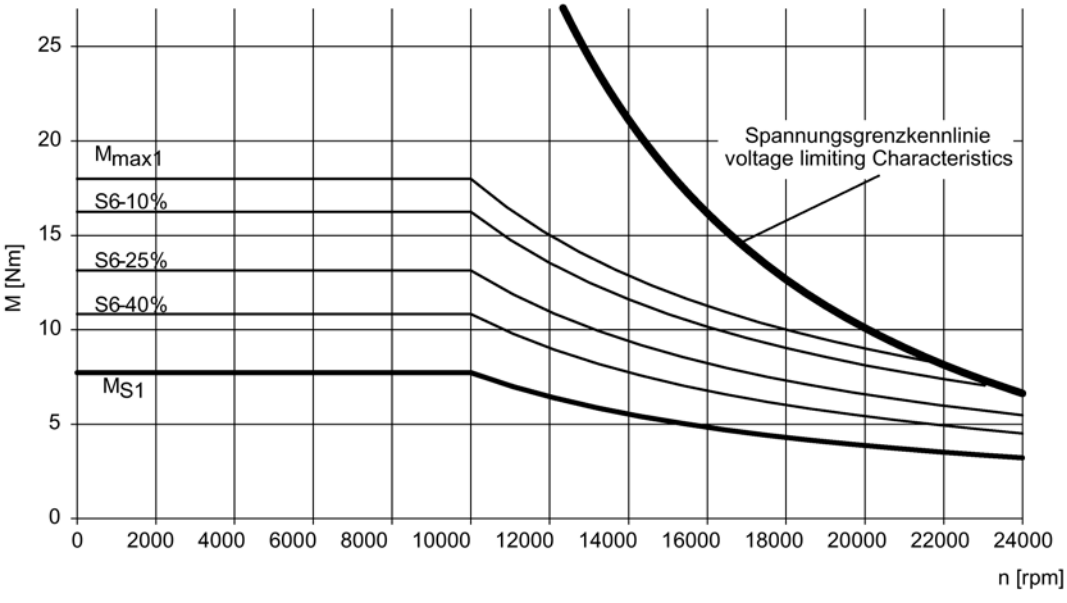
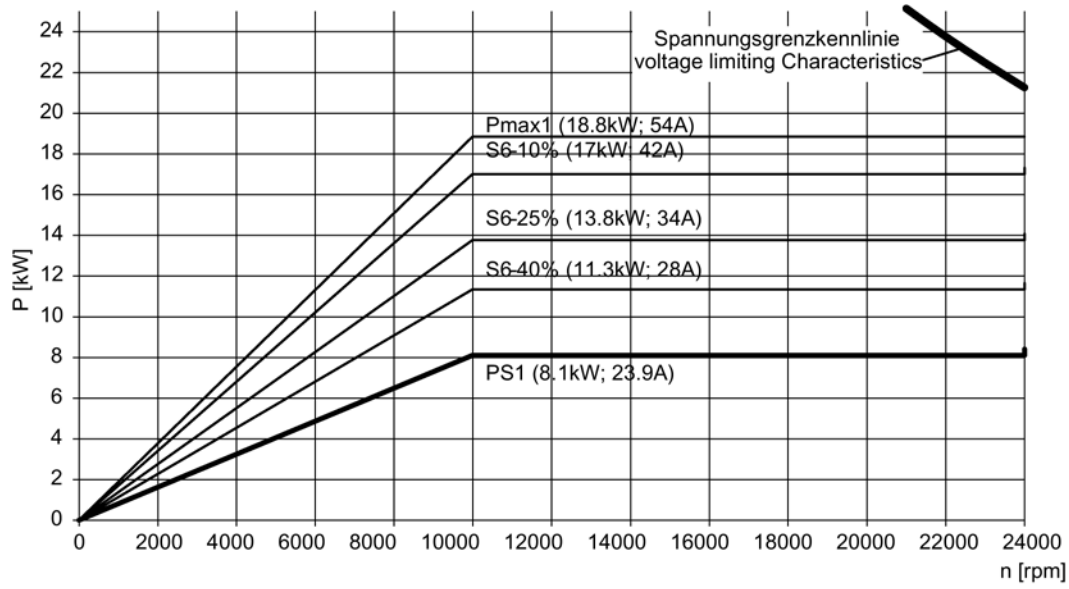


Table 6- 615 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8081-□□W□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
10,000	8.1	7.7	23.9	16,000	24,000	54	--	--	18	--	--	8



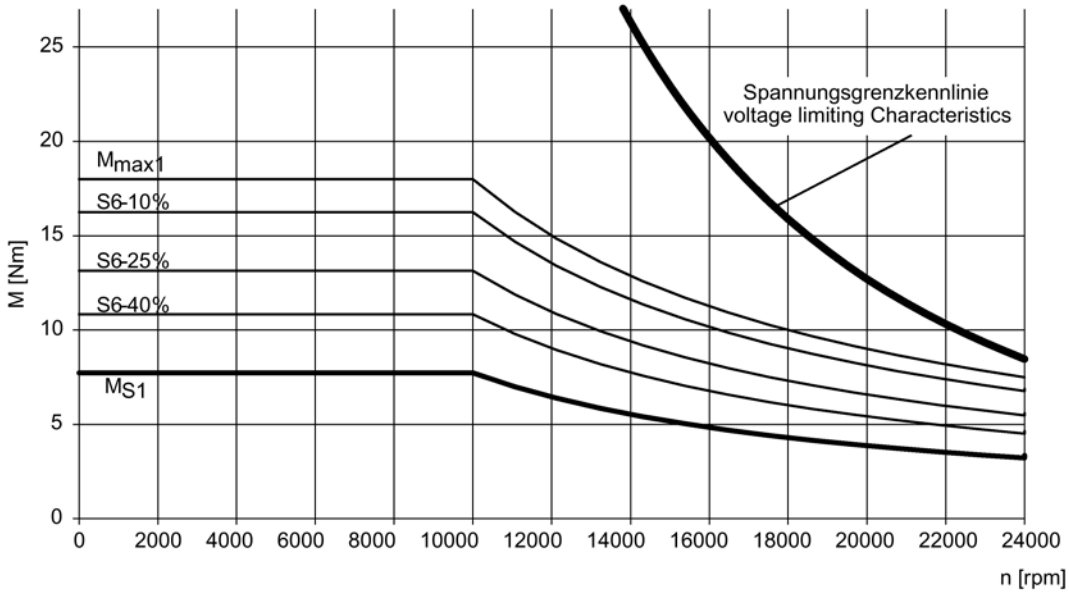
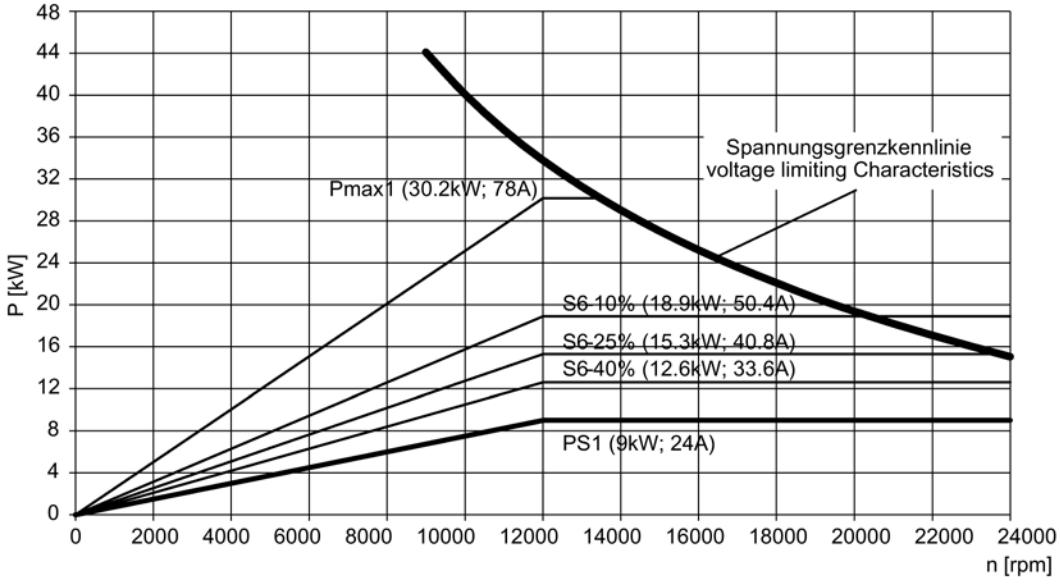


Table 6- 616 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	9	7.2	24	24,000	24,000	78	--	--	24	--	--	4



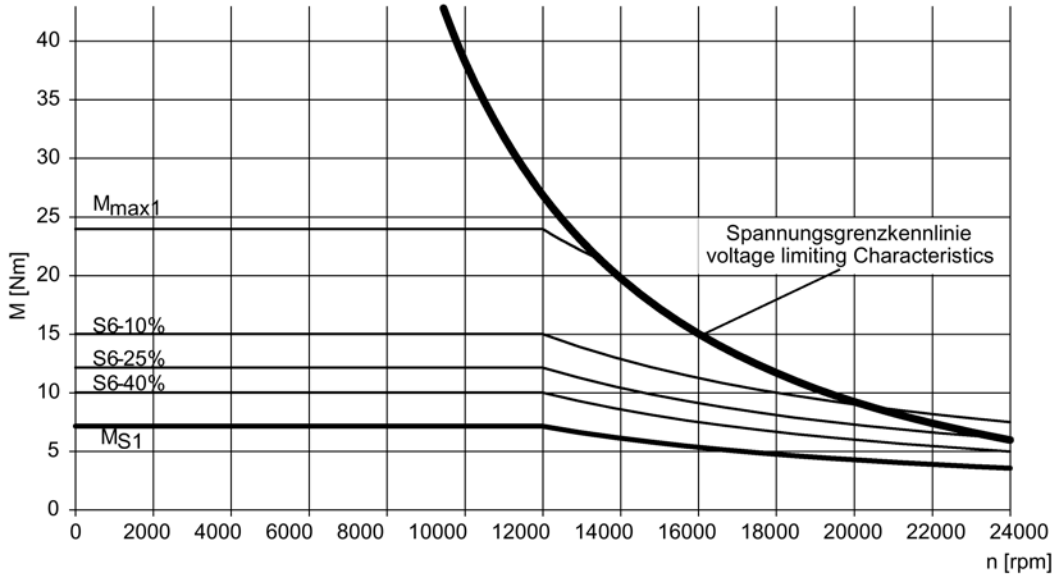
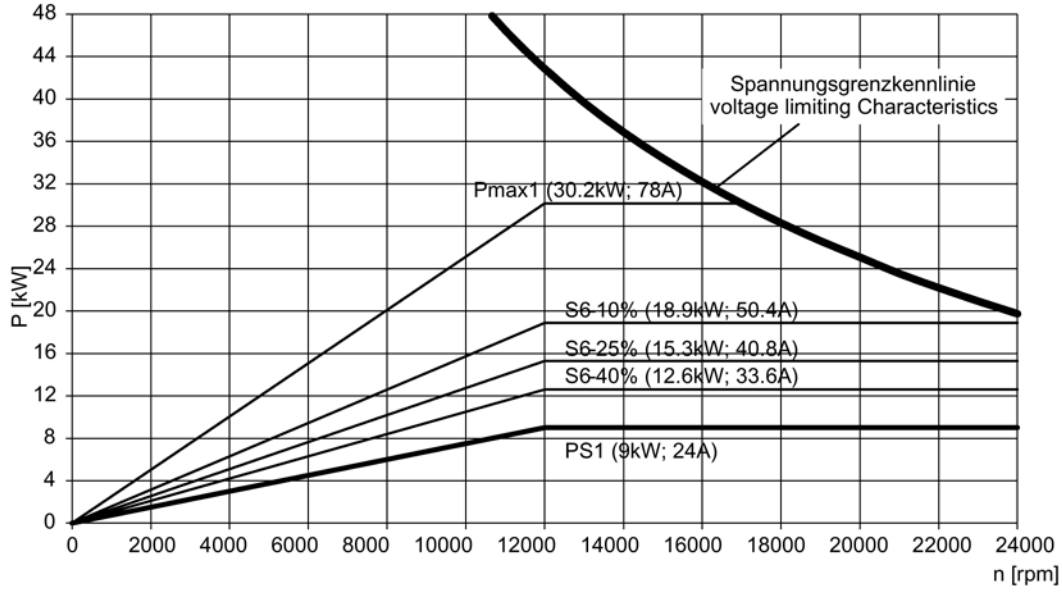


Table 6- 617 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8083-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
12,000	9	7.2	24	24,000	24,000	78	--	--	24	--	--	4



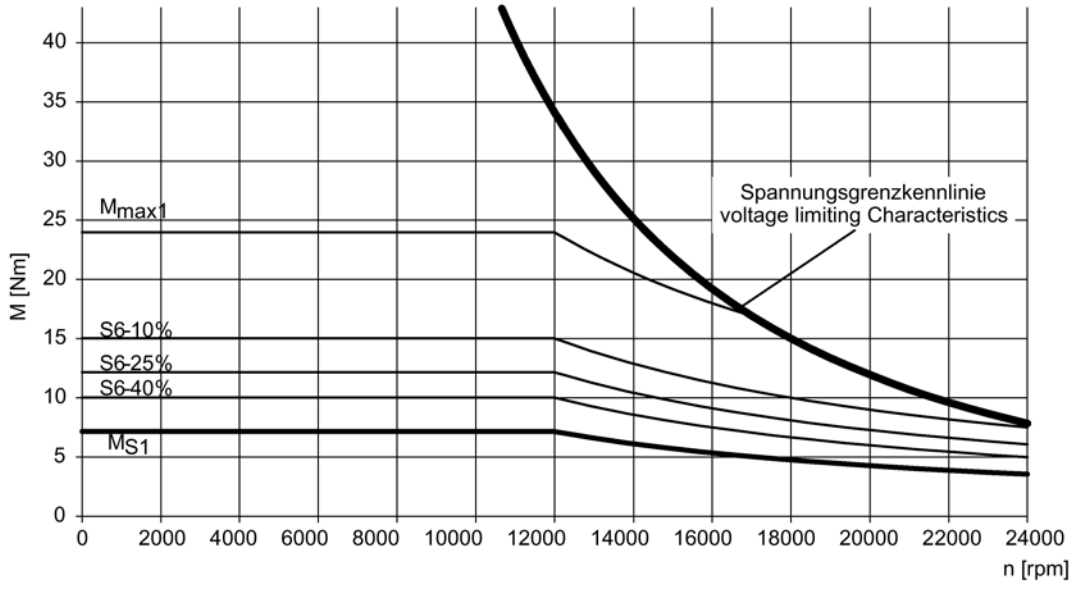
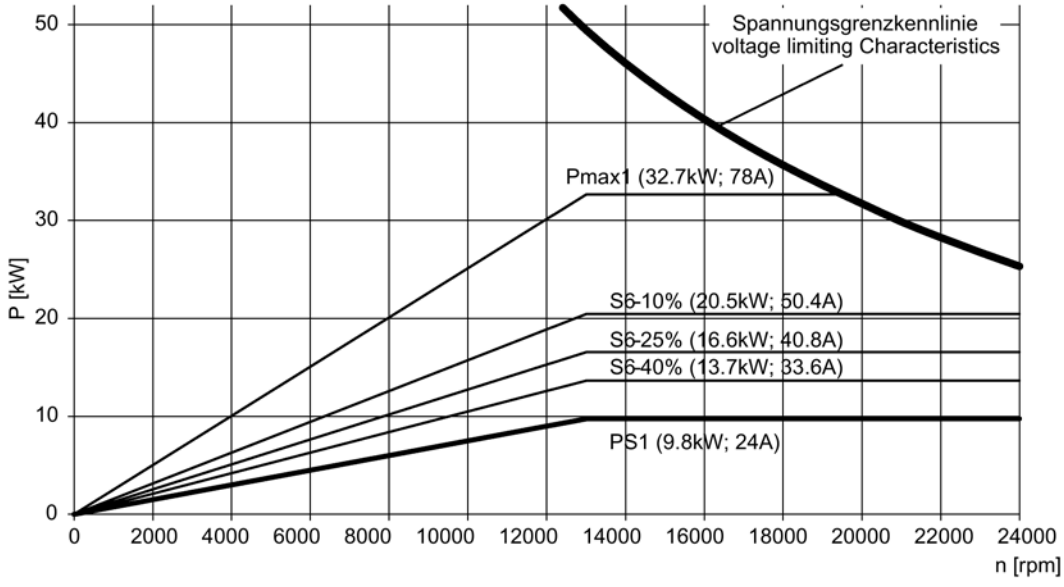


Table 6- 618 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	9.8	7.2	24	24,000	24,000	78	--	--	24	--	--	4



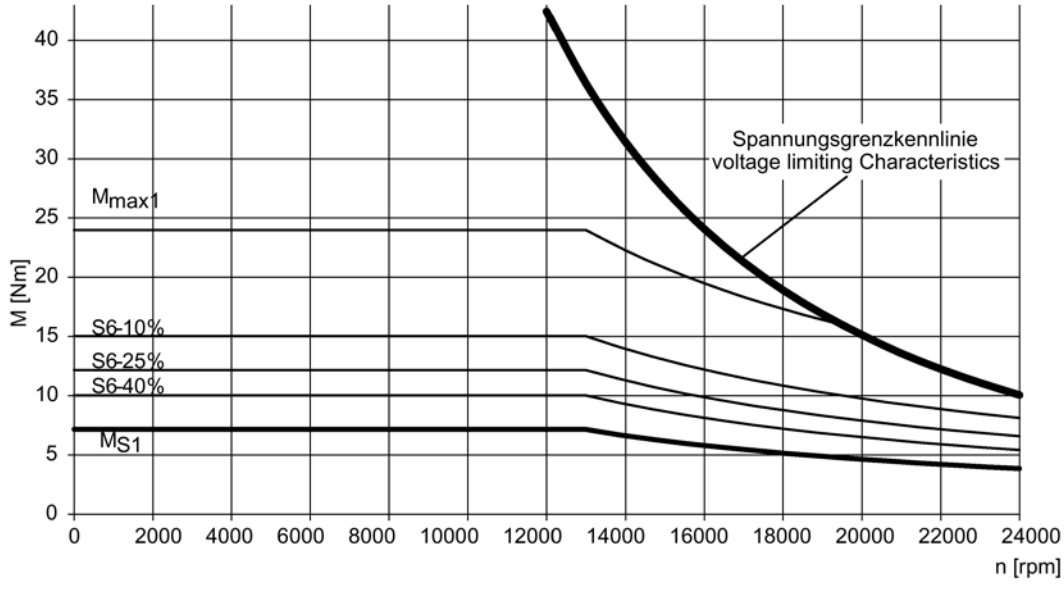
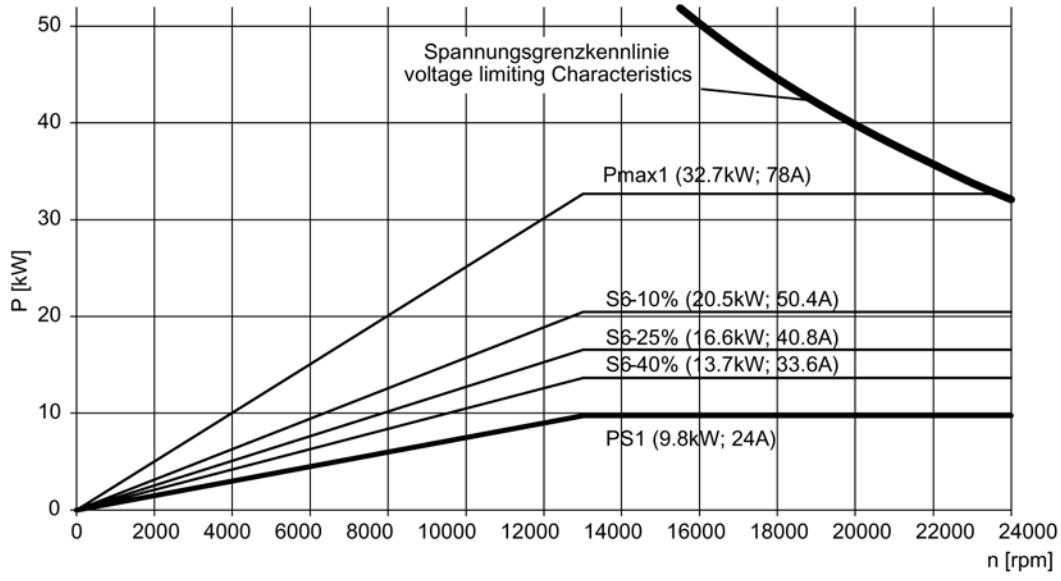


Table 6- 619 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8083-□□T□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
13,000	9.8	7.2	24	24,000	24,000	78	--	--	24	--	--	4



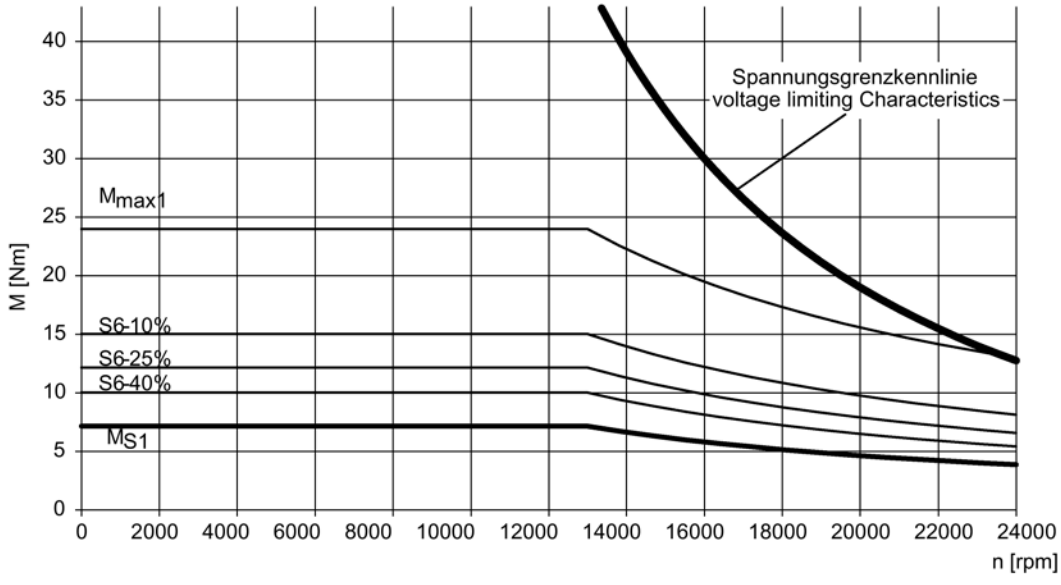
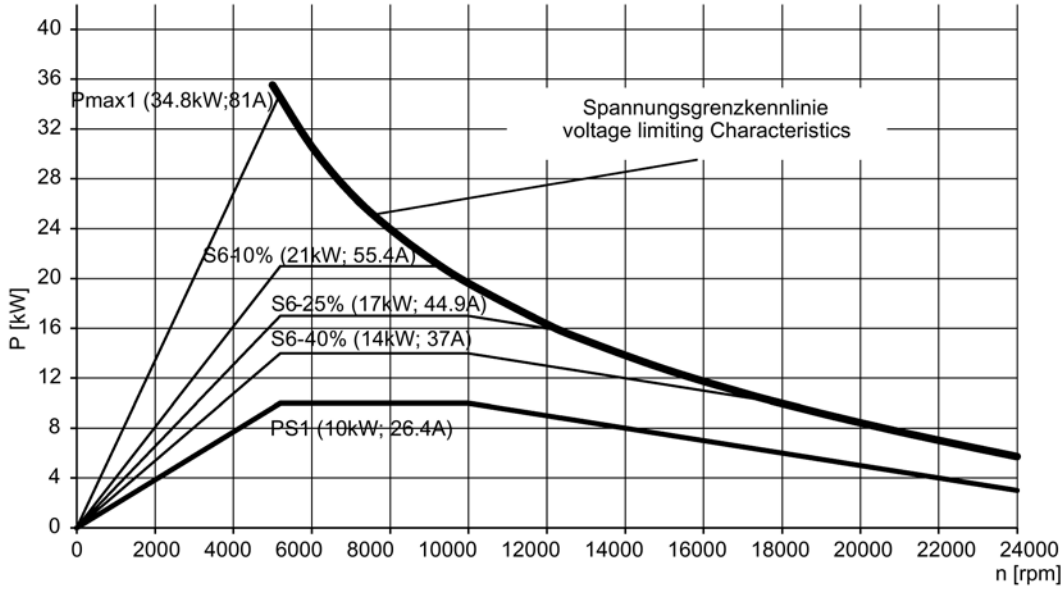


Table 6- 620 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,200	10	18.4	26.4	10,000	24,000	81	--	--	64	--	--	4



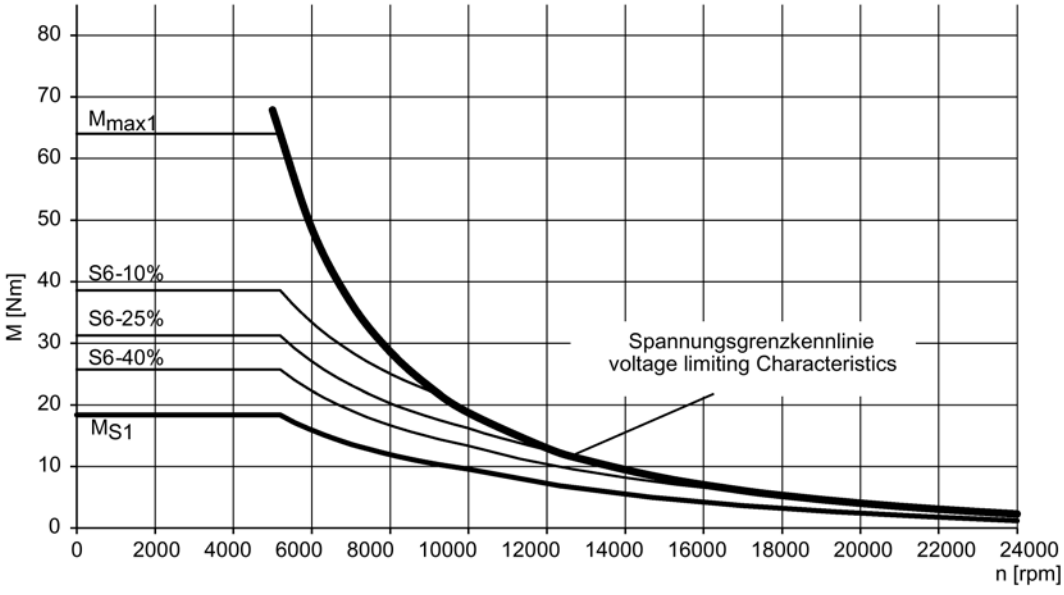
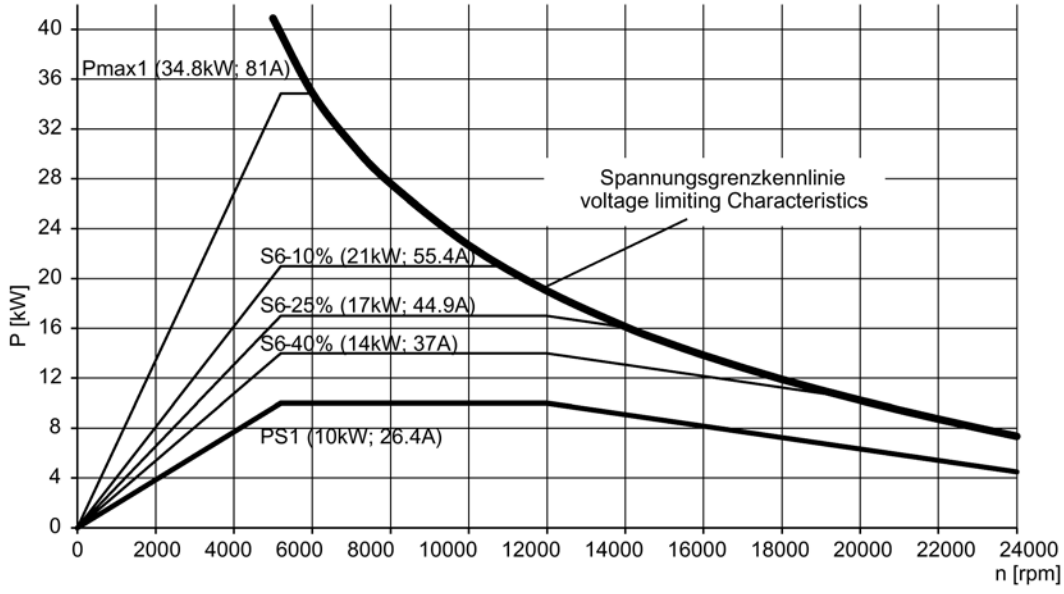


Table 6- 621 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8083-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,200	10	18.4	26.4	12,000	24,000	81	--	--	64	--	--	4



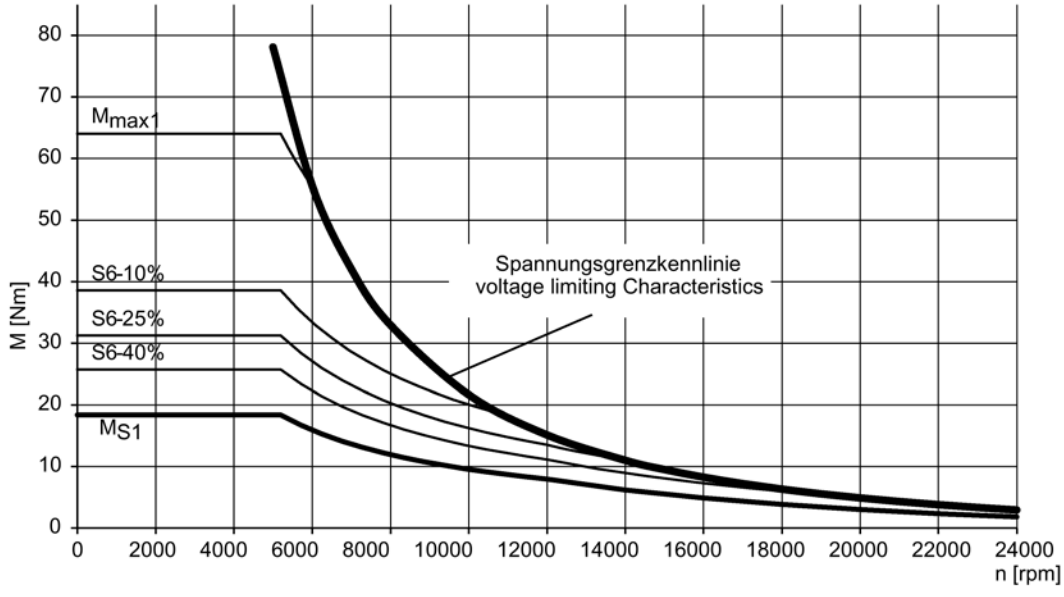
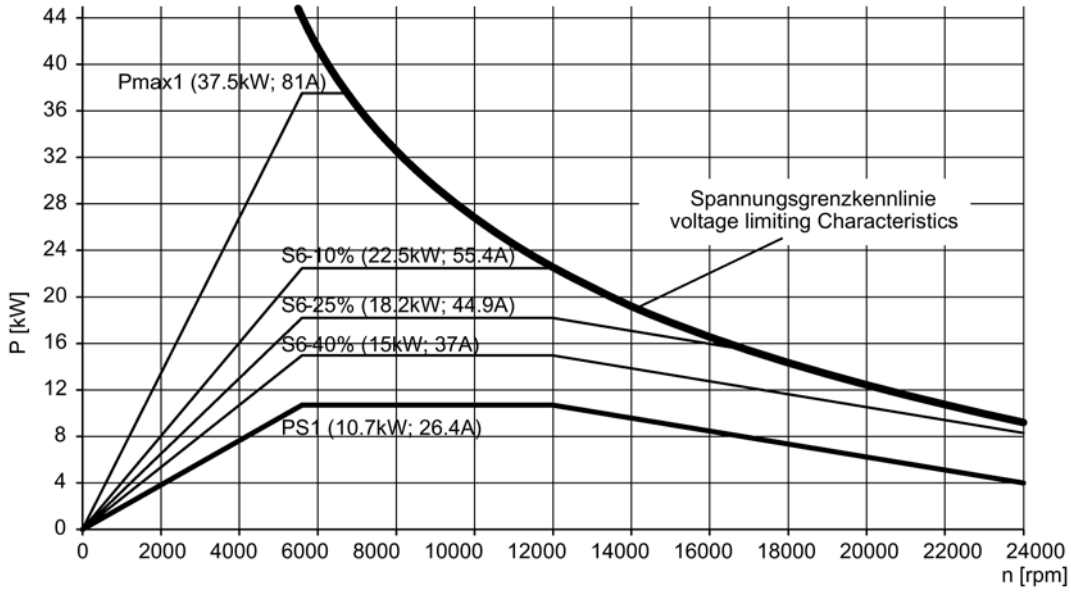


Table 6- 622 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8083-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,600	10.7	18.2	26.4	12,000	24,000	81	--	--	64	--	--	4



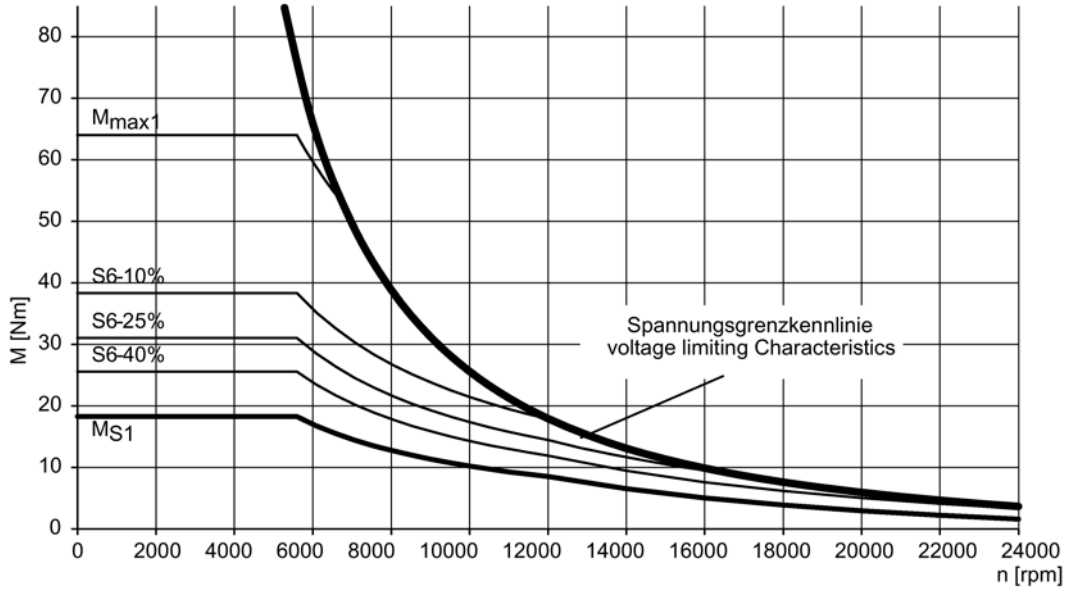
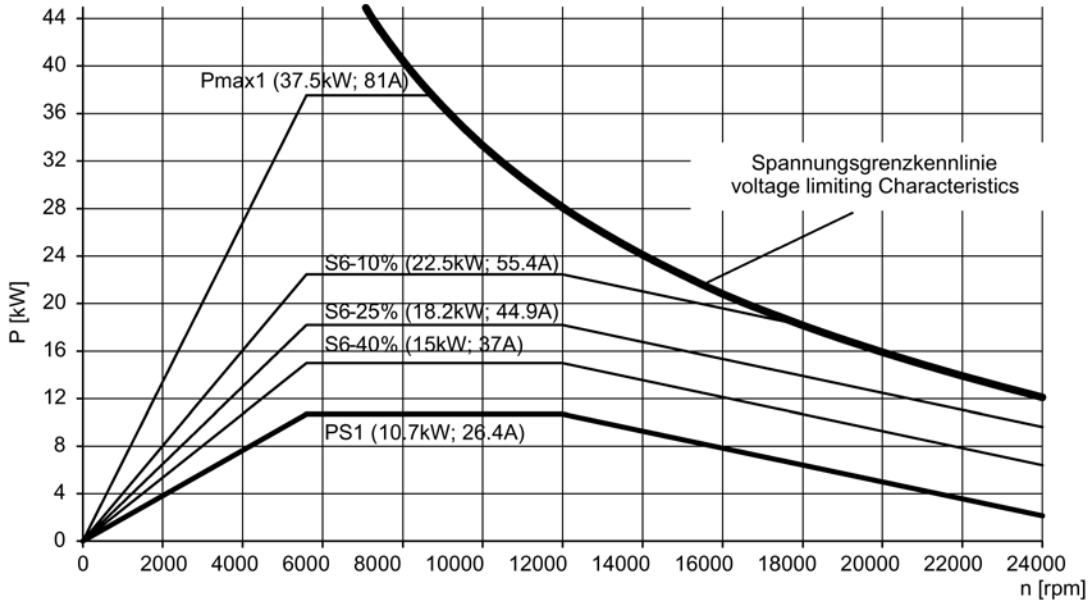


Table 6- 623 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8083-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,600	10.7	18.2	26.4	12,000	24,000	81	--	--	64	--	--	4



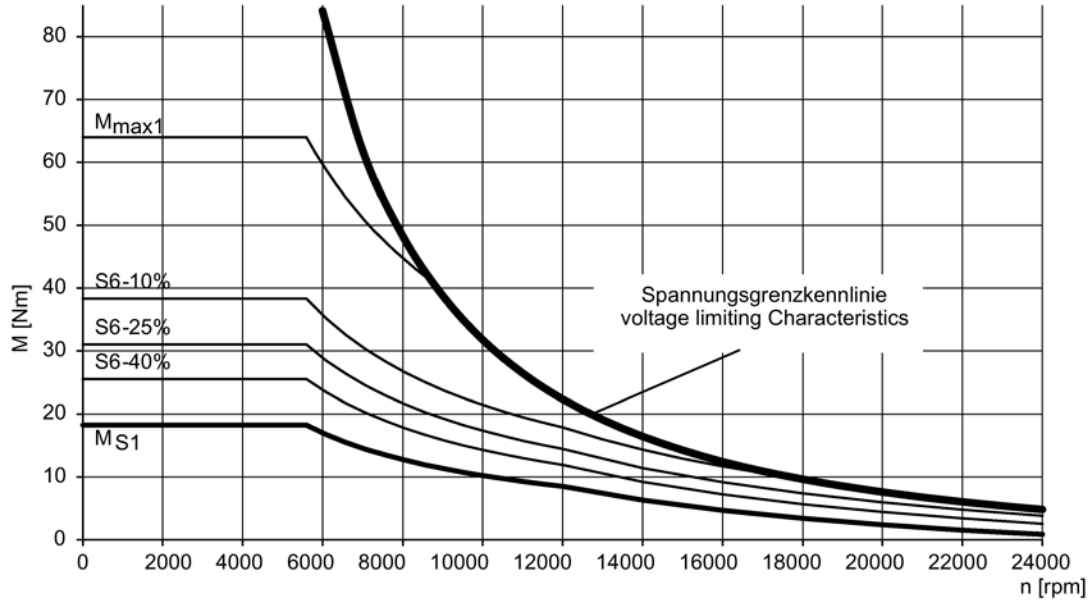
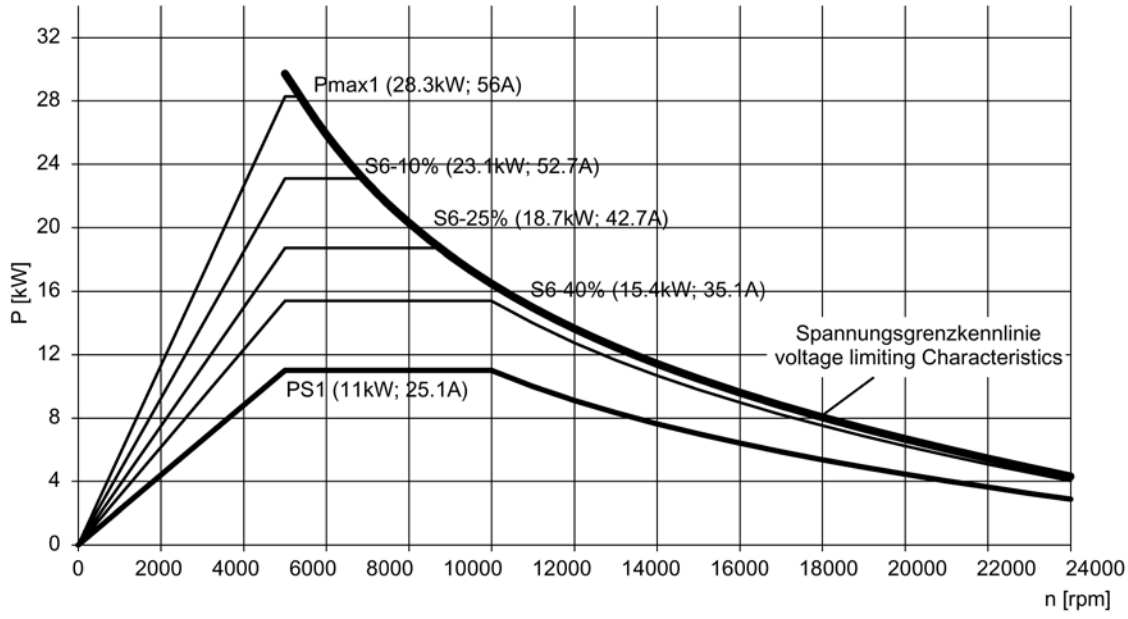


Table 6- 624 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,000	11	21	25.1	10,000	24,000	56	--	--	54	--	--	4



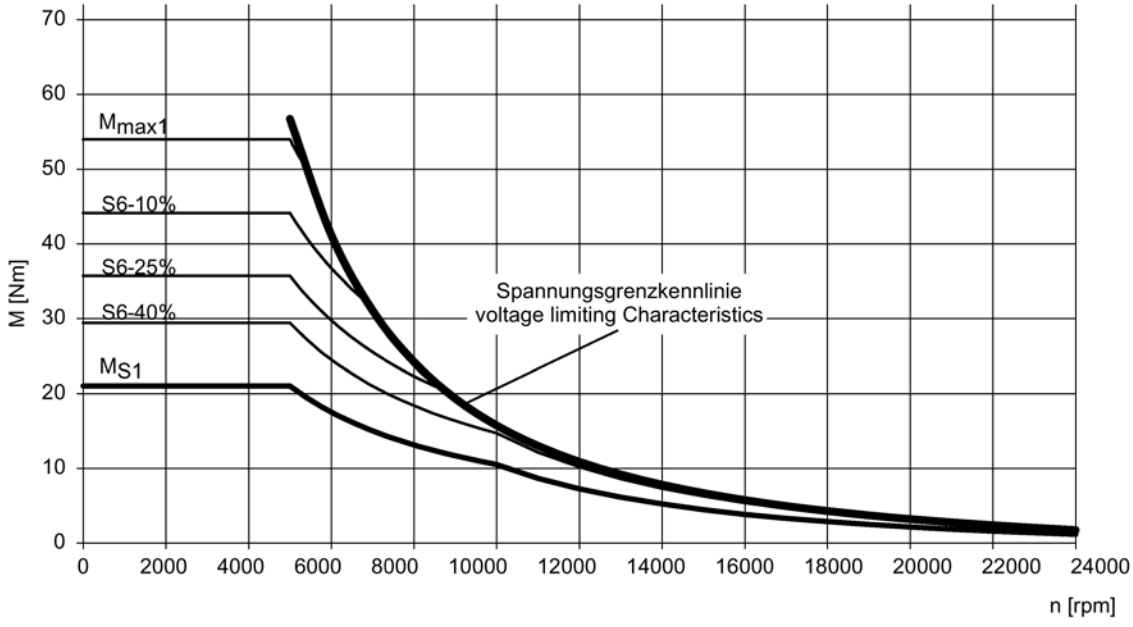
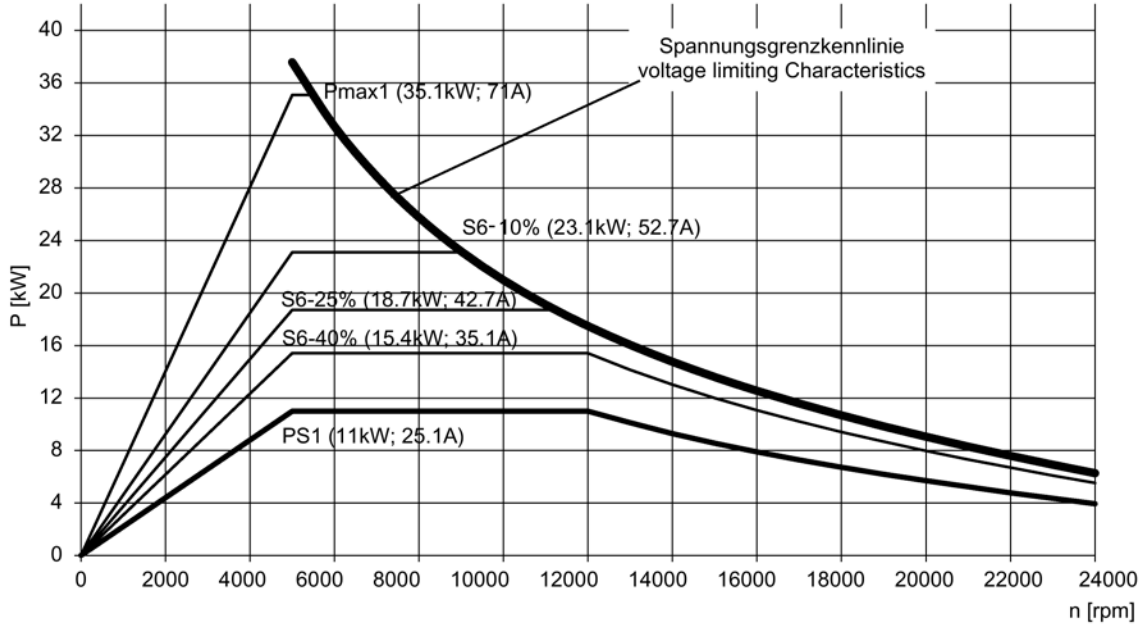


Table 6- 625 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8087-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,000	11	21	25.1	12,000	24,000	71	--	--	67	--	--	4



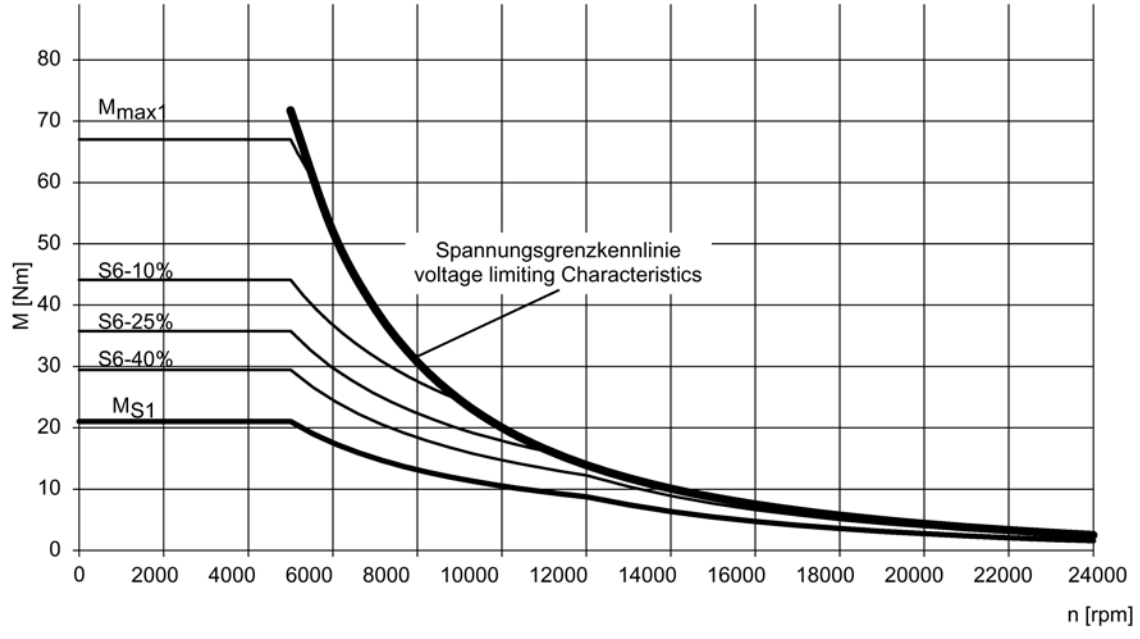
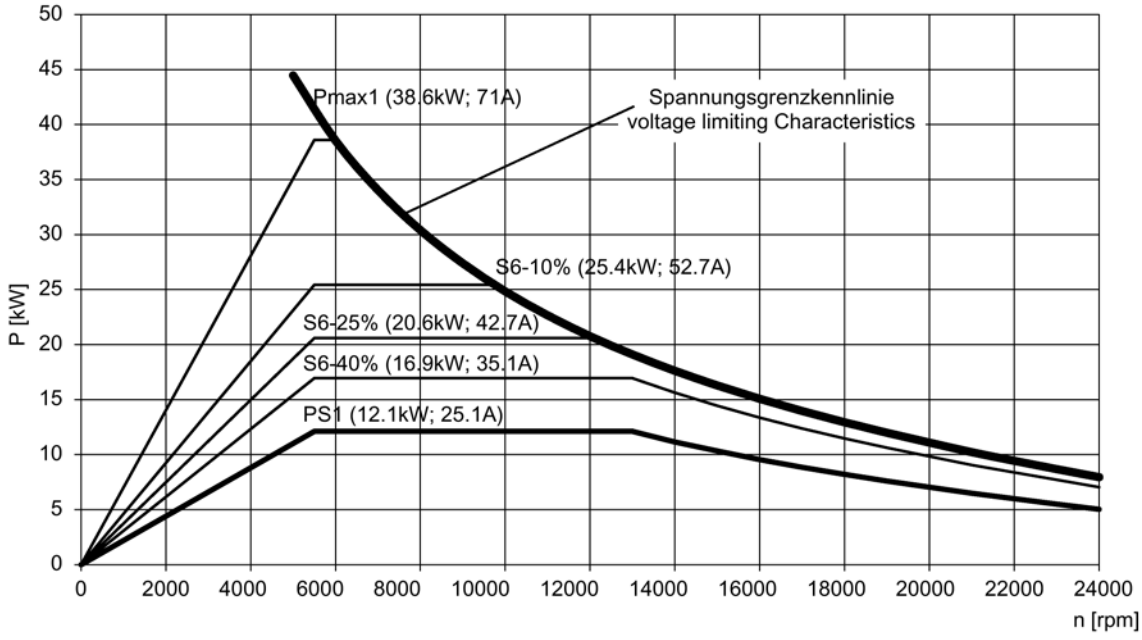


Table 6- 626 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8087-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,500	12.1	21	25.1	13,000	24,000	71	--	--	67	--	--	4



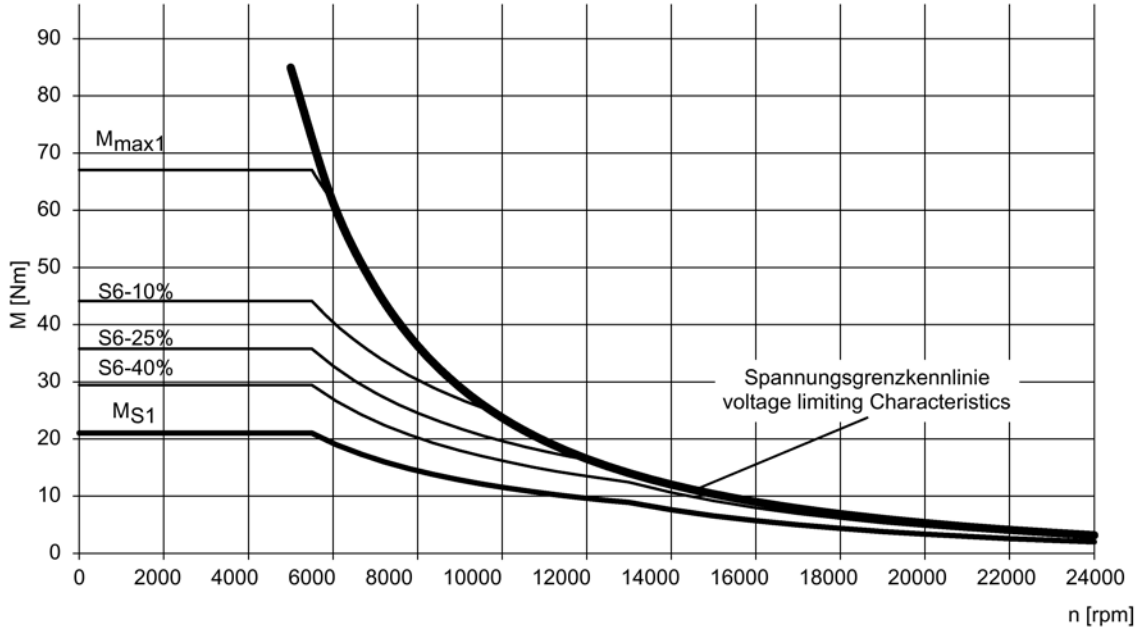
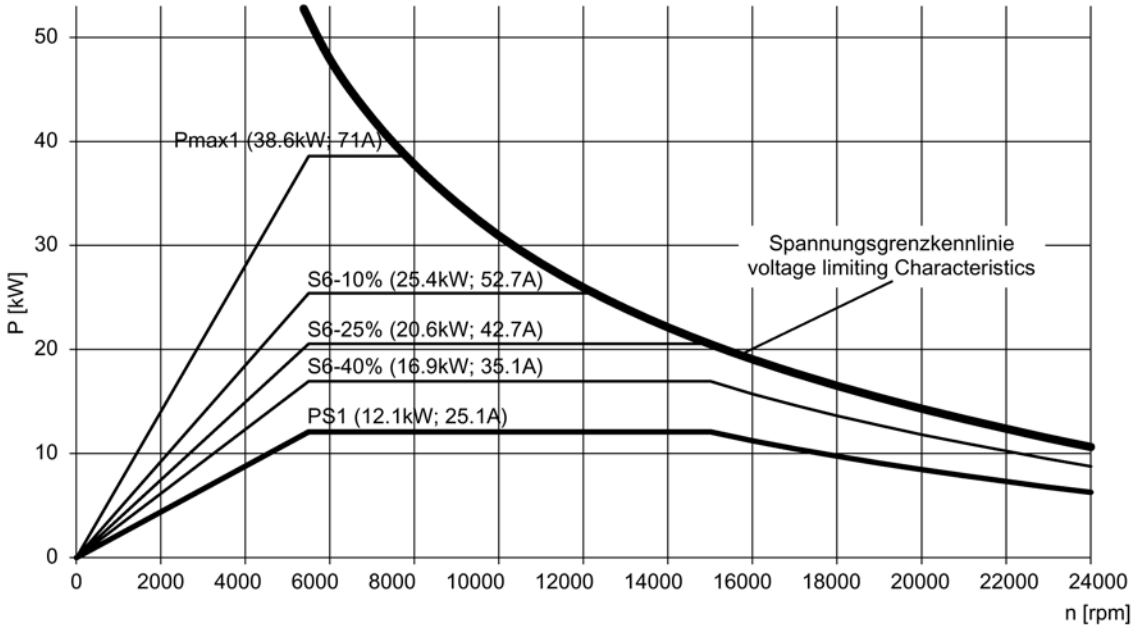
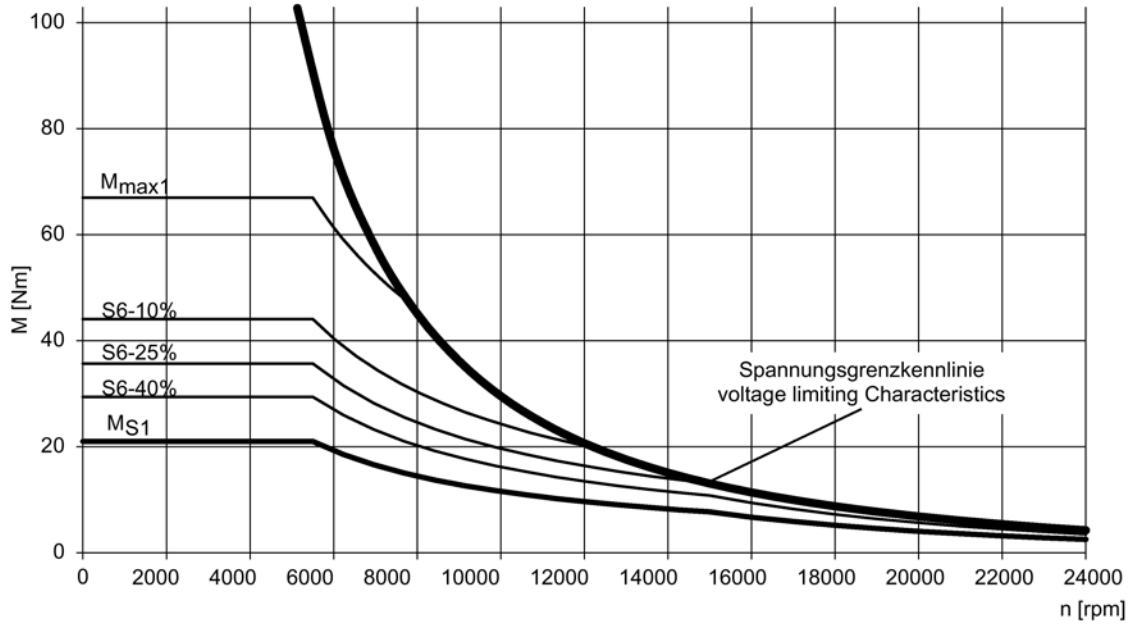


Table 6- 627 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8087-□□U□□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_2 [rpm]	n_{max} [rpm]	I_{max1} [A]	I_{max2} [A]	I_{max3} [A]	M_{max1} [Nm]	M_{max2} [Nm]	M_{max3} [Nm]	f_{cycle} [kHz]
5,500	12.1	21	25.1	15,000	24,000	71	--	--	67	--	--	4

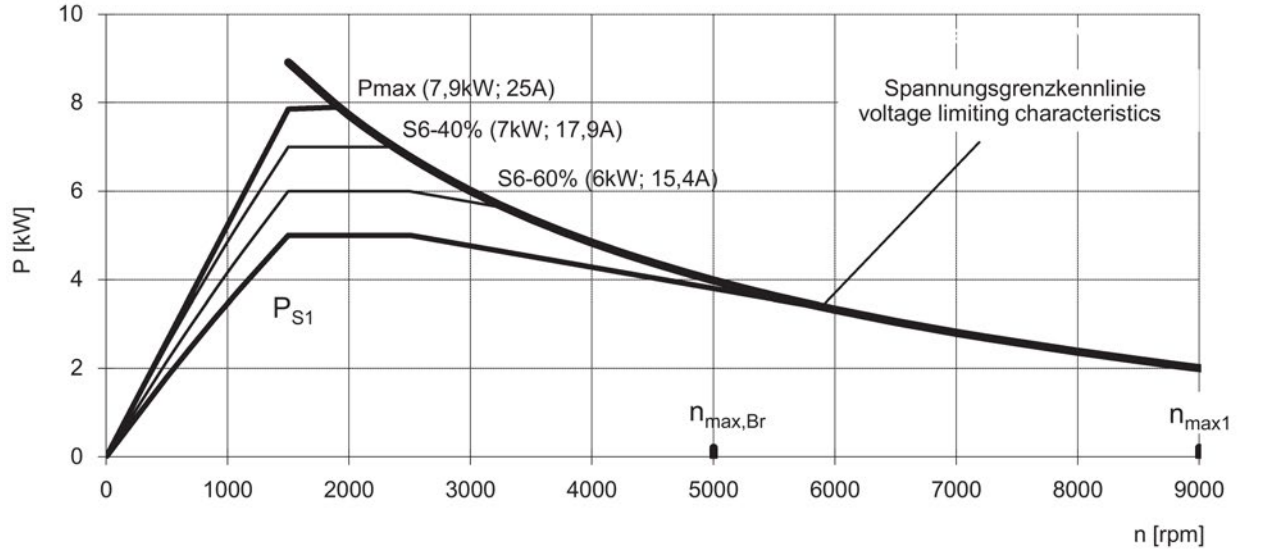




6.1.3.3 Shaft height 100 - water-cooled

Table 6- 628 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]
1,500	5	32	12.8	9,000	-	-	5,000	2,500	50	25	34	13



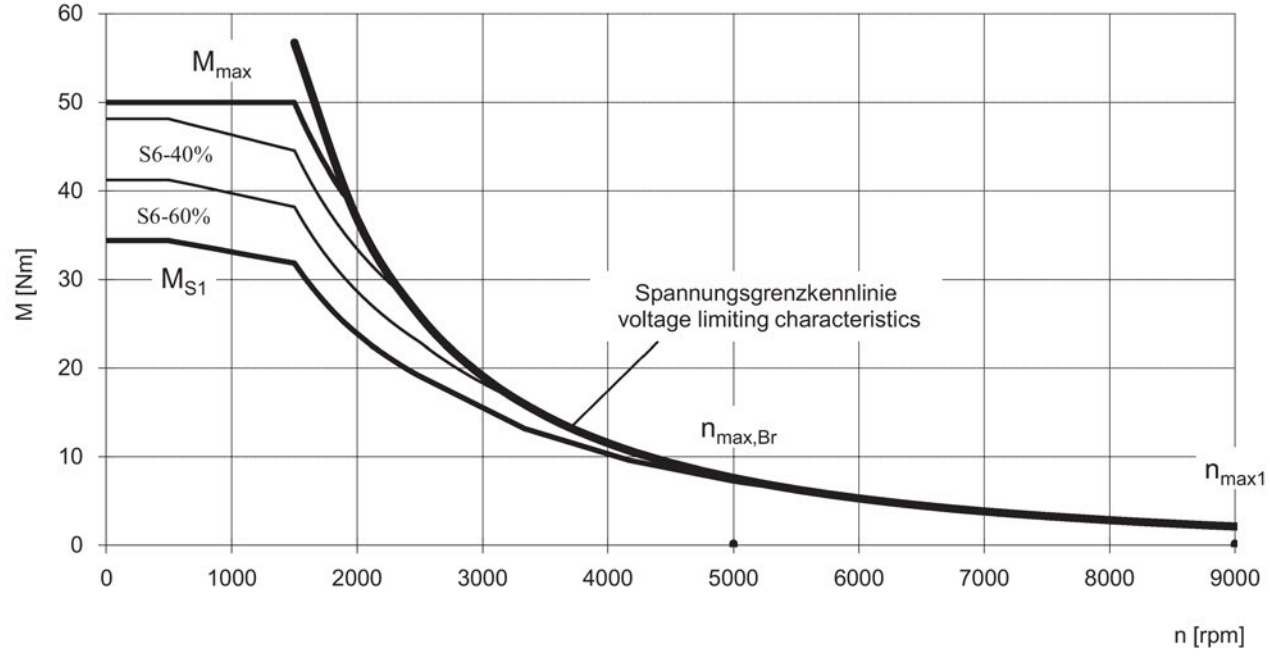
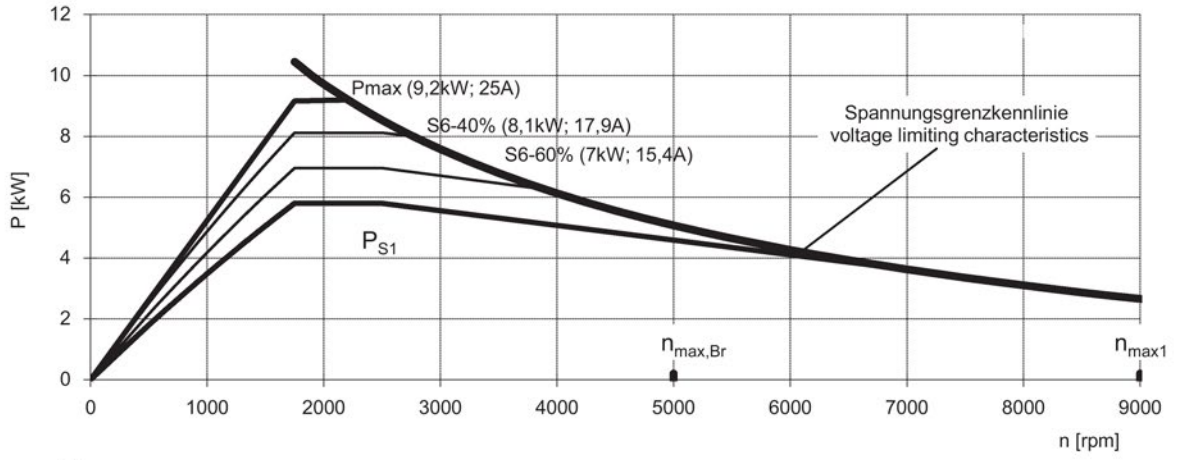


Table 6- 629 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□F2□

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]
1,750	5.8	32	12.8	9,000	-	-	5,000	2,500	50	25	34	13
1,500	5	32	12.8					4,200				



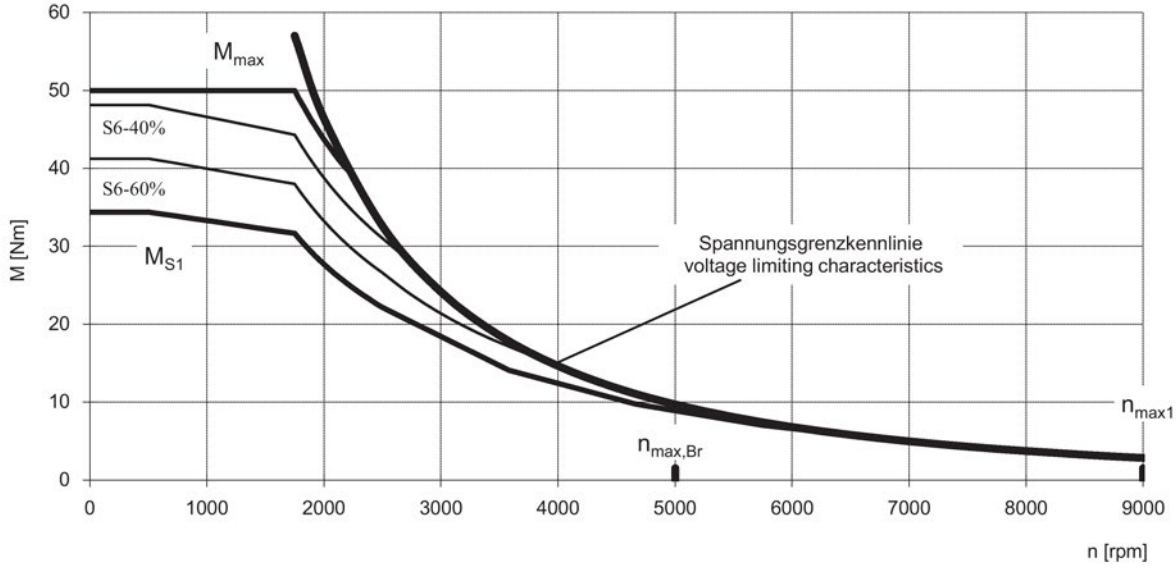
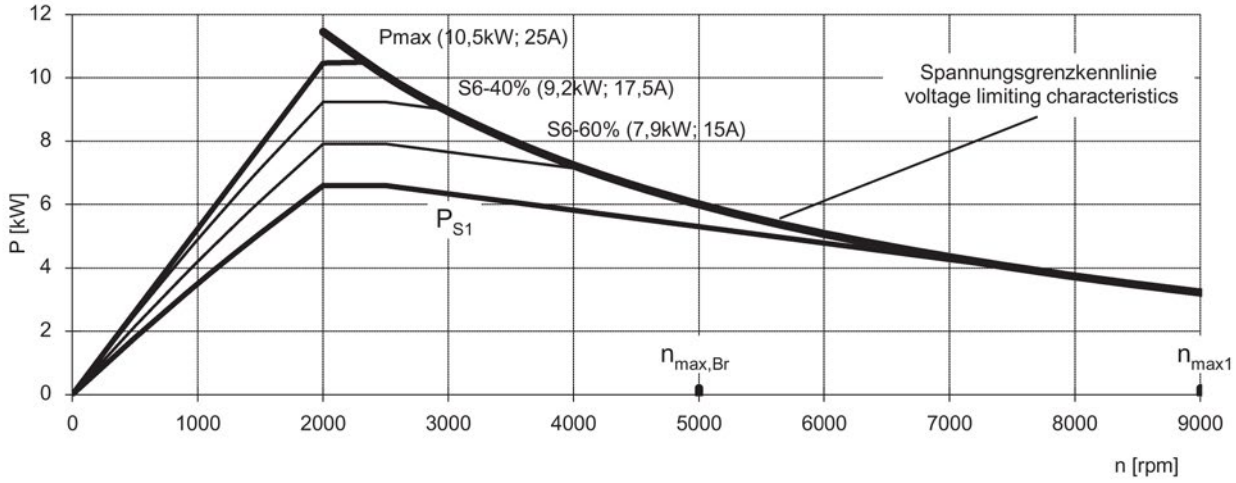


Table 6- 630 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□F2□

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]
2,000	6.6	32	12.5	9,000	-	-	5,000	2,500	50	25	34	13



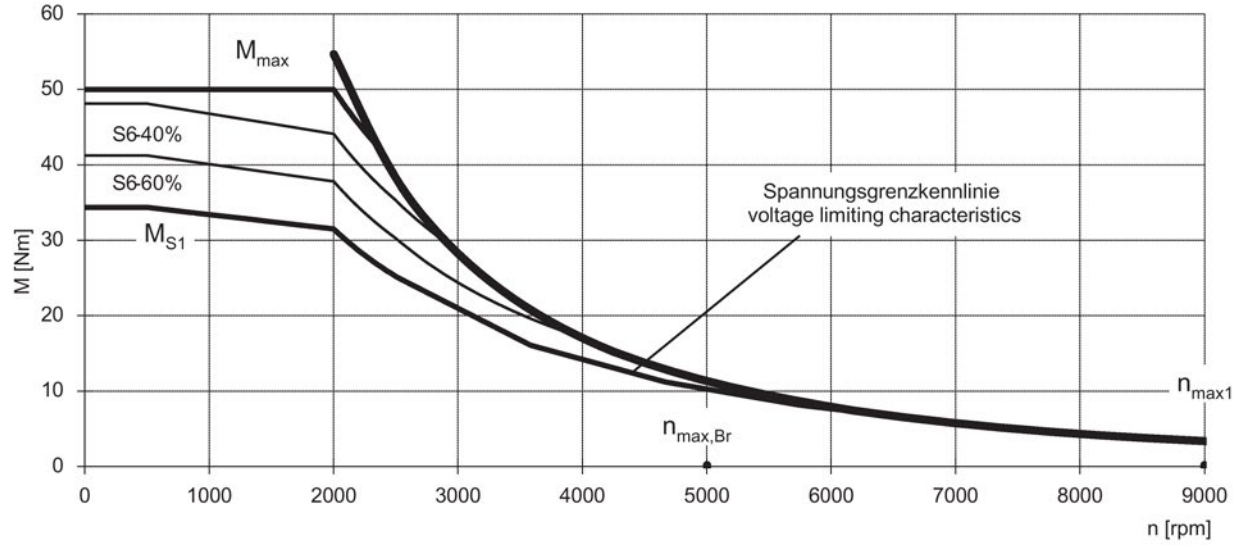
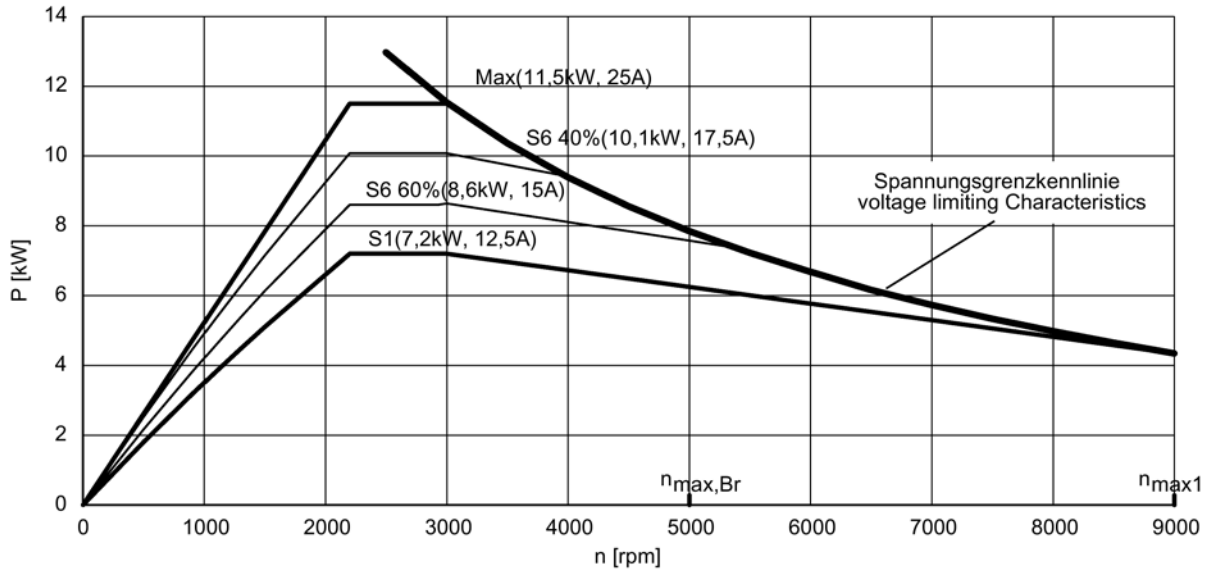


Table 6- 631 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8101-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	7.2	31	12.5	9,000	-	-	5,000	3,000	50	25	34	13



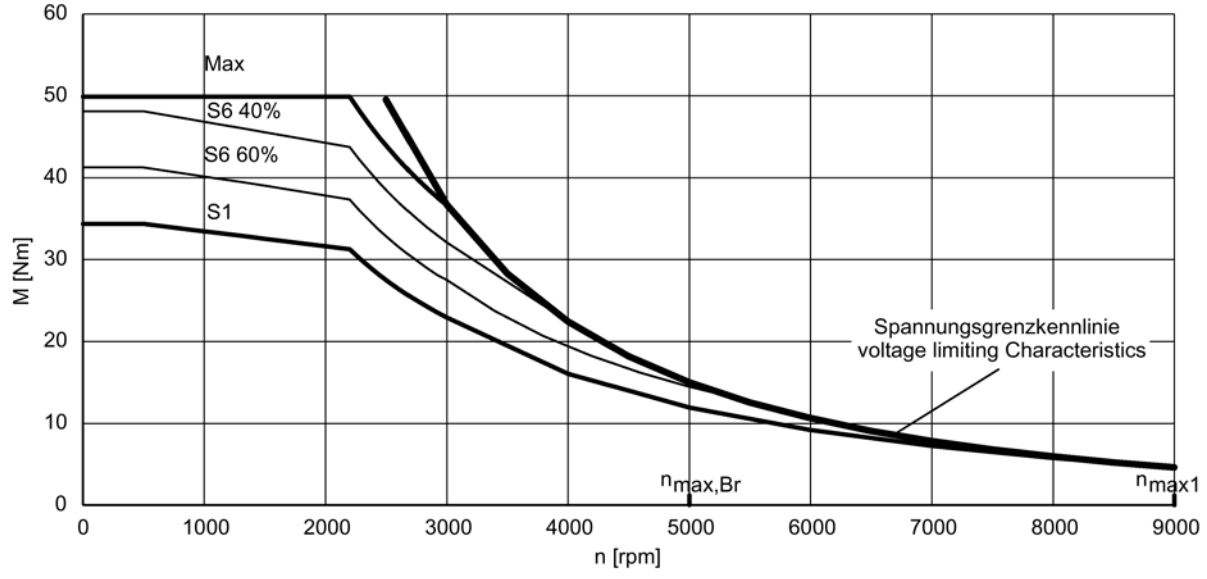
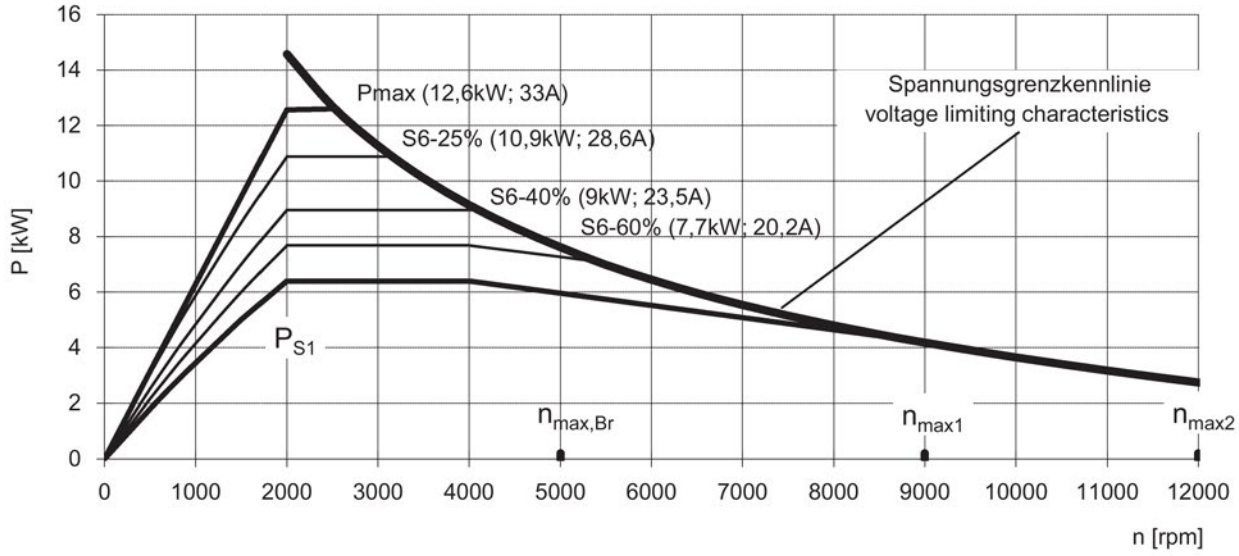


Table 6- 632 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□G2□,

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]
2,000	6.4	31	16.8	9,000	12,000	-	5,000	4,000	60	33	34	18



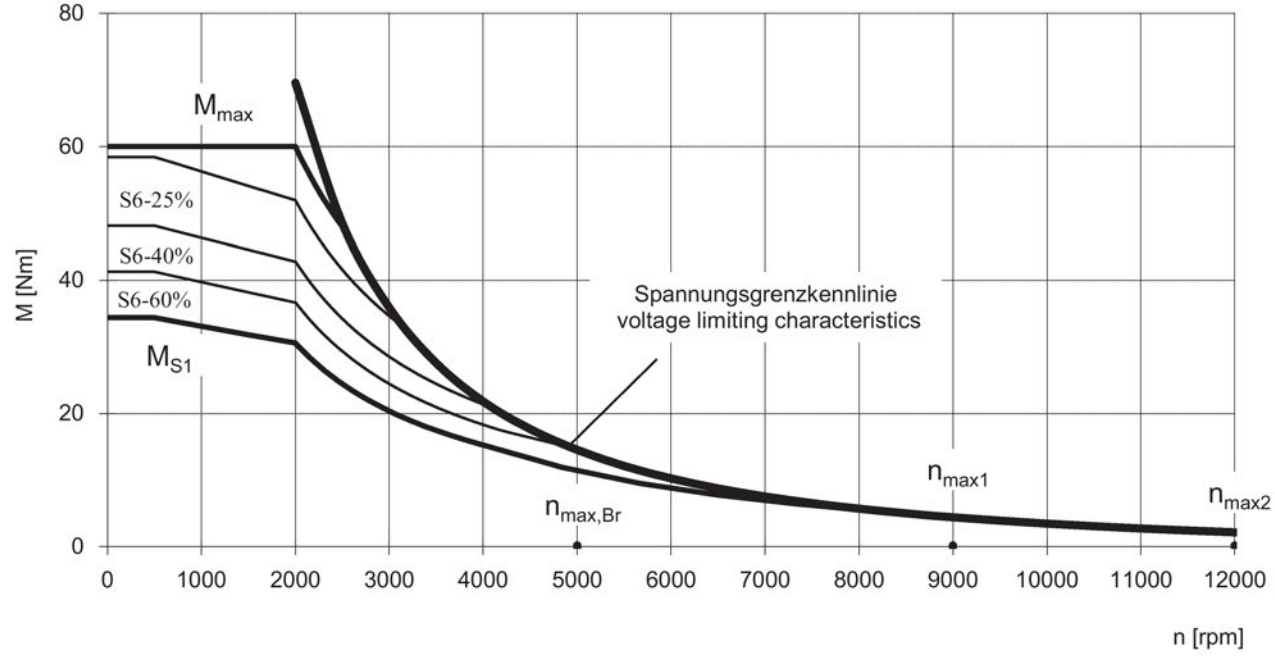


Table 6- 633 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8101-□□G2□,

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]
2,300	7.3	30	16.8	9,000	12,000	-	5,000	5,000	60	33	34	18
2,000	6.4	31	16.8					6,800				
1,500	5	32	17.3					9,600				

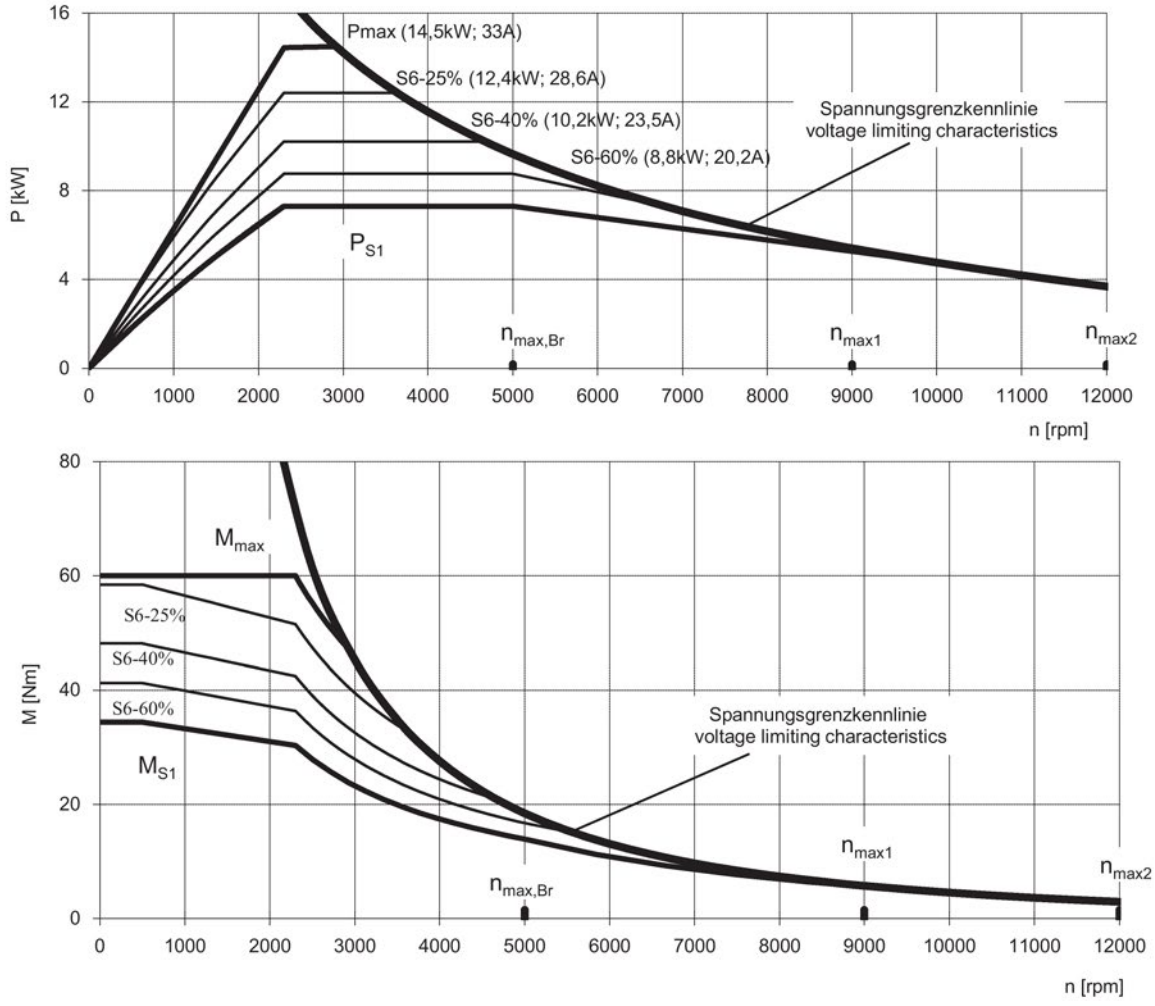
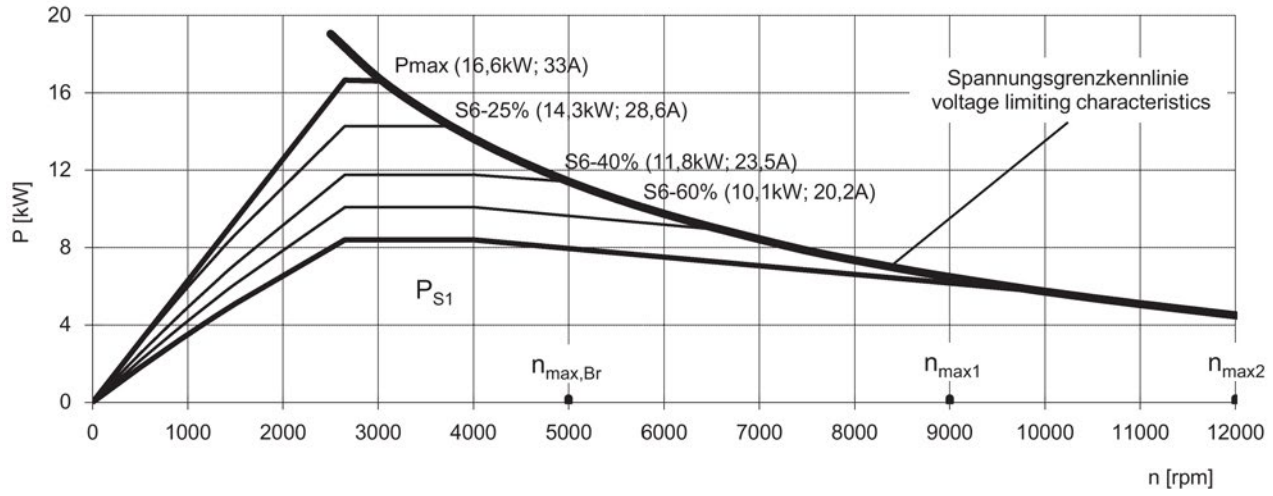


Table 6- 634 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8101-□□G2□,

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]
2,650	8.4	30	16.8	9,000	12,000	-	5,000	4,000	60	33	34	18



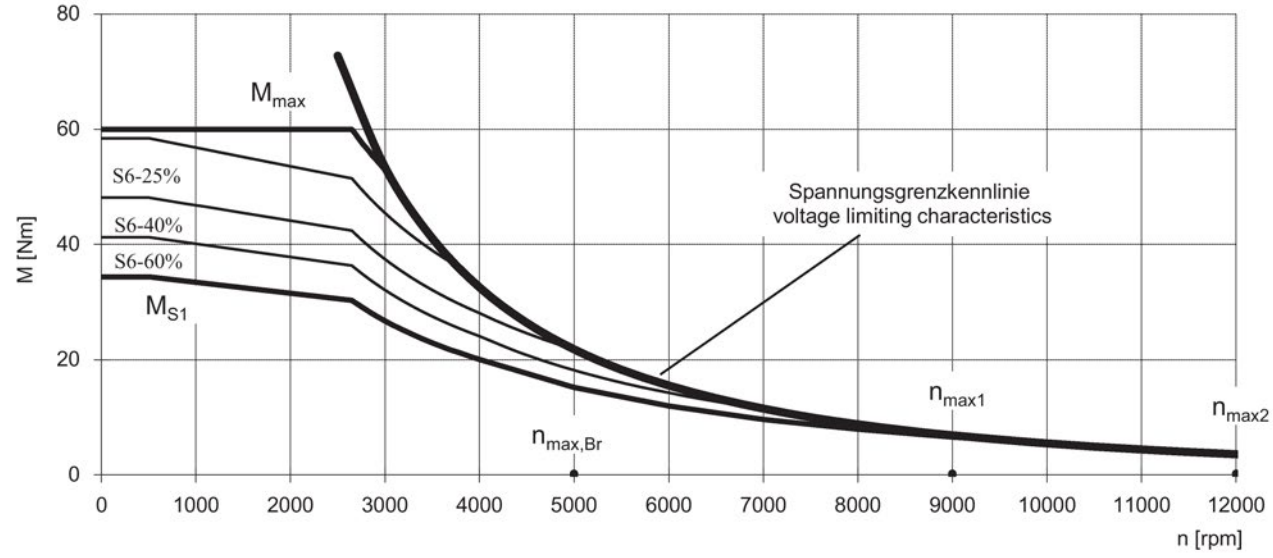
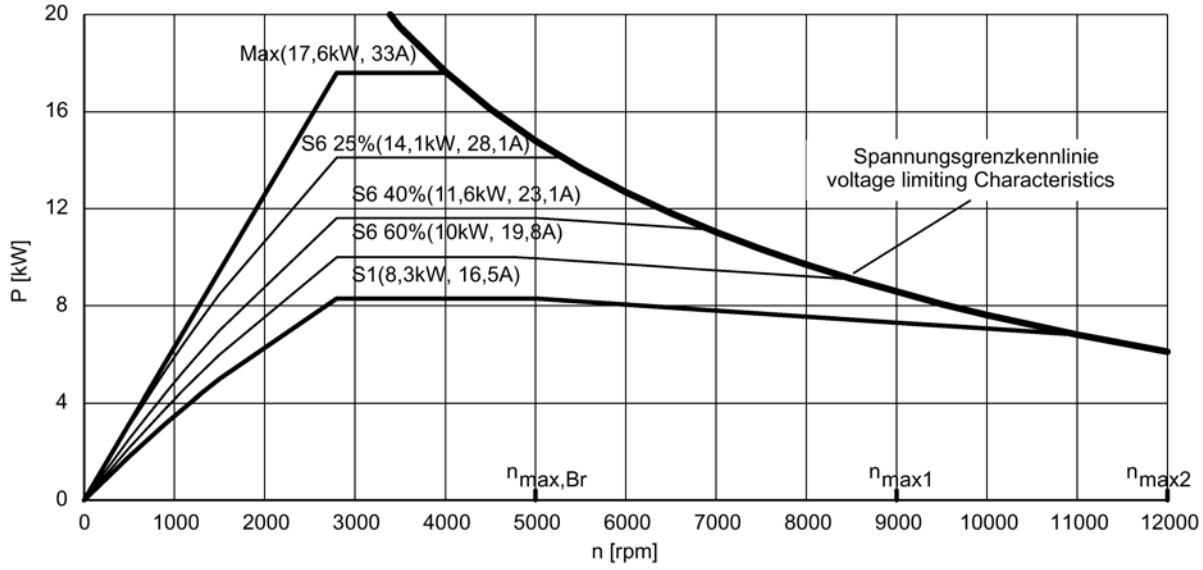


Table 6- 635 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8101-□□G2□,

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	8.3	28	16.5	9,000	12,000	-	5,000	5,000	60	33	34	18



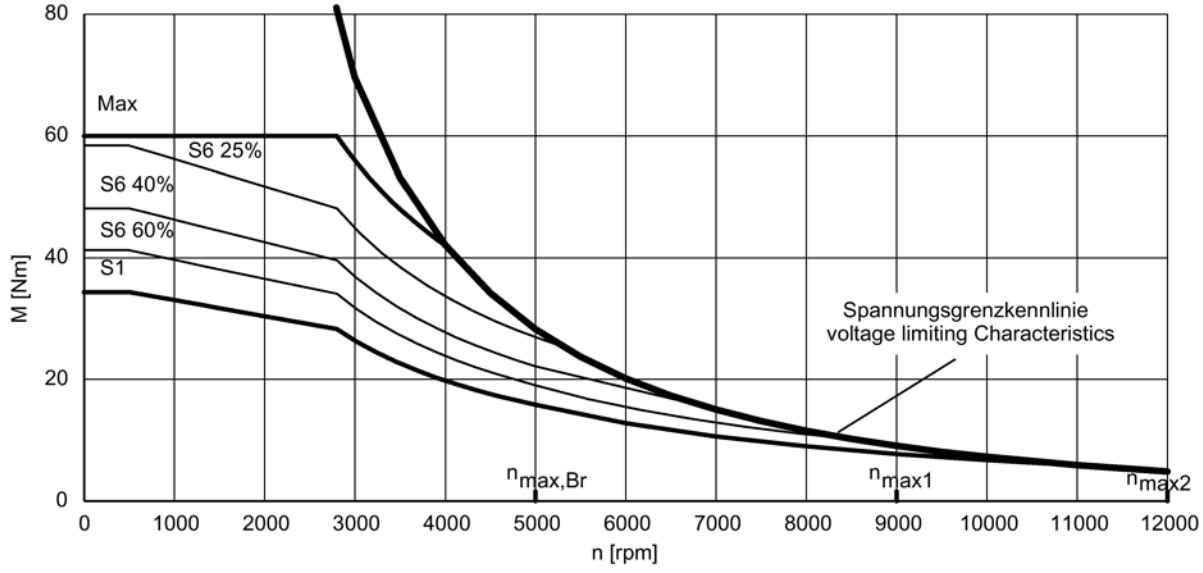
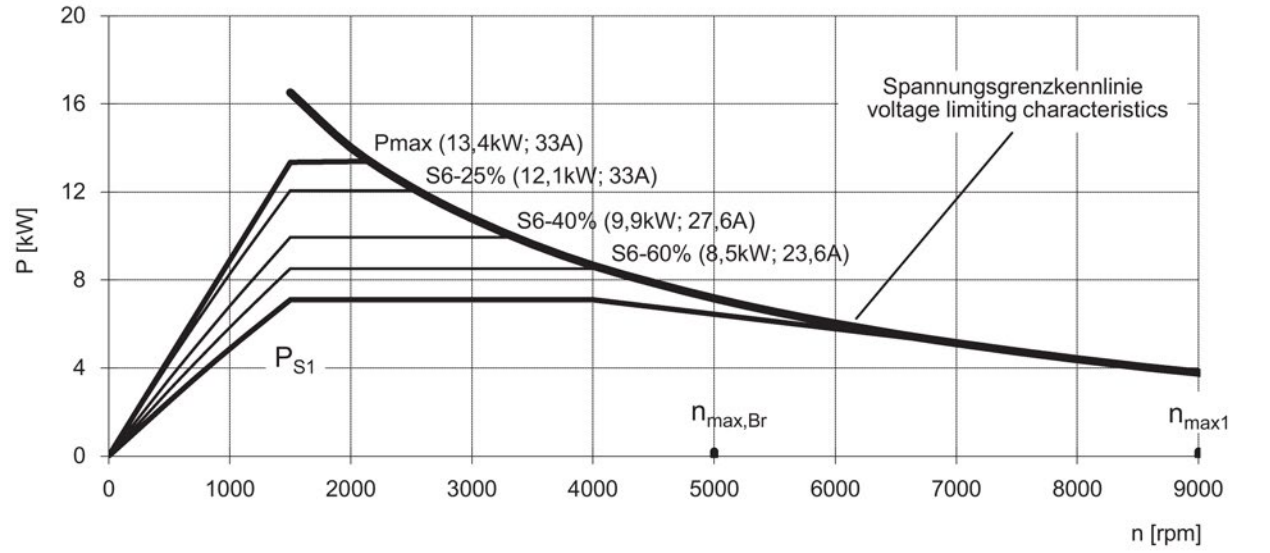


Table 6- 636 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F2□

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]
1,500	7.1	45	19.7	9,000	-	-	5,000	4,000	85	33	48	20



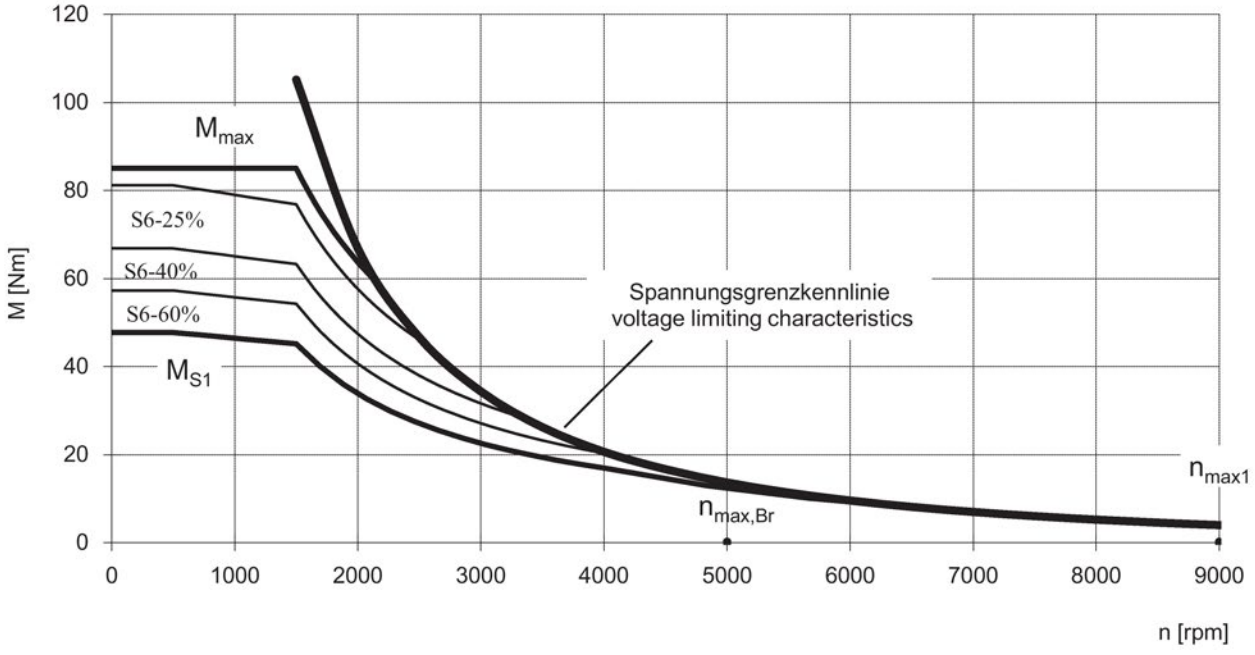


Table 6- 637 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□F2□

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]
1,750	8.2	45	19.7	9,000	-	-	5,000	5,000	85	33	48	20
1,500	7.1	45	19.7					6,400				

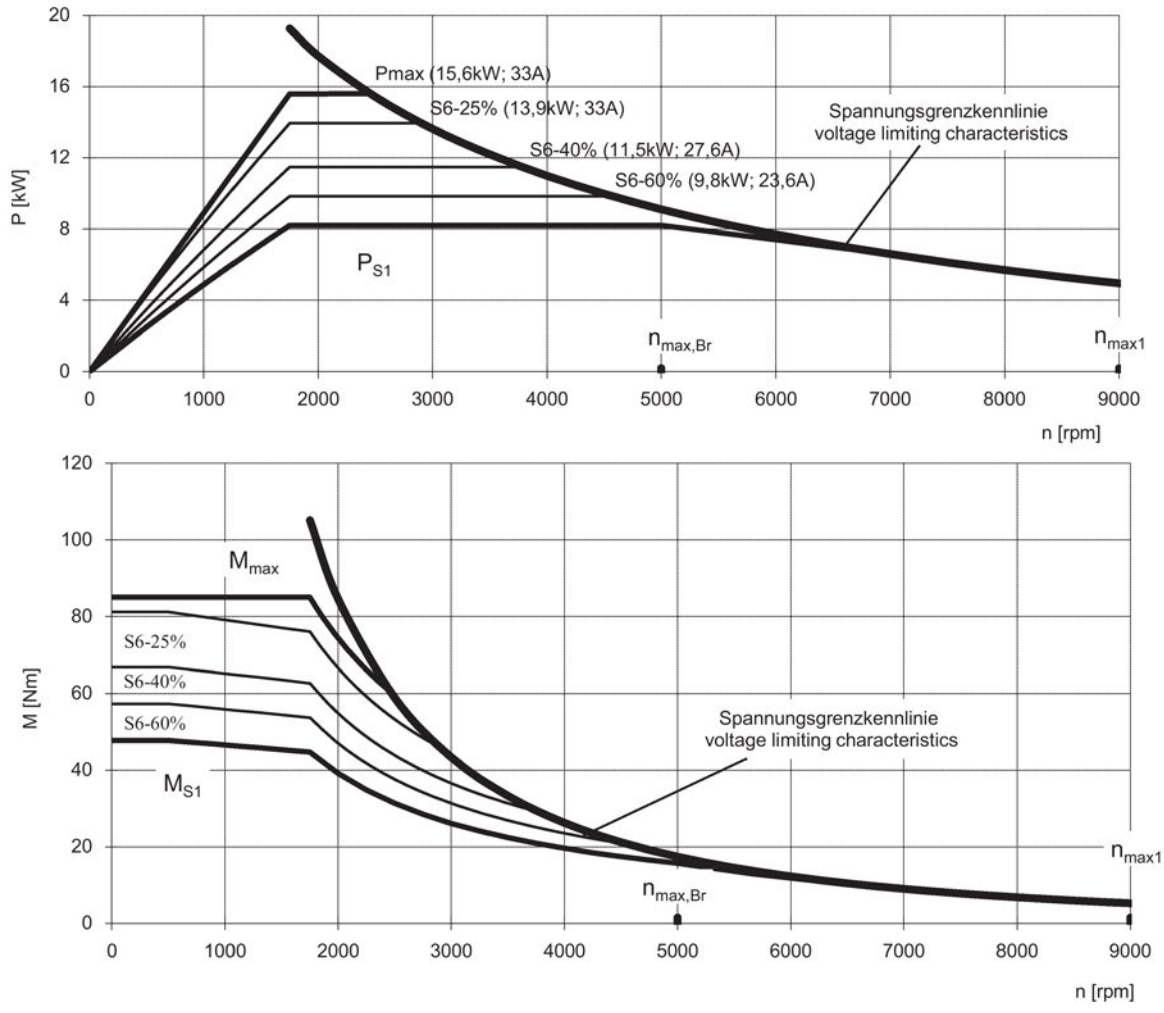
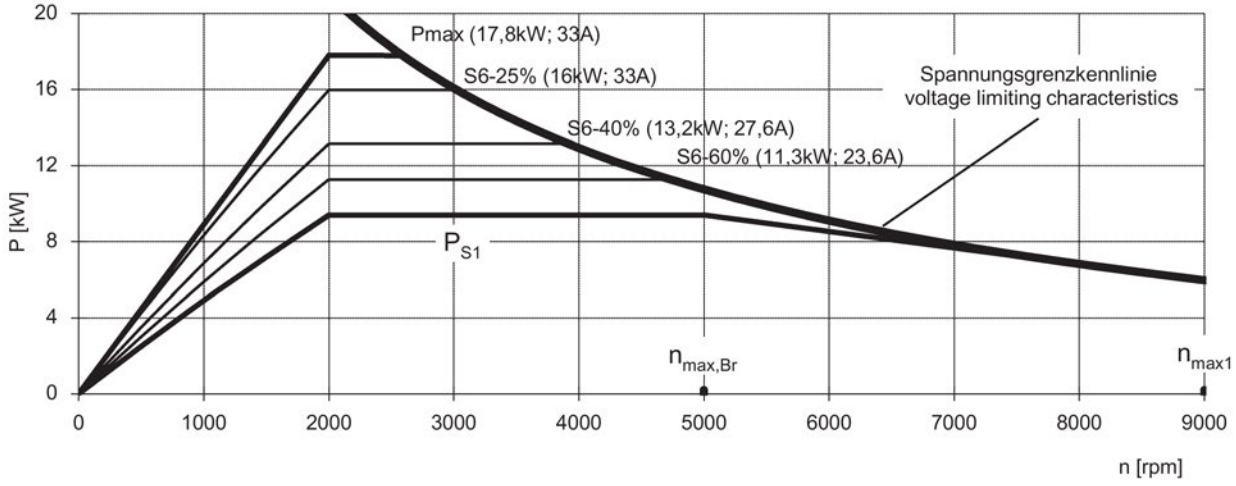


Table 6- 638 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□F2□

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]
2,000	9.4	45	19.7	9,000	-	-	5,000	5,000	85	33	48	20



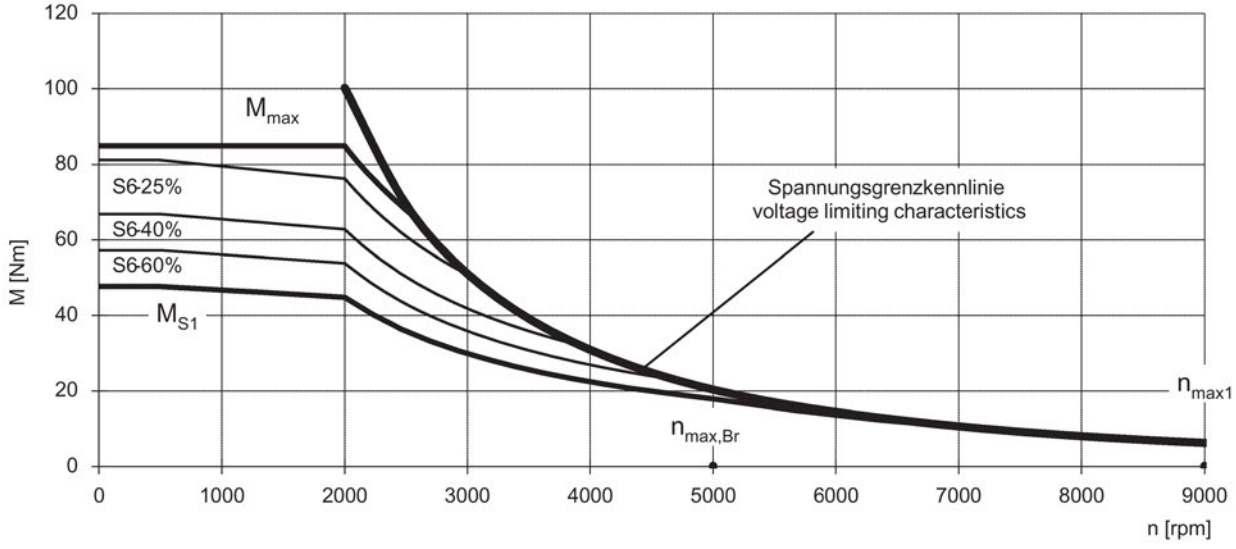
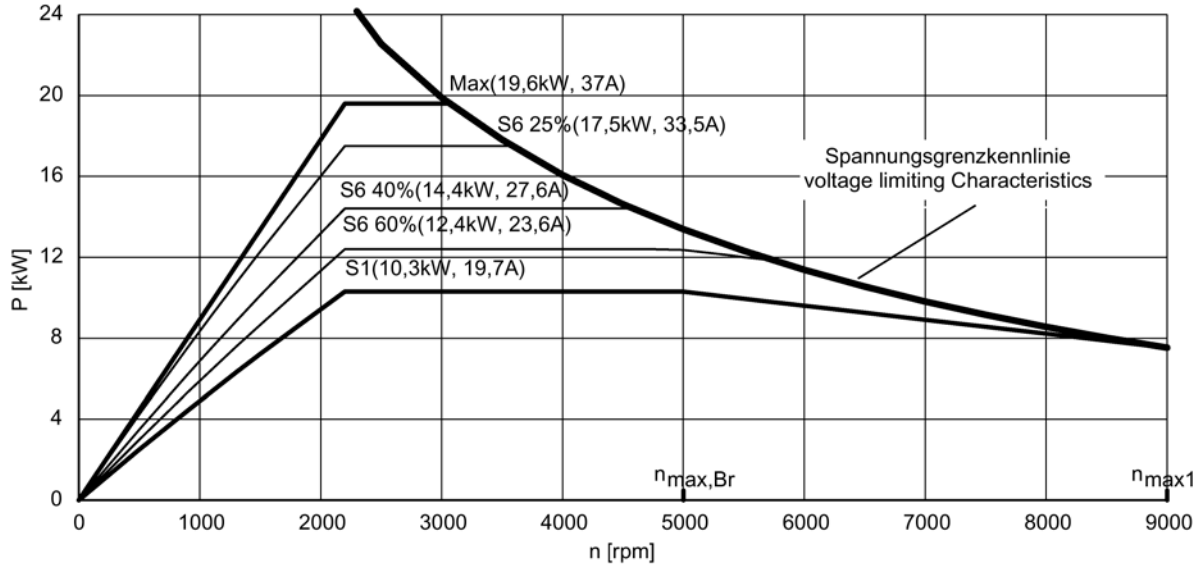


Table 6- 639 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	10.3	45	19.7	9,000	--	--	5,000	5,000	85	37	48	20



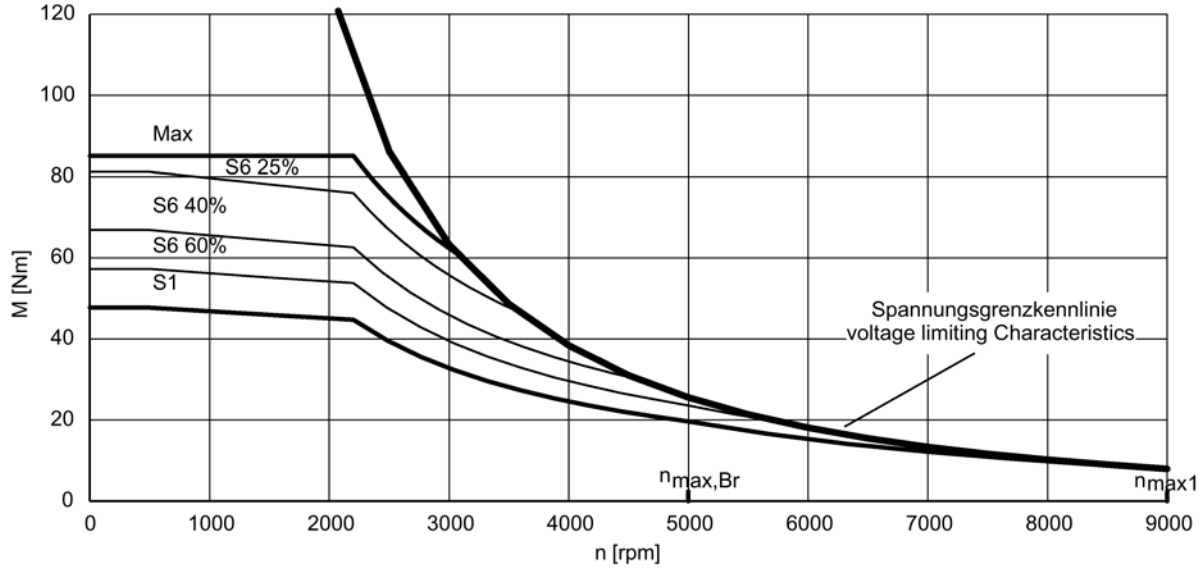
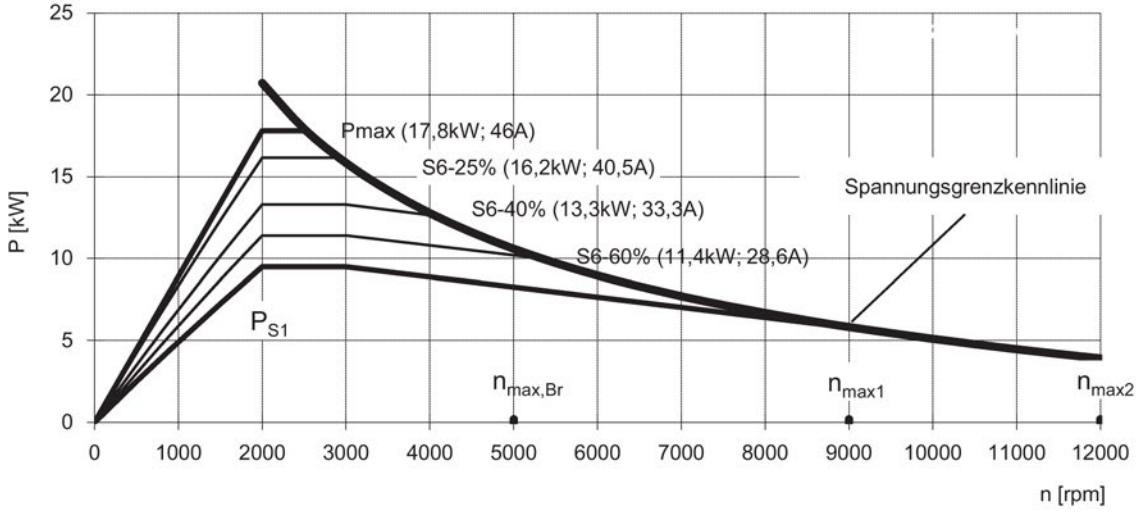


Table 6- 640 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G2□,

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]
2,000	9.5	45	23.8	9,000	12,000	-	5,000	3,000	85	46	48	24



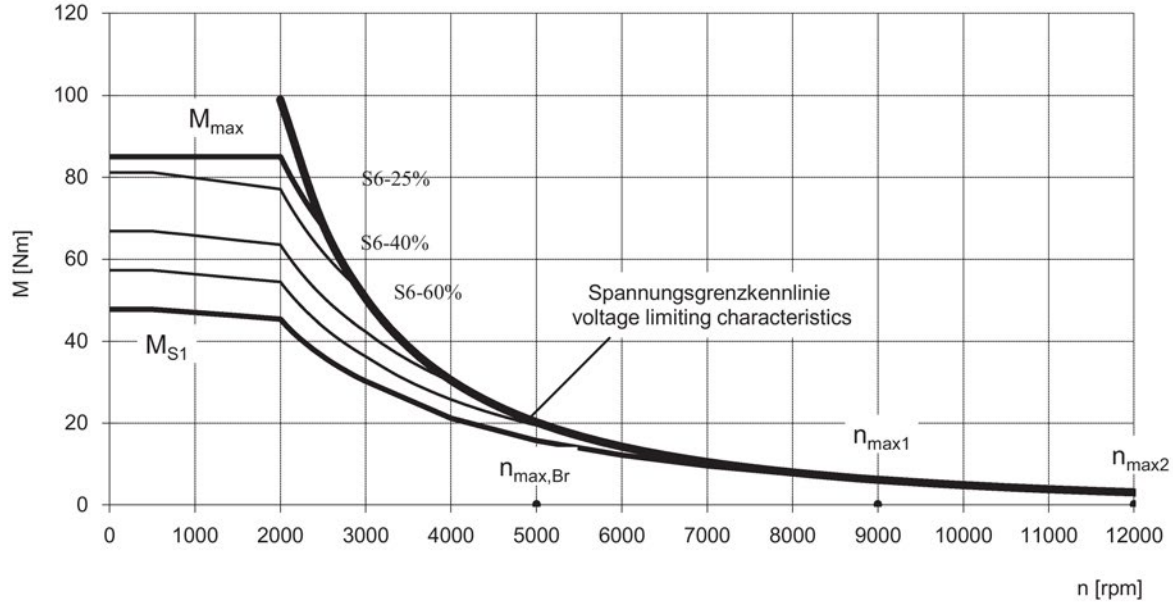


Table 6- 641 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□G2□

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]
2,300	10.9	45	23.8	9,000	12,000	-	5,000	3,000	85	46	48	24
2,000	9.5	45	23.8					5,300				
1,500	7	45	23.7					8,900				

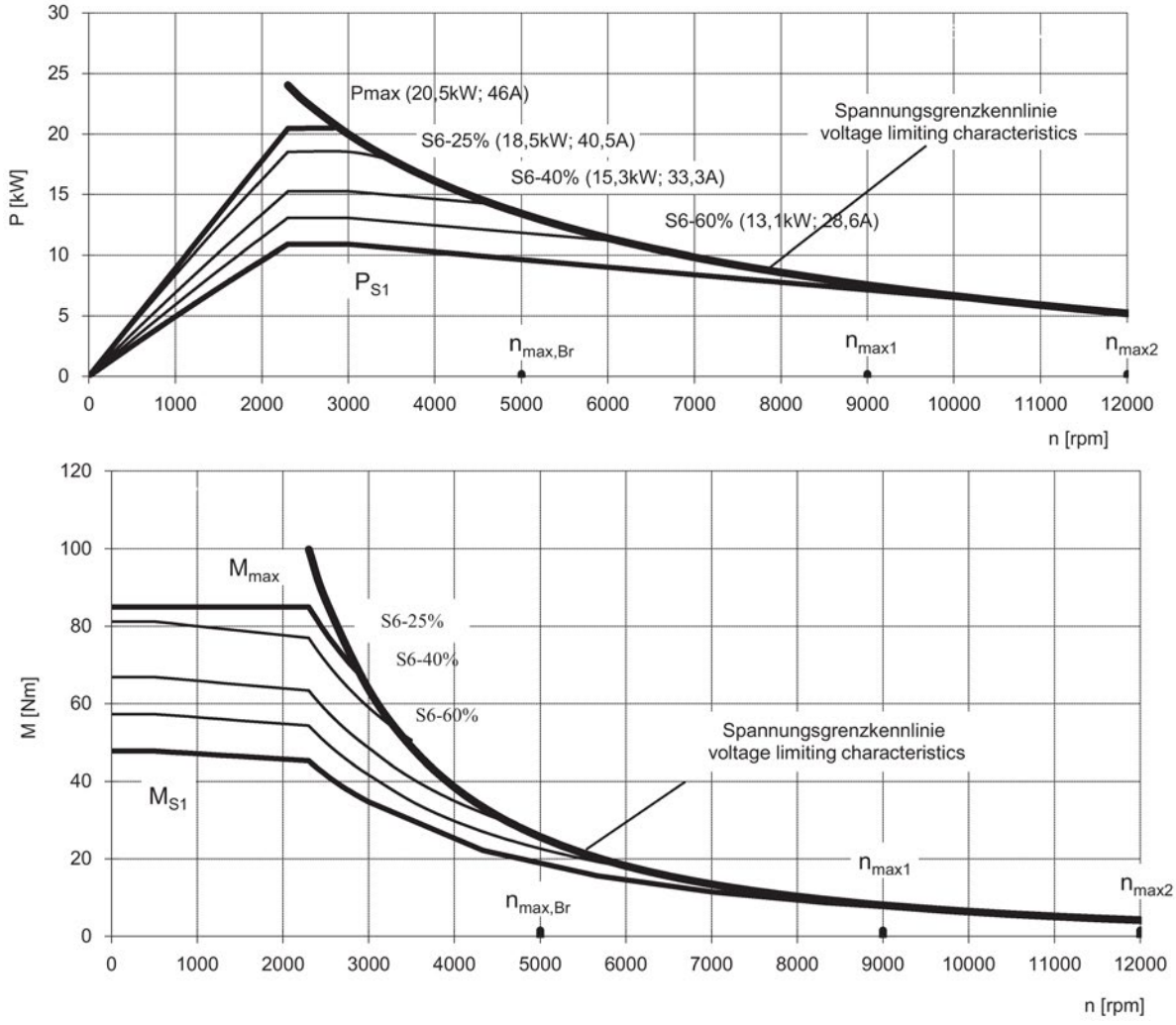
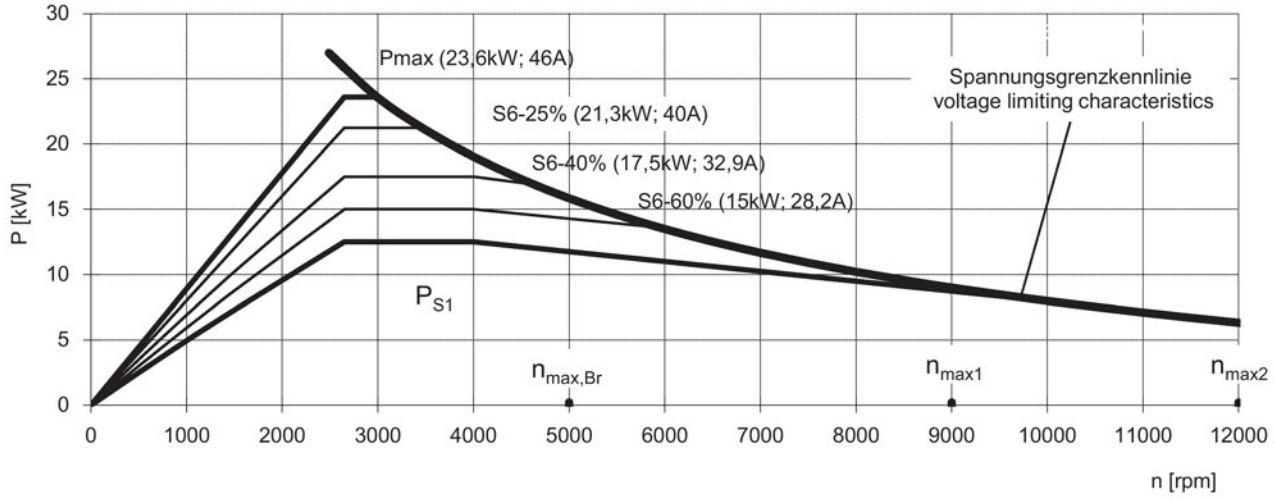


Table 6- 642 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□G2□

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]
2,650	12.5	45	23.5	9,000	12,000	-	5,000	4,000	85	46	48	24



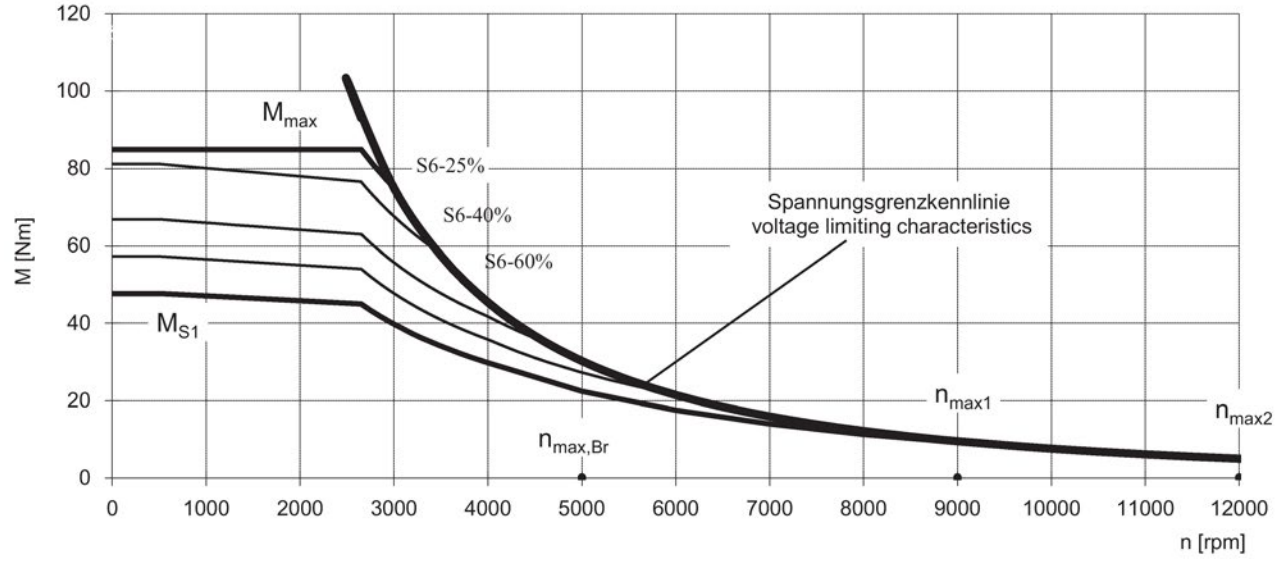
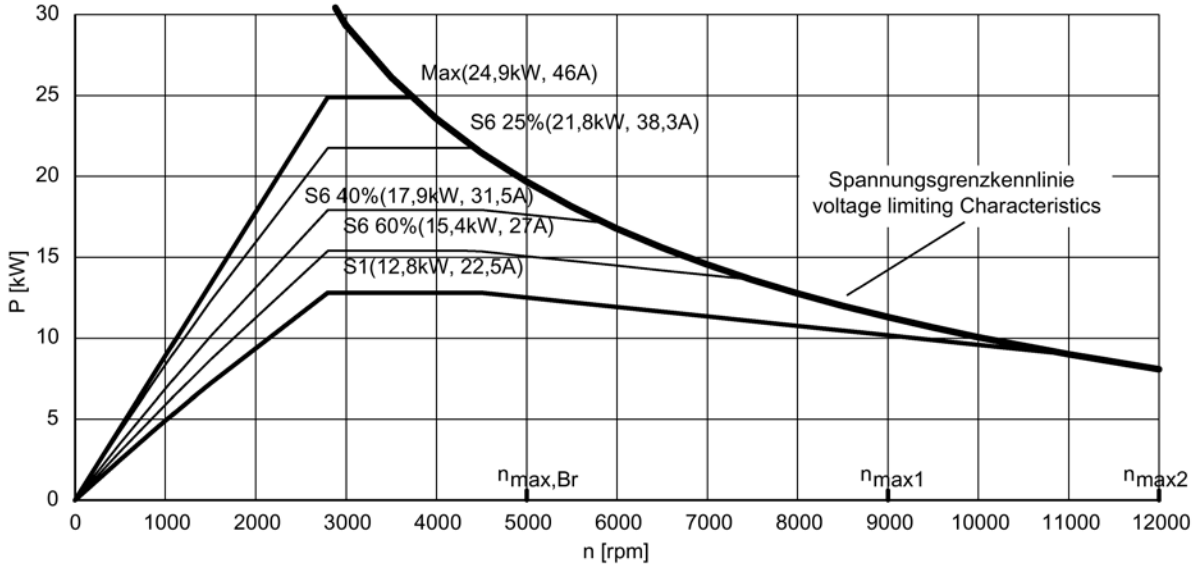


Table 6- 643 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	12.8	44	22.5	9,000	12,000	-	5,000	4,500	85	46	48	24



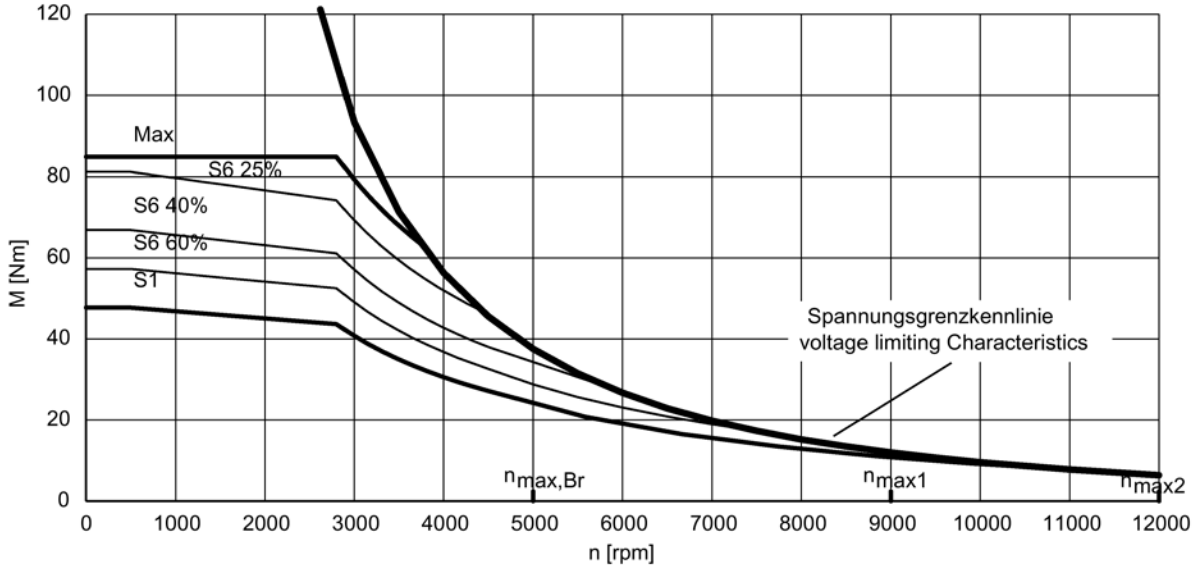
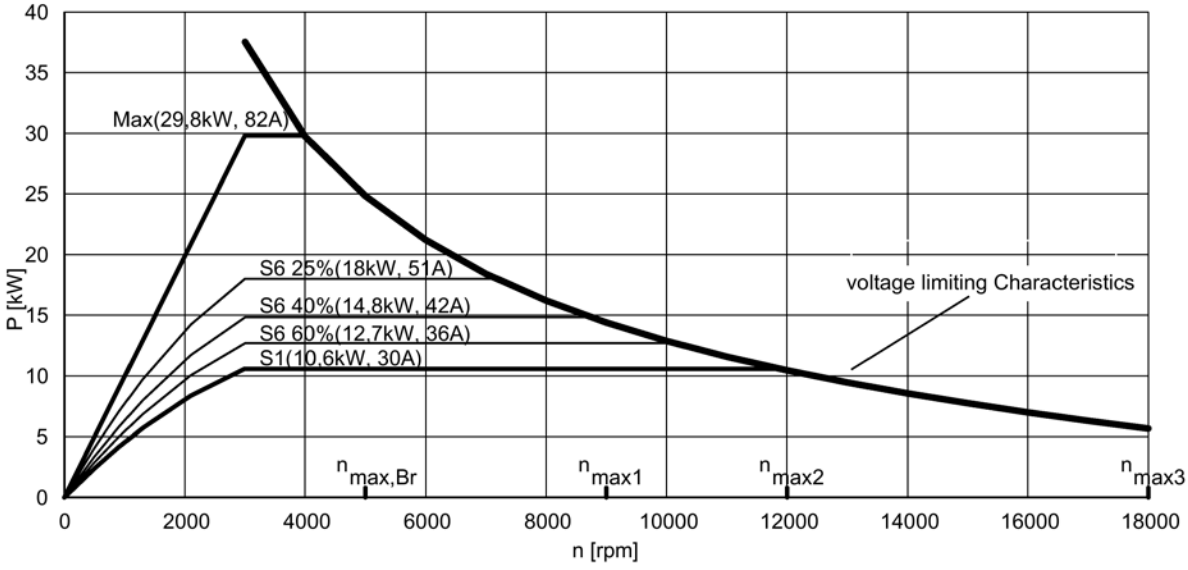


Table 6- 644 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M2□

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]
3,000	10.6	34	30	9,000	12,000	18,000	5,000	11,900	95	82	46	35



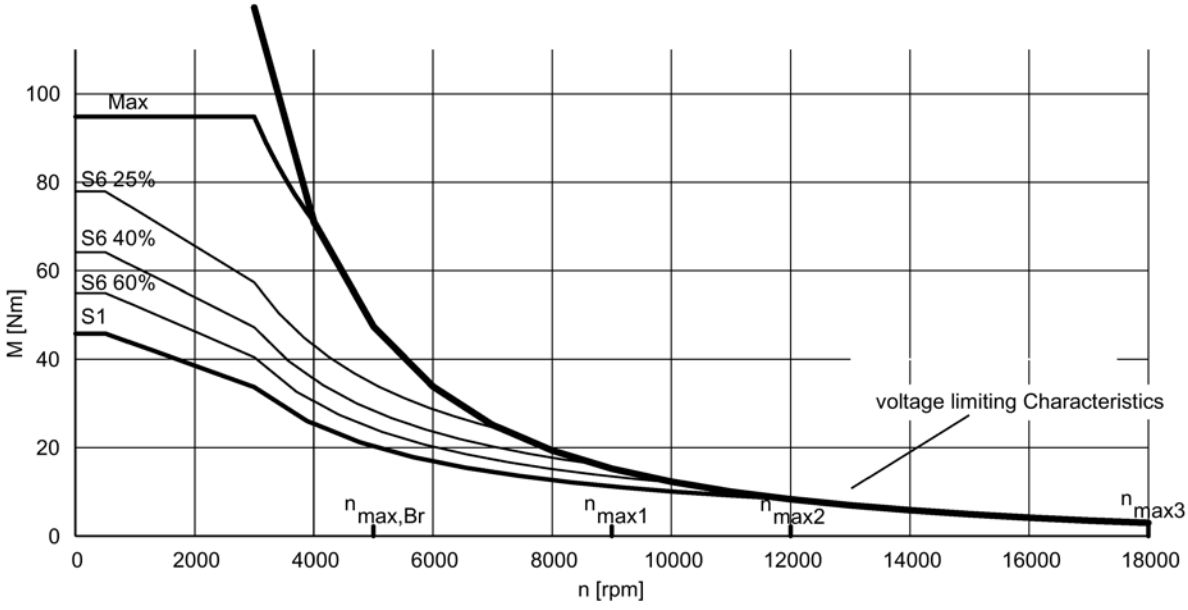
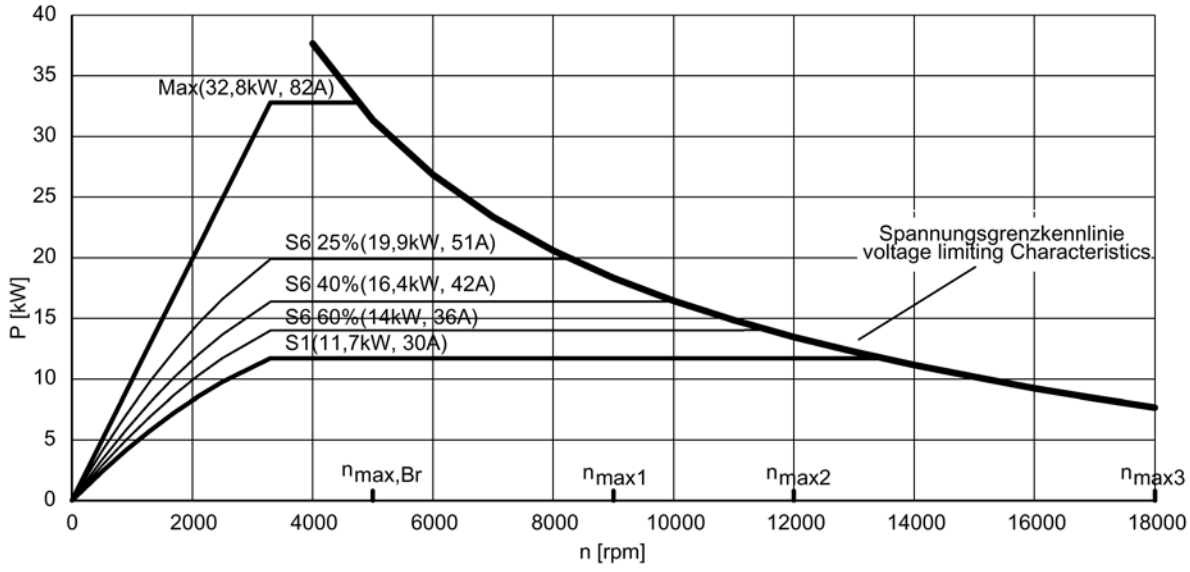


Table 6- 645 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8103-□□M2□

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]
3,300	11.7	34	30	9,000	12,000	18,000	5,000	13,550	95	82	46	35
3,000	10.6	34	30					14,600				



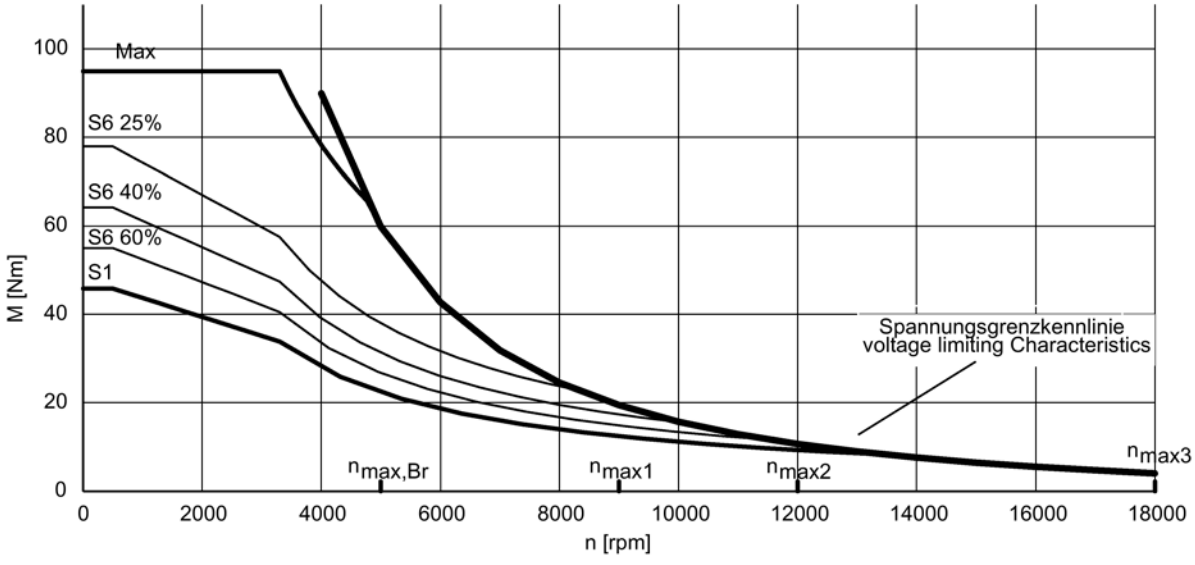
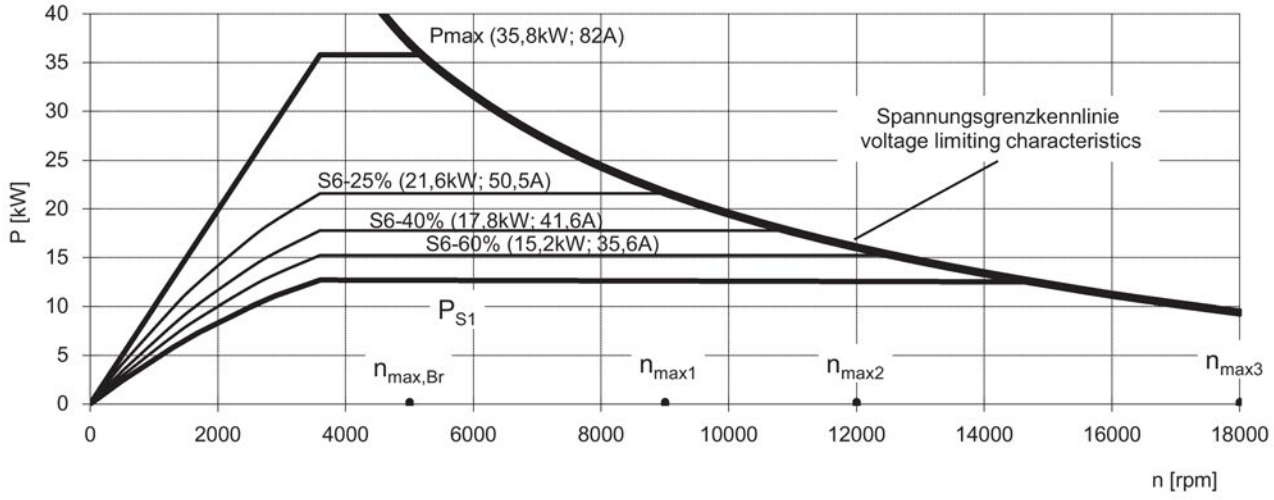


Table 6- 646 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8103-□□M2□

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]
3,600	12.7	34	29.7	9,000	12,000	18,000	5,000	14,650	95	82	46	35



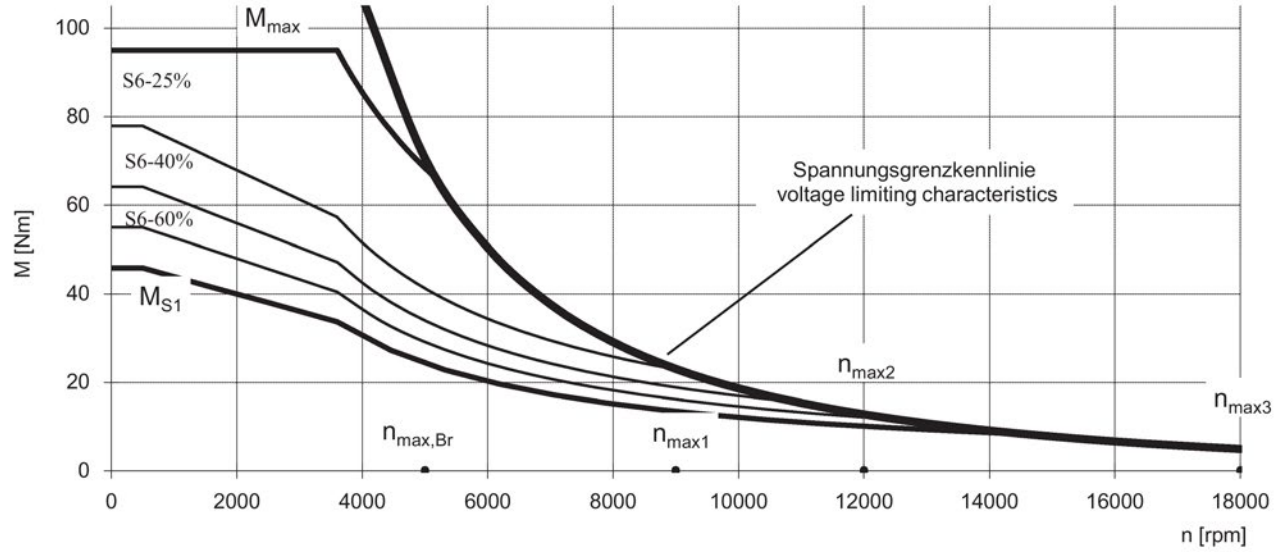
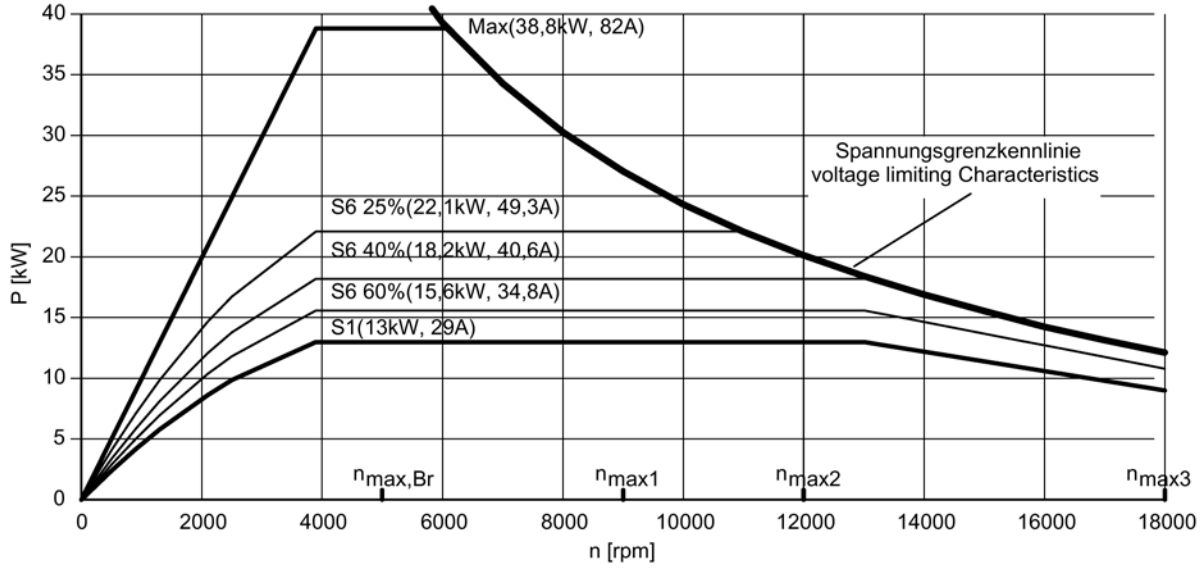


Table 6- 647 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8103-□□M2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	13	32	29	9,000	12,000	18,000	5,000	13,000	95	82	46	35



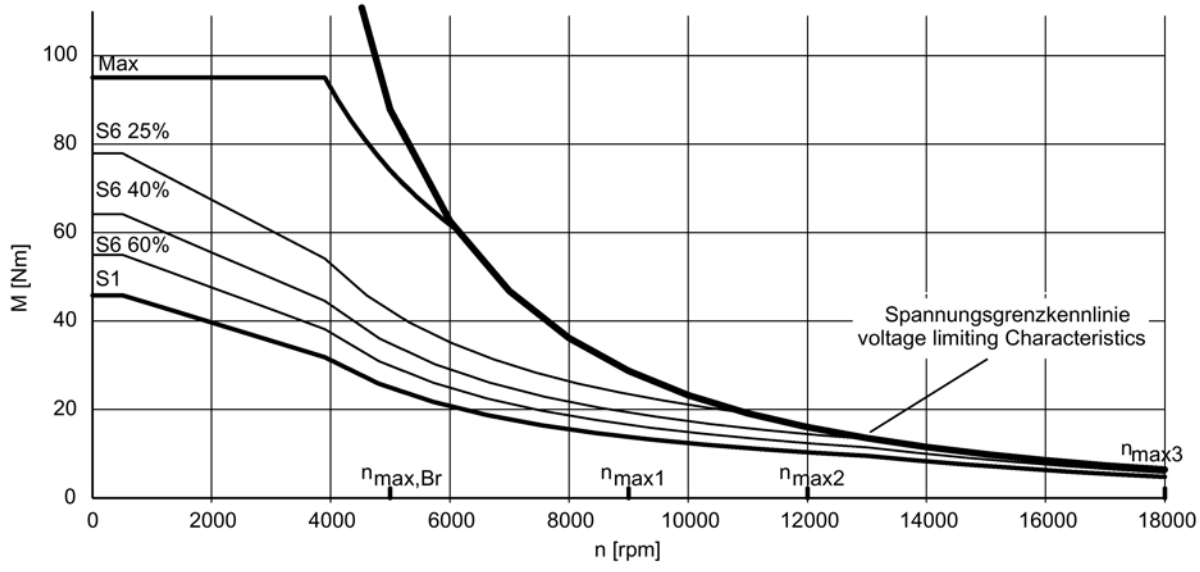
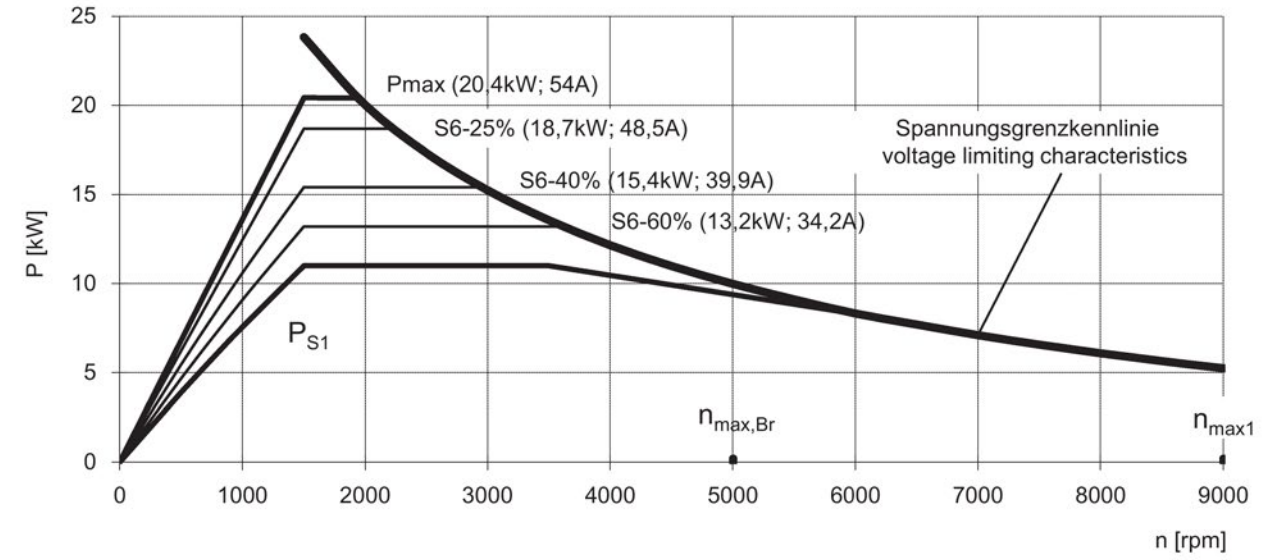


Table 6- 648 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F2□

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]
1,500	11.0	70	28.5	9,000	-	-	5,000	3,500	130	54	74	29



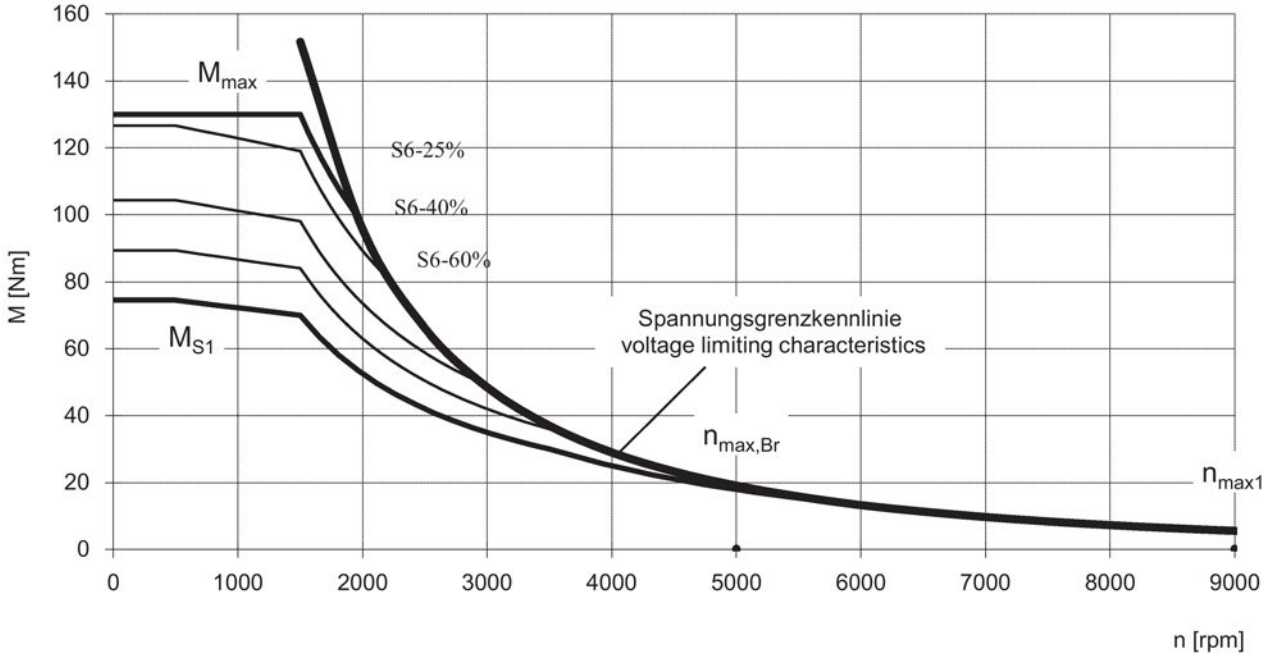
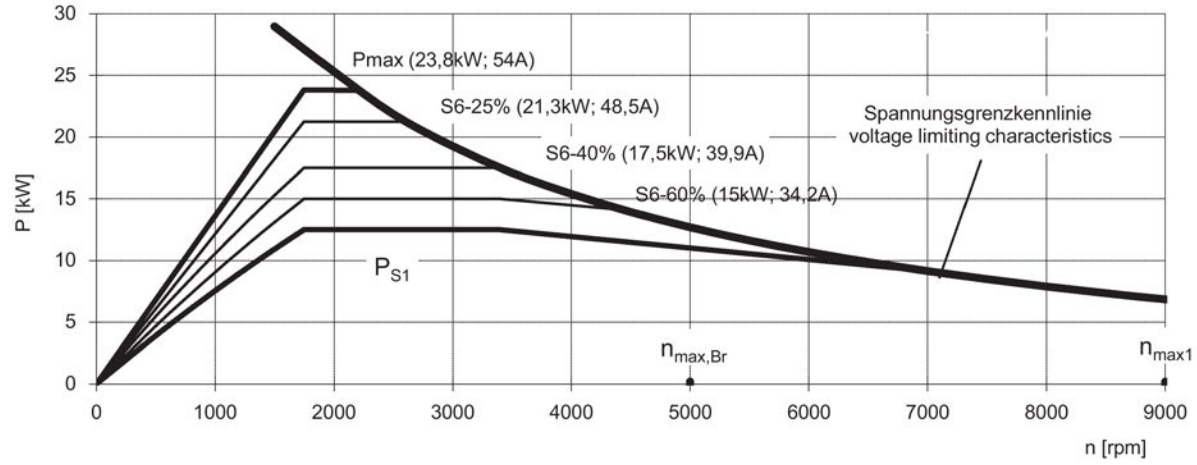


Table 6- 649 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□F2□

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]
1,750	12.5	68	28.5	9,000	-	-	5,000	3,400	130	54	74	29
1,500	11.0	70	28.5					5,000				



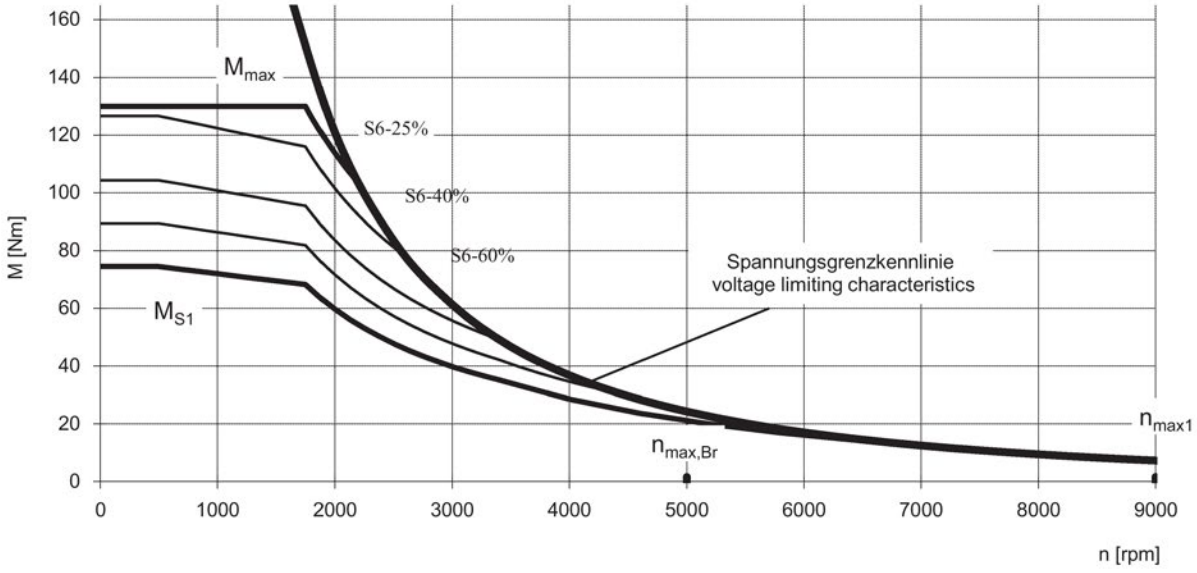
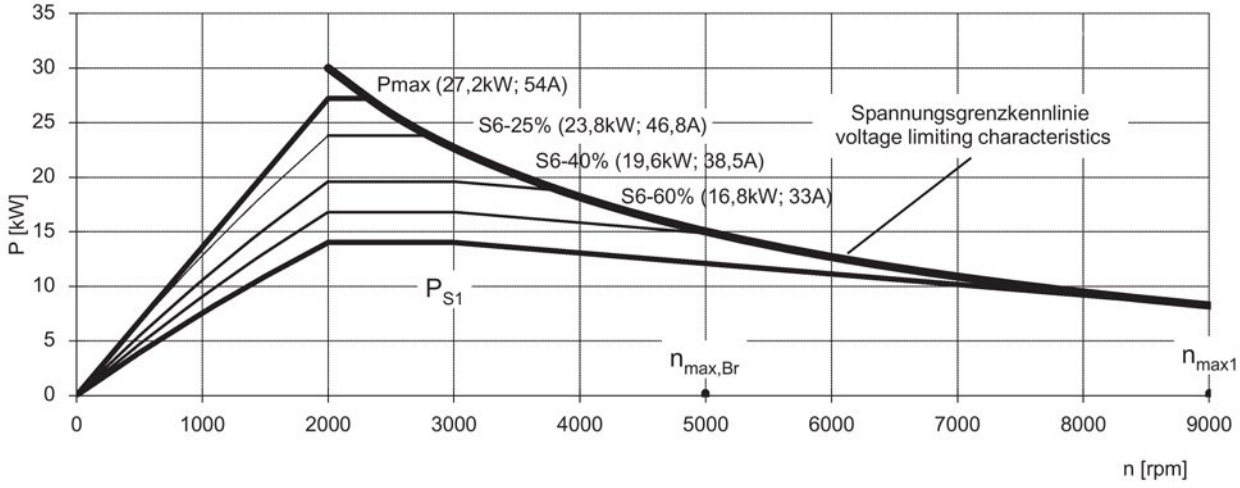


Table 6- 650 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□F2□

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]
2,000	14	67	27.5	9,000	-	-	5,000	3,000	130	54	74	29



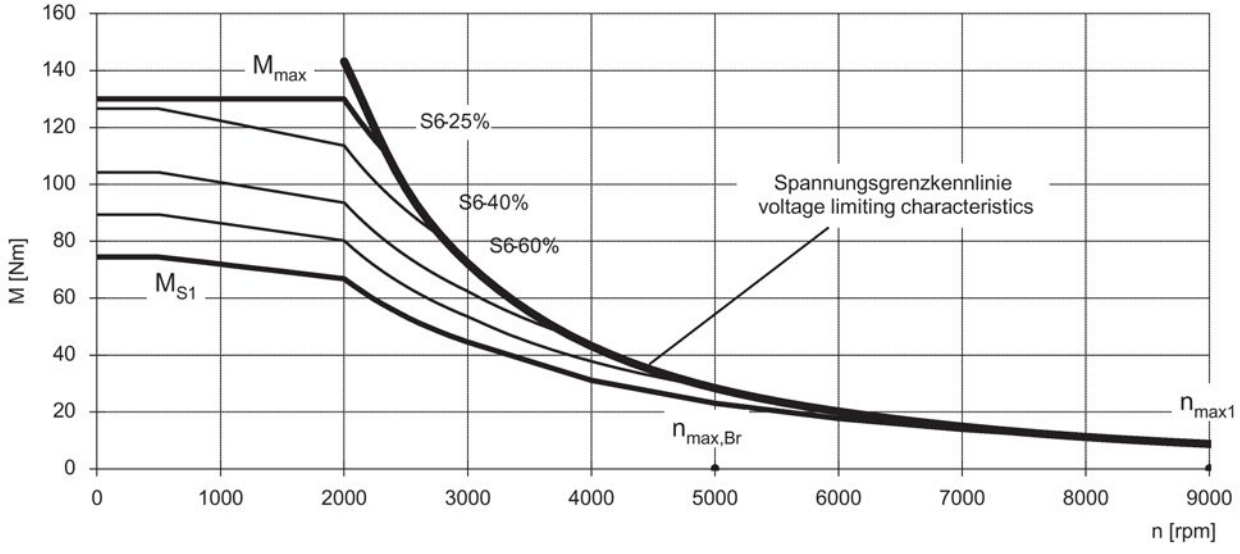
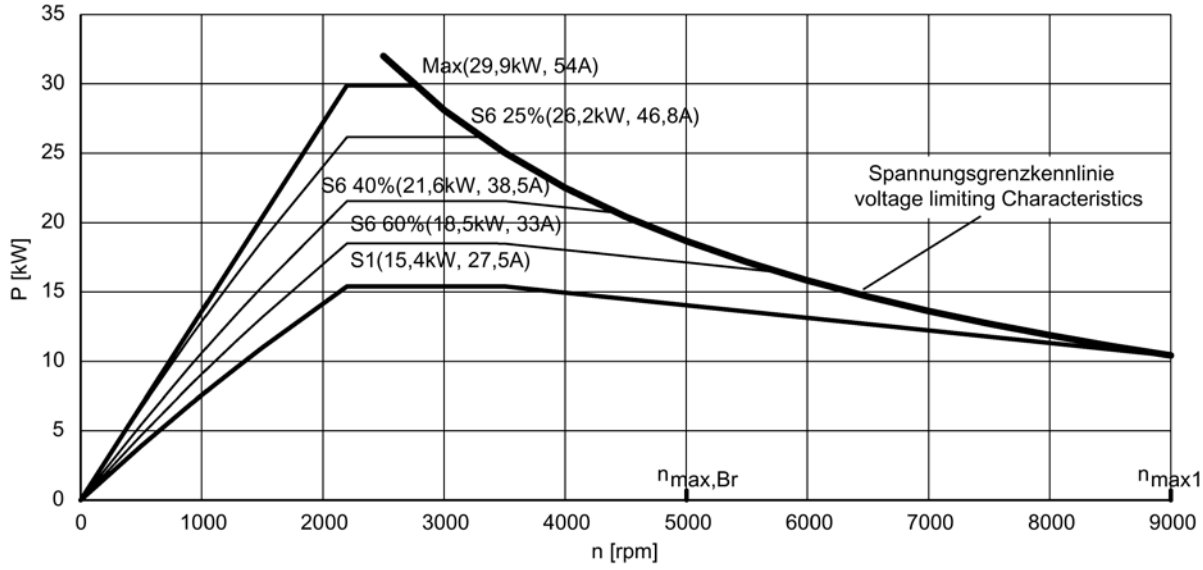


Table 6- 651 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8105-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	15.4	67	27.5	9,000	--	--	5,000	3,500	130	54	74	29



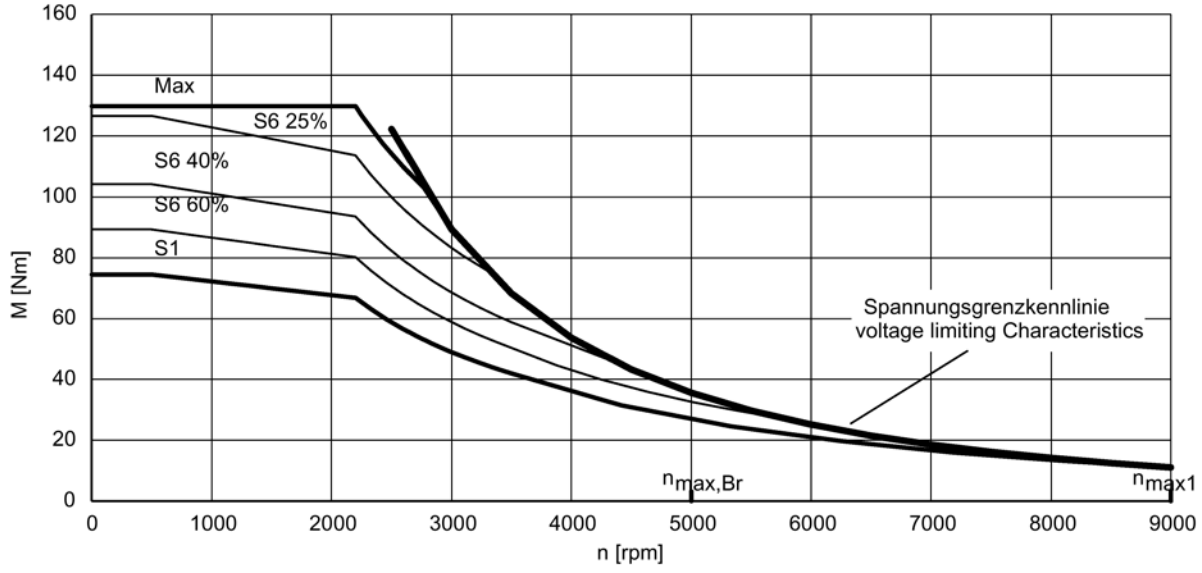
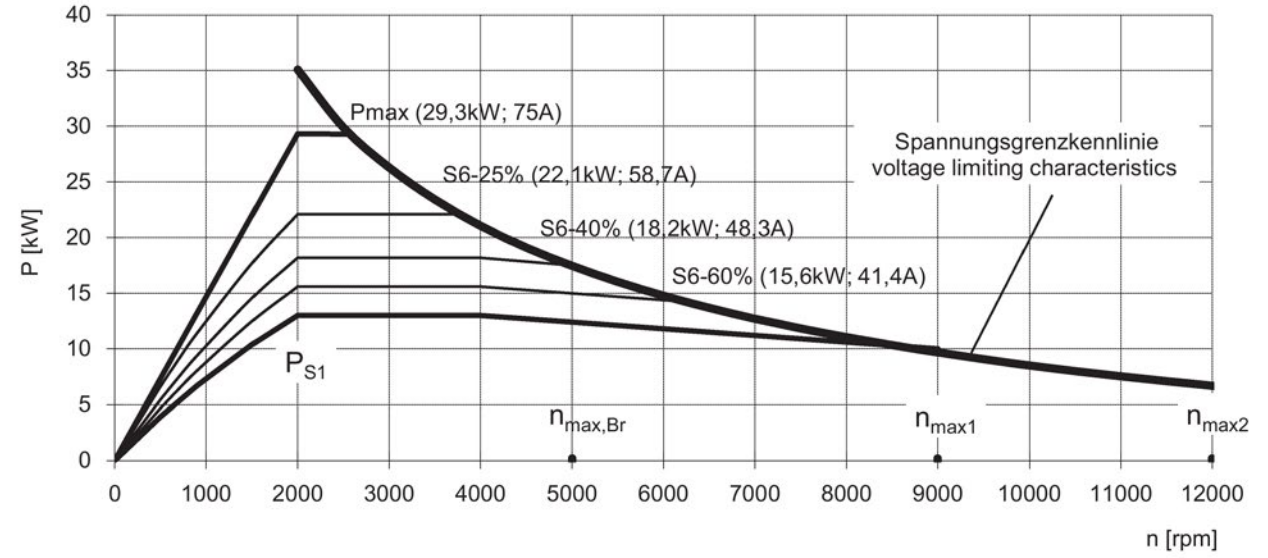


Table 6- 652 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□G2□

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]
2,000	13.0	62	34.5	9,000	12,000	-	5,000	4,000	140	75	74	38



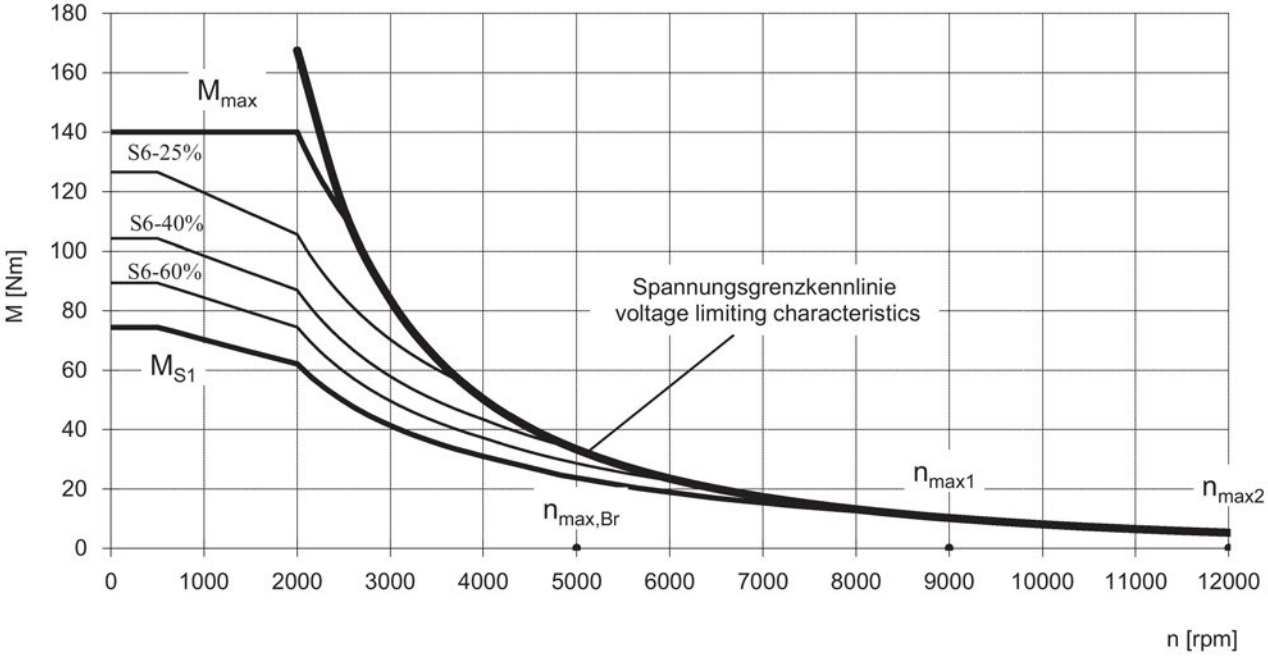
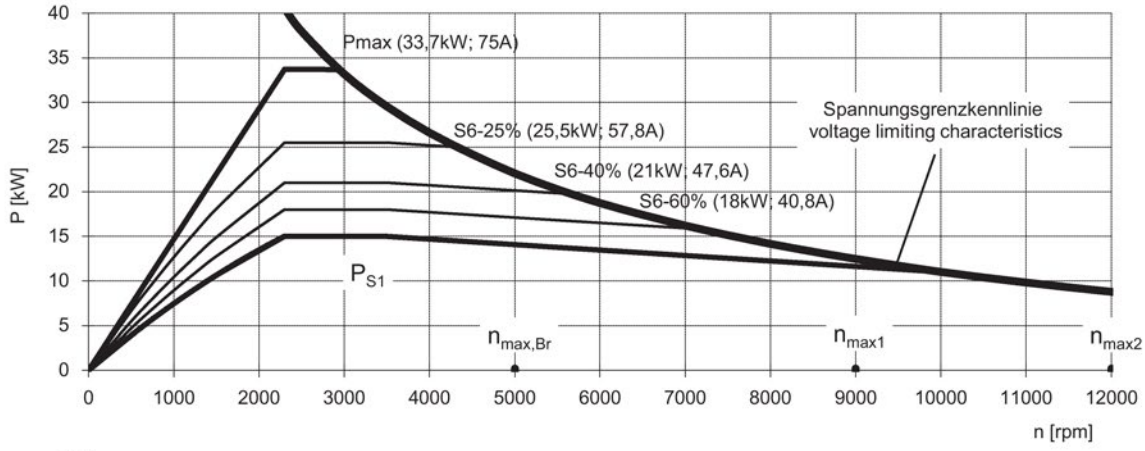


Table 6- 653 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□G2□

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]
2,300	15	62	34	9,000	12,000	-	5,000	3,500	140	75	74	38
2,000	13	62	34.5					6,750				
1,500	11	70	35.2					10,000				



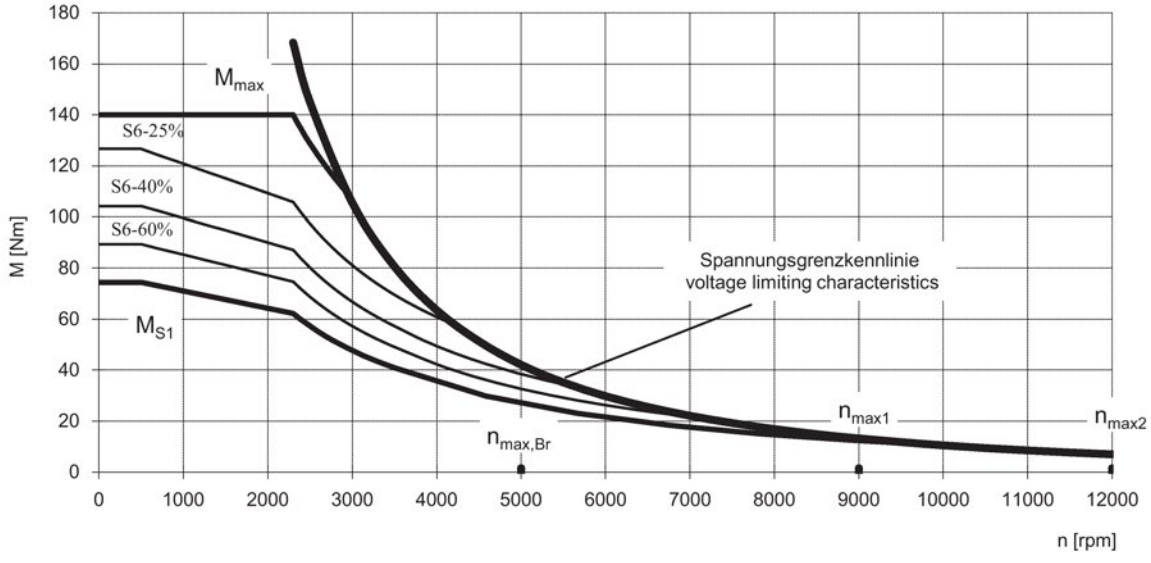
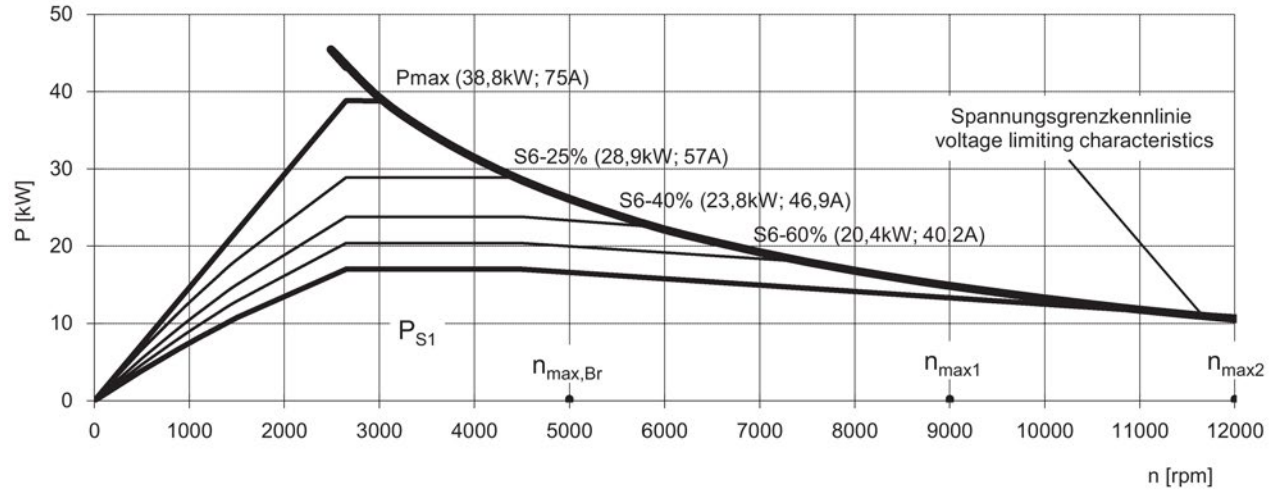


Table 6- 654 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□G2□

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]
2,650	17	61	33.5	9,000	12,000	-	5,000	4,500	140	75	74	38



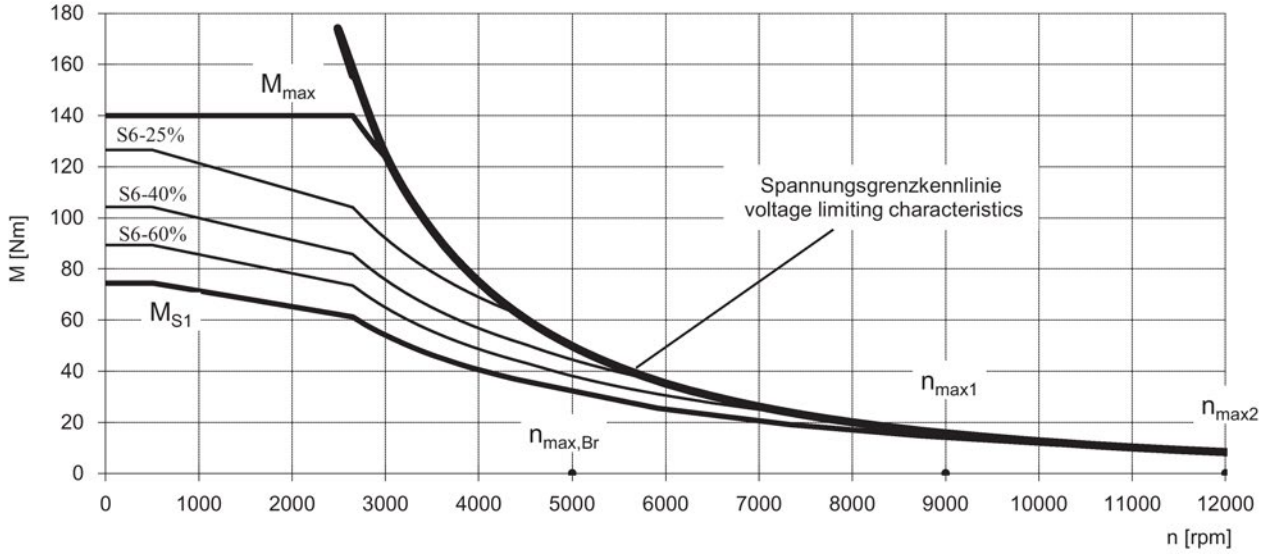
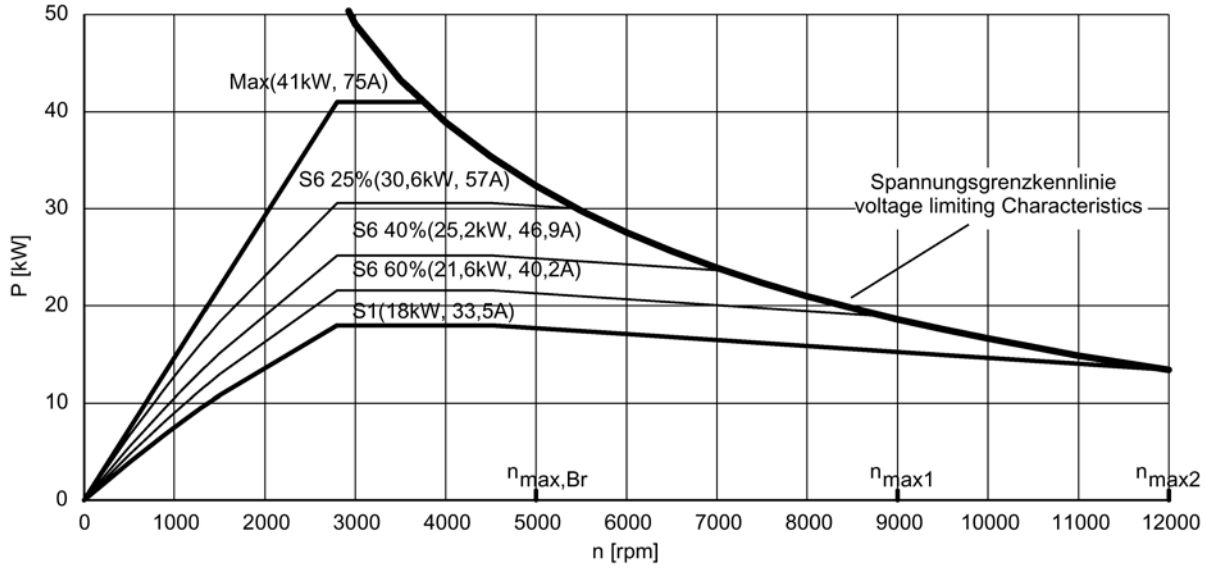


Table 6- 655 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8105-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	18	61	33.5	9,000	12,000	--	5,000	4,500	140	75	74	38



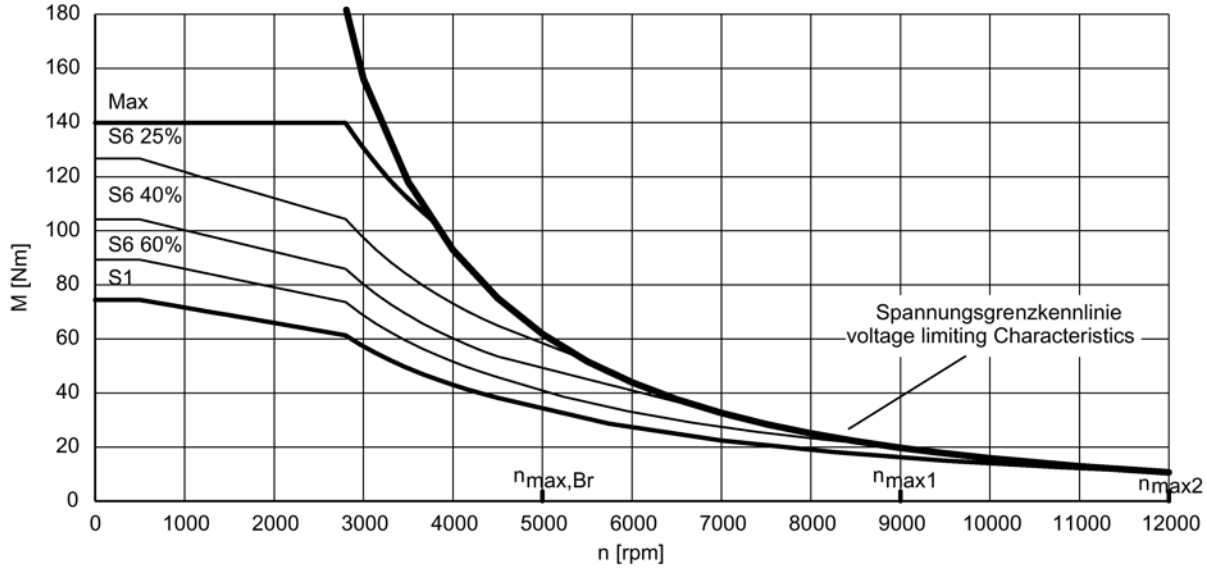
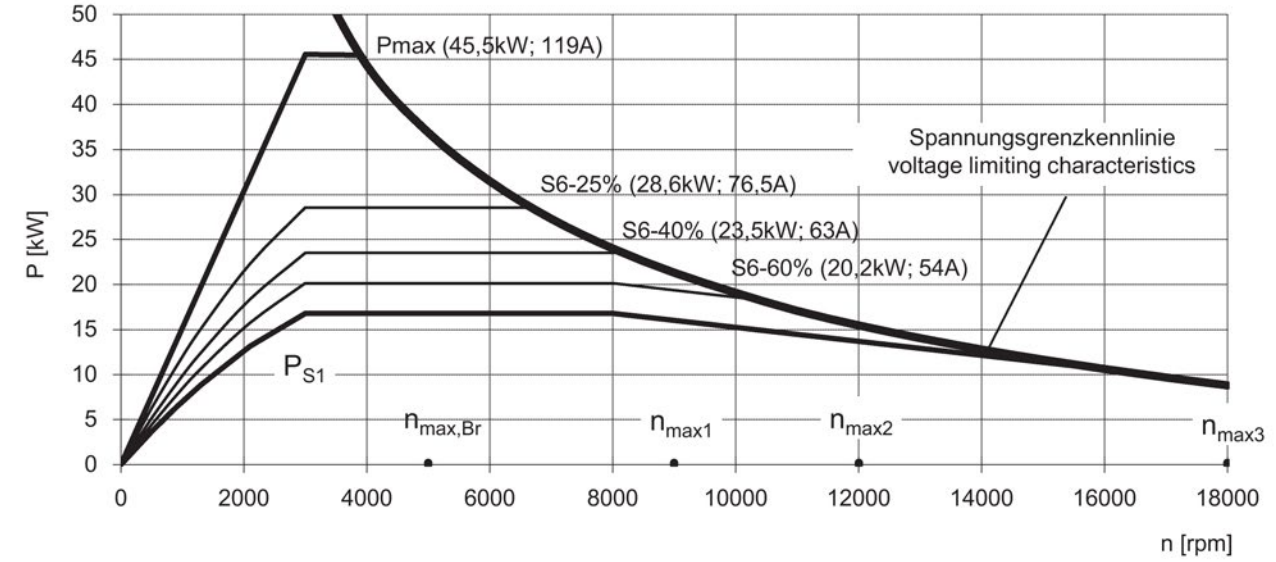


Table 6- 656 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□M2□

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]
3,000	16.8	53	45	9,000	12,000	18,000	5,000	8,050	145	119	71	52



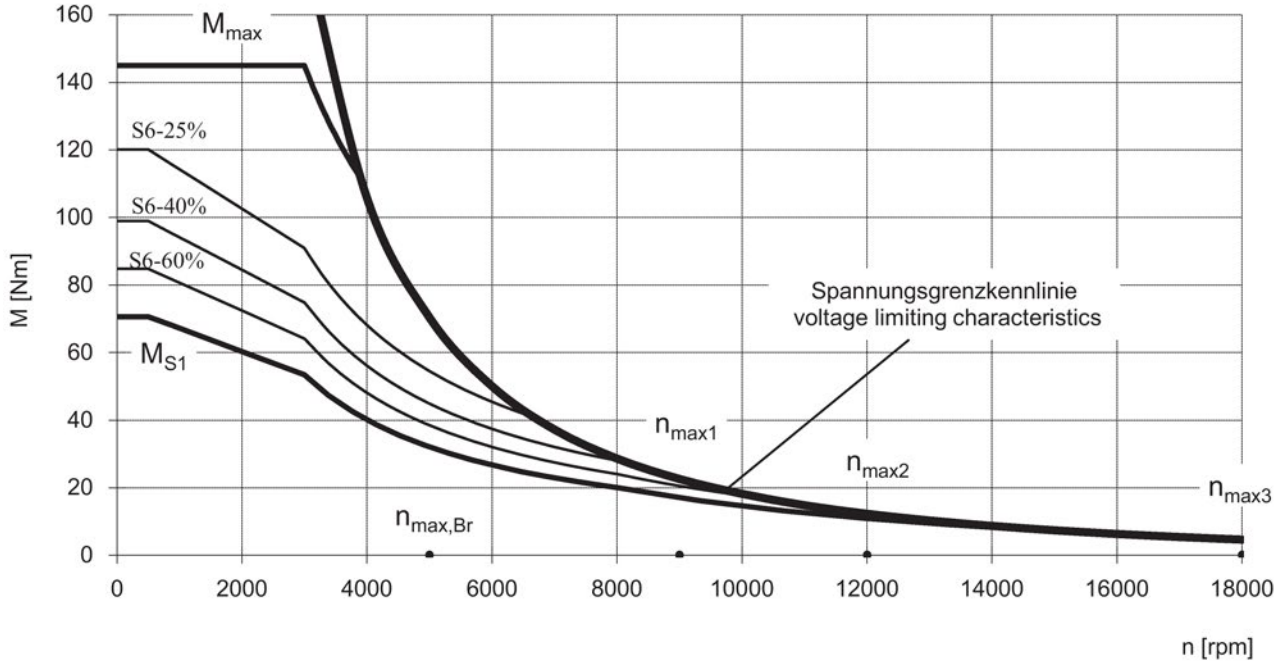
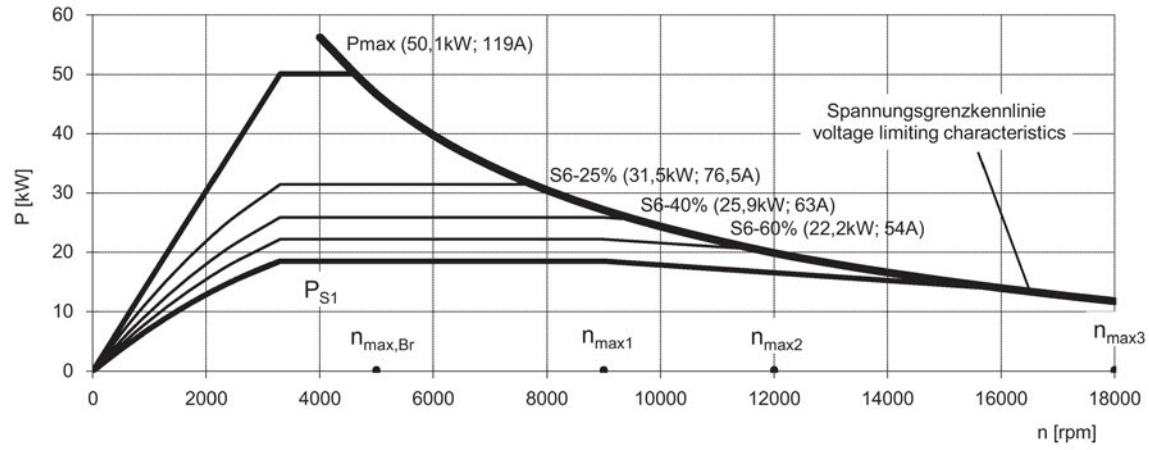


Table 6- 657 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8105-□□M2□

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]
3,300	18.5	54	45	9,000	12,000	18,000	5,000	9,050	145	119	71	52
3,000	16.8	53	45					11,700				



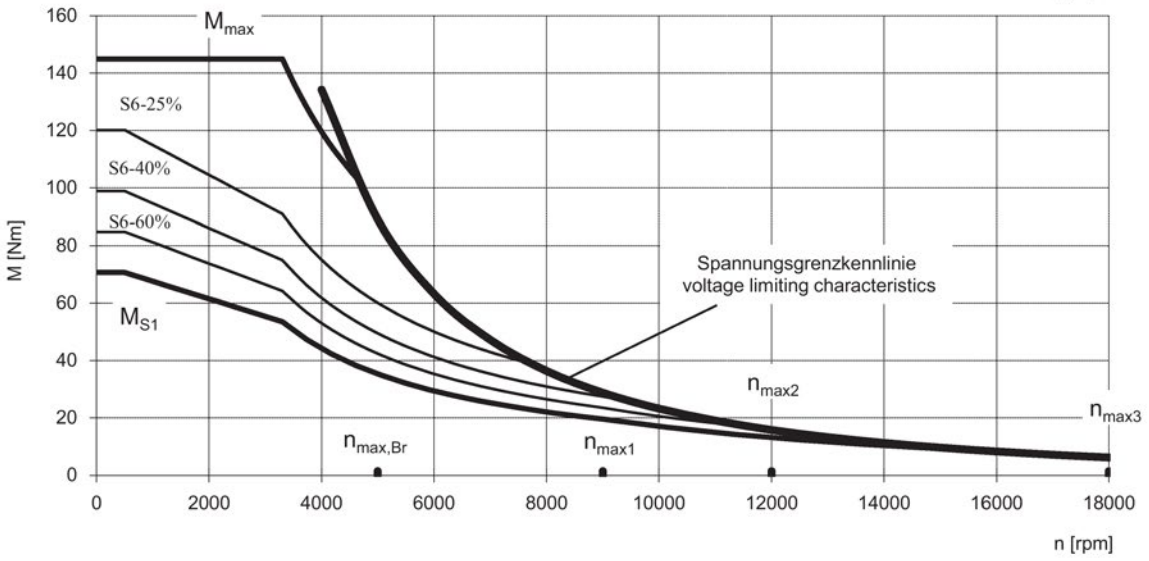
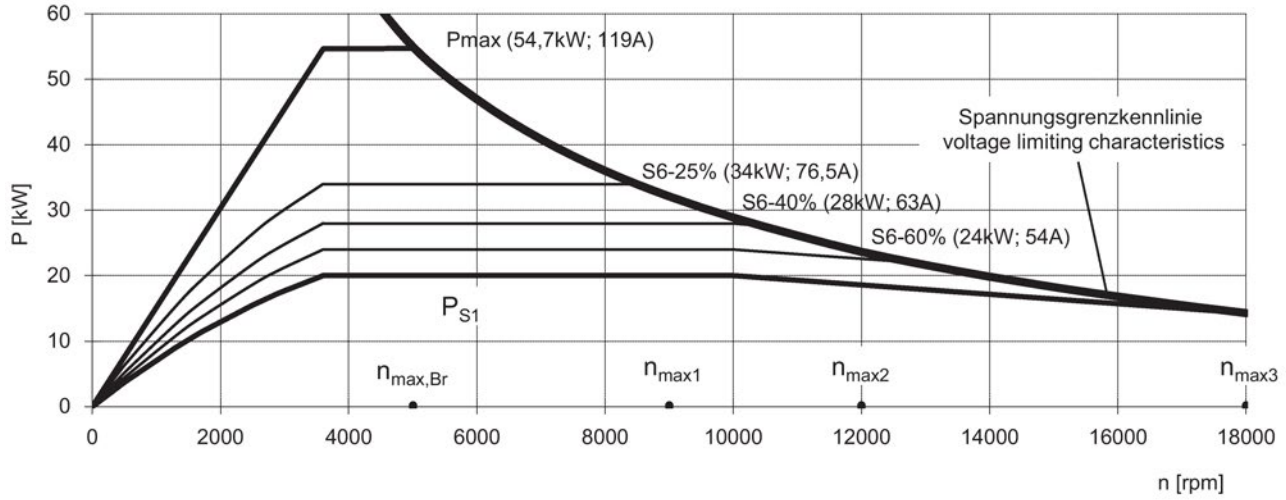


Table 6- 658 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8105-□□M2□

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]
3,600	20	53	45	9,000	12,000	18,000	5,000	10,000	145	119	71	42



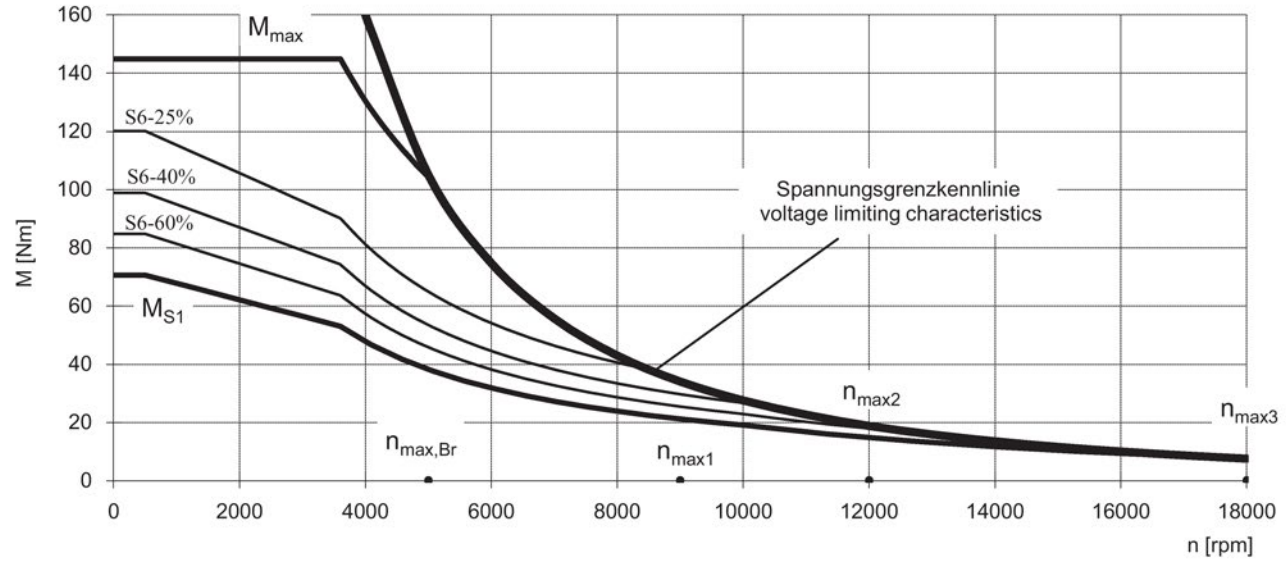
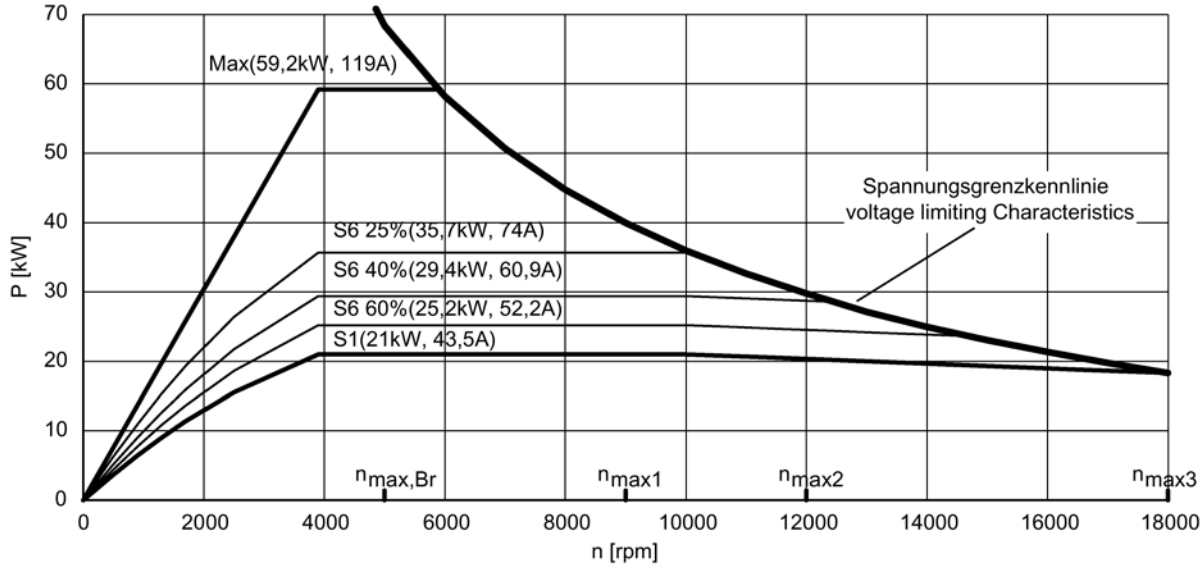


Table 6- 659 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8105-□□M2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	21	51	43.5	9,000	12,000	18,000	5,000	10,000	145	119	71	52



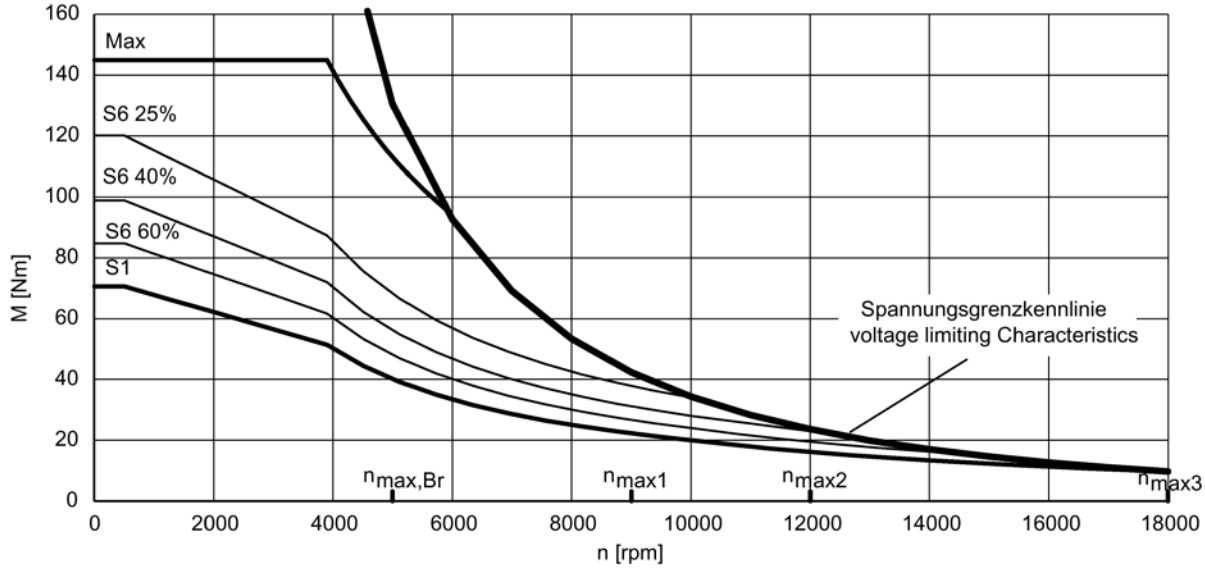


Table 6- 660 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F2□

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]
1,500	14	89	43.7	9,000	12,000	-	5,000	5,600	180	89	94	44

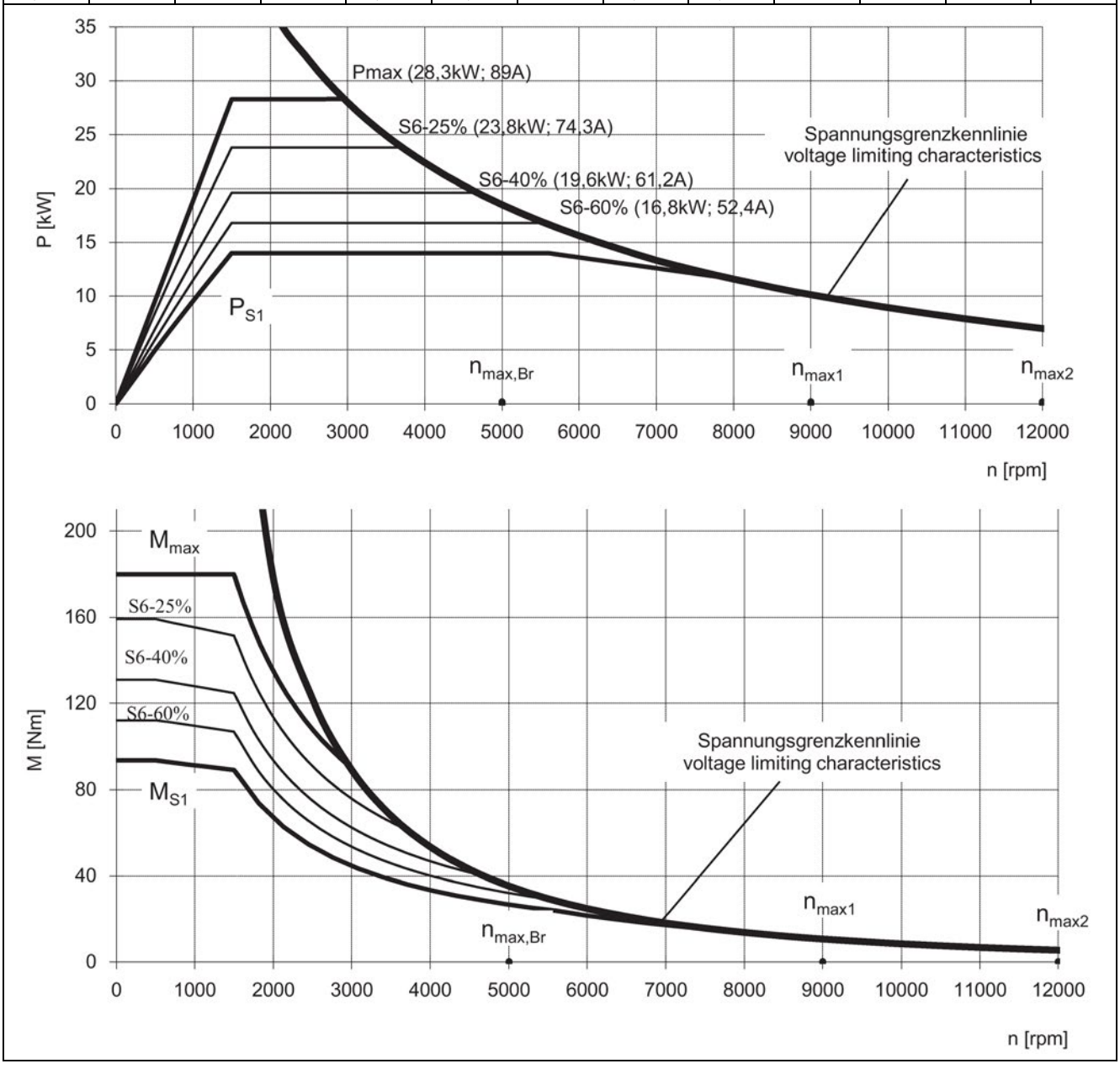
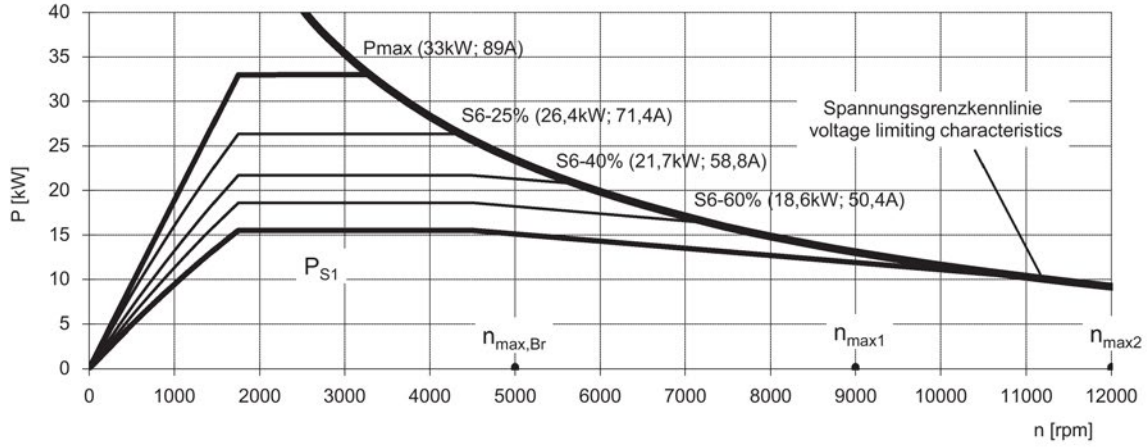


Table 6- 661 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□F2□

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]
1,750	15.5	85	42	9,000	12,000	-	5,000	4,500	180	89	94	44
1,500	14	89	43.7					6,400				



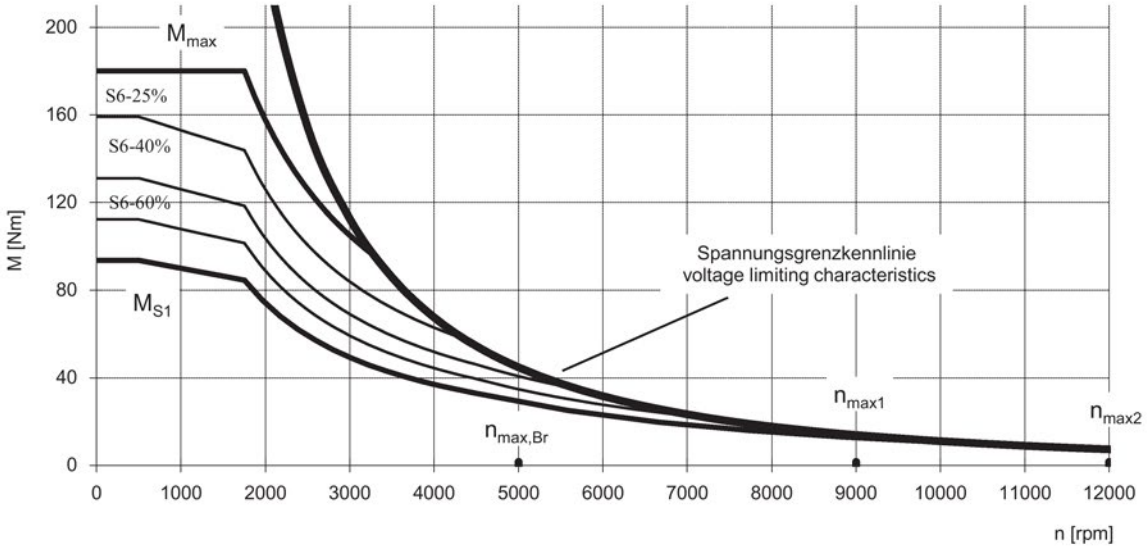
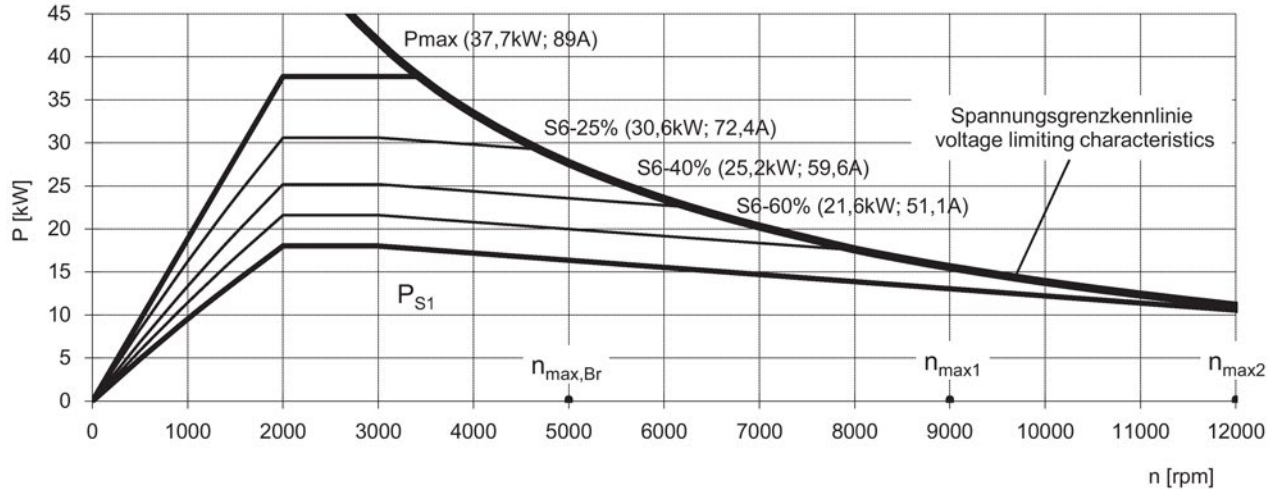


Table 6- 662 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□F2□

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]
2,000	18	86	42.6	9,000	12,000	-	5,000	3,000	180	89	94	44



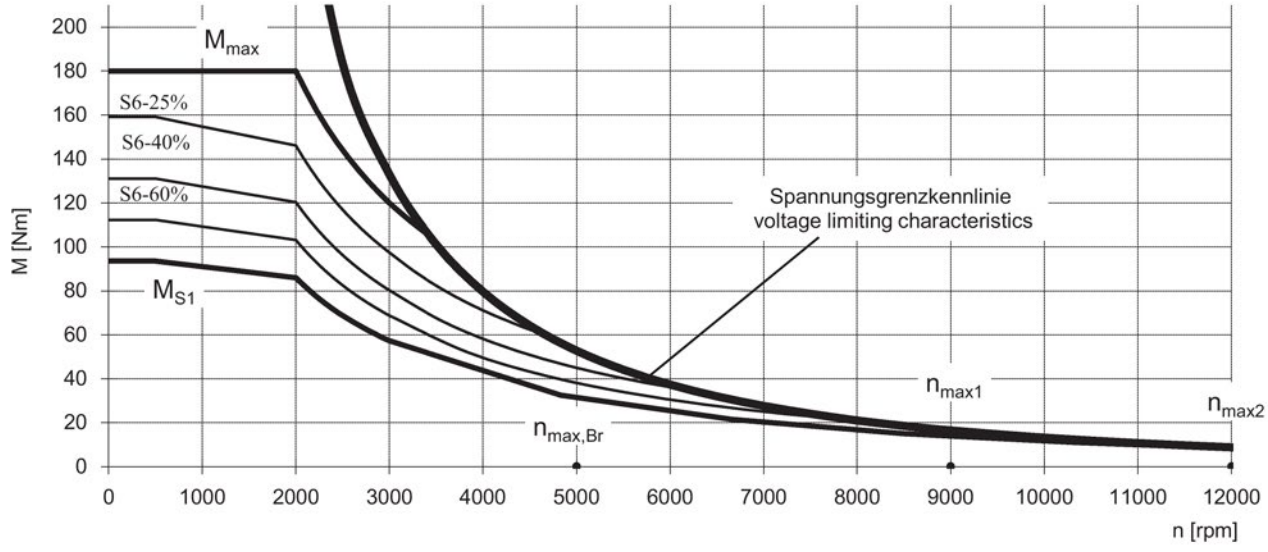
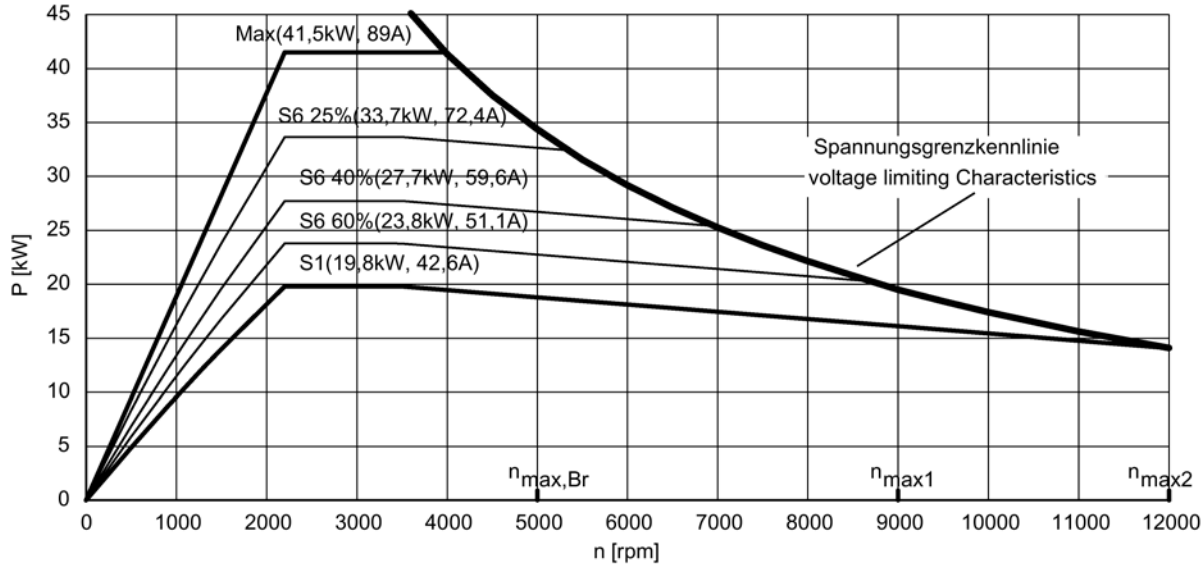


Table 6- 663 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	19.8	86	42.6	9,000	12,000	--	5,000	3,500	180	89	94	44



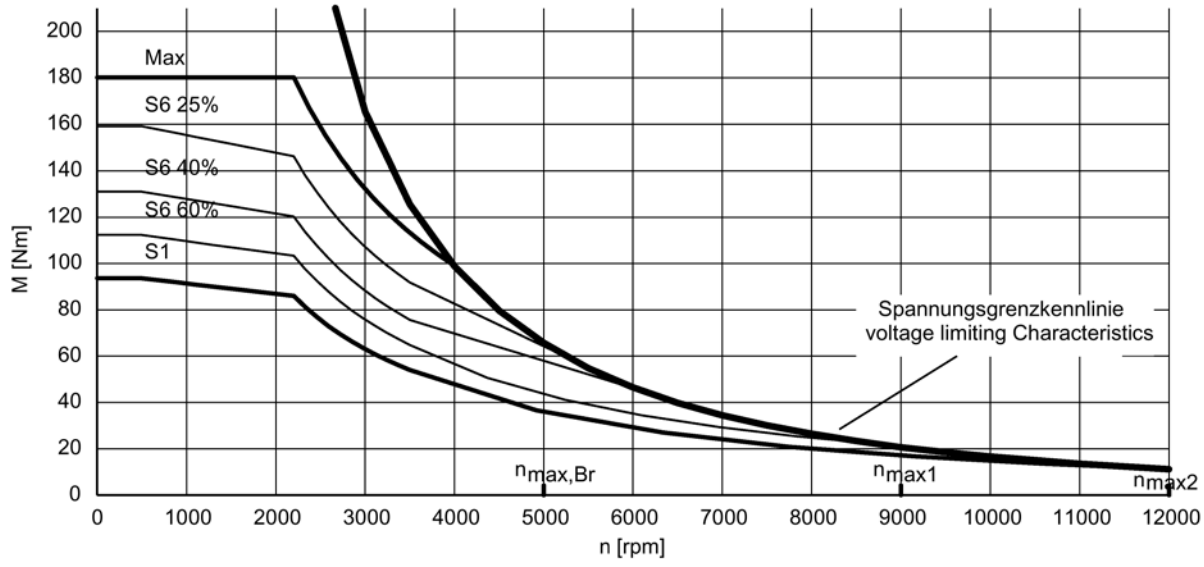
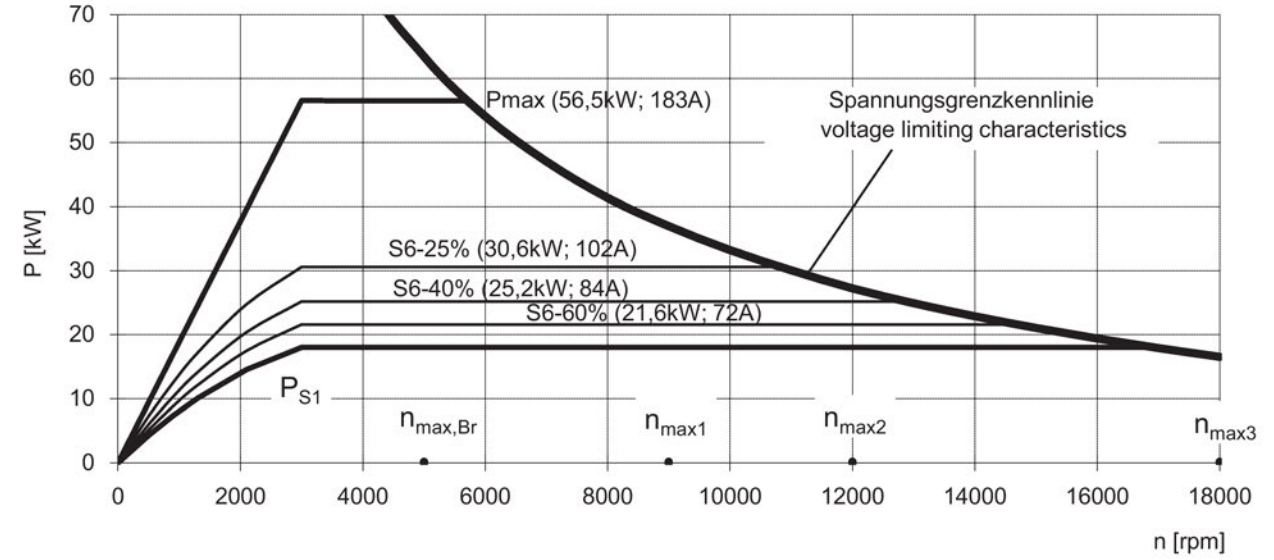


Table 6- 664 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M2□

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]
3,000	18	57	60	9,000	12,000	18,000	5,000	17,000	180	183	82	73



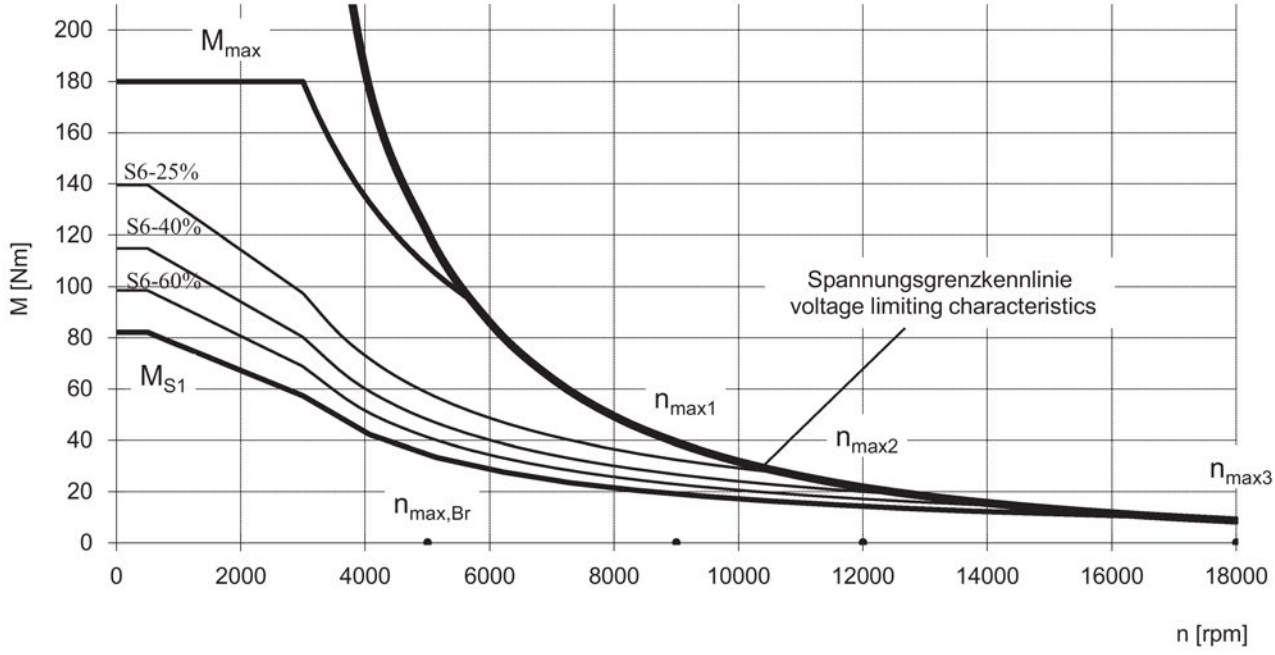
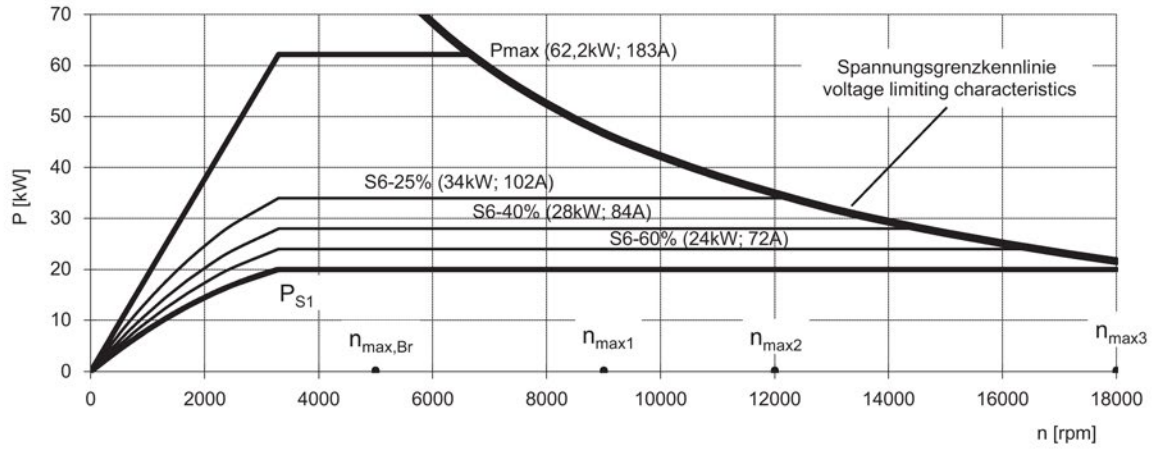


Table 6- 665 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8107-□□M2□

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]
3,300	20	58	60	9,000	12,000	18,000	5,000	18,050	180	183	82	73
3,000	18	57	60					18,050				



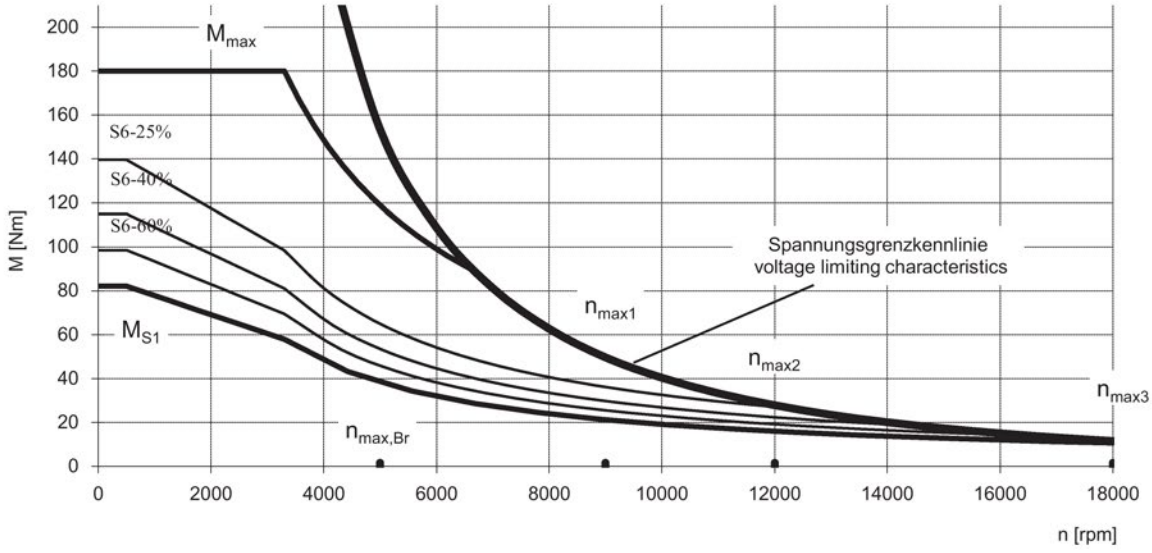


Table 6- 666 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8107-□□M2□

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]
3,600	21	56	59	9,000	12,000	18,000	5,000	17,650	180	183	82	73

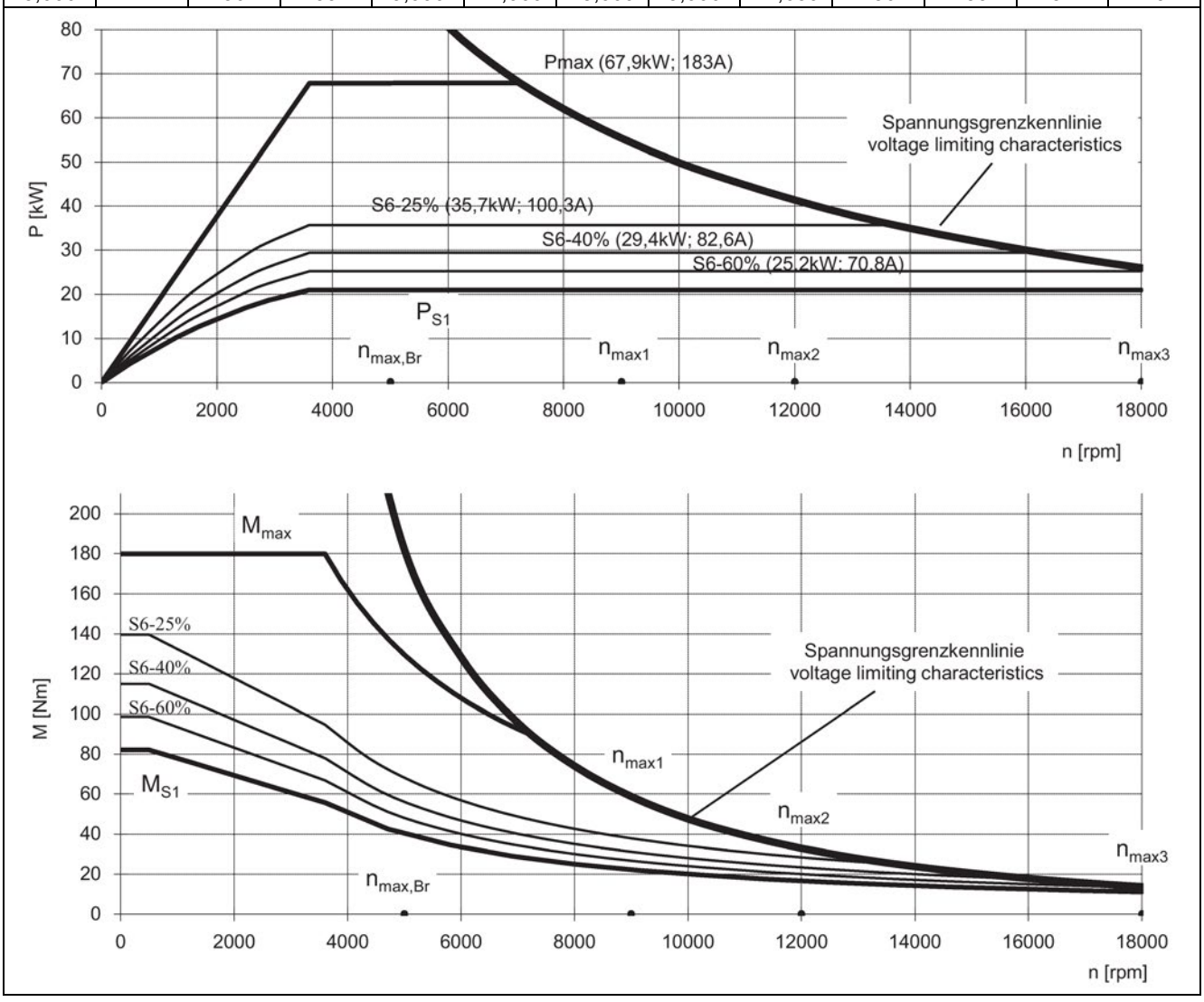
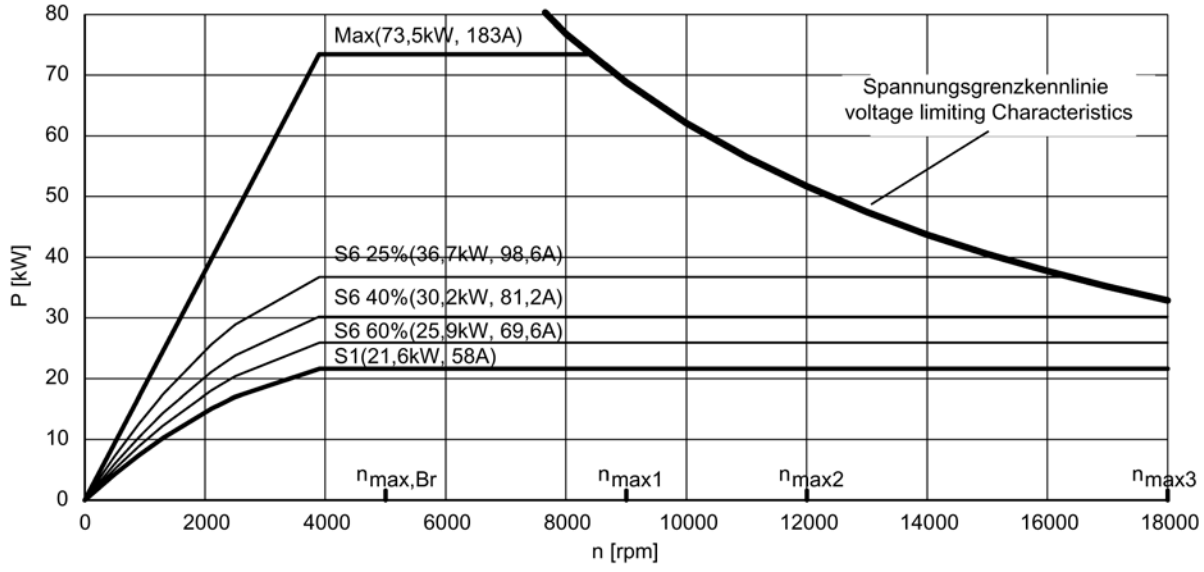
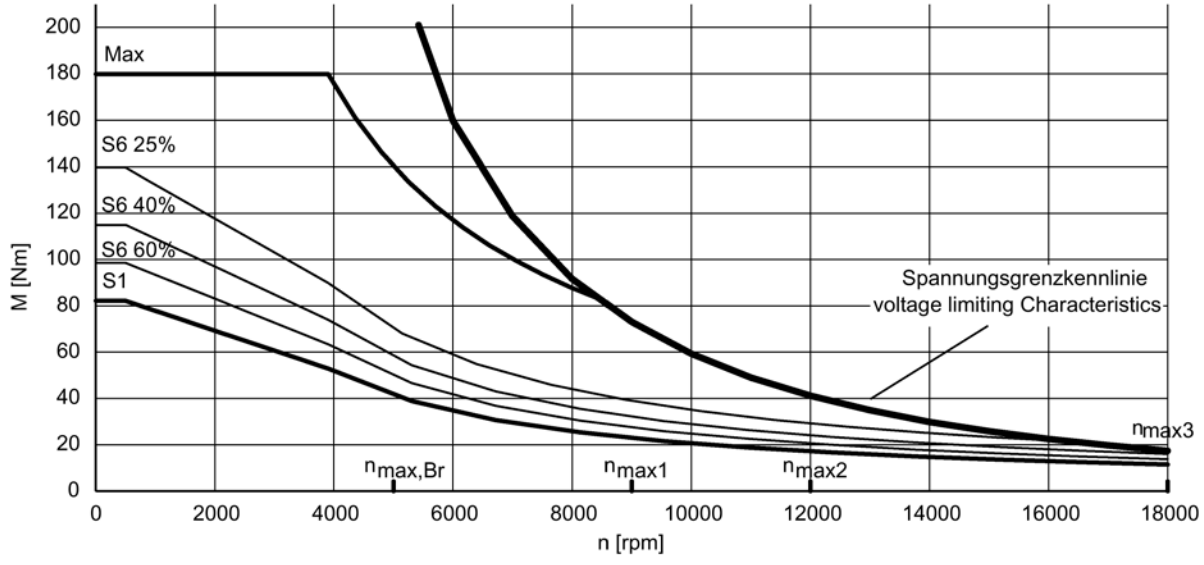


Table 6- 667 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8107-□□M2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,900	21.6	53	58	9,000	12,000	18,000	5,000	18,000	180	183	82	73

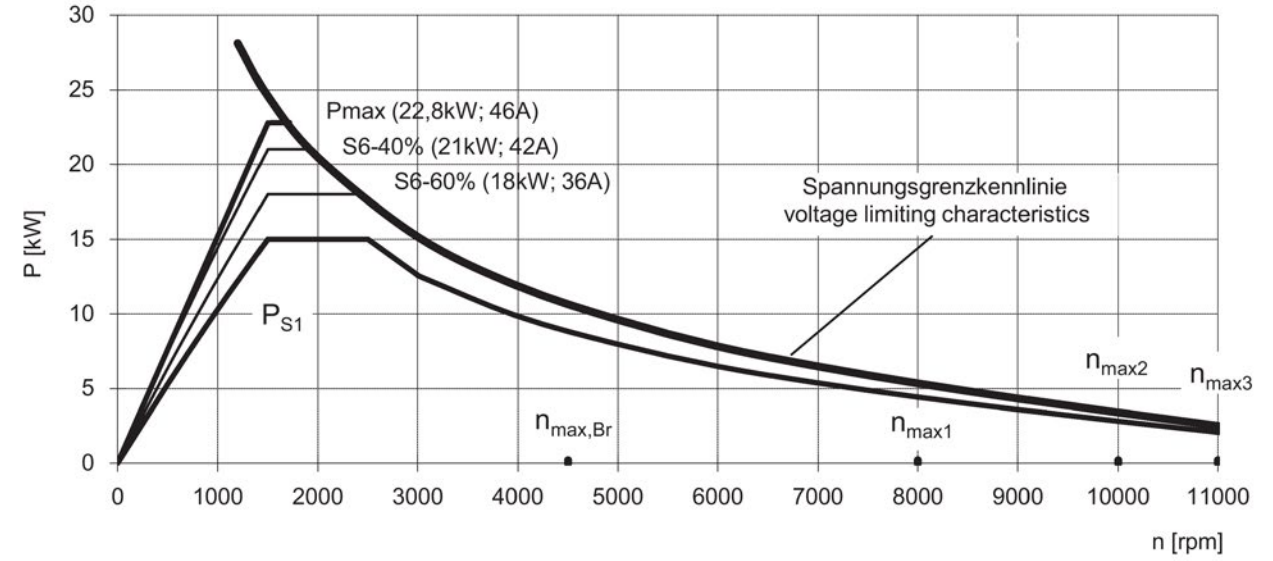




6.1.3.4 Shaft height 132 - water-cooled

Table 6- 668 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]
1,500	15	96	30	8,000	10,000	11,000	4,500	2,500	145	46	101	31



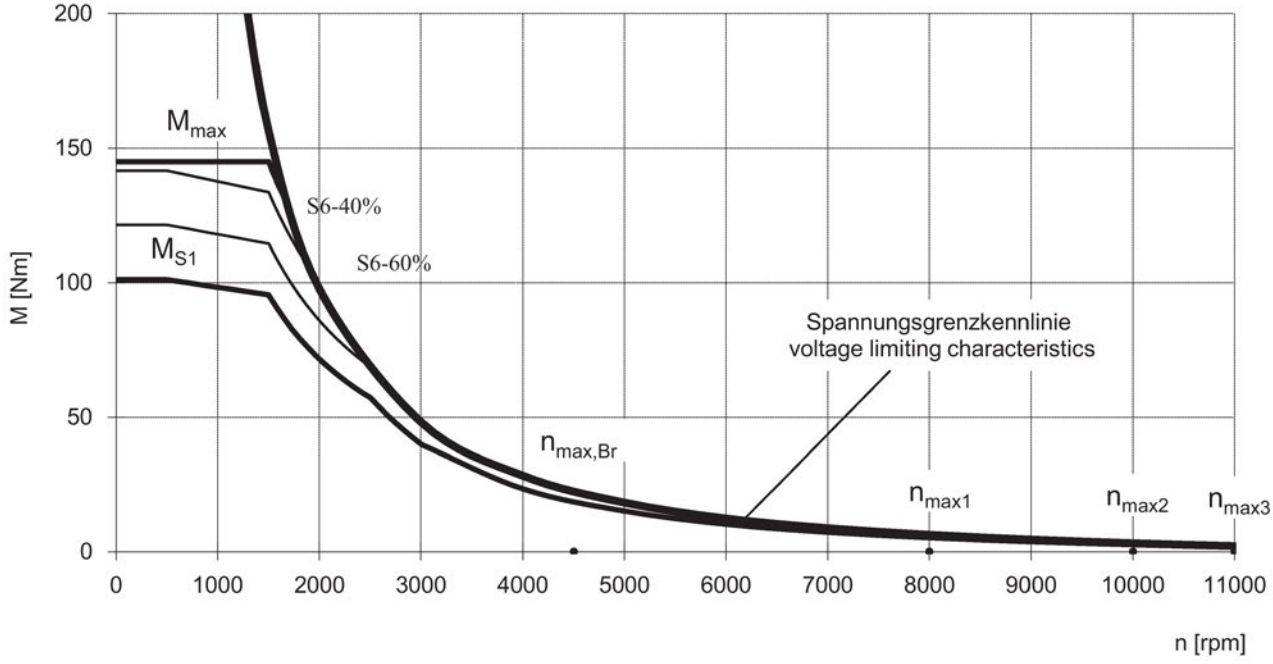
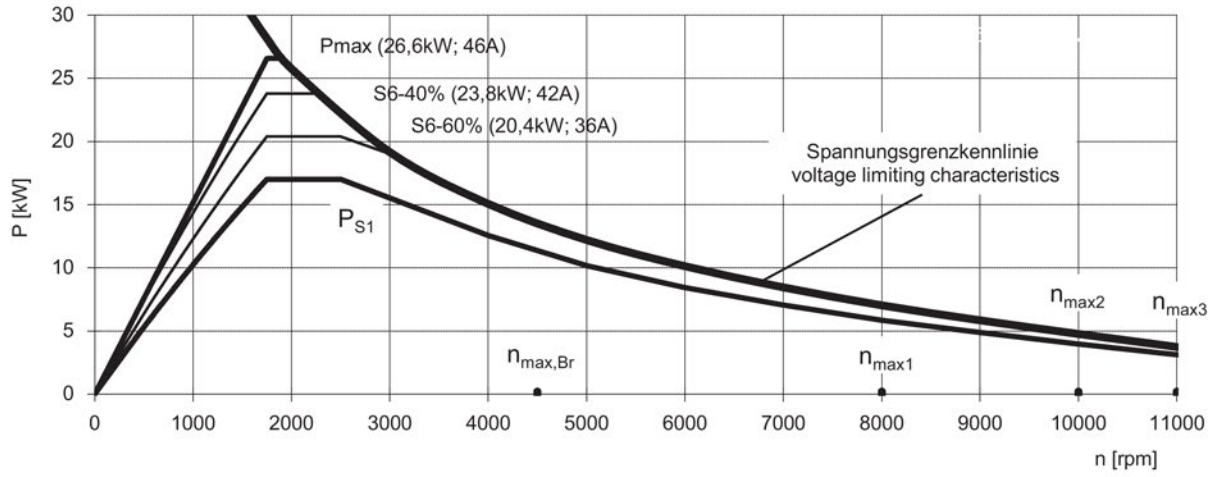


Table 6- 669 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F2□

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]
1,750	17	93	30	8,000	10,000	11,000	4,500	2,500	145	46	101	31
1,500	15	96	30					3,200				



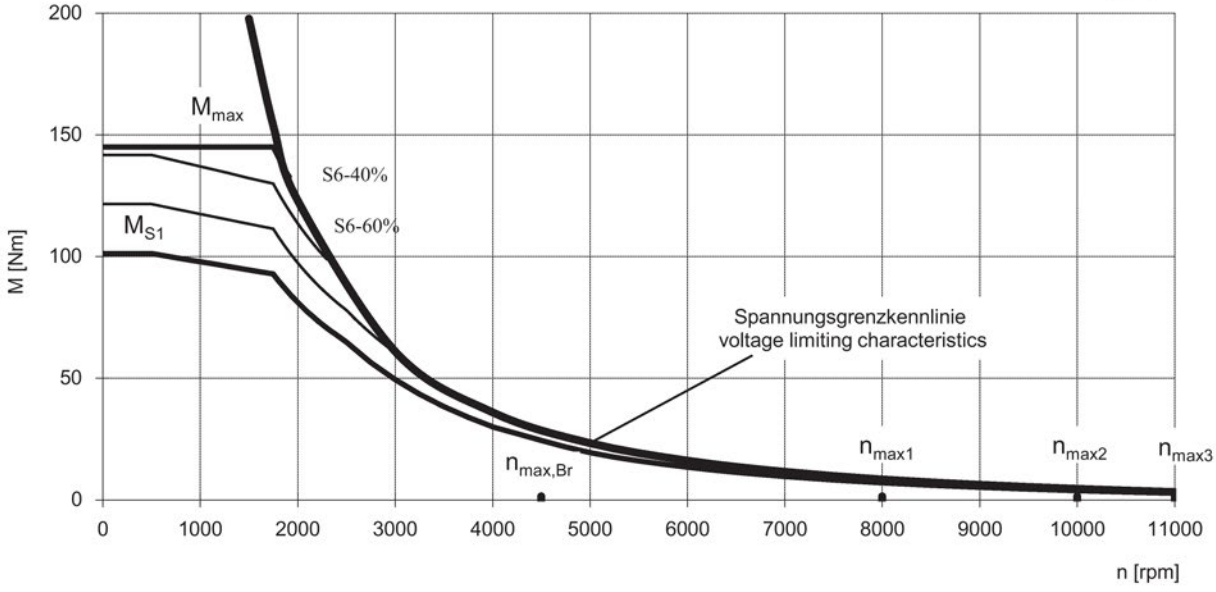
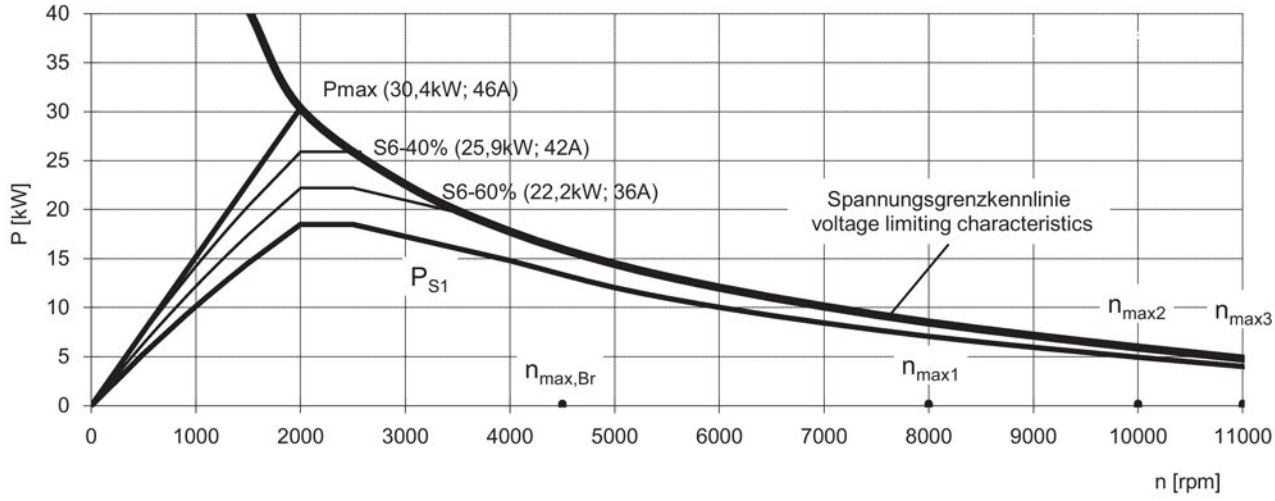


Table 6- 670 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□F2□

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]
2,000	18.5	88	30	8,000	10,000	11,000	4,500	2,500	145	46	101	31



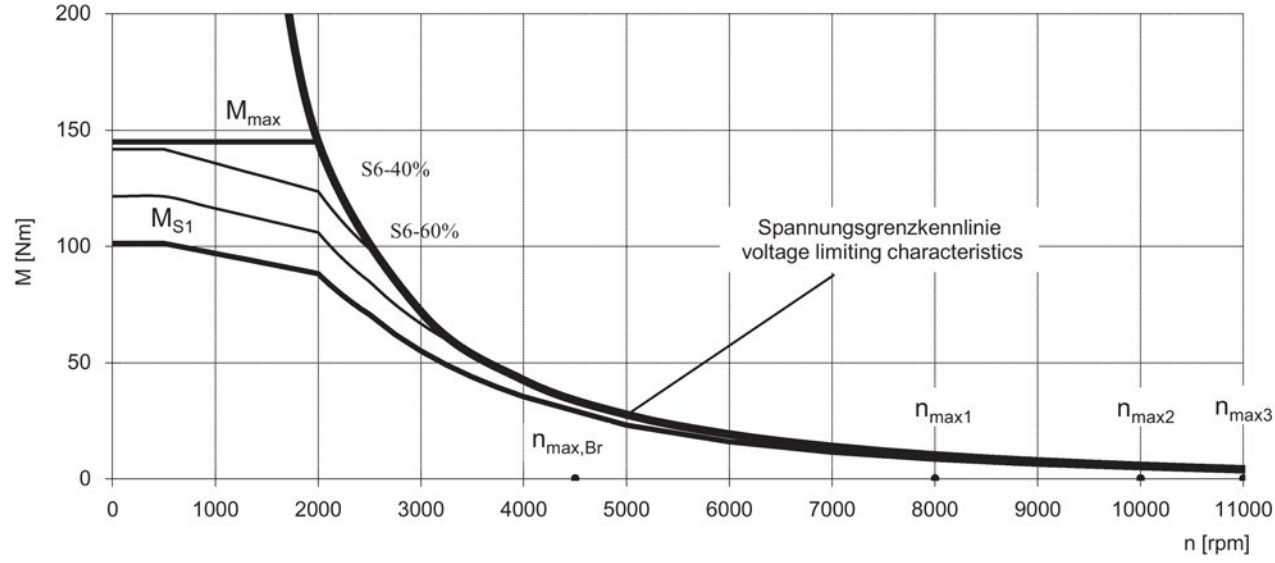
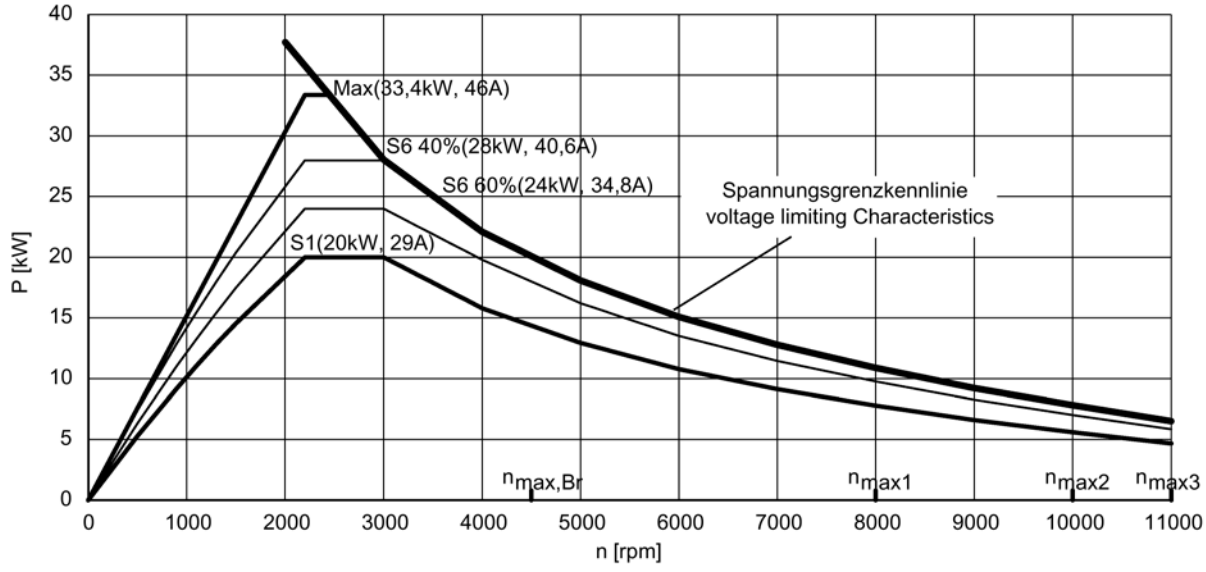


Table 6- 671 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	20	87	29	8,000	10,000	11,000	4,500	3,000	145	46	101	31



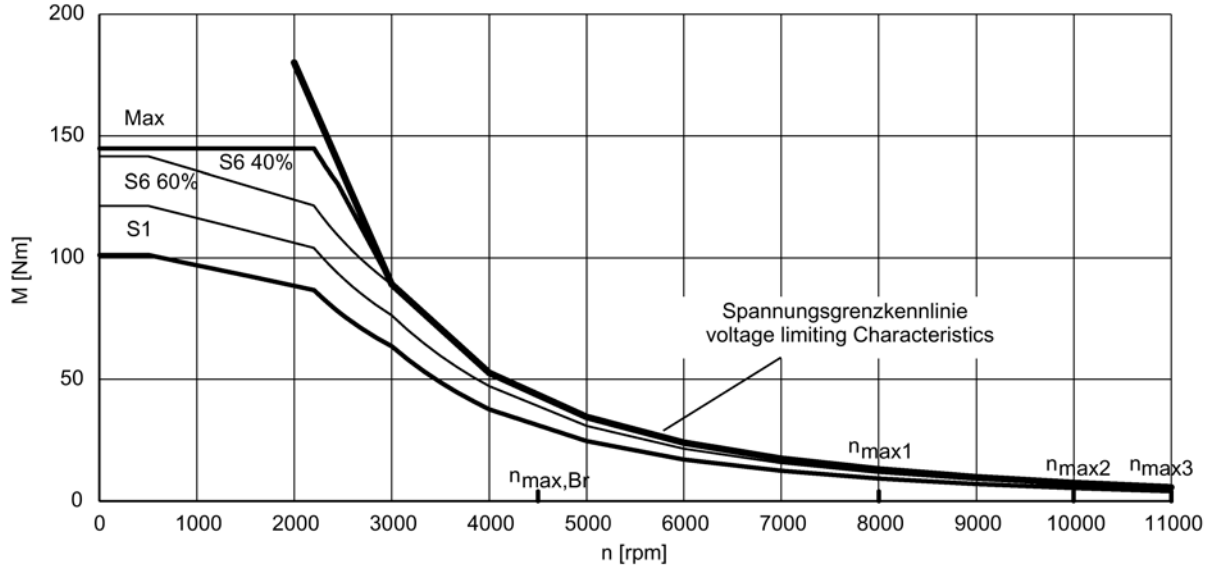
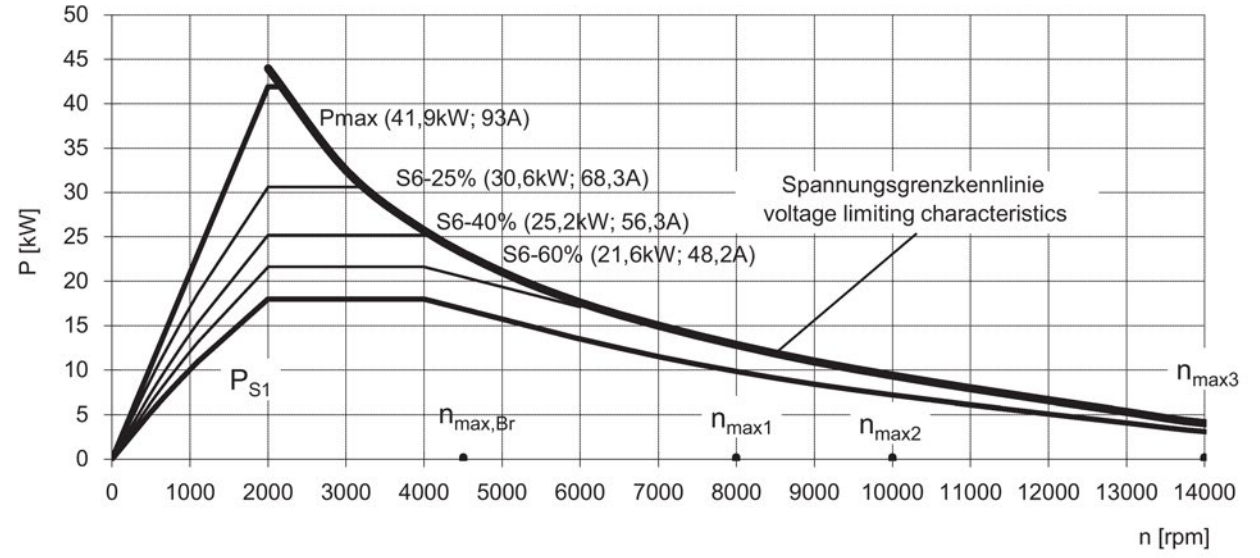


Table 6- 672 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□G2□

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]
2,000	18	86	40	8,000	10,000	14,000	4,500	4,000	200	93	101	44



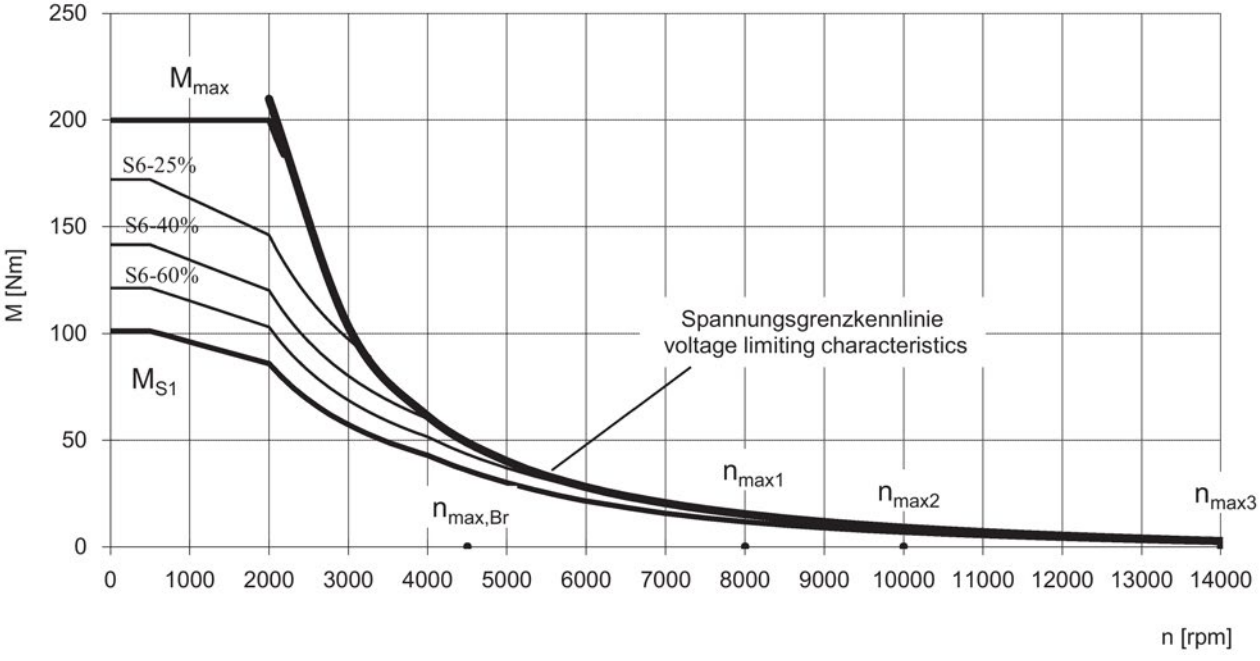
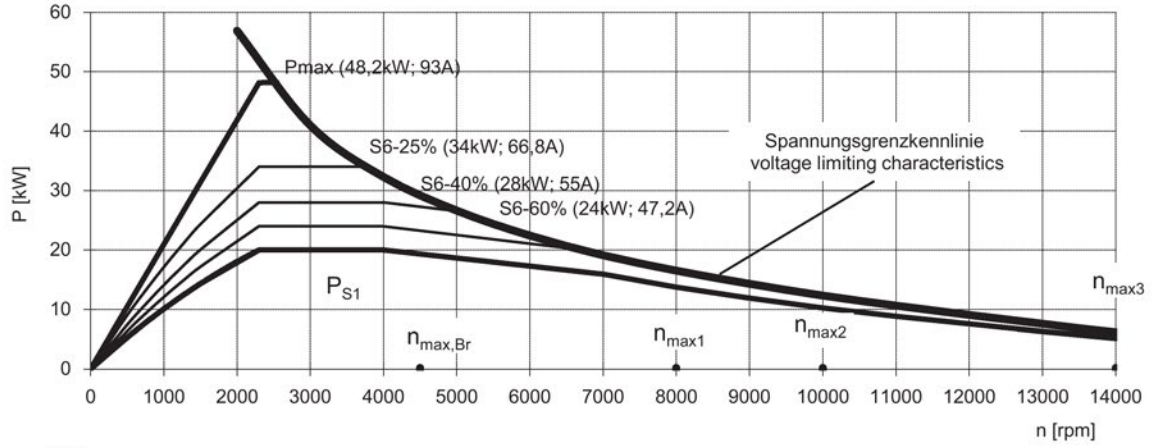


Table 6- 673 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□G2□

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]
2,300	20	83	39	8,000	10,000	14,000	4,500	4,000	200	93	101	44
2,000	18	86	40					5,500				
1,500	14.3	91	41					7,800				



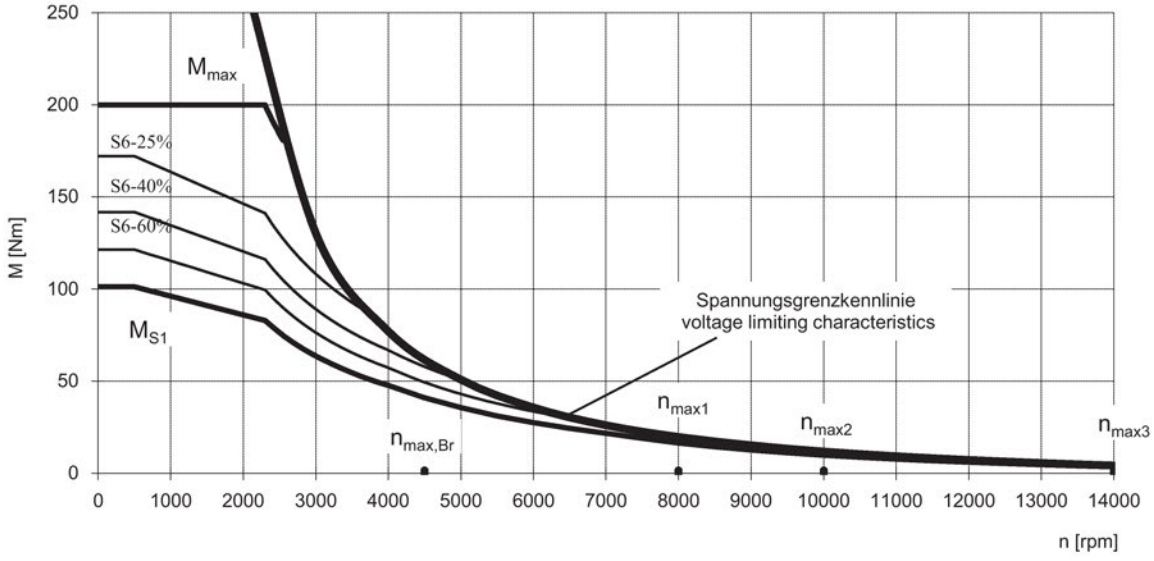
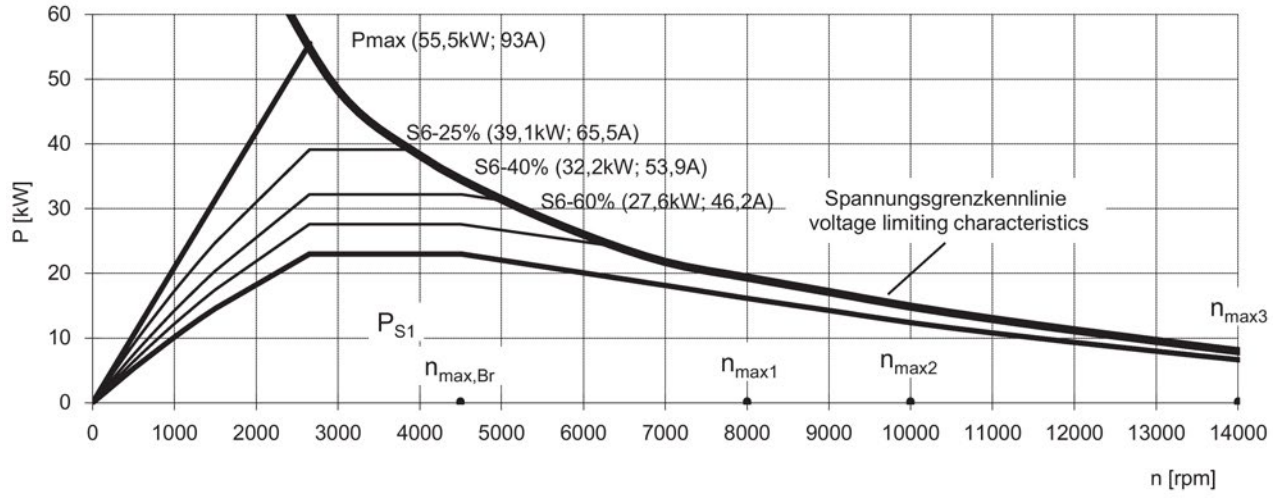


Table 6- 674 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□G2□

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]
2,650	23	83	39	8,000	10,000	14,000	4,500	4,500	200	93	101	44



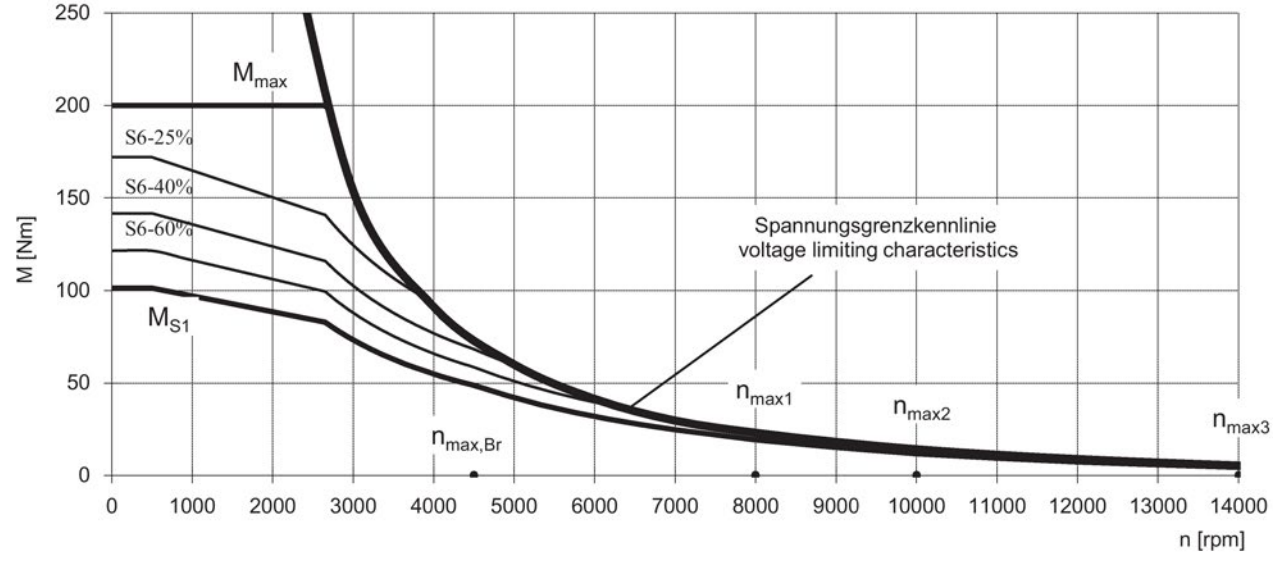
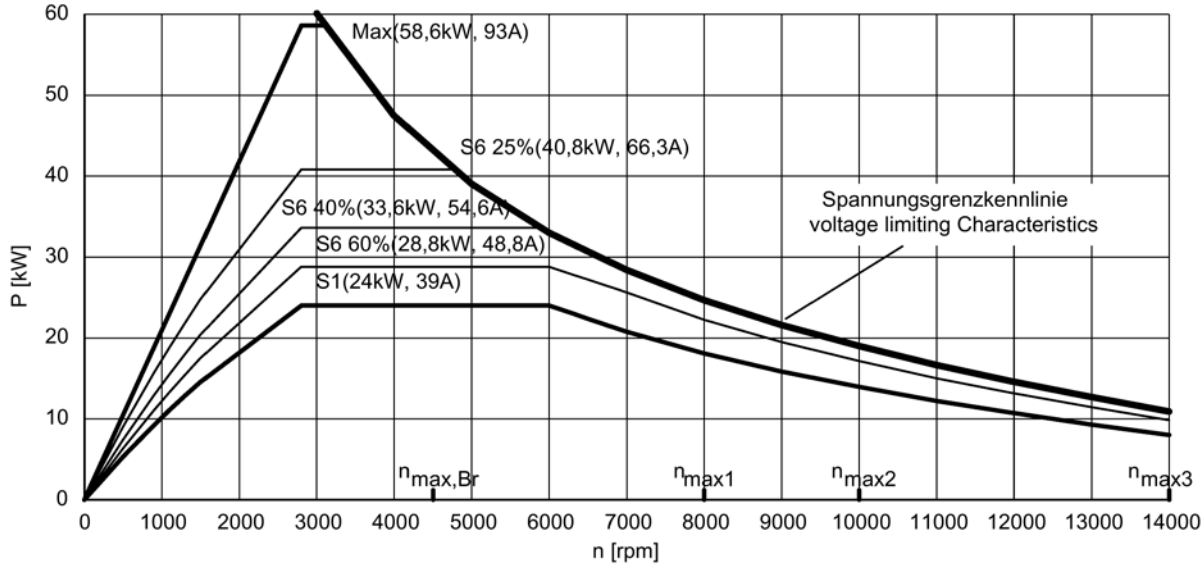


Table 6- 675 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8131-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	24	82	39	8,000	10,000	14,000	4,500	6,000	200	93	101	44



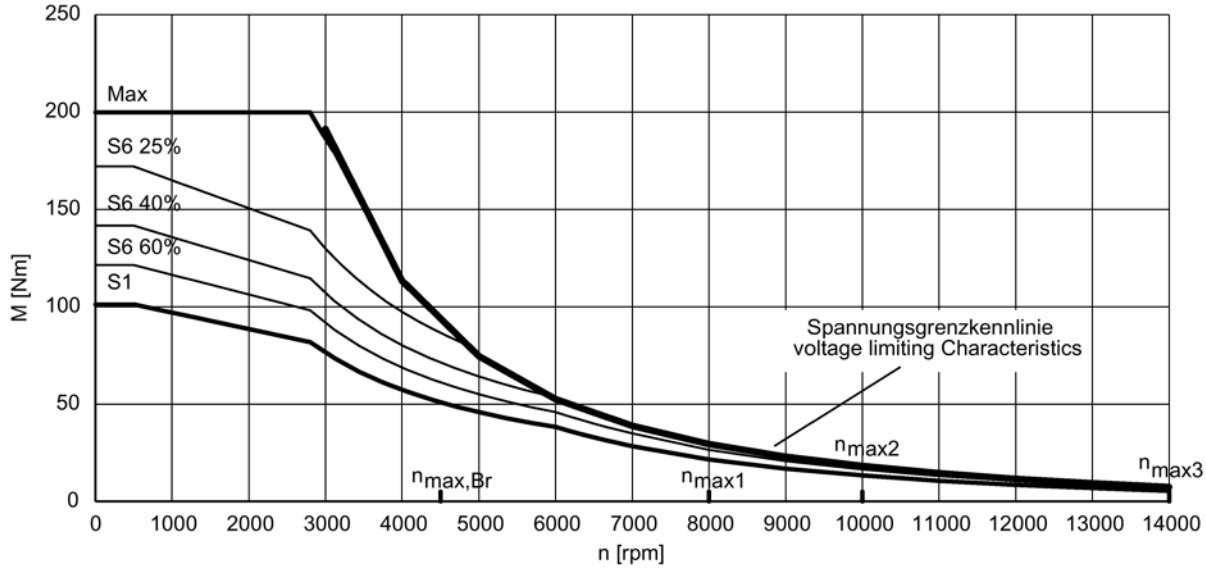
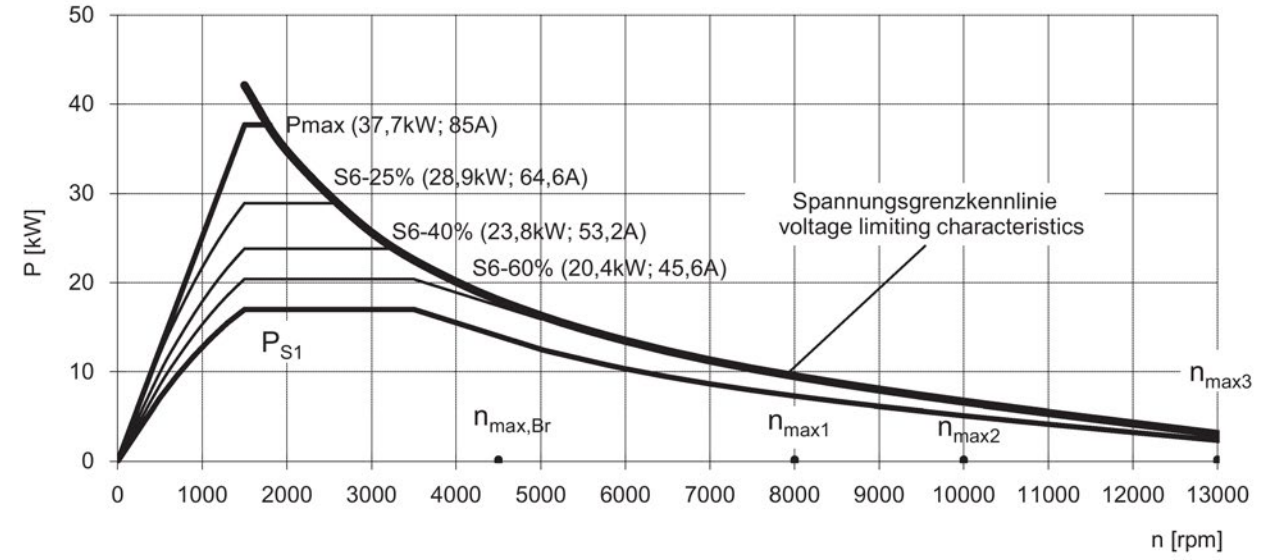


Table 6- 676 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F2□

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]
1,500	17	108	38	8,000	10,000	13,000	4,500	3,500	240	85	136	45



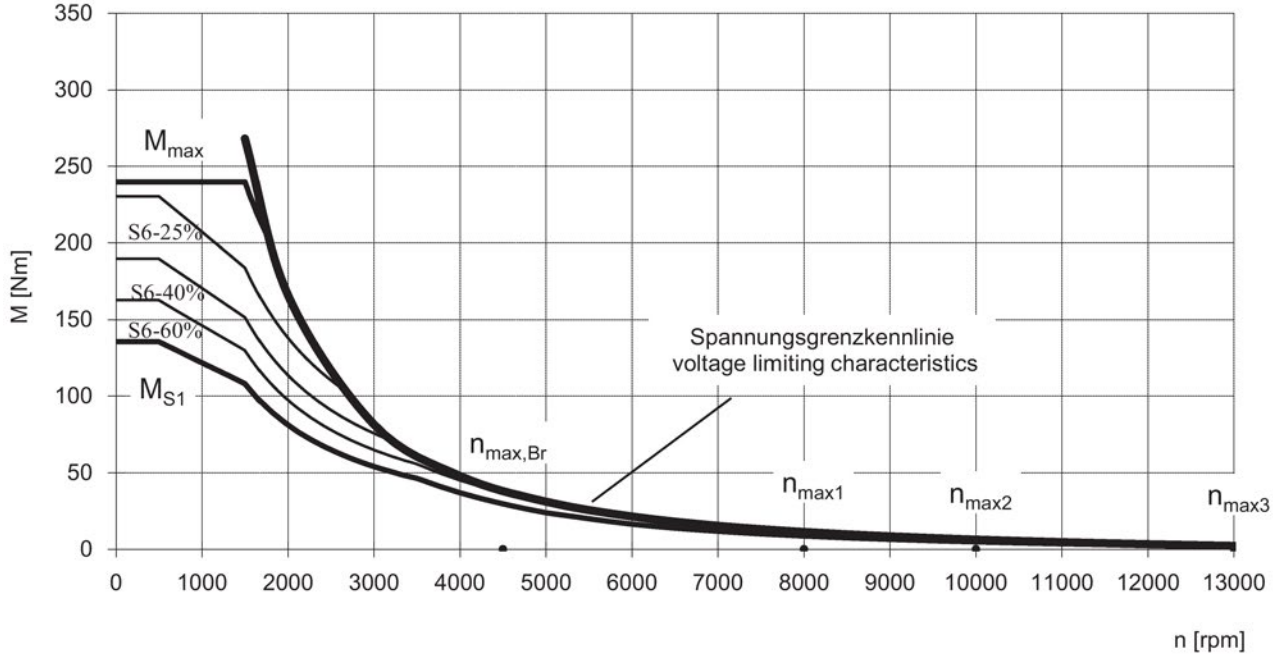
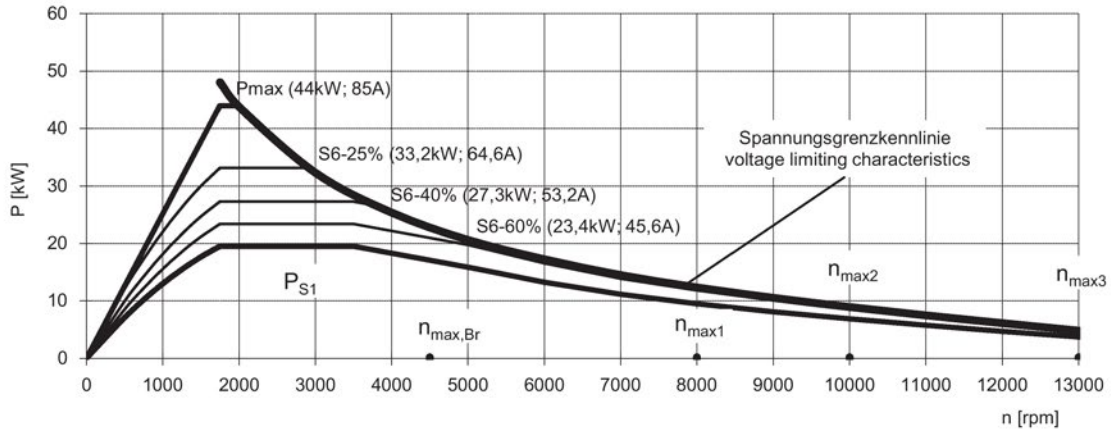


Table 6- 677 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8133-□□F2□

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]
1,750	19.5	106	38	8,000	10,000	13,000	4,500	3,500	240	85	136	45
1,500	17	108	38					4,500				



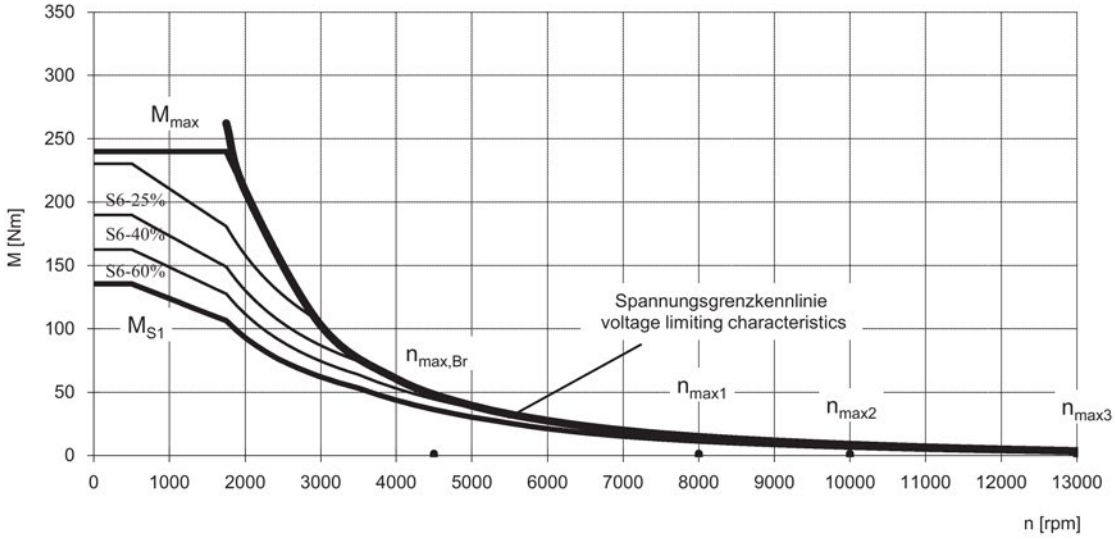
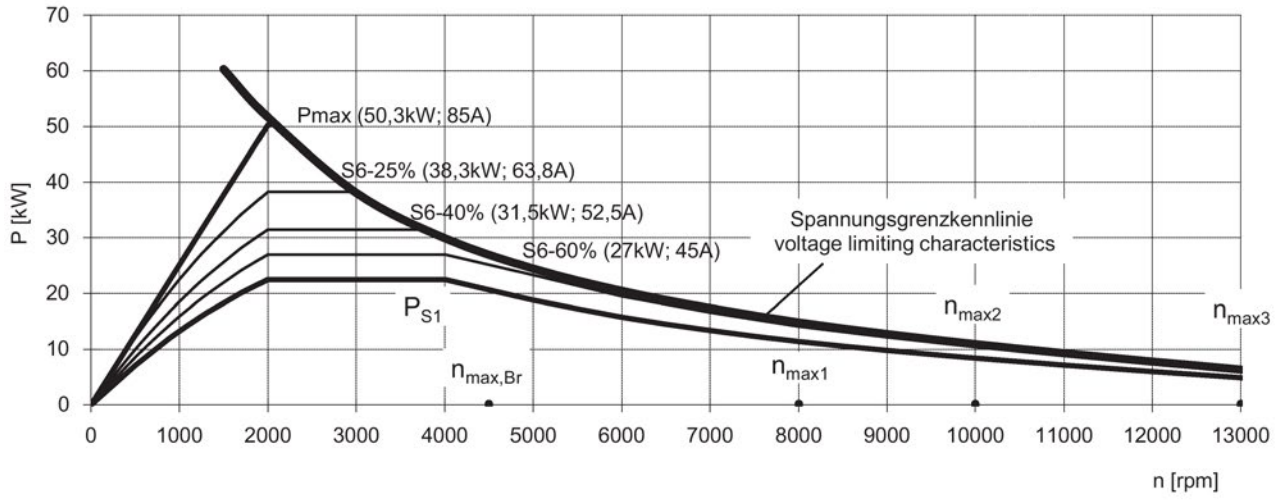


Table 6- 678 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F2□

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]
2,000	22.5	107	38	8,000	10,000	13,000	4,500	4,000	240	85	136	45



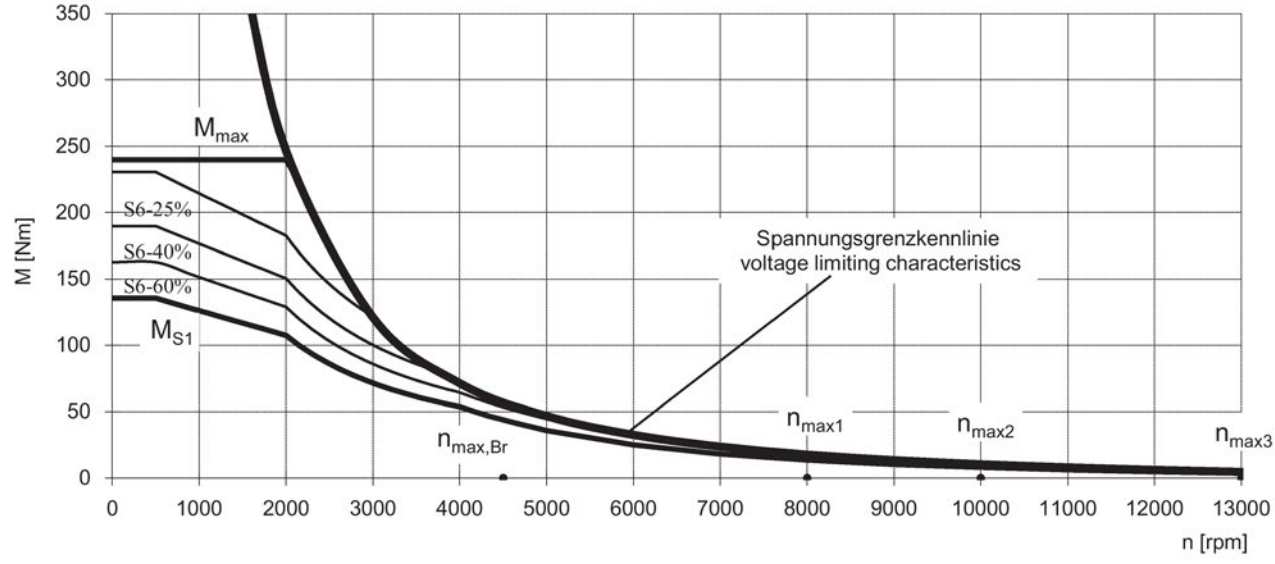
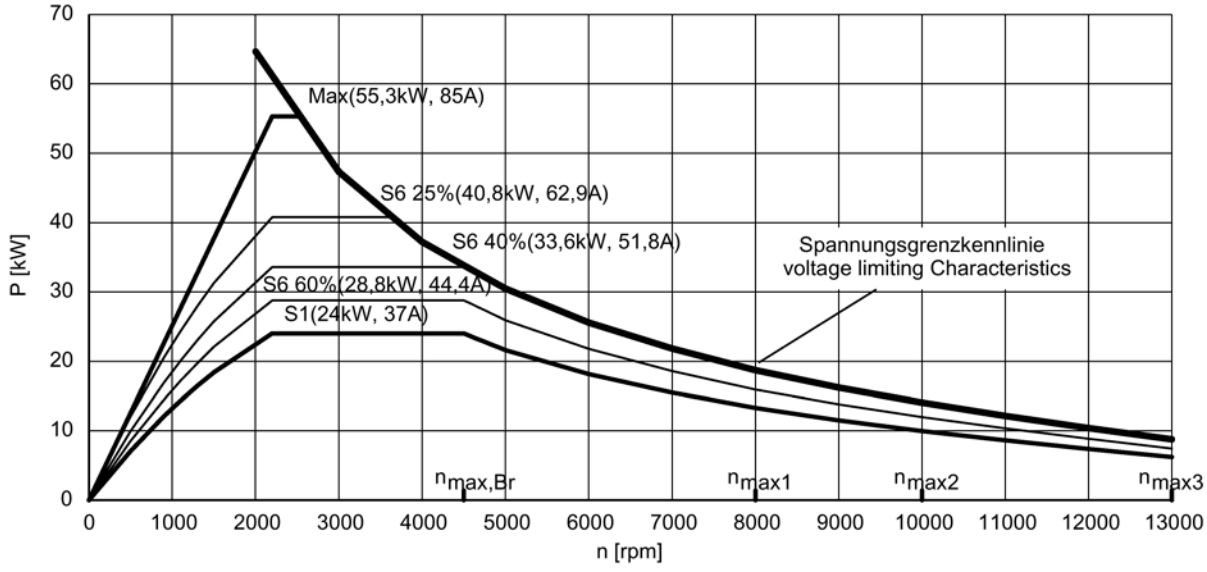


Table 6- 679 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8133-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	24	104	37	8,000	10,000	13,000	4,500	4,500	240	85	136	45



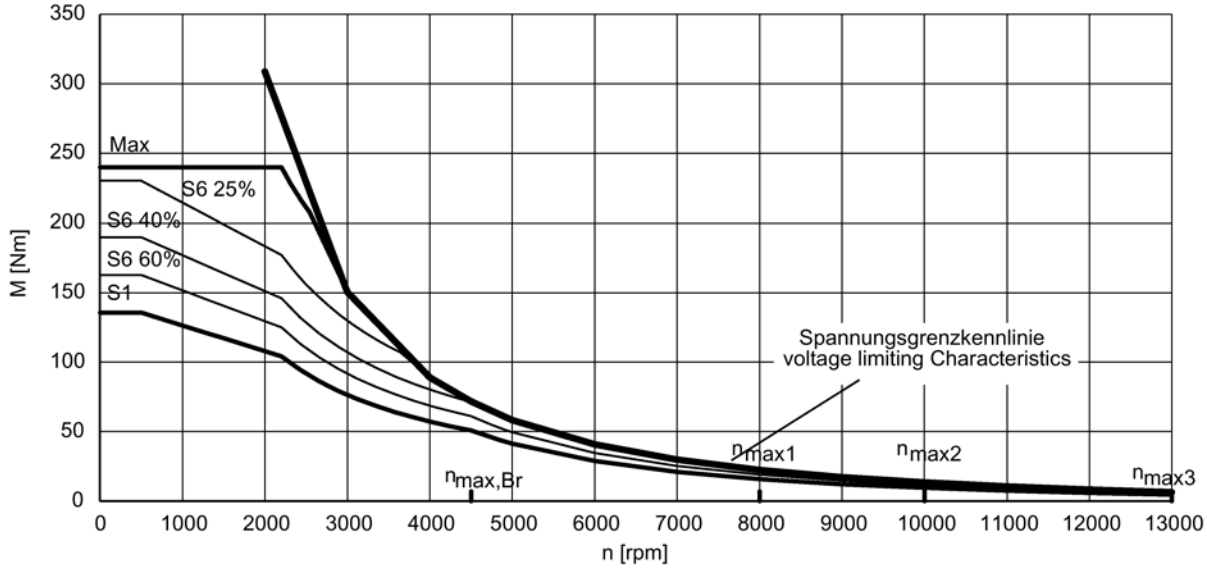
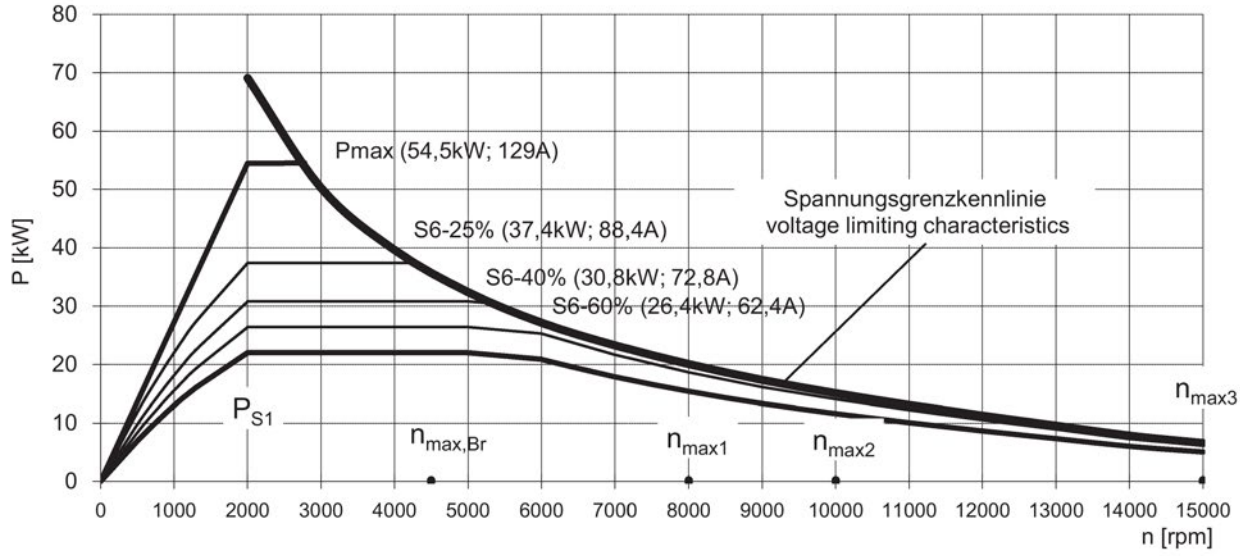


Table 6- 680 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G2□

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]
2,000	22	105	52	8,000	10,000	15,000	4,500	5,000	260	129	134	61



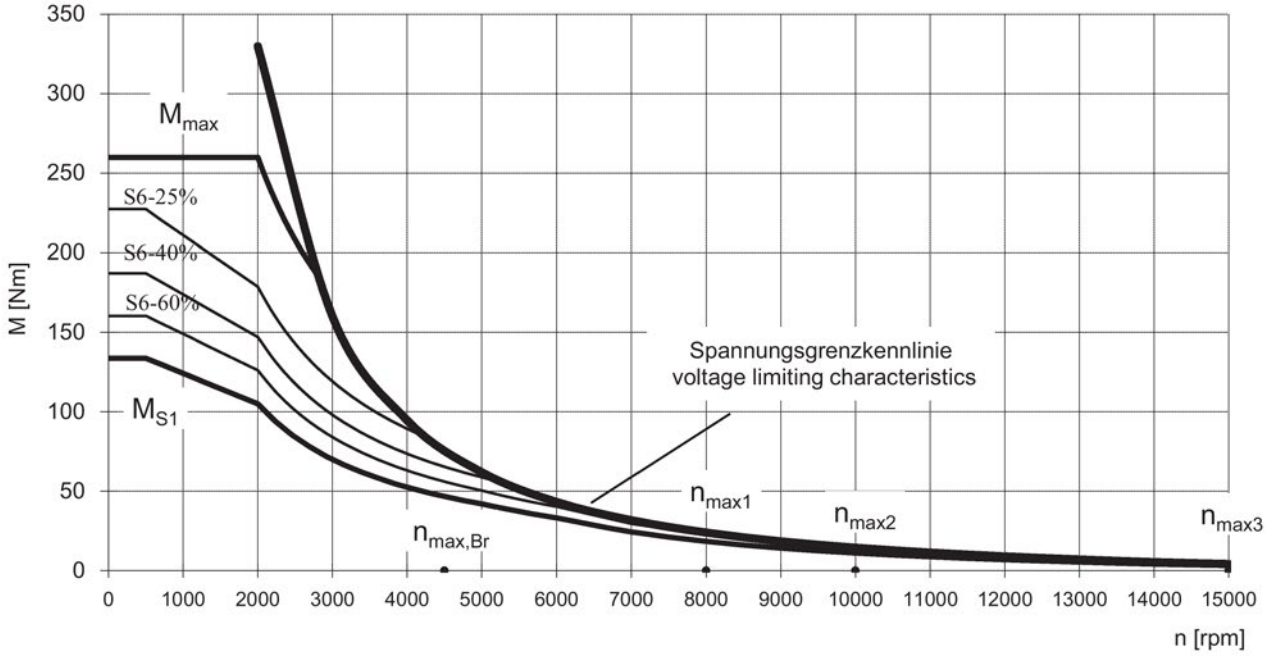
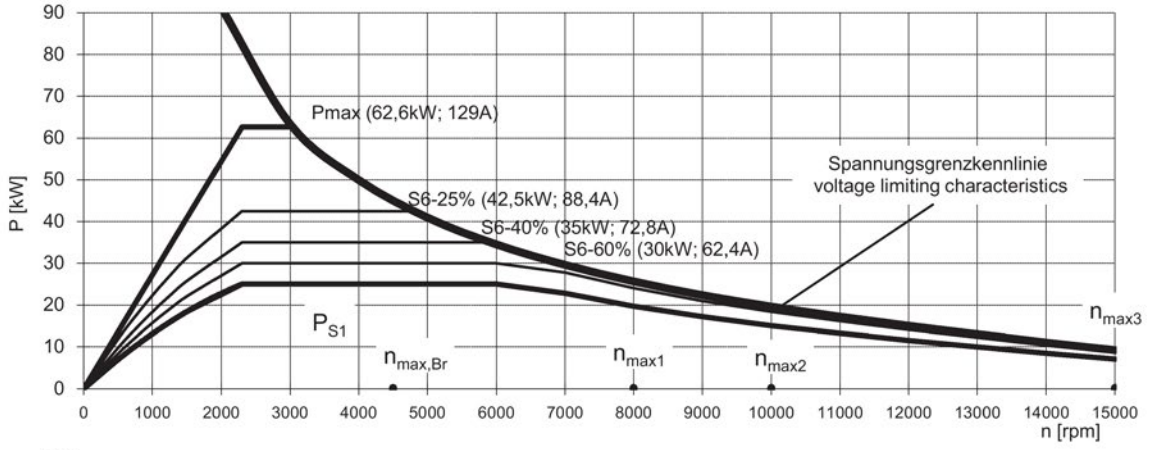


Table 6- 681 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8133-□□G2□

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]
2,300	25	104	52	8,000	10,000	15,000	4,500	6,000	260	129	134	61
2,000	22	105	52					7,000				
1,500	18.4	117	54					8,000				



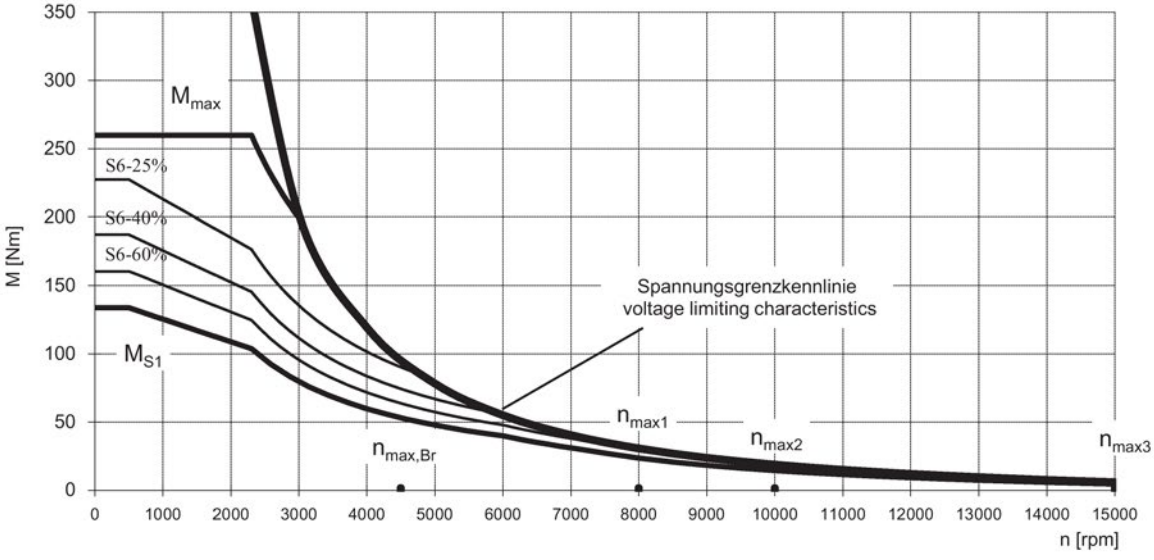
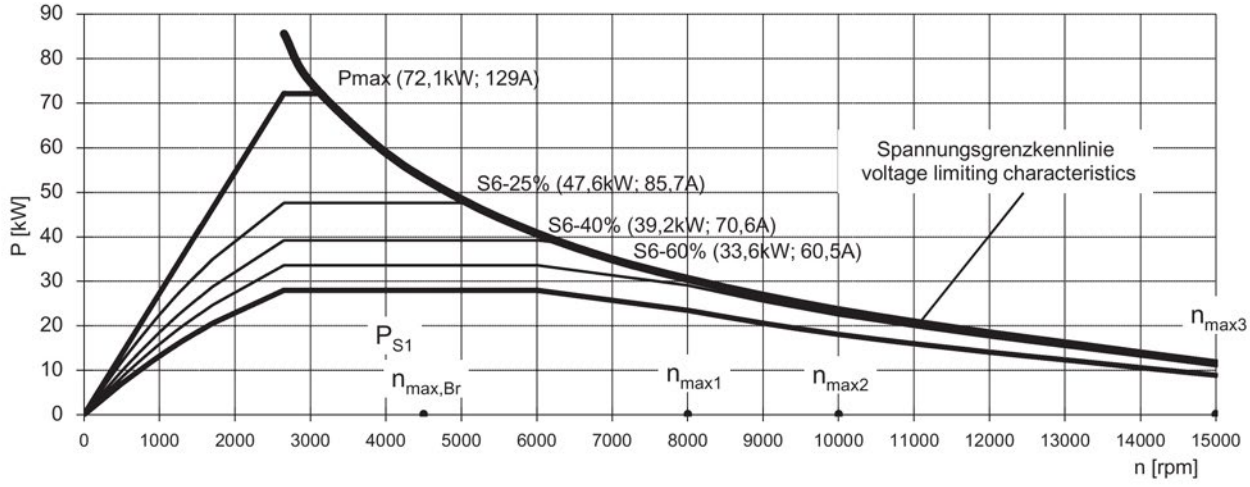


Table 6- 682 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G2□

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]
2,650	28	101	50	8,000	10,000	15,000	4,500	6,000	260	129	134	61



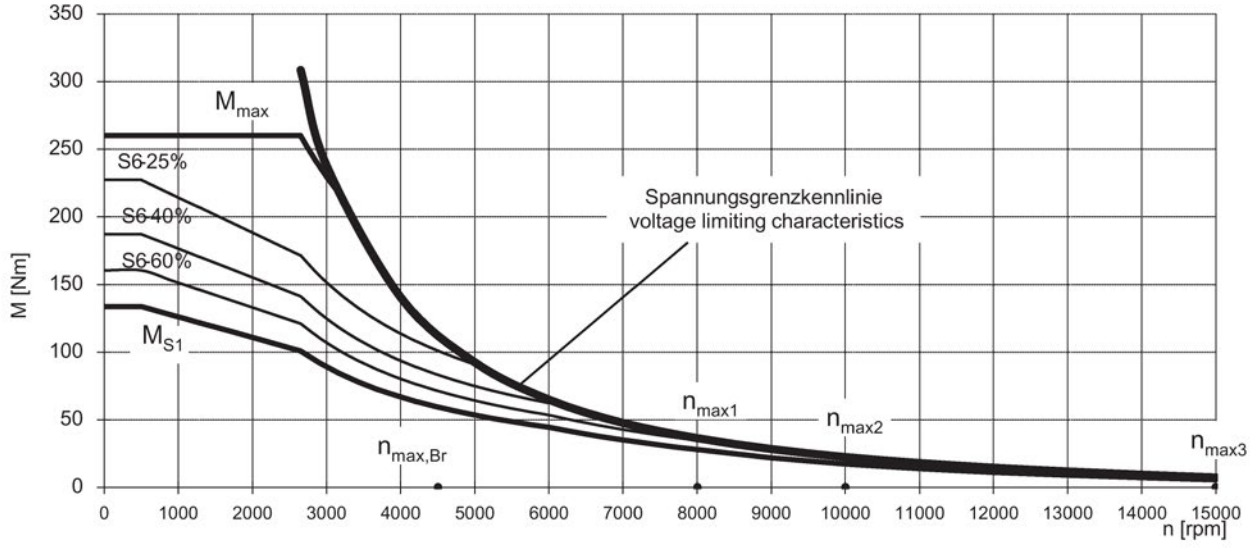
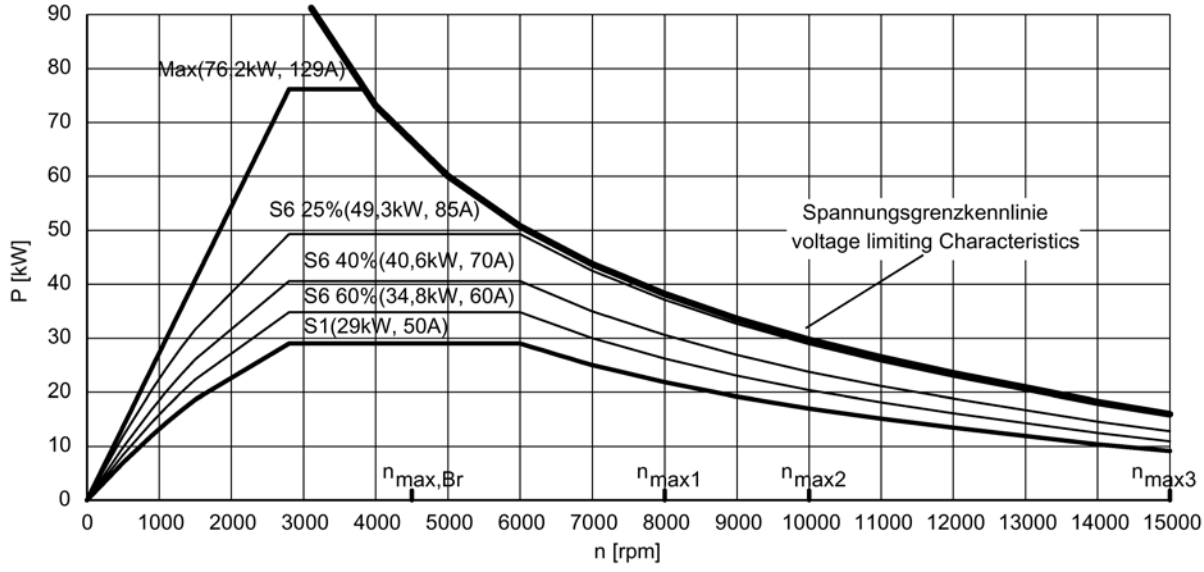


Table 6- 683 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8133-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	29	99	50	8,000	10,000	15,000	4,500	6,000	260	129	134	61



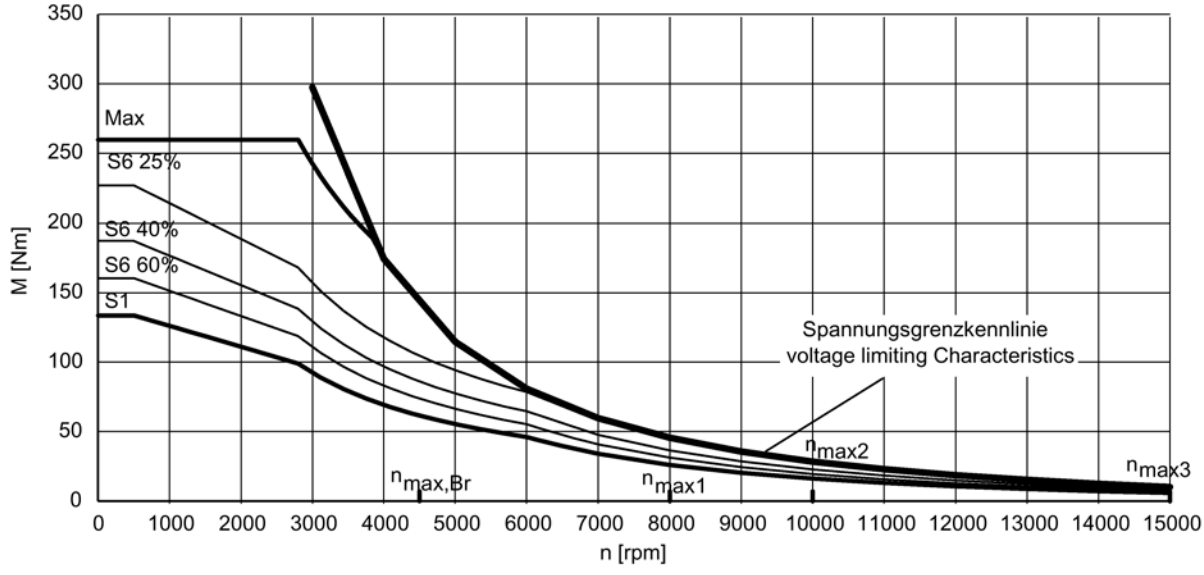
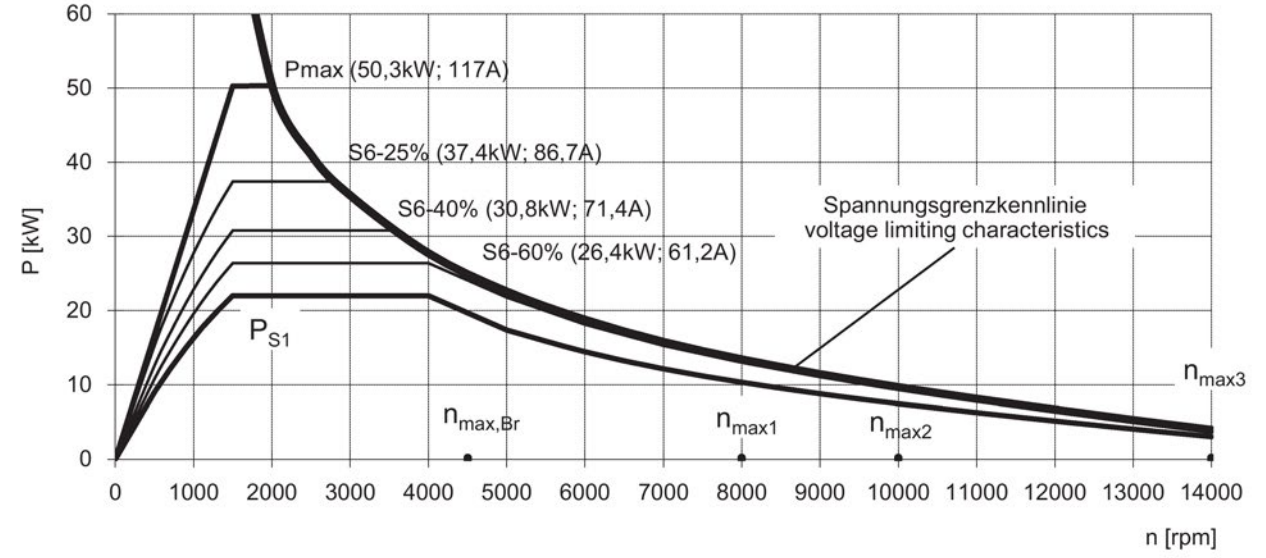


Table 6- 684 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F2□

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]
1,500	22	140	51	8,000	10,000	14,000	4,500	4,000	320	117	172	58



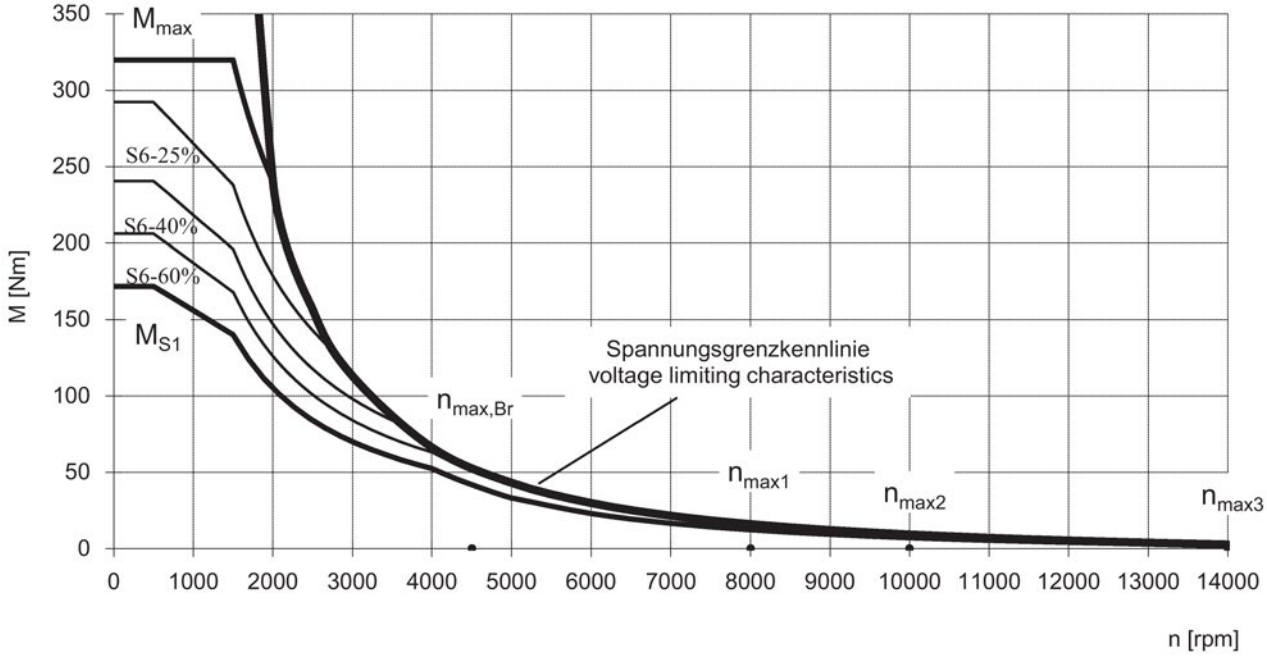


Table 6- 685 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F2□

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]
1,750	25.5	139	51	8,000	10,000	14,000	4,500	4,000	320	117	172	58
1,500	22	140	51					5,250				

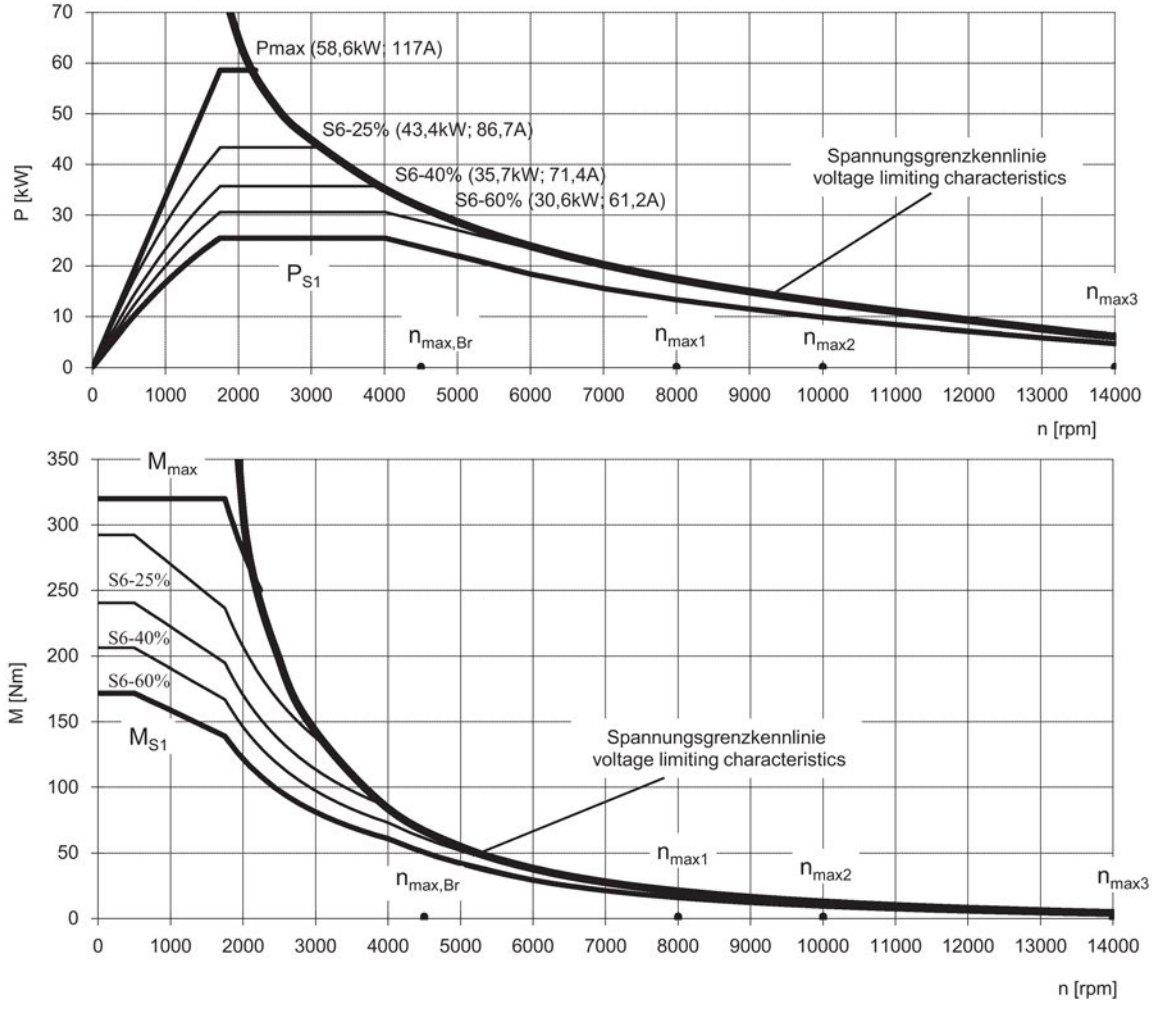
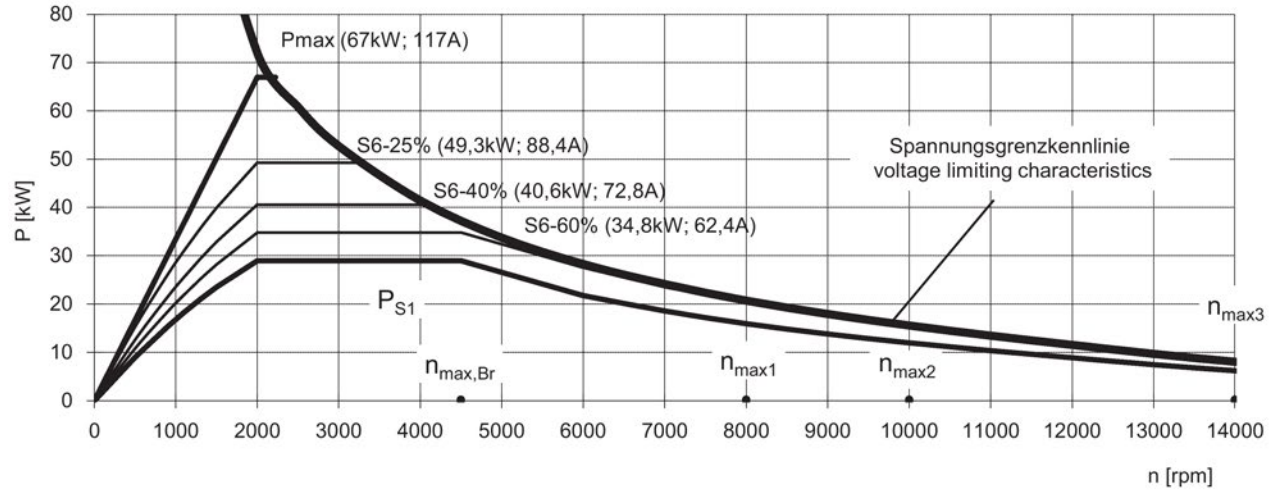


Table 6- 686 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F2□

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]
2,000	29	138	52	8,000	10,000	14,000	4,500	4,500	320	117	172	58



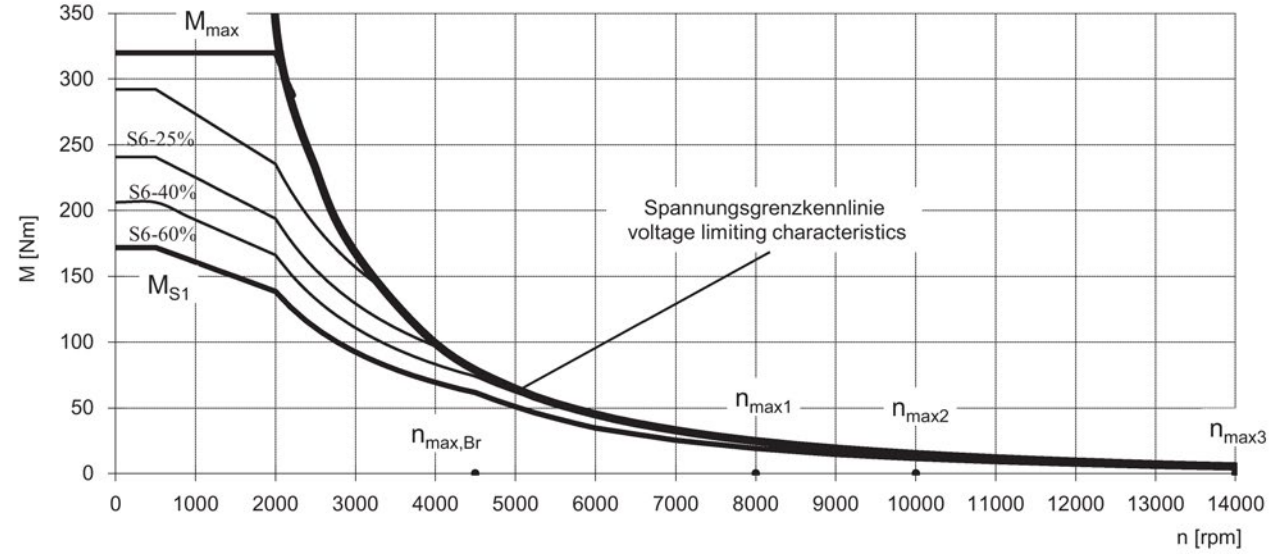
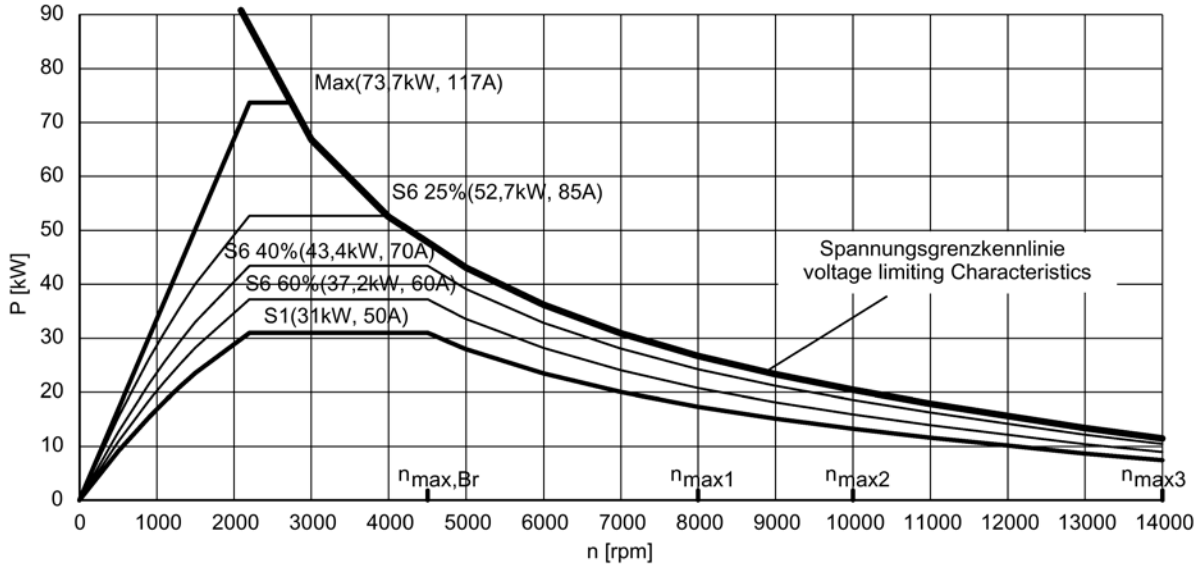


Table 6- 687 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8135-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	31	135	50	8,000	10,000	14,000	4,500	4,500	320	117	172	58



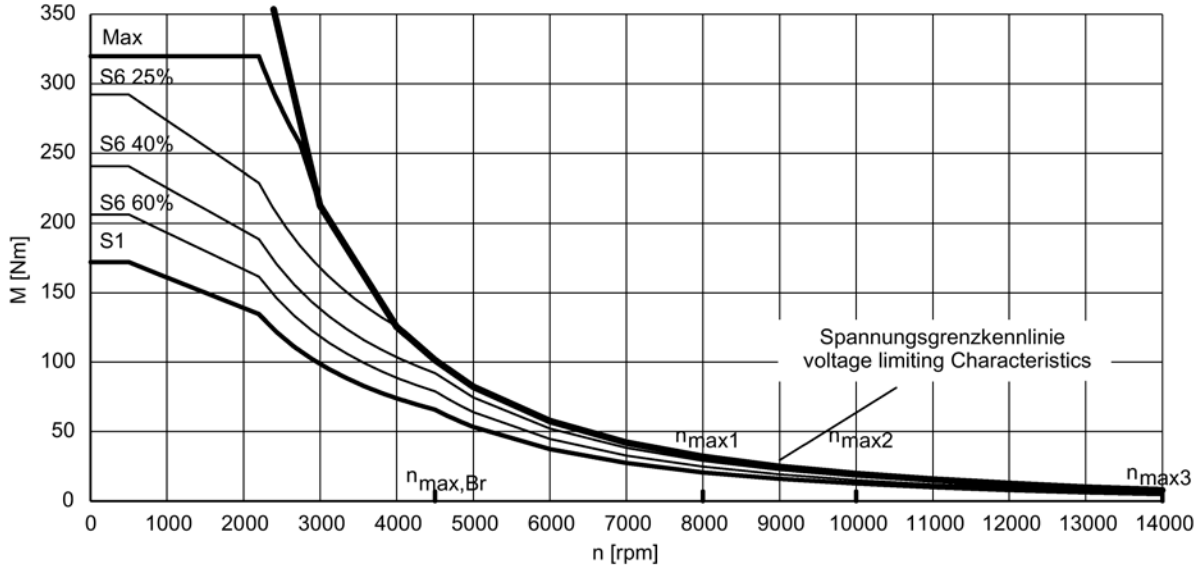
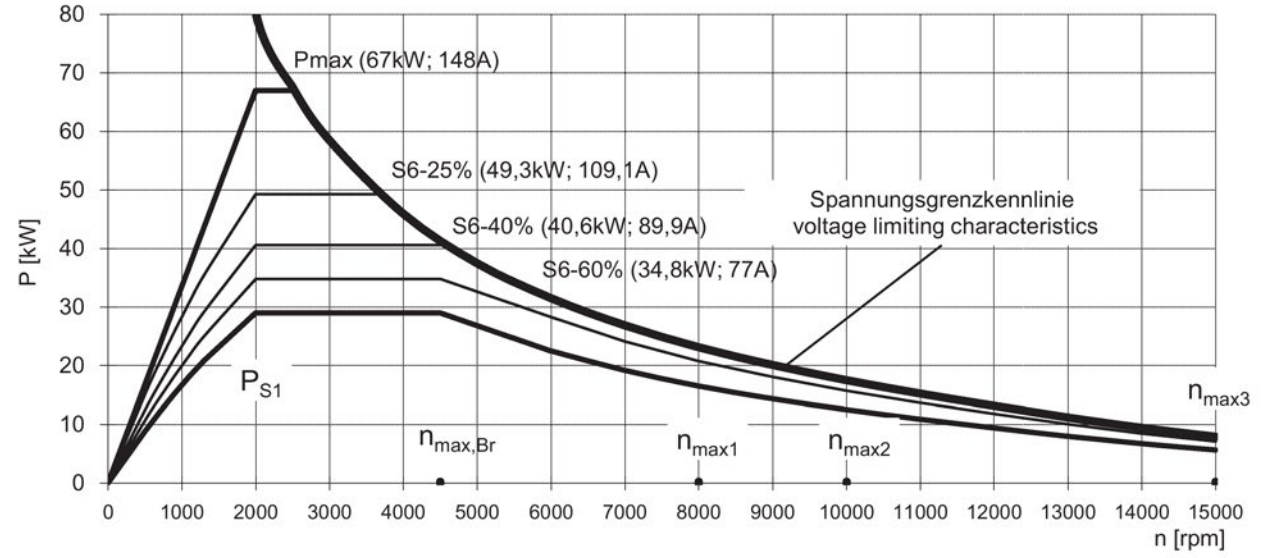


Table 6- 688 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G2□

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]
2,000	29	138	64	8,000	10,000	15,000	4,500	4,500	320	148	170	73



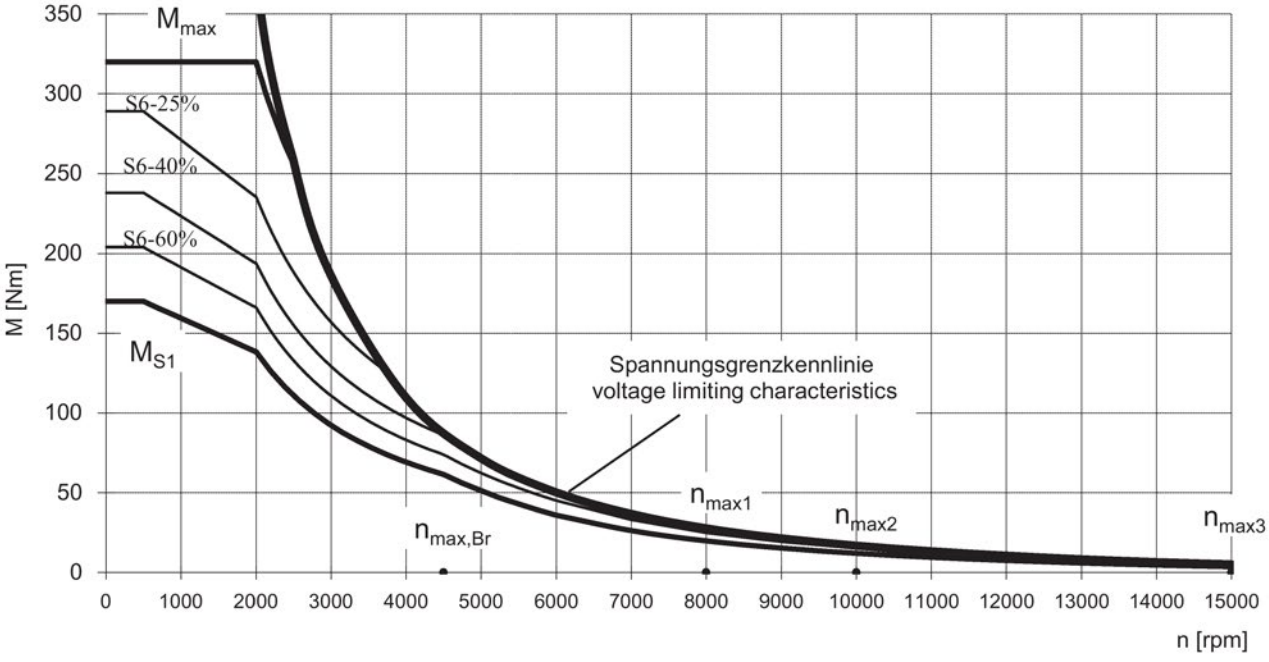
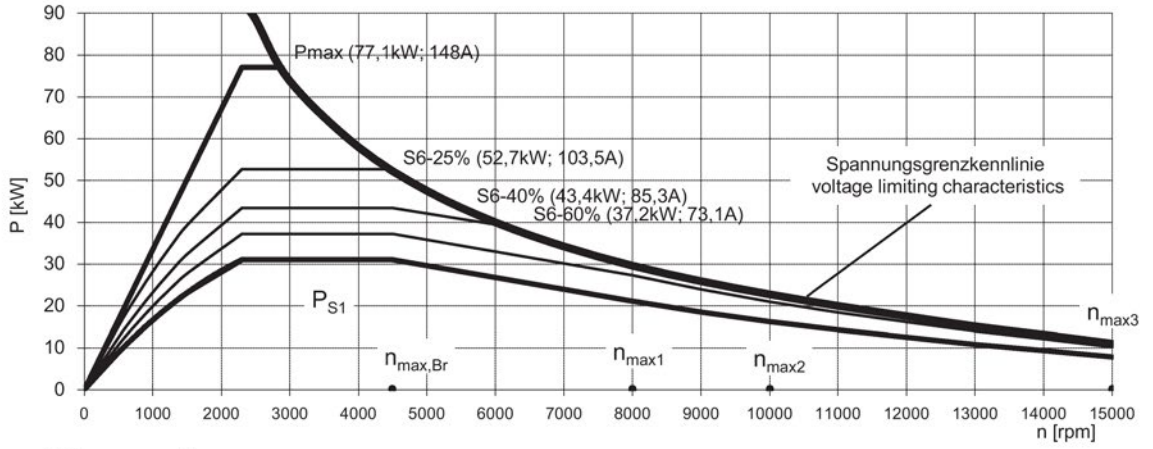


Table 6- 689 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G2□

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]
2,300	31	129	61	8,000	10,000	15,000	4,500	4,500	320	148	170	73
2,000	29	138	64					5,250				
1,500	23.1	147	63					7,300				



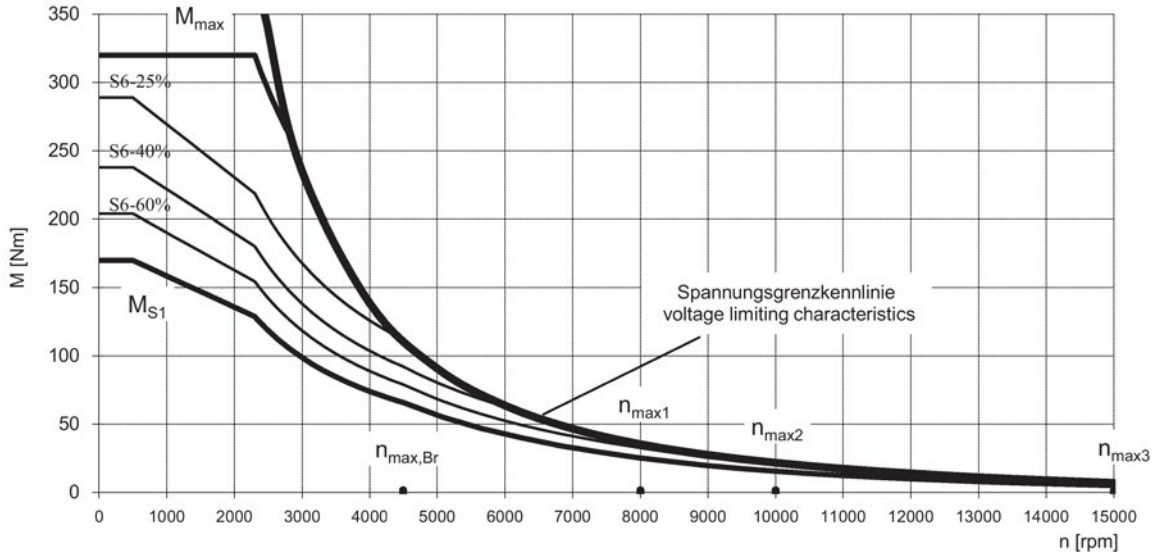
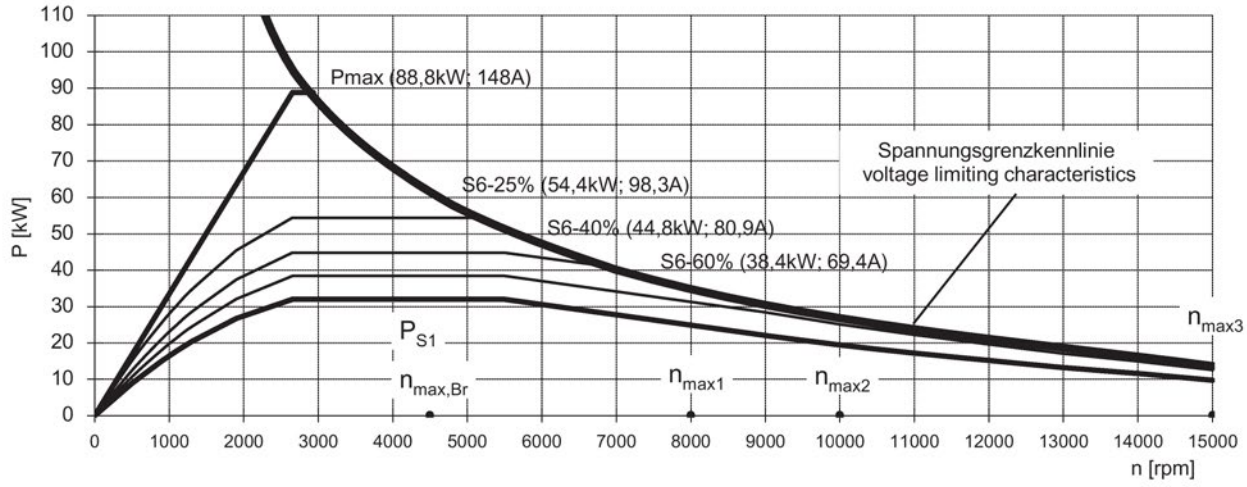


Table 6- 690 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G2□

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]
2,650	32	115	58	8,000	10,000	15,000	4,500	5,500	320	148	170	73



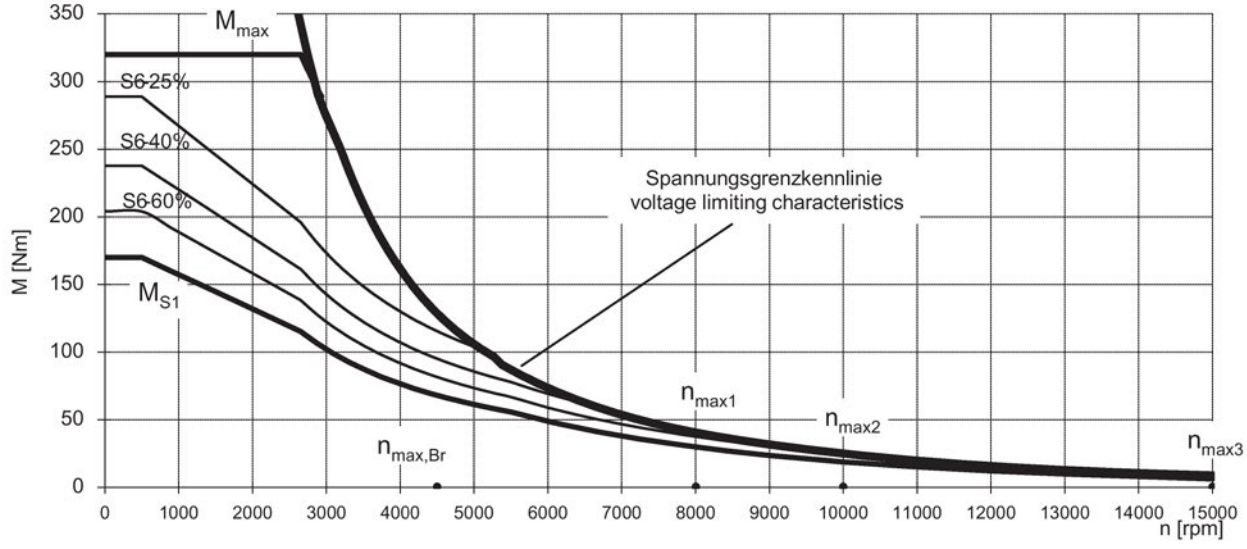
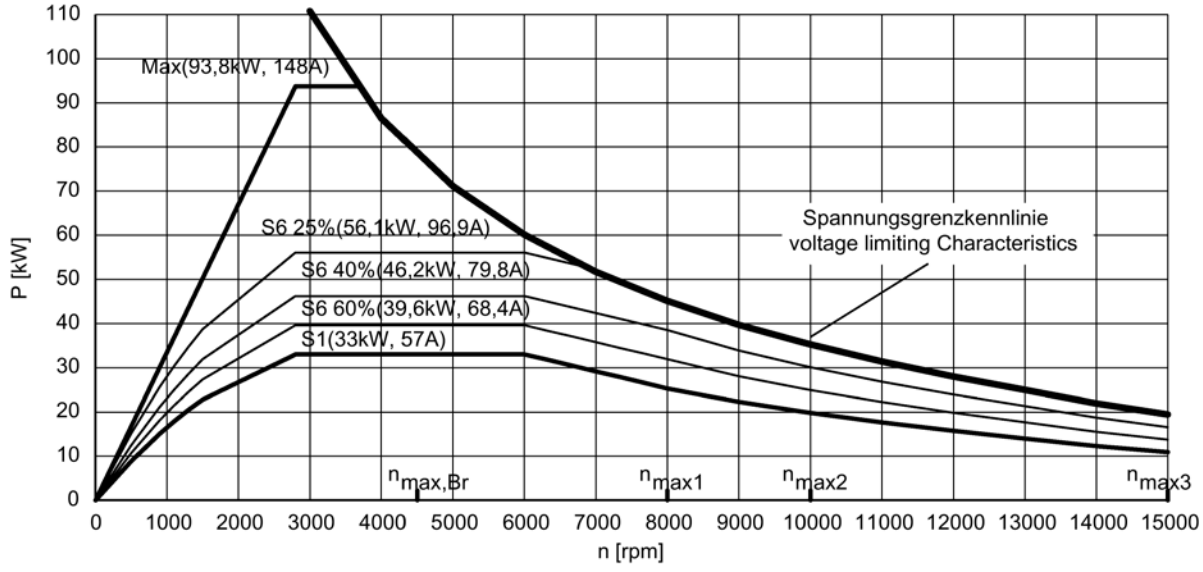


Table 6- 691 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8135-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	33	113	57	8,000	10,000	15,000	4,500	6,000	320	148	170	73



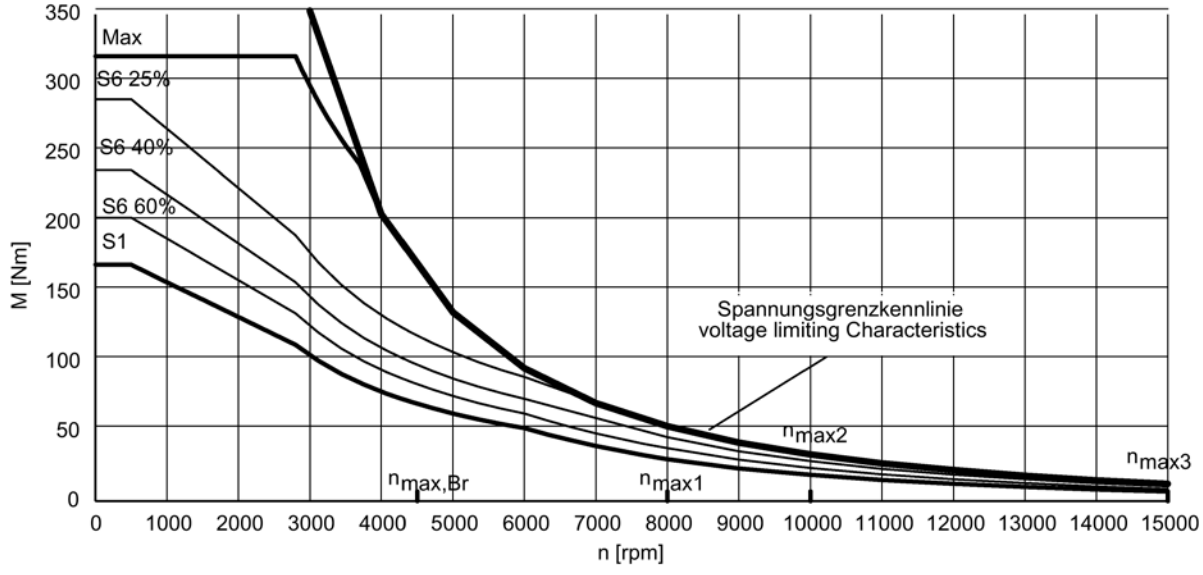
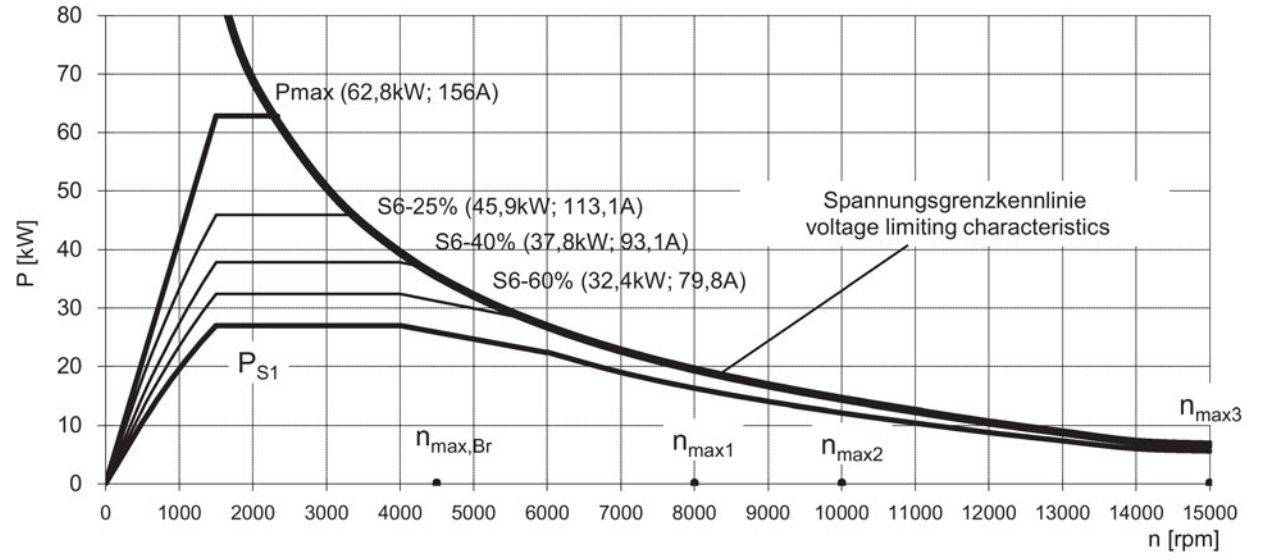


Table 6- 692 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F2□

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]
1,500	27	172	67	8,000	10,000	15,000	4,500	4,000	400	156	202	73



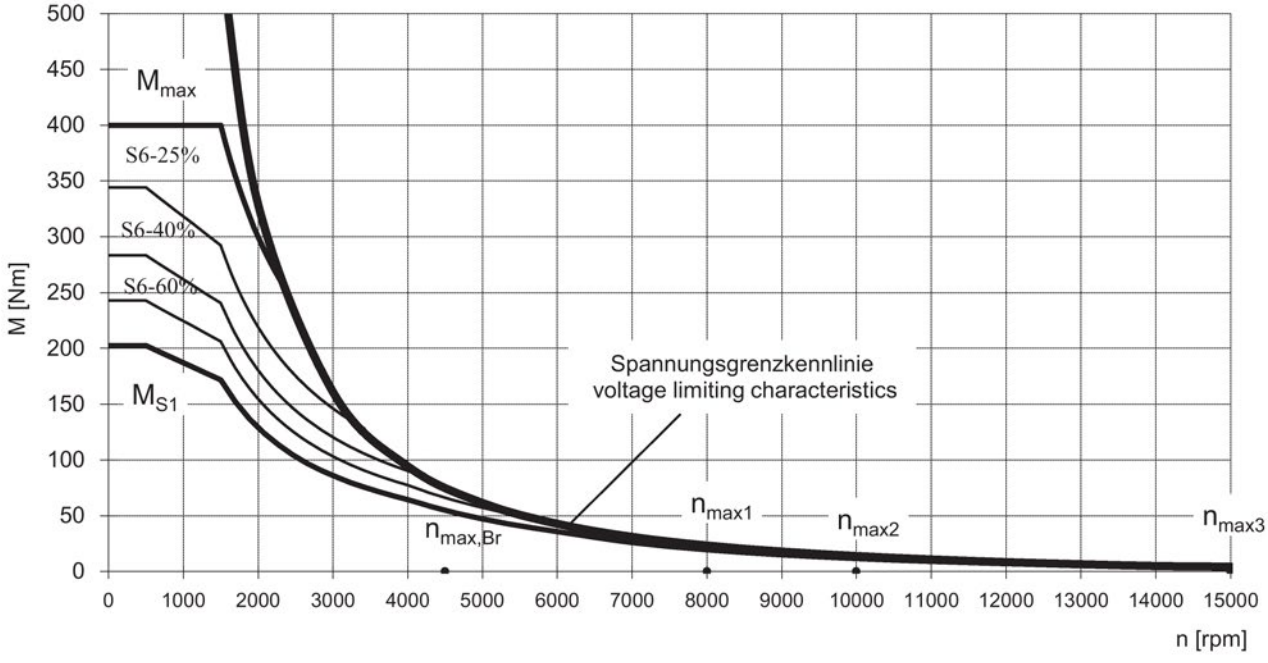


Table 6- 693 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F2□

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]
1,750	31.5	172	67	8,000	10,000	15,000	4,500	4,500	400	156	202	73
1,500	27	172	67					6,500				

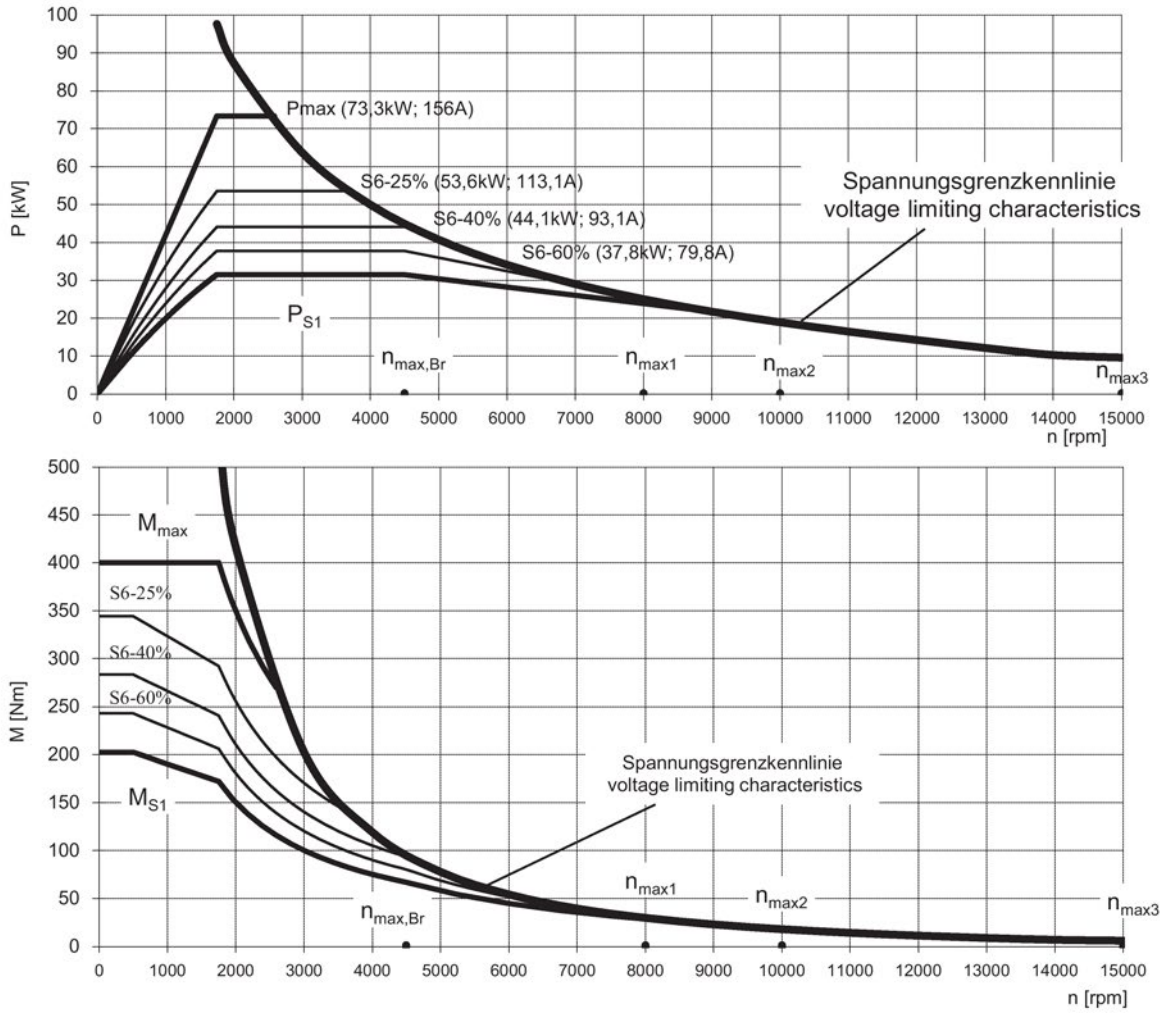
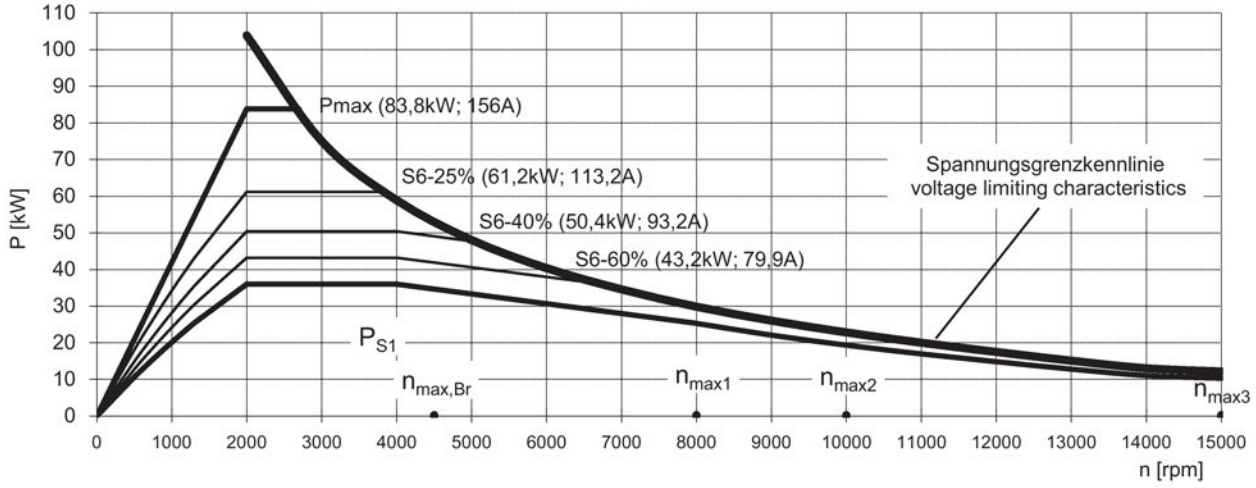


Table 6- 694 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F2□

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]
2,000	36	172	67	8,000	10,000	15,000	4,500	4,000	400	156	202	73



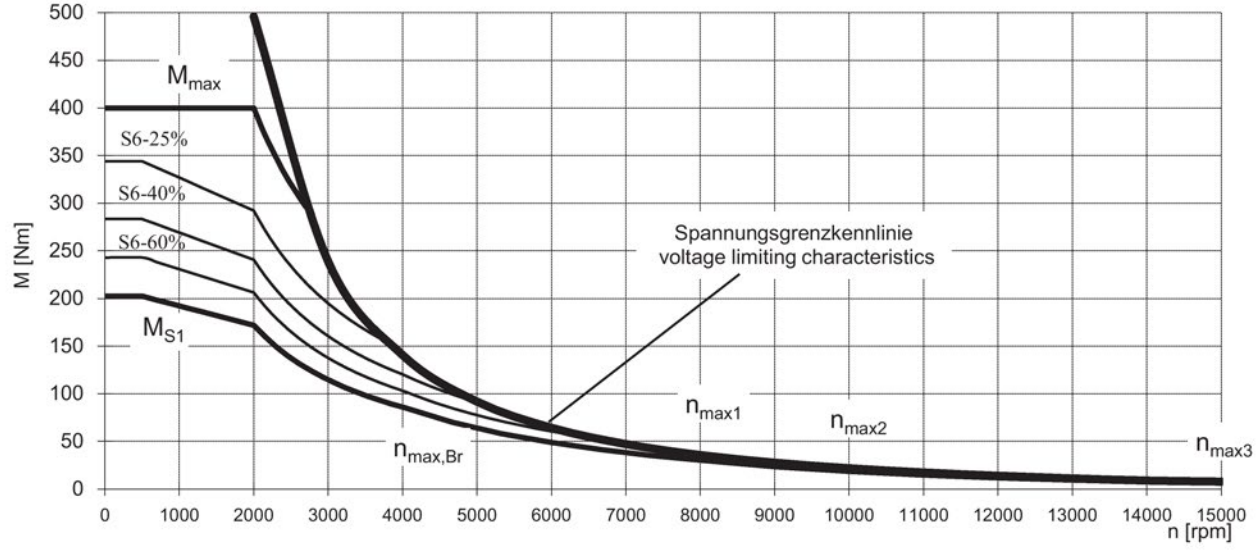
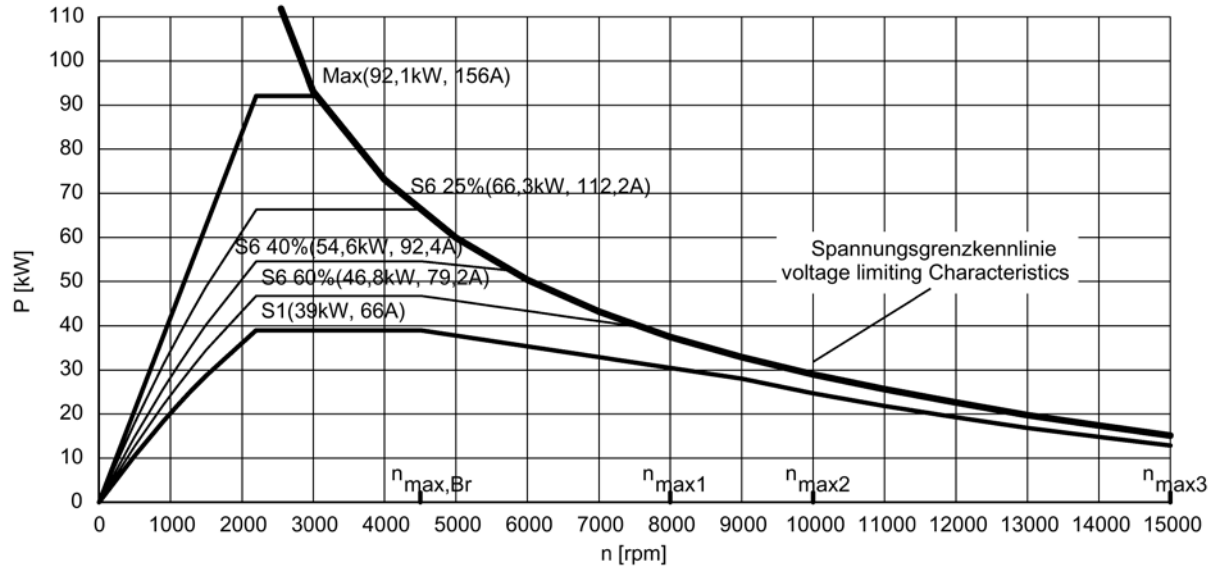


Table 6- 695 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8137-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	39	169	66	8,000	10,000	15,000	4,500	4,500	400	156	202	73



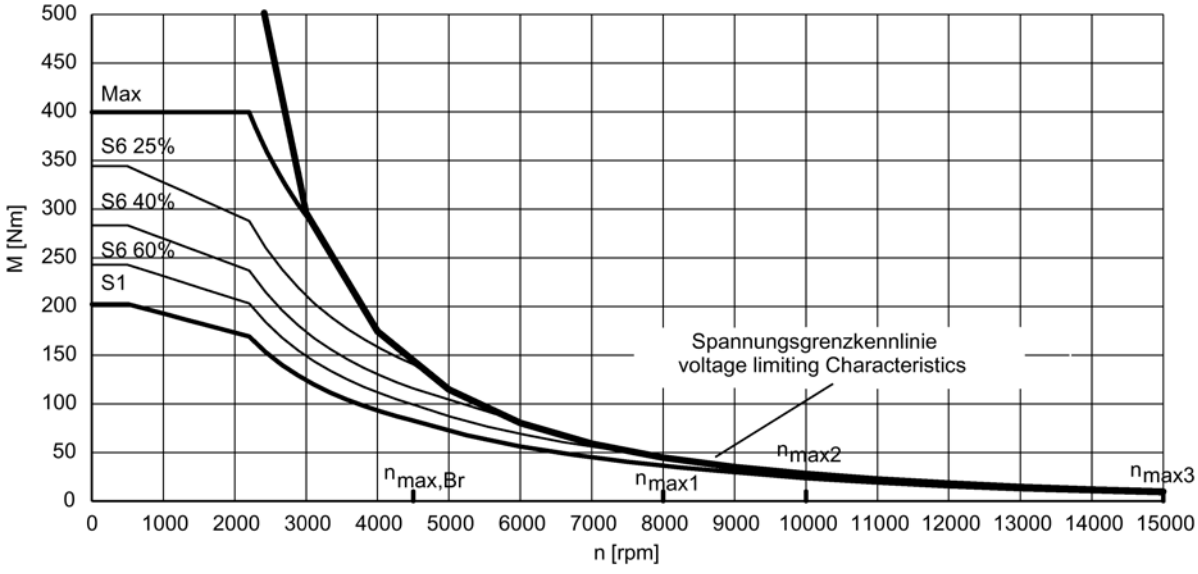
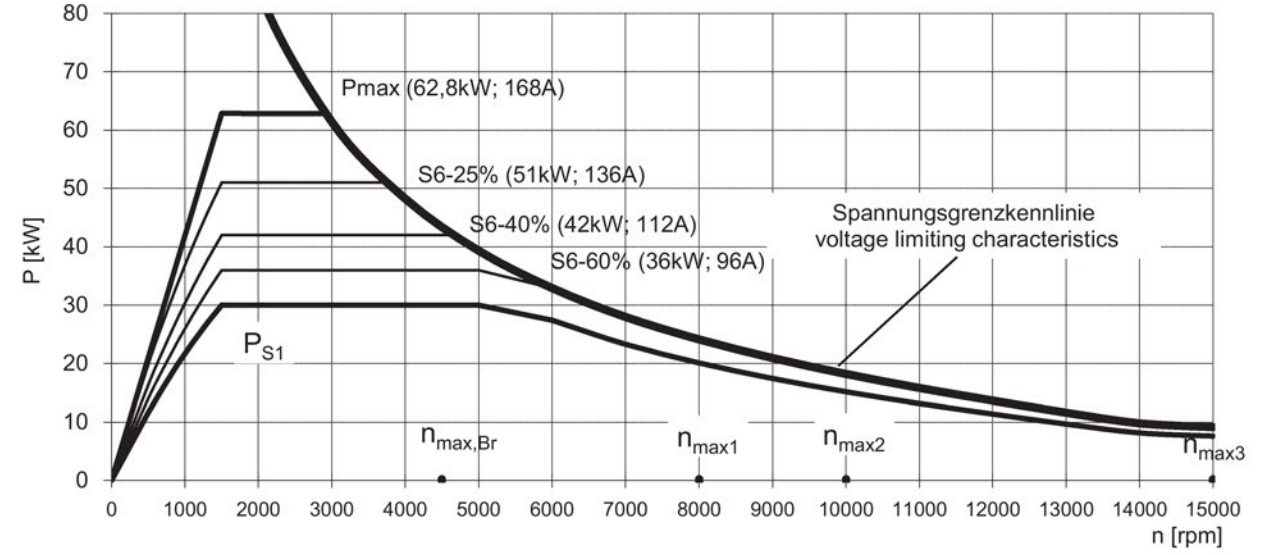


Table 6- 696 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□F2□

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]
1,500	30	191	80	8,000	10,000	15,000	4,500	5,000	400	168	223	88



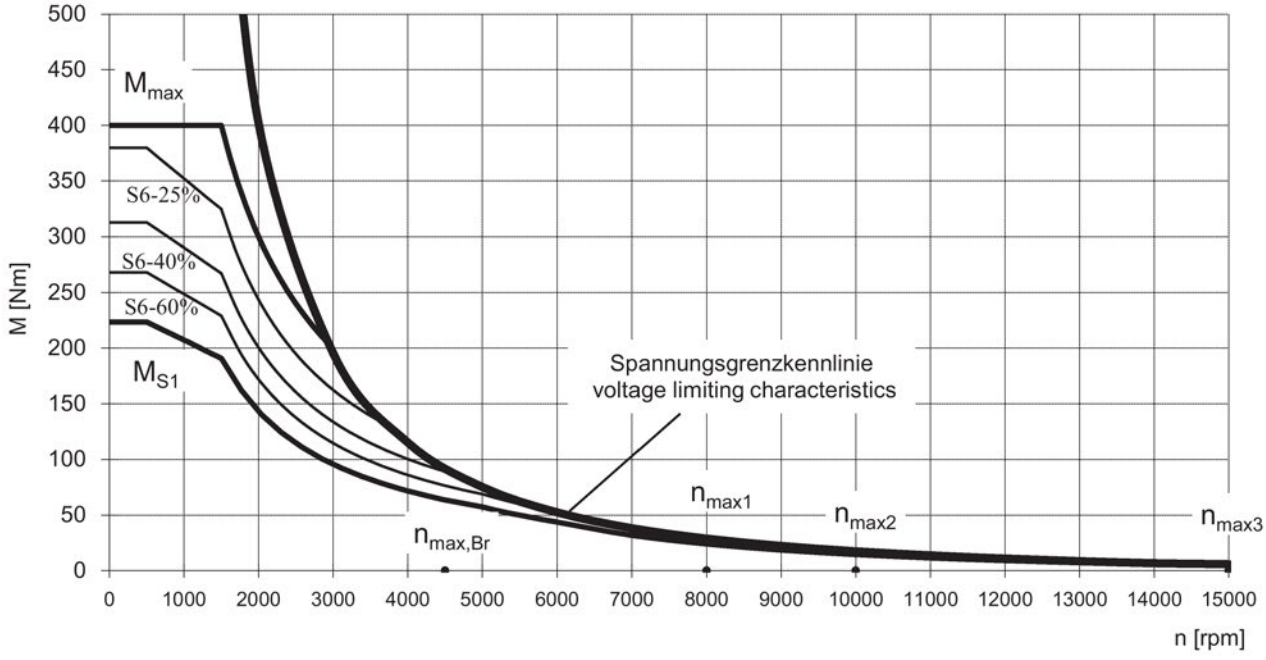


Table 6- 697 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□F2□

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]
1,750	33	180	77	8,000	10,000	15,000	4,500	5,000	400	168	223	88
1,500	30	191	80					7,000				

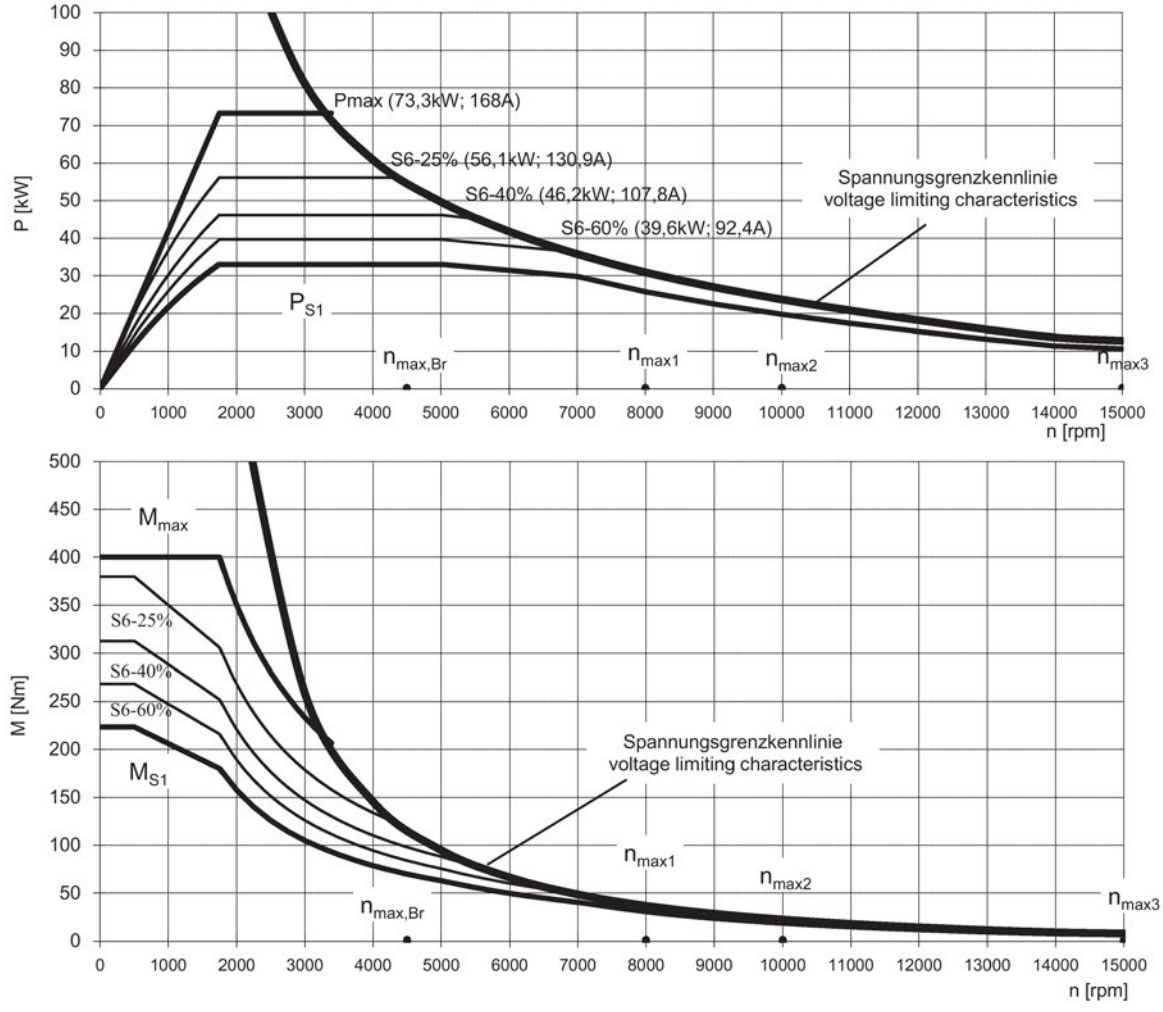
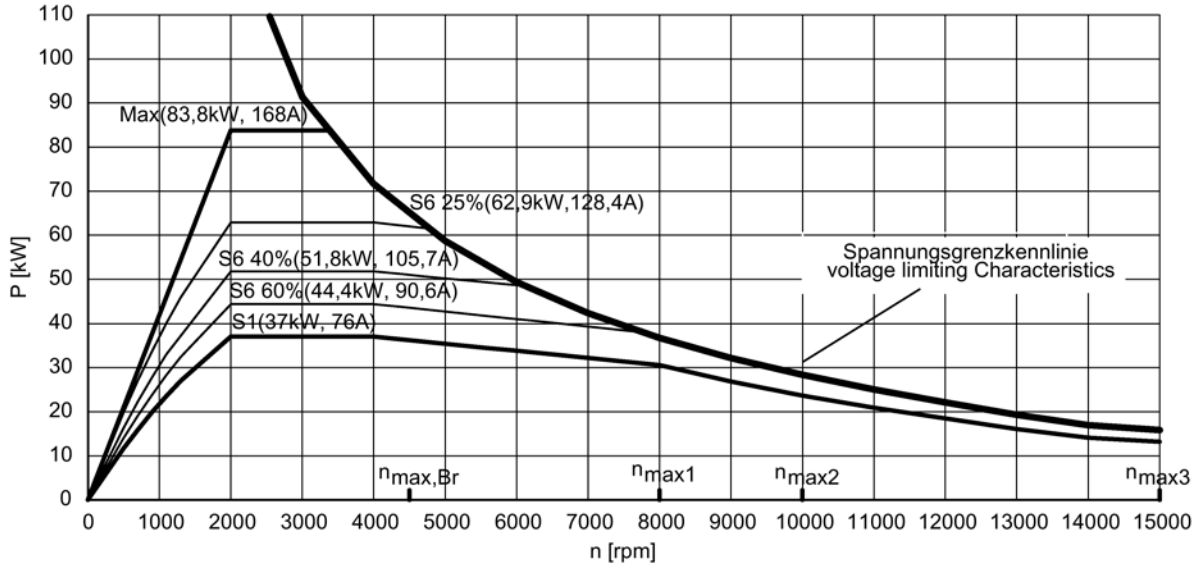


Table 6- 698 SINAMICS, 3-ph. 480 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□F2□

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]
2,000	37	177	76	8,000	10,000	15,000	4,500	4,000	400	168	223	88



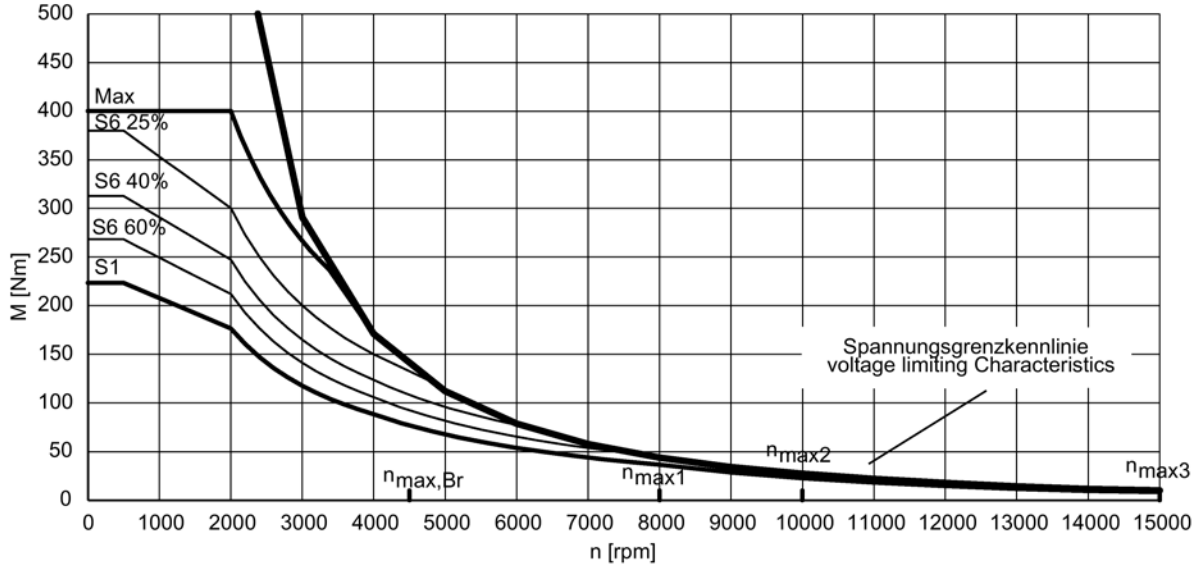
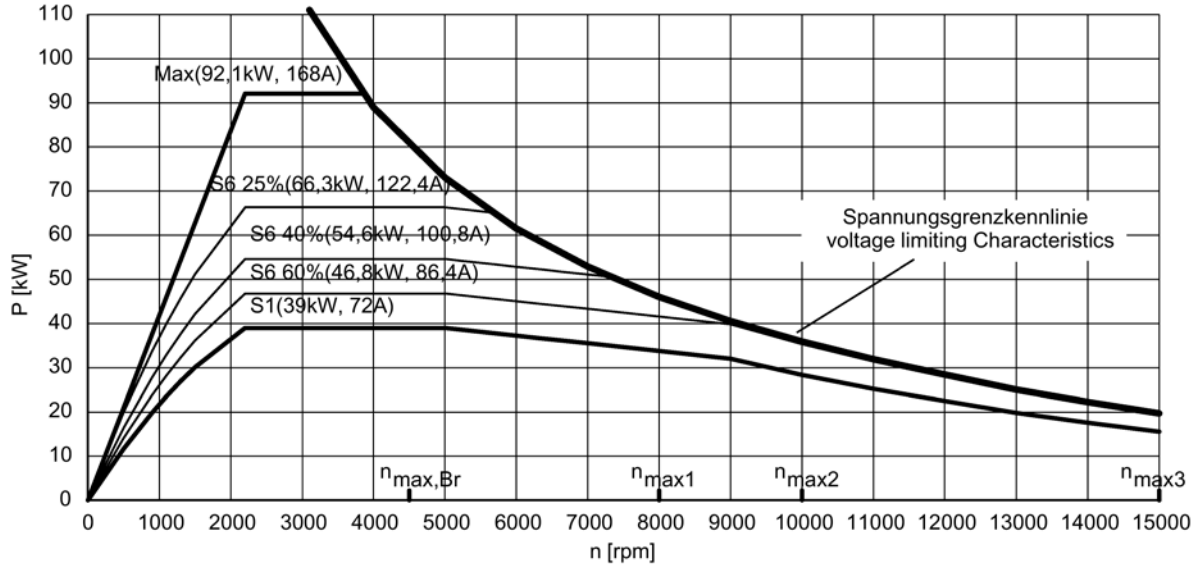
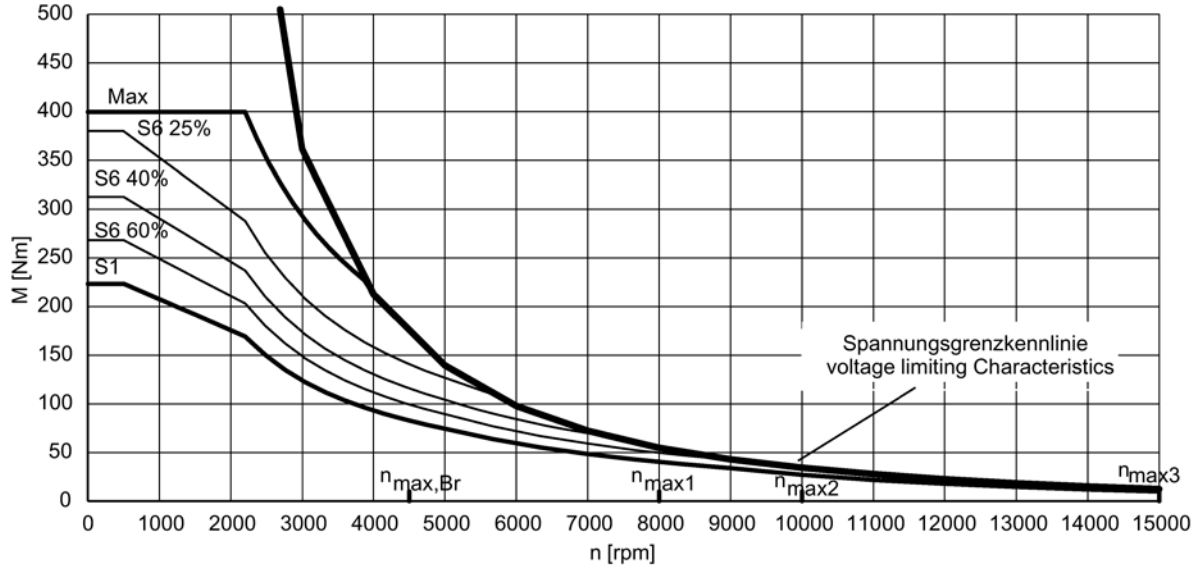


Table 6- 699 SINAMICS, 3-ph. 480 V AC, Active Line Module, (ALM), 1PH8138-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	39	169	72	8,000	10,000	15,000	4,500	5,000	400	168	223	88

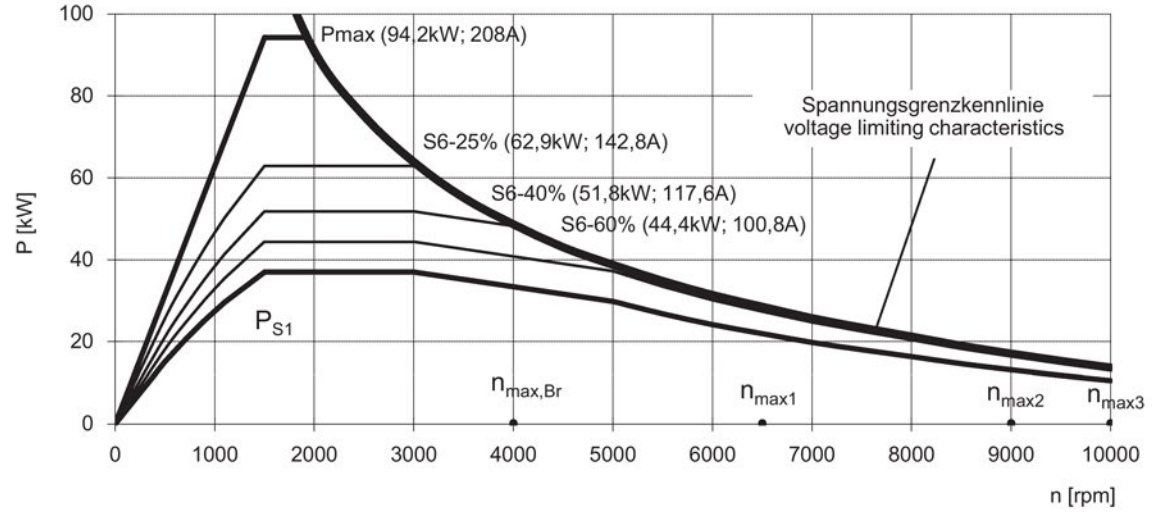




6.1.3.5 Shaft height 160 - water cooling

Table 6- 700 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]
1,500	37	236	84	6,500	9,000	10,000	4,000	3,000	600	208	288	96



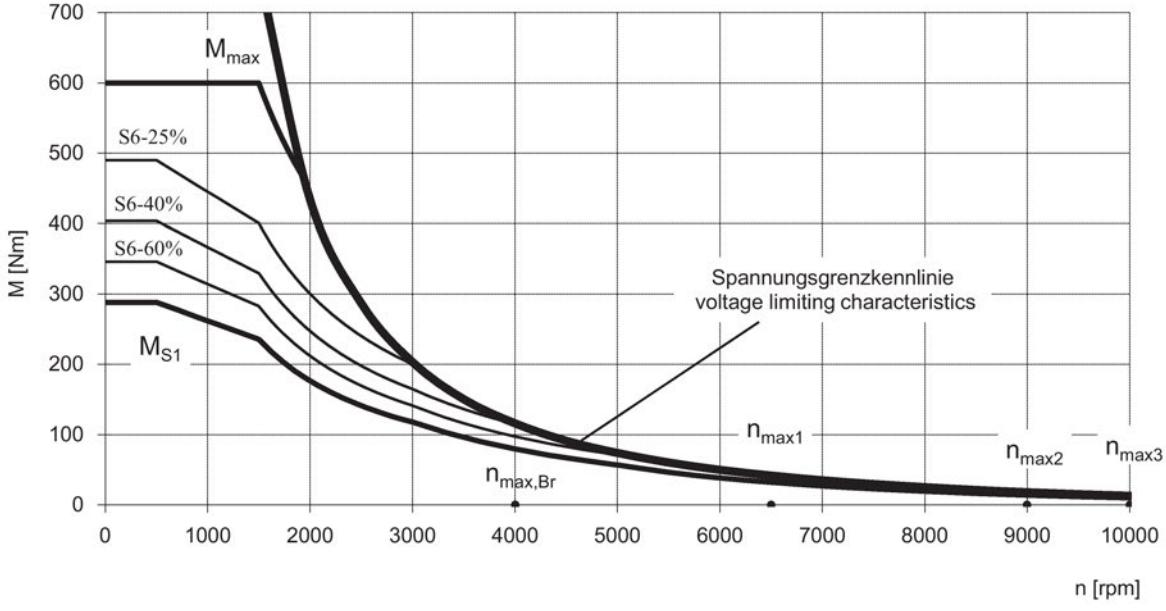
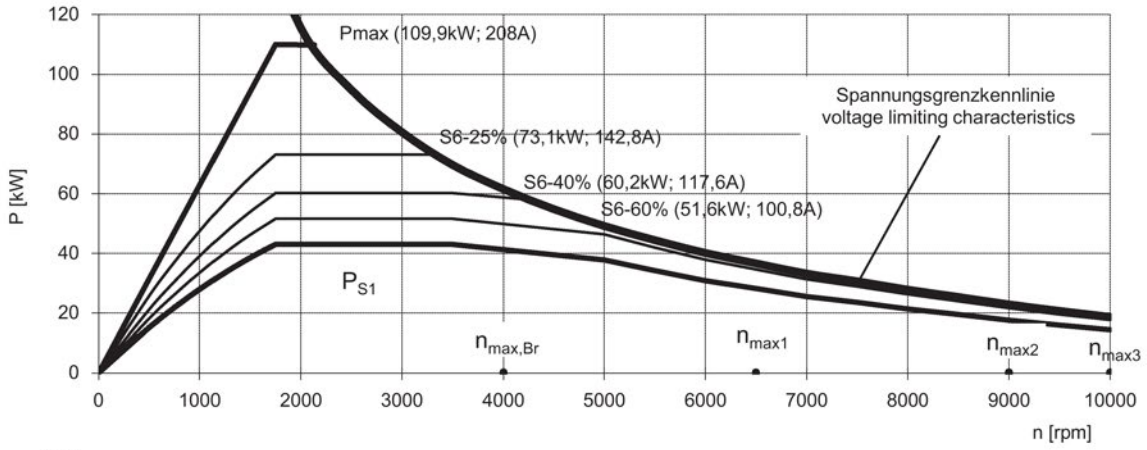


Table 6- 701 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□F2□

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]
1,750	43	235	84	6,500	9,000	10,000	4,000	3,500	600	208	288	96
1,500	37	236	84					5,000				



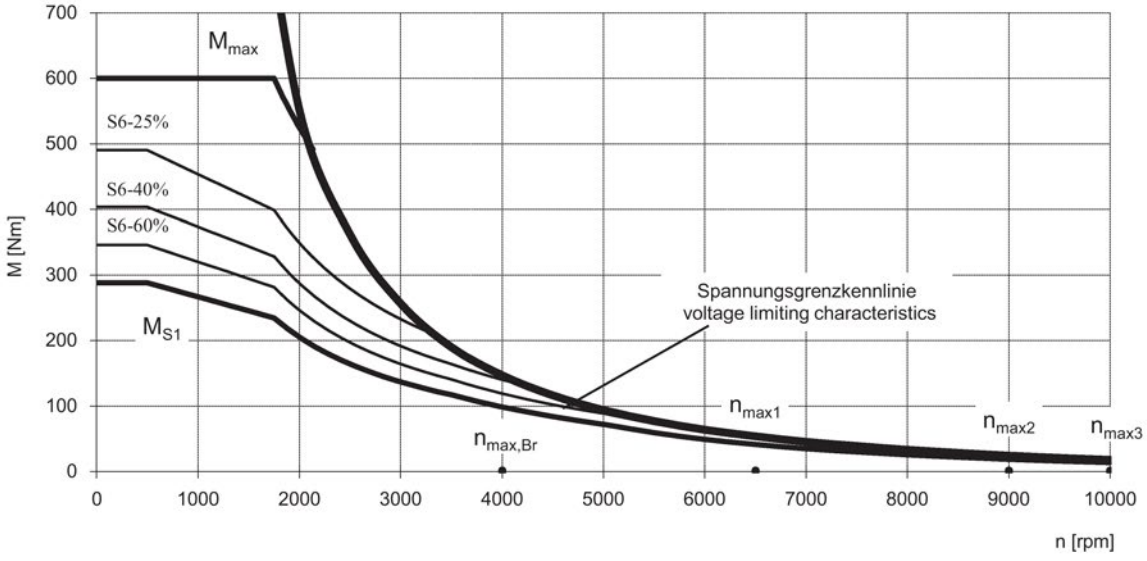
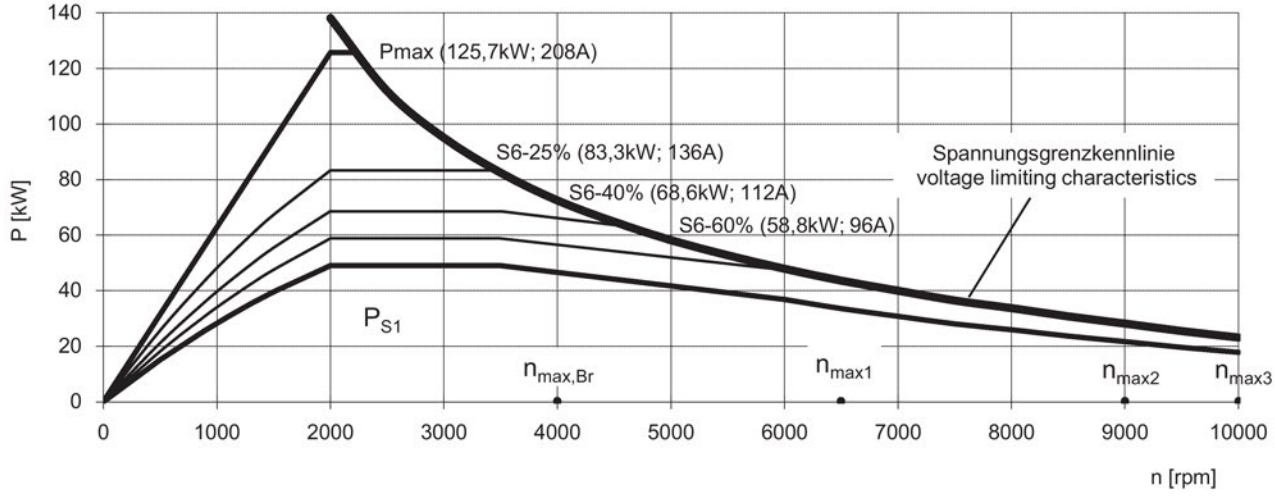


Table 6- 702 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□F2□

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]
2,000	49	234	80	6,500	9,000	10,000	4,000	3,500	600	208	288	96



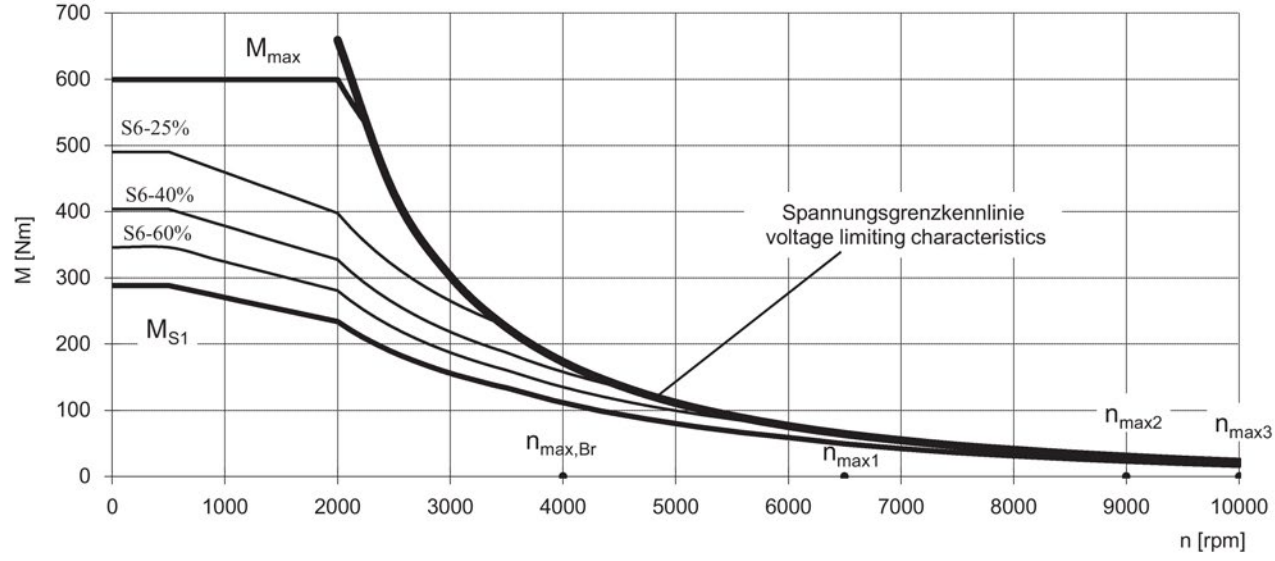
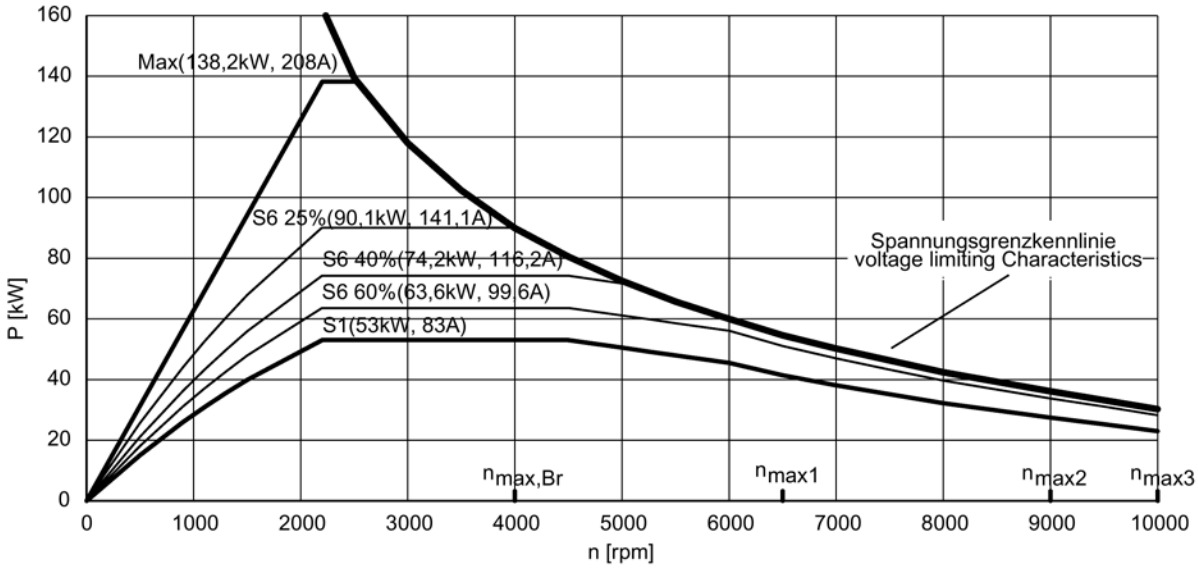


Table 6- 703 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	53	230	83	6,500	9,000	10,000	4,000	4,500	600	208	288	96



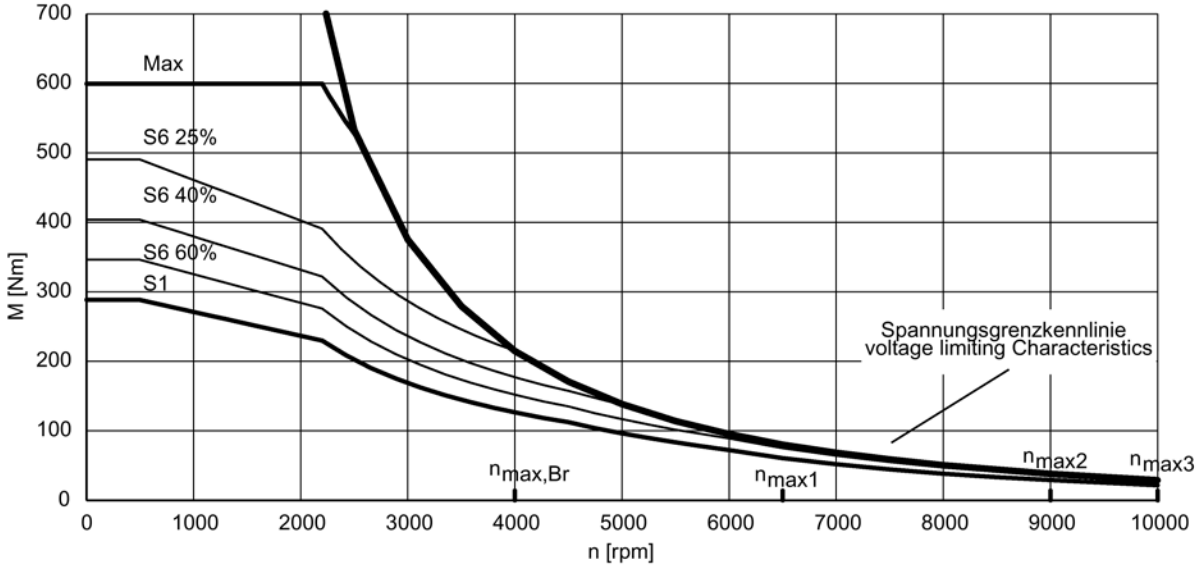
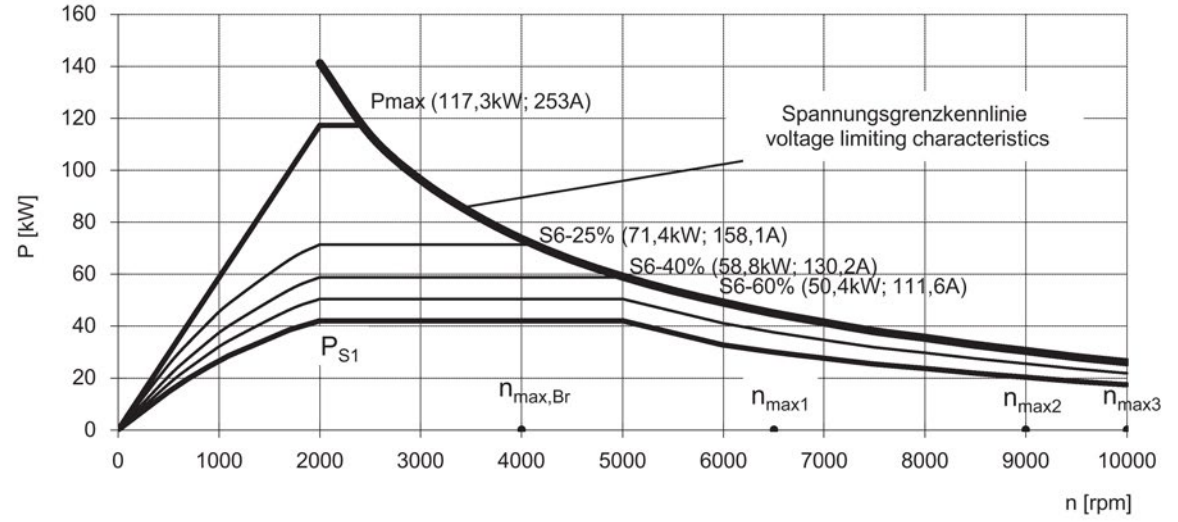


Table 6- 704 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G2□

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]
2,000	42	201	93	6,500	9,000	10,000	4,000	5,000	560	253	281	120



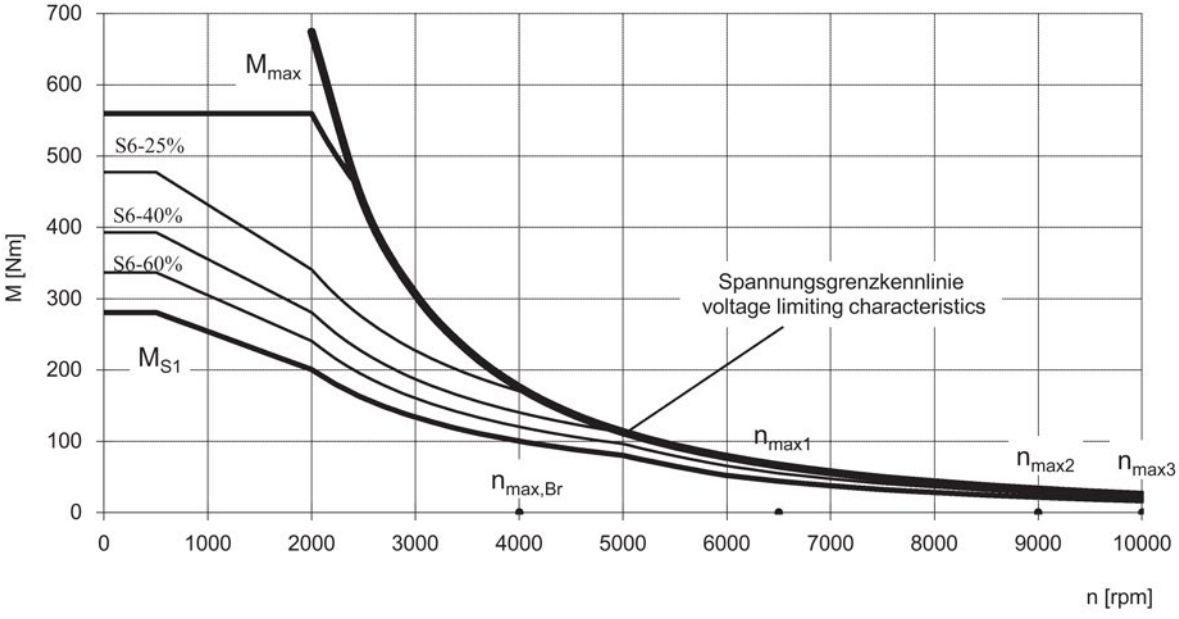


Table 6- 705 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8163-□□G2□

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]
2,300	48	199	93	6,500	9,000	10,000	4,000	4,000	560	253	281	120
2,000	42	201	93					5,800				
1,500	37	236	98					6,600				

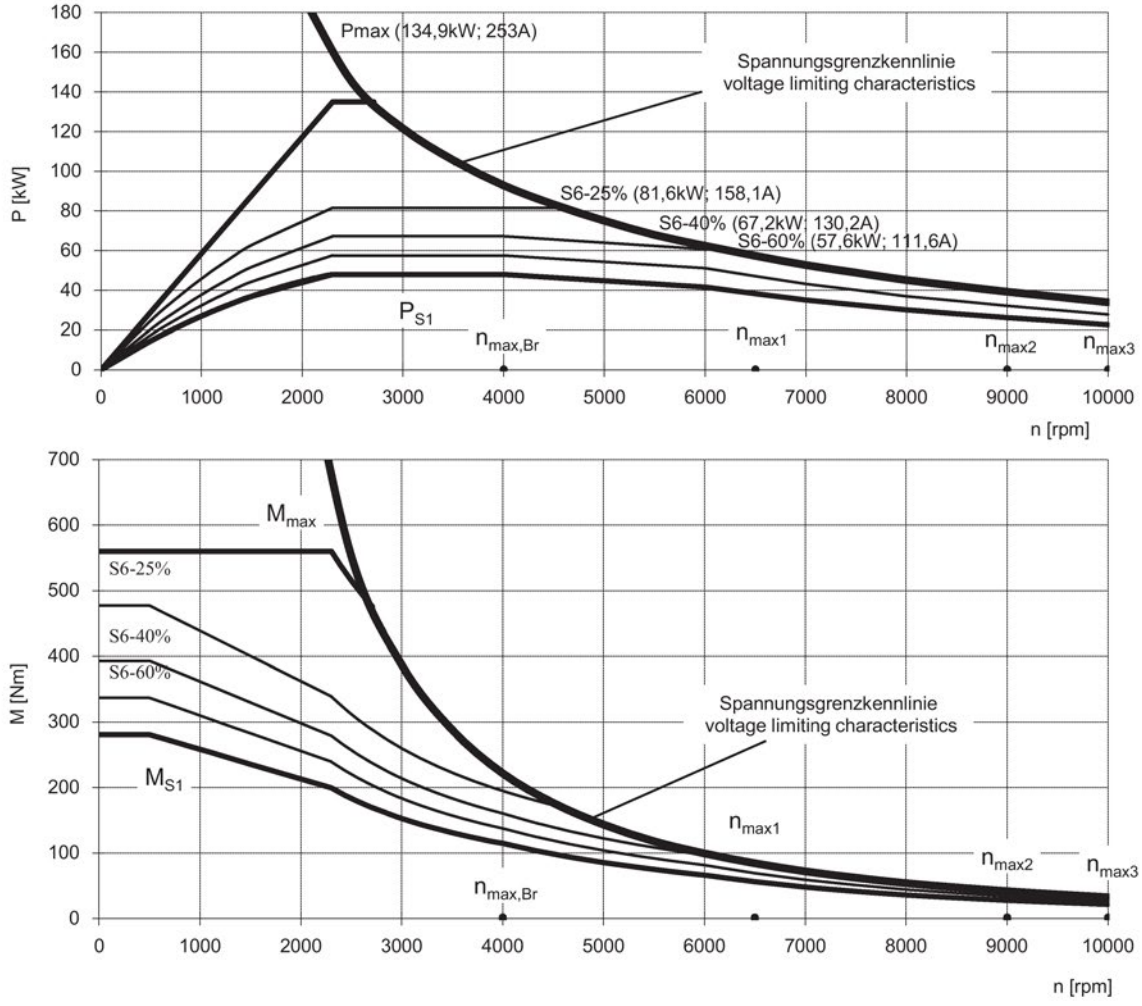


Table 6- 706 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8163-□□G2□

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]
2,650	55	198	90	6,500	9,000	10,000	4,000	5,000	560	253	281	120

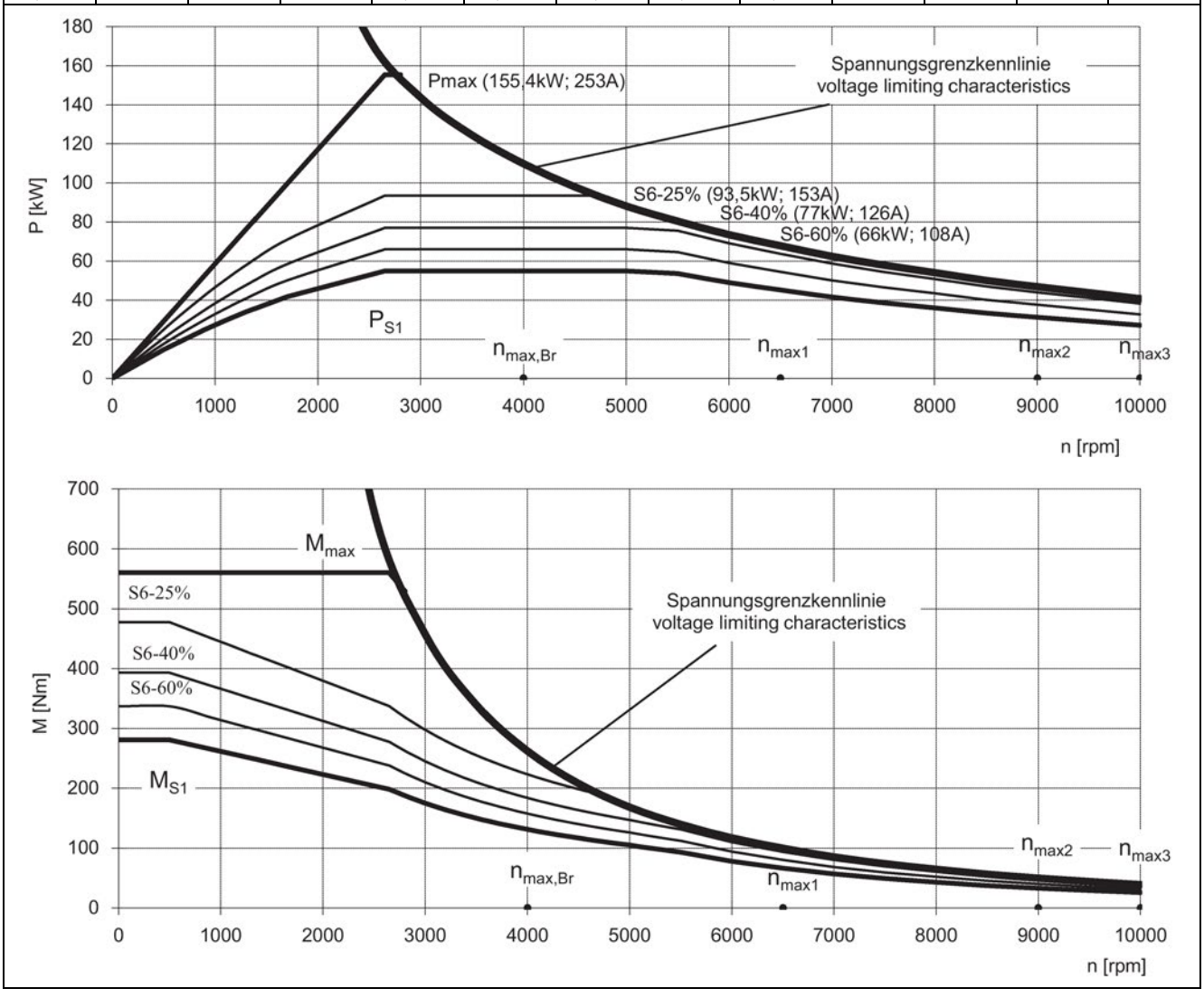
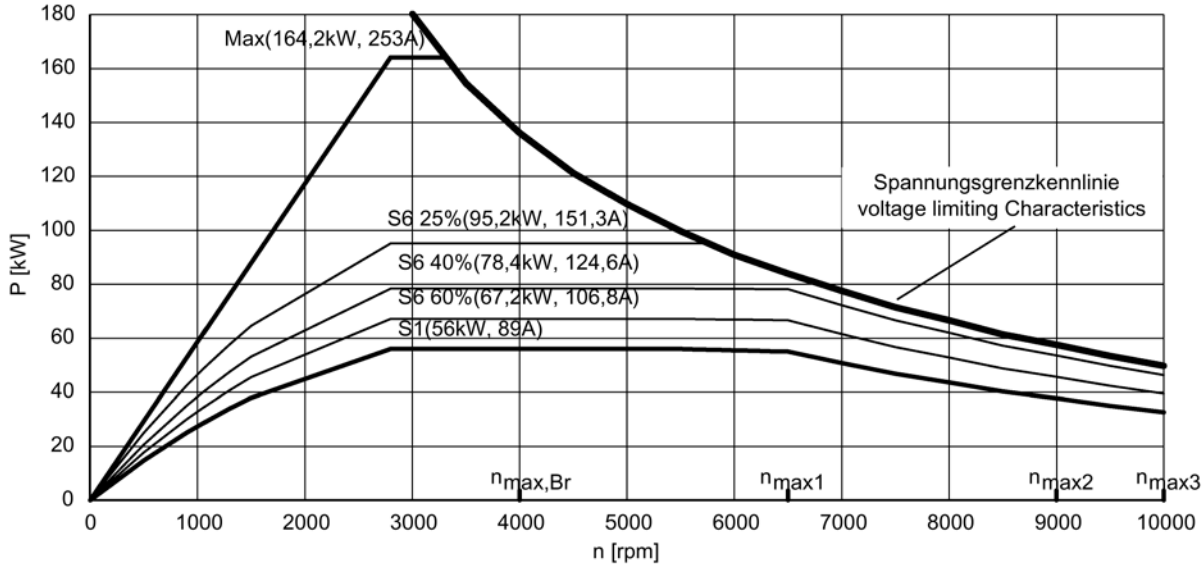


Table 6- 707 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8163-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	56	191	89	6,500	9,000	10,000	4,000	5,500	560	253	281	120



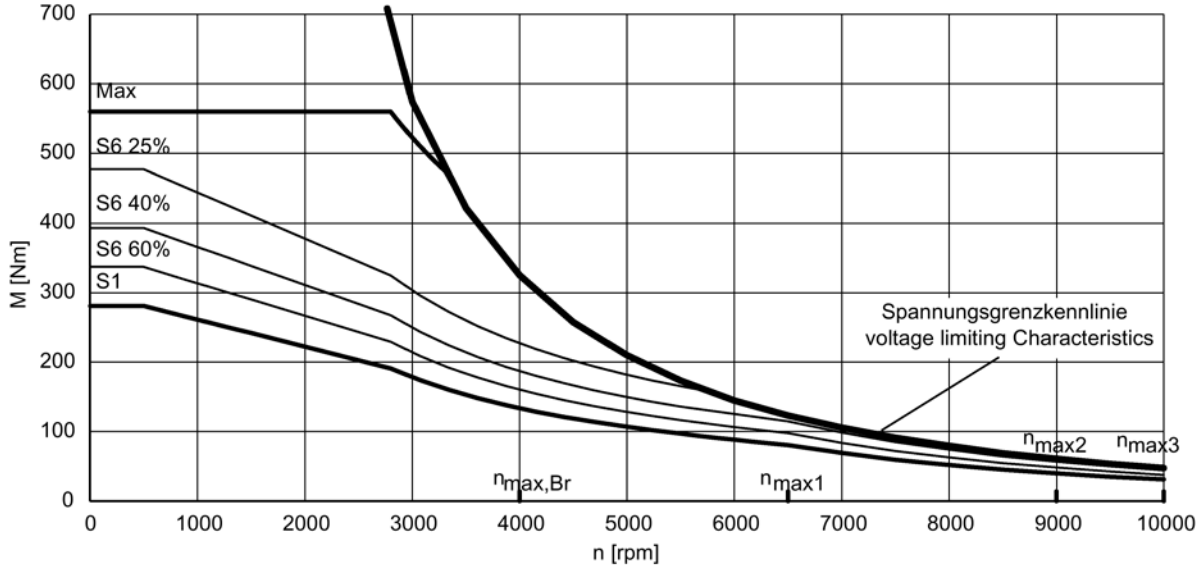
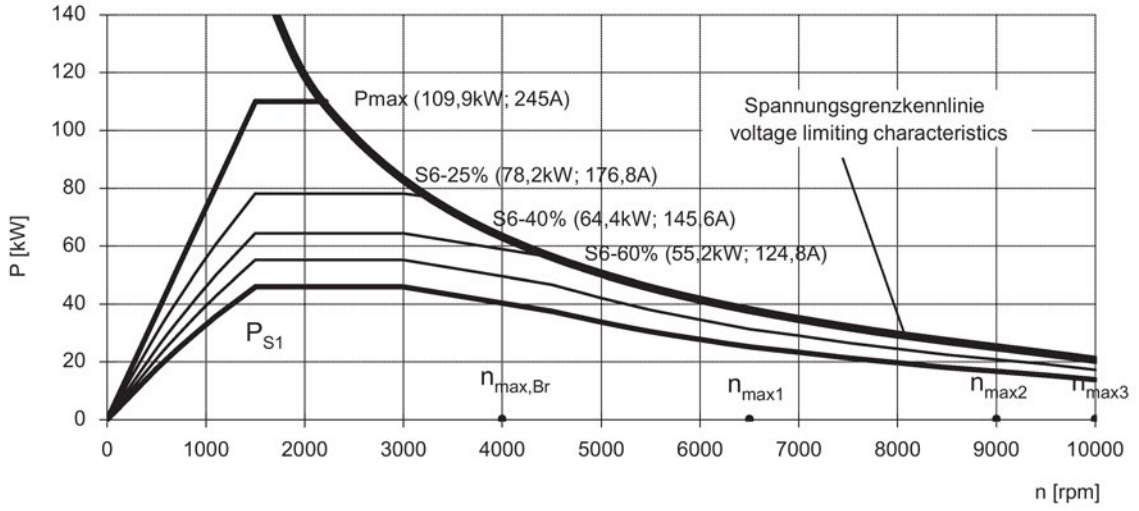


Table 6- 708 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F2□

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]
1,500	46.0	293	104.0	6,500	9,000	10,000	4,000	3,050	700	245	334	112



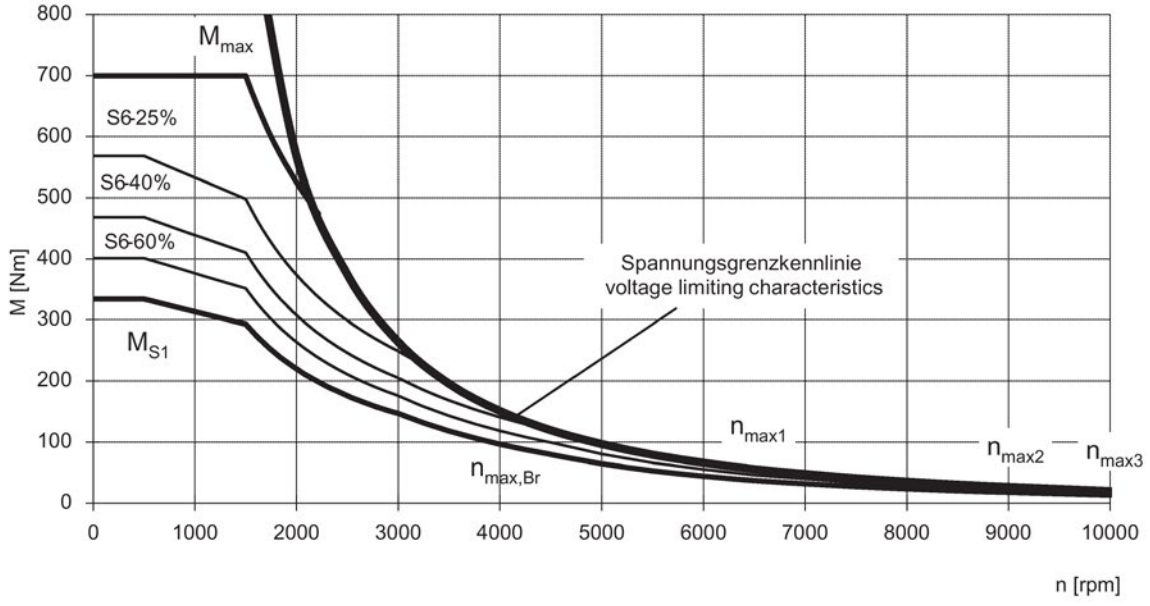
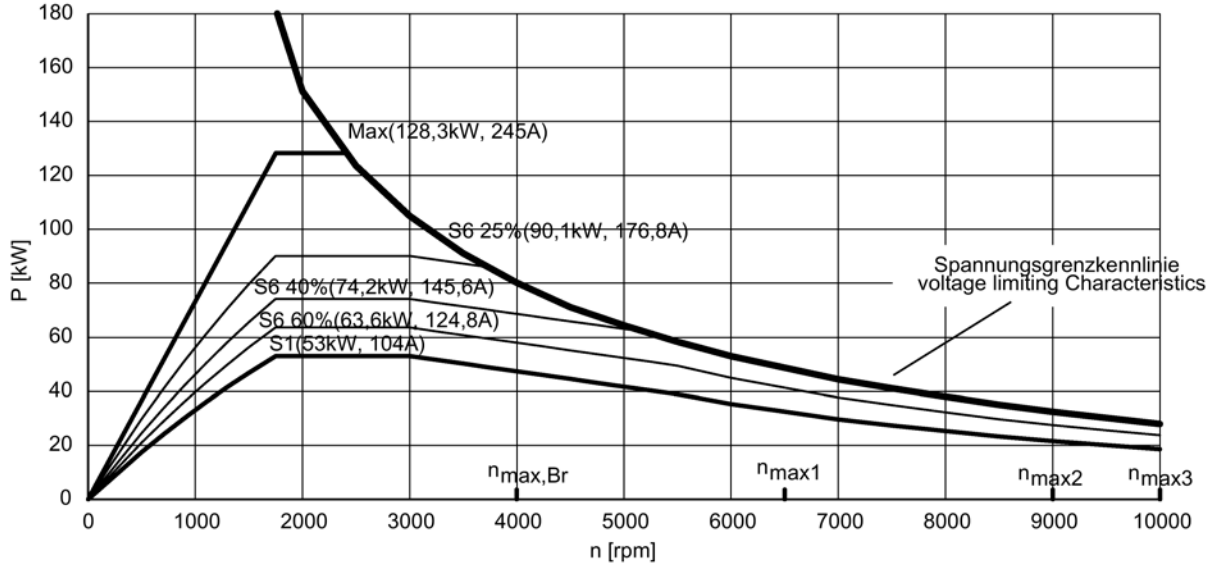


Table 6- 709 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F2□

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]
1,750	53.0	289	104.0	6,500	9,000	10,000	4,000	3,050	700	245	334	112
1,500	46.0	293	104.0					4,150				



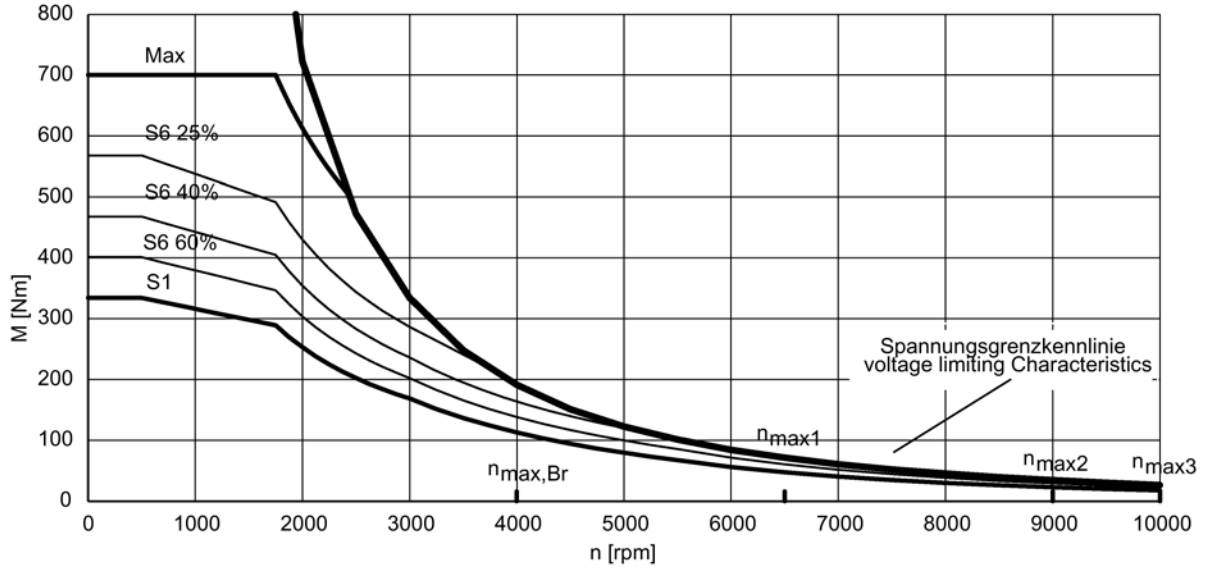
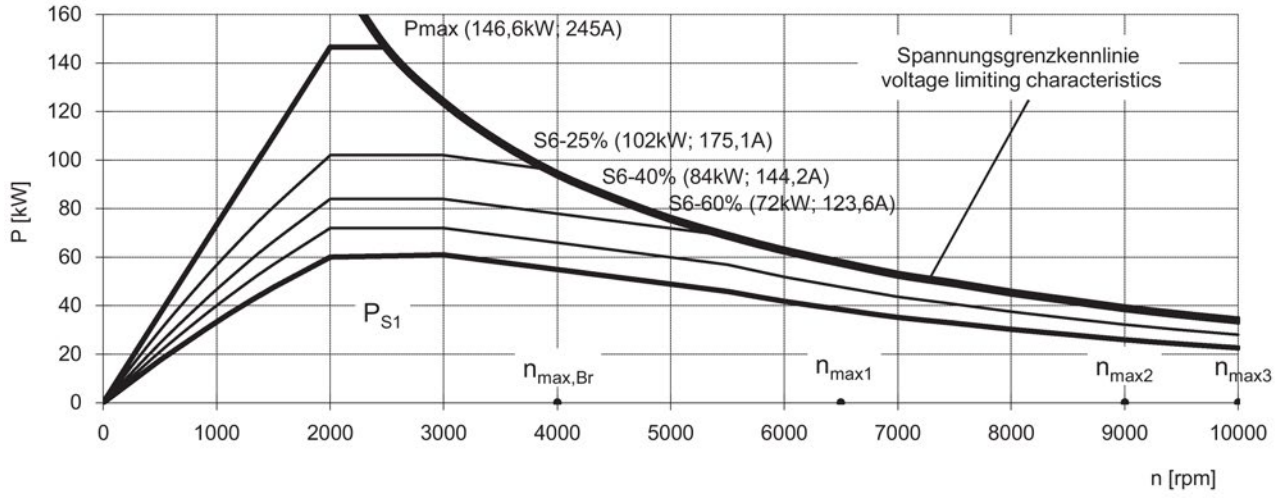


Table 6- 710 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□F2□

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]
2,000	60.0	287	103.0	6,500	9,000	10,000	4,000	3,050	700	245	334	112



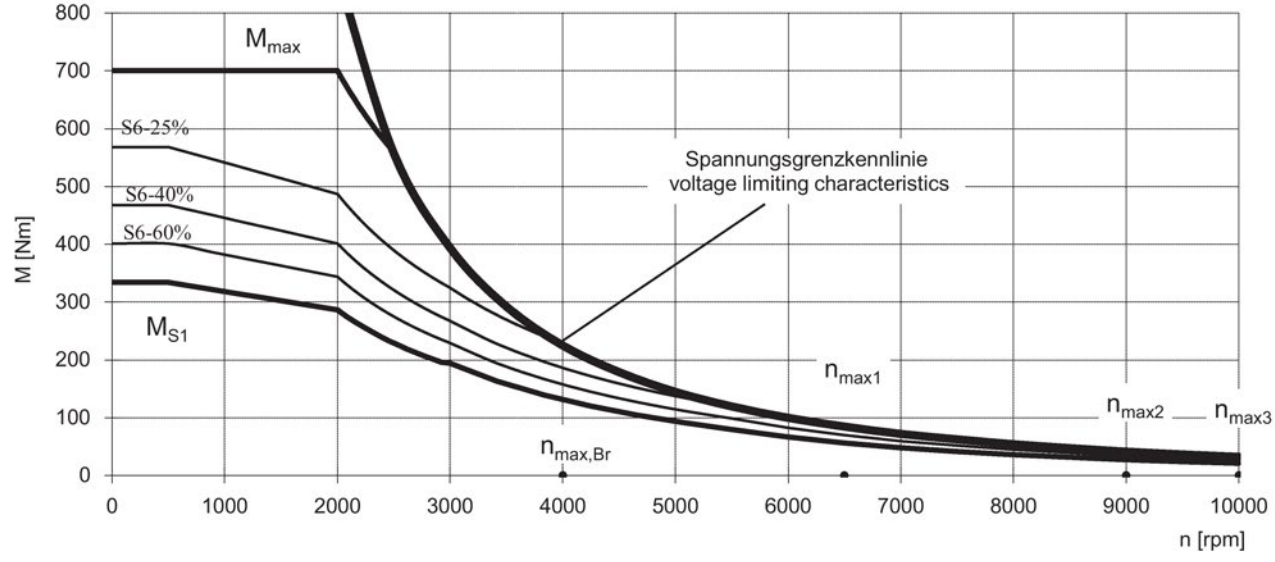
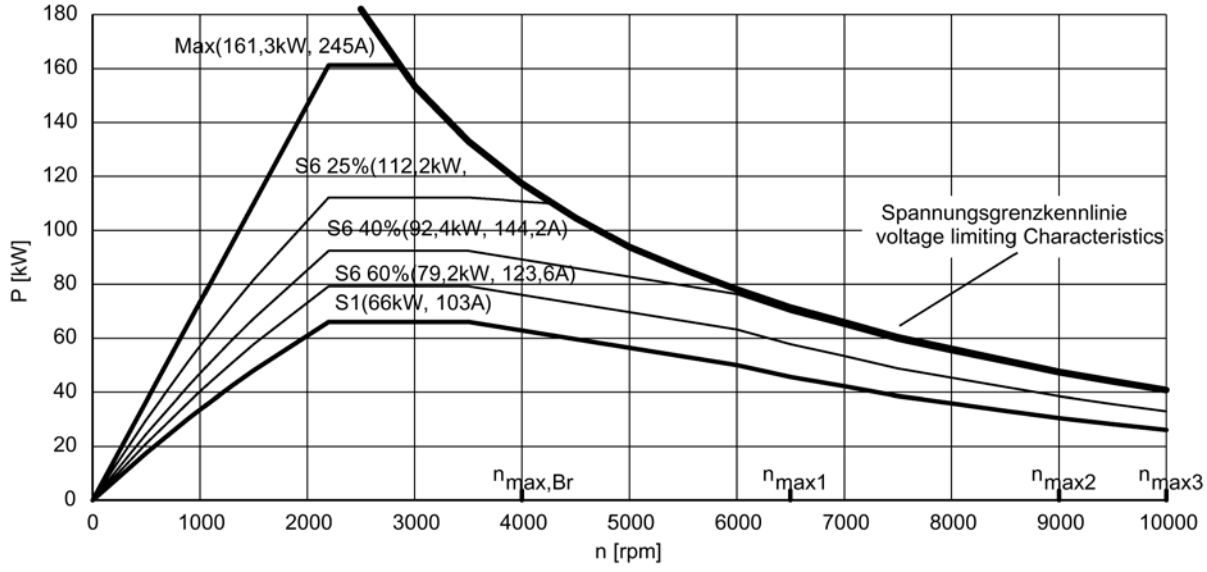


Table 6- 711 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	66.0	287	103.0	6,500	9,000	10,000	4,000	3,500	700	245	334	112



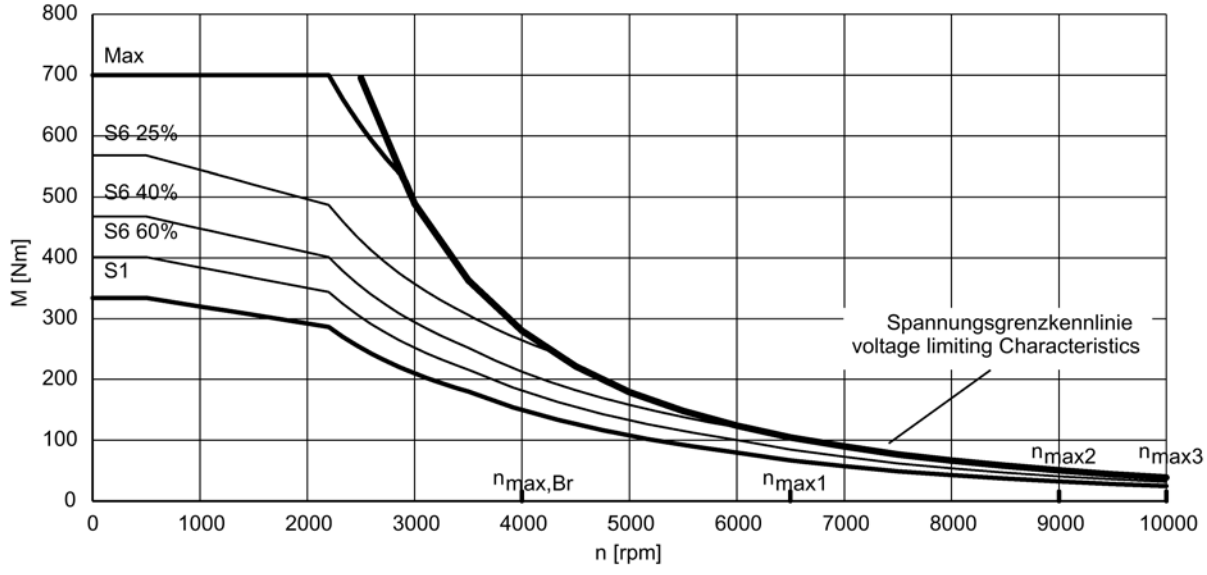
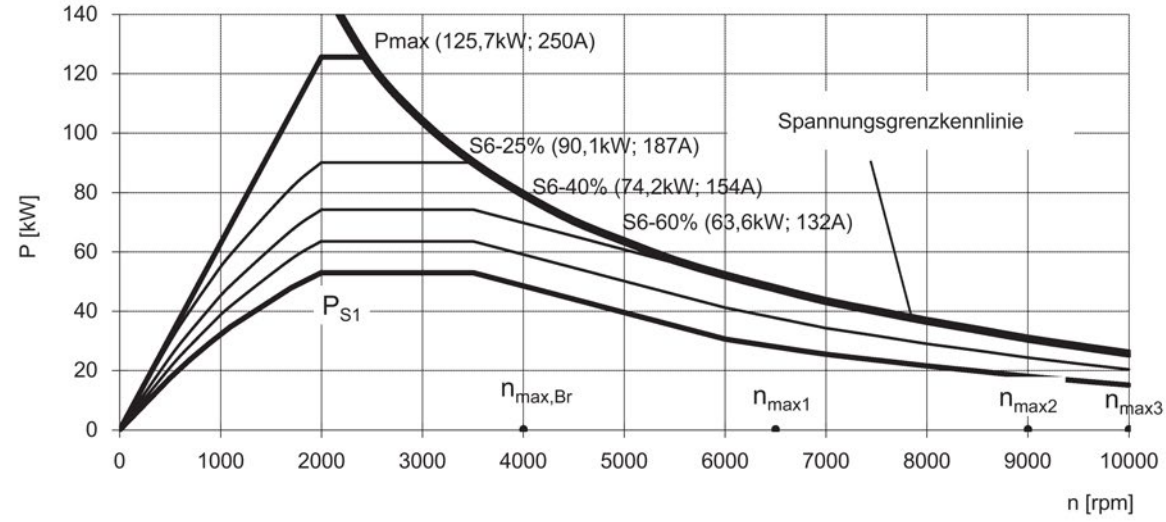


Table 6- 712 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G2□

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]
2,000	53.0	253	110.0	6,500	9,000	10,000	4,000	3,500	600	250	334	140



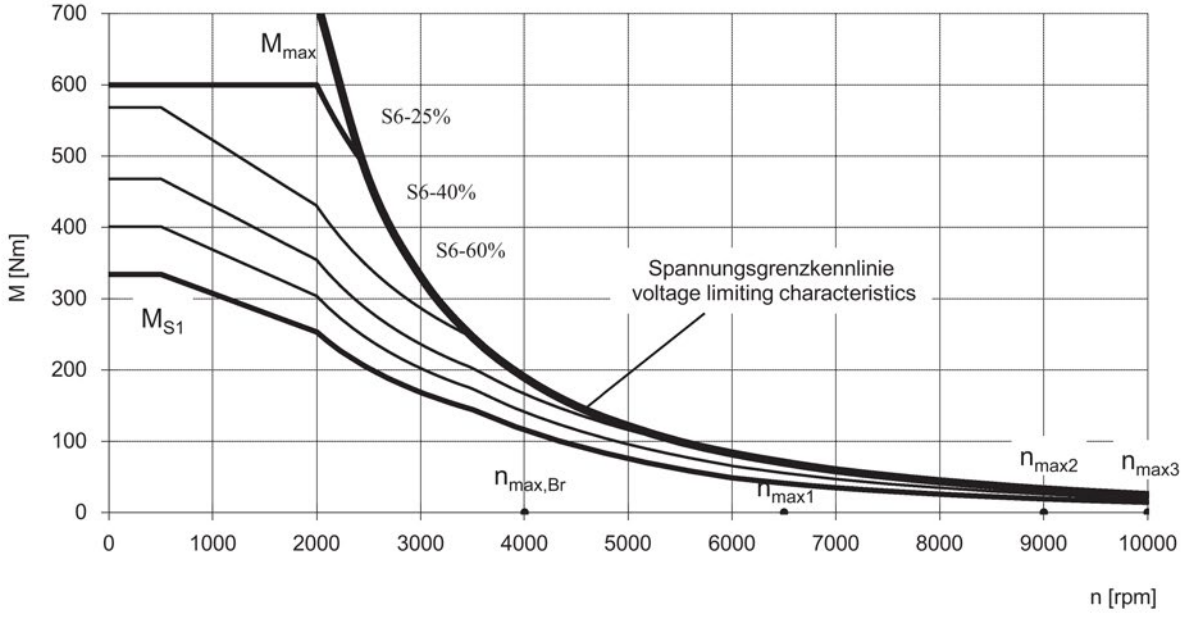
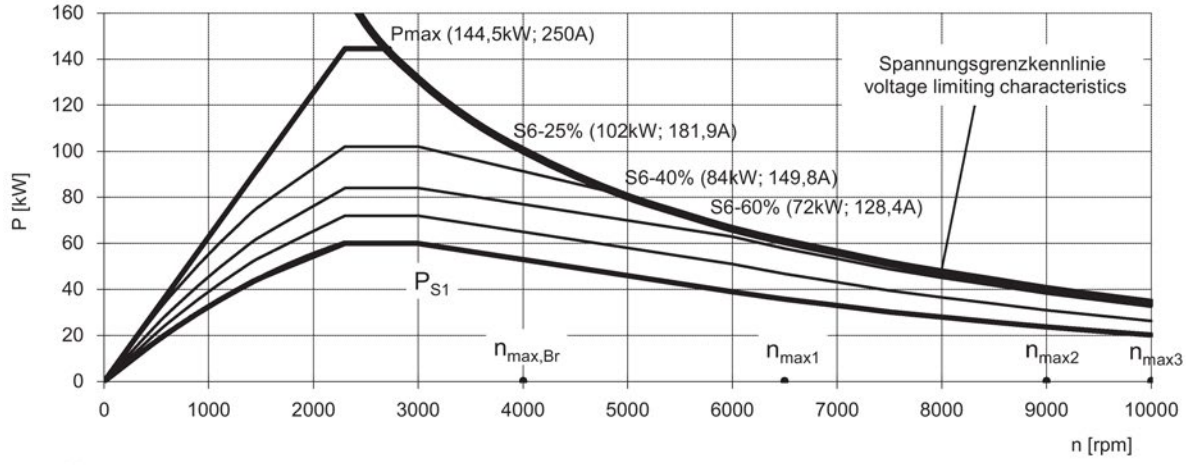


Table 6- 713 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□G2□

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]
2,300	60.0	249	107.0	6,500	9,000	10,000	4,000	3,000	600	250	334	140
2,000	53.0	253	110.0					4,000				
1,500	45.1	287	112.0					5,150				



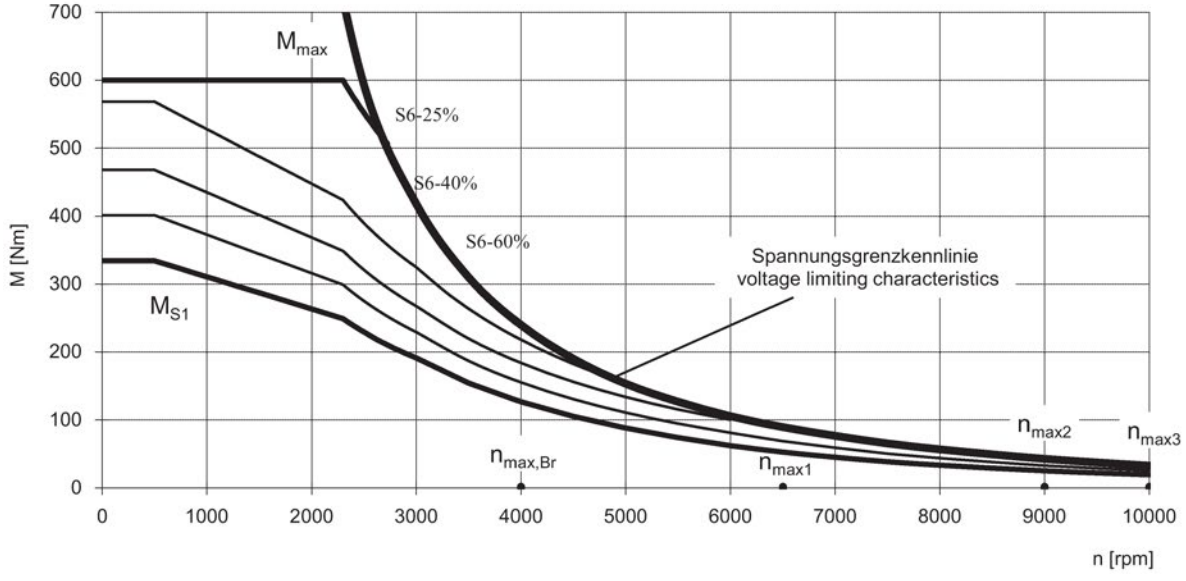


Table 6- 714 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□G2□

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]
2,650	65.0	234	100.0	6,500	9,000	10,000	4,000	3,000	600	250	334	140

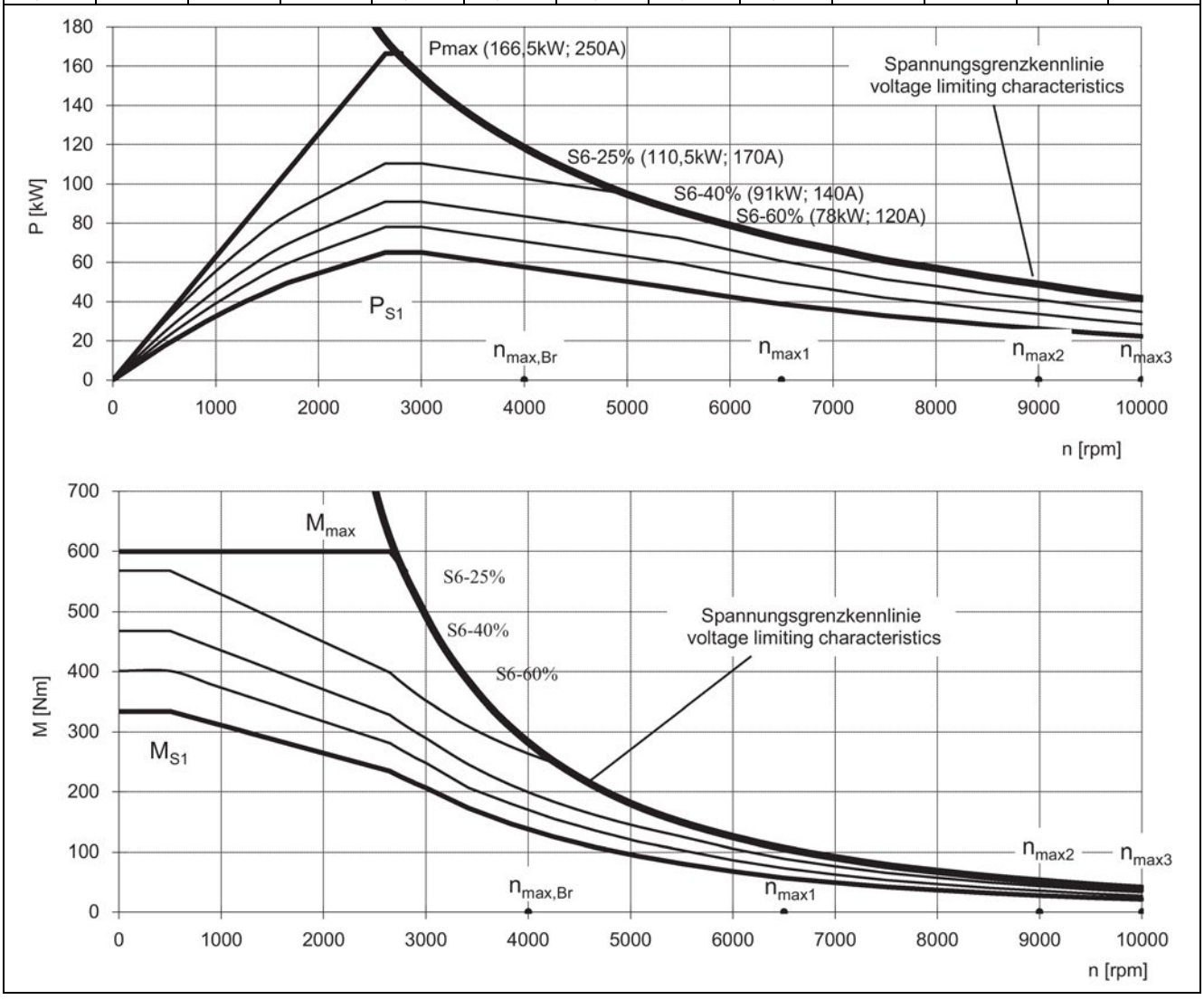
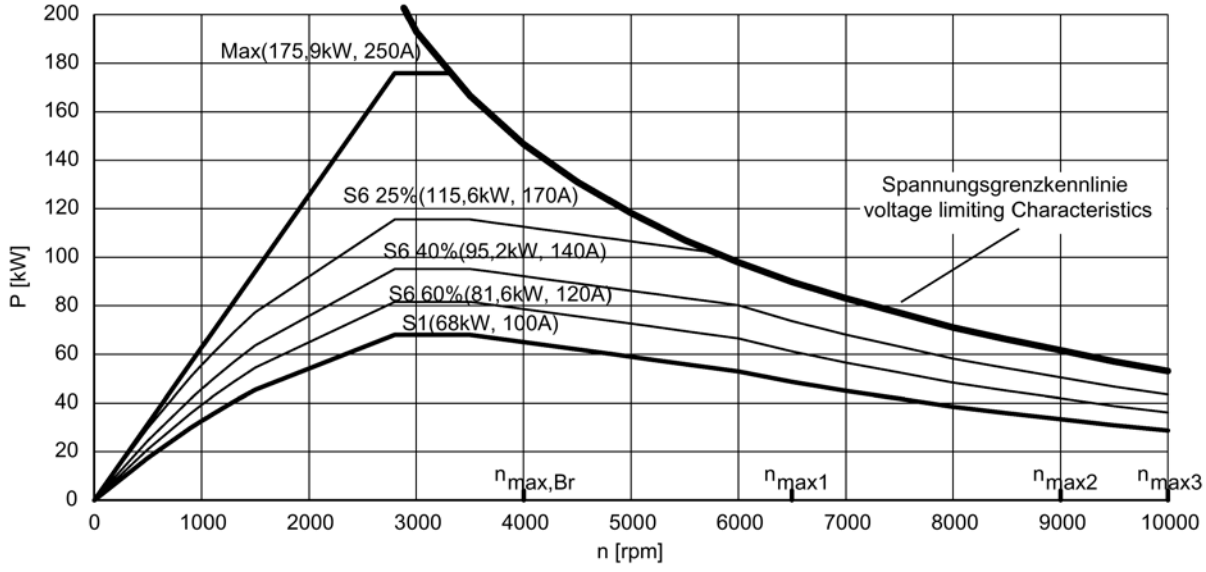


Table 6- 715 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8165-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	68.0	232	100.0	6,500	9,000	10,000	4,000	3,500	600	250	334	140



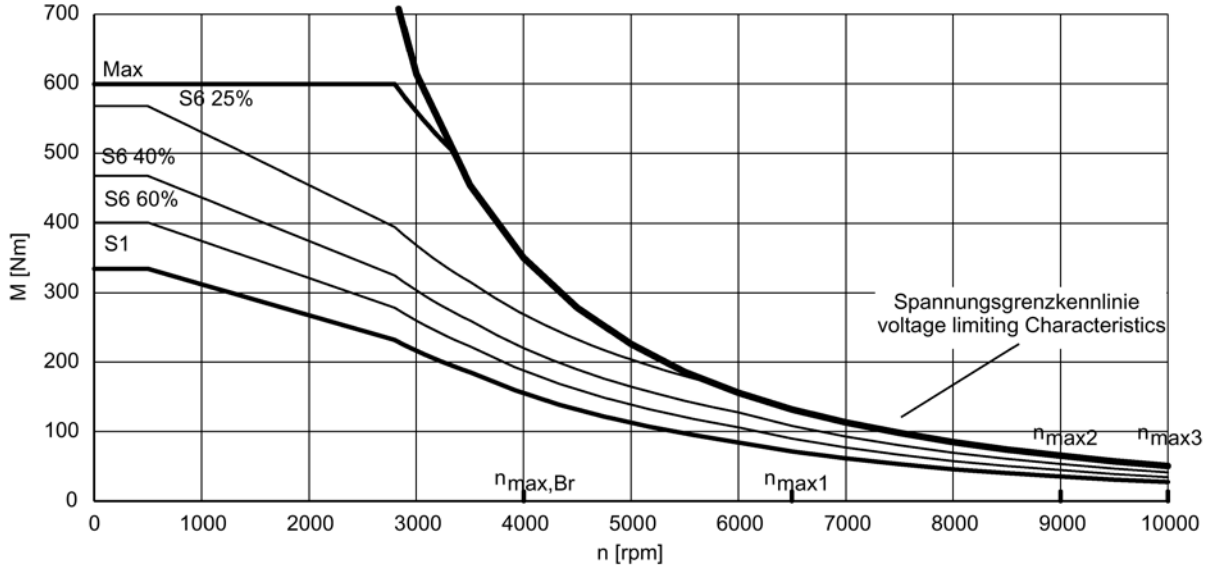
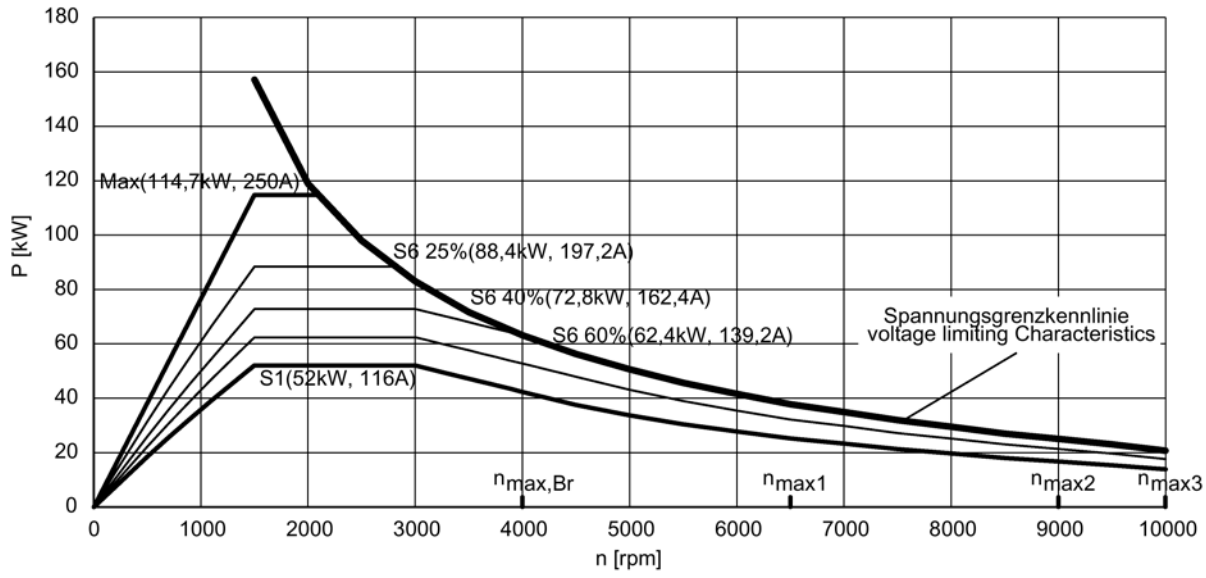


Table 6- 716 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□F2□

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]
1,500	52	331	116	6,500	9,000	10,000	4,000	3,000	730	250	353	127



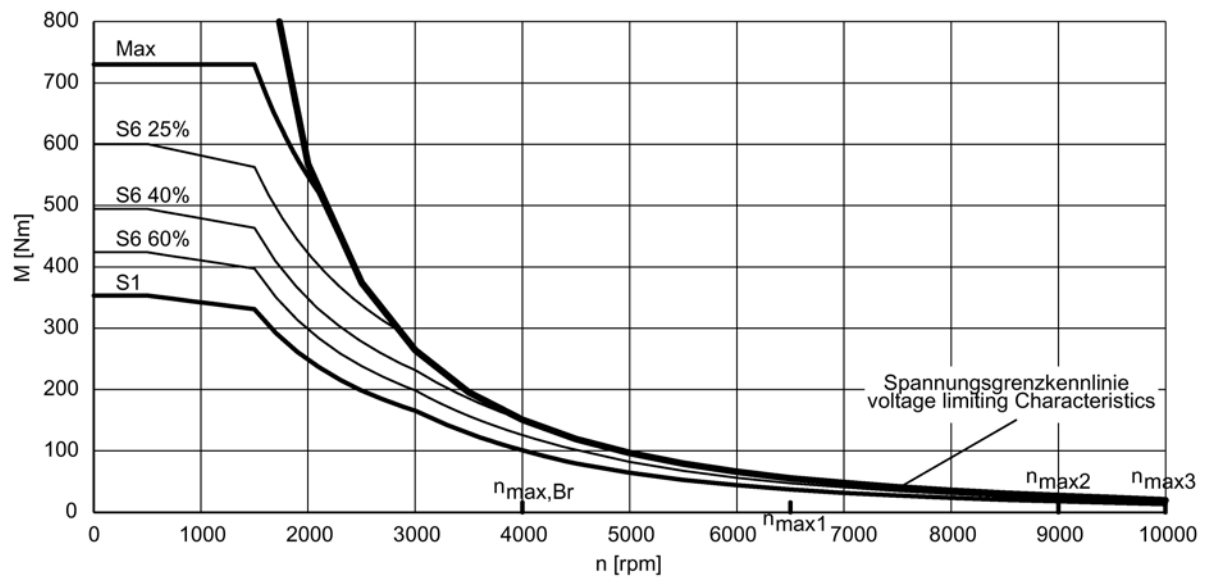
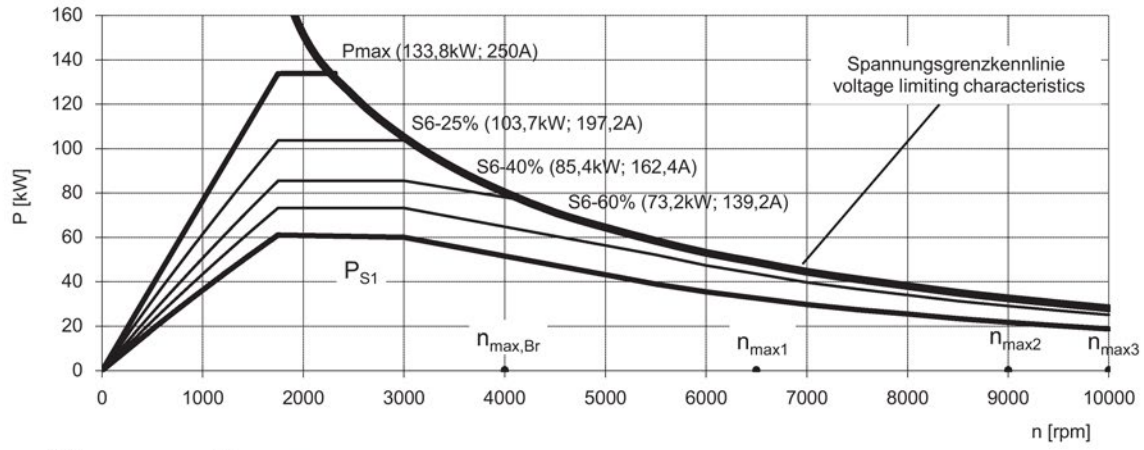


Table 6- 717 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-□□F2□

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]
1,750	61	333	116	6,500	9,000	10,000	4,000	3,000	730	250	353	127
1,500	52	331	116					4,050				



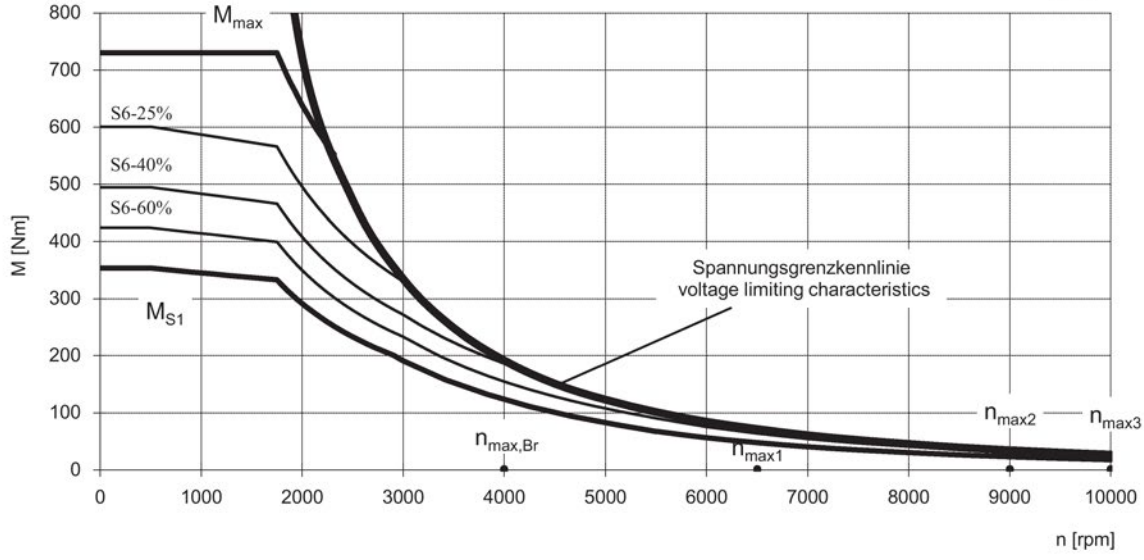
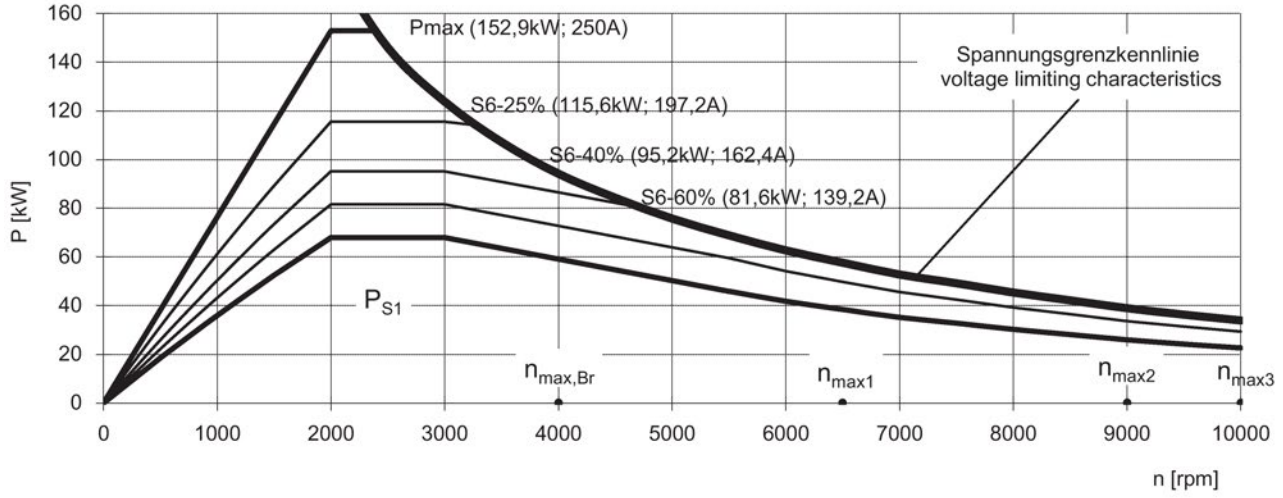


Table 6- 718 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□F2□

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]
2,000	68	325	116	6,500	9,000	10,000	4,000	3,000	730	250	353	127



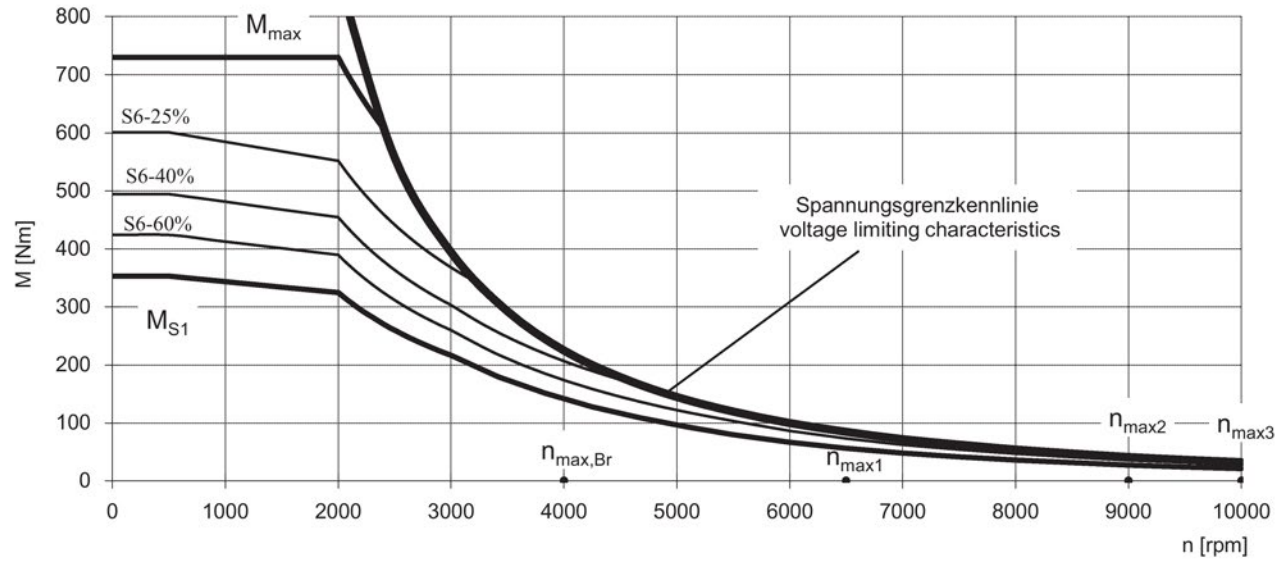
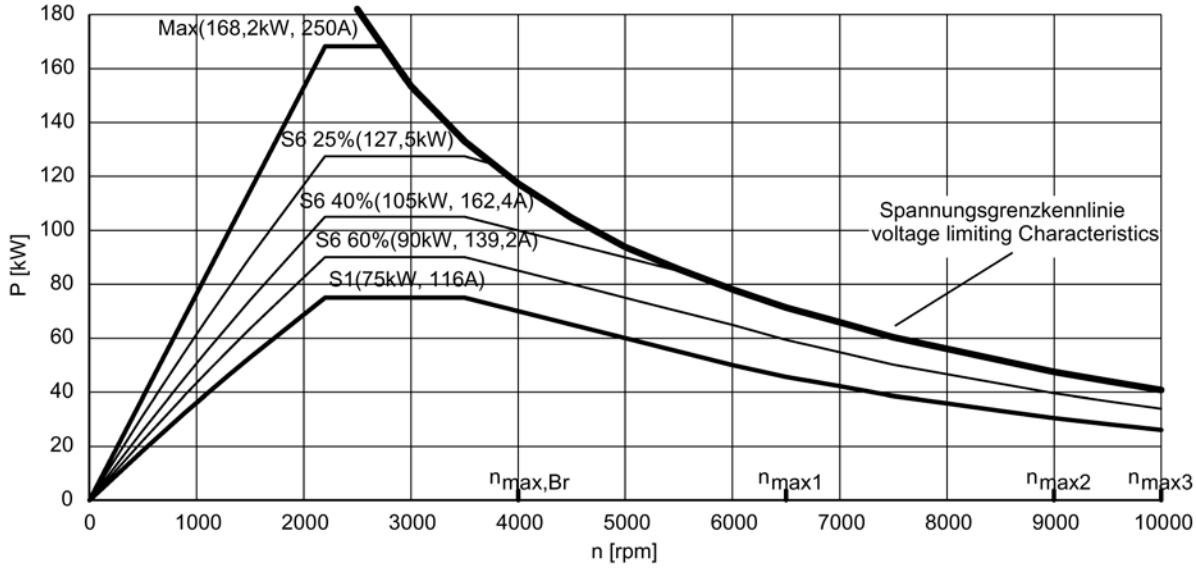


Table 6- 719 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8166-□□F2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,200	75	326	116	6,500	9,000	10,000	4,000	3,500	730	250	353	127



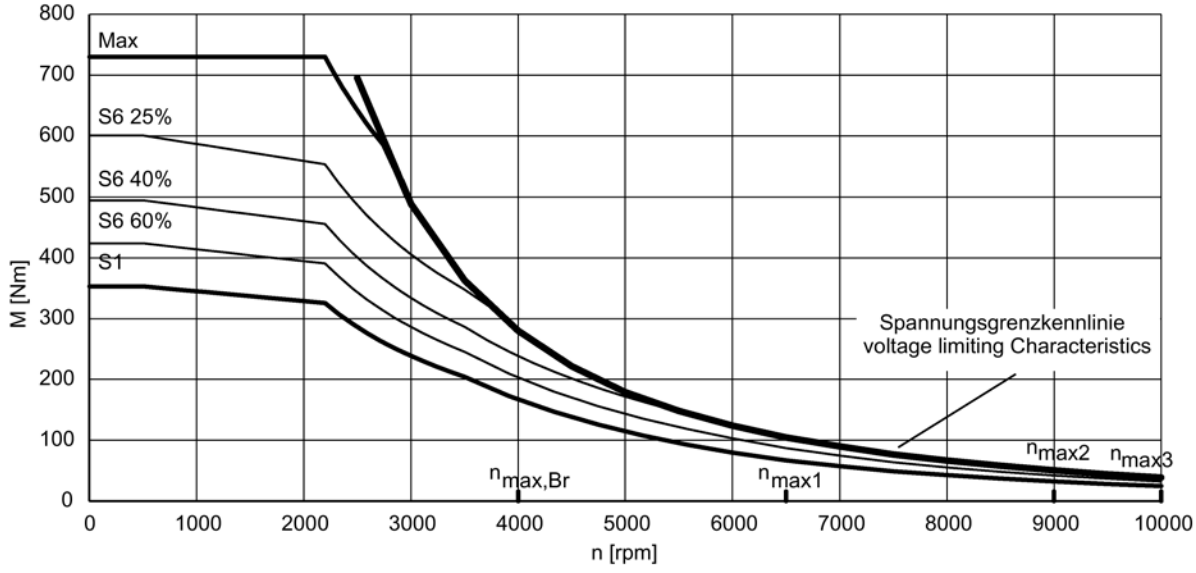
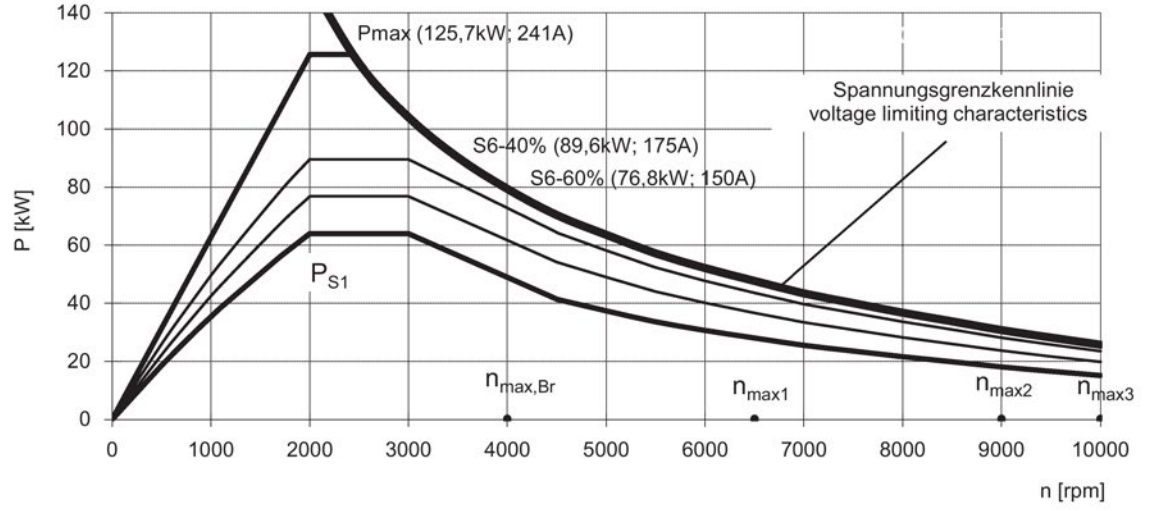


Table 6- 720 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□G2□

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]
2,000	64	306	125	6,500	9,000	10,000	4,000	3,000	600	241	353	147



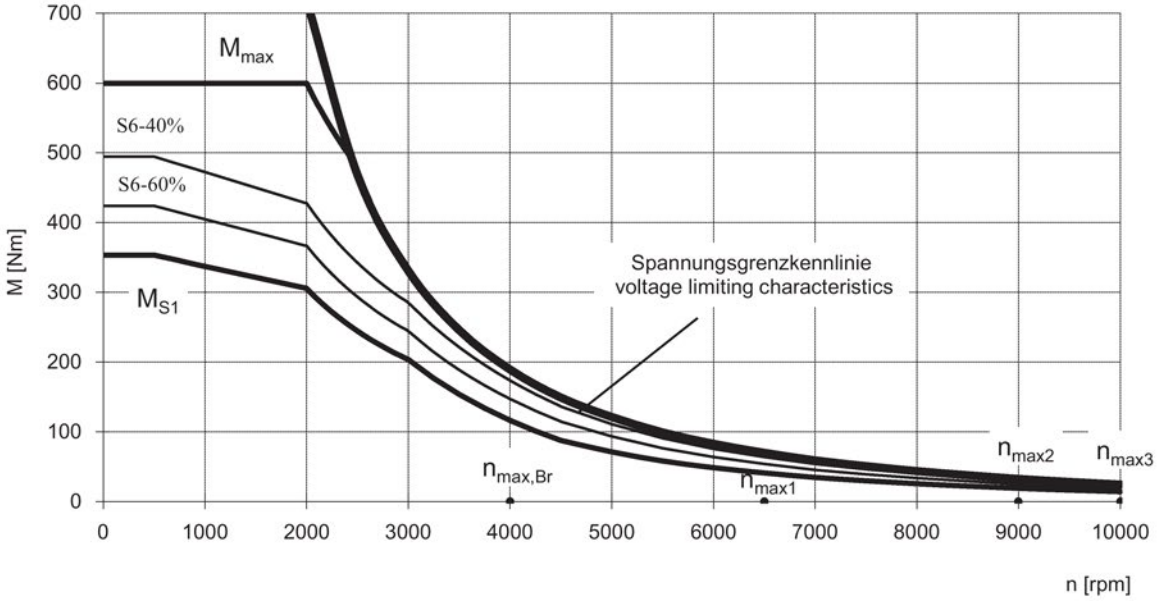


Table 6- 721 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-□□G2□

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]
2,300	72	299	124	6,500	9,000	10,000	4,000	3,000	600	241	353	147
2,000	64	306	125					4,000				
1,500	52	323	126					5,200				

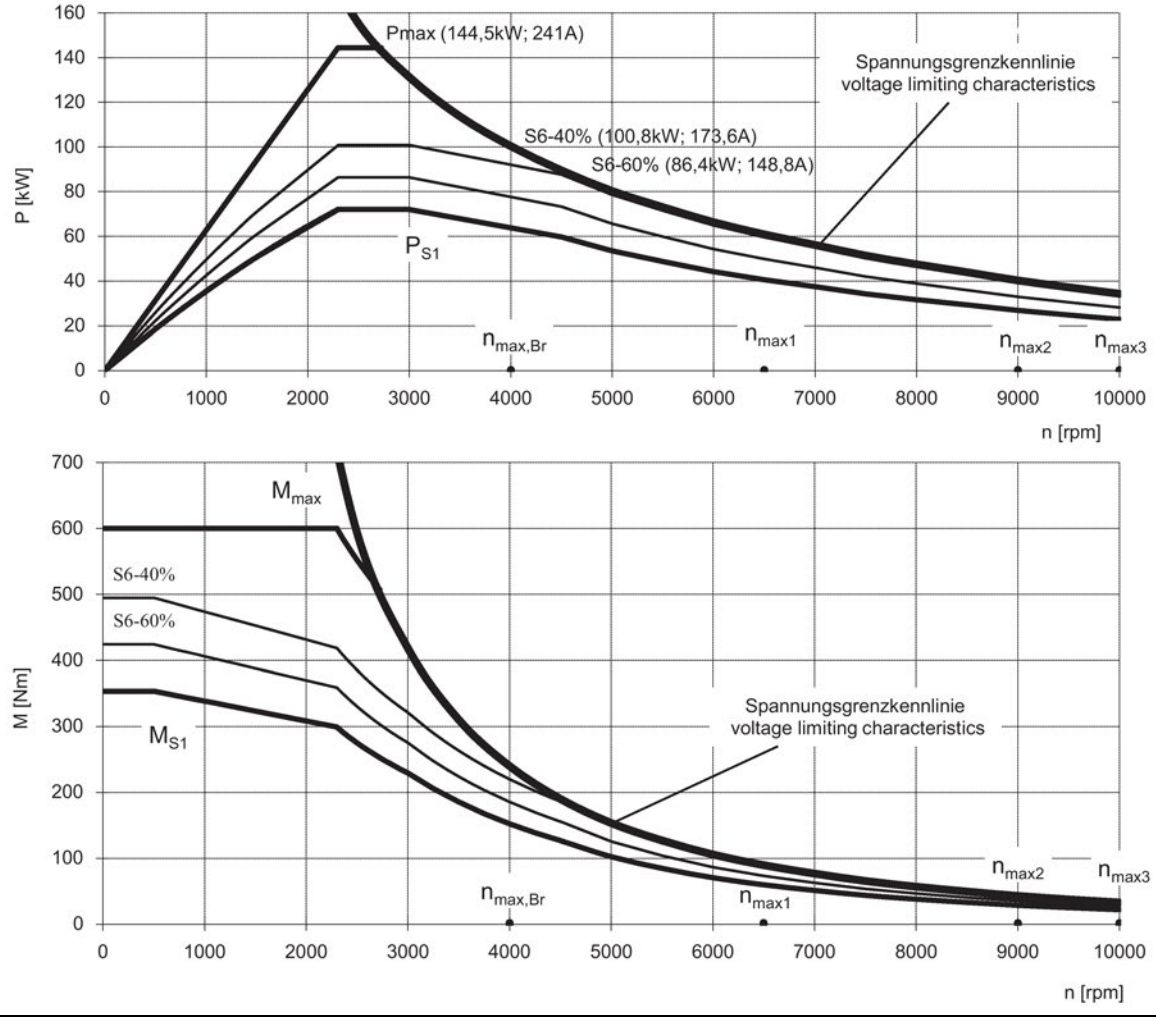
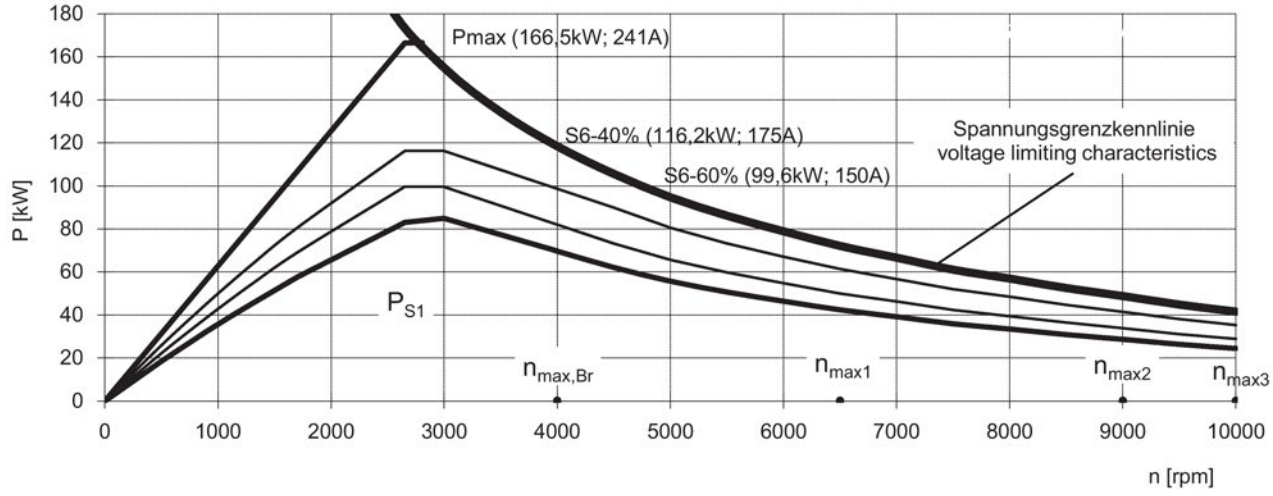


Table 6- 722 SINAMICS, 3-ph. 480 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-□□G2□

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]
2,650	83	299	125	6,500	9,000	10,000	4,000	3,000	600	241	353	147



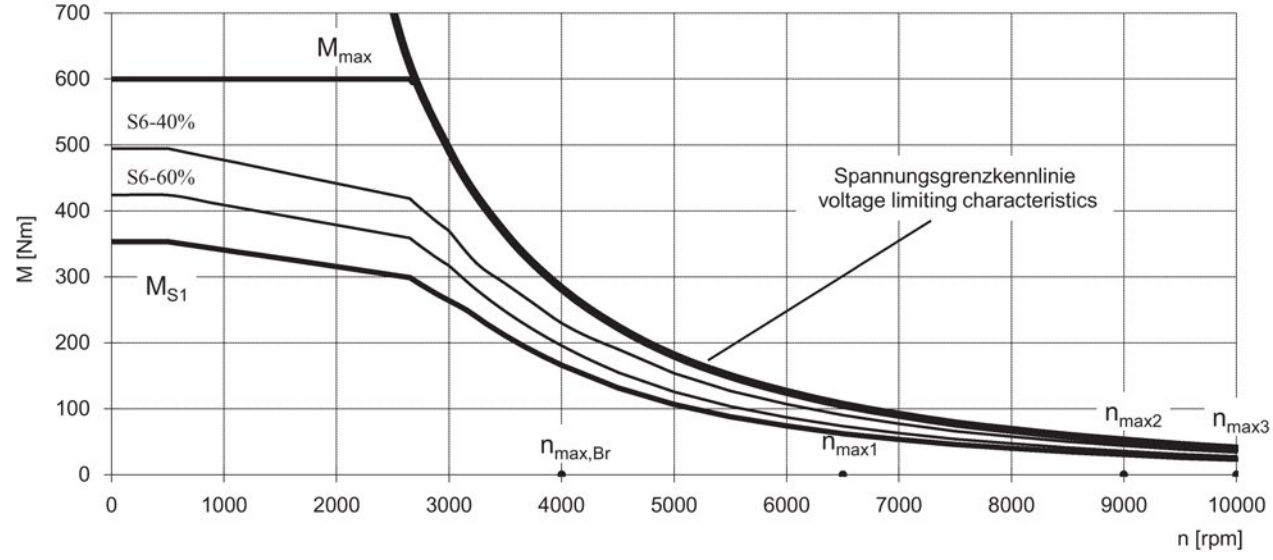
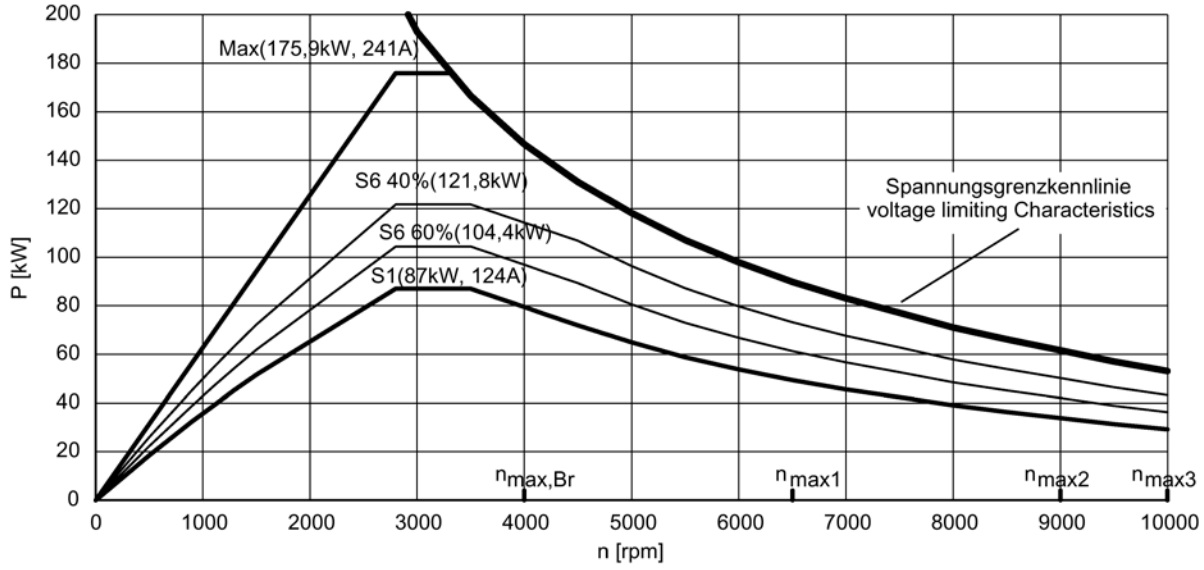
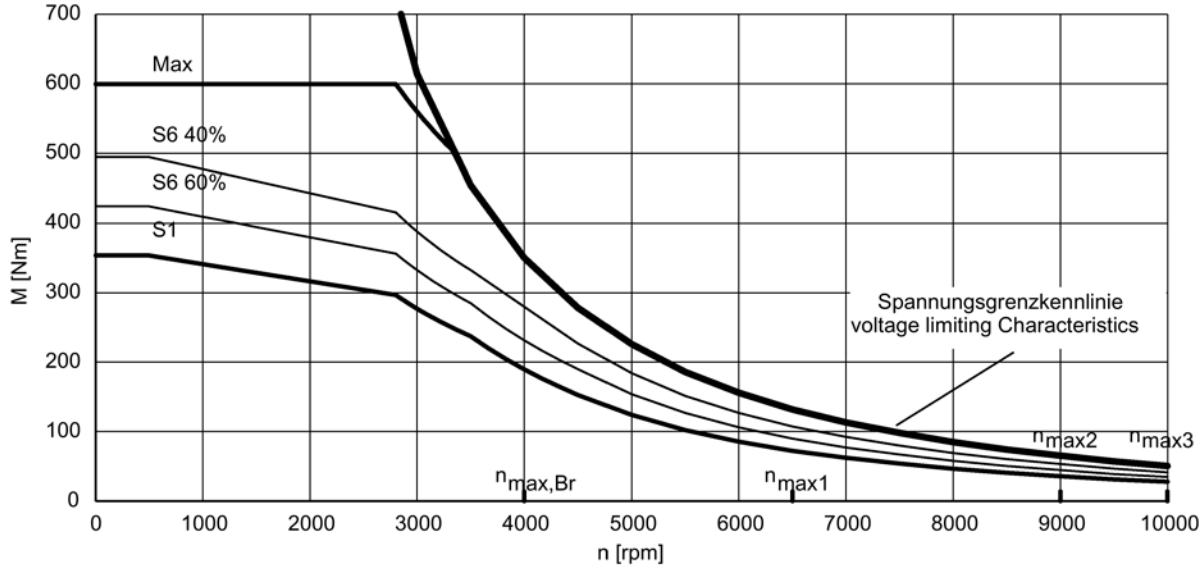


Table 6- 723 SINAMICS, 3-ph. 480 VAC, Active Line Module, (ALM), 1PH8166-□□G2□

n_N [rpm]	P_N [kW]	M_N [Nm]	I_N [A]	n_{max1} [rpm]	n_{max2} [rpm]	n_{max3} [rpm]	$n_{max, Br}$ [rpm]	n_2 [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
2,800	87	297	124	6,500	9,000	10,000	4,000	3,500	600	241	353	147

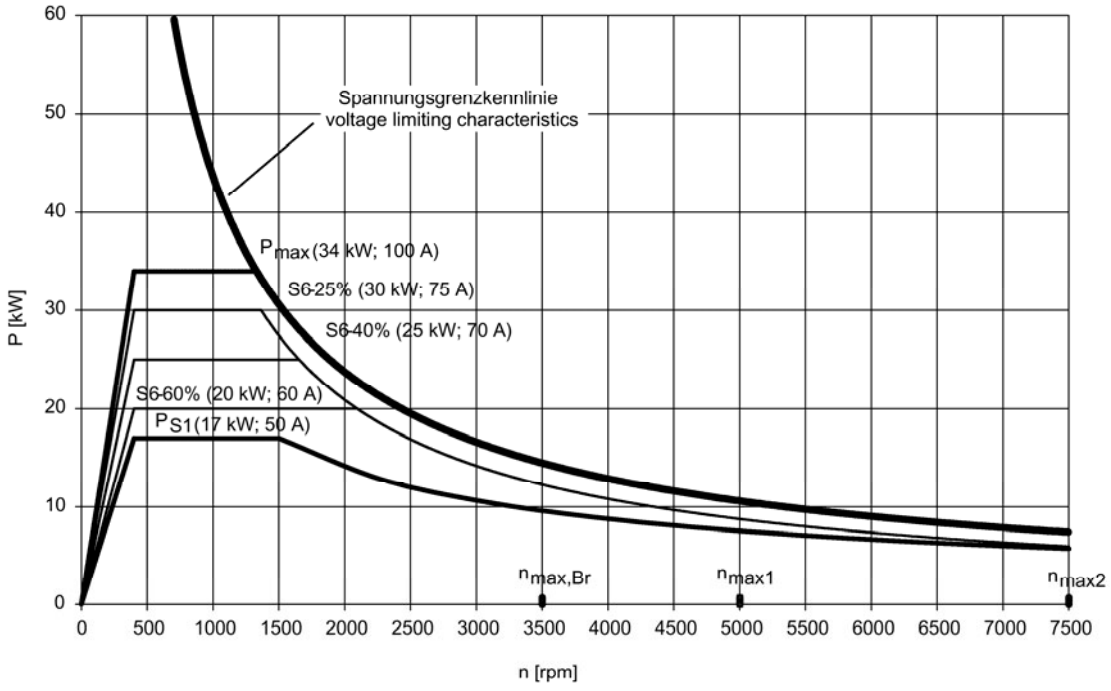




6.1.3.6 Shaft height 180 - water-cooled

Table 6- 724 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	5,000	7,500	-	3,500	1,500	812	100	406	50



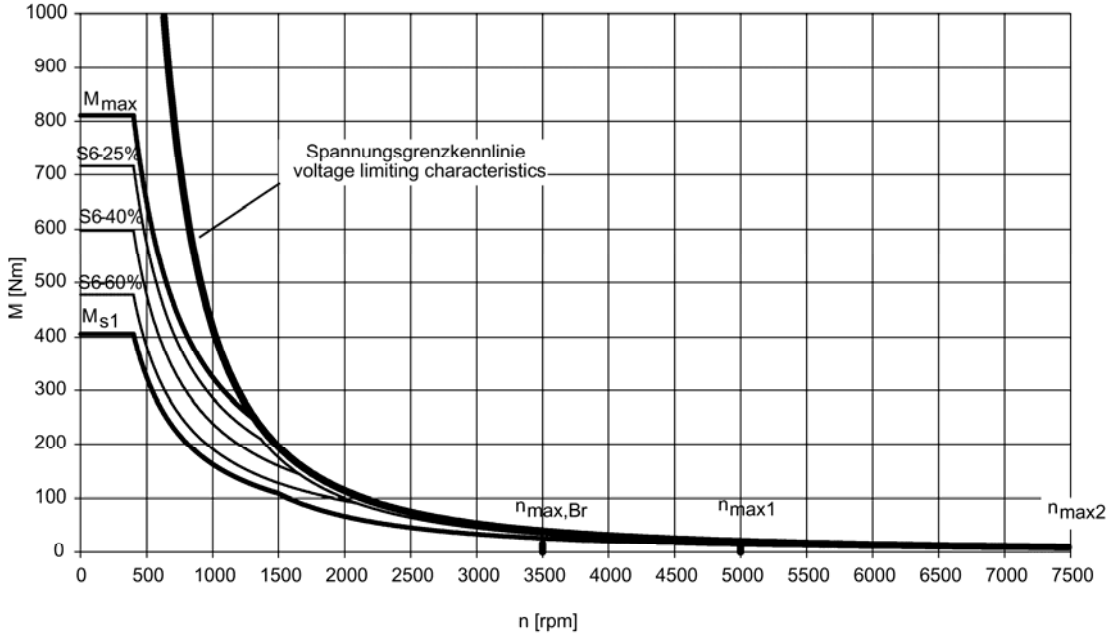
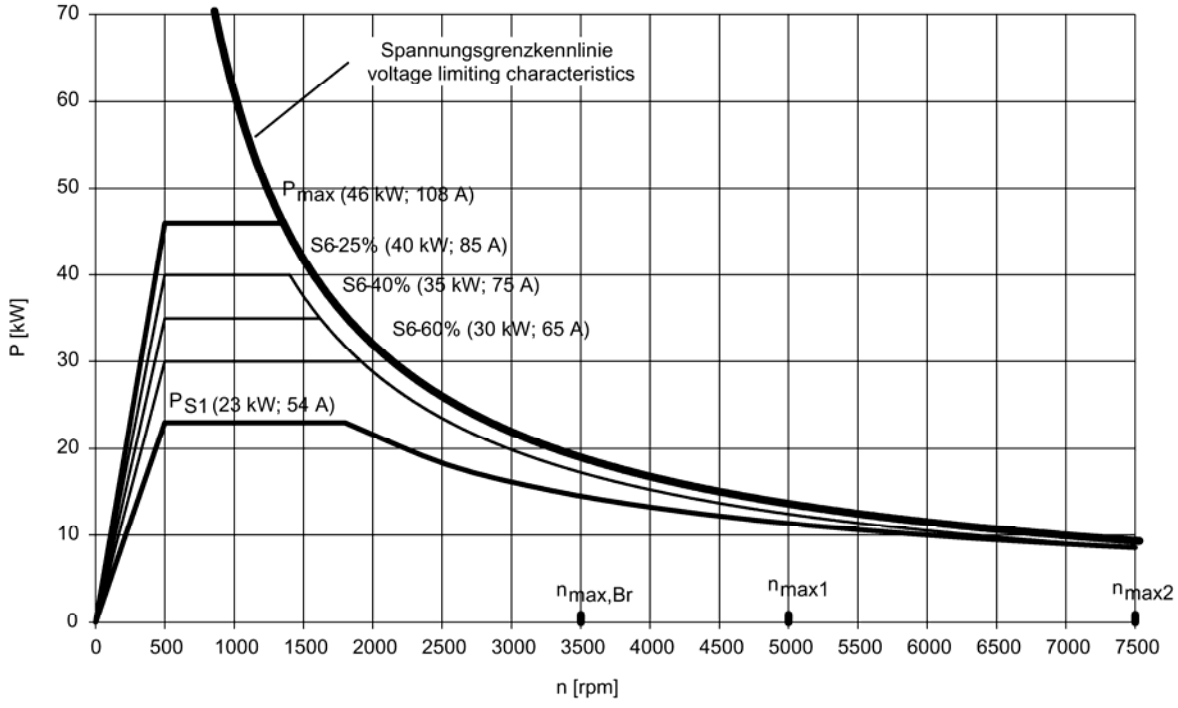


Table 6- 725 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□B2□

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	5,000	7,500	-	3,500	1,800	879	108	439	54
400	18	439	54					2,500				



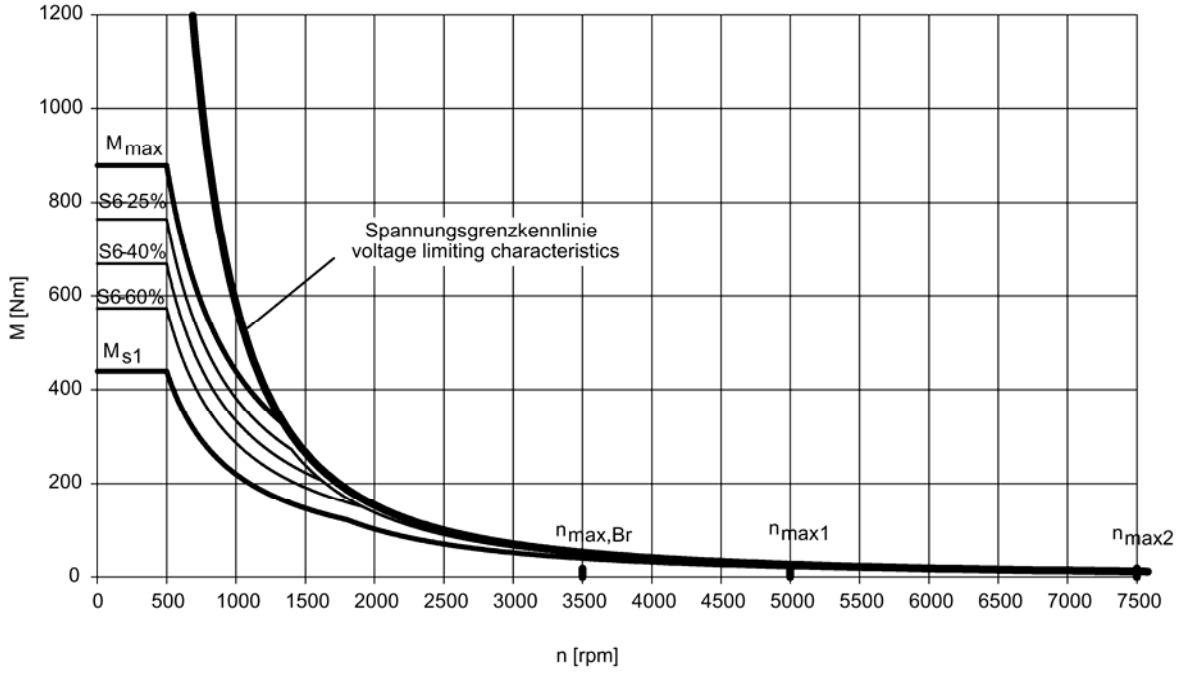
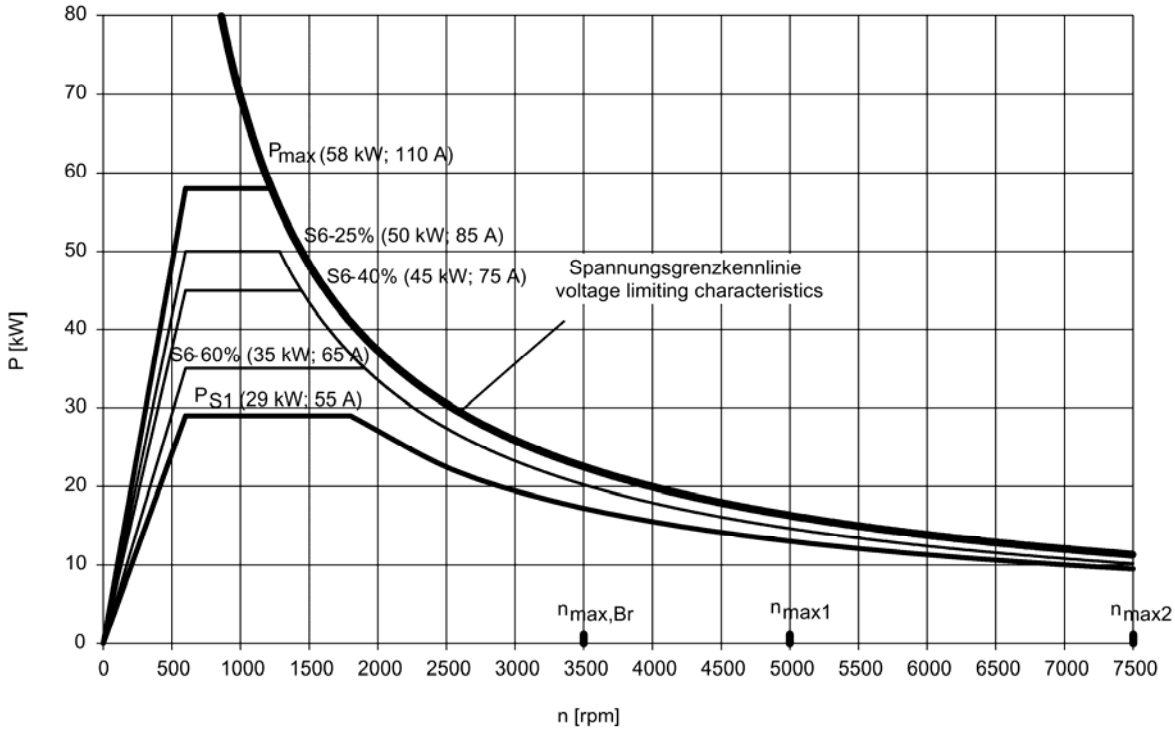


Table 6- 726 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□B2□

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	5,000	7,500	-	3,500	1,800	923	110	462	55



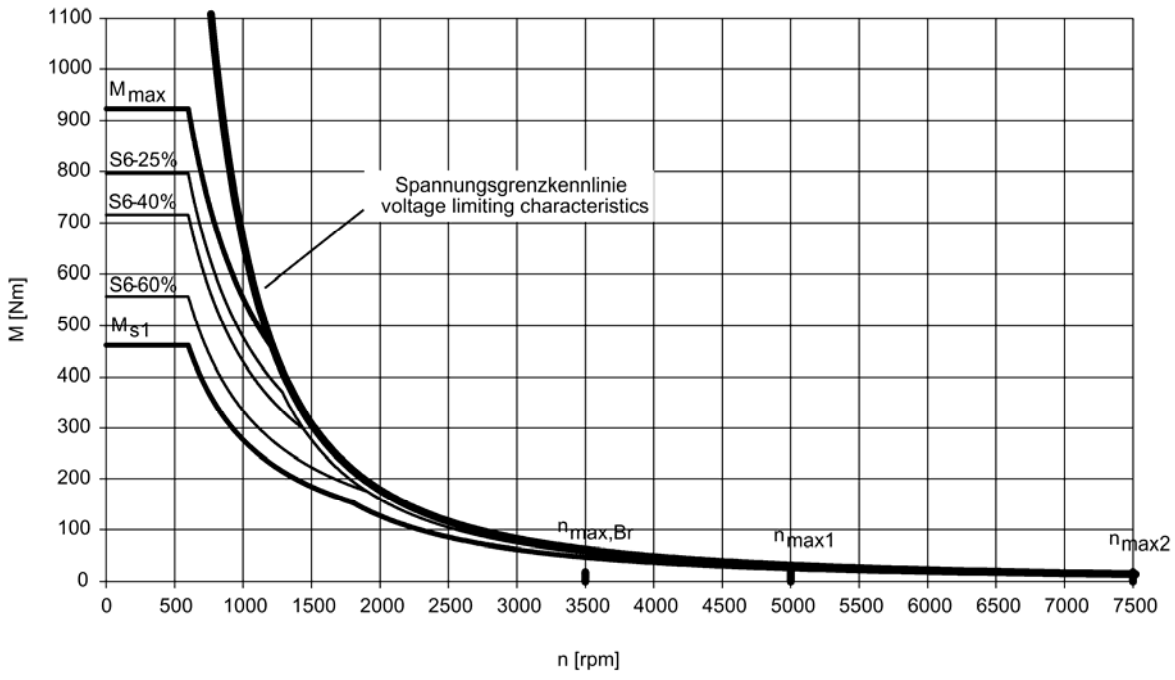
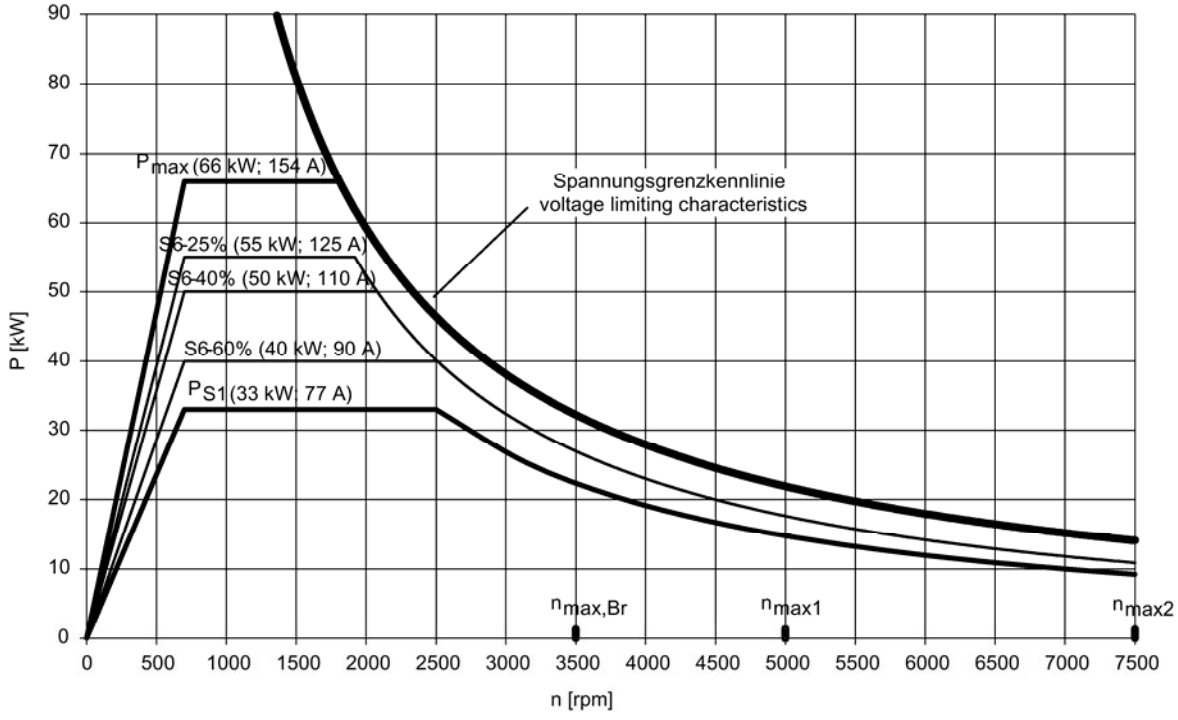


Table 6- 727 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□C2□

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	5,000	7,500	-	3,500	2,500	900	154	450	77



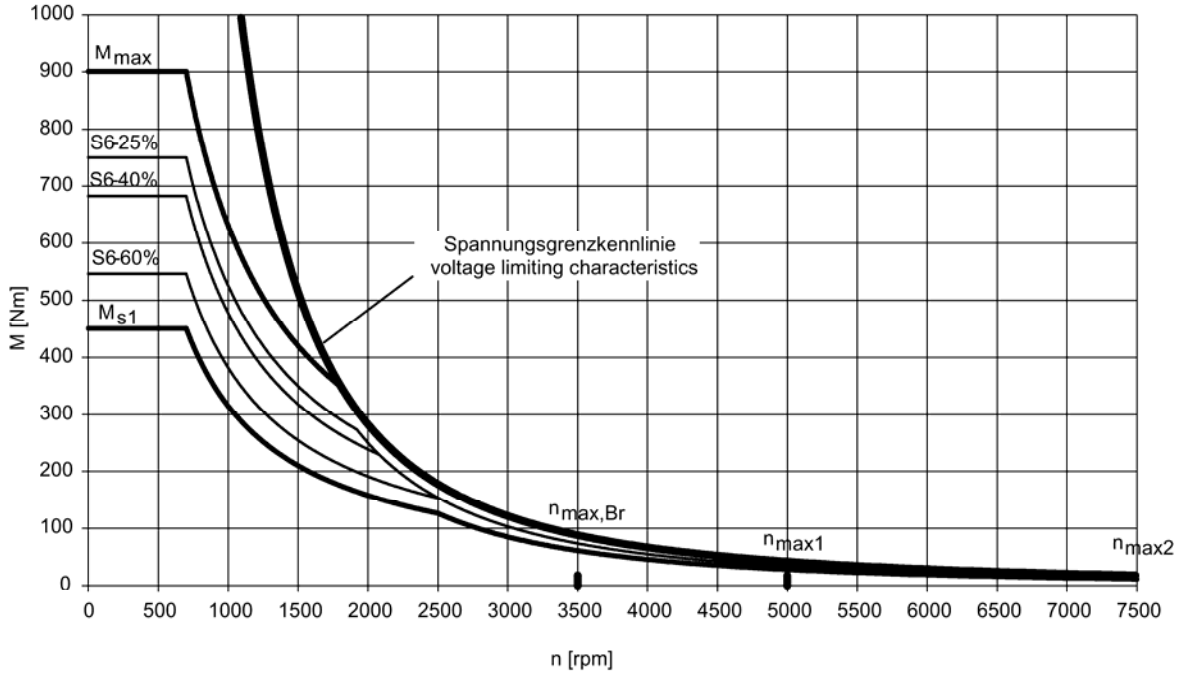
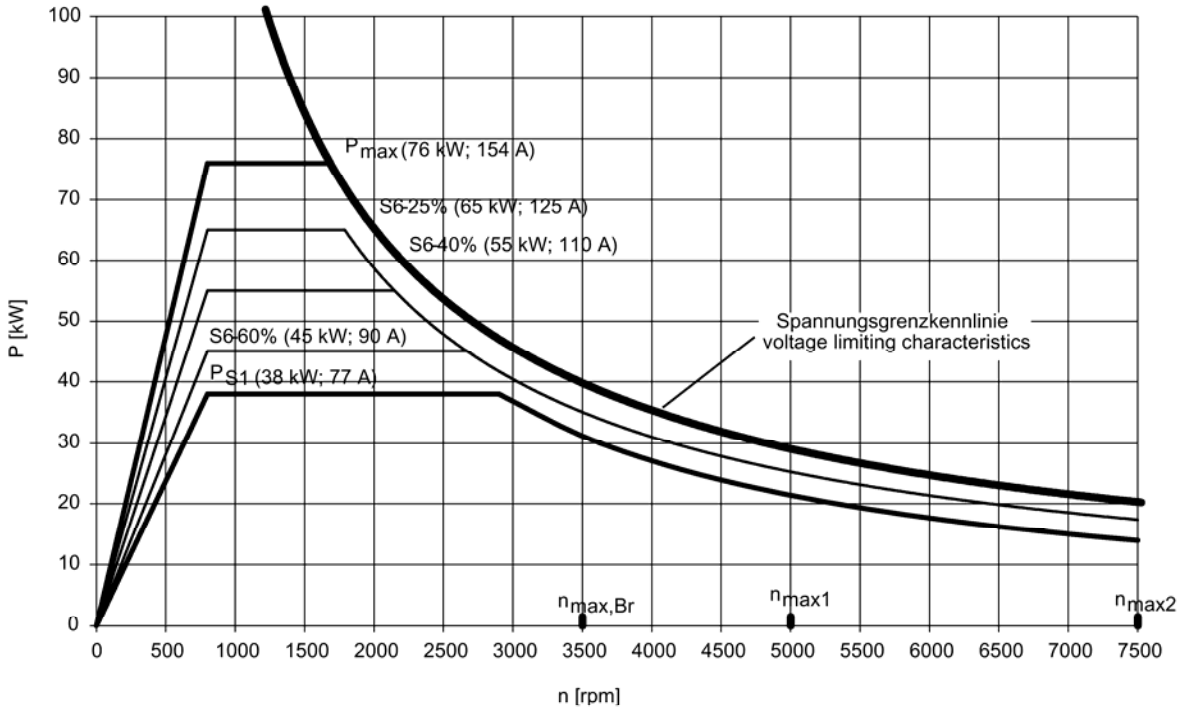


Table 6- 728 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□C2□

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	5,000	7,500	-	3,500	2,900	907	154	454	77
700	33	454	77					3,300				



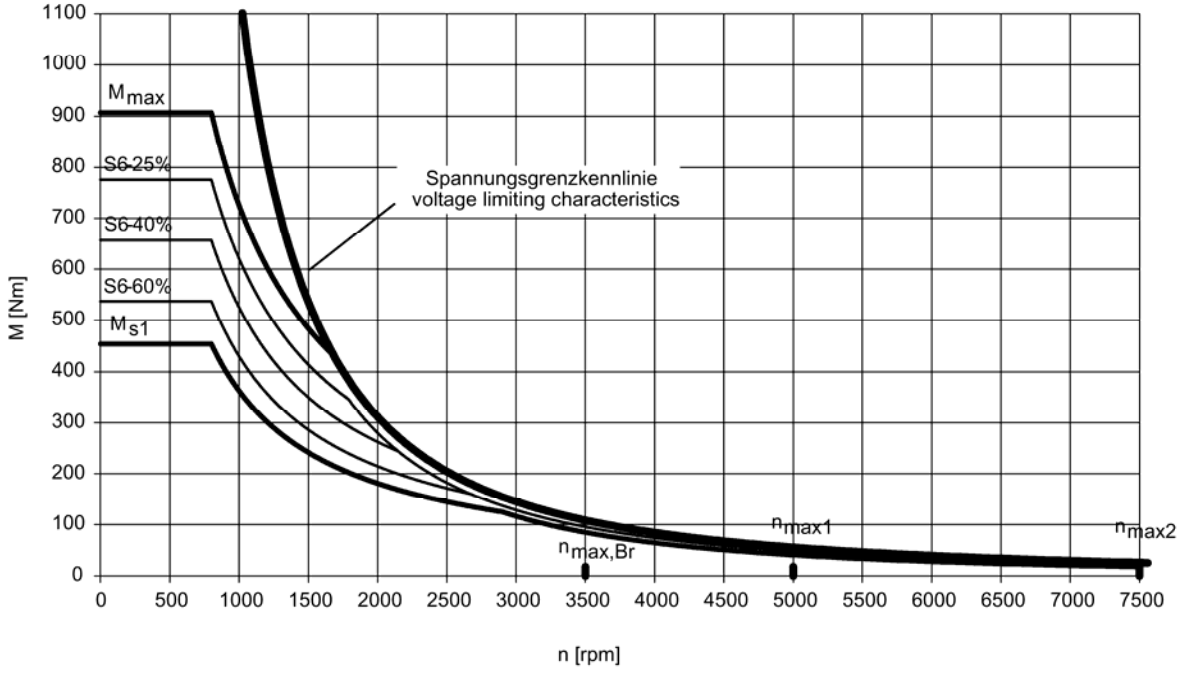
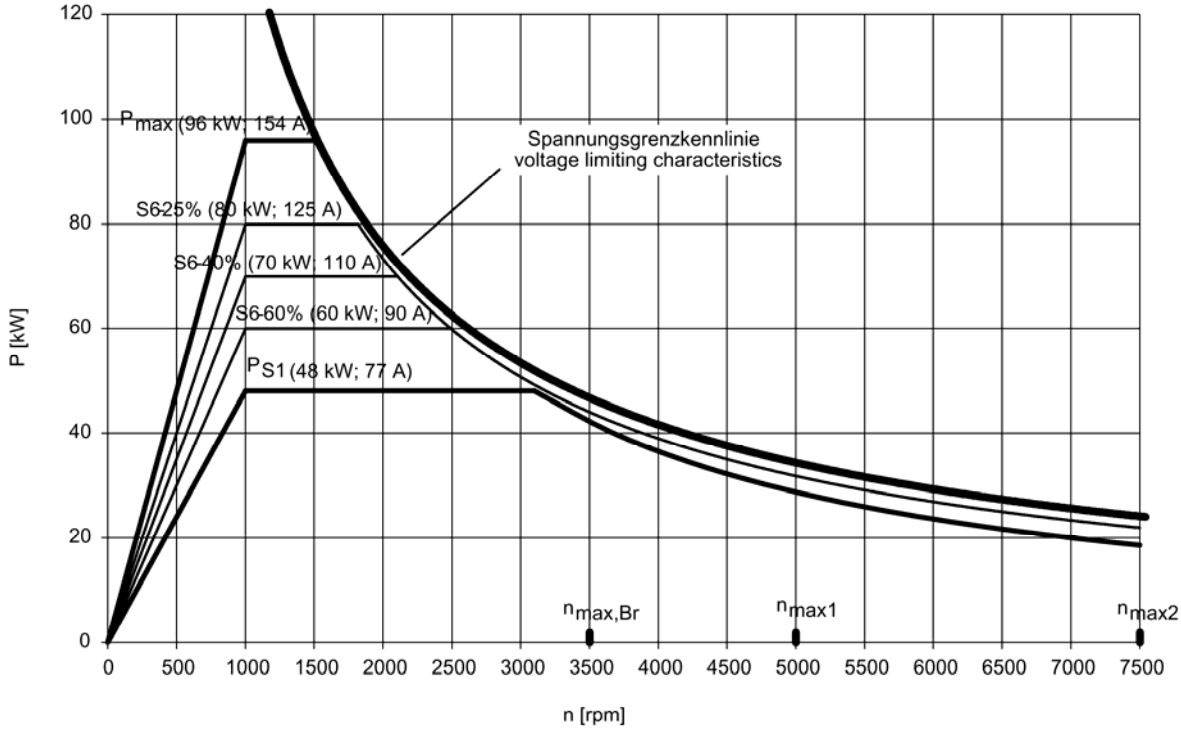


Table 6- 729 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□C2□

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]
1,000	48	458	77	5,000	7,500	-	3,500	3,100	917	154	458	77



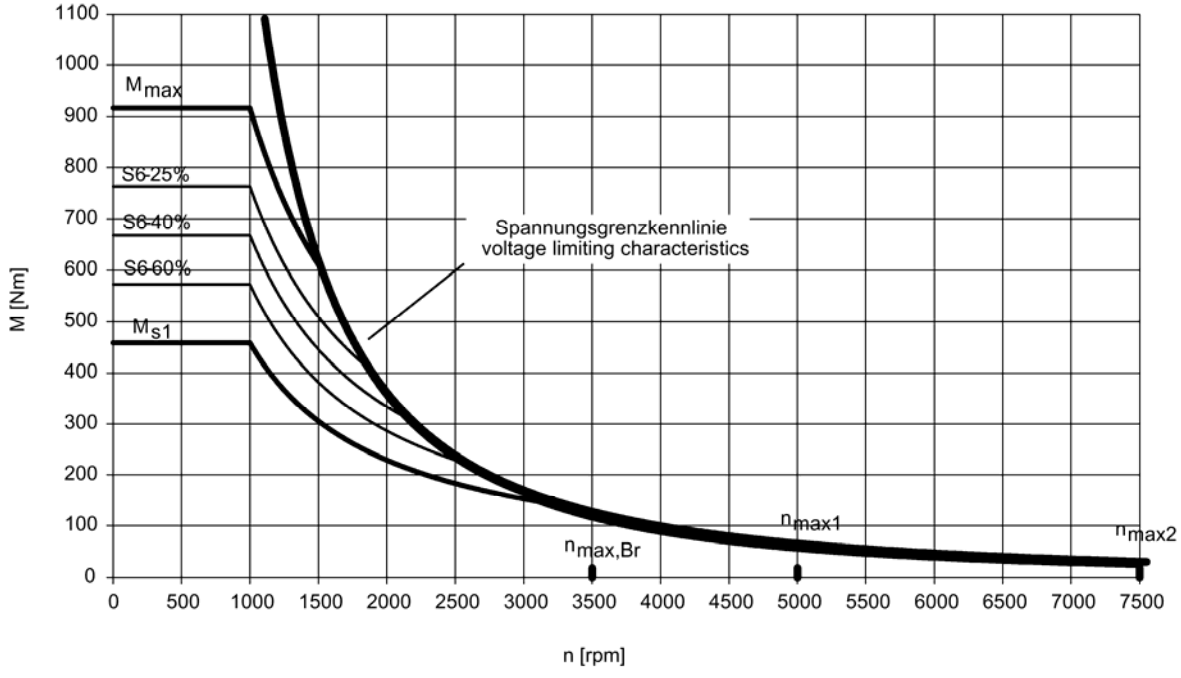
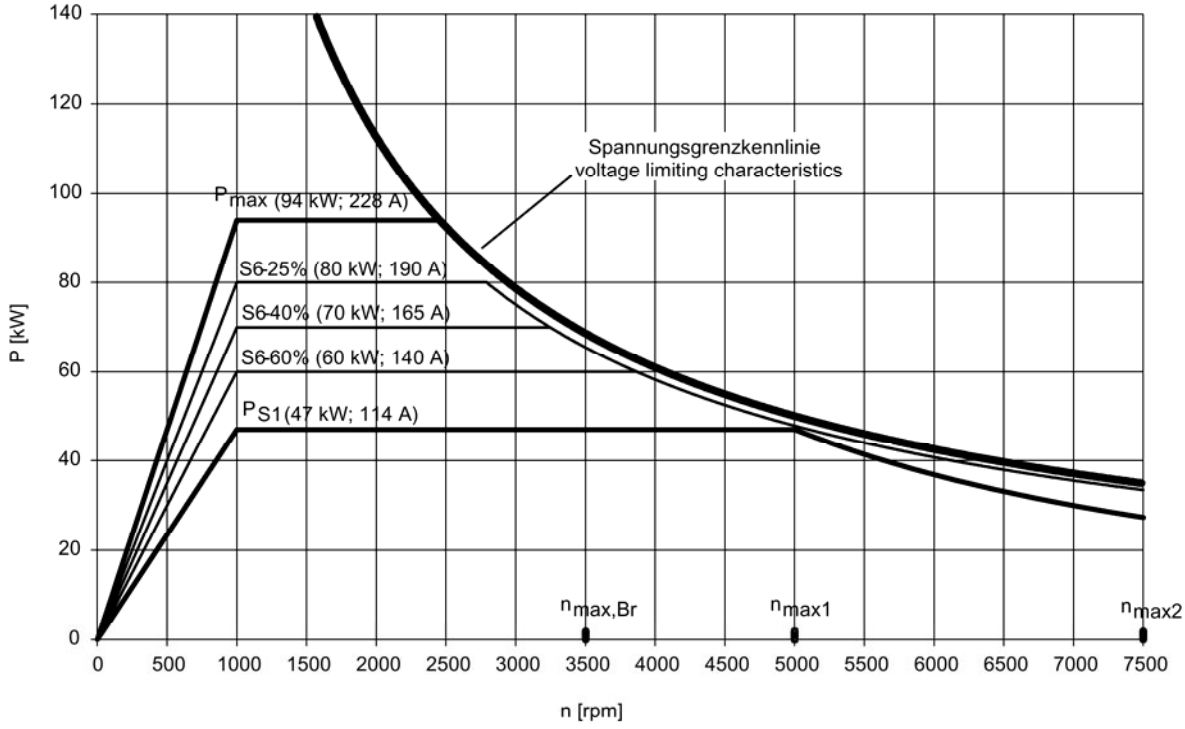


Table 6- 730 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□D2□

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]
1,000	47	449	114	5,000	7,500	-	3,500	5,000	898	228	449	114



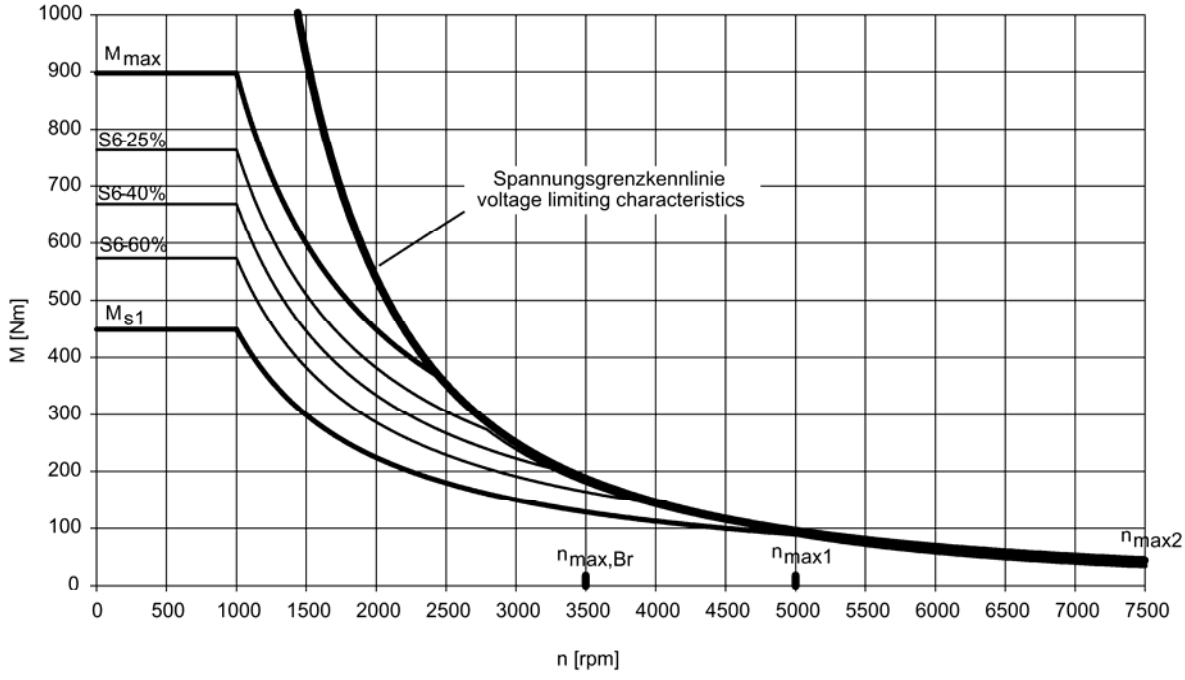
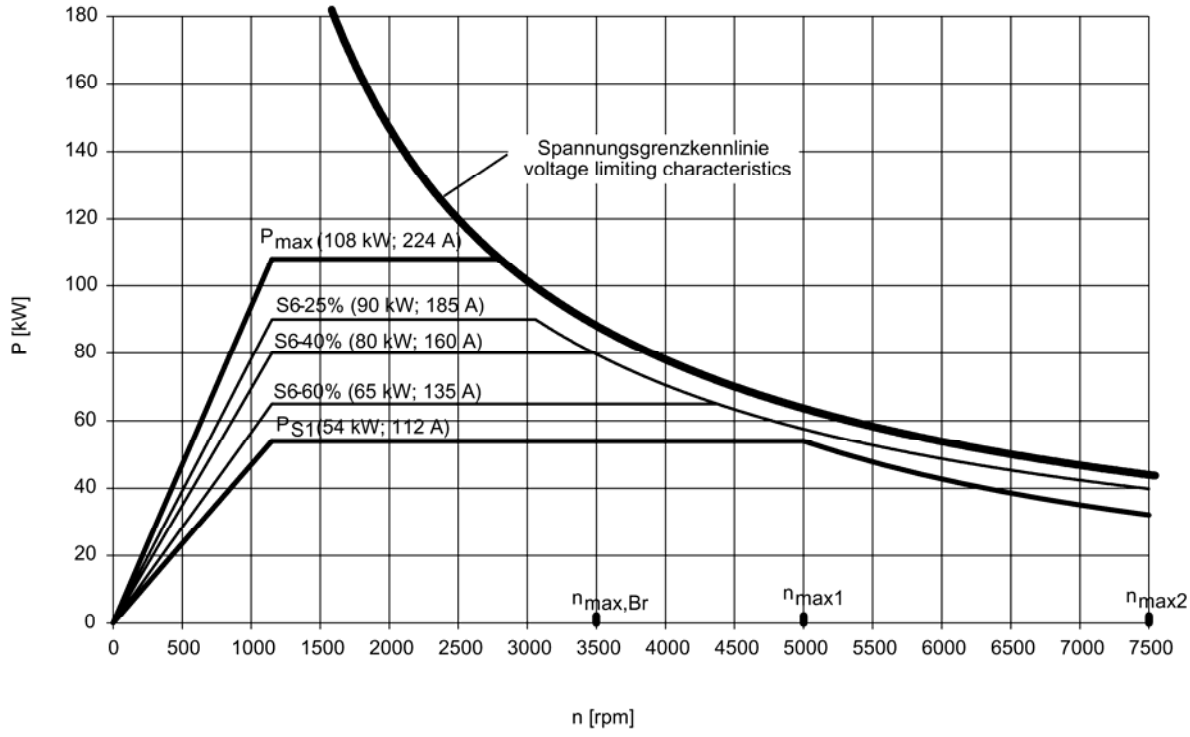


Table 6- 731 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□D2□

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]
1,150	54	448	112	5,000	7,500	-	3,500	5,000	897	224	448	112
1,000	47	448	112					5,500				



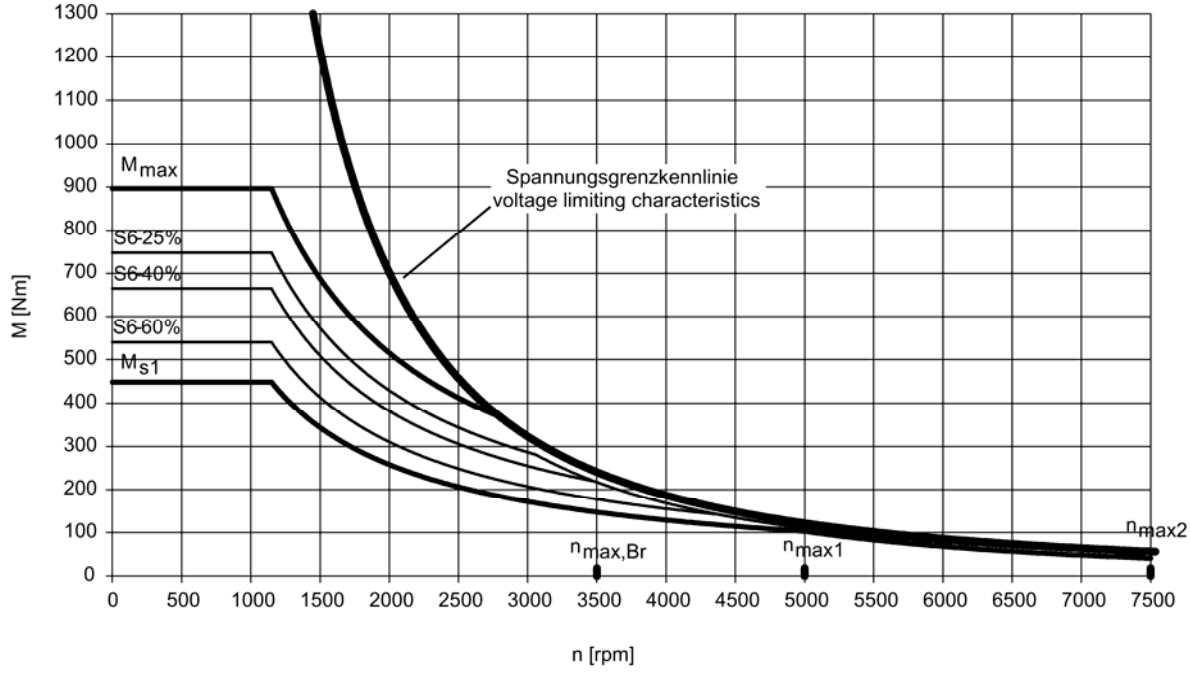
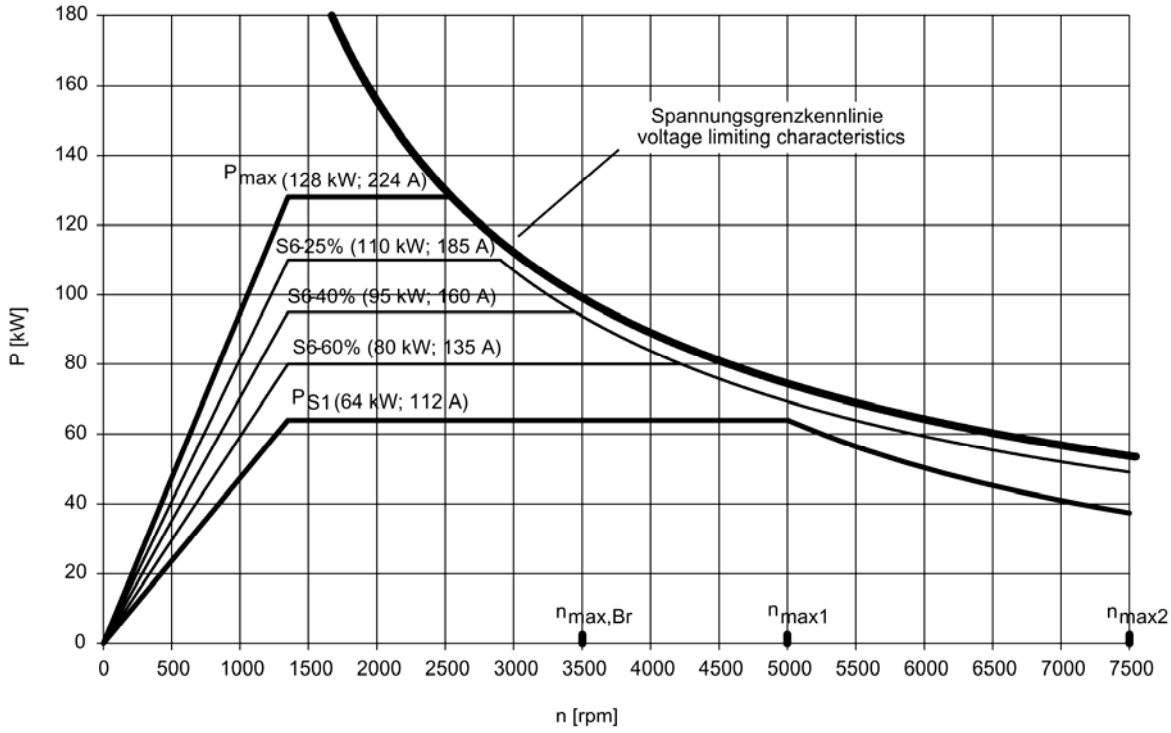


Table 6- 732 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□D2□

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]
1,350	64	453	112	5,000	7,500	-	3,500	5,000	905	224	453	112



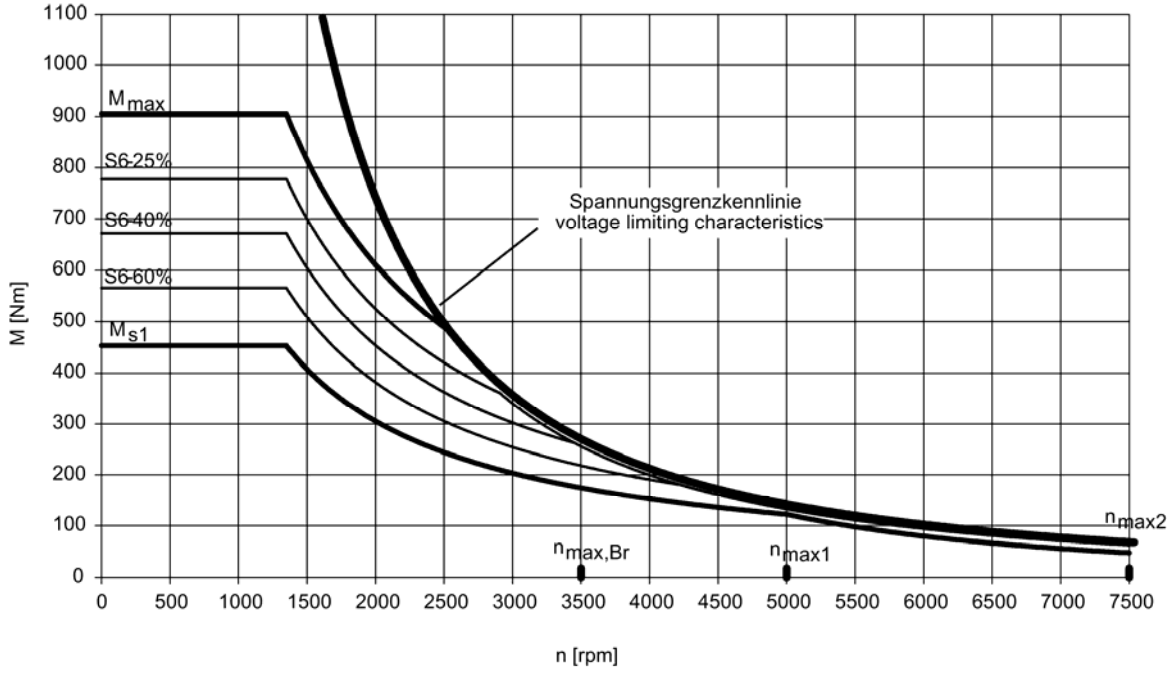
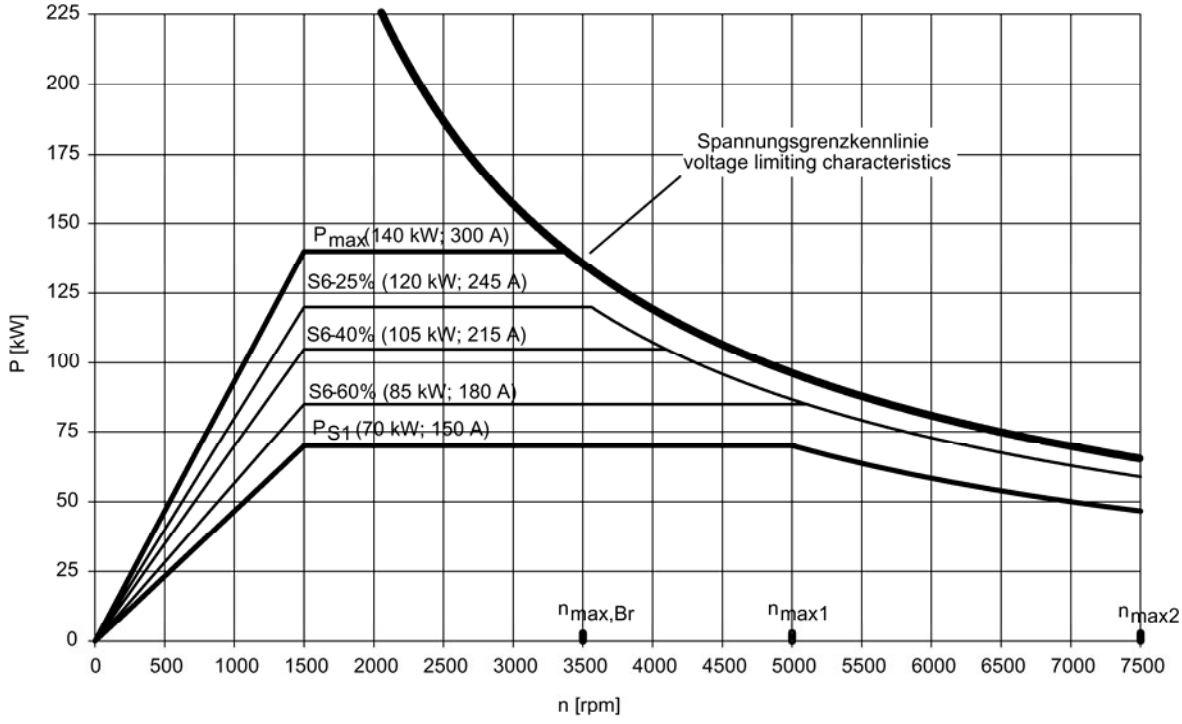


Table 6- 733 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□F2□

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]
1,500	70	446	150	5,000	7,500	-	3,500	5,000	891	300	446	150



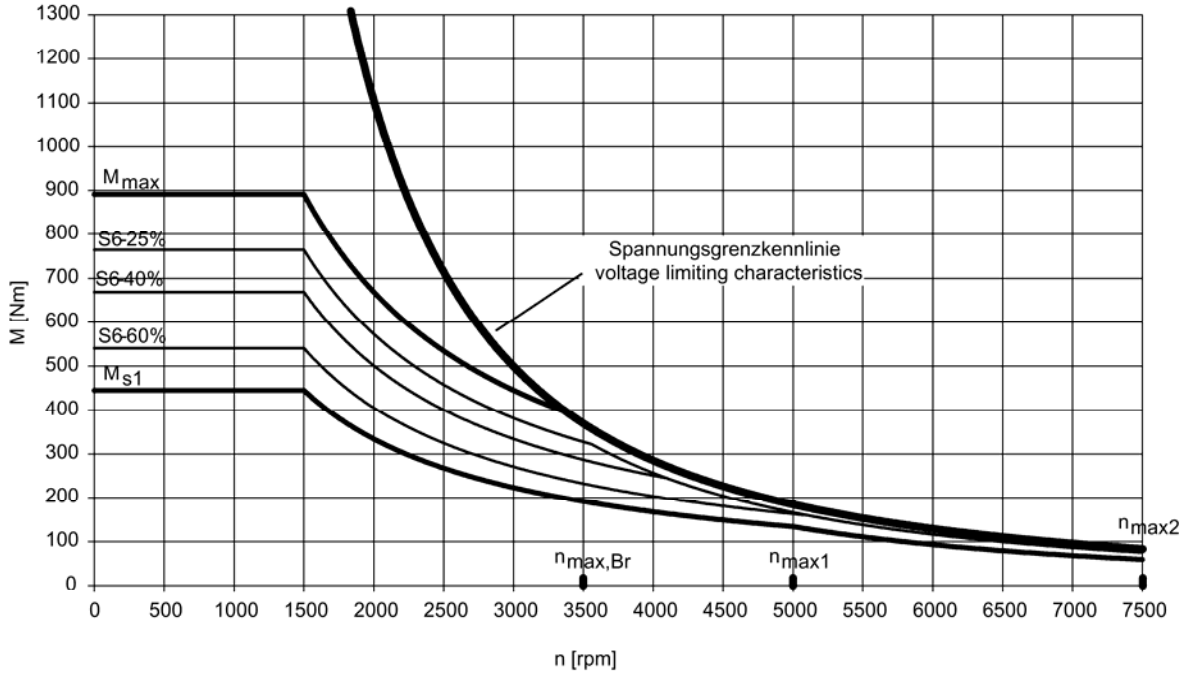
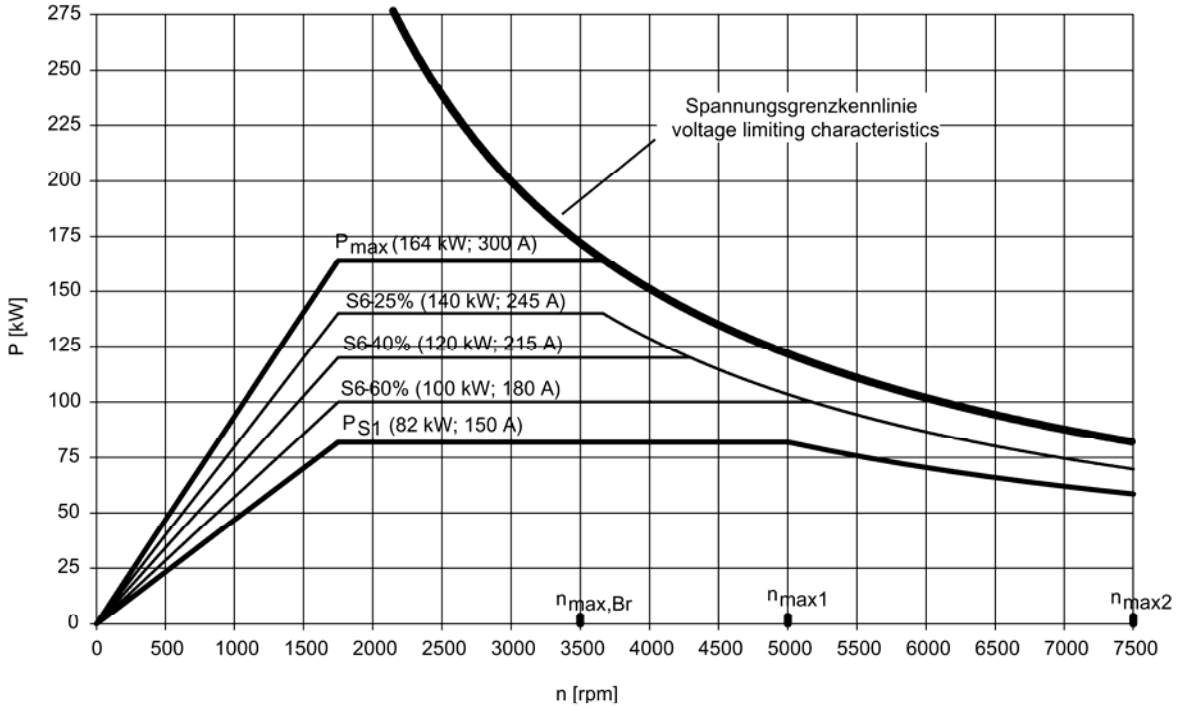


Table 6- 734 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□F2□

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]
1,750	82	447	150	5,000	7,500	-	3,500	5,000	895	300	447	150
1,500	70	447	150					4,000				



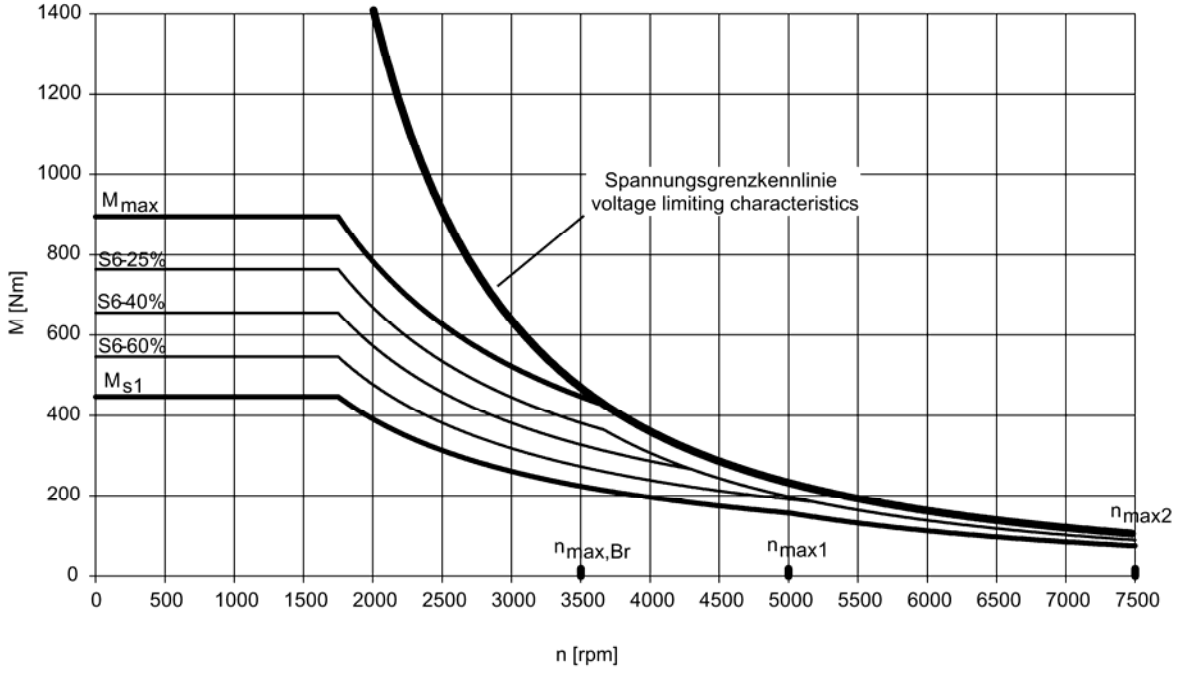
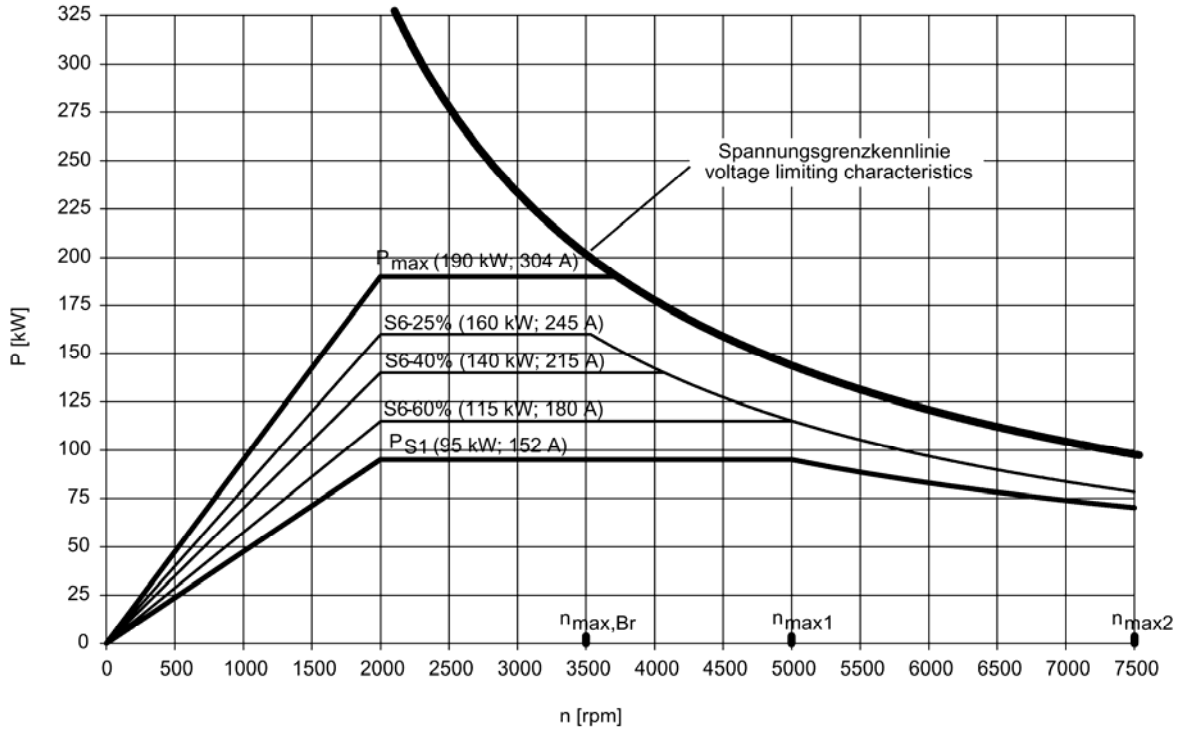


Table 6- 735 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□F2□

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]
2,000	95	454	152	5,000	7,500	-	3,500	5,000	907	304	454	152



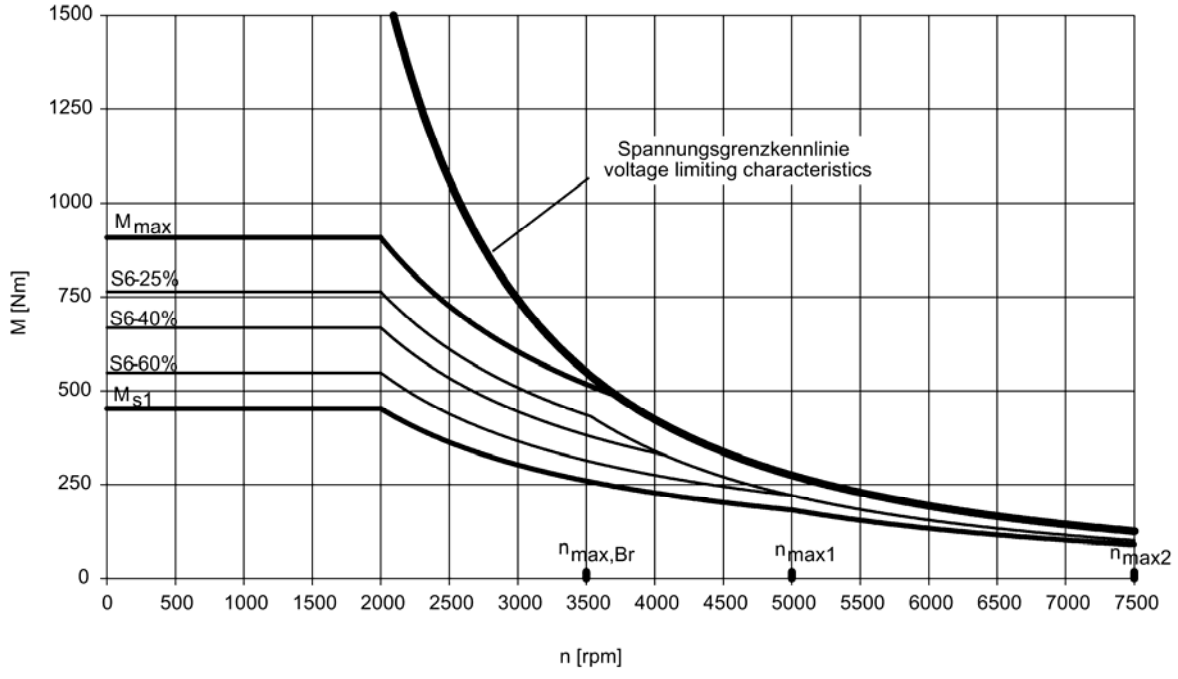
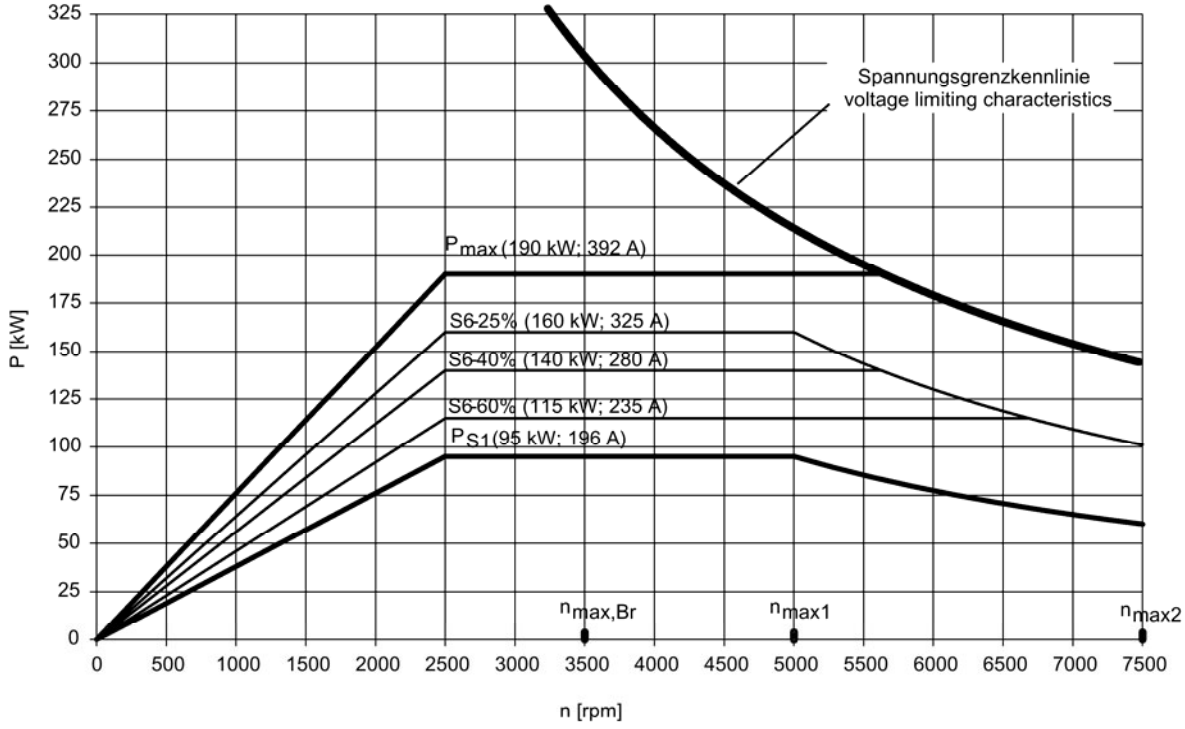


Table 6- 736 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-□□L2□

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]
2,500	95	363	196	5,000	7,500	-	3,500	5,000	726	392	363	196



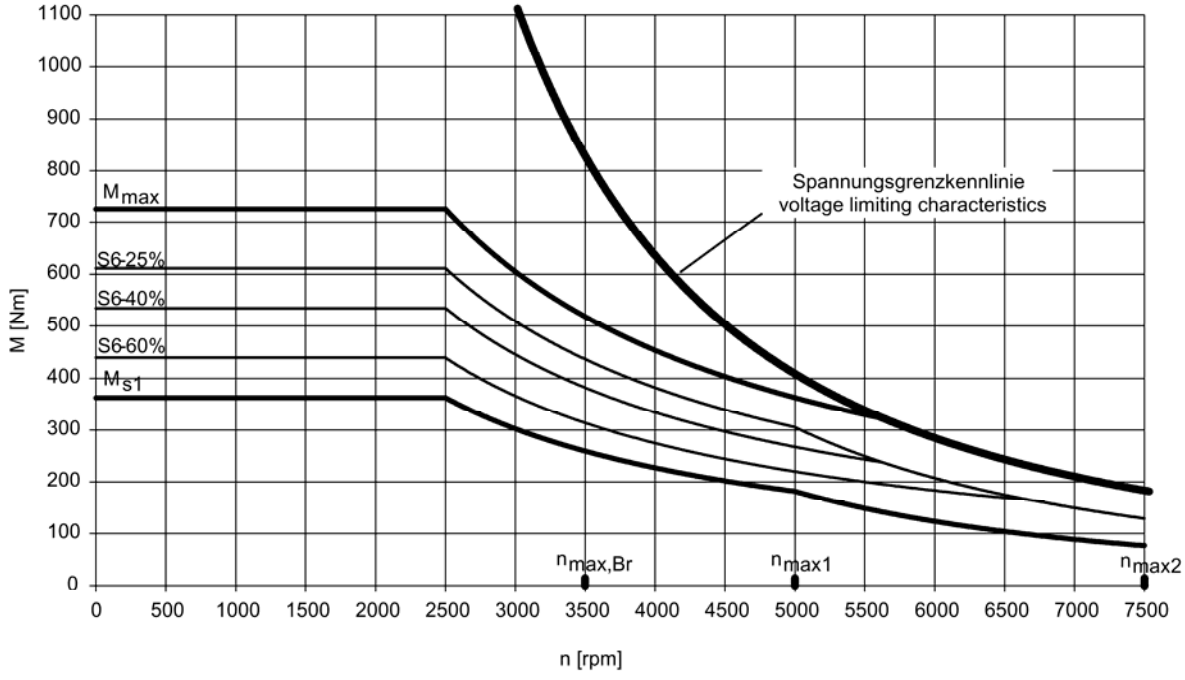
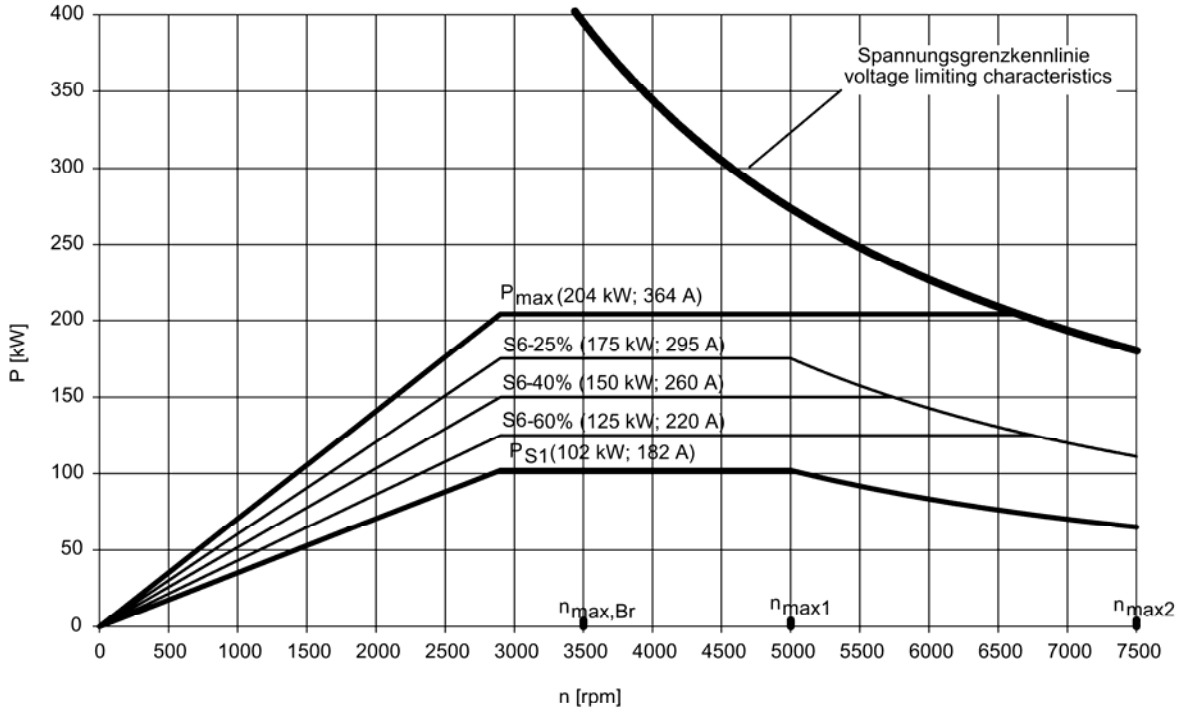


Table 6- 737 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-□□L2□

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]
2,900	102	336	182	5,000	7,500	-	3,500	5,000	672	364	336	182
2,500	88	336	182					5,700				



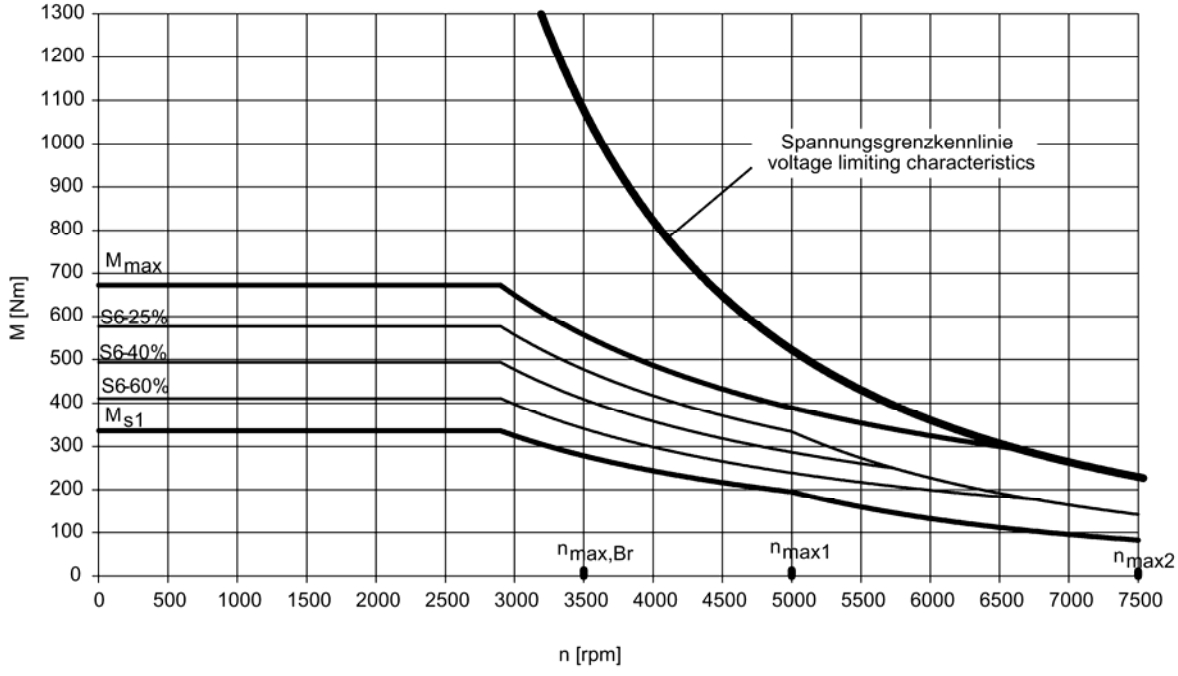
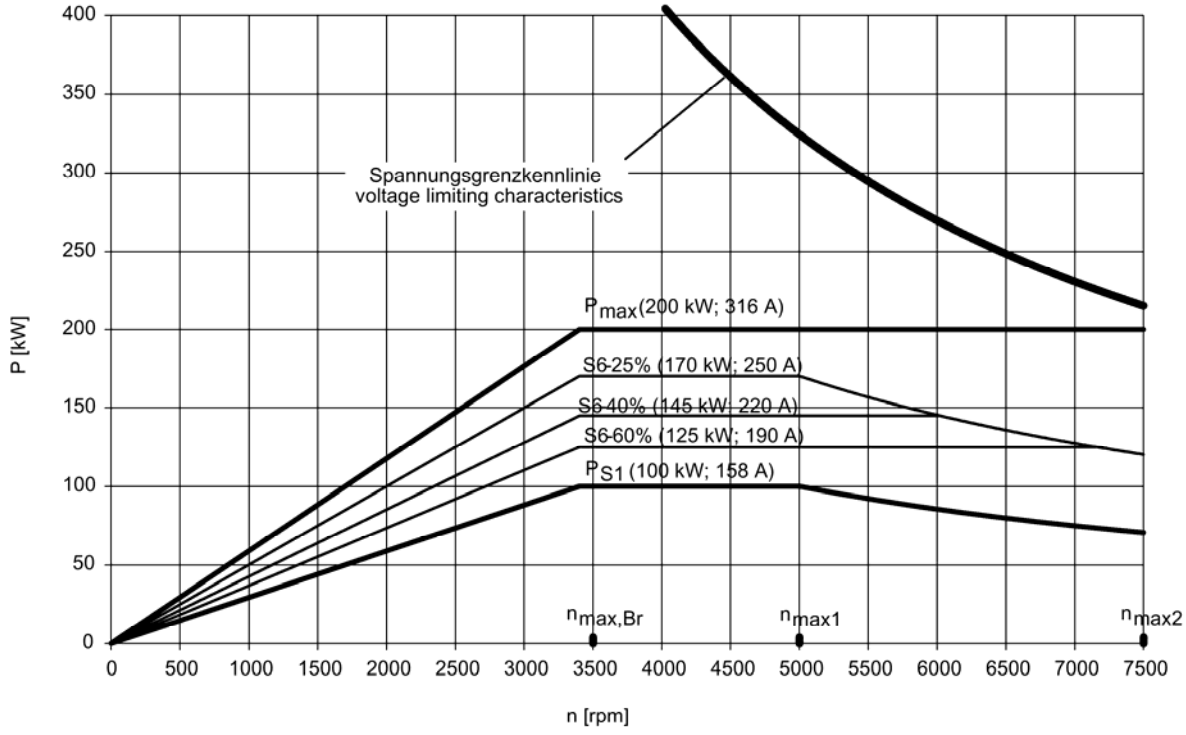


Table 6- 738 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-□□L2□

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]
3,400	100	281	158	5,000	7,500	-	3,500	5,000	562	316	281	158



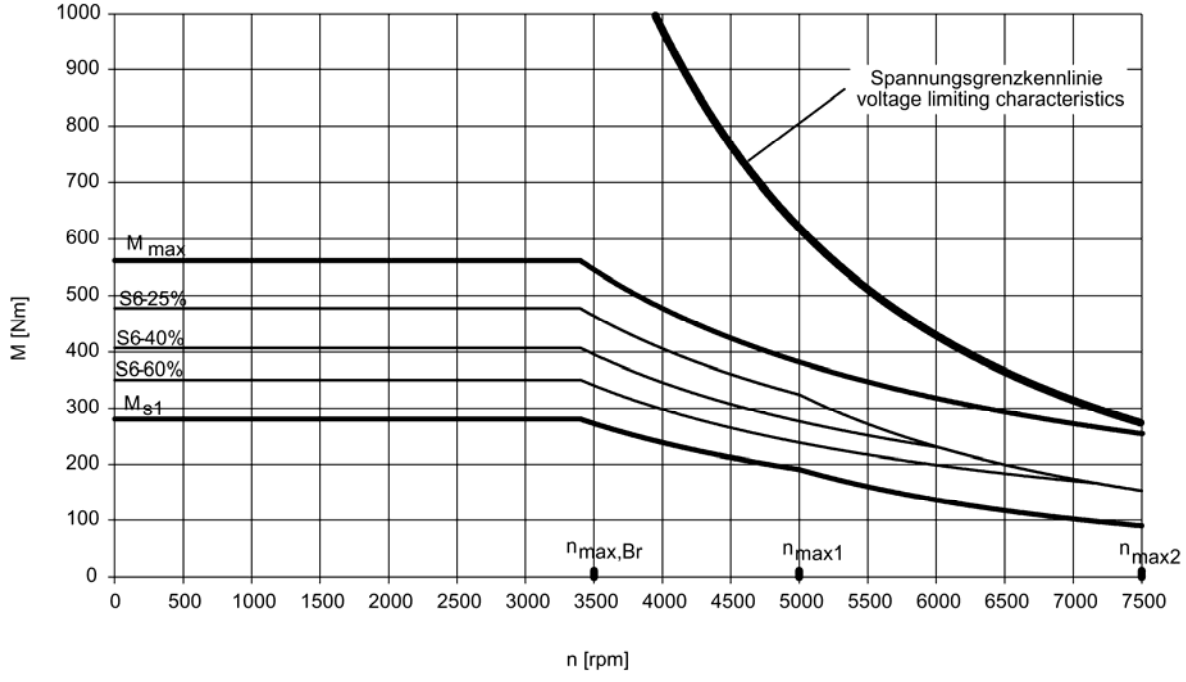
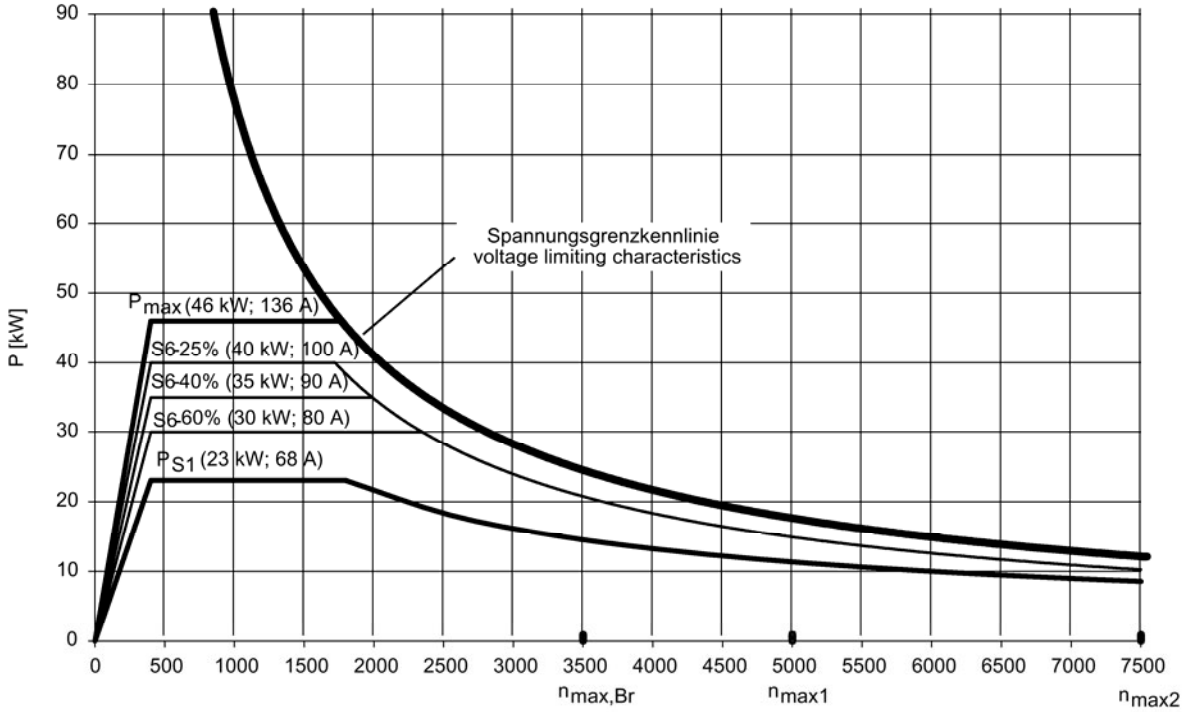


Table 6- 739 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□B2□

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	5,000	7,500	-	3,500	1,800	1,098	136	549	68



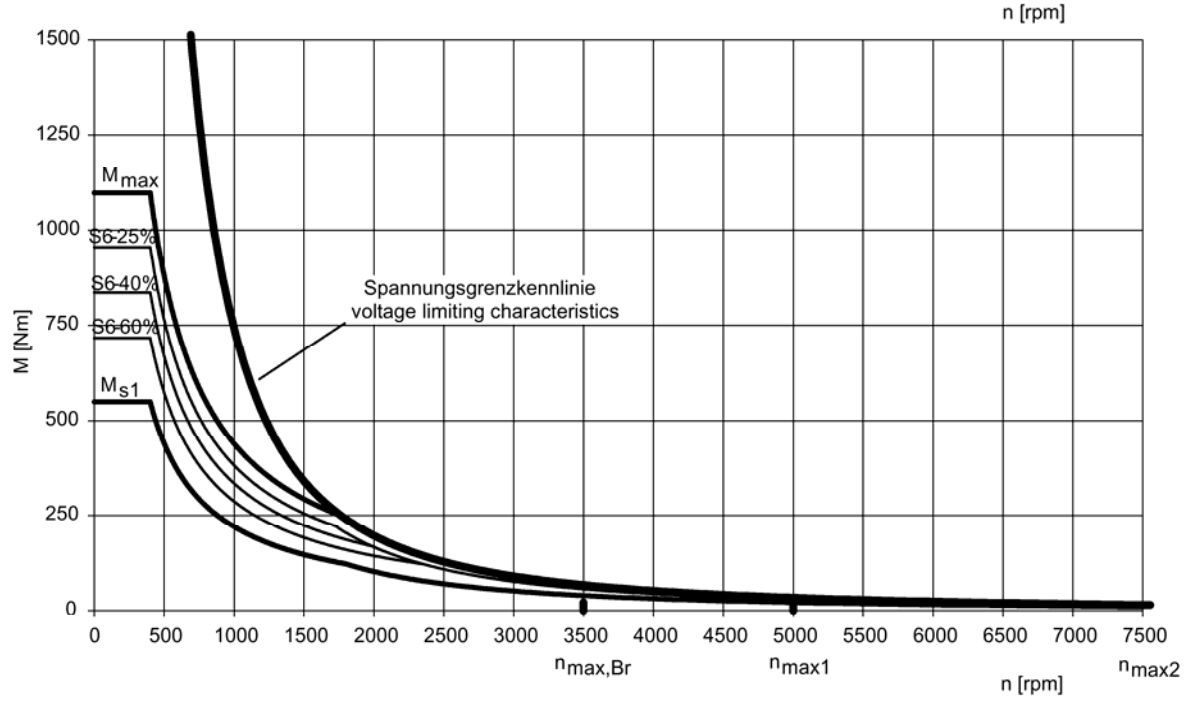
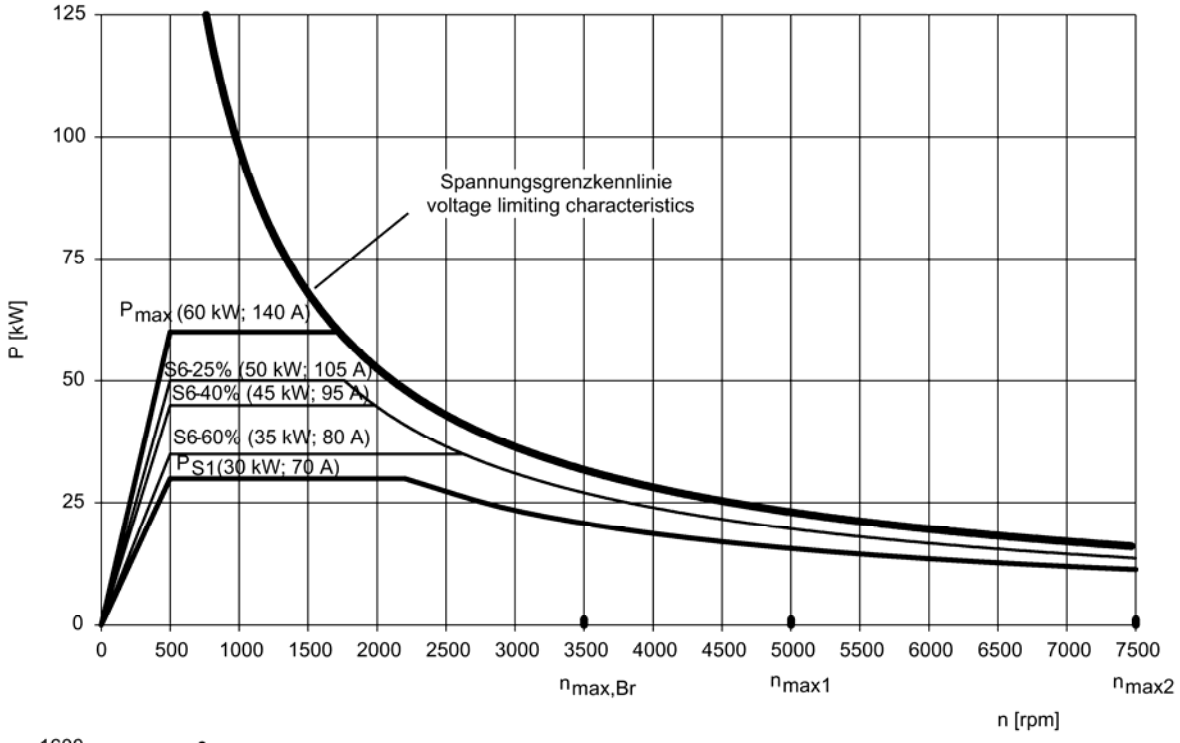


Table 6- 740 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□B2□

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	5,000	7,500	-	3,500	2,200	1,146	140	573	70
400	24	573	70					2,900				



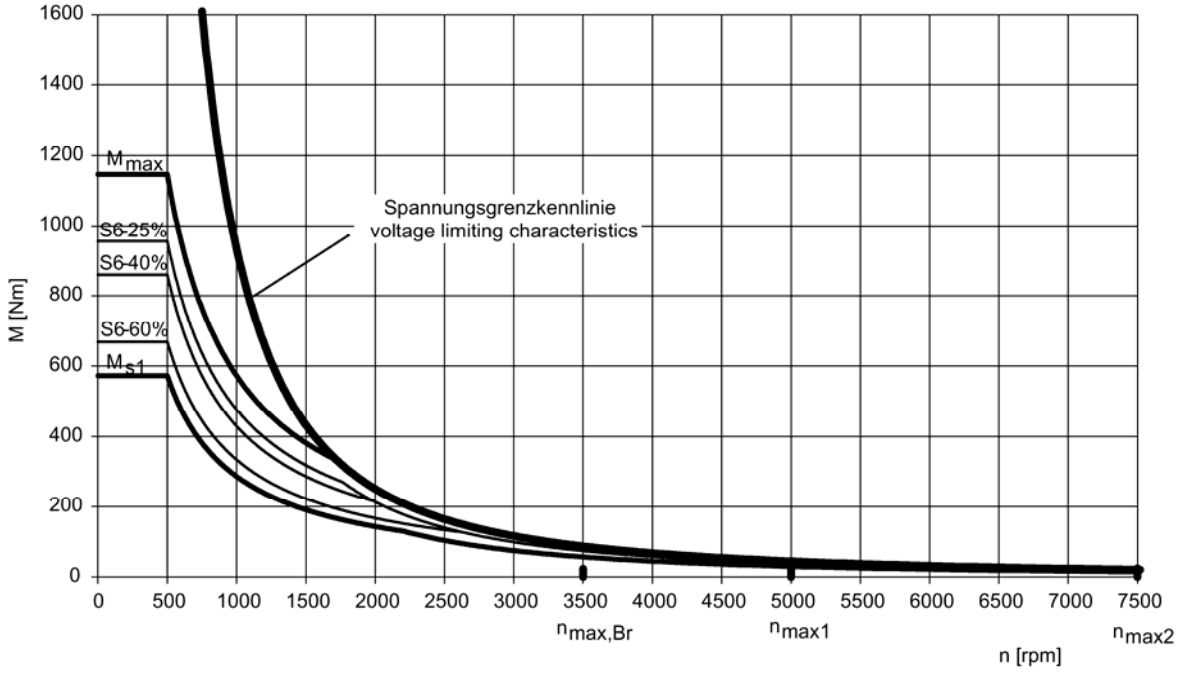
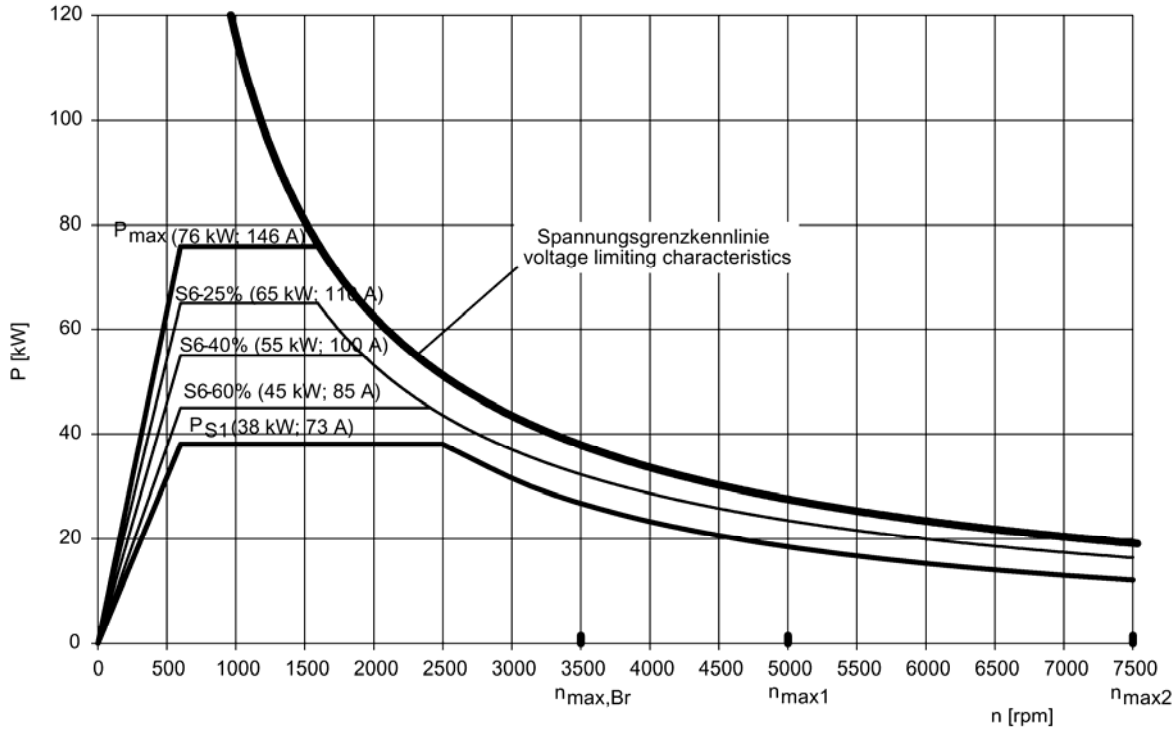


Table 6- 741 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□B2□

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	5,000	7,500	-	3,500	2,500	1,210	146	605	73



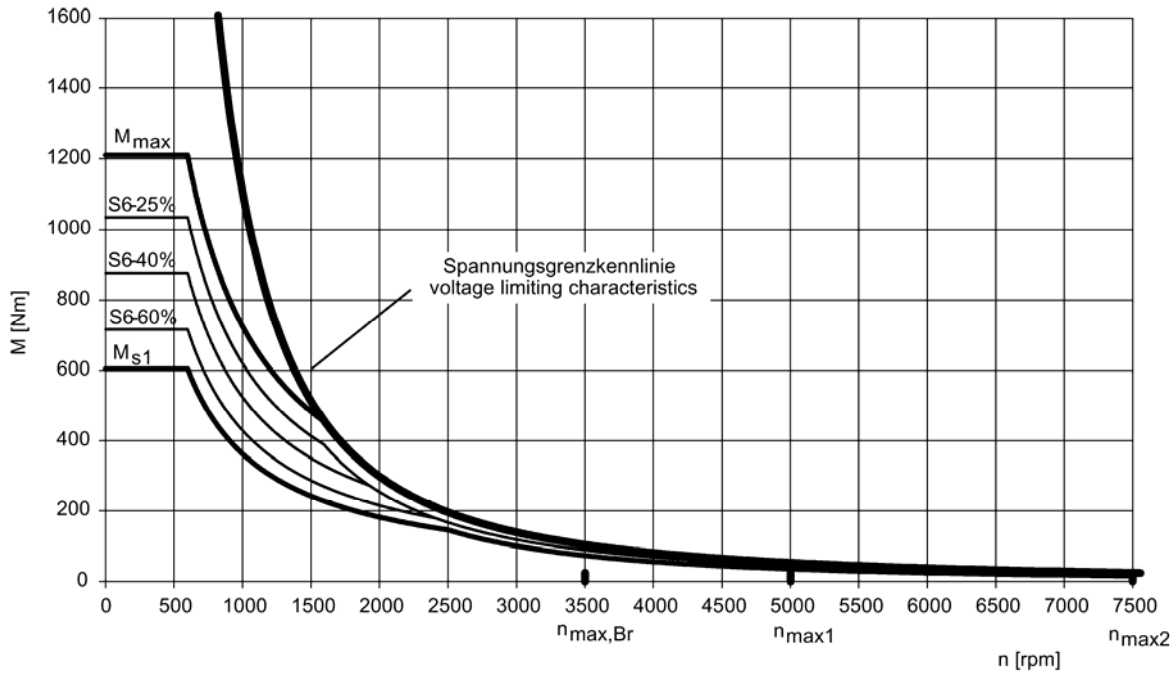
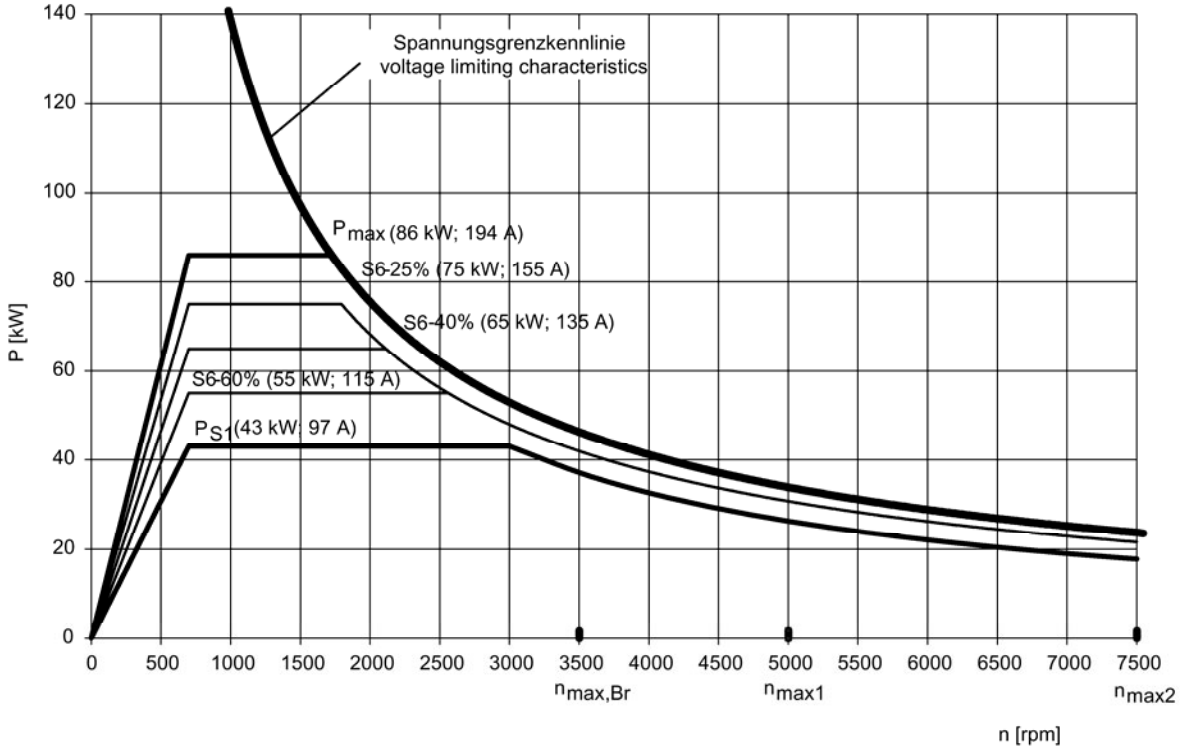


Table 6- 742 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□C2□

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	5,000	7,500	-	3,500	3,000	1,173	194	587	97



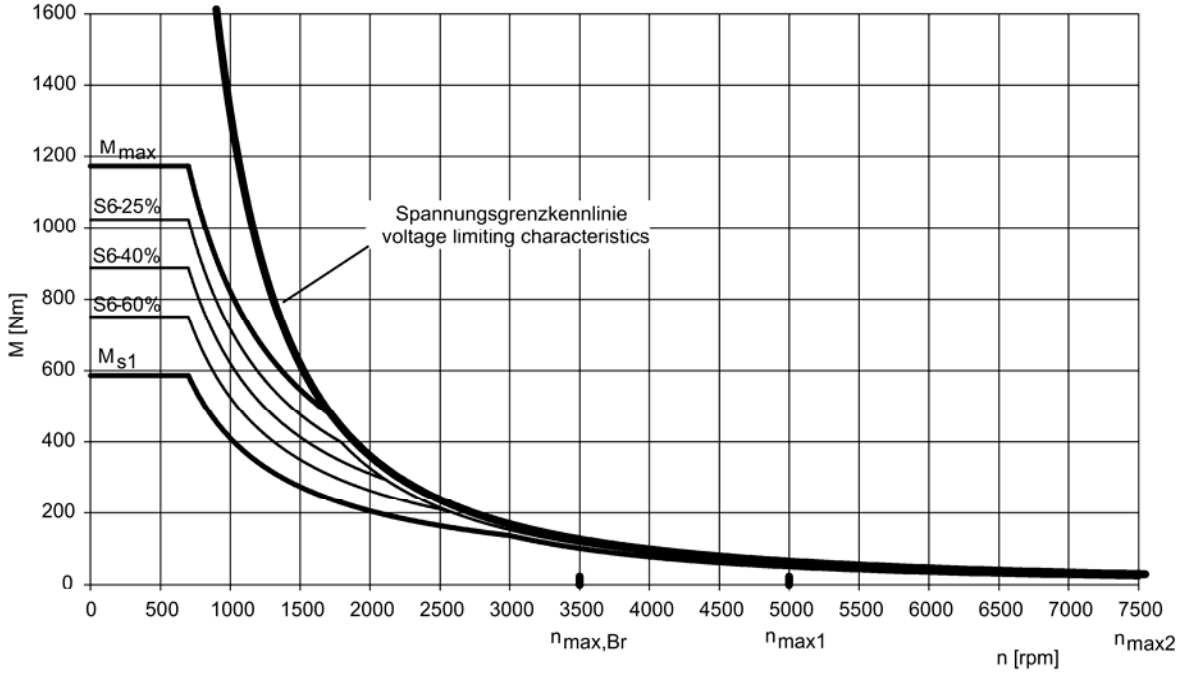
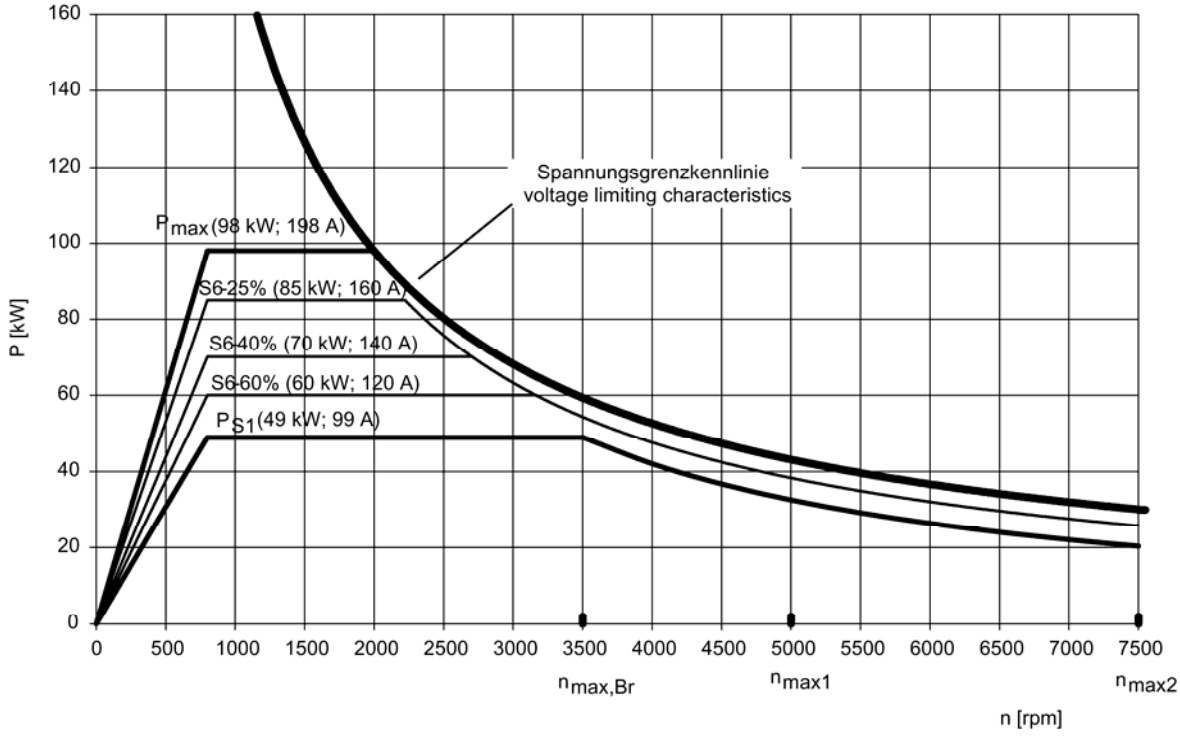


Table 6- 743 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□C2□

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	5,000	7,500	-	3,500	3,500	1,170	198	585	99
700	43	585	99					3,900				



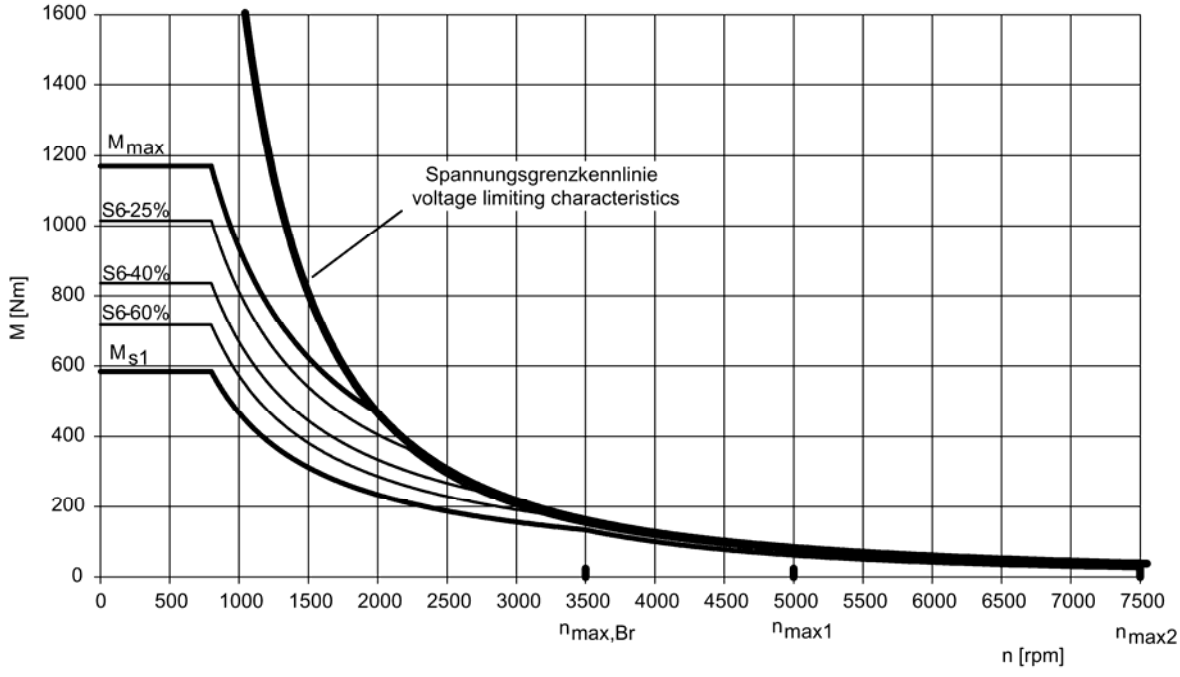
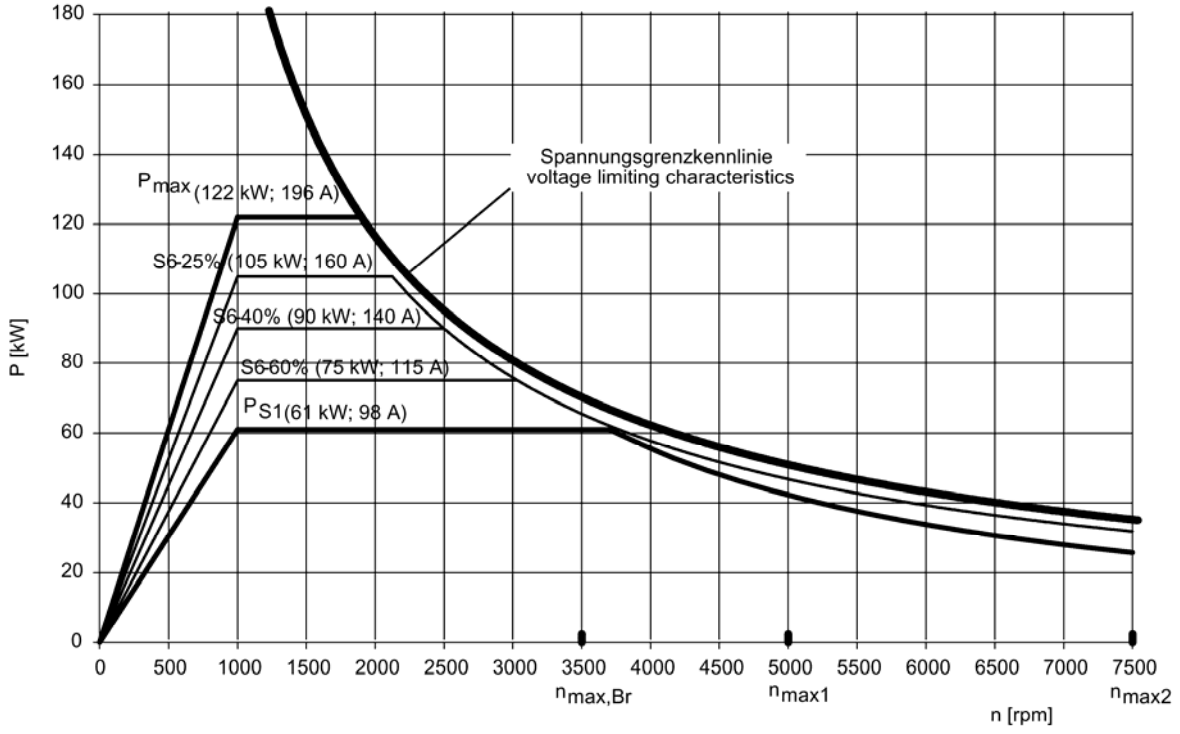


Table 6- 744 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□C2□

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]
1,000	61	583	98	5,000	7,500	-	3,500	3,700	1,165	196	583	98



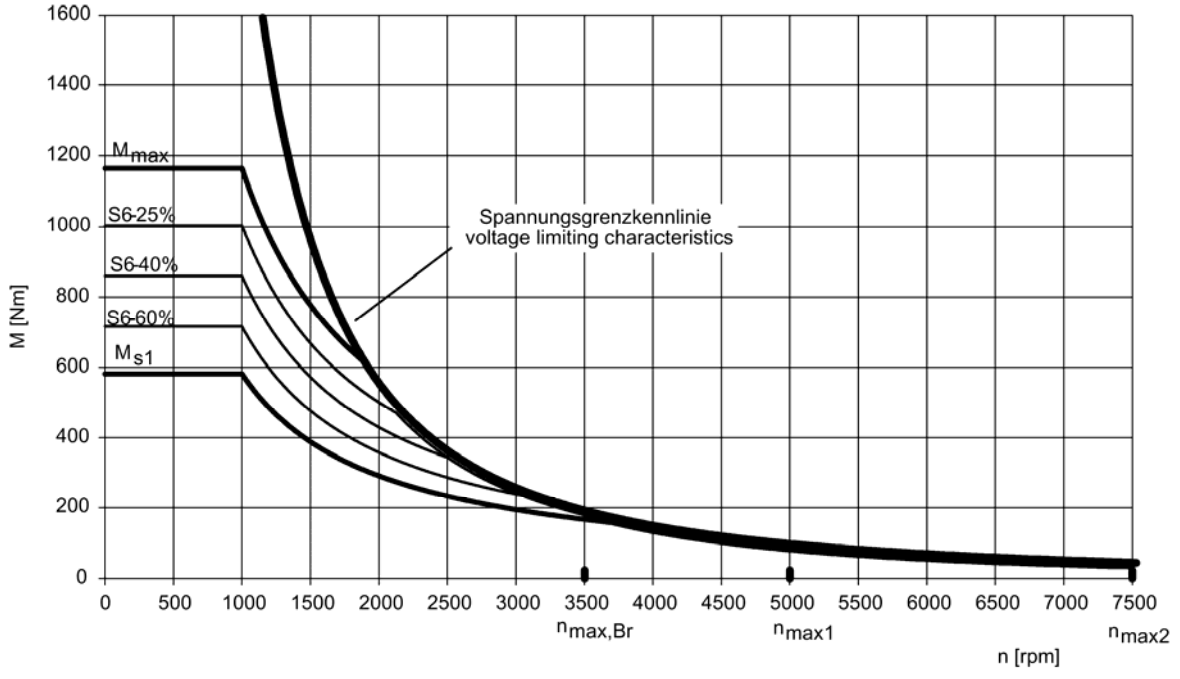
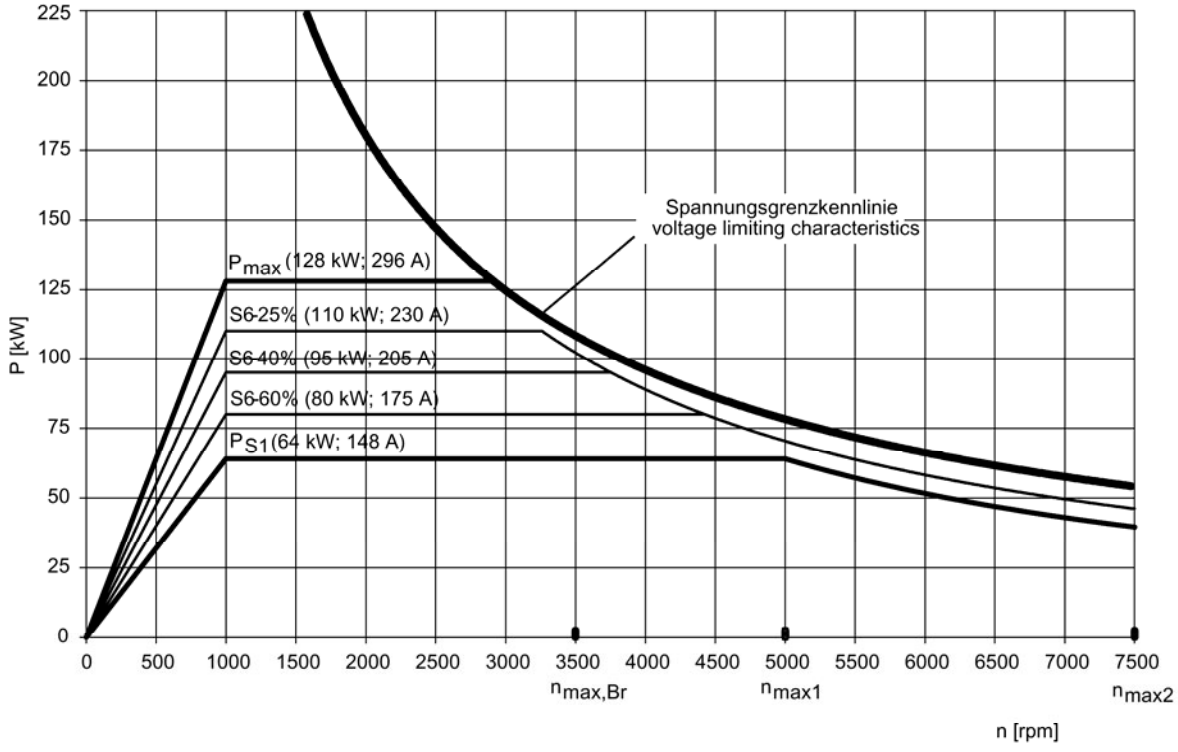


Table 6- 745 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□D2□

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]
1,000	64	611	148	5,000	7,500	-	3,500	5,000	1,222	296	611	148



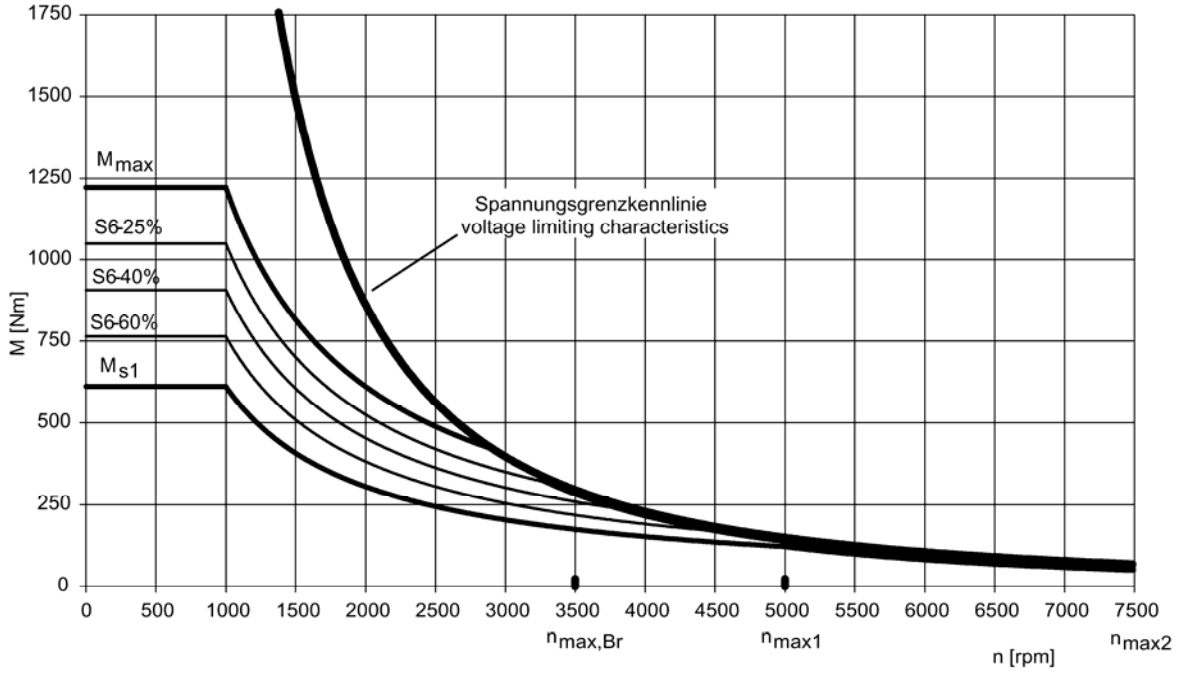
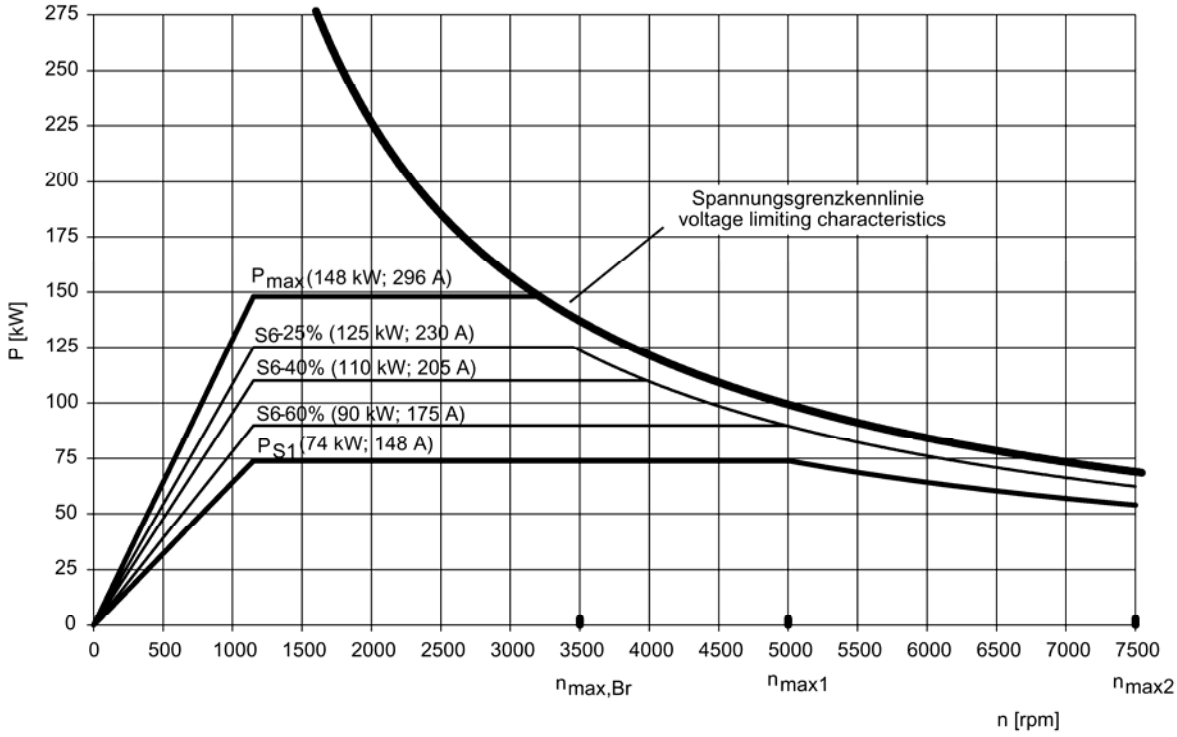


Table 6- 746 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□D2□

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]
1,150	74	615	148	5,000	7,500	-	3,500	5,000	1,229	296	615	148
1,000	64	615	148					6,000				



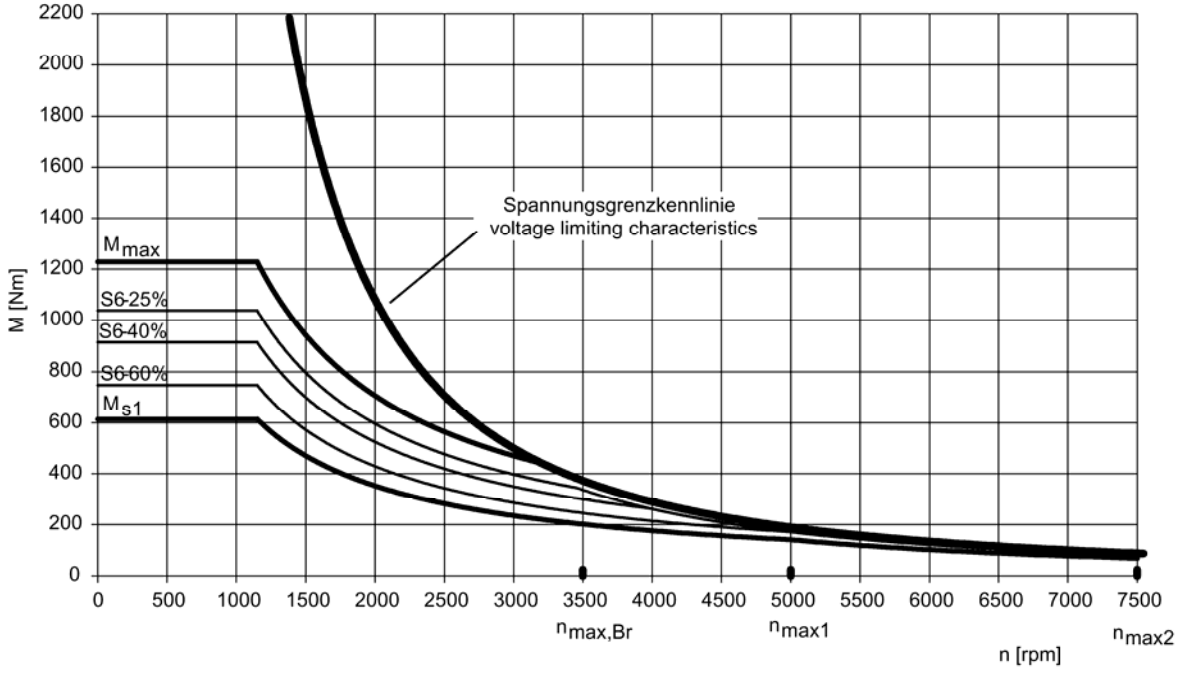
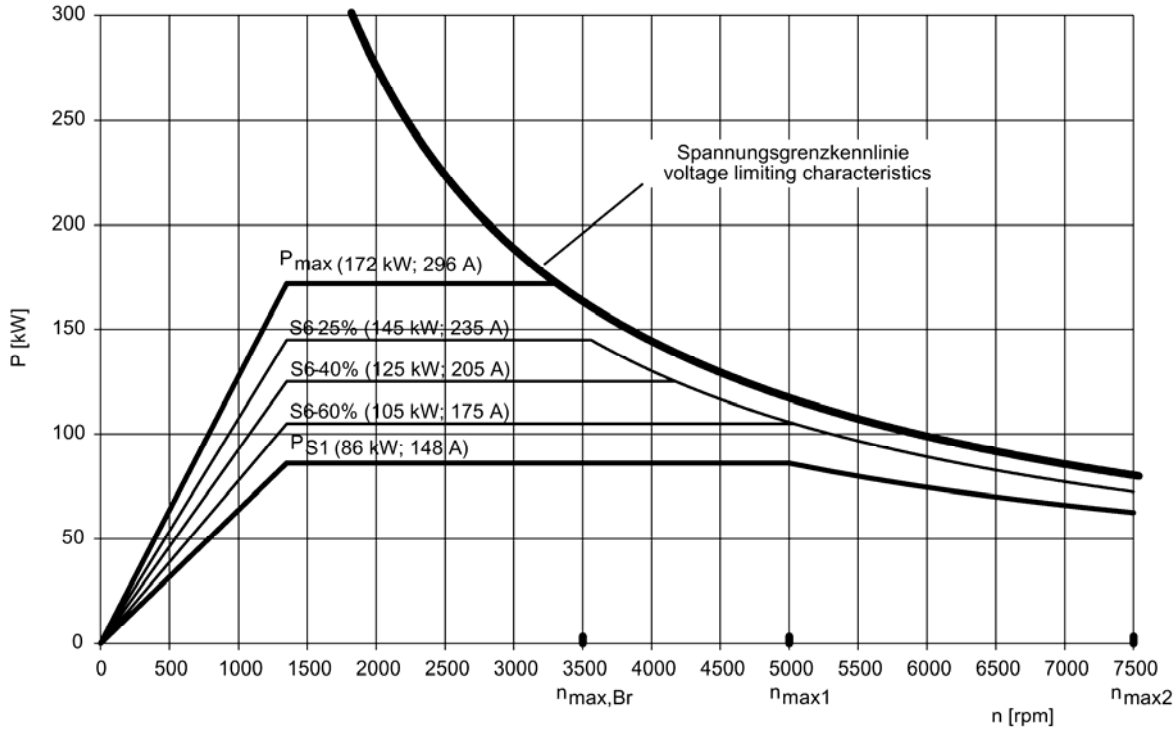


Table 6- 747 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□D2□

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]
1,350	86	608	148	5,000	7,500	-	3,500	5,000	1,217	296	608	148



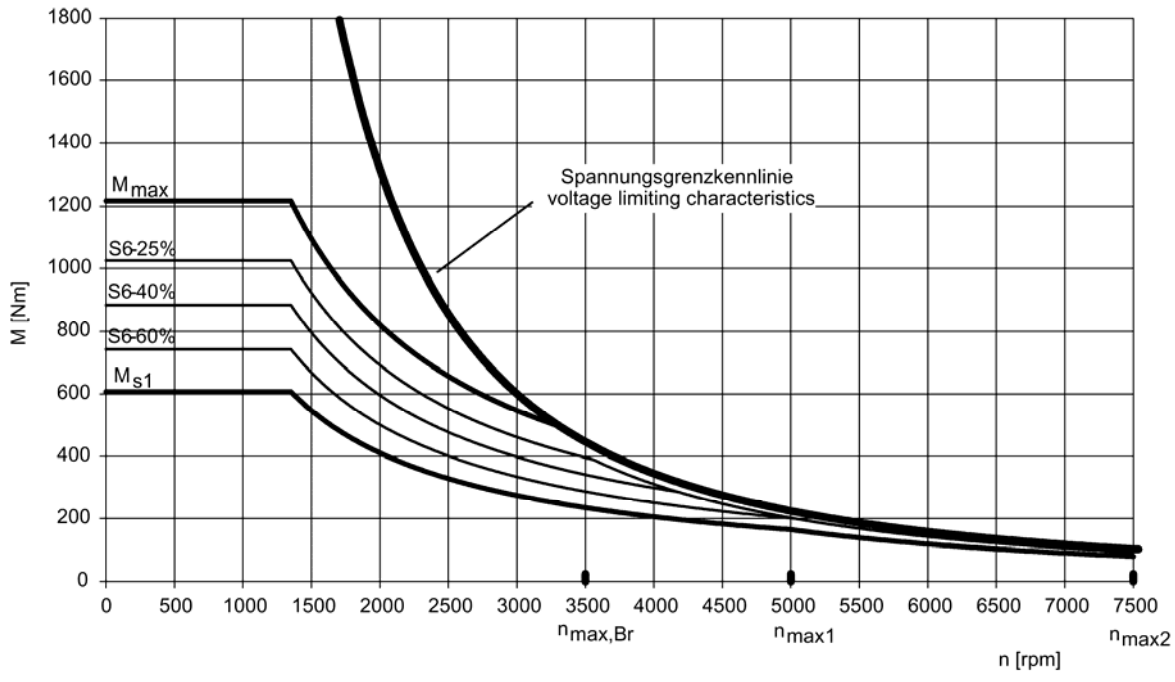
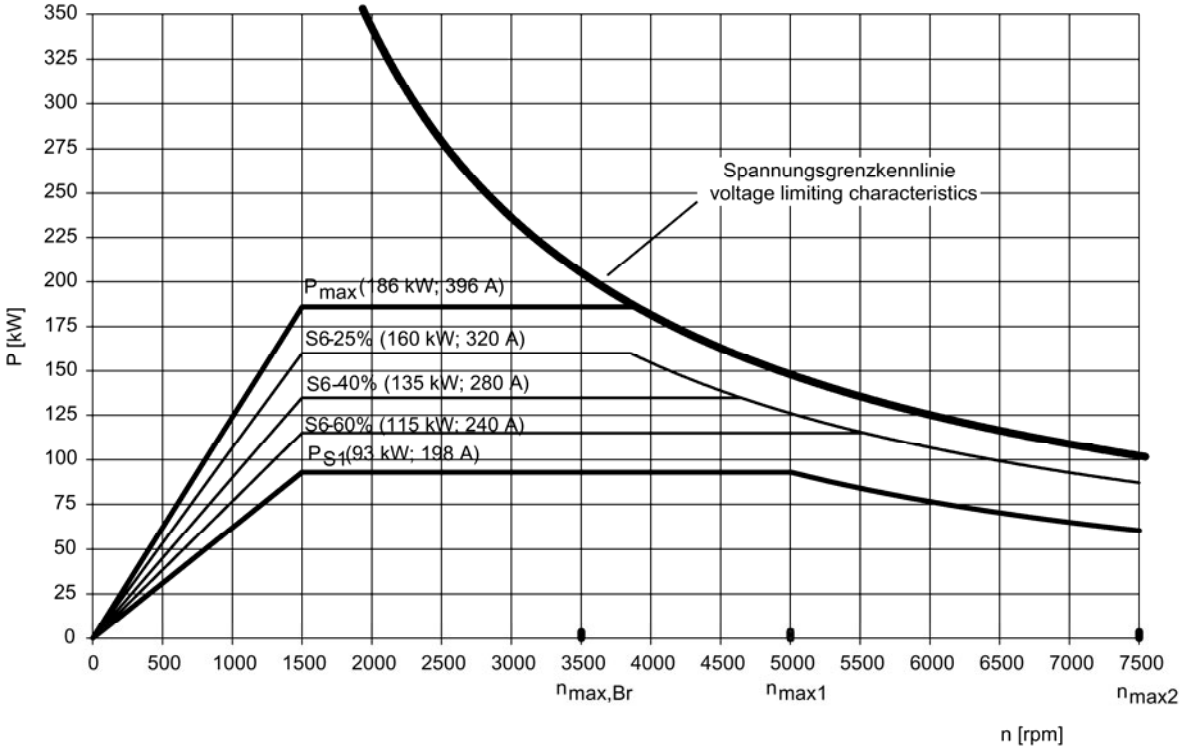


Table 6- 748 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□F2□

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]
1,500	93	592	198	5,000	7,500	-	3,500	5,000	1,184	396	592	198



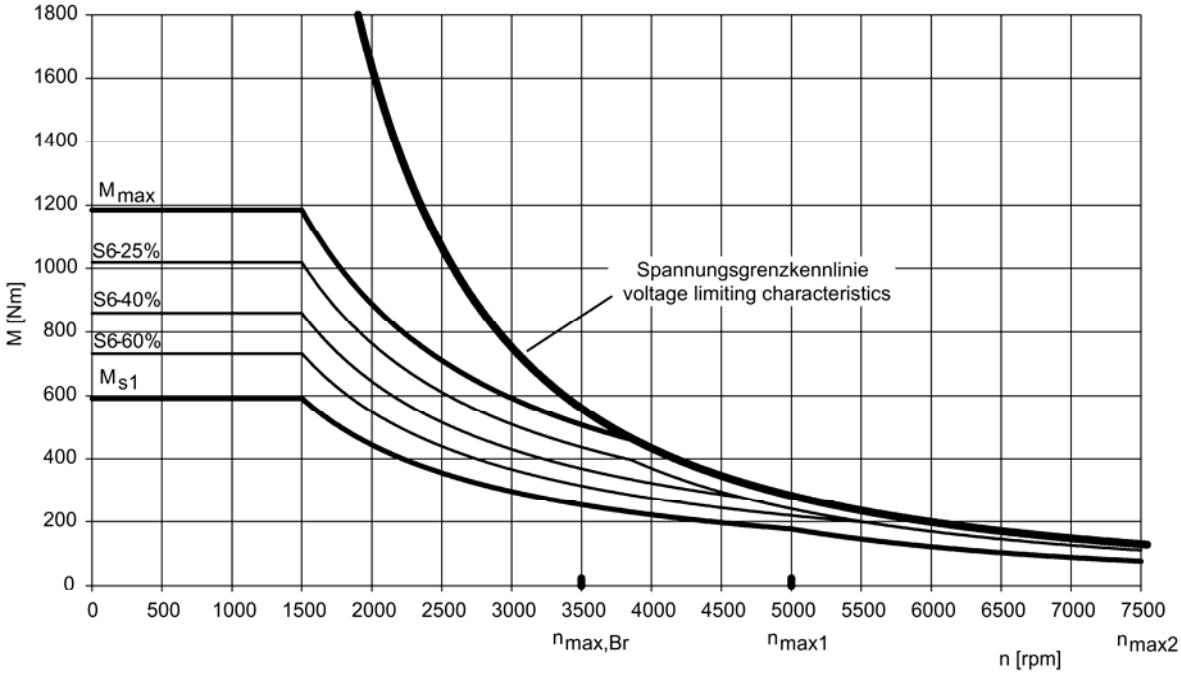
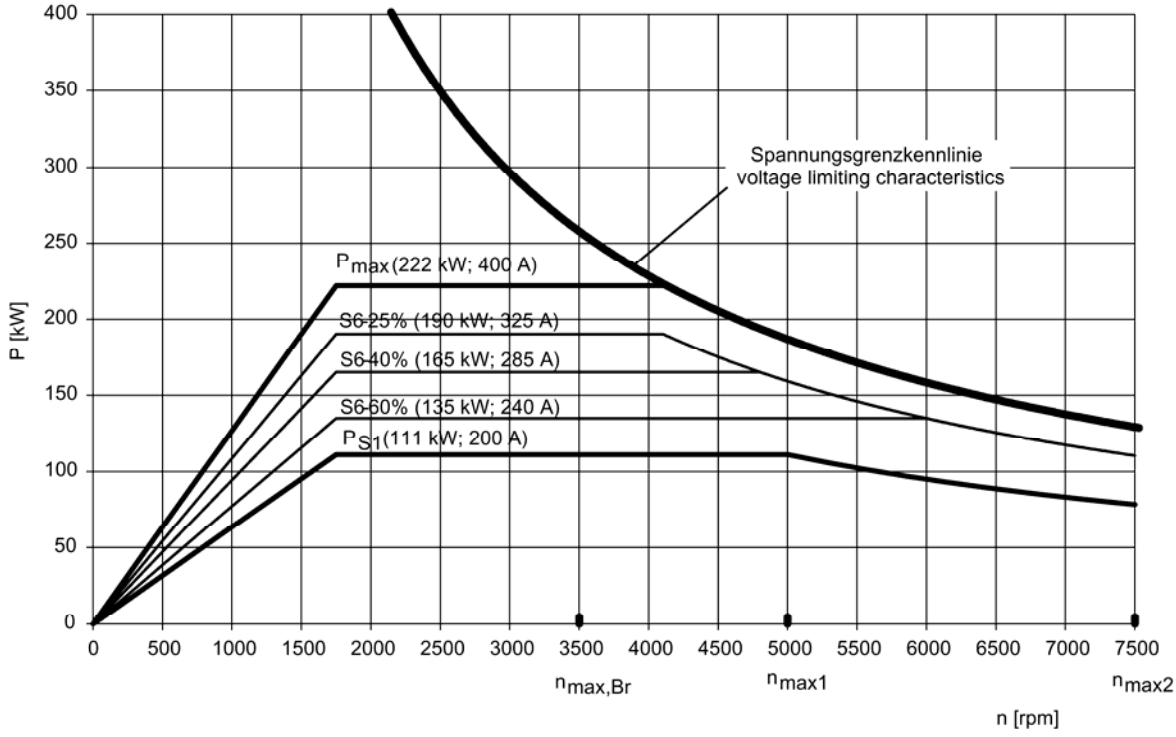


Table 6- 749 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□F2□

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]
1,750	111	606	200	5,000	7,500	-	3,500	5,000	1,211	400	606	200
1,500	95	606	200					6,000				



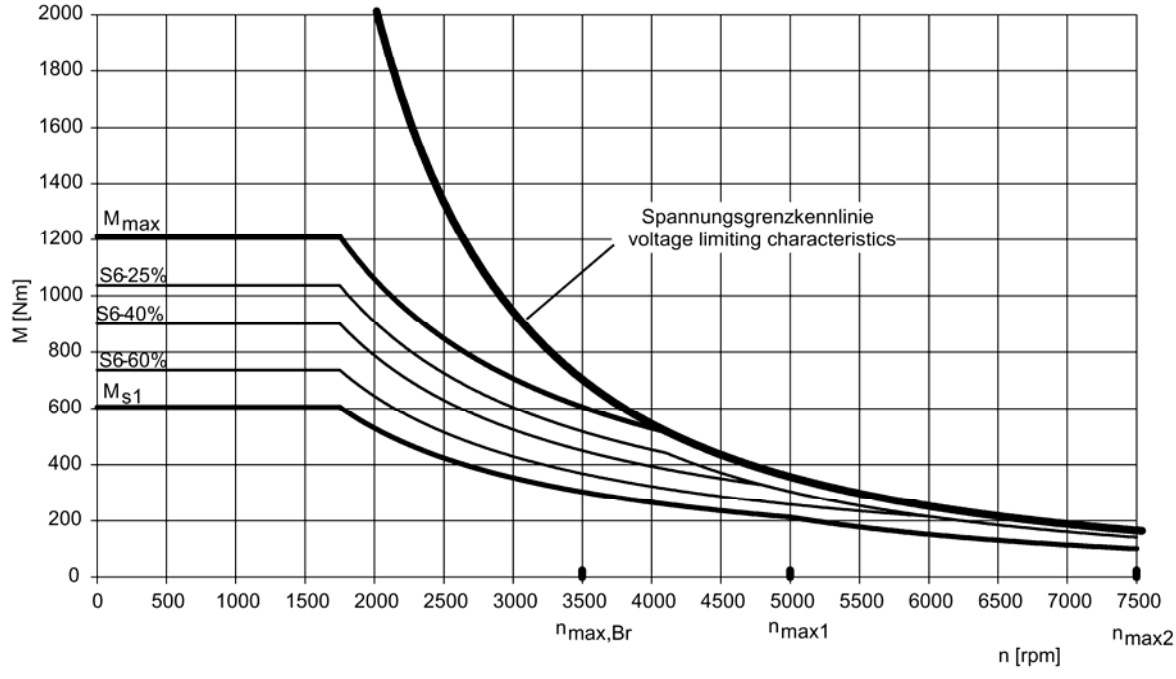
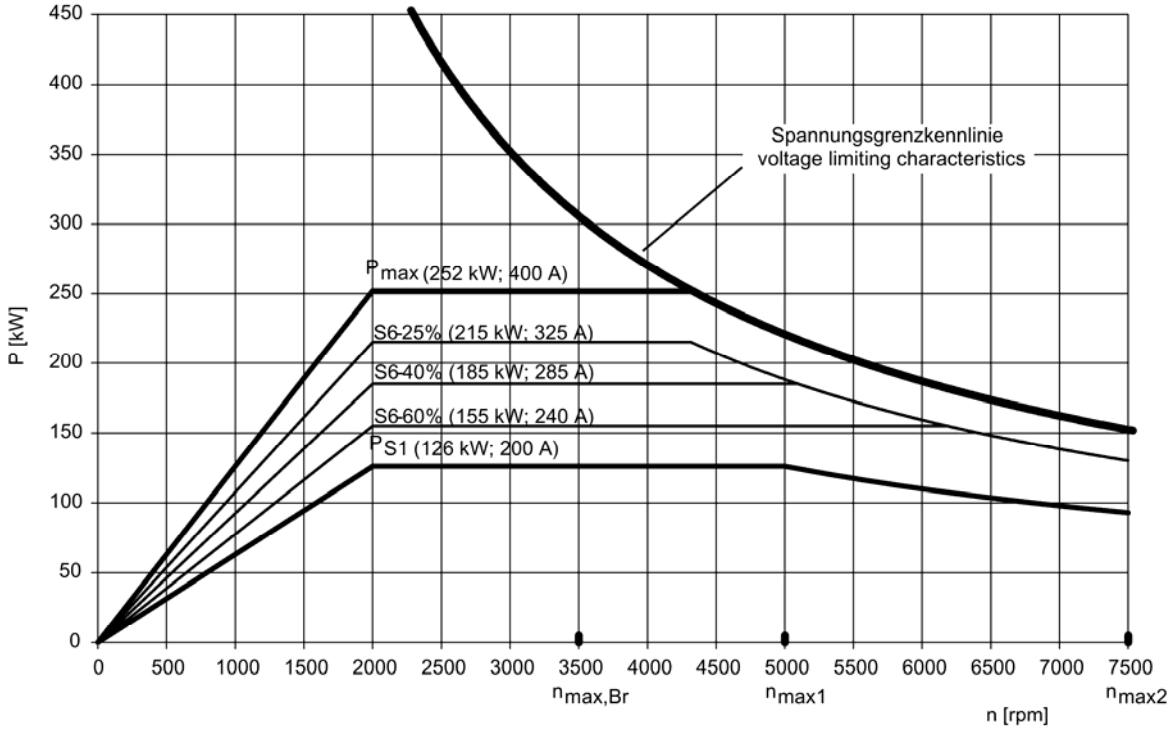


Table 6- 750 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□F2□

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]
2,000	126	602	200	5,000	7,500	-	3,500	5,000	1,203	400	602	200



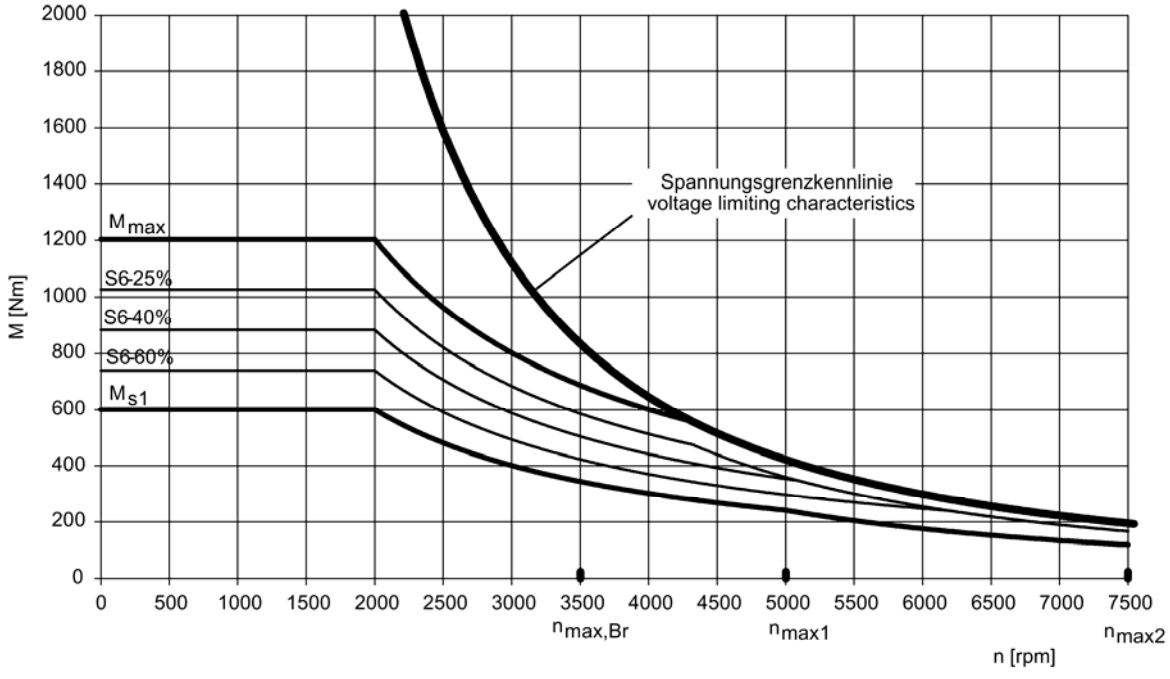
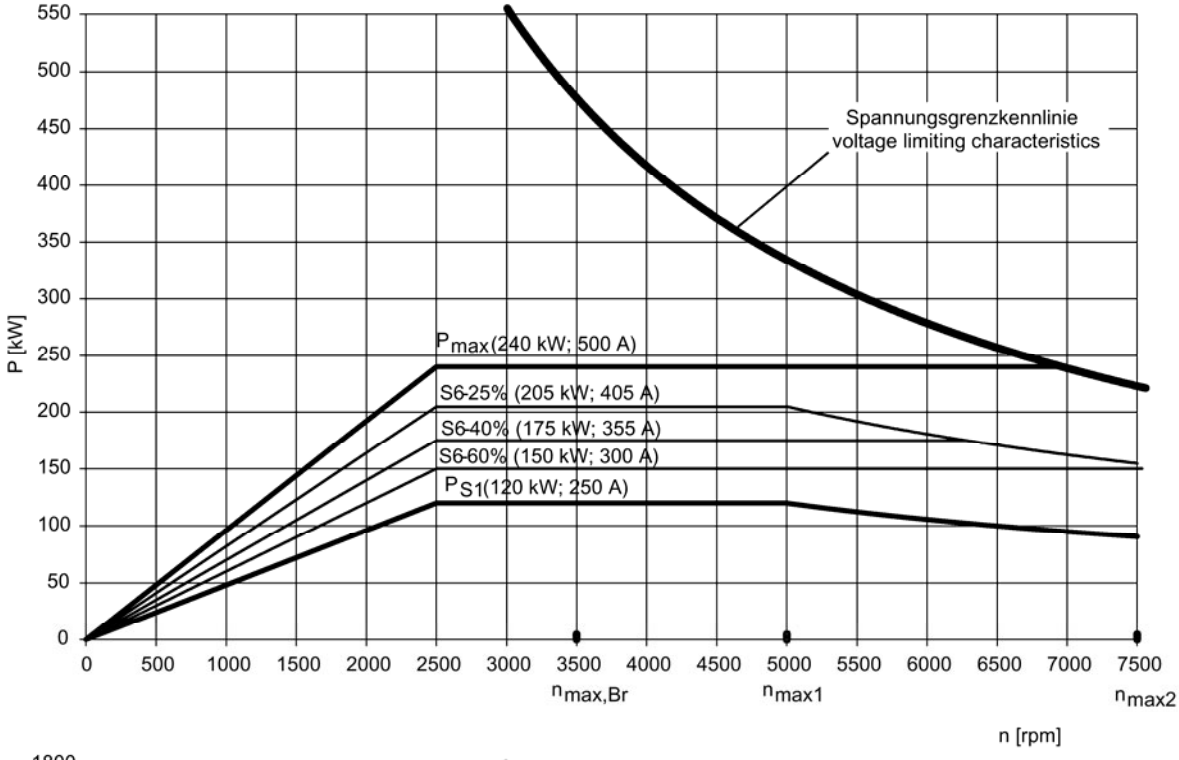


Table 6- 751 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-□□L2□

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]
2,500	120	458	250	5,000	7,500	-	3,500	5,000	917	500	458	250



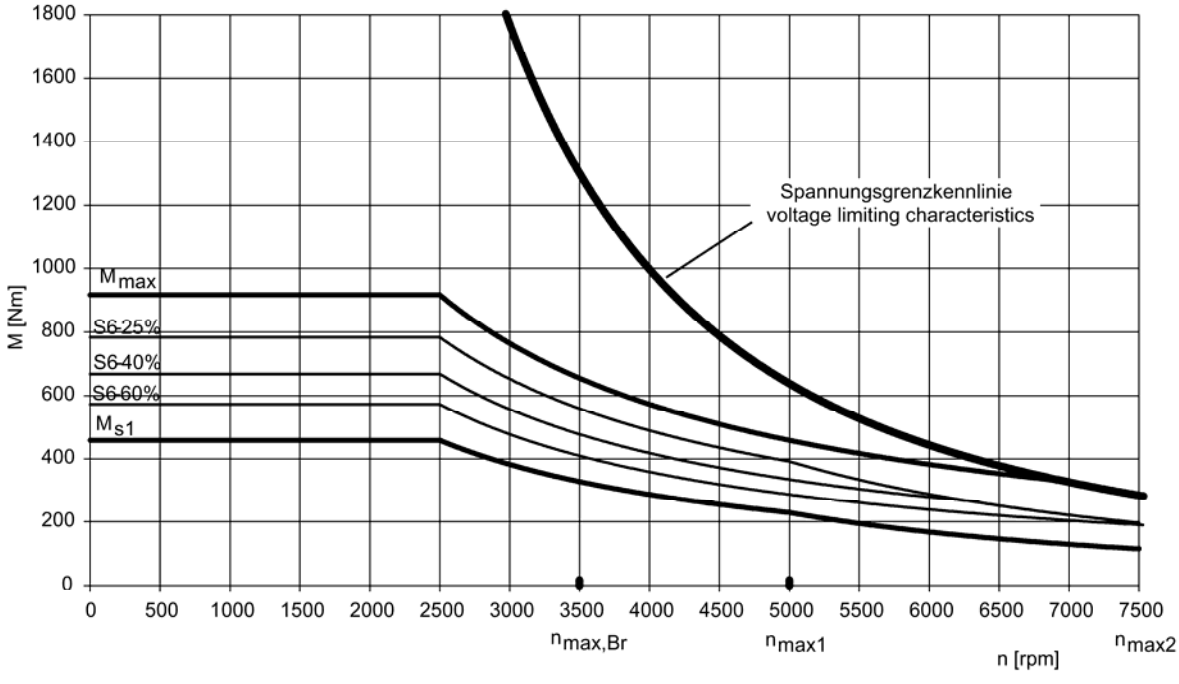
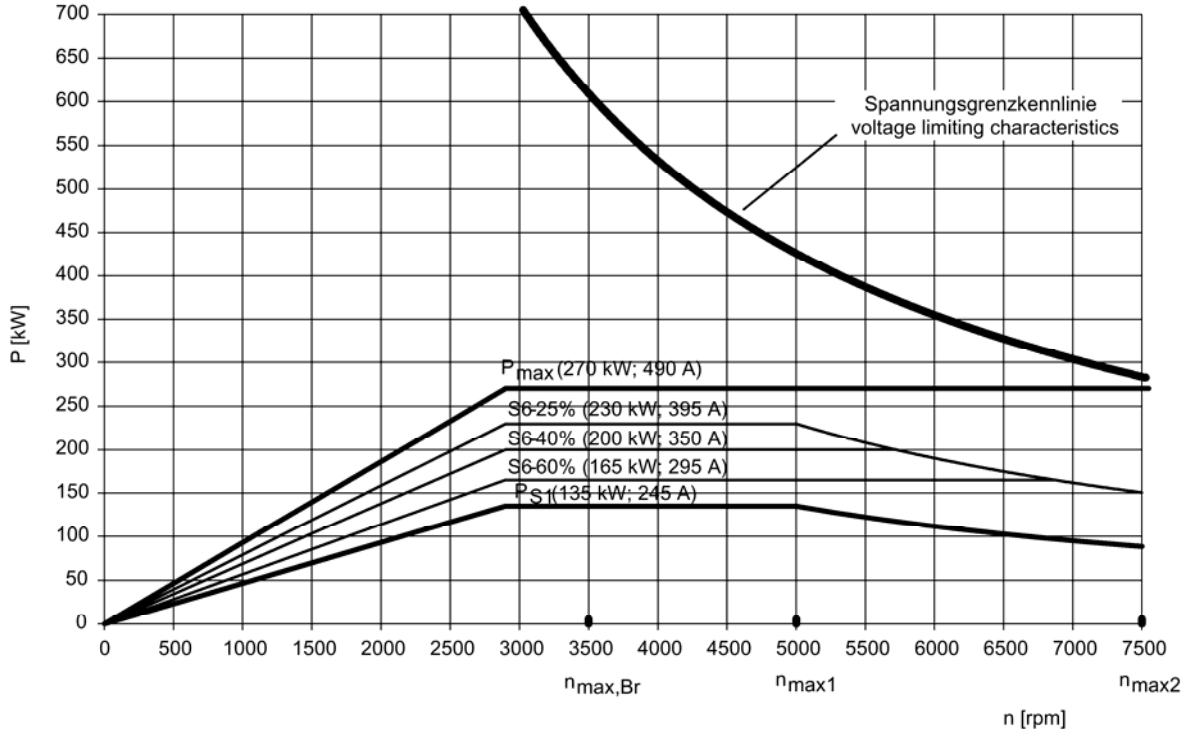


Table 6- 752 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-□□L2□

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]
2,900	135	445	245	5,000	7,500	-	3,500	5,000	889	490	445	245
2,500	116	445	245					5,800				



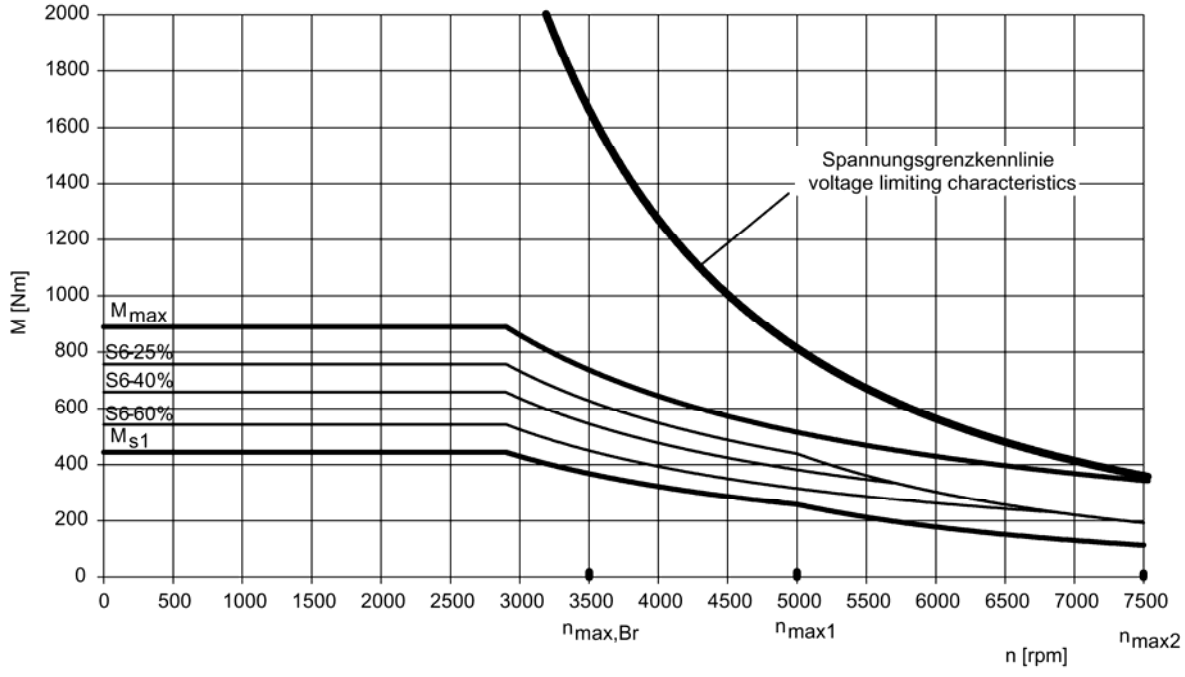
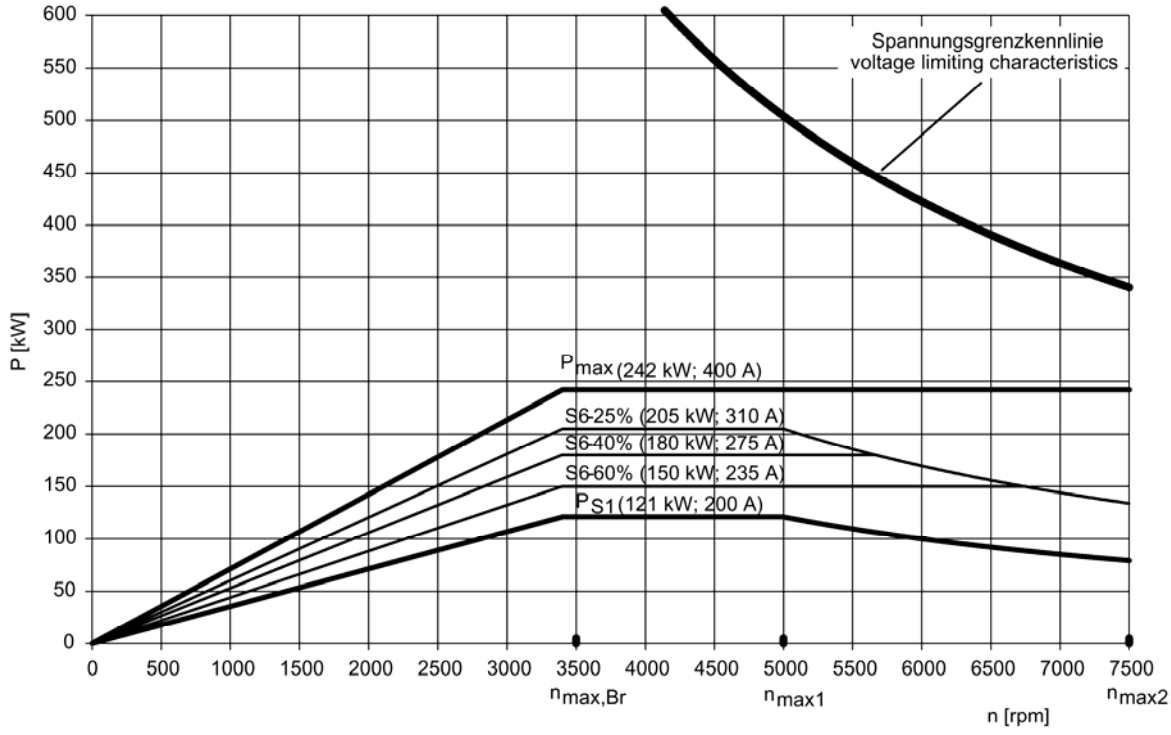
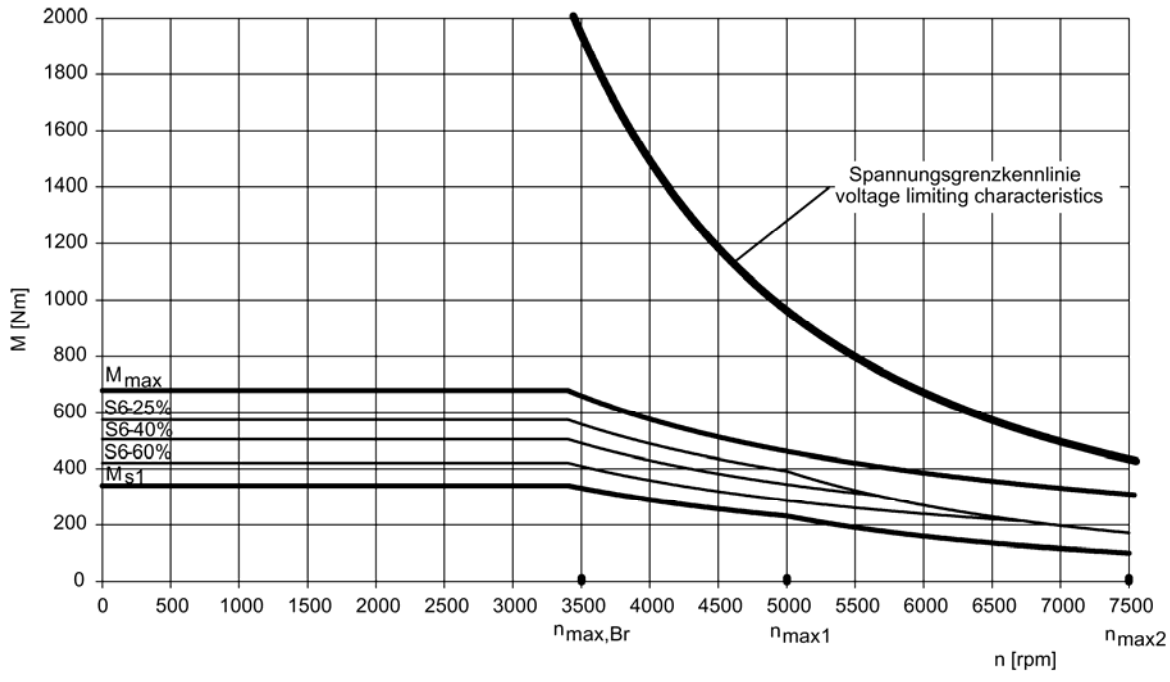


Table 6- 753 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-□□L2□

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]
3,400	121	340	200	5,000	7,500	-	3,500	5,000	680	400	340	200

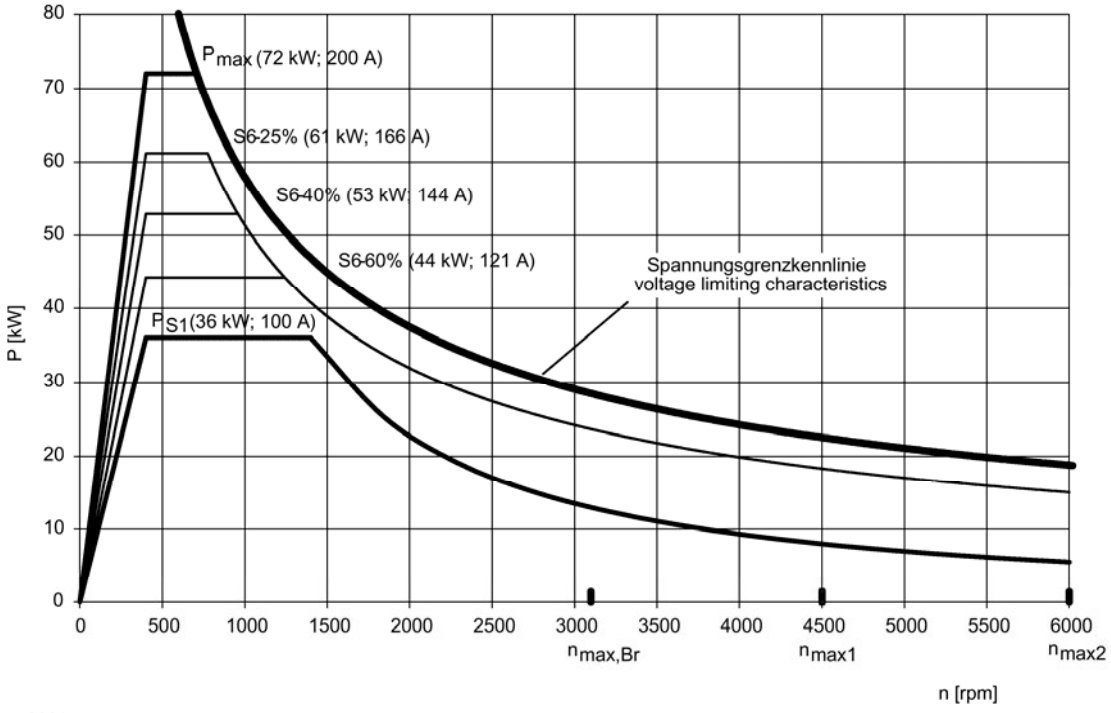




6.1.3.7 Shaft height 225 - water-cooled

Table 6- 754 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	4,500	6,000	-	3,100	1,400	1,719	200	859	100



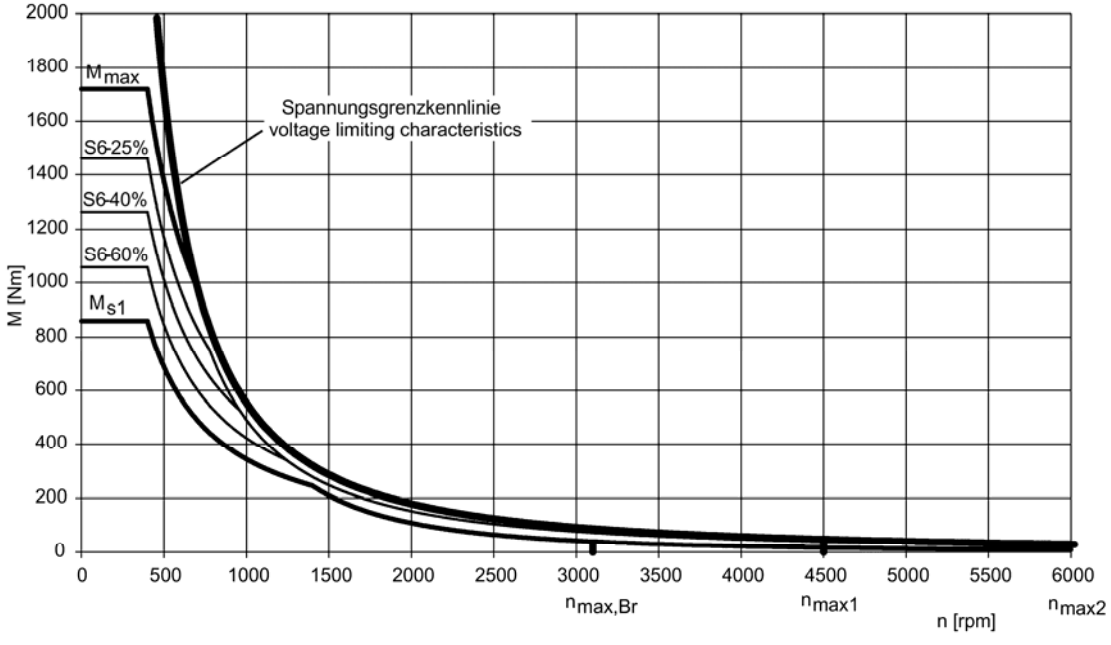
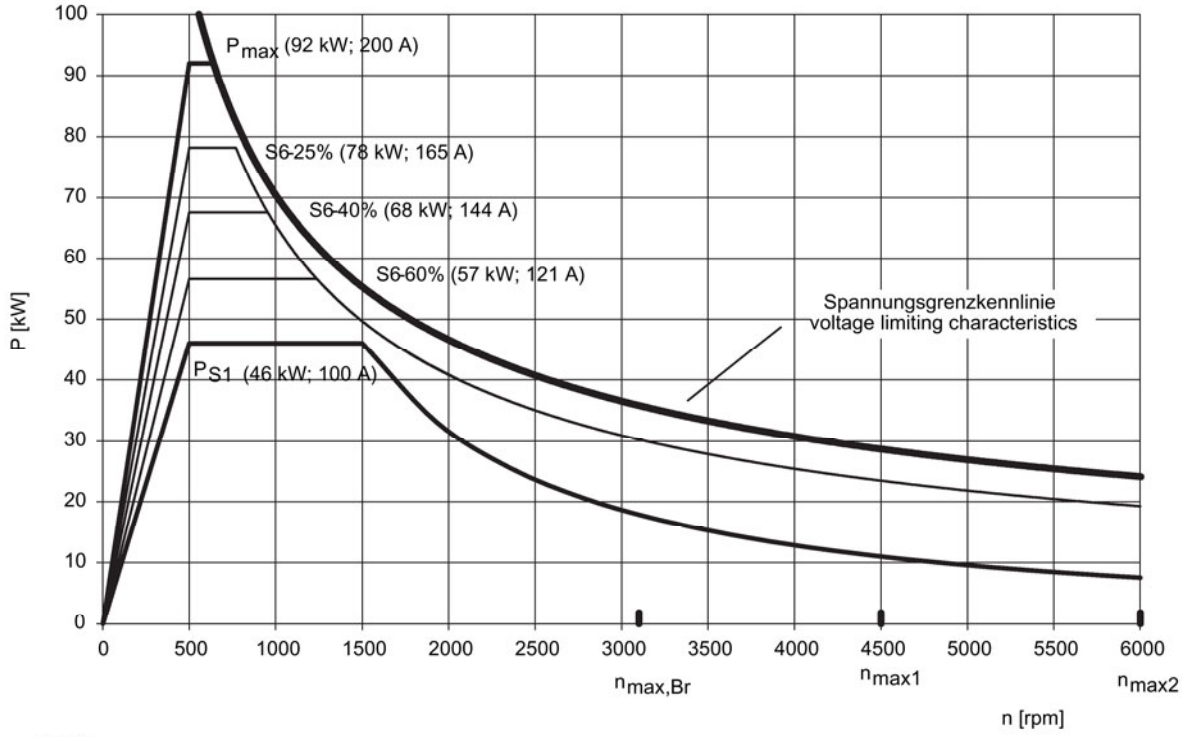


Table 6- 755 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□B2□

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	4,500	6,000	-	3,100	1,500	1,757	200	879	100
400	37	879	100					1,800				



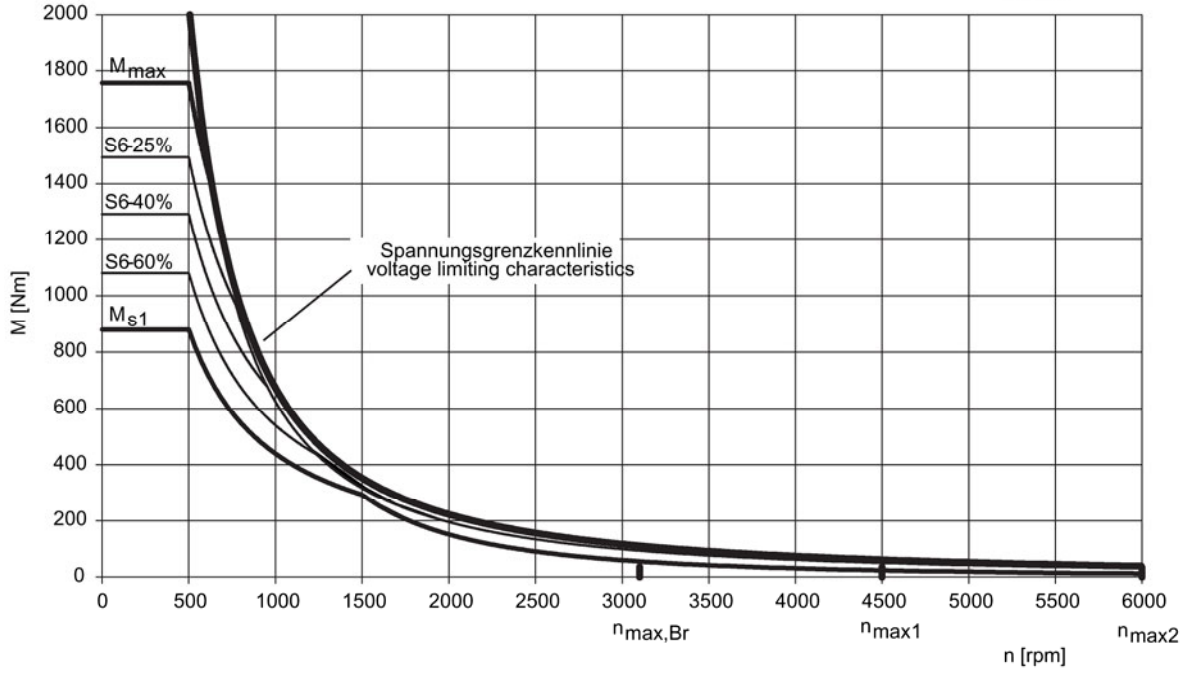
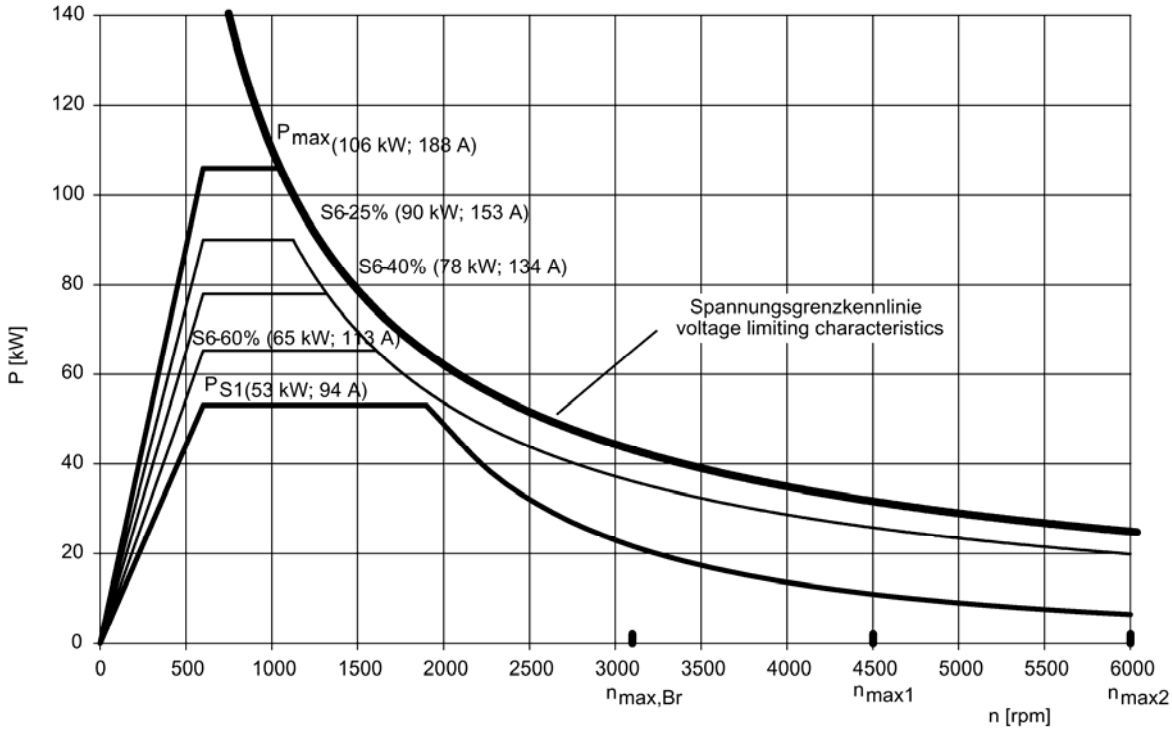


Table 6- 756 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□B2□

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	4,500	6,000	-	3,100	1,900	1,687	188	844	94



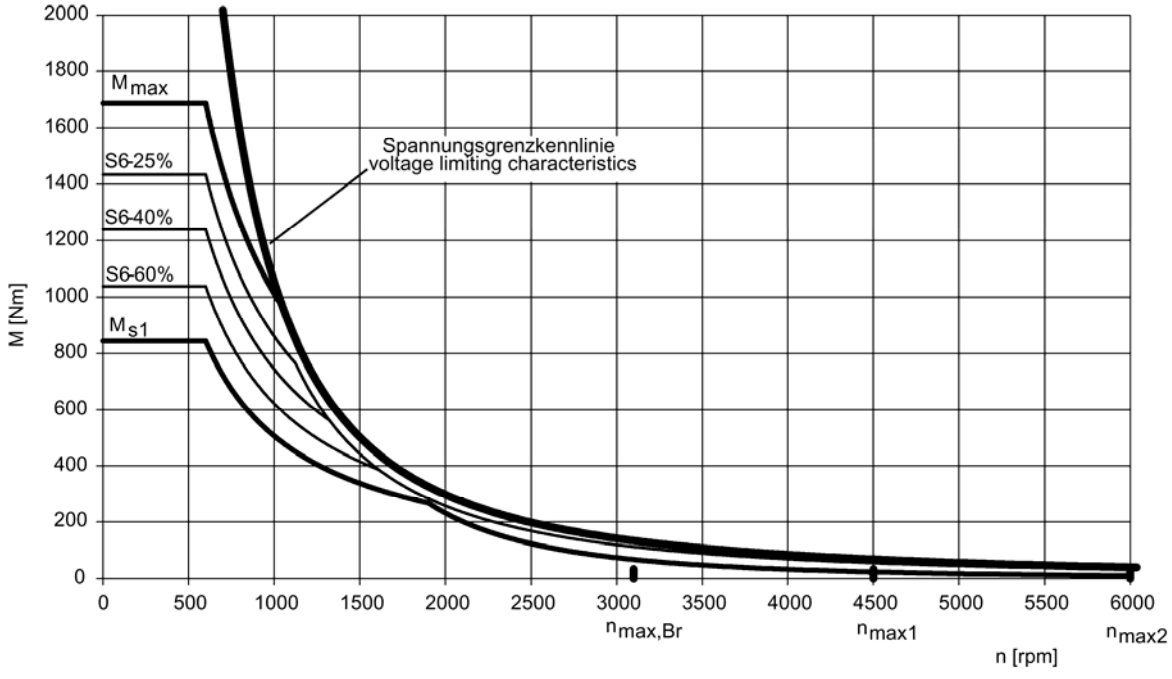
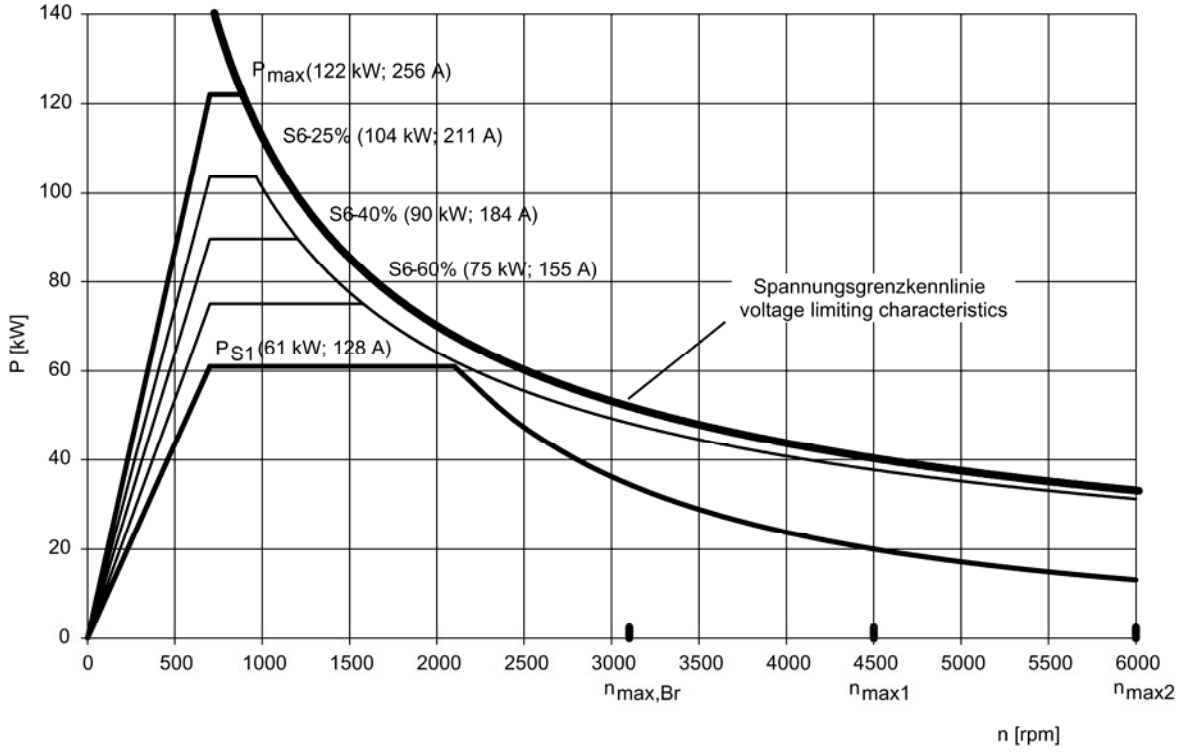


Table 6- 757 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□C2□

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	4,500	6,000	-	3,100	2,100	1,664	256	832	128



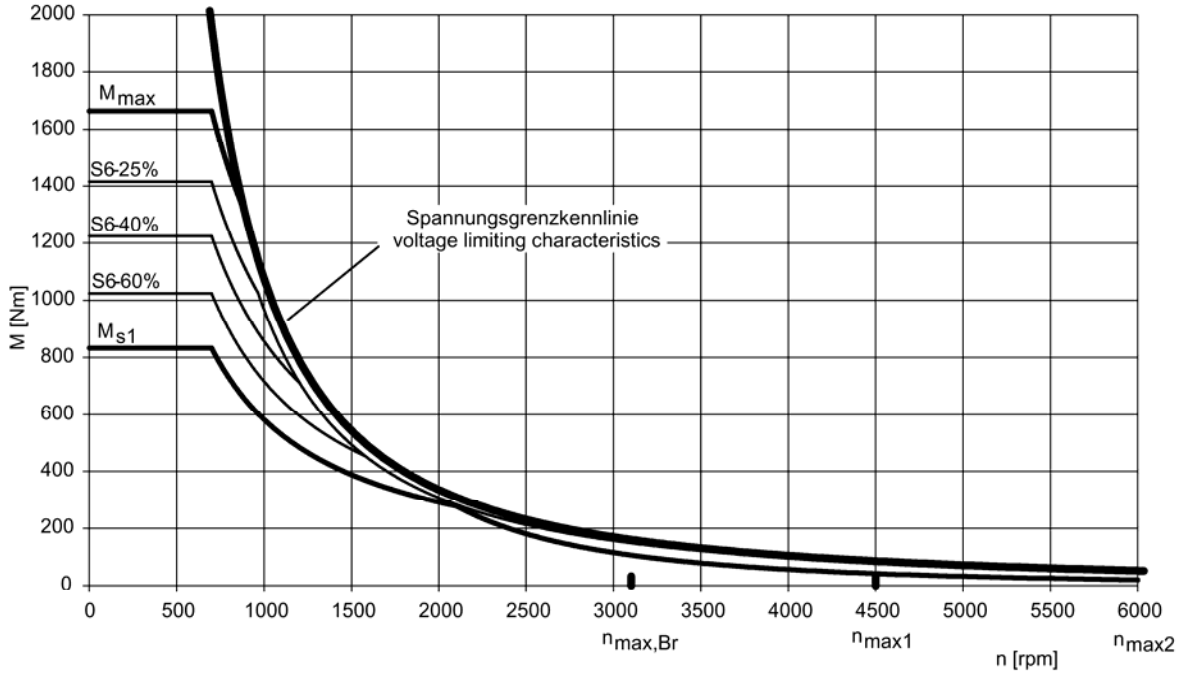
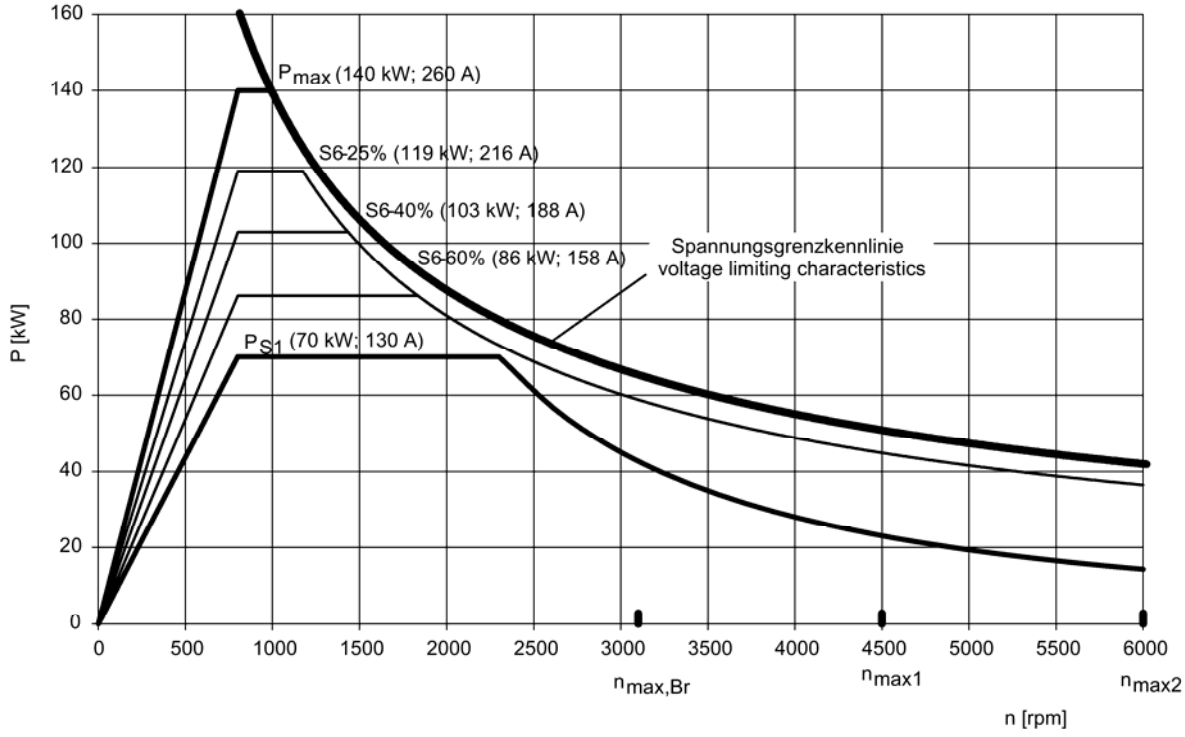


Table 6- 758 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□C2□

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	4,500	6,000	-	3,100	2,300	1,671	260	836	130
700	61	836	130					2,500				



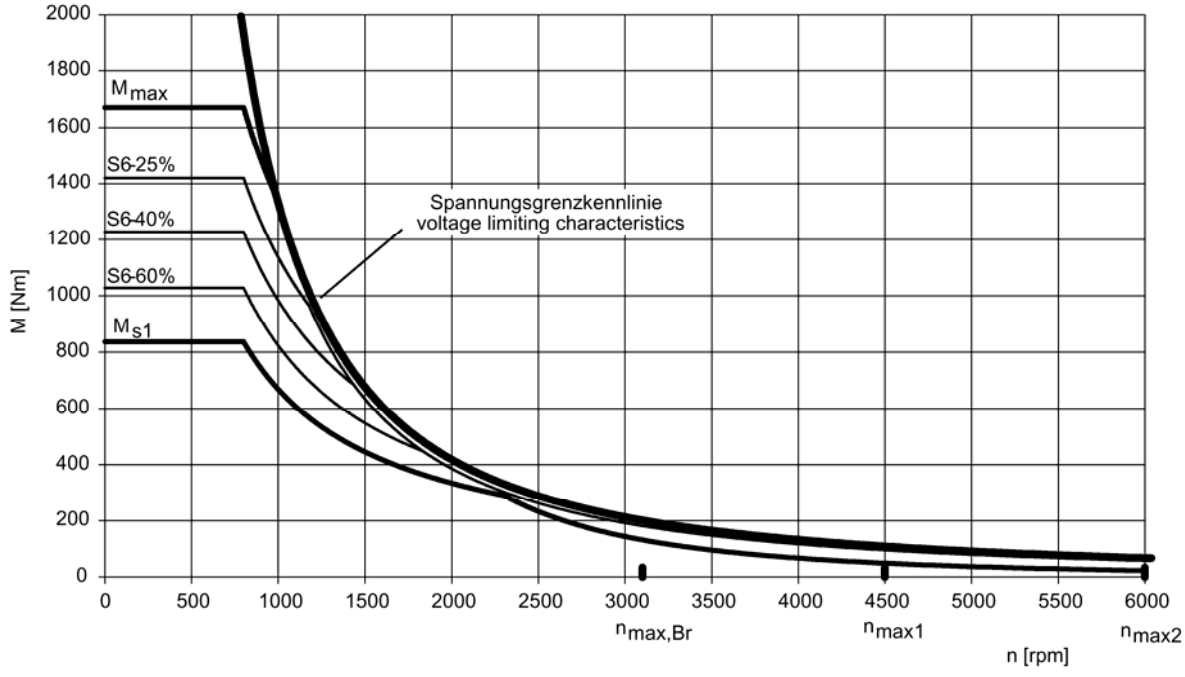
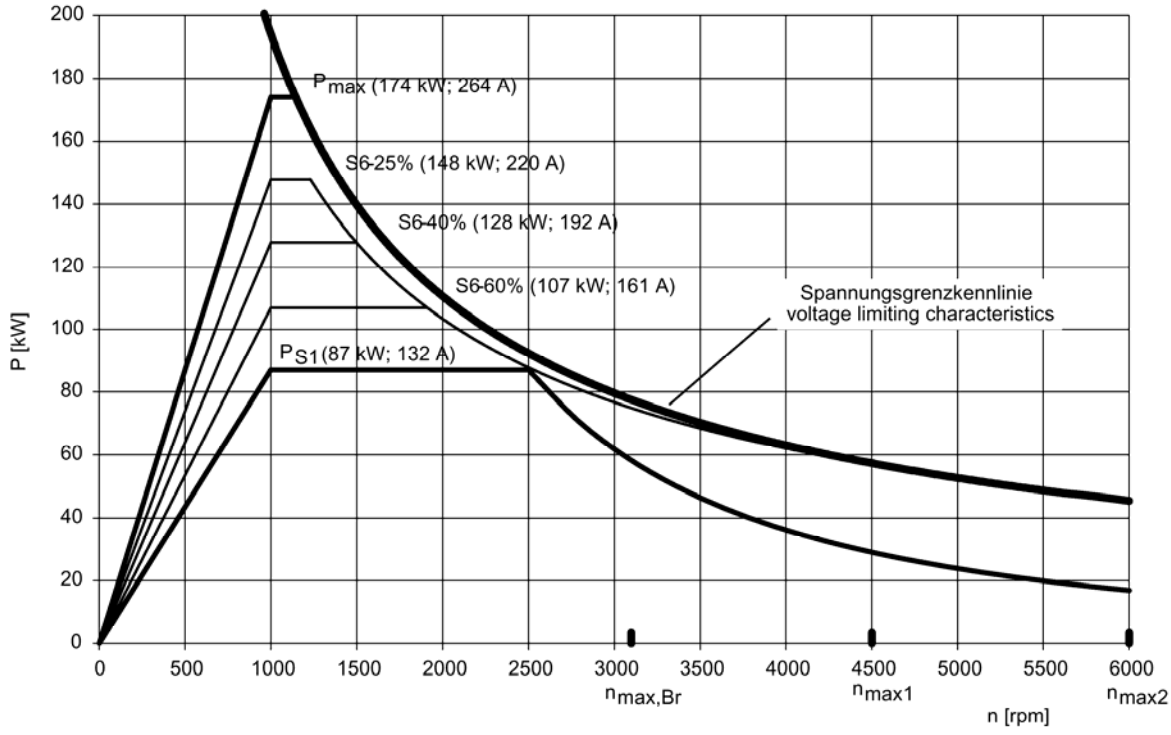


Table 6- 759 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□C2□

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]
1,000	87	831	132	4,500	6,000	-	3,100	2,500	1,662	264	831	132



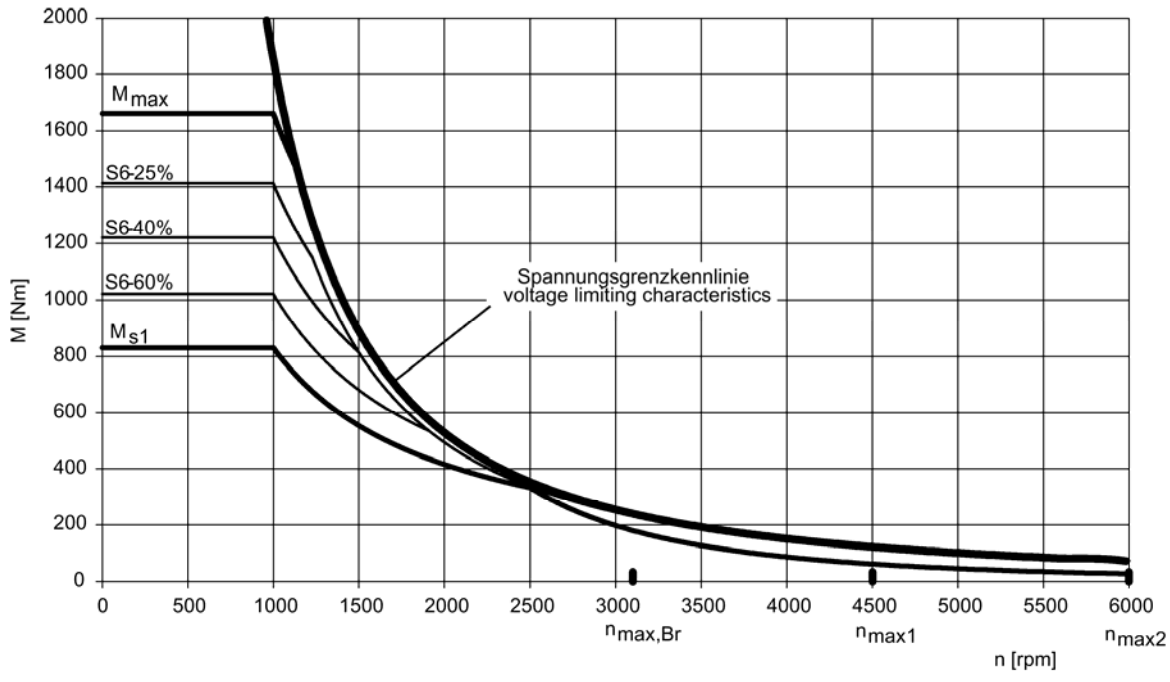
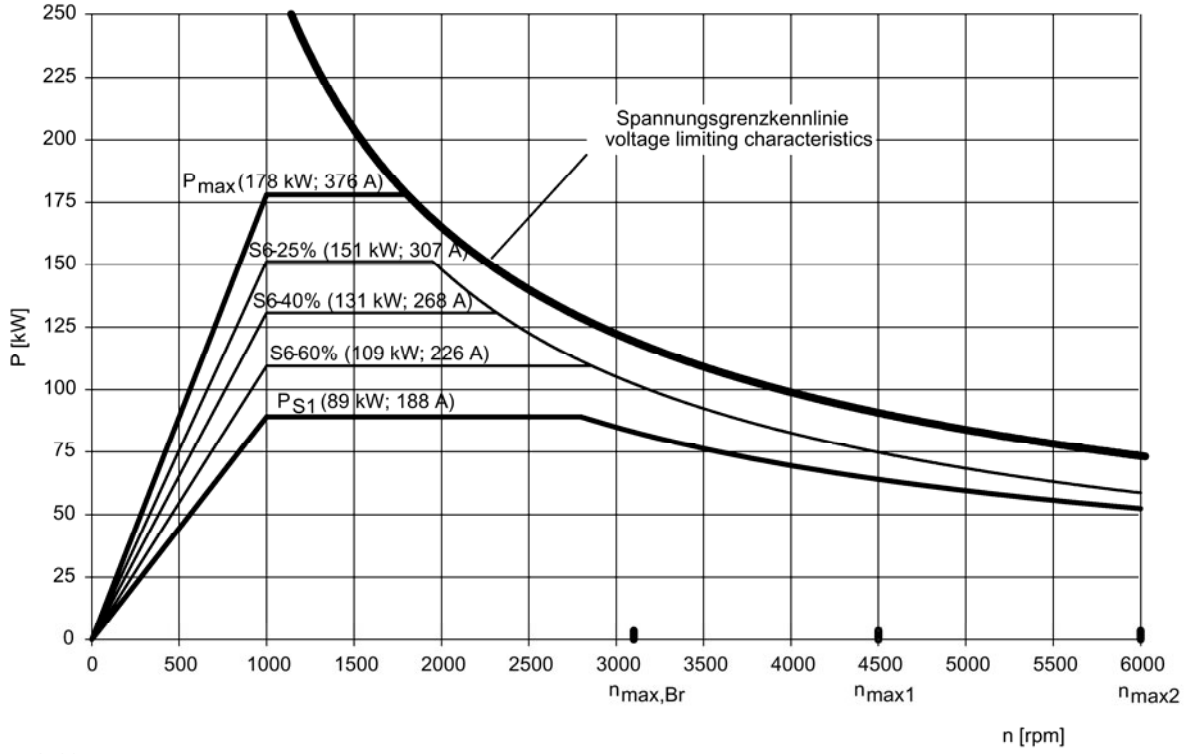


Table 6- 760 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□D2□

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]
1,000	89	850	188	4,500	6,000	-	3,100	2,800	1,700	376	850	188



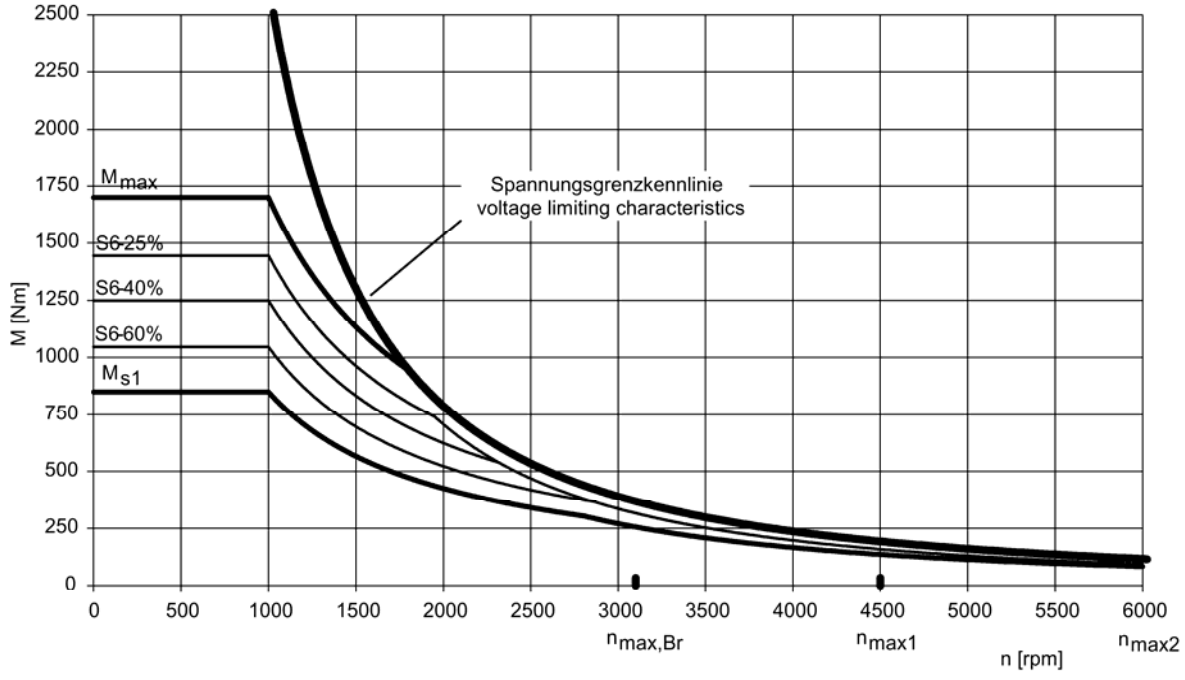
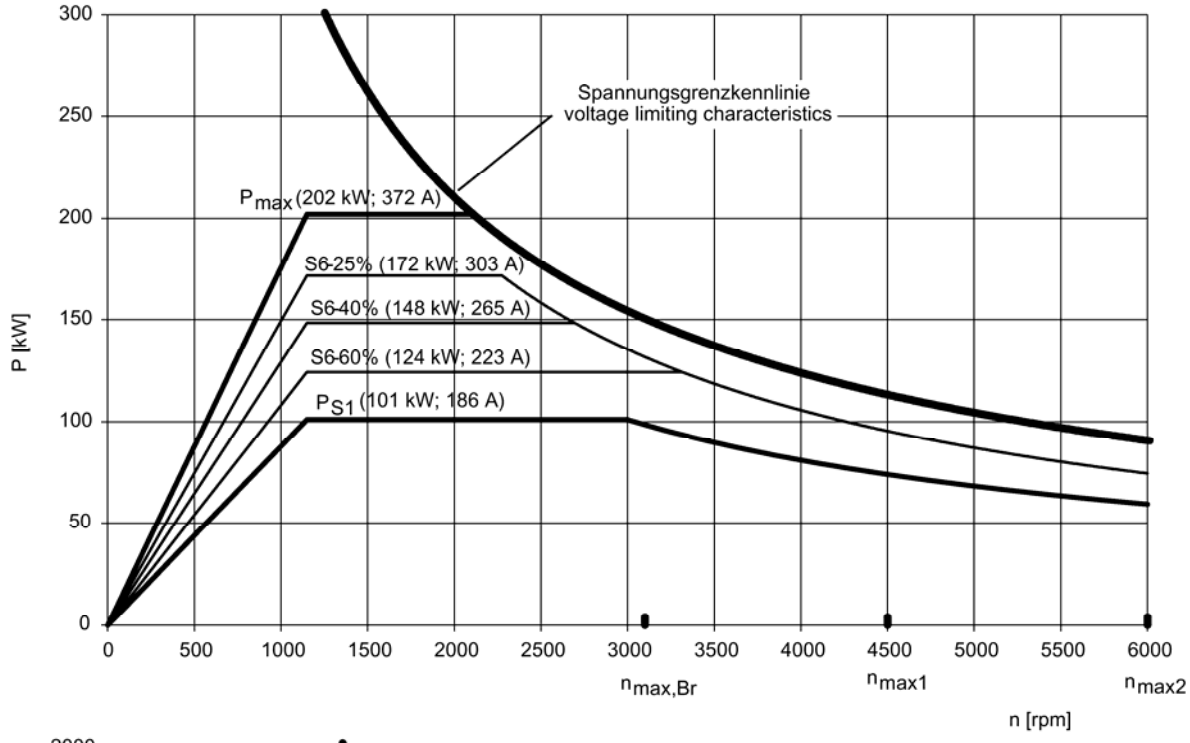


Table 6- 761 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□D2□

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]
1,150	101	839	186	4,500	6,000	-	3,100	3,000	1,677	372	839	186
1,000	88	839	186					3,600				



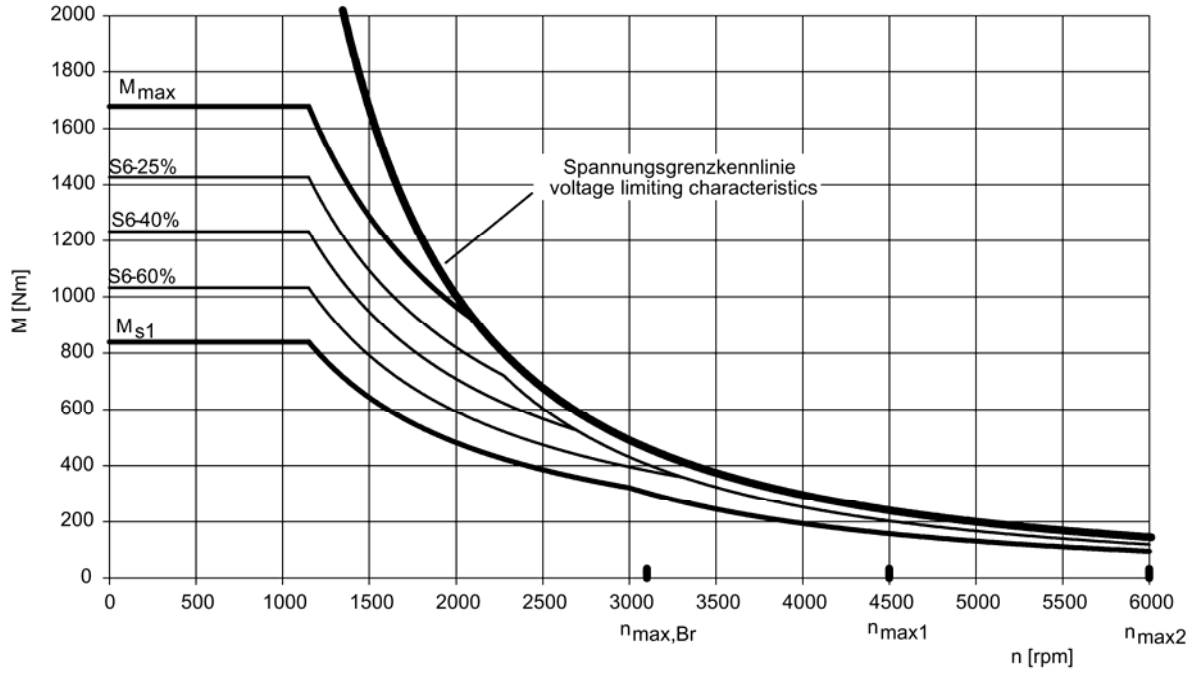
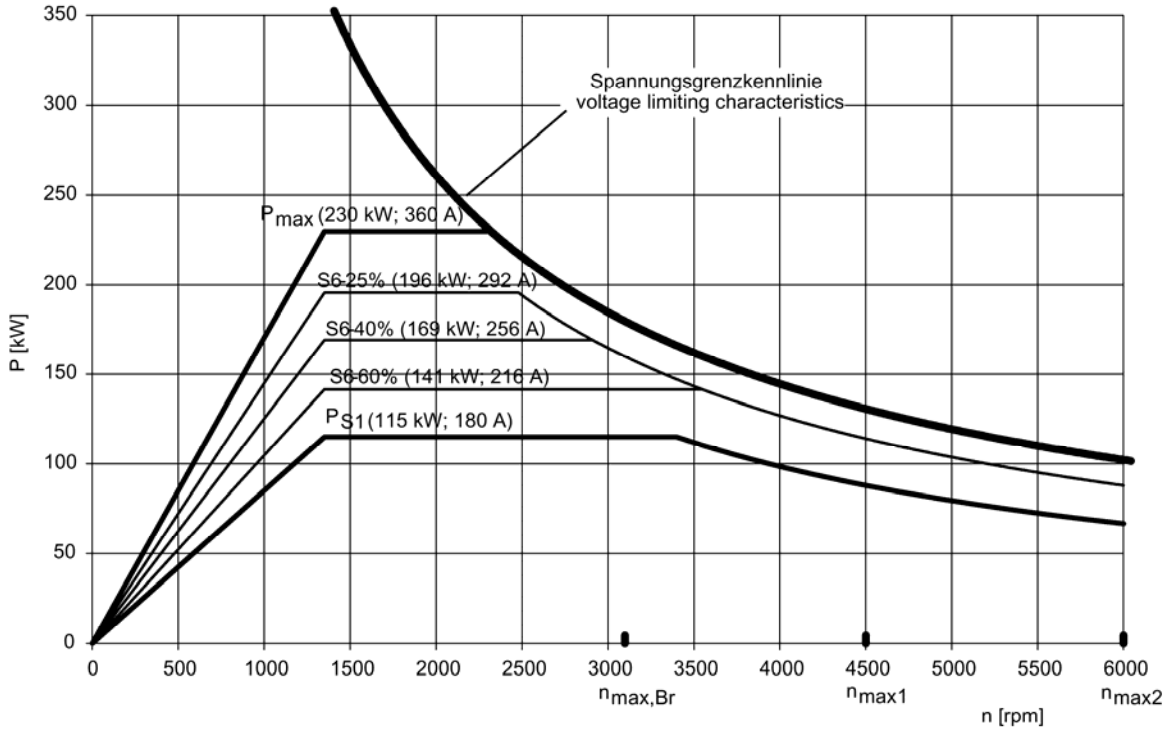


Table 6- 762 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□D2□

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]
1,350	115	813	180	4,500	6,000	-	3,100	3,400	1,627	360	814	180



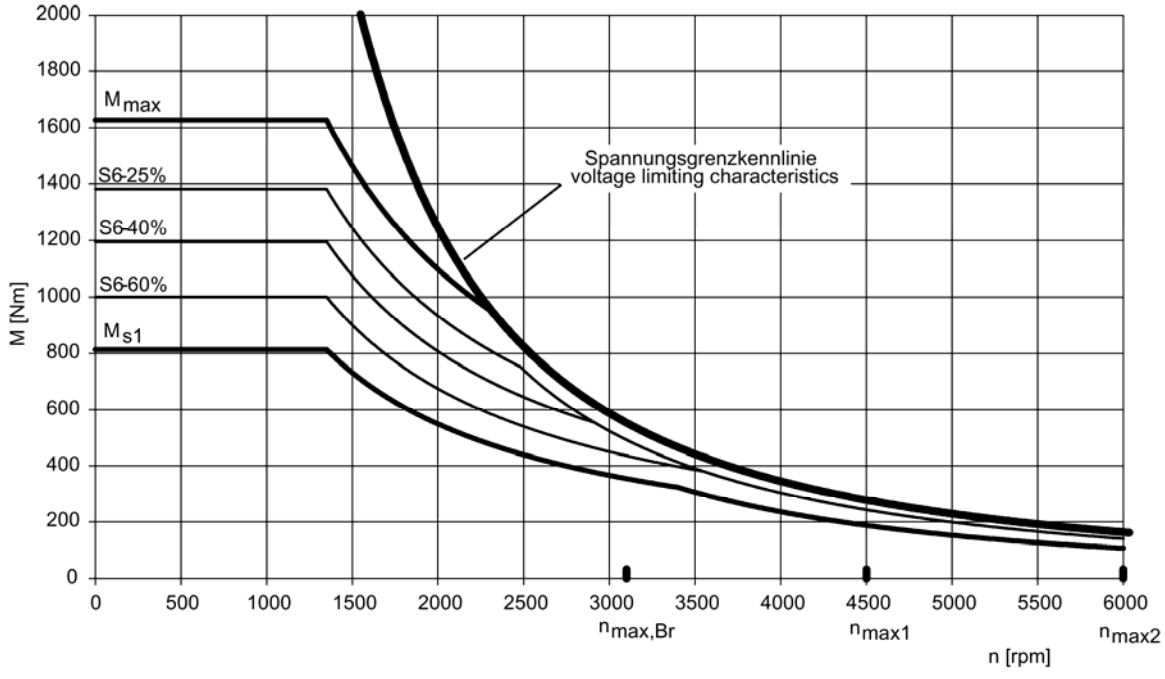
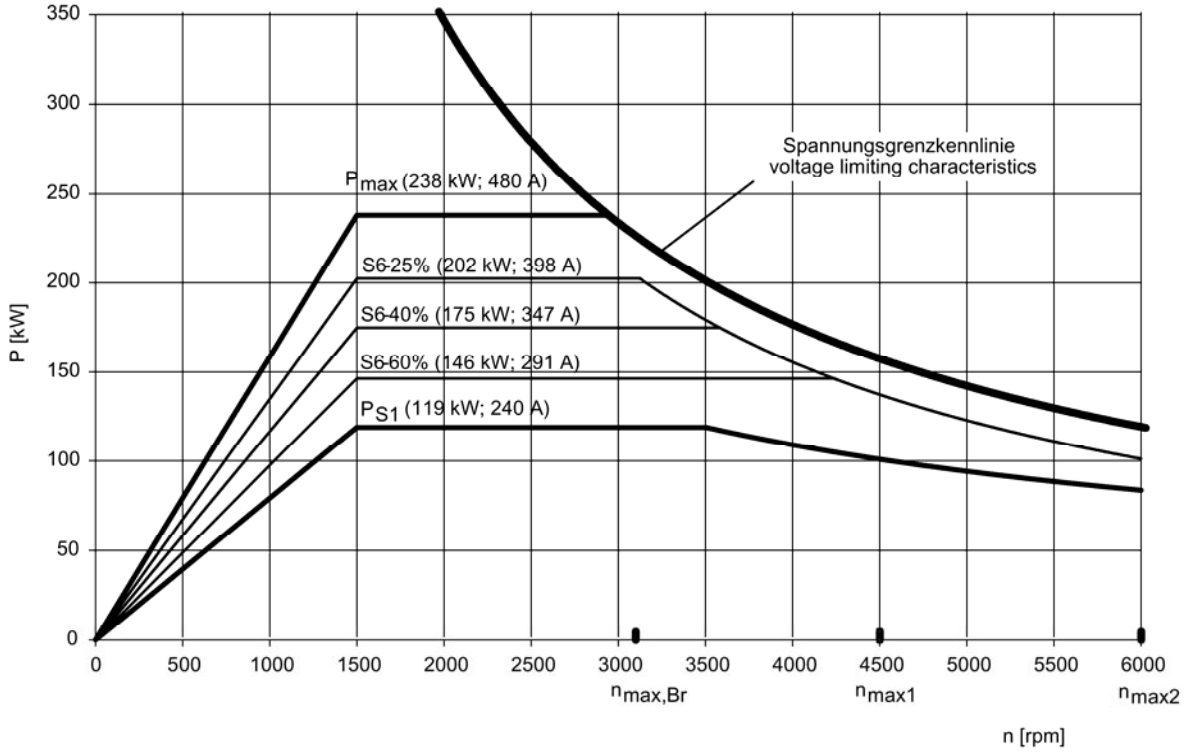


Table 6- 763 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□F2□

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]
1,500	119	758	240	4,500	6,000	-	3,100	3,500	1,515	480	758	240



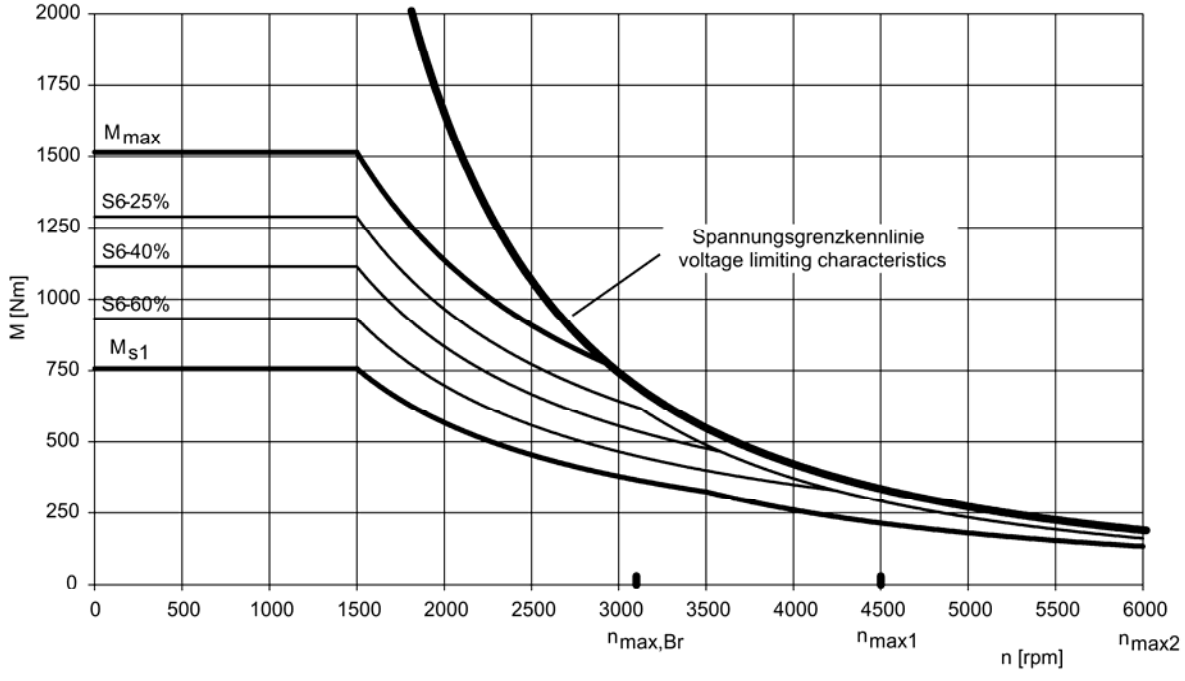
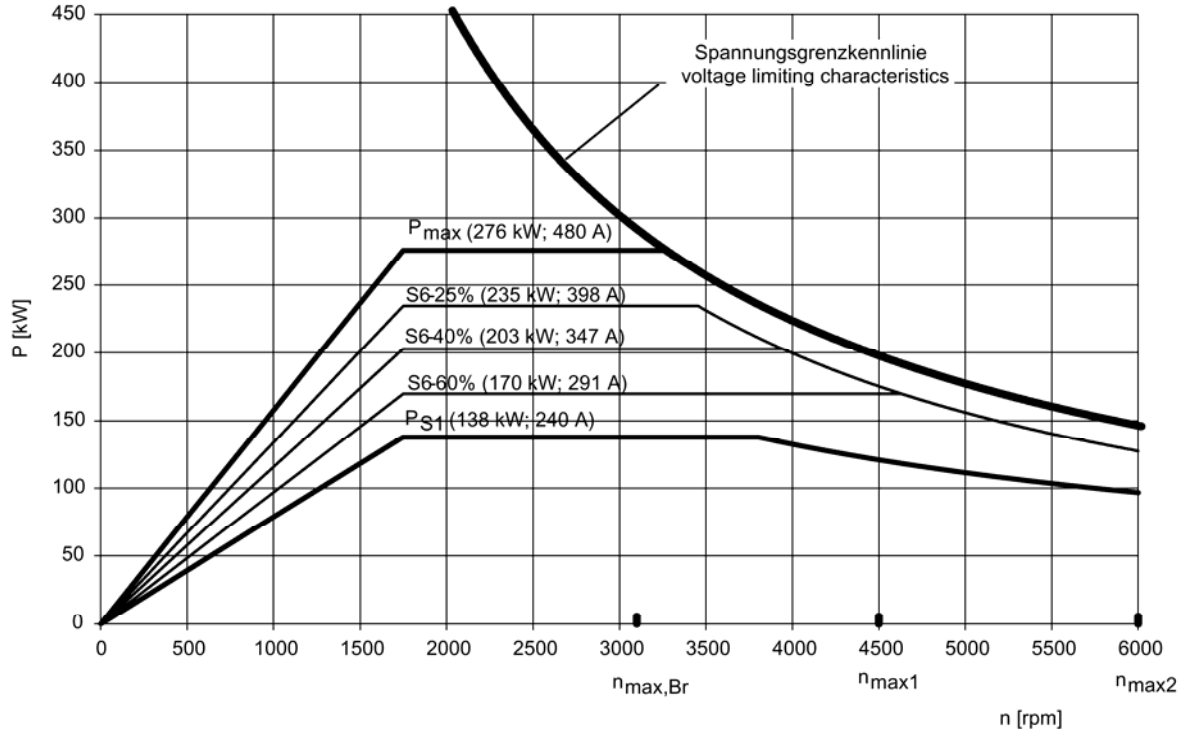


Table 6- 764 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□F2□

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]
1,750	138	753	240	4,500	6,000	-	3,100	3,800	1,506	480	753	240
1,500	118	753	240					4,500				



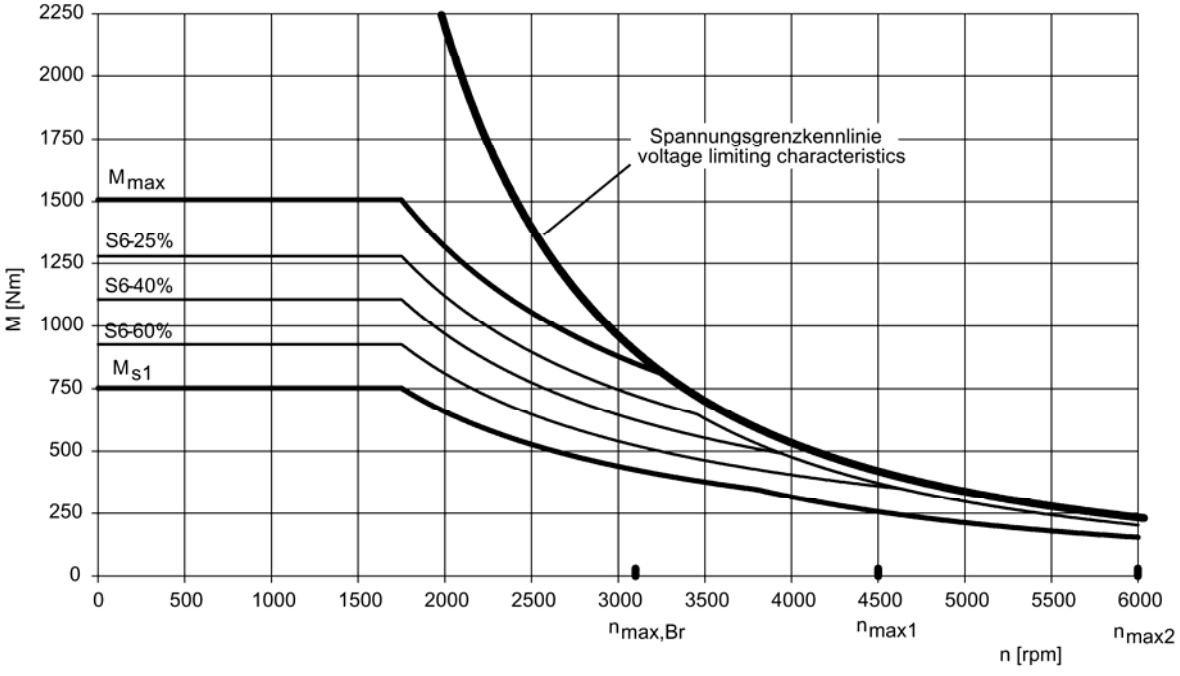
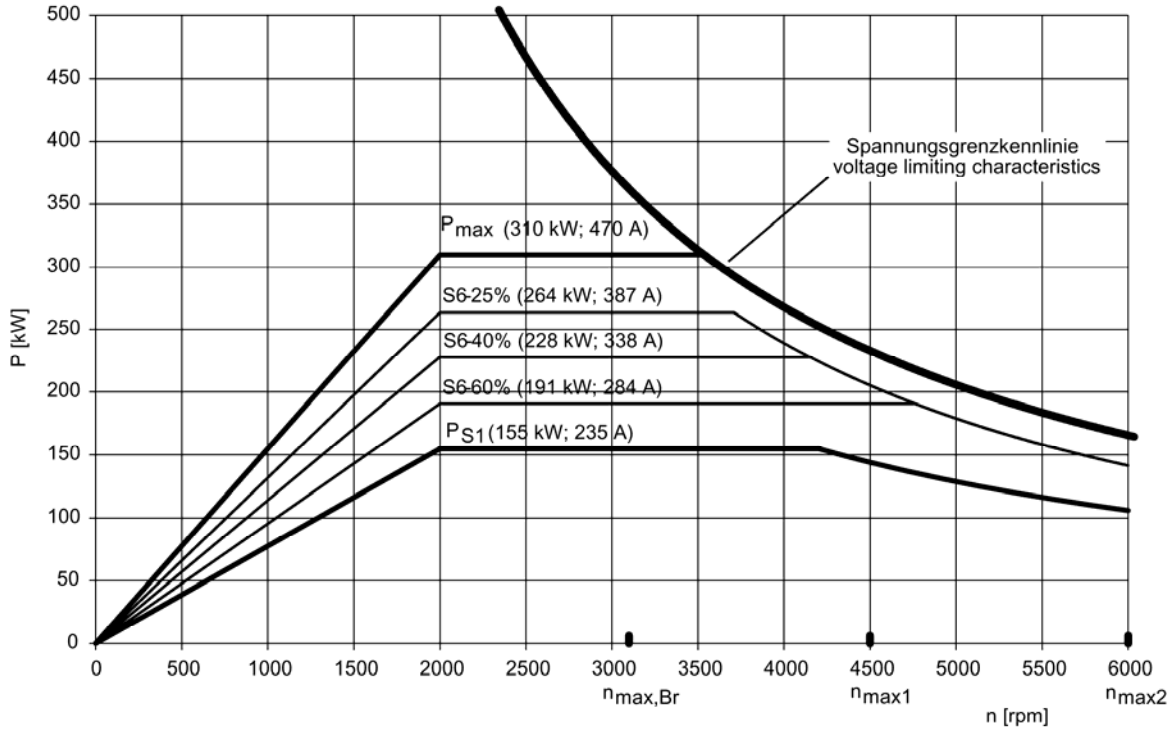


Table 6- 765 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□F2□

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]
2,000	155	740	235	4,500	6,000	-	3,100	4,200	1,480	470	740	235



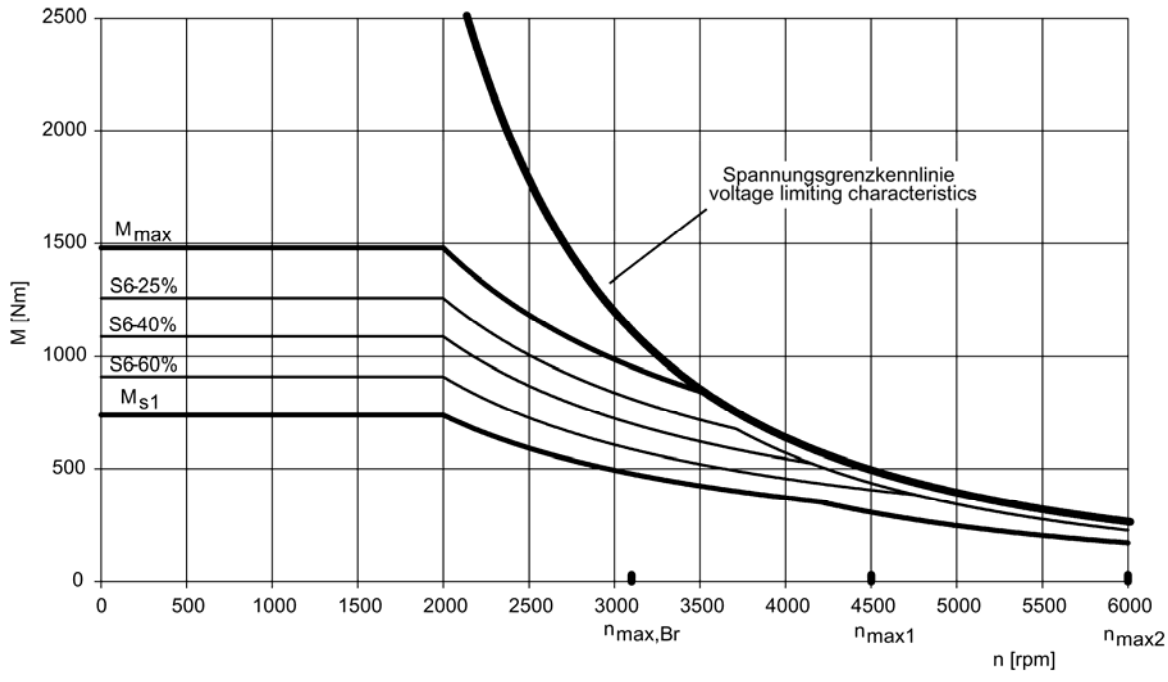
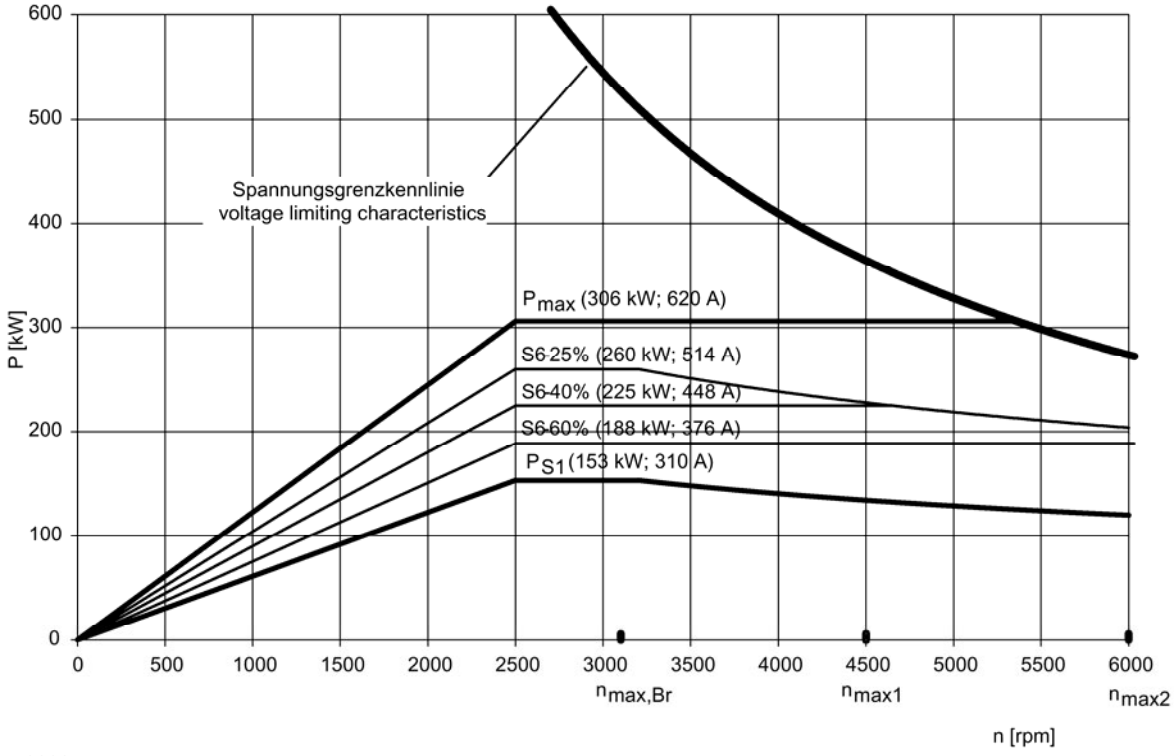


Table 6- 766 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-□□L2□

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]
2,500	153	584	310	4,500	6,000	-	3,100	3,200	1,169	620	584	310



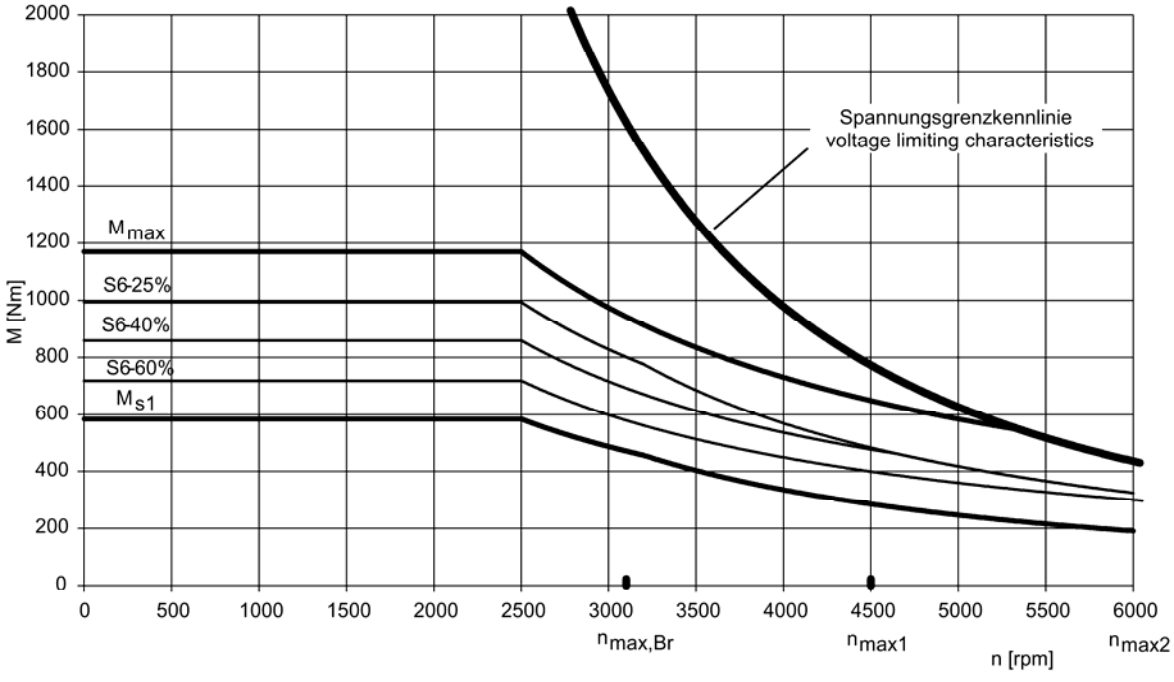
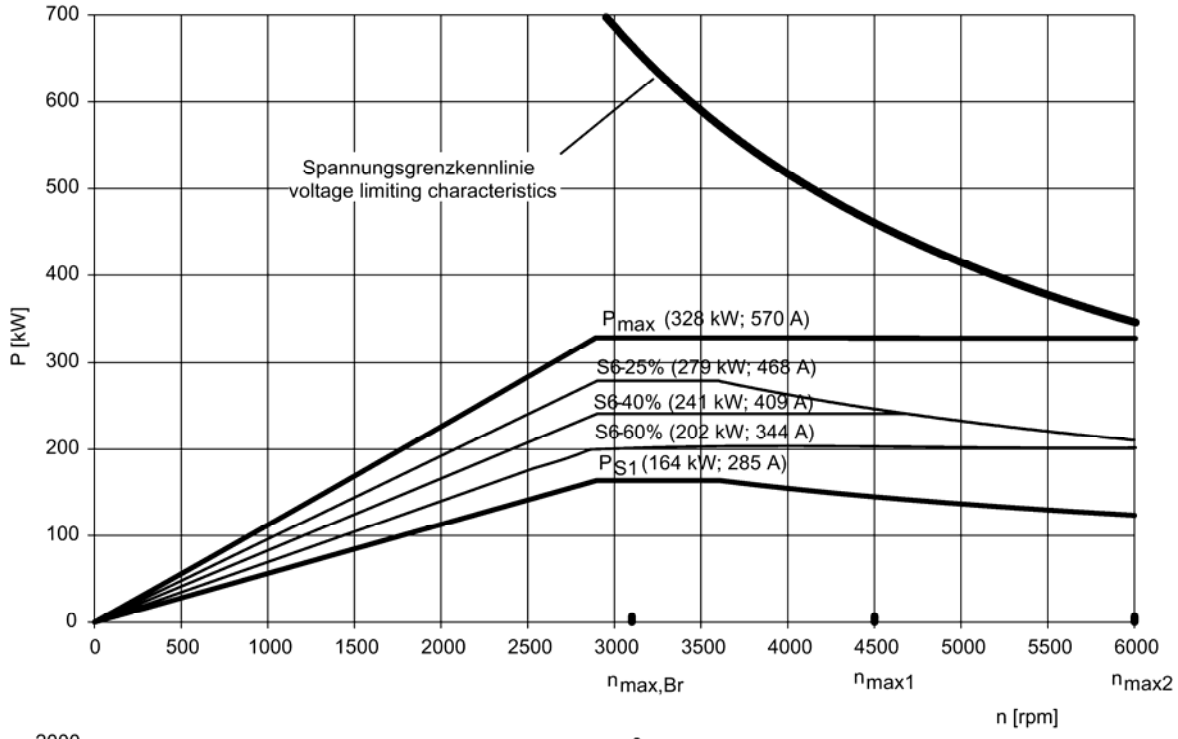


Table 6- 767 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-□□L2□

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]
2,900	164	540	285	4,500	6,000	-	3,100	3,600	1,080	570	540	285
2,500	141	540	285					4,500				



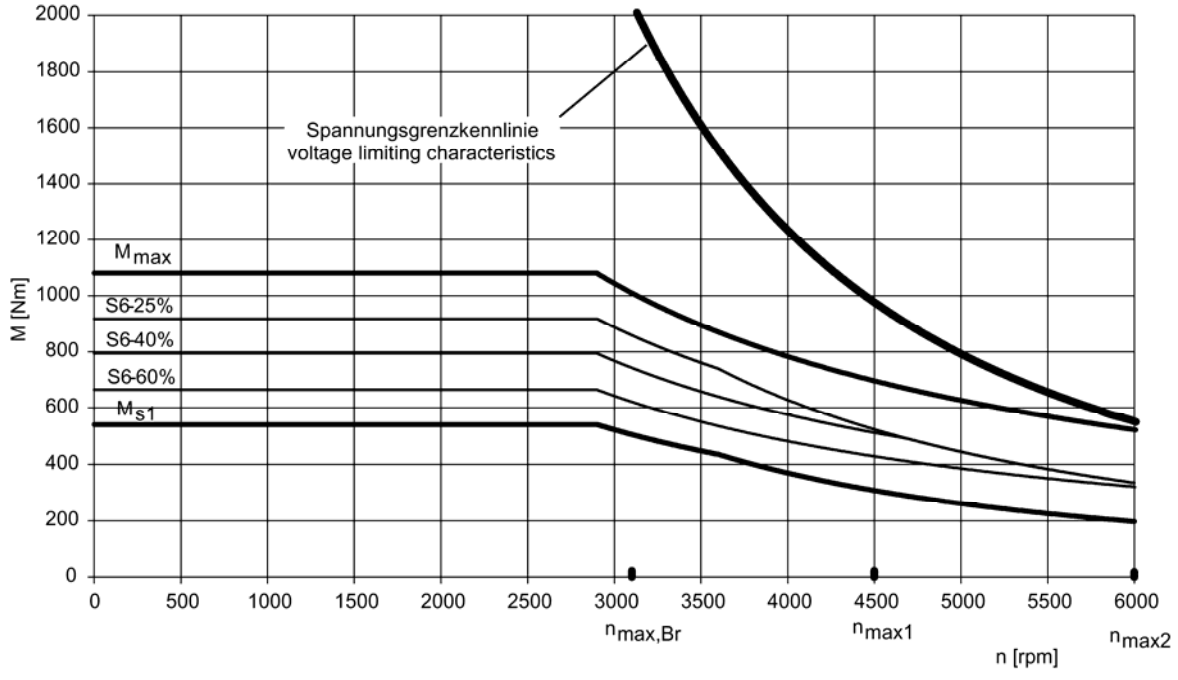
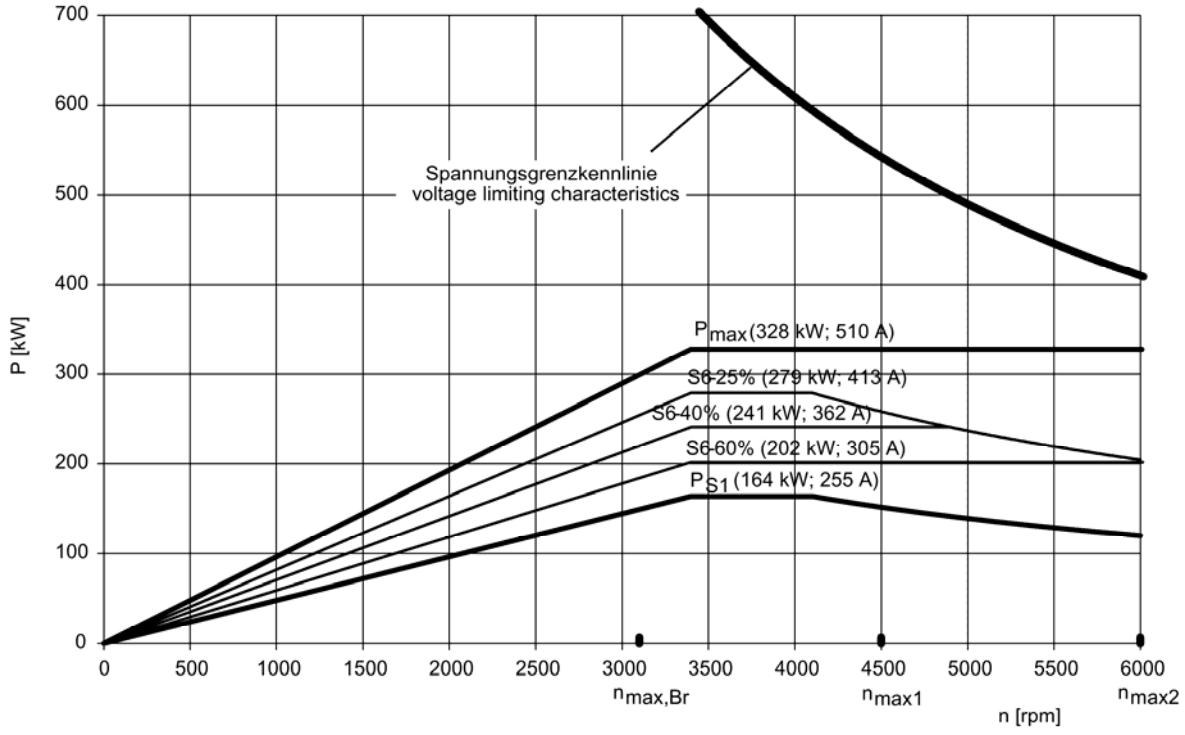


Table 6- 768 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-□□L2□

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]
3,400	164	461	255	4,500	6,000	-	3,100	4,100	921	510	461	255



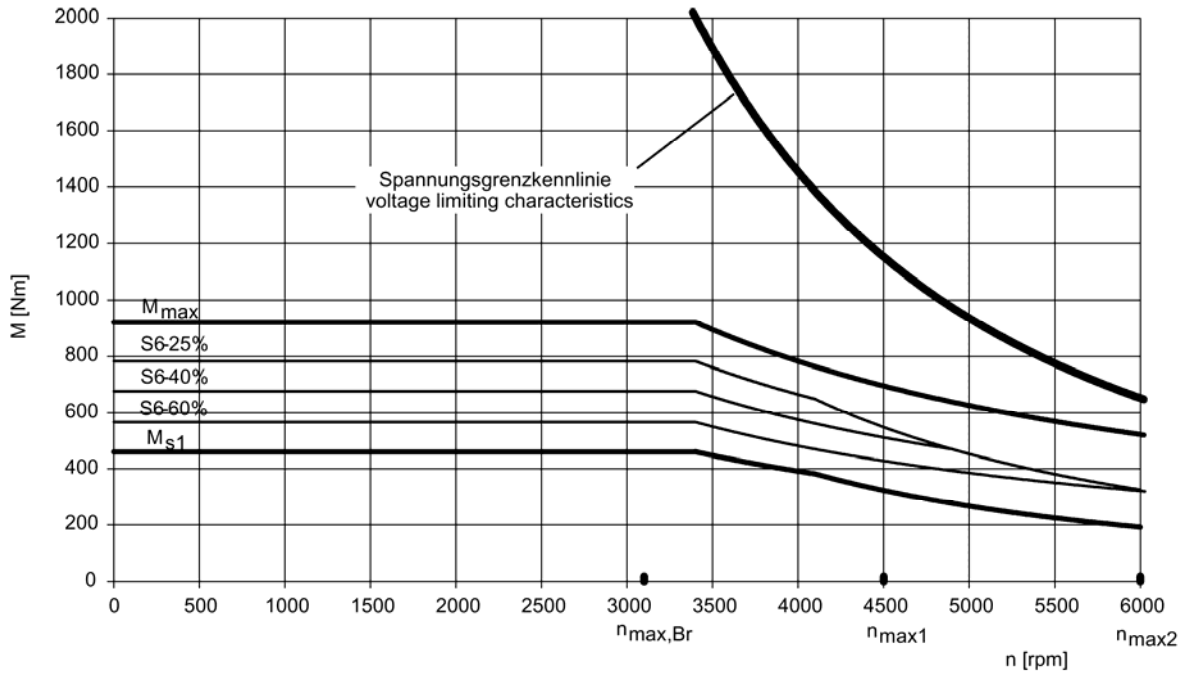
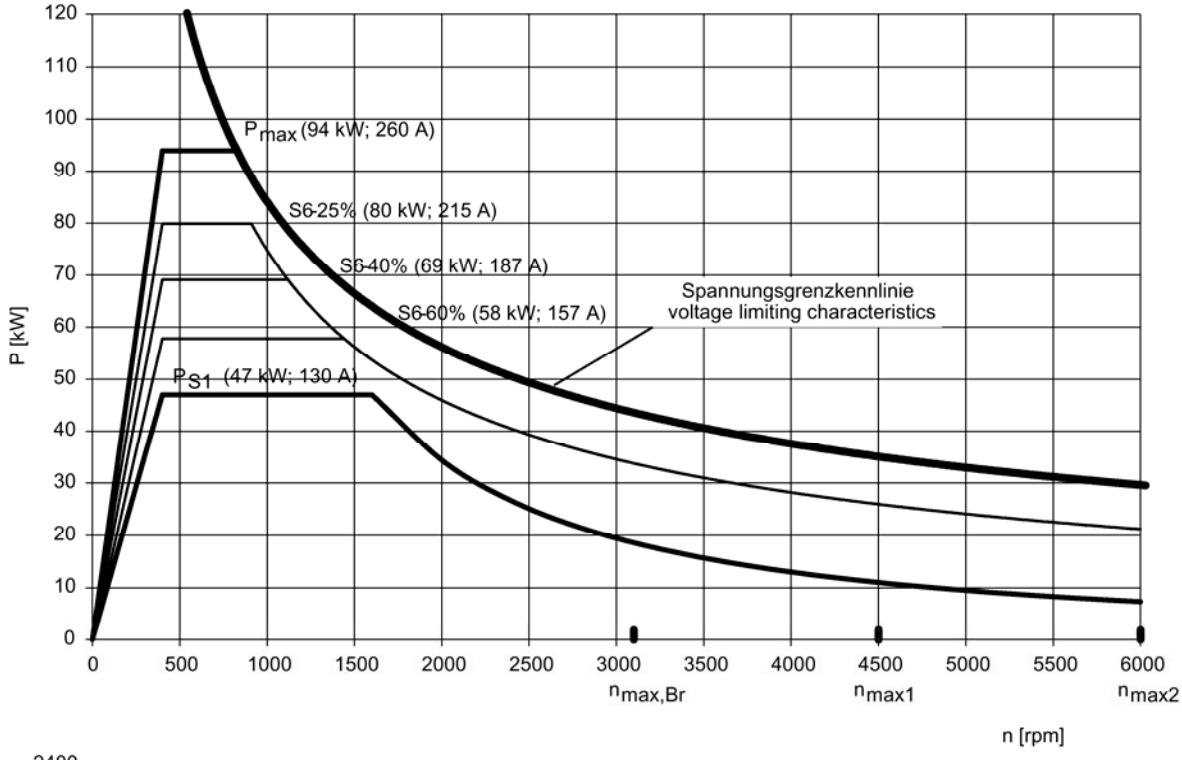


Table 6- 769 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□B2□

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	1,122	130	4,500	6,000	-	3,100	1,600	2,244	260	1,122	130



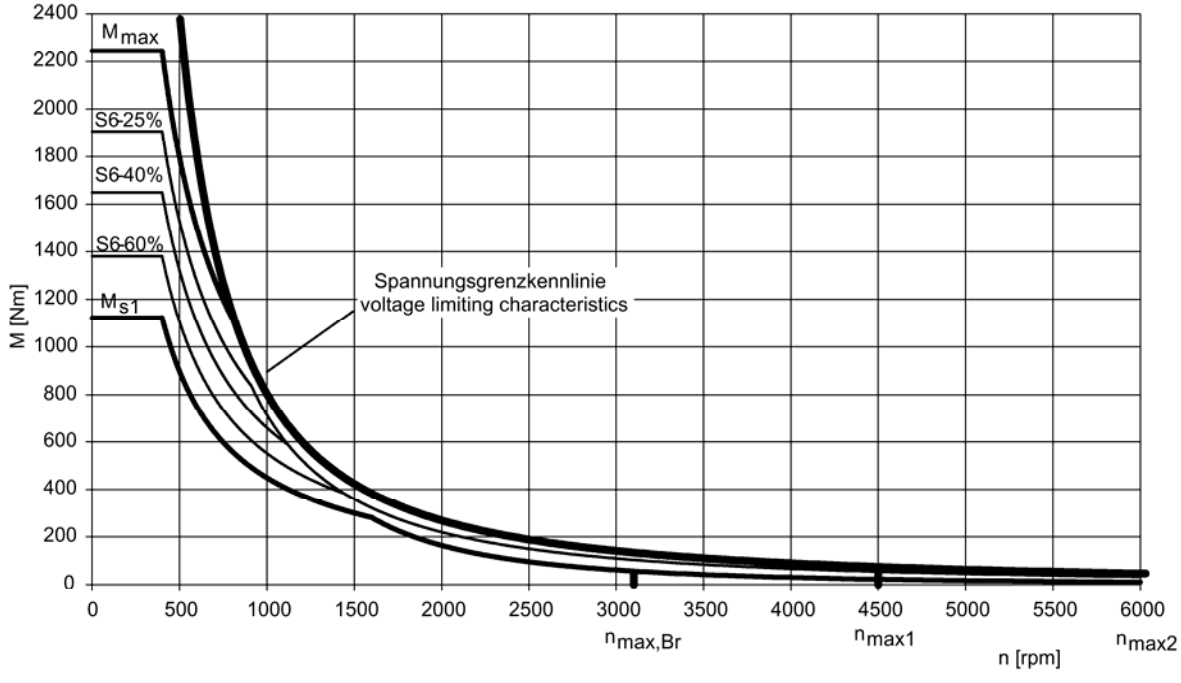
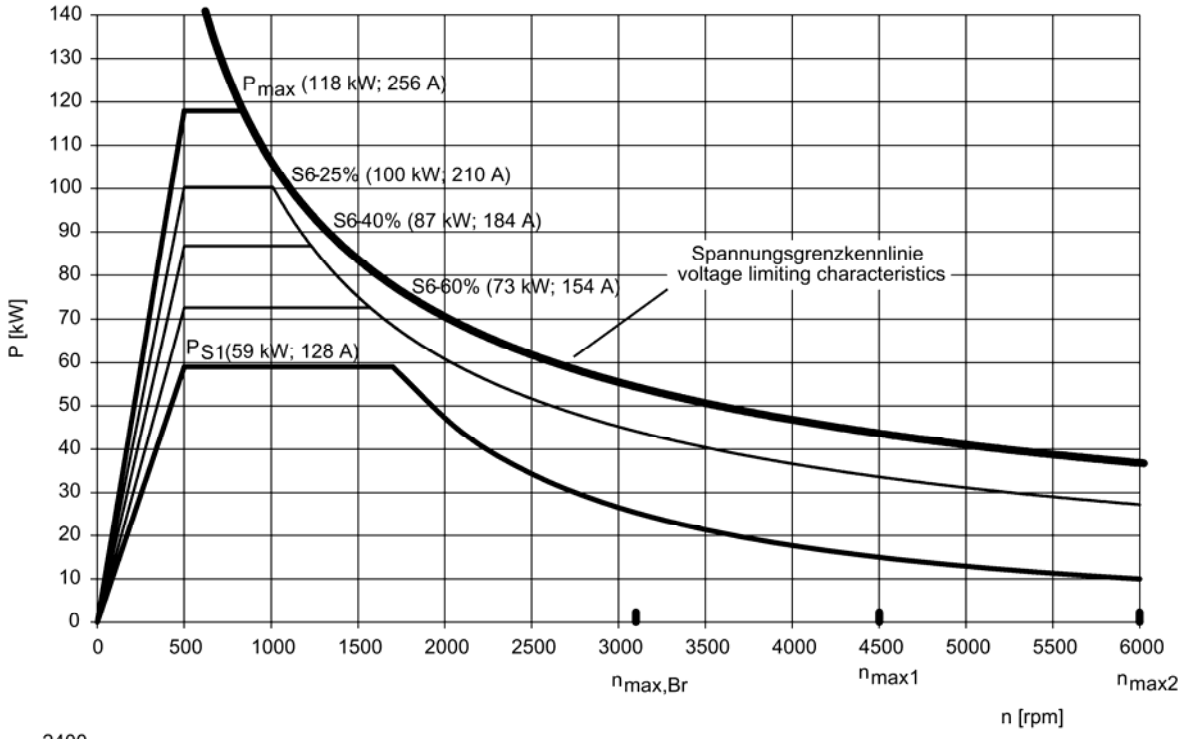


Table 6- 770 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□B2□

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	1,127	128	4,500	6,000	-	3,100	1,700	2,254	256	1,127	128
400	47	1,127	128					2,000				



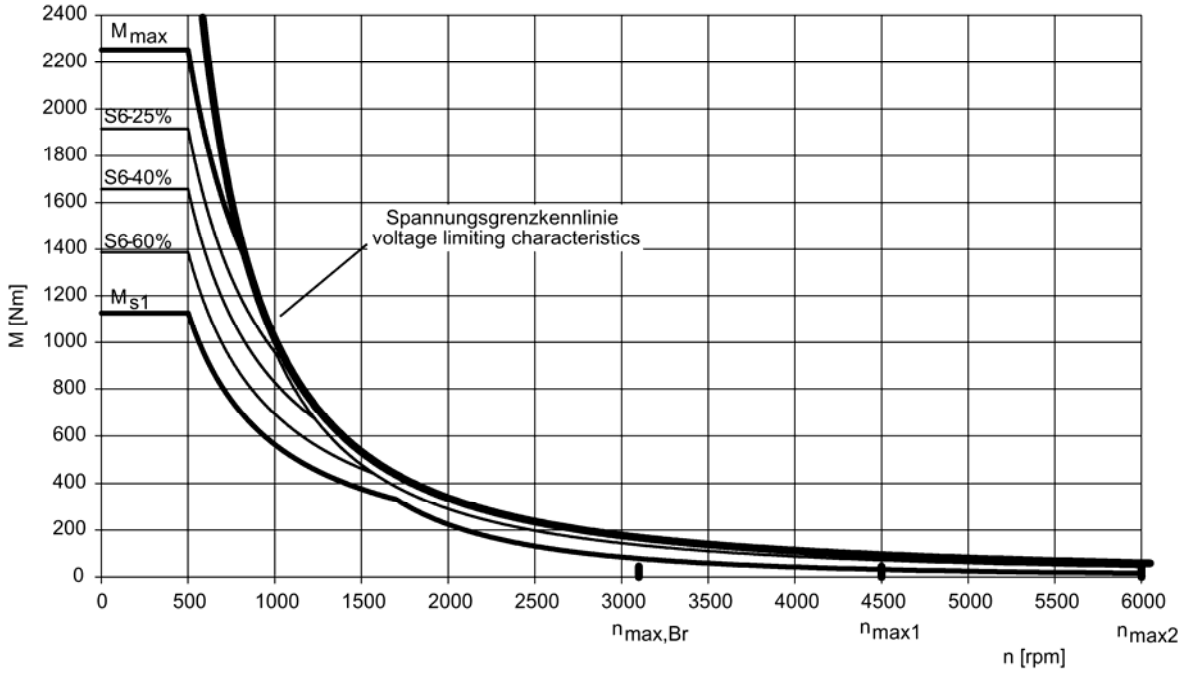
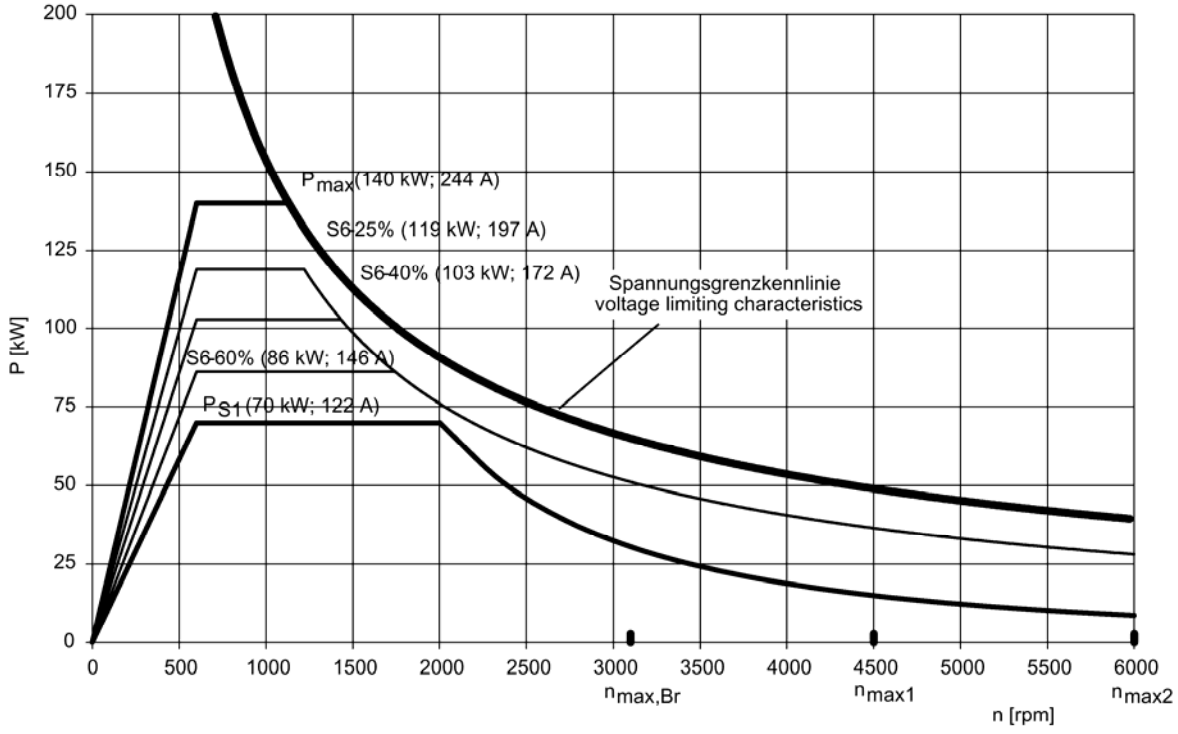


Table 6- 771 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□B2□

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	1,114	122	4,500	6,000	-	3,100	2,000	2,228	244	1,114	122



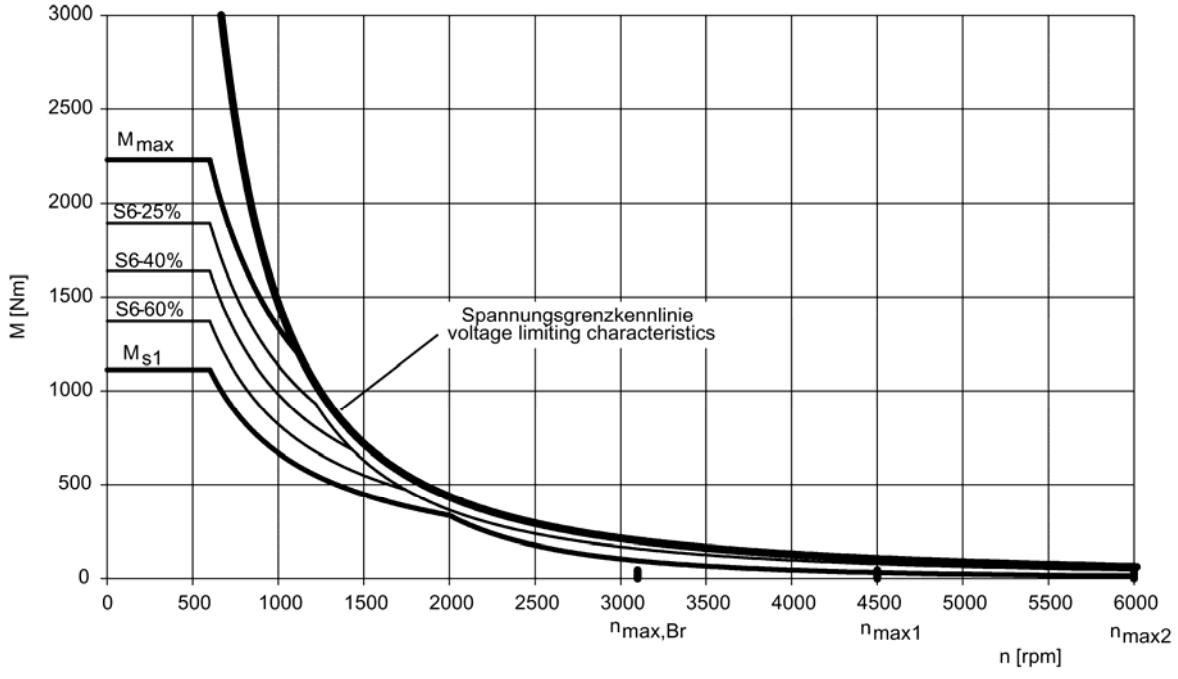
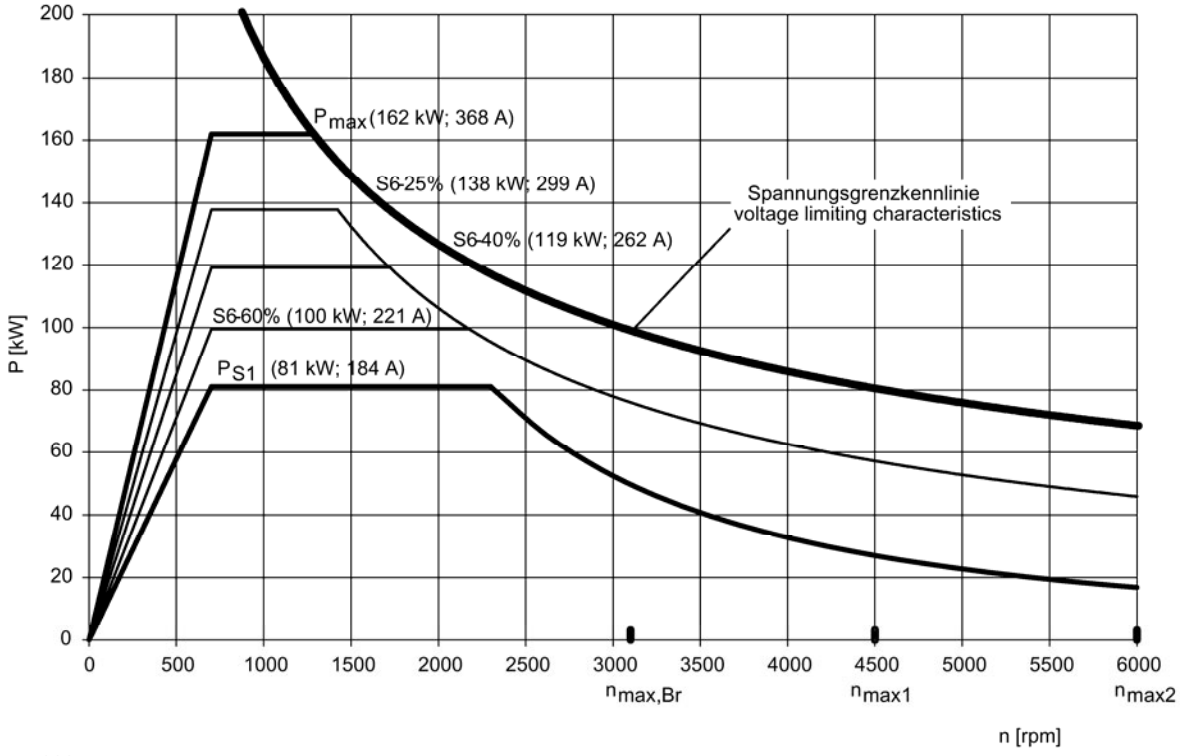


Table 6- 772 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□C2□

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	1,105	184	4,500	6,000	-	3,100	2,300	2,210	368	1,105	184



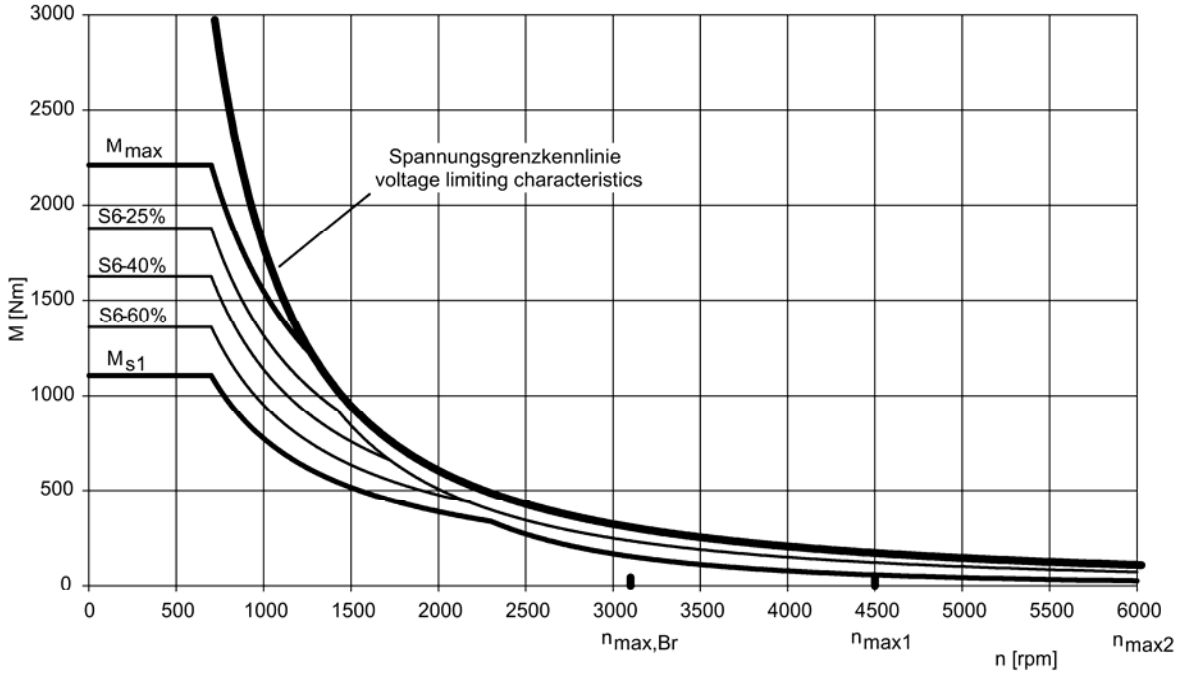
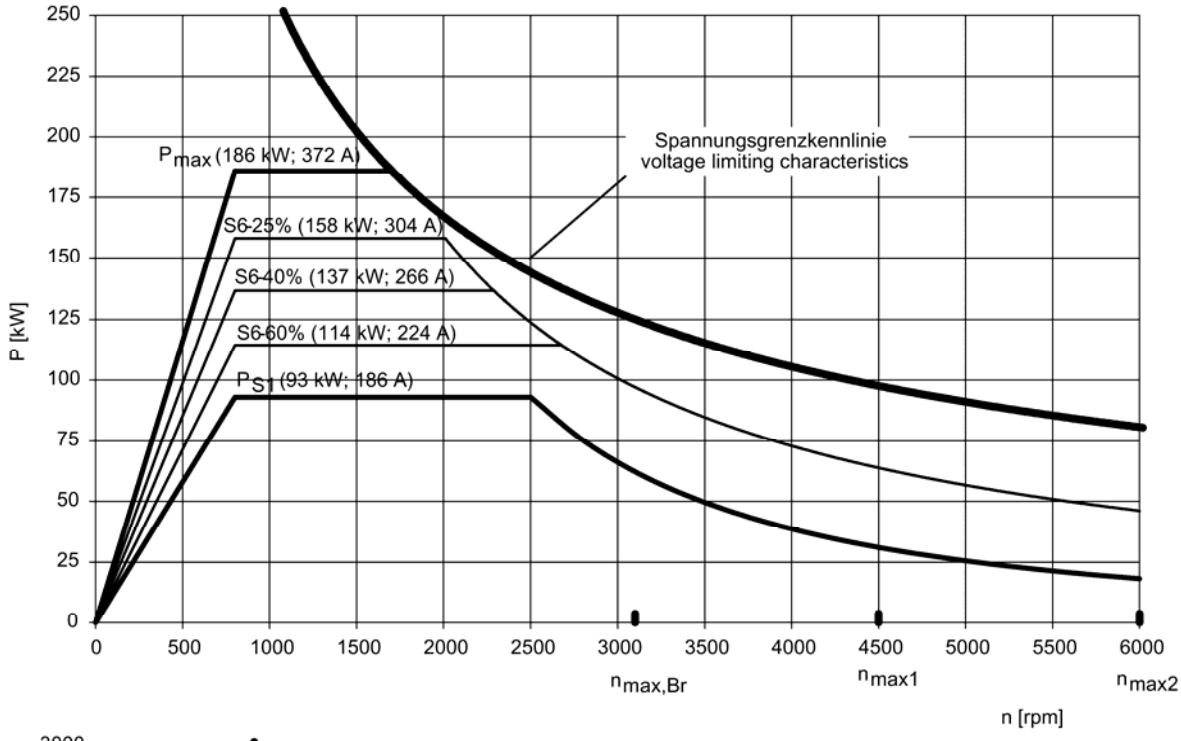


Table 6- 773 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□C2□

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	1,110	186	4,500	6,000	-	3,100	2,500	2,220	372	1,110	186
700	81	1,110	186					2,700				



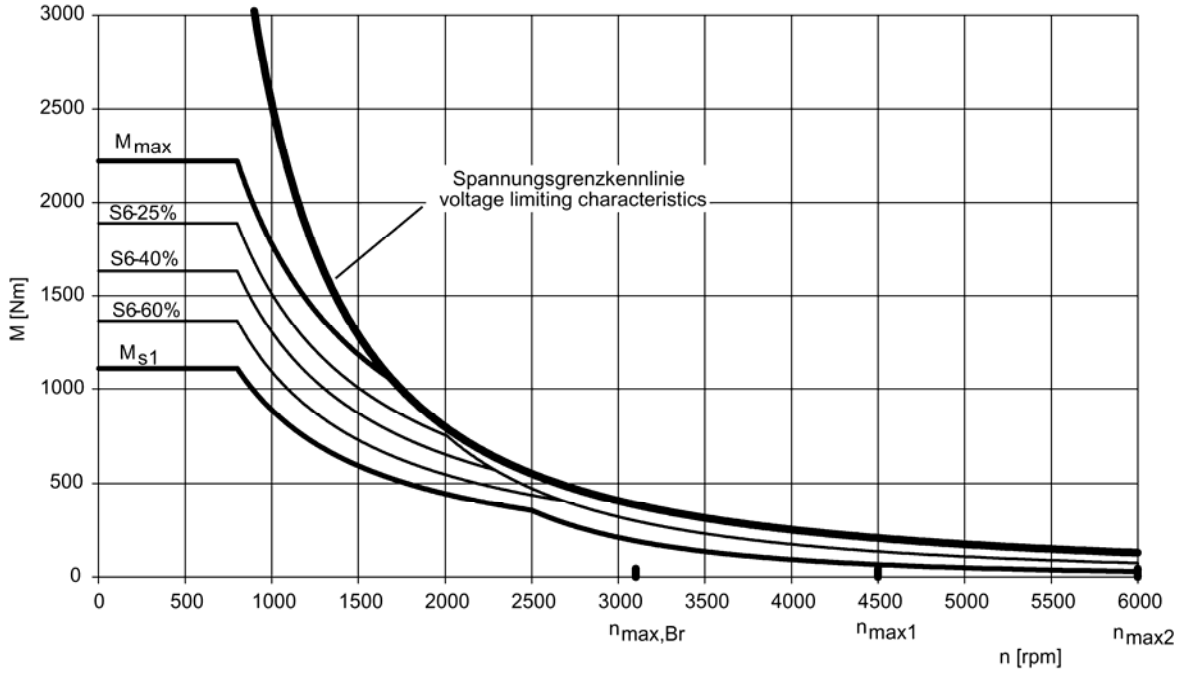
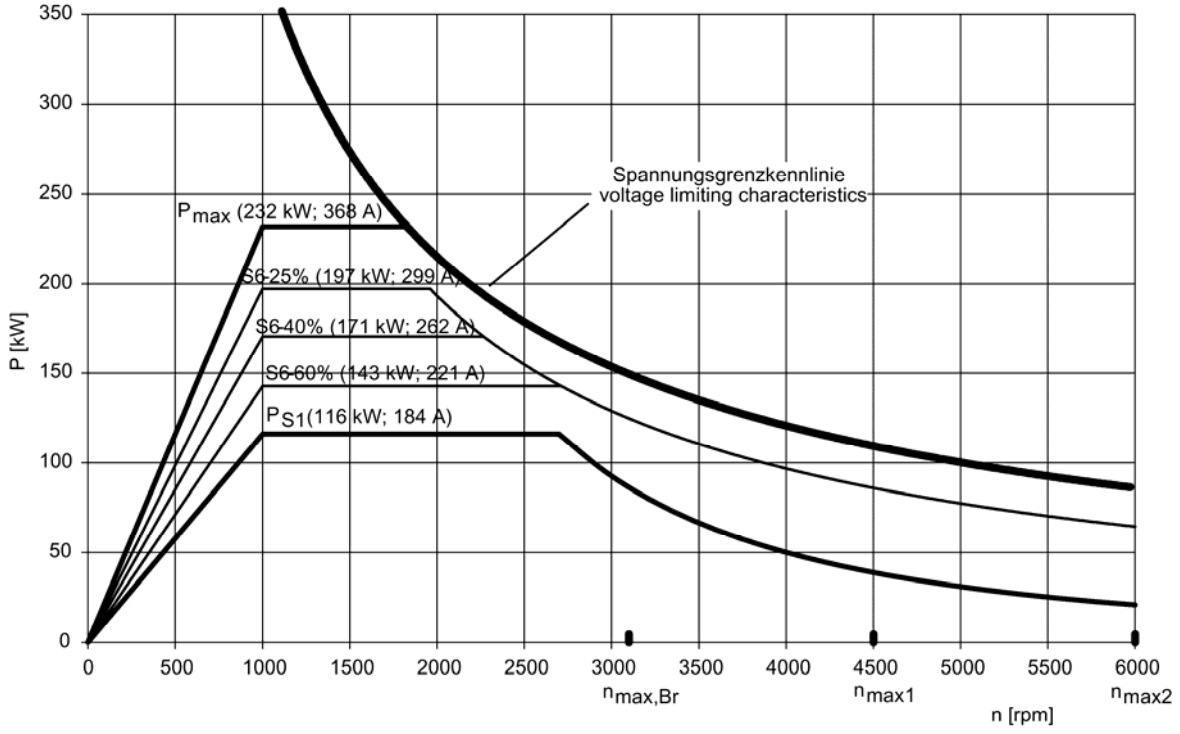


Table 6- 774 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□C2□

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]
1,000	116	1,108	184	4,500	6,000	-	3,100	2,700	2,216	368	1,108	184



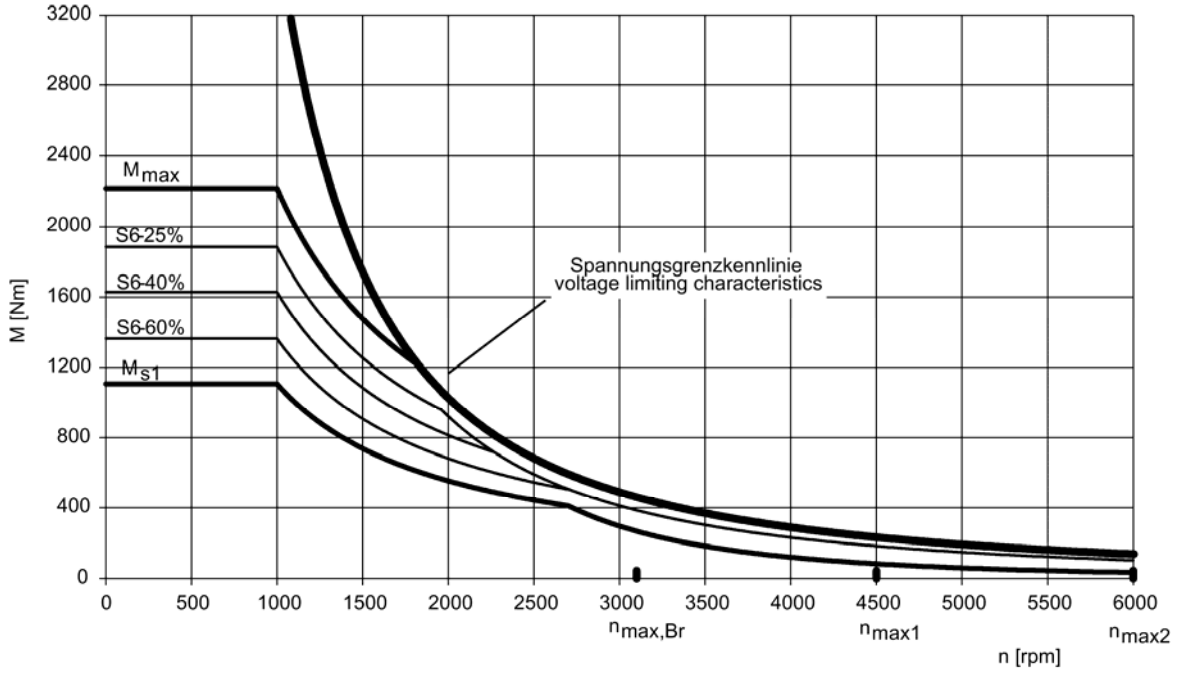
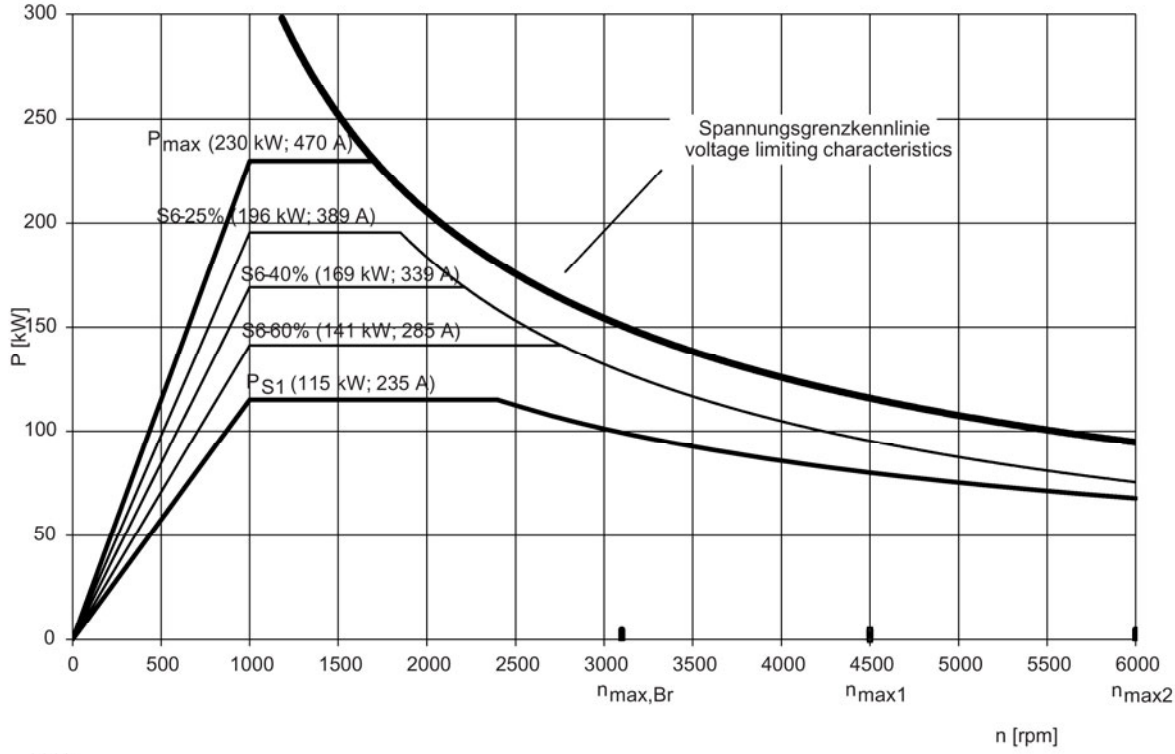


Table 6- 775 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□D2□

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]
1,000	115	1,098	235	4,500	6,000	-	3,100	2,400	2,197	470	1,098	235



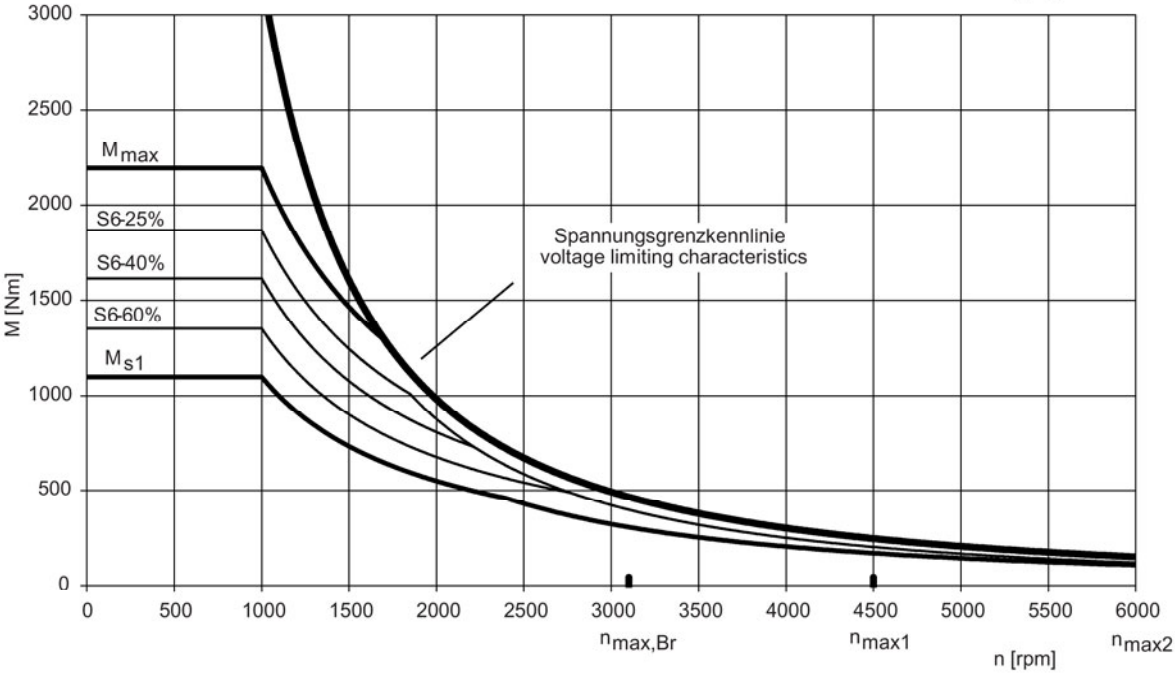
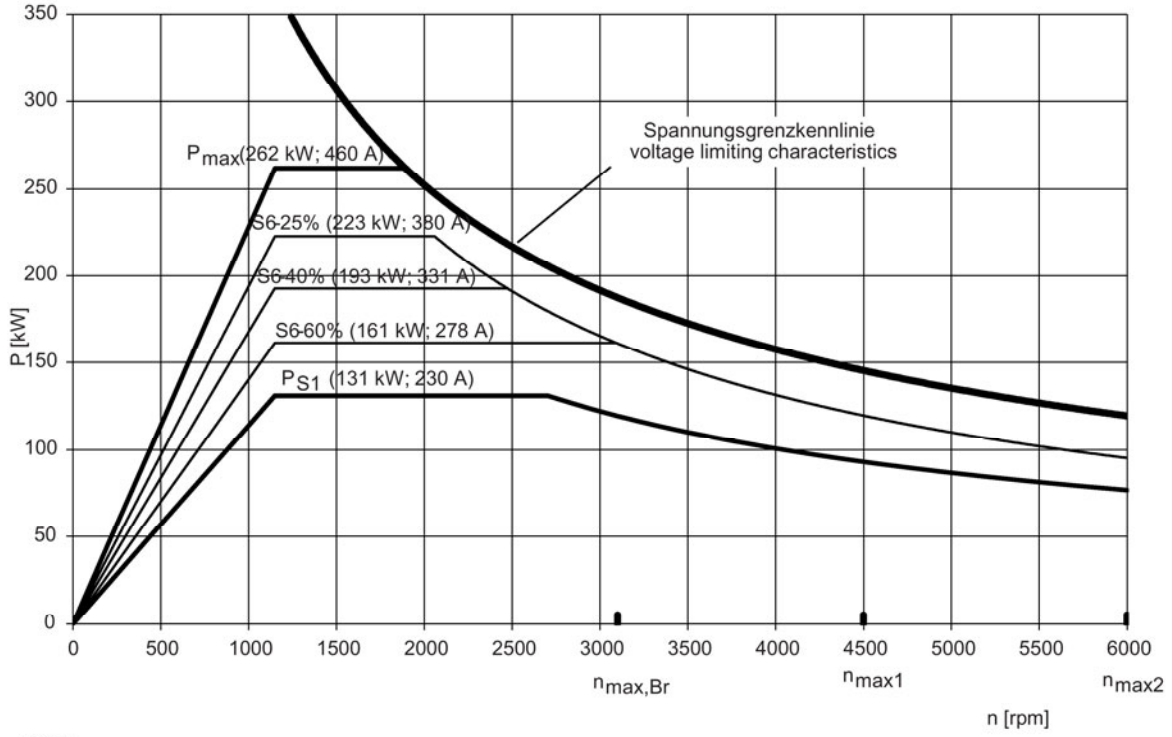


Table 6- 776 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□D2□

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]
1,150	131	1,088	230	4,500	6,000	-	3,100	2,700	2,176	460	1,088	230
1,000	114	1,088	230					3,300				



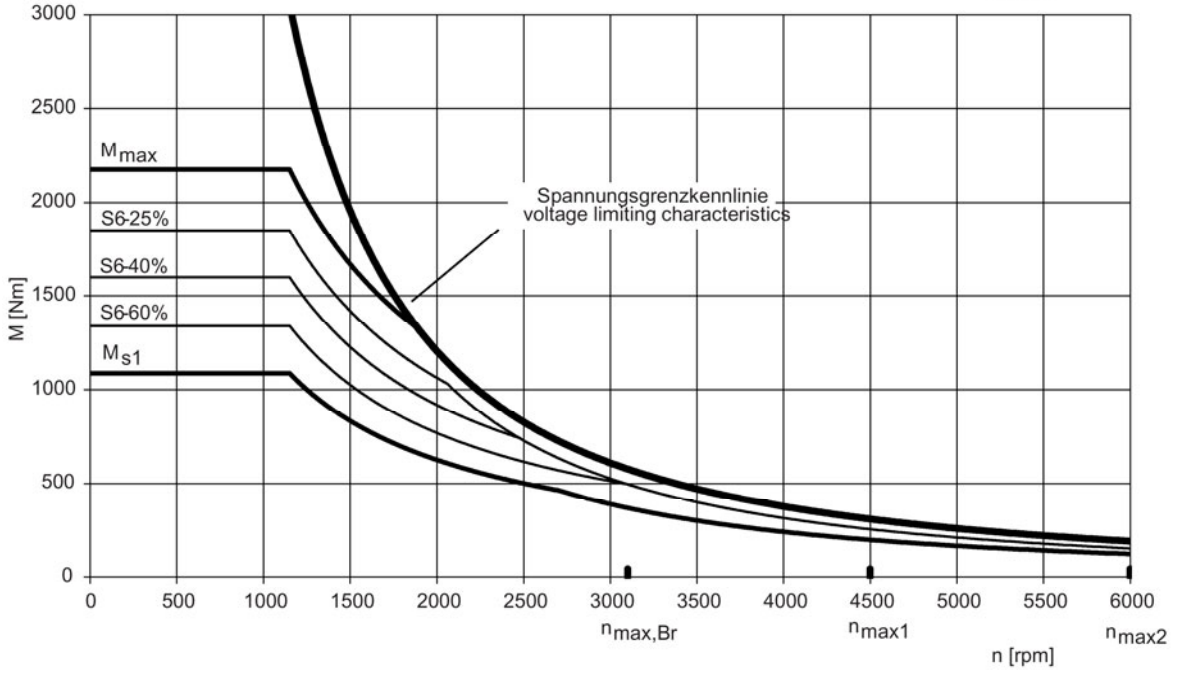
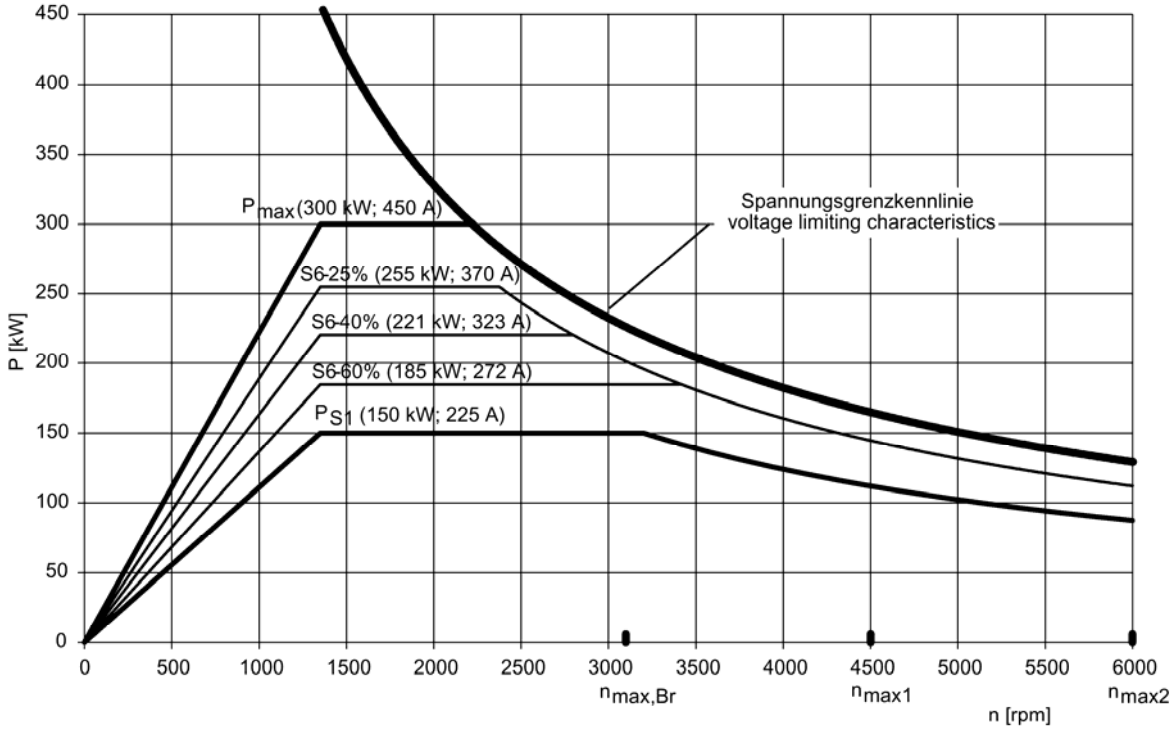


Table 6- 777 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□D2□

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]
1,350	150	1,061	225	4,500	6,000	-	3,100	3,200	2,122	450	1,061	225



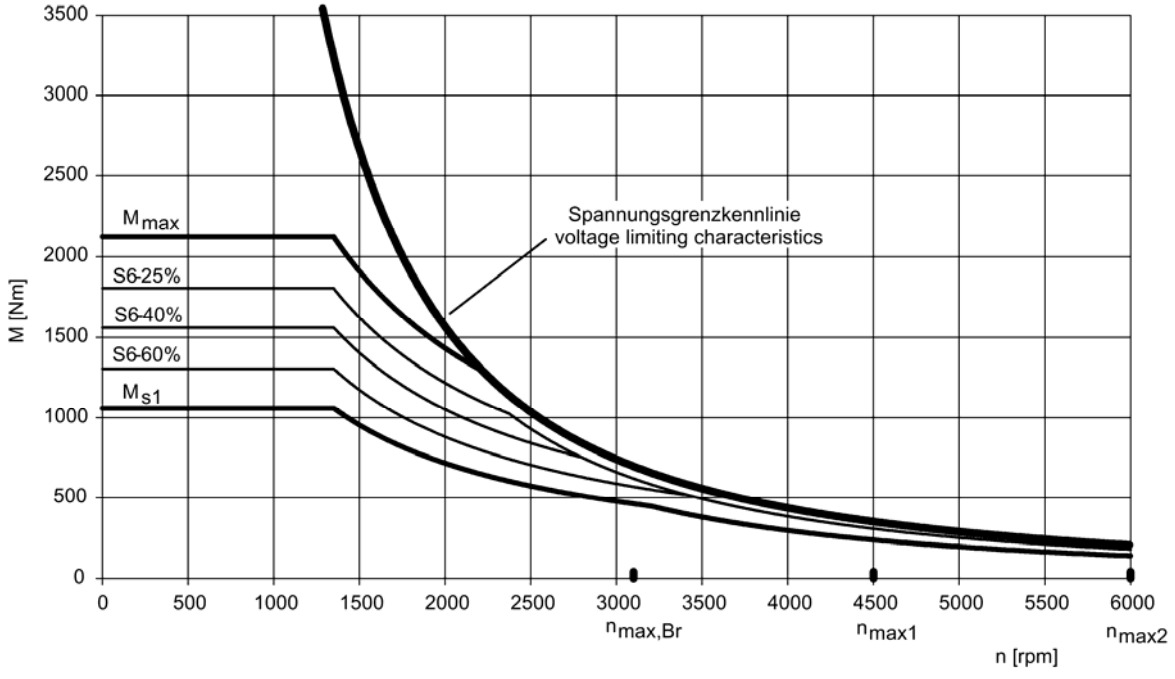
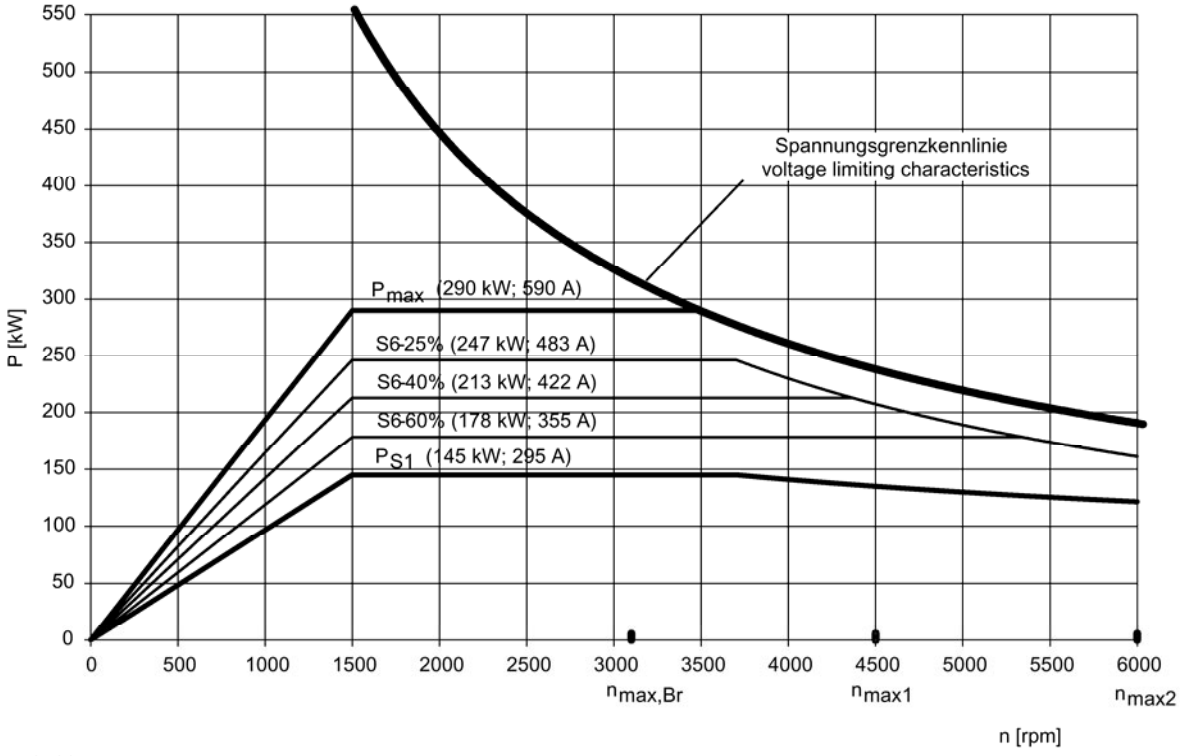


Table 6- 778 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□F2□

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]
1,500	145	923	295	4,500	6,000	-	3,100	3,700	1,846	590	923	295



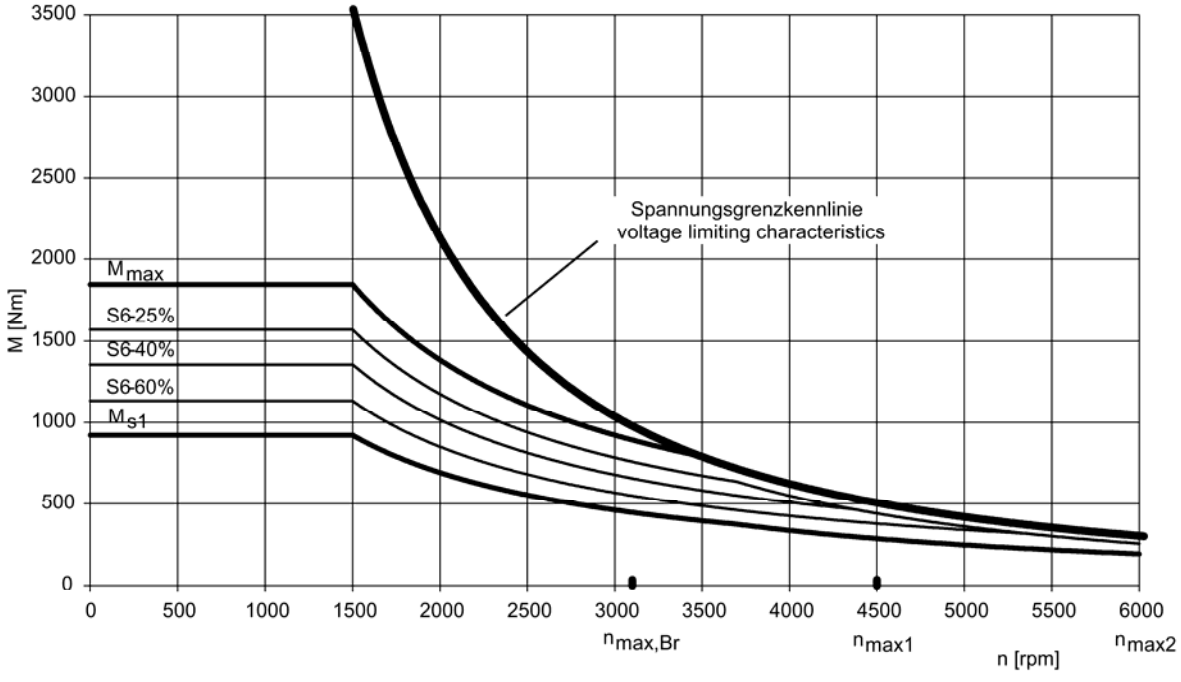
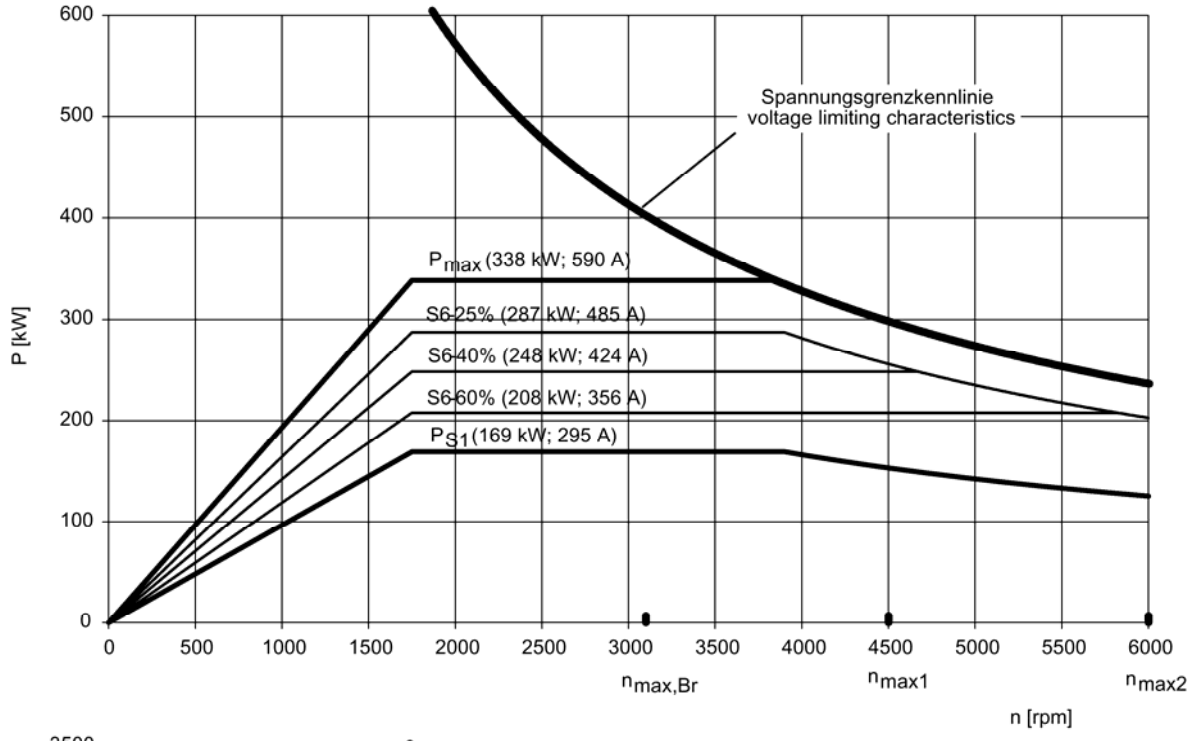


Table 6- 779 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□F2□

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]
1,750	169	922	295	4,500	6,000	-	3,100	3,900	1,845	590	922	295
1,500	145	922	295					4,500				



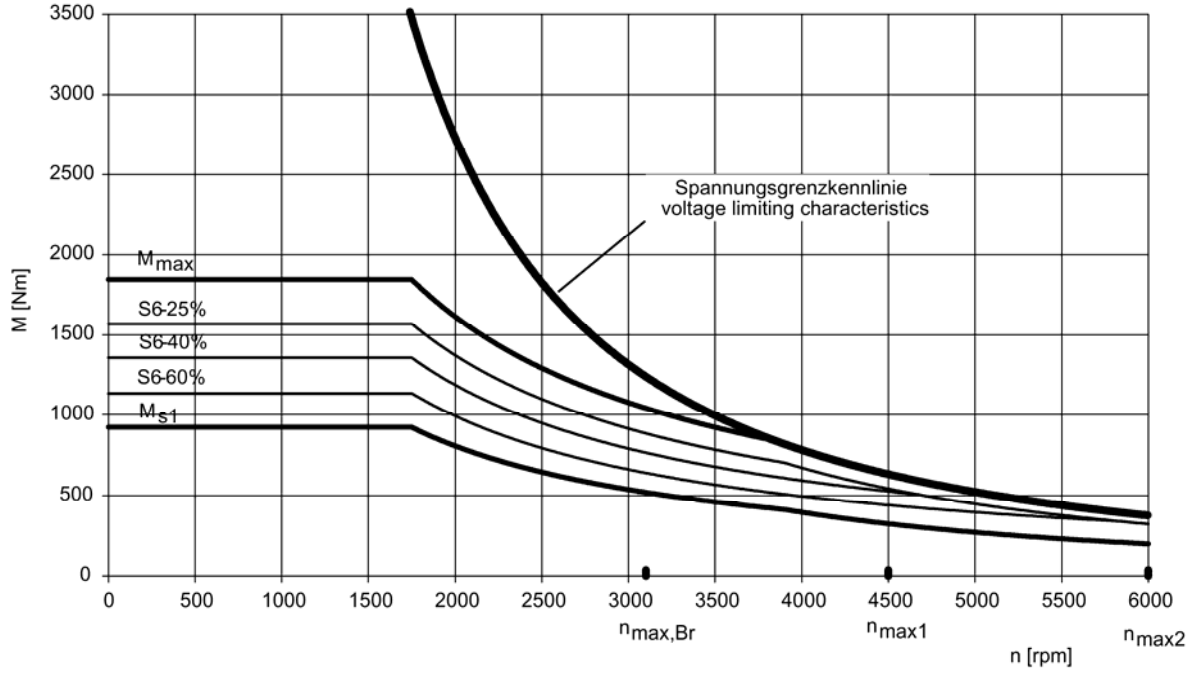
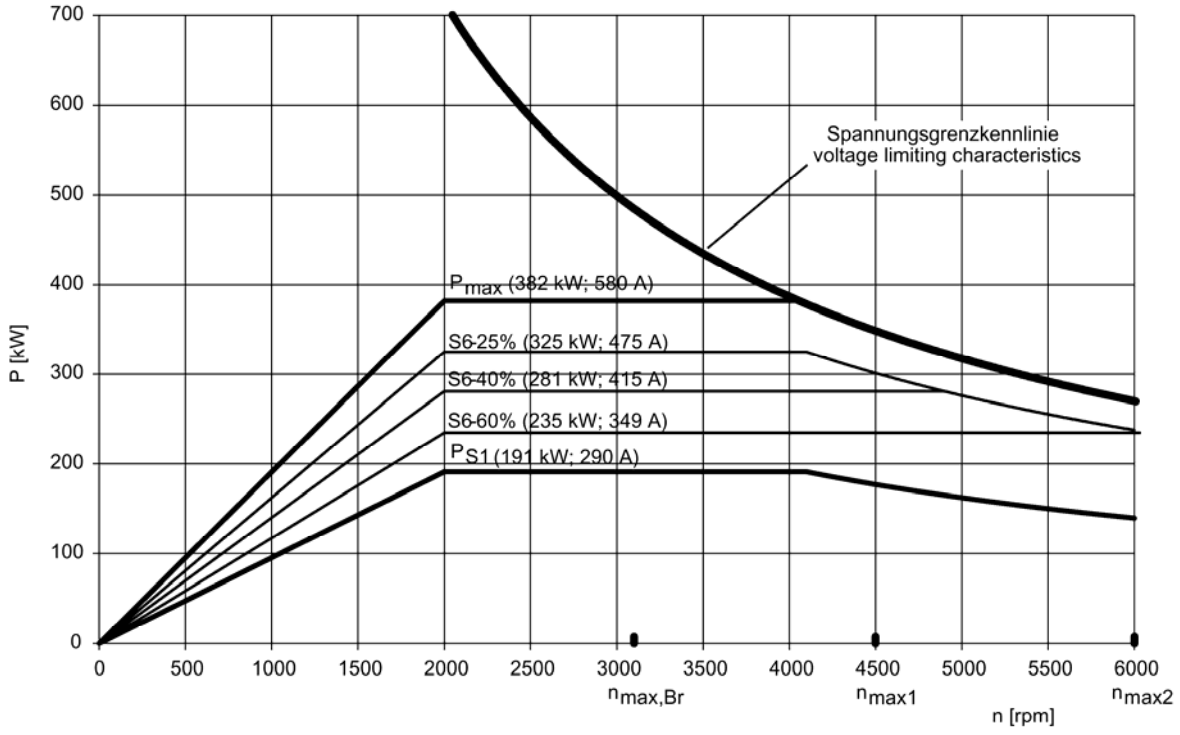


Table 6- 780 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□F2□

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]
2,000	191	912	290	4,500	6,000	-	3,100	4,100	1,824	580	912	290



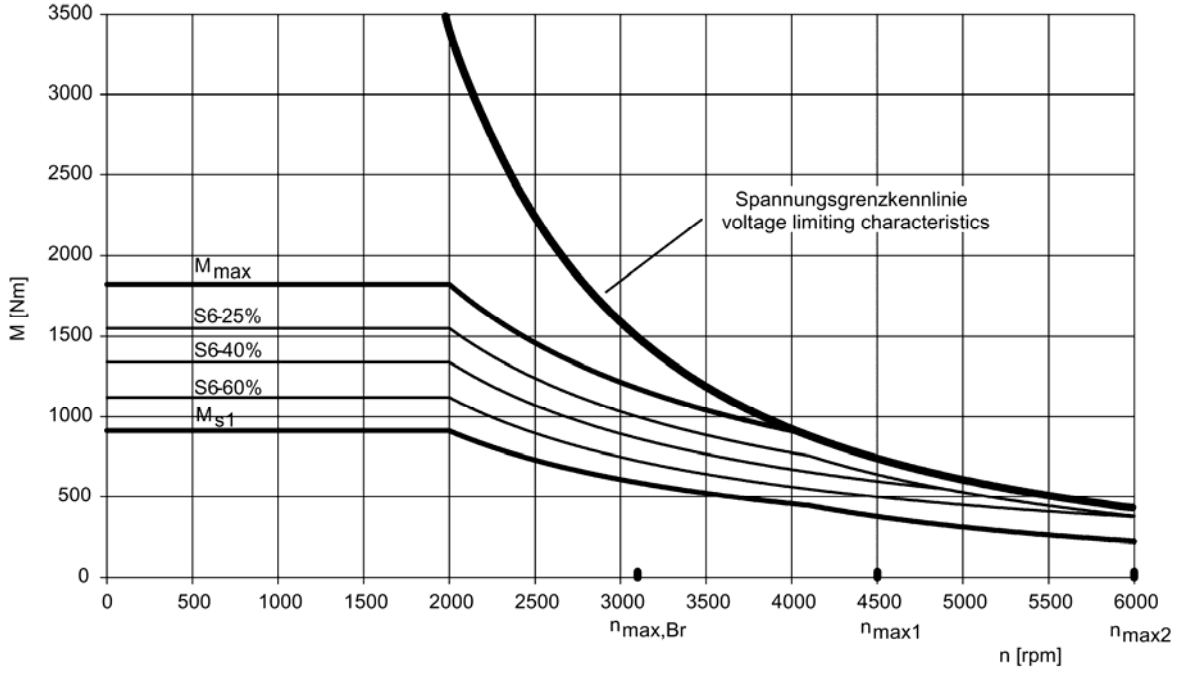
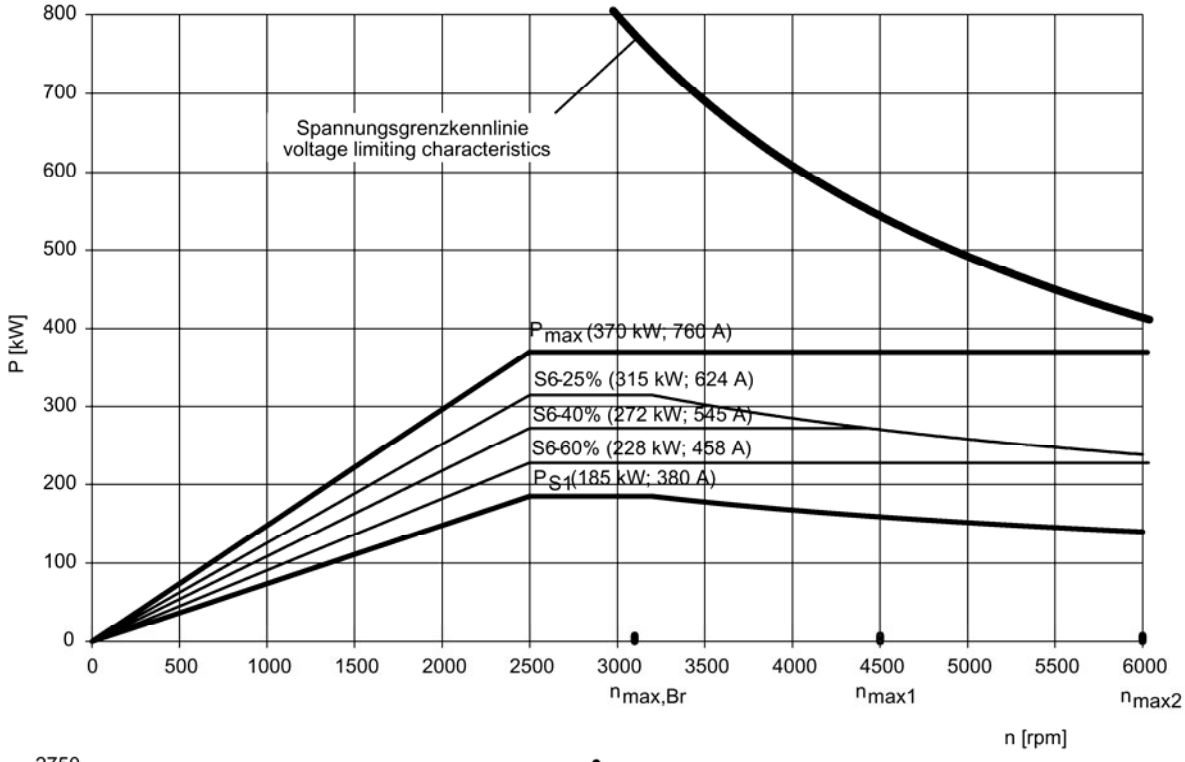


Table 6- 781 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-□□L2□

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]
2,500	185	707	380	4,500	6,000	-	3,100	3,200	1,413	760	707	380



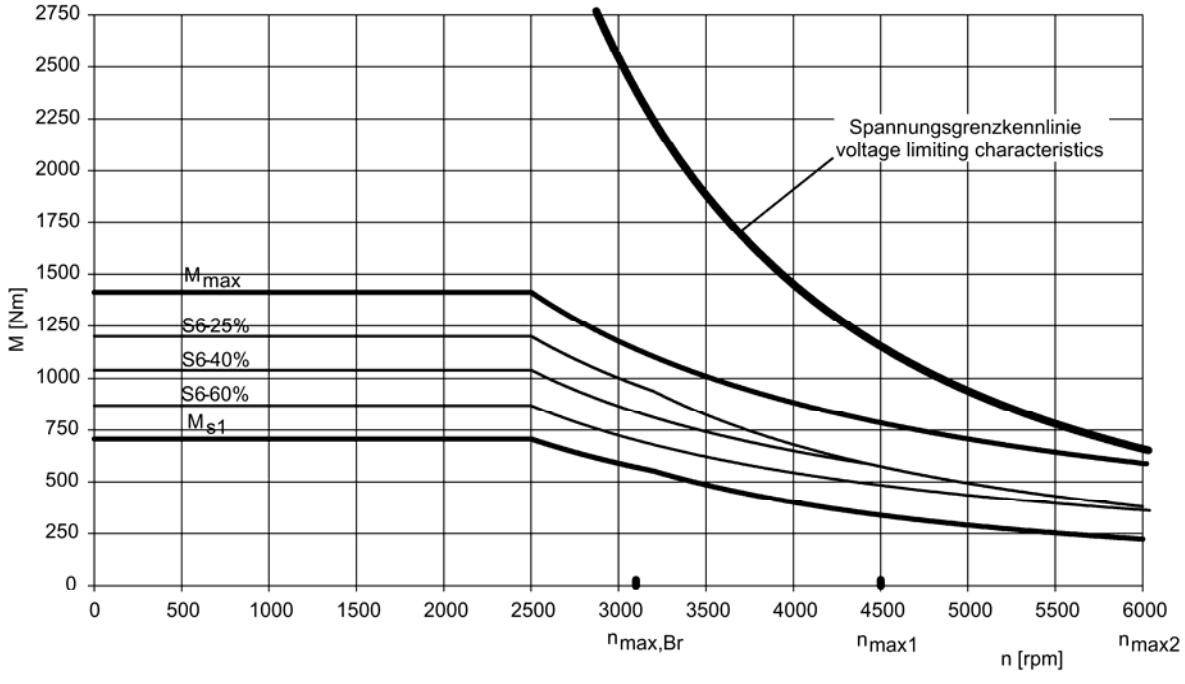
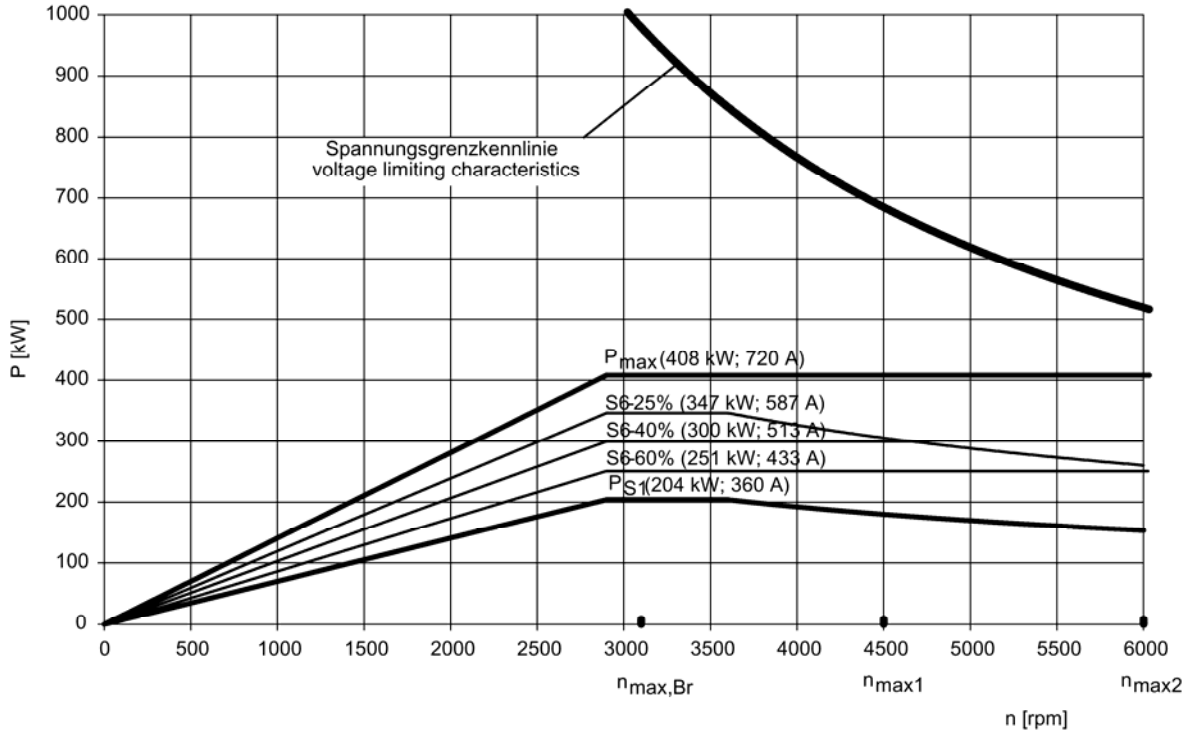


Table 6- 782 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-□□L2□

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]
2,900	204	672	360	4,500	6,000	-	3,100	3,600	1,343	720	672	360
2,500	176	672	360					4,500				



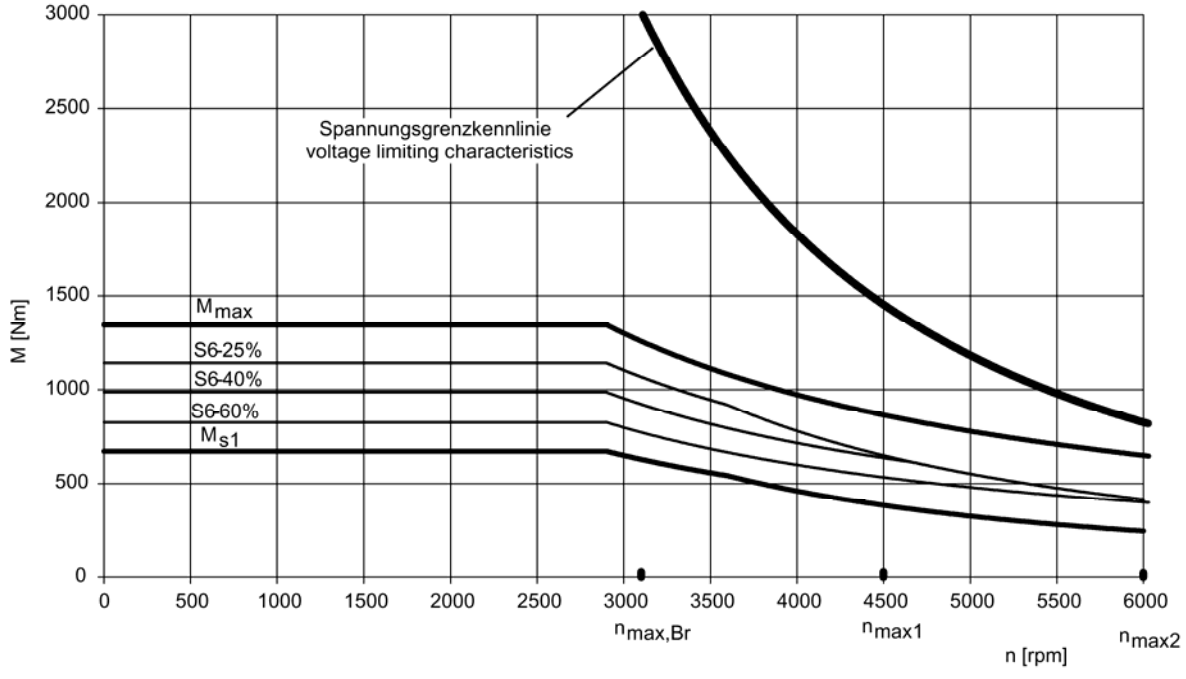
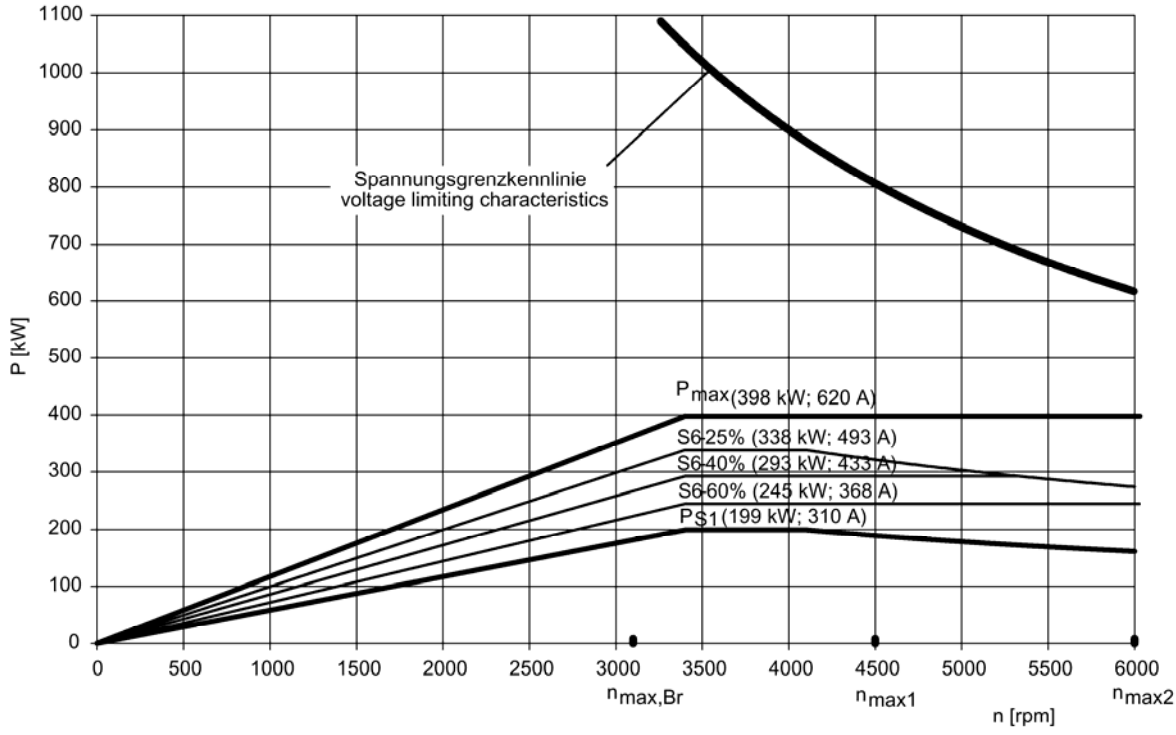


Table 6- 783 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-□□L2□

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]
3,400	199	559	310	4,500	6,000	-	3,100	4,100	1,118	620	559	310



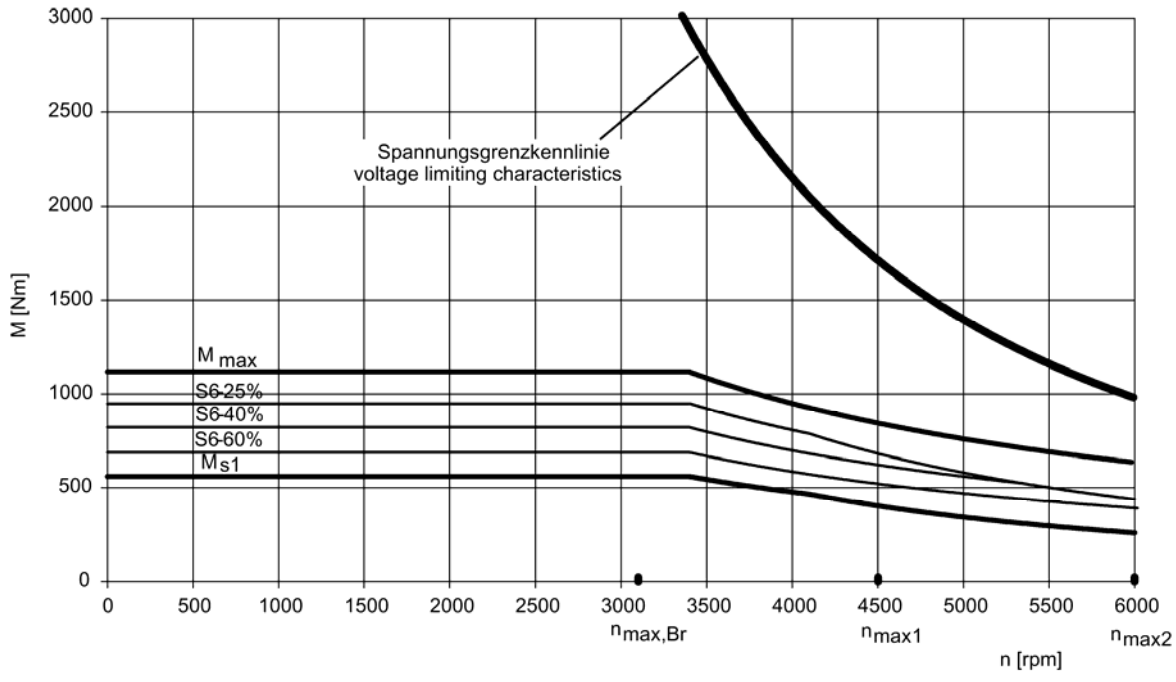
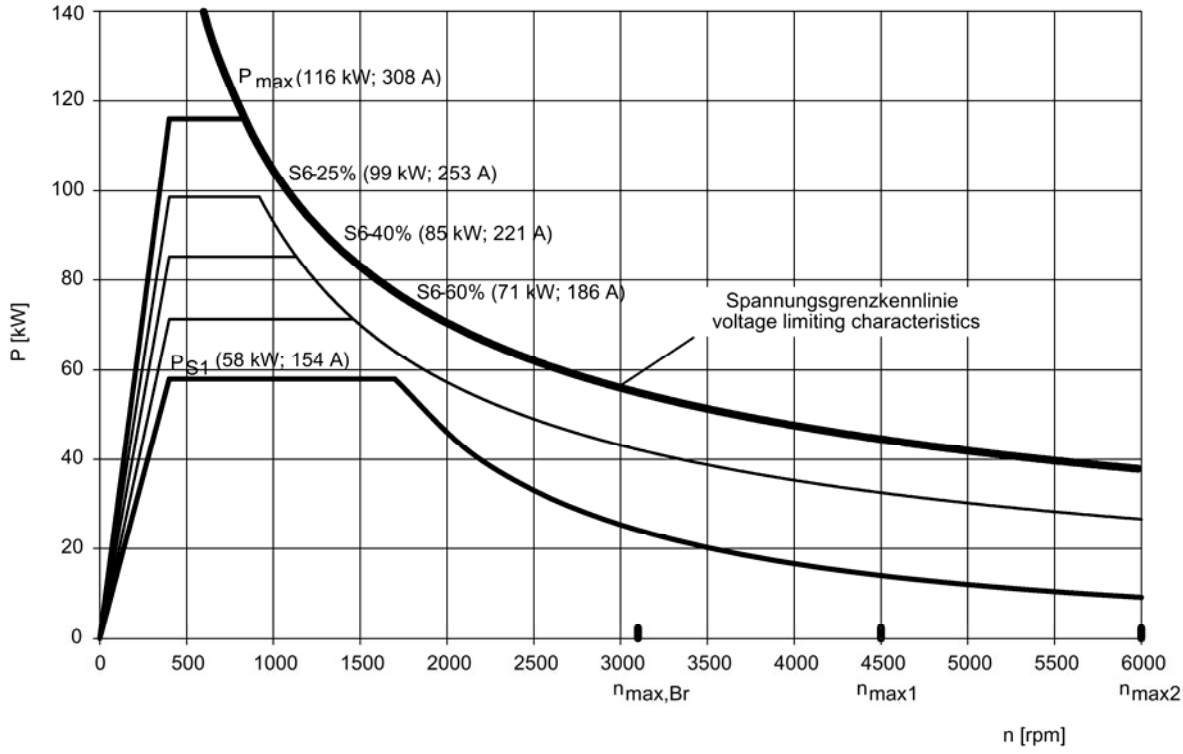


Table 6- 784 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□B2□

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	1,385	154	4,500	6,000	-	3,100	1,700	2,769	308	1,385	154



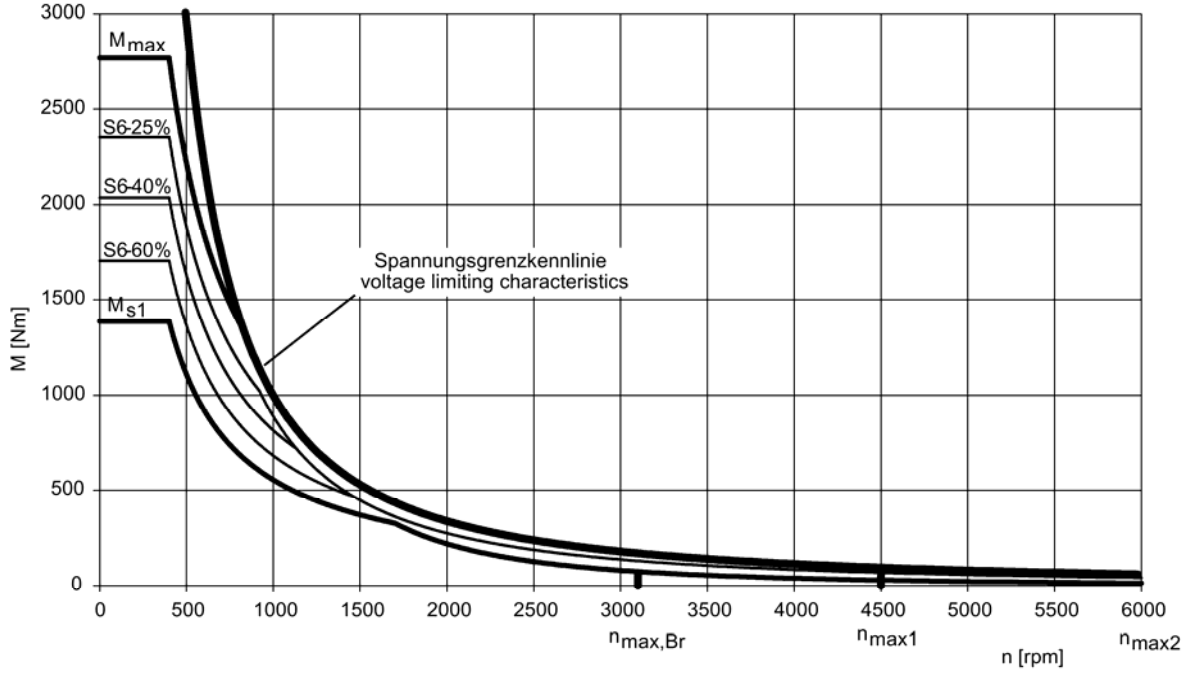
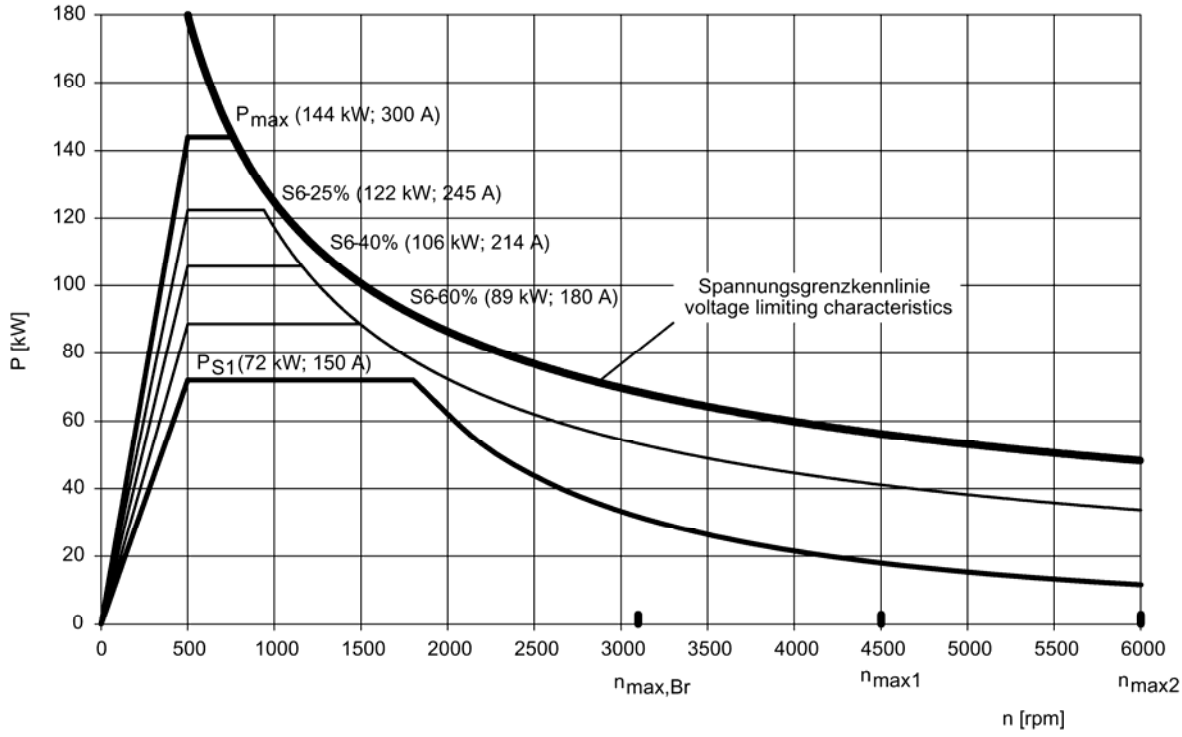


Table 6- 785 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□B2□

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	1,375	150	4,500	6,000	-	3,100	1,800	2,750	300	1,375	150
400	58	1,375	150					2,100				



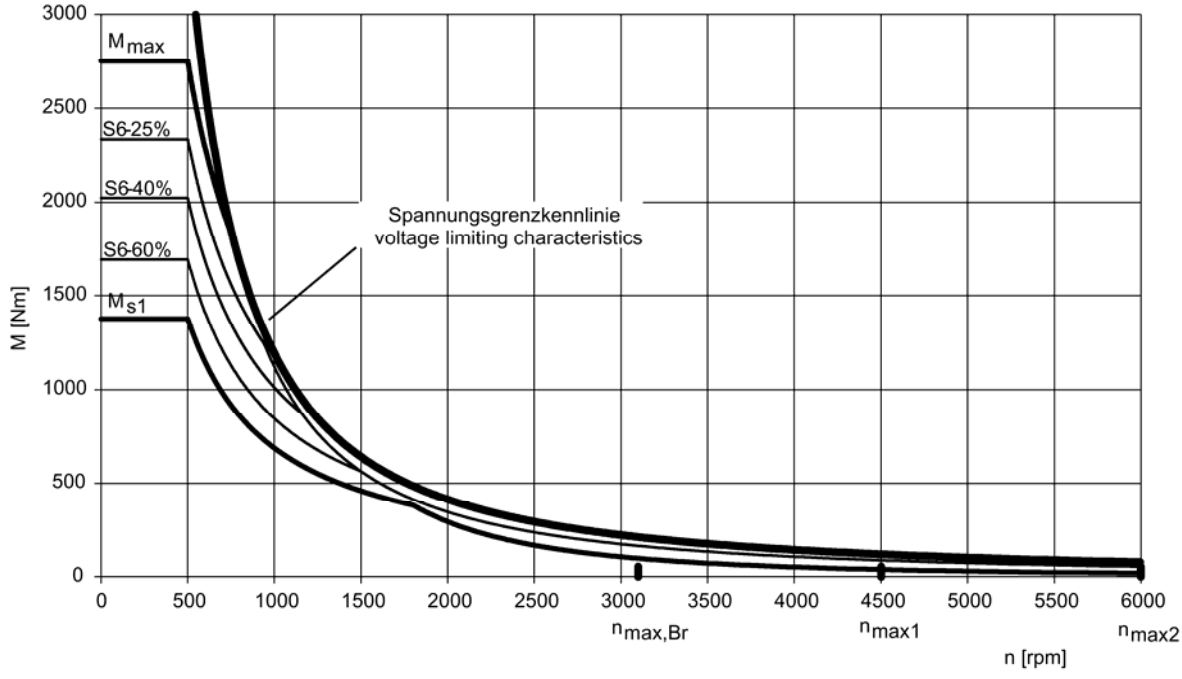
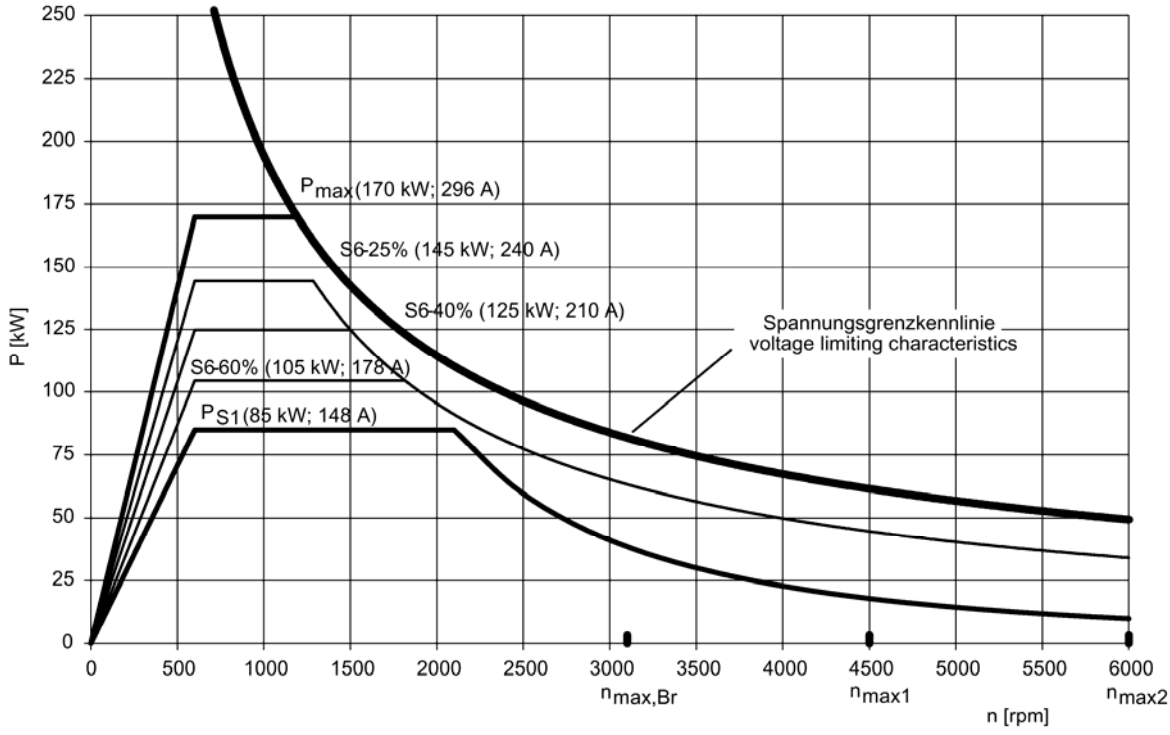


Table 6- 786 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□B2□

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	1,353	148	4,500	6,000	-	3,100	2,100	2,706	296	1,353	148



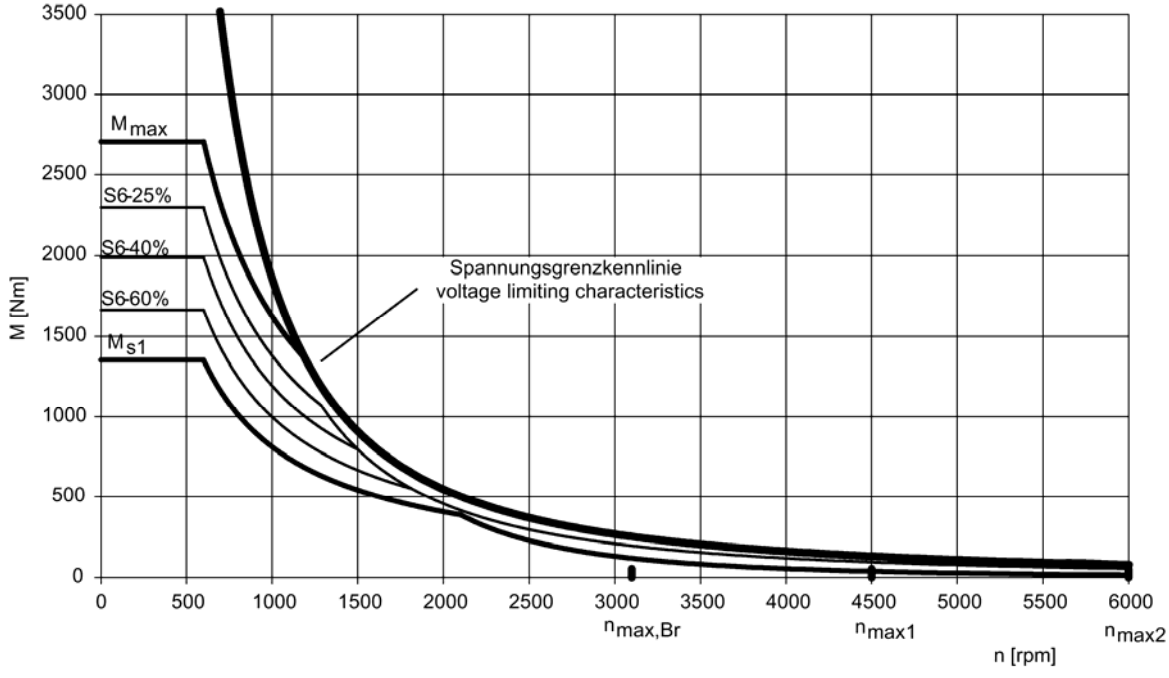
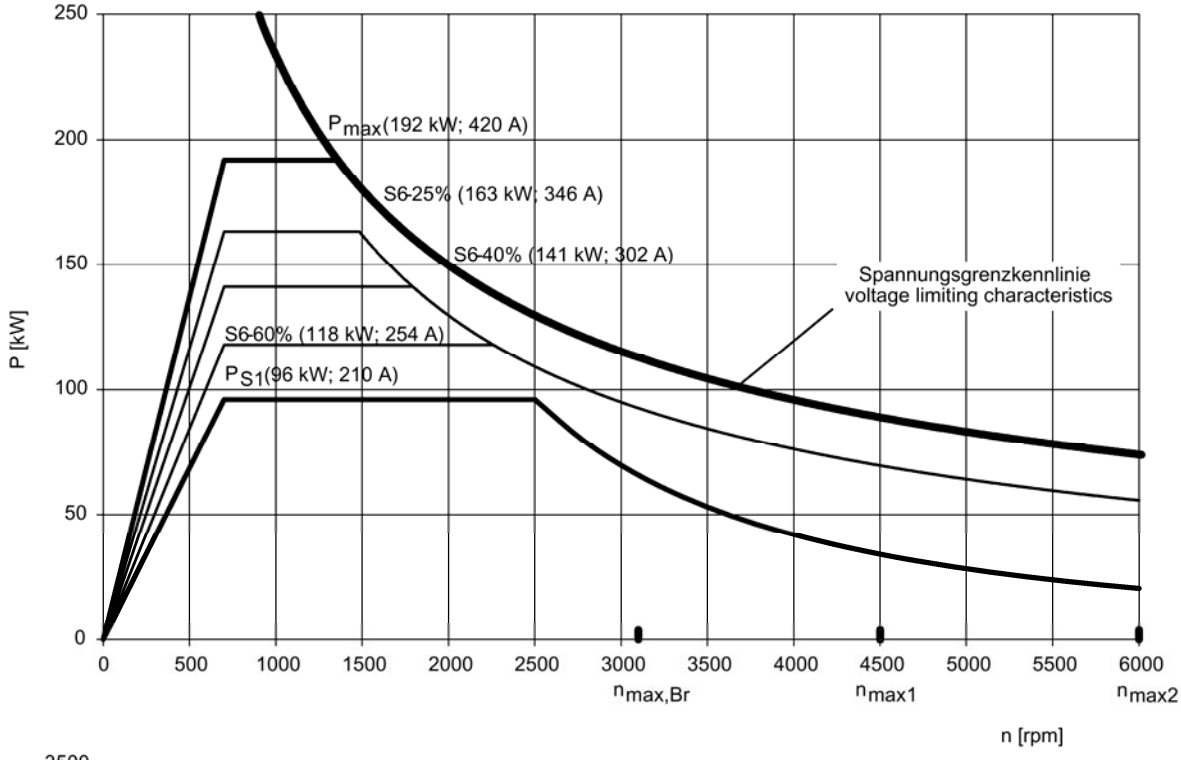


Table 6- 787 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□C2□

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	1,310	210	4,500	6,000	-	3,100	2,500	2,619	420	1,310	210



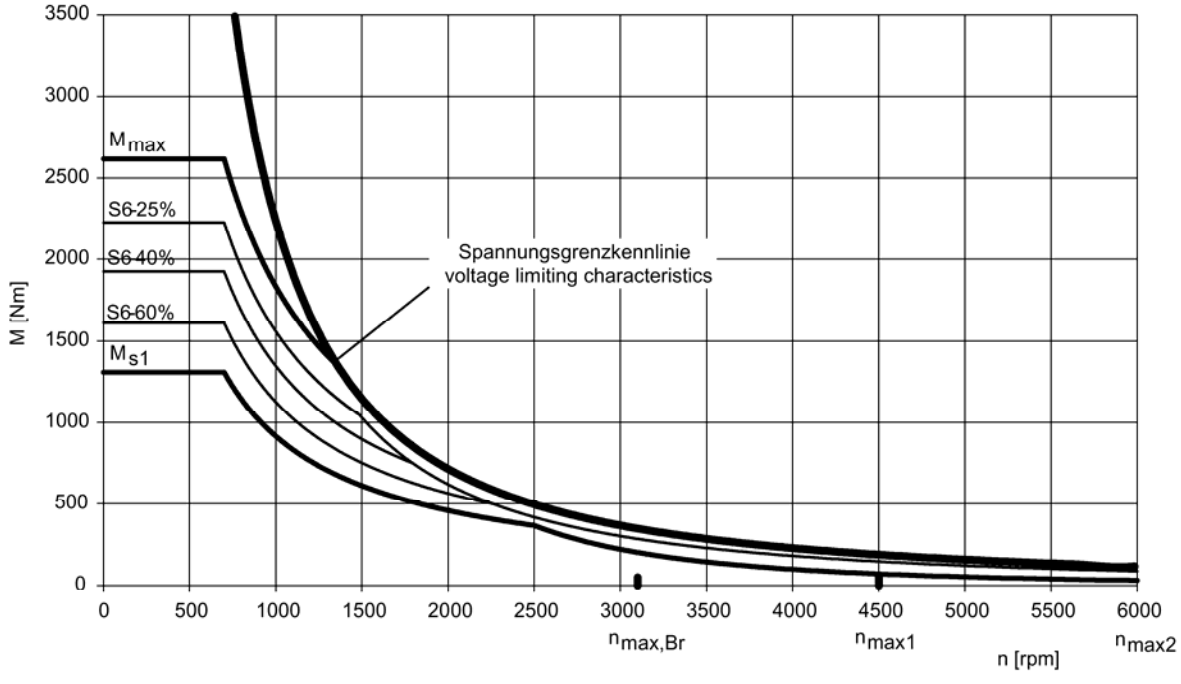
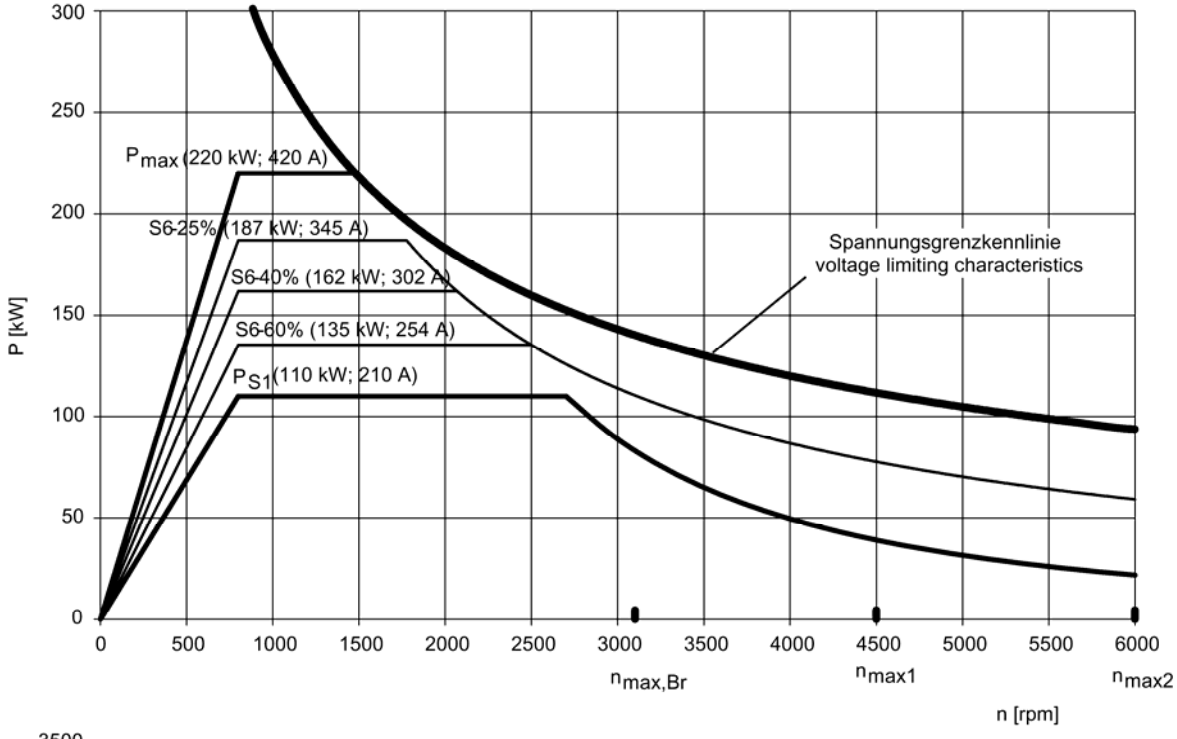


Table 6- 788 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□C2□

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	1,313	210	4,500	6,000	-	3,100	2,700	2,626	420	1,313	210
700	96	1,313	210					2,900				



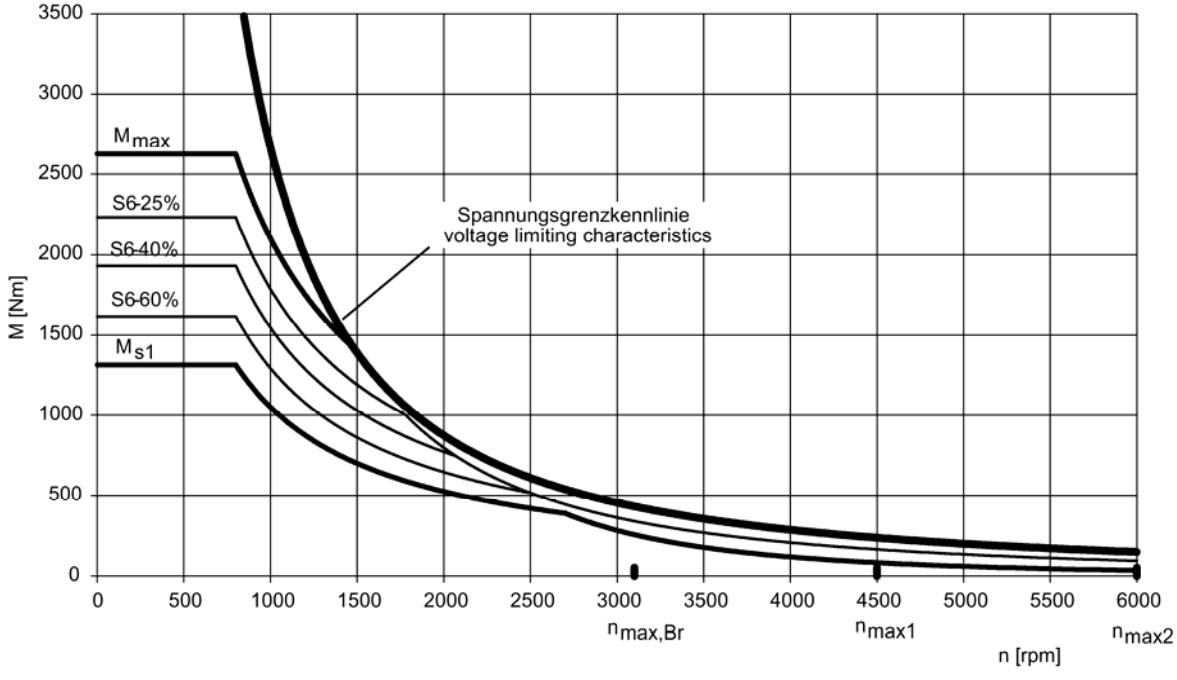
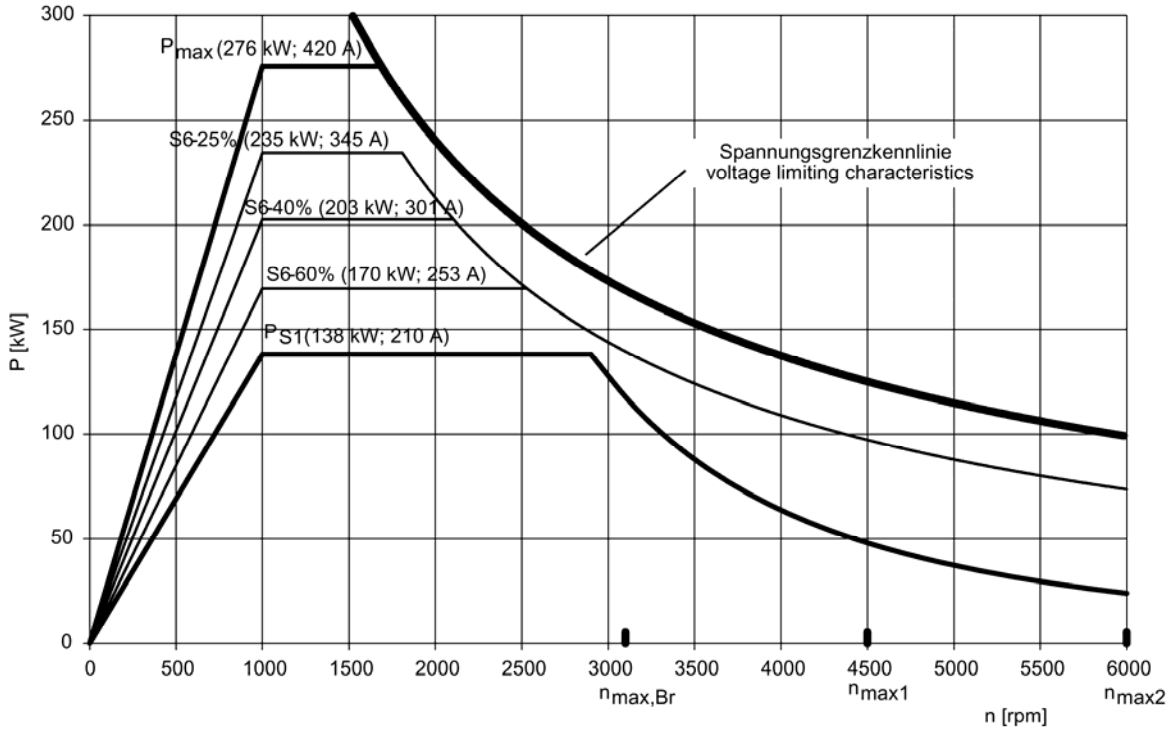


Table 6- 789 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□C2□

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]
1,000	138	1,318	210	4,500	6,000	-	3,100	2,900	2,636	420	1,318	210



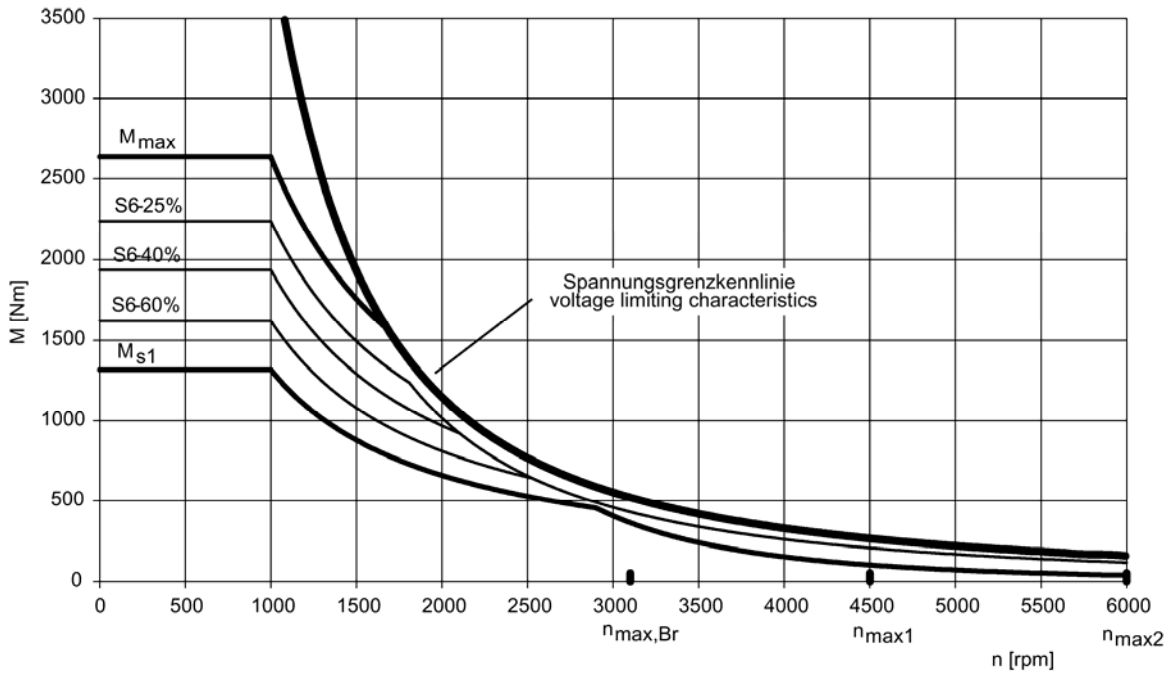
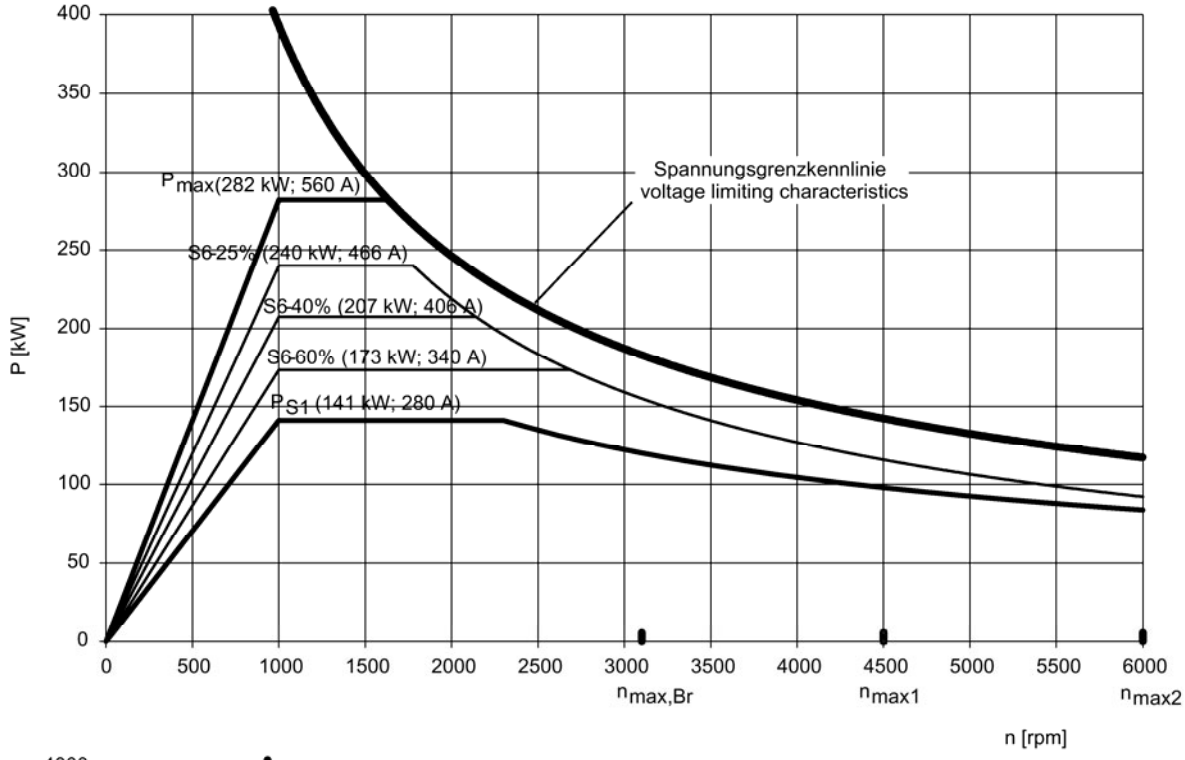


Table 6- 790 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□D2□

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]
1,000	141	1,346	280	4,500	6,000	-	3,100	2,300	2,693	560	1,346	280



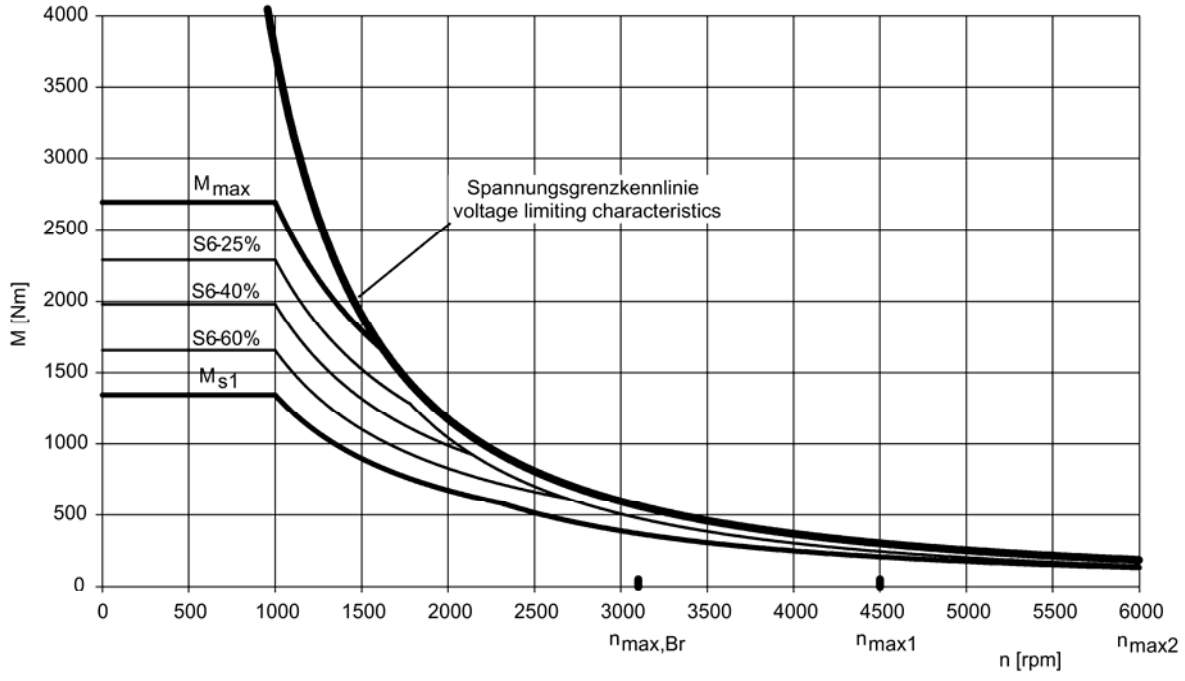
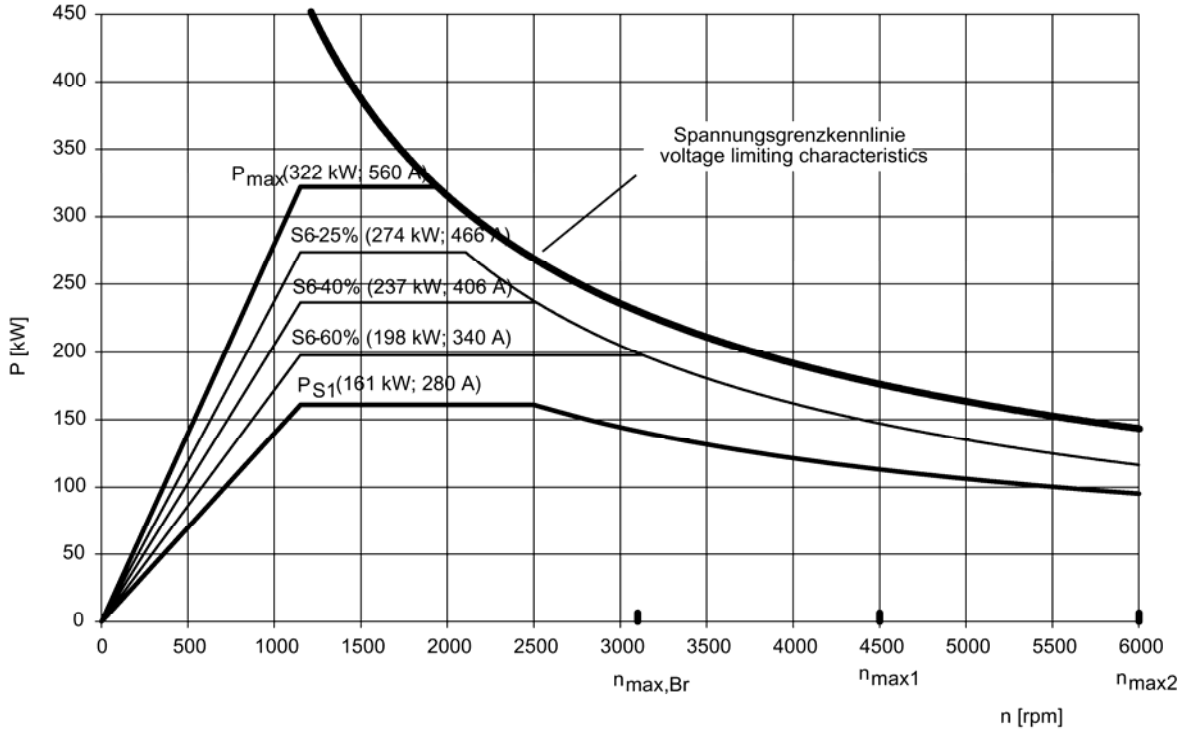


Table 6- 791 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□D2□

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]
1,150	161	1,337	280	4,500	6,000	-	3,100	2,500	2,674	560	1,337	280
1,000	140	1,337	280					3,200				



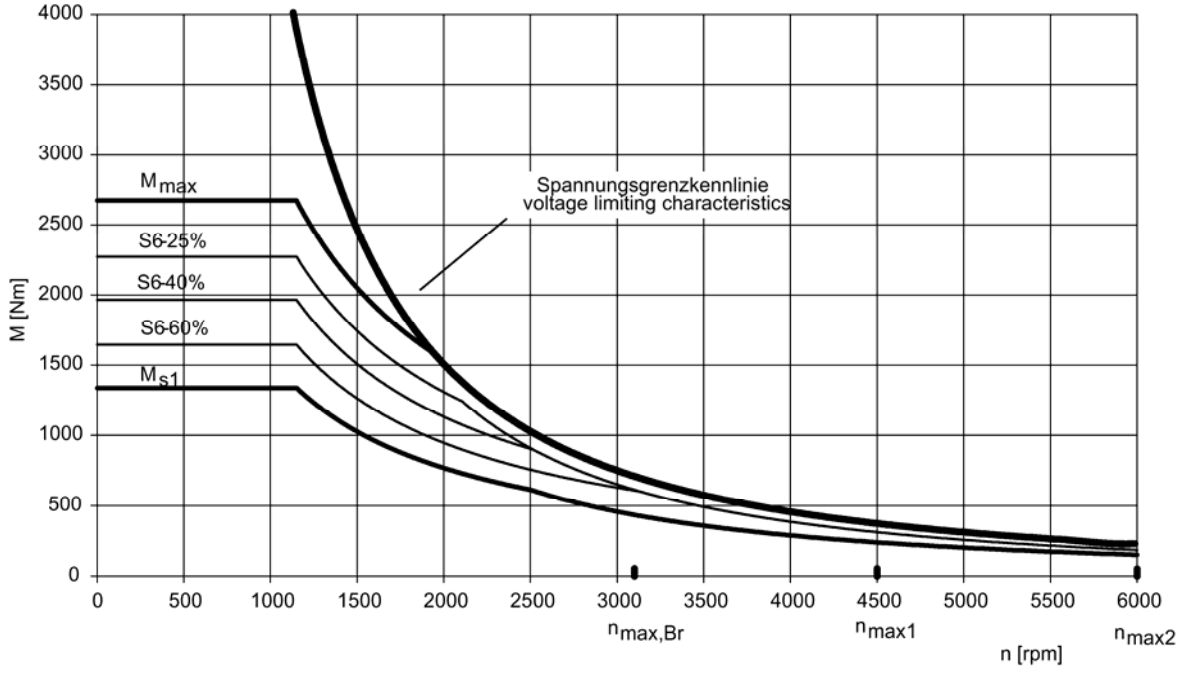
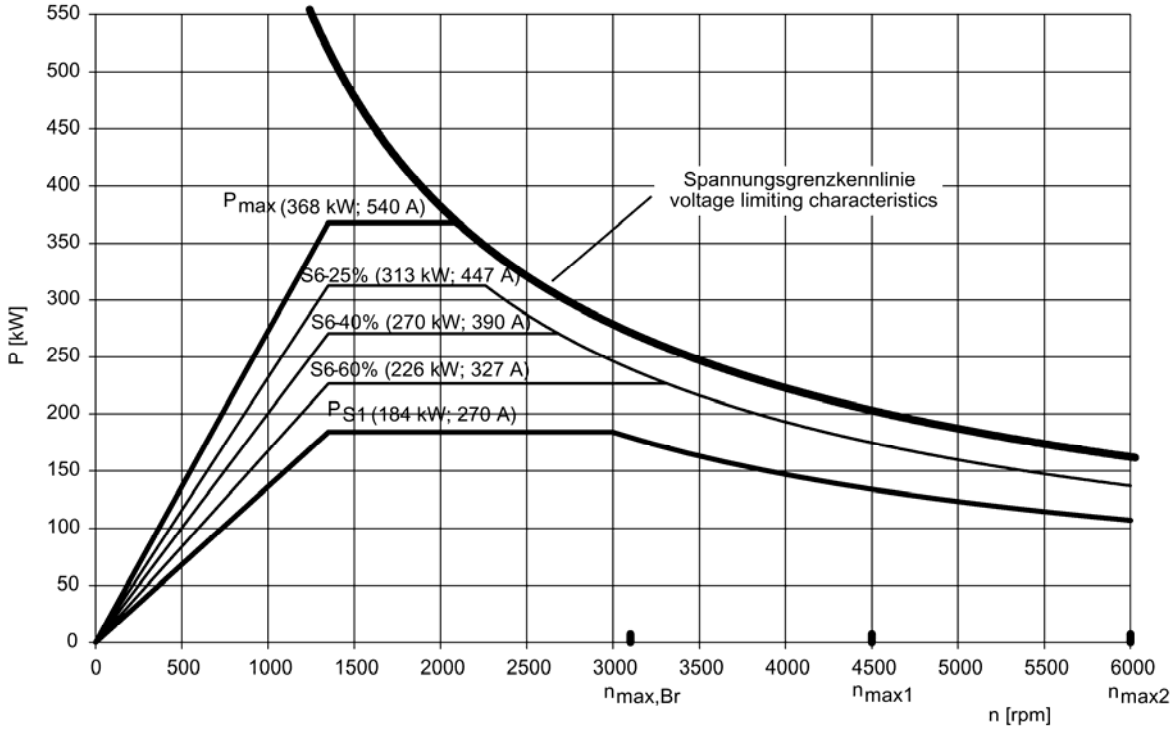


Table 6- 792 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□D2□

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]
1,350	184	1,302	270	4,500	6,000	-	3,100	3,000	2,603	540	1,302	270



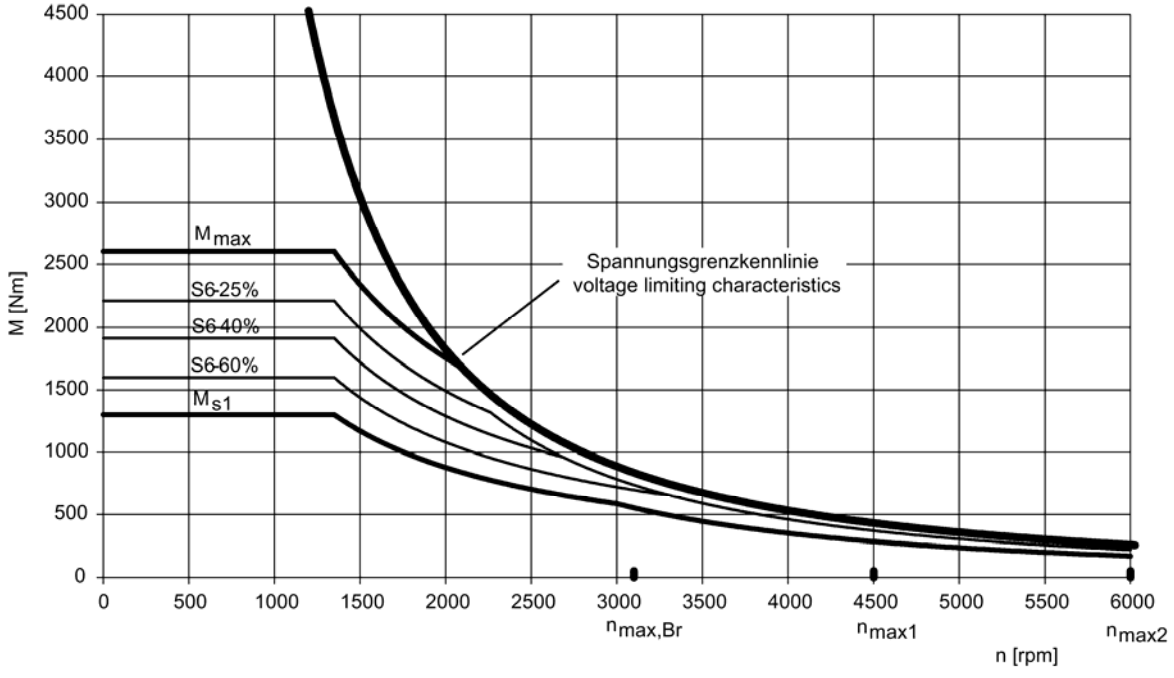
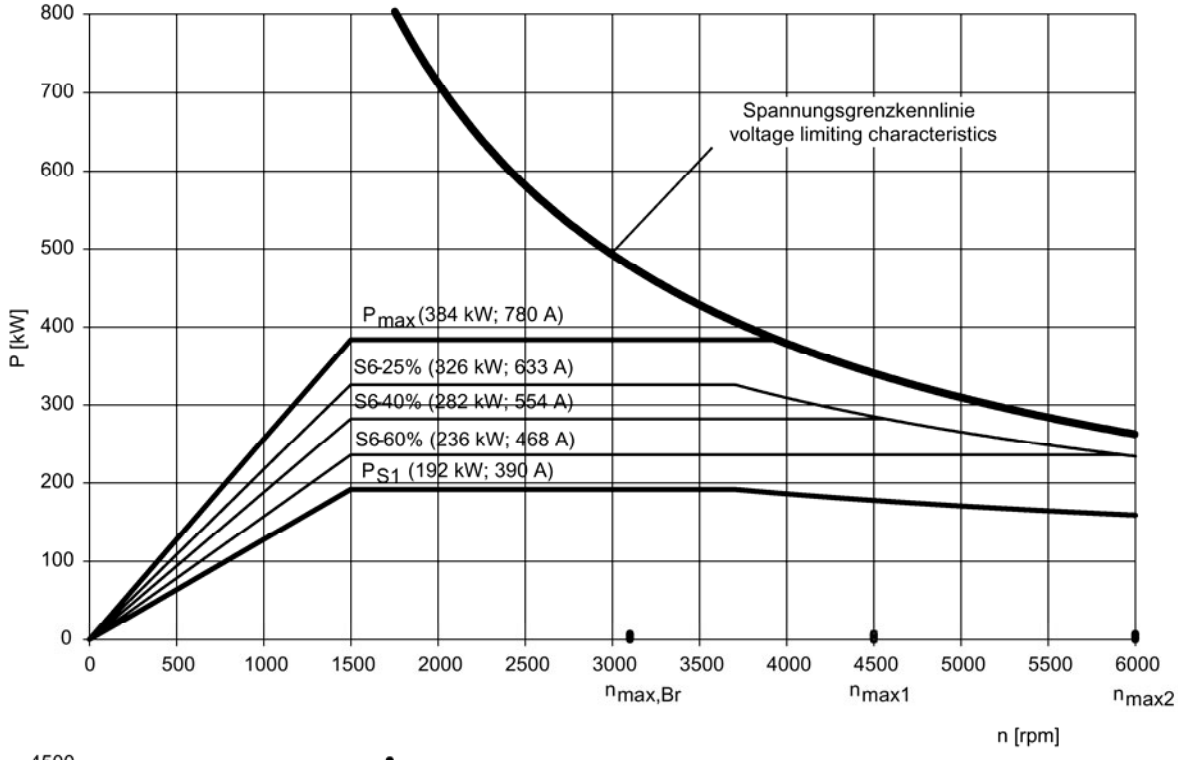


Table 6- 793 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□F2□

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]
1,500	192	1,222	390	4,500	6,000	-	3,100	3,700	2,445	780	1,222	390



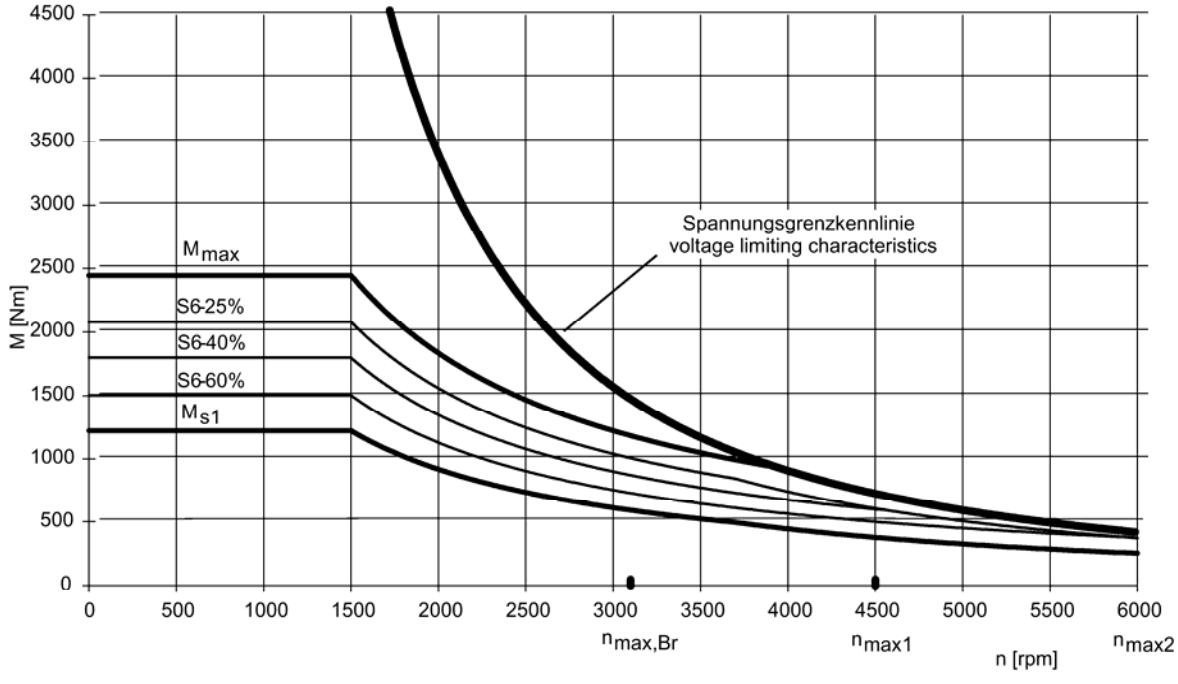
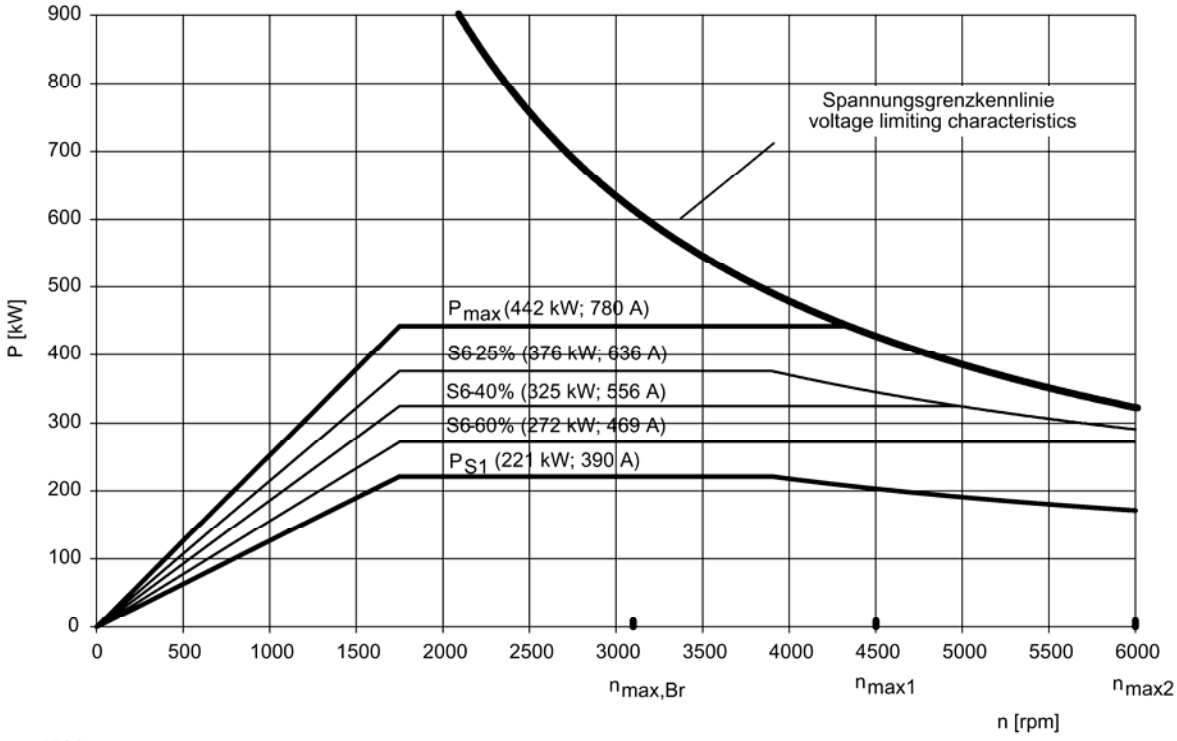


Table 6- 794 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□F2□

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]
1,750	221	1,206	390	4,500	6,000	-	3,100	3,900	2,412	780	1,206	390
1,500	189	1,206	390					5,100				



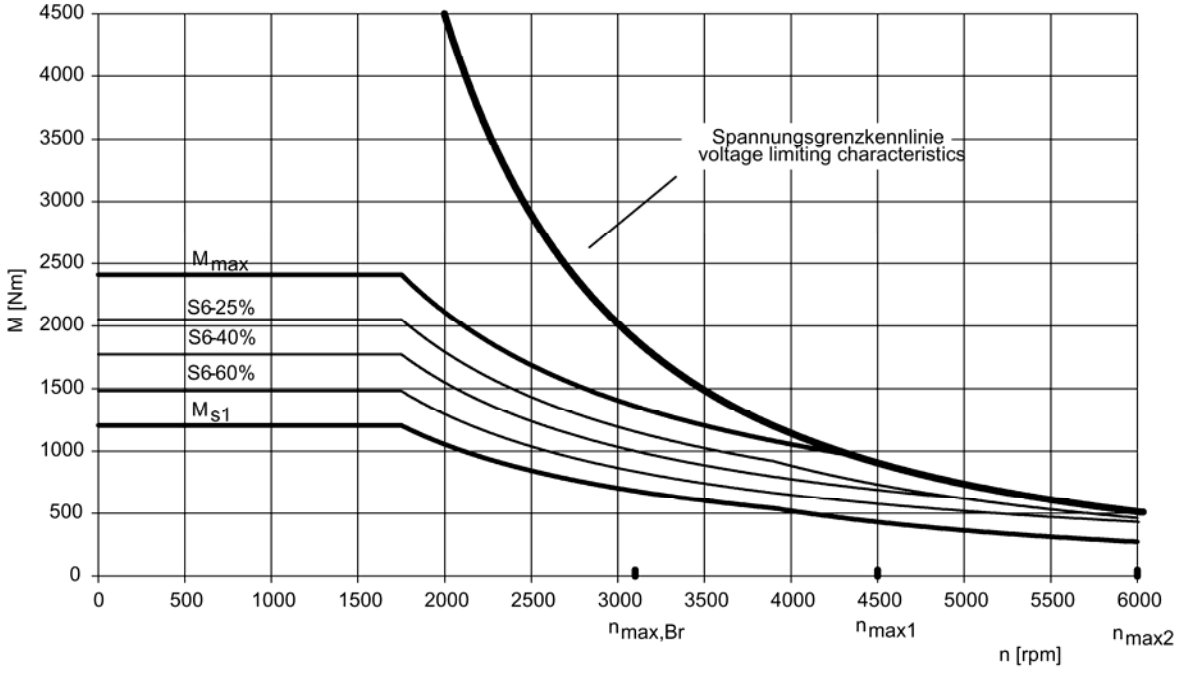
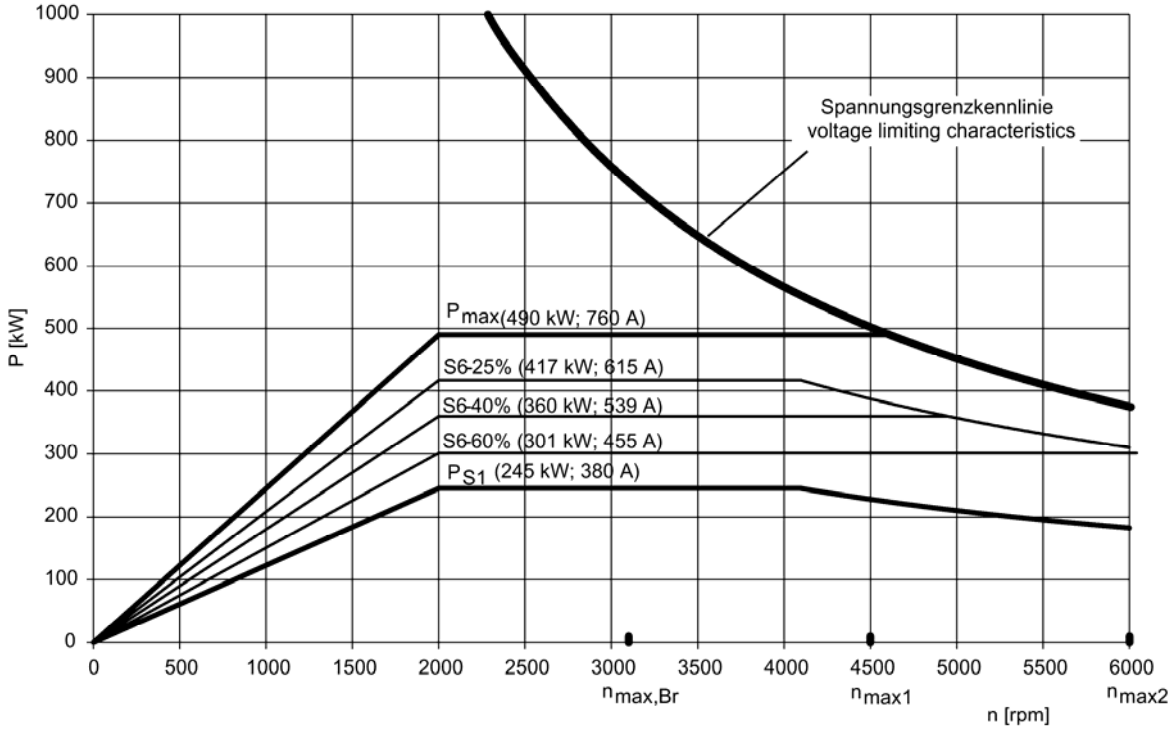


Table 6- 795 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□F2□

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]
2,000	245	1,170	380	4,500	6,000	-	3,100	4,100	2,340	760	1,170	380



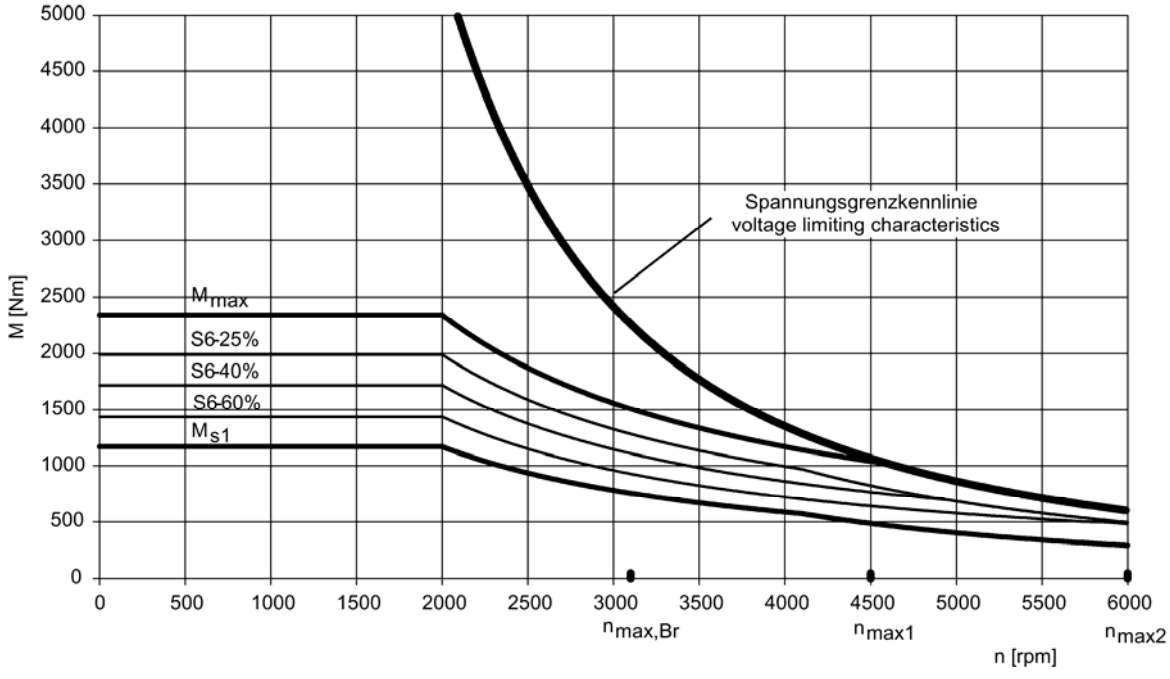
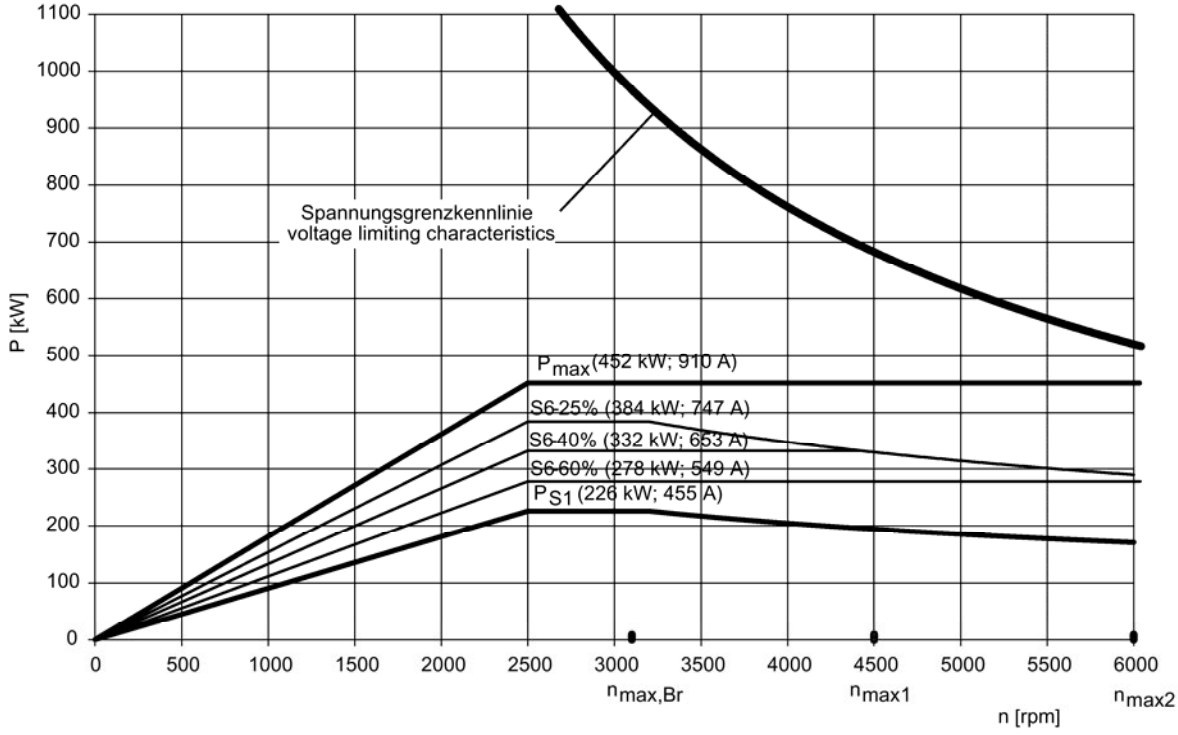


Table 6- 796 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-□□L2□

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]
2,500	226	863	455	4,500	6,000	-	3,100	3,200	1,727	910	863	455



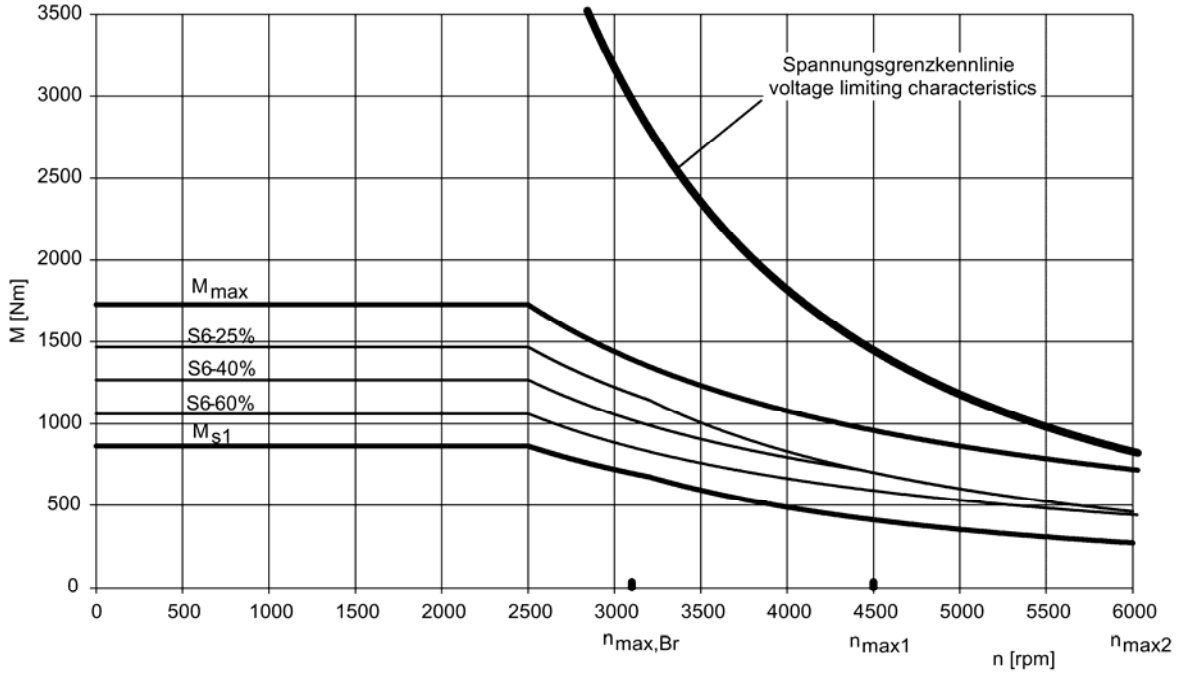
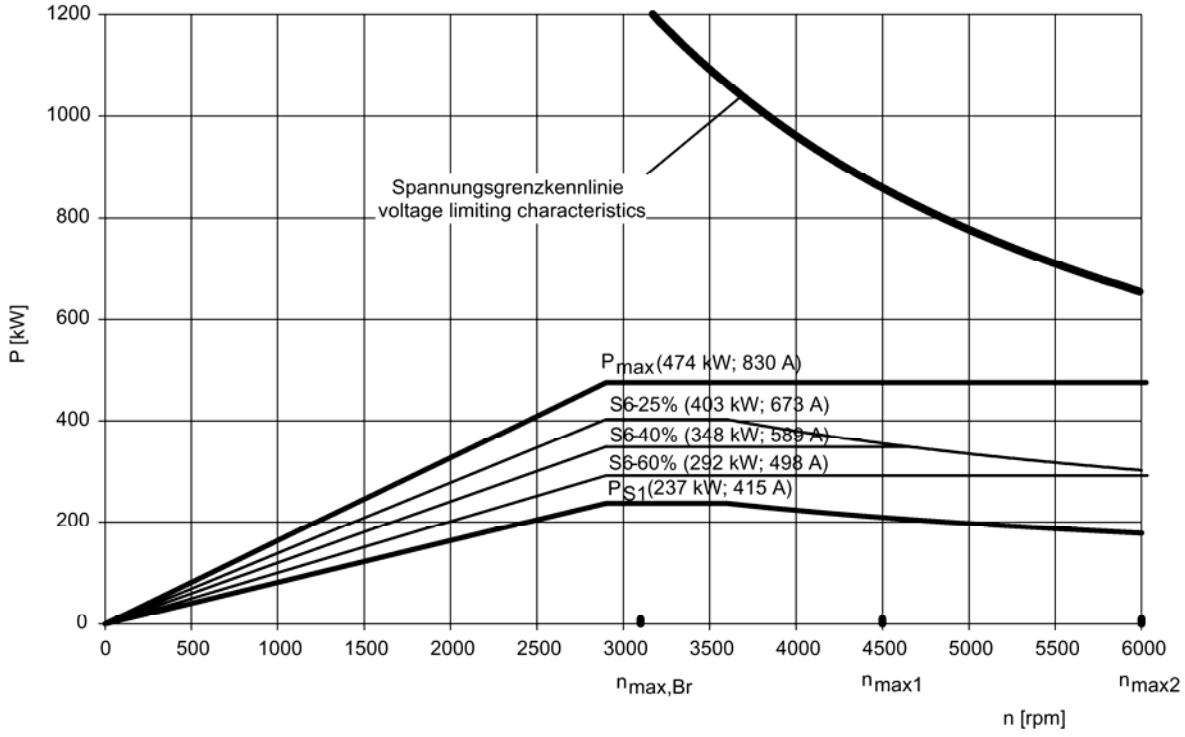


Table 6- 797 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-□□L2□

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]
2,900	237	780	415	4,500	6,000	-	3,100	3,600	1,561	830	780	415
2,500	204	780	415					4,500				



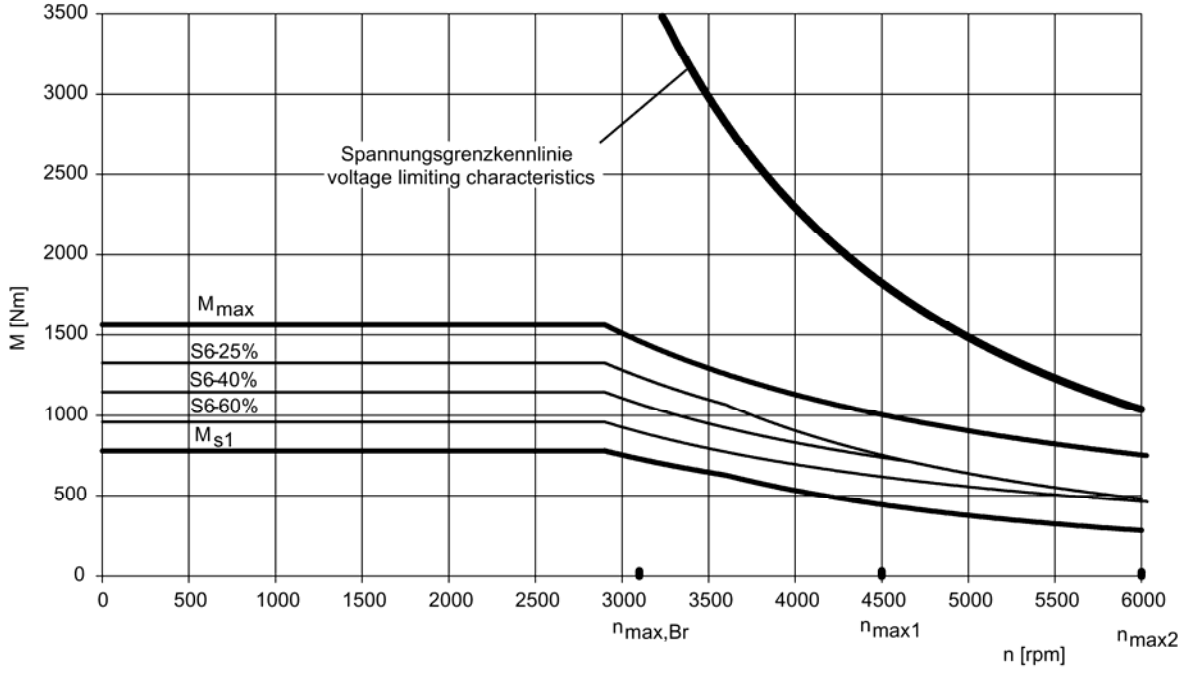
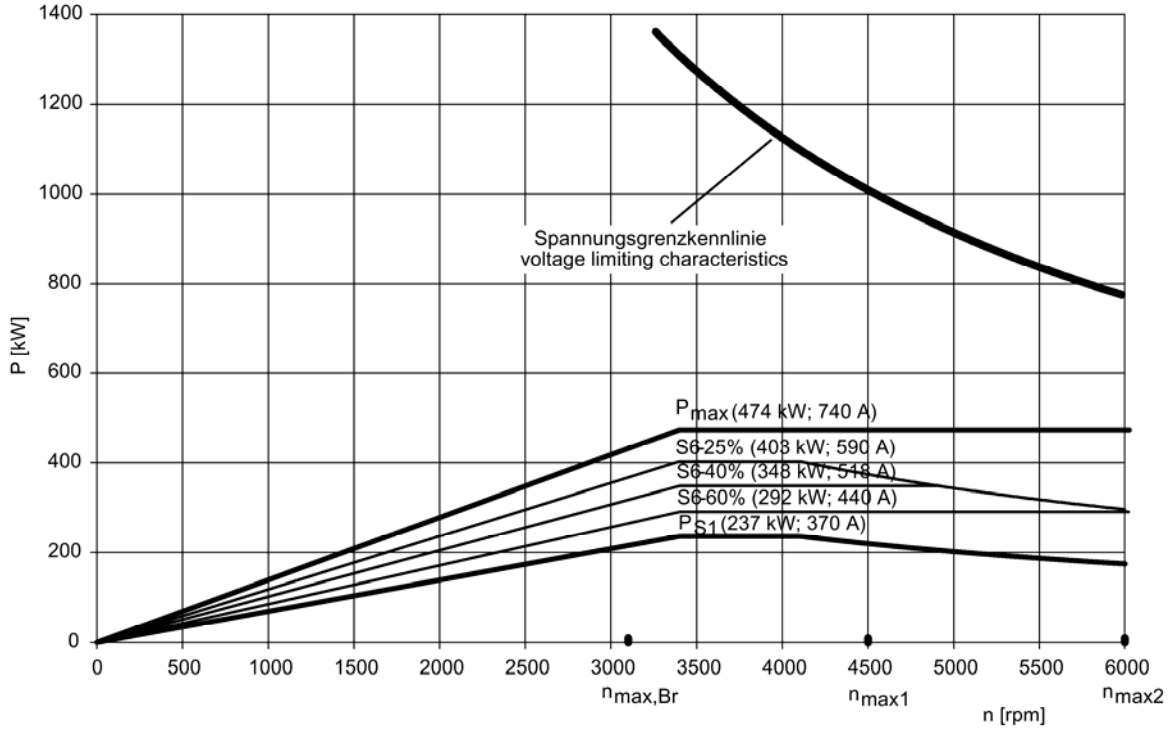
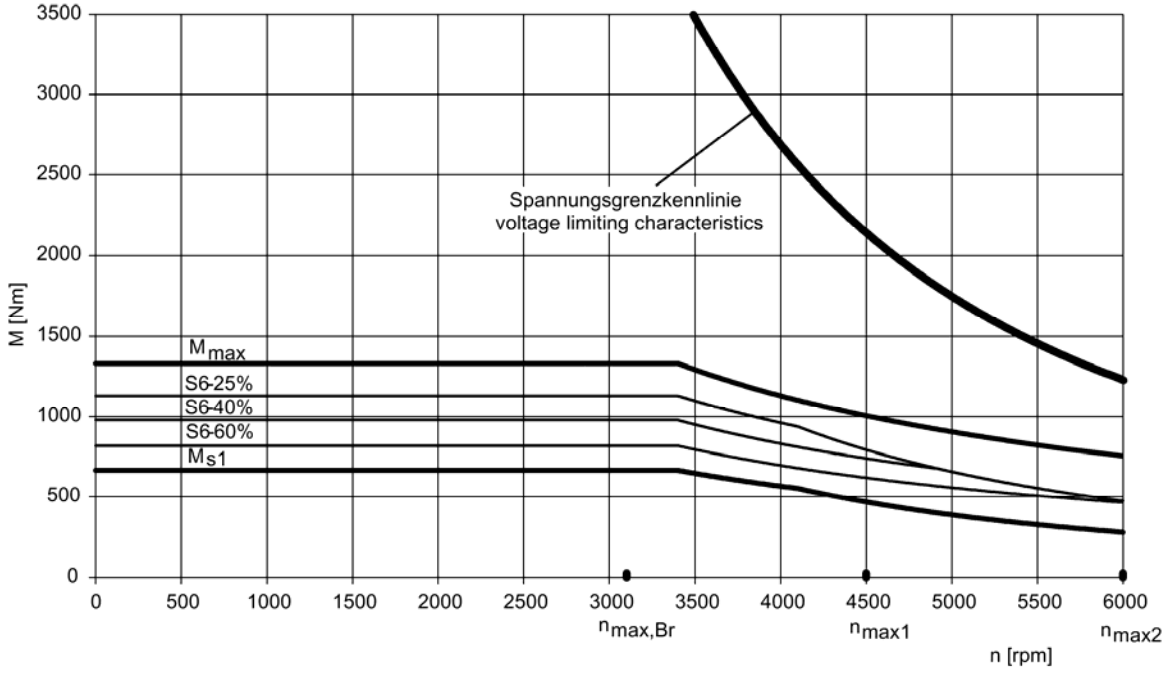


Table 6- 798 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-□□L2□

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]
3,400	237	666	370	4,500	6,000	-	3,100	4,100	1,331	740	666	370

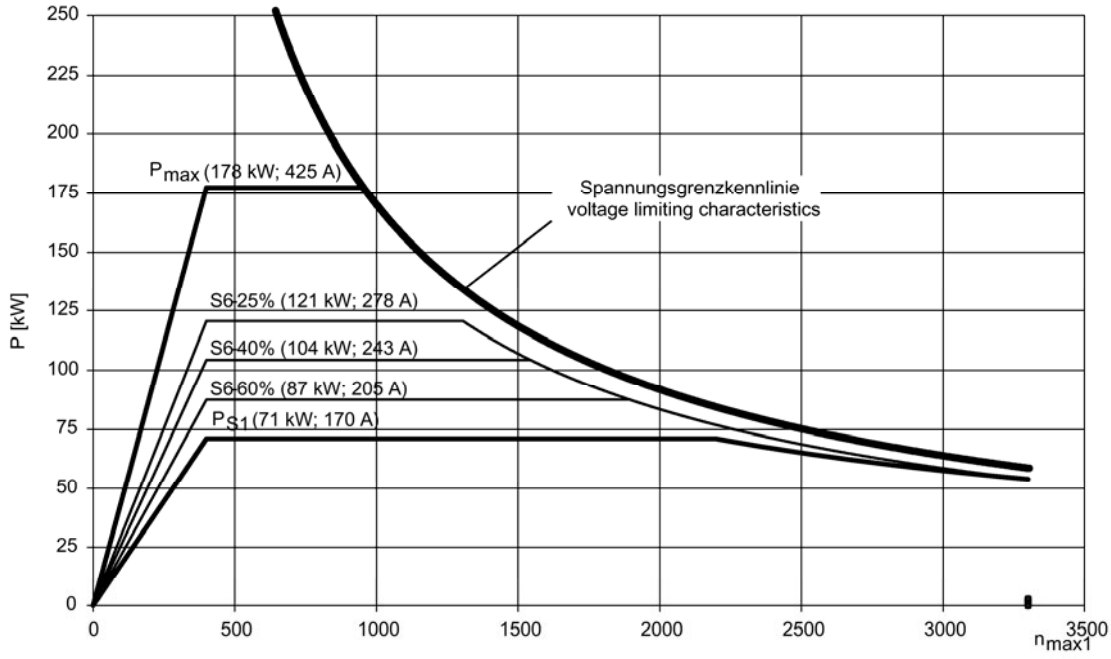




6.1.3.8 Shaft height 280 - water-cooled

Table 6- 799 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	1,695	170	3,300	-	-	-	2,200	4,238	425	1,695	170



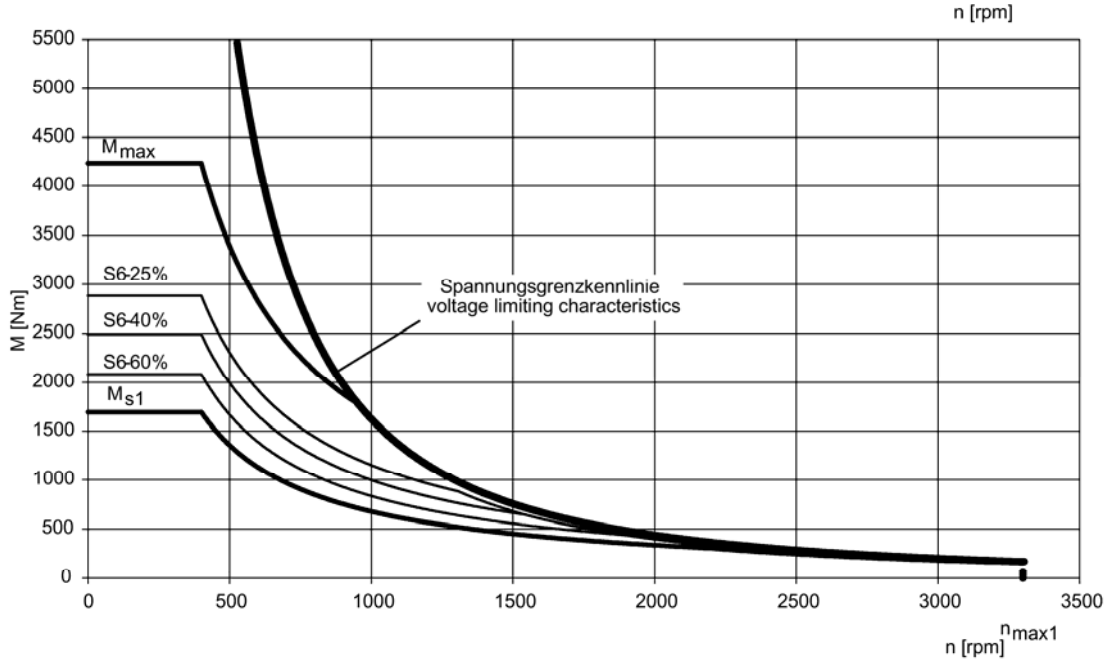
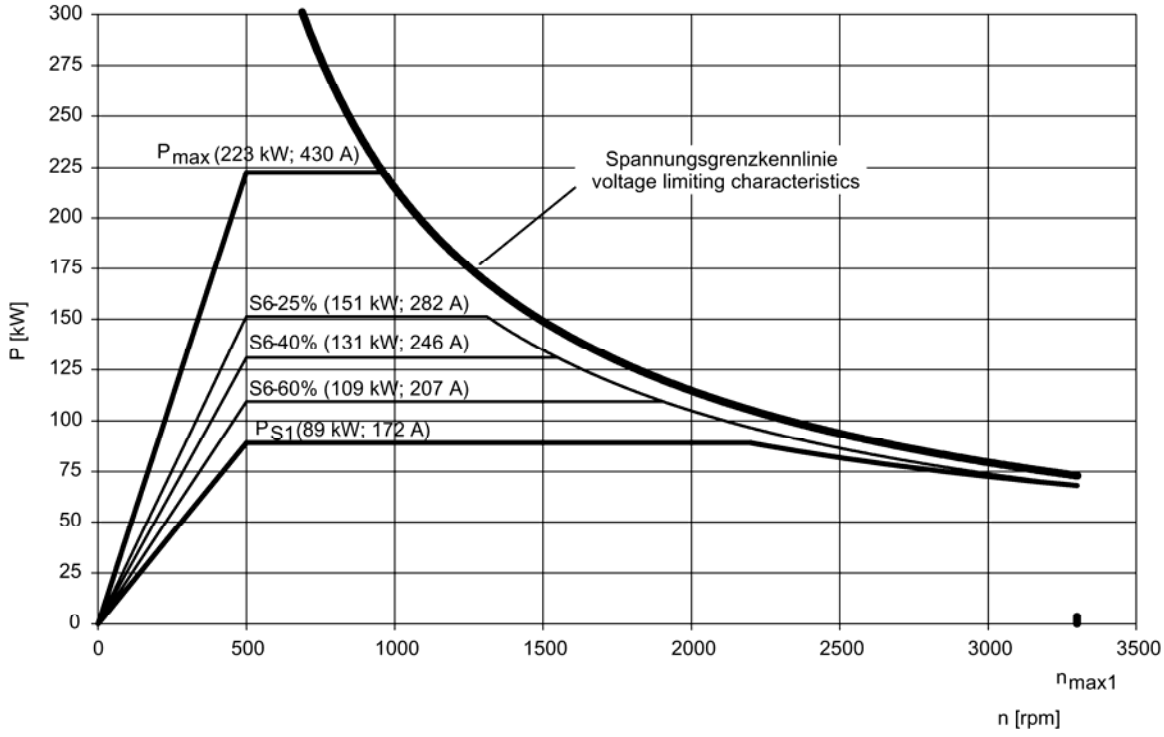


Table 6- 800 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□B2□

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	1,700	172	3,300	-	-	-	2,200	4,250	430	1,700	172
400	71	1,700	172					3,100				



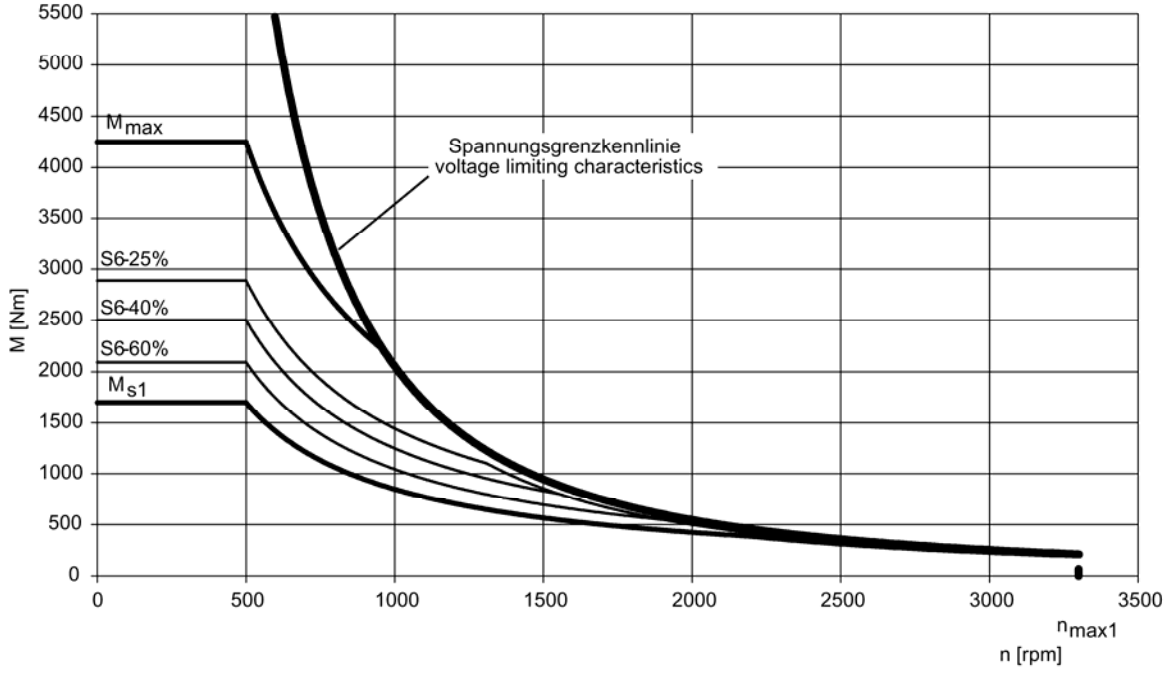
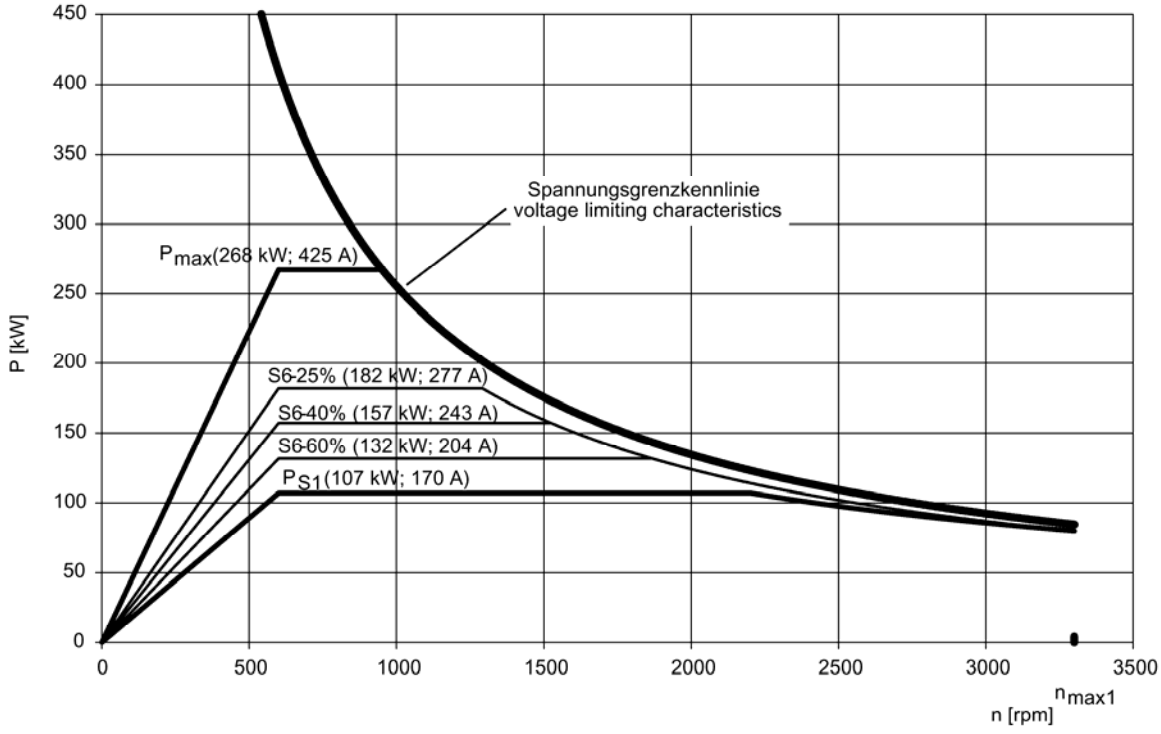


Table 6- 801 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□B2□

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	1,703	170	3,300	-	-	-	2,200	4,258	425	1,703	170



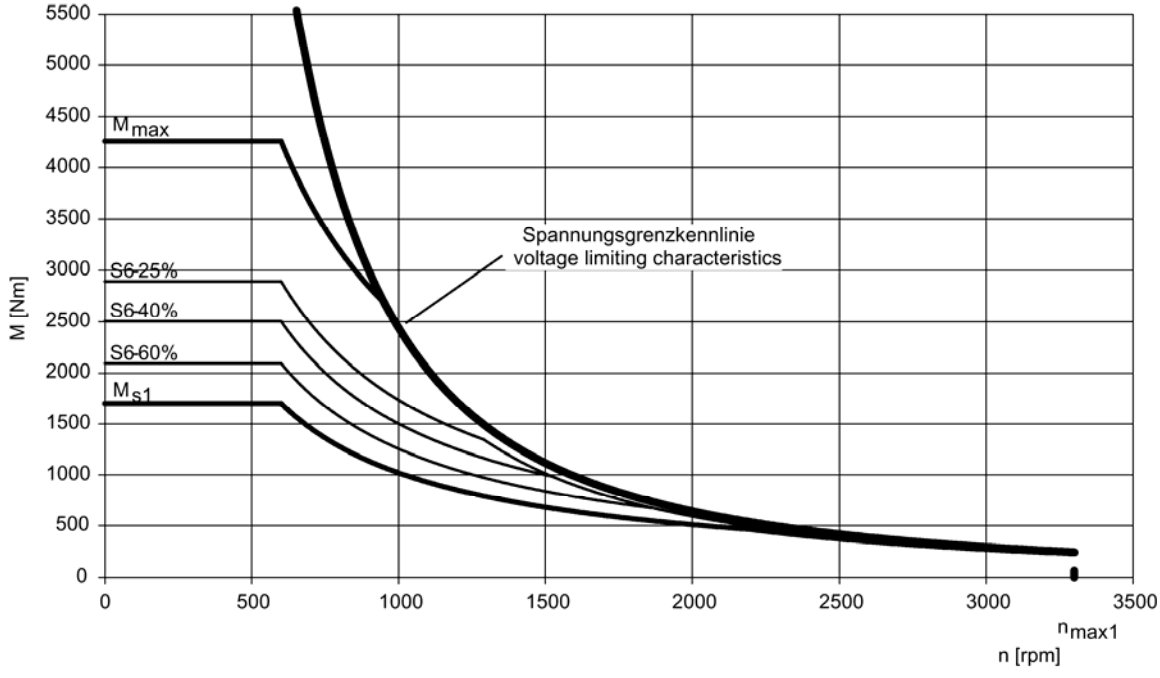
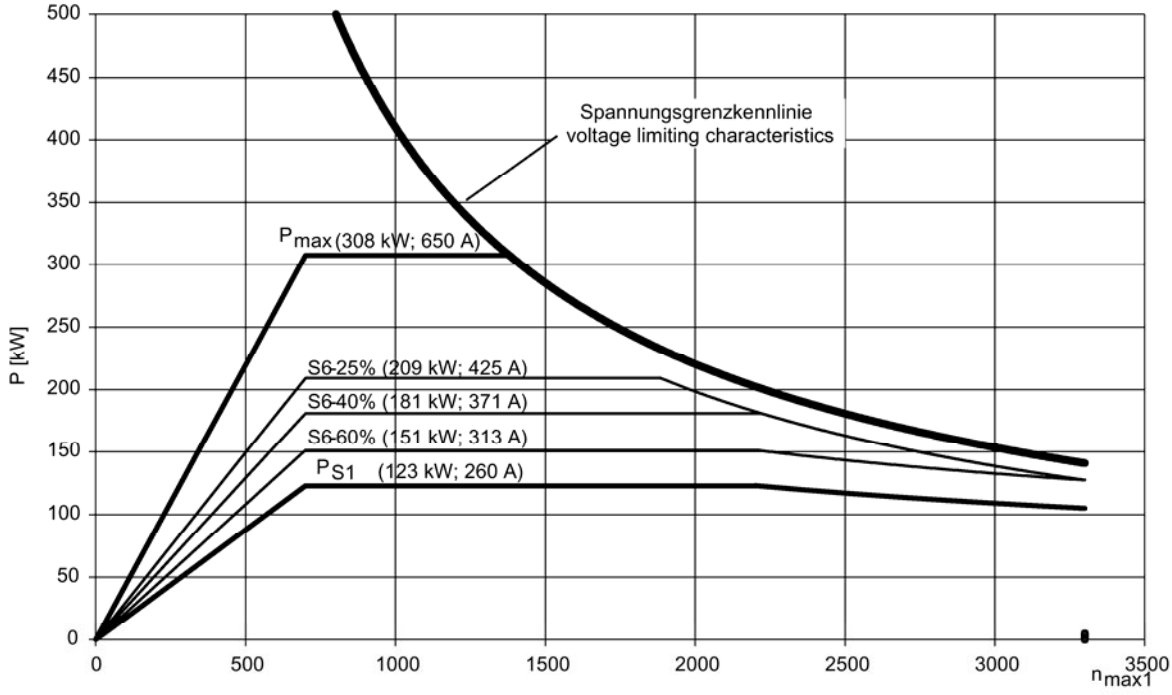


Table 6- 802 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□C2□

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	1,678	260	3,300	-	-	-	2,200	4,195	650	1,678	260



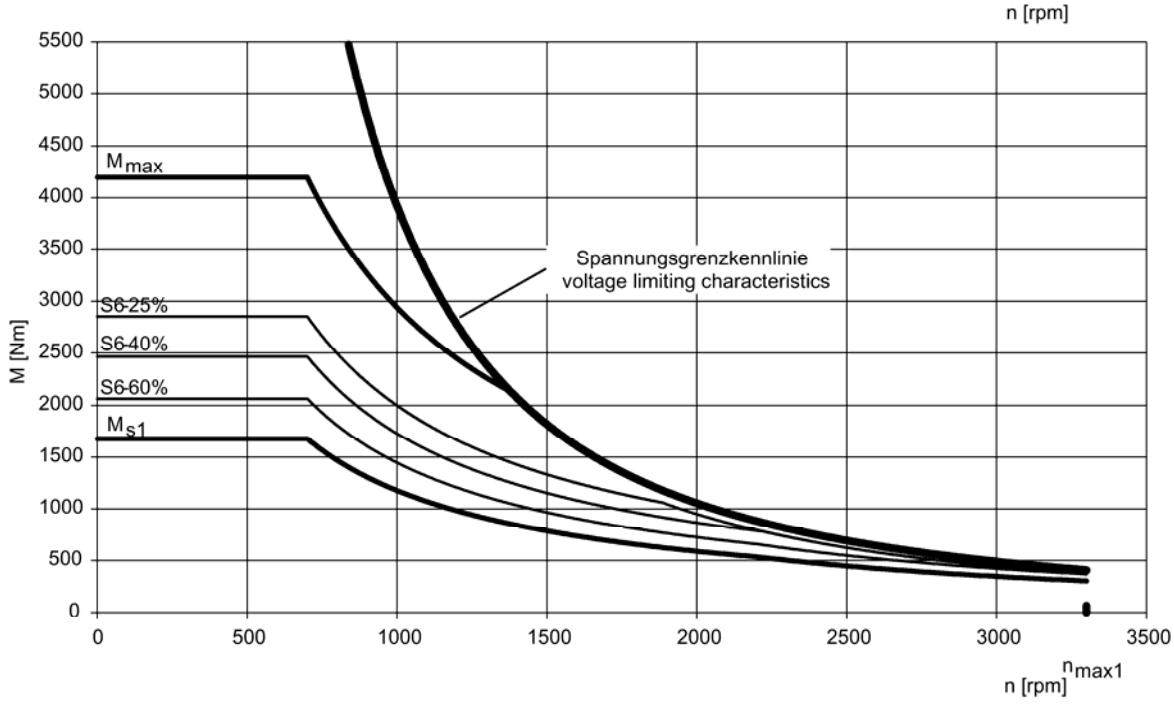
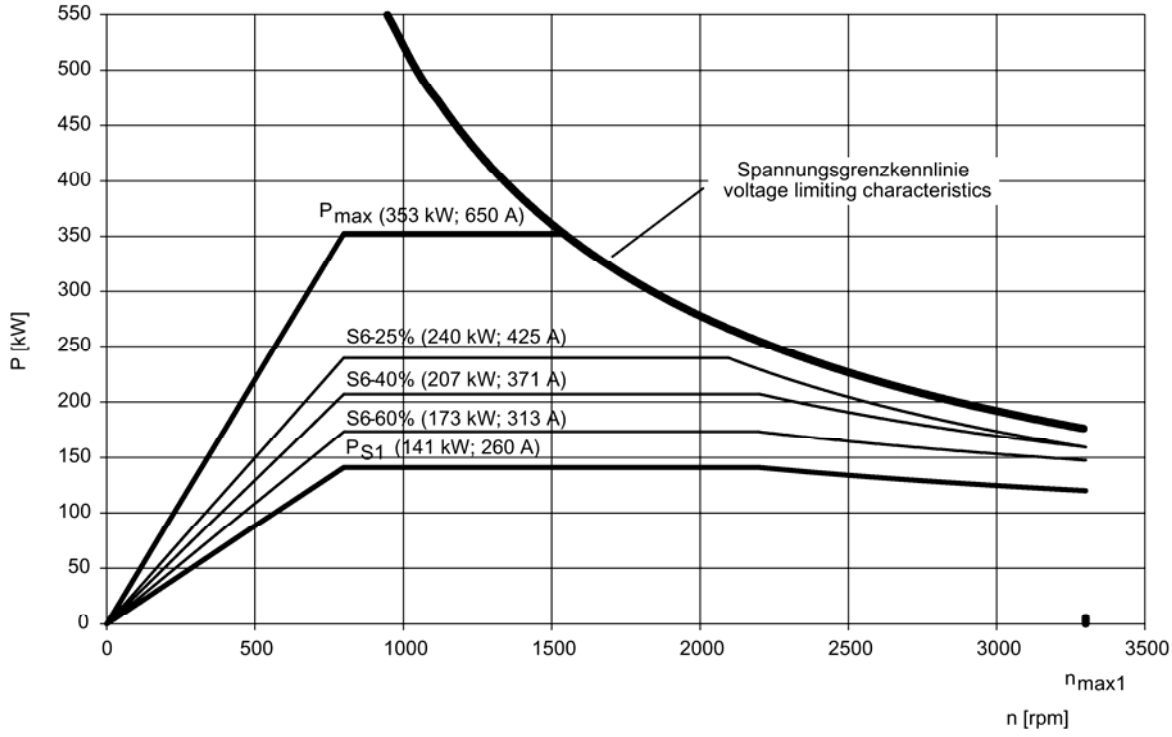


Table 6- 803 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□C2□

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	1,683	260	3,300	-	-	-	2,200	4,208	650	1,683	260
700	123	1,683	260					3,100				



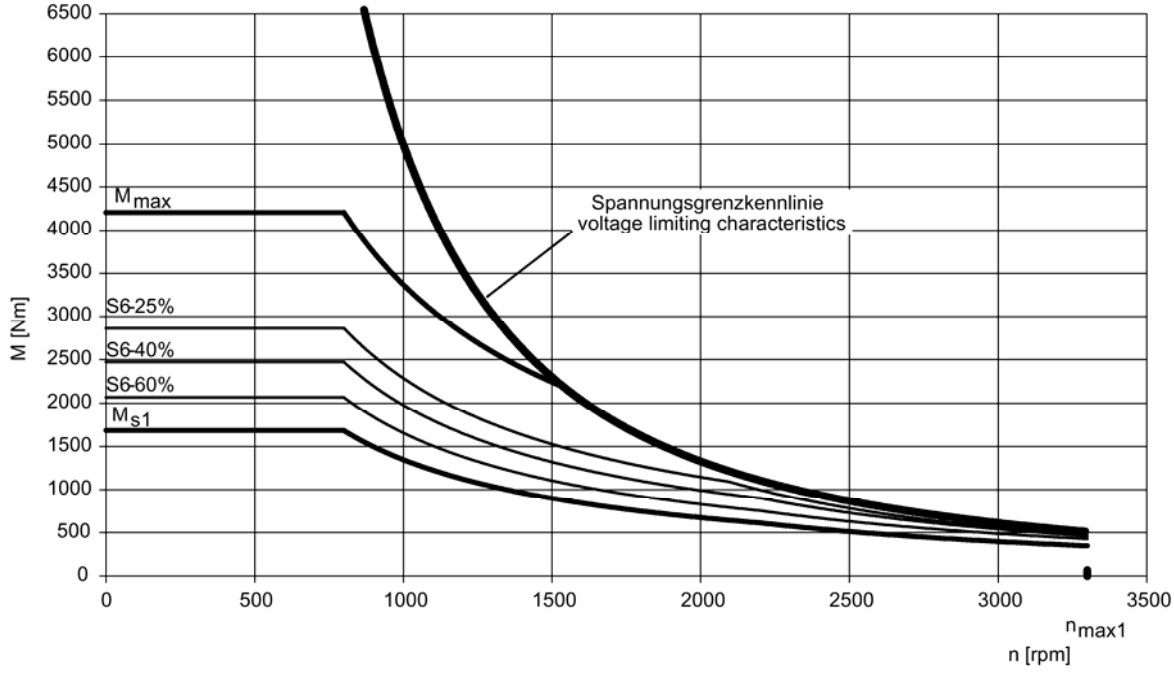
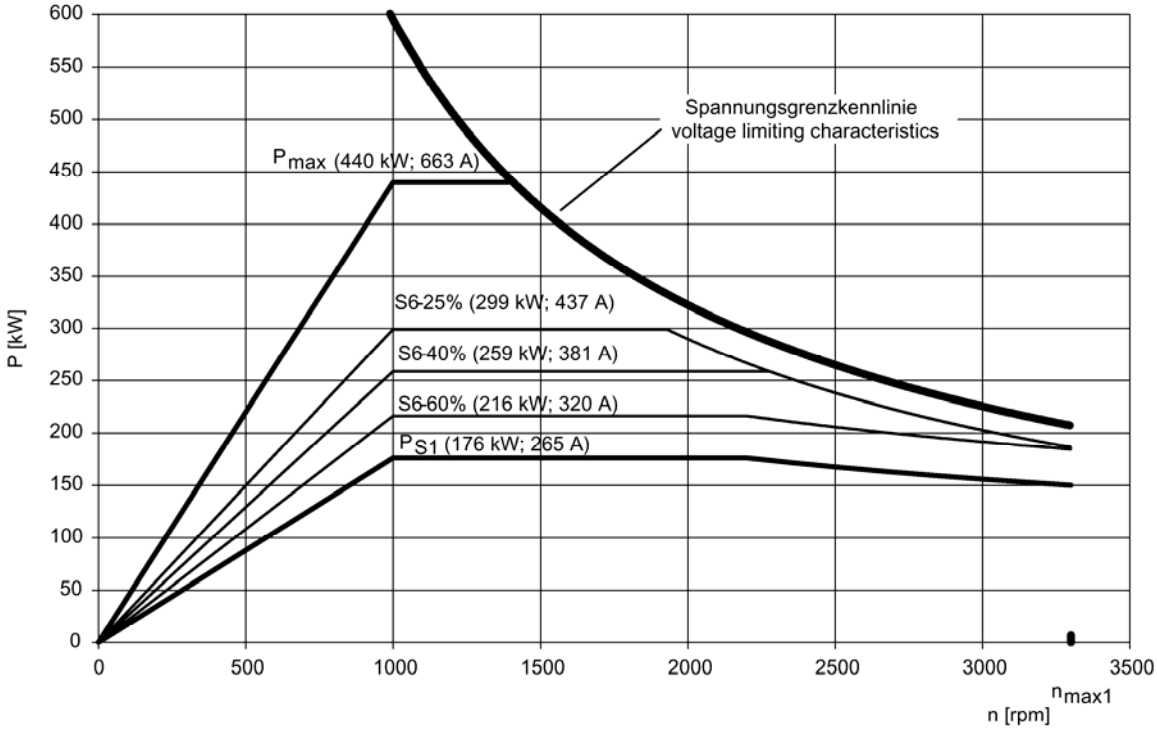


Table 6- 804 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□C2□

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]
1,000	176	1,681	265	3,300	-	-	-	2,200	4,202	663	1,681	265



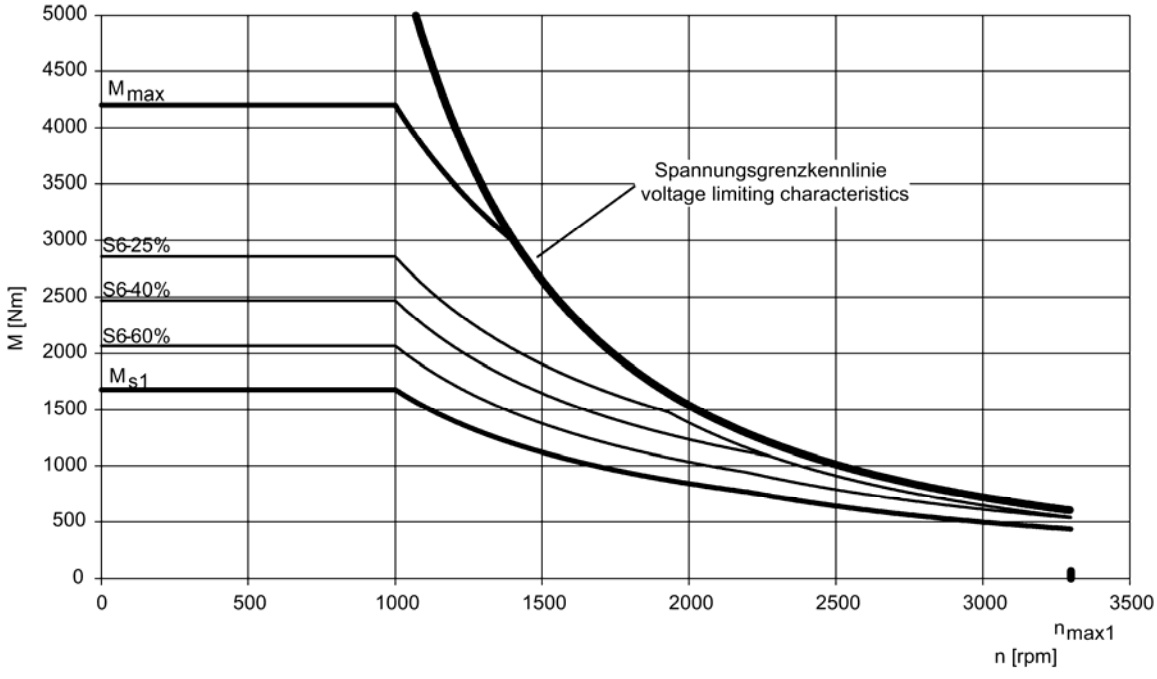
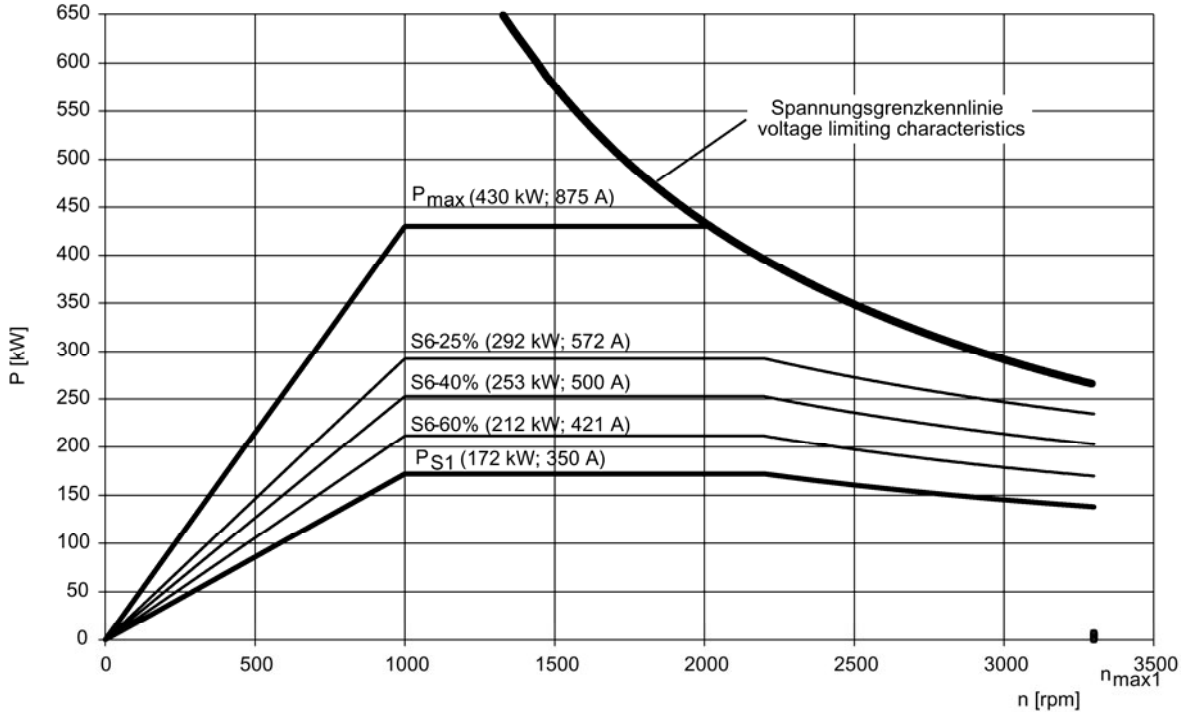


Table 6- 805 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□D2□

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]
1,000	172	1,643	350	3,300	-	-	-	2,200	4,107	875	1,643	350



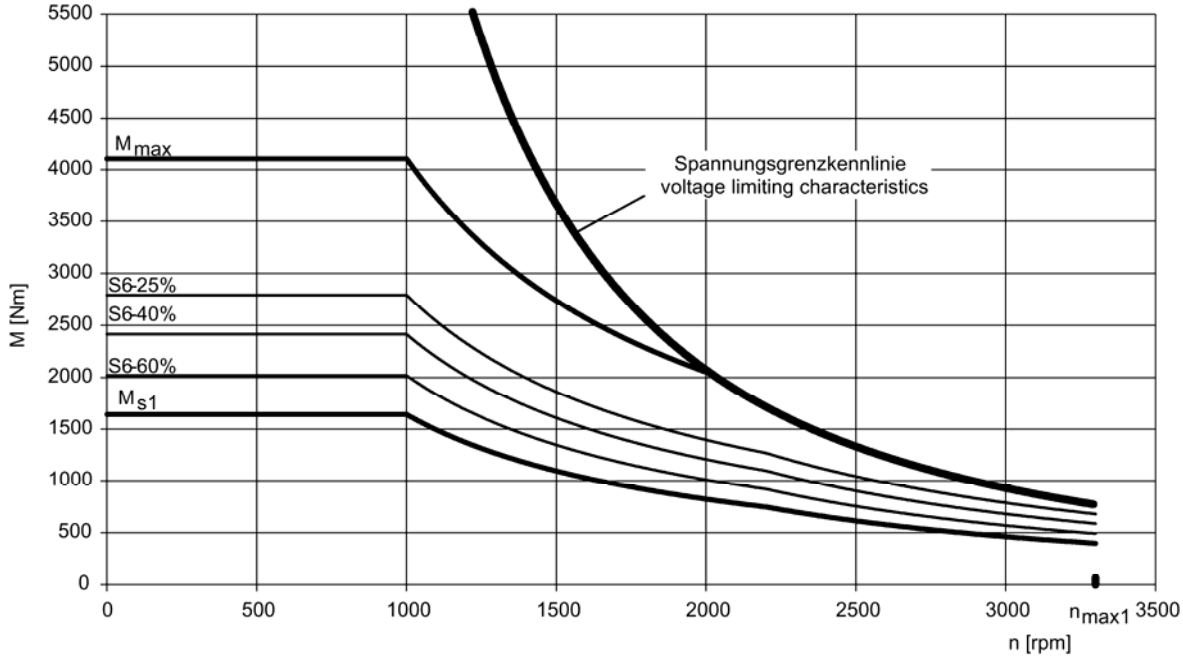
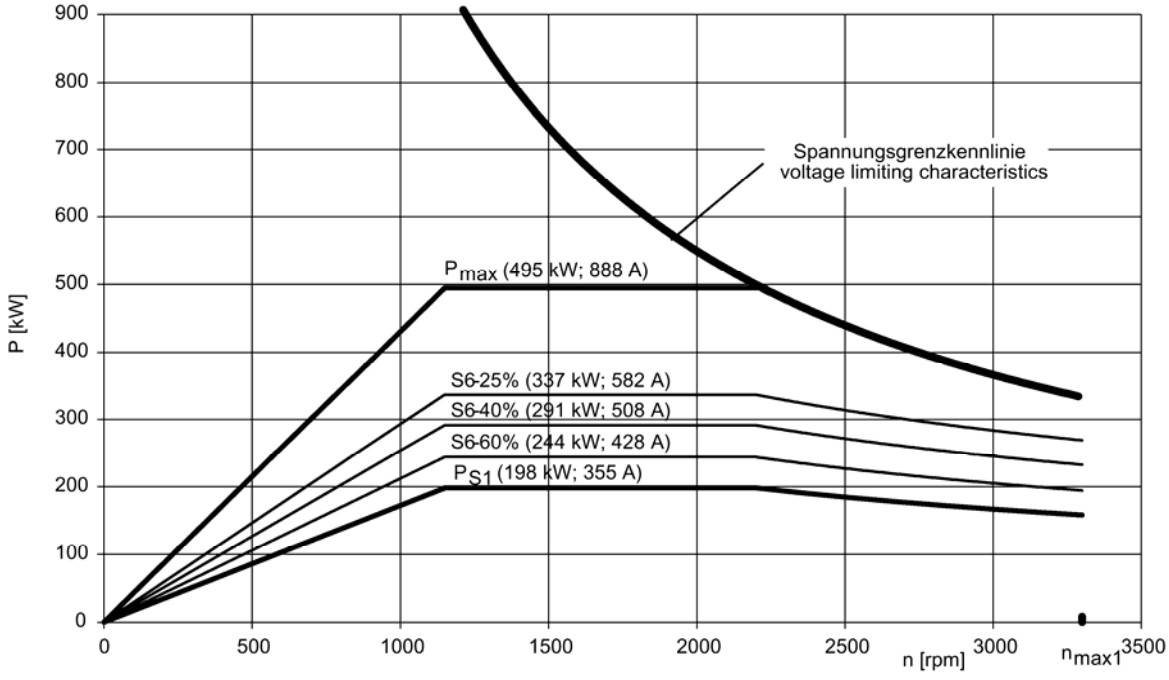


Table 6- 806 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□D2□

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]
1,150	198	1,644	355	3,300	-	-	-	2,200	4,111	888	1,644	355
1,000	172	1,644	355					2,800				



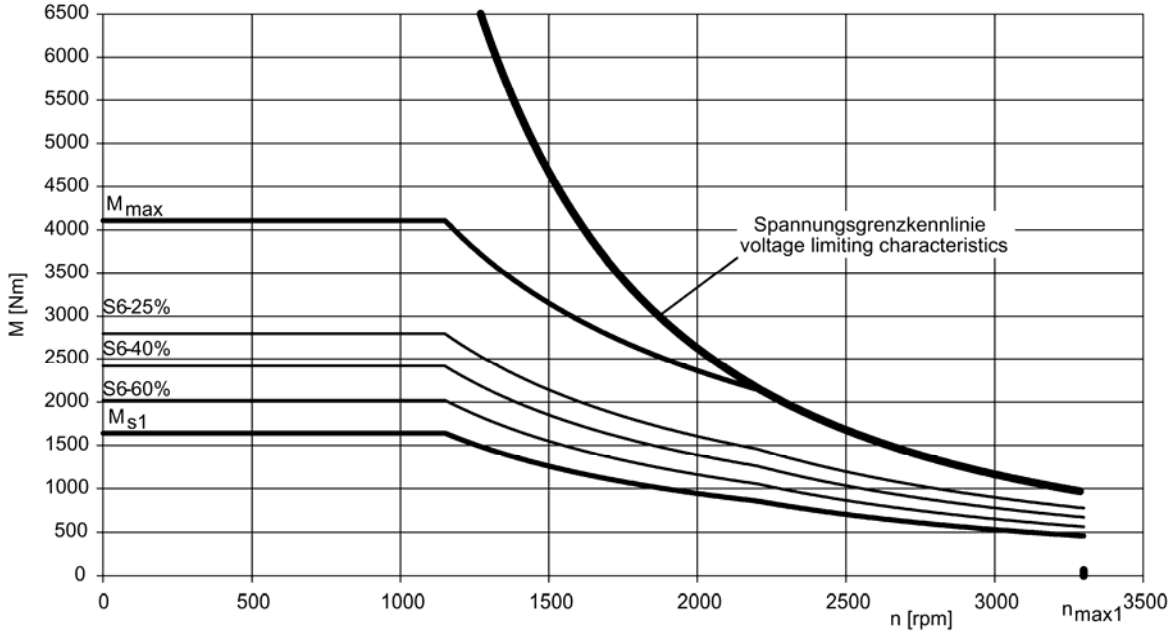
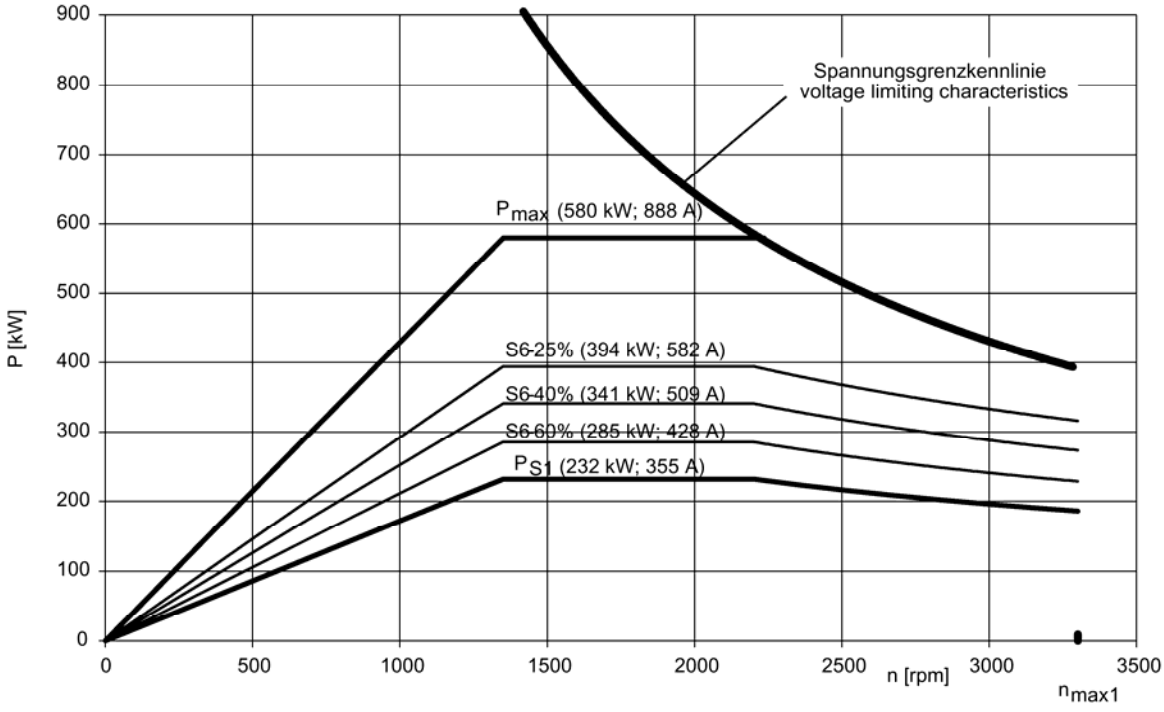


Table 6- 807 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□D2□

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]
1,350	232	1,641	355	3,300	-	-	-	2,200	4,103	888	1,641	355



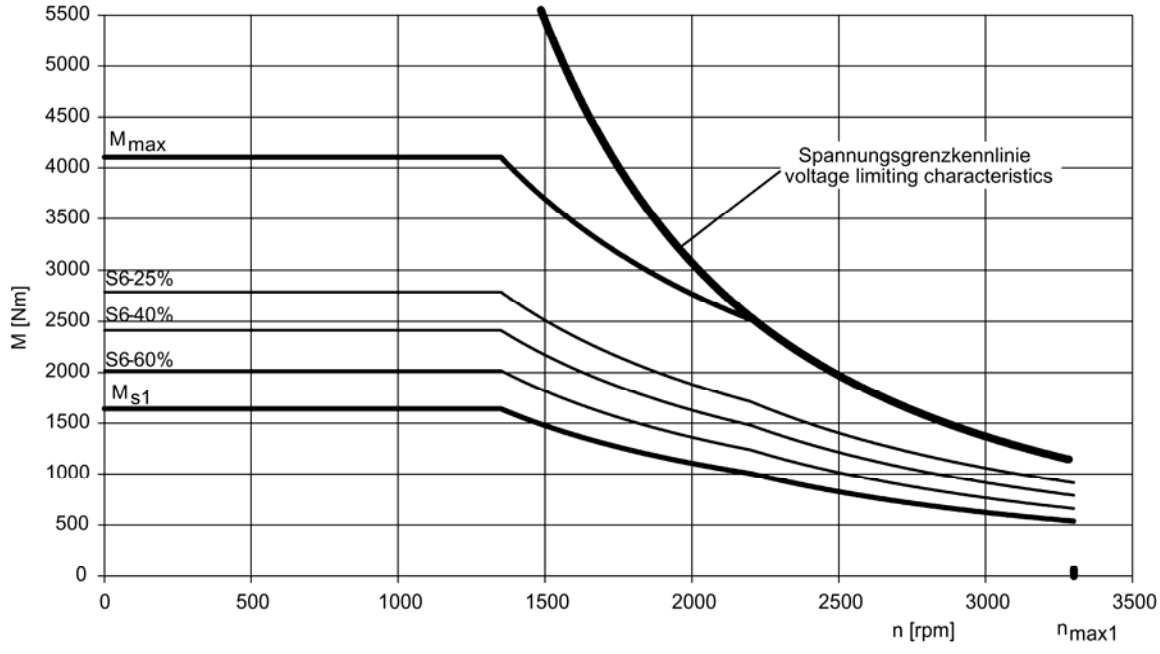
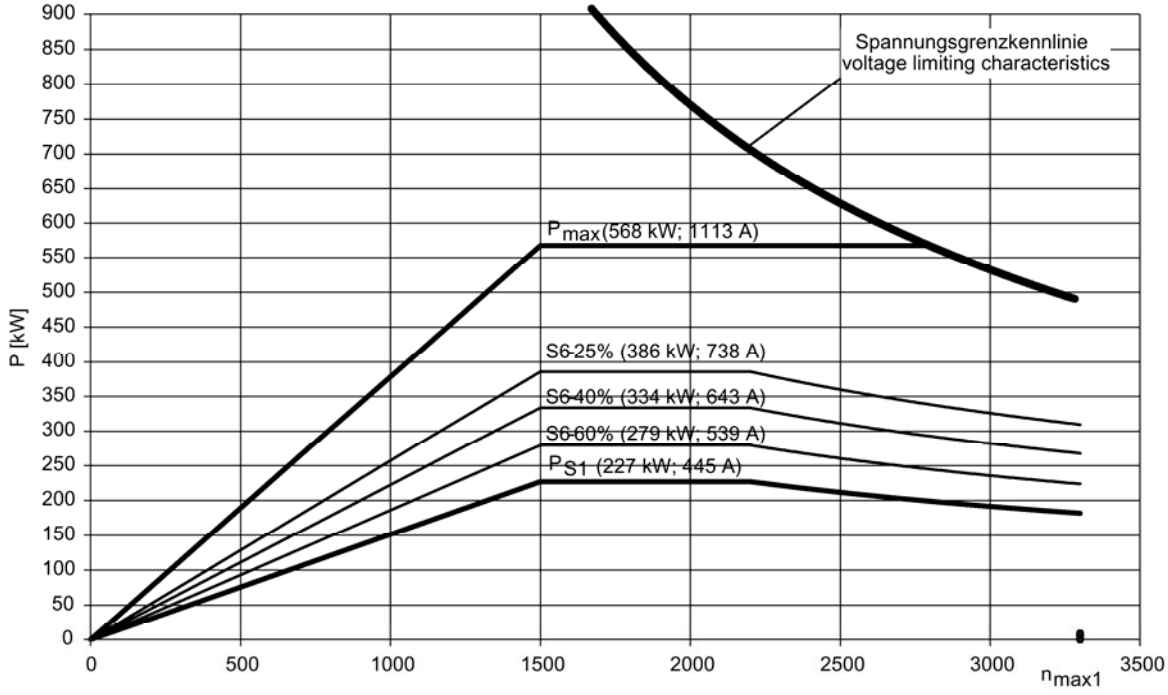


Table 6- 808 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8284-□□F2□

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]
1,500	227	1,445	445	3,300	-	-	-	2,200	3,613	1,113	1,445	445



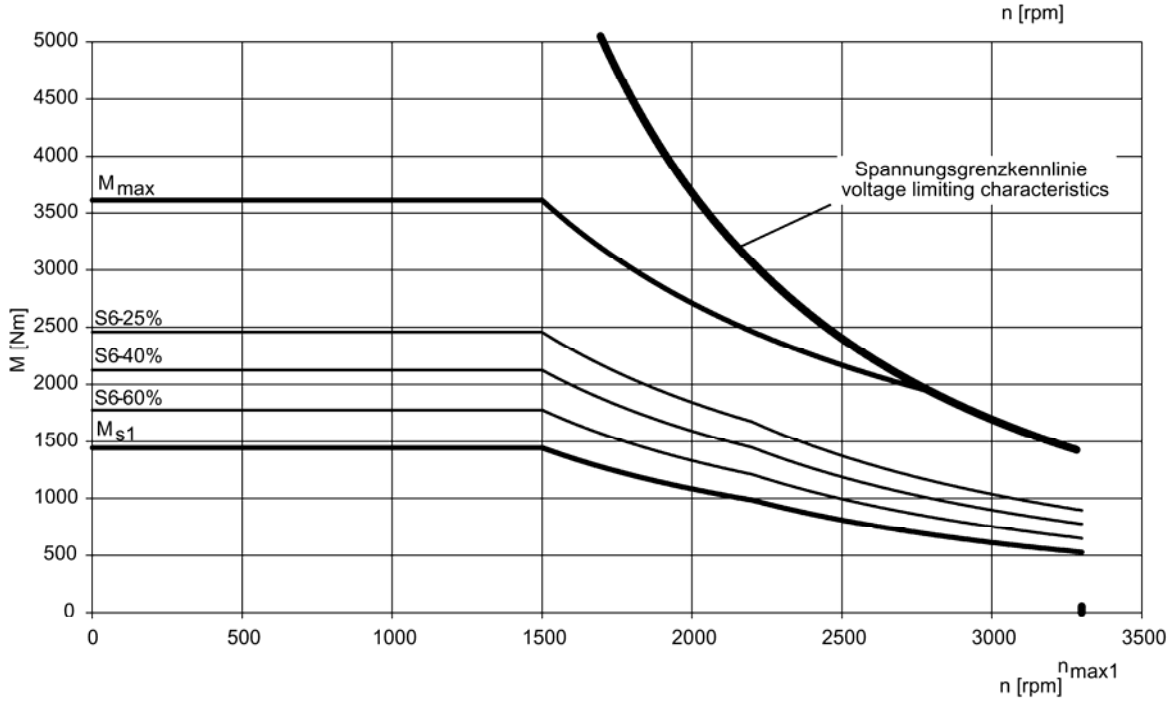
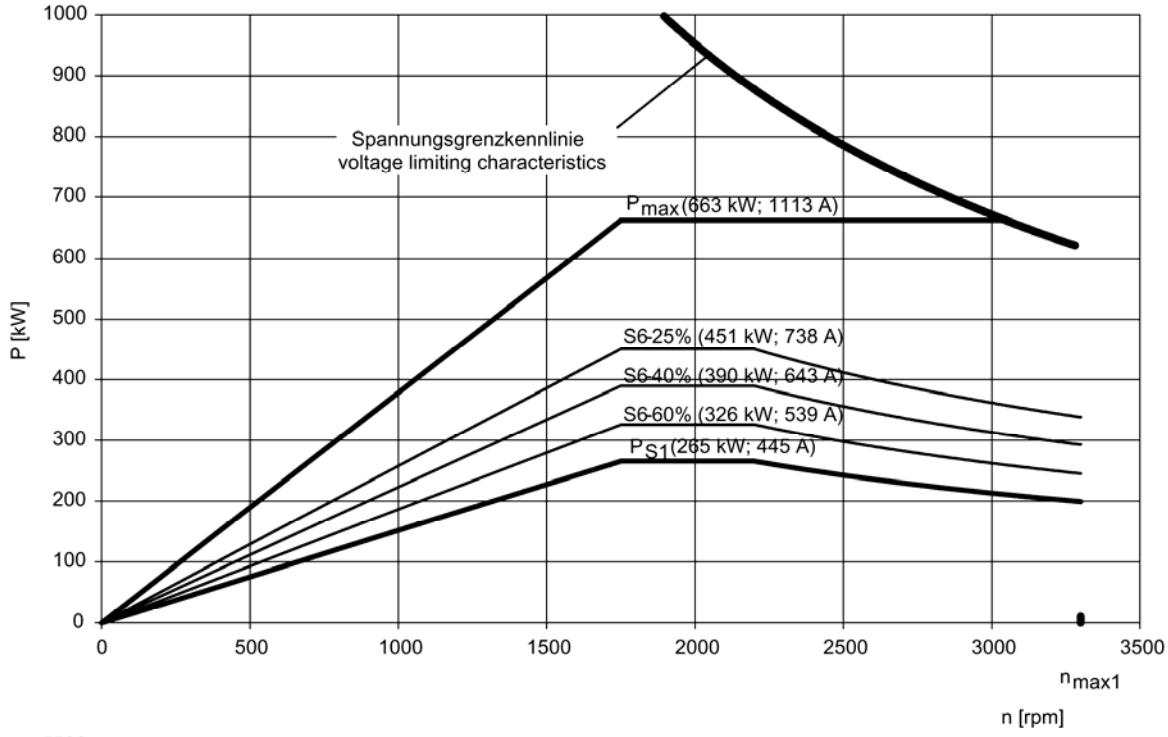


Table 6- 809 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8284-□□F2□

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]
1,750	265	1,446	445	3,300	-	-	-	2,200	3,615	1,113	1,446	445
1,500	227	1,446	445					2,700				



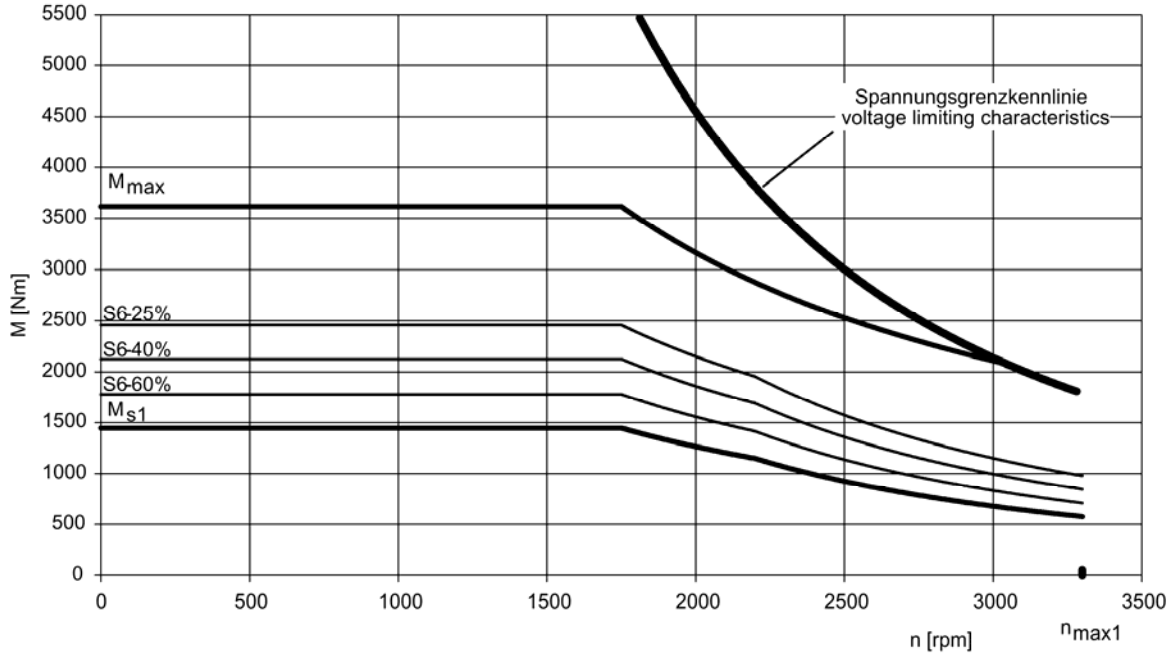
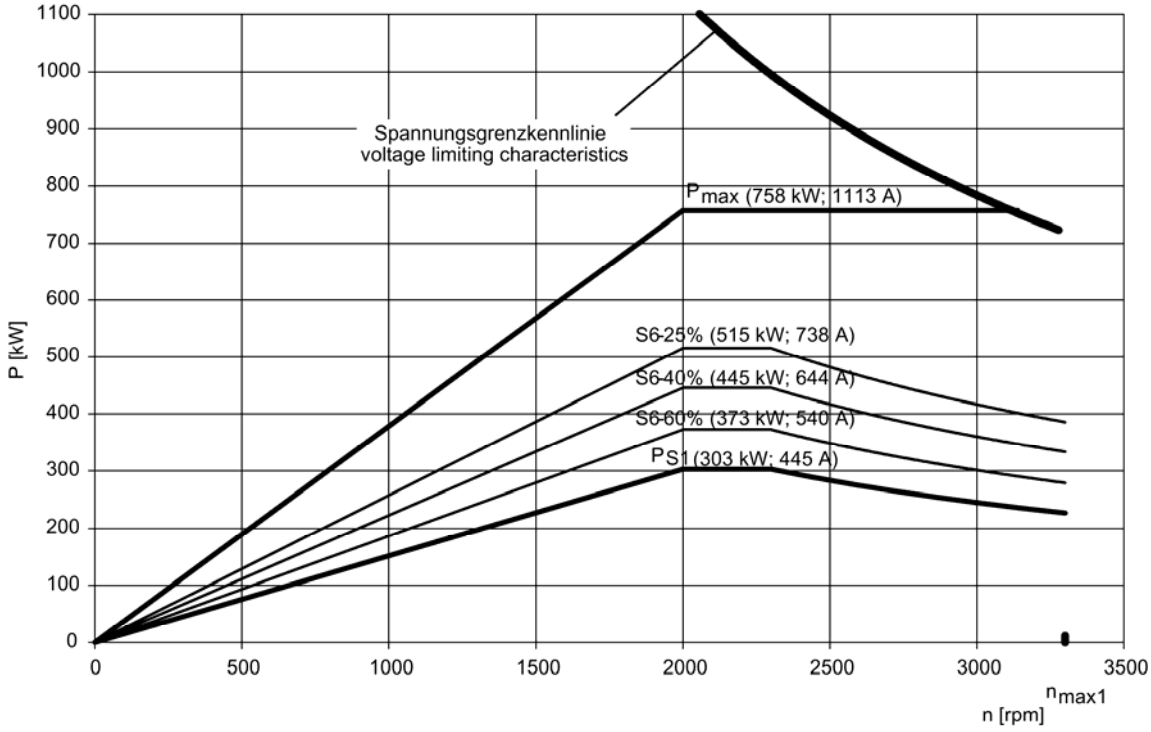


Table 6- 810 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8284-□□F2□

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]
2,000	303	1,447	445	3,300	-	-	-	2,300	3,617	1,113	1,447	445



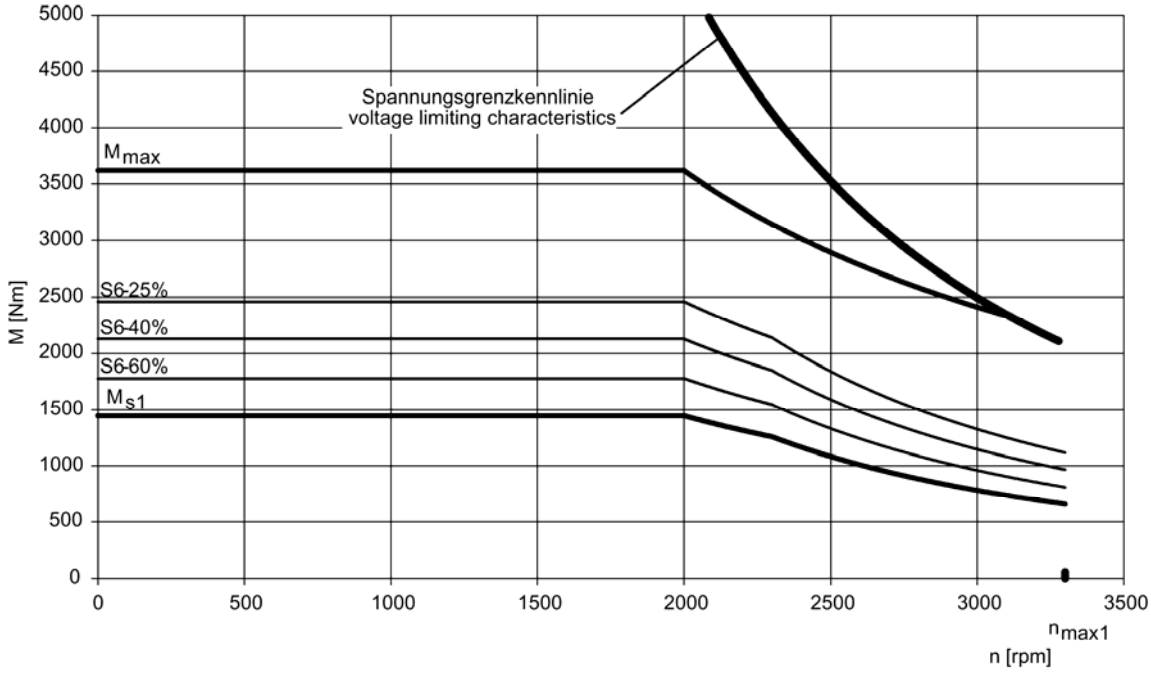
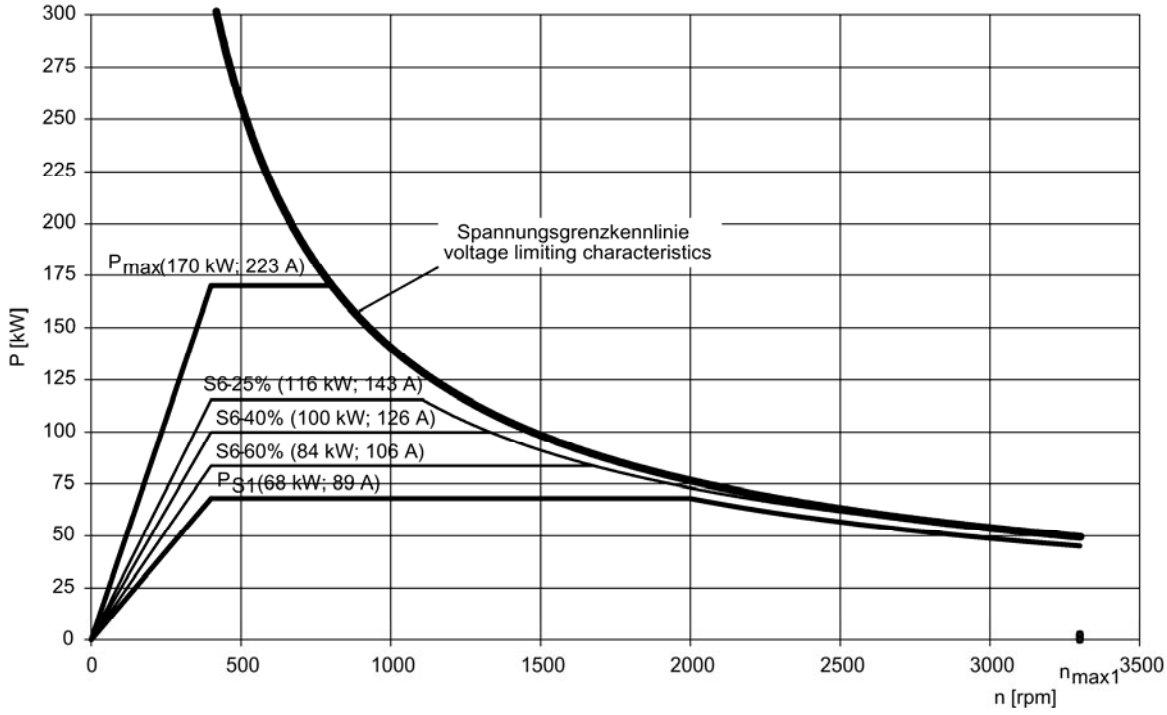


Table 6- 811 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□H2□

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	1,624	89	3,300	-	-	-	2,000	4,059	223	1,624	89



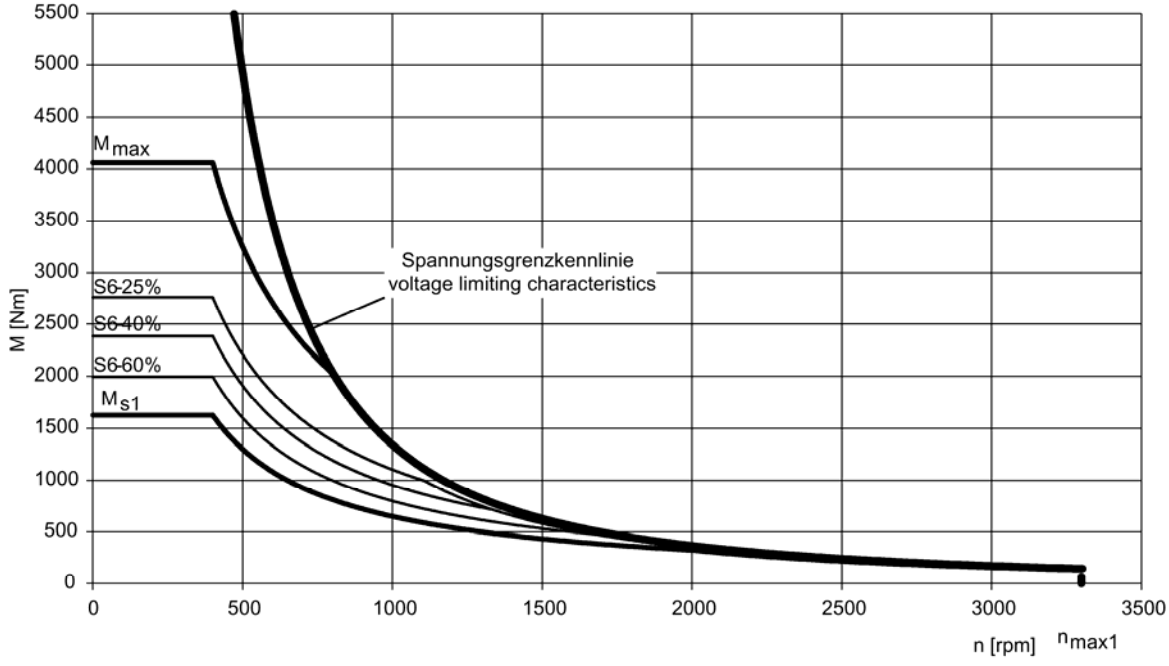
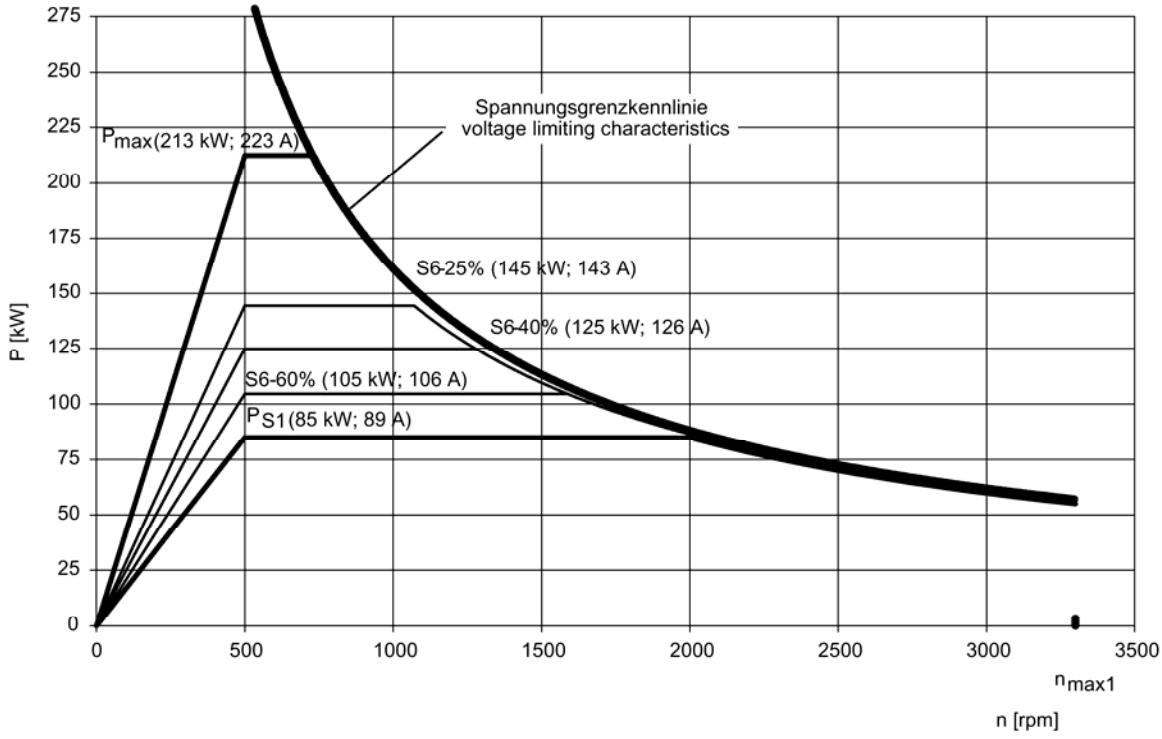


Table 6- 812 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□H2□

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	1,624	89	3,300	-	-	-	2,000	4,059	223	1,624	89
400	68	1,624	89					2,600				



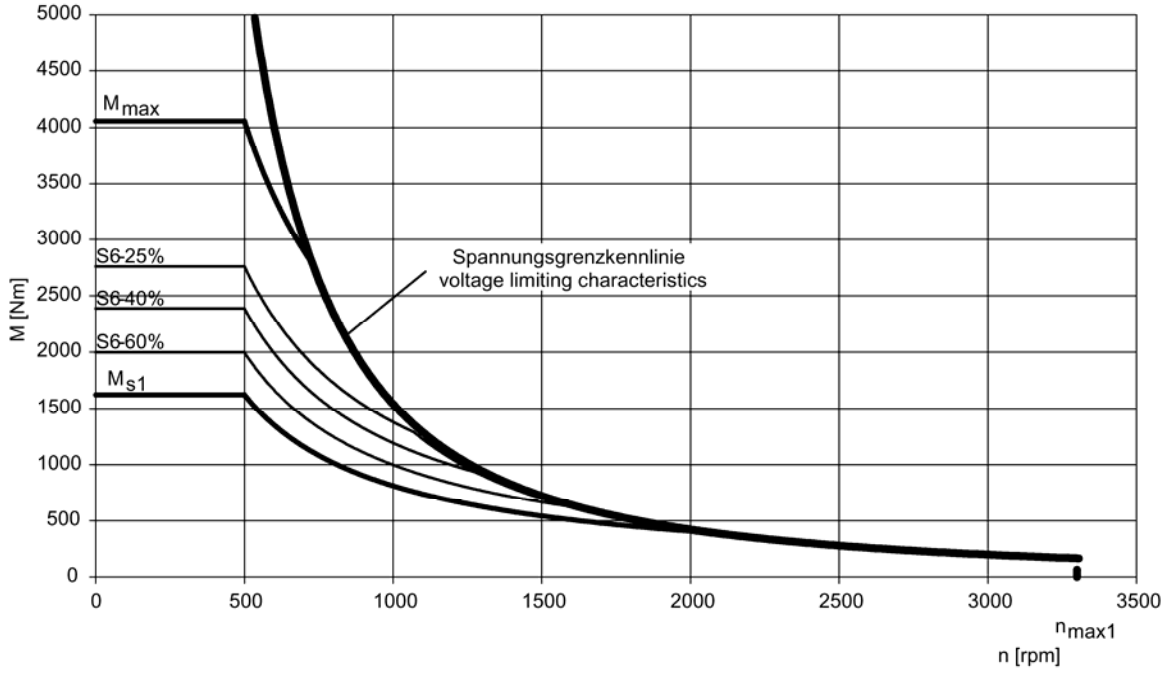
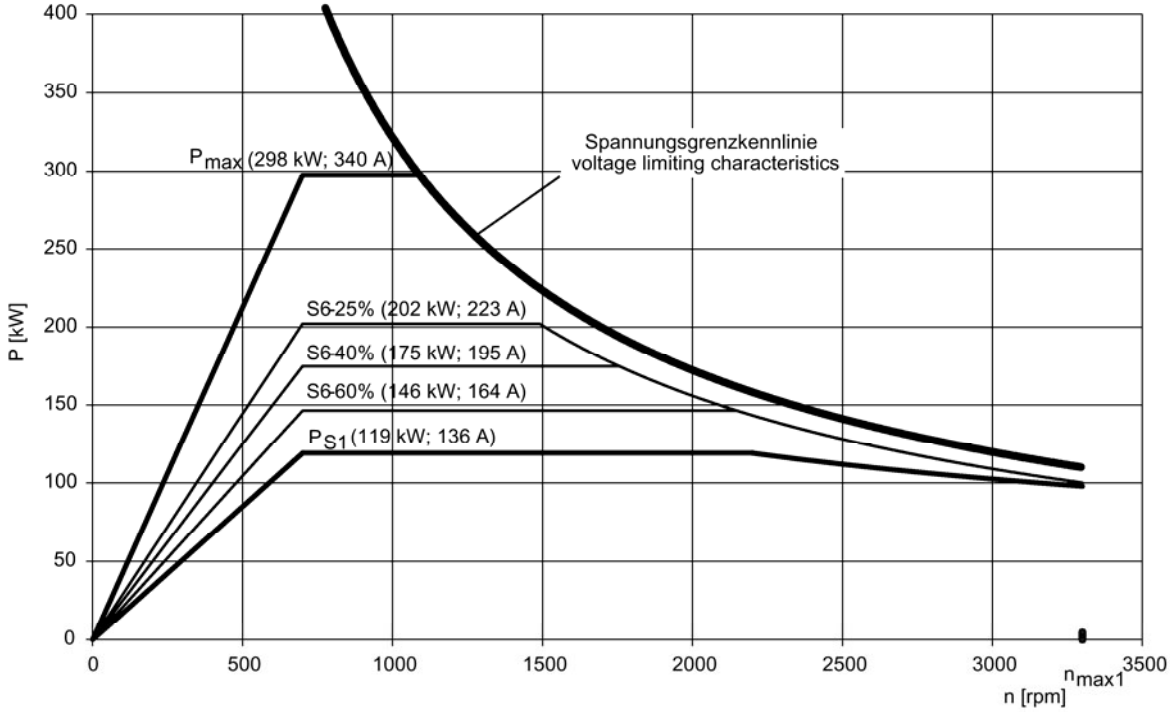


Table 6- 813 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□K2□

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	1,624	136	3,300	-	-	-	2,200	4,059	340	1,624	136



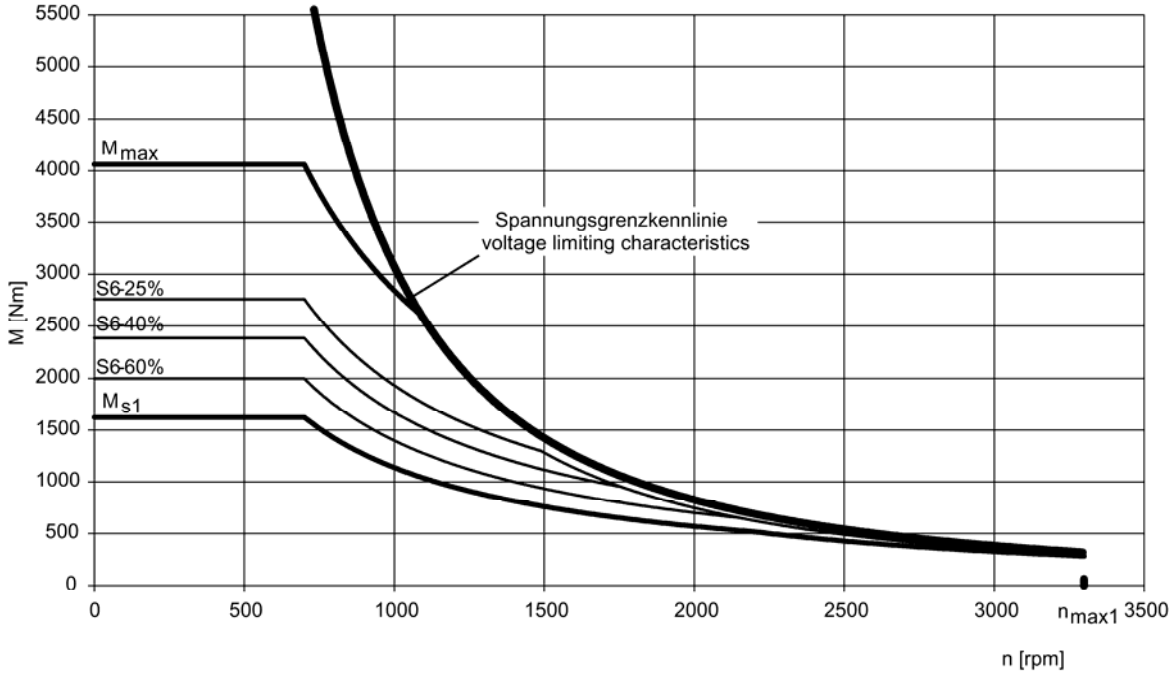
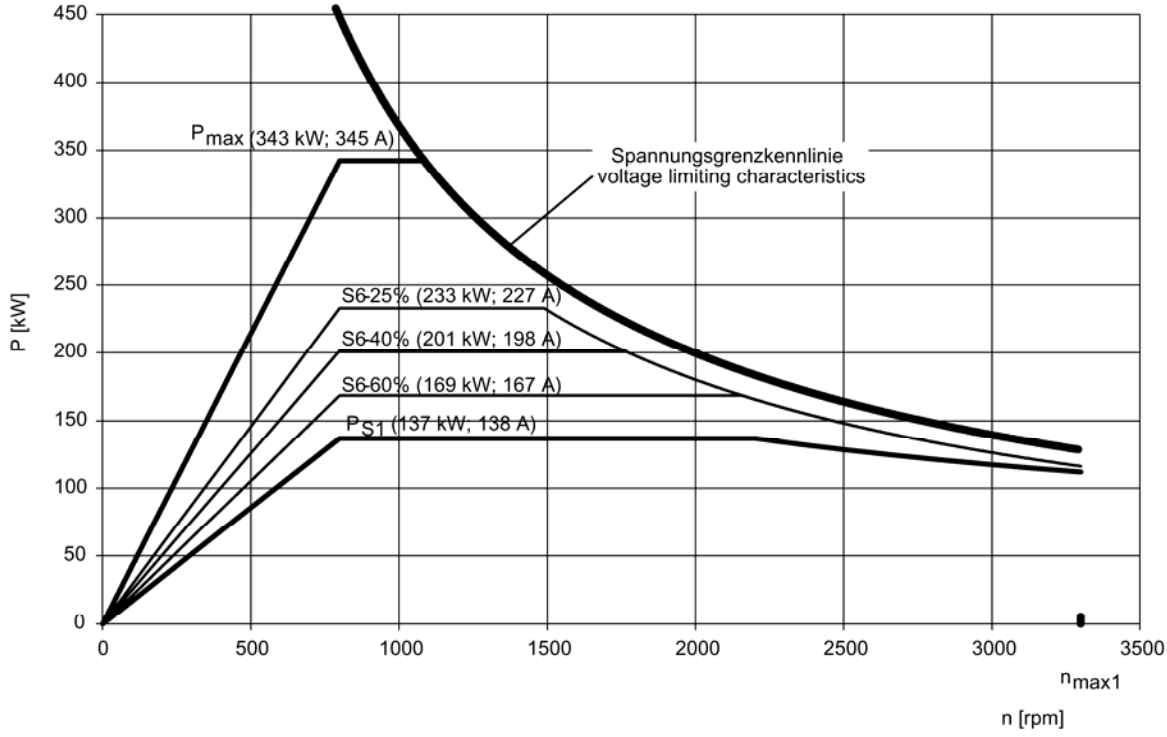


Table 6- 814 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□K2□

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	1,635	138	3,300	-	-	-	2,200	4,089	345	1,635	138
700	120	1,635	138					2,900				



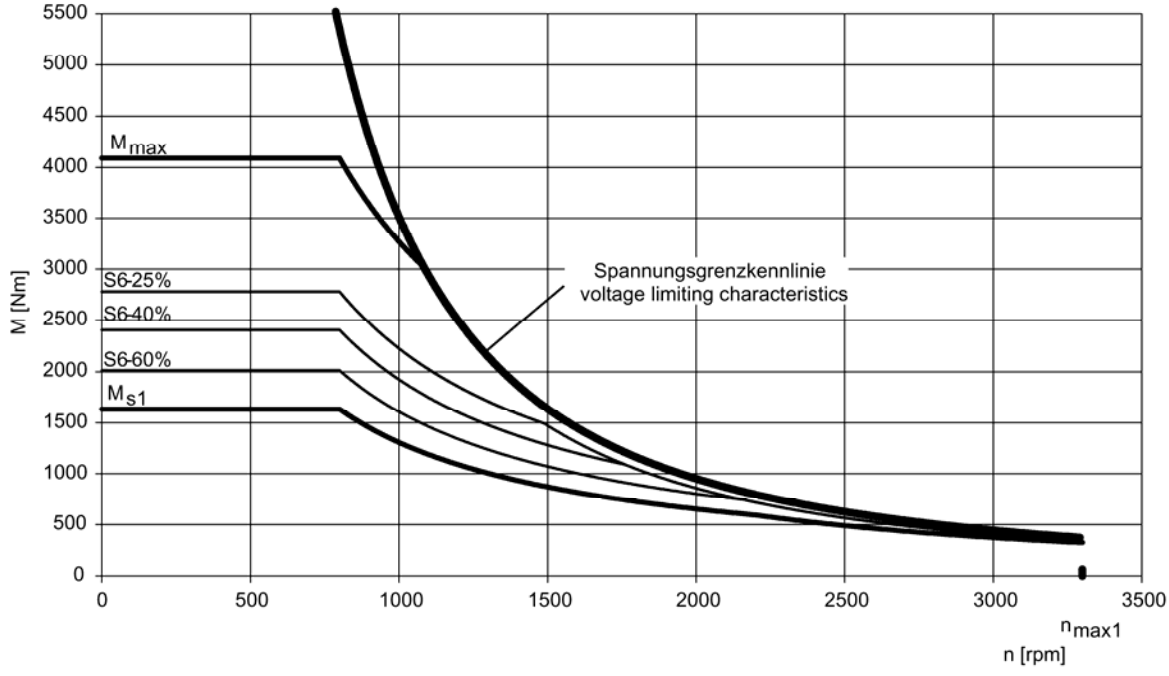
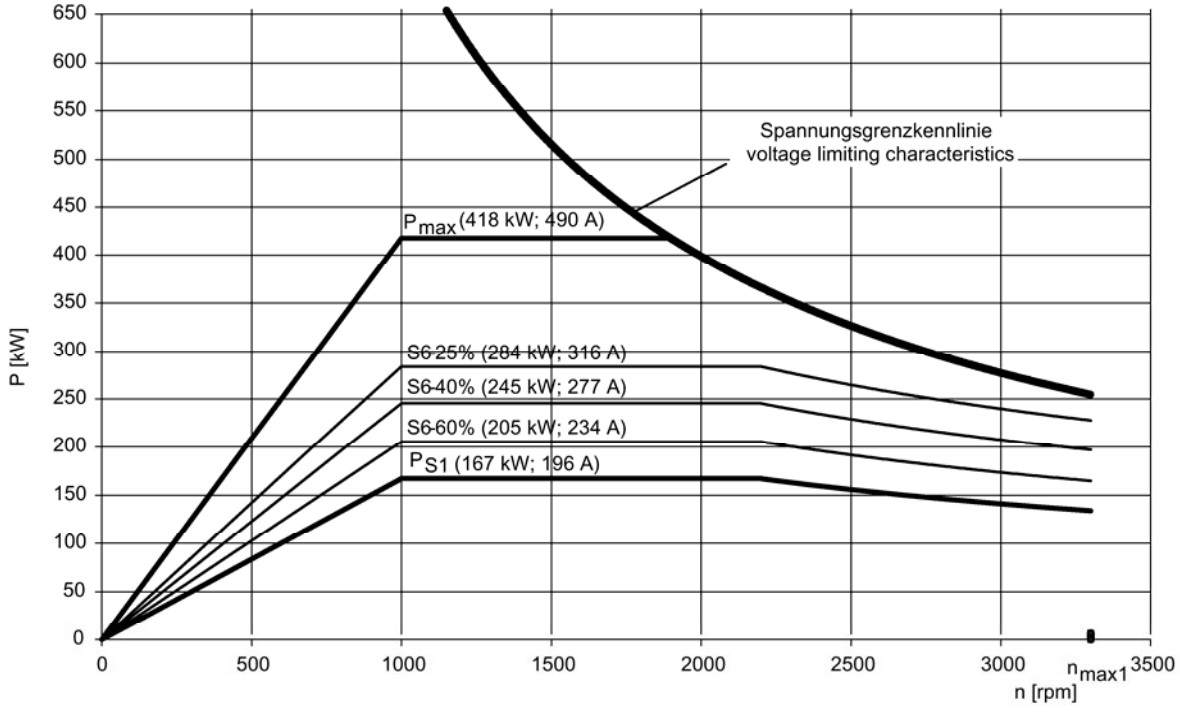


Table 6- 815 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□U2□

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]
1,000	167	1,595	196	3,300	-	-	-	2,200	3,987	490	1,595	196



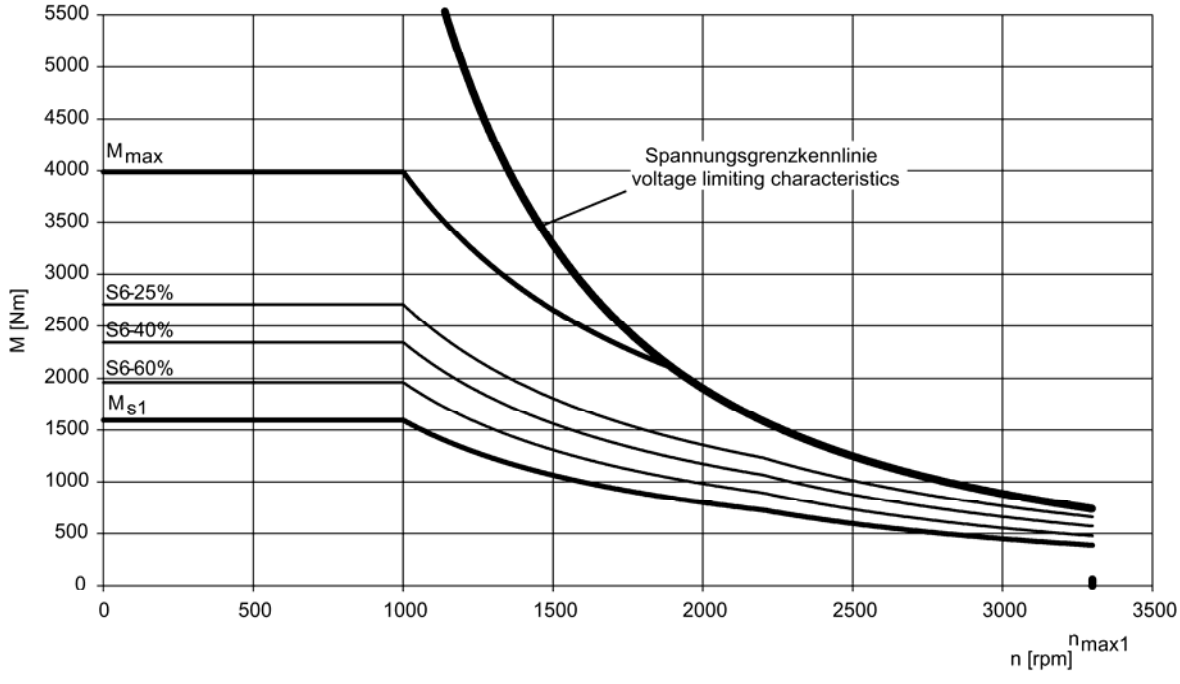
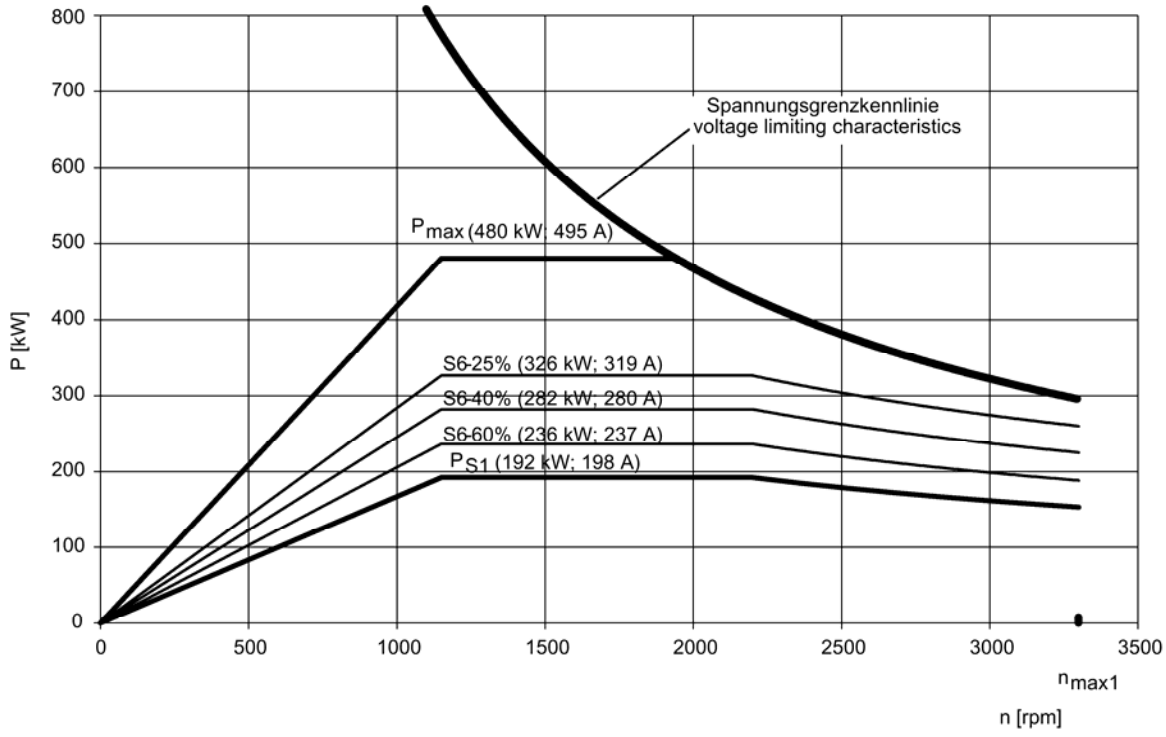


Table 6- 816 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□U2□

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]
1,150	192	1,594	198	3,300	-	-	-	2,200	3,986	495	1,594	198
1,000	167	1,594	198					2,800				



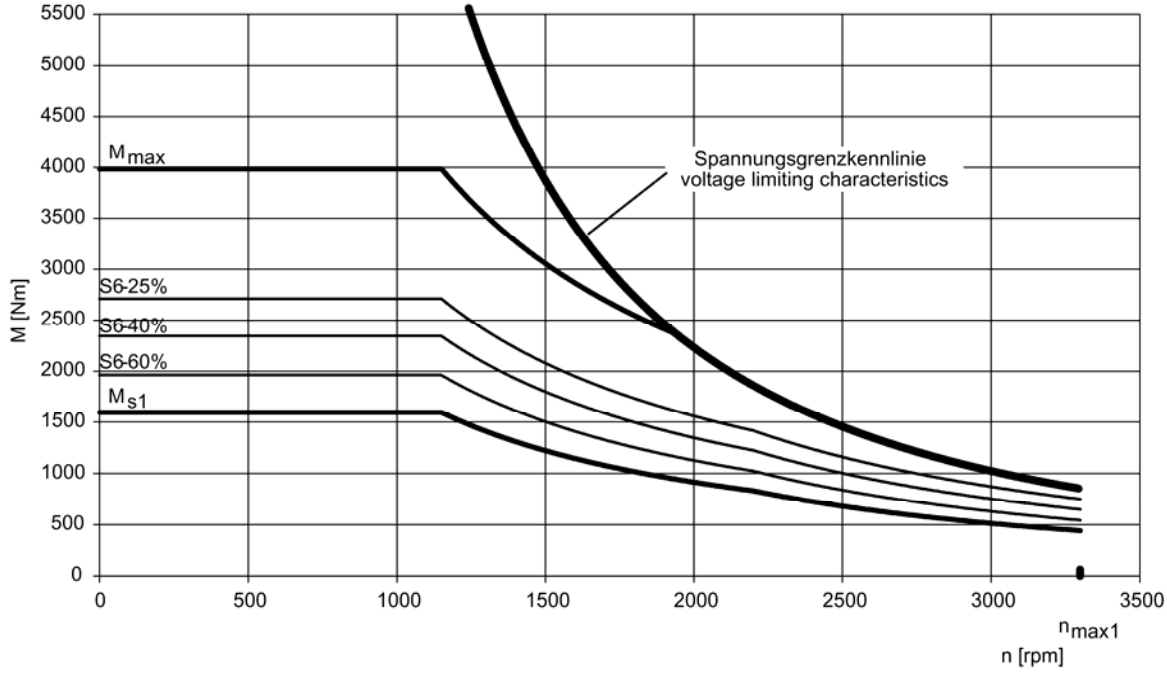
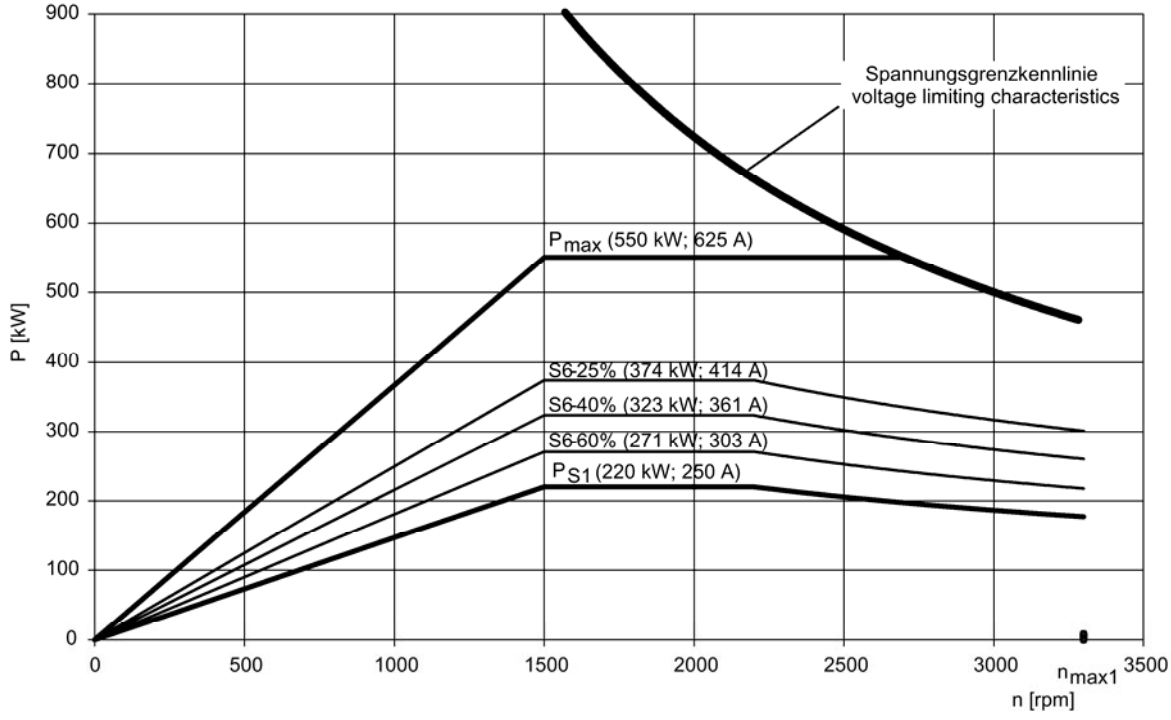


Table 6- 817 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8284-□□W2□

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]
1,500	220	1,401	250	3,300	-	-	-	2,200	3,502	625	1,401	250



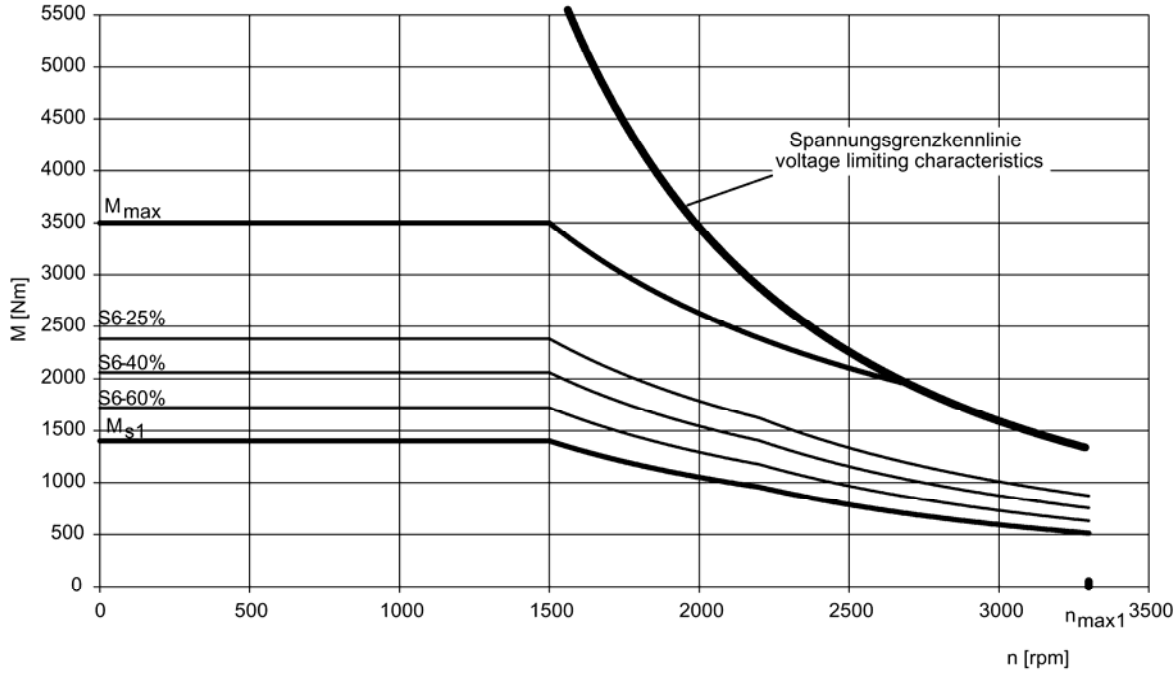
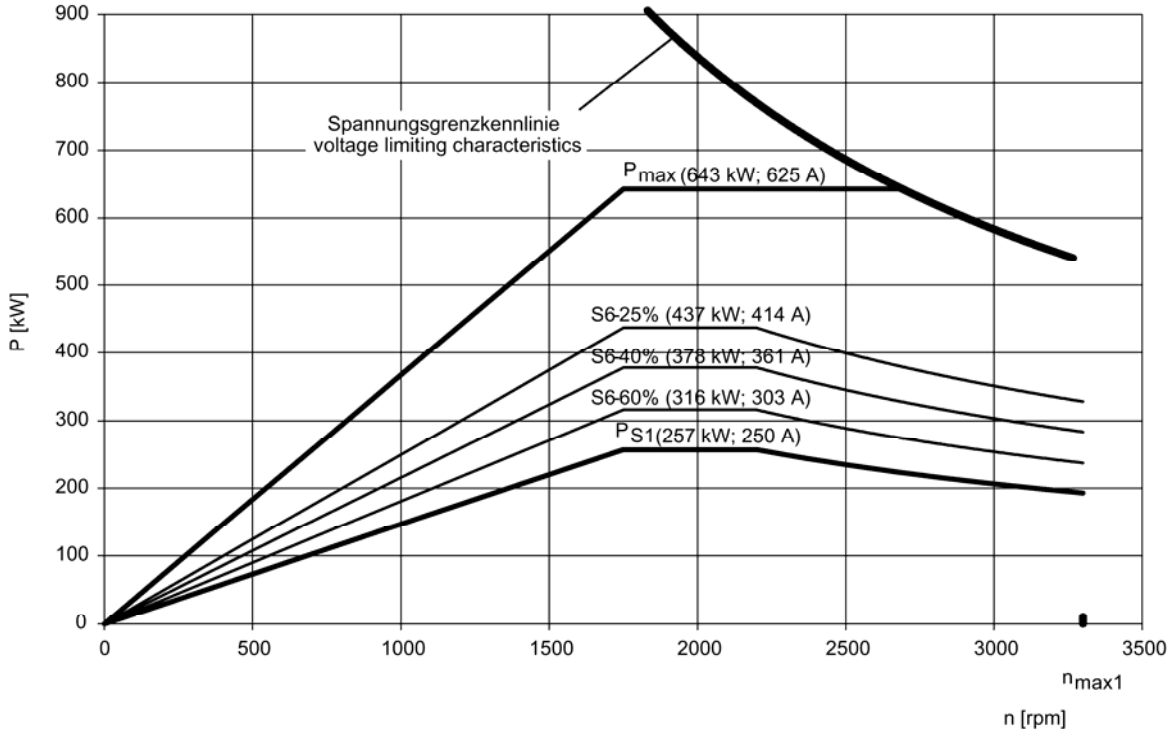


Table 6- 818 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8284-□□W2□

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]
1,750	257	1,402	250	3,300	-	-	-	2,200	3,506	625	1,402	250
1,500	220	1,402	250					2,700				



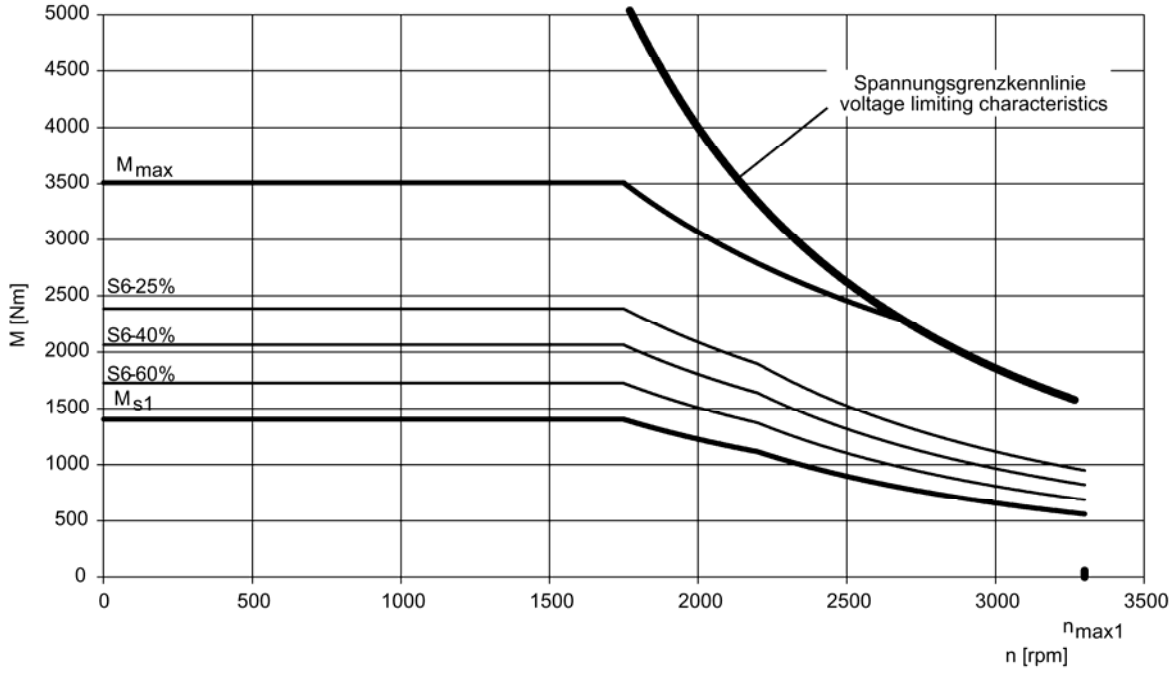
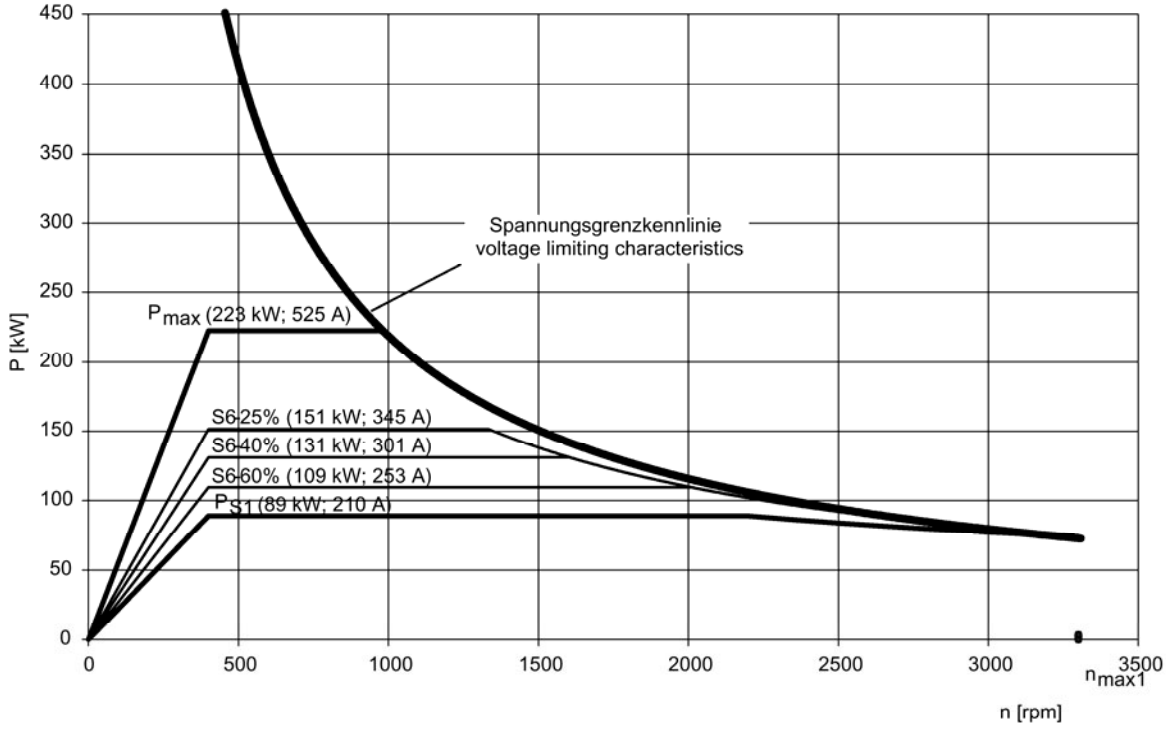


Table 6- 819 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□B2□

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	2,125	210	3,300	-	-	-	2,200	5,312	525	2,125	210



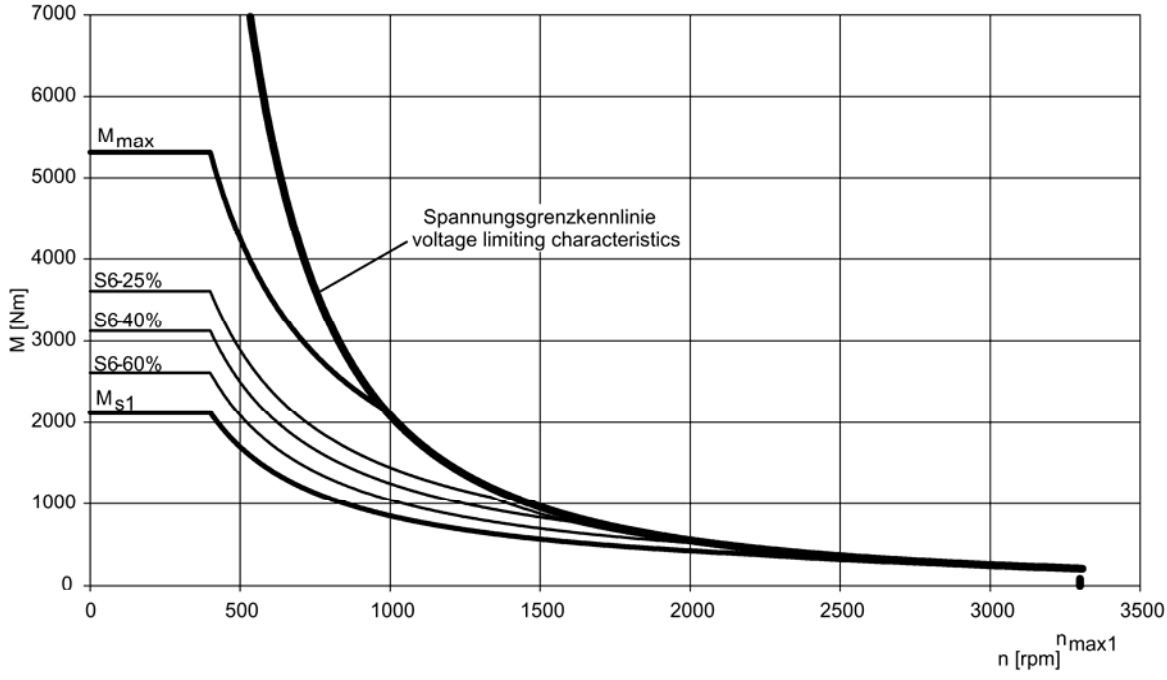
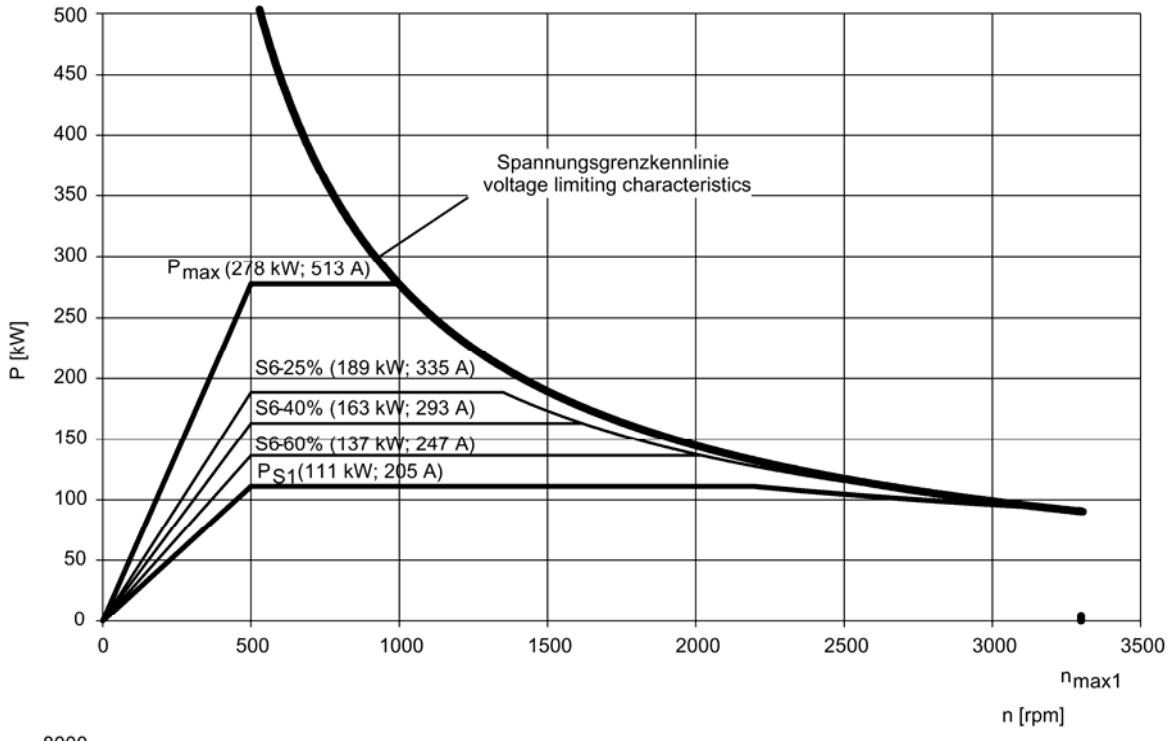


Table 6- 820 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□B2□

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	2,120	205	3,300	-	-	-	2,200	5,300	513	2,120	205
400	89	2,120	205					3,300				



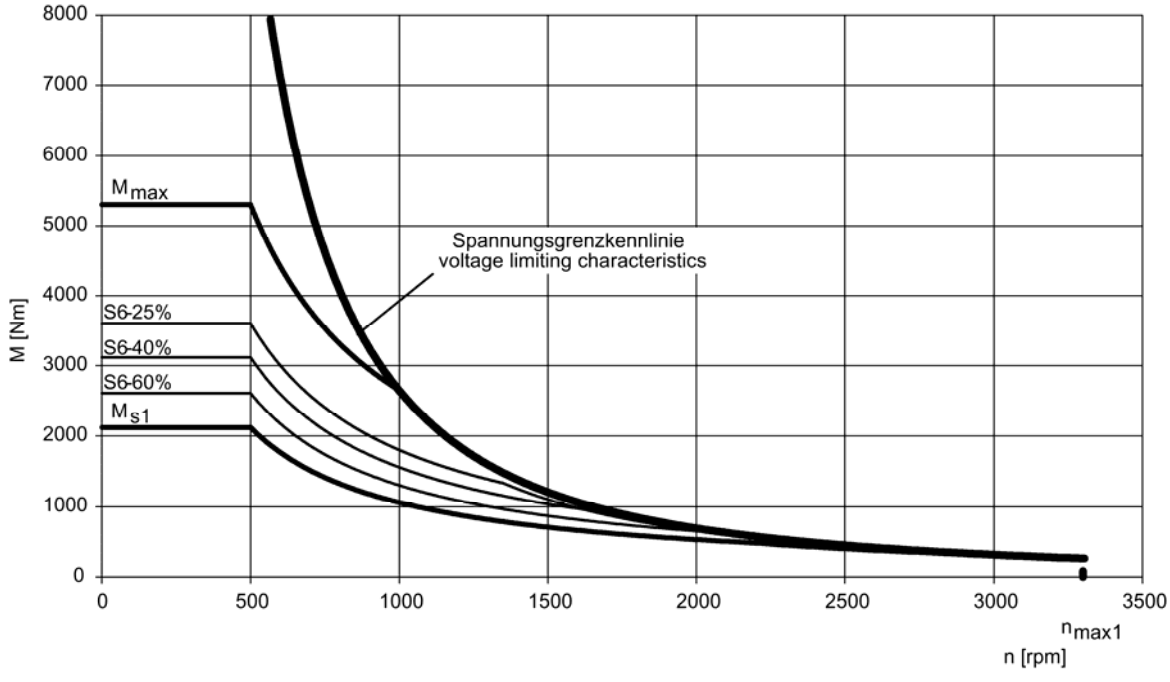
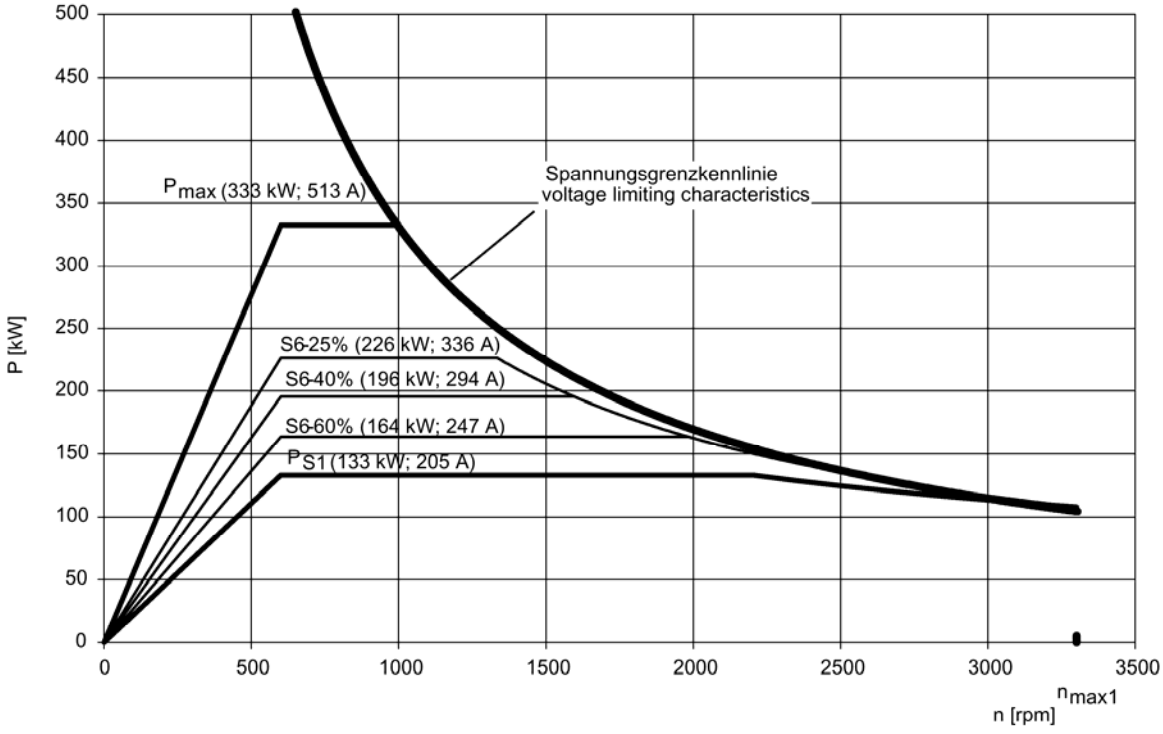


Table 6- 821 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□B2□

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	2,117	205	3,300	-	-	-	2,200	5,292	513	2,117	205



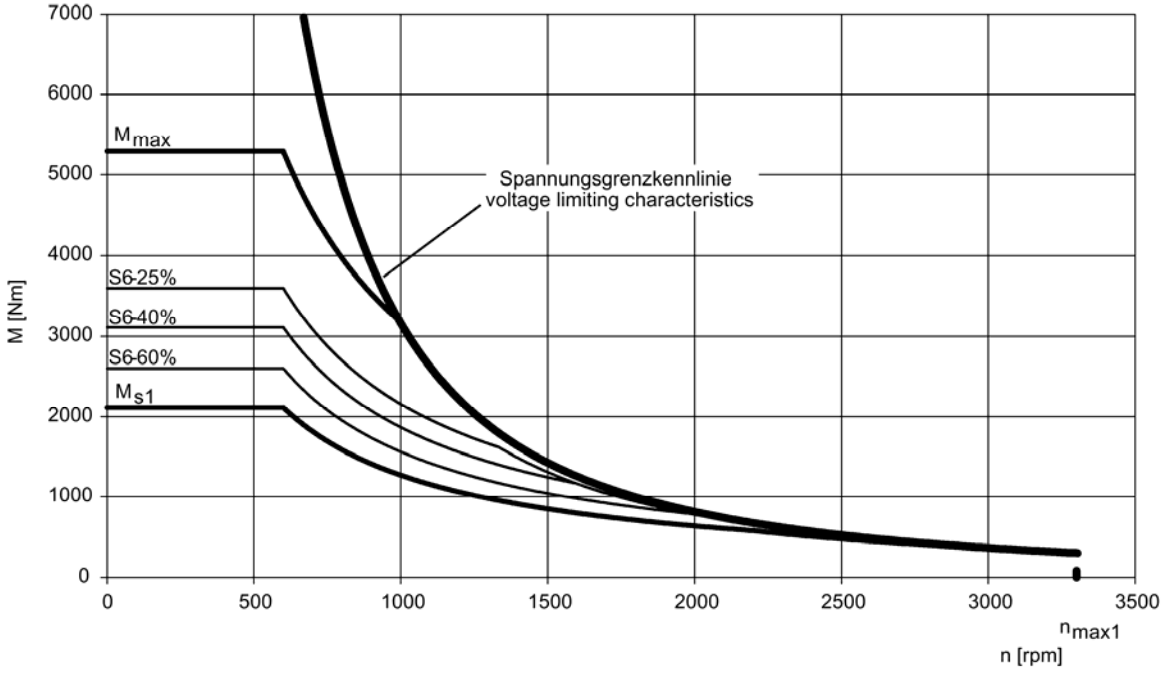
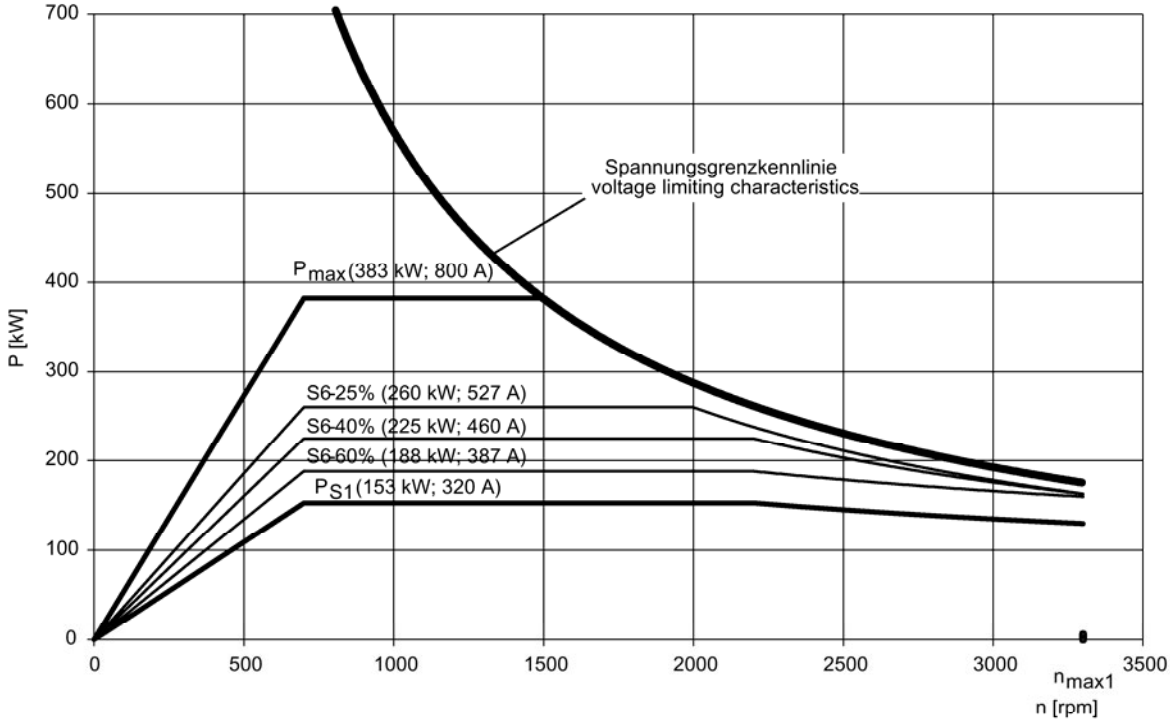


Table 6- 822 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□C2□

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	2,087	320	3,300	-	-	-	2,200	5,218	800	2,087	320



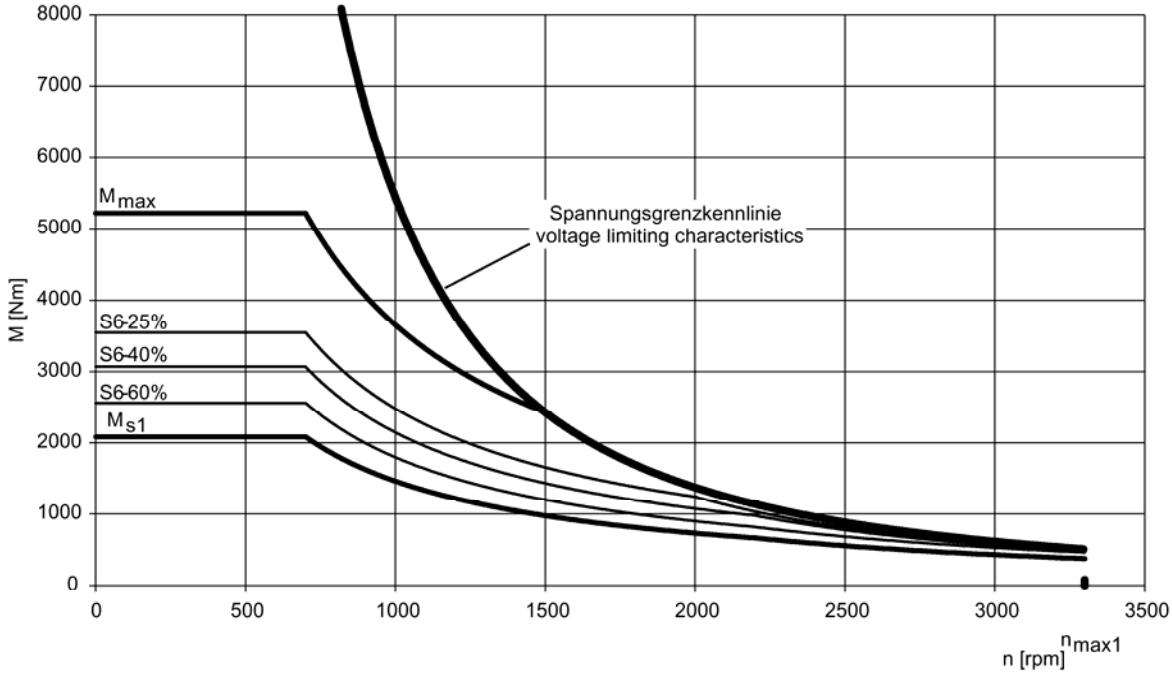
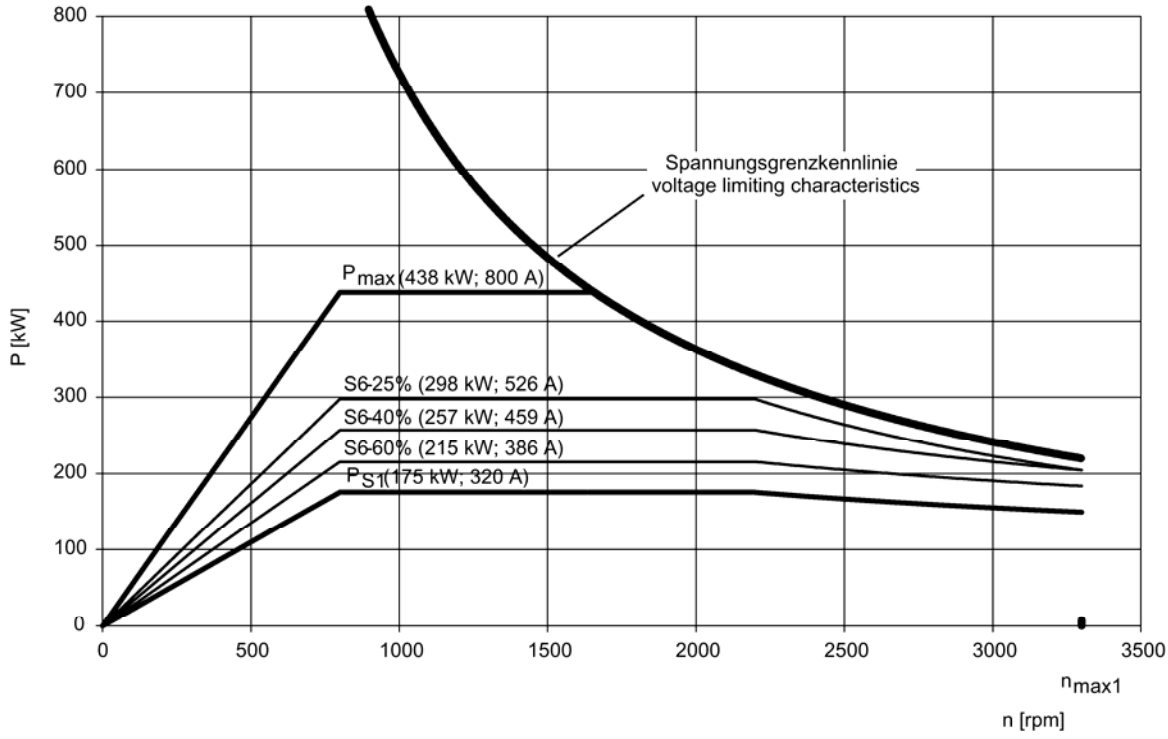


Table 6- 823 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□C2□

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	2,089	320	3,300	-	-	-	2,200	5,223	800	2,089	320
700	153	2,089	320					3,100				



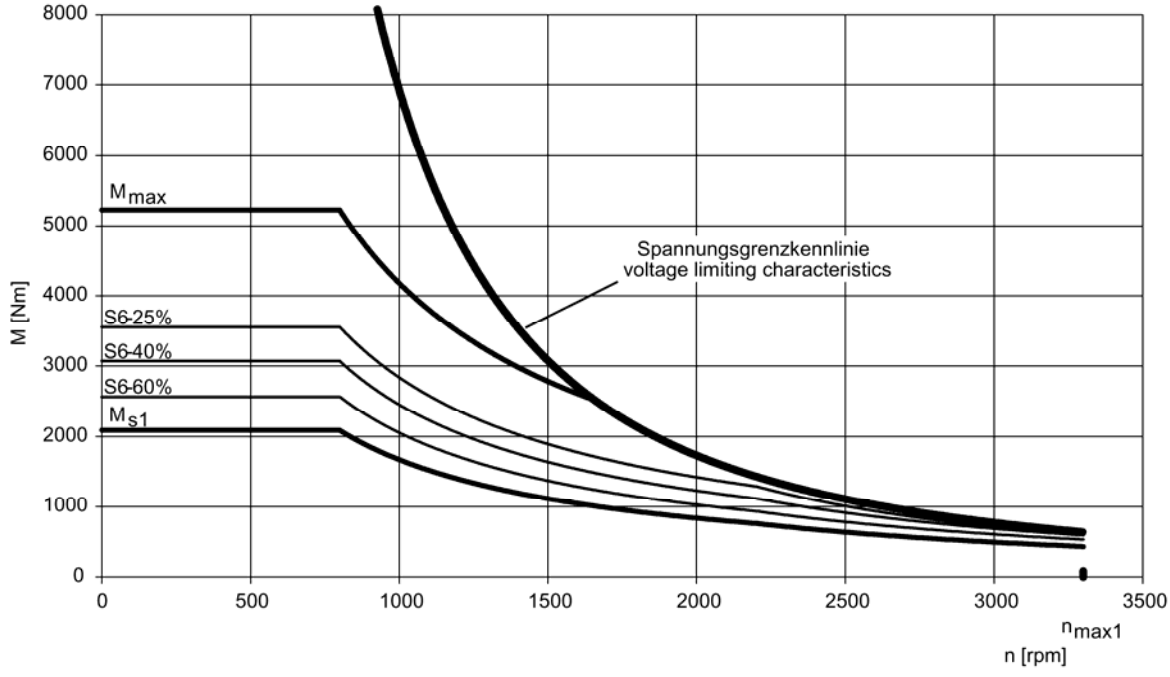
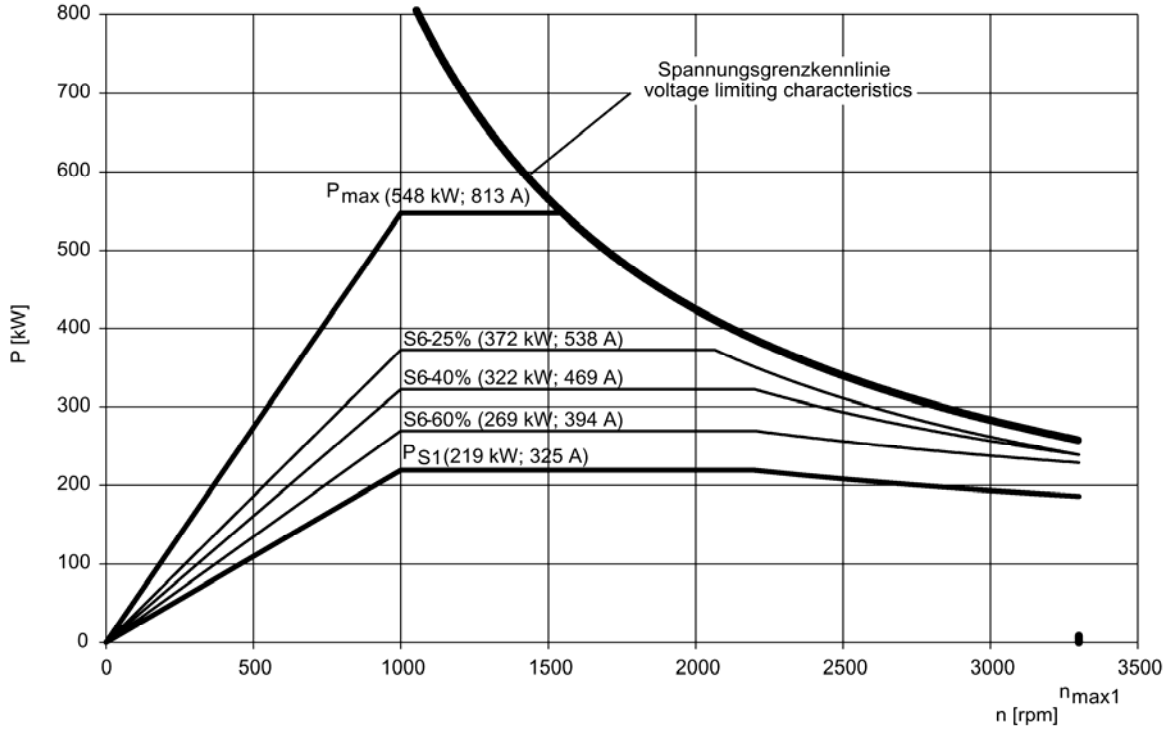


Table 6- 824 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□C2□

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]
1,000	219	2,091	325	3,300	-	-	-	2,200	5,229	813	2,091	325



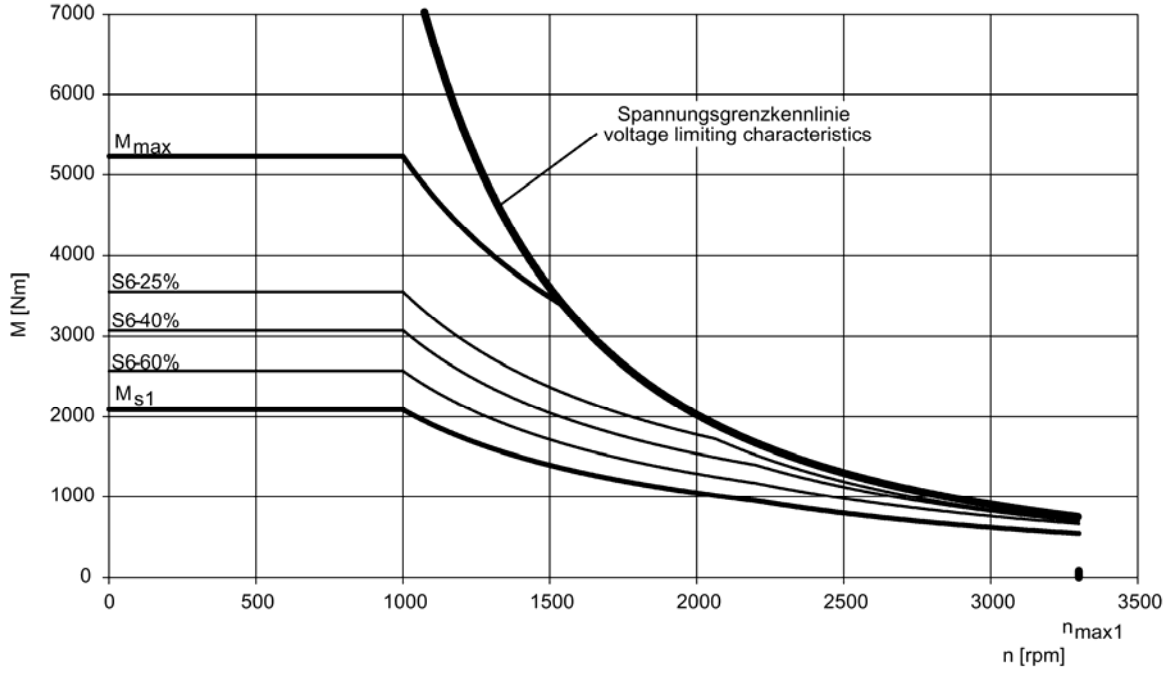
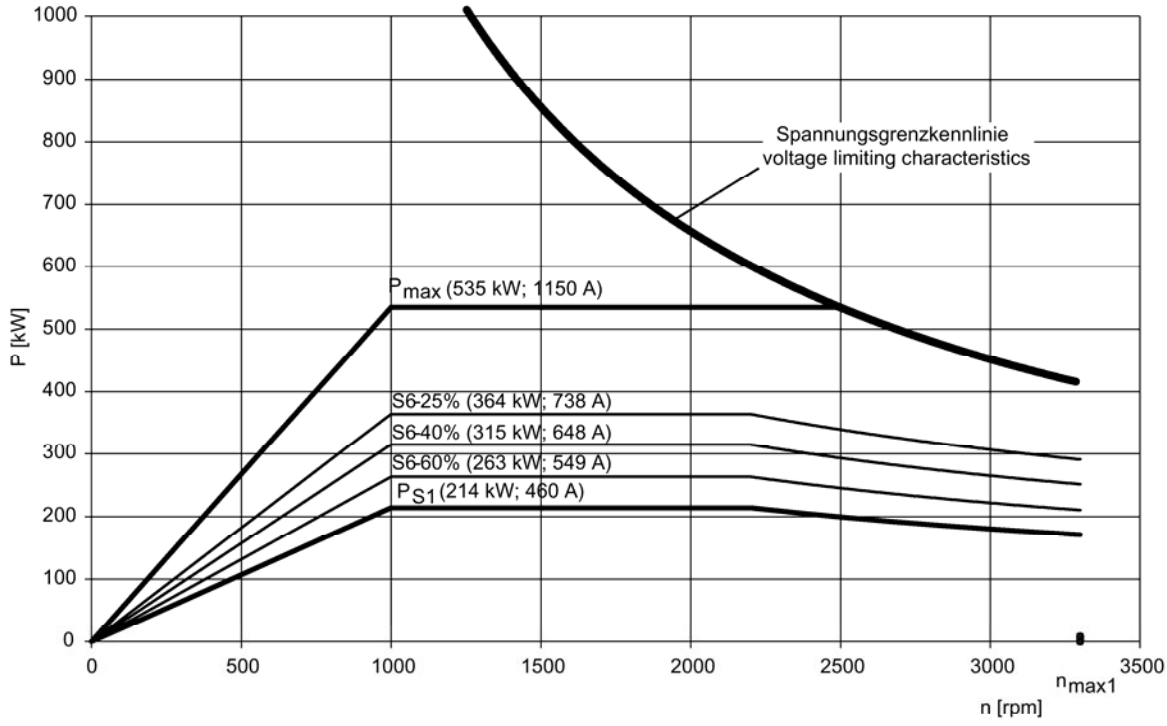


Table 6- 825 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□D2□

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]
1,000	214	2,044	460	3,300	-	-	-	2,200	5,109	1,150	2,044	460



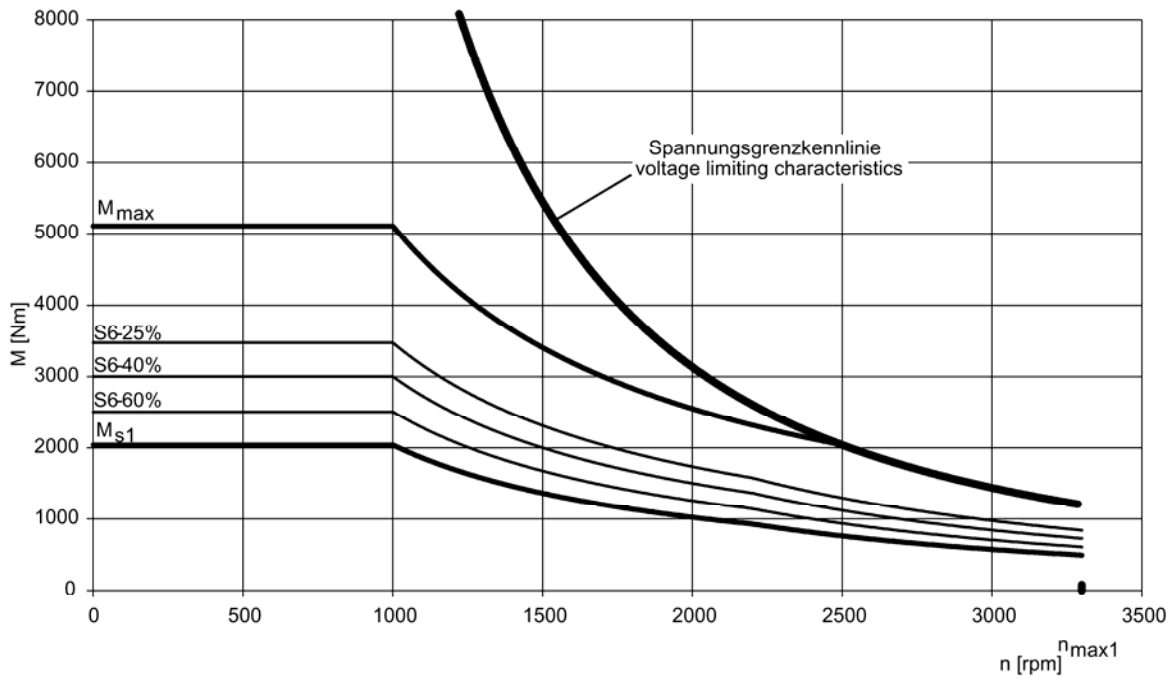
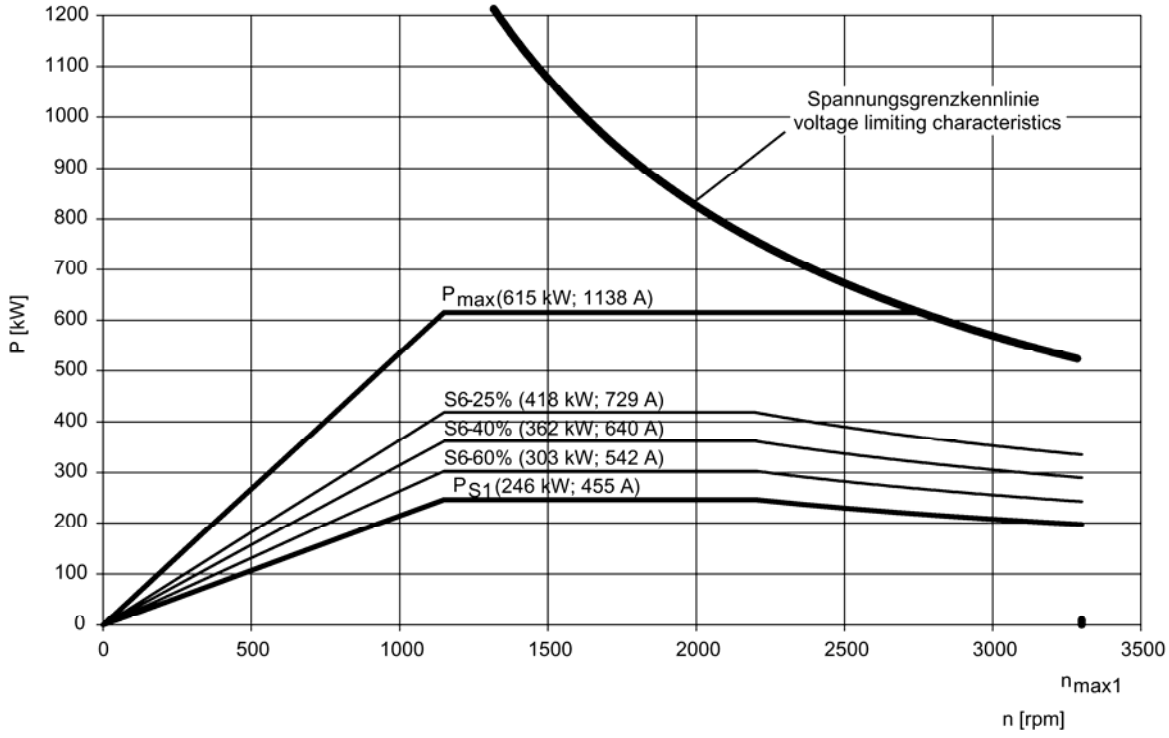


Table 6- 826 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□D2□

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]
1,150	246	2,043	455	3,300	-	-	-	2,200	5,107	1,138	2,043	455
1,000	214	2,043	455					2,800				



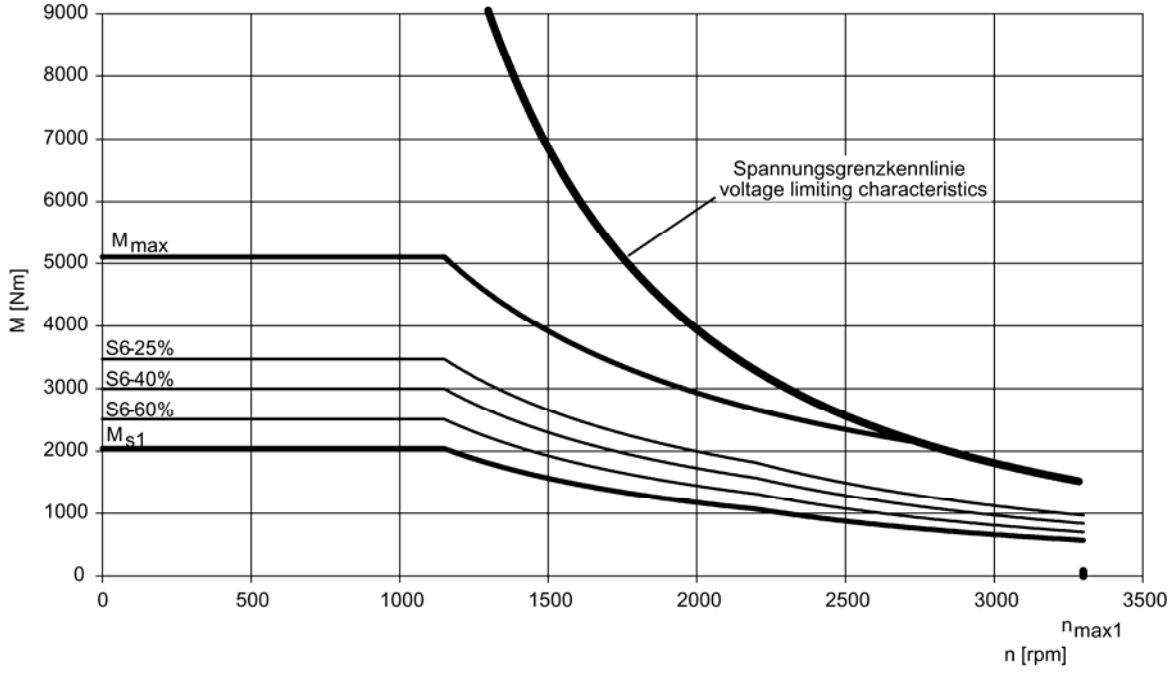
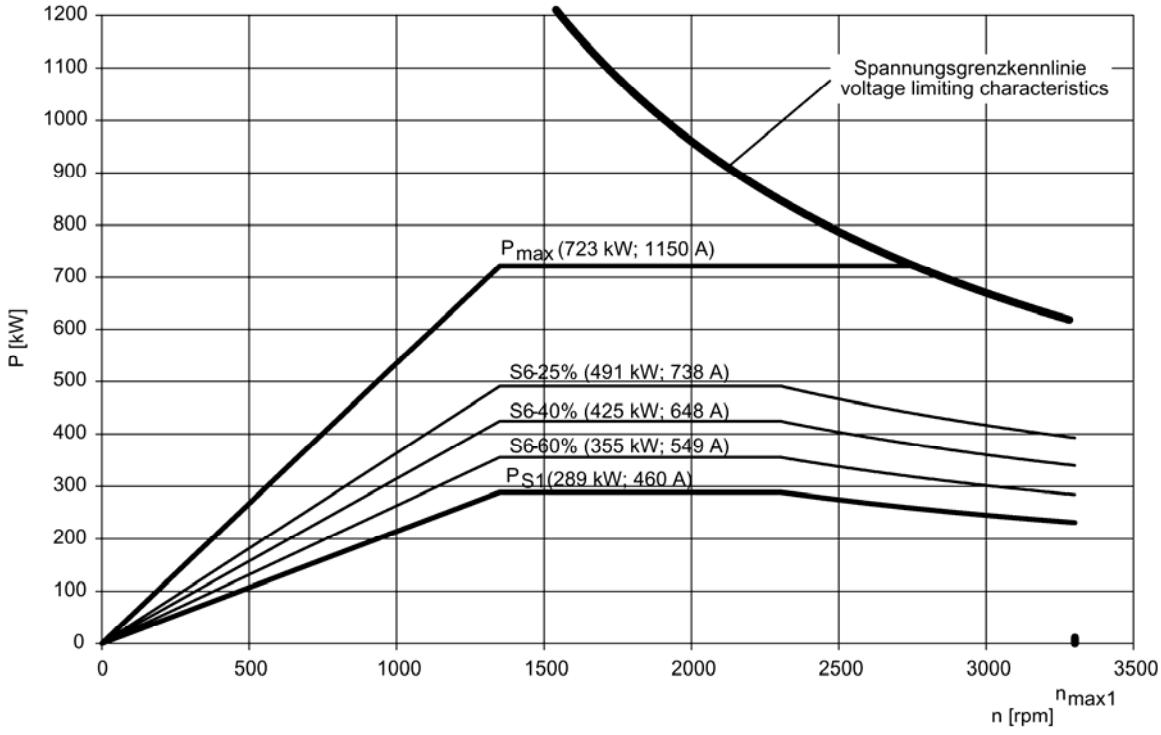


Table 6- 827 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□D2□

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]
1,350	289	2,044	460	3,300	-	-	-	2,300	5,111	1,150	2,044	460



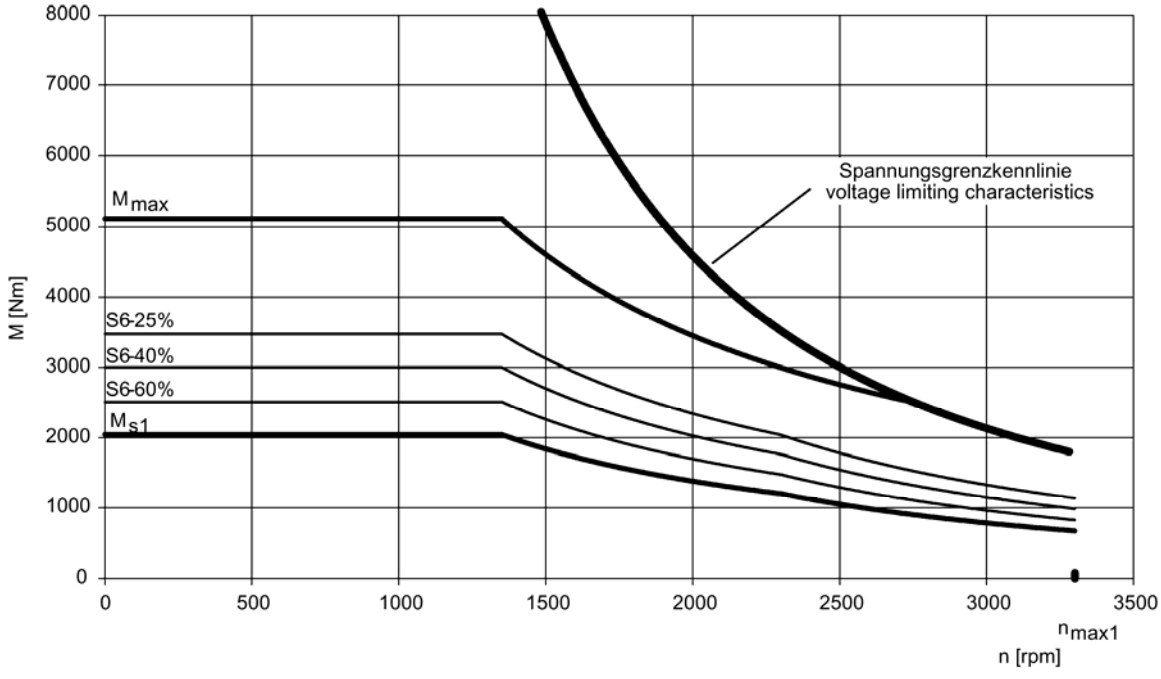
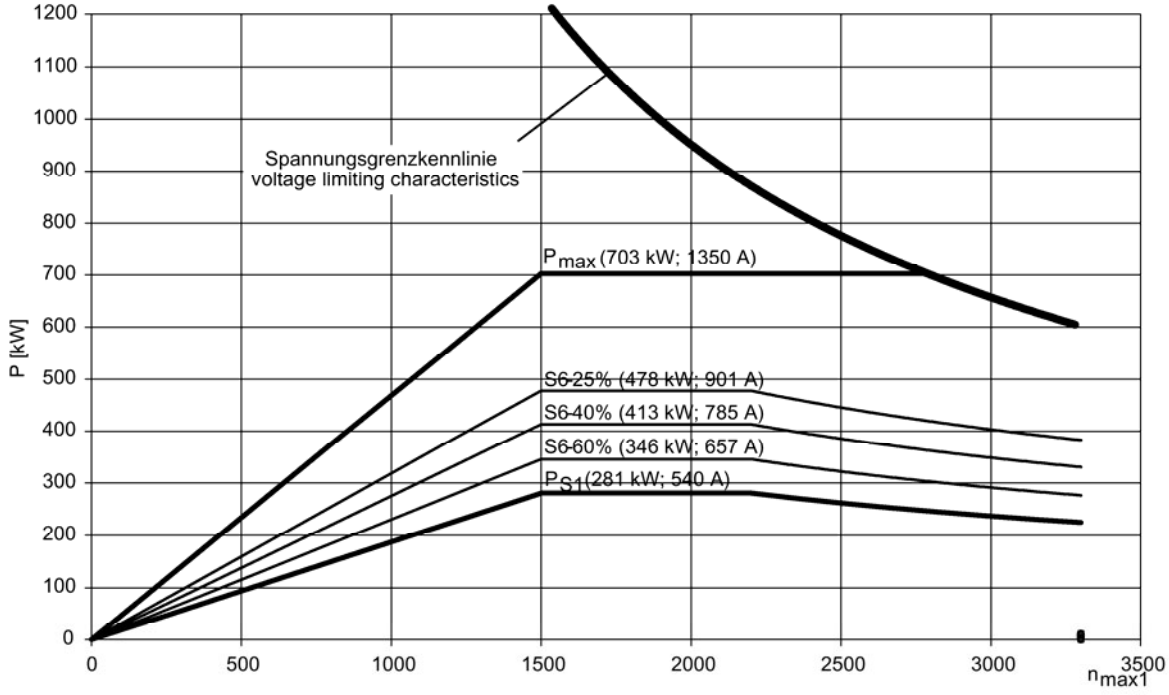


Table 6- 828 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8286-□□F2□

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]
1,500	281	1,789	540	3,300	-	-	-	2,200	4,473	1,350	1,789	540



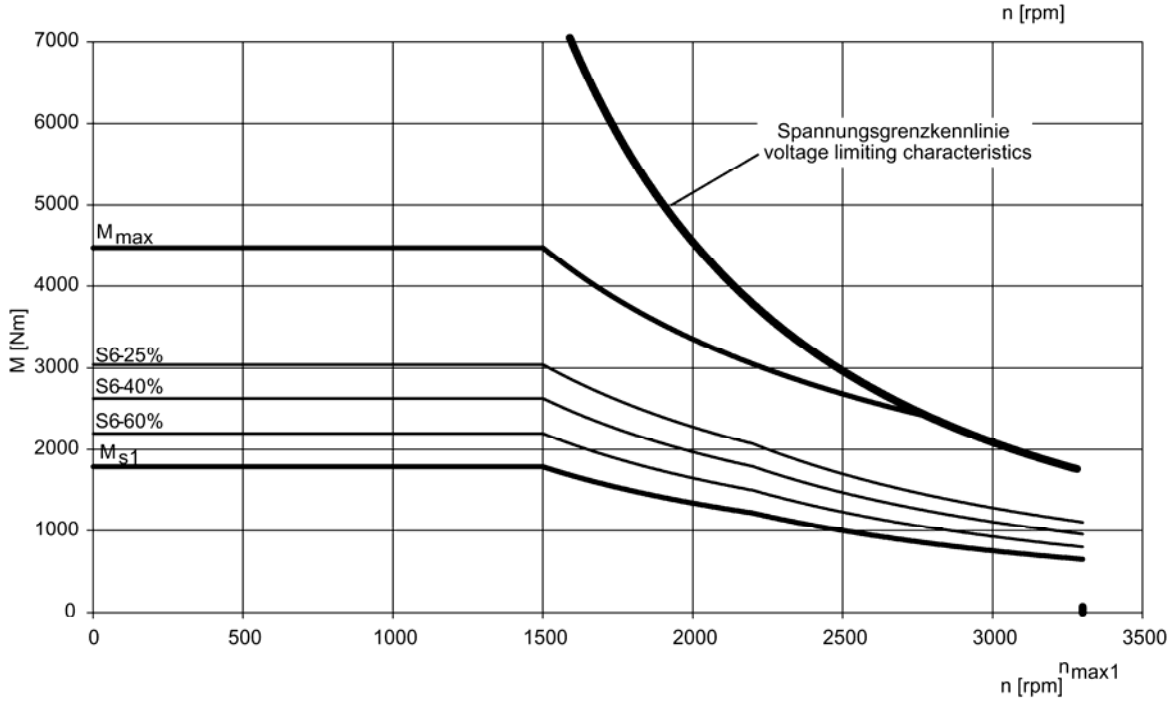
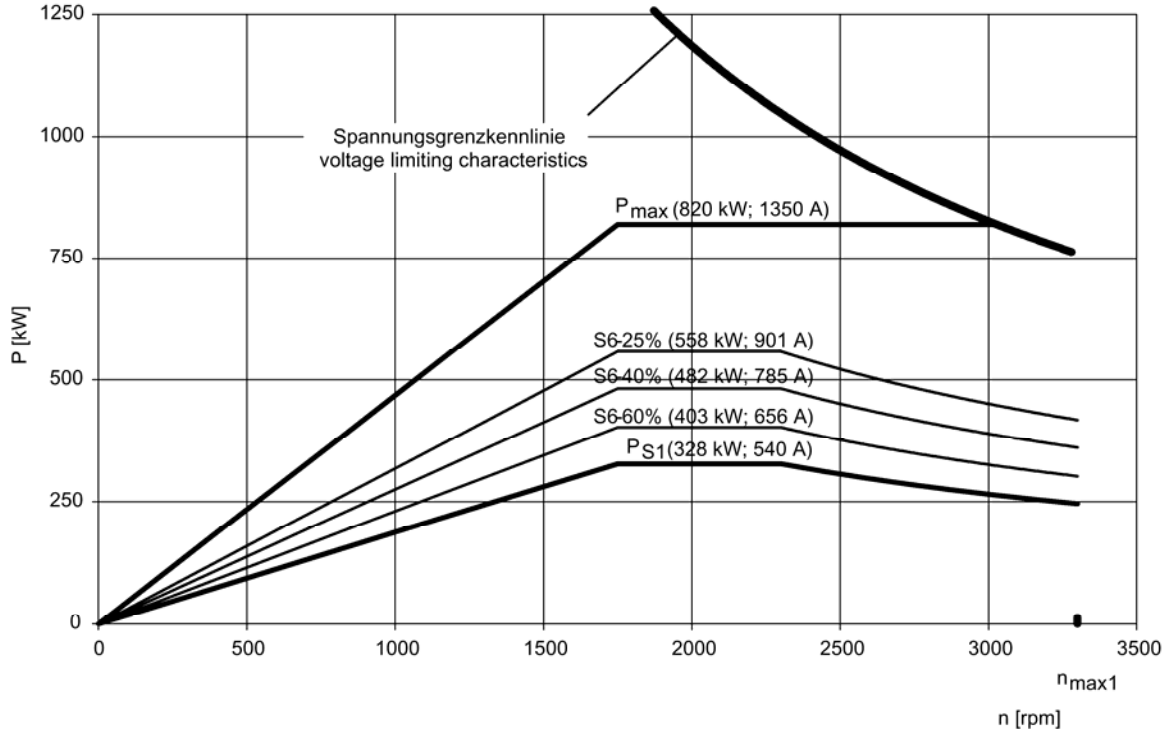


Table 6- 829 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8286-□□F2□

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]
1,750	328	1,790	540	3,300	-	-	-	2,300	4,475	1,350	1,790	540
1,500	281	1,790	540					2,800				



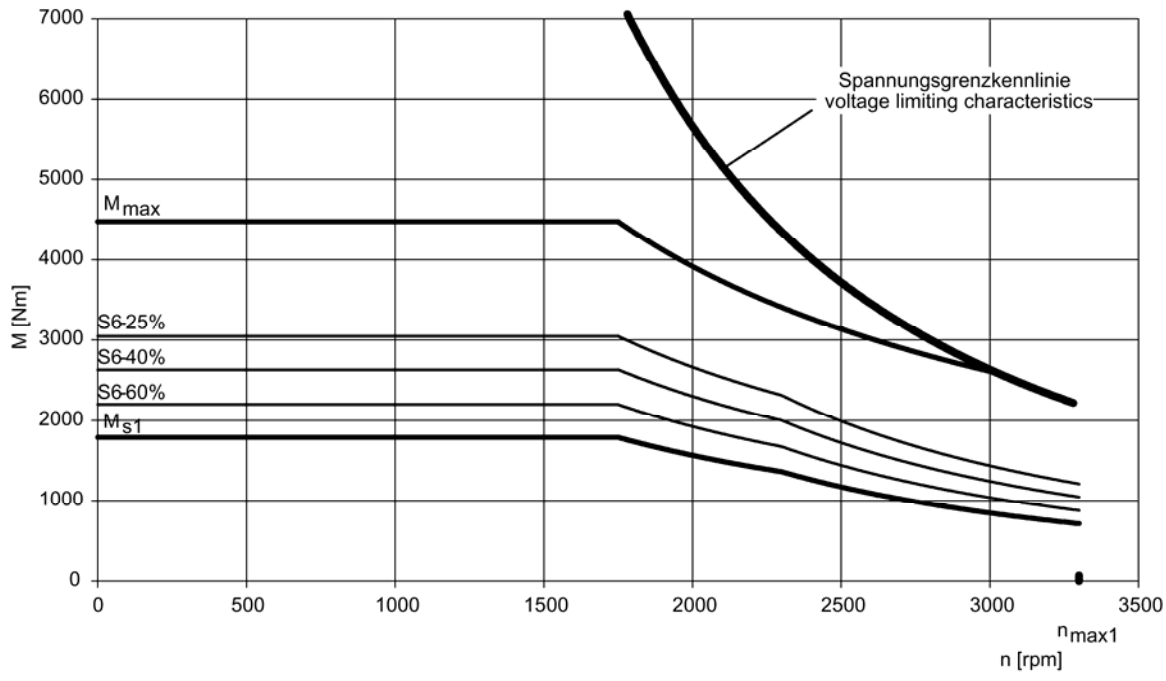
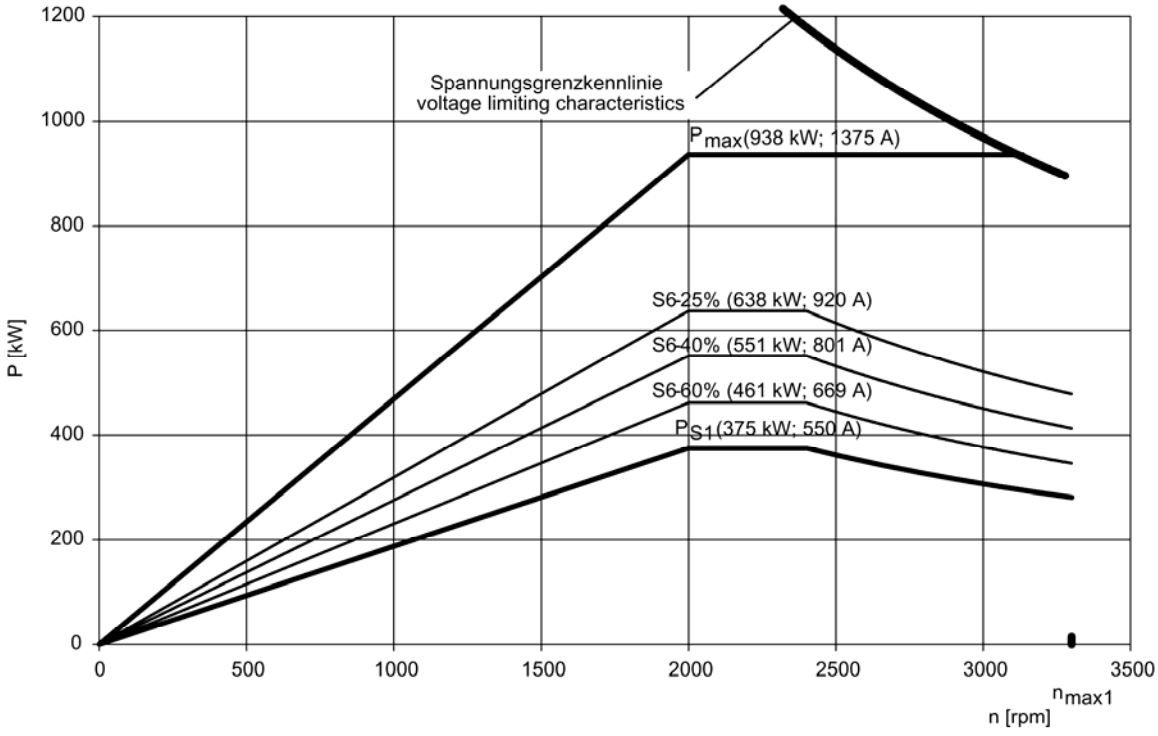


Table 6- 830 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8286-□□F2□

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]
2,000	375	1,791	550	3,300	-	-	-	2,400	4,477	1,375	1,791	550



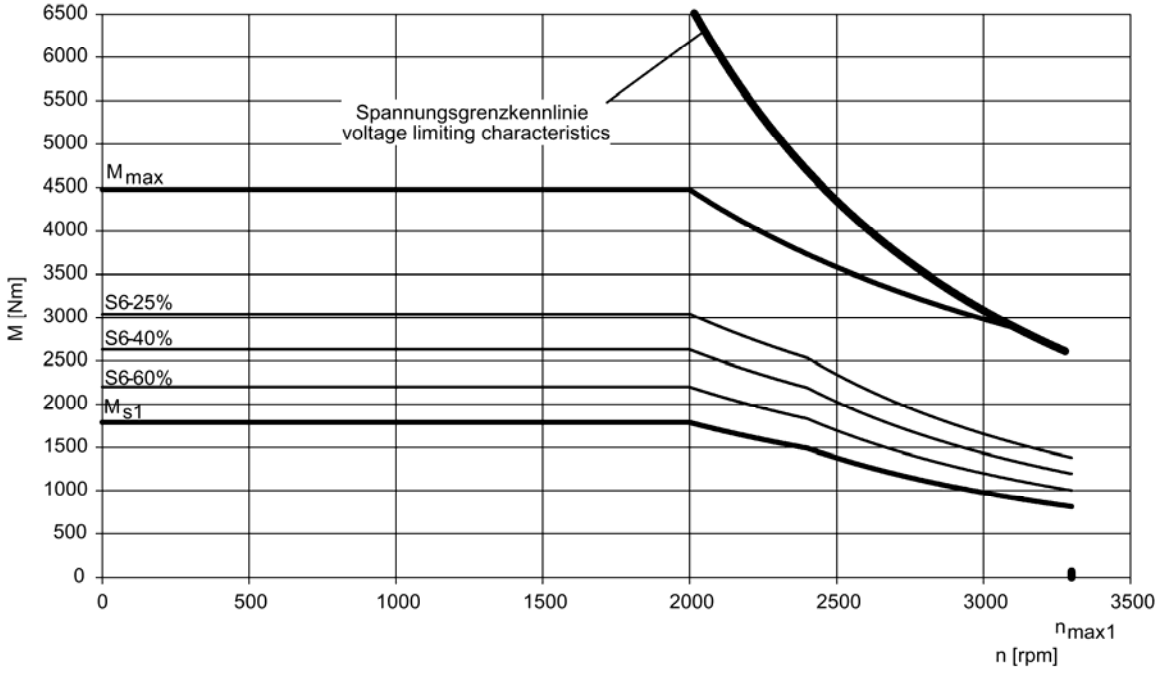
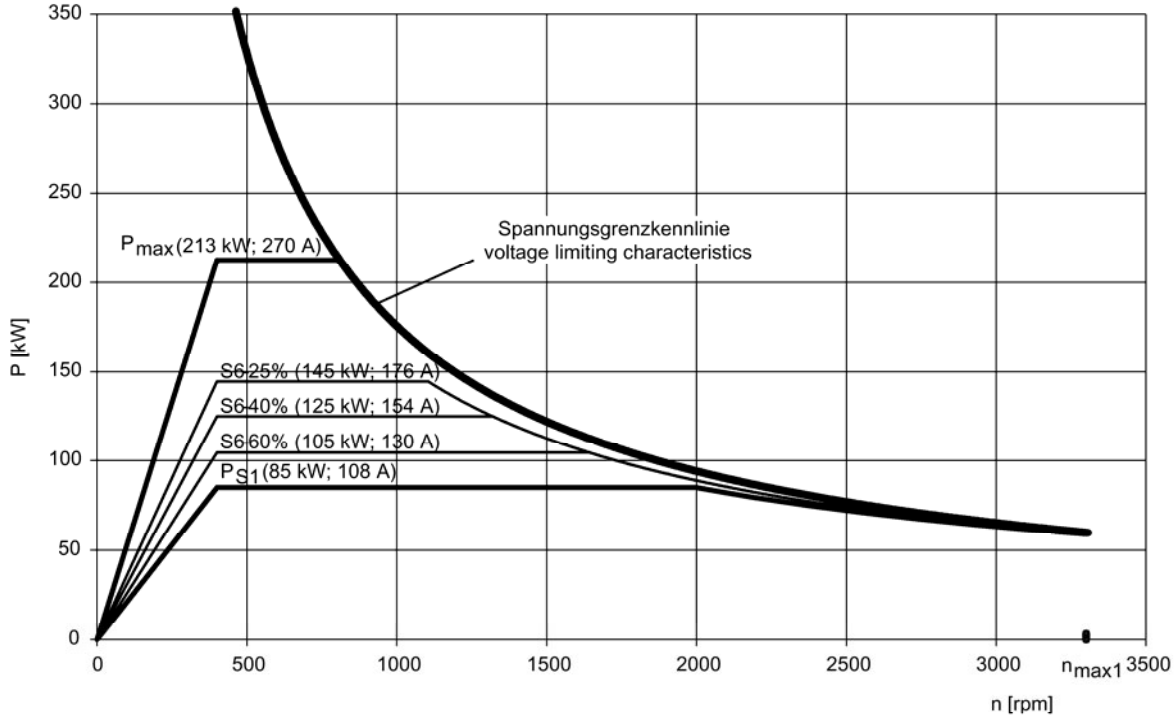


Table 6- 831 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□H2□

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	2,029	108	3,300	-	-	2,000	2,000	5,073	270	2,029	108



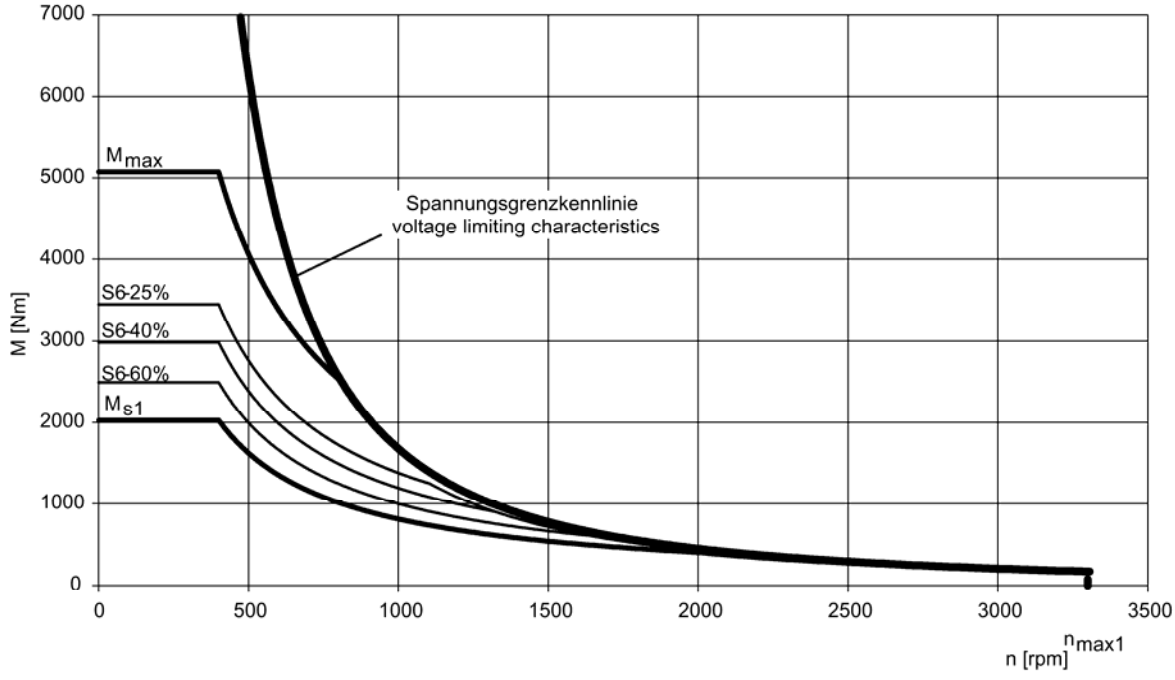
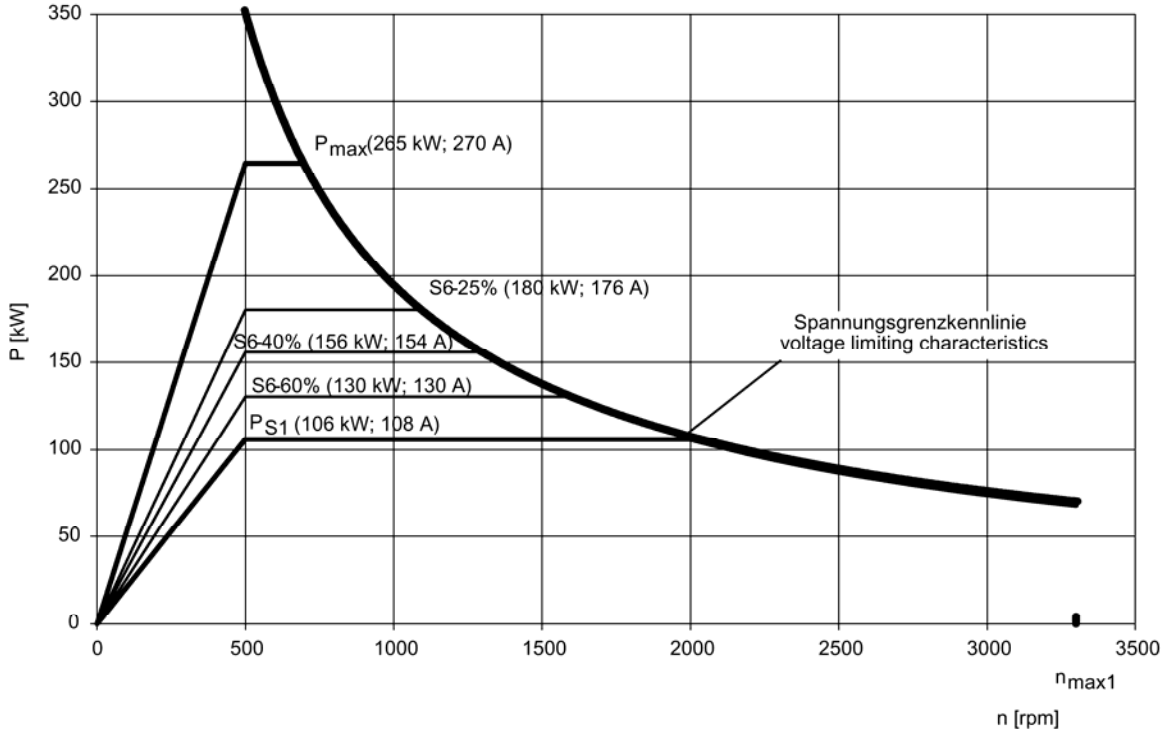


Table 6- 832 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□H2□

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	2,025	108	3,300	-	-	-	2,000	5,062	270	2,025	108
400	85	2,025	108					2,600				



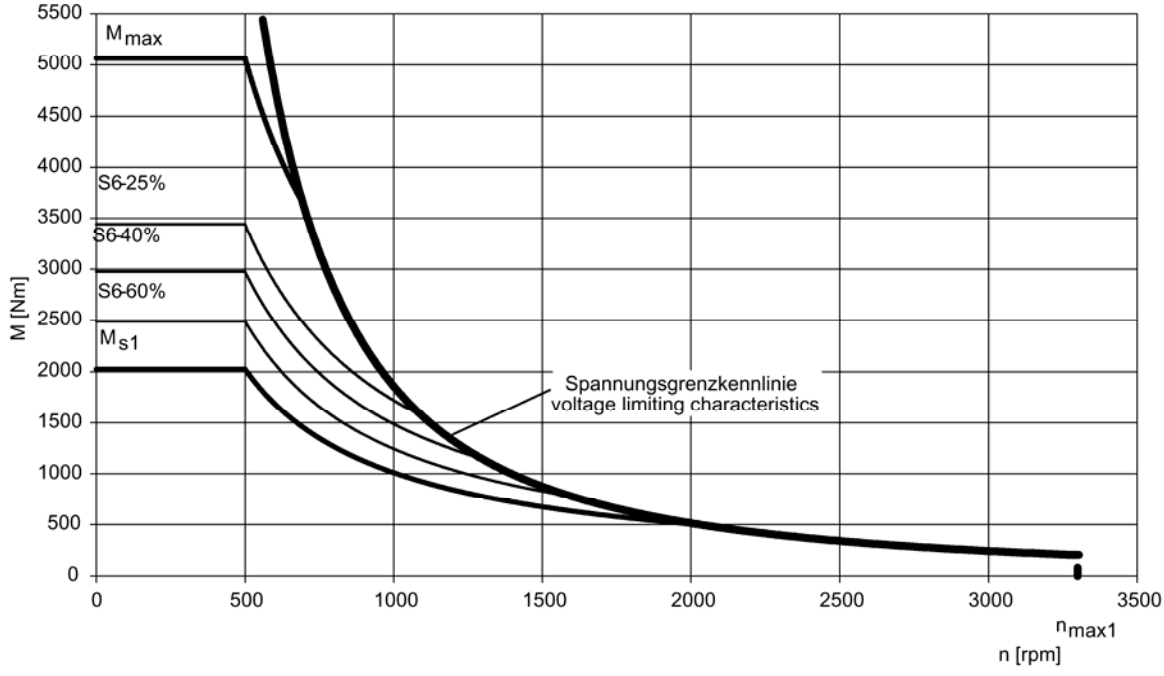
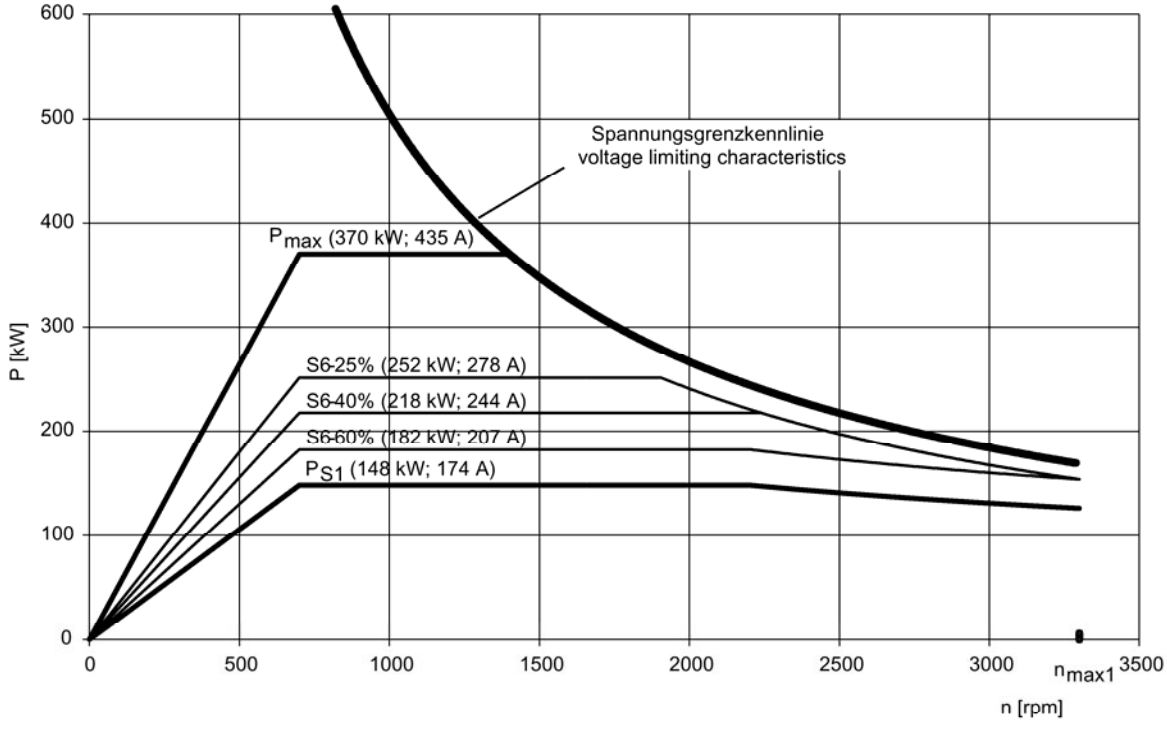


Table 6- 833 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□K2□

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	2,019	174	3,300	-	-	-	2,200	5,048	435	2,019	174



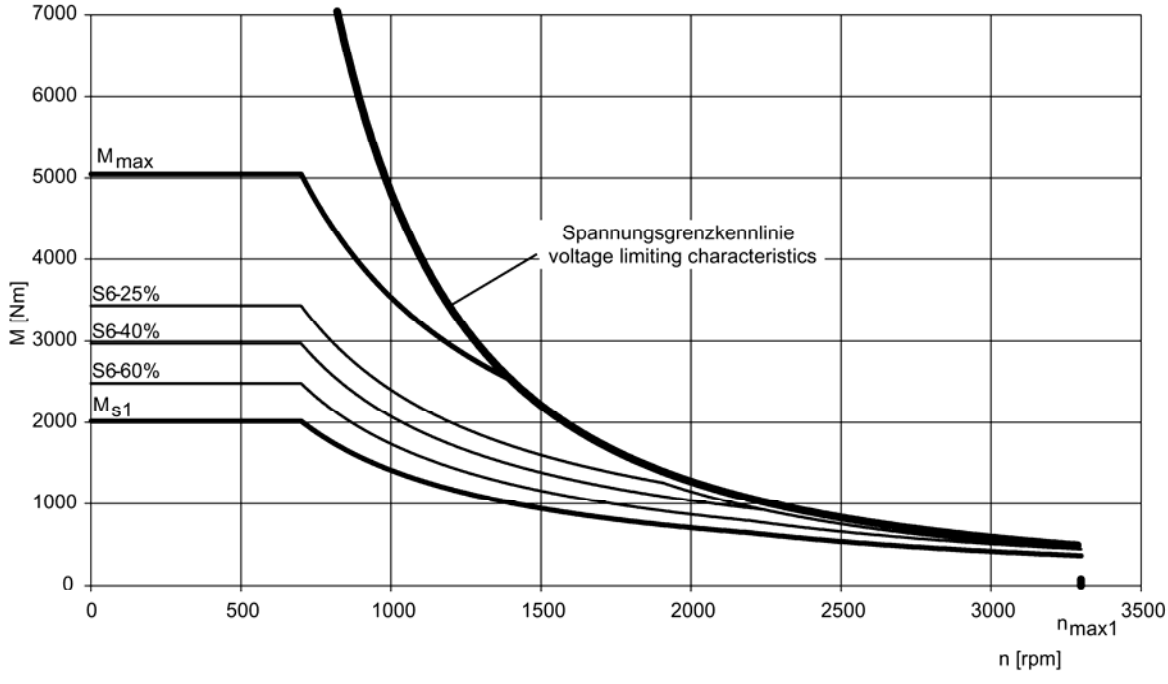
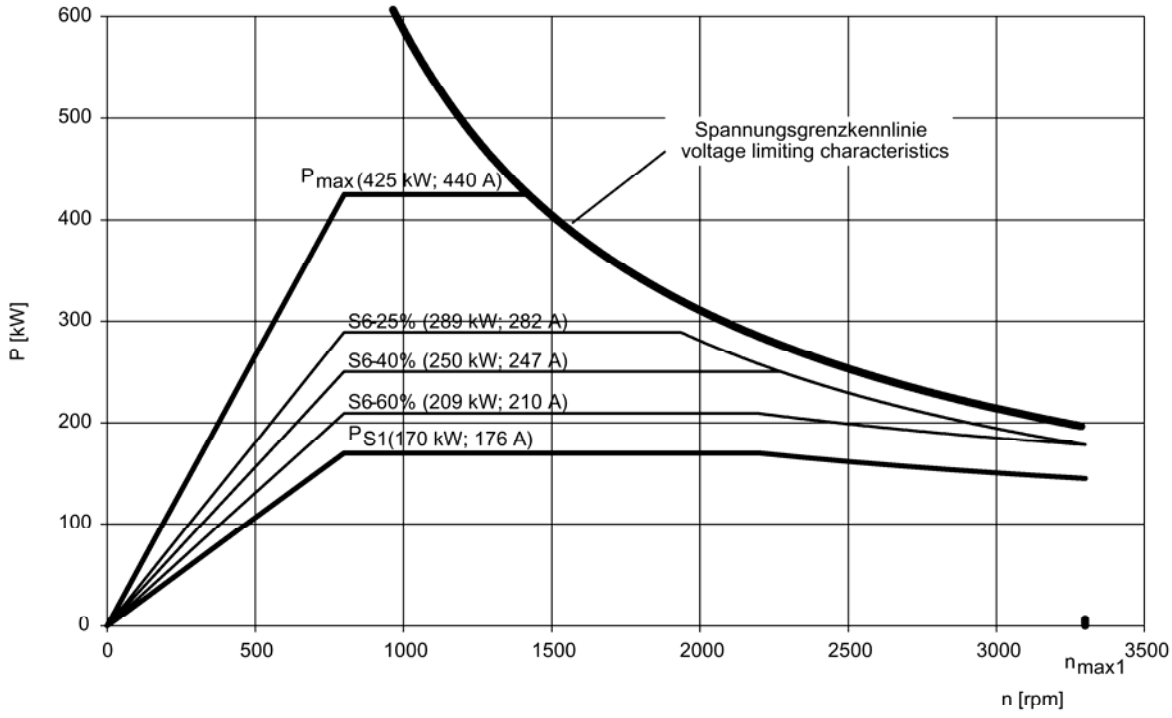


Table 6- 834 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□K2□

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	2,029	176	3,300	-	-	-	2,200	5,073	440	2,029	176
700	149	2,029	176					3,100				



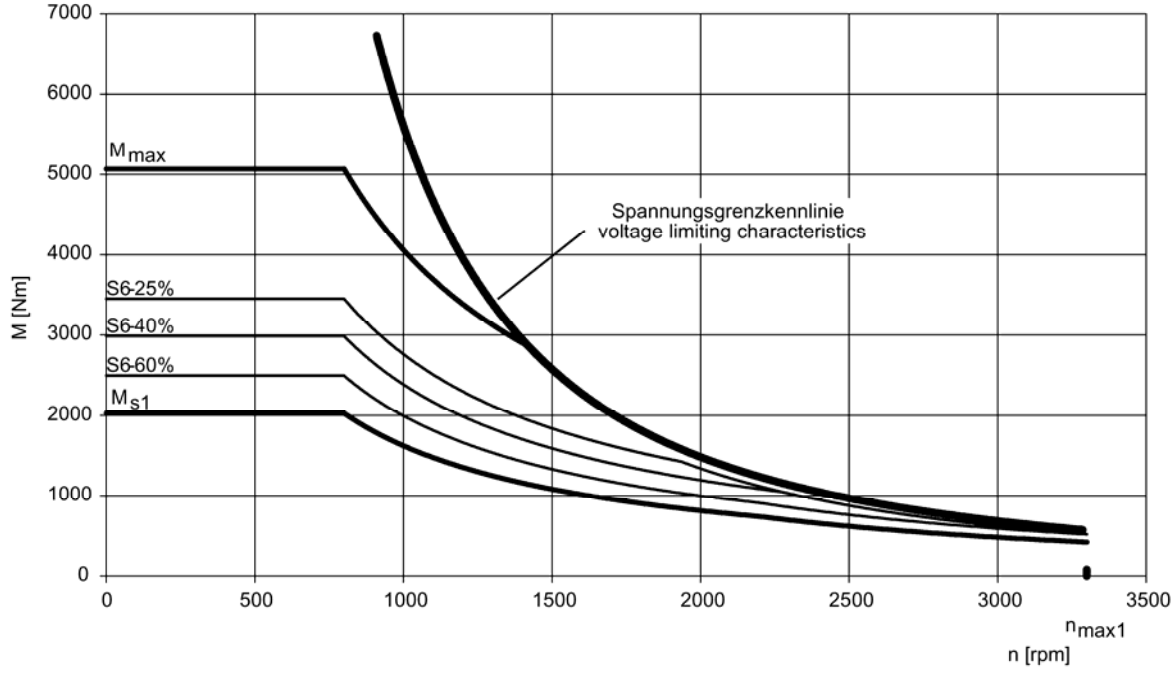
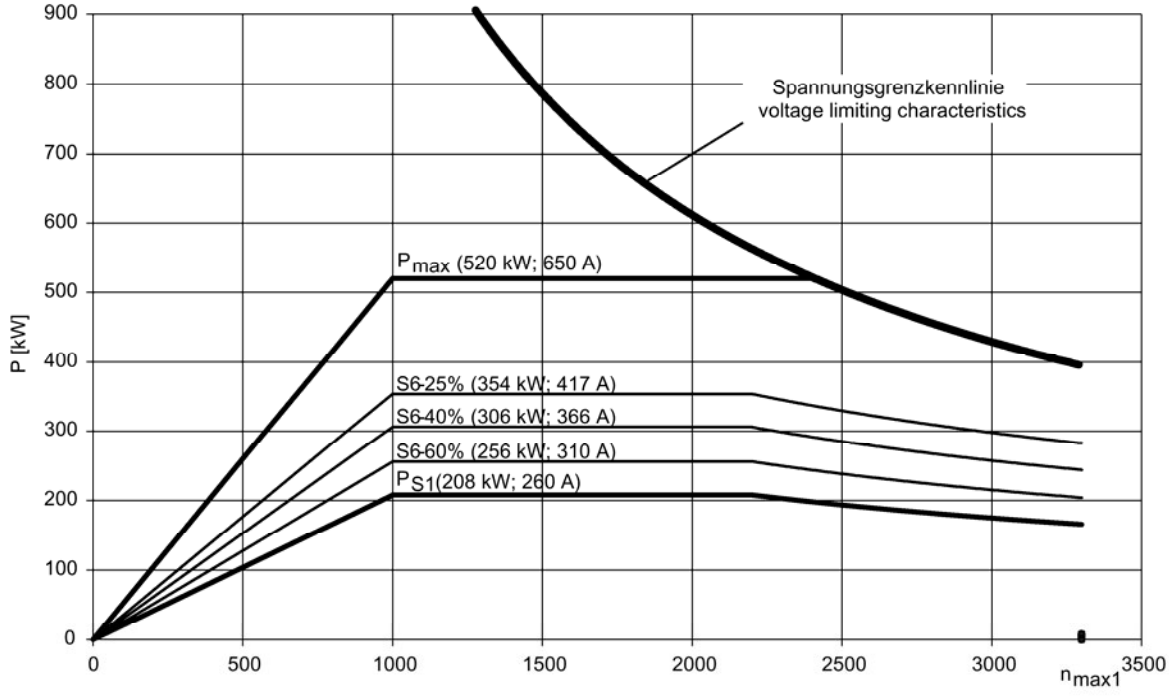


Table 6- 835 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□U2□

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]
1,000	208	1,986	260	3,300	-	-	-	2,200	4,966	650	1,986	260



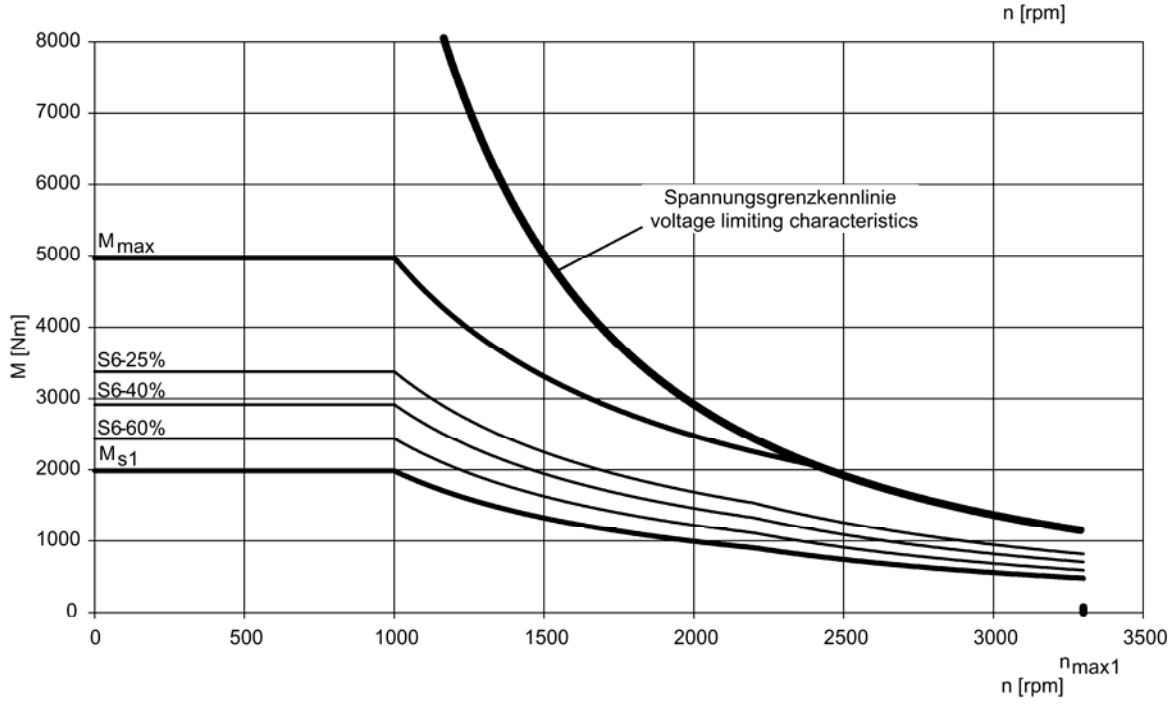
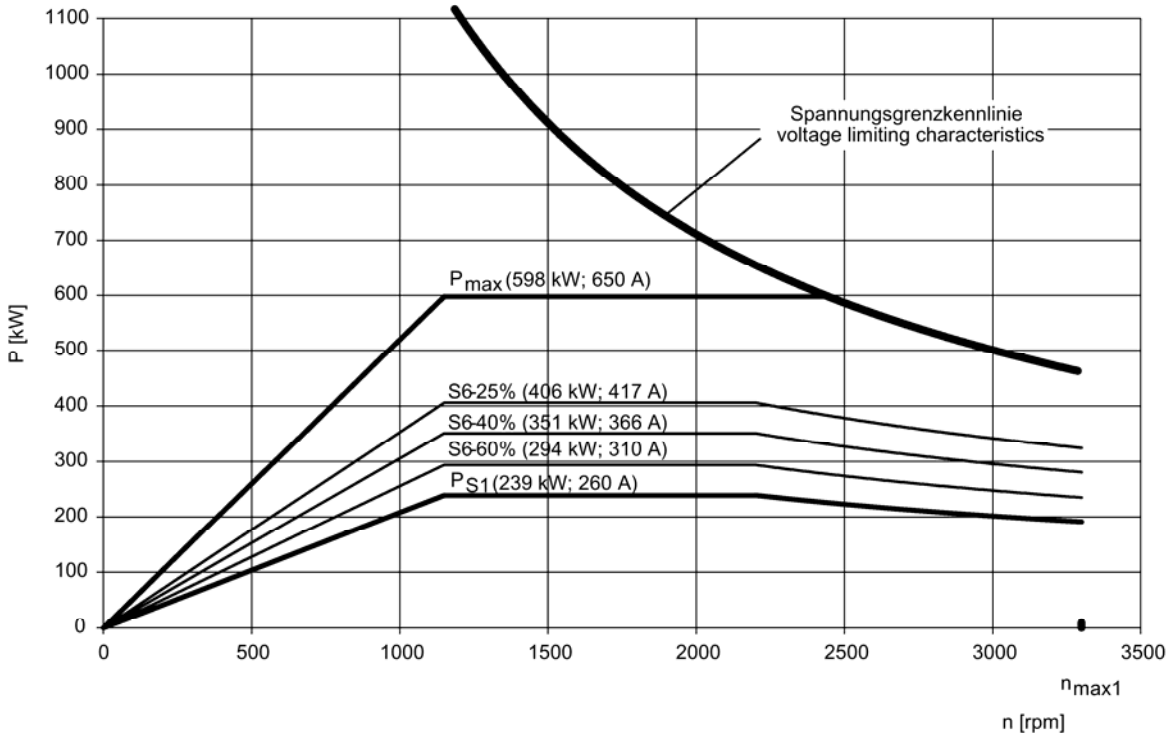


Table 6- 836 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□U2□

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]
1,150	239	1,985	260	3,300	-	-	-	2,200	4,962	650	1,985	260
1,000	208	1,985	260					2,800				



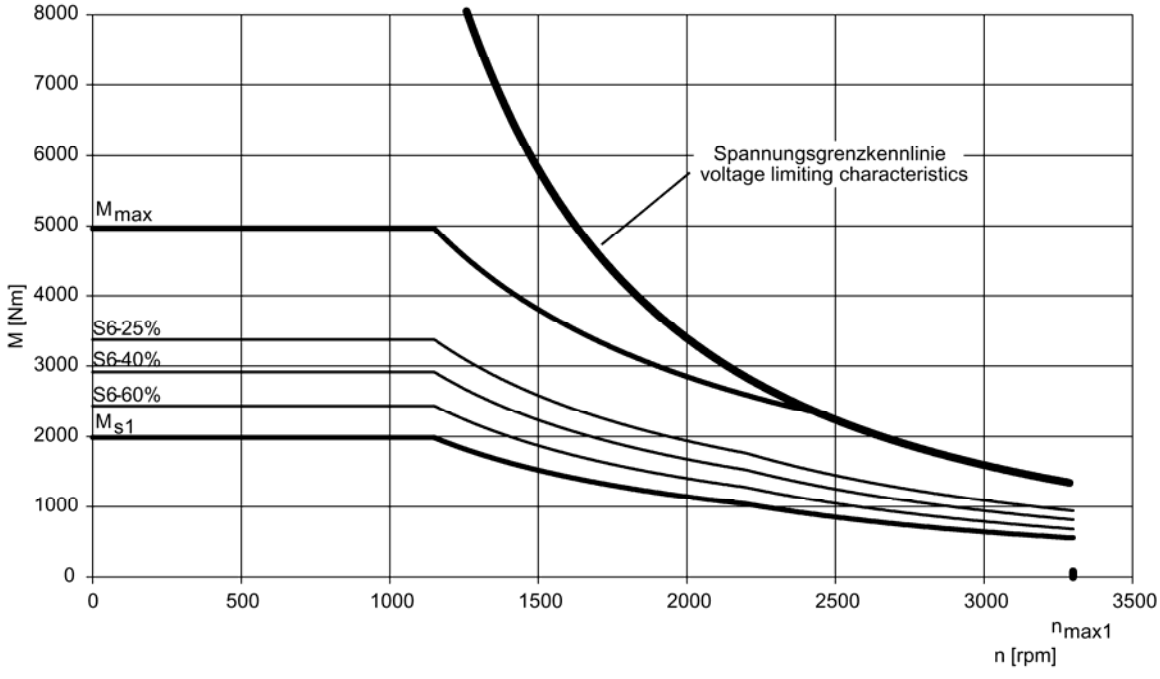
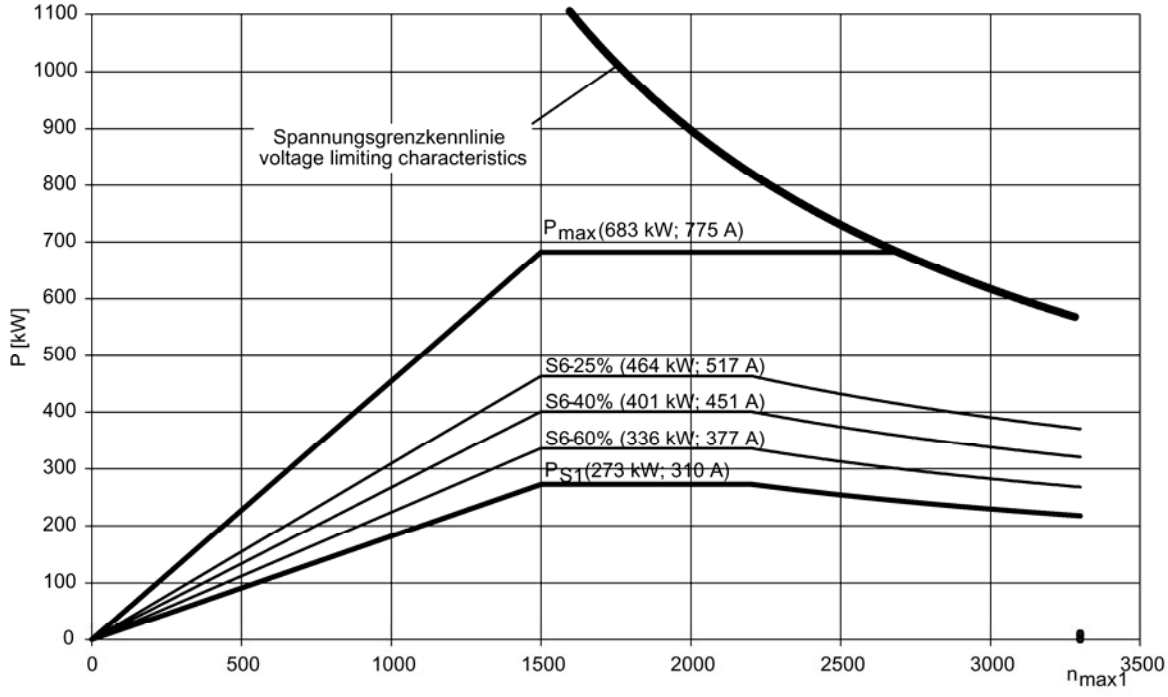


Table 6- 837 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8286-□□W2□

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]
1,500	273	1,738	310	3,300	-	-	-	2,200	4,345	775	1,738	310



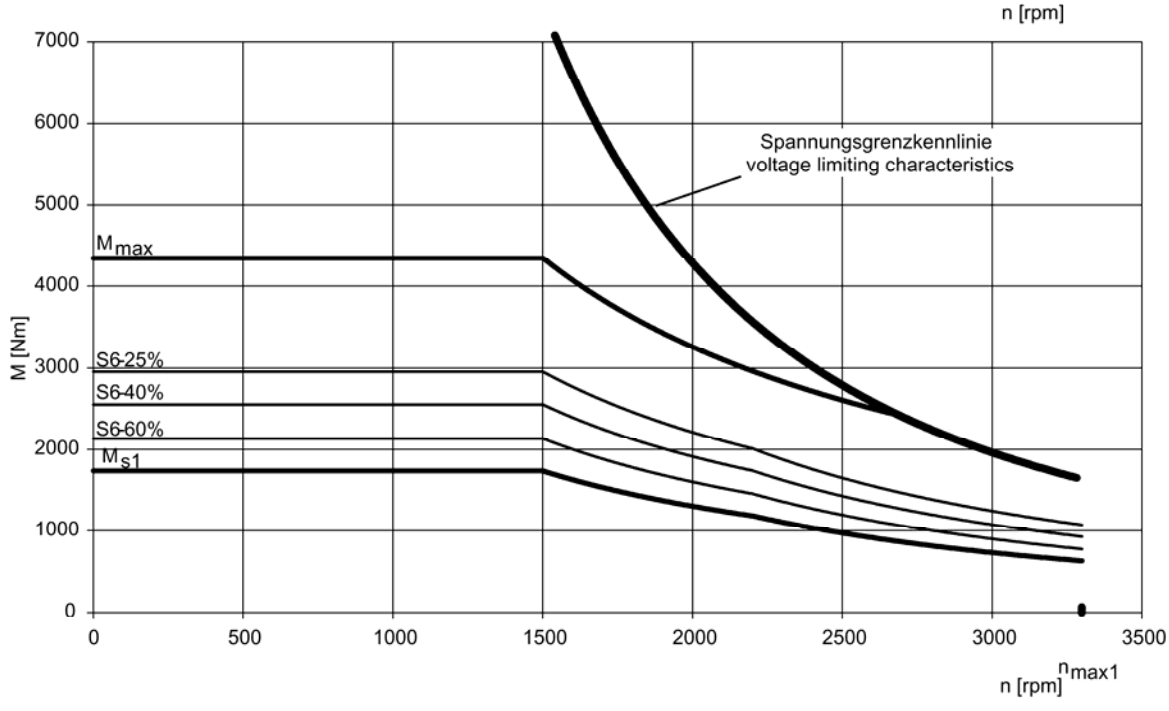
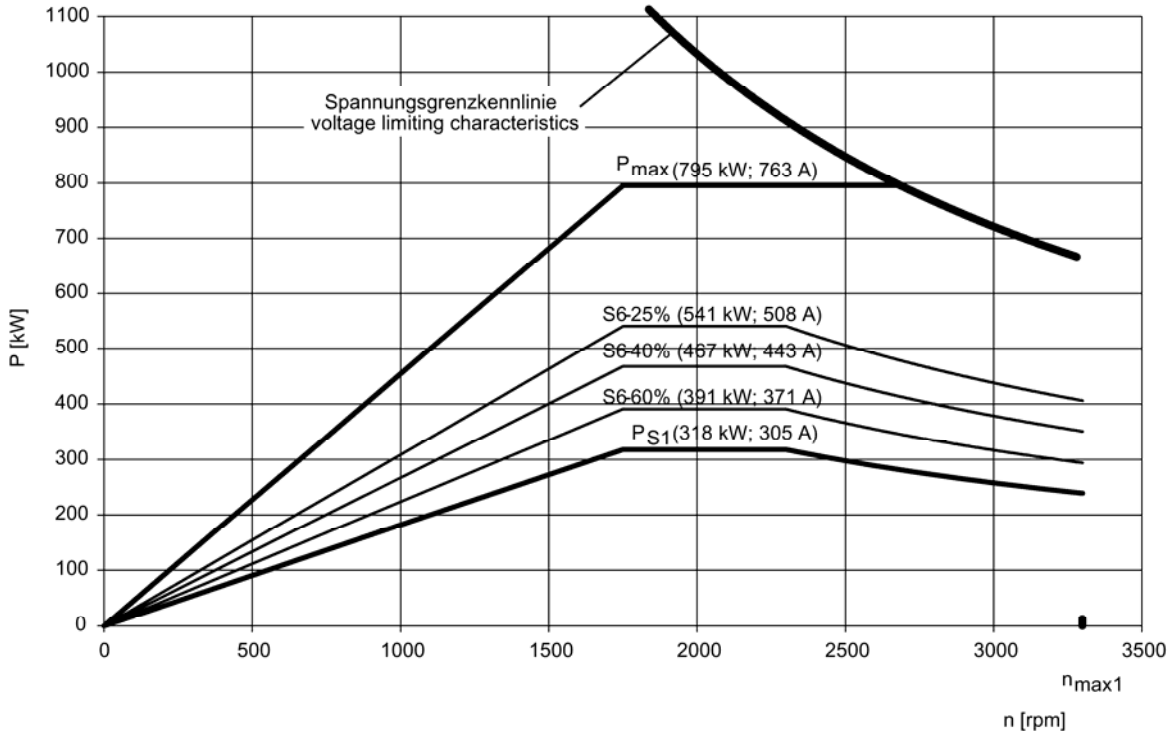


Table 6- 838 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8286-□□W2□

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]
1,750	318	1,735	305	3,300	-	-	-	2,300	4,338	763	1,735	305
1,500	273	1,735	305					2,800				



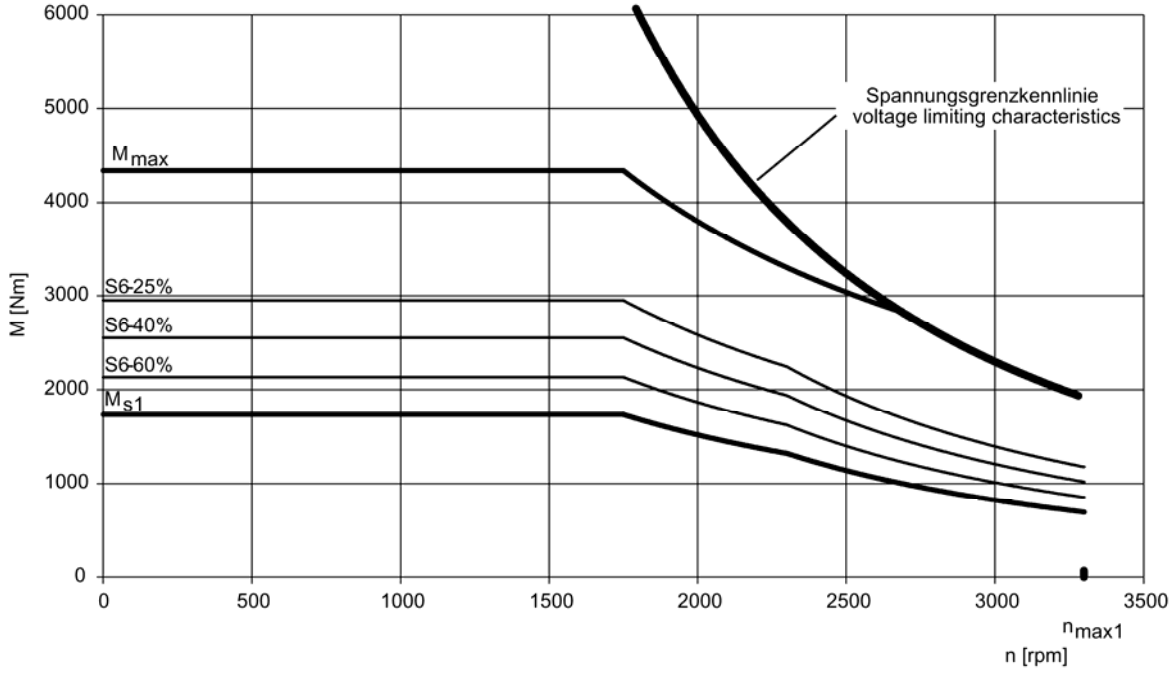
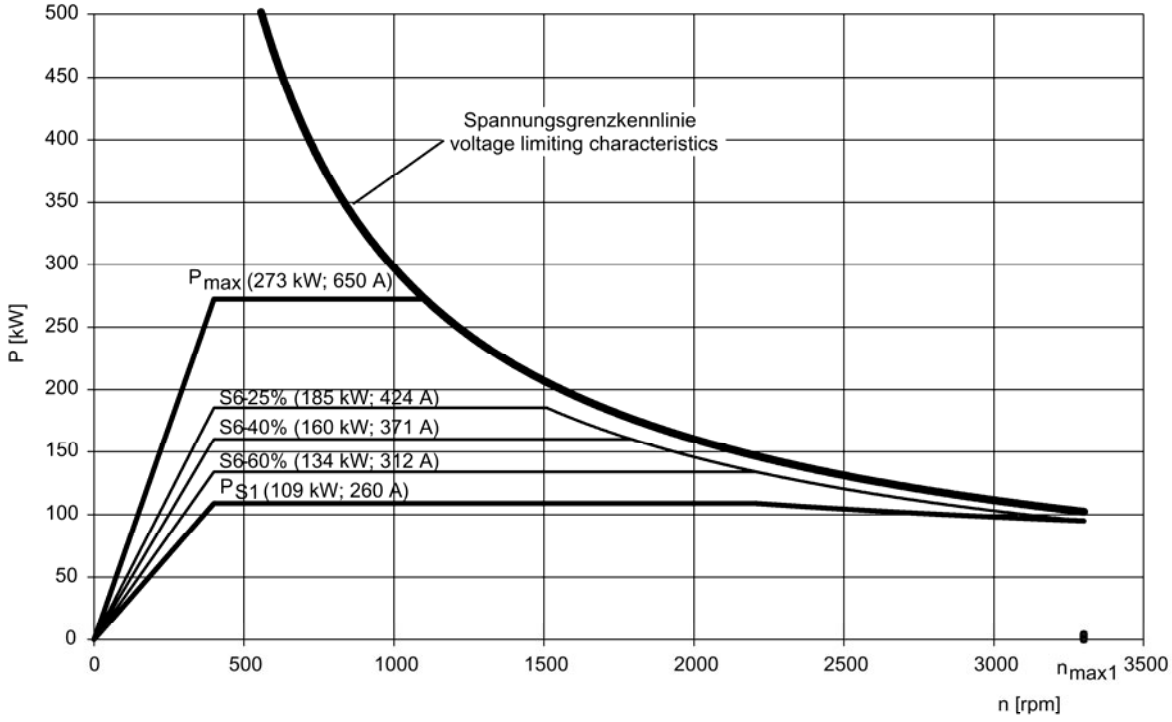


Table 6- 839 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□B2□

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	2,602	260	3,300	-	-	-	2,200	6,506	650	2,602	260



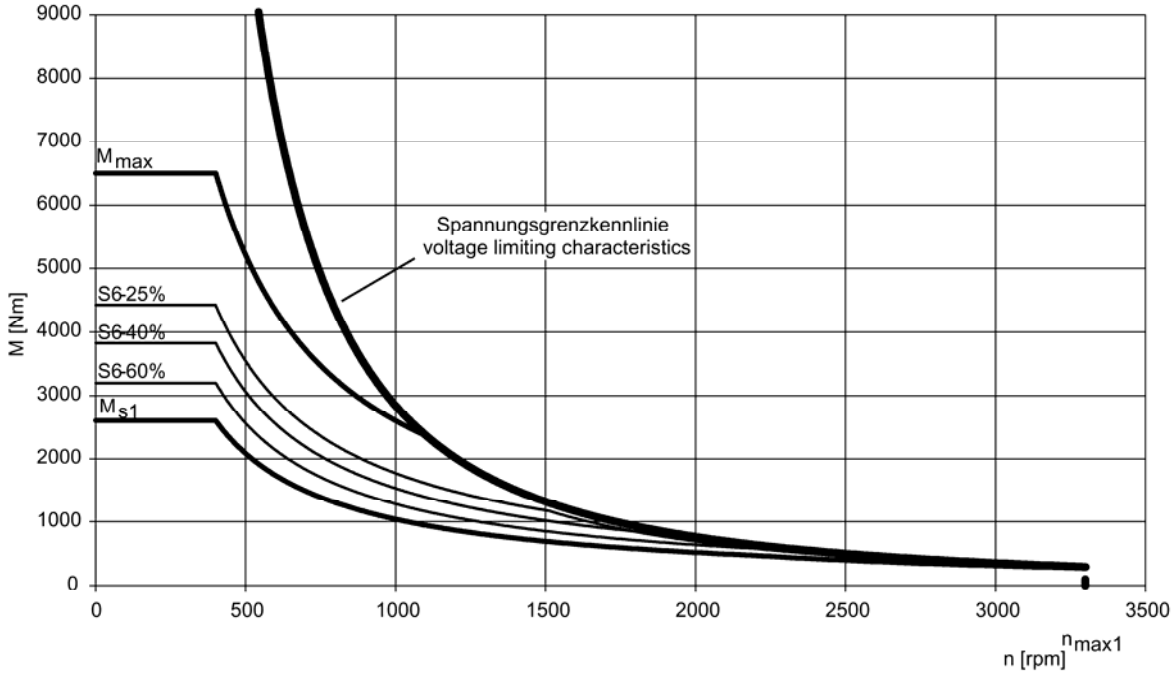
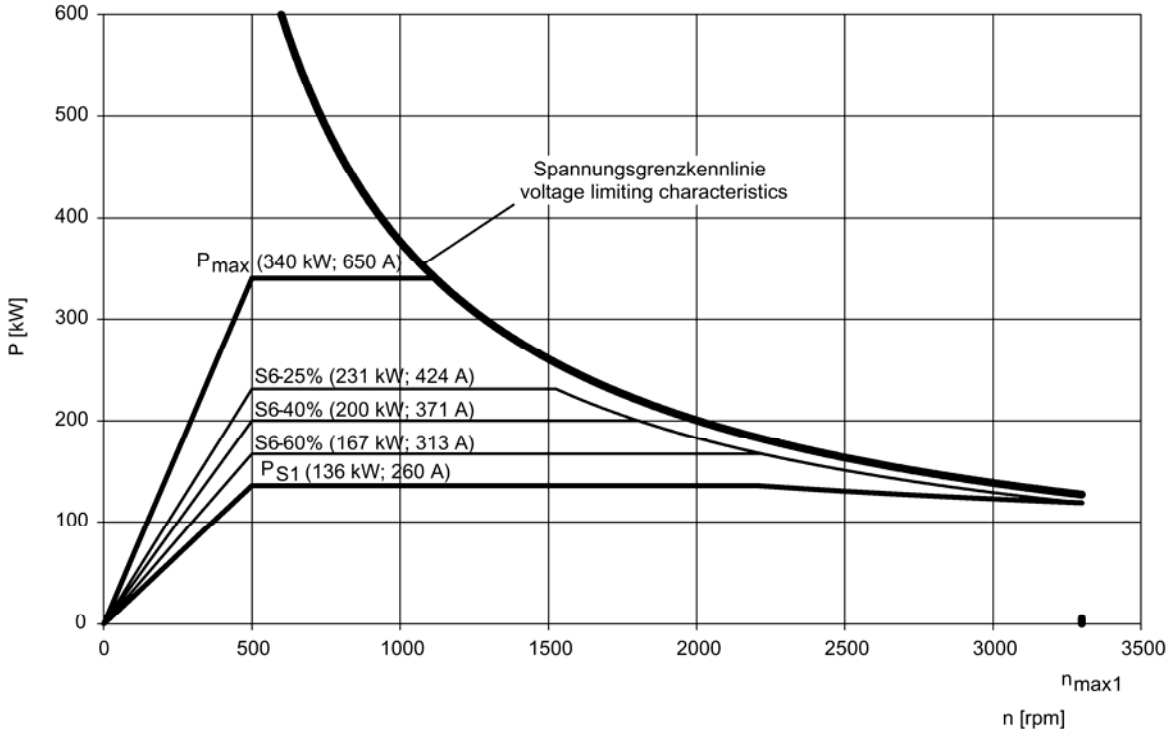


Table 6- 840 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□B2□

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	2,598	260	3,300	-	-	-	2,200	6,494	650	2,598	260
400	109	2,598	260					3,300				



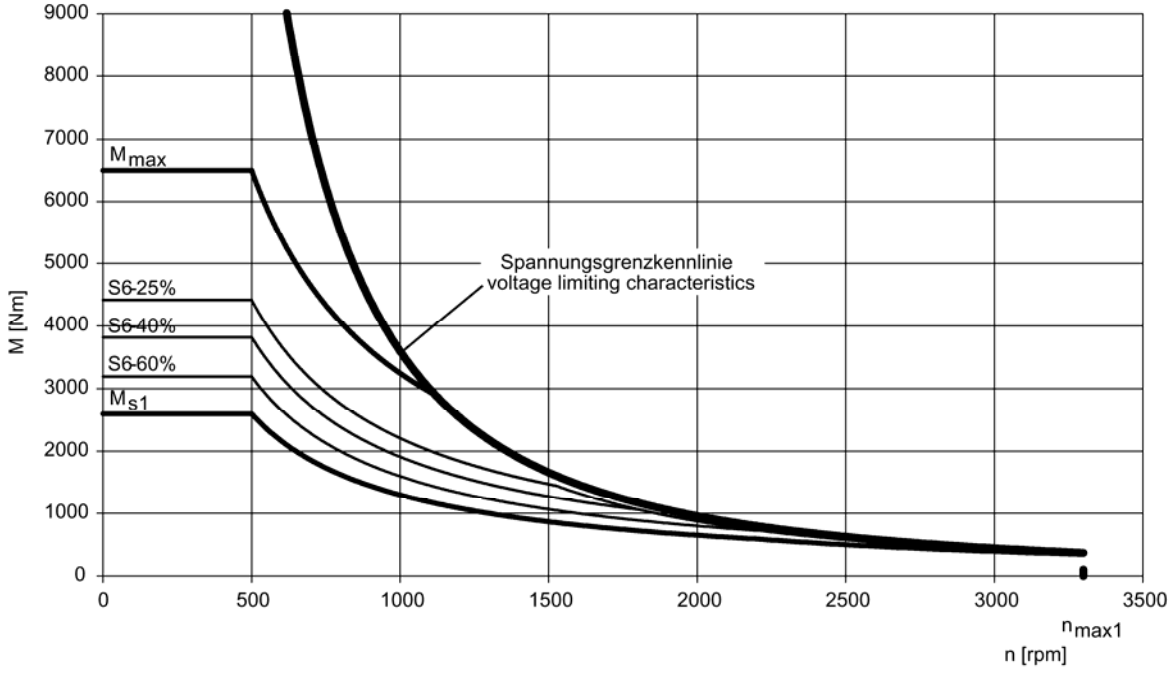
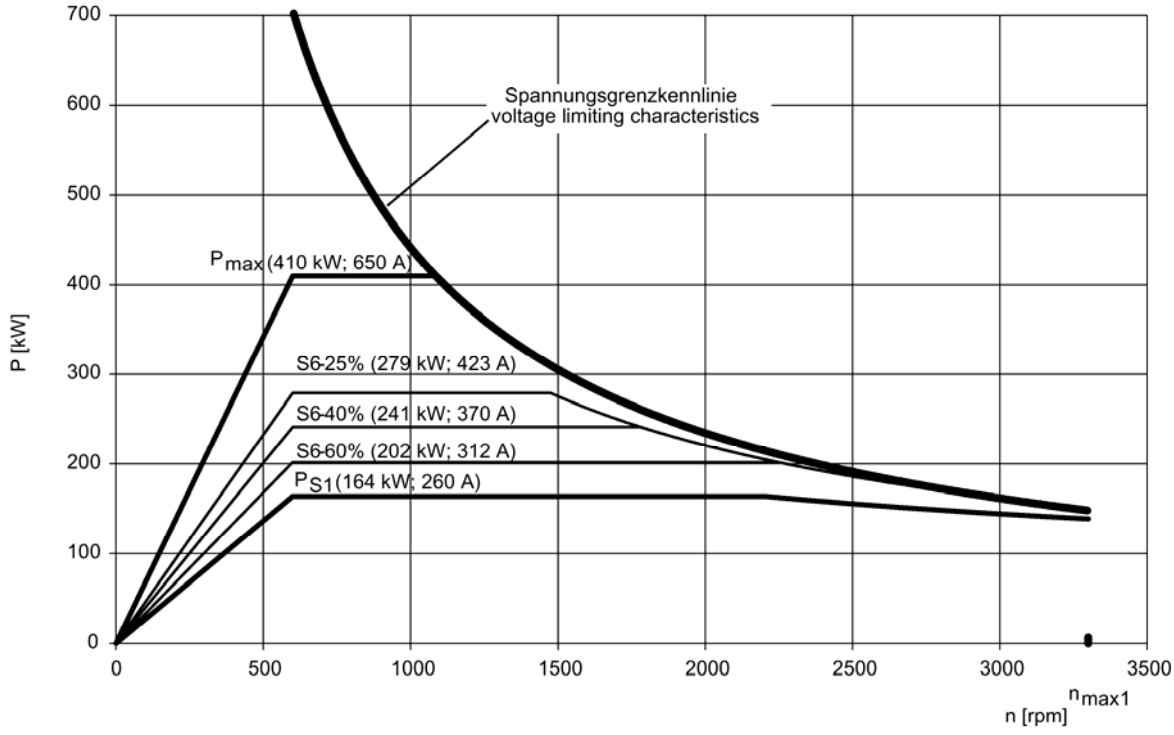


Table 6- 841 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□B2□

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	2,610	260	3,300	-	-	-	2,200	6,526	650	2,610	260



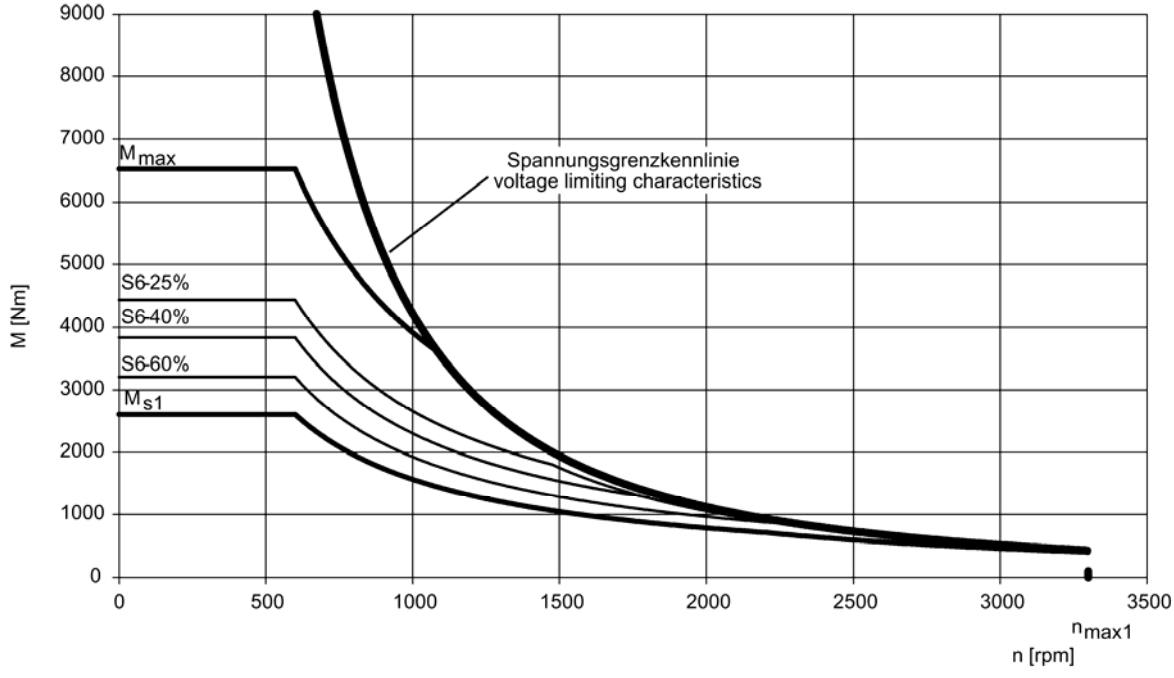
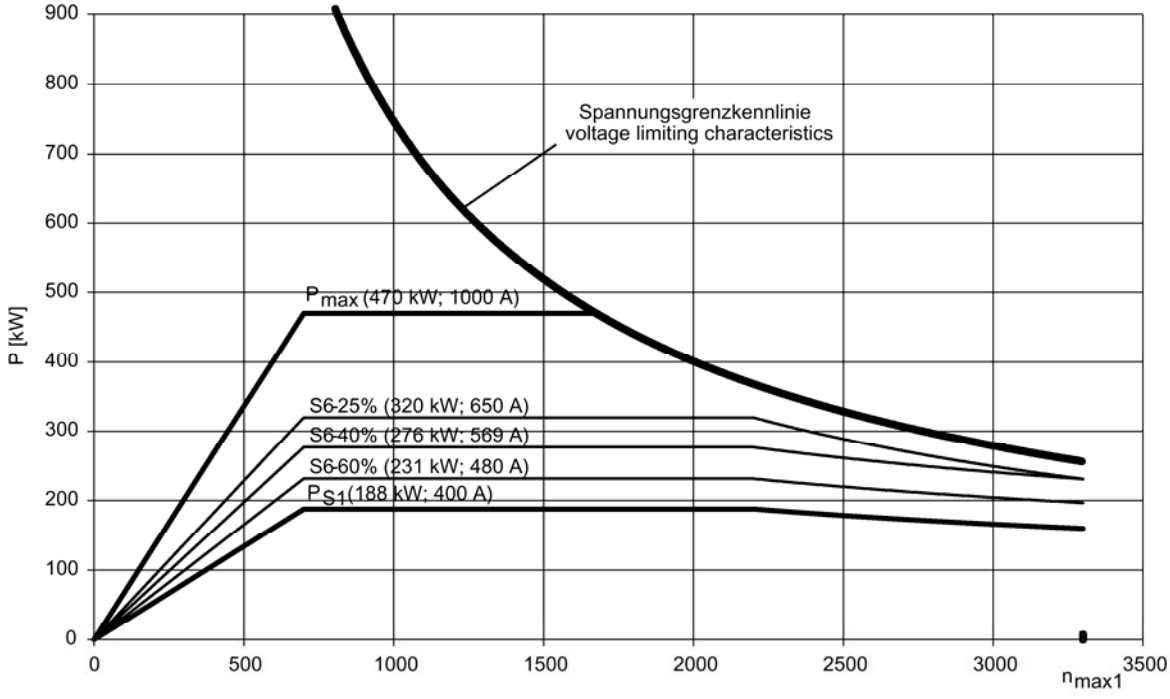


Table 6- 842 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□C2□

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	2,565	400	3,300	-	-	-	2,200	6,412	1,000	2,565	400



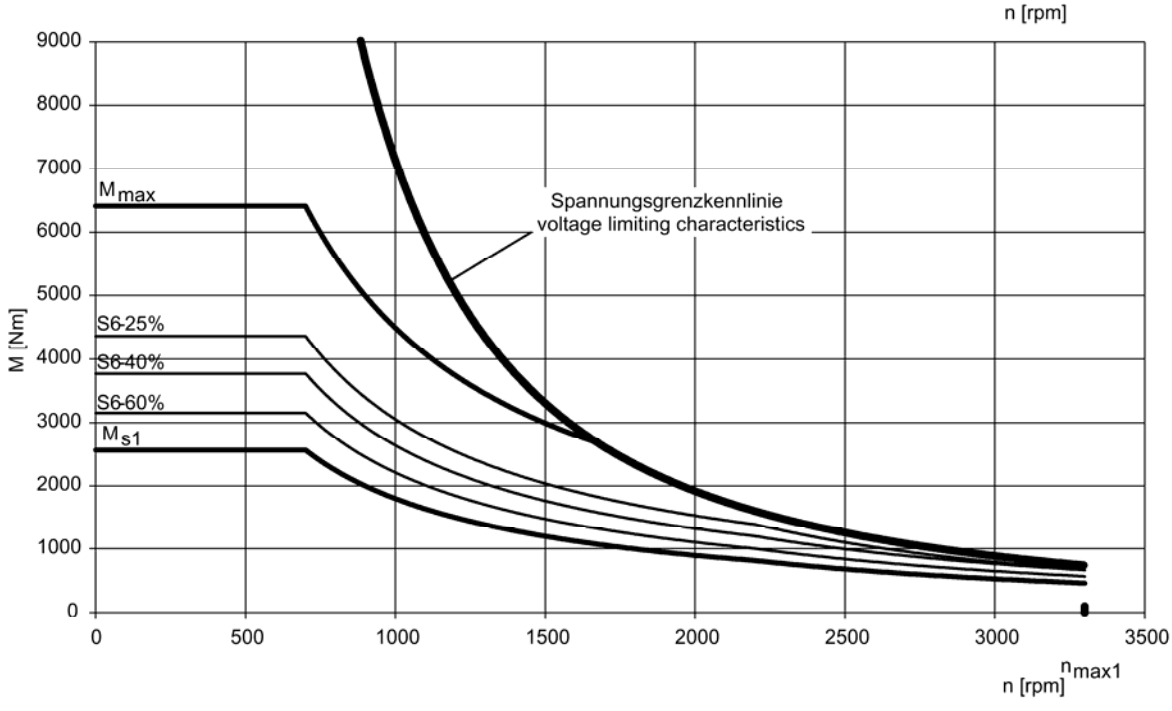
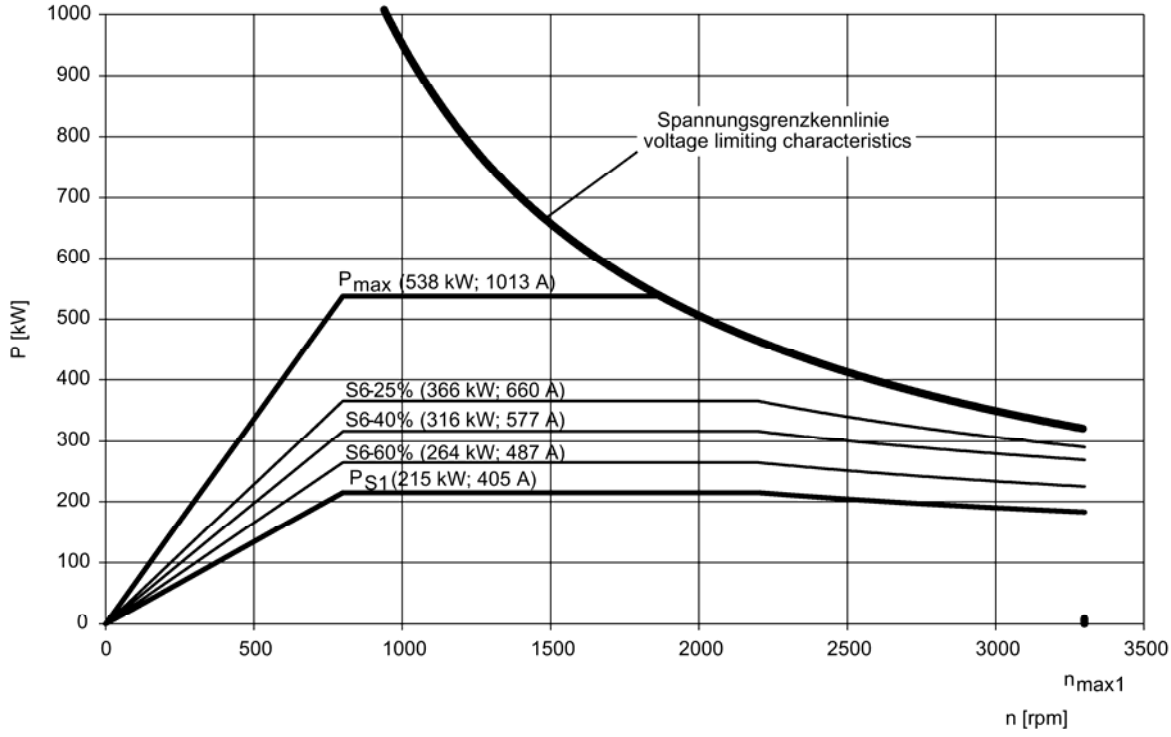


Table 6- 843 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□C2□

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	2,567	405	3,300	-	-	-	2,200	6,416	1,013	2,567	405
700	188	2,567	405					3,100				



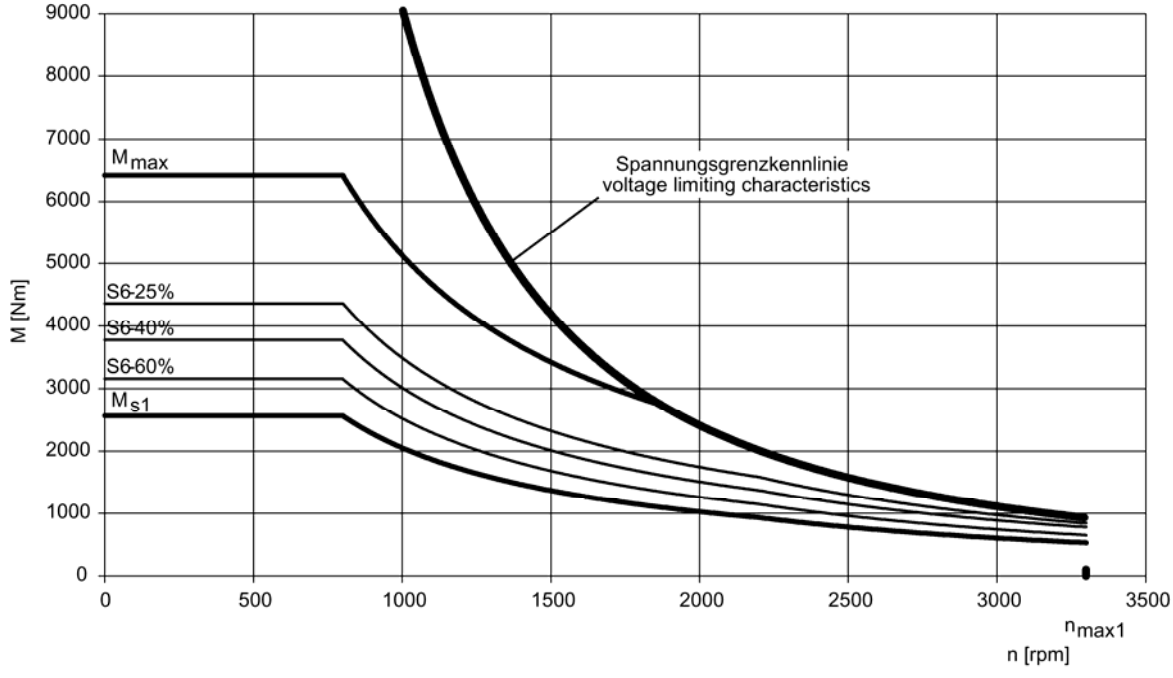
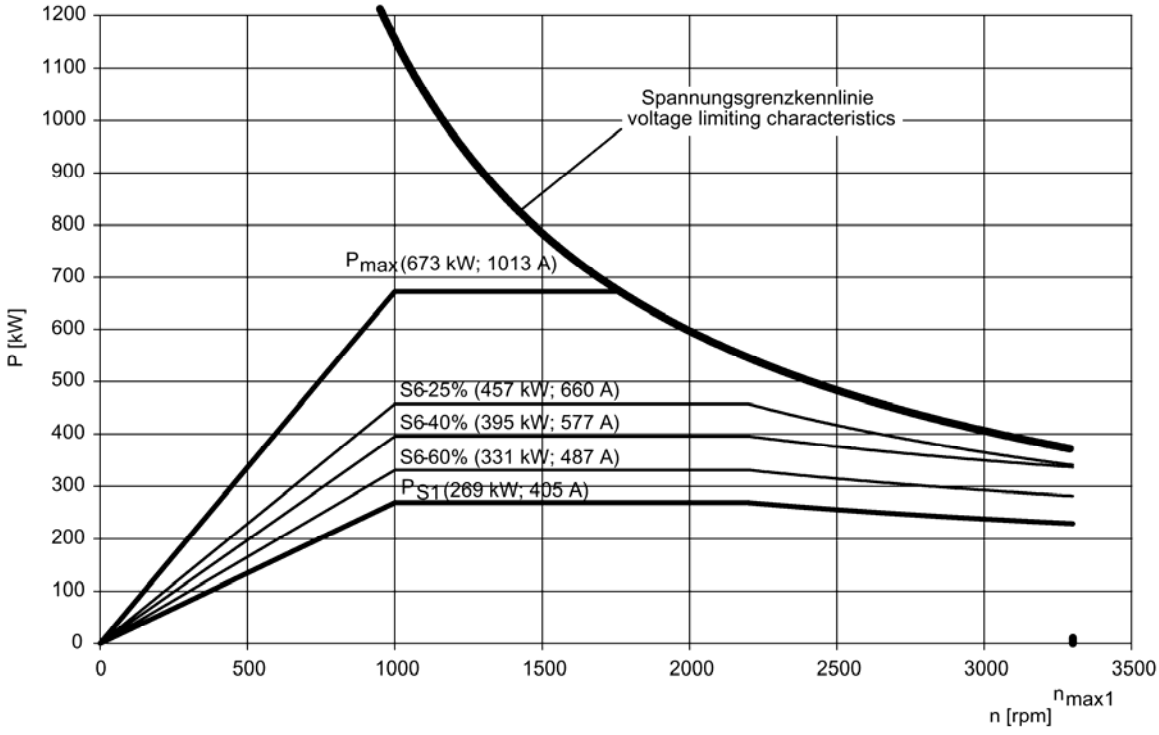


Table 6- 844 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□C2□

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]
1,000	269	2,569	405	3,300	-	-	-	2,200	6,422	1,013	2,569	405



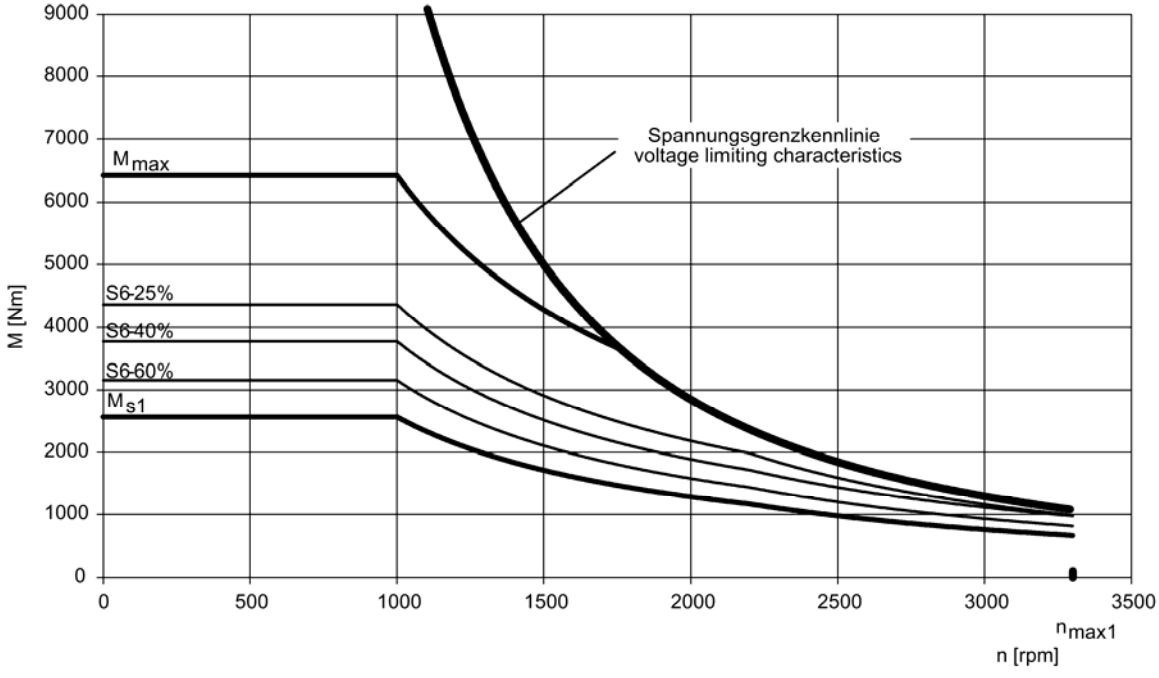
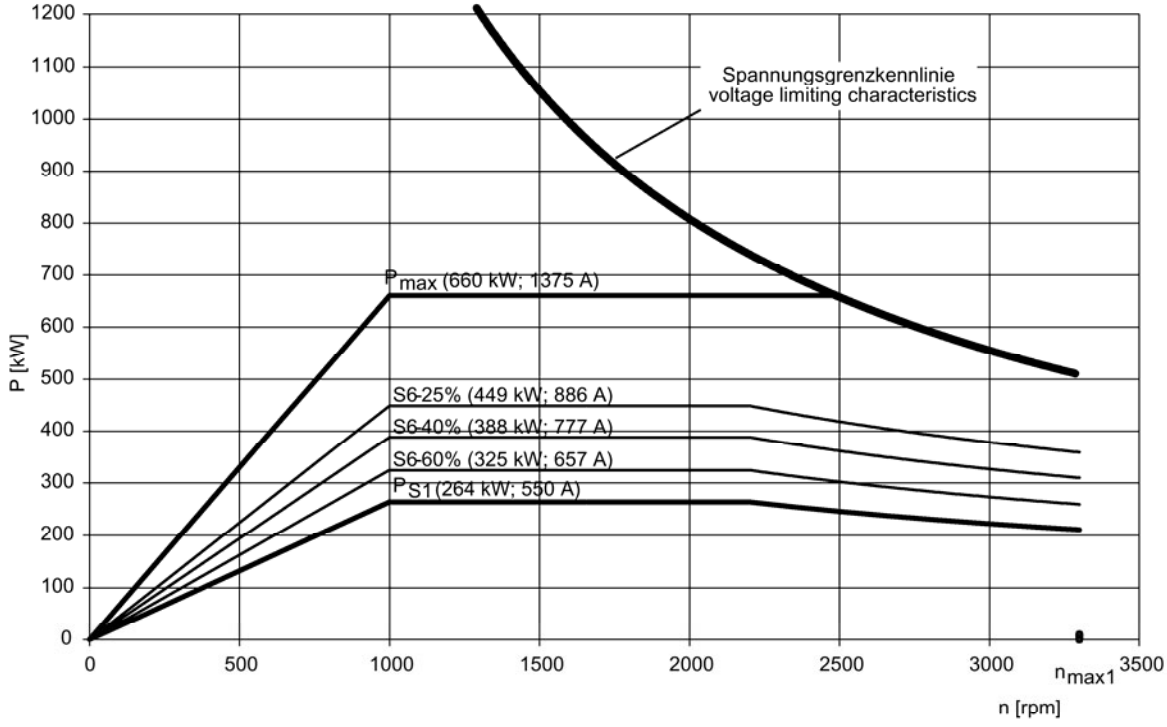


Table 6- 845 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□D2□

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]
1,000	264	2,521	550	3,300	-	-	-	2,200	6,303	1,375	2,521	550



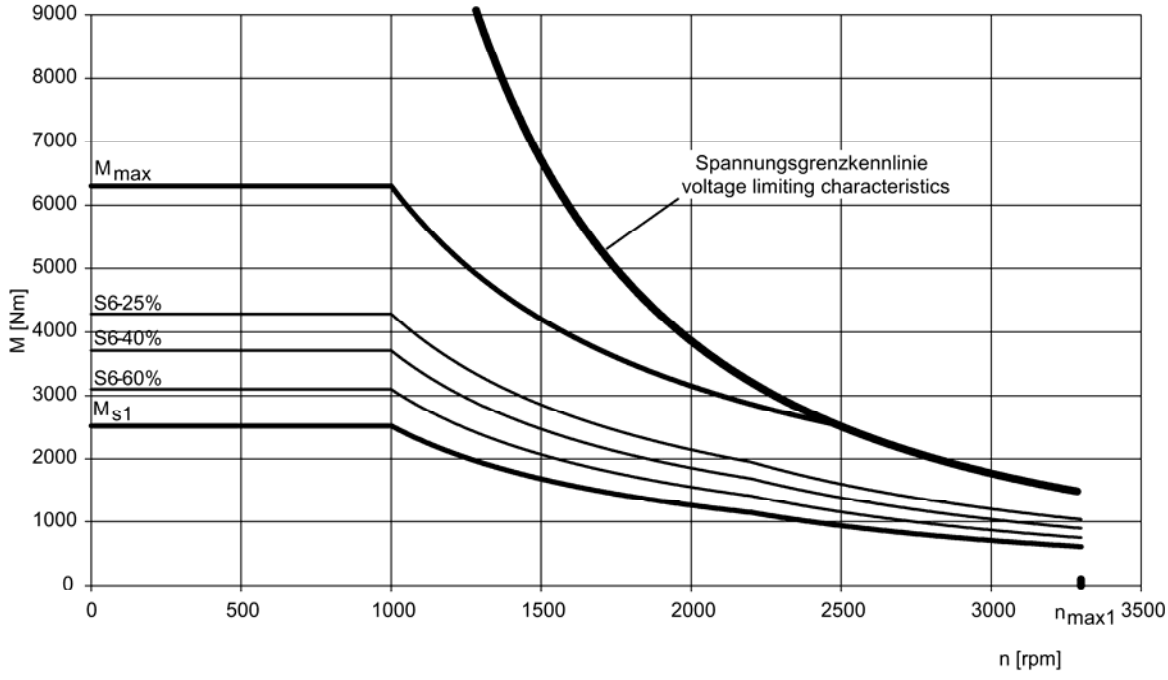
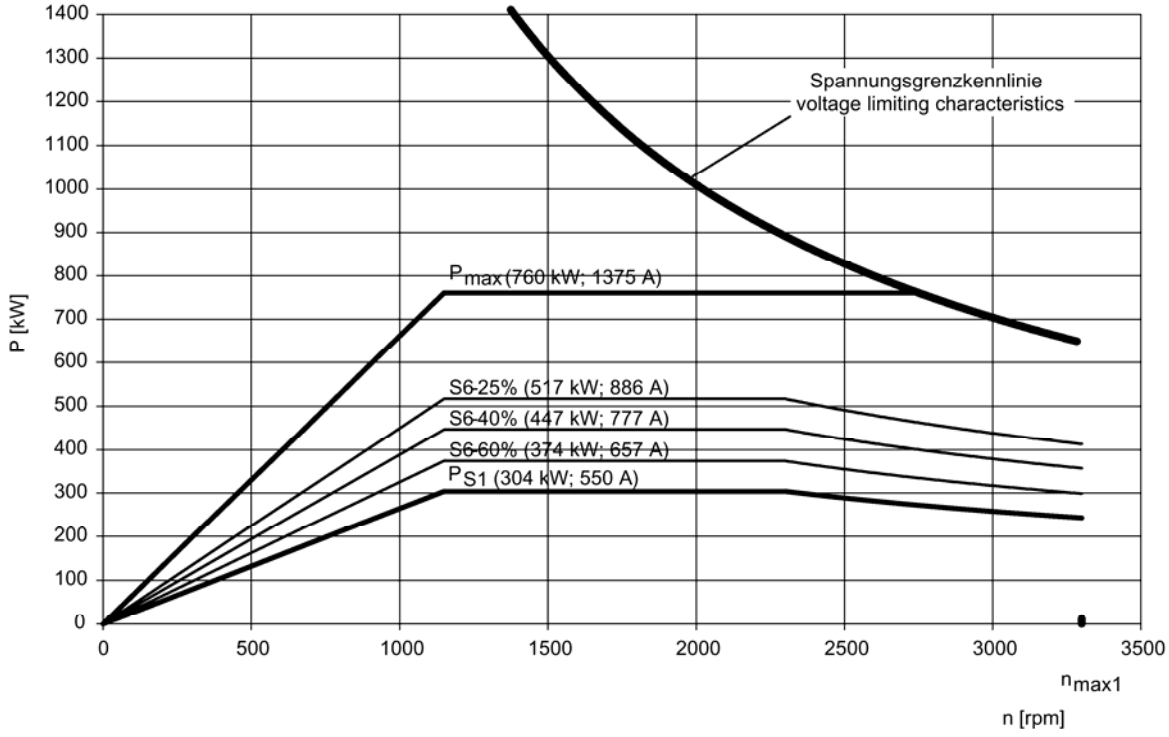


Table 6- 846 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□D2□

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]
1,150	304	2,525	550	3,300	-	-	-	2,300	6,311	1,375	2,525	550
1,000	264	2,525	550					2,900				



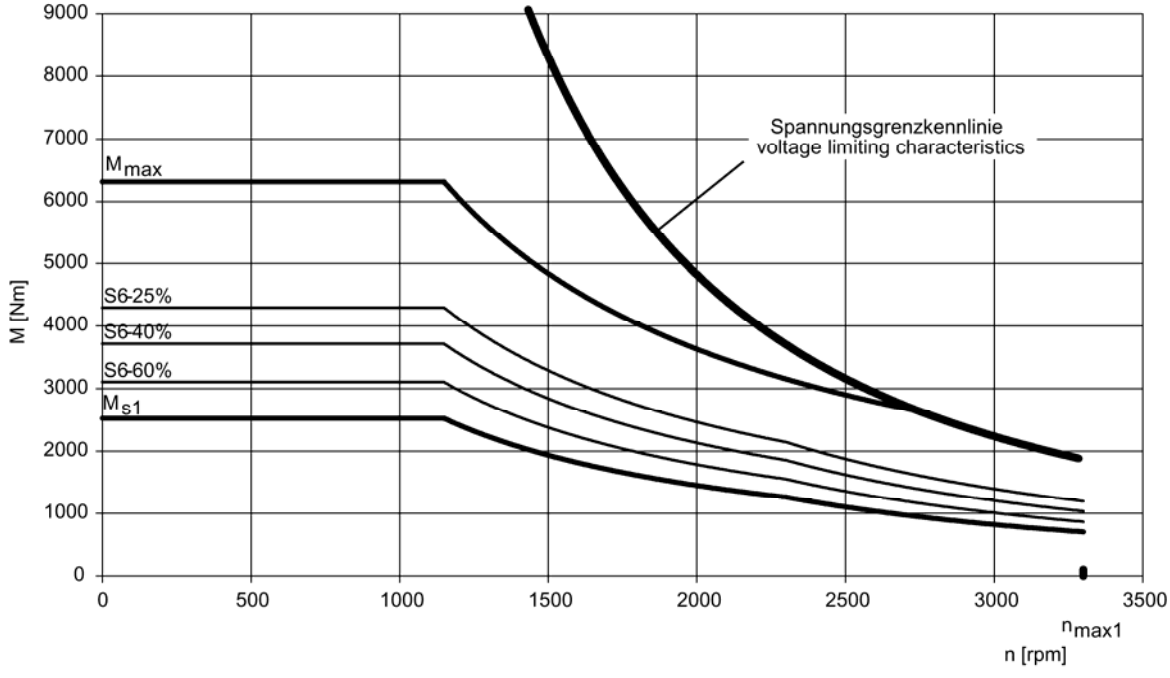
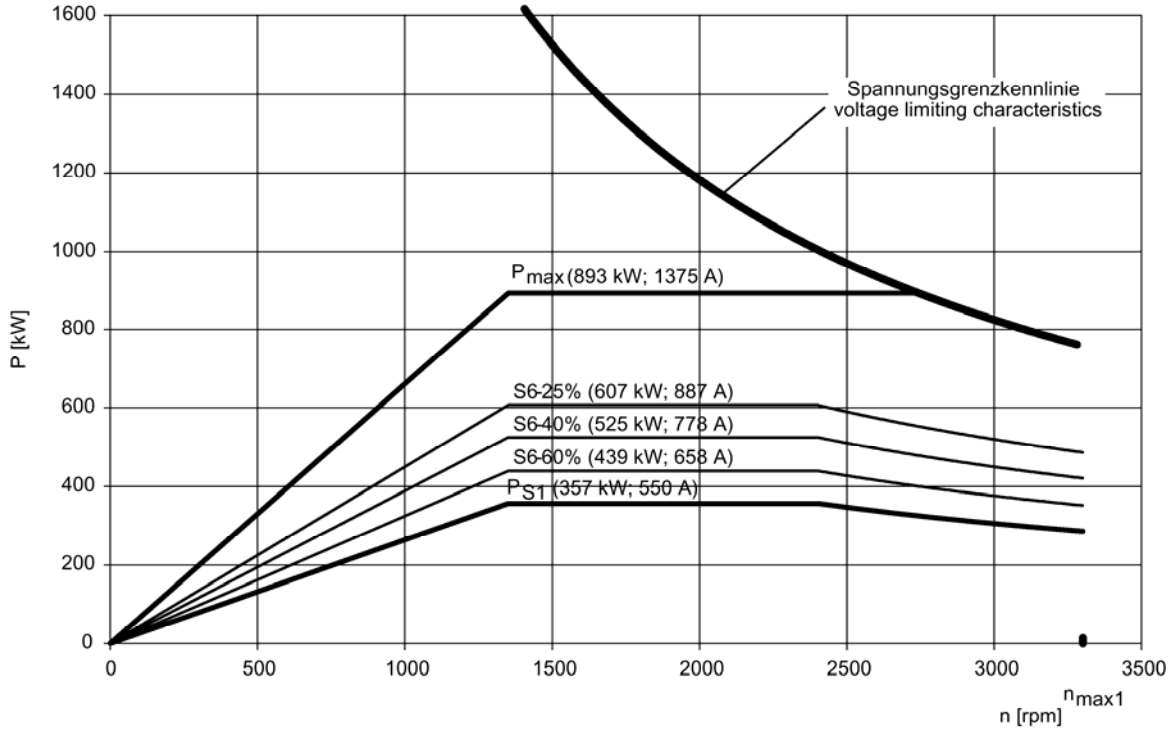


Table 6- 847 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□D2□

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]
1,350	357	2,525	550	3,300	-	-	-	2,400	6,314	1,375	2,525	550



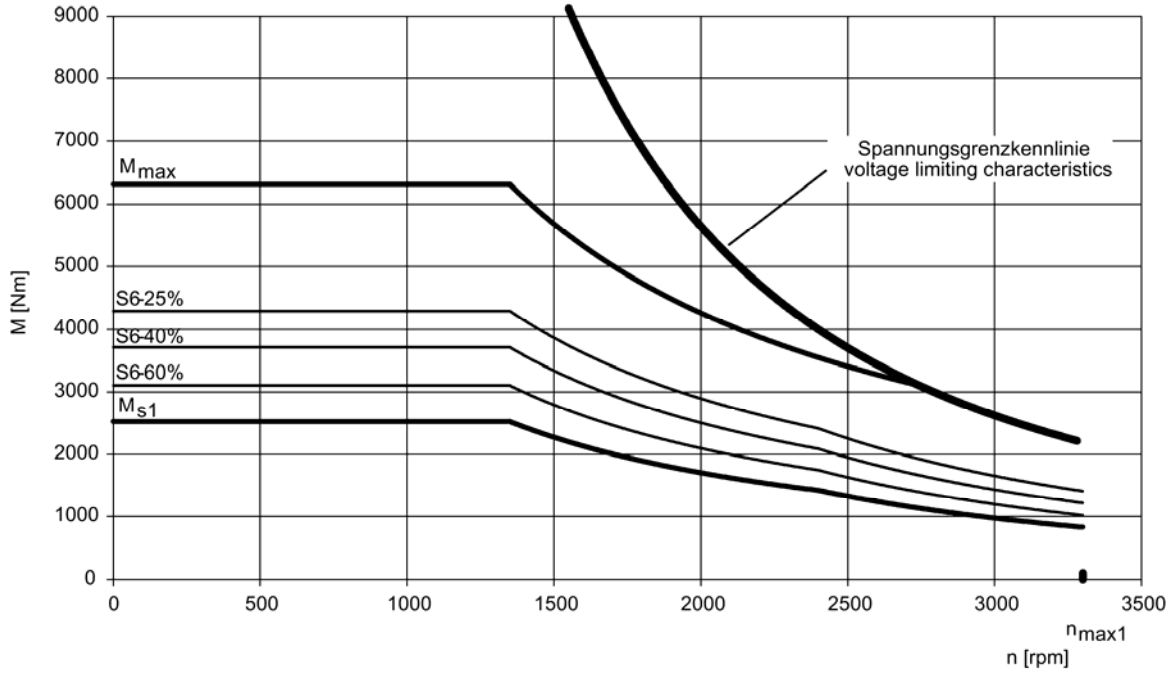
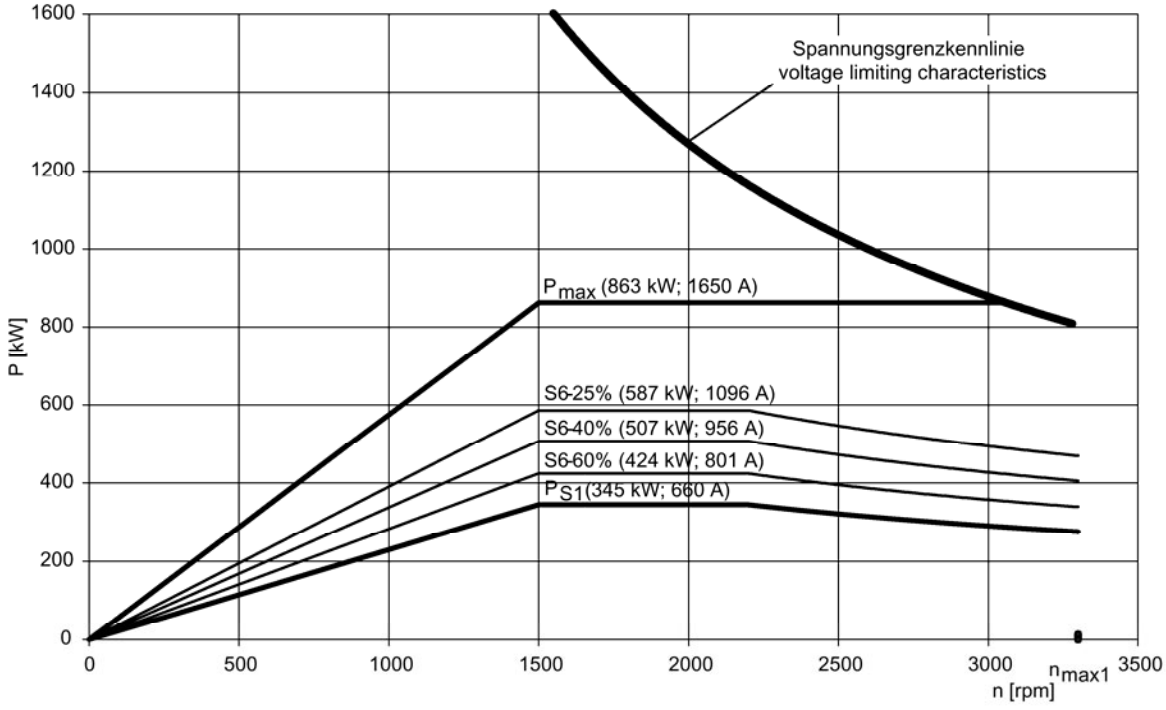


Table 6- 848 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8288-□□F2□

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]
1,500	345	2,197	660	3,300	-	-	-	2,200	5,491	1,650	2,197	660



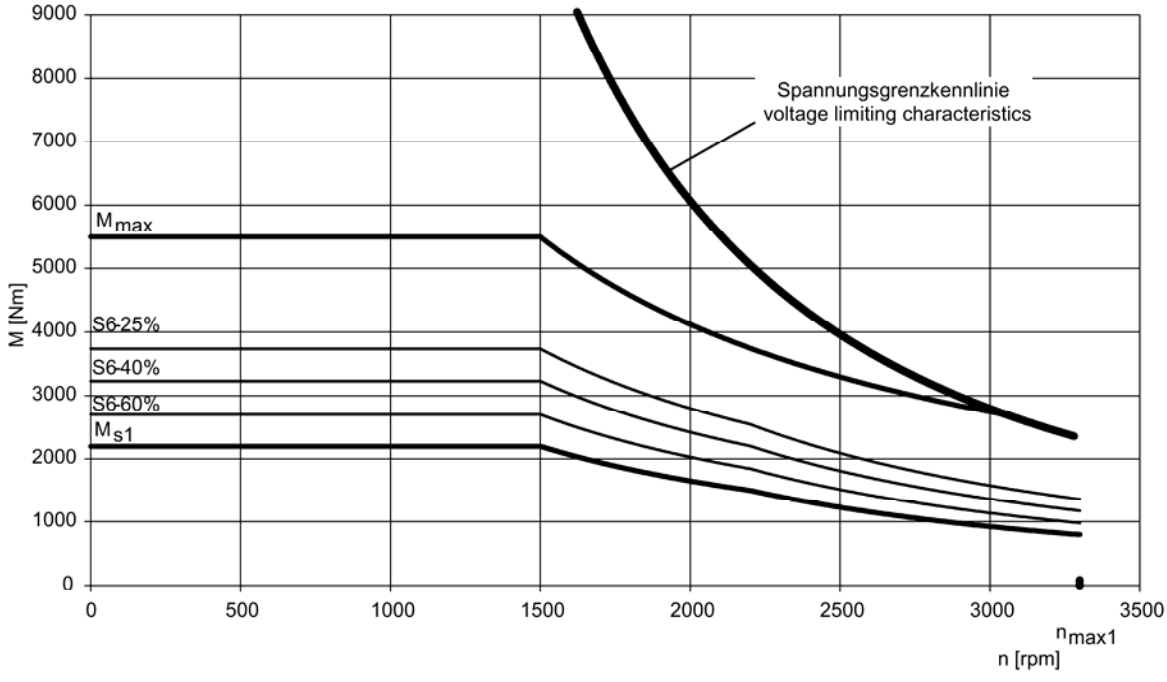
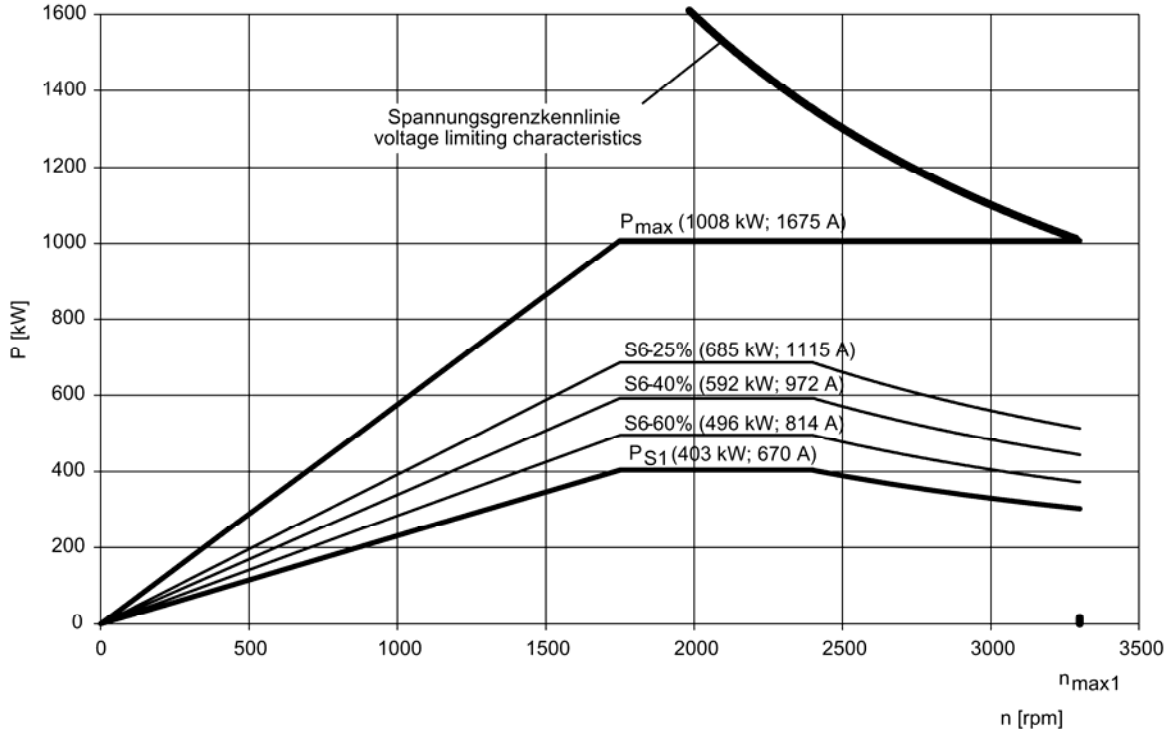


Table 6- 849 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8288-□□F2□

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]
1,750	403	2,199	670	3,300	-	-	-	2,400	5,498	1,675	2,199	670
1,500	345	2,199	670					2,800				



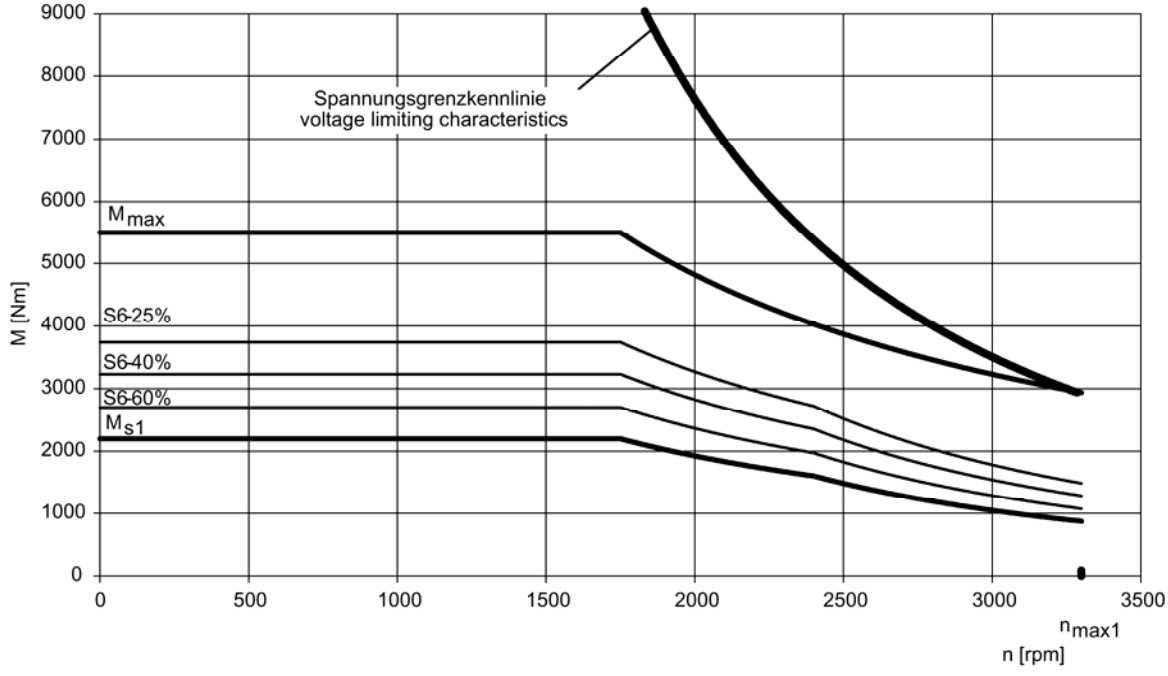
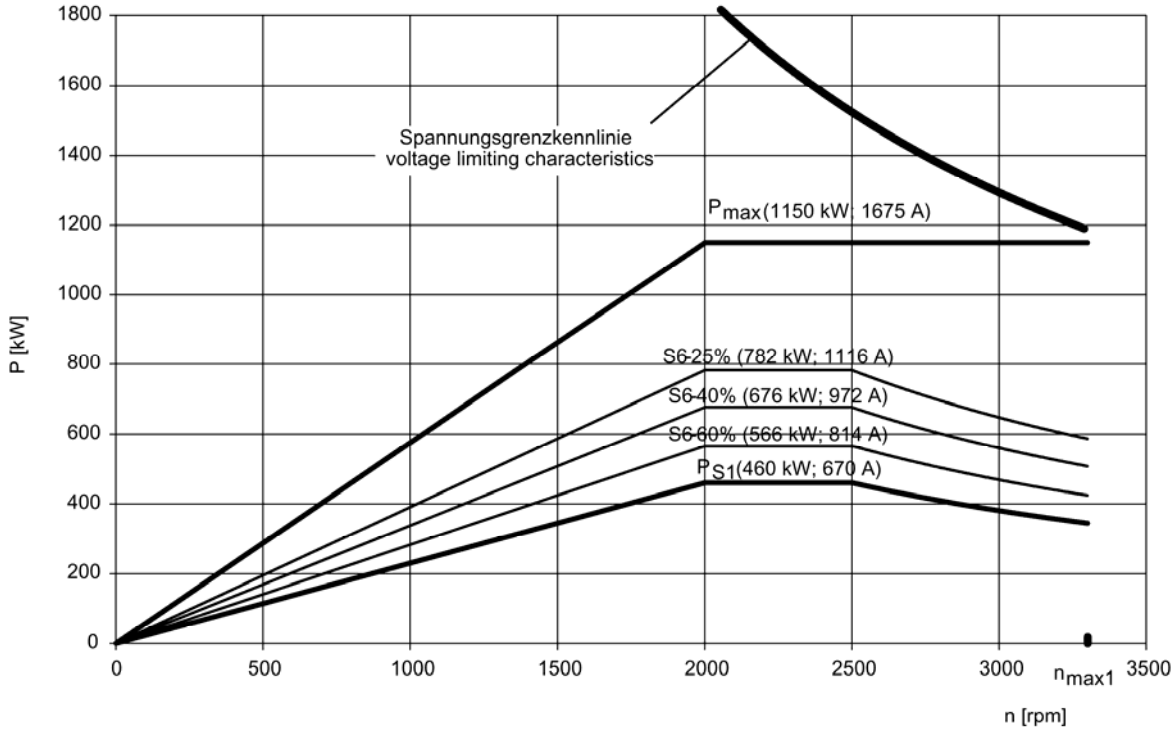


Table 6- 850 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8288-□□F2□

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]
2,000	460	2,197	670	3,300	-	-	-	2,500	5,491	1,675	2,197	670



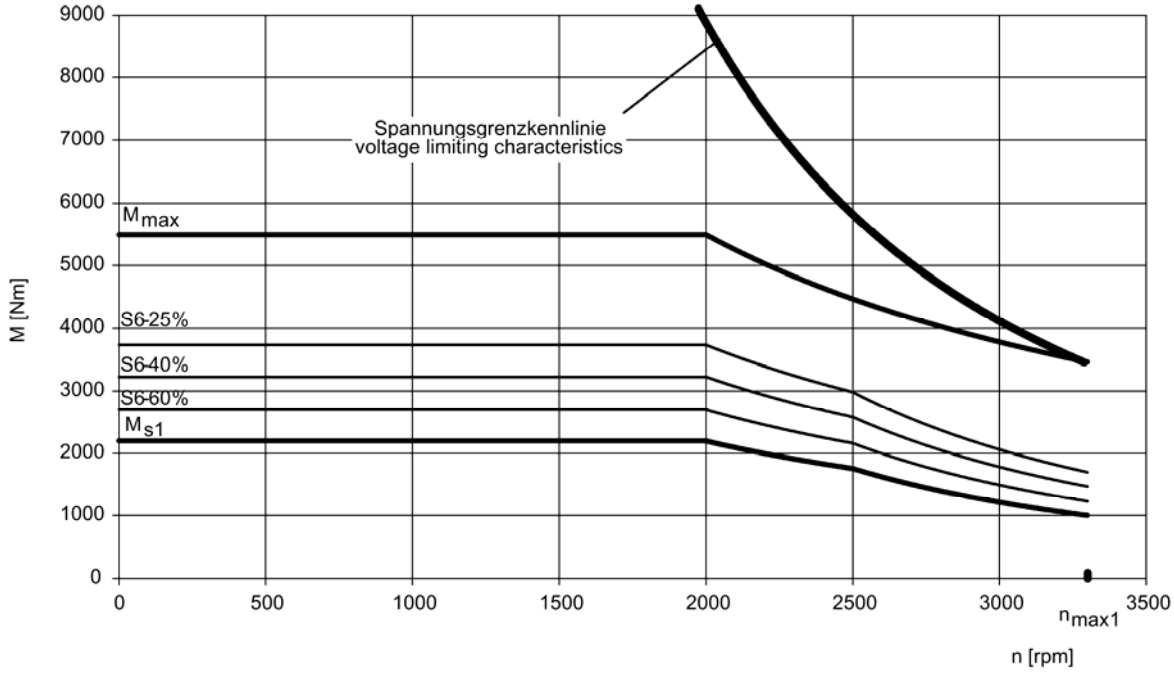
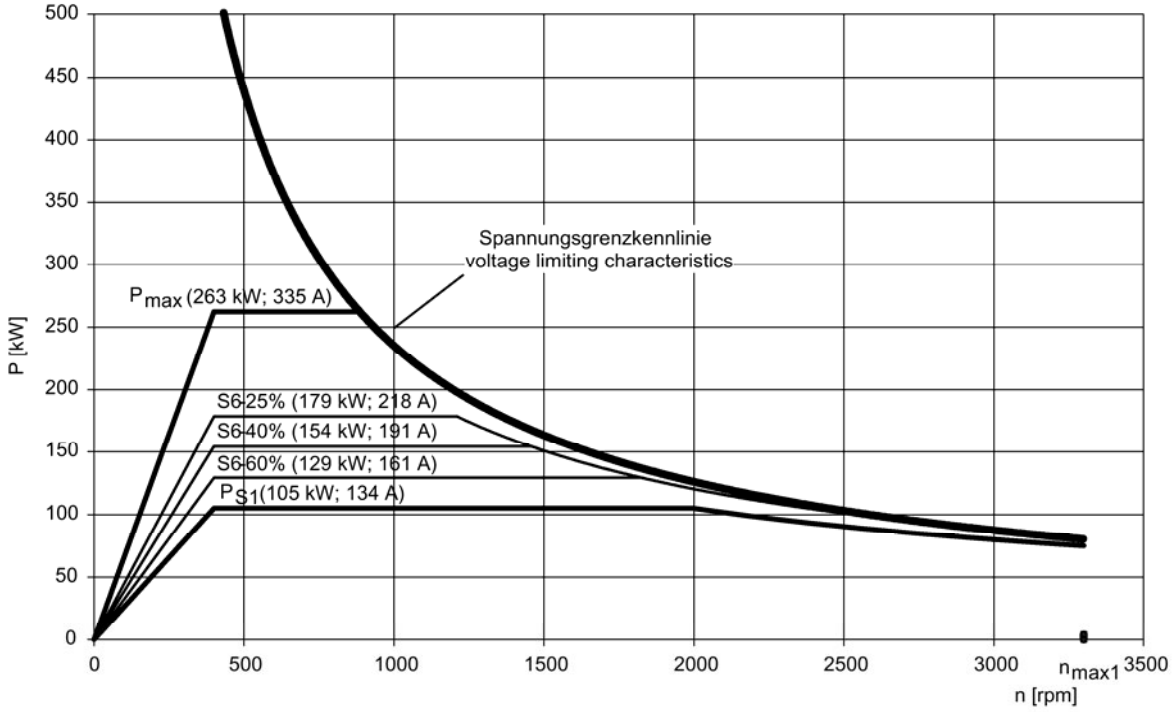


Table 6- 851 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□H2□

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	2,507	134	3,300	-	-	-	2,000	6,267	335	2,507	134



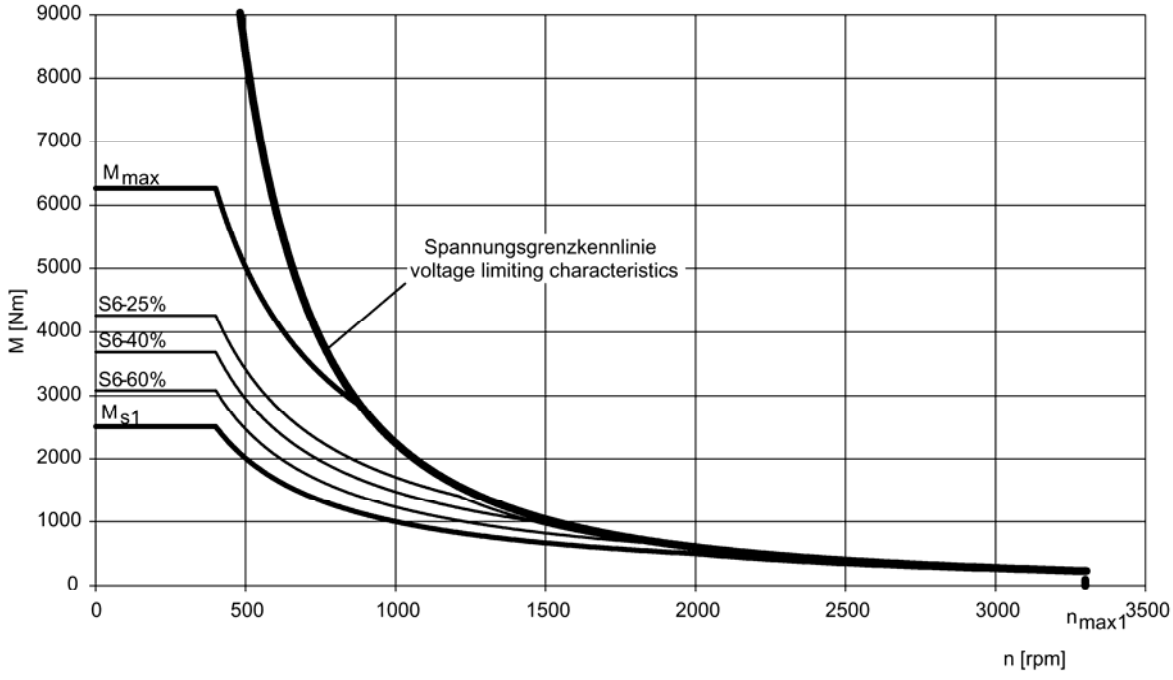
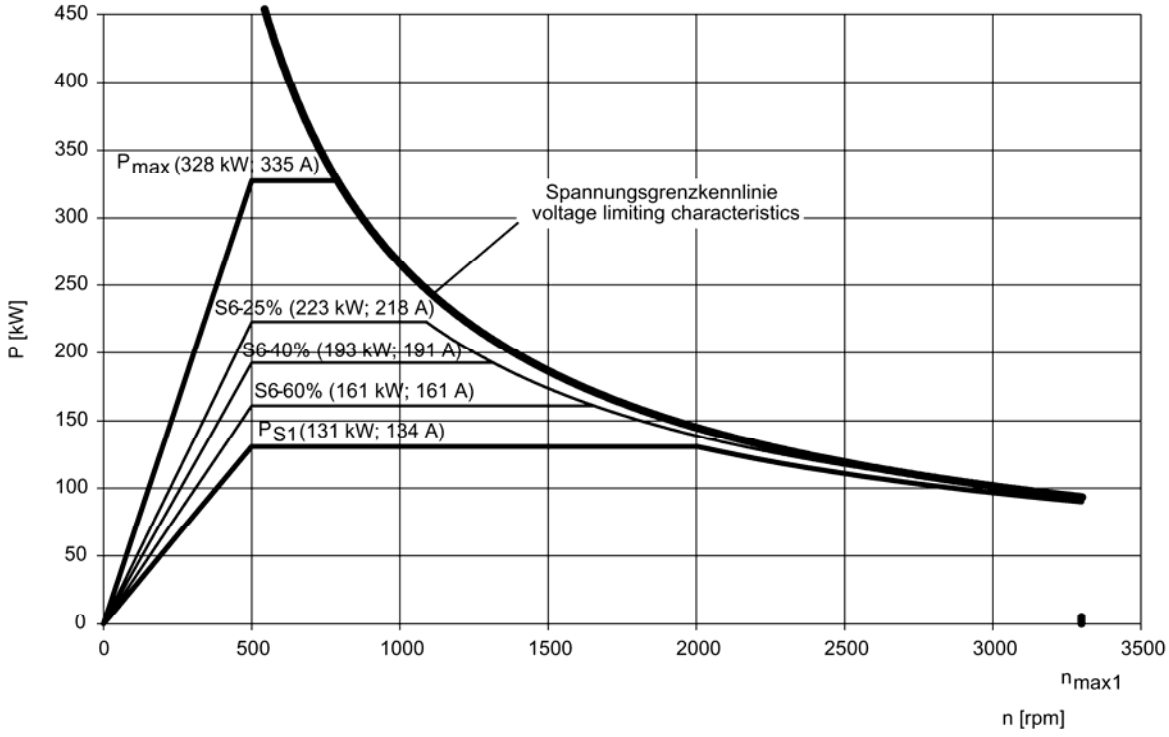


Table 6- 852 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□H2□

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	2,502	134	3,300	-	-	-	2,000	6,255	335	2,502	134
400	105	2,502	134					2,700				



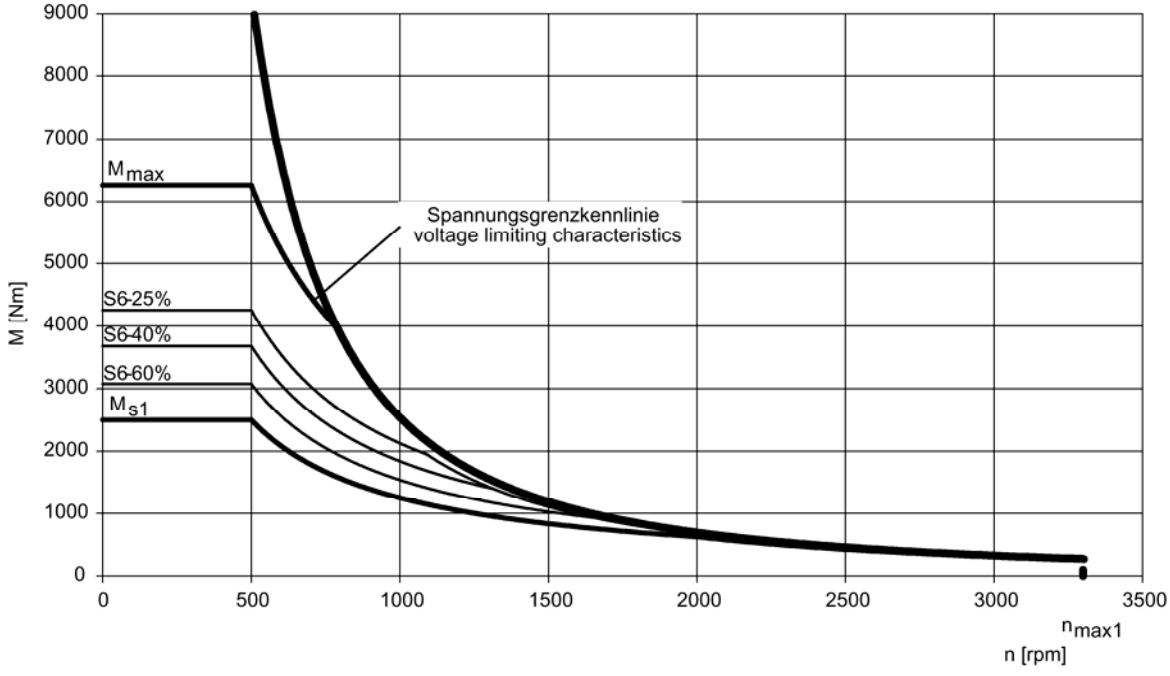
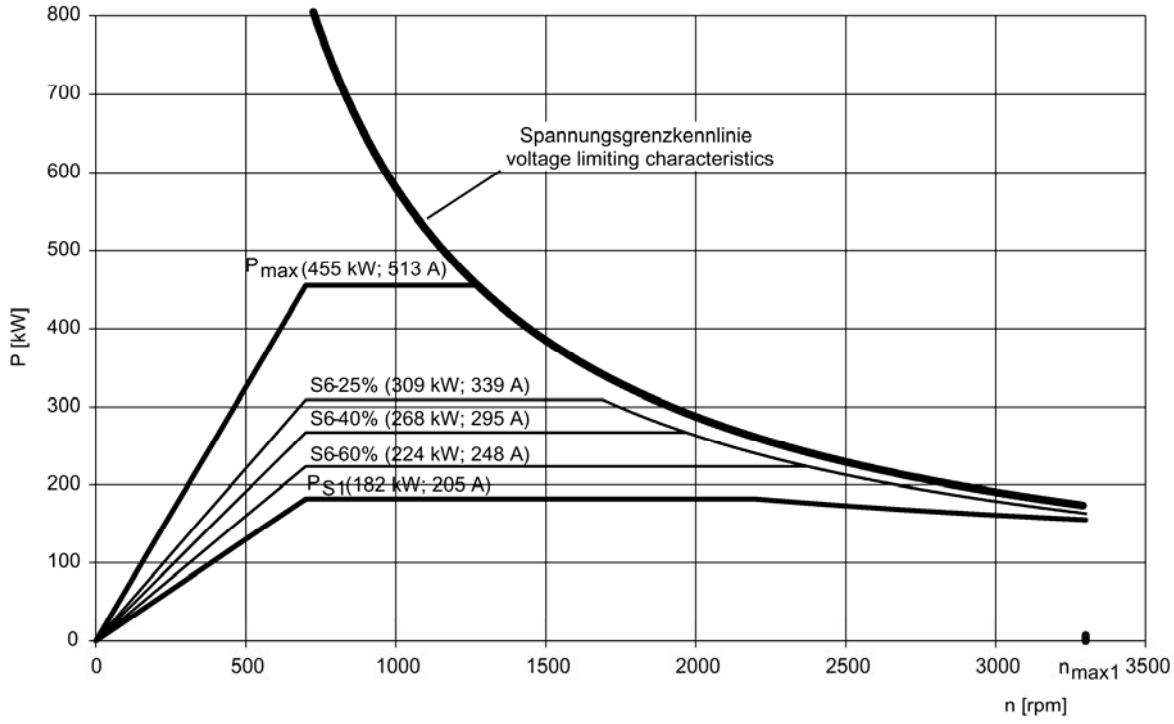


Table 6- 853 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□K2□

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	2,483	205	3,300	-	-	-	2,200	6,208	513	2,483	205



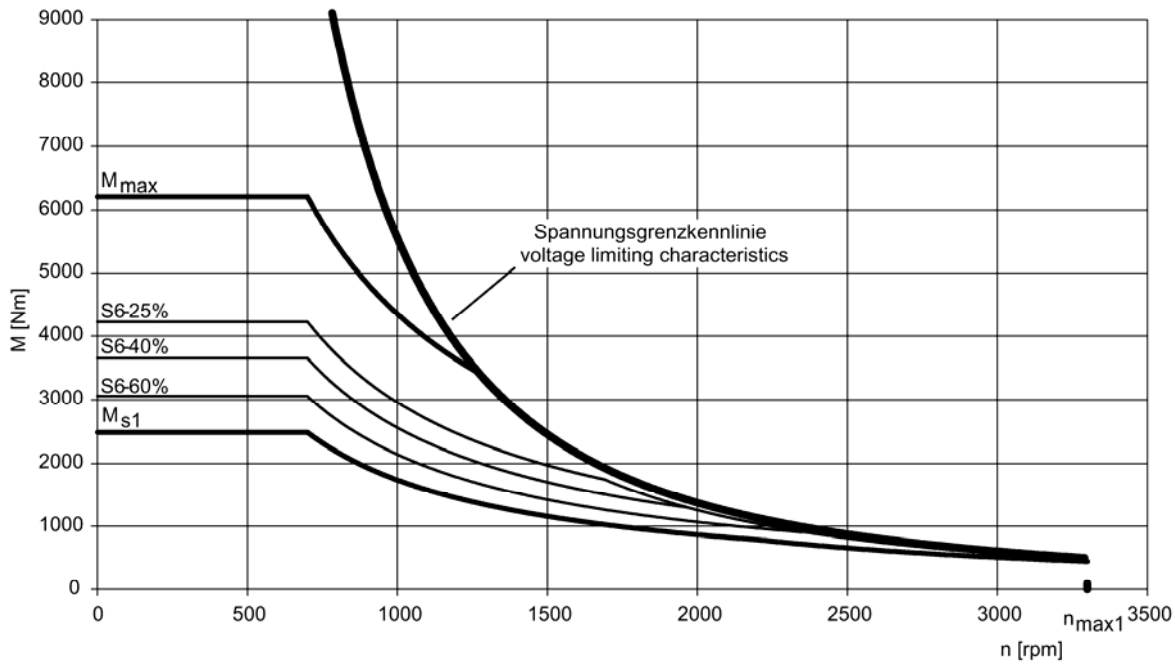
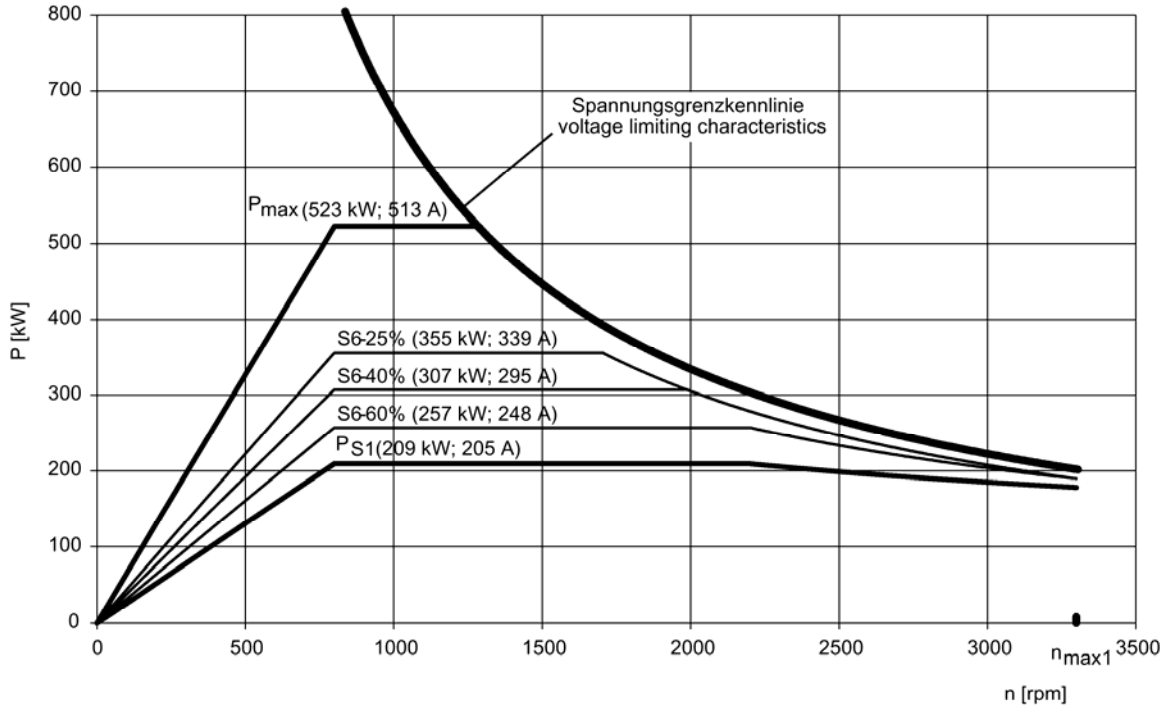


Table 6- 854 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□K2□

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	2,495	205	3,300	-	-	-	2,200	6,237	513	2,495	205
700	183	2,495	205					3,100				



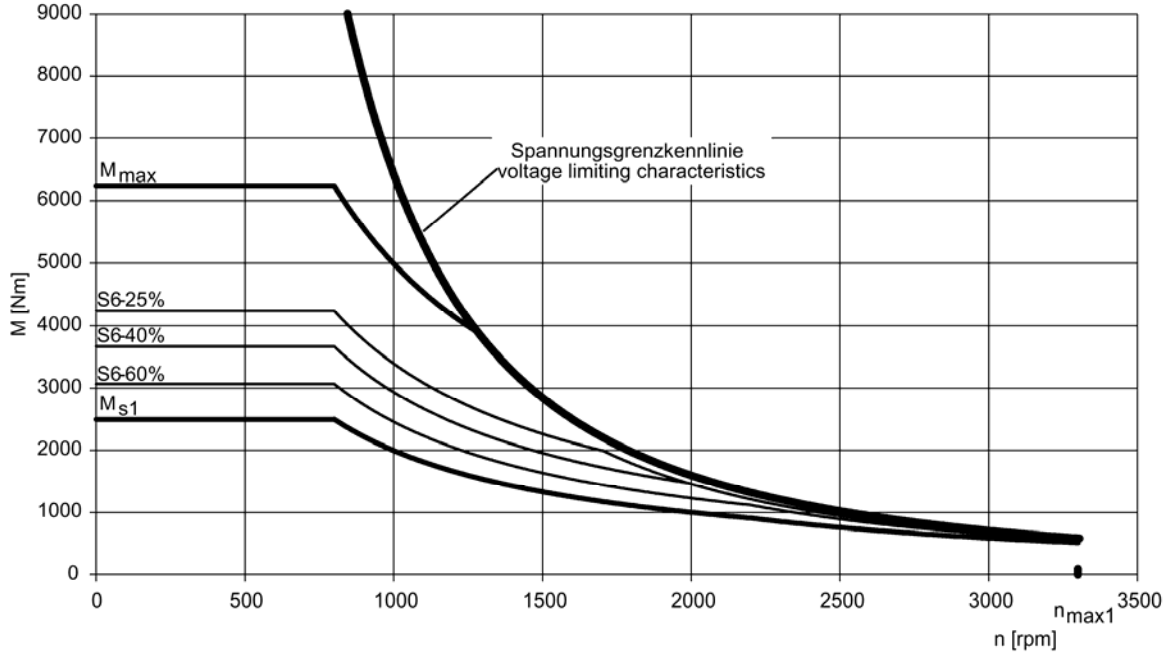
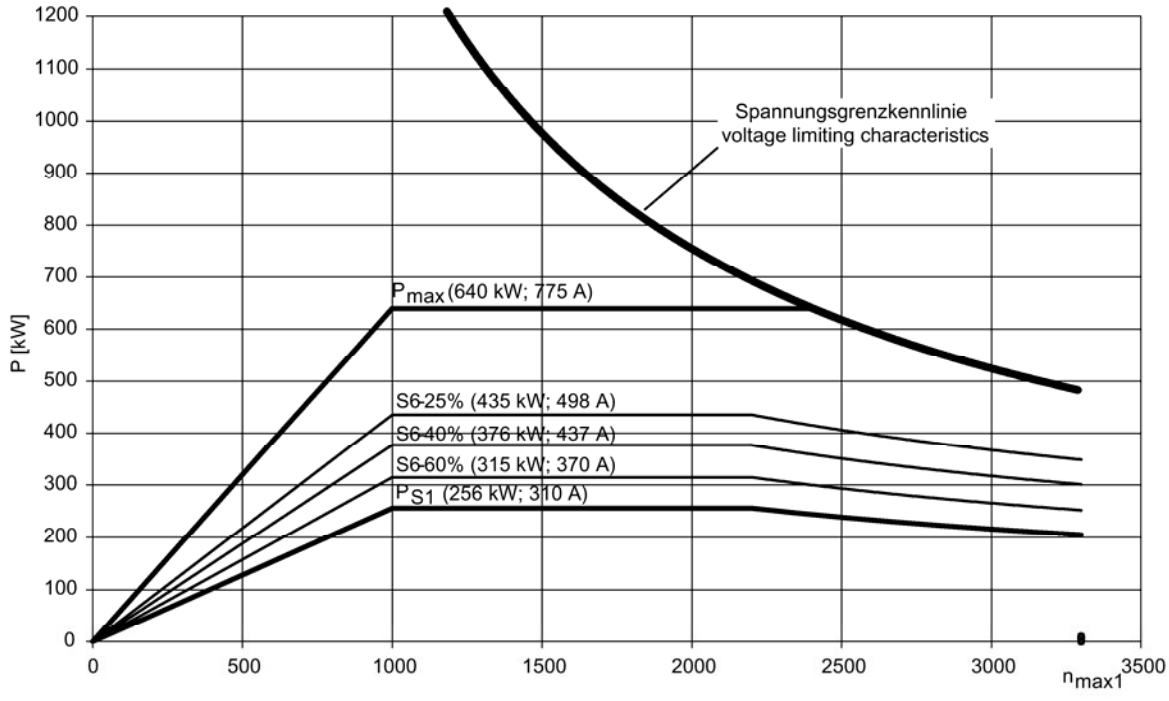


Table 6- 855 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□U2□

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]
1,000	256	2,445	310	3,300	-	-	-	2,200	6,112	775	2,445	310



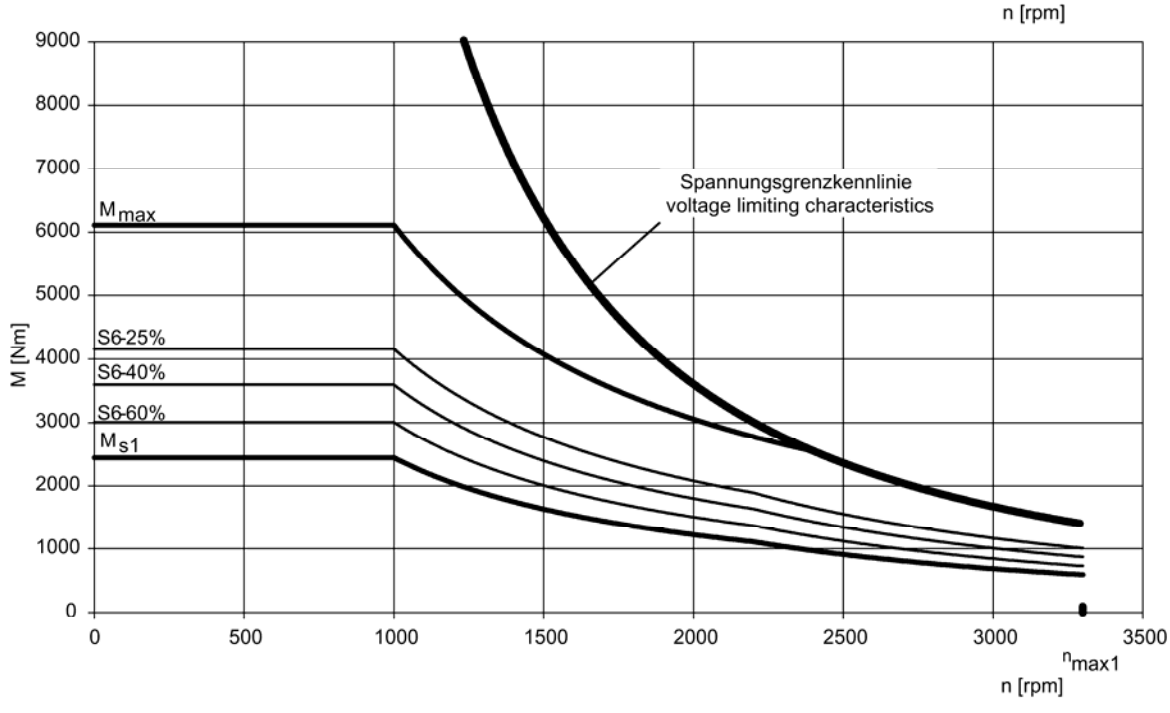
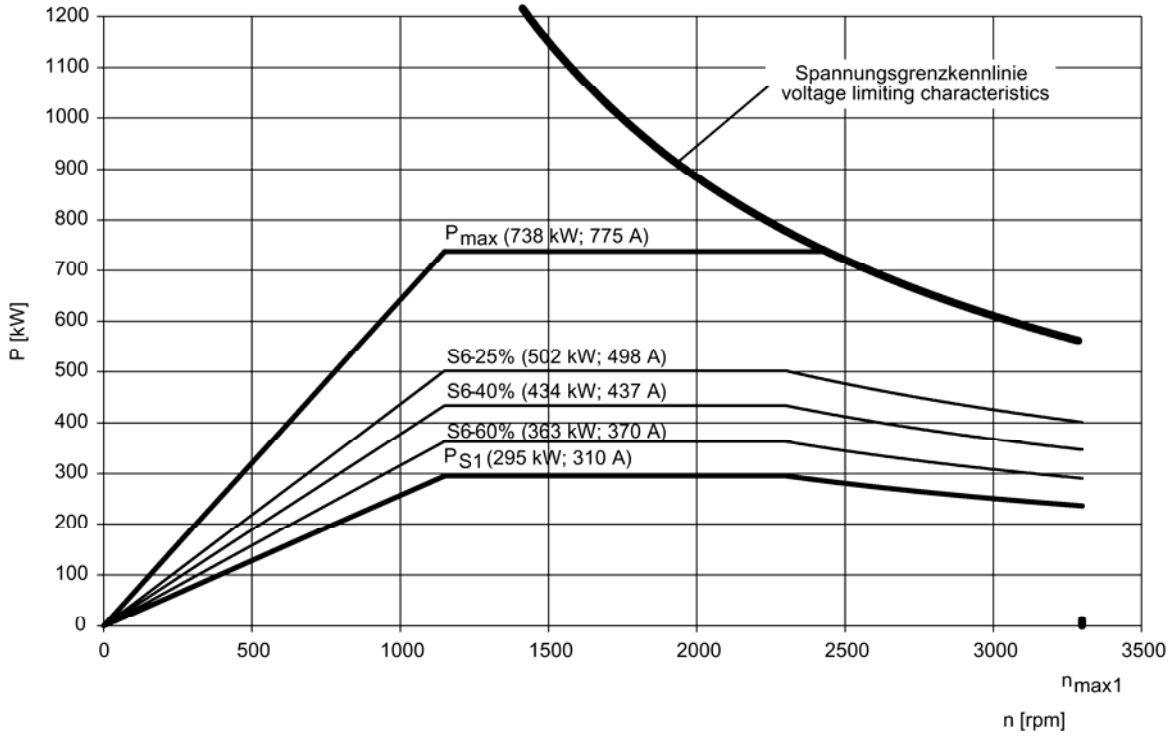


Table 6- 856 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□U2□

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]
1,150	295	2,450	310	3,300	-	-	-	2,300	6,124	775	2,450	310
1,000	257	2,450	310					2,900				



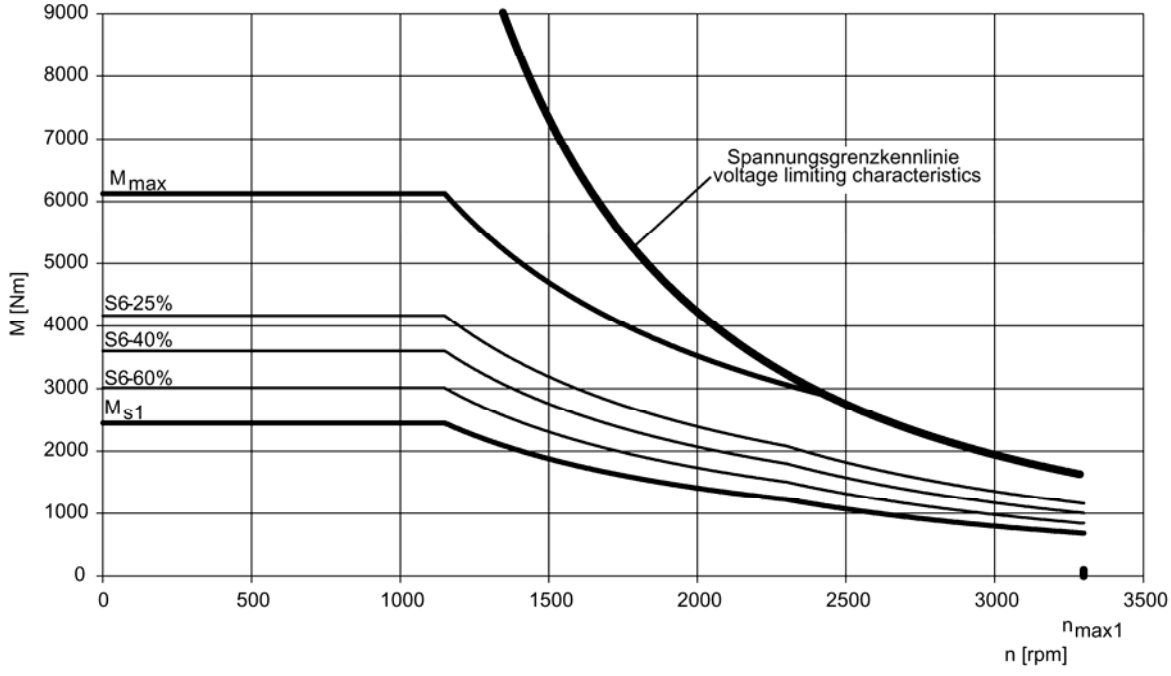
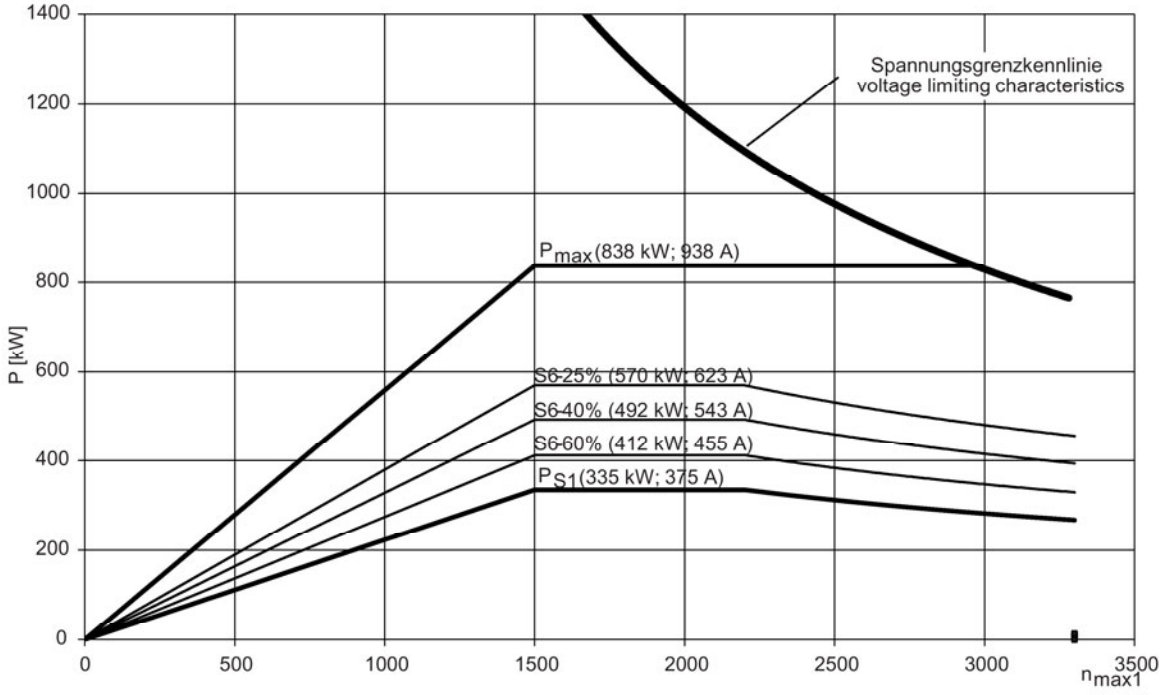


Table 6- 857 SINAMICS, 3-ph. 690 V AC, Basic Line Module, (BLM), 1PH8288-□□W2□

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]
1,500	335	2,133	375	3,300	-	-	-	2,200	5,332	938	2,133	375



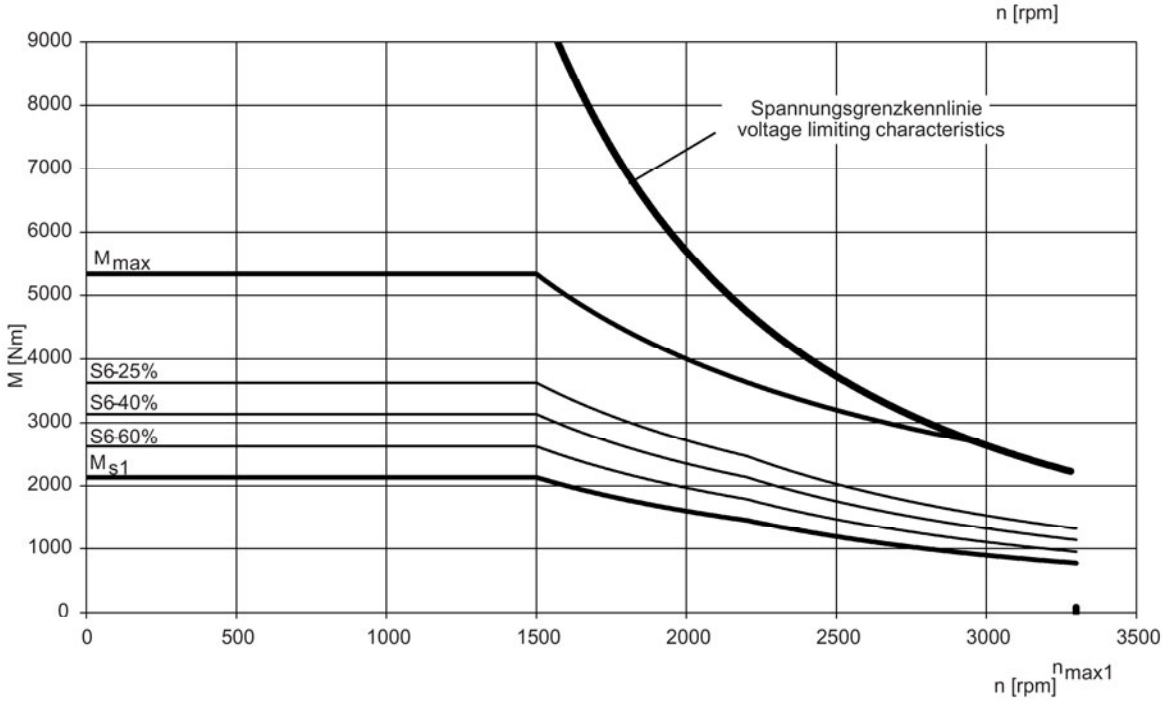
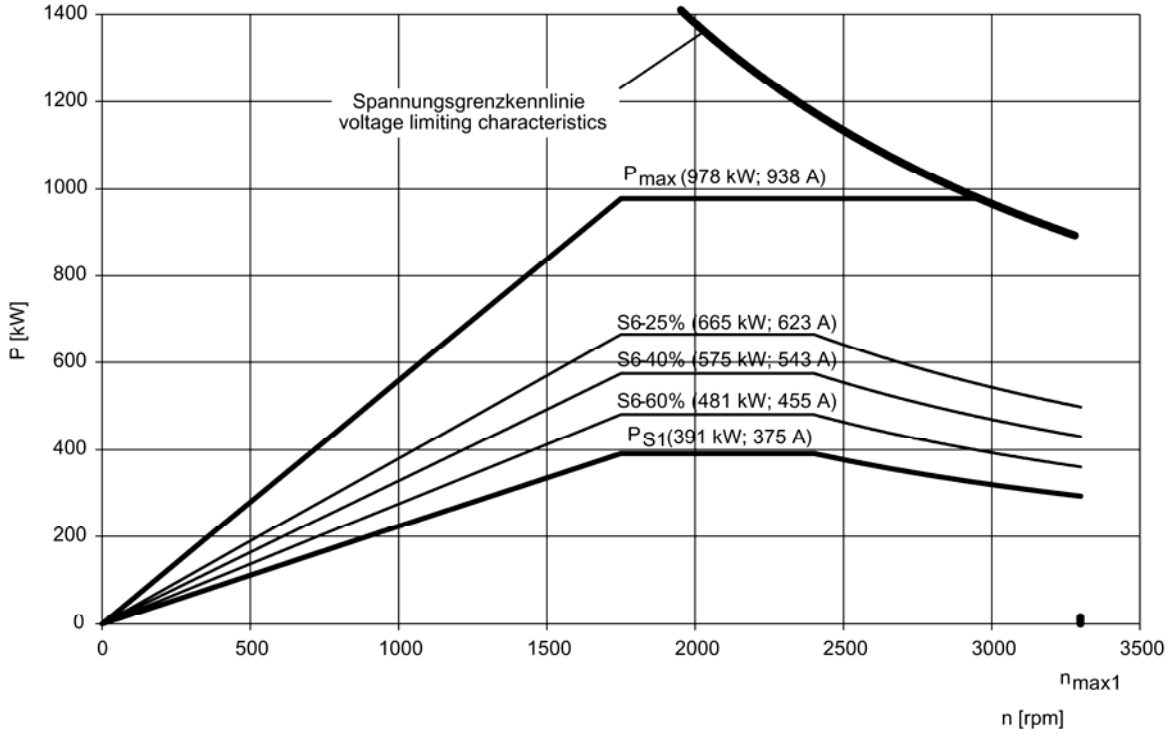
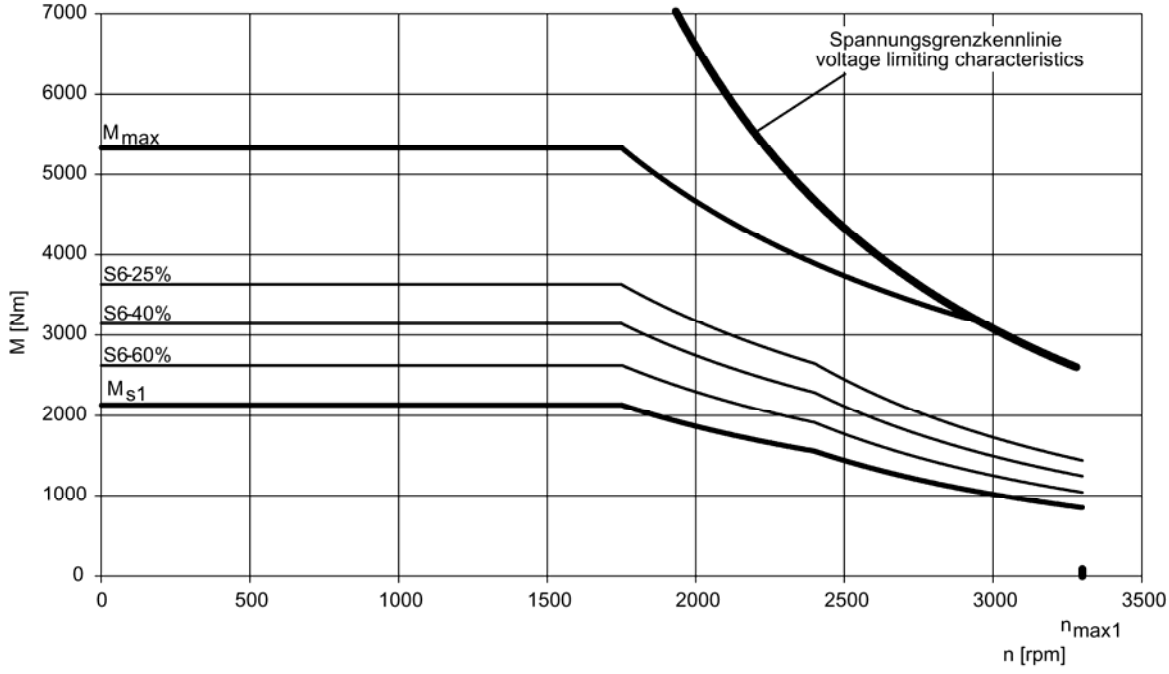


Table 6- 858 SINAMICS, 3-ph. 690 V AC, Active Line Module, (ALM), 1PH8288-□□W2□

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]
1,750	391	2,134	375	3,300	-	-	-	2,400	5,334	938	2,134	375
1,500	335	2,134	375					2,800				





6.2 Synchronous motors

6.2.1 Technical data

The technical data of the relevant motor version are defined by four rated operating points in the tables.

These four rated 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 NC 62 and D21.4.

Table 6- 859 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}

6.2.1.1 Shaft height 132 – forced ventilation

Table 6- 860 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		

6.2.1.2 Shaft height 160 - forced ventilation

Table 6- 861 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		

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]
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		

6.2.1.3 Shaft height 180 - forced ventilation

Table 6- 862 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		

6.2.1.4 Shaft height 225 - forced ventilation

Table 6- 863 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		

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]
	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		

6.2.1.5 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 6- 864 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

6.2.1.6 Shaft height 132 - water-cooled

Table 6- 865 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	1,500	115	41	0.946	0.0446	5	1.6	102
	ALM 400 V	20.4	112	40	377	58.3	1,750	115	41	0.947			1.8	
	SLM/BLM/ALM 480 V	23.2	111	39	427	66.7	2,000	115	41	0.948			1.9	
1PH8131-2□L2□ Y connection	SLM/BLM 400 V	28.5	109	57	359	83.3	2,500	115	60	0.948			2.3	
	ALM 400 V	31.7	108	56	400	93.3	2,800	115	60	0.949			2.5	
	SLM/BLM/ALM 480 V	33.6	107	56	427	100	3,000	115	60	0.950			2.7	
1PH8133-2□F2□ Y connection	SLM/BLM 400 V	23.1	147	42	371	50.0	1,500	155	43	0.947	0.0600		2.1	120
	ALM 400 V	26.4	144	42	415	58.3	1,750	155	43	0.948			2.4	
	SLM/BLM/ALM 480 V	29.0	139	41	449	66.7	2,000	155	43	0.949			2.5	
1PH8133-2□G2□ Y connection	SLM/BLM 400 V	30.6	146	57	383	66.7	2,000	155	61	0.950			2.5	
	ALM 400 V	34.9	145	57	415	76.7	2,300	155	61	0.951			2.8	
	SLM/BLM/ALM 480 V	39.1	141	57	449	88.3	2,650	155	61	0.952			3.1	
1PH8135-2□F2□ Y connection	SLM/BLM 400 V	29.7	189	57	384	50.0	1,500	196	59	0.950			2.7	138
	ALM 400 V	34.1	186	56	395	58.3	1,750	196	59	0.951			3.1	
	SLM/BLM/ALM 480 V	37.9	181	56	449	66.7	2,000	196	59	0.952			3.2	
1PH8135-2□G2□ Y connection	SLM/BLM 400 V	39.0	186	81	346	66.7	2,000	196	85	0.952	0.0750		3.1	
	ALM 400 V	44.3	184	80	395	76.7	2,300	196	85	0.953			3.5	
	SLM/BLM/ALM 480 V	50.5	182	79	452	88.3	2,650	196	85	0.954			4.0	
1PH8137-2□F2□ Y connection	SLM/BLM 400 V	32.7	208	58	371	50.0	1,500	226	60	0.951	0.0885		2.9	153
	ALM 400 V	37.0	202	57	415	58.3	1,750	226	60	0.952			3.3	
	SLM/BLM/ALM 480 V	40.6	194	57	449	66.7	2,000	226	60	0.953			3.4	
1PH8137-2□G2□ Y connection	SLM/BLM 400 V	44.4	212	85	371	66.7	2,000	226	90	0.954			3.6	
	ALM 400 V	50.8	210	84	424	76.7	2,300	226	90	0.956			4.1	
	SLM/BLM/ALM 480 V	56.8	205	83	449	88.3	2,650	226	90	0.954			4.5	
1PH8138-2□F2□ Y connection	SLM/BLM 400 V	44.9	286	118	316	50.0	1,500	290	120	0.958			4.0	156
	ALM 400 V	52.4	286	118	366	58.3	1,750	290	120	0.959			4.7	
	SLM/BLM/ALM 480 V	59.7	285	118	416	66.7	2,000	290	120	0.960			4.8	
1PH8138-2□G2□ Y connection	SLM/BLM 400 V	59.3	283	131	374	66.7	2,000	290	133	0.960			4.7	
	ALM 400 V	67.7	281	130	415	76.7	2,300	290	133	0.961			5.4	
	SLM/BLM/ALM 480 V	76.3	275	130	449	88.3	2,650	290	133	0.962			6.1	

6.2.1.7 Shaft height 160 - water cooling

Table 6- 866 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	

6.2.1.8 Shaft height 180 - water-cooled

Table 6- 867 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□	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	

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]
Y connection	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	

6.2.1.9 Shaft height 225 - water-cooled

Table 6- 868 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	1,007	183	0.947	1.28	16	6.7	580
	ALM 400 V	81	967	178	310	53	800	1,007	183	0.952			7.6	
	SLM/BLM/ALM 480 V	101	964	178	385	67	1,000	1,007	183	0.957			9.6	
1PH8224-2□D2□ Y connection	SLM/BLM 400 V	101	964	255	275	67	1,000	1,007	262	0.956			9.6	
	ALM 400 V	115	955	250	310	77	1,150	1,007	262	0.959			10.9	
	SLM/BLM/ALM 480 V	135	955	250	365	90	1,350	1,007	262	0.961			12.8	
1PH8224-2□F2□ Y connection	SLM/BLM 400 V	151	961	355	290	100	1,500	1,007	367	0.962			14.4	
	ALM 400 V	175	955	355	335	117	1,750	1,007	367	0.963			16.7	
	SLM/BLM/ALM 480 V	186	888	330	380	133	1,350	1,007	367	0.964			17.7	
1PH8224-2□L2□ Y connection	SLM/BLM 400 V	182	695	365	320	167	2,500	885	460	0.961			17.3	
	ALM 400 V	191	629	335	370	193	2,900	885	460	0.958			18.1	
	SLM/BLM/ALM 480 V	196	585	310	400	213	3,200	885	460	0.954			18.5	
1PH8226-2□C2□ Y connection	SLM/BLM 400 V	95	1296	255	255	47	700	1,330	260	0.952	1.66	18	8.9	700
	ALM 400 V	108	1289	255	287	53	800	1,330	260	0.956			10.2	
	SLM/BLM/ALM 480 V	134	1280	255	357	67	1,000	1,330	260	0.960			12.7	
1PH8226-2□D2□	SLM/BLM 400 V	135	1289	325	285	67	1,000	1,330	330	0.960			12.8	
	ALM 400 V	155	1287	325	325	77	1,150	1,330	330	0.962			14.8	

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]
Y connection	SLM/BLM/ALM 480 V	180	1273	320	380	90	1,350	1,330	330	0.964			17.2	
1PH8226-2□F2□ Y connection	SLM/BLM 400 V	201	1280	445	305	100	1,500	1,330	454	0.965			19.2	
	ALM 400 V	233	1271	440	355	117	1,750	1,330	454	0.965			22.3	
	SLM/BLM/ALM 480 V	248	1184	410	390	133	2,000	1,330	454	0.965			23.7	
1PH8226-2□L2□ Y connection	SLM/BLM 400 V	228	871	400	360	167	2,500	1,170	532	0.962			21.7	
	ALM 400 V	238	784	365	413	193	2,900	1,170	532	0.958			22.6	
	SLM/BLM/ALM 480 V	245	731	340	460	213	3,200	1,170	532	0.954			23.1	
1PH8228-2□C2□ Y connection	SLM/BLM 400 V	121	1651	305	270	47	700	1,680	306	0.955	2.02	19	11.4	810
	ALM 400 V	138	1647	305	315	53	800	1,680	306	0.958			13.1	
	SLM/BLM/ALM 480 V	172	1642	300	390	67	1,000	1,680	306	0.961			16.4	
1PH8228-2□D2□ Y connection	SLM/BLM 400 V	169	1614	395	290	67	1,000	1,680	408	0.962			16.1	
	ALM 400 V	194	1611	395	330	77	1,150	1,660	408	0.964			18.5	
	SLM/BLM/ALM 480 V	226	1599	395	395	90	1,350	1,660	408	0.965			21.6	
1PH8228-2□F2□ Y connection	SLM/BLM 400 V	251	1598	590	285	100	1,500	1,680	612	0.964			23.9	
	ALM 400 V	289	1577	580	335	117	1,750	1,680	612	0.965			27.6	
	SLM/BLM/ALM 480 V	310	1480	550	380	133	2,000	1,680	612	0.964			29.6	
1PH8228-2□L2□ Y connection	SLM/BLM 400 V	270	1031	570	300	167	2,500	1,400	762	0.963			25.7	
	ALM 400 V	283	932	520	345	193	2,900	1,400	762	0.958			26.8	
	SLM/BLM/ALM 480 V	291	868	485	380	213	3,200	1,400	762	0.958			27.5	

6.2.1.10 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 6- 869 S6/S2 overload factors for water-cooled synchronous motors

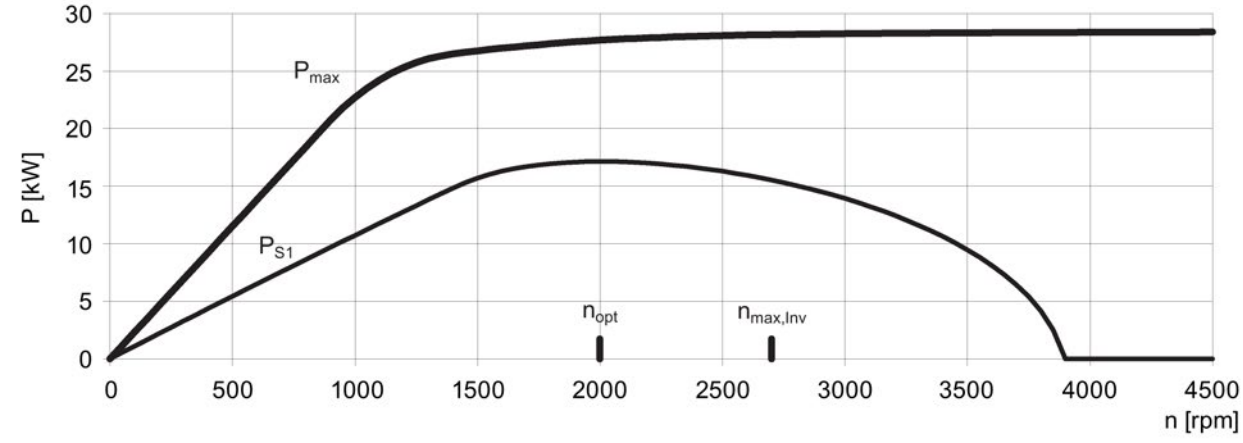
Motor type	Overload factors			
	S6 - 60%	S6 - 40%	S6 - 25%	S2 - 30 min
1PH813□-2□□2	1.10	1.20	1.50	1.07
1PH816□-2□□2	1.10	1.20	1.50	1.07
1PH818□-2□□2	1.10	1.20	1.50	1.07
1PH822□-2□□2	1.10	1.20	1.50	1.07

6.2.2 Characteristics forced ventilation

6.2.2.1 Shaft height 132 – forced ventilation

Table 6- 870 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]
1,500	15.7	100	29	17	2,000	4,500	4,500	2,550	220	74	105	30



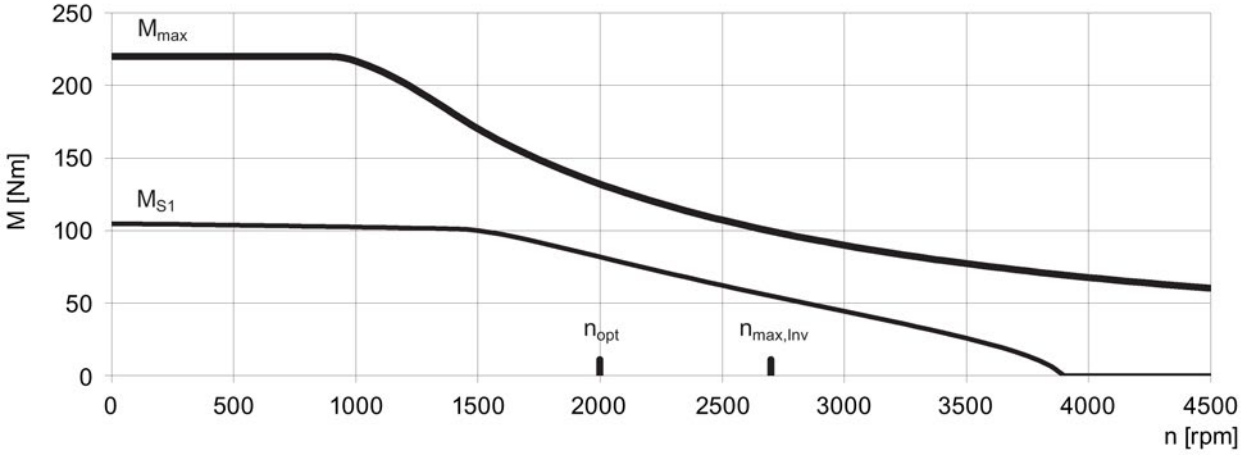
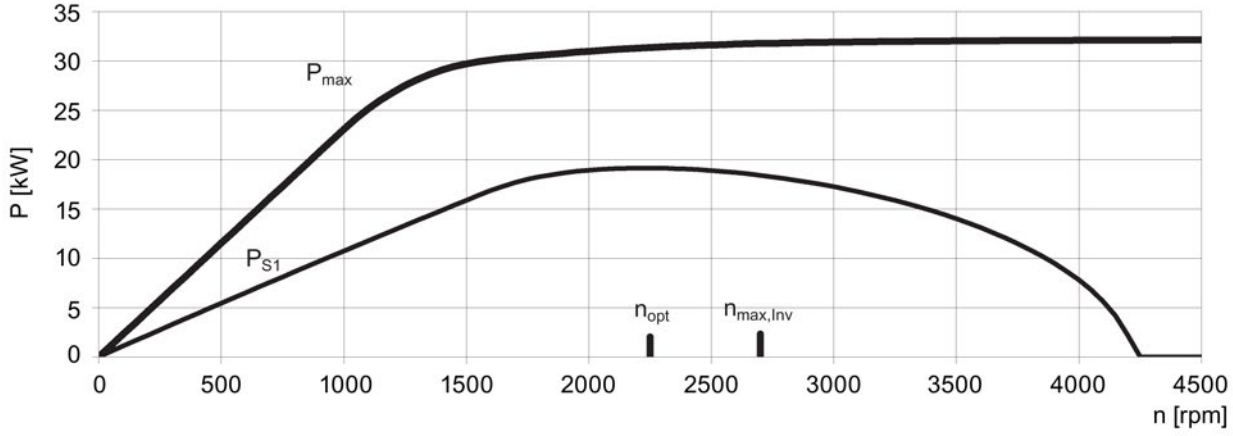


Table 6- 871 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F□□

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]
1,750	18.0	98	29	19	2,250	4,500	4,500	2,550	220	74	105	30
1,500	15.7	100	29									



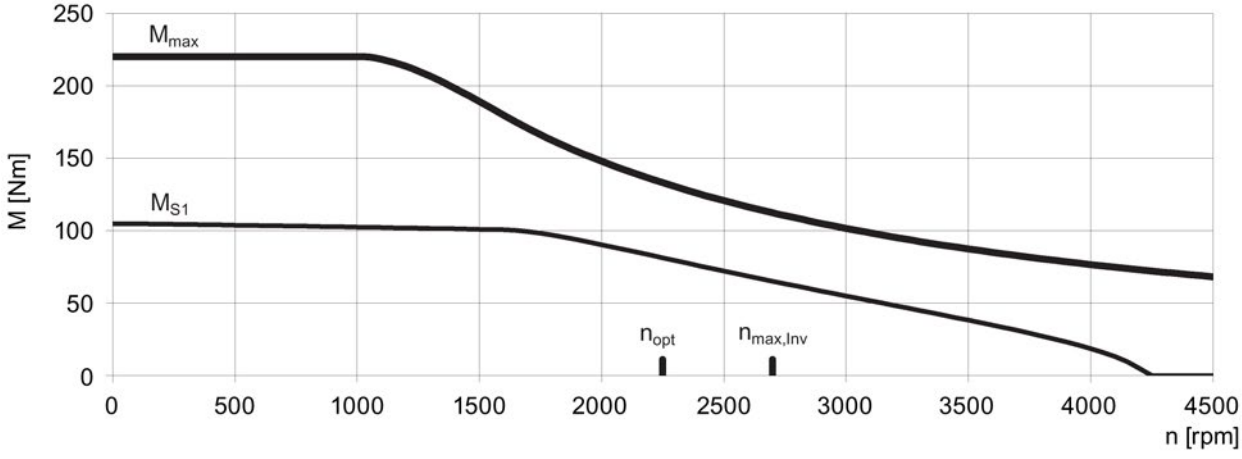


Table 6- 872 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F□□

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]
2,000	19.9	95	29	21	2,400	4,500	4,500	2,550	220	74	105	30

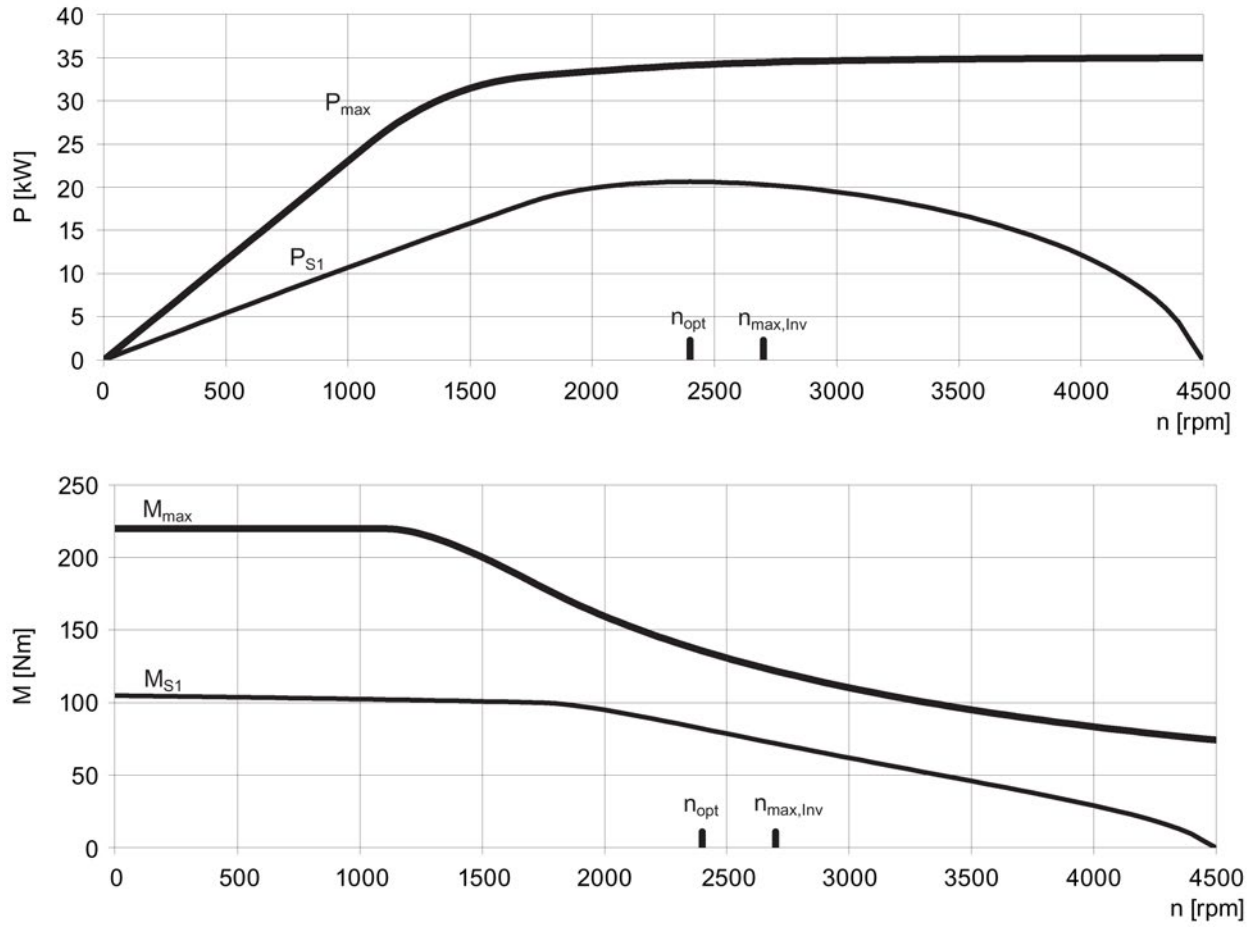
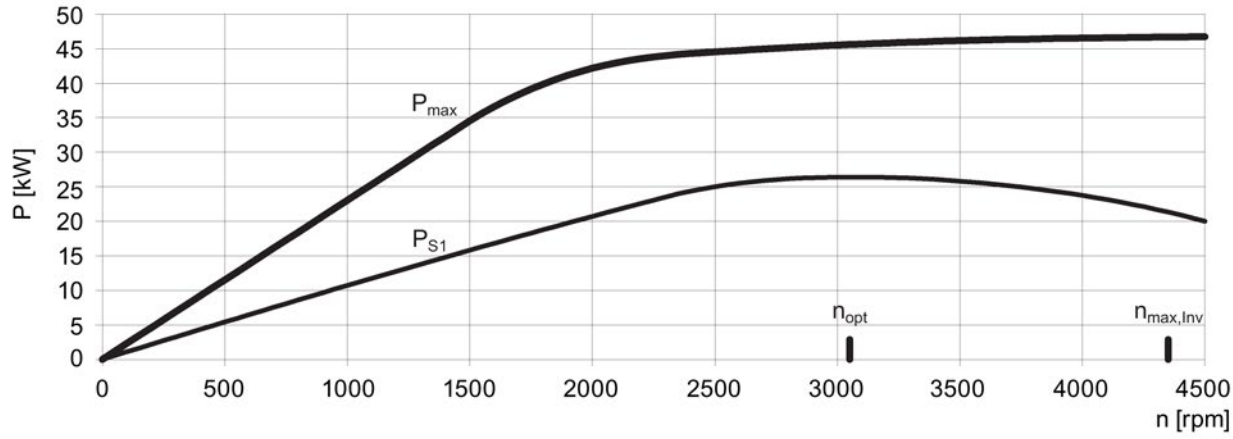


Table 6- 873 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□L□□

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]
2,500	25.0	96	44	26	3,050	4,500	4,500	4,050	220	117	105	48



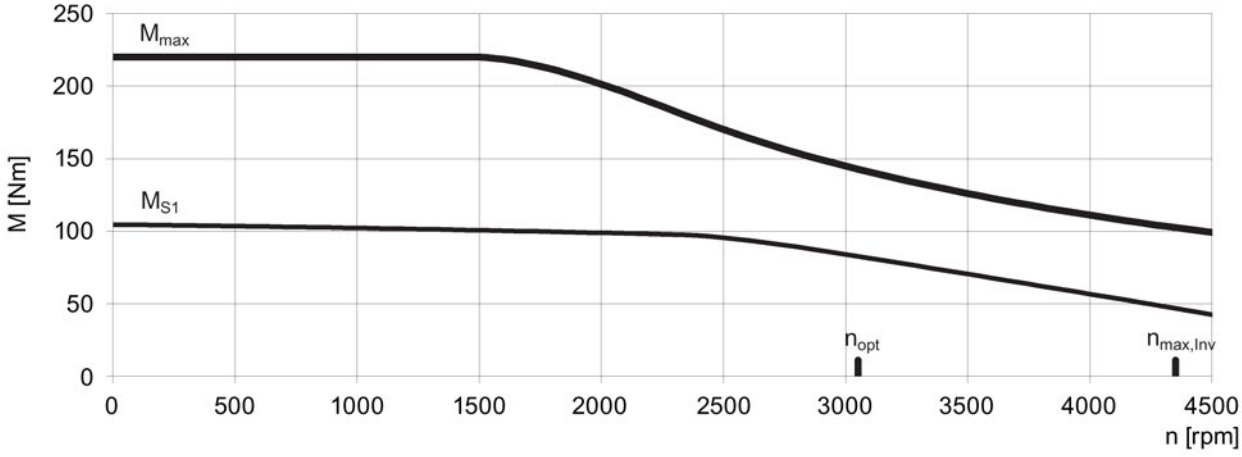


Table 6- 874 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□L□□

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]
2,800	27.7	95	44	29	3,400	4,500	4,500	4,050	220	117	105	48
2,500	25.0	96	44									

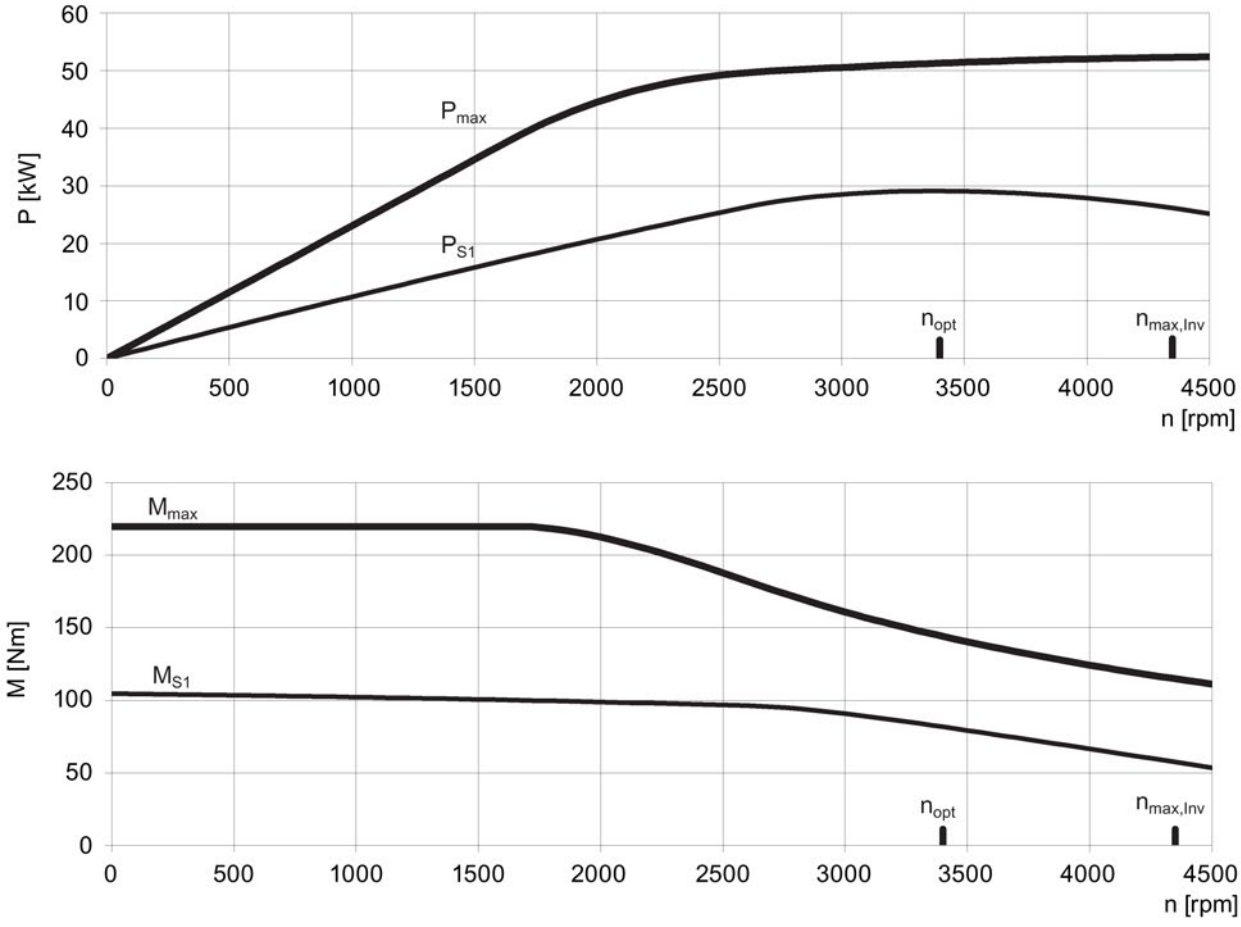
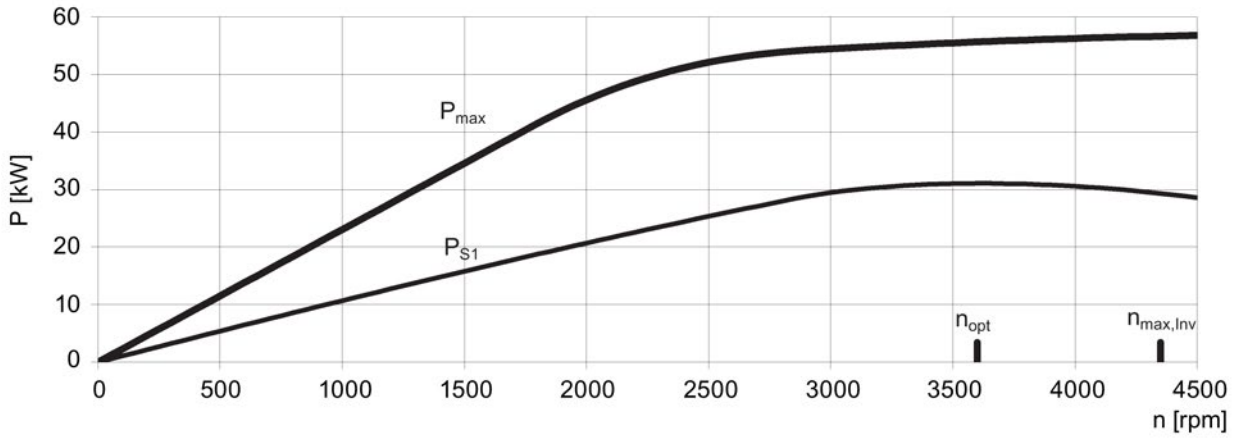


Table 6- 875 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□L□□

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]
3,000	29.5	94	43	31	3,600	4,500	4,500	4,050	220	117	105	48



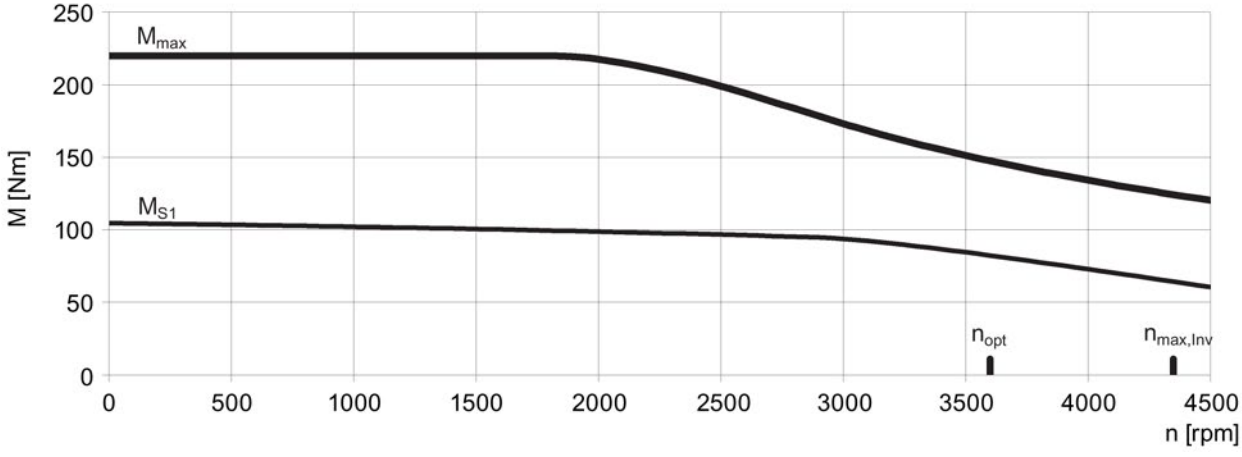
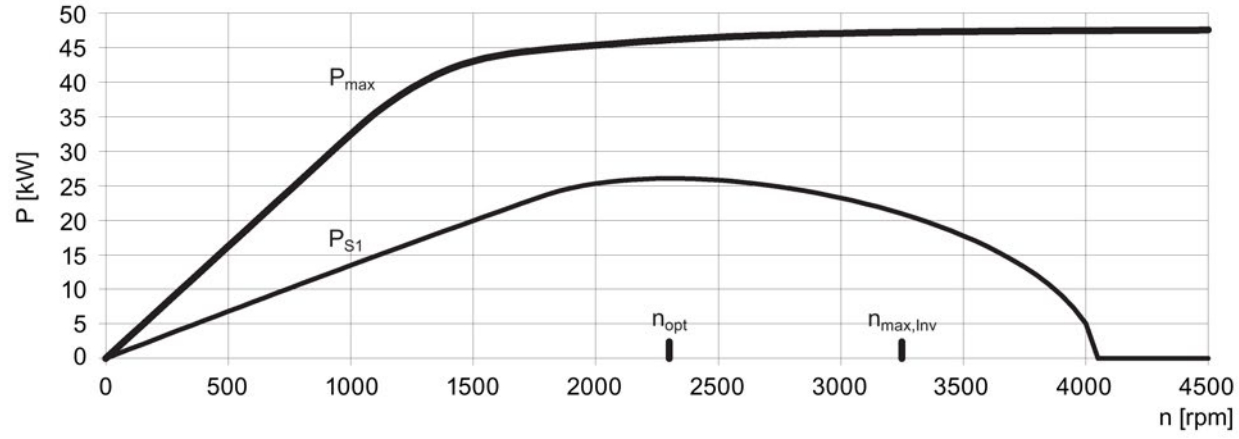


Table 6- 876 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F□□

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]
1,500	19.9	127	44	26	2,300	4,500	4,500	3,050	310	124	131	45



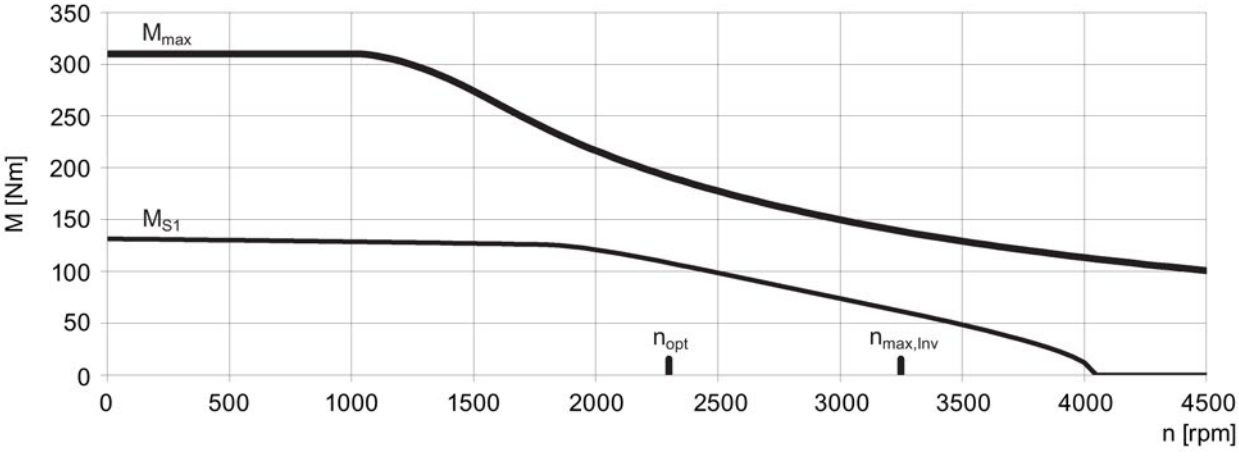
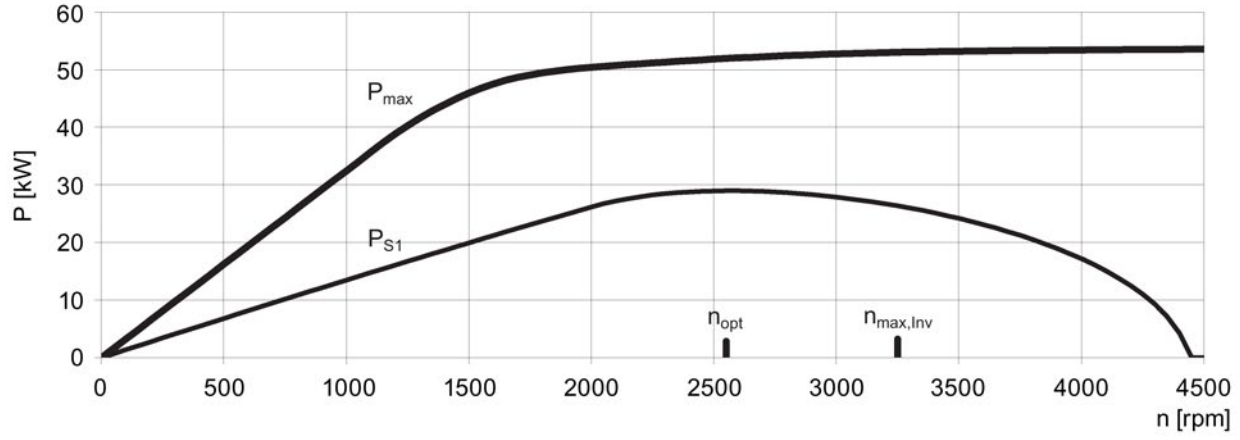


Table 6- 877 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F□□

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]
1,750	23.1	126	43	29	2,550	4,500	4,500	3,050	310	124	131	45
1,500	19.9	127	44									



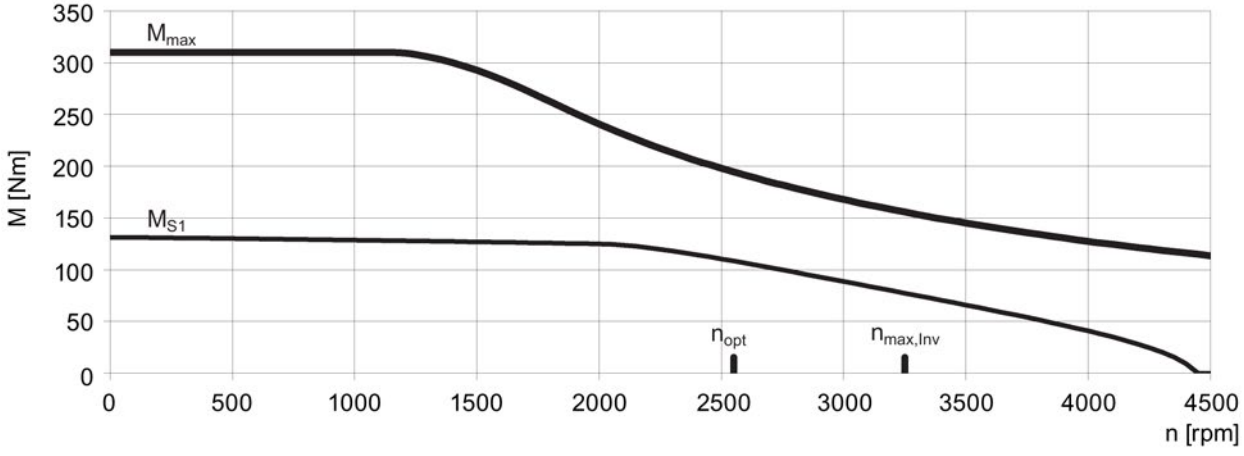


Table 6- 878 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F□□

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]
2,000	26.2	125	43	31	2,750	4,500	4,500	3,050	310	124	131	45

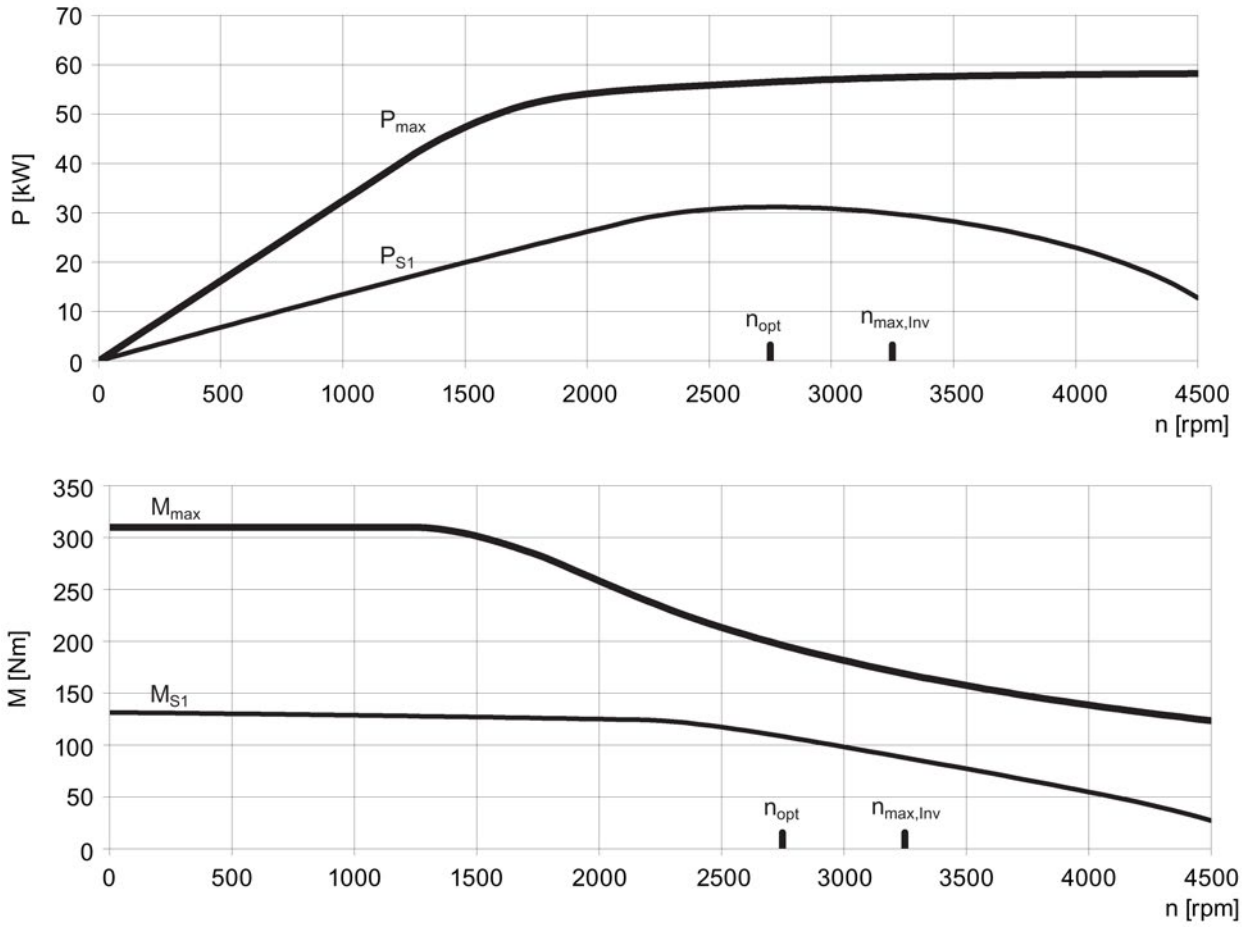
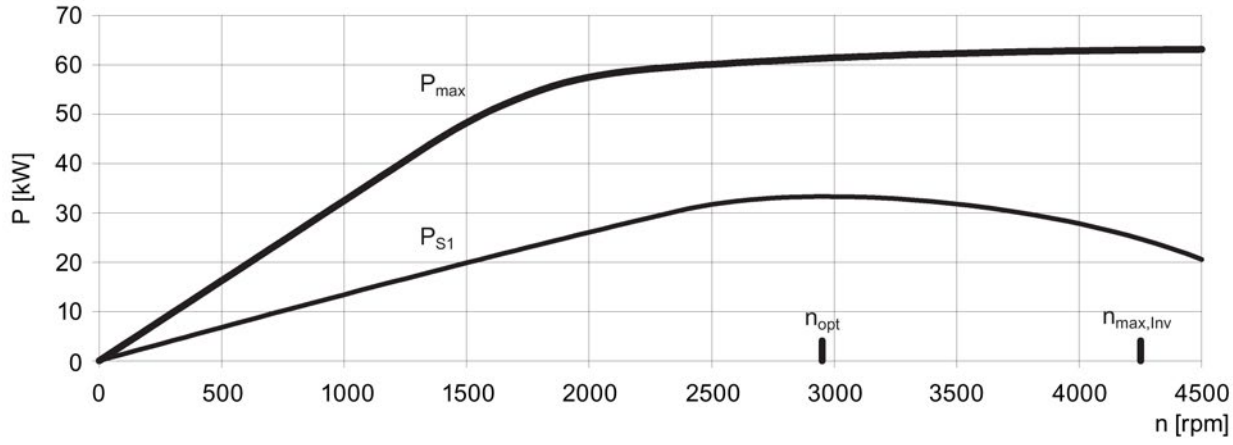


Table 6- 879 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□L□□

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]
2,500	31.7	121	55	33	2,950	4,500	4,500	3,950	310	162	131	59



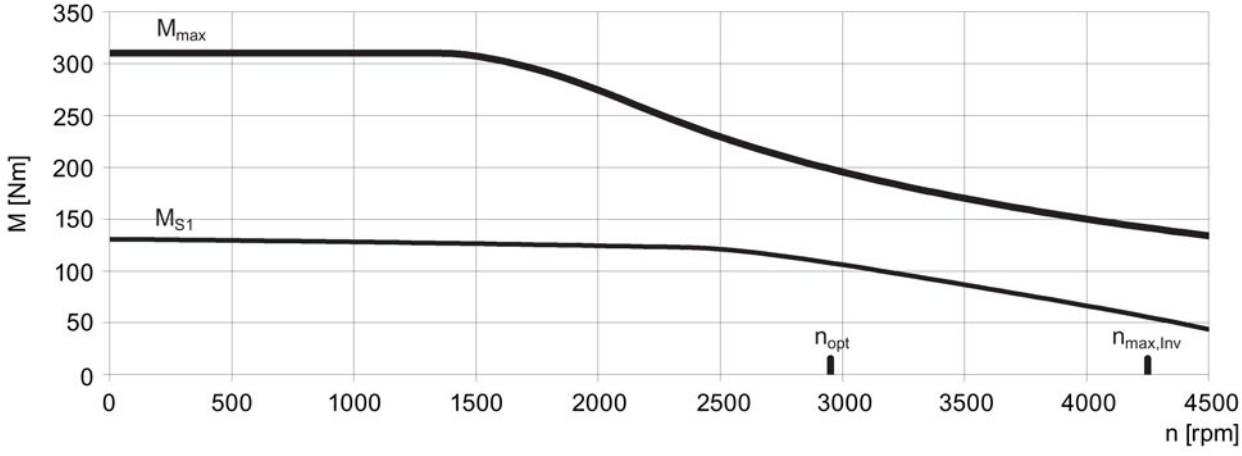
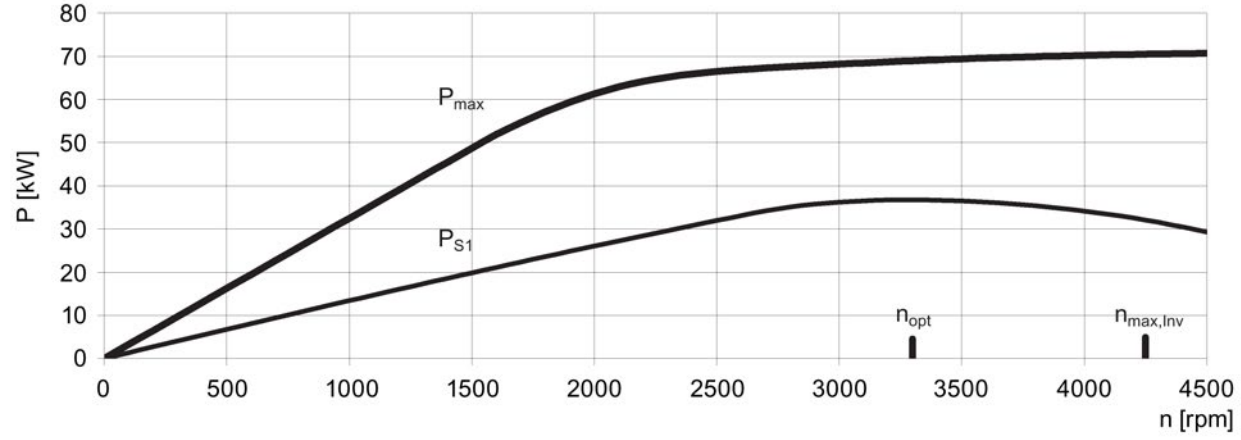


Table 6- 880 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□L□□

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]
2,800	35.2	120	54	37	3,300	4,500	4,500	3,950	310	162	131	59
2,500	31.7	121	55									



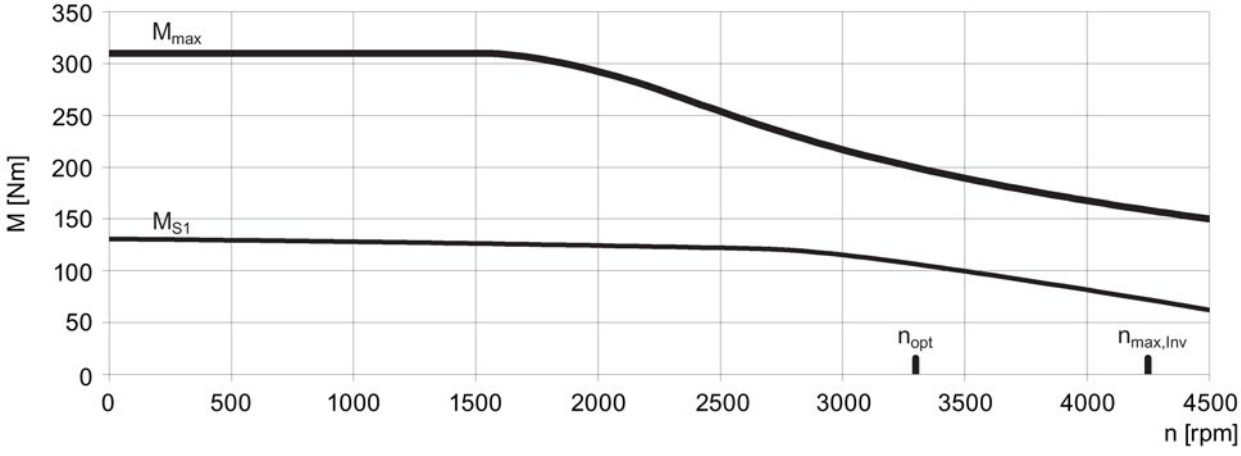
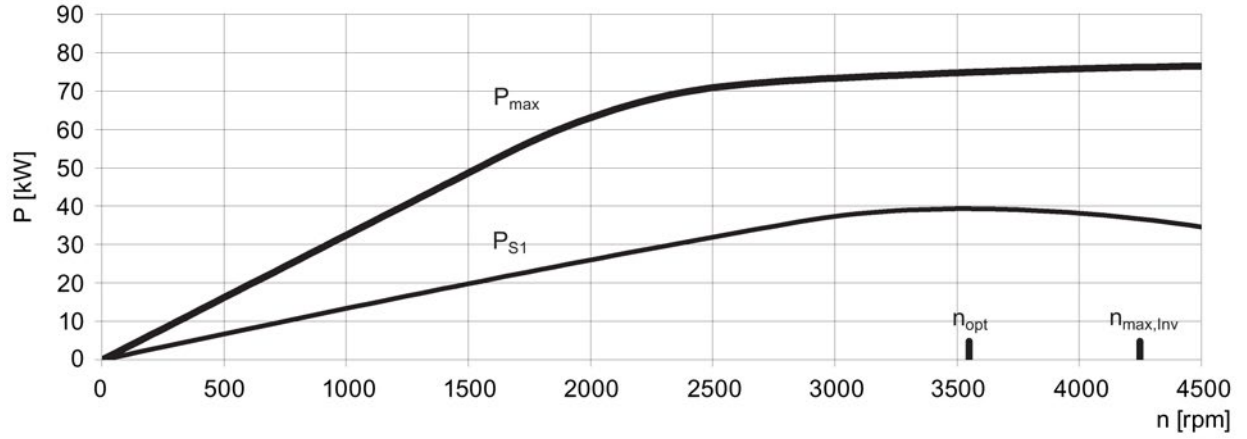


Table 6- 881 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□L□□

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]
3,000	37.4	119	54	39	3,550	4,500	4,500	3,950	310	162	131	59



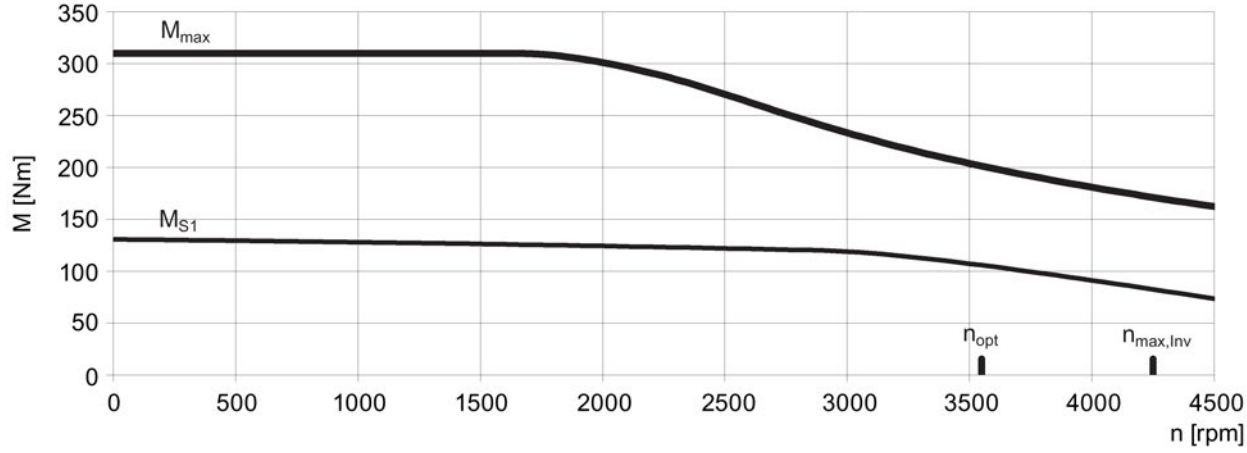
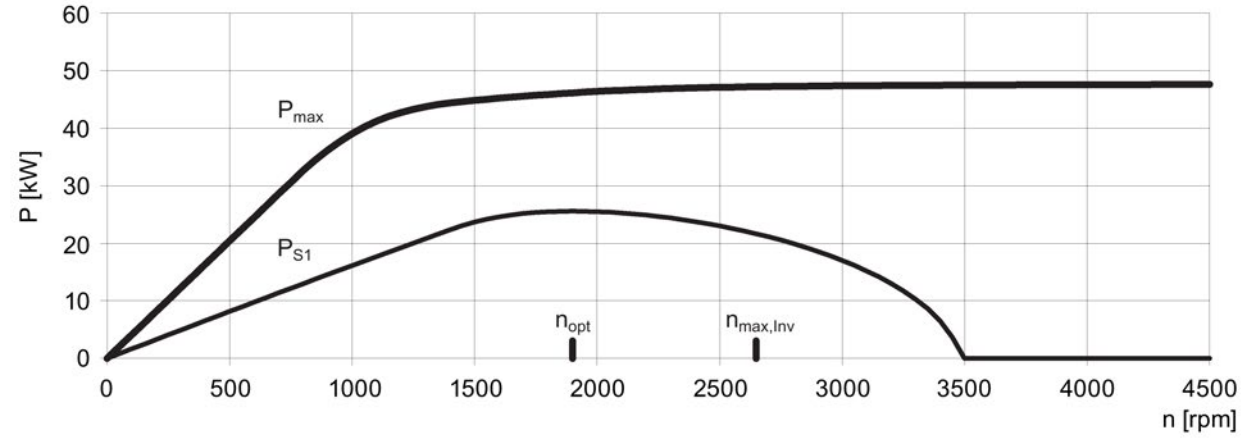


Table 6- 882 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F□□

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]
1,500	23.7	151	43	26	1,900	4,500	4,500	2,450	390	127	158	44



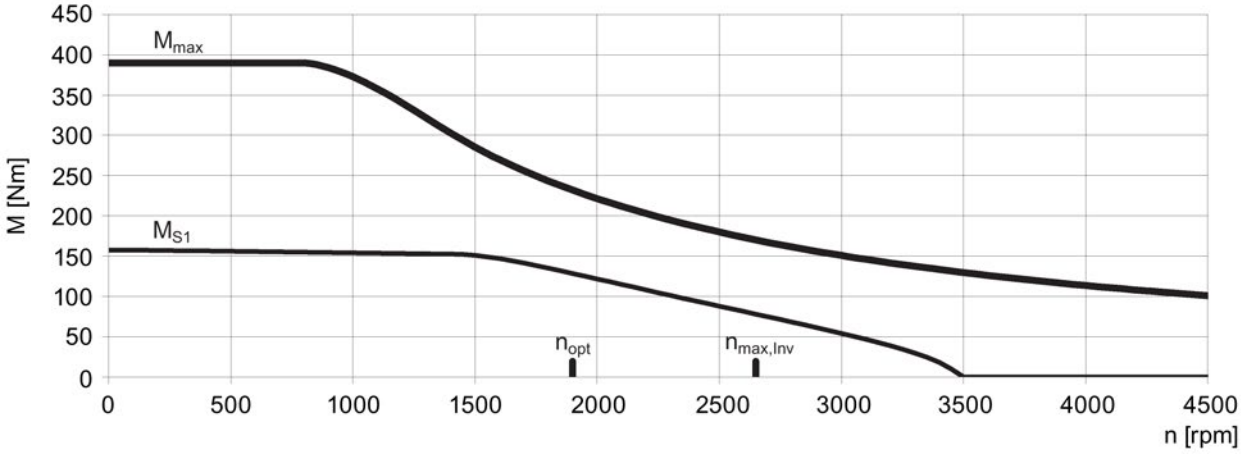
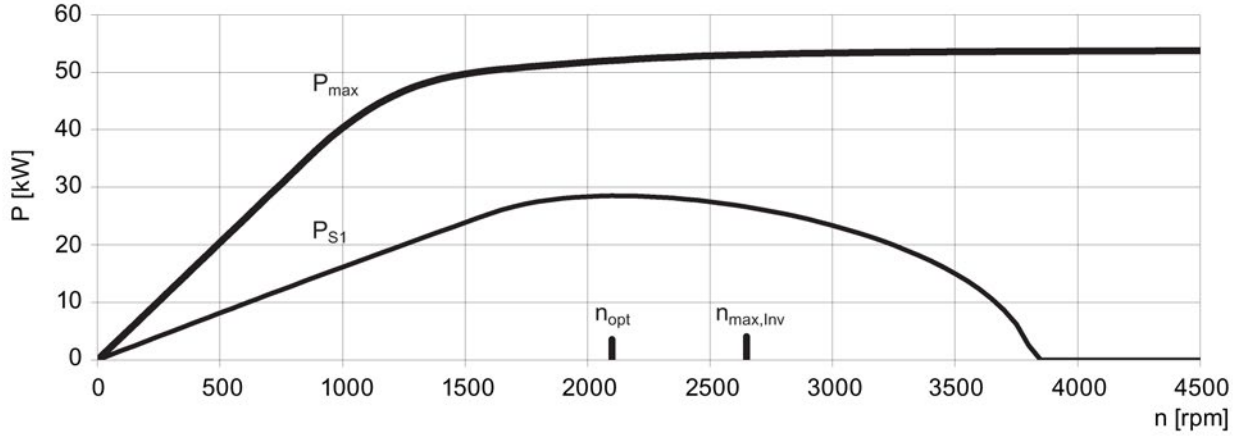


Table 6- 883 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F□□

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]
1,750	27.2	149	42	29	2,100	4,500	4,500	2,450	390	127	158	44
1,500	23.7	151	43									



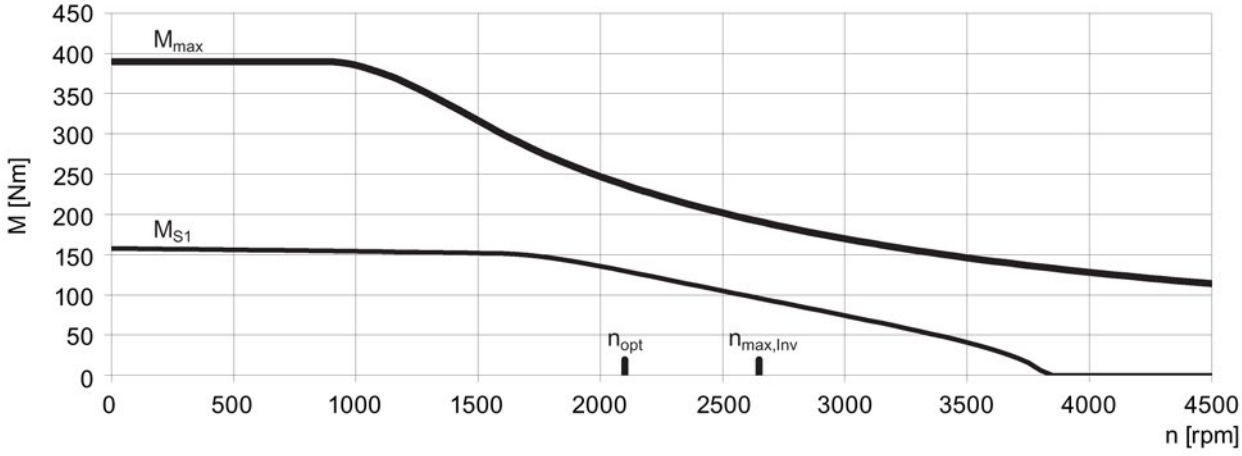
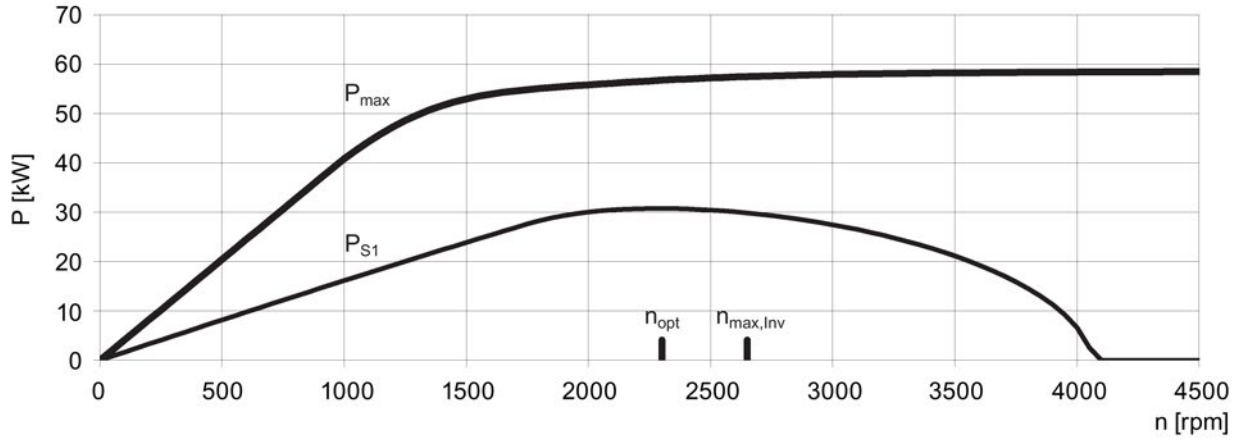


Table 6- 884 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F□□

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]
2,000	30.2	144	42	31	2,300	4,500	4,500	2,450	390	127	158	44



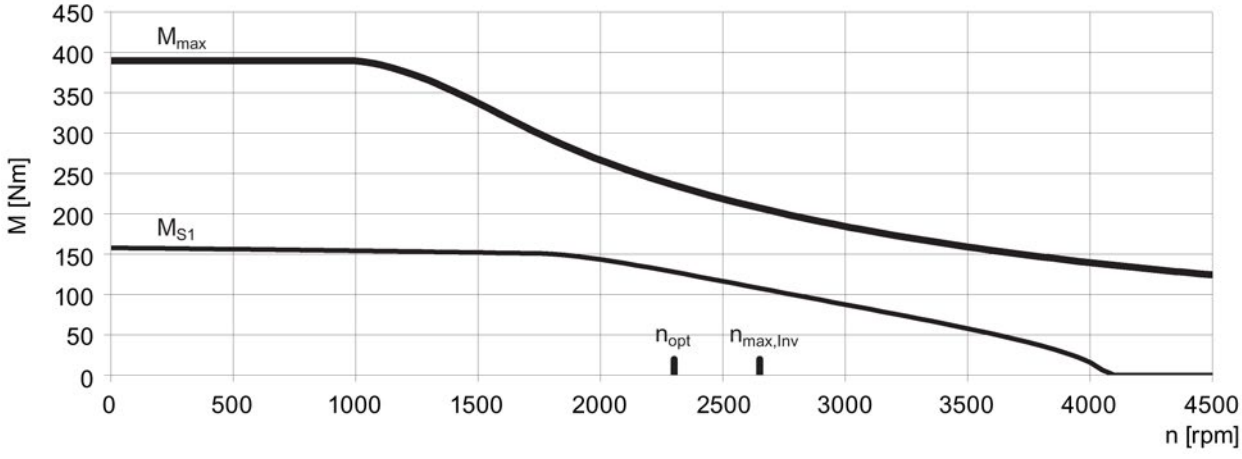
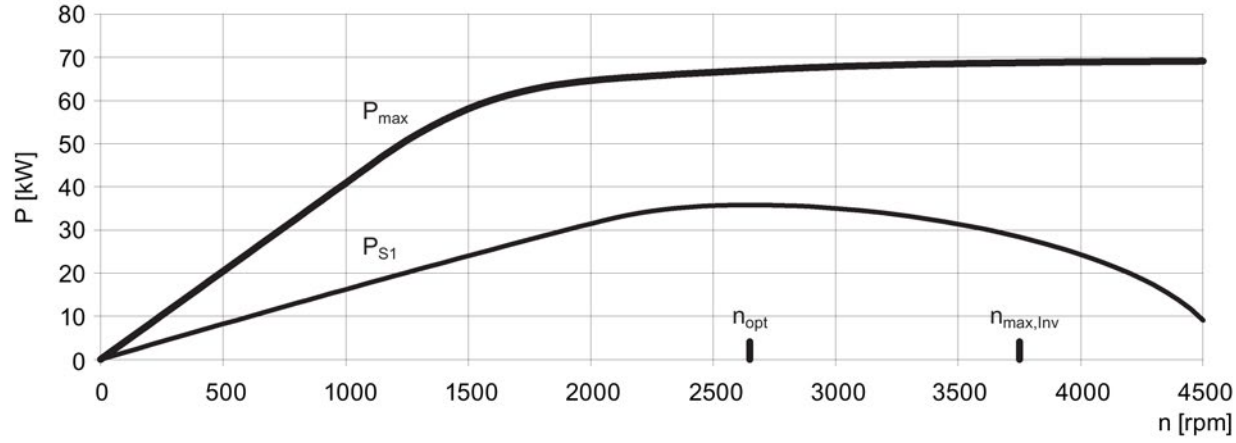


Table 6- 885 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G□□

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]
2,000	31.4	150	59	36	2,650	4,500	4,500	3,500	390	179	158	63



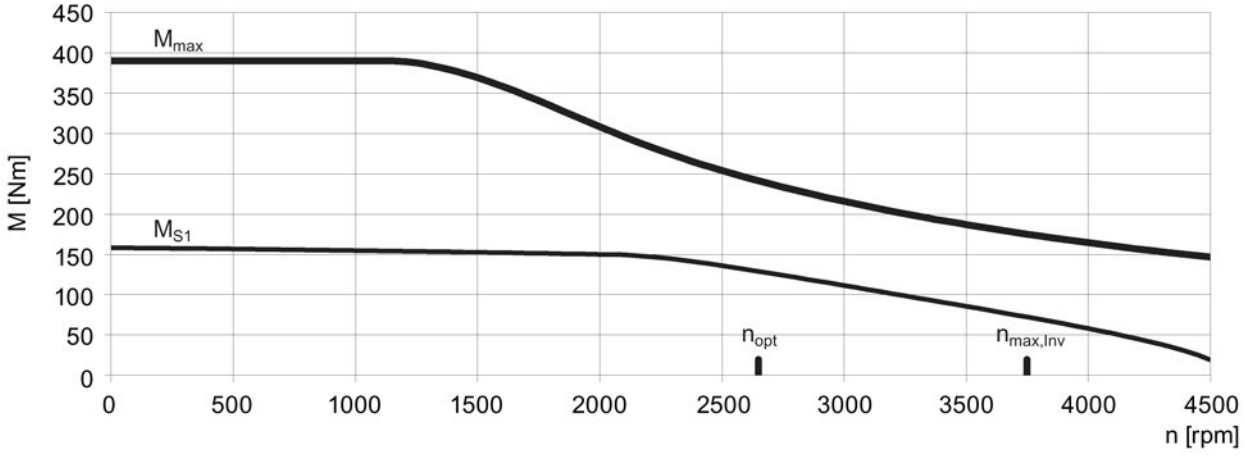


Table 6- 886 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G□□

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]
2,300	35.6	148	59	40	2,950	4,500	4,500	3,500	390	179	158	63
2,000	31.4	150	59									

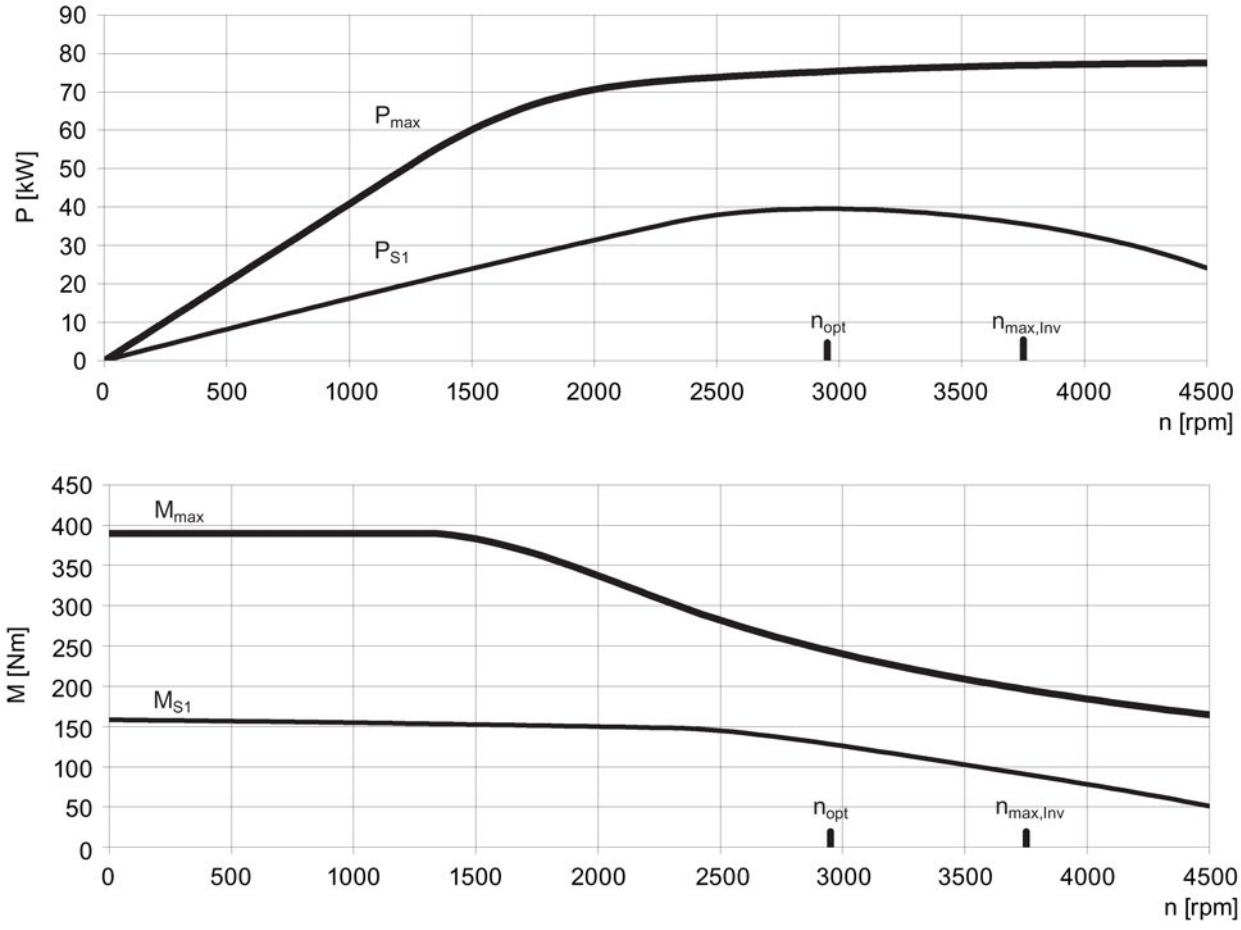
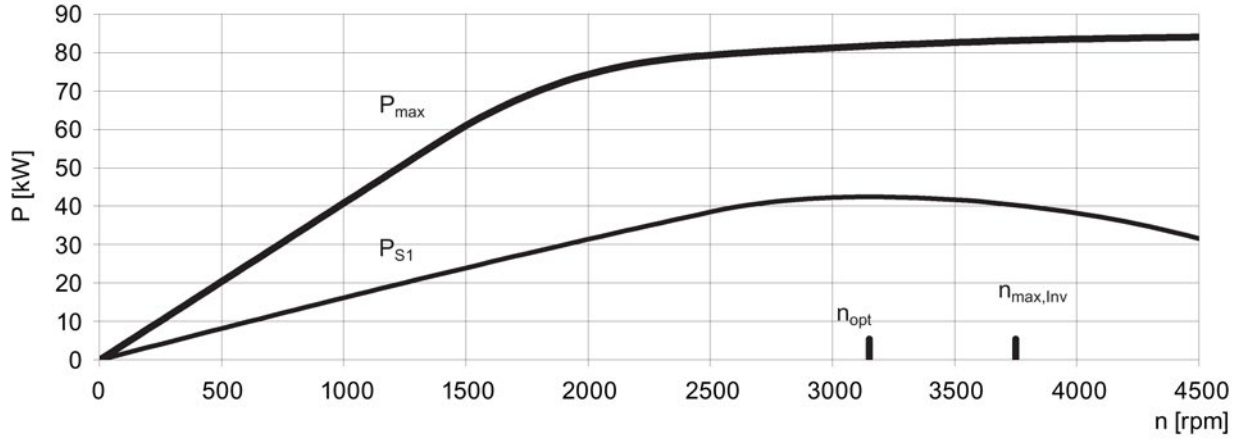


Table 6- 887 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□G□□

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]
2,650	40.2	145	58	42	3,150	4,500	4,500	3,500	390	179	158	63



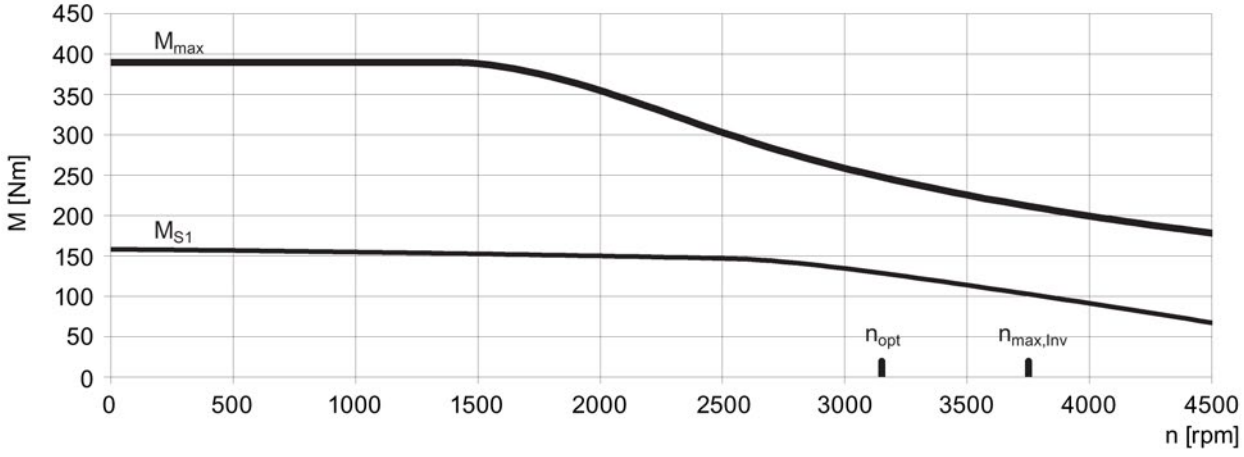
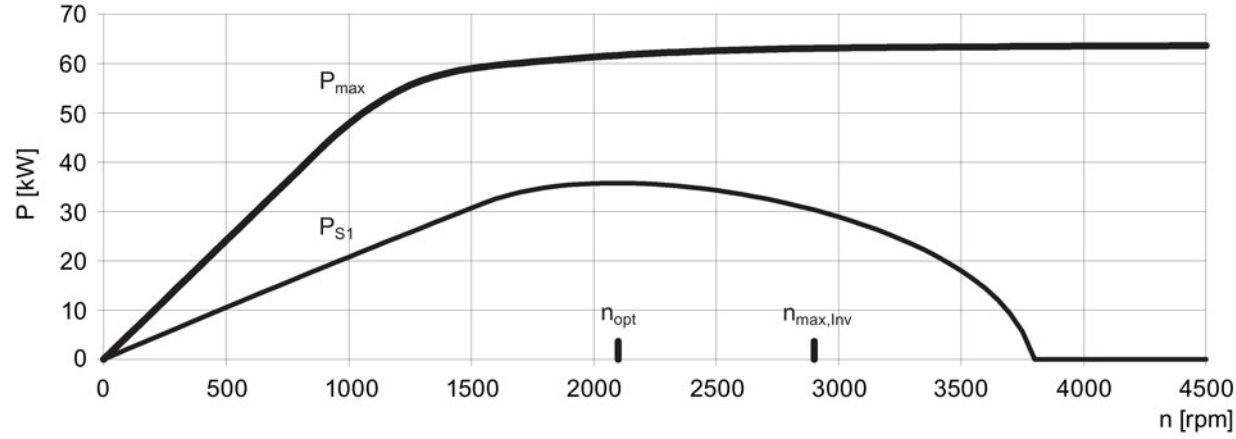


Table 6- 888 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F□□

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]
1,500	30.6	195	60	36	2,100	4,500	4,500	2,700	460	163	203	62



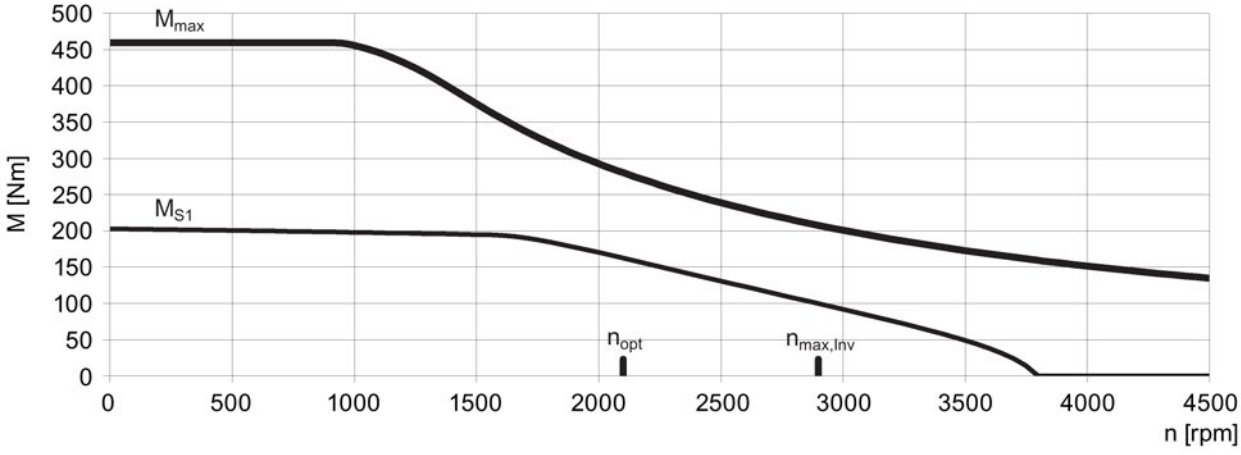
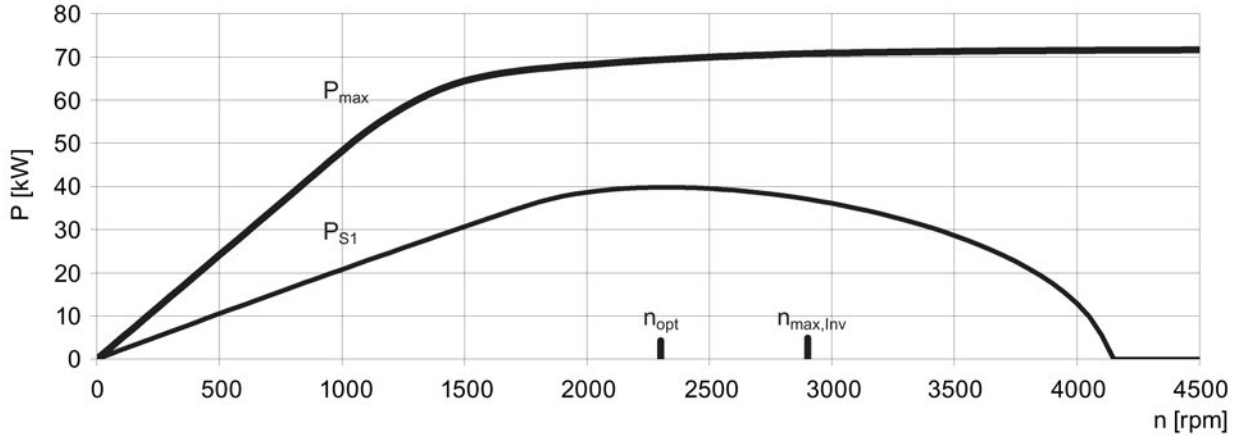


Table 6- 889 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F□□

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]
1,750	35.6	194	59	40	2,300	4,500	4,500	2,700	460	163	203	62
1,500	30.6	195	60									



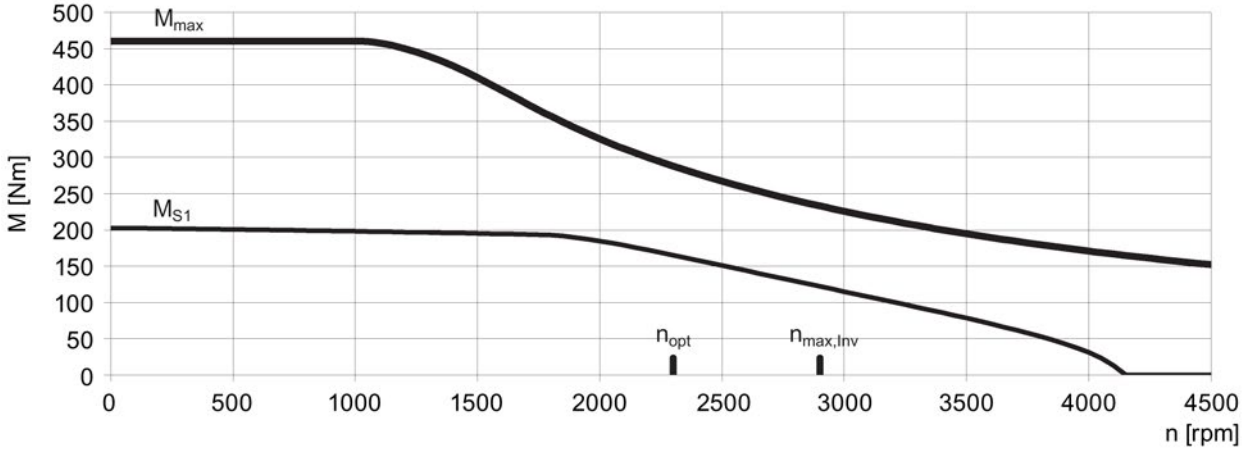


Table 6- 890 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F□□

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]
2,000	40.0	191	59	43	2,500	4,500	4,500	2,700	460	163	203	62

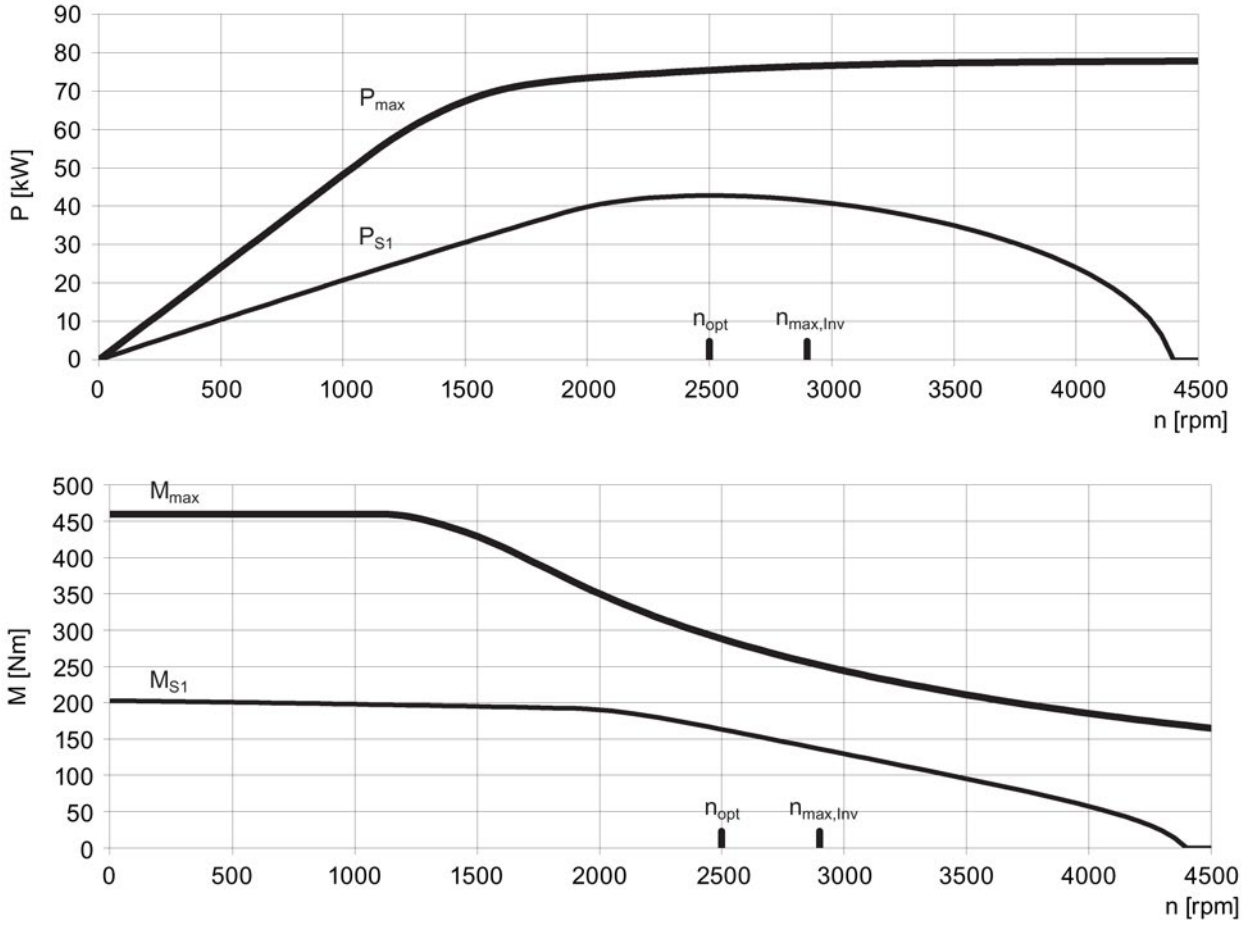
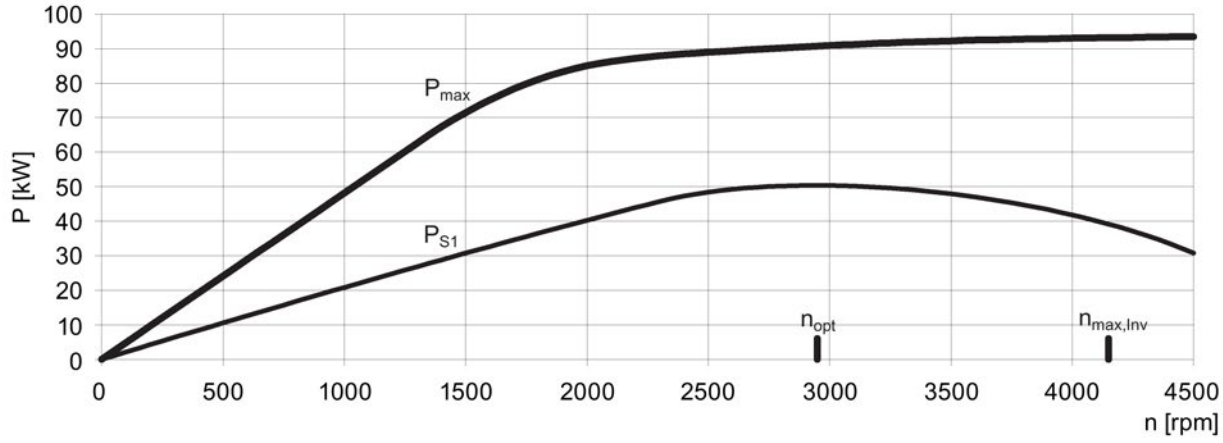


Table 6- 891 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□L□□

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]
2,500	48.4	185	83	50	2,950	4,500	4,500	3,900	460	235	203	89



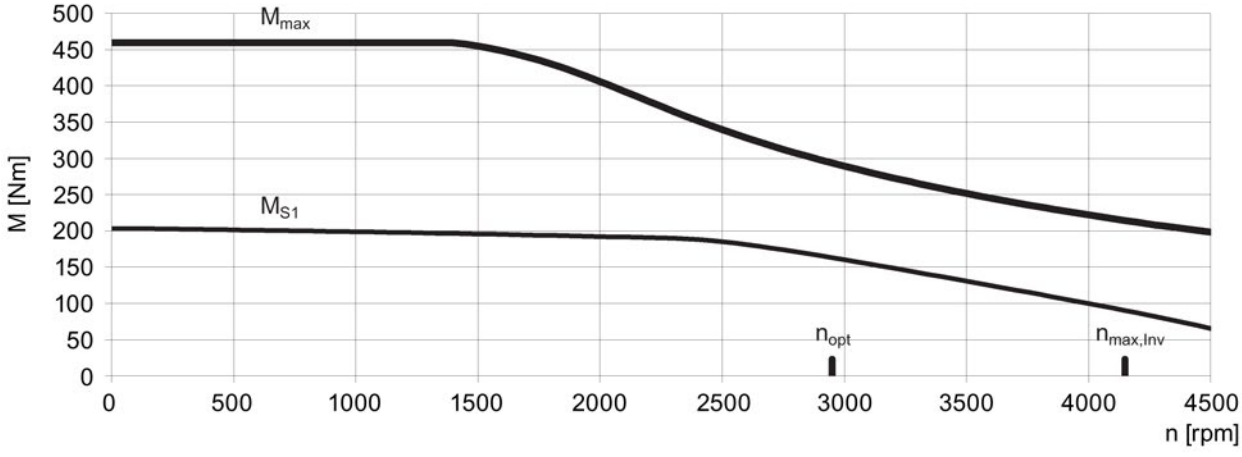
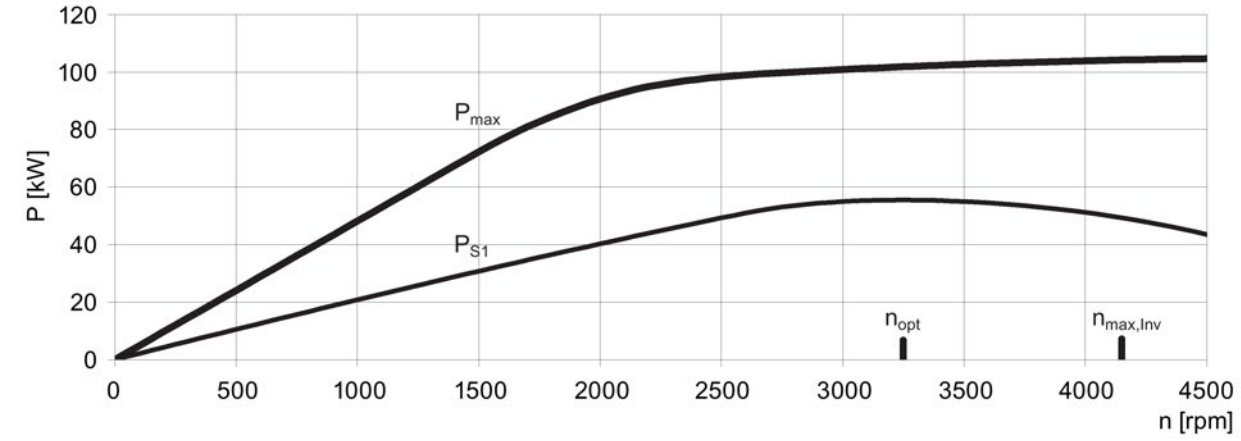


Table 6- 892 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□L□□

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]
2,800	53.4	182	82	55	3,250	4,500	4,500	3,900	460	235	203	89
2,500	48.4	185	83									



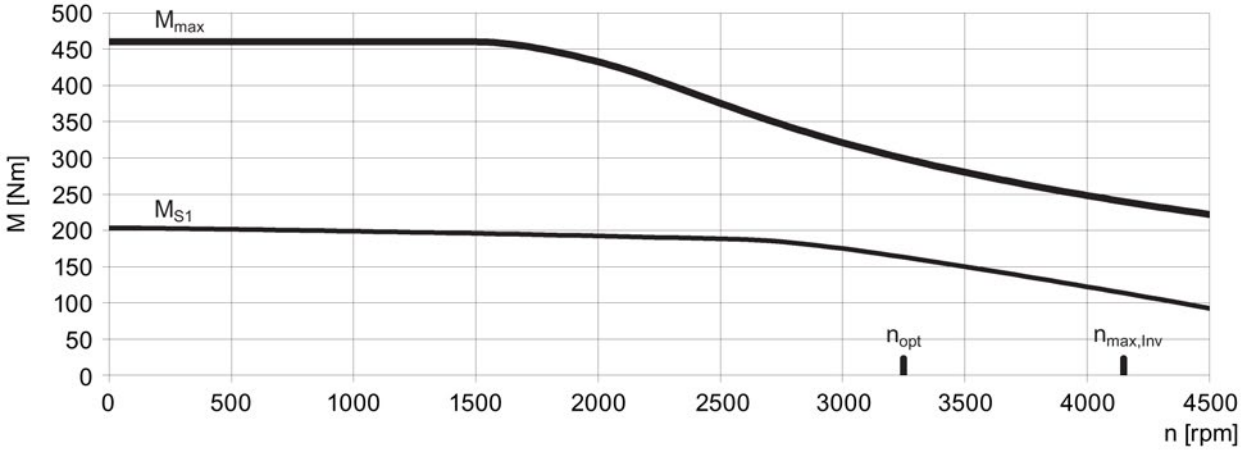
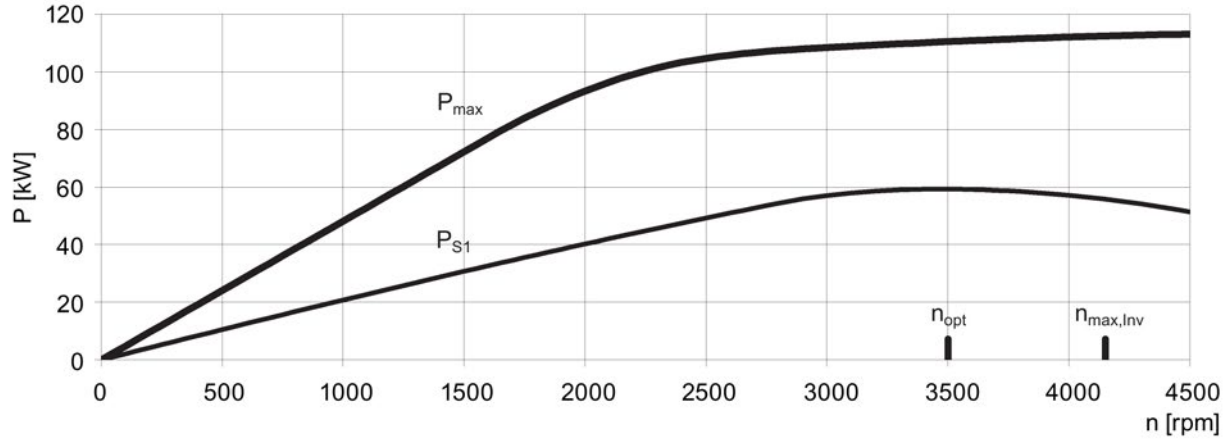


Table 6- 893 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□L□□

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]
3,000	56.9	181	81	59	3,500	4,500	4,500	3,900	460	235	203	89



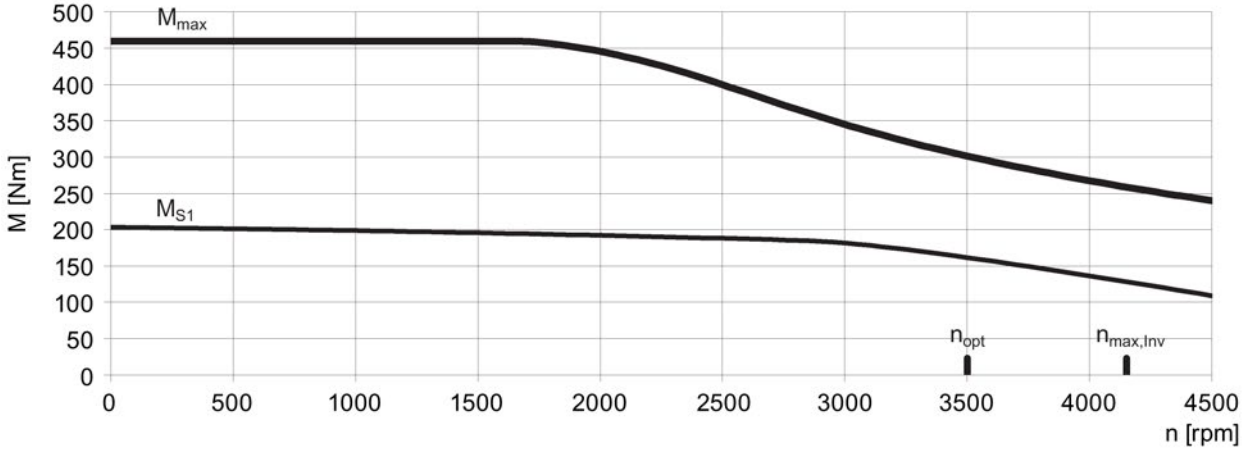
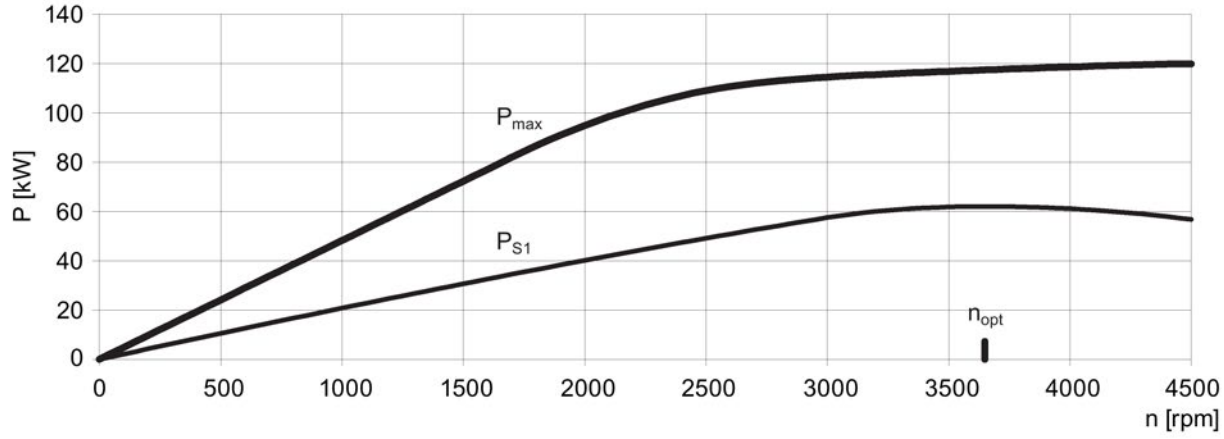


Table 6- 894 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□M□□

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]
3,000	57.5	183	104	62	3,650	4,500	4,500	> 4,500	460	303	203	115



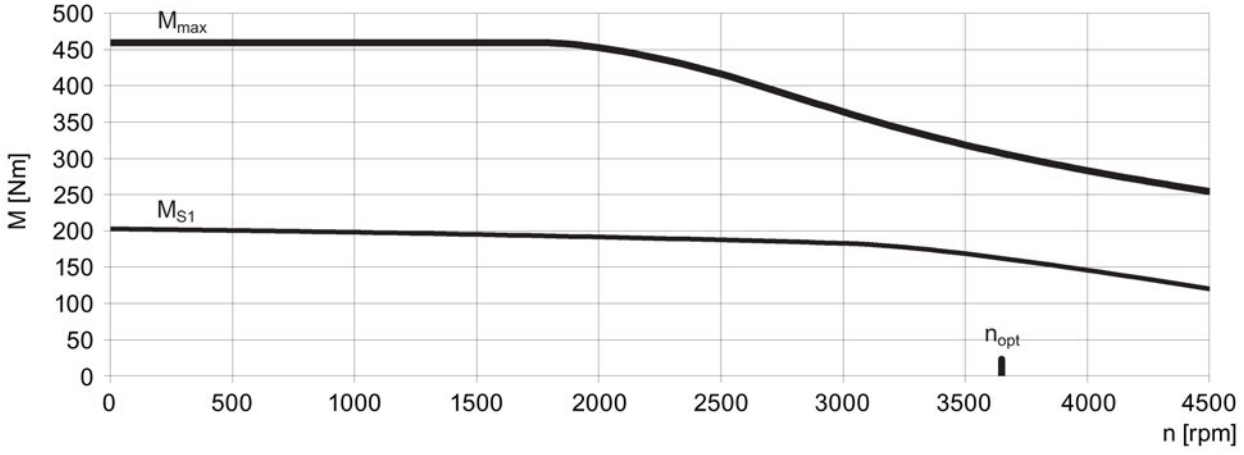
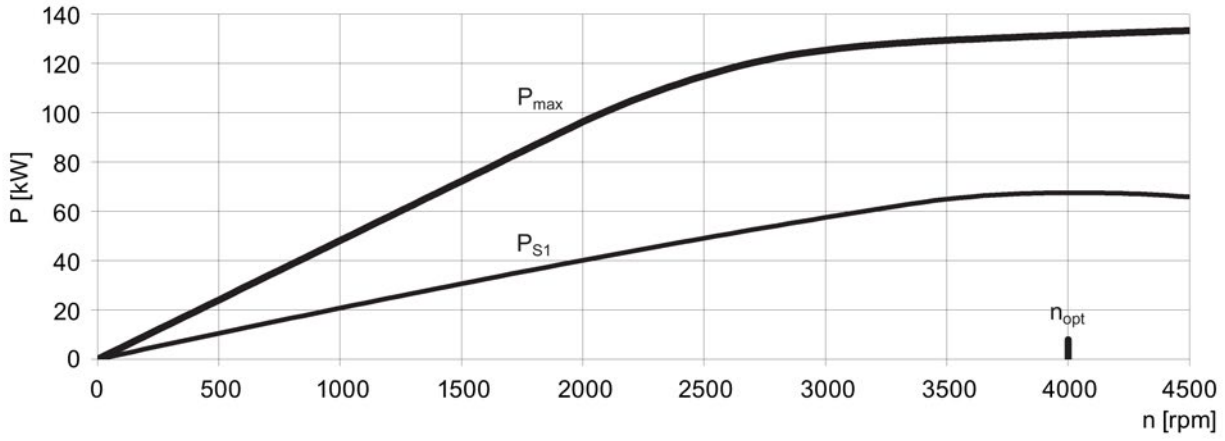


Table 6- 895 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□M□□

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]
3,300	62.2	180	102	68	4,000	4,500	4,500	> 4,500	460	303	203	115
3,000	57.5	183	104									



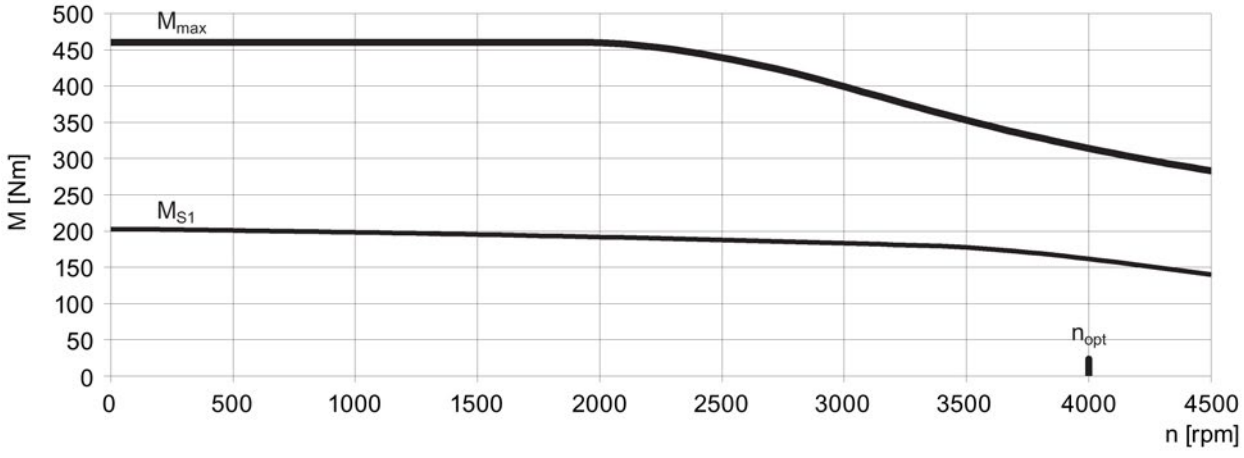
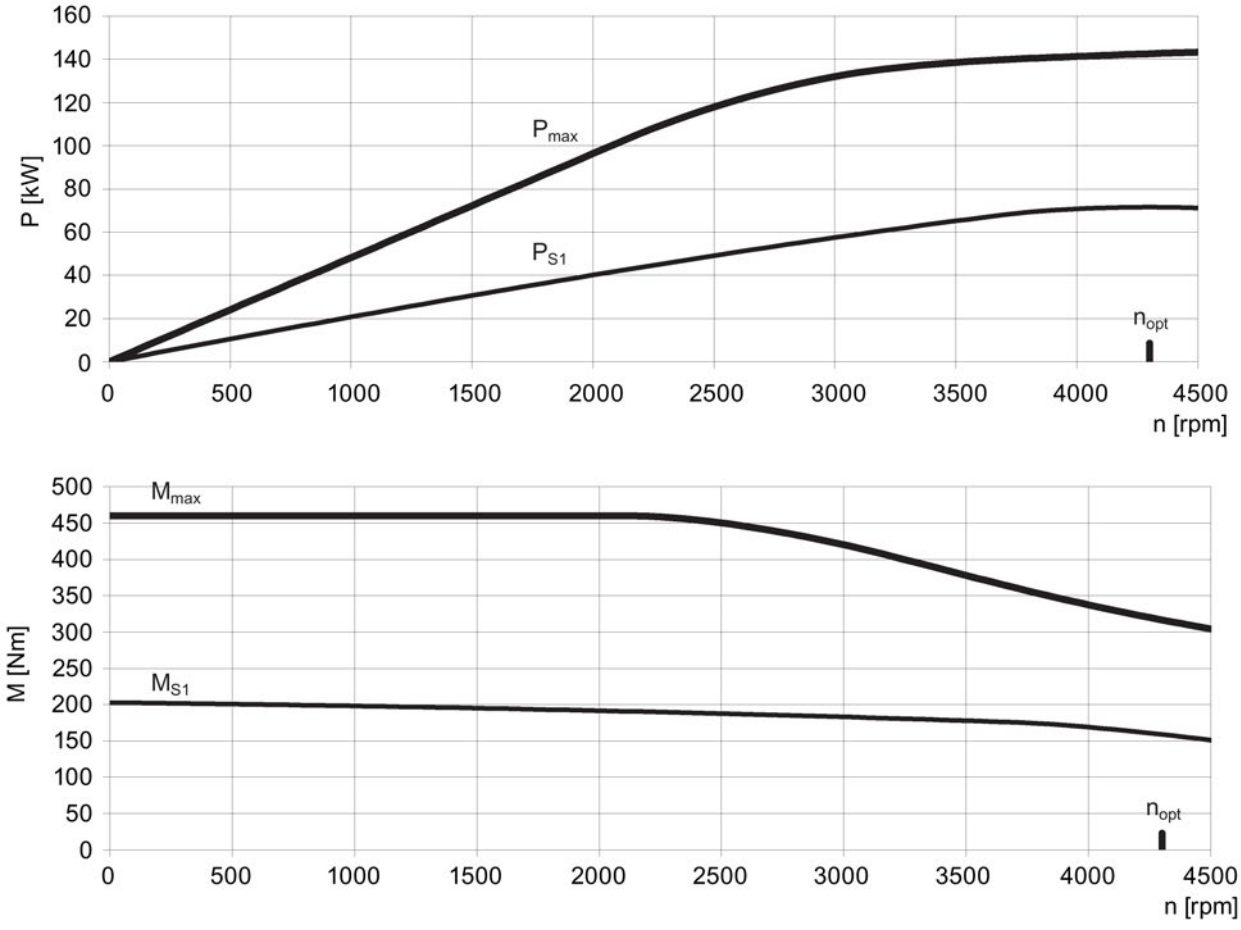


Table 6- 896 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□M□□

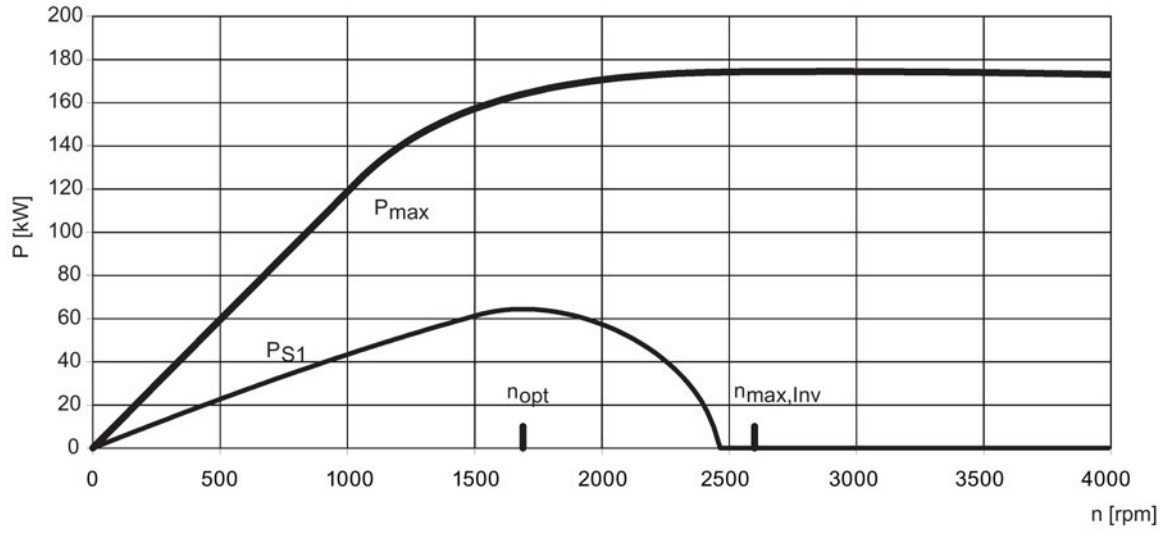
n_{rated} [rpm]	P_{rated} [kW]	M_{rated} [Nm]	I_{rated} [A]	P_{opt} [kW]	n_{opt} [rpm]	n_{max} [rpm]	$n_{max, Br}$ [rpm]	$n_{max, Inv}$ [rpm]	M_{max} [Nm]	I_{max} [A]	M_0 [Nm]	I_0 [A]
3,600	66.7	177	100	72	4,300	4,500	4,500	> 4,500	460	303	203	115



6.2.2.2 Shaft height 160 - forced ventilation

Table 6- 897 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]
1,500	61.0	390	119	64.4	1,690	4,000	4,000	2,600	1,135	367	440	126



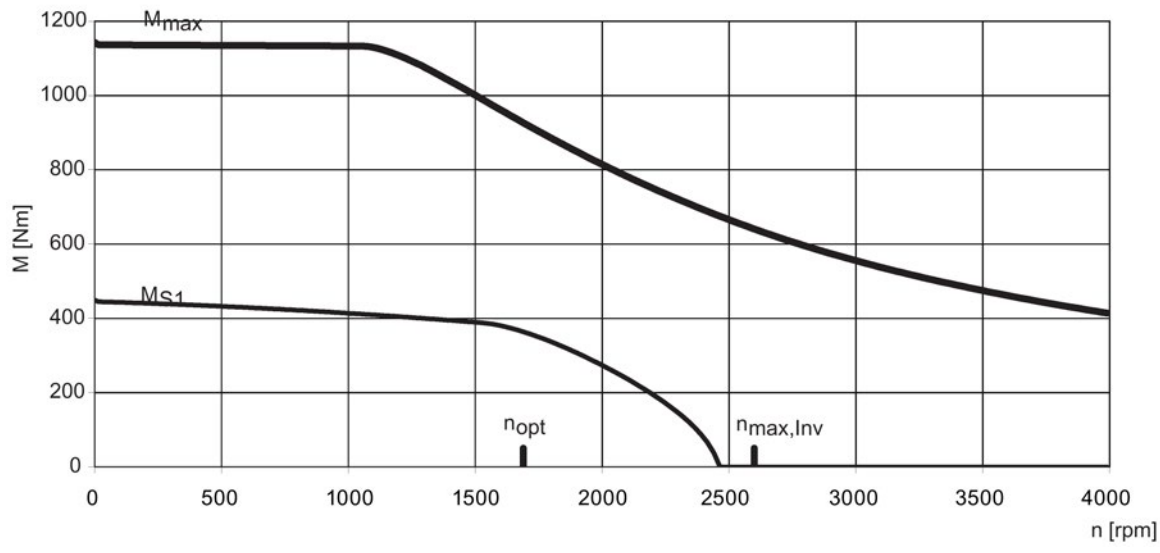
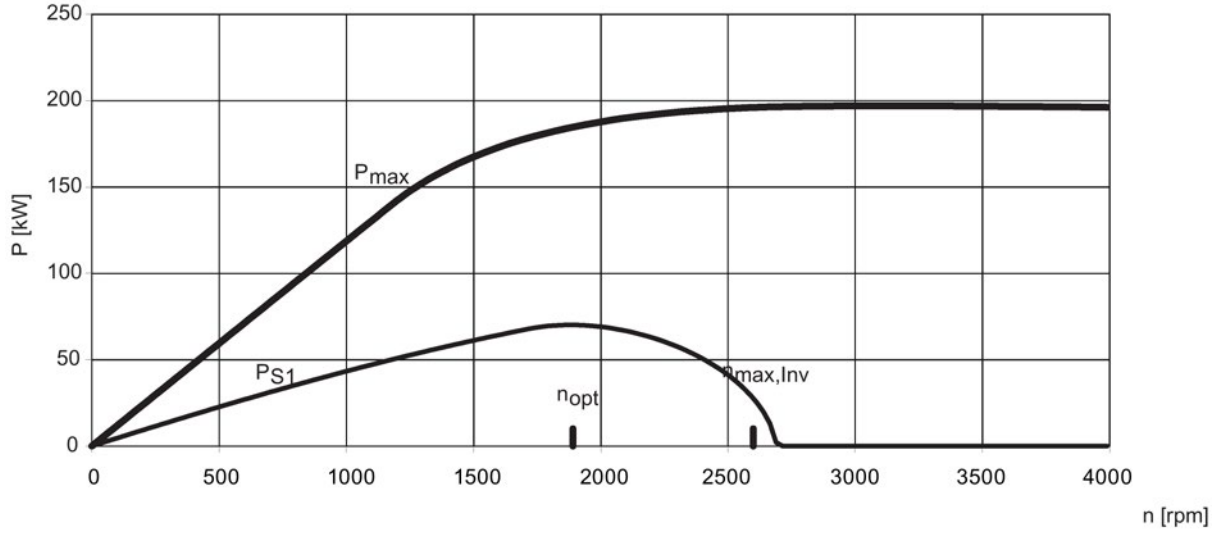


Table 6- 898 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□F□□

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]
1,750	69.0	375	115	70.1	1,890	4,000	4,000	2,600	1,135	367	440	126
1,500	61.0	390	119									



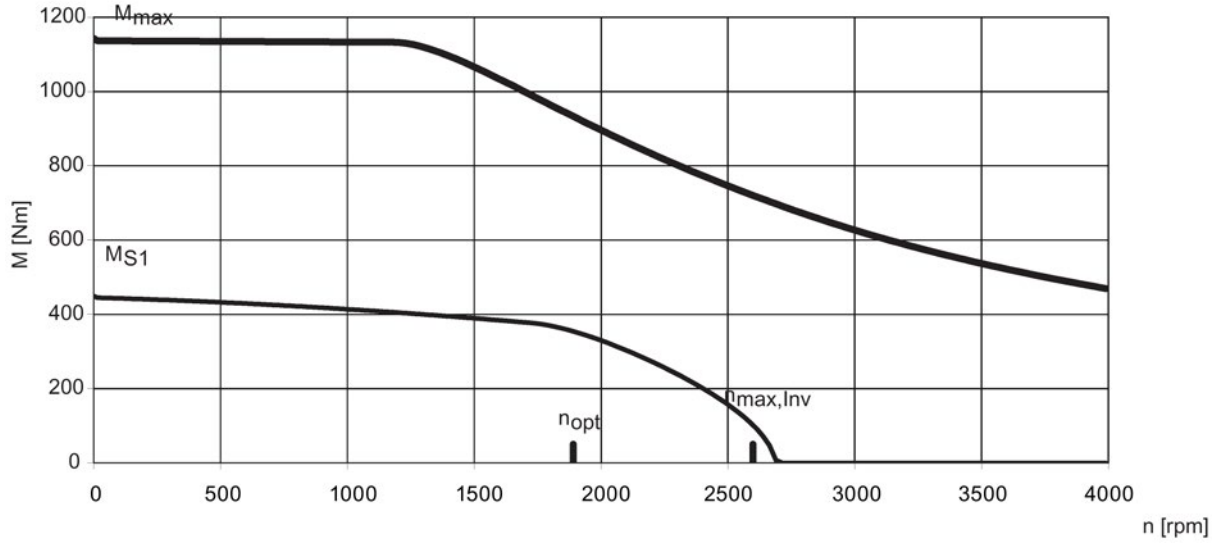
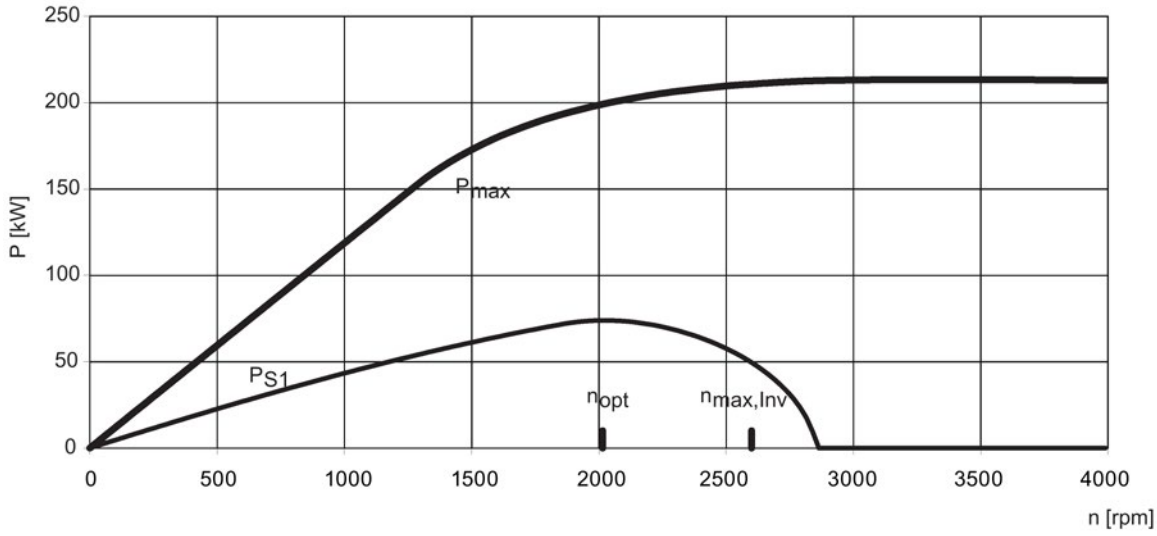


Table 6- 899 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□F□□

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]
2,000	74.0	355	110	74	2,015	4,000	4,000	2,600	1,135	367	440	126



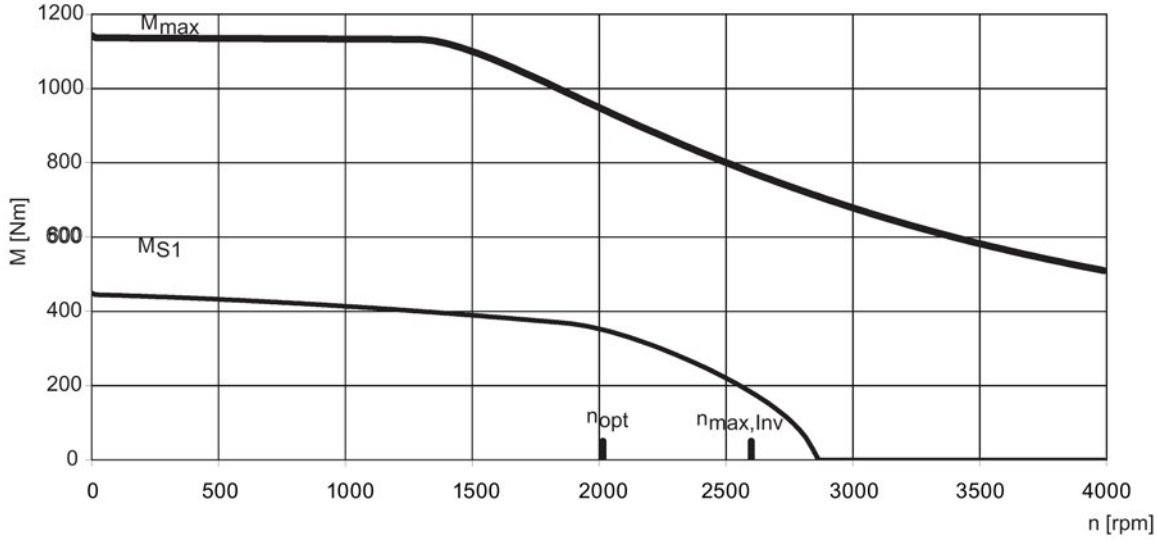
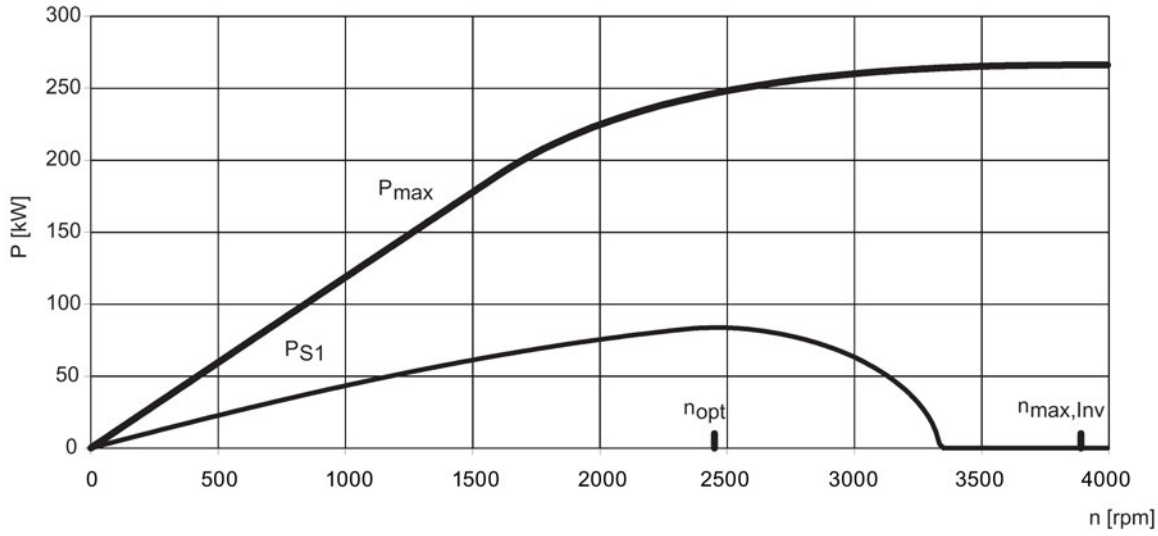


Table 6- 900 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8165-□□L□□

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]
2,500	84.0	320	148	84	2,450	4,000	4,000	3,900	1,135	551	440	188



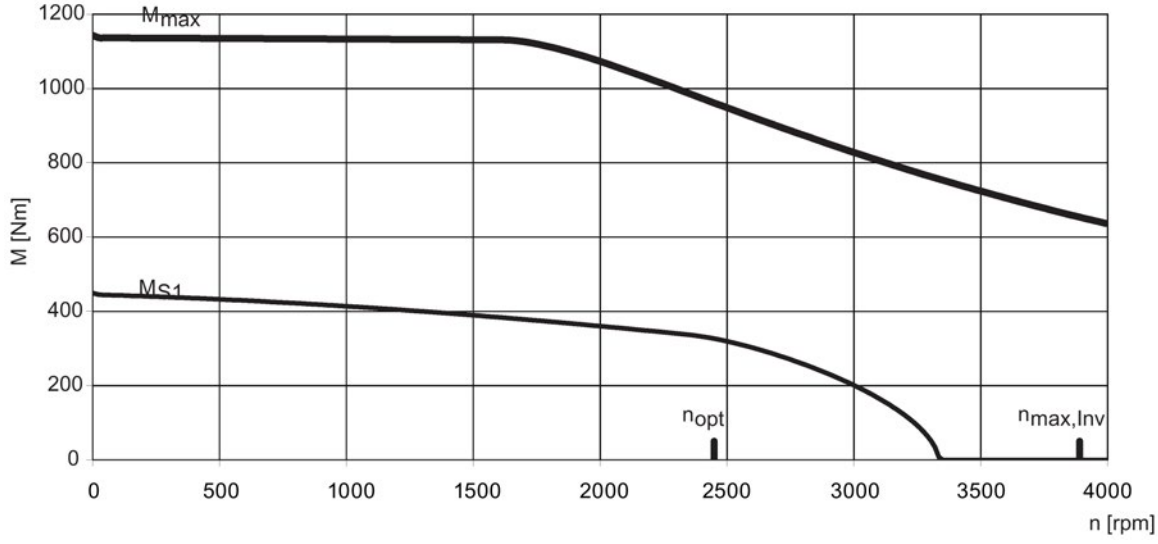
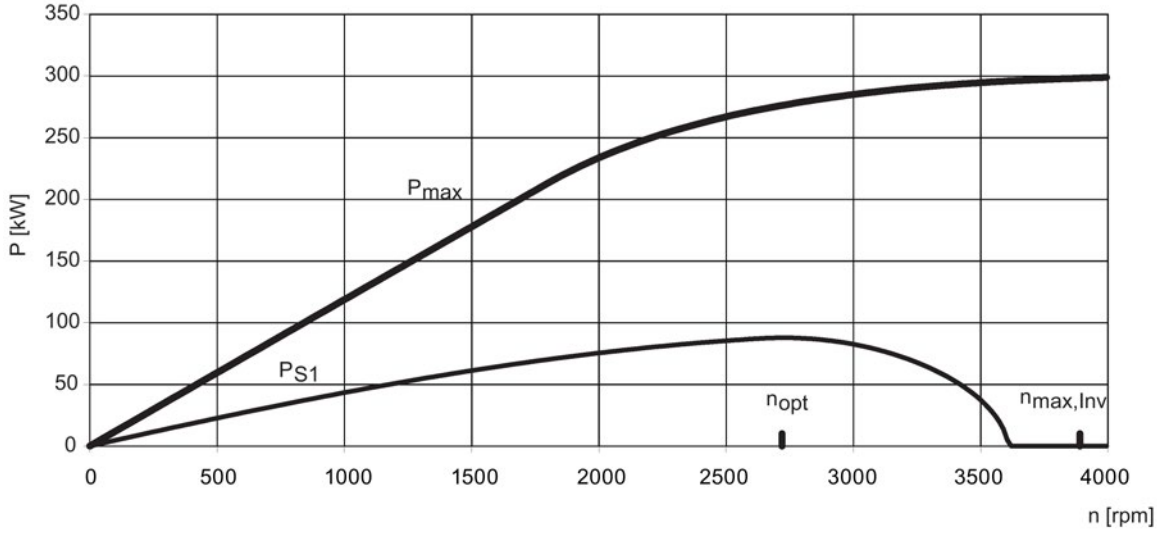


Table 6- 901 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8165-□□L□□

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]
2,800	87.0	300	138	87.8	2,720	4,000	4,000	3,900	1,135	551	440	188
2,500	84.0	320	148									



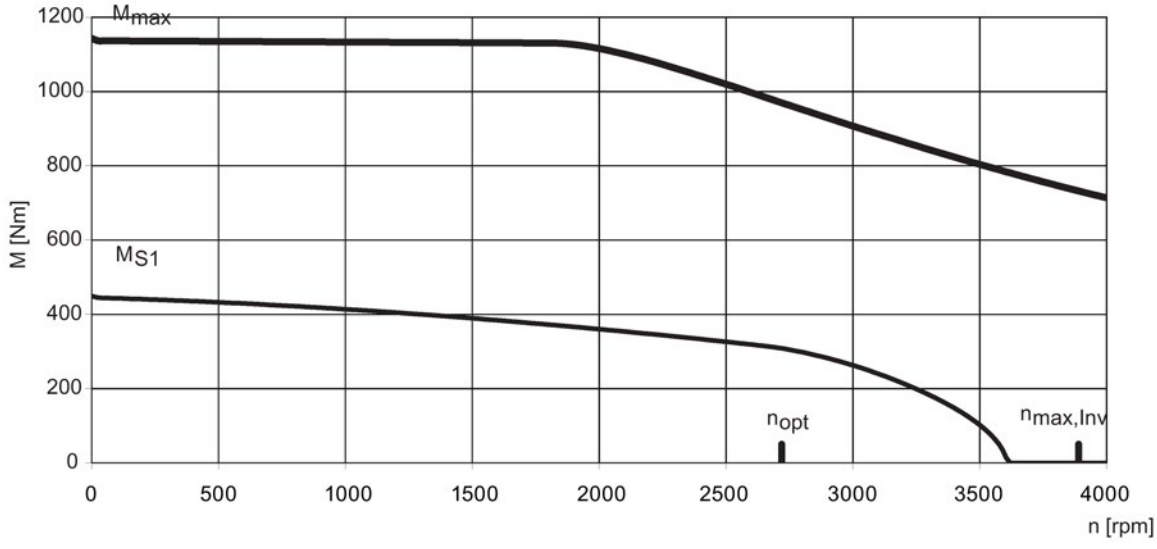
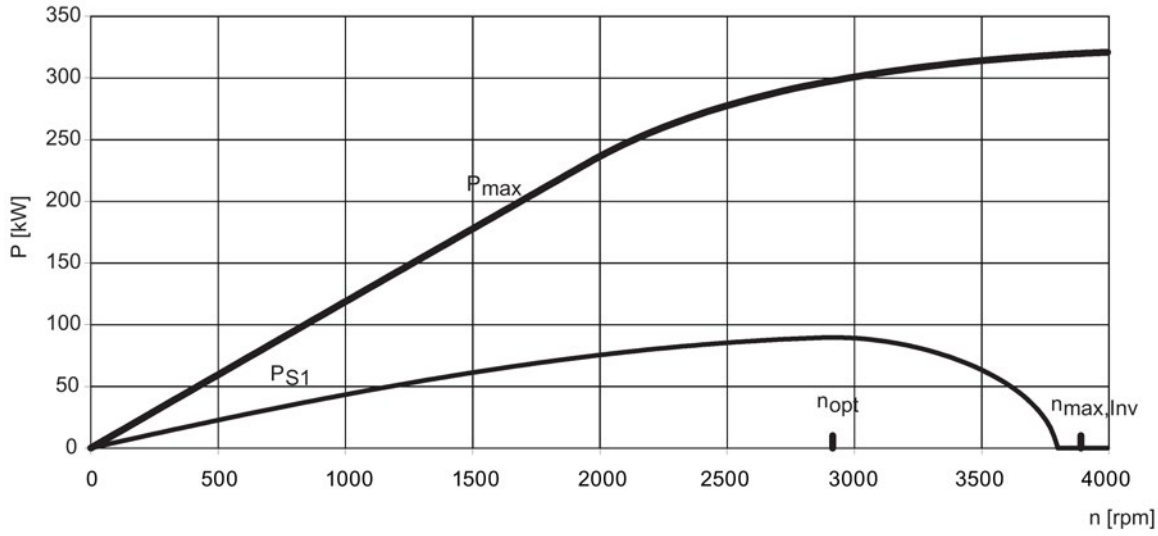


Table 6- 902 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8165-□□L□□

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]
3,000	89.0	285	131	89.6	2,915	4,000	4,000	3,900	1,135	551	440	188



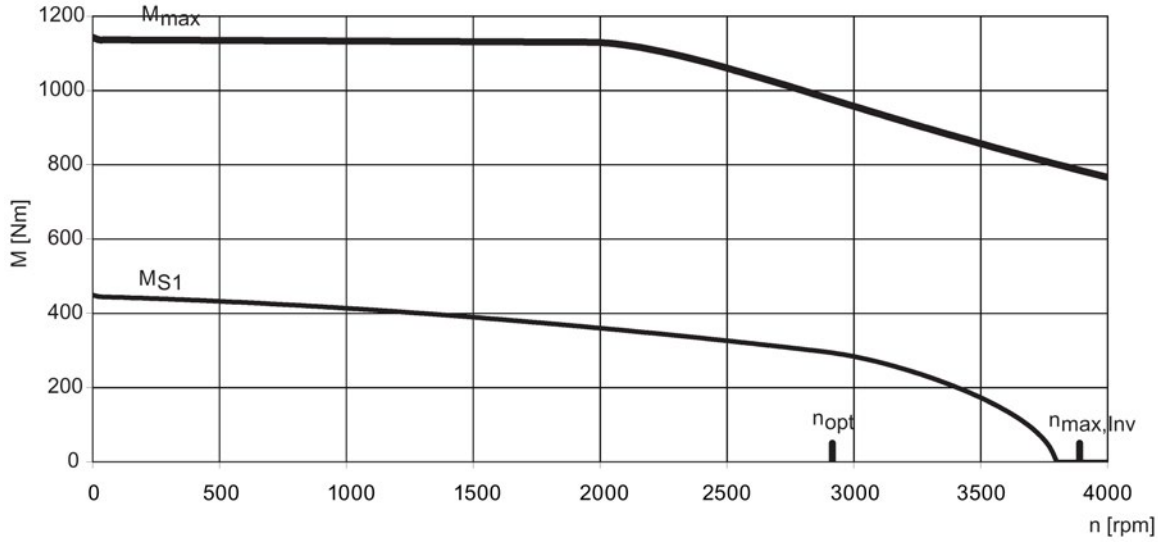
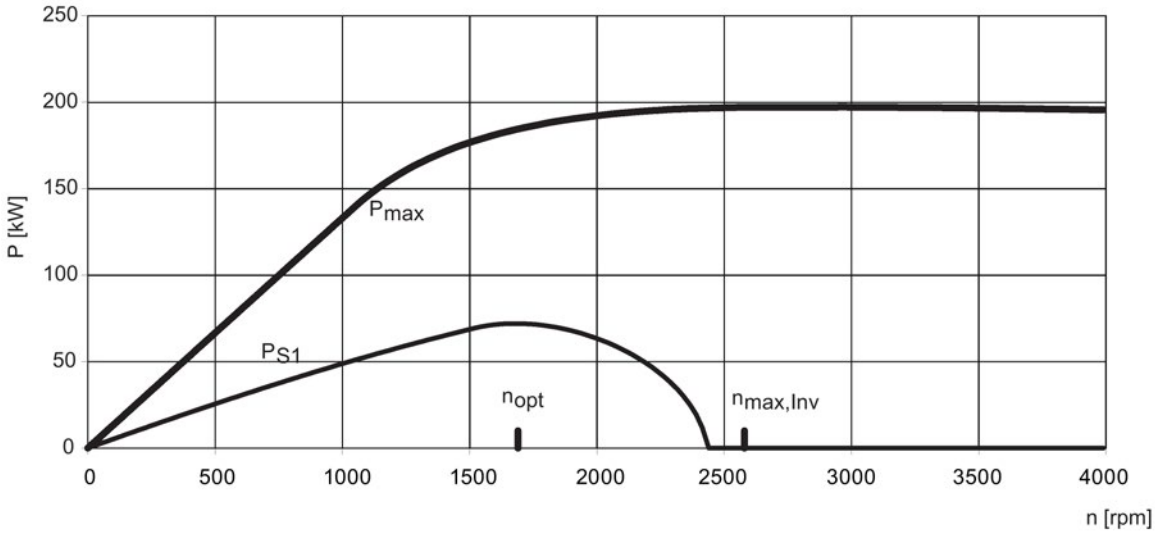


Table 6- 903 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8167-□□F□□

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]
1,500	69.0	435	133	72.0	1,690	4,000	4,000	2,600	1,280	413	500	143



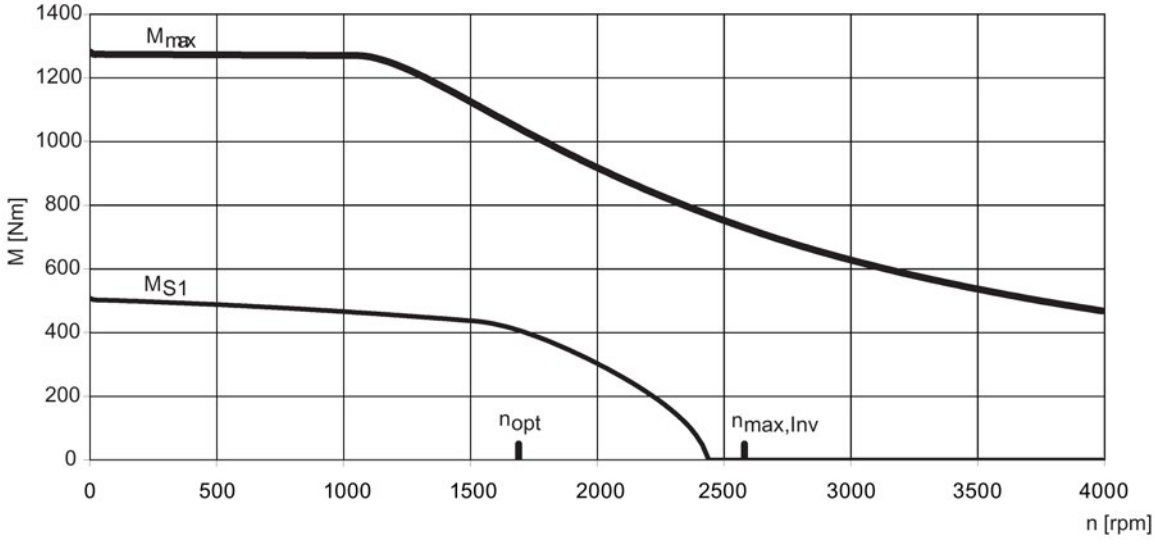
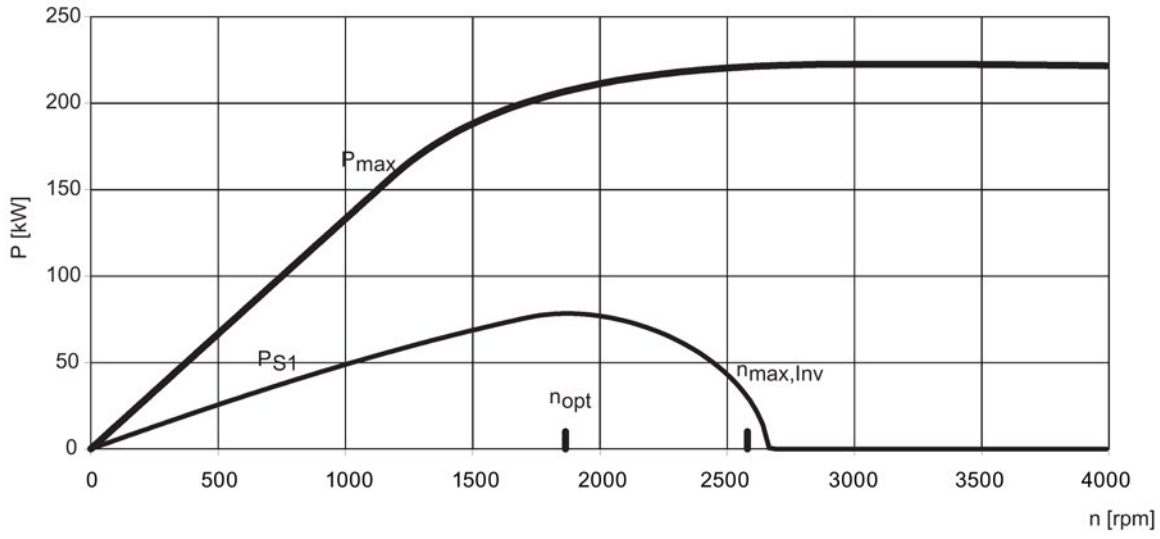


Table 6- 904 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8167-□□F□□

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]
1,750	77.0	420	128	78.3	1,865	4,000	4,000	2,600	1,280	413	500	143
1,500	69.0	435	133									



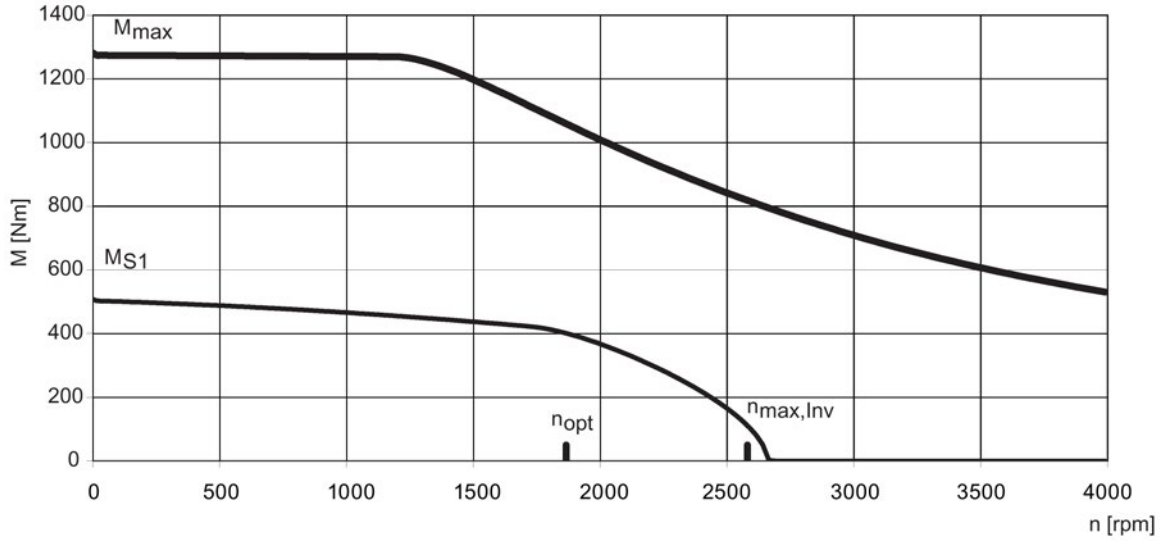
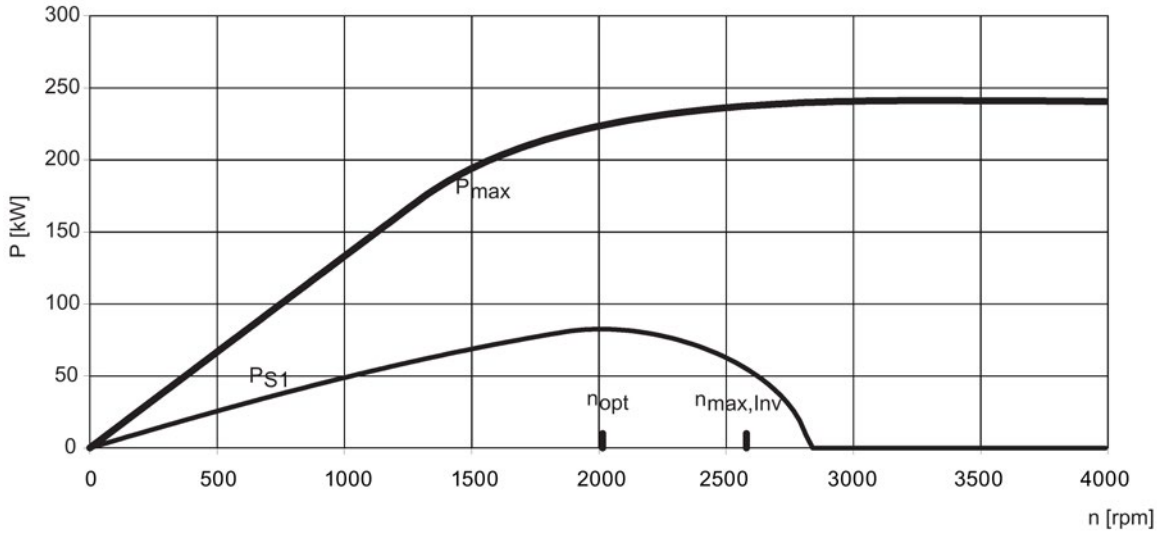


Table 6- 905 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8167-□□F□□

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]
2,000	82.0	395	123	82.5	2,015	4,000	4,000	2,600	1,280	413	500	143



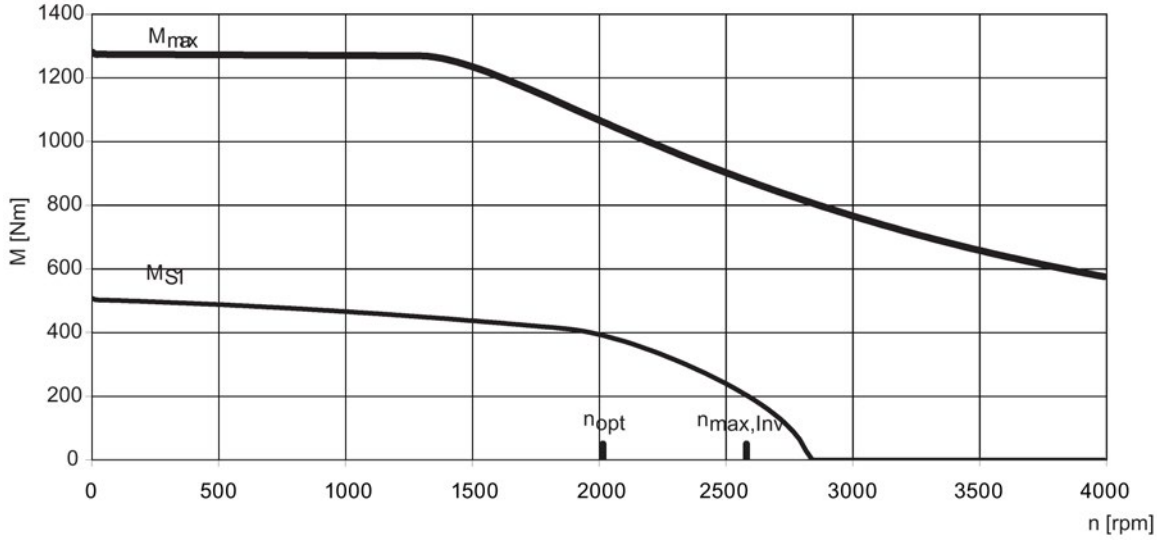
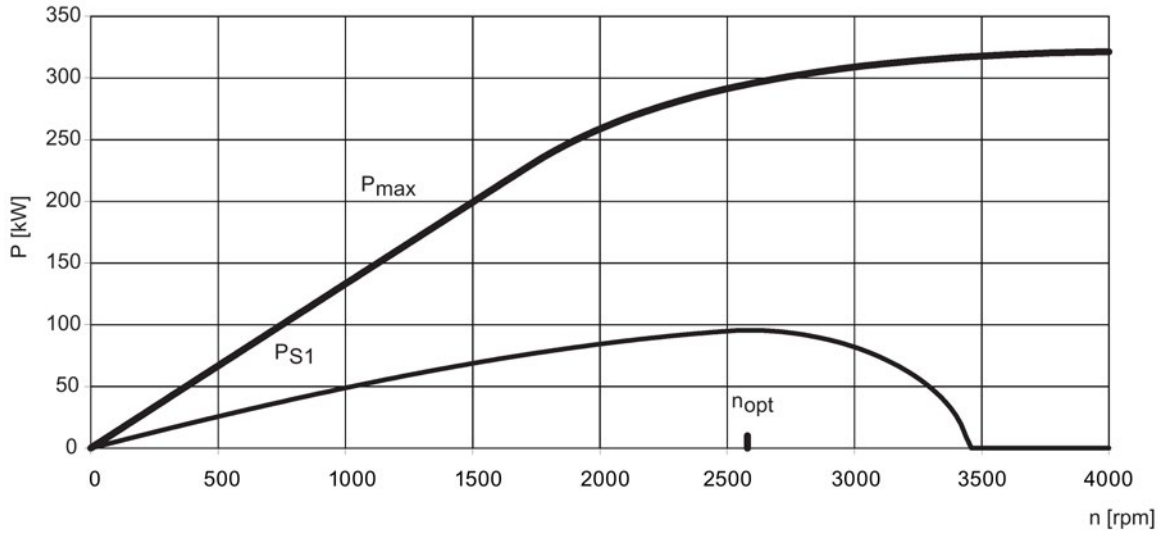


Table 6- 906 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8167-□□L□□

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]
2,500	95.0	360	177	95.5	2,580	4,000	4,000	>4,000	1,280	661	500	230



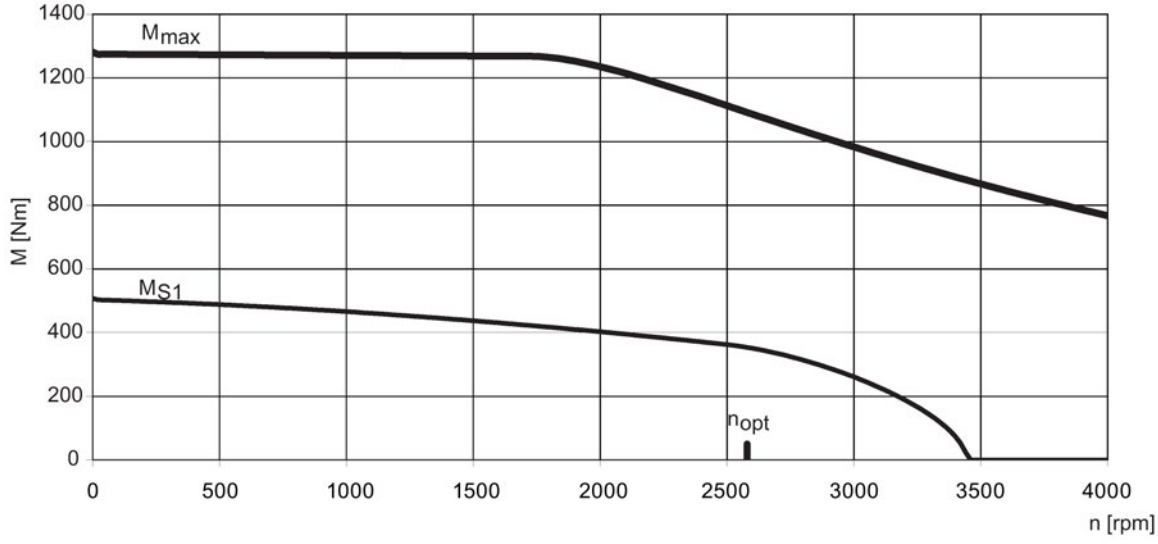
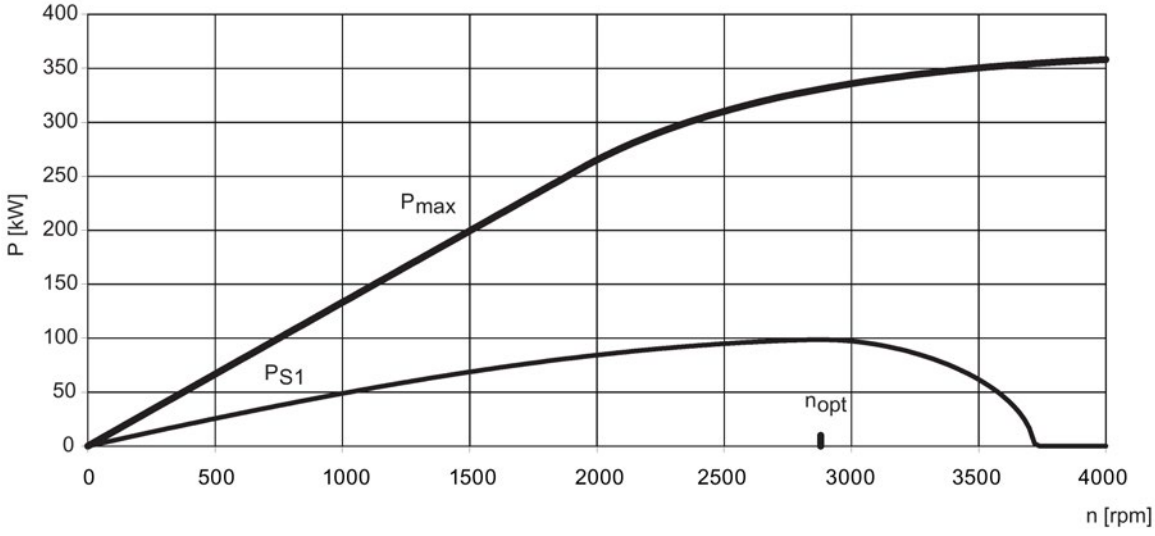


Table 6- 907 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8167-□□L□□

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]
2,800	98.0	335	164	98.6	2,880	4,000	4,000	>4,000	1,280	661	500	230
2,500	95.0	360	177									



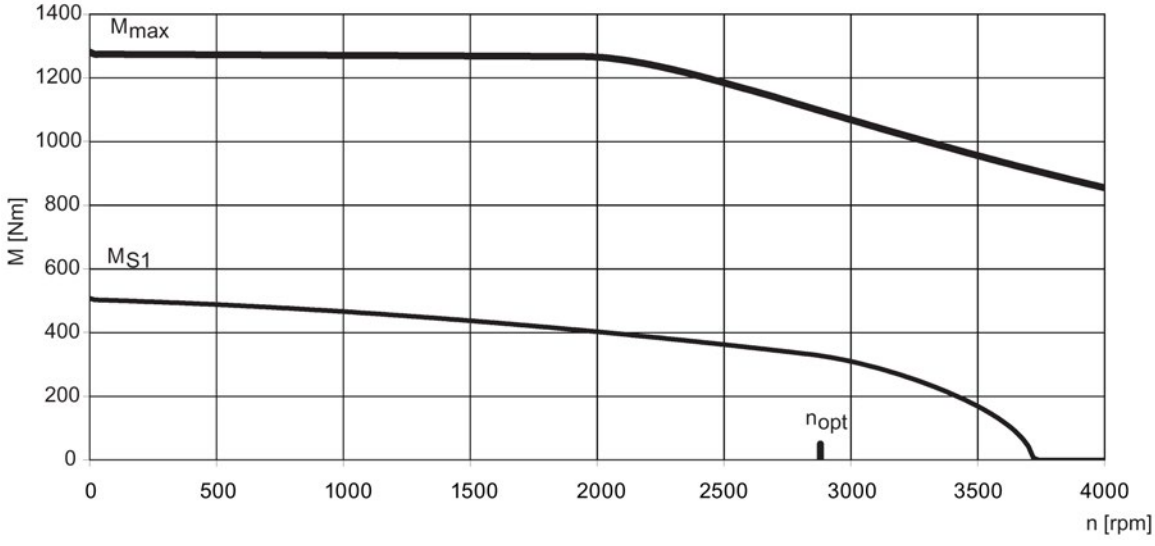
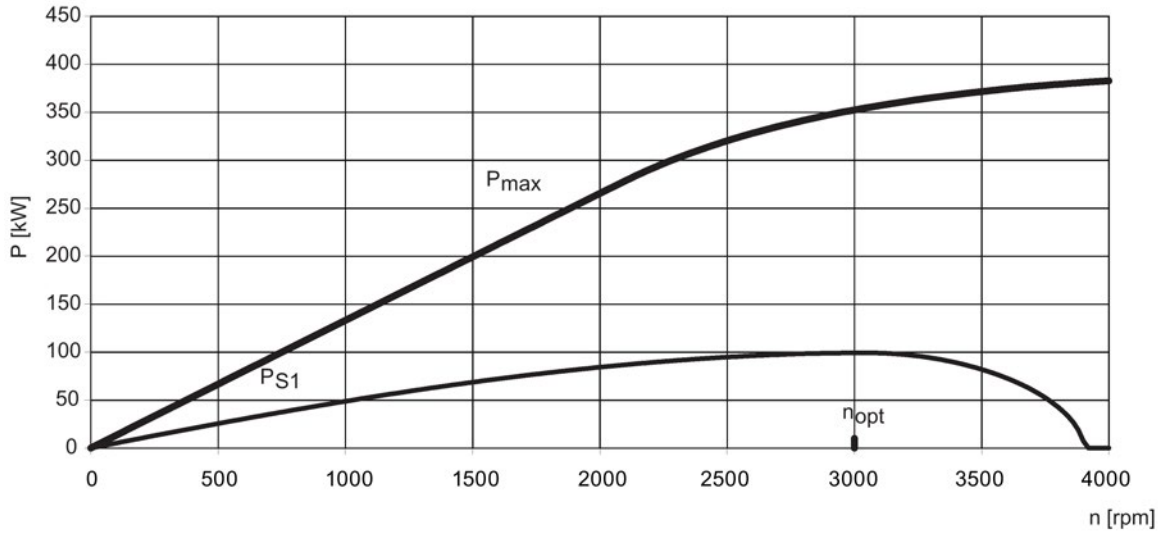
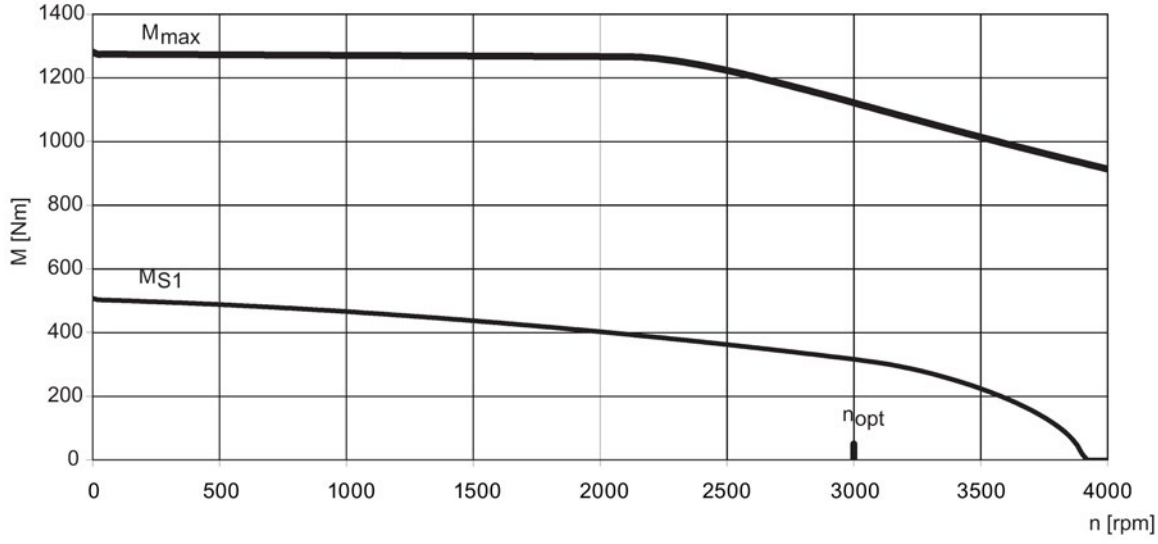


Table 6- 908 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8167-□□L□□

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]
3,000	99.0	315	155	99.3	3,000	4,000	4,000	>4,000	1,280	661	500	230

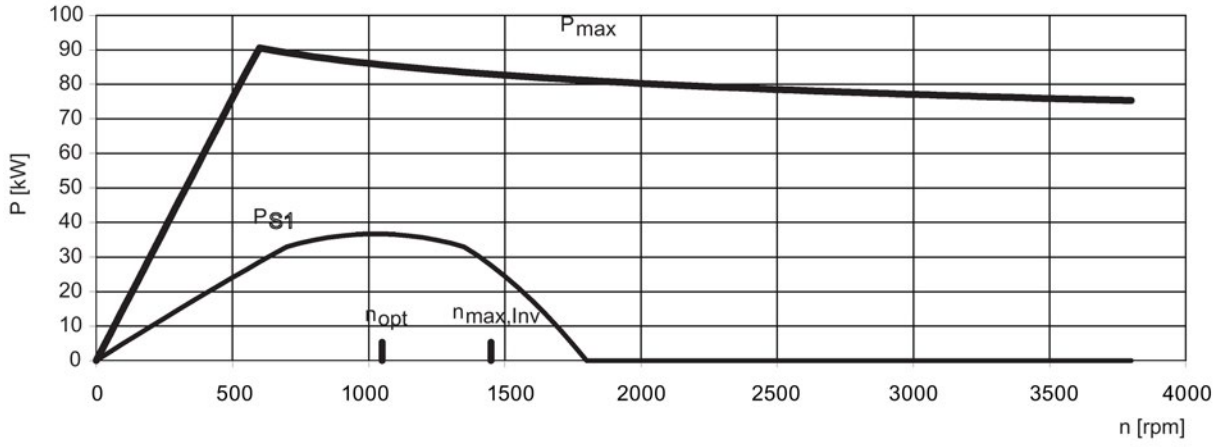




6.2.2.3 Shaft height 180 - forced ventilation

Table 6- 909 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	1,050	3,800	3,500	1,450	1,450	260	480	84



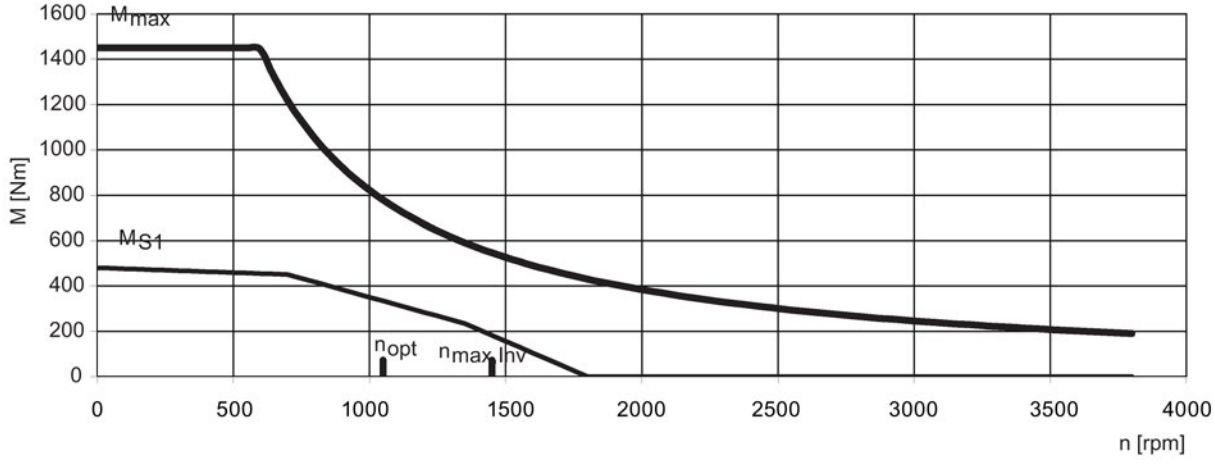
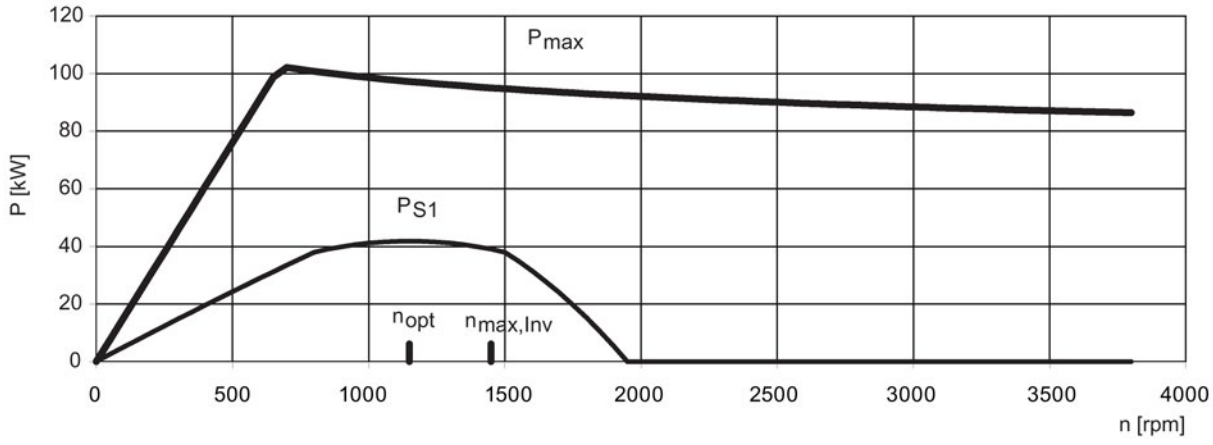


Table 6- 910 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□C□□

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	1,150	3,800	3,500	1,450	1,450	260	480	84
700	33	450	80									



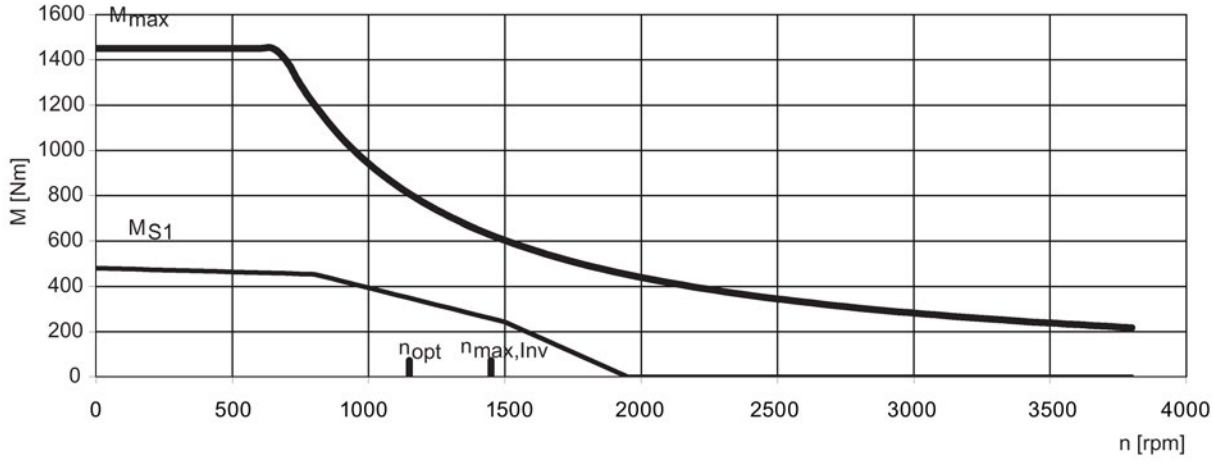
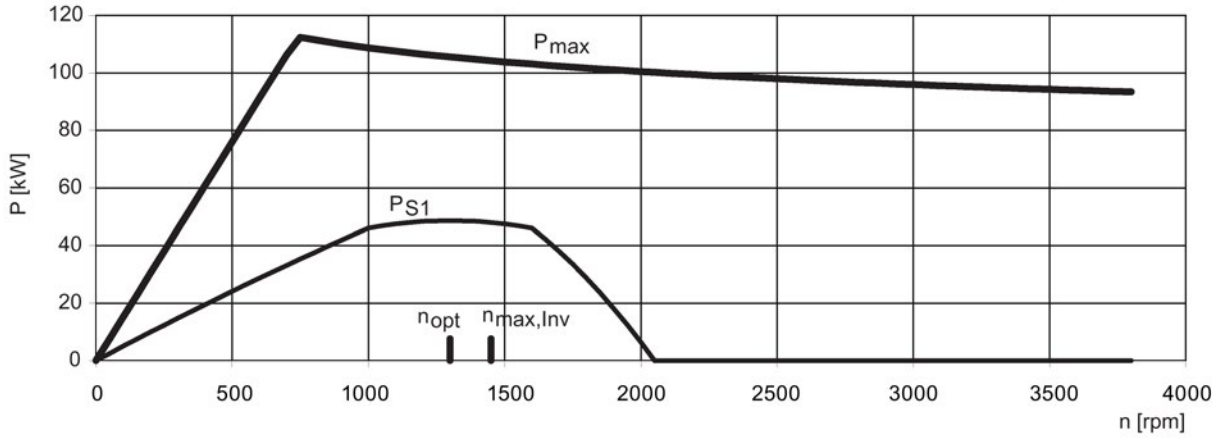


Table 6- 911 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□C□□

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]
1,000	46	439	78	49	1,300	3,800	3,500	1,450	1,450	260	480	84



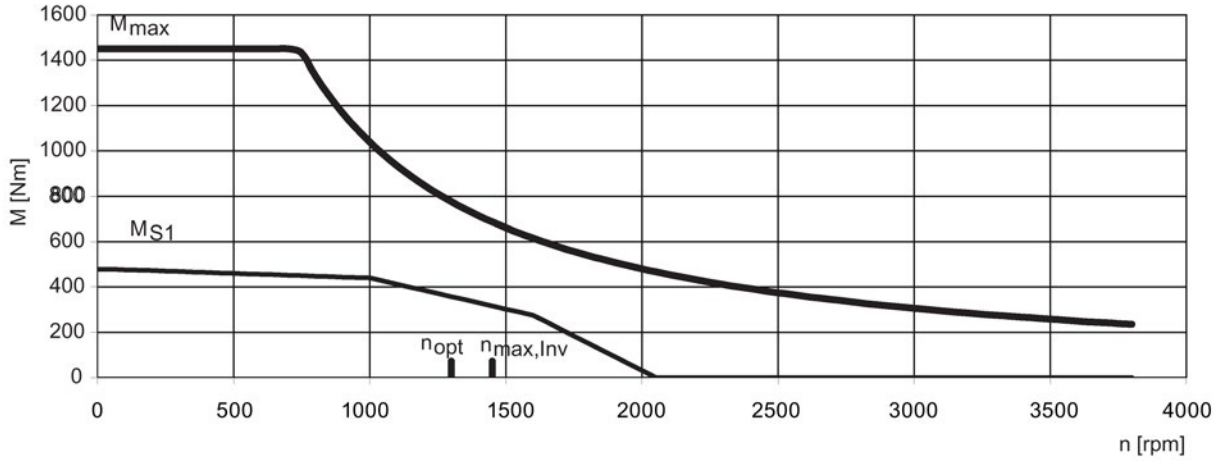
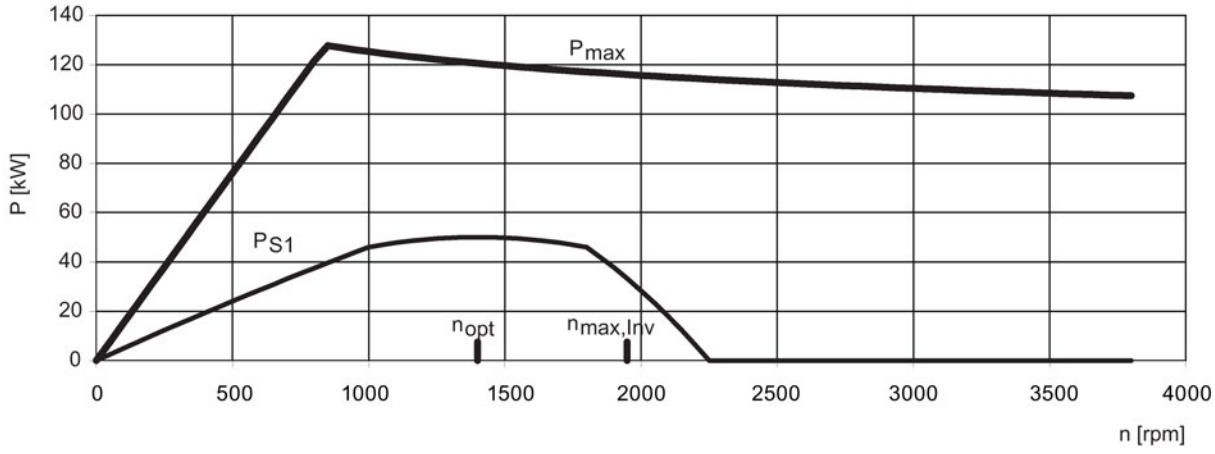


Table 6- 912 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□D□□

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]
1,000	46	439	106	50	1,400	3,800	3,500	1,950	1,450	355	480	115



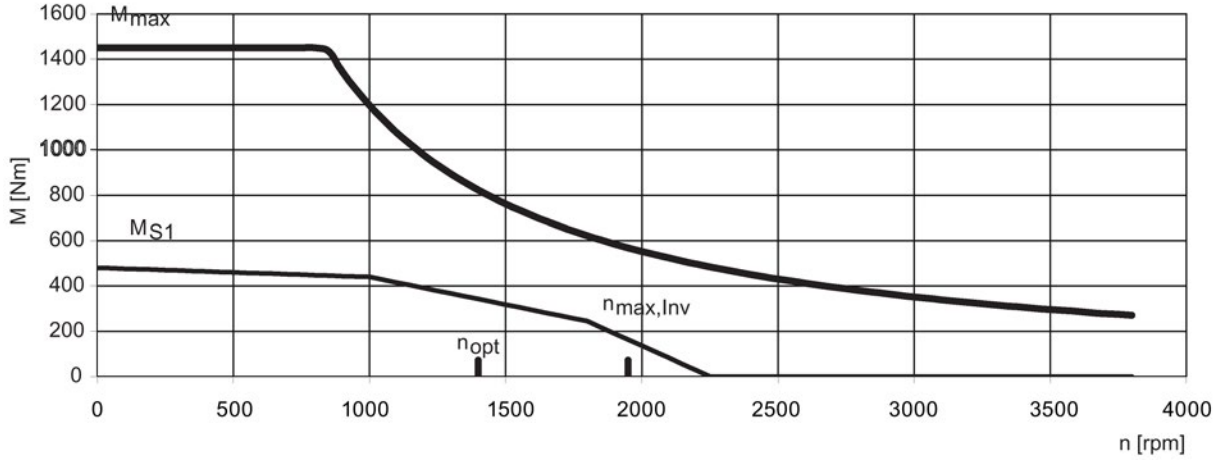
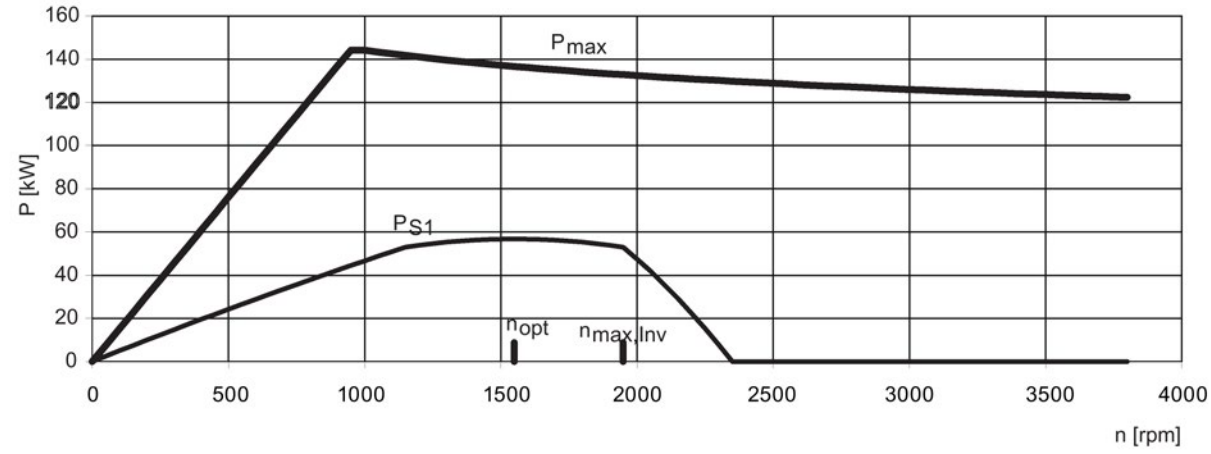


Table 6- 913 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□D□□

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]
1,150	53	440	106	57	1,550	3,800	3,500	1,950	1,450	355	480	115
1,000	46	439	106									



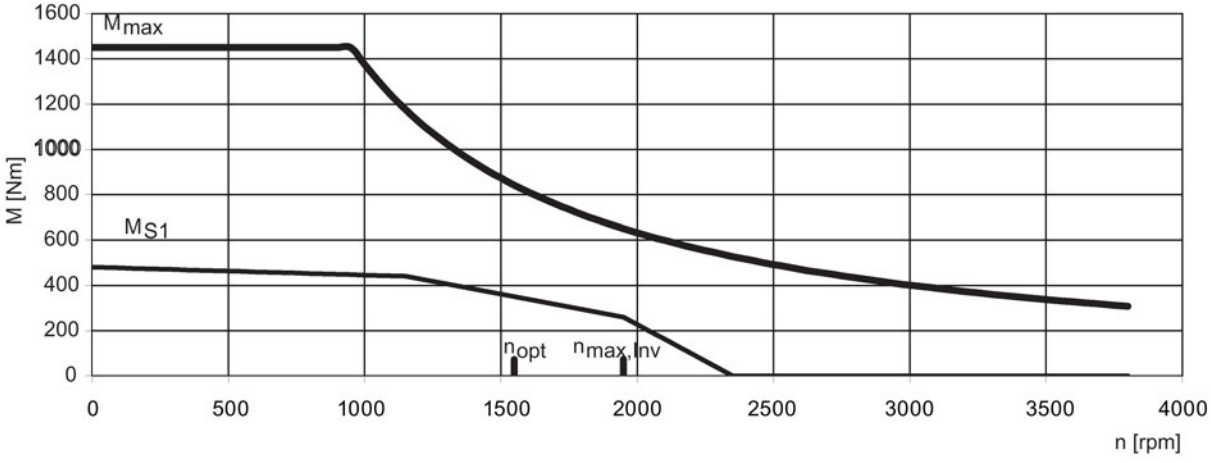
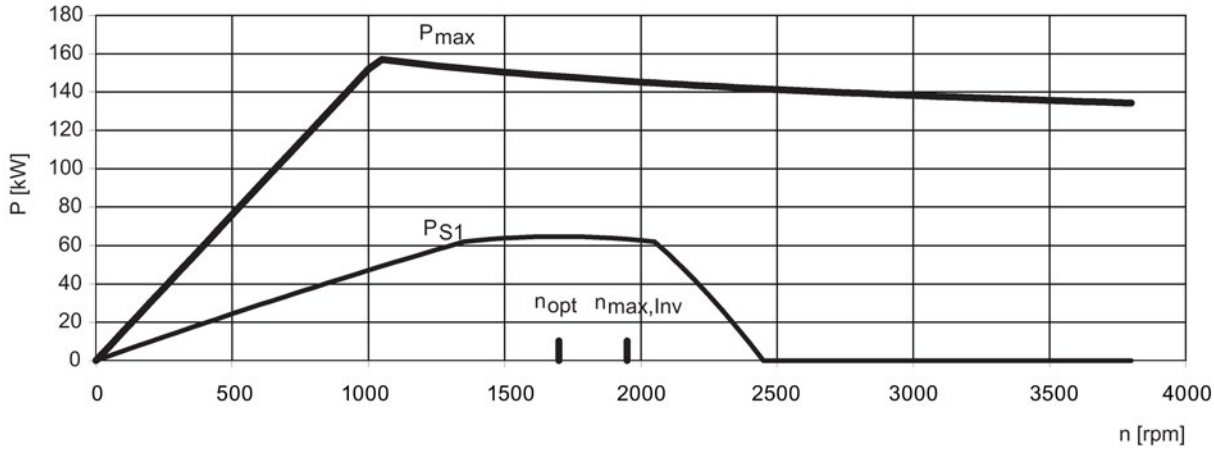


Table 6- 914 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□D□□

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]
1,350	62	439	106	65	1,700	3,800	3,500	1,950	1,450	355	480	115



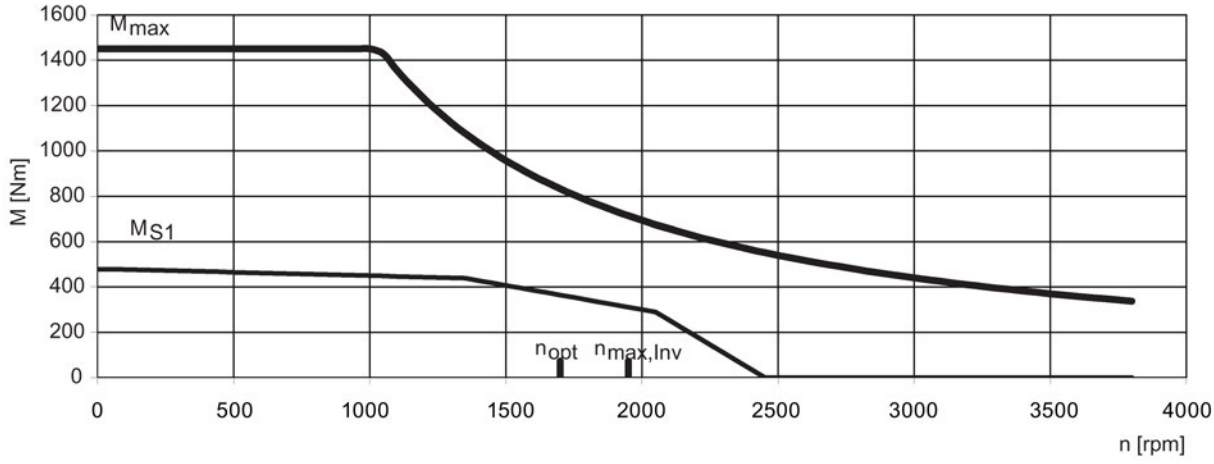
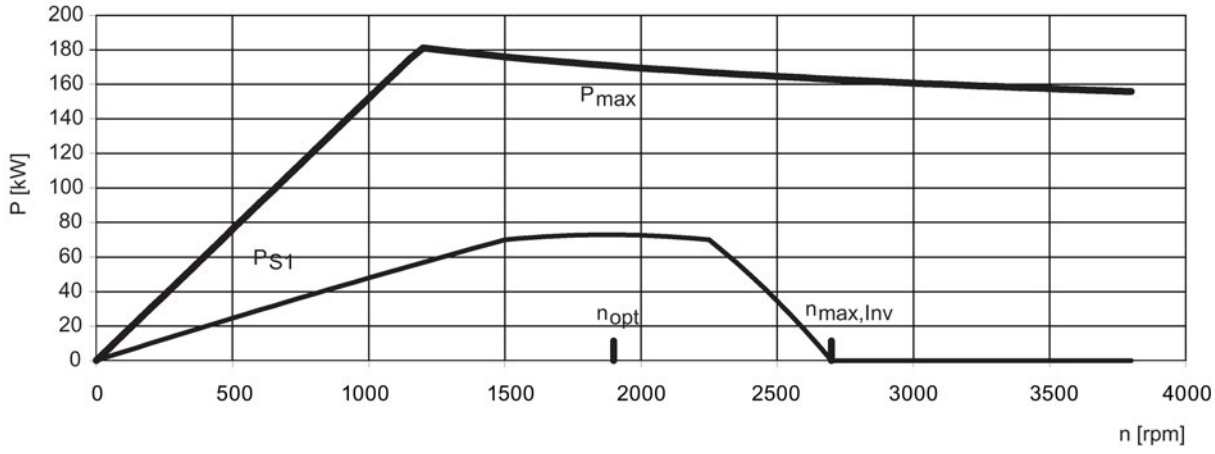


Table 6- 915 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□F□□

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]
1,500	70	446	148	73	1,900	3,800	3,500	2,700	1,450	490	480	157



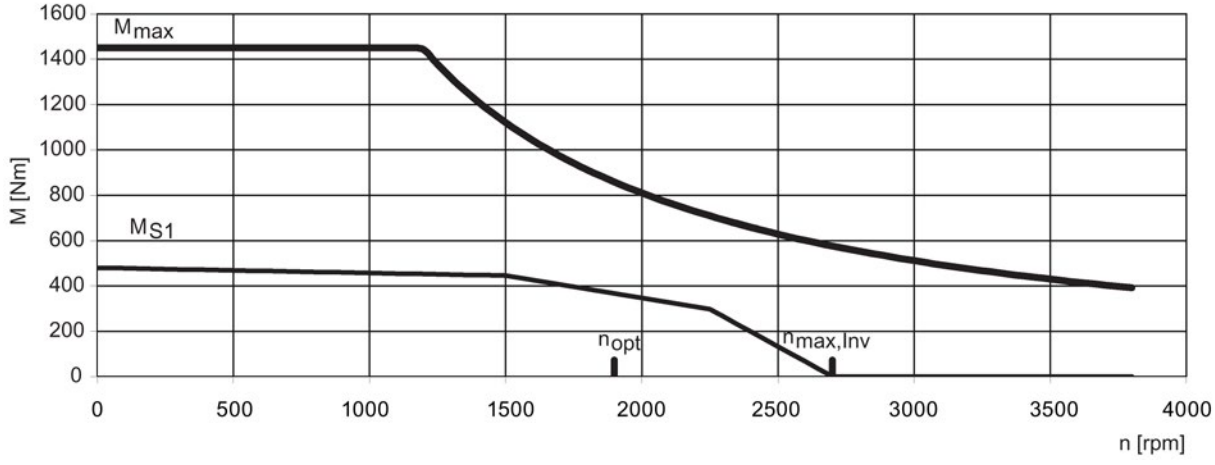
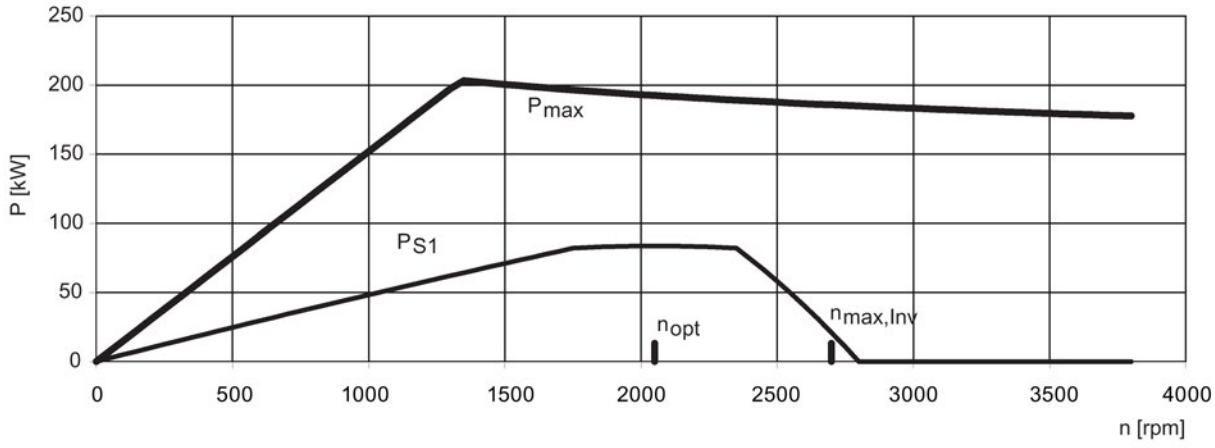


Table 6- 916 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8184-2□F□□

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]
1,750	82	447	150	84	2,050	3,800	3,500	2,700	1,450	490	480	157
1,500	70	446	148									



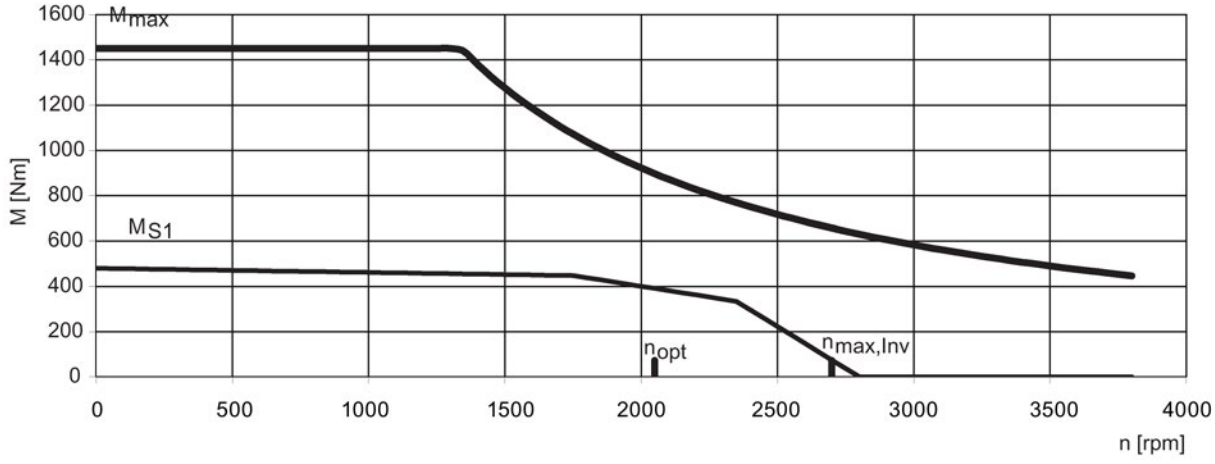
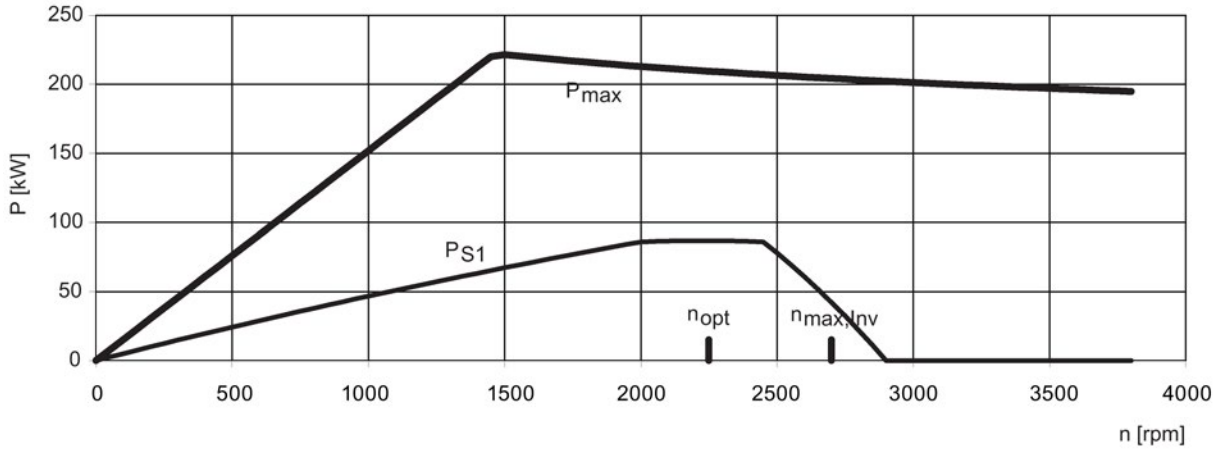


Table 6- 917 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□F□□

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]
2,000	86	411	138	87	2,250	3,800	3,500	2,700	1,450	490	480	157



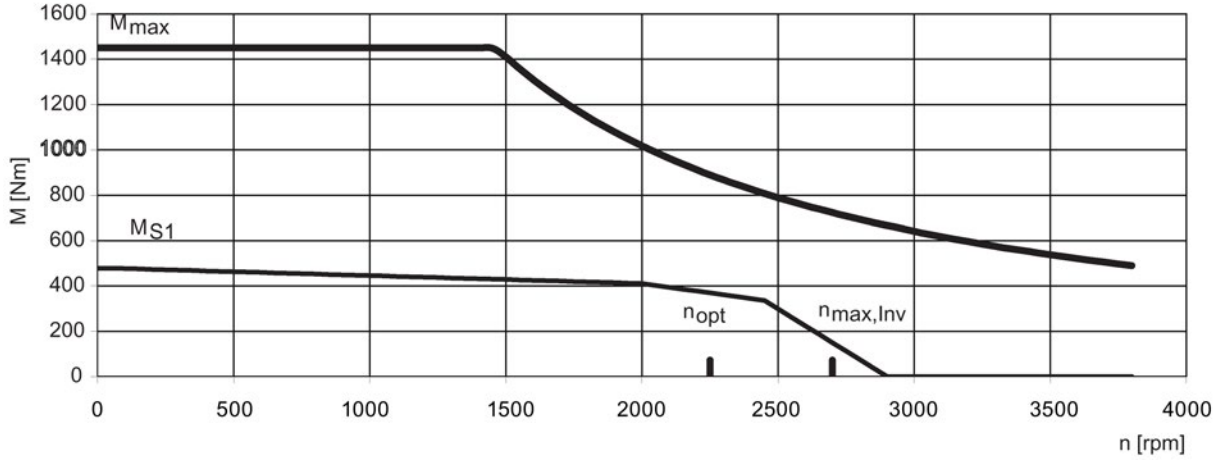
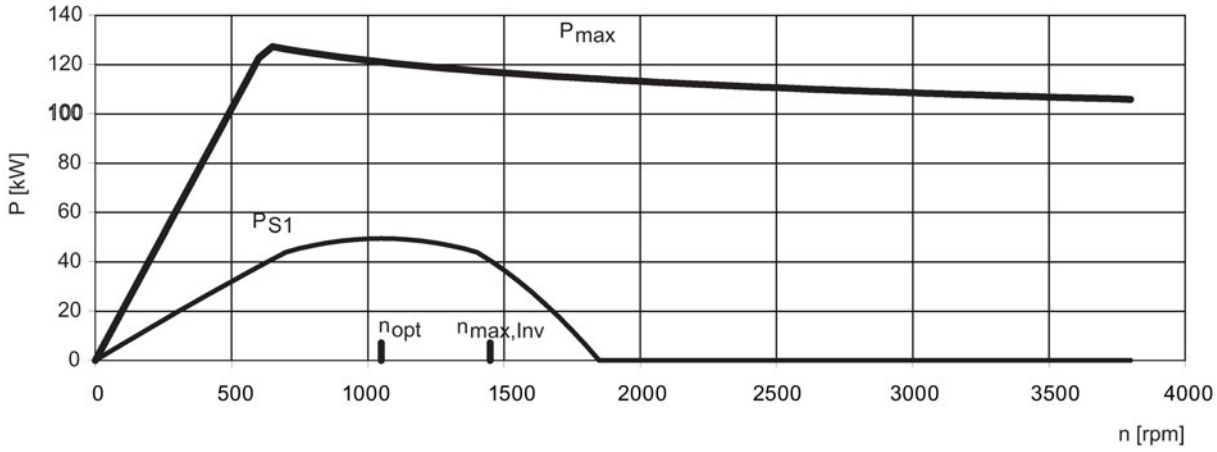


Table 6- 918 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□C□□

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	1,050	3,800	3,500	1,450	1,950	358	640	115



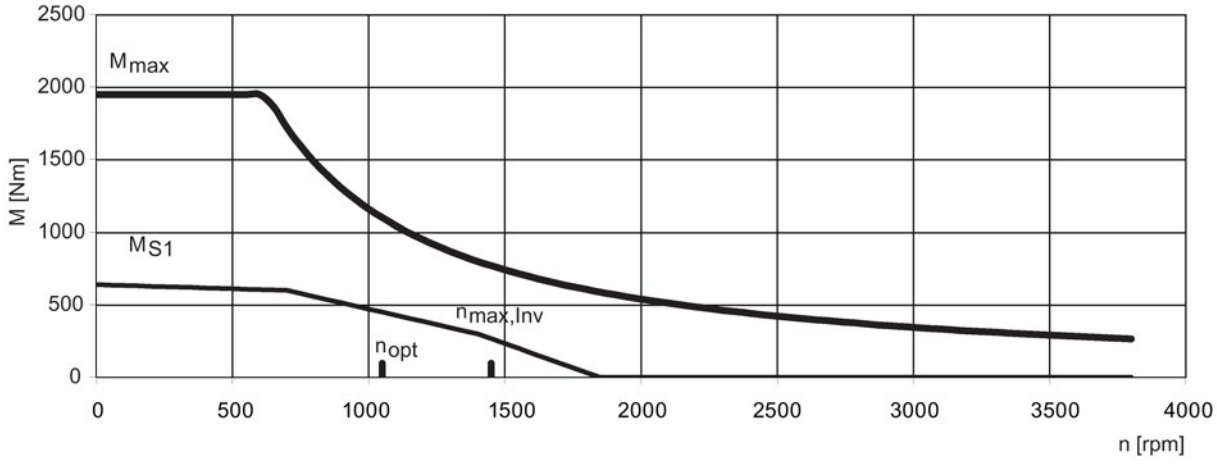
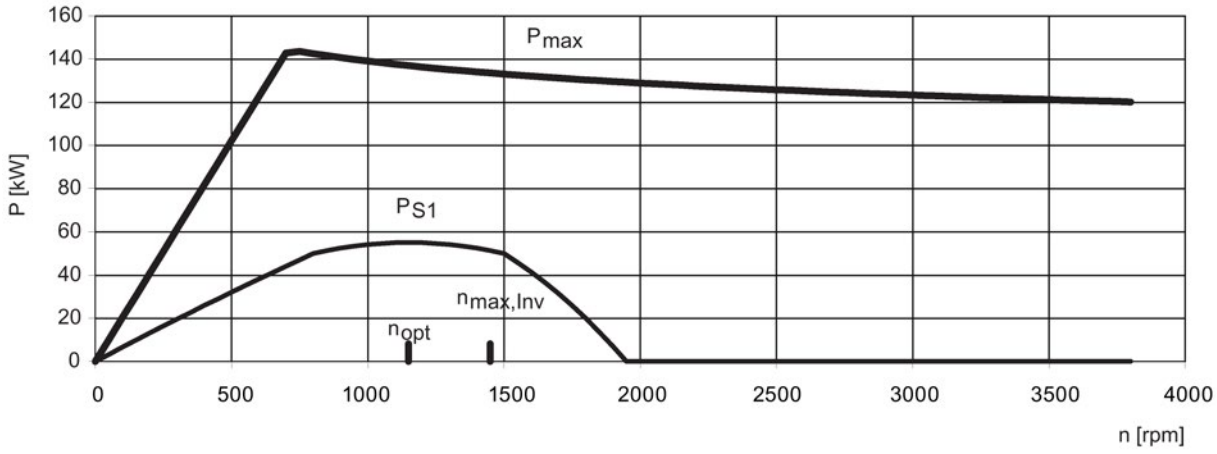


Table 6- 919 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□C□□

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	1,150	3,800	3,500	1,450	1,950	358	640	115
700	44	600	108									



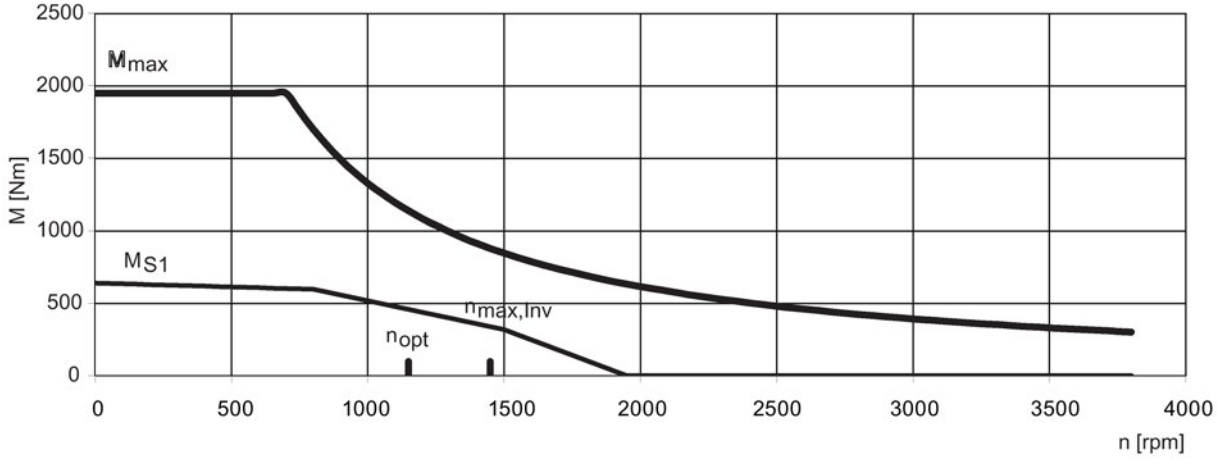
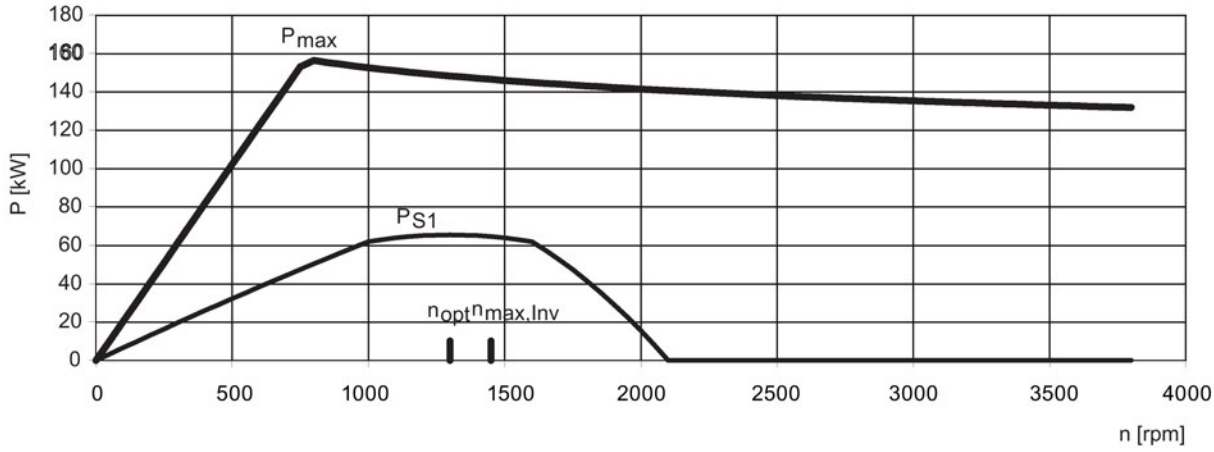


Table 6- 920 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□C□□

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]
1,000	62	592	108	65	1,300	3,800	3,500	1,450	1,950	358	640	115



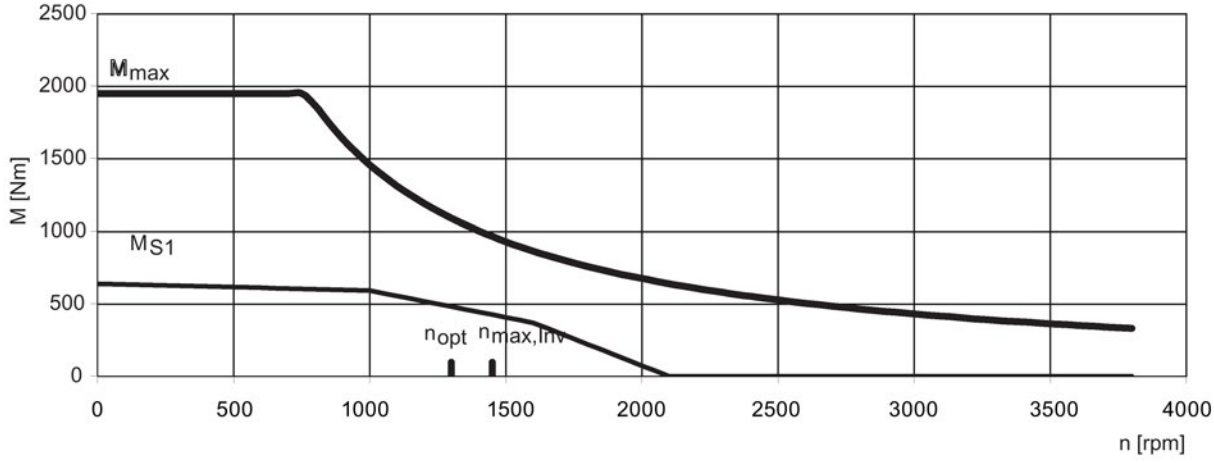
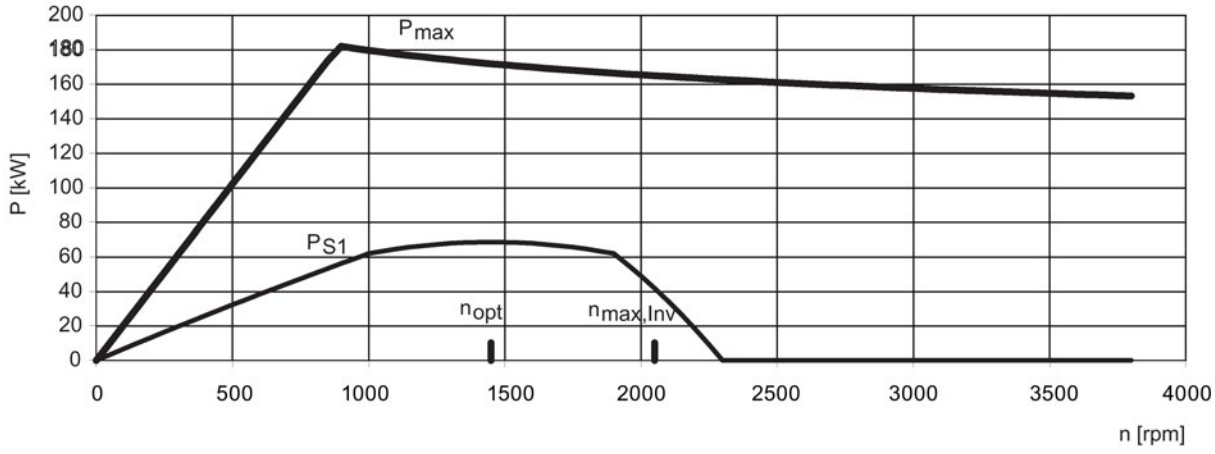


Table 6- 921 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□D□□

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]
1,000	62	592	148	69	1,450	3,800	3,500	2,050	1,950	490	640	157



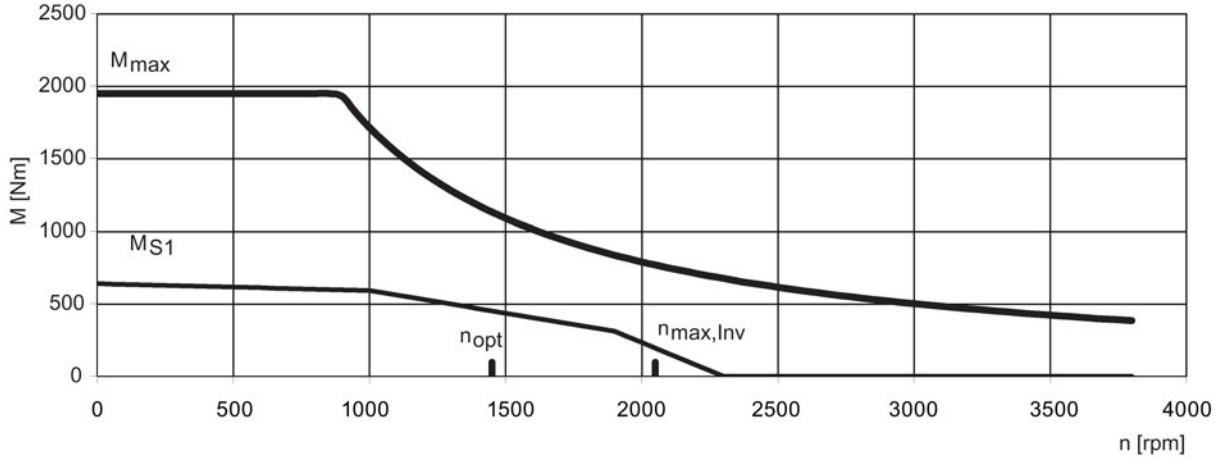
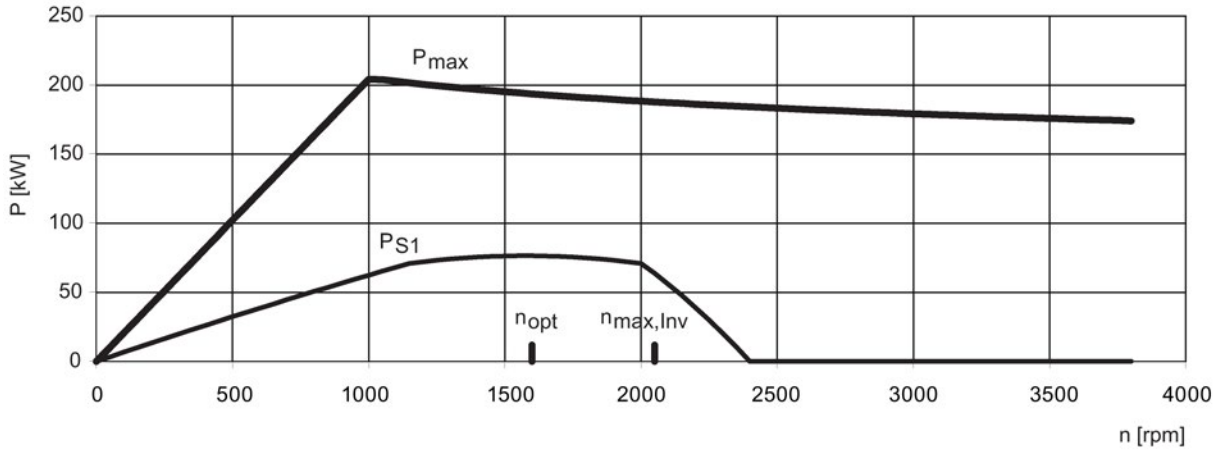


Table 6- 922 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□D□□

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]
1,150	71	590	148	77	1,600	3,800	3,500	2,050	1,950	490	640	157
1,000	62	592	148									



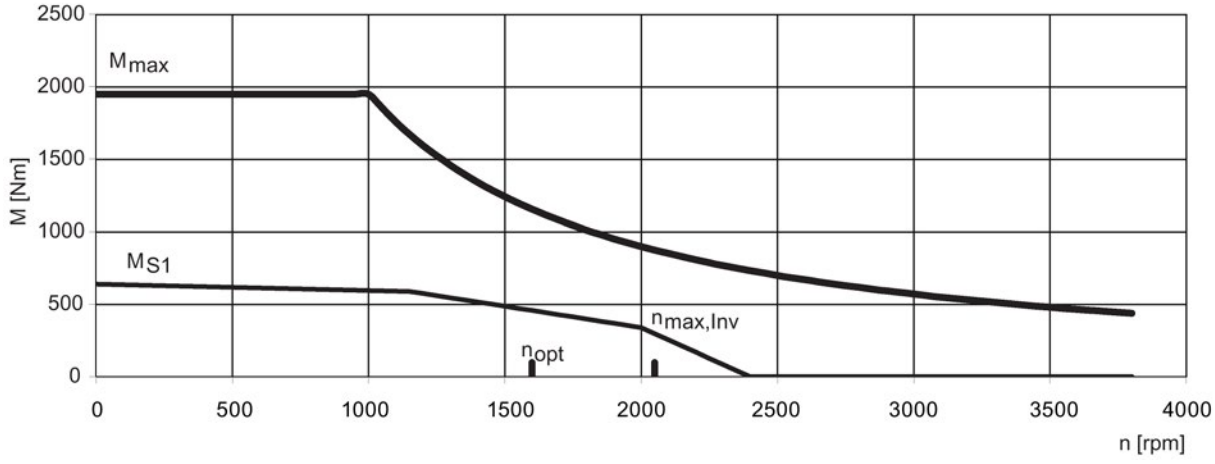
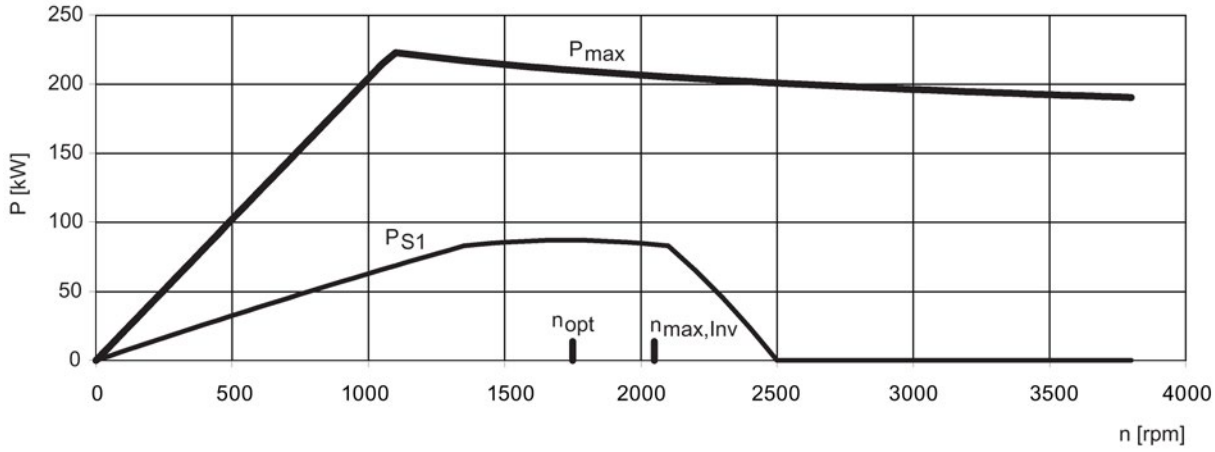


Table 6- 923 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□D□□

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]
1,350	83	587	146	87	1,750	3,800	3,500	2,050	1,950	490	640	157



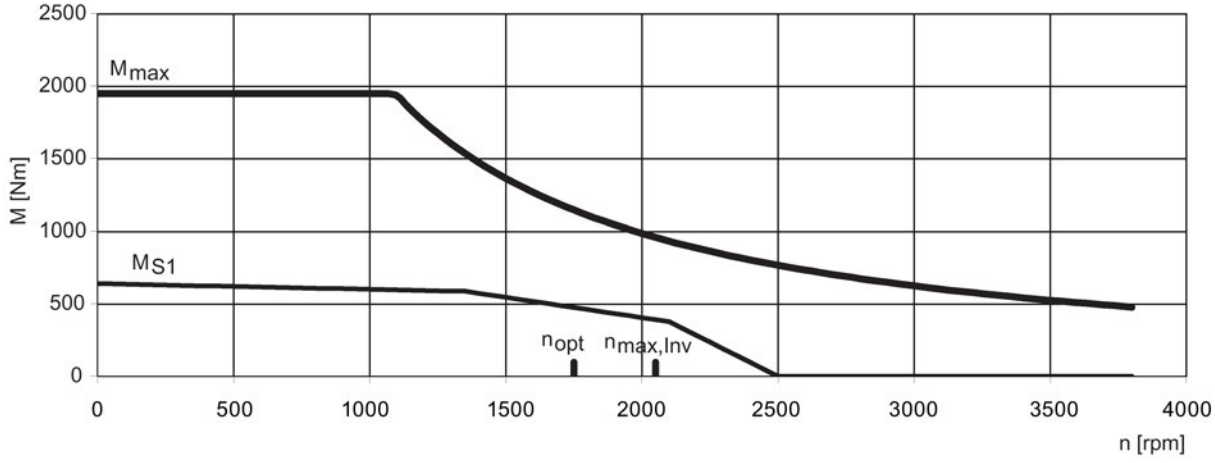
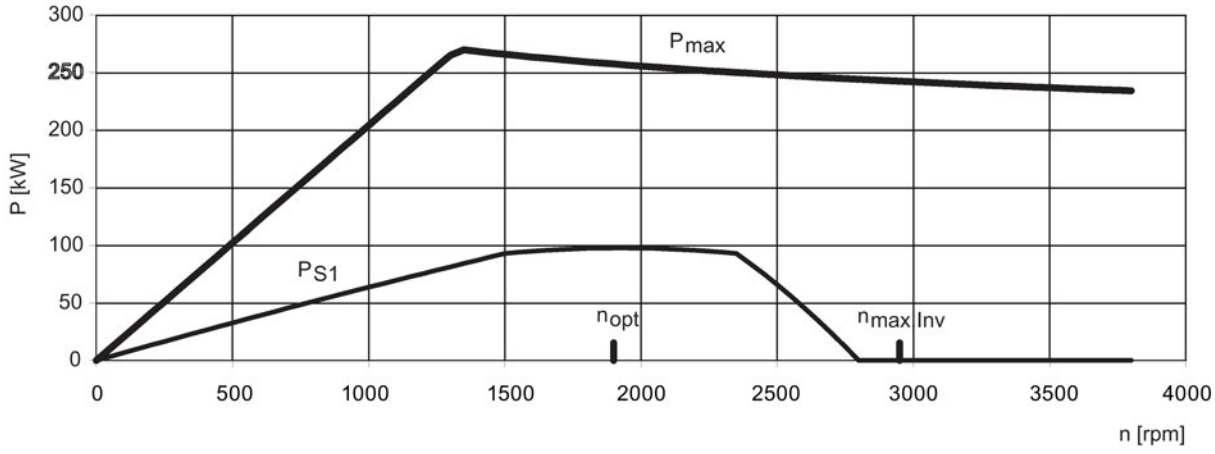


Table 6- 924 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□F□□

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]
1,500	93	592	215	98	1,900	3,800	3,500	2,950	1,950	720	640	229



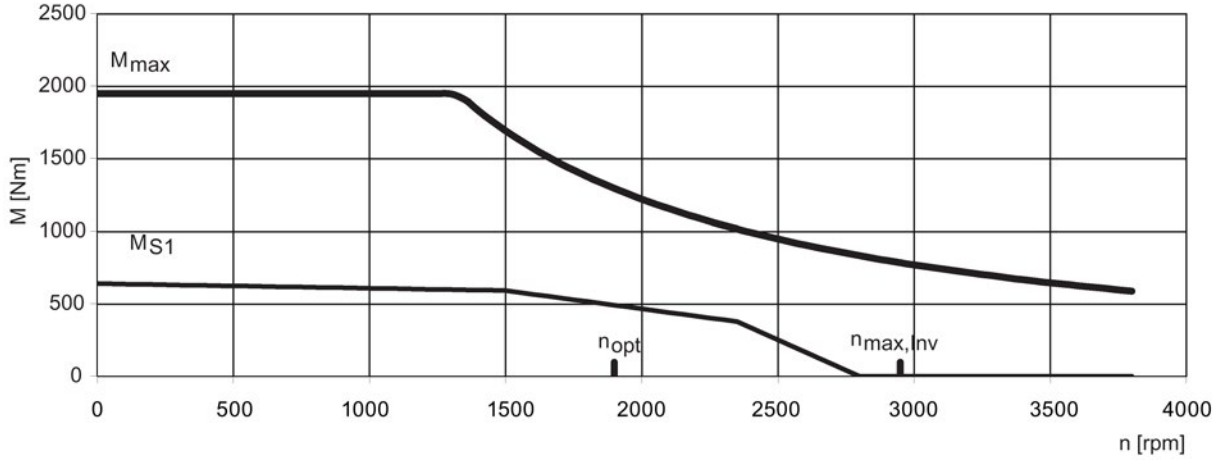
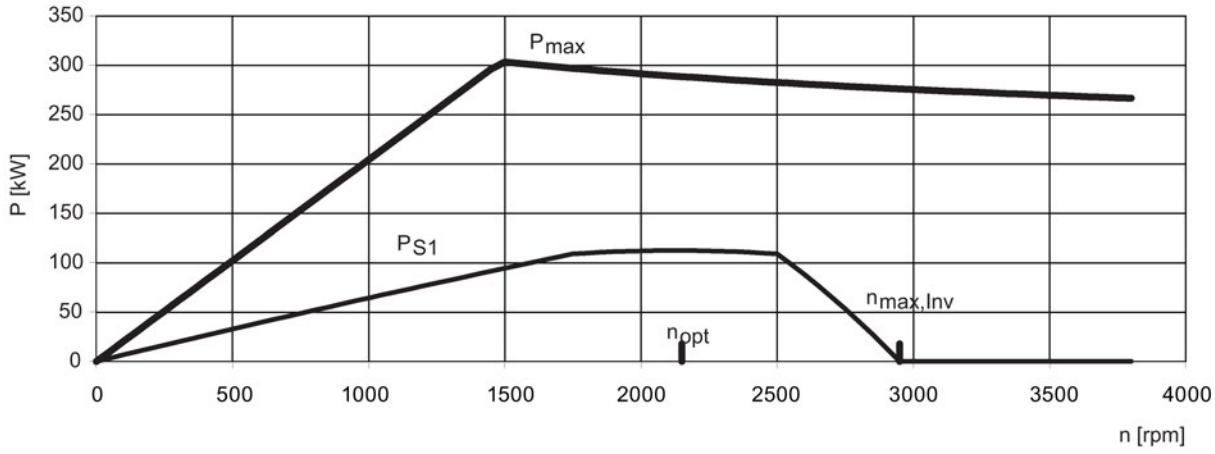


Table 6- 925 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8186-2□F□□

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]
1,750	109	595	215	112	2,150	3,800	3,500	2,950	1,950	720	640	229
1,500	93	592	215									



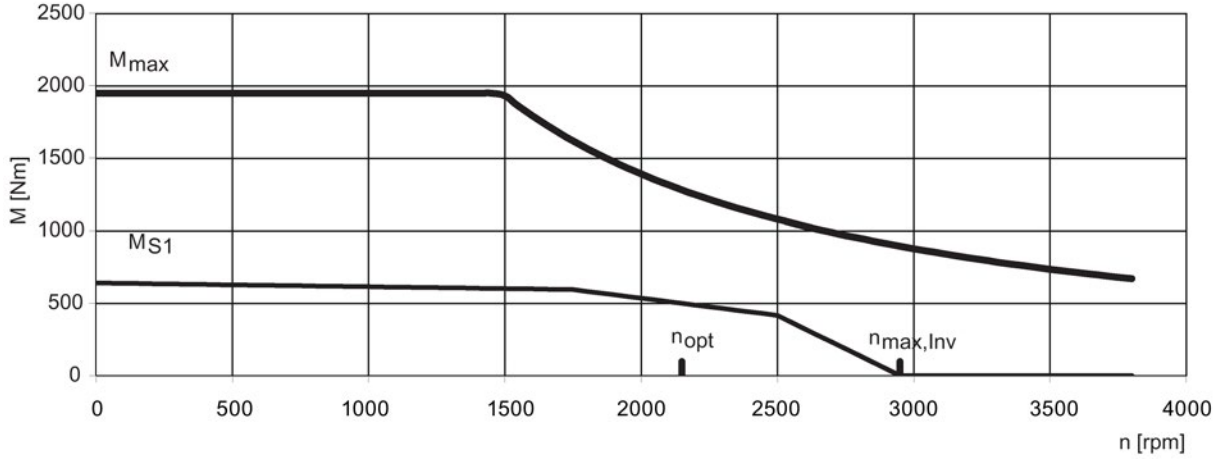
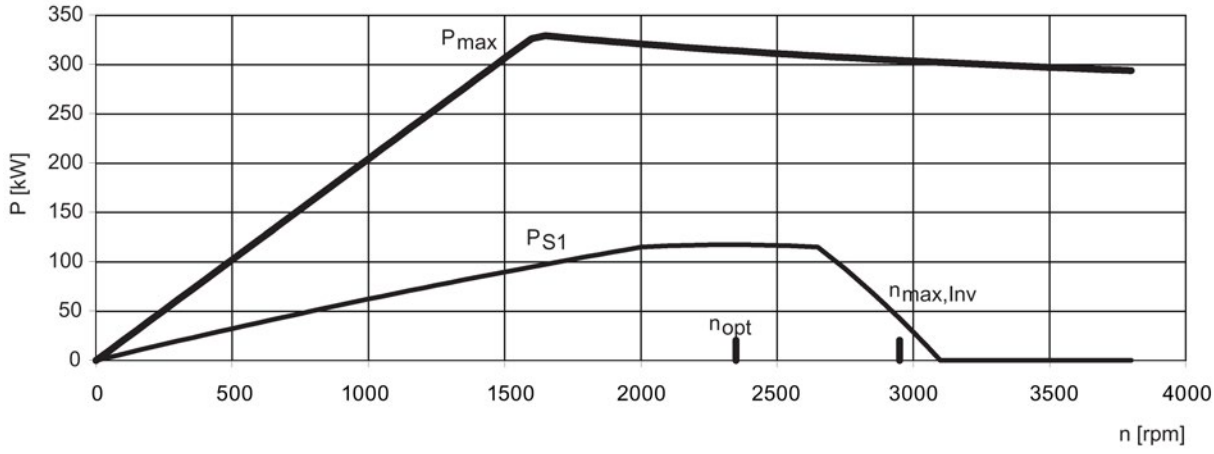
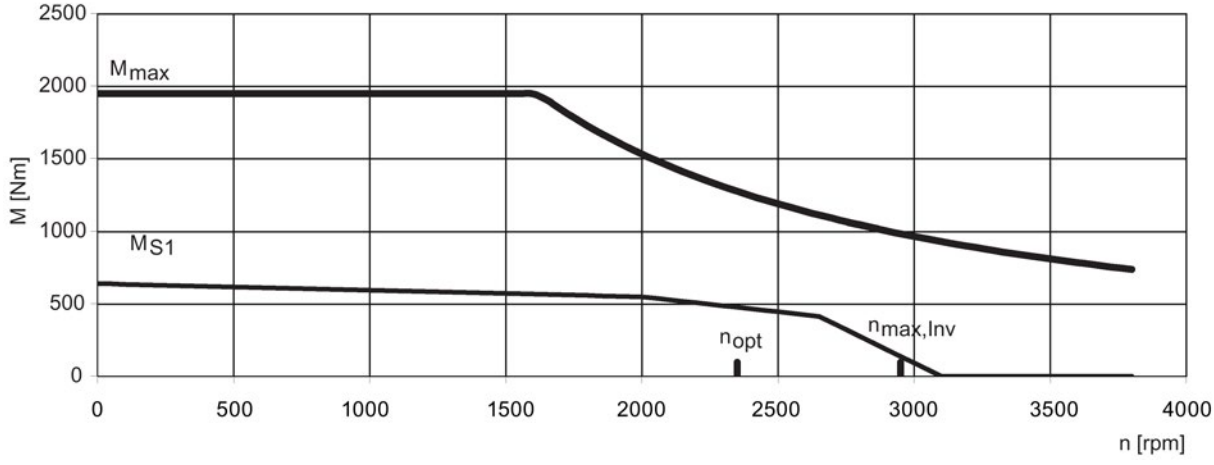


Table 6- 926 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□F□□

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]
2,000	115	549	200	117	2,350	3,800	3,500	2,950	1,950	720	640	229

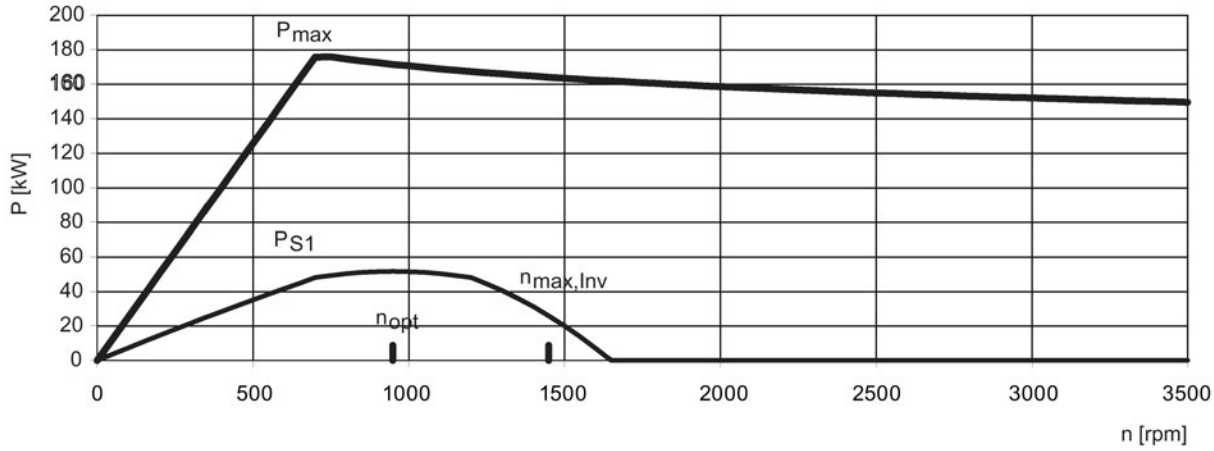




6.2.2.4 Shaft height 225 - forced ventilation

Table 6- 927 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	3,500	3,100	1,450	2,400	450	708	128



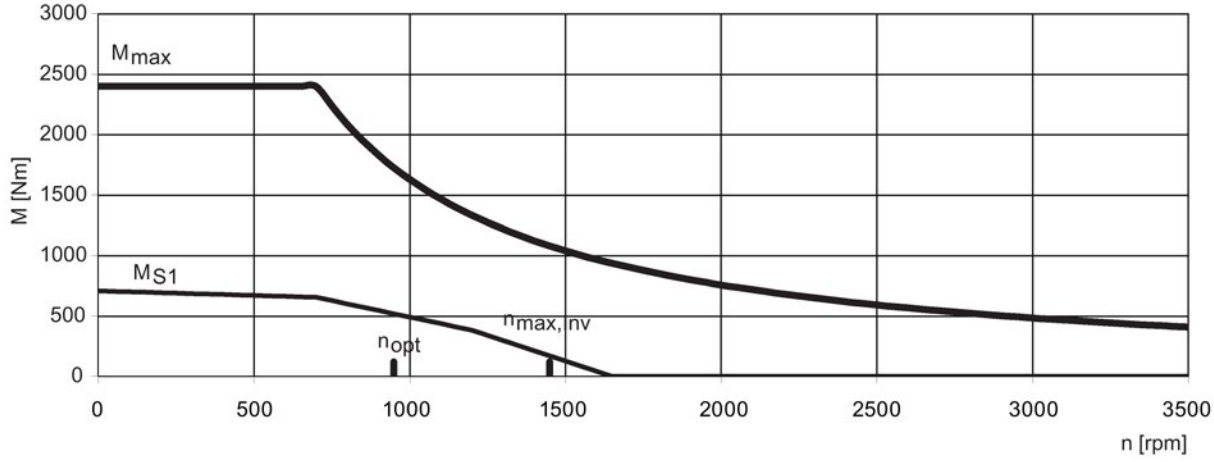
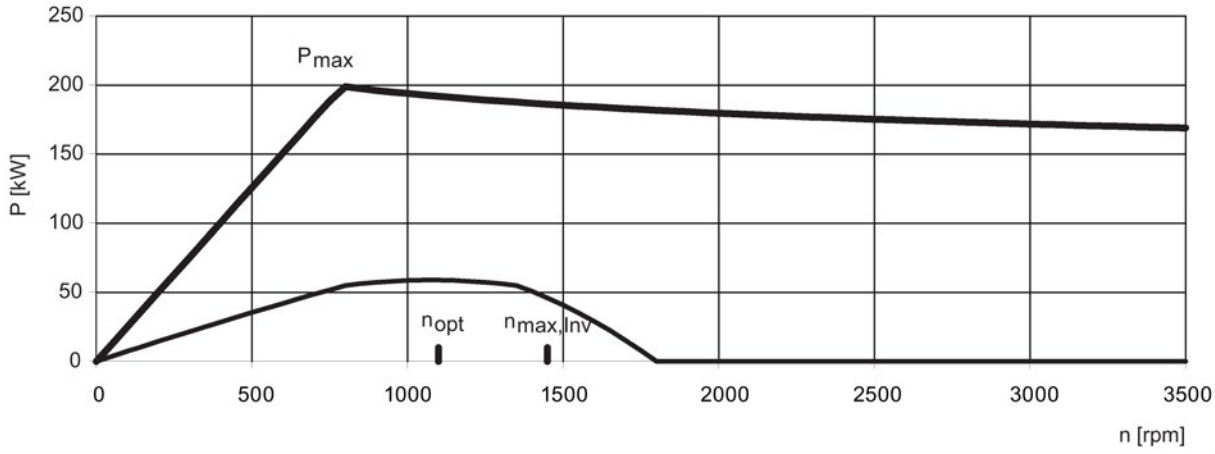


Table 6- 928 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□C□□

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	1,100	3,500	3,100	1,450	2,400	450	708	128
700	48	655	120									



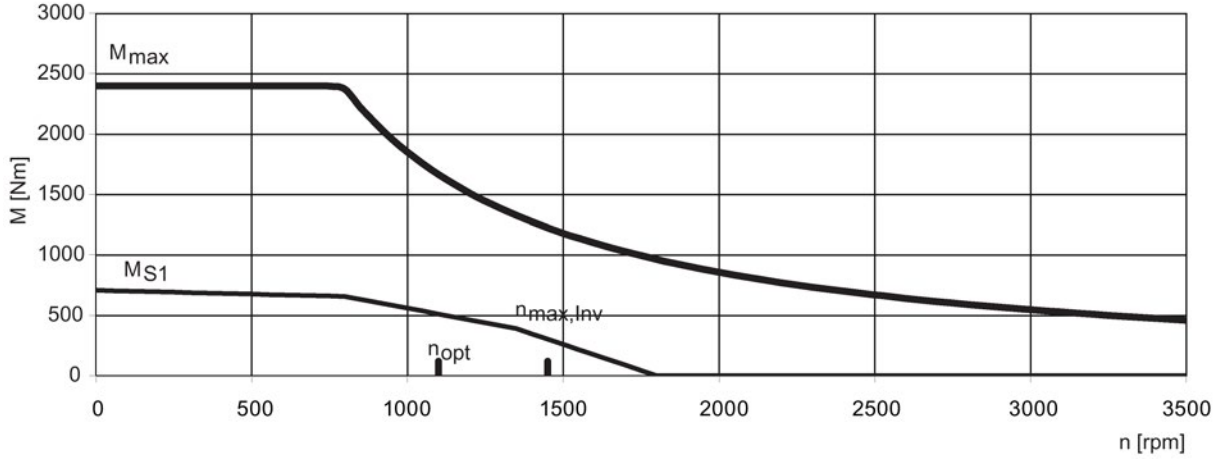
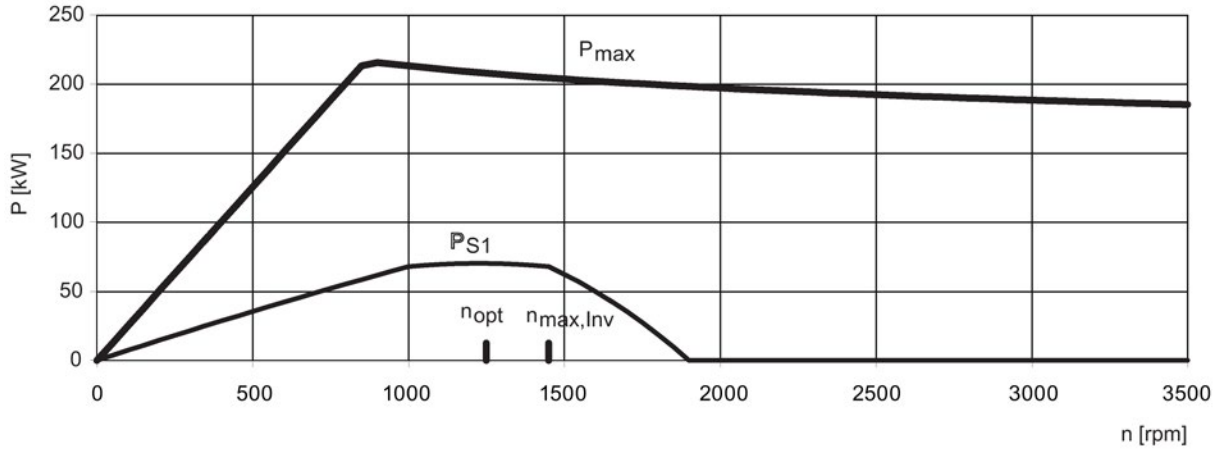


Table 6- 929 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□C□□

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]
1,000	68	649	118	70	1,250	3,500	3,100	1,450	2,400	450	708	128



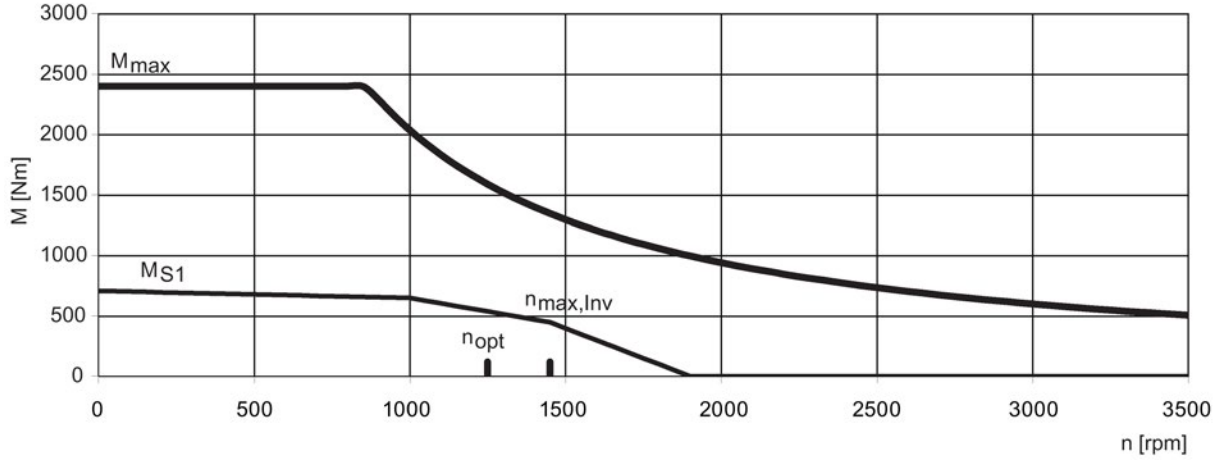
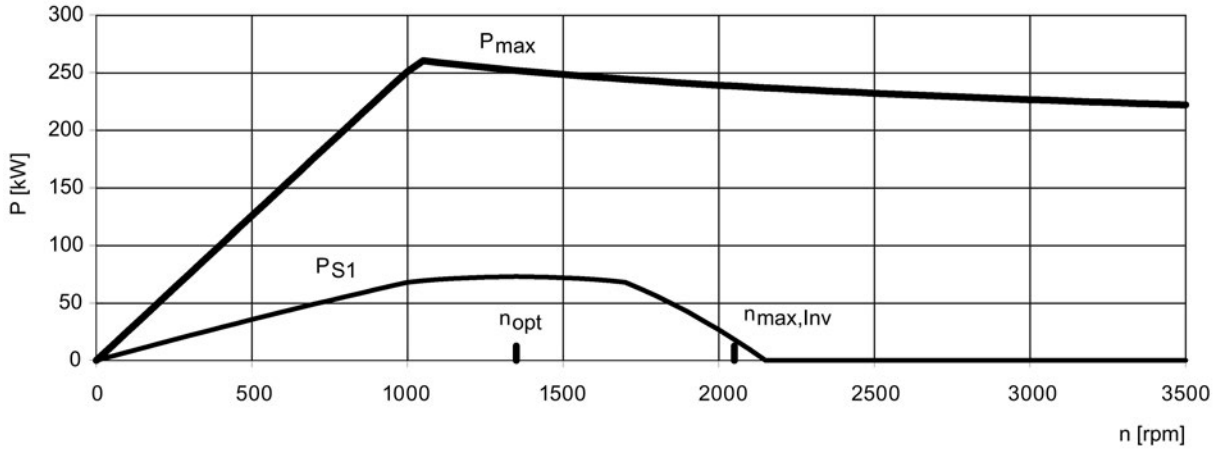


Table 6- 930 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□D□□

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]
1,000	68	649	170	73	1,350	3,500	3,100	2,050	2,400	640	708	183



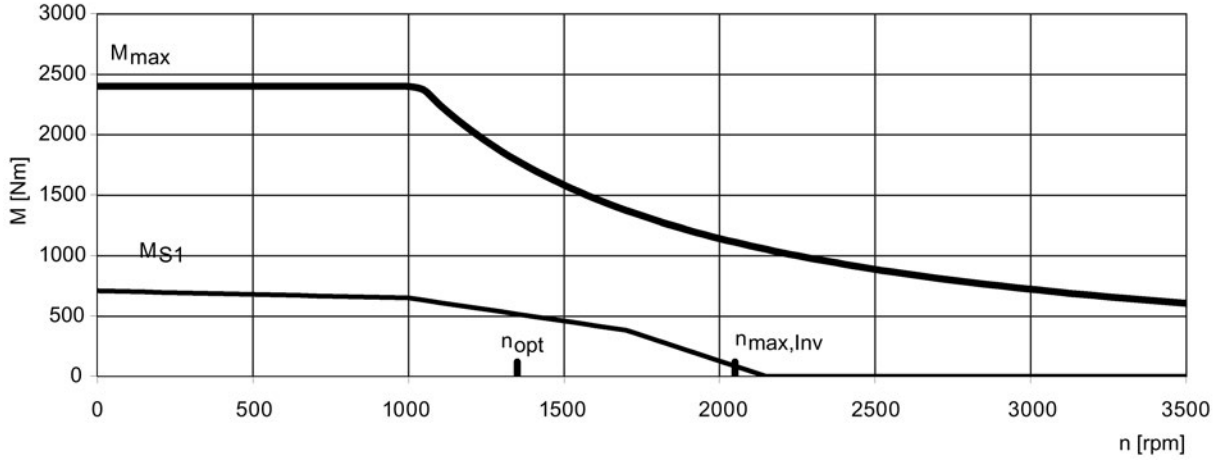
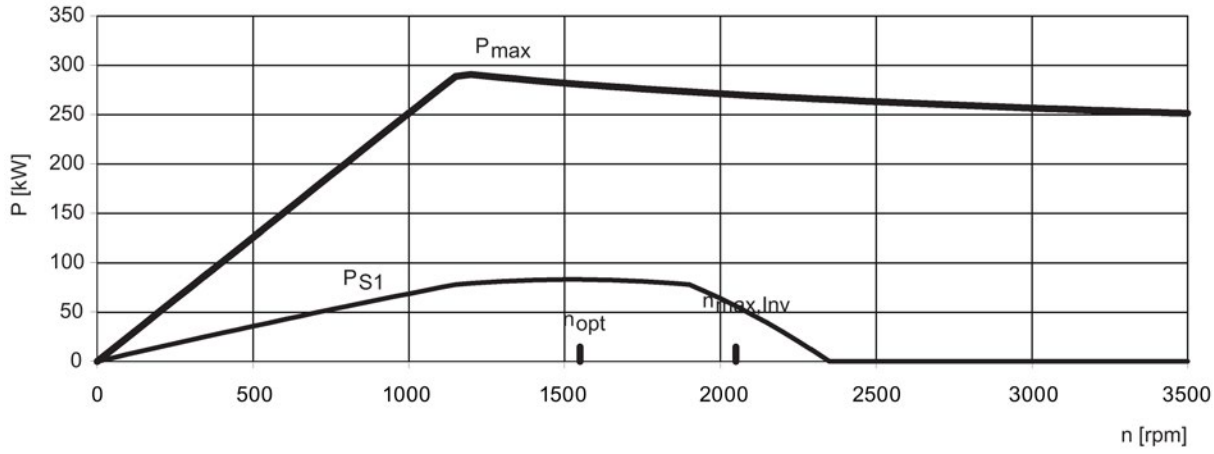


Table 6- 931 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□D□□

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]
1,150	78	648	170	83	1,550	3,500	3,100	2,050	2,400	640	708	183
1,000	68	649	170									



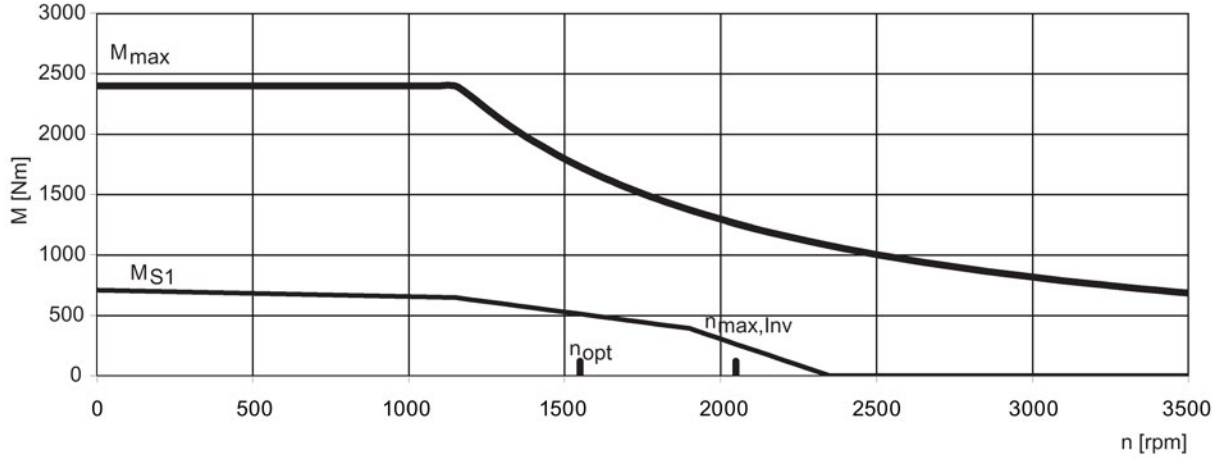
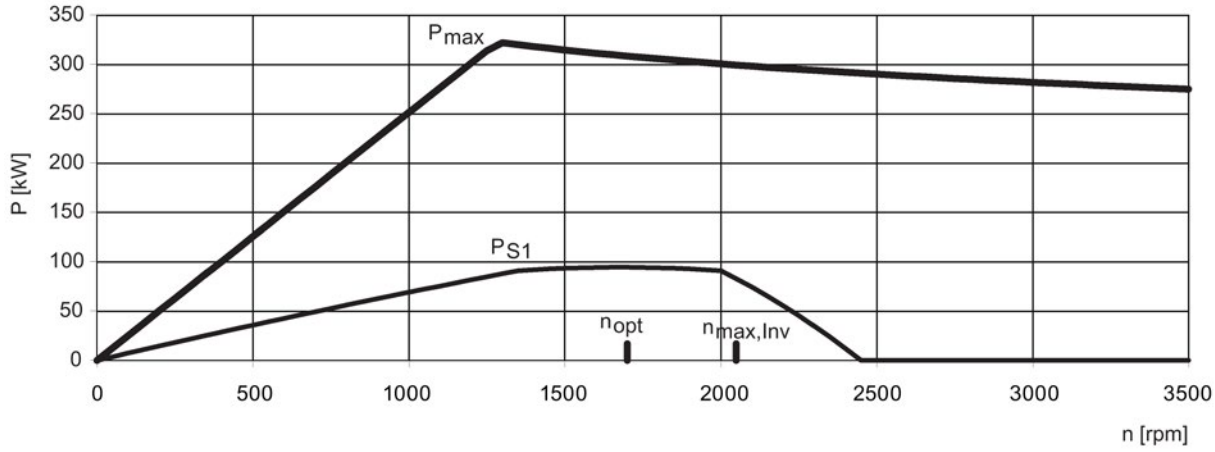


Table 6- 932 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□D□□

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]
1,350	91	643	168	94	1,700	3,500	3,100	2,050	2,400	640	708	183



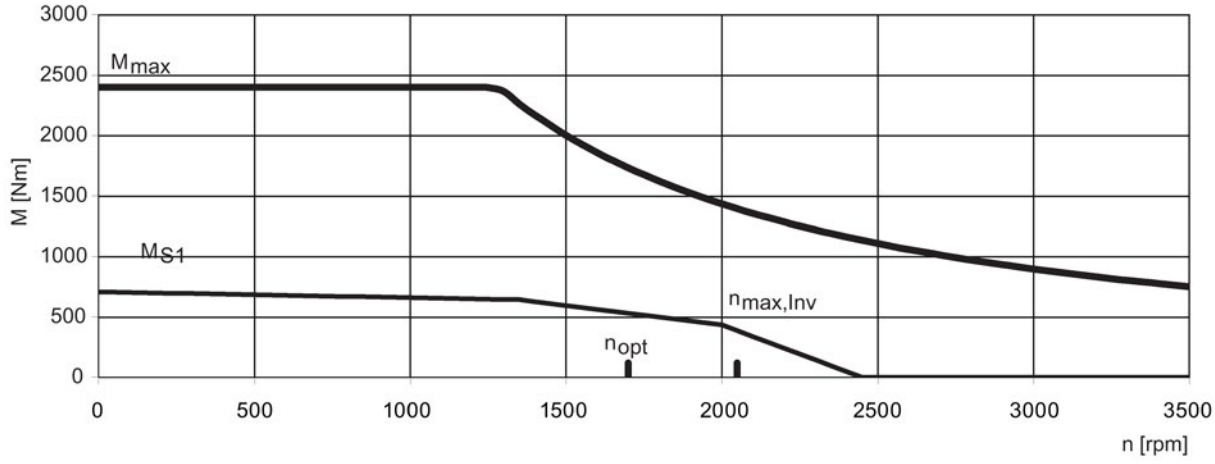
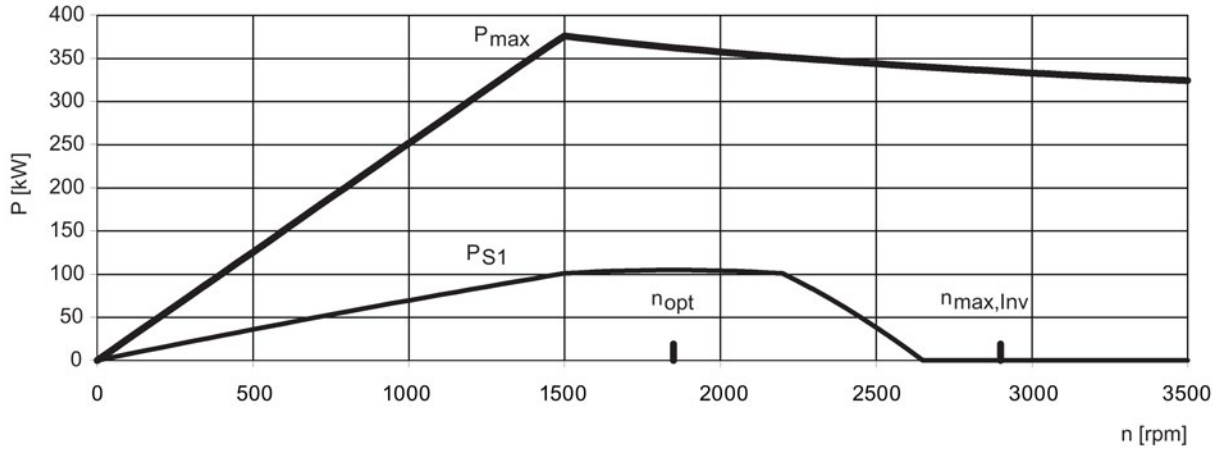


Table 6- 933 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□F□□

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]
1,500	101	643	235	105	1,850	3,500	3,100	2,900	2,400	900	708	256



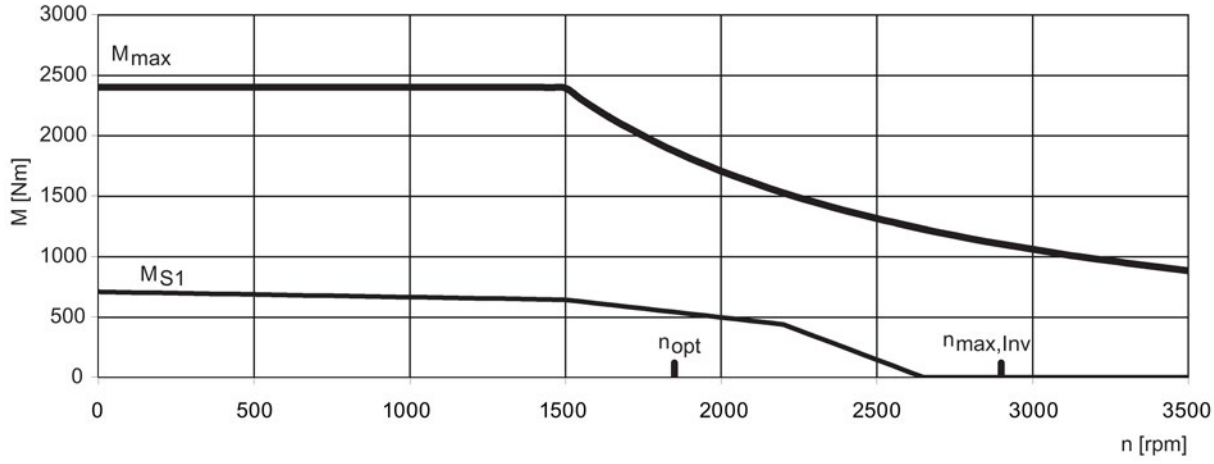
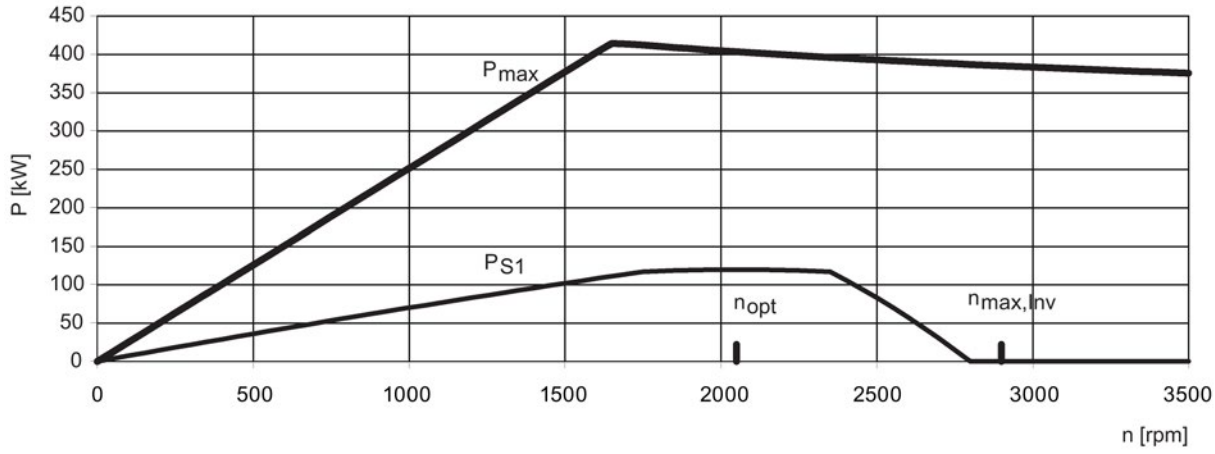


Table 6- 934 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□F□□

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]
1,750	117	638	235	120	2,050	3,500	3,100	2,900	2,400	900	708	256
1,500	101	643	235									



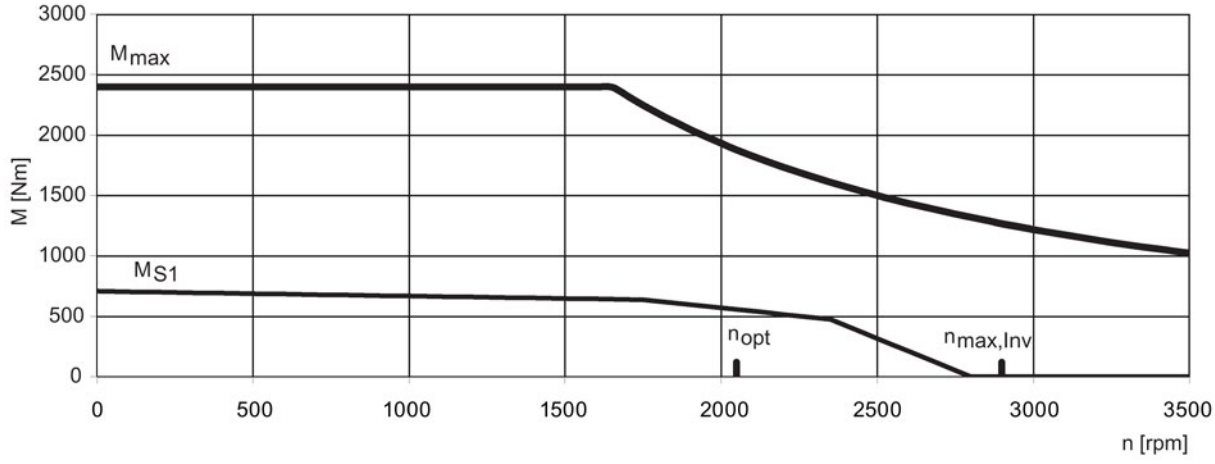
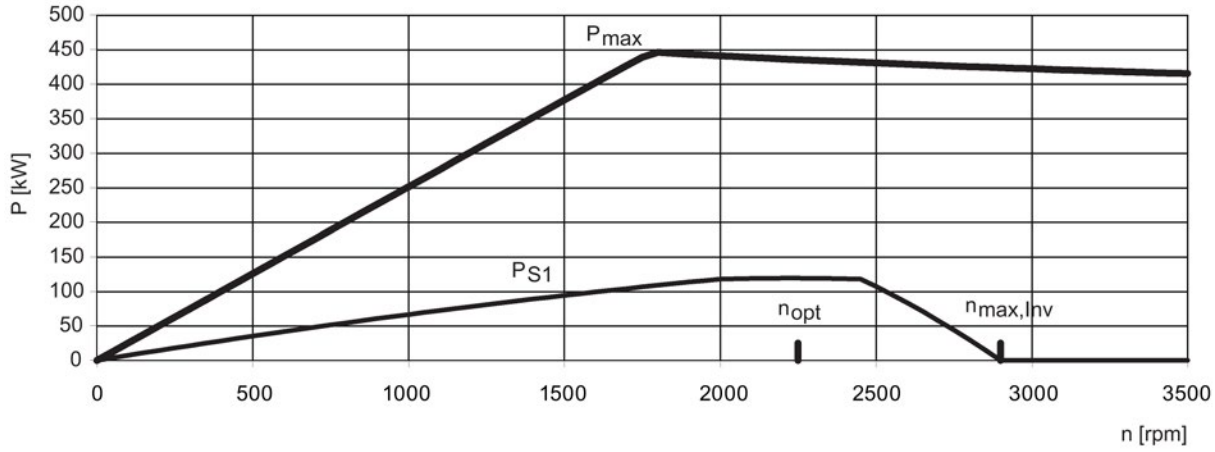


Table 6- 935 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□F□□

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]
2,000	118	563	210	119	2,250	3,500	3,100	2,900	2,400	900	708	256



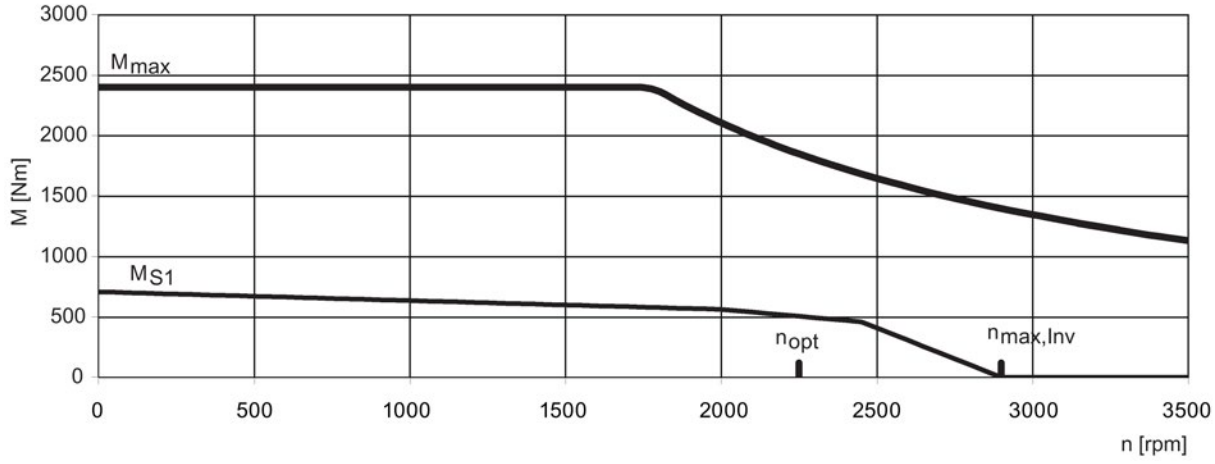
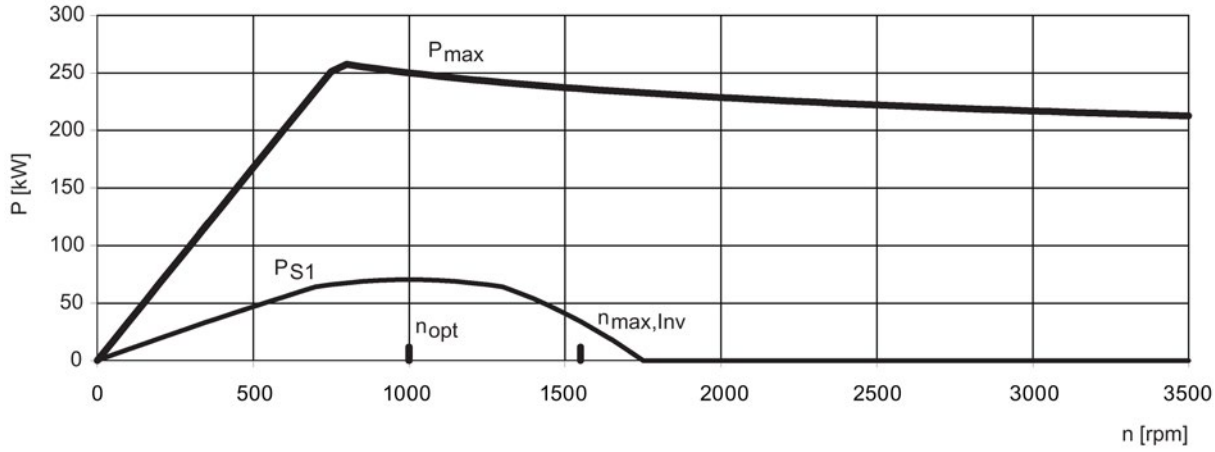


Table 6- 936 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□C□□

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	1,000	3,500	3,100	1,550	3,200	640	944	183



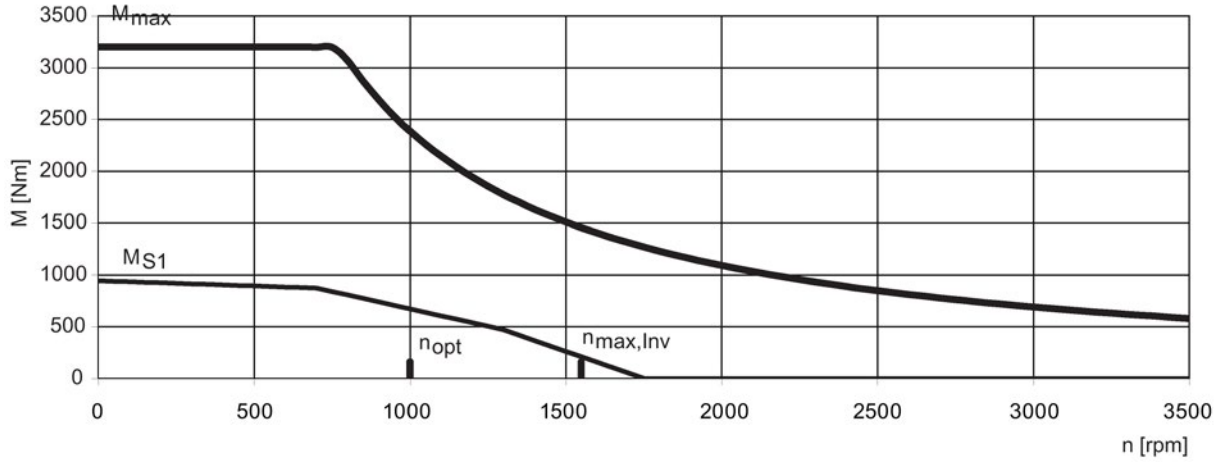
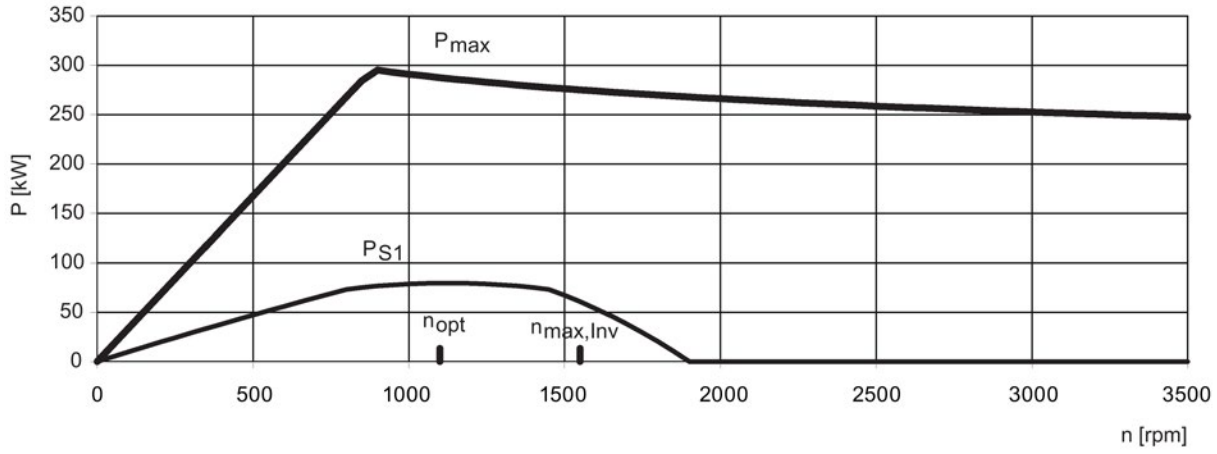


Table 6- 937 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□C□□

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	1,100	3,500	3,100	1,550	3,200	640	944	183
700	64	873	170									



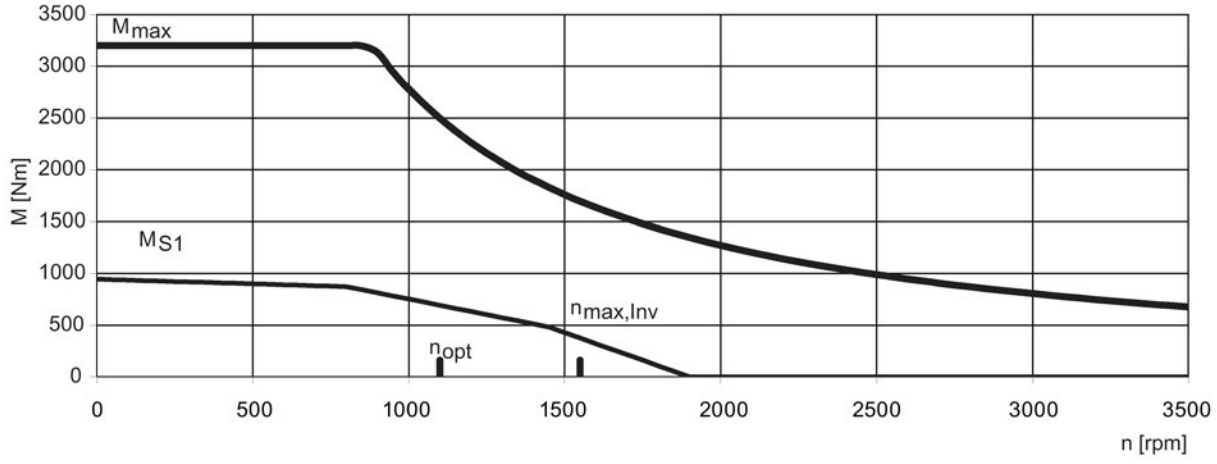
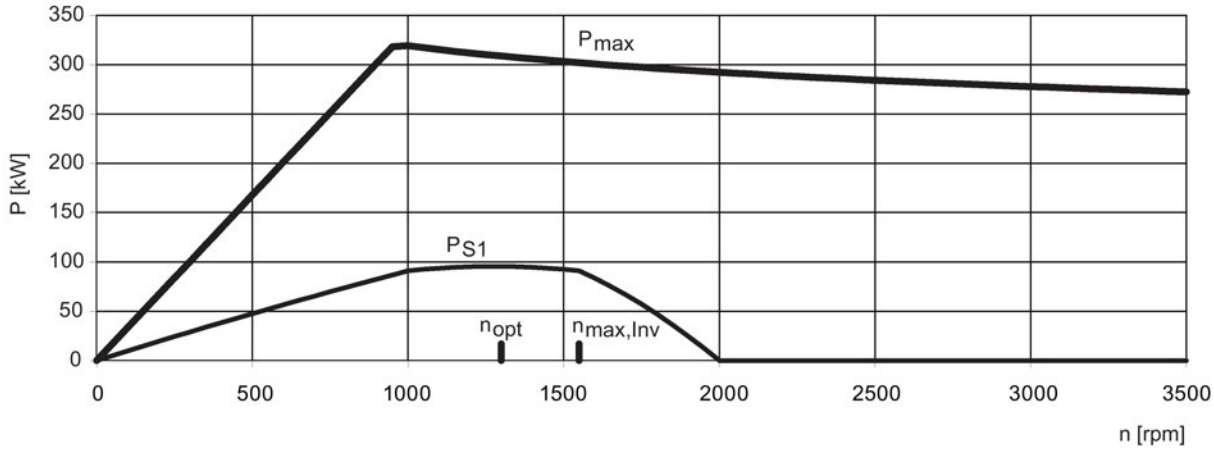


Table 6- 938 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□C□□

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]
1,000	91	869	170	95	1,300	3,500	3,100	1,550	3,200	640	944	183



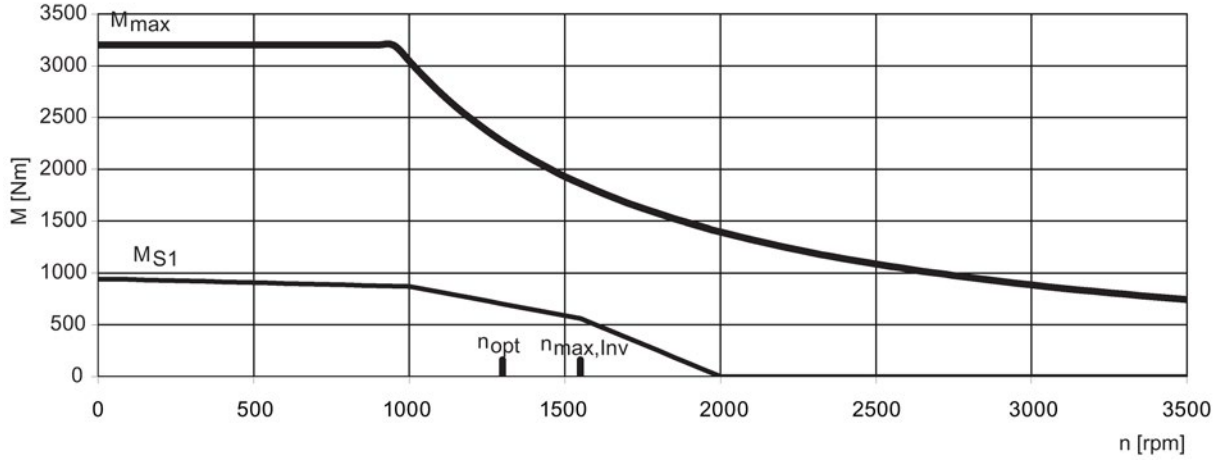
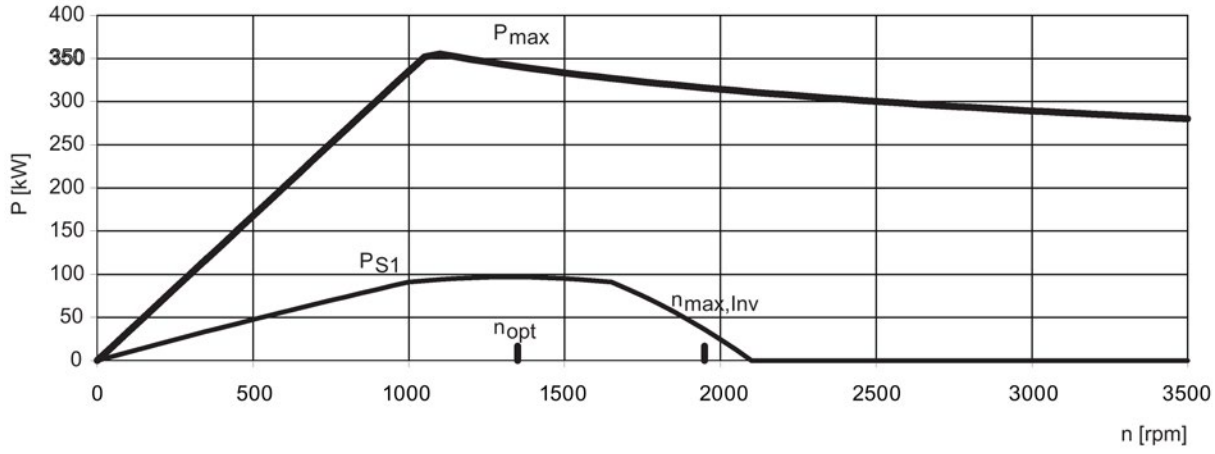


Table 6- 939 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□D□□

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]
1,000	91	869	215	97	1,350	3,500	3,100	1,950	3,200	820	944	233



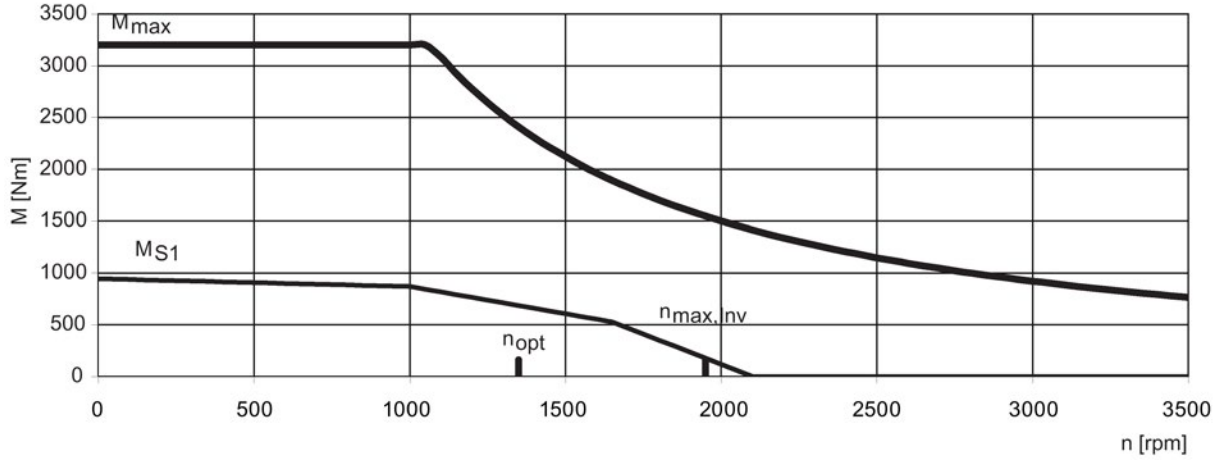
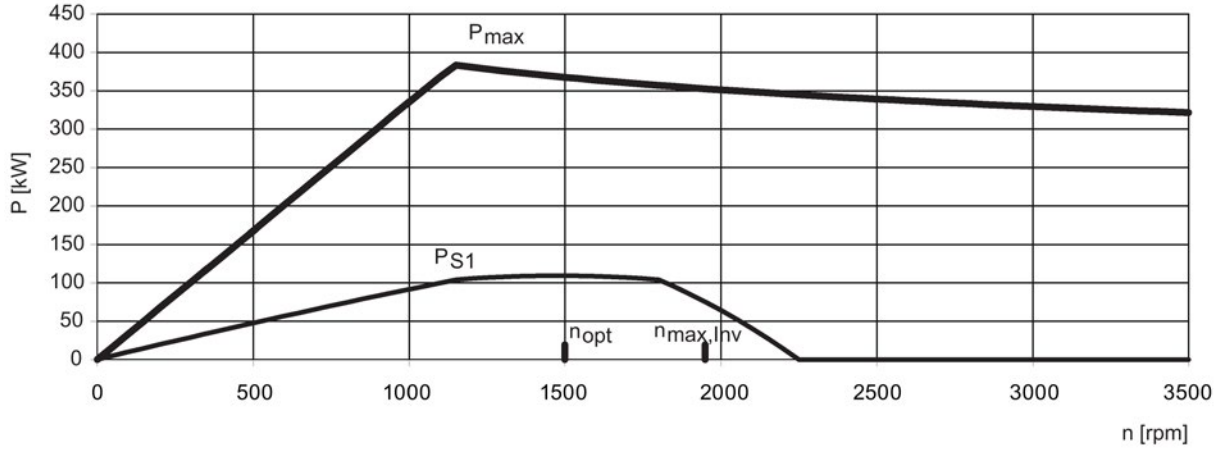


Table 6- 940 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□D□□

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]
1,150	104	863	215	109	1,500	3,500	3,100	1,950	3,200	820	944	233
1,000	91	869	215									



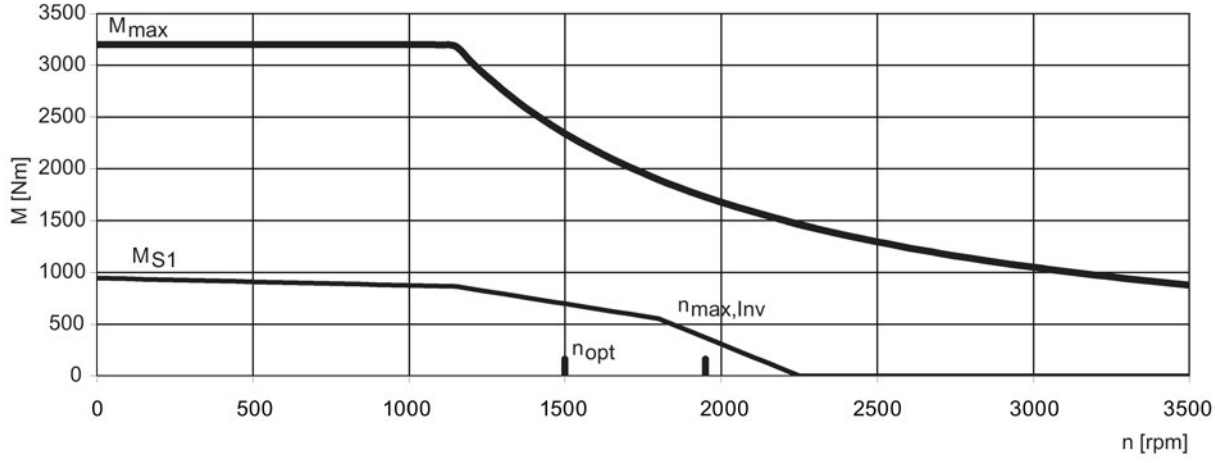
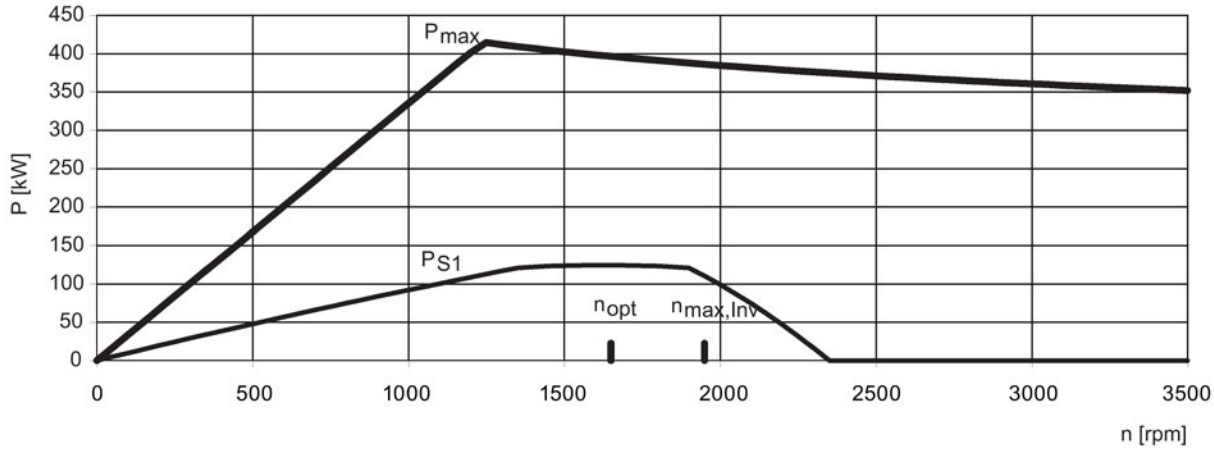


Table 6- 941 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□D□□

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]
1,350	121	855	215	124	1,650	3,500	3,100	1,950	3,200	820	944	233



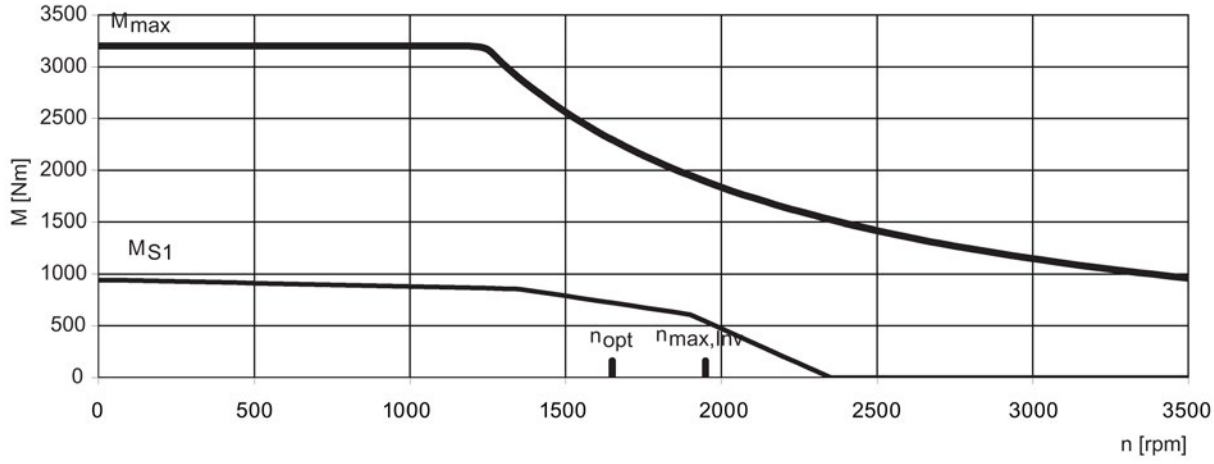
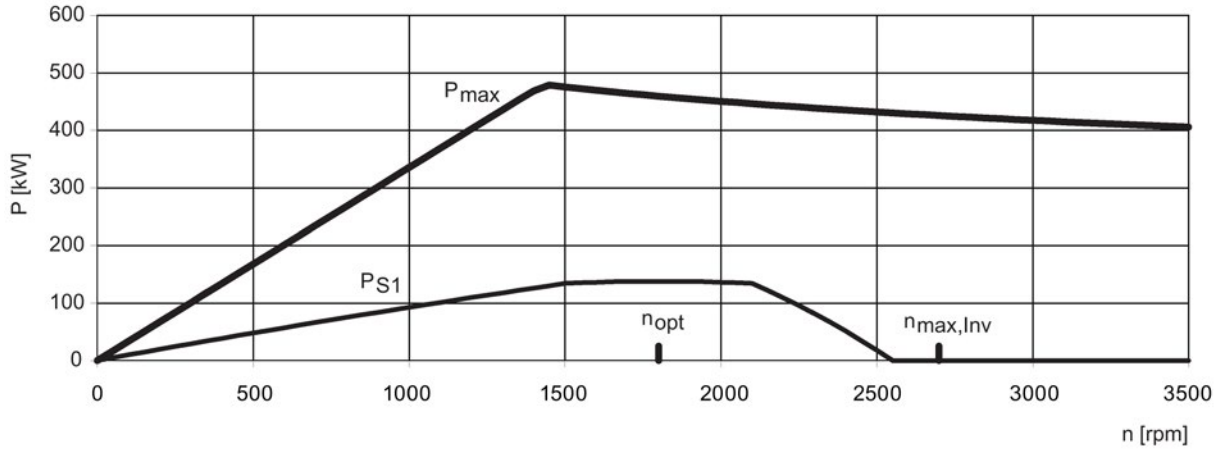


Table 6- 942 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□F□□

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]
1,500	134	853	295	138	1,800	3,500	3,100	2,700	3,200	1,120	944	320



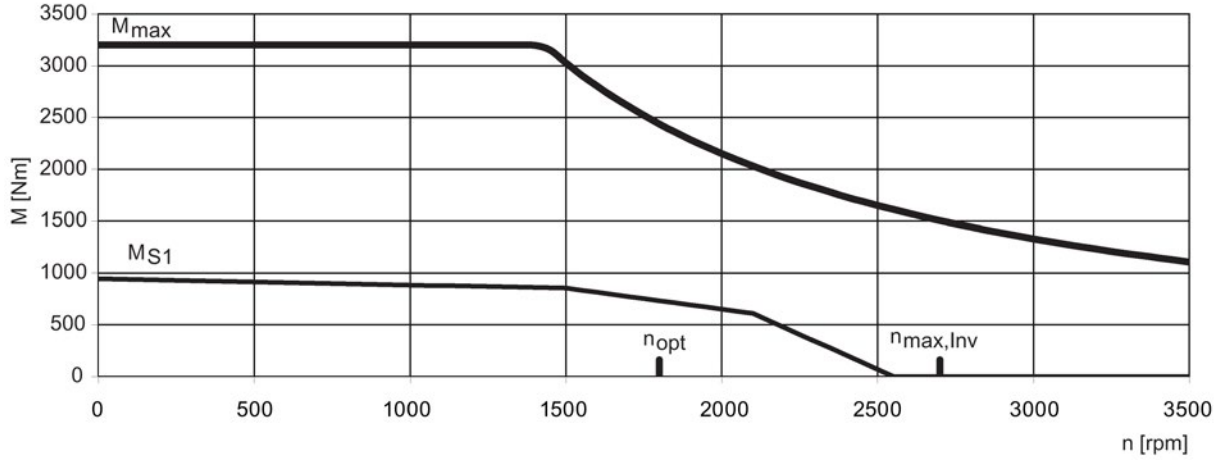
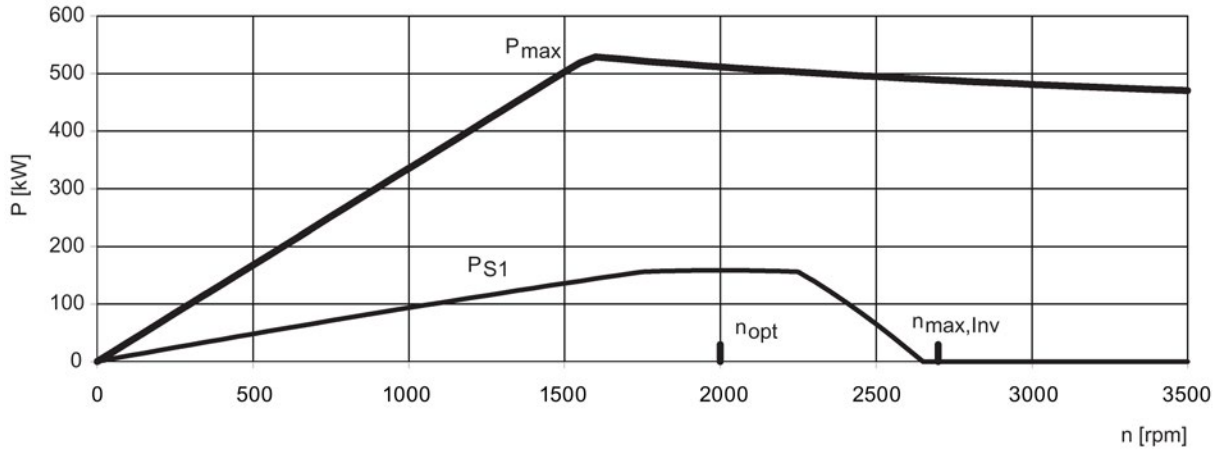


Table 6- 943 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□F□□

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]
1,750	156	851	295	158	2,000	3,500	3,100	2,700	3,200	1,120	944	320
1,500	134	853	295									



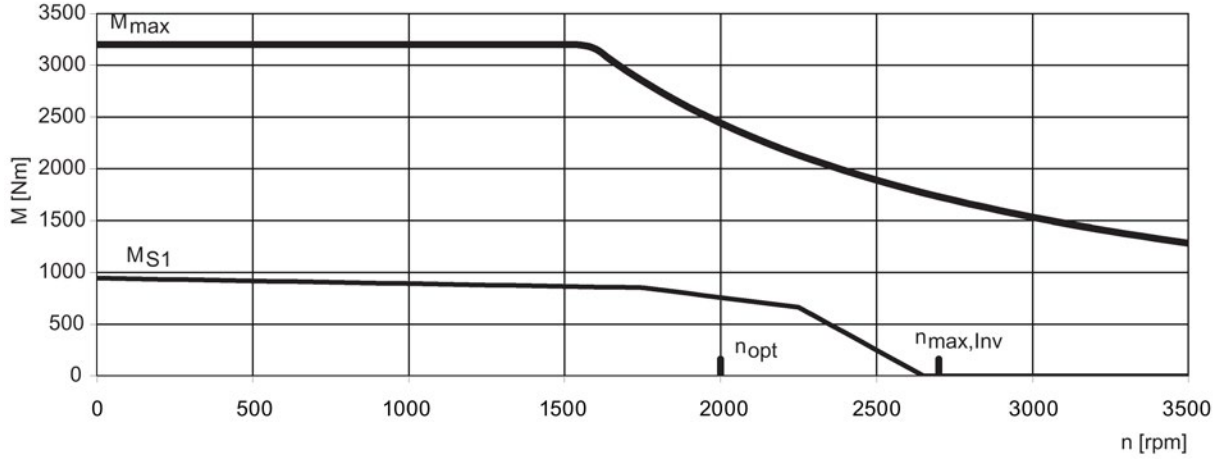
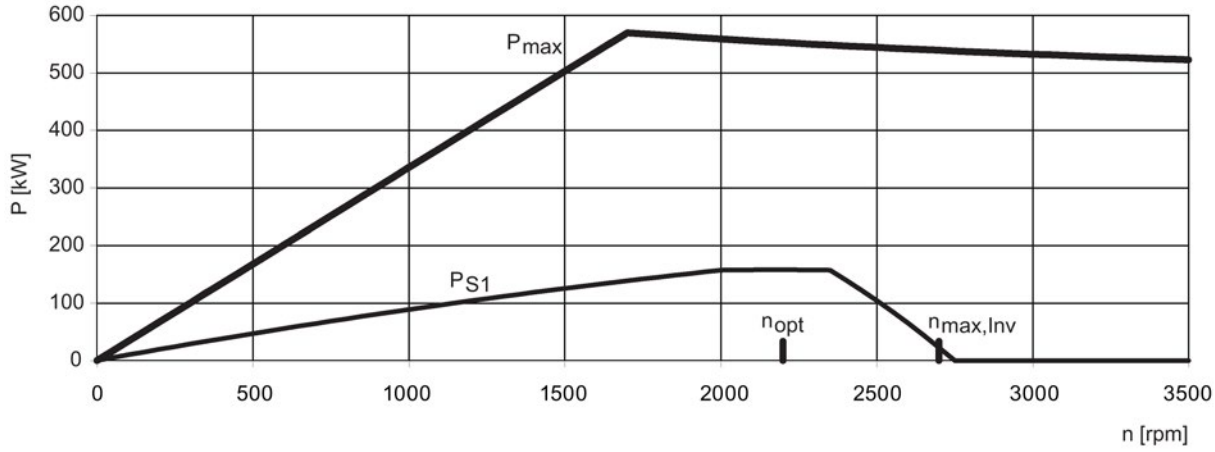


Table 6- 944 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□F□□

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]
2,000	157	750	260	158	2,200	3,500	3,100	2,700	3,200	1,120	944	320



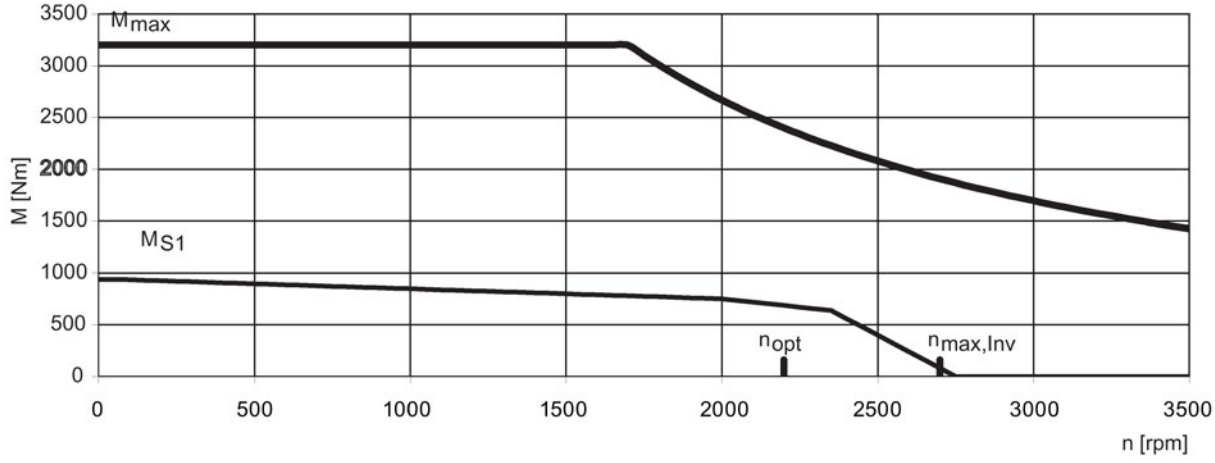
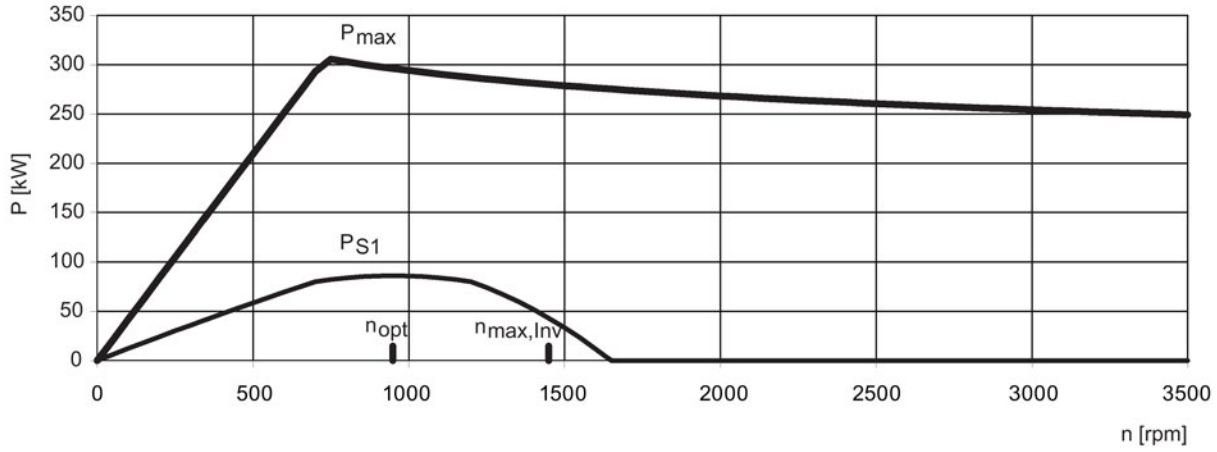


Table 6- 945 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□C□□

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	1,092	200	86	950	3,500	3,100	1,450	4,000	750	1,180	213



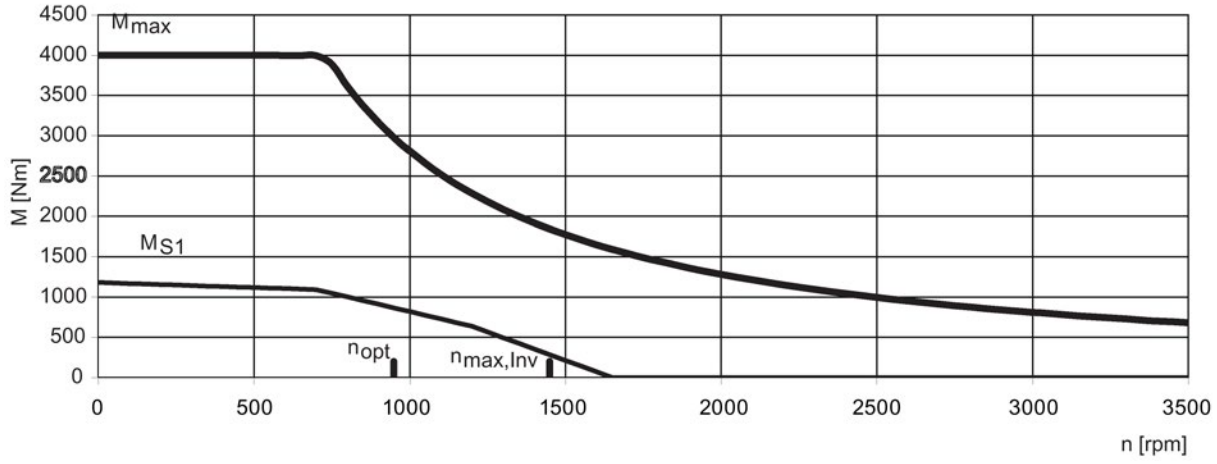
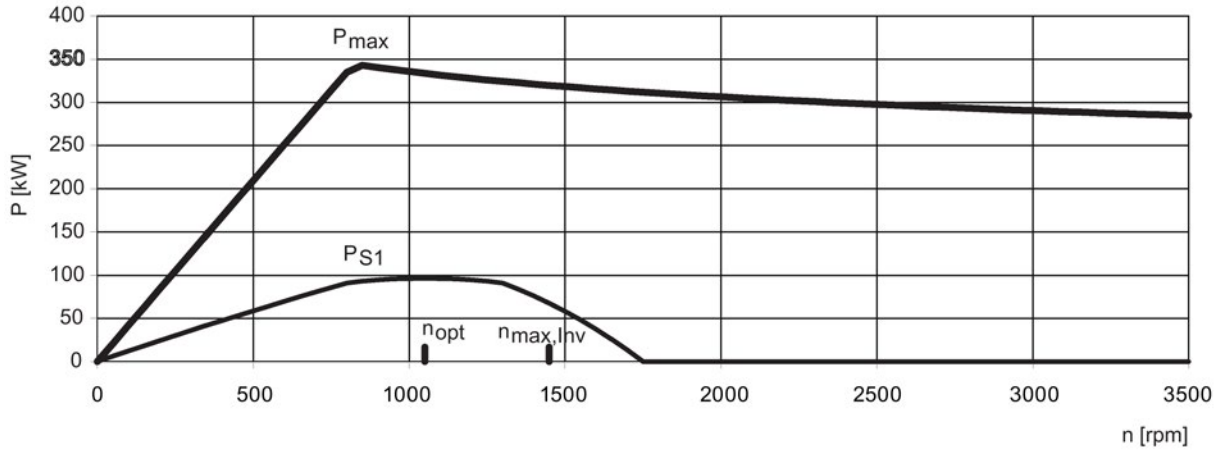


Table 6- 946 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□C□□

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	1,086	198	96	1,050	3,500	3,100	1,450	4,000	750	1,180	213
700	80	1,092	200									



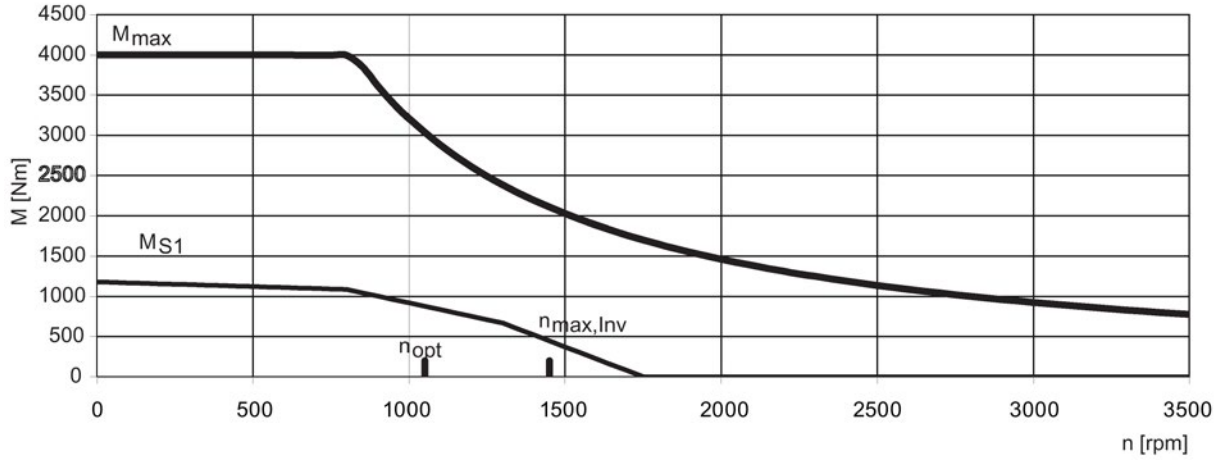
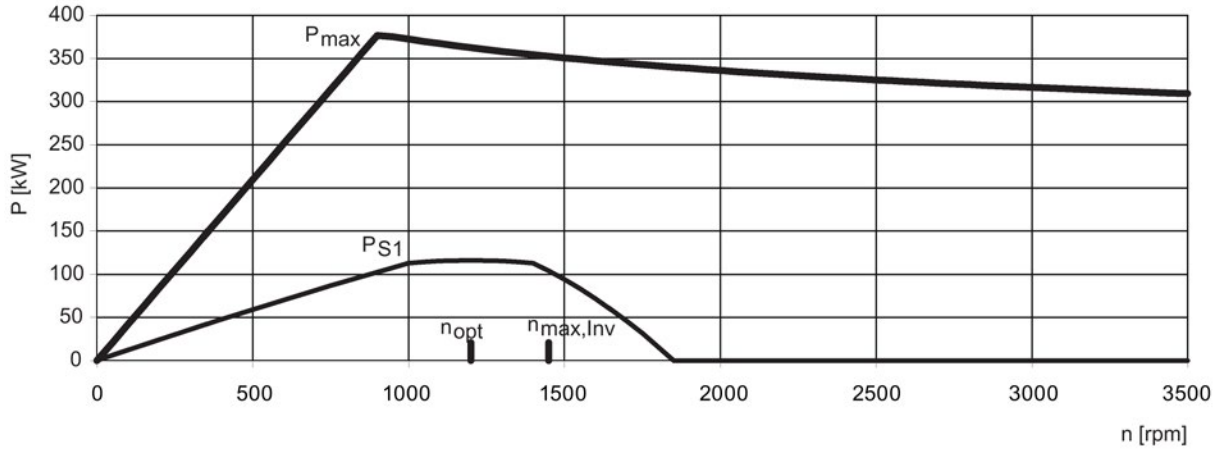


Table 6- 947 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□C□□

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]
1,000	113	1,079	198	116	1,200	3,500	3,100	1,450	4,000	750	1,180	213



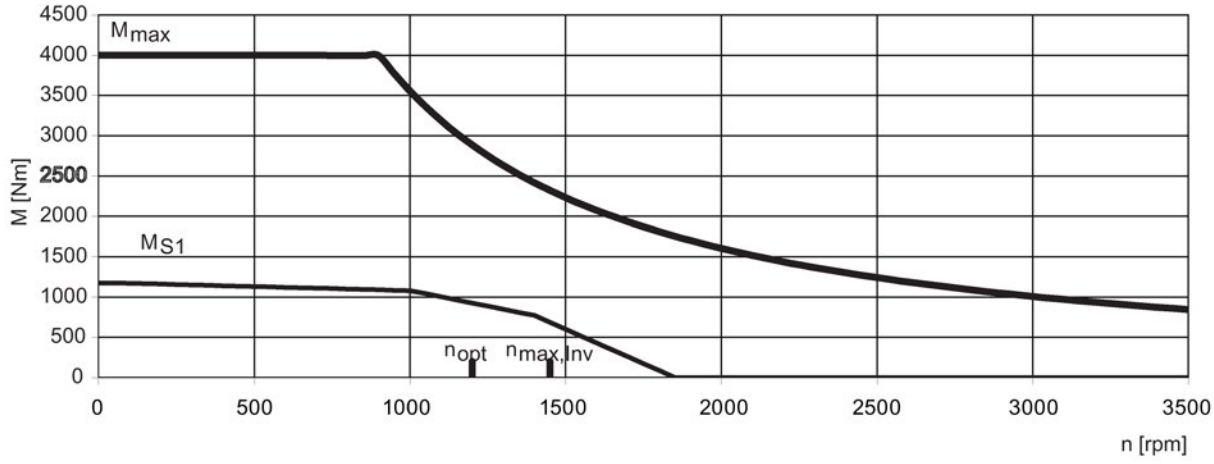
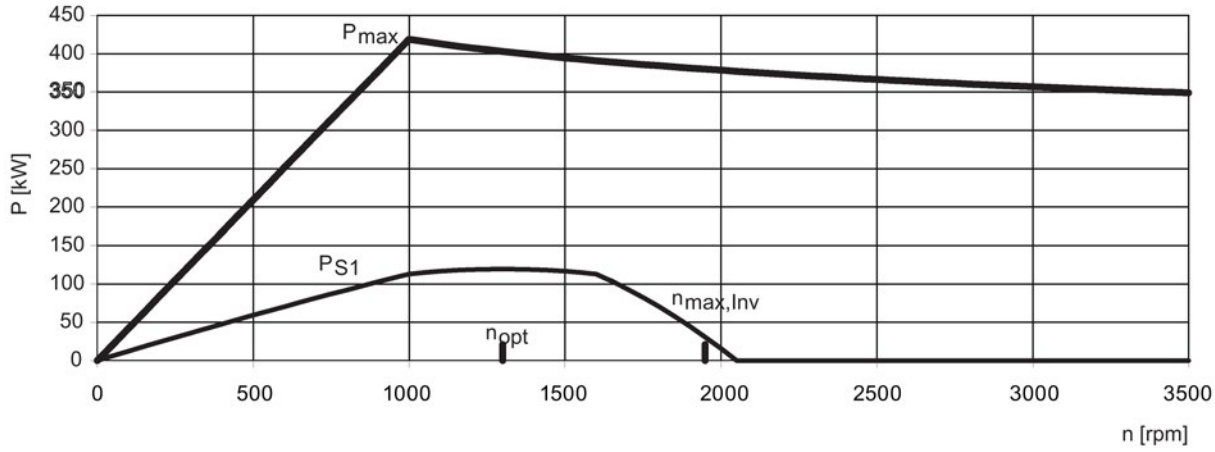


Table 6- 948 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□D□□

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]
1,000	113	1,079	265	119	1,300	3,500	3,100	1,950	4,000	1,000	1,180	284



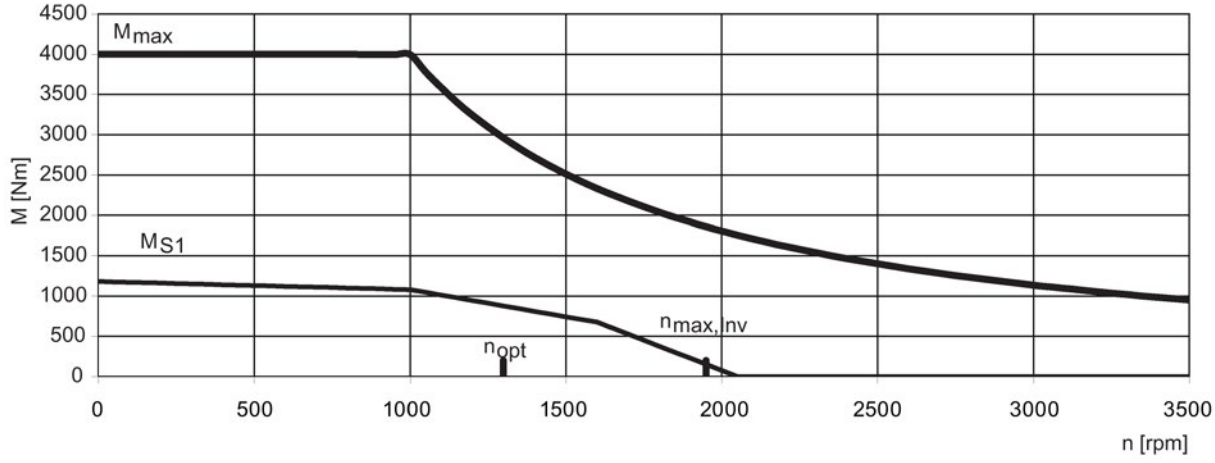
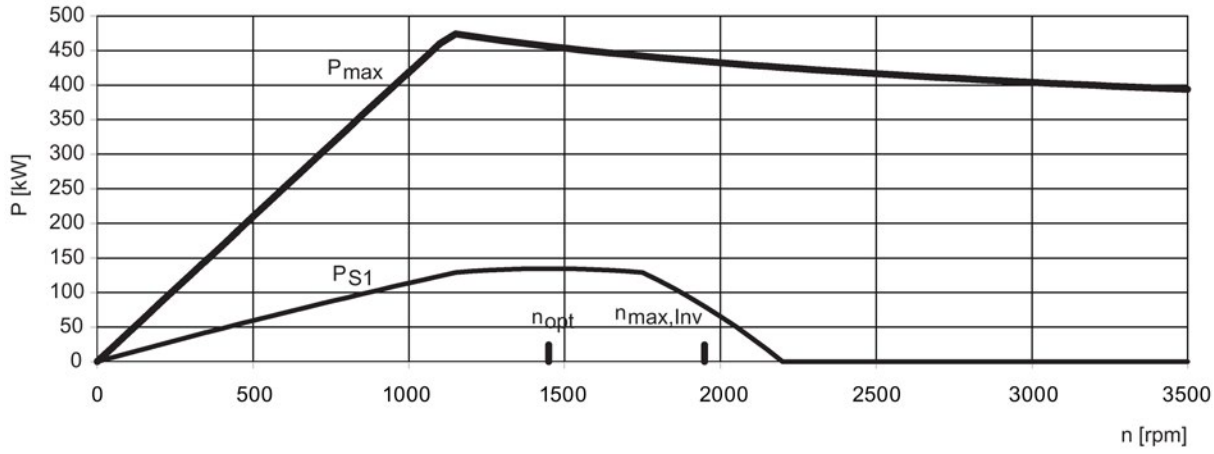


Table 6- 949 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□D□□

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]
1,150	129	1,071	260	135	1,450	3,500	3,100	1,950	4,000	1,000	1,180	284
1,000	113	1,079	265									



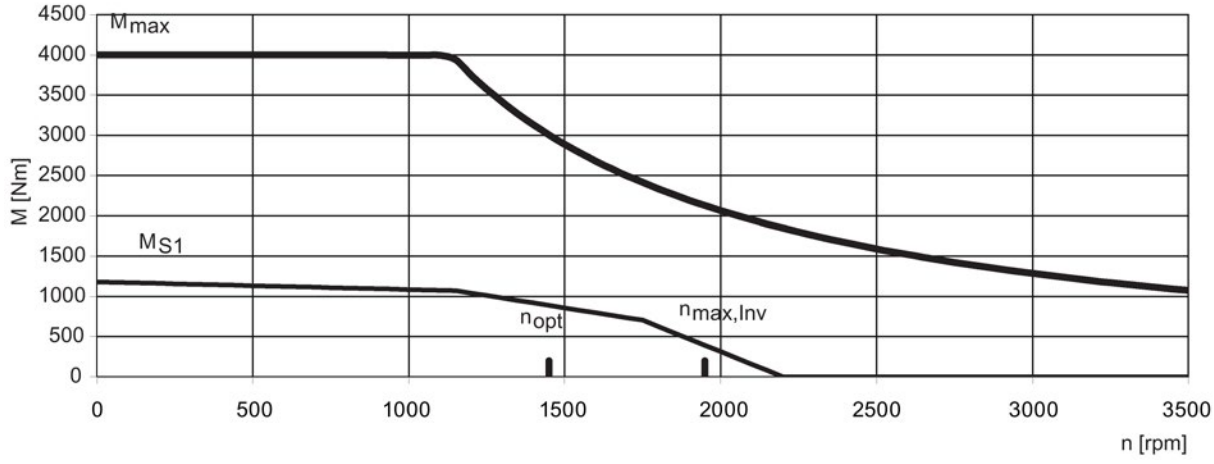
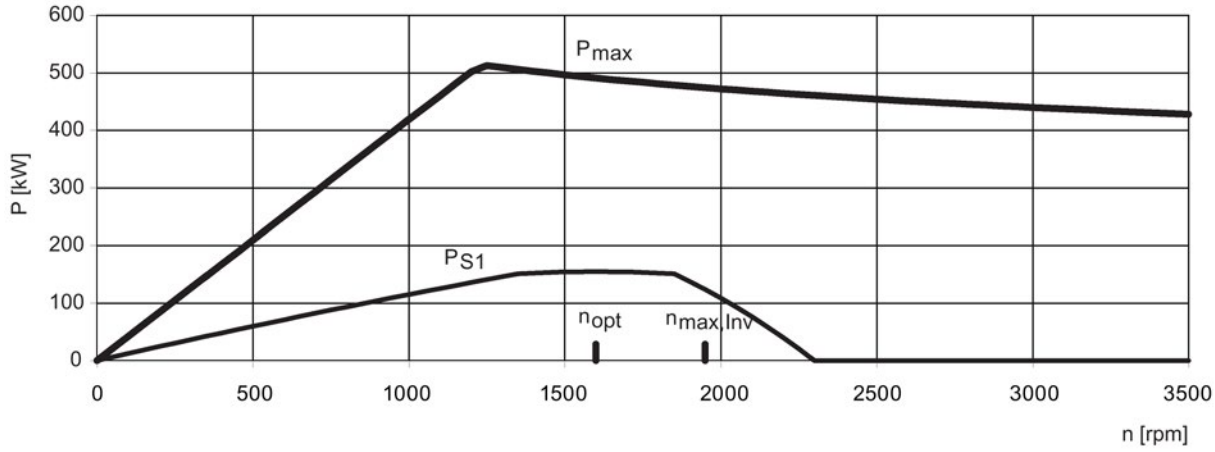


Table 6- 950 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□D□□

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]
1,350	151	1,068	260	155	1,600	3,500	3,100	1,950	4,000	1,000	1,180	284



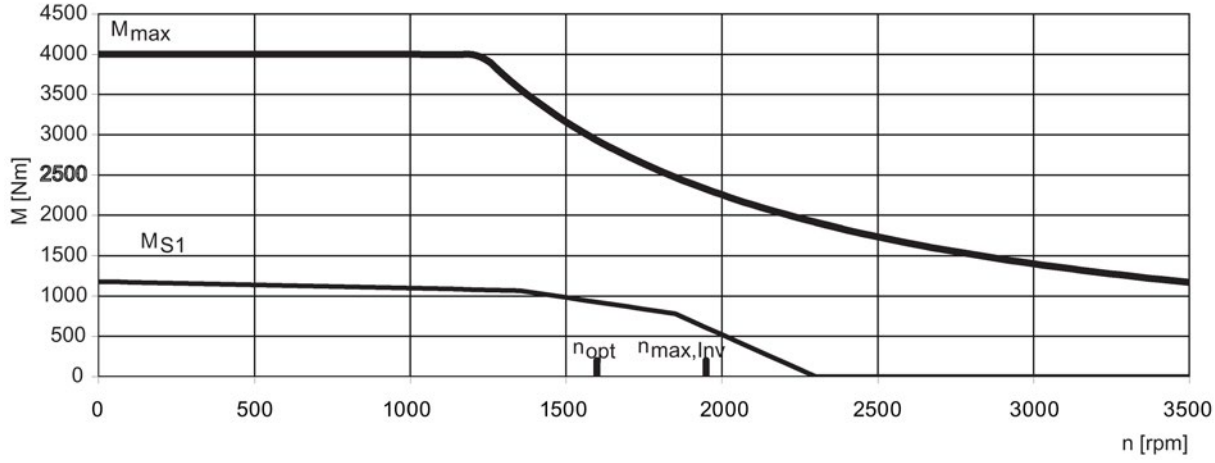
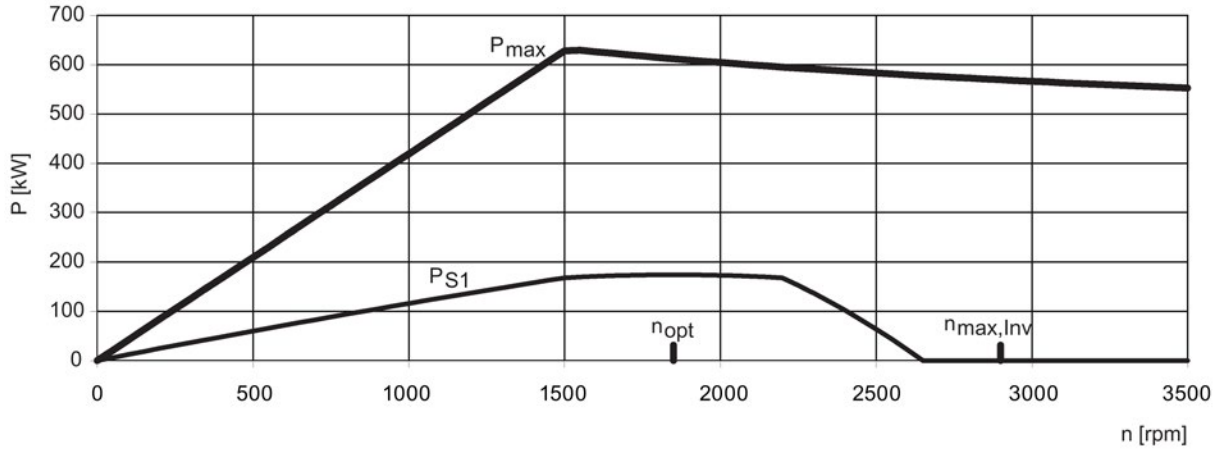


Table 6- 951 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□F□□

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]
1,500	168	1,070	395	174	1,850	3,500	3,100	2,900	4,000	1,500	1,180	427



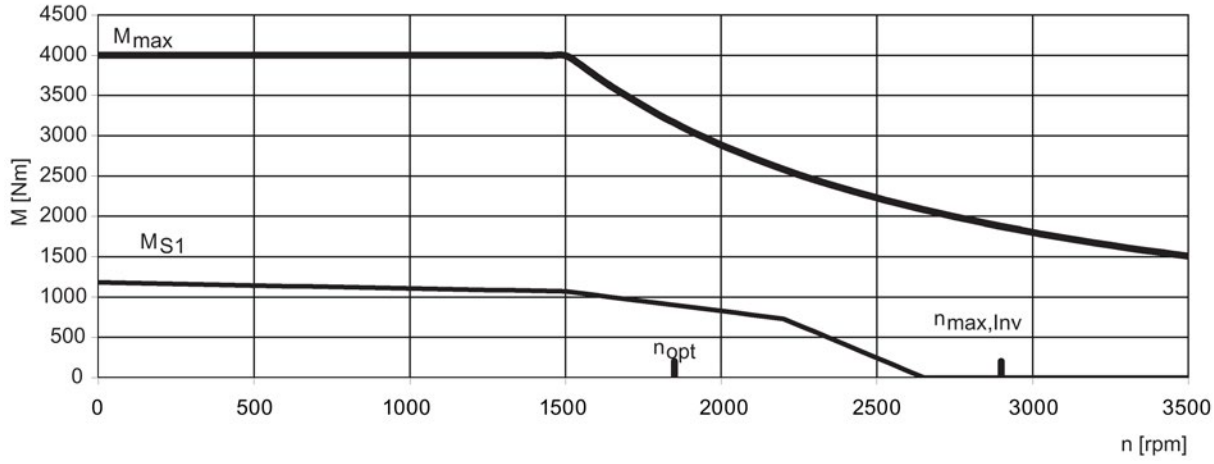
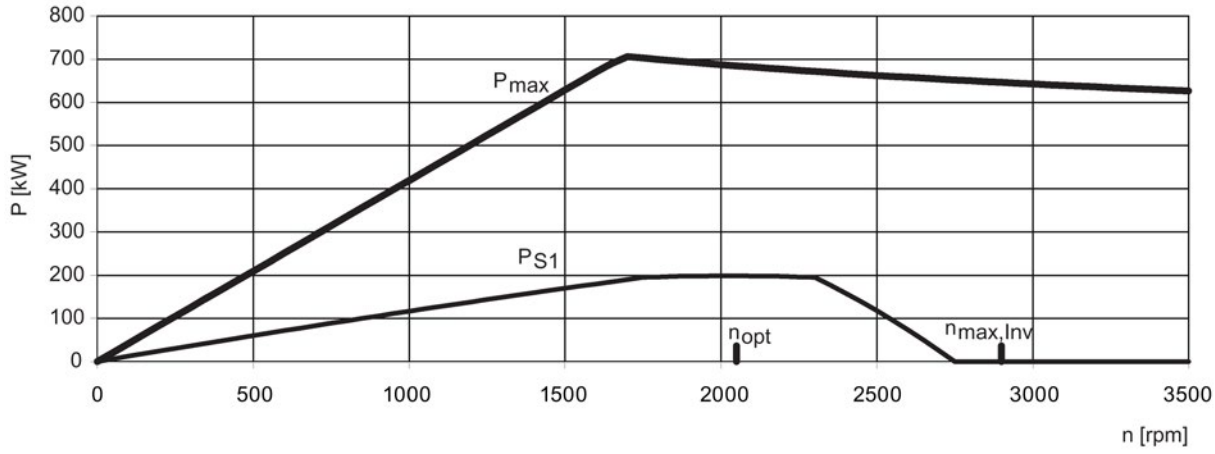


Table 6- 952 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□F□□

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]
1,750	195	1,064	390	199	2,050	3,500	3,100	2,900	4,000	1,500	1,180	427
1,500	168	1,070	395									



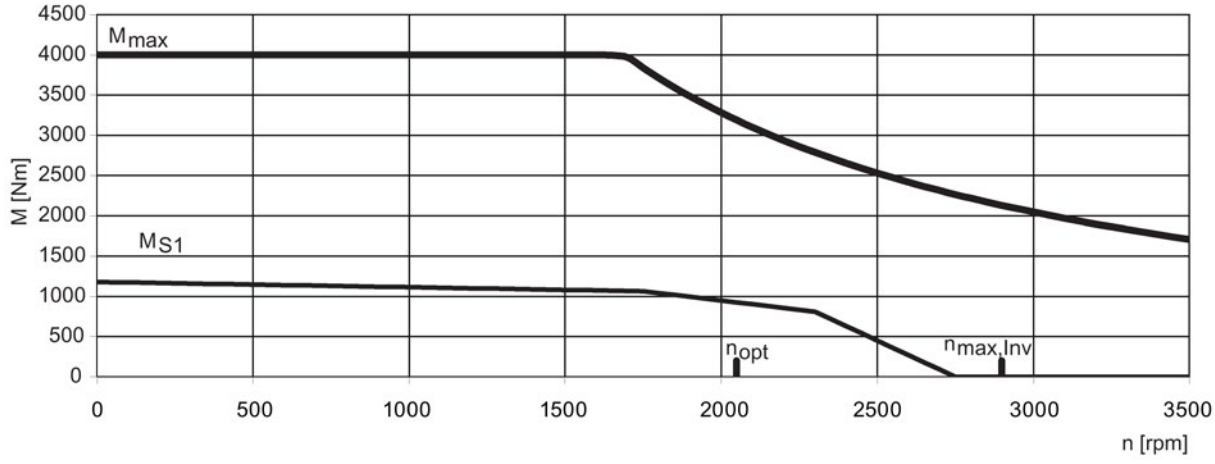
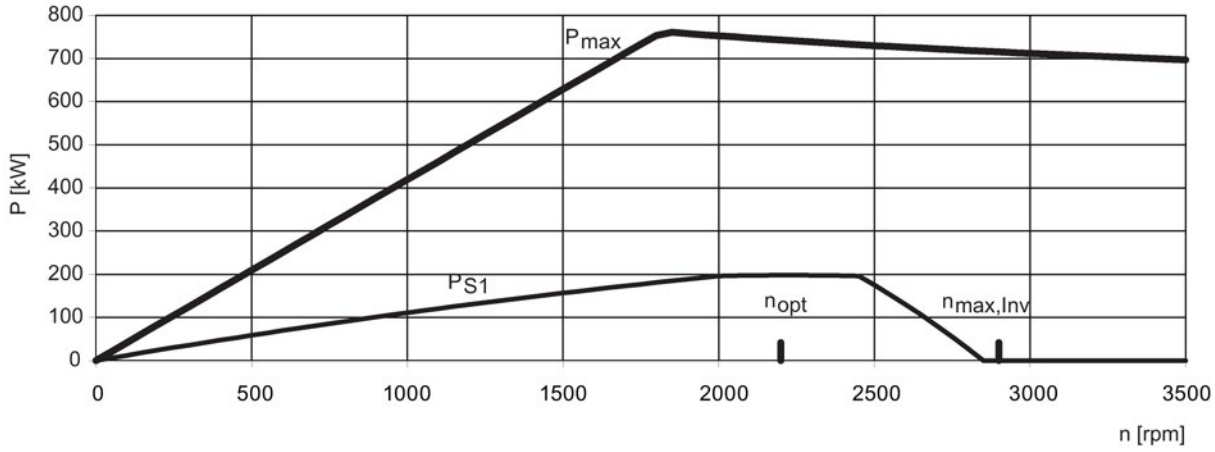
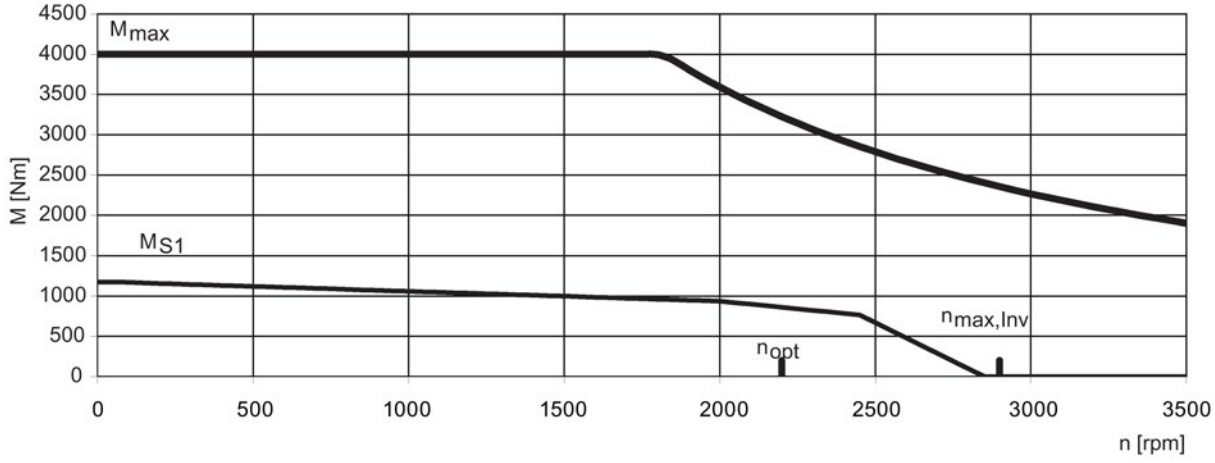


Table 6- 953 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□F□□

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]
2,000	196	936	345	198	2,200	3,500	3,100	2,900	4,000	1,500	1,180	427



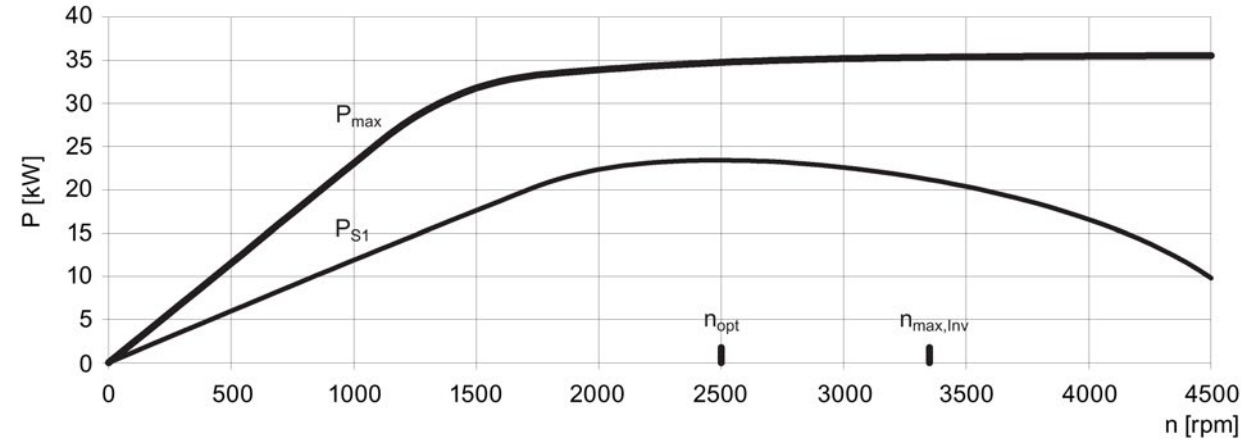


6.2.3 Characteristics water cooling

6.2.3.1 Shaft height 132 - water-cooled

Table 6- 954 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]
1,500	17.6	112	40	23	2,500	4,500	4,500	3,150	220	90	115	41



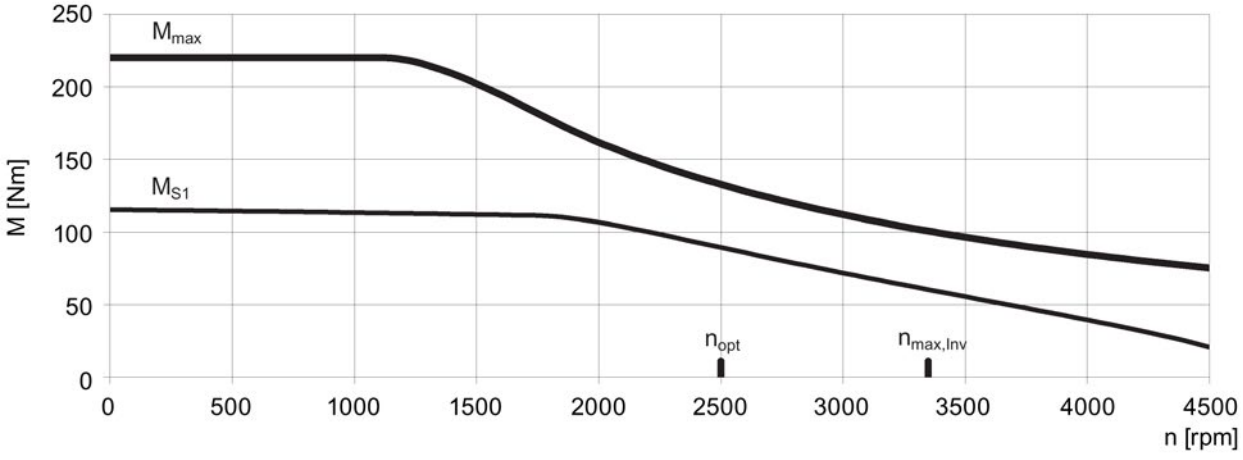
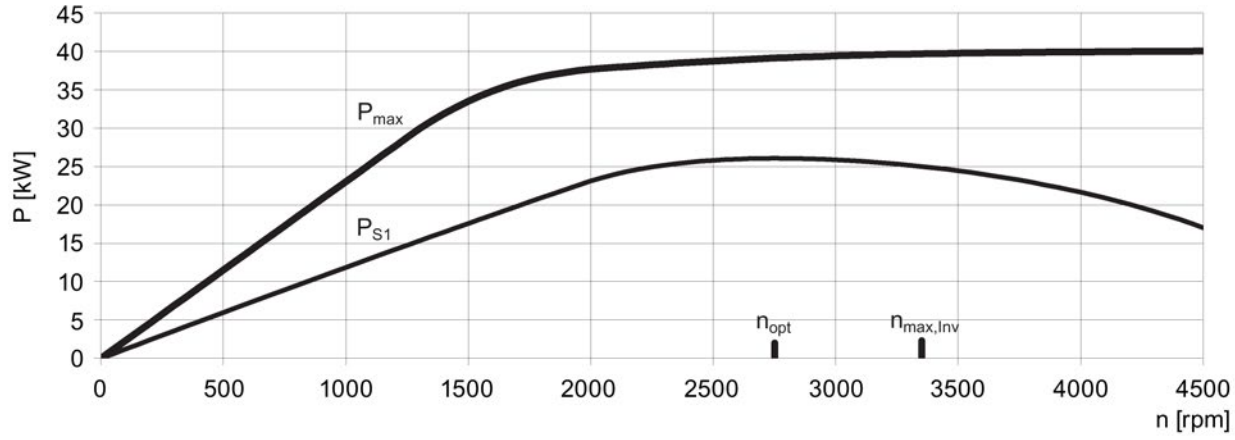


Table 6- 955 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□F2□

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]
1,750	20.4	112	40	26	2,750	4,500	4,500	3,150	220	90	115	41
1,500	17.6	112	40									



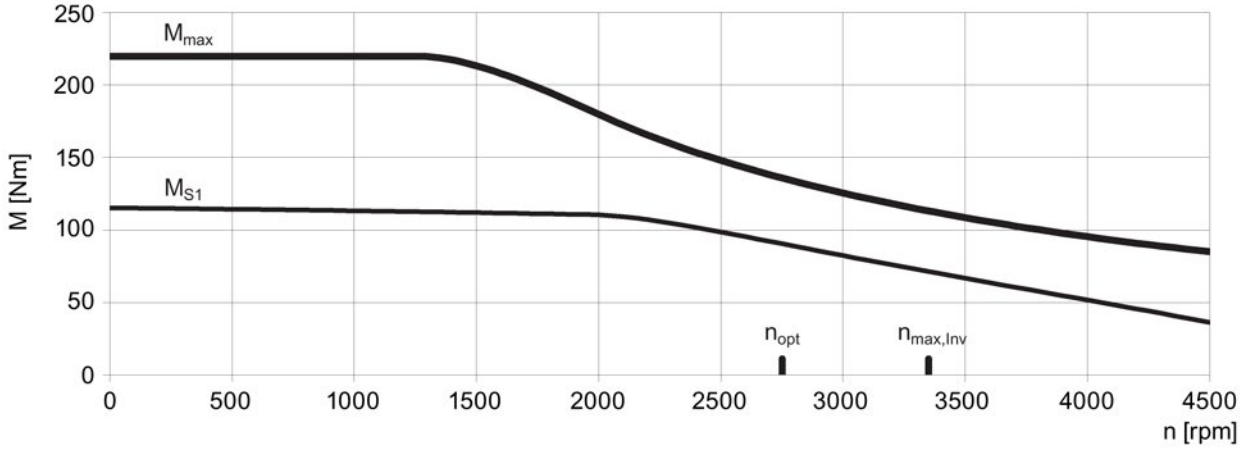


Table 6- 956 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□F2□

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]
2,000	23.2	111	39	28	2,950	4,500	4,500	3,150	220	90	115	41

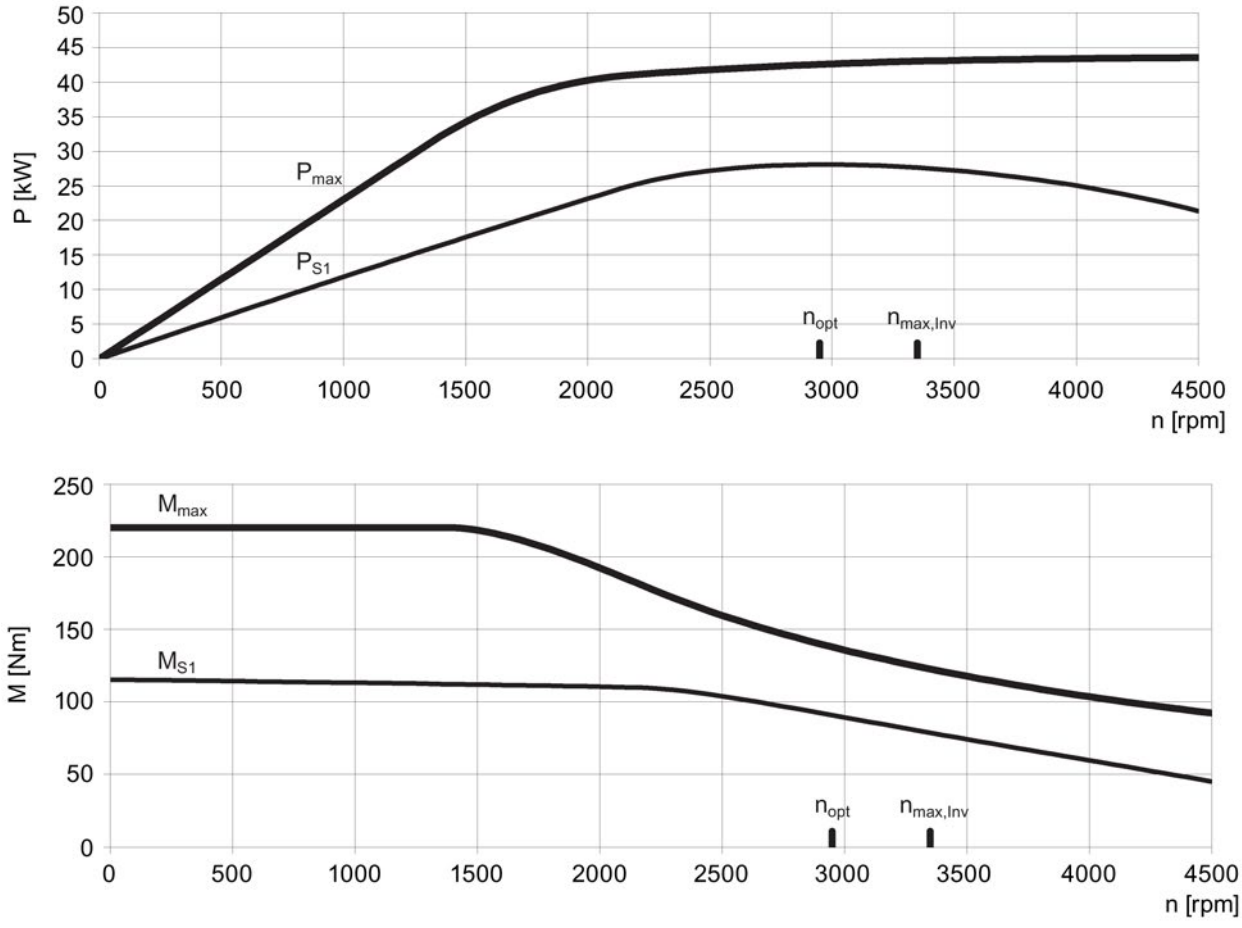
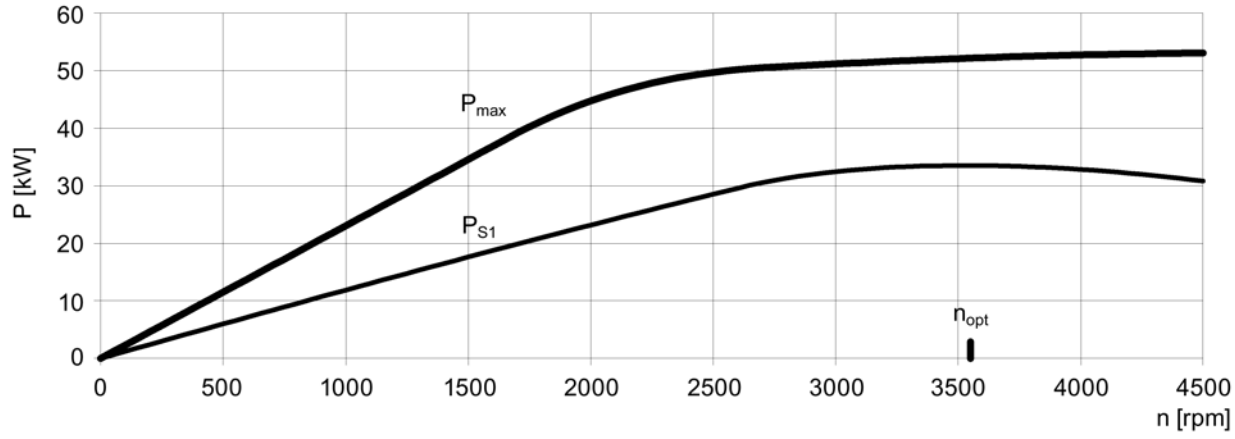


Table 6- 957 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8131-□□L2□

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]
2,500	28.5	109	57	34	3,550	4,500	4,500	> 4,500	220	133	115	60



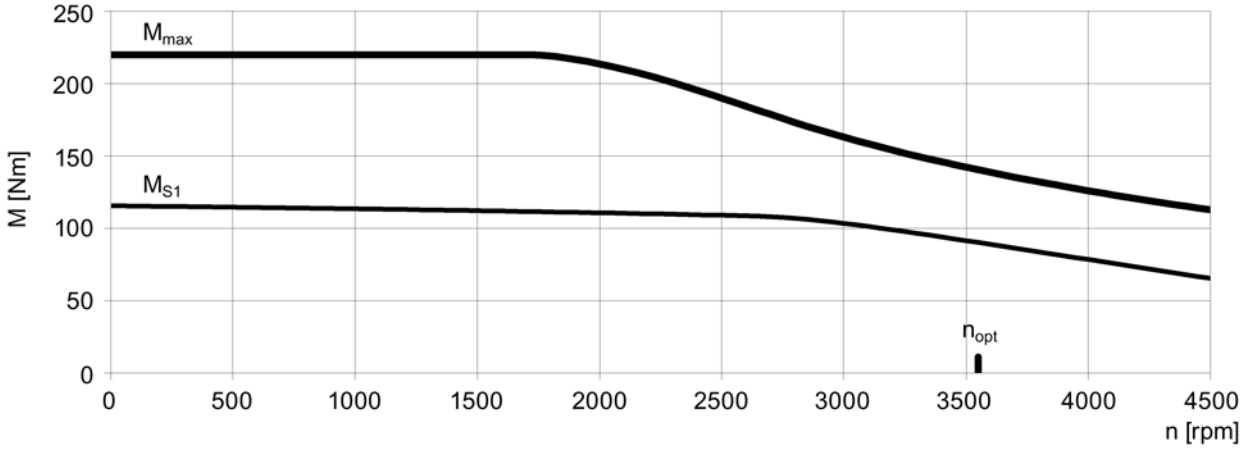
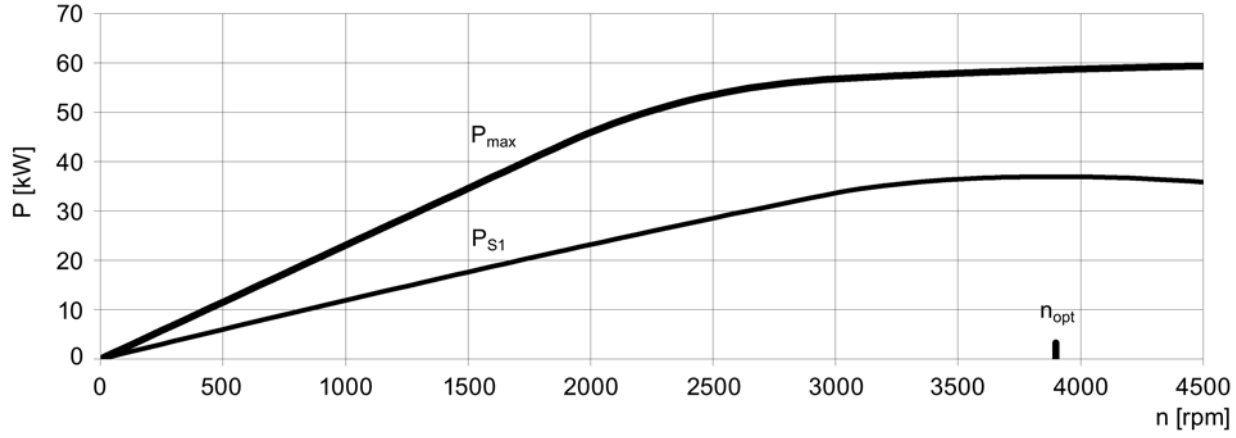


Table 6- 958 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8131-□□L2□

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]
2,800	31.7	108	56	37	3,900	4,500	4,500	> 4,500	220	133	115	60
2,500	28.5	109	57									



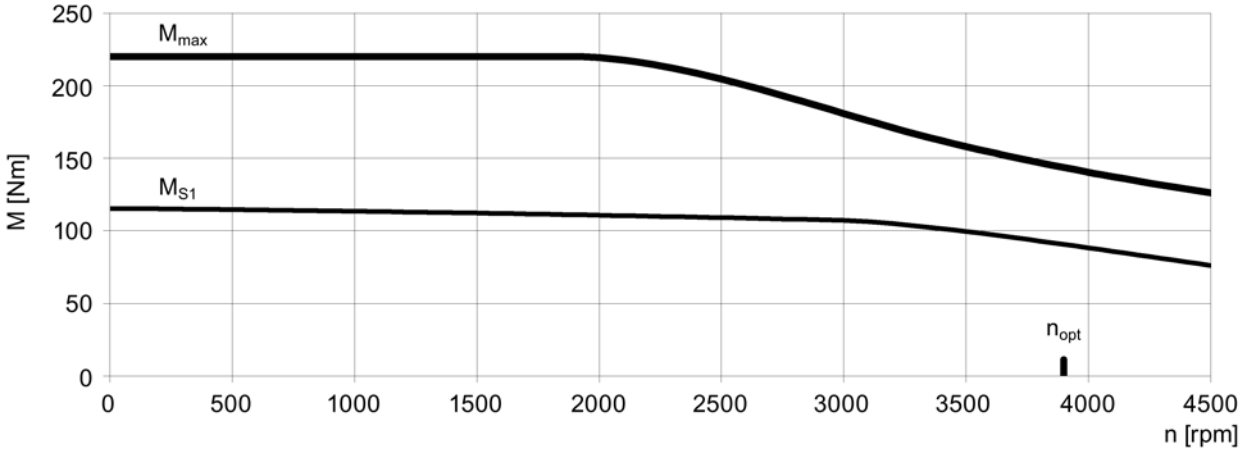
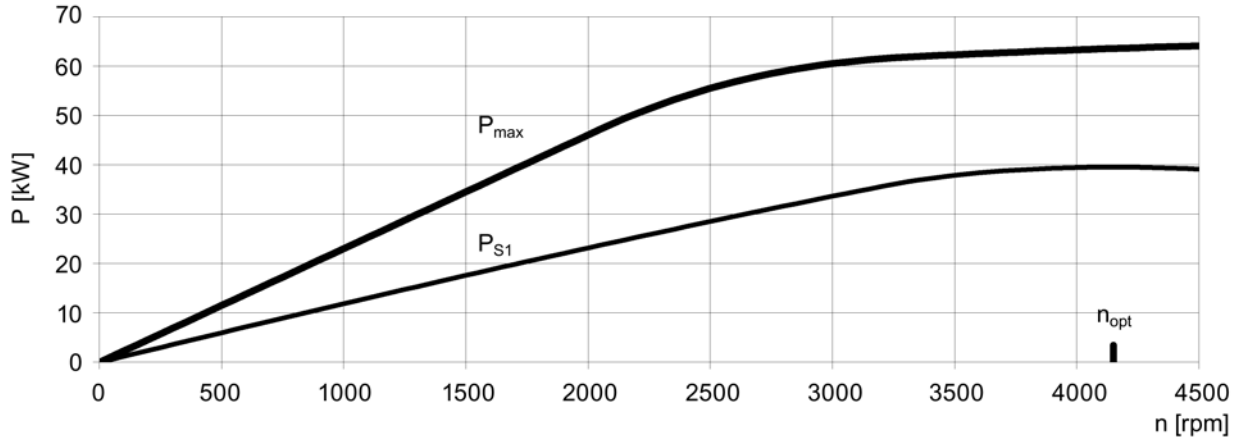


Table 6- 959 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8131-□□L2□

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]
3,000	33.6	107	56	39	4,150	4,500	4,500	> 4,500	220	133	115	60



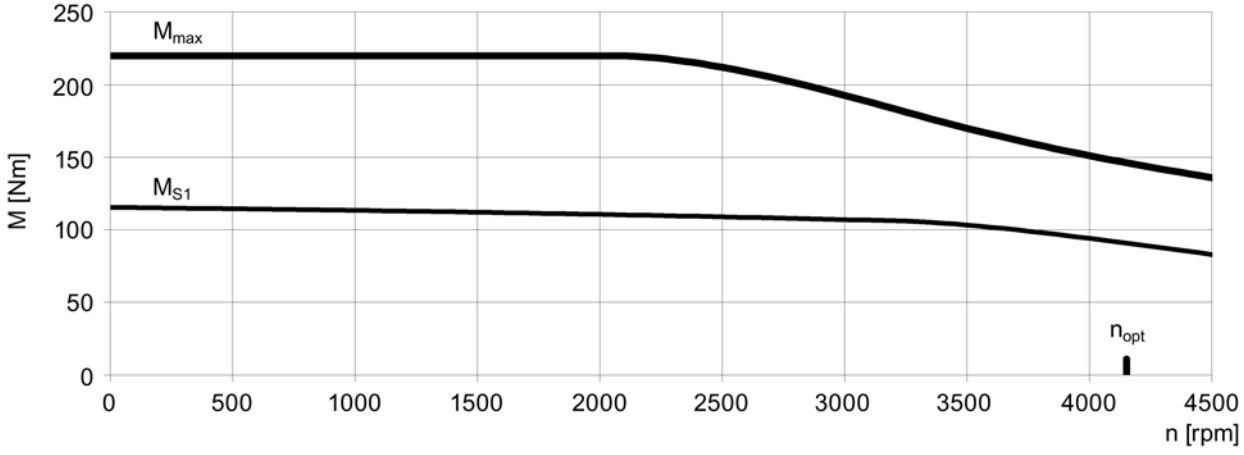
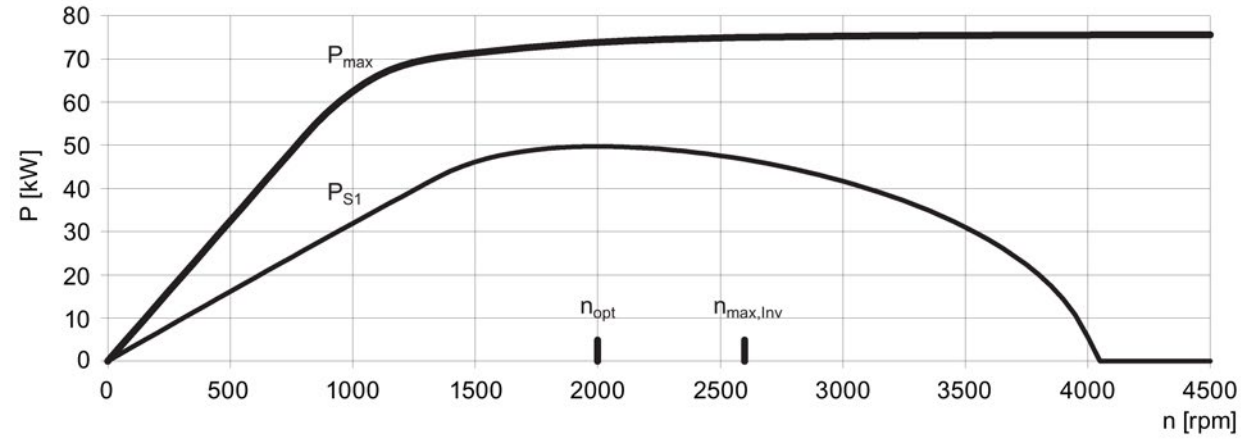


Table 6- 960 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□F2□

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]
1,500	23.1	147	42	25	2,000	4,500	4,500	2,450	310	100	155	43



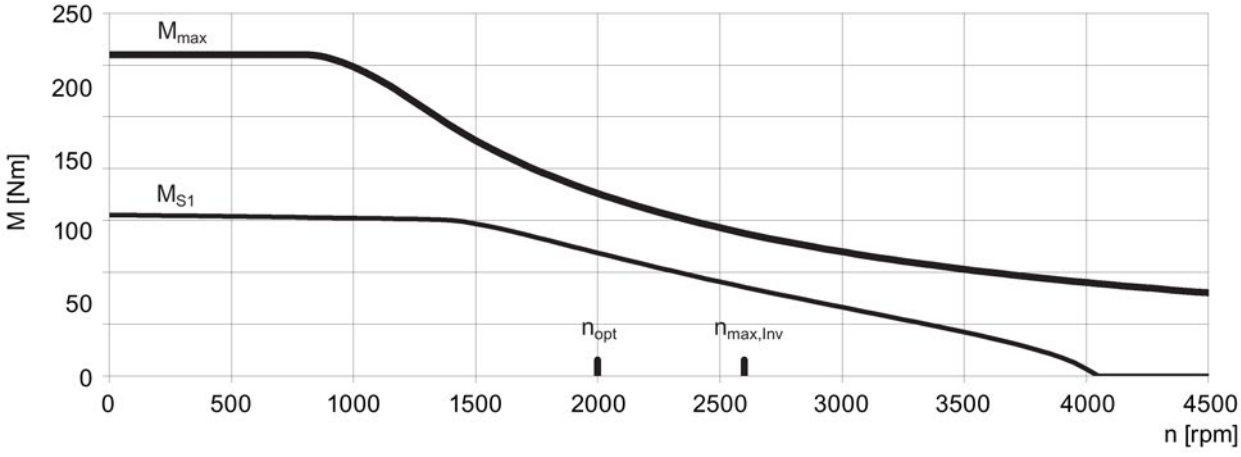
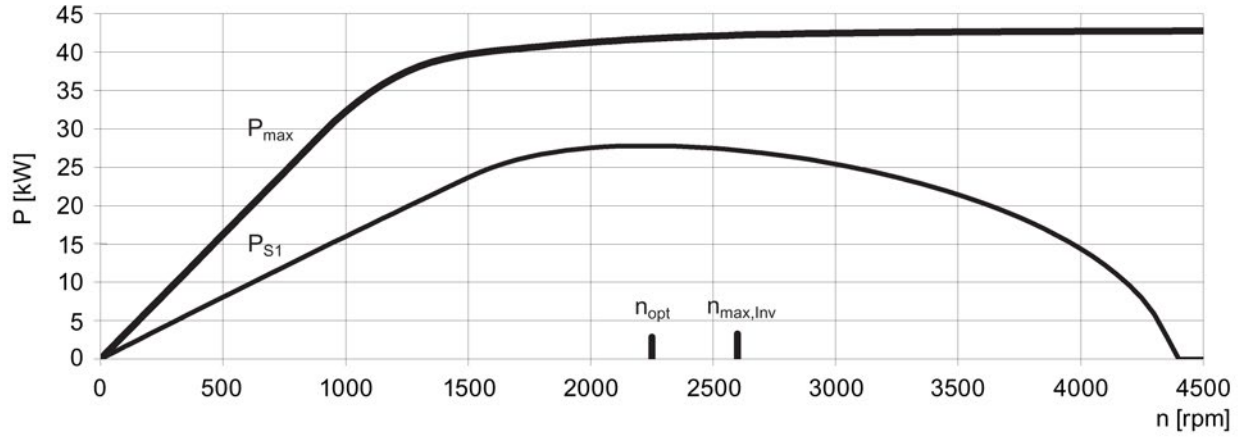


Table 6- 961 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□F2□

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]
1,750	26.4	144	42	28	2,250	4,500	4,500	2,450	310	100	155	43
1,500	23.1	147	42									



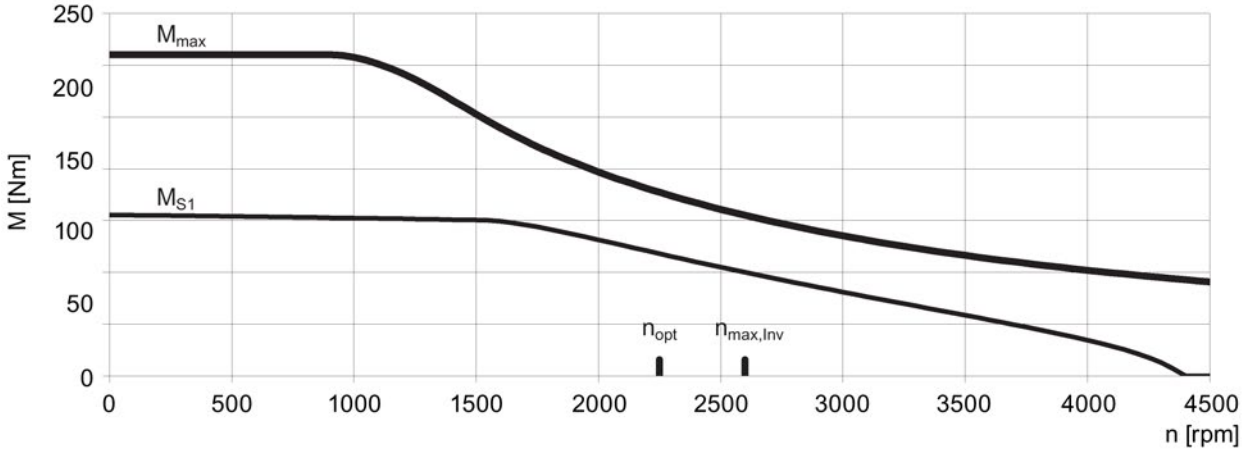
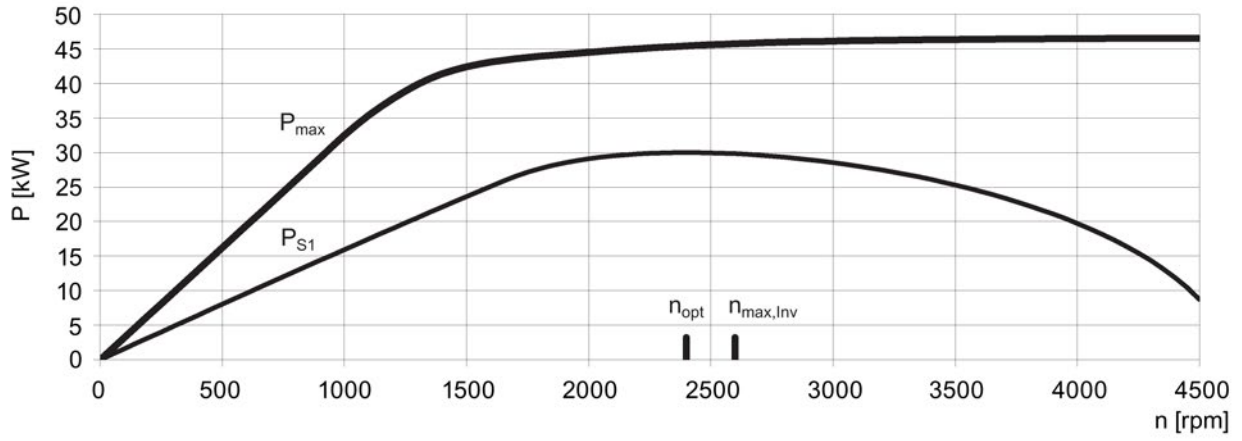


Table 6- 962 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□F2□

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]
2,000	29.0	139	41	30	2,400	4,500	4,500	2,450	310	100	155	43



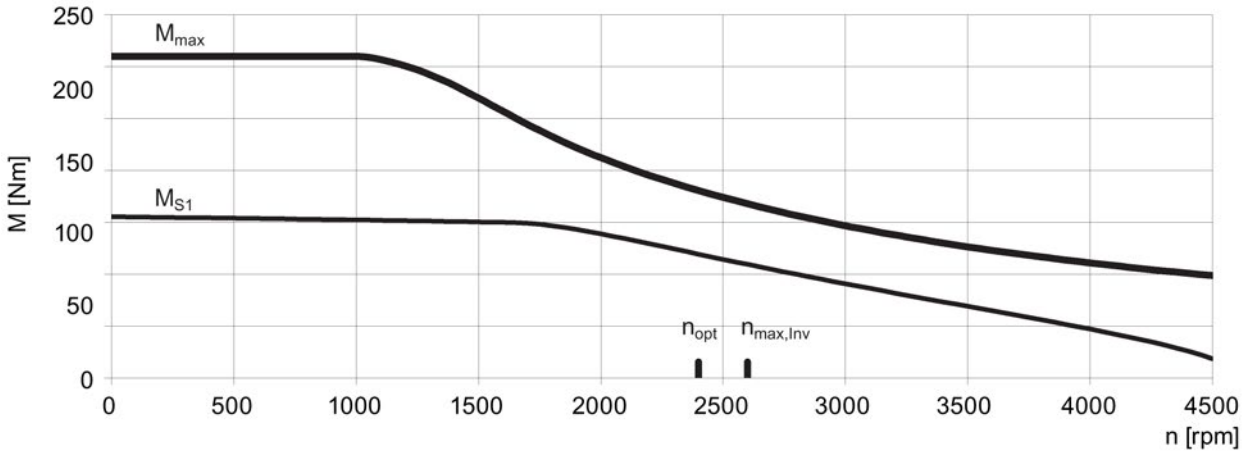
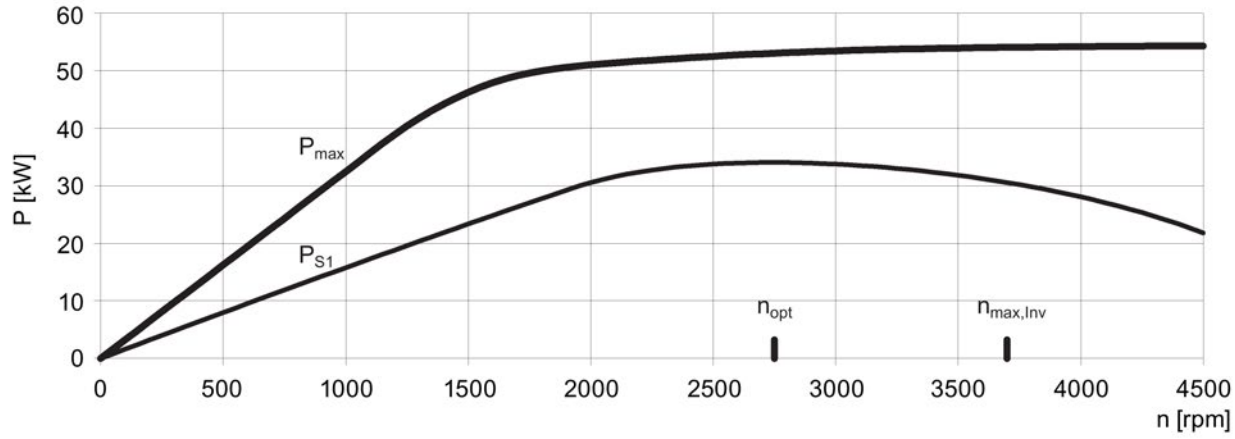


Table 6- 963 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8133-□□G2□

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]
2,000	30.6	146	57	34	2,750	4,500	4,500	3,450	310	140	155	61



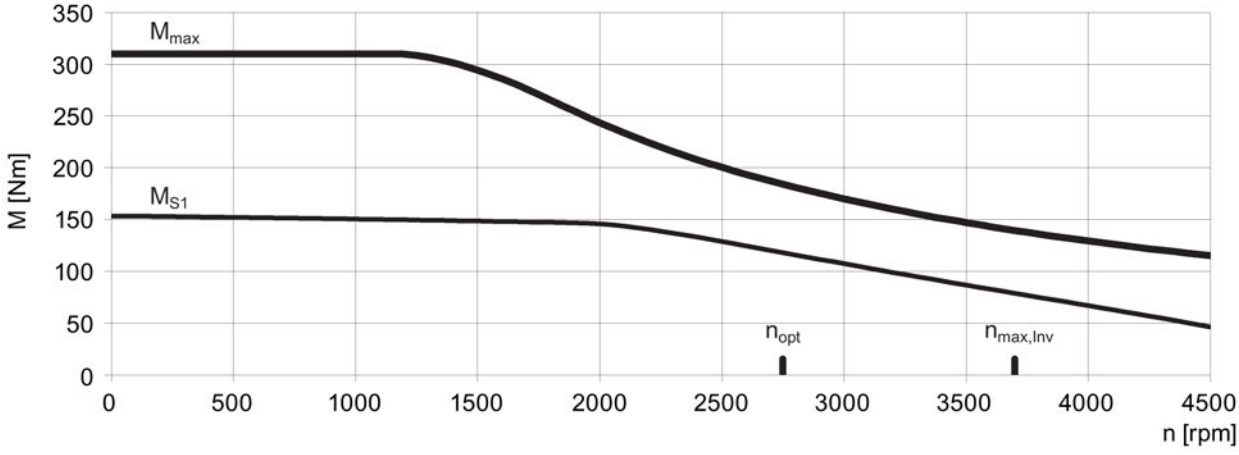


Table 6- 964 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8133-□□G2□

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]
2,300	34.9	145	57	38	3,050	4,500	4,500	3,450	310	140	155	61
2,000	30.6	146	57									

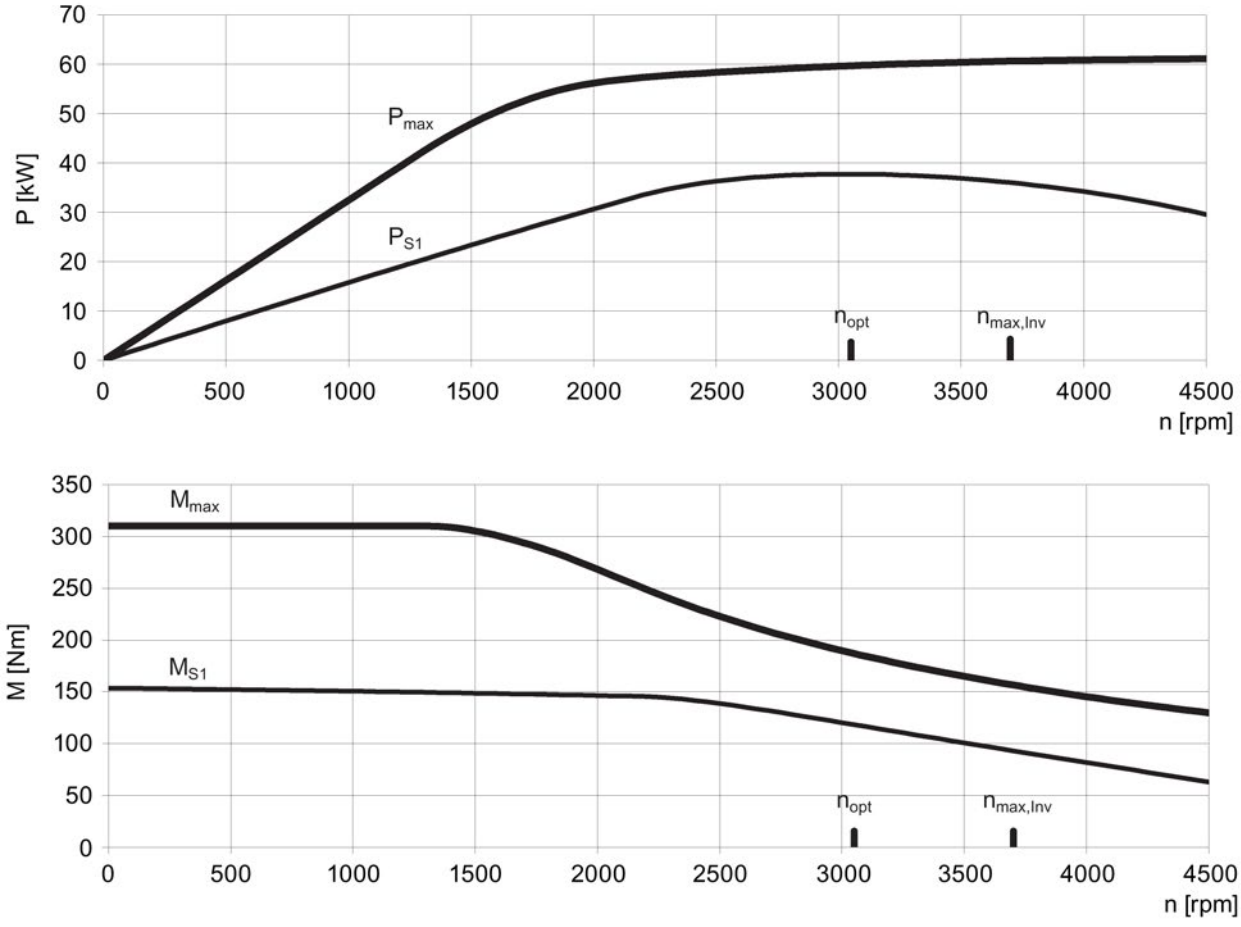
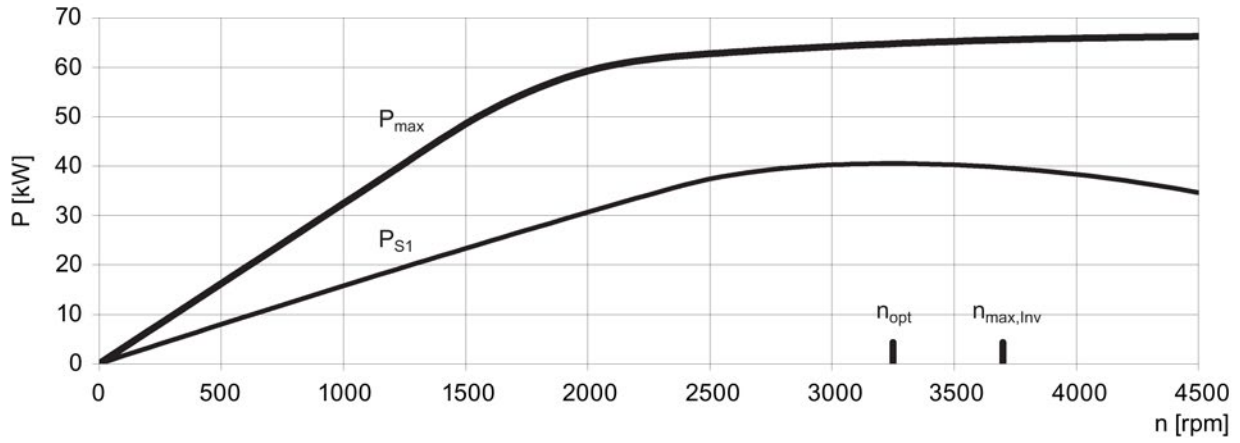


Table 6- 965 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8133-□□G2□

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]
2,650	39.1	141	57	41	3,250	4,500	4,500	3,450	310	140	155	61



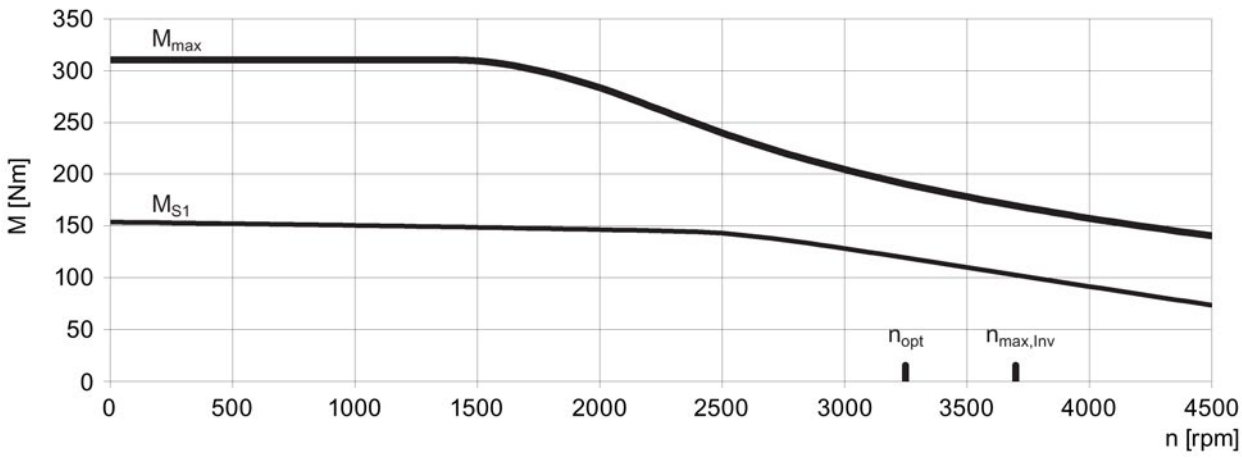
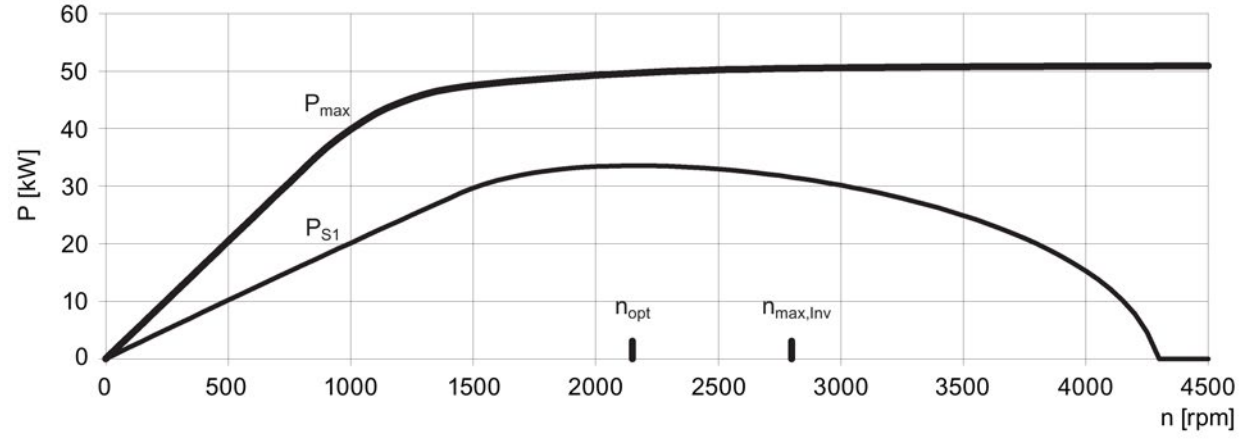


Table 6- 966 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□F2□

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]
1,500	29.7	189	57	34	2,150	4,500	4,500	2,650	390	135	196	59



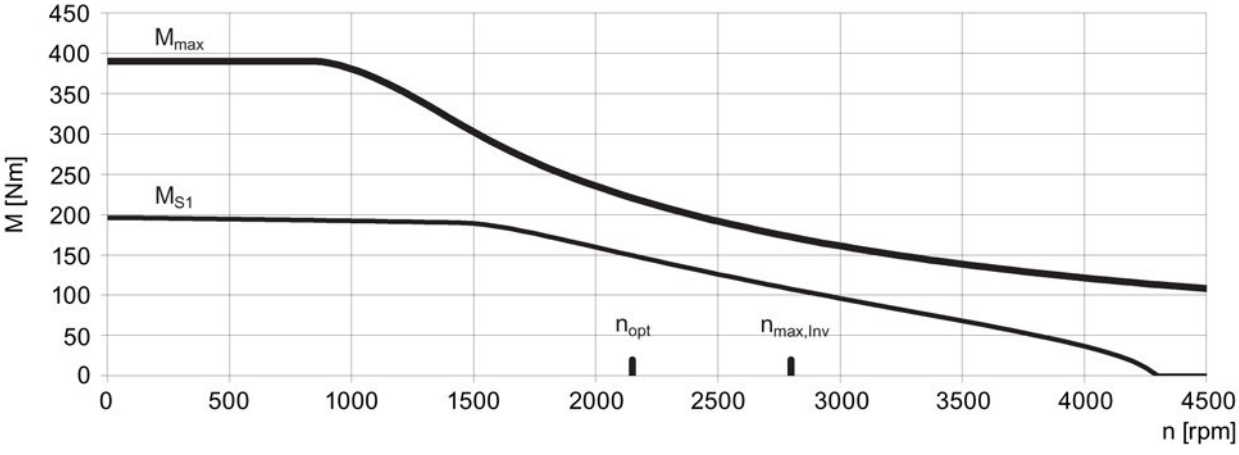
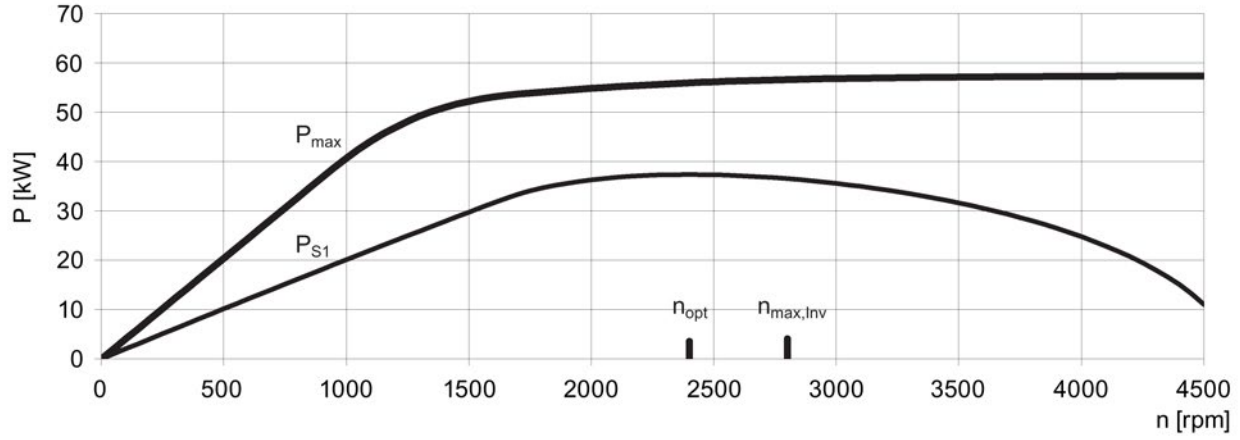


Table 6- 967 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□F2□

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]
1,750	34.1	186	56	37	2,400	4,500	4,500	2,650	390	135	196	59
1,500	29.7	189	57									



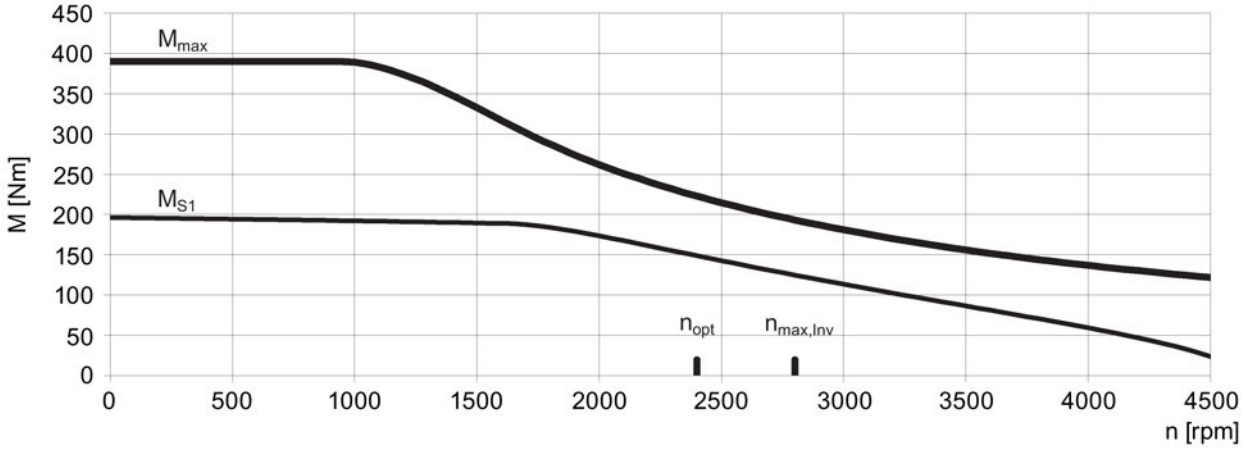
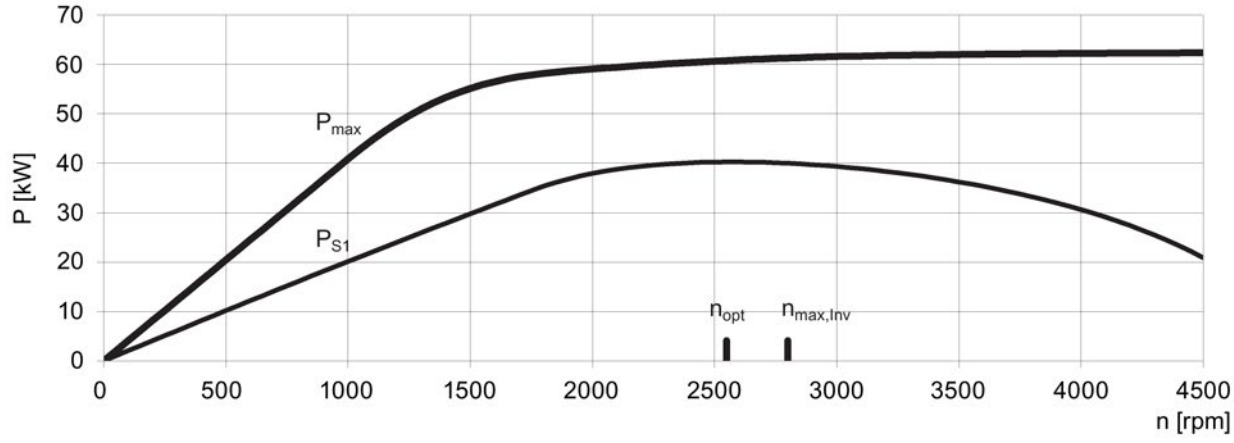


Table 6- 968 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□F2□

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]
2,000	37.9	181	56	40	2,550	4,500	4,500	2,650	390	135	196	59



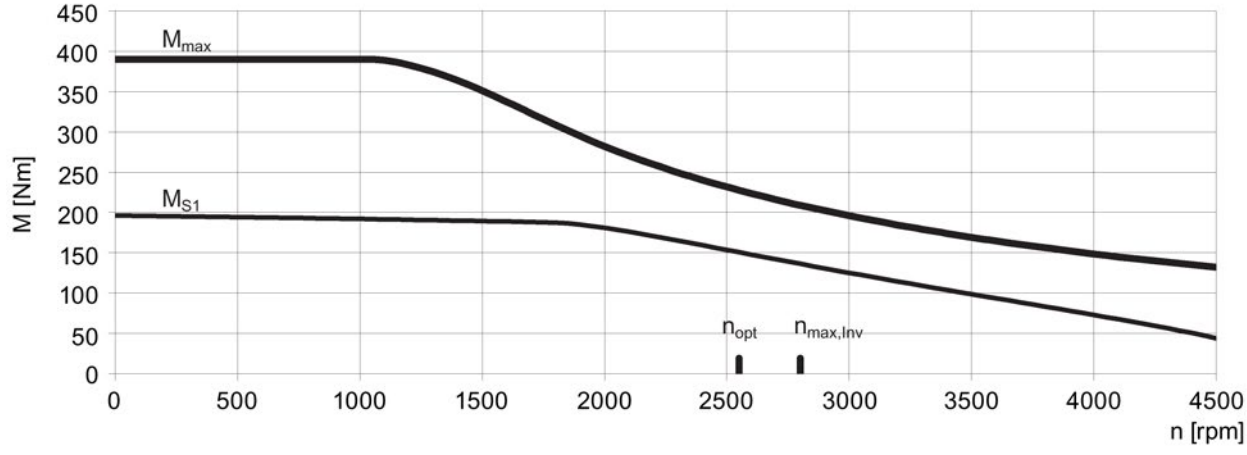
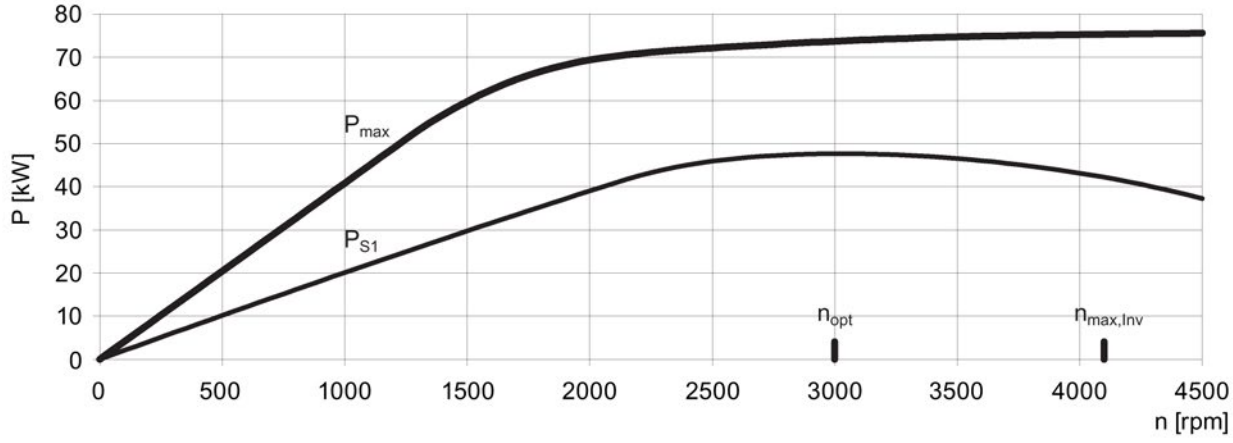


Table 6- 969 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8135-□□G2□

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]
2,000	39.0	186	81	48	3,000	4,500	4,500	3,800	390	196	196	85



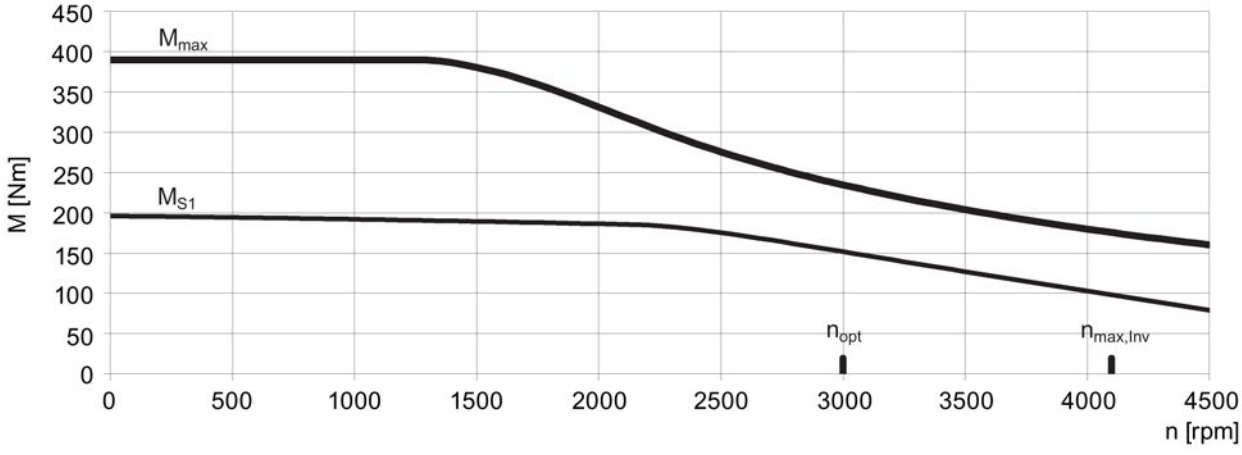


Table 6- 970 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8135-□□G2□

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]
2,300	44.3	184	80	53	3,300	4,500	4,500	3,800	390	196	196	85
2,000	39.0	186	81									

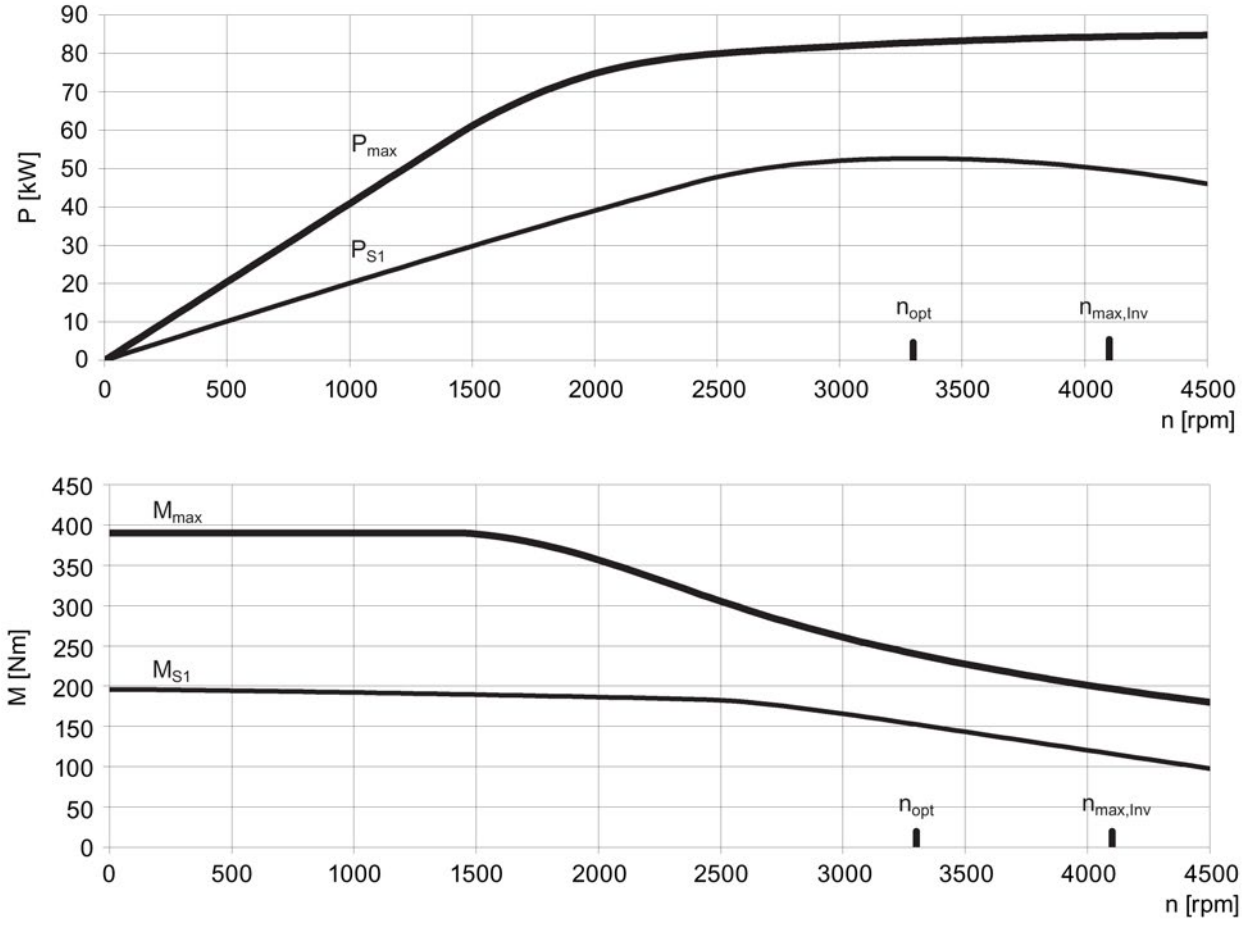
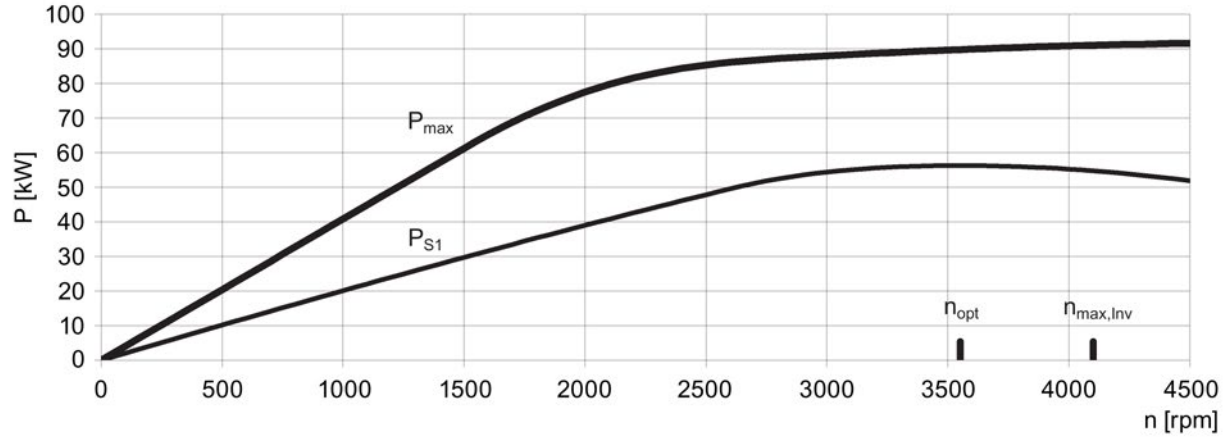


Table 6- 971 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8135-□□G2□

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]
2,650	50.5	182	79	56	3,550	4,500	4,500	3,800	390	196	196	85



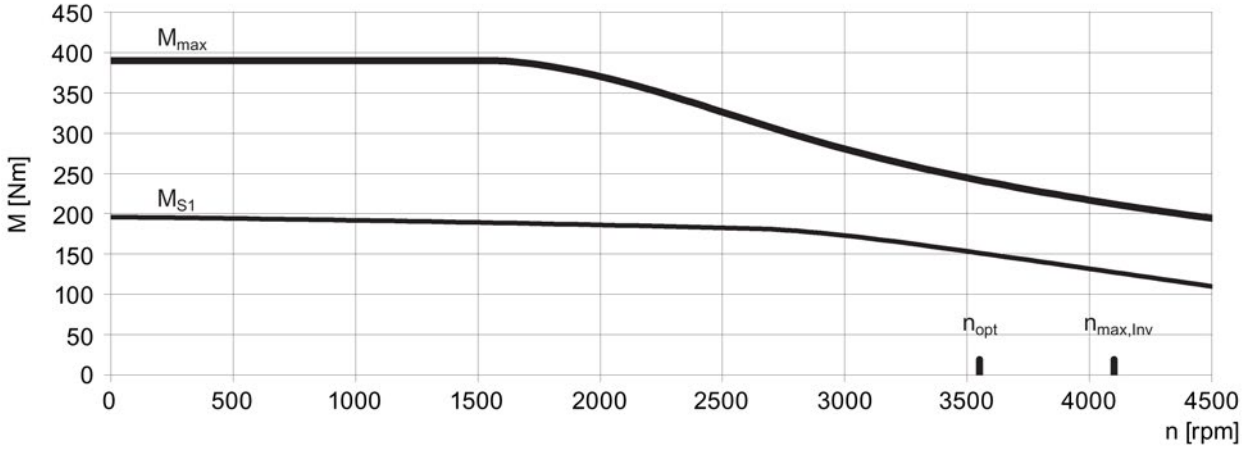
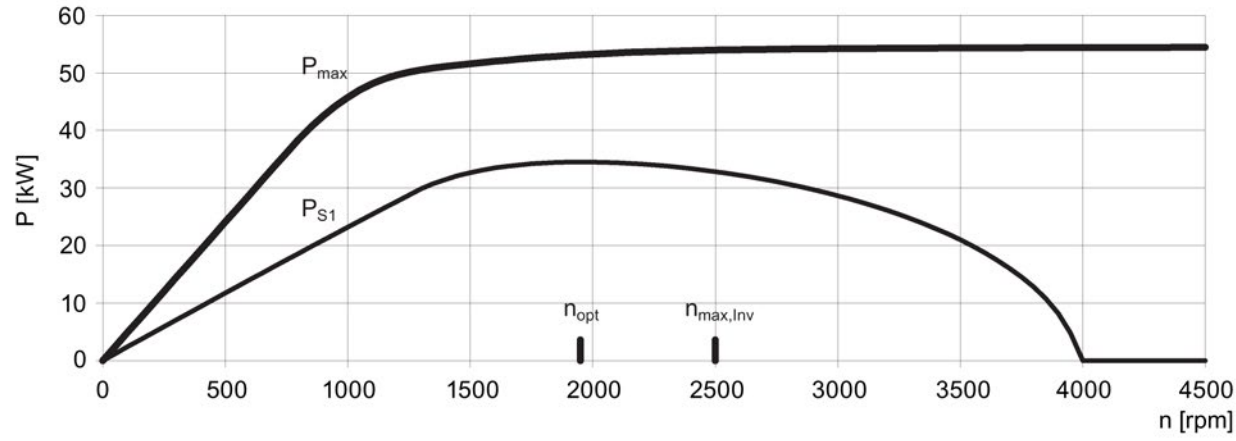


Table 6- 972 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□F2□

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]
1,500	32.7	208	58	35	1,950	4,500	4,500	2,350	460	141	226	60



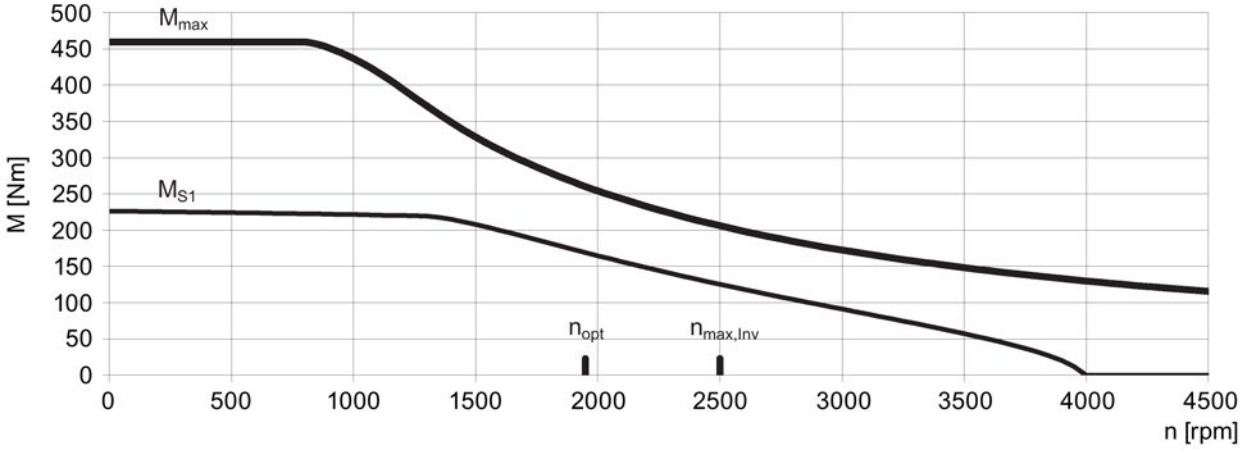
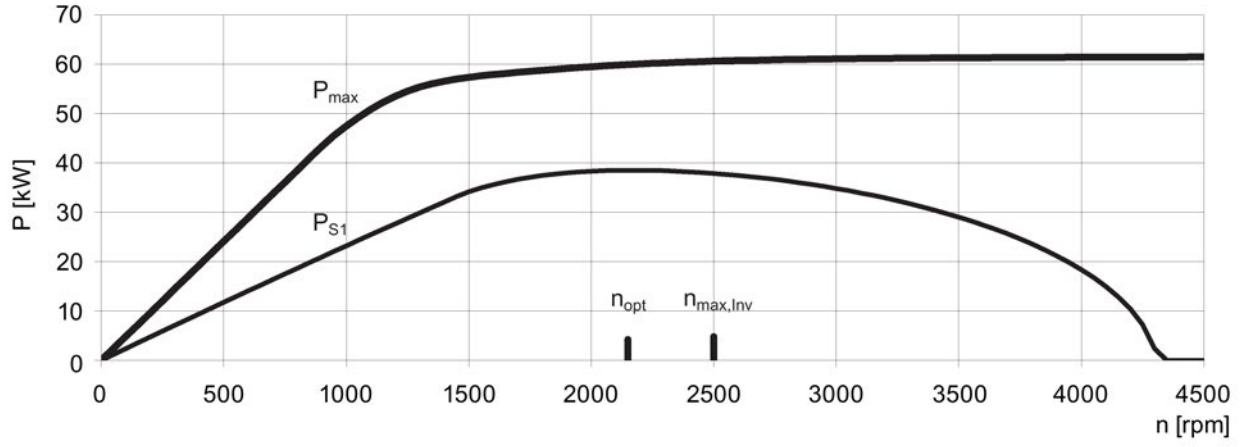


Table 6- 973 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□F2□

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]
1,750	37.0	202	58	38	2,150	4,500	4,500	2,350	460	141	226	60
1,500	34.1	217	58									



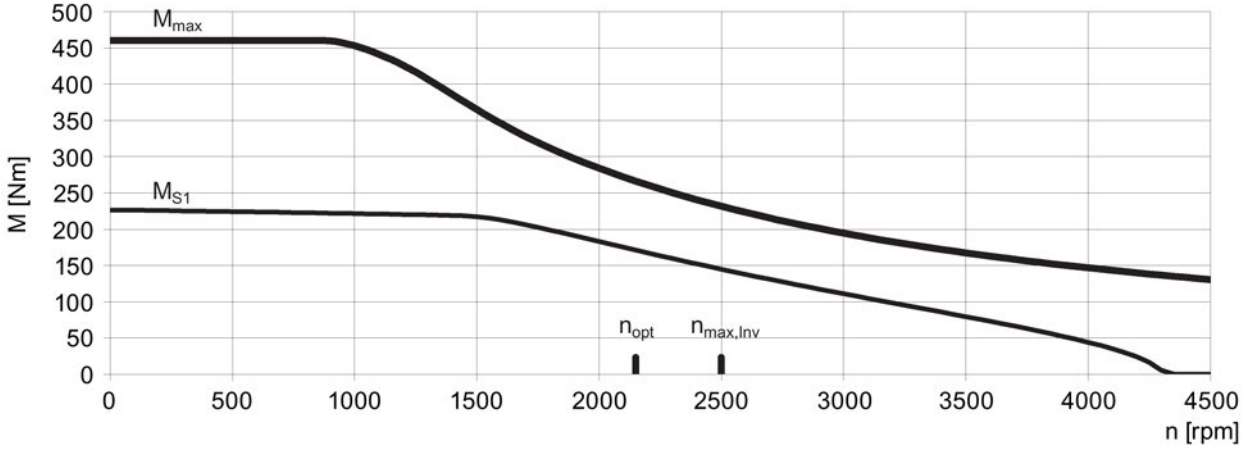
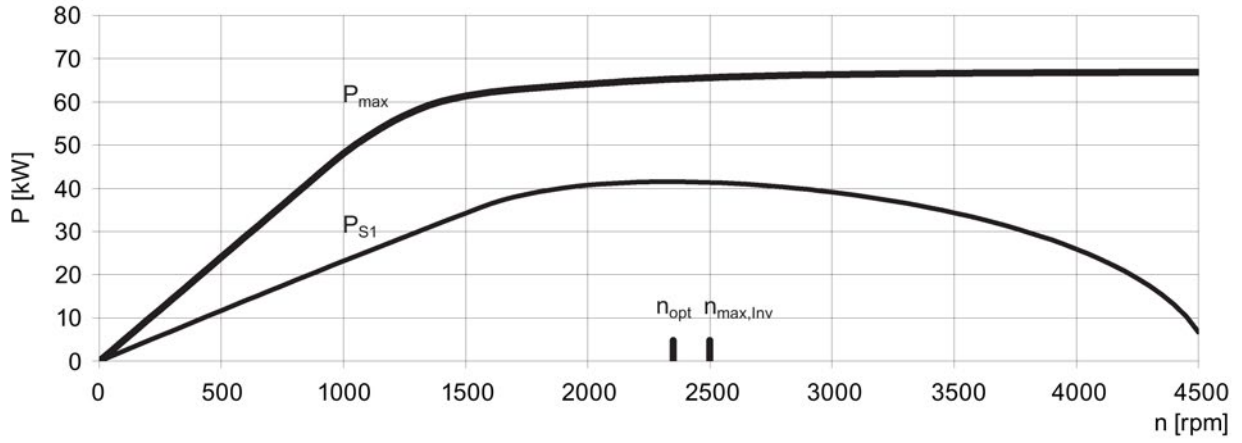


Table 6- 974 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□F2□

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]
2,000	40.6	194	57	41	2,350	4,500	4,500	2,350	460	141	226	60



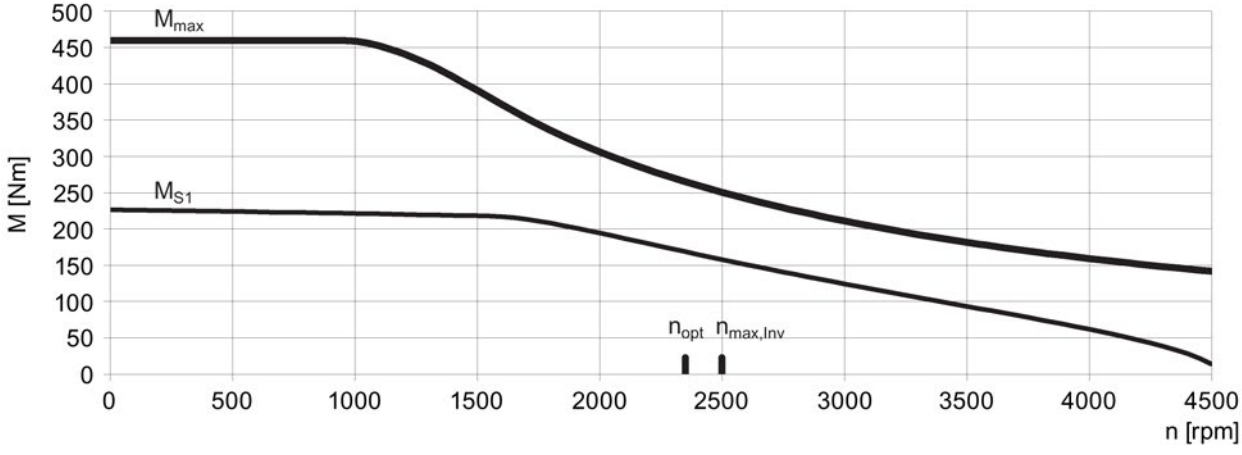
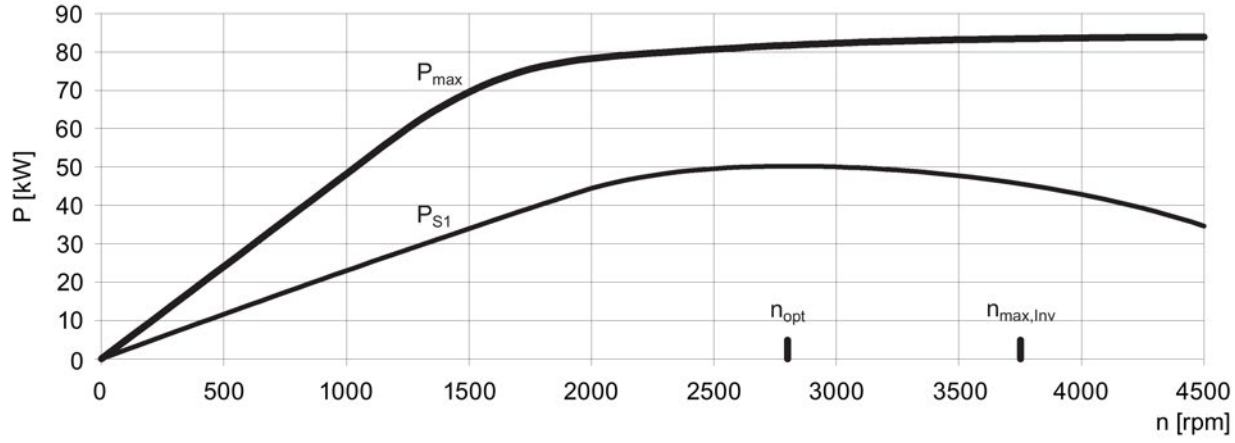


Table 6- 975 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8137-□□G2□

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]
2,000	44.4	212	85	50	2,800	4,500	4,500	3,500	460	212	226	90



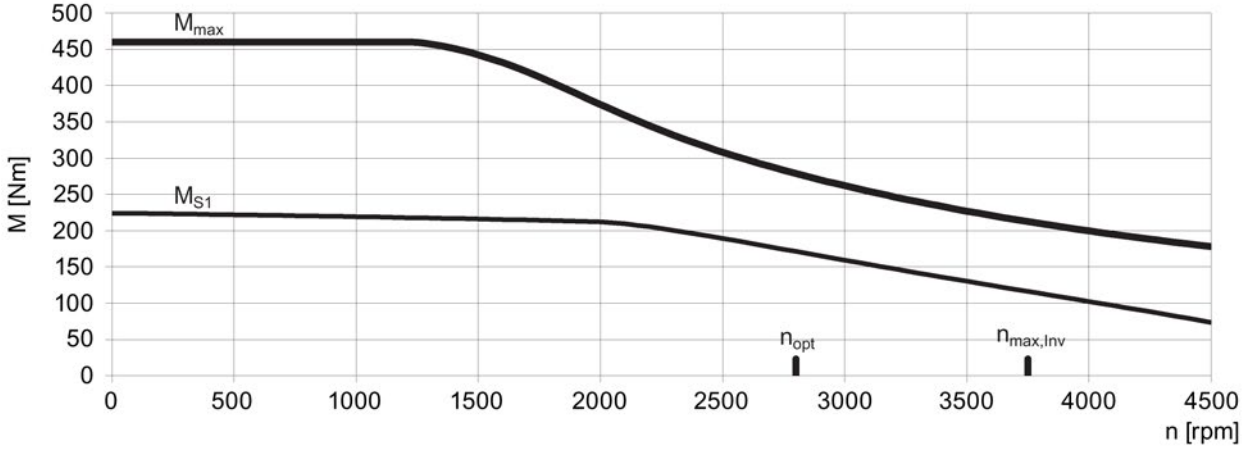


Table 6- 976 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8137-□□G2□

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]
2,300	50.5	210	84	56	3,100	4,500	4,500	3,500	460	212	226	90
2,000	44.4	212	85									

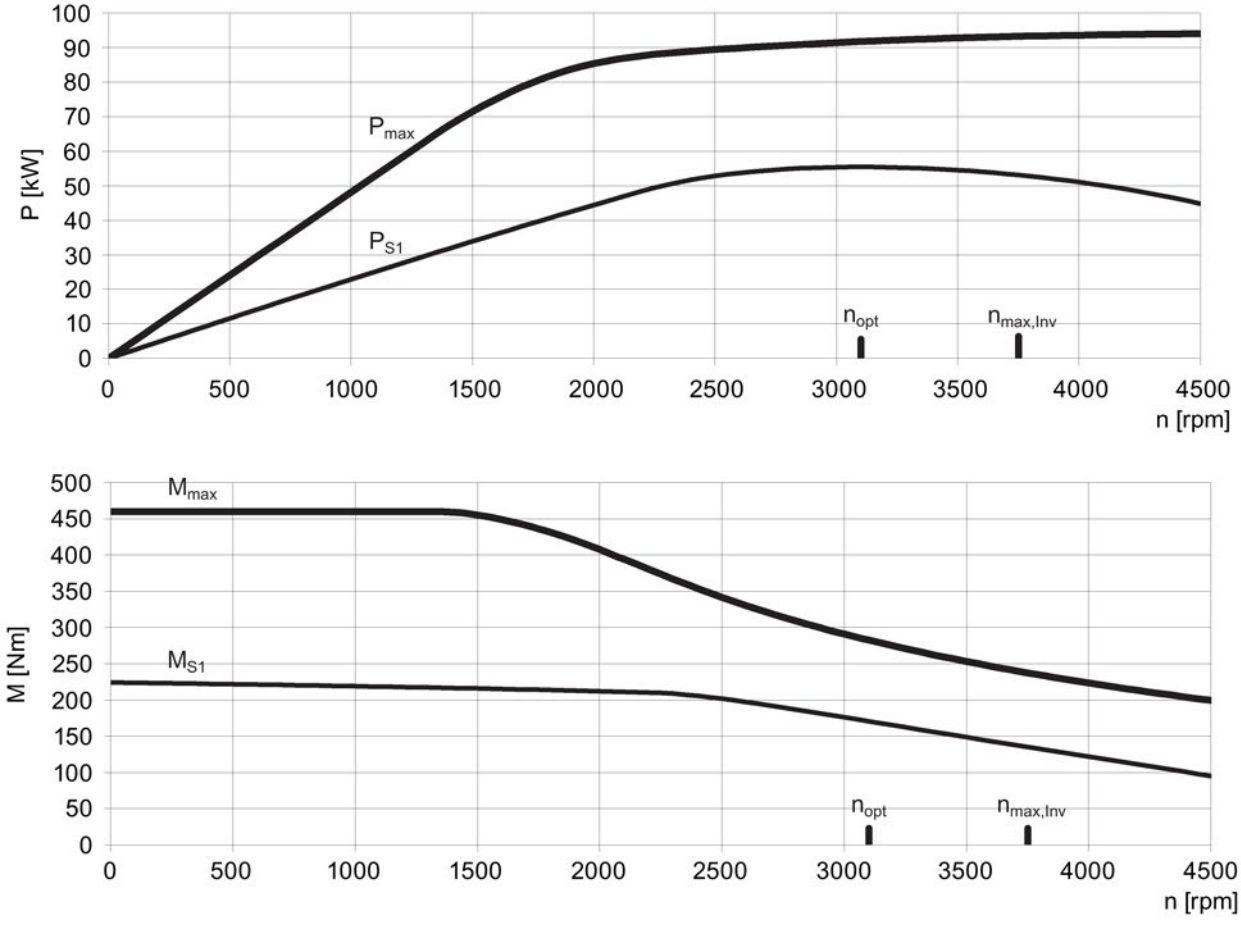
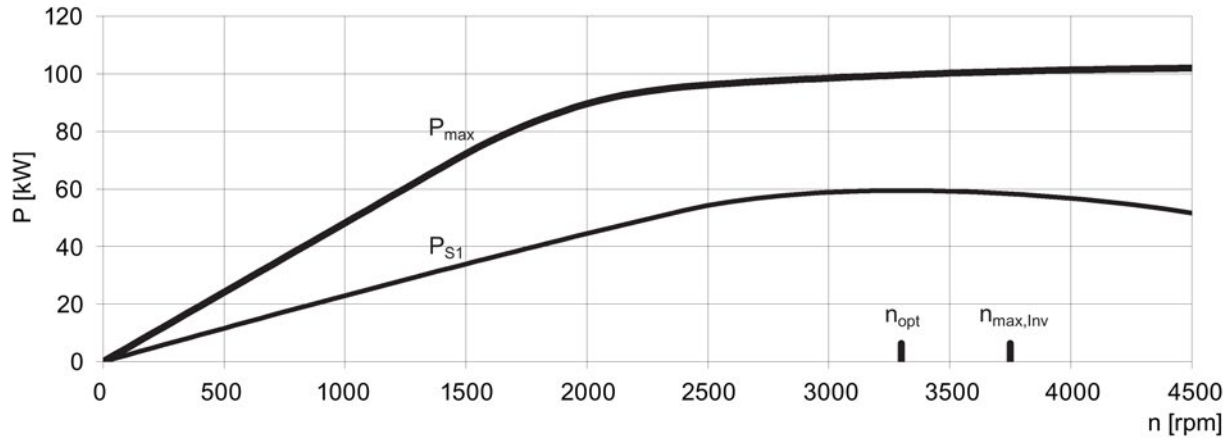


Table 6- 977 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8137-□□G2□

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]
2,650	56.8	205	83	60	3,300	4,500	4,500	3,500	460	212	226	90



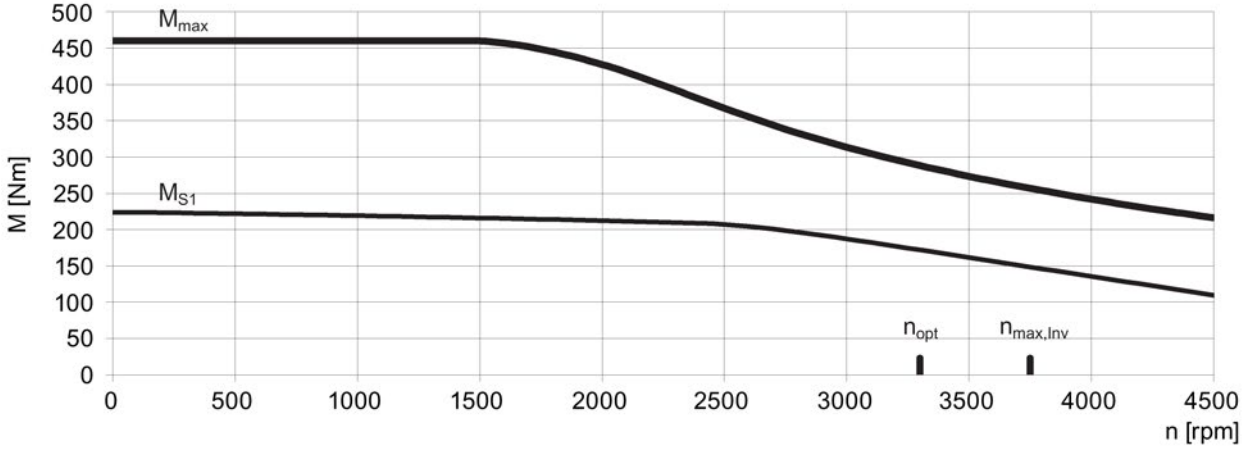
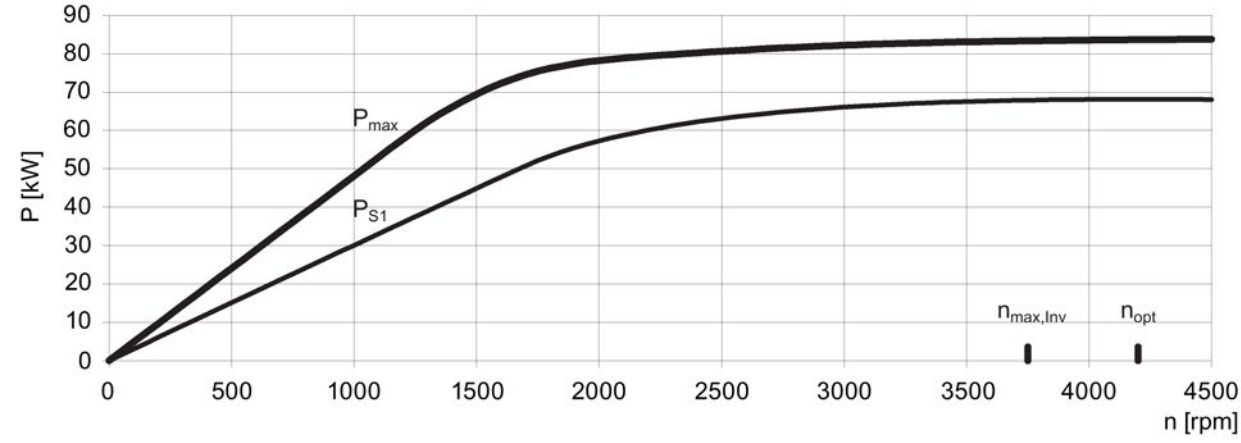


Table 6- 978 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□F2□

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]
1,500	44.9	286	118	68	4,200	4,500	4,500	3,500	460	212	290	120



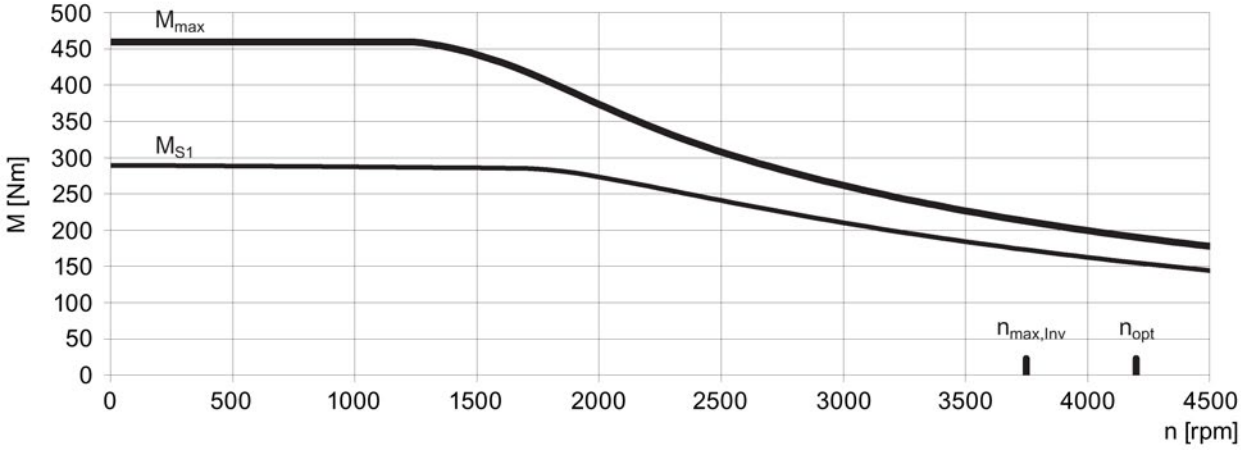
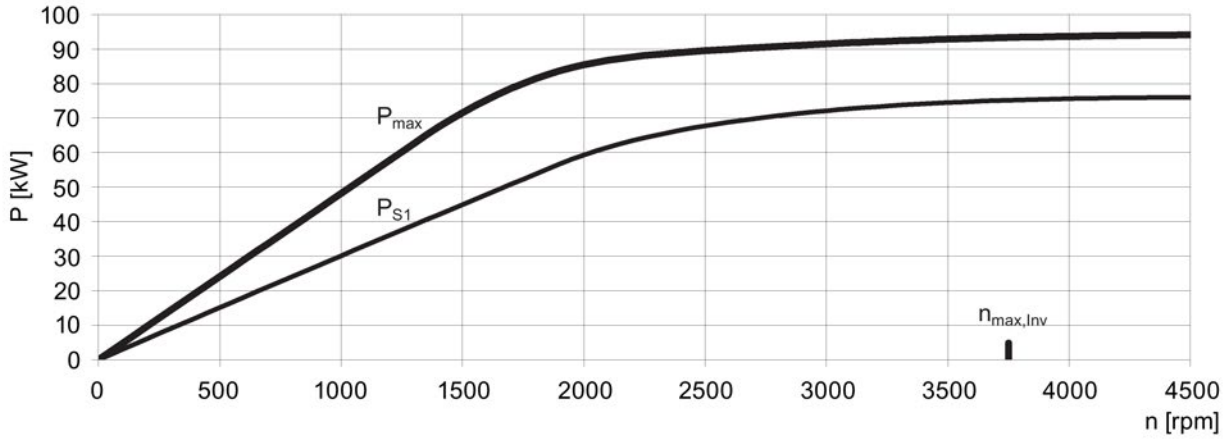


Table 6- 979 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□F2□

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]
1,750	52.4	286	118	76	4,500	4,500	4,500	3,500	460	212	290	120
1,500	44.9	286	118									



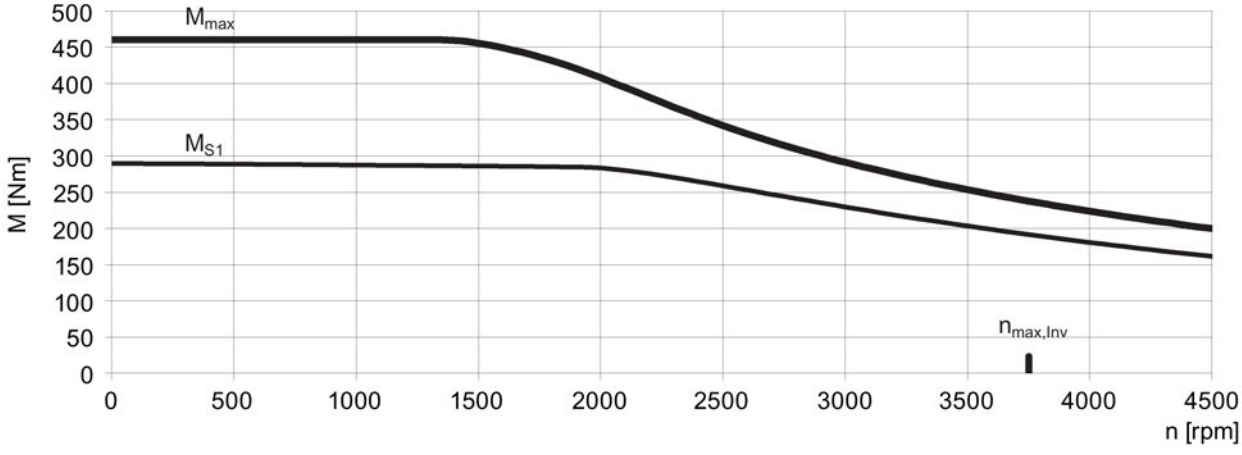
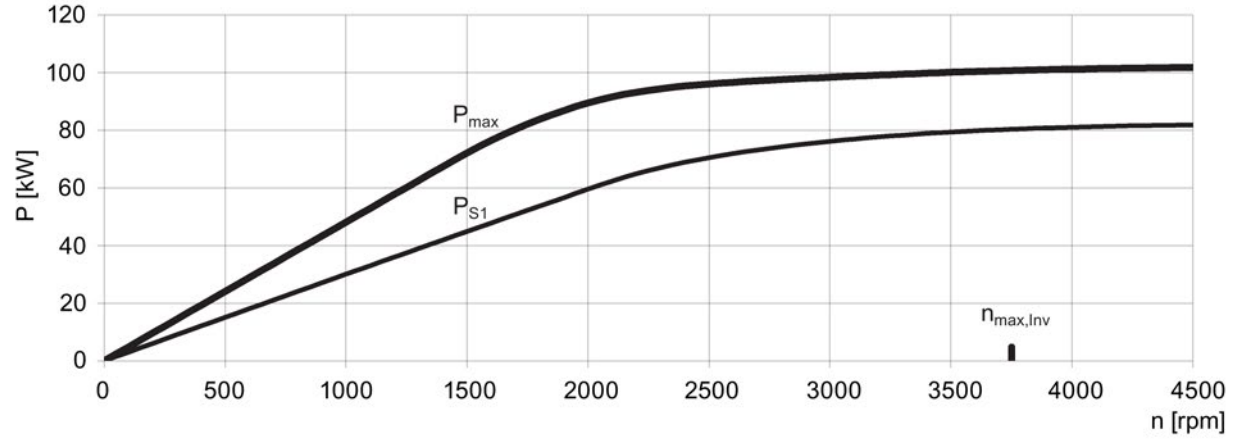


Table 6- 980 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8138-□□F2□

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]
2,000	59.7	285	118	82	4,500	4,500	4,500	3,500	460	212	290	120



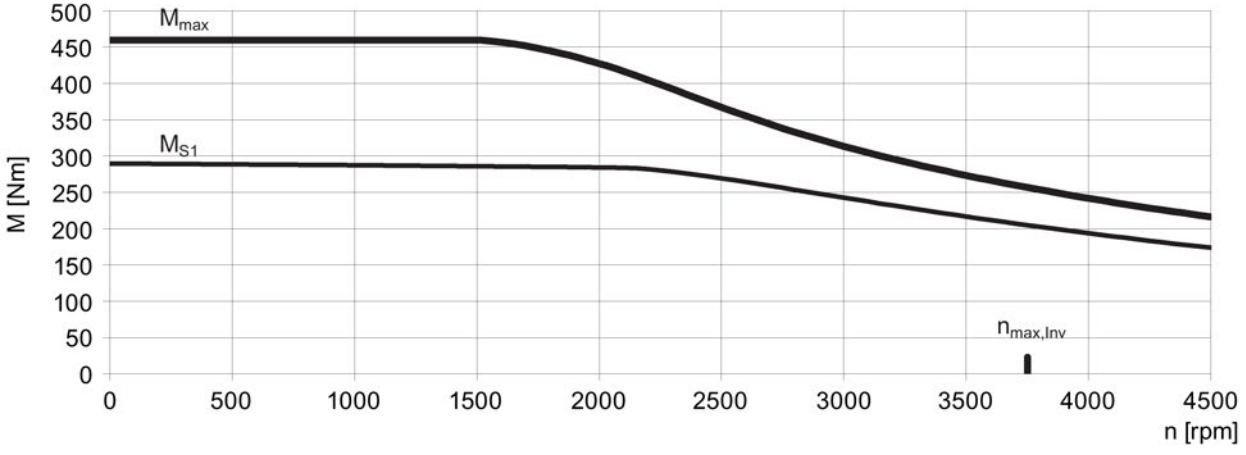
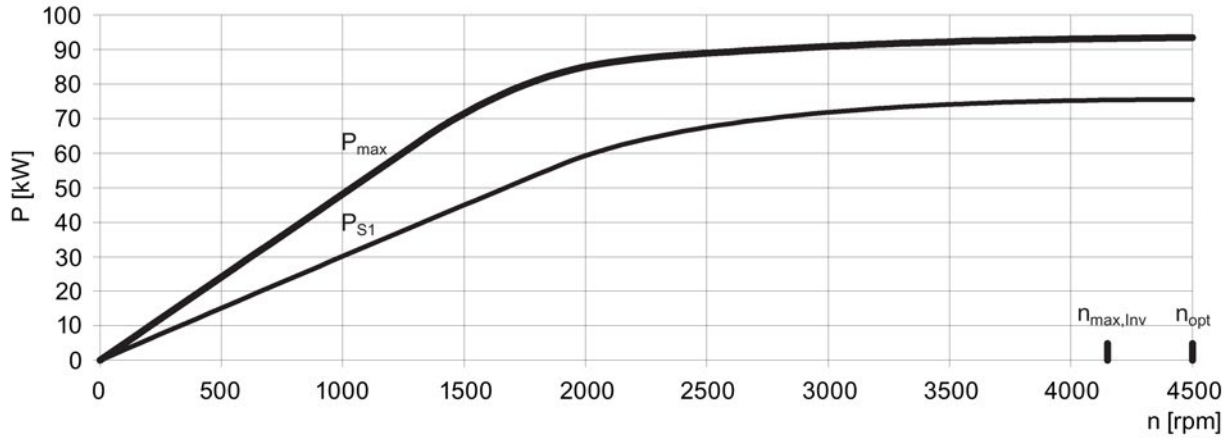


Table 6- 981 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8138-□□G2□

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]
2,000	59.3	283	131	76	4,500	4,500	4,500	3,900	460	235	290	133



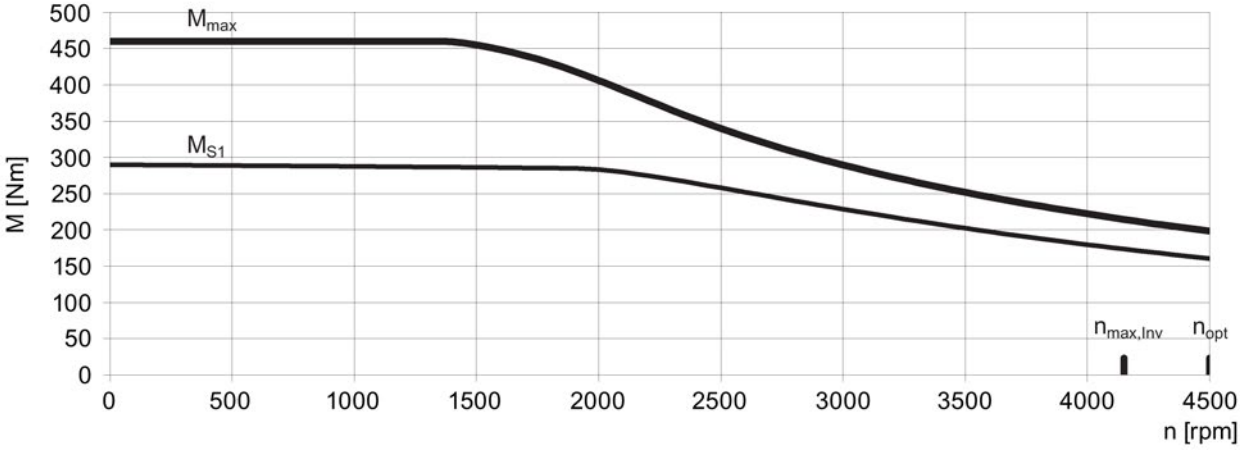


Table 6- 982 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8138-□□G2□

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]
2,300	67.7	281	130	84	4,500	4,500	4,500	3,900	460	235	290	133
2,000	59.7	285	131									

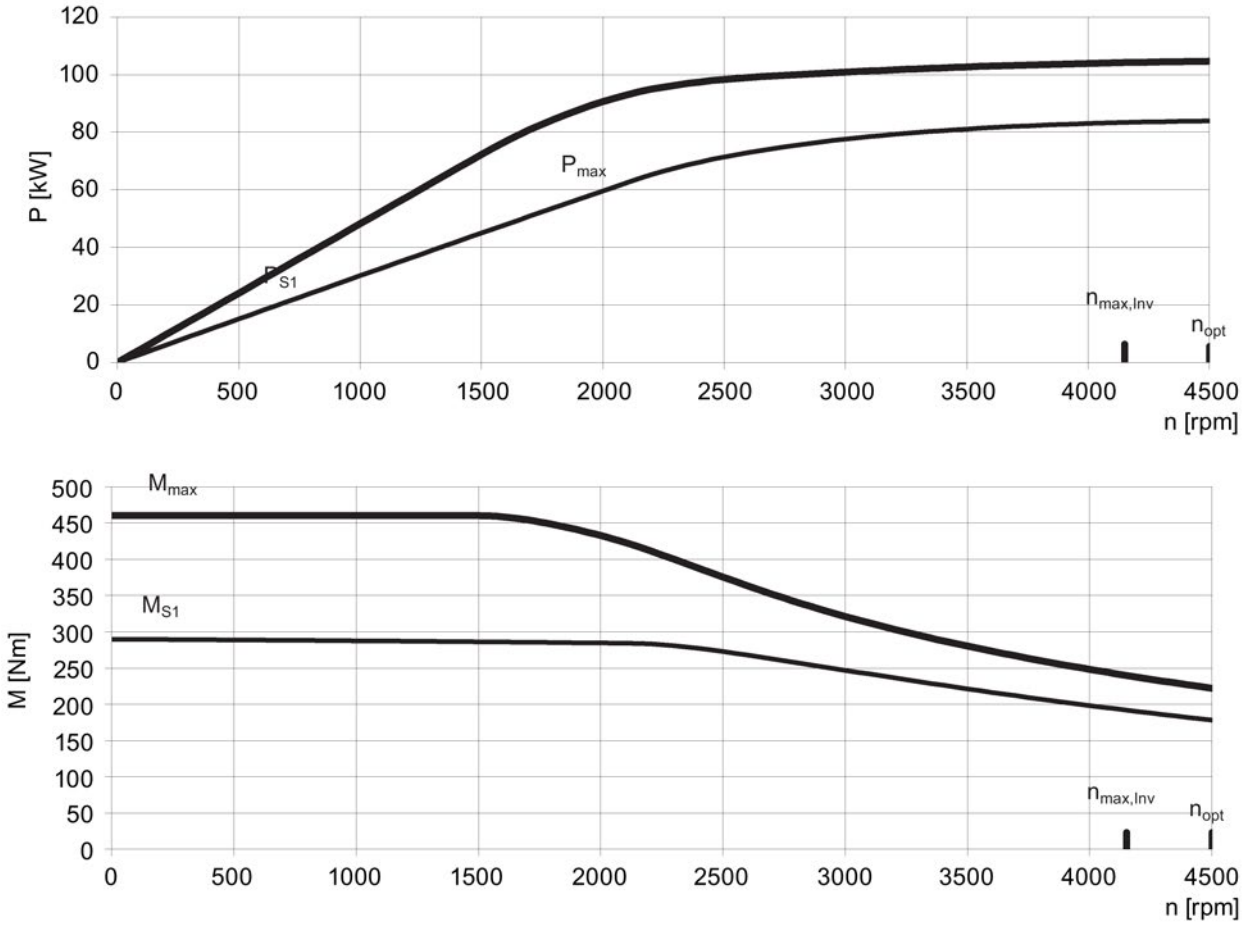
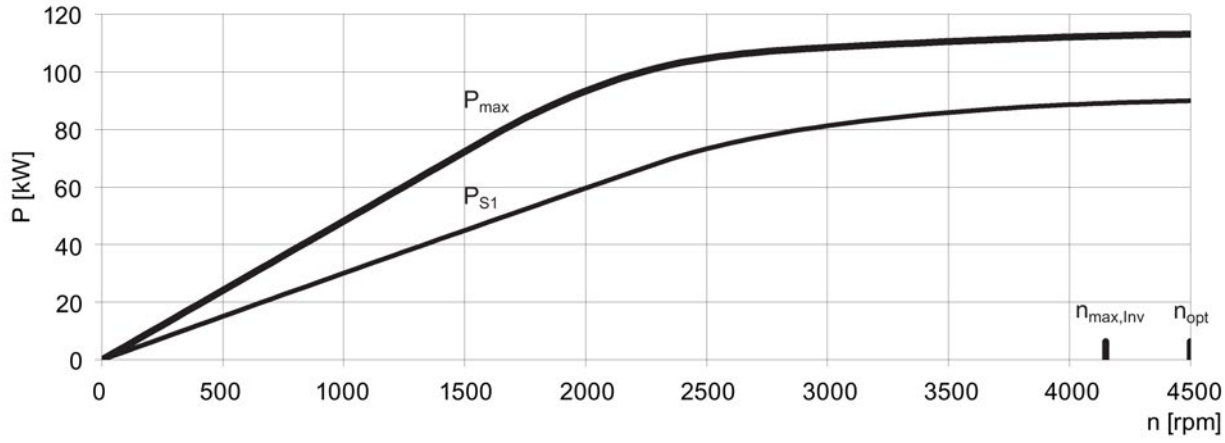
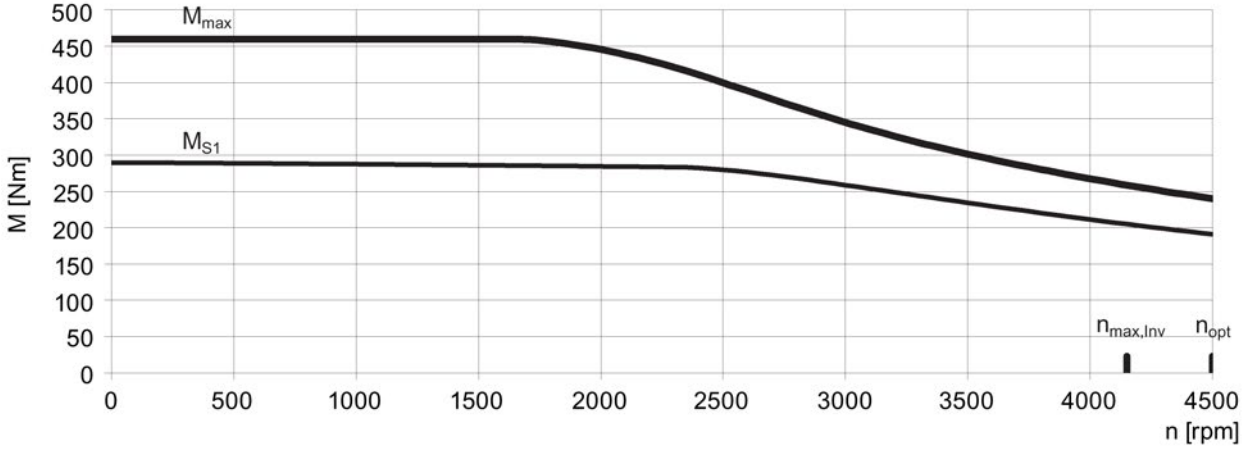


Table 6- 983 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8138-□□G2□

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]
2,650	76.3	275	130	91	4,500	4,500	4,500	3,900	460	235	290	133

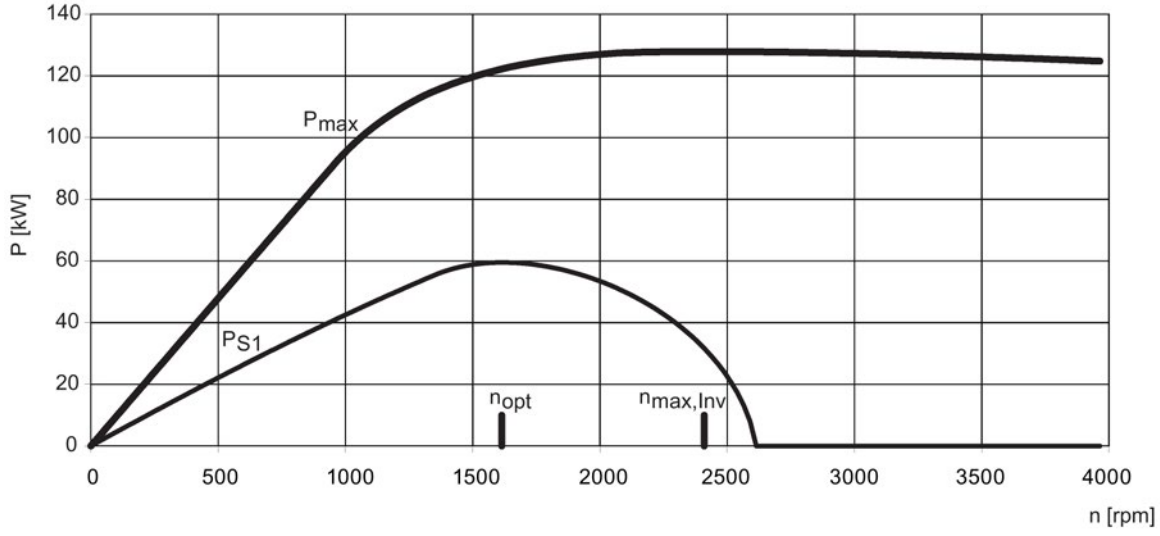




6.2.3.2 Shaft height 160 - water cooling

Table 6- 984 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]
1,500	59.0	375	111	59.5	1,615	4,000	4,000	2,400	915	276	440	118



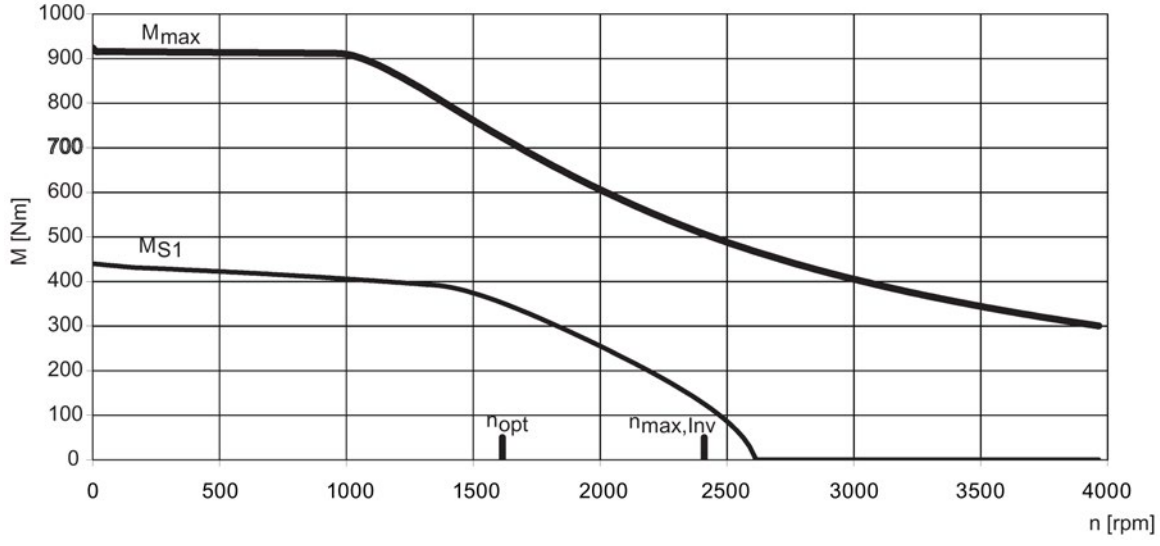
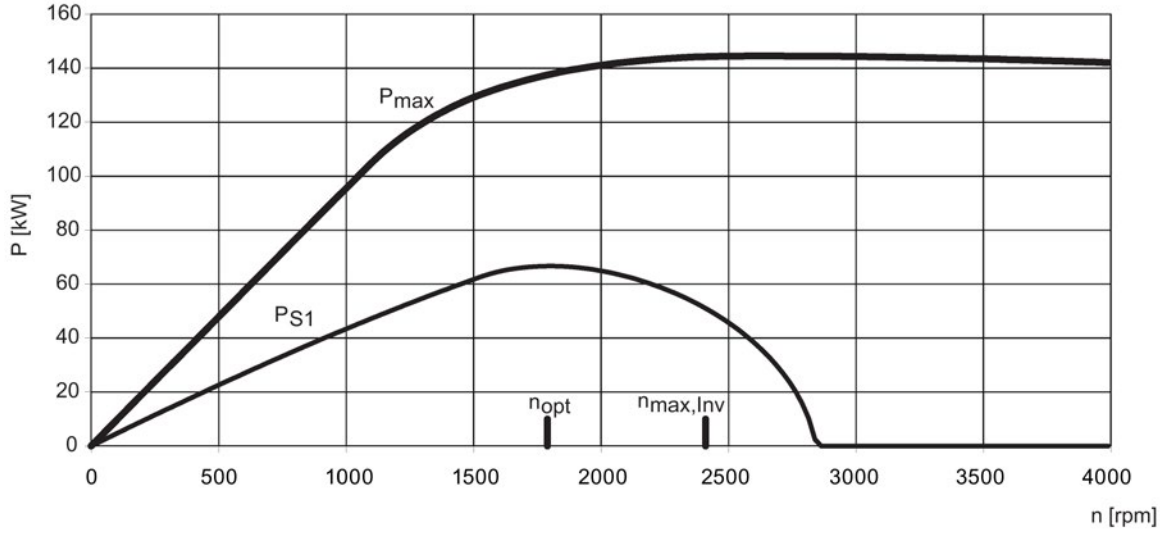


Table 6- 985 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8164-2□F2□

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]
1,750	67.0	365	108	67	1,790	4,000	4,000	2,400	915	276	440	118
1,500	59.0	375	111									



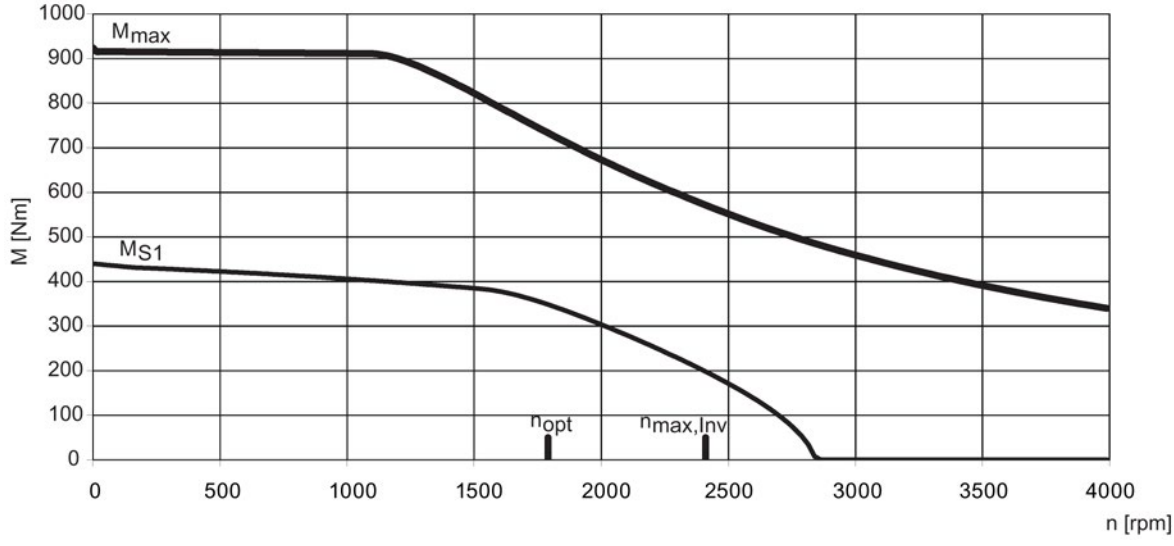
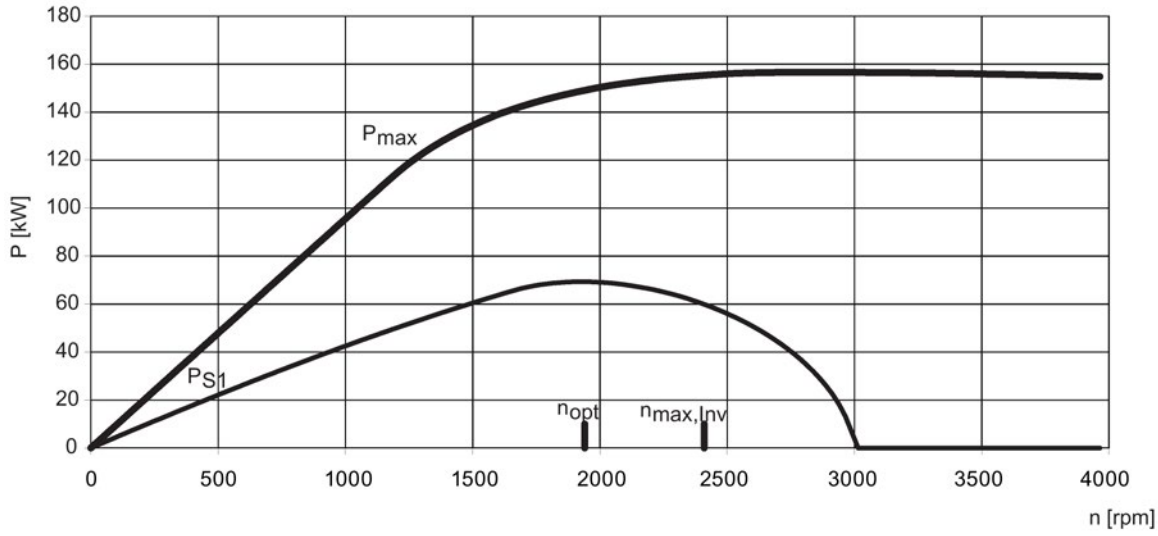


Table 6- 986 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8164-2□F2□

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]
2,000	70.0	330	105	70	1,940	4,000	4,000	2,400	915	276	440	118



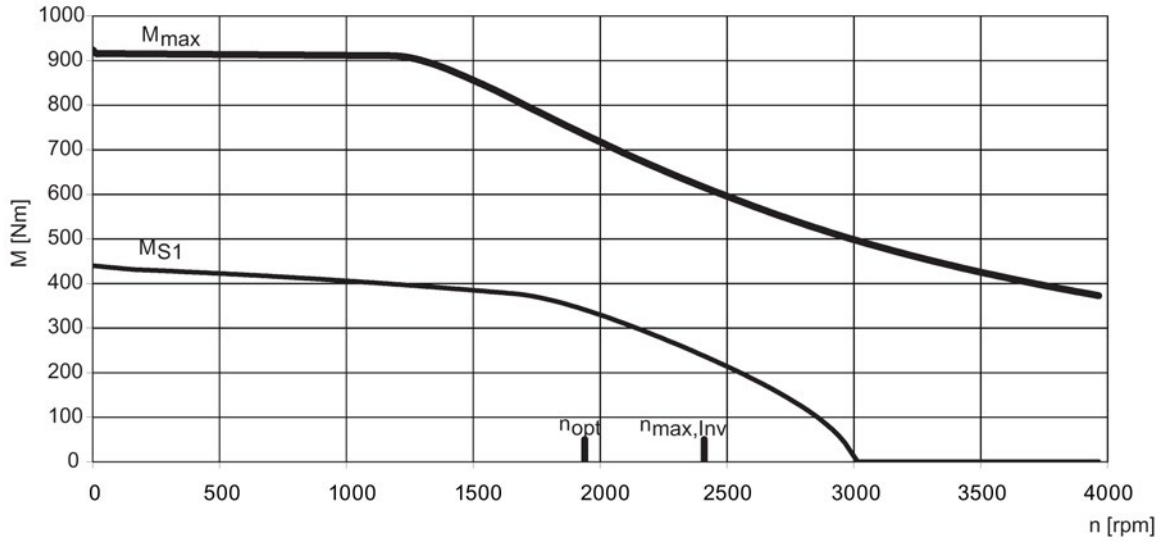
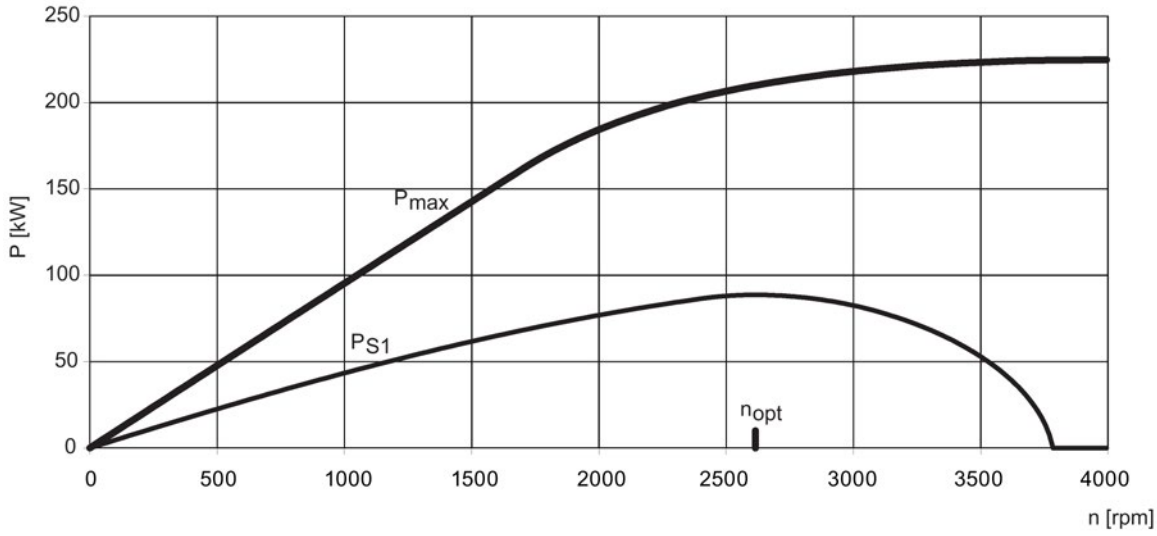


Table 6- 987 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8164-2□L2□

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]
2,500	88.0	335	165	88.7	2,615	4,000	4,000	>4,000	915	472	440	205



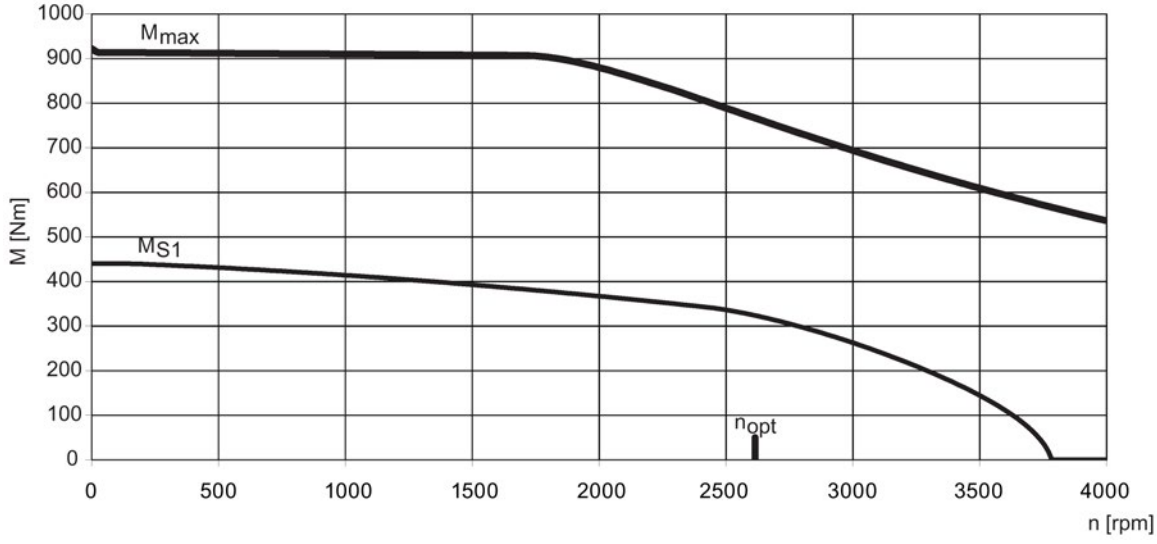
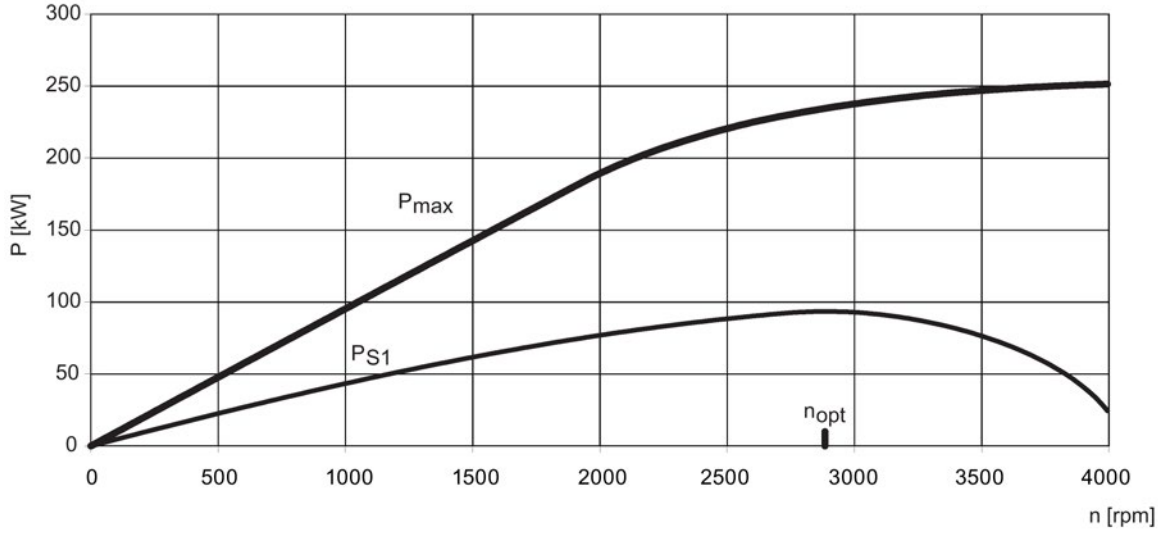


Table 6- 988 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8164-2□L2□

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]
2,800	93.0	315	156	93.5	2,885	4,000	4,000	>4,000	915	472	440	205
2,500	88.0	335	165									



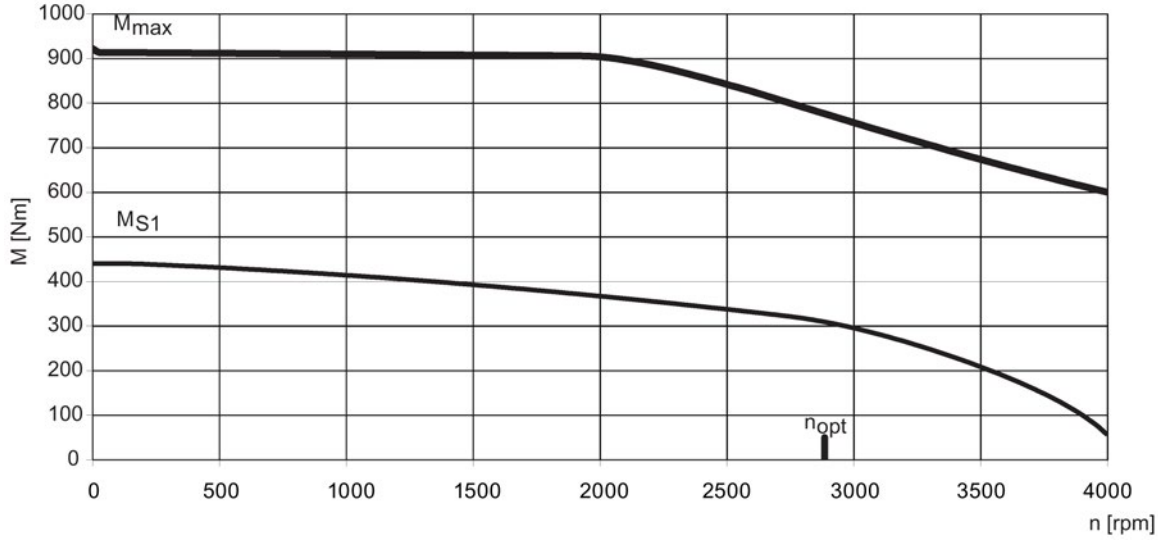
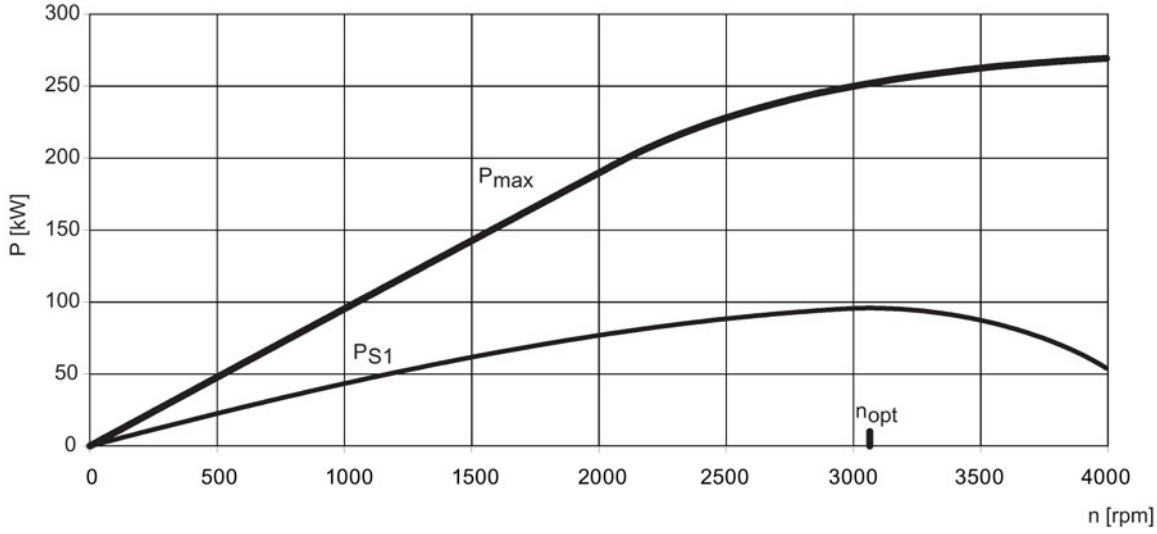


Table 6- 989 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8164-2□L2□

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]
3,000	96.0	305	150	96	3,065	4,000	4,000	>4,000	915	472	440	205



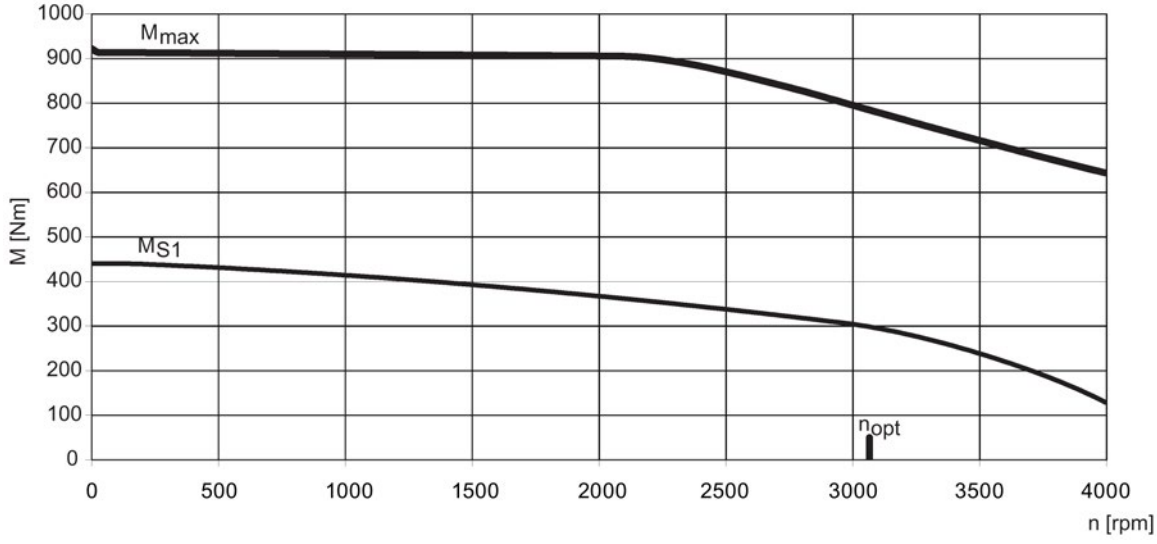
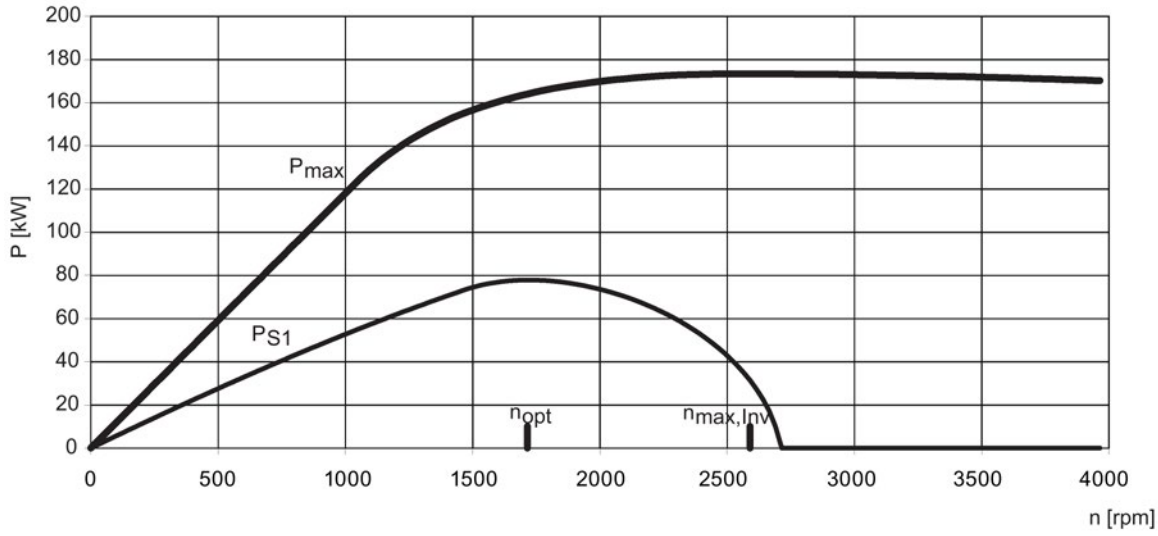


Table 6- 990 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-2□F2□

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]
1,500	74.0	475	148	77.8	1,715	4,000	4,000	2,600	1,135	367	550	159



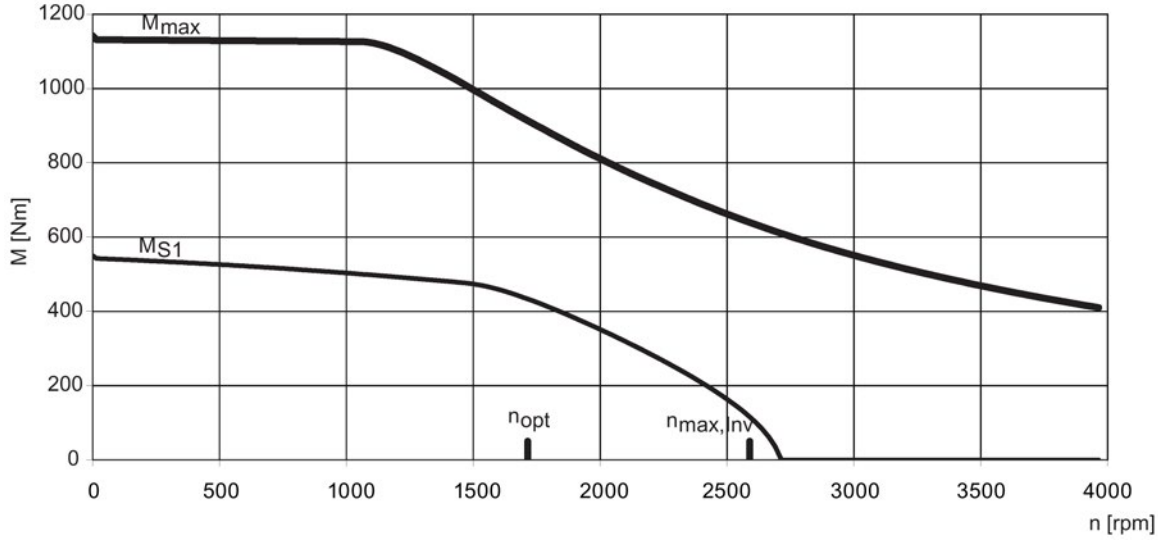
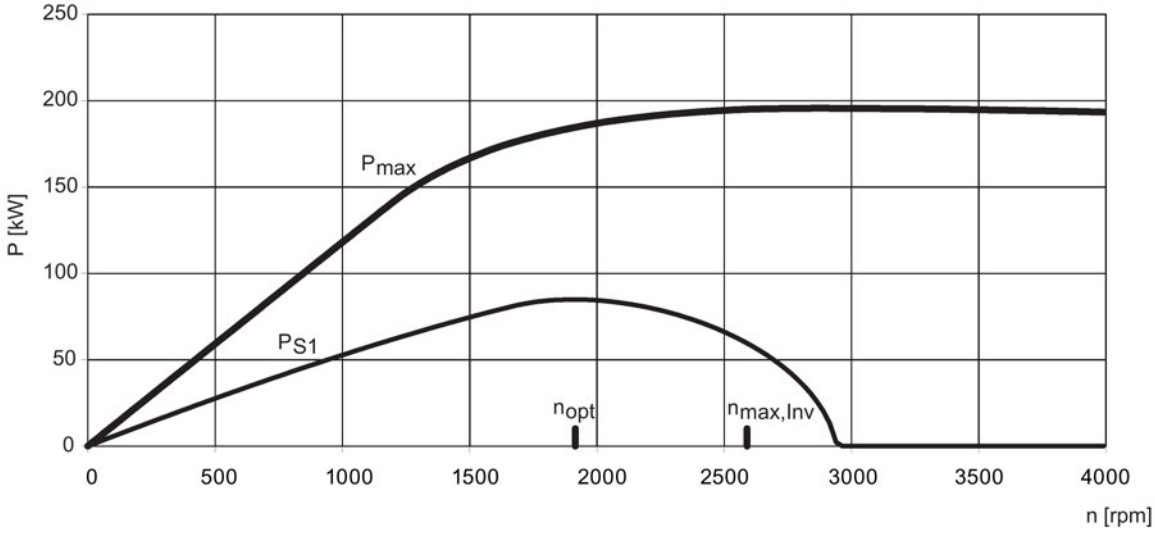


Table 6- 991 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-2□F2□

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]
1,750	85.0	460	143	85	1,915	4,000	4,000	2,600	1,135	367	550	159
1,500	74.0	475	148									



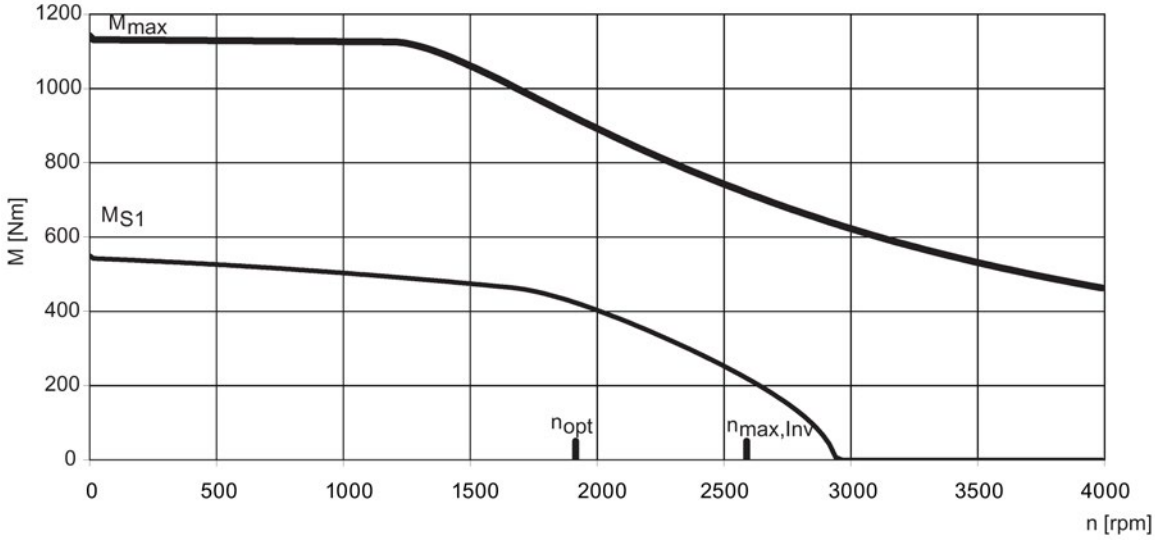
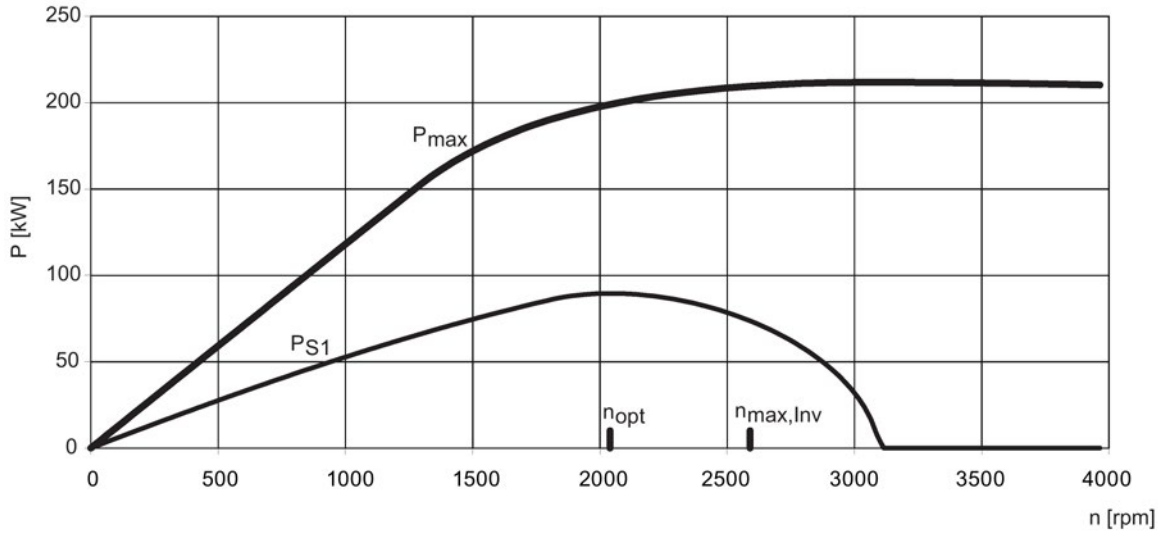


Table 6- 992 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-2□F2□

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]
2,000	89.0	425	138	89.5	2,040	4,000	4,000	2,600	1,135	367	550	159



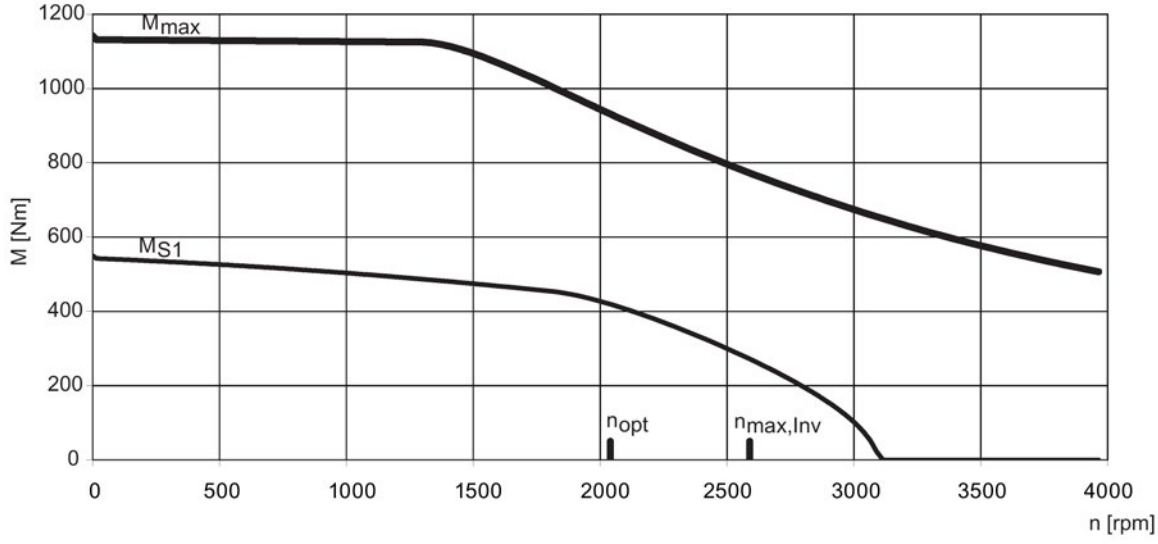
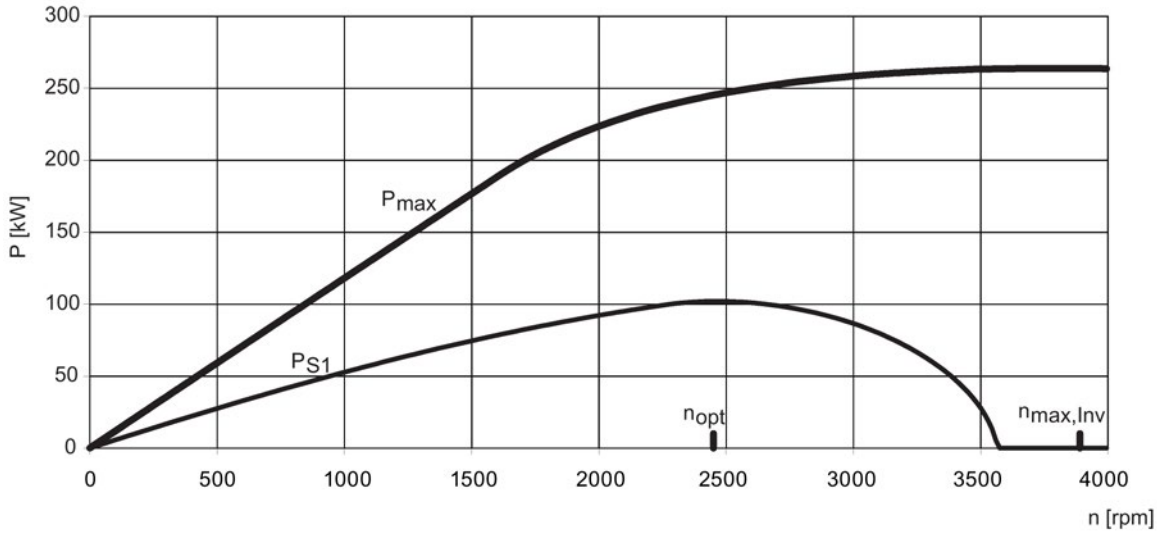


Table 6- 993 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8166-2□L2□

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]
2,500	102.0	390	188	102.0	2,450	4,000	4,000	3,900	1,135	551	550	240



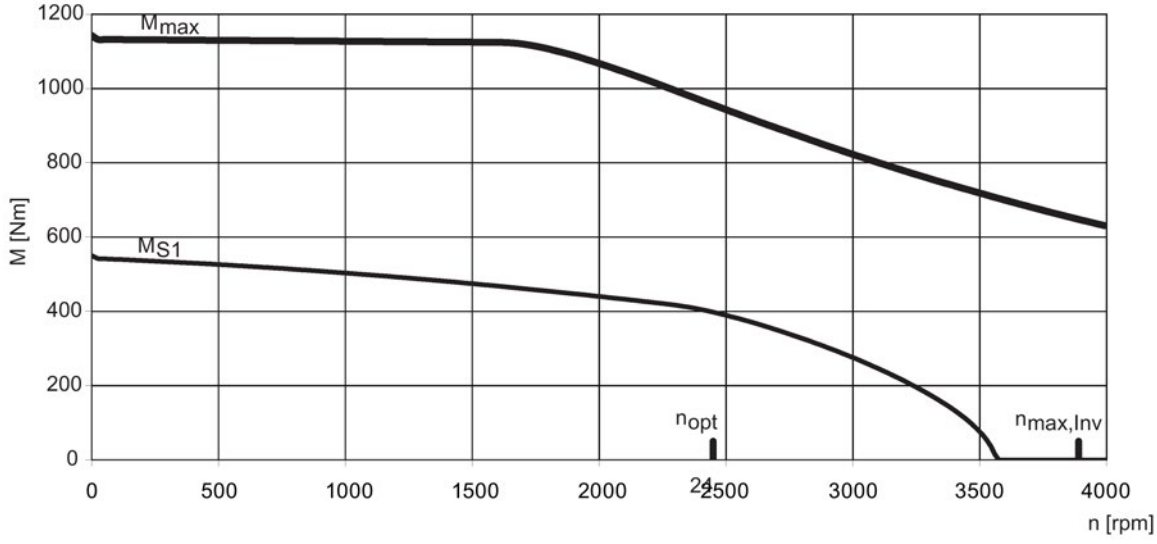
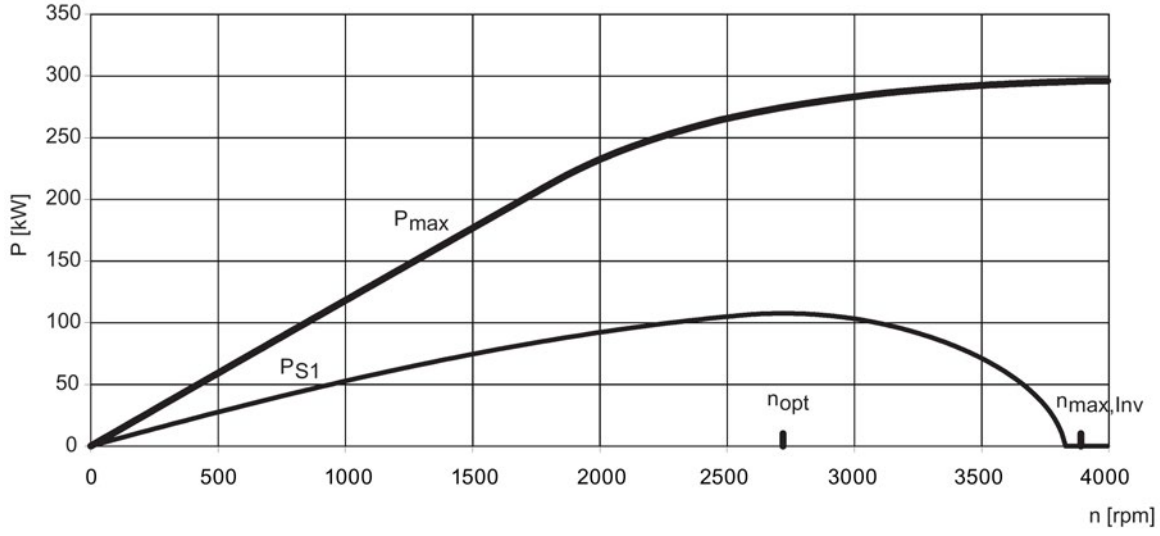


Table 6- 994 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8166-2□L2□

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]
2,800	109.0	375	177	109	2,720	4,000	4,000	3,900	1,135	551	550	240
2,500	102.0	390	188									



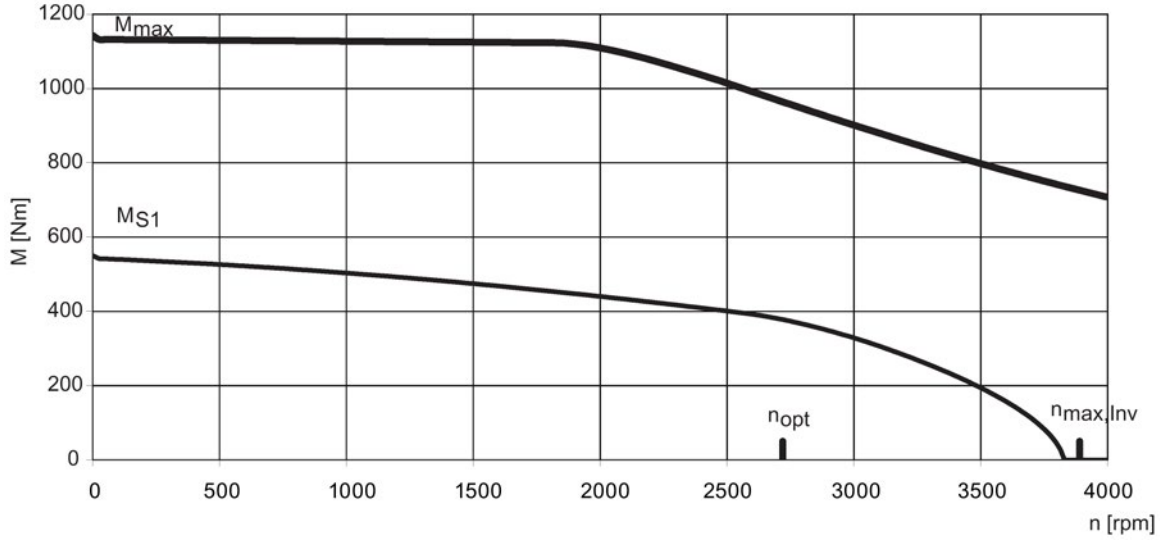
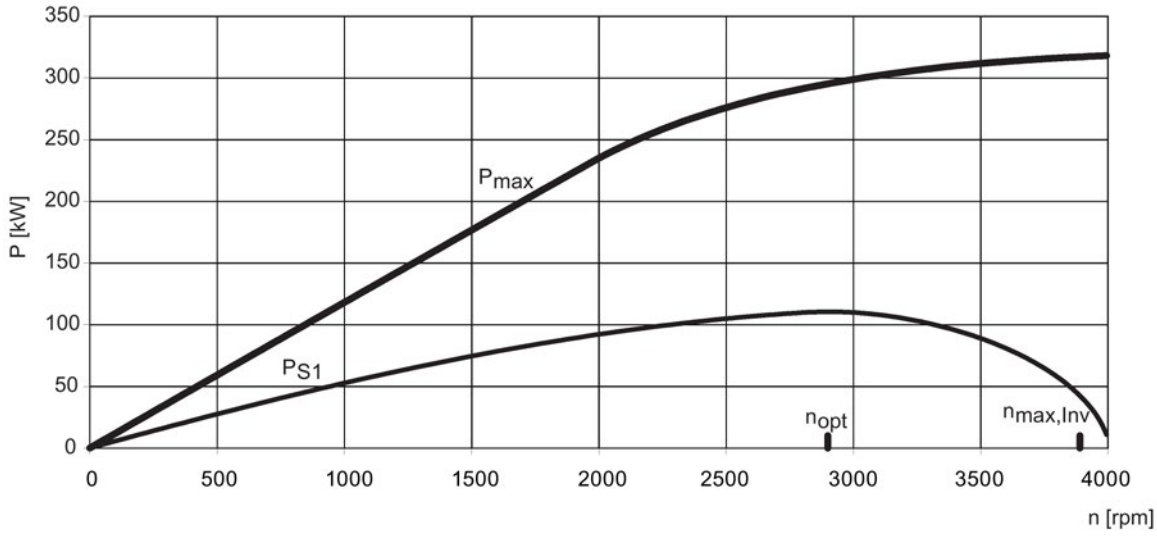


Table 6- 995 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8166-2□L2□

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]
3,000	110.0	350	169	110.4	2,900	4,000	4,000	3,900	1,135	551	550	240



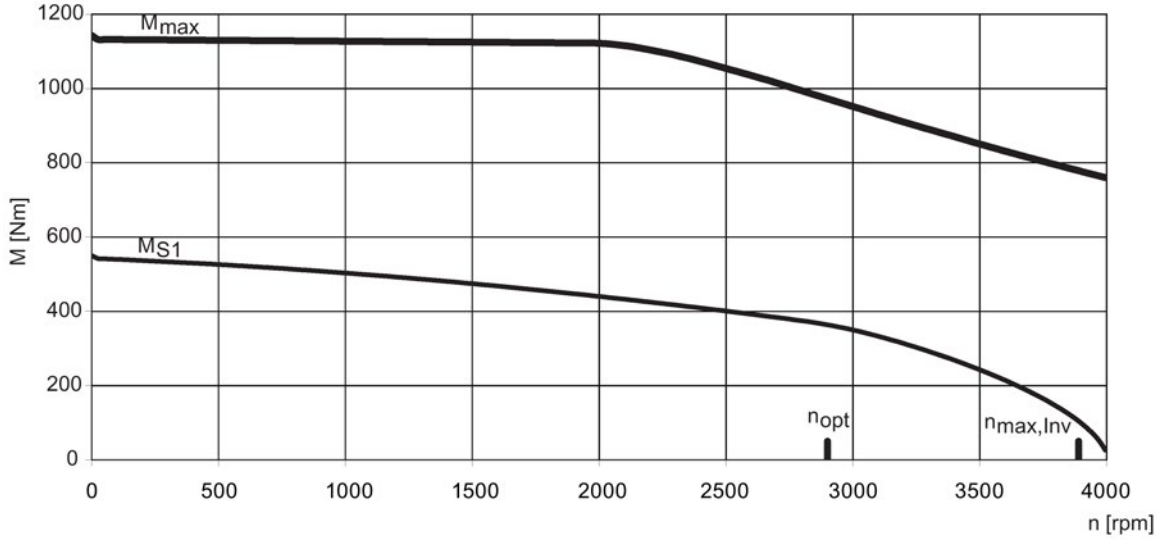
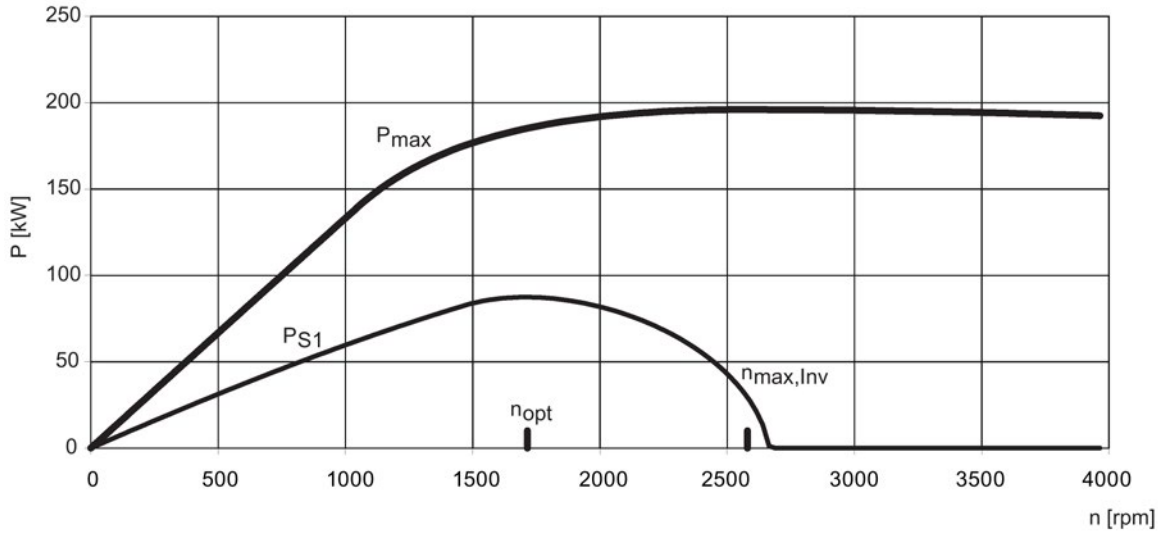


Table 6- 996 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8168-2□F2□

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]
1,500	84.0	530	169	87.4	1,715	4,000	4,000	2,600	1,280	413	620	179



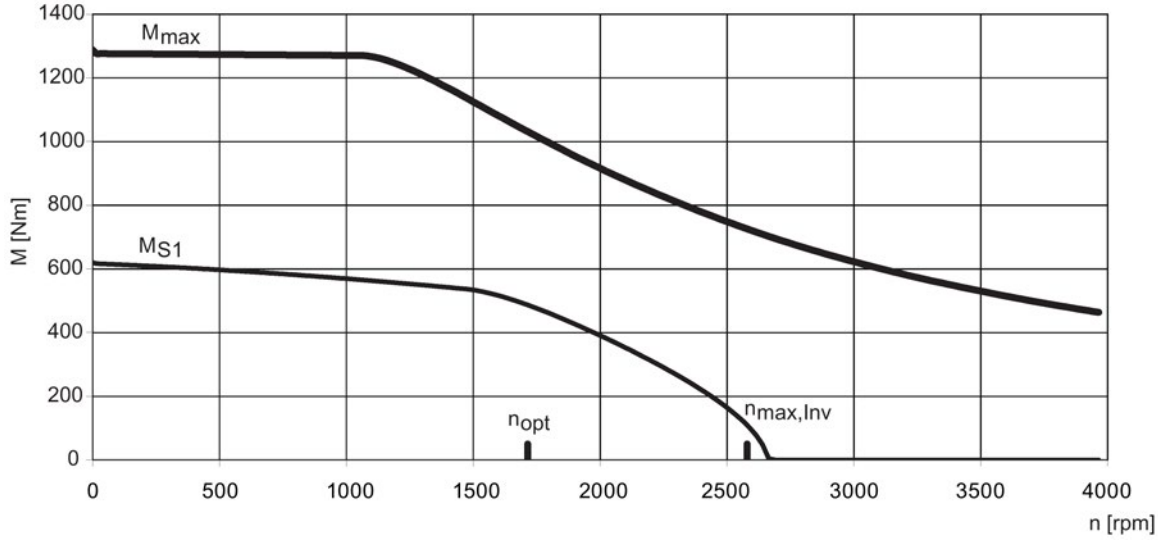
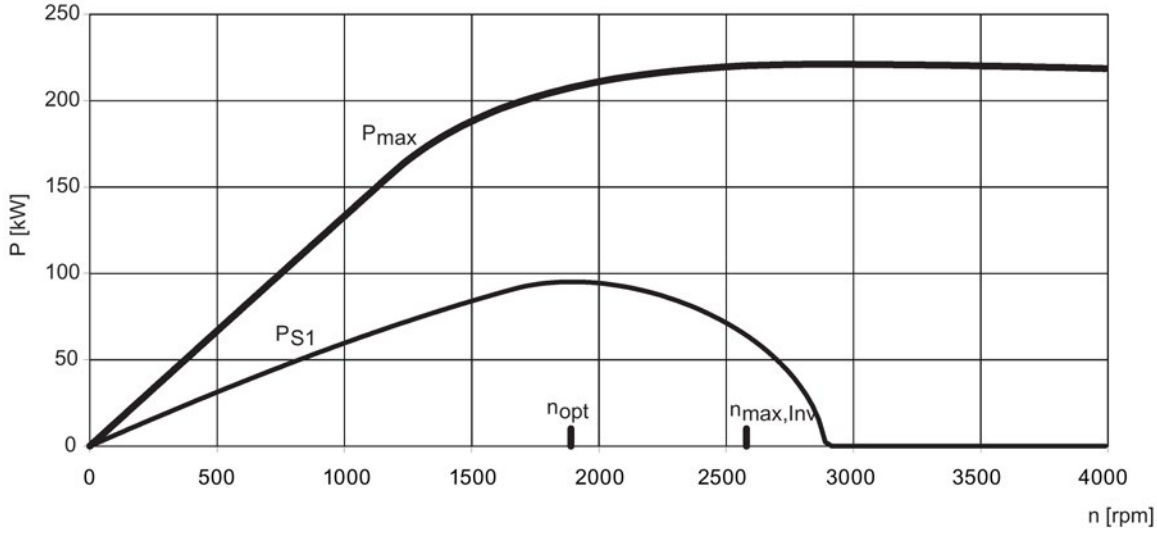


Table 6- 997 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8168-2□F2□

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]
1,750	94.0	510	164	95.1	1,890	4,000	4,000	2,600	1,280	413	620	179
1,500	84.0	530	169									



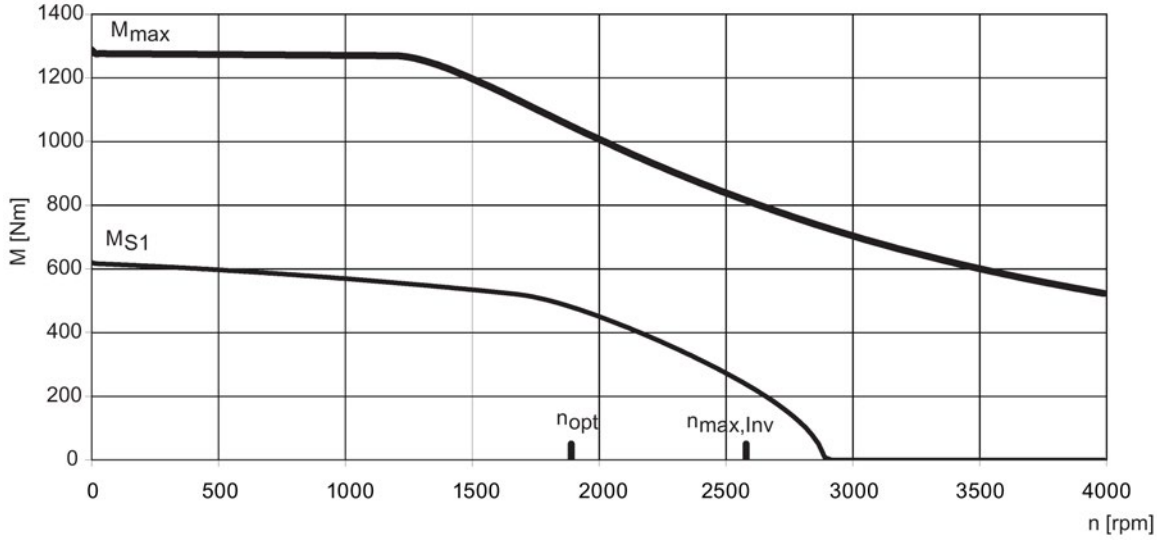
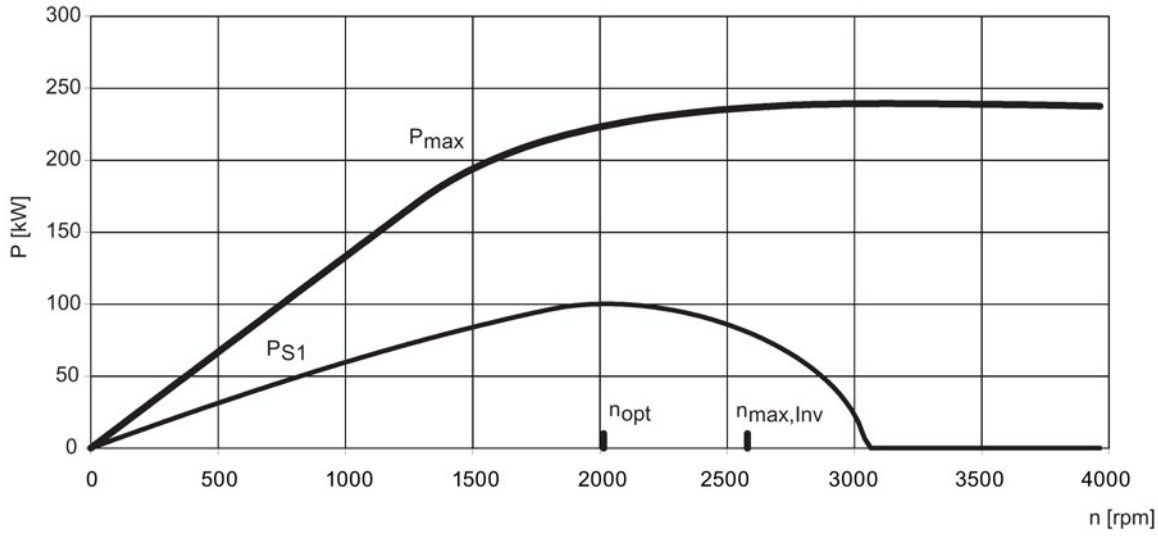


Table 6- 998 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8168-2□F2□

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]
2,000	100.0	480	157	100.2	2,015	4,000	4,000	2,600	1,280	413	620	179



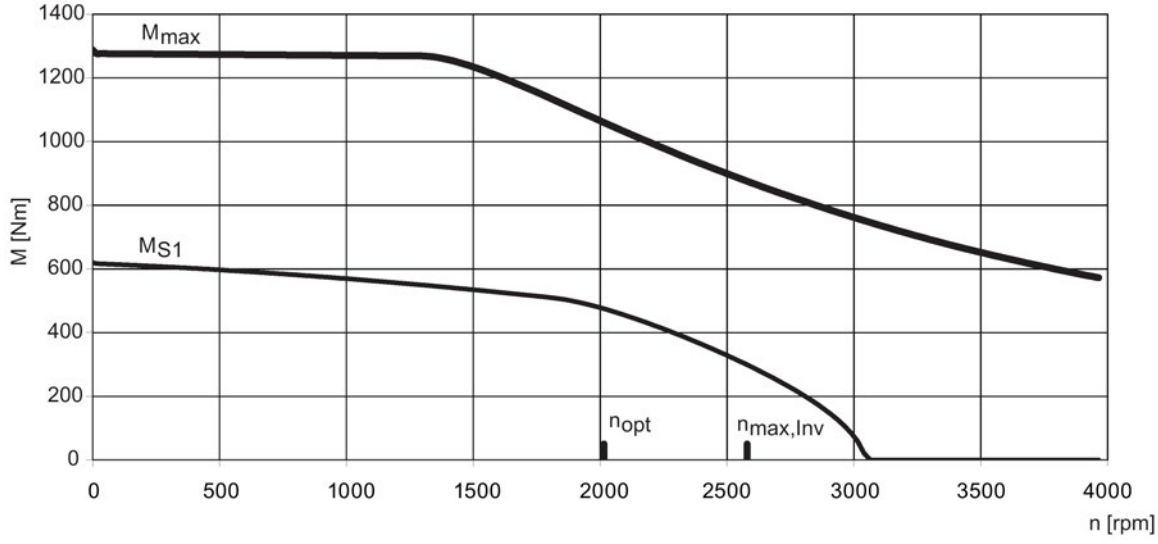
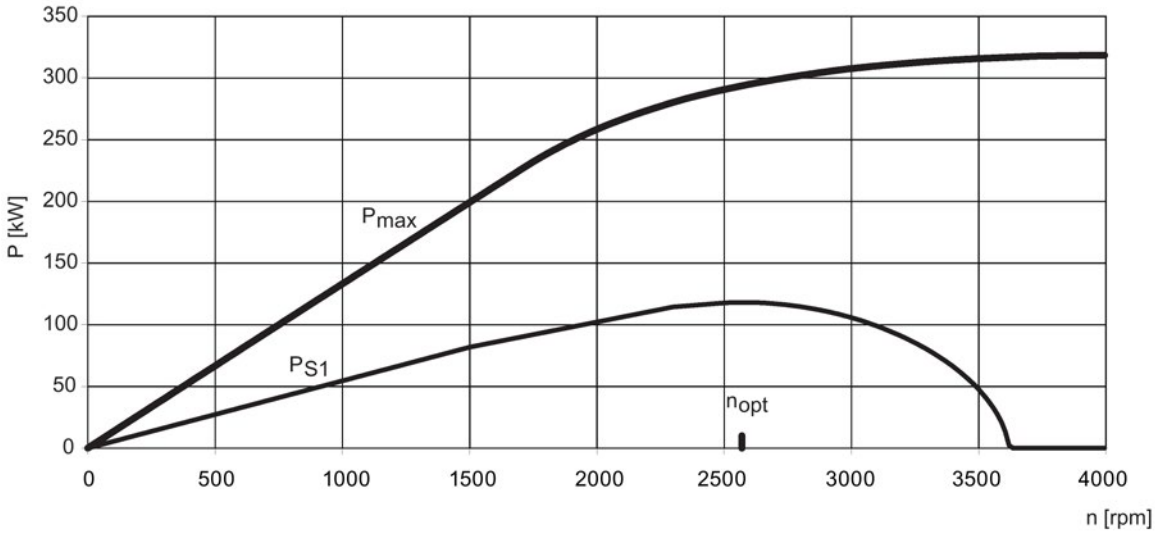


Table 6- 999 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8168-2□L2□

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]
2,500	118.0	450	225	118.1	2,570	4,000	4,000	>4,000	1,280	661	520	240



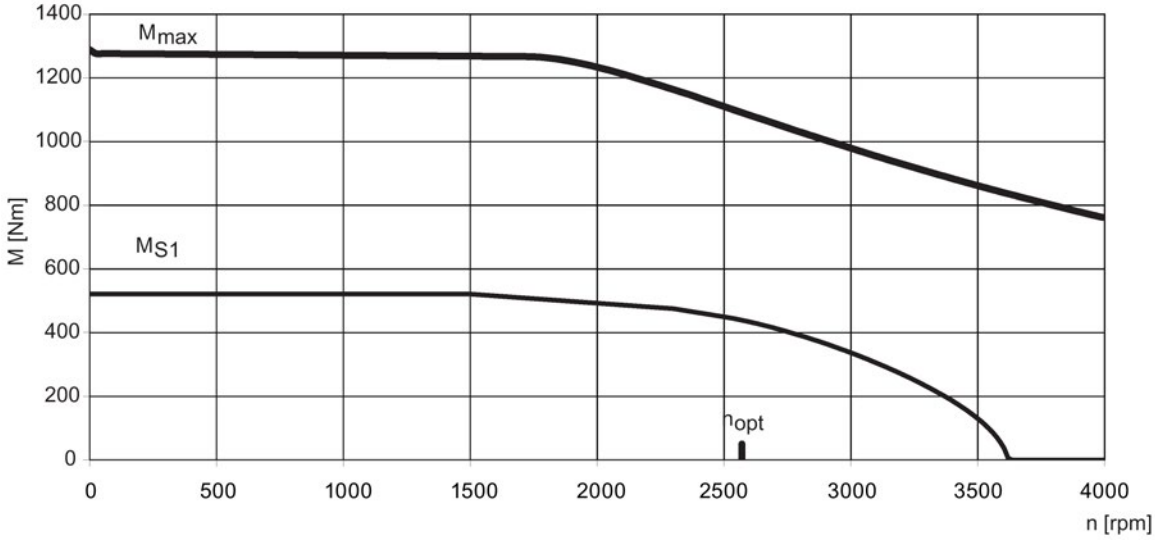
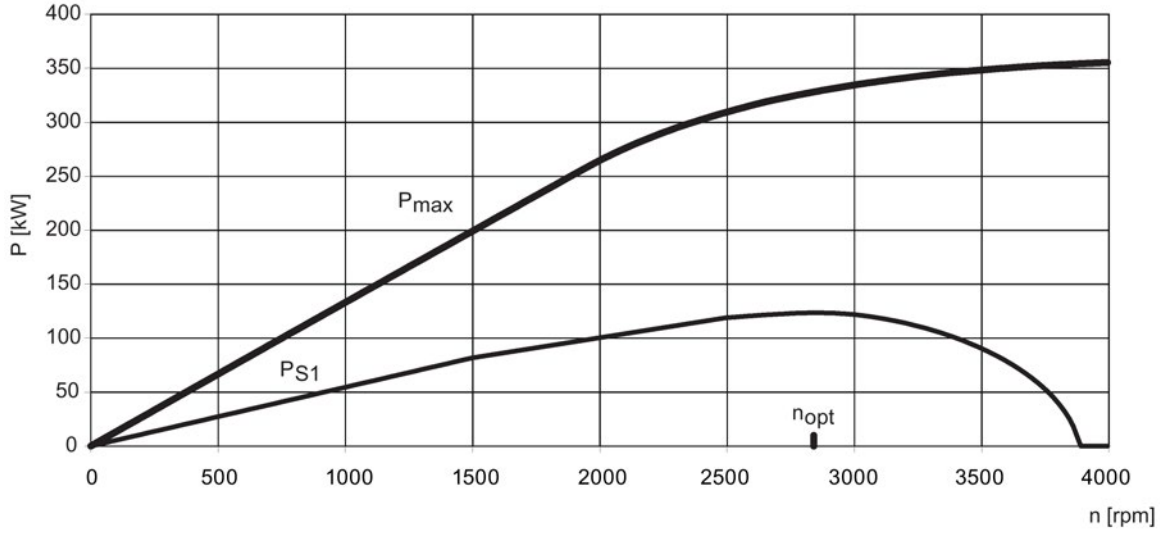


Table 6- 1000 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8168-2□L2□

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]
2,800	123.0	420	210	123.5	2,840	4,000	4,000	>4,000	1,280	661	520	240
2,500	118.0	450	225									



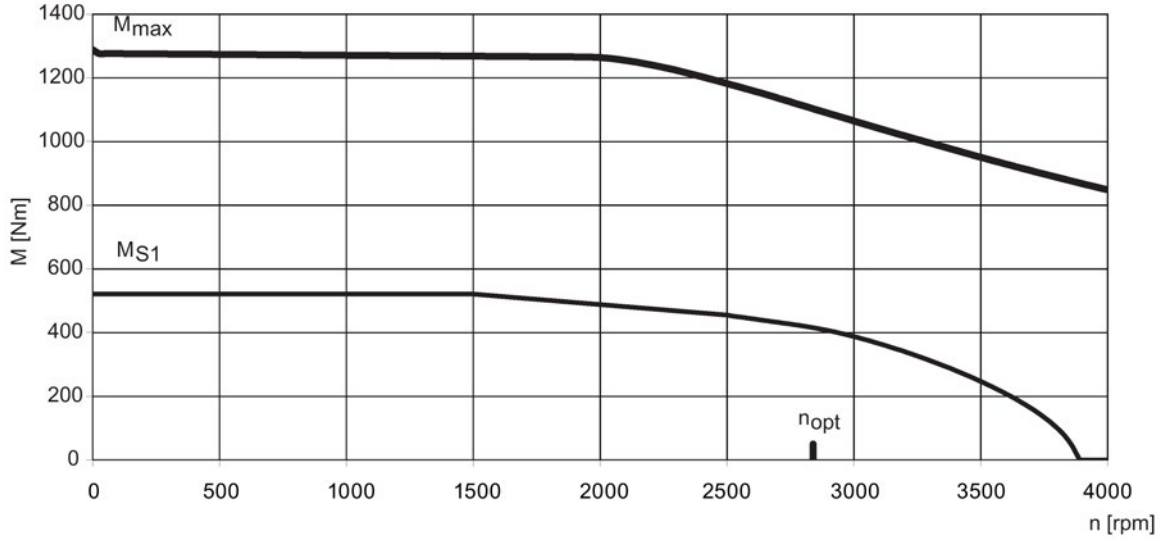
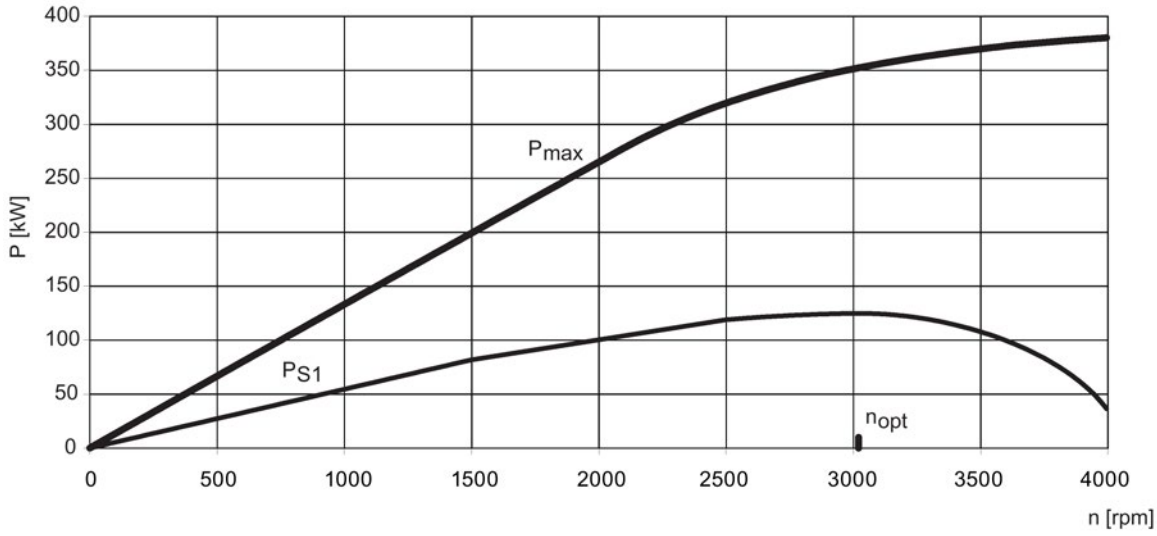
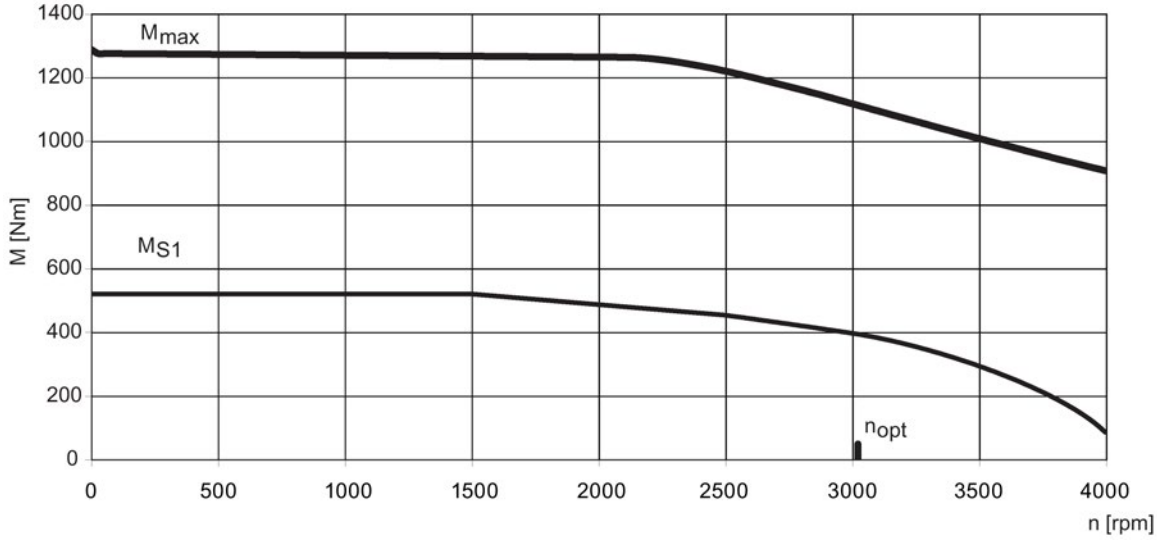


Table 6- 1001 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8168-2□L2□

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]
3,000	125.0	395	197	125	3,020	4,000	4,000	>4,000	1,280	661	520	240

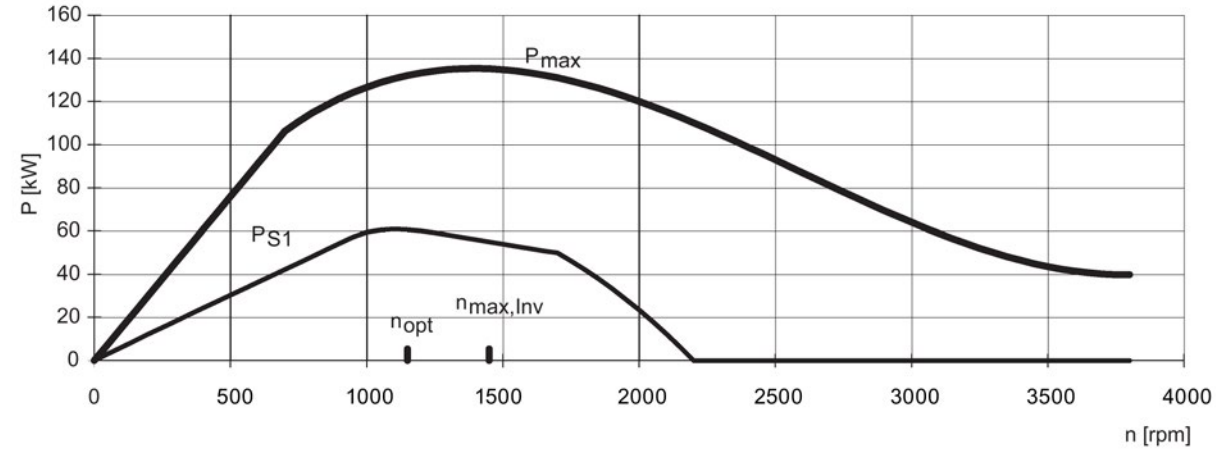




6.2.3.3 Shaft height 180 - water-cooled

Table 6- 1002 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	1,150	3,800	3,500	1,450	1,450	260	590	103



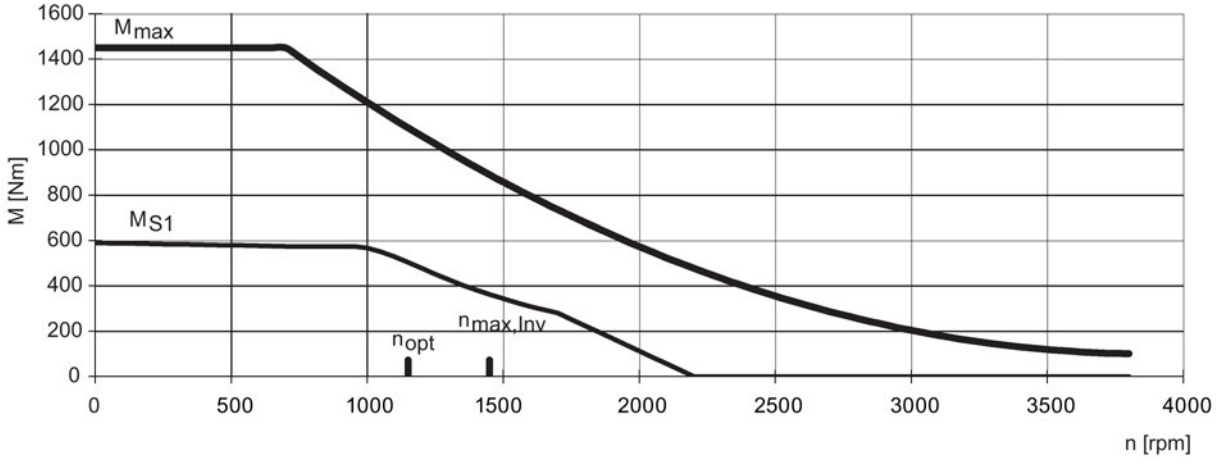
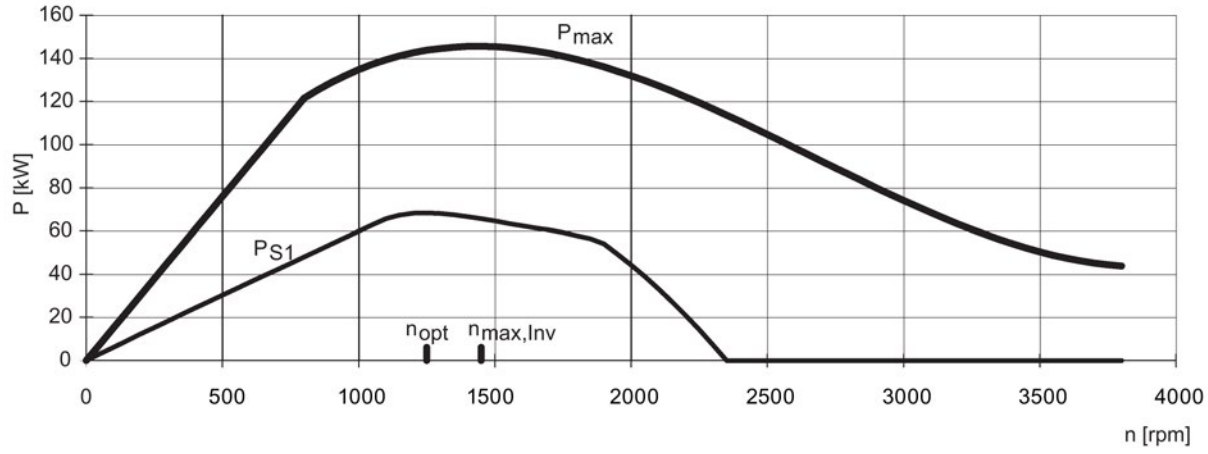


Table 6- 1003 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□C2□

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	1,250	3,800	3,500	1,450	1,450	260	590	103



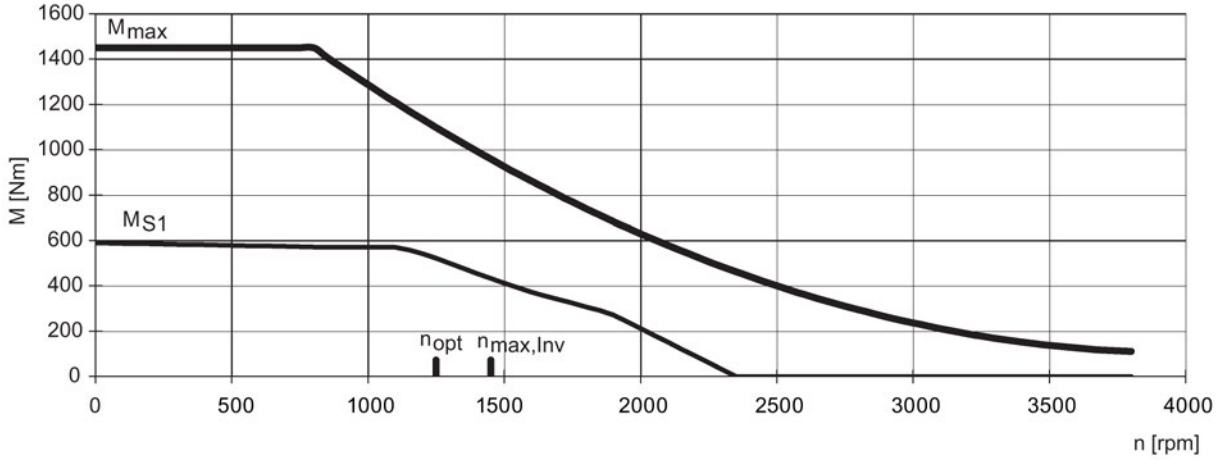
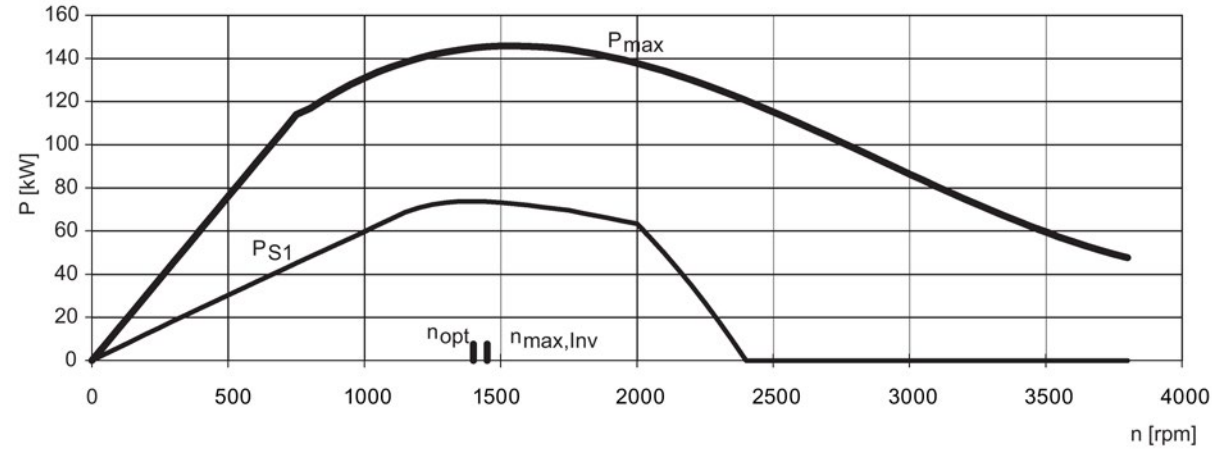


Table 6- 1004 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□C2□

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]
1,000	60	573	102	74	1,400	3,800	3,500	1,450	1,450	260	590	103



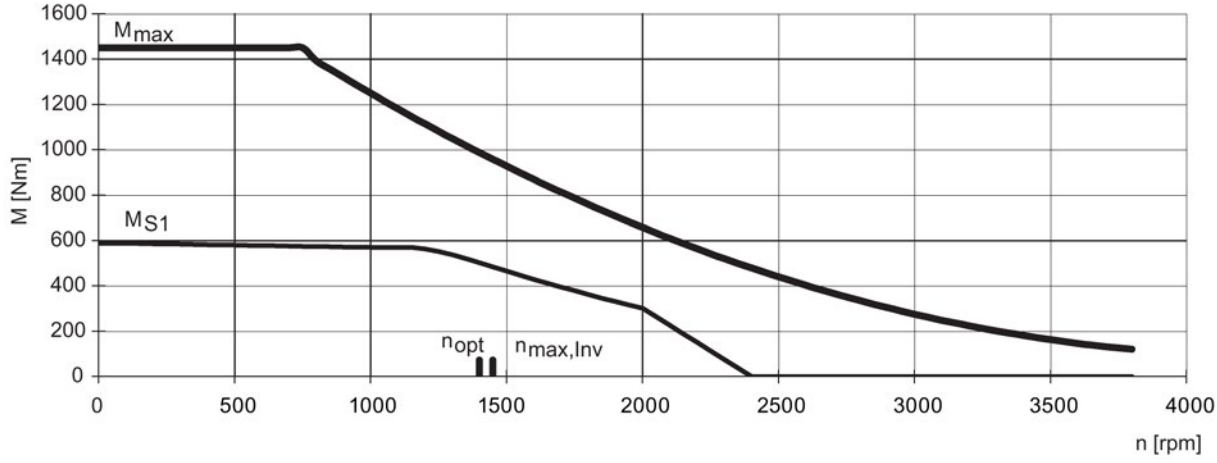
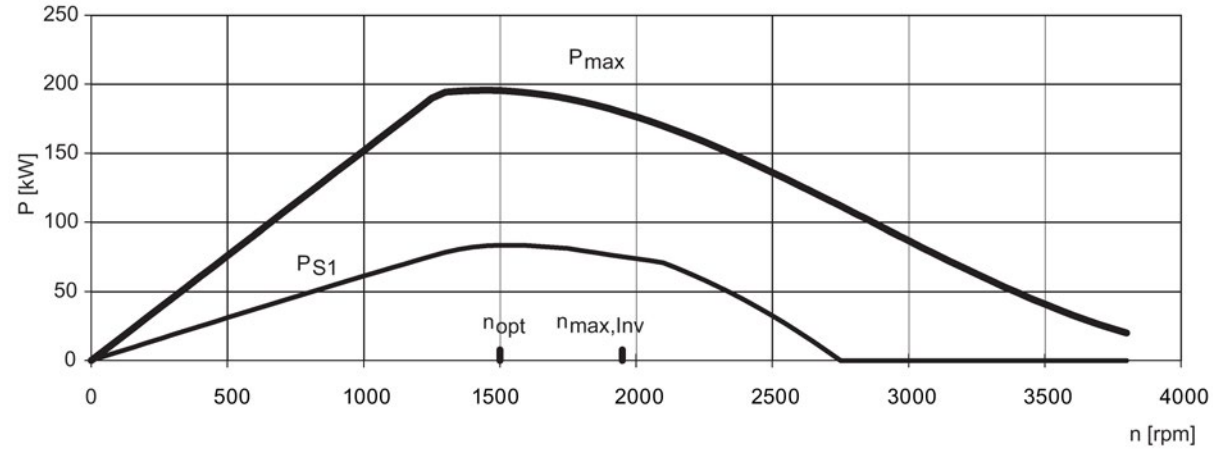


Table 6- 1005 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□D2□

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]
1,000	61	583	140	84	1,500	3,800	3,500	1,950	1,450	355	600	143



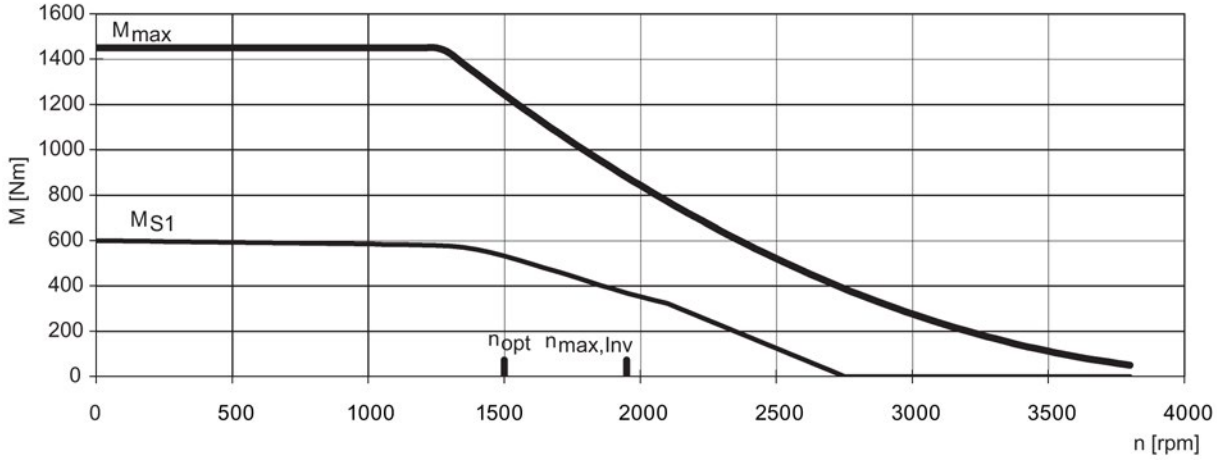
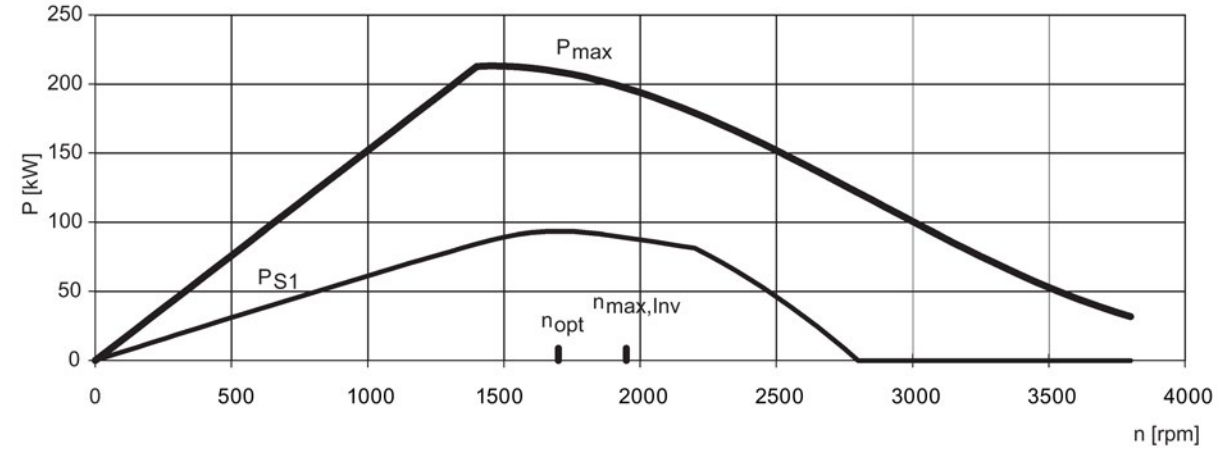


Table 6- 1006 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□D2□

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]
1,150	70	581	140	94	1,700	3,800	3,500	1,950	1,450	355	600	143



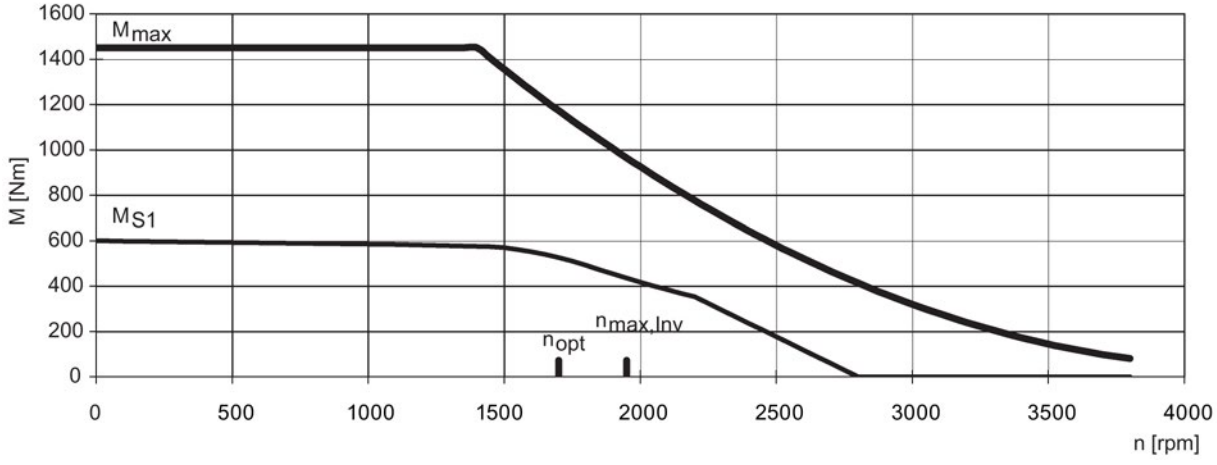
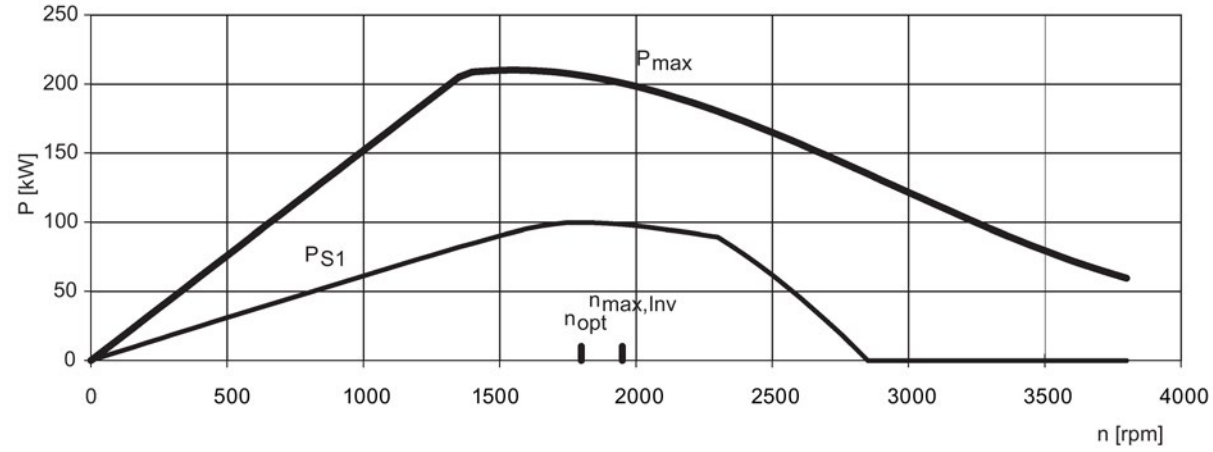


Table 6- 1007 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□D2□

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]
1,350	82	580	140	100	1,800	3,800	3,500	1,950	1,450	355	600	143



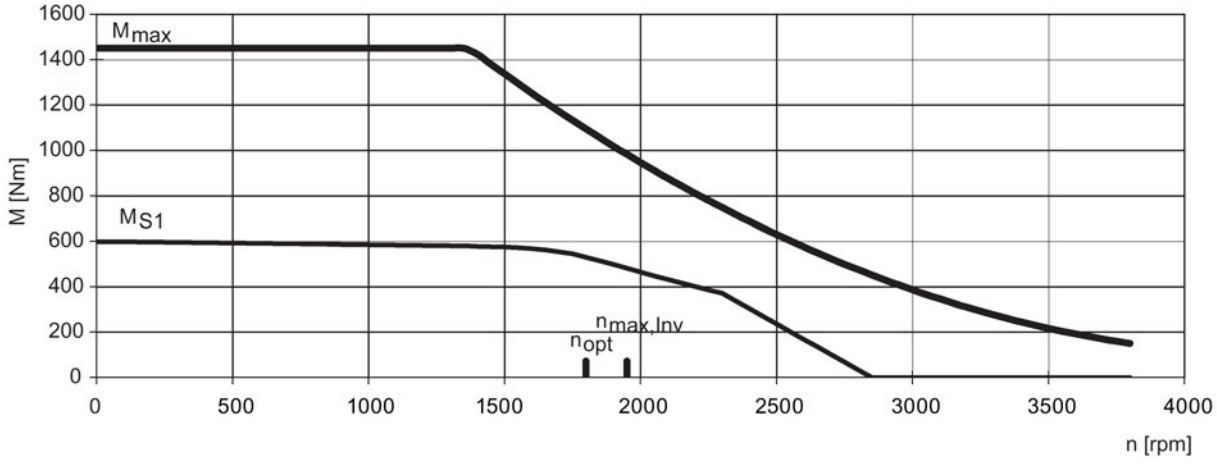
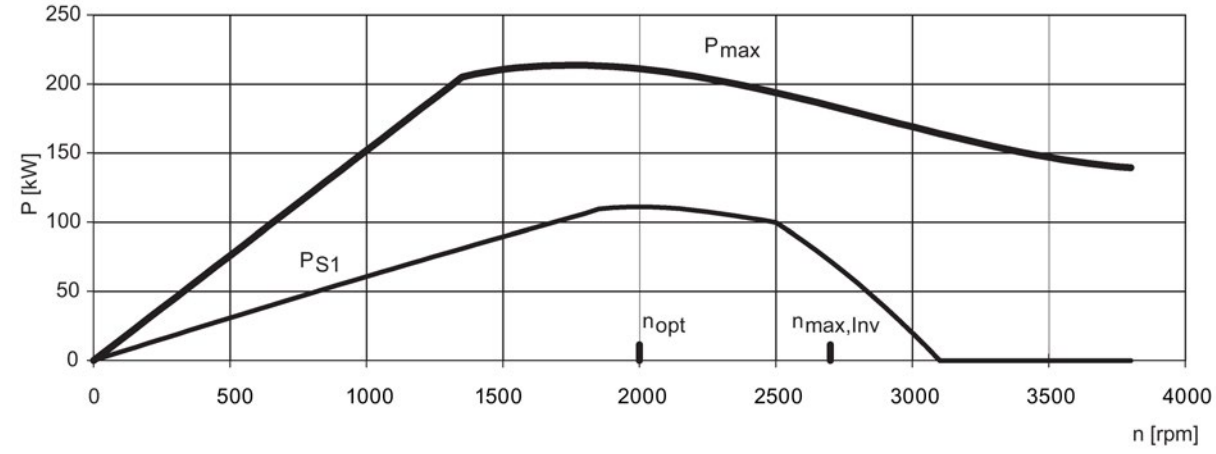


Table 6- 1008 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□F2□

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]
1,500	90	573	190	111	2,000	3,800	3,500	2,700	1,450	490	600	196



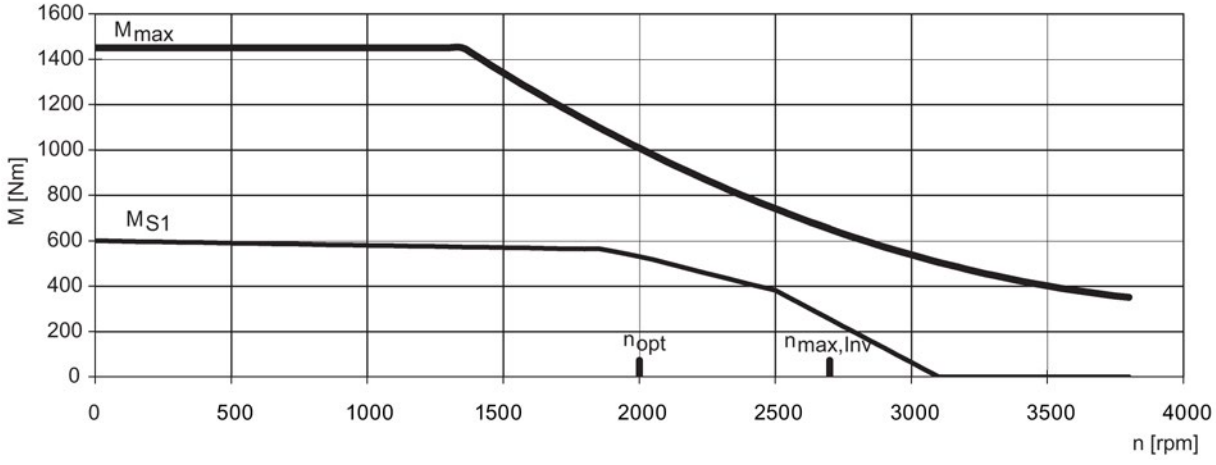
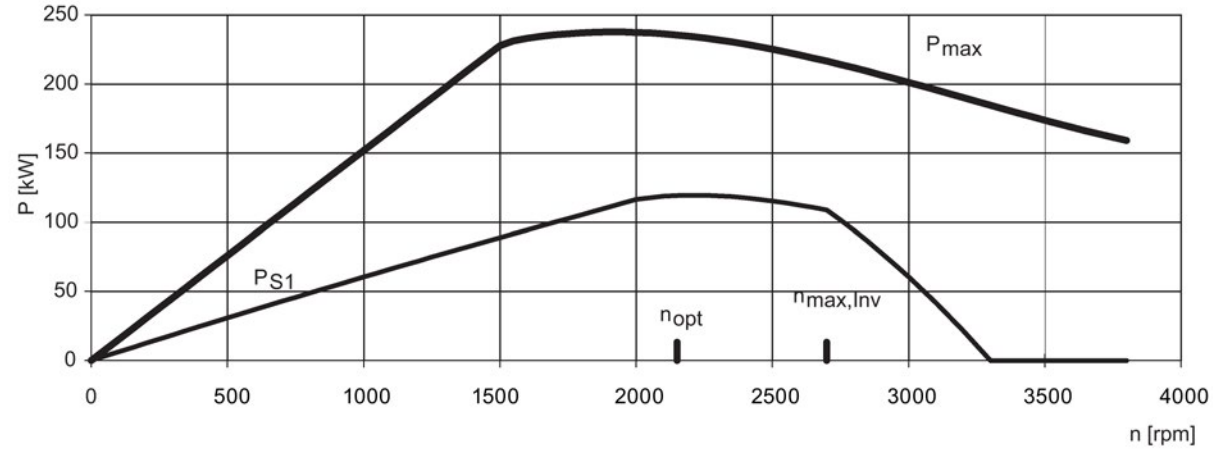


Table 6- 1009 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□F2□

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]
1,750	103	562	186	120	2,150	3,800	3,500	2,700	1,450	490	600	196



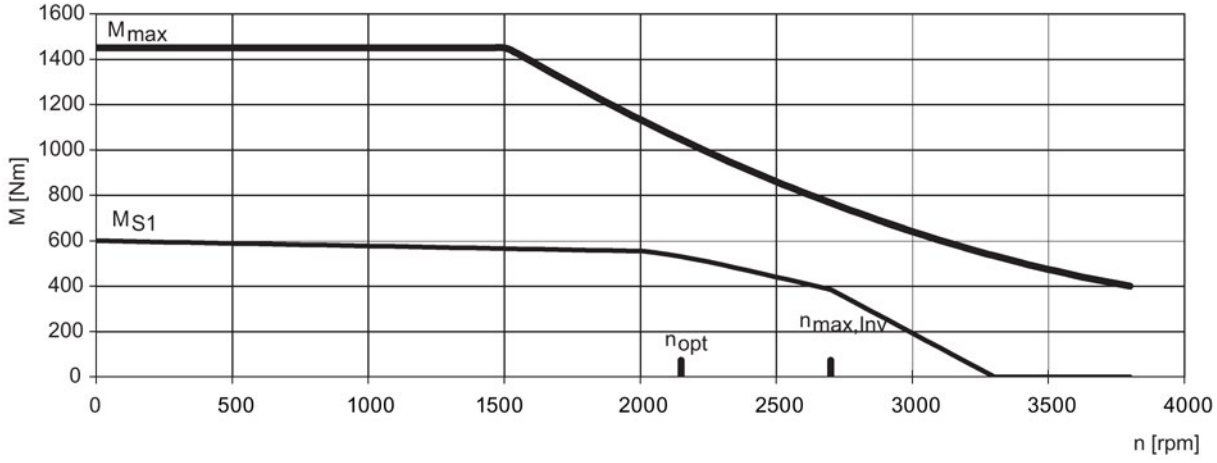
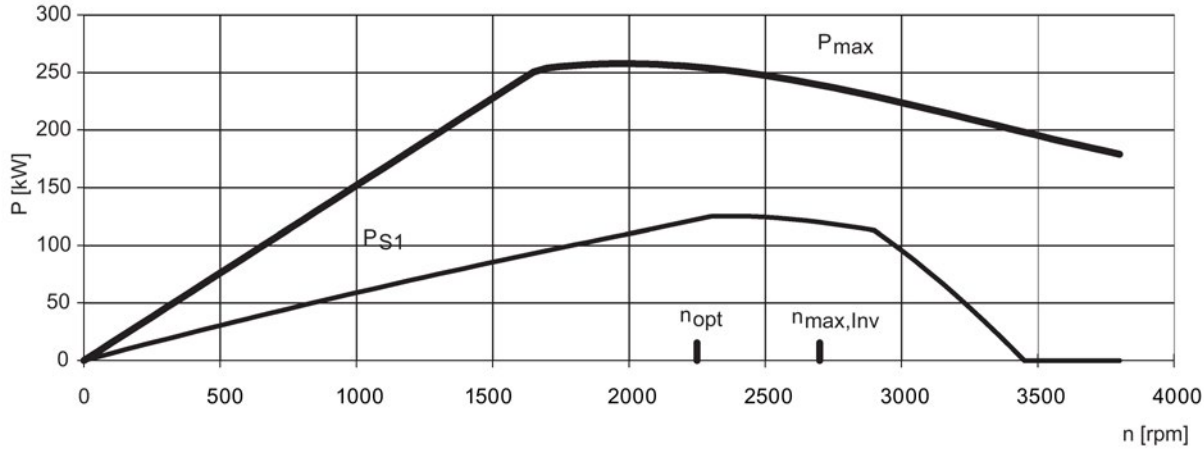


Table 6- 1010 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□F2□

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]
2,000	110	525	176	125	2,250	3,800	3,500	2,700	1,450	490	600	196



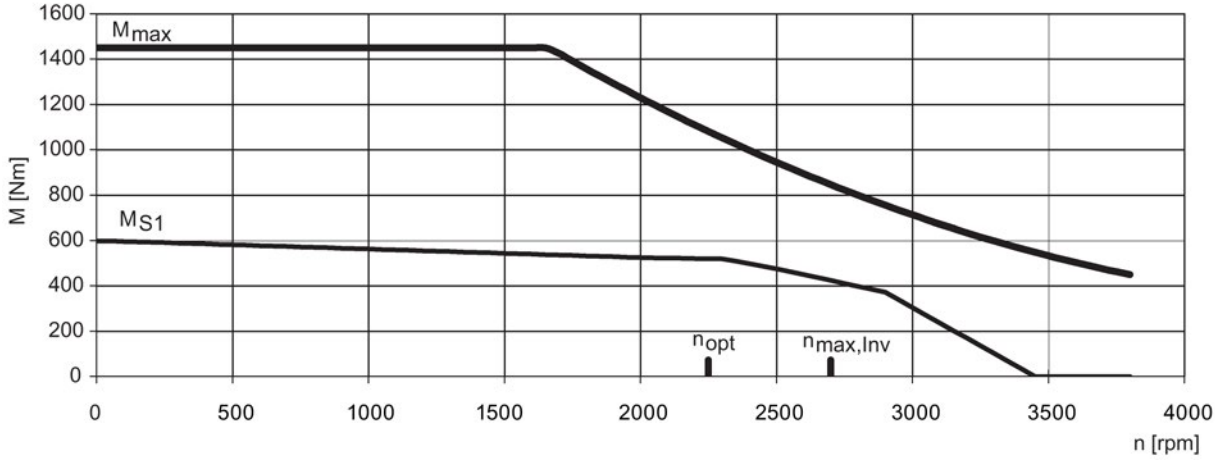
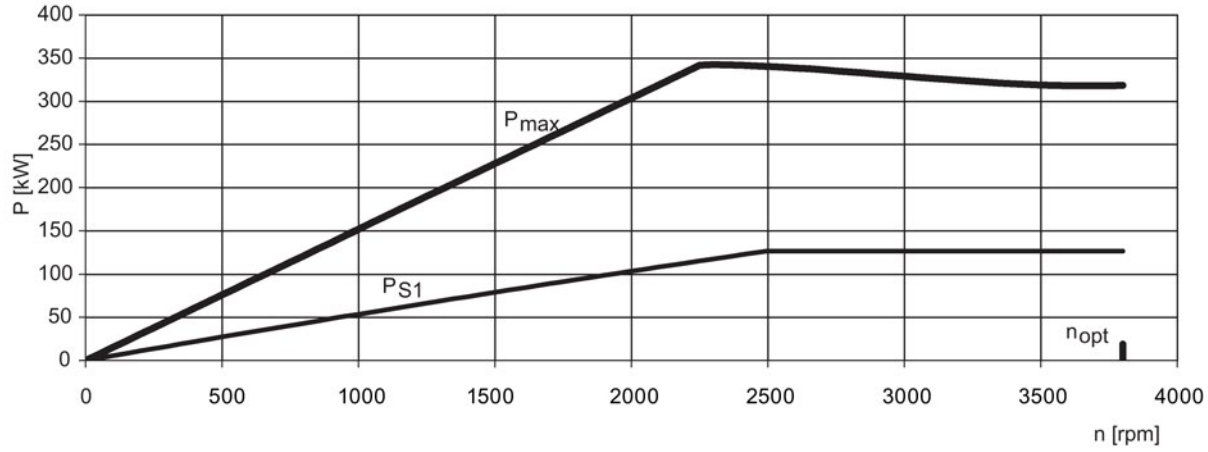


Table 6- 1011 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8184-2□L2□

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]
2,500	127	485	260	127	3,800	3,800	3,500	>3,800	1,450	780	530	278



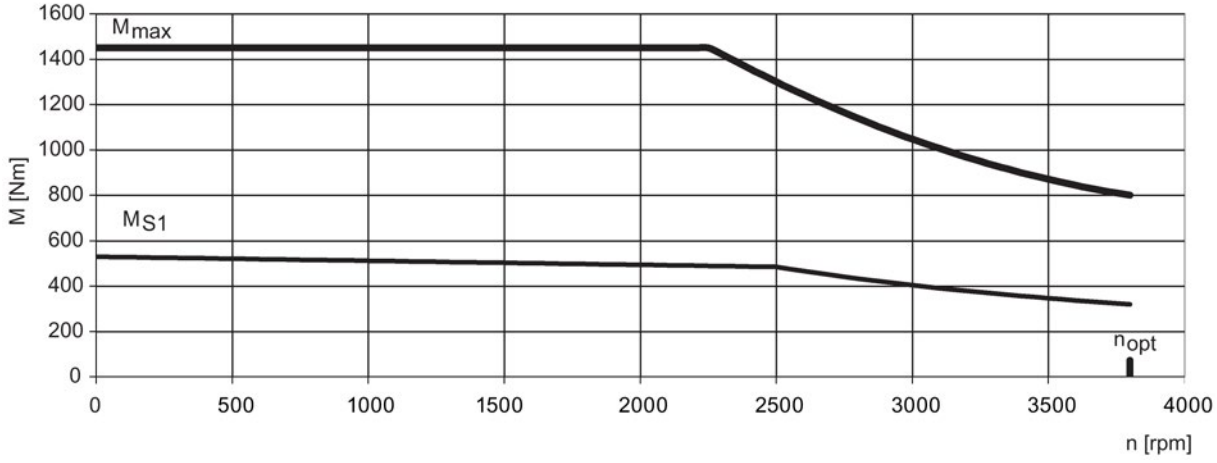
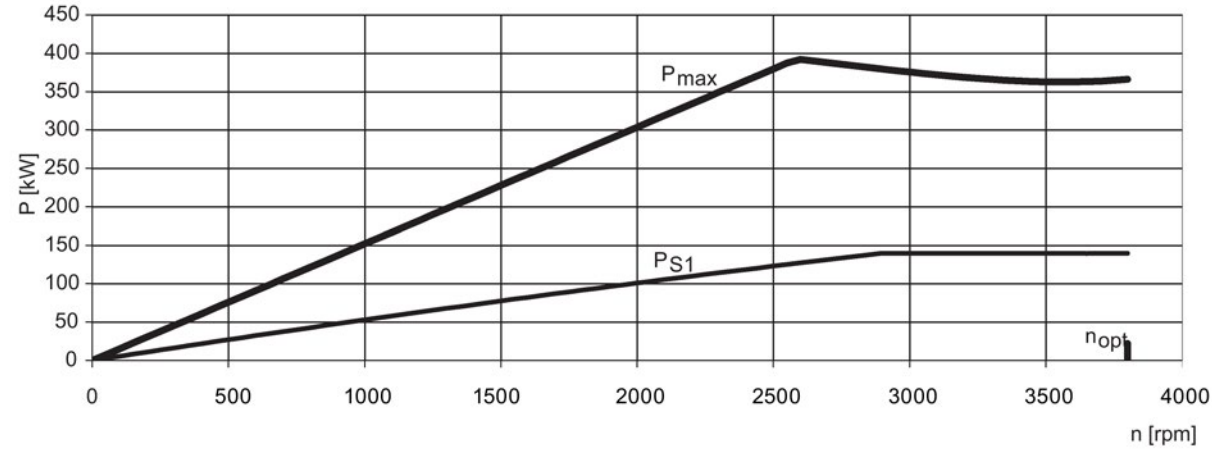


Table 6- 1012 SINAMICS, 3-ph. 400 V AC, Active Line Module, (ALM), 1PH8184-2□L2□

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]
2,900	140	461	250	140	3,800	3,800	3,500	>3,800	1,450	780	530	278



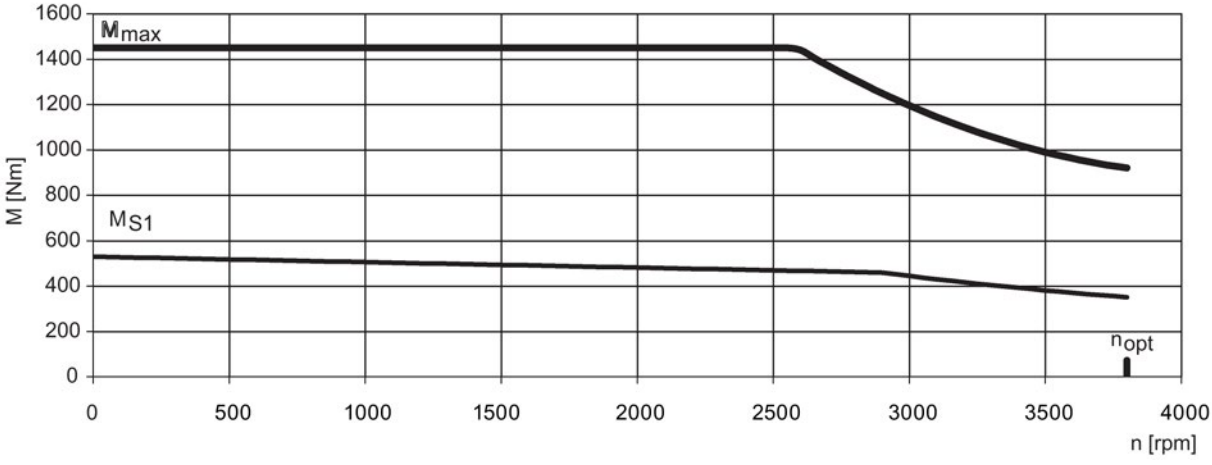
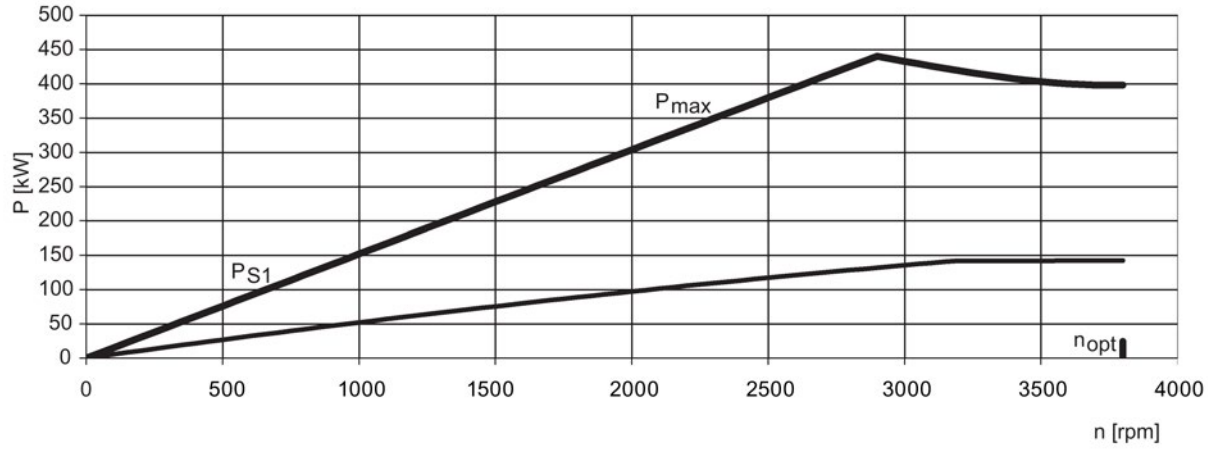


Table 6- 1013 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8184-2□L2□

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]
3,200	142	424	230	142	3,800	3,800	3,500	>3,800	1,450	780	530	278



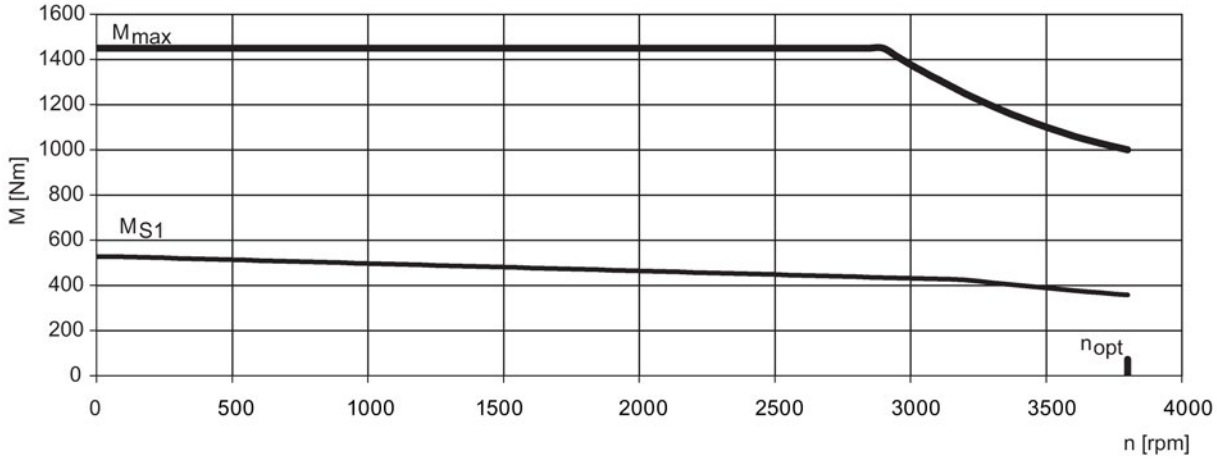
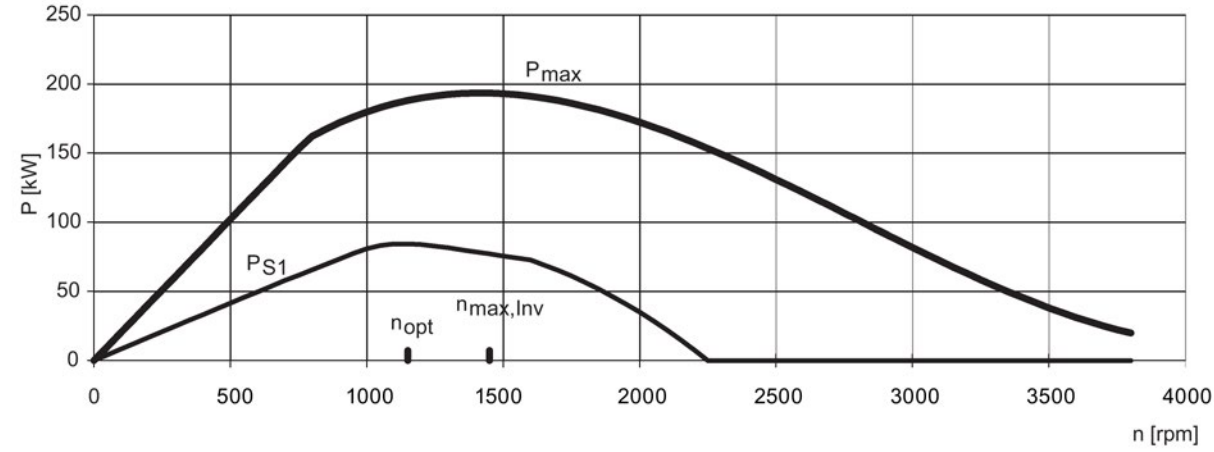


Table 6- 1014 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□C2□

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	1,150	3,800	3,500	1,450	1,950	358	800	143



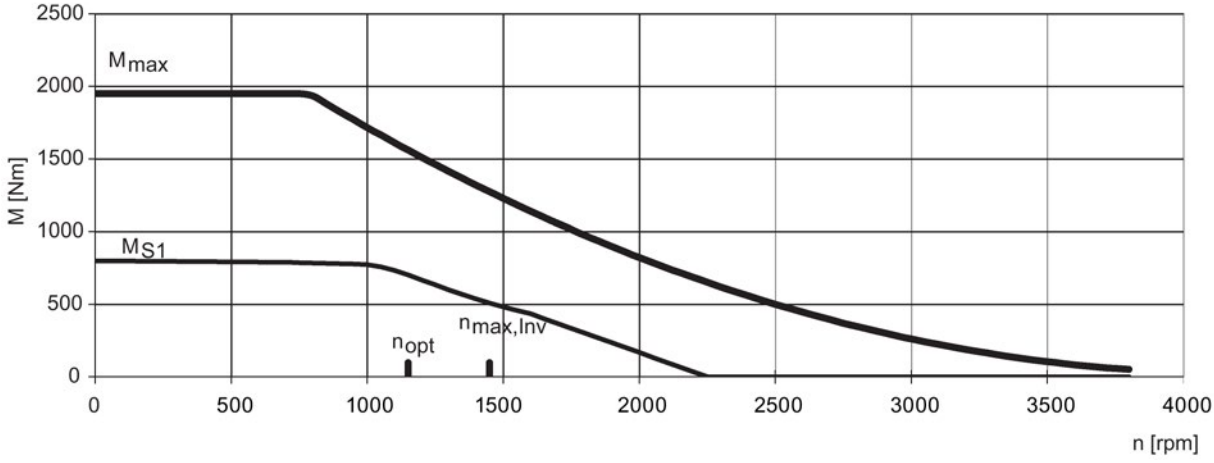
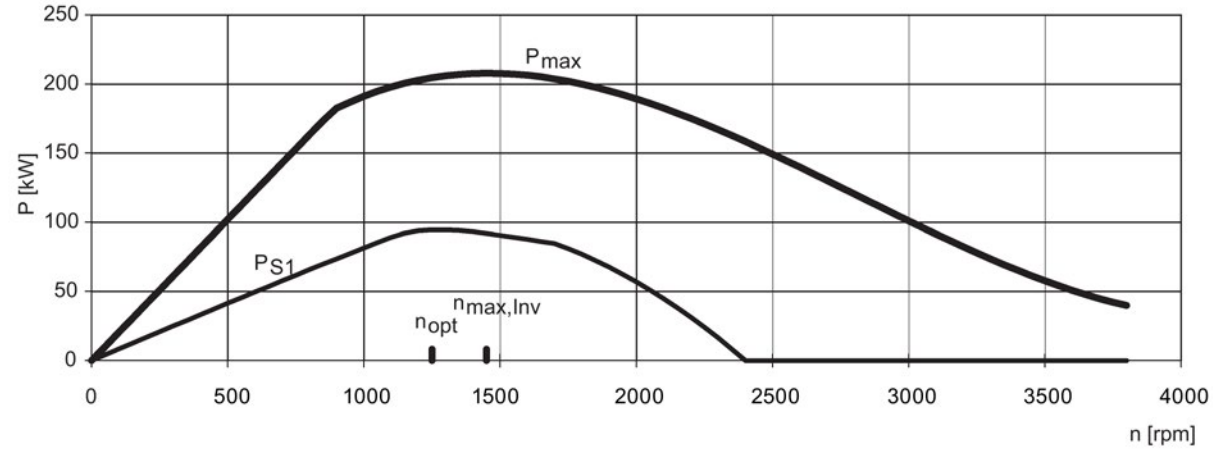


Table 6- 1015 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□C2□

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	1,250	3,800	3,500	1,450	1,950	358	800	143



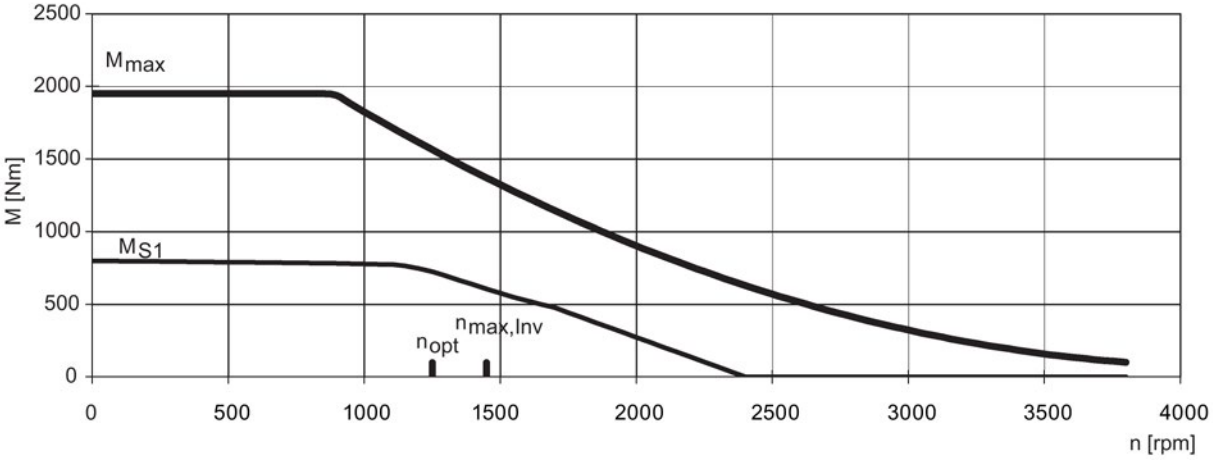
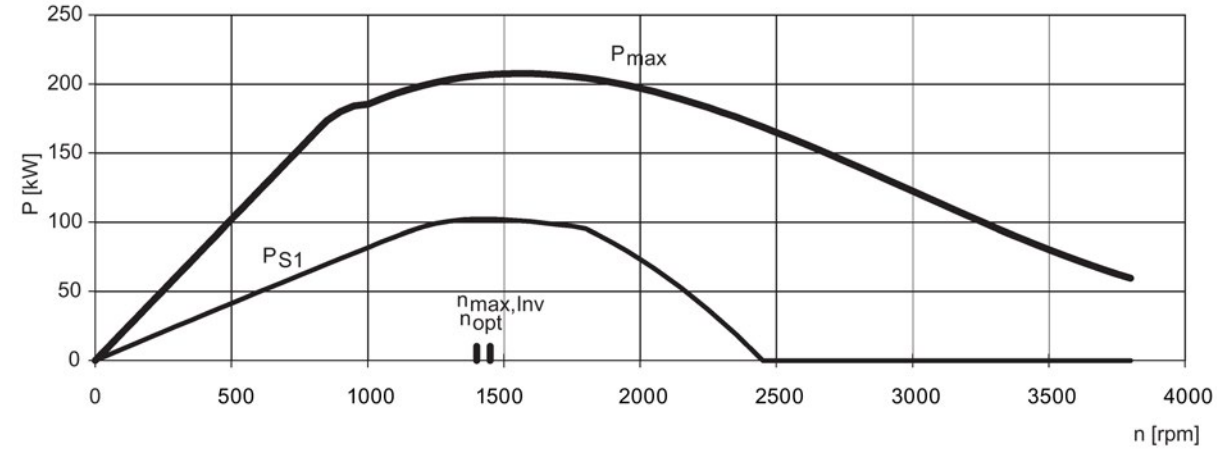


Table 6- 1016 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□C2□

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]
1,000	82	783	141	102	1,400	3,800	3,500	1,450	1,950	358	800	143



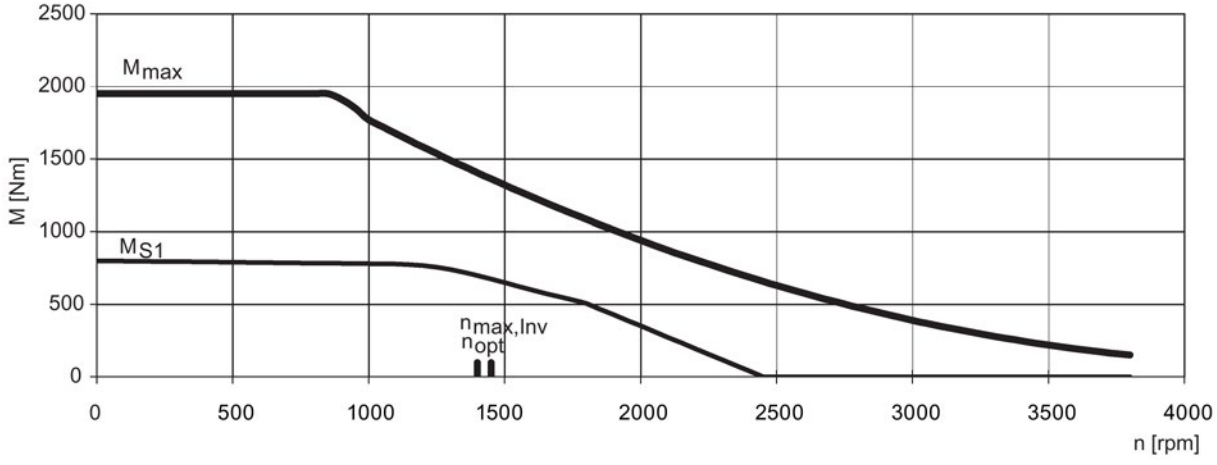
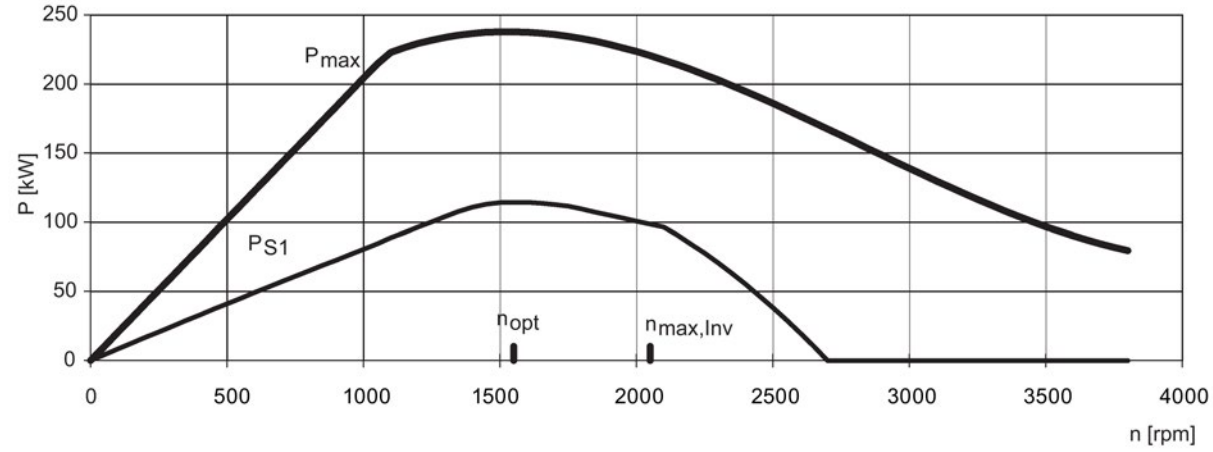


Table 6- 1017 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□D2□

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]
1,000	80	764	190	114	1,550	3,800	3,500	2,050	1,950	490	800	196



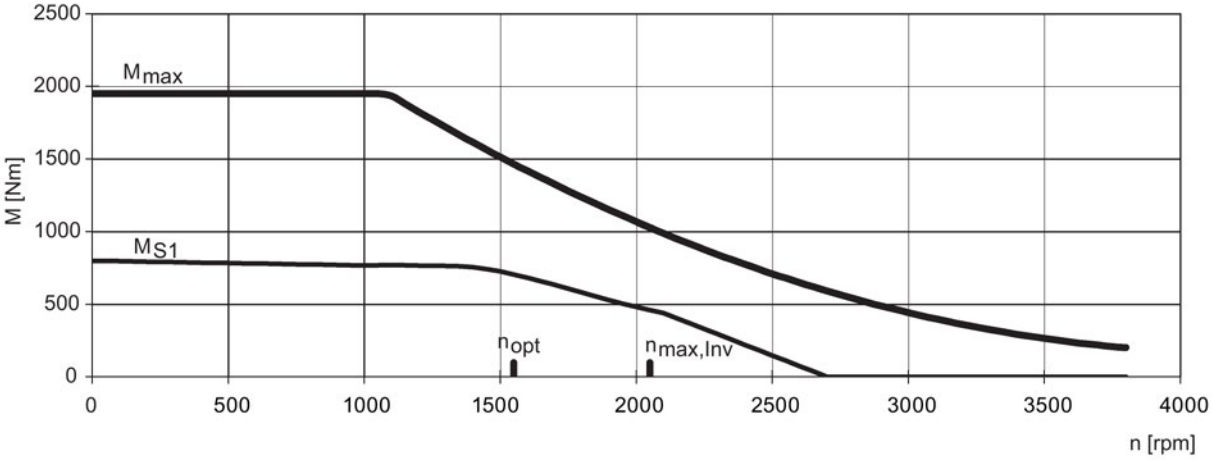
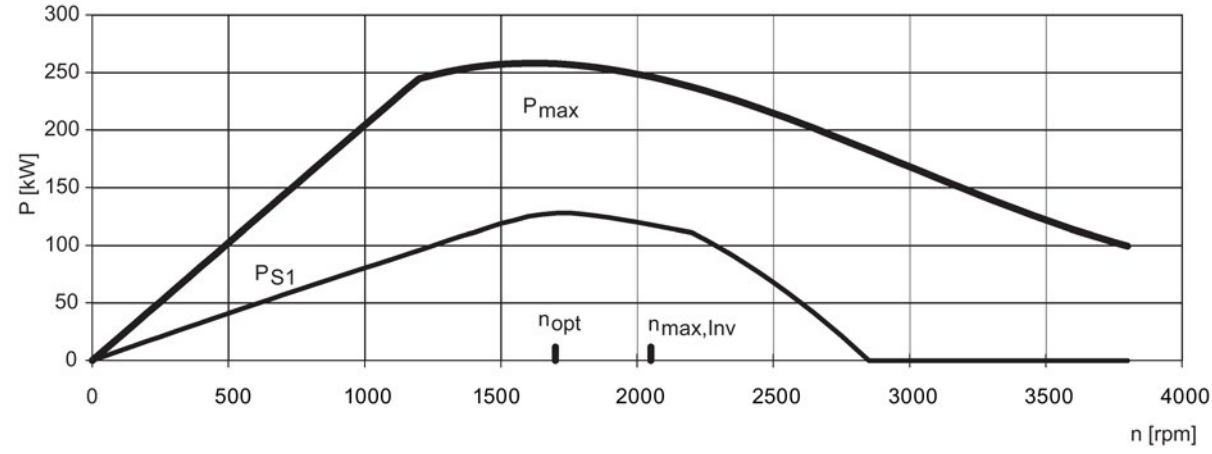


Table 6- 1018 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□D2□

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]
1,150	92	764	190	128	1,700	3,800	3,500	2,050	1,950	490	800	196



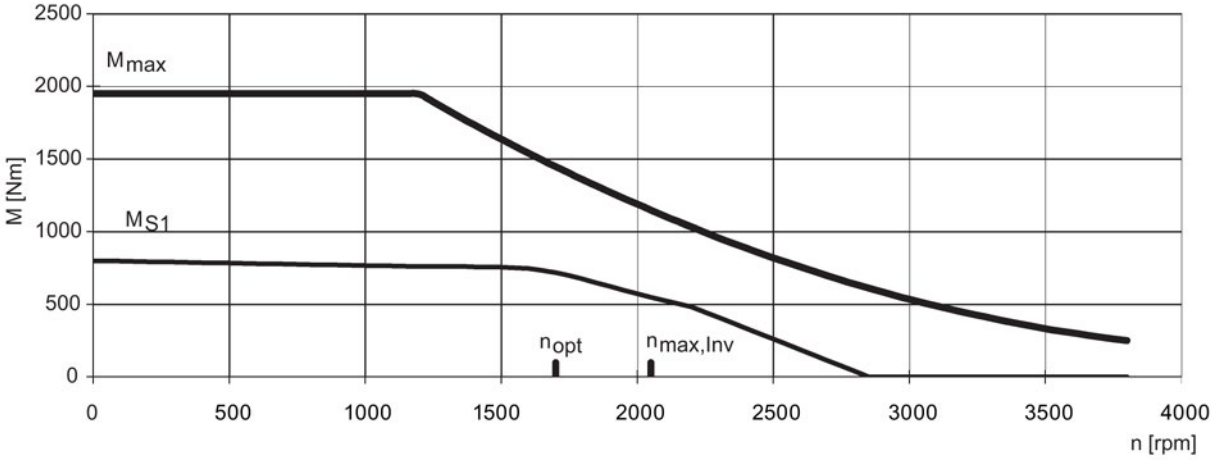
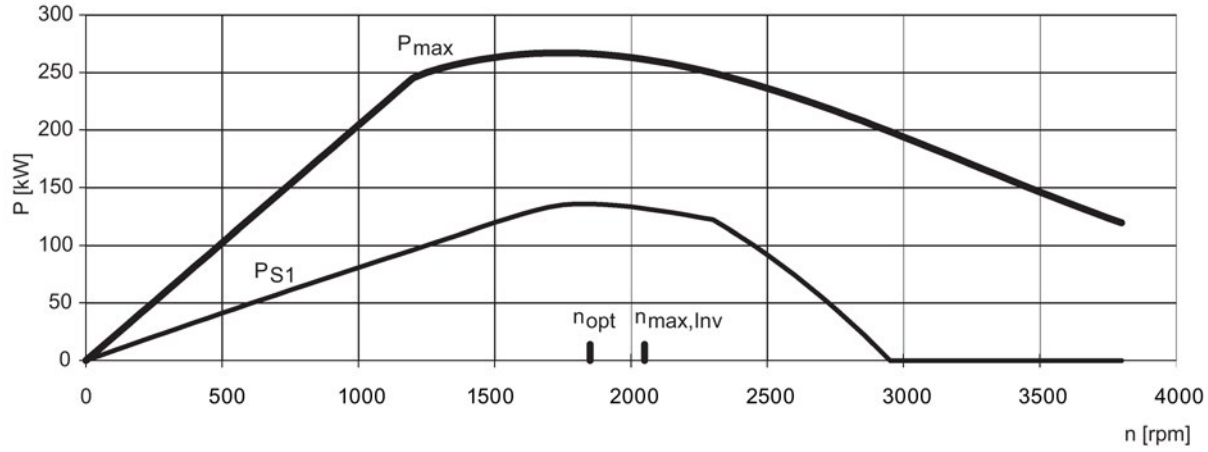


Table 6- 1019 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□D2□

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]
1,350	107	757	190	136	1,850	3,800	3,500	2,050	1,950	490	800	196



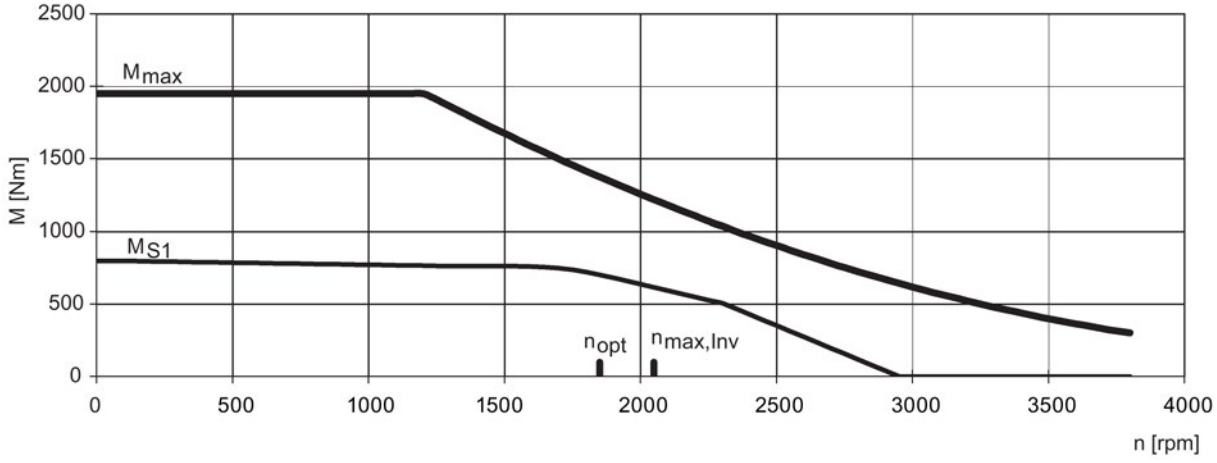


Table 6- 1020 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□F2□

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]
1,500	119	758	275	155	2,150	3,800	3,500	2,950	1,950	720	800	285

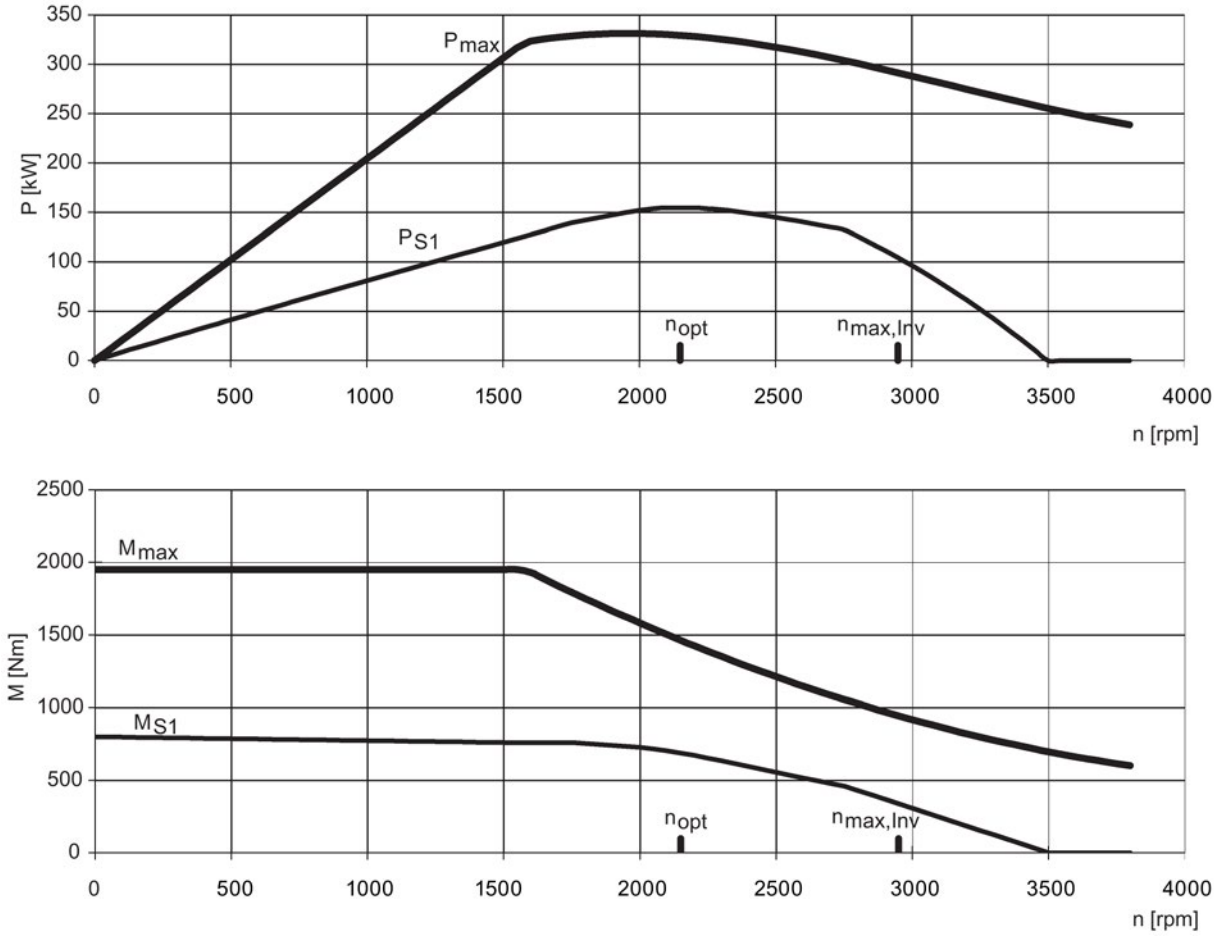
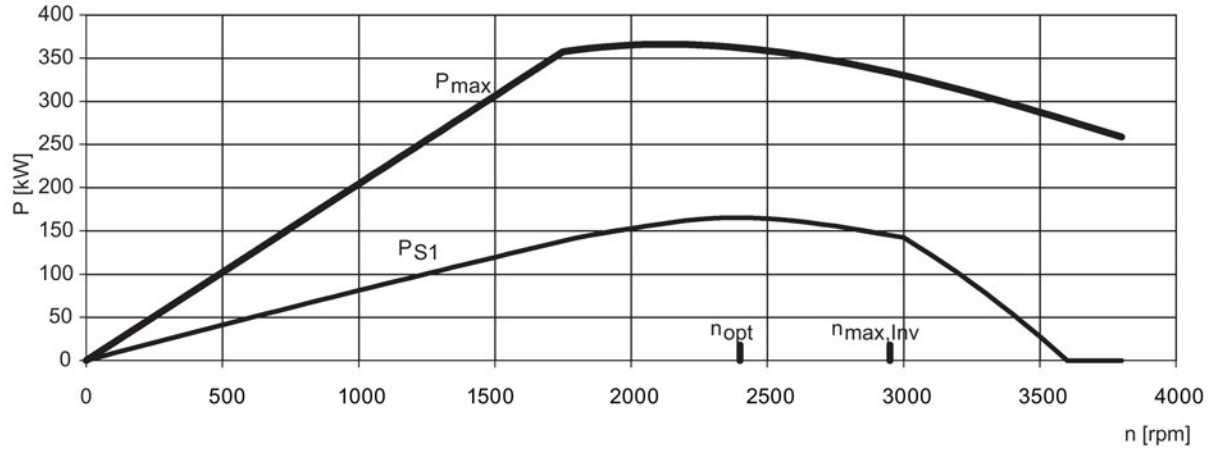


Table 6- 1021 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□F2□

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]
1,750	138	753	275	165	2,400	3,800	3,500	2,950	1,950	720	800	285



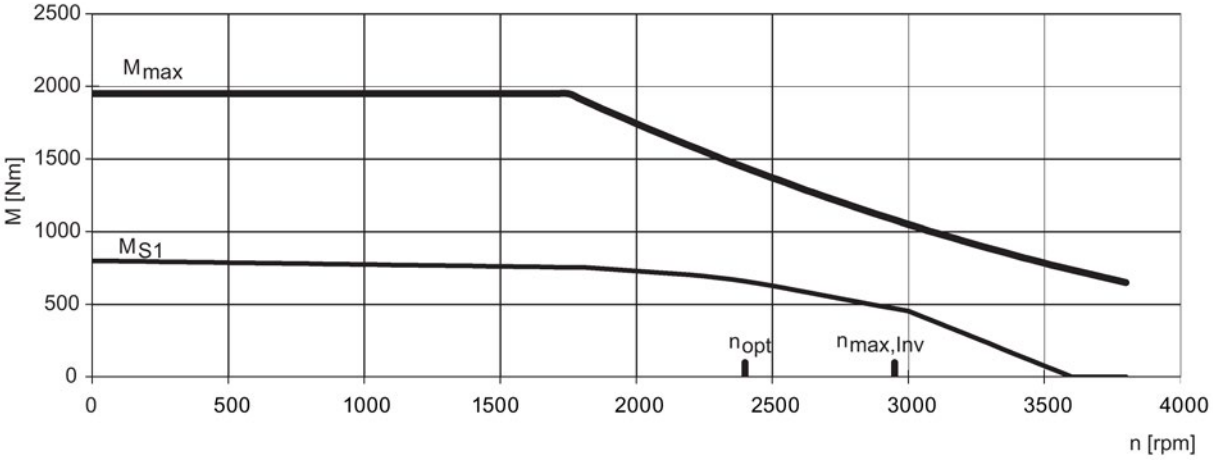
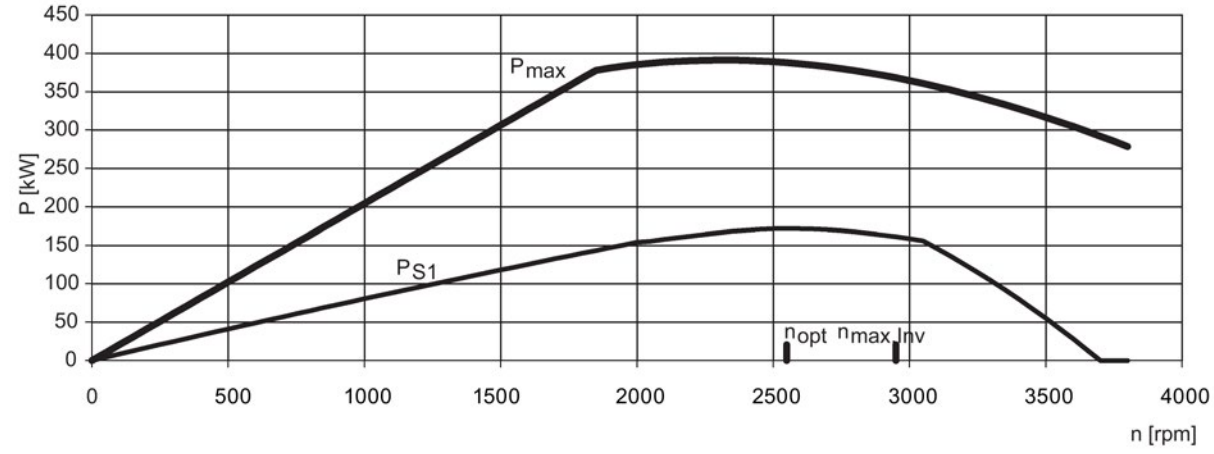


Table 6- 1022 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□F2□

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]
2,000	154	735	265	172	2,550	3,800	3,500	2,950	1,950	720	800	285



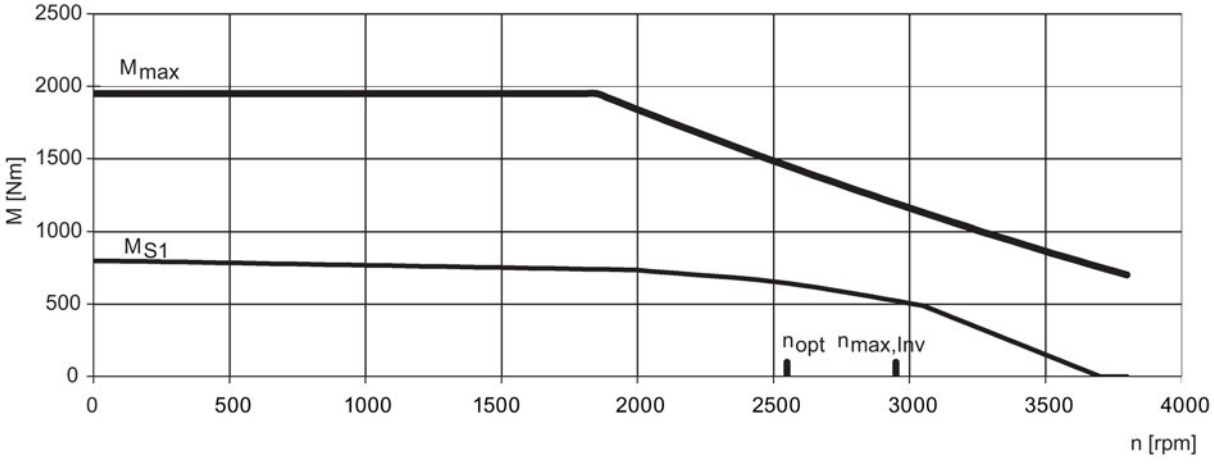
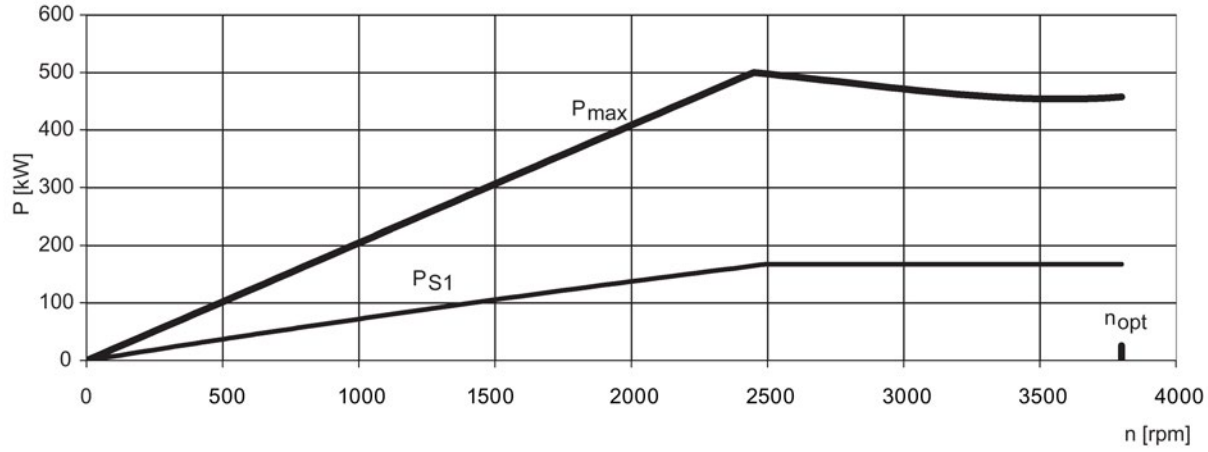


Table 6- 1023 SINAMICS, 3-ph. 400 V AC, Smart/Basic Line Module, (SLM/BLM), 1PH8186-2□L2□

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]
2,500	168	642	370	168	3,800	3,800	3,500	>3,800	1,950	1,125	720	405



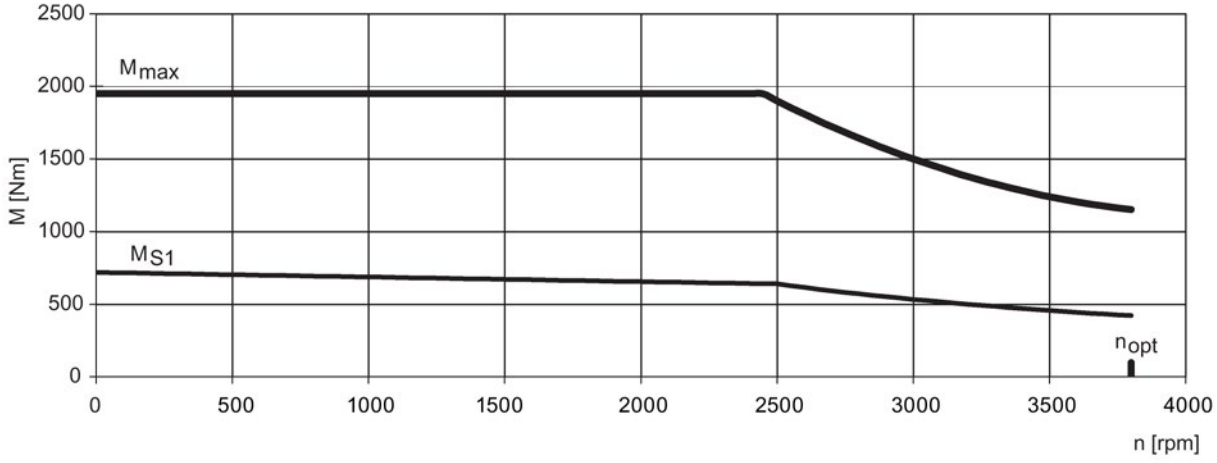
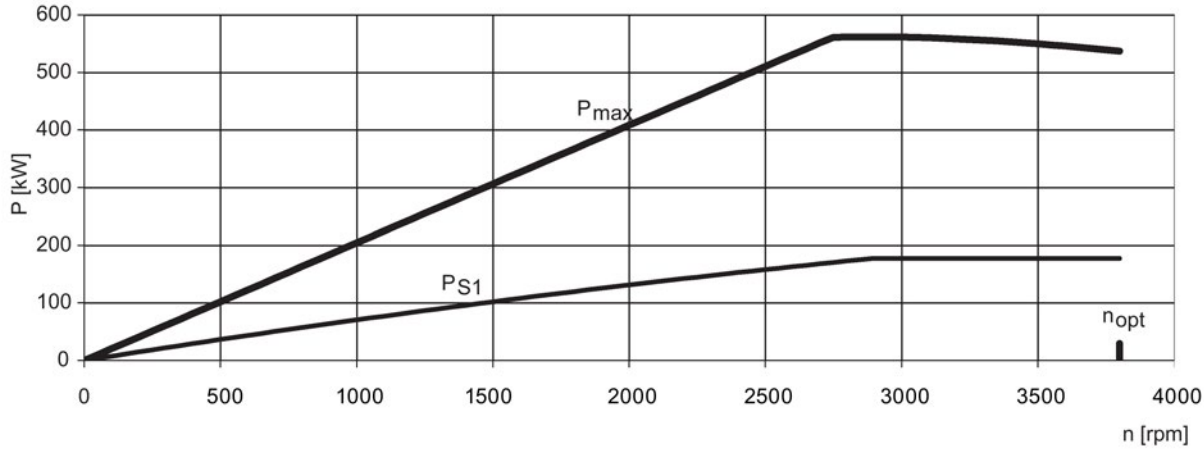


Table 6- 1024 SINAMICS, 3-ph. 400 V AC, Servo Control, (Active Line Module), 1PH8186-2□L2□

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]
2,900	178	586	340	178	3,800	3,800	3,500	>3,800	1,950	1,125	720	405



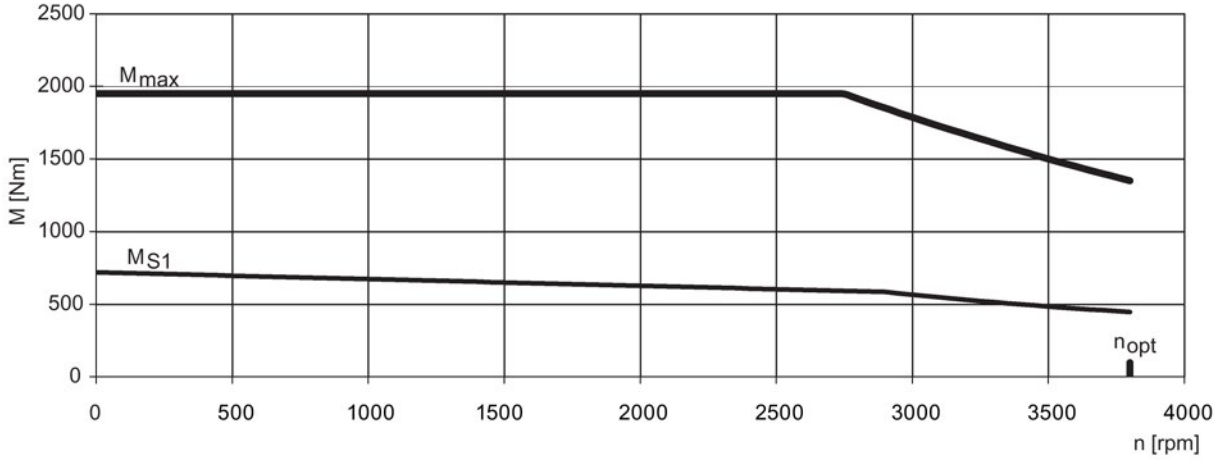
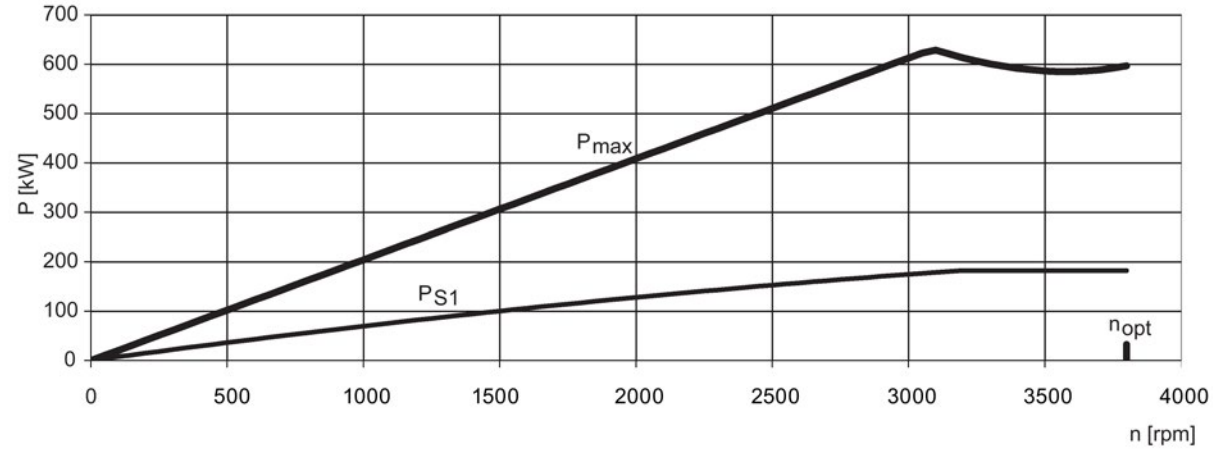
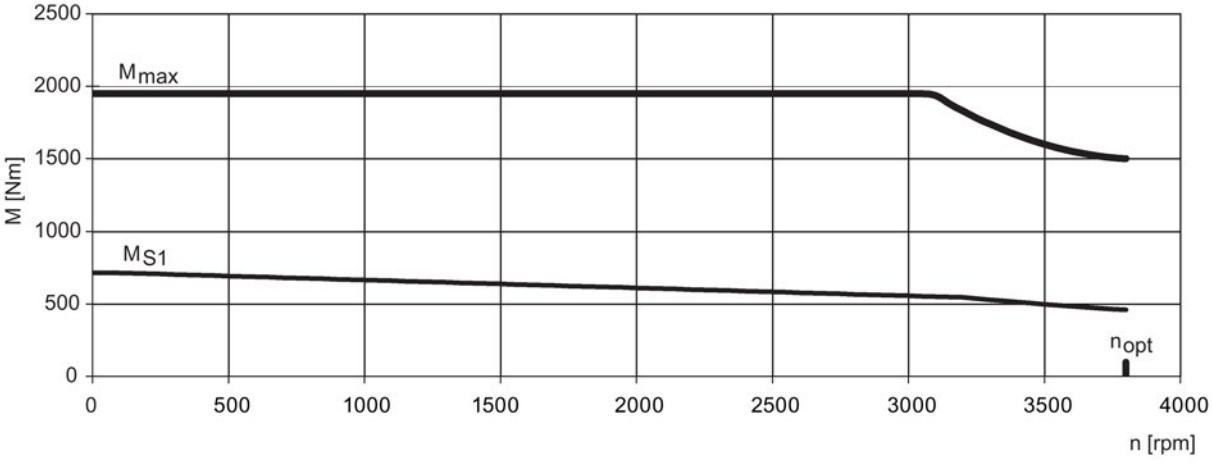


Table 6- 1025 SINAMICS, 3-ph. 480 V AC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8186-2□L2□

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]
3,200	183	546	315	183	3,800	3,800	3,500	>3,800	1,950	1,125	720	405

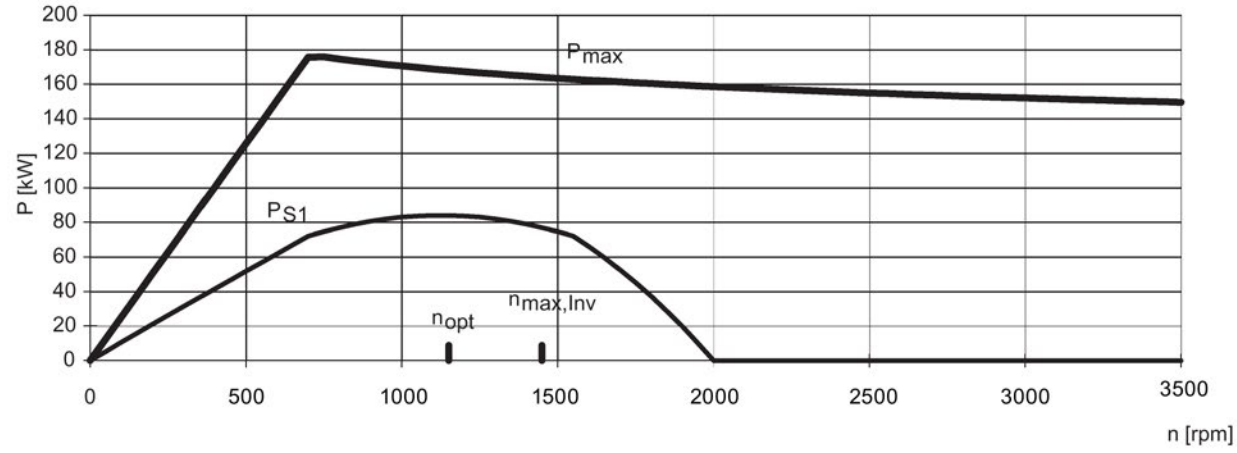




6.2.3.4 Shaft height 225 - water-cooled

Table 6- 1026 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]
700	72	982	180	84	1,150	3,500	3,500	1,450	2,400	450	1,007	183



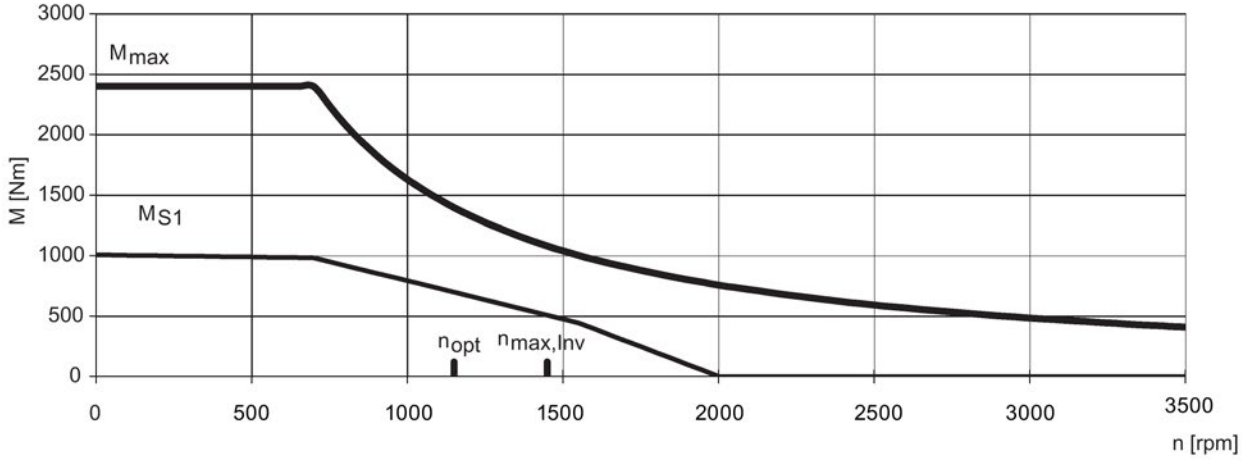
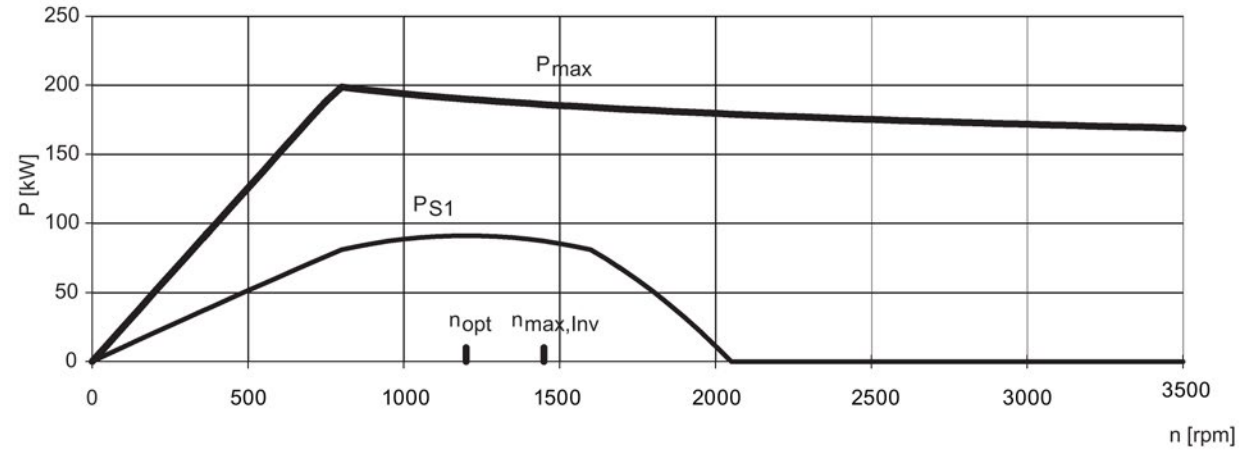


Table 6- 1027 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□C2□

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	1,200	3,500	3,100	1,450	2,400	450	1,007	183
700	72	982	180									



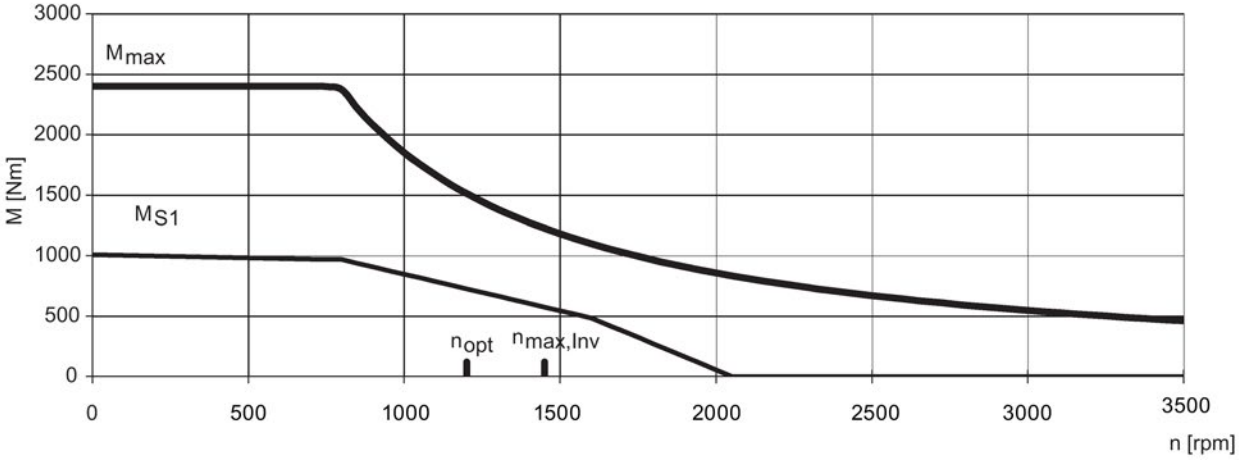
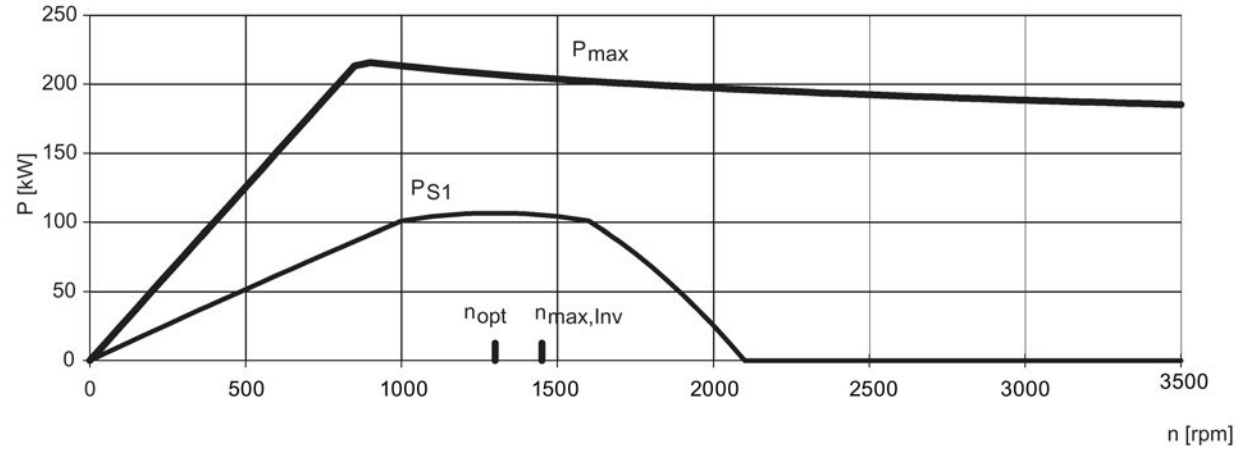


Table 6- 1028 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□C2□

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]
1,000	101	964	178	107	1,300	3,500	3,100	1,450	2,400	450	1,007	183



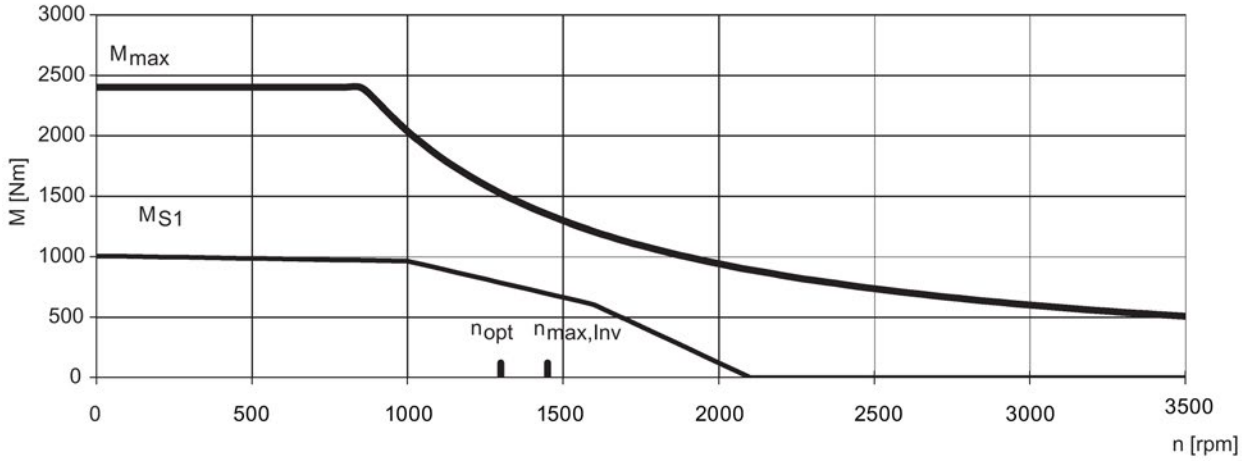
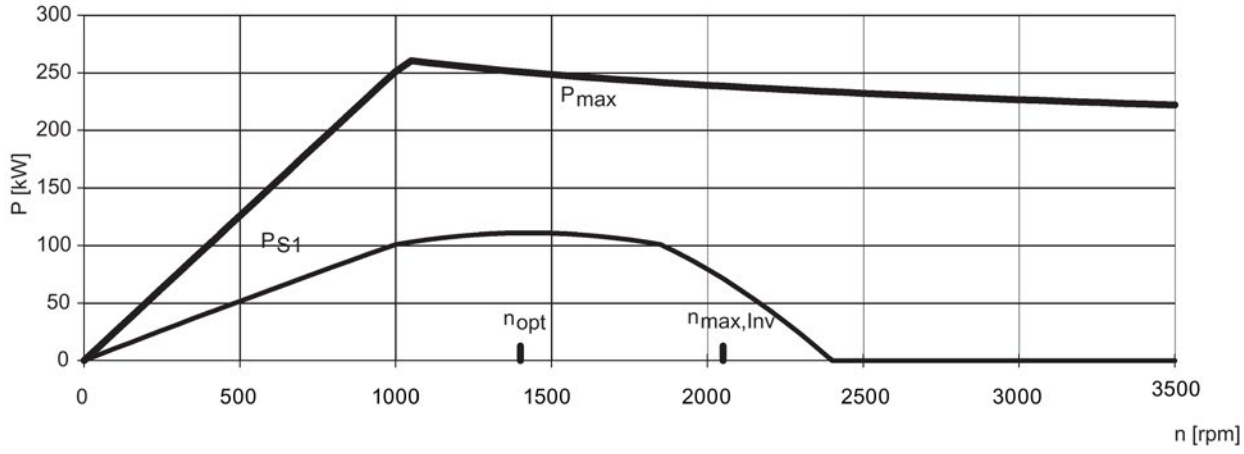


Table 6- 1029 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□D2□

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]
1,000	101	964	255	111	1,400	3,500	3,100	2,050	2,400	640	1,007	262



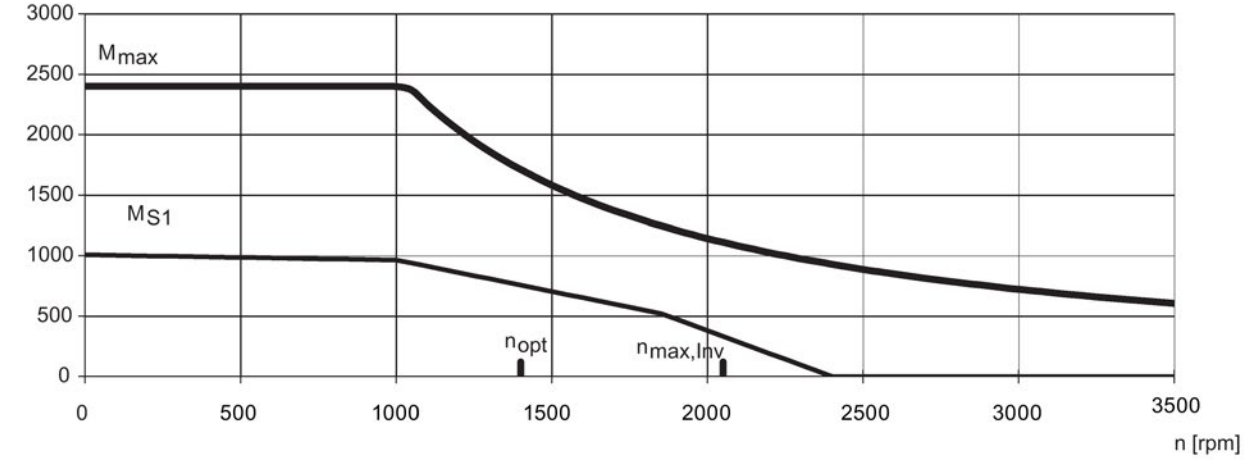
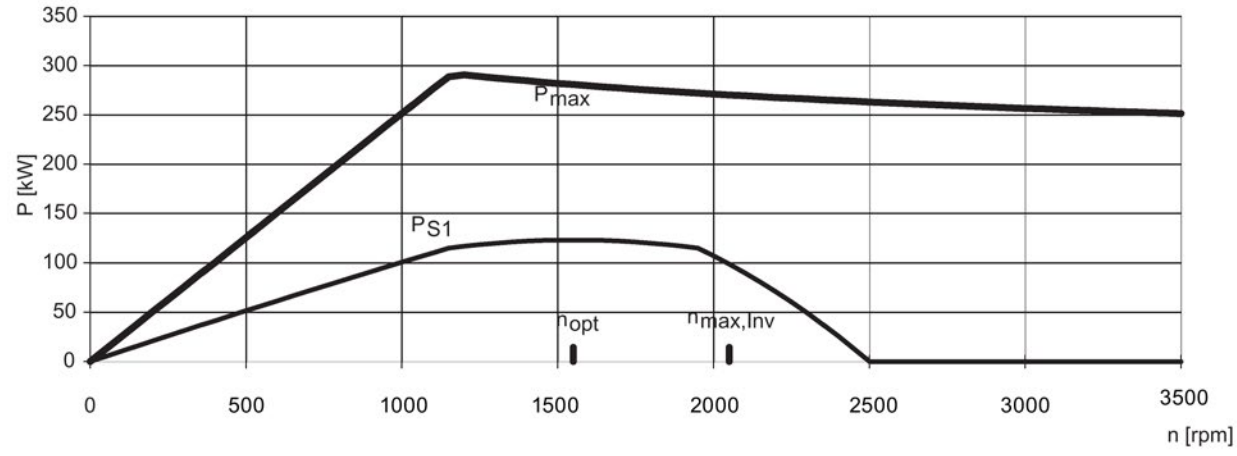


Table 6- 1030 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□D2□

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]
1,150	115	955	250	123	1,550	3,500	3,100	2,050	2,400	640	1,007	262
1,000	101	964	255									



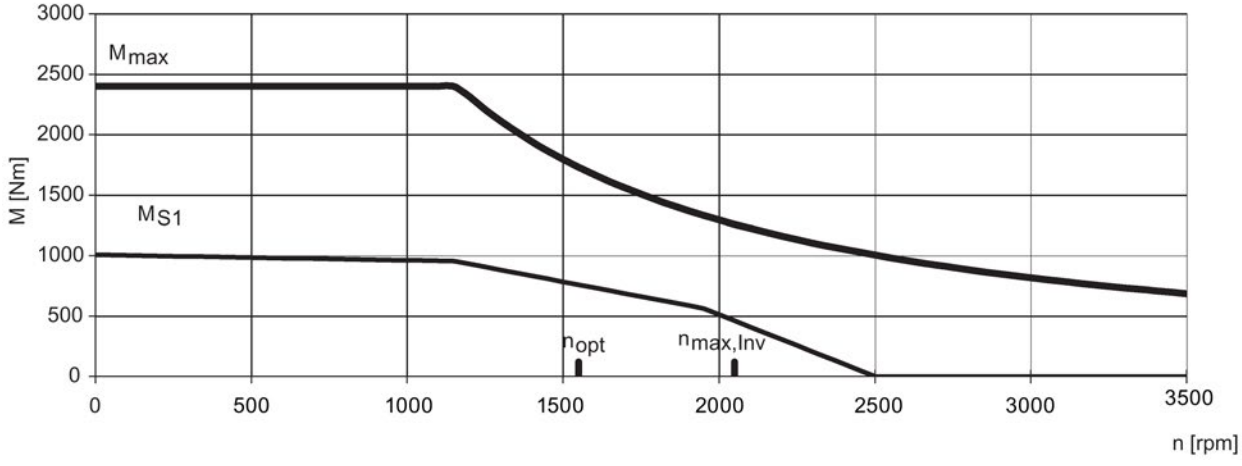
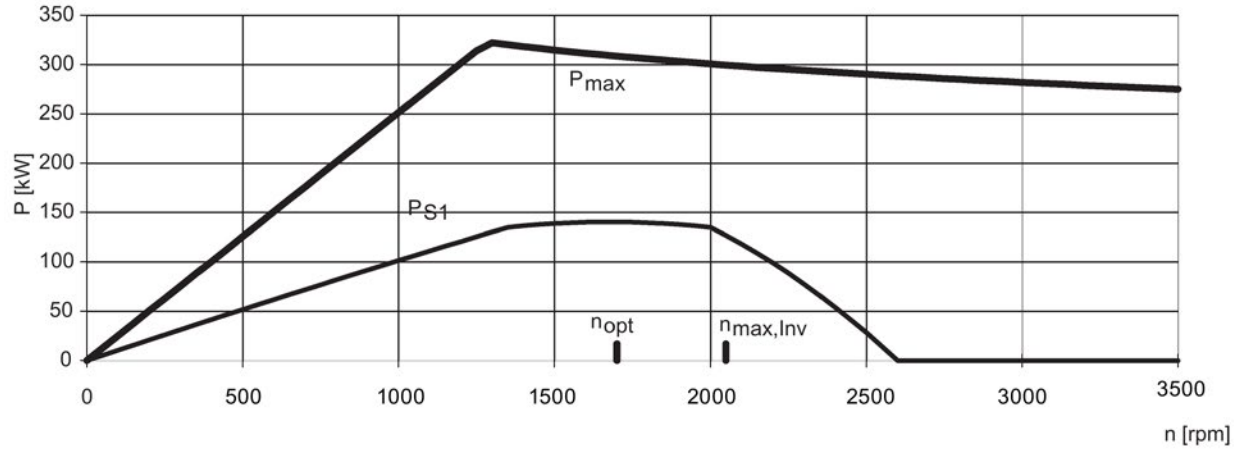


Table 6- 1031 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□D2□

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]
1,350	135	955	250	140	1,700	3,500	3,100	2,050	2,400	640	1,007	262



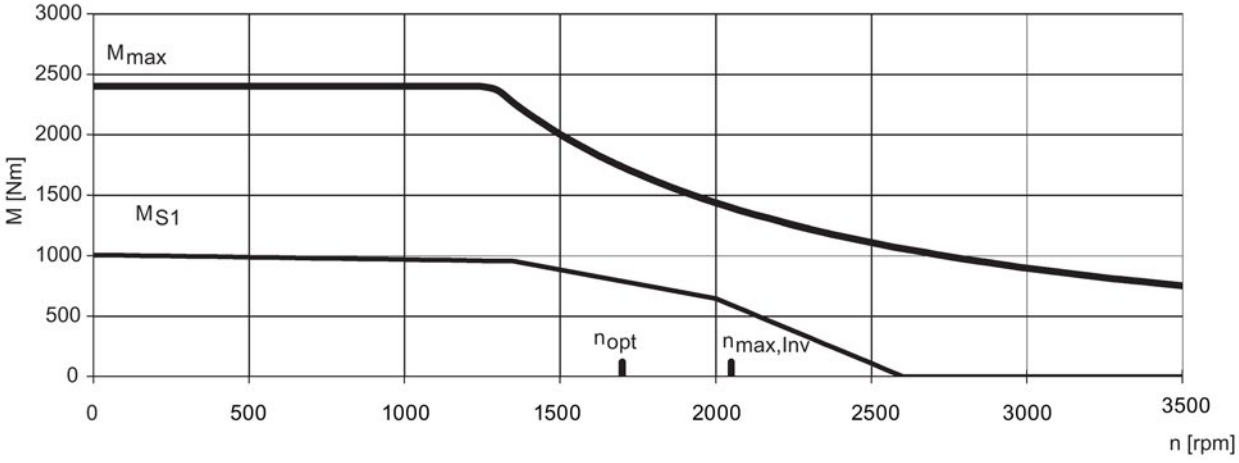


Table 6- 1032 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□F2□

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]
1,500	151	961	355	159	1,950	3,500	3,100	2,900	2,400	900	1,007	367

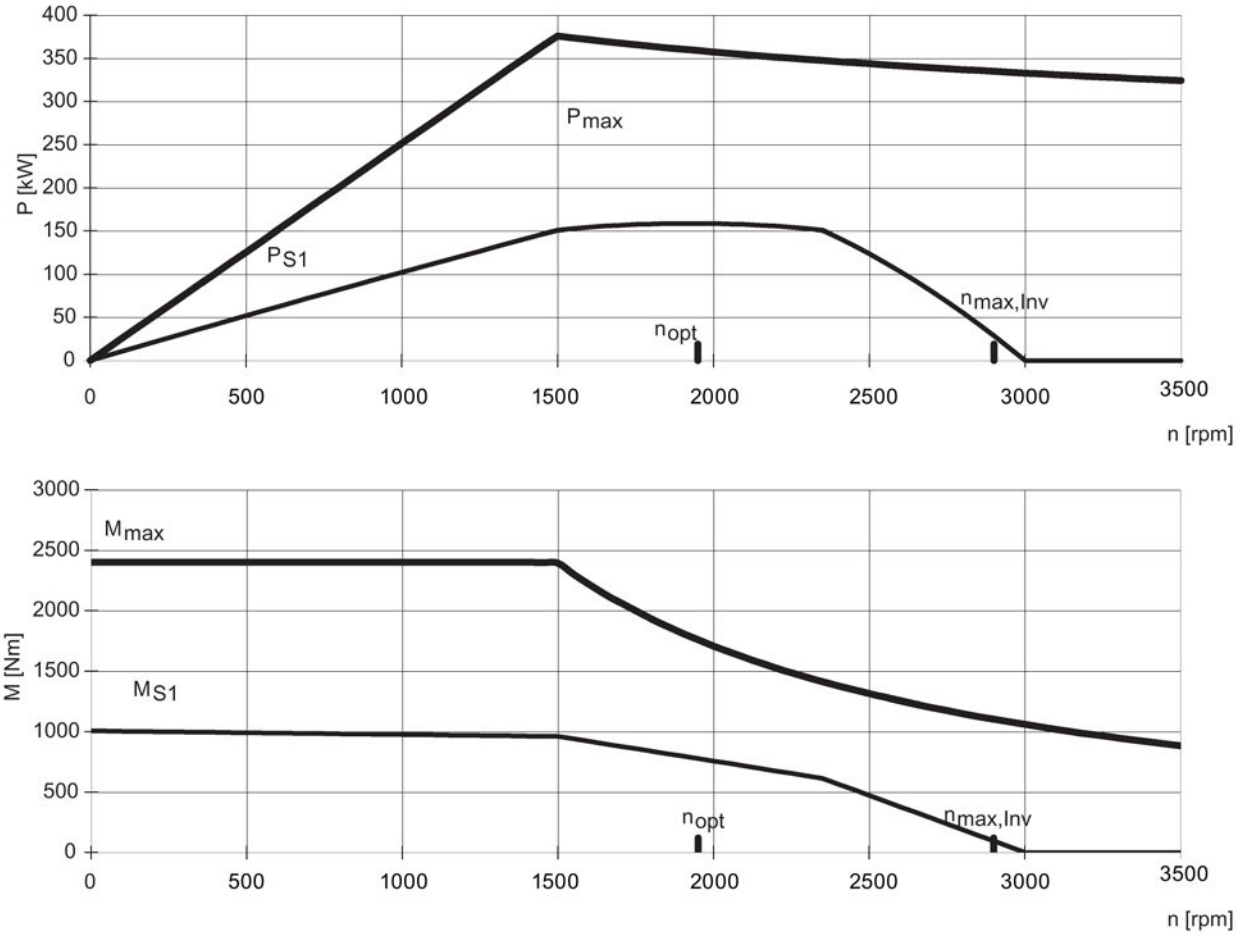
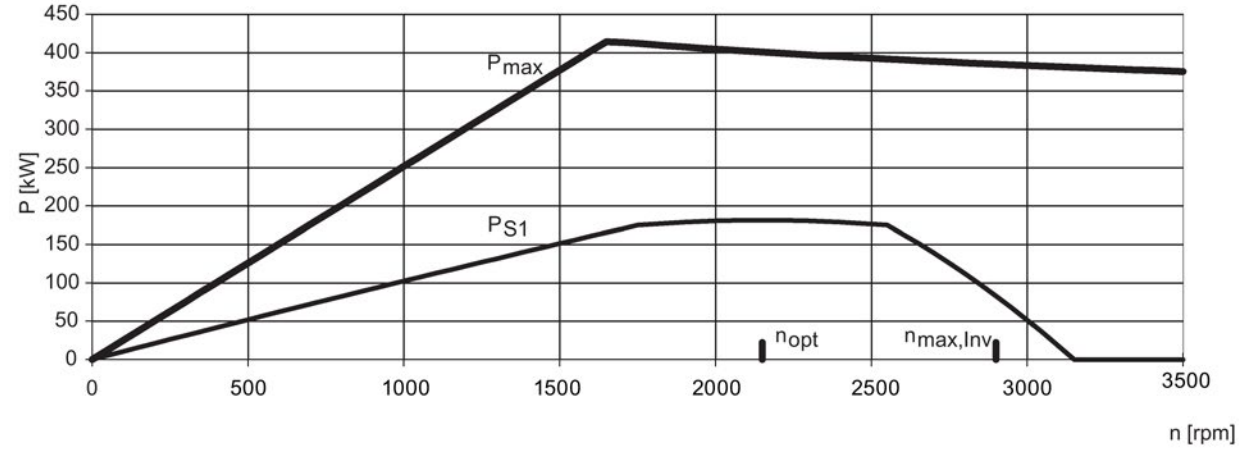


Table 6- 1033 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□F2□

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]
1,750	175	955	355	181	2,150	3,500	3,100	2,900	2,400	900	1,007	367
1,500	151	961	355									



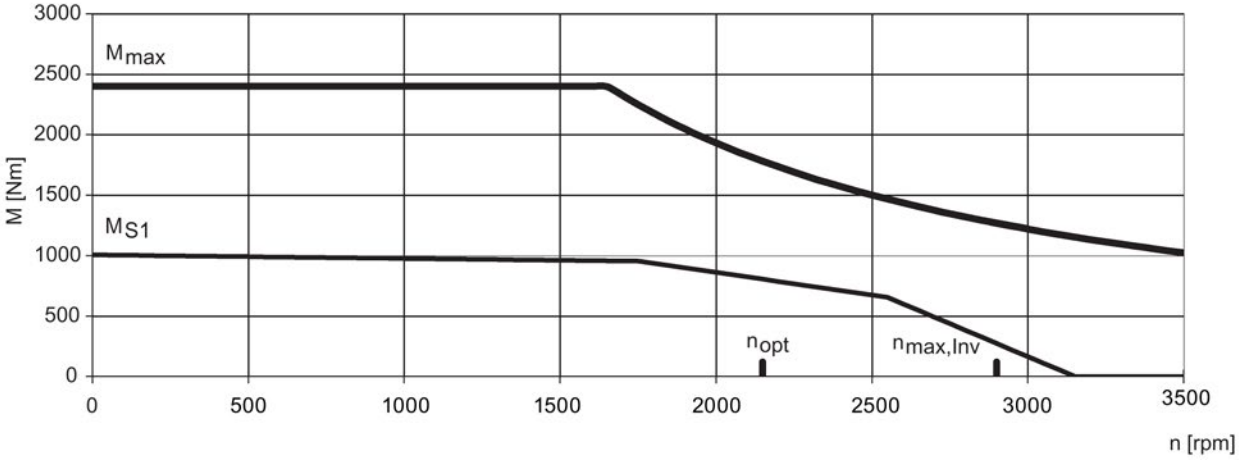


Table 6- 1034 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□F2□

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]
2,000	186	888	330	190	2,350	3,500	3,100	2,900	2,400	900	1,007	367

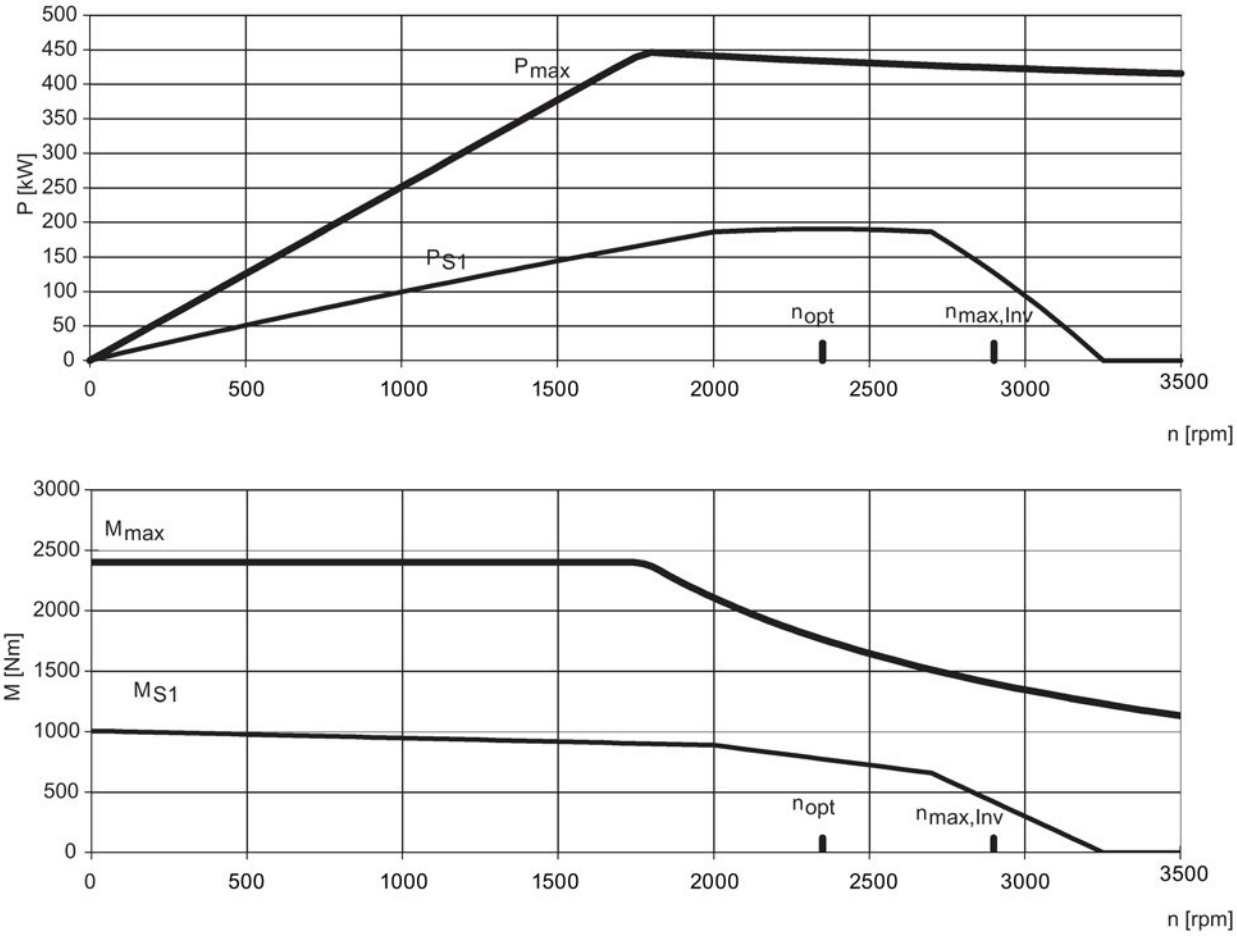
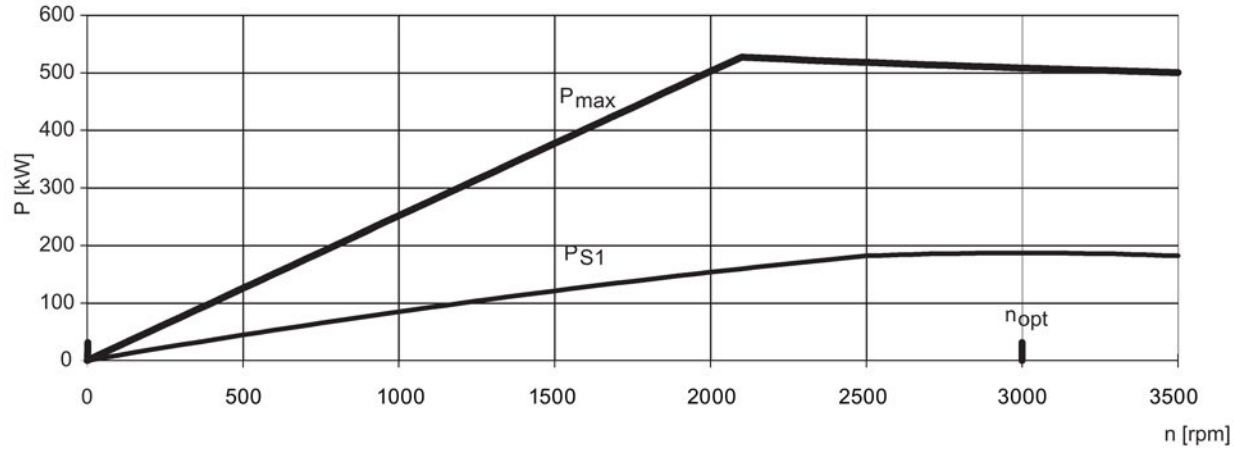


Table 6- 1035 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8224-2□L2□

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]
2,500	182	695	365	187	3,000	3,500	3,100	>3,500	2,400	1,280	885	460



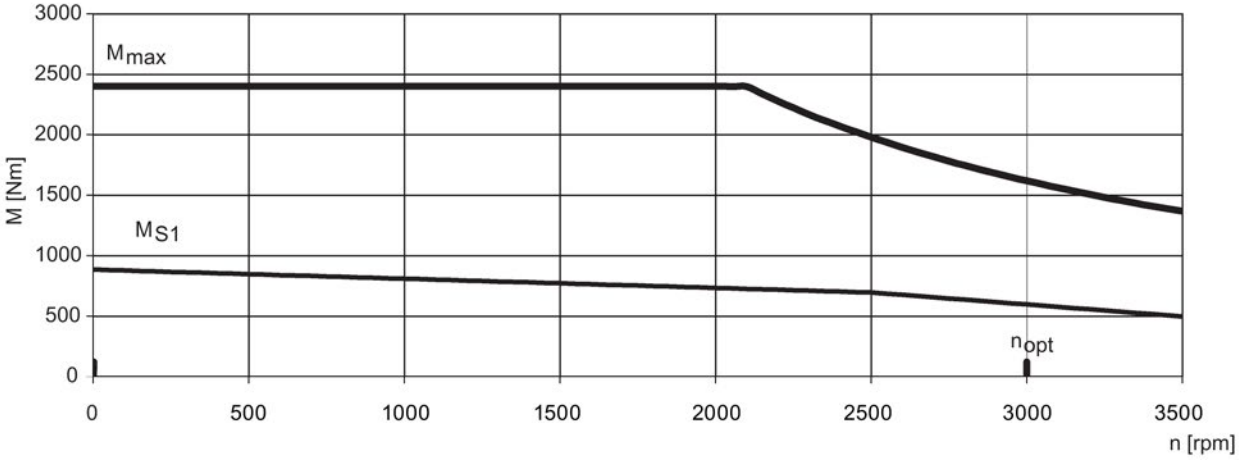


Table 6- 1036 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8224-2□L2□

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]
2,900	191	629	335	193	3,200	3,500	3,100	>3,500	2,400	1,280	885	460
2,500	182	695	365									

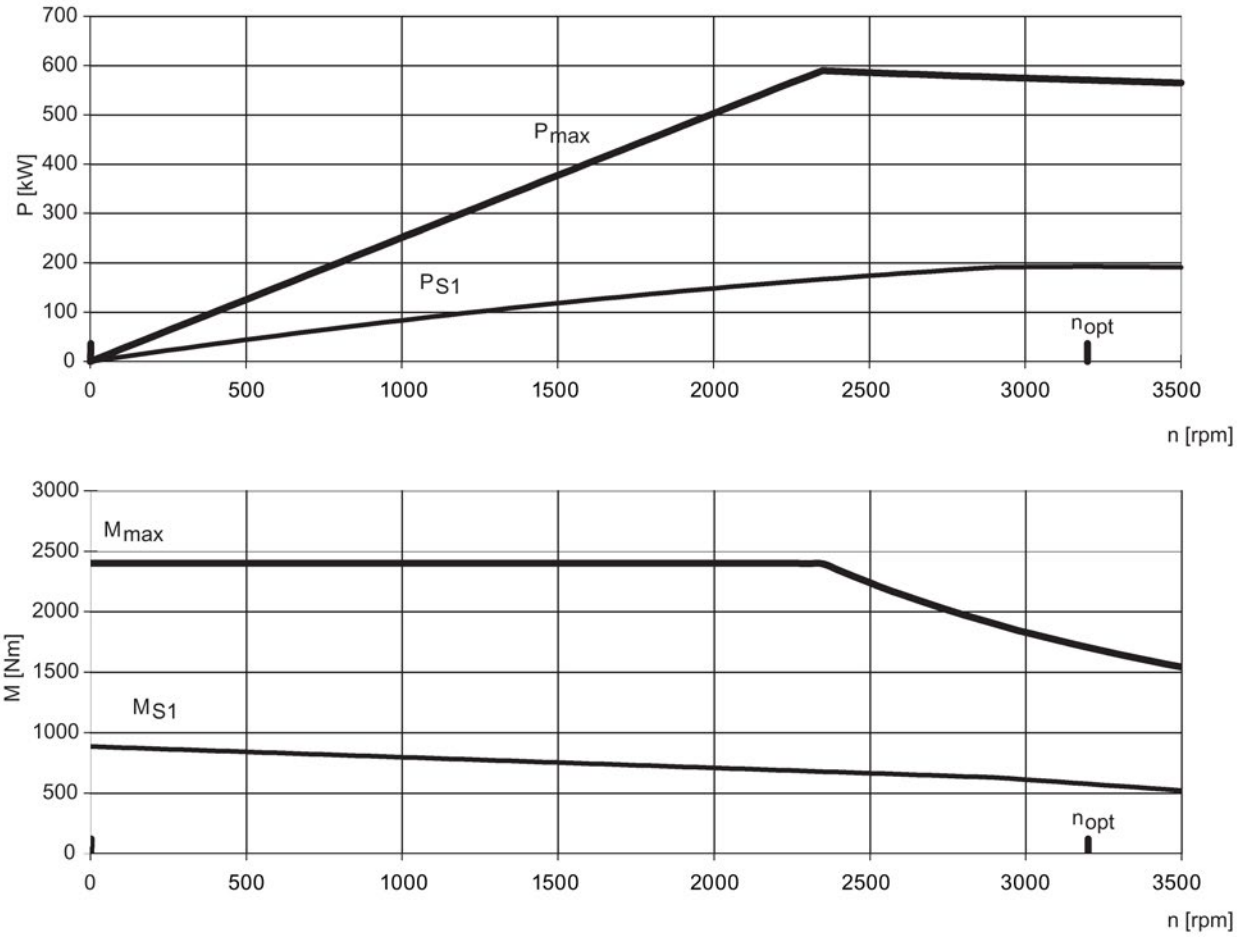
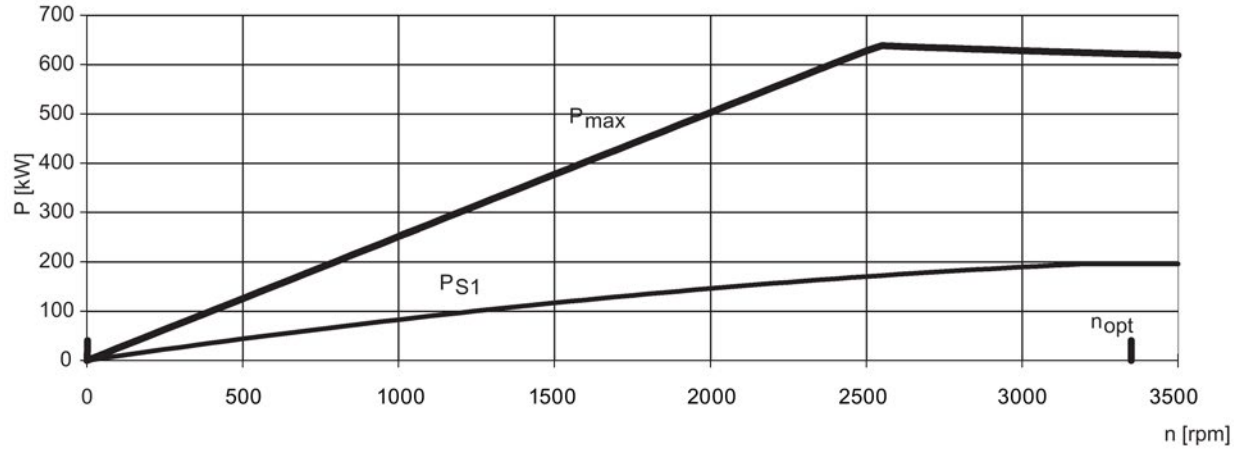


Table 6- 1037 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8224-2□L2□

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]
3,200	196	585	310	196	3,350	3,500	3,100	>3,500	2,400	1,280	885	460



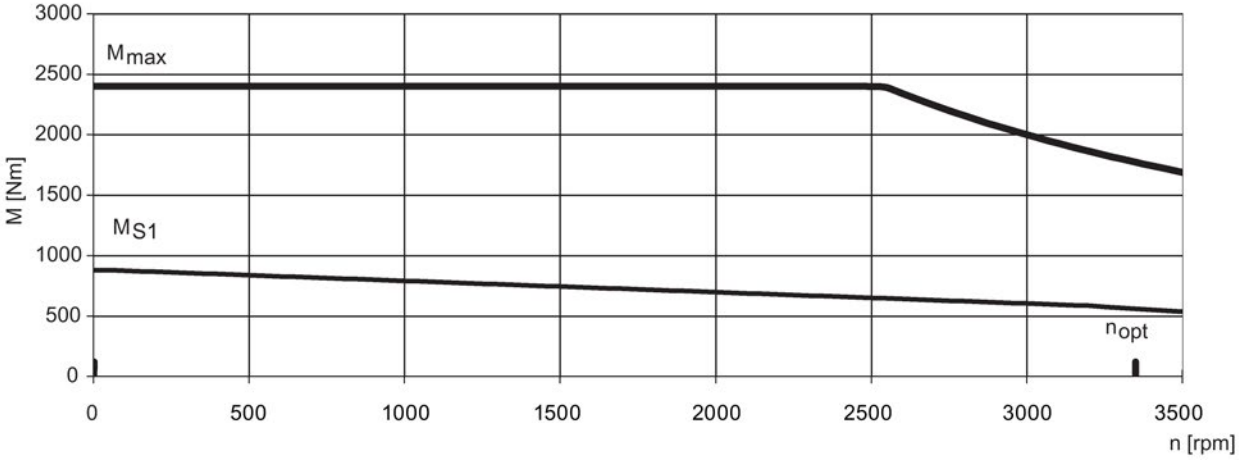
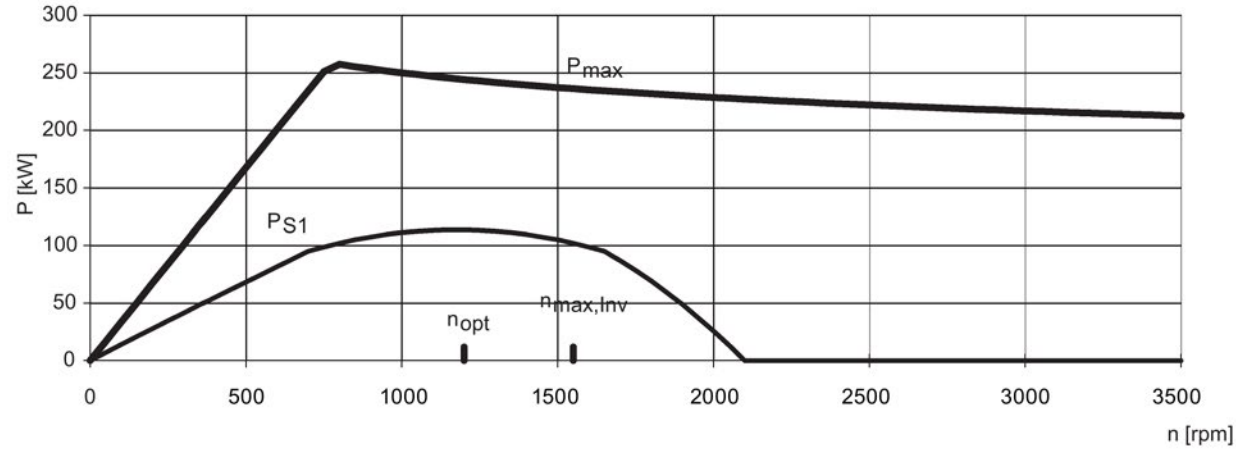


Table 6- 1038 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□C2□

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	1,296	255	114	1,200	3,500	3,100	1,550	3,200	640	1,330	260



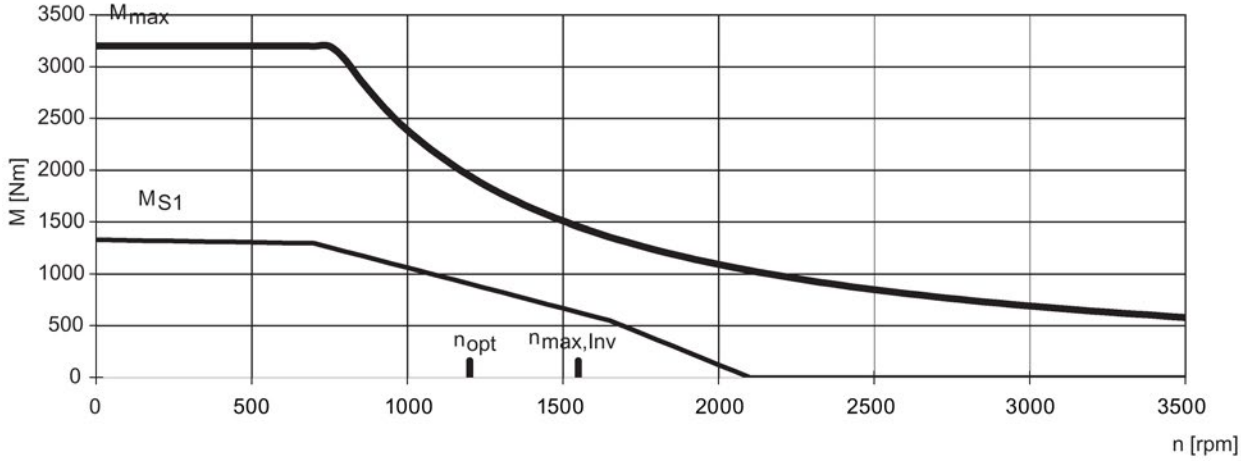
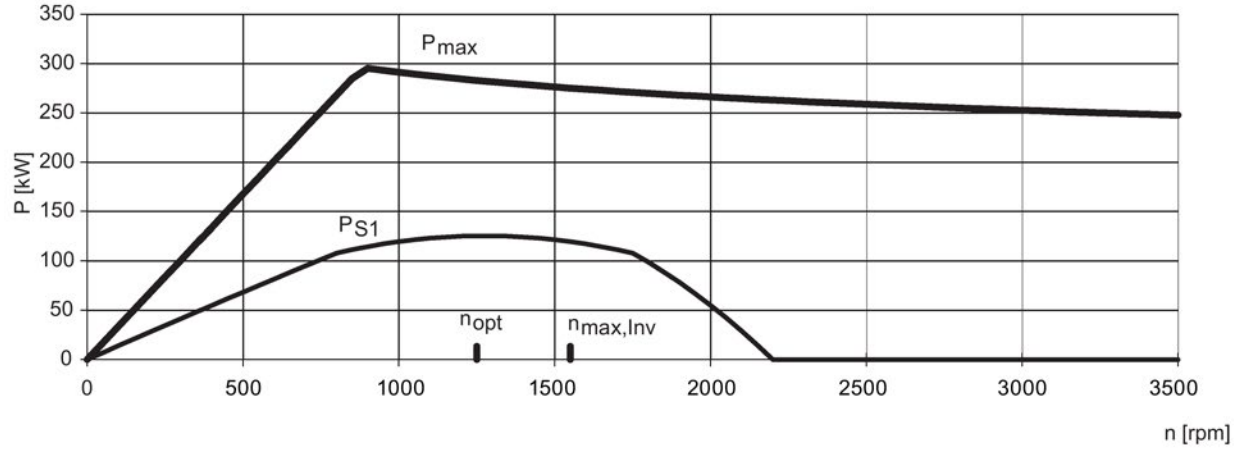


Table 6- 1039 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□C2□

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	1,289	255	125	1,250	3,500	3,100	1,550	3,200	640	1,330	260
700	95	1,296	255									



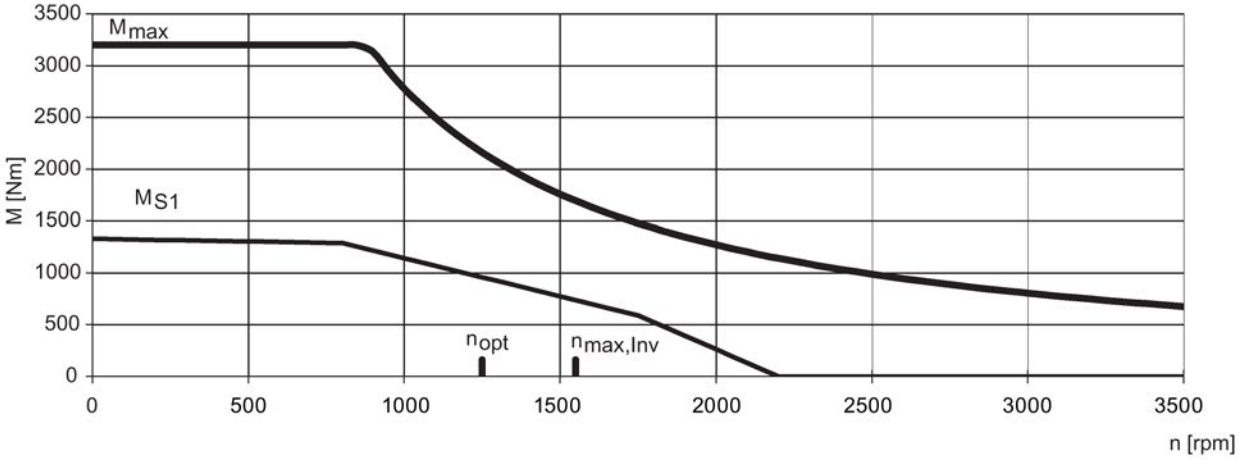
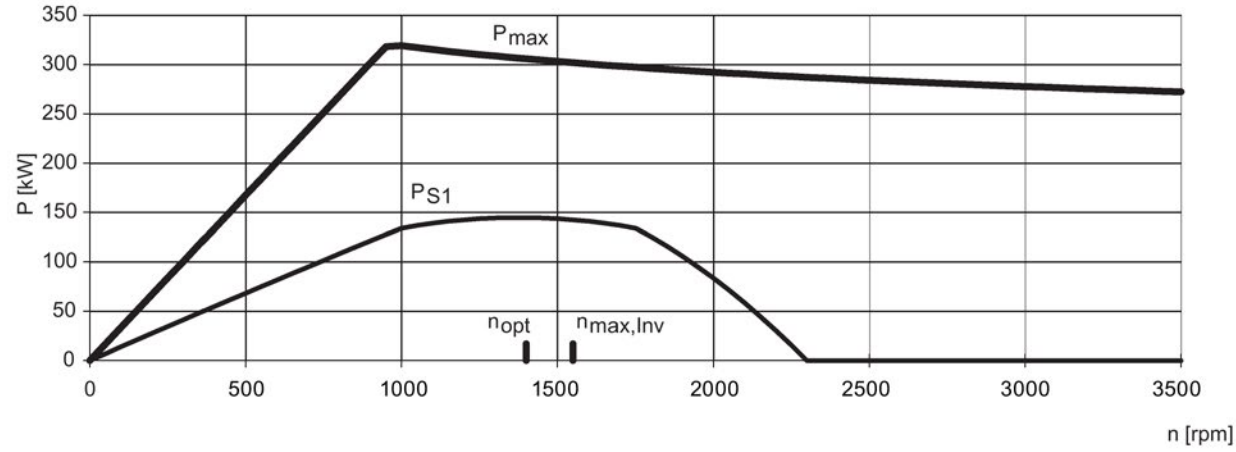


Table 6- 1040 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□C2□

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]
1,000	134	1,280	255	145	1,400	3,500	3,100	1,550	3,200	640	1,330	260



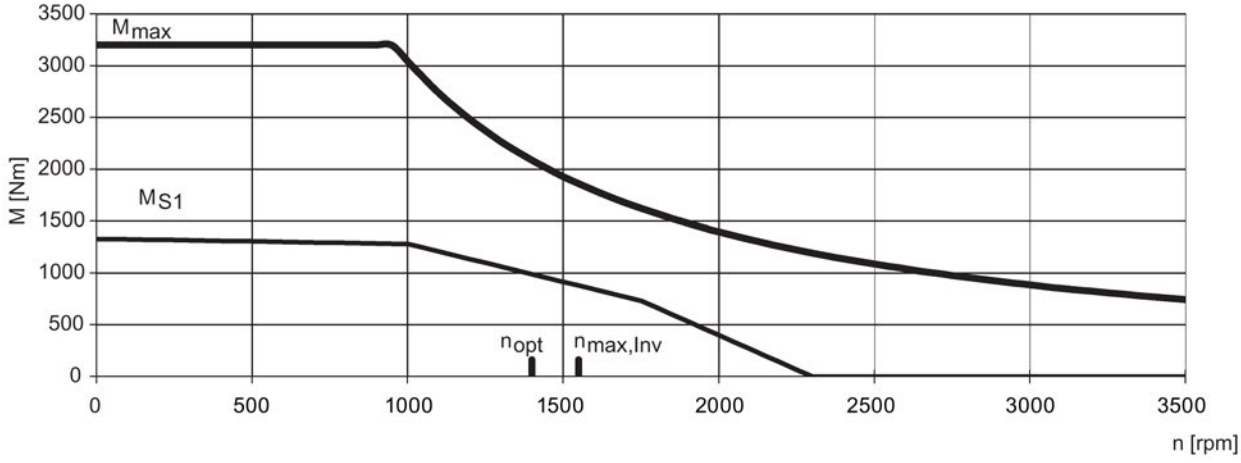
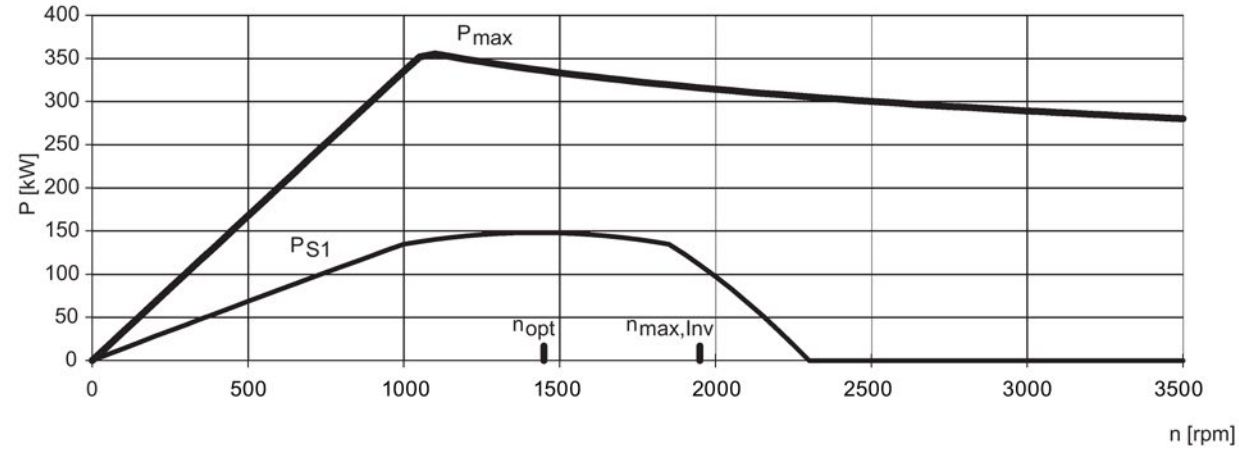


Table 6- 1041 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□D2□

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]
1,000	135	1,289	325	148	1,450	3,500	3,100	1,950	3,200	820	1,330	330



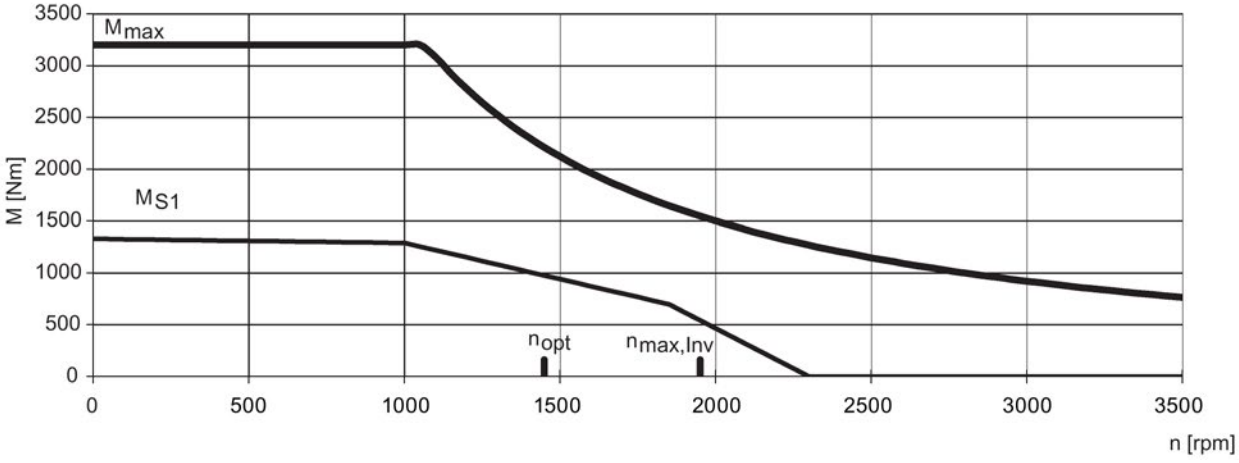
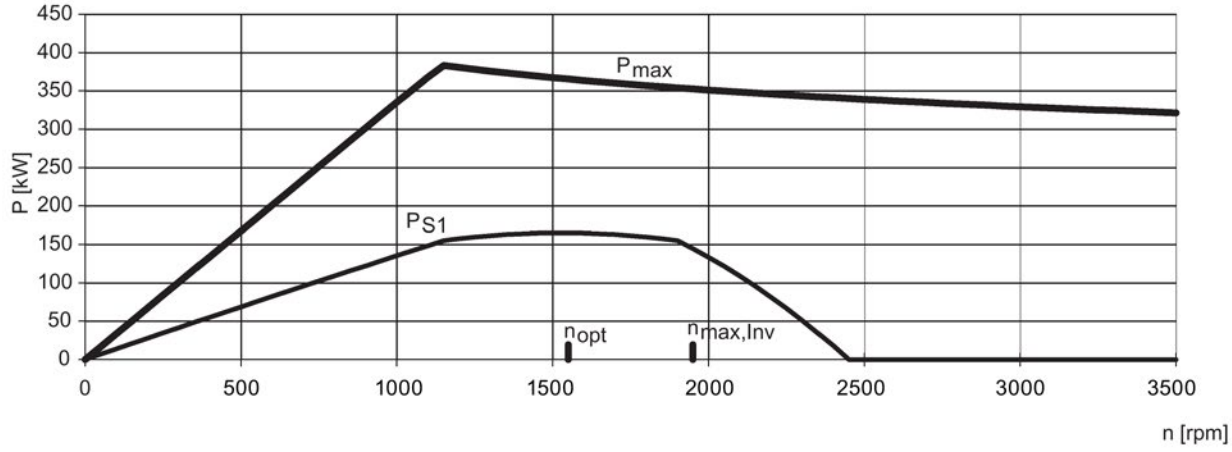


Table 6- 1042 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□D2□

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]
1,150	155	1,287	325	165	1,550	3,500	3,100	1,950	3,200	820	1,330	330
1,000	135	1,289	325									



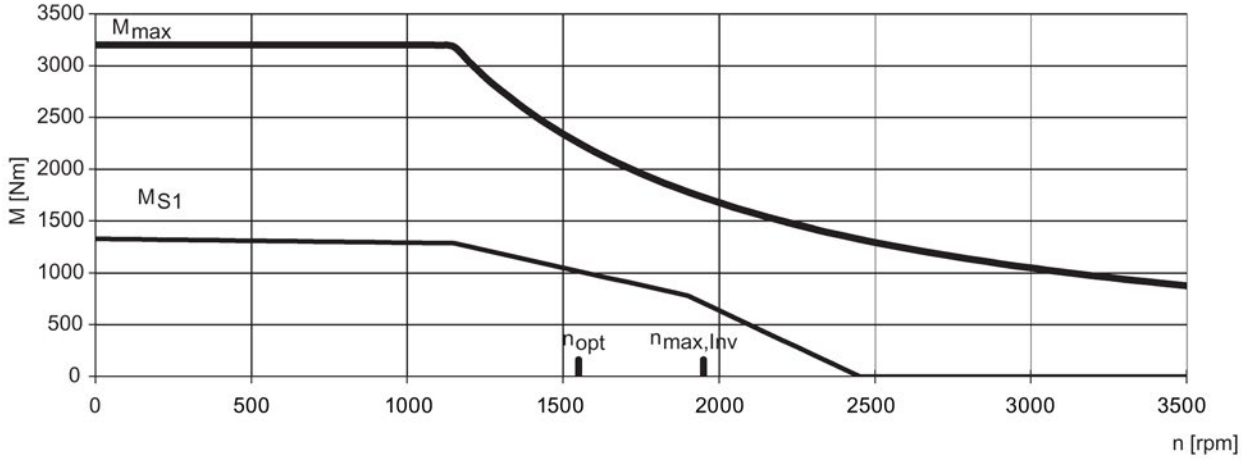
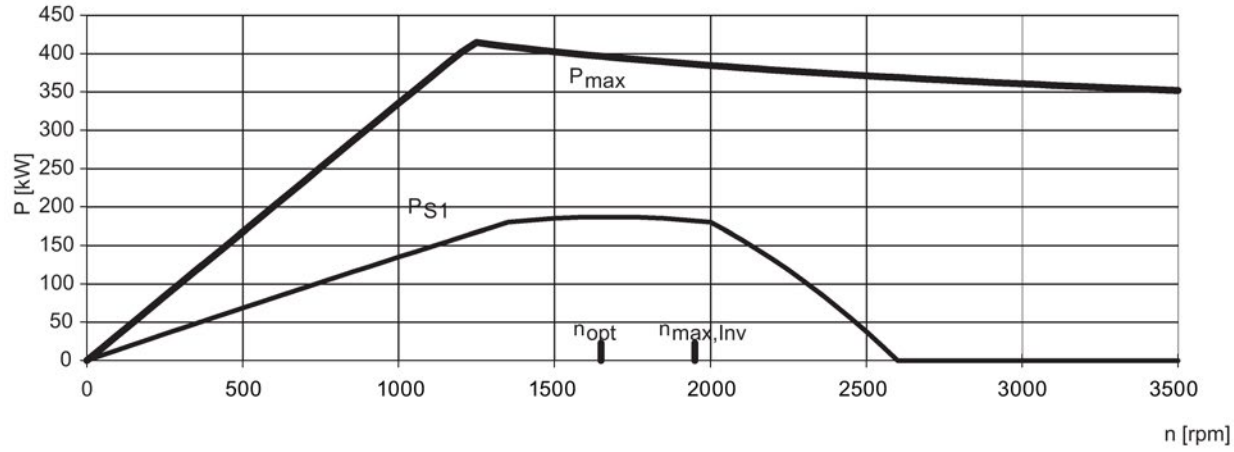


Table 6- 1043 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□D2□

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]
1,350	180	1,273	320	187	1,650	3,500	3,100	1,950	3,200	820	1,330	330



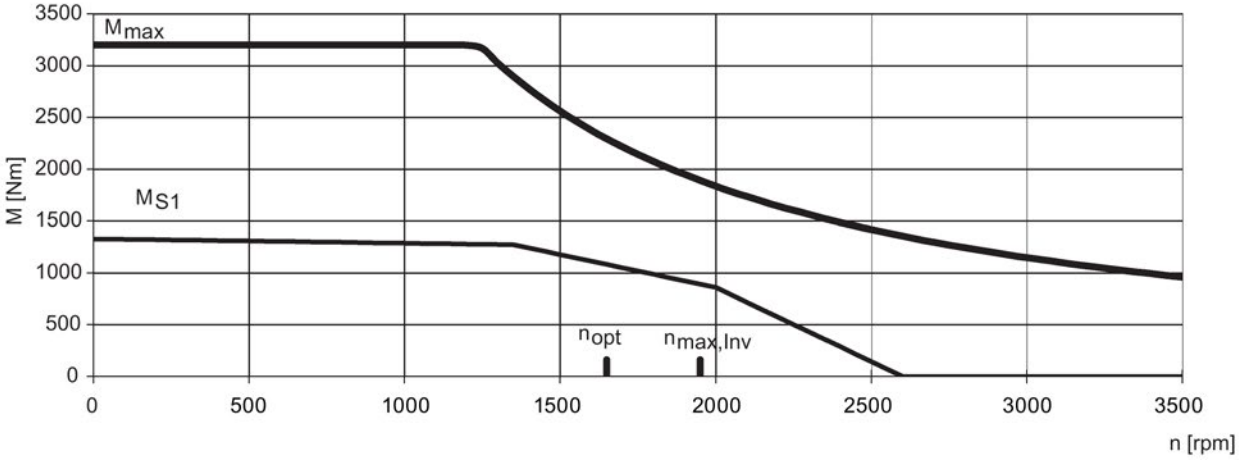
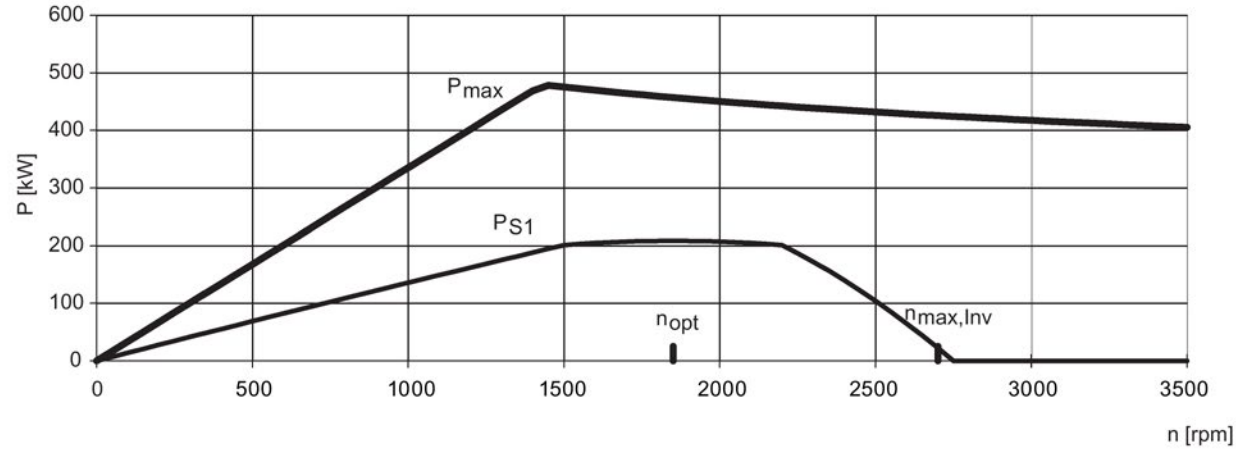


Table 6- 1044 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□F2□

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]
1,500	201	1,280	445	209	1,850	3,500	3,100	2,700	3,200	1,120	1,330	454



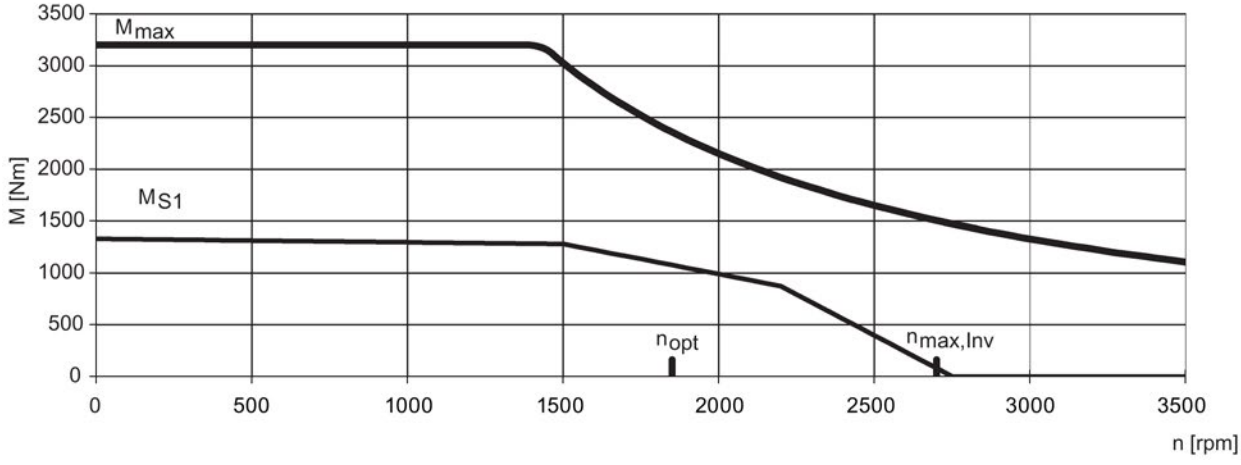
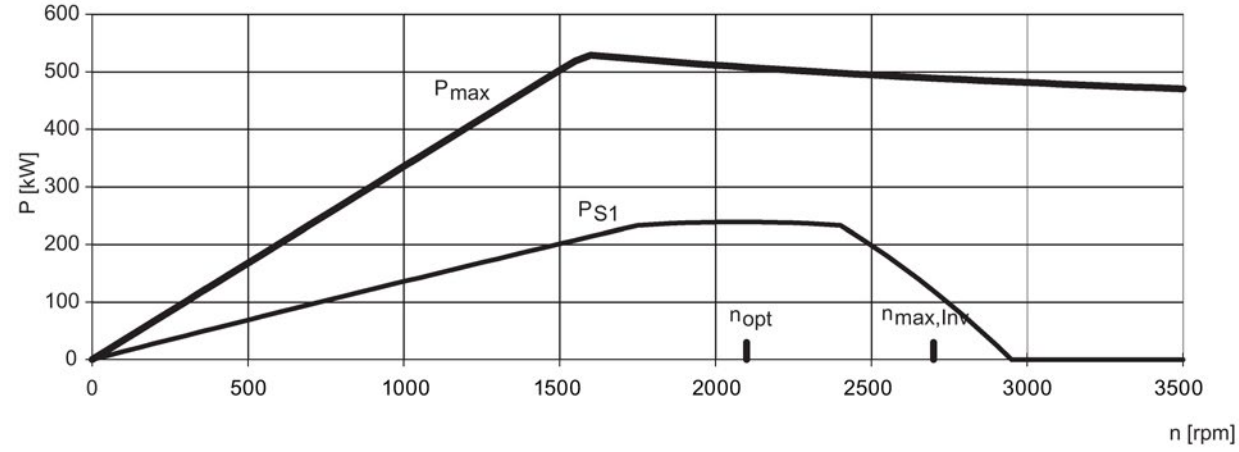


Table 6- 1045 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□F2□

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]
1,750	233	1,271	440	239	2,100	3,500	3,100	2,700	3,200	1,120	1,330	454
1,500	201	1,280	445									



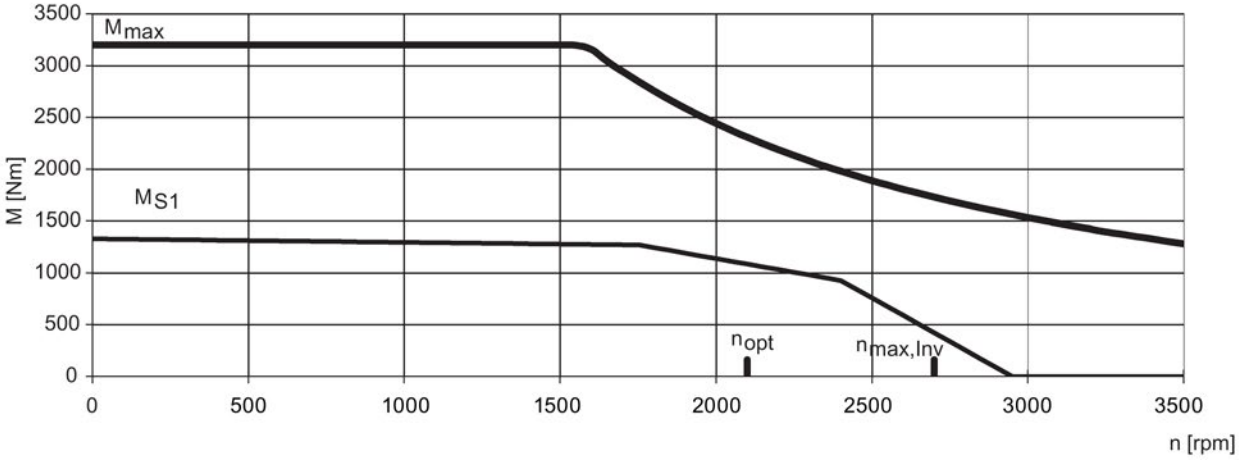
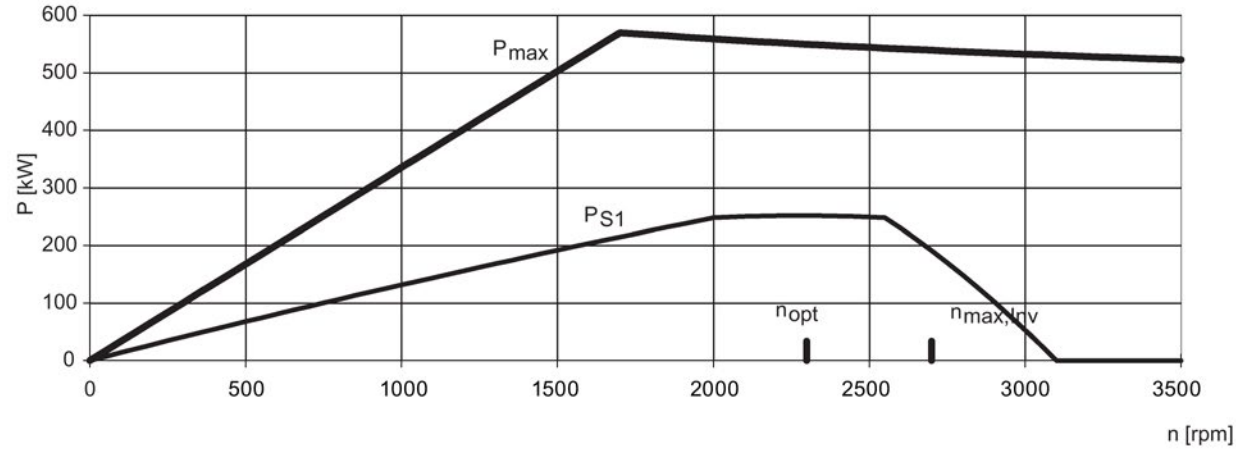


Table 6- 1046 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□F2□

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]
2,000	248	1,184	410	252	2,300	3,500	3,100	2,700	3,200	1,120	1,330	454



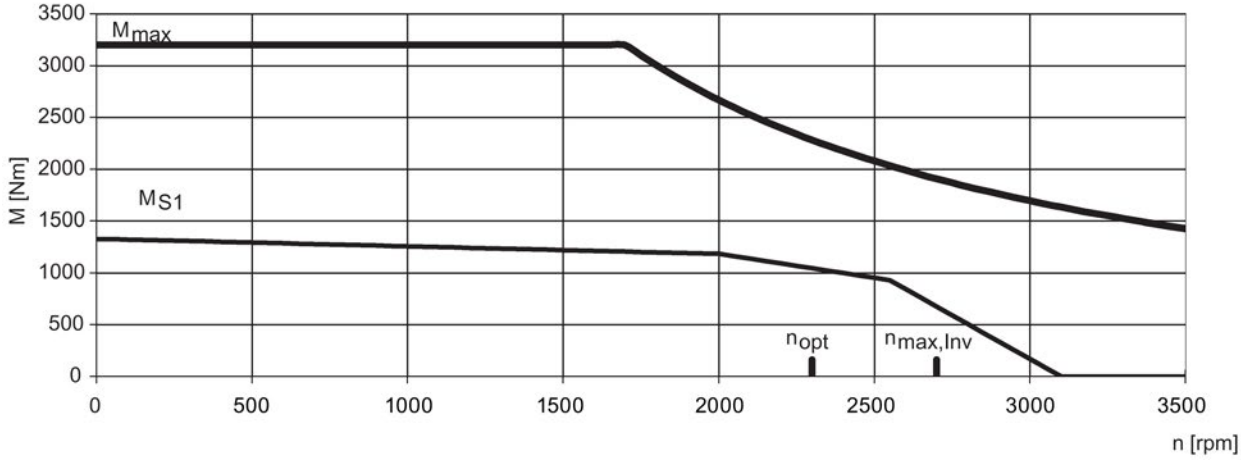
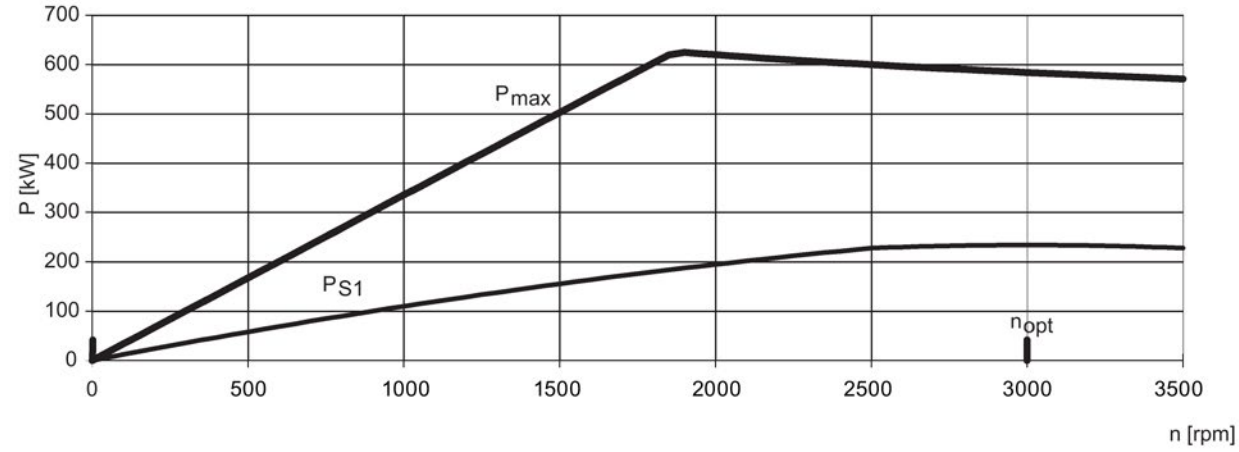


Table 6- 1047 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8226-2□L2□

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]
2,500	228	871	400	235	3,000	3,500	3,100	>3,500	3,200	1,500	1,170	532



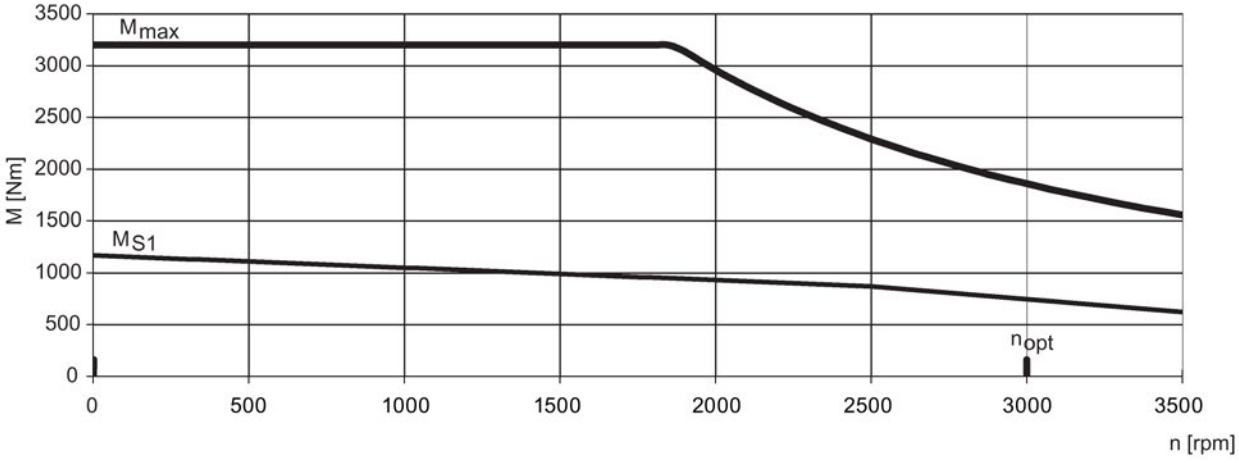


Table 6- 1048 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8226-2□L2□

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]
2,900	238	784	365	240	3,200	3,500	3,100	>3,500	3,200	1,500	1,170	532
2,500	228	871	400									

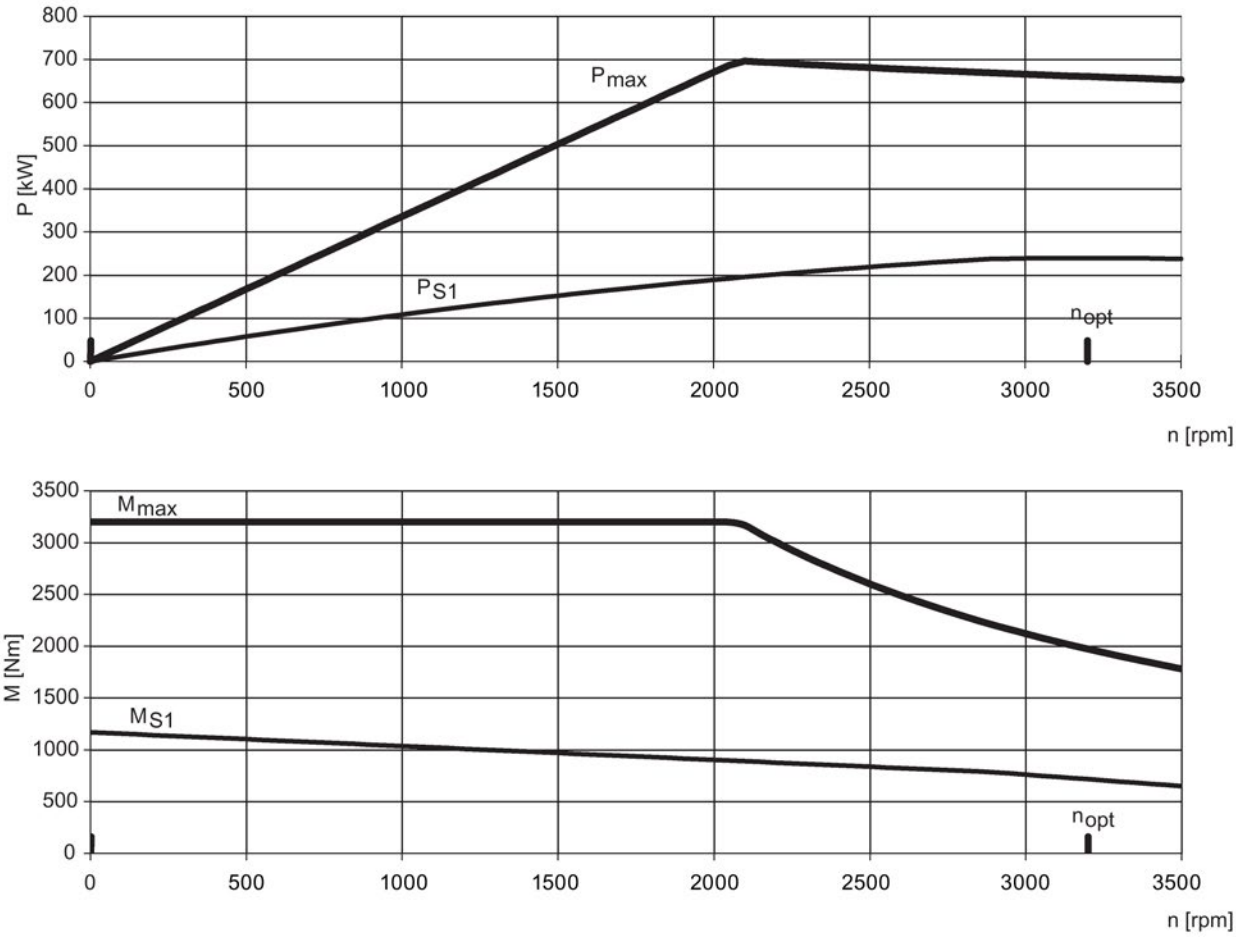
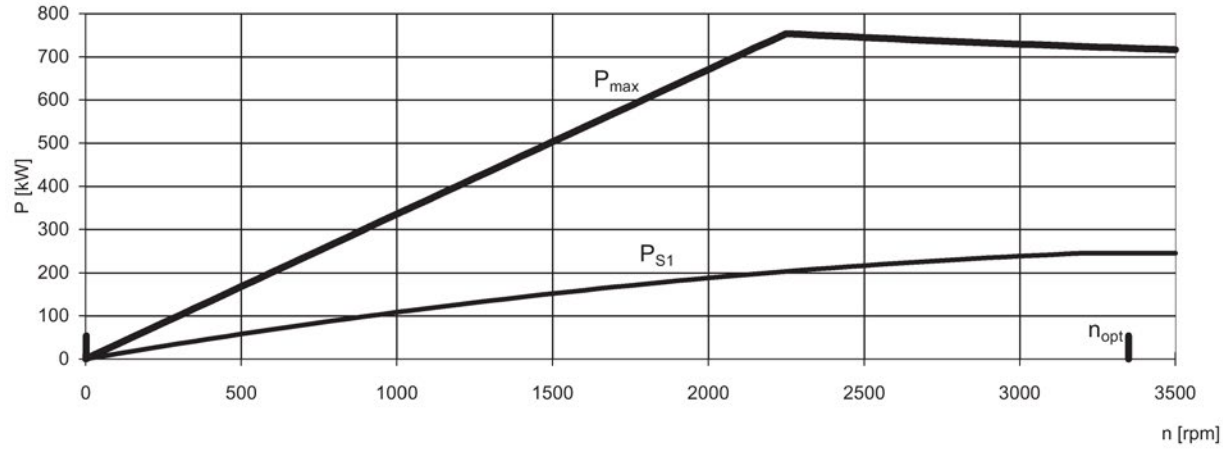


Table 6- 1049 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8226-2□L2□

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]
3,200	245	731	340	245	3,350	3,500	3,100	>3,500	3,200	1,500	1,170	532



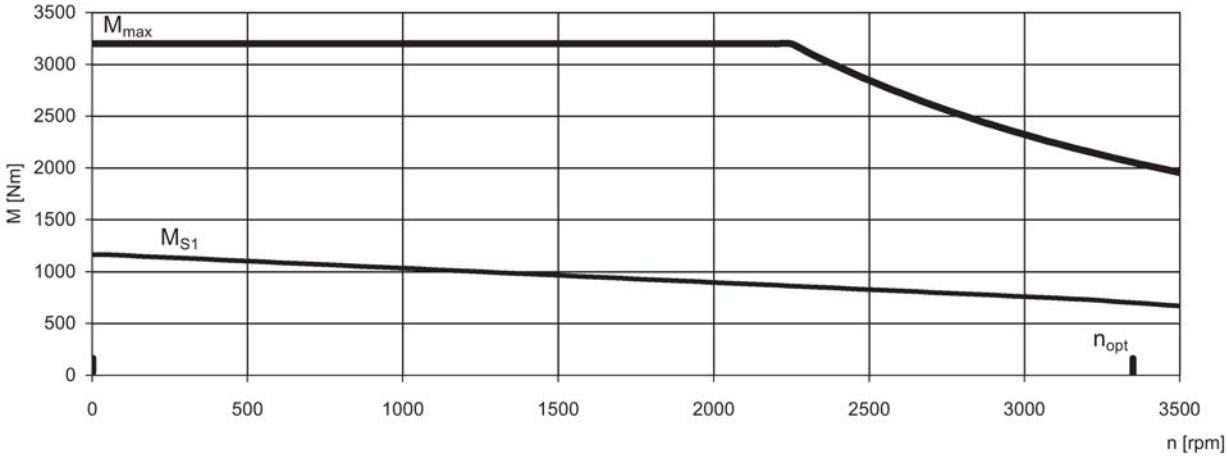


Table 6- 1050 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□C2□

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	1,651	305	141	1,150	3,500	3,100	1,450	4,000	750	1,680	306

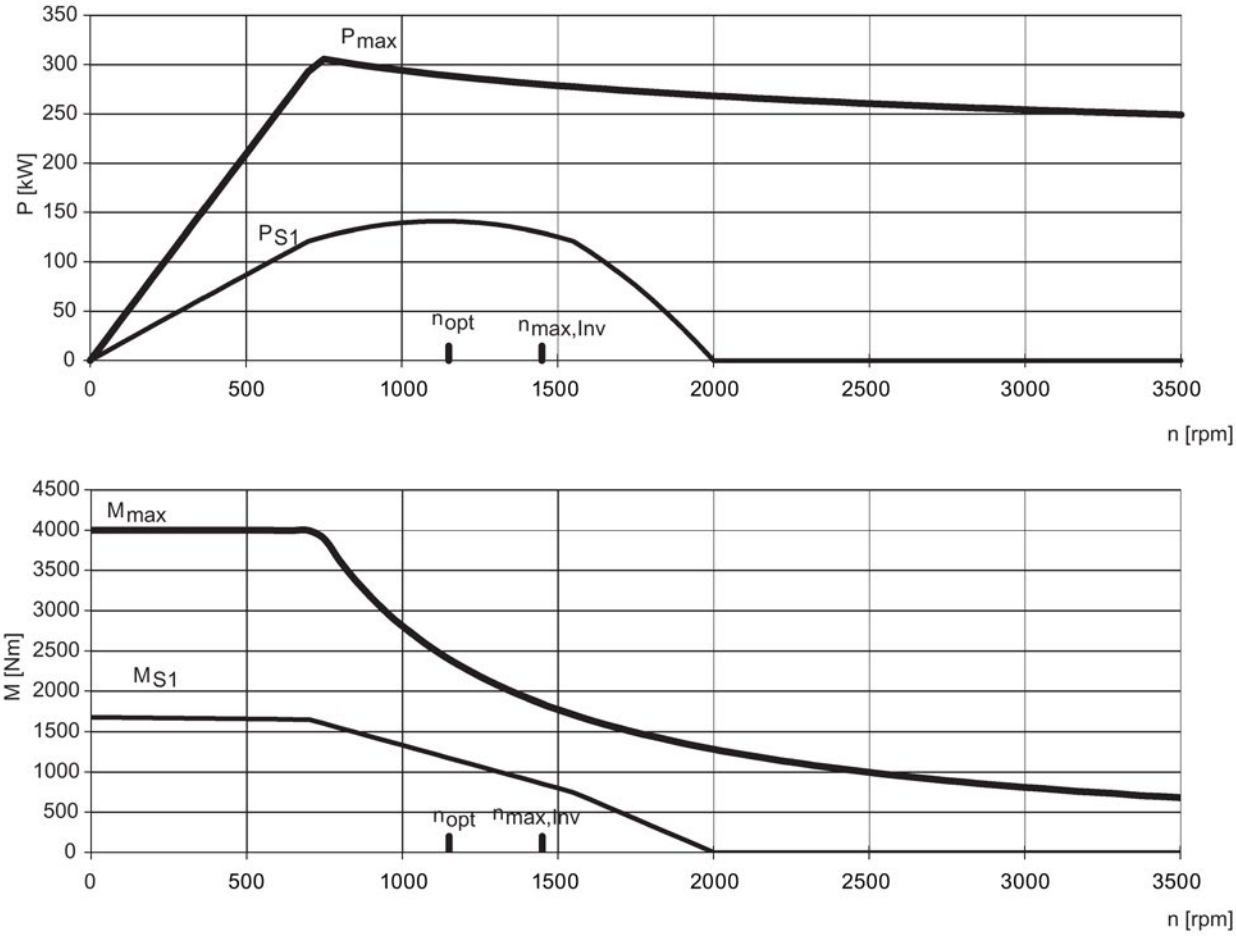
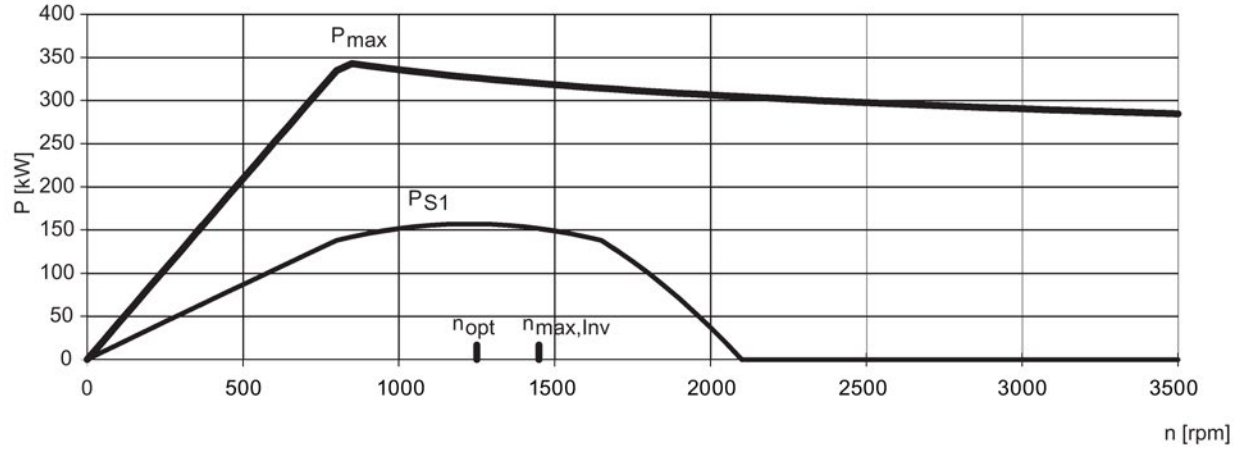


Table 6- 1051 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□C2□

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	1,647	305	157	1,250	3,500	3,100	1,450	4,000	750	1,680	306
700	121	1,651	305									



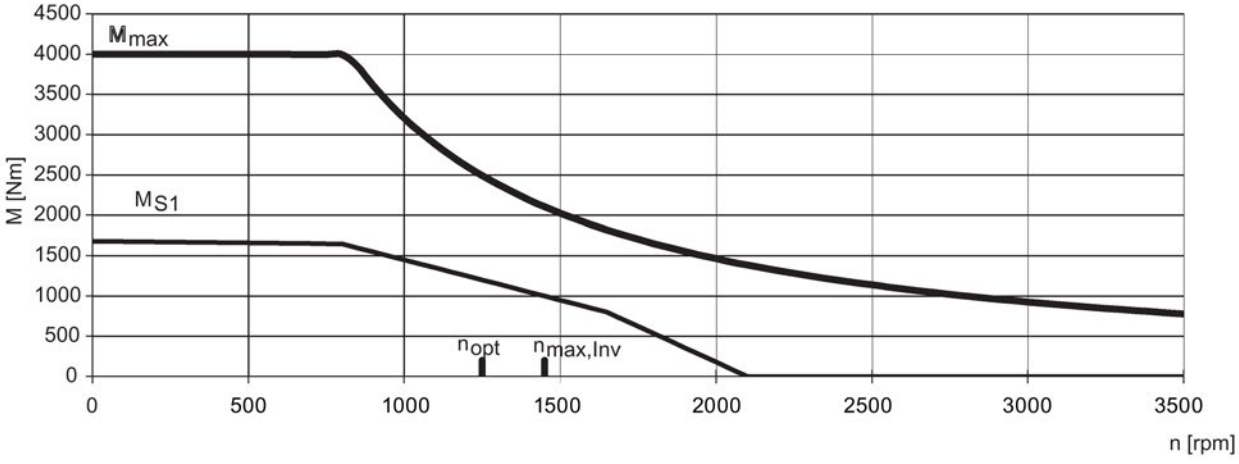
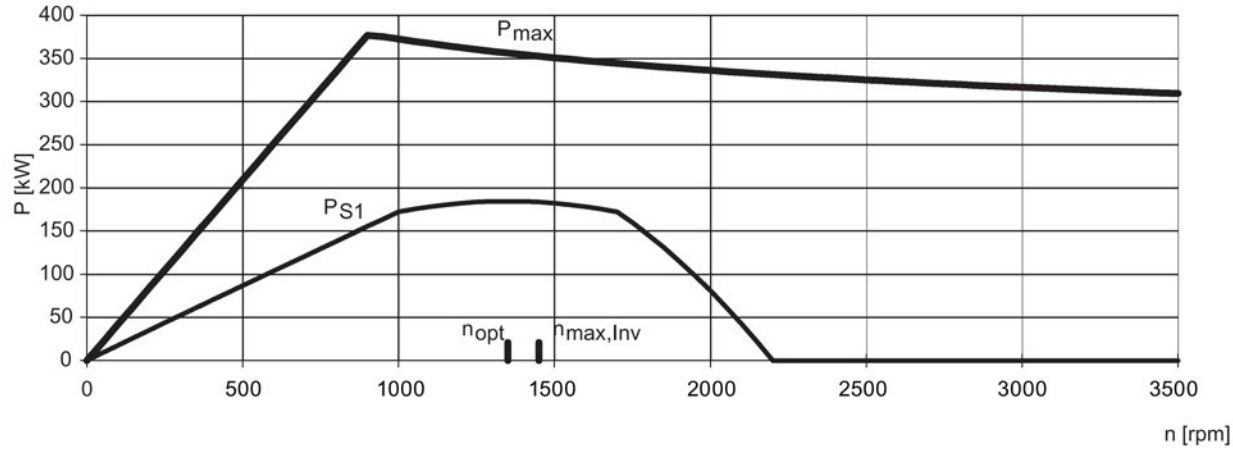


Table 6- 1052 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□C2□

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]
1,000	172	1,642	300	184	1,350	3,500	3,100	1,450	4,000	750	1,680	306



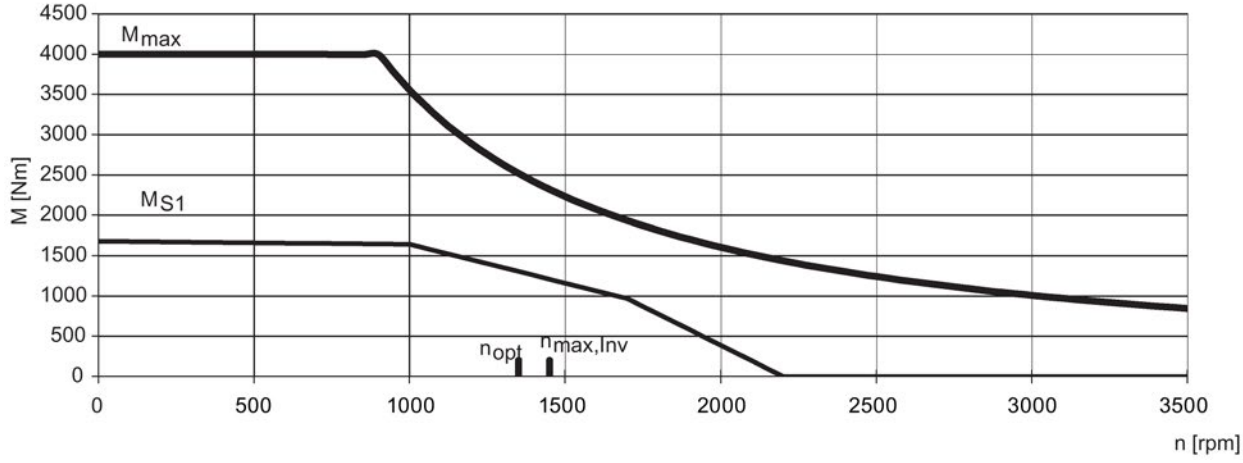
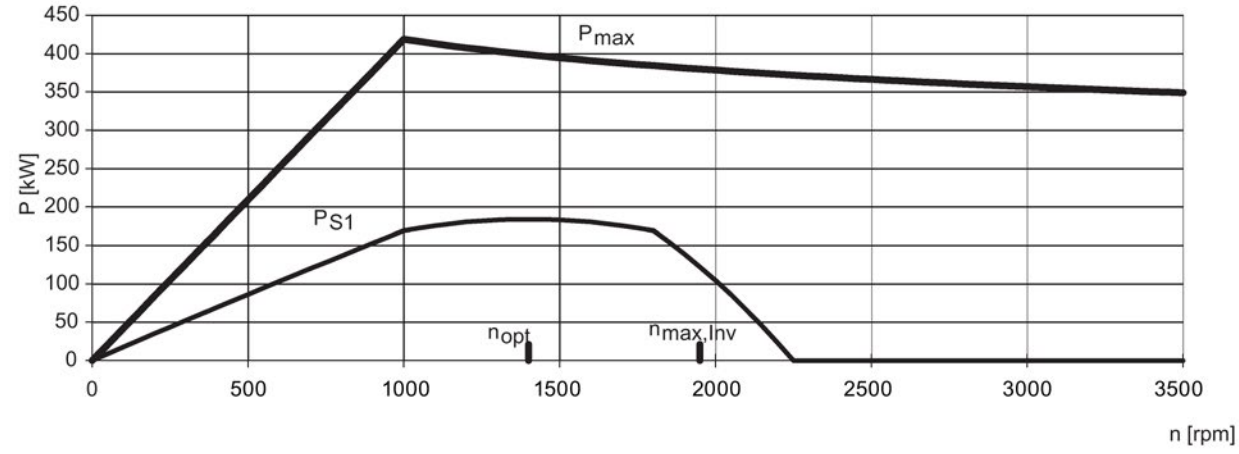


Table 6- 1053 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□D2□

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]
1,000	169	1,614	395	184	1,400	3,500	3,100	1,950	4,000	1,000	1,680	408



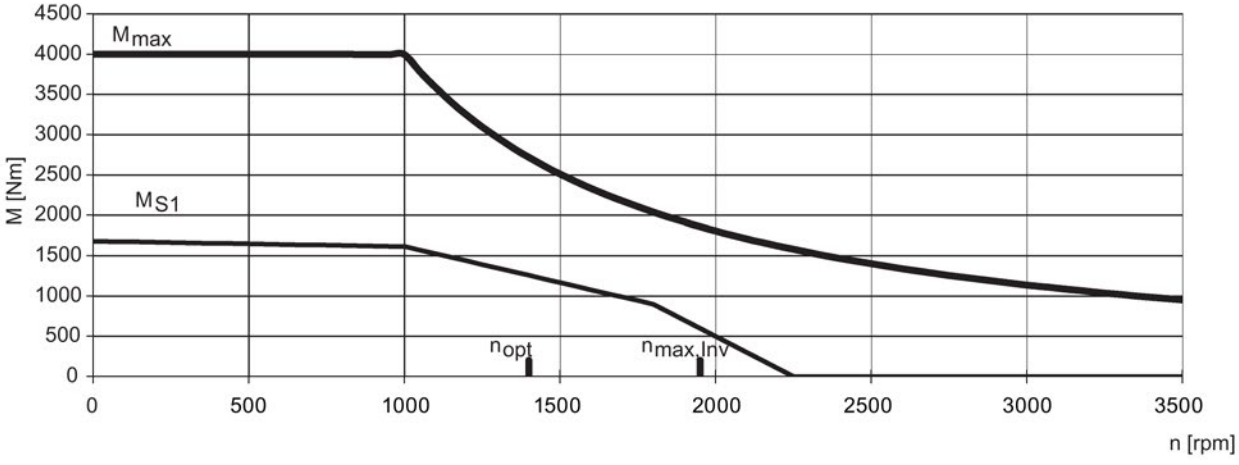
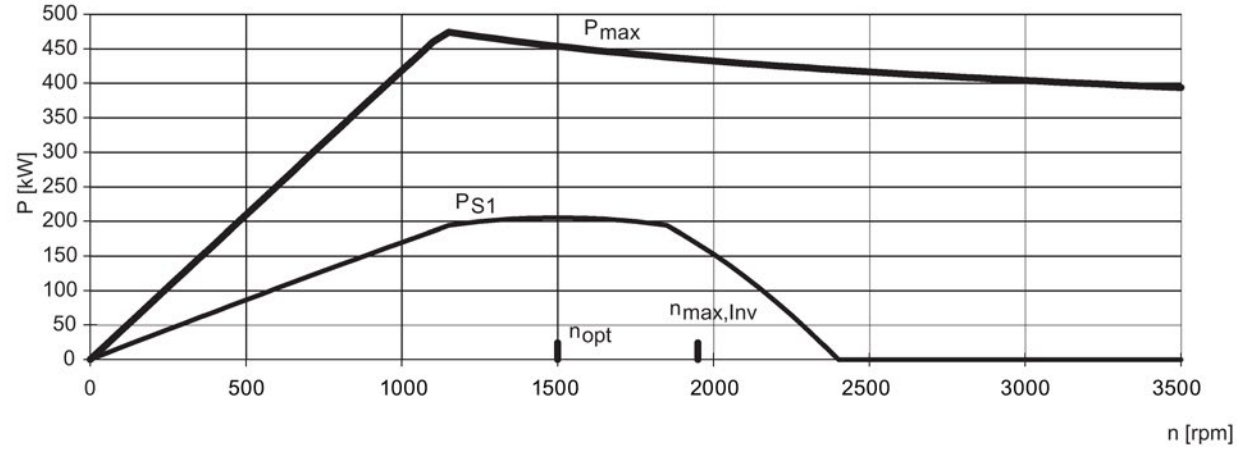


Table 6- 1054 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□D2□

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]
1,150	194	1,611	395	205	1,500	3,500	3,100	1,950	4,000	1,000	1,680	408
1,000	169	1,614	395									



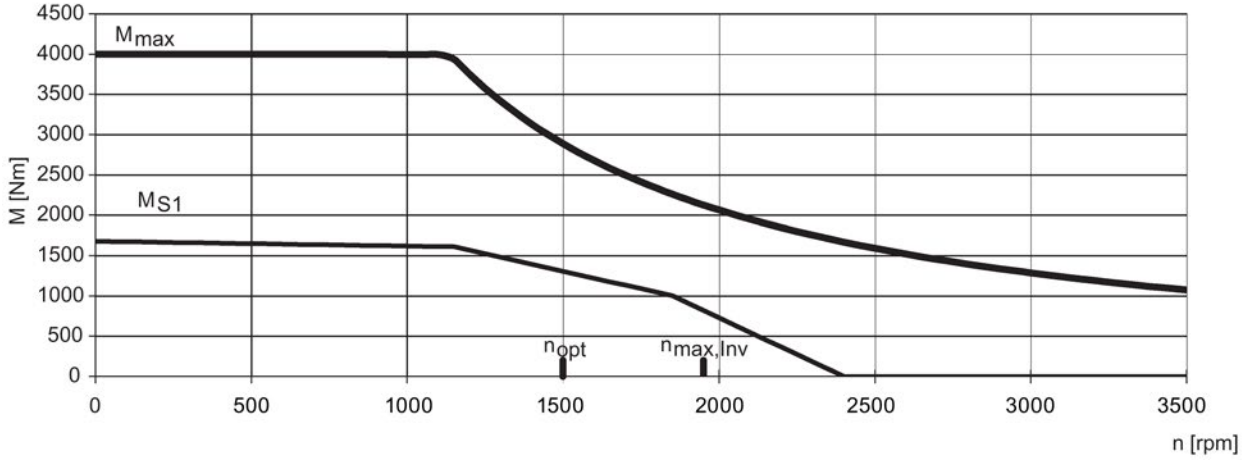
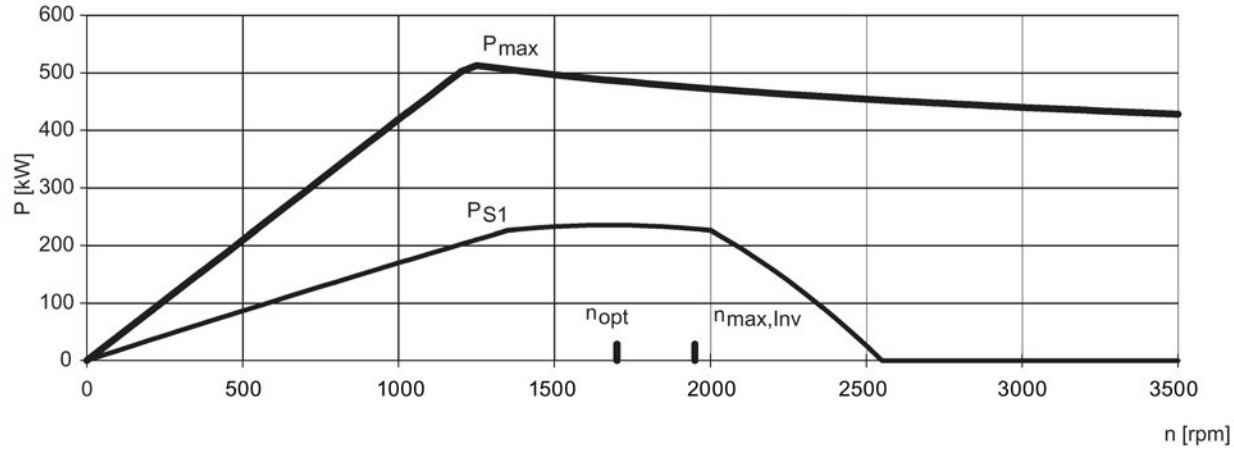


Table 6- 1055 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□D2□

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]
1,350	226	1,599	395	235	1,700	3,500	3,100	1,950	4,000	1,000	1,680	408



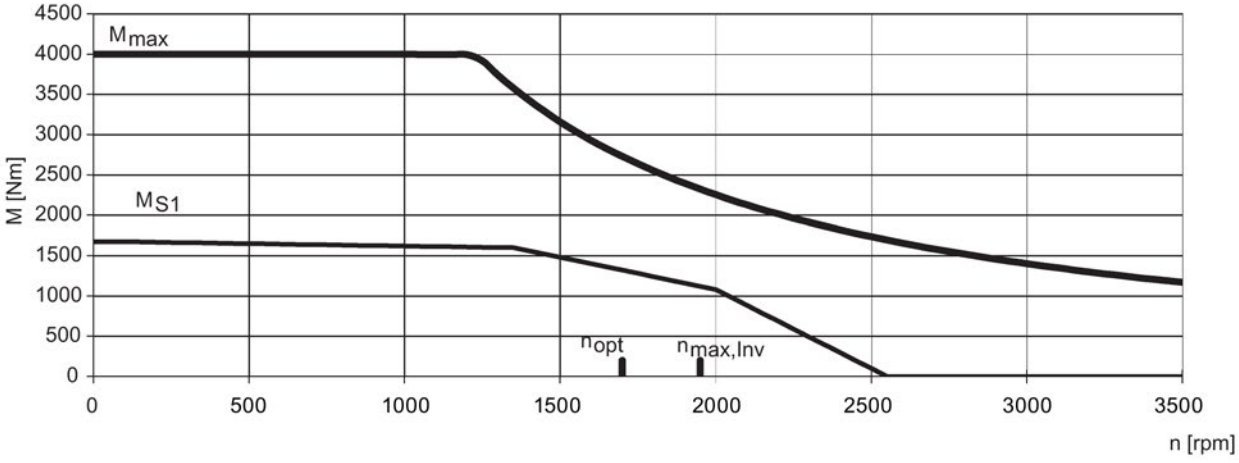
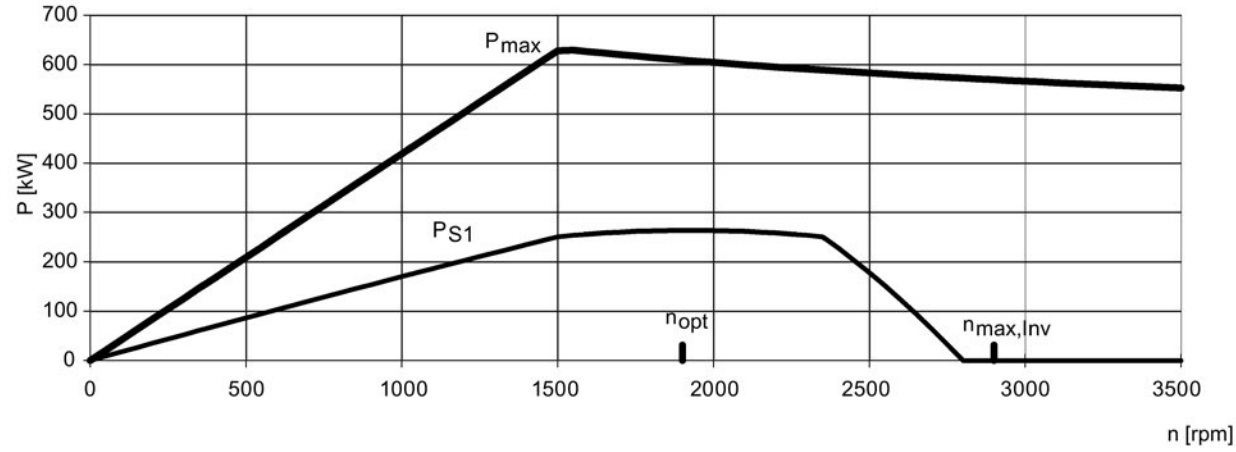


Table 6- 1056 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□F2□

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]
1,500	251	1,598	590	264	1,900	3,500	3,100	2,900	4,000	1,500	1,680	612



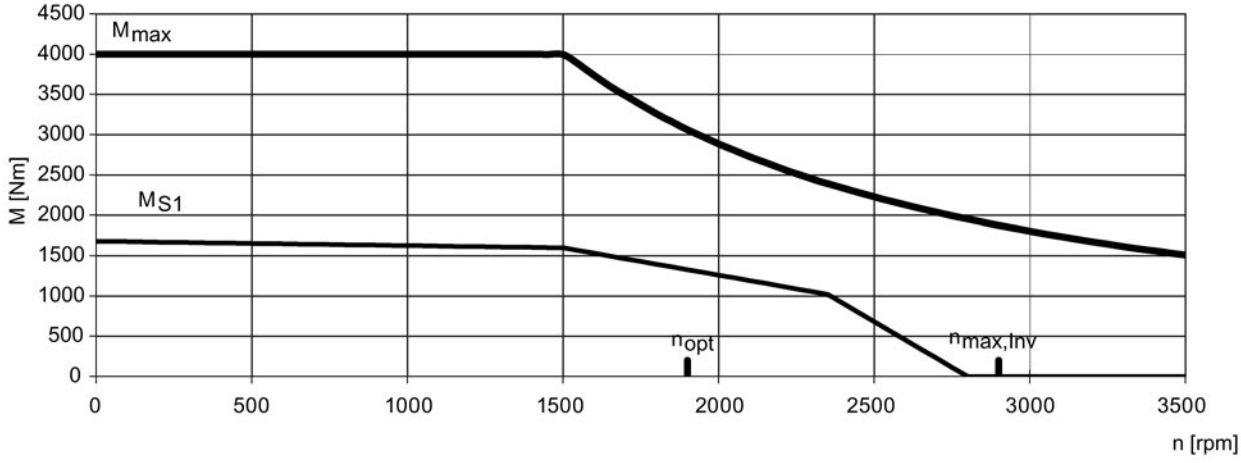
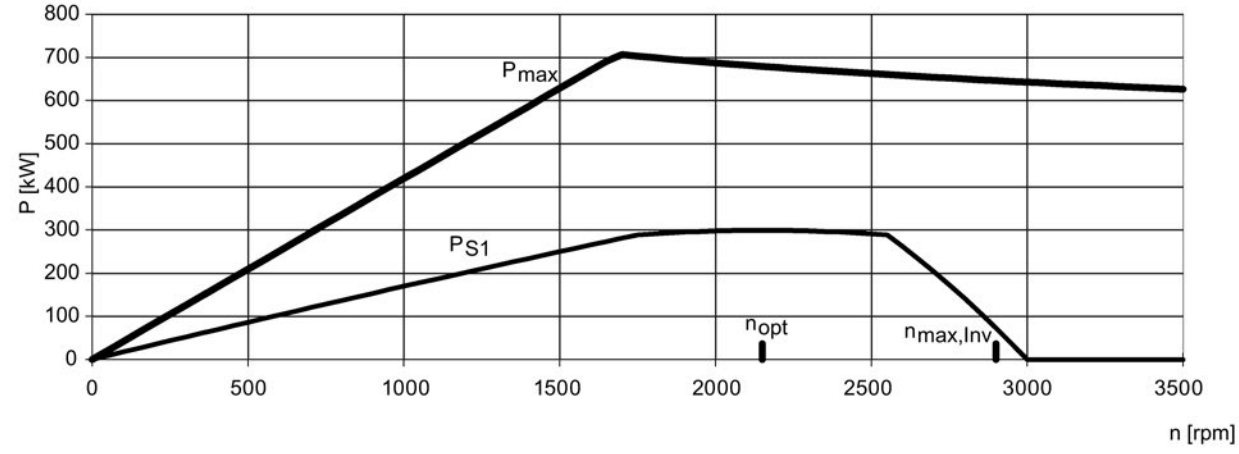


Table 6- 1057 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□F2□

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]
1,750	289	1,577	580	299	2,150	3,500	3,100	2,900	4,000	1,500	1,680	612
1,500	251	1,598	590									



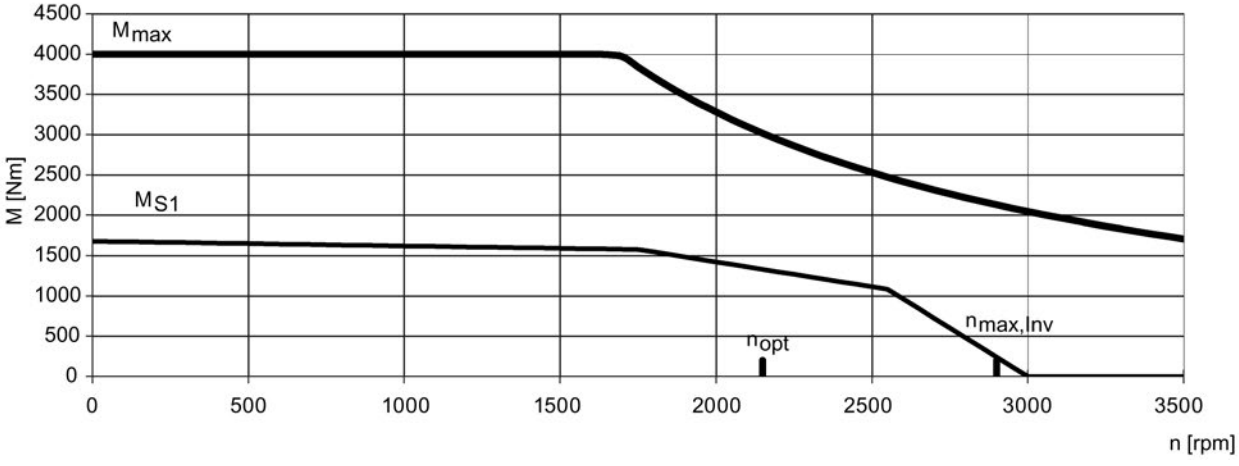
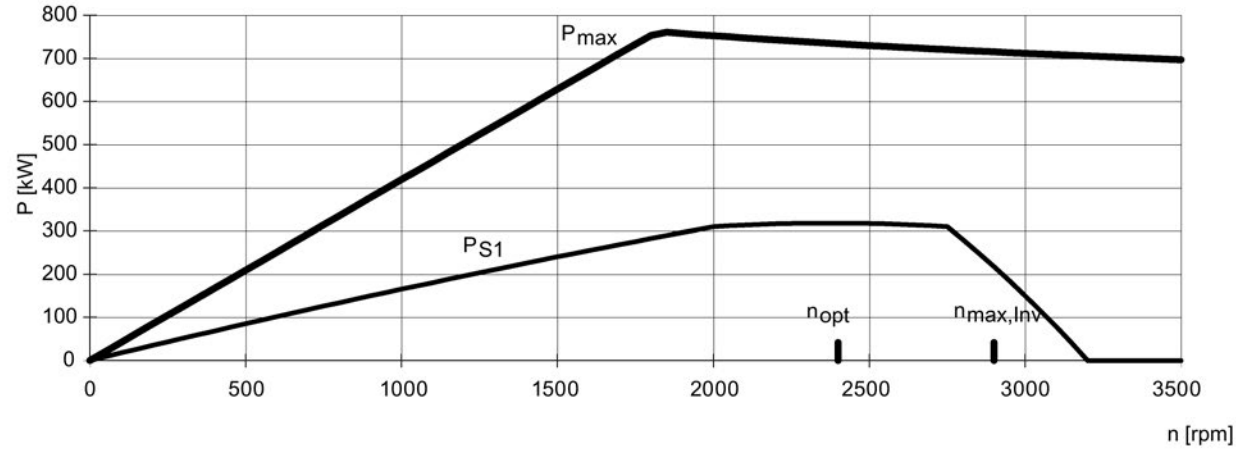


Table 6- 1058 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□F2□

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]
2,000	310	1,480	550	318	2,400	3,500	3,100	2,900	4,000	1,500	1,680	612



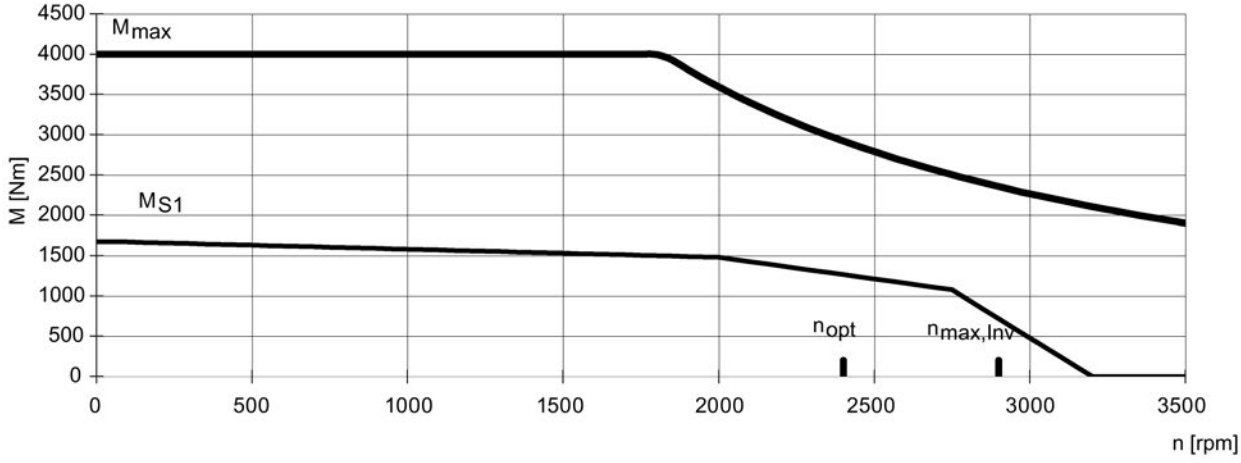
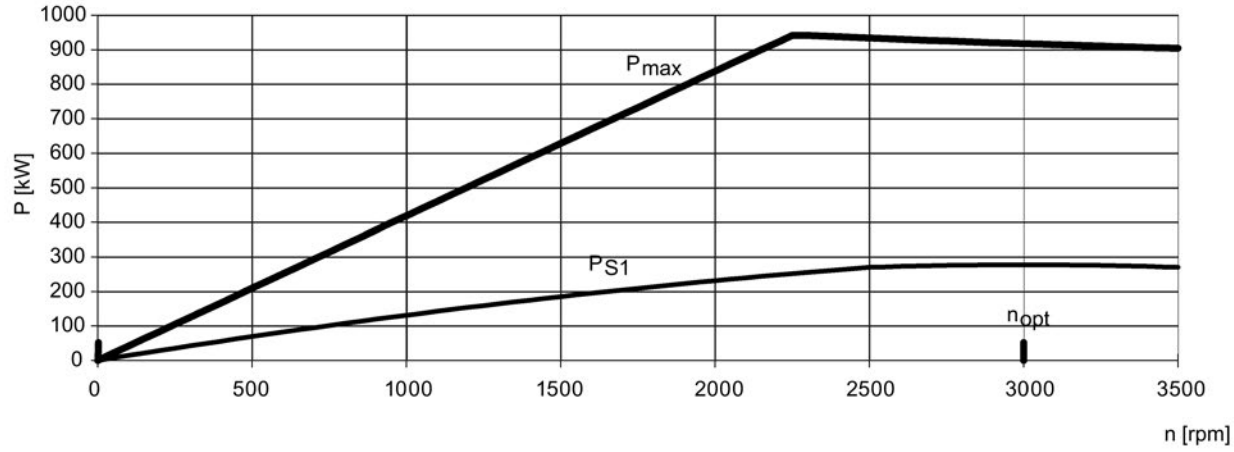


Table 6- 1059 SINAMICS, 3-ph. 400 VAC, Smart/Basic Line Module, (SLM/BLM), 1PH8228-2□L2□

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]
2,500	270	1,031	570	278	3,000	3,500	3,100	>3,500	4,000	2,250	1,400	762



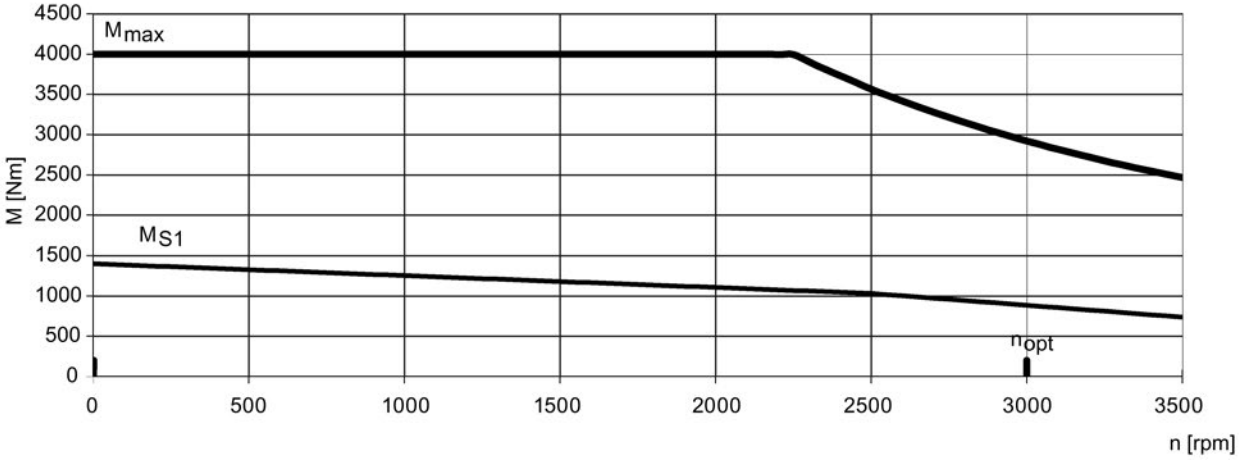


Table 6- 1060 SINAMICS, 3-ph. 400 VAC, Active Line Module, (ALM), 1PH8228-2□L2□

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]
2,900	283	932	520	286	3,200	3,500	3,100	>3,500	4,000	2,250	1,400	762
2,500	270	1,031	570									

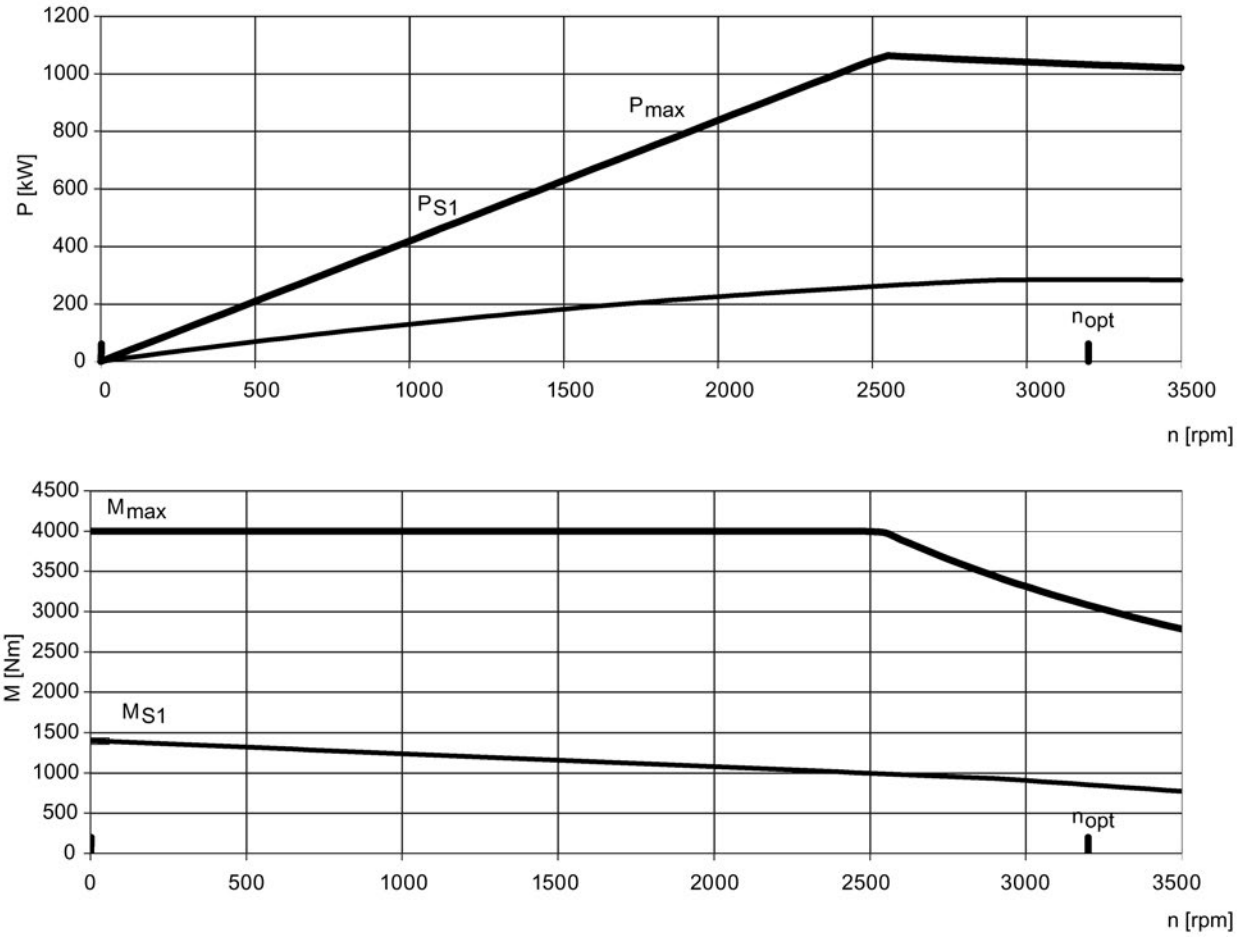
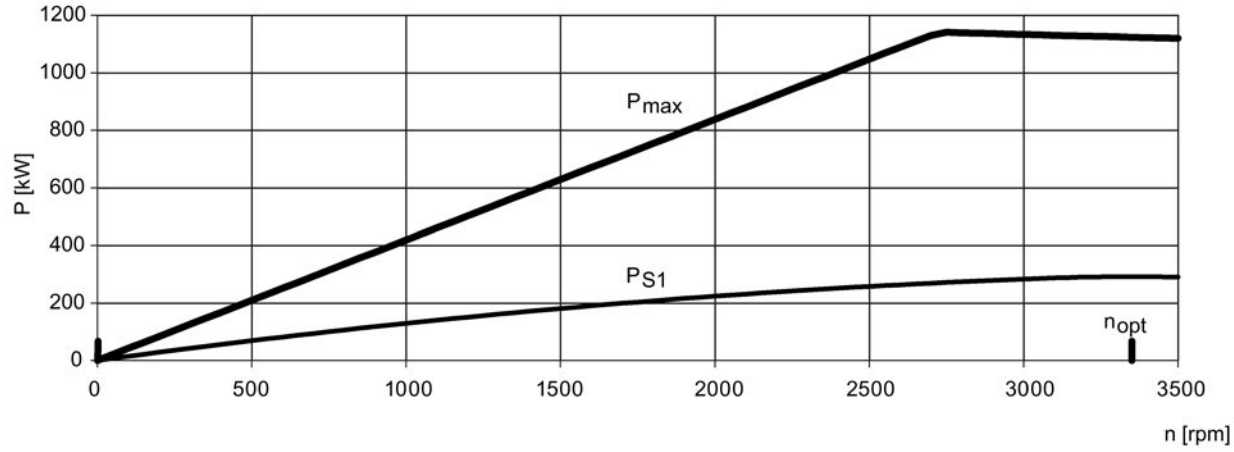
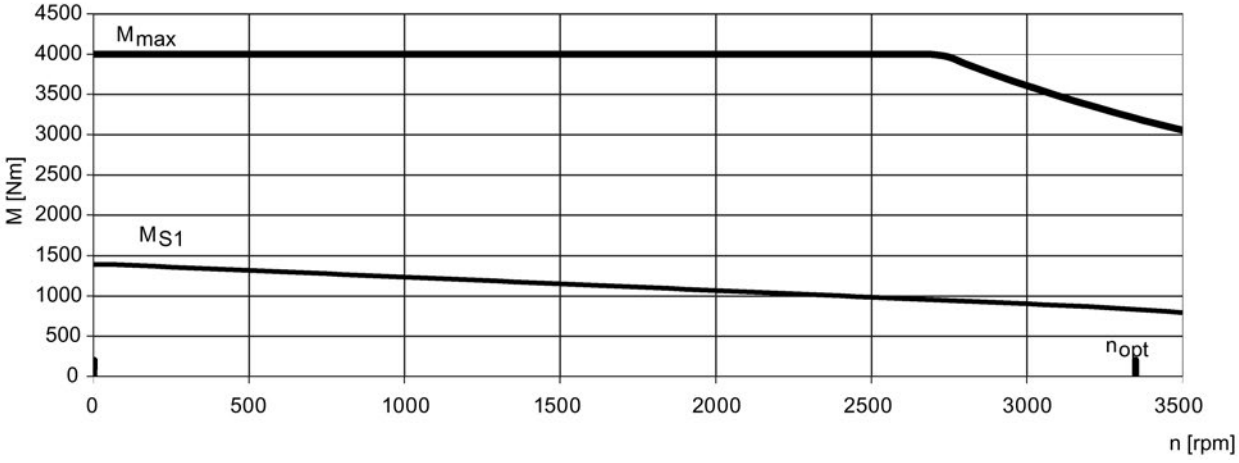


Table 6- 1061 SINAMICS, 3-ph. 480 VAC, Smart/Basic/Active Line Module, (SLM/BLM/ALM), 1PH8228-2□L2□

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]
3,200	291	868	485	291	3,350	3,500	3,100	>3,500	4,000	2,250	1,400	762





Preparing for use

7

Transportation

Note

Transportation conditions

Comply with the local national regulations for the transportation of motors.

Note

Observing the notes

Observe the information on the original packaging and in the operating instructions when transporting and setting down the motor.

NOTICE

Bearing damage during transport

If the customer has already mounted parts, for example coupling, belt pulley, etc., the bearing can be damaged during transport.

- In this case, make sure that the customer uses a rotor locking device.

Storage

Note

Storage

If possible, store the motor in its original packaging.

NOTICE
Frost damage to water-cooled motors Water-cooled motors can be damaged by frost • Remove the liquid coolant before storage and blow out the cooling ducts with compressed air.

Preserve the free shaft ends, sealing elements, and flange surfaces with a protective coating.

NOTICE
Seizure damage to bearings If the motors are stored incorrectly, bearing seizure damage can occur, e.g. brineling, as a result of vibration. • Comply with the storage conditions.

Storage conditions

Please observe the warning instructions on the packaging and labels.

Store the motor in a dry, dust-free, and vibration-free indoor storage facility.

Adhere to the following values:

- v_{rms} < 0.2 mm/s
- Max. temperatures: -15 °C to 55 °C
- Mean relative humidity < 60 %

Note

Replacing roller bearings

- Even if the motor was stored for more than two years under favorable conditions (i.e. in a dry, dust-free room that is not susceptible to vibration), you must replace the bearings.
- If the motor was stored under unfavorable conditions, you must replace the bearings after approx. 18 months.

Note

Observing the notes

Observe the information in the operating instructions when storing the motor.

Electrical connection 8

8.1 Permissible line system configurations

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 should be eliminated as quickly as 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.

8.2 Circuit diagram of the motor

You will find information on the circuit and on connecting the motor winding and the auxiliary equipment (e. g. temperature sensor, anti-condensation heating, etc.) in the circuit diagram. The circuit diagram is in the terminal box for the cable connection.

8.3 System integration

8.3.1 SINAMICS drive I/O

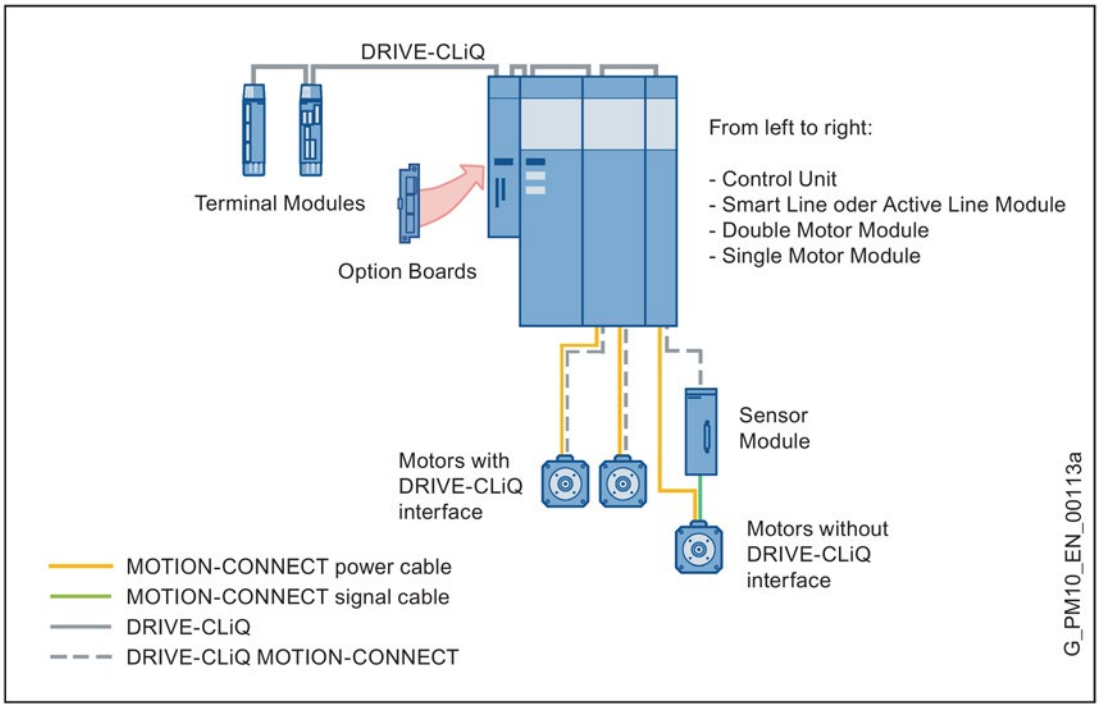


Figure 8-1 SINAMICS S120 system overview

8.3.2 Connecting-up information

Please observe the rating plate data (type plate) and circuit diagram in the terminal box. Use sufficiently dimensioned connection cables.

Note

System compatibility for connection

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.

Note

Connection with aluminum conductors

Aluminum conductors can also be used on motors with a greater power and current (e.g. SH 280). If you are using aluminum conductors, additionally comply with the following:

- Use only cable lugs that are suitable for connecting aluminum conductors.
- Immediately before inserting the aluminum conductor, remove the oxide layer from the contact areas on the conductor and/or the mating piece, by brushing or filing.
- Then grease the contact areas immediately using neutral vaseline in order to avoid re-oxidation.

Note

Terminal boxes with aluminum connection bars

In the terminal boxes with aluminum connection bars (type 1XB7), copper (Cu) cables with copper (Cu) cable lugs can also be connected.

Internal equipotential bonding

The potential bonding between the grounding terminal in the box enclosure and the motor housing is established through the terminal box fixing screws. The contact locations underneath the screw/bolt heads are bare and are protected against corrosion.

Equipotential bonding between the terminal box cover and the terminal box enclosure can be provided using the normal fixing screws of the cover.

Note

Extra grounding terminals in terminal box for SH 280 (option Q00)

For large transmission powers, symmetrical power cables with a grounding conductor split into 3 are used in some cases. To be able to connect this large number of grounding conductors in the terminal box, a grounding bar with a larger number of terminals can also be mounted on the SH 280 with option Q00 (see Increased number of grounding terminals in the terminal box (Page 204)).

Shaft height SH	Terminal box Type	Quantity Connecting terminals (Grounding) Standard	Quantity Connecting terminals (grounding) Option Q00
280	1XB7712-P...	4 x M16	12 x M6

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 clamping lug ① for the ground conductor at the designated connection point. This is suitable for connecting multi-conductor cables with cable lugs or ribbon cables with the appropriate conductor terminations.

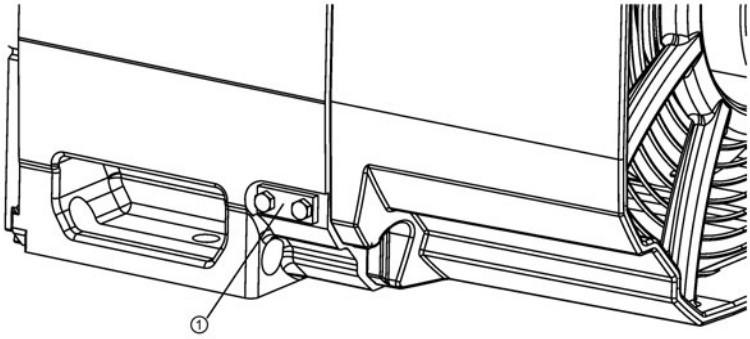


Figure 8-2 Clamping lug for grounding conductors (SH225 and SH280)

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 8- 1 Screw-in depth and tightening torque

Screw	Penetration depth:	Tightening torque
M8 x 30	> 8 mm	20 Nm

8.3.3 Routing cables in a damp environment

Note

Routing cables in humid/moist environments

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

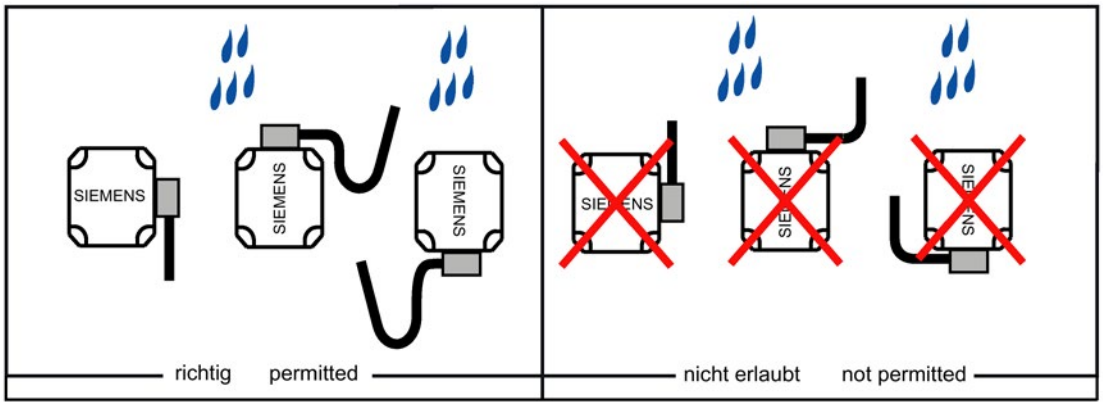


Figure 8-3 Principle of cable routing in a wet/moist environment

8.3.4 Power connection

WARNING

Thermally damaged connecting cables

If connection cables have a conductor cross section that is too small for the application, the connection cables can be thermally damaged. This can result in personal injury and damage to property due to electric shock and fire hazard.

- 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.

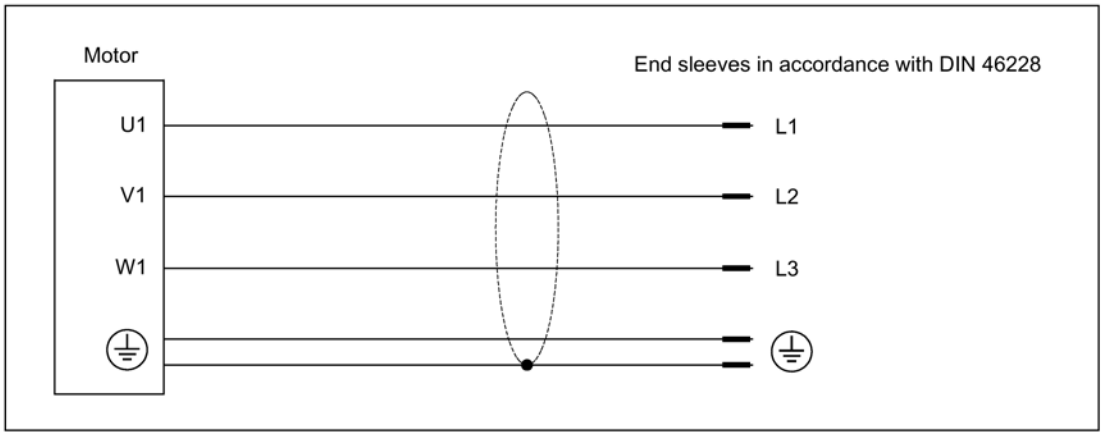


Figure 8-4 Power cable

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.

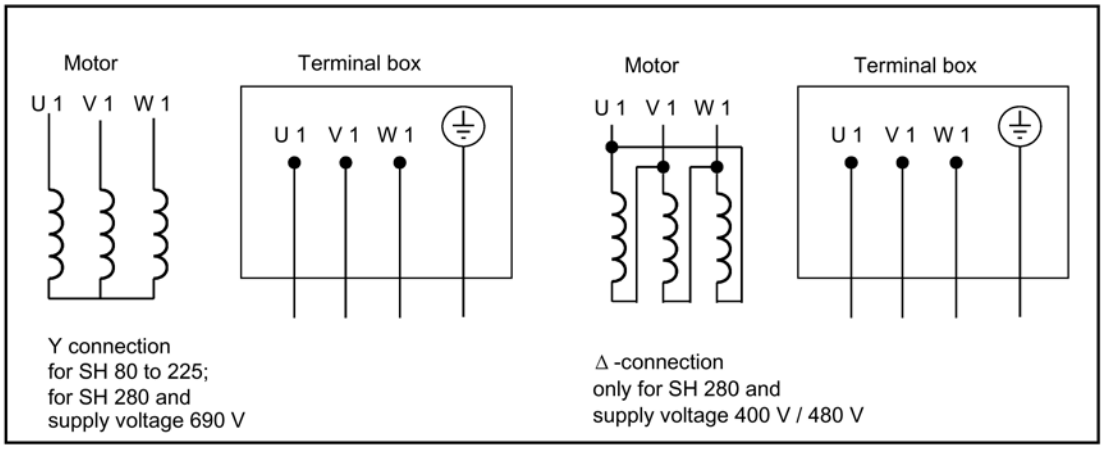


Figure 8-5 Circuit diagram

Note

Connecting temperature sensors and PTC thermistors

The spare temperature sensor (option A25 for shaft heights 80 to 160, standard for shaft height 180 and more) 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.

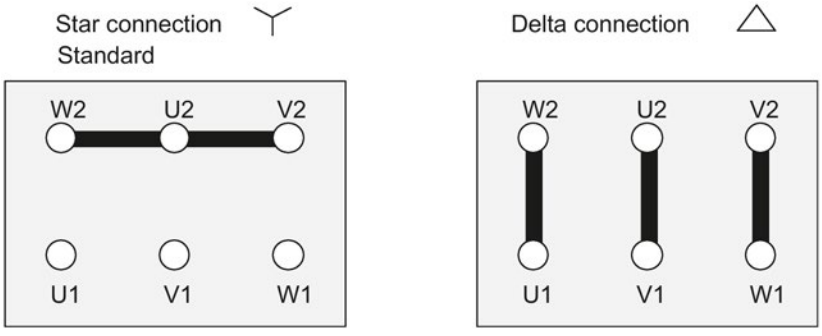


Figure 8-6 Fixed star/delta connection in the terminal box

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 table of derating factors.

Table 8- 2 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 8- 3 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

Ambient air temperature [°C]	Derating factor according to EN 60204-1, Table D1
55	0.71
60	0.58

Assignment, terminal boxes and max. cross-sections

Table 8- 4 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
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

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]
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	1,150

[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

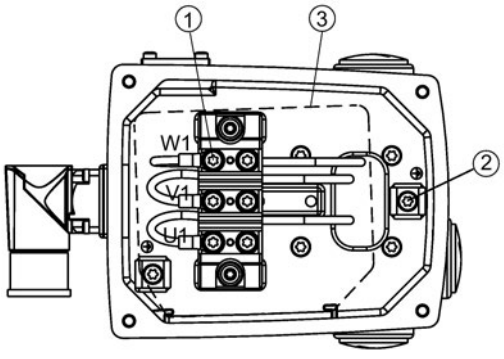
[4] M16 x 1.5 thread arranged opposite to the signal connection (lateral to the cable entry plate); thread only for option A12 and encoder version A (without encoder)

Note

Terminal box type 1XB7700-P02

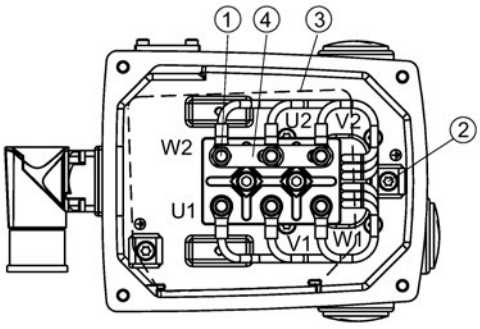
For cable entry, 3 cable glands can only be fit in if cable glands from AGRO or HUGRO are used. Cable glands from Pflitsch or Lapp, for example, are larger and it is not possible to fit 3 of them into the available space.

Terminal box version



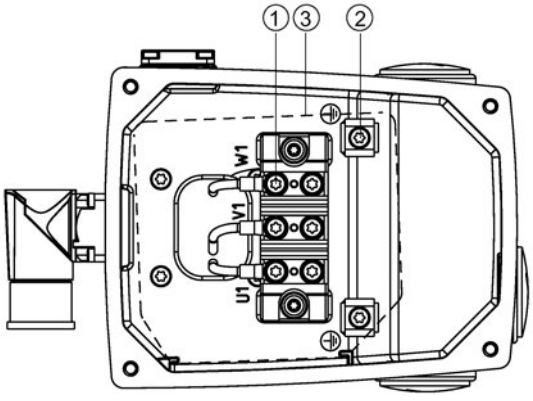
① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 8-7 Terminal box gk803, 3-pole (SH 80)



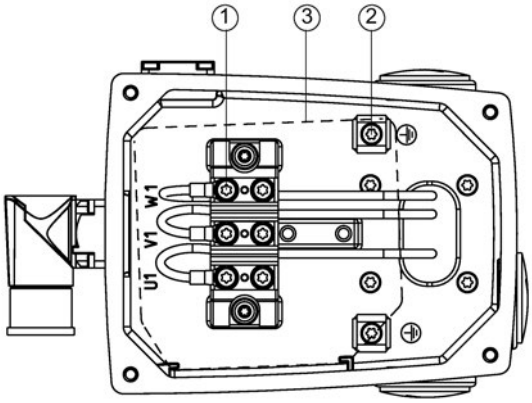
① M5 connecting studs
② Grounding screw M5
③ Insulation strips
④ Jumper

Figure 8-8 Terminal box gk806, 6-pole (SH 80) (can be switched between star and delta)



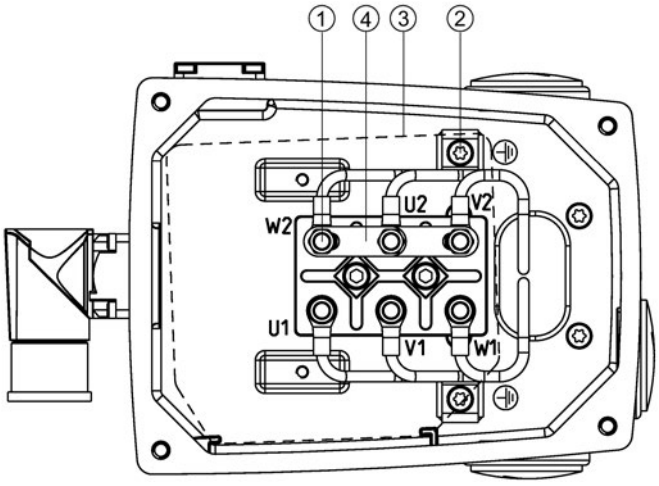
① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 8-9 Terminal box gk813, 3-pole (SH 100)



① Terminal screw M5
② Grounding screw M5
③ Insulation strips

Figure 8-10 Terminal box gk823, 3-pole (SH 100)



① Terminal screw M5
② Grounding screw M5
③ Insulation strips
④ Jumper

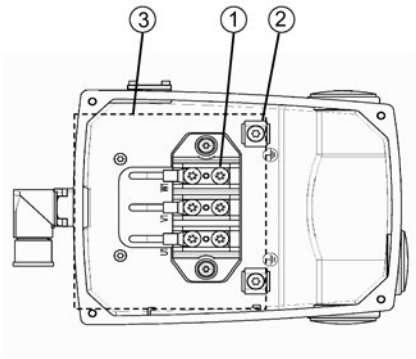
Figure 8-11 Terminal box gk826, 6-pole (SH 100) (can be switched between star and delta)

Note

Star/delta connection

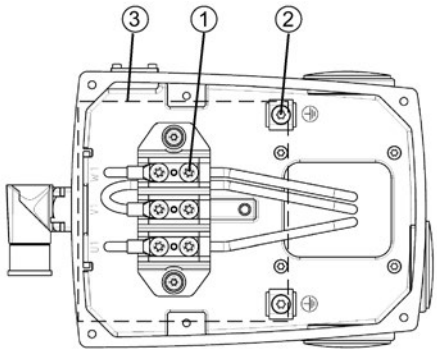
A star/delta connection is implemented by means of an external contactor circuit or as a fixed configuration in terminal box gk806 for SH 80 and in terminal box gk826 for SH 100.

Standard configuration: Star connection via jumpers



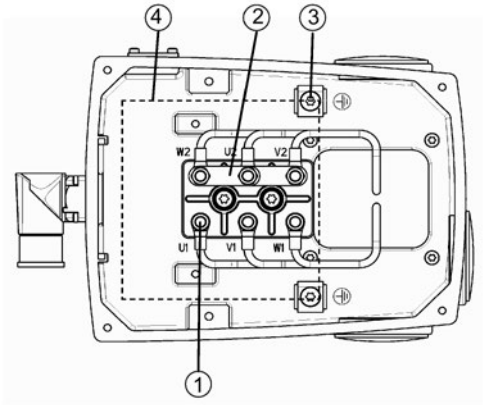
① Terminal screw M6
② M6 grounding screw
③ Insulation strips

Figure 8-12 Terminal box gk833 (SH 132) and gk863 (SH 160), 3-pole



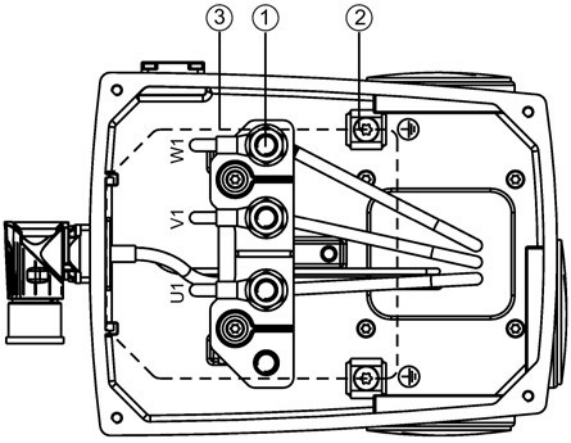
① Terminal screw M6
② M6 grounding screw
③ Insulation strips

Figure 8-13 Terminal box gk843 (SH 132) and gk873 (SH 160), 3-pole



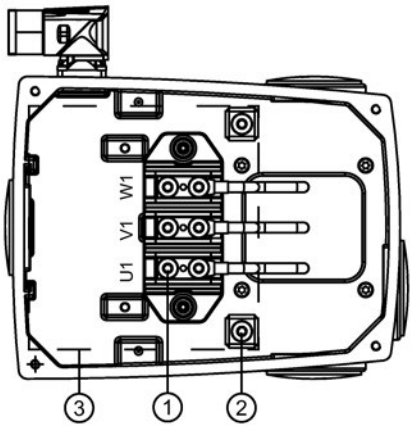
① Terminal stud M6
② Jumper
③ M6 grounding screw
④ Insulation strips

Figure 8-14 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 8-15 Terminal box gk874 (SH 160), 3-pole (only for synchronous motors)



① Connection screw M5 for SH80/100
Connection screw M6 for SH132/160

② Grounding screw M5 for SH80/100
Grounding screw M6 for SH132/160

③ Insulation strips

Figure 8-16 Terminal boxes gk803 (SH 80), gk823 (SH 100), gk843 (SH 132), gk873 (SH 160), 3-pole, cable entry DE (drive end)

Note

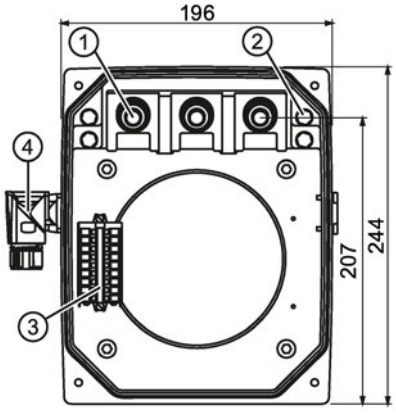
Cable exit direction DE

The motor with the cable exit direction DE has a "D" in the 15th position of the Article No.

Note

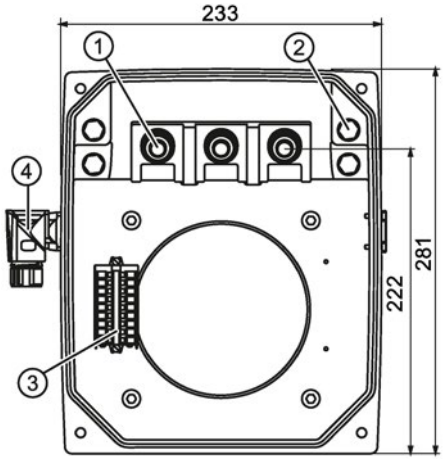
The internal motor cables are mounted on the NDE side on the 3-pole terminal board.

The terminal box gk874 (SH 160), 3-pole (only for synchronous motors) is not possible.



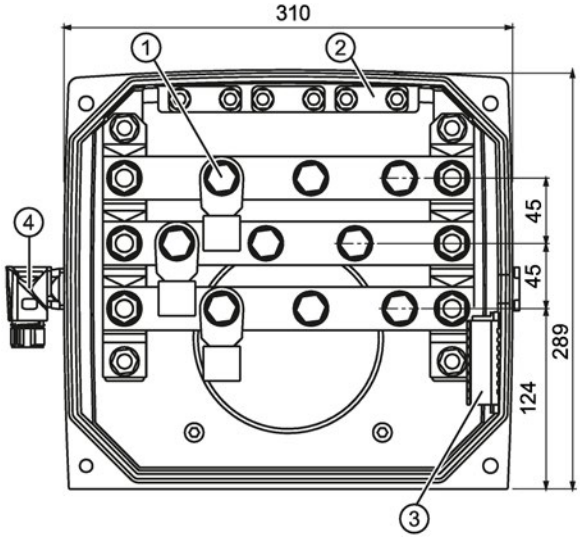
① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 8-17 Terminal box 1XB7322-P05 (SH 180 to SH 280)



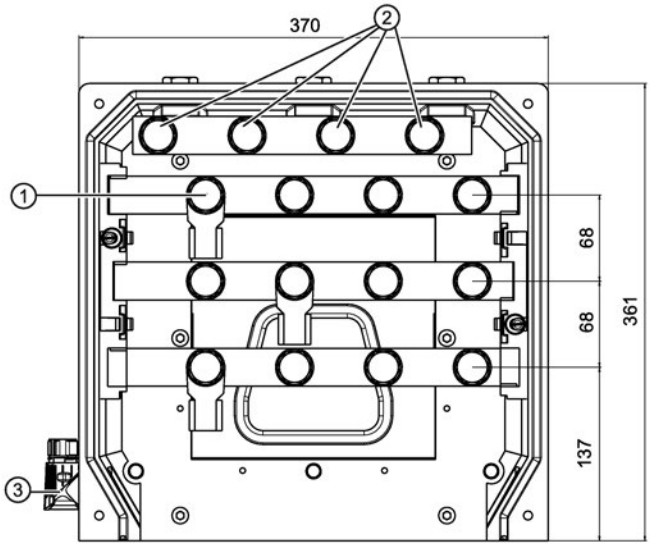
① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 8-18 Terminal box 1XB7422-P06 (SH 180 to SH 280)



① Main terminal
② Ground terminal
③ Signal connection terminal
④ Signal connection

Figure 8-19 Terminal box 1XB7700-P02 (SH 225 and SH 280)



① Main terminal
② Ground terminal
③ Signal connection terminal

Figure 8-20 Terminal box 1XB7712-P03 (SH 225 and SH 280)

Note

Signal connection for special orders

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.

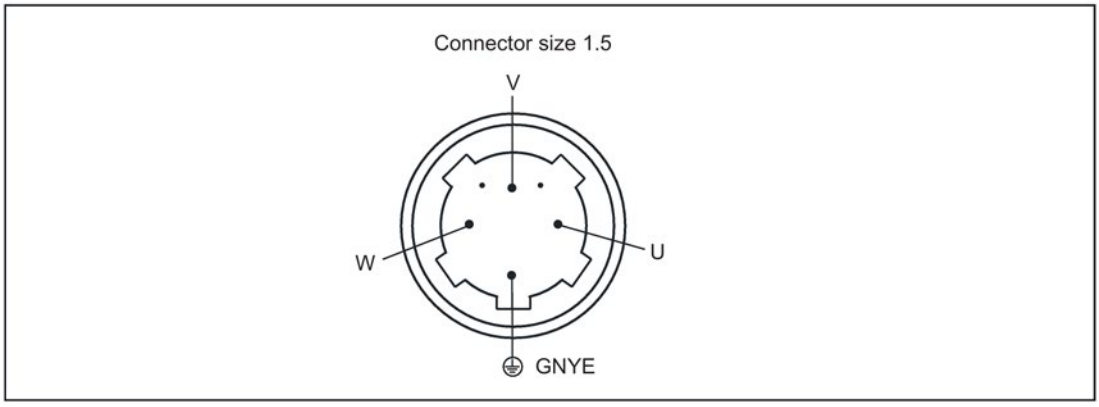


Figure 8-21 Power connector, size 1.5 (view of connector pins)

Connector	Rotation range	Maximum torque
Connector size 1.5	270°	20 Nm

Note

Rotating the connectors

- The permissible rotation range must not be exceeded.
- In order to guarantee the degree of protection, max. 10 revolutions are permissible.
- Connectors should be rotated using the matching mating connector located on the connector thread. Only rotate Sensor Modules by hand. The use of pipe wrenches, hammers, or similar is not permitted.

- Use connector size 3.
- Assign the connector as shown in the "Power connector 3" diagram. Connect the protective conductor.

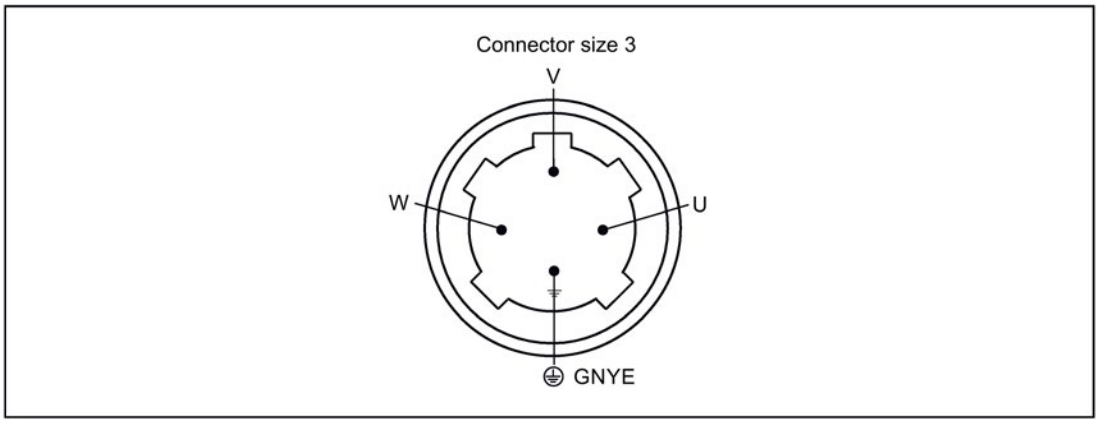


Figure 8-22 Power connector, size 3 (looking onto the connector pins)

Star/delta connection via an external contactor circuit

When induction motors (SH 80 to SH 160) 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).

Note

Star/delta connection

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

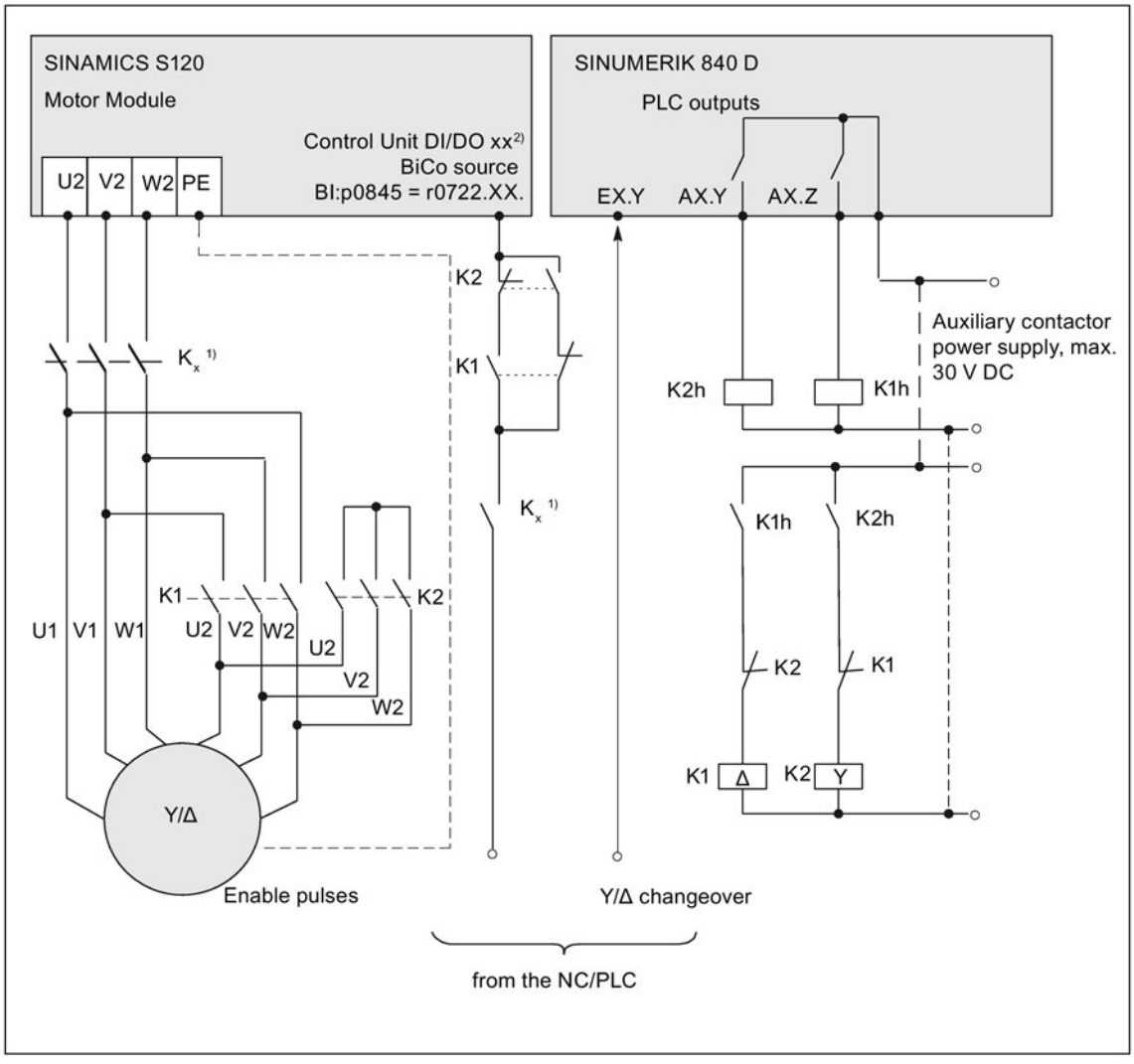


Figure 8-23 Connection diagram for Y/D changeover with SINAMICS

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.

8.3.5 External fan

Table 8- 5 Connected loads for external fans

Shaft height SH	Fan motor: Max. current consumption [A]			Air flow direction
Forced ventilation	**230 V 1 AC/50 Hz (±10 %)**	**230 V 1 AC/60 Hz (±10 %)**	**265 V 1 AC/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 %)**	**400 V 3 AC/60 Hz (±10 %)**	**480 V 3 AC/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
	0.26	0.32	0.33	DE --> NDE
Forced ventilation (EC fan)	**1-ph. 200 ... 277 VAC / 50 Hz, 60 Hz (±10 %)**			
180	1.2 ... 0.88			NDE --> DE DE --> NDE
225	1.9 ... 1.35			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

Note

For EC fans for SH 180 and SH 225, as a result of the electronic input circuitry the current drawn can briefly reach four times the specified current.

Recommended connection

Connect the external fan via the terminal box of the external fan or optionally via the power connector. Implement operation of the fans via the motor circuit breaker. A simple conductor protection is sufficient for the EC fans.

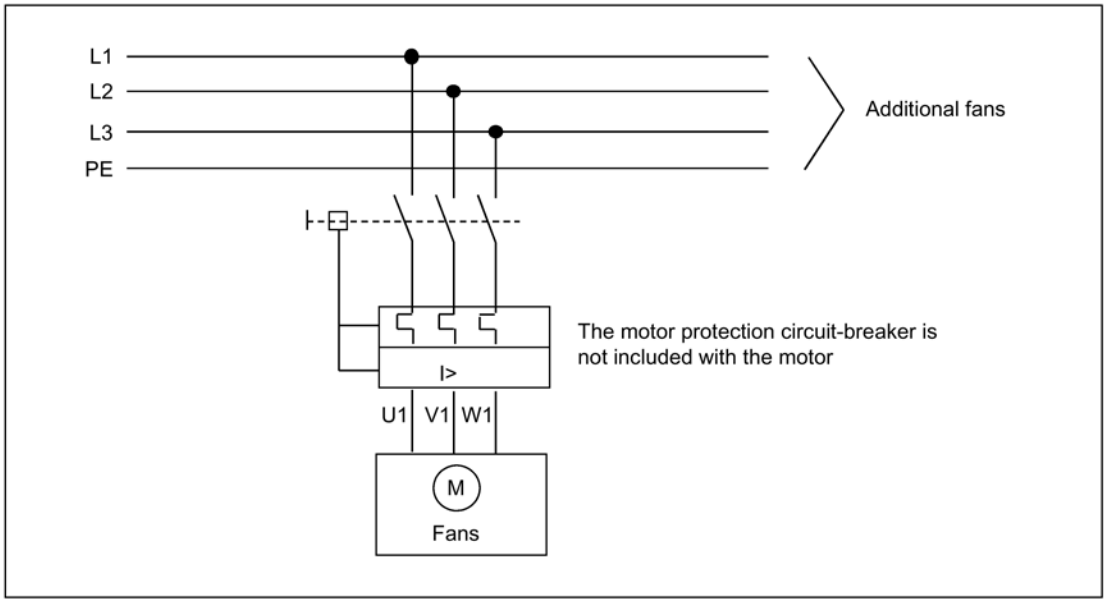


Figure 8-24 Recommended connection

Note

Single-phase fan connection

If a three-pole motor circuit breaker is used for a single-phase fan connection (SH 80), the three current paths must be connected in series (see Fig.).

If only one current path were used, many circuit breakers would trip too early because they often also monitor balanced load or voltage on the three phase conductors. Whether this circuit is permissible with electronic motor circuit breakers must be determined on a case-by-case basis from the product data sheets of the manufacturer.

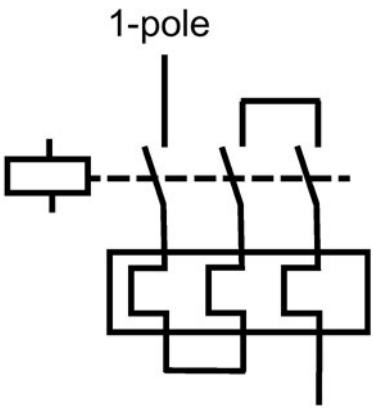


Figure 8-25 Single-phase connection

Connection through terminal box

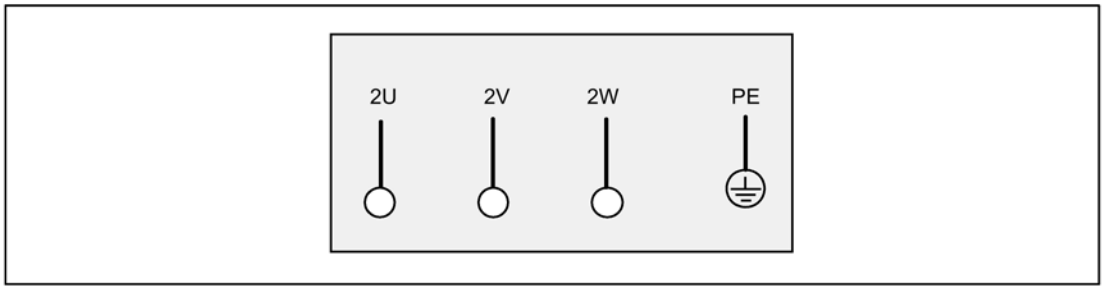


Figure 8-26 Connection external fan terminal box

Connection by power connector

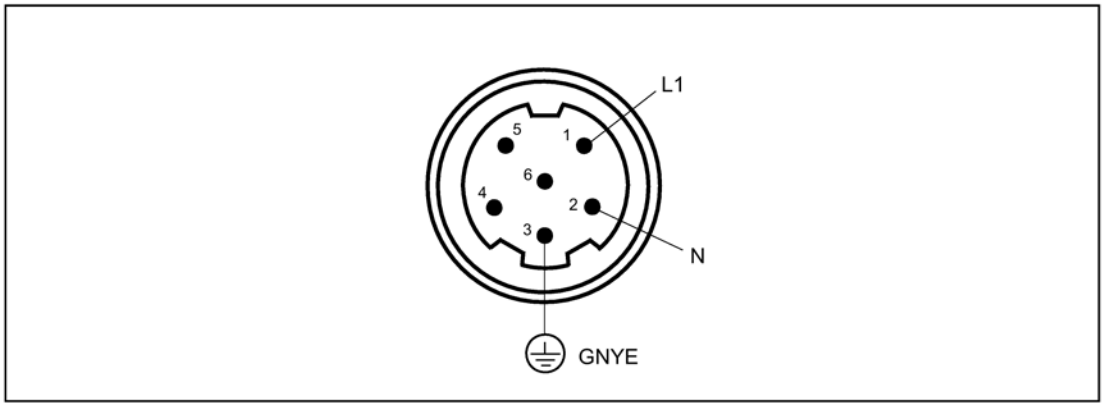


Figure 8-27 Connecting an external fan, SH 80

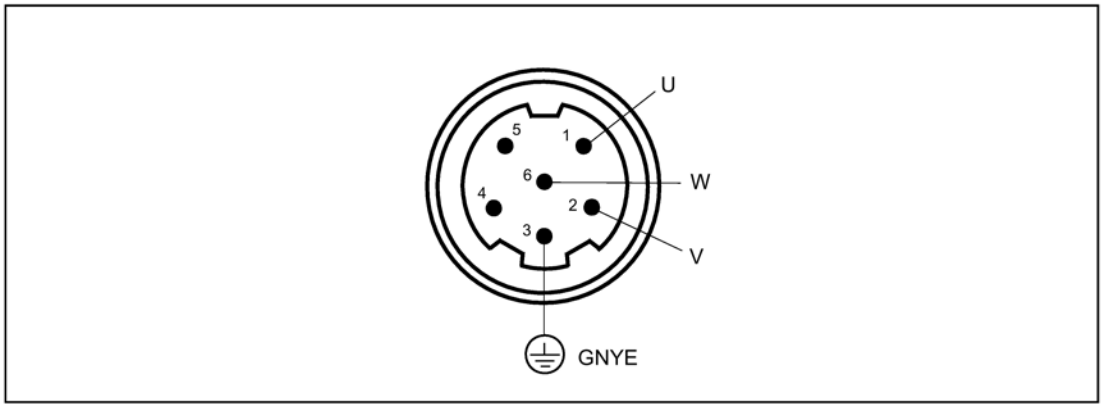


Figure 8-28 Connecting an external fan, SH 100 to SH 132

Note

Rotating the connectors

- The permissible rotation range must not be exceeded.
- In order to guarantee the degree of protection, max. 10 revolutions are permissible.
- Connectors should be rotated using the matching mating connector located on the connector thread. Only rotate Sensor Modules by hand. The use of pipe wrenches, hammers, or similar is not permitted.

Connector	Rotation range	Maximum torque
Connector size 1.0	270°	12 Nm

Note

Scope of delivery

The mating connector is not included in the scope of delivery.

Article number mating connector size 1 (with full thread) 6FX2003-0LU00

Note

Prefabricated cables

Prefabricated cables can be ordered with the following article number:
6FX□002-5CG01-□□□0

EC external fan for shaft heights 180 to 280

EC external fans are installed in forced ventilated motors of the 1PH8 series. These are especially designed fan units for this motor series, with a permanently set operating speed.

EC external fans contain high-efficiency electronically commutated motors with permanent magnets. They are speed-controlled by an integrated controller.
The EC external fans meet the general requirements of EN 61800-2 for variable-speed electrical drives and are designed for single-quadrant operation.

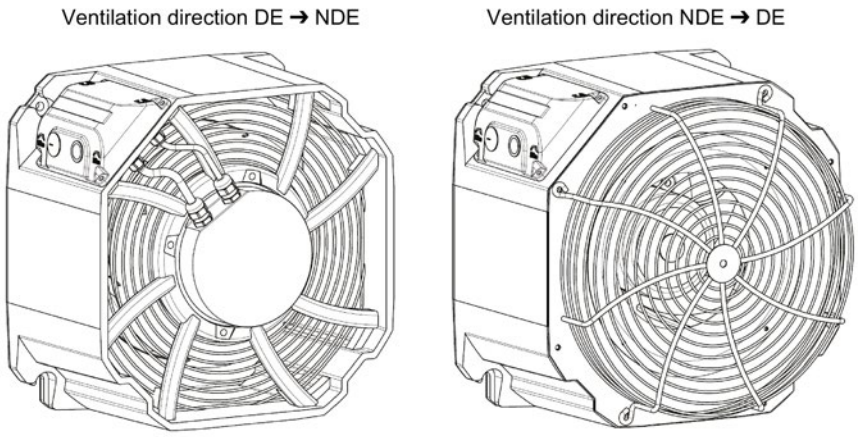


Figure 8-29 EC external fans with the air flow direction DE → NDE and air flow direction NDE → DE

External fans with filter unit (option G14)

The version for the air flow direction NDE → DE can be optionally expanded with a filter unit (option G14). The filter corresponds to DIN EN 779 of filter class G3.

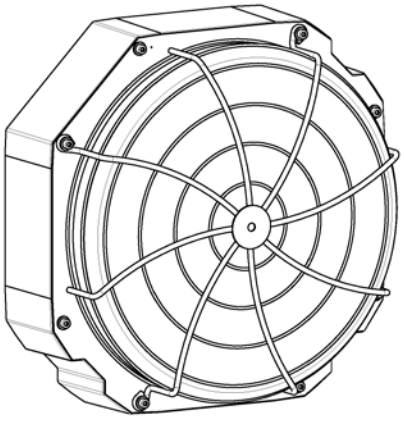


Figure 8-30 EC external fans with air flow direction NDE → DE and filter unit

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°.

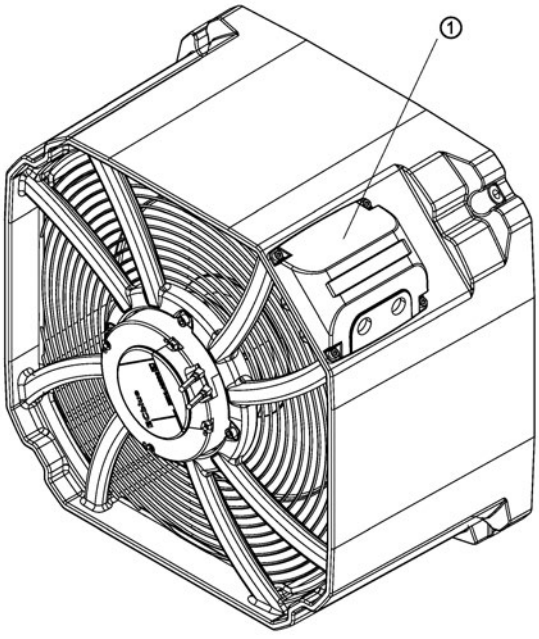


Figure 8-31 External fan terminal box ① (schematic representation)

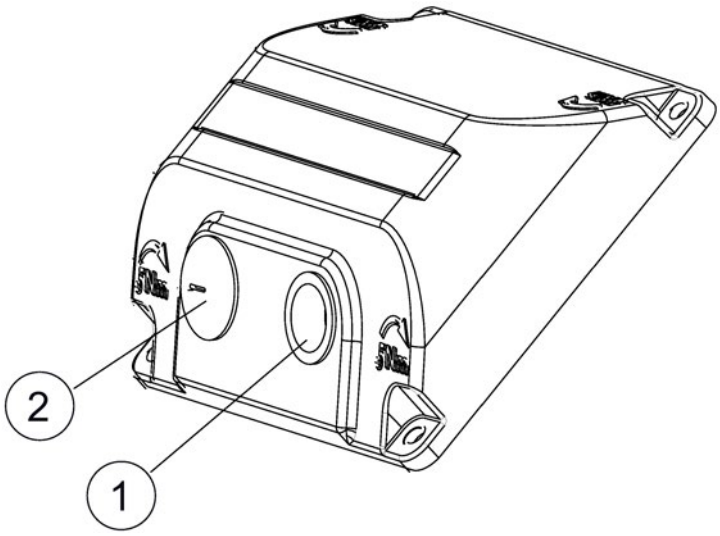
⚠ WARNING

Short circuit due to standing water

If you rotate the external fan through 90°, the cable outlet must not face upward. Water that accumulates at the cable glands can result in a short circuit.

- Rotate the terminal box cover of the external fan through 180°.

Connection on the terminal box



1 M20 cable entry for line power connection

2 M20 cable entry for control (optional)

Figure 8-32 Connection cover of the terminal box

In the delivery condition, the two cable entries are sealed.

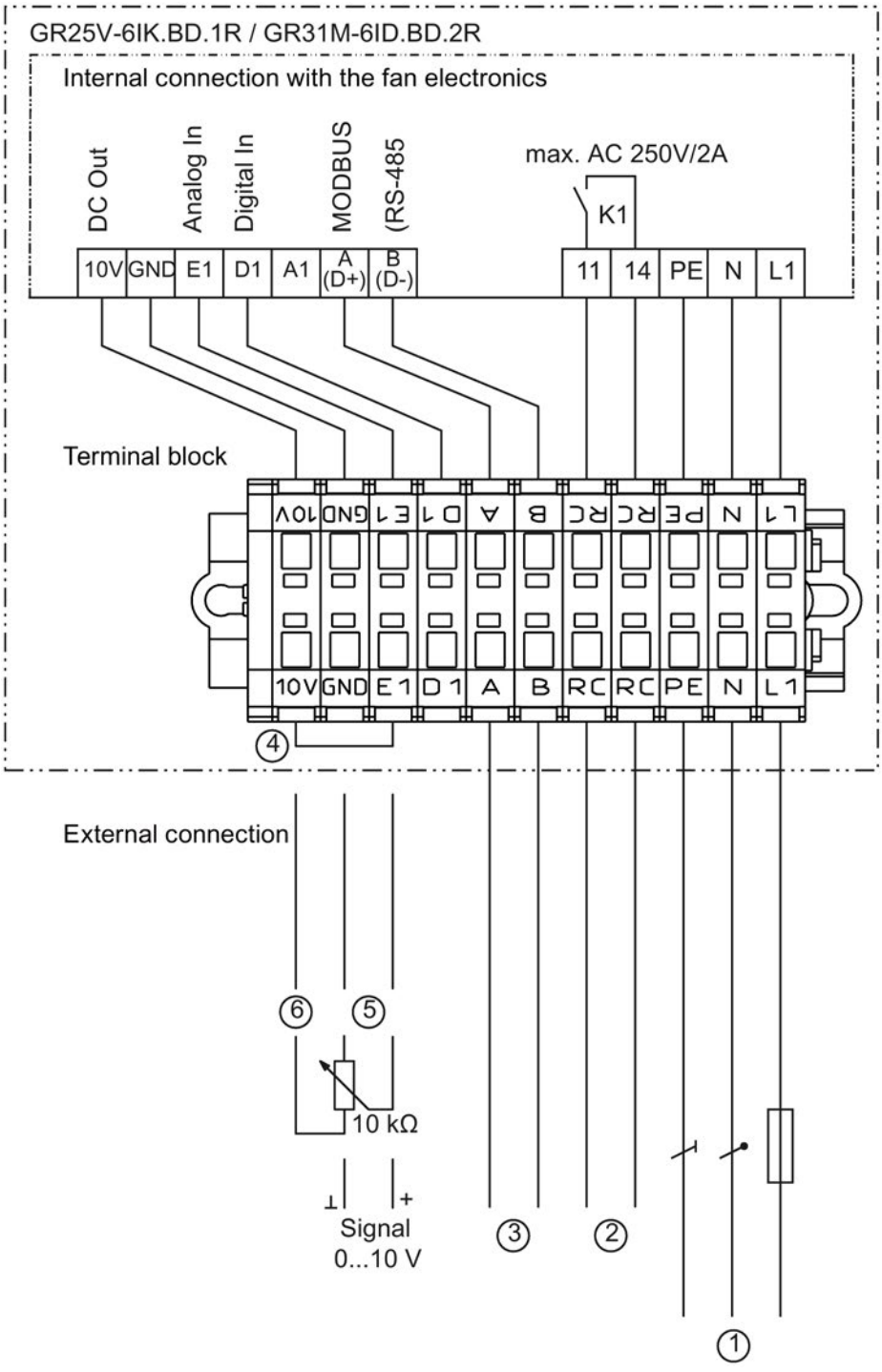
- Cable entry ① is intended for the line power connection and is therefore only sealed with a plug.
- Cable entry ② , is intended for the optional control connection and is fitted with a screw plug.

Note

Cable gland

The cable glands are not included in the scope of supply. Suitable cable glands must be chosen for connecting the cable. The general connection instructions must be observed. The continuous sealing of the cable gland toward the terminal box and the cable must be ensured.

Wiring diagram



1 Line voltage (see Chapter "Connection for terminal box")
2 Relay output (K1) for alarm
3 MODBUS (RS-485) interface (only accessible for Siemens Service)
4 Factory-mounted jumper between 10V and E1 for 100 % operating speed
5 Input for speed setting via 0…10V signal or potentiometer (Ri > 100 kΩ)
6 Power supply 10V DC (I_{max} 50 mA)

Note

Terminal block

The terminal block is led out with spring-loaded terminals. A conductor cross section 0.08 to 1.5 mm^2 can be connected to the terminals. A conductor cross section of 1.5 mm^2 is recommended.

Note

Relay output (K1)

An external alarm can be issued via the isolated contact of the integrated relay.
During operation, the relay picks up, i.e. connections "11" and "14" are jumpered. If a fault occurs, the relay drops out (contact load max. 250 V AC 2 A).

Note

Factory-mounted jumper between 10V and E1

In the delivery condition, a jumper is fitted between the voltage supply "10 V" and the analog input "E1." 100 % of the speed is achieved during operation in this way.
After the line voltage has been switched on and after a startup time of approx. 20 seconds, the fan is operated at a constant speed of 100 % (rated speed).

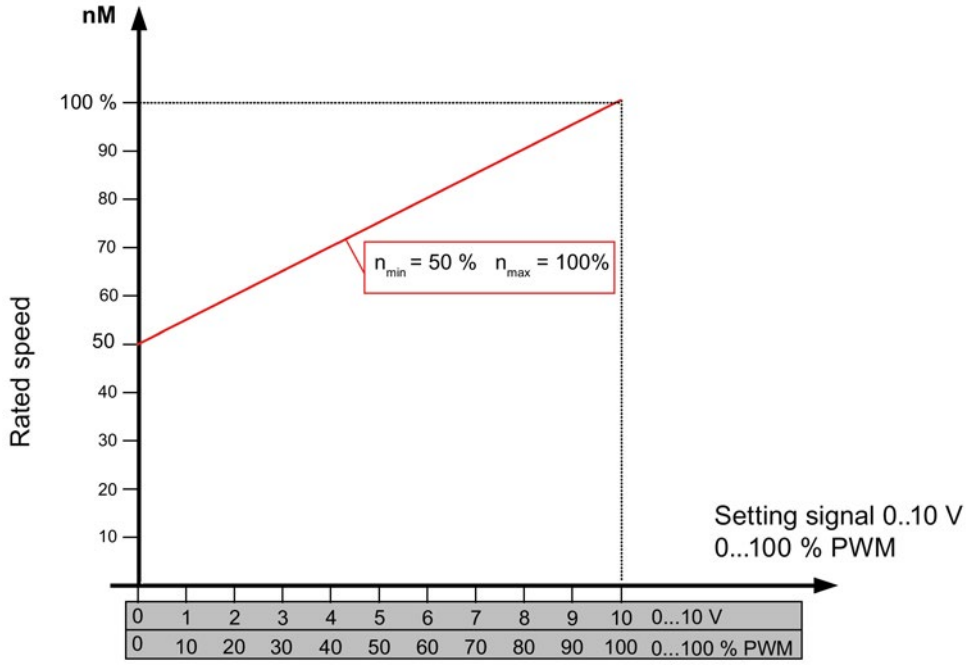
Note

Speed control via setting signal

Ventilation can be adjusted to the duty cycle and the load of the 1PH8 motor. The factory-mounted jumper between 10V and E1 must be removed in this case. The speed of the fan can be set in the range 50 …100% via a setting signal (0…10V).

Contact Siemens Technical Support for more information and support.

Diagram of control via an external setting signal



NOTICE
Removing the factory-mounted jumper The 1PH8 motor can overheat if the external EC fan is operated at low fan speeds as a result of the setpoint signal it receives. • Monitor the motor using the integrated temperature sensors. • Integrate the temperature monitoring into the interlocking circuit. **If the company operating the plant or system removes the jumper (which was inserted in the factory), that company becomes responsible for the functional safety of the drive, especially if the safety instructions are not heeded.**

Line connection: Fuse protection

The EC external fans have integrated overload protection, making an external motor protection device (e.g. motor circuit breaker) unnecessary. A simple conductor protection is sufficient.

Simple conductor protection with a fuse or MCB:

Fuse		MCB	Conductor cross section	Conductor cross section
VDE	UL	VDE	mm^2	*AWG
16 A	15 A	C16A	1.5	16

(* AWG = American Wire Gauge)

Residual-current protective device

Only RCDs that are sensitive to universal current (type B or B+) are permissible. Personal protection is not possible if the device is operated with RCDs, as is also the case for frequency converters.

When the power supply of the device is switched on, charging current pulses can occur due to the capacitors. In the integrated EMC filter, this can cause the RCDs to trip instantaneously. We recommend residual-current operated circuit breakers with a tripping threshold of 300 mA and delayed tripping (super-resistant, characteristic K).

Use in IT systems

WARNING

Risk of electric current

In an IT system, the neutral point of the voltage supply is not grounded. If a short-circuit occurs between a phase (e.g. "L1") and the protective conductor "PE," the protective conductor is at phase potential.

A voltage higher than the line voltage of the device must never be applied between the line connection and the protective conductor "PE"!

The single-phase EC external fans can be used in an IT system. In three-phase IT systems, the following must be considered for use. During a ground fault of an unused line phase, the potential relative to "PE" must not be higher than the specified line voltage of the device (at either of the two supply connections).

To ensure fault-free operation on the IT system, the "GND" potential of the control connections must be connected to the protective conductor potential.

The following consequences of this connection must be observed for the control connections (except for relay contacts):

1. Only connect using cables that are suitable for the line voltage and environment.
2. Only connect via separate isolation amplifiers.

Three-phase external fan for shaft heights 180 and 225

Instead of the standard EC external fans for shaft heights 180 and 225, the motors can also be implemented with a three-phase conventional external fan. These fans can be ordered with the option L75.

Connecting an external fan

The external fan has a terminal box that is mounted on the external fan motor.

	Air flow direction	400 V 3 AC / 50 Hz (± 10 %)	400 V 3 AC / 60 Hz (1) (± 10 %)	480 V 3 AC / 60 Hz (1) (+5 %, -10 %)	Sound pressure level LpA (1 m) Motor + external fan unit 50 Hz operation Tolerance + 3 dB Rated pulse frequency 2 kHz	Air flow rate at 50 Hz, approx.
		[A]	[A]	[A]	[dB]	[m^3/s]
1PH8 forced ventilation, degree of protection IP55, L75						
1PH818.-...0.-...1-Z 1PH818.-...1.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (2)	0.17
1PH822.-...0.-...1-Z 1PH822.-...1.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (2)	0.31
1PH8 open-circuit ventilation, degree of protection IP23, L75						
1PH818.-...3.-...1-Z 1PH818.-...4.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (3)	0.21
1PH822.-...3.-...1-Z 1PH822.-...4.-...1-Z	DE → NDE NDE → DE	2.4	2.4	2.3	76 (3)	0.33

(1) 60 Hz operation only permissible with throttle plate

(2) Speed ranges: 1PH818. up to 5000 rpm, 1PH822. up to 3500 rpm

(3) Speed ranges: 1PH818. up to 3000 rpm, 1PH822. up to 2000 rpm

NOTICE

Incorrect direction of rotation

The external fan is only suitable for one direction of rotation. Operation with the wrong direction of rotation can destroy the motor.

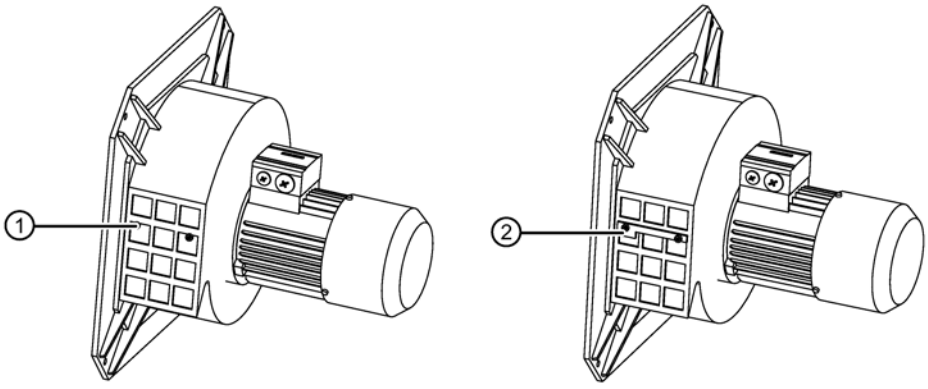
- If necessary, change the direction of rotation by interchanging two phase conductors in the terminal box. The direction of rotation arrow and the direction of rotation of the fan impeller can be seen at the rear of the fan.

Throttle sheet for operation at 60 Hz

When operated from a 60 Hz line supply, you require the air discharge throttle plate provided in the terminal box.

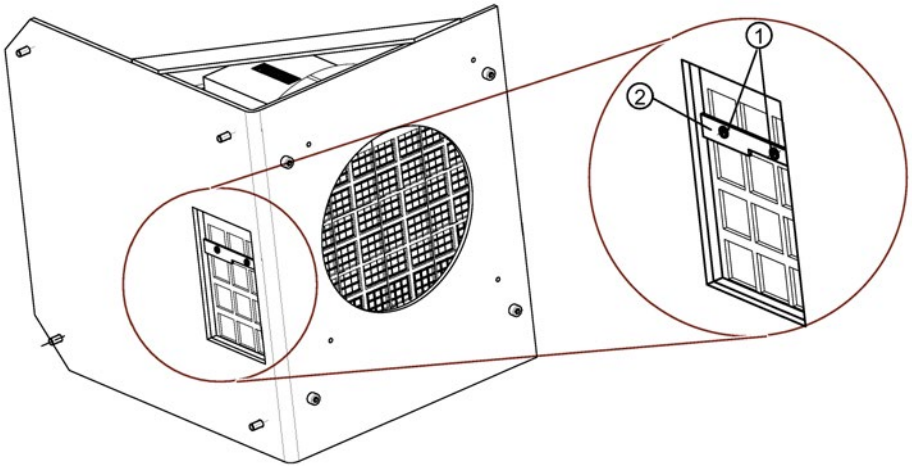
NOTICE
Operation at 60 Hz The external fan motor can be damaged if it is operated on a 60 Hz line supply. • Use the air discharge throttle plate for operation on a 60 Hz line supply.

Screw the air discharge throttle plate ② to the air discharge mesh.



① Fixing screws for air discharge throttle metal plate
② Air discharge throttle metal plate

Figure 8-33 Throttle plate for suction-type ventilation (DE to NDE)



① Fixing screws for air discharge throttle metal plate
② Air discharge throttle metal plate

Figure 8-34 Throttle plate for forced-draft ventilation (NDE to DE)

Note

Filter unit (option Q14)

If an additional filter unit is required for the three-phase external fan (option L75), the filter unit must be ordered with option Q14 (can only be ordered if the 11th data position is "1" or "4").

8.3.6 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.

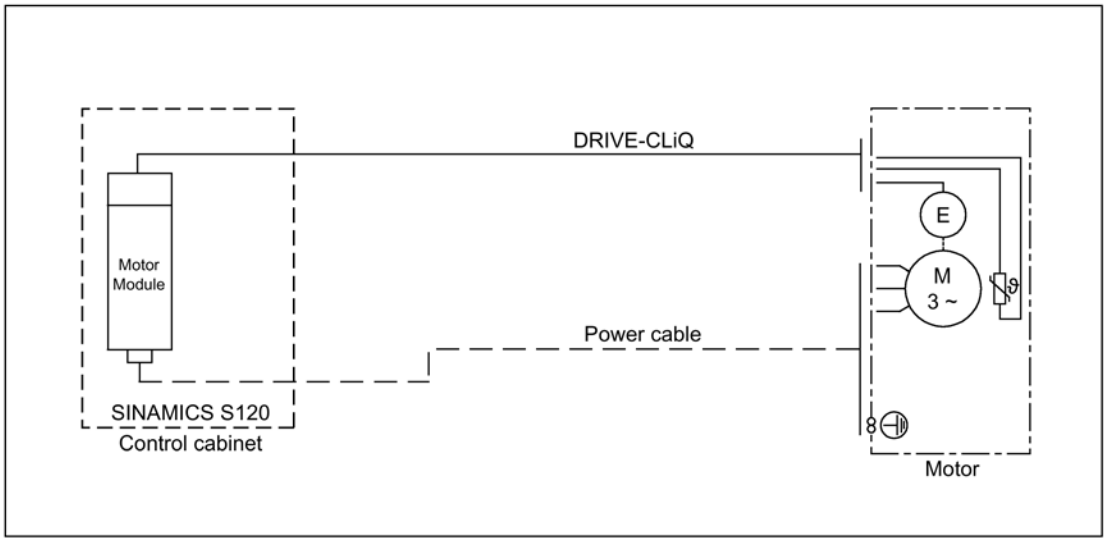


Figure 8-35 Encoder connection on motors with DRIVE-CLiQ

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 8- 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.

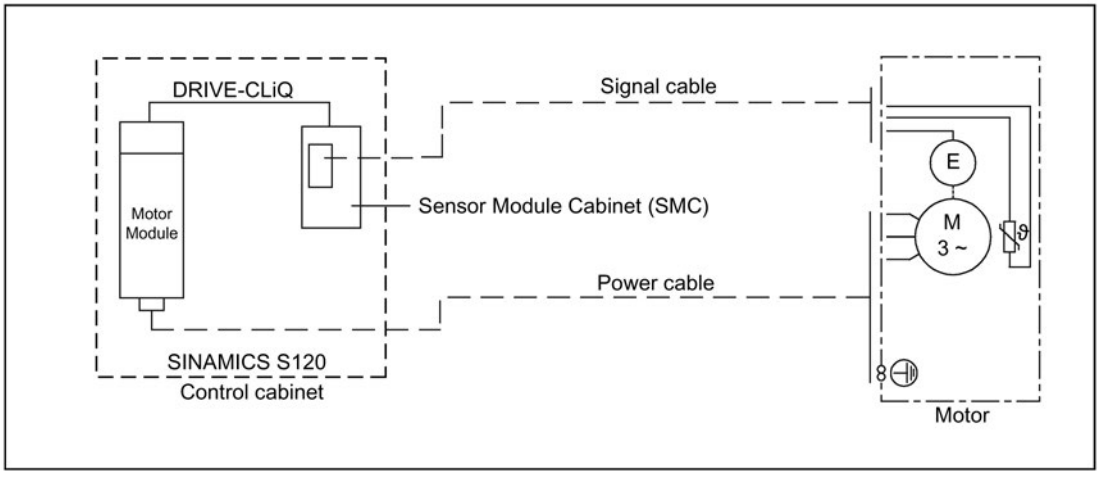


Figure 8-36 Encoder connection on motors without DRIVE-CLiQ

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.

Dimension drawings 9

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 in the creation of 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

Recency of dimension drawings

Note

Changing motor dimensions

Siemens AG reserves the right to change the dimensions of the motors as part of mechanical design improvements without prior notice. This means that dimension drawings can become 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.

NOTICE
Motor damage when the maximum speed is exceeded The maximum speed n_{max} is the highest permissible operating speed. The maximum speed n_{max} is stamped on the rating plate (nameplate). The motor can be damaged if operated at inadmissible speeds. • Ensure that the maximum permissible speed is not exceeded. Realize this using a suitable control system or activate the speed monitoring function in the drive.

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:

t_1: 1 min---n_1= 0 min^{-1}; t_2: 6 min---n_2= 2/3 n_{max} ; t_3: 3 min---n_3= n_{max}

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.

E. g.

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 Environmental compatibility

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)

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