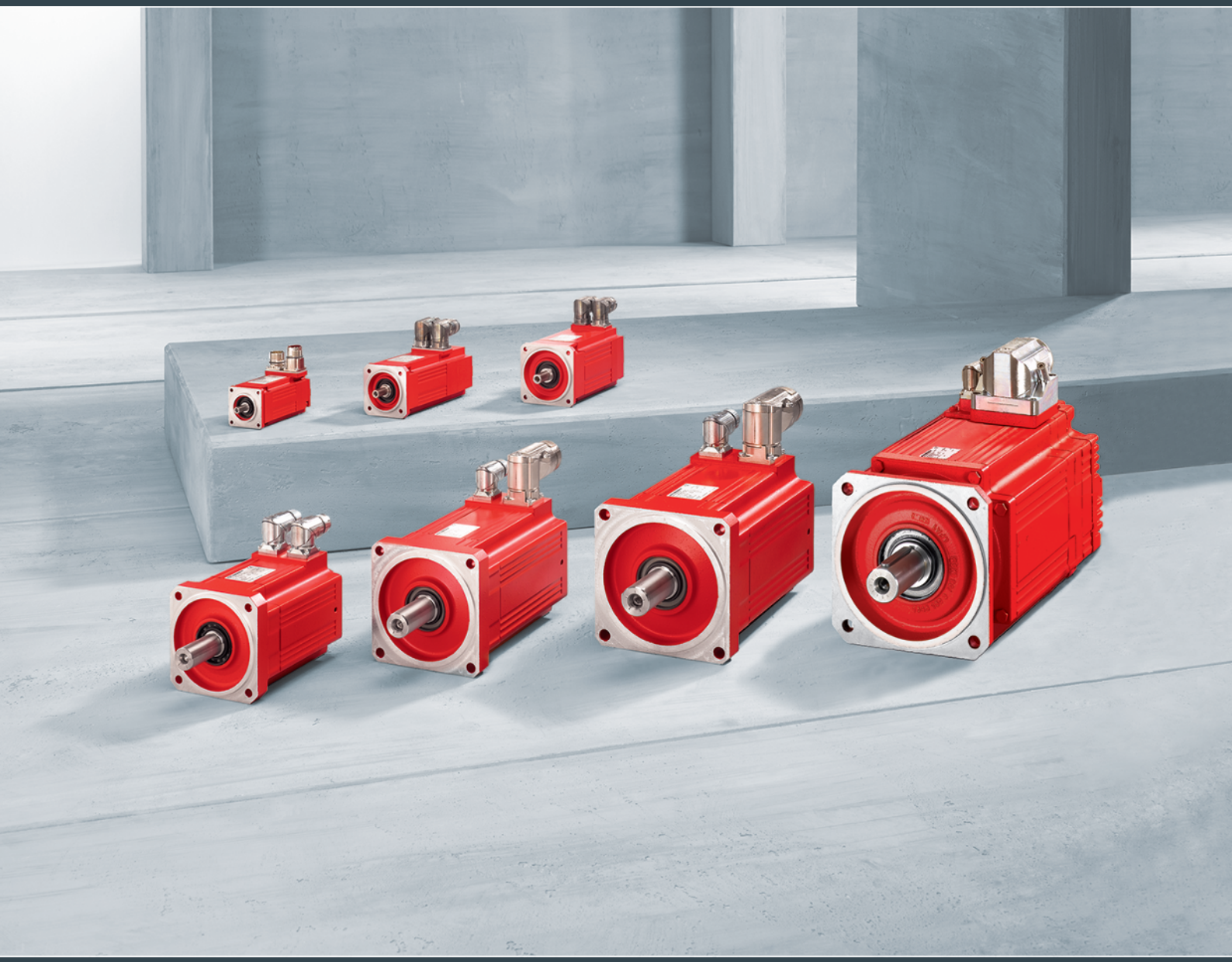
SEW EURODRIVE

Catalog



Synchronous Servomotors
CMP40 – CMP112
High Dynamics

Edition 11/2023

27799468/EN

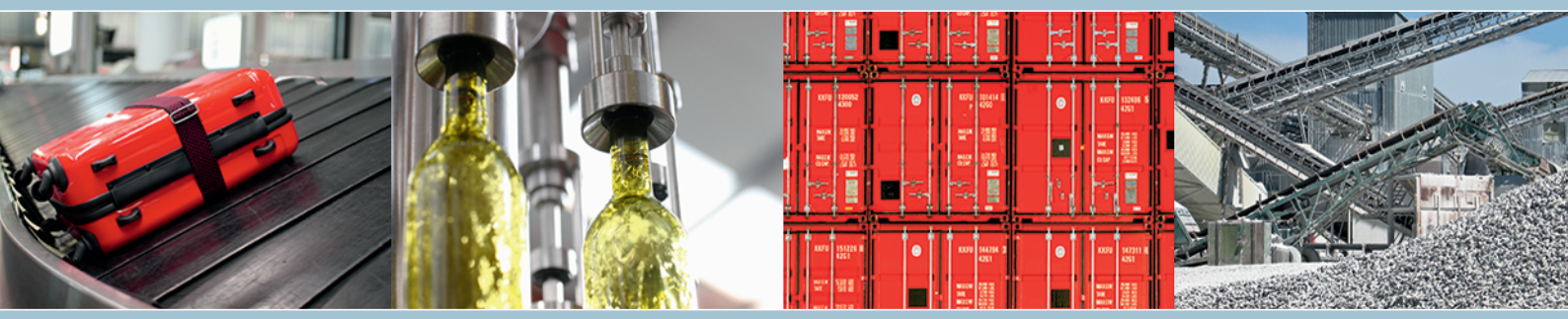


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1 SEW-EURODRIVE

1.1 What do we stand for?

For a reliable partnership!

Humanity and partnership, solutions and services, responsibility and quality, tradition and innovation: SEW-EURODRIVE, the owner-managed family business, has stood for all this and much more for more than 90 years.

As a market leader in drive and automation technology, we don't just power countless applications in virtually every industry. With over 21000 employees, we are also playing a key role in shaping the future of drive technology. For you. Ensuring you, your systems and machines are always at the cutting edge. Not just now, but in the future as well. We want you to succeed together with us.

1.2 Where can you find us?

We are always nearby!

Our 17 production plants and 89 Drive Technology Centers in 54 countries mean we are at your service on every continent and in every corner of the world, always working with you as an equal partner and ensuring everything runs smoothly.

What makes us truly stand out from other manufacturers? With our broad customer support and service network worldwide, you never have to wait long for spare parts, repairs or professional advice.



54
Countries



17
Production plants



89
Drive Technology Centers



> 21000
employees



Global service



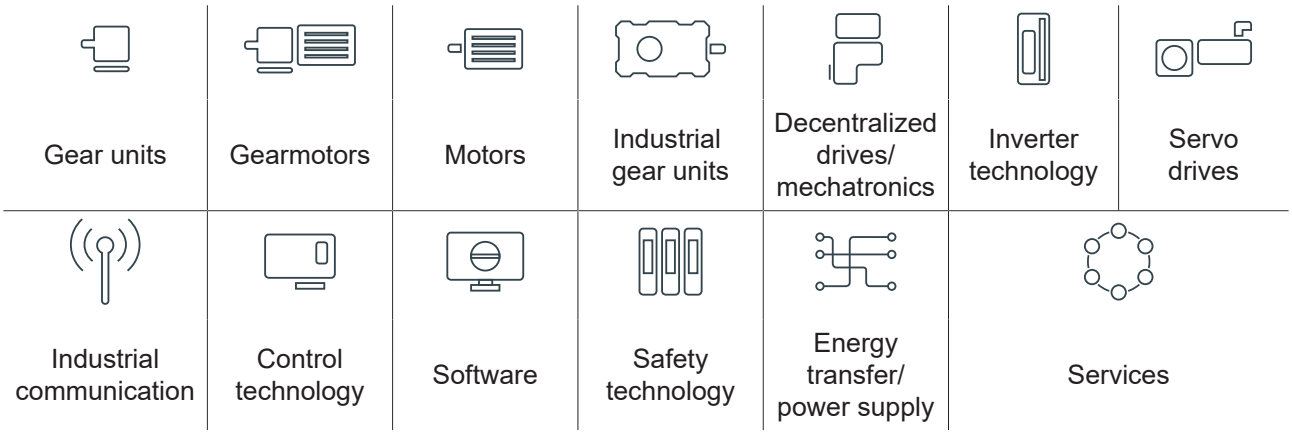
Countless industries

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1.3 What do we offer?

State-of-the-art drive technology and automation solutions from a single source!

Looking to modernize your processes or to construct a new system? We offer you one of the most extensive ranges of drive technology products, solutions, and services on the market. A single contact person for everything: that sounds good, doesn't it?



From the very outset, our customers have been able to rely on our high quality, committed advice and support and fast delivery times. We offer a portfolio of modular solutions that are comprehensive and unique and meet every possible need.

- Perfect combination options and solutions for every application
- Energy efficiency up to IE5
- Quick and easy selection process and project planning
- Comprehensive portfolio – from drives and motors for continuous operation to high-precision servo drives
- Special designs in stainless steel, with explosion protection, or for electrified monorail systems
- Ideal solutions for every application
- Complete automation solutions for your machine or factory and many other areas

Independent of the project scope and the complexity of your requirements: We rise to the challenge, working with you to develop the perfect solution for you – including an all-round service package throughout your entire system life cycle on request.

Right now, predictive maintenance is one of the top service trends. Early diagnosis and end-to-end condition monitoring have been an essential part of our offering for many years. That's because one thing in particular matters to us – the satisfaction and trust of our customers. From planning and the operation phase all the way to modernization. Where necessary, we also take care of drives from other manufacturers.

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1.4 What are the goals we want to reach with you?

We want to take you to the top!

Nothing excites us more than the future of production. We are already using Industry 4.0 principles to transform our manufacturing operations. As far as we are concerned, Industry 4.0 ceased to be a distant vision long ago – it is already a successful reality thanks to our smart factory. As a result, we have become one of the world's pioneers in this field.

Yet we do not just focus on increasing our performance to ever greater levels. We also pass on to you the expertise, experience and technical solutions we have gathered in implementing Industry 4.0 in our production halls. Why not find out more?

No matter how large or small your project may be, no matter how high or complex your requirements may be: We rise to the challenge, working with you to develop the perfect solution for you – including an all-round service package throughout your entire system life cycle on request. Right now, predictive maintenance is one of the top service trends. Early diagnosis and end-to-end condition monitoring have been an essential part of our offering for many years. The only thing that counts is your satisfaction and driving forward your processes – from planning and the operation phase all the way to modernization. Where necessary, we also take care of drives from other manufacturers.

1.5 Why should you choose SEW-EURODRIVE?

Because these ten reasons speak for themselves:



1. **You will be more flexible**

   However much the requirements for your processes and production systems increase, we're there for you every step of the way. With rapid conversions, short delivery times, enhanced capacity and faster format changeovers, we're at your side – from evaluating your needs and implementing an appropriate solution all the way to Life Cycle Services.



2. **You will be more satisfied**

   Our name stands for the best quality. But we do not rest on our laurels. Quite the contrary, in fact. To ensure we meet all standards – both ours and yours – we undergo annual testing, including certification processes. That's because only one thing matters to us – the satisfaction and trust of our customers.



3. **You will know more**

   We're happy to share with you the industry and application expertise we have gained over decades and extending far beyond drive technology areas. We work with you to plan and put into practice your tailored solutions in a process where you constantly evolve in tandem with us.

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4. **You will be more sustainable**

   We take responsibility for our employees, customers and business partners but also the environment in which we live and work. As a family business, we think in generations and always look beyond today and tomorrow. With us, you too can drive the future.



5. **You will be more successful**

   Like you, we cannot afford to stand still. We provide continuous training for our employees and customers. We constantly expand our horizons and enhance our products, solutions and services, and thus your processes. You can only continue to be successful in the future with optimized workflows.



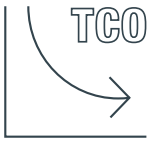
6. **You will be more energy efficient**

   We go out of our way to find new approaches and make our drives more efficient while always staying well ahead of international regulations. And, if you wish, we work with you to plan your systems and machines so that you can make the best possible use of energy recovery.



7. **You will be more innovative**

   What's the point of innovations if they remain out of your reach? We listen to you, which makes us fully aware of your future challenges, and we respond accordingly. With our approximately 800 researchers, we drive forward innovative technologies and help bring your processes up to date.



8. **You will save more money**

   With us, you can lower your overall operating costs. After all, it isn't just a matter of procurement expenses. Your TCO is significantly determined by the subsequent utilization and service life of your drive technology. We provide you with comprehensive advice on how to reduce your costs through sustainable operations.



9. **You will be close to us**

   Wherever in the world your system is running, our comprehensive service network and experts mean we're always ready to provide advice and practical assistance when you need it. All-in-one, on-site service that knows no bounds and significantly reduces or even eliminates downtimes.



10. **You will be faster**

    Throughout the world, our service staff ensure spare parts get to you fast, and faulty drives – including third-party products – are collected and repaired quickly. Software tools make engineering and startup easier for you. Services covering your entire system life cycle help make you faster and more efficient.

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2 Products, solutions and services by SEW-EURODRIVE



CMP.. series servomotors (high dynamics)

The CMP.. servomotors seamlessly integrate into the product range of SEW-EURODRIVE and offer the overall security of a globally active market leader for drive and automation technology.

Our products stand for variety, quality, reliability, and innovative strength. These characteristics are at the heart of our entire product portfolio. As one of the leading producers for drive and automation technology worldwide, we offer them to you. Take us at our word, and choose the perfect drive solution from our modular system.

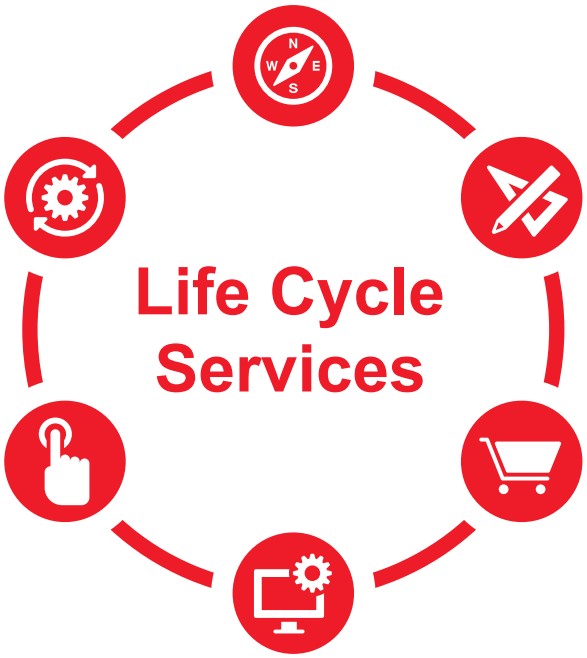


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Our services for your success

Another module in our portfolio are the comprehensive Life Cycle Services by SEW-EURODRIVE. These services enable us to offer tailor-made solutions from a single source and thus meet your specific requirements throughout the entire life cycle.



29152177419

Everything from a single source

You are provided with services that are closely linked to our portfolio of products and solutions – all from a single source.

Procurement & delivery

We offer "extra" process efficiency and consulting in the procurement process. For example, electronic data exchange and barcode labels on the products.

Installation & startup

You can ensure the functionality of your system with a certified installation, optimization and startup. Doing this, you have the support of our service experts and engineers who will provide you with installation consulting, application programming and startup.

Safety

You receive quick and reliable assistance to guarantee the safety of your production process. With a worldwide service network that is always there for you with 24/7 accessibility.

Planning & engineering

We will provide you with optimum planning – even before you place an order. You will be supported by technical experts who have an in-depth understanding of your industry and applications.

Utilization phase

We support you during production, so that your system availability and productivity are constantly improved.

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3 The CMP.. servomotor

3.1 Product features

3.1.1 Standard features

CMP.. series synchronous servomotors are a drive system that is composed as follows in the basic design:

- Smooth shaft end
- Resolver as encoder
- Thermal motor protection through temperature detection
- Connection via adjustable plug connector
- High true-running accuracy
- High vibration quality (IEC 60034-14, EN 60034-14)

3.1.2 Optional product characteristics

The CMP.. motors can be extended as an option with:

- BK.. permanent magnet holding brake
- BP.. spring-loaded holding brake.
- BY.. spring-loaded holding brake with increased working capacity and optional manual brake release
- MOVILINK® DDI with and without encoder
- HIPERFACE® encoder
- EnDat2.2 encoder
- Safety encoders
- Shaft end with key
- Forced cooling fan
- Connection via radial plug connector
- Connection via mating connector
- Connection via terminal box
- Prefabricated cables
- UL or UL/CSA approval
- Direct mounting to gear units from SEW-EURODRIVE

3.1.3 Torque

The 7 available sizes cover a torque range from 0.5 Nm to 95 Nm.

The dynamic peak torque reaches 1.9 Nm to 320 Nm.

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3.1.4 Rated speeds

The motors are available with the following rated speeds:

Motor	Rated speed	
	System voltage 400 V	System voltage 230 V
CMP40	3000, 4500, 6000	
CMP50		
CMP63		
CMP71	2000, 3000, 4500, 6000	
CMP80	2000, 3000, 4500, 6000	3000, 4500, 6000
CMP100	2000, 3000, 4500	
CMP112	2000, 3000, 4500	–

3.1.5 Number of poles

CMP.. motors are available with the following number of poles.

Motor	Number of poles
CMP40 – 63	6
CMP71 – 100	10
CMP112	6

3.1.6 Operating temperatures

The motors are designed for use in a temperature range between -20 °C and +40 °C.

In addition, the motors are also available in temperature ranges from -40 °C to +10 °C and -20 °C to +60 °C.

If the motors are operated outside the specified temperature ranges, observe the information in chapter "Operating conditions" (→ 🗎 28).

3.1.7 Direct mounting

CMP.. servomotors can be mounted directly to the corresponding SEW-EURODRIVE gear units without an adapter.

The following gear units are available:

- Helical-bevel servo gear units BS.F
- PS.F or PS.C planetary servo gear units
- R.. helical gear units
- F.. parallel-shaft helical gear units
- K.. helical-bevel gear units
- S.. helical-worm gear units
- W.. SPIROPLAN® gear units

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3.1.8 Noise levels

All motors from SEW-EURODRIVE fall below the permitted sound power levels defined in IEC/EN 60034-9.

3.1.9 Output variants

CMP. servomotors are available with the following output types:

- Stand-alone motors with IEC/EN flange with through bores based on IEC 60072-1: 1991 and EN 50347: 2003.
- With square flange for mounting to the gear unit types BS.F, PS.F, PS.C, W10 – W30.
- With round flange for mounting to the gear unit types R, F, K, S, W37, W47. The flange dimensions are implemented according to the SEW-EURODRIVE work standards for gear unit mounting.

3.1.10 Painting

CMP. motors are painted with black machine paint RAL 9005 as per DIN 1843 as standard. Special coatings and other colors are available on request.

3.1.11 Air admission and accessibility

The motors/brakemotors must be mounted on the driven machine in such a way that there is enough axial and radial space left for unimpeded air admission and for performing maintenance on the brake.

3.1.12 Brakemotors

The motors and gearmotors are supplied with an integrated electromechanical brake on request. The brakes from SEW-EURODRIVE are divided into the following categories:

- BK.. permanent magnet holding brake

  The BK brake is a permanent magnet holding brake with emergency off function that releases electrically and closes through the power of the permanent magnetic field. Equipped with the typical properties of a holding brake for highly dynamic servomotors, the BK.. brake is particularly suitable for applications with high switching frequencies.

- BP.. spring-loaded holding brake.

  The BP.. brake is a DC-operated spring-loaded brake disk brake that releases electrically and closes through spring force. The BP.. brake is intended to hold loads in idle state.

- BY.. spring-loaded holding brake with increased working capacity

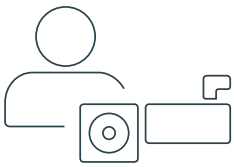
  The BY.. brake is a DC-operated spring-loaded brake disk brake that releases electrically and closes through spring force. As a holding brake, it is primarily intended to keep loads at a standstill, but also has an increased emergency stop working capacity.

  The optional manual brake release allows the brake to be released manually. The manual brake release is designed to automatically re-engage (..HR).

For further information on the brakes by SEW-EURODRIVE, refer to the "Project Planning for BK.., BP.., BR.., BY.., BZ.. Brakes" manual.

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3.2 Benefits of the modular concept

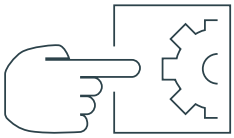


SEW-EURODRIVE – your contact for servo technology

In contrast to many other manufacturers of servomotors on the market, we at SEW-EURODRIVE understand ourselves to be a supplier of complete solutions for the entire drive train. This includes everything from the motor to the gear unit, to cables, the servo inverter, and the controller.

This is an advantage for the customer, as for example, the product properties of motor and gear unit can be optimally coordinated and their interactions can be taken into consideration during configuration/project planning.

- More than 90 years of experience in the field of drive technology
- We provide solutions for the entire world of drive technology
- Global network with more than 21000 employees worldwide

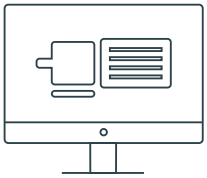


Leading innovator for details – long service life

Due to industrial partnerships with large manufacturers/suppliers we can obtain a high level of innovation during development and realization of new products.

Therefore, components and parts can be used for the servomotors that were especially developed in collaboration with our industrial partners to be used in servomotors or servo gearmotors. This ensures that the promised service life of the individual components is safely met.

- Availability of the latest technologies
- Use of exclusive machine elements (bearings, sealing systems, lubricants, etc.)
- Continuously long product service life

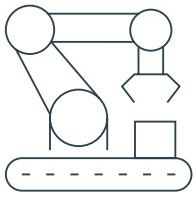


Technical product excellence – compactness

Many new possibilities of simulation and calculation support the development and construction process from the very beginning. This is the basis for a continuously high level of transparency throughout the individual development steps.

The result is a compact design that, combined with the latest production processes, allows for high torques with very small installation spaces.

- High power density over a long service life
- Constant operating behavior throughout the life cycle



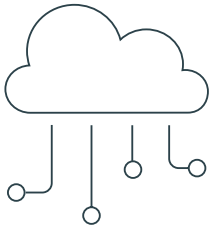
Versatile and flexible

The servomotors have numerous options throughout all sizes. These options can be selected in virtually any combination.

The various encoder systems, types of cooling, connection variants, output designs and brake versions, as well as the extensive modular gear motor system, provide numerous means to tailor the products optimally to how you use them.

- Scalable modular gearmotor design
- Larger diversity of options help find a solution quickly

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Ready for the future with Industry 4.0

As delivery times get shorter and shorter, and the modular system offers a high variance, new and flexible concepts are required for production and assembly.

Intelligent procedures and processes are being coordinated so that we can achieve a standard delivery time of 5 days. The focused implementation of lean principles and Industry 4.0 approaches paves the way for perfectly networked, modular and highly efficient production – even in a batch size of one.

SEW-EURODRIVE has a significant procurement volume of steel, seals, bearings, and other materials, making us an important customer in many industries. Reliable delivery is an important factor for selecting suppliers.

High production capacities in all plants, as well as a high global turnover of materials, allow for brief production and assembly times, even when the demand on the markets is high.

- Short delivery times
- High availability and quick replacement
- Consistently high quality standards for series and individual products

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3.3 Drive designs and options

3.3.1 Synchronous servomotors

Designation	
CMP..	CMP.. series (high dynamics)
40, 50, 63, 71, 80, 100, 112	Sizes
S, M, L, H[1], E[1]	Lengths

1) Only available for CMP112.

3.3.2 Brakes and brake control

Designation	Option
/BK	Permanent-magnet holding brake
/BY[1]	Spring-loaded holding brake with increased working capacity
/BY.D	Spring-loaded holding brake with increased working capacity for direct DC voltage supply
/BP	Spring-loaded holding brake
/HR	Manual brake release of the BY.. and BY.D brakes Automatic re-engaging
BS1Z	Integrated brake control for MOVILINK® DDI For DC 24 V brakes with condition monitoring of the brake Brake diagnostics, brake wear detection

1) Available as an optional safety brake.

3.3.3 Temperature sensor/temperature detection

Designation	Option
/PK	Pt1000 temperature sensor

3.3.4 Encoder

Designation	Option	Ability class
–	Without encoder	–
/RH1M	Single-turn encoder, resolver (standard)	Medium Class
/EK0H[2]	Single-turn encoder, HIPERFACE®	High Class
/AK0H[1]	Multi-turn encoder, HIPERFACE®	High Class
/EK1H[2]	Single-turn encoder, HIPERFACE®	High Class
/AK1H[1]	Multi-turn encoder, HIPERFACE®	High Class
/EZ2Z	Single-turn encoder, MOVILINK® DDI	Medium Class
/AZ2Z	Multi-turn encoder, MOVILINK® DDI	Medium Class
/EZ4Z	Single-turn encoder, MOVILINK® DDI	High Class
/AZ4Z	Multi-turn encoder, MOVILINK® DDI	High Class
/EH0E	Single-turn encoder, EnDat2.2	High Class
/AH0E	Multi-turn encoder, EnDat2.2	High Class
/EH1E[2]	Single-turn encoder, EnDat2.2	High Class
/AH1E[2]	Multi-turn encoder, EnDat2.2	High Class

1) Optionally available as safety encoder.
2) Optionally available as safety encoder upon request.

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3.3.5 Connection variants

Designation	Option
/SD1	Angled M23 motor/brakemotor hybrid plug connector (motor, brake, communication) for MOVILINK® DDI Right-angle plug socket on the motor side, adjustable
/SDB	Angled M40 motor/brakemotor hybrid plug connector (motor, brake, communication) for MOVILINK® DDI Axial plug socket on the motor side
/SH1	Hybrid plug connector motor/brake motor M23 Plug socket on the motor side
/SHB	Hybrid plug connector motor/brake motor M40 Plug socket on the motor side
/SE1	Hybrid plug connector motor/brakemotor (BK.., BP..) M23 (power and data) for EnDat2.2 Plug socket on the motor side
/SM1	Plug-in connection for M23 motor Plug socket on the motor side motor and encoder cables pluggable
/SB1	Plug connector brakemotor M23 Plug socket on the motor side motor and encoder cables pluggable
/SMB	M40 motor plug connector Plug socket on the motor side motor and encoder cables pluggable
/SBB	M40 brake motor plug connector Plug socket on the motor side Motor and encoder cables pluggable (standard)
/SMC	M58 plug connector (power and data) for motor/brakemotor M23 plug connector (power and data) for encoder Plug socket on the motor side
/SBC	M58 plug connector (power and data) for motor/brakemotor M23 plug connector (power and data) for encoder Plug socket on the motor side
/SMCD	M58 plug connector motor/brakemotor (power and data) for MOVILINK® DDI M23 encoder plug connector (power and data) for MOVILINK® DDI Plug socket on the motor side
/SBCD	M58 plug connector motor/brakemotor (power and data) for MOVILINK® DDI M23 encoder plug connector (power and data) for MOVILINK® DDI Plug socket on the motor side
/KK	Terminal box Clampable motor and encoder cables
/KKS	Terminal box Clampable motor cable and pluggable encoder cable
/KL	Terminal box For size 112 (CSA certification and water cooling) Clampable motor and encoder cables
/KLS	Terminal box For size 112 (CSA certification and water cooling) Clampable motor cable and pluggable encoder cable
/KD	Terminal box for MOVILINK® DDI Hybrid cable via cable gland Motor, brake, communication
/KDD	Terminal box with straight signal plug connector (M23) for MOVILINK® DDI Motor cable via cable gland, signal cable pluggable

3.3.6 Fan

Designation	Option
/VR	Forced cooling fan

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3.4 Type designation

The following example shows the structure of the type designation:

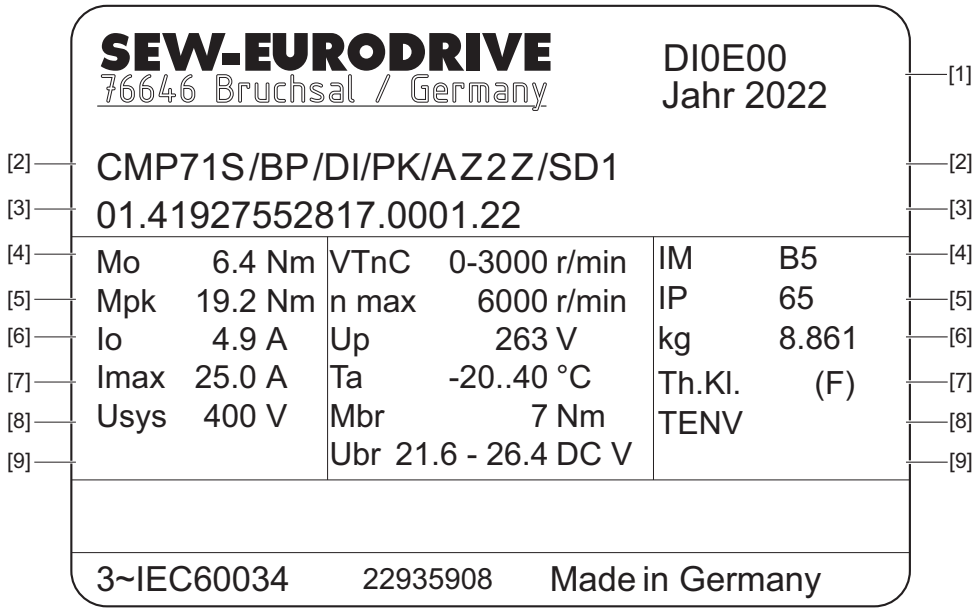
CMP71S/BP/DI/PK/AZ2Z/SD1	
CMP	• Motor series
71	• Motor size
S	• Length
/BP	• Brake version
/DI	• MOVILINK® DDI interface
/PK	• Temperature detection
/AZ2Z	• Encoder
/SD1	• Connection variant

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3.5 Nameplate on the motor

3.5.1 1st nameplate

The following figure shows the 1st nameplate of a CMP.. motor:



38562601483

Line	Information
[1]	• Type code of the MOVILINK® DDI interface • Year of manufacture
[2]	• Type designation
[3]	• Serial number
[4]	• Standstill torque • Variable torque • Speed class • Mounting position
[5]	• Dynamic limit torque of the motor • Maximum permitted speed • Degree of protection according to IEC 60034-5
[6]	• Standstill current • Voltage at the open terminals of the motor at rated speed • Mass
[7]	• Maximum permitted current • Ambient temperature • Thermal class
[8]	• System voltage, voltage of the supplying inverter • Nominal braking torque • TENV (Totally Enclosed Non-Ventilated)
[9]	• Brake voltage

3.5.2 2nd nameplate

The following figure shows the 2nd nameplate of a CMP.. motor:



38562603915

Line	Information
[1]	• Type designation
[2]	• Serial number

The following table lists all the markings that can be provided on a nameplate, and an explanation of what they mean:

CE	CE marking to state compliance with European Directives (see EU Declaration of Conformity).
	CEL mark to represent the energy efficiency in the Chinese grade classification.
MC170602 CSA	CSA mark to confirm the market conformity of the Canadian Standard Association (CSA).
	CMIM logo to confirm compliance with the technical regulations of Morocco.
EAC	EAC mark (EurAsian Conformity) Confirms compliance with the technical regulations of the economic and customs union of Russia, Belarus, Kazakhstan, Armenia.

	FS logo with 2-digit number for identification of installed functional safety motor options.
	UR mark to confirm that UL (Underwriters Laboratory) is informed about the registered components; register number by UL: E337323
	The UKCA mark indicates compliance with British guidelines.
	The UA.TR mark declares conformity with the technical regulations of Ukraine.
	Product label with QR code. The QR code on the product can be scanned. You will be redirected to the Digital Services of SEW-EURODRIVE. There, you have access to product-specific data, documents, and further services.
	Motors and accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and of its accessories according to the national regulations of your country.

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3.6 Possible use and target applications

3.6.1 Delta kinematics



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Pick-and-place is used if there is a requirement for free movement in the defined working space with precision and high dynamics. This means high-speed handling with robotics functionality and more than 200 picks per minute. With their excellent properties, the highly dynamic servomotors provide the perfect solution for these tasks.

Features of CMP..

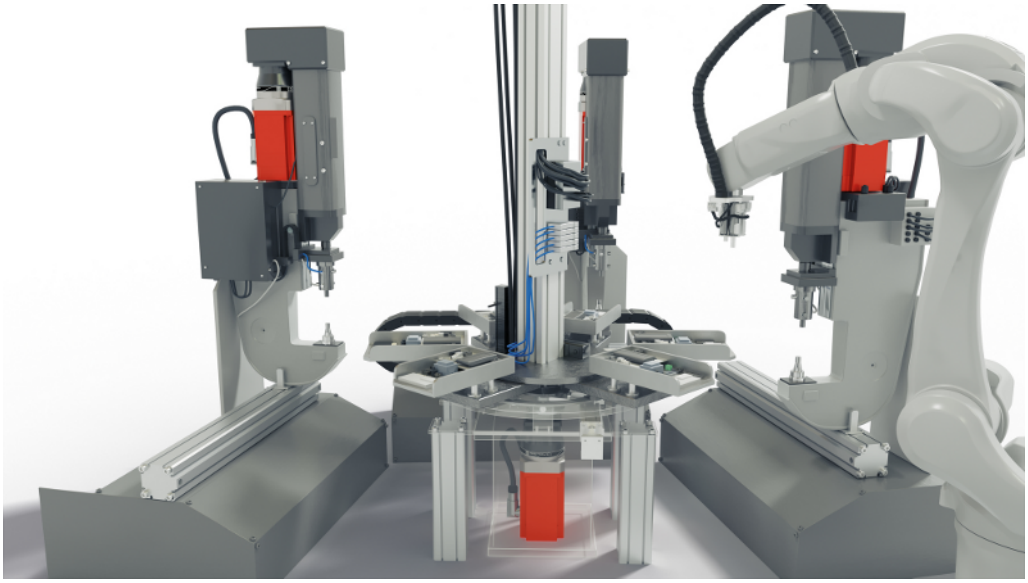
- High overload capacity with low inertia for quick acceleration and short cycle times
- Precise synchronization of the motors thanks to good controllability and high-precision encoder systems.

Your benefits

- High cycle rates due to shorts acceleration times allow for economic and highly efficient operation.
- High repeat accuracy and exact positioning, even at speeds as fast as 200 positioning tasks per minute

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3.6.2 Mounting press



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The workpieces must be passed through several work stations. At each work station, a different pressing operation is performed. In addition to the required high dynamics and constant precision, versatility is also essential when workpiece and pressing operation are changed. The servomotors offer the ideal solution.

Features of CMP..

- The high torque density of the motors allows for compact machine structures.
- The diverse range of options in the gear unit modular system allows for a high degree of flexibility in system configuration.
- The fully digital MOVILINK® DDI data interface allows for use of the single cable technology even with long cable lengths.

Your benefits

- Best integration capability of the drives allow for a variable machine structure.
- Automated startup with auto tuning functions reduces time and costs for startup.
- Saves space, time and expenditures regarding cabling.

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3.7 Standards and regulations

3.7.1 Standard conformity

Servo (brake)motors from SEW-EURODRIVE conform to the relevant standards and regulations, in particular to:

- IEC 60034-1, EN 60034-1

  Rotating electrical machines, rating and operating behavior
- IEC 60034-5, EN 60034-5

  Rotating electrical machines, degrees of protection provided by integral design of rotating electrical machines (IP code)
- IEC 60034-9, EN 60034-9

  Rotating electrical machines, noise limits
- IEC 60034-11, EN 60034-11

  Rotating electrical machines, thermal protection
- IEC 60034-14, EN 60034-14

  Rotating electrical machines, vibration severity
- EN 60529, IEC 60034-5, EN 60034-5

  IP degrees of protection for housings
- IEC 60072

  Dimensions and power ratings of rotating electrical machines
- EN 50347

  Standardized dimensions and power ratings

In connection with terminal box:

- EN 62444

  Cable glands for electrical installations (IEC 62444:2010, modified)

In connection with functional safety:

- EN 13849-1

  Safety of machinery
- EN 61800-5-2

  Electrical power drive systems with adjustable speed, requirements on the safety.
- EN 62061

  Safety of machines – functional safety

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3.7.2 Conformity with directives

Servo (brake)motors from SEW-EURODRIVE conform to the relevant standards and regulations, in particular to:

- Low Voltage Directive 2014/35/EU
- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU
- RoHS Directive 2011/65/EU
- CSA C22.2 no.100
- UL 1004-1
- UL 1004-6

3.8 Circuit breaker and protective equipment

3.8.1 Preventive measures

Synchronous servomotors must be protected against overload and short circuit.

Install the motors with sufficient space for air to cool them.

The surface temperature may be in excess of 100 °C during operation in accordance with thermal classification F. Therefore, measures to prevent inadvertent contact are essential.

The motors are equipped with temperature detection to protect the motor winding against overheating.

The temperature is measured by temperature sensors KTY 84 to 130 installed as standard, or, for sizes 71 to 112 by optionally available /TF temperature sensors. The correct model must be activated in the servo inverter to enable thermal motor protection (I^2t, effective current monitoring). For information on the procedure, refer to the documentation of the servo inverter.

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3.8.2 EMC measures

SEW-EURODRIVE synchronous servomotors are intended as components for installation in machinery and systems. The designer of the machine or system is responsible for complying with EMC Directive 2004/108/EC.

Single-cable technology with MOVILINK® DDI

When using single-cable technology with MOVILINK® DDI, the installation of hybrid brake and power cores in connection with the coaxial data cable is permitted in prefabricated cables from SEW-EURODRIVE. In this case, no further cables are required for communication with encoders and integrated brake controls.

Routing brake cables

The brake and power cables may only be routed together if either the brake cables or the power cables are shielded. SEW-EURODRIVE recommends the use of prefabricated cables ("prefabricated cables for single-cable technology" (→ 🗎 227) and "prefabricated cables for two-cable technology" (→ 🗎 241)).

Notes on encoder connection

Observe the following information when connecting an encoder:

- Only use shielded cables with twisted pair cores.
- Connect the shield on both sides over a large area on the PE potential.

Thermal motor protection

Laying together is only permitted if either the cable of the /PK temperature sensor (PT1000) or the power cable is shielded. SEW-EURODRIVE recommends using prefabricated cables.

Stress categories – IVIC classes

The standard IEC 60034-18-41 defines the stress categories for motors with the following characteristics:

- Nominal voltages over 300 V
- With electrical insulation system that is free of partial discharge
- Operation at a frequency inverter with intermediate voltage circuit

The stress categories, or impulse voltage insulation classes (IVIC), are divided into classes A to D.

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Technical details

The table shows the normative limit values for the most important nominal voltages for the motors.

IVIC class		Nominal voltage		
		400 V	500 V	575 V
B (medium)	Phase-to-earth $V_{pk/pk}$	1240 V	1550 V	1783 V
	Phase-to-phase $U_{pk/pk}$	1800 V	2250 V	2588 V
C (high)	Phase-to-earth $V_{pk/pk}$	1680 V	2100 V	2415 V
	Phase-to-phase $U_{pk/pk}$	2360 V	2950 V	3393 V

The rise time of the voltage is defined as follows: $T_a > 0.3 \pm 0.2$ µs.

Information about drive selection

The motors are optimally adapted for operation with all frequency inverters from SEW-EURODRIVE.

Motors with standard insulating systems for nominal voltages > 300 V

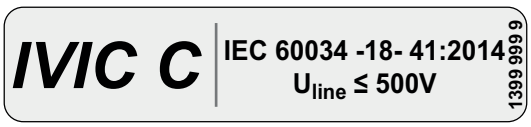
For operation on frequency inverters with intermediate voltage circuit, and with line voltages up to and including 500 V (including tolerances), the motors fulfill the specifications of IEC 60034-18-41 in stress category C (high).

Order information

Upon request, the permissible IVIC class can be displayed on the motor in the form of an additional label.

The permissible IVIC class is then also specified for SEW-EURODRIVE motors in the order confirmation.

The following figure shows an example of a label for motors with a standard insulation system:



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3.9 Operating conditions

3.9.1 Ambient temperature and installation altitude

According to IEC 60034 (EN 60034), the performance data of the motors apply to the following ambient conditions:

- Ambient temperature -20 °C to +40 °C
- Installation altitude up to 1000 m above sea level

If the specified limit values are exceeded, the performance data of the motors must be reduced. For more information, refer to chapter "Derating for increased ambient temperature and installation altitude" (→ 🗎 28).

For operating conditions as low as -40 °C, the motors can be provided with suitable measures. In these cases, the temperature range of -40 °C to +10 °C is indicated accordingly on the nameplate.

3.9.2 Derating for increased ambient temperature and installation altitude

If you operate the motors within the ambient temperature range of +40 °C to +60 °C or at an installation altitude between 1000 m and 4000 m, then you must adjust the operating points. Contact SEW-EURODRIVE in case of deviating ambient conditions.

The effective operating point with regard to installation altitude and increased ambient temperature results from the factor f_{AU} in the following table, as well as from the correlation:

$$M_{AU,eff} = \frac{1}{\sqrt{f_{AU}}} \times M_{eff}$$

$$n_{AU,eff} = \frac{1}{K_e \times f_{AU}} \times n_{eff}$$

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M_{eff}	=	Effective motor torque based on the load profile	$[M_{eff}]$ = Nm
$M_{AU,eff}$	=	Effective torque based on the load profile taking into account the installation altitude and/or increased ambient temperature	$[M_{AU,eff}]$ = Nm
n_{eff}	=	Mean thermal motor speed based on the load profile	$[n_{eff}]$ = min^{-1}
$n_{AU,eff}$	=	Effective rotational speed based on the load profile taking into account the installation altitude and/or increased ambient temperature	$[\eta_{AU}]$ = min^{-1}
f_{AU}	=	Derating factor for installation altitude and/or increased ambient temperature	$[f_{AU}]$ = 1
K_e	=	Encoder factor/electronics factor for resolver = 1, for electronic encoders (e.g. HIPERFACE®or EnDat 2.2 interface) and motors with MOVILINK®DDI interface = 0.9	$[K_e]$ = 1

Derating factor f_{AU} depending on the installation altitude and ambient temperature

f_{AU}	40 °C	45 °C	50 °C	55 °C	60 °C
1000 m	1	0.95	0.9	0.86	0.81
2000 m	0.9	0.86	0.81	0.77	0.73
3000 m	0.8	0.76	0.72	0.69	0.65
4000 m	0.7	0.67	0.63	0.6	0.57

Example of a motor with the following conditions:

- Ambient temperature 50 °C
- Installation altitude 3000 m
- Resolver
- From the configuration or load profile: M_{eff} = 5 Nm and n_{eff} = 1500 min^{-1}

The previous table determines the derating factor: f_{AU} = 0.72.

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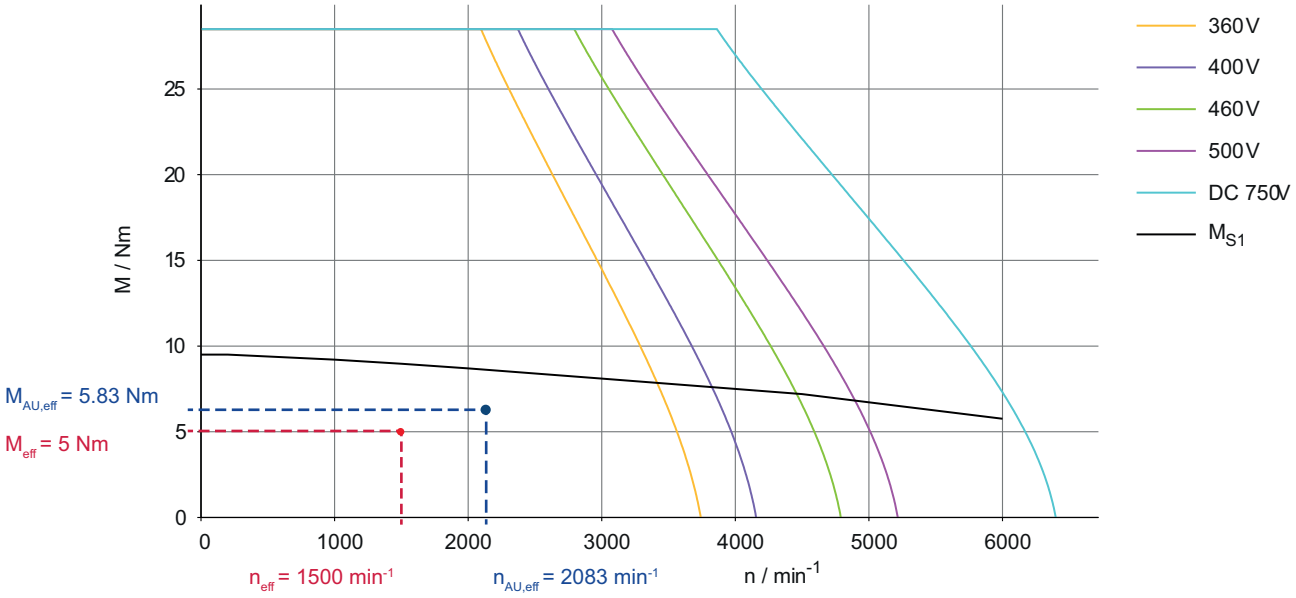
The effective operating point, taking into account the installation altitude and ambient temperature, is therefore as follows:

$$M_{AU,eff} = \frac{1}{\sqrt{0.72}} \times 5Nm = 5.89Nm$$

$$n_{AU,eff} = \frac{1}{1 \times 0.72} \times 1500min^{-1} = 2083min^{-1}$$

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If this point is below the MS1 characteristic of the motor, you can operate the motor continuously under the described conditions. For more information on the individual characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



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3.9.3 Other thermal influencing factors

Besides the ambient temperature and/or installation altitude the thermal capacity of the servomotor is also influenced by the mounting conditions. If the mounting conditions deviate from the specified rated flange information ("Information on the technical data – conditions" (→ 🗎 289)), e.g. in case of thermally insulated mounting to the application, it might be necessary to reduce the motor's performance data. For further information, please contact SEW-EURODRIVE.

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3.10 Technical features

Design	CMP40 / CMP50 / CMP63 / CMP71 / CMP80 / CMP100 / CMP112	
	Standard design	Optional
Number of poles	CMP40 – 63: 6 CMP71 – 100: 10 CMP112: 6	–
Motor protection	PK temperature sensor (Pt1000)	–
Ambient temperature	-20 °C to +40 °C	-20 °C to +60 °C -40 °C to +10 °C
Cooling	Convection, radiation	Forced cooling fan for CMP50 – 112
Connection technology	Adjustable plug connector	Radial plug connector Terminal box
Painting	Machine paint in color "jet black" (RAL9005)	Additional colors are available upon request
Shaft end (according to IEC 60072-1)	Smooth	With key, domed type A
Mounting position (according to IEC 600034-7)	IM B5 (IM V1, IM V3)	–
Degree of protection (according to IEC 600034-5)	IP65	IP66
Thermal class (according to IEC 600034-1)	155 (F)	–
Noise characteristics (according to IEC 60034-9)	Is undershot	–
Oscillating quantity stage (according to IEC 600034-14)	Stage A	–

3.11 Maximum motor speeds

The following mechanically permitted speeds apply to the motors and brakemotors:

Motor	Maximum speed in min^{-1}	
	Without brake	With brake
CMP40	9000	/BK: 7200
CMP50	9000	/BK: 7200
CMP63	7500	/BK: 7200
CMP71	7500	/BP: 6000
CMP80	7500	/BP: 5500
CMP100	5600	/BP: 5000
CMP112	5200	/BY: 4500

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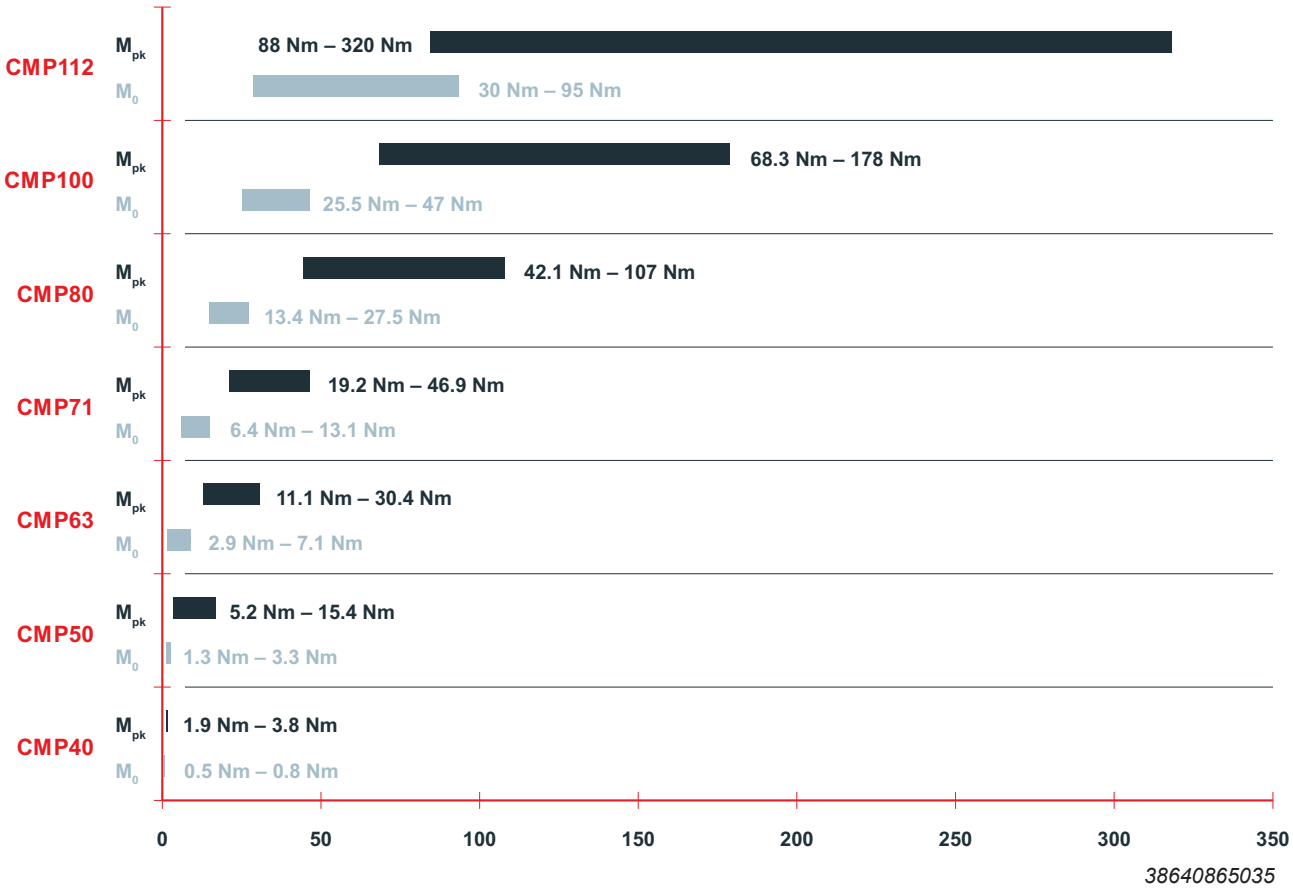
4 Technical data

Technical data

For further information regarding the technical data and dimension sheets, refer to chapter "Appendix" (→ 🗎 287).

4.1 Overview of torques

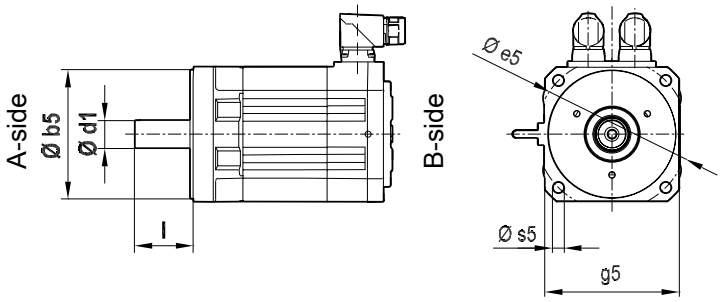
The following illustration shows the possible speed ranges of the servomotors CMP40 to CMP112.



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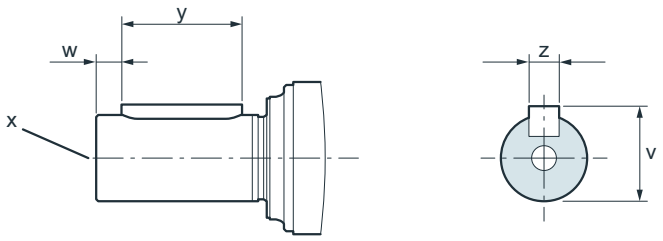
4.2 Overview of motor dimensions

The following illustration shows the dimensions of the output side of the standard CMP.. motor. The design with keyway and key is optional.



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Motor	d1 Shaft Ø mm	l Wave length mm	b5 Centering Ø mm	e5 Hole circle Ø mm	s5 Bore Ø mm	g5 Flange square mm
CMP40	9	20	40	63	4.5	57
CMP50	11	23	60	75	5.5	73
CMP63	14	30	80	100	6.5	88
CMP71	24	50	110	130	9	116
CMP80	28	60	130	165	11	138
CMP100	32	60	155	190	11	163
CMP112	38	80	180	215	13.5	190



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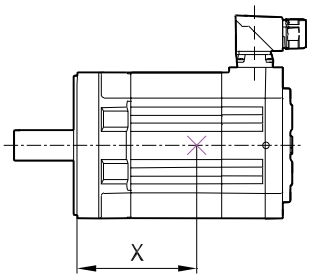
Key motor	x Centering	y Key length mm	z Key width mm	v Shaft height mm	w Key distance mm
CMP40	DIN332 DR M3	12	3	10.2	4
CMP50	DIN332 DR M4	16	4	12.5	3.5
CMP63	DIN332 DR M4	22	5	16	4
CMP71	DIN332 DR M8	40	8	27	5
CMP80	DIN332 DR M10	50	8	31	5
CMP100	DIN332 DR M12	50	10	35	4
CMP112	DIN332 DR M12	70	10	41	5

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4.2.1 Centers of mass

The center of gravity of a motor is a theoretical variable. This size is determined on the assumption that the entire mass of the motor is concentrated at a point where the weight F_q is applied.

The center of gravity is relative to the flange position and stated with regard standard flanges B5. Consider the center of gravity for the combination of motors that are mounted to a gear unit using an adapter. Changed designs or additional options influence the center of gravity. Contact SEW-EURODRIVE in case of deviating motor designs or changed options.



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Centers of mass at motors without brakes

Motor	Length	Mass kg	x Distance to center of mass mm
CMP40	S	1.1	59
	M	1.7	70
CMP50	S	2.4	68
	M	3.2	87
	L	4.5	105
CMP63	S	3.7	81
	M	5.7	105
	L	7.4	128
CMP71	S	6	77
	M	7.7	89
	L	10.9	114
CMP80	S	12.7	93
	M	16.7	110
	L	21.3	144
CMP100	S	20.1	107
	M	25.7	126
	L	35.8	167
CMP112	S	38.7	134
	M	46.7	155
	L	63	199
	H	71.7	221
	E	80.4	242

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Centers of mass at motors without BK.. brakes

Motor	Length	Mass kg	x Distance to center of mass mm
CMP40	S	1.5	76
	M	2.1	85
CMP50	S	2.8	81
	M	3.6	100
	L	5	120
CMP63	S	4.3	94
	M	6.5	120
	L	8.2	144

Centers of mass at motors with BP.. brakes

Motor	Length	Mass kg	x Distance to center of mass mm
CMP71	S	7.9	106
	M	9.5	115
	L	12.8	137
CMP80	S	16.3	121
	M	20.2	136
	L	24.9	167
CMP100	S	25.2	139
	M	30.7	155
	L	40.9	194

Centers of mass at motors with BY.. brakes

Motor	Length	Mass kg	x Distance to center of mass mm
CMP112	S	57.7	203
	M	65.7	222
	L	82	263
	H	90.7	283
	E	99.4	302

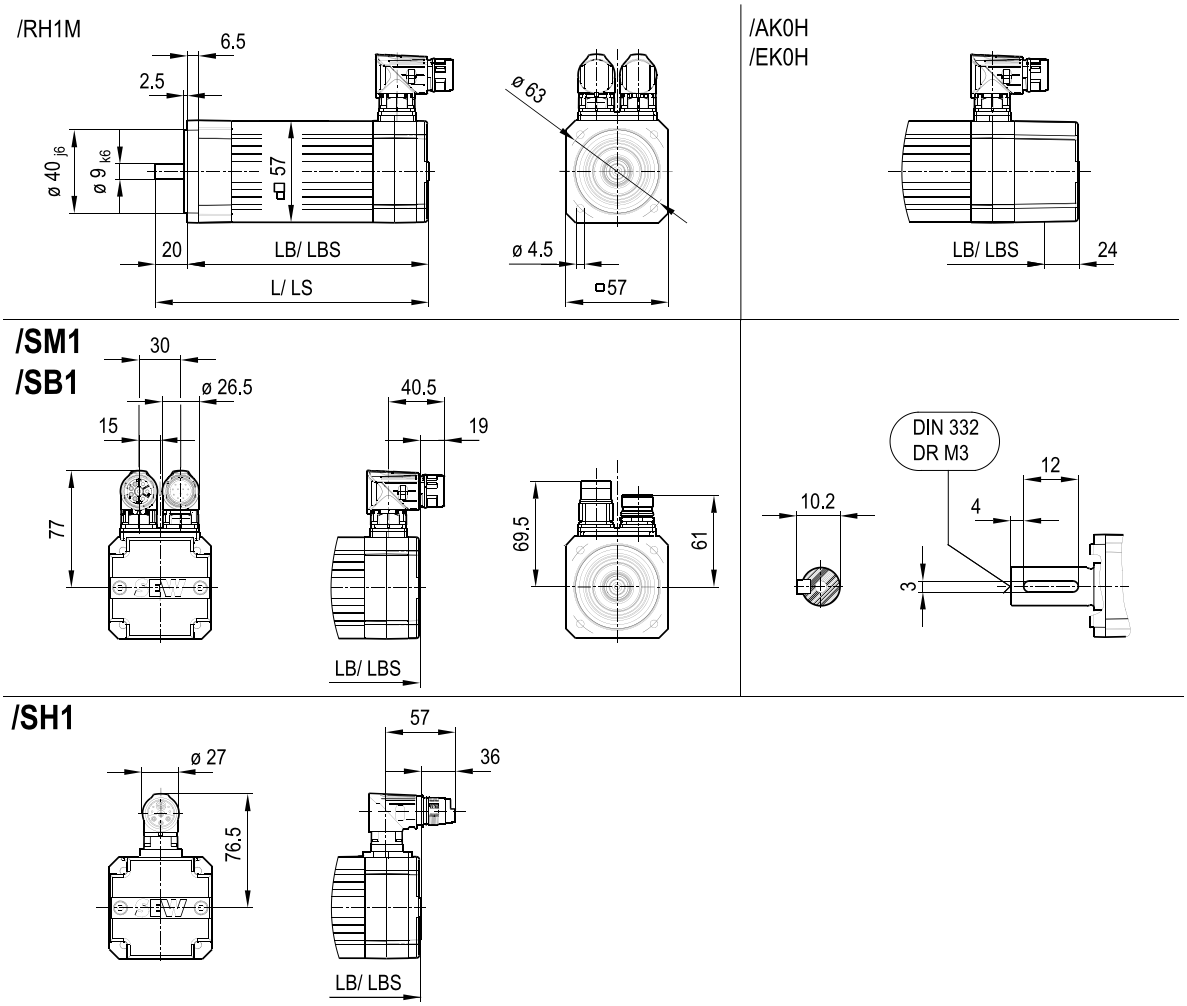
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4.3 Dimension sheets

4.3.1 CMP40

CMP40S/M
CMP40S/M BK

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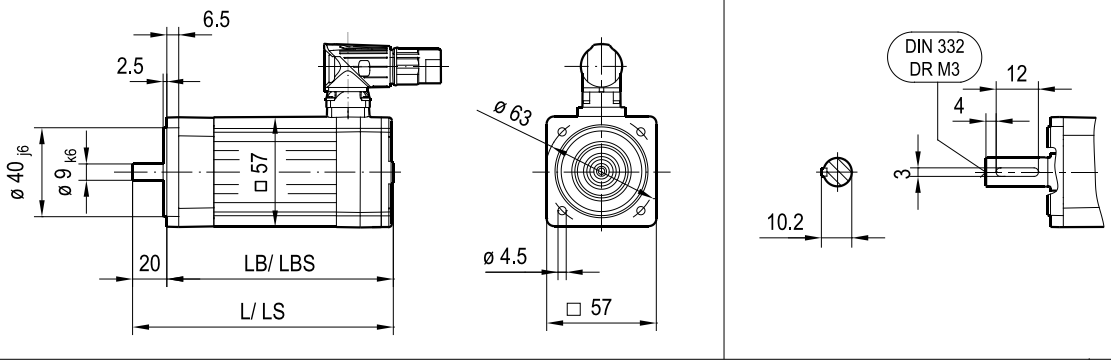


	CMP40							
	S	M						
LB	122.5	148.5						
L	142.5	168.5						
LBS	152	178						
LS	172	198						

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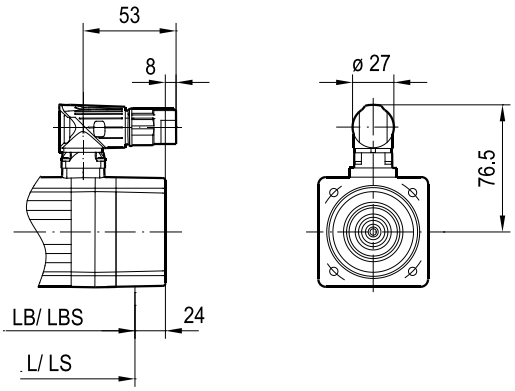
CMP40S/M
CMP40S/M BK

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/EH0E



	CMP40							
	S	M						
LB	122.5	148.5						
L	142.5	168.5						
LBS	152	178						
LS	172	198						

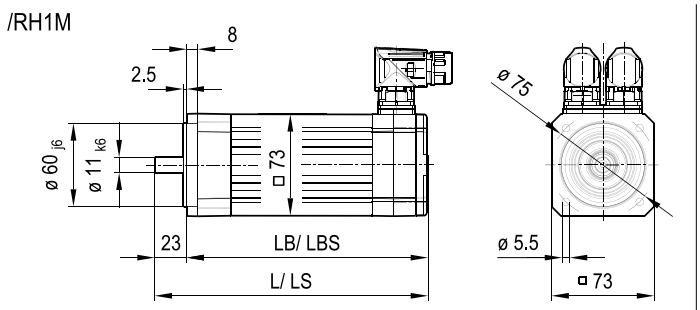
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4.3.2 CMP50

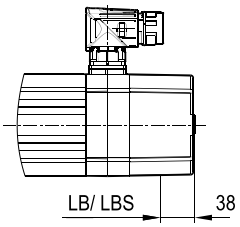
CMP50S/M/L
CMP50S/M/L BK

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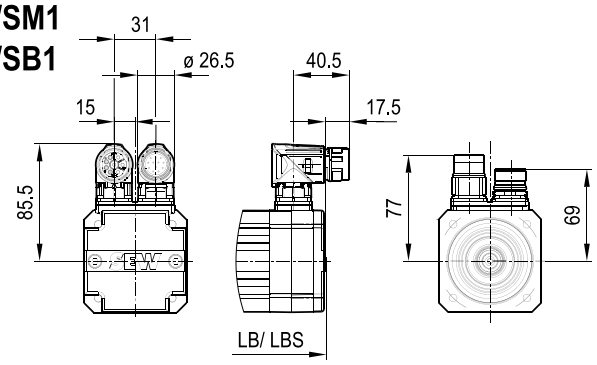
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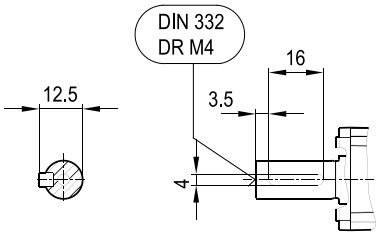


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/EK1H
/AK0H

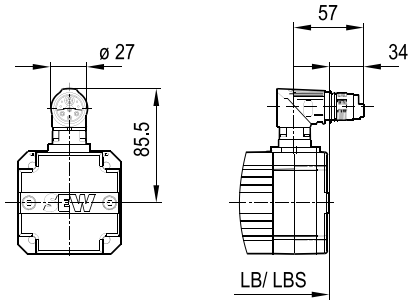


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/SB1

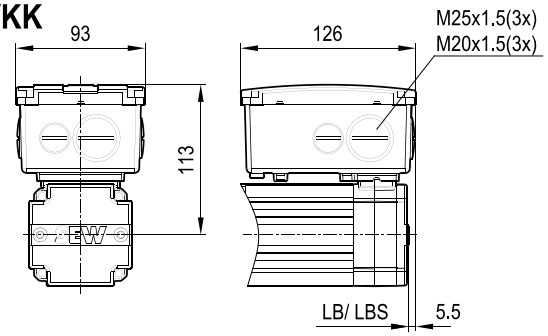




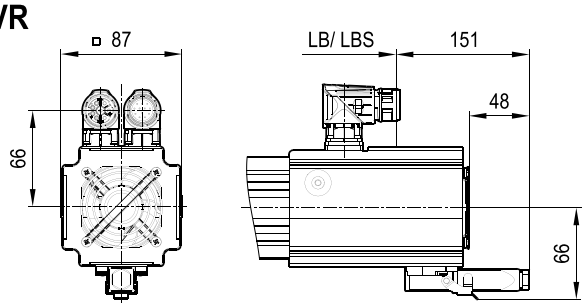
/SH1



/KK



/VR

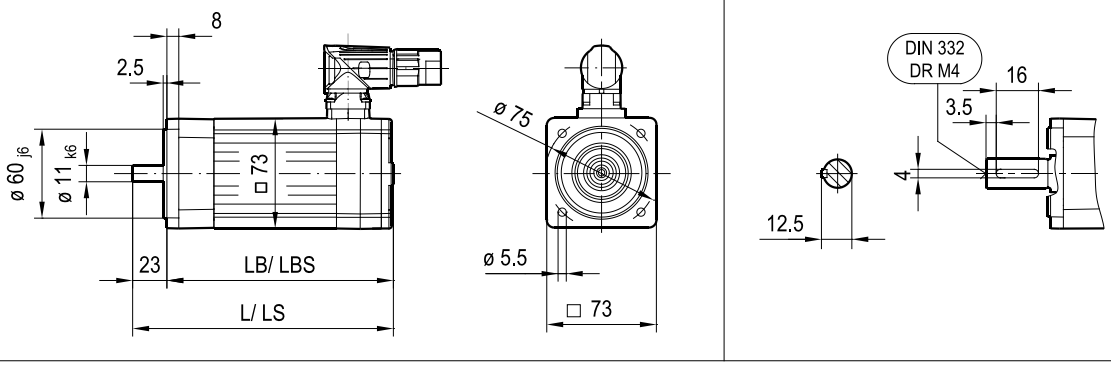


	CMP50							
	S	M	L					
LB	150.5	189.5	228.5					
L	173.5	212.5	251.5					
LBS	179	218	257					
LS	202	241	280					

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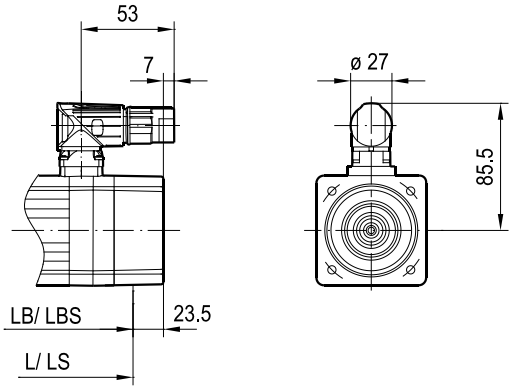
CMP50S/M/L
CMP50S/M/L BK

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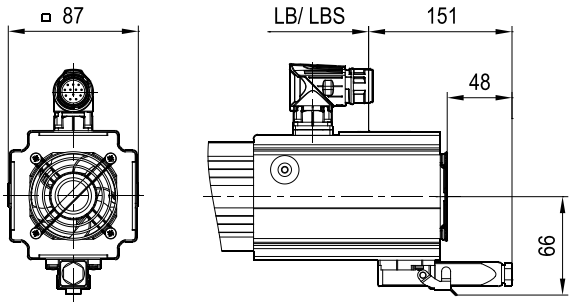


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/EH1E



/VR

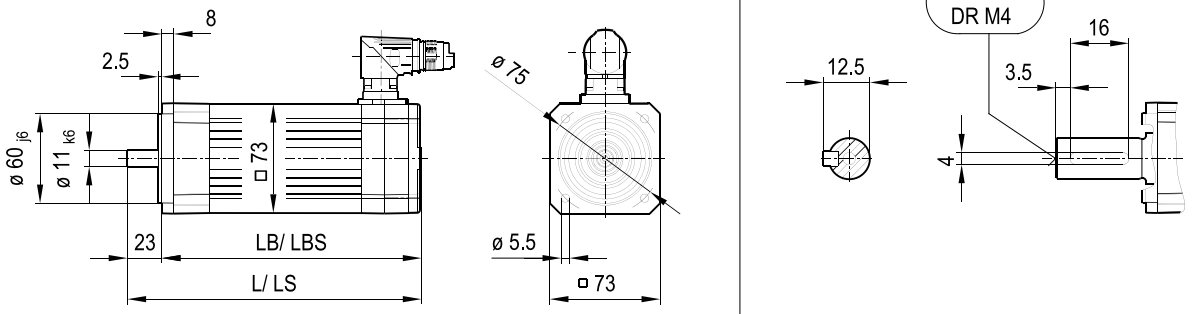


	CMP50							
	S	M	L					
LB	150.5	189.5	228.5					
L	173.5	212.5	251.5					
LBS	179	218	257					
LS	202	241	280					

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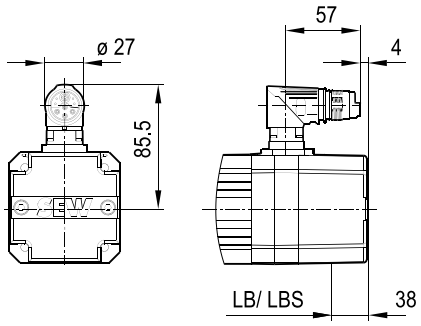
CMP50S/M/L DI
CMP50S/M/L BK DI

08 160 01 19



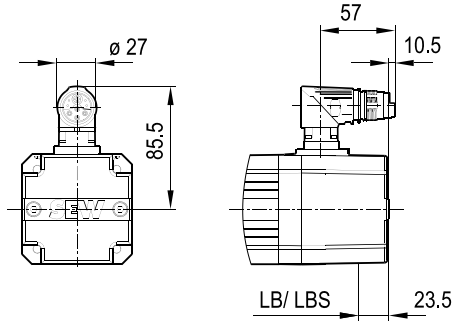
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/EZ2Z



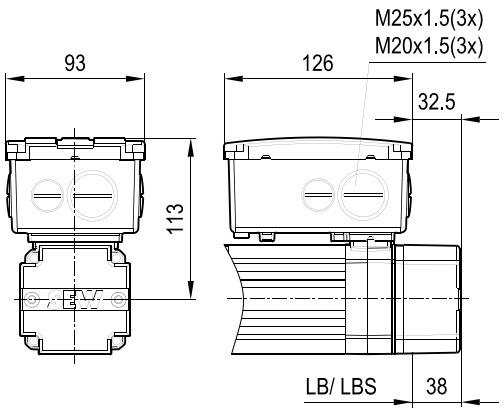
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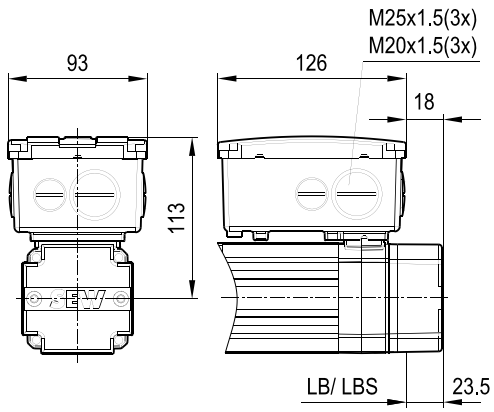
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/EZ2Z

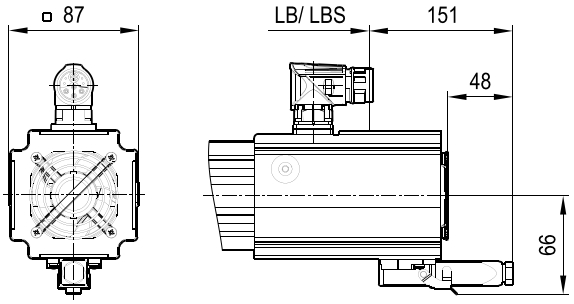


/KD

/AZ4Z
/EZ4Z



/VR



	CMP50							
	S	M	L					
LB	150.5	189.5	228.5					
L	173.5	212.5	251.5					
LBS	179	218	257					
LS	202	241	280					

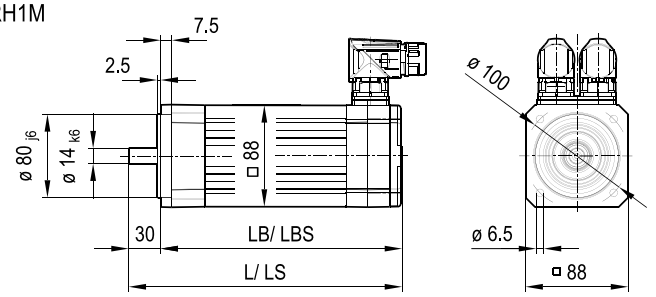
27799468/EN – 11/2023

4.3.3 CMP63

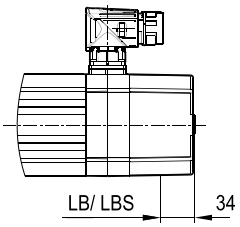
CMP63S/M/L
CMP63S/M/L BK

08 532 02 09

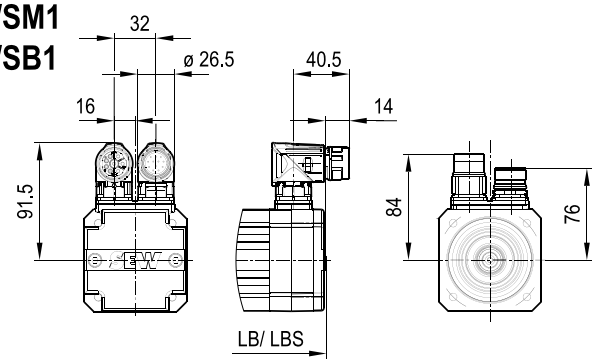
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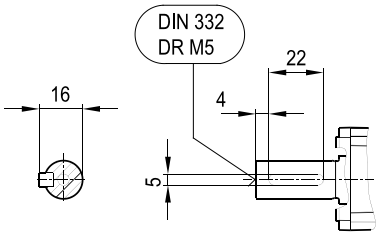


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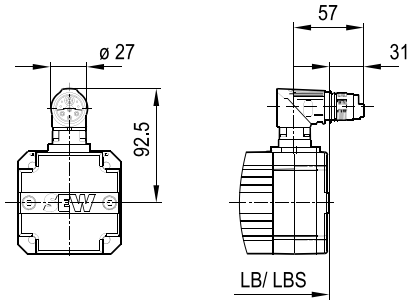


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/SB1

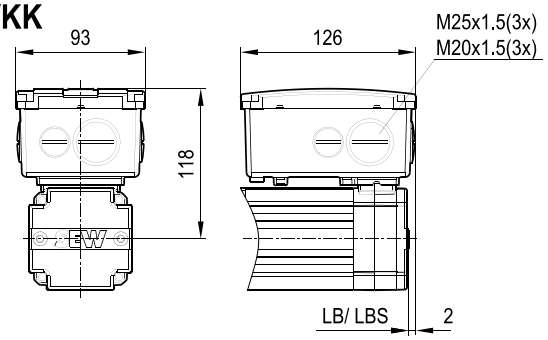




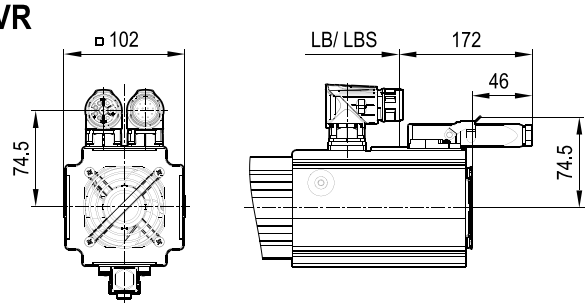
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/KK



/VR

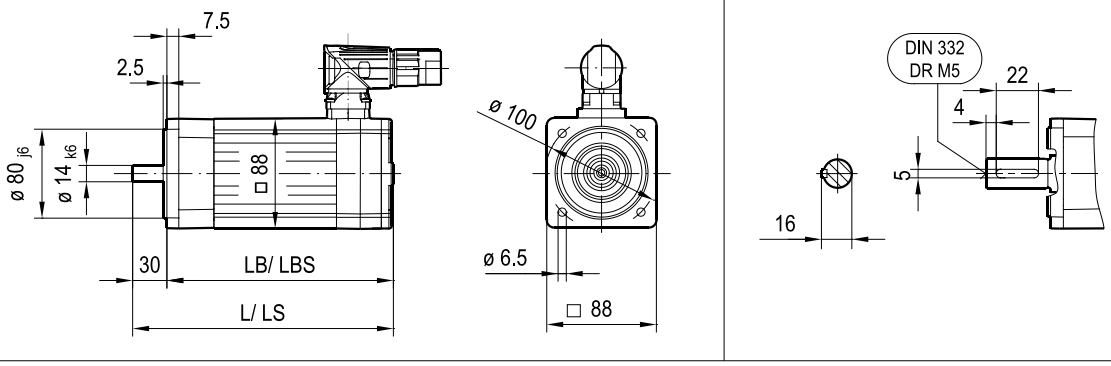


	CMP63							
	S	M	L					
LB	182	232	282					
L	212	262	312					
LBS	210	260	310					
LS	240	290	340					

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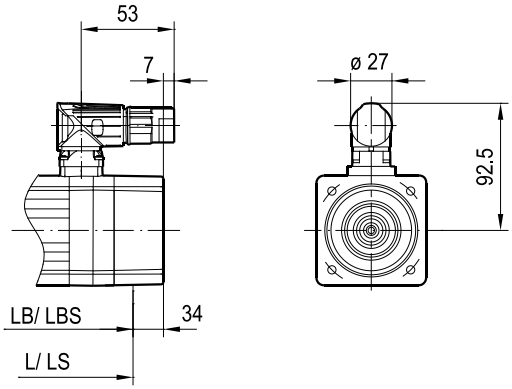
CMP63S/M/L
CMP63S/M/L BK

08 218 00 20

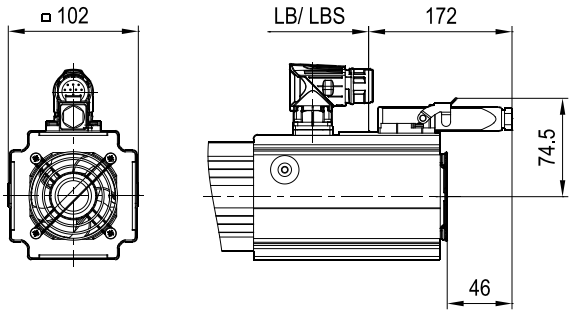


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/AH1E
/EH1E



/VR

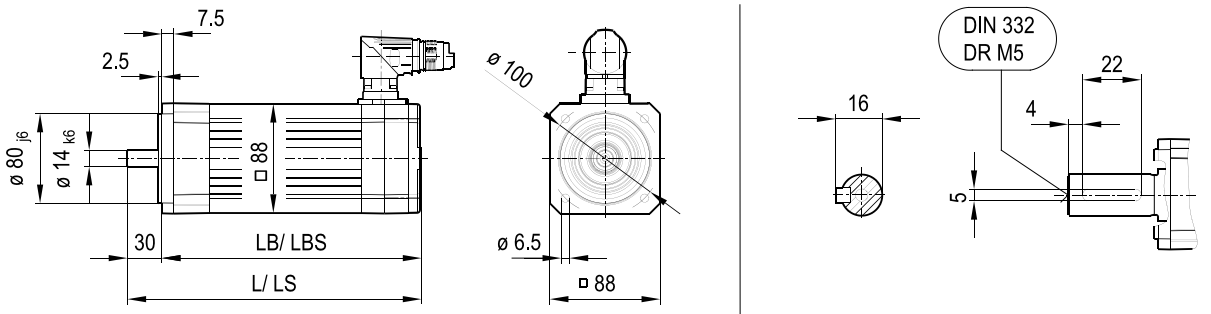


	CMP63							
	S	M	L					
LB	182	232	282					
L	212	262	312					
LBS	210	260	310					
LS	240	290	340					

27799468/EN – 11/2023

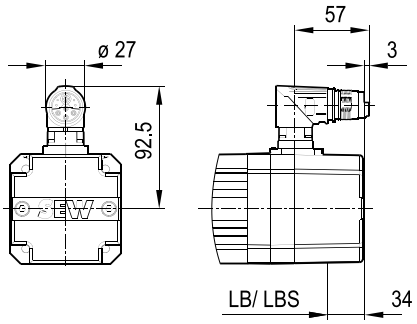
CMP63S/M/L DI
CMP63S/M/L BK DI

08 153 01 19



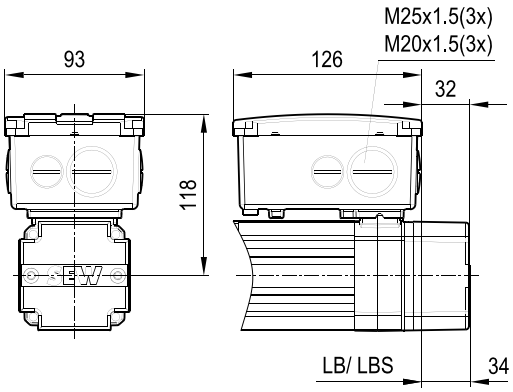
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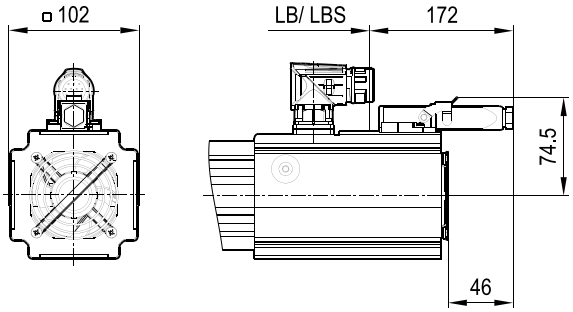


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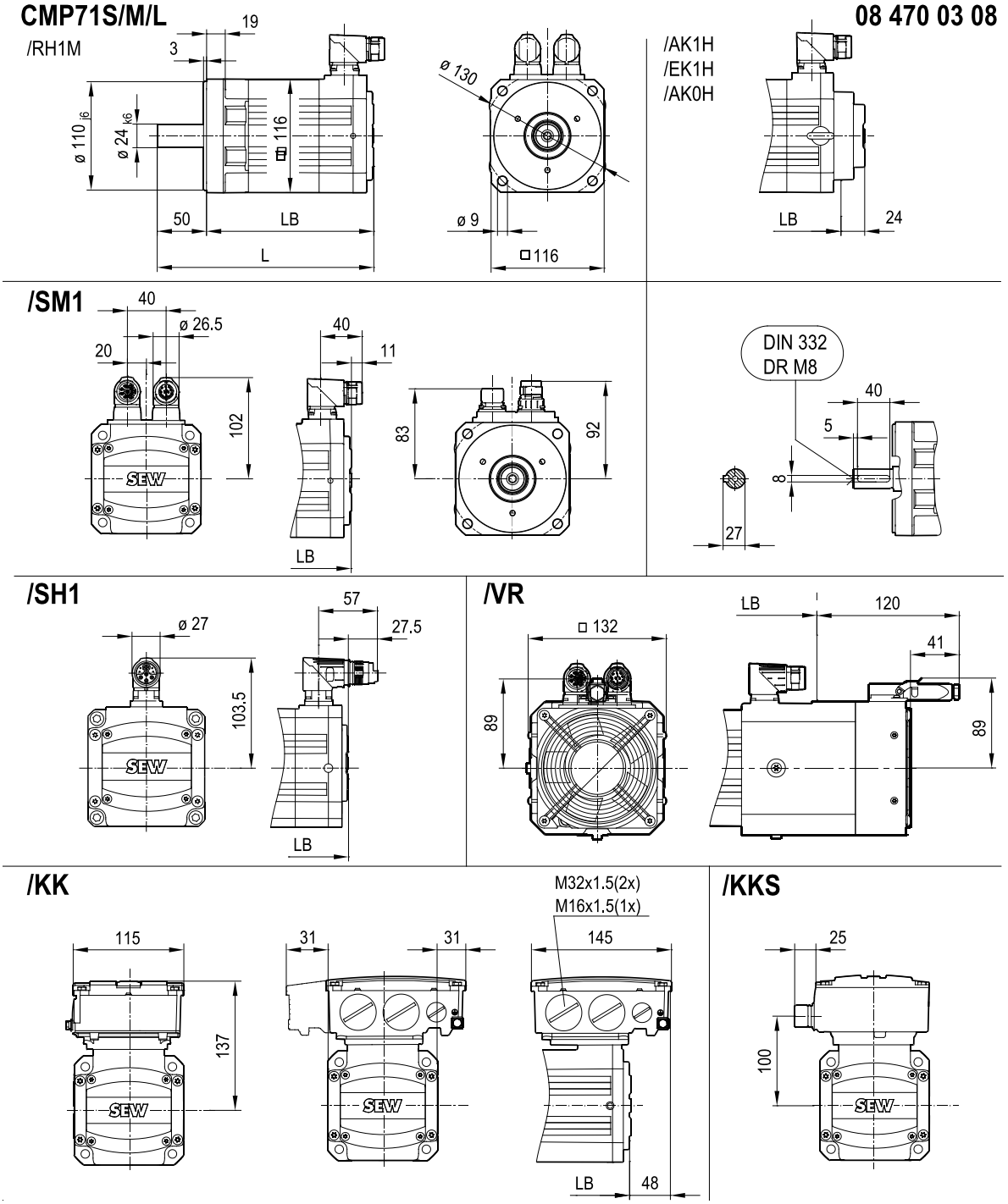
/VR



	CMP63							
	S	**M**	**L**					
LB	182	232	282					
L	212	262	312					
LBS	210	260	310					
LS	240	290	340					

27799468/EN – 11/2023

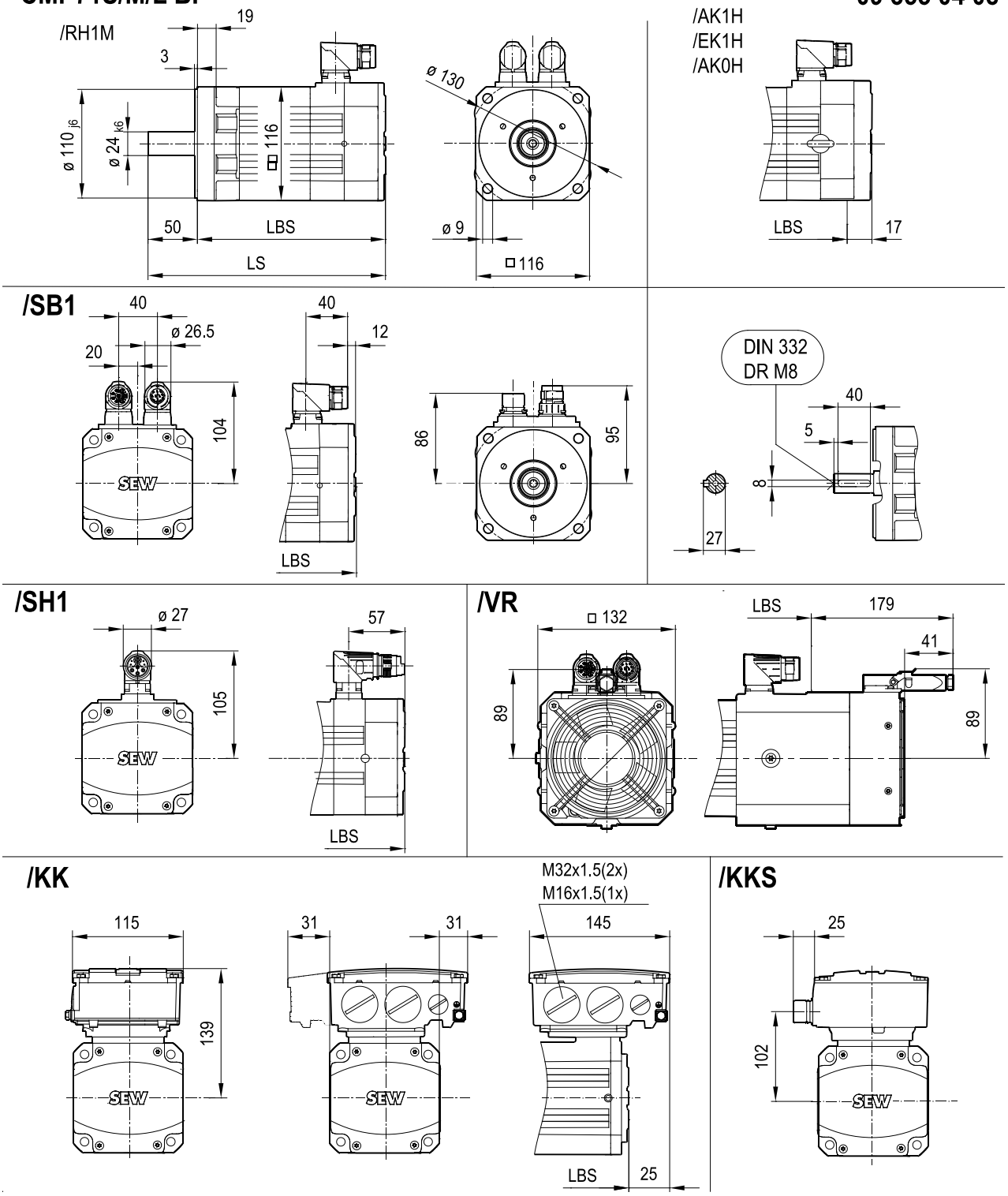
4.3.4 CMP71



	CMP71							
	S	M	L					
LB	170	195	245					
L	220	245	295					

CMP71S/M/L BP

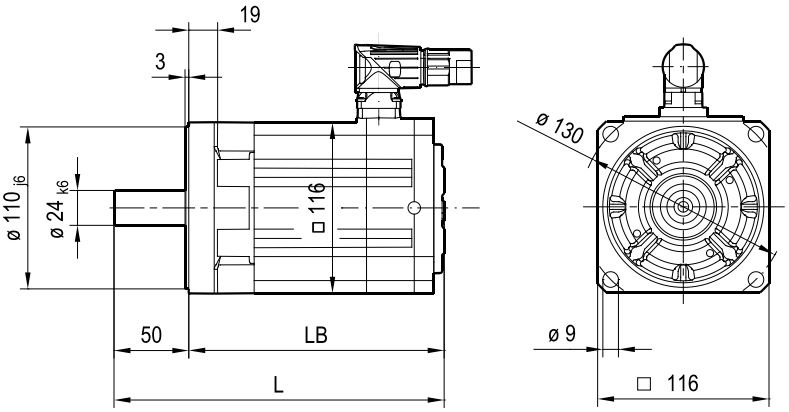
09 355 04 08



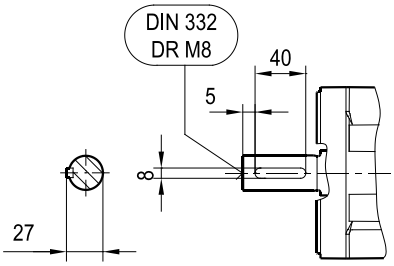
	CMP71							
	S	M	L					
LBS	233	258	308					
LS	283	308	358					

27799468/EN – 11/2023

CMP71S/M/L

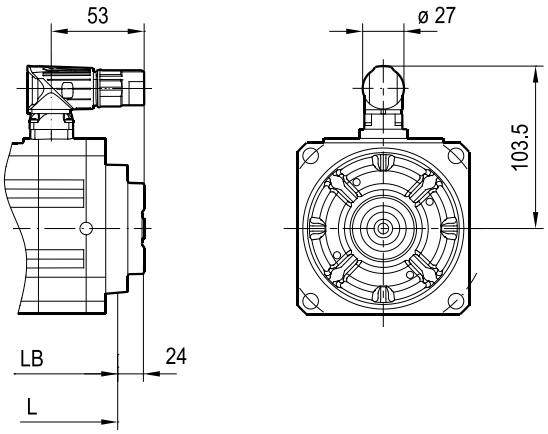


08 219 00 20

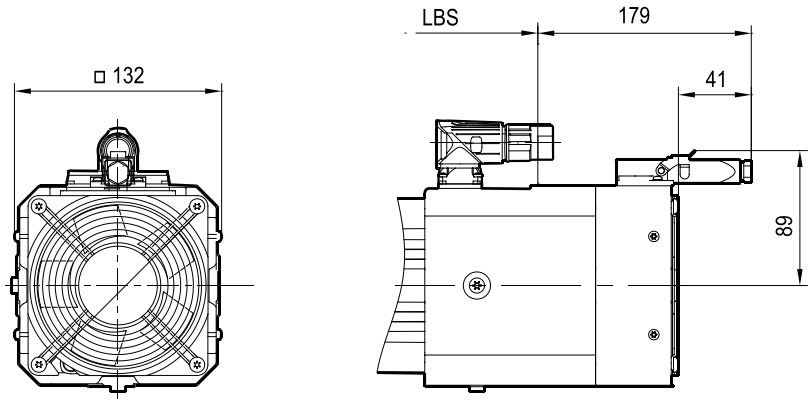


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/AH1E
/EH1E



/VR

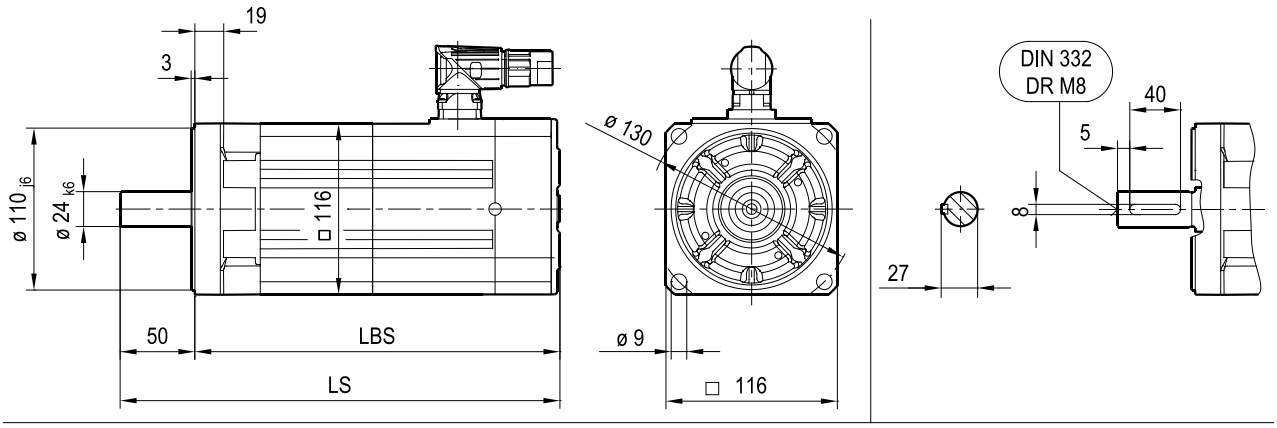


	CMP71							
	S	M	L					
LB	170	195	245					
L	220	245	295					

27799468/EN – 11/2023

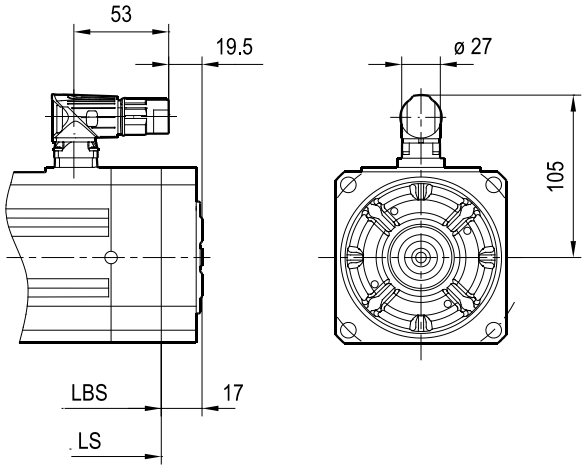
CMP71S/M/L BP

09 174 00 20

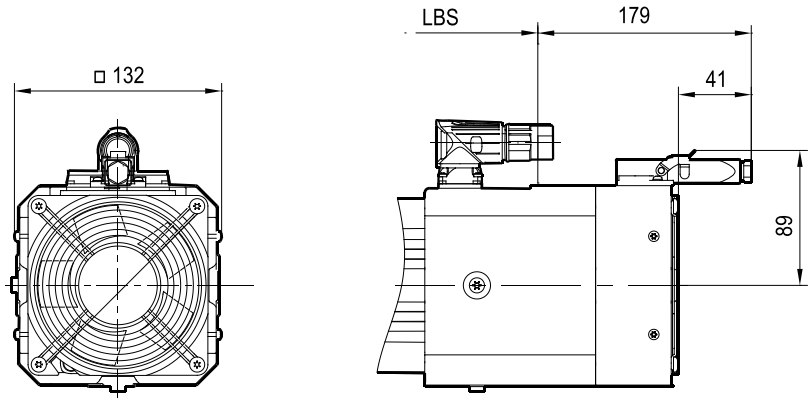


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/AH1E
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/VR

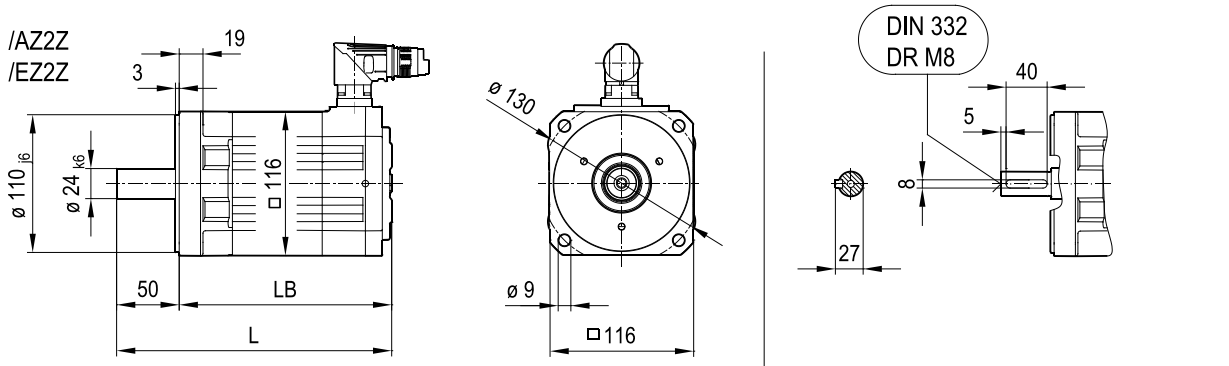


	CMP71							
	S	**M**	**L**					
LBS	233	258	308					
LS	283	308	358					

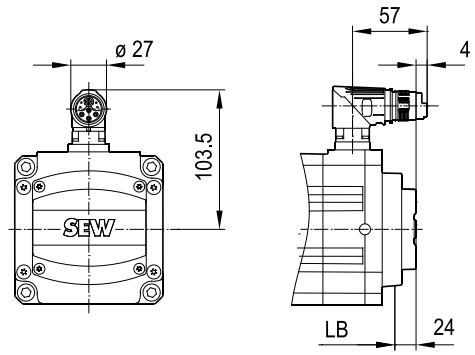
27799468/EN – 11/2023

CMP71S/M/L DI

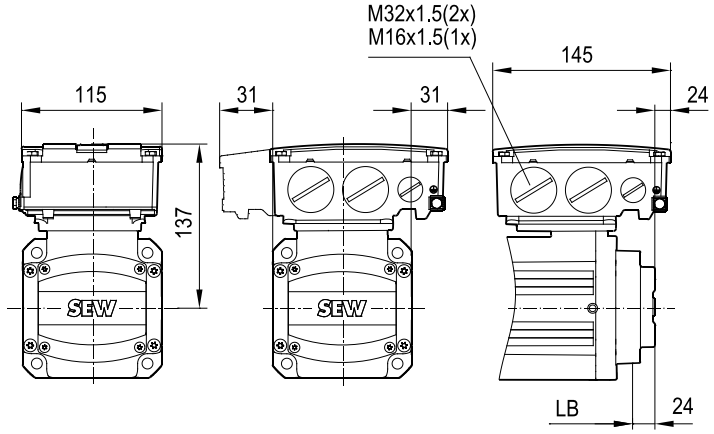
08 154 01 19



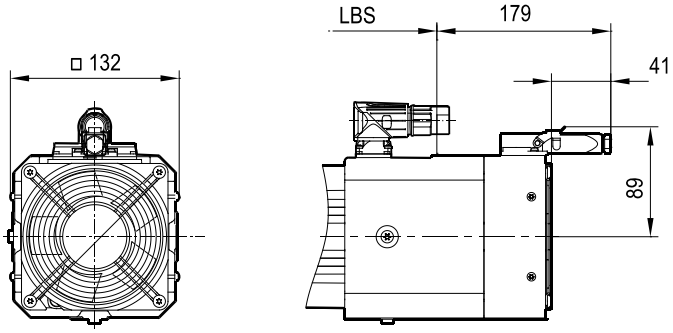
/SD1



/KD



/VR

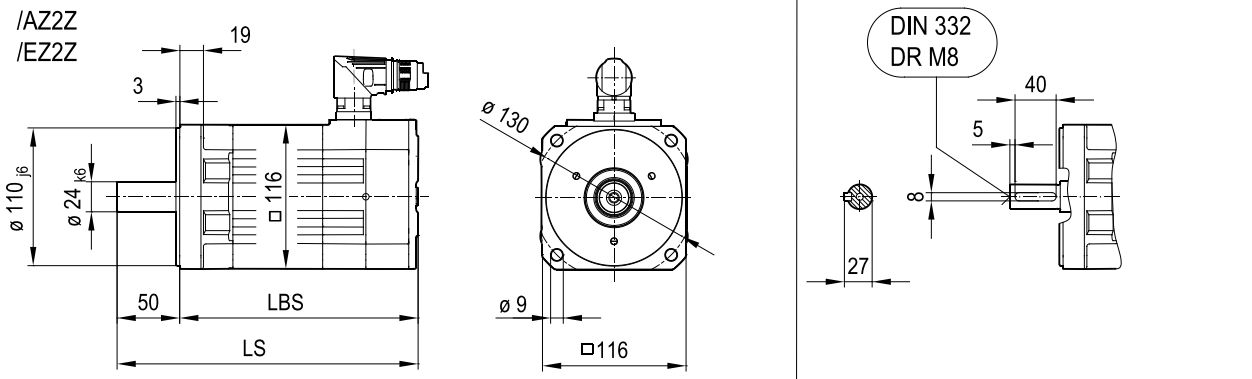


	CMP71							
	S	M	L					
LB	170	195	245					
L	220	245	295					

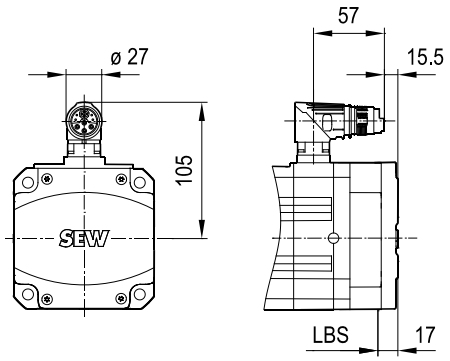
27799468/EN – 11/2023

CMP71S/M/L BP DI

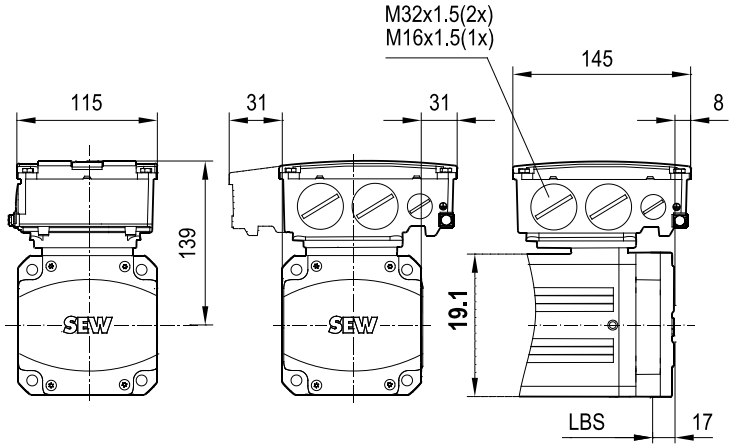
08 155 01 19



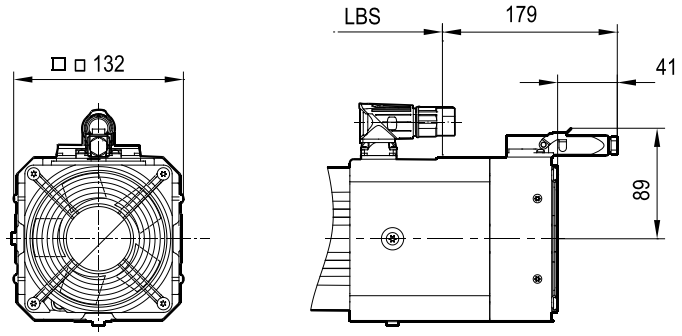
/SD1



/KD



/VR



	CMP71							
	S	M	L					
LBS	233	258	308					
LS	283	308	358					

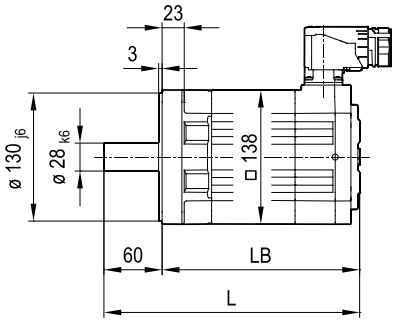
27799468/EN – 11/2023

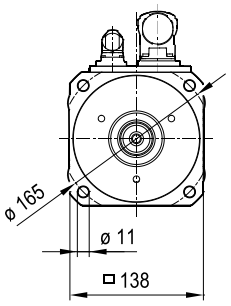
4.3.5 CMP80

CMP80S/M/L

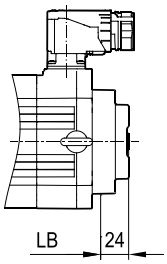
08 471 03 08
1(2)

/RH1M

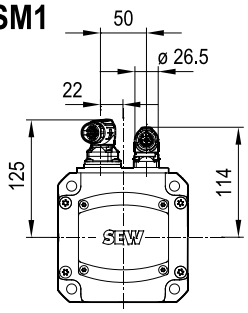


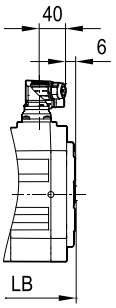


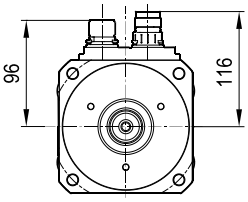
/AK1H
/EK1H
/AK0H

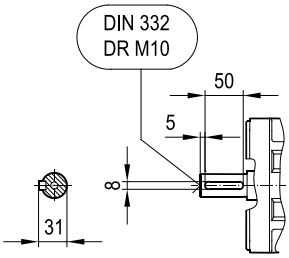


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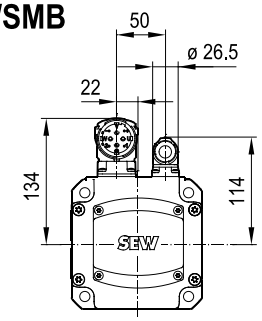


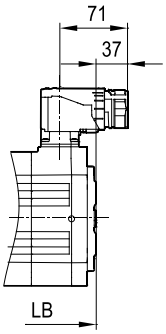


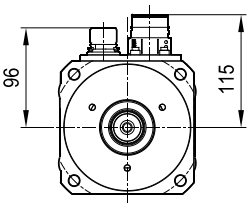




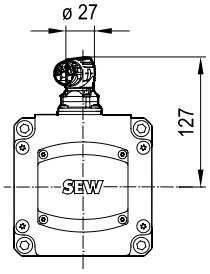
/SMB

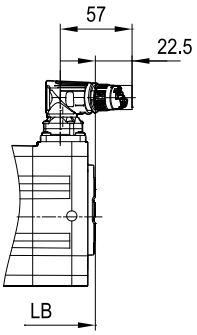




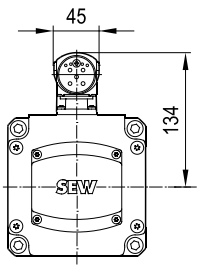


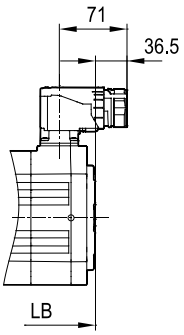
/SH1





/SHB



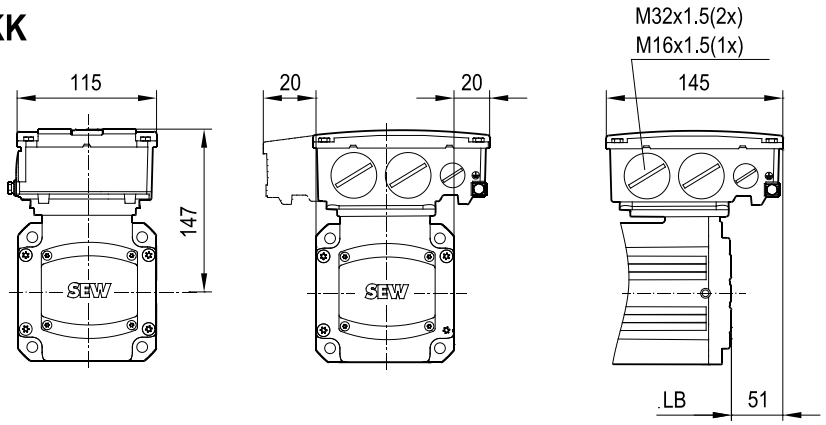


	CMP80							
	S	M	L					
LB	204	238	306					
L	264	298	366					

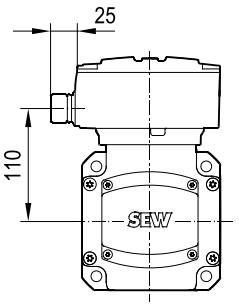
CMP80S/M/L

08 471 03 08
2(2)

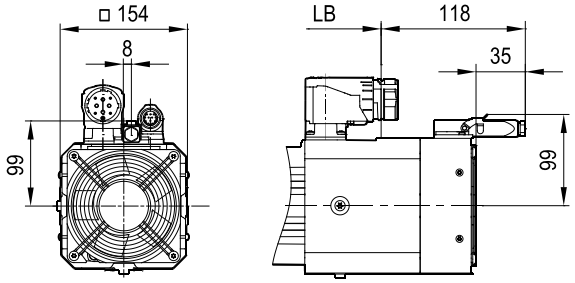
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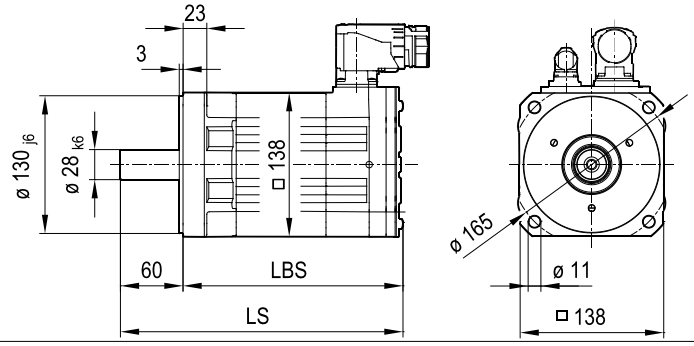


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	S	M	L					
LB	204	238	306					
L	264	298	366					

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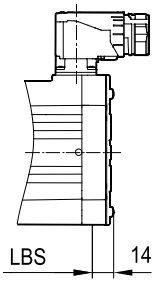
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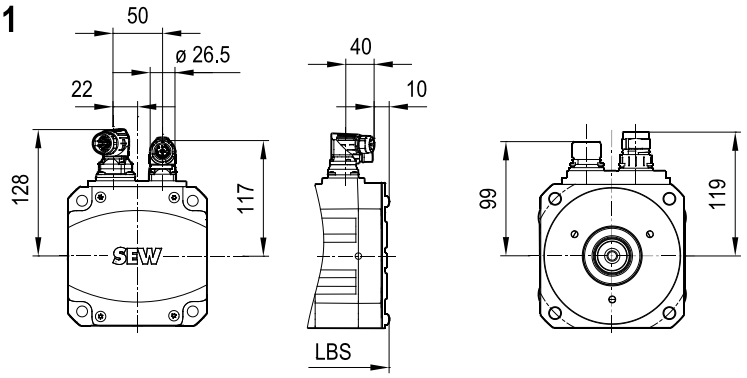


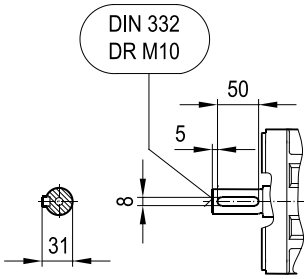
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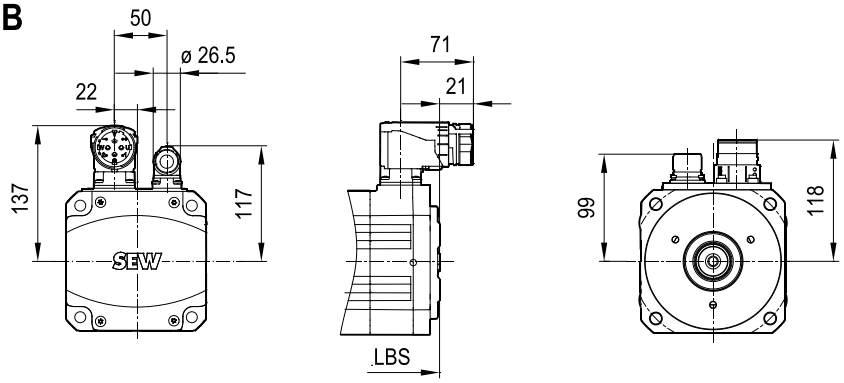


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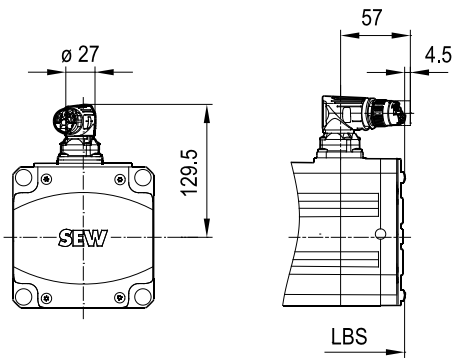




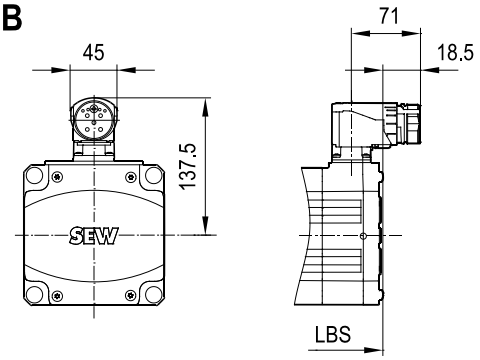
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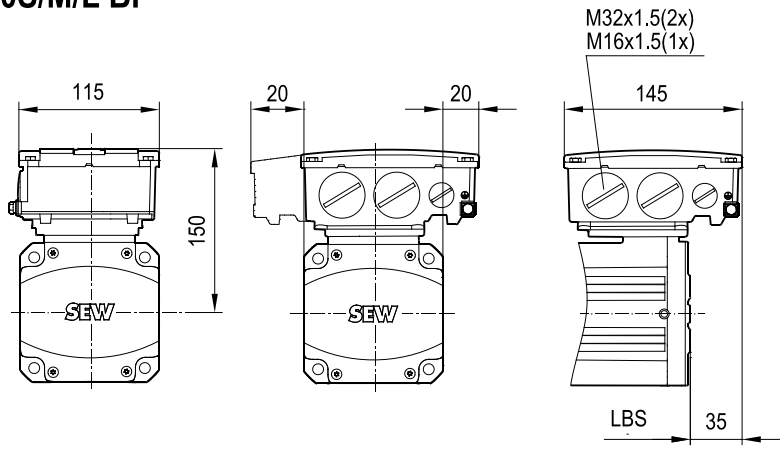
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	S	M	L					
LBS	282	316	384					
LS	342	376	444					

27799468/EN – 11/2023

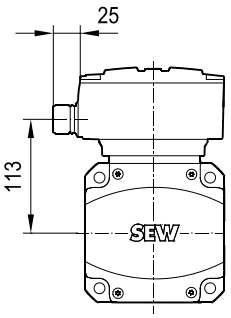
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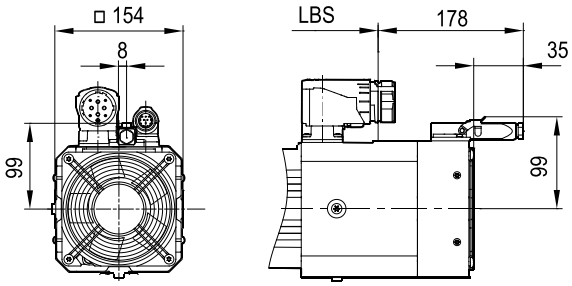
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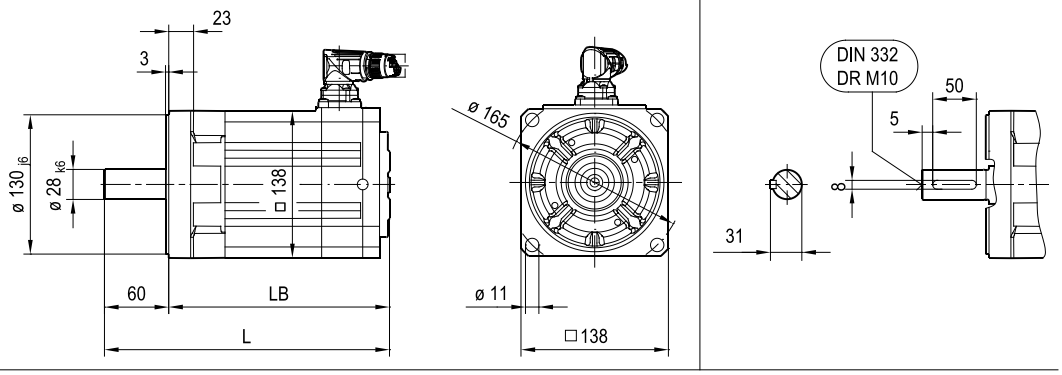


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LBS	282	316	384					
LS	342	376	444					

27799468/EN – 11/2023

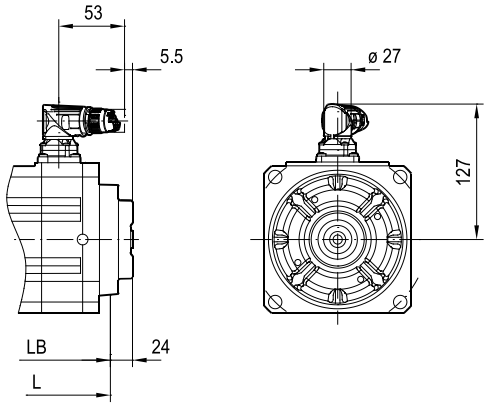
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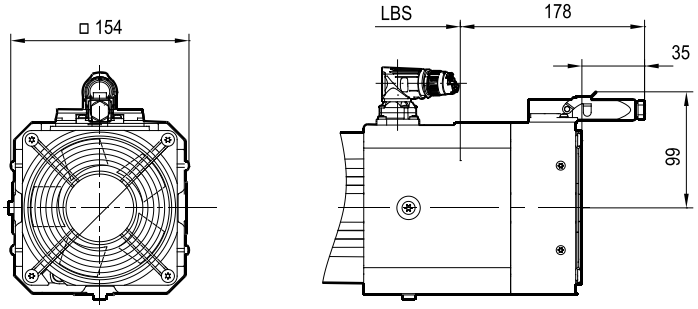


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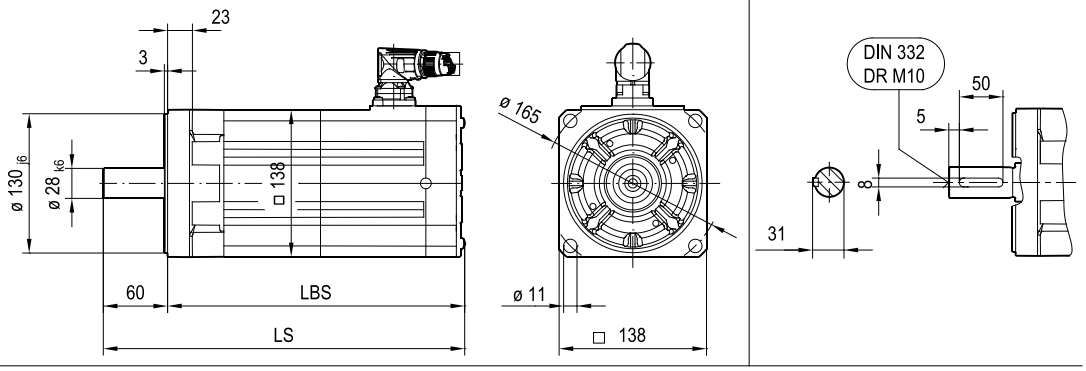


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	S	**M**	**L**					
LB	204	238	306					
L	264	298	366					

27799468/EN – 11/2023

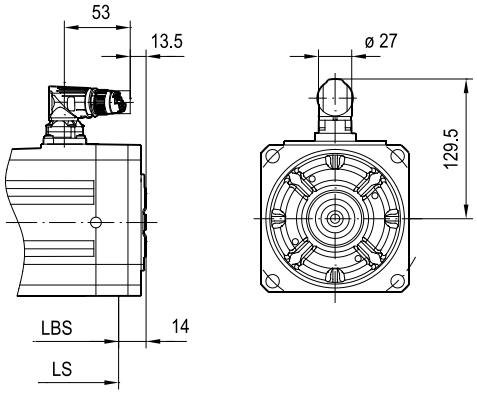
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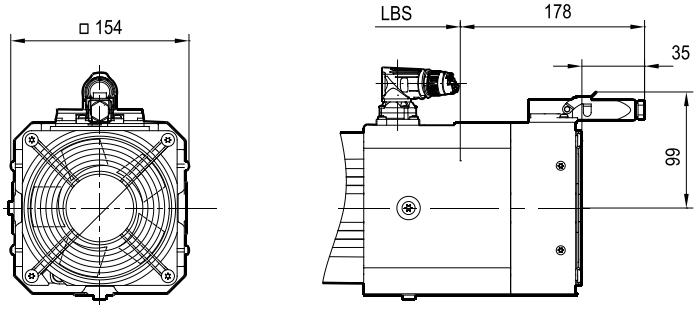


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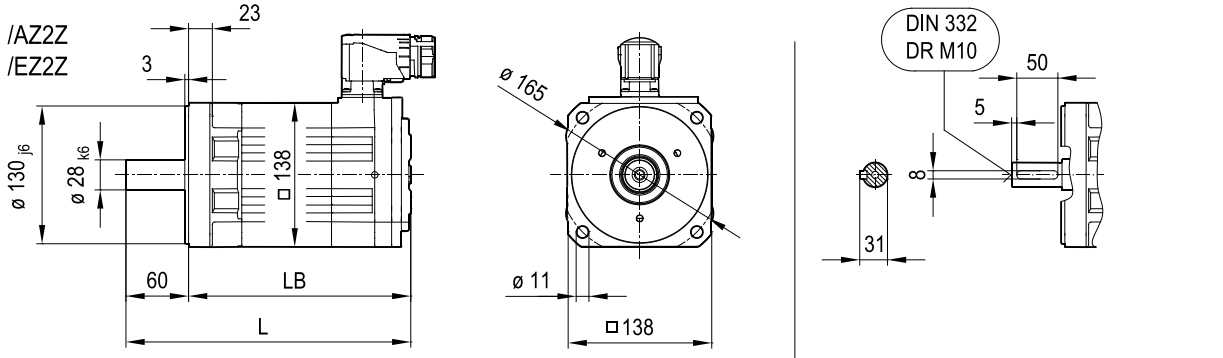


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	S	M	L					
LBS	282	316	384					
LS	342	376	444					

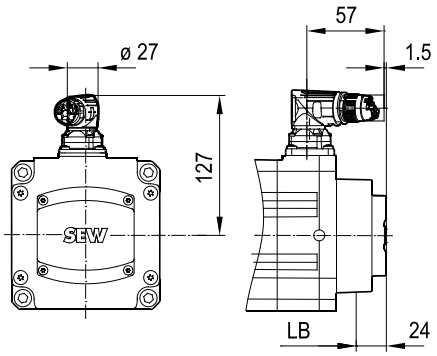
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CMP80S/M/L DI

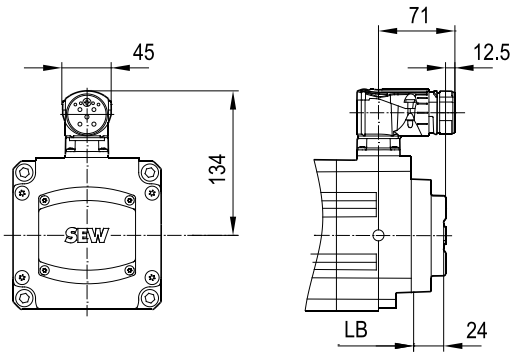
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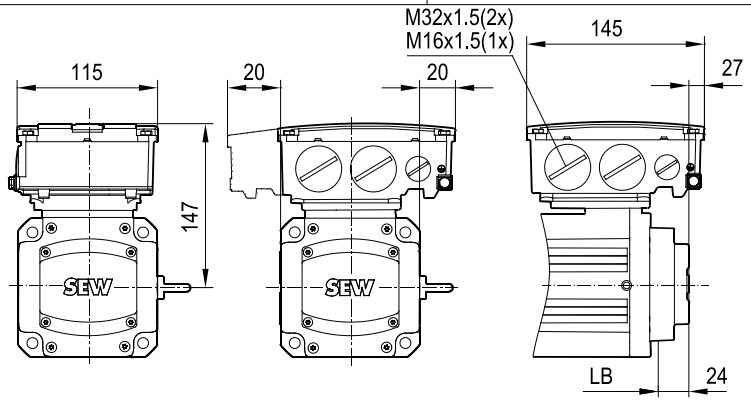
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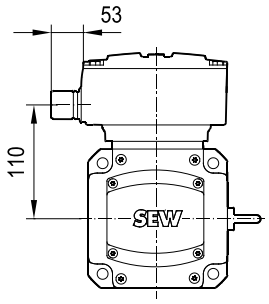
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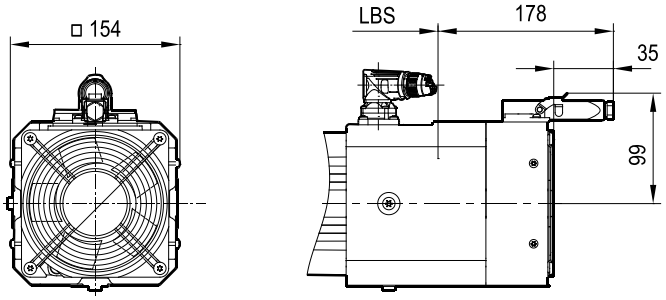
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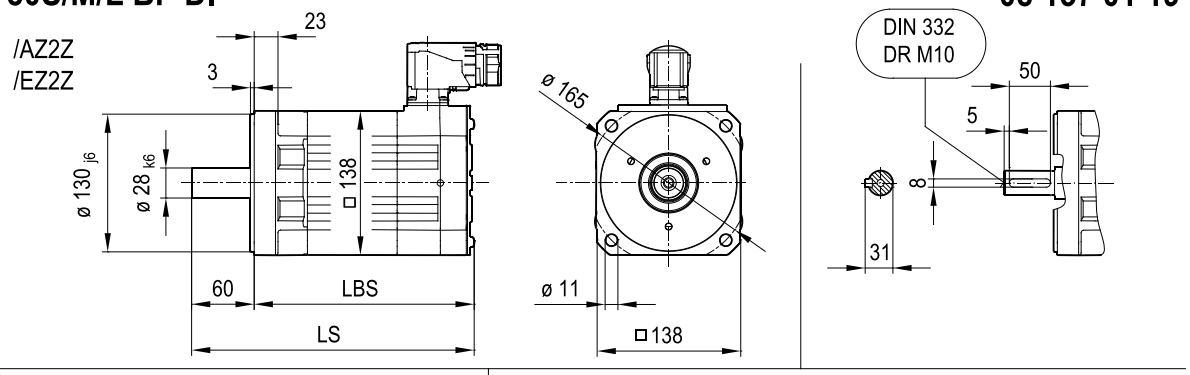


	CMP80							
	S	M	L					
LB	204	238	306					
L	264	298	366					

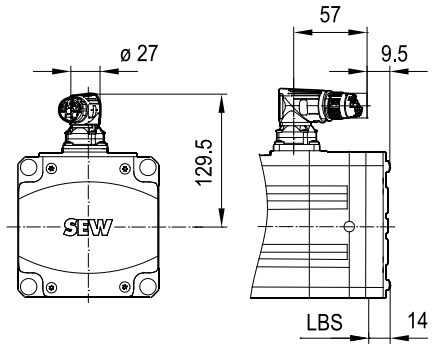
27799468/EN – 11/2023

CMP80S/M/L BP DI

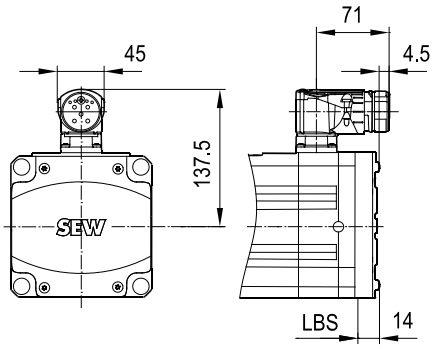
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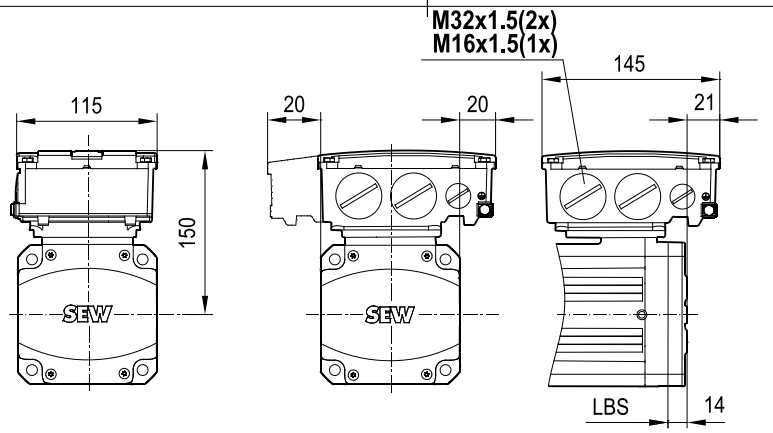
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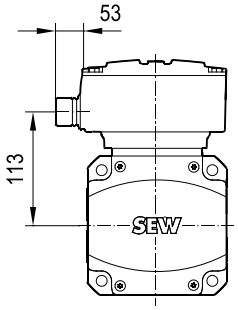
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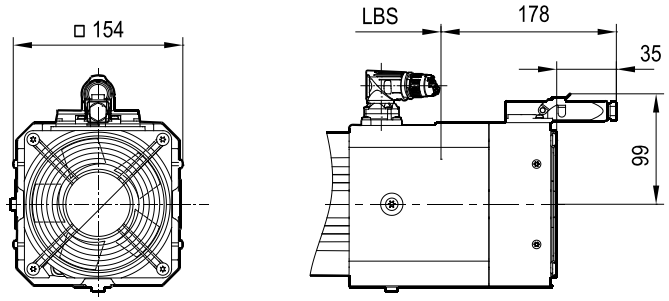
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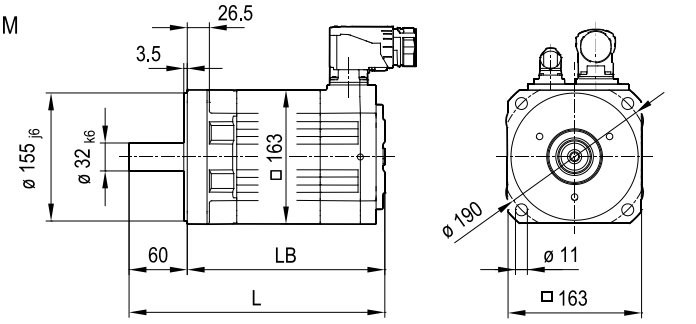
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LBS	282	316	384					
LS	342	376	444					

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4.3.6 CMP100

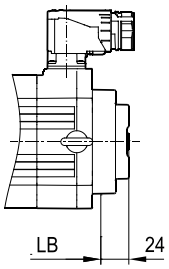
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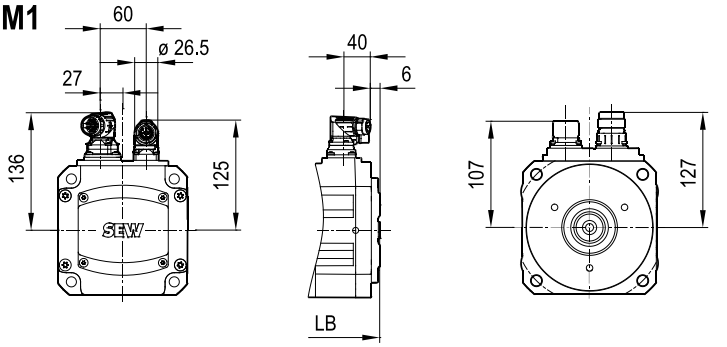


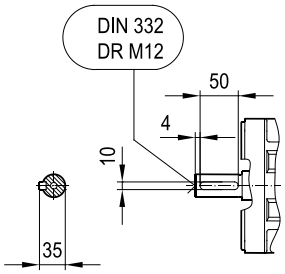
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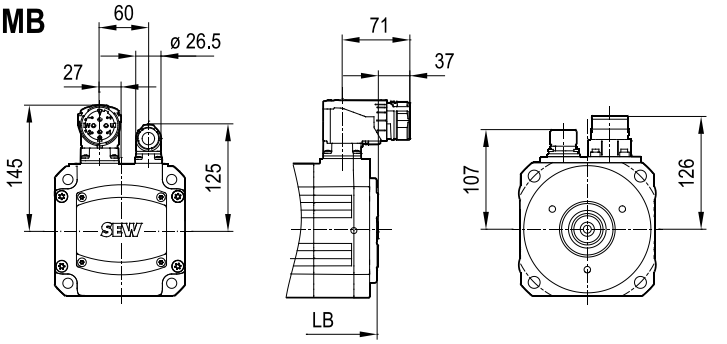


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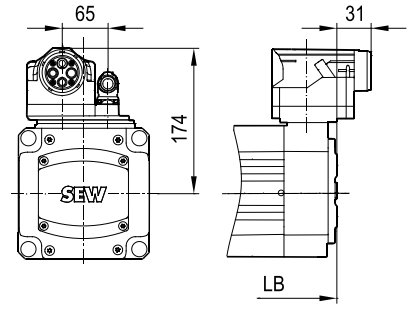




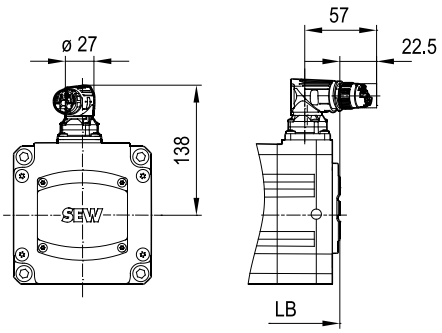
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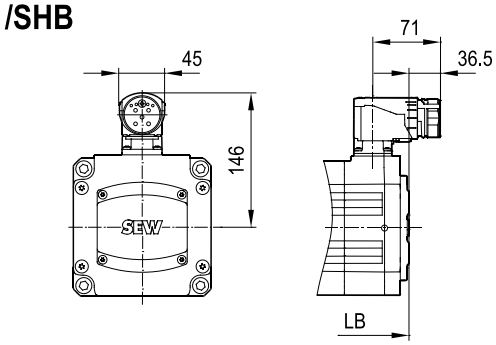
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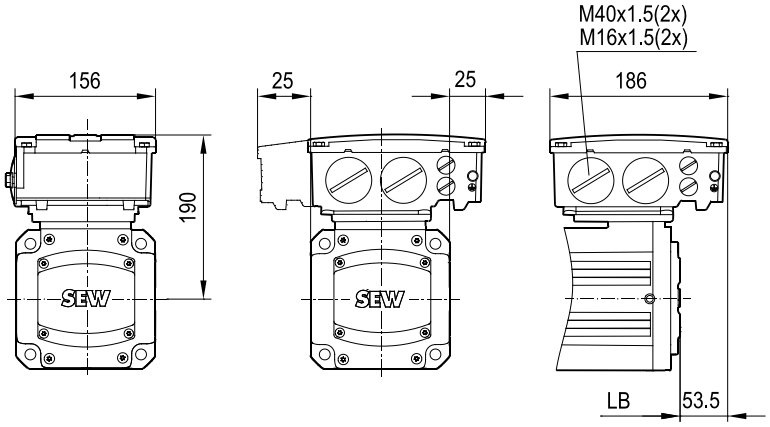


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LB	230	270	350					
L	290	330	410					

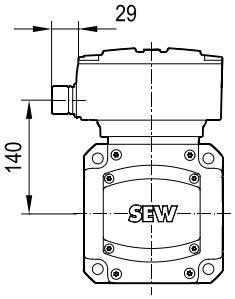
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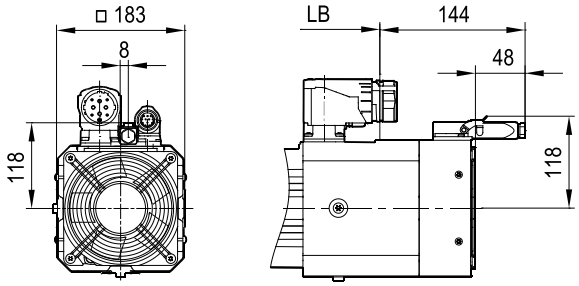
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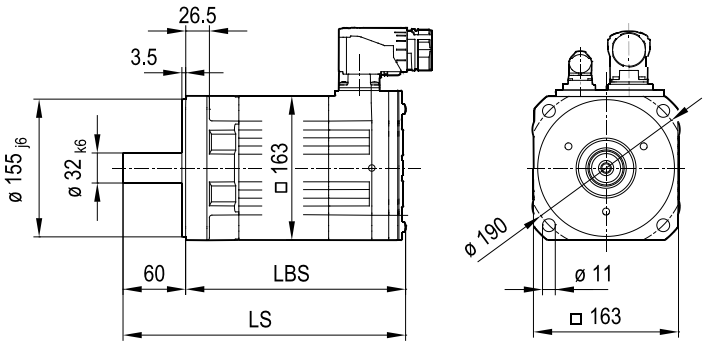
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	S	M	L					
LB	230	270	350					
L	290	330	410					

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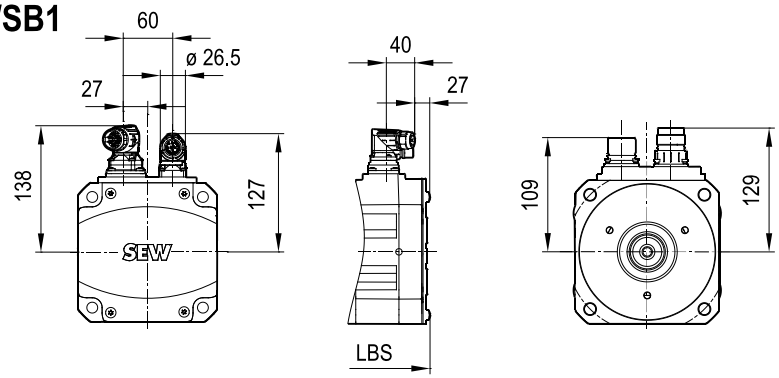
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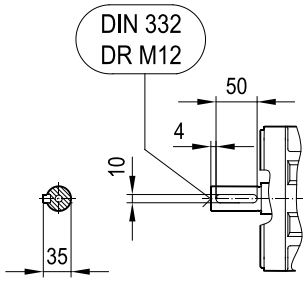
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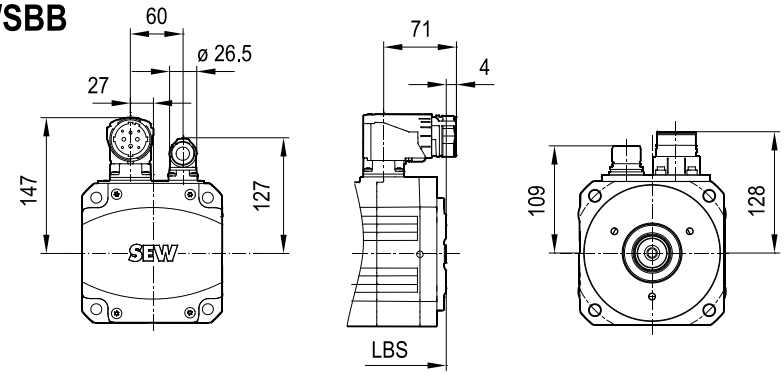


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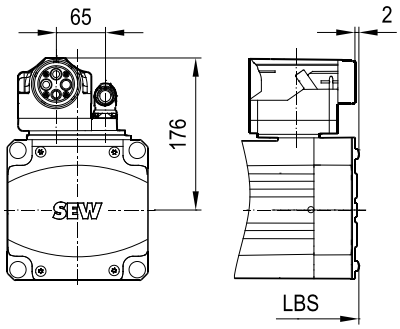




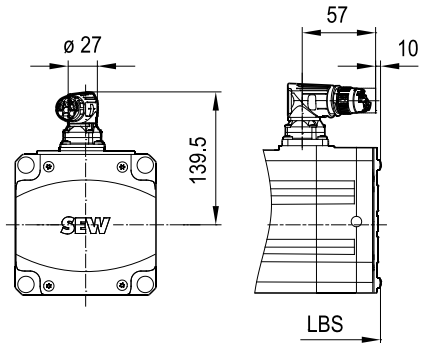
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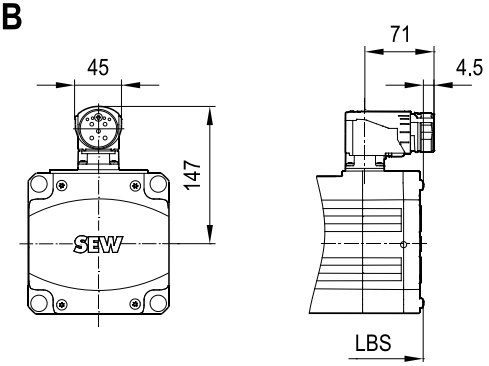
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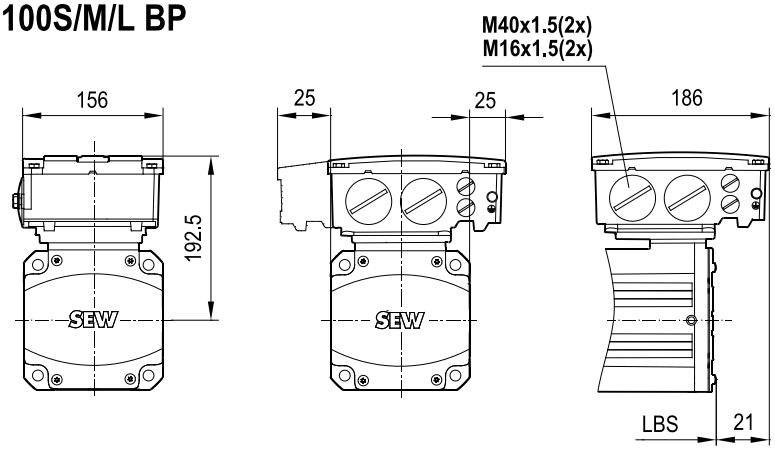
	CMP100							
	S	M	L					
LBS	326	366	446					
LS	386	426	506					

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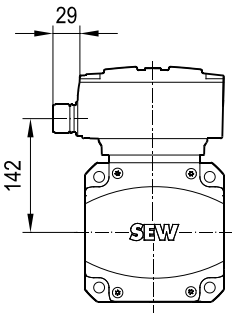
CMP100S/M/L BP

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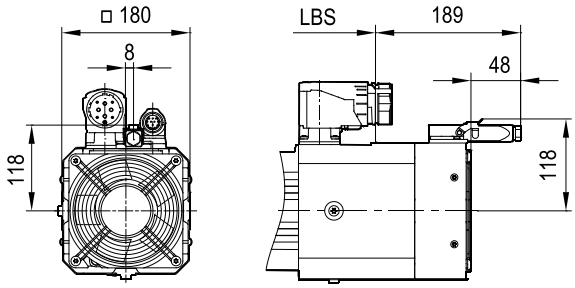
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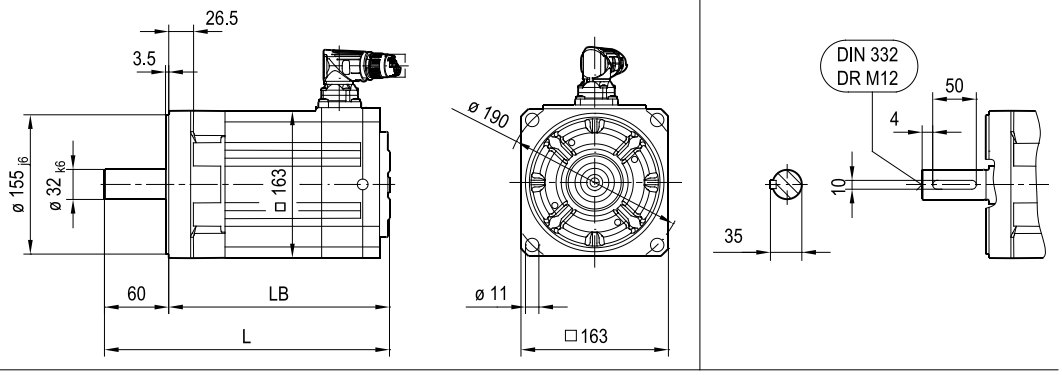


	CMP100							
	S	M	L					
LBS	326	366	446					
LS	386	426	506					

27799468/EN – 11/2023

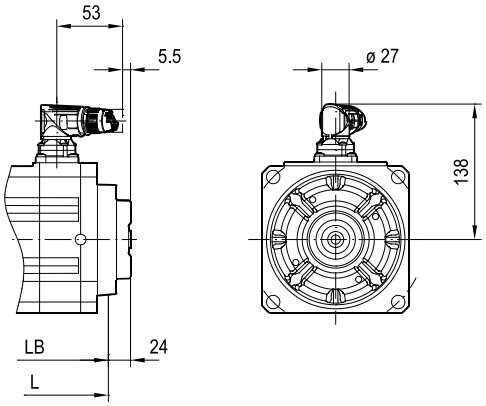
CMP100S/M

08 221 00 20

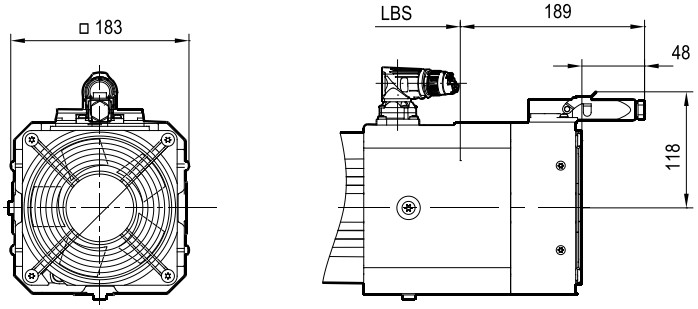


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/AH1E
/EH1E



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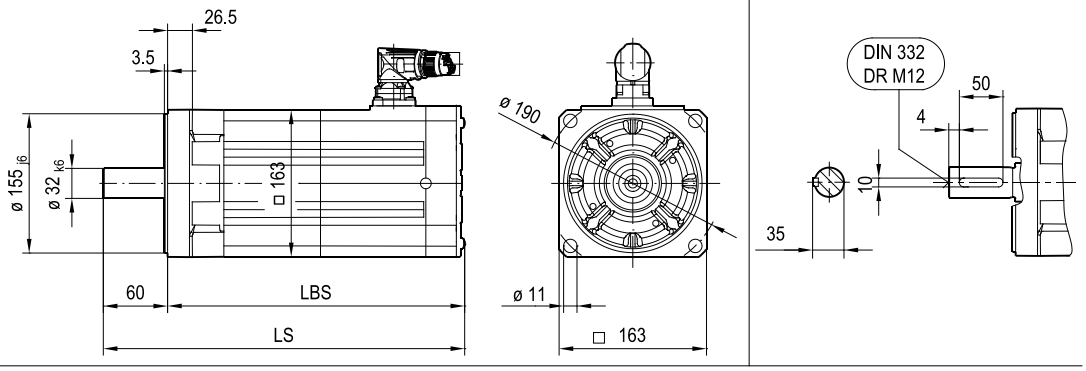


	CMP100							
	S	M						
LB	230	270						
L	290	330						

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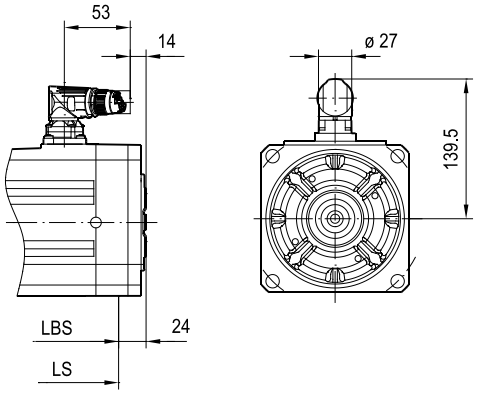
CMP100S/M BP

09 176 00 20

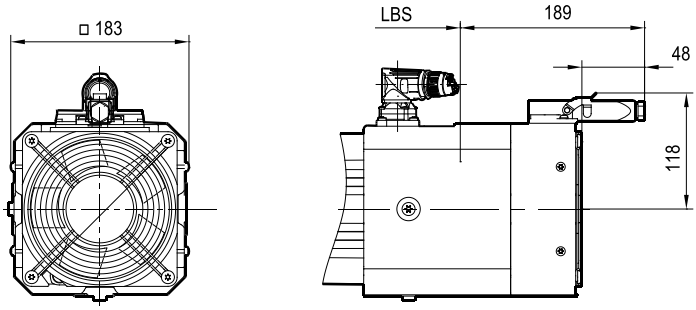


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/AH1E
/EH1E



/VR

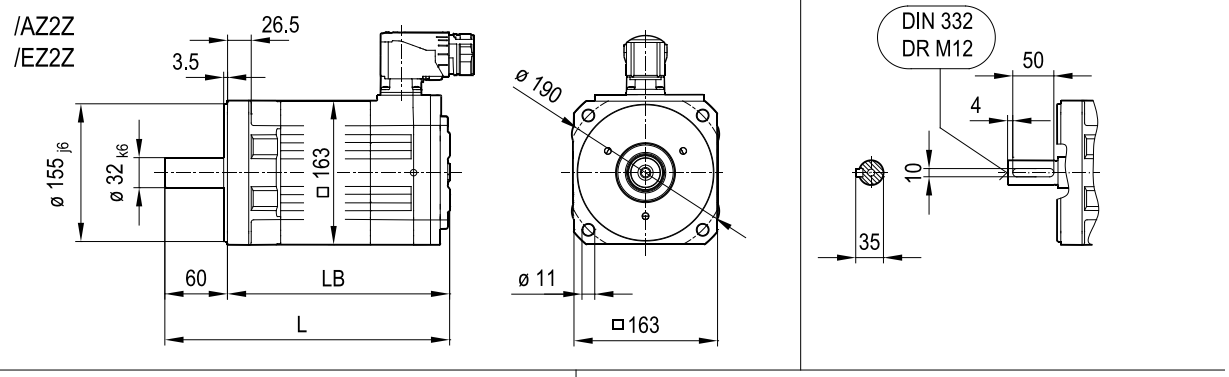


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	S	M						
LBS	326	366						
LS	386	426						

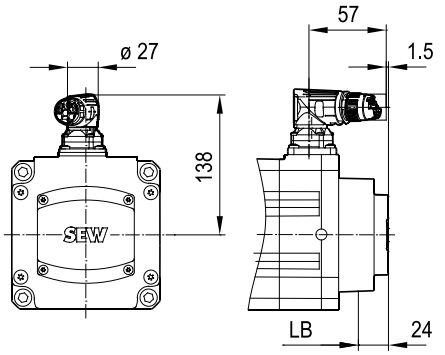
27799468/EN – 11/2023

CMP100S/M/L DI

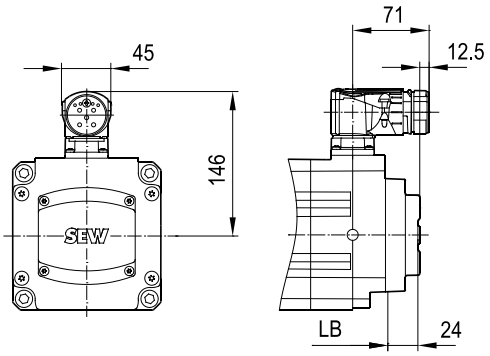
08 158 01 19



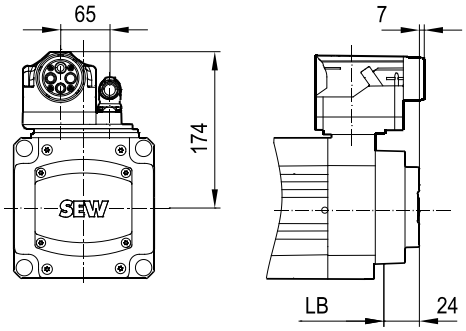
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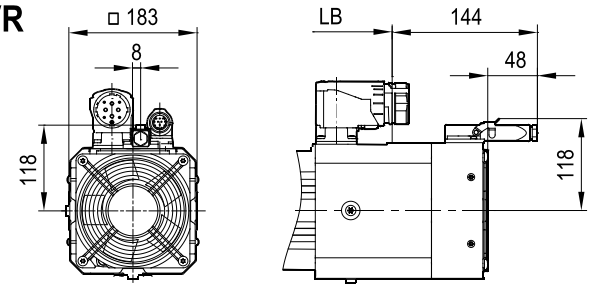
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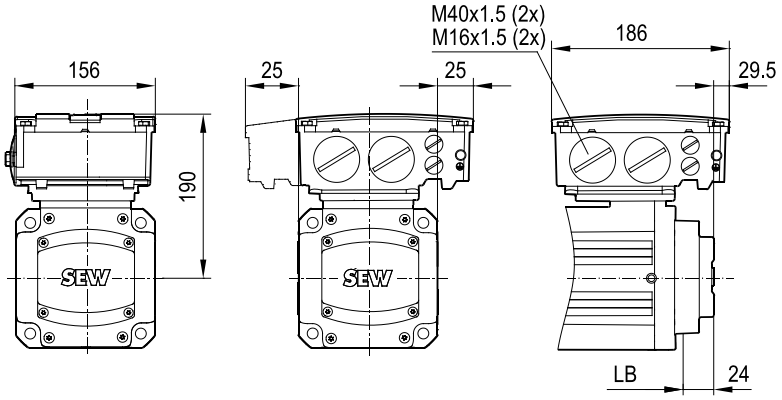
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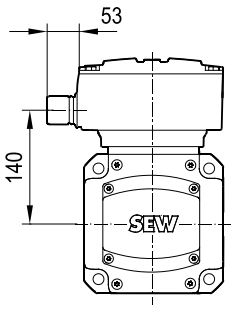
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/KDD

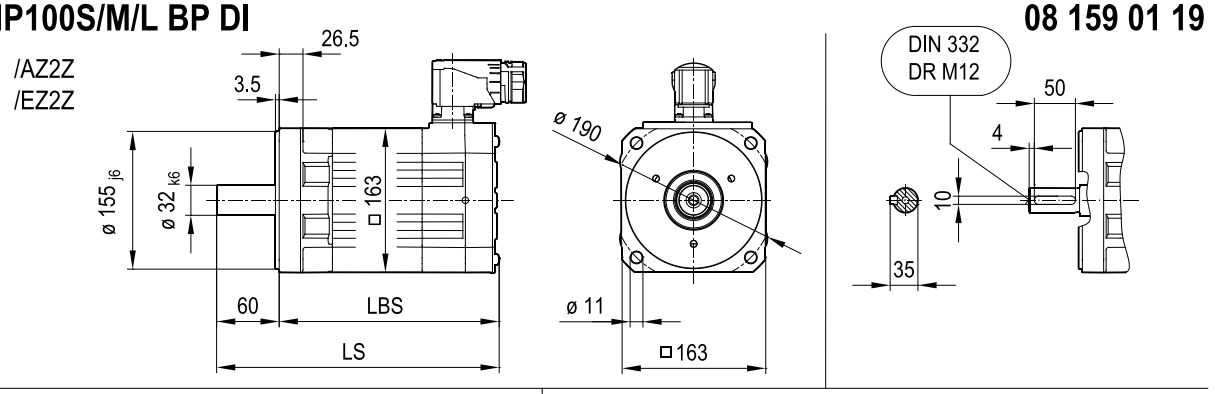


	CMP100							
	S	M	L					
LB	230	270	350					
L	290	330	410					

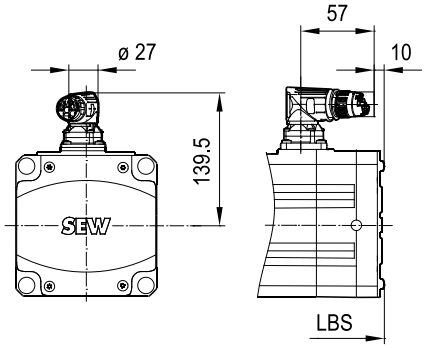
27799468/EN – 11/2023

CMP100S/M/L BP DI

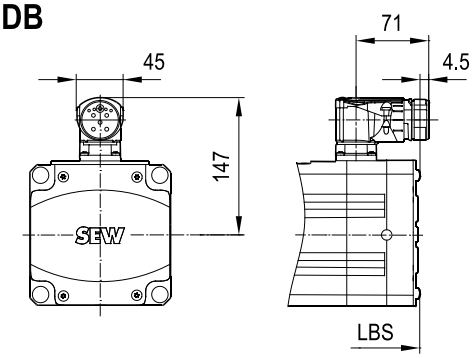
08 159 01 19



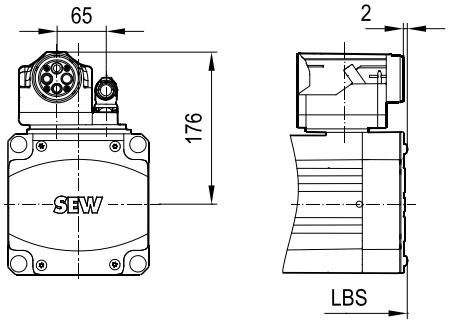
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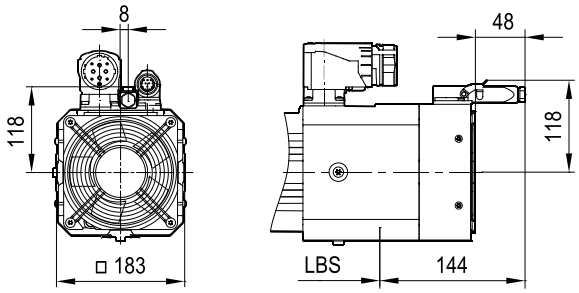
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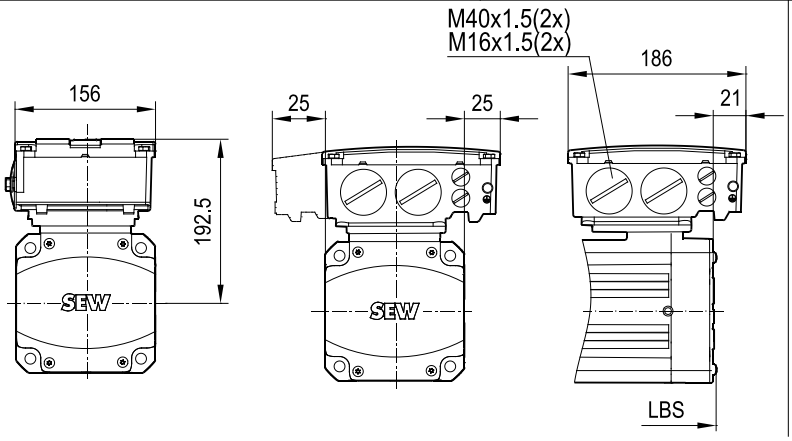
/SBCD



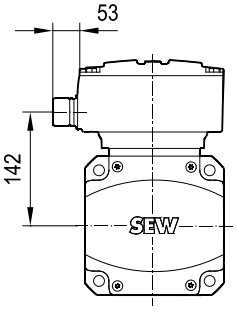
/VR



/KD



/KDD



	CMP100							
	S	M	L					
LBS	326	366	446					
LS	386	426	506					

27799468/EN – 11/2023

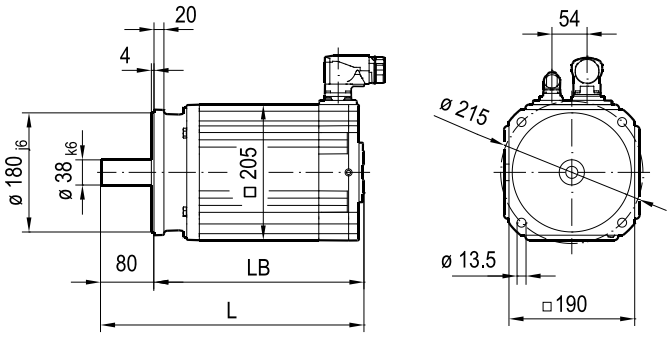
4.3.7 CMP112

CMP112S/M/L/H/E

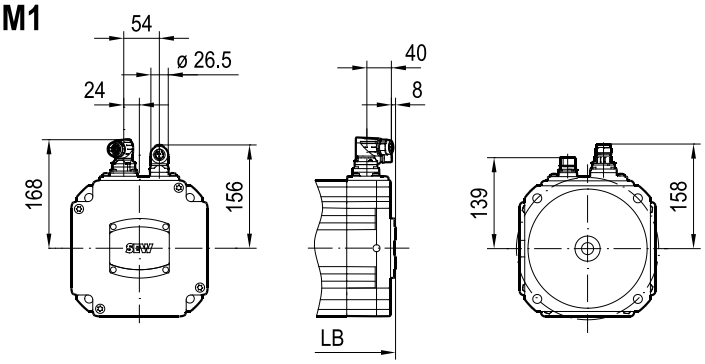
08 235 03 13

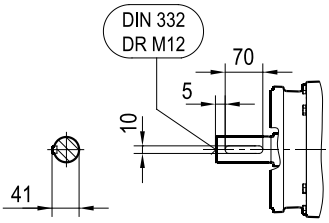
1(2)

/RH1M
/AK0H
/AK1H
/EK1H

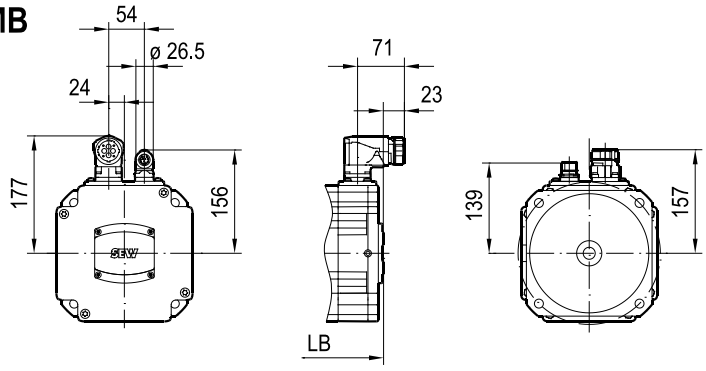


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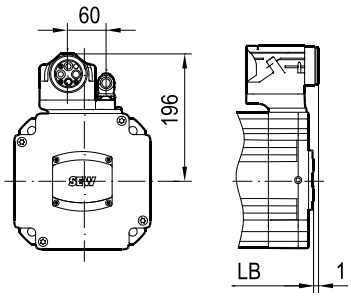




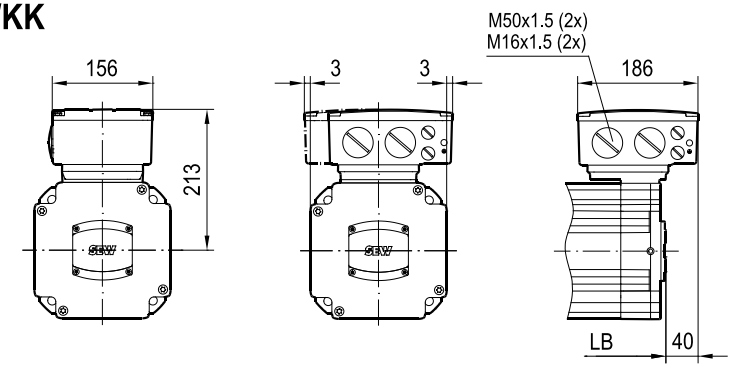
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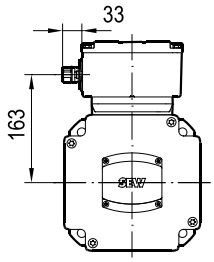
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/KK



/KKS



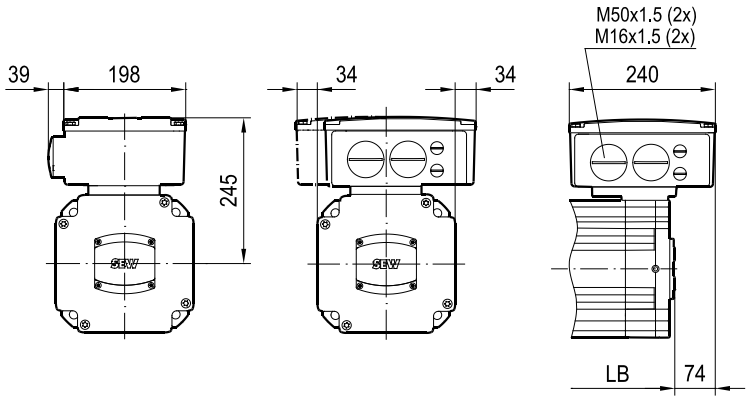
	CMP112							
	S	M	L	H	E			
LB	326	369	457	500	543			
L	406	449	537	580	623			

CMP112S/M/L/H/E

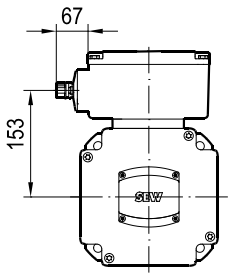
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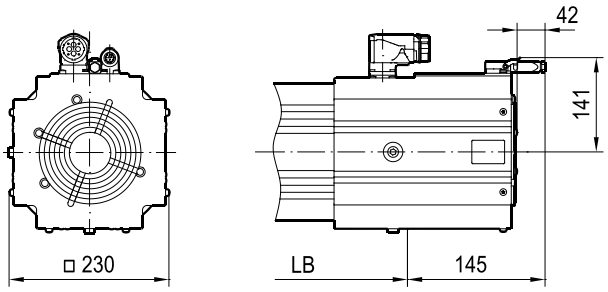
/KL



/KLS



/VR



	CMP112							
	S	M	L	H	E			
LB	326	369	457	500	543			
L	406	449	537	580	623			

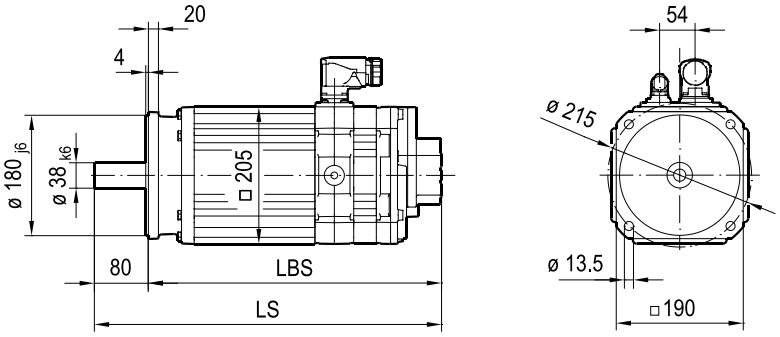
27799468/EN – 11/2023

CMP112S/M/L/H/E BY

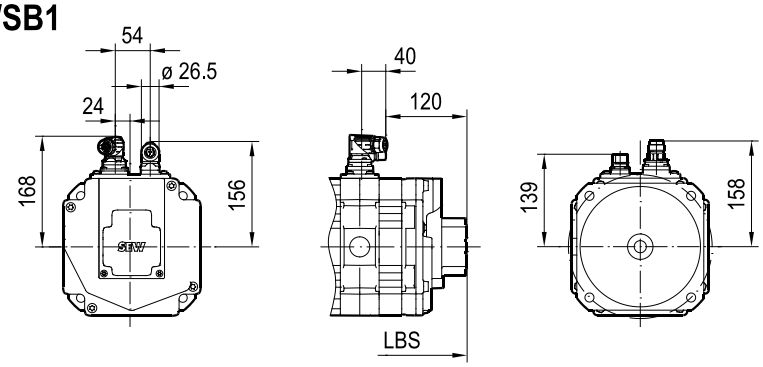
09 857 02 13

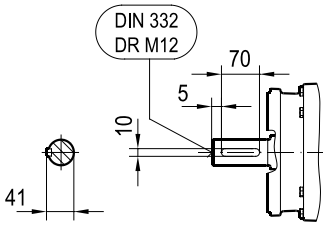
1(2)

/RH1M
/AK0H
/AK1H
/EK1H

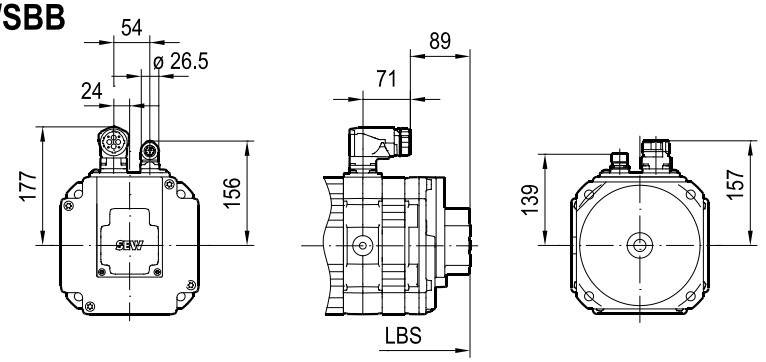


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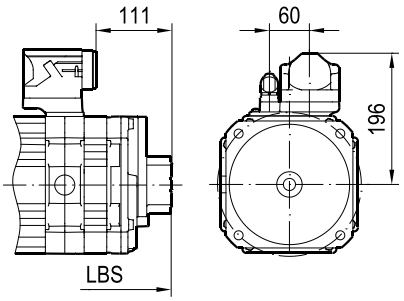




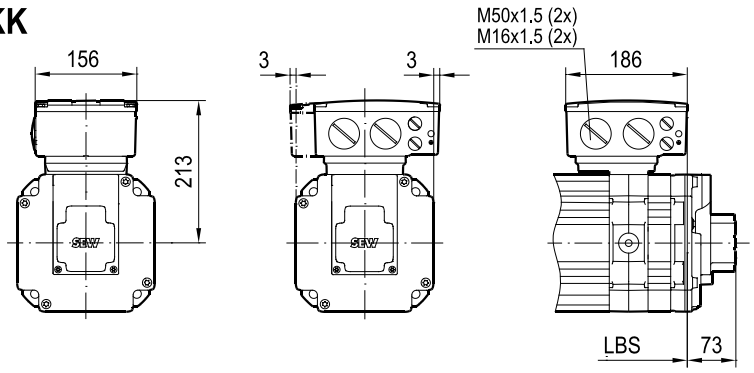
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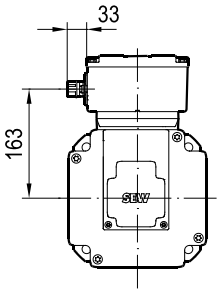
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/KK



/KKS



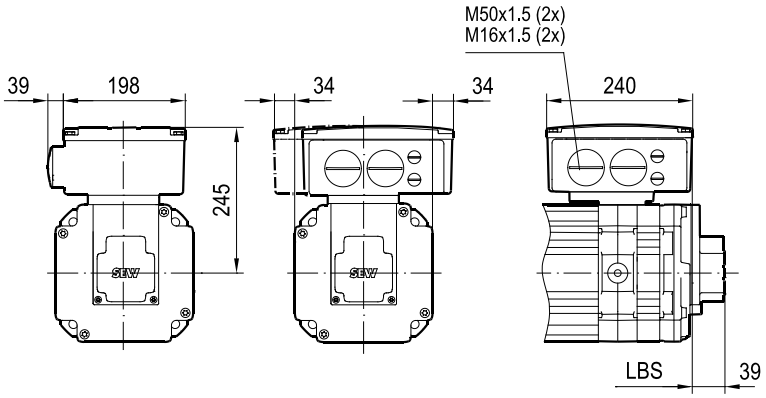
	CMP112							
	S	M	L	H	E			
LBS	438	481	569	612	655			
LS	518	561	649	692	735			

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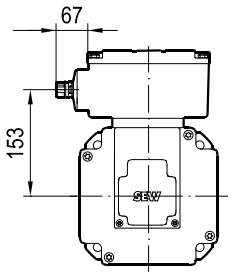
CMP112S/M/L/H/E BY

09 857 02 13
2(2)

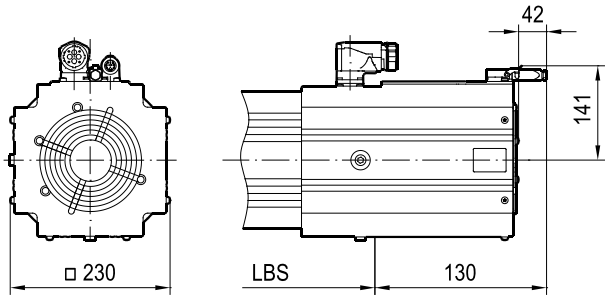
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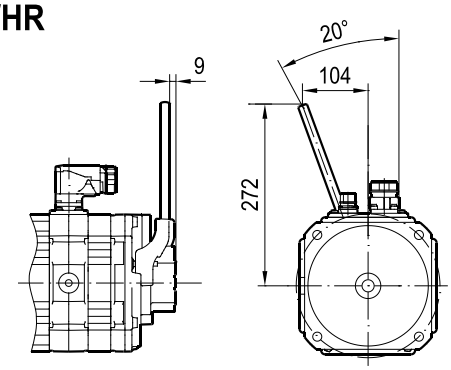
/KLS



/VR



/HR



	CMP112							
	S	M	L	H	E			
LB	326	369	457	500	543			
L	406	449	537	580	623			
LBS	438	481	569	612	655			
LS	518	561	649	692	735			

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4.4 Overhung and axial loads for motor shaft ends

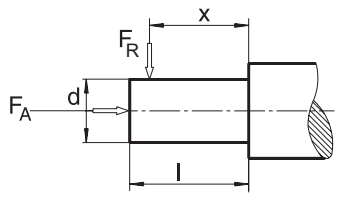
4.4.1 CMP40

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

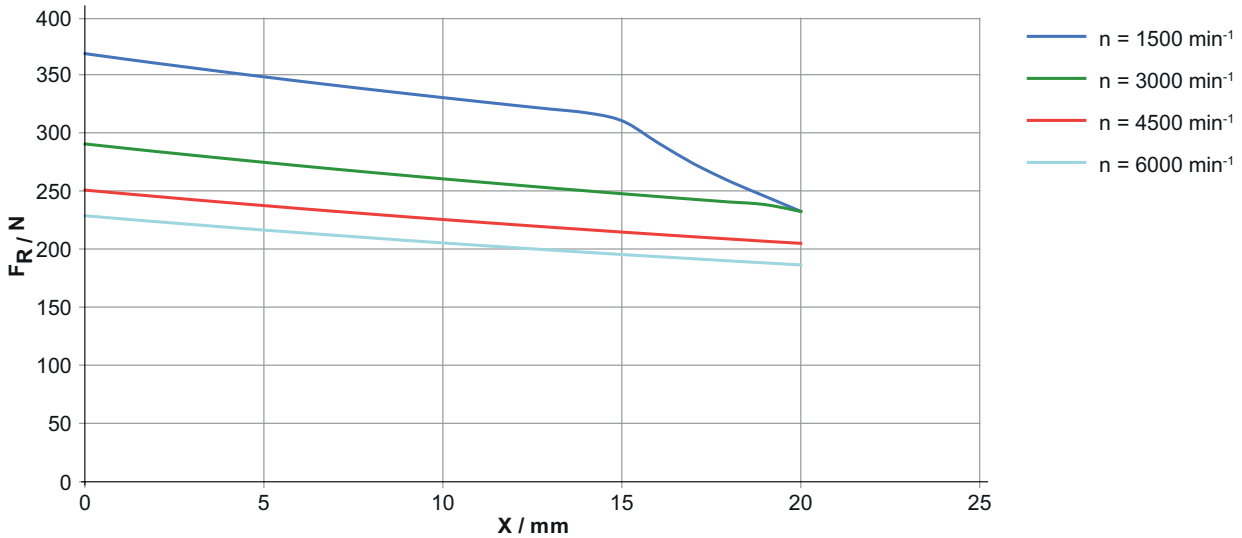


9007204050711179

Motor	d × l	x/2	$F_{R\,max}$ in N F_A in N	Mean speed[1] in min^{-1}			
				1500	3000	4500	6000
CMP40S	9 × 20	10	$F_{R\,max}$	330	260	225	205
			F_A	109	86	74	68
CMP40M			$F_{R\,max}$	350	280	245	220
			F_A	116	92	81	73

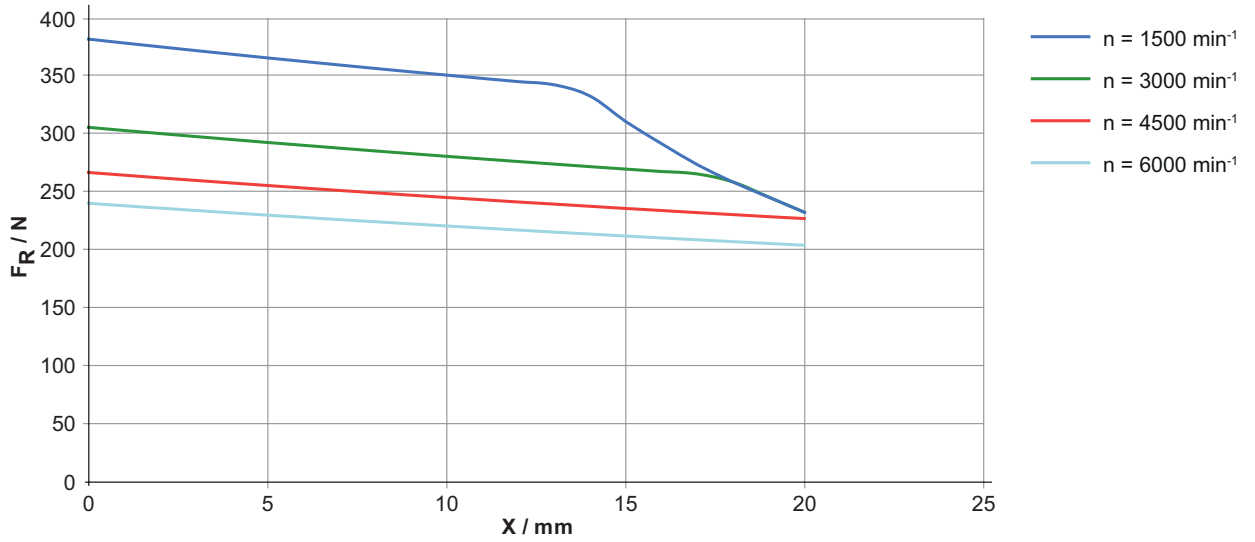
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



Overhung and axial load of CMP40S

27021602560195851



Overhung and axial load of CMP40M

36028801814939531

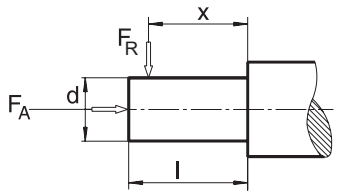
4.4.2 CMP50

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

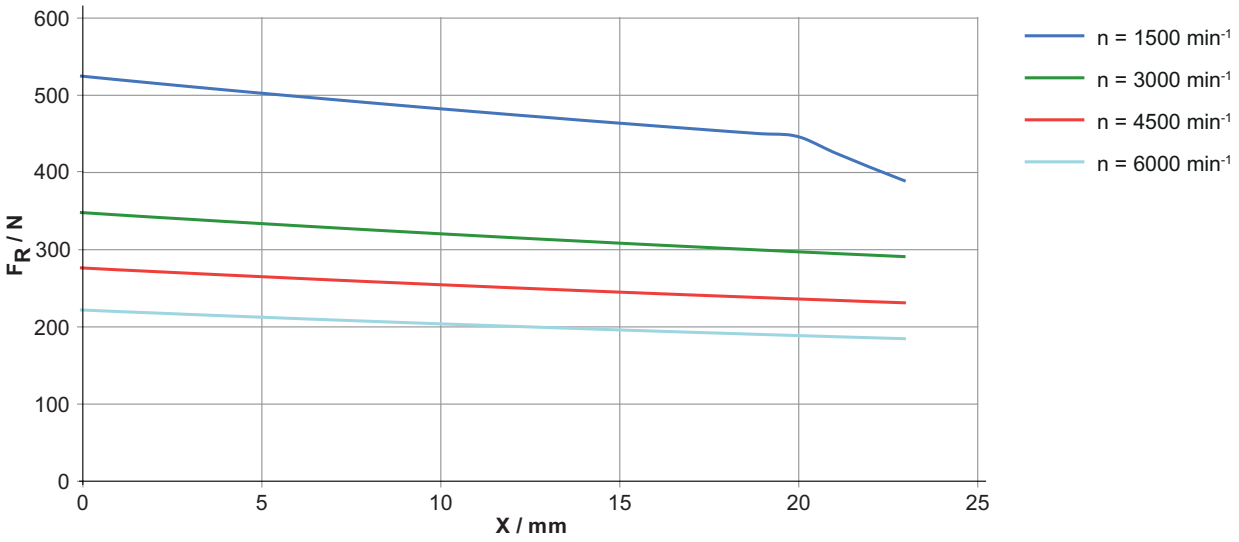


9007204050711179

Motor	d × l	x/2	$F_{R\,max}$ in N F_A in N	Mean speed[1] in min^{-1}			
				1500	3000	4500	6000
CMP50S	11 × 23	11.5	$F_{R\,max}$	475	315	250	200
			F_A	157	104	83	66
CMP50M			$F_{R\,max}$	510	355	275	220
			F_A	168	117	91	73
CMP50L			$F_{R\,max}$	550	370	280	225
			F_A	182	122	92	74

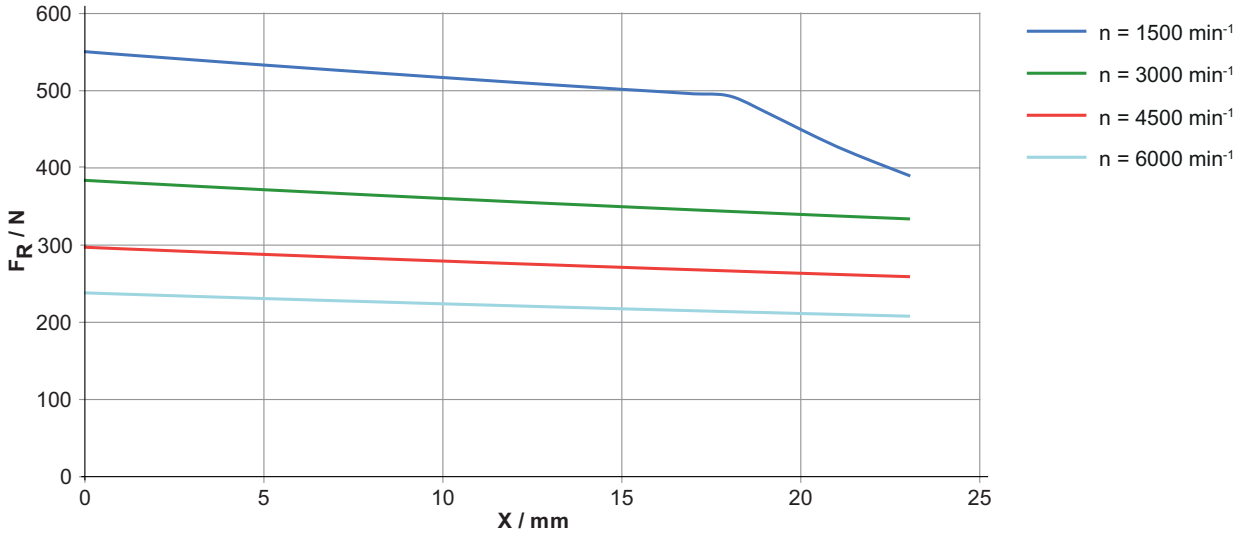
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



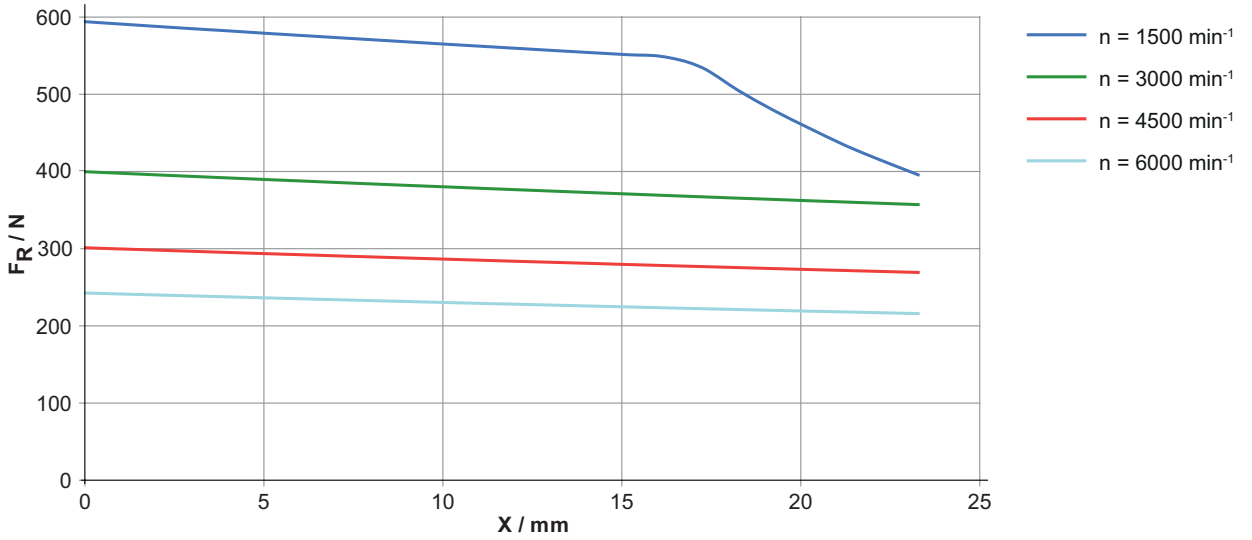
Overhung and axial load of CMP50S

27021602560201227



Overhung and axial load of CMP50M

27021602560203915



Overhung and axial load of CMP50L

27021602560206603

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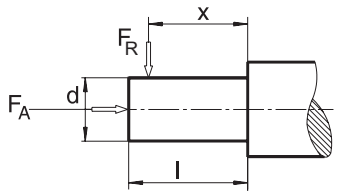
4.4.3 CMP63

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

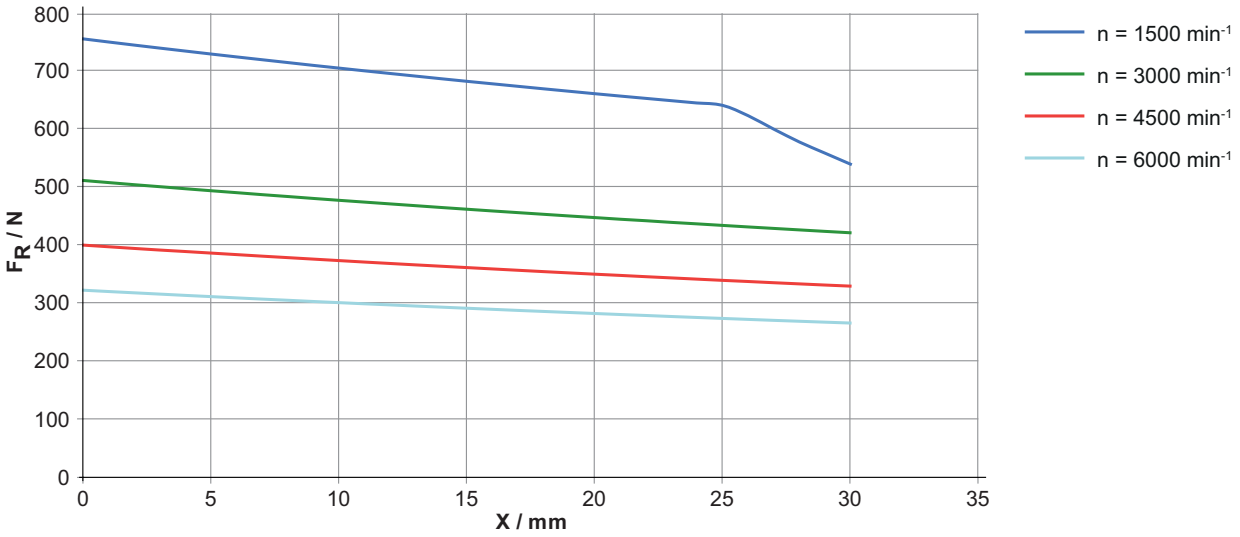


9007204050711179

Motor	d × l	x/2	$F_{R\,max}$ in N F_A in N	Mean speed[1] in min^{-1}			
				1500	3000	4500	6000
CMP63S	14 × 30	15	$F_{R\,max}$	680	460	360	290
			F_A	224	152	119	96
CMP63M			$F_{R\,max}$	750	500	380	300
			F_A	248	165	125	99
CMP63L			$F_{R\,max}$	830	560	445	360
			F_A	274	185	147	119

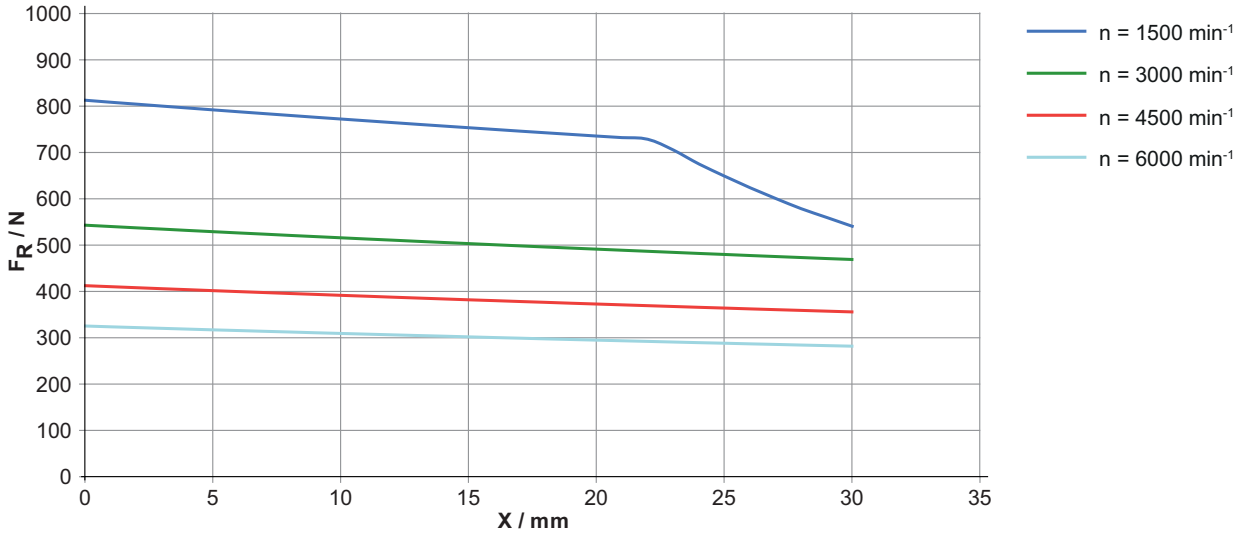
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



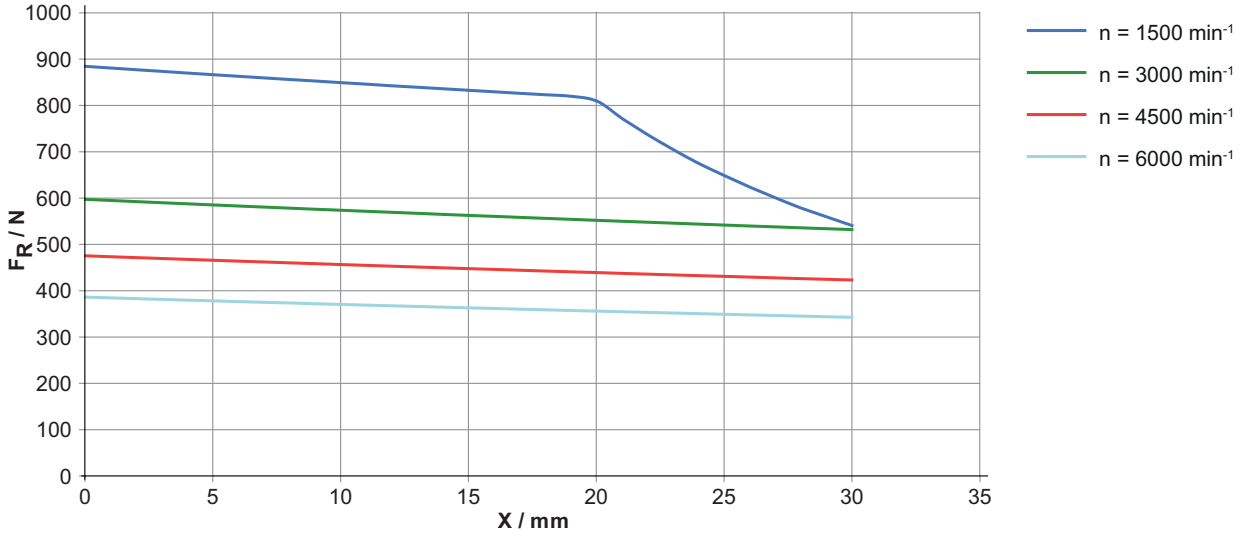
Overhung and axial load of CMP63S

27021602560209291



Overhung and axial load of CMP63M

27021602560211979



Overhung and axial load of CMP63L

27021602560214667

27799468/EN – 11/2023

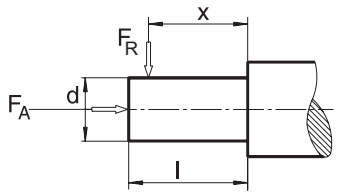
4.4.4 CMP71

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

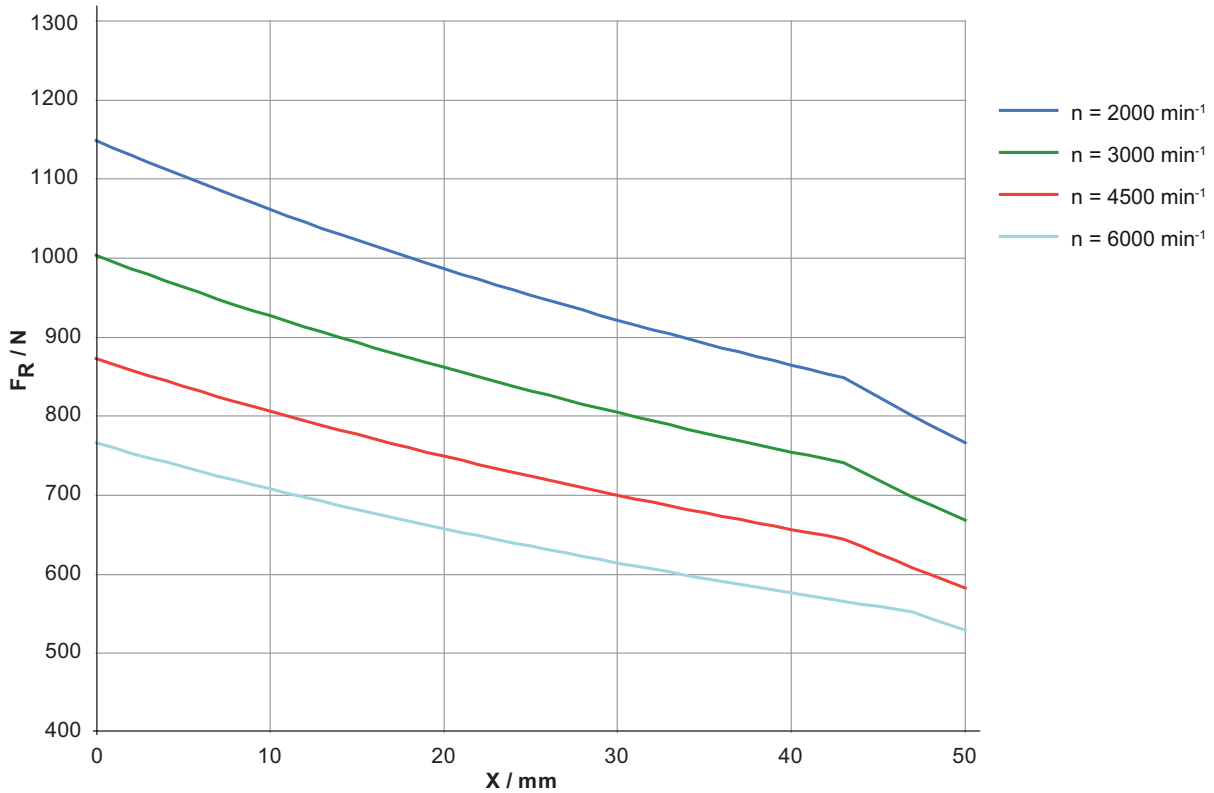


9007204050711179

Motor	d × l	x/2	$F_{R\,max}$ in N F_A in N	Mean speed[1] in min^{-1}			
				2000	3000	4500	6000
CMP71S	24 × 50	25	$F_{R\,max}$	953	832	724	636
			F_A	318	277	240	212
CMP71M			$F_{R\,max}$	1018	888	747	659
			F_A	340	296	250	219
CMP71L			$F_{R\,max}$	1101	928	777	681
			F_A	367	309	258	227

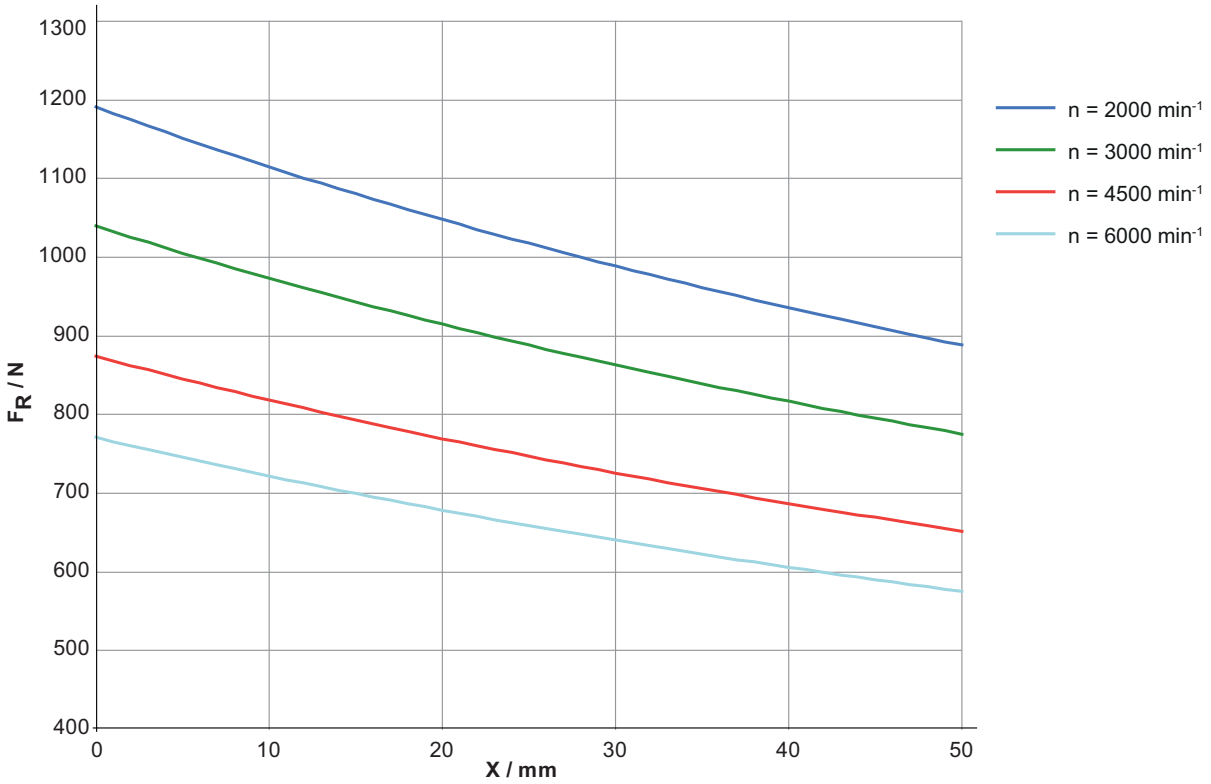
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



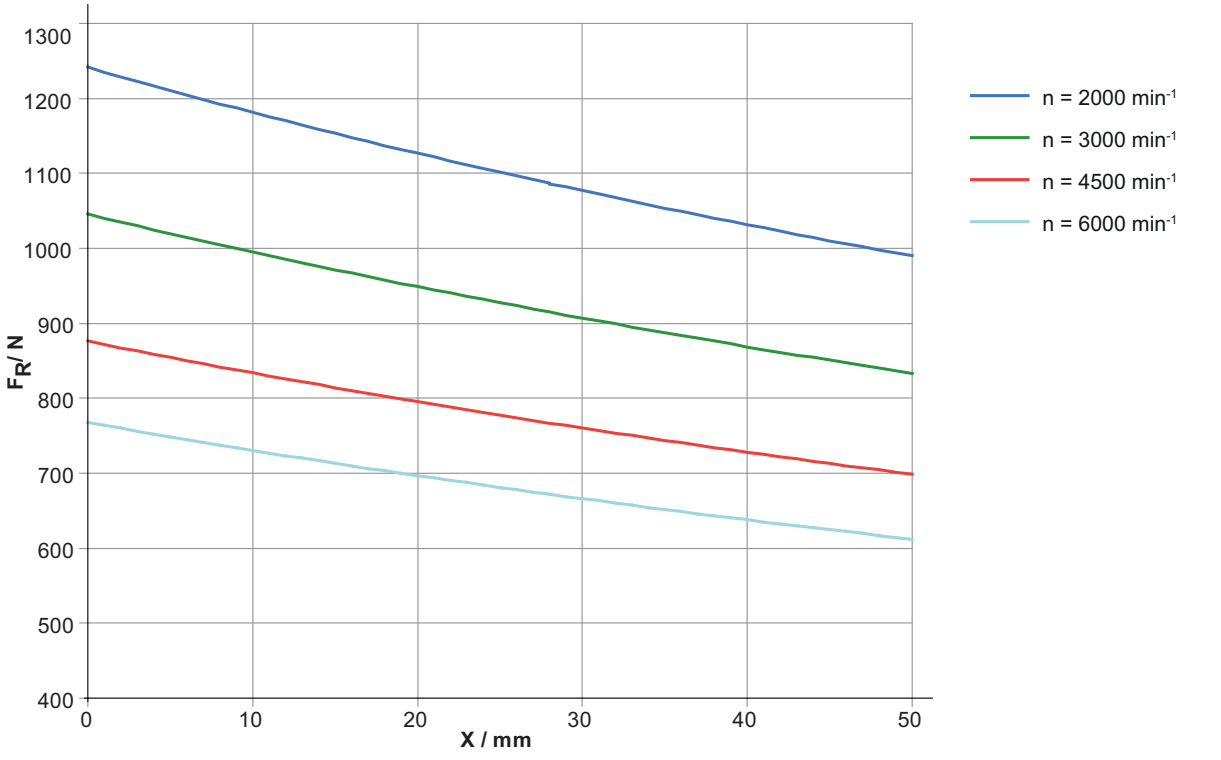
Overhung and axial load of CMP71S

27021602560217355



Overhung and axial load of CMP71M

27021602560220043



Overhung and axial load of CMP71L

27021602560222731

27799468/EN – 11/2023

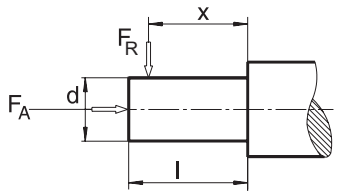
4.4.5 CMP80

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

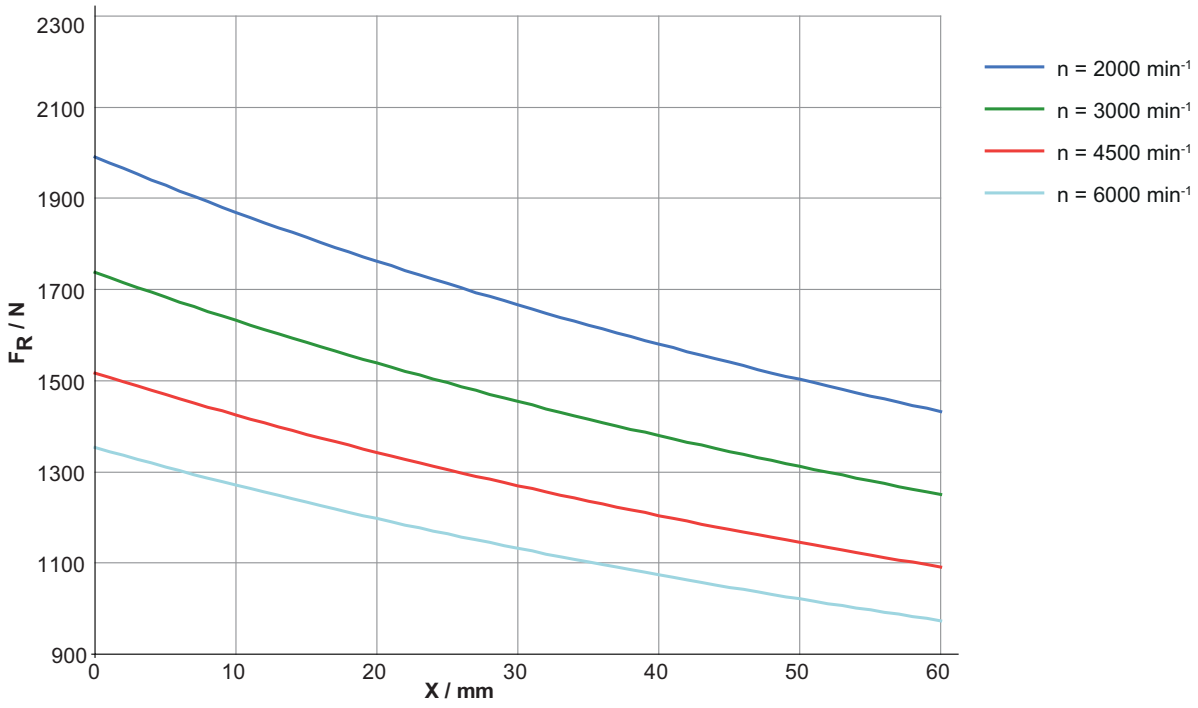


9007204050711179

Motor	d × l	x/2	$F_{R\,max}$ in N	Mean speed[1] in min^{-1}			
			F_A in N	2000	3000	4500	6000
CMP80S	28 × 60	30	$F_{R\,max}$	1666	1454	1270	1132
			F_A	555	485	423	377
CMP80M			$F_{R\,max}$	1782	1555	1325	1169
			F_A	594	518	442	390
CMP80L			$F_{R\,max}$	1928	1635	1372	1208
			F_A	643	544	457	402

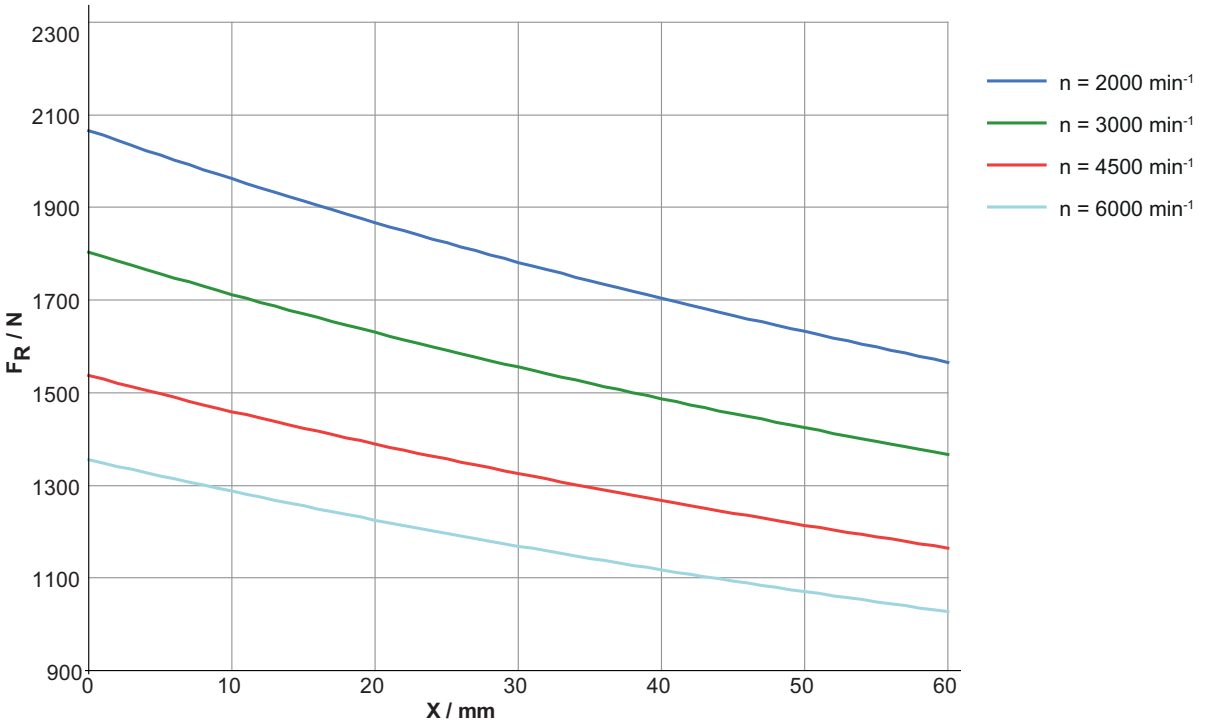
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



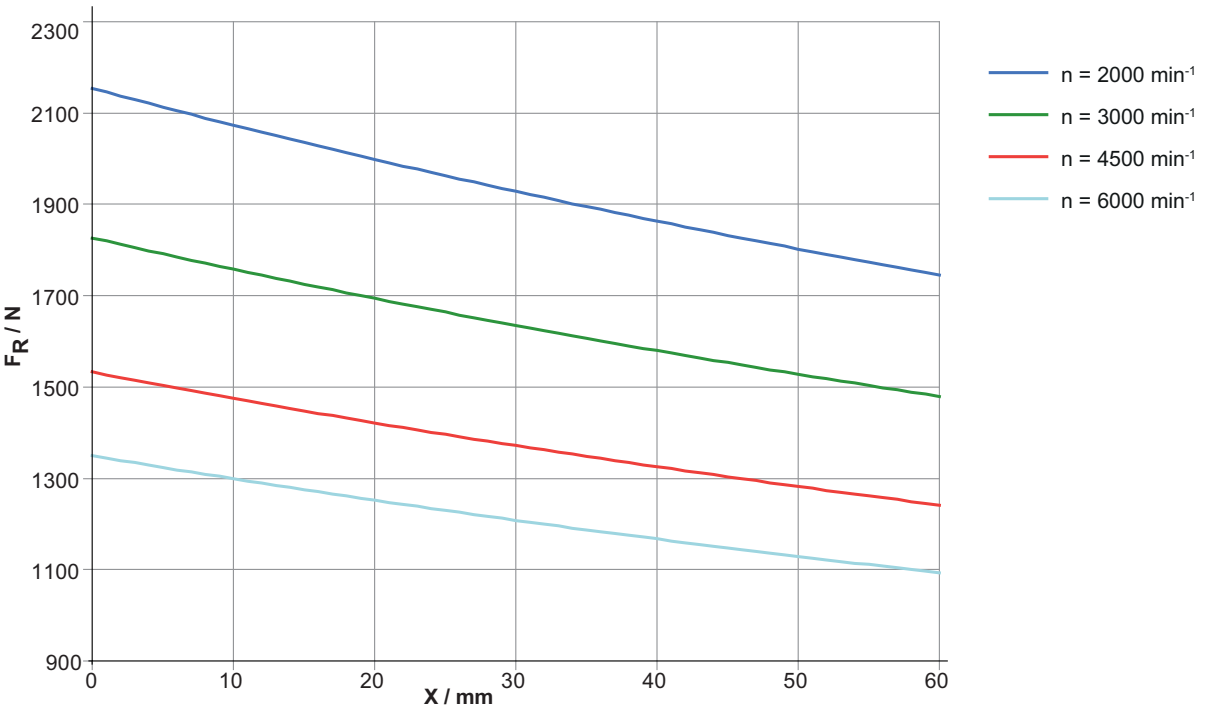
Overhung and axial load of CMP80S

27021602560225419



Overhung and axial load of CMP80M

27021602560228107



Overhung and axial load of CMP80L

27021602560230795

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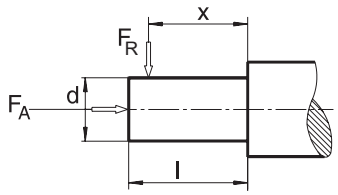
4.4.6 CMP100

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

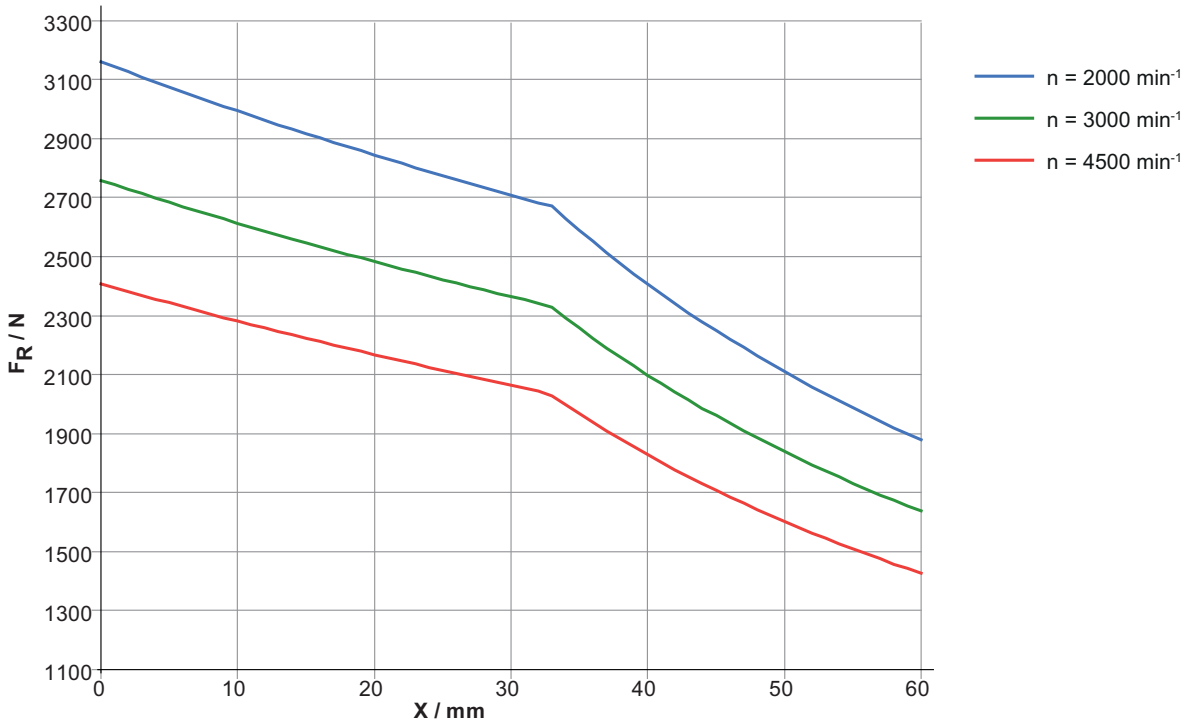


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Motor	d × l	x/2	$F_{R\,max}$ in N	Mean speed[1] in min^{-1}			
			F_A in N	2000	3000	4500	6000
CMP100S	32 × 60	30	$F_{R\,max}$	2708	2364	2064	–
			F_A	903	788	688	–
CMP100M			$F_{R\,max}$	2882	2515	2195	–
			F_A	961	838	732	–
CMP100L			$F_{R\,max}$	3099	2694	2278	–
			F_A	1033	897	759	–

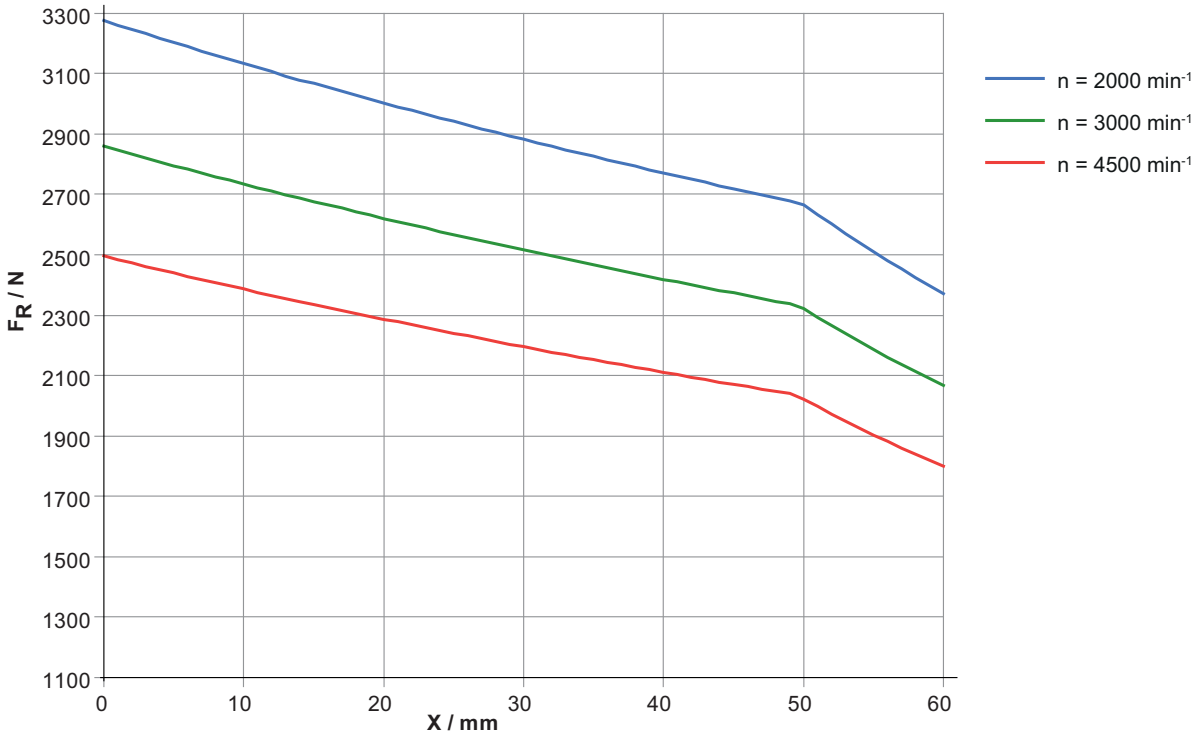
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



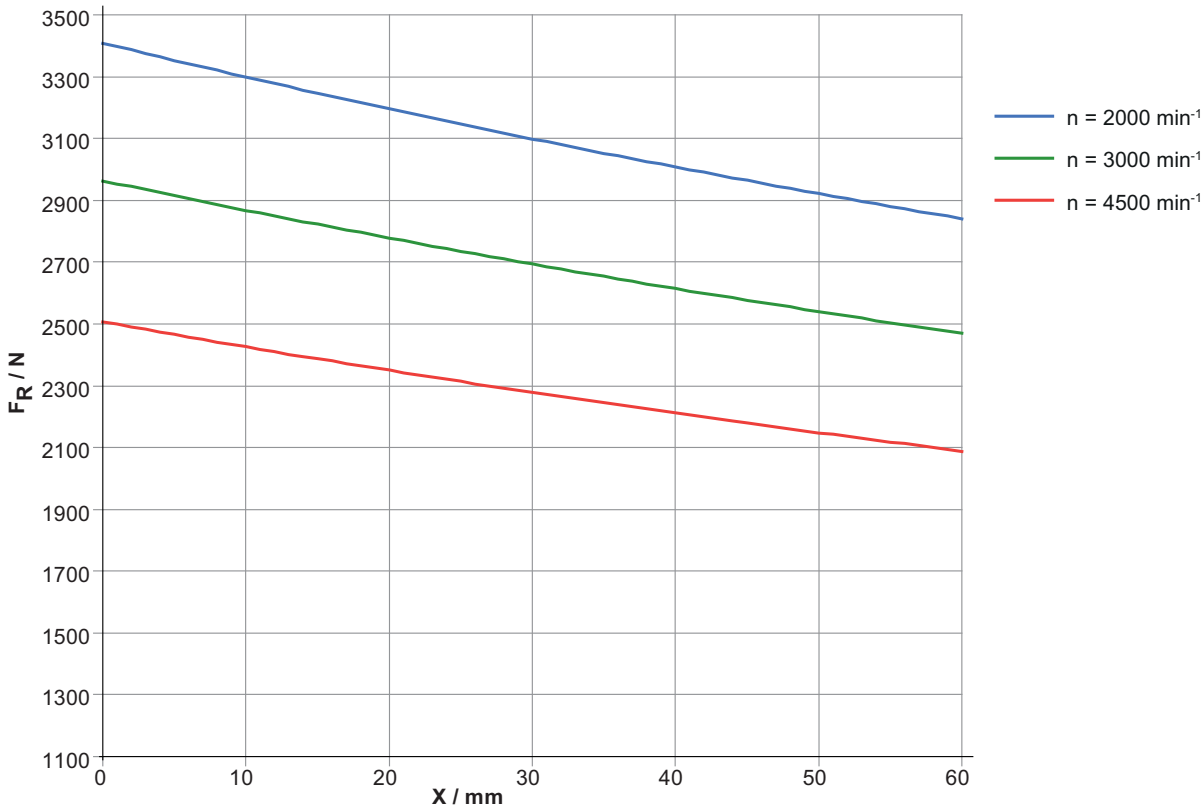
Overhung and axial load of CMP100S

27021602560233483



Overhung and axial load of CMP100M

27021602560236171



Overhung and axial load of CMP100L

27021602560238859

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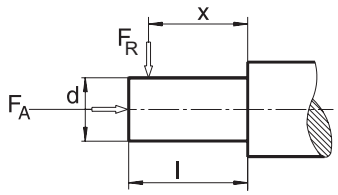
4.4.7 CMP112

Overhung and axial loads for motor shaft ends

Determine the maximum permitted axial load F_A by multiplying the maximum permitted overhung load F_R with the factor 0.3:

$$F_A = 0.3 \times F_R$$

Determine the permitted overhung loads F_R at point x via the following diagrams. "X" is the distance from the shaft collar to the force application:

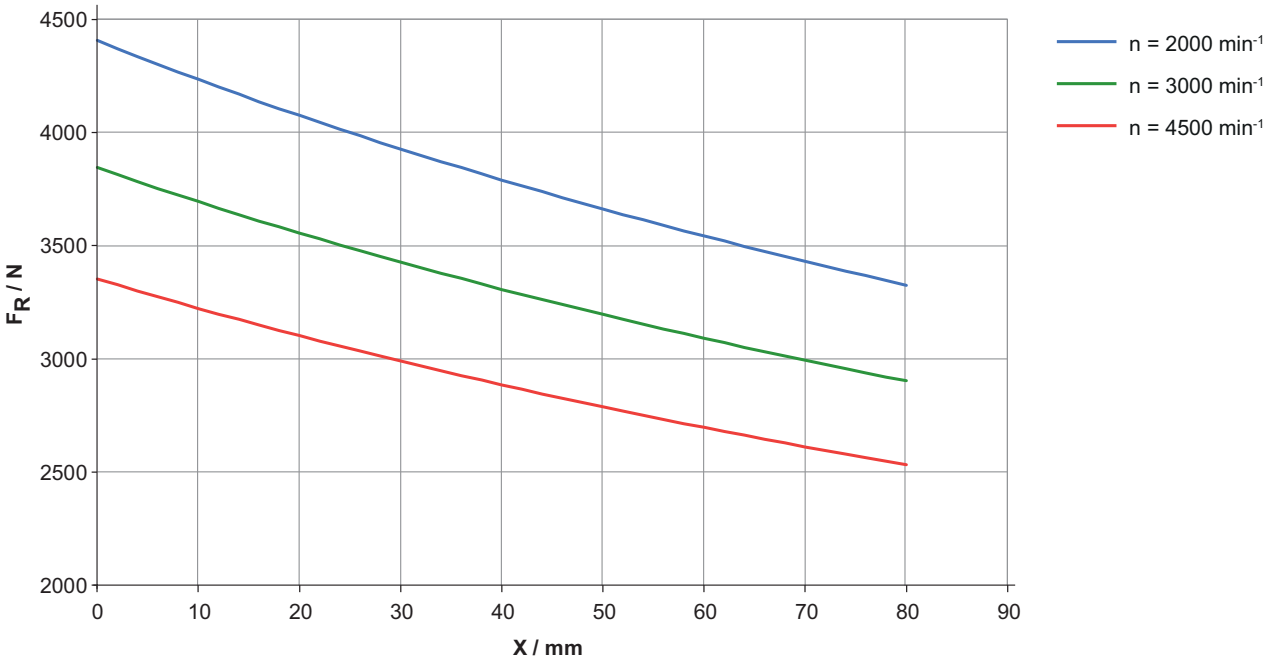


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Motor	d × l	x/2	$F_{R\,max}$ in N F_A in N	Mean speed[1] in min^{-1}			
				2000	3000	4500	6000
CMP112S	38 × 80	40	$F_{R\,max}$	3791	3308	2886	–
			F_A	1264	1103	962	–
CMP112M			$F_{R\,max}$	3953	3448	3008	–
			F_A	1318	1149	1003	–
CMP112L			$F_{R\,max}$	4102	3456	2898	–
			F_A	1367	1152	966	–
CMP112H			$F_{R\,max}$	4118	3465	2900	–
			F_A	1373	1155	967	–
CMP112E			$F_{R\,max}$	4126	3467	2896	–
			F_A	1376	1156	966	–

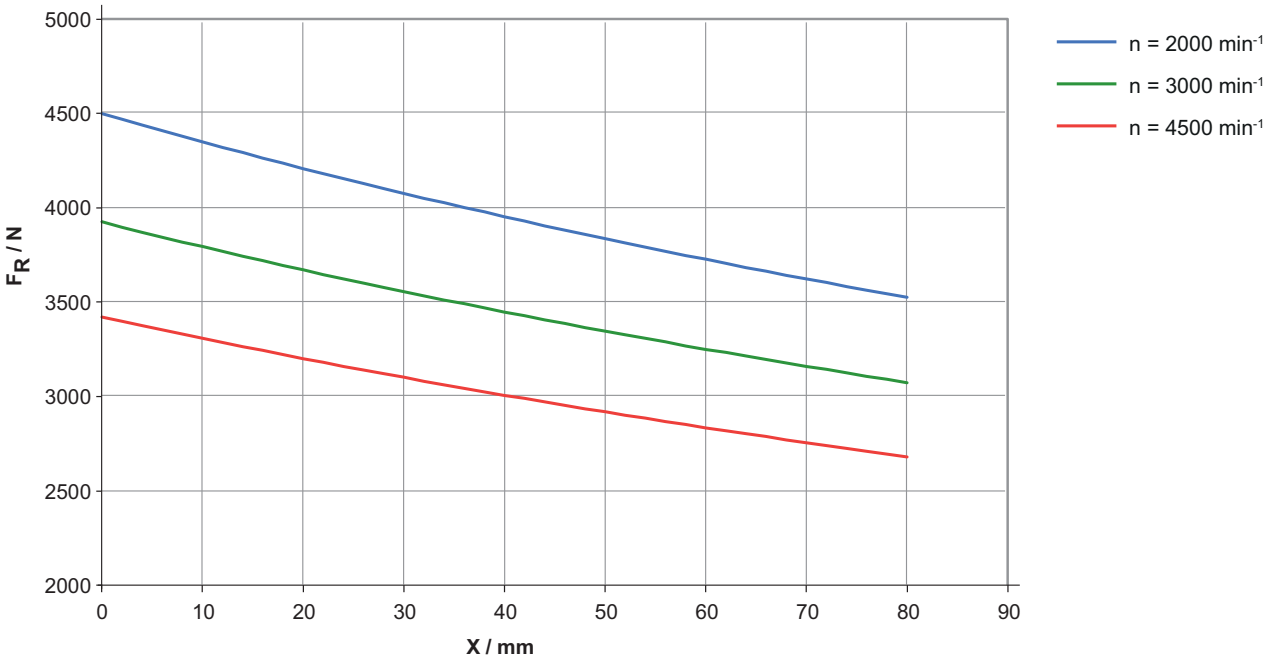
1) The mean speed must be determined from the travel diagram, for example.

For more information on the framework conditions of the overhung load diagrams, refer to chapter "Notes on overhung load diagrams" (→ 🗎 289).



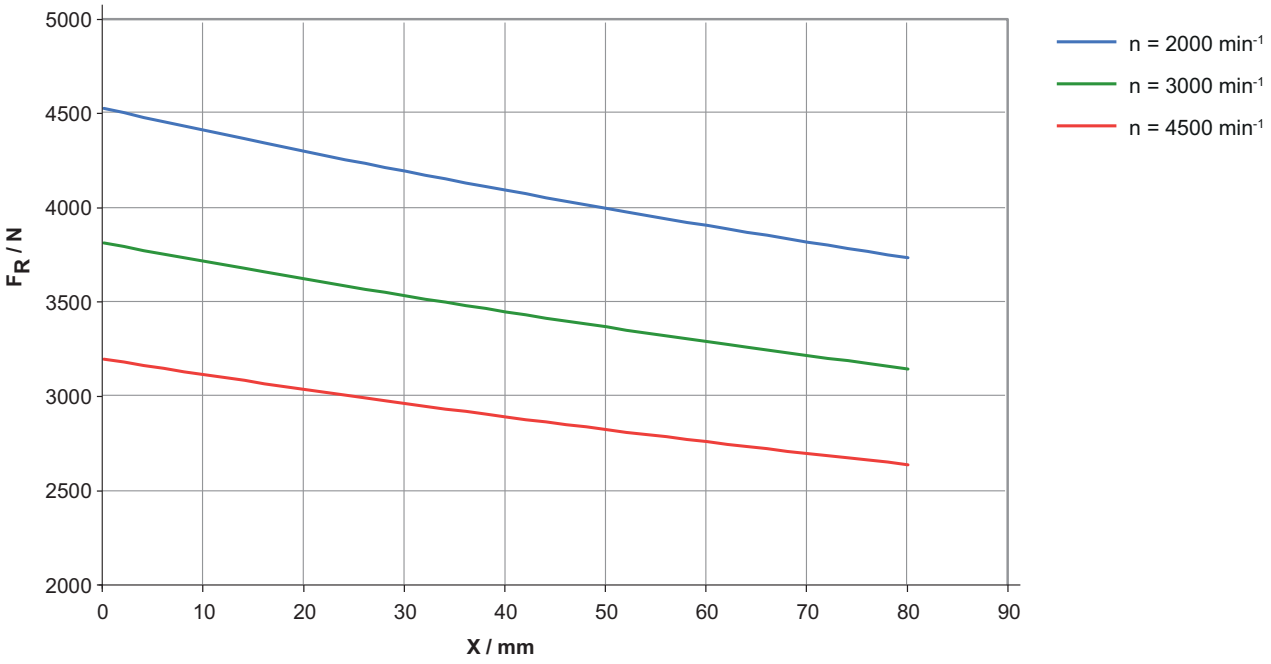
Overhung and axial load of CMP112S

18014407397704075



Overhung and axial load of CMP112M

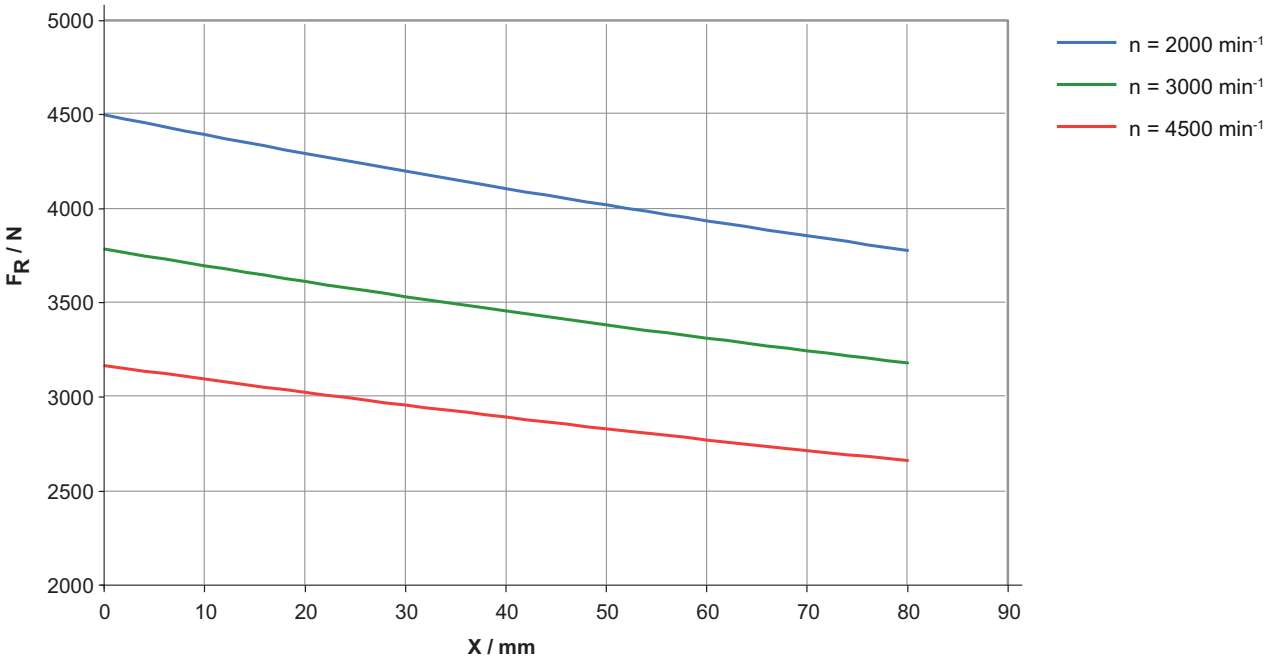
18014407397702155



Overhung and axial load of CMP112L

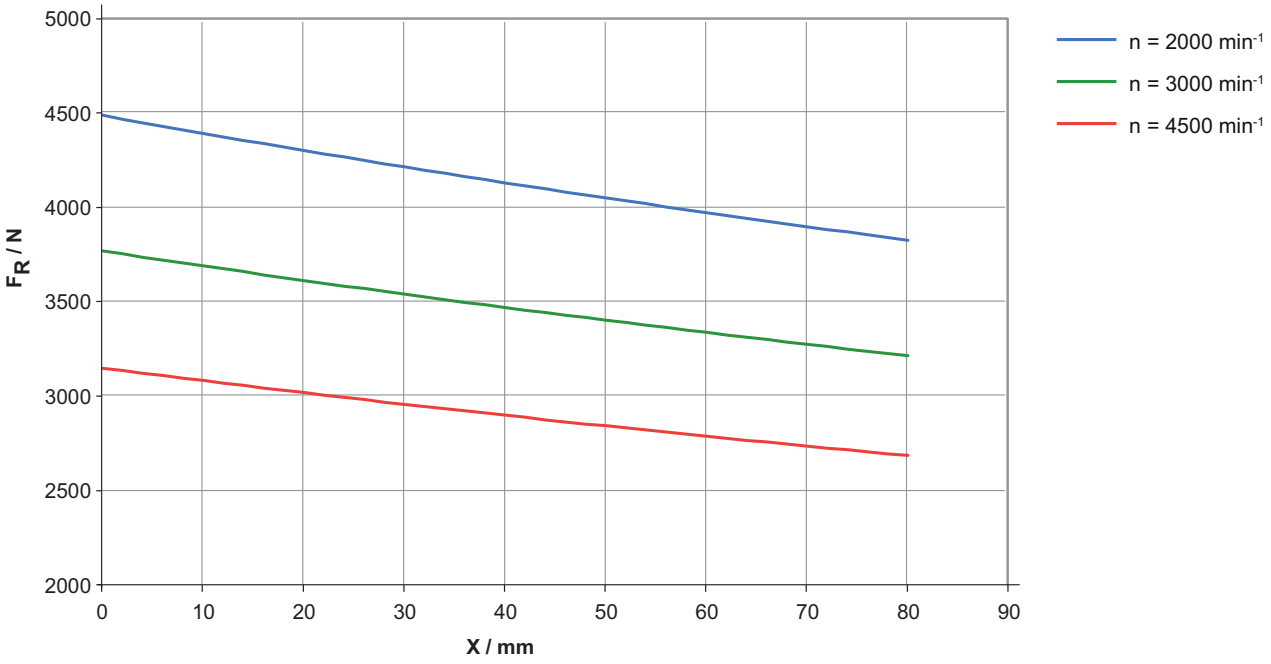
18014407397700235

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Overhung and axial load of CMP112H

18014407397698315



Overhung and axial load of CMP112E

18014407397705995

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4.5 Design for system voltage 400 V

4.5.1 CMP40

Technical data

			CMP40S			CMP40M		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm	0.5			0.8		
Standstill current	I_0	A	1.2	1.2	1.2	0.95	0.95	1.1
Dynamic limit torque	M_{pk}	Nm	1.9			3.8		
Maximum motor current	I_{max}	A	6.1	6.1	6.1	6.0	6.0	6.9
Inductance (phase)	L_1	mH	23	23	23	45.9	45.9	34
Resistance (phase) at 20 °C	R_1	Ω	11.9	11.9	11.9	21.2	21.2	15.9
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	27.5	27.5	27.5	56.3	56.3	48.5
Technical data with forced cooling fan								
Standstill torque	$M_{0\ VR}$	Nm	–	–	–	–	–	–
Standstill current	$I_{0\ VR}$	I	–	–	–	–	–	–
Mechanical data of motor								
Number of poles			6					
Maximum permitted radial load	F_{Ramax}	N	260	225	205	280	245	220
Maximum permitted axial load	F_{Aamax}	N	86	74	68	92	81	73
Mass of the motor	m_{mot}	kg	1.1			1.7		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	0.1			0.15		

Mechanical data of the brakemotor

			CMP40S	CMP40M
Brake type			BK01	
Mass of the brakemotor	m_{bmot}	kg	1.5	2.1
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	0.19	0.24

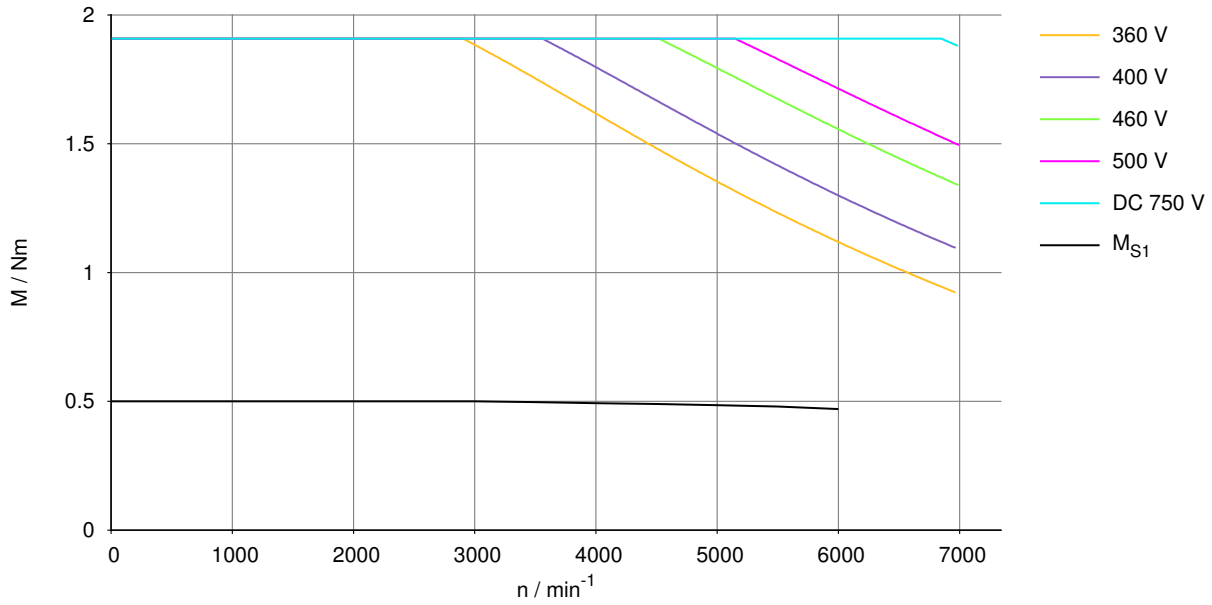
Technical data of the brake

			BK01
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	1.9
Static braking torque	$M_{4,100°C}$	Nm	1.9

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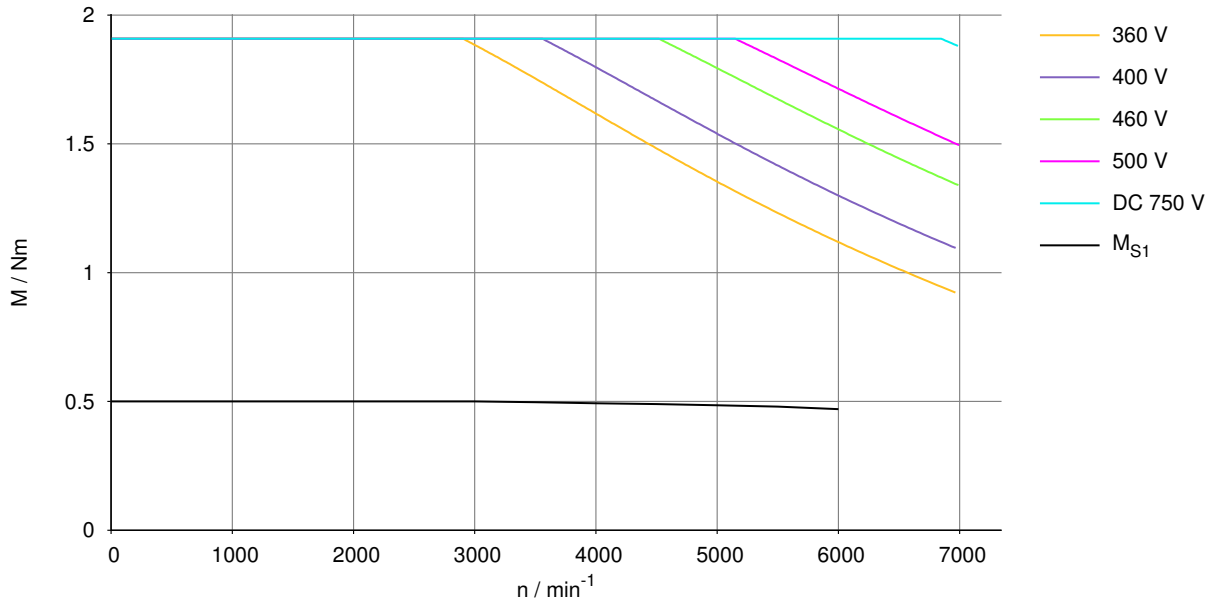
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP40S, 3000 min^{-1}

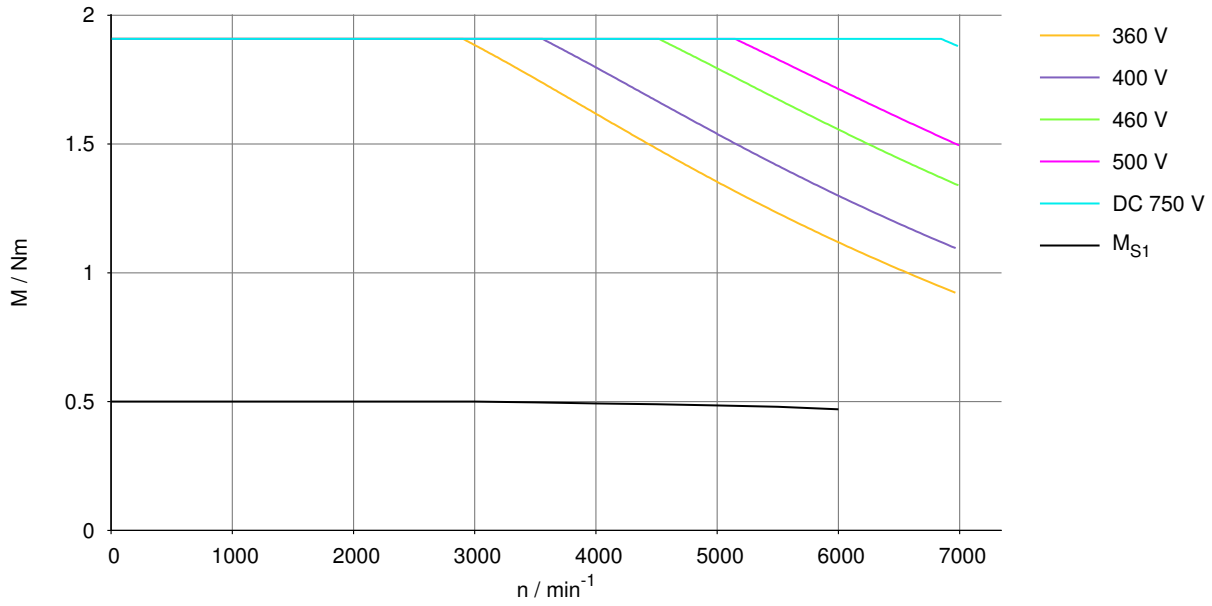
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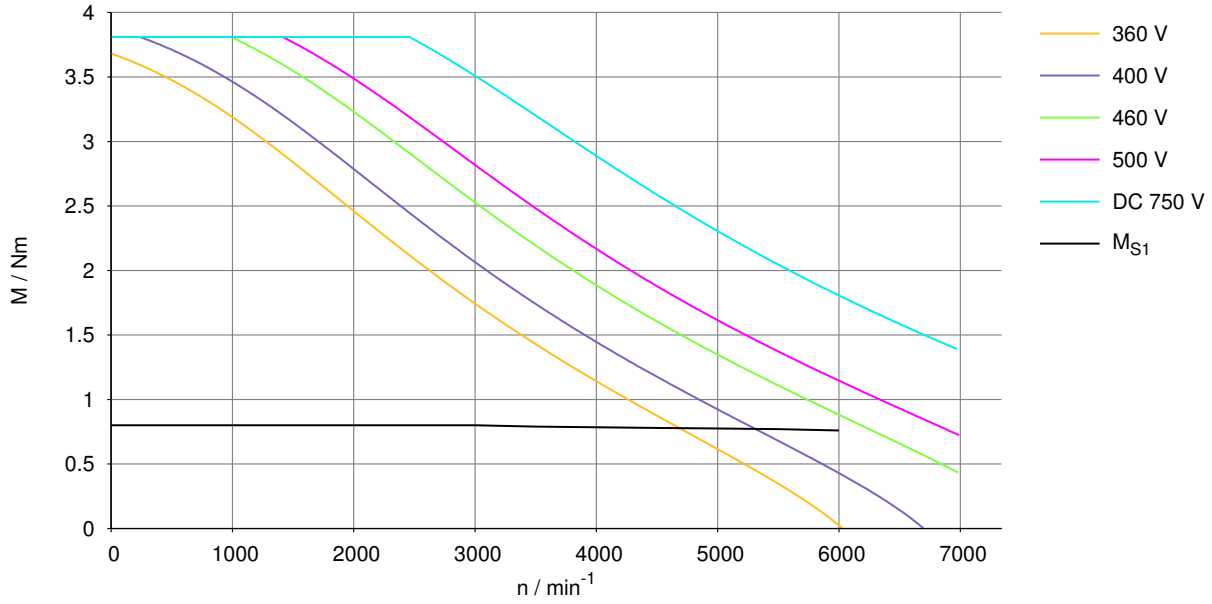
CMP40S, 4500 min^{-1}

39207840395

27799468/EN – 11/2023

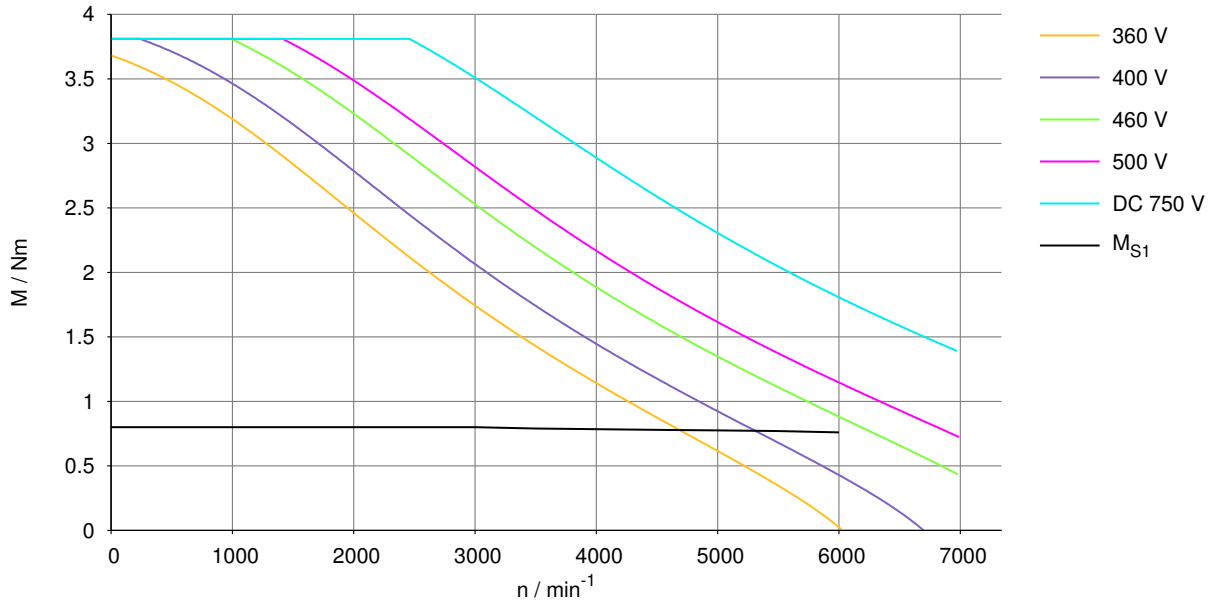


CMP40S, 6000 min^{-1} *39207842827*



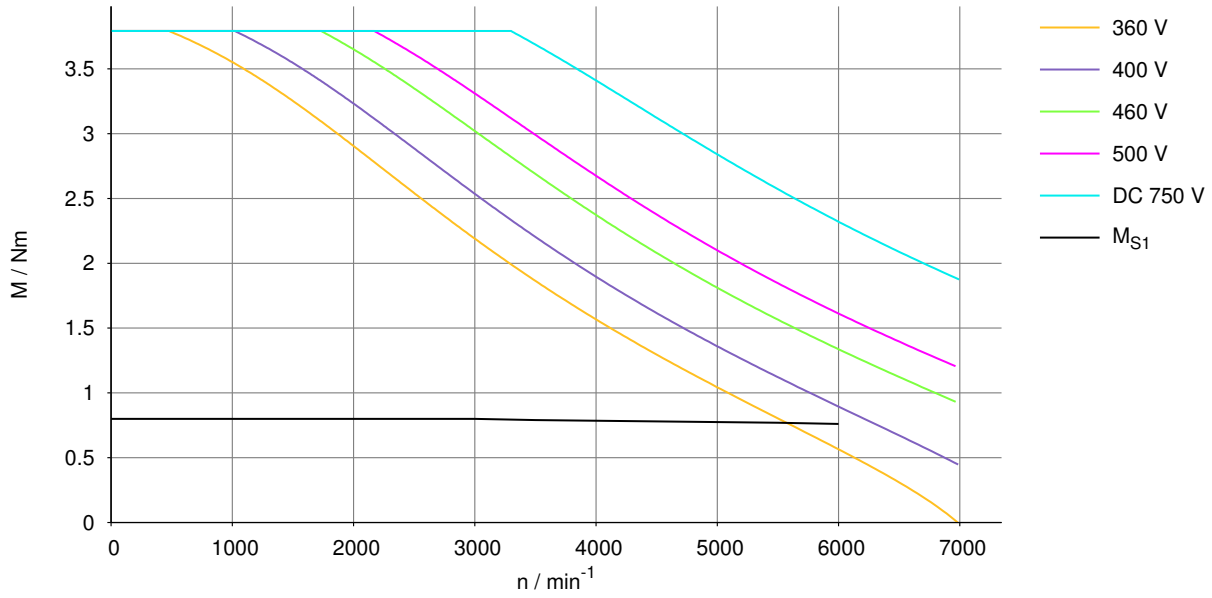
CMP40M, 3000 min^{-1} *39207816843*

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CMP40M, 4500 min^{-1}

39207819275

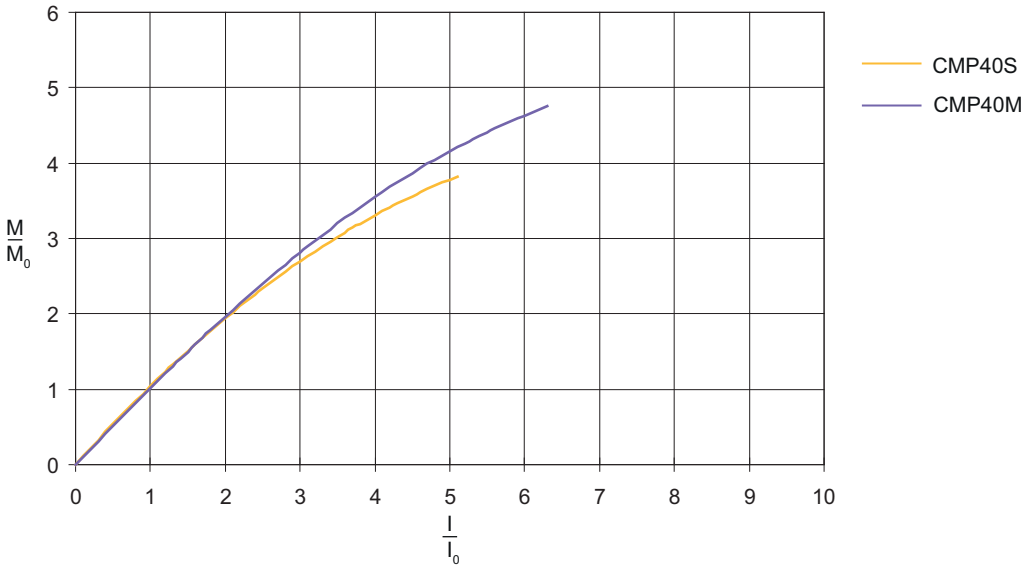


CMP40M, 6000 min^{-1}

39207821707

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Torque-current characteristic



Torque-current characteristic curve CMP40S/M

25135132043

4.5.2 CMP50

Technical data

			CMP50S			CMP50M			CMP50L		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm	1,3			2.4			3.3		
Standstill current	I_0	A	0.96	1.32	1.7	1.68	2.3	3	2.2	3.15	4.2
Dynamic limit torque	M_{pk}	Nm	5.2			10.3			15.4		
Maximum motor current	I_{max}	A	5.1	7	9	9.6	13.1	17.1	13.6	19.5	26
Inductance (phase)	L_1	mH	71.2	37.2	22.5	38.3	20.7	12	30.4	14.6	8.2
Resistance (phase) at 20 °C	R_1	Ω	23.8	12.3	7.51	10.5	5.58	3.39	7.77	3.73	2
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	86.3	62.4	48.5	90.3	66.3	50.5	98.2	68	51
Technical data with forced cooling fan											
Standstill torque	M_{0_VR}	Nm	1.7			3.5			4.8		
Standstill current	I_{0_VR}	I	1.25	1.7	2.2	2.45	3.35	4.4	3.2	4.6	6.1
Mechanical data of motor											
Number of poles			6								
Maximum permitted radial load	F_{Ramax}	N	315	250	200	355	275	220	370	280	225
Maximum permitted axial load	F_{Aamax}	N	104	83	66	117	91	73	122	92	74
Mass of the motor	m_{mot}	kg	2.4			3.2			4.5		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	0.42			0.67			0.92		

Mechanical data of the brakemotor

			CMP50S	CMP50M	CMP50L
Brake type			BK02		BK04
Mass of the brakemotor	m_{bmot}	kg	2.8	3.6	5
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	0.53	0.78	1.33

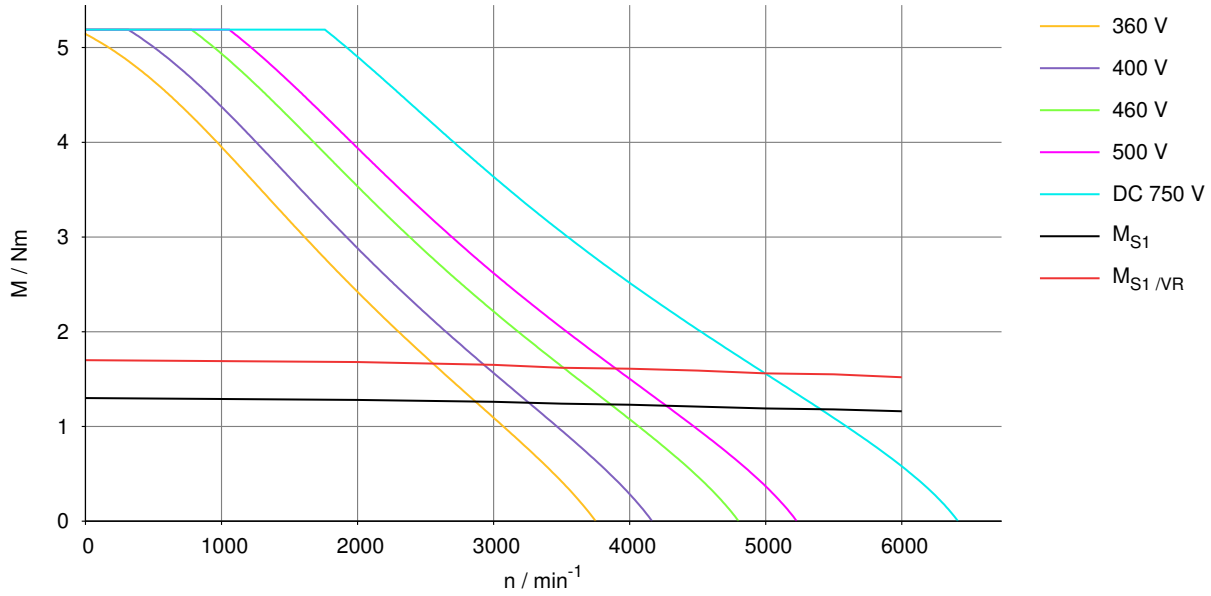
Technical data of the brake

			BK02	BK04
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000	
Nominal voltage of brake, AC	V_N	V AC	–	
Nominal voltage of brake, DC	V_N	DC V	24	
Nominal braking torque	M_{br}	Nm	2.4	3.9
Static braking torque	$M_{4,100°C}$	Nm	2.4	3.9

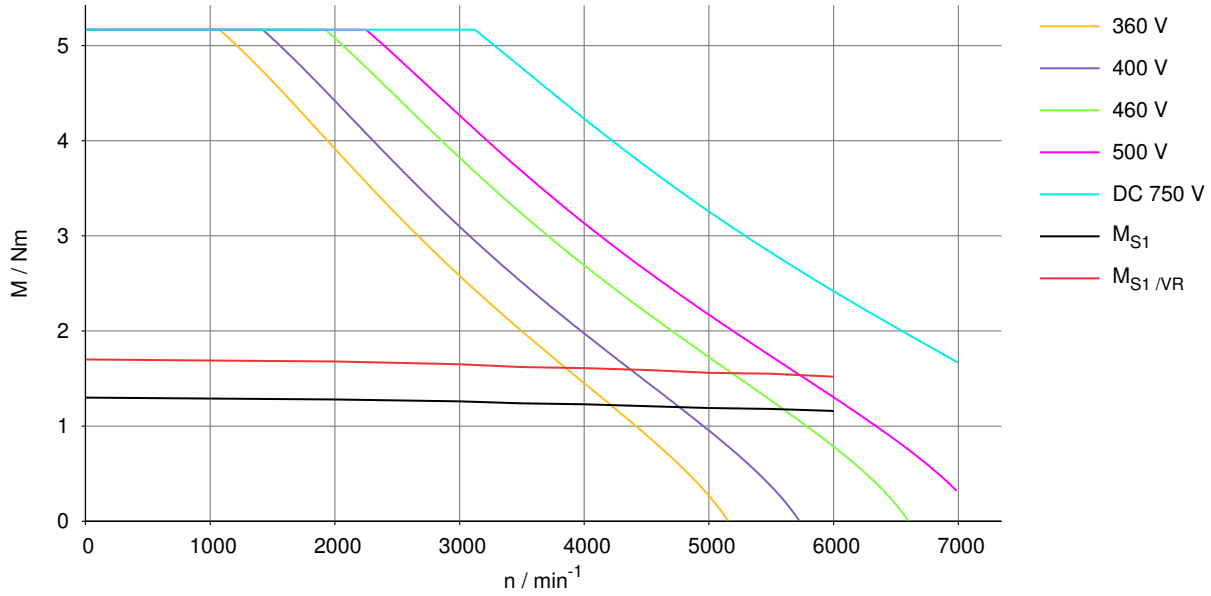
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Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).

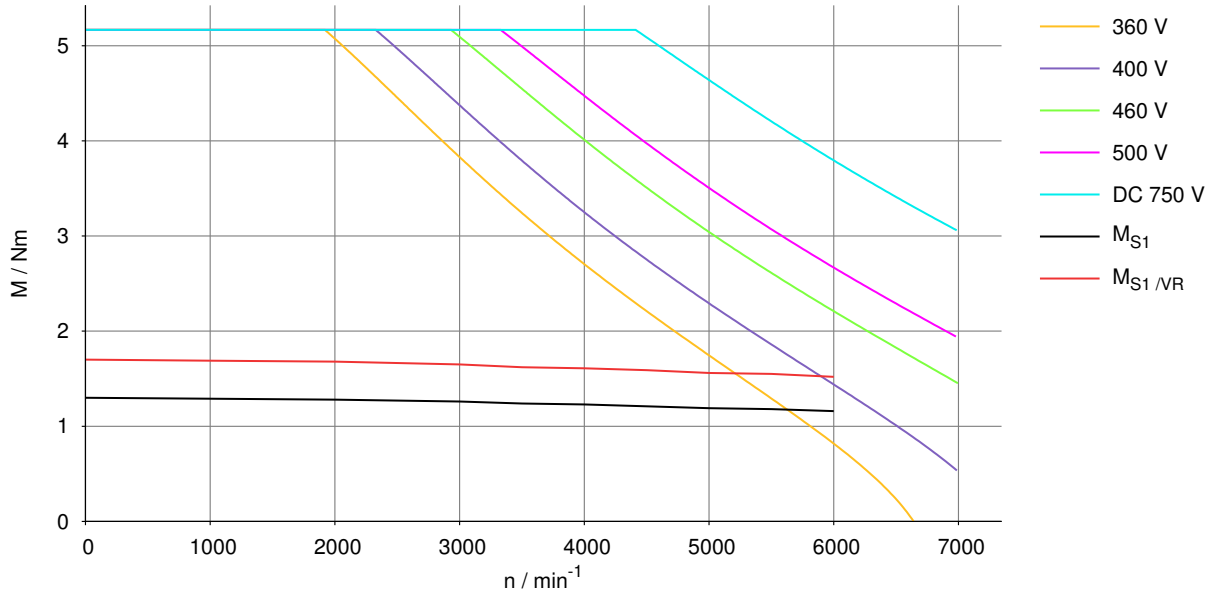


CMP50S, 3000 min^{-1} *39207926923*



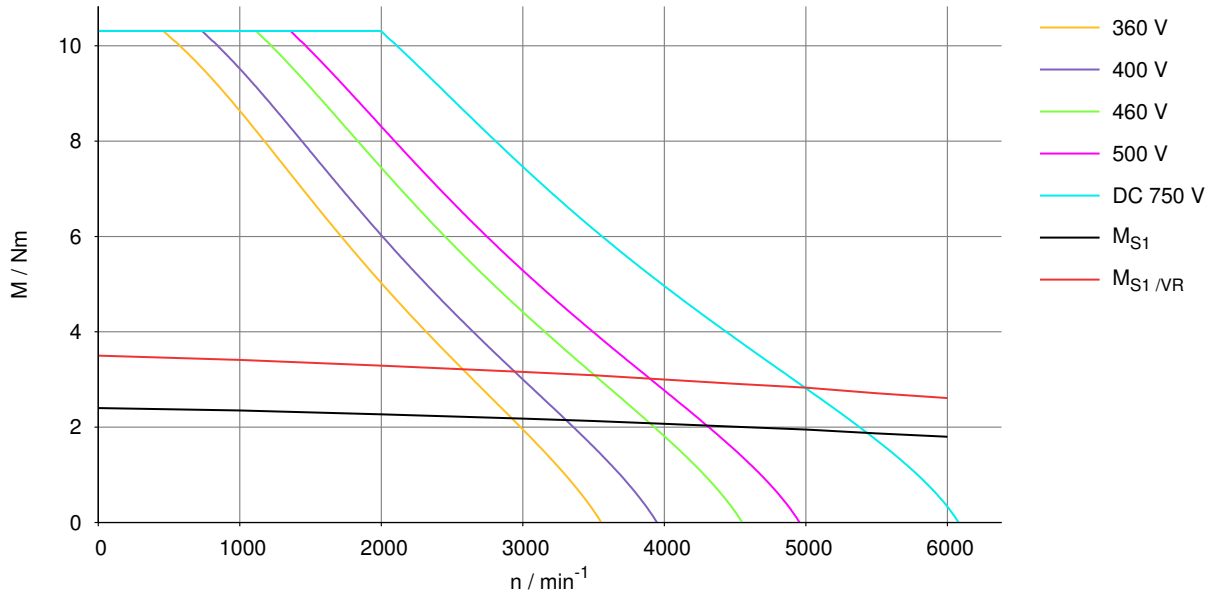
CMP50S, 4500 min^{-1} *39207929355*

27799468/EN – 11/2023



CMP50S, 6000 min^{-1}

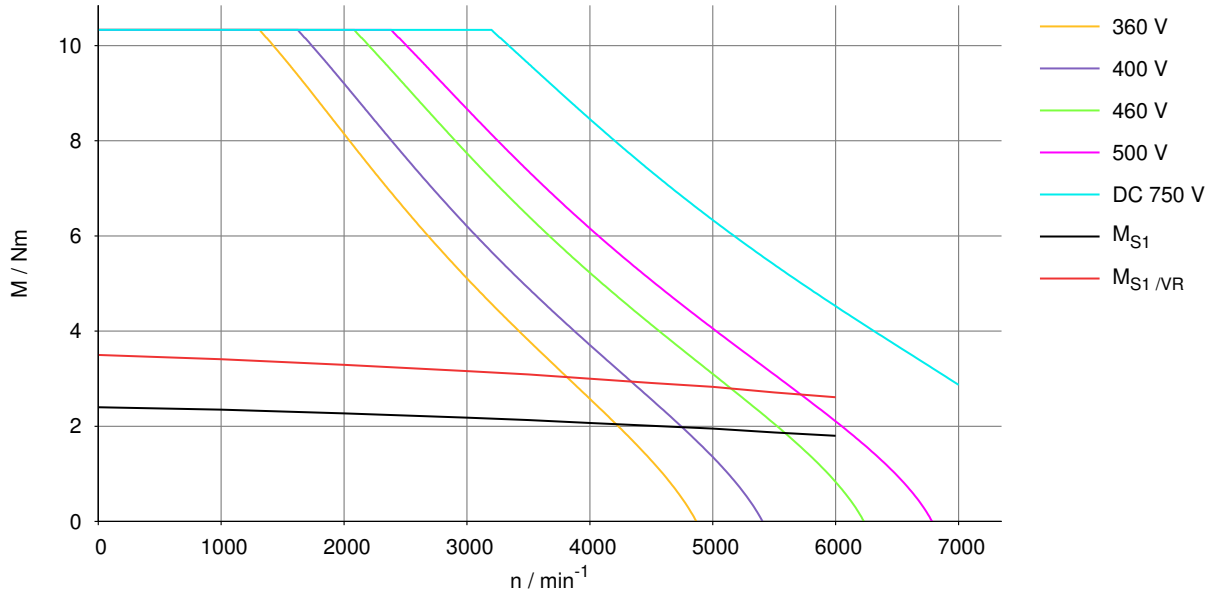
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CMP50M, 3000 min^{-1}

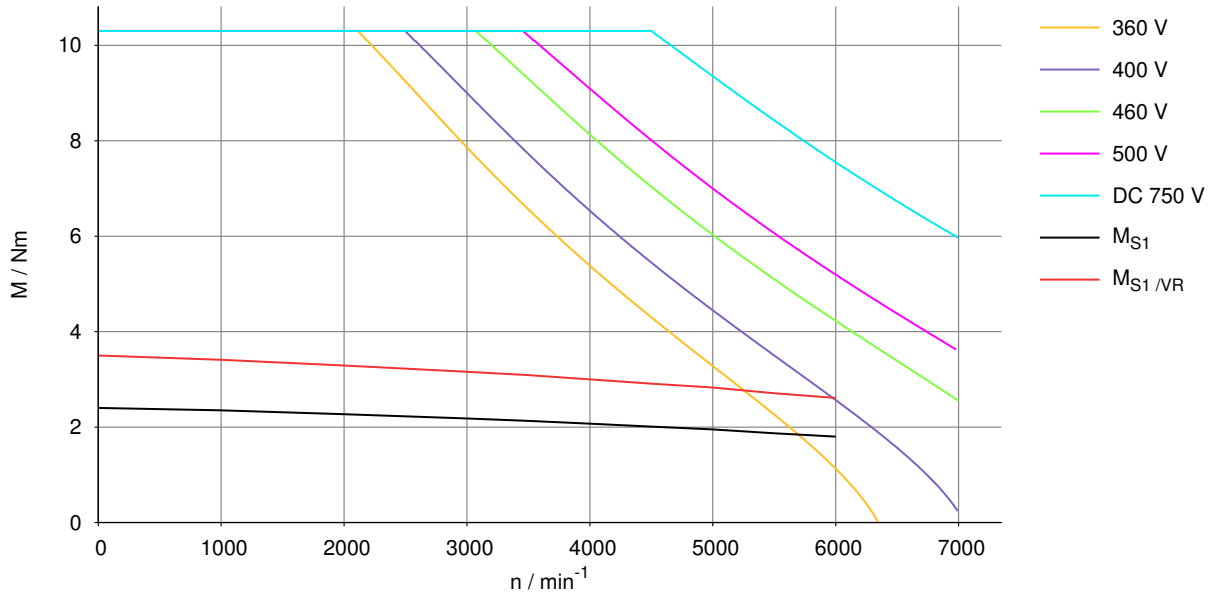
39207880203

27799468/EN – 11/2023



CMP50M, 4500 min^{-1}

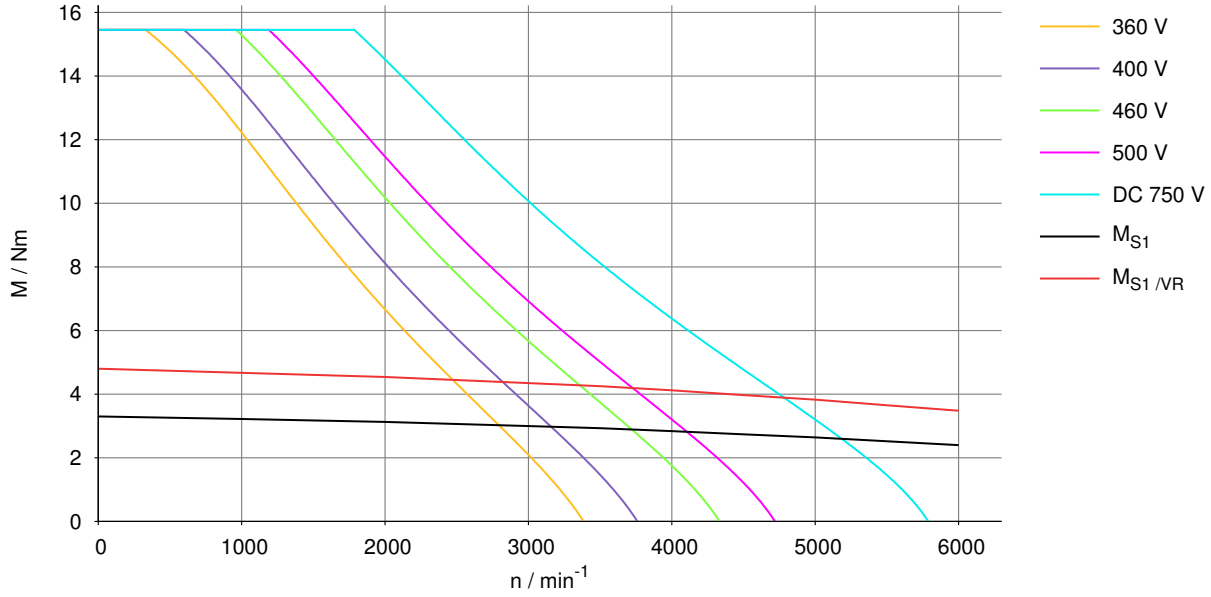
39207882635



CMP50M, 6000 min^{-1}

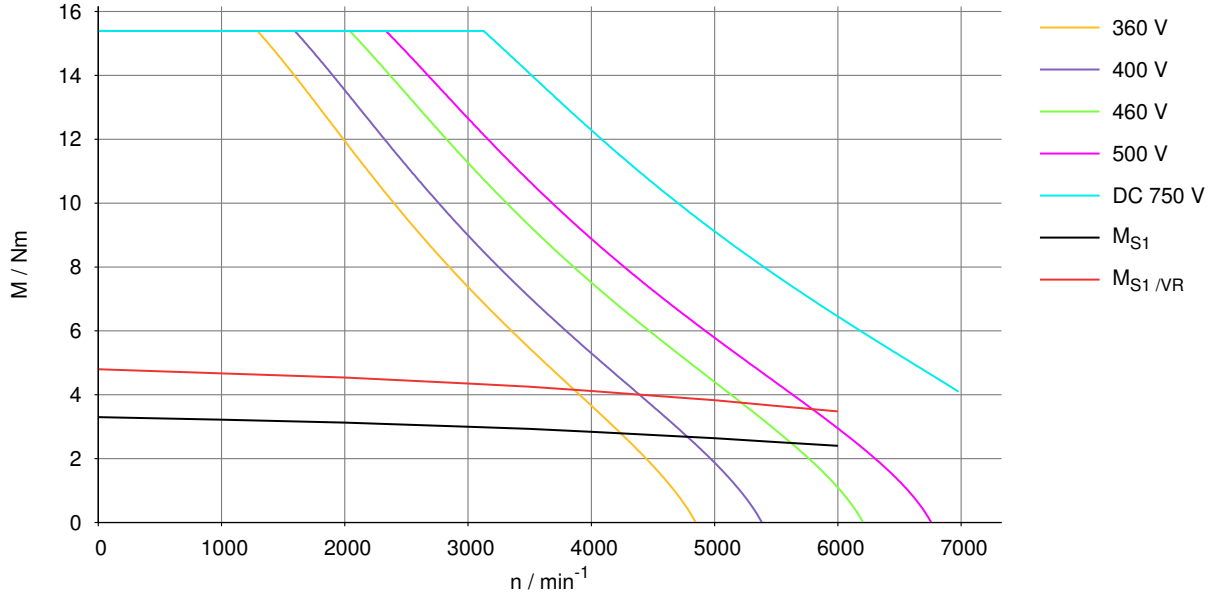
39207885067

27799468/EN – 11/2023



CMP50L, 3000 min^{-1}

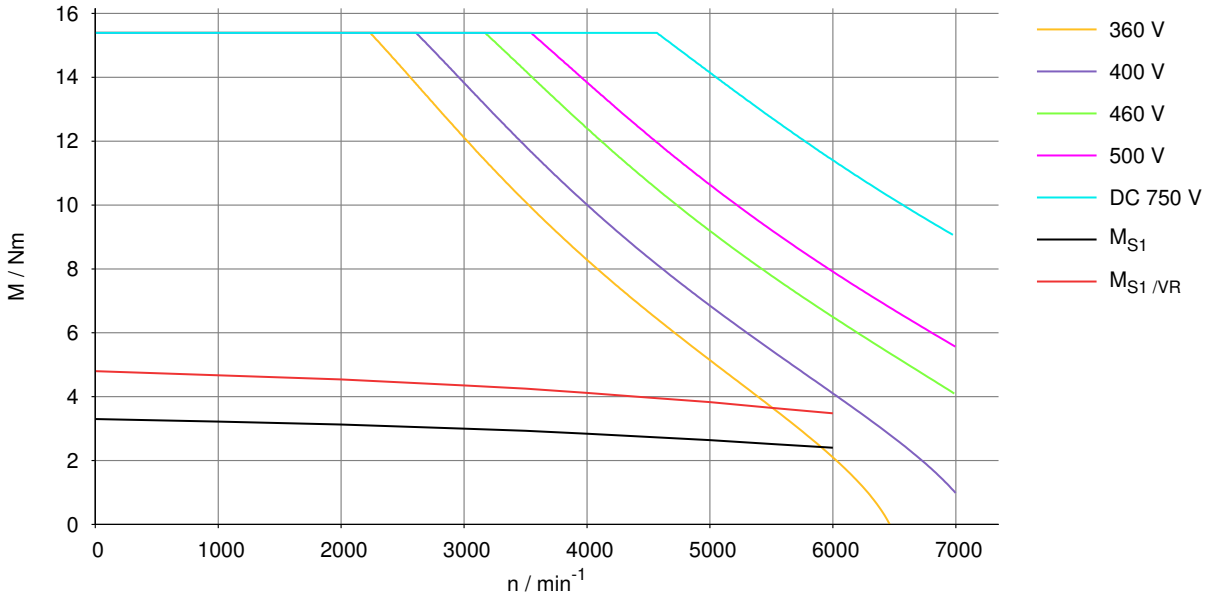
39207846283



CMP50L, 4500 min^{-1}

39207874315

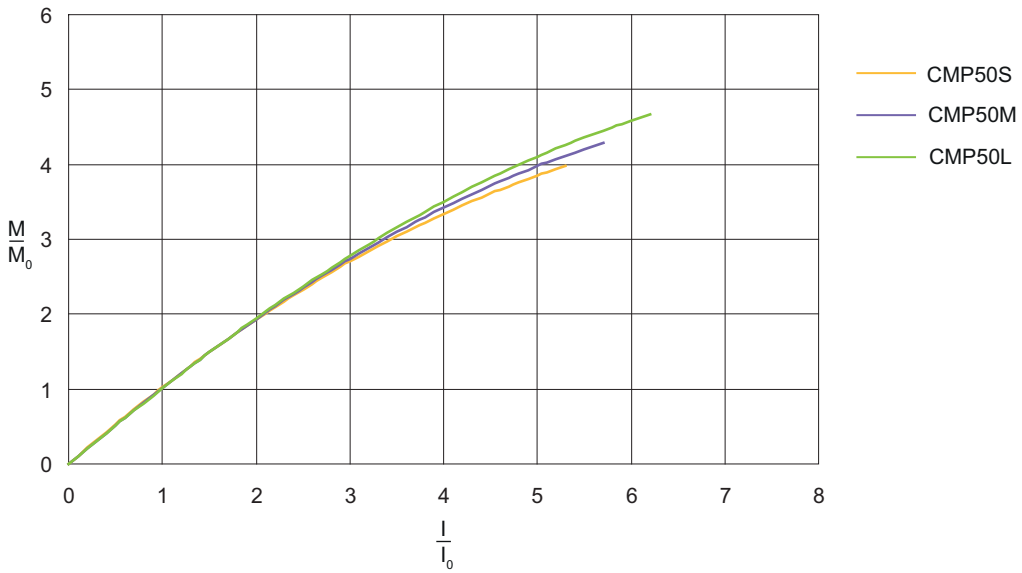
27799468/EN – 11/2023



CMP50L, 6000 min^{-1}

39207876747

Torque-current characteristic



Torque-current characteristic curve CMP50S / M / L

25135180171

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4.5.3 CMP63

Technical data

			CMP63S			CMP63M			CMP63L		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm	2.9			5.3			7.1		
Standstill current	I_0	A	2.15	3.05	3.9	3.6	5.4	6.9	4.95	6.9	9.3
Dynamic limit torque	M_{pk}	Nm	11.1			21.4			30.4		
Maximum motor current	I_{max}	A	12.9	18.3	23.4	21.6	32.4	41.4	29.7	41.4	55.8
Inductance (phase)	L_1	mH	36.4	18.3	11.2	21.8	9.79	5.9	14.2	7.21	4
Resistance (phase) at 20 °C	R_1	Ω	7.06	3.48	2.18	3.77	1.57	0.975	2.18	1.12	0.654
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	90.1	63.9	50	100	67	52	99.9	71.1	53
Technical data with forced cooling fan											
Standstill torque	M_{0_VR}	Nm	4			7.5			10.3		
Standstill current	I_{0_VR}	I	3	4.2	5.4	5.1	7.6	9.8	7.2	10	13.5
Mechanical data of motor											
Number of poles			6								
Maximum permitted radial load	F_{Ramax}	N	460	360	290	500	380	300	560	445	360
Maximum permitted axial load	F_{Aamax}	N	152	119	96	165	125	99	185	147	119
Mass of the motor	m_{mot}	kg	3.7			5.7			7.4		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	1.15			1.92			2.69		

Mechanical data of the brakemotor

			CMP63S	CMP63M	CMP63L
Brake type			BK03	BK07	
Mass of the brakemotor	m_{bmot}	kg	4.3	6.5	8.2
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	1.54	2.49	3.26

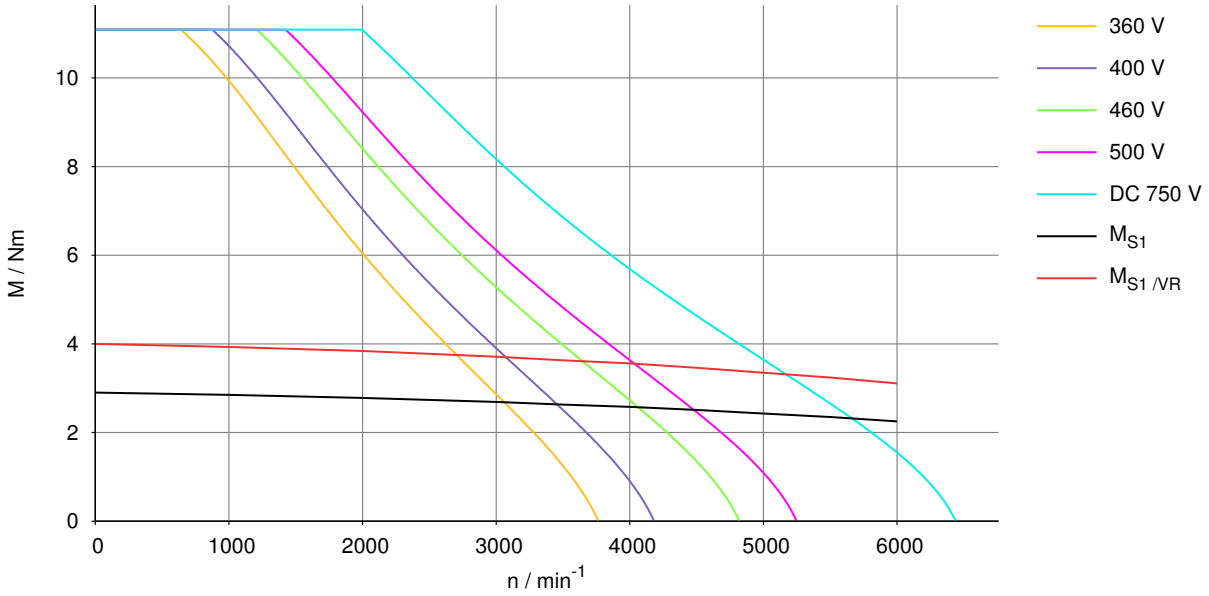
Technical data of the brake

			BK03	BK07
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000	
Nominal voltage of brake, AC	V_N	V AC	–	
Nominal voltage of brake, DC	V_N	DC V	24	
Nominal braking torque	M_{br}	Nm	3.8	7.1
Static braking torque	$M_{4,100°C}$	Nm	3.8	7.1

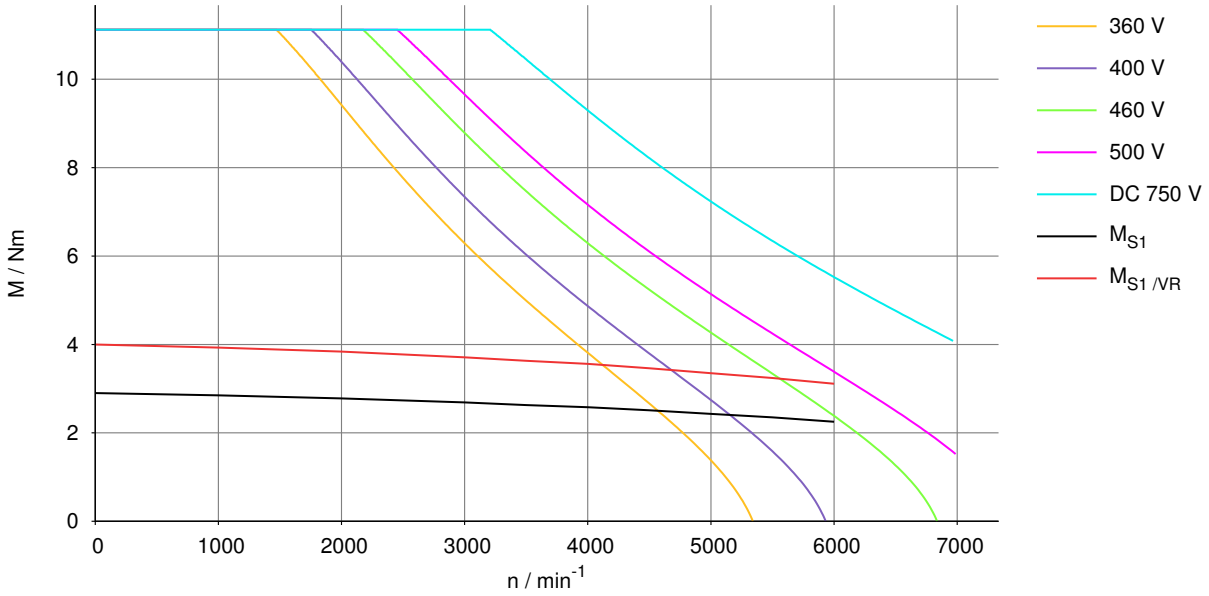
27799468/EN – 11/2023

Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).

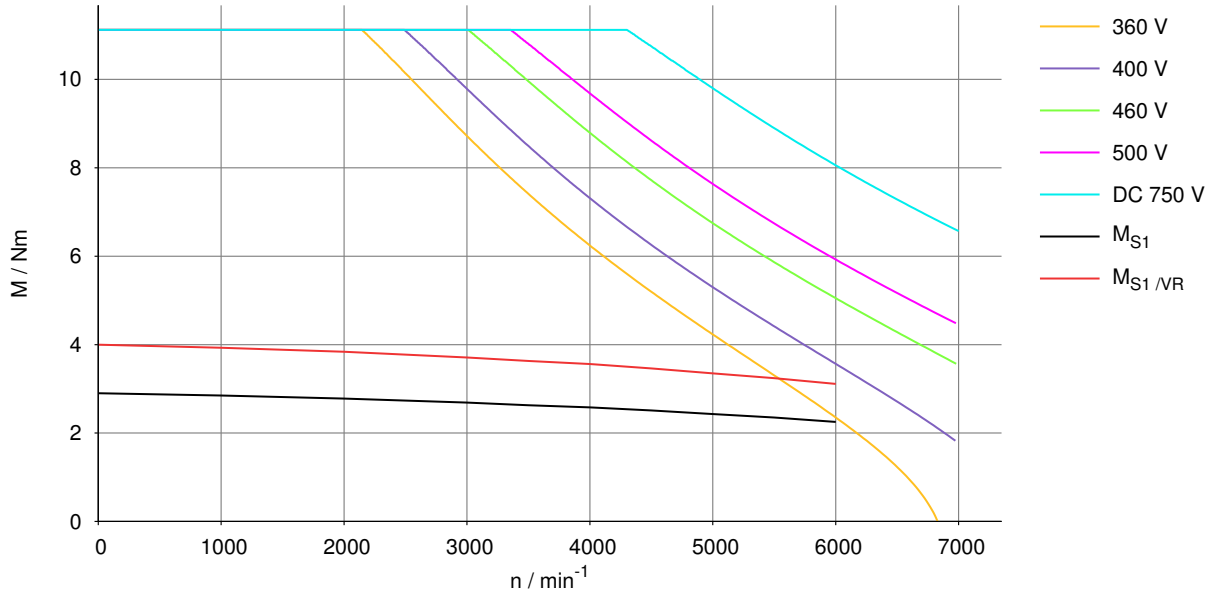


CMP63S, 3000 min^{-1} *39207977483*



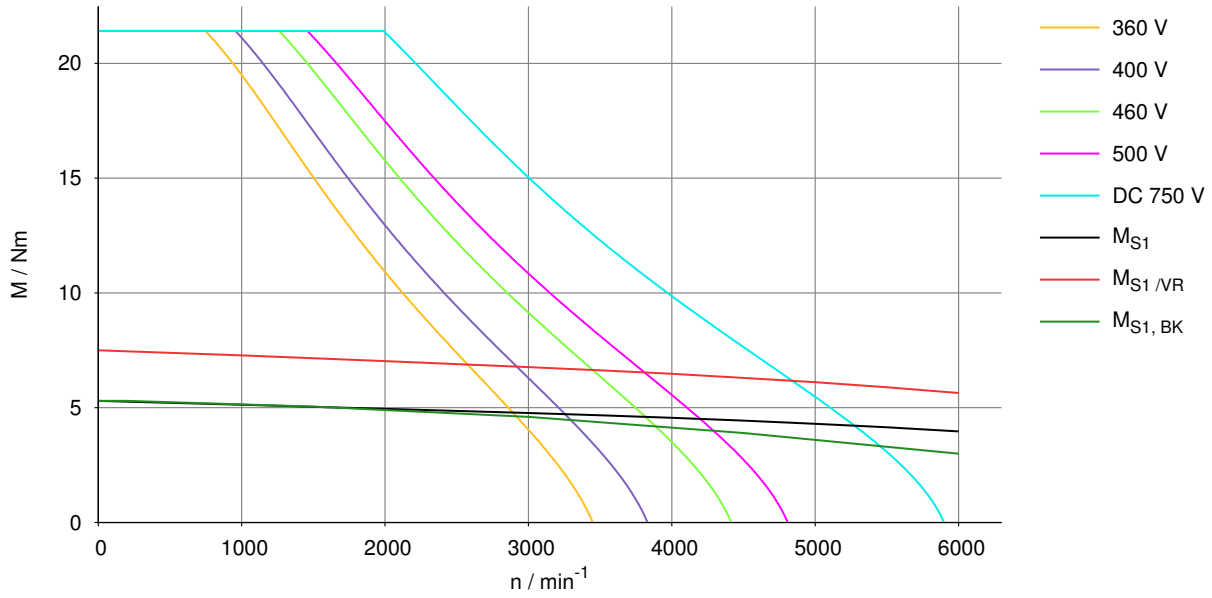
CMP63S, 4500 min^{-1} *39207979915*

27799468/EN – 11/2023



CMP63S, 6000 min^{-1}

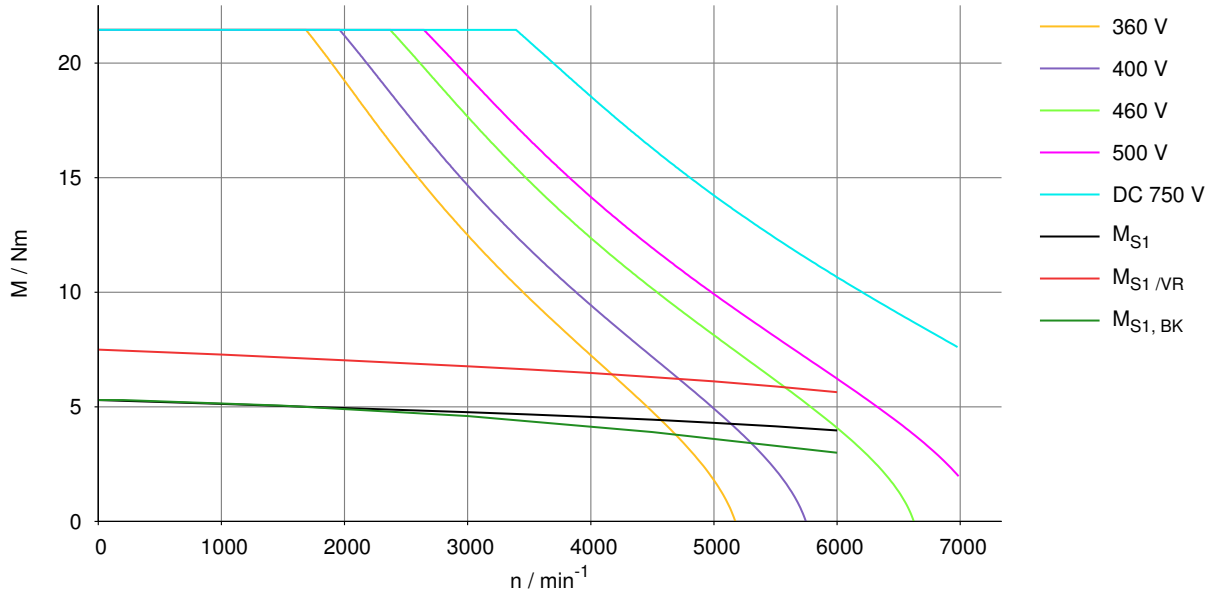
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CMP63M, 3000 min^{-1}

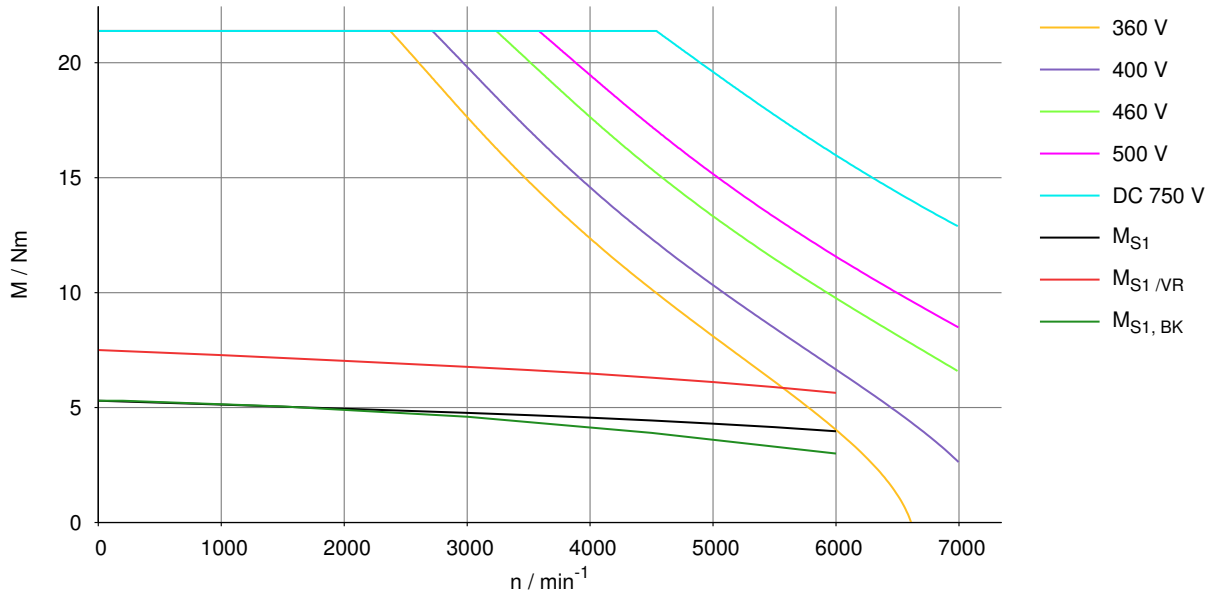
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27799468/EN – 11/2023



CMP63M, 4500 min^{-1}

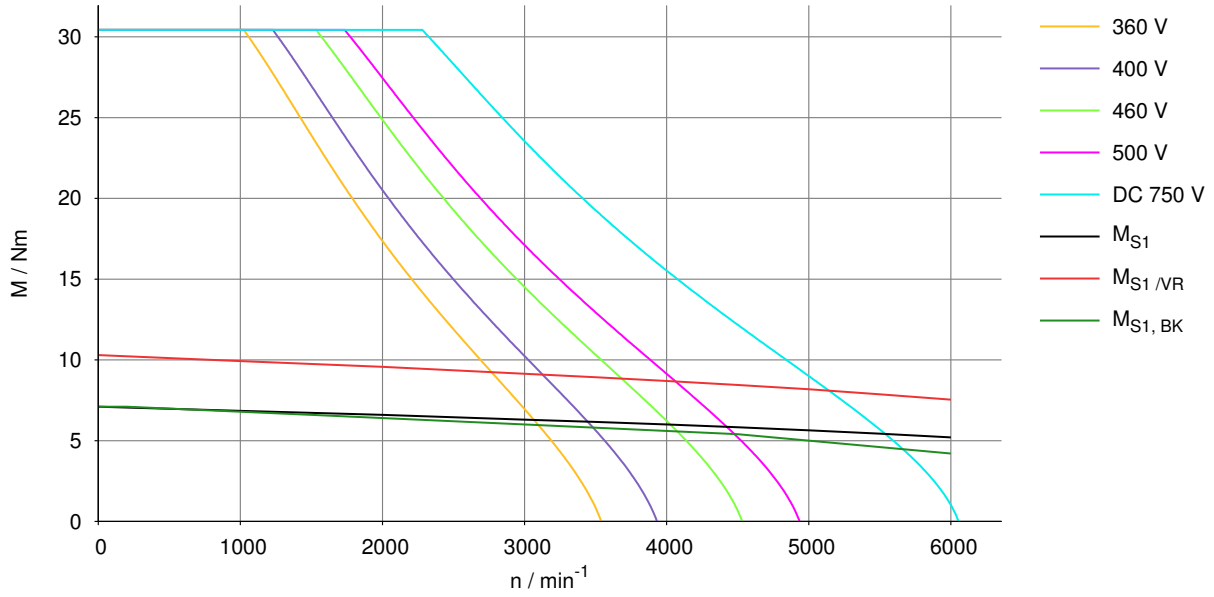
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CMP63M, 6000 min^{-1}

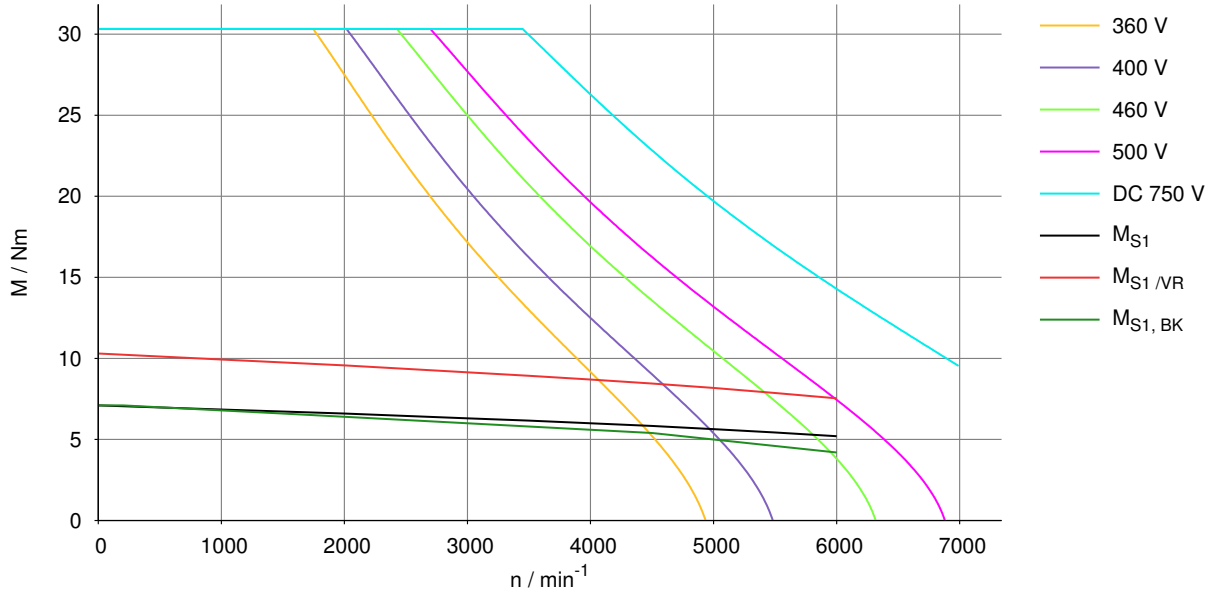
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27799468/EN – 11/2023



CMP63L, 3000 min^{-1}

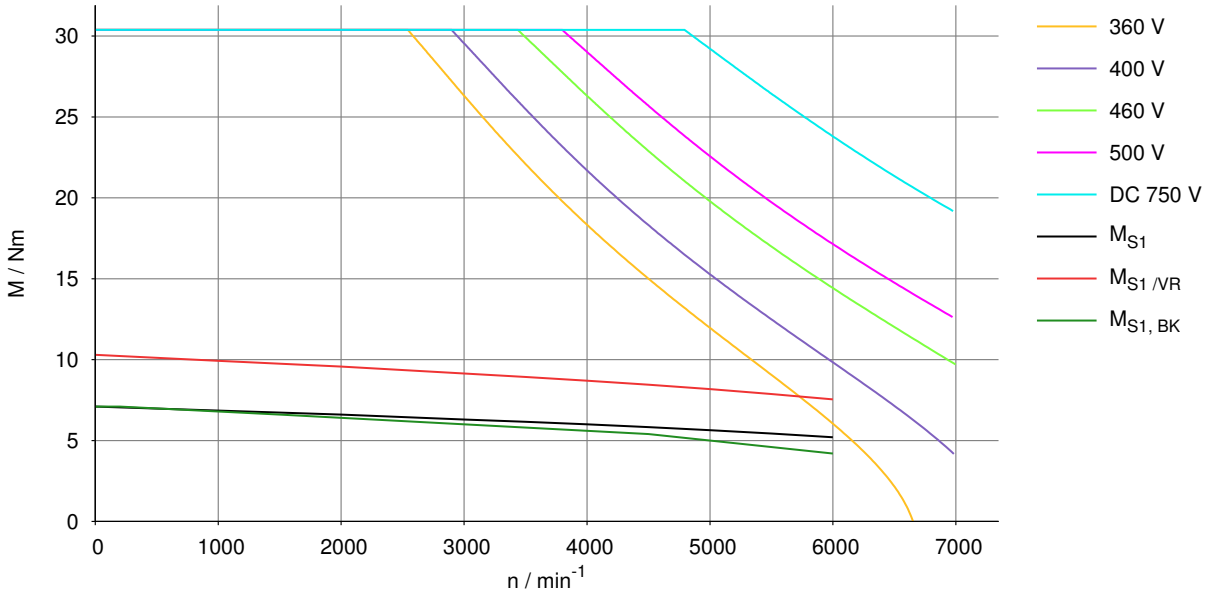
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CMP63L, 4500 min^{-1}

39207937675

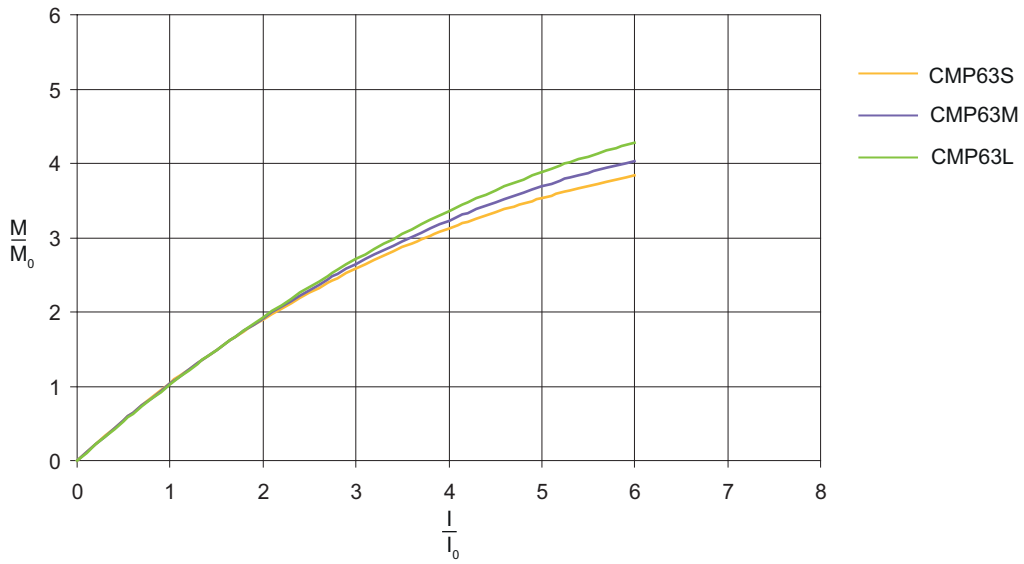
27799468/EN – 11/2023



CMP63L, 6000 min^{-1}

39207952907

Torque-current characteristic



Torque-current characteristic curve CMP63S / M / L

25135189899

27799468/EN – 11/2023

4.5.4 CMP71

Technical data

			CMP71S				CMP71M				CMP71L			
Speed class	n_C	min^{-1}	2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
Standstill torque	M_0	Nm	6.4				9.4				13.1			
Standstill current	I_0	A	3.4	4.9	7.3	9.6	5	7.5	10.9	14.7	6.3	9.4	14.1	18.8
Dynamic limit torque	M_{pk}	Nm	19.2				30.8				46.9			
Maximum motor current	I_{max}	A	17	25	38	50	26	39	57	76	39	58	87	115
Inductance (phase)	L_1	mH	33.5	15.7	7.07	4.13	21.6	9.72	4.54	2.53	16.2	7.34	3.26	1.84
Resistance (phase) at 20 °C	R_1	Ω	3.28	1.4	0.677	0.372	1.83	0.79	0.375	0.202	1.2	0.559	0.241	0.145
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	128	87.5	58.7	44.9	127	85.3	58.3	43.5	142	95.7	63.8	47.9
Technical data with forced cooling fan														
Standstill torque	M_{0_VR}	Nm	8.7				13.7				21			
Standstill current	I_{0_VR}	I	4.6	6.7	9.9	13.1	7.3	10.9	15.9	21.5	10.1	15.1	22.5	30
Mechanical data of motor														
Number of poles			10											
Maximum permitted radial load	F_{Ramax}	N	953	832	724	636	1018	888	747	659	1101	928	777	681
Maximum permitted axial load	F_{Aamax}	N	318	277	240	212	340	296	250	219	367	309	258	227
Mass of the motor	m_{mot}	kg	6				7.7				10.9			
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	3.13				4.17				6.27			

Mechanical data of the brakemotor

			CMP71S	CMP71M	CMP71L
Brake type			BP1		
Mass of the brakemotor	m_{bmot}	kg	7.9	9.5	12.8
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	3.53	4.57	6.67

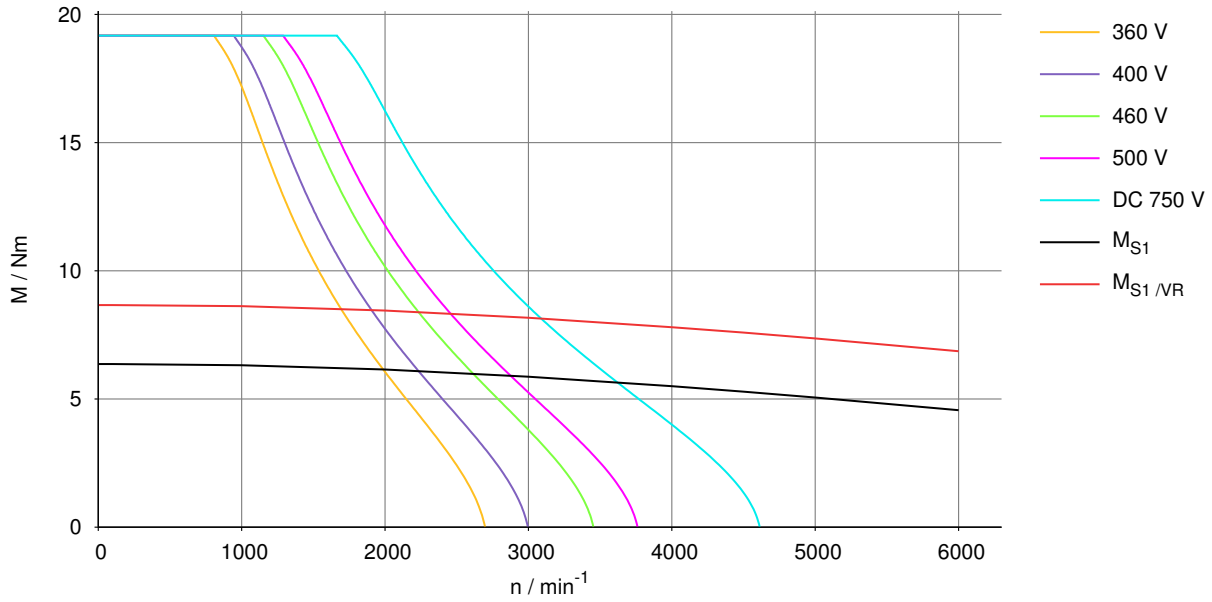
Technical data of the brake

			BP1
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	7 / 14
Static braking torque	$M_{4,100°C}$	Nm	4.2 / 8.4

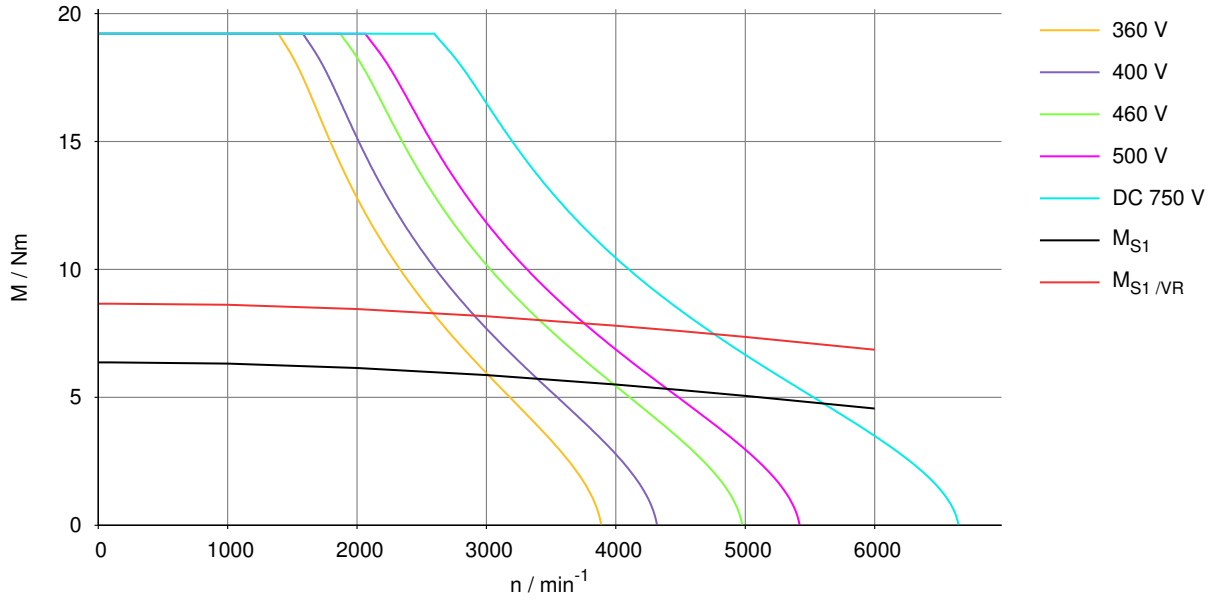
27799468/EN – 11/2023

Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 288).

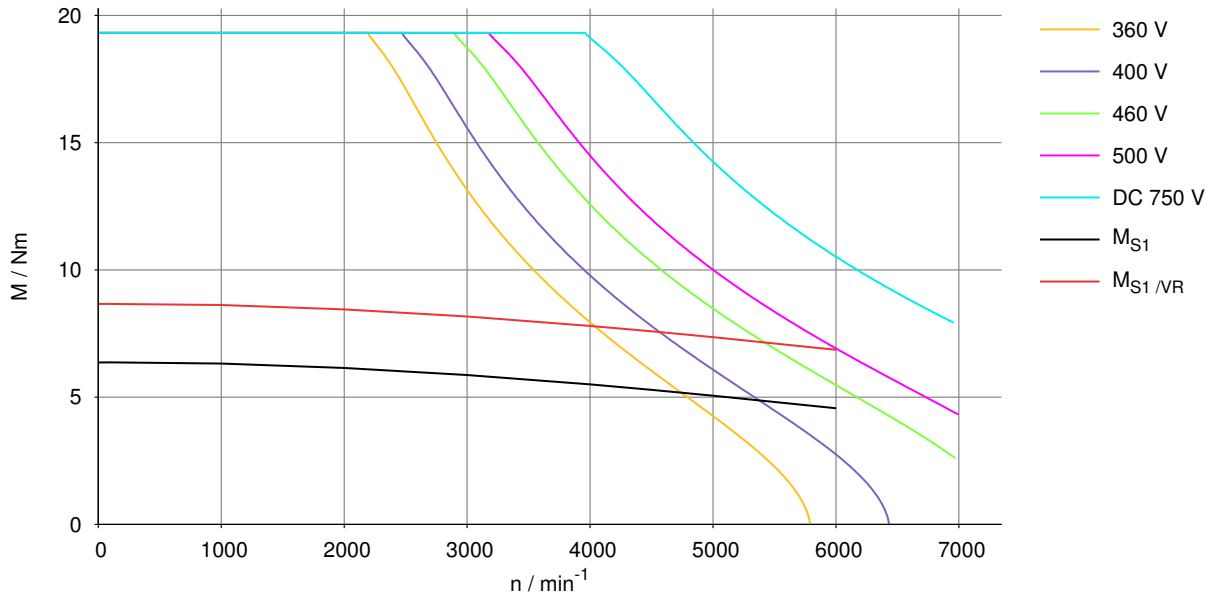


CMP71S, 2000 min^{-1} *39208020619*



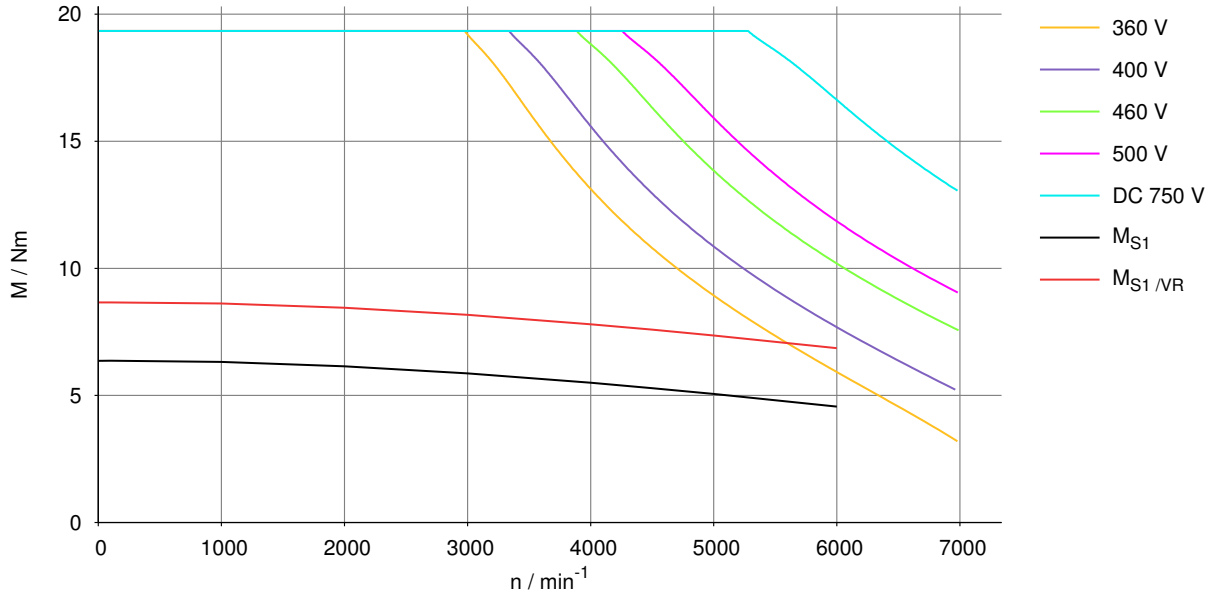
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27799468/EN – 11/2023



CMP71S, 4500 min^{-1}

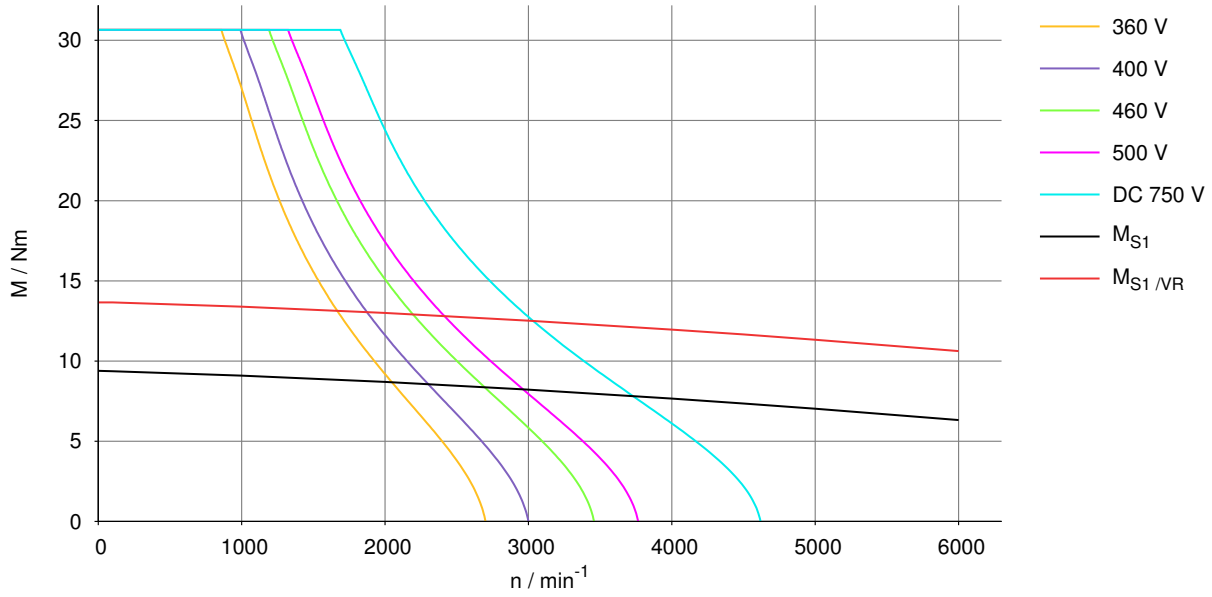
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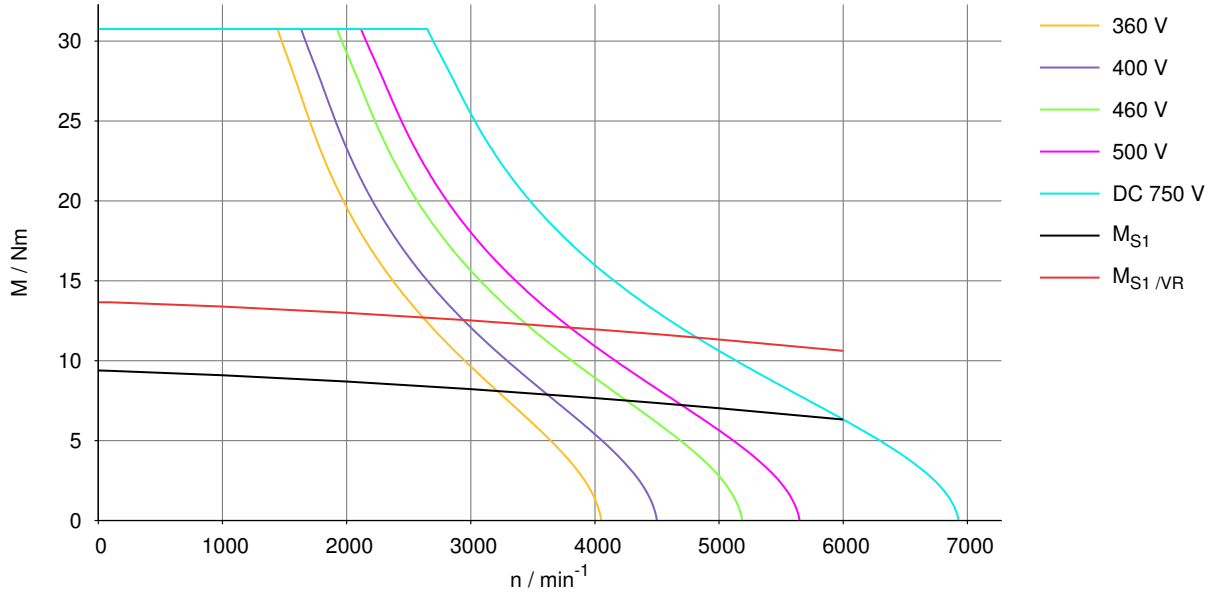
CMP71S, 6000 min^{-1}

39208040715

27799468/EN – 11/2023

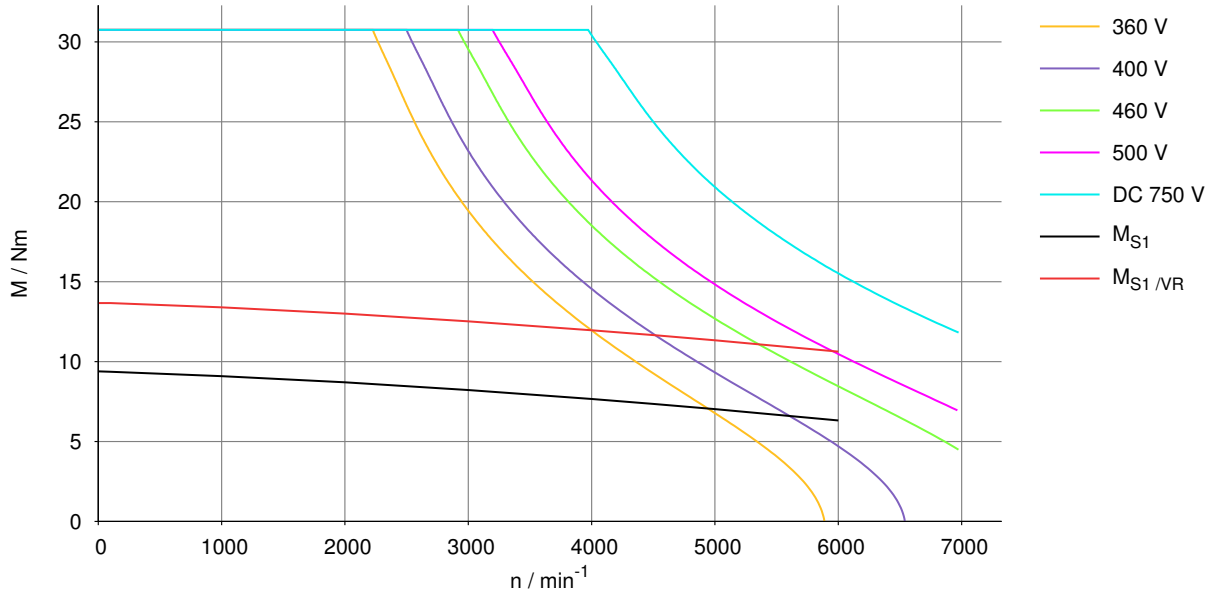


CMP71M, 2000 min^{-1} *39208009611*



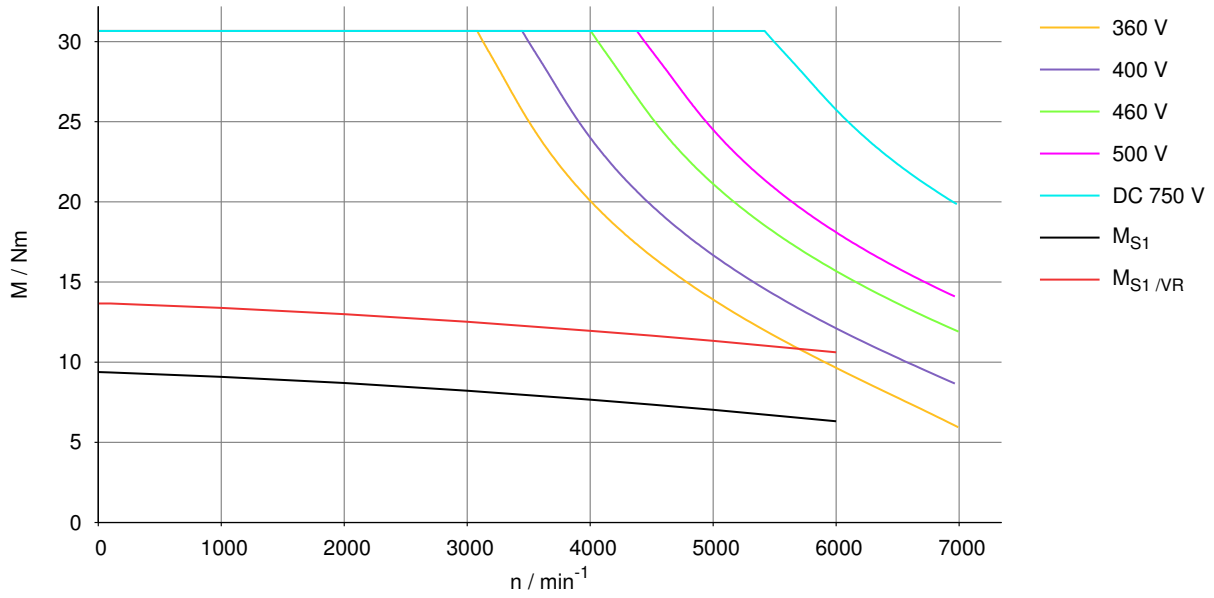
CMP71M, 3000 min^{-1} *39208012043*

27799468/EN – 11/2023



CMP71M, 4500 min^{-1}

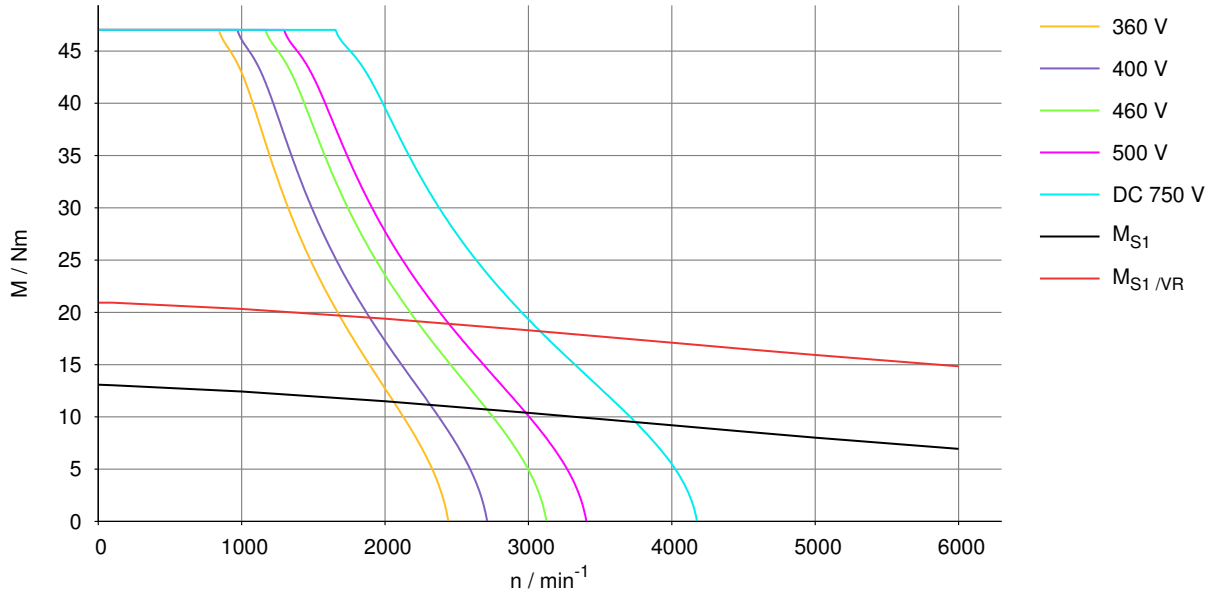
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CMP71M, 6000 min^{-1}

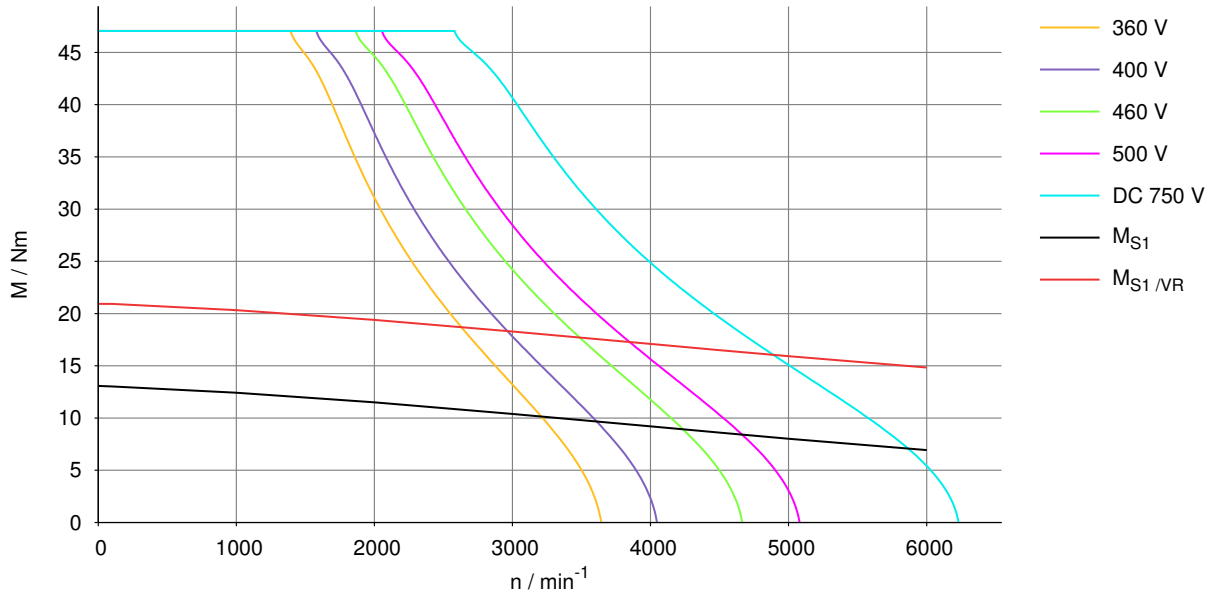
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27799468/EN – 11/2023



CMP71L, 2000 min^{-1}

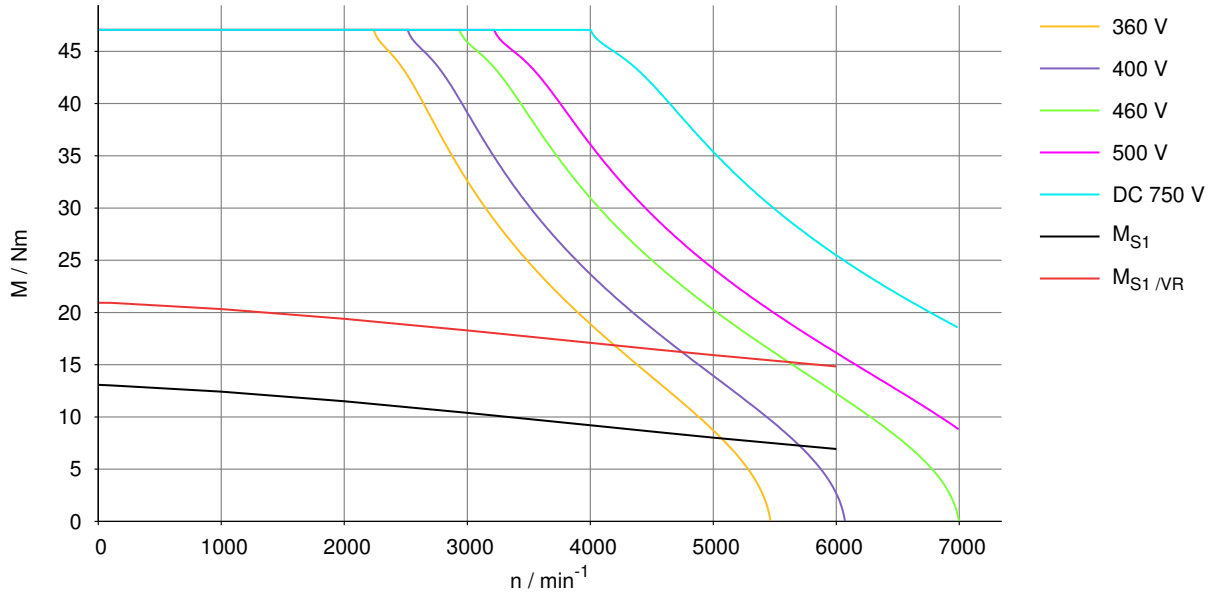
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CMP71L, 3000 min^{-1}

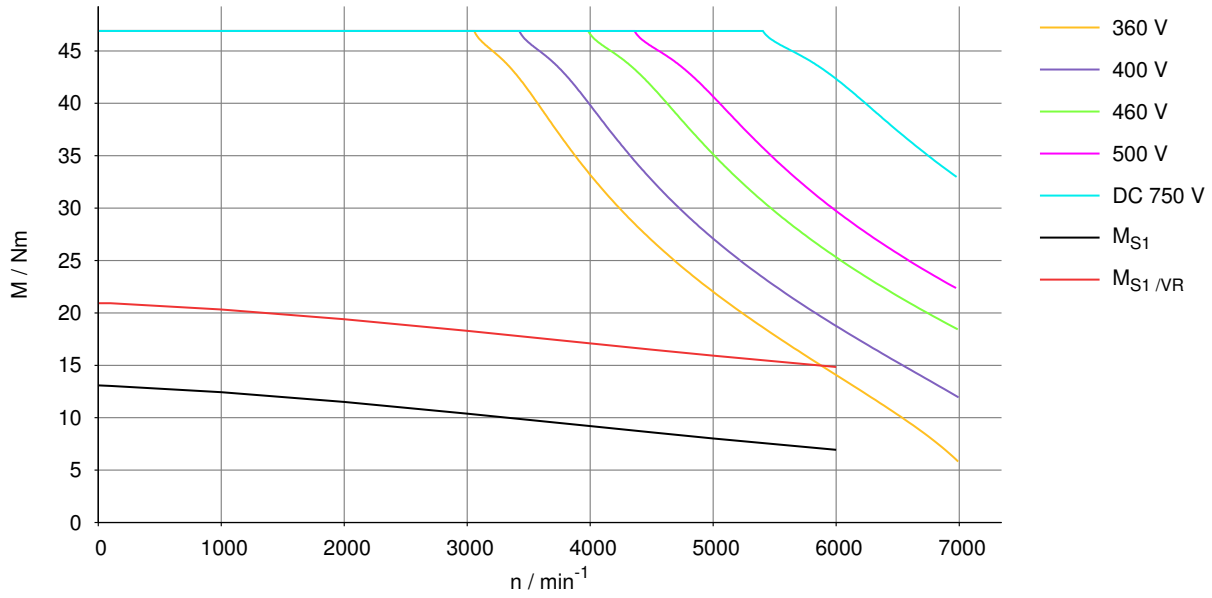
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27799468/EN – 11/2023



CMP71L, 4500 min^{-1}

39208003467

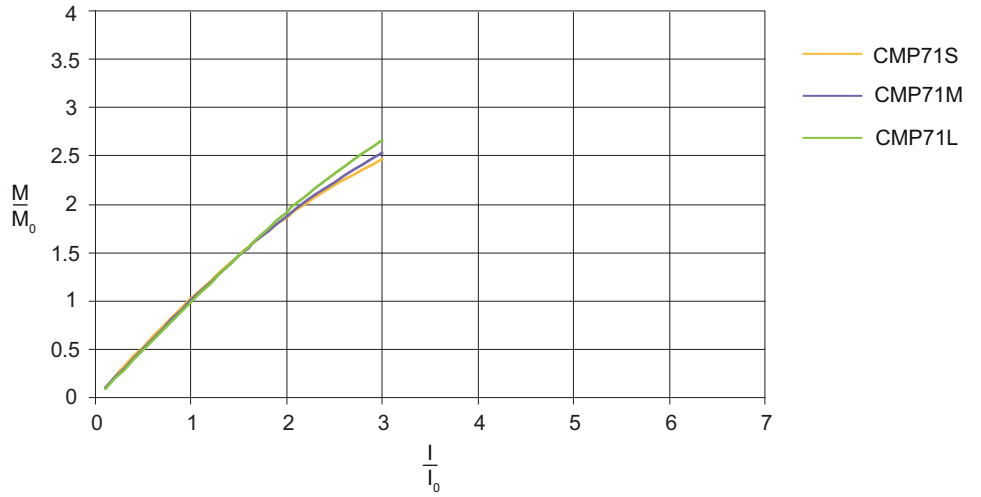


CMP71L, 6000 min^{-1}

39208005899

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP71S / M / L

25135199627

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4.5.5 CMP80

Technical data

			CMP80S				CMP80M				CMP80L			
Speed class	n_C	min^{-1}	2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
Standstill torque	M_0	Nm	13.4				18.7				27.5			
Standstill current	I_0	A	6.9	10	15.3	20	9.3	13.4	20.1	26.4	12.5	18.7	27.8	37.6
Dynamic limit torque	M_{pk}	Nm	42.1				62.6				107			
Maximum motor current	I_{max}	A	33	47	73	95	48	69	103	135	72	107	159	215
Inductance (phase)	L_1	mH	15.3	7.2	3.06	1.8	10.5	5.03	2.24	1.3	7.58	3.37	1.54	0.843
Resistance (phase) at 20 °C	R_1	Ω	1.03	0.507	0.206	0.127	0.653	0.326	0.14	0.082	0.427	0.205	0.083	0.049
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	133	91.1	59.4	45.6	136	94.3	62.9	47.9	149	99.2	67	49.6
Technical data with forced cooling fan														
Standstill torque	M_{0_VR}	Nm	18.5				27				44			
Standstill current	I_{0_VR}	I	9.5	13.8	21	27.5	13.4	19.3	29	38	20	30	44.5	60
Mechanical data of motor														
Number of poles			10											
Maximum permitted radial load	F_{Ramax}	N	1666	1454	1270	1132	1782	1555	1325	1169	1928	1635	1372	1208
Maximum permitted axial load	F_{Aamax}	N	555	485	423	377	594	518	442	390	643	544	457	402
Mass of the motor	m_{mot}	kg	12.7				16.7				21.3			
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	9				12.1				18.3			

Mechanical data of the brakemotor

			CMP80S	CMP80M	CMP80L
Brake type			BP3		
Mass of the brakemotor	m_{bmot}	kg	16.3	20.2	24.9
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	10.3	13.4	19.6

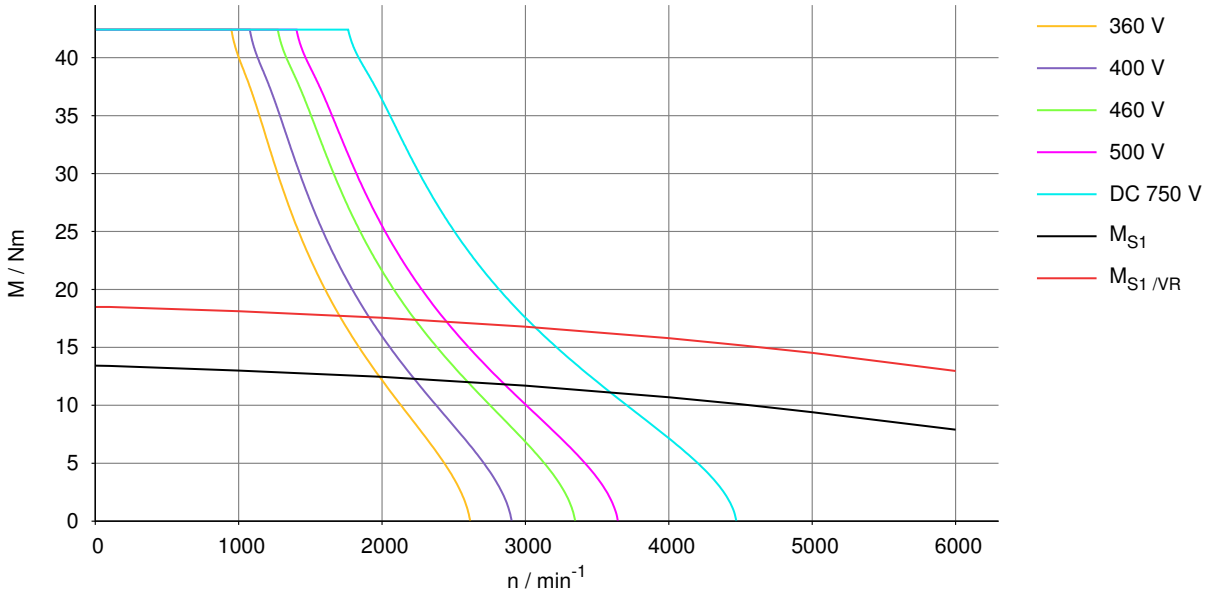
Technical data of the brake

			BP3
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	5500
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	16 / 31
Static braking torque	$M_{4,100°C}$	Nm	9.6 / 18.6

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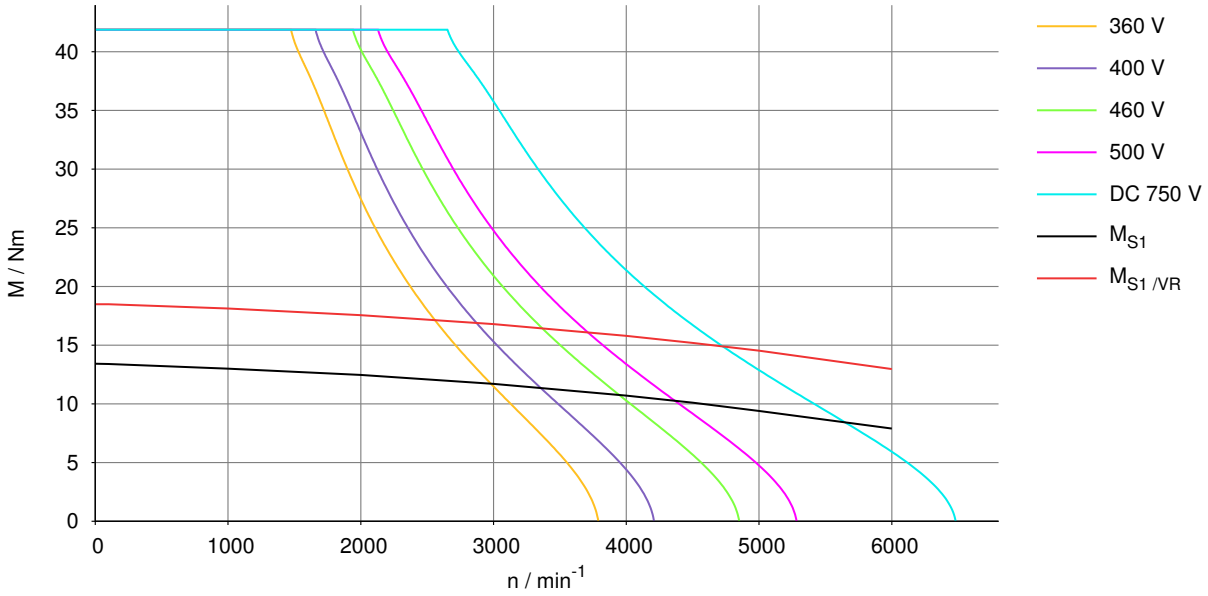
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP80S, 2000 min^{-1}

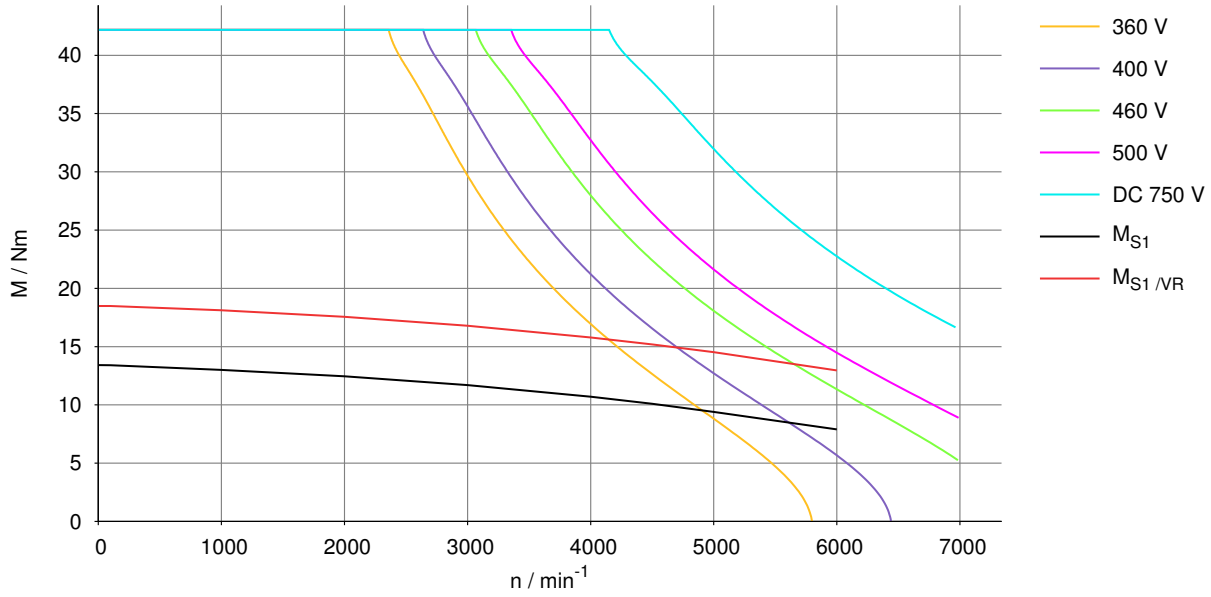
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CMP80S, 3000 min^{-1}

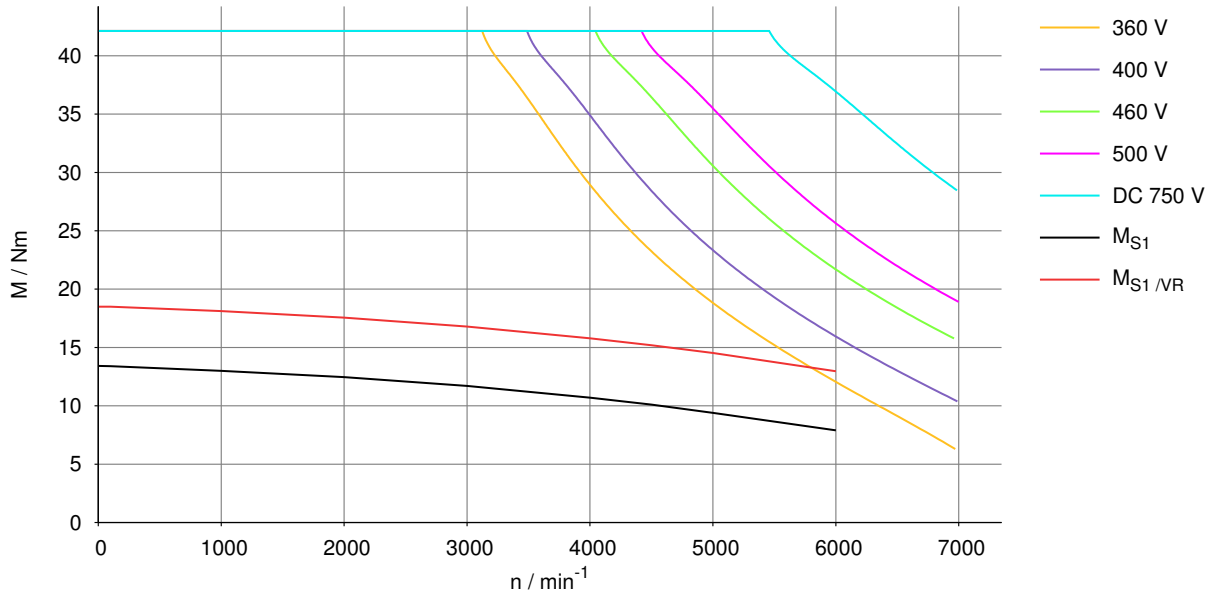
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27799468/EN – 11/2023



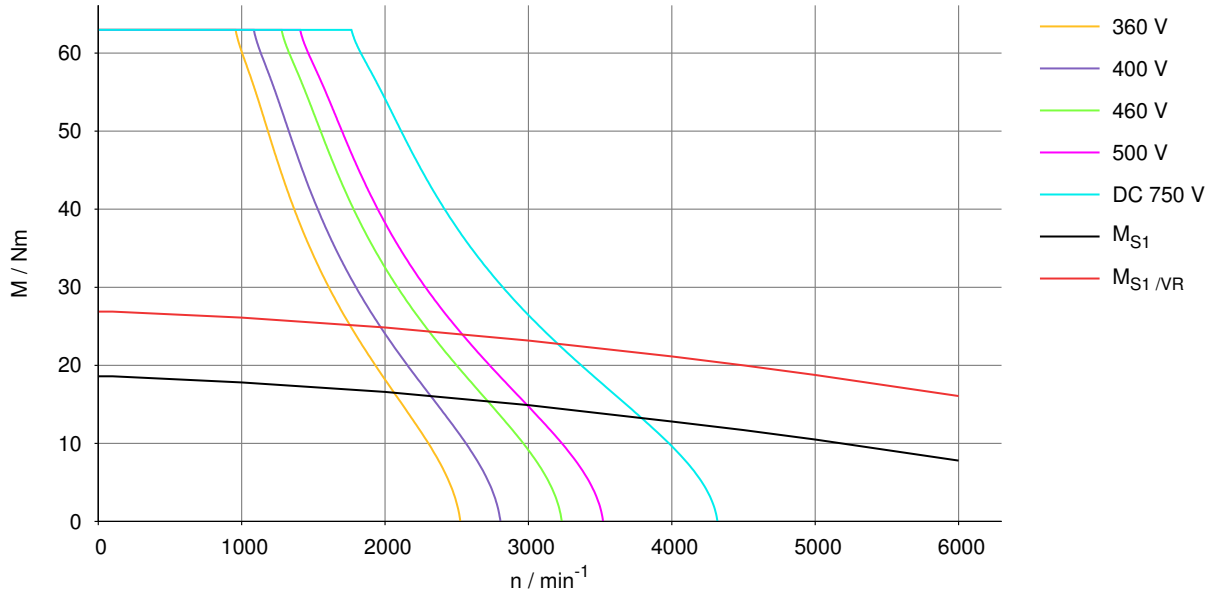
CMP80S, 4500 min^{-1}

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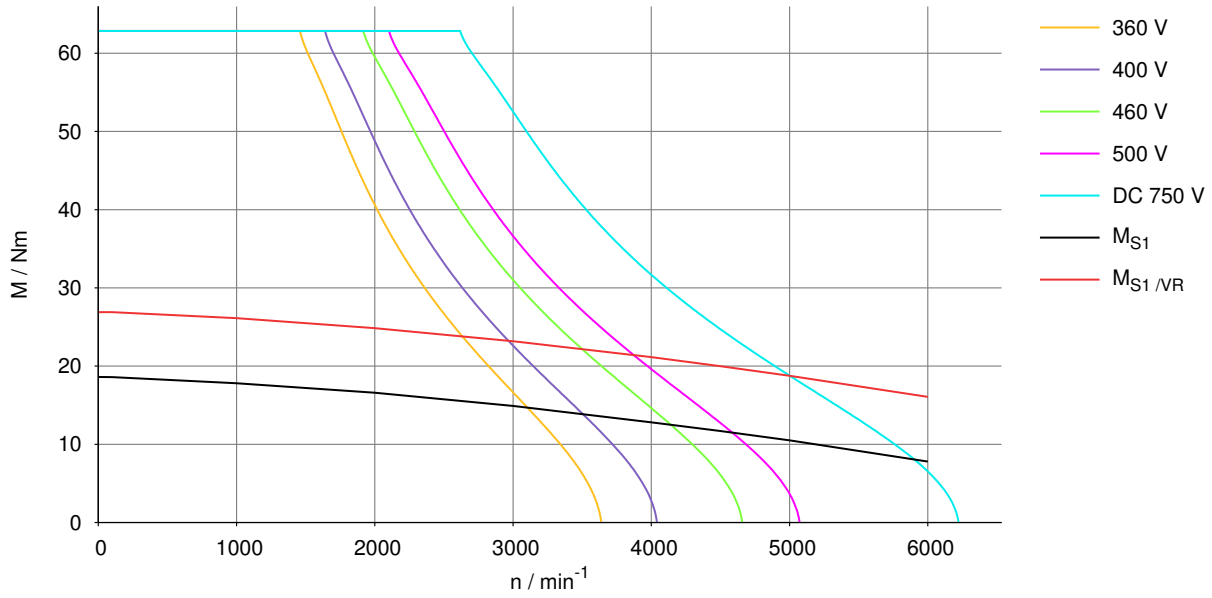
CMP80S, 6000 min^{-1}

39208099339



CMP80M, 2000 min^{-1}

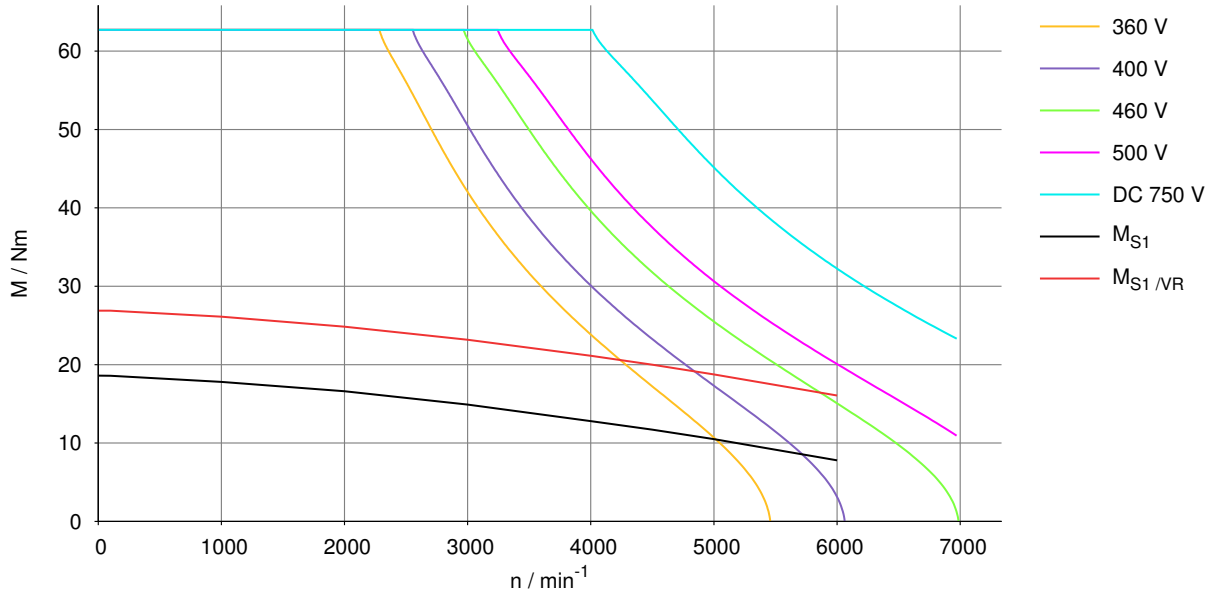
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CMP80M, 3000 min^{-1}

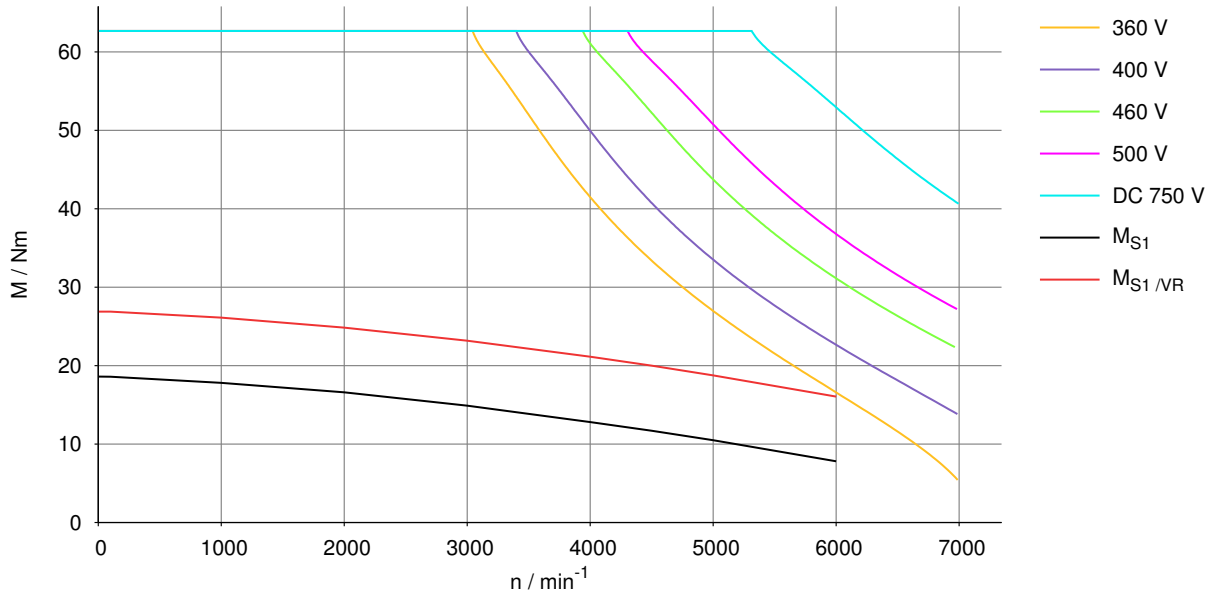
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CMP80M, 4500 min^{-1}

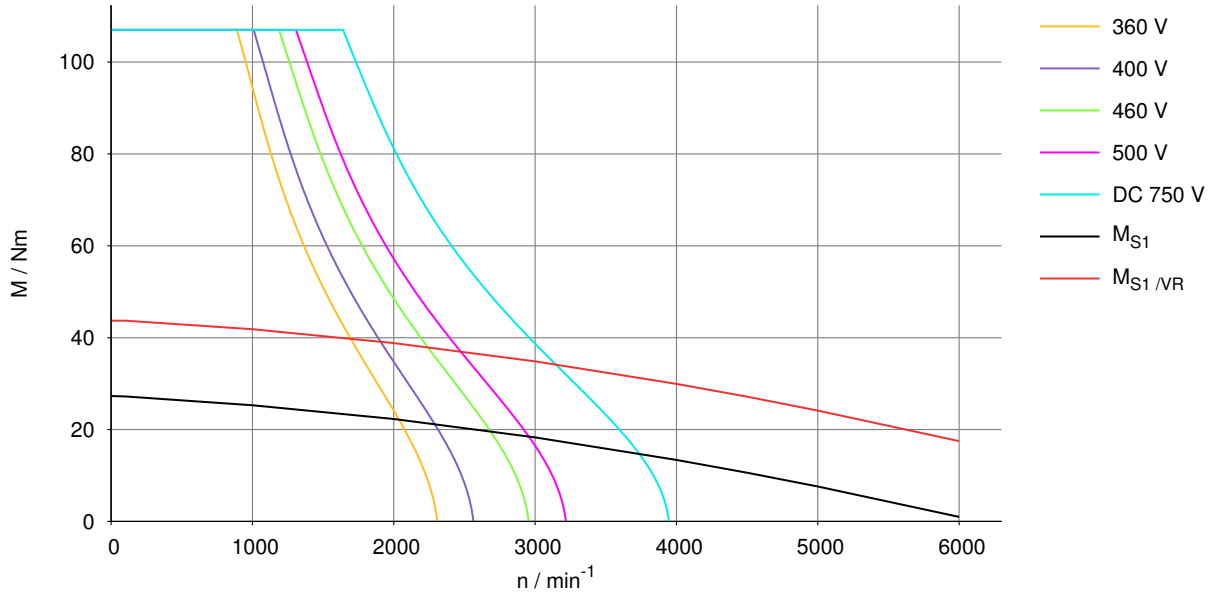
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CMP80M, 6000 min^{-1}

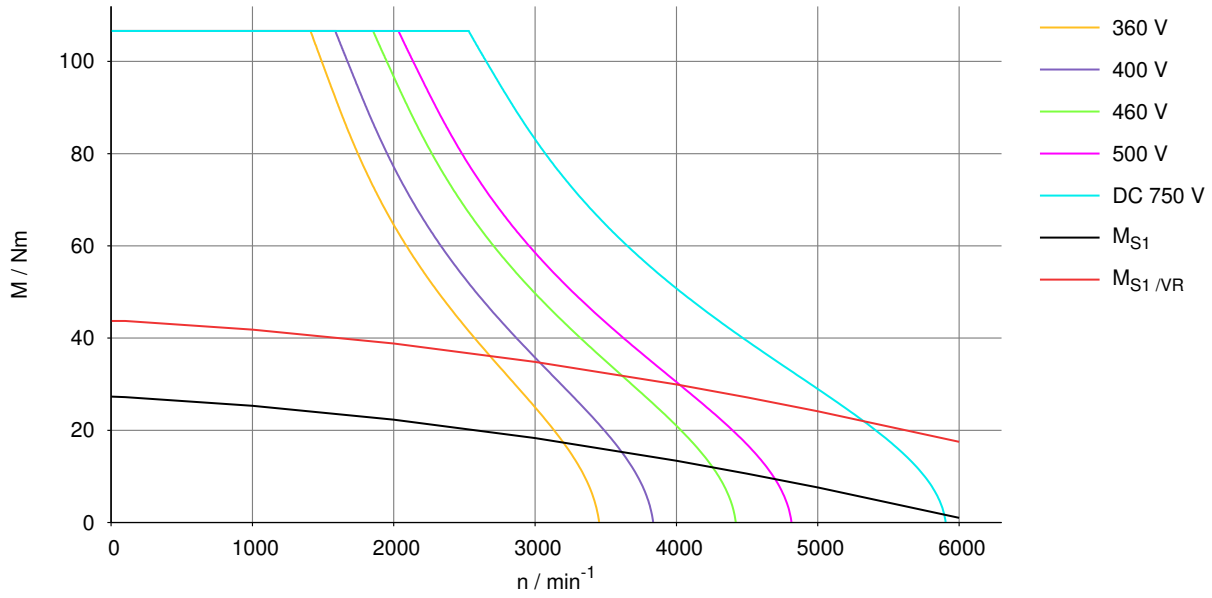
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27799468/EN – 11/2023



CMP80L, 2000 min^{-1}

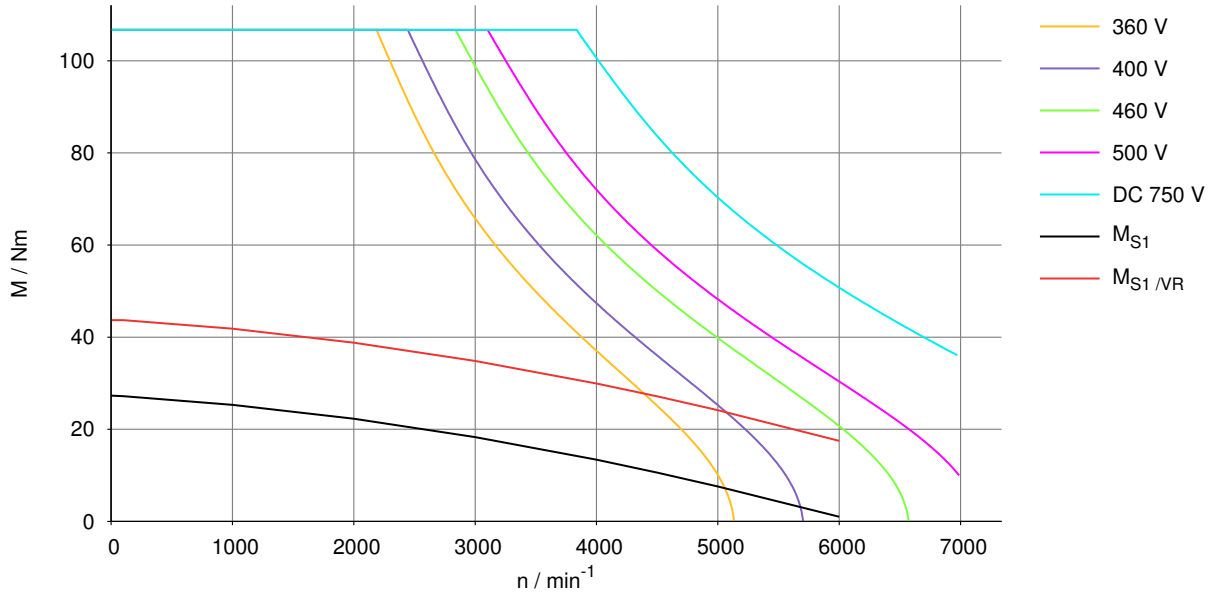
39208044427



CMP80L, 3000 min^{-1}

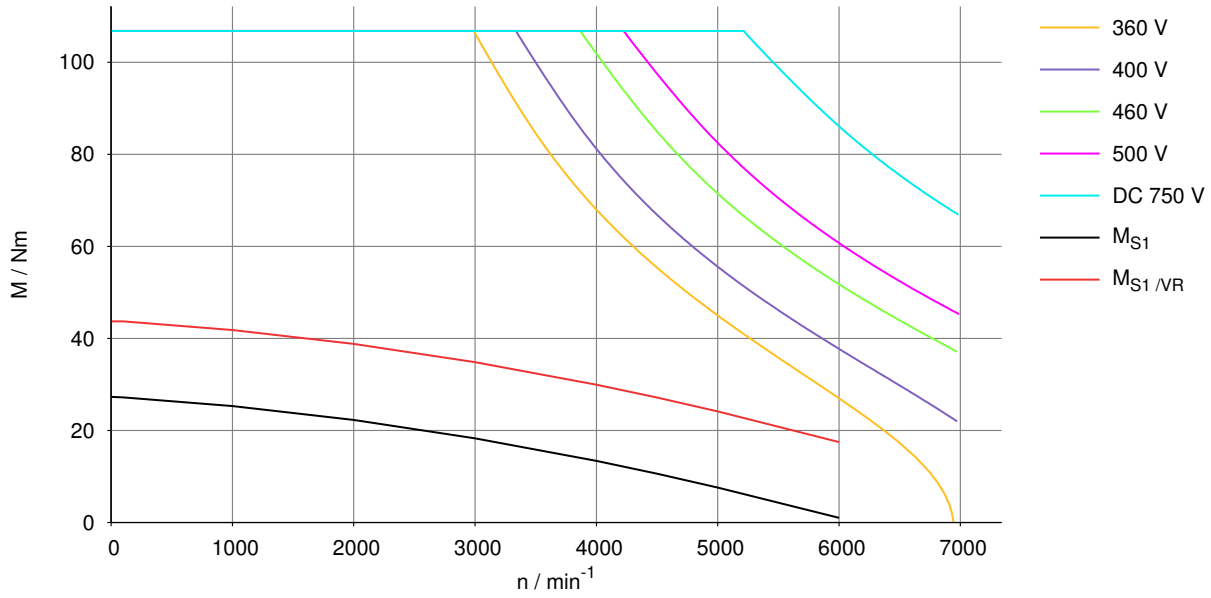
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27799468/EN – 11/2023



CMP80L, 4500 min^{-1}

39208049291

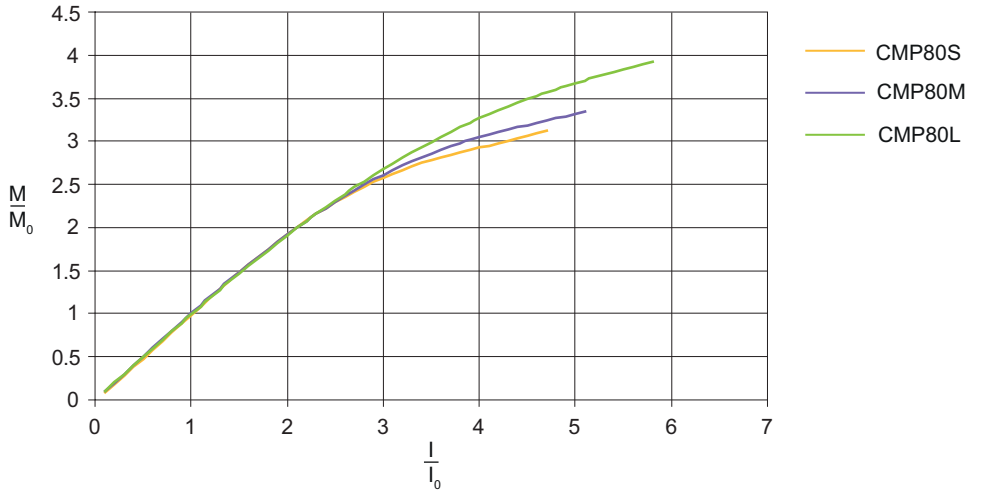


CMP80L, 6000 min^{-1}

39208051723

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP80S / M / L

25135209355

27799468/EN – 11/2023

4.5.6 CMP100

Technical data

			CMP100S			CMP100M			CMP100L		
Speed class	n_C	min^{-1}	2000	3000	4500	2000	3000	4500	2000	3000	4500
Standstill torque	M_0	Nm	25.5			31			47		
Standstill current	I_0	A	13.3	19.6	30	14.7	21.8	33.1	21.8	32.3	48.4
Dynamic limit torque	M_{pk}	Nm	68.3			108			179		
Maximum motor current	I_{max}	A	49	73	111	69	102	154	113	167	251
Inductance (phase)	L_1	mH	8.51	3.91	1.68	6.63	3.04	1.32	4.17	1.9	0.844
Resistance (phase) at 20 °C	R_1	Ω	0.398	0.194	0.077	0.285	0.134	0.061	0.165	0.079	0.037
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	130	88	57.7	141	95.5	62.9	145	98	65.3
Technical data with forced cooling fan											
Standstill torque	$M_{0\ VR}$	Nm	36			47			70		
Standstill current	$I_{0\ VR}$	I	18.8	27.5	42.5	22.3	33	50	32.5	48	72
Mechanical data of motor											
Number of poles			10								
Maximum permitted radial load	F_{Ramax}	N	2708	2364	2064	2882	2515	2195	3099	2694	2278
Maximum permitted axial load	F_{Aamax}	N	903	788	688	961	838	732	1033	897	759
Mass of the motor	m_{mot}	kg	20.1			25.7			35.8		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	20.3			27.2			40.9		

Mechanical data of the brakemotor

			CMP100S	CMP100M	CMP100L
Brake type			BP5		
Mass of the brakemotor	m_{bmot}	kg	25.2	30.7	40.9
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	22	29	42.7

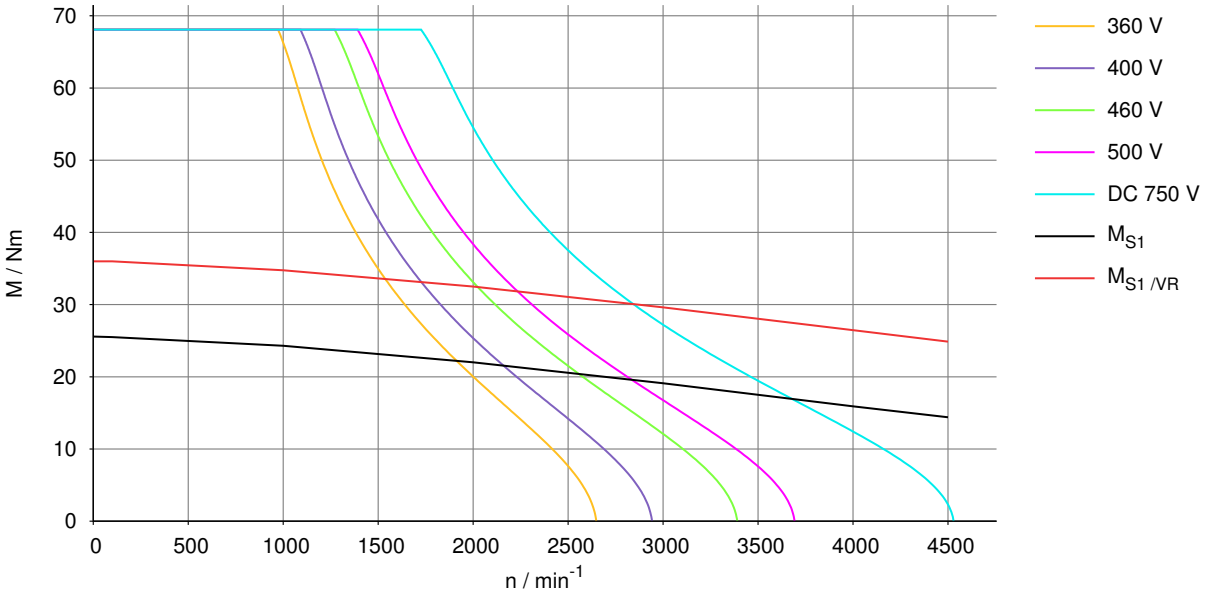
Technical data of the brake

			BP5
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	5000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	24 / 47
Static braking torque	$M_{4,100°C}$	Nm	14.4 / 28.2

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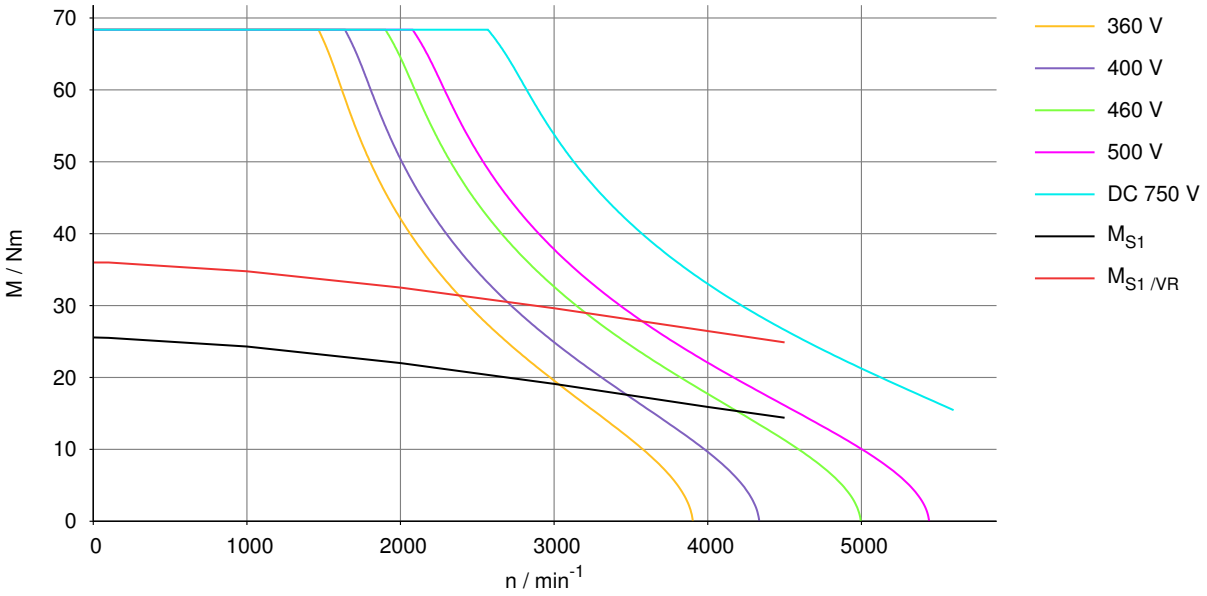
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP100S, 2000 min^{-1}

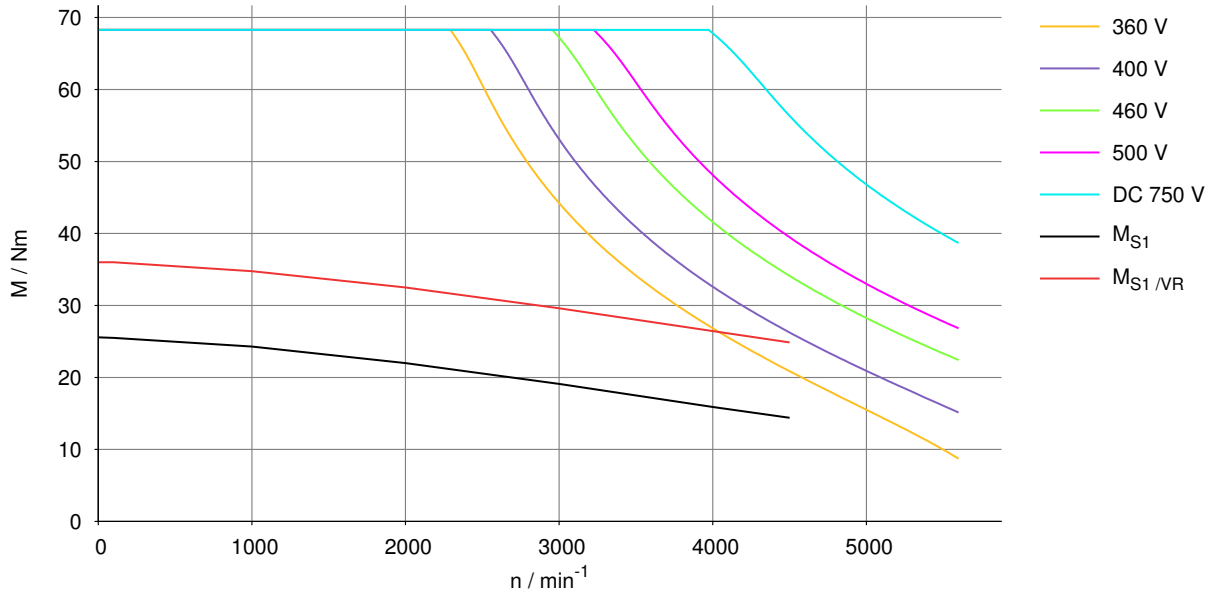
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CMP100S, 3000 min^{-1}

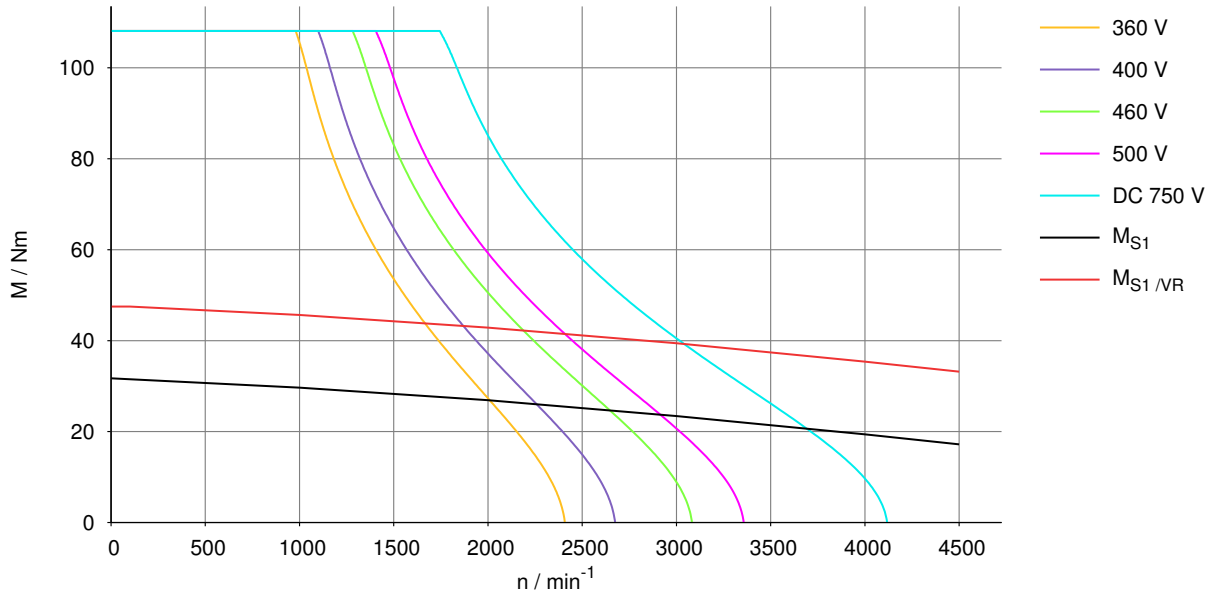
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27799468/EN – 11/2023



CMP100S, 4500 min^{-1}

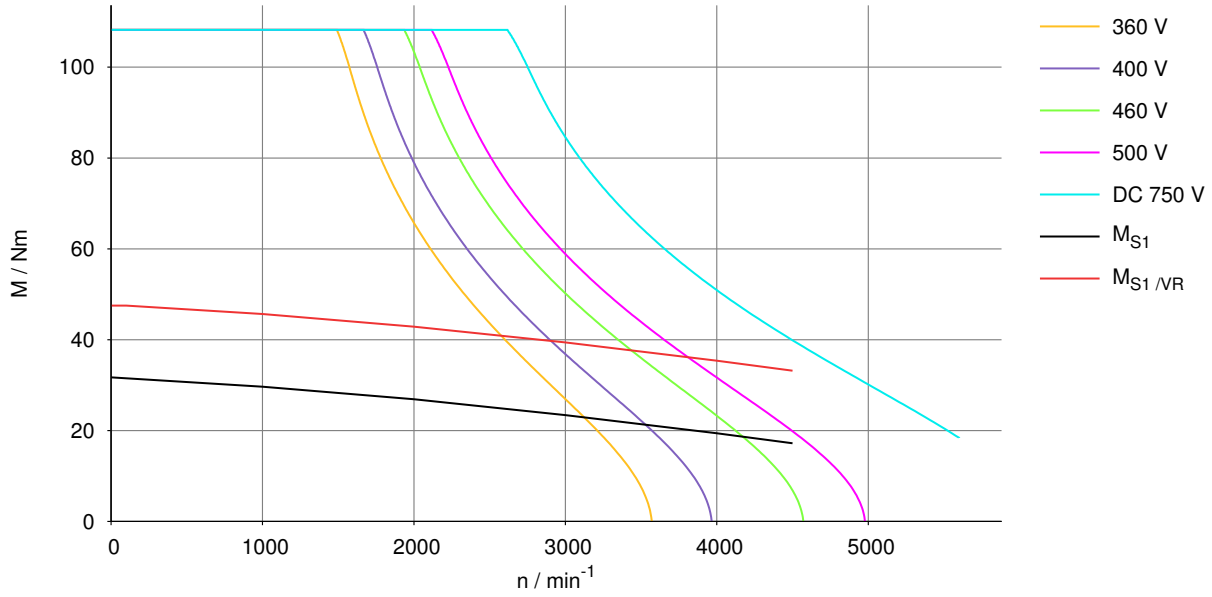
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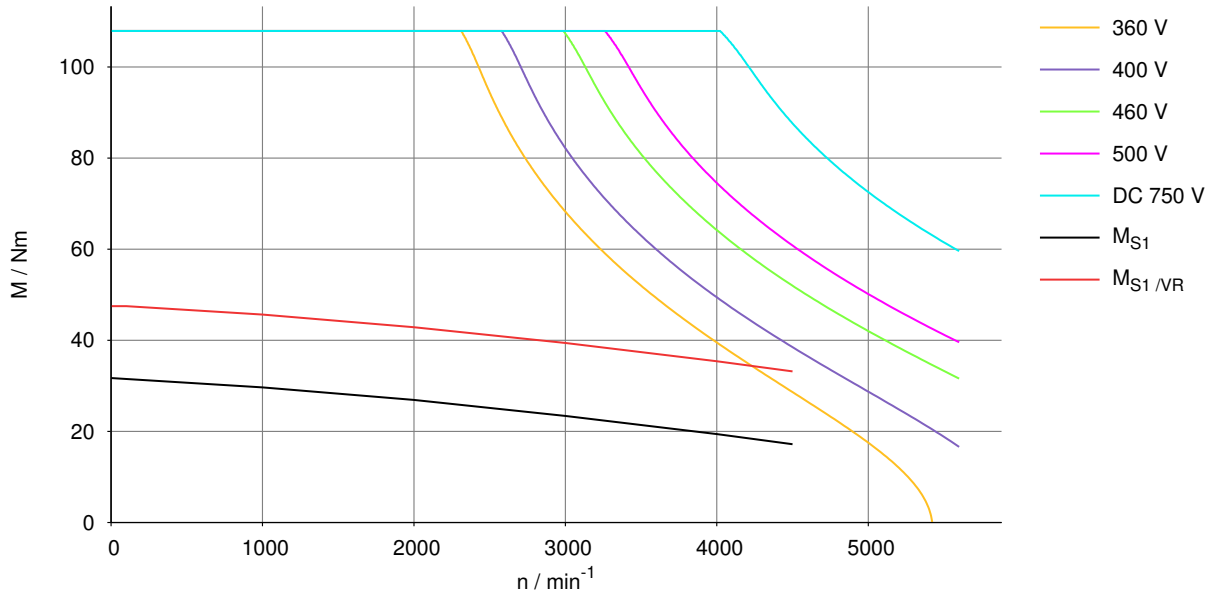
CMP100M, 2000 min^{-1}

39208136971

27799468/EN – 11/2023

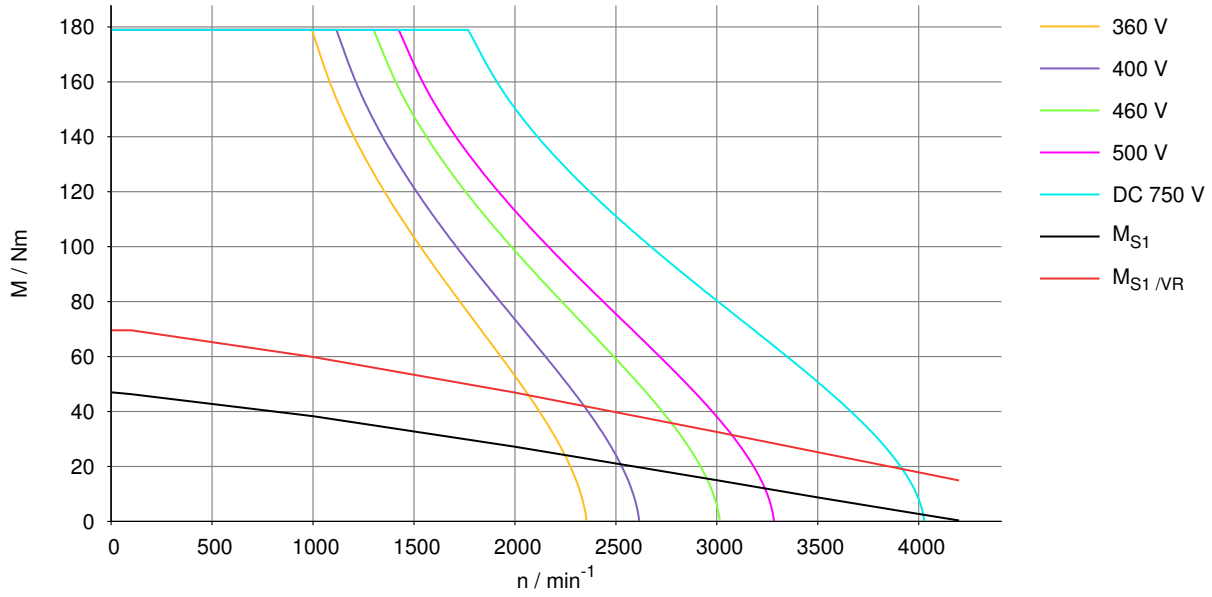


CMP100M, 3000 min^{-1} *39208139403*



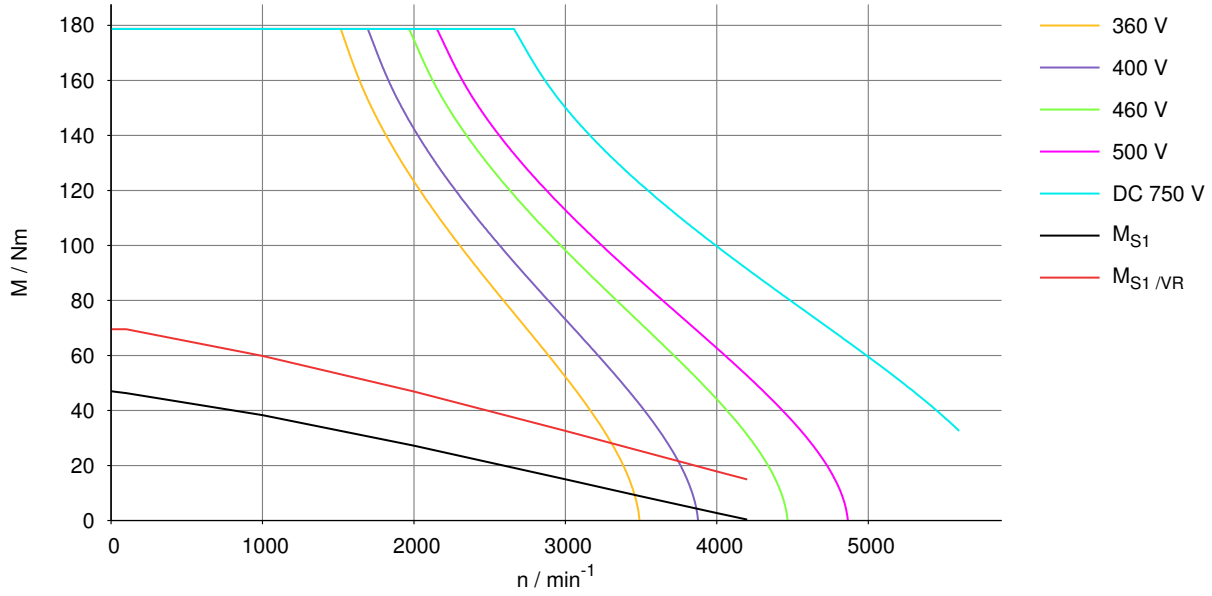
CMP100M, 4500 min^{-1} *39208141835*

27799468/EN – 11/2023



CMP100L, 2000 min^{-1}

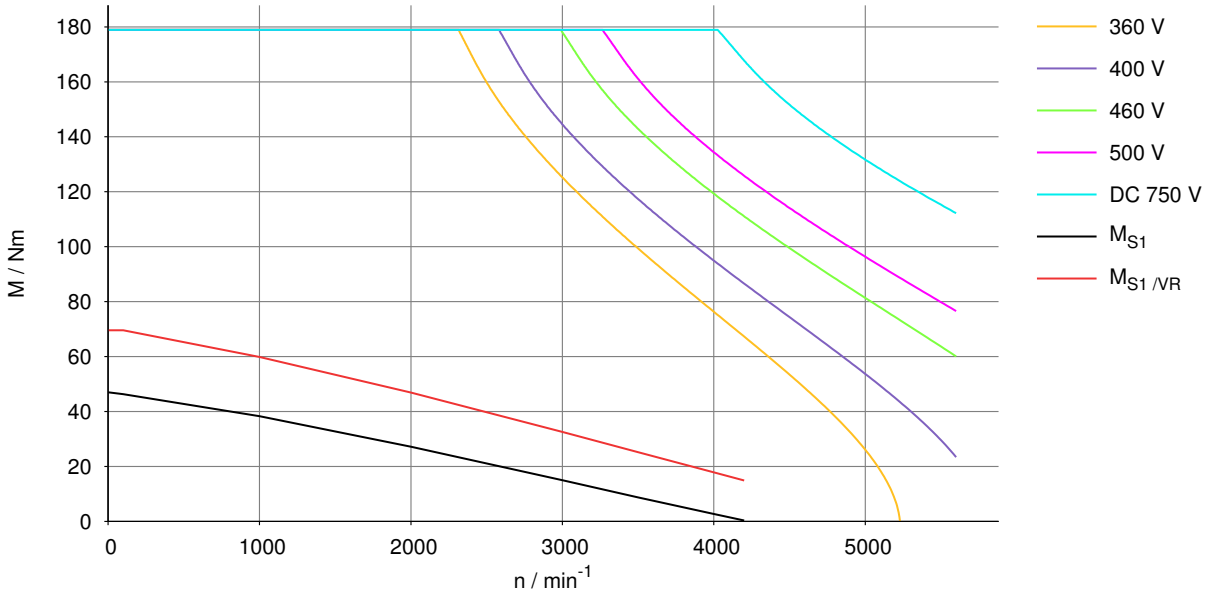
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CMP100L, 3000 min^{-1}

39208131083

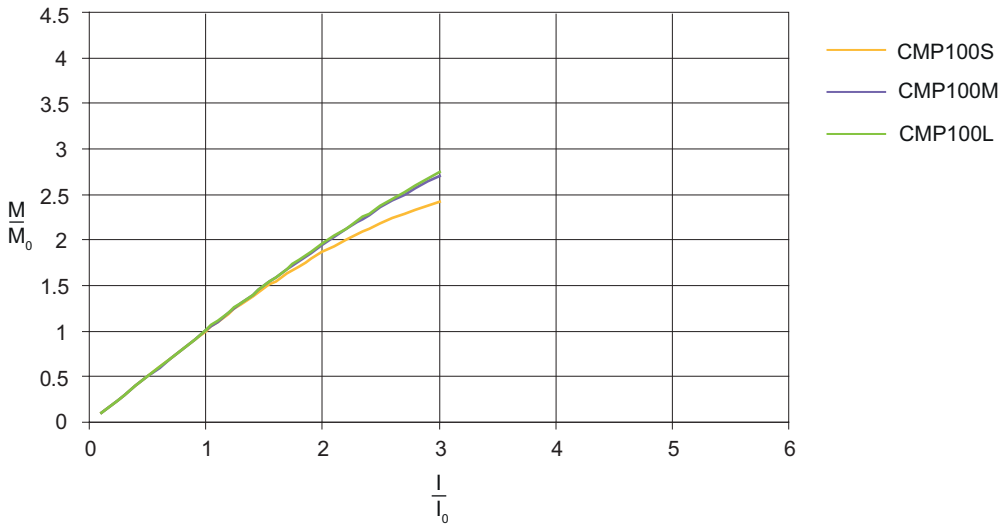
27799468/EN – 11/2023



CMP100L, 4500 min^{-1}

39208133515

Torque-current characteristic



Torque-current characteristic curve CMP100S / M / L

25135216907

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4.5.7 CMP112

Technical data

			CMP112S			CMP112M			CMP112L		
Speed class	n_C	min^{-1}	2000	3000	4500	2000	3000	4500	2000	3000	4500
Standstill torque	M_0	Nm	30			45			69		
Standstill current	I_0	A	14.3	21	31.5	21	32	47	33	49	73
Dynamic limit torque	M_{pk}	Nm	88			136			225		
Maximum motor current	I_{max}	A	51	74	112	74	113	168	124	183	275
Inductance (phase)	L_1	mH	8.63	4.04	1.78	5.82	2.49	1.14	3.33	1.53	0.68
Resistance (phase) at 20 °C	R_1	Ω	0.353	0.174	0.0801	0.214	0.0907	0.0406	0.105	0.0475	0.0213
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	143	97.5	64.7	147	96.1	65	145	98	65.3
Technical data with forced cooling fan											
Standstill torque	M_{0_VR}	Nm	43			68			109		107
Standstill current	I_{0_VR}	I	21	30.5	45.5	32	49	72	52	77	114
Mechanical data of motor											
Number of poles			6								
Maximum permitted radial load	F_{Ramax}	N	3791	3308	2886	3953	3448	3008	4102	3456	2898
Maximum permitted axial load	F_{Aamax}	N	1264	1103	962	1318	1149	1003	1367	1152	966
Mass of the motor	m_{mot}	kg	38.7			46.7			63		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	74			103			163		

			CMP112H			CMP112E		
Speed class	n_C	min^{-1}	2000	3000	4500	2000	3000	4500
Standstill torque	M_0	Nm	83			95		
Standstill current	I_0	A	38	57	86	44.5	65	98
Dynamic limit torque	M_{pk}	Nm	270			320		
Maximum motor current	I_{max}	A	148	220	335	175	255	385
Inductance (phase)	L_1	mH	2.85	1.29	0.557	2.34	1.09	0.484
Resistance (phase) at 20 °C	R_1	Ω	0.0856	0.0388	0.0168	0.068	0.0319	0.0142
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	149	100	65.9	146	99.8	66.5
Technical data with forced cooling fan								
Standstill torque	M_{0_VR}	Nm	123			150		
Standstill current	I_{0_VR}	I	57	84	128	71	104	156
Mechanical data of motor								
Number of poles			6					
Maximum permitted radial load	F_{Ramax}	N	4118	3465	2900	4126	3467	2896
Maximum permitted axial load	F_{Aamax}	N	1373	1155	967	1376	1156	966
Mass of the motor	m_{mot}	kg	71.7			80.4		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	193			222		

Mechanical data of the brakemotor

			CMP112S	CMP112M	CMP112L	CMP112H	CMP112E
Brake type			BY14				
Mass of the brakemotor	m_{bmot}	kg	57.7	65.7	82	90.7	99.4
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	102	131	191	221	250

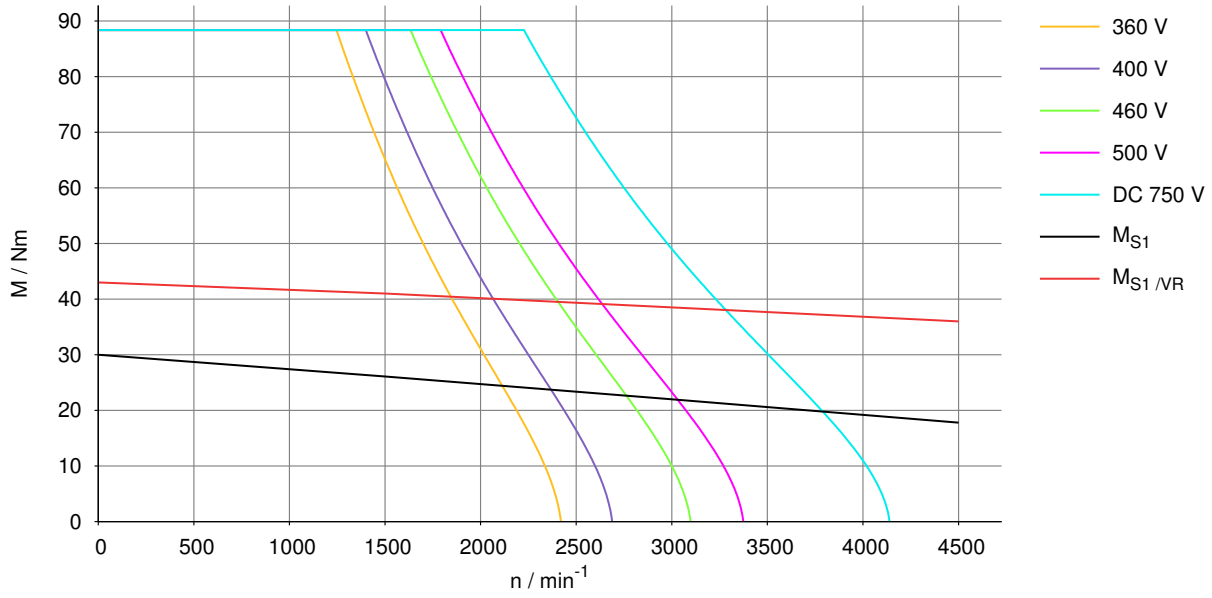
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Technical data of the brake

			BY14
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	4500
Nominal voltage of brake, AC	V_N	V AC	110 / 230 / 400 / 460 / 500
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	50 / 70 / 100 / 140
Static braking torque	$M_{4,100°C}$	Nm	30 / 42 / 60 / 84

Dynamic and thermal limit characteristic curves

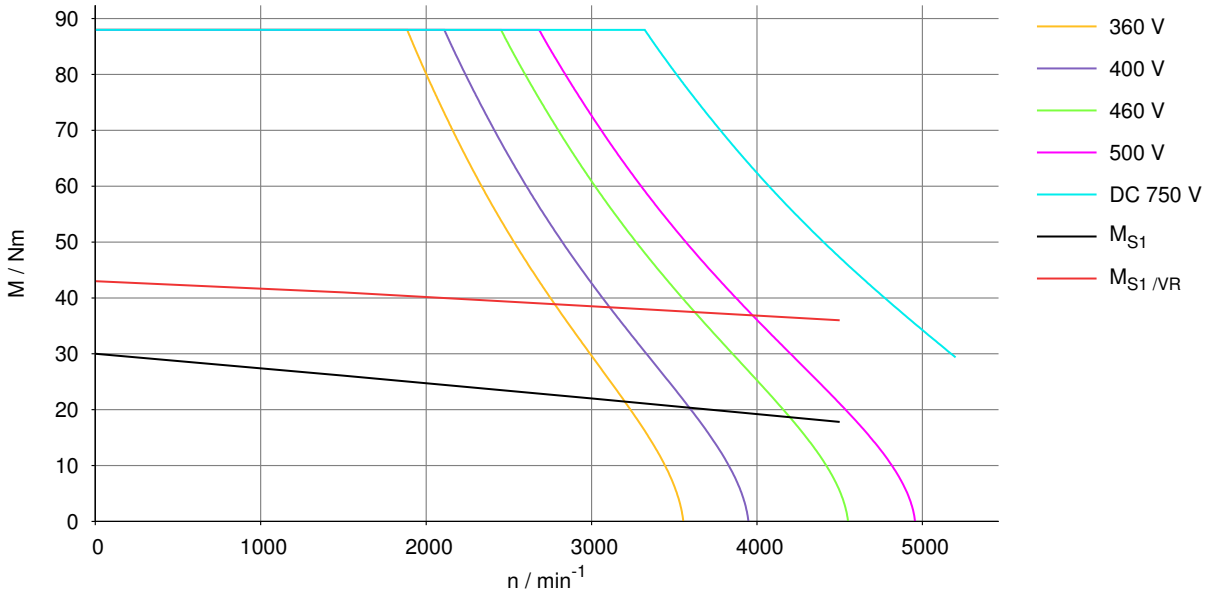
For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 288).



CMP112S, 2000 min^{-1}

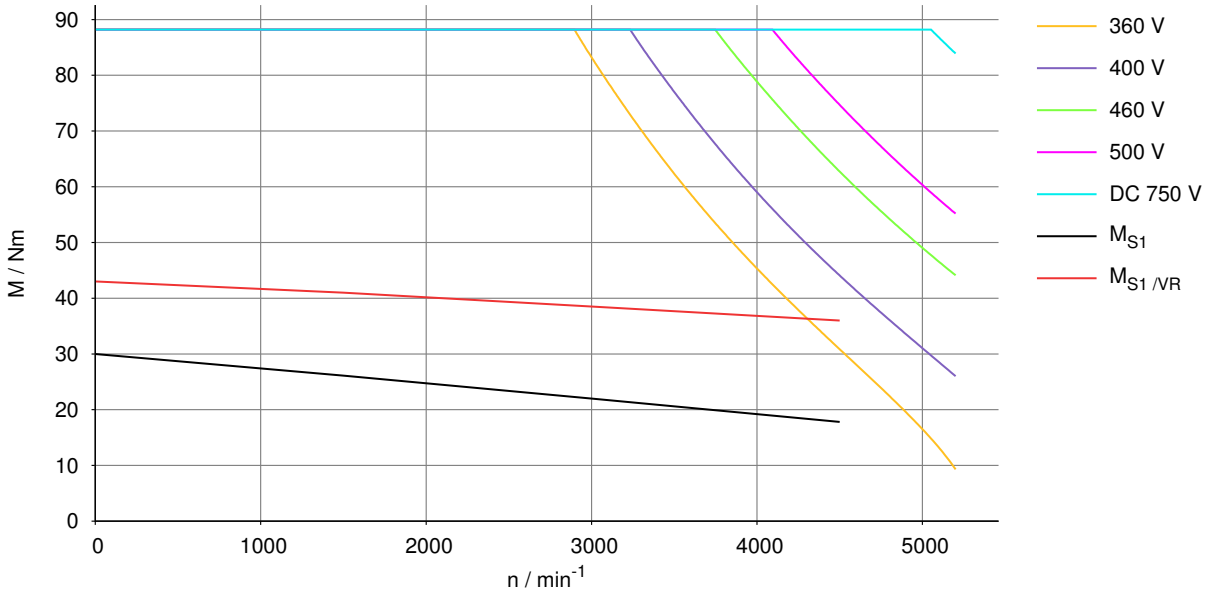
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27799468/EN – 11/2023



CMP112S, 3000 min^{-1}

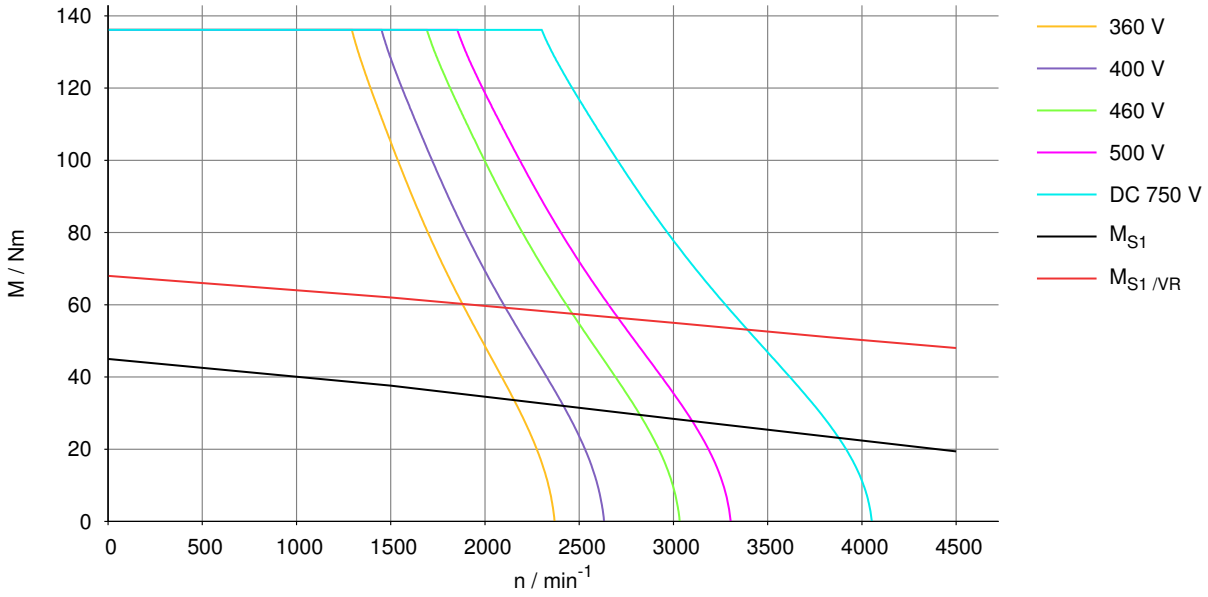
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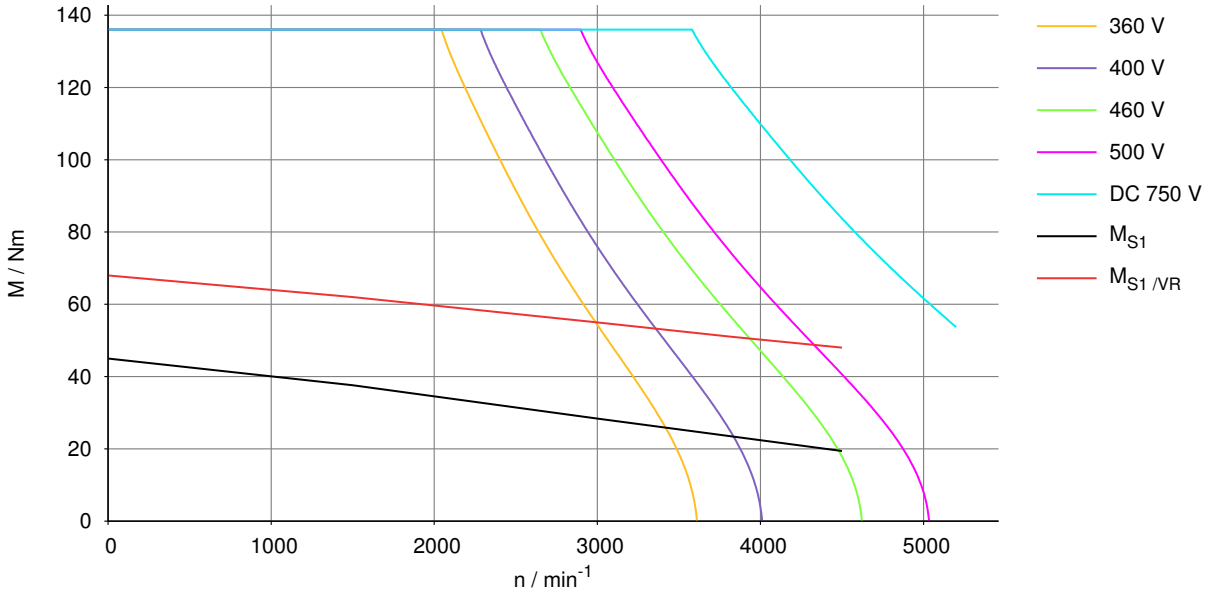
CMP112S, 4500 min^{-1}

39208255755

27799468/EN – 11/2023

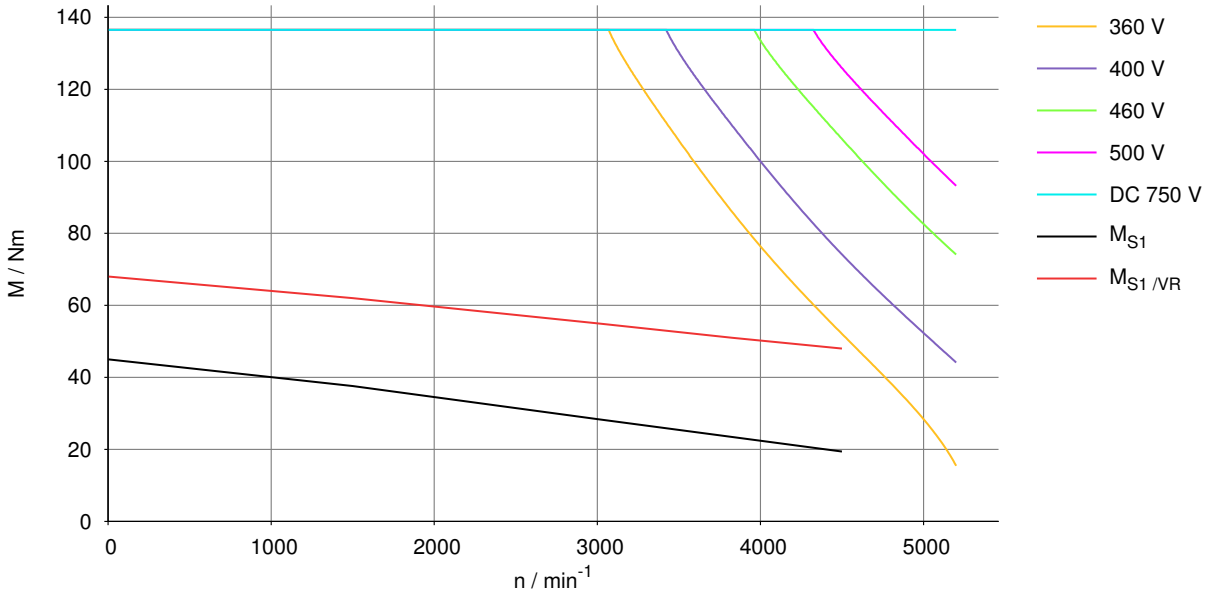


CMP112M, 2000 min^{-1} *39208229771*



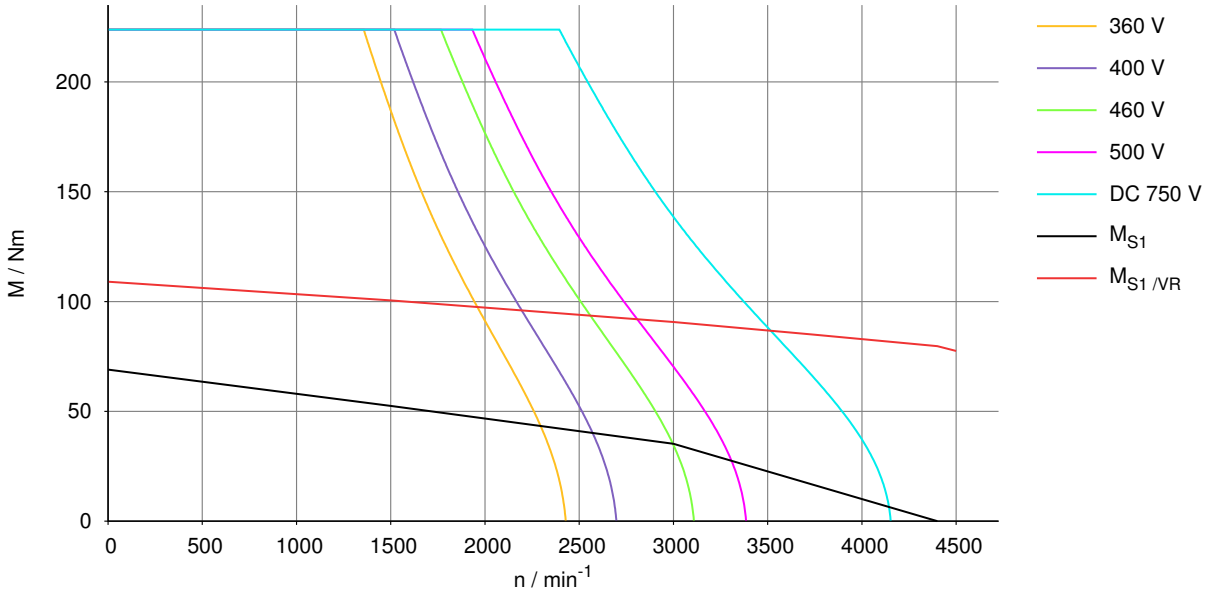
CMP112M, 3000 min^{-1} *39208245003*

27799468/EN – 11/2023



CMP112M, 4500 min^{-1}

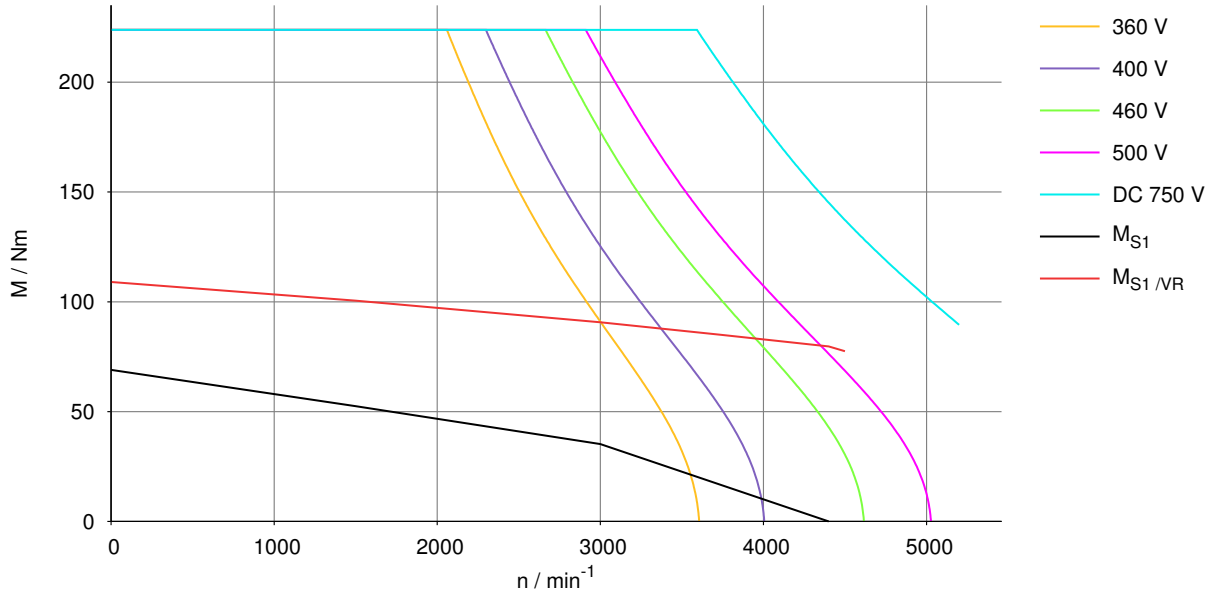
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CMP112L, 2000 min^{-1}

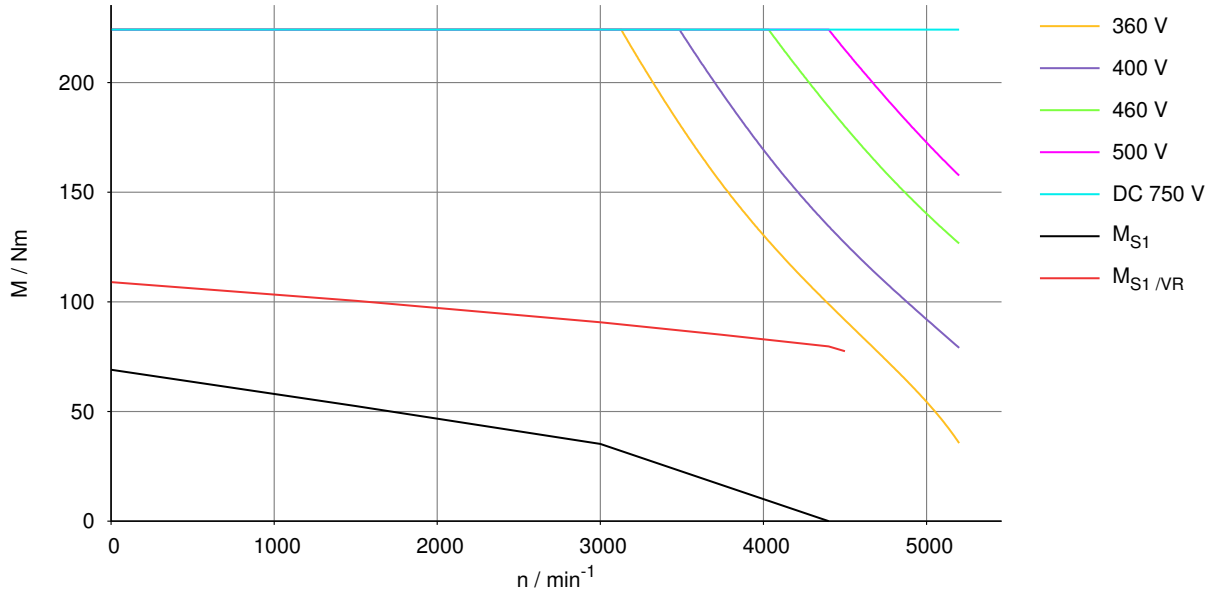
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27799468/EN – 11/2023



CMP112L, 3000 min^{-1}

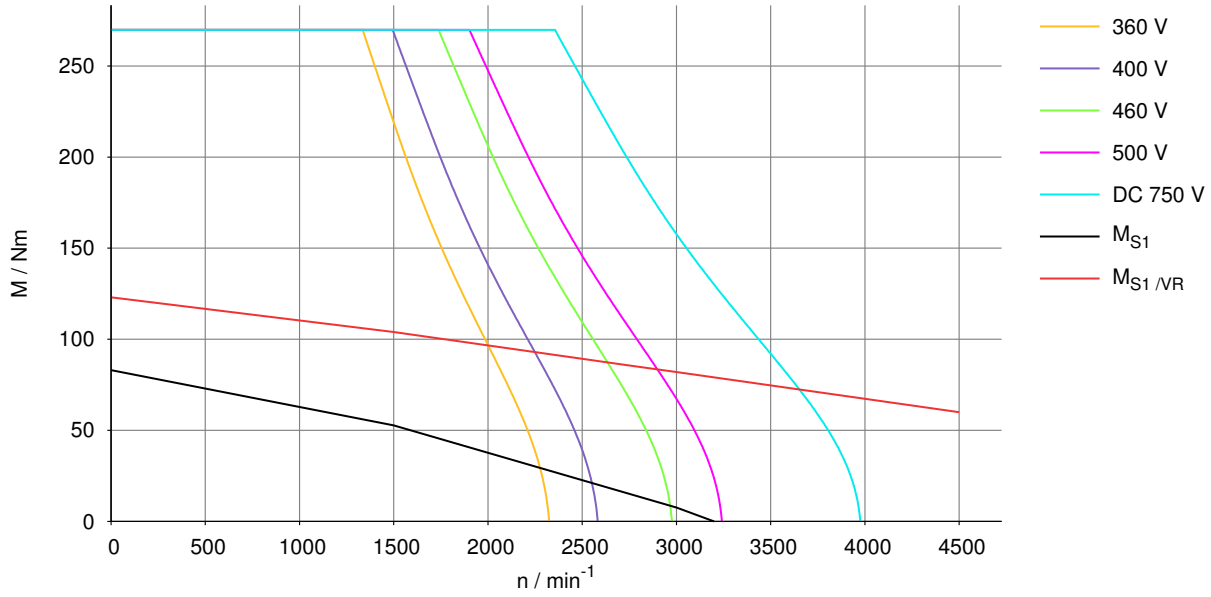
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CMP112L, 4500 min^{-1}

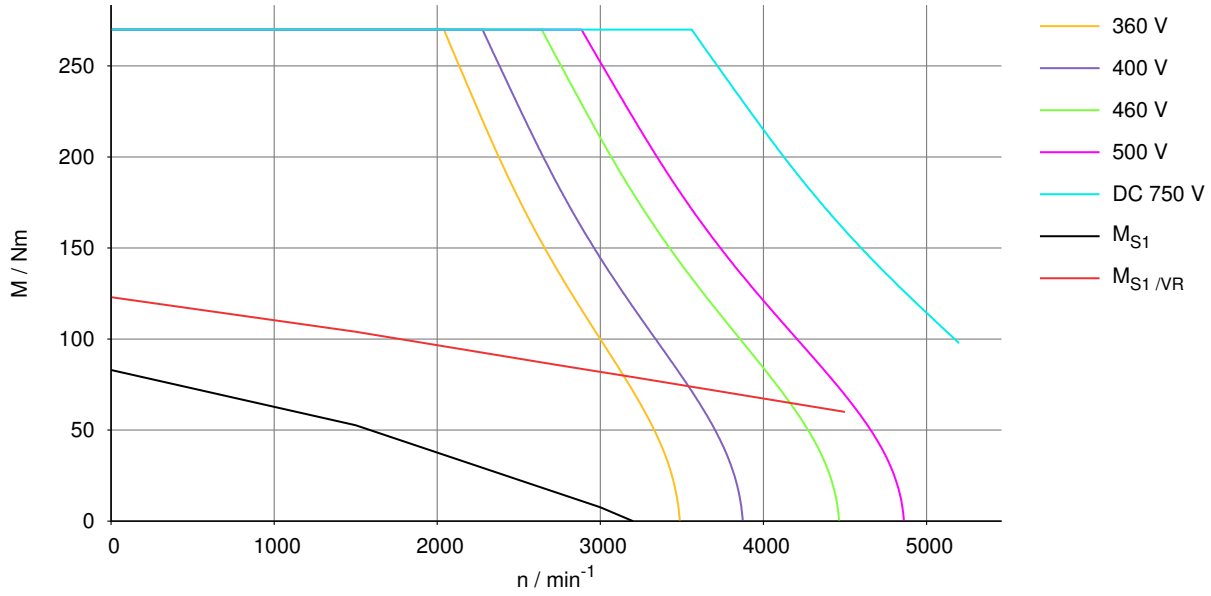
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27799468/EN – 11/2023



CMP112H, 2000 min^{-1}

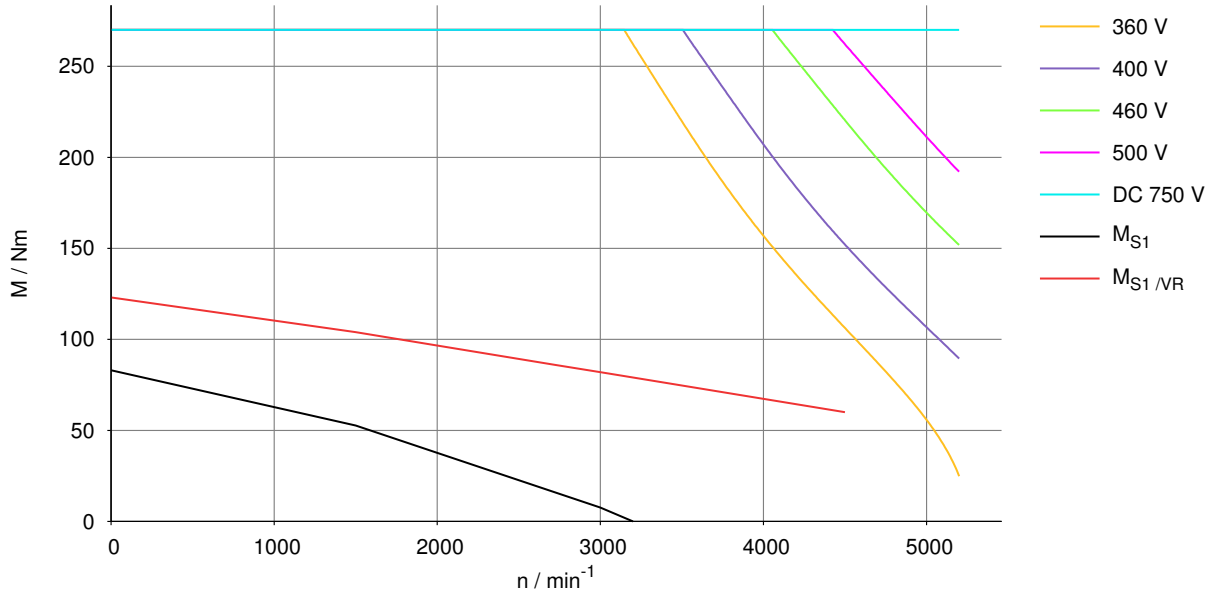
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CMP112H, 3000 min^{-1}

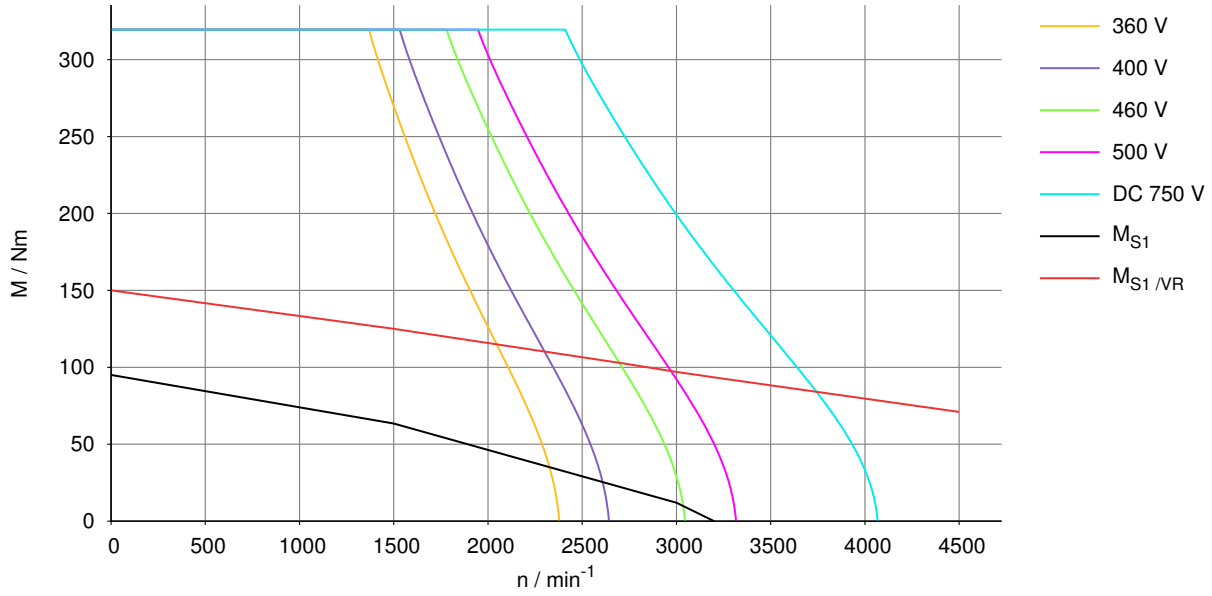
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27799468/EN – 11/2023



CMP112H, 4500 min^{-1}

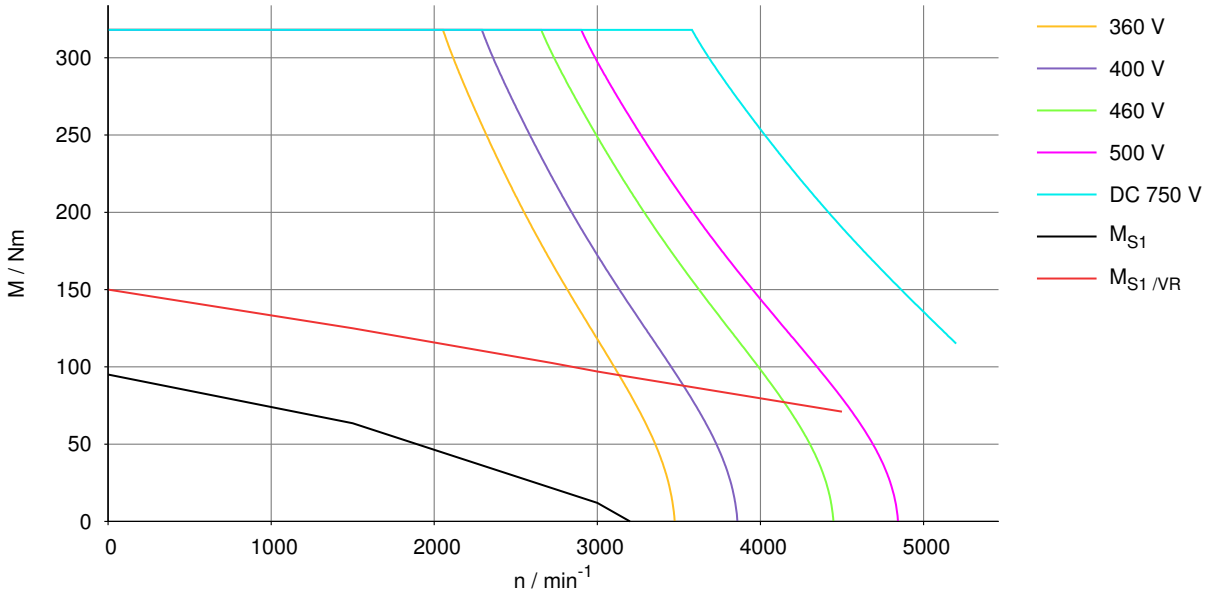
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CMP112E, 2000 min^{-1}

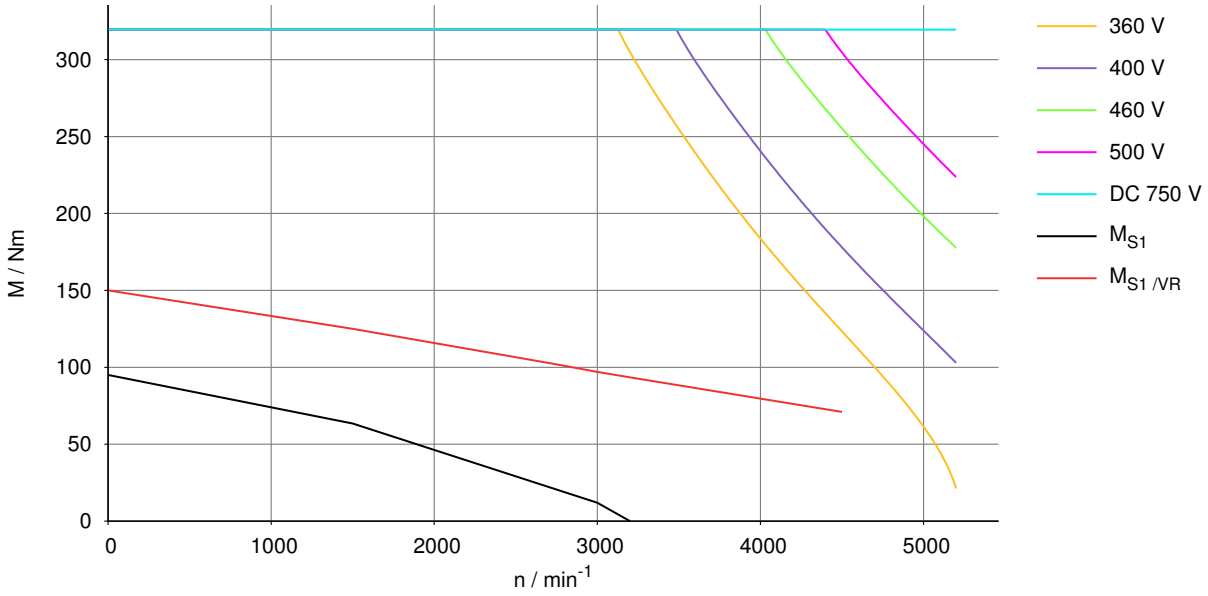
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27799468/EN – 11/2023



CMP112E, 3000 min^{-1}

39208181643

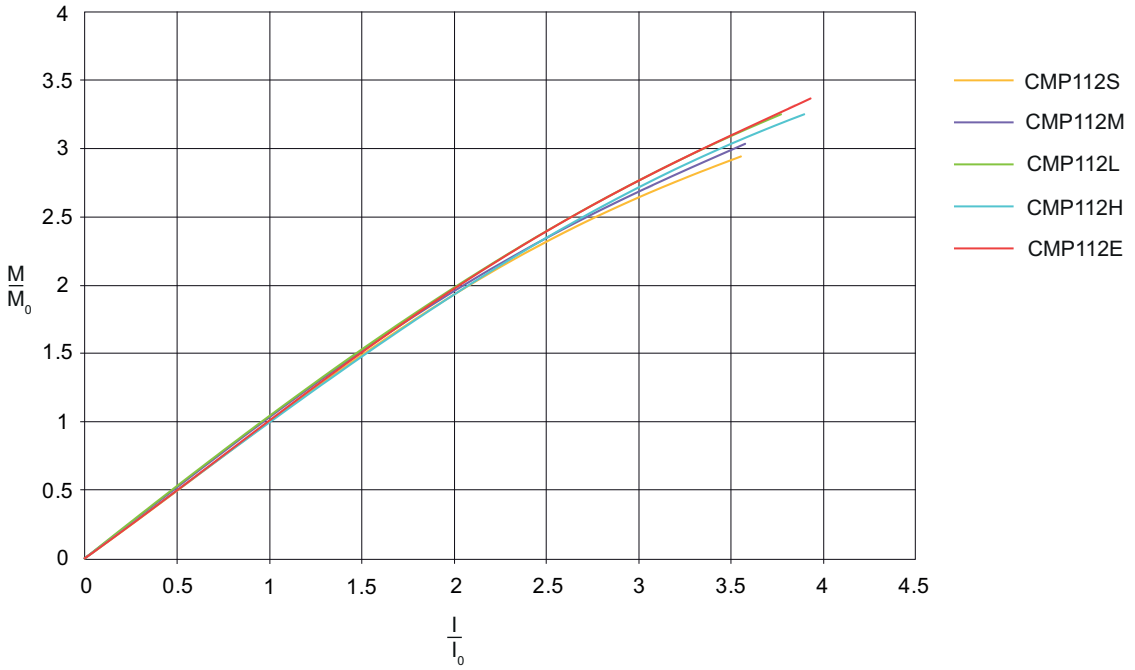


CMP112E, 4500 min^{-1}

39208184075

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP112S / M / L / H / E

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27799468/EN – 11/2023

4.6 Design for system voltage 230 V

4.6.1 CMP40

Technical data

			CMP40S			CMP40M		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm		0.5			0.8	
Standstill current	I_0	A	1.2	1.2	1.36	1.5	1.5	1.91
Dynamic limit torque	M_{pk}	Nm		1.9			3.8	
Maximum motor current	I_{max}	A	6.1	6.1	6.8	9	9	11.5
Inductance (phase)	L_1	mH	23	23	17.9	18.4	18.4	11.2
Resistance (phase) at 20 °C	R_1	Ω	11.9	11.9	9.19	8.36	8.36	5.14
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	27.5	27.5	24.3	35.7	35.7	27.8
Technical data with forced cooling fan								
Standstill torque	$M_{0\ VR}$	Nm	–	–	–	–	–	–
Standstill current	$I_{0\ VR}$	I	–	–	–	–	–	–
Mechanical data of motor								
Number of poles				6				
Maximum permitted radial load	F_{Ramax}	N	260	225	205	280	245	220
Maximum permitted axial load	F_{Aamax}	N	86	74	68	92	81	73
Mass of the motor	m_{mot}	kg		1.1			1.7	
Mass moment of inertia	J_{mot}	10^{-4} kgm^2		0.1			0.15	

Mechanical data of the brakemotor

			CMP40S	CMP40M
Brake type			BK01	
Mass of the brakemotor	m_{bmot}	kg	1.5	2.1
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	0.19	0.24

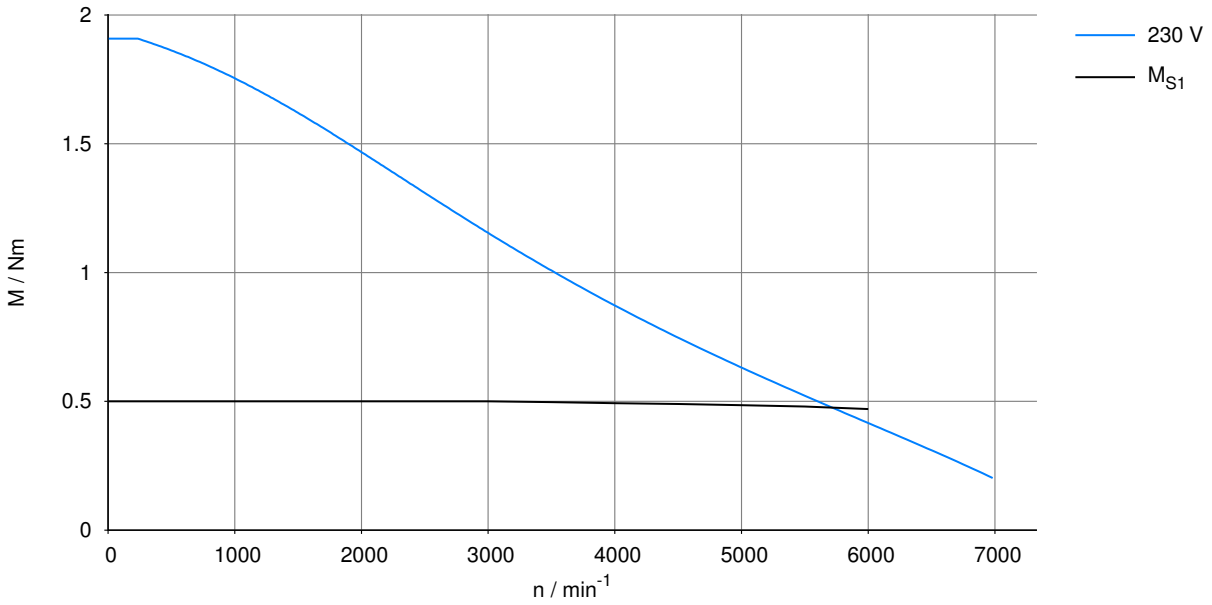
Technical data of the brake

			BK01
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	1.9
Static braking torque	$M_{4,100°C}$	Nm	1.9

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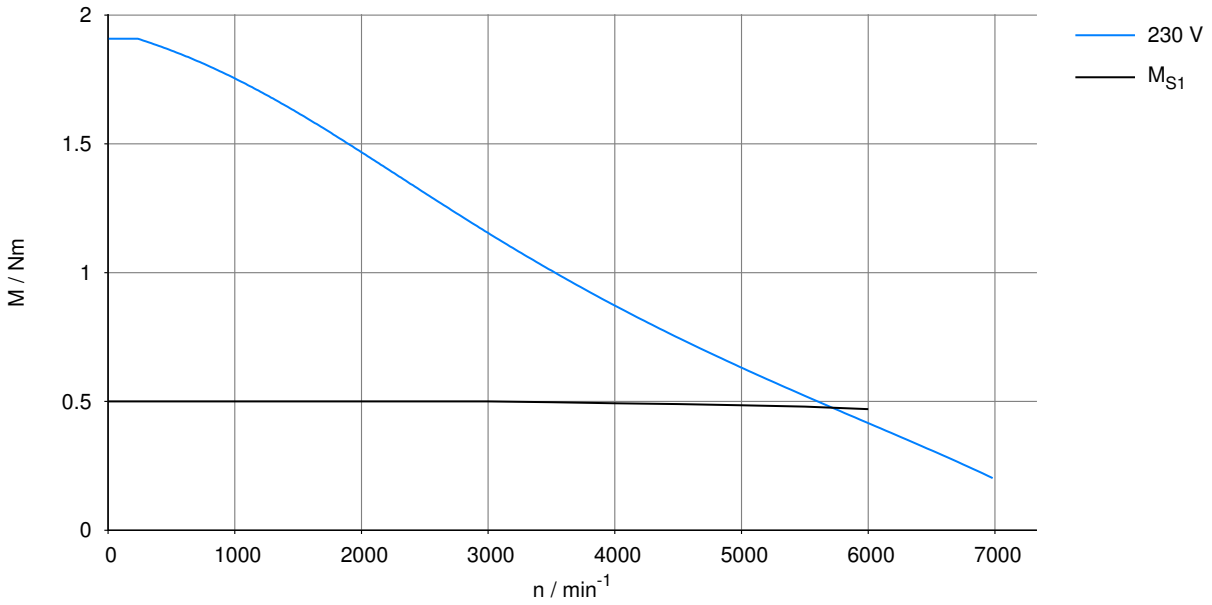
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP40S, 3000 min^{-1}

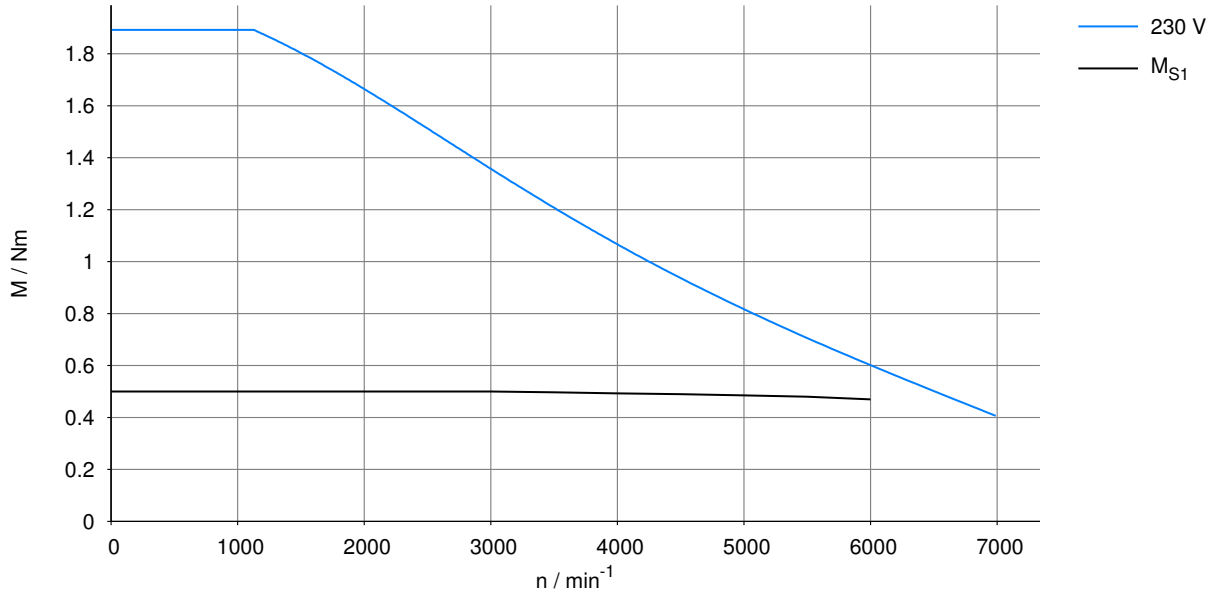
39208267531



CMP40S, 4500 min^{-1}

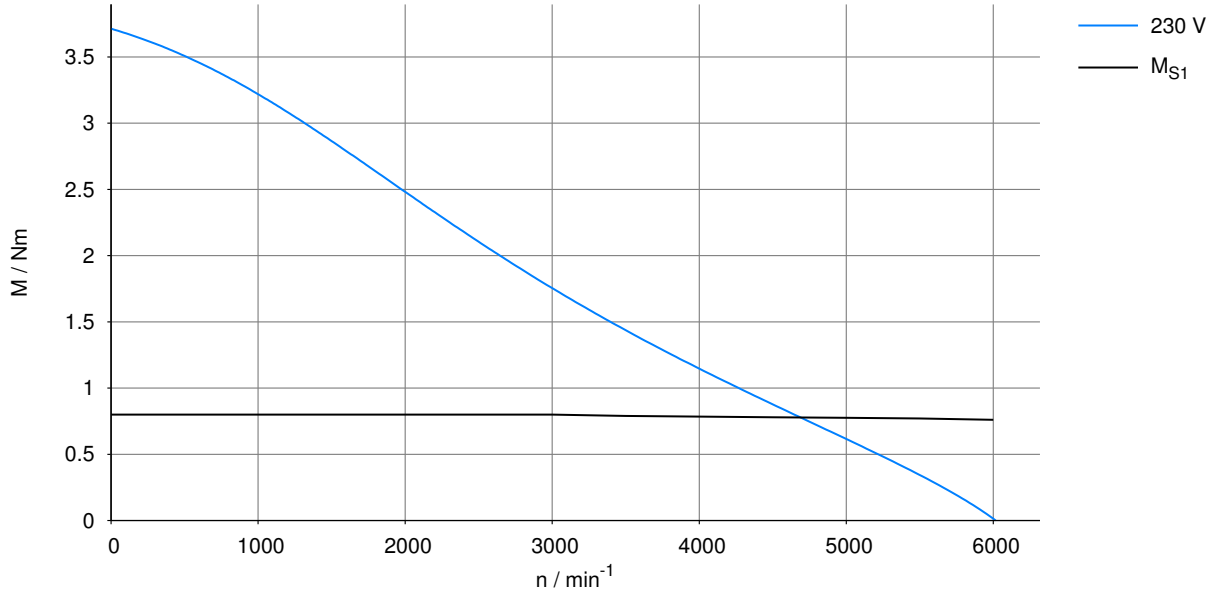
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27799468/EN – 11/2023



CMP40S, 6000 min^{-1}

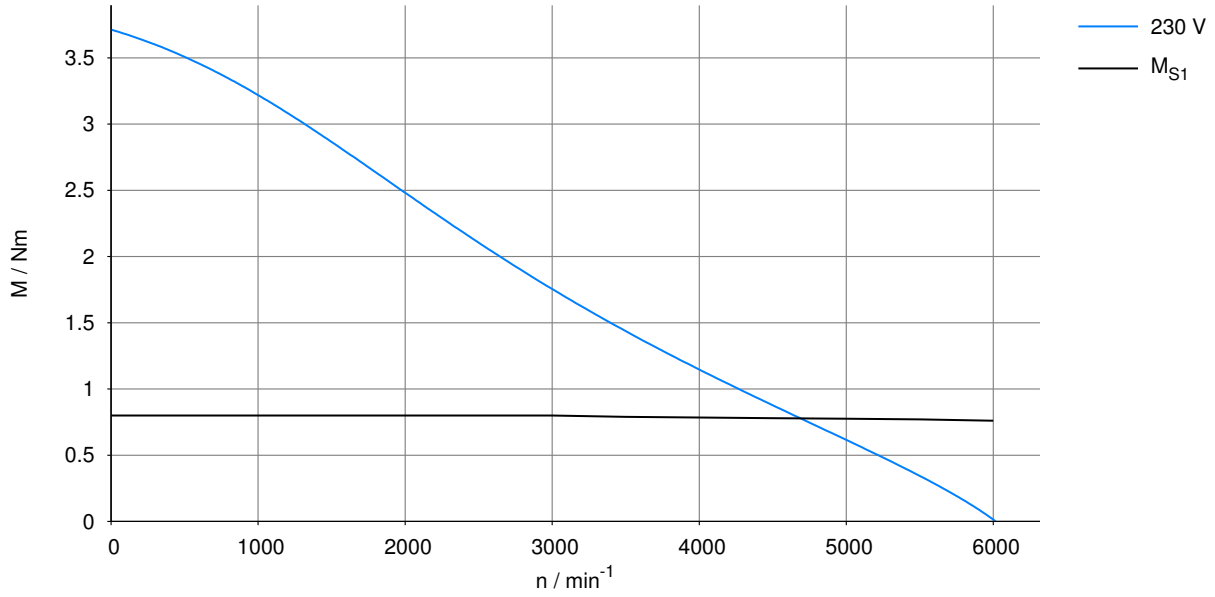
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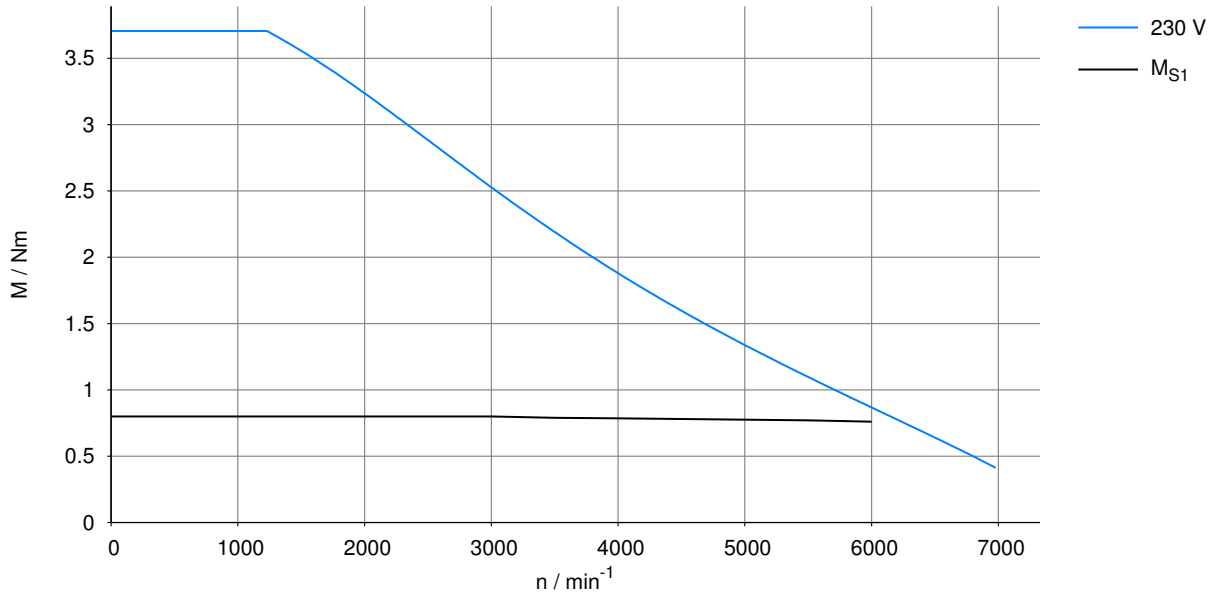
CMP40M, 3000 min^{-1}

39208259211

27799468/EN – 11/2023



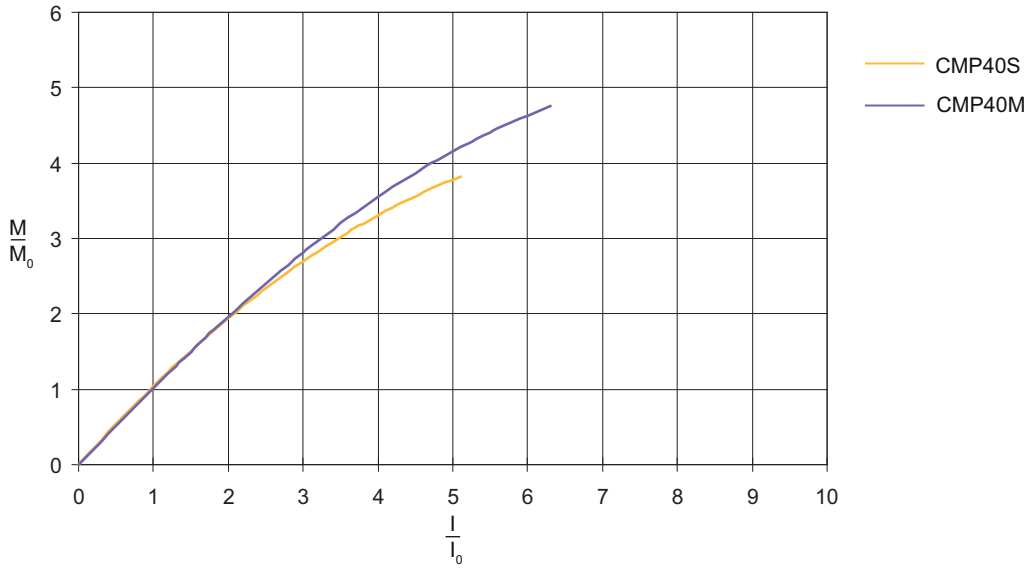
CMP40M, 4500 min^{-1} *39208261643*



CMP40M, 6000 min^{-1} *39208264075*

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP40S/M

25135132043

27799468/EN – 11/2023

4.6.2 CMP50

Technical data

			CMP50S			CMP50M			CMP50L		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm	1.3			2.4			3.3		
Standstill current	I_0	A	1.64	2.29	3.07	2.84	4.03	5.25	3.84	5.53	7.6
Dynamic limit torque	M_{pk}	Nm	5.2			10.3			15.4		
Maximum motor current	I_{max}	A	9.8	13.8	18.5	17.1	24.2	31.5	23.1	33.2	45.4
Inductance (phase)	L_1	mH	24.3	12.3	6.85	13.5	6.75	3.97	9.79	4.73	2.53
Resistance (phase) at 20 °C	R_1	Ω	7.8	3.94	2.11	3.6	1.78	1.09	2.45	1.2	0.624
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	50.4	35.9	26.8	53.7	37.9	29	55.7	38.7	28.3
Technical data with forced cooling fan											
Standstill torque	M_{0_VR}	Nm	1.7	–	–	–	–	–	–	–	–
Standstill current	I_{0_VR}	I	2.14	–	–	–	–	–	–	–	–
Mechanical data of motor											
Number of poles			6								
Maximum permitted radial load	F_{Ramax}	N	315	250	200	355	275	220	370	280	225
Maximum permitted axial load	F_{Aamax}	N	104	83	66	117	91	73	122	92	74
Mass of the motor	m_{mot}	kg	2.4			3.2			4.5		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	0.42			0.67			0.92		

Mechanical data of the brakemotor

			CMP50S	CMP50M	CMP50L
Brake type			BK02		BK04
Mass of the brakemotor	m_{bmot}	kg	2.8	3.6	5
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	0.53	0.78	1.33

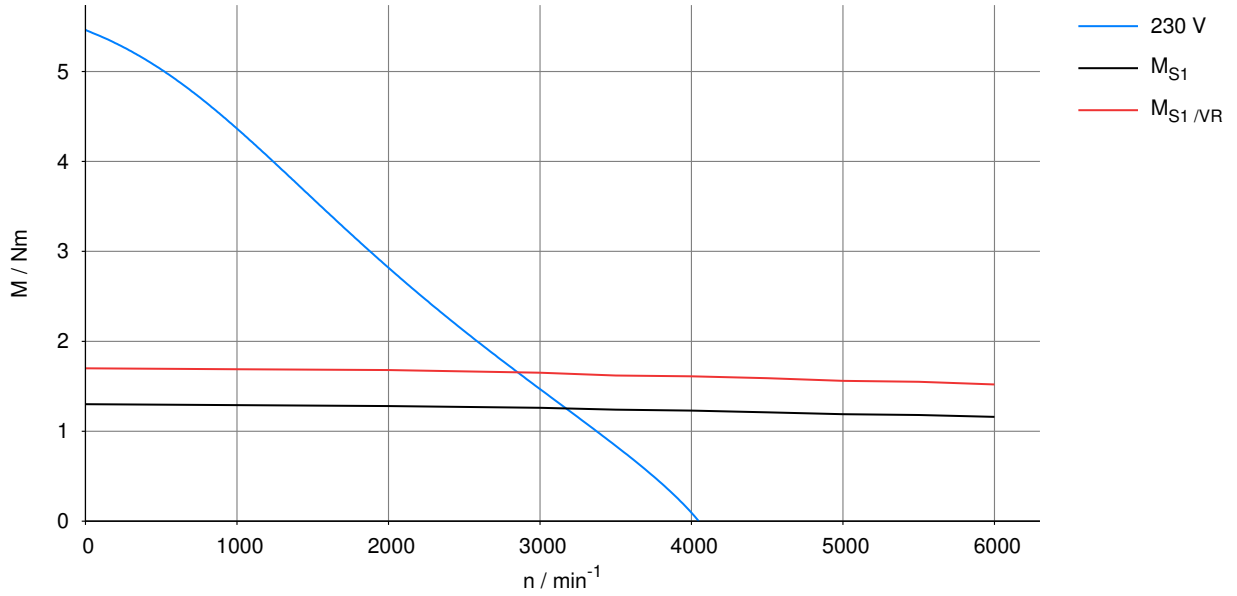
Technical data of the brake

			BK02	BK04
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000	
Nominal voltage of brake, AC	V_N	V AC	–	
Nominal voltage of brake, DC	V_N	DC V	24	
Nominal braking torque	M_{br}	Nm	2.4	3.9
Static braking torque	$M_{4,100°C}$	Nm	2.4	3.9

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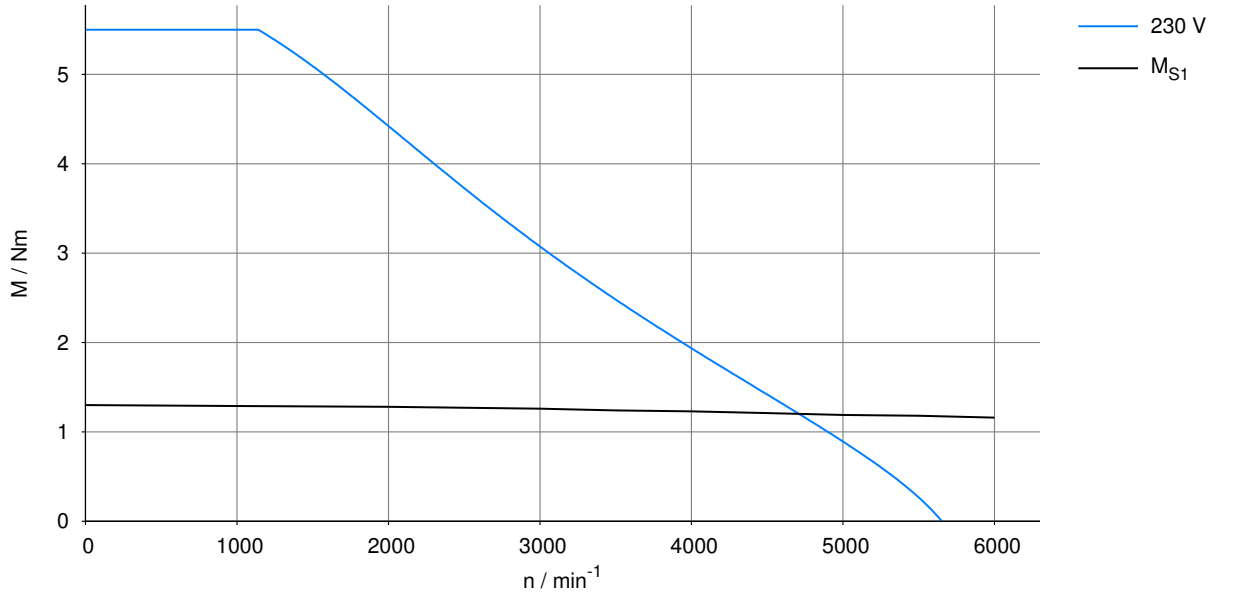
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP50S, 3000 min^{-1}

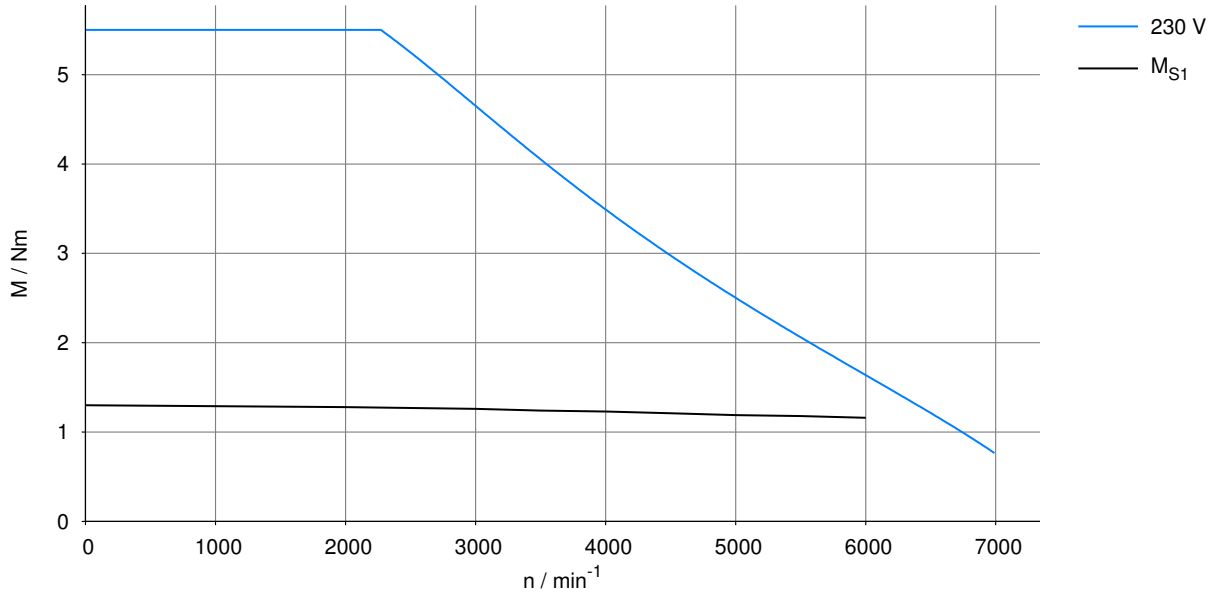
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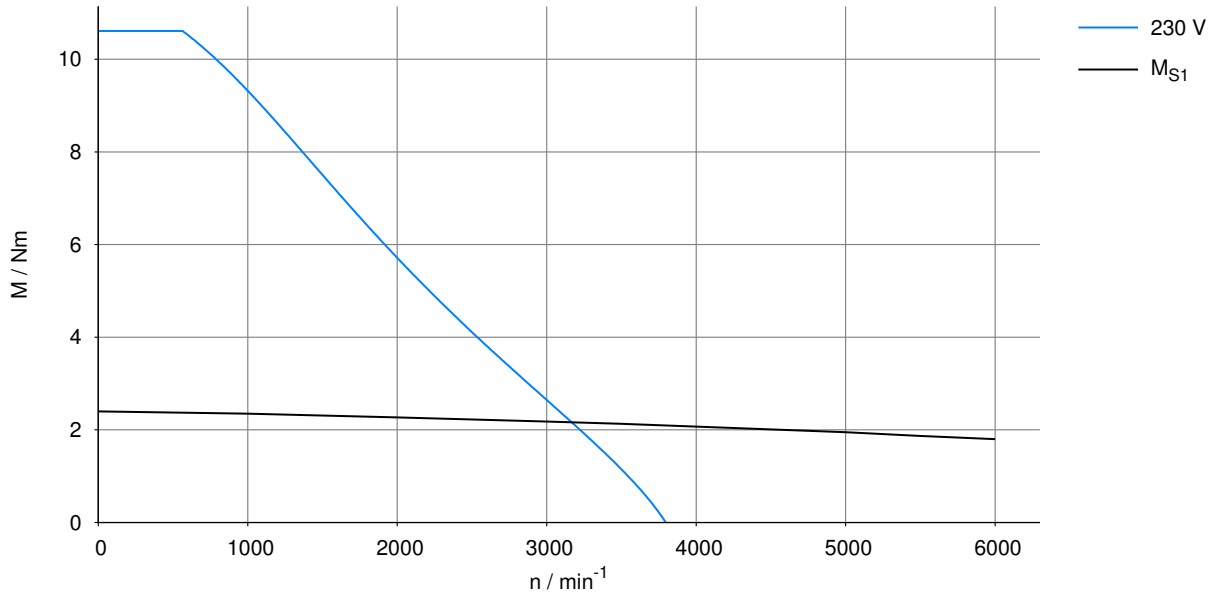
CMP50S, 4500 min^{-1}

39208320523

27799468/EN – 11/2023

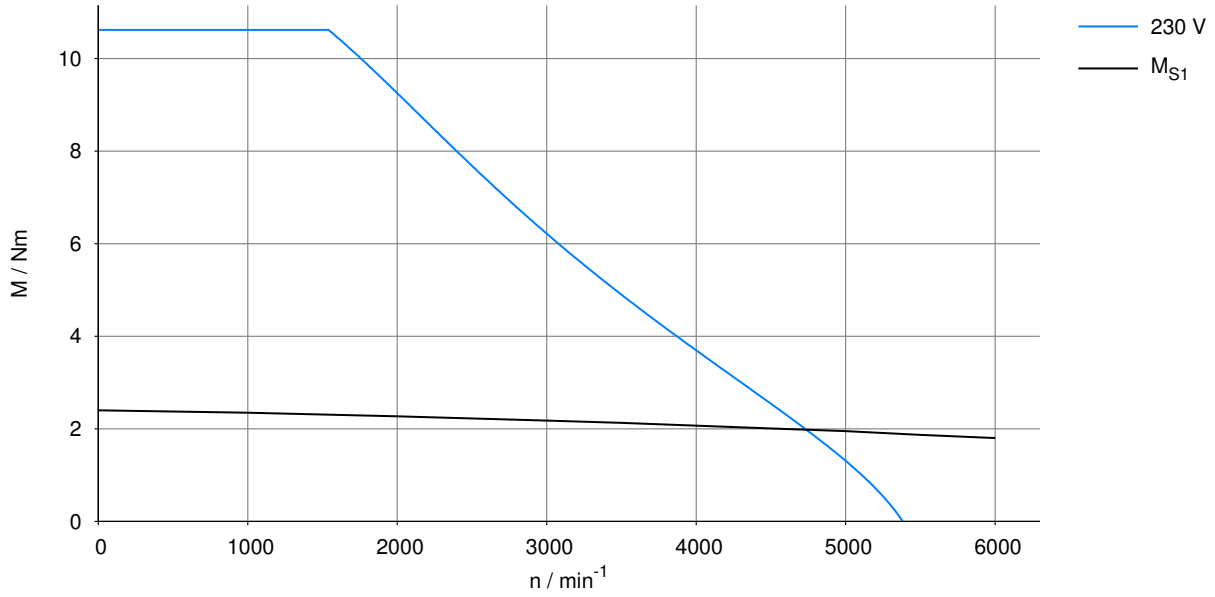


CMP50S, 6000 min^{-1} *39208335755*



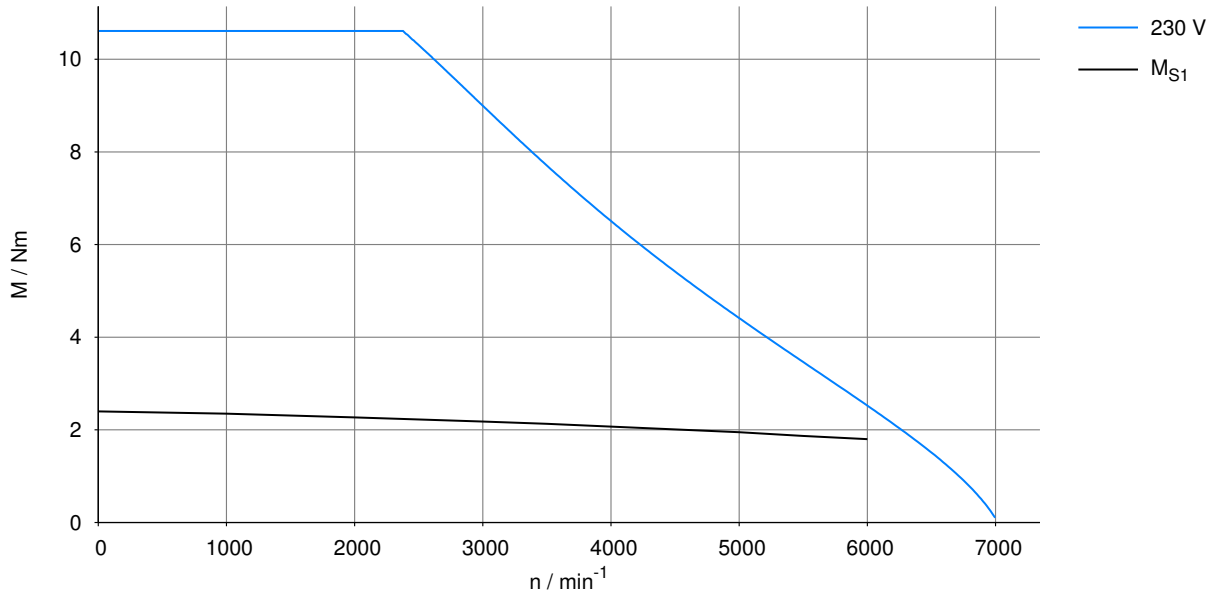
CMP50M, 3000 min^{-1} *39208309771*

27799468/EN – 11/2023



CMP50M, 4500 min^{-1}

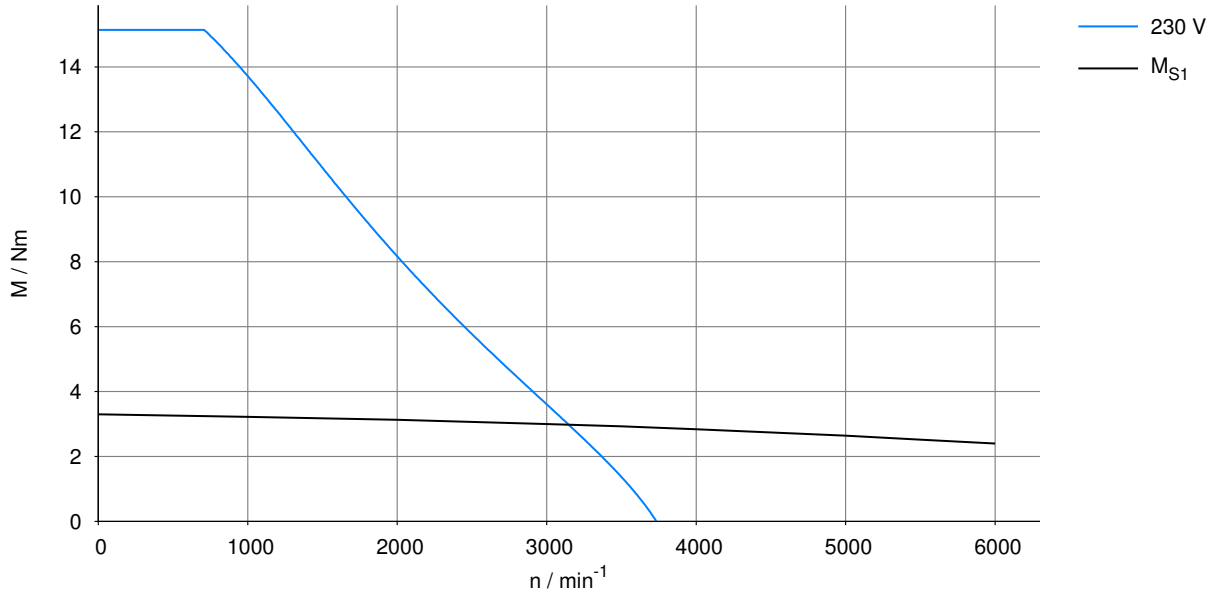
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CMP50M, 6000 min^{-1}

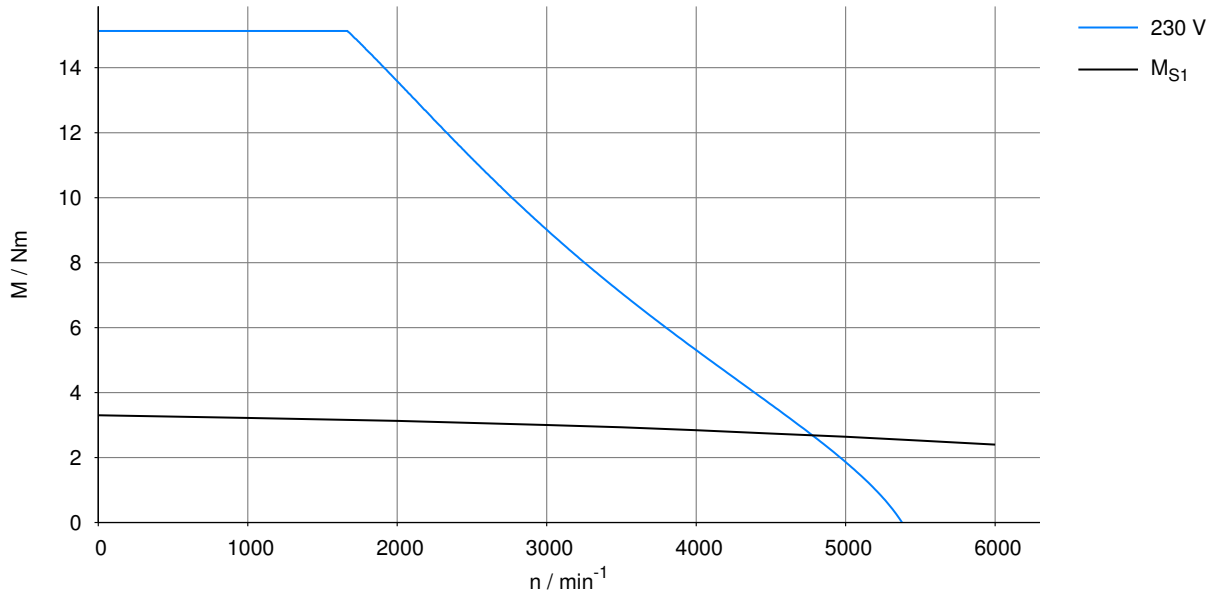
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27799468/EN – 11/2023



CMP50L, 3000 min^{-1}

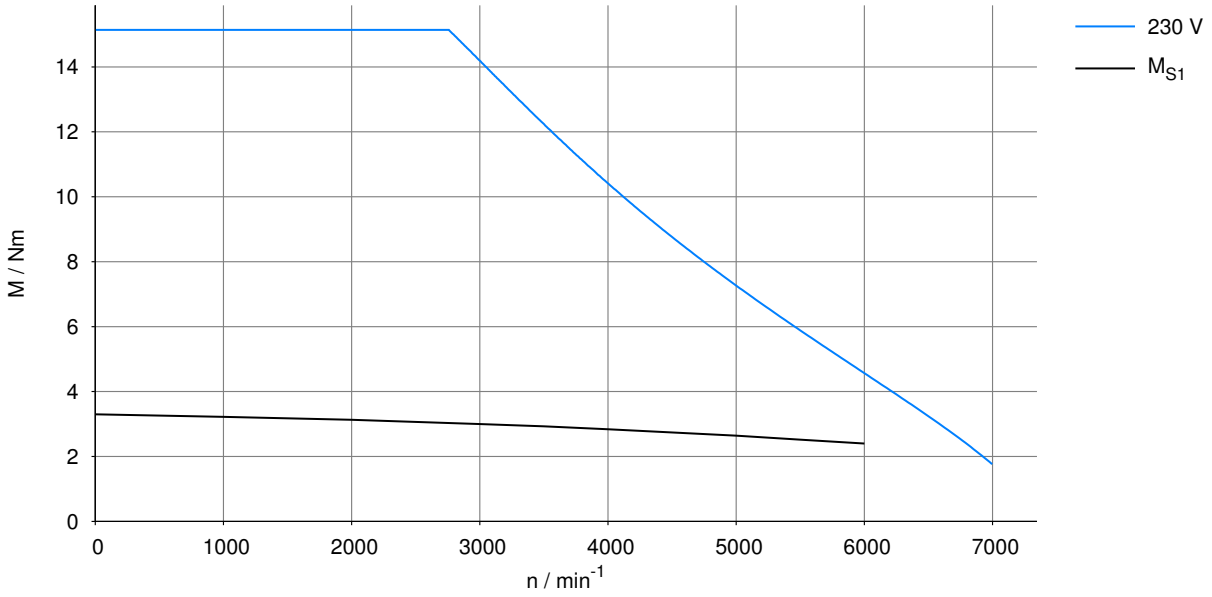
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CMP50L, 4500 min^{-1}

39208291083

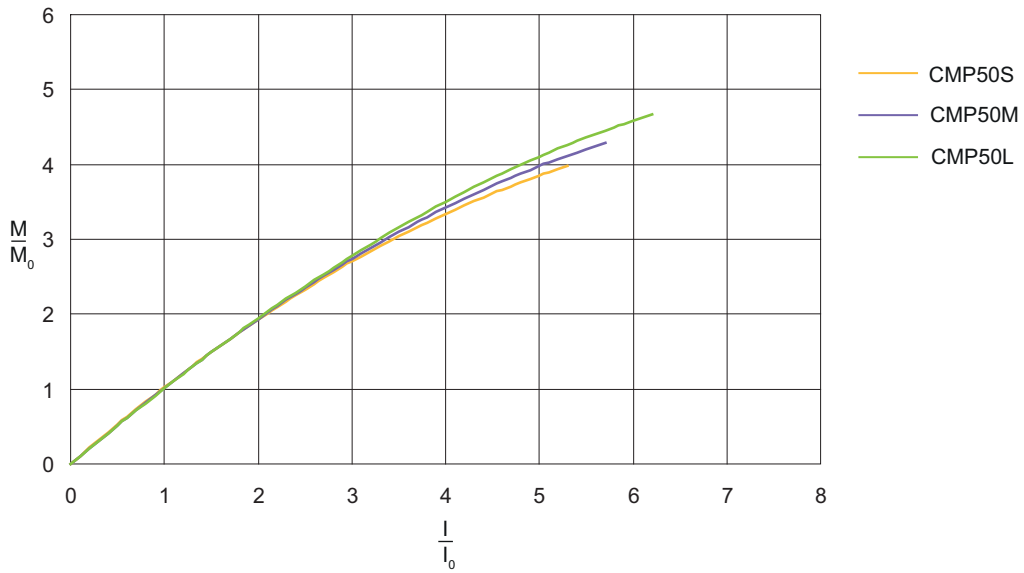
27799468/EN – 11/2023



CMP50L, 6000 min^{-1}

39208293515

Torque-current characteristic



Torque-current characteristic curve CMP50S / M / L

25135180171

4.6.3 CMP63

Technical data

			CMP63S			CMP63M			CMP63L	
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500
Standstill torque	M_0	Nm	2.9			5.3			7.1	
Standstill current	I_0	A	3.61	5.25	6.78	6.35	9.78	12.1	8.76	12
Dynamic limit torque	M_{pk}	Nm	11.1			21.4			30.4	
Maximum motor current	I_{max}	A	21.7	31.5	40.7	38.1	58.7	72.4	52.6	72.1
Inductance (phase)	L_1	mH	13	6.18	3.69	7.09	2.99	1.96	4.47	2.38
Resistance (phase) at 20 °C	R_1	Ω	2.66	1.14	0.695	1.19	0.489	0.314	0.691	0.358
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	54	37.1	28.7	57	37	30	56	40.9
Technical data with forced cooling fan										
Standstill torque	$M_{0\ VR}$	Nm	–	–	–	–	7.5	7.5	–	–
Standstill current	$I_{0\ VR}$	I	–	–	–	–	13.8	17	–	–
Mechanical data of motor										
Number of poles			6							
Maximum permitted radial load	F_{Ramax}	N	460	360	290	500	380	300	560	445
Maximum permitted axial load	F_{Aamax}	N	152	119	96	165	125	99	185	147
Mass of the motor	m_{mot}	kg	3.7			5.7			7.4	
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	1.15			1.92			2.69	

Mechanical data of the brakemotor

			CMP63S	CMP63M	CMP63L
Brake type			BK03	BK07	
Mass of the brakemotor	m_{bmot}	kg	4.3	6.5	8.2
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	1.54	2.49	3.26

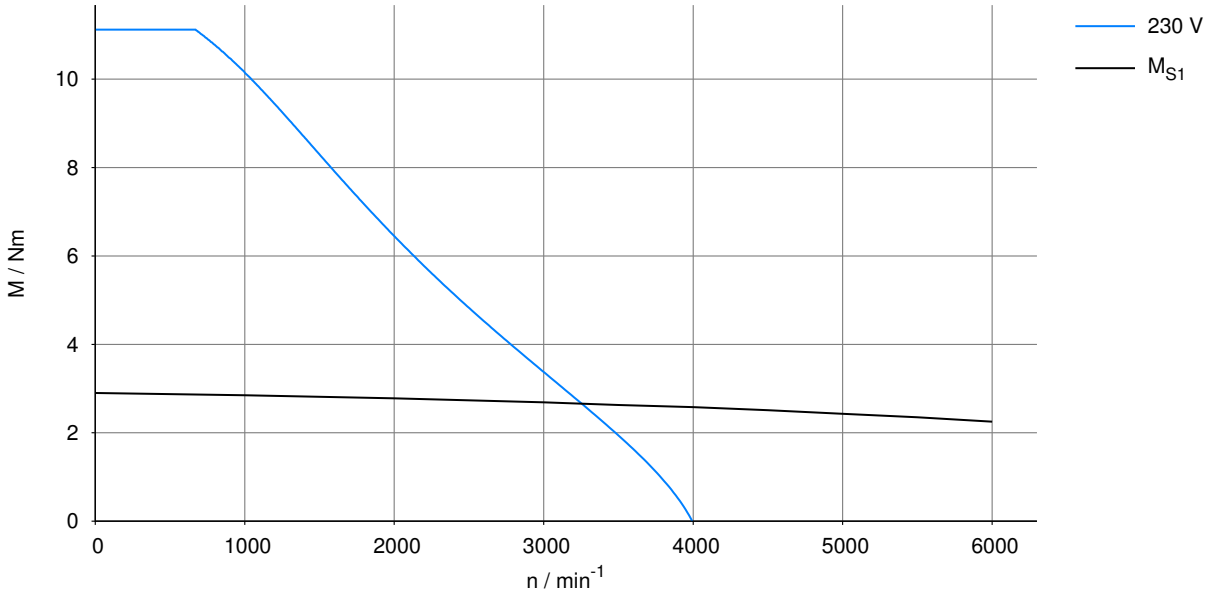
Technical data of the brake

			BK03	BK07
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000	
Nominal voltage of brake, AC	V_N	V AC	–	
Nominal voltage of brake, DC	V_N	DC V	24	
Nominal braking torque	M_{br}	Nm	3.8	7.1
Static braking torque	$M_{4,100°C}$	Nm	3.8	7.1

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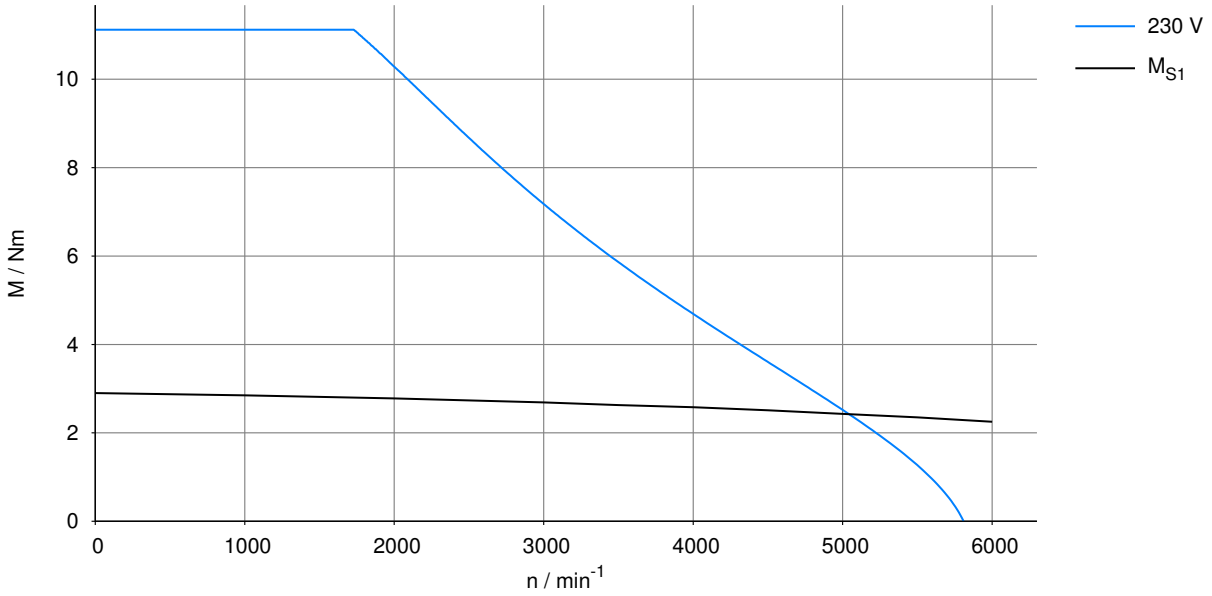
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP63S, 3000 min^{-1}

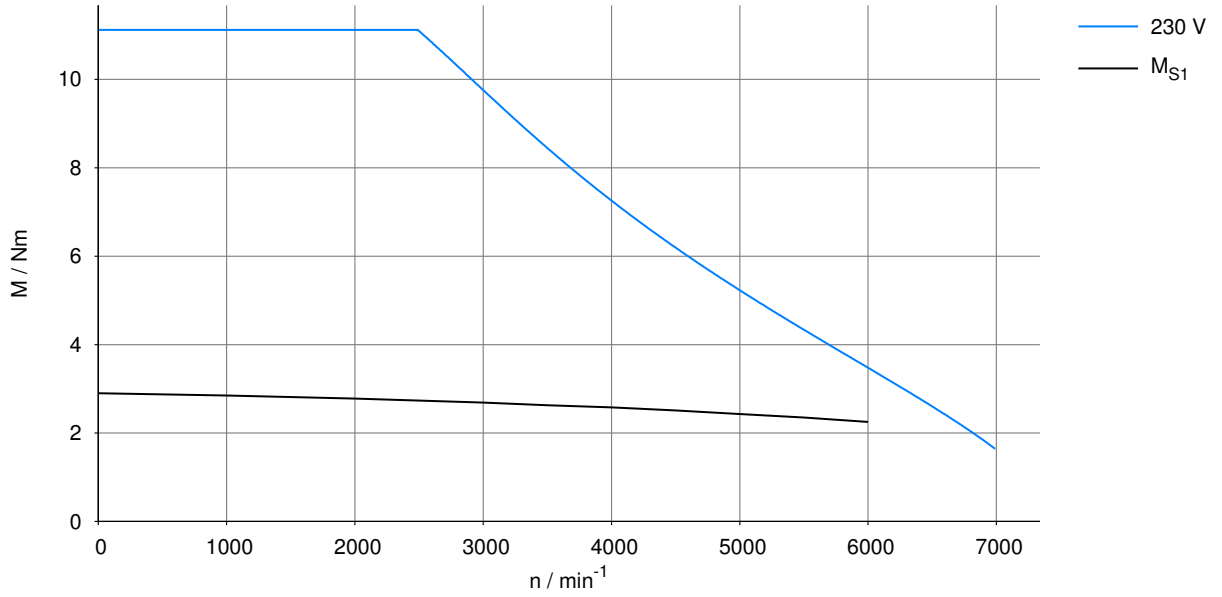
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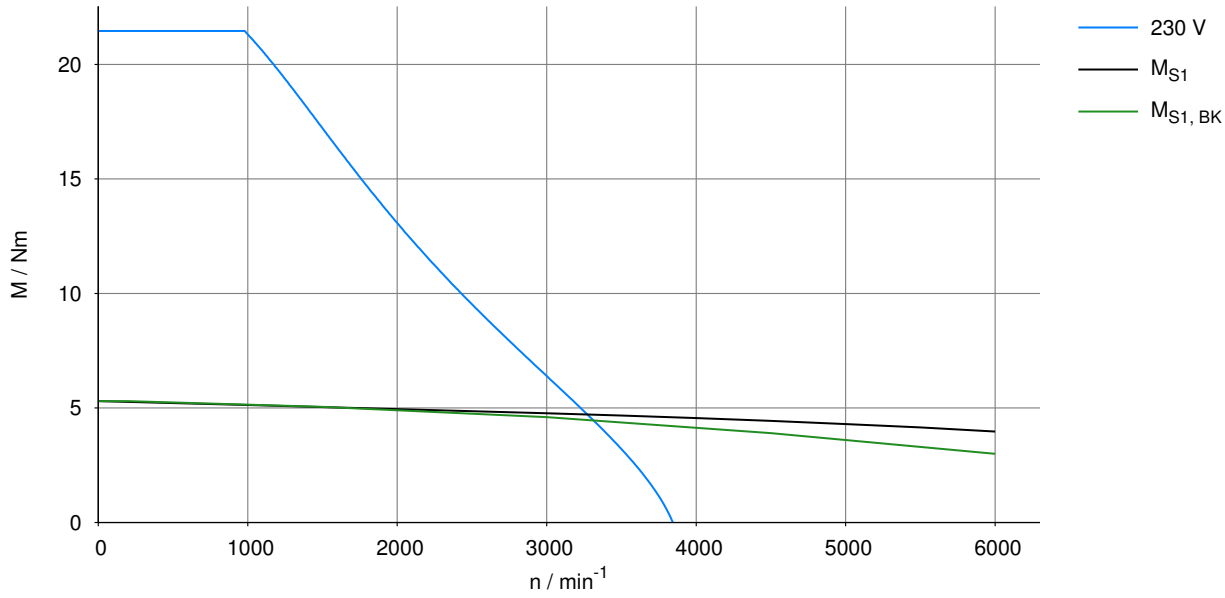
CMP63S, 4500 min^{-1}

39208368395

27799468/EN – 11/2023

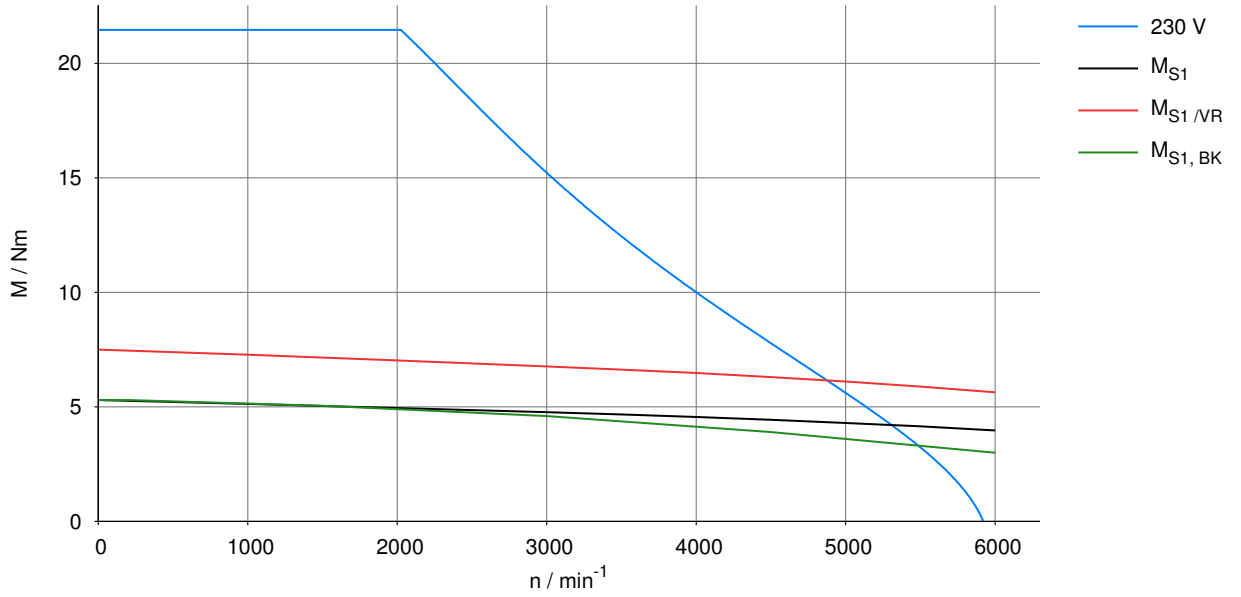


CMP63S, 6000 min^{-1} *39208370827*



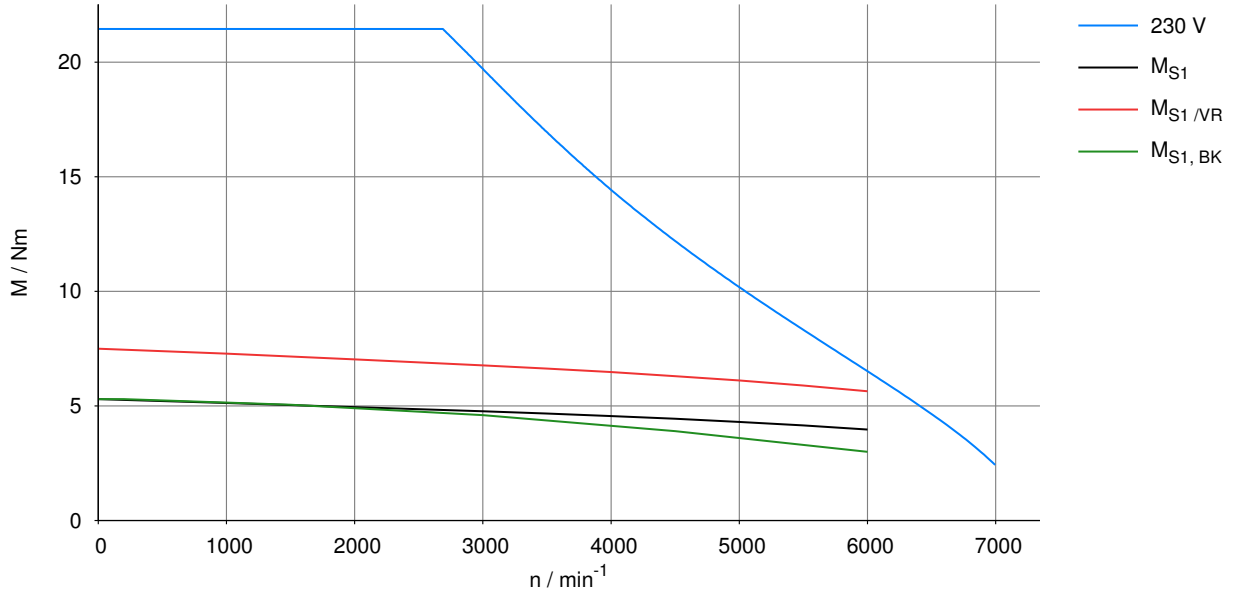
CMP63M, 3000 min^{-1} *39208344843*

27799468/EN – 11/2023



CMP63M, 4500 min^{-1}

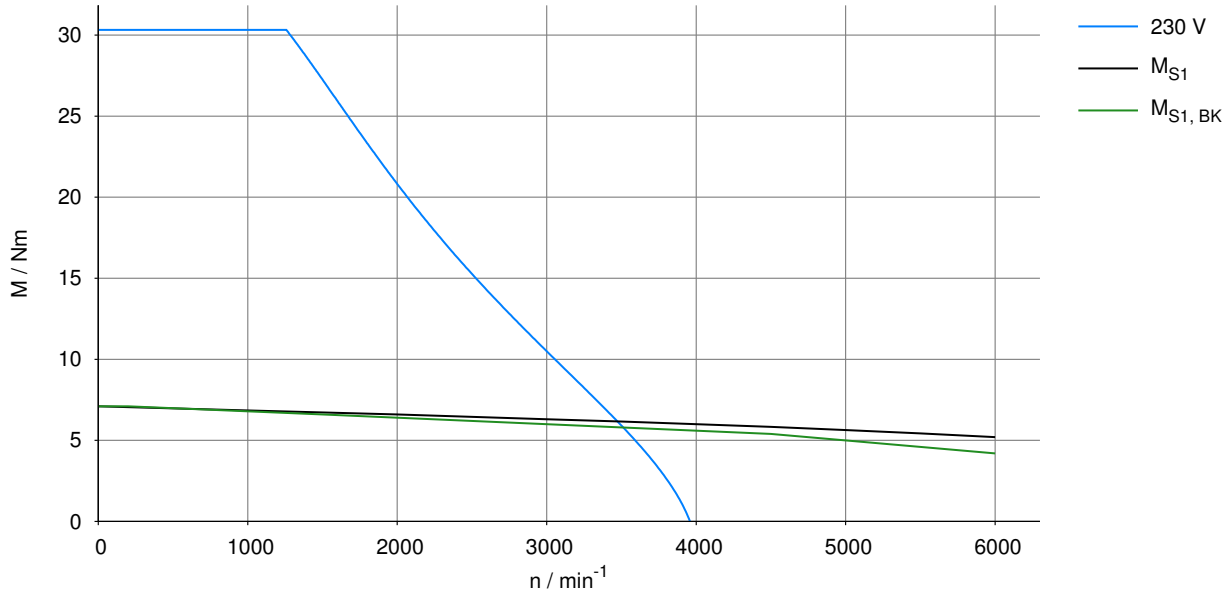
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CMP63M, 6000 min^{-1}

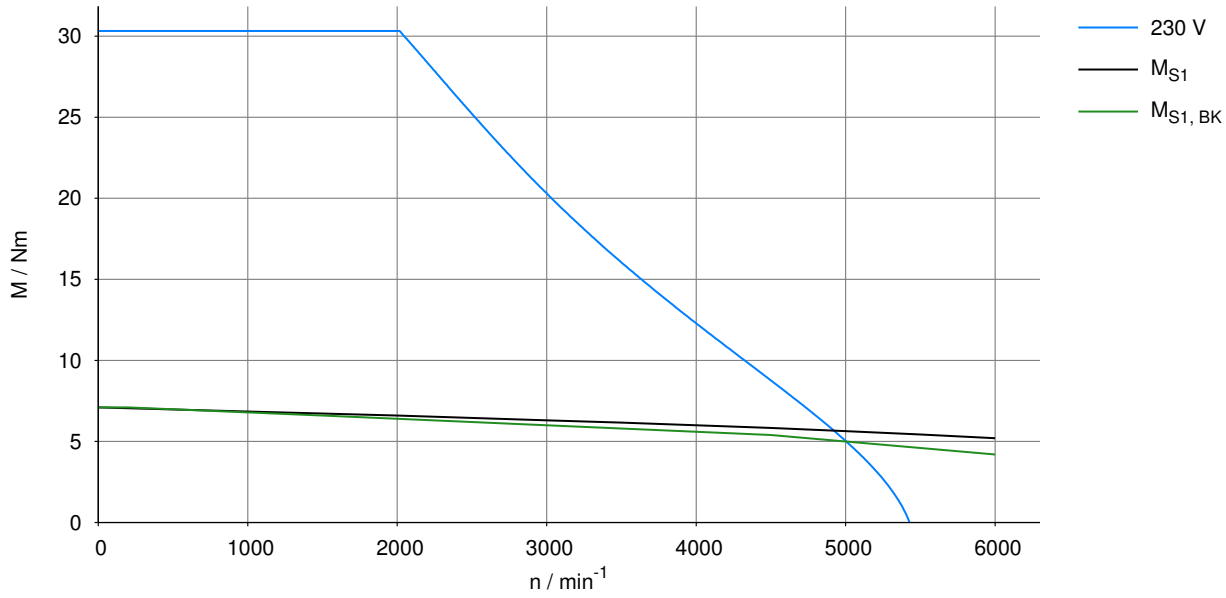
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27799468/EN – 11/2023



CMP63L, 3000 min^{-1}

39208339211

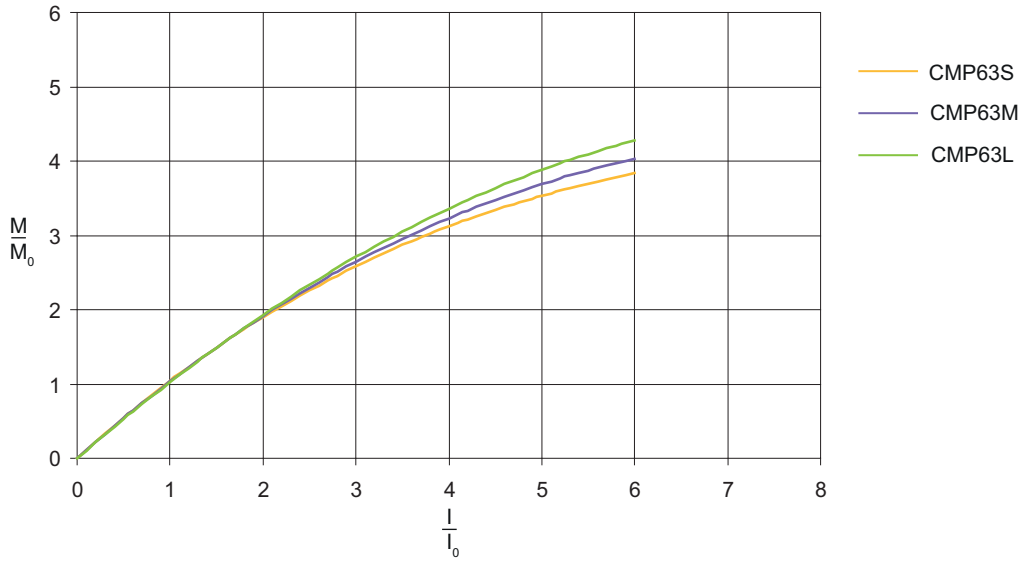


CMP63L, 4500 min^{-1}

39208341643

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP63S / M / L

25135189899

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4.6.4 CMP71

Technical data

			CMP71S			CMP71M			CMP71L	
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500
Standstill torque	M_0	Nm	6.4			9.4			13.1	
Standstill current	I_0	A	8.7	12.8	17	13.1	19.2	26.3	16.8	25.6
Dynamic limit torque	M_{pk}	Nm	19.2			30.8			46.9	
Maximum motor current	I_{max}	A	44	67	89	68	101	136	103	158
Inductance (phase)	L_1	mH	5.03	2.29	1.32	3.17	1.46	0.793	2.31	1.05
Resistance (phase) at 20 °C	R_1	Ω	0.455	0.213	0.116	0.254	0.124	0.0647	0.163	0.0762
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	49.5	33.4	25.3	48.7	33.1	24.4	53.7	36.3
Technical data with forced cooling fan										
Standstill torque	$M_{0\ VR}$	Nm	8.7			13.7			21	
Standstill current	$I_{0\ VR}$	I	11.8	17.4	23	19.1	28	–	27	–
Mechanical data of motor										
Number of poles			10							
Maximum permitted radial load	F_{Ramax}	N	832	724	636	888	747	659	928	777
Maximum permitted axial load	F_{Aamax}	N	277	240	212	296	250	219	309	258
Mass of the motor	m_{mot}	kg	6			7.7			10.9	
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	3.13			4.17			6.27	

Mechanical data of the brakemotor

			CMP71S	CMP71M	CMP71L
Brake type			BP1		
Mass of the brakemotor	m_{bmot}	kg	7.9	9.5	12.8
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	3.53	4.57	6.67

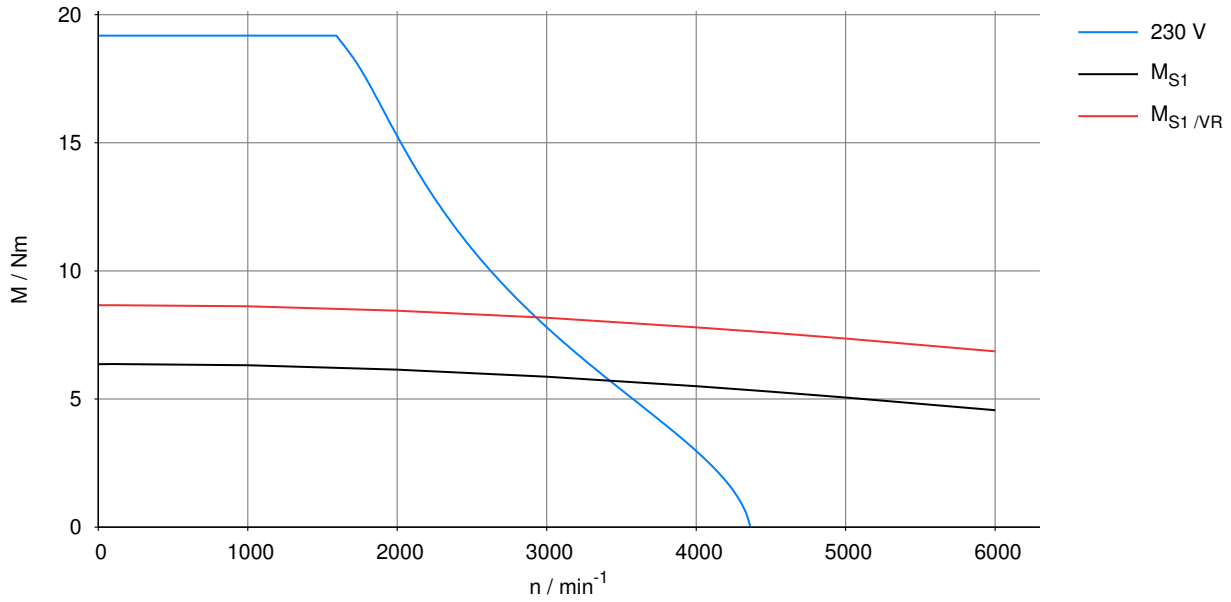
Technical data of the brake

			BP1
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	6000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	7 / 14
Static braking torque	$M_{4,100°C}$	Nm	4.2 / 8.4

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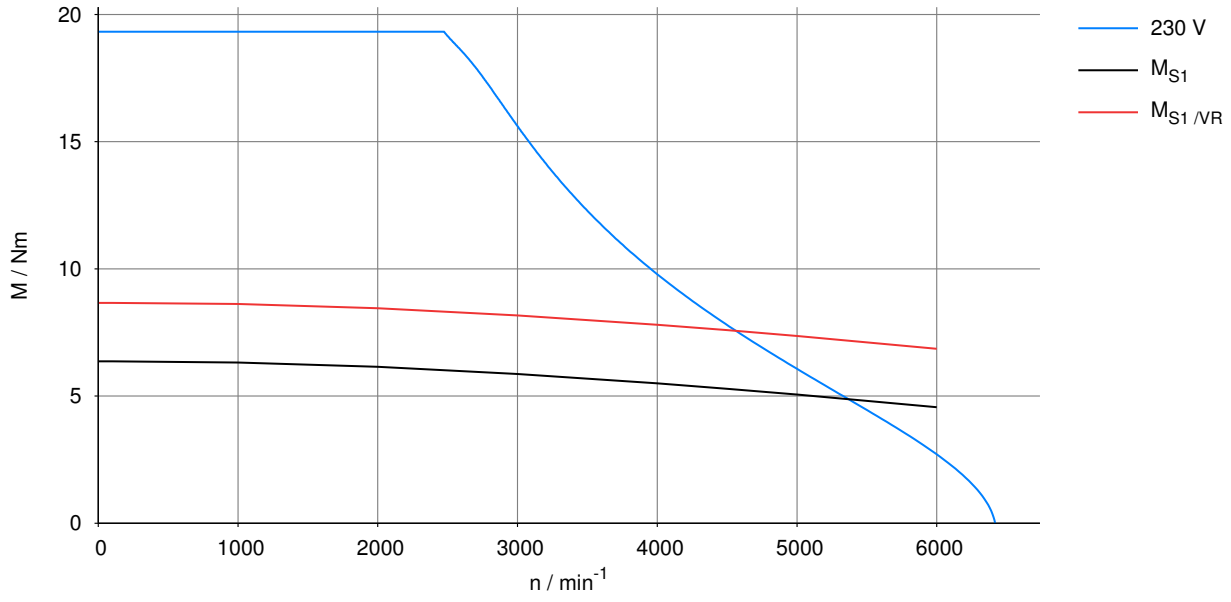
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP71S, 3000 min^{-1}

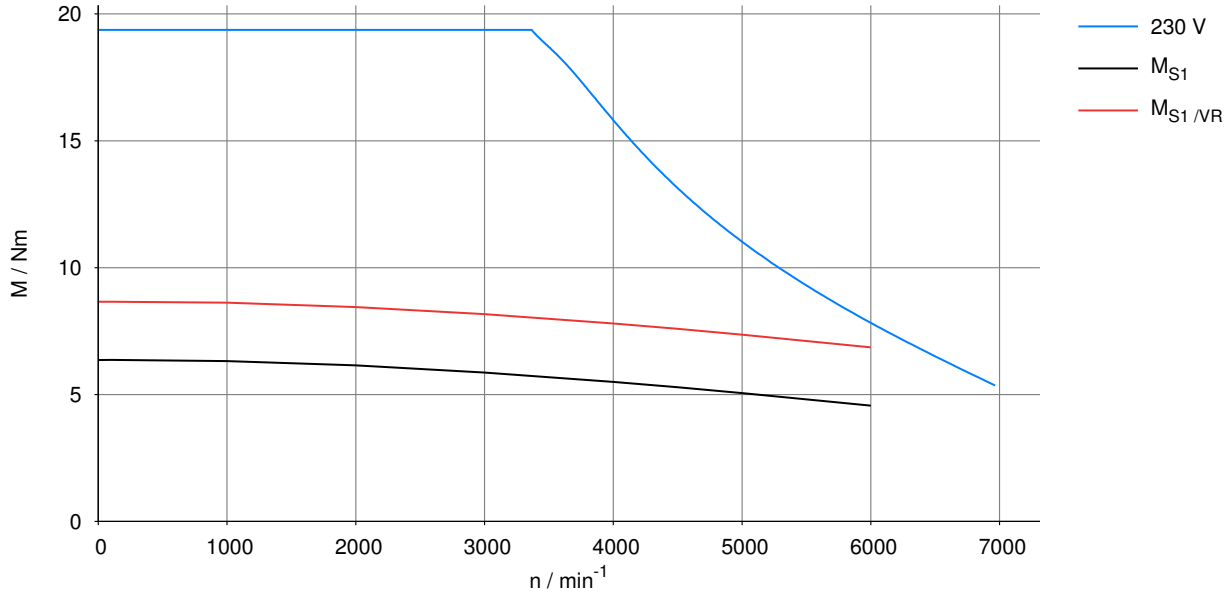
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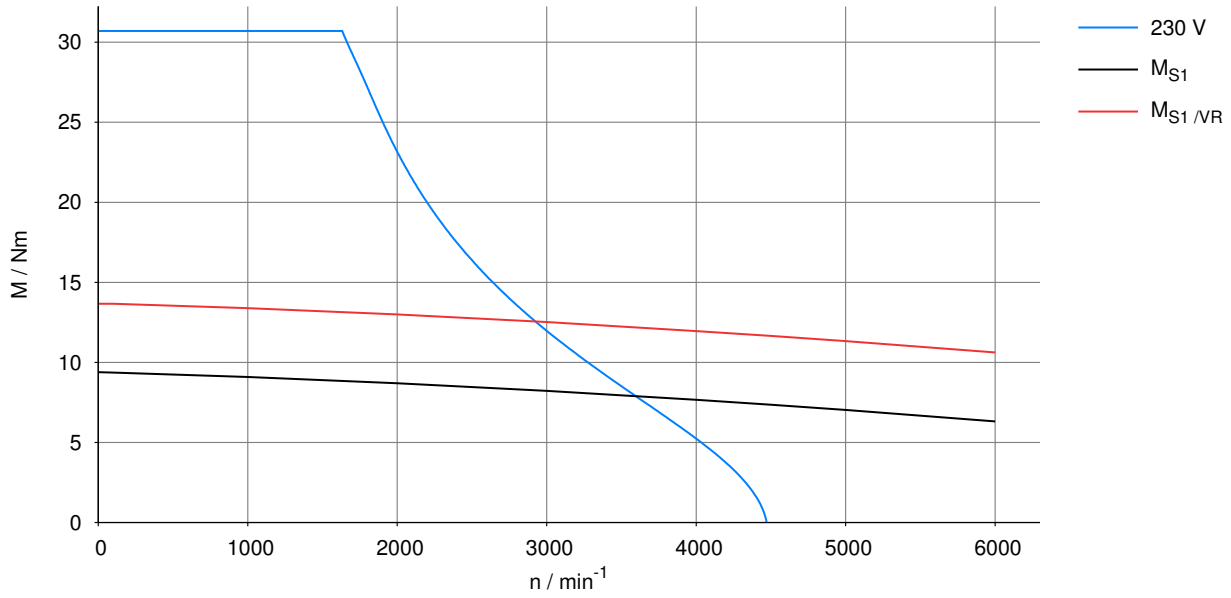
CMP71S, 4500 min^{-1}

39208582667

27799468/EN – 11/2023

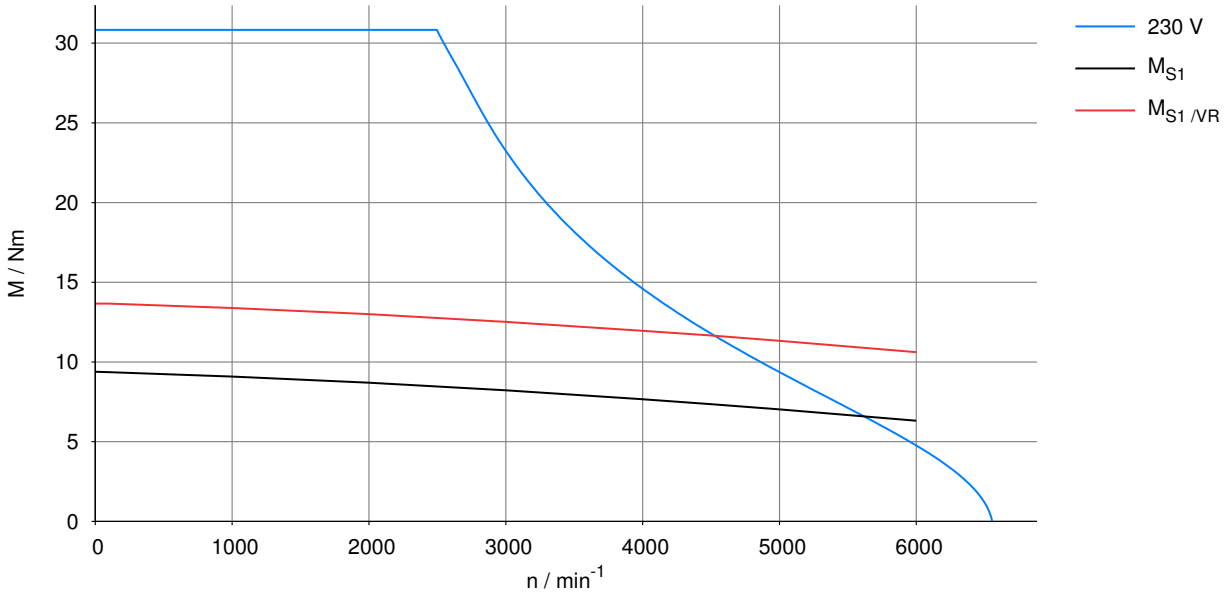


CMP71S, 6000 min^{-1} *39208585099*



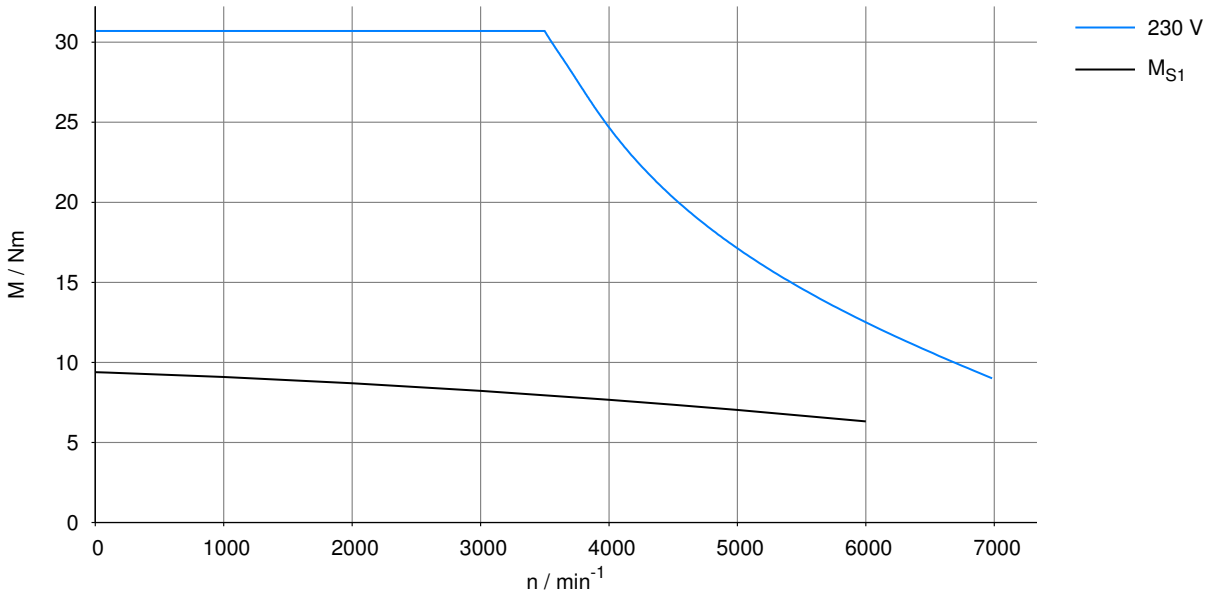
CMP71M, 3000 min^{-1} *39208559115*

27799468/EN – 11/2023



CMP71M, 4500 min^{-1}

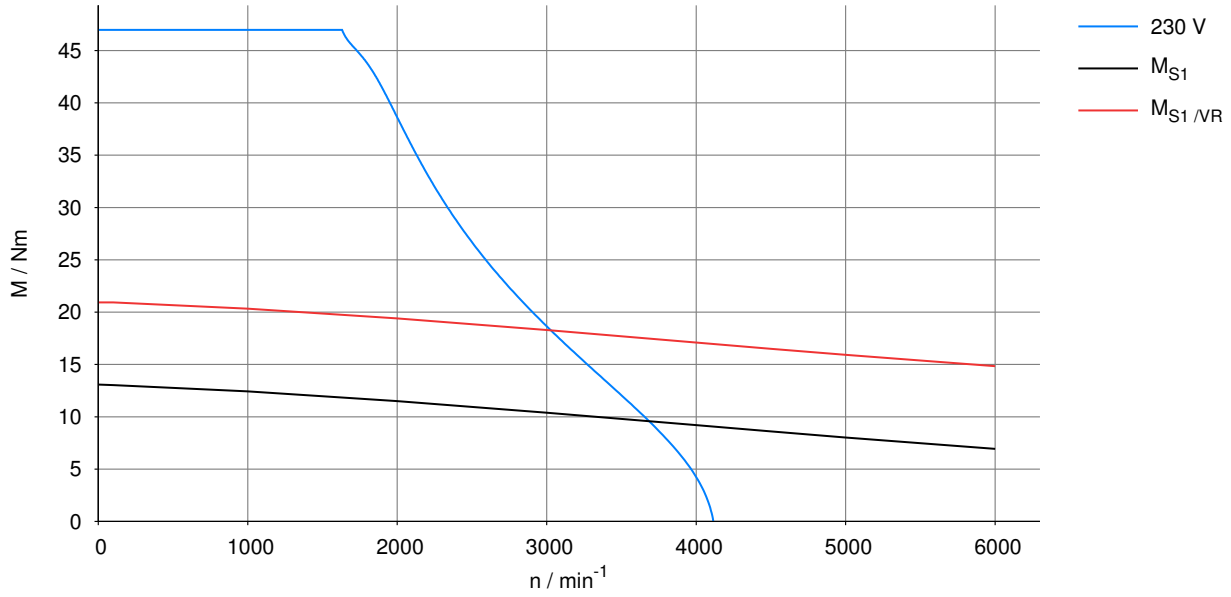
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CMP71M, 6000 min^{-1}

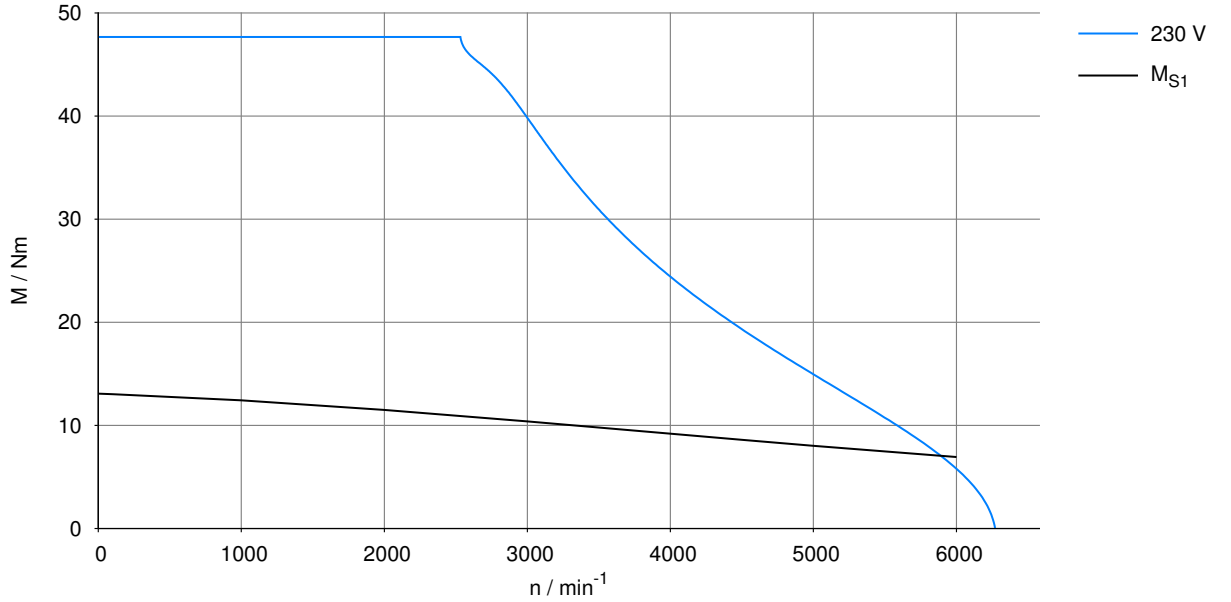
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27799468/EN – 11/2023



CMP71L, 3000 min^{-1}

39208553483

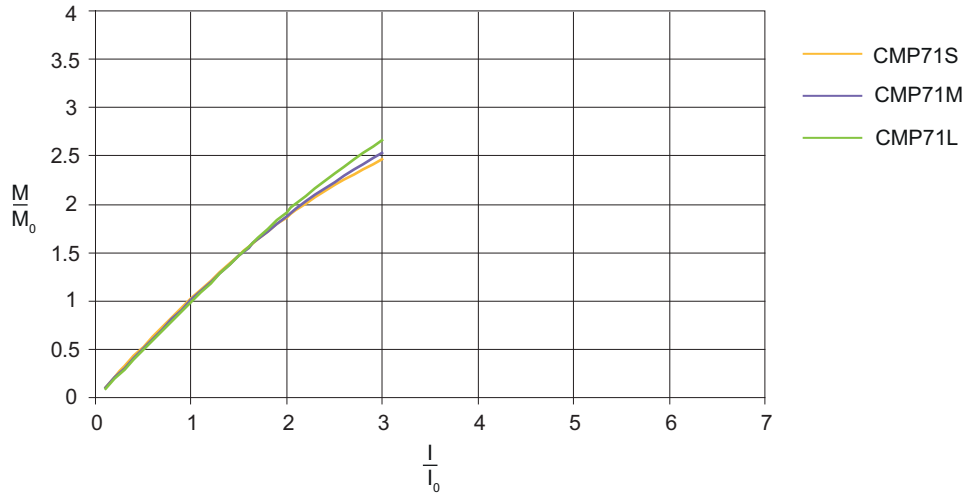


CMP71L, 4500 min^{-1}

39208555915

27799468/EN – 11/2023

Torque-current characteristic



Torque-current characteristic curve CMP71S / M / L

25135199627

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4.6.5 CMP80

Technical data

			CMP80S			CMP80M			CMP80L		
Speed class	n_C	min^{-1}	3000	4500	6000	3000	4500	6000	3000	4500	6000
Standstill torque	M_0	Nm	13.4			18.7			27.5		
Standstill current	I_0	A	17.7	27	35.5	23.5	35	46.9	32.5	49.9	68
Dynamic limit torque	M_{pk}	Nm	42.1			62.6			107		
Maximum motor current	I_{max}	A	83	129	168	121	180	240	186	285	389
Inductance (phase)	L_1	mH	2.3	0.983	0.575	1.64	0.73	0.411	1.11	0.474	0.255
Resistance (phase) at 20 °C	R_1	Ω	0.155	0.0651	0.0387	0.107	0.0483	0.0267	0.0711	0.0298	0.0152
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	51.5	33.7	25.7	53.9	35.9	26.9	57	37.2	27.3
Technical data with forced cooling fan											
Standstill torque	M_{0_VR}	Nm	18.5			27			44		
Standstill current	I_{0_VR}	I	24.5	37	48.5	34	51	–	52	–	–
Mechanical data of motor											
Number of poles			10								
Maximum permitted radial load	F_{Ramax}	N	1454	1270	1132	1555	1325	1169	1635	1372	1208
Maximum permitted axial load	F_{Aamax}	N	485	423	377	518	442	390	544	457	402
Mass of the motor	m_{mot}	kg	12.7			16.7			21.3		
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	9			12.1			18.3		

Mechanical data of the brakemotor

			CMP80S	CMP80M	CMP80L
Brake type			BP3		
Mass of the brakemotor	m_{bmot}	kg	16.3	20.2	24.9
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	10.3	13.4	19.6

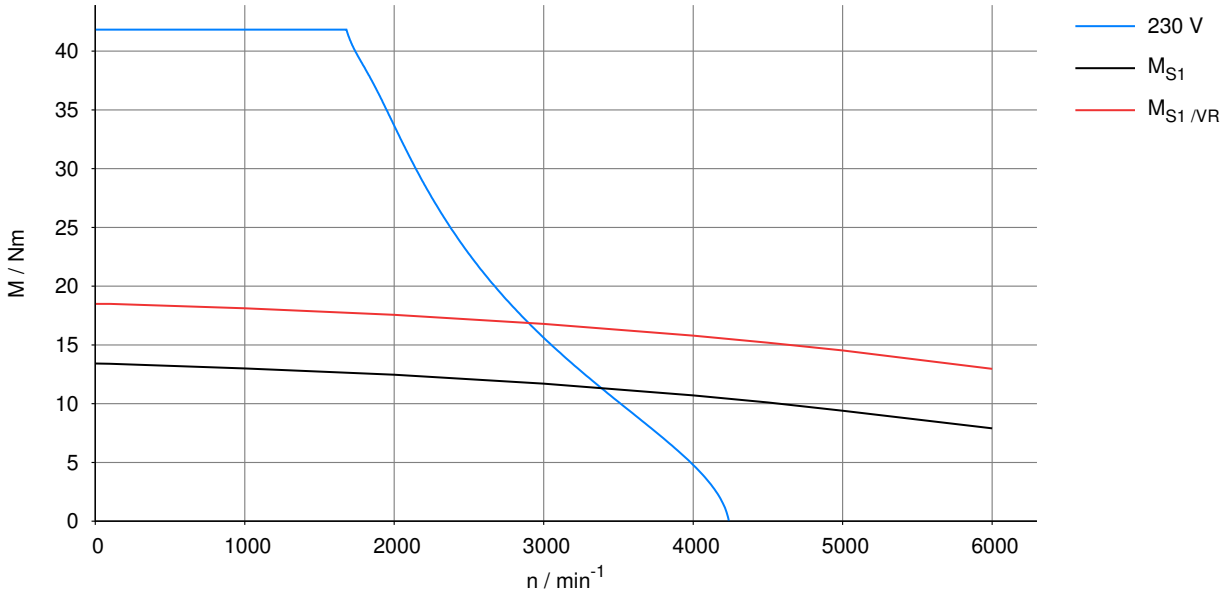
Technical data of the brake

			BP3
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	5500
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	16 / 31
Static braking torque	$M_{4,100°C}$	Nm	9.6 / 18.6

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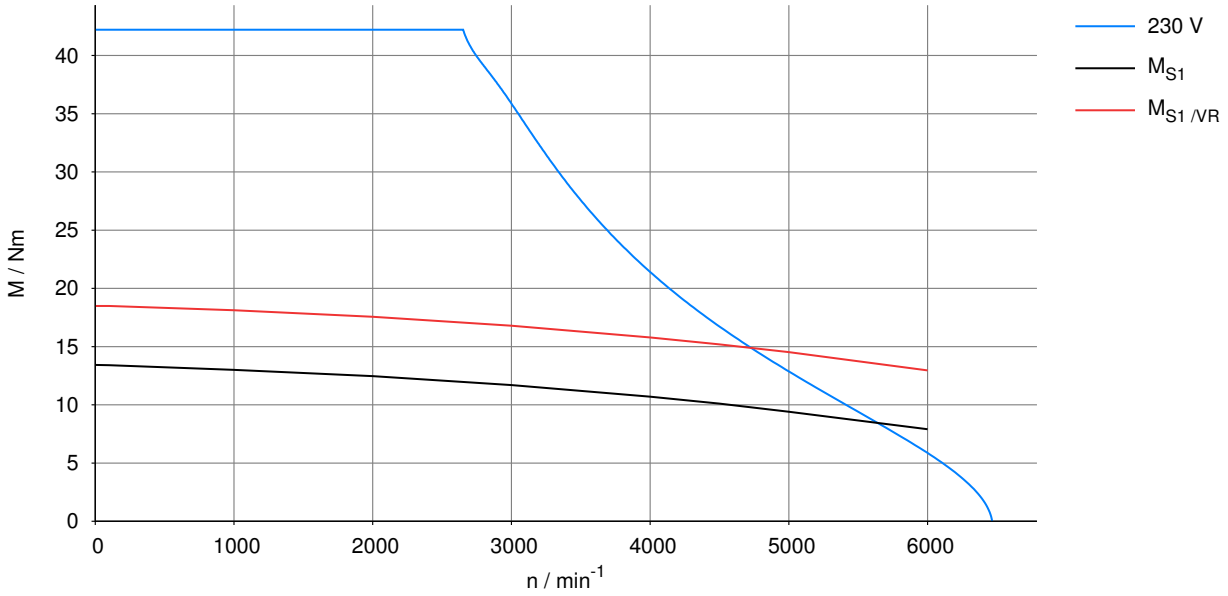
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 288).



CMP80S, 3000 min^{-1}

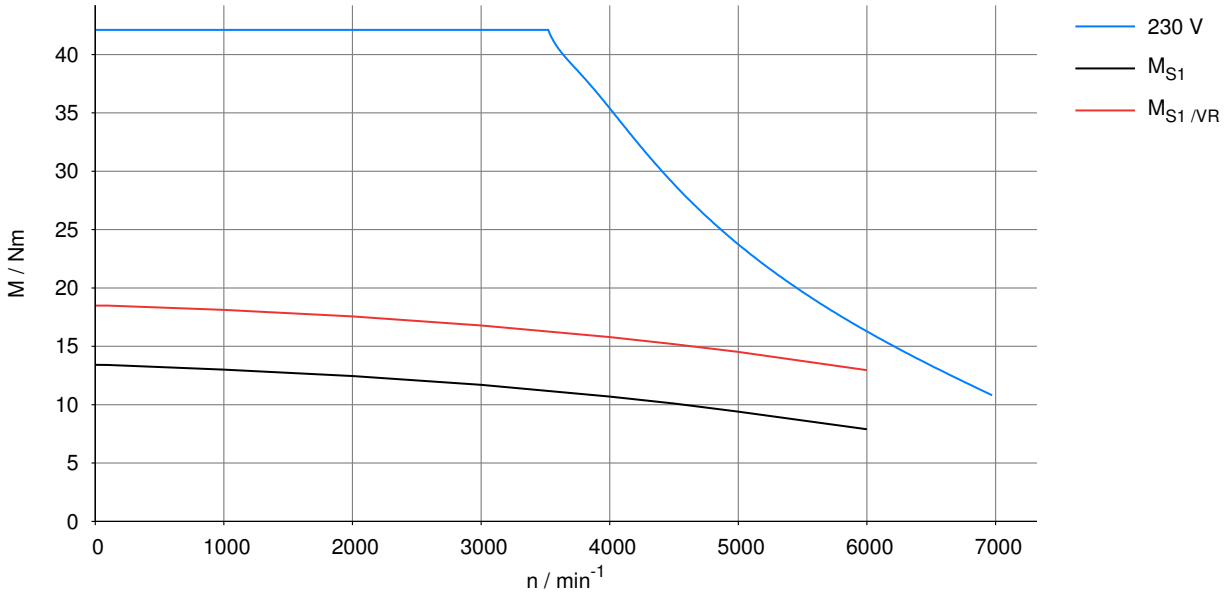
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CMP80S, 4500 min^{-1}

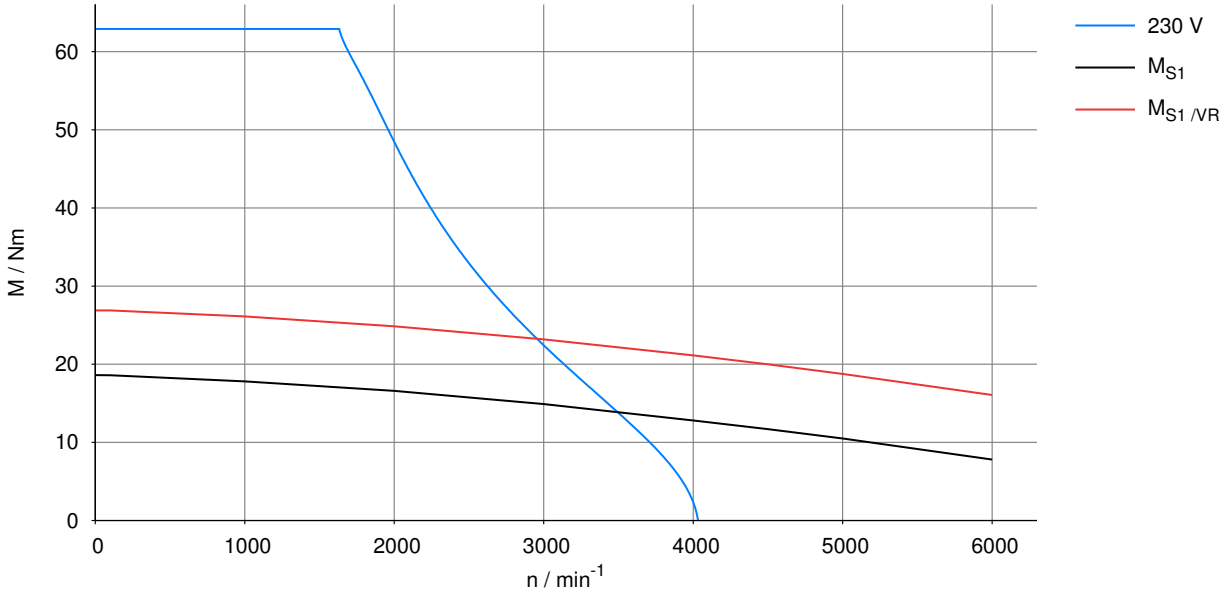
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CMP80S, 6000 min^{-1}

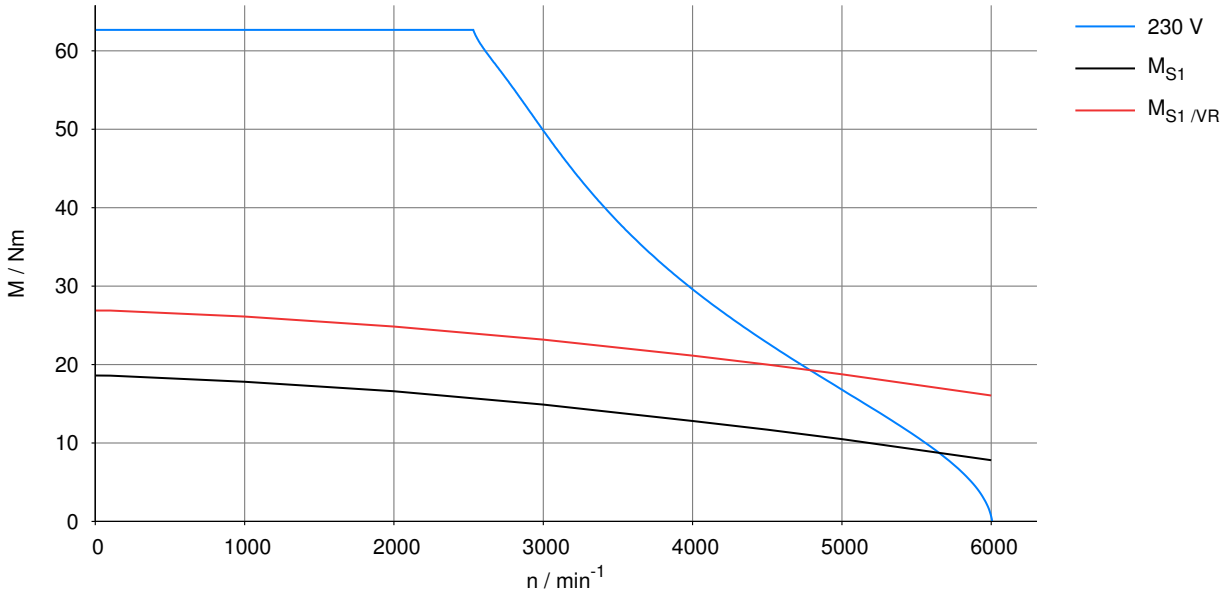
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CMP80M, 3000 min^{-1}

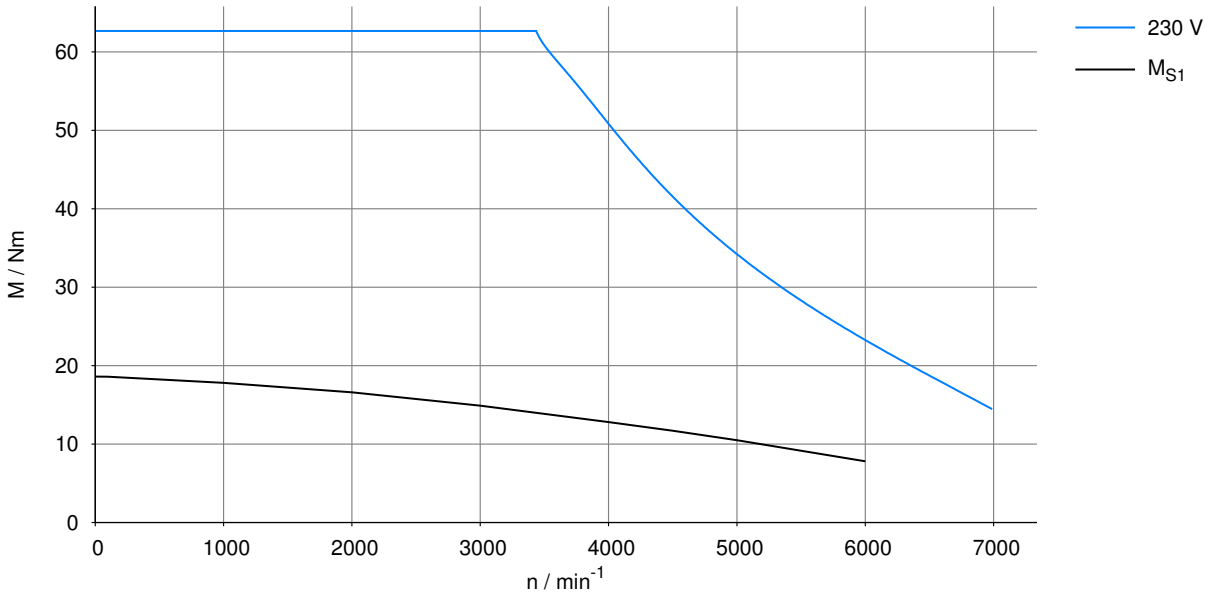
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CMP80M, 4500 min^{-1}

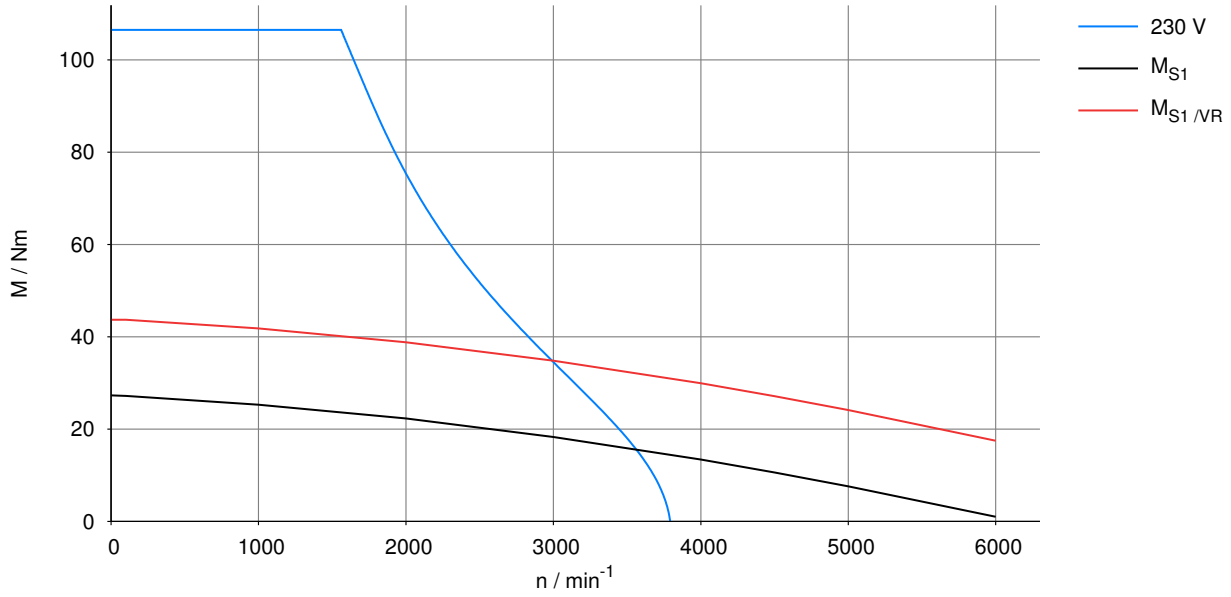
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CMP80M, 6000 min^{-1}

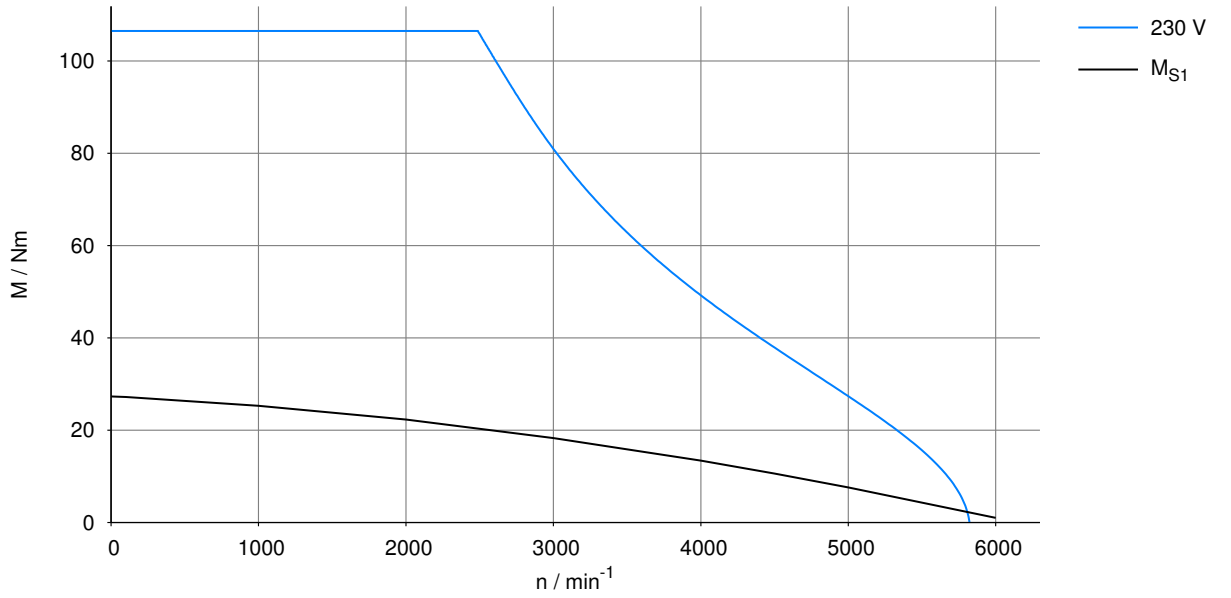
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CMP80L, 3000 min^{-1}

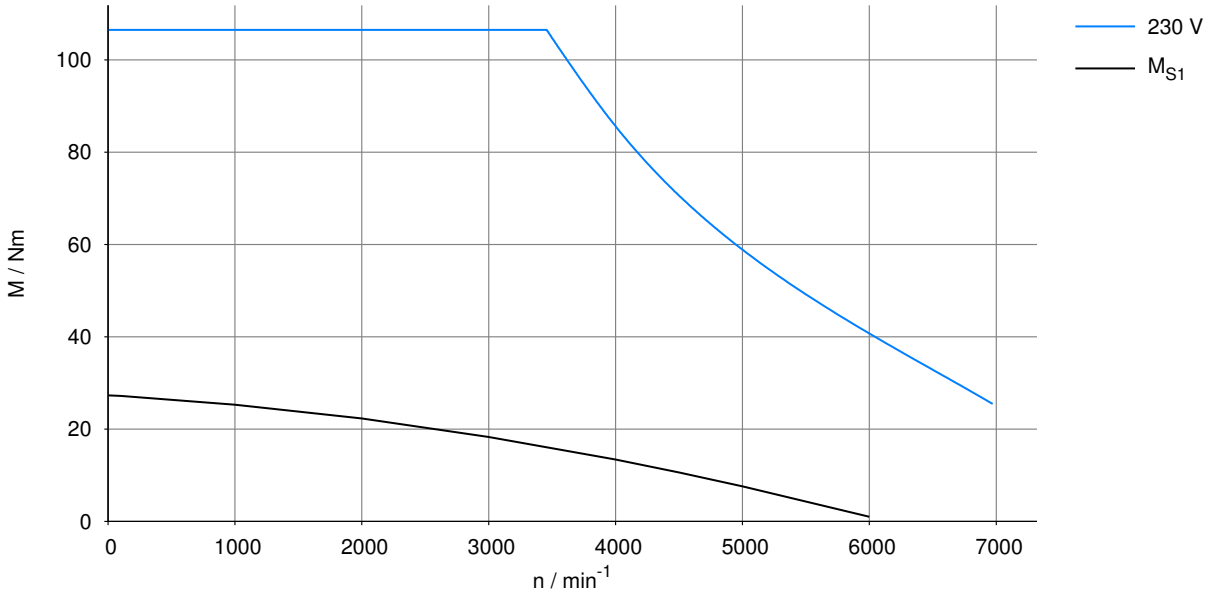
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CMP80L, 4500 min^{-1}

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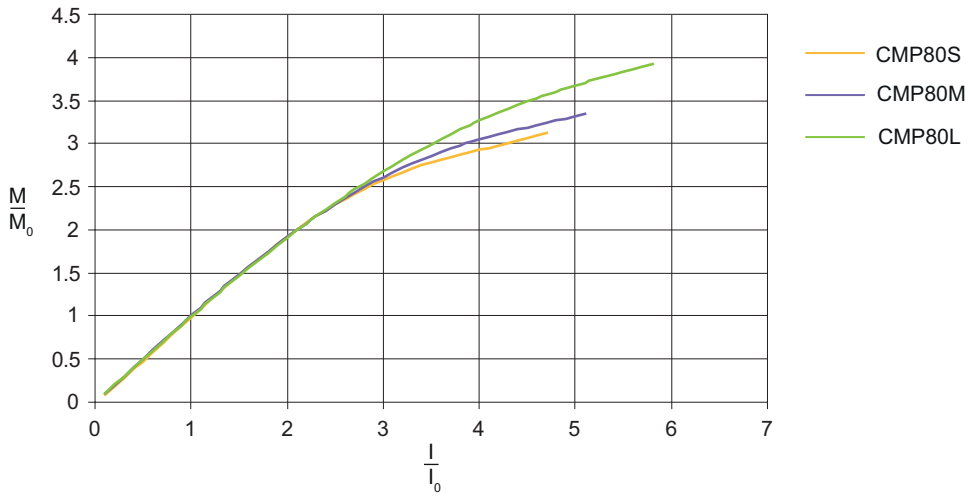
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CMP80L, 6000 min^{-1}

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Torque-current characteristic



Torque-current characteristic curve CMP80S / M / L

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4.6.6 CMP100

Technical data

			CMP100S		CMP100M		CMP100L
Speed class	n_C	min^{-1}	3000	4500	3000	4500	3000
Standstill torque	M_0	Nm	25.5		31		47
Standstill current	I_0	A	34.2	54.5	40	60	58.1
Dynamic limit torque	M_{pk}	Nm	68.3		108		179
Maximum motor current	I_{max}	A	127	200	187	279	300
Inductance (phase)	L_1	mH	1.29	0.509	0.904	0.402	0.586
Resistance (phase) at 20 °C	R_1	Ω	0.0602	0.0243	0.042	0.0169	0.0245
Internal voltage at 1000 min^{-1}	$V_{p0\ cold}$	V	50.5	31.7	52.1	34.7	54.4
Technical data with forced cooling fan							
Standstill torque	M_{0_VR}	Nm	–	–	–	–	–
Standstill current	I_{0_VR}	I	–	–	–	–	–
Mechanical data of motor							
Number of poles			10				
Maximum permitted radial load	F_{Ramax}	N	2364	2064	2515	2195	2694
Maximum permitted axial load	F_{Aamax}	N	788	688	838	732	897
Mass of the motor	m_{mot}	kg	20.1		25.7		35.8
Mass moment of inertia	J_{mot}	10^{-4} kgm^2	20.3		27.2		40.9

Mechanical data of the brakemotor

			CMP100S	CMP100M	CMP100L
Brake type			BP5		
Mass of the brakemotor	m_{bmot}	kg	25.2	30.7	40.9
Mass moment of inertia of the brakemotor	J_{bmot}	10^{-4} kgm^2	22	29	42.7

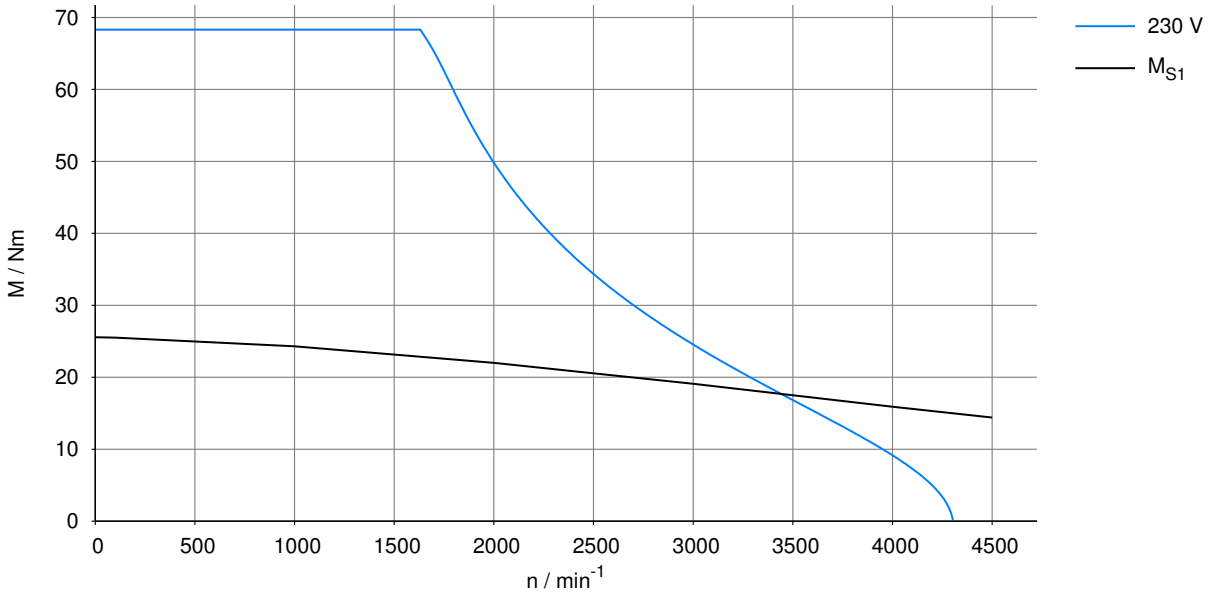
Technical data of the brake

			BP5
Maximum permitted brake application speed in the event of an emergency stop	$n_{max,1}$	min^{-1}	5000
Nominal voltage of brake, AC	V_N	V AC	–
Nominal voltage of brake, DC	V_N	DC V	24
Nominal braking torque	M_{br}	Nm	24 / 47
Static braking torque	$M_{4,100°C}$	Nm	14.4 / 28.2

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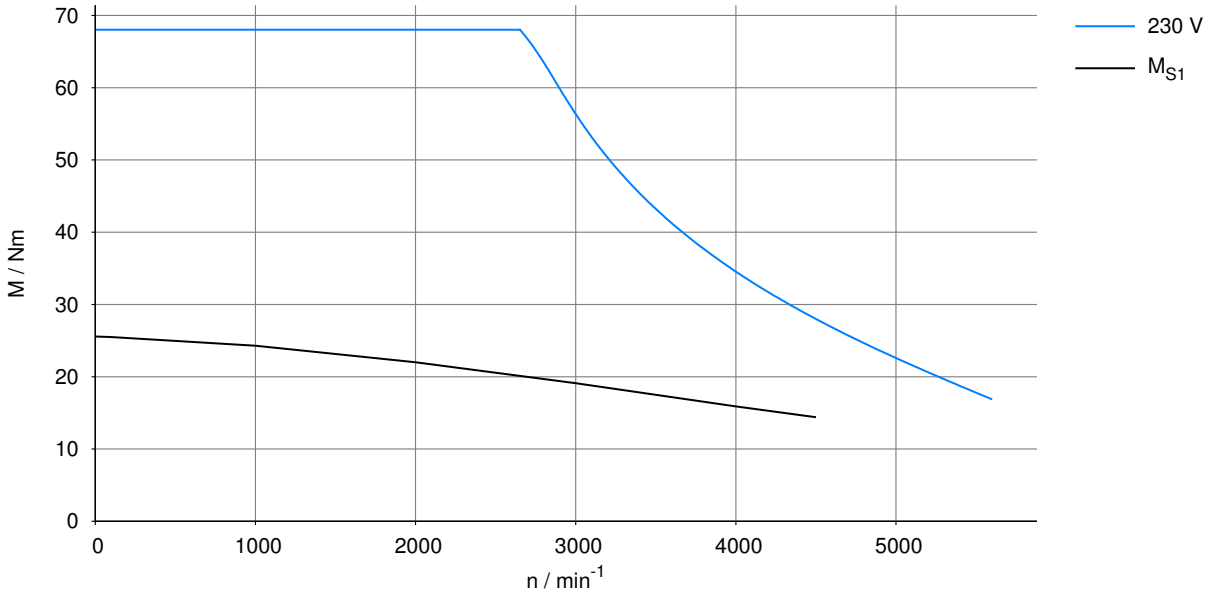
Dynamic and thermal limit characteristic curves

For further information on the dynamic and thermal limit characteristic curves, refer to chapter "Dynamic and thermal characteristic curves, 400 V system voltage" (→ 🗎 288).



CMP100S, 3000 min^{-1}

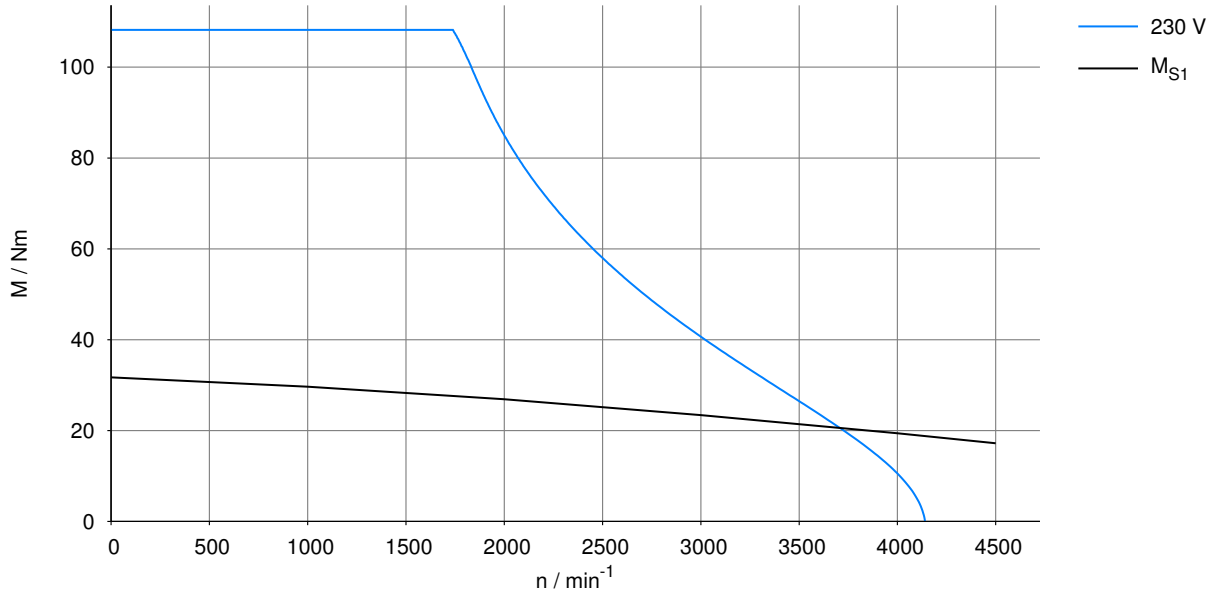
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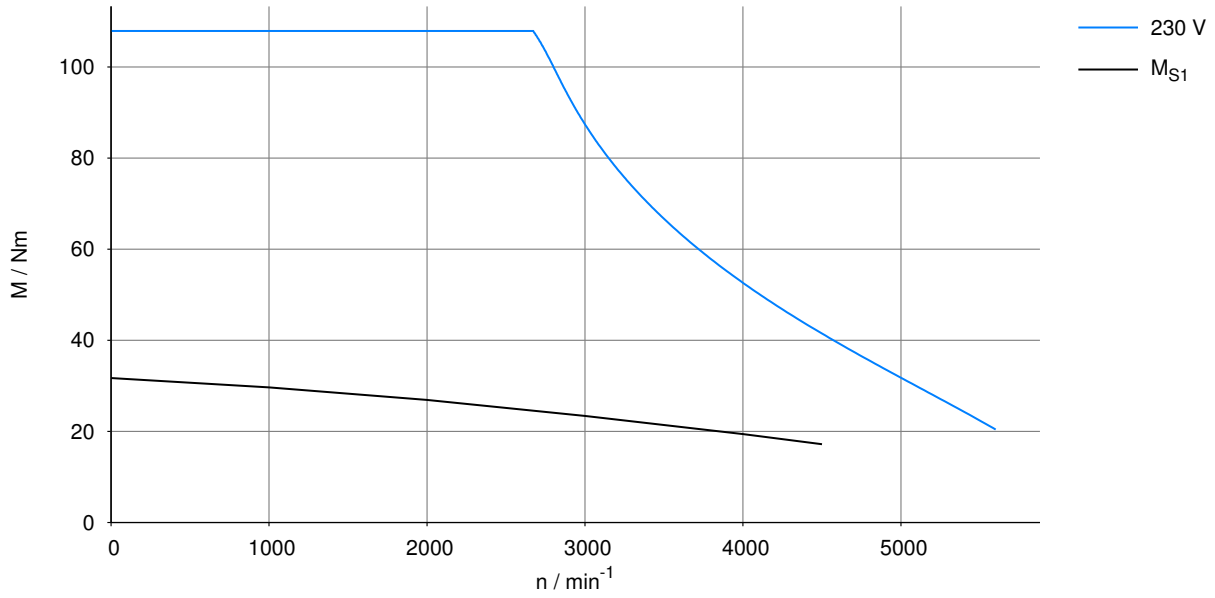
CMP100S, 4500 min^{-1}

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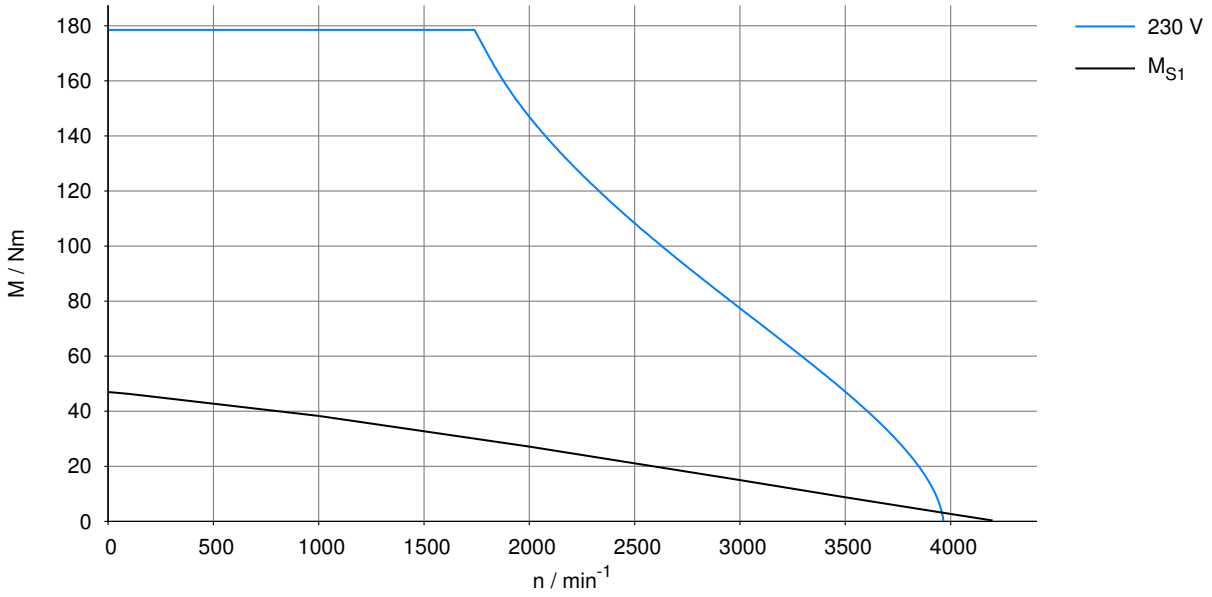


CMP100M, 3000 min^{-1} *39208654859*



CMP100M, 4500 min^{-1} *39208657291*

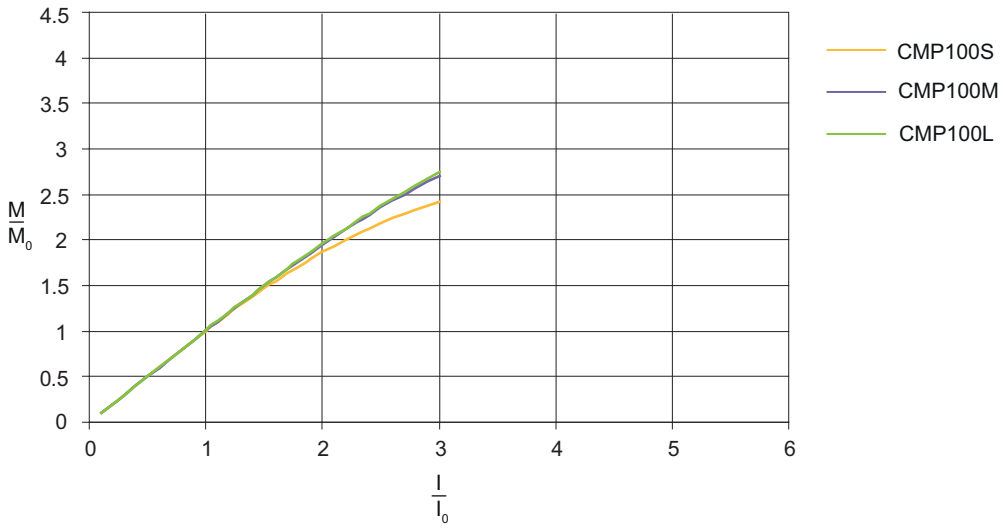
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CMP100L, 3000 min^{-1}

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Torque-current characteristic



Torque-current characteristic curve CMP100S / M / L

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5 Options and accessories for servomotors

5.1 Brakes and Brake Control Systems

For the product range of the synchronous servomotors, SEW-EURODRIVE has designed a modular brake system that can be scaled precisely to the requirements of the application.

The electromechanical brakes are available for different applications where it is necessary to mechanically stop or hold the drive in various situations.

Based on the operation profile of the inverter-operated servomotors, it is assumed that the brake will primarily be used for holding when at standstill (holding brake).

Brake application from a speed only takes place in the event of emergency stop braking (non-controlled stopping of the drive, comparable with stop category 0 in accordance with EN 60204-1). Normally, the brake is activated after controlled stopping (stop category 1 in accordance with EN 60204-1) at speeds of < 20 min^{-1}.

5.1.1 Potential use of the brake

Brakes BP../BY..

Thanks to their proven functional principle, the spring-loaded brakes are the first choice for classic lifting and travel applications that call for a high degree of durability combined with excellent emergency-stop load capacity.

The brakes open electrically and are applied by spring force. The brake is applied in case of a power failure and decelerates the motion until standstill. It is therefore suited for basic safety requirements in horizontal and vertical applications (e.g. according to EN 115).

Based on our broad range of control products spring-loaded brakes by SEW-EURODRIVE can be integrated into many electrical connection environments to meet your requirements. Solutions for AC supply systems, DC supply systems or supply via a frequency inverter are available.

BK.. brakes

In addition to the brakes, the low-inertia holding brakes in the BK.. series are also available.

Thanks to their compact design, the permanent magnet brakes in the BK.. series are the first choice for dynamic handling applications that call for high cycle times or high switching frequency, a low rotational clearance and light motor weight, and a short design length.

The brakes are designed to be operated in DC 24 V supply systems as standard. This has many benefits for planning electrical systems.

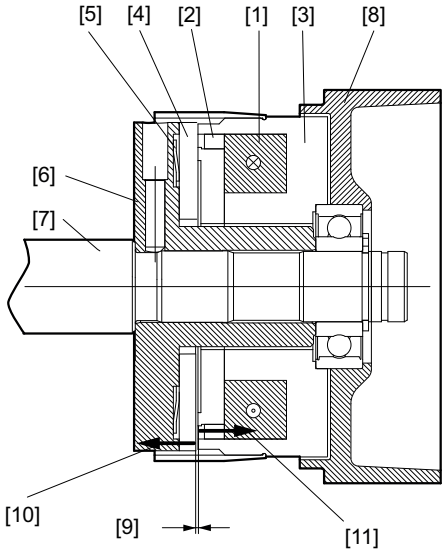
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5.1.2 BK.. brake

The brakes of the BK.. series are permanent magnet brakes with a DC coil that are released electrically and use the magnetic force of their permanent magnets for deceleration. The following are the essential parts of the brake system:

- Armature hub [6], which is non-positively connected to the motor shaft [7]
- Pressure plate [4] which rests on the armature hub [6] via the return spring [5] and can move axially
- Fixed electromagnet connected to the endshield [8]

The electromagnet consists of the magnet body [3] with an integrated brake coil [1] and the permanent magnets [2].



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[1] Brake coil
[2] Permanent magnet
[3] Magnet body
[4] Pressure plate
[5] Return spring
[6] Armature hub
[7] Motor shaft
[8] Endshield
[9] Working air gap
[10] Force of the return spring
[11] Force of the permanent magnet

Basic function of the brake

The pressure plate [4] is forced against the magnet body [3] by the permanent magnet force [11] of the permanent magnets [2] when the brake coil [1] is de-energized. The resulting frictional torque is transferred through the return springs [5] and the armature hub [6] to the motor shaft [7], thereby braking the motor shaft [7].

When the appropriate DC voltage is applied to the brake coil [1], an electromagnetic field is generated in the magnet body [3] which cancels out the field effect of the permanent magnets [2] on the pressure plate [4].

The force of the return springs [10] pulls the pressure plate [4] axially to the armature hub [6]. This opens the working air gap [9] and the motor shaft [7] is able to rotate.

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The working air gap [9] in permanent magnet brakes results from the production dimensions of the individual parts and the positioning of the brake in the endshield [8]. The working air gap [9] does not require adjustment.

Benefits of permanent magnet brakes

- Compact motor design
- Low intrinsic inertia due to the compact aluminum armature hub
- Free from residual torque, as defined in the operating principle, due to the design with one friction surface
- Armature design without rotational clearance
- Suitable for high cycle rates and short switching cycles
- Simple switching technology without brake control facilitated by the DC 24 V design (e.g. with direct supply from the frequency inverter)

Note that the brake may remain open if the braking work W_{insp} is exceeded, meaning a system can no longer be braked or held.

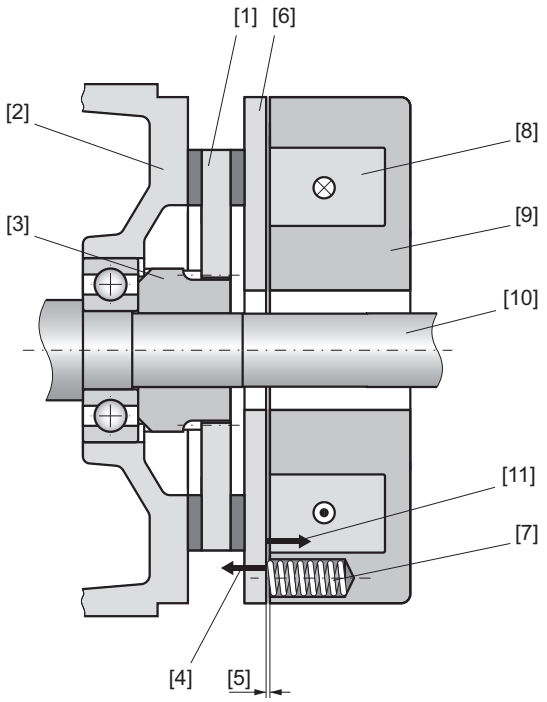
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5.1.3 BP../BY.. brake

The brakes of the BP.. and BY.. series are spring-loaded brakes with DC coil that are released electrically and used the spring force for deceleration. The following are the essential parts of the brake system:

- The brake lining carrier [1] is positively connected to the motor shaft [10] by the driver [3]
- The pressure plate [6], which is guided in the housing and can move axially
- Brake endshield [2] on the motor side
- The electromagnet is held in one position with inserted brake springs [7]

  The electromagnet consists of the magnet body [9] with an integrated brake coil [8].



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[1] Brake lining carrier
[2] Brake endshield
[3] Driver
[4] Spring force
[5] Working air gap
[6] Pressure plate
[7] Brake spring
[8] Brake coil
[9] Magnet body housing
[10] Motor shaft
[11] Electromagnetic force

Basic function of the brake

The pressure plate [6] is forced against the brake lining carrier [1] by the spring force [4] of the brake springs [7] when the brake coil [8] is deenergized. The friction torque thus created is transferred to the motor shaft [10] by the driver [3]. This decelerates the motor shaft [10].

If a suitable DC voltage is applied to the brake coil [8] an electromagnetic field is generated in the magnet body housing [9]. The electromagnetic force [11] created by this overcomes the spring force [4]. The pressure plate [6] is lifted from the brake lining carrier [1] and seals the working air gap [5]. The brake lining carrier [1] is freed and the motor shaft [10] can rotate.

The working air gap [5] of the spring-loaded brake is created by the manufacturing dimensions of the individual parts and does not need to be set.

Benefits of spring-loaded brakes

- Designed according to the normally energized principle, meaning a forced brake application occurs in the absence of voltage
- High work capacity due to their construction with multiple friction surfaces and organic friction linings
- Robust design with closed housing
- Quick response times and adjustable to many supply system environments (e.g. AC supply systems, DC supply systems, and frequency inverter supply) due to the two-coil system by SEW-EURODRIVE for BY..
- Maintainable design in B-side motor mount (BY..)
- Suitable as a safety brake for applications up to PL e

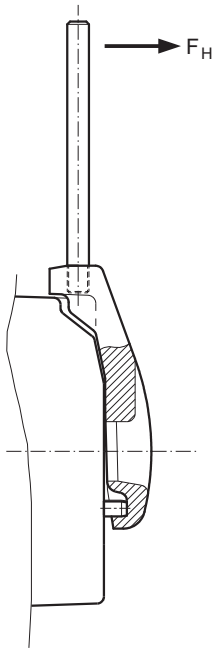
Acceleration function

The BY.. brake is equipped with the patented two-coil system from SEW-EURODRIVE. It works particularly rapid and wear-free in combination with brake controls from SEW-EURODRIVE with acceleration function. When using the two-coil system, BY.. brakes are suitable for high switching frequencies as they are required for fast cycle applications for example.

The BY.. brake is optimized for using the two-coil system. This allows for particularly energy-efficient operation as the power loss can be reduced in stop state. For brakes without two-coil system, the magnetic circuit has to be dimensioned larger for implementing the same braking torque and wear distance.

Manual brake release

In brakemotors with /HR option “Manual brake release with automatic reengaging function,” you can release the brake manually using the provided lever. The following table shows the required actuating force applied to the lever at maximum braking torque. It is assumed that the lever at the upper end is operated.



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Brake	Motor	Actuating force F_H N
BY14	CMP112	300

5.1.4 Selection and project planning

Each brake developed for the servomotor product range by SEW-EURODRIVE offers specific benefits. These different benefits enable the user to find the optimal braking solution for any kind of application.

The manual "Project Planning for BK.., BP.., BR.., BY.., BZ.. brakes" provides users with explanations of basic relations, as well as clear criteria for testing and selection that enable the users for an immediate verification of the functional characteristics that can be expected during operation.

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5.1.5 Selection aids to determine the brake series

Based on the functional principles listed above and the associated strengths, the following view of the SEW-EURODRIVE brake portfolio results with regard to common requirements for characteristics:

Brake series	Length/ weight	High cycle times	Low rotational clearance	High emergency stop braking work	High safety requirements
BK..	**++**	**++**	**++**	**-**	**--**[1)]
BP..	**++**	**0**	**0**	**+**	**-**
BY..	**0**	**-**	**0**	**++**	**++**

1) BK.. permanent magnet brakes can remain open if the braking work is exceeded, even in the absence of voltage. This state must be taken into consideration in applications with high safety requirements.

The individual distribution of the strengths of each series has a corresponding effect on the suitability for certain types of applications. The following table below provides a basic overview:

Brake series	Travel axes	Lifting axes	Rotary axes	Handling axes
BK..	**-**	**--**	**+**	**++**
BP..	**0**	**0**	**+**	**+**
BY..	**++**	**++**	**+**	**0**

The information in the tables is provided as initial generalized recommendations from SEW-EURODRIVE that have been formulated based on years of practical experience. Should you require assistance with the preselection of the brake series for your individual application, SEW-EURODRIVE will gladly assist you.

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5.1.6 Technical data for the brakes

For further information regarding the technical data and indices, refer to the "Appendix".

Technical data of the BK.. brake

			CMP40	CMP50S CMP50M	CMP50L	CMP63S	CMP63M CMP63L
Brake			**BK01**	**BK02**	**BK04**	**BK03**	**BK07**
Nominal braking torque	M_{br}	Nm	1.9	2.4	3.9	3.8	7.1
Static braking torque	$M_{4,100°C}$	Nm	1.9	2.4	3.9	3.8	7.1
Dynamic braking torque	M_1	Nm	1.4	1.9	2.4	2	3.9
Response time of the brake at standard excitation	$t_{1,I}$	ms	35	80	50	50	70
Response time of the brake with high-speed excitation	$t_{1,II}$	ms	–	–	–	–	–
Brake application time in case of AC cut-off	$t_{2,I}$	ms	–	–	–	–	–
Brake application time in case of AC/DC or DC cut-off	$t_{2,II}$	ms	20	20	30	30	30
Permitted braking work per braking in case of emergency stop	$W_{per,N}$	J	56	175	288	371	740
Permitted braking work until maintenance	W_{insp}	MJ	0.112	0.35	0.576	0.742	1.48
Permitted mechanical speed	$n_{max,0}$	min^{-1}	7200	7200	7200	7200	7200
Permitted brake application speed in case of emergency stop	$n_{max.1}$	min^{-1}	6000	6000	6000	6000	6000
Inrush current ratio	ESV	1	1	1	1	1	1

Nominal DC brake voltage (Rating range)			**Nominal DC holding current of the brake I_H A**				
24 (21.6 – 26.4)	V_N	V	0.365	0.28	0.56	0.56	0.63

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Technical data of the BP.. brake

			CMP71	CMP80	CMP100
Brake			**BP1**	**BP3**	**BP5**
Nominal braking torque	M_{br}	Nm	7 / 14	16 / 31	24 / 47
Static braking torque	$M_{4,100°C}$	Nm	4.2 / 8.4	9.6 / 18.6	14.4 / 28.2
Dynamic braking torque	M_1	Nm	2.8 / 5.6	6.4 / 12.4	9.6 / 18.8
Response time of the brake at standard excitation	$t_{1,I}$	ms	200	200	200
Response time of the brake with high-speed excitation	$t_{1,II}$	ms	–	–	–
Brake application time in case of AC cut-off	$t_{2,I}$	ms	–	–	–
Brake application time in case of AC/DC or DC cut-off	$t_{2,II}$	ms	75	75	75
Permitted braking work per braking in case of emergency stop	$W_{per,N}$	J	1400	2200	3600
Permitted braking work until maintenance	W_{insp}	MJ	2.6	4.1	6.7
Permitted mechanical speed	$n_{max,0}$	min^{-1}	6000	5500	5000
Permitted brake application speed in case of emergency stop	$n_{max.1}$	min^{-1}	6000	5500	5000
Inrush current ratio	ESV	1	1	1	1

Nominal DC brake voltage (Rating range)			**Nominal DC holding current of the brake I_H A**		
24 (21.6 – 26.4)	V_N	V	0.82	1.15	1.40

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Technical data of the BY.. brake

			CMP112
Brake			**BY14**
Nominal braking torque	M_{br}	Nm	50 / 70 / 100 / 140
Static braking torque	$M_{4,100°C}$	Nm	30 / 42 / 60 / 84
Dynamic braking torque	M_1	Nm	35 / 49 / 70 / 98
Response time of the brake at standard excitation	$t_{1,I}$	ms	–
Response time of the brake with high-speed excitation	$t_{1,II}$	ms	60
Brake application time in case of AC cut-off	$t_{2,I}$	ms	100
Brake application time in case of AC/DC or DC cut-off	$t_{2,II}$	ms	20
Permitted braking work per braking in case of emergency stop	$W_{per,N}$	J	8700
Permitted braking work until maintenance	W_{insp}	MJ	200
Permitted mechanical speed	$n_{max,0}$	min^{-1}	4500
Permitted brake application speed in case of emergency stop	$n_{max.1}$	min^{-1}	4500
Inrush current ratio	ESV	1	6.1

Nominal DC brake voltage (Rating range)			**Nominal DC holding current of the brake I_H A**
24[1] (21.6 – 26.4)	V_N	V	2.8

1) The brake voltage DC 24 V requires a high current and is possible only with a limited cable length.

Nominal AC brake voltage (Rating range)			**Nominal AC holding current of the brake I_H A**
110 (99 – 121)	V_N	V	1.54
230 (218 – 243)			0.69
400 (380 – 431)			0.39
460 (432 – 484)			0.345
500 (484 – 542)			0.185

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5.1.7 Control environments

In order to operate, the brakes from SEW-EURODRIVE require a voltage source that supplies the brake with a DC voltage or a rectified AC voltage. Depending on the functional principle of the brake and the application environment, the following possibilities are available:

Supply from AC voltage supply systems (AC supply)

This supply concept for gearmotors has been known for years, has been tried and tested in the field of mechanical engineering and system manufacturing, and is used for spring-loaded brakes with increased emergency stop working capacity.

In this case a brake control is used that rectifies the AC voltage of the local supply system. Together with the tried and tested SEW two-coil system, this enables a rapid releasing of the brake.

Connection topologies with an AC supply system and control cabinet rectifier provide the following application benefits:

- Connection to the local low voltage supply system without additional power supply unit
- High torque density of the brake and high wear allowance can be achieved simultaneously
- Energy-efficient coil design due to the two-coil system from SEW-EURODRIVE with high-speed excitation and reduction in holding current
- Suitable for cable lengths > 100 m due to low holding currents
- Brake controls with integrated high-performance varistor protection circuit
- Additional heating functionality using BMH. brake control for low-temperature applications

DC voltage supply

This supply concept is specifically tailored to the requirements of machine automation and has become the standard in permanent magnet brakes and lightweight spring-loaded brakes in particular.

In this case the brake is connected to a DC 24 V voltage source either directly or via a BMV5.0 brake control, a component that is often installed in large control cabinets.

Connection topologies with a DC supply system provide the following application benefits:

- Uniform coil design regardless of local low-voltage grid
- Benefits regarding insulation and electrical clearances (protective extra-low voltage)
- No additional brake control is required
- High-speed brake application without additional switch contacts comes standard
- Suitable for mobile systems with extra-low voltage on-board electrical systems

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Supply using the frequency inverter

The connection to a suitable frequency inverter may provide further possible connection options, in that case the frequency inverter itself acts as voltage source:

- **Safe BST.. and SBM.. brake control**

  For spring-loaded brakes with SEW two-coil system operated in applications with higher demands on the safety technology, you can rely on the brake controls of the BST.. and SBM.. product family. These are connected directly to the DC link of the frequency inverter and generate a clocked DC voltage to supply the brake using pulse width modulation.

  With regard to high-speed excitation, reduction in holding current, and a functional control input, their operating principle corresponds to the control cabinet devices from the BMK. series for AC supply system installations.

  Thanks to their certified, safety-related design and the additional safe control input, for example for the safety function SBC (Safe Brake Control), the products can be included perfectly into your safety concept and help you realize safe disconnection of the brake from the supply voltage.

- **MOVIAXIS® and MOVIDRIVE® modular**

  Combined with the inverter families from the product lines MOVIAXIS® (MXA.) and MOVIDRIVE® modular (MDA. and MDD.) the holding brakes of the BK.. series gain the possibility to supply the brake using the brake output of the frequency inverter. The frequency inverter serves as control and protection circuit. This reduces the effort involved in installing the brake, since neither a local DC voltage source nor additional switching or protective elements are required.

Determining the control type and brake voltage

The following table provides an overview of control designs that can be realized for BK.., BP.. and BY.. brakes.

Brake	Brake voltage	Rating range	Brake coil supply					
			AC supply system	DC grid			Frequency inverter	
			BME.. BMP.. BMK.. BMH..	Directsupply or BS24	BMV..	BS1Z Direct supply	BST.. SBM..	MOVIAXIS® (MXA), MOVIDRIVE® modular (MDA, MDD)
BY..	**AC 110 V**	99 – 121	X	–	–	–	–	–
	AC 230 V	218 – 243	X	–	–	–	X	–
	AC 400 V	380 – 431	X	–	–	–	X	–
	AC 460 V	432 – 484	X	–	–	–	X	–
	AC 500 V	484 – 542	X	–	–	–	–	–
	DC 24 V	21.6 – 26.4	–	–	X	–	–	–
BP..	**DC 24 V**	21.6 – 26.4	–	X	X	–	–	X[1)]
BK..	**DC 24 V**	21.6 – 26.4	–	X	X	X	–	X

1) Available for CMP71 with BP1 brake.

X Available
– Not available

Observe the following points for correct operation of the brake:

- The supply voltage applied on the motor side of the brake (meaning supply voltage minus the voltage drop of the supply cable) must constantly be within the rated range.

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- Brief fluctuations in the motor-side supply voltage must be within the tolerance range of ±5% of the limits for the rated voltage range.
- When the BY.. brake is released, overexcitation generates a briefly increased in-rush current that can be higher than the operational holding current. Dimension the power supply and incoming cable sufficiently to ensure the predefined rating ranges and tolerance ranges can be adhered to even during switching procedures.
- Especially the DC 24 V brake voltage usually requires high currents and is therefore only possible with a limited cable length.
- The holding currents of the brakes specified in chapter "Technical data for the brakes" are always nominal values that refer to a supply at nominal voltage and a coil temperature of +20 °C.

For further information and technical data, refer to the manual "Project Planning for BK.., BP.. Brakes". , BR.., BY.., BZ..".

5.1.8 Technical data of the brake controls

The following table lists SEW-EURODRIVE brake controls for installation in the control cabinet. The different housings have different colors (= color code) to make them easier to distinguish.

Type	Nominal voltage	Nominal output current I_L	Part number	Color code
BME1.4	AC 230 – 575 V	DC 1.0 A	08298319	Vermilion
BME1.5	AC 150 – 500 V	DC 1.5 A	08257221	Vermilion
BME3	AC 42 – 150 V	DC 3.0 A	0825723X	Light blue
BMH1.4	AC 230 – 575 V	DC 1.0 A	08298343	Signal green
BMH1.5	AC 150 – 500 V	DC 1.5 A	0825818X	Signal green
BMH3	AC 42 – 150 V	DC 3.0 A	08258198	Zinc yellow
BMP1.4	AC 230 – 575 V	DC 1.0 A	08298327	Light gray
BMP1.5	AC 150 – 500 V	DC 1.5 A	08256853	Light gray
BMP3	AC 42 – 150 V	DC 3.0 A	08265666	Light green
BMP3.1	AC 230 – 575 V	DC 2.8 A	08295077	–
BMK1.4	AC 230 – 575 V	DC 1.0 A	08298335	Water blue
BMK1.5	AC 150 – 500 V	DC 1.5 A	08264635	Water blue
BMK3	AC 42 – 150 V	DC 3.0 A	08265674	Light pink
BMKB1.5	AC 150 – 500 V	DC 1.5 A	08281602	Water blue
BMV5	DC 24 V	DC 5.0 A	13000063	Pure white

The following table lists functionally safe brake control systems by SEW-EURODRIVE for installation in the control cabinet:

Brake control	Function	Nominal voltage DC link supply	Nominal brake voltage (output voltage)	Nominal output current DC A	Type	Part number
BST…-00	Safe brake control with electronic switching, DC 24 V control input and safe DC 24 V control input. Supply via the DC link of the inverter	DC 350 – 750 V	AC 460 V (DC 171 – 209 V)	0.6	BST0.6S-460V-00	08299714
			AC 400 V (DC 150 – 184 V)	0.7	BST0.7S-400V-00	13000772
			AC 230 V (DC 86 – 106 V)	1.2	BST1.2S-230V-00	13001337
BST…-0B	Safe brake control with electronic switching, DC 24 V control input and safe DC 24 V control input. Supply via the DC link of the inverter. With additional TF/TH terminal	DC 350 – 750 V	AC 460 V (DC 171 – 209 V)	0.6	BST0.6S-460V-0B	18255191
			AC 400 V (DC 150 – 184 V)	0.7	BST0.7S-400V-0B	18255205
			AC 230 V (DC 86 – 106 V)	1.2	BST1.2S-230V-0B	18255213

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Brake control	Function	Nominal voltage DC link supply	Nominal brake voltage (output voltage)	Nominal output current DC A	Type	Part number
SBM.. (Size 1)	Safe brake control with electronic switching, DC 24 V control input, safe DC 24 V control input, and DC 24 V status feedback. Supply via the DC link of the inverter	DC 250 – 800 V	AC 460 V (DC 181 – 194 V)	0.62	SBM S-460-120-00	28277201
			AC 400 V (DC 158 – 170 V)	0.73	SBM S-400-120-00	28277198
			AC 230 V (DC 90 – 98 V)	1.28	SBM S-230-120-00	28277171
SBM.. (Size 2)	Safe brake control with electronic switching, DC 24 V control input, safe DC 24 V control input, and DC 24 V status feedback. Supply via the DC link of the inverter	DC 250 – 800 V	AC 460 V (DC 181 – 194 V)	1.33	SBM S-460-250-00	28277864
			AC 400 V (DC 158 – 170 V)	1.52	SBM S-400-250-00	28277848
			AC 230 V (DC 90 – 98 V)	2.66	SBM S-230-250-00	28277732

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5.1.9 Technical data of brake controls BG.Z, BS.Z, B

Functional description

Brake controls with an extended functional scope are available in the MOVILINK® DDI option portfolio. The options of the BG.Z, BS.Z and B series are brake controls that are integrated in the drive or inverter. The BG.Z and BS.Z series are connected in the control cabinet via the MOVILINK® DDI interface in the MOVI-C® modular automation system, while the HV brake control B is an option for decentralized MOVI-C® inverters.

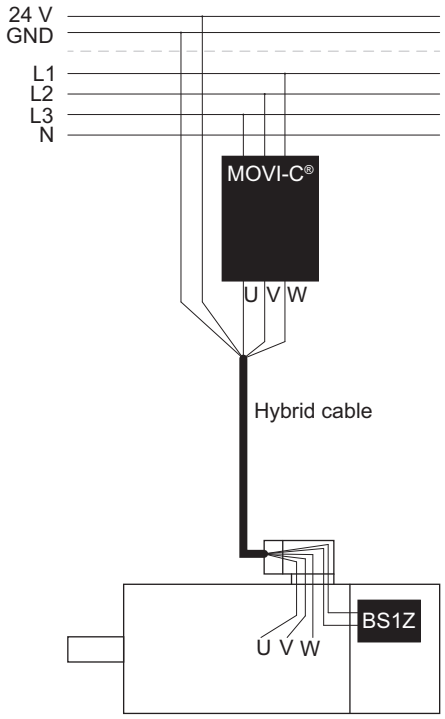
In addition to the basic function of brake monitoring, these brake controls have implemented functions for condition monitoring of the brake and its wear condition and for self-monitoring of the brake control as standard.

At the same time, the BG.Z, BS.Z brake controls and option B are assistance systems which are intended to simplify maintenance and fault diagnostics. This does not replace or override standard prescribed maintenance intervals.

With the MOVI-C® control cabinet inverters, the brake control and the brake are permanently supplied from the local supply voltage network. The brake switching function takes place via the MOVILINK® DDI interface and the BG..Z or BS..Z brake controls. With decentralized MOVI-C® inverters, the brake is controlled directly from the DC link of the inverter via the integrated HV brake control.

The BS..Z brake control makes it possible to operate spring-loaded brakes in the BZ..Z series and permanent magnet brakes in the BK.. and BP.. series with a DC 24 V protective extra-low voltage, and supplements the MOVILINK® DDI portfolio in the area of synchronous servo motors.

Example of a topology scheme



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Technical data

The combination of a BG1Z brake control (MOVILINK® DDI type code DI2..) or a BS1Z brake control (MOVILINK® DDI type code DI1..) with a decentralized inverter of type MOVIMOT® flexible is not possible. MOVIMOT® flexible uses the integrated brake control B (HV brake control). If a MOVIMOT® flexible is used, no BG1Z brake control (MOVILINK® DDI type code DI0..) may be integrated.

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The combination of a BG1Z brake control (MOVILINK® DDI type code DI2..) or a BS1Z brake control (MOVILINK® DDI type code DI1..) is possible with control cabinet inverters MOVIDRIVE® and MOVITRAC® from the MOVI-C® modular automation system, but no motor-external brake control may be used if a BG1Z brake control is used. If no BG1Z brake control is integrated (MOVILINK® DDI type code DI0..), motor-external brake controls can be used.

		BS1Z[1]
Inverter		MOVI-C®: Control cabinet inverter: MOVITRAC® advanced MOVIDRIVE® modular MOVIDRIVE® technology MOVIDRIVE® system
Motor	MOVILINK® DDI type code	DI1..
Brake control installation		Motor-internal in the installation space of the encoder (B-side)
Motors, motor sizes, brake types[2]		CMP50 – 63: BK..
Operating temperature range	Ambient temperature of the motor	-20 to +40 °C
Supply voltage	Voltage at the input terminal of the brake control	DC 24 V ±10%
Functional safety	Availability with safety brakes	No
Explosion protection	Availability for applications in the explosion-protected area	No
Brake control	Supported brake types	BK..
	Supported brake torques[2]	BK.. Per brake type/size: maximum brake torques available as standard
	Control functions	Release, braking, application (normal de-excitation), rapid application (rapid de-excitation)
	Monitoring functions of the brake control and brake	Output stage (hardware and temperature error) Brake monitoring (temperature, short circuit and interruption) Startup (initialization) Computer and memory errors
Cable length, maximum[3]		Core cross-section of brake supply 1 mm^2: BK: ≤ 40 m Core cross-section of brake supply 1.5 mm^2: BK: ≤ 60 m

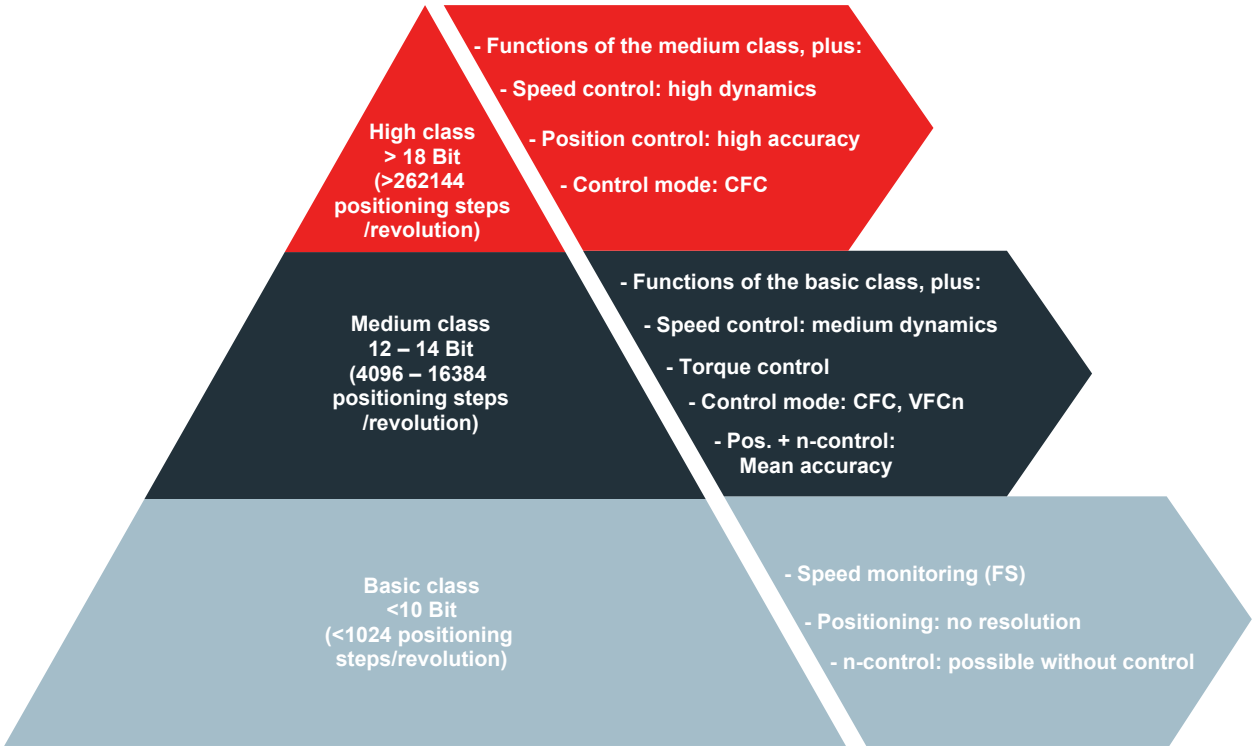
1) Only available in combination with encoder system EZ4Z or AZ4Z.
2) For the technical data of the brakes, see the catalogs/operating instructions for the respective motor types.
3) Additional depending on selected inverter type and configured PWM frequency and brake type; see system manuals of the respective inverters.

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5.2 Encoder

5.2.1 Ability classes

Encoder systems by SEW-EURODRIVE are categorized into ability classes. With synchronous synchronous servomotors only encoders of at least medium ability class are used.



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The categorization into different ability classes provides an overview regarding which encoder can be used for what application. This allows for an optimal preselection.

In case of special applications, SEW-EURODRIVE will gladly assist you with the selection.

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5.2.2 Overview of encoder systems

The servomotors are available in optional designs with various encoder systems to meet all requirements regarding dynamic positioning, speed and torque control, as well as regarding combinations with different frequency inverters and controllers.

Class	Encoder interface	Encoder designation	Type	Advantages
Basic class	–	Without encoder	–	• Speed control without encoder • Single-cable technology possible
Medium class	Analog, modulated	RH1M	Resolver	• Standard encoder system of medium ability class • Maximum durability under all operating conditions • No additional motor derating at operating temperatures below 40 °C
Medium class	MOVILINK® DDI	EZ2Z	Single-turn	• Single-cable technology with hybrid cabling • Fully digital MOVILINK® DDI interface • Automatic startup at inverters by SEW-EURODRIVE from the modular automation concept MOVI-C® (control cabinet and decentralized technology) • Integrated motor temperature evaluation
Medium class	MOVILINK® DDI	AZ2Z	Multi-turn	• Like EZ2Z • Additional multi-turn technology
High Class	HIPERFACE®	EK0H	Single-turn	• HIPERFACE® interface for operation on SEW-EURODRIVEfrequency inverters and third-party inverters • Optionally available as safety encoder [1)]
High Class	HIPERFACE®	AK0H	Multi-turn	• HIPERFACE® interface for operation on SEW-EURODRIVEfrequency inverters and third-party inverters • Optionally available as safety encoder
High Class	HIPERFACE®	EK1H	Single-turn	• HIPERFACE® interface for operation on SEW-EURODRIVEfrequency inverters and third-party inverters • Optionally available as safety encoder [1)]
High Class	HIPERFACE®	AK1H	Multi-turn	• HIPERFACE® interface for operation on SEW-EURODRIVEfrequency inverters and third-party inverters • Optionally available as safety encoder • Suitable for high-performance dynamic control
High Class	MOVILINK® DDI	EZ4Z	Single-turn	• Like EZ2Z • High ability class
High Class	MOVILINK® DDI	AZ4Z	Multi-turn	• Like EZ2Z • High ability class • Additional multi-turn technology
High Class	EnDat 2.2	EH0E	Single-turn	• EnDat 2.2 interface for operation on third-party inverters • Single-cable technology with hybrid cabling
High Class	EnDat 2.2	AH0E	Multi-turn	• EnDat 2.2 interface for operation on third-party inverters • Single-cable technology with hybrid cabling
High Class	EnDat 2.2	EH1E	Single-turn	• EnDat 2.2 interface for operation on third-party inverters • Single-cable technology with hybrid cabling • Optionally available as safety encoder [1)]
High Class	EnDat 2.2	AH1E	Multi-turn	• EnDat 2.2 interface for operation on third-party inverters • Single-cable technology with hybrid cabling • Optionally available as safety encoder [1)]

1) On request.

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5.2.3 Combination of encoders with motors and brakes

Motor	Brake	Encoder												
		RH1M	EZ2Z	AZ2Z	EK0H	AK0H	EK1H	AK1H	EZ4Z	AZ4Z	EH0E	AH0E	EH1E	AH1E
CMP40	Without	X	X[1)]	X[1)]	X	X	–	–	–	–	X	X	–	–
	BK..	X	X[1)]	X[1)]	X	X	–	–	–	–	X	X	–	–
CMP50	Without	X	X	X	X	X	X	X	X	X	–	–	X	X
	BK..	X	X	X	X	X	X	X	X	X	–	–	X	X
CMP63	Without	X	X	X	X	X	X	X	X	X	–	–	X	X
	BK..	X	X	X	X	X	X	X	X	X	–	–	X	X
CMP71	Without	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X	X
	BP..	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X	X
CMP80	Without	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X	X
	BP..	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X	X
CMP100	Without	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X[2)]	X[2)]
	BP..	X	X	X	X	X	X	X	X[1)]	X[1)]	–	–	X[2)]	X[2)]
CMP112S/M	Without	X	–	–	–	–	X	X	X[1)]	X[1)]	–	–	–	–
	BY..	X	–	–	–	–	X	X	X[1)]	X[1)]	–	–	–	–
CMP112L/H/E	Without	X	–	–	–	–	X	X	X[1)]	X[1)]	–	–	–	–
	BY..	X	–	–	–	–	X	X	X[1)]	X[1)]	–	–	–	–

1) In preparation.

2) Only available for CMP100L.

X Available
– Not available

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5.2.4 Technical data

Built-in encoders EZ2Z, AZ2Z, EZ4Z and AZ4Z with MOVILINK® DDI interface

Encoder	EZ2Z	AZ2Z	EZ4Z	AZ4Z
Ability classes	Medium Class		High Class	
Motor	CMP50 – 100		CMP50, CMP63 CMP71 – 112[2)]	
Frequency inverter	• MOVI-C® • Control cabinet devices: MOVIDRIVE® modular, MOVIDRIVE® technology, MOVIDRIVE® system and MOVITRAC® advanced • Decentralized inverters mounted close to the motor: MOVIMOT® flexible • Motor-integrated, decentralized inverters: MOVIMOT® performance			
Encoder type	Single-turn	Multi-turn	Single-turn	Multi-turn
Encoder sensors	Magnetic		Magnetic, inductive	
Analog resolution, incremental	–			
Digital resolution, absolute single-turn	12 bit		18 bit	
Digital resolution, absolute multi-turn	–	16 bit	–	16 bit
Electrical interface	MOVILINK® DDI			
Power demand (24V supply via MOVILINK® DDI	60 mA(with and without encoder)			
Run-up time after startup	< 1 sec		< 1.7 sec Design as safety encoder: < 2.8 sec	
Maximum mechanical rotational speed[1)]	10000 min^{-1}			
Maximum speed during operation[1)]	7200 min^{-1}			
Connection technology	**SD1:** M23 hybrid connector (angled: adjustable) 1.5 – 4 mm^2 motor connection, 1 mm^2 brake connection **SDB:** M40 hybrid connector (angled: adjustable) 6 – 10 mm^2 motor connection, 1.5 mm^2 brake connection **SMCD:** M58 plug connector **SBCD:** M58 plug connector **KD:** Cable gland on the terminal box for hybrid cables 1.5 – 10 mm^2 motor connection, 1.5 mm^2 brake connection **KDD:** Motor and brake connection via cable gland M23 signal plug connector (straight) at the terminal box			
Cable length	≤ 200 m (depending on inverter type, brake and PWM frequency of the motor control)			
Electronic nameplate	Yes			
Working temperature encoder T_E[1)]	-20 °C to +110 °C			
Ambient temperature motor T_A[1)]	-20 °C to +40 °C -40 °C to +60 °C[2)]			
Installation altitude	≤ 3866 m			
Functional safety	–			
Explosion protection 2014/34/EU (ATEX) / IECEx	–			

1) Observe potential constraints on or derating of the motor when using encoders. Monitor encoders using electronic temperature detection in order to prevent malfunctions.

2) In preparation.

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Add-on encoders resolvers RH1M and EK0H, AK0H, EK1H, AK1H with HIPERFACE® interface

For safety encoder design, refer to chapter "Safety encoder" (→ 🗎 193) for the characteristic safety values.

Encoder	RH1M	EK0H	AK0H	EK1H	AK1H
Frequency inverter	• MOVIDRIVE® B, MOVIAXIS® • MOVI-C® control cabinet devices: MOVIDRIVE® • Third-party inverters				
Ability classes	Medium class	High Class	High Class	High Class	High Class
Encoder type	Single-turn	Single-turn	Multi-turn	Single-turn	Single-turn
Encoder sensors	Inductive, resolver	Optical	Optical	Optical	Optical
Analog resolution, incremental	1 period/revolution modulated, interpolatable 12 – 14 bits		128 sin/cos periods/revolution, interpolatable 16 – 18 bits	1024 sin/cos periods/revolution, interpolatable 20 – 22 bits	
Digital resolution, absolute single-turn	–	12 bits	12 bits	15 bits	15 bits
Digital resolution, absolute multi-turn	–	–	12 bits	–	12 bits
Electrical interface	sin/cos, modulated	HIPERFACE® (sin/cos + RS485)			
Connection technology	Two-cable technology: • M23 direct data plug + M23/M40 power plug • Terminal box with data plug or cable glands with terminals				
Cable length	≤ 100 m				
Electronic nameplate	–	Yes	Yes	Yes	Yes
Functional safety	–	Optional Available[1)]	Optional Available	Optional Available[1)]	Optional Available
Explosion protection 2014/34/EU (ATEX) / IECEx	II3GD	–	–	–	–

1) On request.

Technical data of resolver RH1M

Encoder	RH1M[1)]
Number of pole pairs/poles	1 = 2 poles
Primary	Rotor
Input voltage/excitation voltage	7 V_{rms} (2 to 8 V_{rms}) = 19.8 V_{pp} (5.7 to 22.6 V_{pp})
Residual voltage (offset voltage on signal tracks)	0 to 25 mV
Input frequency/excitation frequency	7 kHz (4 to 20 kHz)
Current consumption, free of load	≤ 40 mA
Gear ratio/transformation ratio ± 10%	0.5
Phase shift	- 2° to + 8°
Input impedance ±15%	130 + j120 Ω
Output impedance ±15%	200 + j270 Ω
Input resistance ±10%	82 Ω
Output resistance ±10%	68 Ω
Encoder system accuracy, analog	±10'
Maximum mechanical rotational speed[2)]	≤ 20000 min^{-1}
Maximum speed during operation[2)]	≤ 20000 min^{-1}
Shocks EN 60068-2-27 (11 ms sine)[2)]	≤ 1000 m/s^2
Vibrations EN 60068-2-6 (0 – 2 kHz)[2)]	≤ 200 m/s^2
Maximum angular acceleration	≤ 150000 rad/s^2
Functional safety	–
Working temperature encoder T_E[2)]	-55 to +150 °C

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Encoder	RH1M[1)]
Ambient temperature motor T_A[2)]	-40 to +60 °C

1) Other resolvers on request.
2) Observe potential constraints on or derating of the motor when using encoders. Monitor encoders using electronic temperature detection in order to prevent malfunctions.

Technical data of EK0H and AK0H encoders

Encoder	EK0H	AK0H
Supply voltage	DC 7 – 12 V polarity reversal protected	
Max. current consumption (without load)	60 mA	
Limit frequency	26 kHz	
Incremental resolution Periods/revolution	128	
Output amplitude per track	0.8 – 1.1 V_{SS} sin/cos	
Encoder system accuracy, analog	± 80''	
Single-turn resolution, digital	4096 increments/revolution (12 bits)	
Multi-turn resolution, digital	–	4096 revolutions (12 bits)
Interface	HIPERFACE®	
Serial data output	Driver to EIA RS485	
Maximum mechanical rotational speed[1)]	12 000 min^{-1}	9000 min^{-1}
Maximum speed during operation[1)]	12 000 min^{-1}	9000 min^{-1}
Service life of the ball bearings	3.6 × 10^9 revolutions	
Shocks EN 60068-2-27 (6 ms)[1)]	≤ 981 m/s^2 = 100 g	
Vibrations EN 60068-2-6 (10 – 2000 Hz)[1)]	≤ 490.5 m/s^2 = 50 g	
Functional safety	Optionally available[2)]	Optionally available
Working temperature encoder T_E[1)]	-20 to +110 °C	
Ambient temperature motor T_A[1)]	-20 to +60 °C	

1) Observe potential constraints on or derating of the motor when using encoders. Monitor encoders using electronic temperature detection in order to prevent malfunctions.
2) Available on request.

Technical data of EK1H and AK1H encoders

Encoder	EK1H	AK1H
Supply voltage	DC 7 – 12 V polarity reversal protected	
Max. current consumption (without load)	80 mA	
Limit frequency	26 kHz	
Incremental resolution Periods/revolution	1024	
Encoder system accuracy, analog	± 45''	
Output amplitude per track	0.8 – 1.1 V_{SS} sin/cos	
Single-turn resolution, digital	32768 increments/revolution (15 bits)	
Multi-turn resolution, digital	–	4096 revolutions (12 bits)
Interface	HIPERFACE®	
Serial data output	Driver to EIA RS485	
Maximum mechanical rotational speed[1)]	12 000 min^{-1}	
Service life of the ball bearings	3.6 × 10^9 revolutions	
Maximum speed during operation[1)]	≤ 12000 min^{-1} (analog sin/cos tracks) ≤ 6000 min^{-1} (digital absolute position)	
Shocks EN 60068-2-27 (10 ms)[1)]	≤ 981 m/s^2 = 100 g	
Vibrations EN 60068-2-6 (10 – 2000 Hz)[1)]	≤ 198.2 m/s^2 = 20 g	
Functional safety	Optionally available[2)]	Optionally available
Working temperature encoder T_E[1)]	-30 °C to +115 °C	

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Encoder	EK1H	AK1H
Ambient temperature motor T_A[1)]	-30 bis +60 °C	

1) Observe potential constraints on or derating of the motor when using encoders. Monitor encoders using electronic temperature detection in order to prevent malfunctions.
2) Available on request.

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EH0E, AH0E, EH1E and AH1E add-on encoders with EnDat 2.2 interface

For safety encoder design, refer to chapter "Safety encoder" (→ 🗎 193) for the characteristic safety values.

Encoders		EH0E	AH0E	EH1E	AH1E
Motors		CMP40		CMP50 – 100 CMP100L (not available)	
Brake type		BK.., BP..			
Manufacturer		Heidenhain			
Manufacturer's designation		ECI 1119	EQI 1131	ECI 1319	EQI 1331
Supply voltage	V_B	DC 3.6 – 14 V			
Current consumption	I_{btype} (V_B = 5 V)	95 mA	115 mA	95 mA	115 mA
Power consumption	P_{max} (V_{Bmin} – V_{Bmax})	650 – 700 mW	750 – 850 mW	650 – 700 mW	750 – 850 mW
Interface		EnDat 2.2			
Processing time (delay)	t_{cal}	≤ 5 µs			
Clock frequency		≤ 16 MHz			
Resolution	Single-turn	19 bits (524 288 position values/revolution)			
	Multi-turn	–	12 bits (4096 revolutions)	–	12 bits (4096 revolutions)
Accuracy	Encoder system	± 120"		± 65"	
Rotational speed[1]	n_{max}	15000 min^{-1}	12000 min^{-1}	15000 min^{-1}	12000 min^{-1}
Angular acceleration[1]	a_{max}	≤ 1 × 10^5 rad/s^2			
Vibrations[1] EN 60068-2-6 (55 – 2000 Hz)		≤ 400 m/s^2			
Shocks[1] EN 60068-2-27 (6 ms)		≤ 2000 m/s^2			
Installation altitude[1]		≤ 6000 m			
Working temperature[1]	T_U (motor with encoder)	-20 – 60 °C -40 – 60 °C[2]			
	T_E (encoder)	-40 to 110 °C		-40 to 115 °C	
	T_{Emax} (encoder fault message)	125 °C ± 1 K		130 °C ± 1 K	
Storage temperature	T_S (encoder)	see T_E			
Service life	t_{LT}	40 000 h operation, maximum 2000 emergency stop braking actions			
Connection technology[3]		Hybrid plug connector (single-cable technology) SE1: M23, EH1E, AH1E, EH1E and AH1E with BK (TE code 13) SE4: M23, EH0E, AH0E, EH1E and AH1E with BK, BP (TE code 29) SEB[4]: M40			
Cable length[1]		100 m			
Functional safety		–	–	Optionally available[5]	Optionally available[5]
Explosion protection		–			

1) Observe potential constraints or derating of the motor when using with encoders. Monitor encoders using electronic temperature detection in order to prevent malfunctions.
2) In preparation.
3) Observe that SEW-EURODRIVE does not offer prefabricated cables for AK0J, EK0J and AH1Q encoders.
4) Special type.
5) Available on request.

General information

INFORMATION

Encoders with the third-party interface EnDat 2.2 cannot be evaluated on frequency inverters and controllers from SEW-EURODRIVE.

Check the compatibility with inverters and controllers of other manufacturers.



NOTICE

Damage to the encoder caused by the motor braking or coming to a hard stop

Material damage to the encoder can occur

Observe the following points:

- For /.H0E or /.H1E encoders, the maximum permitted acceleration according to the following table applies.
- Only startup the following stand-alone motors or stand-alone brakemotors in conjunction with the /.H0E or /.H1E encoders with a motor-external inertia.
- The drive is not permitted to come to a hard stop.

Motor type	Required external inertia in 10^{-4} kgm^2	
	Stand-alone motor	Stand-alone brakemotor
CMP40S	0.23	–
CMP40M	0.09	0.14
CMP50S	0.1	–
CMP50M	0.36	0.25
CMP50L	0.62	0.21
CMP63M	0.22	–
CMP63L	0.35	–
All other sizes	–	–
	Maximum permitted acceleration in rad/s^2	
CMP.. /.H0E	100000	
CMP.. /.H1E	100000	

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5.3 Functional safety (FS)

5.3.1 Functionally safe motor options

Drives from SEW-EURODRIVE are also optionally available with functionally safe motor options. These options are intended for implementation of safety functions in safety-relevant applications.

SEW-EURODRIVE assumes responsibility for the delivered drive in terms of compliance of the functionally safe motor options with the functional safety regulations. Safety-relevant connecting elements are marked as follows:

- Safety encoder: Retaining ring or adhesive label
- Safety brake: Locking compound

The markings indicate if there has been any tampering. If these markings are damaged, there is a deviation from the delivery state.

General

When implementing safety functions in machines, it is necessary to evaluate in particular whether the used components are suitable for performing a specific safety function. When using functionally safe motor options from SEW-EURODRIVE, the following safety-related requirements, e.g. in accordance with EN 13849 – parts 1 and 2, are already taken into account:

- Application of basic safety principles
- Application of proven safety principles
- Specifications on failure probability (B_{10D}, $MTTF_D$, or PFH_D)
- Common cause failure (CCF)
- Determination of the category (Cat.)
- Production monitoring with 100% final inspection
- Retraceability by the unique motor assignment
- Notice of influences and ambient conditions
- Compliance with normative requirements regarding documentation

As an advantage for the machine designer, SEW-EURODRIVE has already fulfilled these safety-relevant requirements for functionally safe motor options. In the overall analysis of safety technology, the machine designer can rely on the manufacturer's confirmation, e.g. based on the product documentation or the German Technical Inspection Association (TÜV) certificate. The internal effort required for evaluation and documentation is reduced considerably.

If other components (standard components) are used for implementing safety functions, the machine designer has to evaluate the safety-related requirements.

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Safety encoders

Safety encoders from SEW-EURODRIVE are characterized by their exceptional reliability as well as electronic and mechanical load capacity.

Safety encoders allow you to improve the safety of your machines by implementing safety functions in relation to their speed, direction of rotation, idle state, relative position or absolute position. The safety encoder provides the safety-relevant signals in the intelligent interaction of sensor, control and actuator.

The safety function requires a reliable mechanical connection between encoder and motor. At SEW-EURODRIVE, this connection is dimensioned in such a way that fault exclusion is achieved.

The safety encoders cannot trigger a safe state at the machine autonomously. Therefore, they have to be monitored in the overall system. In case the encoder or the follow-up electronics detects a fault, a fault response is initiated in the overall system, such as safe state.

Safety brake

Safety brakes from SEW-EURODRIVE are characterized by their exceptional reliability as well as electronic and mechanical load capacity.

Safety brakes allow you to increase the safety in your machines by implementing safety functions for deceleration and stopping. The safety brake represents the safety-relevant actuator in the intelligent interaction of sensor, control, and actuator.

The safety brakes cannot trigger a safe state at the machine autonomously. The brakes must be augmented in the overall system with suitable brake control and monitored by means of a brake test, if necessary. The overall system triggers a suitable error response, e.g. the safe state, on request.

FS mark

SEW-EURODRIVE labels a functionally safe motor option at the drive with an FS logo and a 2-digit number on the motor nameplate. The number is a code that indicates which components in the drive are safety-related. This makes it possible to uniquely identify an available functional safety motor option via the motor nameplate.

FS logo	Available functionally safe motor option		
	Decentralized inverters	Safety brake	Safety encoders
FS 01	X		
FS 02		X	
FS 04			X
FS 07	X		X
FS 11		X	X

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If the FS logo, e.g. with the code "FS-11" is present on the motor nameplate, the combination of safety encoder and safety brake is available for the motor. Drives can also be equipped with two encoders, e.g. built-in encoder and add-on encoder. In such cases, the FS logo for the safety encoder always relates to the add-on encoder. If an FS logo is available, adhere to the information specified in the corresponding documentation.

Retraceability

Functionally safe motor options can be retraced by SEW-EURODRIVE with the motor serial number and thus have a unique assignment to the motor.

5.3.2 Safety encoder

When used in a safety function, safety encoders have to meet increased requirements in terms of the mechanical mounting and the connection between the encoder shaft and motor shaft. SEW-EURODRIVE meets the requirements of functional safety in terms of the unwanted loosening of the encoder mounting and the connection between the encoder shaft and the motor shaft. Fault exclusion in compliance with EN 61800-5-2 is assumed. Safety-related connecting elements are marked in the delivery state, for example using a locking compound. Observe this fact in case of maintenance work.

Safety functions safety encoder

In case of the AK0H and AK1H encoders, only the incremental interface up to PL d/ SIL 2 is certified in terms of safety. The absolute interface may not be used solely for implementing safety functions.

In the case of the EH1E and AH1E encoders, the safe position is transferred digitally. This must be evaluated for safety and monitored by suitable follow-up electronics.

The safety encoders are suitable for implementing the following safety functions according to EN 61800-5-2. The realization of the respective safety functions is dependent on the follow-up electronics, whose specifications must absolutely be observed.

Safety subfunctions according to EN 61800-5-2	Safety encoders			
	AK0H	AK1H	EH1E	AH1E
Stopping				
SS1	X	X	X	X
SS2	X	X	X	X
SOS	X	X	X	X
Moving				
SAR	X	X	X	X
SDI	X	X	X	X
SLA	X	X	X	X
SLS	X	X	X	X
SSM	X	X	X	X
SSR	X	X	X	X
Relative positioning				
SLI	X	X	X	X
Absolute positioning				
SCA	X	X	X	X
SLP	X	X	X	X

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Service life

The safety encoders have a maximum service life of 20 years, after which it is essential to take them out of service.

The bearing service life, operating hours and number of emergency stop braking operations also have to be taken into account in addition to the service life. The parameter that is reached first depending on the application determines when the required shutdown takes place.

Encoder	Bearing service life	Operating time	Number of emergency stop braking operations
AK0H	3.6×10^9 revolutions	n/a	2000
AK1H			
EH1E[1)] AH1E[1)]	n/a	40000 hours	

1) In preparation.

Characteristic safety values of AK0H

	Characteristic safety values according to	
	EN 62061 / IEC 61508	**EN 13849-1**
Classification	SIL 2	PL d
System structure	HFT = 1	2-channel (Cat. 3)
PFH_Dvalue[1)] **With** mounting on the motor (installation altitude)	1.3×10^{-8} 1/h (≤ 5000 m)[2)]	
$MTTF_D$ value[1)] **With** mounting on the motor	–	874 years
Mission time/service life	20 years[3)]	
Proof test interval	Not required	–
Safe failure fraction (SFF)	> 90%	–
Motor/encoder connection (only for drives **with** FS logo)	Fault exclusion according to EN 61800-5-2	

1) The specified values apply if the requirements for the follow-up electronics are adhered to.
2) Note any restrictions or derating (e.g. caused by the drive or frequency inverter).
3) Also take into account that the service life can be shortened, for example, by ball bearings, the number of emergency stop braking operations, and the operating hours.

Characteristic safety values of AK1H

	Characteristic safety values according to	
	EN 62061 / IEC 61508	**EN 13849-1**
Classification	SIL 2	PL d
System structure	HFT = 1	2-channel (Cat. 3)
PFH_Dvalue[1)] **With** mounting on the motor	1.0×10^{-8} 1/h (≤ 5000 m)[2)]	
$MTTF_D$ value[1)] **With** mounting on the motor	–	1073 years
Mission time/service life	20 years[3)]	
Proof test interval	Not required	–
Safe failure fraction (SFF)	> 90%	–
Motor/encoder connection (only for drives **with** FS logo)	Fault exclusion according to EN 61800-5-2	

1) The specified values apply if the requirements for the follow-up electronics are adhered to.
2) Note any restrictions or derating (e.g. caused by the drive or frequency inverter).
3) Also take into account that the service life can be shortened, for example, by ball bearings, the number of emergency stop braking operations, and the operating hours.

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Characteristic safety values for EH1E, AH1E[4)]

	Characteristic safety values according to	
	EN 62061 / IEC 61508	**EN 13849-1**
Classification	SIL 2	PL d
System structure	HFT = 1	2-channel (Cat. 3)
PFH_Dvalue[1)] **with** mounting on the motor (installation altitude)	10.0×10^{-9} 1/h (≤ 1000 m) 25.0×10^{-9} 1/h (≤ 6000 m)[2)]	
$MTTF_D$ value[1)] **with** mounting on the motor	–	–
Mission time/service life	20 years[3)]	
Proof test interval	Not required	–
Safe failure fraction (SFF)	> 90%	–
Motor/encoder connection (only for drives **with** FS logo)	Fault exclusion according to EN 61800-5-2	

1) The specified values apply if the requirements for the follow-up electronics are adhered to.
2) Note any restrictions or derating (e.g. caused by the drive or frequency inverter).
3) Also take into account that the service life can be shortened, for example, by ball bearings, the number of emergency stop braking operations, and the operating hours.

The EH1E and AH1E safety encoders can be used up to SIL3/PL e.

It is essential that the customer takes into account and implements more stringent requirements of the encoder manufacturer with regard to implementation in the overall system.

You will find the applicable characteristic safety values for SIL3/PL e and the requirements with regard to implementation in the overall system in the associated manufacturer's documentation for the encoder.

4) In preparation

5.4 Cooling

5.4.1 Convection

As standard, servomotors are designed as self-cooling motors. Self-cooling motors dissipate excess heat to the surrounding air by convection and radiation. In addition, the directly mounted gear unit or the machine structure is heated by heat conduction of the mounted adapters.

The rated data specified on the nameplate are reached at an ambient temperature of maximally 40 °C. Make sure the motor is cooled sufficiently. Adhere to the minimum clearance of 100 mm to other components. In addition, a heavy contamination of the motor surface can reduce heat dissipation and therefore cause thermal overload of the motor.

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5.4.2 Forced cooling fan

To increase the thermal capacity, servomotors can be optionally equipped with a forced cooling fan. Motors with forced air cooling additionally discharge heat using a fan operating independently from the motor. Make sure motors with forced cooling are also cooled sufficiently. Ensure the flow of warm excess air is not obstructed by adhering to the minimum clearance of 100 mm to the machine environment.

It is possible to retrofit the forced cooling fan. Contact SEW-EURODRIVE for further information.

Forced cooling fan	**/VR**					
Motor size	**CMP50**	**CMP63**	**CMP71**	**CMP80**	**CMP100**	**CMP112**
Supply voltage DC	24 V ±20%					
Current consumption DC	0.15 A	0.25 A	0.88 A	0.88 A	1.67 A	1.67 A
Power consumption	3.5 W	6 W	21 W	21 W	40 W	40 W
Air flow rate	56 m^3/h	80 m^3/h	275 m^3/h	275 m^3/h	540 m^3/h	540 m^3/h
Ambient temperature	-20 °C to +60 °C					
Degree of protection	IP54/IP55					
Electrical connection	Plug connector					
Max. cable cross section	3 × 1 mm^2					
Inner diameter of the cable gland	7 mm					

UWU52A switched-mode power supply

If the /VR forced cooling fan is to be operated on an AC voltage, SEW-EURODRIVE recommends using the separately available UWU52A switched-mode power supply.

Input: AC 110 – 240 V; 1.04 – 0.63 A; 50/60 Hz

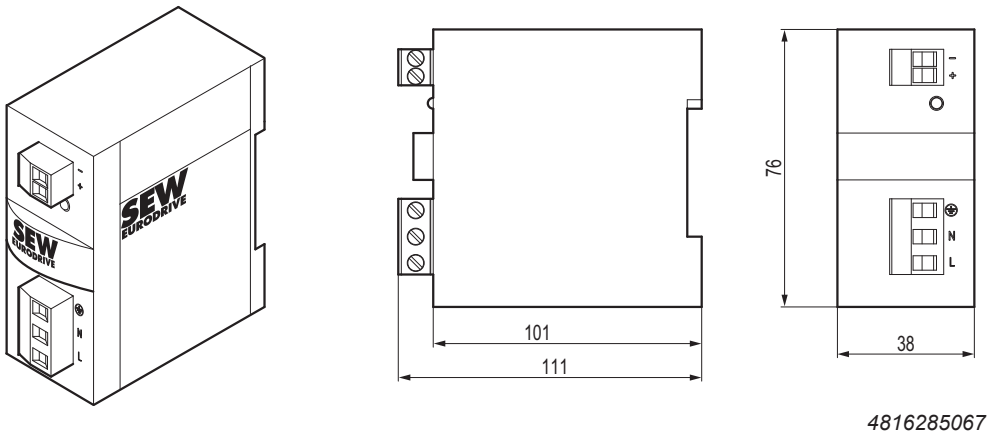
Output: DC 24 V; 2.5 A (40 °C); 2.0 A (55 °C)

Connection: Screw terminals 0.2 – 2.5 mm^2, separable.

Degree of protection: IP20; fastening to mounting rail EN 60715 TH35 in the control cabinet.

Part number: 01881817.

Dimensions of the UWU52A switched-mode power supply:



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5.5 Pt1000 thermal motor protection

5.5.1 Type designation

/PK

5.5.2 Description

Thermal motor protection in combination with the corresponding evaluation electronics prevents the motor from overheating and consequently from being damaged. A temperature sensor provides only indirect protection as only one sensor value is determined.

The /PK motor design consists of a platinum sensor Pt1000 installed in one of the three motor windings. Unlike the /KY semiconductor sensor used in previous motor generations, the platinum sensor has an almost linear characteristic curve and is more accurate. In combination with a frequency inverter containing the thermal model of the motor, the frequency inverter can also provide a motor protection function because of the /PK temperature sensor.

5.5.3 Technical data

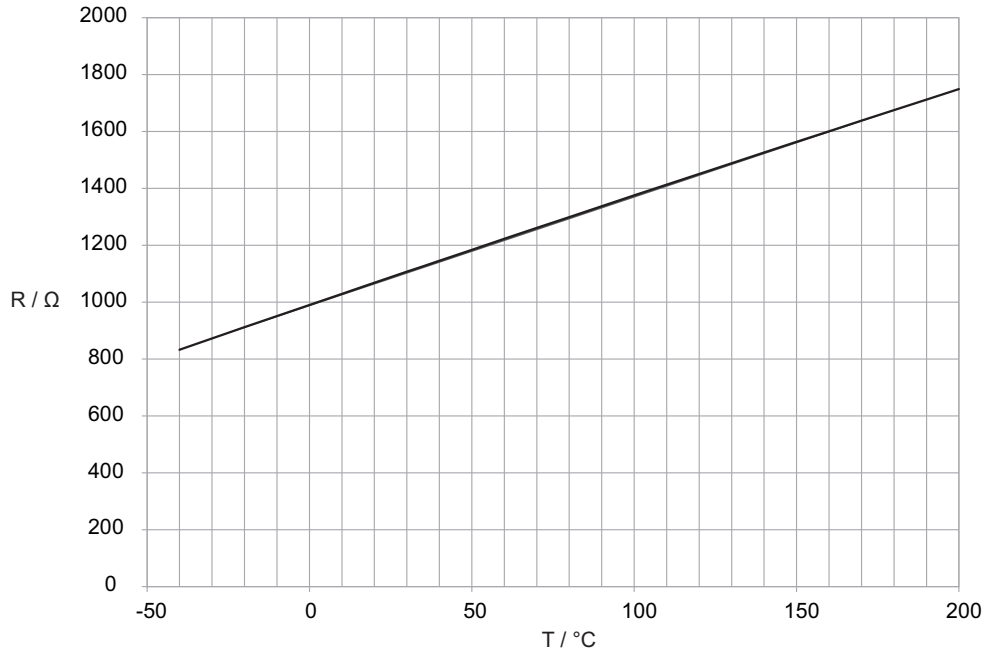
The Pt1000 temperature sensor continuously detects the motor temperature.

	Pt1000
Connection	Red – black
Total resistance at 20 – 25 °C	1050 Ω < R < 1150 Ω
Test current	< 3 mA

INFORMATION

The temperature sensor is unipolar which means that interchanging the incoming cables does not change the measurement result.

Typical characteristic curve of Pt1000



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5.6 Surface and corrosion protection

To optimally protect motors that are subject to severe environmental influences, SEW-EURODRIVE offers measures to increase the resistance of highly stressed surfaces.

- Surface protection
- Corrosion protection

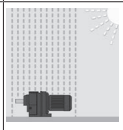
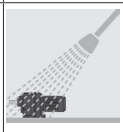
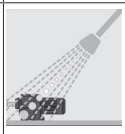
Additional optional protective measures for the output shafts are also available.

5.6.1 Surface protection

As an option for standard surface protection, motors and gear units are also available with surface protection.

The special measure "Z" is also available. During this procedure, large contour recesses are filled with rubber before the coat is applied.

Technical details

Surface protection		Ambient conditions	Application examples
Standard		Suitable for machines and systems in buildings and indoor spaces with neutral atmospheres. According to corrosivity category: • C1 (negligible)	• Machinery and systems in the automotive industry • Transport systems in the logistics area • Conveyor belts at airports
OS1		Suitable for environments prone to condensation and atmospheres with low humidity or contamination, such as applications outdoors under roof or with protection device. Based on corrosivity category: • C2 (low)	• Systems in saw mills • Industrial doors • Agitators and mixers
OS2		Suited for environments with high humidity or moderate atmospheric contamination, such as applications outdoors that are subject to direct weathering. Based on corrosivity category: • C3 (moderate)	• Applications in amusement parks • Funiculars and chair-lifts • Applications in gravel plants • Systems in nuclear power plants
OS3		Suited for environments with high humidity and occasionally severe atmospheric and chemical contamination. Occasionally acidic or caustic wet cleaning. Also for applications in coastal areas with moderate salt exposure. Based on corrosivity category: • C4 (high)	• Sewage treatment plants • Port cranes • Mining applications
OS4		Suitable for environments with permanent humidity and severe atmospheric or chemical contamination. Regular acidic and caustic wet cleaning, also with chemical cleaning agents. According to corrosivity category: • C5 (very high)	• Drives in malting plants • Wet areas in the beverage industry • Conveyor belts in the food industry

- Drives with surface protection OS2 – OS4 are always equipped with /KS corrosion protection.
- Drives in degree of protection IPX6 are always equipped with /KS corrosion protection.
- Drives with surface protection OS4 are always additionally equipped with preventive measure "Z". "Z" = All surface recesses sprayed with elastic rubber compound.
- Corrosivity category: To ISO 12944-2 classification of ambient conditions

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5.6.2 Corrosion protection

The option description "Corrosion protection" lists all measures to increase the corrosion resistance that refer to treatment of outer surfaces.

A label with the word "KORROSIONSSCHUTZ" (corrosion protection) on the fan guard indicates that special treatment has been applied.

Technical details

The corrosion protection measures are described in the brochure "We have the very thing against corrosion: Surface and corrosion protection". If you have any questions, contact SEW-EURODRIVE.

5.7 Degree of protection according to IEC 60034-5

Degree of protection according to IEC 60034-5 describes the degree of protection for electrical equipment against contact and foreign objects, such as dust (1st code number) and water (2nd code number). In case a motor is mounted to a gear unit using an adapter, the degree of protection is not affected or reduced.

Synchronous servomotors by SEW-EURODRIVE are supplied with degree of protection IP65 as standard.

IP	1st digit		2nd digit
	Touch guard	Foreign object protection	Water protection
0	Not protected	Not protected	Not protected
1	Protected against access to hazardous parts with the back of your hand	Protected against solid foreign objects Ø 50 mm and larger	Protected against dripping water
2	Protected against access to hazardous parts with a finger	Protected against solid foreign objects Ø12 mm and larger	Protected against dripping water when the housing is tilted up to 15°
3	Protected against access to dangerous parts with a tool	Protected against solid foreign objects Ø 2.5 mm and larger	Protected against spray water
4	Protected against access to dangerous parts with a wire	Protected against solid foreign objects Ø 1 mm and larger	Protected against splashing water
5		Dust-protected	Protected against water jets
6		Dust-tight	Protected against strong water jets
7	–	–	Protected against temporary immersion in water
8	–	–	Protected against permanent immersion in water
9	–	–	Protected against ingress of water from any direction, even at strongly increased pressure against the housing

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5.8 Connection variants

5.8.1 Overview of connection variants

As standard, the electrical connection of servomotors is realized using plug connectors with two-cable technology.

In combination with the fully digital MOVILINK® DDI interface from SEW-EURODRIVE, servomotors are provided in single-cable technology.

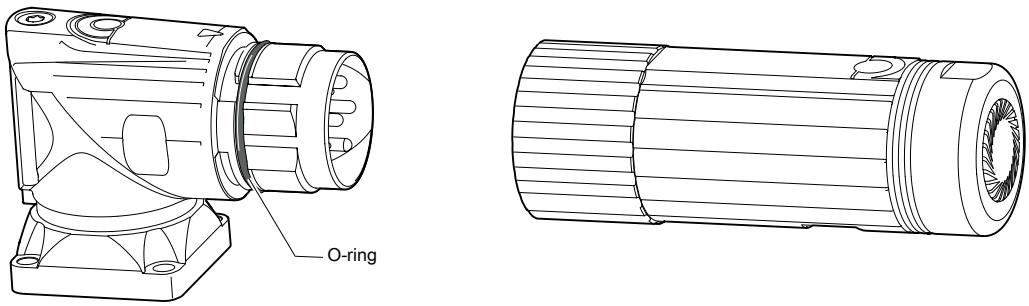
For easier connection, refer to the suitable cables in chapter "Prefabricated cables for two-cable technology" (→ 🗎 241).

As an alternative, you can also connect the motor via the terminal box.

When routing the cable, please note that cyclic movements on the right-angle connector can damage the connector (e.g. through swinging cables or pulses). Also check the use of a terminal box during project planning.

SpeedTec-ready

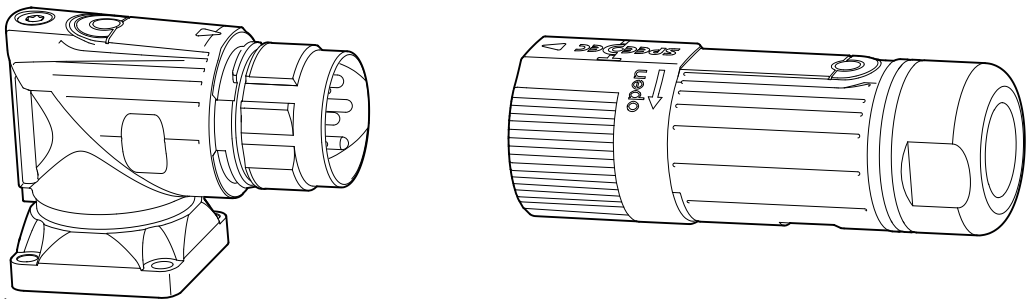
The plug connectors with SpeedTec-ready technology are used for all sizes of SEW-EURODRIVE servomotors. In contrast to the SpeedTec quick-release system, for SpeedTec-ready technology, the mating connector must be screwed on with a union nut. Plug connectors with SpeedTec-ready technology are also equipped with an additional O-ring. To convert to SpeedTec, simply remove the O-ring.



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SpeedTec

For all sizes of servomotors from SEW-EURODRIVE, the plug connectors are equipped with the SpeedTec quick-release system as standard.

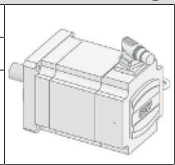
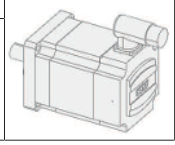


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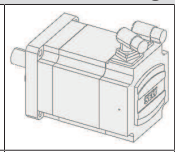
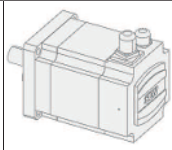
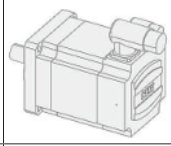
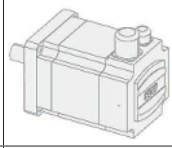
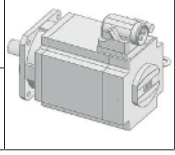
The plug connectors of the INTERCONTEC product series from TE Connectivity can be locked and unlocked in a short time using the quick plug-in technology. Shortly pressing in the connector and a 1/8-turn is sufficient for closing. The contacts can be used without using tools.

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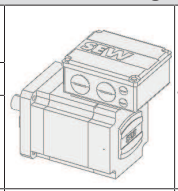
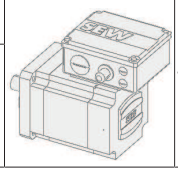
Single-cable technology

Connection	Interface	Designation			Interlocking
Power + signal: M23	MOVILINK® DDI	SD1		Adjustable right-angle connector	Standard: SpeedTec
	Without encoder	SH1			
	EnDat 2.2	SE1			
Power + signal: M40	MOVILINK® DDI	SDB		Adjustable right-angle connector	Standard: SpeedTec
	Without encoder	SHB			

Two-cable technology

Connection	Interface	Designation			Interlocking
Power: M23 Signal: M23	Resolver/ HIPERFACE®	SM1 SB1		Adjustable right-angle connector	Standard: SpeedTec-ready Optional: SpeedTec
	Resolver/ HIPERFACE®	SM1 SB1		Radial plug connector	Standard: SpeedTec-ready Optional: SpeedTec
Power: M40 Signal: M23	Resolver/ HIPERFACE®	SMB SBB		Adjustable right-angle connector	Standard: SpeedTec-ready Optional: SpeedTec
	Resolver/ HIPERFACE®	SMB SBB		Radial plug connector	Standard: SpeedTec-ready Optional: SpeedTec
Power: M58 Signal: M23	Resolver/ HIPERFACE®	SMC SBC		Right-angle connector Power: fixed Signal: adjustable	Standard: SpeedTec-ready
Power: M58 Signal: M23	MOVILINK® DDI	SMCD SBCD		Right-angle connector Power: fixed Signal: adjustable	Power: SpeedTec-ready Signal: SpeedTec

Terminal box design

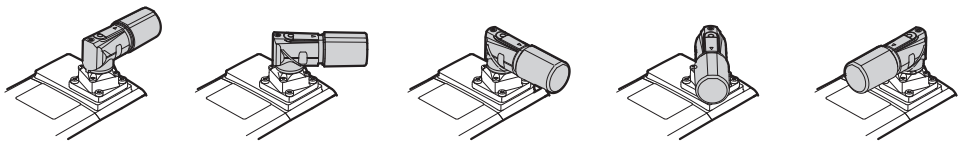
Connection	Interface	Designation			Interlocking
Power: Terminal board Signal: Terminal board	Resolver/ HIPERFACE®	KK		Terminal box	–
	MOVILINK® DDI	KD			
	Resolver/ HIPERFACE®	KL			
Power: Terminal board Signal: M23	MOVILINK® DDI	KKS		Terminal box	Signal: SpeedTec
Power: Terminal board Signal: M23	MOVILINK® DDI	KDD			Signal: SpeedTec

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5.8.2 Connecting single-cable technology

Using the fully digital MOVILINK® DDI interface by SEW-EURODRIVE allows for connecting servomotors using single-cable technology. With this technology, all data of the motor, such as encoder data, temperature data, startup data, and data of further sensors is digitally transferred via a hybrid cable.

The right-angle SD1/SDB plug connectors can be rotated to achieve the required positions:



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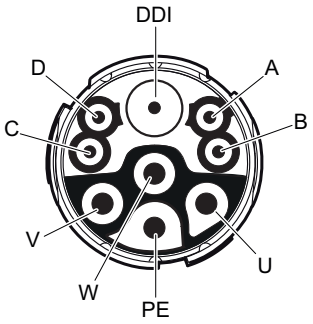
Connecting SD1 hybrid plug connectors (M23)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors with MOVILINK® DDI interface

Connection type
M23, male, male thread, TE Connectivity – Intercontec Products, series 723, SEW-EURODRIVE insert, SpeedTec equipment, coding ring: without, protected against contact

Pin assignment



Motor assignment

Contact	Signal	Without brake	With BK../BP.. brake	With BK.. brake with BS1Z brake control
U	U	Motor phase U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W	Motor phase W
A	Reserved	Do not connect	Brake -	GND
B	Reserved	Do not connect	Do not connect	DC 24 V
C	Reserved	Do not connect	Do not connect	Do not connect
D	Reserved	Do not connect	Brake +	Do not connect
PE	PE	Protective earth	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

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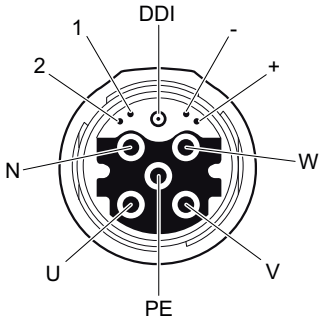
Connecting SDB hybrid plug connectors (M40)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors with MOVILINK® DDI interface

Connection type
M40, male, male thread, TE Connectivity – Intercontec products, series 740, SEW-EURODRIVE insert, SpeedTec equipment, coding ring: without, protected against contact

Pin assignment



Motor assignment			
Contact	**Signal**	**Without brake**	**With brake BP..**
U	U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W
1	Reserved	Do not connect	Brake - (15)
+	Reserved	Do not connect	Do not connect
-	Reserved	Do not connect	Do not connect
2	Reserved	Do not connect	Brake + (13)
N	Reserved	Do not connect	Do not connect
PE	PE	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

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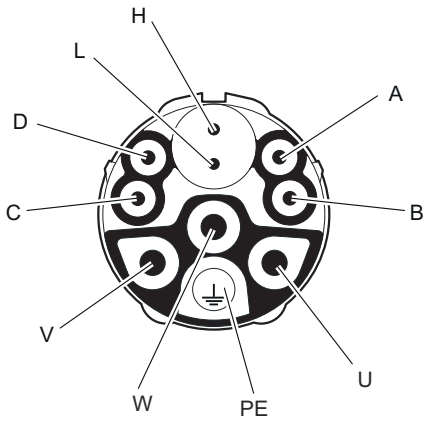
Connection of SH1 power plug connector (M23)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors in encoderless design

Connection type
M23, male, male thread, TE Connectivity – Intercontec products, series 723, SEW-EURODRIVE insert, SpeedTec equipment, coding ring: without, protected against contact

Pin assignment



34609095051

Motor assignment				
Contact	**Signal**	**Without brake**	**With BK../BP.. brake**	**With BY.. brake**
U	U	Motor phase U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W	Motor phase W
A	Reserved	Do not connect	Do not connect	Do not connect
B	Reserved	Do not connect	Do not connect	Brake 14
C	Reserved	Do not connect	Brake +	Brake 13
D	Reserved	Do not connect	Brake -	Brake 15
PE	PE	Protective earth	Protective earth	Protective earth
H	H	Motor protection	Motor protection	Motor protection
L	L	Motor protection	Motor protection	Motor protection

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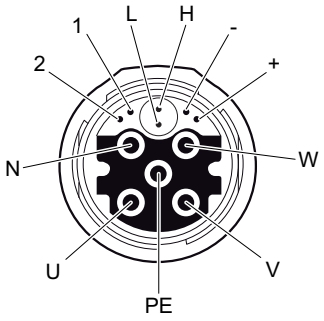
Connection of SHB (M40) power plug connectors

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors in encoderless design

Connection type
M40, male, male thread, TE Connectivity – Intercontec products, series 740, SEW-EURODRIVE insert, SpeedTec equipment, coding ring: without, protected against contact

Pin assignment



Motor assignment				
Contact	**Signal**	**Without brake**	**With BP.. brake**	**With BY.. brake**
U	U	Motor phase U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W	Motor phase W
1	Reserved	Do not connect	Do not connect	Do not connect
2	Reserved	Do not connect	Brake 15	Brake 15
+	Reserved	Do not connect	Brake 13	Brake 13
-	Reserved	Do not connect	Do not connect	Do not connect
N	Reserved	Do not connect	Do not connect	Brake 14
PE	PE	Protective earth	Protective earth	Protective earth
H	H	Motor protection	Motor protection	Motor protection
L	L	Motor protection	Motor protection	Motor protection

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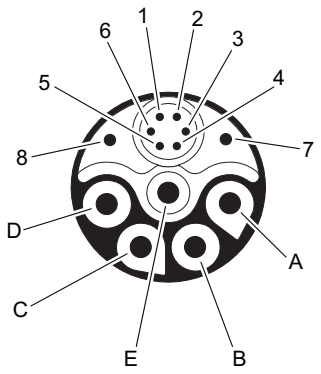
Connecting SE1 hybrid plug connectors (M23)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Hybrid motor and signal connection for motors with EnDat2.2 interface

Connection type
M23, male, external thread, TE Connectivity – Intercontec products, 723 htec series, SpeedTec equipment, coded

Pin assignment



32294218379

Assignment for motor			
Contact	**Signal**	**Without brake**	**With BK../BP.. brake**
A	U	Motor phase U	Motor phase U
B	V	Motor phase V	Motor phase V
C	W	Motor phase W	Motor phase W
D	Reserved	Do not connect	Do not connect
E	PE	Protective earth	Protective earth
1	Up	Voltage supply	Voltage supply
2	0V	Voltage supply	Voltage supply
3	D +	Data + (serial data transmission)	Data + (serial data transmission)
4	D -	Data - (serial data transmission)	Data - (serial data transmission)
5	CLK +	Clock + (serial data transmission)	Clock + (serial data transmission)
6	CLK -	Clock - (serial data transmission)	Clock - (serial data transmission)
7	Reserved	Do not connect	Brake -
8	Reserved	Do not connect	Brake +

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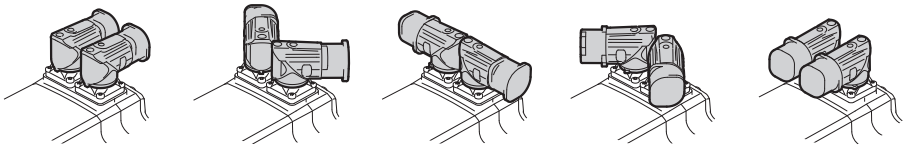
5.8.3 Connecting the two-cable technology

As standard, the power supply with or without brake supply is connected to motor via the quick-lock (SpeedTec-ready) SM./SB. plug connector system.

In the basic design, SEW-EURODRIVE delivers the electric motors with a connector on the motor side and without a mating connector. The encoder system is connected using a separate 12-pin round circular connector (M23).

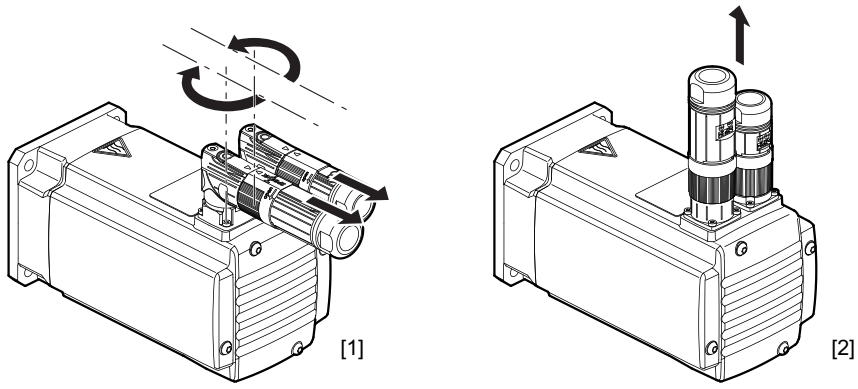
The mating connectors can be ordered separately or together with the motor.

The SM1/SB1, SMB/SBB right-angle connectors can be aligned to achieve all desired positions. The following figure illustrates examples of different positions of SM1/SB1, SMB/SBB plug connectors:



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The position defined for straight connectors is "radial". The radial plug connectors [2] are optional:



32769028491

[1] "Directional" connector position
[2] "Radial" connector position

The different plug connectors of the individual motor sizes are available in the following designs:

Connector position		Plug connector		
		SM1/SB1	SMB/SBB	SMC/SBC
Radial		X	X	–
Adjustable	Steplessly adjustable positions	X	X	(X)

X Available
(X) Not rotatable
– Not available

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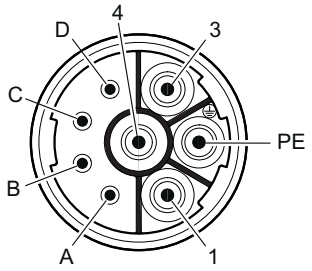
Connecting SM1/SB1 power plug connectors (M23)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors with resolver/HIPERFACE® interface

Connection type
M23, TE Connectivity - Intercontec products, series 923, SEW insert, SpeedTec-ready, coding ring: without, male

Pin assignment



Motor assignment

Contact	Signal	Without brake	With BK../BP.. brake	With BY.. brake
A	Reserved	Do not connect	Do not connect	Do not connect
B	Reserved	Do not connect	Do not connect	Brake 14
C	Reserved	Do not connect	Brake +	Brake 13
D	Reserved	Do not connect	Brake -	Brake 15
PE	PE	Protective earth	Protective earth	Protective earth
1	U	Motor phase U	Motor phase U	Motor phase U
3	W	Motor phase W	Motor phase W	Motor phase W
4	V	Motor phase V	Motor phase V	Motor phase V

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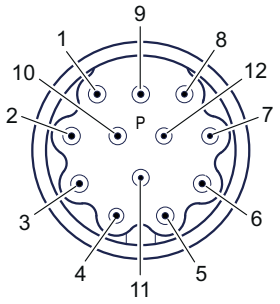
Connection of SM./SB. signal plug connector

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Signal connection for motors with resolver/HIPERFACE® interface

Connection type
M23, TE Connectivity - Intercontec products, series 623, SEW insert, SpeedTec equipment, coding ring: without, male

Pin assignment



Motor assignment			
Contact	**Signal**	**With RH1M resolver**	**with AK0H/AK1H/EK1H encoder**
1	R1 ref +	Reference +	Do not connect
2	R2 ref-	Reference -	Do not connect
3	S1 cos+	Cosine +	Cosine +
4	S3 cos-	Cosine -	Cosine -
5	S2 sin+	Sine +	Sine +
6	S4 sin-	Sine -	Sine -
7	Reserved	Do not connect	Data -
8	Reserved	Do not connect	Data +
9	PK	Motor protection	Motor protection
10	PK	Motor protection	Motor protection
11	Reserved	Do not connect	Protective earth
12	Reserved	Do not connect	Voltage supply

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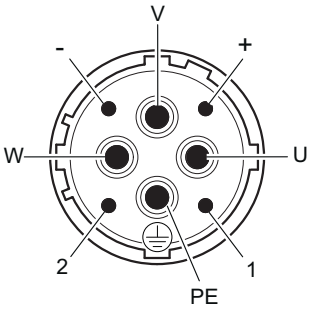
Connection SMB/SBB power plug connector (M40)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors with resolver/HIPERFACE® interface

Connection type
M40, TE Connectivity - Intercontec products, series 940, SEW insert, SpeedTec equipment, coding ring: without, male

Pin assignment



Motor assignment

Contact	Signal	Without brake	With BP.. brake	With BY.. brake
+	Reserved	Do not connect	Brake +	Brake 13
-	Reserved	Do not connect	Brake -	Brake 15
1	Reserved	Do not connect	Do not connect	Brake 14
2	Reserved	Do not connect	Do not connect	Do not connect
PE	PE	Protective earth	Protective earth	Protective earth
U	U	Motor phase U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W	Motor phase W

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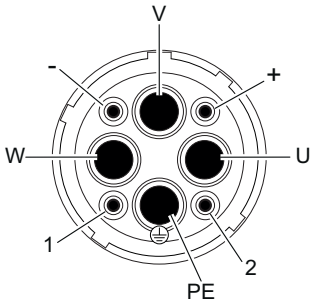
Connection of SMC/SBC power plug connector (M58)

The pin assignment of the plug connector depicts the contact end of the connections.

Function
Motor connection for motors with resolver/HIPERFACE® interface

Connection type
M58, TE Connectivity - Intercontec products, series 958, SEW insert, SpeedTec equipment, coding ring: without, male

Pin assignment



Motor assignment

Contact	Signal	Without brake	With BP.. brake	With BY.. brake
+	Reserved	Do not connect	Brake +	Brake 13
-	Reserved	Do not connect	Brake -	Brake 15
1	Reserved	Do not connect	Do not connect	Brake 14
2	Reserved	Do not connect	Do not connect	Do not connect
PE	PE	Protective earth	Protective earth	Protective earth
U	U	Motor phase U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W	Motor phase W

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5.8.4 Connection with terminal box

Connection cross sections /KK

Motor	Power		Brake		Encoder/resolver/ thermal motor protection		Cable bushing
	Connection	Maximum connection cross section	Connection	Maximum connection cross section	Connection	Maximum connection cross section	Diameter
CMP50, CMP63	Spring terminals	6 mm²	Spring terminals	2.5 mm² (solid or finely stranded without conductor end sleeve) 1.5 mm² (finely stranded with conductor end sleeve and plastic collar)	Spring terminals	2.5 mm² (solid or finely stranded without conductor end sleeve) 1.5 mm² (finely stranded with conductor end sleeve and plastic collar)	M20 × 1.5 M25 × 1.5
CMP.71, CMP.80	Bolt M6	10 mm²					M16 × 1.5 M32 × 1.5
CMP.100	Bolt M8	25 mm²					M16 × 1.5 M40 × 1.5
CMP112S, CMP112M, CMP112L	Bolt M8	35 mm²					M16 × 1.5 M50 × 1.5
CMP112H, CMP112E	Bolt M10	50 mm²					

Connection cross sections /KL

Motor	Power		Brake		Encoder/resolver/ thermal motor protection		Cable bushing
	Connection	Maximum connection cross section	Connection	Maximum connection cross section	Connection	Maximum connection cross section	Diameter
CMP112S, CMP112M, CMP112L, CMP112H, CMP112E	Bolt M12	50 mm²	Spring terminals	2.5 mm² (solid or finely stranded without conductor end sleeve) 1.5 mm² (finely stranded with conductor end sleeve and plastic collar)	Spring terminals	2.5 mm² (solid or finely stranded without conductor end sleeve) 1.5 mm² (finely stranded with conductor end sleeve and plastic collar)	M16 × 1.5 M50 × 1.5

Position of terminal box and cable entry

Product standard EN 60034 prescribes the following designations for terminal boxes positioned facing towards the output shaft (A-side):

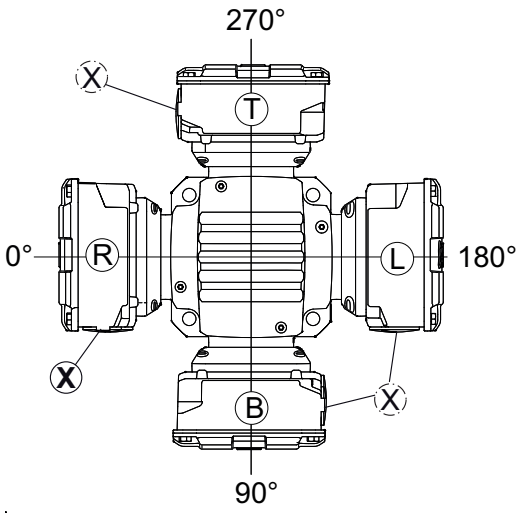
- R (right)
- B (bottom)
- L (left)
- T (top)

This designation applies to motors without a gear unit in mounting position B3 (= M1).

The position of the motor terminal box has so far been indicated with 0°, 90°, 180° or 270° as viewed onto the fan guard (B-side). For gearmotors, the previous designation is retained.

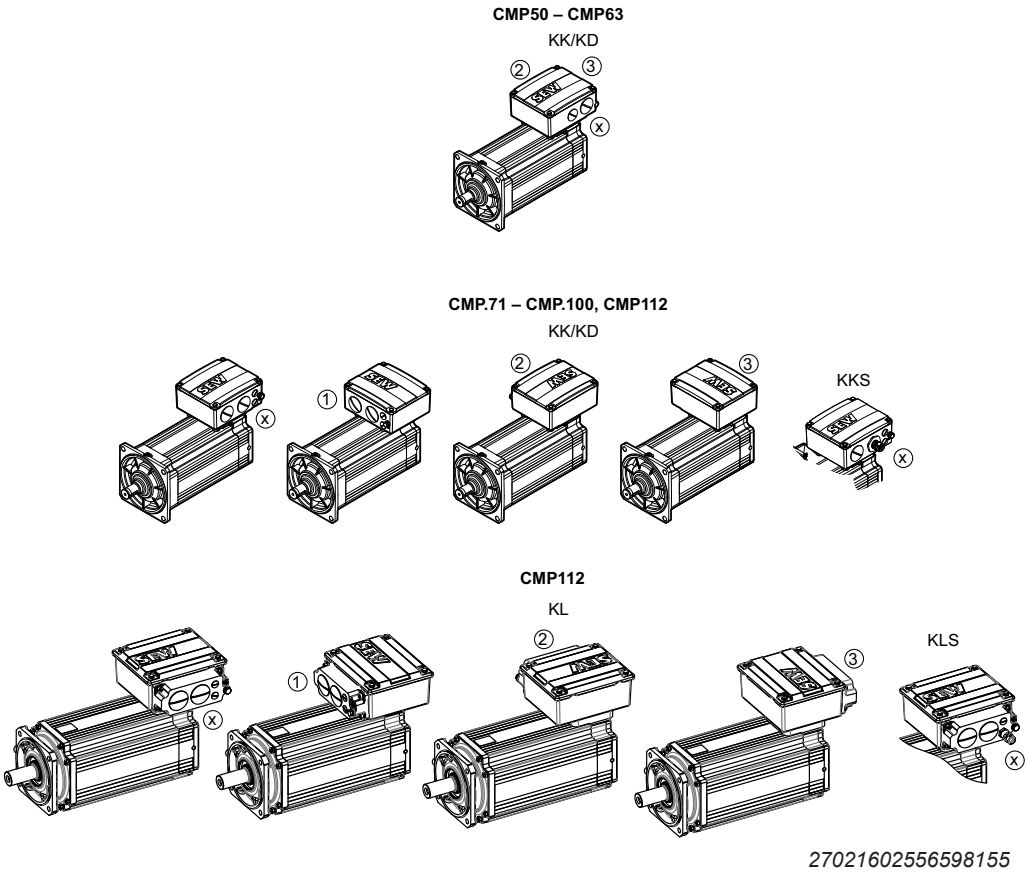
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The following figure shows both designations. Where the mounting position of the motor changes, R, B, L and T are rotated accordingly.



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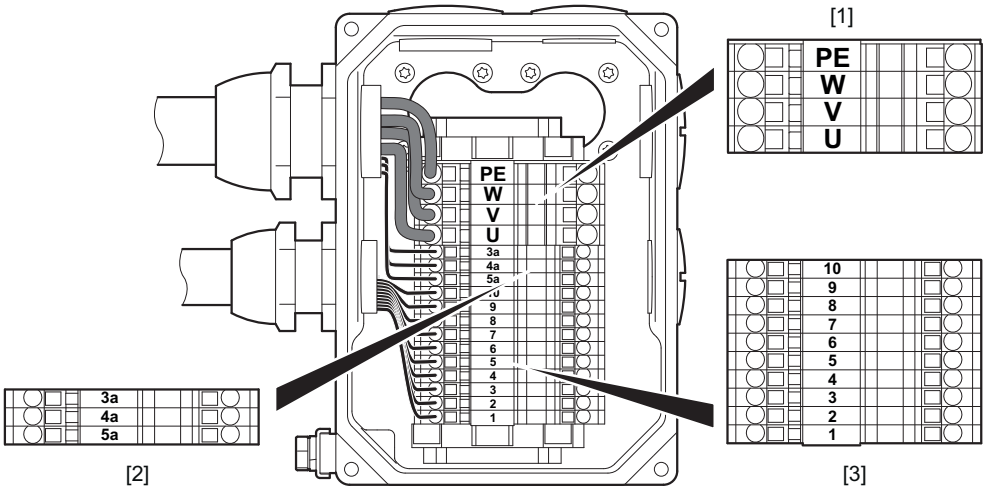
The cable entry position is specified with X, 1, 2, 3. As standard, the terminal box is delivered in 270° design with cable entry "X".



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Observe that the terminal box position is defined when ordering the motor. The terminal box must not be turned afterwards. Contact SEW-EURODRIVE if necessary.

Terminal assignment of terminal box KK CMP50 – 63



9007229916482315

Assignment		
Terminal [1]	**No.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

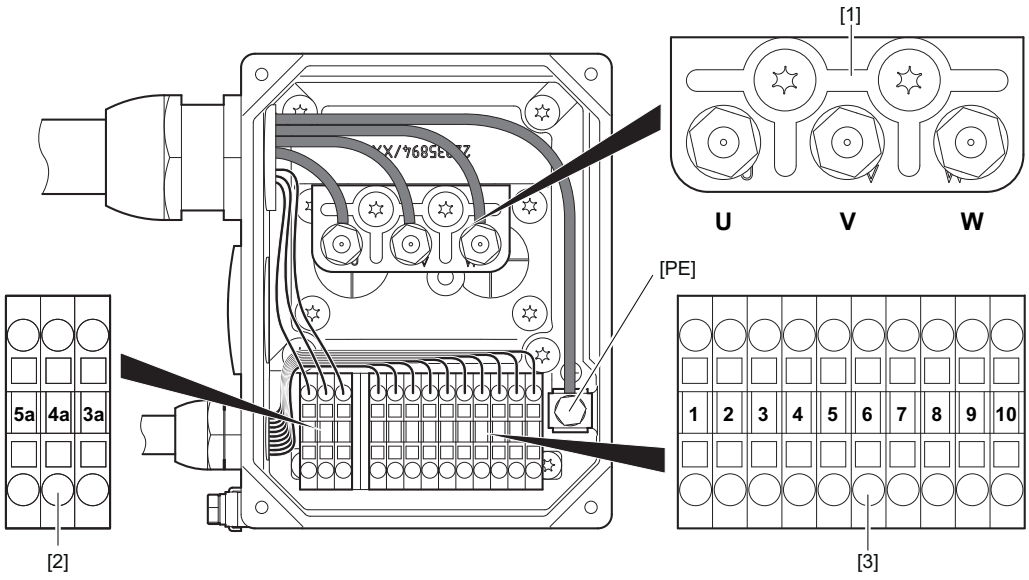
Assignment			
Terminal [2]	**No.**	**Brake control connection**	
		BMV..	**BS24**
BK.. brake	3a	–	–
	4a	13	3
	5a	15	5

Assignment					
Terminal [3]	**No.**	**Connection for resolver**		**Encoder connection**	
Signal	1	R1 ref +	Reference +	cos +	Cosine +
	2	R2 ref -	Reference -	ref cos	Reference
	3	S1 cos +	Cosine +	sin +	Sine
	4	S3 cos-	Cosine -	ref sin -	Reference
	5	S2 sin+	Sine +	D -	DATA
	6	S4 sin-	Sine -	D +	DATA
	7	–	–	GND	Protective earth
	8	–	–	Vs	Supply voltage
	9	PK	Motor protection	PK	Motor protection
	10	PK	Motor protection	PK	Motor protection

The pin assignment and signal logics of the RH1M resolver are identical for CMP.. and CM3C.. motors. Due to the installation design, the color coding of the cores might vary.

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Terminal assignment of terminal box KK CMP71 – 112



9007229921948043

Assignment		
Terminal [1]	**No.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

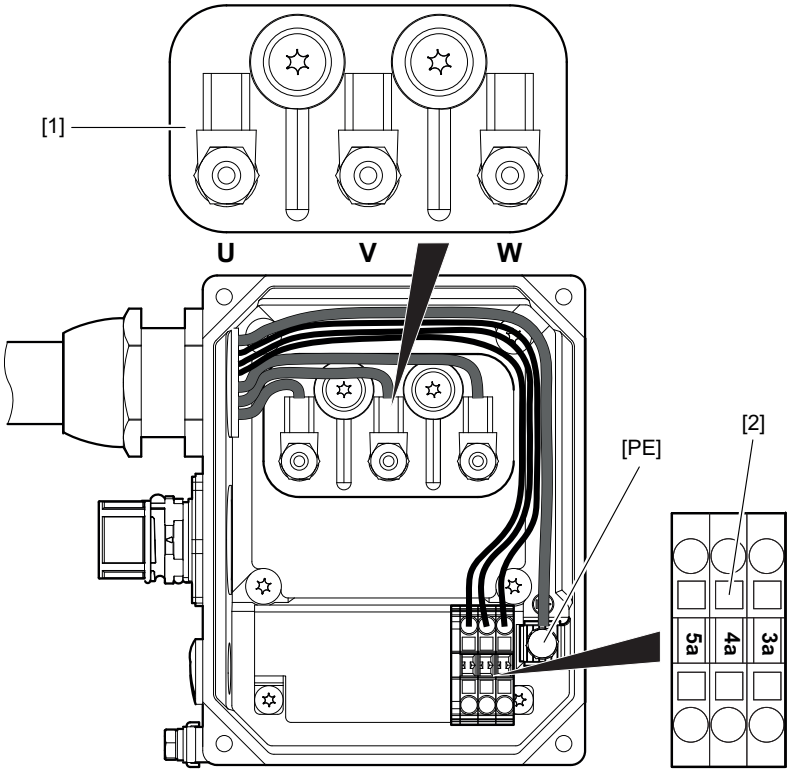
Assignment	No.	Brake control connection			
Terminal [2]		**BMV..**	**BS24**	**BME, BMP, BMH, BMK, BST, SBM**	**BSG**
BP.. brake	3a	–	–	–	–
	4a	13	3	–	–
	5a	15	5	–	–
BY.. brake	3a	–	–	14	1
	4a	–	–	13	3
	5a	–	–	15	5

Assignment					
Terminal [3]	**No.**	**Connection for resolver**		**Encoder connection**	
Signal	1	R1 ref +	Reference +	S1 cos +	Cosine +
	2	R2 ref -	Reference -	S3 cos-	Cosine -
	3	S1 cos +	Cosine +	S4 sin+	Sine +
	4	S3 cos-	Cosine -	S2 sin-	Sine -
	5	S2 sin+	Sine +	D -	Data -
	6	S4 sin-	Sine -	D +	Data +
	7	–	–	GND	Protective earth
	8	–	–	Vs	Supply voltage
	9	PK	Motor protection	PK	Motor protection
	10	PK	Motor protection	PK	Motor protection

The pin assignment and signal logics of the RH1M resolver are identical for CMP.. and CM3C.. motors. Due to the installation design, the color coding of the cores might vary.

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Terminal assignment of terminal box KKS CMP71 – 112



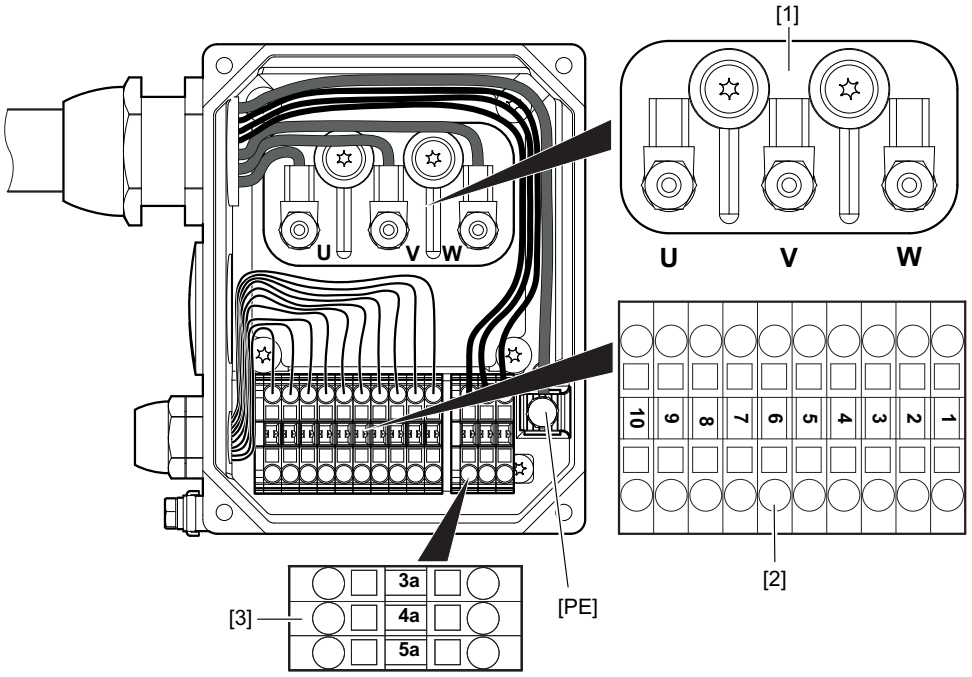
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Assignment		
Terminal [1]	**No.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

Assignment	No.	Brake control connection			
Terminal [2]		**BMV**	**BS24**	**BME, BMP, BMH, BMK, BST, SBM**	**BSG**
BP.. brake	3a	–	–	–	–
	4a	13	3	–	–
	5a	15	5	–	–
BY.. brake	3a	–	–	14	1
	4a	–	–	13	3
	5a	–	–	15	5

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Terminal assignment of terminal box KL CMP71 – 112



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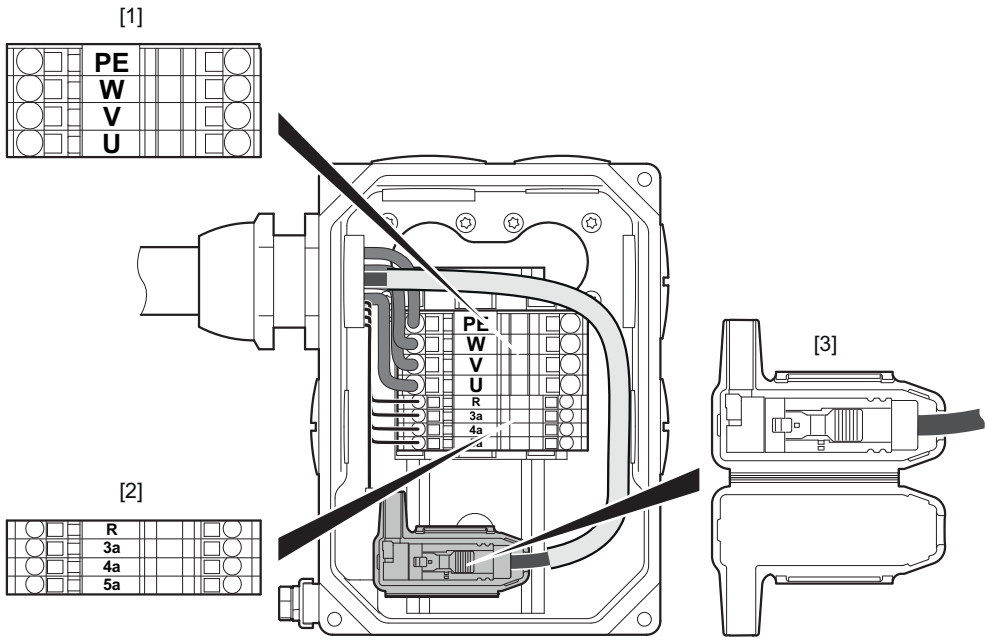
Assignment		
Terminal [1]	**No.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

Assignment	No.	Brake control connection			
Terminal [2]		**BMV..**	**BS24**	**BME, BMP, BMH, BMK, BST, SBM**	**BSG**
BP.. brake	3a	–	–	–	–
	4a	13	3	–	–
	5a	15	5	–	–
BY.. brake	3a	–	–	14	1
	4a	–	–	13	3
	5a	–	–	15	5

Assignment					
Terminal [3]	**No.**	**Connection for resolver**		**Encoder connection**	
Signal	1	R1 ref +	Reference +	S1 cos +	Cosine +
	2	R2 ref -	Reference -	S3 cos-	Cosine -
	3	S1 cos +	Cosine +	S4 sin+	Sine +
	4	S3 cos-	Cosine -	S2 sin-	Sine -
	5	S2 sin+	Sine +	D -	Data -
	6	S4 sin-	Sine -	D +	Data +
	7	–	–	GND	Protective earth
	8	–	–	Vs	Supply voltage
	9	PK	Motor protection	PK	Motor protection
	10	PK	Motor protection	PK	Motor protection

The pin assignment and signal logics of the RH1M resolver are identical for CMP.. and CM3C.. motors. Due to the installation design, the color coding of the cores might vary.

Terminal assignment of terminal box KD CMP50 – 63



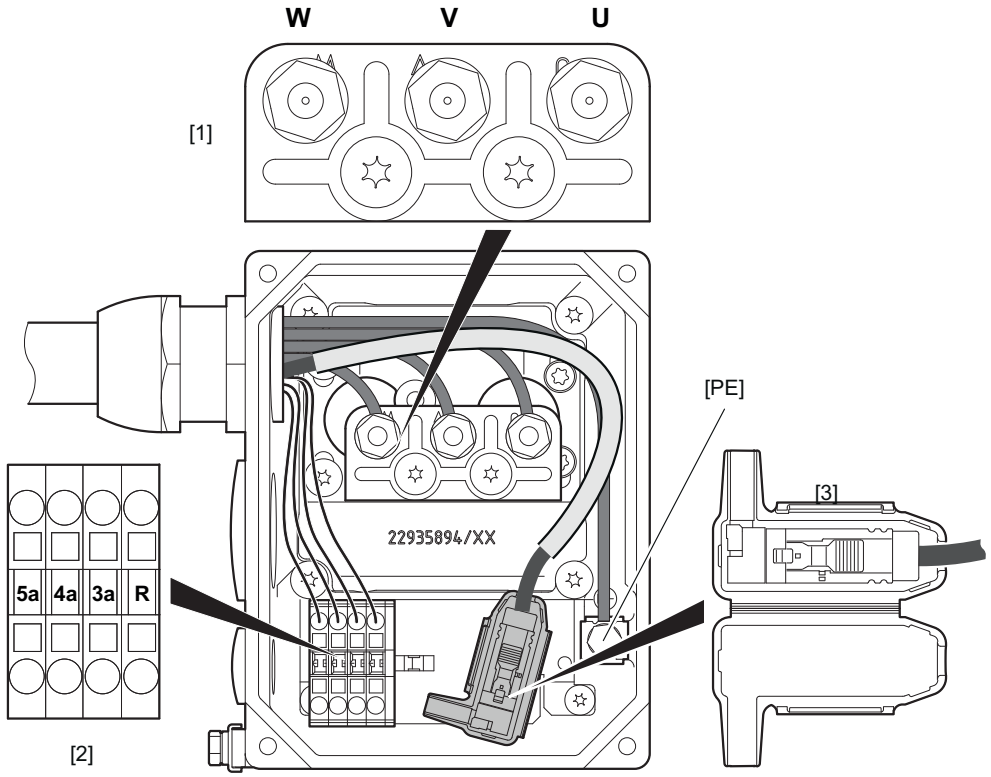
Assignment		
Terminal [1]	**no.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

Assignment						
Terminal [2]	**no.**	**Brake control connection**				
		BMV..	**BS24**	**BME.., BMP.., BMH.., BMK.., BST, SBM, MOVIMOT® flexible**	**Direct brake control for MOVI® C**	**BS1Z..**
BK.. brake	R	–	–	–	–	–
	3a	–	–	–	–	–
	4a	13	3	–	DB 00	DC 24 V
	5a	15	5	–	GND	GND

Connection	
Terminal [3]	FAKRA plug-in connection: Open the FAKRA connector housing and connect the DDI cable.

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Terminal assignment of terminal box KD CMP71 – 100



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Assignment		
Terminal [1]	**No.**	**Connection**
Motor	U	Motor phase U
	V	Motor phase V
	W	Motor phase W
	PE	Protective earth

Assignment			
Terminal [2]	**No.**	**Brake control connection**	
		BMV..	**BS24**
BP.. brake	R	–	–
	3a	–	–
	4a	13	3
	5a	15	5

Connection	
Terminal [3]	FAKRA plug-in connection: Open the FAKRA connector housing and connect the DDI cable.

5.8.5 Assignment table for connection technology

System voltage 400 V, without forced cooling fan

Connection technology	Approval	CMP40S			CMP40M		
		3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1 (M23)	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	X	X	X	X	X	X

Connection technology	Approval	CMP50S			CMP50M			CMP50L		
		3000	4500	6000	3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP63S			CMP63M			CMP63L		
		3000	4500	6000	3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP71S				CMP71M				CMP71L			
		2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–	–	–	–

X Design possible
– Design not possible

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Connection technology	Approval	CMP80S				CMP80M				CMP80L			
		2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	–	X	X	–	–
	UL	X	X	X	X	X	X	X	–	X	X	–	–
	CSA	X	X	X	X	X	X	X	–	X	X	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	–
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KD/KDD	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP100S			CMP100M			CMP100L		
		2000	3000	4500	2000	3000	4500	2000	3000	4500
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	–	X	X	–	–	–	–
	UL	X	X	–	X	X	–	–	–	–
	CSA	X	X	–	X	X	–	–	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	–
SMC/SBC/SMCD/ SBCD (M58)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–
KK/KKS	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD/KDD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP112S			CMP112M			CMP112L			CMP112H			CMP112E		
		2000	3000	4500	2000	3000	4500	2000	3000	4500	2000	3000	4500	2000	3000	4500
SM1/SB1 (M23)	IEC	X	X	–	X	–	–	–	–	–	–	–	–	–	–	–
	UL	X	X	–	X	–	–	–	–	–	–	–	–	–	–	–
	CSA	X	X	–	X	–	–	–	–	–	–	–	–	–	–	–
SMB/SBB (M40)	IEC	X	X	X	X	X	X	X	X	–	X	–	–	X	–	–
	UL	X	X	X	X	X	X	X	X	–	X	–	–	X	–	–
	CSA	X	X	X	X	X	–	X	–	–	–	–	–	–	–	–
SMC/SBC (M58)	IEC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	–
	UL	X	X	X	X	X	X	X	X	–	X	X	–	X	–	–
	CSA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KK/KKS/KL/KLS	IEC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X Design possible
– Design not possible

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System voltage 400 V, with forced cooling fan

Connection technology	Approval	CMP50S			CMP50M			CMP50L		
		3000	4500	6000	3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP63S			CMP63M			CMP63L		
		3000	4500	6000	3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP71S				CMP71M				CMP71L			
		2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X	X	X	–
	UL	X	X	X	X	X	X	X	X	X	X	–	–
	CSA	X	X	X	X	X	X	X	X	X	X	–	–
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	–	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP80S				CMP80M				CMP80L		
		2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	–	X	X	–	–	X	–	–
	UL	X	X	X	–	X	X	–	–	X	–	–
	CSA	X	X	X	–	X	X	–	–	X	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	–	X	X	–
KD/KDD	IEC	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–	–	–

X Design possible
– Design not possible

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Connection technology	Approval	CMP100S			CMP100M			CMP100L		
		2000	3000	4500	2000	3000	4500	2000	3000	4500
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	–	–	X	–	–	–	–	–
	UL	X	–	–	–	–	–	–	–	–
	CSA	X	–	–	–	–	–	–	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	–	X	X	–
	UL	X	X	X	X	X	–	X	X	–
	CSA	X	X	X	X	X	–	X	X	–
SMC/SBC (M58)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–
SMCD/SBCD (M58)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–
KK/KKS	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD/KDD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP112S			CMP112M			CMP112L			CMP112H			CMP112E		
		2000	3000	4500	2000	3000	4500	2000	3000	4500	2000	3000	4500	2000	3000	4500
SM1/SB1 (M23)	IEC	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	UL	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	CSA	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SMB/SBB (M40)	IEC	X	X	X	X	X	–	–	–	–	–	–	–	–	–	–
	UL	X	X	X	X	X	–	–	–	–	–	–	–	–	–	–
	CSA	X	X	X	X	–	–	–	–	–	–	–	–	–	–	–
SMC/SBC (M58)	IEC	X	X	X	X	X	X	X	X	–	X	X	–	X	–	–
	UL	X	X	X	X	X	X	X	X	–	X	–	–	X	–	–
	CSA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	–	X	X	–	X	X	–
KL/KLS	IEC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X Design possible
– Design not possible

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System voltage 230 V, without forced cooling fan

Connection technology	Approval	CMP40S			CMP40M		
		3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1 (M23)	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	X	X	X	X	X	X

Connection technology	Approval	CMP50S			CMP50M			CMP50L		
		3000	4500	6000	3000	4500	6000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP63S			CMP63M			CMP63L	
		3000	4500	6000	3000	4500	6000	3000	4500
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X
KK	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP71S				CMP71M				CMP71L			
		2000	3000	4500	6000	2000	3000	4500	6000	2000	3000	4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KK/KKS	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–	–	–	–	–

X Design possible
– Design not possible

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Connection technology	Approval	CMP80S			CMP80M			CMP80L	
		3000	4500	6000	3000	4500	6000	3000	4500
SM1/SB1/SH1/SE1/SD1 (M23)	IEC	X	X	X	X	X	–	–	–
	UL	X	X	X	X	X	–	–	–
	CSA	X	X	X	X	X	–	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	X	X	–
	UL	X	X	X	X	X	X	X	–
	CSA	X	X	X	X	X	–	X	–
KK/KKS	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	–
	CSA	X	X	X	X	X	–	X	–
KD/KDD	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–

Connection technology	Approval	CMP100S			CMP100M			CMP100L	
		2000	3000	4500	2000	3000	4500	2000	3000
SM1/SB1/SH1/SE1/SD1 (M23)	IEC	–	–	–	–	–	–	–	–
	UL	–	–	–	–	–	–	–	–
	CSA	–	–	–	–	–	–	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	–	X	X	–	X	–
	UL	X	X	–	X	X	–	X	–
	CSA	X	X	–	X	–	–	X	–
SMC/SBC (M58)	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–
SMCD/SBCD (M58)	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–
KK/KKS	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	X	X	X	X	X	X	X	X
KD/KDD	IEC	X	X	X	X	X	X	X	X
	UL	X	X	X	X	X	X	X	X
	CSA	–	–	–	–	–	–	–	–

X Design possible
– Design not possible

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System voltage 230 V, with forced cooling fan

Connection technology	Approval	CMP50S
		3000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X
	UL	X
	CSA	X
KK	IEC	X
	UL	X
	CSA	X
KD	IEC	X
	UL	X
	CSA	–

Connection technology	Approval	CMP63M	
		4500	6000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X
	UL	X	X
	CSA	X	X
KK	IEC	X	X
	UL	X	X
	CSA	X	X
KD	IEC	X	X
	UL	X	X
	CSA	–	–

Connection technology	Approval	CMP71S			CMP71M		CMP71L
		3000	4500	6000	3000	4500	3000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	X	X	X	X	–	–
	UL	X	X	–	X	–	–
	CSA	X	X	–	X	–	–
KK/KKS	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	X	X	X	X	X	X
KD	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	–	–	–	–	–	–

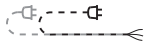
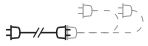
Connection technology	Approval	CMP80S			CMP80M		CMP80L
		3000	4500	6000	3000	4500	3000
SM1/SB1/SH1/SE1/ SD1 (M23)	IEC	–	–	–	–	–	–
	UL	–	–	–	–	–	–
	CSA	–	–	–	–	–	–
SMB/SBB/SHB/SDB (M40)	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	X	X	–	X	X	X
KK/KKS	IEC	X	X	X	X	X	X
	UL	X	X	X	X	–	X
	CSA	X	–	–	X	–	–
KD/KDD	IEC	X	X	X	X	X	X
	UL	X	X	X	X	X	X
	CSA	–	–	–	–	–	–

X Design possible
– Design not possible

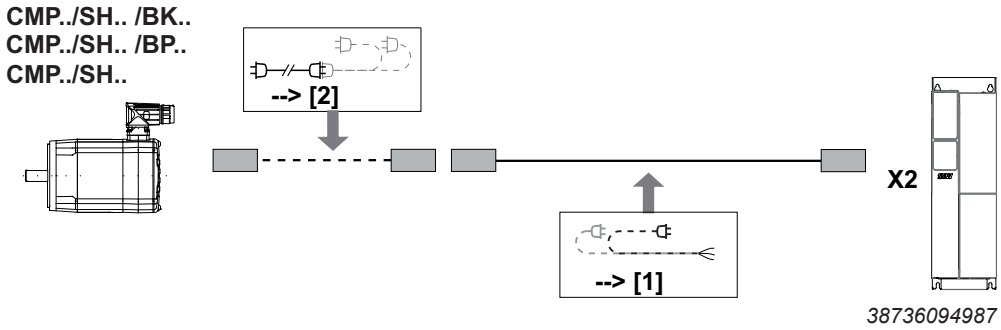
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5.9 Prefabricated cables for single-cable technology

5.9.1 Meaning of the symbols

Symbol	Meaning
	Connection cable: Connector → open end for cable carrier installation
	Connection cable extension: Connector → connector for cable carrier installation

5.9.2 Overview of motor hybrid cables without encoder



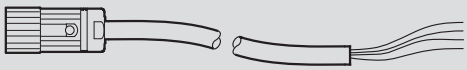
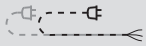
[1] Motor/brakemotor cable (→ 🗎 227)

[2] Extension cable (→ 🗎 229)

For further information on the cables, refer to chapter "Configuring the permitted cable length".

Motor/brakemotor cable ../SH..

Design

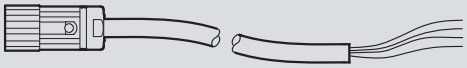
	Motor side / Inverter side 			 Cable carrier installation
Cable type	**Connector type/size**	**Cable cross section**	**Connector type/size**	**Part number**
Motor cable/ brakemotor cable	SH1/M23 SpeedTec	4 × 1.5 mm² + 3 × 1 mm² + 4 × 0.34 mm²	Open end	18191290
		4 × 2.5 mm² + 3 × 1 mm² + 4 × 0.34 mm²		18191304
		4 × 4 mm² + 3 × 1 mm² + 4 × 0.34 mm²		18191312
	SHB / M40 SpeedTec	4 × 6 mm² + 3 × 1.5 mm² + 4 × 0.34 mm²		18191320
		4 × 10 mm² + 3 × 1.5 mm² + 4 × 0.34 mm²		18191339

For further information on the cables, refer to chapter "Configuring the permitted cable length".

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Connection without a brake

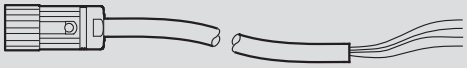
Motor side Inverter side



Contact		Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
A	1	Reserved	–	–	–	Not prefabricated	Do not connect
B	N	Reserved	–	–	–	Not prefabricated	Do not connect
C	+	Reserved	–	–	–	Not prefabricated	Do not connect
D	2	Reserved	–	–	–	Not prefabricated	Do not connect
PE	PE	PE	Yellow/green	GNYE	–	Not prefabricated	Protective earth
H	H	PK	White	WH	–	Not prefabricated	Motor protection
L	L	PK	Blue	BU	–	Not prefabricated	Motor protection

Connection with a /BK or /BP brake

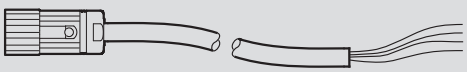
Motor side Inverter side



Contact		Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
A	1	Reserved	–	–	–	Not prefabricated	Do not connect
B	N	Reserved	–	–	–	Not prefabricated	Do not connect
C	+	Brake +	Black	BK	BK1	Not prefabricated	Brake +
D	2	Brake -	Black	BK	BK3	Not prefabricated	Brake -
PE	PE	PE	Yellow/green	GNYE	–	Not prefabricated	Protective earth
H	H	PK	White	WH	–	Not prefabricated	Motor protection
L	L	PK	Blue	BU	–	Not prefabricated	Motor protection

Connection with a /BY brake

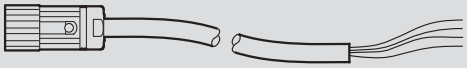
Motor side Inverter side



Contact		Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
A	1	Reserved	–	–	–	Not prefabricated	Do not connect

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Motor side — Inverter side

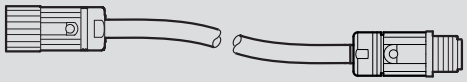


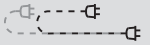
Contact		Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40						
B	N	14	Black	BK	BK/2	Not prefabricated	Brake 14
C	+	13	Black	BK	BK/1	Not prefabricated	Brake 13
D	2	15	Black	BK	BK/3	Not prefabricated	Brake 15
PE	PE	PE	Yellow/green	GNYE	–	Not prefabricated	Protective earth
H	H	PK	White	WH	–	Not prefabricated	Motor protection
L	L	PK	Blue	BU	–	Not prefabricated	Motor protection

Extension cable ../SH..

Design

Motor side — Inverter side





Cable type	Connector type/size	Cable cross section	Connector type/size	Part number
Extension cable	SH1/M23 SpeedTec	4 × 1.5 mm² + 3 × 1 mm² + 4 × 0.34 mm²	SH1/M23	18191347
		4 × 2.5 mm² + 3 × 1 mm² + 4 × 0.34 mm²		18191355
		4 × 4 mm² + 3 × 1 mm² + 4 × 0.34 mm²		18191363
	SHB / M40 SpeedTec	4 × 6 mm² + 3 × 1.5 mm² + 4 × 0.34 mm²	SHB / M40	18191371
		4 × 10 mm² + 3 × 1.5 mm² + 4 × 0.34 mm²		18191398

Cable carrier installation

For further information on the cables, refer to chapter "Configuring the permitted cable length".

5.9.3 Cables for MOVILINK® DDI

The MOVILINK® DDI interface requires a coaxial cable for data transmission between the motor and the inverter. Depending on the motor cable cross-section that is required, the coaxial cable is in the form of a hybrid cable (up to 10 mm^2) or in separate cables (> 10 mm^2).

The coaxial cable requires a FAKRA connector at the inverter and motor sides. SEW-EURODRIVE provides prefabricated cables with connectors already fitted. Rolls of bulk cable are also available, whereby the connectors must be fitted by the customer. The FAKRA connectors can be assembled using the "MOVILINK® DDI Tool Set 1".

More information can be found in the "MOVI-C® Modular Automation System – Digital Motor Integration" manual.

Single-cable technology up to 10 mm^2

Prefabricated hybrid cables for motors with MOVILINK® DDI interface are structured as follows:

- 1 conductor for the PE connection
- 3 conductors for controlling the motor
- 4 conductors for controlling the brake
- 1 coaxial cable for MOVILINK® DDI

With this universal hybrid cable, all variants of the brake can be controlled.

Multi-cable technology larger than 10 mm^2

For cross sections larger than 10 mm^2, the coaxial cable is routed separately in a cable. Individual coaxial cables are available as prefabricated cables.

Six plugging positions are available.

The coaxial cable at the motor side is always connected using an M23 connector.

Number of plug-in locations

The coaxial technology from MOVILINK® DDI allows for multiple plugging positions. Up to 4 plugging positions can be implemented, whereby merely plugging positions with an M23 or M40 plug connector are counted. The plugging positions of the FAKRA plug connector within the motor in the terminal box, on the encoder module, or on the inverter itself are not counted.

Examples for the numbering system of the plugging positions:

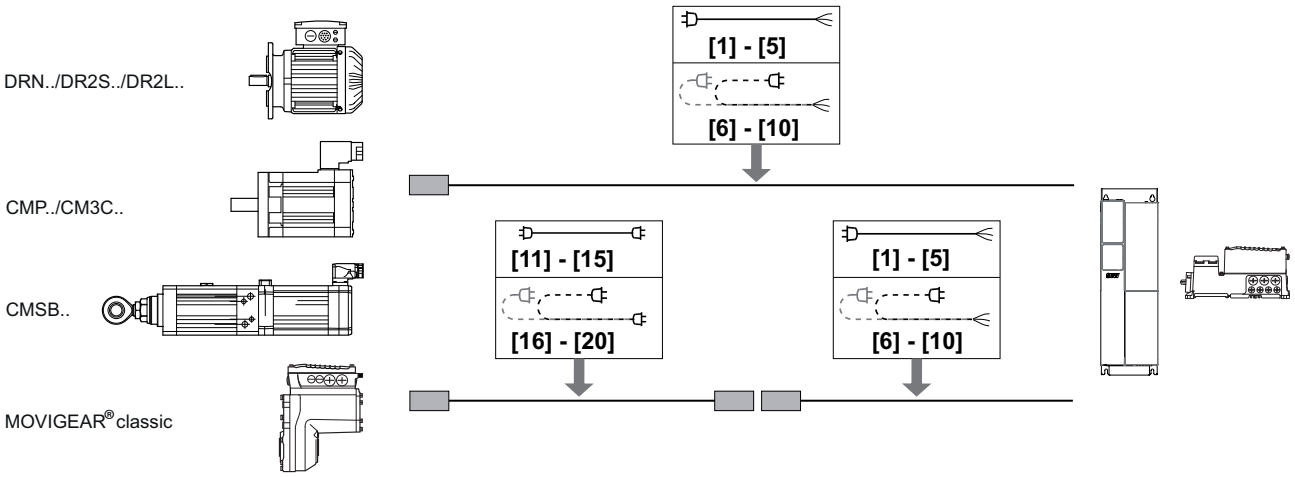
- Cable from MOVIDRIVE® to the DRN.. motor with KD1 (M23 plug connector): 1 plugging position
- Cable from MOVIMOT® flexible with M23 to the DRN.. motor with KD1 (M23 plug connector): 2 plugging positions
- Cable from MOVIDRIVE® to the DRN.. motor with KD1 (M23 plug connector) connected to an extension cable M23 to M23: 2 plugging positions
- Cable from MOVIMOT® flexible with M23 to the DRN.. motor with KD1 (M23 plug connector) connected to an extension cable M23 to M23: 3 plugging positions
- Cable from MOVIDRIVE® to the DRN.. motor with KD (hybrid cable gland without connector): 0 plugging positions

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Interlocking of the plug connectors

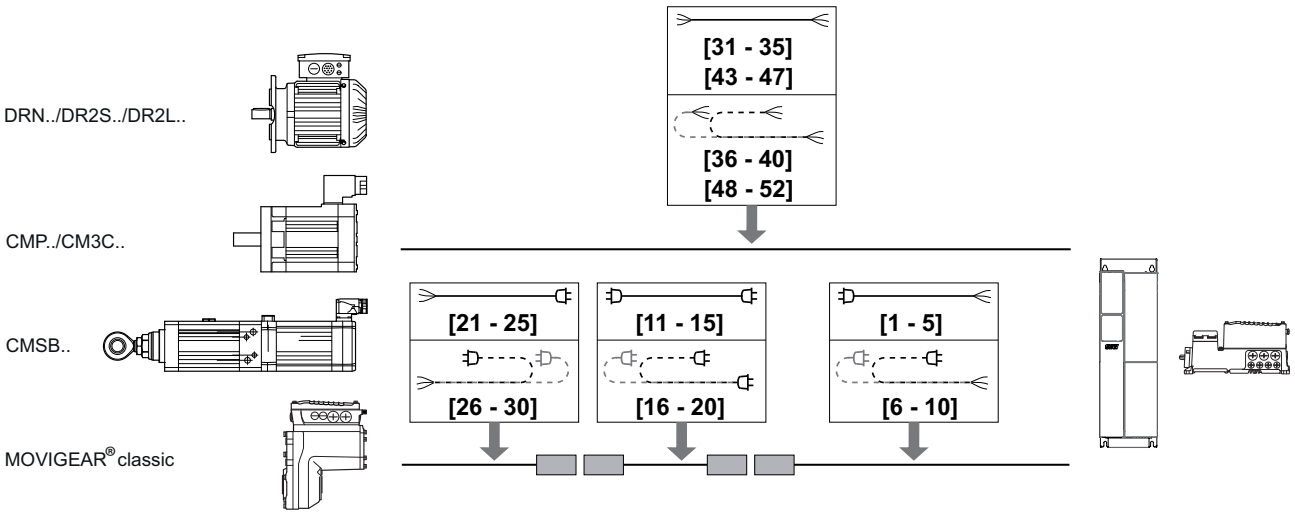
MOVILINK® DDI cables with plug connectors are delivered with quick-lock SpeedTec plug connectors as standard. Note that this interlocking must be completely closed to achieve interference-free signal transmission via MOVILINK® DDI.

Hybrid cables with connector on the motor side, open end on the inverter side



18014428001134603

Hybrid cables with open end on the motor side, open end on the inverter side

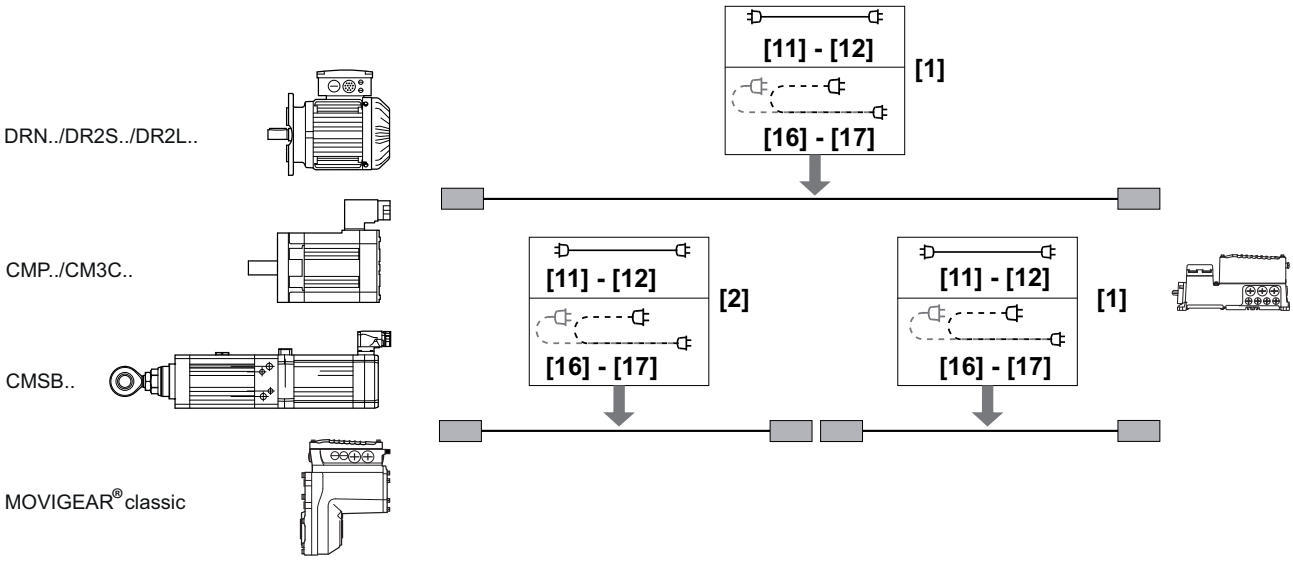


27021627255878027

Hybrid cables with connector on the motor side, connector on the inverter side

The cable is used for the following inverters:

- MOVIMOT® flexible with plug connector

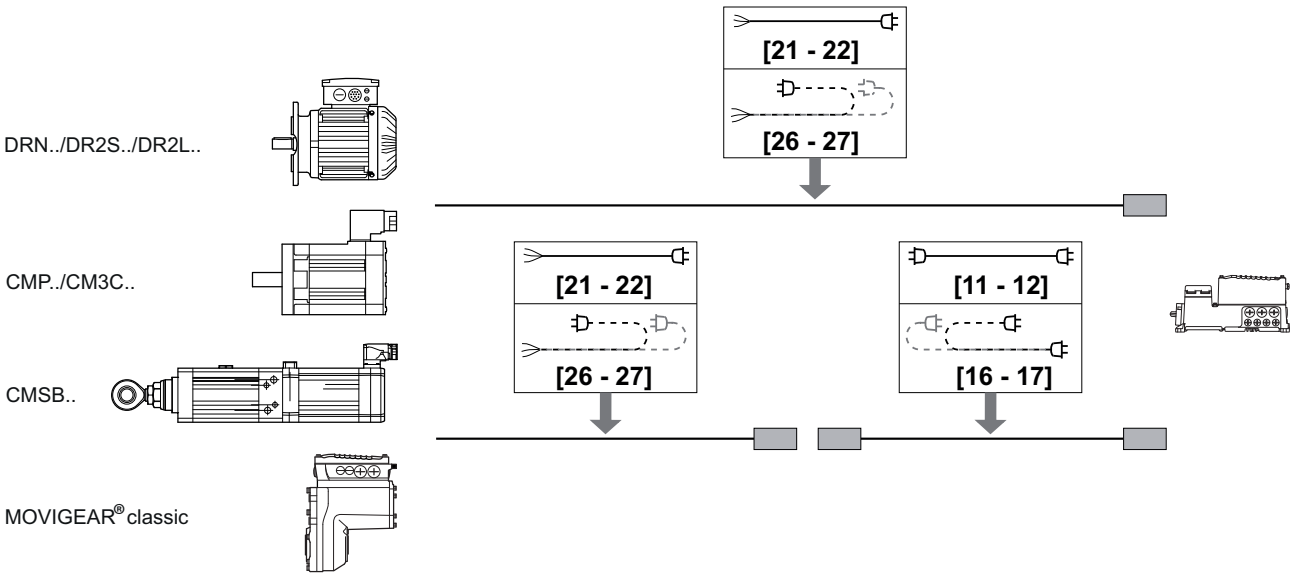


9007231552429067

Hybrid cables with open end on the motor side, connector on the inverter side

The cable is used for the following inverters:

- MOVIMOT® flexible

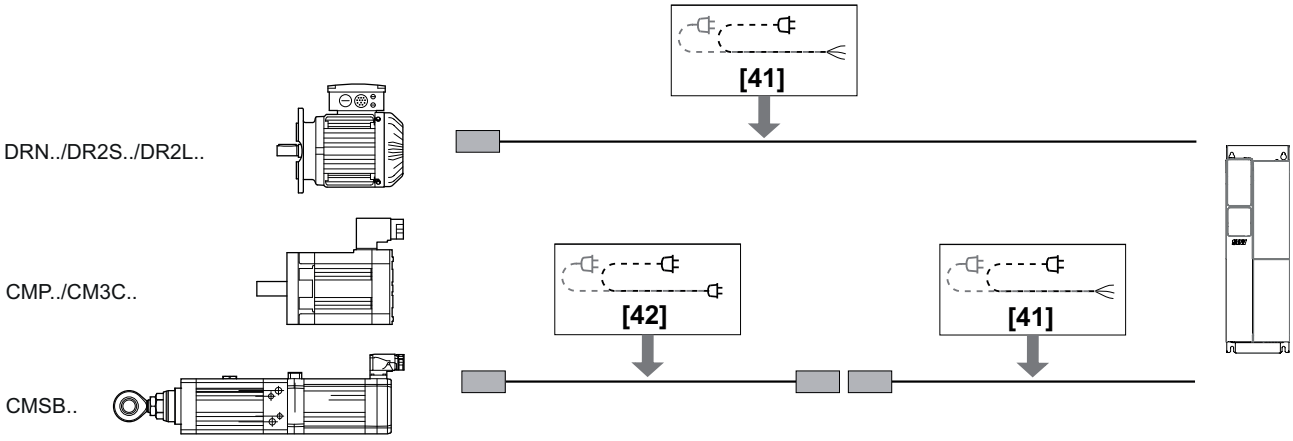


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Coaxial cables with connector on the motor side, open end on the inverter side

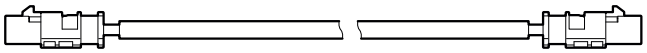
The coaxial cable is needed with a cross-section of greater than 10 mm² for the conductors for controlling the motor, and contains the signal cable for the MOVILINK® DDI connection. The cable for controlling the motor and the brake must be routed separately.



9007232095784971

Adaption of the FAKRA plug connector

Adapter cables are available for connecting the open FAKRA plug connector. This enables the connection of self-prefabricated cables with an open end and a FAKRA plug connector. The FAKRA plug connector is compatible with all prefabricated cables for MOVILINK® DDI with open end from SEW-EURODRIVE.

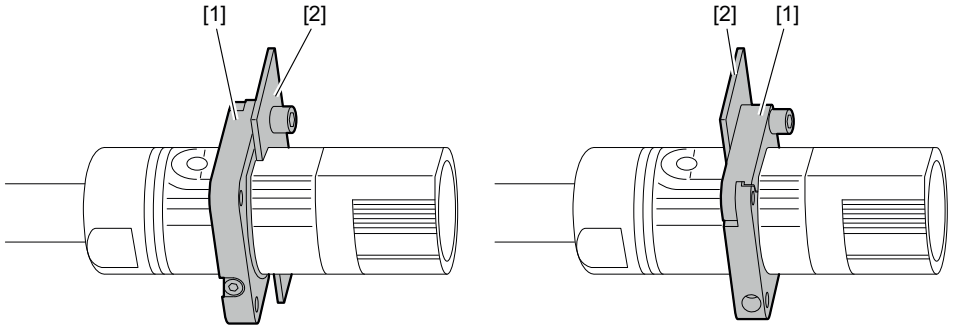


40957566603

Part number	Installation type	Length	Connection	Motor side	Inverter side
28170792	Fixed	200 mm	FAKRA Coaxial	Male	Male

Adaption of hybrid cables with M23 and M40 plug connectors on housings

Hinged flanges from TE Connectivity are available for laying prefabricated hybrid cables for MOVILINK® DDI with M23 or M40 plug connectors in housings. These can be sourced directly from TE Connectivity under the following designation and article number.



40221713163

[1] Clamping flange
[2] Housing wall

Follow the assembly instructions from TE Connectivity.

Manufacturer	Order number	Type	Operating temperature	Degree of protection
TE Connectivity	E0.222.02	Flange, clamping, two-piece for straight M23 plug connectors, series 723	-20 °C to +60 °C	IP65/IP67 with blind hole mounting
TE Connectivity	E0.058.02	Flange, clamping, two-piece for straight M40 plug connectors, series 940	-20 °C to +60 °C	IP65/IP67 with blind hole mounting

Cable tables

No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[1]	28123808	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[2]	28123816	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[3]	28123824	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[4]	28123832	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	Open
[5]	28123840	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	Open
[6]	28123743	4 × 1.5 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	Open
[7]	28123751	4 × 2.5 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	Open
[8]	28123778	4 × 4 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	Open
[9]	28123786	4 × 6 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	Open
[10]	28123794	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	Open
[11]	28123905	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[12]	28123913	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[13]	28123921	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[14]	28123948	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	M40
[15]	28123956	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	M40
[16]	28123859	4 × 1.5 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[17]	28123867	4 × 2.5 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[18]	28123875	4 × 4 + 4 × 1 + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[19]	28123883	4 × 6 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	M40
[20]	28123891	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	M40
[21]	28124367	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23
[22]	28124375	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23
[23]	28124383	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23

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No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[24]	28143884	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	M40
[25]	28143892	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	M40
[26]	28124332	4 × 1.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	M23
[27]	28124340	4 × 2.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	M23
[28]	28124359	4 × 4 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	M23
[29]	28143868	4 × 6 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	M40
[30]	28143876	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	M40
[31]	28152395	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[32]	28152409	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[33]	28152417	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[34]	28152425	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open
[35]	28152433	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open
[36]	28152441	4 × 1.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[37]	28152468	4 × 2.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[38]	28152476	4 × 4 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[39]	28152484	4 × 6 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	Open
[40]	28152492	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	Open
[41]	28129431	Coaxial cable	Cable carrier installation	SMCD/SBCD/KDD	M23	Open
[42]	28138376	Coaxial cable	Cable carrier installation	SMCD/SBCD/KDD	M23	M23

The prefabricated cables "open on the motor side" and "open on the inverter side" (lines 31 – 40) can also be supplied as cable reels in lengths 30 m, 100 m, and 200 m (lines 43 – 52). These cables are not prefabricated.

For more information on assembly, refer to the addendum to the "MOVILINK® DDI Tool Set 1" operating instructions.

No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[43]	28123395	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[44]	28123409	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[45]	28123417	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[46]	28123425	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open
[47]	28123433	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open
[48]	28123336	4 × 1.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[49]	28123344	4 × 2.5 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[50]	28123352	4 × 4 + 4 × 1 + coaxial cable	Cable carrier installation	KD	Open	Open
[51]	28123360	4 × 6 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	Open
[52]	28123379	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	Open

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5.9.4 Motor cables for motors with MOVILINK® DDI interface

The following tables list the cables available for this connection.

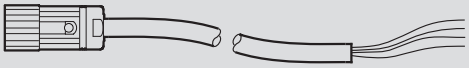
Connecting motor cables for motors without brake with MOVILINK® DDI interface

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2S../DR2L.. asynchronous motors
- CMP../CM3C.. synchronous motors
- MOVIGEAR® classic drive unit

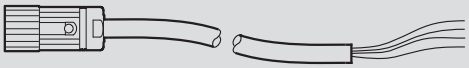
The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	Reserved	Yellow	YE	A	Not prefabricated	Do not connect
B	+	Reserved	Orange	OG	B	Not prefabricated	Do not connect
C	N	Reserved	Pink	PK	C	Not prefabricated	Do not connect
D	2	Reserved	Violet	VT	D	Not prefabricated	Do not connect
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

MOVIMOT® flexible

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	A	Yellow	YE	A	Not prefabricated	Connection A
B	+	B	Orange	OG	B	Not prefabricated	Connection B
C	N	C	Pink	PK	C	Not prefabricated	Connection C
D	2	D	Violet	VT	D	Not prefabricated	Connection D
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

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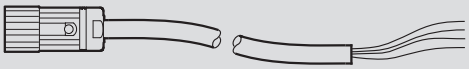
Connecting motor cables for motors with BE.. or BZ.. brake with MOVILINK® DDI interface

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2S../DR2L.. asynchronous motors
- CM3C.. synchronous motors

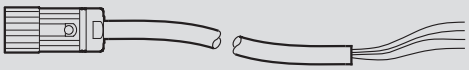
The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	Reserved	Yellow	YE	A	Not prefabricated	Do not connect
B	+	15	Orange	OG	B	Not prefabricated	Brake connection 15
C	N	13	Pink	PK	C	Not prefabricated	Brake connection 13
D	2	14	Violet	VT	D	Not prefabricated	Brake connection 14
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

MOVIMOT® flexible

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	A	Yellow	YE	A	Not prefabricated	Connection A
B	+	B	Orange	OG	B	Not prefabricated	Connection B
C	N	C	Pink	PK	C	Not prefabricated	Connection C
D	2	D	Violet	VT	D	Not prefabricated	Connection D
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

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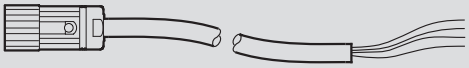
Connecting motor cables for motors with BK.. or BP.. brake with MOVILINK® DDI interface

Connecting cables with connectors on the motor side for the following motors:

- CMP../CM3C.. synchronous motors

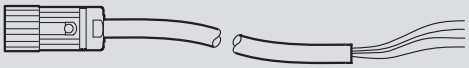
The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	Brake -	Yellow	YE	A	Not prefabricated	Brake connection -
B	+	Reserved	Orange	OG	B	Not prefabricated	Do not connect
C	N	Reserved	Pink	PK	C	Not prefabricated	Do not connect
D	2	Brake +	Violet	VT	D	Not prefabricated	Brake connection +
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

MOVIMOT® flexible

Motor side		Inverter side				
Contact						
M23	**M40**	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Identification**	**Prefabrication**	**Description**
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	A	Yellow	YE	A	Not prefabricated	Connection A
B	+	B	Orange	OG	B	Not prefabricated	Connection B
C	N	C	Pink	PK	C	Not prefabricated	Connection C
D	2	D	Violet	VT	D	Not prefabricated	Connection D
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

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Connection of motor cables for motors with BE.. or BZ.. brake and integrated BG1Z brake control

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2S../DR2L.. asynchronous motors
- CM3C.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side  **Inverter side**

Contact M23	Contact M40	Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	Reserved	Yellow	YE	A	Not prefabricated	Do not connect
B	+	N (L2)	Orange	OG	B	Not prefabricated	Brake connection, neutral conductor N (or phase L2)
C	N	Reserved	Pink	PK	C	Not prefabricated	Do not connect
D	2	L1	Violet	VT	D	Not prefabricated	Brake connection, phase L1
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

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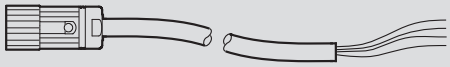
Connection of motor cables for motors with BS.Z and integrated BS1Z brake control

Connecting cables with connectors on the motor side for the following motors:

- CM3C.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side  **Inverter side**

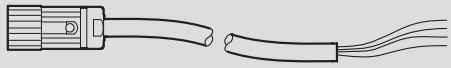
Contact M23	Contact M40	Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
U	U	U	Black	BK	U/L1	Not prefabricated	Motor connection phase U
V	V	V	Black	BK	V/L2	Not prefabricated	Motor connection phase V
W	W	W	Black	BK	W/L3	Not prefabricated	Motor connection phase W
A	1	GND	Yellow	YE	A	Not prefabricated	GND connection
B	+	DC 24 V	Orange	OG	B	Not prefabricated	DC 24 V connection
C	N	Reserved	Pink	PK	C	Not prefabricated	Do not connect
D	2	Reserved	Violet	VT	D	Not prefabricated	Do not connect
PE	PE	PE	Yellow/green	YE/GN		Not prefabricated	Protective earth connection
DDI	DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

Connection of coaxial cables with separate routing of power cable and signal cable

The power cable and signal cable can only be routed together up to a cable cross section of 10 mm^2. With larger cable cross sections, the power cable is routed separately from the signal cable.

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side  **Inverter side**

Contact M23	Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
DDI	DDI	Violet	VT		Coaxial connector	MOVILINK® DDI

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5.9.5 Self-assembly of the DDI cable

SEW-EURODRIVE offers assembled hybrid cables. The cable side with the M23 or M40 plug connector can only be assembled by SEW-EURODRIVE. The open side can be assembled by the customer if, for example, a cable needs to be shortened.

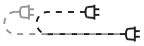
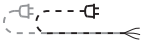
When doing this, a special tool set is only required for the coaxial cable; all other conductors are crimped with standard ring lugs or standard cable lugs.

The "MOVILINK® DDI Tool Set 1" contains stripping and crimping pliers to crimp the coaxial connector according to the FAKRA standard. The tool set contains the material required for 50 plug-in connections. The coaxial connector on the cable is the same for the connection to a motor or inverter.

You can assemble the MOVILINK® DDI cables yourself by using the following information.

5.10 Prefabricated cables for two-cable technology

5.10.1 Meaning of the symbols

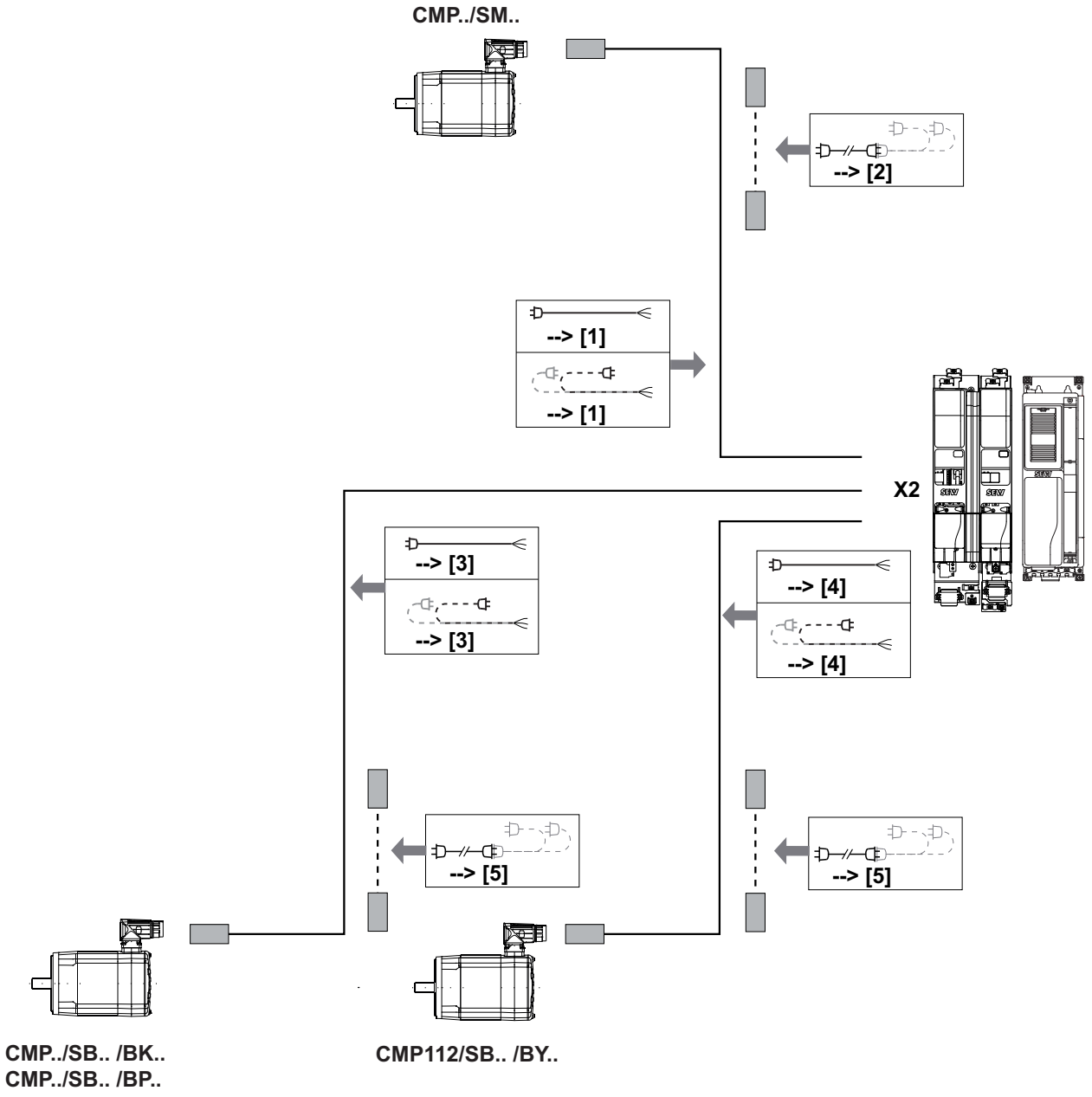
Symbol	Meaning
	Connection cable: Connector → connector for fixed installation
	Connection cable: Connector → connector for cable carrier installation
	Connection cable: Connector → open end for fixed installation
	Connection cable: Connector → open end for cable carrier installation
	Connection cable extension: Connector → connector for fixed installation
	Connection cable extension: Connector → connector for cable carrier installation
12345678	Part number of the cable

INFORMATION

SEW-EURODRIVE does not offer prefabricated cables for encoders EH0E, AH0E, EH1E and AH1E with EnDat 2.2. Refer to chapter "Technical data of the encoders" for information on the available connectors.

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5.10.2 Overview of the power cables



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[1] Motor cables ../SM.. (→ 🗎 243)
[2] Motor extension cable ../ SM.. (→ 🗎 244)
[3] Brakemotor cables ../SB.. for /BK and /BP brakes (→ 🗎 244)
[4] Brakemotor cables ../SB.. for /BY brakes (→ 🗎 245)
[5] Brakemotor extension cables ../SB.. for /BK, /BP, and /BY brakes (→ 🗎 246)

For further information on the cables, refer to chapter "Configuring the permitted cable length".

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Motor cables ../SM..

Design

	Motor side / Inverter side			Fixed installation	Cable carrier installation
Cable type	**Connector type/ size**	**Cable cross section**	**Connector type/ size**	**Part number**	
Motor cable	SM1 / M23 SpeedTec-ready	4 × 1.5 mm²	Open end	05904544	05906245
		4 × 2.5 mm²		05904552	05906253
		4 × 4 mm²		05904560	05904803
	SMB / M40 SpeedTec-ready	4 × 6 mm²		13350269	13350293
		4 × 10 mm²		13350277	13350307
		4 × 16 mm²		13350285	13350315
	SMC / M58 SpeedTec-ready	4 × 16 mm²		18148476	18148484
		4 × 25 mm²		–	18148581
		4 × 35 mm²		–	18148697

Connection

Motor side **Inverter side**

Contact			Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	**M40**	**M58**						
A	2	1	–	–	–	–	–	–
B	1	2	–	–	–	–	–	–
C	+	+	–	–	–	–	–	–
D	-	-	–	–	–	–	–	–
1	U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
2	PE	PE	PE	Green/yellow	GNYE	–	Not prefabricated	Protective earth
3	W	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
4	V	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V

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Motor extension cables ../SM..

Design

	Motor side / Inverter side			Fixed installation	Cable carrier installation
Cable type	**Connector type/ size**	**Cable cross section**	**Connector type/ size**	**Part number**	
Motor extension cable	SM1 / M23 SpeedTec-ready	4 × 1.5 mm²	SM1 / M23 SpeedTec-ready	–	13332457
		4 × 2.5 mm²		–	13332465
		4 × 4 mm²		–	13332473
	SMB / M40 SpeedTec-ready	4 × 6 mm²	SMB / M40 SpeedTec-ready	–	13350021
		4 × 10 mm²		–	13350048
		4 × 16 mm²		–	13350056
	SMC / M58 SpeedTec-ready	4 × 16 mm²	SMC / M58 SpeedTec-ready	–	18156819
		4 × 25 mm²		–	18156827
		4 × 35 mm²		–	18156835

Brakemotor cables ../SB.. for /BK and /BP brakes

Design

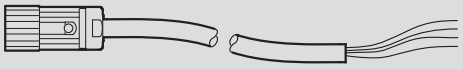
	Motor side / Inverter side			Fixed installation	Cable carrier installation
Cable type	**Connector type/ size**	**Cable cross section**	**Connector type/ size**	**Part number**	
Brakemotor cable[1] for BK.. and BP.. brakes	SB1 / M23 SpeedTec-ready	4 × 1.5 mm² + 3 × 1 mm²	Open end	13354345	13354388
		4 × 2.5 mm² + 3 × 1 mm²		13354353	13354396
		4 × 4 mm² + 3 × 1 mm²		13354361	13421603
	SBB / M40 SpeedTec-ready	4 × 6 mm² + 3 × 1.5 mm²		13350196	13350234
		4 × 10 mm² + 3 × 1.5 mm²		13350218	13350242
		4 × 16 mm² + 3 × 1.5 mm²		13350226	13350250

1) The cable contains 3 cores but only 2 cores are used.

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Connection

Motor side — Inverter side

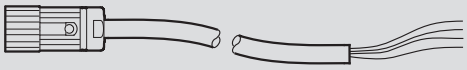


Contact		Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40						
A	2	–	–	–	–	–	–
B	1	–	–	–	–	–	–
C	+	Brake	Black	BK	BK (1)	Not prefabricated	Brake +
D	-	Brake	Black	BK	BK (3)	Not prefabricated	Brake -
1	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
2	PE	PE	Green/yellow	GNYE	–	Not prefabricated	Protective earth
3	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
4	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V

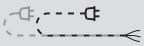
Brakemotor cables ../SB.. for /BY brakes

Design

Motor side — Inverter side



Fixed installation



Cable carrier installation

Cable type	Connector type/ size	Cable cross section	Connector type/ size	Part number	
Brakemotor cable for BY.. brake	SB1/M23 SpeedTec-ready	4 × 1.5 mm² + 3 × 1 mm²	Open end	13354272	13354302
		4 × 2.5 mm² + 3 × 1 mm²		13354280	13354310
		4 × 4 mm² + 3 × 1 mm²		13354299	13354329
	SBB / M40 SpeedTec-ready	4 × 6 mm² + 3 × 1.5 mm²		13350129	13350153
		4 × 10 mm² + 3 × 1.5 mm²		13350137	13350161
		4 × 16 mm² + 3 × 1.5 mm²		13350145	13350188
	SBC / M58 SpeedTec-ready	4 × 16 mm² + 3 × 1.5 mm²		18148514	13148522
		4 × 25 mm² + 3 × 1.5 mm²		–	–
		4 × 35 mm² + 3 × 1.5 mm²		–	–

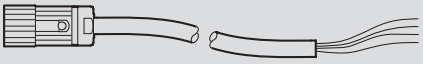
Connection

Motor side — Inverter side



Contact			Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40	M58						
A	2	2	–	–	–	–	–	–
B	1	1	Brake	Black	BK	BK (2)	Prefabricated	Brake 14
C	+	+	Brake	Black	BK	BK (1)	Prefabricated	Brake 13
D	-	-	Brake	Black	BK	BK (3)	Prefabricated	Brake 15
1	U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U

Motor side — Inverter side

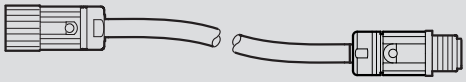


Contact			Signal	Conductor color	Conductor color IEC 60757	Identification	Assembly	Description
M23	M40	M58						
2	PE	PE	PE	Green/yellow	GNYE	–	Not prefabricated	Protective earth
3	W	W	W	Black	BK	W/L3	Not prefabricated	Motor phase W
4	V	V	V	Black	BK	V/L2	Not prefabricated	Motor phase V

Brakemotor extension cables ../SB.. for /BK, /BP, and /BY brakes

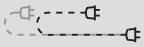
Design

Motor side — Inverter side





Fixed installation

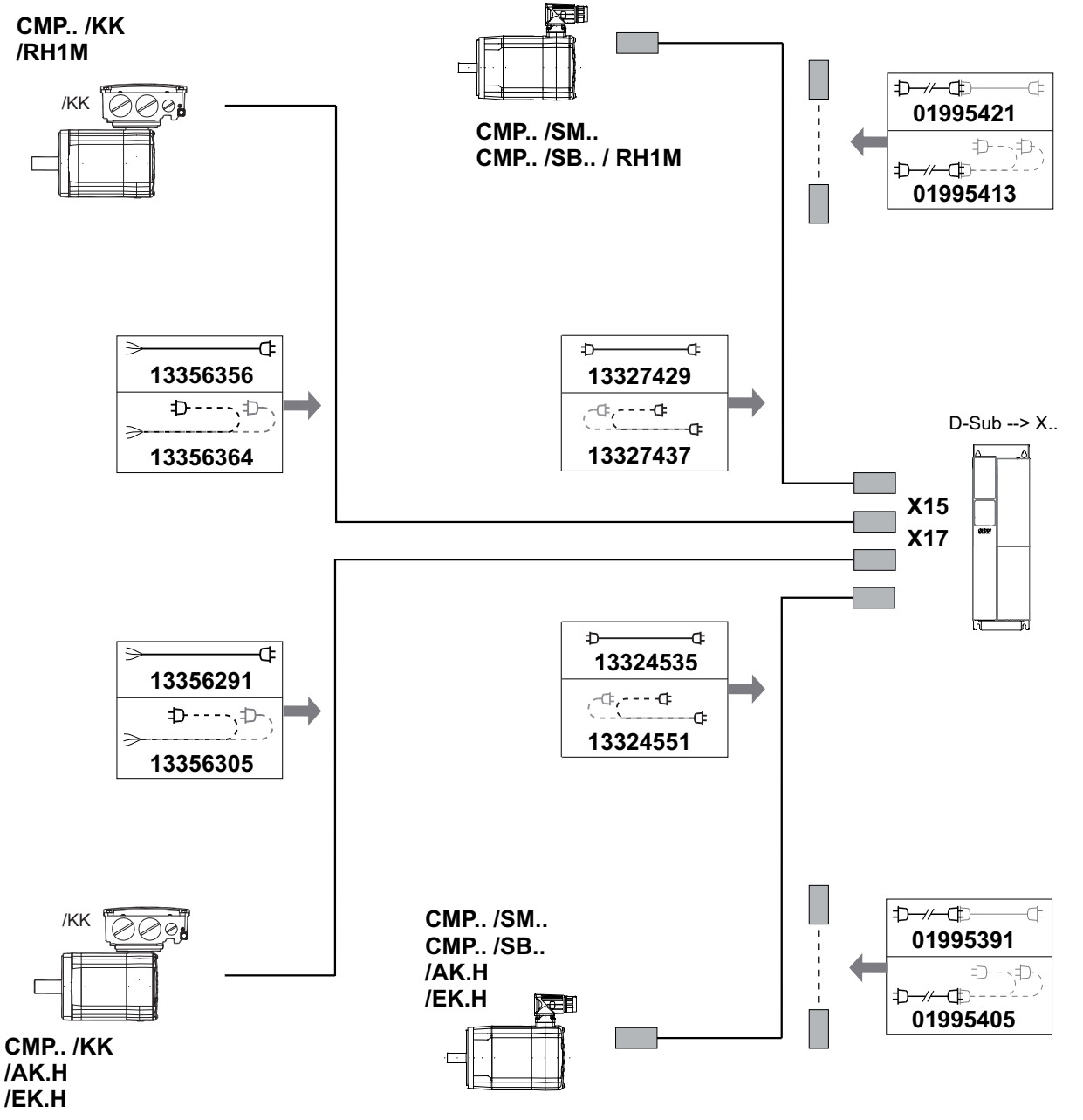


Cable carrier installation

Cable type	Connector type/ size	Cable cross section	Connector type/ size	Part number	
Brakemotor extension cable for BK../ BP../BY.. brakes	SB1/M23 SpeedTec-ready	4 × 1.5 mm² + 3 × 1 mm²	SM1/M23 SpeedTec	–	13354221
		4 × 2.5 mm² + 3 × 1 mm²		–	13354248
		4 × 4 mm² + 3 × 1 mm²		–	13354337
	SBB / M40 SpeedTec-ready	4 × 6 mm² + 3 × 1.5 mm²	SMB / M40 SpeedTec	–	13350099
		4 × 10 mm² + 3 × 1.5 mm²		–	13350102
		4 × 16 mm² + 3 × 1.5 mm²		–	13350110
	SBC / M58 SpeedTec-ready	4 × 16 mm² + 3 × 1.5 mm²	SMC / M58 SpeedTec	–	18156843

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5.10.3 Overview of encoder cables for MOVI-C® and MOVIAXIS® inverters



38739603083

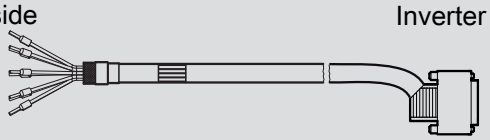
D-sub --> X..

X15: MOVIDRIVE® modular/system/technology basic device

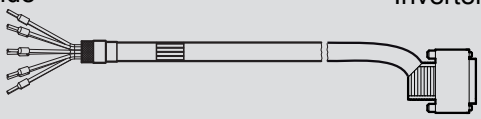
The encoders and resolver can be connected only to X15 at the MOVIDRIVE® modular/system/technology basic device.

X17: CES11A multi-encoder card

Encoder cable from RH1M resolver, terminal box to MOVI-C® and MOVIAXIS® inverters

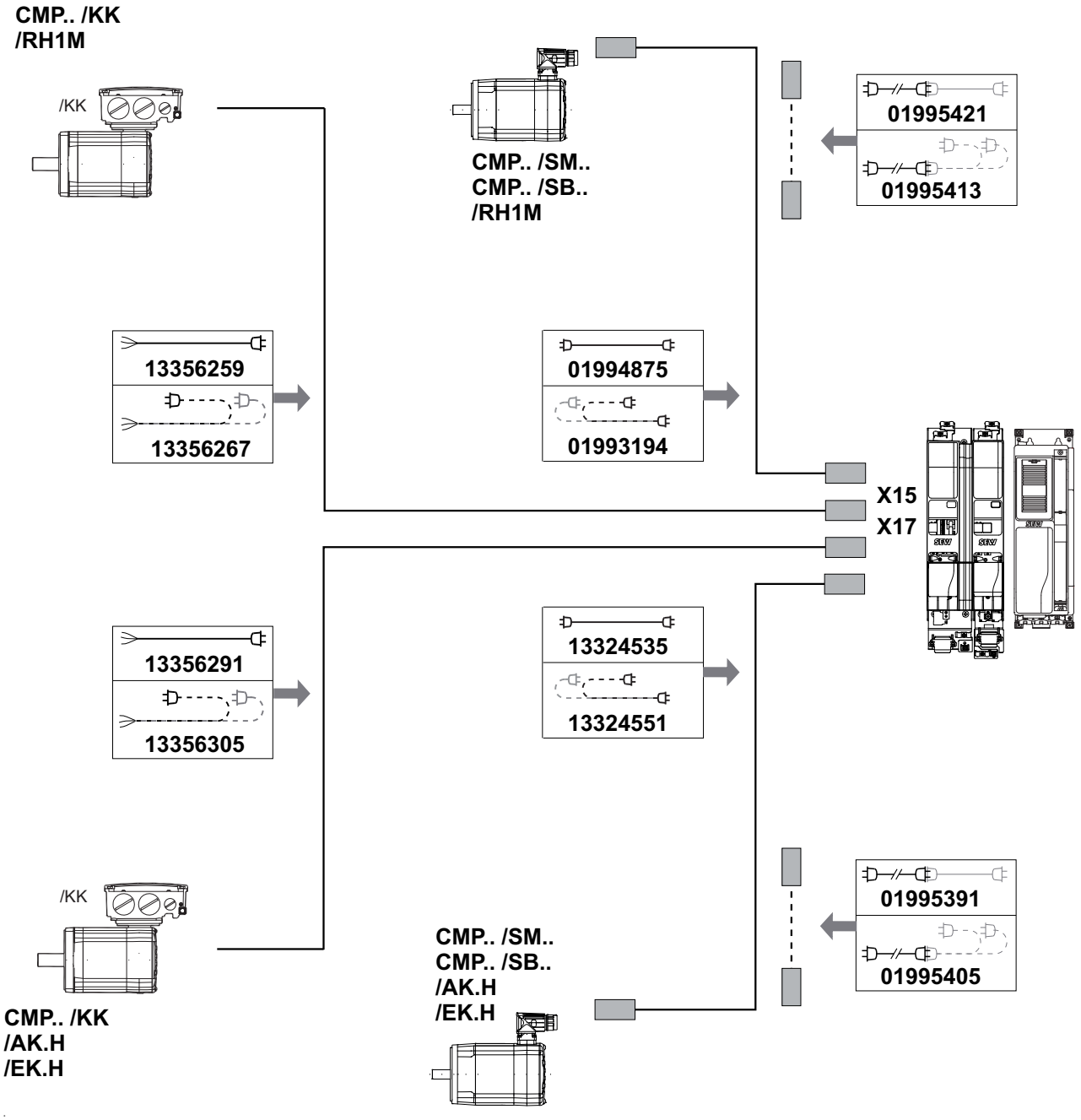
Terminal strip	Motor side  Inverter side			D-sub 15-pin
Contact	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Contact**
1	R1 (reference +)	Pink	PK	5
2	R2 (reference -)	Gray	GY	13
3	S1 (cosine +)	Red	RD	2
4	S3 (cosine -)	Blue	BU	10
5	S2 (sine +)	Yellow	YE	1
6	S4 (sine -)	Green	GN	9
7	n.c.	n.c.	n.c.	n.c.
8	n.c.	n.c.	n.c.	n.c.
9	PK	Brown/violet	BN/VT	14
10	PK	White/black	WH/BK	6

Encoder cable from HIPERFACE® encoder to MOVI-C® and MOVIAXIS® inverters

Terminal strip	Motor side  Inverter side			D-sub 15-pin
Contact	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Contact**
1	S1 (COS +)	Red	RD	1
2	S3 (COS -)	Blue	BU	9
3	S2 (SIN +)	Yellow	YE	2
4	S4 (SIN -)	Green	GN	10
5	Data -	Violet	VT	12
6	Data +	Black	BK	4
7	GND	Gray-pink/pink	GYPK/PK	8
8	Vs	Red-blue/gray	RDBU/GY	15
9	PK	Brown	BN	14
10	PK	White	WH	6

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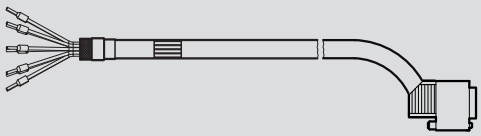
5.10.4 Overview of encoder cables for MOVIDRIVE® B inverters



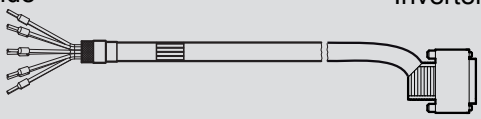
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All prefabricated encoder cables with connectors on the motor side are designed in SpeedTec.

Encoder cable from RH1M resolver, terminal box to MOVIDRIVE® B

Terminal strip	Motor side / Inverter side 			D-sub 9-pin
Contact	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Contact**
1	R1 (reference +)	Pink	PK	3
2	R2 (reference -)	Gray	GY	8
3	S1 (cos+)	Red	RD	2
4	S3 (cos-)	Blue	BU	7
5	S2 (sin+)	Yellow	YE	1
6	S4 (sin-)	Green	GN	6
7	n. c.	n. c.	n. c.	n. c.
8	n. c.	n. c.	n. c.	n. c.
9	PK	Brown/violet	BN/VT	9
10	PK	White/black	WH/BK	5

Encoder cable from AK0H HIPERFACE® encoder to MOVIDRIVE® B inverter

Terminal strip	Motor side / Inverter side 			D-sub 15-pin
Contact	**Signal**	**Conductor color**	**Conductor color IEC 60757**	**Contact**
1	S1 (cos+)	Red	RD	1
2	S3 (cos-)	Blue	BU	9
3	S2 (sin+)	Yellow	YE	2
4	S4 (sin-)	Green	GN	10
5	Data -	Violet	VT	12
6	Data +	Black	BK	4
7	GND	Gray-pink + pink (Alternative: Pink[1)])	GYPK + PK (Alternative: PK[1])	8
8	Vs	Red-blue + gray (Alternative: Gray[1])	RDBU + GY (Alternative: GY[1])	15
9	PK	Brown	BN	14
10	PK	White	WH	6

1) The dual assignment becomes invalid if the reeled cables are changed, e.g. (6 × 2 × 0.25) → (4 × 2 × 0.25 + 2 × 0.5).

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5.10.5 Assembling the cables

Observe the following when you assemble the cables yourself:

- The socket contacts for the motor connection are implemented as crimping contacts. Only use suitable tools for crimping.
- Insulate the connecting wires. Cover the connections with heat shrink tubings.
- Incorrectly installed socket contacts can be removed without removal tools.

5.10.6 Assembling mating connectors power cable

Mating connector type SM1/SB1	Crimping area U, V, W, PE mm²	Crimping area Brake mm²	Cables Crimping diameter mm
01986740	0.35 – 2.5	0.35 – 2.5	9 – 14
01989197	0.35 – 2.5		14 – 17
01991639	2.5 – 4		14 – 17

Mating connector type SMB/SBB	Crimping area U, V, W, PE mm²	Crimping area Brake mm²	Cables Crimping diameter mm
13349856	1.5 – 10	0.35 – 2.5	9 – 16
13349864	1.5 – 10		16.5 – 25
13349872	6 – 16		16.5 – 25

The connector service packs also contain the brake pins, so that no difference needs to be made between motor and brakemotor.

5.10.7 Assembling mating connector encoder cable

Part number Signal mating connector	Crimping area mm²	Cable clamping diameter mm
01986732	0.14 – 1	6 – 10

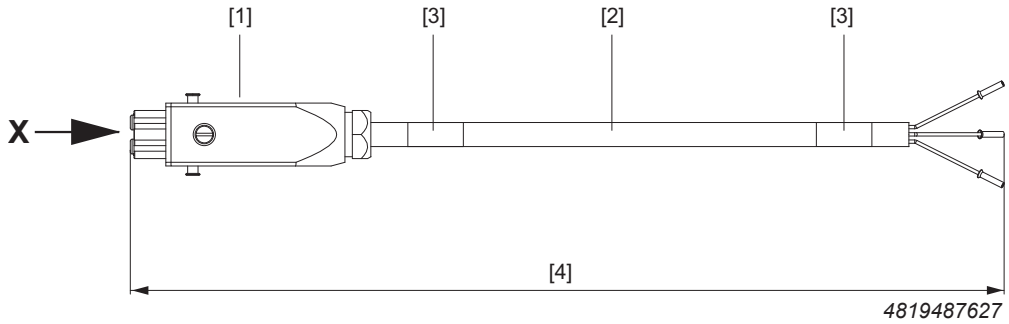
The complete connector service pack always includes the following parts:

- Feedback connector
- Insulation inserts
- Socket contacts

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5.11 Forced cooling fan cables

5.11.1 Cable for motors with forced cooling fan VR



[1] Connector: STAK 200

[2] Printed on connector: SEW-EURODRIVE

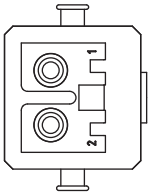
[3] Nameplate

[4] Line length ≤ 5 m: Tolerance +200 mm
Line length ≥ 5 m: Tolerance +2%
Permitted line length according to the technical documents.

5.11.2 Cables for motors with VR forced cooling fan

Cross section	Installation type	Part number
3 × 1 mm² (AWG 18)	Fixed installation	01986341
	Cable carrier installation	0199560X

5.11.3 Pin assignment of cables for motors with VR forced cooling fan

STAK 200 plug connector view X	Contact	Core identification	Occupied	Contact	Connection type
Connector with two-socket contacts 	1	First digit	24 V +	Cut-off free length of approx. 250 mm	Conductor end sleeves
	2	Second digit	0 V		

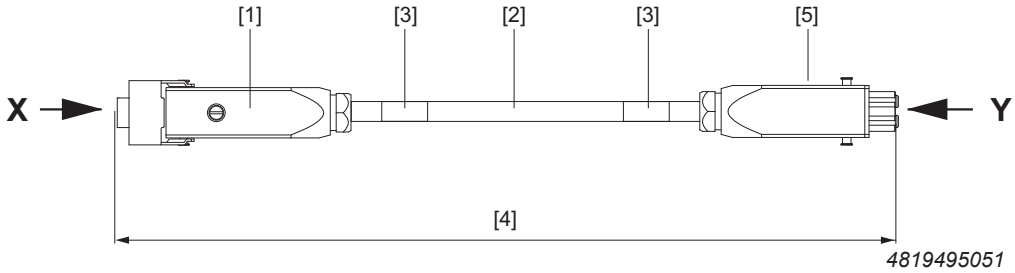
5.11.4 Alternative connector for VR forced cooling fan cable

Signal plug connector with socket contacts (complete)

Type	Connectable cross sections	Installation	Part number
VR	3 × 1 mm² (AWG 18)	Fixed installation / cable carrier installation	01984985

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5.11.5 Extension cable for motors with forced cooling fan VR



[1] Connector: STAS 200

[2] Printed on connector: SEW-EURODRIVE

[3] Nameplate

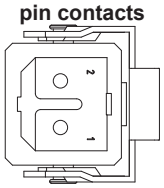
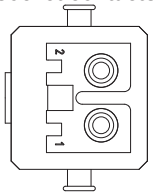
[4] Line length ≤ 5 m: Tolerance +200 mm
Line length ≥ 5 m: Tolerance +2%
Permitted line length according to the technical documents.

[5] Socket: STAK 200

5.11.6 Extension cable types for motors with forced cooling fan VR

Type	Cross section	Installation	Part number
CMP	3 × 1 mm² (AWG 18)	Fixed installation	01995618
CMP		Cable carrier installation	01995626

5.11.7 Pin assignment of extension cables for motors with VR forced cooling fan

STAS 200 plug connector view X	Contact	Core identification	Occupied	Contact	Connection type STAK 200 view Y
Connector with two pin contacts 	1	First digit	24 V +	1	Connector with two socket contacts 
	2	Second digit	0 V	2	

The extension cable is a 1:1 connection of the contacts.

5.11.8 Alternative connector for cable for the VR forced cooling fan

Signal plug connector with pins (complete)

Type	Connectable cross sections	Part no.
VR	3 x 1 mm²	01995693

5.12 Cable specifications

5.12.1 Cable specifications of power cables

Fixed installation

Motor cables

Installation		Fixed					
Cable cross section		**4 × 1.5 mm² (AWG 16)**	**4 × 2.5 mm² (AWG 14)**	**4 × 4 mm² (Modification request AWG 12)**	**4 × 6 mm² (Modification request AWG 10)**	**4 × 10 mm² (AWG 8)**	**4 × 16 mm² (AWG 5)**
Manufacturer		HELUKABEL					
Manufacturer's designation		LI9YCY					
Part number of bulk cable		13251619	13251627	13251635	13251643	13251651	13270443
Operating voltage V_0/V AC	V	600 / 1000					
Temperature range	°C	Fixed installation – 40 to +90					
Maximum temperature	°C	+90					
Diameter	mm	9.0 ± 0.2	11 ± 0.2	13 ± 0.3	14.3 ± 0.3	17.2 ± 0.4	21.3 ± 0.6
Minimum bending radius	mm	5 × diameter					
Core identification		BK with WH + GN/YE marking					
Coat color		Orange, similar to RAL 2003					
Approval(s)		DESINA / VDE / UL					
Capacitance Conductor/shield	nF/km	110	130	160	160	125	130
Capacitance Conductor/conductor	nF/km	70	80	95	90	80	85
Halogen-free		No					
Silicone-free		Yes					
CFC-free		Yes					
Insulation internal (core)		PP					
Insulation external (sheath)		PVC					
Flame-retardant/self-extinguishing		Yes					
Conductor material		Cu					
Shielding		Tinned copper					
Weight (cable)	kg/km	134	202	262	332	601	1040

Brakemotor cables

Installation		Fixed					
Cable cross section		**4 × 1.5 mm² (AWG 16) + 3 × 1 mm² (AWG 18)**	**4 × 2.5 mm² (AWG 14) + 3 × 1 mm² (AWG 18)**	**4 × 4 mm² (AWG 12) + 3 × 1 mm² (Modification request AWG 18)**	**4 × 6 mm² (AWG 10) + 3 × 1.5 mm² (AWG 16)**	**4 × 10 mm² (AWG 8) + 3 × 1.5 mm² (AWG 16)**	**4 × 16 mm² (AWG 5) + 3 × 1.5 mm² (AWG 16)**
Manufacturer		HELUKABEL/BizLink					
Manufacturer's designation		HELU Li9YCY/ BizLink LEHC 005380	HELU Li9YCY			HELU Li9YCY/ BizLink LEHC 005385	HELU Li9YCY
Part number of bulk cable		13251678	13251686	13251694	13251708	13251716	13270435
Operating voltage V_0/V AC	V	600 / 1000					
Temperature range	°C	Fixed installation: -40 to +90					
Maximum temperature	°C	+90					
Diameter	mm	11.8 ± 0.3	13.4 ± 0.3	15.0 ± 0.3	17.3 ± 0.3	20.0 ± 1.0	23.2 ± 1.0

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Installation		Fixed					
Cable cross section		**4 × 1.5 mm² (AWG 16) + 3 × 1 mm² (AWG 18)**	**4 × 2.5 mm² (AWG 14) + 3 × 1 mm² (AWG 18)**	**4 × 4 mm² (AWG 12) + 3 × 1 mm² (Modification request AWG 18)**	**4 × 6 mm² (AWG 10) + 3 × 1.5 mm² (AWG 16)**	**4 × 10 mm² (AWG 8) + 3 × 1.5 mm² (AWG 16)**	**4 × 16 mm² (AWG 5) + 3 × 1.5 mm² (AWG 16)**
Minimum bending radius	mm	5 × diameter					
Core identification		BK with WH + GN/YE marking					
Coat color		Orange similar to RAL 2003					
Approval(s)		DESINA / VDE / UL					
Capacitance Conductor/shield	nF/km	105 – 125	146	137	140	160	170
Capacitance Conductor/conductor	nF/km	60 – 65	76	88	88	97	105
Halogen-free		No					
Silicone-free		Yes					
CFC-free		Yes					
Insulation internal (core)		PP					
Insulation external (sheath)		PVC					
Flame-retardant/self-extinguishing		Yes					
Conductor material		Cu					
Shielding		Tinned copper					
Weight (cable)	kg/km	229	292	393	542	938	1230

Cable carrier installation

Motor cables

Installation		Cable carrier							
Cable cross section		**4 × 1.5 mm² (AWG 16)**	**4 × 2.5 mm² (AWG 14)**	**4 × 4 mm² (Modification request AWG 12)**	**4 × 6 mm² (Modification request AWG 10)**	**4 × 10 mm² (AWG 8)**	**4 × 16 mm² (AWG 5)**	**4 × 25 mm² (AWG 3)**	**4 × 35 mm² (AWG 2)**
Manufacturer		HELUKABEL	BizLink		HELUKABEL				
Manufacturer's designation		Helukabel Li9Y91 YC11Y-HF	BizLink LEC 001714	BizLink LEC 001715	Helukabel Li9Y91YC11Y-HF		Helukabel TOPSERV 109		
Part number of bulk cable		01768891	01768905	00150444	00150452	00150479	13270427	19081049	19081057
Operating voltage V_0/V AC	V	600 / 1000							
Temperature range[1]	°C	-20 – +80					-30 – +90		
Maximum temperature	°C	+90 (at the conductor)							
Diameter	mm	12.2 ± 0.3	15.7 ± 0.4	13.2 ± 0.4	15.2 ± 0.4	18 ± 0.4	21.6 ± 0.7	25.2 ± 1.0	28.6 ± 1.0
Minimum bending radius	mm	10 × diameter	7.5 × diameter		10 × diameter		7.5 × diameter	10 × diameter	
Maximum acceleration	m/s²	20					50		
Maximum speed	m/min	200					300		
Core identification		BK with WH + GN/YE marking							
Coat color		Orange similar to RAL 2003							
Approval(s)		DESINA / VDE / UL / cRUus							
Capacitance Conductor/shield	nF/km	110	100	140	170	–	210	210	230
Capacitance Conductor/conductor	nF/km	70	60	95	95	–	130	130	130
Halogen-free		Yes							

Installation		Cable carrier							
Cable cross section		4 × 1.5 mm² (AWG 16)	4 × 2.5 mm² (AWG 14)	4 × 4 mm² (Modification request AWG 12)	4 × 6 mm² (Modification request AWG 10)	4 × 10 mm² (AWG 8)	4 × 16 mm² (AWG 5)	4 × 25 mm² (AWG 3)	4 × 35 mm² (AWG 2)
Silicone-free		Yes							
CFC-free		Yes							
Insulation internal (core)		PP							
Insulation external (sheath)		PUR							
Flame-retardant/self-extinguishing		Yes							
Conductor material		Cu							
Shielding		Tinned copper							
Weight (cable)	kg/km	197	322	296	395	637	943	1325	1768
Minimum bending cycles		≥ 5 million							

1) In the drag chain while moving and at mechanical load.

Brakemotor cables

Installation		Cable carrier					
Cable cross section		4 × 1.5 mm² (AWG 16) + 3 × 1 mm² (AWG 18)	4 × 2.5 mm² (AWG 14) + 3 × 1 mm² (AWG 18)	4 × 4 mm² (AWG 12) + 3 × 1 mm² (Modification request AWG 18)	4 × 6 mm² (AWG 10) + 3 × 1.5 mm² (AWG 16)	4 × 10 mm² (AWG 8) + 3 × 1.5 mm² (AWG 16)	4 × 16 mm² (AWG 5) + 3 × 1.5 mm² (AWG 16)
Manufacturer		HELUKABEL/BizLink					
Manufacturer's designation		Helukabel Li9Y91YC11Y-HF BizLink LEHC 001718	Helukabel Li9Y91YC11Y-HF BizLink LEHC 001719	Helukabel Li9Y91YC11Y-HF BizLink LEHC 001720	Helukabel Li9Y91YC11Y-HF	Helukabel Li9Y91YC11Y-HF BizLink LEHC 001722	Helukabel Li9Y91YC11Y-HF
Part number of bulk cable		01768948	01768956	00150509	00150630	00150649	13270419
Operating voltage V_0/V AC	V	600 / 1000					
Temperature range	°C	-20 to +80					
Maximum temperature	°C	+90 (at the conductor)					
Diameter	mm	14.1 ± 0.4	16.5 ± 0.4	15.5 ± 0.4	17.5 ± 0.4	20 ± 0.5	24.1 ± 0.5
Minimum bending radius	mm	10 × diameter					
Maximum acceleration	m/s²	20					
Maximum speed	m/min	200					
Core identification		BK with WH + GN/YE marking					
Coat color		Orange similar to RAL 2003					
Approval(s)		DESINA / VDE / UL / cRUus					
Capacitance Conductor/shield	nF/km	105	110	170	170	210	210
Capacitance Conductor/conductor	nF/km	65	70	105	105	135	140
Halogen-free		Yes					
Silicone-free		Yes					
CFC-free		Yes					
Insulation internal (cable)		PP					
Insulation external (sheath)		PUR					
Flame-retardant/self-extinguishing		Yes					
Conductor material		Cu					
Shielding		Tinned copper					
Weight (cable)	kg/km	272	373	394	516	725	1108
Minimum bending cycles		≥ 5 million					

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5.12.2 Cable specification of encoder cables

INFORMATION

SEW-EURODRIVE does not offer prefabricated cables for encoders EH0E, AH0E, EH1E and AH1E with EnDat 2.2. Refer to chapter "Technical data of the encoders" for information on the available connectors.

Fixed installation of feedback cables

Accessory identification		**EK0H, AK0H, EK1H, AK1H**		**RH1M**	
Cable cross section		**4 × 2 × 0.25 + 2 × 0.5 mm²** **6 × 2 × 0.25 mm²**		**5 × 2 × 0.25 mm²** **4 × 2 × 0.25 + 2 × 0.5 mm²**	
Manufacturer		HELUKABEL/LEONI		HELUKABEL/LEONI	
Manufacturer's designation		Li9YCY/LEHC001724 Li9YCY/LEHC005307		Li9YCY/LEHC001723 Li9YCY/LEHC005307	
Part number of bulk cable		19065434	13251732	13251724	19065434
Operating voltage U_0/U AC	V	230/300			
Temperature range	°C	Fixed installation -40 to +80			
Maximum temperature	°C	+80			
Minimum bending radius	mm	6 × diameter		5 × diameter	6 × diameter
Diameter	mm	8.8 ± 0.2	8.3 ± 0.2	7.3 ± 0.2	8.8 ± 0.2
Core identification		According to DIN 47100			
Coat color		Green similar to RAL6018			
Approval(s)		DESINA, VDE, cRUus			
Capacitance core/shielding	nF/km	95	87	90	95
Capacitance core/core	nF/km	60	57	60	
Halogen-free		No			
Silicone-free		Yes			
CFC-free		Yes			
Insulation internal (core)		PP			
Insulation external (sheath)		PVC			
Flame-retardant/self-extinguishing		Yes			
Conductor material		Cu			
Shielding		Tinned copper			
Weight (cable)	kg/km	106	99	75	106

Cable carrier installation of feedback cables

Accessory identification		**EK0H, AK0H, EK1H, AK1H**		**RH1M**	
Cable cross section		**4 × 2 × 0.25 + 2 × 0.5 mm²** **6 × 2 × 0.25 mm²**		**5 × 2 × 0.25 mm²** **4 × 2 × 0.25 + 2 × 0.5 mm²**	
Manufacturer		HELUKABEL/BizLink			
Manufacturer's designation		Helukabel Li9YC11Y-HF BizLink LEHC 005308	Helukabel Li9YC11Y-HF		Helukabel Li9YC11Y-HF BizLink LEHC 005308
Part number of bulk cable		19065442	00150665	00150657	19065442
Operating voltage U_0/U AC	V	230/300			
Temperature range	°C	-20 to +80			
Maximum temperature	°C	+80			
Minimum bending radius	mm	8 × diameter			
Diameter	mm	8.8 ± 0.2	9.9 ± 0.2	9.6 ± 0.2	8.8 ± 0.2
Maximum acceleration	m/s²	20 depending on travel distance length			
Maximum speed	m/min	180			
Core identification		According to DIN 47100			
Coat color		Green similar to RAL6018			
Approval(s)		DESINA, VDE, cRUus			
Capacitance core/shielding	nF/km	105			

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Accessory identification		EK0H, AK0H, EK1H, AK1H		RH1M	
Cable cross section		**4 × 2 × 0.25 + 2 × 0.5 mm² 6 × 2 × 0.25 mm²**		**5 × 2 × 0.25 mm² 4 × 2 × 0.25 + 2 × 0.5 mm²**	
Capacitance core/core	nF/km	55			
Halogen-free		Yes			
Silicone-free		Yes			
CFC-free		Yes			
Insulation internal (core)		PP			
Insulation external (sheath)		PUR			
Flame-retardant/self-extinguishing		Yes			
Conductor material		Cu			
Shielding		Tinned copper			
Weight	kg/km	101	120	114	101
Minimum bending cycles		≥ 5 million			

5.12.3 Cable specifications of forced cooling fan cables

Fixed installation of forced cooling fan cables

Accessory identification		VR
Cable cross section		**3 × 1 mm²**
Manufacturer		Lapp
Manufacturer's designation		Ölflex 110 Classic
Part number of bulk cable		0015153X
Operating voltage U_0/U AC	V	300/500
Temperature range	°C	-40 – +80
Maximum temperature	°C	+80
Minimum bending radius	mm	15 × diameter
Diameter	mm	6.0 ±0.3
Core identification		VDE 0293
Coat color		Silver gray, RAL7001
Approval(s)		VDE
Capacitance core/shielding	nF/km	–
Capacitance core/core	nF/km	–
Halogen-free		No
Silicone-free		Yes
CFC-free		Yes
Insulation internal (core)		PVC
Insulation external (sheath)		PVC
Flame-retardant/self-extinguishing		No
Conductor material		Cu
Shielding		–
Weight (cable)	kg/km	65

Cable carrier installation for forced cooling fan cables

Accessory identification		VR
Cable cross section		**3 × 1 mm²**
Manufacturer		HELUKABEL
Manufacturer's designation		MULTISPEED 500-PUR UL/CSA
Part number		25700774
Operating voltage U_0/U AC	V	300/500
Temperature range	°C	-30 to +80
Maximum temperature	°C	+80
Minimum bending radius	mm	7.5 × diameter
Diameter	mm	5.9
Maximum acceleration	m/s^2	–

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Accessory identification		VR
Cable cross section		**3 × 1 mm²**
Maximum speed	m/min	–
Core identification		BK with WH + GN/YE marking
Coat color		Black, RAL9005
Approval(s)		VDE, UL
Capacitance core/shielding	nF/km	–
Capacitance core/core	nF/km	–
Halogen-free		Yes
Silicone-free		Yes
CFC-free		Yes
Insulation internal (core)		PP
Insulation external (sheath)		PUR
Flame-retardant/self-extinguishing		Yes
Conductor material		Cu
Shielding		–
Weight	kg/km	59

5.12.4 Cable specification of hybrid motor cables without encoder

Cable carrier installation

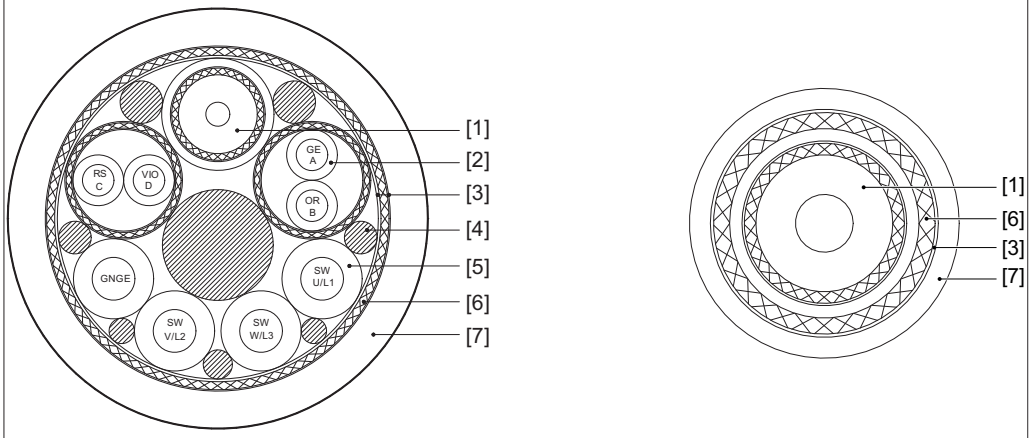
Installation		Cable carrier				
Cable cross section		**4 × 1.5 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 16)**	**4 × 2.5 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 14)**	**4 × 4 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 12)**	**4 × 6 mm² + 3 × 1.5 mm² + 4 × 0.34 mm² (Modification request AWG 10)**	**4 × 10 mm² + 3 × 1.5 mm² + 4 × 0.34 mm² (Modification request AWG 8)**
Manufacturer		LEONI				
Manufacturer's designation		LEHC 005272				
Part number		19150067	19150075	19150083	19150091	19150105
Operating voltage V_0/V AC	V	600 / 1000				
Temperature range	°C	-30 to +90				
Maximum temperature	°C	+90 (at the conductor)				
Diameter	mm	15.4 ± 0.5	16.5 ± 0.5	16.8 ± 0.5	19.3 ± 0.6	22 ± 0.7
Minimum bending radius	mm	10 × diameter				
Maximum acceleration	m/s²	50 – 3 m travel distance 30 – 5 m travel distance 15 – 10 m travel distance 5 – 20 m travel distance				
Maximum speed	m/min	300				
Core identification		BK with WH + GN/YE marking				
Coat color		Orange similar to RAL 2003				
Approval(s)		DESINA / VDE / UL / cRUus				
Capacitance core/shielding	nF/km	110	130	170	170	190
Capacitance core/core	nF/km	65	80	100	100	110
Halogen-free		Yes				
Silicone-free		Yes				
CFC-free		Yes				
Insulation internal (cable)		PP				
Insulation external (sheath)		PUR				
Flame-retardant/self-extinguishing		Yes				
Conductor material		Cu				
Shielding		Tinned copper				
Weight (cable)	kg/km	319	384	434	608	862

Installation	Cable carrier				
Cable cross section	**4 × 1.5 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 16)**	**4 × 2.5 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 14)**	**4 × 4 mm² + 3 × 1 mm² + 4 × 0.34 mm² (Modification request AWG 12)**	**4 × 6 mm² + 3 × 1.5 mm² + 4 × 0.34 mm² (Modification request AWG 10)**	**4 × 10 mm² + 3 × 1.5 mm² + 4 × 0.34 mm² (Modification request AWG 8)**
Minimum bending cycles	≥ 5 million				

5.12.5 Cable specification of the motor hybrid cables for MOVILINK® DDI

Cable carrier installation

Type	LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005724
Part number of bulk cable, not prefabricated	**28123336**	**28123344**	**28123352**	**28123360**	**28123379**	**25672568**
Cross section	**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**	**–**
Mechanical design						



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[1]	Coaxial cable	Coax Z50 in accordance with RG58
	Conductor	Stranded copper wire, tinned, 19 × 0.182 mm
	Dielectric	Polypropylene Ø 2.95
	Shielding	Braided copper wire, tinned, 0.128 mm
		Optical coverage min. 90%
	Sheath	TPE
	Diameter	4.2 mm
	Color	Violet

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Type		LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005724
Part number of bulk cable, not prefabricated		**28123336**	**28123344**	**28123352**	**28123360**	**28123379**	**25672568**
Cross section		**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**	**–**
[2]	Conductors	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.5 mm²	Shielded element 4 × 1.5 mm²	–
		Stranded copper wire, bare					–
		Single wire 0.15 mm					–
		In accordance with DIN EN 60228 Class 6					–
		IEC 60228 Class 6					–
	Insulation	Polypropylene					–
	Shielding	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.128 mm, tinned	–
		Optical coverage min. 85%					–
	Diameter	2.1 mm	2.1 mm	2.1 mm	2.4 mm	2.4 mm	–
	Colors	Yellow with black A label					–
		Orange with black B label					–
		Pink with black C label					–
		Violet with black D label					–
[3]	Banding	–					–
[4]	Filler	–					–
[5]	Conductors	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²	–
	Conductor	Stranded copper wire, bare					–
		Single wire 0.15 mm	Single wire 0.15 mm	Single wire 0.15 mm	Single wire 0.2 mm	Single wire 0.2 mm	–
		In accordance with DIN EN 60228 Class 6					–
		IEC 60228 Class 6					–
	Diameter	3.0 mm	3.6 mm	3.75 mm	4.6 mm	5.8 mm	–
	Insulation	Polypropylene					–
	Colors	Green-yellow with black label: U/L1; V/L2; W/L3					–
[6]	Shield	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.2 mm	Braided tinned copper wires, 0.2 mm	Braided tinned copper wires, 0.13 mm
		Optical coverage min. 85%					
[7]	Outer cable jacket	Polyurethane, flame retardant, halogen-free					
	Color	Matt orange					Matt black
	Label	SEW-EURODRIVE 28123336 4 × 1.5 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123344 4 × 2.5 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123352 4 × 4.0 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123360 4 × 6.0 + 2 × 2 × 1.5C + 1 × Z50	SEW-EURODRIVE 28123379 4 × 10 + 2 × 2 × 1.5C + 1 × Z50	SEW-EURODRIVE 25672568 1 × Z50
		LEHC005796 Rev. 0 E47543- LIL C US	LEHC 005770 Rev.0 E47543- LIL C US	LEHC 005771 Rev.0 E47543- LIL C US	LEHC 005772 Rev.0 E47543- LIL C US	LEHC 005773 Rev.0 E47543- LIL C US	LEHC 005951 Rev.0 E47543- LIL C US
		AWM STYLE 21223 I/II A/B 80 °C 1000V FT1 Week/year of production					AWM STYLE 11892 I/II A/B 80 °C 300V FT1 Week/year of production
	Diameter	15.7 mm	16.7 mm	17.0 mm	19.7 mm	22.1 mm	7.0 mm
Electrical properties							
	Operating voltage conductors V_0/V	0.6 kV/1.0 kV					0.3 kV/0.3 kV
	Operating voltage according to UL style 21223	max. 1000 V					max. 300 V
	Surge impedance coaxial cable	50 Ω ± 2 Ω					

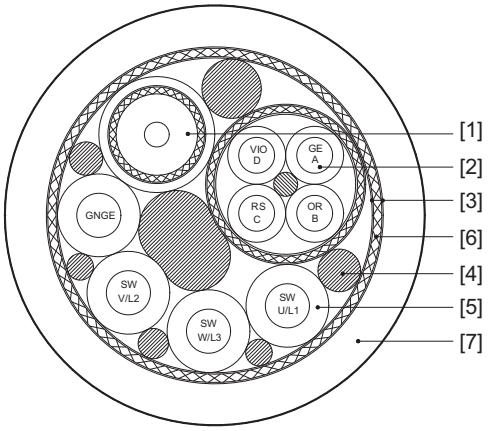
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Type		LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005724
Part number of bulk cable, not prefabricated		**28123336**	**28123344**	**28123352**	**28123360**	**28123379**	**25672568**
Cross section		**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**	**–**
Mechanical properties							
	Bending radius	Min. 3 × outer diameter for one-time installation Min. 5 × outer diameter for fixed installation Min. 10 × outer diameter in the cable carrier					Min. 5 × outer diameter for one-time installation Min. 8 × outer diameter for fixed installation Min. 20 × outer diameter in the cable carrier
	Travel speed	max. 5 m/s					3 m/s
	Acceleration	max. 20 m/s²					
	Bending cycles	min. 5 × 10⁶					min. 3 × 10⁶
	Torsional stability	±180 °/m					
	Torsional cycles	maximum 1 million cycles (at ±180 °/m)					
	Mass	332 kg/km	392 kg/km	444 kg/km	626 kg/km	827 kg/km	73 kg/km
Thermal characteristics							
	Operating temperature	Fixed installation: -40 °C to +90 °C Cable carrier installation: -30 °C to +90 °C					
	Operating temperature according to cURus	Fixed installation: -40 °C to +80 °C Cable carrier installation: -30 °C to +80 °C					
Chemical characteristics							
	Oil resistance	DIN VDE 0282-10/HD 22.10 S2					DIN EN 50363-10-2
	Flame retardance	UL 1581 Abschnitt 1060 Vertical Flame Test (FT1) CSA C22.2 No.3-92 Vertical Flame Test (FT1) IEC 60332-1-2					
Other characteristics							
		EU Directive 2011/65/EU (RoHS), Free of paint-wetting impairment substances, Halogen-free according to IEC 60754-1, General fuel resistance, General resistance to acids, alkalis, and cleaning agents, General resistance against dusts, General resistance against microbes and fungi, Generally hydrolysis-resistant, General resistance against UV radiation					
Approvals							
		UL Subject 758, Style 21223 CSA - C22.2 No. 210 cURus E47543 UL Style 21223 80 °C 1000 V FT1 cUL AWM I/II A/B 80 °C 1000 V FT1					UL Subject 758, Style 11892 CSA - C22.2 No. 210 cURus E47543 UL Style 11892 80 °C 300 V FT1 cUL AWM I/II A/B 80 °C 300 V FT1

Fixed installation

Type	LEHC 005775	LEHC 005776	LEHC 005777	LEHC 005778	LEHC 005779
Part number of bulk cable, not prefabricated	**28123395**	**28123409**	**28123417**	**28123425**	**28123433**
Cross section	**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**
Mechanical design					

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Type		LEHC 005775	LEHC 005776	LEHC 005777	LEHC 005778	LEHC 005779
Part number of bulk cable, not prefabricated		28123395	28123409	28123417	28123425	28123433
Cross section		4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²
		 29346395147				
[1]	Coaxial cable	Coax Z50 in accordance with RG58				
	Conductor	Stranded copper wire, tinned, 19 × 0.182 mm				
	Dielectric	Polypropylene Ø 2.95				
	Shielding	Braided copper wire, tinned, 0.128 mm				
		Optical coverage min. 90%				
	Sheath	TPE				
	Diameter	4.2 mm				
	Color	Violet				
[2]	Conductors	Shielded element 4 × 1.0 mm²	Shielded element 4 × 1.0 mm²	Shielded element 4 × 1.0 mm²	Shielded element 4 × 1.5 mm²	Shielded element 4 × 1.5 mm²
		Stranded copper wire, bare				
		Single wire 0.20 mm	Single wire 0.20 mm	Single wire 0.20 mm	Single wire 0.25 mm	Single wire 0.25 mm
		In accordance with DIN EN 60228 Class 5				
		IEC 60228 Class 5				
	Insulation	Polypropylene				
	Shielding	Braided copper wire 0.128 mm, tinned				
		Optical coverage min. 85%				
	Diameter	2.1 mm	2.1 mm	2.1 mm	2.35 mm	2.35 mm
	Colors	Yellow with black A label				
		Orange with black B label				
		Pink with black C label				
		Violet with black D label				
[3]	Banding	–	–	–	–	–
[4]	Filler	–	–	–	–	–
[5]	Conductors	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²
	Conductor	Stranded copper wire, bare				
		Single wire 0.25 mm	Single wire 0.25 mm	Single wire 0.30 mm	Single wire 0.30 mm	Single wire 0.40 mm
		In accordance with DIN EN 60228 Class 5				
		IEC 60228 Class 5				
	Diameter	3.0 mm	3.6 mm	3.75 mm	4.7 mm	5.8 mm
	Insulation	Polypropylene				
	Colors	Green-yellow with black label: U/L1; V/L2; W/L3				
[6]	Shield	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.20 mm	Braided tinned copper wires, 0.20 mm
		Optical coverage min. 85%				

Type		LEHC 005775	LEHC 005776	LEHC 005777	LEHC 005778	LEHC 005779
Part number of bulk cable, not prefabricated		**28123395**	**28123409**	**28123417**	**28123425**	**28123433**
Cross section		**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**
[7]	Outer cable jacket	PVC				
	Color	Orange				
	Label	SEW-EURODRIVE 28123395 4 × 1.5 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123409 4 × 2.5 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123417 4 × 4.0 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123425 4 × 6.0 + 4 × 1.5C + 1 × Z50	SEW-EURODRIVE 28123433 4 × 10 + 4 × 1.5C + 1 × Z50
		LEHC005775 Rev. 0 E47543-LIL c UL us	LEHC005776 Rev. 0 E47543-LIL c UL us	LEHC 005777 Rev.0 E47543-LIL c UL us	LEHC 005778 Rev.0 E47543-LIL c UL us	LEHC 005779 Rev.0 E47543-LIL c UL us
		AWM STYLE 2570 I/II A/B 80 °C 1000V FT1 Week/year of production				
	Diameter	15.2 mm	16.1 mm	16.4 mm	19.0 mm	21.8 mm
Electrical properties						
	Operating voltage conductors V_0/V	0.6 kV/1.0 kV				
	Operating voltage according to UL style 21223	max. 1000 V				
	Surge impedance coaxial cable	50 Ω ± 2 Ω				
Mechanical properties						
	Bending radius	Min. 3 × outer diameter for one-time installation Min. 5 × outer diameter for fixed installation min. 10 × outer diameter if moved occasionally				
	Mass	312 kg/km	361 kg/km	412 kg/km	576 kg/km	791 kg/km
Thermal characteristics						
	Operating temperature	Fixed installation: -40 °C to +90 °C If moved occasionally: -10 °C to +90 °C				
	Operating temperature according to cURus	Fixed installation: -40 °C to +80 °C If moved occasionally: -10 °C to +80 °C				
Chemical characteristics						
	Oil resistance	DIN EN 50363-4-1 (test method according to DIN EN 60811-404)				
	Flame retardance	UL 1581 section 1060 Vertical Flame Test (FT1) CSA C22.2 No.3-92 Vertical Flame Test (FT1) IEC 60332-1-2				
Other characteristics						
		EU Directive 2011/65/EU (RoHS)				

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6 Configuration

6.1 Data for drive selection

6.1.1 Determining the application data

Drive selection requires data of the driven machine (mass, rotational speed, speeds, direction of movement, type of transmission element, setting range, etc.) as well as information on the customer requirements.

This data helps to determine the required torques and speeds. Refer to the publication "Drive Engineering – Practical Implementation/Drive Planning" or the project planning tool SEW-Workbench from SEW-EURODRIVE for assistance.

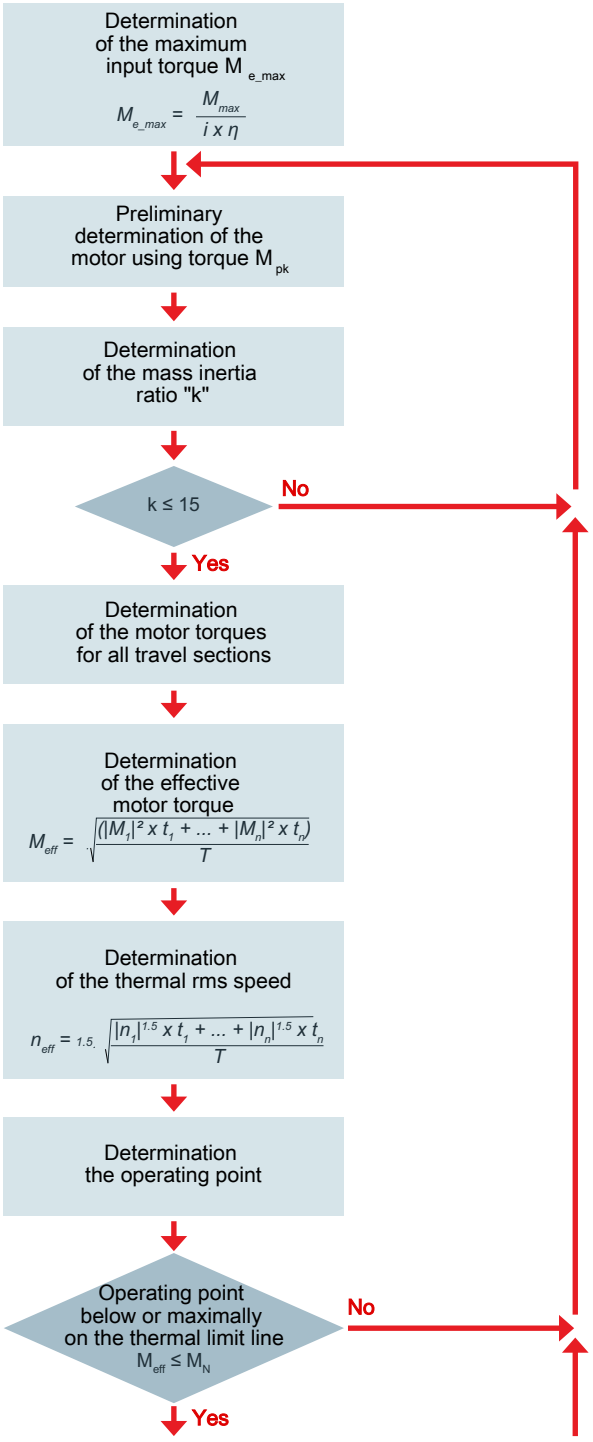
6.1.2 Selecting the correct drive

The appropriate drive can be selected once the torques and speeds of the drive have been calculated, and with regard to mechanical requirements.

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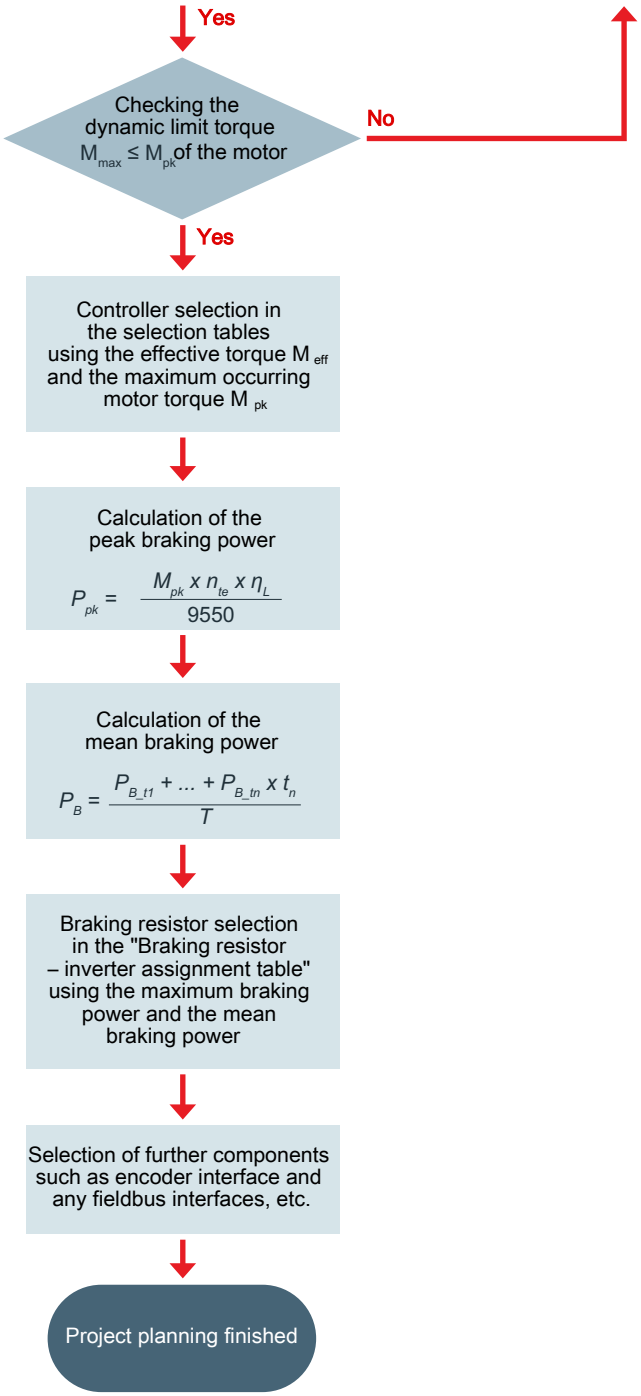
6.2 Project planning procedure for servomotors

For more information on the individual formula symbol curves, refer to chapter "Abbreviations and descriptions" (→ 🗎 292).



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* Product manuals of the application inverters of the MOVI-C®, MOVIDRIVE® B, MOVIAXIS® brand.

For further information on the project planning for brakes, refer to the "Project Planning for BK.., BP.., BR.., BY.., BZ.. Brakes" manual.

6.3 Operation on inverter

The extensive product range of SEW-EURODRIVE inverters is available for designing electronically controlled drives. A distinction is made for inverters between decentralized installation (mounting close to the motor with a high degree of protection) and installation in the control cabinet.

The inverters of the modular MOVI-C® automation system are particularly suitable.

The benefits for you: MOVI-C® is the all-in-one automation toolkit from SEW-EURODRIVE. This end-to-end solution from a single manufacturer covers all your needs – planning, commissioning, operation and diagnostics software, electronic control and monitoring devices, mechanical drives and gearmotors. There is only one place you have to go to for all the automation components you need. Naturally, all components can be fully integrated into all automation concepts, fieldbus topologies and network standards. This means you have complete freedom when it comes to the communication topology. MOVI-C® offers you all the advantages in communication: PROFINET/PROFIsafe, EtherNET/IP™/CIP Safety™, Modbus TCP®, EtherCAT®/ Safety over EtherCAT®, POWERLINK, PROFIBUS, OPC UA, and more.

6.3.1 Decentralized installation with MOVI-C®

MOVIMOT® flexible

MOVIMOT® flexible enables the decentralized inverter to be installed close to the motor in your system. With MOVIMOT® flexible, it's up to you whether you opt for a synchronous or asynchronous motor. MOVIMOT® flexible is available in two versions. Unlike the MMF1., the MMF3. version can be fitted with additional options. These options include a load disconnector (with or without integrated line protection), an M12 engineering interface or with and preparation for mounting an operator panel. A key switch with feedback contact can also be integrated. The current configuration level of the decentralized inverter is intended for motors in the range 2 – 5.5 A / 0.55 – 3 kW. Additional performance classes are in the pipeline.

MOVIPRO® technology

The decentralized inverter MOVIPRO® technology is an inverter for applications with demanding requirements. Alongside high-performance and scalable safety technology, MOVIPRO® technology also boasts a positioning function with all standard motor encoders or external encoders. Thanks to its large power range of 2.2 – 30 kW, the decentralized inverter can also be used in lifting applications for heavy materials. The plug-in interfaces minimize installation outlay. The decentralized inverter MOVIPRO® technology is expected to be available from the end of 2023.

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6.3.2 Control cabinet installation with MOVI-C®

MOVITRAC® classic

MOVITRAC® classic enables speed and torque control of asynchronous motors and synchronous motors without motor encoders. This is possible thanks to modern control modes from the MOVI-C® modular automation system.

MOVITRAC® classic is available in the power range 1 – 16 A / 0.25 – 7.5 kW and can optionally be equipped with an integrated STO safety function. The operator panels of the MOVI-C® modular automation system and the MOVISUITE® engineering software are available for startup. Connection to industrial Ethernet systems such as PROFINET, EtherNet/IP™, Modbus TCP and EtherCAT® is possible via pluggable fieldbus gateways and fieldbus coupling modules.

MOVITRAC® classic is expected to be available from mid-2024.

MOVITRAC® advanced

The MOVITRAC® advanced standard inverter with IP20 degree of protection for motors in the range 1 – 588 A / 0.25 – 315 kW is intended for torque control, speed control and position control of asynchronous motors and synchronous motors. MOVITRAC® advanced is flexible thanks to its integrated communication interface for connection to all standard control systems. You can also configure functional safety with MOVITRAC® advanced – from the integrated STO safety function to higher-quality safety functions and safe communication. MOVITRAC® advanced is ideal for conveying and motion applications, such as conveyor belts, hoists, and palletizers, making it a truly compact all-rounder.

MOVIDRIVE® technology

The MOVIDRIVE® application inverter with IP20 degree of protection for motors in the range 2 – 588 A / 0.55 – 315 kW is intended for torque control, speed control and position control of asynchronous motors and synchronous motors. MOVIDRIVE® technology is connected to the higher-level PLC via pluggable communication interfaces. The ready-to-use software modules MOVIKIT® Positioning Drive allow for quick and easy application startup. MOVIDRIVE® technology is the optimal inverter when the focus lies on high functionality, flexible communications links, large power ranges, long motor cables, and high availability.

MOVIDRIVE® system

The application inverter MOVIDRIVE® system with IP20 degree of protection for motors in the range 2 – 588 A / 0.55 – 315 kW is intended for torque control, speed control and position control of asynchronous motors and synchronous motors. In combination with MOVI-C® CONTROLLER, MOVIDRIVE® system performs tasks with high demands on dynamics, functional safety, and kinematics. MOVIDRIVE® is the optimal inverter when the focus lies on high functionality, large power ranges, long motor cables, and high availability.

MOVIDRIVE® modular

The MOVIDRIVE® modular application inverter with degree of protection IP20 consists of a 10 – 110 kW power supply module and 2 – 180 A / 0.55 – 90 kW axis modules in series. In this modular design, the focus lies on compact units and energy exchange between the drives via the DC link connection. MOVIDRIVE® modular meets the most demanding requirements on dynamics, energy management, functional safety, and

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kinematics. In combination with the MOVI-C® CONTROLLER, all applications ranging from materials handling technology to machine automation with predefined, parameterizable function units, to free programming in IEC 61131, can be implemented quickly and flexibly in a cost-efficient manner.

6.3.3 Inverter assignment

As a rule, the servomotors and the corresponding inverters are designed for a high short-time overload. This allows a multiple of the nominal torque.

When using the following motors in the higher speed ranges, it is recommended to only set the PWM frequencies 8 kHz or 16 kHz:

- CMP40 – 63, CMP112 with speed class 6000 min^{-1}
- CMP71 – 100 for speed classes 4500 min^{-1} and 6000 min^{-1}

You can assign the inverter via the following link: https://go.sew-eurodrive.com/os/motorcharacteristics.

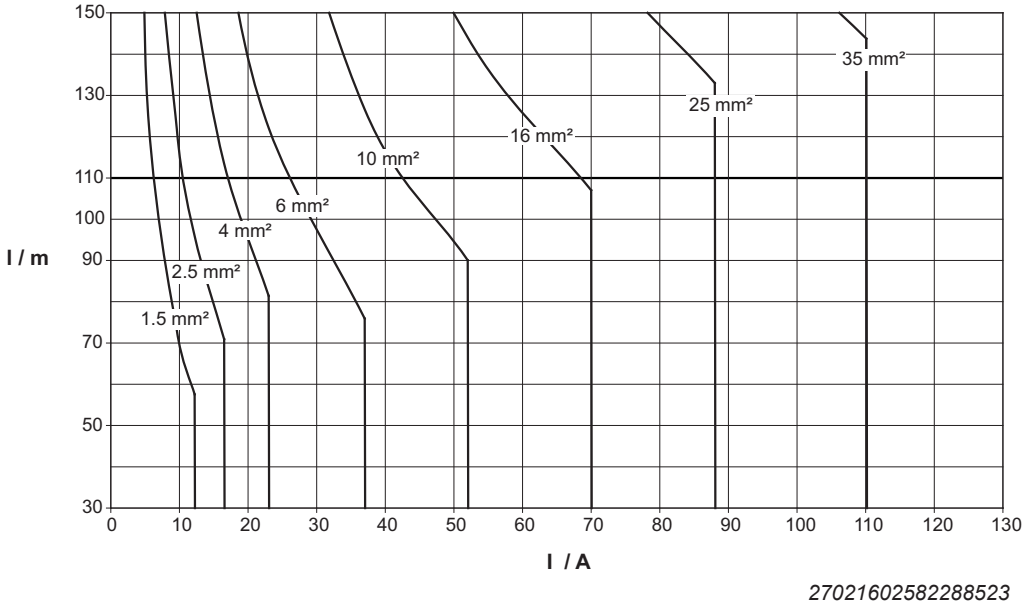
When operating a CMP71 – 112 on MOVIDRIVE® B, the current limitation must be set to the following values:

- Size 0: 166% I_N
- Sizes 1 – 6: 125% I_N

6.4 Configuring the cable cross section

6.4.1 Cable dimensioning to EN 60204

The following diagram shows the minimum required cable cross section depending on the cable length and permitted current.



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Prefabricated cables with cross sections of 1.5 mm^2 to 35 mm^2 can be ordered from SEW-EURODRIVE.

Prefabricated brakemotor cables are available up to a cross section of 16 mm^2.

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6.4.2 Cable load table

Cable load through current I according to EN 60204-1(edition 2019) table 6, ambient temperature 40 °C.

Cable cross section	Three-core sheathed cable in pipe or cable (B2)	Three-core sheathed cable on top of each other on wall (C)	Three-core sheathed cable lined up horizontally (E)
mm²	A	A	A
1.5	**13.1**	15.2	16.1
2.5	**17.4**	21	22
4	**23**	28	30
6	30	36	**37**
10	40	50	**52**
16	54	66	**70**
25	70	84	**88**
35	86	104	**110**
50	103	125	**133**
70	130	160	**171**

These specifications are only guide values and **do not replace an exact project planning** of the supply cables depending on the specific application, taking into account the applicable regulations.

The permitted cable loads according to IEC 60364-5-52 must be adjusted by the following correcting factors, depending on the ambient temperature of the air:

Ambient temperature of the air °C	Correction factor
30	1.15
35	1.08
40	1.00
45	0.91
50	0.82
55	0.71
60	0.58

Observe the voltage drop that occurs along the cable in particular with the DC 24 V brake coil when dimensioning the cross sections for the brake cable. The acceleration current is decisive for the calculation.

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6.5 Configuring the permitted cable length

The values in the cable tables are based on the values marked as bold in the table in chapter "Cable load table" (→ 🗎 271).

For the connector assignment, refer to the assignment tables in chapter "Assignment table for connection technology" (→ 🗎 220).

When calculating the maximum cable lengths, a voltage drop of 5% in the cable at a cable temperature of 40 °C is taken into account. This allows for the entire dynamic operating range to be utilized, depending on the respective line voltage at the inverter. Longer cable lengths are possible if this dynamic operating range is not fully utilized.

When the plant requires a UL certification, the power cables between motor and inverter must be designed with a minimum cross section of 2.5 mm² (AWG 14) according to NEC 430.22 (National Fire Protection Association; Edition 2011).

Note that for motors with encoders, the maximum cable length is limited to 100 m. For motors with encoders or motors in encoderless operation, longer cable lengths of up to 200 m are possible in conjunction with MOVILINK® DDI. Observe the details in chapter "Technical data" (→ 🗎 185).

6.5.1 Permitted cable lengths: System voltage 400 V, without forced cooling fan

CMP40

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP40S	3000	1.2	6.1	–	200/148	200	200
				BK01 (24 V)	200/148	200	200
CMP40S	4500	1.2	6.1	–	200/148	200	200
				BK01 (24 V)	200/148	200	200
CMP40S	6000	1.2	6.1	–	200/148	200	200
				BK01 (24 V)	200/148	200	200
CMP40M	3000	0.95	6	–	200/150	200	200
				BK01 (24 V)	200/150	200	200
CMP40M	4500	0.95	6	–	200/150	200	200
				BK01 (24 V)	200/150	200	200
CMP40M	6000	1.1	6.9	–	200/130	200	200
				BK01 (24 V)	200/130	200	200

CMP50

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP50S	3000	0.96	5.1	–	200/176	200	200
				BK02 (24 V)	200/176	200	200
CMP50S	4500	1.32	7	–	200/129	200	200
				BK02 (24 V)	200/129	200	200

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Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP50S	6000	1.7	9	–	200/100	200/167	200
				BK02 (24 V)	200/100	200/167	200
CMP50M	3000	1.68	9.6	–	200/94	200/156	200
				BK02 (24 V)	200/94	200/156	200
CMP50M	4500	2.3	13.1	–	200/69	200/114	200/183
				BK02 (24 V)	200/69	200/114	200/183
CMP50M	6000	3	17.1	–	200/53	200/88	200/140
				BK02 (24 V)	200/53	200/88	200/140
CMP50L	3000	2.2	13.6	–	200/66	200/110	200/176
				BK02 (24 V)	168/66	168/110	168
CMP50L	4500	3.15	19.5	–	200/46	200/77	200/123
				BK02 (24 V)	168/46	168/77	168/123
CMP50L	6000	4.2	26	–	200/35	200/58	200/92
				BK02 (24 V)	168/35	168/58	168/92

CMP63

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP63S	3000	2.15	12.9	–	200/70	200/116	200/186
				BK03 (24 V)	168/70	168/116	168
CMP63S	4500	3.05	18.3	–	200/49	200/82	200/131
				BK03 (24 V)	168/49	168/82	168/131
CMP63S	6000	3.9	23.4	–	200/38	200/64	200/103
				BK03 (24 V)	168/38	168/64	168/103
CMP63M	3000	3.6	21.6	–	200/42	200/69	200/111
				BK03 (24 V)	149/42	149/69	149/111
CMP63M	4500	5.4	32.4	–	167/28	200/46	200/74
				BK03 (24 V)	149/28	149/46	149/74
CMP63M	6000	6.9	41.4	–	130/22	200/36	200/58
				BK03 (24 V)	130/22	149/36	149/58
CMP63L	3000	4.95	29.7	–	182/30	200/50	200/81
				BK03 (24 V)	149/30	149/50	149/81
CMP63L	4500	6.9	41.4	–	130/22	200/36	200/58
				BK03 (24 V)	130/22	149/36	149/58
CMP63L	6000	9.3	55.8	–	97/16	161/27	200/43
				BK03 (24 V)	97/16	149/27	149/43

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CMP71

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP71S	2000	3.4	17	–	200/53	200/88	200/141
				BP1 (24 V)	116/53	116/88	116
CMP71S	3000	4.9	25	–	184/36	200/60	200/96
				BP1 (24 V)	116/36	116/60	116/96
CMP71S	4500	7.3	38	–	123/24	200/39	200/63
				BP1 (24 V)	116/24	116/39	116/63
CMP71S	6000	9.6	50	–	94/18	156/30	200/48
				BP1 (24 V)	94/18	116/30	116/48
CMP71M	2000	5	26	–	180/35	200/58	200/92
				BP1 (24 V)	116/35	116/58	116/92
CMP71M	3000	7.5	39	–	120/23	200/38	200/62
				BP1 (24 V)	116/23	116/38	116/62
CMP71M	4500	10.9	57	–	83/16	138/26	200/42
				BP1 (24 V)	83/16	116/26	116/42
CMP71M	6000	14.7	76	–	–	102/20	163/32
				BP1 (24 V)	–	102/20	116/32
CMP71L	2000	6.3	39	–	143/23	200/38	200/62
				BP1 (24 V)	116/23	116/38	116/62
CMP71L	3000	9.4	58	–	96/16	160/26	200/41
				BP1 (24 V)	96/16	116/26	116/41
CMP71L	4500	14.1	87	–	–	106/17	170/28
				BP1 (24 V)	–	106/17	116/28
CMP71L	6000	18.8	115	–	–	–	128/21
				BP1 (24 V)	–	–	116/21

CMP80

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²				3 × 1.5 mm²	
				Connection	M23			M40		M40/M58
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}					
CMP80S	2000	6.9	33	–	130/27	200/45	200/73	200/109	200/182	200
				BP3 (24 V)	80/27	80/45	80/73	120/109	120	120
CMP80S	3000	10	47	–	90/19	150/32	200/51	200/77	200/128	200
				BP3 (24 V)	80/19	80/32	80/51	120/77	120	120
CMP80S	4500	15.3	73	–	–	98/21	157/33	200/49	200/82	200/131
				BP3 (24 V)	–	80/21	80/33	120/49	120/82	120
CMP80S	6000	20	95	–	–	–	120/25	180/38	200/63	200/101
				BP3 (24 V)	–	–	80/25	120/38	120/63	120/101
CMP80M	2000	9.3	48	–	97/19	161/31	200/50	200/75	200/125	200
				BP3 (24 V)	80/19	80/31	80/50	120/75	120	120
CMP80M	3000	13.4	69	–	–	112/22	179/35	200/52	200/87	200/139
				BP3 (24 V)	–	80/22	80/35	120/52	120/87	120
CMP80M	4500	20.1	103	–	–	–	119/23	179/35	200/58	200/93
				BP3 (24 V)	–	–	80/23	120/35	120/58	120/93

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Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²				3 × 1.5 mm²	
				Connection	M23			M40		M40/M58
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}					
CMP80M	6000	26.4	135	–	–	–	–	136/27	200/44	200/71
				BP3 (24 V)	–	–	–	120/27	120/44	120/71
CMP80L	2000	12.5	72	–	72/12	120/21	192/33	200/50	200/83	200/133
				BP3 (24 V)	72/12	80/21	80/33	120/50	120/83	120
CMP80L	3000	18.7	107	–	–	–	128/22	192/34	200/56	200/90
				BP3 (24 V)	–	–	80/22	120/34	120/56	120/90
CMP80L	4500	27.8	159	–	–	–	–	129/23	200/38	200/60
				BP3 (24 V)	–	–	–	120/23	120/38	120/60
CMP80L	6000	37.6	215	–	–	–	–	–	160/28	200/45
				BP3 (24 V)	–	–	–	–	120/28	120/45

CMP100

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²			3 × 1.5 mm²				
				Connection	M23		M40		M40/ M58	M58		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}							
CMP100S	2000	12.3	49	–	113/31	180/49	200/73	200/122	200/196	200	200	200
				BP5 (24 V)	68/31	68/49	102/73	102	102	102	102	102
CMP100S	3000	19.6	73	–	–	122/33	184/49	200/82	200/131	200	200	200
				BP5 (24 V)	–	68/33	102/49	102/82	102	102	102	102
CMP100S	4500	30	111	–	–	–	120/32	200/54	200/86	200/135	200/189	200
				BP5 (24 V)	–	–	102/32	102/54	102/86	102	102	102
CMP100M	2000	14.7	69	–	102/22	163/35	200/52	200/87	200/139	200	200	200
				BP5 (24 V)	68/22	68/35	102/52	102/87	102	102	102	102
CMP100M	3000	21.8	102	–	–	110/24	165/35	200/59	200/94	200/147	200	200
				BP5 (24 V)	–	68/24	102/35	102/59	102/94	102	102	102
CMP100M	4500	33.1	154	–	–	–	109/23	181/39	200/62	200/97	200/136	200/195
				BP5 (24 V)	–	–	102/23	102/39	102/62	102/97	102	102
CMP100L	2000	21.8	113	–	–	110/21	165/32	200/53	200/85	200/133	200/186	200
				BP5 (24 V)	–	68/21	102/32	102/53	102/85	102	102	102
CMP100L	3000	32.3	167	–	–	–	111/22	186/36	200/57	200/90	200/126	200/180
				BP5 (24 V)	–	–	102/22	102/36	102/57	102/90	102	102
CMP100L	4500	48.4	251	–	–	–	–	124/24	198/38	200/60	200/84	200/119
				BP5 (24 V)	–	–	–	102/24	102/38	102/60	102/84	102

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CMP112

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²			3 × 1.5 mm²				
				Connection	M23		M40		M40/ M58	M58		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}							
CMP112S	2000	14.3	51	–	105/29	168/47	200/71	200/118	200/188	200	200	200
				BY14 (24 V)	7	7	10	10	10	10	10	10
				BY14 (110 V)[1)]	71/29	71/47	106/71	106	106	106	106	106
CMP112S	3000	21	74	–	–	114/32	171/49	200/81	200/130	200	200	200
				BY14 (24 V)	–	7	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	71/32	106/49	106/81	106	106	106	106
CMP112S	4500	31.5	112	–	–	–	114/32	190/54	200/86	200/134	200/187	200
				BY14 (24 V)	–	–	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/32	106/54	106/86	106	106	106
CMP112M	2000	21	74	–	–	114/32	171/49	200/81	200/130	200	200	200
				BY14 (24 V)	–	7	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	71/32	106/49	106/81	106	106	106	106
CMP112M	3000	32	113	–	–	–	112/32	187/53	200/85	200/133	200/186	200
				BY14 (24 V)	–	–	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/32	106/53	106/85	106	106	106
CMP112M	4500	47	168	–	–	–	–	128/36	200/57	200/89	200/125	200/179
				BY14 (24 V)	–	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	–	106/36	106/57	106/89	106	106
CMP112L	2000	33	124	–	–	–	109/29	182/48	200/77	200/121	200/169	200
				BY14 (24 V)	–	–	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/29	106/48	106/77	106	106	106
CMP112L	3000	49	183	–	–	–	–	122/33	196/52	200/82	200/115	200/164
				BY14 (24 V)	–	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	–	106/33	106/52	106/82	106	106
CMP112L	4500	73	275	–	–	–	–	–	–	200/55	200/76	200/109
				BY14 (24 V)	–	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	–	106/55	106/76	106
CMP112H	2000	38	148	–	–	–	–	158/41	200/65	200/101	200/142	200
				BY14 (24 V)	–	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	–	106/41	106/65	106/101	106	106
CMP112H	3000	57	220	–	–	–	–	–	168/44	200/68	200/95	200/136
				BY14 (24 V)	–	–	–	–	10	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	106/44	106/68	106/95	106
CMP112H	4500	86	335	–	–	–	–	–	–	174/45	200/63	200/90
				BY14 (24 V)	–	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	–	106/45	106/63	106/90

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Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²			3 × 1.5 mm²				
				Connection	M23		M40		M40/ M58	M58		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}							
CMP112E	2000	44.5	175	–	–	–	–	135/34	200/55	200/86	200/120	200/171
				BY14 (24 V)	–	–	–	10	10	10	10	10
				BY14 (110 V)[1]	–	–	–	106/34	106/55	106/86	106	106
CMP112E	3000	65	255	–	–	–	–	–	148/38	200/59	200/82	200/118
				BY14 (24 V)	–	–	–	–	10	10	10	10
				BY14 (110 V)[1]	–	–	–	–	106/38	106/59	106/82	106
CMP112E	4500	98	385	–	–	–	–	–	–	–	200/55	200/78
				BY14 (24 V)	–	–	–	–	–	–	10	10
				BY14 (110 V)[1]	–	–	–	–	–	–	106/55	106/78

1) The specified values refer to the rated case with 110 V.

6.5.2 Permitted cable lengths: System voltage 400 V, with forced cooling fan

CMP50

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP50S	3000	1.25	5.1	–	200/176	200	200
				BK02 (24 V)	200/176	200	200
CMP50S	4500	1.7	7	–	200/129	200	200
				BK02 (24 V)	200/129	200	200
CMP50S	6000	2.2	9	–	200/100	200/167	200
				BK02 (24 V)	200/100	200/167	200
CMP50M	3000	2.45	9.6	–	200/94	200/156	200
				BK02 (24 V)	200/94	200/156	200
CMP50M	4500	3.35	13.1	–	200/69	200/114	200/183
				BK02 (24 V)	200/69	200/114	200/183
CMP50M	6000	4.4	17.1	–	200/53	200/88	200/140
				BK02 (24 V)	200/53	200/88	200/140
CMP50L	3000	3.2	13.6	–	200/66	200/110	200/176
				BK02 (24 V)	168/66	168/110	168
CMP50L	4500	4.6	19.5	–	196/46	200/77	200/123
				BK02 (24 V)	168/46	168/77	168/123
CMP50L	6000	6.1	26	–	148/35	200/58	200/92
				BK02 (24 V)	148/35	168/58	168/92

CMP63

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP63S	3000	3	12.9	–	200/70	200/116	200/186
				BK03 (24 V)	168/70	168/116	168
CMP63S	4500	4.2	18.3	–	200/49	200/82	200/131
				BK03 (24 V)	168/49	168/82	168/131
CMP63S	6000	5.4	23.4	–	167/38	200/64	200/103
				BK03 (24 V)	167/38	168/64	168/103
CMP63M	3000	5.1	21.6	–	176/42	200/69	200/111
				BK07 (24 V)	149/42	149/69	149/111
CMP63M	4500	7.6	32.4	–	118/28	197/46	200/74
				BK07 (24 V)	118/28	149/46	149/74
CMP63M	6000	9.8	41.4	–	92/22	153/36	200/58
				BK07 (24 V)	92/22	149/36	149/58
CMP63L	3000	7.2	29.7	–	125/30	200/50	200/81
				BK07 (24 V)	125/30	149/50	149/81
CMP63L	4500	10	41.4	–	90/22	150/36	200/58
				BK07 (24 V)	90/22	149/36	149/58
CMP63L	6000	13.5	55.8	–	–	111/27	178/43
				BK07 (24 V)	–	111/27	149/43

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CMP71

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP71S	2000	4.6	17	–	196/53	200/88	200/141
				BP1 (24 V)	116/53	116/88	116
CMP71S	3000	6.7	25	–	134/36	200/60	200/96
				BP1 (24 V)	116/36	116/60	116/96
CMP71S	4500	9.9	38	–	91/24	151/39	200/63
				BP1 (24 V)	91/24	116/39	116/63
CMP71S	6000	13.1	50	–	69/18	114/30	183/48
				BP1 (24 V)	69/18	114/30	116/48
CMP71M	2000	7.3	26	–	123/35	200/58	200/92
				BP1 (24 V)	116/35	116/58	116/92
CMP71M	3000	10.9	39	–	83/23	138/38	200/62
				BP1 (24 V)	83/23	116/38	116/62
CMP71M	4500	15.9	57	–	–	94/26	151/42
				BP1 (24 V)	–	94/26	116/42
CMP71M	6000	21.5	76	–	–	–	112/32
				BP1 (24 V)	–	–	112/32
CMP71L	2000	10.1	39	–	89/23	148/38	200/62
				BP1 (24 V)	89/23	116/38	116/62
CMP71L	3000	15.1	58	–	–	99/26	159/41
				BP1 (24 V)	–	99/26	116/41
CMP71L	4500	22.5	87	–	–	–	107/28
				BP1 (24 V)	–	–	107/28

CMP80

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²				3 × 1.5 mm²	
				Connection	M23			M40		M40/M58
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}					
CMP80S	2000	9.5	33	–	95/27	158/45	200/73	200/109	200/182	200
				BP3 (24 V)	80/27	80/45	80/73	120/109	120	120
CMP80S	3000	13.8	47	–	–	109/32	174/51	200/77	200/128	200
				BP3 (24 V)	–	80/32	80/51	120/77	120	120
CMP80S	4500	21	73	–	–	–	114/33	171/49	200/82	200/131
				BP3 (24 V)	–	–	80/33	120/49	120/82	120
CMP80S	6000	27.5	95	–	–	–	–	131/38	200/63	200/101
				BP3 (24 V)	–	–	–	120/38	120/63	120/101
CMP80M	2000	13.4	48	–	–	112/31	179/50	200/75	200/125	200
				BP3 (24 V)	–	80/31	80/50	120/75	120	120
CMP80M	3000	19.3	69	–	–	–	124/35	186/52	200/87	200/139
				BP3 (24 V)	–	–	80/35	120/52	120/87	120
CMP80M	4500	29	103	–	–	–	–	124/35	200/58	200/93
				BP3 (24 V)	–	–	–	120/35	120/58	120/93
CMP80M	6000	38	135	–	–	–	–	–	158/44	200/71
				BP3 (24 V)	–	–	–	–	120/44	120/71

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Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²				3 × 1.5 mm²	
				Connection	M23			M40		M40/M58
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}					
CMP80L	2000	20	72	–	–	–	120/33	180/50	200/83	200/133
				BP3 (24 V)	–	–	80/33	120/50	120/83	120
CMP80L	3000	30	107	–	–	–	–	120/34	200/56	200/90
				BP3 (24 V)	–	–	–	120/34	120/56	120/90
CMP80L	4500	44.5	159	–	–	–	–	–	135/38	200/60
				BP3 (24 V)	–	–	–	–	120/38	120/60
CMP80L	6000	60	215	–	–	–	–	–	–	160/45
				BP3 (24 V)	–	–	–	–	–	120/45

CMP100

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 4 mm²	6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²		3 × 1.5 mm²				
				Connection	M23	M40		M40/ M58	M58		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}						
CMP100S	2000	18.8	49	–	128/49	191/73	200/122	200/196	200	200	200
				BP5 (24 V)	68/49	102/73	102	102	102	102	102
CMP100S	3000	27.5	73	–	–	131/49	200/82	200/131	200	200	200
				BP5 (24 V)	–	102/49	102/82	102	102	102	102
CMP100S	4500	42.5	111	–	–	–	141/54	200/86	200/135	200/189	200
				BP5 (24 V)	–	–	102/54	102/86	102	102	102
CMP100M	2000	22.3	69	–	108/35	161/52	200/87	200/139	200	200	200
				BP5 (24 V)	68/35	102/52	102/87	102	102	102	102
CMP100M	3000	33	102	–	–	109/35	182/59	200/94	200/147	200	200
				BP5 (24 V)	–	102/35	102/59	102/94	102	102	102
CMP100M	4500	50	154	–	–	–	120/39	192/62	200/97	200/136	200/195
				BP5 (24 V)	–	–	102/39	102/62	102/97	102	102
CMP100L	2000	32.5	113	–	–	111/32	185/53	200/85	200/133	200/186	200
				BP5 (24 V)	–	102/32	102/53	102/85	102	102	102
CMP100L	3000	48	167	–	–	–	125/36	200/57	200/90	200/126	200/180
				BP5 (24 V)	–	–	102/36	102/57	102/90	102	102
CMP100L	4500	72	251	–	–	–	–	–	200/60	200/84	200/119
				BP5 (24 V)	–	–	–	–	102/60	102/84	102

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CMP112

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²		3 × 1.5 mm²				
				Connection	M23	M40		M40/ M58	M58		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}						
CMP112S	2000	21	51	–	114/47	171/71	200/118	200/188	200	200	200
				BY14 (24 V)	7	10	10	10	10	10	10
				BY14 (110 V)[1)]	71/47	106/71	106	106	106	106	106
CMP112S	3000	30.5	74	–	–	118/49	197/81	200/130	200	200	200
				BY14 (24 V)	–	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	106/49	106/81	106	106	106	106
CMP112S	4500	45.5	112	–	–	–	132/54	200/86	200/134	200/187	200
				BY14 (24 V)	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/54	106/86	106	106	106
CMP112M	2000	32	74	–	–	112/49	187/81	200/130	200	200	200
				BY14 (24 V)	–	10	10	10	10	10	10
				BY14 (110 V)[1)]	–	106/49	106/81	106	106	106	106
CMP112M	3000	49	113	–	–	–	122/53	196/85	200/133	200/186	200
				BY14 (24 V)	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/53	106/85	106	106	106
CMP112M	4500	72	168	–	–	–	–	–	200/89	200/125	200/179
				BY14 (24 V)	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	106/89	106	106
CMP112L	2000	52	124	–	–	–	115/48	185/77	200/121	200/169	200
				BY14 (24 V)	–	–	10	10	10	10	10
				BY14 (110 V)[1)]	–	–	106/48	106/77	106	106	106
CMP112L	3000	77	183	–	–	–	–	–	195/82	200/115	200/164
				BY14 (24 V)	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	106/82	106	106
CMP112L	4500	114	275	–	–	–	–	–	–	–	200/109
				BY14 (24 V)	–	–	–	–	–	–	10
				BY14 (110 V)[1)]	–	–	–	–	–	–	106
CMP112H	2000	57	148	–	–	–	–	168/65	200/101	200/142	200
				BY14 (24 V)	–	–	–	10	10	10	10
				BY14 (110 V)[1)]	–	–	–	106/65	106/101	106	106
CMP112H	3000	84	220	–	–	–	–	–	179/68	200/95	200/136
				BY14 (24 V)	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	106/68	106/95	106
CMP112H	4500	128	335	–	–	–	–	–	–	–	200/90
				BY14 (24 V)	–	–	–	–	–	–	10
				BY14 (110 V)[1)]	–	–	–	–	–	–	106/90
CMP112E	2000	71	175	–	–	–	–	–	200/86	200/120	200/171
				BY14 (24 V)	–	–	–	–	10	10	10
				BY14 (110 V)[1)]	–	–	–	–	106/86	106	106
CMP112E	3000	104	255	–	–	–	–	–	–	200/82	200/118
				BY14 (24 V)	–	–	–	–	–	10	10
				BY14 (110 V)[1)]	–	–	–	–	–	106/82	106

1) The specified values refer to the rated case with 110 V.

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6.5.3 Permitted cable lengths: System voltage 230 V, without forced cooling fan

CMP40

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP40S	3000	1.2	6.1	–	200/85	200/141	200
				BK01 (24 V)	200/85	200/141	200
CMP40S	4500	1.2	6.1	–	200/85	200/141	200
				BK01 (24 V)	200/85	200/141	200
CMP40S	6000	1.36	6.8	–	200/76	200/127	200
				BK01 (24 V)	200/76	200/127	200
CMP40M	3000	1.5	9	–	200/57	200/96	200/153
				BK01 (24 V)	200/57	200/96	200/153
CMP40M	4500	1.5	9	–	200/57	200/96	200/153
				BK01 (24 V)	200/57	200/96	200/153
CMP40M	6000	1.91	11.5	–	200/45	200/75	200/120
				BK01 (24 V)	200/45	200/75	200/120

CMP50

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP50S	3000	1.64	9.8	–	200/53	200/88	200/141
				BK02 (24 V)	200/53	200/88	200/141
CMP50S	4500	2.29	13.8	–	200/37	200/62	200/100
				BK02 (24 V)	200/37	200/62	200/100
CMP50S	6000	3.07	18.5	–	169/28	200/47	200/75
				BK02 (24 V)	169/28	200/47	200/75
CMP50M	3000	2.84	17.1	–	182/30	200/50	200/81
				BK02 (24 V)	182/30	200/50	200/81
CMP50M	4500	4.03	24.2	–	128/21	200/36	200/57
				BK02 (24 V)	128/21	200/36	200/57
CMP50M	6000	5.25	31.5	–	99/16	164/27	200/44
				BK02 (24 V)	99/16	164/27	200/44
CMP50L	3000	3.84	23.1	–	135/22	200/37	200/60
				BK02 (24 V)	135/22	168/37	168/60
CMP50L	4500	5.53	33.2	–	94/16	156/26	200/42
				BK02 (24 V)	94/16	156/26	168/42
CMP50L	6000	7.6	45.4	–	68/11	113/19	182/30
				BK02 (24 V)	68/11	113/19	168/30

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CMP63

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP63S	3000	3.61	21.7	–	143/24	200/40	200/64
				BK03 (24 V)	143/24	168/40	168/64
CMP63S	4500	5.25	31.5	–	99/16	164/27	200/44
				BK03 (24 V)	99/16	164/27	168/44
CMP63S	6000	6.78	40.7	–	76/13	127/21	200/34
				BK03 (24 V)	76/13	127/21	168/34
CMP63M	3000	6.35	38.1	–	81/14	136/23	200/36
				BK07 (24 V)	81/14	136/23	149/36
CMP63M	4500	9.78	58.7	–	53/9	88/15	141/24
				BK07 (24 V)	53/9	88/15	141/24
CMP63M	6000	12.1	72.4	–	43/7	71/12	114/19
				BK07 (24 V)	43/7	71/12	114/19
CMP63L	3000	8.76	52.6	–	59/10	98/16	157/26
				BK07 (24 V)	59/10	98/16	149/26
CMP63L	4500	12	72.1	–	43/7	72/12	115/19
				BK07 (24 V)	43/7	72/12	115/19

CMP71

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP71S	3000	8.7	44	–	59/12	99/20	159/31
				BP1 (24 V)	59/12	99/20	116/31
CMP71S	4500	12.8	67	–	40/8	67/13	108/21
				BP1 (24 V)	40/8	67/13	108/21
CMP71S	6000	17	89	–	–	51/10	81/16
				BP1 (24 V)	–	51/10	81/16
CMP71M	3000	13.1	68	–	39/8	66/13	105/20
				BP1 (24 V)	39/8	66/13	105/20
CMP71M	4500	19.2	101	–	–	–	72/14
				BP1 (24 V)	–	–	72/14
CMP71L	3000	16.8	103	–	–	51/8	82/13
				BP1 (24 V)	–	51/8	82/13

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CMP80

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²		3 × 1.5 mm²	
				Connection	M23	M40		M40/M58
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}			
CMP80S	3000	17.7	83	–	78/17	117/25	195/42	200/66
				BP3 (24 V)	78/17	117/25	120/42	120/66
CMP80S	4500	27	129	–	–	77/16	128/27	200/43
				BP3 (24 V)	–	77/16	120/27	120/43
CMP80S	6000	35.5	168	–	–	58/12	97/21	155/33
				BP3 (24 V)	–	58/12	97/21	120/33
CMP80M	3000	23.5	121	–	–	88/17	147/29	200/46
				BP3 (24 V)	–	88/17	120/29	120/46
CMP80M	4500	35	180	–	–	59/11	99/19	158/31
				BP3 (24 V)	–	59/11	99/19	120/31
CMP80M	6000	46.9	240	–	–	–	74/14	118/23
				BP3 (24 V)	–	–	74/14	118/23
CMP80L	3000	32.5	186	–	–	64/11	106/19	170/30
				BP3 (24 V)	–	64/11	106/19	120/30
CMP80L	4500	49.9	285	–	–	–	69/12	111/19
				BP3 (24 V)	–	–	69/12	111/19
CMP80L	6000	68	389	–	–	–	–	81/14
				BP3 (24 V)	–	–	–	81/14

CMP100

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²	4 × 25 mm²	4 × 35 mm²	4 × 50 mm²
				Cable cross section Brake	3 × 1.0 mm²	3 × 1.5 mm²				
				Connection	M40		M40/M58	M58		
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}					
CMP100S	3000	34.2	127	–	61/16	101/27	161/43	200/68	200/95	200/136
				BP5 (24 V)	61/16	101/27	102/43	102/68	102/95	102
CMP100S	4500	54.5	200	–	–	–	101/28	158/43	200/60	200/86
				BP5 (24 V)	–	–	101/28	102/43	102/60	102/86
CMP100M	3000	40	187	–	–	86/18	138/30	200/46	200/65	200/92
				BP5 (24 V)	–	86/18	102/30	102/46	102/65	102/92
CMP100M	4500	60	279	–	–	–	92/20	144/31	200/43	200/62
				BP5 (24 V)	–	–	92/20	102/31	102/43	102/62
CMP100L	3000	58.1	300	–	–	–	95/18	148/29	200/40	200/57
				BP5 (24 V)	–	–	95/18	102/29	102/40	102/57

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6.5.4 Permitted cable lengths: System voltage 230 V, with forced cooling fan

CMP50

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP50S	3000	2.14	9.8	–	200/53	200/88	200/141
				BK02 (24 V)	200/53	200/88	200/141

CMP63

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²	
				Connection	M23	
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}	
CMP63M	4500	13.8	58.7	–	62/15	100/24
				BK07 (24 V)	62/15	100/24
CMP63M	6000	17	72.4	–	51/12	81/19
				BK07 (24 V)	51/12	81/19

CMP71

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 1.5 mm²	4 × 2.5 mm²	4 × 4 mm²
				Cable cross section Brake	3 × 1.0 mm²		
				Connection	M23		
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}		
CMP71S	3000	11.8	44	–	44/12	73/20	117/31
				BP1 (24 V)	44/12	73/20	116/31
CMP71S	4500	17.4	67	–	–	50/13	79/21
				BP1 (24 V)	–	50/13	79/21
CMP71S	6000	23	89	–	–	–	60/16
				BP1 (24 V)	–	–	60/16
CMP71M	3000	19.1	68	–	–	–	72/20
				BP1 (24 V)	–	–	72/20

CMP80

Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²		3 × 1.5 mm²	
				Connection	M23	M40		M40/M58
	n_c (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}			
CMP80S	3000	24.5	83	–	–	84/25	141/42	200/66
				BP3 (24 V)	–	84/25	120/42	120/66

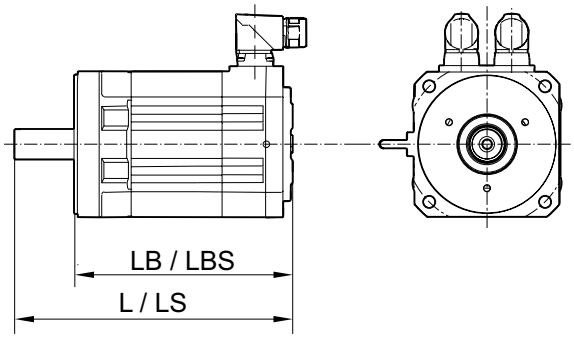
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Motor	Speed class	Stand-still current	Maximum motor current	Cable cross section Power	4 × 4 mm²	4 × 6 mm²	4 × 10 mm²	4 × 16 mm²
				Cable cross section Brake	3 × 1.0 mm²		3 × 1.5 mm²	
				Connection	M23	M40		M40/M58
	n_C (min^{-1})	I_0 (A)	I_{max} (A)	Brake type	Permitted cable length in m at I_0 / I_{max}			
CMP80S	4500	37	129	–	–	56/16	93/27	149/43
				BP3 (24 V)	–	56/16	93/27	120/43
CMP80S	6000	48.5	168	–	–	–	71/21	114/33
				BP3 (24 V)	–	–	71/21	114/33
CMP80M	3000	34	121	–	–	61/17	101/29	162/46
				BP3 (24 V)	–	61/17	101/29	120/46
CMP80M	4500	51	180	–	–	–	68/19	108/31
				BP3 (24 V)	–	–	68/19	108/31
CMP80L	3000	52	186	–	–	–	66/19	106/30
				BP3 (24 V)	–	–	66/19	106/30

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7 Appendix

7.1 Key to the dimension sheets



38917141387

L	Total length of the motor without brake
LB	Length of the motor without brake
LS	Total length of the motor with BK.., BP.. or BY.. brake
LBS	Length of the motor with BK.., BP.. or BY.. brake

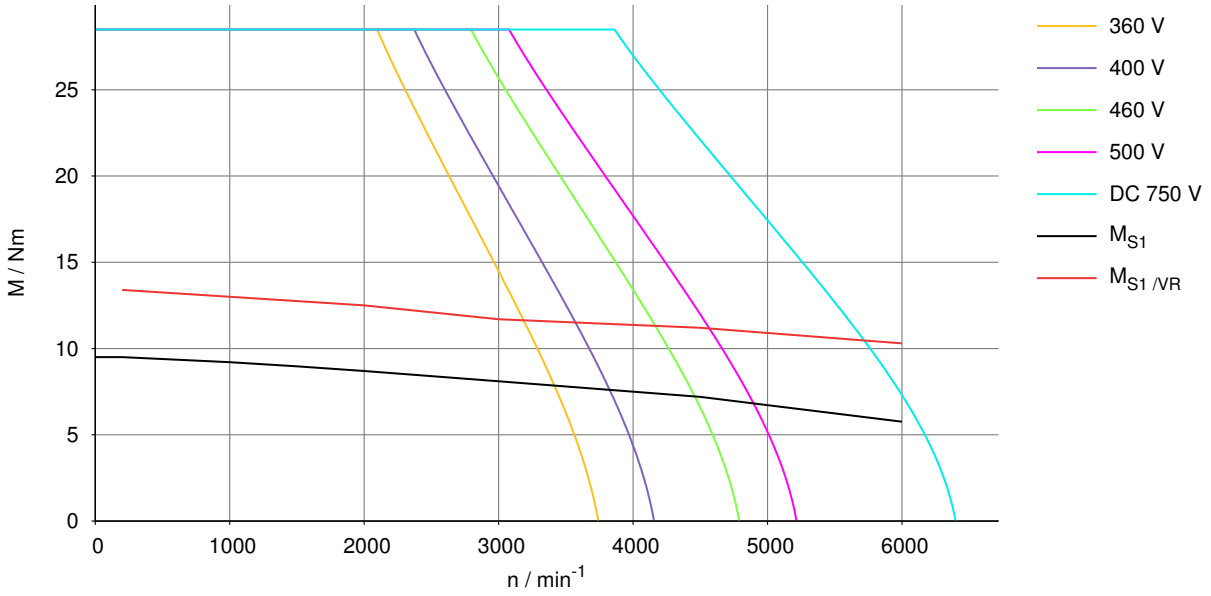
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7.2 Dynamic and thermal characteristic curves, 400 V system voltage

For the maximum available torque, refer to the of the motor combination overviews with MOVIDRIVE® B, system voltage 400 V and of the motor combination overviews with MOVIAXIS® B, system voltage 400 V.

Definition:

- M = dynamic maximum torque at a maximum line voltage at the inverter of 360 V, 400 V, 460 V or 500 V
- M S1 (derating) = thermal limit characteristic in S1 – 100% operation



9007231550427275

M S1	M S1 thermal (derating)
DC 750 V	Controlled on DC 750 V constant
500 V	500 V line voltage, uncontrolled
460 V	460 V line voltage, uncontrolled
400 V	400 V line voltage, uncontrolled
360 V	360 V line voltage, uncontrolled

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7.3 Information on the technical data – conditions

The technical data of the servomotors apply under the following boundary conditions:

- Maximum ambient temperature 40 °C
- System voltage 400 V
- Pulse width modulation frequency (PWM frequency) at least 8 kHz
- Flange surface made from aluminum, painted black, measuring 375 mm × 375 mm × 12 mm
- Housing is painted
- Maximum winding temperature 145 °C
- Motor mounting position IM B5 according to IEC/EN 60034-7 or mounting position M1 according to the SEW-EURODRIVE definition for gearmotors

7.4 Notes on overhung load diagrams

7.4.1 Loads and bearing service life

The specifications regarding the overhung load are based on the following data:

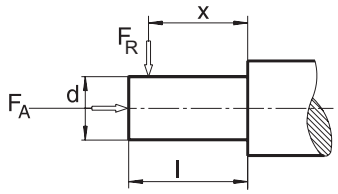
- Torque M_0
- Rotational speed at speed class

The diagrams are based on the following nominal bearing service life:

Motor	Nominal bearing service life
CMP40	L_{10h} = 25000 h
CMP50	
CMP63	
CMP71	
CMP80	
CMP100	
CMP112	

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7.4.2 Permitted overhung loads and axial loads for x = l / 2 (shaft center)



9007204050711179

CMP40 – 63

Motor	$F_{R\,max}$ in N	Mean speed[1] in min^{-1}			
	F_A in N	1500	3000	4500	6000
CMP40S	$F_{R\,max}$	330	260	225	205
	F_A	109	86	74	68
CMP40M	$F_{R\,max}$	350	280	245	220
	F_A	116	92	81	73
CMP50S	$F_{R\,max}$	475	315	250	200
	F_A	157	104	83	66
CMP50M	$F_{R\,max}$	510	355	275	220
	F_A	168	117	91	73
CMP50L	$F_{R\,max}$	550	370	280	225
	F_A	182	122	92	74
CMP63S	$F_{R\,max}$	680	460	360	290
	F_A	224	152	119	96
CMP63M	$F_{R\,max}$	750	500	380	300
	F_A	248	165	125	99
CMP63L	$F_{R\,max}$	830	560	445	360
	F_A	274	185	147	119

1) The mean speed must be determined from the travel diagram, for example.

CMP71 – 112

Motor	$F_{R\,max}$ in N	Mean speed[1] in min^{-1}			
	F_A in N	2000	3000	4500	6000
CMP71S	$F_{R\,max}$	953	832	724	636
	F_A	318	277	240	212
CMP71M	$F_{R\,max}$	1018	888	747	659
	F_A	340	296	250	219
CMP71L	$F_{R\,max}$	1101	928	777	681
	F_A	367	309	258	227
CMP80S	$F_{R\,max}$	1666	1454	1270	1132
	F_A	555	485	423	377
CMP80M	$F_{R\,max}$	1782	1555	1325	1169
	F_A	594	518	442	390
CMP80L	$F_{R\,max}$	1928	1635	1372	1208
	F_A	643	544	457	402
CMP100S	$F_{R\,max}$	2708	2364	2064	–
	F_A	903	788	688	–
CMP100M	$F_{R\,max}$	2882	2515	2195	–
	F_A	961	838	732	–
CMP100L	$F_{R\,max}$	3099	2694	2278	–
	F_A	1033	897	759	–
CMP112S	$F_{R\,max}$	3791	3308	2886	–
	F_A	1264	1103	962	–

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Motor	$F_{R\,max}$ in N	Mean speed[1] in min^{-1}			
	F_A in N	2000	3000	4500	6000
CMP112M	$F_{R\,max}$	3953	3448	3008	–
	F_A	1318	1149	1003	–
CMP112L	$F_{R\,max}$	4102	3456	2898	–
	F_A	1367	1152	966	–
CMP112H	$F_{R\,max}$	4118	3465	2900	–
	F_A	1373	1155	967	–
CMP112E	$F_{R\,max}$	4126	3467	2896	–
	F_A	1376	1156	966	–

1) The mean speed must be determined from the travel diagram, for example.

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7.5 Abbreviations and descriptions

Designation	Formula symbol	Unit	Description
Maximum permitted axial load	F_{Aamax}	N	Maximum permitted axial load at the motor shaft with centered force application, and without any present radial load.
Maximum permitted radial load	F_{Ramax}	N	Maximum permitted radial load at the motor shaft and without any present axial load. The center of the shaft end is the load application point.
Standstill current	I_0	A	Current consumed by motor to achieve standstill torque.
Gear unit ratio	i	1	Gear unit ratio
Holding current of the brake	I_H	A	Holding current of the brake
Maximum motor current	I_{max}	A	Maximum current of the motor
Nominal current	I_N	A	Nominal current of the motor
Mass inertia of the brakemotor	J_{bmot}	kg m^2	Mass inertia of the brakemotor
Mass moment of inertia of the motor	J_{mot}	kgm^2	Mass moment of inertia of the motor
Inertia ratio	k	–	Inertia ratio J_{ext}/J_{mot}
Inductance between connection phase and neutral conductor	L_1	mH	Inductance between connection phase and neutral conductor of motor
Standstill torque	M_0	Nm	Thermal continuous torque of the motor at low speeds
Characteristic value of the dynamic braking torque	M_1	Nm	Statistically lowest occurring value of the dynamic braking torque during emergency stop braking
Characteristic value of the static braking torque	$M_{4,100C}$	Nm	statistically lowest occurring value of the static braking torque during holding brake operation, based on a friction surface temperature of +100 °C.
Effective motor torque	M_{eff}	Nm	Effective torque requirement (in relation to the motor)
Mass of the brakemotor	m_{bmot}	kg	Mass of the brakemotor
Nominal braking torque	M_{br}	Nm	Nominal value of the braking torque
Maximum torque	$M_{e\,max}$	Nm	Maximum torque, determined based on the configuration of the customer application
Mass of the motor	M_{mot}	kg	Mass of the motor
Dynamic limit torque	M_{pk}	Nm	Dynamic limit torque of the motor
Nominal motor torque	M_N	Nm	Nominal torque of the motor
Mechanically permitted brakemotor speed	$n_{max,0}$	min^{-1}	Maximum permitted mechanical speed of the brakemotor
Permitted speed for brake application in the event of an emergency stop	$n_{max,1}$	min^{-1}	Maximum permitted speed of the brakemotor for brake application in the event of an emergency stop
rms speed	n_{eff}	min^{-1}	Effective thermal speed of the motor
Thermal rms speed	n_{te}	min^{-1}	Time-weighted and thus effective rotational speed of the application travel profile
Regenerative braking power	P_B	W	Occurring (braking) power during regenerative motor operation
Regenerative peak braking power	P_{pk}	W	Maximum short-term (braking) power in regenerative motor operation
Resistance value between connection phase and neutral conductor	R_1	Ω	Resistance between connection phase and neutral conductor of motor
Period duration	T	ms	Cycle duration
Response time of the brake at standard excitation	$t_{1,I}$	ms	Response time of the brake at standard excitation
Response time of the brake at high-speed excitation	$t_{1,II}$	ms	Response time of the brake at high-speed excitation
Brake application time in case of AC cut-off	$t_{2,I}$	ms	Brake cut-off in the AC circuit with normal application time

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Designation	Formula symbol	Unit	Description
Brake application time in case of DC and AC/DC cut-off	$t_{2,II}$	ms	Cut-off in the DC circuits, as well as DC and AC circuits of the brake with shortened application time
Ambient temperature	T_{Amb}	°C	Ambient temperature
Brake voltage	V_N	V	Nominal voltage of the brake.
Internal voltage	V_{P0cold}	V	Voltage in motor induced into the stator winding by the exciter (magnet wheel) during no-load operation.
Permitted braking work until maintenance	W_{insp}	J	Work until brake inspection
Permitted braking work in the event of an emergency stop	$W_{per,N}$	J	Maximum permitted braking work per braking in case of emergency stop
Efficiency	η	%	Efficiency of the gear unit during continuous duty at nominal output torque M_{a_N}, nominal input speed n_{e_N}, and in mounting position M1
Load efficiency	η_L	1	Replacement value to describe the loss values of the application (e.g. friction at ropes) that cannot be clearly determined as concrete values

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7.6 Glossary

B_{10D}
Number of cycles until 10% of the components have failed dangerously (for pneumatic and electromechanical components)

Cat
Category

CCF
Common cause failure

DC
Diagnostic coverage

DC_{avg}
Average diagnostic coverage

FS
Functional safety

$MTTF_D$
Mean time to dangerous failure

PFH_D
Mean probability of a dangerous failure per hour

PL
Performance Level

PL_r
Required Performance Level

SAR
Safe Acceleration Range safety function

SBA
Safe Brake Actuation safety function

SBC
Safe Brake Control safety function

SBH
Safe Brake Hold safety function

SBS
Safe Brake system

SCA
Safe Cam safety function

SDI
Safe Direction safety function

SIL
Safety integrity level

SISTEMA
Software of the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) for determining the performance level

SLA
Safely Limited Acceleration safety function

SLI
Safely Limited Increment safety function

SLP
Safely Limited Position safety function

SLS
Safely Limited Speed safety function

SOS
Safe Operational Stop safety function

SS1
Safe Stop 1 safety function

SS2
Safe Stop 2 safety function

SSM
Safe Speed Monitoring safety function

SSR
Safe Speed Range safety function

STO
Safe Torque Off safety function

T_{10D}
Mean time until 10% of the components have failed dangerously

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Production	Forbach	SEW USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00
	Brumath	SEW USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
Assembly Sales Service	Bordeaux	SEW USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 33607 Pessac Cedex	Tel. +33 5 57 26 39 00 dtcbordeaux@usocome.com
	Haguenau	SEW USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 dtchaguenau@usocome.com
	Lyon	SEW USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 dtclyon@usocome.com
	Nantes	SEW USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon	Tel. +33 2 40 78 42 00 dtcnantes@usocome.com
	Paris	SEW USOCOME Zone industrielle 2 rue Denis Papin 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 dtcparis@usocome.com
Gabon			
Representation: Cameroon			
Germany			
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Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Production / Precision Gear Units	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 sew@sew-eurodrive.de
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Straße 12 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
	MAXOLUTION® Factory Automation	SEW-EURODRIVE GmbH & Co KG Eisenbahnstraße 11 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 sew@sew-eurodrive.de
Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 43 30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-20 dtc-ost@sew-eurodrive.de

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	Hamburg	SEW-EURODRIVE GmbH & Co KG Hasselbinnen 11 22869 Schenefeld	Tel. +49 40298109-60 Fax +49 40298109-70 dc-hamburg@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de
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Drive Service Hotline / 24 Hour Service			0 800 SEWHELP 0 800 7394357
Technical Offices	Augsburg	SEW-EURODRIVE GmbH & Co KG August-Wessels-Straße 29 86156 Augsburg	Tel. +49 821 22779-10 Fax +49 821 22779-50 tb-augsburg@sew-eurodrive.de
	Lake Constance	SEW-EURODRIVE GmbH & Co KG Dornierstraße 4 88677 Markdorf	Tel. +49 7544 96590-90 Fax +49 7544 96590-99 tb-bodensee@sew-eurodrive.de
	Dortmund	SEW-EURODRIVE GmbH & Co KG Hildastraße 8 44145 Dortmund	Tel. +49 231 229028-10 Fax +49 231 229028-20 tb-dortmund@sew-eurodrive.de
	Dresden	SEW-EURODRIVE GmbH & Co KG Hauptstraße 32 01445 Radebeul	Tel. +49 351 26338-0 Fax +49 351 26338-38 tb-dresden@sew-eurodrive.de
	Erfurt	SEW-EURODRIVE GmbH & Co KG Dubliner Straße 12 99091 Erfurt	Tel. +49 361 21709-70 Fax +49 361 21709-79 tb-erfurt@sew-eurodrive.de
	Güstrow	SEW-EURODRIVE GmbH & Co KG Glasewitzer Chaussee 33 B 18273 Güstrow P.O. Box Postfach 1216 – D-18262 Güstrow	Tel. +49 3843 8557-80 Fax +49 3843 8557-88 tb-guestrow@sew-eurodrive.de
	Hamburg	SEW-EURODRIVE GmbH & Co KG Hasselbinnen 11 22869 Schenefeld	Tel. +49 40298109-60 Fax +49 40298109-70 dc-hamburg@sew-eurodrive.de
	Hannover / Garbsen	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Str.40-42 30823 Garbsen	Tel. +49 5137 8798-10 Fax +49 5137 8798-50 tb-hannover@sew-eurodrive.de
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	Münster	SEW-EURODRIVE GmbH & Co KG Hafenplatz 4 48155 Münster	Tel. +49 251 41475-11 Fax +49 251 41475-50 tb-muenster@sew-eurodrive.de
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	Regensburg	SEW-EURODRIVE GmbH & Co KG Im Gewerbepark A15 93059 Regensburg	Tel. +49 941 46668-68 Fax +49 941 46668-66 tb-regensburg@sew-eurodrive.de
	Rhine-Main	SEW-EURODRIVE GmbH & Co KG Niederstedter Weg 5 61348 Bad Homburg	Tel. +49 6172 9617-0 Fax +49 6172 9617-50 tb-rheinmain@sew-eurodrive.de
	Stuttgart	SEW-EURODRIVE GmbH & Co KG Friedrich-List-Straße 46 70771 Leinfelden-Echterdingen	Tel. +49 711 16072-0 Fax +49 711 16072-72 tb-stuttgart@sew-eurodrive.de
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Drive Center	Scotland	SEW-EURODRIVE Ltd. 133-135 Deerdykes View Cumbernauld G68 9HF	Tel. +44 17 8647-8730
Greece			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Technical Office	Thessaloniki	Christ. Boznos & Son S.A. Asklipiou 26 562 24 Evosmos, Thessaloniki	Tel. +30 2 310 7054-00 Fax +30 2 310 7055-15 info@boznos.gr
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Sales Service	Budapest	SEW-EURODRIVE Kft. Csillaghegyí út 13. 1037 Budapest	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
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Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 https://vov.is/ vov@vov.is
India			
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Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35 628700 Fax +91 21 35 628715 salespune@seweurodriveindia.com
	Tapukara	SEW-EURODRIVE India Private Limited Plot No SP-6-46, Tapukara, Karoli Industrial Area, No. 1, district : Alwar , Rajasthan - 301707	Tel. +91 265 3045200 Fax +91 265 3045300 tapukara.plant@seweurodriveindia.com
Sales	Gurgaon	SEW-EURODRIVE India Private Limited Global Business Park, Sector -26, M.G. Road, Sikanderpur Unit No. 205, 2nd Floor, Tower – D Gurugram 122002, Haryana	Tel. +91 9958376669 salesgurgaon@seweurodriveindia.com
Drive Center	Raipur	SEW-EURODRIVE India Private Limited Plot unit no. 129/17 P.O. GSI-Mandhar District: Raipur, State: Chhattisgarh	Tel. +91 8294630772 salesraipur@seweurodriveindia.com
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Chandigarh	SEW-EURODRIVE India Private Limited #5358/59, Gali No.-4, SBS Nagar, Adjoining Utsav Palace, Rupnagar - 140001 Ropar, Punjab	Tel. +91 81462 67606 saleschandigarh@seweurodriveindia.com
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Cuttack	SEW-EURODRIVE India Private Limited Sekhar Galaxy Flat No-302, 3rd Floor GGP Colony,Bhubaneswar Dist-Khordha State-Odisha-751025	Tel. +91 9937446333 salescuttack@seweurodriveindia.com
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	Vellore	SEW-EURODRIVE India Private Limited 23/2, 3rd Main road, Vani Vidyalaya School Road, Bharathi Nagar Extension, Katpadi Vellore - 632007, Tamilnadu	Tel. +91 96000 02247 salesvellore@seweurodriveindia.com
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Sales	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com
	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
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Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie
Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Milan	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Via Bernini,12 20033 Solaro (Milano)	Tel. +39 02 96 980229 Fax +39 02 96 980 999 http://www.sew-eurodrive.it milano@sew-eurodrive.it
Drive Technology Center	Caserta	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Strada Consortile, Zona Industriale ASI 81032 Carinaro (Caserta)	Tel. +39 0823 219011 Fax +39 02 96 980 599 caserta@sew-eurodrive.it
Drive Center	Bologna	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Via della Grafica, 47 40064 Ozzano dell'Emilia (Bo)	Tel. +39 051 65-23-801 Fax +39 02 96 980 499 bologna@sew-eurodrive.it
	Pescara	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Viale Europa,132 65010 Villa Raspa di Spoltore (PE)	Tel. +39 085 41-59-427 Fax +39 02 96 980 699 pescara@sew-eurodrive.it

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	Turin	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Filiale Torino c.so Unione Sovietica 612/15 - int. C 10135 Torino	Tel. +39 011 3473780 Fax +39 02 96 980 799 torino@sew-eurodrive.it
	Verona	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Via Antonio Meucci, 5 37042 - Caldiero (VR)	Tel. +39 045 89-239-11 Fax +39 02 96 980 814 verona@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pêcheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 27 21 21 81 05 Fax +225 27 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp
Technical Offices	Kyoto	SEW-EURODRIVE JAPAN CO., LTD Kyoto Operation Center 9-1-11 Seikadai, Seika-cho, Souraku-gun, Kyoto 619-0238	Tel. +81 774 98-2750 Fax +81 774 93-2100 kyoto@sew-eurodrive.co.jp
	Tokio	SEW-EURODRIVE JAPAN CO., LTD Renai Partire Shiodome 5th floor 2-18-3 Higashi-Shinbashi, Minato-Ku, Tokyo 105-0021	Tel. +81 3 5408-0521 Fax +81 3 5408-7550 tokyo@sew-eurodrive.co.jp
	Nagoya	SEW-EURODRIVE JAPAN CO., LTD Nagoya Toho building, 1-2-7, Sakae, Naka-ku Nagoya 460-0008, Aichi	Tel. +81 52-228-8608 Fax +81 52-203-2820 nagoya@sew-eurodrive.co.jp
	Osaka	SEW-EURODRIVE JAPAN CO., LTD Higobashi Shimizu Bldg. 10th flor 1-3-7 Tosabori, Nishi-ku Osaka, 550-0001	Tel. +81 6 6444--8330 Fax +81 6 6444--8338 osaka@sew-eurodrive.co.jp
	Fukuoka	SEW-EURODRIVE JAPAN CO., LTD 8th-floor, Imon-Hakata-Bldg.-East. 2-2-1, Sumiyoshi, Hakata-ku Fukuoka, 812-0018	Tel. +81 92 291-3600 Fax +81 92 291-3602 fukuoka@sew-eurodrive.co.jp
Kazakhstan			
Sales Service	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.com kazakhstan@sew-eurodrive.com
	Tashkent	Representative Office SEW-EURODRIVE Representative office in Uzbekistan 95A Amir Temur ave, office 401/3 100084 Tashkent	Tel. +998 97 134 01 99 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz
	Ulaanbaatar	IM Trading LLC Olympic street 28B/3 Sukhbaatar district, Ulaanbaatar 14230, MN	Tel. +976-77109997 Fax +976-77109997 imt@imt.mn
Technical Offices	Karagandy	SEW-EURODRIVE LLP 82, Molokov Street 100004, Karagandy	Tel. +7 (7212) 955 956 Fax +7 (7212) 955 956 karagandy@sew-eurodrive.com
	Oskemen	SEW-EURODRIVE LLP Gorkiy str. 21, office 200 B 070000, Ust-Kamenogorsk	Tel. +7 (723) 291 37 48 (ext 760) Fax +7 (727) 350 5156 (ext 709) ust-Kamenogorsk@sew-eurodrive.com
	Aktobe	SEW-EURODRIVE LLP 52/1 Marat Ospanov str., office 11 030000, Aktobe	Tel. +7 (771) 993 0915 aktobe@sew-eurodrive.com
	Pavlodar	SEW-EURODRIVE LLP 6/2, Lunacharsky str., office 46 140000, Pavlodar	Tel. +7 (771) 993 09 16 pavlodar@sew-eurodrive.com

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Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C 1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com
Lebanon			
Sales (Lebanon)	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales (Jordan, Kuwait , Saudi Arabia, Syria)	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C 63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.irseva.lt irmantas@irseva.lt
Luxembourg			
Representation: Belgium			
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Technical Offices	Kuala Lumpur	SEW-EURODRIVE SDN BHD No. 2, Jalan Anggerik Mokara 31/46 Kota Kemuning Seksyen 31 40460 Shah Alam Selangor Darul Ehsan West Malaysia	Tel. +60 3 51229633 Fax +60 3 51229622 sewsa@sew-eurodrive.com.my
	Penang	SEW-EURODRIVE SDN BHD No. 38, Jalan Bawal Kimsar Garden 13700 Prai, Penang West Malaysia	Tel. +60 4 3999349 Fax +60 4 3999348 sewpg@sew-eurodrive.com.my
	Kuching	SEW-EURODRIVE SDN BHD No. 69, Lot 10899 1st Floor, Jalan Tun Jugah 93350 Kuching Sarawak East Malaysia	Tel. +60 82 572780 Fax +60 82 571780 sewswk@sew-eurodrive.com.my
	Kota Kinabalu	SEW-EURODRIVE SDN BHD East Malaysia	Tel. +60 19 7539395 sales@sew-eurodrive.com.my
	Ipoh	SEW-EURODRIVE SDN BHD West Malaysia	Tel. +60 19 7177366 sewsa@sew-eurodrive.com.my
Mexico			
Assembly Sales Service	Quéretaro	SEW-EURODRIVE MEXICO S.A. de C.V. SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Querétaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Sales Service	Puebla	SEW-EURODRIVE MEXICO S.A. de C.V. Calzada Zavaleta No. 3922 Piso 2 Local 6 Col. Santa Cruz Buenavista C.P. 72154 Puebla, México	Tel. +52 (222) 221 248 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx

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Morocco			
Sales Service Assembly	Bouskoura	SEW-EURODRIVE Morocco SARL Parc Industriel CFCIM, Lot. 55/59 27182 Bouskoura Grand Casablanca	Tel. +212 522 88 85 00 Fax +212 522 88 84 50 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB MINING & INDUSTRIAL SUPPLIES CC Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam Postbus 10085 3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
New Zealand			
Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Technical Office	Palmerston North	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 6 355-2165 Fax +64 6 355-2316 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	Greenpeg Nig. Ltd 64C Toyin Street Opebi-Allen Ikeja Lagos-Nigeria	Tel. +234-701-821-9200-1 http://www.greenpegltd.com sales@greenpegltd.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Hornebergvegen 11 B 7038 Trondheim	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 seweurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L Nu Guazu No. 642 casi Campo Esperanza Santisima Trinidad Asuncion	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe

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Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com
Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Technical Offices	Tychy	SEW-EURODRIVE Polska Sp.z.o.o. ul. Strzelecka 66 43-109 Tychy	Tel. +48 32 32 32 610 Fax +48 32 32 32 648 tychy@sew-eurodrive.pl
	Bydgoszcz	SEW-EURODRIVE Polska Sp.z.o.o. ul. Fordońska 246 85-766 Bydgoszcz	Tel.+48 52 567 30 00 Fax +48 52 567 30 09 bydgoszcz@sew-eurodrive.pl
	Gdansk	SEW-EURODRIVE Polska Sp.z.o.o. ul. Galaktyczna 30A 80-299 Gdańsk	Tel. +48 58 762 70 00 Fax +48 58 762 70 09
	Posen	SEW-EURODRIVE Polska Sp.z.o.o. ul. Wschodnia 7B 62-080 Swadzim k. Poznania	Tel. +48 61 6465500 Fax +48 61 6465519
	Radom	SEW-EURODRIVE Polska Sp.z.o.o. ul. Wrocławska 10, biuro nr 7 26-600 Radom	Tel. +48 48 679 47 00 Fax +48 48 679 47 09 radom@sew-eurodrive.pl
	Rzeszów	SEW-EURODRIVE Polska Sp.z.o.o. ul. Armii Krajowej 80 35-307 Rzeszów	Tel. +48 17 784 27 00 Fax +48 17 784 27 09 rzeszow@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Service Competence Center	Lisbon	SEW-EURODRIVE, LDA. Núcleo Empresarial I de São Julião do Tojal Rua de Entremuros, 54 Fracção I 2660-533 São Julião do Tojal	Tel. +351 21 958-0198 / +351 939 598 717 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
Technical Office	Porto	SEW-EURODRIVE, LDA. Rua Monte da Bela, N.º 191, Fração X 4445-294 Ermesinde	Tel. +351 229 350 383 / +351 932 559 110 Fax +351 229 350 384 esc.porto@sew-eurodrive.pt
Romania			
Sales Service	Bucharest	Sialco Trading SRL str. Brazilia nr. 36 011783 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 http://www.sialco.ro sialco@sialco.ro
Zambia			
Representation: South Africa			
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor 11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs

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Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. 9, Tuas Drive 2 Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Drive Technology Center	Bernolákovo	SEW-Eurodrive SK s.r.o. Priemyselná ulica 6267/7 900 27 Bernolákovo	Tel.+421 2 48 212 800 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net
South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED 32 O'Connor Place Eurodrive House Aeroton Johannesburg 2190 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 248-7289 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za
Technical Office	Port Elizabeth	SEW-EURODRIVE (PROPRIETARY) LIMITED 8 Ruan Access Park Old Cape Road Greenbushes 6000 Port Elizabeth	Tel. +27 41 3722246 Fax +27 41 3722247 http://www.sew.co.za fsieberhagen@sew-co-za
South Korea			
Assembly Sales Service	Ansan	SEW-EURODRIVE Korea Co., Ltd. 7, Dangjaengi-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-eurodrive.kr master.korea@sew-eurodrive.com
	Busan	SEW-EURODRIVE Korea Co., Ltd. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230
Assembly Service	Siheung	SEW-EURODRIVE Korea Co., Ltd. 35, Emtibeui 26-ro 58beon-gil, Siheung-si, Gyeonggi-do	http://www.sew-eurodrive.kr
Technical Offices	Daegu	SEW-EURODRIVE Korea Co., Ltd. No.303 Sungan officetel, 1834, Dalgubeol-daero, Dalseo-gu, Daegu, Zip 704-712	Tel. +82 53 650-7111 Fax +82 53 650-7112
	Daejeon	SEW-EURODRIVE Korea Co., Ltd. No.302 Hongin officetel, 28, Daehak-ro, Yuseong-gu, Daejeon, Zip 305-710	Tel. +82 42 828-6461 Fax +82 42 828-6463

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	Gwangju	SEW-EURODRIVE Korea Co., Ltd. 5fl., Hyundai B/D B, 40, Bungmun-daero, Buk-gu, Gwangju, Zip 500-855	Tel. +82 62 511-9172 Fax +82 62 511-9174
	Seoul	SEW-EURODRIVE Korea Co., Ltd. No.1804 Ace Hiend Tower 8th, 84, Gasan digital 1-ro, Geumcheon-gu, Seoul, Zip 153-797	Tel. +82 2 862-8051 Fax +82 2 862-8199
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Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Technical Offices	Barcelona	SEW-EURODRIVE ESPAÑA, S.L. Avda. Francesc Macià, 60 – Planta 12, porta 3 Eix Macià – “Torre Milenium” 08208 Sabadell (Barcelona)	Tel. +34 93 7162200
	Madrid	SEW-EURODRIVE ESPAÑA, S.L. Gran Via. 48-2° A-D 28220 Majadahonda (Madrid)	Tel. +34 91 6342250
Sri Lanka			
Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
Swaziland			
Sales	Manzini	C G Trading Co. (Pty) Ltd Simunye street Matsapha, Manzini	Tel. +268 7602 0790 Fax +268 2 518 5033 charles@cgtrading.co.sz www.cgtradingswaziland.com
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 553 03 Jönköping Box 3100 S-550 03 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
Sales	Gothemburg	SEW-EURODRIVE AB Stora Åvägen 21 436 34 Askim	Tel. +46 31 709 68 80 Fax +46 31 709 68 93 goteborg@sew.se
	Stockholm	SEW-EURODRIVE AB Björkholmsvägen 10 141 46 Huddinge	Tel. +46 8 449 86 80 Fax +46 8 449 86 93 stockholm@sew.se
	Malmö	SEW-EURODRIVE AB Borrgatan 5 211 24 Malmö	Tel. +46 40 680 64 80 Fax +46 40 680 64 93 malmo@sew.se
	Skellefteå	SEW-EURODRIVE AB Trädgårdsgatan 8 931 31 Skellefteå	Tel. +46 910 71 53 80 Fax +46 910 71 53 93 skelleftea@sew.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof AG Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 17 17 http://www.imhof-sew.ch info@imhof-sew.ch
Technical Offices	Rhaetian Switzerland	Ivan Grumelli CH-1122 Romanel-sur-Morges, VD	Tel. +41 61 417 17 81 Fax
	Bern / Solothurn	Steve Geiger CH-2540 Grenchen	Tel. +41 61 417 17 82 Fax
	Central Switzerland, Aargau	Armin Pfister CH-4950 Huttwil, BE	Tel. +41 62 962 54 55 Fax
	Zürich, Ticino	Gian-Michele Muletta CH-8132 Egg bei Zürich	Tel. +41 44 994 81 15 Fax

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	Lake Constance and East Switzerland	Markus Künzle CH-9403 Goldach	Tel. +41 71 845 28 08 Fax
Taiwan			
Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
Tanzania			
Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz info@sew.co.tz
Thailand			
Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com https://www.sew-eurodrive.co.th
Technical Offices	Bangkok	SEW-EURODRIVE (Thailand) Ltd. 6th floor, TPS Building 1023, Phattanakarn Road Suanluang Bangkok,10250	Tel. +66 2 7178149 Fax +66 2 7178152 sewthailand@sew-eurodrive.com
	Hat Yai	SEW-EURODRIVE (Thailand) Ltd. Hadyai Country Home Condominium 59/101 Soi.17/1 Rachas-Utid Road. Hadyai, Songkhla 90110	Tel. +66 74 359441 Fax +66 74 359442 sewthailand@sew-eurodrive.com
	Khon Kaen	SEW-EURODRIVE (Thailand) Ltd. 4th Floor, Kaow-U-HA MOTOR Bldg, 359/2, Mitraphab Road. Muang District Khonkaen 40000	Tel. +66 43 225745 Fax +66 43 324871 sewthailand@sew-eurodrive.com
	Surat Thani	SEW-EURODRIVE (Thailand) Ltd. 66/58 Moo.4, Wat Pradu Muang district Surat Thani 84000	Tel. +66 80 928 9463 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn
Turkey			
Assembly Sales Service	Kocaeli-Gebze	SEW-EURODRIVE Ana Merkez Gebze Organize Sanayi Böl. 400 Sok No. 401 41480 Gebze Kocaeli	Tel. +90 262 9991000 04 Fax +90 262 9991009 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr
Technical Offices		SEW-EURODRIVE Home Ofis	Tel. +90 533 491 81 77 / +90 542 660 34 89
	Ankara	SEW-EURODRIVE Ankara Ofis 1368.Cadde Eminel İş Merkezi No: 18/68 İvedik OSB/Yenimahalle/Ankara	Tel. +90 312 385 33 90
	Bursa	SEW-EURODRIVE Bursa Ofis Beşevler Mah. Yıldırım Cd. No: 254 Karya Güçlü İş Merkezi B Blok Kat:5 No: 28 Nilüfer/Bursa	Tel. +90 224 443 45 60

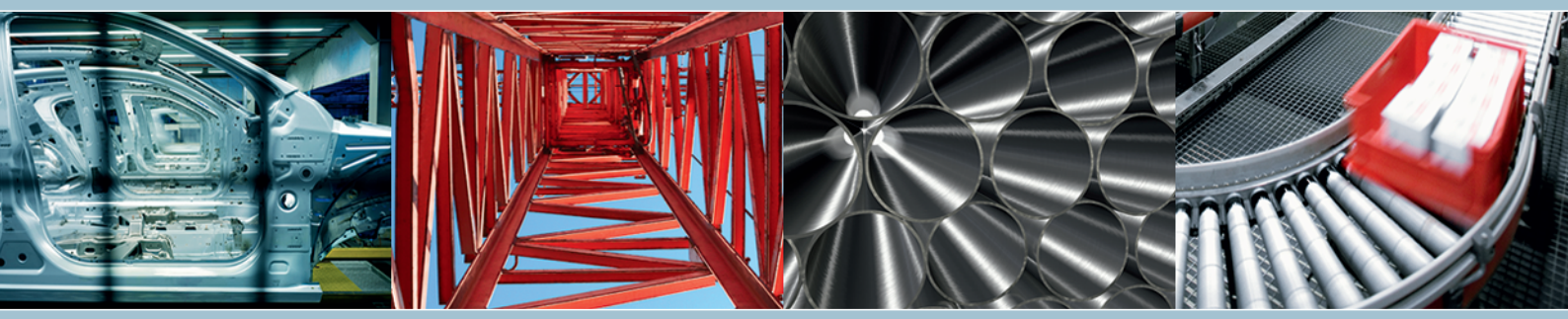
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	Izmir	SEW-EURODRIVE İzmir Ofis IAOSB Küçük Parseller Grubu Sosyal Tesis merkezi 1030 Sokak No: 16 / 110 Kara Hasan Atlı İş Merkezi Kat:6 Çiğli/İzmir	Tel. +90 232 469 62 64
United Arab Emirates			
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Assembly Sales Service	Dnipropetrovsk	SEW-EURODRIVE, LLC Robochya str., bld. 23-B, office 409 49008 Dnipro	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua
Sales	Kiev	SEW-EURODRIVE, LLC Velyka Vasylkivska street, 77-A 03150 Kiev	Tel. +380 44 503 95 77 Fax +380 44 503 95 78 kso@sew-eurodrive.ua
	Ivano-Frankivsk	SEW-EURODRIVE, LLC Symona Petlyury Str. 27 76018 Ivano-Frankivsk	Tel. +380 342 725 190 Fax +380 342 725 191 ifso@sew-eurodrive.ua
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Assembly Sales Service	Northeast Region	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 332-0038 cstroy@seweurodrive.com
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	Wellford	SEW-EURODRIVE INC. 148/150 Finch Rd. Wellford, S.C. 29385	Tel. +1 864 439-7537 Fax +1 864 661 1167 IGOrders@seweurodrive.com
		SEW-EURODRIVE INC. 220 Finch Rd. Wellford, S.C. 29385-9630	
	Additional addresses for service provided on request!		

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Vietnam			
Sales	Ho Chi Minh City	SEW-EURODRIVE PTE. LTD. RO at Hochiminh City Floor 8, KV I, Loyal building, 151-151 Bis Vo Thi Sau street, ward 6, District 3, Ho Chi Minh City, Vietnam	Tel. +84 937 299 700 huytam.phan@sew-eurodrive.com
	Hanoi	MICO LTD Quảng Trị - North Vietnam / All sectors except Construction Materials 8th Floor, Ocean Park Building, 01 Dao Duy Anh St, Ha Noi, Viet Nam	Tel. +84 4 39386666 Fax +84 4 3938 6888 nam_ph@micogroup.com.vn http://www.micogroup.com.vn

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