# Catalog

## Synchronous Servomotors
CMP40 – CMP100, CMPZ71 – CMPZ100
CFM71 – CFM112

Edition 10/2010

17014417 / EN


KKFU 144794 3
4261

1

# 1 Introduction

## 1.1 The SEW-EURODRIVE Group of Companies

### *Global presence*

Driving the world with innovative drive solutions for all branches and every application. Products and systems from SEW-EURODRIVE are used in a multitude of applications worldwide. Be it in the automotive, building materials, food and beverage or metal-processing industry the decision to use drive technology "made by SEW-EURODRIVE" stands for reliability for both functionality and investment.

We are represented in the most important branches of industry all over the world: with 13 manufacturing plants, 67 assembly plants in 44 countries and our comprehensive range of services, which we consider an integrative service that continues our commitment to outstanding quality.

### *Always the right drive*

The SEW-EURODRIVE modular concept offers millions of combinations. This wide selection enables you to choose the correct drive for all applications, each based on the required speed and torque range, space available and the ambient conditions. Gear units and gearmotors offering a unique and finely tuned performance range and the best economic prerequisites to face your drive challenges.

The gearmotors are powered by MOVITRAC® frequency inverters, MOVIDRIVE® inverters and MOVIAXIS® multi-axis servo inverters, a combination that blends perfectly with the existing SEW-EURODRIVE program. As in the case for mechanical systems, the development, production and assembly is also carried out completely by SEW-EURODRIVE. In combination with our drive electronics, these drives provide the utmost in flexibility.

Products of the servo drive system, such as low backlash servo gear units, compact servomotors or MOVIAXIS® multi-axis servo inverters provide precision and dynamics. From single-axis or multi-axis applications all the way to synchronized process sequences, servo drive systems by SEW-EURODRIVE offer a flexible and customized implementation of your application.

For economical, decentralized installations, SEW-EURODRIVE offers components from its decentralized drive system, such as MOVIMOT®, the gearmotor with integrated frequency inverter or MOVI-SWITCH®, the gearmotor with integrated switching and protection function. SEW-EURODRIVE hybrid cables have been designed specifically to ensure cost-effective solutions, independent of the philosophy behind or the size of the system. The latest developments from SEW-EURODRIVE: MOVITRANS® system components for contactless energy transfer, MOVIPRO®, the decentralized drive control and MOVIFIT®, the new decentralized intelligence.

Power, quality and sturdy design combined in one standard product: With high torque levels, industrial gear units from SEW-EURODRIVE realize major movements. The modular concept will once again provide optimum adaptation of industrial gear units to meet a wide range of different applications.

### *Your ideal partner*

Its global presence, extensive product range and broad spectrum of services make SEW-EURODRIVE the ideal partner for the machinery and plant construction industry when it comes to providing drive systems for demanding applications in all branches of industries and applications.

## 1.2 Products and systems from SEW-EURODRIVE

The products and systems from SEW-EURODRIVE are divided into the following 4 product groups:

1. Gearmotors and frequency inverters
2. Servo drive systems
3. Decentralized drive systems
4. Industrial gear units

Products and systems used in several group applications are listed in a separate group "Products and systems covering several product groups". Consult the following tables to locate the products and systems included in the respective product group:

| 1. Gearmotors and frequency inverters | | |
|---|---|---|
| **Gear units/gearmotors** | **Motors** | **Frequency inverters** |
| • Helical gear units/helical gearmotors<br>• Parallel-shaft helical gear units/parallel-shaft helical gearmotors<br>• Helical-bevel gear units/helical-bevel gear-motors<br>• Helical-worm gear units/helical-worm gear-motors<br>• SPIROPLAN® right-angle gearmotors<br>• EMS drives<br>• Geared torque motors<br>• Pole-changing gearmotors<br>• Variable speed gear units/variable speed gear-motors<br>• Aseptic gearmotors<br>• Gear units/gearmotors to ATEX standard<br>• Variable speed gear units/variable speed gear-motors to ATEX standard | • Asynchronous AC motors/AC brakemotors<br>• Pole-changing AC motors/AC brakemotors<br>• Energy-efficient motors<br>• Explosion-proof AC motors/AC brakemotors<br>• Torque motors<br>• Single-phase motors/single-phase brakemotors<br>• Asynchronous linear motors | • MOVITRAC® frequency inverters<br>• MOVIDRIVE® inverters<br>• Control, technology and communication options for inverters |

| 2. Servo drive systems | | |
|---|---|---|
| **Servo gear units/servo gear-motors** | **Servomotors** | **Servo drive inverters/servo inverters** |
| • Low backlash planetary servo gear units/planetary gear-motors<br>• Low backlash helical-bevel servo gear units/helical-bevel gearmotors<br>• Explosion-proof servo gear units/servo gearmotors | • Asynchronous servo-motors/servo brakemotors<br>• Synchronous servo-motors/servo brakemotors<br>• Explosion-proof servo-motors/servo brakemotors<br>• Synchronous linear motors | • MOVIDRIVE® servo inverters<br>• MOVIAXIS® multi-axis servo inverters<br>• Control, technology and communication options for servo drive inverters and servo inverters |

| 3. Decentralized drive systems | | |
|---|---|---|
| **Decentralized drives** | **Communication and installation** | **Contactless energy transfer** |
| • MOVIMOT® gearmotors with integrated frequency inverter<br>• MOVIMOT® motors/brakemotors with integrated frequency inverter<br>• MOVI-SWITCH® gearmotors with integrated switching and protection function<br>• MOVI-SWITCH® motors/brakemotors with integrated switching and protection function<br>• Explosion-proof MOVIMOT® and MOVI-SWITCH® gearmotors | • Fieldbus interfaces<br>• Field distributors for decentralized installation<br>• MOVIFIT® product range<br>– MOVIFIT® MC for controlling MOVIMOT® drives<br>– MOVIFIT® SC with integrated electronic motor switch<br>– MOVIFIT® FC with integrated frequency inverter | • MOVITRANS® system<br>– Stationary components for energy supply<br>– Mobile components for energy consumption<br>– Line cables and installation material |

| 4. Industrial gear units |
|---|
| • Helical gear units<br>• Bevel-helical gear units<br>• Planetary gear units |

| Products and systems covering several product groups |
|---|
| • Operator terminals<br>• MOVI-PLC® drive-based control system |

In addition to products and systems, SEW-EURODRIVE offers a comprehensive range of services. These include:

- Technical consulting
- Application software
- Seminars and training
- Extensive technical documentation
- International customer service

Visit our homepage at

→ **www.sew-eurodrive.com**

The website provides comprehensive information and services.

## 1.3 Additional documentation

***Contents of this publication***

This motor catalog provides a detailed description of the following product group from SEW-EURODRIVE:

- Synchronous servomotors of the CMP and CMPZ series
- Synchronous servomotors of the CFM series
- Options and accessories for motors

This catalog/price catalog contains the following information:

- Type designations
- Product descriptions
- Project planning information
- Technical data
- Technical data of options and additional features
- Information about the dimension sheets
- Dimension sheets
- Information on brakes from SEW-EURODRIVE
- Information on prefabricated cables
- Price catalog  Prices and option pricing of options and accessories

***Additional documentation***

The following price catalogs/catalogs are available from SEW-EURODRIVE in addition to this motor catalog:

- AC motors
- DR gearmotors
- Synchronous servo gearmotors
- Asynchronous servo gearmotors

The price catalogs and catalogs offer the following information:

- Product descriptions
- Type designations
- Project planning instructions for drives and gear units
- Visual representation of mounting positions
- Explanation on the order information
- Design and operating notes
- Important information about tables and dimension sheets
- Description of the different types
- Overview of all permitted combinations
- Selection tables for gearmotors
- Gearmotor dimension sheets
- Technical data
- Price catalog: Prices and option pricing for additional features and options

Please note that the complete range of technical documentation is available on our home page:

**www.sew-eurodrive.com**

## 1.4 Notation of motor types

This catalog covers among others the motor types CMP and CMPZ.

If information refers to both CMP and CMPZ motors, the notation CMP. motors is used.

If information refers to either CMP or CMPZ motors, the motor type is stated explicitly.

## 1.5 Product names and trademarks

The brands and product names in this catalog are trademarks or registered trademarks of the titleholders.

## 1.6 Copyright

# 2 General Product Description of CMP. Servomotors

## *2.1 CMP synchronous servomotors*

The CMP servomotor series combines high dynamics, high torques, and precision in a compact design.

Their innovative design with the latest in winding and magnet technology offers a motor system with optimum dynamics and the best control characteristics at the smallest space. The cast stator protects the motor against vibrations and humidity.

Characteristics of SEW-EURODRIVE synchronous servomotors:

- Static torque from 0.5 to 47 Nm
- High dynamics (ratio between rated torque and mass moment of inertia of the motor)
- High degree of protection (IP65)
- Robust encoder system (resolver)
- The optimal encoder system with sine/cosine encoder allows for a very wide setting range and absolute position detection
- High continuous torque at low speeds and at standstill, without forced cooling fan
- High overload capability
- NeFeB magnets, permanent magnets with high magnetic flux density

CMP motors can be optionally equipped with a BP holding brake and a forced cooling fan.

The CMP servomotors can be combined with the MOVIDRIVE® inverter and the MOVIAXIS® multi-axis servo inverter.

## *2.2 CMPZ synchronous servomotors – version with additional flywheel mass*

CMPZ synchronous servomotors are equipped with an internal additional flywheel mass. These motors combine high torques and precision in a compact design and provide particularly favorable control characteristics with high external masses. Furthermore, the internal higher moment of inertial allows for a smaller gear ratio.

In addition to the above mentioned features of the CMP motors, CMPZ motors are optionally available with a powerful BY working brake with high working capacity and optional manual brake release.

## 2.3 Features of CMP. servomotors

Synchronous servomotors with permanent magnets offer highest dynamic overload capacity.

State-of-the-art winding and magnet technology enable a compact motor system with great dynamic qualities, smooth running and excellent control characteristics.

***Standard features of CMP servomotors:***

Synchronous servomotors of the CMP. series constitute a drive system which comprises the following elements in its basic variant:

- Smooth shaft end
- Resolver as encoder
- Thermal motor protection through temperature sensing
- Connection via adjustable plug connectors
- High degree of rotational accuracy
- High vibration class (DIN EN 60034-14 grade B)

***Optional product characteristics***

The CMP. motors can be optionally expanded with:

- Shaft end with key
- Forced cooling fan
- Connection via radial plug connectors
- Connection with mating connector
- Connection via terminal box
- Prefabricated cables
- Holding brake with DC 24 V brake voltage
- BY working brake with manual brake release
- Safety-rated encoder
- UL or UL/CSA approval
- Can be directly mounted to SEW gear units with B5 flange

Alternatives can be selected instead of the elements of the basic variant, e.g. absolute encoder with Hipferface® instead of the resolver and electronic nameplate.

***Torque***

The 6 available sizes with a total of 17 levels cover a torque range from 0.5 Nm to 47 Nm.

The dynamic peak torque reaches 1.9 Nm to 178 Nm.

***Rated speeds***

The optimized winding makes it possible to select one of three speeds:

- 2000 rpm
- 3000 rpm
- 4500 rpm
- 6000 rpm

***Direct mounting***

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

The following gear units can be selected:

- BS.F helical-bevel servo gear units
- PS.F and PS.C planetary servo gear units
- R.. helical gear units
- F.. parallel-shaft helical gear units
- K.. helical-bevel gear units
- Helical-worm gear units S..
- SPIROPLAN® gear units W37 and W47

***Output variants***

CMP. servomotors are available with the following output types:

- Stand-alone motors with standardized flange
- With square flange for mounting to the gear unit types BS.F, PS.F, PS.C
- With LIA flange for mounting to the gear unit types R, F, K, S, W

***Noise***

The noise levels of all motors from SEW-EURODRIVE are well within the maximum permitted noise levels set forth in IEC/EN 60034-9.

***Paint***

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.

***Surface and corrosion protection***

If required, all motors from SEW-EURODRIVE can also be supplied with special surface protection for applications in extremely humid and chemically aggressive environments.

***Air admission and accessibility***

The motors/brakemotors must be mounted on the driven machine in such a way that both axially and radially there is enough space left for unimpeded air admission and for maintenance of the brake. Please also refer to the notes in the motor dimension sheets.

***Brakemotors***

On request, the motors can be supplied with an integrated mechanical brake. The SEW-EURODRIVE brake is an electromagnetic disk brake with a DC coil that releases electrically and brakes using spring force. Due to its operating principle, the brake is applied if the power fails. It meets the basic safety requirements. The brake can also be released mechanically if equipped with manual brake release. A lockable hand lever with automatic reset is included in the delivery. The brake is controlled by a brake controller that is either installed in the inverter or separately in the control cabinet.

A characteristic feature of the brakes is their extremely short design. The brake bearing end shield is a part of both the motor and the brake. The integrated construction of the SEW-EURODRIVE brakemotor permits particularly compact and sturdy solutions.

***International markets***

On request, SEW-EURODRIVE supplies motors registered for the North American market or certified motors with connection conditions according to the relevant regulations.

## 2.4 Corrosion and surface protection

***General information***

SEW-EURODRIVE offers various optional protective measures for operating motors under special environmental conditions.

The protective measures comprise two groups:

- KS corrosion protection
- OS surface protection

For motors, optimum protection is offered by a combination of KS corrosion protection and surface OS protection.

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

***KS corrosion protection***

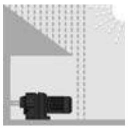
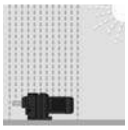
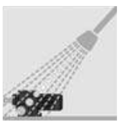
KS corrosion protection for motors comprises the following measures:

- All retaining screws that are loosened during operation are made of stainless steel
- A top coating is applied to various motor parts
- The flange contact surfaces and shaft ends are treated with a temporary anti-corrosion agent
- Additional measures for brakemotors

A sticker labeled "KORROSIONSSCHUTZ" (corrosion protection) on the stator housing or on the fan guard indicates that special treatment was applied.

***OS surface protection***

In addition to standard surface protection, motors and gear units are available with surface protection OS1 to OS4. The special procedure "Z" is also available. Special procedure "Z" means that large surface recesses are sprayed with a rubber filling prior to painting.

| **Surface protection[1)]** | | **Ambient conditions** | **Sample applications** |
|---|---|---|---|
| **Standard** |  | Suitable for machines and systems in buildings and rooms indoors with neutral atmospheres.<br>According to corrosivity category [2)]:<br>• C1 (negligible) | • Machines and systems in the automobile industry<br>• Transport systems in logistics<br>• Conveyor belts at airports |
| **OS1** |  | Suited for environments prone to condensation and atmospheres with low humidity or contamination, such as applications outdoors under roof or with protection.<br>According to corrosivity category [2)]:<br>• C2 (low) | • Systems in saw mills<br>• Hall gates<br>• Agitators and mixers |
| **OS2** |  | Suited for environments with high humidity or moderate atmospheric contamination, such as applications outdoors subject to direct weathering.<br>According to corrosivity category [2)]:<br>• C3 (moderate) | • Applications in amusement parks<br>• Funiculars and chair-lifts<br>• Applications in gravel plants<br>• 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 load.<br>According to corrosivity category [2)]:<br>• C4 (high) | • Sewage treatment plants<br>• Port cranes<br>• Mining applications |
| **OS4** |  | Suitable for environments with permanent humidity or severe atmospheric or chemical contamination. Regular acidic and caustic wet cleaning also with chemical cleaning agents.<br>According to corrosivity category [2)]:<br>• C5-1 (very high) | • Drives in malting plants<br>• Wet areas in the beverage industry<br>• Conveyor belts in the food industry |

1) Motors/brakemotors in degree of protection IP56 or IP66 are only available with OS2, OS3, or OS4 surface protection

2) to DIN EN ISO 12944-2 classification of ambient conditions

***Extended storage***

Note the following when storing a motor for an extended period of time:

- The service life of the ball bearing grease is reduced after storage periods exceeding one year.
- SEW-EURODRIVE recommends to have the motor inspected by SEW Service after 4 years in storage to check the ball bearing grease for signs of ageing.
- Check whether the servomotor has absorbed moisture as a result of being stored for a long time. Measure the insulation resistance with a measurement voltage of DC 500 V.

## 2.5 Operating temperatures

Motors of the CMP series for use in a temperature range between -20 °C and +40 °C.

Motors for cold storage applications can be used down to -40 °C. The temperature range from -40 °C to +10 °C is listed on the nameplate.

Contact SEW-EURODRIVE if the motors are operated outside the specified temperature range.

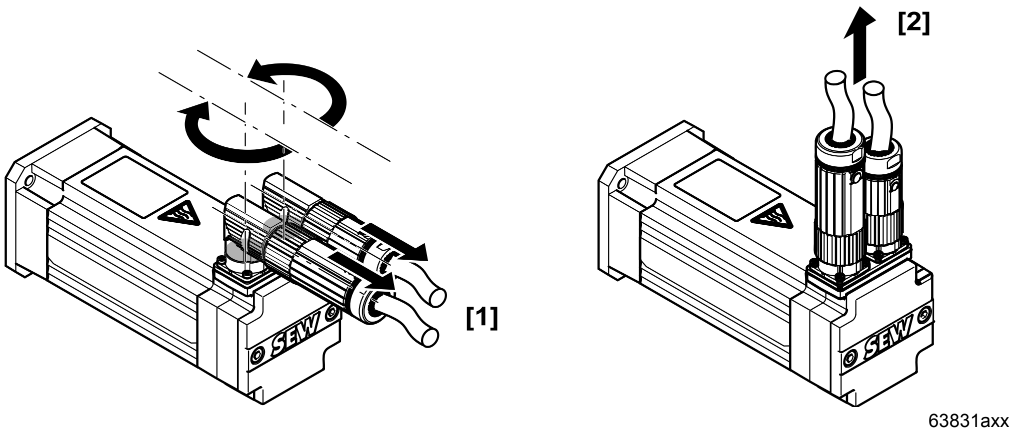
## 2.6 Important order information

### Connection with plug connector

The power or power + brake of the CMP. motors are connected to the motor as standard with an adjustable, right-angle connector.

An "adjustable" position has been defined for right-angle connectors [1]. If not specified otherwise, the connector position "adjustable" is delivered in the 270° variant.

A "radial" position has been defined for the straight connector housing (radial output). Radial connectors [2] are optional.




[1] "Adjustable" connector position

[2] "Radial" connector position

### Connection with terminal box

*Position of terminal box and cable entry*

The product standard EN 60034 specifies that the following designations have to be used for terminal box positions:

- As viewed onto the output shaft = A end
- Designation as R (right), B (bottom), L (left) and T (top)

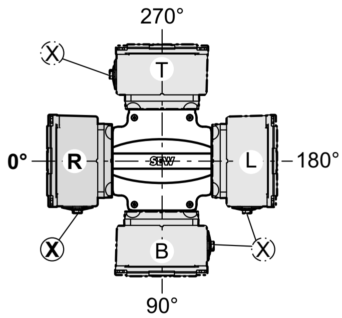
This new designation applies to motors without a gear unit in mounting position B3 (= M1). The previous designation is maintained for gearmotors.

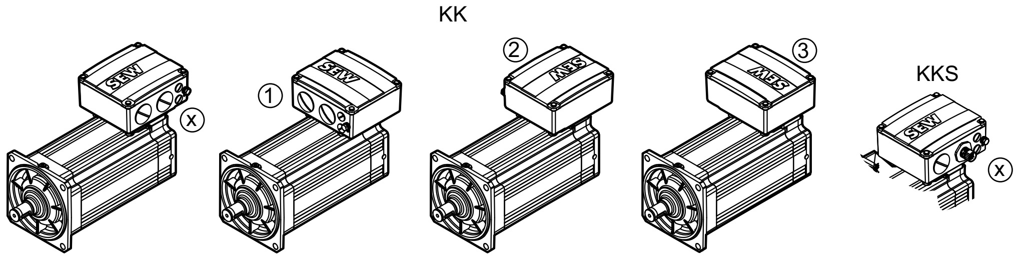
The position of the motor terminal box has so far been specified with 0°, 90°, 180° or 270° as viewed onto the fan guard = B end.

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

The cable entry position is specified with x, 1, 2, 3.

Unless other information is provided regarding the terminal box, the 270° type with "x" cable entry will be supplied (see below figure).



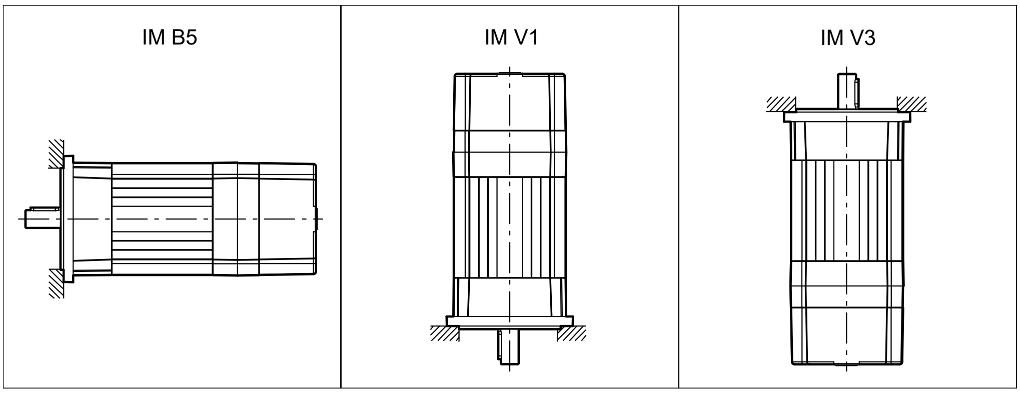




***Connecting the forced cooling fan***

The position of the cable entry of the forced cooling fan is delivered as shown in the dimension sheets on page 134 . Cable entry turned by 180° is available on request.

***Mounting positions***

Mounting positions of CMP. servomotors




| | | |
|---|---|---|
| Flange mounting on the input side of the flange | Flange mounting on the input side of the flange, input side at the bottom | Flange mounting on the input side of the flange, input side at the top |

## 2.7 Overview of motors

### *CMP and CMPZ servomotors, 400 V system voltage*

| Motor type | $M_0$ [Nm] | $M_{pk}$ [Nm] | $J_{Mot}$ CMP [$10^{-4}$ kgm$^2$] | $J_{Mot}$ CMPZ [$10^{-4}$ kgm$^2$] |
|---|---|---|---|---|
| **CMP40S** | 0.5 | 1.9 | 0.10 | - |
| **CMP40M** | 0.8 | 3.8 | 0.15 | - |
| **CMP50S** | 1.3 | 5.2 | 0.42 | - |
| **CMP50M** | 2.4 | 10.3 | 0.67 | - |
| **CMP50L** | 3.3 | 15.4 | 0.92 | - |
| **CMP63S** | 2.9 | 11.1 | 1.15 | - |
| **CMP63M** | 5.3 | 21.4 | 1.92 | - |
| **CMP63L** | 7.1 | 30.4 | 2.69 | - |
| **CMP.71S** | 6.4 | 19.2 | 3.04 | 9.32 |
| **CMP.71M** | 9.4 | 30.8 | 4.08 | 10.37 |
| **CMP.71L** | 13.1 | 46.9 | 6.18 | 12.47 |
| **CMP.80S** | 13.4 | 42.1 | 8.78 | 27.18 |
| **CMP.80M** | 18.7 | 62.6 | 11.9 | 30.3 |
| **CMP.80L** | 27.5 | 107 | 18.1 | 36.51 |
| **CMP.100S** | 25.5 | 68.3 | 19.34 | 79.76 |
| **CMP.100M** | 31 | 108 | 26.25 | 86.66 |
| **CMP.100L** | 47 | 178.8 | 40 | 100.41 |

### *CFM servomotors, 400 V system voltage*

| Motor type | $M_0$ [Nm] | $M_{pk}$ [Nm] | $J_{Mot}$ [$10^{-4}$ kgm$^2$] |
|---|---|---|---|
| **CFM71S** | 5 | 16.5 | 4.89 |
| **CFM71M** | 6.5 | 21.5 | 6.27 |
| **CFM71L** | 9.5 | 31.4 | 9.02 |
| **CFM90S** | 11 | 39.6 | 17.4 |
| **CFM90M** | 14.5 | 52.2 | 22.3 |
| **CFM90L** | 21 | 75.6 | 32.1 |
| **CFM112S** | 23.5 | 82.3 | 68.4 |
| **CFM112M** | 31 | 108.5 | 88.2 |
| **CFM112L** | 45 | 157.5 | 128 |
| **CFM112H** | 68 | 238 | 190 |

# 3 General Project Planning Notes

## 3.1 Standards and regulations

***Conformity with standards***

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 performance.
- IEC 60034-2, EN 60034-2
  Rotating electrical machines, determining losses and efficiency.
- IEC 60034-9, EN 60034-9
  Rotating electrical machines, noise limits.
- IEC 60034-14, EN 60034-14
  Rotating electrical machines, vibration levels.
- EN 60529, IEC 60034-5, EN 60034-5
  IP degrees of protection for enclosures.
- IEC 60072
  Dimensions and performance of rotating electrical machines.
- EN 50262
  Metric threads of cable glands.
- EN 50347
  Standardized dimensions and power ranges.

***Conformity with directives***

Servo (brake)motors from SEW-EURODRIVE comply with the following directives:

- Low Voltage Directive 2006/95/EC
- Machinery Directive 2006/42/EC
- EMC Directive 2004/108/EC
- CSA C22.2 No.100-04
- UL 1004

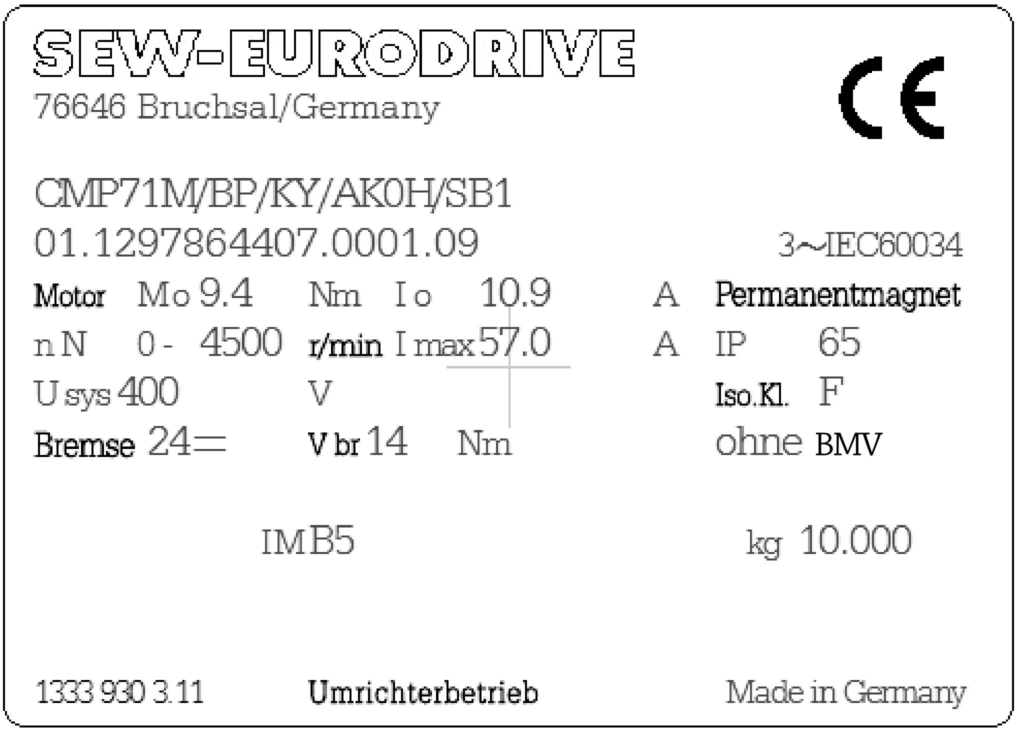
***Rated data***

The specific data of a synchronous servomotor are:

- Size
- Static torque
- Rated speed
- Rated current
- Peak current
- System voltage
- Degree of protection
- Thermal class

This data is given on the nameplate of the motor. In accordance with IEC 34 (EN 60034), the nameplate data apply to a maximum ambient temperature of 40 °C and a maximum altitude of 1000 m above sea level.

Example: Nameplate for a CMP servomotor




65851ade

## 3.2 Circuit breakers and protective equipment

***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 can exceed 100 °C during operation in accordance with thermal classification F. Therefore, measures must be taken to prevent inadvertent contact.

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

The temperature is measured by KTY 84-130 temperature sensors installed as standard. The correct motor 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.

***EMC measures***

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

*Routing brake cables*

Brake and power cables may only be routed together if either the brake cable or the power cable is shielded. We recommend that you use prefabricated cables, see page 245 et seq.

*Notes on encoder connection*

Observe the following instructions when connecting an encoder:

- Use a shielded cable with twisted pair conductors only.
- Connect the shield to the PE potential on both ends over a large surface area.

*Thermal motor protection*

The cables can only be routed together if either the KTY cable or the power cable is shielded. We recommend that you use prefabricated cables, see page 245 et seq.

# 4 Type Designations

## 4.1 List of type designations

### *Synchronous servomotors*

| Designation | |
|---|---|
| CMP... | Flange motor sizes 40 / 50 / 63 / 71 / 80 / 100 |
| CMPZ... | Flange motor sizes 71 / 80 / 100 with heavy rotor |
| S - L | S = short / M = medium / L = long |



### *Mechanical attachments*

| Designation | Option |
|---|---|
| /BP | Holding brake for CMP40 - 100 |
| /BY | Working brake for CMPZ71 - 100 |
| /HR | BY manual brake release for CMPZ71 - 100, automatic disengaging function |

### *Temperature sensor/temperature detection*

| Designation | Option |
|---|---|
| /KY | Temperature sensor (standard) |

### *Encoder*

| Designation | Option |
|---|---|
| /RH1M | Resolver (standard) |
| /ES1H | Single-turn Hiperface® encoder, spread shaft, high resolution for CMP50 and CMP63 |
| /AS1H | Multi-turn Hiperface® encoder, spread shaft, high resolution for CMP50 and CMP63 |
| /EK0H | Single-turn Hiperface® encoder, cone shaft, for CMP40 |
| /AK0H[1)] | Multi-turn Hiperface® encoder, cone shaft, for CMP40 - 100, CMPZ71 - 100 |
| /EK1H | Single-turn Hiperface® encoder, cone shaft, high resolution for CMP.71 - 100 |
| /AK1H | Multi-turn Hiperface® encoder, cone shaft, high resolution for CMP.71 - 100 |

1) Not available in combination with BY brake

***Connection variants***

| Designation | Option |
|---|---|
| /SM1, /SMB | Motor plug connector, socket on motor end only, pluggable motor and encoder cables (standard) |
| /SB1, /SBB | Plug connector motor + brake, socket on motor end only, pluggable motor and encoder cables (standard) |
| /KK | Terminal box for CMP50, CMP63, CMP71 - 100, pluggable motor and encoder cable |
| /KKS | Terminal box for CMP71 - 100, clampable motor cable and pluggable encoder cable |

***Ventilation***

| Designation | Option |
|---|---|
| /VR | Forced cooling fan |

## 4.2 Serial number

01. 12212343 01. 0001. 09

- 09 – End digits of the year of manufacture (2 digits)
- 0001. – Quantity (4 digit)
- 01. – Order item (2 digits)
- 12212343 – Order number (8 digits)
- 01. – Sales organization

## 4.3 Type designation example

| Motor variant | Type designation of the motor variant | | | | | | |
|---|---|---|---|---|---|---|---|
| **Explosion-proof motors** | | | | | | | |
| Explosion protection | - | /II3GD | /II3D | | | | |
| **Connection options** | | | | | | | |
| Connection options | /SB1 | /SMB | /SM1 | /SBB | /KK | /KKS | |
| **Ventilation** | | | | | | | |
| Forced cooling fan | /VR | | | | | | |
| **Encoder** | | | | | | | |
| Encoder | /RH1M | /ES1H | /AS1H | /EK0H | /AK0H | /EK1H | /AK1H |
| **Temperature sensor / temperature detection** | | | | | | | |
| Temperature sensor | /KY | | | | | | |
| **Mechanical attachments** | | | | | | | |
| Holding brake | - | /BP | | | | | |
| Manual brake release | /HR | | | | | | |
| Working brake | /BY | | | | | | |
| **Synchronous servomotors of the series** | | | | | | | |
| Length | S | M | L | | | | |
| Size | 71 | 40 | 50 | 63 | 71 | 80 | 100 |
| Additional flywheel mass | Z | | | | | | |
| Series | CMP | | | | | | |

Page remains empty for printing reasons.

# 5 CMP. Servomotors

## 5.1 Key to the data tables

The following table lists the short symbols used in the "Technical Data" table.

| | |
|---|---|
| $n_N$ | Rated speed |
| $M_0$ | Standstill torque (thermal continuous torque at low speeds) |
| $I_0$ | Standstill current |
| $M_{pk}$ | Maximum limit torque of the servomotor |
| $I_{max}$ | Maximum permitted motor current |
| $M_{0VR}$ | Standstill torque with forced cooling fan |
| $I_{0VR}$ | Standstill current with forced cooling fan |
| $J_{mot}$ | Mass moment of inertia of the motor |
| $J_{bmot}$ | Mass moment of inertia of the brakemotor |
| $M_{B1}$ | Standard braking torque |
| $M_{B2}$ | Optional braking torque |
| $L_1$ | Inductance between connection phase and star point |
| $R_1$ | Resistance between connection phase and star point |
| $U_{p0}$ cold | Internal voltage at 1000 rpm |

## 5.2 Technical data of synchronous servomotors CMP, CMP /BP, 400 V system voltage

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | $M_{pk}$ Nm | $I_{max}$ A | $M_{0VR}$ Nm | $I_{0VR}$ A | m kg | $J_{mot}$ $10^{-4}$ $kgm^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 2000 | **CMP71S** | 6.4 | 3.4 | 19.2 | 17 | 8.7 | 4.6 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 5 | 30.8 | 26 | 13.7 | 7.3 | 8.4 | 4.08 |
| | **CMP71L** | 13.1 | 6.3 | 46.9 | 39 | 21 | 10.1 | 11.4 | 6.18 |
| | **CMP80S** | 13.4 | 6.9 | 42.1 | 33 | 18.7 | 9.5 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 9.3 | 62.6 | 48 | 27 | 13.4 | 16.5 | 11.9 |
| | **CMP80L** | 27.5 | 12.5 | 107 | 72 | 44 | 20 | 21.4 | 18.1 |
| | **CMP100S** | 25.5 | 13.3 | 68.3 | 49 | 36 | 18.8 | 19.8 | 19.59 |
| | **CMP100M** | 31 | 14.7 | 108 | 69 | 47 | 22.3 | 24.8 | 26.49 |
| | **CMP100L** | 47 | 21.8 | 178.8 | 113 | 70 | 32.5 | 34.6 | 40.24 |
| 3000 | **CMP40S** | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 0.95 | 3.8 | 6.0 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 0.96 | 5.2 | 5.1 | 1.7 | 1.25 | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 1.68 | 10.3 | 9.6 | 3.5 | 2.45 | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 2.2 | 15.4 | 13.6 | 4.8 | 3.2 | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 2.15 | 11.1 | 12.9 | 4 | 3 | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 3.6 | 21.4 | 21.6 | 7.5 | 5.1 | 5.7 | 1.92 |
| | **CMP63L** | 7.1 | 4.95 | 30.4 | 29.7 | 10.3 | 7.2 | 7.5 | 2.69 |
| | **CMP71S** | 6.4 | 4.9 | 19.2 | 25 | 8.7 | 6.7 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 7.5 | 30.8 | 39 | 13.7 | 10.9 | 8.4 | 4.08 |
| | **CMP71L** | 13.1 | 9.4 | 46.9 | 58 | 21 | 15.1 | 11.4 | 6.18 |
| | **CMP80S** | 13.4 | 10 | 42.1 | 47 | 18.5 | 13.8 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 13.4 | 62.6 | 69 | 27 | 19.3 | 16.5 | 11.9 |
| | **CMP80L** | 27.5 | 18.7 | 107 | 107 | 44 | 30 | 21.4 | 18.1 |
| | **CMP100S** | 25.5 | 19.6 | 68.3 | 73 | 36 | 27.5 | 19.8 | 19.34 |
| | **CMP100M** | 31 | 21.8 | 108 | 102 | 47 | 33 | 24.8 | 26.25 |
| | **CMP100L** | 47 | 32.3 | 178.8 | 167 | 70 | 48 | 34.6 | 40 |
| 4500 | **CMP40S** | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 0.95 | 3.8 | 6.0 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 1.32 | 5.2 | 7.0 | 1.7 | 1.7 | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 2.3 | 10.3 | 13.1 | 3.5 | 3.35 | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 3.15 | 15.4 | 19.5 | 4.8 | 4.6 | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 3.05 | 11.1 | 18.3 | 4 | 4.2 | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 5.4 | 21.4 | 32.4 | 7.5 | 7.6 | 5.7 | 1.92 |
| | **CMP63L** | 7.1 | 6.9 | 30.4 | 41.4 | 10.3 | 10 | 7.5 | 2.69 |
| | **CMP71S** | 6.4 | 7.3 | 19.2 | 38 | 8.7 | 9.9 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 10.9 | 30.8 | 57 | 13.7 | 15.9 | 8.4 | 4.08 |
| | **CMP71L** | 13.1 | 14.1 | 46.9 | 87 | 21 | 22.5 | 11.4 | 6.18 |
| | **CMP80S** | 13.4 | 15.3 | 42.1 | 73 | 18.5 | 21 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 20.1 | 62.6 | 103 | 27 | 29 | 16.5 | 11.9 |
| | **CMP80L** | 27.5 | 27.8 | 107 | 159 | 44 | 44.5 | 21.4 | 18.1 |
| | **CMP100S** | 25.5 | 30 | 68.3 | 111 | 36 | 42.5 | 19.8 | 19.34 |
| | **CMP100M** | 31 | 33.1 | 108 | 154 | 47 | 50 | 24.8 | 26.25 |
| | **CMP100L** | 47 | 48.4 | 178.8 | 251 | 70 | 72 | 34.6 | 40 |

Table continued on next page.

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | $M_{pk}$ Nm | $I_{max}$ A | $M_{0VR}$ Nm | $I_{0VR}$ A | m kg | $J_{mot}$ $10^{-4}$ $kgm^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 6000 | **CMP40S** | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 1.1 | 3.8 | 6.9 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 1.7 | 5.2 | 9.0 | 1.7 | 2.2 | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 3 | 10.3 | 17.1 | 3.5 | 4.4 | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 4.2 | 15.4 | 26 | 4.8 | 6.1 | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 3.9 | 11.1 | 23.4 | 4 | 5.4 | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 6.9 | 21.4 | 41.4 | 7.5 | 9.8 | 5.7 | 1.92 |
| | **CMP63L** | 7.1 | 9.3 | 30.4 | 55.8 | 10.3 | 13.5 | 7.5 | 2.69 |
| | **CMP71S** | 6.4 | 9.6 | 19.2 | 50 | 8.7 | 13.1 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 14.7 | 30.8 | 76 | 13.7 | 21.5 | 8.4 | 4.08 |
| | **CMP71L** | 13.1 | 18.8 | 46.9 | 115 | 21 | 30 | 11.4 | 6.18 |
| | **CMP80S** | 13.4 | 20 | 42.1 | 95 | 18.5 | 27.5 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 26.4 | 62.6 | 135 | 27 | 38 | 16.5 | 11.9 |
| | **CMP80L** | 27.5 | 37.6 | 107 | 215 | - | - | 21.4 | 18.1 |

| $n_N$ rpm | Motor | $L_1$ mH | $R_1$ Ω | $U_{p0}$ cold V | $m_{bmot}$ kg | $J_{bmot}$ $10^{-4}$ $kgm^2$ | $M_{B1}$ Nm | $M_{B2}$ Nm |
|---|---|---|---|---|---|---|---|---|
| 2000 | **CMP71S** | 33.5 | 3.48 | 128 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 21.5 | 1.87 | 127 | 10.4 | 4.5 | 14 | 7 |
| | **CMP71L** | 16.2 | 1.2 | 142 | 13.4 | 6.6 | 14 | 7 |
| | **CMP80S** | 15.3 | 1.1 | 133 | 16.8 | 10.04 | 16 | 31 |
| | **CMP80M** | 10.5 | 0.69 | 136 | 20.5 | 13.16 | 31 | 16 |
| | **CMP80L** | 7.6 | 0.44 | 149 | 24.4 | 19.36 | 31 | 16 |
| | **CMP100S** | 8.5 | 0.44 | 130 | 22.8 | 21.34 | 24 | 47 |
| | **CMP100M** | 6.6 | 0.3 | 141 | 27.8 | 28.25 | 47 | 24 |
| | **CMP100L** | 4.15 | 0.169 | 145 | 37.6 | 42.82 | 47 | 24 |
| 3000 | **CMP40S** | 23 | 11.94 | 27.5 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 46 | 19.93 | 56 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 71 | 22.49 | 86 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 38.5 | 9.96 | 90 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 30.5 | 7.42 | 98 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 36.5 | 6.79 | 90 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 22 | 3.56 | 100 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP63L** | 14.2 | 2.07 | 100 | 8.5 | 3.03 | 9.3 | 7 |
| | **CMP71S** | 15.7 | 1.48 | 87.5 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 9.7 | 0.81 | 85 | 10.4 | 4.5 | 14 | 7 |
| | **CMP71L** | 7.3 | 0.56 | 96 | 13.4 | 6.6 | 14 | 7 |
| | **CMP80S** | 7.2 | 0.54 | 91 | 16.8 | 10.04 | 16 | 31 |
| | **CMP80M** | 5 | 0.345 | 94 | 20.5 | 13.16 | 31 | 16 |
| | **CMP80L** | 3.35 | 0.21 | 99 | 24.4 | 19.36 | 31 | 16 |
| | **CMP100S** | 3.9 | 0.215 | 88 | 22.8 | 21.34 | 24 | 47 |
| | **CMP100M** | 3.05 | 0.142 | 95.5 | 27.8 | 28.25 | 47 | 24 |
| | **CMP100L** | 1.9 | 0.081 | 98 | 37.6 | 42 | 47 | 24 |
| 4500 | **CMP40S** | 23 | 11.94 | 27.5 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 46 | 19.93 | 56 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 37 | 11.61 | 62 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 20.5 | 5.28 | 66 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 14.6 | 3.57 | 68 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 18.3 | 3.34 | 64 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 9.8 | 1.48 | 67 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP63L** | 7.2 | 1.07 | 71 | 8.5 | 3.03 | 9.3 | 7 |
| | **CMP71S** | 7.1 | 0.72 | 59 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 4.55 | 0.385 | 58 | 10.4 | 4.5 | 14 | 7 |
| | **CMP71L** | 3.25 | 0.24 | 64 | 13.4 | 6.6 | 14 | 7 |
| | **CMP80S** | 3.05 | 0.22 | 59 | 16.8 | 10.04 | 16 | 31 |
| | **CMP80M** | 2.25 | 0.148 | 63 | 20.5 | 13.16 | 31 | 16 |
| | **CMP80L** | 1.54 | 0.085 | 67 | 24.4 | 19.36 | 31 | 16 |
| | **CMP100S** | 1.68 | 0.086 | 58 | 22.8 | 21.34 | 24 | 47 |
| | **CMP100M** | 1.32 | 0.058 | 63 | 27.8 | 28.25 | 47 | 24 |
| | **CMP100L** | 0.84 | 0.038 | 65 | 37.6 | 42.82 | 47 | 24 |

Table continued on next page.

| $n_N$ rpm | Motor | $L_1$ mH | $R_1$ Ω | $U_{p0}$ cold V | $m_{bmot}$ kg | $J_{bmot}$ $10^{-4}$ $kgm^2$ | $M_{B1}$ Nm | $M_{B2}$ Nm |
|---|---|---|---|---|---|---|---|---|
| 6000 | **CMP40S** | 23 | 11.94 | 27.5 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 34 | 14.95 | 48.5 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 22.5 | 7.11 | 48.5 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 12 | 3.21 | 50.5 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 8.2 | 1.91 | 51 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 11.2 | 2.1 | 50 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 5.9 | 0.92 | 52 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP63L** | 4 | 0.62 | 53 | 8.5 | 3.03 | 9.3 | 7 |
| | **CMP71S** | 4.15 | 0.395 | 45 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 2.55 | 0.205 | 43.5 | 10.4 | 4.5 | 14 | 7 |
| | **CMP71L** | 1.84 | 0.145 | 48 | 13.4 | 6.6 | 14 | 7 |
| | **CMP80S** | 1.8 | 0.136 | 46 | - | - | - | - |
| | **CMP80M** | 1.3 | 0.087 | 48 | - | - | - | - |
| | **CMP80L** | 0.84 | 0.051 | 50 | - | - | - | - |

## *5.3 Technical data of synchronous servomotors CMP, CMP /BP, 230 V system voltage*

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | $M_{pk}$ Nm | $I_{max}$ A | $M_{0VR}$ Nm | $I_{0VR}$ A | m kg | $J_{mot}$ $10^{-4}$ $kgm^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 3000 | **CMP40S** | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 1.5 | 3.8 | 9 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 1.64 | 5.2 | 9.8 | - | - | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 2.84 | 10.3 | 17.05 | - | - | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 3.84 | 15.4 | 23.1 | - | - | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 3.61 | 11.1 | 21.65 | - | - | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 6.35 | 21.4 | 38.1 | - | - | 5.7 | 1.92 |
| | **CMP63L** | 7.1 | 8.76 | 30.4 | 52.59 | - | - | 7.5 | 2.69 |
| | **CMP71S** | 6.4 | 8.7 | 19.2 | 44 | 8.7 | 11.8 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 13.1 | 30.8 | 68 | 13.7 | 19.1 | 8.4 | 4.08 |
| | **CMP71L** | 13.1 | 16.8 | 46.9 | 103 | 21 | 27 | 11.4 | 6.18 |
| | **CMP80S** | 13.4 | 17.7 | 42.1 | 83 | 18.5 | 24.5 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 23.5 | 62.6 | 212 | 27 | 34 | 16.5 | 11.9 |
| | **CMP80L** | 27.5 | 32.5 | 107 | 186 | 44 | 52 | 21.4 | 18.1 |
| | **CMP100S** | 25.5 | 34.2 | 68.3 | 127 | - | - | 19.8 | 19.59 |
| | **CMP100M** | 31 | 40 | 108 | 187 | - | - | 24.8 | 26.49 |
| 4500 | **CMP40S** | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 1.5 | 3.8 | 9 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 2.29 | 5.2 | 13.75 | - | - | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 4.025 | 10.3 | 24.2 | - | - | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 5.53 | 15.4 | 33.2 | - | - | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 5.25 | 11.1 | 31.5 | - | - | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 9.78 | 21.4 | 58.7 | - | - | 5.7 | 1.92 |
| | **CMP63L** | 7.1 | 12.01 | 30.4 | 72.07 | - | - | 7.5 | 2.69 |
| | **CMP71S** | 6.4 | 12.8 | 19.2 | 67 | 8.7 | 17.4 | 7 | 3.04 |
| | **CMP71M** | 9.4 | 19.2 | 30.8 | 101 | 13.7 | 28 | 8.4 | 4.08 |
| | **CMP80S** | 13.4 | 27 | 42.1 | 129 | 18.5 | 37 | 12.8 | 8.78 |
| | **CMP80M** | 18.7 | 35 | 62.6 | 180 | 27 | 51 | 16.5 | 11.9 |
| | **CMP100S** | 25.5 | 54.5 | 68.3 | 200 | - | - | 19.8 | 1959 |
| 6000 | **CMP40S** | 0.5 | 1.36 | 1.9 | 6.8 | - | - | 1.3 | 0.1 |
| | **CMP40M** | 0.8 | 1.91 | 3.8 | 11.5 | - | - | 1.6 | 0.15 |
| | **CMP50S** | 1.3 | 3.07 | 5.2 | 18.45 | - | - | 2.3 | 0.42 |
| | **CMP50M** | 2.4 | 5.25 | 10.3 | 31.5 | - | - | 3.3 | 0.67 |
| | **CMP50L** | 3.3 | 7.6 | 15.4 | 45.4 | - | - | 4.1 | 0.92 |
| | **CMP63S** | 2.9 | 6.78 | 11.1 | 40.7 | - | - | 4.0 | 1.15 |
| | **CMP63M** | 5.3 | 12.06 | 21.4 | 72.36 | - | - | 5.7 | 1.92 |
| | **CMP71S** | 6.4 | 17 | 19.2 | 89 | 8.7 | 23 | 7 | 3.04 |
| | **CMP80S** | 13.4 | 35.5 | 42.1 | 168 | 18.5 | 48.5 | 12.8 | 8.78 |

| $n_N$ rpm | Motor | $L_1$ mH | $R_1$ Ω | $U_{p0}$ cold V | $m_{bmot}$ kg | $J_{bmot}$ $10^{-4}$ $kgm^2$ | $M_{B1}$ Nm | $M_{B2}$ Nm |
|---|---|---|---|---|---|---|---|---|
| 3000 | **CMP40S** | 23 | 11.94 | 27.5 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 18.4 | 7.85 | 35.7 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 24.5 | 7.39 | 50.4 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 13.5 | 3.41 | 53.7 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 9.8 | 2.34 | 55.7 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 13 | 2.56 | 54 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 7.1 | 1.12 | 57 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP63L** | 4.45 | 0.66 | 56 | 8.5 | 3.03 | 9.3 | 7 |
| | **CMP71S** | 5 | 0.485 | 49.5 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 3.15 | 0.26 | 48.7 | 10.4 | 4.5 | 14 | 7 |
| | **CMP71L** | 2.3 | 0.162 | 53.7 | 13.4 | 6.6 | 14 | 7 |
| | **CMP80S** | 2.3 | 0.166 | 51.5 | 16.8 | 10.04 | 16 | 31 |
| | **CMP80M** | 1.64 | 0.113 | 53.9 | 20.5 | 13.16 | 31 | 16 |
| | **CMP80L** | 1.11 | 0.073 | 57 | 24.4 | 19.36 | 31 | 16 |
| | **CMP100S** | 1.29 | 0.066 | 50.5 | 22.8 | 21.34 | 24 | 47 |
| | **CMP100M** | 0.9 | 0.0445 | 52.1 | 27.8 | 28.25 | 47 | 24 |
| 4500 | **CMP40S** | 23 | 11.94 | 27.5 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 18.4 | 7.85 | 35.7 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 12.3 | 3.73 | 35.9 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 6.8 | 1.68 | 37.9 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 4.75 | 1.14 | 38.7 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 6.2 | 1.09 | 37.1 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 3 | 0.46 | 37 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP63L** | 2.4 | 0.34 | 40.9 | 8.5 | 3.03 | 9.3 | 7 |
| | **CMP71S** | 2.3 | 0.225 | 33.4 | 9 | 3.44 | 7 | 14 |
| | **CMP71M** | 1.46 | 0.127 | 33.1 | 10.4 | 4.5 | 14 | 7 |
| | **CMP80S** | 0.98 | 0.07 | 33.7 | 16.8 | 10.04 | 16 | 31 |
| | **CMP80M** | 0.73 | 0.051 | 35.9 | 20.5 | 13.16 | 31 | 16 |
| | **CMP100S** | 0.51 | 0.027 | 31.7 | 22.8 | 21.34 | 24 | 47 |
| 6000 | **CMP40S** | 17.9 | 9.19 | 24.3 | 1.7 | 0.13 | 0.95 | - |
| | **CMP40M** | 11.2 | 4.83 | 27.8 | 2.0 | 0.18 | 0.95 | - |
| | **CMP50S** | 6.9 | 2 | 26.8 | 2.9 | 0.48 | 3.1 | 4.3 |
| | **CMP50M** | 3.95 | 1.03 | 29 | 3.9 | 0.73 | 4.3 | 3.1 |
| | **CMP50L** | 2.55 | 0.6 | 28.3 | 4.7 | 0.98 | 4.3 | 3.1 |
| | **CMP63S** | 3.7 | 0.67 | 28.7 | 5.0 | 1.49 | 7 | 9.3 |
| | **CMP63M** | 1.96 | 0.295 | 30 | 6.7 | 2.26 | 9.3 | 7 |
| | **CMP71S** | 1.32 | 0.124 | 25.3 | 9 | 3.44 | 7 | 14 |
| | **CMP80S** | 0.58 | 0.0415 | 25.7 | - | - | - | - |

## 5.4 Technical data of synchronous servomotors CMPZ, CMPZ /BY, 400 V system voltage

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | $M_{pk}$ Nm | $I_{max}$ A | $M_{0VR}$ Nm | $I_{0VR}$ A | m kg | $J_{mot}$ $10^{-4}$ kgm$^2$ |
|---|---|---|---|---|---|---|---|---|---|
| | **CMPZ71S** | 6.4 | 3.4 | 19.2 | 17 | 8.7 | 4.6 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 5 | 30.8 | 26 | 13.7 | 7.3 | 10 | 10.37 |
| | **CMPZ71L** | 13.1 | 6.3 | 46.9 | 39 | 21 | 10.1 | 13 | 12.47 |
| | **CMPZ80S** | 13.4 | 6.9 | 42.1 | 33 | 18.7 | 9.5 | 15.8 | 27.18 |
| 2000 | **CMPZ80M** | 18.7 | 9.3 | 62.6 | 48 | 27 | 13.4 | 19.5 | 30.3 |
| | **CMPZ80L** | 27.5 | 12.5 | 107 | 72 | 44 | 20 | 24.4 | 36.51 |
| | **CMPZ100S** | 25.5 | 13.3 | 68.3 | 49 | 36 | 18.8 | 24.2 | 79.76 |
| | **CMPZ100M** | 31 | 14.7 | 108 | 69 | 47 | 22.3 | 29.2 | 86.66 |
| | **CMPZ100L** | 47 | 21.8 | 178.8 | 113 | 70 | 32.5 | 39 | 100.41 |
| | **CMPZ71S** | 6.4 | 4.9 | 19.2 | 25 | 8.7 | 6.7 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 7.5 | 30.8 | 39 | 13.7 | 10.9 | 10 | 10.37 |
| | **CMPZ71L** | 13.1 | 9.4 | 46.9 | 58 | 21 | 15.1 | 13 | 12.47 |
| | **CMPZ80S** | 13.4 | 10 | 42.1 | 47 | 18.5 | 13.8 | 15.8 | 27.18 |
| 3000 | **CMPZ80M** | 18.7 | 13.4 | 62.6 | 69 | 27 | 19.3 | 19.5 | 30.3 |
| | **CMPZ80L** | 27.5 | 18.7 | 107 | 107 | 44 | 30 | 24.4 | 36.51 |
| | **CMPZ100S** | 25.5 | 19.6 | 68.3 | 73 | 36 | 27.5 | 24.2 | 79.76 |
| | **CMPZ100M** | 31 | 21.8 | 108 | 102 | 47 | 33 | 29.2 | 86.66 |
| | **CMPZ100L** | 47 | 32.3 | 178.8 | 167 | 70 | 48 | 39 | 100.41 |
| | **CMPZ71S** | 6.4 | 7.3 | 19.2 | 38 | 8.7 | 9.9 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 10.9 | 30.8 | 57 | 13.7 | 15.9 | 10 | 10.37 |
| | **CMPZ71L** | 13.1 | 14.1 | 46.9 | 87 | 21 | 22.5 | 13 | 12.47 |
| | **CMPZ80S** | 13.4 | 15.3 | 42.1 | 73 | 18.5 | 21 | 15.8 | 27.18 |
| 4500 | **CMPZ80M** | 18.7 | 20.1 | 62.6 | 103 | 27 | 29 | 19.5 | 30.3 |
| | **CMPZ80L** | 27.5 | 27.8 | 107 | 159 | 44 | 44.5 | 24.4 | 36.51 |
| | **CMPZ100S** | 25.5 | 30 | 68.3 | 111 | 36 | 42.5 | 24.2 | 79.76 |
| | **CMPZ100M** | 31 | 33.1 | 108 | 154 | 47 | 50 | 29.2 | 86.66 |
| | **CMPZ100L** | 47 | 48.4 | 178.8 | 251 | 70 | 72 | 39 | 100.41 |
| | **CMPZ71S** | 6.4 | 9.6 | 19.2 | 50 | 8.7 | 13.1 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 14.7 | 30.8 | 76 | 13.7 | 21.5 | 10 | 10.37 |
| 6000 | **CMPZ71L** | 13.1 | 18.8 | 46.9 | 115 | 21 | 30 | 13 | 12.47 |
| | **CMPZ80S** | 13.4 | 20 | 42.1 | 95 | 18.5 | 27.5 | 15.8 | 27.18 |
| | **CMPZ80M** | 18.7 | 26.4 | 62.6 | 135 | 27 | 38 | 19.5 | 30.3 |
| | **CMPZ80L** | 27.5 | 37.6 | 107 | 215 | - | - | 24.4 | 36.51 |

5

| $n_N$ rpm | Motor | $L_1$ mH | $R_1$ Ω | $U_{p0}$ cold V | ΔLB[1)] mm | $m_{bmot}$ kg | $J_{bmot}$ $10^{-4}$ $kgm^2$ | $M_{B1}$ Nm | $M_{B2}$ Nm | ΔLBS[2)] mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | **CMPZ71S** | 33.5 | 3.48 | 128 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 21.5 | 1.87 | 127 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ71L** | 16.2 | 1.2 | 142 | 62.6 | 15.6 | 14.19 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 15.3 | 1.1 | 133 | 75.3 | 20.8 | 30.95 | 28 | 20 | 62.4 |
| | **CMPZ80M** | 10.5 | 0.69 | 136 | 75.3 | 24.5 | 34.07 | 40 | 28 | 62.4 |
| | **CMPZ80L** | 7.6 | 0.44 | 149 | 75.3 | 29.4 | 40.28 | 40 | 28 | 62.4 |
| | **CMPZ100S** | 8.5 | 0.44 | 130 | 96.2 | 34.7 | 84.19 | 55 | 40 | 61.1 |
| | **CMPZ100M** | 6.6 | 0.3 | 141 | 96.2 | 39.7 | 91.1 | 80 | 55 | 61.1 |
| | **CMPZ100L** | 4.15 | 0.169 | 145 | 96.2 | 49.5 | 104.85 | 80 | 55 | 61.1 |
| 3000 | **CMPZ71S** | 15.7 | 1.48 | 87.5 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 9.7 | 0.81 | 85 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ71L** | 7.3 | 0.56 | 96 | 62.6 | 15.6 | 14.19 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 7.2 | 0.54 | 91 | 75.3 | 20.8 | 30.95 | 28 | 20 | 62.4 |
| | **CMPZ80M** | 5 | 0.345 | 94 | 75.3 | 24.5 | 34.07 | 40 | 28 | 62.4 |
| | **CMPZ80L** | 3.35 | 0.21 | 99 | 75.3 | 29.4 | 40.28 | 40 | 28 | 62.4 |
| | **CMPZ100S** | 3.9 | 0.215 | 88 | 96.2 | 34.7 | 84.19 | 55 | 40 | 61.1 |
| | **CMPZ100M** | 3.05 | 0.142 | 95.5 | 96.2 | 39.7 | 91.1 | 80 | 55 | 61.1 |
| | **CMPZ100L** | 1.9 | 0.081 | 98 | 96.2 | 49.5 | 104.85 | 80 | 55 | 61.1 |
| 4500 | **CMPZ71S** | 7.1 | 0.72 | 59 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 4.55 | 0.385 | 58 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ71L** | 3.25 | 0.24 | 64 | 62.6 | 15.6 | 14.19 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 3.05 | 0.22 | 59 | 75.3 | 20.8 | 30.95 | 28 | 20 | 62.4 |
| | **CMPZ80M** | 2.25 | 0.148 | 63 | 75.3 | 24.5 | 34.07 | 40 | 28 | 62.4 |
| | **CMPZ80L** | 1.54 | 0.085 | 67 | 75.3 | 29.4 | 40.28 | 40 | 28 | 62.4 |
| | **CMPZ100S** | 1.68 | 0.086 | 58 | 96.2 | 34.7 | 84.19 | 55 | 40 | 61.1 |
| | **CMPZ100M** | 1.32 | 0.058 | 63 | 96.2 | 39.7 | 91.1 | 80 | 55 | 61.1 |
| | **CMPZ100L** | 0.84 | 0.038 | 65 | 96.2 | 49.5 | 104.85 | 80 | 55 | 61.1 |
| 6000 | **CMPZ71S** | 4.15 | 0.395 | 45 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 2.55 | 0.205 | 43.5 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ71L** | 1.84 | 0.145 | 48 | 62.6 | 15.6 | 14.19 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 1.8 | 0.136 | 46 | 75.3 | - | - | - | - | - |
| | **CMPZ80M** | 1.3 | 0.087 | 48 | 75.3 | - | - | - | - | - |
| | **CMPZ80L** | 0.84 | 0.051 | 50 | 75.3 | - | - | - | - | - |

1) Length difference between CMPZ.. motor and the respective CMP.. motor
2) Length difference between CMPZ../BY brakemotor and the respective CMP../BP brake motor

## 5.5 Technical data of synchronous servomotors CMPZ, CMPZ /BY, 230 V system voltage

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | $M_{pk}$ Nm | $I_{max}$ A | $M_{0VR}$ Nm | $I_{0VR}$ A | m kg | $J_{mot}$ $10^{-4}$ $kgm^2$ |
|---|---|---|---|---|---|---|---|---|---|
| 3000 | **CMPZ71S** | 6.4 | 8.7 | 19.2 | 44 | 8.7 | 11.8 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 13.1 | 30.8 | 68 | 13.7 | 19.1 | 10 | 10.37 |
| | **CMPZ71L** | 13.1 | 16.8 | 46.9 | 103 | 21 | 27 | 13 | 12.47 |
| | **CMPZ80S** | 13.4 | 17.7 | 42.1 | 83 | 18.5 | 24.5 | 15.8 | 27.18 |
| | **CMPZ80M** | 18.7 | 23.5 | 62.6 | 121 | 27 | 34 | 19.5 | 30.3 |
| | **CMPZ80L** | 27.5 | 32.5 | 107 | 186 | 44 | 52 | 24.4 | 36.51 |
| | **CMPZ100S** | 25.5 | 34.2 | 68.3 | 127 | - | - | 24.2 | 79.76 |
| | **CMPZ100M** | 31 | 40 | 108 | 187 | - | - | 29.2 | 86.66 |
| 4500 | **CMPZ71S** | 6.4 | 12.8 | 19.2 | 67 | 8.7 | 17.4 | 8.6 | 9.32 |
| | **CMPZ71M** | 9.4 | 19.2 | 30.8 | 101 | 13.7 | 28 | 10 | 10.37 |
| | **CMPZ80S** | 13.4 | 27 | 42.1 | 129 | 18.5 | 37 | 15.8 | 27.18 |
| | **CMPZ80M** | 18.7 | 35 | 62.6 | 180 | 27 | 51 | 19.5 | 30.3 |
| | **CMPZ100S** | 25.5 | 54.5 | 68.3 | 200 | - | - | 24.2 | 79.76 |
| 6000 | **CMPZ71S** | 6.4 | 17 | 19.2 | 89 | 8.7 | 23 | 8.6 | 9.32 |
| | **CMPZ80S** | 13.4 | 35.5 | 42.1 | 168 | 18.5 | 48.5 | 15.8 | 27.18 |

| $n_N$ rpm | Motor | $L_1$ mH | $R_1$ Ω | $U_{p0}$ cold V | ΔLB 1) mm | $m_{bmot}$ kg | $J_{bmot}$ $10^{-4}$ $kgm^2$ | $M_{B1}$ Nm | $M_{B2}$ Nm | ΔLBS 2) mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | **CMPZ71S** | 5 | 485 | 49.5 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 3.15 | 260 | 48.7 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ71L** | 2.3 | 162 | 53.7 | 62.6 | 15.6 | 14.19 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 2.3 | 166 | 51.5 | 75.3 | 20.8 | 30.95 | 28 | 20 | 62.4 |
| | **CMPZ80M** | 1.64 | 113 | 53.9 | 75.3 | 24.5 | 34.07 | 40 | 28 | 62.4 |
| | **CMPZ80L** | 1.11 | 73 | 57 | 75.3 | 29.4 | 40.28 | 40 | 28 | 62.4 |
| | **CMPZ100S** | 1.29 | 66 | 50.5 | 96.2 | 34.7 | 84.19 | 55 | 40 | 61.1 |
| | **CMPZ100M** | 0.9 | 44.5 | 52.1 | 96.2 | 39.7 | 91.1 | 80 | 55 | 61.1 |
| 4500 | **CMPZ71S** | 2.3 | 225 | 33.4 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ71M** | 1.46 | 127 | 33.1 | 62.6 | 12.6 | 12.09 | 20 | 14 | 58.5 |
| | **CMPZ80S** | 0.98 | 70 | 33.7 | 75.3 | 20.8 | 30.95 | 28 | 20 | 62.4 |
| | **CMPZ80M** | 0.73 | 51 | 35.9 | 75.3 | 24.5 | 34.07 | 40 | 28 | 62.4 |
| | **CMPZ100S** | 0.51 | 27 | 31.7 | 96.2 | 34.7 | 84.19 | 55 | 40 | 61.1 |
| 6000 | **CMPZ71S** | 1.32 | 124 | 25.3 | 62.6 | 11.2 | 11.04 | 14 | 10 | 58.5 |
| | **CMPZ80S** | 0.58 | 41.5 | 25.7 | 75.3 | - | - | - | - | - |

1) Length difference between CMPZ.. motor and the respective CMP.. motor

2) Length difference between CMPZ../BY brakemotor and the respective CMP../BP brake motor

# 6 Project Planning

## 6.1 Thermal characteristics

***Notes on selecting synchronous servomotors***

Project planning for a servomotor involves the following tasks for determining the thermal and dynamic load on the motor:

- Calculating the **effective operating point** for checking the thermal load on the motor.
- Calculating the **maximum operating point** for determining the motor/inverter combination.
- Determining the **inertia ratio** $J_{ext}$ / $J_{Mot}$ for checking the stability of the speed control.
  - $J_{ext}$ = Mass moment of inertia, reduced on motor shaft
  - $J_{Mot}$ = Mass moment of inertia of the motor



***Procedure***

- Determining the maximum speed based on aspects of the inertia ratio **$J_{ext}$ / $J_{Mot}$ < 10 - 15**.
- Maximum required torque $M_{max}$ at maximum speed $n_{max}$ (maximum operating point).

  **$M_{max}$ < $M_{dyn\_Mot}$** at **$n_{max}$**

  $M_{dyn\_Mot}$ corresponds to the maximum torque for the specific motor/inverter combination. This operating point must lie below the characteristic curve for the maximum torque of the motor/MOVIDRIVE®/MOVIAXIS® combination.
- Effective torque requirement at average speed of the application (effective operating point).

  **$M_{eff}$ < $M_{N\_Mot}$** at **$n_{mean}$**

  This operating point must lie below the characteristic curve for continuous torque to ensure thermal stability of the drive.

## 6.2 Operating temperatures

***Maximum ambient temperature***

The CMP servomotors are designed for a maximum ambient temperature of 40 °C as standard.

***Higher operating temperatures***

CMP servomotors can optionally be used at a maximum ambient temperature of 60 °C. The temperature range from -20 °C to +60 °C is listed on the nameplate.

Please contact SEW-EURODRIVE if the motors are used at higher ambient temperatures. See also the chapter "Derating for increased ambient temperature" on page 38.

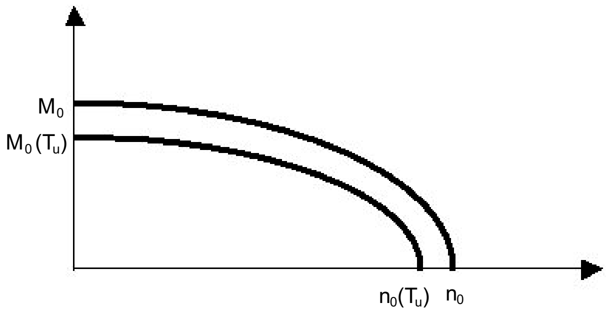
***Cold storage application***

Motors for cold storage applications can be used down to -40 °C. The temperature range from -40 °C to +10 °C is listed on the nameplate.

## 6.3 Derating for increased ambient temperatures

For projecting the CMP synchronous servomotors with permanent-magnet excitation, the following derating applies in the ambient temperature range +40 °C to +60 °C:

- The thermal speed/limit torque characteristic curve is re-scaled towards the origin (minimized). The thermal operating point based on effective torque and thermally effective speed of the application must be below the re-scaled characteristic curve.




$$M_0\,(T_U) = M_0 \times \left(\sqrt{\frac{145°C - T_U}{105°C}}\right)$$

$$n_0\,(T_U) = K_e \times n_0 \times \left(\sqrt{\frac{145°C - T_U}{105°C}}\right)$$

62912axx

| | |
|---|---|
| $T_A$ | Ambient temperature °C |
| $M_0$ | Static torque under nominal conditions |
| $M_0(T_A)$ | Standstill torque at increased temperatures 40 °C < $T_A$ < 60 °C |
| $n_0$ | Thermal limit speed under nominal conditions |
| $n_0(T_A)$ | Thermal limit speed at increased temperatures 40 °C < $T_A$ < 60 °C |
| $K_e$ | Encoder factor for resolver = 1; for electronic encoder (e.g. Hiperface® encoder) = 0.9 |

## 6.4 Mechanical and electrical characteristics

***Speed classes, rated speeds***

Speed classes (rated speeds) of the synchronous servomotors:

- 2000 rpm
- 3000 rpm
- 4500 rpm
- 6000 rpm

As synchronous servomotors operate as controlled drives, it is necessary to consider the inertia ratio between the load and the motor. This ratio has a decisive effect on the control quality. The inertia ratio should not exceed the values listed in the table below.

Reduction of the inertia ratio using the motor speed (the selected gear unit reduction ratio) offers hardly any advantage with respect to closed-loop control starting at the value $\mathbf{J_{ext} / J_{Mot} < 8}$.

Backlash and elasticity negatively influence the possible dynamic response of the driveline and must be kept to a minimum.

As a result, the maximum speed should be selected such that the following criteria are met:

| Driveline | Control characteristics | Inertia ratio $J_{ext}$/ / $J_{Mot}$ |
|---|---|---|
| **Forged gear rack, reduced backlash gear unit** | Low backlash and low elasticity drive | $J_{ext} / J_{Mot} < 15$ |
| **Toothed belt, reduced backlash gear unit** | Common servo applications | $J_{ext} / J_{Mot} < 15$ |
| **Toothed belt, standard gear unit** | Standard applications, couplings with torque buffer (elasticity) | $J_{ext} / J_{Mot} < 10$ |

| Design | CMP40 / 50 / 63 / 71 / 80 / 100 | |
|---|---|---|
| | **Standard** | **Optional** |
| **Degree of protection** | IP65 | IP66 |
| **Thermal class** | 155 (F) | - |
| **Motor protection** | KTY | - |
| **Connection** | Adjustable plug connector | Radial plug connector, terminal box |
| **Shaft end** | Smooth | With key, domed type A |
| **Ambient temperature** | -20 °C to +40 °C | -20 °C to +60 °C<br>-40 °C to +10 °C |
| **Mounting position** | 270° | Any |
| **Standard/regulations** | CE<br>VDE | CSA / UL<br>UL |
| **Noise levels according to EN 60034** | Below specified value | - |
| **Feedback** | 2-pole resolver | Hiperface® encoder |
| **Brake** | - | BP, BY |
| **Cooling** | Convection | Forced cooling fan for CMP50 - CMP100 |
| **Vibration class** | "B" to EN 60034-14 | |

***Degrees of protection to EN 60034 (IEC 60034-5)***

Synchronous servomotors are supplied with IP65 enclosure as standard.

| IP | 1st digit | | 2nd digit |
|---|---|---|---|
| | **Touch guard** | **Protection against foreign objects** | **Protection against water** |
| **0** | No protection | No protection | No protection |
| **1** | Protected against access to hazardous parts with the back of your hand | Protection against solid foreign objects ∅ 50 mm and larger | Protection against dripping water |
| **2** | Protected against access to hazardous parts with a finger | Protection against solid foreign objects ∅ 12 mm and larger | Protection against dripping water if the housing is tilted by up to 15° |
| **3** | Protected against access to hazardous parts with a tool | Protection against solid foreign objects ∅ 2.5 mm and larger | Protection against spraying water |
| **4** | Protected against access to hazardous parts with a wire | Protection against solid foreign objects ∅ 1 mm and larger | Protection against splashing water |
| **5** | | Dust-proof | Protection against water jets |
| **6** | | Dust-proof | Protection against powerful water jets |
| **7** | - | - | Protection against temporary immersion in water |
| **8** | - | - | Protection against permanent immersion in water |
| **9** | - | - | Protection against water penetration from any direction even under increased pressure against the housing. |

***Applications***

*High accelerations*

The rotor of the CMP synchronous servomotor is designed to be low-inertia. These motors are the optimum choice in very dynamic applications. For high accelerations and accelerations in the millisecond range, the synchronous servomotor is usually the technically and economically best solution.

*Additional flywheel mass*

The rotor of the CMPS synchronous servomotor is equipped with an additional flywheel mass. This additional flywheel mass allows for handling large external masses.

*Cogging*

The motors produce small torque ripple due to the servo drive design. which is corrected by the inverter.

## 6.5 Overhung loads and axial loads

The following overhung loads are determined by subjecting the shaft to a load with the rated torque.

The permitted overhung loads $F_R$ at point x are determined via the following diagrams. "x" is the distance between the shaft shoulder and the force application, see figure on page 42.

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

| Motor type | Nominal bearing service life |
|---|---|
| CMP40 | $L_{10h}$ = 25000 h |
| CMP50 | $L_{10h}$ = 25000 h |
| CMP63 | $L_{10h}$ = 20000 h |
| CMP.71 | $L_{10h}$ = 25000 h |
| CMP.80 | $L_{10h}$ = 25000 h |
| CMP.100 | $L_{10h}$ = 25000 h |



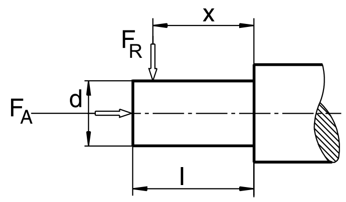
### *Permitted ball bearing types*

The following table shows the permitted ball bearing types:

| Motor type | A-side bearing | B-side bearing |
|---|---|---|
| CMP40 | 6002-2Z-C3 | 6001-2Z-C3 |
| CMP50 | 6004-2Z-C3 | 6001-2Z-C3 |
| CMP63 | 6005-2Z-C3 | 6003-2Z-C3 |
| CMP.71 | 6206-2Z-J-C3 | 6202-2Z-J-C3 |
| CMP.80 | 6307-2Z-J-C3 | 6304-2Z-J-C3 |
| CMP100 | 6309-2Z-J-C3 | 6304-2Z-J-C3 |
| CMPZ100, CMP100 /BP | 6309-2Z-J-C3 | 6205-2Z-J-C3 |

The grease fill and the bearing sealing can vary depending on the operational environment.

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

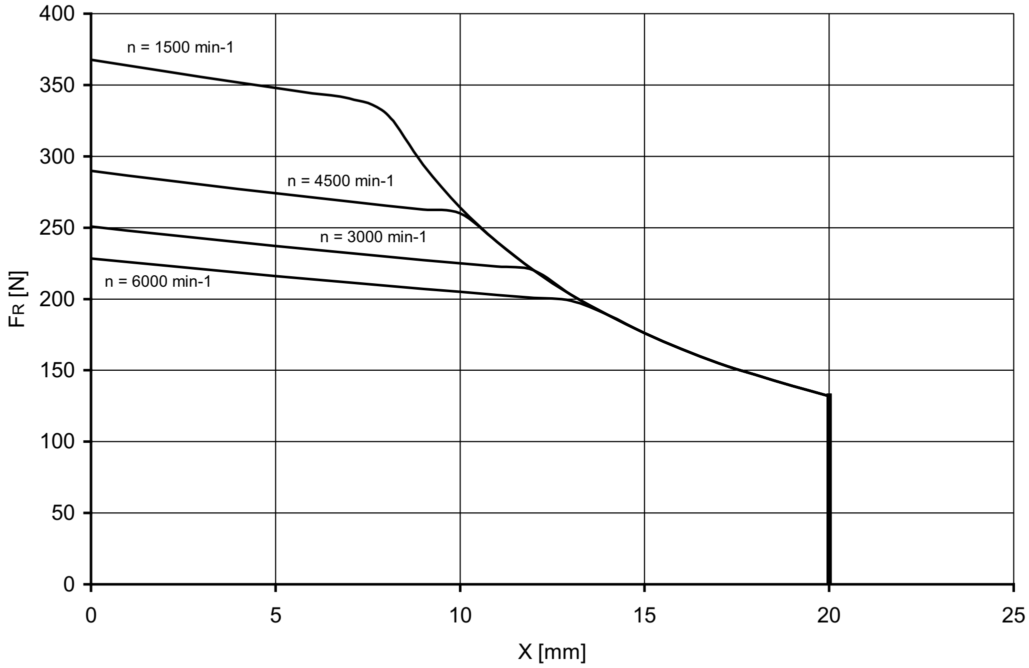



05590AXX

| Motor type | $F_{R\,max}$ [N] / $F_A$ [N] | Mean speed[1)] [rpm] | | | |
|---|---|---|---|---|---|
| | | 1500 | 3000 | 4500 | 6000 |
| CMP40S | $F_{R\,max}$ | 264 | 260 | 225 | 205 |
| | $F_A$ | 109 | 86 | 74 | 68 |
| CMP40M | $F_{R\,max}$ | 264 | 264 | 245 | 220 |
| | $F_A$ | 116 | 92 | 81 | 73 |
| CMP50S | $F_{R\,max}$ | 400 | 315 | 250 | 200 |
| | $F_A$ | 157 | 104 | 83 | 66 |
| CMP50M | $F_{R\,max}$ | 400 | 355 | 275 | 220 |
| | $F_A$ | 168 | 117 | 91 | 73 |
| CMP50L | $F_{R\,max}$ | 400 | 370 | 280 | 225 |
| | $F_A$ | 182 | 122 | 92 | 74 |
| CMP63S | $F_{R\,max}$ | 578 | 460 | 360 | 290 |
| | $F_A$ | 170 | 115 | 90 | 72.5 |
| CMP63M | $F_{R\,max}$ | 578 | 500 | 380 | 300 |
| | $F_A$ | 188 | 125 | 95 | 75 |
| CMP63L | $F_{R\,max}$ | 578 | 560 | 445 | 360 |
| | $F_A$ | 208 | 140 | 111 | 90 |
| CMP.71S | $F_{R\,max}$ | 1050 | 832 | 724 | 636 |
| | $F_A$ | 346 | 277 | 240 | 212 |
| CMP.71M | $F_{R\,max}$ | 1121 | 888 | 747 | 659 |
| | $F_A$ | 373 | 296 | 250 | 219 |
| CMP.71L | $F_{R\,max}$ | 1213 | 928 | 777 | 681 |
| | $F_A$ | 404 | 309 | 258 | 227 |
| CMP.80S | $F_{R\,max}$ | 1834 | 1454 | 1270 | 1132 |
| | $F_A$ | 611 | 485 | 423 | 377 |
| CMP.80M | $F_{R\,max}$ | 1962 | 1555 | 1325 | 1169 |
| | $F_A$ | 654 | 518 | 442 | 390 |
| CMP.80L | $F_{R\,max}$ | 2124 | 1635 | 1372 | 1208 |
| | $F_A$ | 708 | 544 | 457 | 402 |
| CMP.100S | $F_{R\,max}$ | 2982 | 2364 | 2064 | - |
| | $F_A$ | 903 | 788 | 688 | - |
| CMP.100M | $F_{R\,max}$ | 3174 | 2515 | 2195 | - |
| | $F_A$ | 1058 | 838 | 732 | - |
| CMP.100L | $F_{R\,max}$ | 3413 | 2694 | 2278 | - |
| | $F_A$ | 1033 | 897 | 759 | - |

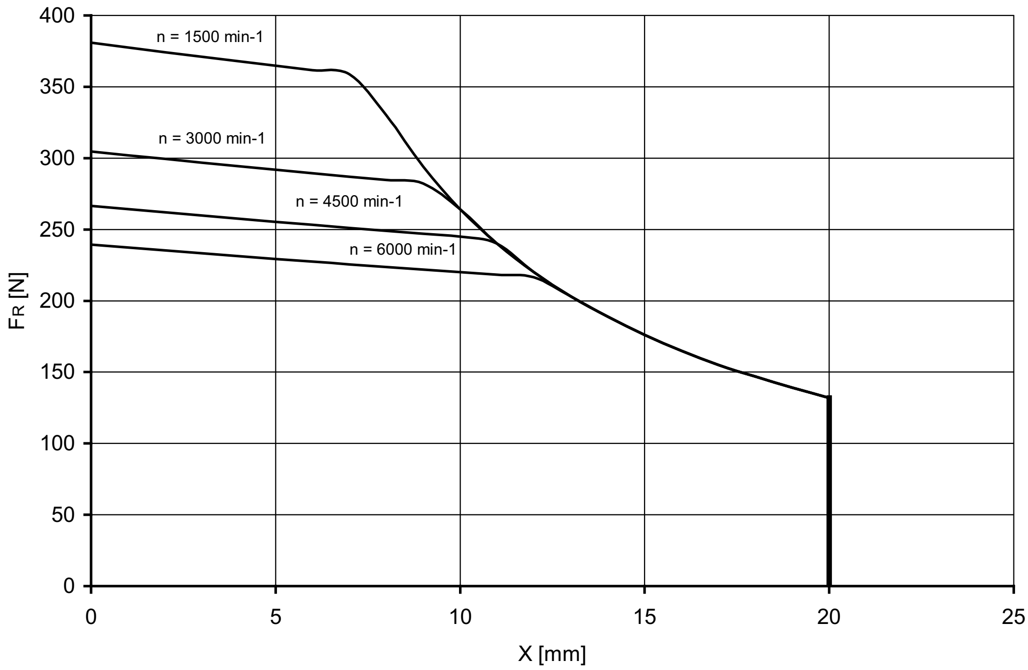
1) The mean speed must, for example, be determined from the travel diagram.

*Permitted overhung load for CMP40S*



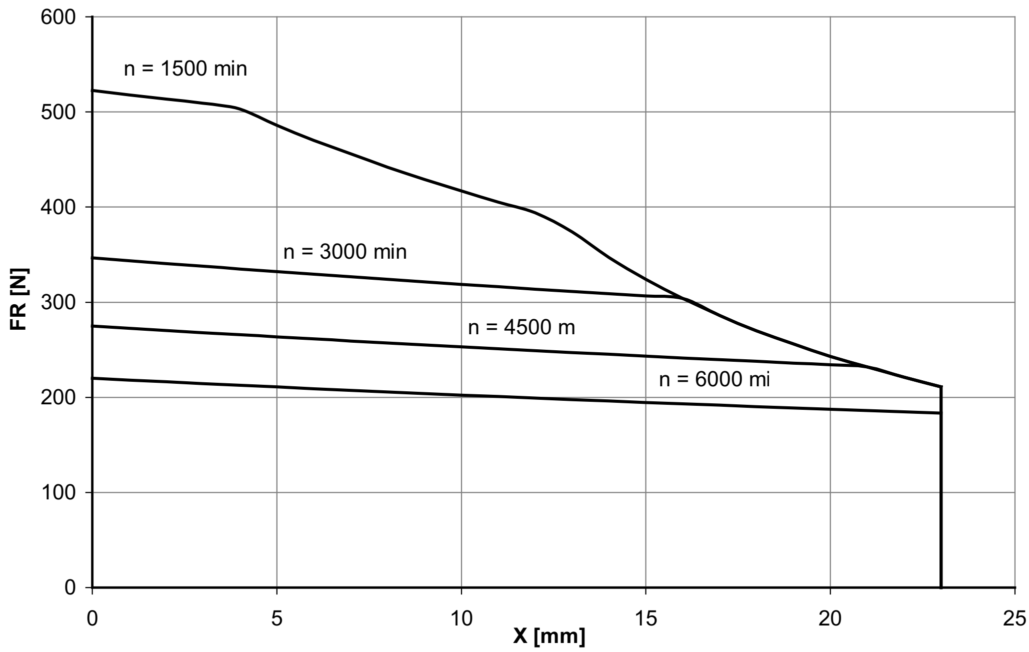

68648axx

*Permitted overhung load for CMP40M*



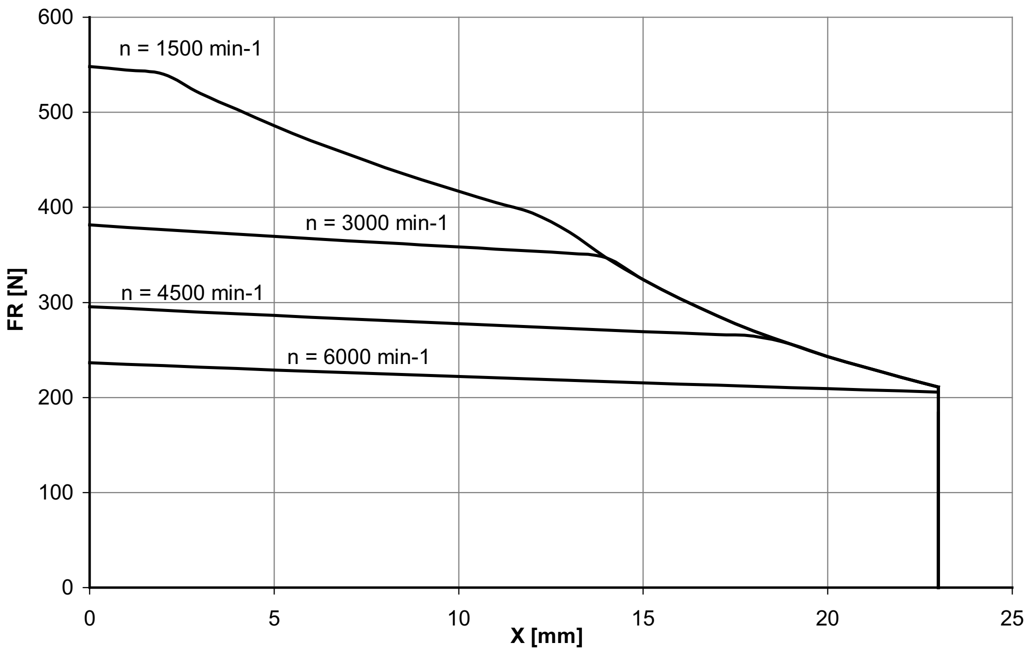

58649axx

*Permitted overhung load for CMP50S*



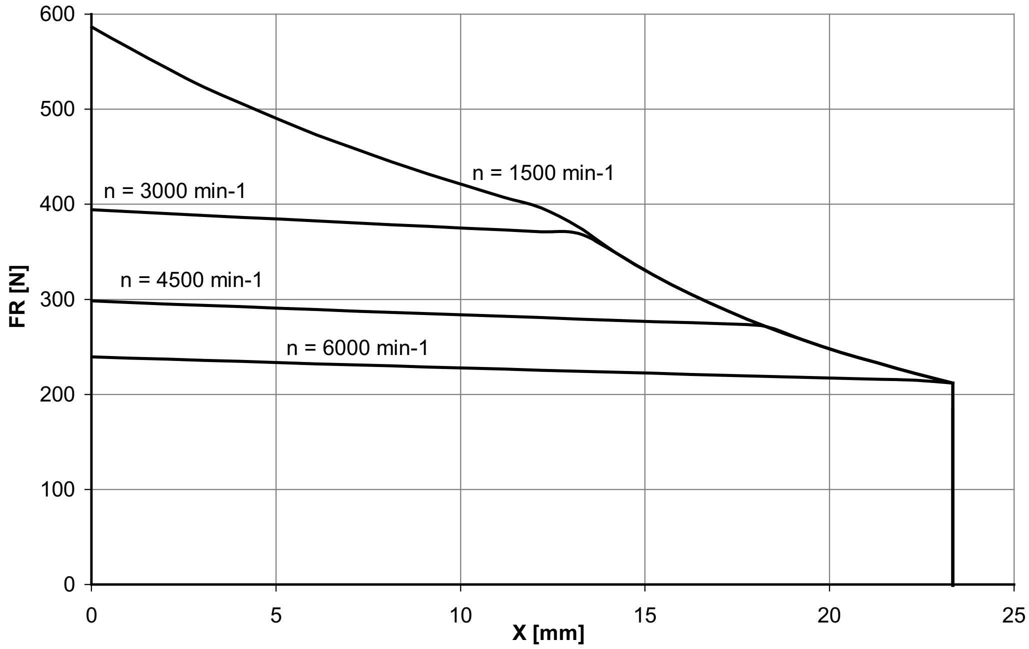

58650axx

*Permitted overhung load for CMP50M*



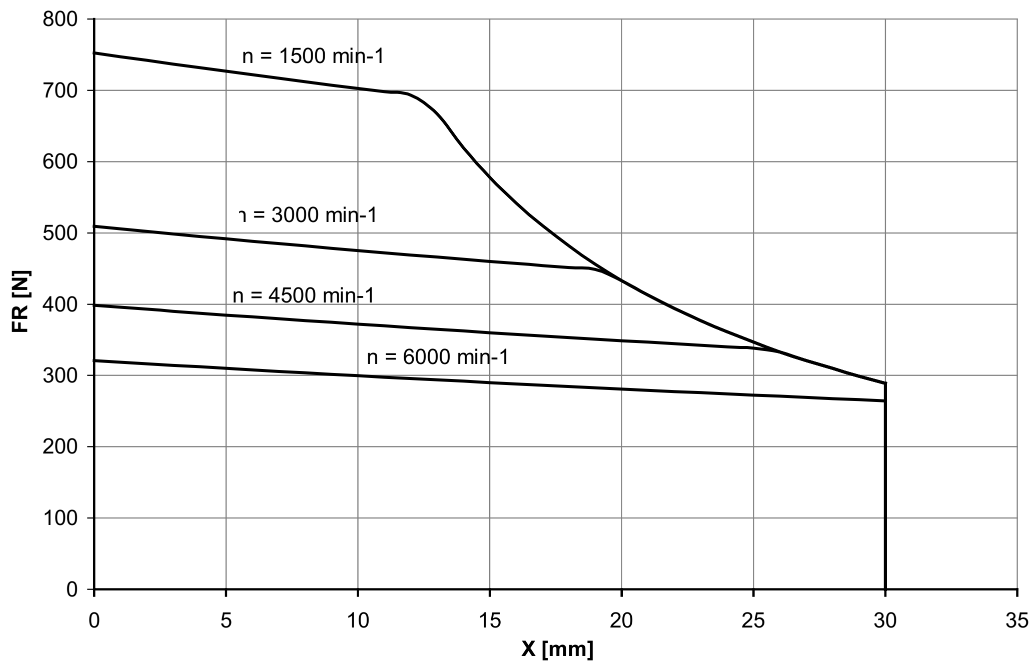

58651axx

*Permitted overhung load for CMP50L*



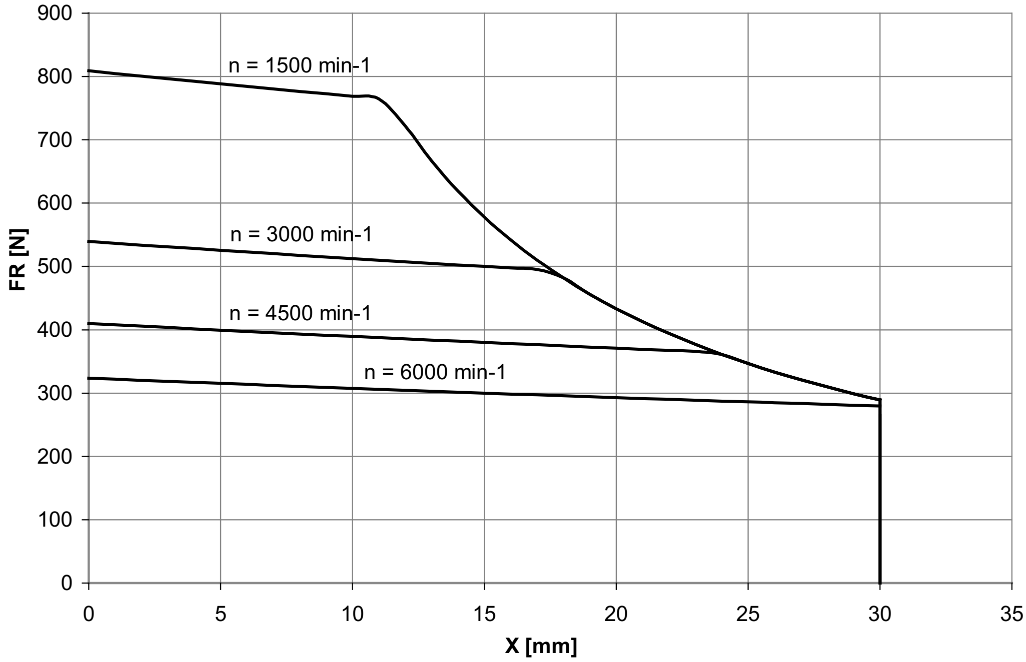

58652axx

*Permitted overhung load for CMP63S*



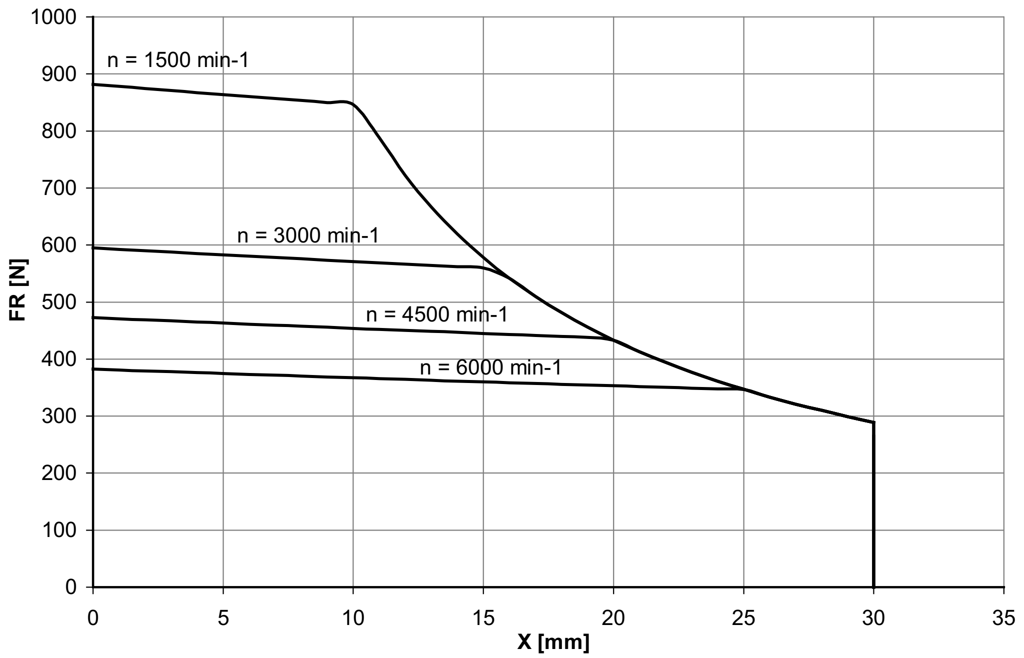

58653axx

*Permitted overhung load for CMP63M*



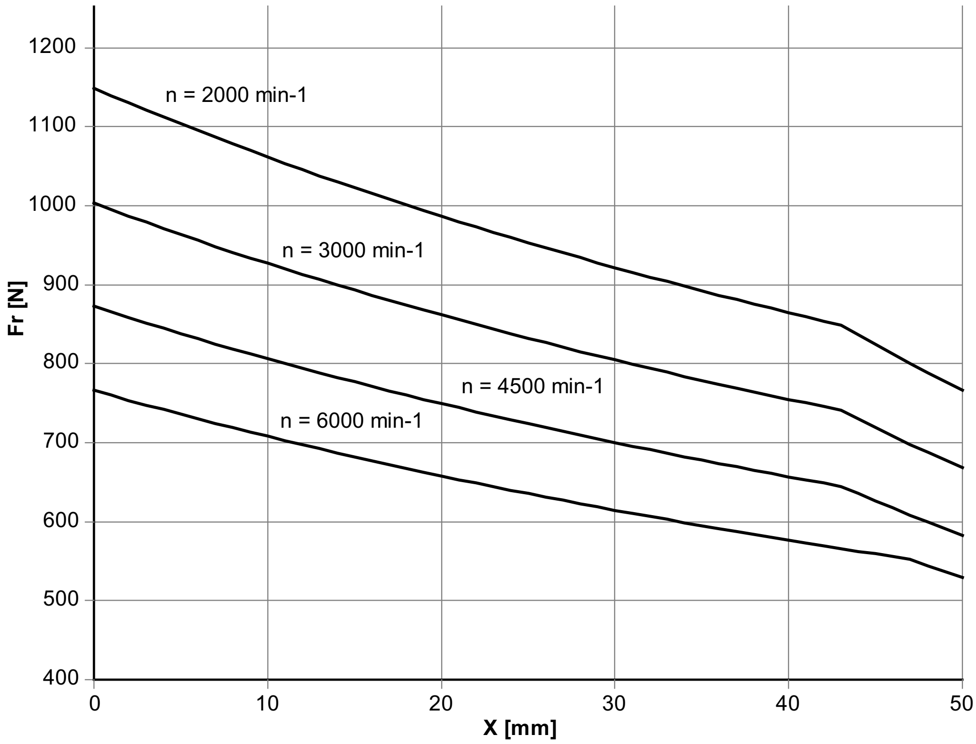

58654axx

*Permitted overhung load for CMP63L*



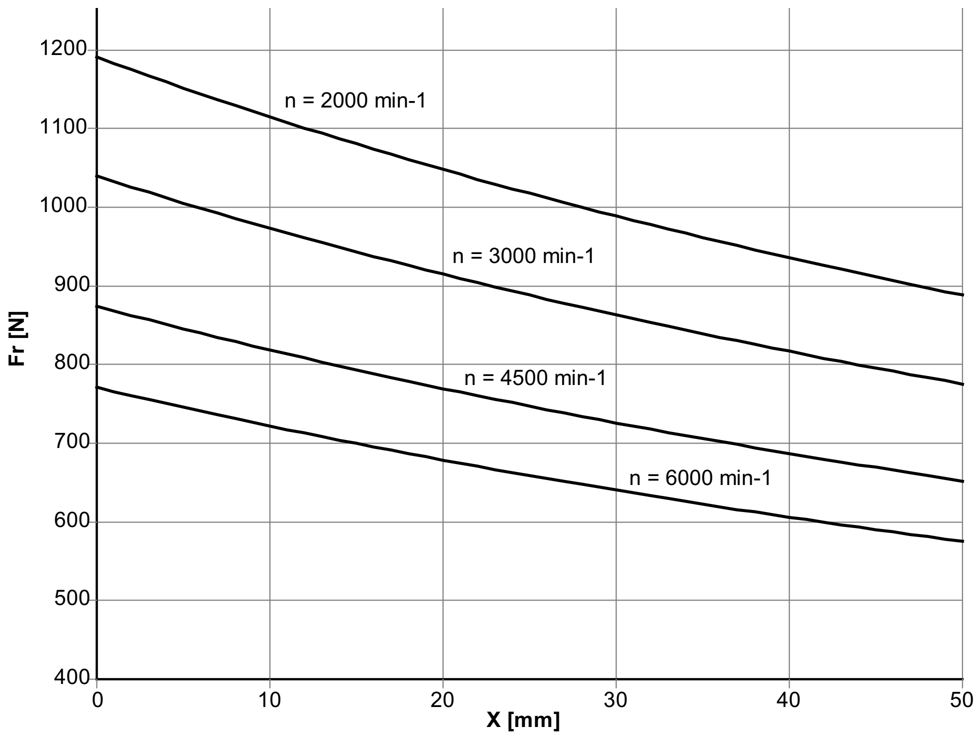

58655axx

*Permitted overhung load for CMP.71S*



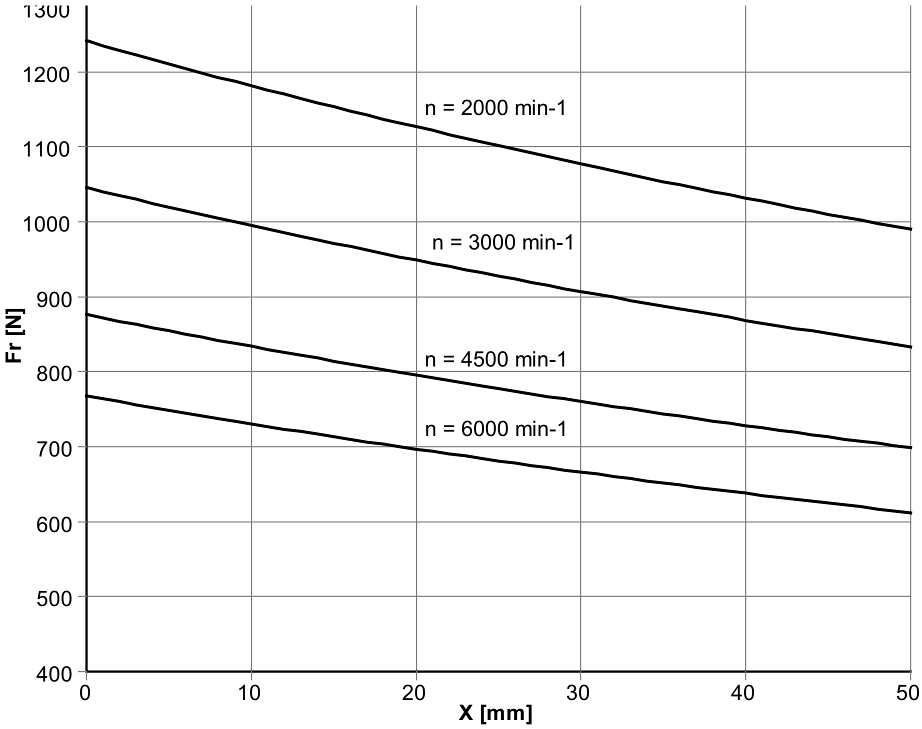

64123axx

*Permitted overhung load for CMP.71M*



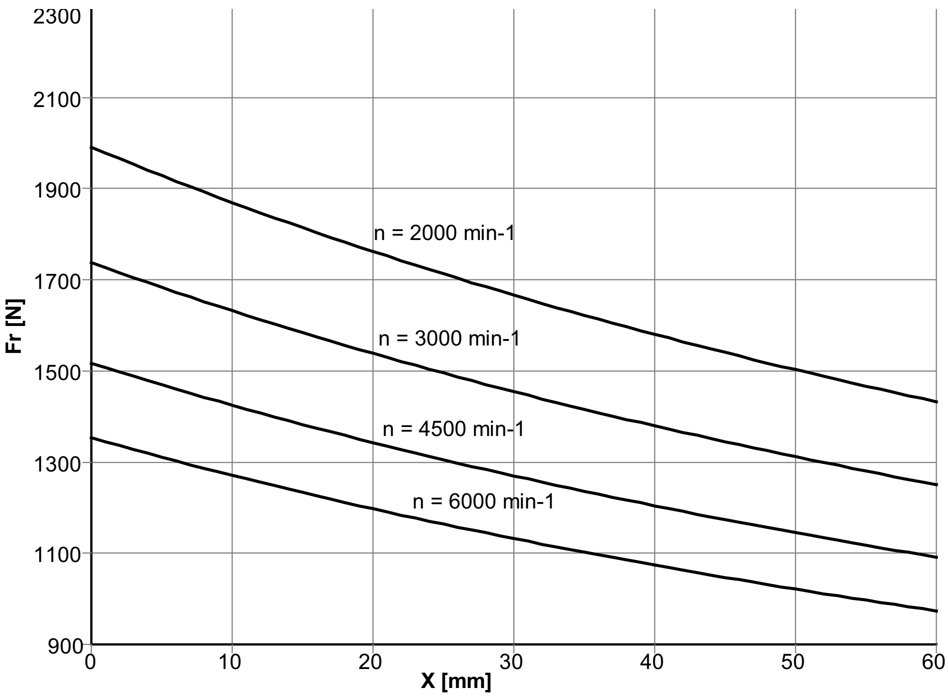

64124axx

*Permitted overhung load for CMP.71L*



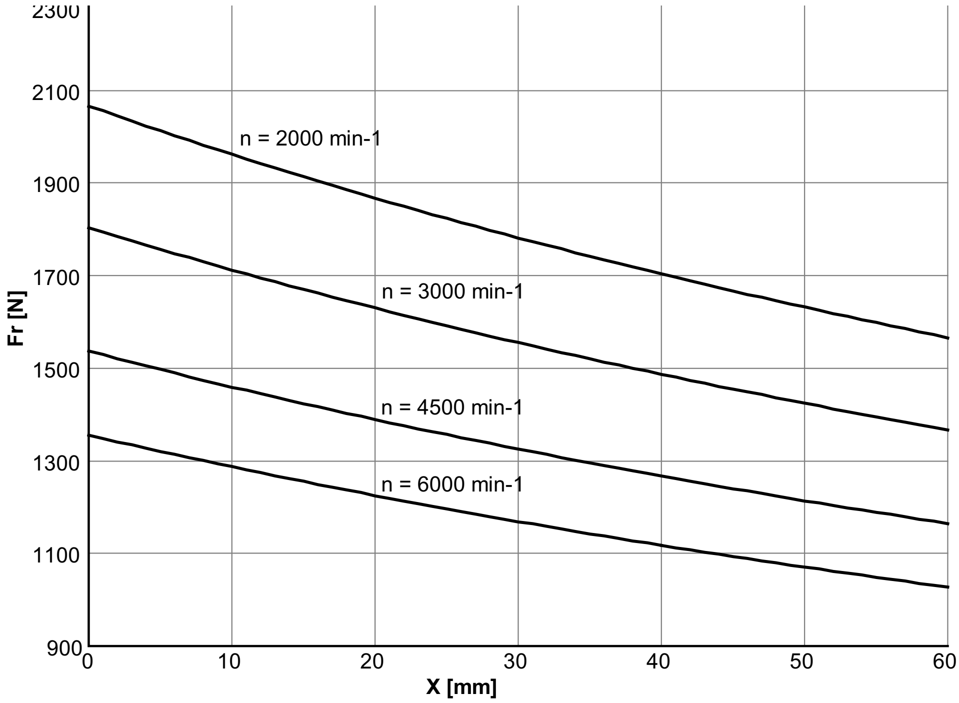

64125axx

*Permitted overhung load for CMP.80S*



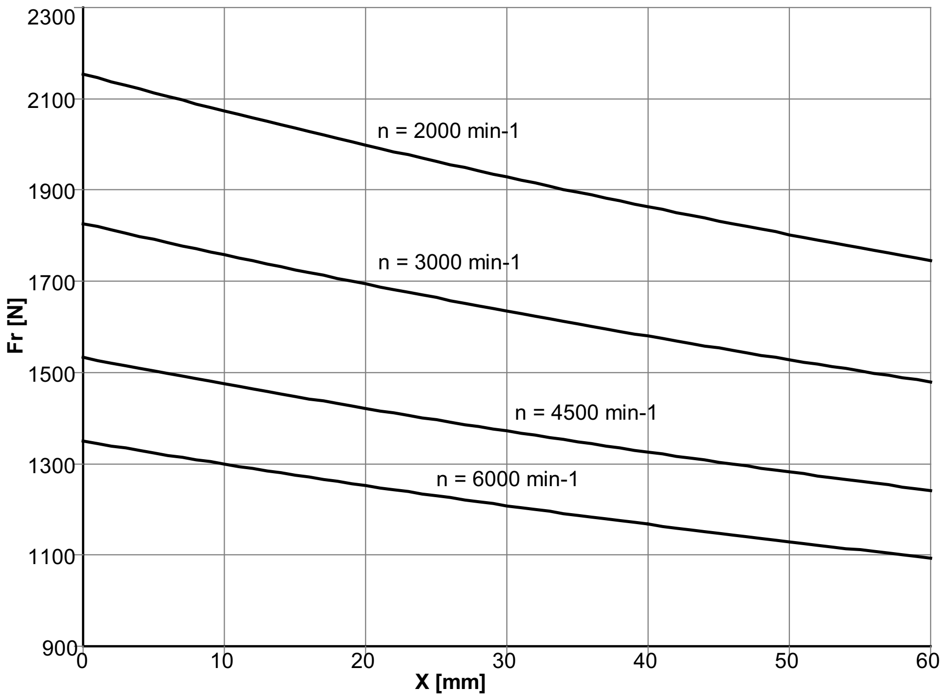

64126axx

*Permitted overhung load for CMP.80M*



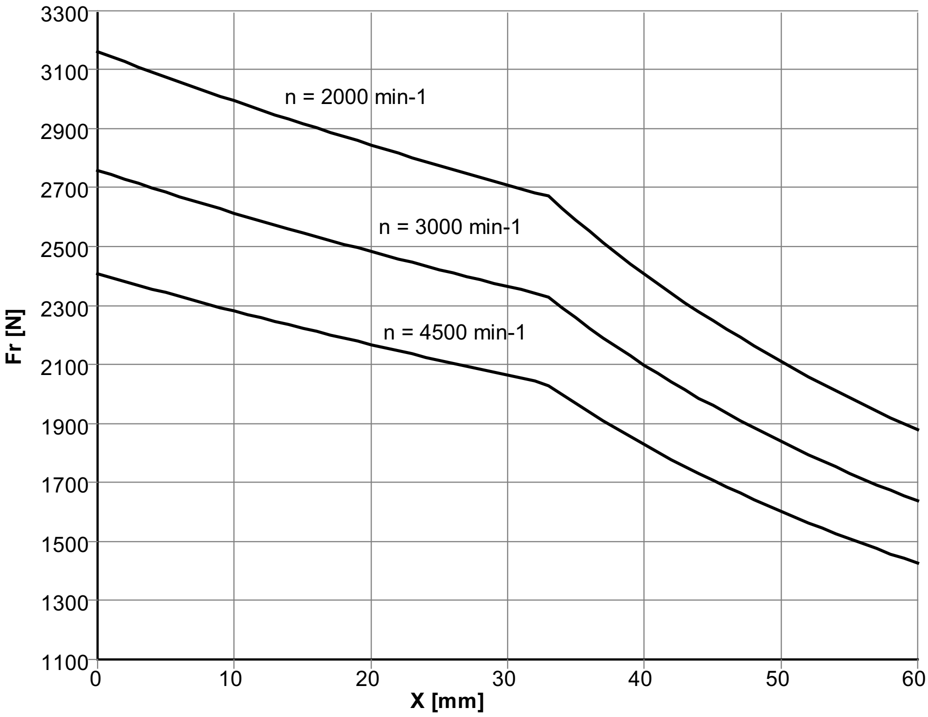

64127axx

*Permitted overhung load for CMP.80L*



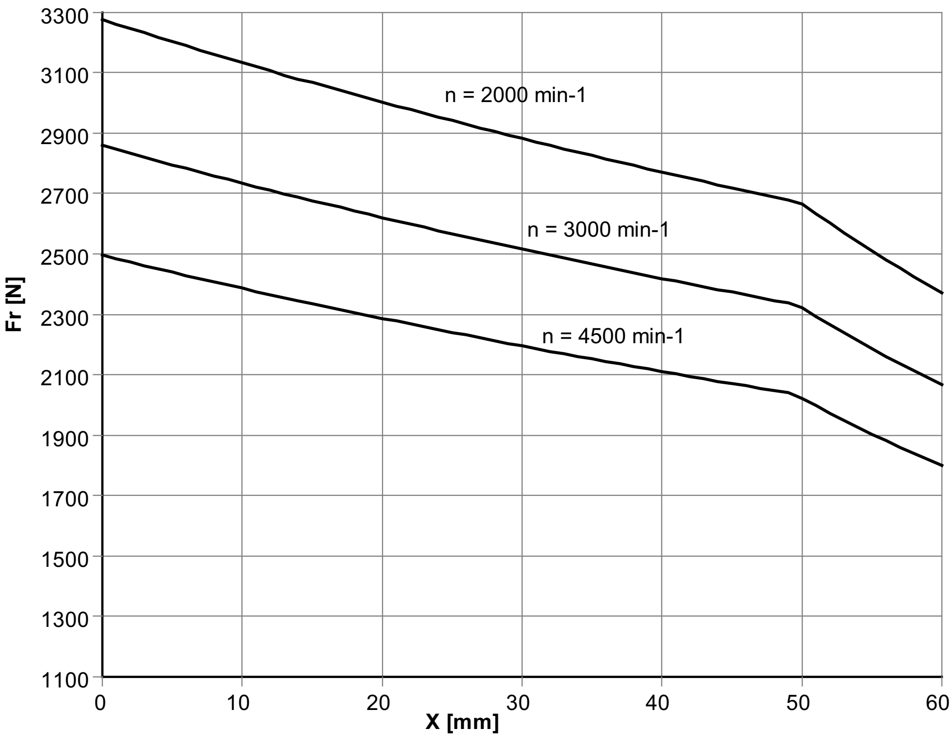

64128axx

*Permitted overhung load for CMP.100S*



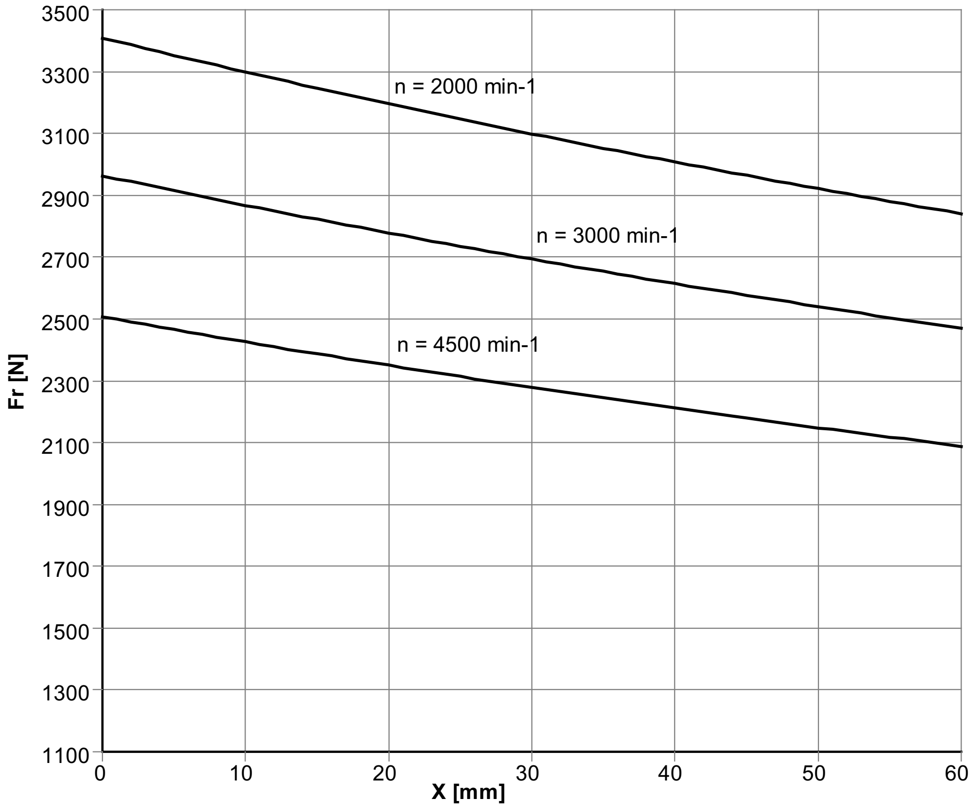

64129axx

*Permitted overhung load for CMP.100M*




64130axx

*Permitted overhung load for CMP.100L*



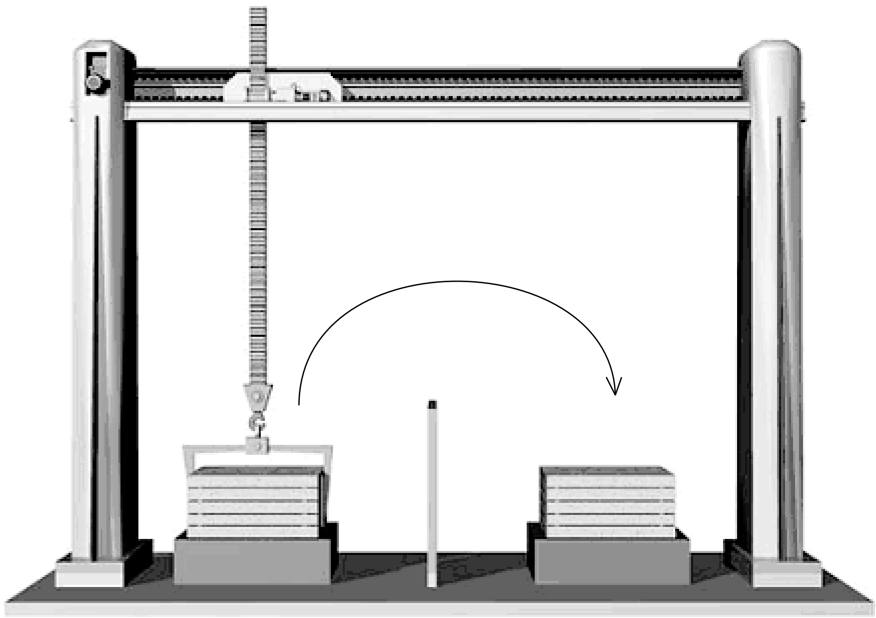

64131axx

## 6.6 Project planning example

In the example, a gantry with synchronous servomotors is determined.

***X-axis planning (travel axis)***

Figure: Gantry with servo drive travel axis



61220axx

Reference data:

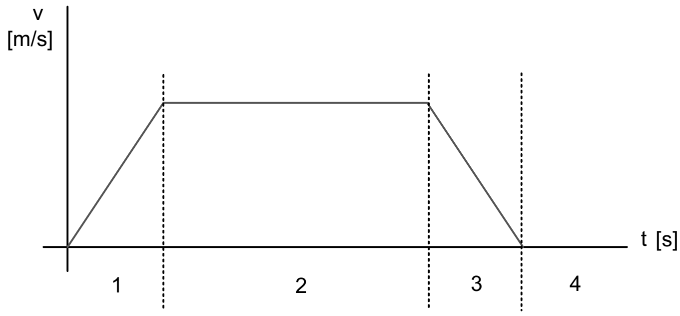
- Total moved mass: $m_L$ = 50 kg
- Diameter of the belt pulley: $d_0$ = 75 mm
- Friction coefficient of the axis: μ = 0.01
- Traveling velocity: $v_{max}$ = 2 m/s
- Maximum occurring acceleration/deceleration: $a_{max}$ = 10 $m/s^2$
- Cycle time: $t_z$ = 3 s
- Rest period: $t_p$ = 1.8 s
- Load efficiency: $\eta_L$= 0.9
- Mounting position of the gear unit: IM = M1

For the drive, a PC.C gear unit is designed to be mounted directly to a CMP servomotor.

The overhung load is to act on the shaft center.

Power is transmitted via a belt pulley.

**_Travel sections_** Diagram: Travel sections 1 - 4




61222axx



***Acceleration time in travel section 1, deceleration time in travel section 3***

$$t_1 = t_3 = \frac{v_{max}}{a_{max}} = \frac{2\ m/s}{10\ m/s^2} = 0.2\,s$$

***Travel time for constant travel in travel section 2***

$$t_2 = t_z - t_p - t_1 - t_3$$
$$t_2 = 3\,s - 1.8\,s - 0.2\,s - 0.2\,s$$
$$t_2 = 0.8s$$

***$M_{stat}$ for all travel sections***

$$M_{stat} = \frac{(m \cdot g \cdot \mu) \cdot \frac{d_0}{2}}{\eta_L}$$
$$M_{stat} = \frac{50kg \cdot 9.81\frac{m}{s^2} \cdot 0.01 \cdot \frac{0.075m}{2}}{0.9}$$
$$M_{stat} = 0.2043Nm$$

***$M_{dyn}$ during acceleration in travel section 1***

$$M_{dyn} = \frac{(m \cdot a) \cdot \frac{d_0}{2}}{\eta_L}$$
$$M_{dyn} = \frac{50kg \cdot 10\frac{m}{s^2} \cdot \frac{0.075m}{2}}{0.9}$$
$$M_{dyn} = 20.83Nm$$

### $M_{dyn}$ during deceleration in travel section 3

$$M_{dyn} = m \cdot a \cdot \frac{d_0}{2} \cdot \eta_L$$
$$M_{dyn} = 50kg \cdot (-10\frac{m}{s^2}) \cdot \frac{0.075m}{2} \cdot 0.9$$
$$M_{dyn} = -16.875Nm$$

### $M_{max}$ during acceleration in travel section 1

$$M_{max} = M_{stat} + M_{dyn1}$$
$$M_{max} = 0.2043\,Nm + 20.8333Nm$$
$$M_{max} = 21.04Nm$$

### $M_{max}$ during deceleration in travel section 3

$$M_{max} = M_{stat} + M_{dyn3}$$
$$M_{max} = 0.2043\,Nm + (-16.87Nm)$$
$$M_{max} = -16.6657Nm$$

### Output speed

$$n_{a\max} = \frac{v_{max}}{d_0 \cdot \pi} \cdot 60$$
$$n_{a\max} = \frac{2\frac{m}{s}}{0.075m \cdot \pi} \cdot 60$$
$$n_{a\max} = 509.295\frac{1}{\min}$$

*Gear ratio including 10% motor speed reserve*

$n_N$ = 4500 rpm is an assumption

$$i = \frac{n_N \cdot 0.9}{n_{a\max}}$$
$$i = \frac{4500\frac{1}{\min} \cdot 0.9}{509.295\frac{1}{\min}}$$
$$i = 7.95$$

### *Maximum input speed*

$$n_{\max} = n_{a\max} \cdot i$$

$$n_{\max} = 509.295 \frac{1}{\min} \cdot 7$$

$$n_{\max} = 3565.065 \frac{1}{\min}$$

### *Servo gear unit project planning*

The gear unit is selected on the basis of the table below:

| | i | $M_{amax}$ Nm | $M_{apk}$ Nm | $M_{aNotaus}$ Nm | $n_{ak}$ 1/min | $J_G$ $10^{-4}$kgm$^2$ | $c_T$ PSC Nm/' | $F_{Ra}$ PSC N | $F_{Rapk}$ PSC N |
|---|---|---|---|---|---|---|---|---|---|
| PSC221 1 | 3 | 29 | 40 | 60 | 1500 | 0.172 | 3.46 | 1170 | 2000 |
| | 5 | 34 | 42 | 63 | 720 | 0.0578 | 3.44 | 1390 | 2000 |
| | 7 | 32 | **39** | 59 | 800 | **0.03** | 3.28 | 1550 | 2000 |
| | 10 | 30 | 37 | 56 | 700 | 0.0144 | 2.92 | 1750 | 2000 |

| | | | | M1;M3;M5-6 | | | M2 | | | M4 | | φ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | i | $n_{epk}$ 1/min | η % | $a_0$ | $a_1$ | $a_2$ | $a_0$ | $a_1$ | $a_2$ | $a_0$ | $a_1$ | $a_2$ | ' |
| PSC221 1 | 3 | 7000 | 99 | 101.00 | -0.093 | 0 | 106.00 | -0.104 | 0 | 109.00 | -0.110 | 0 | 10 |
| | 5 | 7000 | 99 | 160.00 | -0.181 | 0 | 163.00 | -0.190 | 0 | 167.00 | -0.200 | 0 | 10 |
| | 7 | **7000** | **99** | 186.00 | -0.257 | 0 | 187.00 | -0.264 | 0 | 186.00 | -0.267 | 0 | 10 |
| | 10 | 7000 | 99 | 158.00 | -0.178 | 0 | 161.00 | -0.184 | 0 | 164.00 | -0.194 | 0 | 10 |

Selection condition:

$$M_{\max} \leq M_{apk}$$

$$21.04 Nm \leq 39 Nm$$

$$n_{\max} \leq n_{epk}$$

$$3565 \frac{1}{\min} \leq 7000 \frac{1}{\min}$$

Condition is fulfilled.

***Mean output speed***

$$n_{am} = \frac{n_1 \cdot t_1 + ... + ... n_n \cdot t_n}{t_1 + ... + ... t_n}$$

$$n_{am} = \frac{\frac{509.295 \frac{1}{\min}}{2} \cdot 0.2s + 509.295 \frac{1}{\min} \cdot 0.8s + \frac{509.295 \frac{1}{\min}}{2} \cdot 0.2s}{0.2s + 0.8s + 0.2s + 1.8s}$$

$$n_{am} = 169.765 \frac{1}{\min}$$

Selection condition:

$$n_{am} \leq n_{ak}$$
$$169.765 \frac{1}{\min} \leq 809 \frac{1}{\min}$$

Condition is fulfilled.

***Effective torque of servo gear unit***

$$M_{aeff} = \sqrt[8]{\frac{n_1 \cdot t_1 \cdot |M_1|^8 + ... + ... n_n \cdot t_n \cdot |M_n|^8}{n_1 \cdot t_1 + ... + n_n \cdot t_n}}$$

$$M_{aeff} = \sqrt[8]{\frac{\frac{509.295 \frac{1}{\min}}{2} \cdot 0.2s \cdot |21.04 Nm|^8 + 509.295 \frac{1}{\min} \cdot 0.8s \cdot |0.2043 Nm|^8 + \frac{506.295 \frac{1}{\min}}{2} \cdot 0.2s \cdot |-16.67 Nm|^8}{0.2s \cdot 254.64 \frac{1}{\min} + 0.8s \cdot 509.295 \frac{1}{\min} + 0.2s \cdot 254.64 \frac{1}{\min}}}$$

$$M_{aeff} = 16.065 Nm$$

Selection condition:

$$M_{aeff} \leq M_{a\max}$$
$$16.065 Nm \leq 32 Nm$$

Condition is fulfilled.

***Thermal torque of servo gear unit***

$$M_{ath} = \sqrt[1.2]{\frac{n_1 \cdot t_1 \cdot |M_1|^{1.2} + ... + ... n_n \cdot t_n \cdot |M_n|^{1.2}}{n_1 \cdot t_1 + ... + n_n \cdot t_n}}$$

$$M_{ath} = \sqrt[1.2]{\frac{\frac{509.295 \frac{1}{\min}}{2} \cdot 0.2s \cdot |21.04Nm|^{1.2} + 509.295 \frac{1}{\min} \cdot 0.8s \cdot |0.2043Nm|^{1.2} + \frac{506.295 \frac{1}{\min}}{2} \cdot 0.2s \cdot |-16.67Nm|^{1.2}}{0.2s \cdot 254.64 \frac{1}{\min} + 0.8s \cdot 509.295 \frac{1}{\min} + 0.2s \cdot 254.64 \frac{1}{\min}}}$$

$$M_{ath} = 5.009\,Nm$$



Thermal factors for mounting position M1

$a_0$=186

$a_1$=-0.257

$a_3$=0

$$M_{Therm} = a_0 + a_1 \cdot n_{am} + \frac{a_2}{n_{am}^{1.2}}$$

$$M_{Therm} = 186 + (-0.257 \cdot 169.765 \frac{1}{\min}) + \frac{0}{169.765^{1,2}}$$

$$M_{Therm} = 142.37\,Nm$$

Selection condition:

$$M_{ath} \leq M_{Therm}$$
$$5.035\,Nm \leq 142.37\,Nm$$

Condition is fulfilled.

***Overhung load calculation***

$$F_{R\max} = \frac{M_{\max}}{\frac{d_0}{2}} \cdot f_z$$

$$F_{R\max} = \frac{21.04\,Nm}{\frac{0.075\,m}{2}} \cdot 2.5$$

$$F_{R\max} = 1402\,N$$

The force application point is the center of the output shaft.

Selection condition:

$$F_{R\max} \leq F_{RaPk}$$
$$1402\,N \leq 2000\,N$$

Condition is fulfilled.

**_Calculation of the overhung load on the shaft end_**

$$M_{akub} = \sqrt[3]{\frac{n_1 \cdot t_1 \cdot |M_1|^3 + ... + ... n_n \cdot t_n \cdot |M_n|^3}{n_1 \cdot t_1 + ... + n_n \cdot t_n}}$$

$$M_{akub} = \sqrt[3]{\frac{\frac{509.295\frac{1}{\min}}{2} \cdot 0.2s \cdot |21.04Nm|^3 + 509.295\frac{1}{\min} \cdot 0.8s \cdot |0.2043Nm|^3 + \frac{506.295\frac{1}{\min}}{2} \cdot 0.2s \cdot |-16.67Nm|^3}{0.2s \cdot 254.64\frac{1}{\min} + 0.8s \cdot 509.295\frac{1}{\min} + 0.2s \cdot 254.64\frac{1}{\min}}}$$

$$M_{akub} = 11.172\,Nm$$

$$F_{Rkub} = \frac{M_{akub}}{\frac{d_0}{2}} \cdot f_z$$

$$F_{Rkub} = \frac{11.12Nm}{\frac{0.075m}{2}} \cdot 2.5$$

$$F_{Rkub} = 744.8N$$

Selection condition:

$$F_{Rkub} \leq F_{R\max}$$
$$744.8N \leq 1402N$$

Condition is fulfilled.

**_Load torques in travel sections 1 to 3_**

*Travel section 1*

$$M_{e\max 1} = \frac{M_{dyn1}}{i \cdot \eta_G}$$

$$M_{e\max 1} = \frac{21.04Nm}{7 \cdot 0.99}$$

$$M_{e\max 1} = 3.036Nm$$

*Travel section 2*

$$M_{e\max 2} = \frac{M_{stat}}{i \cdot \eta_G}$$

$$M_{e\max 2} = \frac{0.2043Nm}{7 \cdot 0.99}$$

$$M_{e\max 2} = 0.0294Nm$$

*Travel section 3*

$$M_{e\max 3} = \frac{M_{dyn3} \cdot \eta_G}{i}$$

$$M_{e\max 3} = \frac{-16.67 Nm \cdot 0.99}{7}$$

$$M_{e\max 3} = -2.357 Nm$$

***Motor selection*** Preliminary determination of motor using torque $M_{pk}$.



| $n_N$ | Motor | $M_0$ | $I_0$ | $M_{pk}$ | $I_{max}$ | $M_{0VR}$ | $I_{0VR}$ | $J_{mot}$ | $J_{bmot}$ | $M_{B1}$ | $M_{B2}$ | $L_1$ | $R_1$ | $U_{p0}$ cold |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [rpm] | | Nm | A | Nm | A | Nm | A | kgcm² | | Nm | | mH | Ω | V |
| 4500 | CMP40S | 0.5 | 1.2 | 1.9 | 6.1 | - | - | 0.1 | 0.13 | 0.85 | -- | 23 | 11.94 | 27.5 |
| | CMP40M | 0.8 | 0.95 | 3.8 | 6.0 | - | - | 0.15 | 0.18 | 0.95 | -- | 45.5 | 19.92 | 56 |
| | CMP50S | 1.3 | 1.32 | 5.2 | 7.0 | 1.7 | 1.7 | 0.42 | 0.48 | 3.1 | 4.3 | 37 | 11.6 | 62 |
| | CMP50M | 2.4 | 2.3 | 10.3 | 13.1 | 3.5 | 3.35 | 0.67 | 0.73 | 4.3 | 3.1 | 20.5 | 5.29 | 66 |
| | CMP50L | 3.3 | 3.15 | 15.4 | 19.5 | 4.8 | 4.6 | 0.92 | 0.99 | 4.3 | 3.1 | 14.6 | 3.56 | 68 |
| | CMP63S | 2.9 | 3.05 | 11.1 | 18.3 | 4 | 4.2 | 1.15 | 1.49 | 7 | 9.3 | 18.3 | 3.34 | 64 |
| | CMP63M | 5.3 | 5.4 | 21.4 | 32.4 | 7.5 | 7.6 | 1.92 | 2.26 | 9.3 | 7 | 9.8 | 1.49 | 67 |
| | CMP63L | 7.1 | 6.9 | 30.4 | 41.4 | 10.3 | 10 | 2.69 | 3.03 | 9.3 | 7 | 7.2 | 1.07 | 71 |

Selected motor:
CMP63M
$M_{pk}$= 21.4 Nm
$J_{mot}$= 1.92 × $10^{-4}$ $kgm^2$

***Determining the inertia ratio "k"***

$$J_{ext} = 91.2 \cdot m \cdot \left(\frac{v_{\max}}{n_{\max}}\right)^2 + J_G$$

$$J_{ext} = 91.2 \cdot 50kg \cdot \frac{\left(2\frac{m}{s}\right)^2}{\left(3565.065\frac{1}{\min}\right)^2} + 0.03 \cdot 10^{-4} kgm^2$$

$$J_{ext} = 14.38125 \cdot 10^{-4} kgm^2$$

$J_{ext}$ is consequently in relation to the motor shaft.

$$k = \frac{J_{ext}}{J_{Motor}}$$

$$k = \frac{14.38125 \cdot 10^{-4} kgm^2}{1.92 \cdot 10^{-4} kgm^2}$$

$$k = 7.49$$

Selection condition:

$$k \le 15$$

$$7.49 \le 15$$

Condition is fulfilled.

***Intrinsic acceleration or deceleration of motor in sections 1 and 3***

$$M_{Eigen} = (J_G + J_{Mot}) \cdot \frac{n_{max}}{9.55 \cdot t}$$

$$M_{Eigen} = \left(0.03 \cdot 10^{-4} kgm^2 + 1.92 \cdot 10^{-4} kgm^2\right) \cdot \frac{3565.065 \frac{1}{\min}}{9.55 \cdot 0.2s}$$

$$M_{Eigen} = 0.3639 Nm$$

***Maximum motor torques in sections 1 and 3***

*Travel section 1*

$$M_{t1} = M_{e\max 1} + M_{Eigen}$$

$$M_{t1} = 3.036 Nm + 0.3639 Nm$$

$$M_{t1} = 3.3999 Nm$$

*Travel section 2*

$$M_{t3} = M_{e\max 3} + M_{Eigen}$$

$$M_{t3} = -2.357 Nm + 0.3639 Nm$$

$$M_{t3} = -1.9931 Nm$$

***Effective motor torque***

$$M_{eff} = \sqrt{\frac{1}{t_z}\left(M_1^2 \cdot t_1 + \ldots + M_n^2 \cdot t_n\right)}$$

$$M_{eff} = \sqrt{\frac{(3.399 Nm)^2 \cdot 0.2s + (0.0294 Nm)^2 \cdot 0.8 s + (-1.9931 Nm)^2 \cdot 0.2 s}{3s}}$$

$$M_{eff} = 1.0174 Nm$$

***Thermal effective motor speed***

$$n_{eff} = \sqrt[1.5]{\frac{n_1^{1.5} \cdot t_1 + \ldots + n_n^{1.5} \cdot t_n}{t_z}}$$

$$n_{eff} = \sqrt[1.5]{\frac{\left(\frac{3565.065 \frac{1}{\min}}{2}\right)^{1.5} \cdot 0.2s + \left(3565.065 \frac{1}{\min}\right)^{1.5} \cdot 0.8s + \left(\frac{3565.065 \frac{1}{\min}}{2}\right)^{1.5} \cdot 0.2s}{3s}}$$

$$n_{eff} = 1646.3 \frac{1}{\min}$$

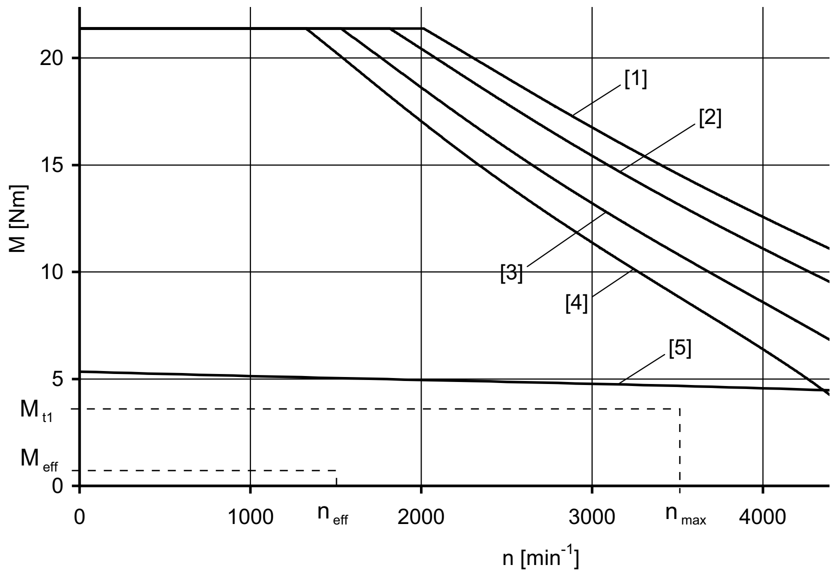
***Determining the dynamic and thermal motor operating points***

- The thermal operating point must be below or exactly on the thermal limit characteristic curve:

$$M_{eff} \leq M_{Nenn}$$

- The dynamic limit torque must be checked:

$$M_{\max Mot} \leq M_{pk}$$




[1] $M_{dynamic}$ (n) 500 V

[2] $M_{dynamic}$ (n) 460 V

[3] $M_{dynamic}$ (n) 400 V

[4] $M_{dynamic}$ (n) 360 V

[5] M $S1_{thermal}$ (derating)

### Inverter assignment

For inverter assignments of CMP servomotors to MOVIDRIVE® and MOVIAXIS®, see page 65 and subsequent pages.

### Calculating the braking resistor

*Peak braking power in travel section 3*

$$P_{Br\_pk} = \frac{M_{tn} \cdot n_{tn} \cdot \eta_{Last}}{9550}$$

$$P_{Br\_pk} = \frac{1.9931Nm \cdot 3565 \frac{1}{\min} \cdot 0.9}{9550}$$

$$P_{Br\_pk} = 0.6696kW$$

*Mean braking power in travel section 3*

$$P_{Br} = \frac{M_{tn} \cdot n_{tn} \cdot \eta_{Last}}{9550}$$

$$P_{Br} = \frac{1.9931Nm \cdot \frac{3565 \frac{1}{\min}}{2} \cdot 0.9}{9550}$$

$$P_{Br} = 0.3348kW$$

*Effective braking power*

$$P_{Br\_eff} = \frac{P_{Br} \cdot t_3}{t_z}$$

$$P_{Br\_eff} = \frac{0.3348kW \cdot 0.2s}{3s}$$

$$P_{Br\_eff} = 0.223kW$$

The selection of the braking resistor depends, among other factors, on which braking resistor may be connected to the respective inverter. If you use a MOVIDRIVE® inverter, refer to the system manual for relevant notes.

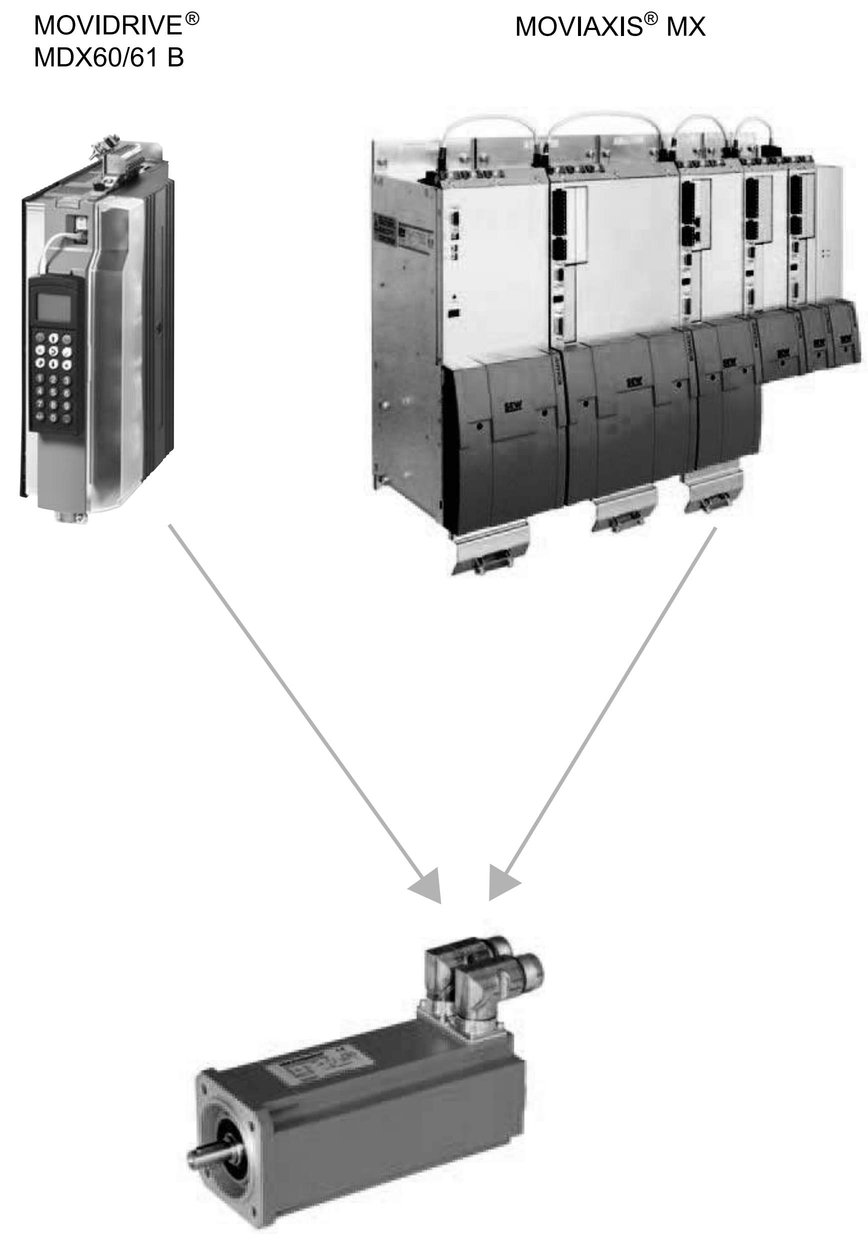
If you use a MOVIAXIS® inverter, refer to the system manual for relevant information.

You can also determine the corresponding braking resistor via the "SEW Workbench".

## 6.7 Inverter operation

The following products are available from SEW-EURODRIVE for operating the synchronous servomotors on inverters:

- The drive inverter MOVIDRIVE® MDX60B/61B
- The multi-axis servo inverter MOVIAXIS® MX




63615axx

***Product characteristics***

The following table lists the most important product characteristics for the various inverter series. You can choose the inverter series matching your application based on these product features.

| Product features | MOVIDRIVE® MDX60/61B | MOVIAXIS® MX |
|---|---|---|
| **Voltage range** | 3 × AC 380 - 500 V<br>3 × AC 200 - 240 V (limited power range) | 3 × AC 380 - 500 V |
| **Input power range** | 0.55 – 160 kW | 10 – 75 kW |
| **Rated current range of the axis modules** | 4 - 250 A | 2 - 133 A |
| **Overload capacity** | 150% $I_N$[1)] briefly and 125% $I_N$ permanently during operation without overload | 250% for max. 1 second |
| **4Q capable** | Yes, with integrated brake chopper as standard. | |
| **Integrated line filter** | For sizes 0, 1 and 2 according to limit class A | Yes, according to limit class A. |
| **TF input** | Yes | |
| **Control modes** | V/f or voltage-controlled flux vector control (VFC), with speed feedback speed control and current-controlled flux vector control (CFC). | Current-controlled flux vector control |
| **System resolution** | 4096 | 65536 |
| **Speed feedback** | Option | Integrated in basic unit |
| **Integrated positioning and sequence control system** | Standard | |
| **Serial interfaces** | System bus (SBus)<br>and RS-485 | CAN based SBus system bus, optional EtherCAT®-compatible SBus$^{plus}$ system bus |
| **Fieldbus interfaces** | Optional PROFIBUS-DP, INTERBUS, INTERBUS LWL, CANopen, DeviceNet, Ethernet | Optional PROFIBUS-DP, EtherCAT® |
| **Technology options** | Input/output card<br>Synchronous operation<br>Absolute encoder card<br>IEC-61131 control | Synchronous operation, electronic gear, touch probe, event control, electronic cam, virtual encoder, single-axis positioning |
| **Max. speed** | 6000 rpm | 10000 rpm |
| **Safe stop** | Yes | Option |
| **Certifications** | UL and cUL approval, C-tick | |

1) Only for MOVIDRIVE® MDX60/61B: The temporary overload capacity of size 0 units (0005 - 0014) is 200% $I_N$.

## 6.8 *Overview of combinations of CMP and CMPZ with MOVIDRIVE®, 400 V system voltage*

***1. Rated speed $n_N$ = 2000 rpm, size 0 - 2:***

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0005** | **0008** | **0011** | **0014** | **0015** | **0022** | **0030** | **0040** | **0055** | **0075** | **0110** |
| **Type** | **$I_N$** | **A** | **2** | **2.4** | **3.1** | **4** | **4** | **5.5** | **7** | **9.5** | **12.5** | **16** | **24** |
| | **$I_{max}$** | **A** | **4** | **4.8** | **6.2** | **8** | **6** | **8.25** | **10.5** | **14.3** | **18.8** | **24** | **36** |
| CMP.71S | $I_{max}$ | % $I_N$ | 166 | 166 | 166 | 166 | 125 | 125 | 125 | 125 | 109 | | |
| | $M_{pk}$ | Nm | 6.5 | 7.6 | 9.6 | 11.8 | 9.3 | 12.1 | 14.4 | 17.1 | 18 | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | 166 | 166 | 125 | 125 | 125 | 125 | 125 | 125 | |
| | $M_{pk}$ | Nm | | | 9.6 | 12.3 | 9.4 | 12.7 | 15.7 | 20.1 | 24.2 | 27.4 | |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | 166 | 125 | 125 | 125 | 125 | 125 | 125 | 105 |
| | $M_{pk}$ | Nm | | | | 13.6 | 10.2 | 14.1 | 17.8 | 23.7 | 30 | 36.1 | 41.1 |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | 166 | 125 | 125 | 125 | 125 | 125 | 125 | 115 |
| | $M_{pk}$ | Nm | | | | 12.7 | 9.5 | 13.2 | 16.9 | 22.7 | 28.7 | 34 | 39.3 |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | 13.9 | 17.7 | 23.8 | 30.8 | 38.2 | 51.1 |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | 19.3 | 26.1 | 34 | 43 | 61.7 |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | | | | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | 17 | 23 | 30 | 37.6 | 52.2 |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 24.7 | 32.5 | 41.5 | 60.7 |
| CMP.100L | $I_{max}$ | % $I_N$ | | | | | | | | | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | 34 | 4305 | 64.8 |

***Sizes 3 - 6***

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0150** | **0220** | **0300** | **0370** | **0450** | **0550** | **0750** | **0900** | **1100** | **1320** |
| **Type** | **$I_N$** | **A** | **32** | **46** | **60** | **73** | **89** | **105** | **130** | **170** | **200** | **250** |
| | **$I_{max}$** | **A** | **48** | **69** | **90** | **109.5** | **133.5** | **157.5** | **195** | **255** | **300** | **375** |
| CMP.80M | $I_{max}$ | % $I_N$ | 116 | | | | | | | | | |
| | $M_{pk}$ | Nm | 57 | | | | | | | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | 125 | 108 | | | | | | | | |
| | $M_{pk}$ | Nm | 77.5 | 89.4 | | | | | | | | |
| CMP.100S | $I_{max}$ | % $I_N$ | 125 | 107 | | | | | | | | |
| | $M_{pk}$ | Nm | 62.2 | 68.1 | | | | | | | | |
| CMP.100M | $I_{max}$ | % $I_N$ | 125 | 125 | 99 | | | | | | | |
| | $M_{pk}$ | Nm | 77.2 | 98.1 | 100 | | | | | | | |
| CMP.100L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 119 | | | | | | |
| | $M_{pk}$ | Nm | 85.1 | 116.6 | 142 | 155.9 | | | | | | |

### 2. Rated speed $n_N$ = 3000 rpm, size 0 - 2:

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0005** | **0008** | **0011** | **0014** | **0015** | **0022** | **0030** | **0040** | **0055** | **0075** | **0110** |
| **Type** | $I_N$ | **A** | **2** | **2.4** | **3.1** | **4** | **4** | **5.5** | **7** | **9.5** | **12.5** | **16** | **24** |
| | $I_{max}$ | **A** | **4** | **4.8** | **6.2** | **8** | **6** | **8.25** | **10.5** | **14.3** | **18.8** | **24** | **36** |
| CMP40S | $I_{max}$ | % $I_N$ | 200 | 200 | | | 120 | | | | | | |
| | $M_{pk}$ | Nm | 1.5 | 1.9 | | | 1.9 | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 200 | 200 | 194 | | 150 | | | | | | |
| | $M_{pk}$ | Nm | 3 | 3.4 | 3.8 | | 3.8 | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 200 | 200 | 165 | | 128 | | | | | | |
| | $M_{pk}$ | Nm | 4.5 | 5 | 5.2 | | 5.2 | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 137 | | | | |
| | $M_{pk}$ | Nm | 5.4 | 6.3 | 7.7 | 9.3 | 7.6 | 9.4 | 10.3 | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 143 | | | |
| | $M_{pk}$ | Nm | 5.9 | 7 | 8.8 | 10.8 | 8.5 | 11.1 | 13.2 | 15.4 | | | |
| CMP63S | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 136 | | | |
| | $M_{pk}$ | Nm | 5.2 | 6 | 7.2 | 8.6 | 7.1 | 8.8 | 10.1 | 11.1 | | | |
| CMP63M | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 135 | |
| | $M_{pk}$ | Nm | 6.1 | 7.1 | 9 | 11.1 | 8.7 | 11.4 | 13.8 | 17 | 20 | 21.4 | |
| CMP63L | $I_{max}$ | % $I_N$ | | | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 150 | 124 |
| | $M_{pk}$ | Nm | | | 9 | 11.4 | 8.7 | 11.7 | 14.5 | 18.7 | 23 | 27.1 | 30.4 |
| CMP.71S | $I_{max}$ | % $I_N$ | | | 166 | 166 | 125 | 125 | 125 | 125 | 125 | 123 | |
| | $M_{pk}$ | Nm | | | 6.9 | 8.6 | 6.7 | 8.9 | 10.9 | 13.8 | 16.3 | 18 | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | | 166 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | 8.4 | 6.4 | 8.7 | 10.9 | 14.5 | 18.3 | 22 | 27.5 |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | 9.5 | 12.1 | 16.3 | 21.2 | 26.5 | 36.3 |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | 8.9 | 11.5 | 15.7 | 20.6 | 25.8 | 34.6 |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | | | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | 12.3 | 16.6 | 21.8 | 27.6 | 39.4 |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 17.3 | 22.7 | 28.9 | 42.6 |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | | | | | | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | 20.5 | 26.2 | 38.2 |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | | | | | | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | 22.2 | 28.5 | 42.6 |
| CMP.100L | $I_{max}$ | % $I_N$ | | | | | | | | | | | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | | 44 |

### *Sizes 3 - 6*

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0150** | **0220** | **0300** | **0370** | **0450** | **0550** | **0750** | **0900** | **1100** | **1320** |
| **Type** | $I_N$ | **A** | **32** | **46** | **60** | **73** | **89** | **105** | **130** | **170** | **200** | **250** |
| | $I_{max}$ | **A** | **48** | **69** | **90** | **109.5** | **133.5** | **157.5** | **195** | **255** | **300** | **375** |
| CMP.71L | $I_{max}$ | % $I_N$ | 118 | | | | | | | | | |
| | $M_{pk}$ | Nm | 41.2 | | | | | | | | | |
| CMP.80S | $I_{max}$ | % $I_N$ | 125 | | | | | | | | | |
| | $M_{pk}$ | Nm | 39.2 | | | | | | | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | 125 | 117 | | | | | | | | |
| | $M_{pk}$ | Nm | 48.7 | 56.9 | | | | | | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | | | | | | | |
| | $M_{pk}$ | Nm | 55.4 | 74.6 | 89.3 | | | | | | | |
| CMP.100S | $I_{max}$ | % $I_N$ | 125 | 125 | 122 | | | | | | | |
| | $M_{pk}$ | Nm | 48.5 | 61.4 | 68.3 | | | | | | | |
| CMP.100M | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 119 | | | | | | |
| | $M_{pk}$ | Nm | 56 | 76.3 | 92 | 100.2 | | | | | | |
| CMP.100L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 123 | | | | |
| | $M_{pk}$ | Nm | 58.5 | 82.7 | 104.9 | 123.1 | 142.1 | 155.9 | | | | |

### *3 Rated speed $n_N$ = 4500 rpm, size 0 - 2:*

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0005 | 0008 | 0011 | 0014 | 0015 | 0022 | 0030 | 0040 | 0055 | 0075 | 0110 |
| Type | $I_N$ | A | 2 | 2.4 | 3.1 | 4 | 4 | 5.5 | 7 | 9.5 | 12.5 | 16 | 24 |
| | $I_{max}$ | A | 4 | 4.8 | 6.2 | 8 | 6 | 8.25 | 10.5 | 14.3 | 18.8 | 24 | 36 |
| CMP40S | $I_{max}$ | % $I_N$ | 200 | 200 | 197 | | 150 | 111 | | | | | |
| | $M_{pk}$ | Nm | 1.5 | 1.7 | 1.9 | | 1.9 | 1.9 | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 200 | 200 | 194 | | 150 | | | | | | |
| | $M_{pk}$ | Nm | 3 | 3.4 | 3.8 | | 3.8 | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 175 | 150 | 127 | | | | | |
| | $M_{pk}$ | Nm | 3.5 | 4.1 | 4.8 | 5.2 | 4.7 | 5.2 | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 138 | | | |
| | $M_{pk}$ | Nm | 4.1 | 4.8 | 6.1 | 7.4 | 5.9 | 7.6 | 9 | 10.3 | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 122 | |
| | $M_{pk}$ | Nm | 4.2 | 5 | 6.3 | 7.9 | 6.1 | 8.2 | 10 | 12.7 | 15.1 | 15.4 | |
| CMP63S | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 146 | | |
| | $M_{pk}$ | Nm | 3.8 | 4.5 | 5.6 | 6.8 | 5.4 | 6.9 | 8.2 | 9.9 | 11.1 | | |
| CMP63M | $I_{max}$ | % $I_N$ | | | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 150 | 135 |
| | $M_{pk}$ | Nm | | | 6.3 | 7.9 | 6.1 | 8.1 | 10 | 12.8 | 15.7 | 18.4 | 21.4 |
| CMP63L | $I_{max}$ | % $I_N$ | | | | 200 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| | $M_{pk}$ | Nm | | | | 8.3 | 6.3 | 8.6 | 10.7 | 14 | 17.7 | 21.5 | 28.2 |
| CMP.71S | $I_{max}$ | % $I_N$ | | | | 166 | 125 | 125 | 125 | 125 | 125 | 125 | 122 |
| | $M_{pk}$ | Nm | | | | 6 | 4.6 | 6.2 | 7.7 | 10.1 | 12.5 | 14.9 | 17.9 |
| CMP.71M | $I_{max}$ | % $I_N$ | | | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | 6 | 7.6 | 10.2 | 13.1 | 16.4 | 22.4 |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 10.9 | 14.4 | 18.3 | 26.5 |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 10.1 | 13.4 | 17.3 | 25.3 |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | | | | | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | 14.6 | 18.6 | 27.6 |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | | | | | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | 19.6 | 29.2 |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | | | | | | | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | 17.2 | 25.7 |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | | | | | | | | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | | 28.2 |

### *Sizes 3 - 6*

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0150** | **0220** | **0300** | **0370** | **0450** | **0550** | **0750** | **0900** | **1100** | **1320** |
| **Type** | $I_N$ | **A** | **32** | **46** | **60** | **73** | **89** | **105** | **130** | **170** | **200** | **250** |
| | $I_{max}$ | **A** | **48** | **69** | **90** | **109.5** | **133.5** | **157.5** | **195** | **255** | **300** | **375** |
| CMP63L | $I_{max}$ | % $I_N$ | 129 | | | | | | | | | |
| | $M_{pk}$ | Nm | 30.4 | | | | | | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | 125 | 95 | | | | | | | | |
| | $M_{pk}$ | Nm | 26.4 | 27.4 | | | | | | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | 125 | 123 | | | | | | | | |
| | $M_{pk}$ | Nm | 33.5 | 41.2 | | | | | | | | |
| CMP.80S | $I_{max}$ | % $I_N$ | 125 | 125 | 102 | | | | | | | |
| | $M_{pk}$ | Nm | 31.7 | 38.3 | 39.2 | | | | | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 110 | | | | | | |
| | $M_{pk}$ | Nm | 35.7 | 47.3 | 55.2 | 56.9 | | | | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | | | | | |
| | $M_{pk}$ | Nm | 38.5 | 53.8 | 67.4 | 78.3 | 89.3 | | | | | |
| CMP.100S | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | | | | | |
| | $M_{pk}$ | Nm | 33.8 | 46.3 | 56.1 | 62.6 | 68.3 | | | | | |
| CMP.100M | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 125 | 102 | | | |
| | $M_{pk}$ | Nm | 37.6 | 53.3 | 67.5 | 79 | 90.7 | 99.8 | 100.2 | | | |
| CMP.100L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 114 | | |
| | $M_{pk}$ | Nm | 39.1 | 56.1 | 72.6 | 87.1 | 103.9 | 119.2 | 139.6 | 155.8 | | |

### 4 Rated speed $n_N$ = 6000 rpm, size 0 - 2:

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0005 | 0008 | 0011 | 0014 | 0015 | 0022 | 0030 | 0040 | 0055 | 0075 | 0110 |
| Type | $I_N$ | A | 2 | 2.4 | 3.1 | 4 | 4 | 5.5 | 7 | 9.5 | 12.5 | 16 | 24 |
| | $I_{max}$ | A | 4 | 4.8 | 6.2 | 8 | 6 | 8.25 | 10.5 | 14.3 | 18.8 | 24 | 36 |
| CMP40S | $I_{max}$ | % $I_N$ | 200 | 200 | 197 | | 150 | 111 | | | | | |
| | $M_{pk}$ | Nm | 1.5 | 1.7 | 1.9 | | 1.9 | 1.9 | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 173 | 150 | 125 | | | | | |
| | $M_{pk}$ | Nm | 2.6 | 3 | 3.6 | 3.8 | 3.5 | 3.8 | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 129 | | | | |
| | $M_{pk}$ | Nm | 2.9 | 3.3 | 4.1 | 4.8 | 4 | 4.9 | 5.2 | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 137 | | |
| | $M_{pk}$ | Nm | 3.2 | 3.8 | 4.8 | 6 | 4.6 | 6.1 | 7.4 | 9.2 | 10.3 | | |
| CMP50L | $I_{max}$ | % $I_N$ | | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 150 | 108 |
| | $M_{pk}$ | Nm | | 3.8 | 4.8 | 6.1 | 4.7 | 6.3 | 7.8 | 10.2 | 12.5 | 14.7 | 15.4 |
| CMP63S | $I_{max}$ | % $I_N$ | 200 | 200 | 200 | 200 | 150 | 150 | 150 | 150 | 150 | 146 | |
| | $M_{pk}$ | Nm | 3.1 | 3.6 | 4.5 | 5.6 | 4.4 | 5.8 | 6.9 | 8.6 | 10 | 11.1 | |
| CMP63M | $I_{max}$ | % $I_N$ | | | | 200 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| | $M_{pk}$ | Nm | | | | 6.3 | 4.8 | 6.5 | 8 | 10.4 | 13 | 15.6 | 20 |
| CMP63L | $I_{max}$ | % $I_N$ | | | | | | 150 | 150 | 150 | 150 | 150 | 150 |
| | $M_{pk}$ | Nm | | | | | | 6.5 | 8.1 | 10.8 | 13.8 | 17 | 23.3 |
| CMP.71S | $I_{max}$ | % $I_N$ | | | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | 4.8 | 6 | 8 | 10.1 | 12.3 | 16.1 |
| CMP.71M | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 7.7 | 10 | 12.6 | 18 |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | | | | | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | 8.2 | 10.8 | 13.8 | 20.4 |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | | | | | | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | 10.2 | 13.2 | 19.8 |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | | | | | | 125 | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | 14.2 | 21.3 |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | | | | | | 125 |
| | $M_{pk}$ | Nm | | | | | | | | | | | 21.8 |

### Sizes 3 - 6

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0150 | 0220 | 0300 | 0370 | 0450 | 0550 | 0750 | 0900 | 1100 | 1320 |
| Type | $I_N$ | A | 32 | 46 | 60 | 73 | 89 | 105 | 130 | 170 | 200 | 250 |
| | $I_{max}$ | A | 48 | 69 | 90 | 109.5 | 133.5 | 157.5 | 195 | 255 | 300 | 375 |
| CMP63M | $I_{max}$ | % $I_N$ | 129 | | | | | | | | | |
| | $M_{pk}$ | Nm | 21.4 | | | | | | | | | |
| CMP63L | $I_{max}$ | % $I_N$ | 150 | 121 | | | | | | | | |
| | $M_{pk}$ | Nm | 28.1 | 30.4 | | | | | | | | |
| CMP.71S | $I_{max}$ | % $I_N$ | 120 | | | | | | | | | |
| | $M_{pk}$ | Nm | 18 | | | | | | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | 125 | 125 | 98 | | | | | | | |
| | $M_{pk}$ | Nm | 22.3 | 27.3 | 27.5 | | | | | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 103 | | | | | | |
| | $M_{pk}$ | Nm | 26.5 | 35.3 | 41.2 | 41.2 | | | | | | |
| CMP.80S | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 110 | | | | | | |
| | $M_{pk}$ | Nm | 25.8 | 33.7 | 38.3 | 39.2 | | | | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 119 | | | | | |
| | $M_{pk}$ | Nm | 28 | 38.5 | 47.1 | 53.1 | 57 | | | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 125 | 116 | | | |
| | $M_{pk}$ | Nm | 28.9 | 41 | 52.3 | 62 | 72.8 | 82.1 | 89.5 | | | |

## 6.9 Overview of combinations of CMP and CMPZ with MOVIDRIVE®, 230 V system voltage

***Rated speed $n_N$ = 3000 rpm***

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0015** | **0022** | **0037** | **0055** | **0075** | **0110** | **0150** | **0220** | **0300** |
| **Type** | $I_N$ | **A** | **7.3** | **8.6** | **14.5** | **22** | **29** | **42** | **54** | **80** | **95** |
| | $I_{max}$ | **A** | **11** | **12.9** | **21.8** | **33** | **43.5** | **63** | **81** | **120** | **143** |
| | $I_{max\_CMP71-100}$ | **A** | **9.13** | **10.8** | **18.1** | **27.5** | **36.3** | **52.5** | **67.5** | **100** | **119** |
| CMP40S | $I_{max}$ | % $I_N$ | 84 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 123 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.8 | | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 134 | | | | | | | | |
| | $M_{pk}$ | Nm | 5.2 | | | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 150 | 150 | 118 | | | | | | |
| | $M_{pk}$ | Nm | 8 | 9 | 10.3 | | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 105 | | | | | |
| | $M_{pk}$ | Nm | 8.8 | 10.1 | 14.6 | 15.4 | | | | | |
| CMP63S | $I_{max}$ | % $I_N$ | 150 | 150 | 149 | | | | | | |
| | $M_{pk}$ | Nm | 7.5 | 8.4 | 11.1 | | | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 131 | | | | |
| | $M_{pk}$ | Nm | 9 | 10.3 | 15.5 | 20 | 21.4 | | | | |
| CMP63L | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 150 | 125 | | | |
| | $M_{pk}$ | Nm | 8.9 | 10.4 | 16.4 | 22.8 | 27.4 | 30.3 | | | |
| CMP.71S | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 120 | | | | |
| | $M_{pk}$ | Nm | 6.9 | 8 | 12.3 | 16.2 | 18 | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 125 | | | |
| | $M_{pk}$ | Nm | 6.6 | 7.8 | 12.8 | 18.4 | 22.5 | 27.5 | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | | 125 | 125 | 125 | 125 | 125 | 124 | | |
| | $M_{pk}$ | Nm | | 8.3 | 14 | 21 | 26.9 | 35.9 | 41.3 | | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | 125 | 125 | 125 | 125 | 125 | 89 | |
| | $M_{pk}$ | Nm | | | 13.5 | 20.5 | 26.3 | 34.4 | 38.6 | 39.2 | |
| CMP.80M | $I_{max}$ | % $I_N$ | | | 125 | 125 | 125 | 125 | 125 | 118 | |
| | $M_{pk}$ | Nm | | | 14.5 | 21.9 | 28.5 | 39.4 | 47.5 | 57 | |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | 23 | 30.1 | 42.9 | 53.9 | 74.6 | 84.3 |

### *Rated speed $n_N$ = 4500 rpm*

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0015** | **0022** | **0037** | **0055** | **0075** | **0110** | **0150** | **0220** | **0300** |
| **Type** | $I_N$ | **A** | **7.3** | **8.6** | **14.5** | **22** | **29** | **42** | **54** | **80** | **95** |
| | $I_{max}$ | **A** | **11** | **12.9** | **21.8** | **33** | **43.5** | **63** | **81** | **120** | **143** |
| | $I_{max\_CMP71-100}$ | **A** | **9.13** | **10.8** | **18.1** | **27.5** | **36.3** | **52.5** | **67.5** | **100** | **119** |
| CMP40S | $I_{max}$ | % $I_N$ | 84 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 123 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.8 | | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 150 | 150 | 95 | | | | | | |
| | $M_{pk}$ | Nm | 4.9 | 5.3 | 5.2 | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 110 | | | | | |
| | $M_{pk}$ | Nm | 6.1 | 7 | 10 | 10.3 | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 114 | | | | |
| | $M_{pk}$ | Nm | 6.3 | 7.4 | 11.4 | 15.1 | 15.4 | | | | |
| CMP63S | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 143 | | | | | |
| | $M_{pk}$ | Nm | 5.7 | 6.5 | 9.2 | 11.1 | | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 150 | 140 | | | |
| | $M_{pk}$ | Nm | 6.1 | 7.1 | 11.2 | 15.4 | 18.4 | 21.4 | | | |
| CMP63L | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 150 | 150 | 133 | | |
| | $M_{pk}$ | Nm | 6.6 | 7.7 | 12.5 | 17.9 | 22.2 | 28.3 | 30.4 | | |
| CMP.71S | $I_{max}$ | % $I_N$ | 125 | 125 | 125 | 125 | 125 | 122 | | | |
| | $M_{pk}$ | Nm | 4.7 | 5.5 | 8.9 | 12.5 | 15.2 | 17.9 | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | 125 | 125 | 125 | 125 | 125 | 96 | |
| | $M_{pk}$ | Nm | | | 8.9 | 13.1 | 16.7 | 22.3 | 25.8 | 27.4 | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | 125 | 125 | 125 | 125 | 125 | 125 | 114 |
| | $M_{pk}$ | Nm | | | 8.7 | 13.4 | 17.7 | 25.1 | 30.7 | 38.1 | 39.2 |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | 14.7 | 19.3 | 27.6 | 34.6 | 47.1 | 52.4 |

***Rated speed $n_N$ = 6000 rpm***

| Motor | | | MOVIDRIVE® MDX61B...-5_3 in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **0015** | **0022** | **0037** | **0055** | **0075** | **0110** | **0150** | **0220** | **0300** |
| **Type** | $I_N$ | **A** | **7.3** | **8.6** | **14.5** | **22** | **29** | **42** | **54** | **80** | **95** |
| | $I_{max}$ | **A** | **11** | **12.9** | **21.8** | **33** | **43.5** | **63** | **81** | **120** | **143** |
| | $I_{max\_CMP71-100}$ | **A** | **9.13** | **10.8** | **18.1** | **27.5** | **36.3** | **52.5** | **67.5** | **100** | **119** |
| CMP40S | $I_{max}$ | % $I_N$ | 93 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 150 | 134 | | | | | | | |
| | $M_{pk}$ | Nm | 3.6 | 3.8 | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 150 | 150 | 127 | | | | | | |
| | $M_{pk}$ | Nm | 4 | 4.5 | 5.2 | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 143 | | | | | |
| | $M_{pk}$ | Nm | 4.8 | 5.6 | 8.5 | 10.3 | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 150 | 108 | | | |
| | $M_{pk}$ | Nm | 4.7 | 5.5 | 8.8 | 12.3 | 14.8 | 15.4 | | | |
| CMP.63S | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 140 | | | | |
| | $M_{pk}$ | Nm | 4.6 | 5.3 | 7.8 | 10.1 | 11.1 | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | 150 | 150 | 150 | 150 | 150 | 150 | 134 | | |
| | $M_{pk}$ | Nm | 5 | 5.9 | 9.4 | 13.1 | 16.1 | 20.1 | 21.4 | | |
| CMP.71S | $I_{max}$ | % $I_N$ | | 125 | 125 | 125 | 125 | 125 | 125 | 85 | |
| | $M_{pk}$ | Nm | | 4.3 | 7 | 10.1 | 12.5 | 16 | 17.9 | 18 | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | 125 | 125 | 125 | 125 | 125 | 125 |
| | $M_{pk}$ | Nm | | | | 10.1 | 13.5 | 19.6 | 24.7 | 33.4 | 36.6 |

## 6.10 Overview of combinations of CMP and CMPZ with MOVIAXIS®, 400 V system voltage

### 1. Rated speed $n_N$ = 2000 rpm

| Motor | | | Assignment to MOVIAXIS® MXA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Size** | | **1** | | | **2** | | **3** | | **4** | **5** | **6** |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| CMP.71S | $I_{max}$ | % $I_N$ | | 250 | 218 | | | | | | | |
| | $M_{pk}$ | Nm | | 15.6 | 19.2 | | | | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | 250 | 250 | 218 | | | | | | |
| | $M_{pk}$ | Nm | | 17.6 | 27.4 | 30.8 | | | | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | | | 250 | 250 | 243 | | | | | |
| | $M_{pk}$ | Nm | | | 36 | 43.8 | 46.9 | | | | | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | 250 | 250 | 203 | | | | | |
| | $M_{pk}$ | Nm | | | 34 | 40.5 | 42.1 | | | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 198 | | | | |
| | $M_{pk}$ | Nm | | | 38.1 | 51.1 | 58.6 | 62.6 | | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 224 | | | |
| | $M_{pk}$ | Nm | | | | 61.4 | 77.2 | 98.8 | 106.9 | | | |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 206 | | | | |
| | $M_{pk}$ | Nm | | | | 52.2 | 62.1 | 68.3 | | | | |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 215 | | | |
| | $M_{pk}$ | Nm | | | | 61.5 | 78.1 | 101.2 | 108.2 | | | |
| CMP.100L | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 235 | | |
| | $M_{pk}$ | Nm | | | | | | 120.7 | 148 | 178.8 | | |

### 2. *Rated speed $n_N$ = 3000 rpm*

| Motor | | | Assignment to MOVIAXIS® MXA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Size | | 1 | | | 2 | | 3 | | 4 | 5 | 6 |
| Type | $I_N$ | A | 2 | 4 | 8 | 12 | 16 | 24 | 32 | 48 | 64 | 100 |
| | $I_{max}$ | A | 5 | 10 | 20 | 30 | 40 | 60 | 80 | 120 | 160 | 250 |
| CMP40S | $I_{max}$ | % $I_N$ | 250 | 153 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.7 | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 250 | 150 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.4 | 3.8 | | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 250 | 128 | | | | | | | | |
| | $M_{pk}$ | Nm | 5.1 | 5.2 | | | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 250 | 240 | | | | | | | | |
| | $M_{pk}$ | Nm | 6.5 | 10.3 | | | | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | 250 | 250 | 170 | | | | | | | |
| | $M_{pk}$ | Nm | 7.2 | 12.7 | 15.4 | | | | | | | |
| CMP63S | $I_{max}$ | % $I_N$ | 250 | 250 | 161 | | | | | | | |
| | $M_{pk}$ | Nm | 6.2 | 9.9 | 11.1 | | | | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | | 250 | 250 | 180 | | | | | | |
| | $M_{pk}$ | Nm | | 13.2 | 20.6 | 21.4 | | | | | | |
| CMP63L | $I_{max}$ | % $I_N$ | | 250 | 250 | 248 | | | | | | |
| | $M_{pk}$ | Nm | | 13.8 | 24 | 30.4 | | | | | | |
| CMP.71S | $I_{max}$ | % $I_N$ | | 250 | 250 | 212 | | | | | | |
| | $M_{pk}$ | Nm | | 12.1 | 18 | 19.2 | | | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | 250 | 250 | 244 | | | | | |
| | $M_{pk}$ | Nm | | | 22 | 27.5 | 30.8 | | | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 241 | | | | |
| | $M_{pk}$ | Nm | | | 26.5 | 36.3 | 42.2 | 46.9 | | | | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 198 | | | | |
| | $M_{pk}$ | Nm | | | 25.8 | 34.6 | 39.2 | 42.1 | | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 215 | | | |
| | $M_{pk}$ | Nm | | | | 39.3 | 48.6 | 59.4 | 62.6 | | | |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | 224 | | |
| | $M_{pk}$ | Nm | | | | | 55.5 | 77.2 | 93 | 106.9 | | |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 228 | | | |
| | $M_{pk}$ | Nm | | | | | 48.5 | 62.7 | 68.3 | | | |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 212 | | |
| | $M_{pk}$ | Nm | | | | | | 79 | 95.7 | 108.2 | | |
| CMP.100L | $I_{max}$ | % $I_N$ | | | | | | | 250 | 250 | 250 | 167 |
| | $M_{pk}$ | Nm | | | | | | | 110.8 | 149.2 | 174.8 | 178.8 |

### 3. *Rated speed $n_N$ = 4500 rpm*

| Motor | | | Assignment to MOVIAXIS® MXA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Size** | | **1** | | | **2** | | **3** | | **4** | **5** | **6** |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| CMP40S | $I_{max}$ | % $I_N$ | 250 | 153 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.7 | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 250 | 150 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.4 | 3.8 | | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 250 | 175 | | | | | | | | |
| | $M_{pk}$ | Nm | 4.2 | 5.2 | | | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | 250 | 250 | 164 | | | | | | | |
| | $M_{pk}$ | Nm | 5 | 8.7 | 10.3 | | | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | | 250 | 244 | | | | | | | |
| | $M_{pk}$ | Nm | | 9.6 | 15.4 | | | | | | | |
| CMP63S | $I_{max}$ | % $I_N$ | | 250 | 229 | | | | | | | |
| | $M_{pk}$ | Nm | | 8 | 11.1 | | | | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | | | 250 | 250 | 203 | | | | | |
| | $M_{pk}$ | Nm | | | 16.3 | 20.6 | 21.4 | | | | | |
| CMP63L | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 173 | | | | |
| | $M_{pk}$ | Nm | | | 18.7 | 25.2 | 29.9 | 30.4 | | | | |
| CMP.71S | $I_{max}$ | % $I_N$ | | | 250 | 250 | 237 | | | | | |
| | $M_{pk}$ | Nm | | | 14.9 | 18 | 19.2 | | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 238 | | | | |
| | $M_{pk}$ | Nm | | | | 22.4 | 26.4 | 30.8 | | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 250 | 180 | | |
| | $M_{pk}$ | Nm | | | | 25.6 | 33.4 | 42.2 | 45.8 | 46.9 | | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 227 | | | |
| | $M_{pk}$ | Nm | | | | 25.3 | 31.7 | 38.9 | 42.1 | | | |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | 215 | | |
| | $M_{pk}$ | Nm | | | | | 35.7 | 48.6 | 56.7 | 62.6 | | |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 250 | 248 | |
| | $M_{pk}$ | Nm | | | | | | 56.1 | 71.3 | 93.6 | 106.9 | |
| CMP.100S | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 232 | | |
| | $M_{pk}$ | Nm | | | | | | 47.9 | 58.3 | 68.3 | | |
| CMP.100M | $I_{max}$ | % $I_N$ | | | | | | | 250 | 250 | 241 | |
| | $M_{pk}$ | Nm | | | | | | | 71.3 | 95.1 | 108.1 | |
| CMP.100L | $I_{max}$ | % $I_N$ | | | | | | | | 250 | 250 | 250 |
| | $M_{pk}$ | Nm | | | | | | | | 110.8 | 138.1 | 178.5 |

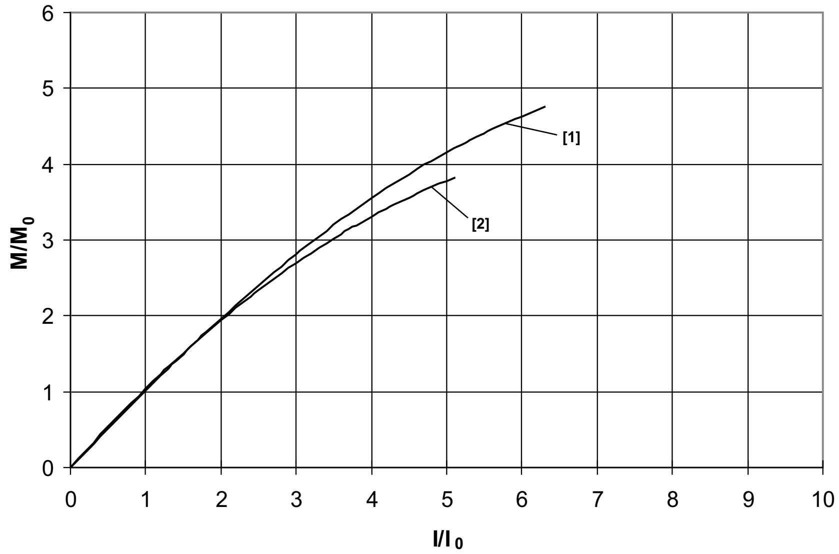
### *4. Rated speed $n_N$ = 6000 rpm*

| **Motor** | | | **Assignment to MOVIAXIS® MXA** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Size** | | | **1** | | **2** | | **3** | | **4** | **5** | **6** |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| CMP40S | $I_{max}$ | % $I_N$ | 250 | 153 | | | | | | | | |
| | $M_{pk}$ | Nm | 1.7 | 1.9 | | | | | | | | |
| CMP40M | $I_{max}$ | % $I_N$ | 250 | 173 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.1 | 3.8 | | | | | | | | |
| CMP50S | $I_{max}$ | % $I_N$ | 250 | 225 | | | | | | | | |
| | $M_{pk}$ | Nm | 3.5 | 5.2 | | | | | | | | |
| CMP50M | $I_{max}$ | % $I_N$ | | 250 | 241 | | | | | | | |
| | $M_{pk}$ | Nm | | 7.2 | 10.3 | | | | | | | |
| CMP50L | $I_{max}$ | % $I_N$ | | 250 | 250 | 217 | | | | | | |
| | $M_{pk}$ | Nm | | 7.5 | 13.1 | 15.4 | | | | | | |
| CMP63S | $I_{max}$ | % $I_N$ | | 250 | 250 | 195 | | | | | | |
| | $M_{pk}$ | Nm | | 6.7 | 10.4 | 11.1 | | | | | | |
| CMP63M | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 173 | | | | |
| | $M_{pk}$ | Nm | | | 13.7 | 18 | 21 | 21.4 | | | | |
| CMP63L | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 233 | | | | |
| | $M_{pk}$ | Nm | | | 14.6 | 20.4 | 25.1 | 30.4 | | | | |
| CMP.71S | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 207 | | | | |
| | $M_{pk}$ | Nm | | | 12.3 | 16.1 | 18.1 | 19.2 | | | | |
| CMP.71M | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | 239 | | | |
| | $M_{pk}$ | Nm | | | | 18 | 22.3 | 27.7 | 30.8 | | | |
| CMP.71L | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | 241 | | |
| | $M_{pk}$ | Nm | | | | | 26.5 | 36.3 | 42.2 | 46.9 | | |
| CMP.80S | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | 198 | | |
| | $M_{pk}$ | Nm | | | | | 25.8 | 34.6 | 39.2 | 42.1 | | |
| CMP.80M | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 250 | 211 | |
| | $M_{pk}$ | Nm | | | | | | 39.8 | 49.1 | 59.8 | 62.8 | |
| CMP.80L | $I_{max}$ | % $I_N$ | | | | | | | 250 | 250 | 250 | 215 |
| | $M_{pk}$ | Nm | | | | | | | 55.5 | 77.2 | 93 | 106.9 |

## 6.11 Torque/current characteristic curves

The following characteristic curves refer to non-ventilated motors and apply to a system voltage of 230 V and 400 V.

***CMP40S/M***

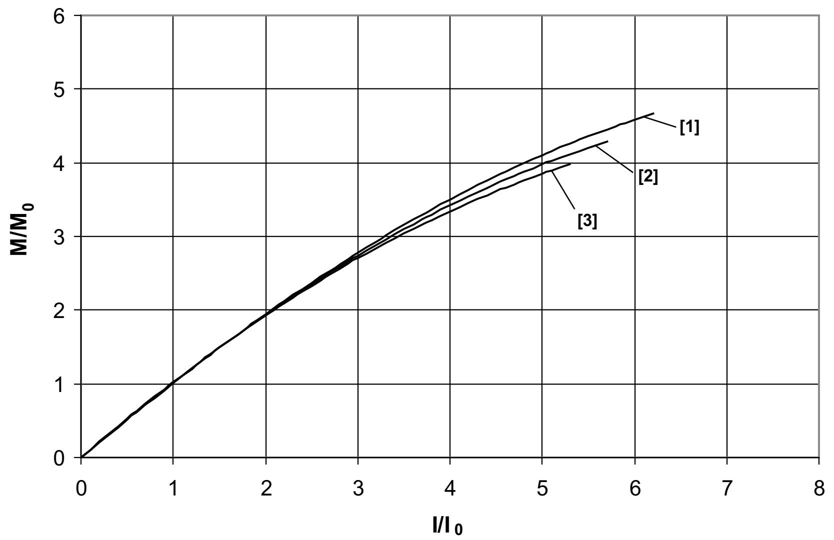



58573AXX

[1] CMP40M

[2] CMP40S

***CMP50S / M / L***



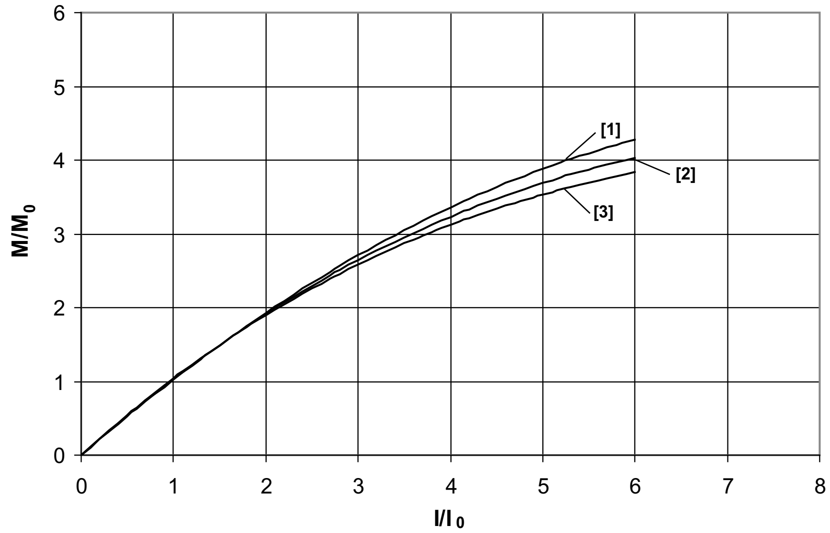

58574AXX

[1] CMP50L

[2] CMP50M

[3] CMP50S

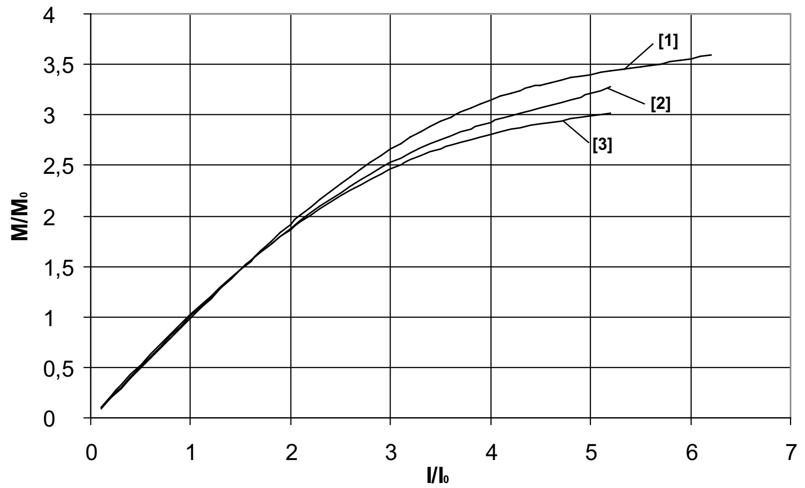
### CMP63S / M / L




58575BXX

[1] CMP63L
[2] CMP63M
[3] CMP63S

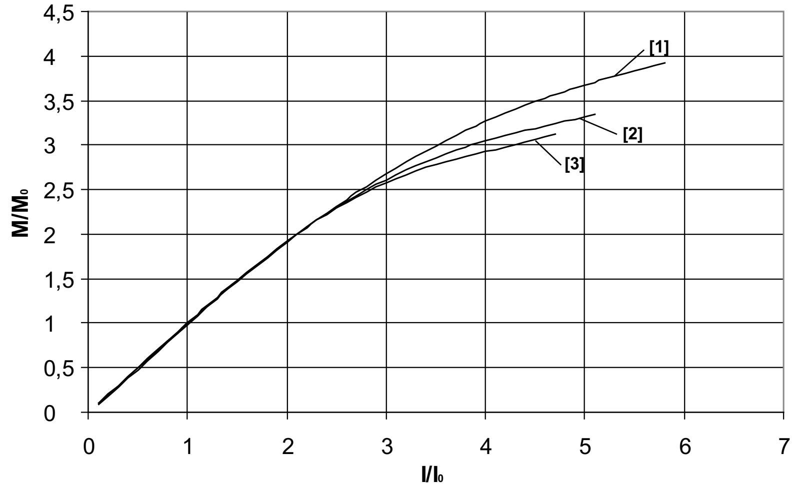
### CMP.71S / M / L




64101AXX

[1] CMP.71L
[2] CMP.71M
[3] CMP.71S

### *CMP.80S / M / L*



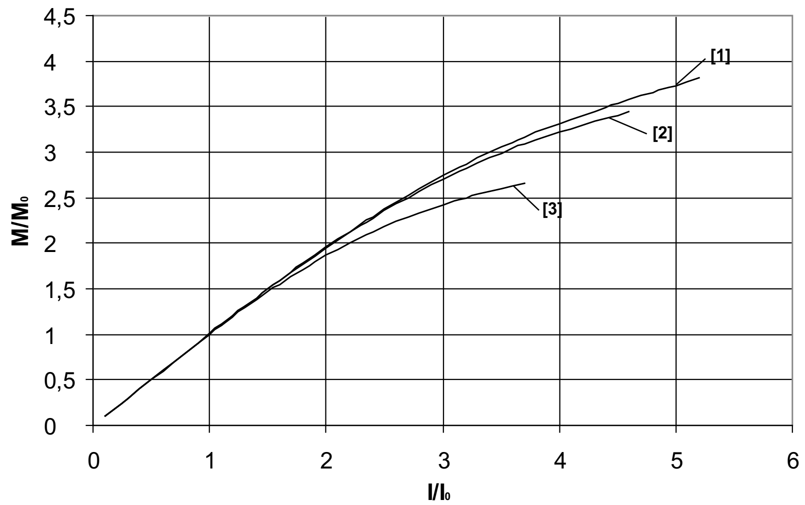

64102AXX

[1] CMP.80L

[2] CMP.80M

[3] CMP.80S

### *CMP.100S / M / L*




64103AXX

[1] CMP.100L

[2] CMP.100M

[3] CMP.100S

## 6.12 Maxmimum speeds of CMP and CMPZ motors

The following maximum speeds apply to the motors:

| Motor type | Maximum speed in rpm |
|---|---|
| CMP40 - 80 | 7200 |
| CMPZ71 - 80 | |
| CMP100, CMPZ100 | 5400 |
| CMP40 - 71 /BP | 6000 |
| CMP80 /BP | 5500 |
| CMP100 /BP | 5400 |
| CMPZ71 /BY | 6000 |
| CMPZ80- 100 /BY | 4500 |



## 6.13 Dynamic and thermal limit characteristic curves for 400 V system voltage

Definition:

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

**INFORMATION**

For the available maximum torque, refer to the combination overview "CMP with MOVIDRIVE®" on page 65 and "CMP with MOVIAXIS®" on page 74.

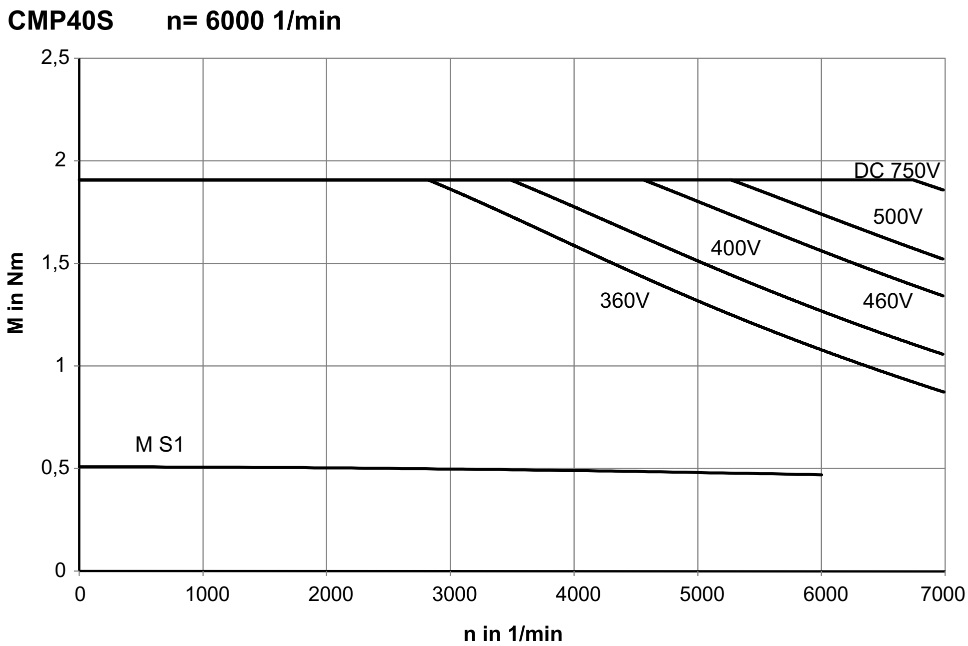
**INFORMATION**

The following characteristic curves apply to CMP and CMPZ motors.

### *Key*

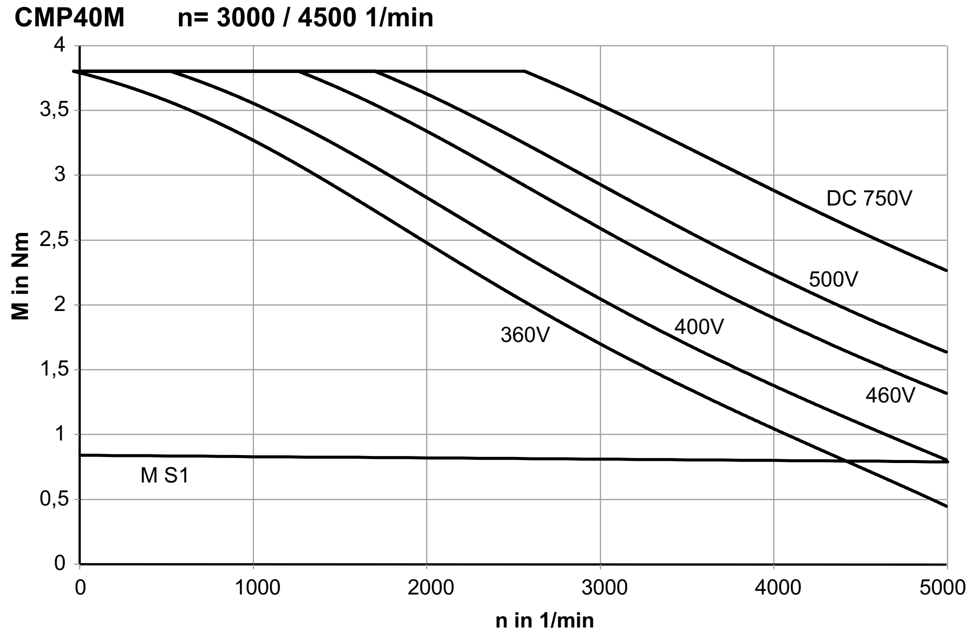
| | | | |
|---|---|---|---|
| M S1 | M $S1_{thermal}$ (derating) | 460 V | 460 V line voltage, non-controlled |
| DC 750 V | controlled on DC 750 V constant | 400 V | 400 V line voltage, non-controlled |
| 500 V | 500 V line voltage, non-controlled | 360 V | 360 V line voltage, non-controlled |

### *Dynamic and thermal limit characteristic curve for CMP40S $n_N$ = 6000 rpm*



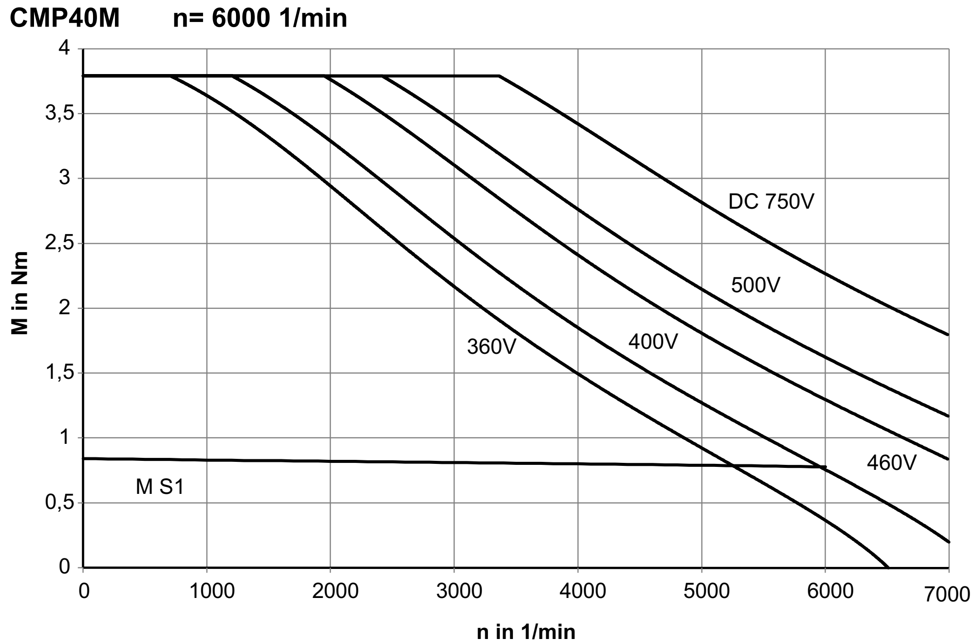
67569axx

### Dynamic and thermal limit characteristic curve for CMP40M $n_N$ = 3000, 4500 rpm



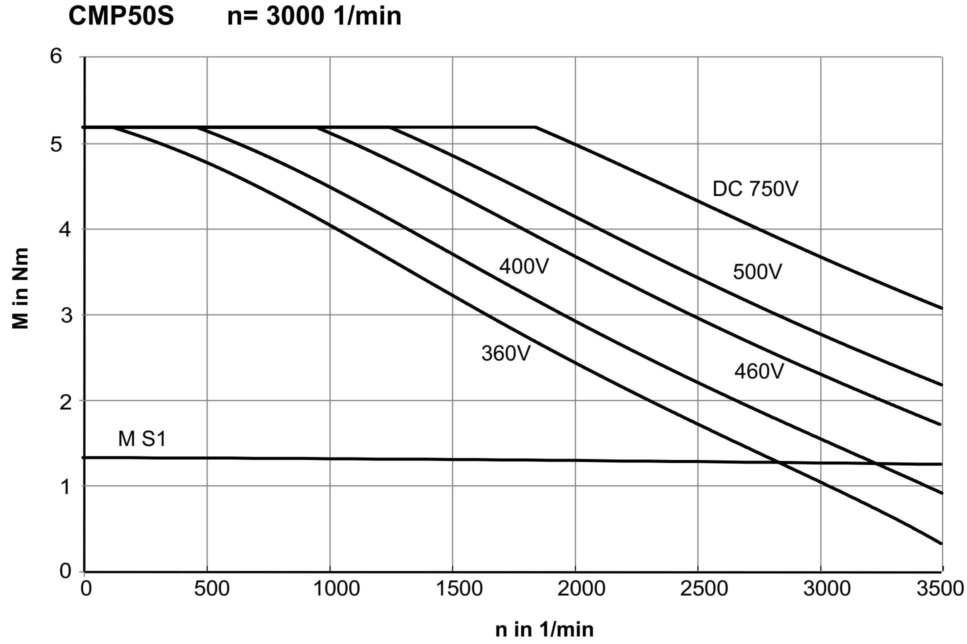

67567axx

### Dynamic and thermal limit characteristic curve for CMP40M $n_N$ = 6000 rpm



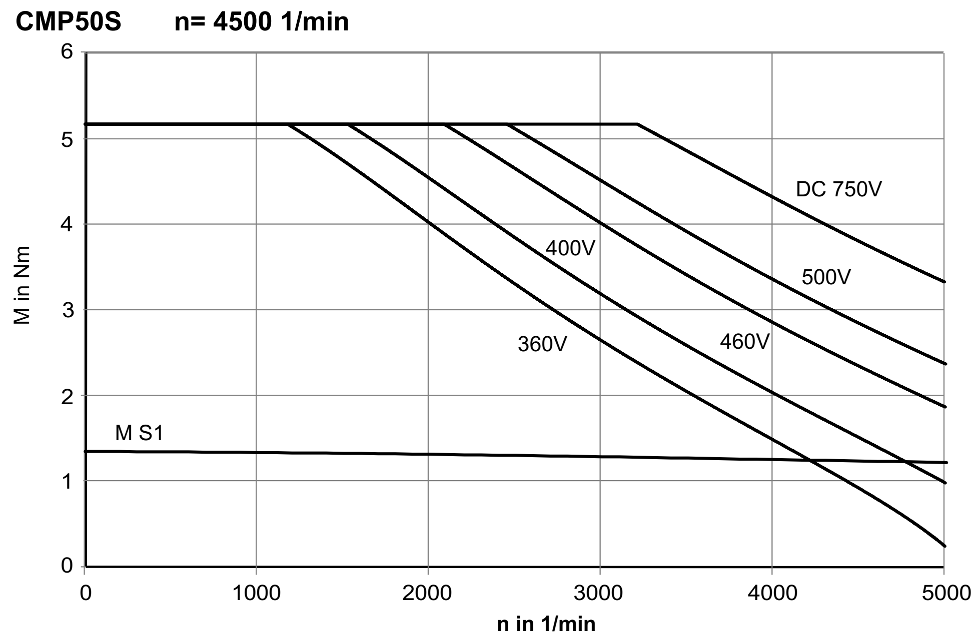

67568axx

***Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 3000 rpm***



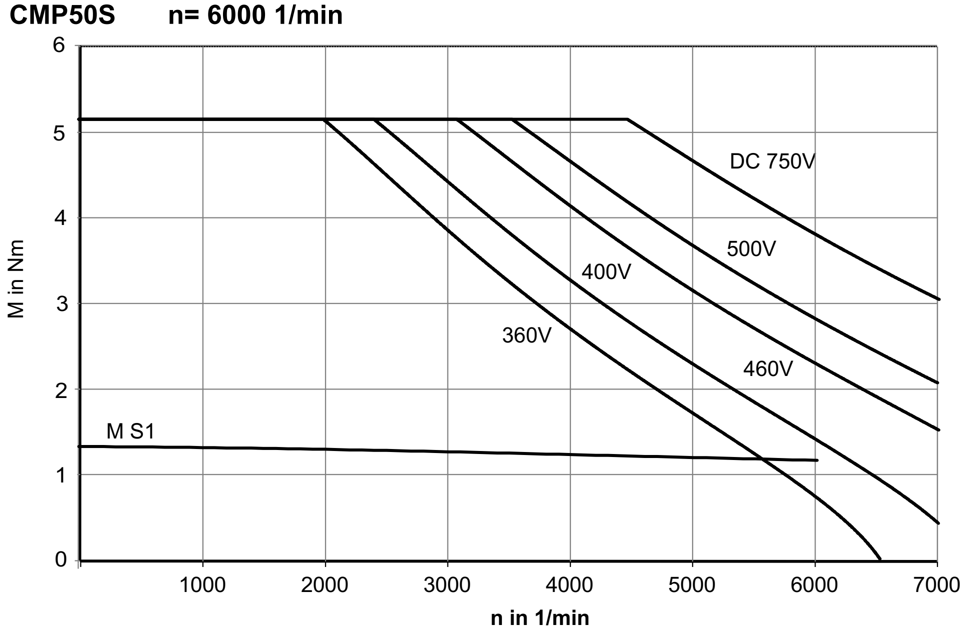

67576axx

***Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 4500 rpm***



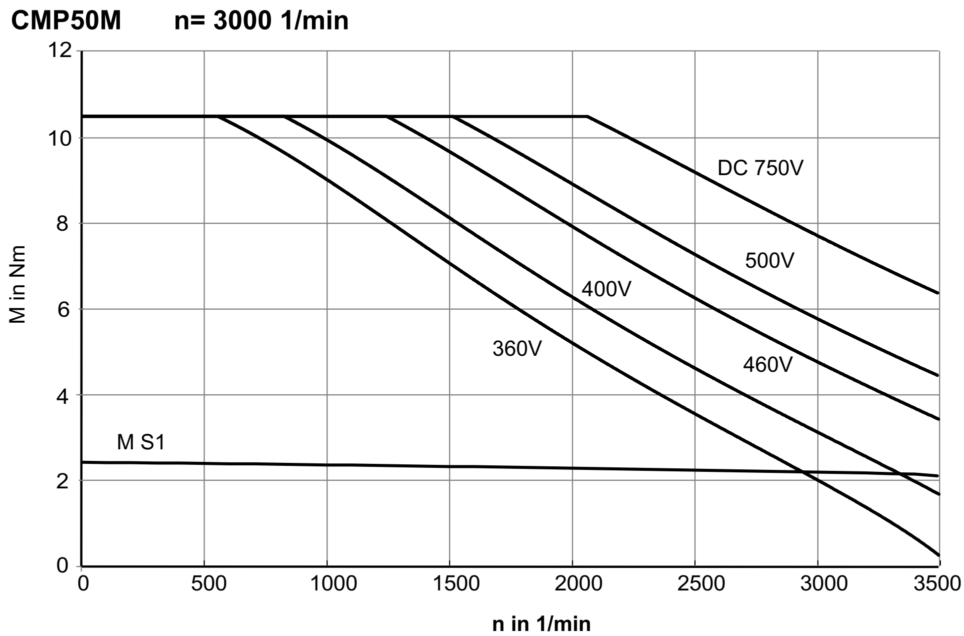

67577axx

### *Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 6000 rpm*



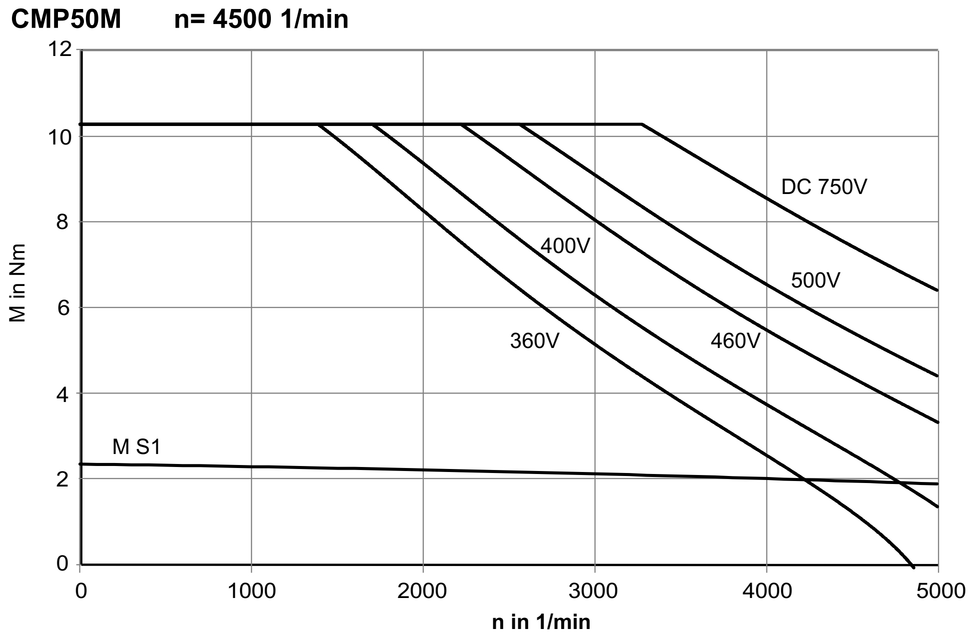

67578axx

### *Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 3000 rpm*



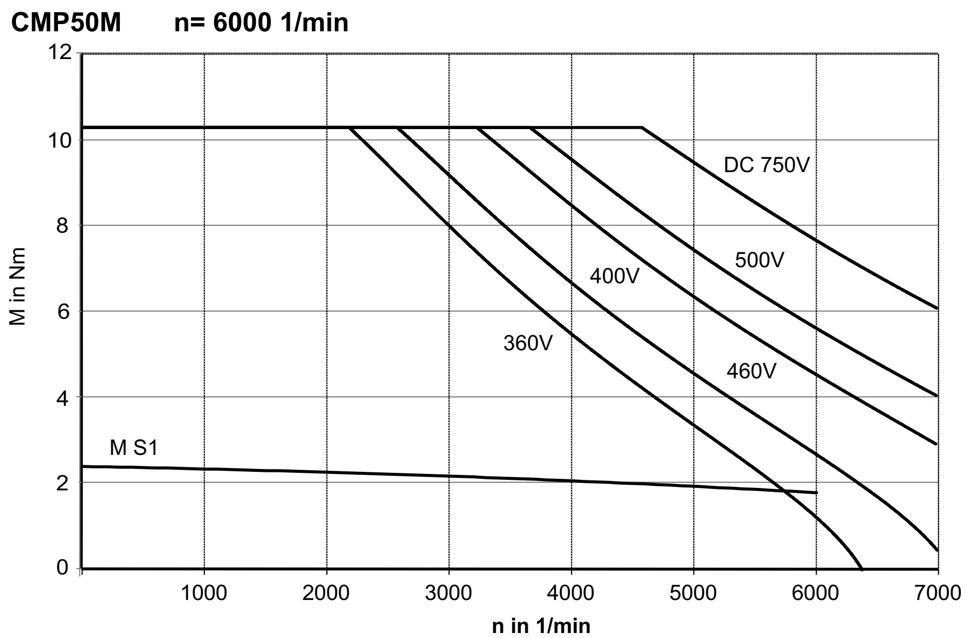

67573axx

### *Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 4500 rpm*



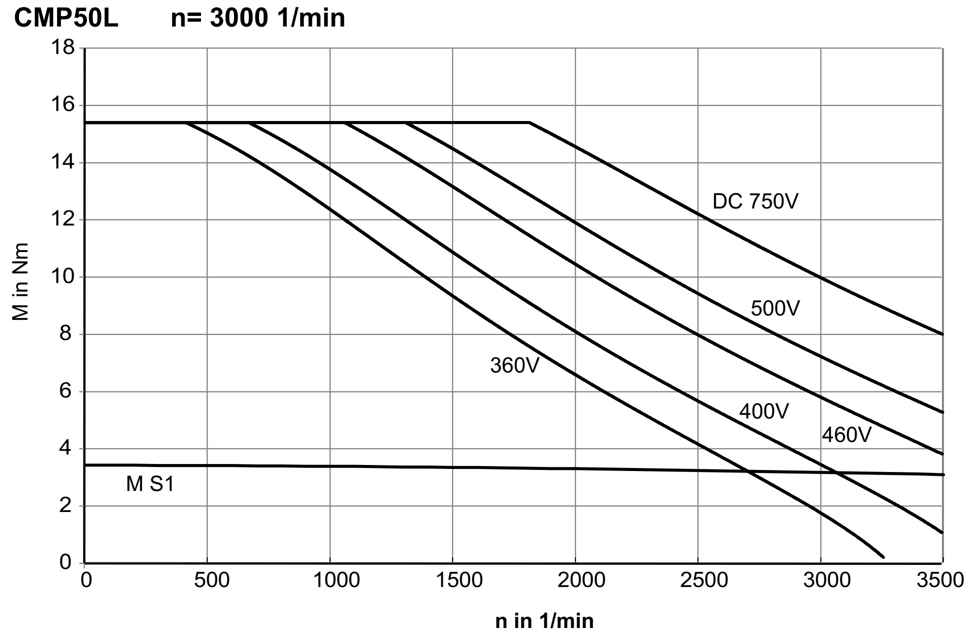

67574axx

### *Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 6000 rpm*



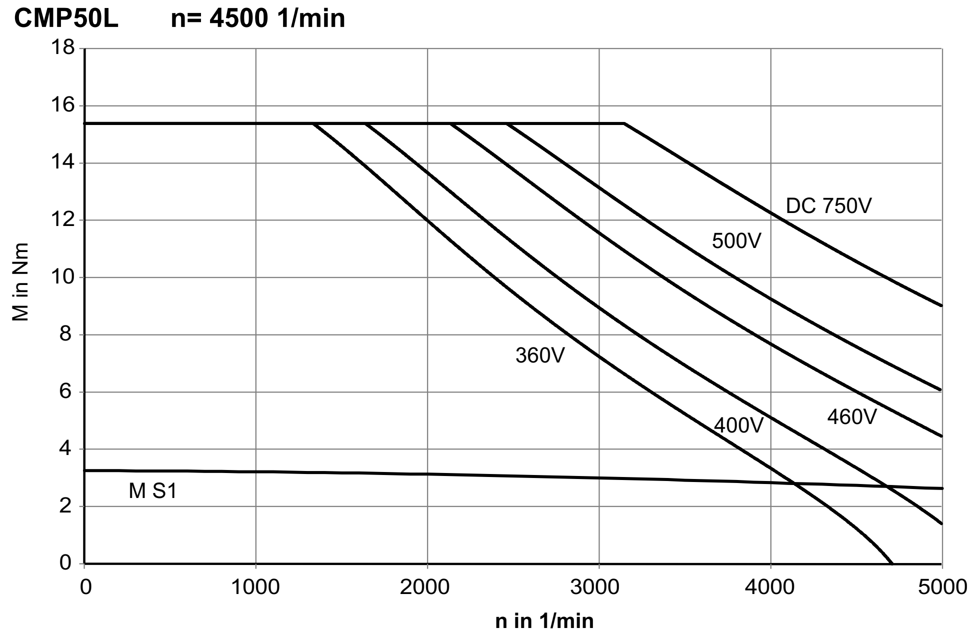

67575axx

### *Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 3000 rpm*



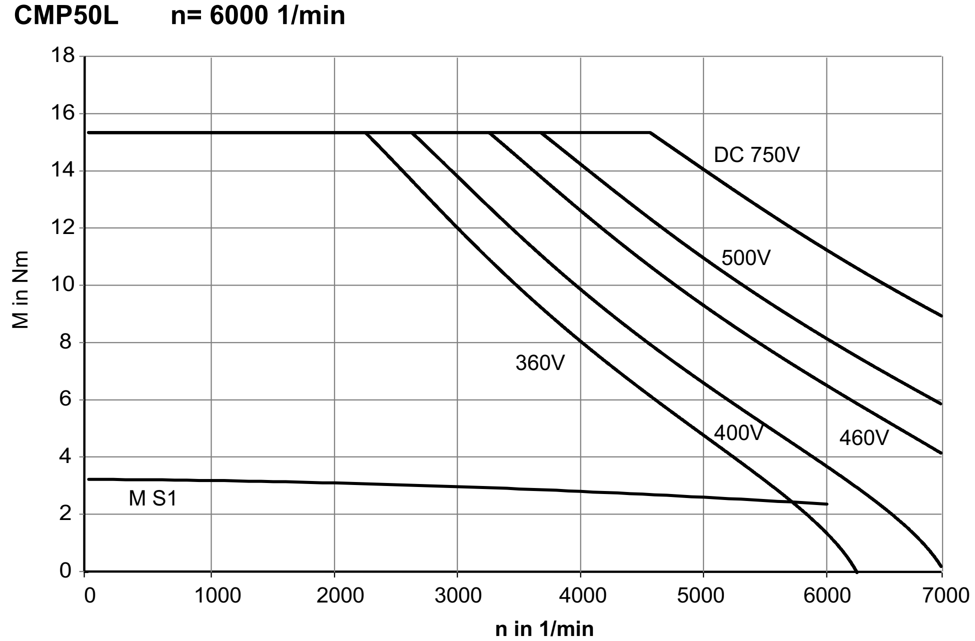

67570axx

### *Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 4500 rpm*




67571axx

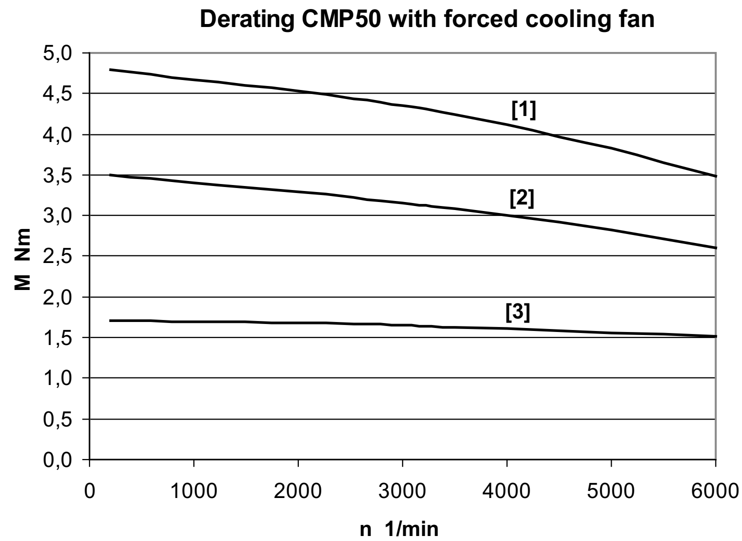
### *Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 6000 rpm*




67572axx

### *Thermal limit characteristic curve for CMP50 / VR*

$\vartheta_A$ = -20 to +40 °C



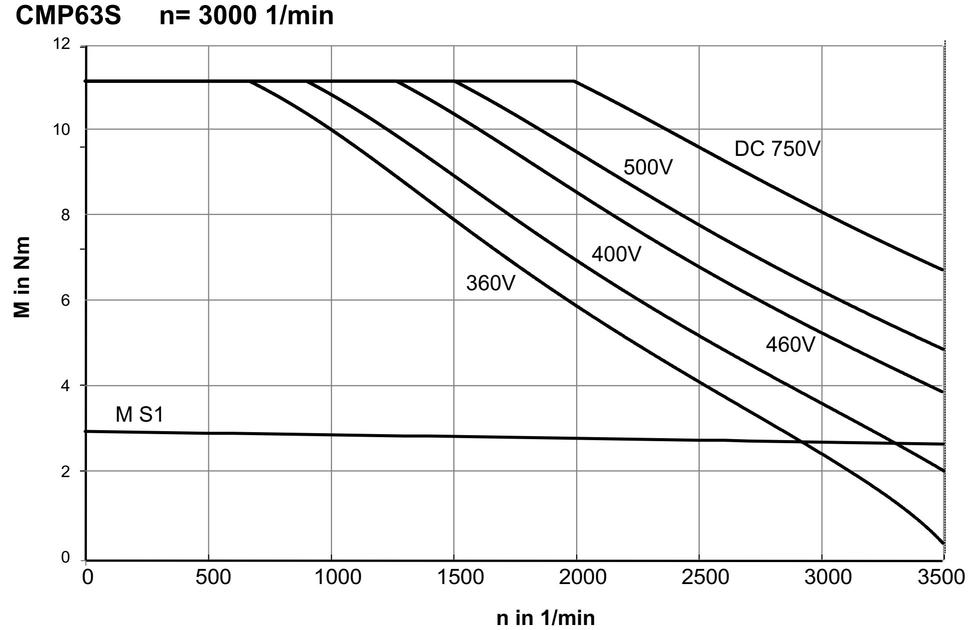

58896aen

[1] CMP50L / VR

[2] CMP50M / VR

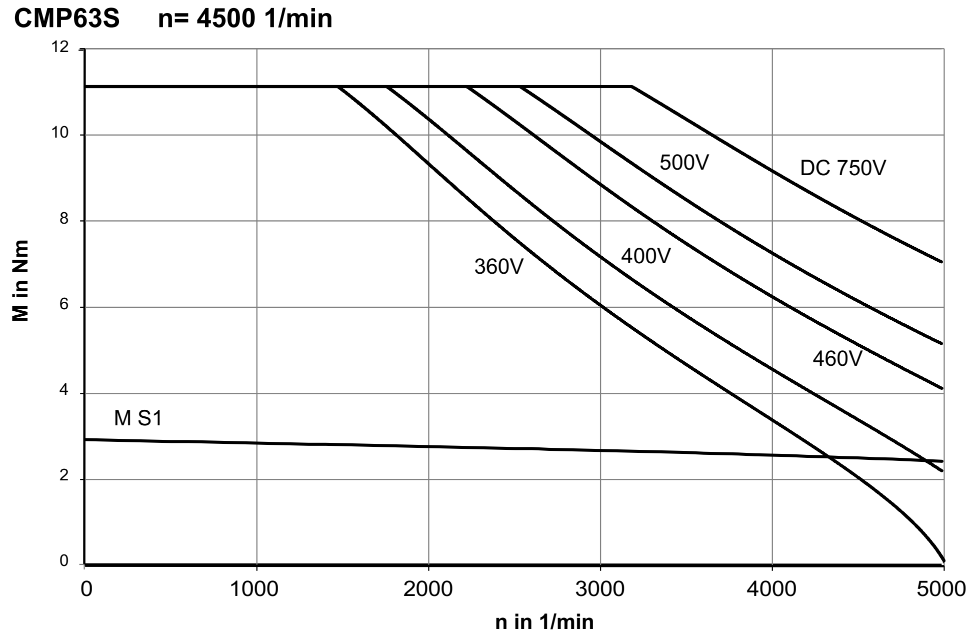
[3] CMP50S / VR

### *Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 3000 rpm*



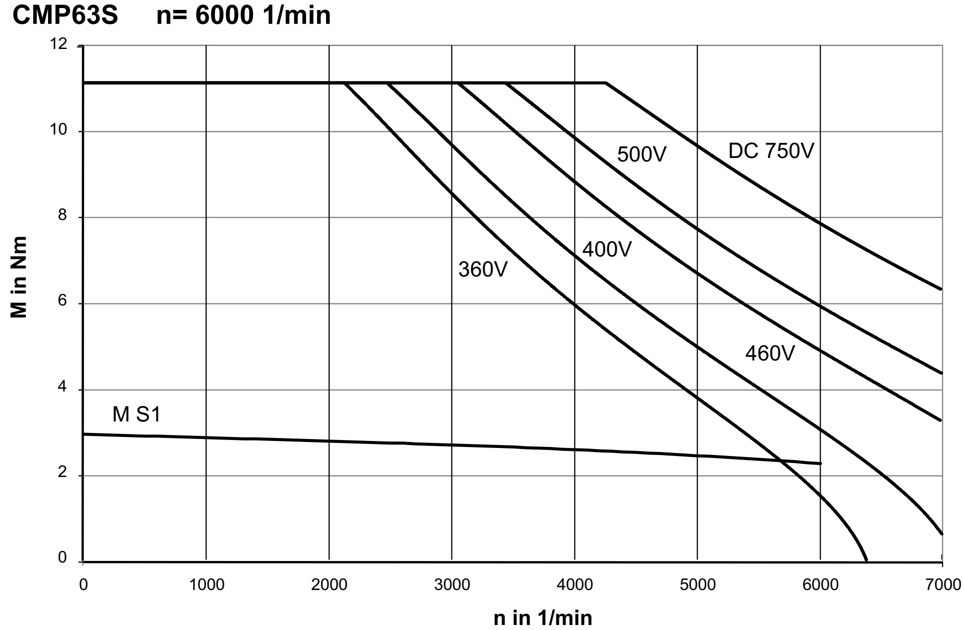

67585axx

### *Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 4500 rpm*



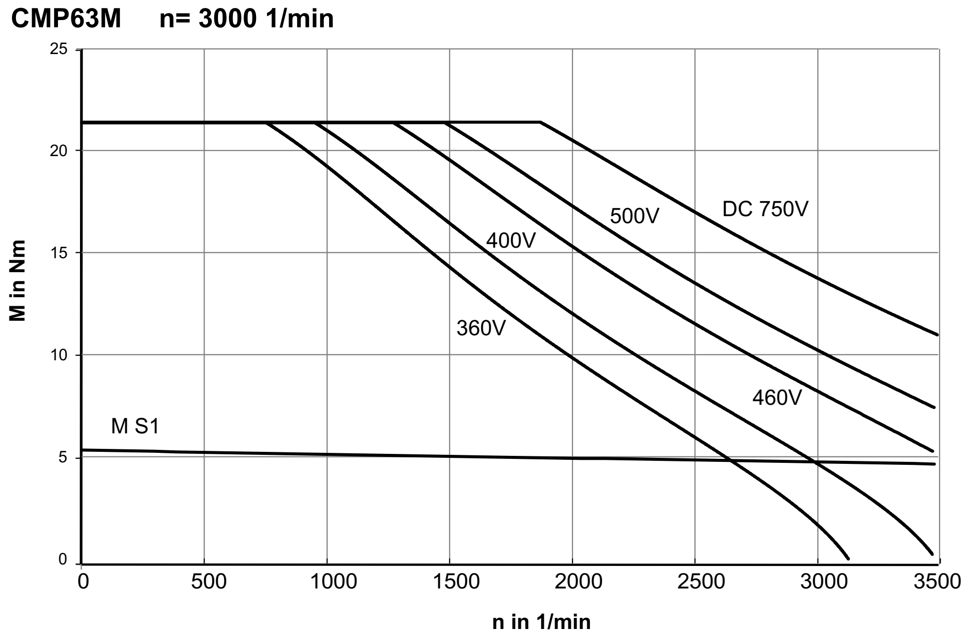

67586axx

***Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 6000 rpm***



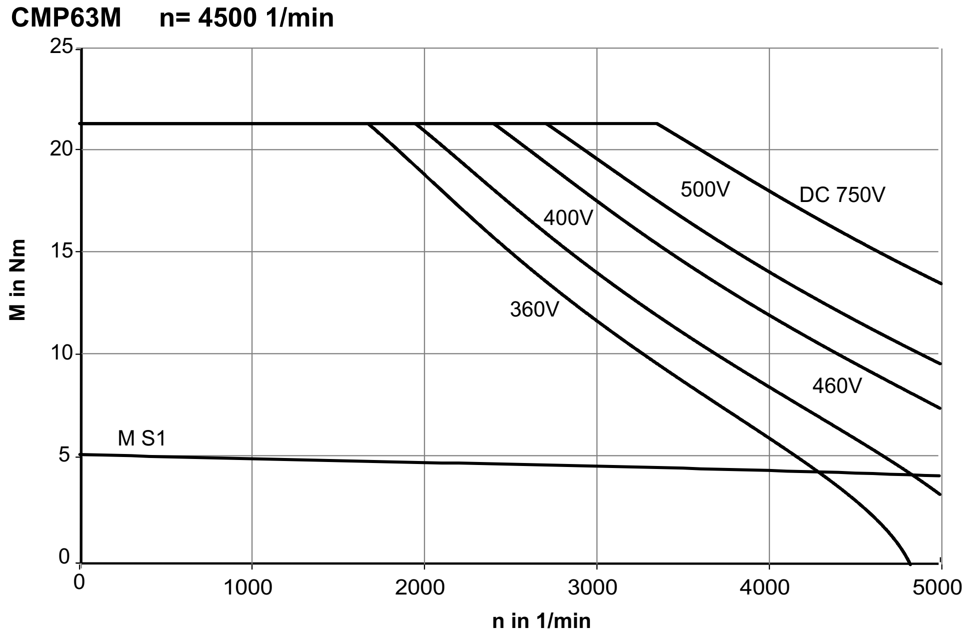

67587axx

***Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 3000 rpm***



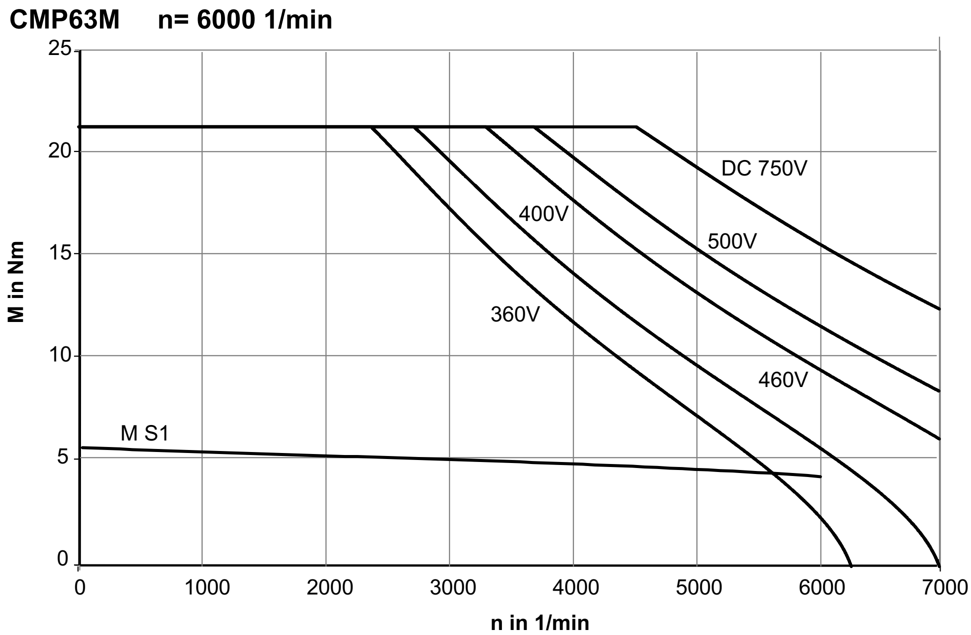

67582axx

### *Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 4500 rpm*



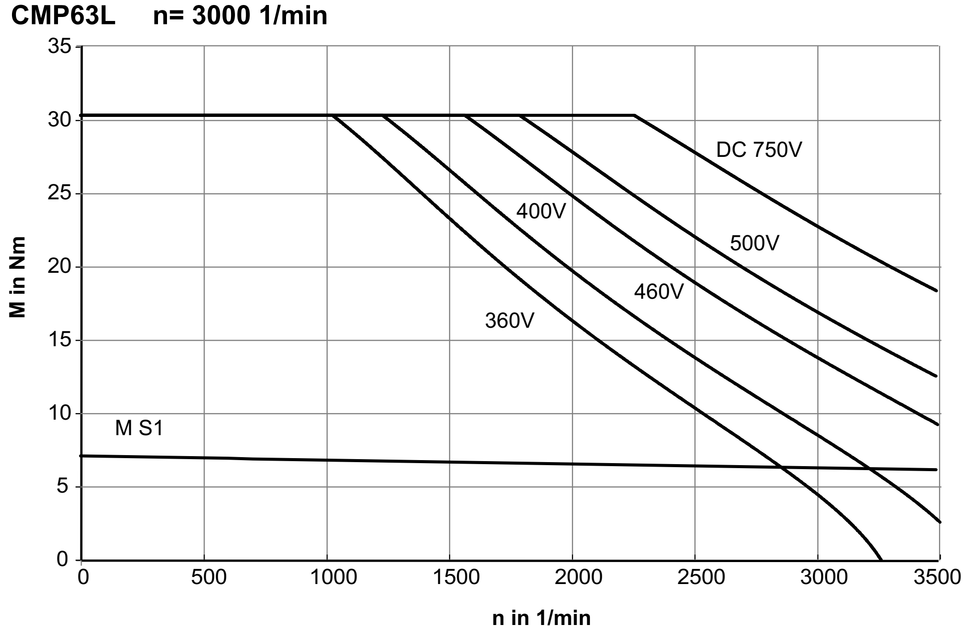

67583axx

### *Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 6000 rpm*



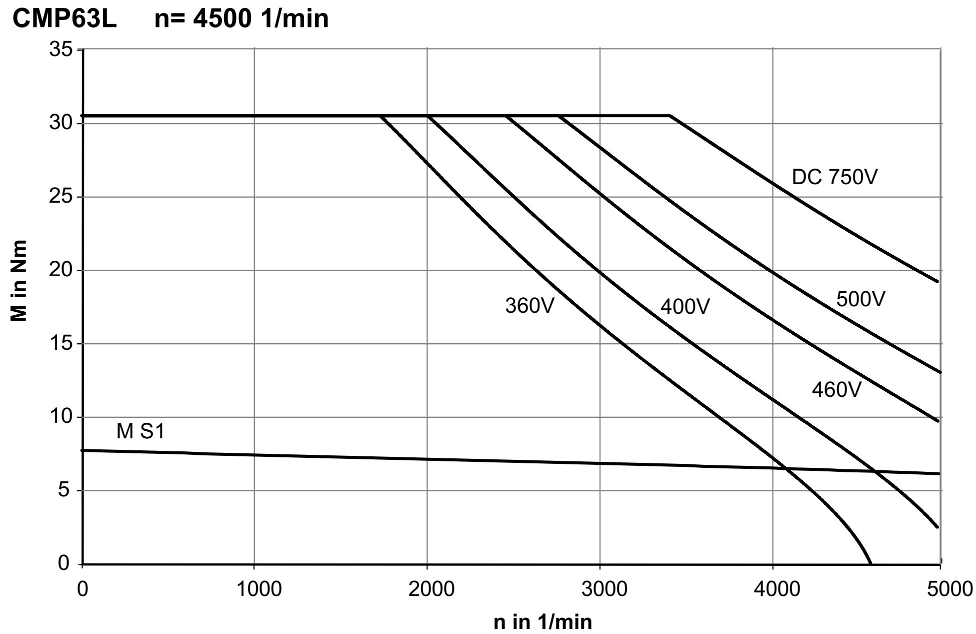

67584axx

### *Dynamic and thermal limit characteristic curve for CMP63L $n_N$ = 3000 rpm*



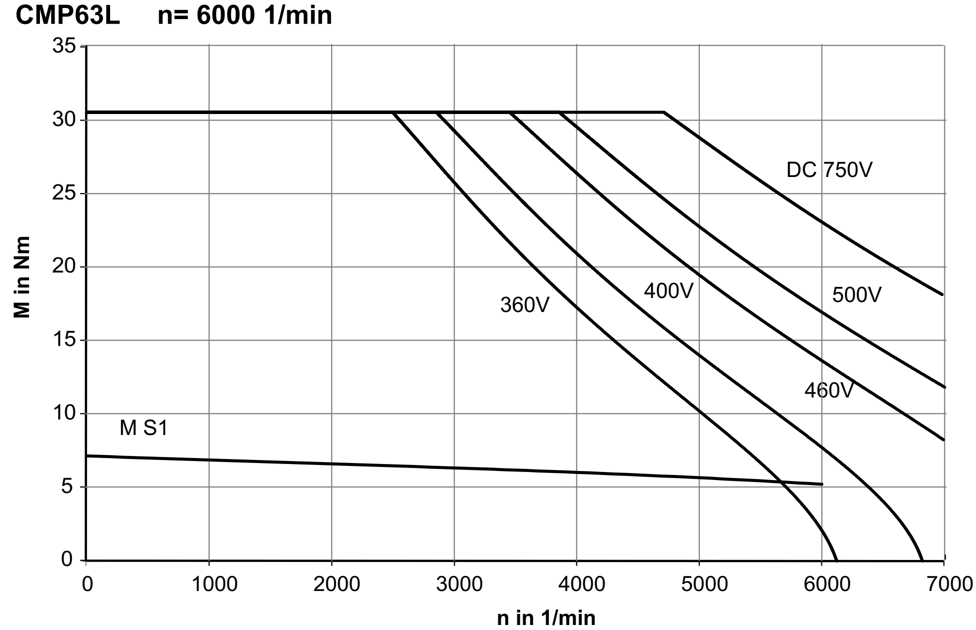

67579axx

### *Dynamic and thermal limit characteristic curve for CMP63L $n_N$ = 4500 rpm*




67580axx

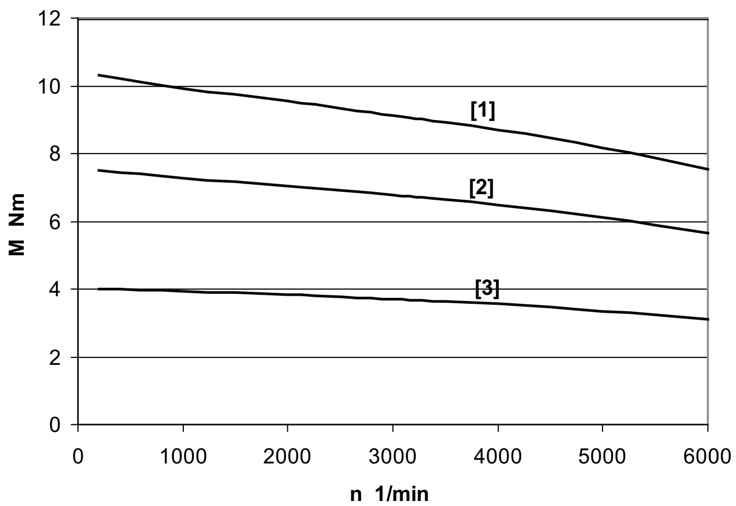
### *Dynamic and thermal limit characteristic curve for CMP63L $n_N$ = 6000 rpm*




67581axx

### *Thermal limit characteristic curve for CMP63 / VR*

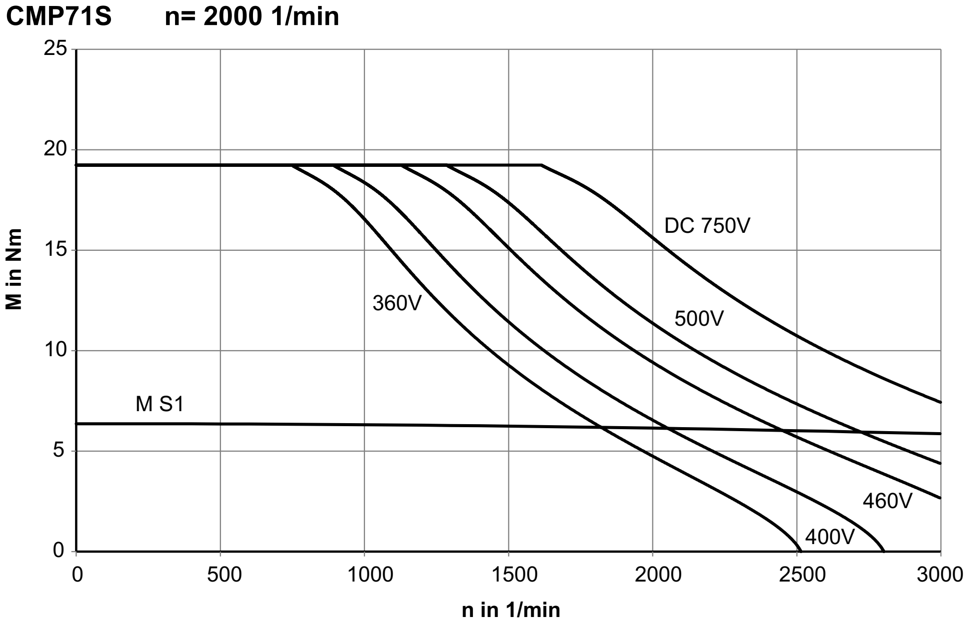
$\vartheta_A$ = -20 to +40 °C




58898axx

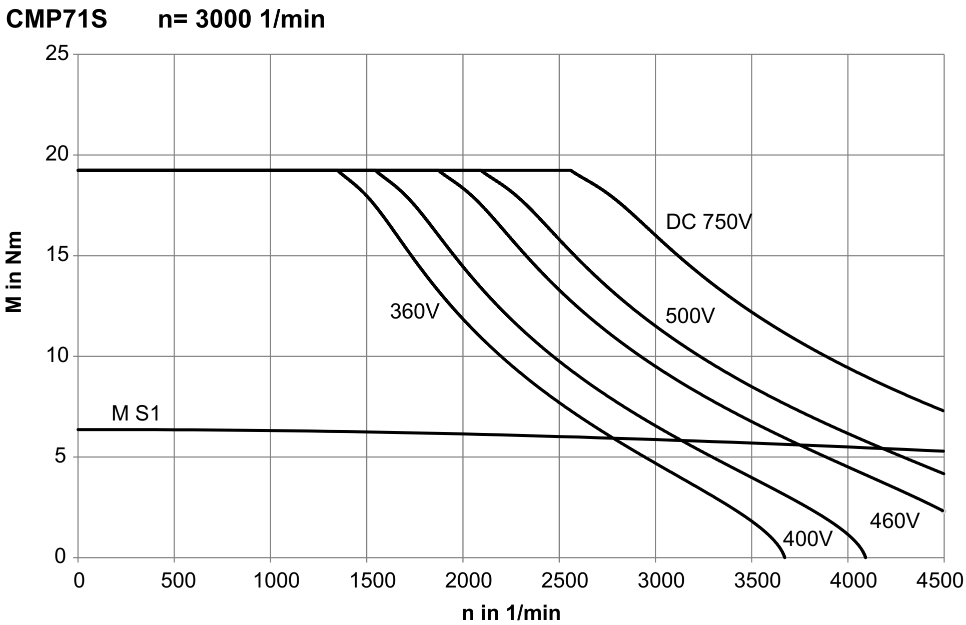
[1] CMP63L / VR
[2] CMP63M / VR
[3] CMP63S / VR

### Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 2000 rpm



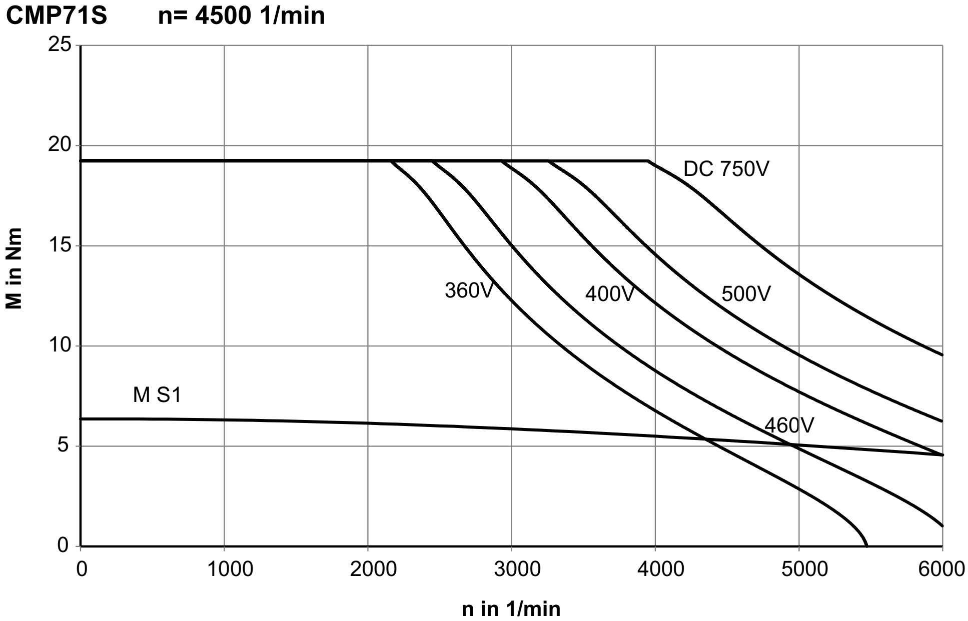

67542axx

### Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 3000 rpm



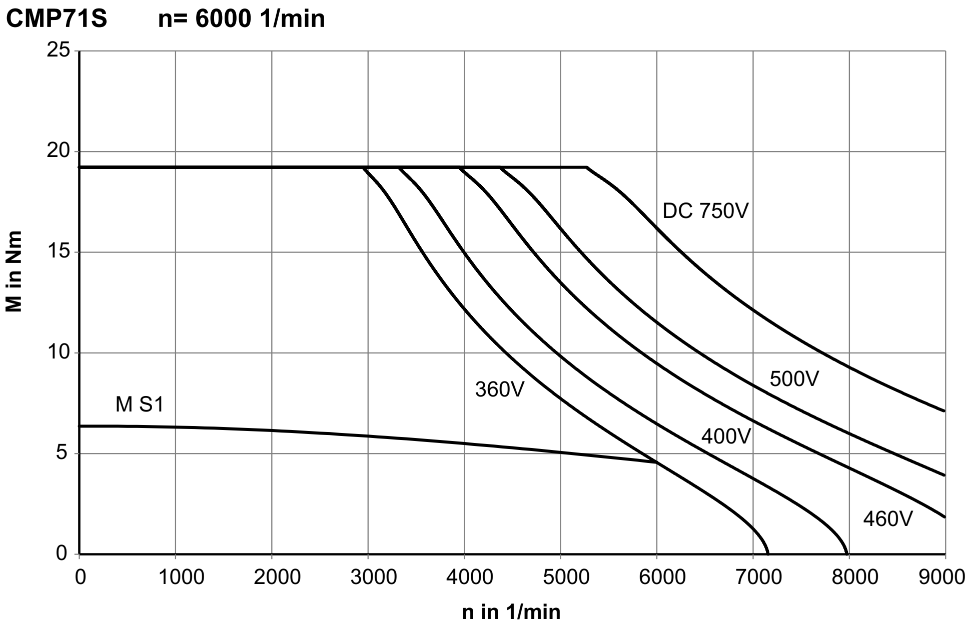

67543axx

### *Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 4500 rpm*



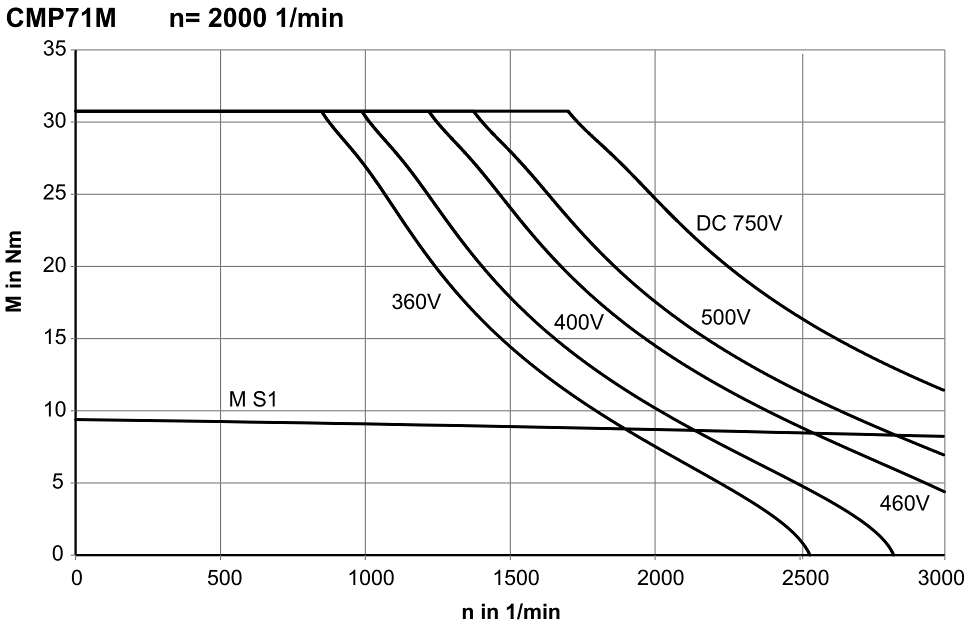

67544axx

### *Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 6000 rpm*



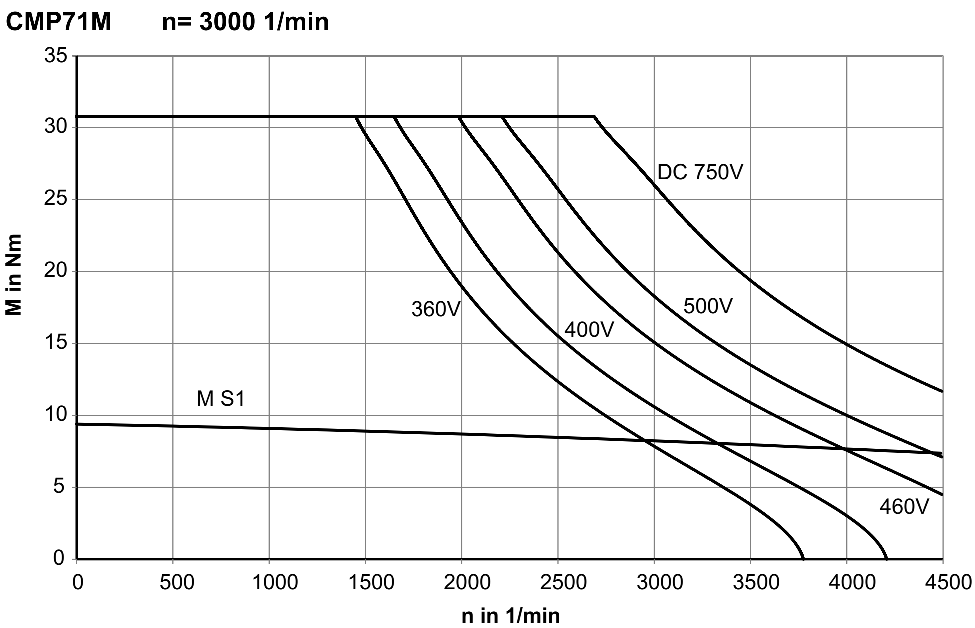

67545axx

### Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 2000 rpm



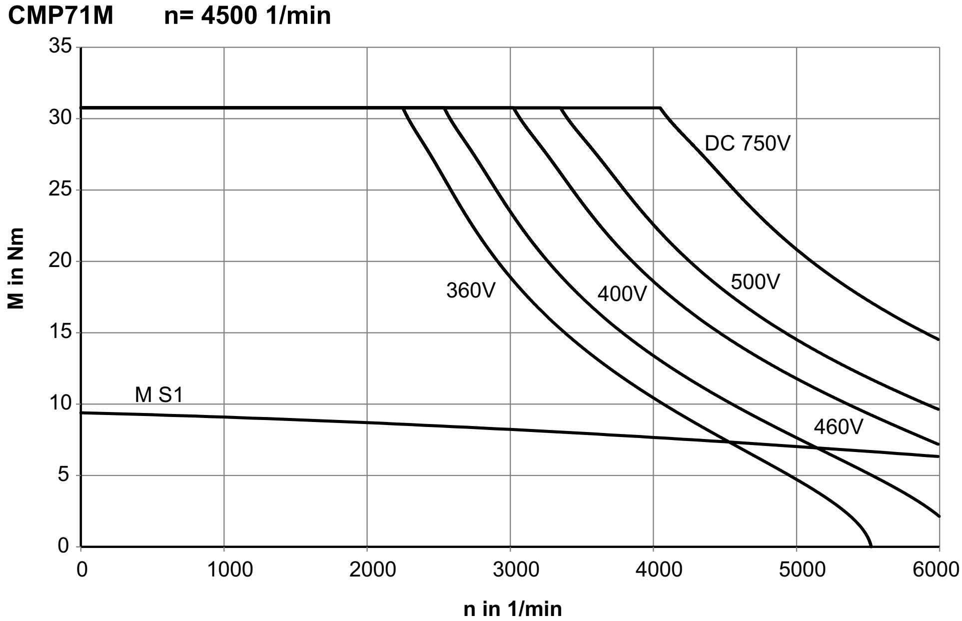

67538axx

### Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 3000 rpm



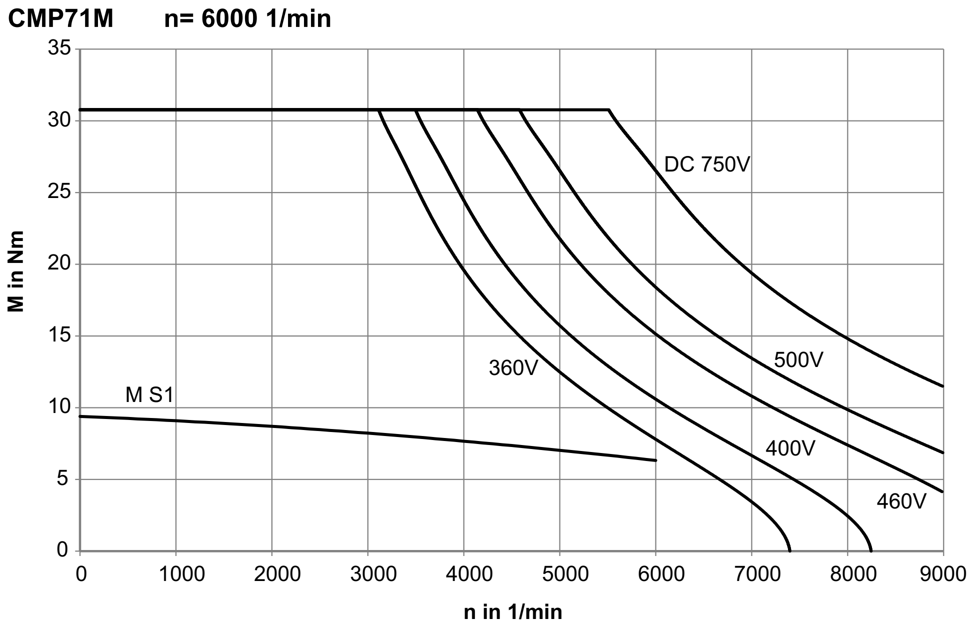

67539axx

### *Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 4500 rpm*



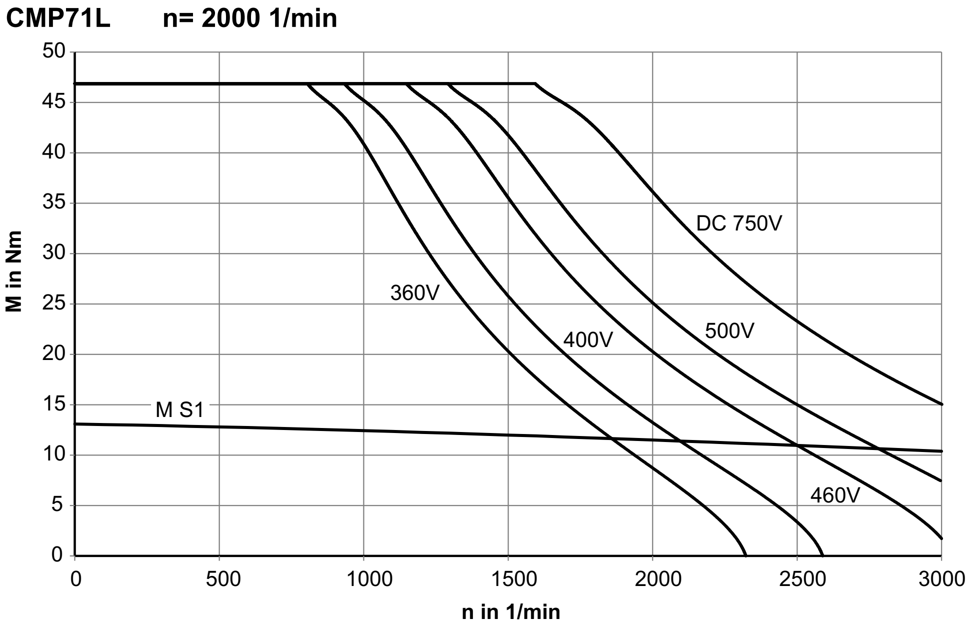

67540axx

### *Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 6000 rpm*



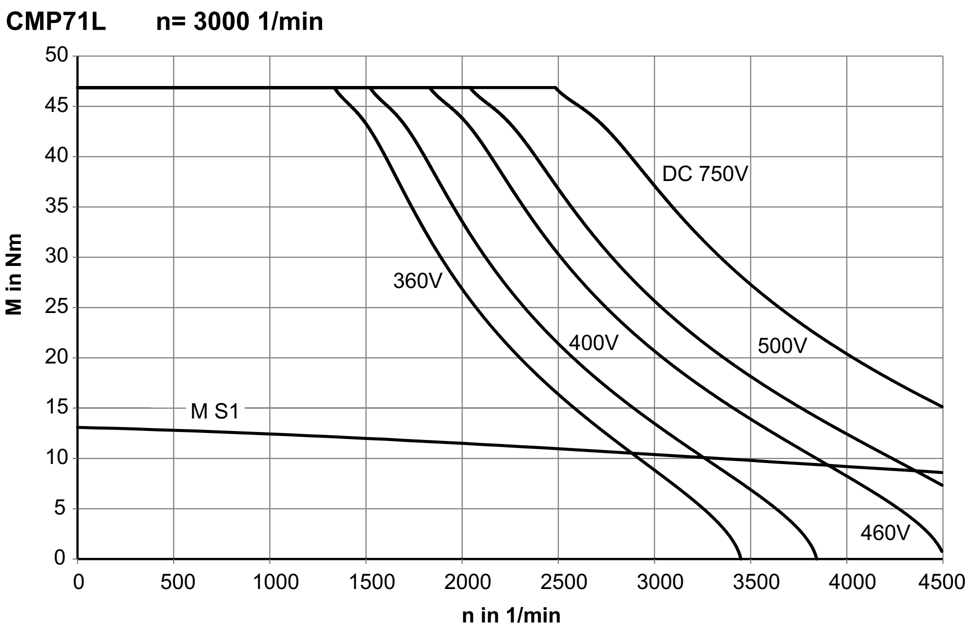

67541axx

### Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 2000 rpm



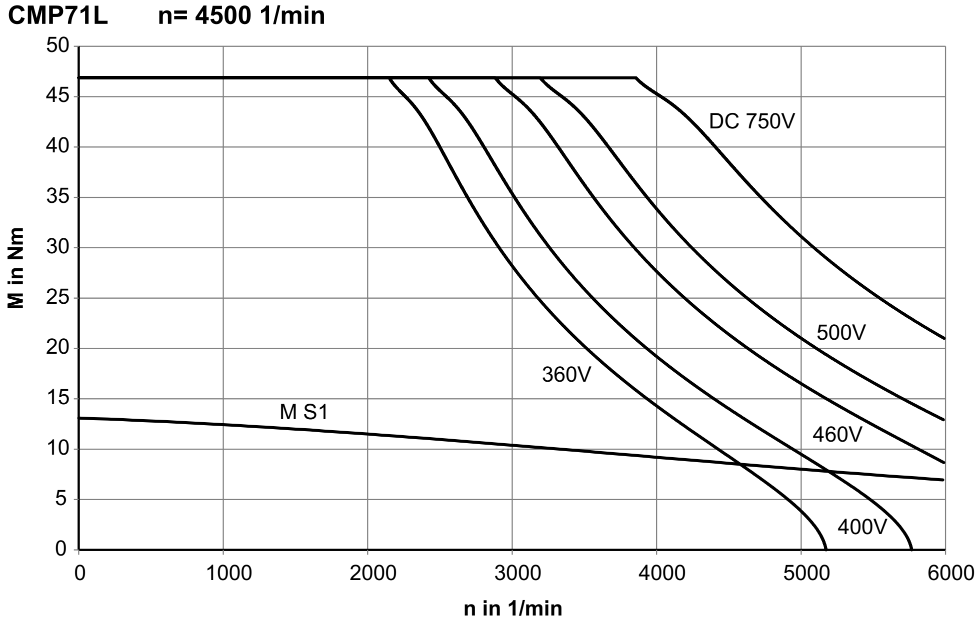

67534axx

### Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 3000 rpm



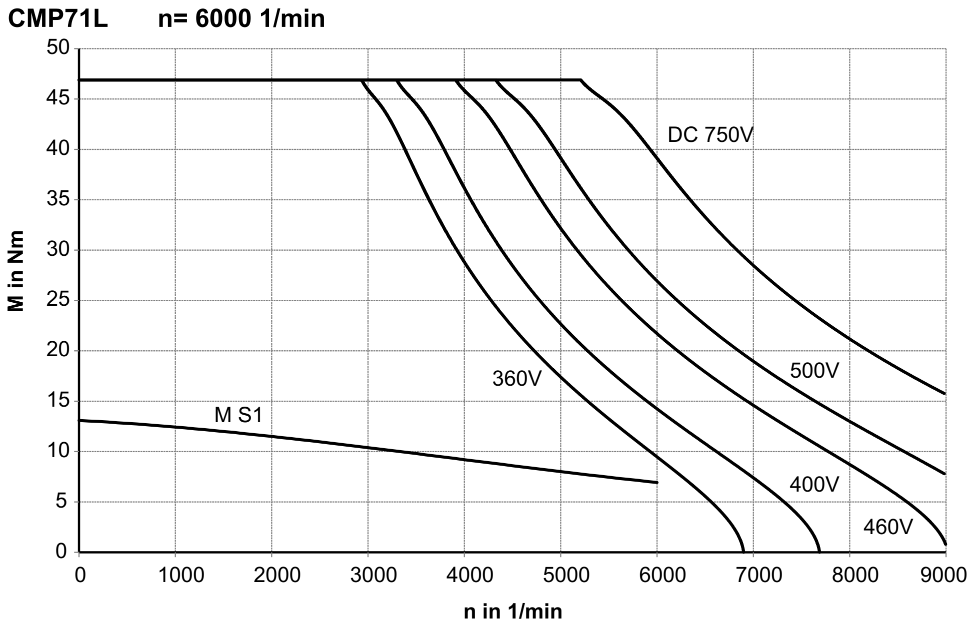

67535axx

### *Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 4500 rpm*




67536axx

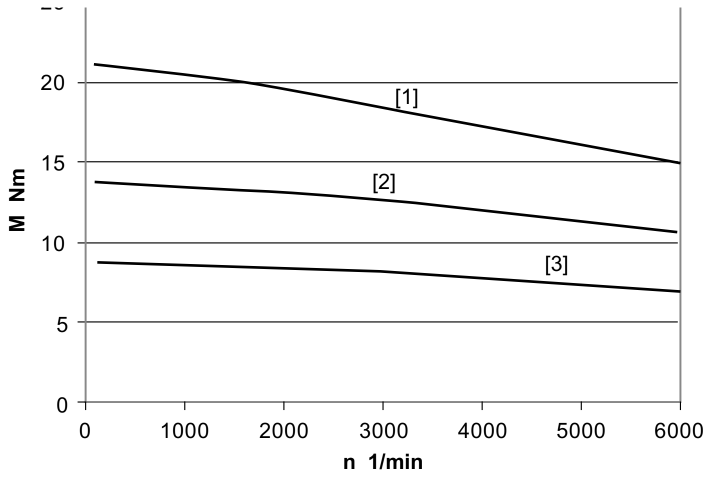
### *Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 6000 rpm*




67537axx

***Thermal limit characteristic curve for CMP.71 / VR***

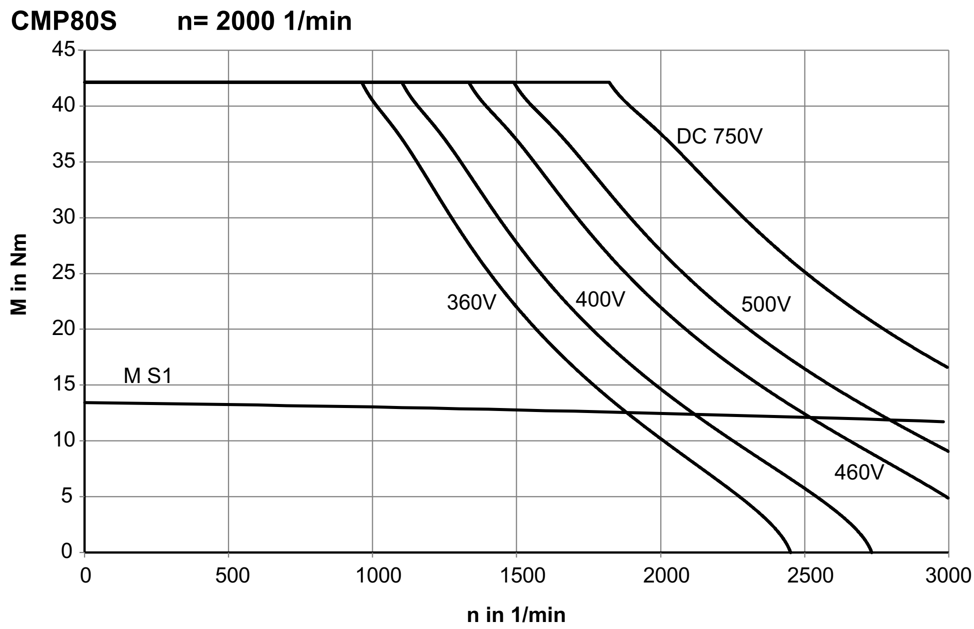
$\vartheta_A$ = -20 to +40 °C




65772axx

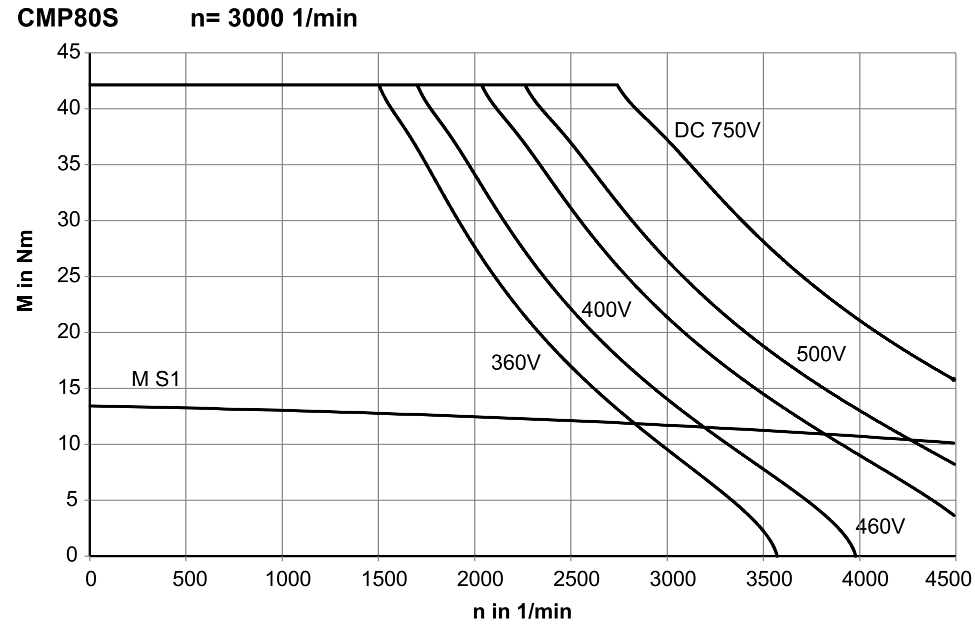
| | |
|---|---|
| [1] | CMP.71L / VR |
| [2] | CMP.71M / VR |
| [3] | CMP.71S / VR |

***Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 2000 rpm***



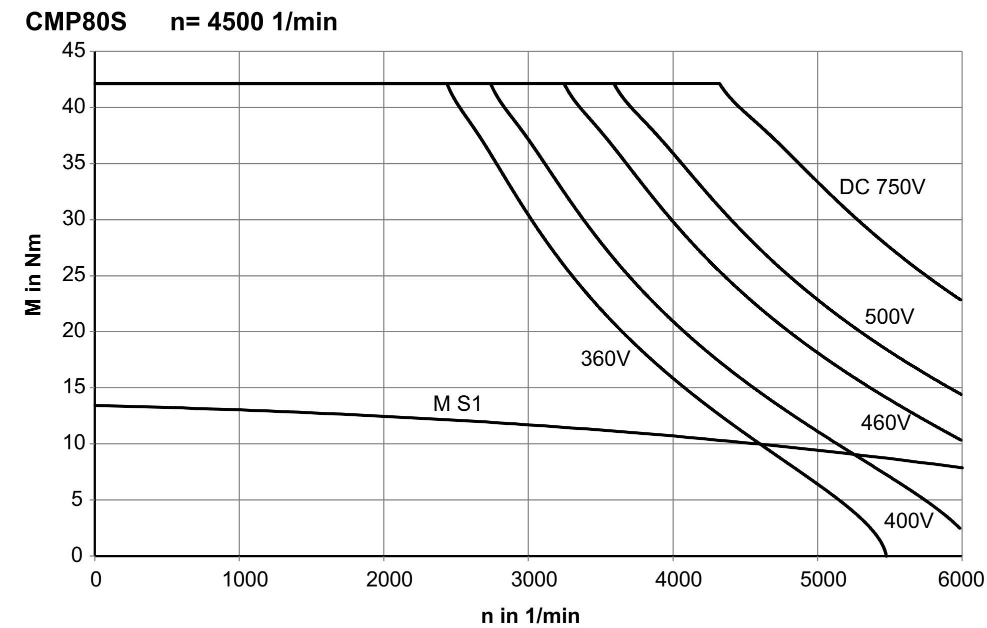

67554axx

### Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 3000 rpm



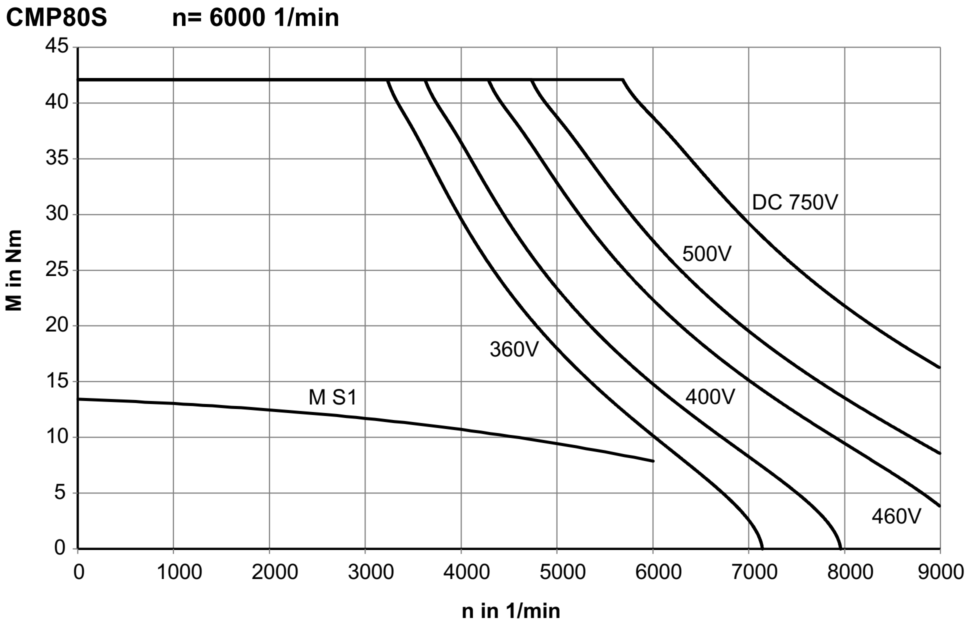

67555axx

### Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 4500 rpm



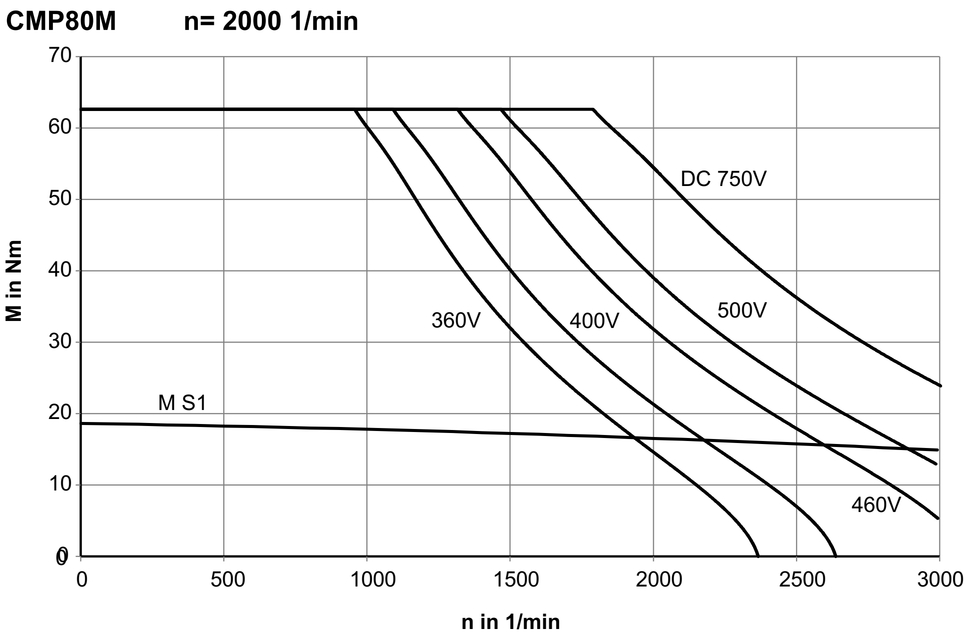

67556axx

### *Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 6000 rpm*



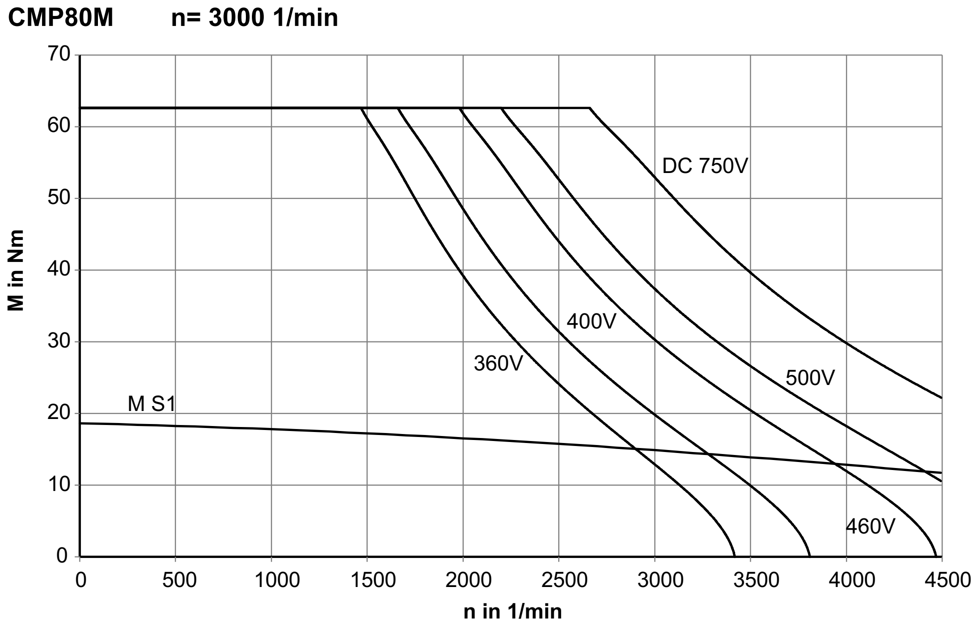

67557axx

### *Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 2000 rpm*



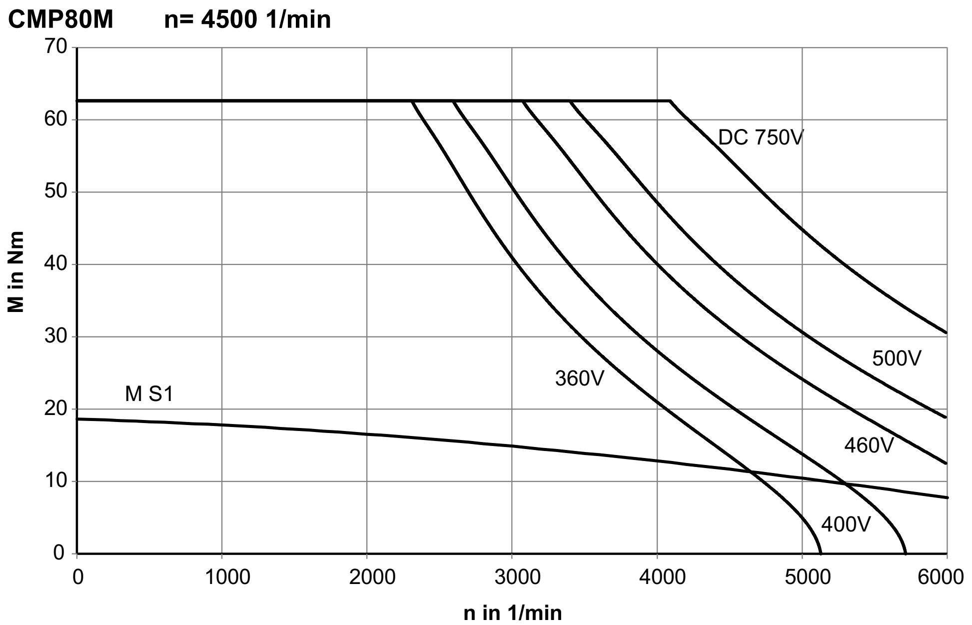

67550axx

### *Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 3000 rpm*



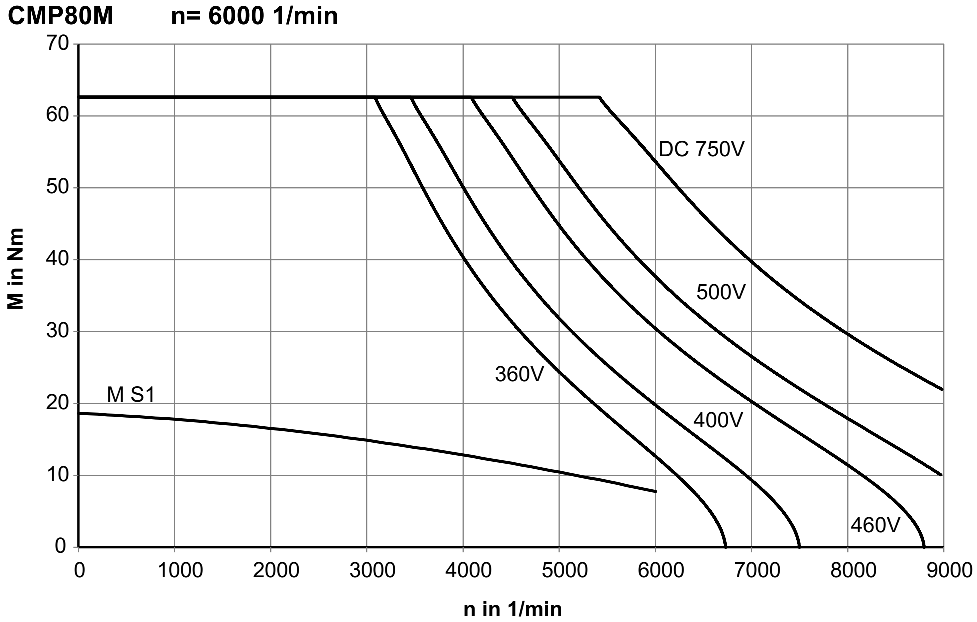

67551axx

### *Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 4500 rpm*



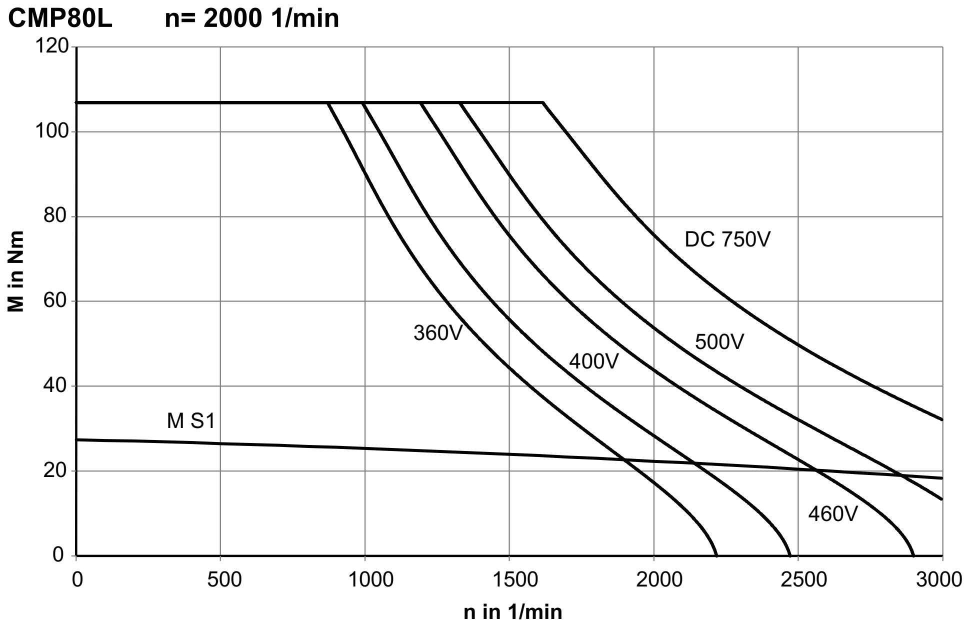

67552axx

***Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 6000 rpm***



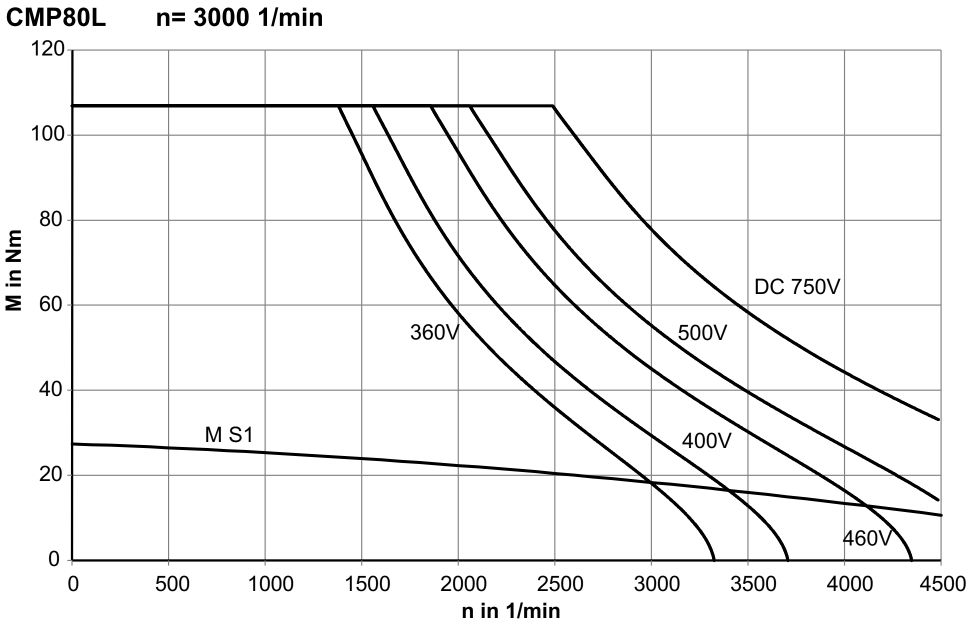

67553axx

***Dynamic and thermal limit characteristic curve for CMP.80L $n_N$ = 2000 rpm***



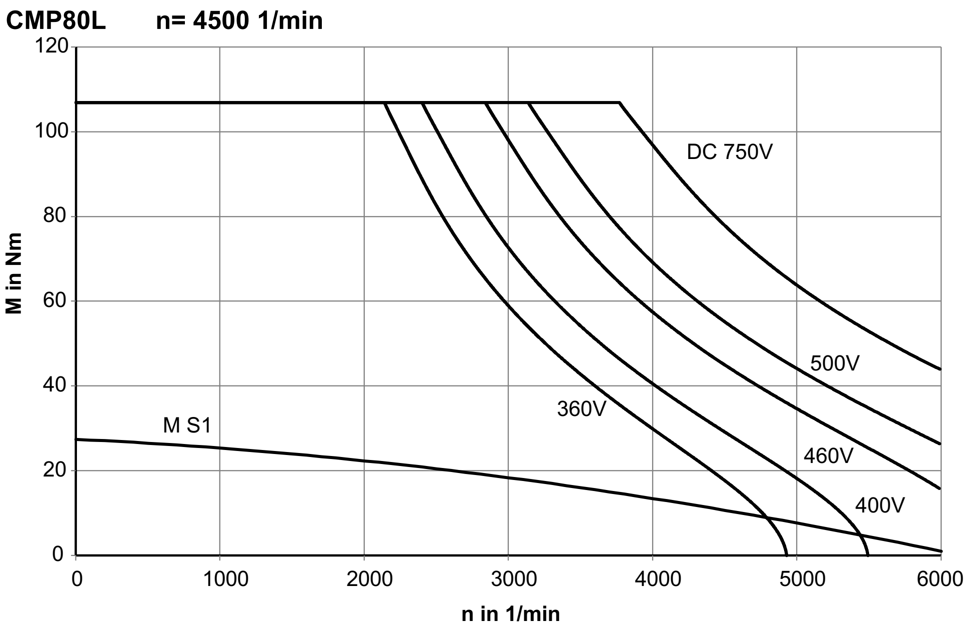

67546axx

### *Dynamic and thermal limit characteristic curve for CMP.80L $n_N$ = 3000 rpm*




67547axx

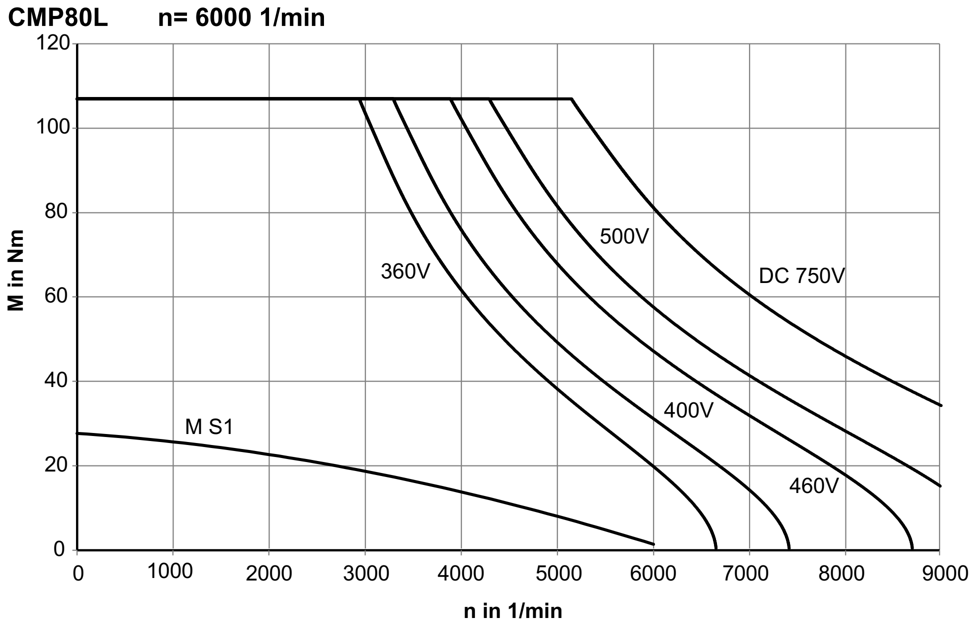
### *Dynamic and thermal limit characteristic curve for CMP.80L $n_N$ = 4500 rpm*




67548axx

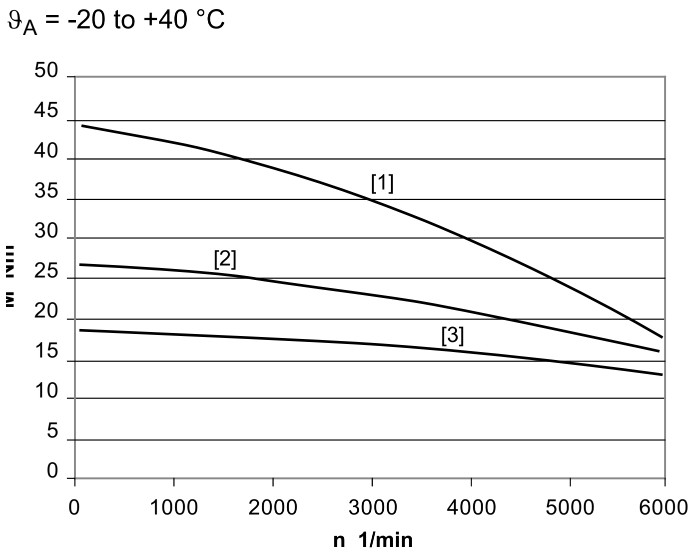
| | | | |
|---|---|---|---|
| [1] | M $S1_{thermal}$ (derating) | [4] | 460 V line voltage, non-controlled |
| [2] | DC 750 V direct voltage, controlled | [5] | 400 V line voltage, non-controlled |
| [3] | 500 V line voltage, non-controlled | [6] | 360 V line voltage, non-controlled |

### *Dynamic and thermal limit characteristic curve for CMP.80L $n_N$ = 6000 rpm*




67549axx

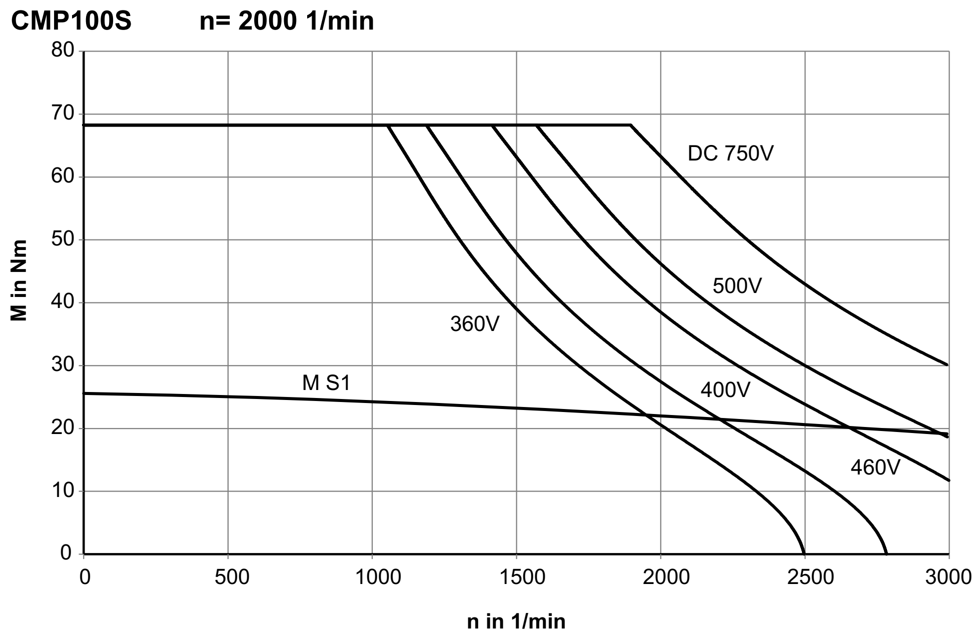
### *Thermal limit characteristic curve for CMP.80 / VR*




65773axx

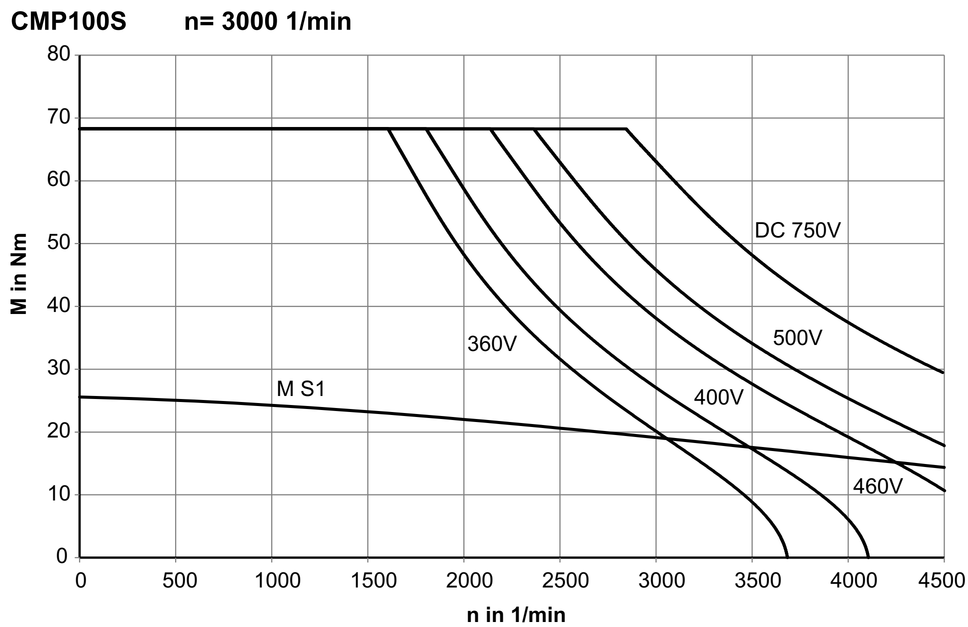
[1] CMP.80L / VR
[2] CMP.80M / VR
[3] CMP.80S / VR

### *Dynamic and thermal limit characteristic curve for CMP.100S $n_N$ = 2000 rpm*



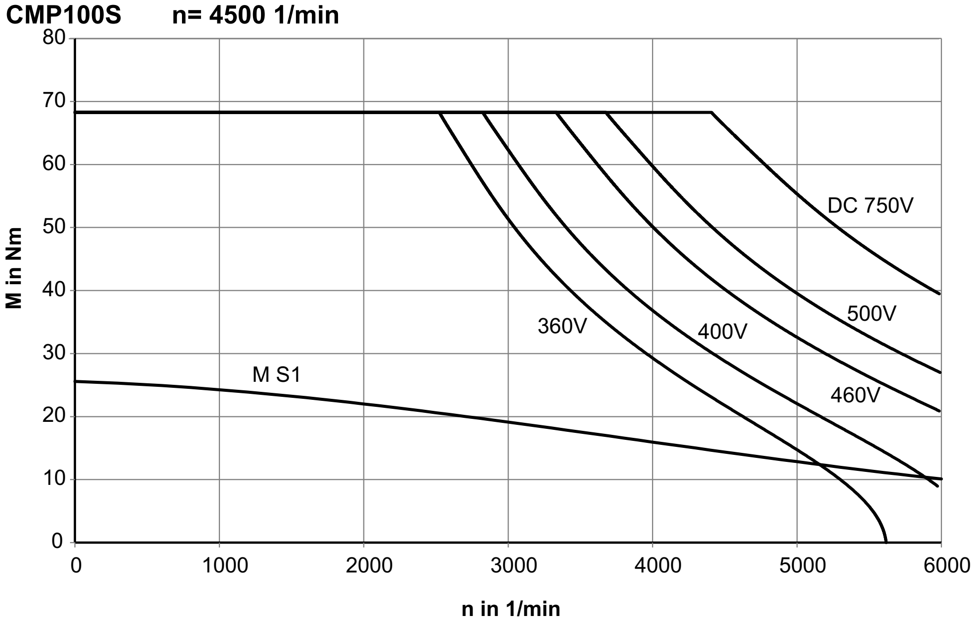

67564axx

### *Dynamic and thermal limit characteristic curve for CMP.100S $n_N$ = 3000 rpm*



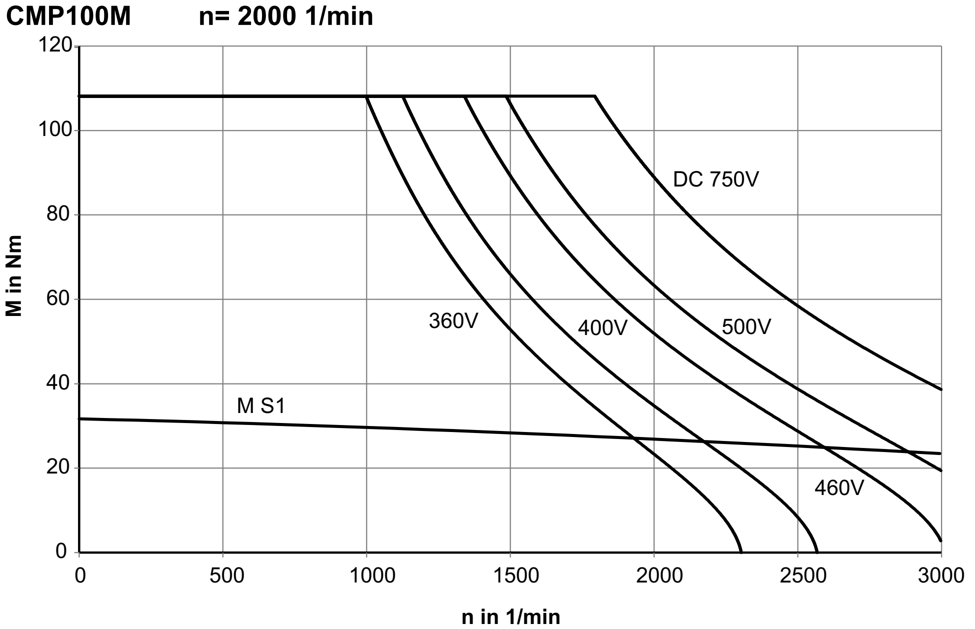

67565axx

### *Dynamic and thermal limit characteristic curve for CMP.100S $n_N$ = 4500 rpm*



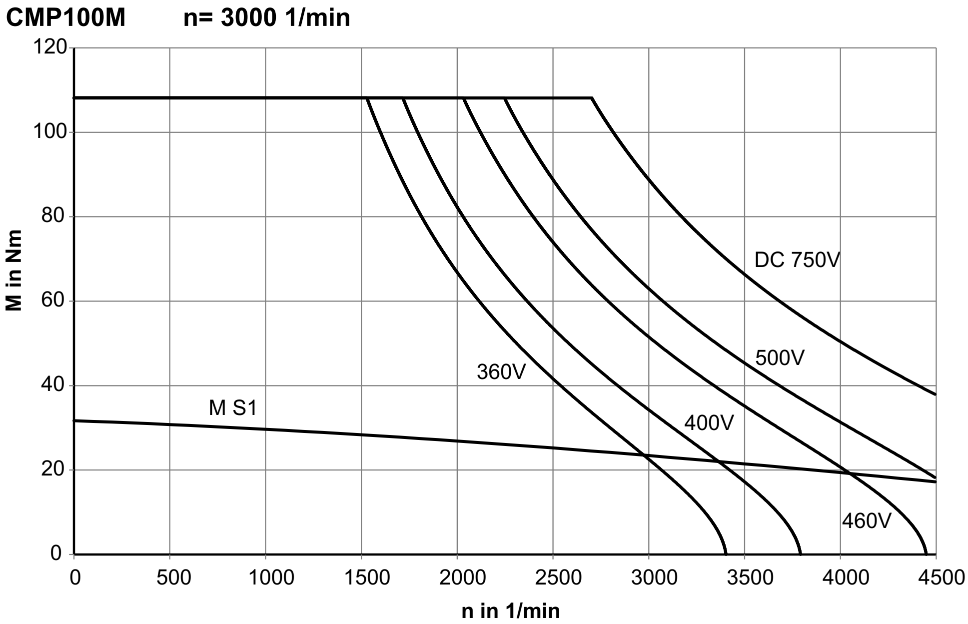

67566axx

### *Dynamic and thermal limit characteristic curve for CMP.100M $n_N$ = 2000 rpm*



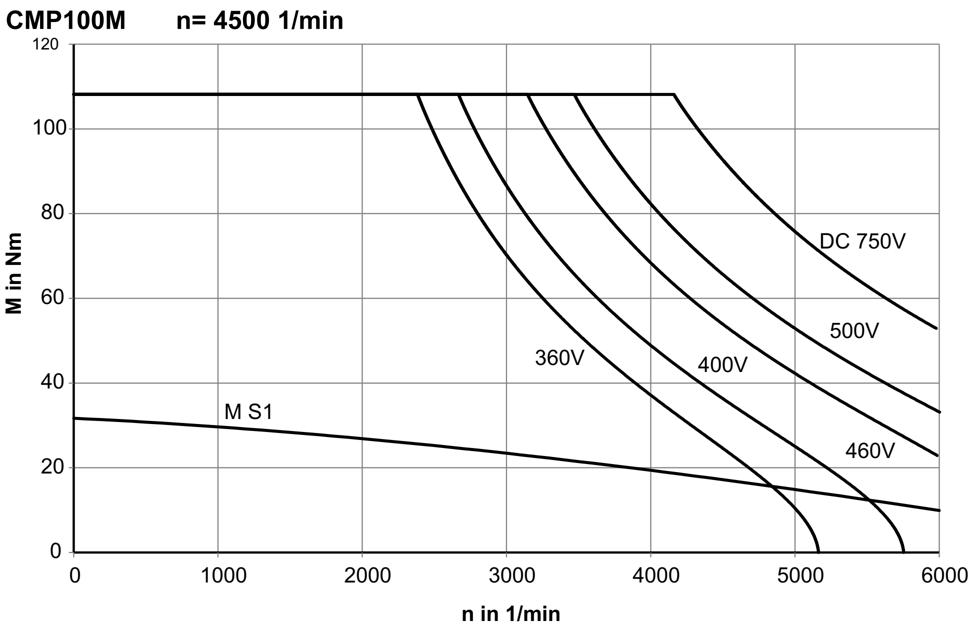

67561axx

### *Dynamic and thermal limit characteristic curve for CMP.100M $n_N$ = 3000 rpm*



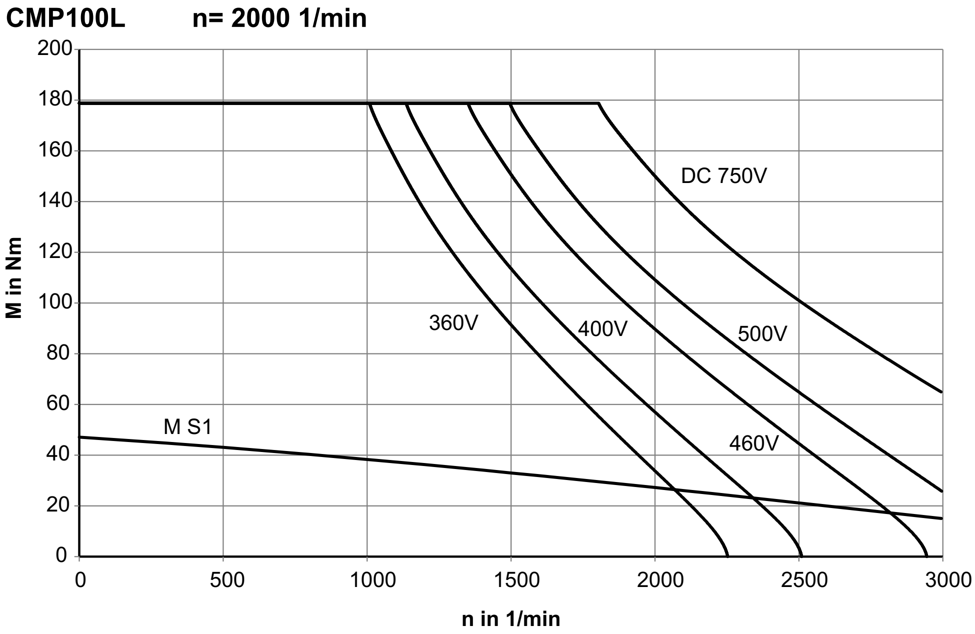

67562axx

### *Dynamic and thermal limit characteristic curve for CMP.100M $n_N$ = 4500 rpm*



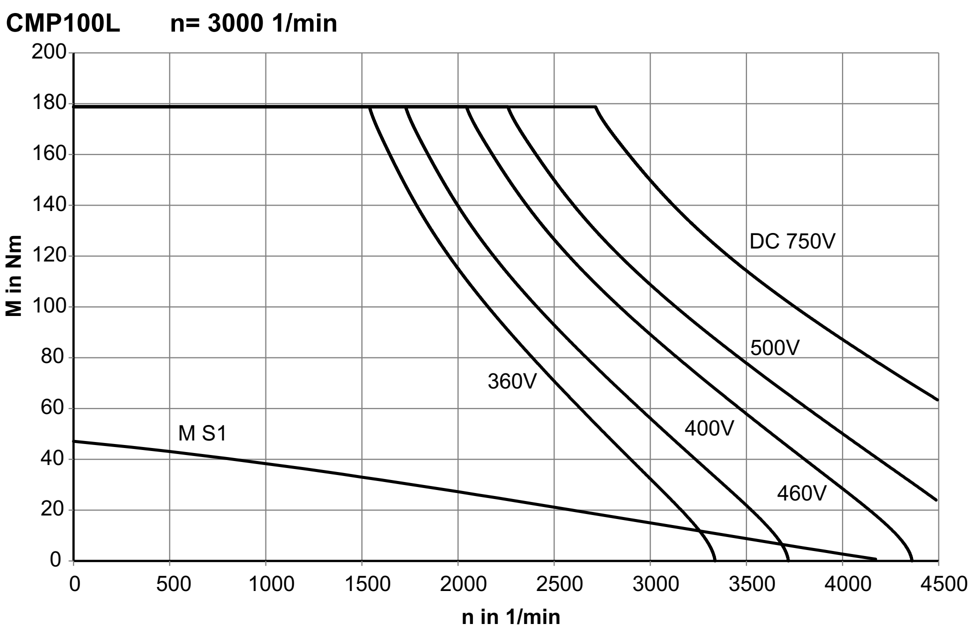

67563axx

### *Dynamic and thermal limit characteristic curve for CMP.100L $n_N$ = 2000 rpm*



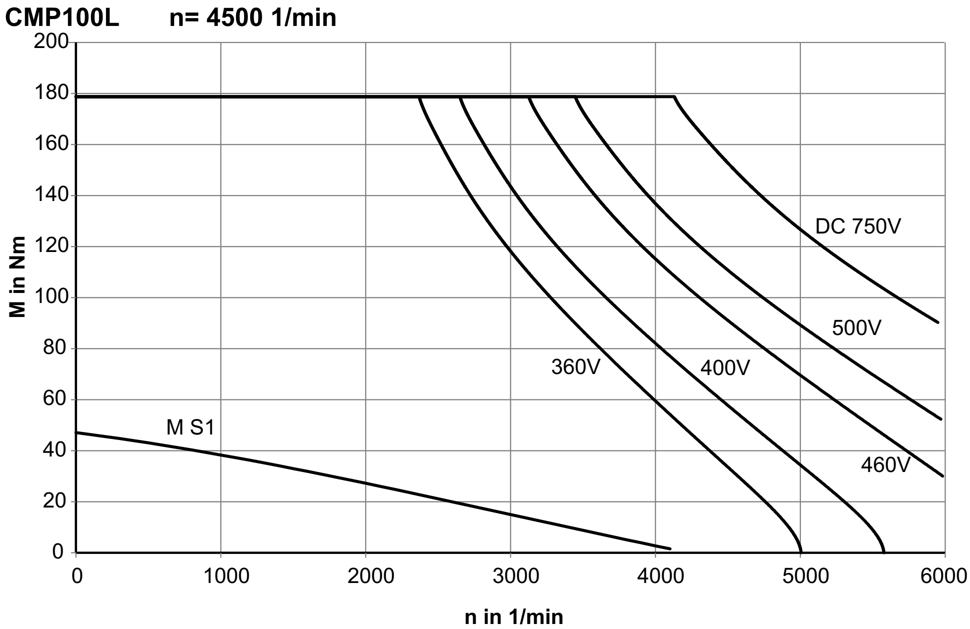

67558axx

### *Dynamic and thermal limit characteristic curve for CMP.100L $n_N$ = 3000 rpm*




67559axx

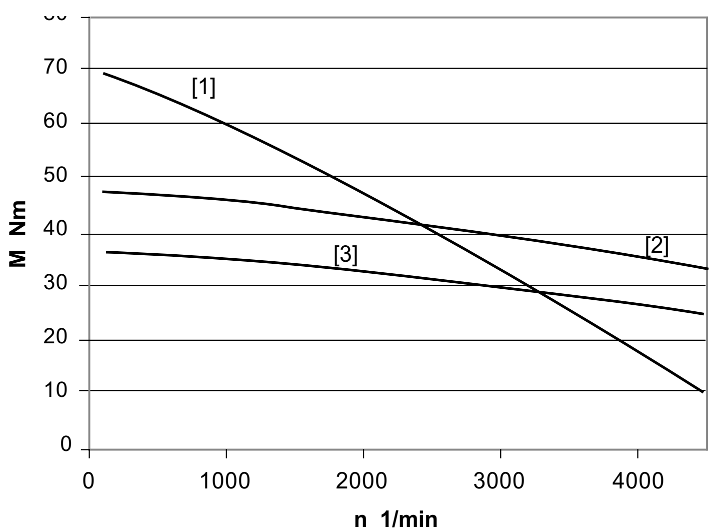
### *Dynamic and thermal limit characteristic curve for CMP.100L $n_N$ = 4500 rpm*




67560axx

### *Thermal limit characteristic curve for CMP.100 / VR*

$\vartheta_A$ = -20 to +40 °C




65774axx

| | |
|---|---|
| [1] | CMP.100L / VR |
| [2] | CMP.100M / VR |
| [3] | CMP.100S / VR |

## 6.14 Dynamic and thermal characteristic curves for 230 V system voltage

Definition:

- M = dynamic maximum torque at a maximum line voltage on the inverter of 230 V.
- M S1 (derating) = thermal limit characteristic curve in S1 - 100% operation,

**INFORMATION**

For the available maximum torque, refer to the combination overview "CMP with MOVIDRIVE®" on page 71.

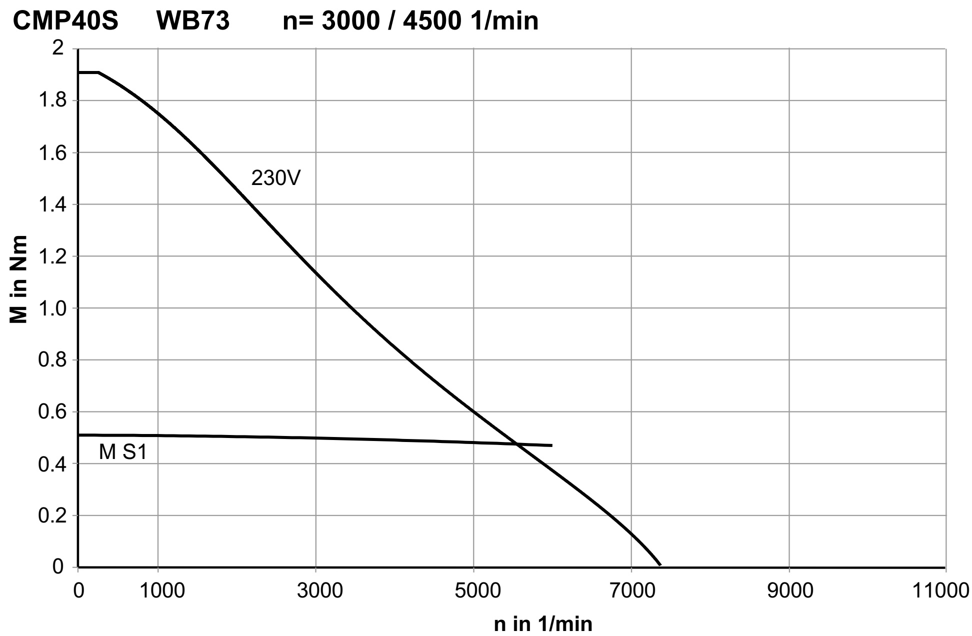
**INFORMATION**

The following characteristic curves apply to CMP and CMPZ motors.

***Key***

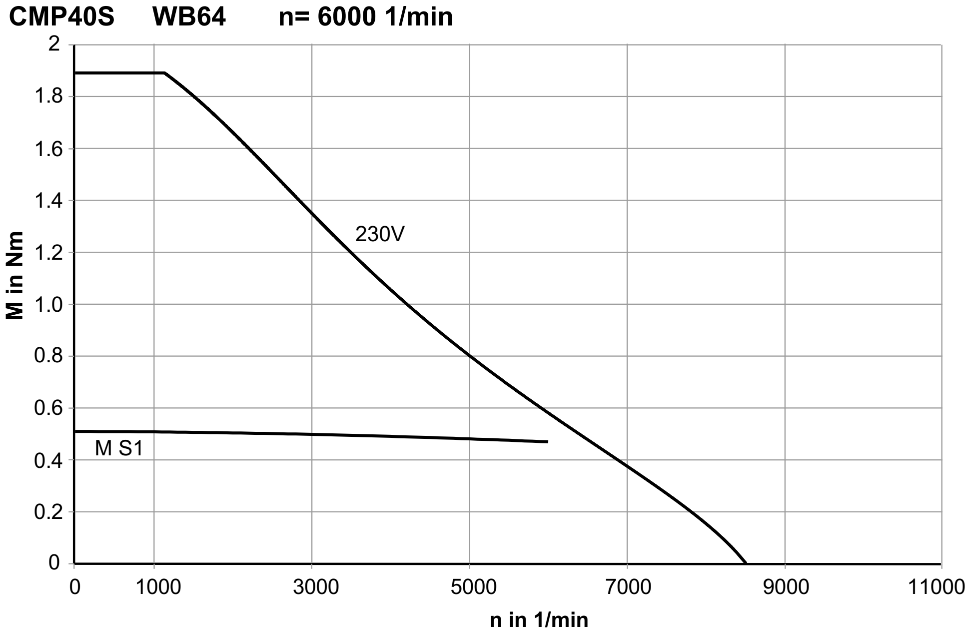
| | |
|---|---|
| M S1 | M $S1_{thermal}$ (derating) |
| 230 V | 230 V line voltage, non-controlled |

***Dynamic and thermal limit characteristic curve for CMP40S $n_N$ = 3000, 4500 rpm***



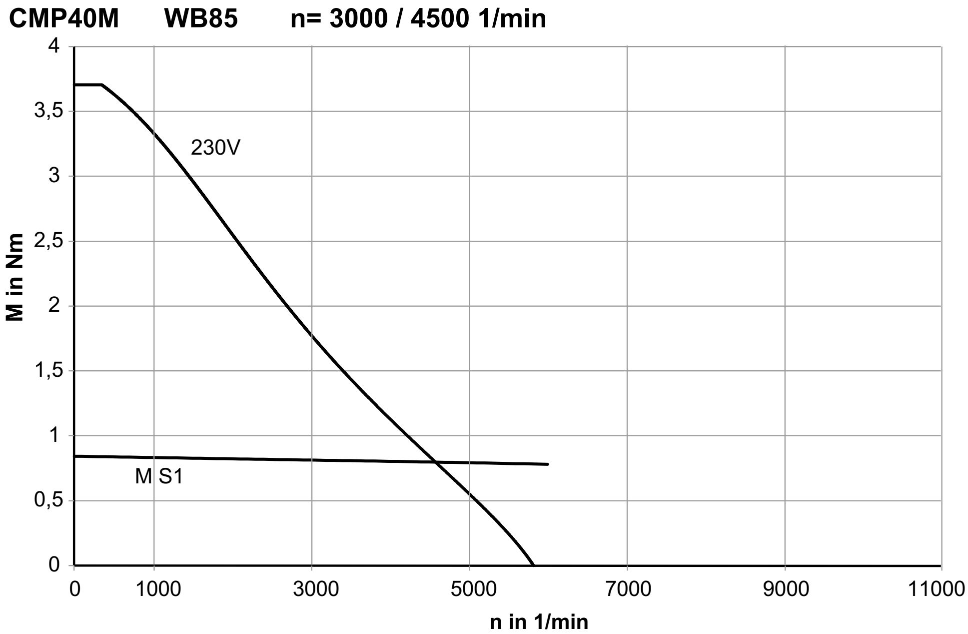

68749axx

### *Dynamic and thermal limit characteristic curve for CMP40S $n_N$ = 6000 rpm*



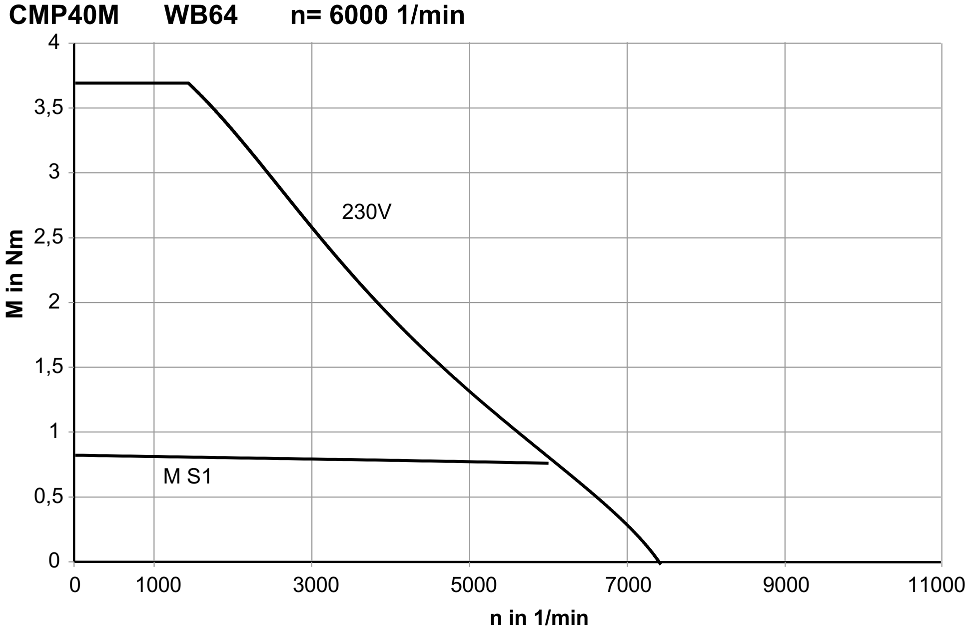

68728axx

### *Dynamic and thermal limit characteristic curve for CMP40M $n_N$ = 3000 / 4500 rpm*



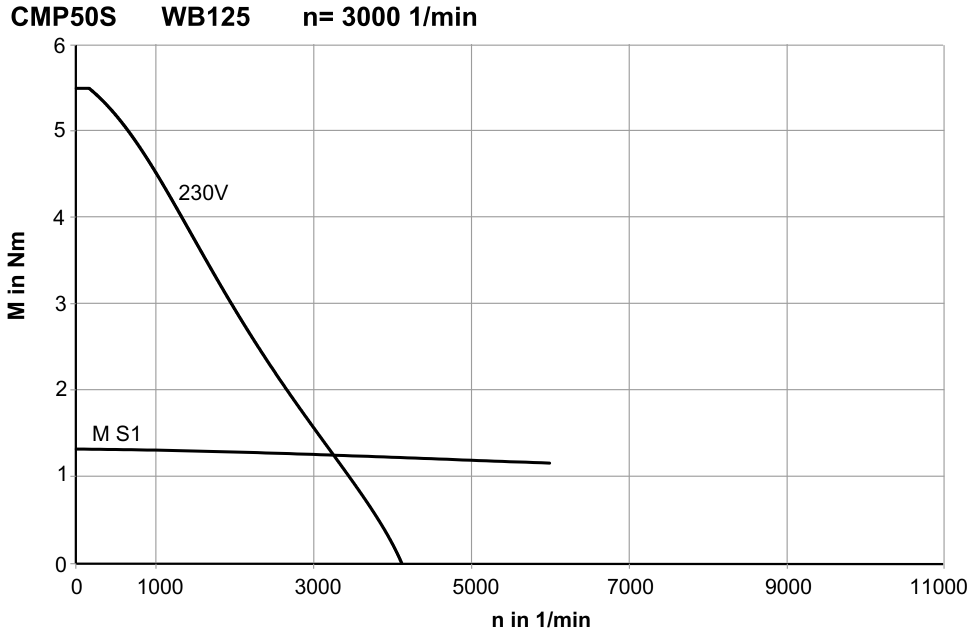

68726axx

### *Dynamic and thermal limit characteristic curve for CMP40M $n_N$ = 6000 rpm*



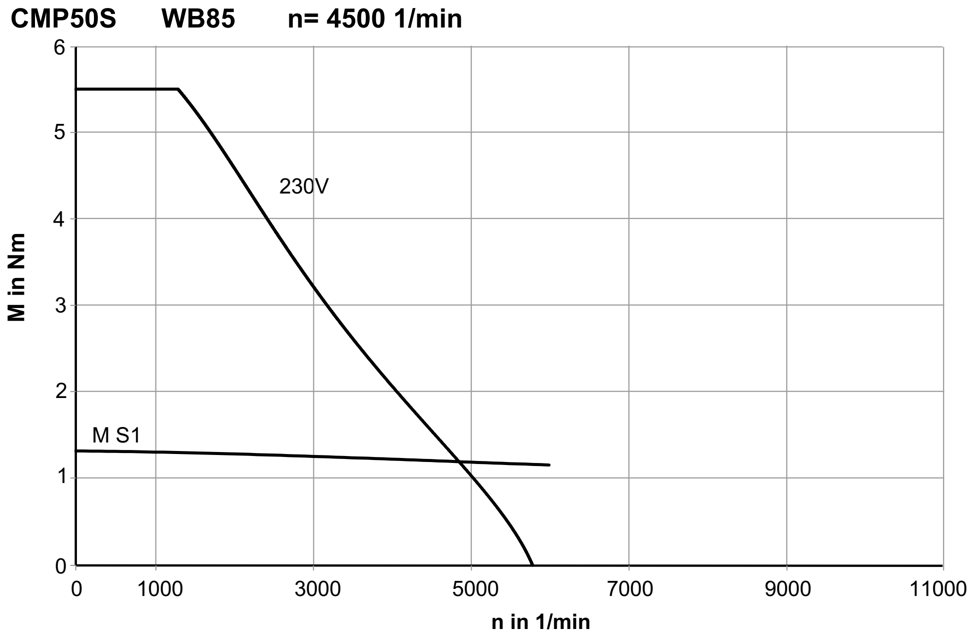

68727axx

### *Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 3000 rpm*



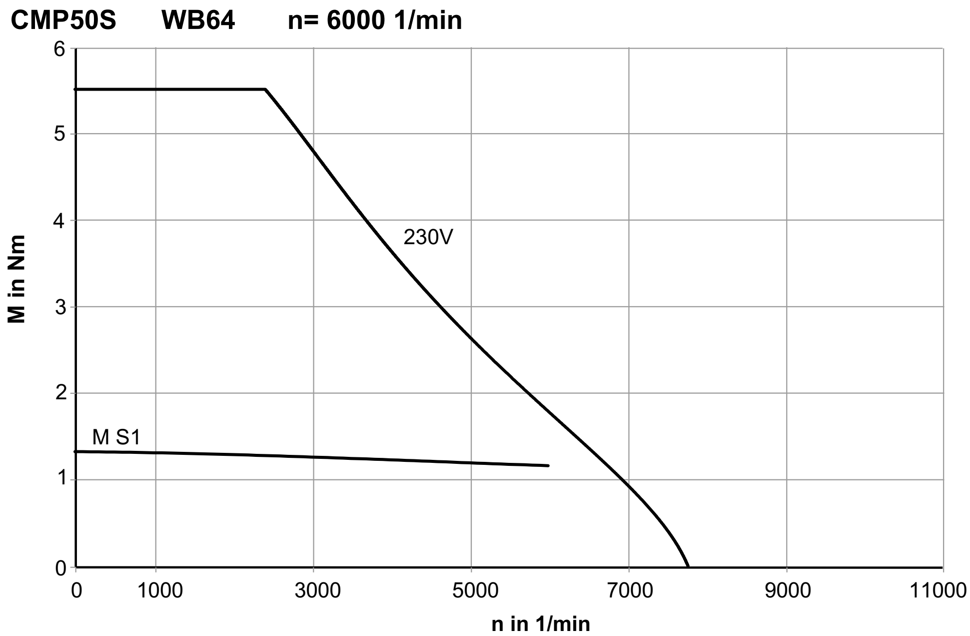

68735axx

### Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 4500 rpm



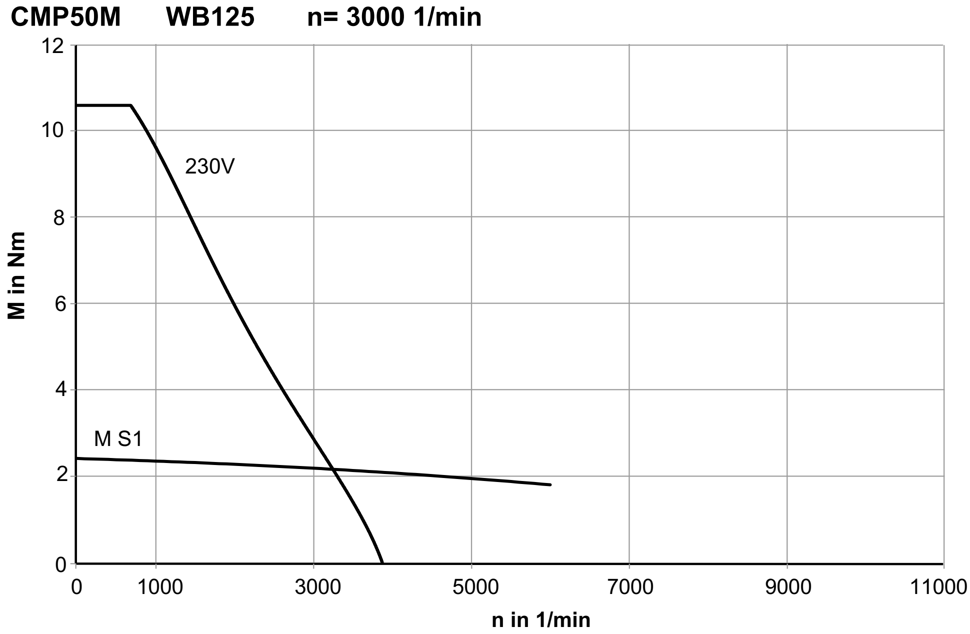

68736axx

### Dynamic and thermal limit characteristic curve for CMP50S $n_N$ = 6000 rpm



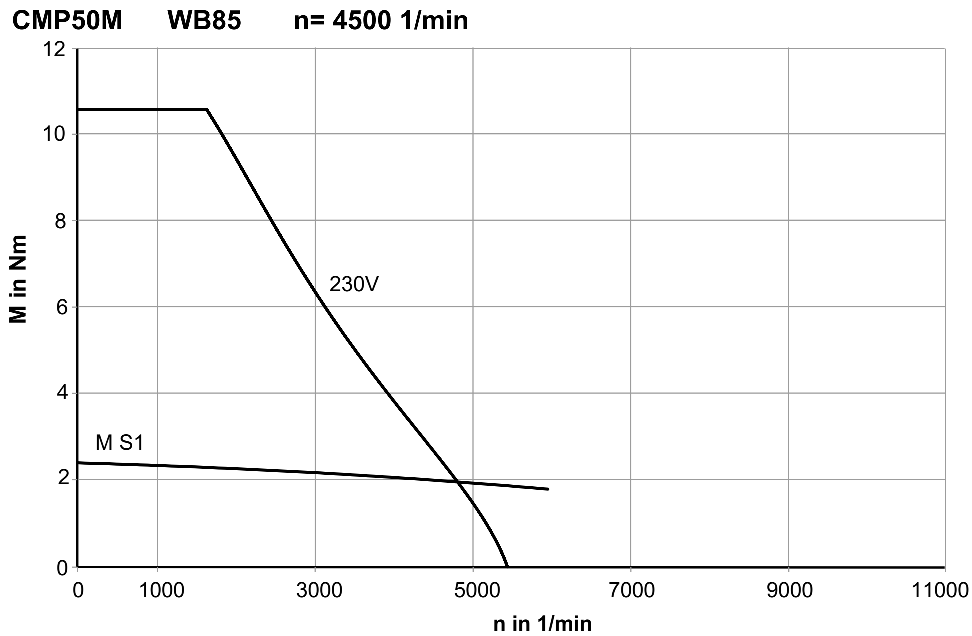

68737axx

*Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 3000 rpm*



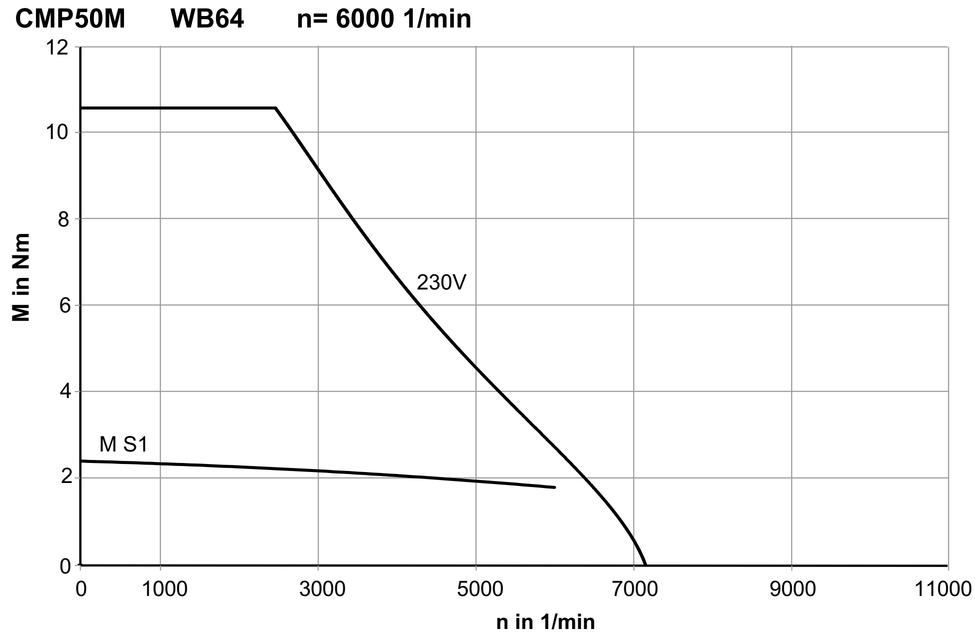

68732axx

*Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 4500 rpm*



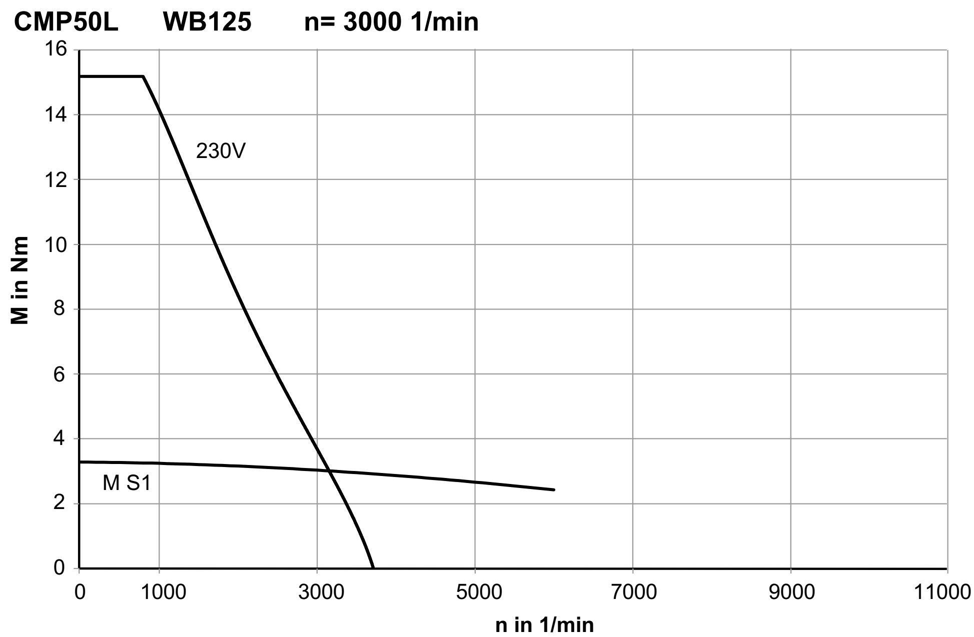

68733axx

*Dynamic and thermal limit characteristic curve for CMP50M $n_N$ = 6000 rpm*



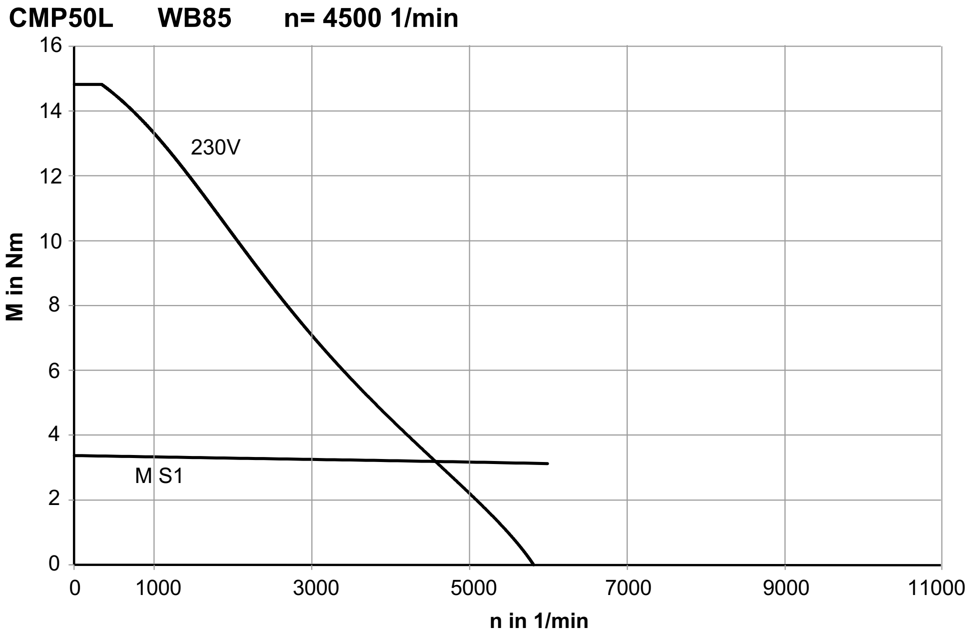

68734axx

*Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 3000 rpm*



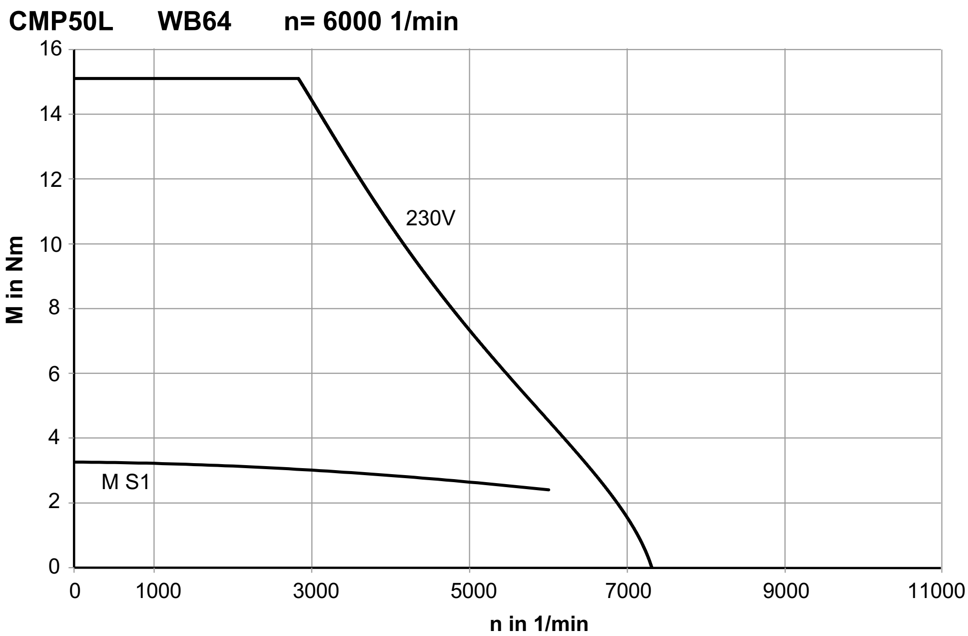

68729axx

### Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 4500 rpm



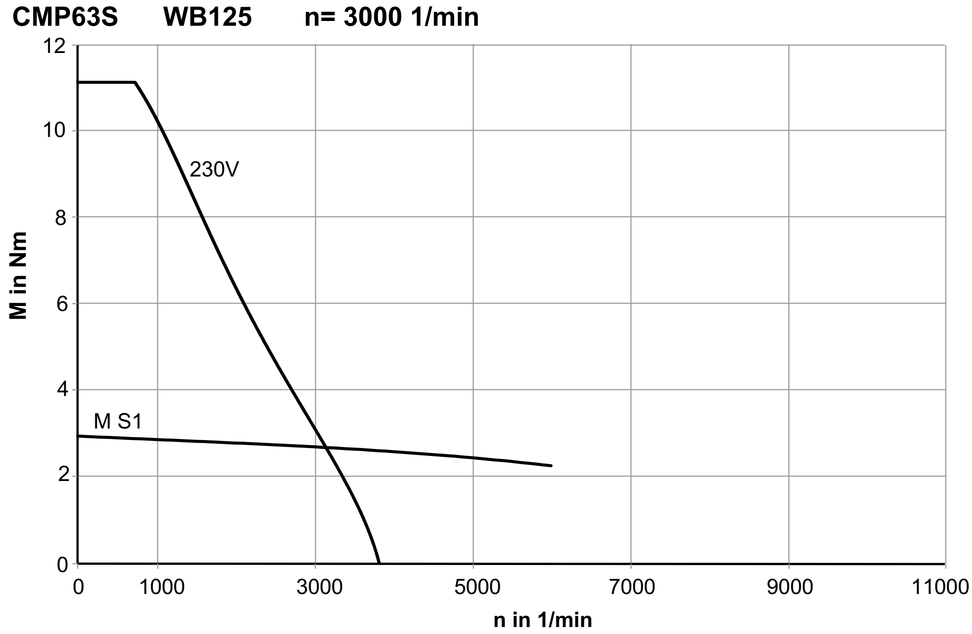

68730axx

### Dynamic and thermal limit characteristic curve for CMP50L $n_N$ = 6000 rpm




68731axx

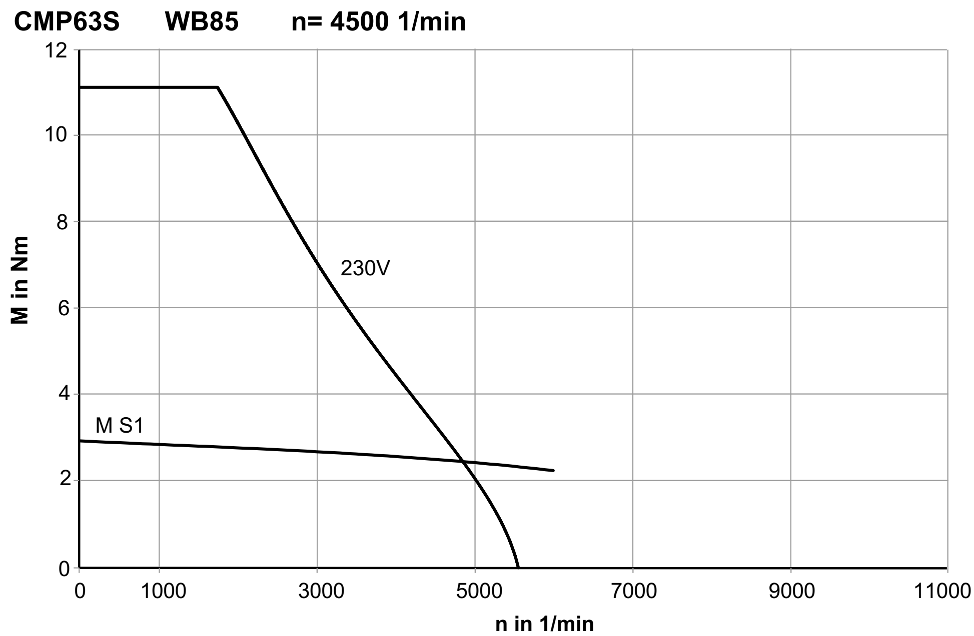
### *Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 3000 rpm*




68743axx

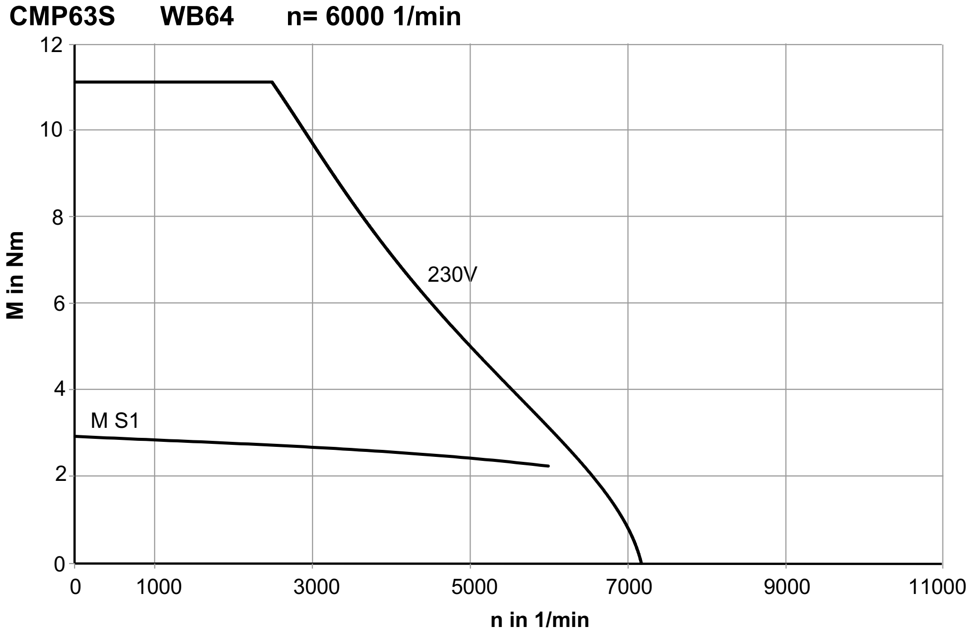


### *Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 4500 rpm*



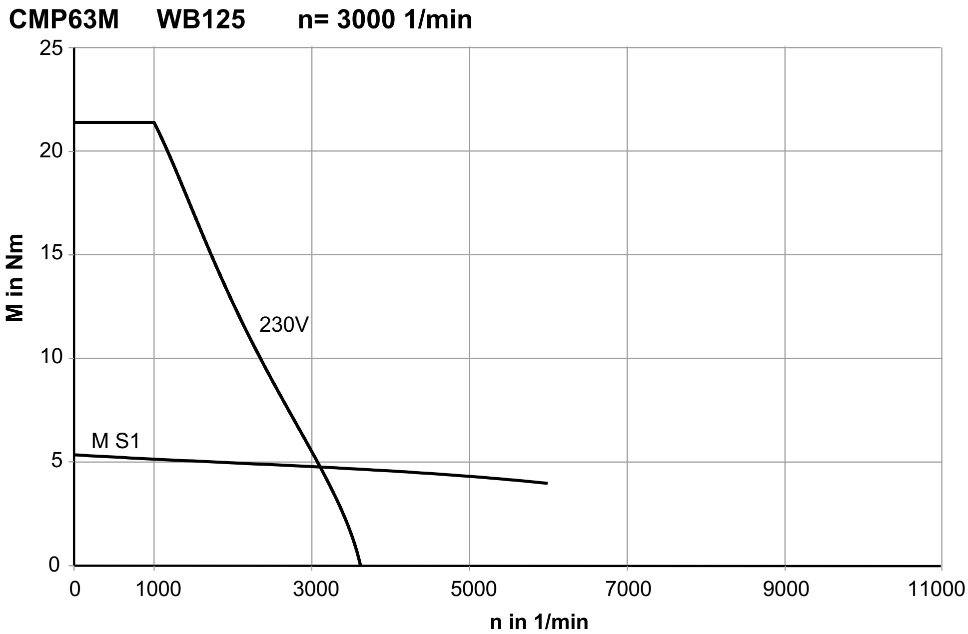

68744axx

### *Dynamic and thermal limit characteristic curve for CMP63S $n_N$ = 6000 rpm*



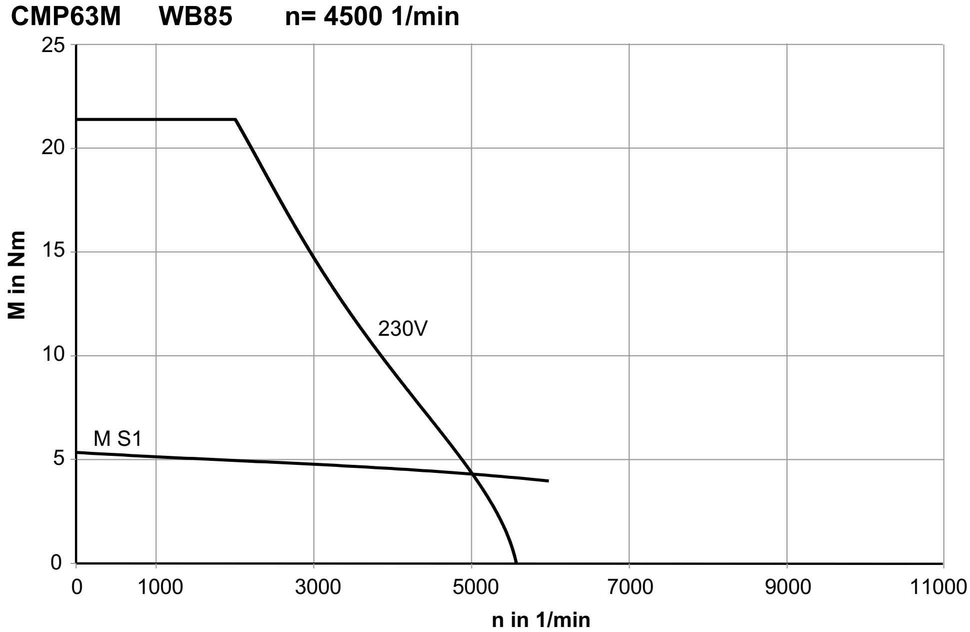

68745axx

### *Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 3000 rpm*



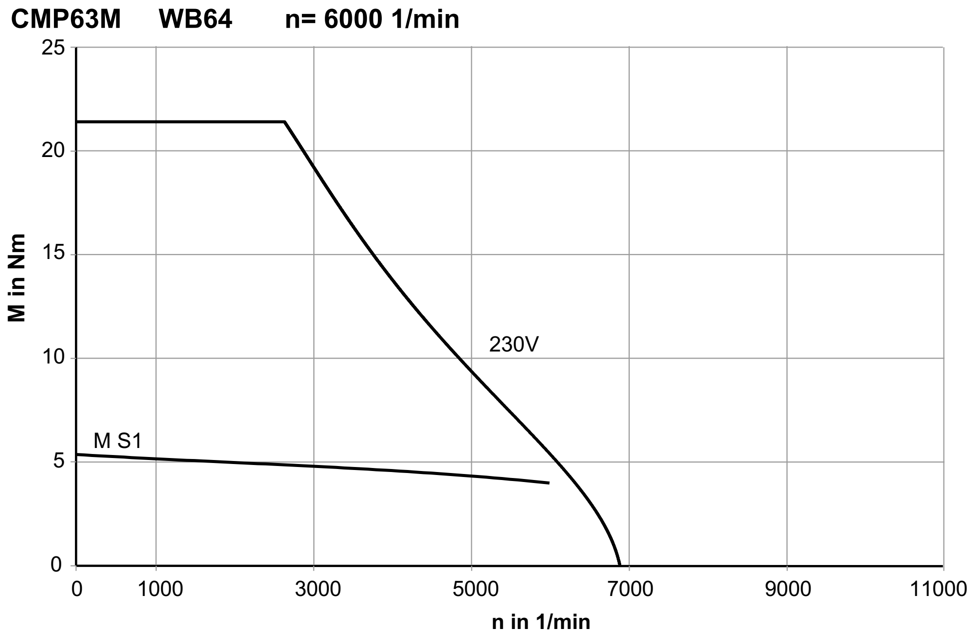

68740axx

### *Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 4500 rpm*



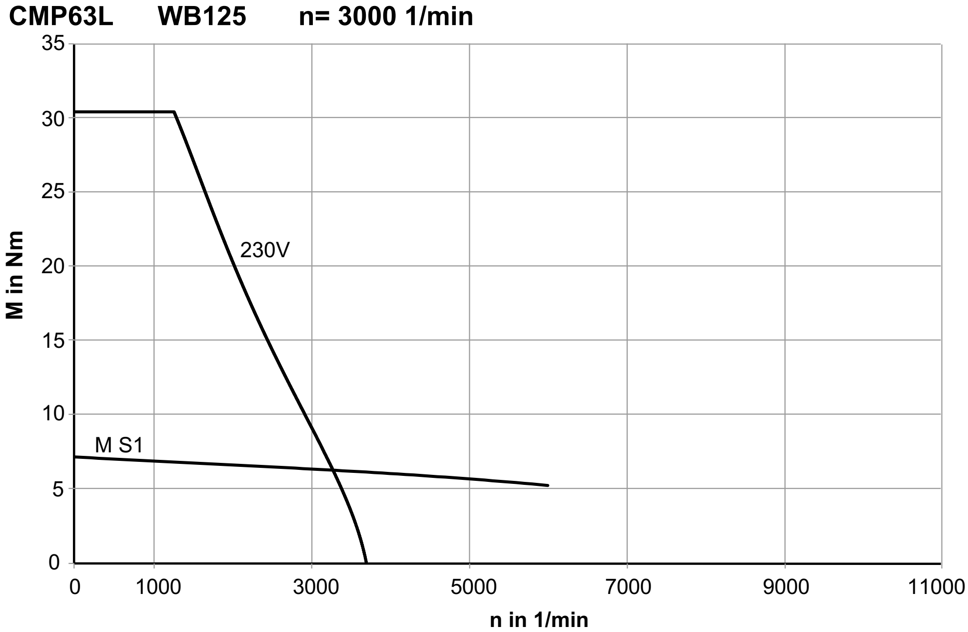

68741axx

### *Dynamic and thermal limit characteristic curve for CMP63M $n_N$ = 6000 rpm*



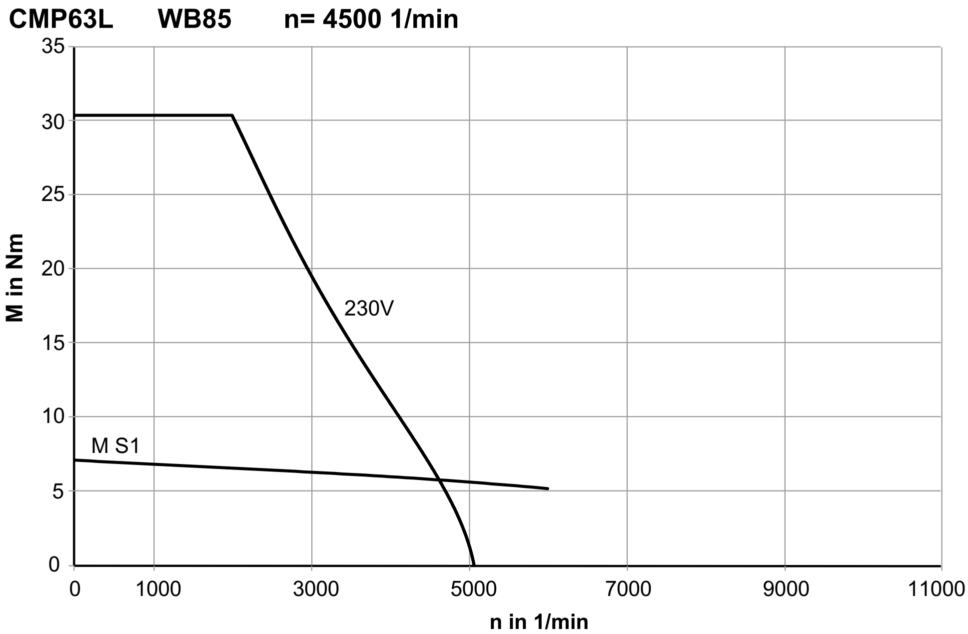

68742axx

### *Dynamic and thermal limit characteristic curve for CMP63L $n_N$ = 3000 rpm*



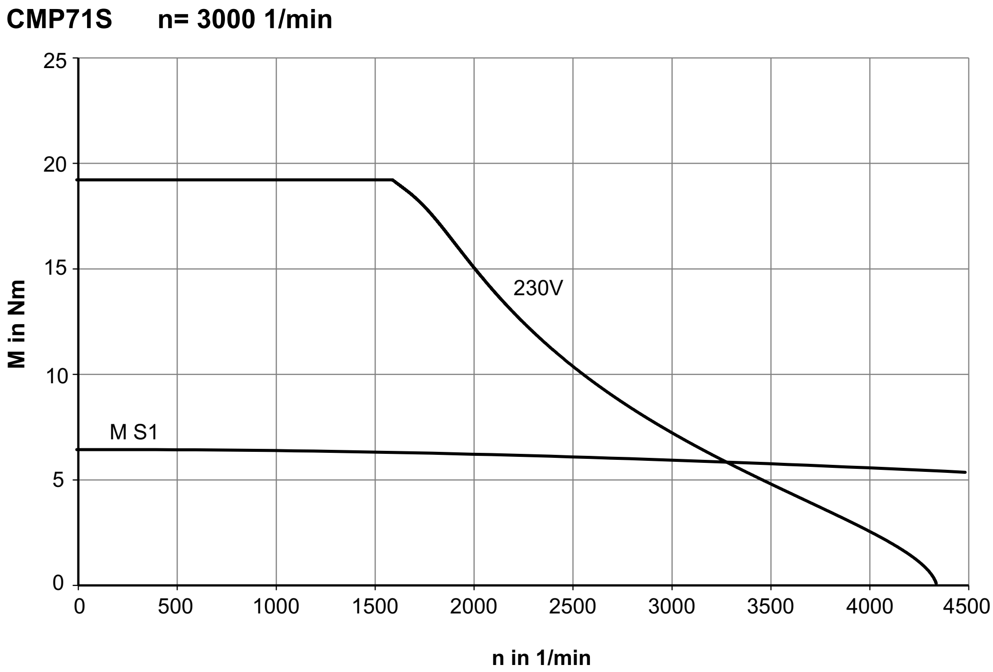

68738axx

### *Dynamic and thermal limit characteristic curve for CMP63L $n_N$ = 4500 rpm*



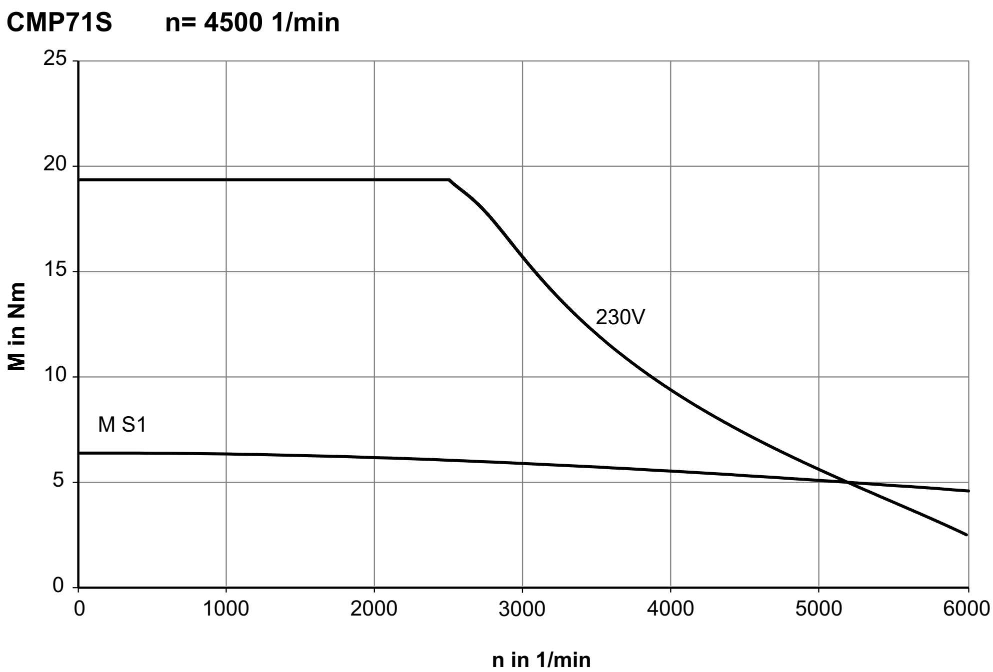

68739axx

*Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 3000 rpm*



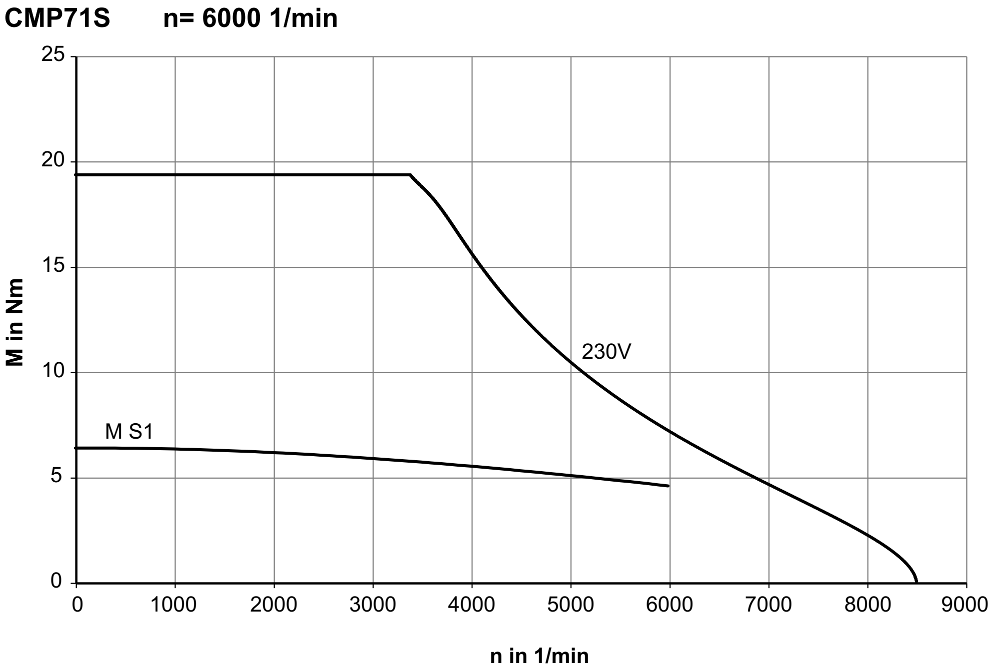

68701axx

*Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 4500 rpm*



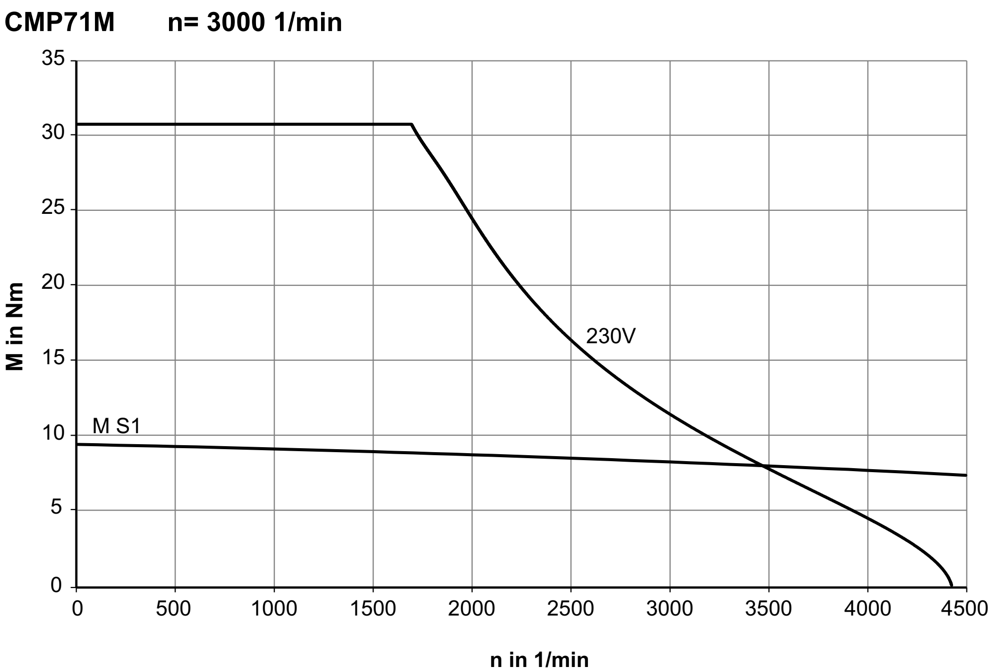

68702axx

### Dynamic and thermal limit characteristic curve for CMP.71S $n_N$ = 6000 rpm



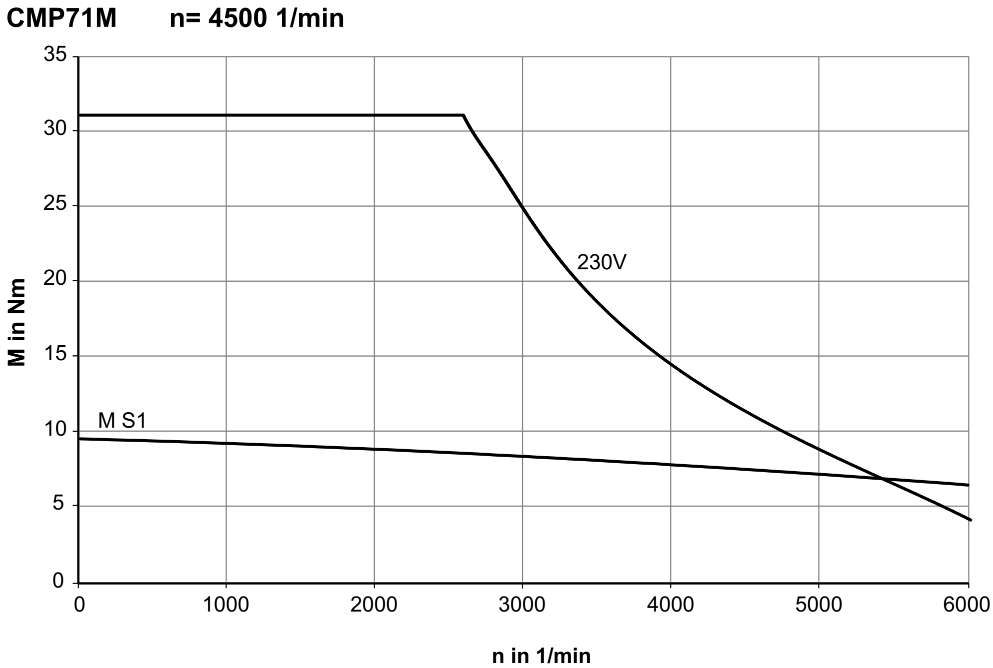

68703axx

### Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 3000 rpm



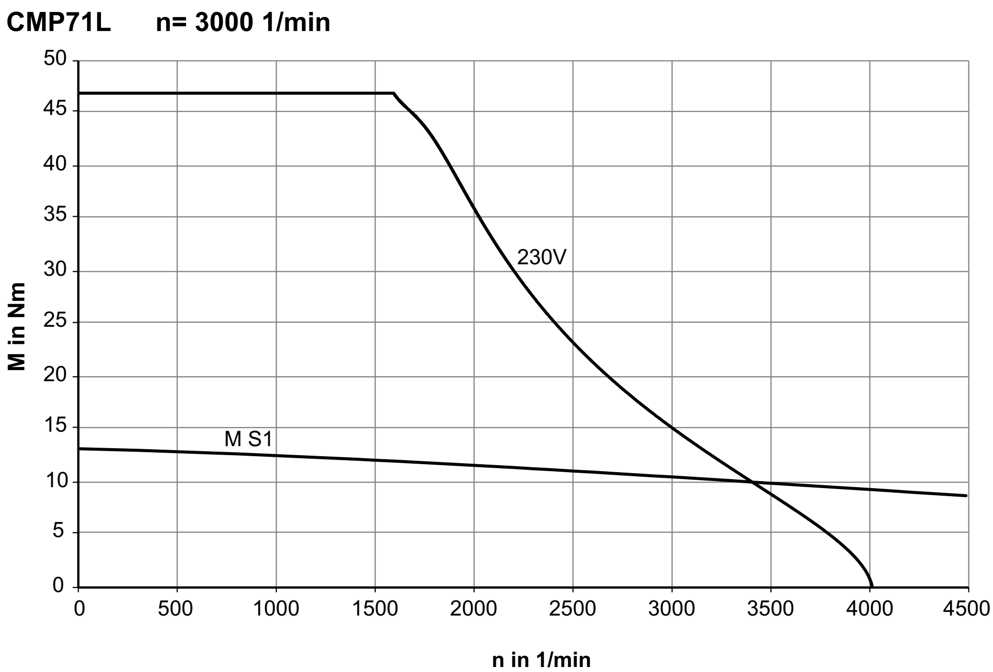

68704axx

### Dynamic and thermal limit characteristic curve for CMP.71M $n_N$ = 4500 rpm



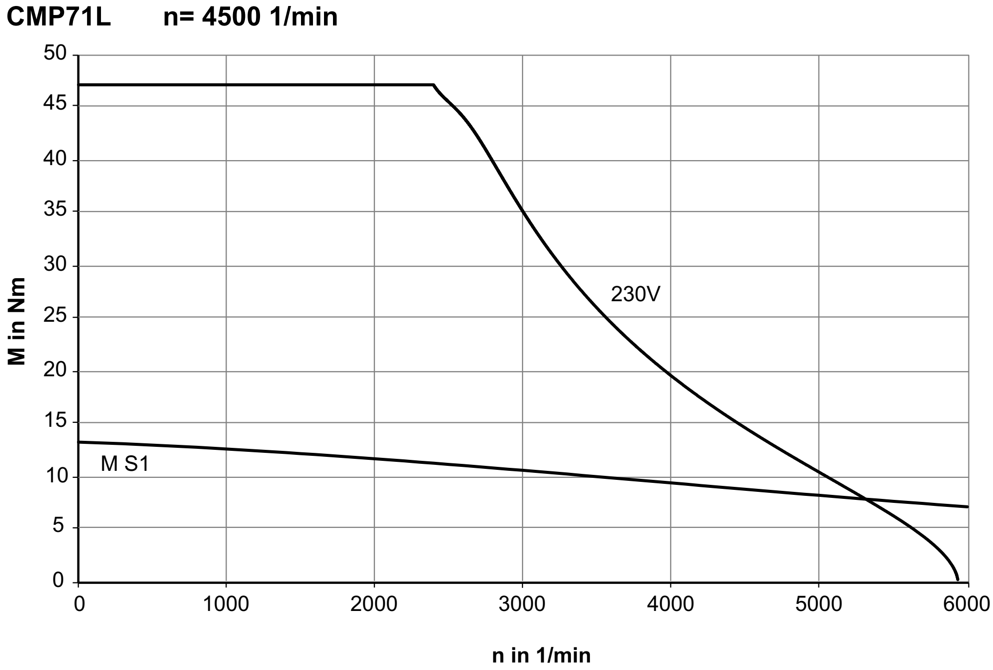

68705axx

### Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 3000 rpm




68707axx

### *Dynamic and thermal limit characteristic curve for CMP.71L $n_N$ = 4500 rpm*

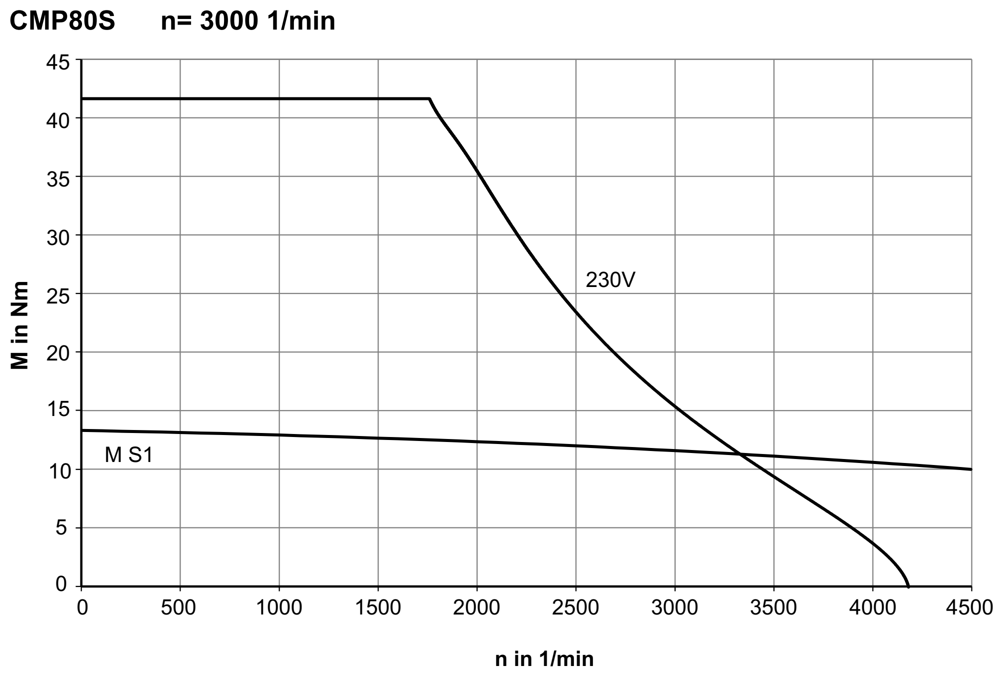



68708axx

### *Thermal limit characteristic curve for CMP71 / VR*

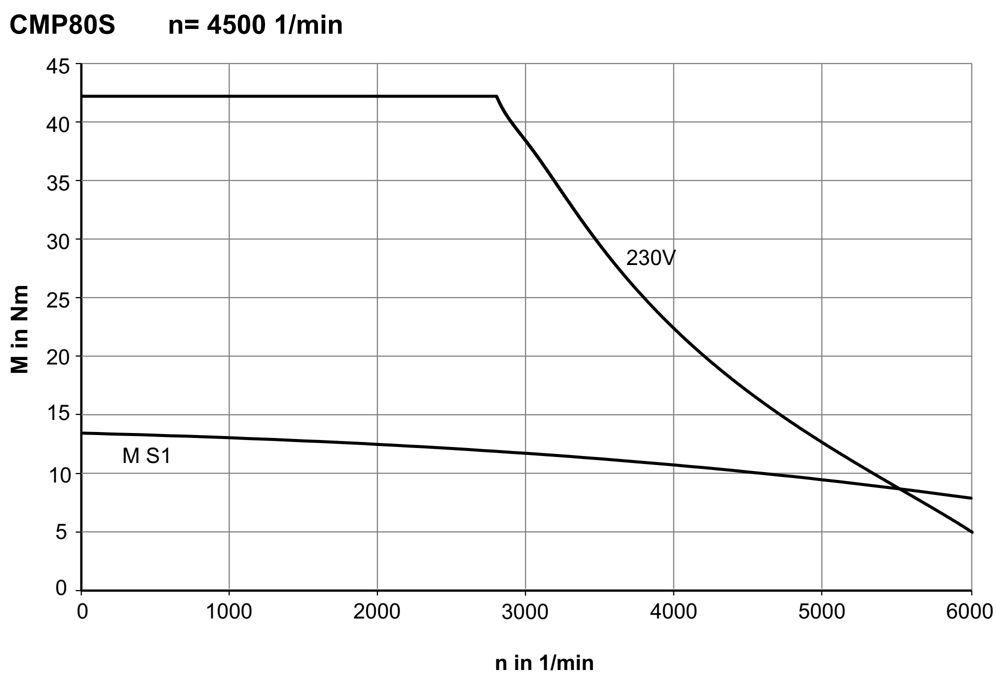
You find the thermal limit characteristic curve on page 100 where you also find the 400 V motors.

### *Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 3000 rpm*



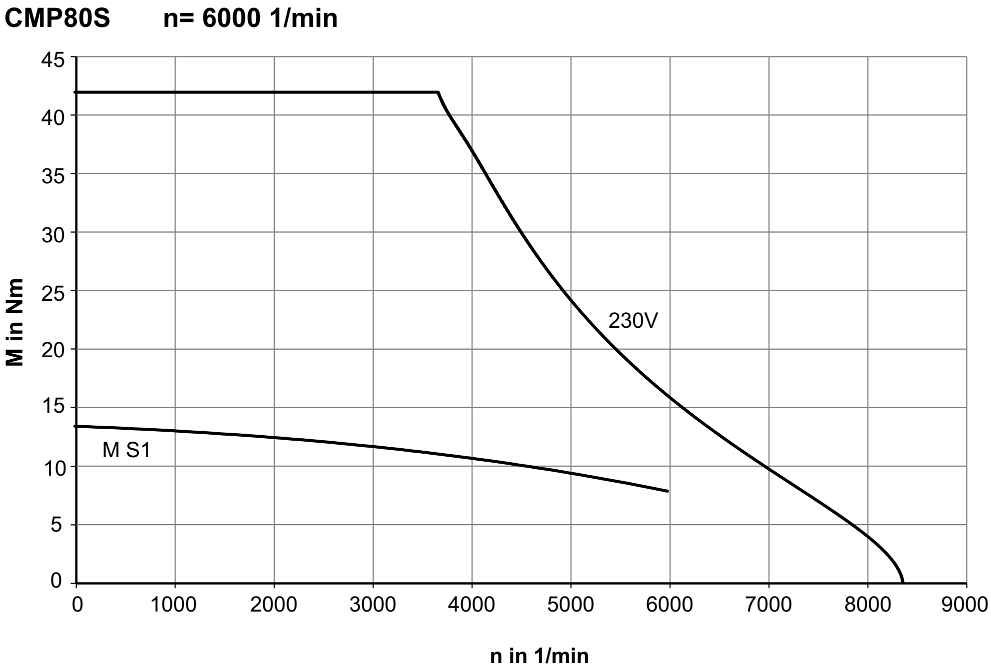

68709axx

### *Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 4500 rpm*



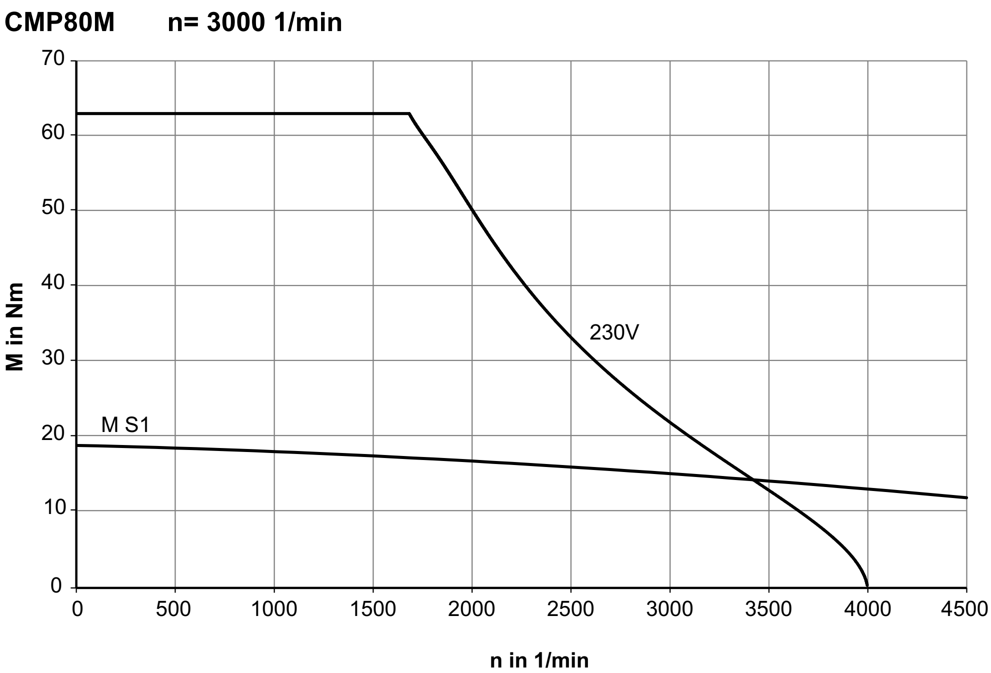

68710axx

### Dynamic and thermal limit characteristic curve for CMP.80S $n_N$ = 6000 rpm



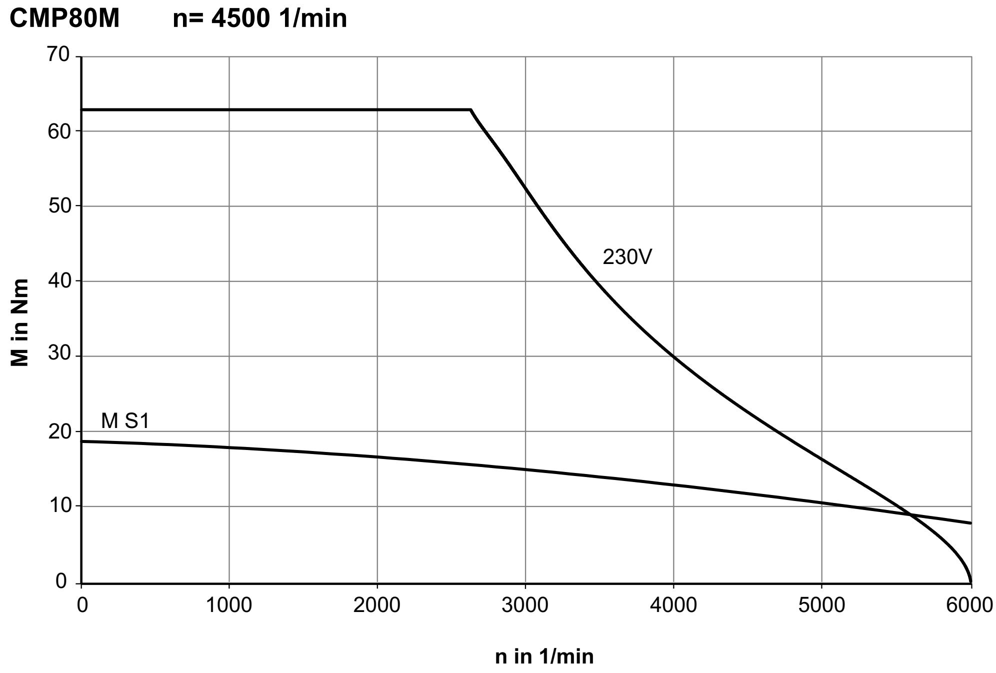

68711axx

### Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 3000 rpm



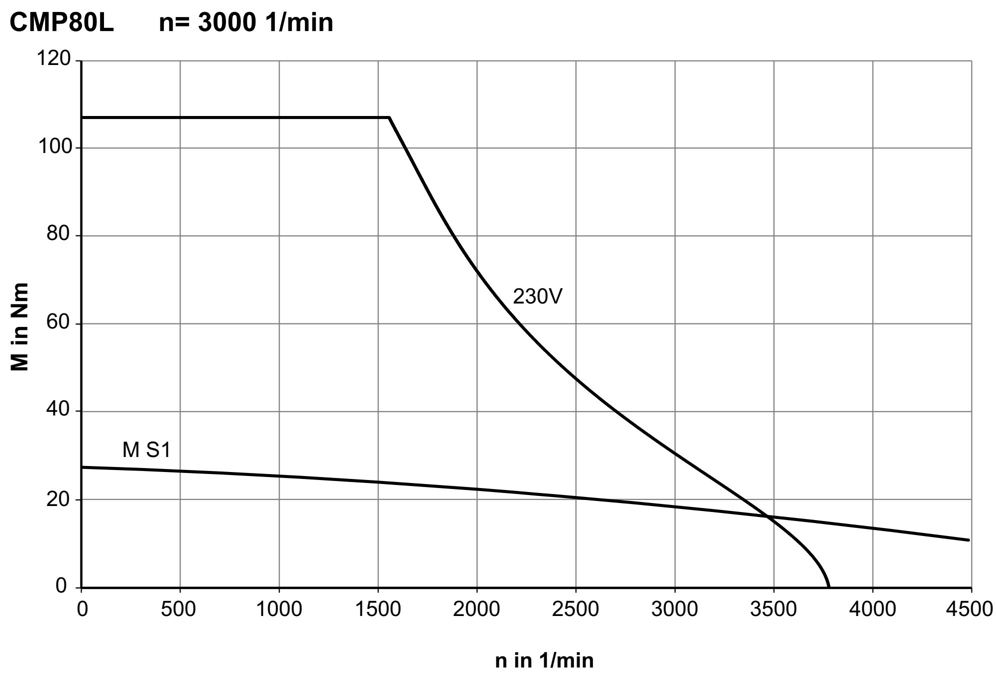

68712axx

*Dynamic and thermal limit characteristic curve for CMP.80M $n_N$ = 4500 rpm*




68713axx

*Dynamic and thermal limit characteristic curve for CMP.80L $n_N$ = 3000 rpm*

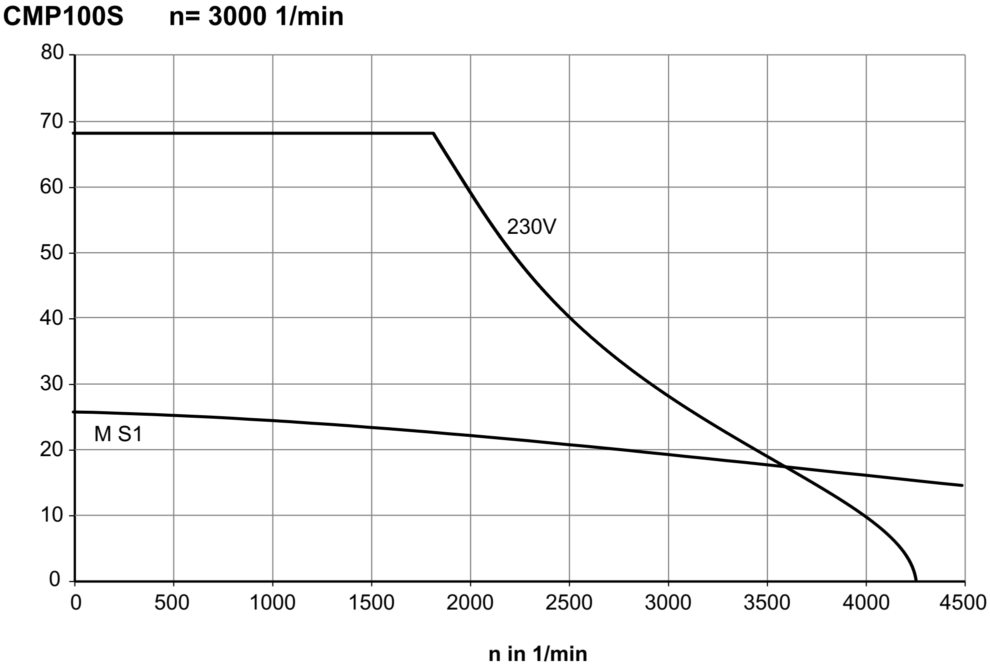



68715axx

***Thermal limit characteristic curve for CMP80 / VR***

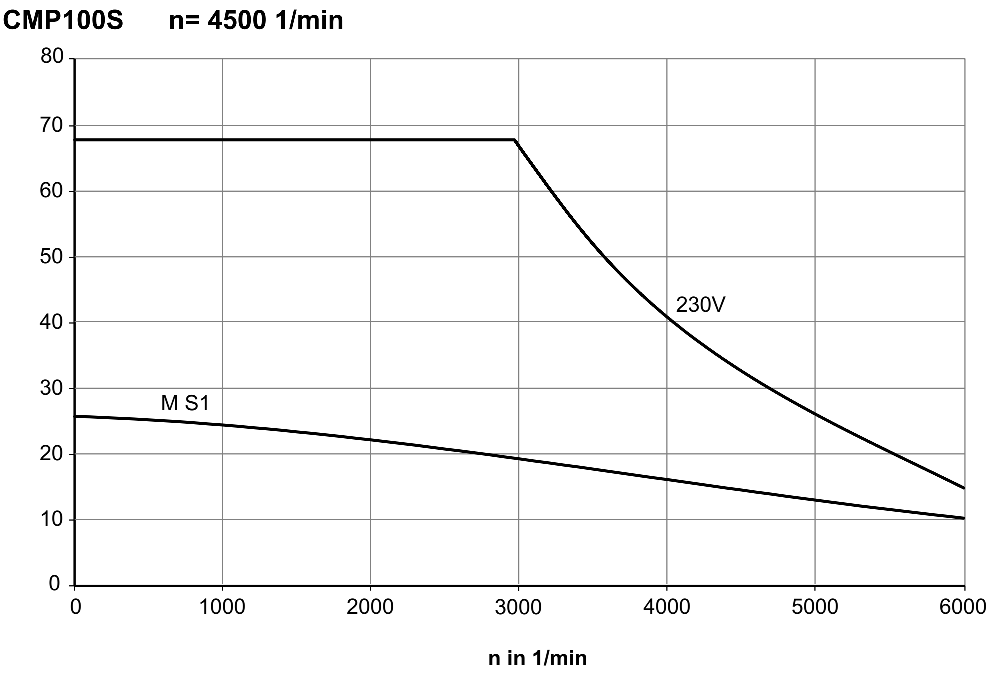
You find the thermal limit characteristic curve on page 106 where you also find the 400 V motors.

***Dynamic and thermal limit characteristic curve for CMP.100S $n_N$ = 3000 rpm***



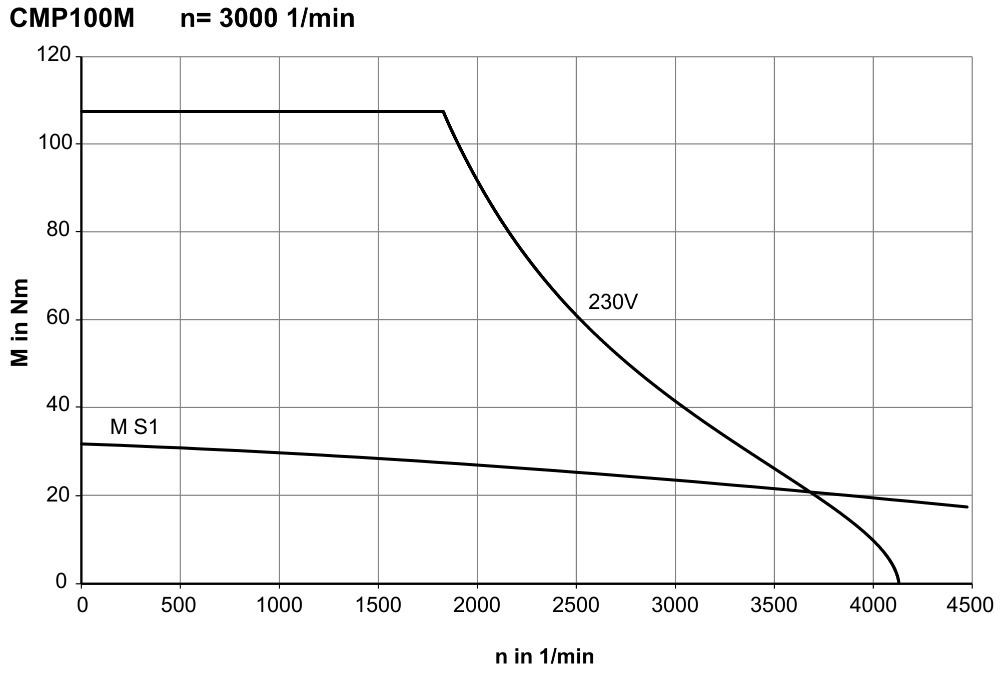

68719axx

***Dynamic and thermal limit characteristic curve for CMP.100S $n_N$ = 4500 rpm***




68720axx

### *Dynamic and thermal limit characteristic curve for CMP.100M $n_N$ = 3000 rpm*




68722axx

6

### *Thermal limit characteristic curve for CMP100 / VR*

You find the thermal limit characteristic curve for 400 V motors on page 111.

Page remains empty for printing reasons.

# 7 Dimension Sheets for CMP. Servomotors/CMP. Servo Brakemotors

## *7.1 Notes on the dimension sheets*

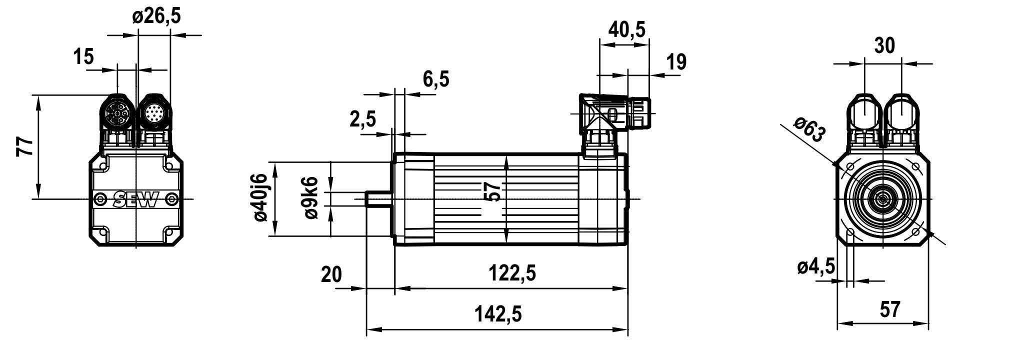
| | **INFORMATION** |
|---|---|
| | As standard, the motors are supplied with smooth shaft end.<br>Shaft end with key is an optional design. |

## 7.2 Dimension sheets

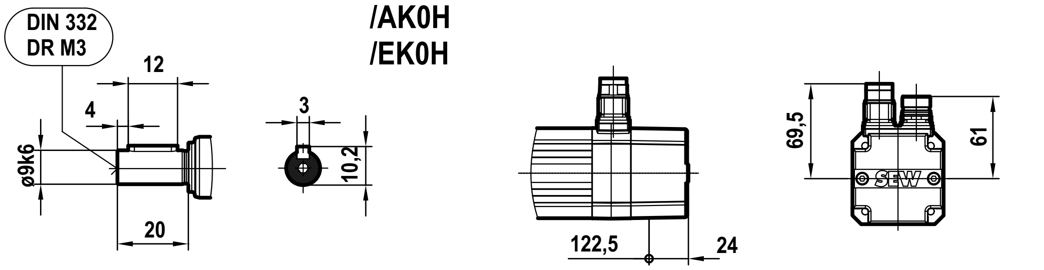
***CMP40S/M synchronous servomotors***

**CMP40S** **08 527 00 09**

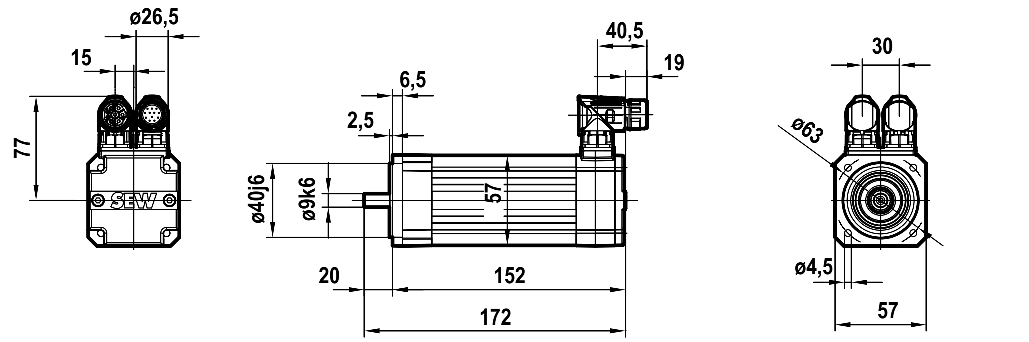
**SM1** **/RH1M**



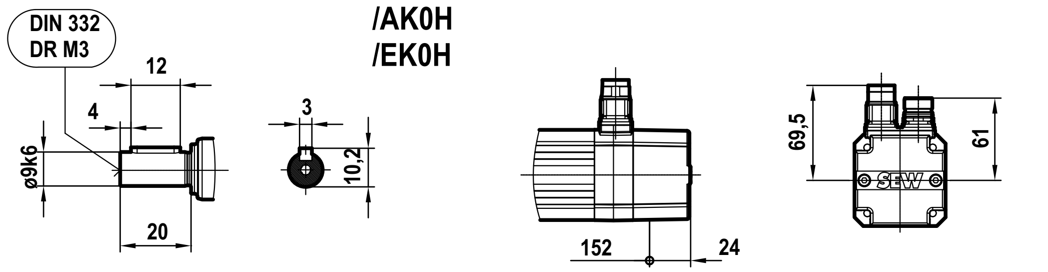

**/AK0H**
**/EK0H**




**CMP40S** **09 389 00 09**
**BP01**
**SB1** **/RH1M**

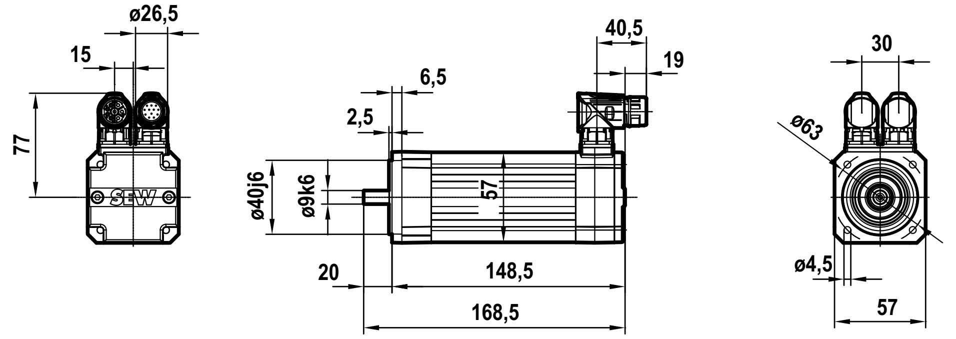



**/AK0H**
**/EK0H**

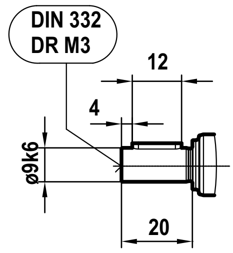


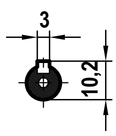
**CMP40M** **08 528 00 09**

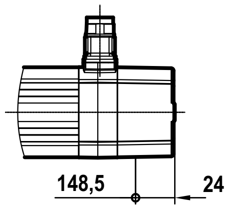
**SM1** **/RH1M**

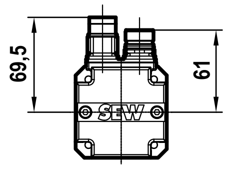



**/AK0H**
**/EK0H**

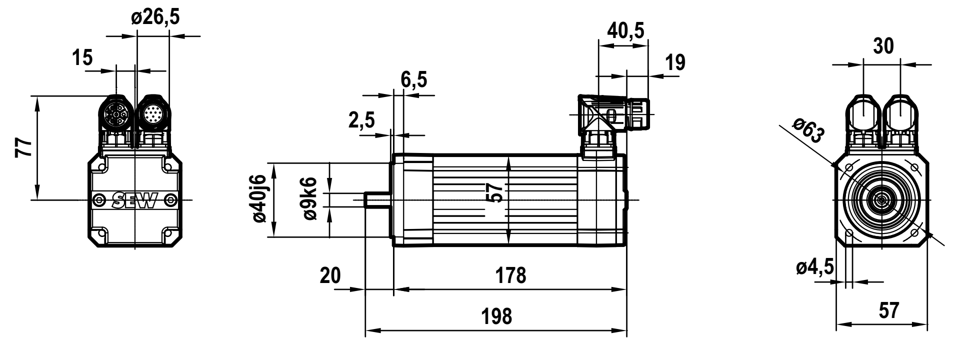


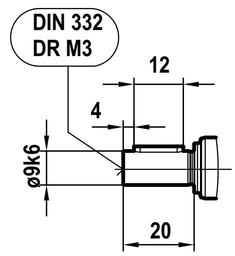



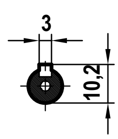



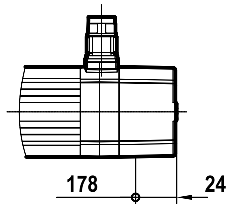

**CMP40M** **09 390 00 09**
**BP01**
**SB1** **/RH1M**

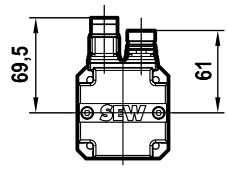



**/AK0H**
**/EK0H**

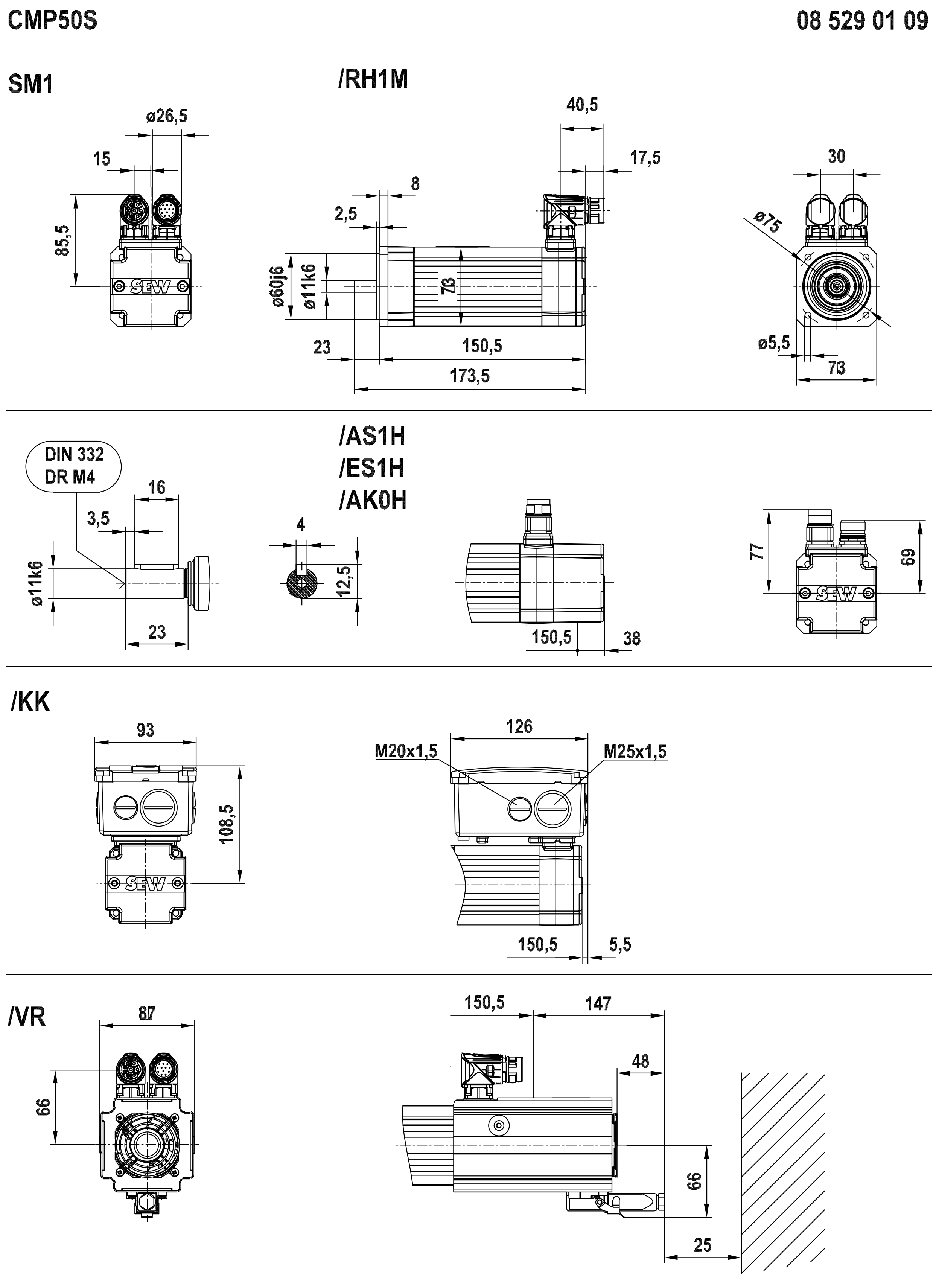


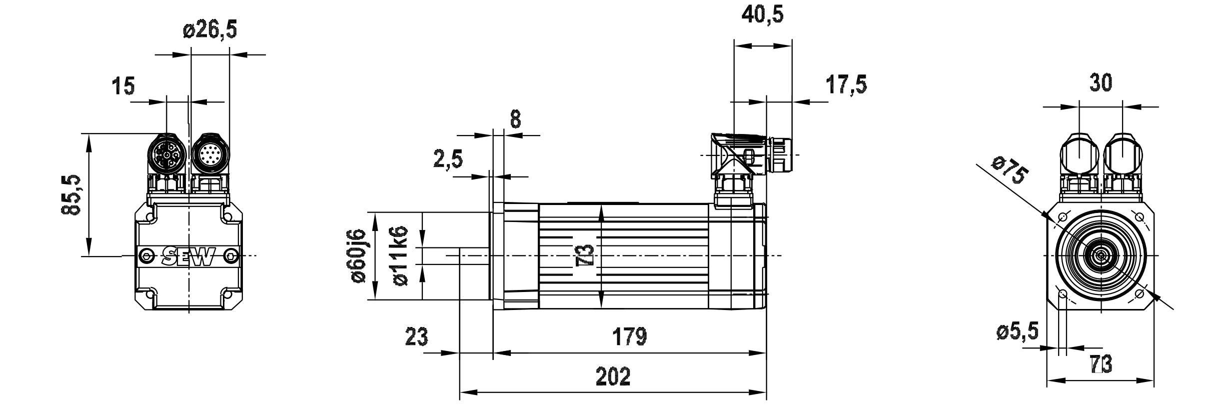
*CMP50S/M/L synchronous servomotors*



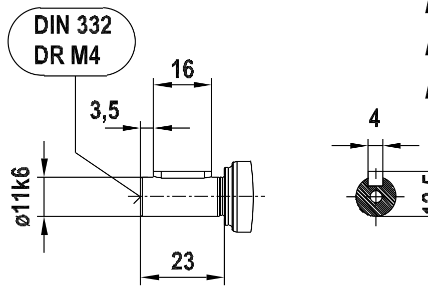
CMP50S
BP04
SB1

09 391 01 09

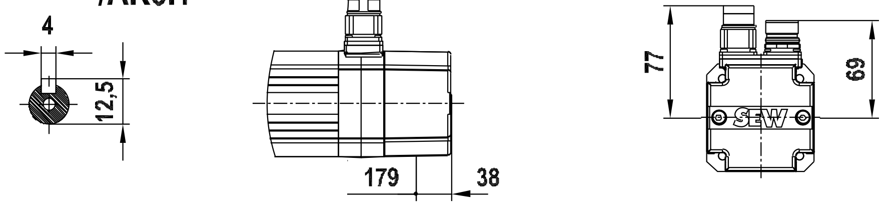
/RH1M



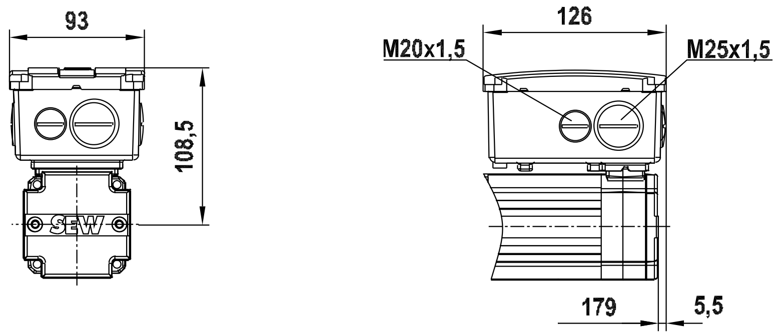

7



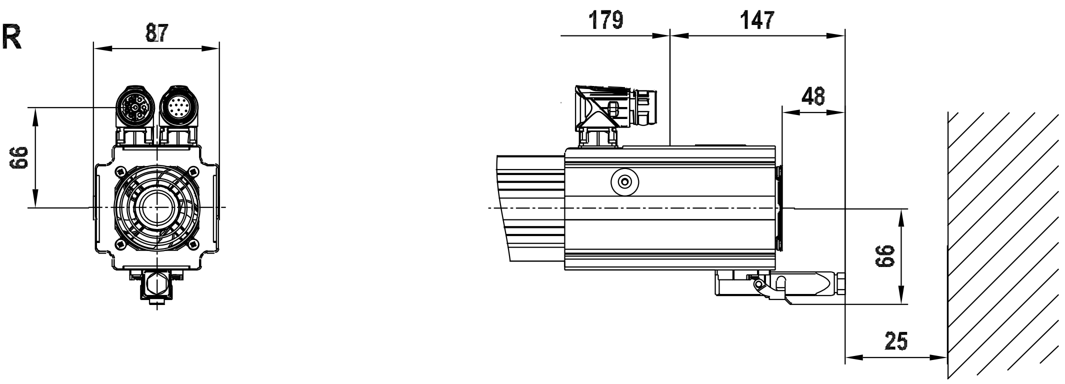

/AS1H
/ES1H
/AK0H




/KK

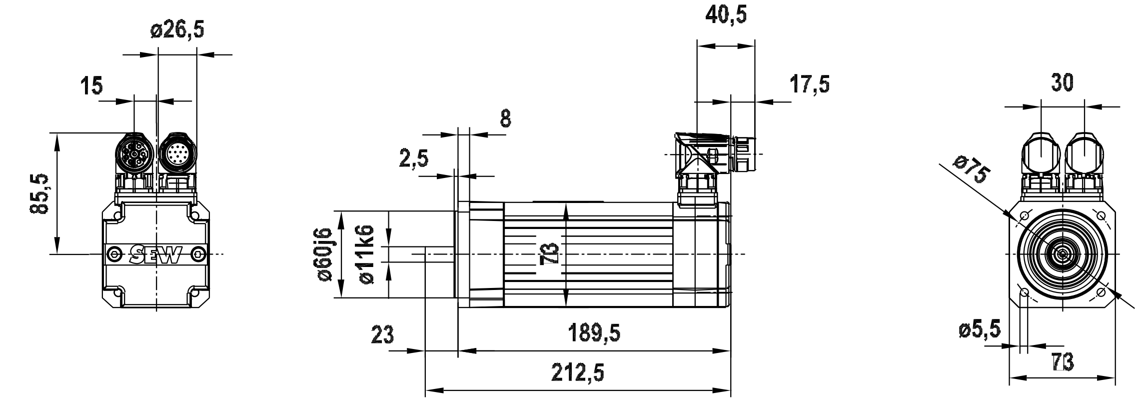



/VR

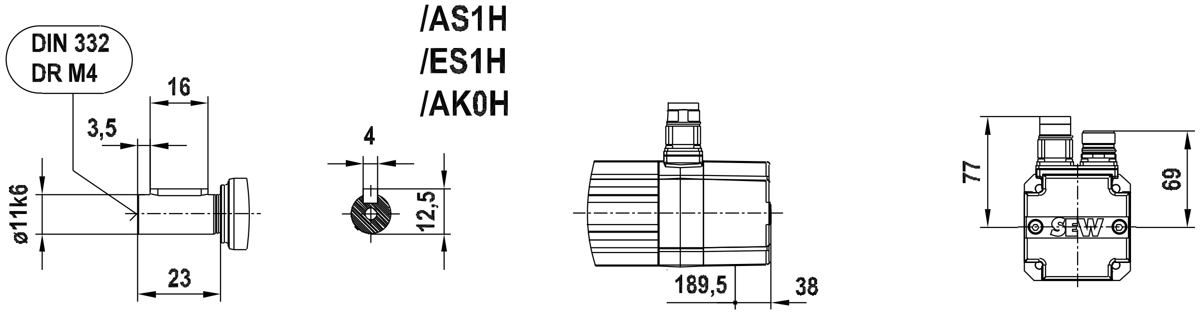


**CMP50M** **08 530 01 09**

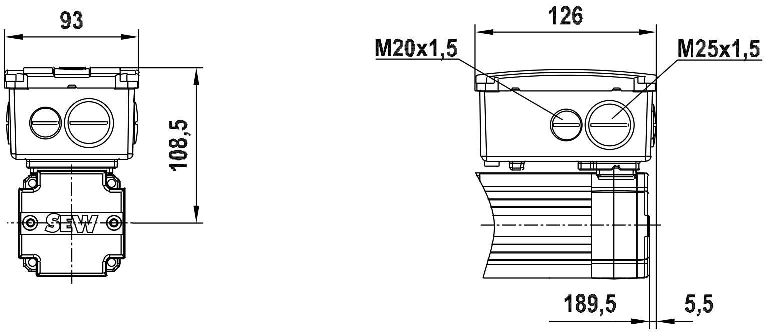
**SM1** **/RH1M**



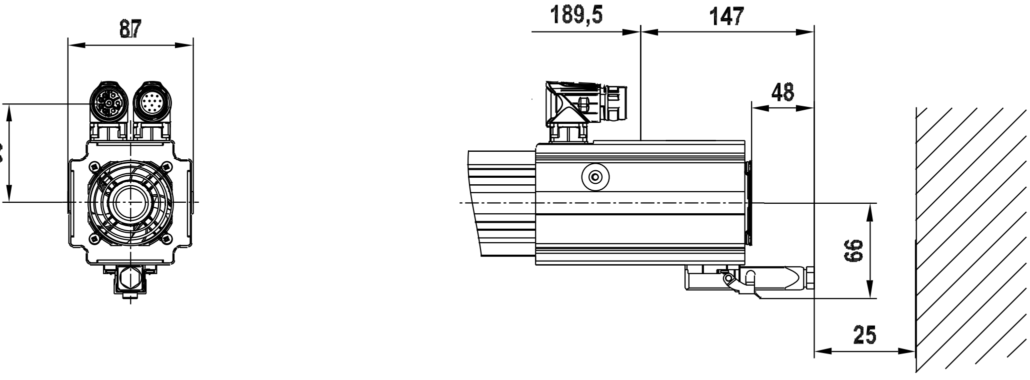

**/AS1H**
**/ES1H**
**/AK0H**




**/KK**



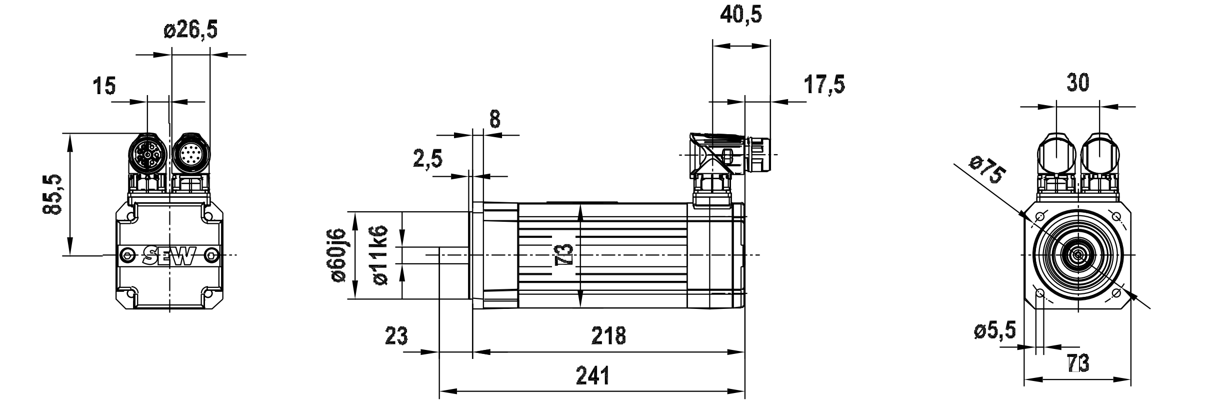

**/VR**



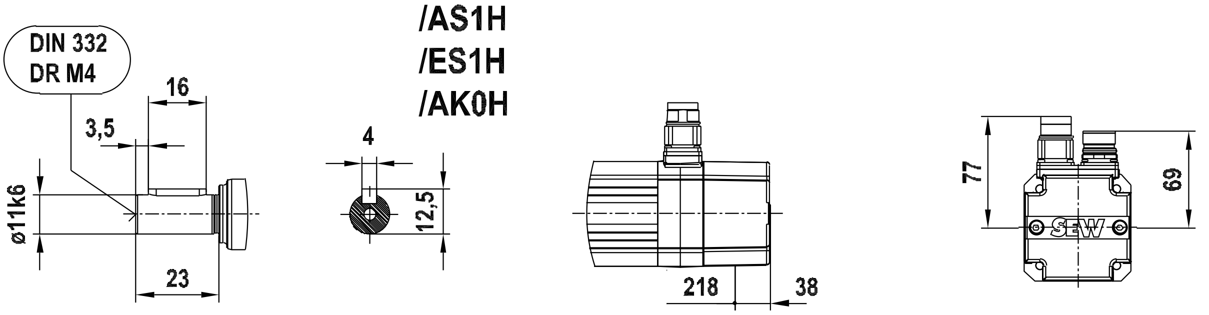
CMP50M
BP04
SB1

/RH1M

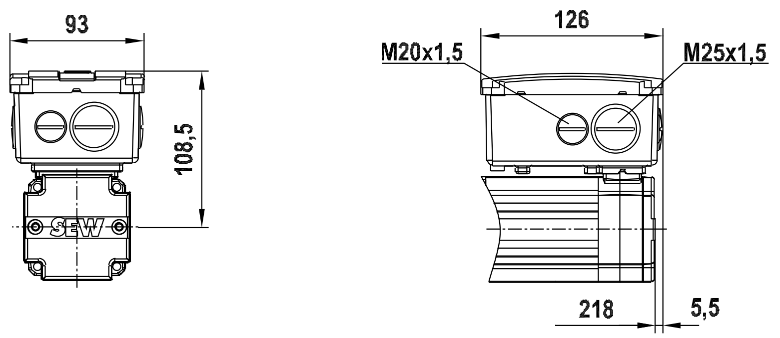
09 392 01 09



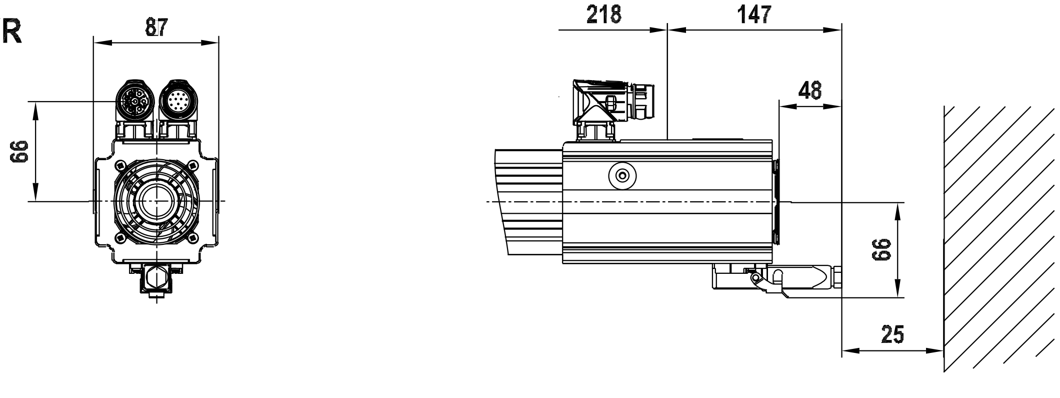

/AS1H
/ES1H
/AK0H




/KK

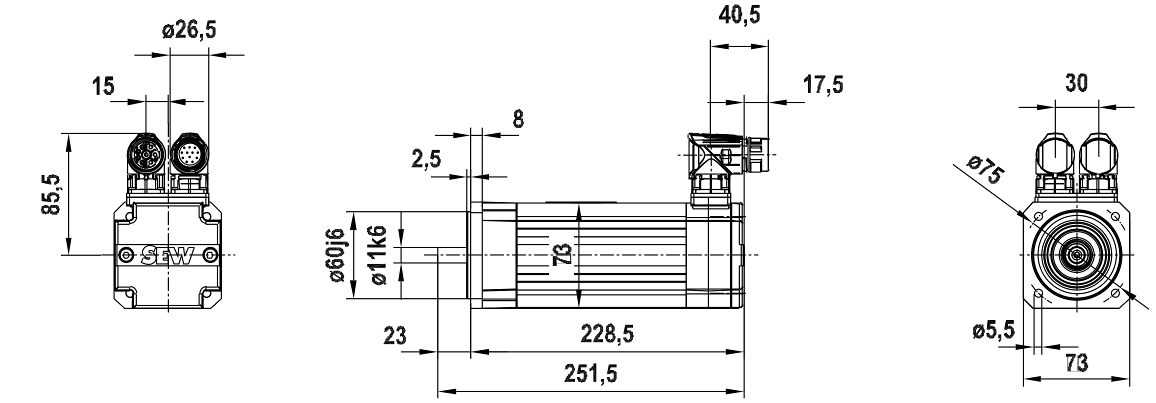



/VR

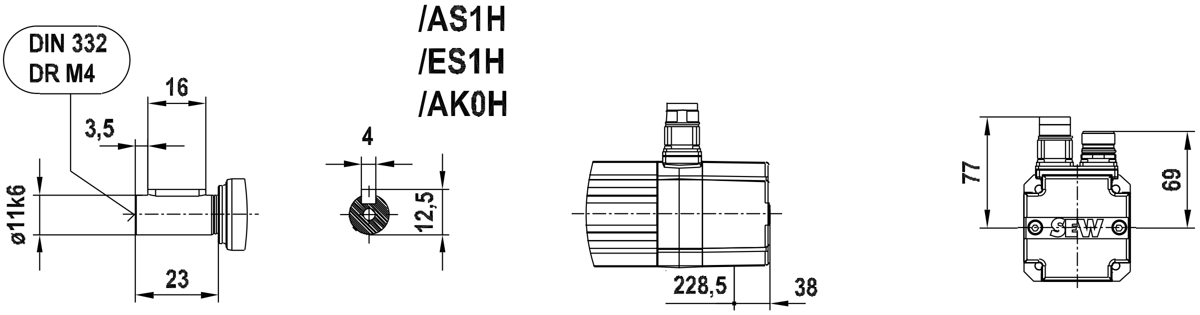


**CMP50L** **08 531 01 09**

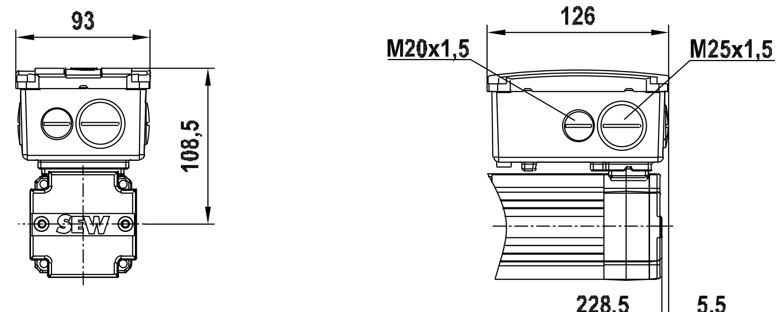
**SM1** **/RH1M**



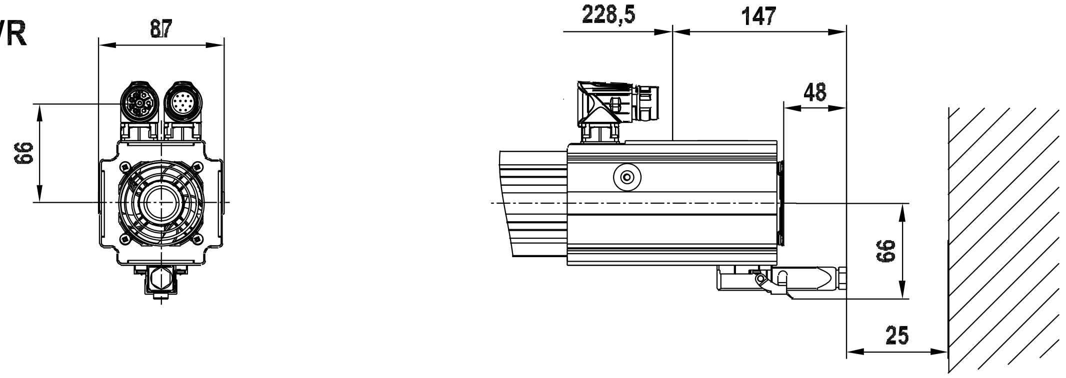

**/AS1H**
**/ES1H**
**/AK0H**




**/KK**



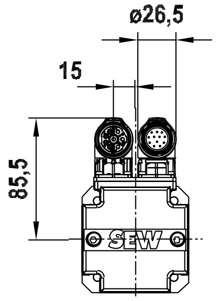

**/VR**

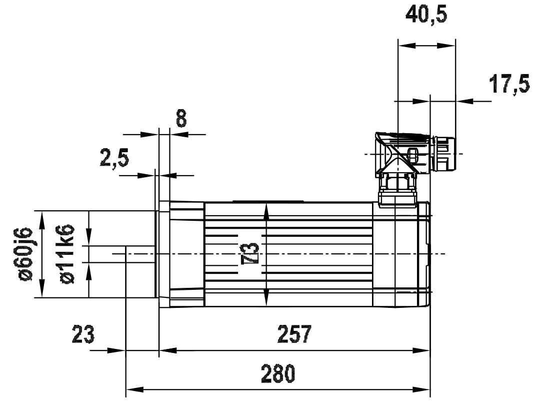


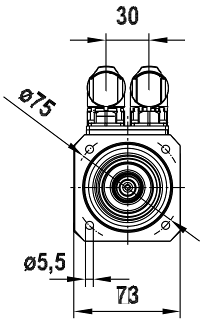
CMP50L
BP04
SB1

09 393 01 09

/RH1M

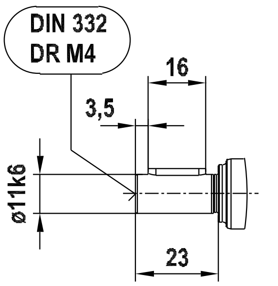


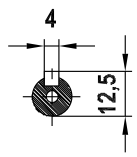



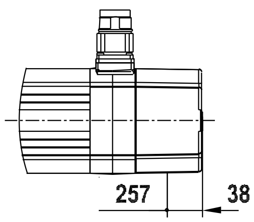



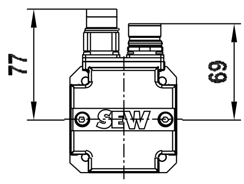



/AS1H
/ES1H
/AK0H

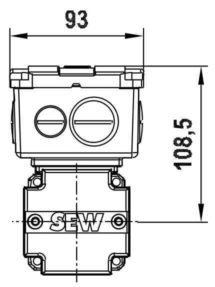


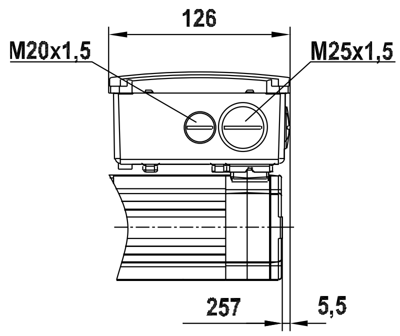



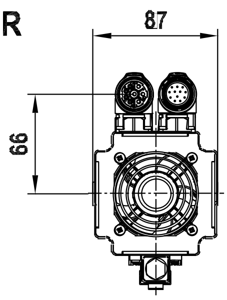



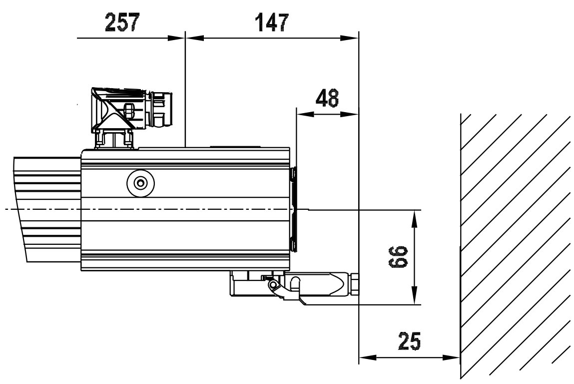

/KK




/VR

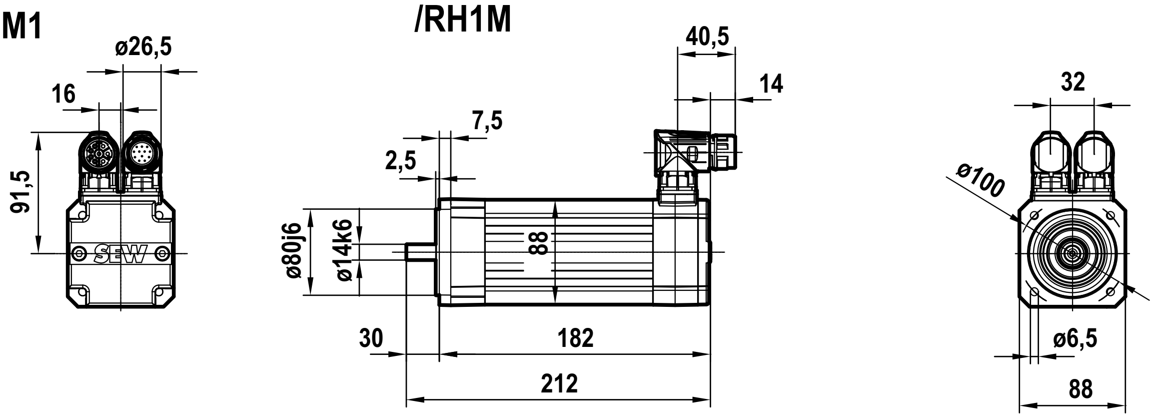


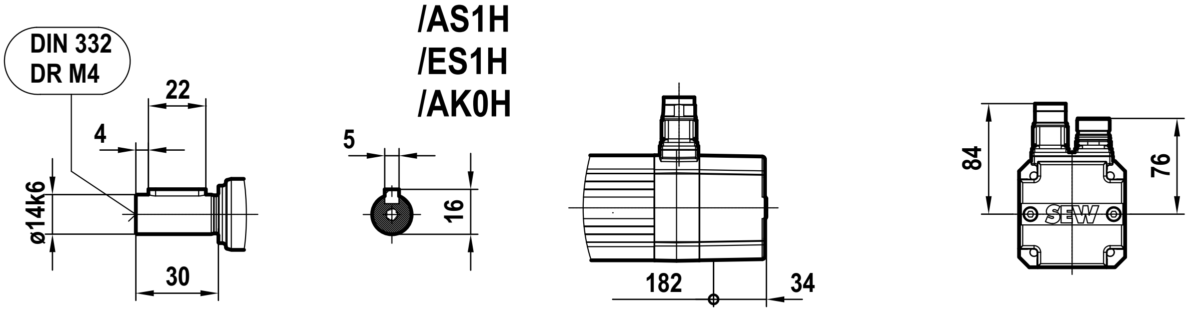
*CMP63S/M/L synchronous servomotors*

**CMP63S** **08 532 00 09**

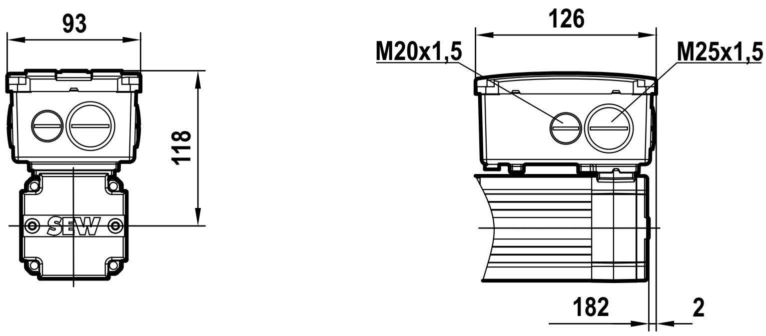
**SM1** **/RH1M**



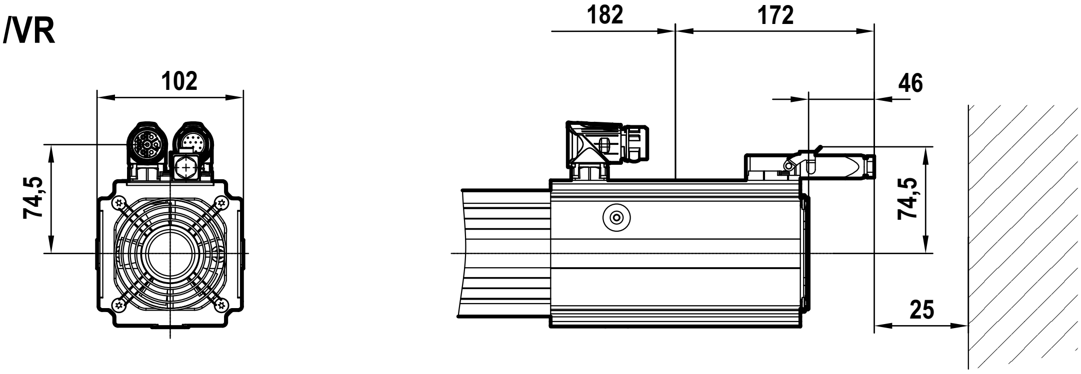

**/AS1H**
**/ES1H**
**/AK0H**




**/KK**



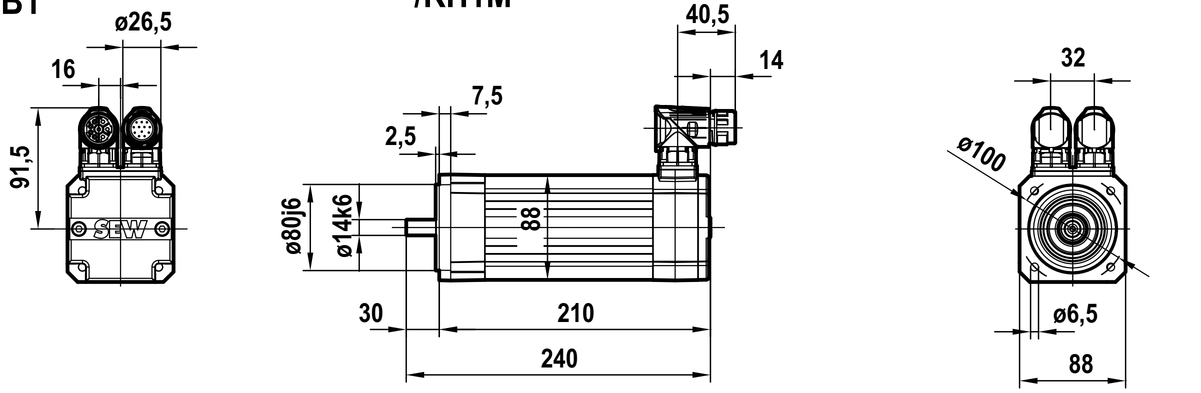

**/VR**



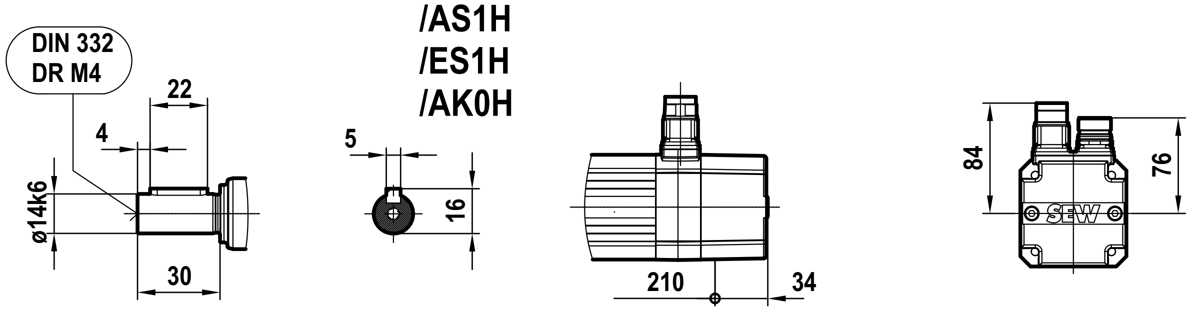
**CMP63S**
**BP09**
**SB1**

**09 394 00 09**

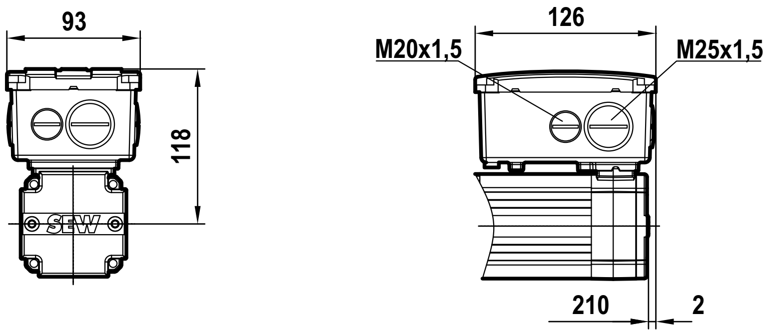
**/RH1M**



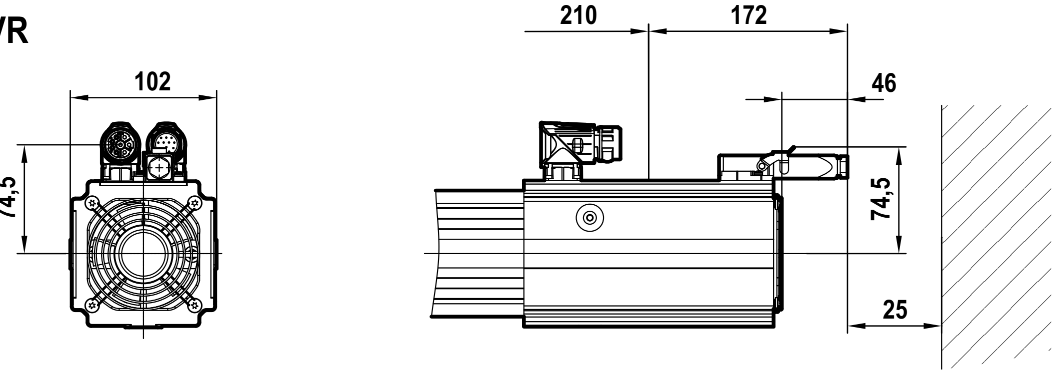

**/AS1H**
**/ES1H**
**/AK0H**




**/KK**




**/VR**



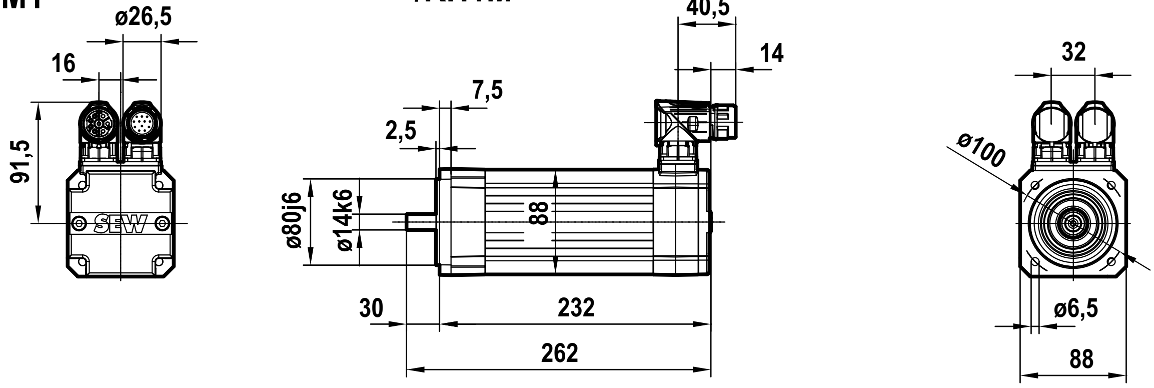

7

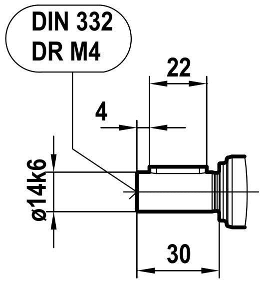
## CMP63M

**08 533 00 09**

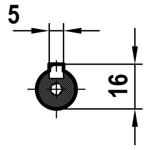
### SM1

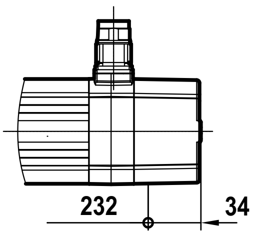
### /RH1M

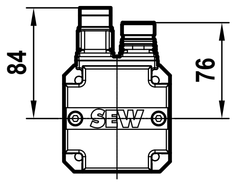


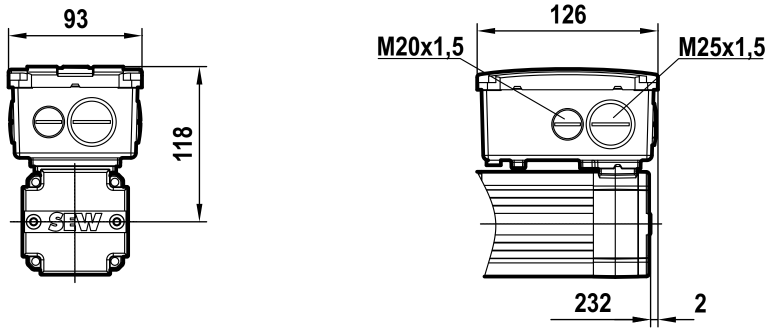

### /AS1H
### /ES1H
### /AK0H



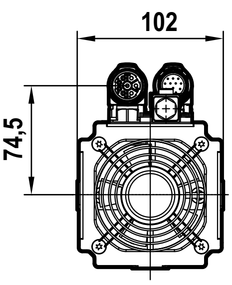



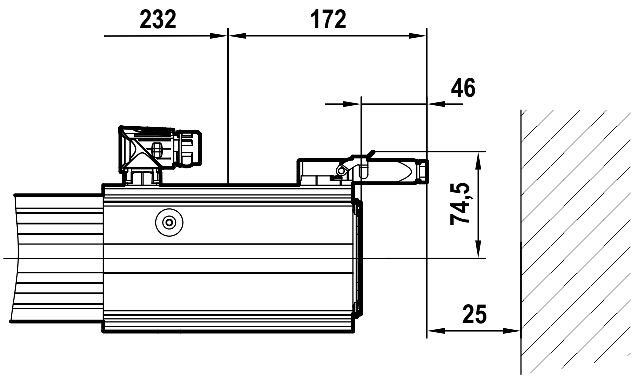




### /KK




### /VR

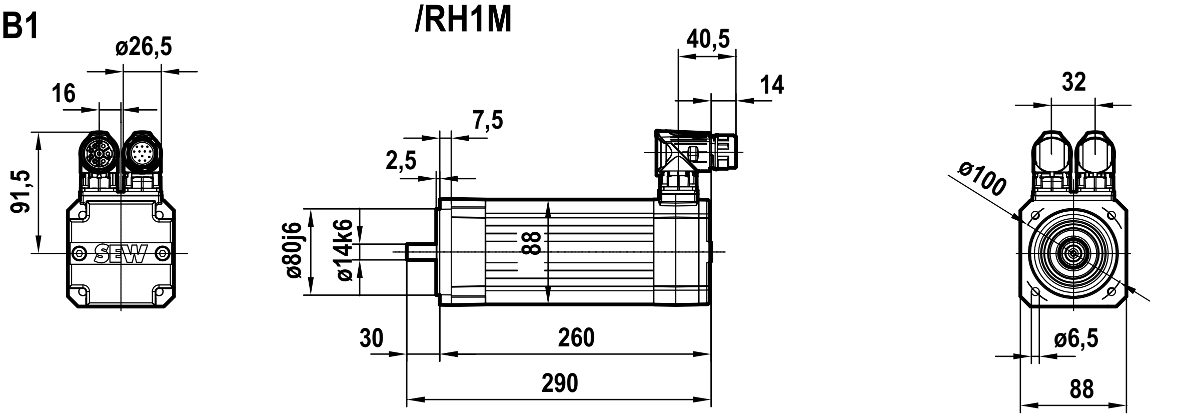


**CMP63M**
**BP09**
**SB1**

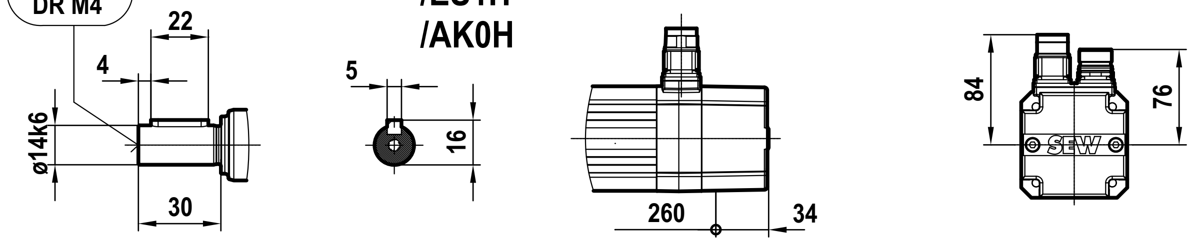
**09 395 00 09**

**/RH1M**

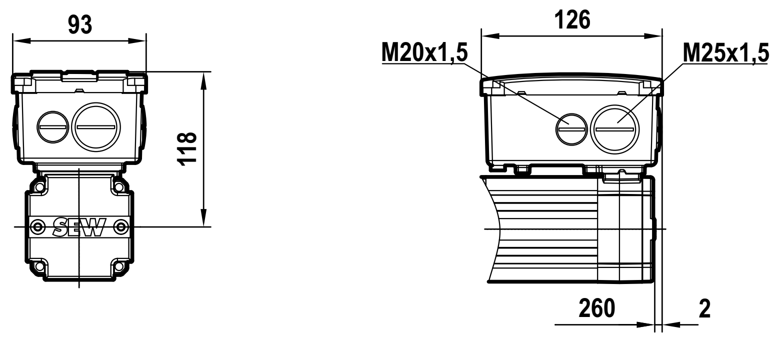




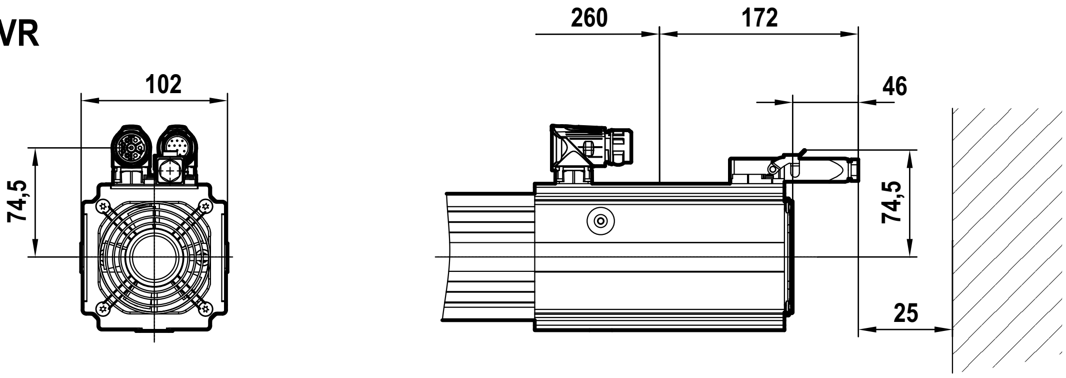

**/AS1H**
**/ES1H**
**/AK0H**



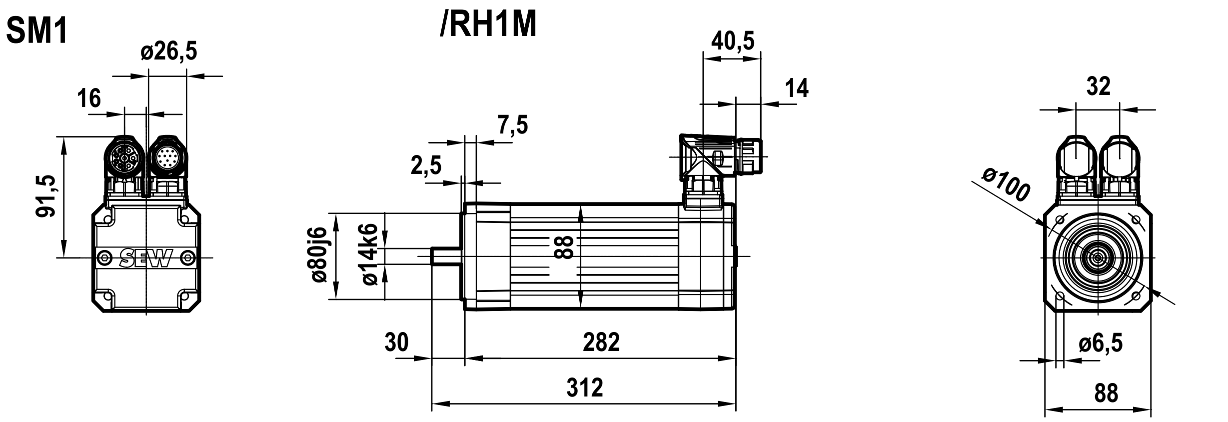

**/KK**

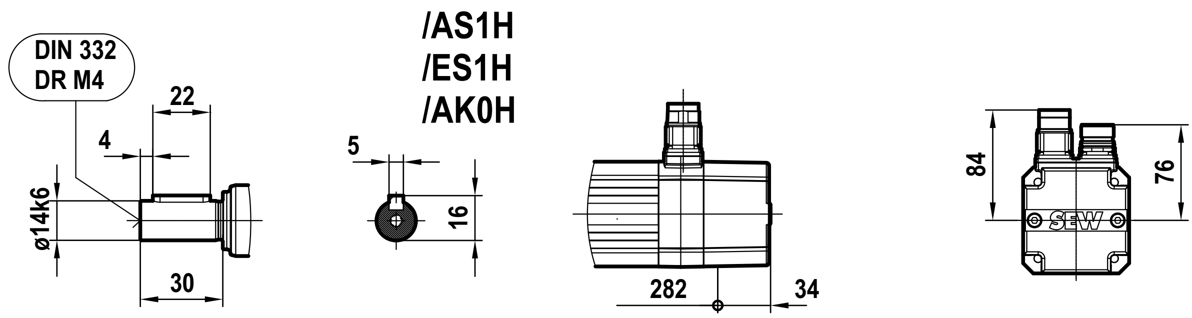


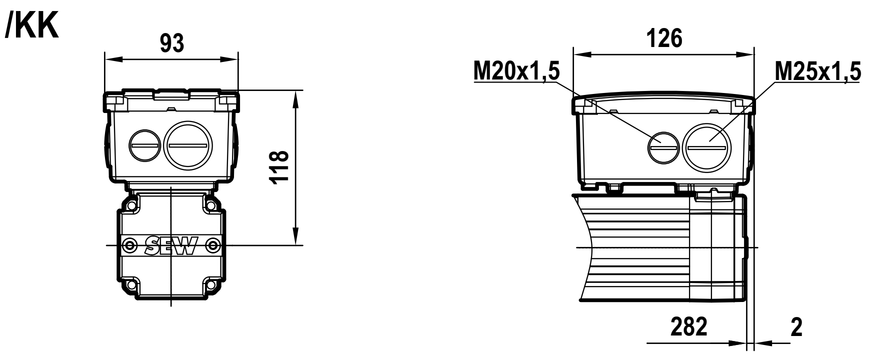

**/VR**

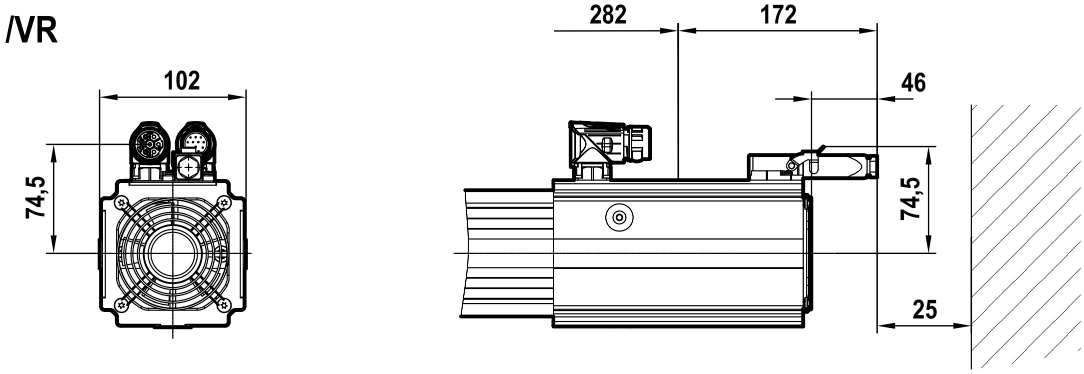


**CMP63L** **08 534 00 09**



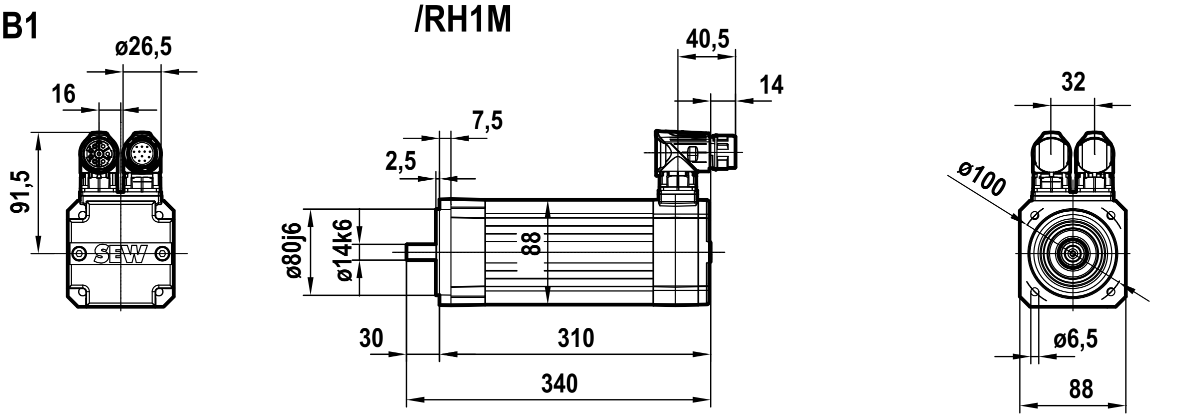



**CMP63L**
**BP09**
**SB1**

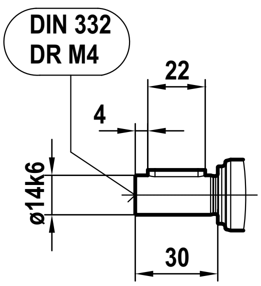
**09 396 00 09**

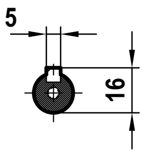
**/RH1M**

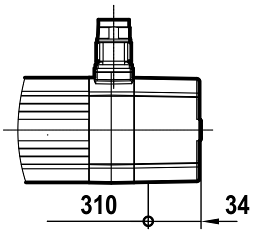


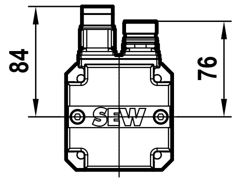



**/AS1H**
**/ES1H**
**/AK0H**

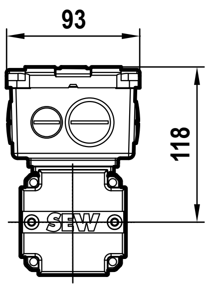


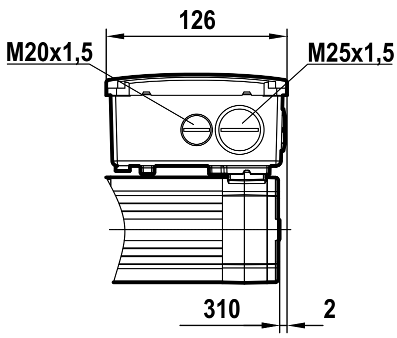



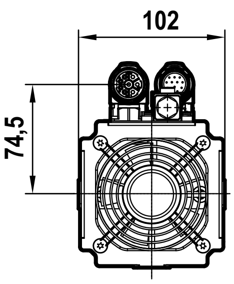



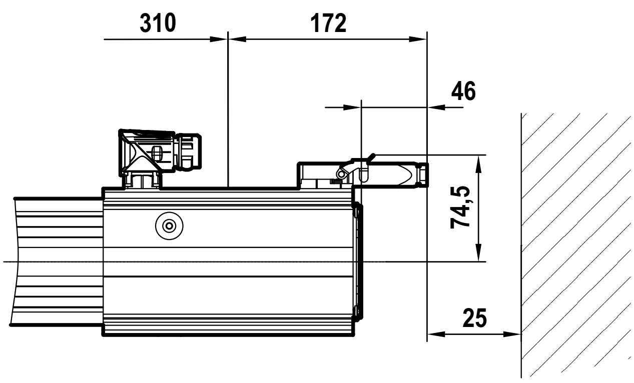

**/KK**




**/VR**

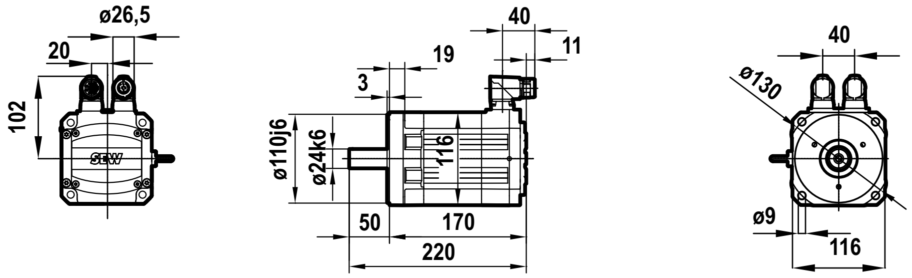


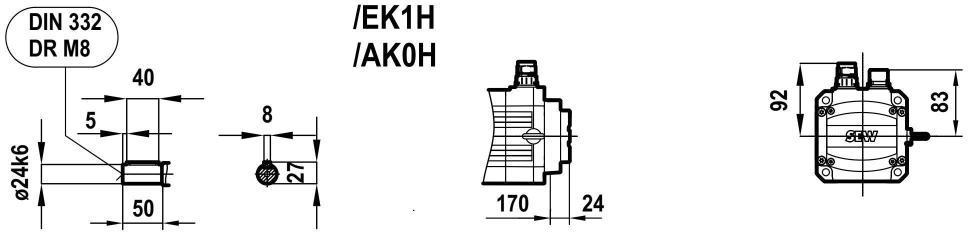
***CMP(Z)71S/M/L synchronous servomotors***

**CMP71S** **08 470 01 08**

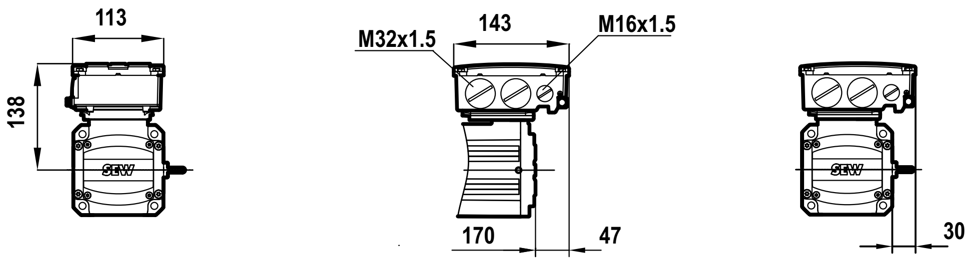
**SM1** **/RH1M**



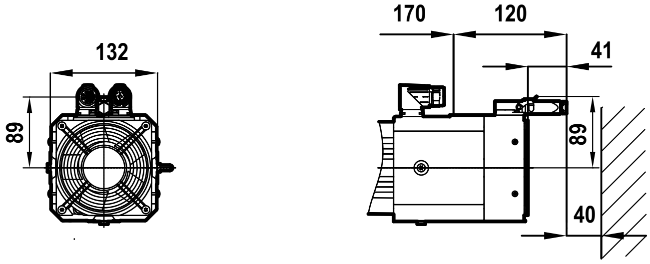

**/AK1H**
**/EK1H**
**/AK0H**




**/KK**

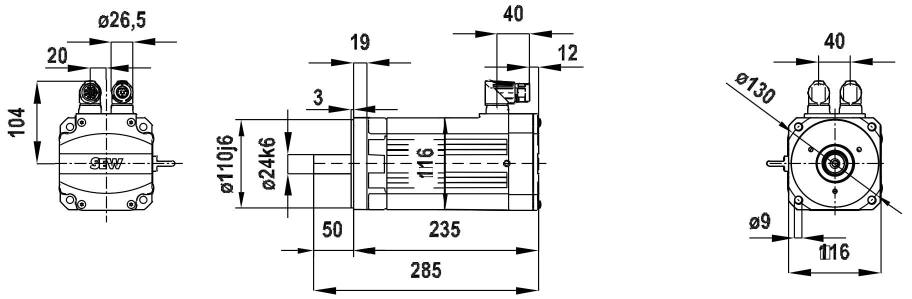



**/VR**

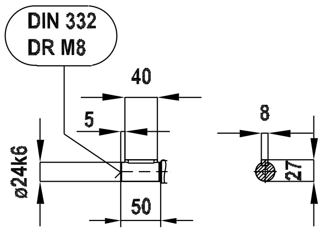


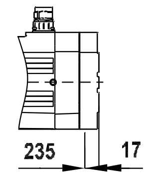
**CMP71S** **09 355 02 08**
**BP1**
**SB1**

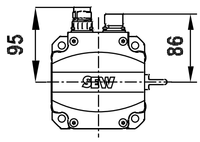
**/RH1M**



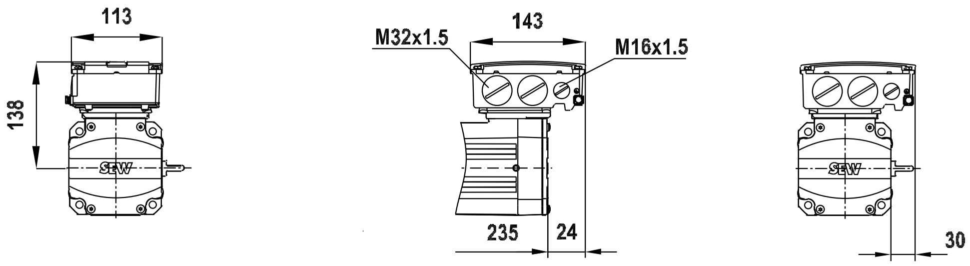

**/AK1H**
**/EK1H**
**/AK0H**



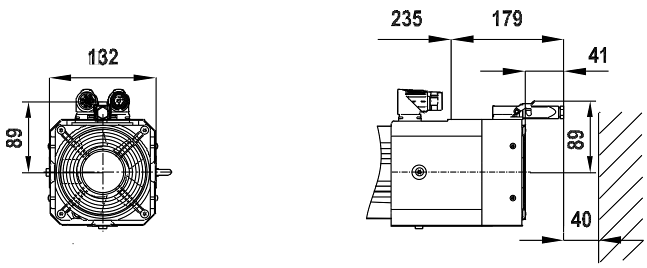




**/KK**

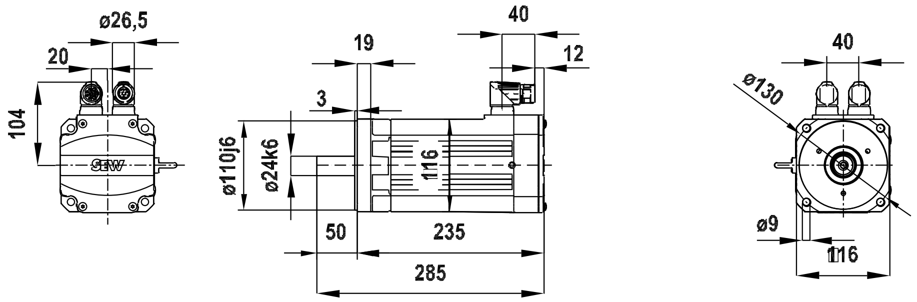



**/VR**

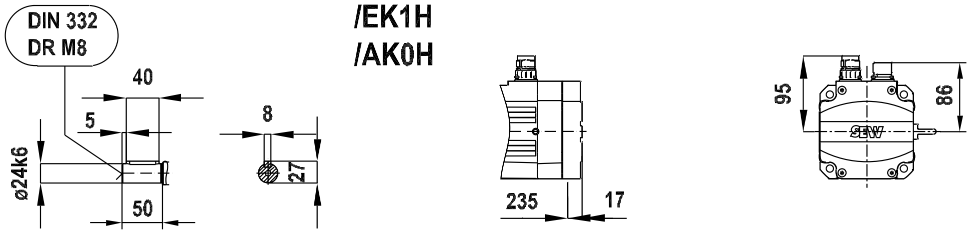


**CMPZ71S** **09 337 02 08**

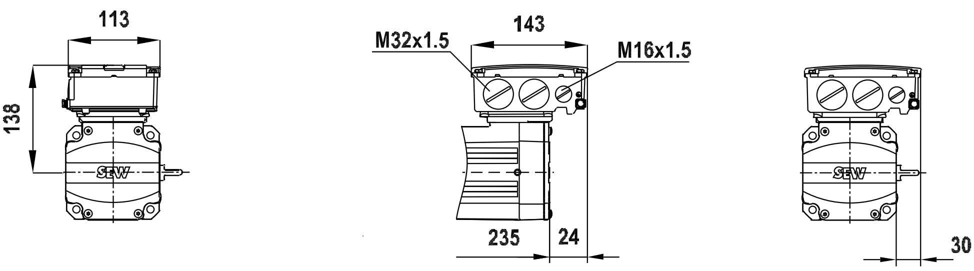
**SM1** **/RH1M**



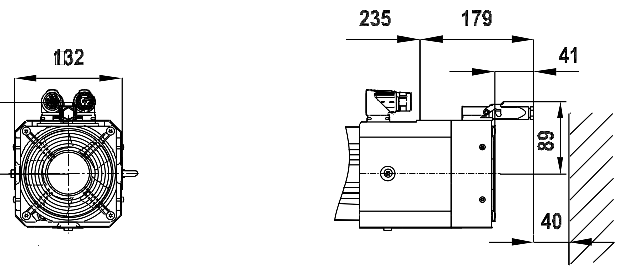

**/AK1H**
**/EK1H**
**/AK0H**




**/KK**

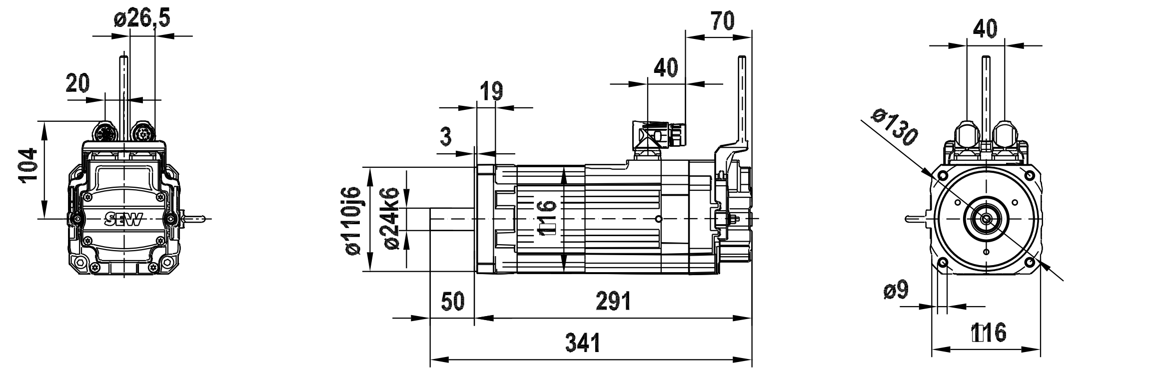



**/VR**

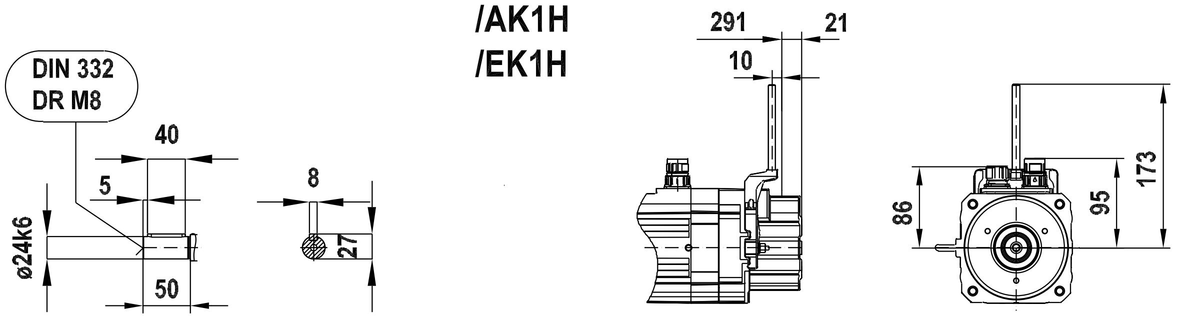


**CMPZ71S** **09 346 01 08**
**BY2**
**SB1**

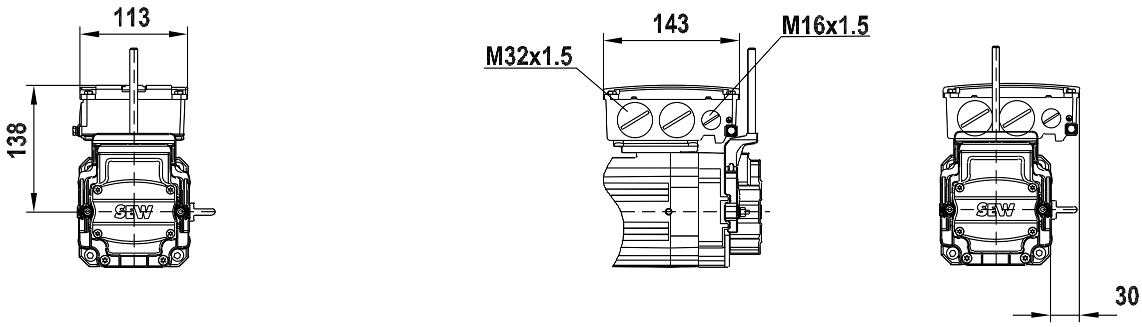
**/RH1M**



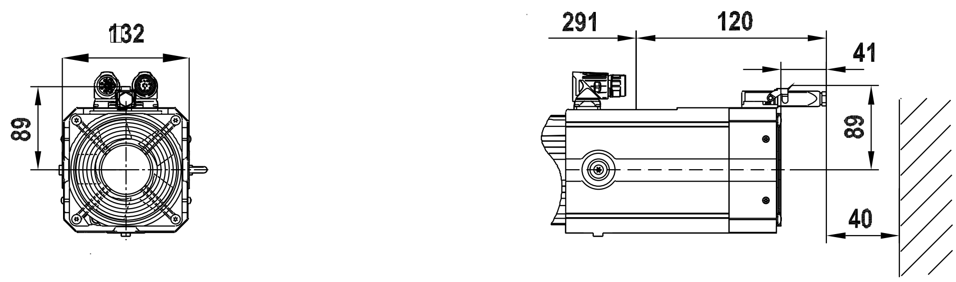

**/AK1H**
**/EK1H**




**/KK**

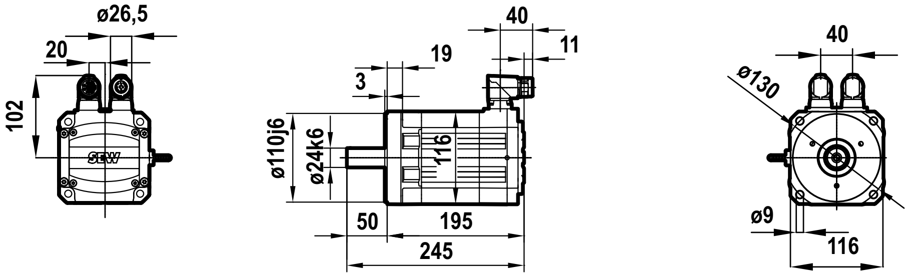



**/VR**

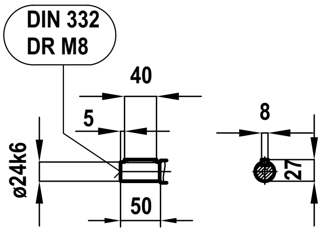


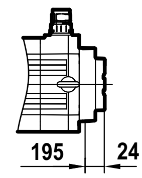
**CMP71M** **08 473 01 08**

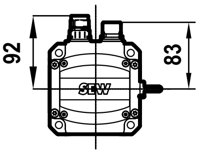
**SM1** **/RH1M**



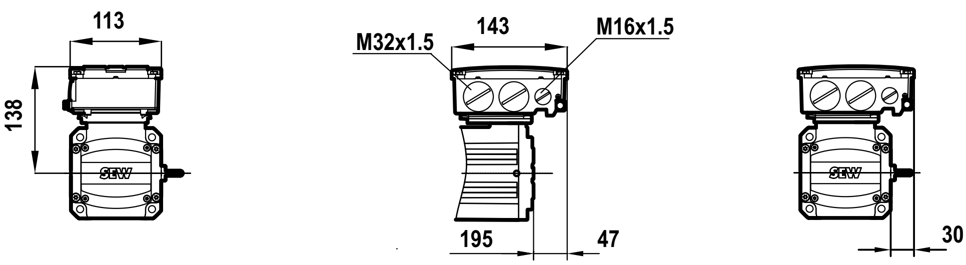

**/AK1H**
**/EK1H**
**/AK0H**



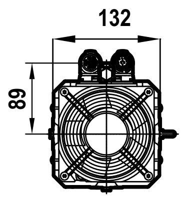



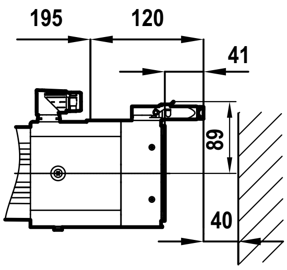




**/KK**



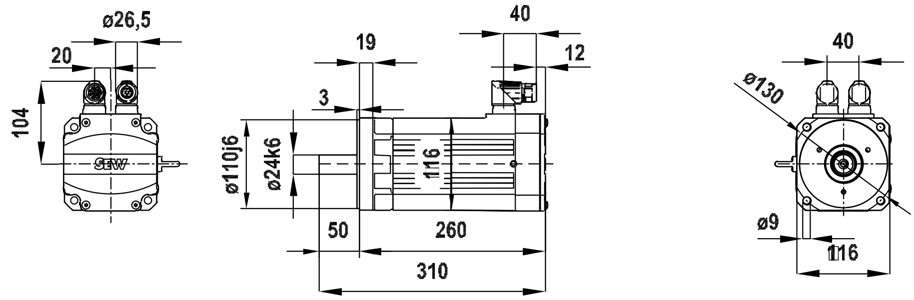

**/VR**



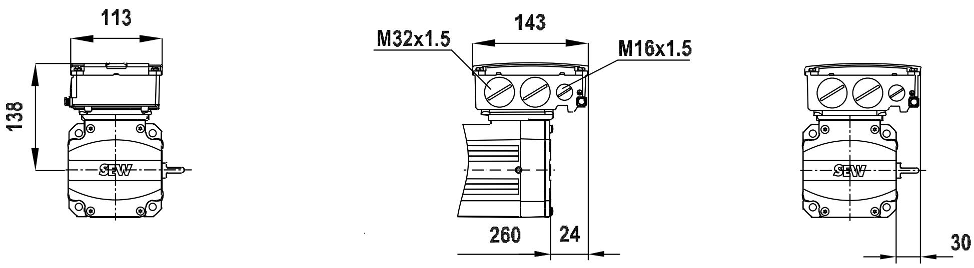
**CMP71M** **09 359 02 08**
**BP1**
**SB1**

**/RH1M**

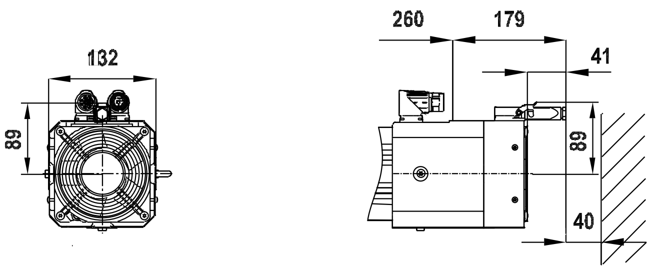



**/AK1H**
**/EK1H**
**/AK0H**


**/KK**

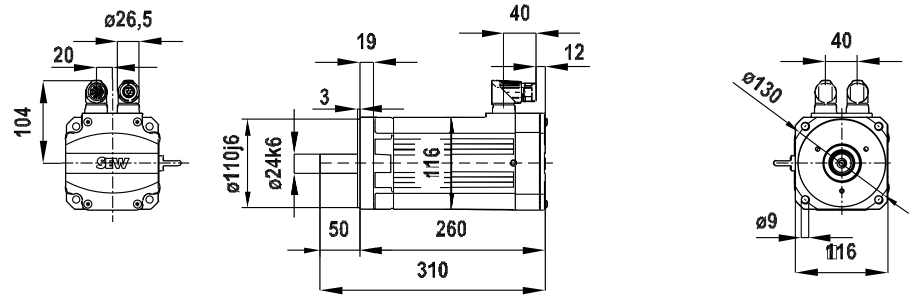



**/VR**



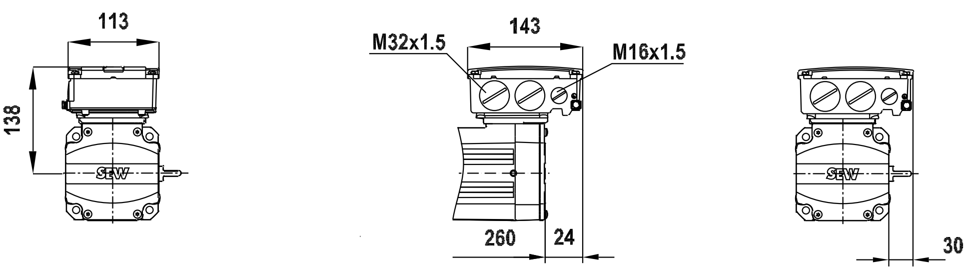
**CMPZ71M** **09 340 02 08**

**SM1** **/RH1M**

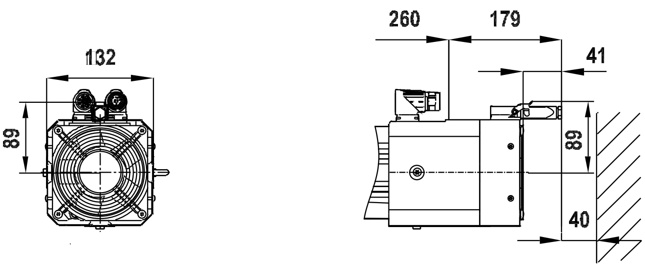



**/AK1H**
**/EK1H**
**/AK0H**


**/KK**



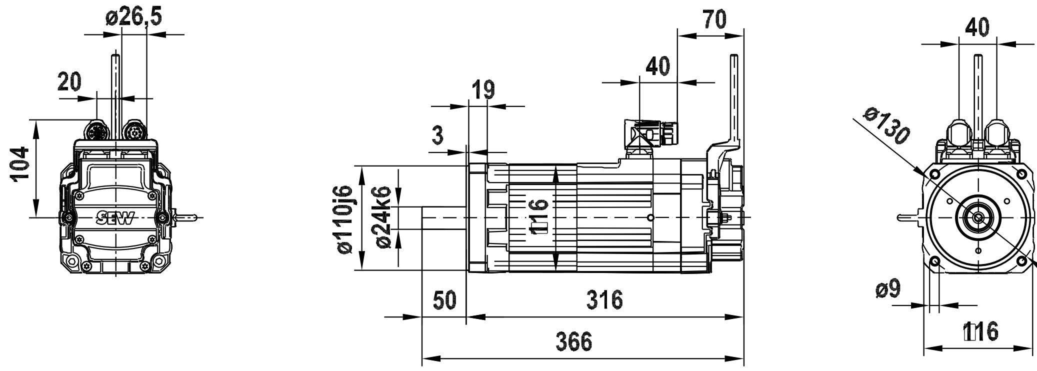

**/VR**



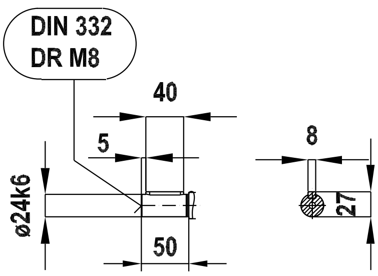
**CMPZ71M**
**BY2**
**SB1**

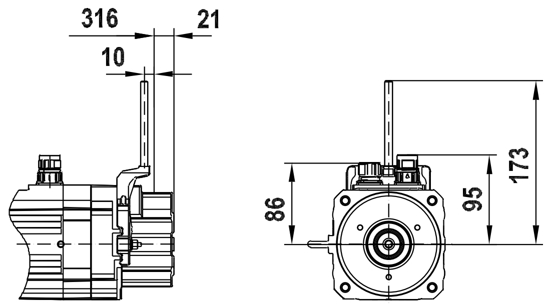
**09 349 01 08**

## /RH1M

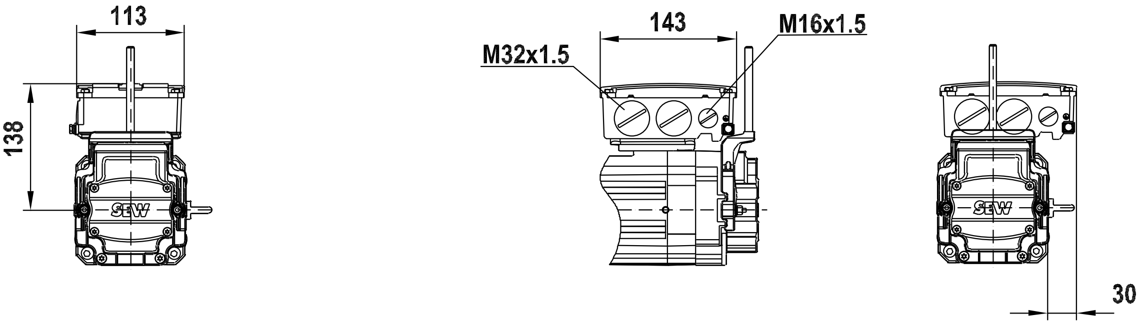



## /AK1H
## /EK1H

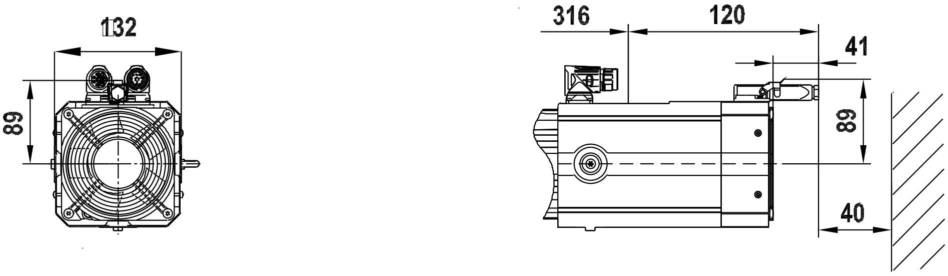



## /KK

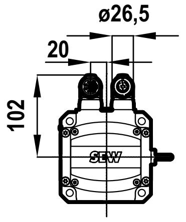


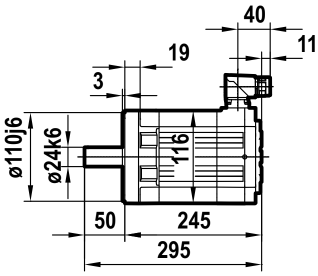

## /VR

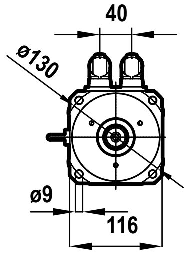


**CMP71L** **08 476 01 08**

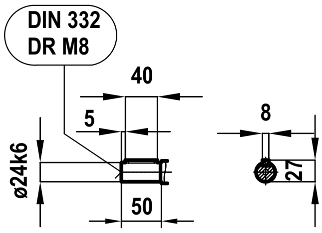
**SM1** **/RH1M**

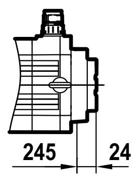


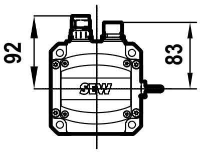



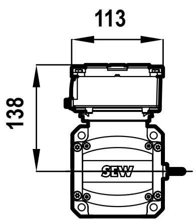

**/AK1H**
**/EK1H**
**/AK0H**

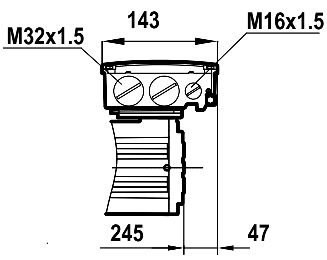


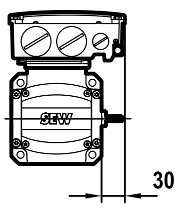



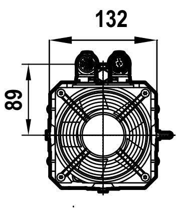

**/KK**

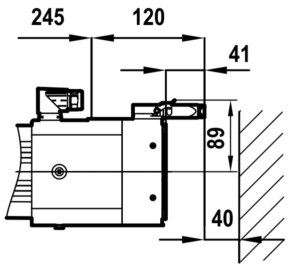


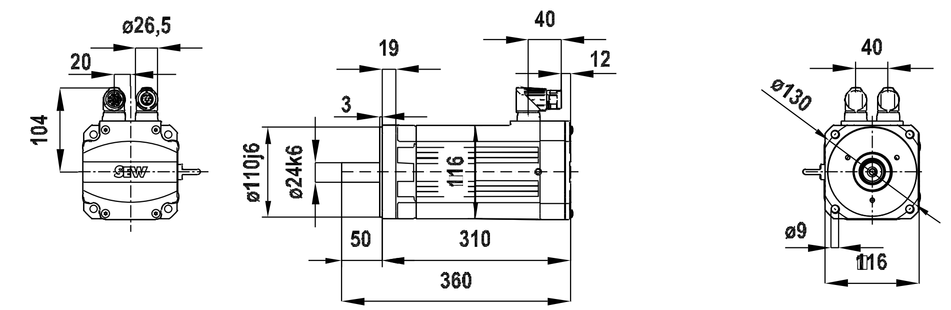

**/VR**



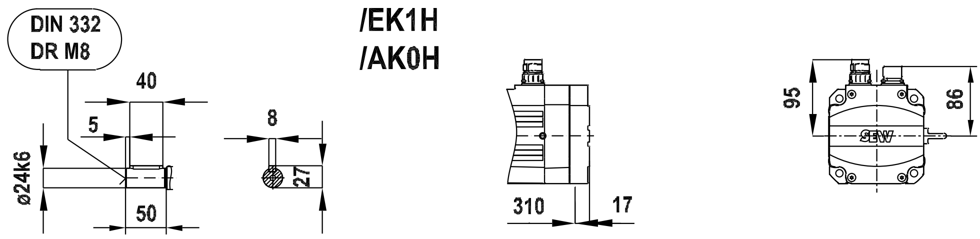



**CMP71L** **09 362 02 08**
**BP1**
**SB1**

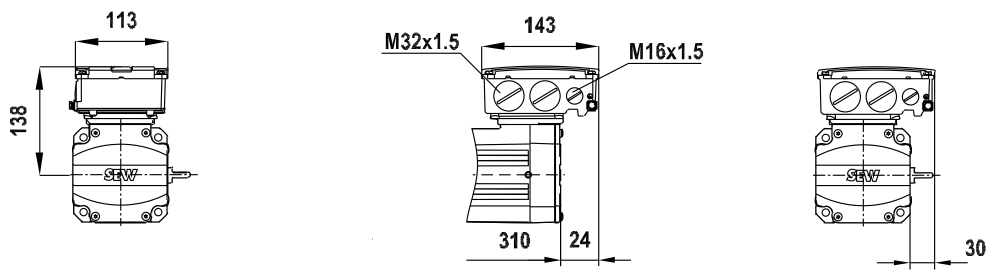
**/RH1M**



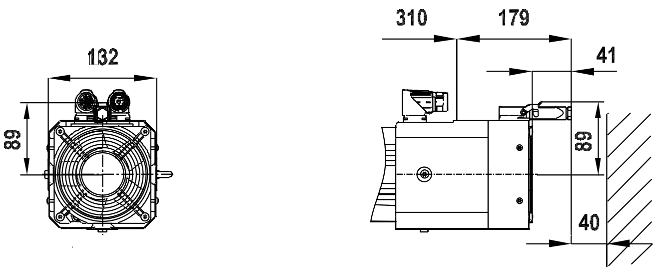

**/AK1H**
**/EK1H**
**/AK0H**




**/KK**

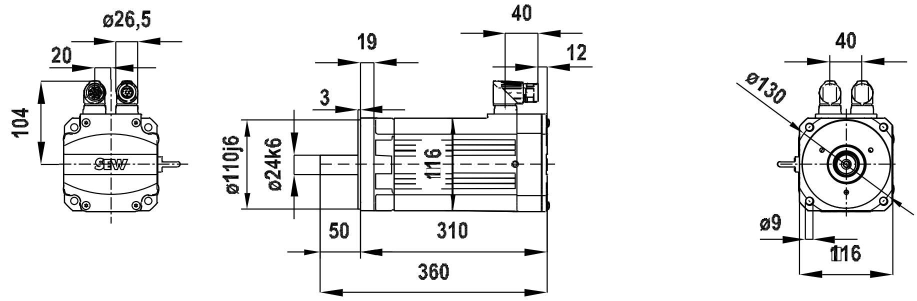



**/VR**

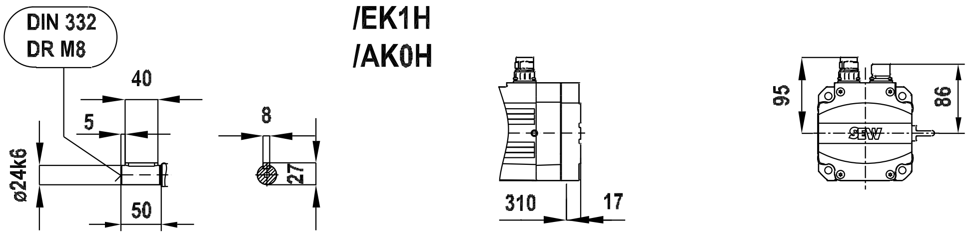


**CMPZ71L** 09 343 02 08

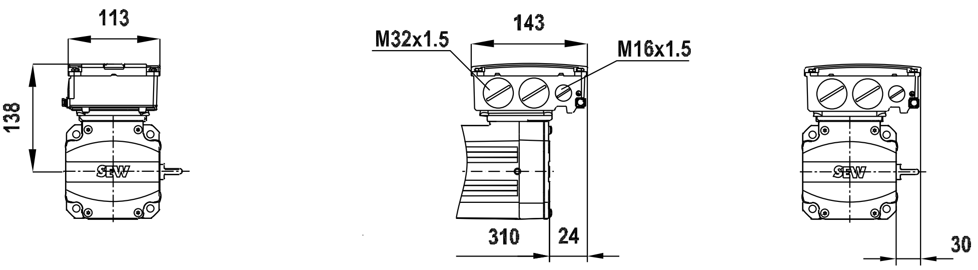
**SM1** **/RH1M**



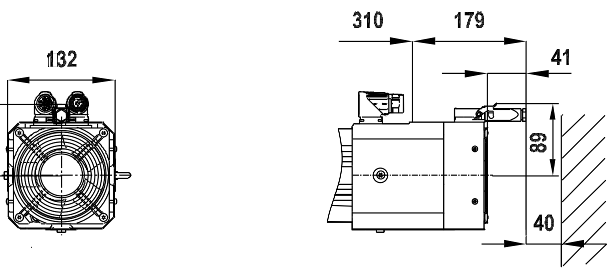

**/AK1H**
**/EK1H**
**/AK0H**




**/KK**



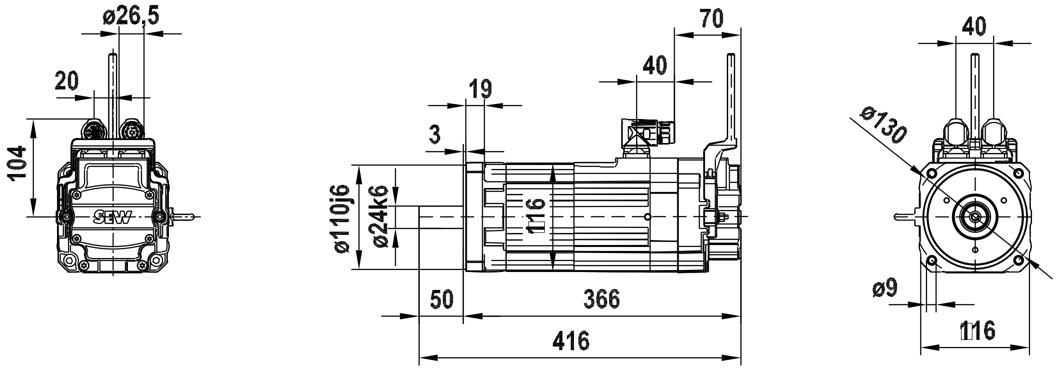

**/VR**



**CMPZ71L**
**BY2**
**SB1**

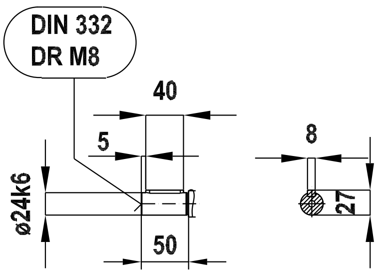
**09 352 01 08**

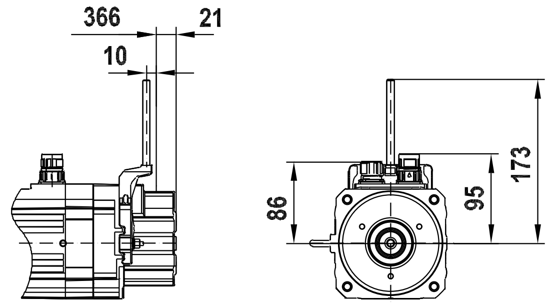
**/RH1M**



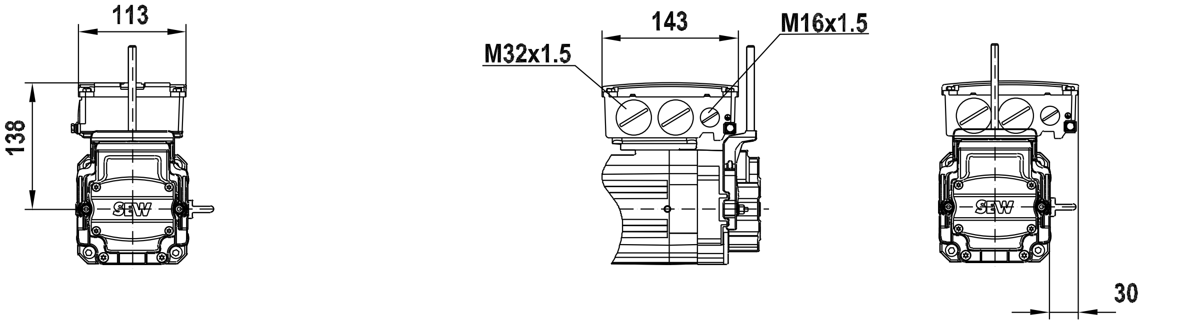



**/AK1H**
**/EK1H**

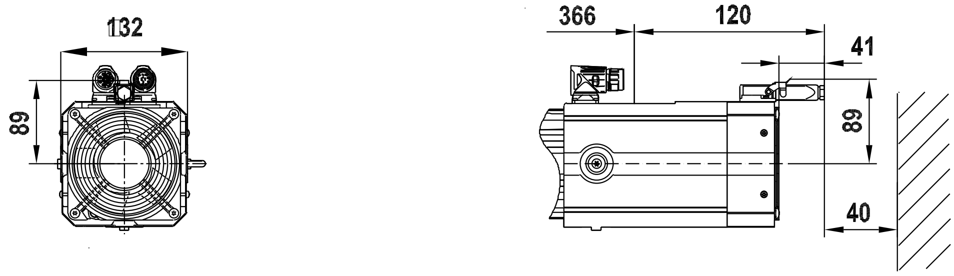



**/KK**



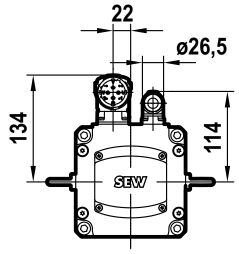

**/VR**

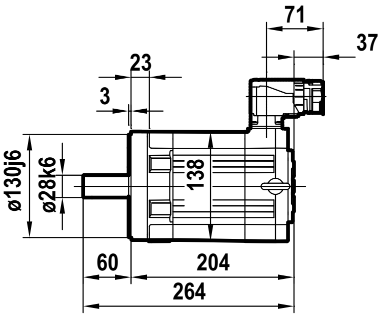


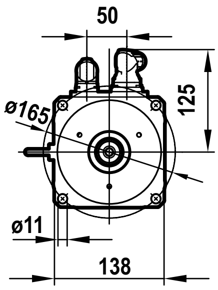
*CMP(Z)80S/M/L synchronous servomotors*

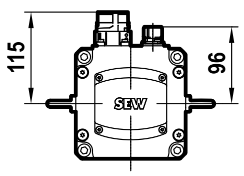
**CMP80S** **08 471 01 08**

**SMB** **/RH1M** **SM1**

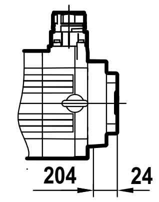


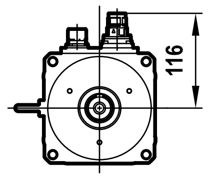



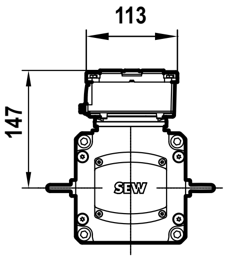



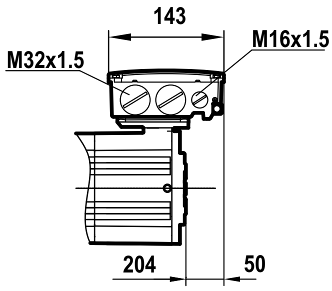

**/AK1H**
**/EK1H**
**/AK0H**

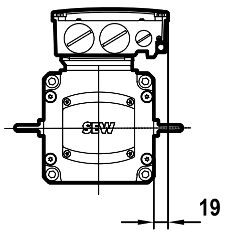


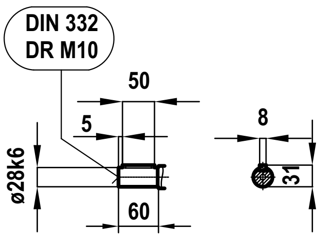




**/KK**

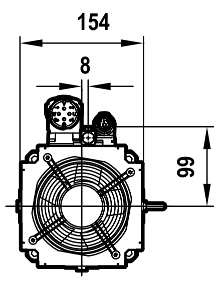


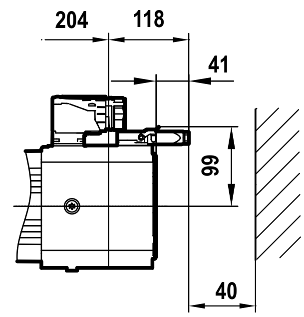



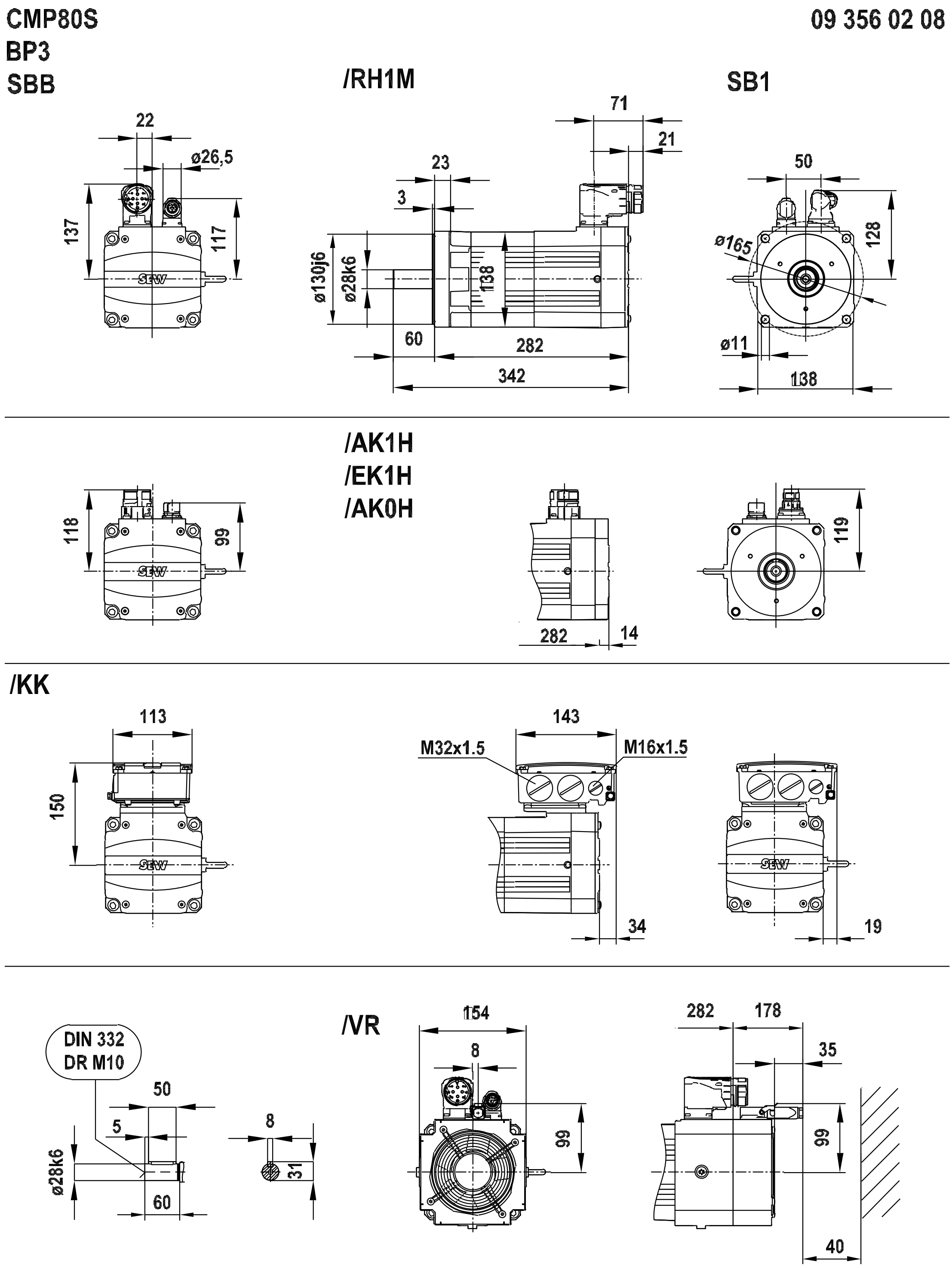




**/VR**

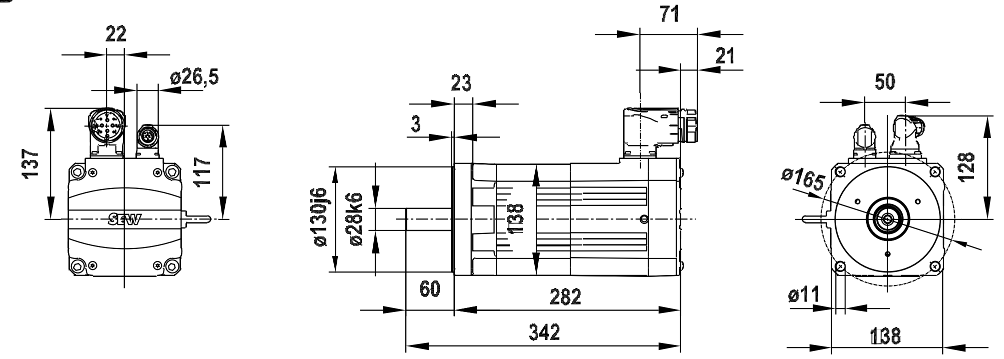


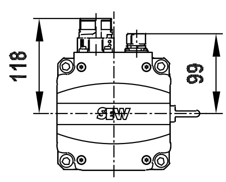

CMP80S
BP3
SBB
09 356 02 08
/RH1M
SB1
22
ø26,5
137
117
71
21
23
3
ø130j6
ø28k6
138
60
282
342
50
ø165
128
ø11
138
/AK1H
/EK1H
/AK0H
118
99
282
14
119
/KK
113
150
143
M32x1.5
M16x1.5
34
19
DIN 332
DR M10
50
5
ø28k6
60
8
31
/VR
154
8
99
282
178
35
99
40

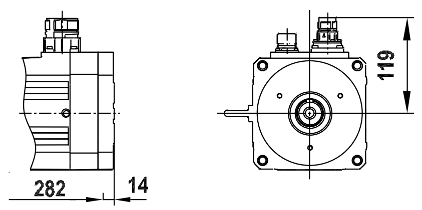
**CMPZ80S** 09 338 02 08

**SMB** **/RH1M** **SM1**

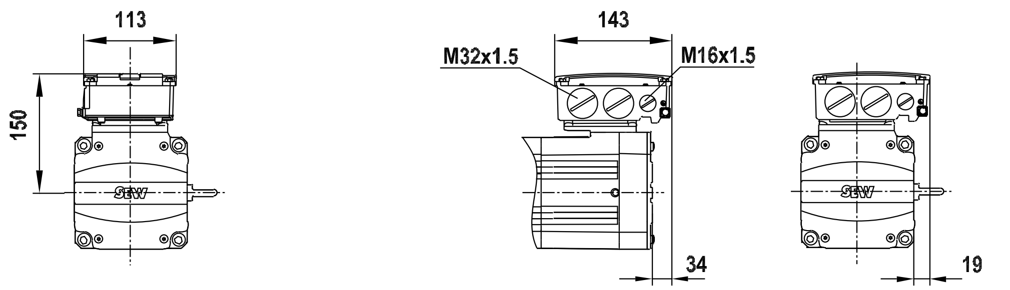


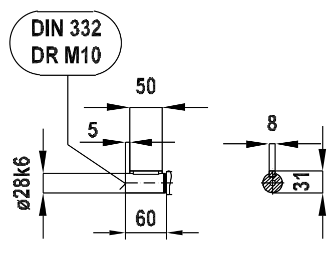

**/AK1H**
**/EK1H**
**/AK0H**



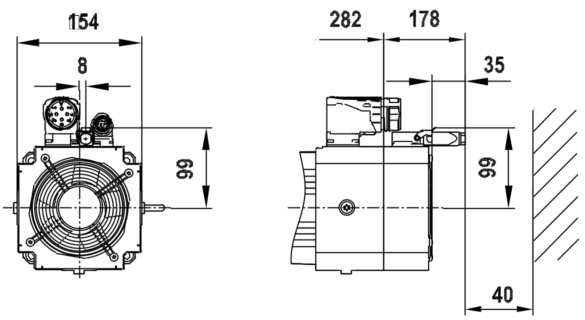




**/KK**




**/VR**



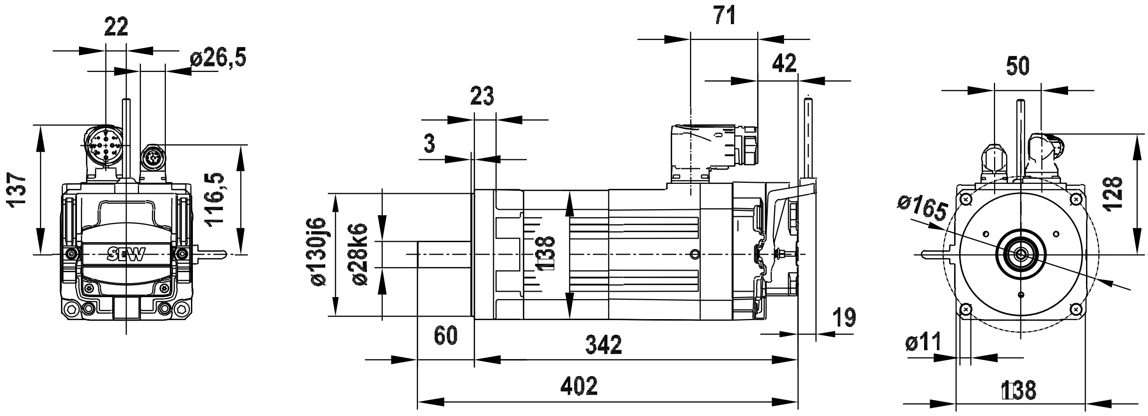
**CMPZ80S** 09 347 01 08

**BY4**

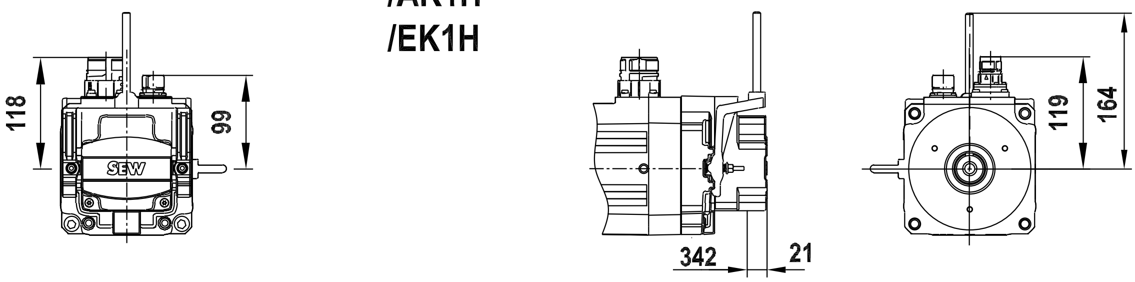
**SBB**

**/RH1M**

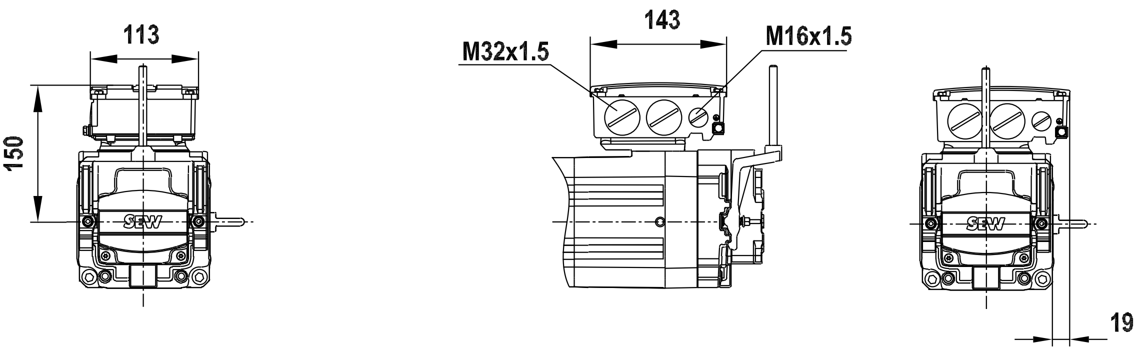
**SB1**

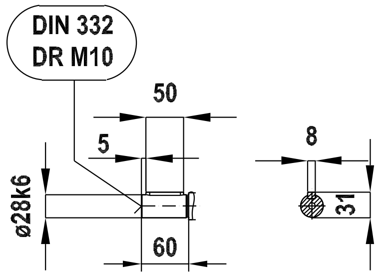



**/AK1H**
**/EK1H**

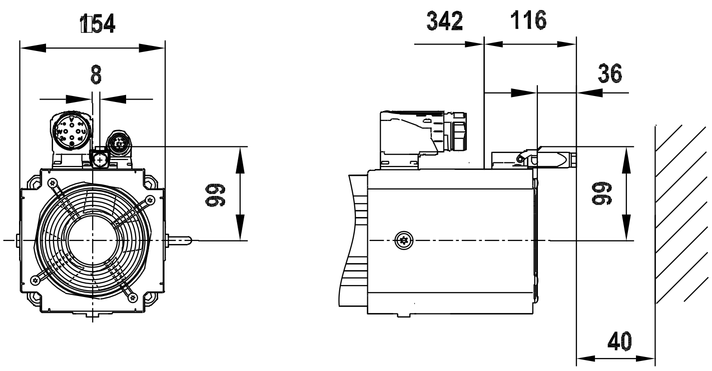



**/KK**



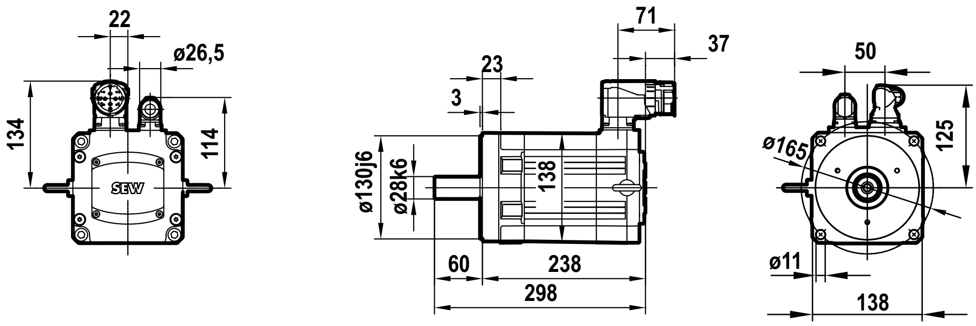




**/VR**

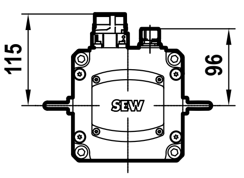


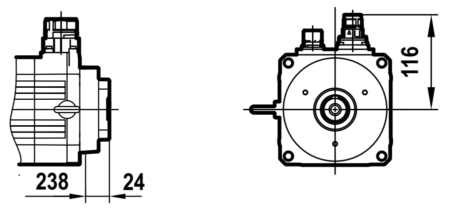
**CMP80M** **08 474 01 08**

**SMB** **/RH1M** **SM1**

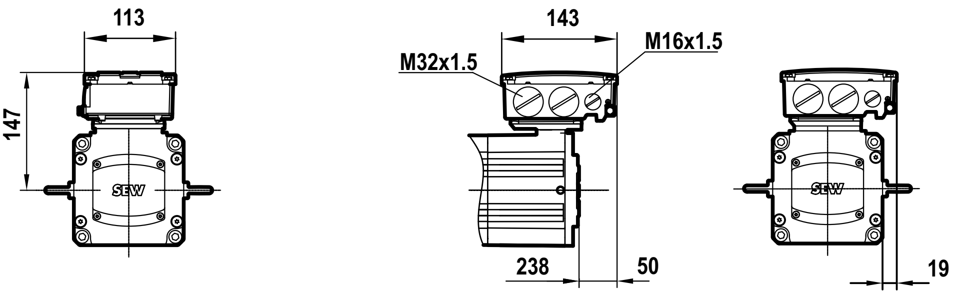


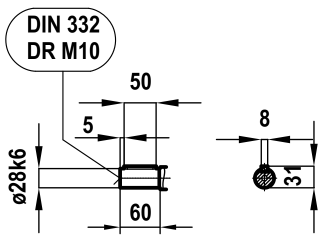

**/AK1H**
**/EK1H**
**/AK0H**



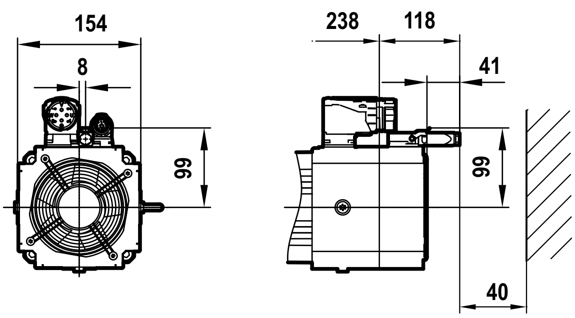



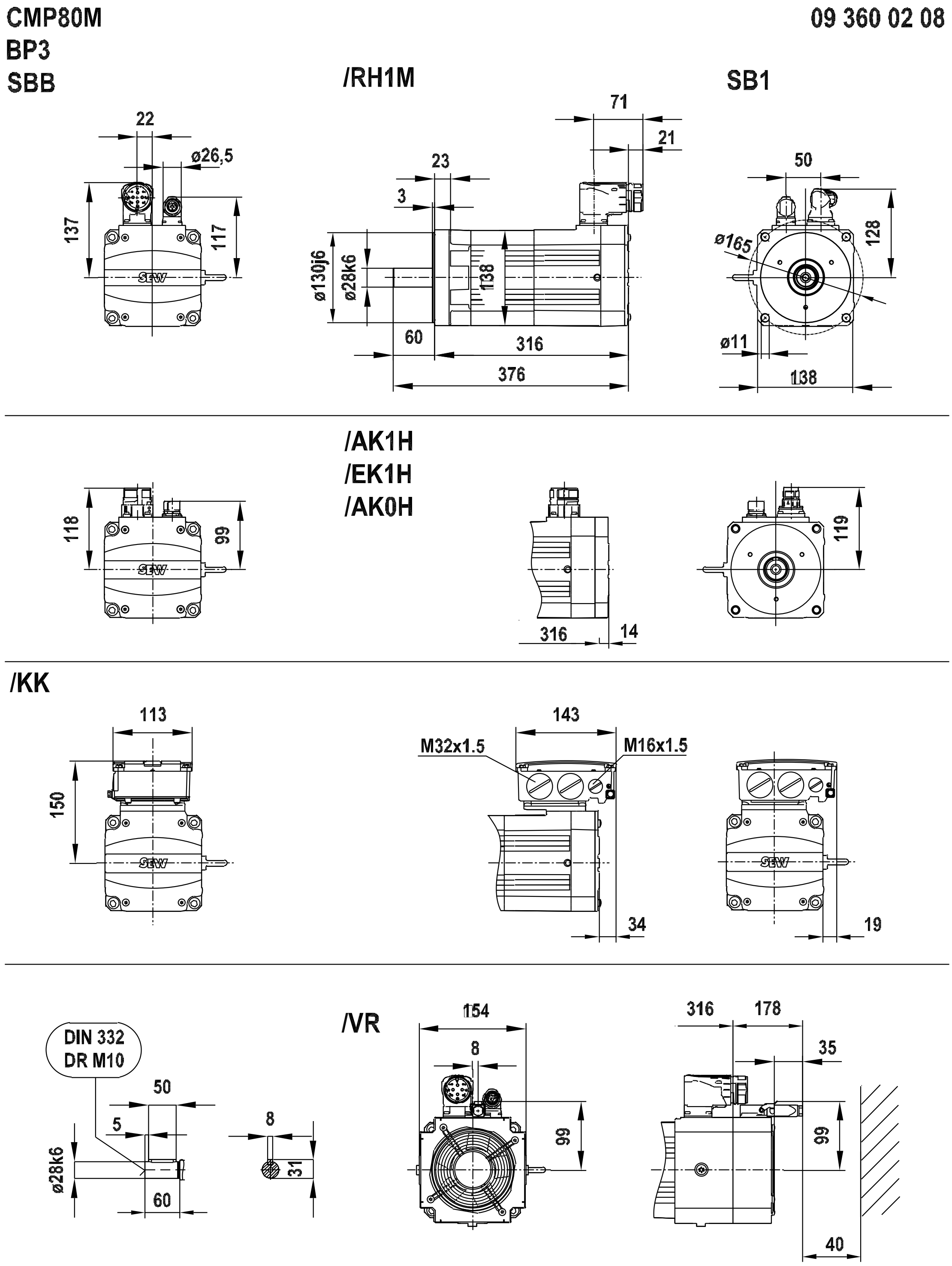

**/KK**



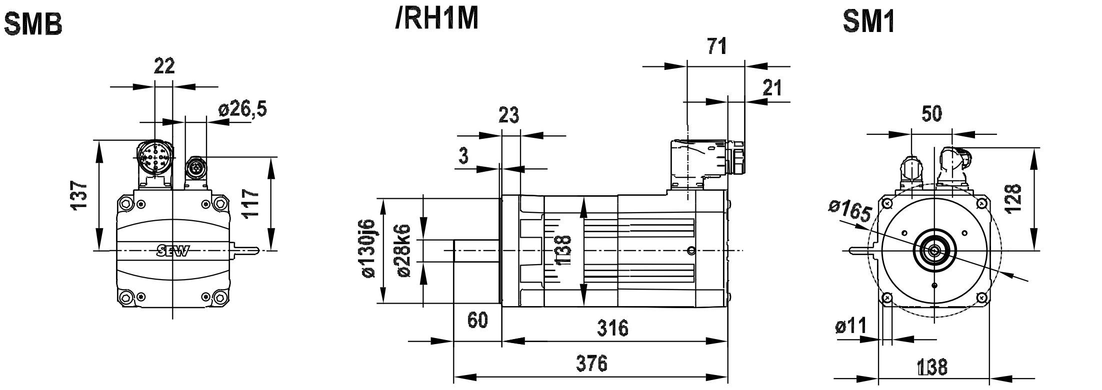



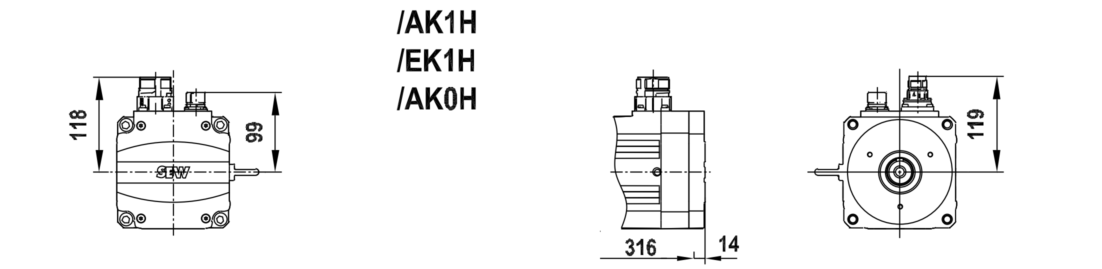

**/VR**

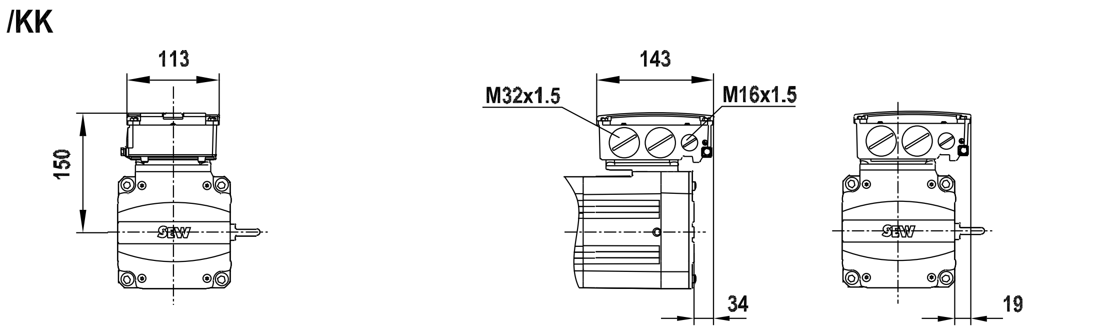


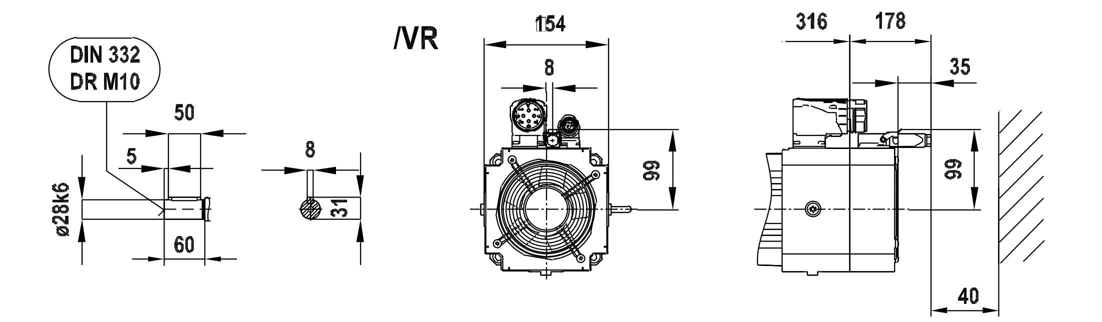

CMP80M
BP3
SBB
09 360 02 08
/RH1M
SB1
22
ø26,5
137
117
71
21
23
3
ø130j6
ø28k6
138
60
316
376
50
ø165
128
ø11
138
/AK1H
/EK1H
/AK0H
118
99
316
14
119
/KK
113
150
143
M32x1.5
M16x1.5
34
19
DIN 332
DR M10
50
5
ø28k6
60
8
31
/VR
154
8
99
316
178
35
99
40

**CMPZ80M** **09 341 02 08**

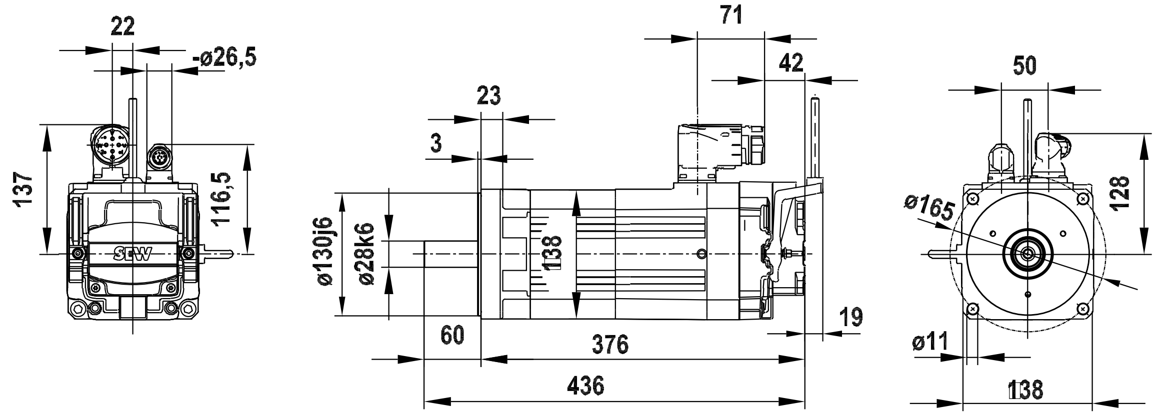


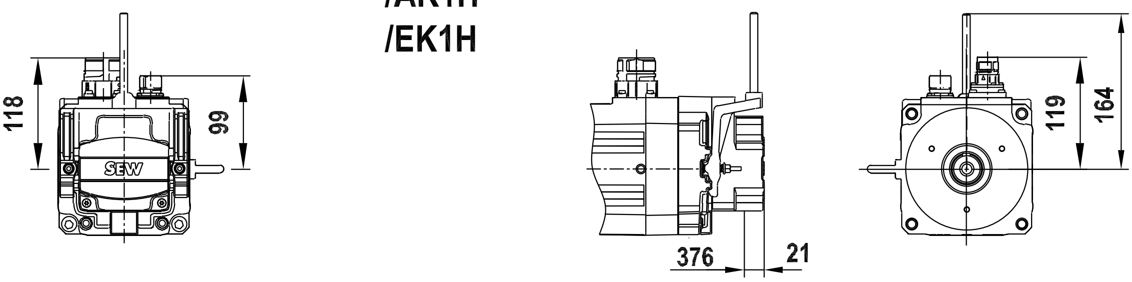



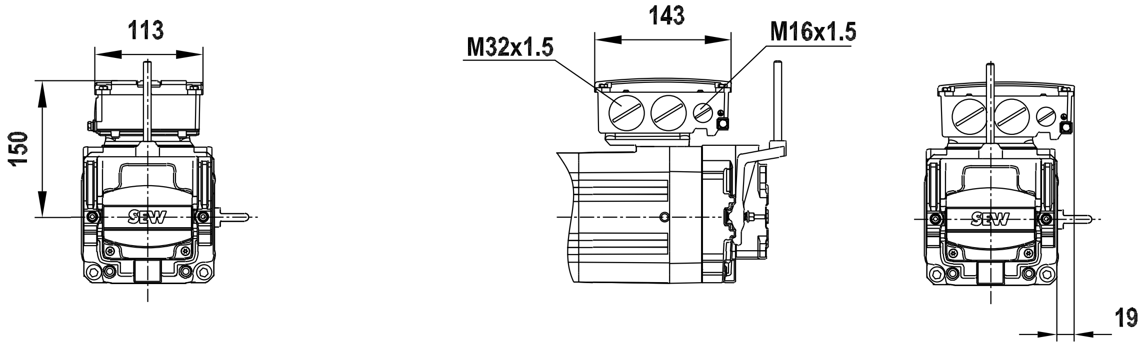
**CMPZ80M** **09 350 01 08**
**BY4**
**SBB** **/RH1M** **SB1**



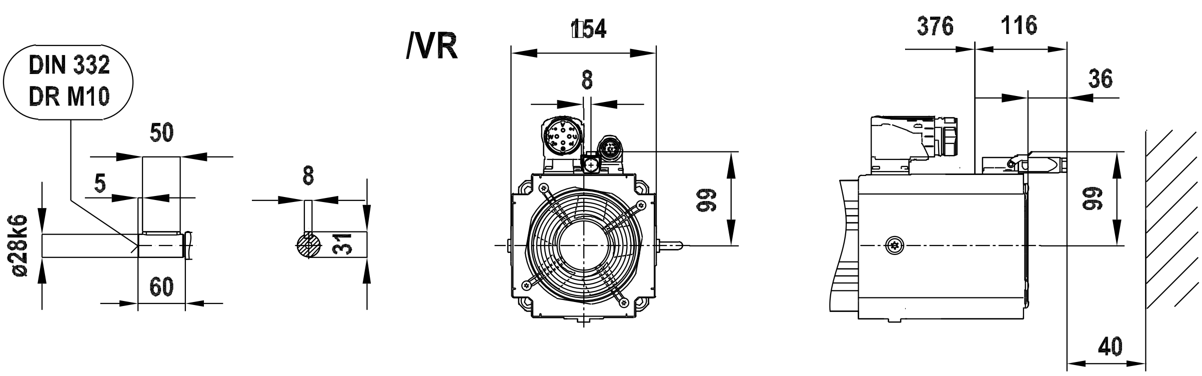

**/AK1H**
**/EK1H**




**/KK**

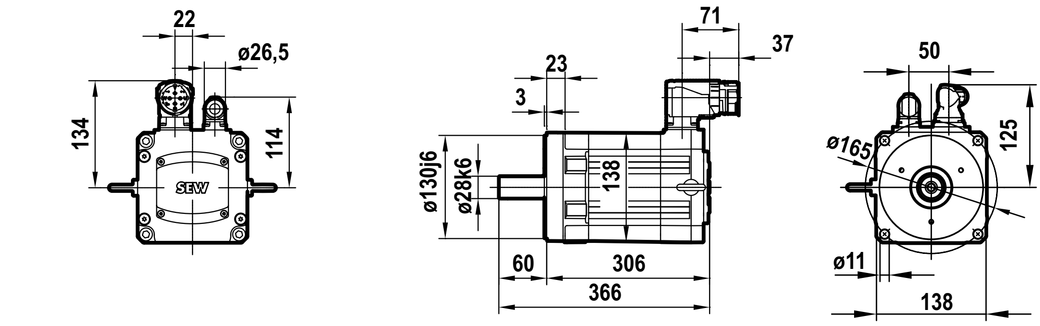



**/VR**



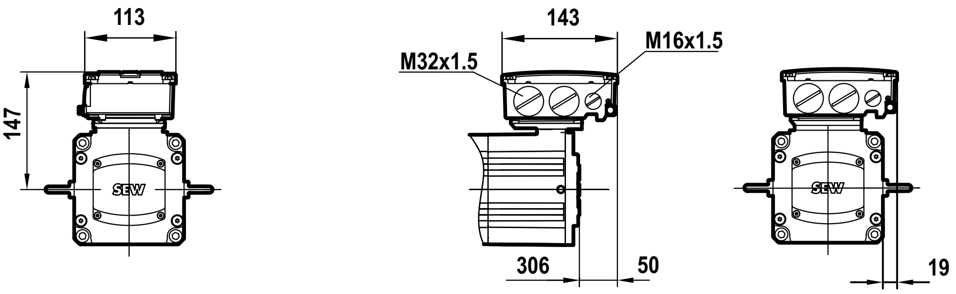
**CMP80L** **08 477 01 08**

**SMB** **/RH1M** **SM1**

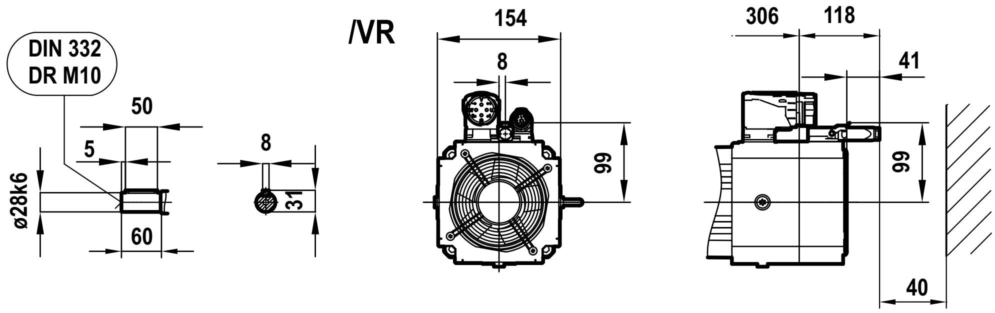



**/AK1H**
**/EK1H**
**/AK0H**


**/KK**



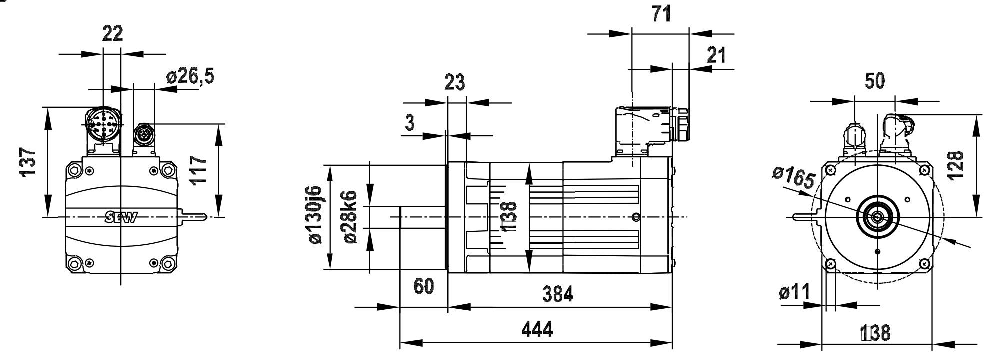

**/VR**



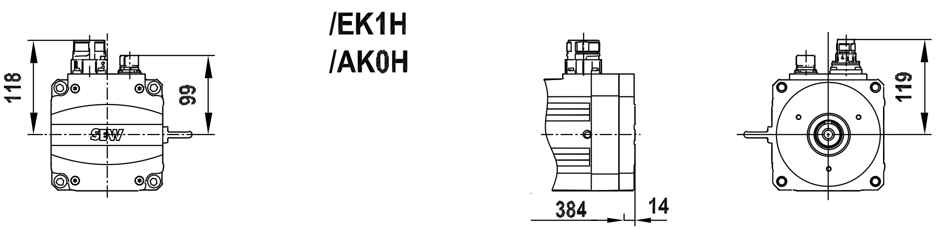
**CMP80L**
**BP3**
**SBB**

**09 363 02 08**

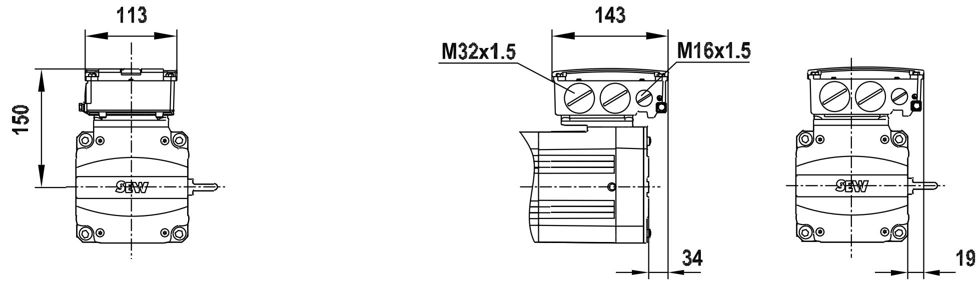
**/RH1M** **SB1**



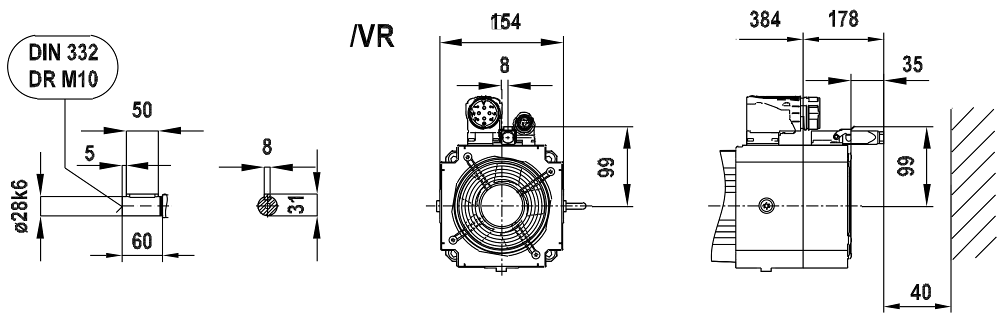

**/AK1H**
**/EK1H**
**/AK0H**



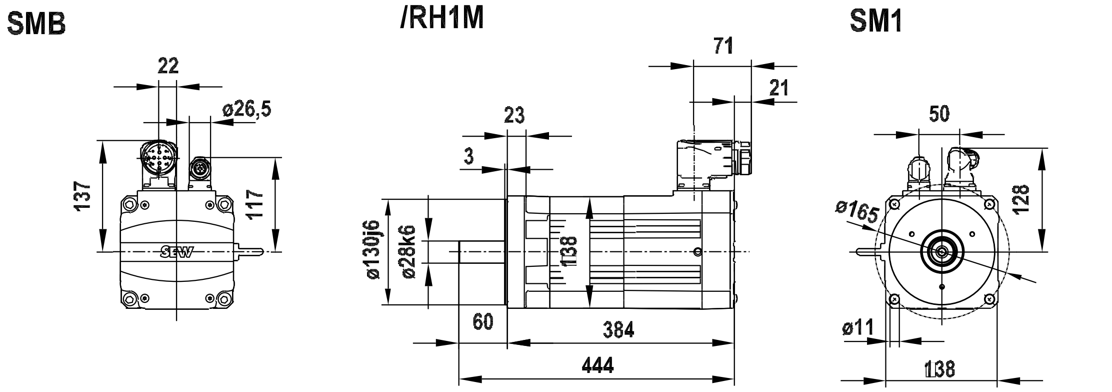

**/KK**

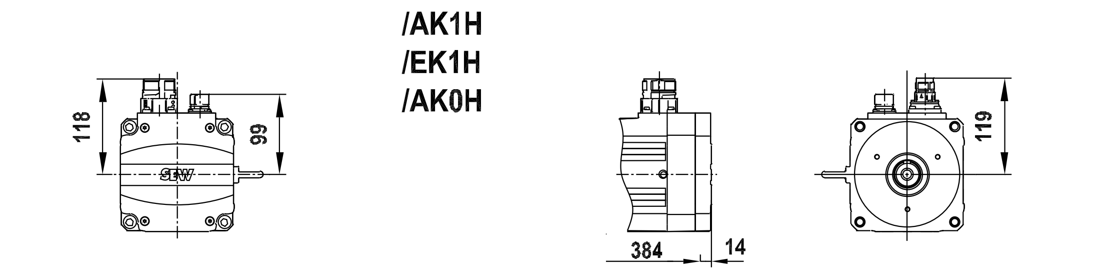


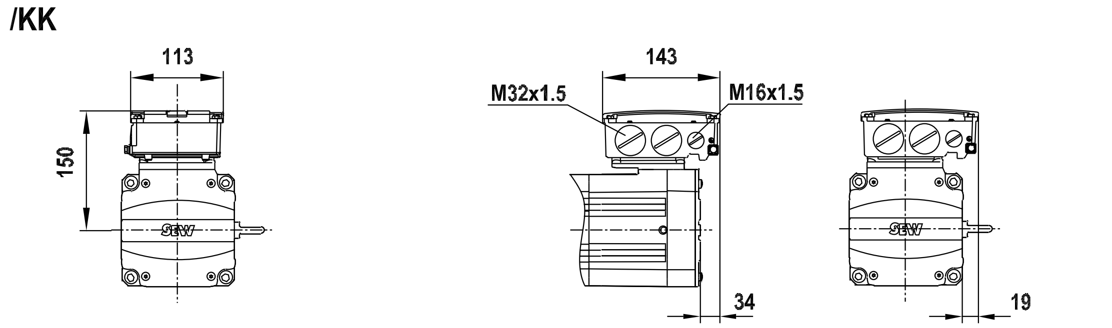

**/VR**

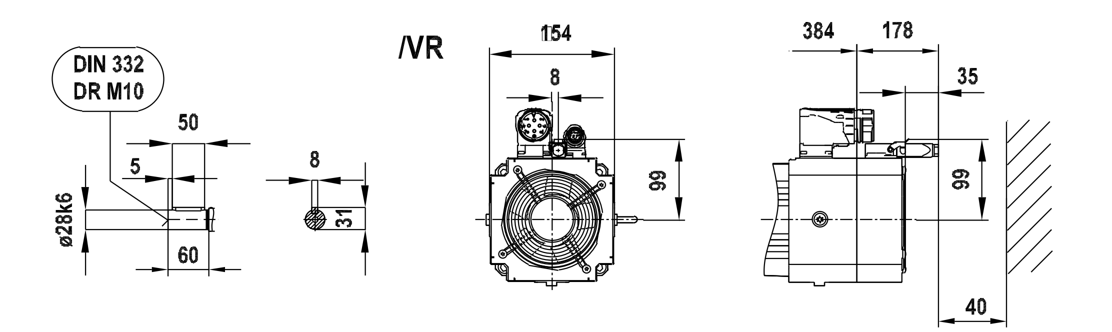


**CMPZ80L** **09 344 02 08**



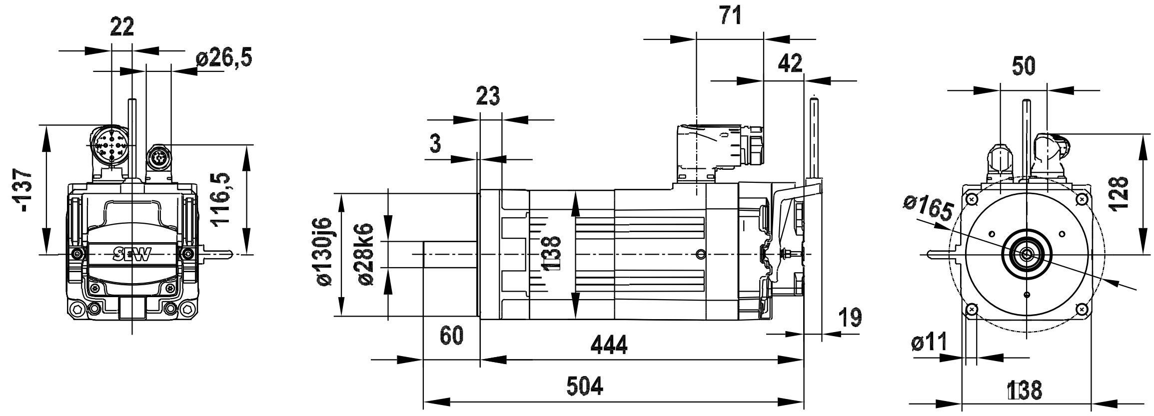



**CMPZ80L**
**BY4**
**SBB**

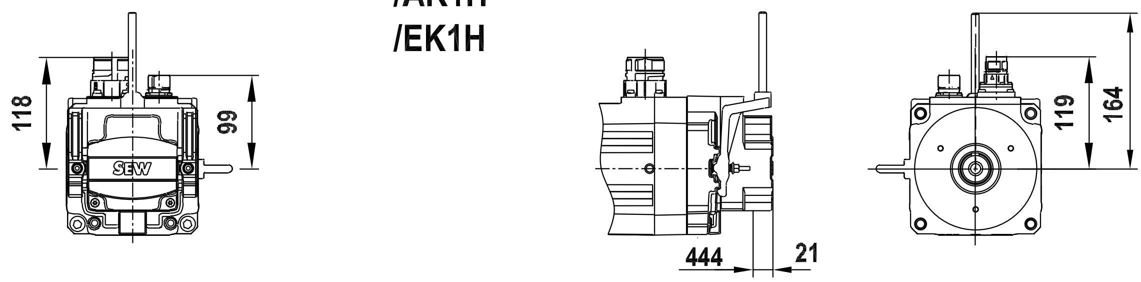
**09 353 01 08**

**/RH1M** **SB1**

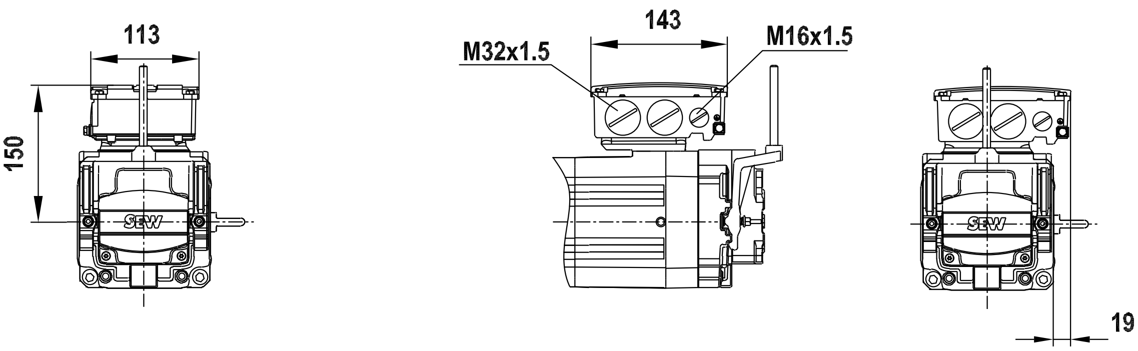




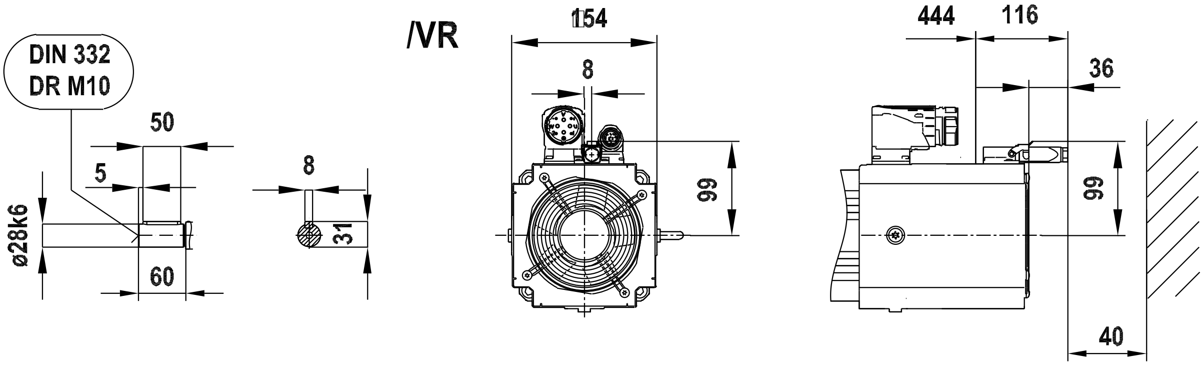

**/AK1H**
**/EK1H**




**/KK**



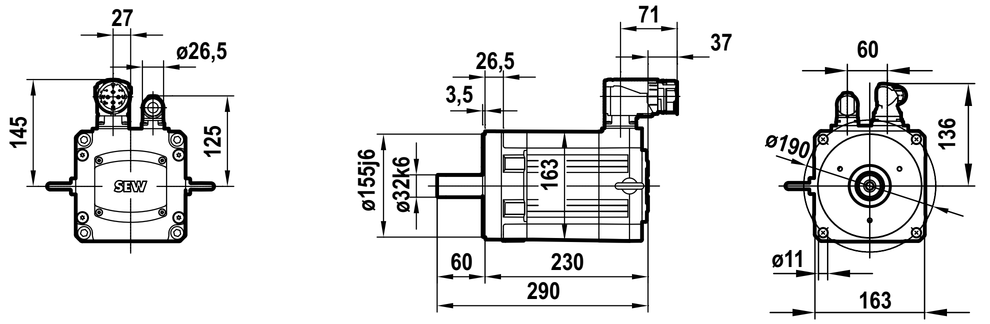

**/VR**



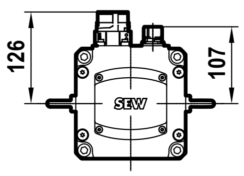
*CMP(Z)100S/M/L synchronous servomotors*

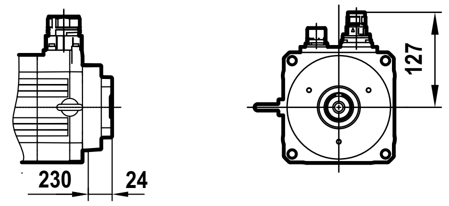
**CMP100S** **08 472 01 08**

**SMB** **/RH1M** **SM1**

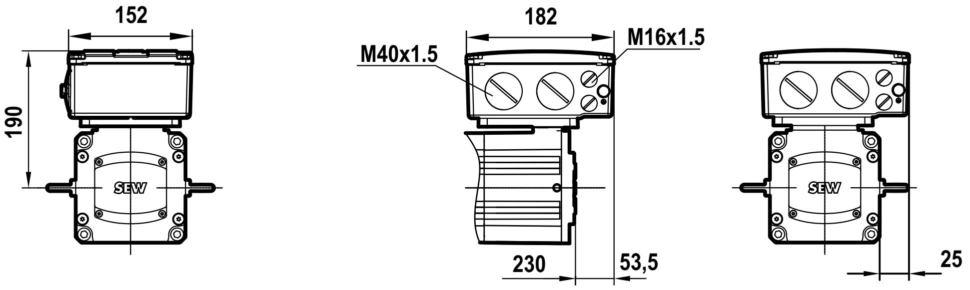


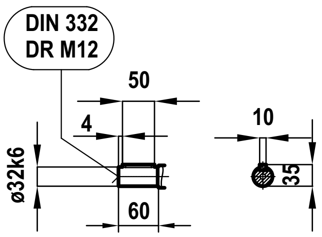

**/AK1H**
**/EK1H**
**/AK0H**



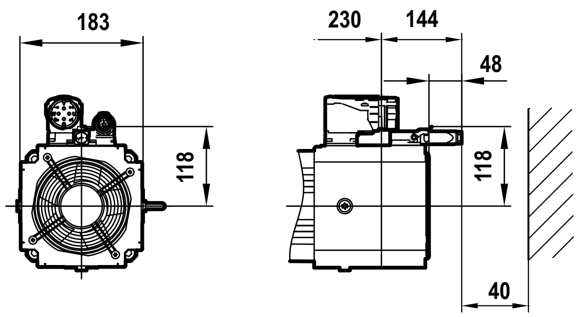




**/KK**

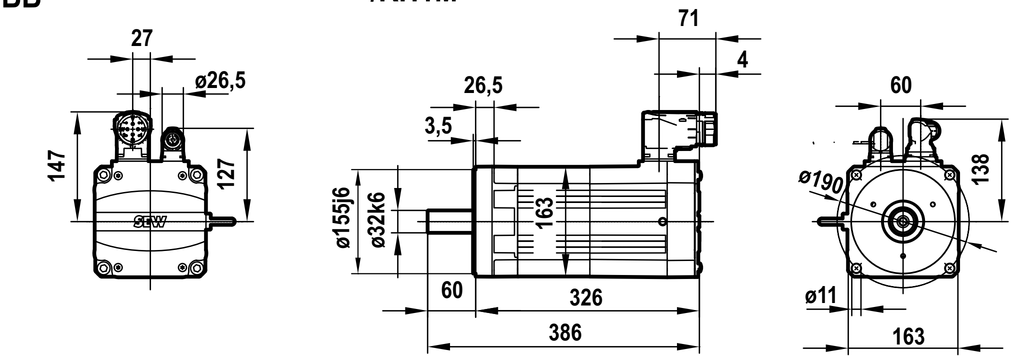



**/VR**

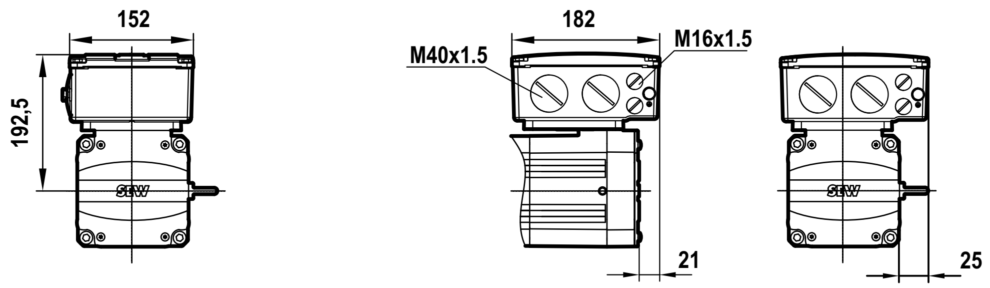


**CMP100S** **09 357 01 08**
**BP5**
**SBB** **/RH1M** **SB1**

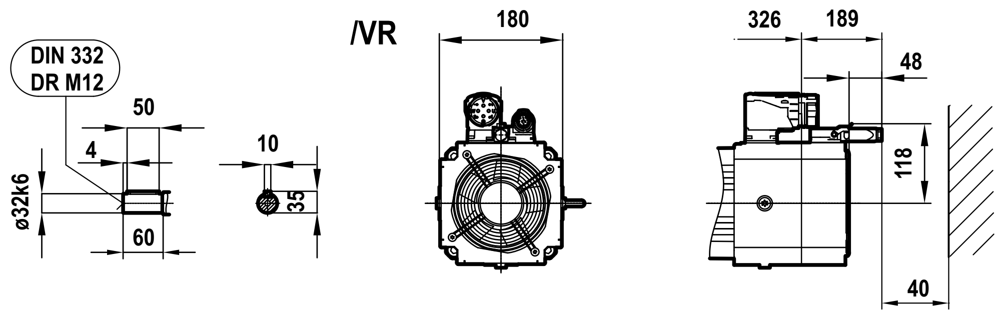



**/AK1H**
**/EK1H**
**/AK0H**

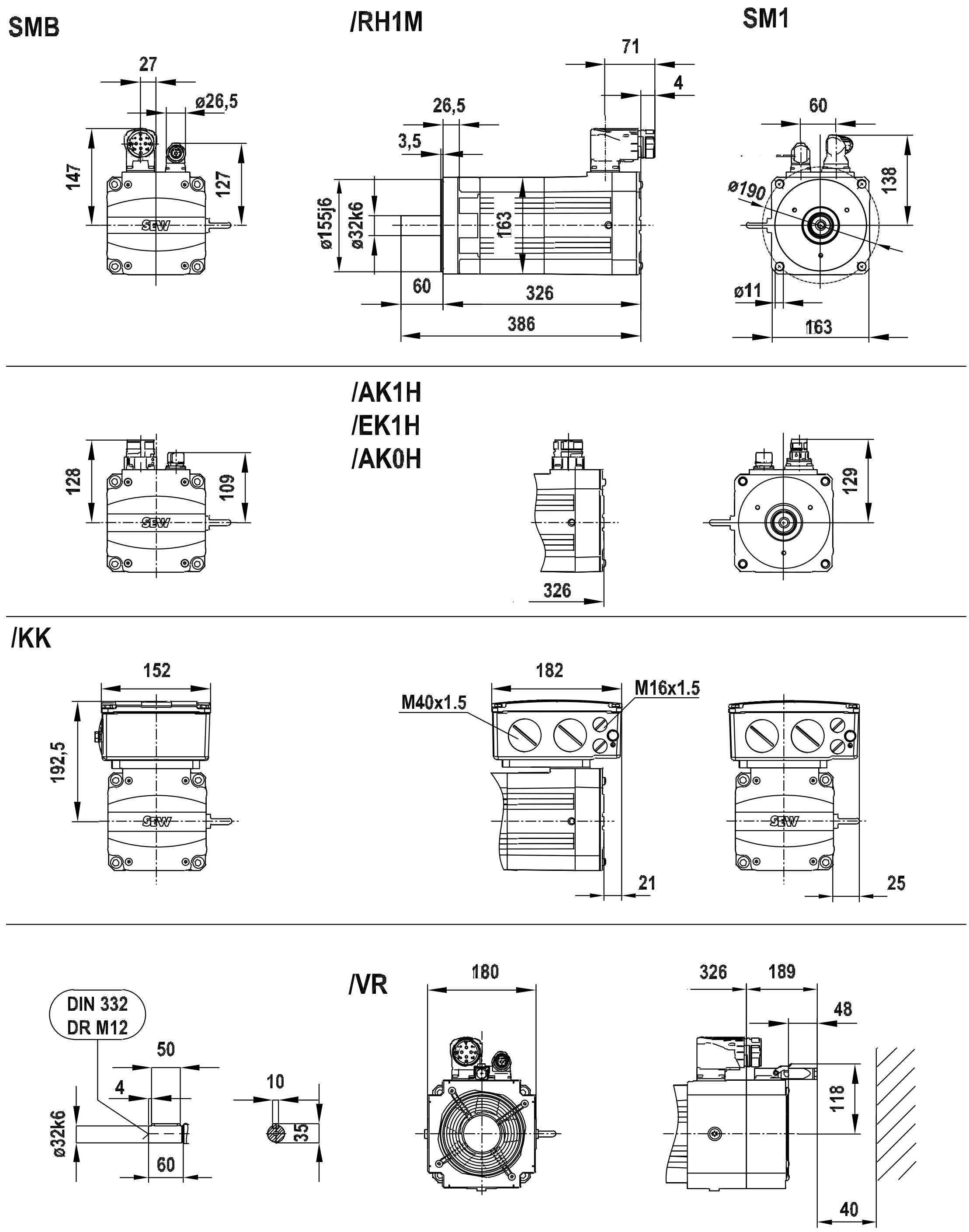

**/KK**




**/VR**

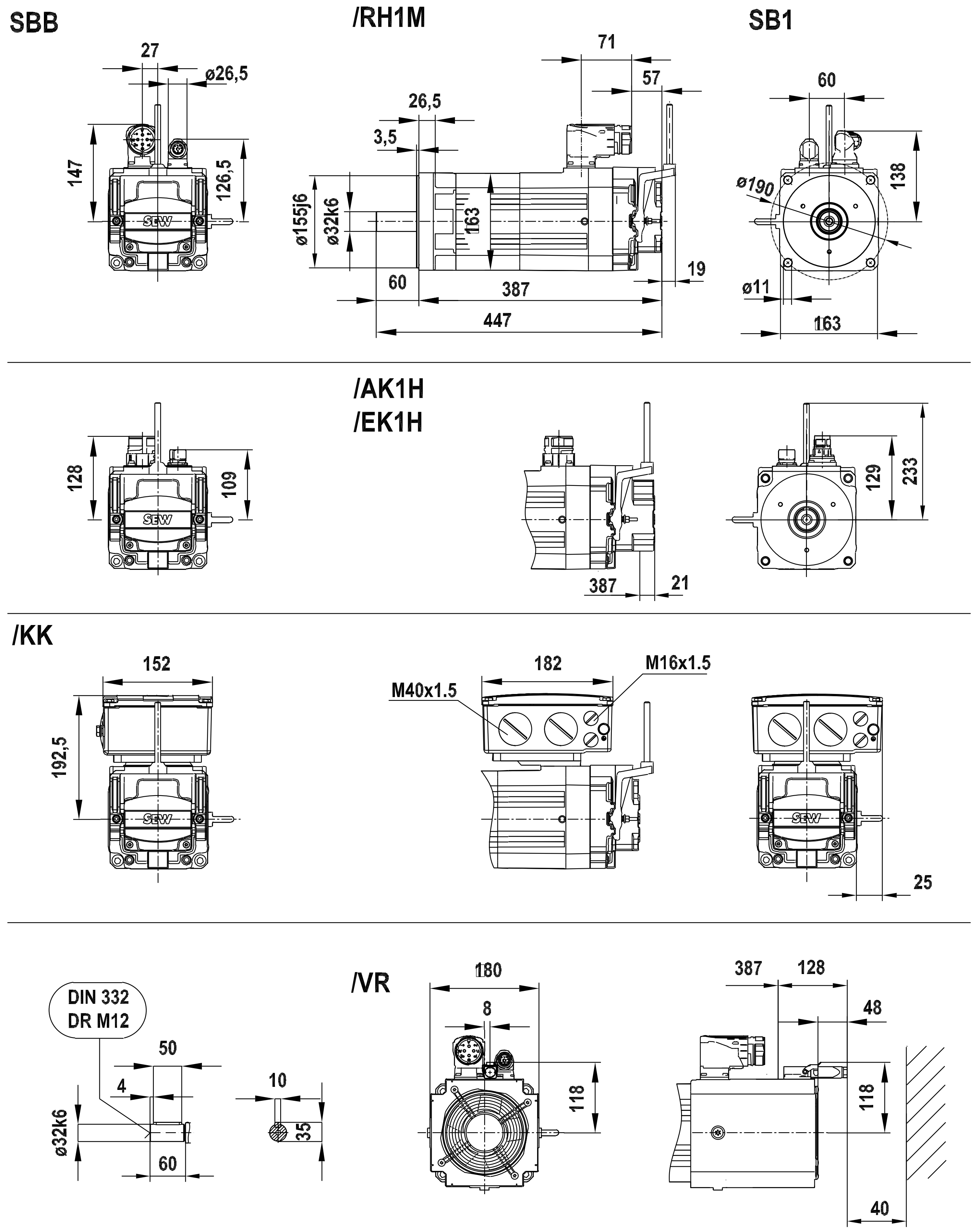


**CMPZ100S** 09 339 02 08

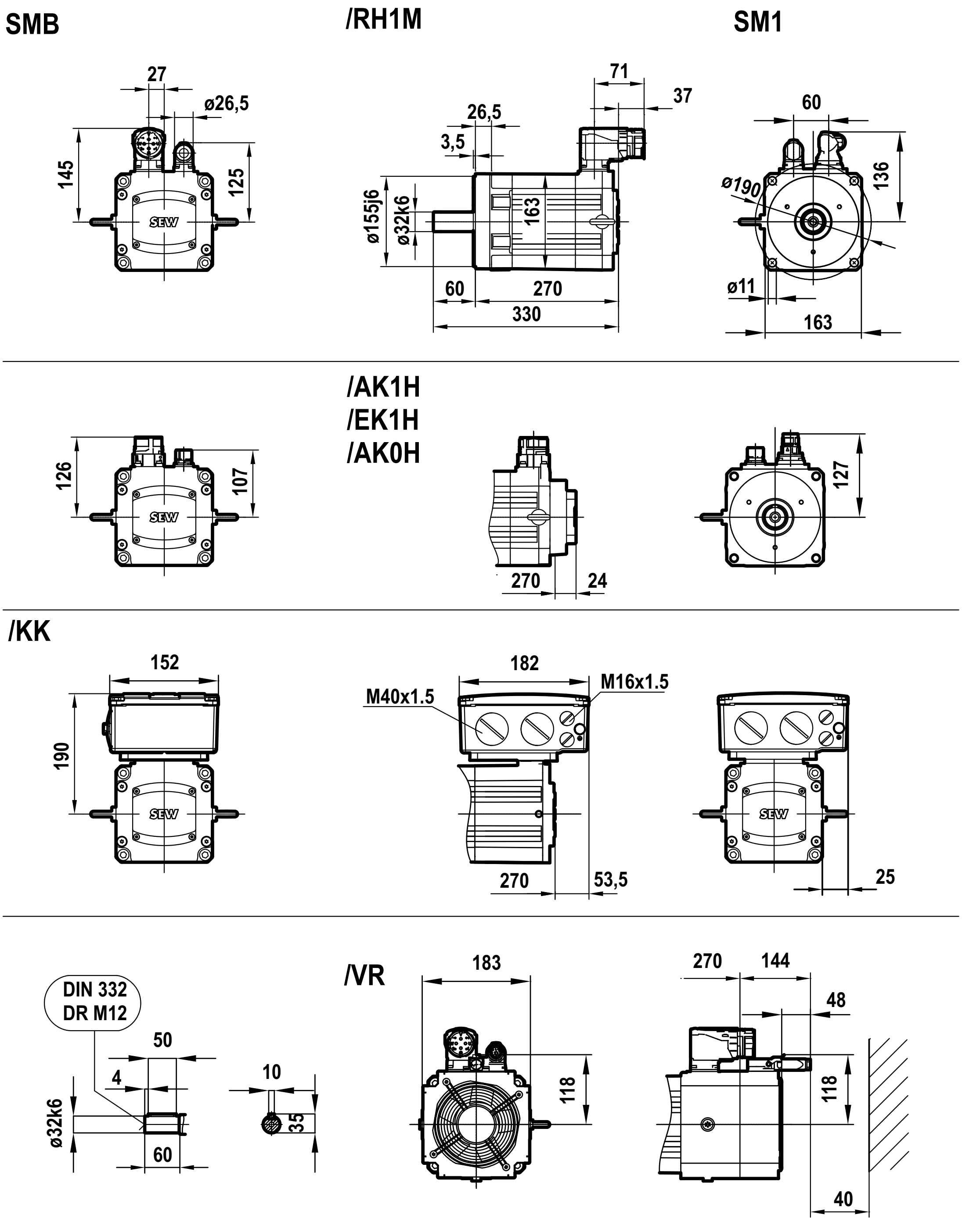


**CMPZ100S**
**BY8**
**SBB**

**09 348 01 08**



**CMP100M** **08 475 01 08**

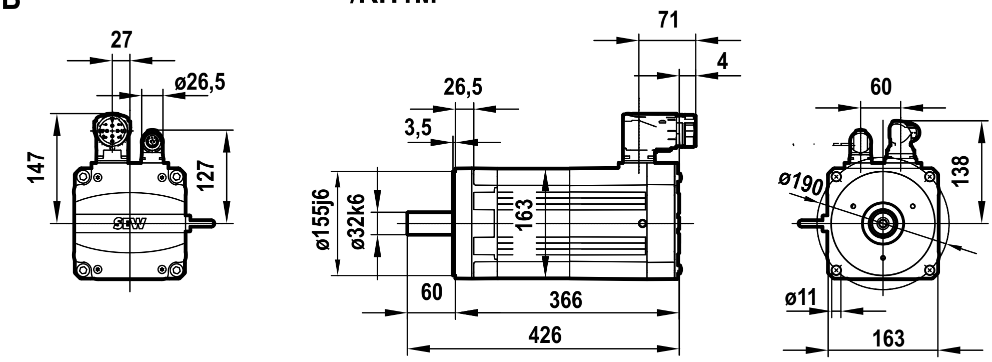


**CMP100M**
**BP5**
**SBB**

**09 361 01 08**

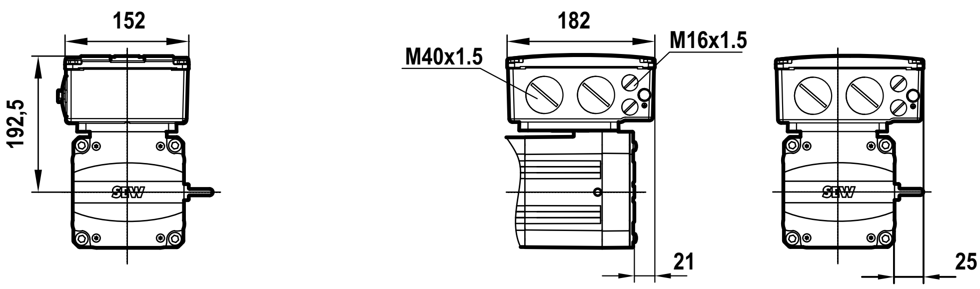
**/RH1M**

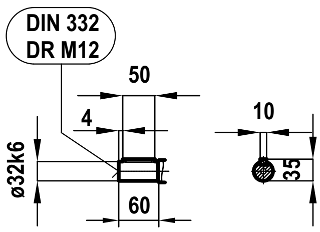
**SB1**



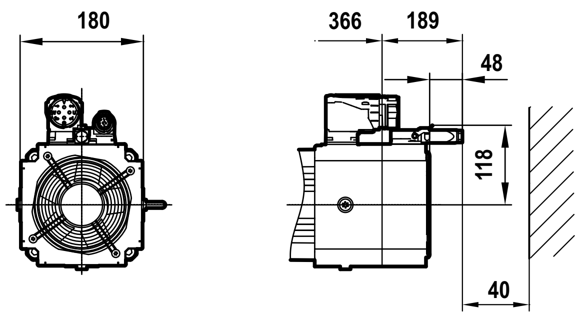

**/AK1H**
**/EK1H**
**/AK0H**


**/KK**



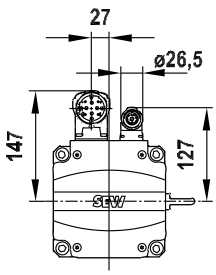




**/VR**

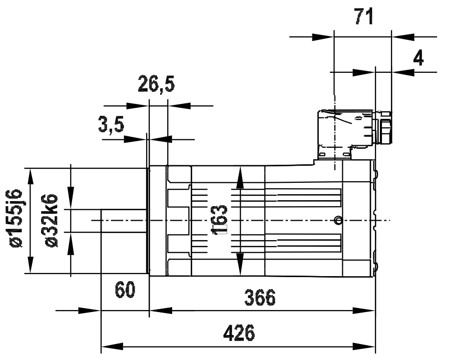


**CMPZ100M** 09 342 02 08

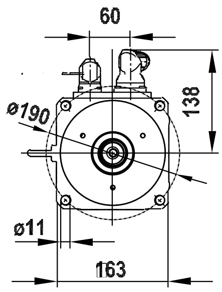
**SMB**

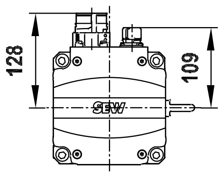



**/RH1M**

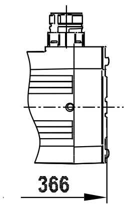


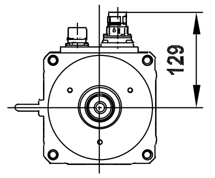

**SM1**



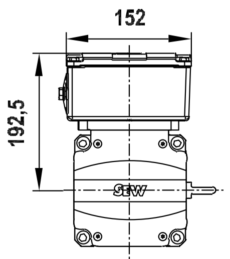



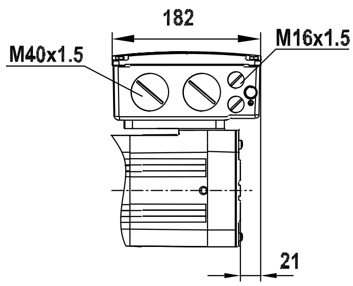

**/AK1H**
**/EK1H**
**/AK0H**

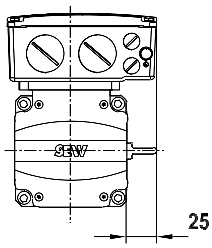


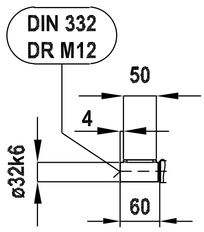



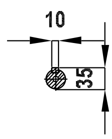

**/KK**



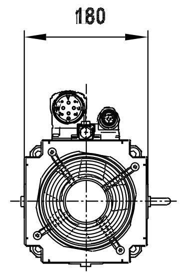



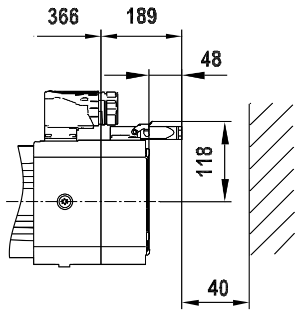



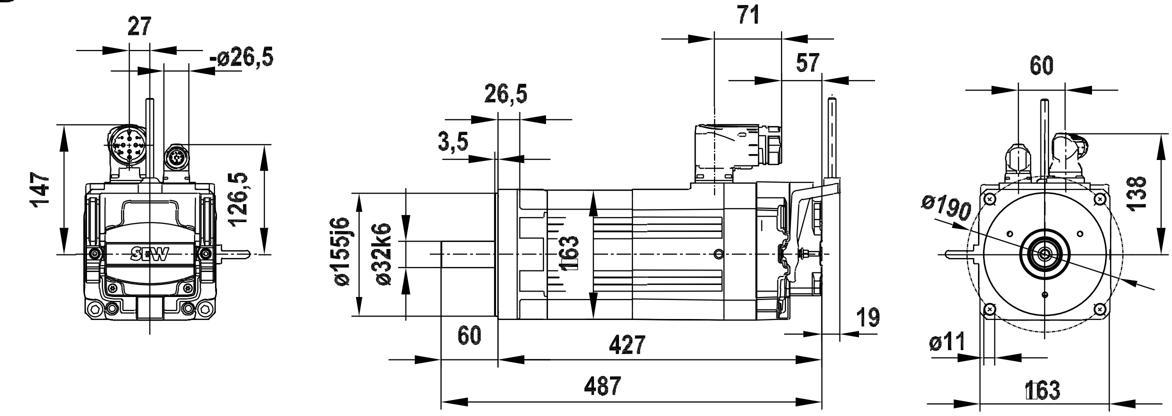




**/VR**



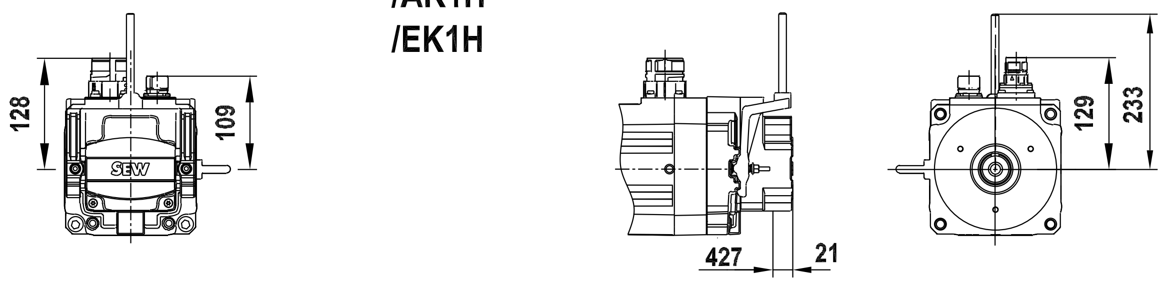



**CMPZ100M** **09 351 01 08**
**BY8**
**SBB** **/RH1M** **SB1**

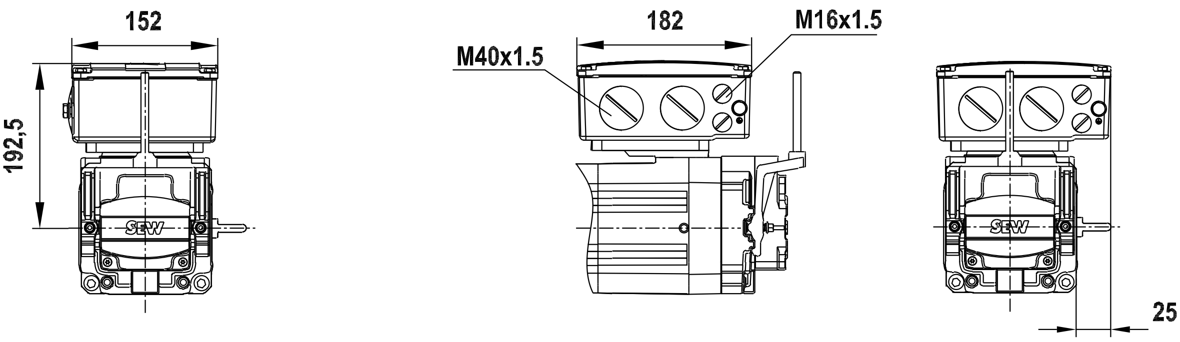



7

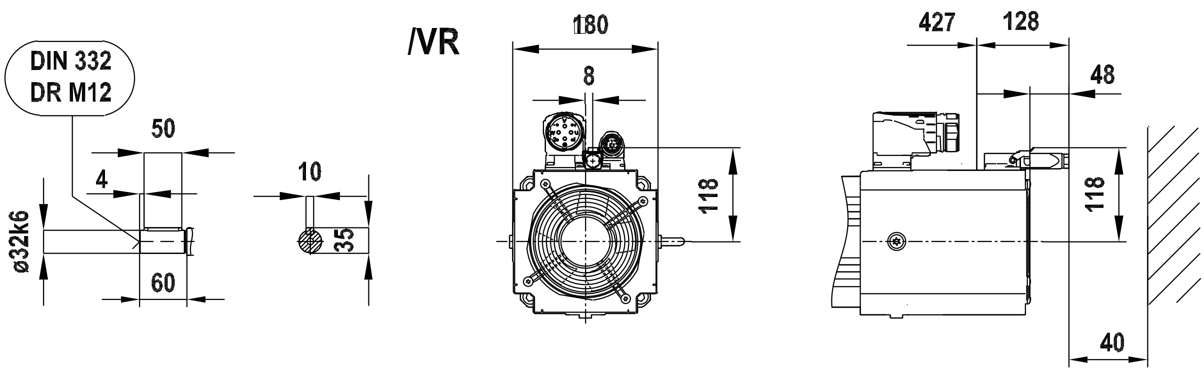
**/AK1H**
**/EK1H**




**/KK**

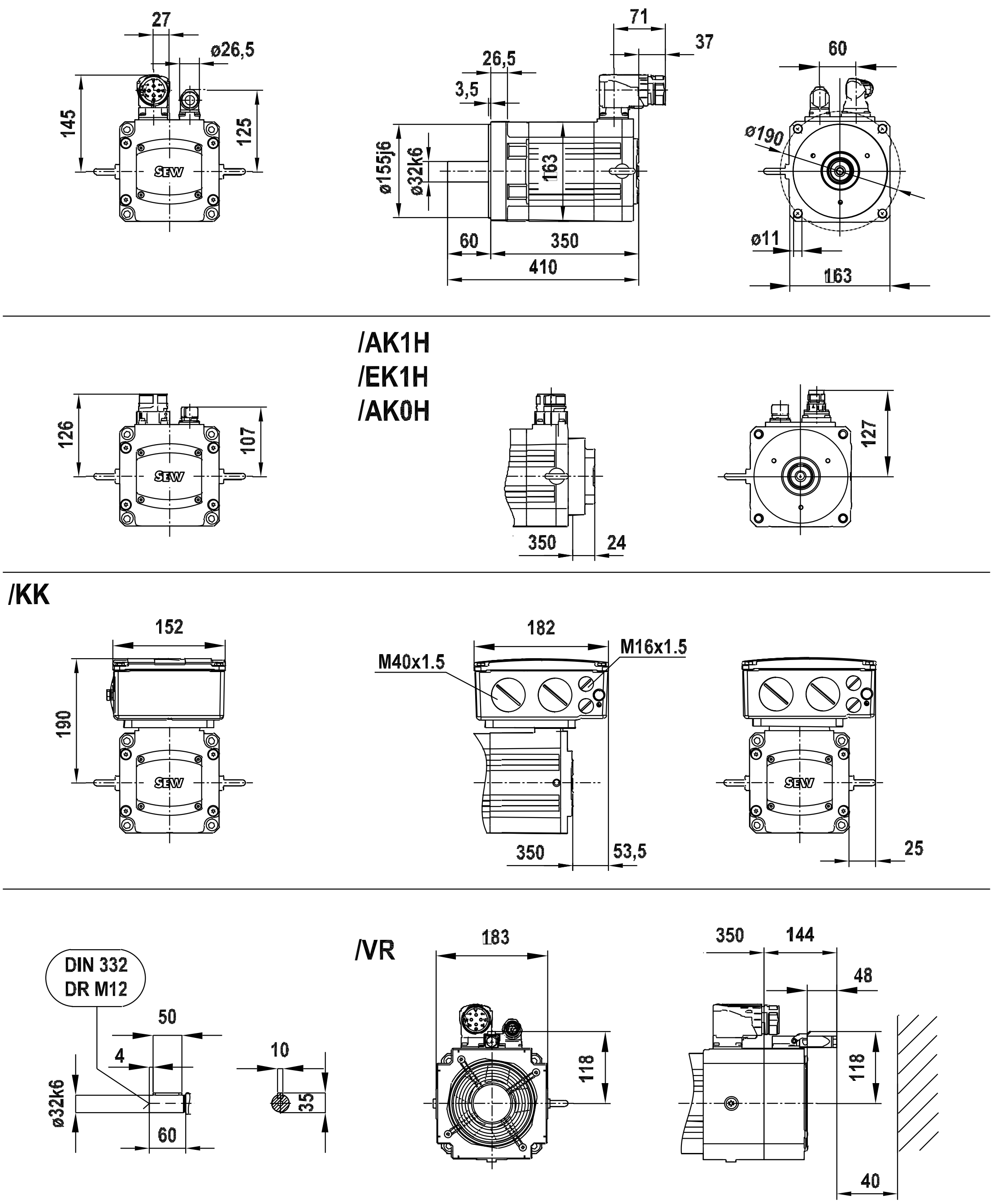



**/VR**



**CMP100L** 08 478 02 08

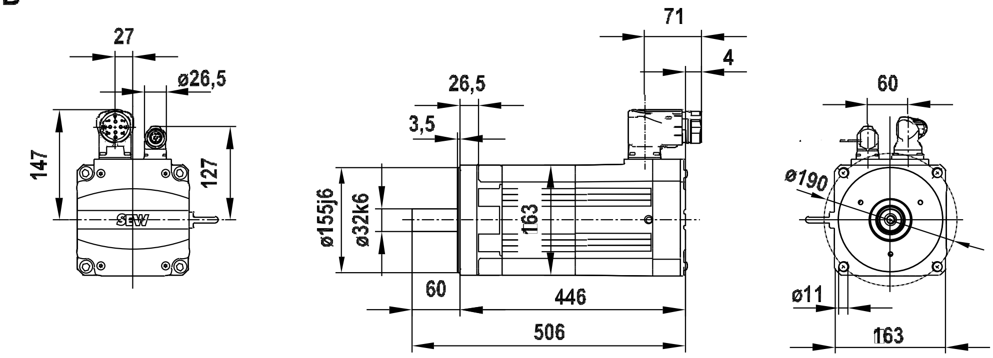
**SMB** **/RH1M**



**CMP100L**
**BP5**
**SBB**

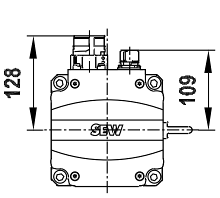
**09 364 02 08**

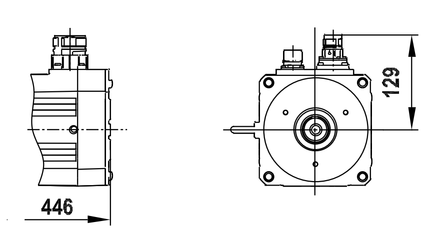
**/RH1M**



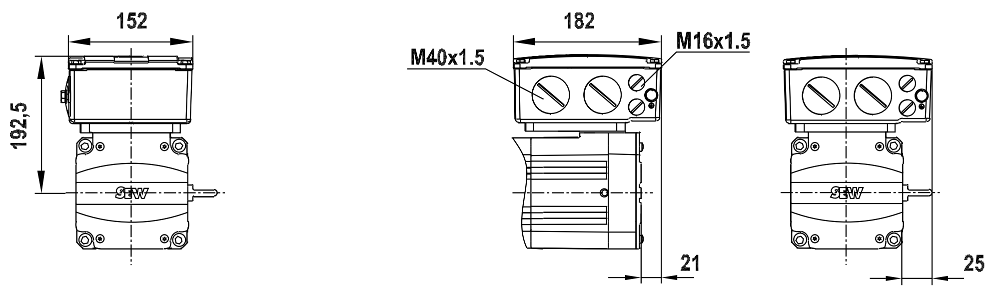

7

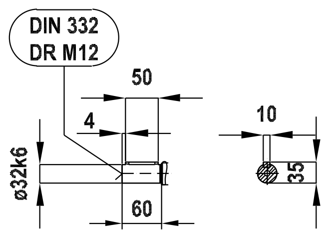
**/AK1H**
**/EK1H**
**/AK0H**



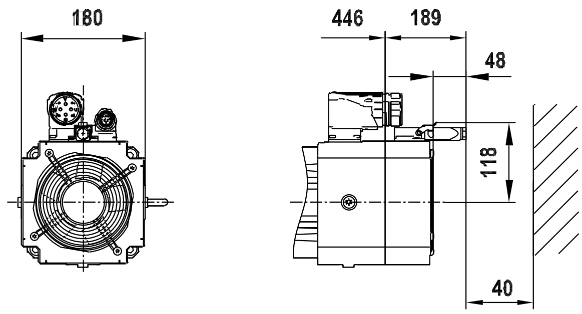




**/KK**



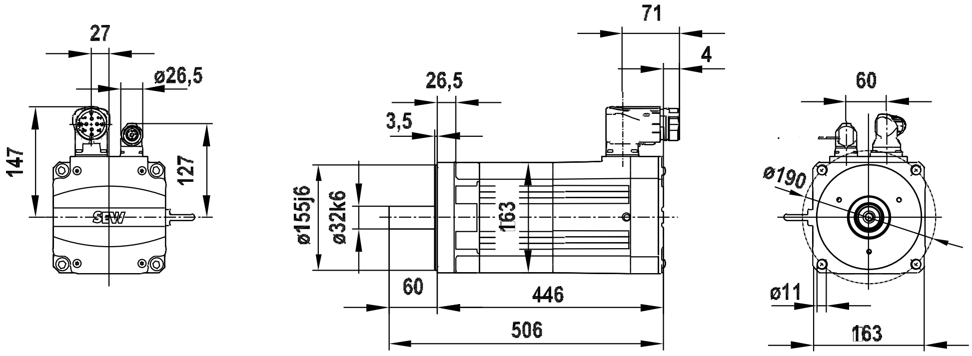




**/VR**

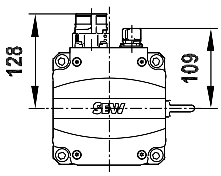


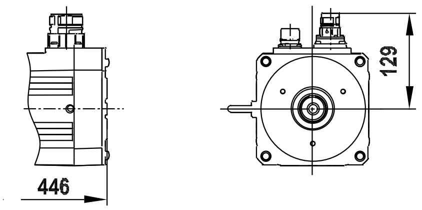
**CMPZ100L** 09 345 02 08

**SMB** **/RH1M**

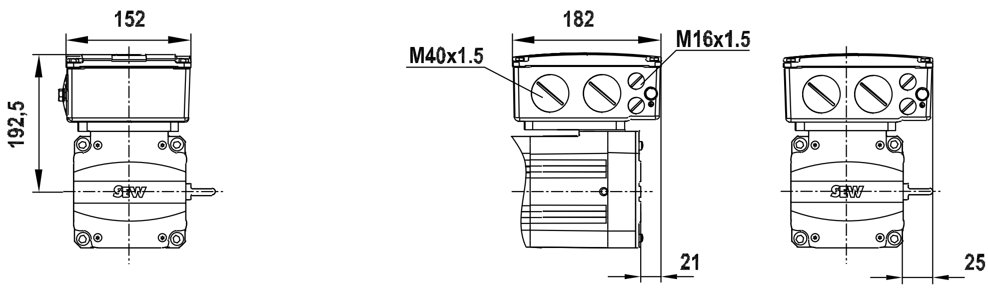


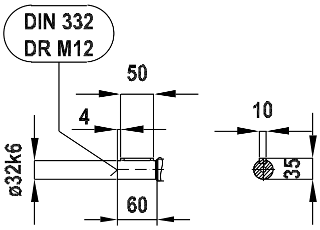

**/AK1H**
**/EK1H**
**/AK0H**



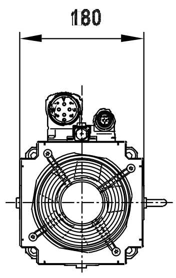



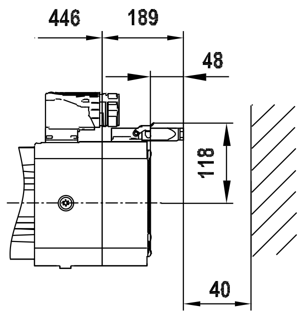

**/KK**



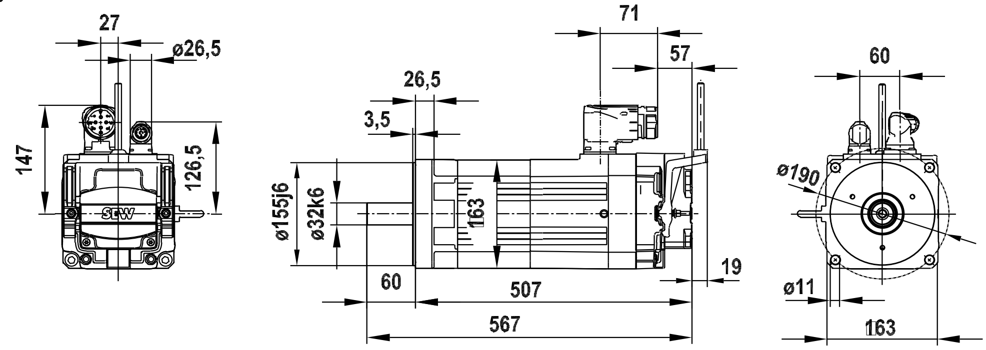

**/VR**



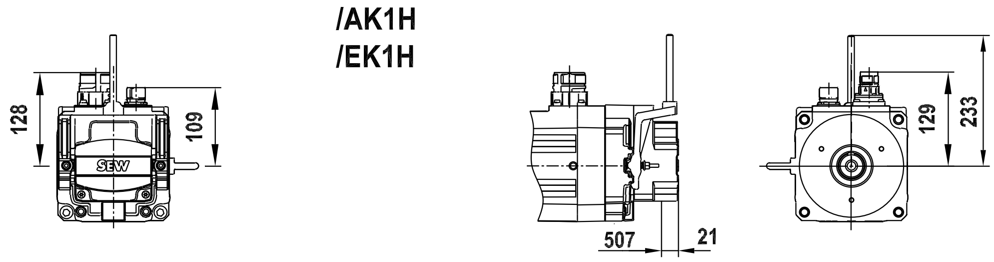



**CMPZ100L** **09 354 02 08**
**BY8**
**SBB**

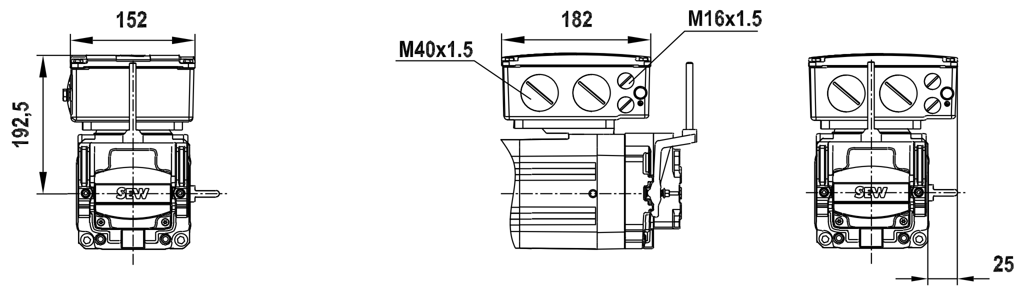
**/RH1M**

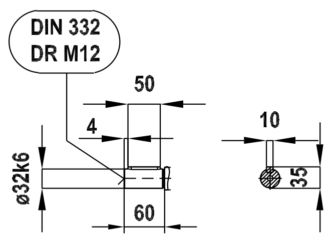



**/AK1H**
**/EK1H**

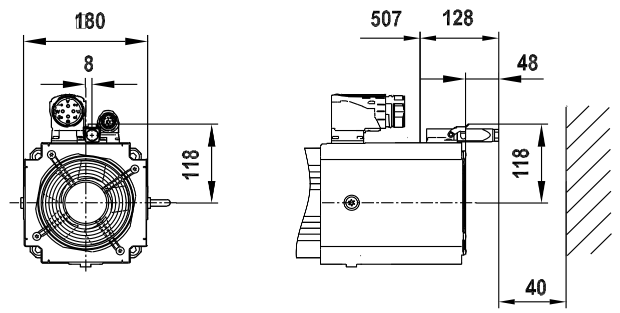



**/KK**




**/VR**



# 8 BP brake

## *8.1 Description of the BP brake*

***BP holding brake***

The mechanical brake is a holding brake implemented as a spring-loaded brake.

The brake has a standard supply voltage of DC 24 V and operates with one or two braking torque ratings for each motor size. For assignment, see page 193.

The brake cannot be retrofitted and usually operates without brake rectifier or brake control unit.

If the servomotors are operated on the MOVIAXIS® servo inverter, overvoltage protection is provided.

If the servomotors are operated on MOVIDRIVE® or inverters from other manufacturers, overvoltage protection must be implemented by the customers themselves using varistors, for example.

Observe the notes in the relevant operating instructions for the inverters concerning the switching sequence of motor enable and brake control during standard operation.

The BP brake can be used for the following rated speeds depending on the motor size:

| Motor type | Brake type | Speed class |
|---|---|---|
| **CMP40S/M** | BP01 | 3000 / 4500 / 6000 |
| **CMP50S/M/L** | BP04 | |
| **CMP63S/M/L** | BP09 | |
| **CMP71S/M/L** | BP1 | 2000 / 3000 / 4500 / 6000 |
| **CMP80S/M/L** | BP3 | 2000 / 3000 / 4500 |
| **CMP100S/M/L** | BP5 | |

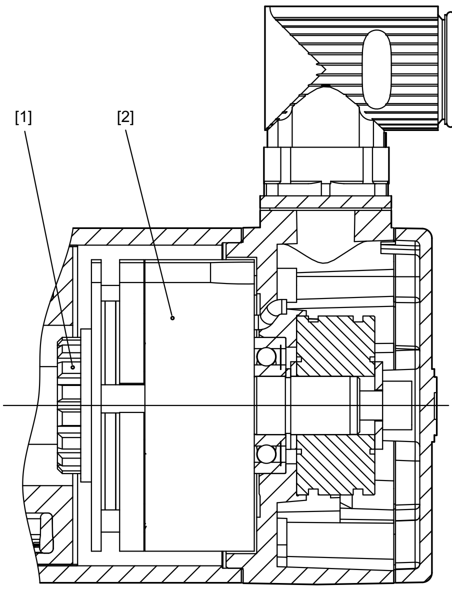
## 8.2 Principles of the BP brake

***Basic structure***

The SEW brake is an electromagnetic disk brake with a DC coil that releases electrically and brakes using spring force.

The system meets all fundamental safety requirements: The brake is applied automatically if the power fails.

Principle structure of the 24 V spring-loaded brake:

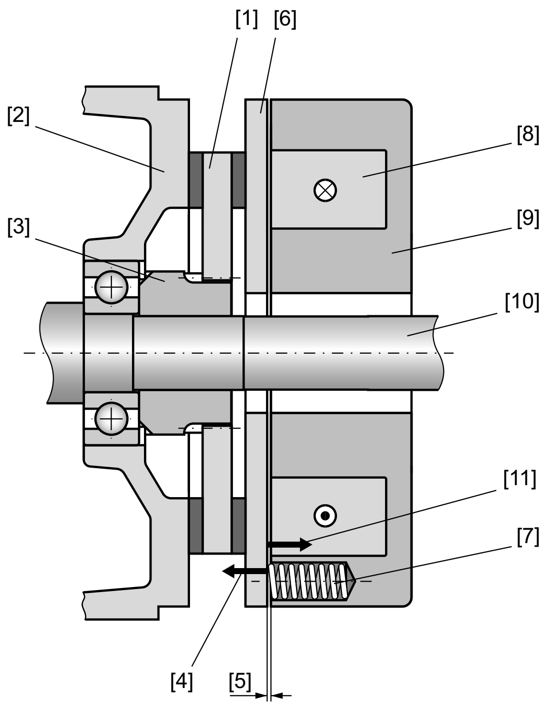



55832AXX

[1] Driver [2] Complete brake

### *Basic functions*

The pressure plate is forced against the brake disk by the brake springs when the electromagnet is deenergized. The brake is applied to the motor. The number and type of brake springs determine the braking torque. When the brake coil [8] is connected to the corresponding DC voltage, the force of the brake springs [4] is overcome by magnetic force [11], thereby bringing the pressure plate into contact with the magnet. The brake disk moves clear and the rotor can turn.




56912AXX

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

## 8.3 General information

The size of the brakemotor and its electrical connection must be selected carefully to ensure the longest possible service life.

The following aspects described in detail must be taken into account:

1. Selecting the braking torque in accordance with the project planning data, see page 187.
2. Dimensioning and routing the cable, see page 188.
3. Selecting the brake contactor, if applicable, see page 188.
4. Important design information, see page 189.

## 8.4 Selecting the brake according to the project planning data

The braking torque is determined when the drive motor is selected. The drive type, application areas and the standards that have to be taken into account are also used for brake selection.

Selection criteria:

- Servomotor
- Amount of braking torque (soft braking"/hard braking")



### Selecting the brake

The brake type is selected on the basis of the braking torque. For assignments of motor/brake type/braking torque, go to page 193.

### Working capacity in case of EMERGENCY STOP

Braking work per braking cycle in case of EMERGENCY STOP:

$$W_1 = \frac{J_{ges} \times n^2 \times M_B}{182.4 \times (M_B \pm M_L)}$$

60958AXX

| | |
|---|---|
| Z | = Number of braking operations |
| $W_{ges}$ | = Total braking work J |
| $W_1$ | = Braking work per braking operation in J |
| $J_{ges}$ | = Total mass moment of inertia (related to the motor shaft) in $kgm^2$ |
| n | = Motor speed [rpm] |
| $M_B$ | = Braking torque in Nm |
| $M_L$ | = Load torque [Nm] (note the sign)<br>+: for vertical upward and horizontal movement<br>-: for vertical downward movement |

### Braking torque for hoist applications

The BP brake is suitable for hoist applications with restrictions.

For higher braking torques and braking work, see BY brake page 196 et seq.

## 8.5 Dimensioning and routing the cable

***a) Selecting the cable***

Select the cross section of the brake cable according to the currents in your application. Observe the inrush current of the brake when selecting the cross section. When taking the voltage drop into account due to the inrush current, the value must not drop below 90% of the rated voltage. The data sheets for the brakes provide information on the possible supply voltages and the resulting operating currents.

For a quick source of information about dimensioning the cable cross sections and cable lengths, refer to chapter "Assignment table of cables and CMP servomotors", page 205 and subsequent pages.

Wire cross sections of max. 2.5 mm$^2$ **can be connected to the terminals of the brake control systems. Intermediate terminals must be used if the cross sections are larger.**

***b) Routing information***

**Brake cables must always be routed separately from other power cables with phased currents unless they are shielded.**

**Ensure adequate equipotential bonding between the drive and the control cabinet (for an example, see the documentation "Drive Engineering - Practical Implementation, EMC in Drive Engineering").**

**Power cables with phased currents are in particular**

- Output cables from frequency inverters and servo controllers, soft start units and brake units
- Supply cables to braking resistors

## 8.6 Selecting the brake contactor

**In view of the high current loading and the DC voltage to be switched at inductive load, the switchgear for the brake voltage has to have a special DC contactor.**

It is simple to select the brake contactor for supply system operation:

- The contactor is configured for DC3 operation with DC 24 V.

If the system complies with the specifications for direct brake control, then a BP brake can also be controlled directly via the brake output of a MOVIAXIS® servo inverter.

However, the brakes of motors CMP80 and CMP100 can never be directly connected to MOVIAXIS®. For detailed information, refer to the "MOVIAXIS® Multi-Axis Servo Inverter" system manual.

## 8.7 Important design information

**a) EMC (Electromagnetic compatibility)**

The EMC instructions in the servo controller documentation must also be taken into account for the operation of SEW servomotors with brake.

Observe the instructions regarding the cable routing, see page 188.

**b) Maintenance intervals**

The time to maintenance is determined on the basis of the expected brake wear. This value is important for setting up the maintenance schedule for the machine to be used by the customer's service personnel (machine documentation).

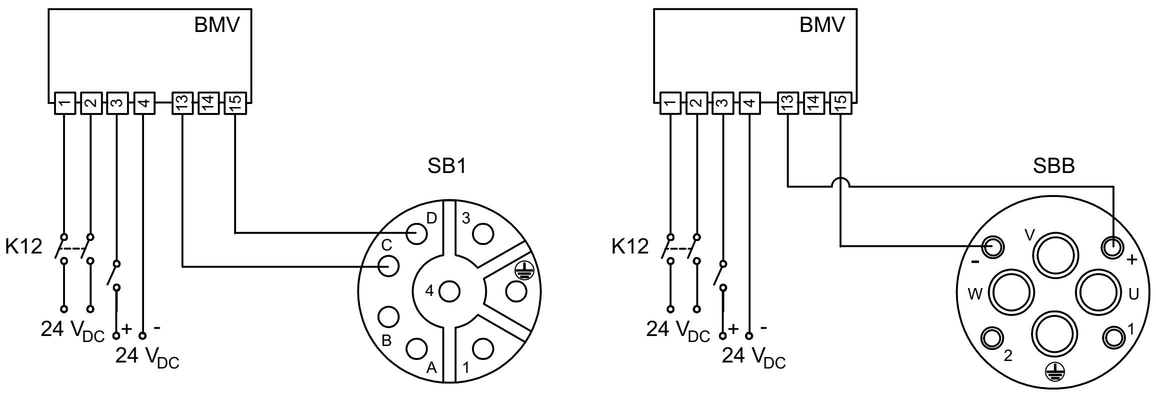
## 8.8 Block diagram of the brake control plug connectors

In every application, the BP holding brake can be controlled via the BMV brake relay or a customer relay with varistor overvoltage protection.

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. Except for BMV, BMKB and BMK, it is used to also switch the brake.

BMV and BMK: In applications without requirements on functional safety, it is sufficient to switch the brake via connections 3 and 4 (shown as NO contact without designation). In applications with requirements on functional safety (e.g. hoists), all poles must be switched off to ensure that the brake is applied even in the event of a fault in the brake rectifier.

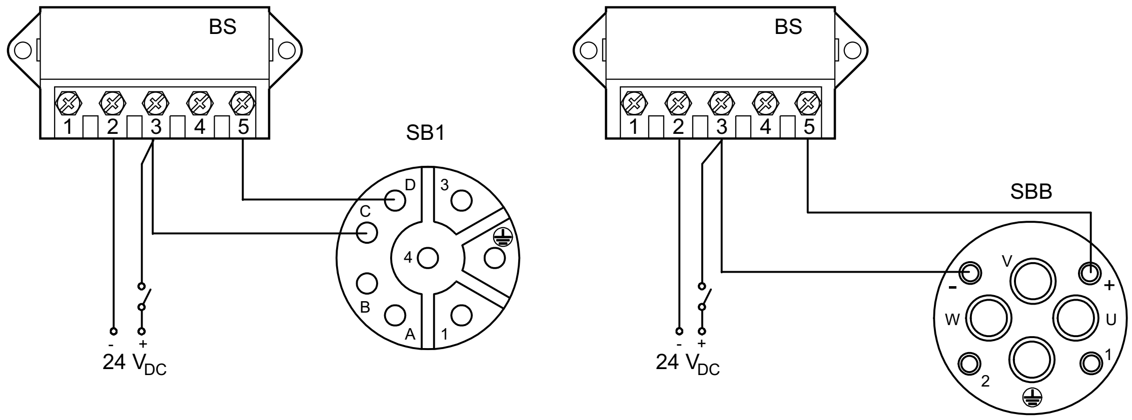
***BMV brake rectifier***




64842axx

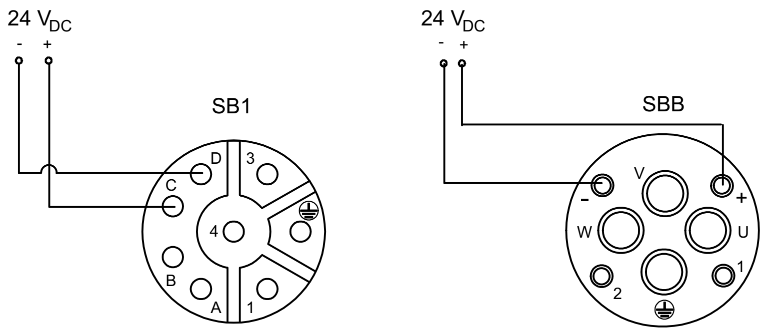
| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

*BS brake rectifier*




64858axx

*Direct 24 V brake supply*




64859axx

The brake must be protected from overvoltage, e.g. by a varistor protection circuit, in the following cases:

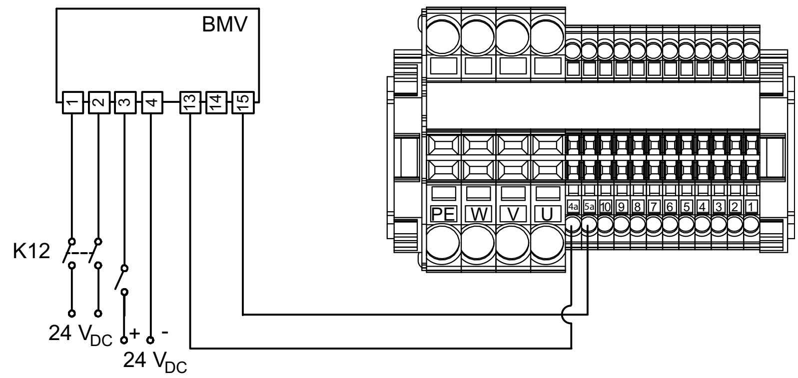
- Operation on non-SEW inverters,
- If the brake is not directly supplied from the SEW inverter.

## 8.9 Block diagram of the brake control terminal box

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. Except for BMV, BMKB and BMK, it is used to also switch the brake.

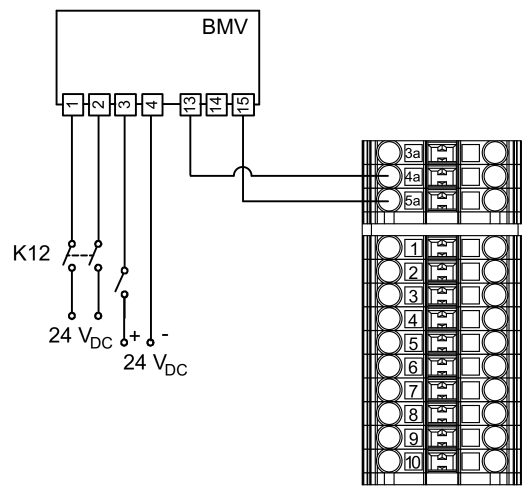
BMV and BMK: In applications without requirements on functional safety, it is sufficient to switch the brake via connections 3 and 4 (shown as NO contact without designation). In applications with requirements on functional safety (e.g. hoists), all poles must be switched off to ensure that the brake is applied even in the event of a fault in the brake rectifier.

***BMV brake rectifier for CMP50, CMP63***



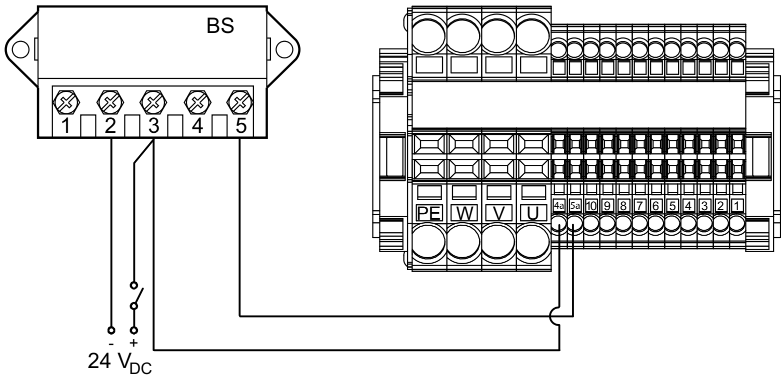

| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

***Brake rectifiers BMV - CMP71 to CMP100***

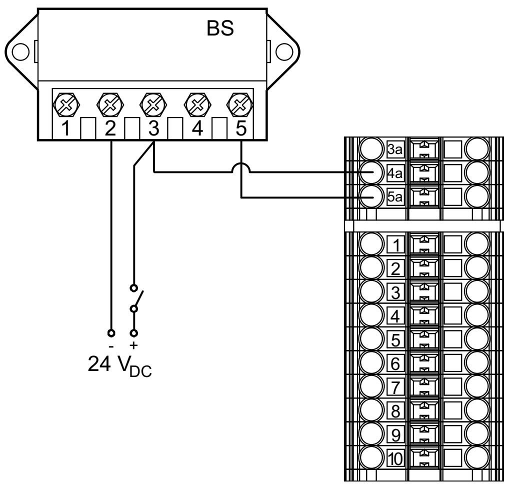



| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

***BS brake rectifier for CMP50, CMP63***




***Brake control unit BS - CMP71 to CMP100***



## 8.10 BP brake technical data

The following table shows the technical data of the brakes. The type and number of brake springs determines the level of the braking torque. If not specified otherwise, the preferred braking torque for motor lengths "M" and "L" is the maximum braking torque $M_{B\,max}$, for motor lengths "S" the optional braking torque $M_{B\,red}$. Other brake spring combinations can result in reduced braking torque values $M_{B\,red}$.

| Brake type | $M_{Bmax}$ Nm | $M_{B\,red}$ Nm | $W_1$ kJ | $W_2$ kJ | $W_{insp}$ $10^3$ kJ | P W | $t_1$ ms | $t_2$ ms |
|---|---|---|---|---|---|---|---|---|
| **BP01** | 0.95 | - | 0.4 | 4.8 | 1 | 7 | 25 | 15 |
| **BP04** | 4.3 | 3.1 | 0.6 | 7.2 | 1.5 | 10.2 | 60 | 15 |
| **BP09** | 9.3 | 7 | 1 | 10 | 2.5 | 16 | 60 | 15 |
| **BP1** | 14 | 7 | 1.4 | 16.8 | 3.5 | 19.5 | 50 | 15 |
| **BP3** | 31 | 16 | 2.2 | 26.4 | 5.5 | 28 | 70 | 15 |
| **BP5** | 47 | 24 | 3.6 | 43.2 | 9 | 33 | 110 | 15 |

$M_{B\,max}$ = Maximum braking torque
$M_{B\,red}$ = Optional braking torque
$W_1$ = Permitted braking work per cycle
$W_2$ = Permitted braking work per hour
$W_{insp}$ = Permitted total braking work (braking work until service)
P = Power consumption of the coil
$t_1$ = Response time
$t_2$ = Application time



**INFORMATION**

The response and application times are recommended values in relation to the maximum braking torque.

### *Motor assignment*

The following table shows the standard assignments of motors and brakes:

| Motor type | Brake type | $M_{B1}$ Nm | $M_{B2}$ Nm | Speed class |
|---|---|---|---|---|
| **CMP40** | BP01 | 0.95 | - | 3000 / 4500 / 6000 |
| **CMP50S** | BP04 | 3.1 | 4.3 | |
| **CMP50M/L** | | 4.3 | 3.1 | |
| **CMP63S** | BP09 | 7 | 9.3 | |
| **CMP63M/L** | | 9.3 | 7 | |
| **CMP71S** | BP1 | 7 | 14 | 2000 / 3000 / 4500 / 6000 |
| **CMP71M/L** | | 14 | 7 | |
| **CMP80S** | BP3 | 16 | 32 | 2000 / 3000 / 4500 |
| **CMP80M/L** | | 32 | 16 | |
| **CMP100S** | BP5 | 24 | 47 | |
| **CMP100M/L** | | 47 | 24 | |

$M_{B1}$ Preferred braking torque
$M_{B2}$ Optional braking torque

## 8.11 Operating currents for the BP brake

| | BP01 | BP04 | BP09 | BP1 | BP3 | BP5 |
|---|---|---|---|---|---|---|
| **Maximum braking torque in Nm** | 0.95 | 4.3 | 9.3 | 14 | 31 | 47 |
| **Braking power in W** | 7 | 10.2 | 16 | 19.5 | 28 | 33 |

| **Nominal voltage $V_N$** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **$V_{DC}$** | **I** $A_{DC}$ | **I** $A_{DC}$ | **I** $A_{DC}$ | **I** $A_{DC}$ | **I** $A_{DC}$ | **I** $A_{DC}$ |
| | **24 (21.6 - 26.4)** | 0.29 | 0.42 | 0.67 | 0.81 | 1.17 | 1.38 |

I Operating current

$V_N$ Nominal voltage (rated voltage range)

No current reserve must be taken into account for applying the brake when projecting the 24 V supply. This means the ratio of inrush current and operating current is 1.

## 8.12 Resistance of BP brake coils

| | BP01 | BP04 | BP09 | BP1 | BP3 | BP5 |
|---|---|---|---|---|---|---|
| **Maximum braking torque in Nm** | 0.95 | 4.3 | 9.3 | 14 | 31 | 47 |
| **Braking power in W** | 7 | 10.2 | 16 | 19.5 | 28 | 33 |

| **Nominal voltage $V_N$** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **$V_{DC}$** | **R** Ω | **R** Ω | **R** Ω | **R** Ω | **R** Ω | **R** Ω |
| | **24 (21.6 - 26.4)** | 84 | 56.5 | 35 | 29.4 | 20.5 | 17.3 |

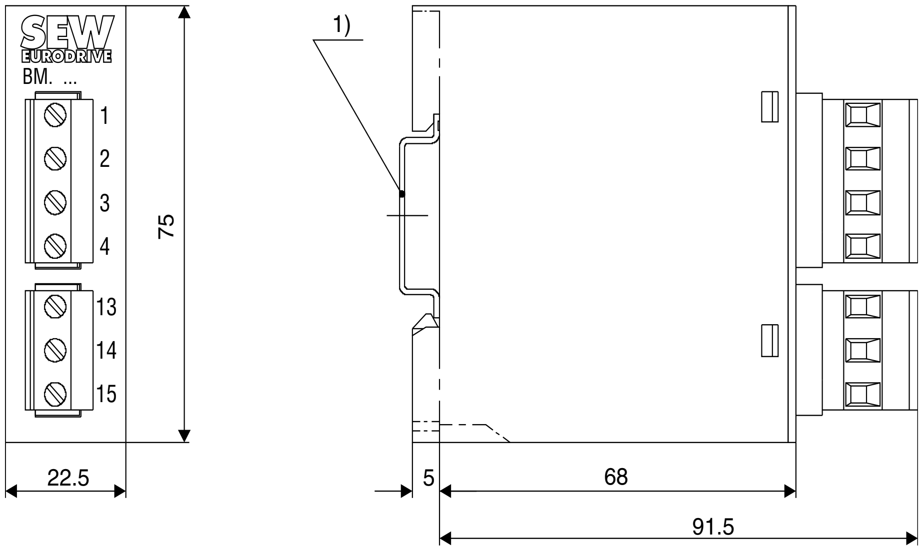
R Coil resistance at 20 °C

$V_N$ Nominal voltage (rated voltage range)

## 8.13 Dimension drawings of the BP brake control

***BMV***

For information regarding the use of the BMV brake control, refer to section "Block diagram of the brake control" on page 189.




01645BXX

[1] Support rail mounting EN 50022-35-7.5

# 9 BY Brakes

## *9.1 Description of the BY brake*

On request, SEW-EURODRIVE motors can be supplied with an integrated mechanical brake. The brake is a DC-operated electromagnetic disk brake with a high working capacity that is released electrically and applied using spring force. The brake is applied in case of a power failure. It meets the basic safety requirements.

The brake can also be released mechanically if equipped with manual brake release. The manual brake release function is self-reengaging (..HR). A hand lever is supplied.

The HR manual brake release option is not available in combination with a VR forced cooling fan in standard design.

The brake is controlled by a brake controller that is either installed in the control cabinet or in the terminal box.

A main advantage of brakes from SEW-EURODRIVE is their very short design. The integrated construction of the brakemotor permits particularly compact and sturdy solutions.

Observe the notes in the relevant operating instructions concerning the switching sequence of motor enable and brake control during standard operation.

The BY brake can be used for the following rated speeds depending on the motor size:

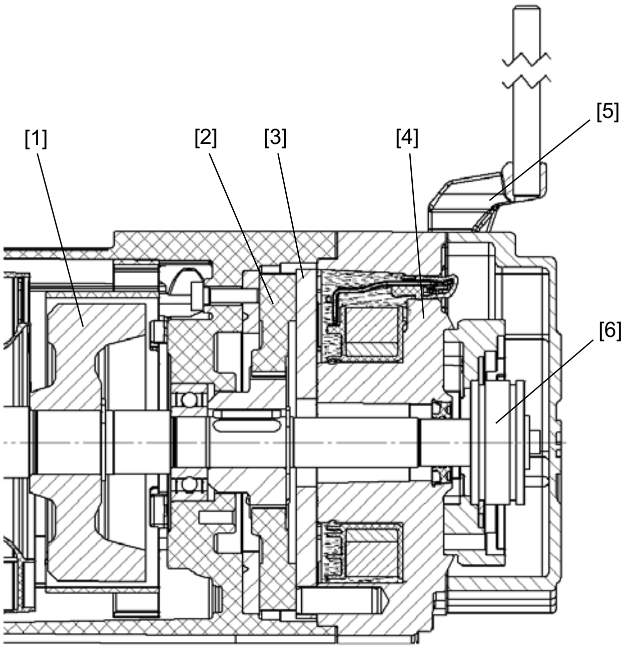
| Motor type | Brake type | Speed class |
|---|---|---|
| **CMPZ71S** | BY2 | 2000 / 3000, 4500, 6000 |
| **CMPZ71M/L** | | |
| **CMPZ80S** | BY4 | 2000 / 3000, 4500 |
| **CMPZ80M/L** | | |
| **CMPZ100S** | BY8 | 2000 / 3000, 4500 |
| **CMPZ100M/L** | | |

## 9.2 Principles of the BY brake

### *Basic functions*

The pressure plate is forced against the brake disk by the brake springs when the electromagnet is deenergized. The brake is applied to the motor. The number and type of brake springs determine the braking torque. When the brake coil is connected to the corresponding DC voltage, the force of the brake springs is overcome by magnetic force, thereby bringing the pressure plate into contact with the magnet. The brake disk moves clear and the rotor can turn.

Basic structure of the working brake:




64843axx

| | | | |
|---|---|---|---|
| [1] | Additional flywheel mass | [4] | Magnets, complete |
| [2] | Brake disk | [5] | Releasing lever |
| [3] | Pressure plate | [6] | RH1M encoder |

## 9.3 General information

The BY working brake can only be mounted to the motors CMPZ71 - CMPZ100 (motor variant with additional additional flywheel mass).

The size of the brakemotor and its electrical connection must be selected carefully to ensure the longest possible service life.

The following aspects described in detail must be taken into account:

1. Selecting the braking torque in accordance with the project planning data, see page 198.
2. Dimensioning and routing the cable, see page 204.
3. Selecting the brake contactor, if applicable, see page 204.
4. Important design information, see page 205.

## 9.4 Selecting the brake according to the project planning data

The mechanical components, brake type and braking torque, are determined when the drive motor is selected. The drive type or application areas and the standards that have to be taken into account are used for the brake selection.

Selection criteria:

- Servomotor - motor size.
- Number of braking operations during service and number of emergency braking operations.
- Working brake or holding brake.
- Amount of braking torque ("soft braking"/"hard braking").
- Hoist application
- Minimum/maximum deceleration.
- Encoder system used

***Values determined/calculated during brake selection:***

| Basic specification | Link / supplement / comment |
|---|---|
| **Motor type** | Brake type Brake control system |
| **Braking torque**[1)] | Brake springs |
| **Brake application time** | Connection type of the brake control system (important for the electrical design for wiring diagrams) |
| **Braking time**<br>**Braking distance**<br>**Deceleration**<br>**Braking accuracy** | The required data can only be observed if the aforementioned parameters meet the requirements |

1) The braking torque is determined from the requirements of the application with regards to the maximum deceleration and the maximum permitted distance or time.

For detailed information on selecting the size of the brakemotor and calculating the braking data, refer to the documentation "Drive Engineering - Practical Implementation, Project Planning for Drives".

***Selecting the brake***

The brake suitable for the relevant application is selected by means of the following main criteria:

- Required braking torque
- Required working capacity

*Braking torque*

The braking torque is usually selected according to the required deceleration.

The "Motor and brake assignment" table (page 214) shows the possible braking torque stepping.

*Braking torque for hoist applications*

The selected braking torque must be greater by at least factor 2 than the maximum load torque.

*Working capacity*

The working capacity of the brake is determined by the permitted braking work $W_1$ per braking operation and the total permitted braking work $W_{insp}$ until the next inspection of the brake.

For the permitted total braking work $W_{insp}$, refer to the table on page 214 .



Permitted number of braking operations until maintenance of the brake:

$$NB = \frac{W_{insp}}{W_1}$$

65666AXX

Braking work per braking operation:

$$W_1 = \frac{J_{ges} \times n^2 \times M_B}{182.4 \times (M_B \pm M_L)}$$

60958AXX

| | |
|---|---|
| NB | = Number of braking operations until service |
| $W_{insp}$ | = Total braking work until service in J |
| $W_1$ | = Braking work per braking operation in J |
| $J_{ges}$ | = Total mass moment of inertia (related to the motor shaft) in $kgm^2$ |
| n | = Motor speed [rpm] |
| $M_B$ | = Braking torque in Nm |
| $M_L$ | = Load torque in Nm (observe the +/- character)<br>+: for vertical upward and horizontal movement<br>-: for vertical downward movement |

***EMERGENCY STOP features***

The limits of the permitted maximum braking work must not be exceeded, not even for emergency switch-off. For permitted braking work, see table on page 215.

The emergency stop properties must therefore be based on the directions of movement.

1. **Brakes for vertical direction of movement**

   In hoist applications, the limits of the permitted maximum braking work (including emergency stops) may not be exceeded. For maximum braking work, see table on page 215.

   Please consult SEW-EURODRIVE if you need values for increased EMERGENCY STOP braking work in hoist applications.

2. **Brakes for horizontal direction of movement**

   For horizontal motion like in travel drive applications, higher braking work might be permitted per cycle in emergency stop situation under the following conditions A - D. For maximum braking work, see table on page 215.

   A Selected braking torque
   All braking torques are permitted. Unlike BE brakes for DR motors, the limitation that a braking torque reduced by at least one level must be selected in relation to the brake size.

   B Brake wear
   The specific wear of the brake lining increases significantly in case of an emergency stop. It can reach factor 100 under certain circumstances.
   This additional wear must be considered when determining the maintenance cycle.

   C Braking process
   During the braking process, the effective dynamic braking torque can be reduced due to the heating of the brake lining during braking. In extreme cases, the effective braking torque can be reduced to 60% of the rated value. This must be taken into account when determining the braking distance.
   Example: BY8 with $M_B$ = 80 Nm, minimal effective $M_B$ = 48 Nm

   D Braking speed
   A decisive factor for the permitted increased braking work is the speed at which the braking process is triggered. The lower the speed, the higher the permitted braking work.
   Please consult SEW-EURODRIVE if you need values for increased EMERGENCY STOP braking work in travel drive applications.

3. **Brakes for vertical direction of movement**

   As the angular movement has a vertical and a horizontal component, the permitted emergency stop braking work is predominantly determined according to point 1.

   Please contact SEW-EURODRIVE if you cannot clearly determine the direction of movement as horizontal or vertical.

## 9.5 No-load starting frequency

The following no-load starting frequency $Z_0$ must not be exceeded in order to prevent the BY brake from heating up.

| Brake | No-load starting frequency |
|---|---|
| BY2 | 7200 1/h |
| BY4 | 5400 1/h |
| BY8 | 3600 1/h |

## 9.6 Determining the brake voltage

The brake voltage should always be selected on the basis of the available AC supply voltage or motor operating voltage. This means the user is always guaranteed the most cost-effective installation for lower braking currents.

The standard brake voltages are listed in the following table:

| **Brakes** | **BY2, BY4, BY8** |
|---|---|
| | **Brake voltage** |
| **Rated voltage**[1)] | DC 24 V<br>AC 110 V<br>AC 230 V<br>AC 400 V<br>AC 460 V |

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

The maximum current during the brake release is 7 times the holding current. The voltage at the brake coil must not drop below 90% of the rated voltage.

## 9.7 Selection of the brake control

Only SEW brake control systems are used for controlling the brake. All brake control systems are fitted with varistors as standard to protect against overvoltage.

The brakes are available with DC and AC voltage connection.

- AC voltage connection:
  - **BME**, equipped with DIN rail profile
- DC voltage connection:
  - **BSG**

There are two possible ways of electrical disconnection:

- Normal application times: Cut-off in the AC circuit.
- Particularly short application times: Cut-off in the AC and DC circuits.

The brake control systems are mounted in the control cabinet. Retaining screws are included in the scope of delivery.

The following options are available:

- AC supply, cut-off in the AC and DC circuits without additional switch contact, particularly short application times: **BMP**.
- AC supply, brake heating function when switched off: **BMH**.
- The **BMK / BMKB / BMV** control system energizes the brake coil if the supply system and a DC 24 V signal (e.g. from the PLC) are present simultaneously. The brake is applied if one condition is not being met. BMK / BMKB / BMV allow for shortest response and application times.

**INFORMATION**

A disconnection of all poles is required for **emergency stop** and for hoists in general (terminal 1 and 2 of the brake rectifier).

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

| Brake control | Function | Voltage | Holding current $I_{Hmax}$ (A) | Type | Part number | Color code |
|---|---|---|---|---|---|---|
| **BME** | One-way rectifier with electronic switching | AC 150 - 500 V | 1.5 | BME 1.5 | 825 722 1 | Red |
| | | AC 42 - 150 V | 3.0 | BME 3 | 825 723 X | Blue |
| **BMH** | One-way rectifier with electronic switching and heating function | AC 150 - 500 V | 1.5 | BMH 1.5 | 825 818 X | Green |
| | | AC 42 - 150 V | 3 | BMH 3 | 825 819 8 | Yellow |
| **BMP** | One-way rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit | AC 150 - 500 V | 1.5 | BMP 1.5 | 825 685 3 | White |
| | | AC 42 - 150 V | 3.0 | BMP 3 | 826 566 6 | Light blue |
| **BMK** | One-way rectifier with electronic switching, DC 24 V control input and cut-off in the DC circuit | AC 150 - 500 V | 1.5 | BMK 1.5 | 826 463 5 | Water blue |
| | | AC 42 - 150 V | 3.0 | BMK 3 | 826 567 4 | Light red |
| **BMKB** | One-way rectifier with electronic switch mode, DC 24 V control input, cut-off in the DC circuit and a diode to signal the readiness for operation | AC 150 - 500 V | 1.5 | BMKB 1.5 | 828 160 2 | Water blue |
| **BSG** | Control unit for DC 24 V connection with electronic switch mode | DC 24 V | 5.0 | BSG | 825 459 1 | White |
| BMV | Electronic switch mode, DC 24 V control input and cut-off in the DC circuit | DC 24 V | 5.0 | BMV | 1 300 006 3 | White |



***Short response times***

A characteristic feature of the SEW brake is the patented two-coil system. This system consists of accelerator coil and coil section. The special SEW brake control system-ensures that the accelerator coil is switched on with a high current inrush when the brake is released, after which the coil section is switched on. The result is a particularly short response time when releasing the brake. The brake disk moves clear very swiftly and the motor starts up with hardly any brake friction.

This principle of the two coil system also reduces self-induction so that the brake is applied more rapidly. The result is a reduced braking distance. The SEW brake can be cut off in the DC and AC circuits to achieve particularly short response times when applying the brake, for example for hoists.

## 9.8 Dimensioning and routing the cable for terminal box

***a) Selecting the cable***

Select the cross section of the brake cable according to the currents in your application. Observe the inrush current of the brake when selecting the cross section. When taking the voltage drop into account due to the inrush current, the value must not drop below 90% of the rated voltage. The data sheets for the brakes provide information on the possible supply voltages and the resulting operating currents.

For a quick source of information about dimensioning the cable cross sections and cable lengths, refer to chapter "Assignment table of cables and CMP servomotors", page 247 and subsequent pages..

Wire cross sections of max. 2.5 mm$^2$ **can be connected to the terminals of the brake control systems. Intermediate terminals must be used if the cross sections are larger.**

***b) Routing information***

**Brake cables must always be routed separately from other power cables with phased currents unless they are shielded.**

**Ensure adequate equipotential bonding between the drive and the control cabinet (for an example, see the documentation "Drive Engineering – Practical Implementation, EMC in Drive Engineering").**

**Power cables with phased currents are in particular**

- Output cables from frequency inverters and servo controllers, soft start units and brake units
- Supply cables to braking resistors

## 9.9 Selecting the brake contactor

- In view of the high current loading and the DC voltage to be switched at inductive load, contactors in utilization category ACß3 (EN 60947-4-1) must always be used for controlling the brake rectifiers.
- Brake control via BSG and BMV requires contactors of utilization category DC 3 (EN 60947-4-1).

***Standard variant***

If not specified otherwise, the CMPZ are delivered with with BME for the AC connection.

*Connection via contactor*

| Brake size | AC connection | DC 24 V connection |
|---|---|---|
| **BY2** | BME | BSG |
| **BY4** | | |
| **BY8** | | |

*Control via inverter*

| Brake size | AC connection | DC 24 V connection |
|---|---|---|
| **BY2** | BMK | BMV |
| **BY4** | | |
| **BY8** | | |

## 9.10 Important design information

**a) EMC (Electromagnetic compatibility)**

The EMC instructions in the servo controller documentation must also be taken into account for the operation of SEW servomotors with brake.

Observe the instructions regarding the cable routing, see page 188.

**b) Maintenance intervals**

The time to maintenance is determined on the basis of the expected brake wear. This value is important for setting up the maintenance schedule for the machine to be used by the customer's service personnel (machine documentation).

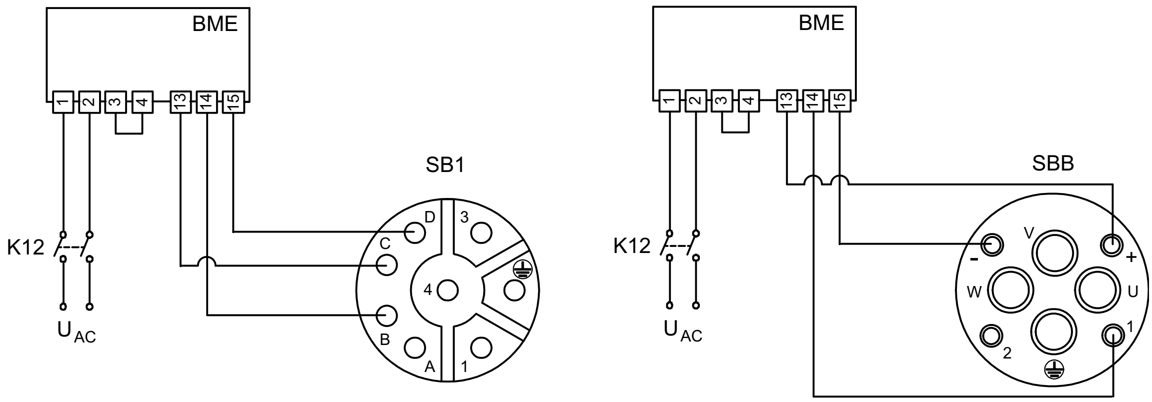
## 9.11 Block diagram of the brake control plug connectors

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. Except for BMV, BMKB and BMK, it is used to also switch the brake.

BMV and BMK: In applications without requirements on functional safety it is sufficient to switch the brake via connections 3 and 4 (shown as NO contact without designation). In applications with requirements on functional safety (e.g. hoists), all poles must be switched off to ensure that the brake is applied even in the event of a fault in the brake rectifier.

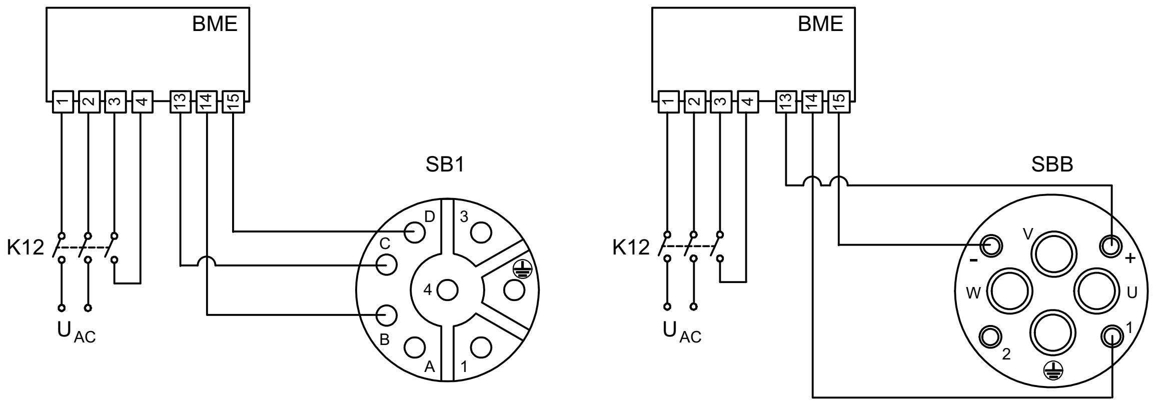
***BME brake rectifier***

Cut-off in the AC circuit / normal application of the brake.




64818axx

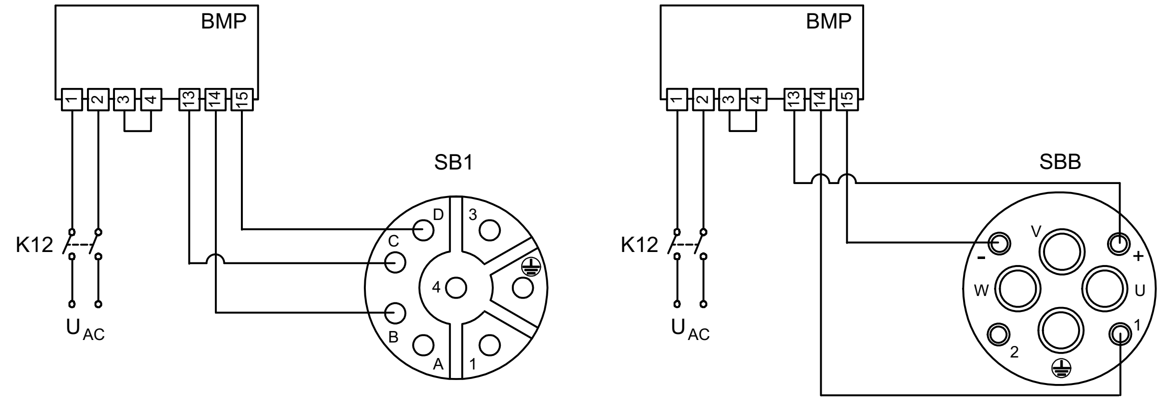
Cut-off in the DC and AC circuits / rapid application of the brake.




64824axx

***BMP brake rectifier***

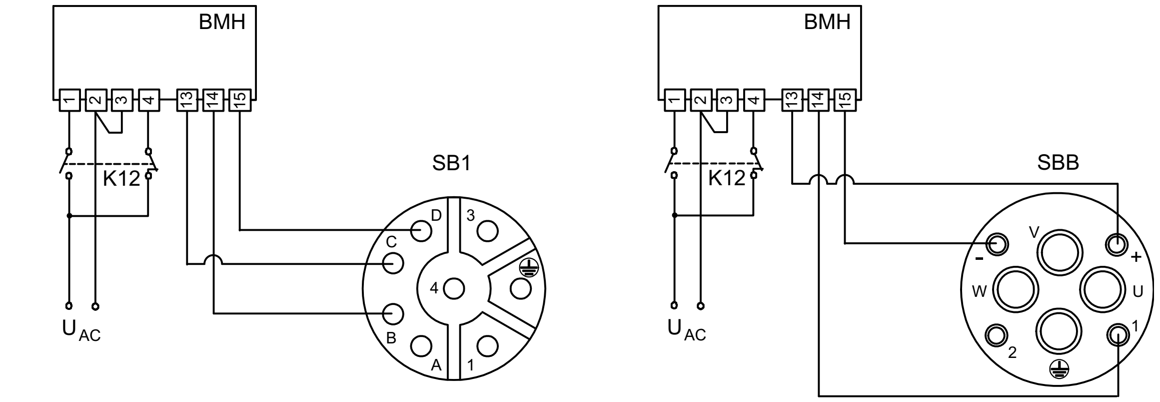
Cut-off in the DC and AC circuits/rapid application of the brake/integrated voltage relay.




64825axx

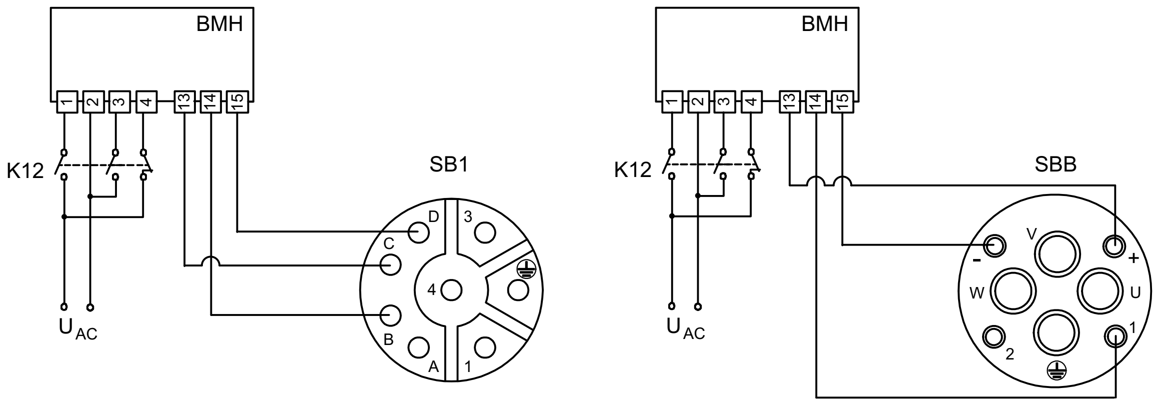
***BMH brake rectifier***

Cut-off in the AC circuit/normal application of the brake.




64826axx

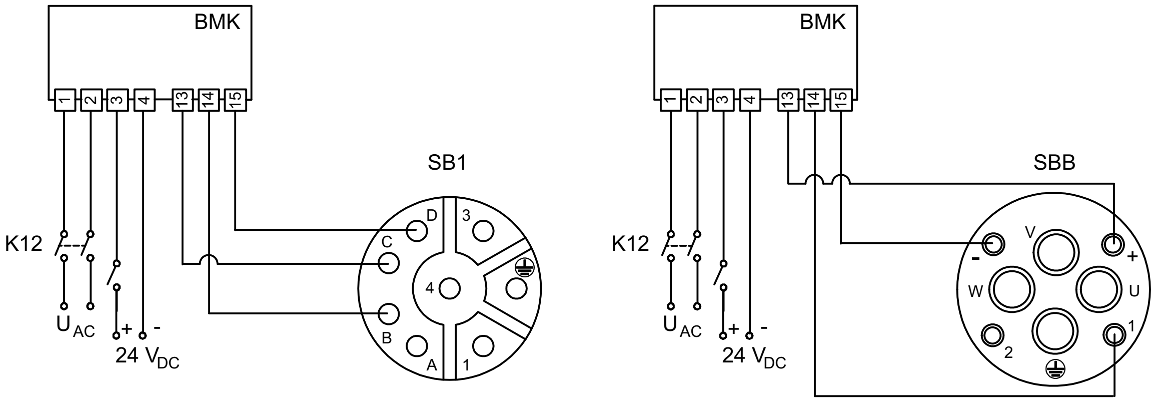
Cut-off in the DC and AC circuits/rapid application of the brake.




64827axx

***BMK brake rectifier***

Cut-off in the DC and AC circuits/rapid application of the brake/integrated voltage relay/ integrated DC 24 V control input.

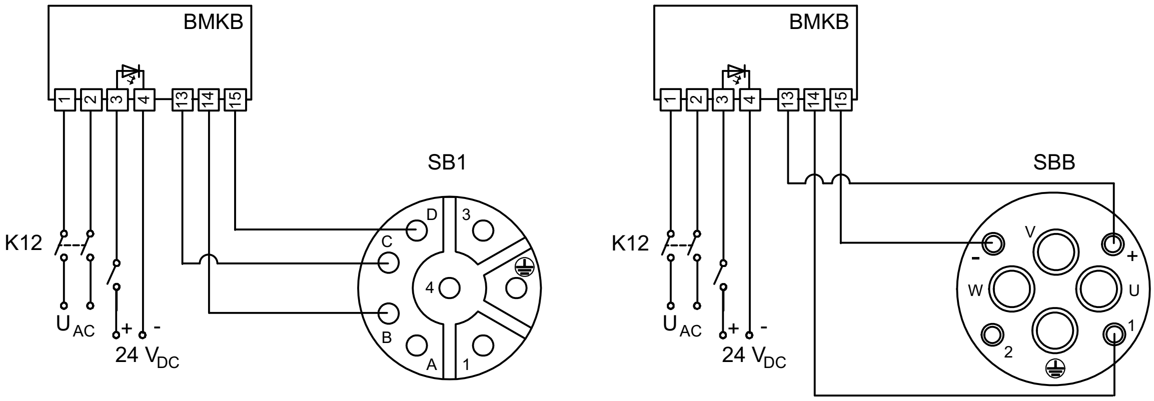



64828axx

| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

***BMKB brake rectifier***

Cut-off in the DC and AC circuits/rapid application of the brake/integrated voltage relay/ integrated DC 24 V control input/diode displays readiness for operation.

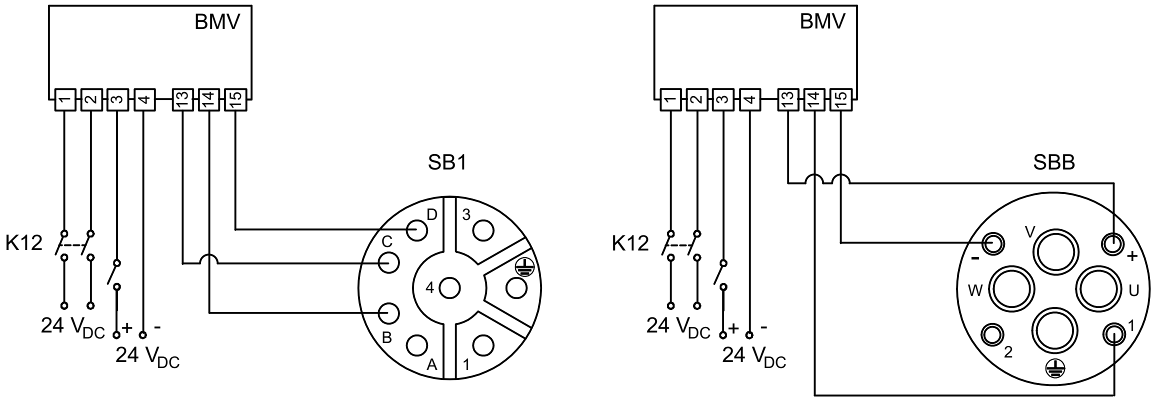



64829axx

| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

***BMV brake rectifier***

Cut-off in the DC and AC circuits/rapid application of the brake/integrated DC 24 V control input.



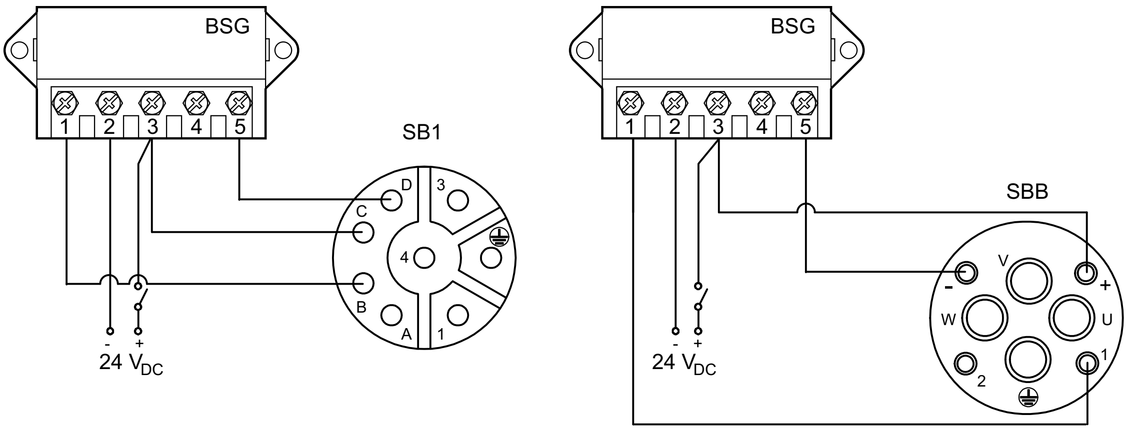

64838axx

| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |



***Brake control unit BSG***

For DC voltage supply with DC 24 V.




68458axx

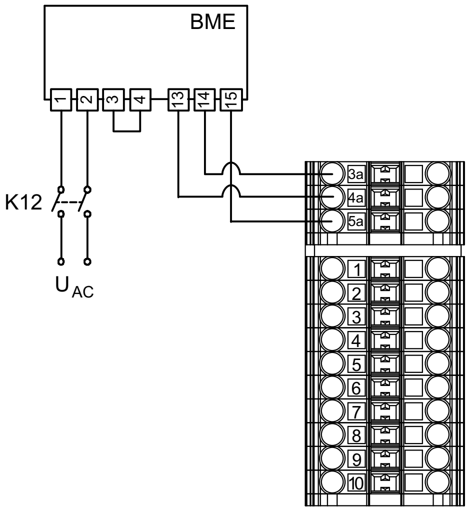
## 9.12 Block diagram of the brake control terminal box

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. Except for BMV, BMKB and BMK, it is used to also switch the brake.

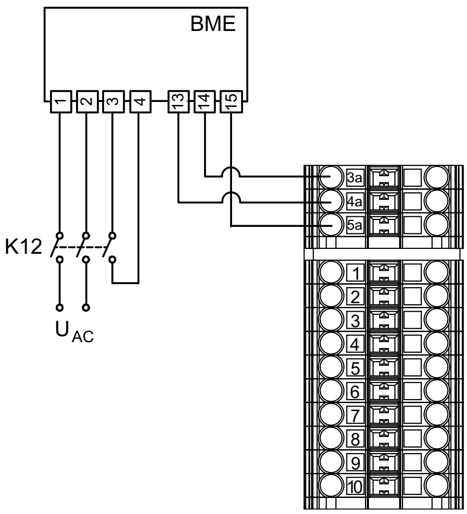
BMV and BMK: In applications without requirements on functional safety, it is sufficient to switch the brake via connections 3 and 4 (shown as NO contact without designation). In applications with requirements on functional safety (e.g. hoists), all poles must be switched off to ensure that the brake is applied even in the event of a fault in the brake rectifier.

***BME brake rectifier***

Cut-off in the AC circuit/normal application of the brake.

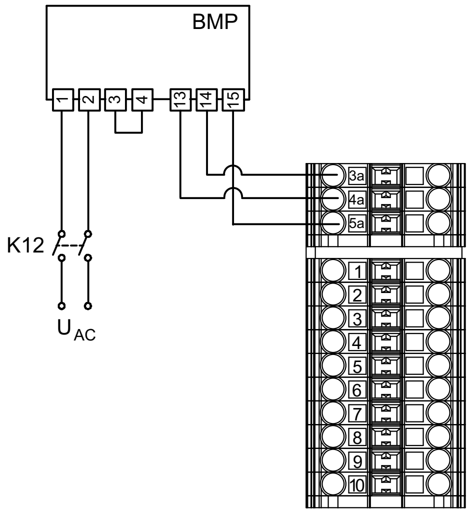



Cut-off in the DC and AC circuits/rapid application of the brake.



***BMP brake rectifier***

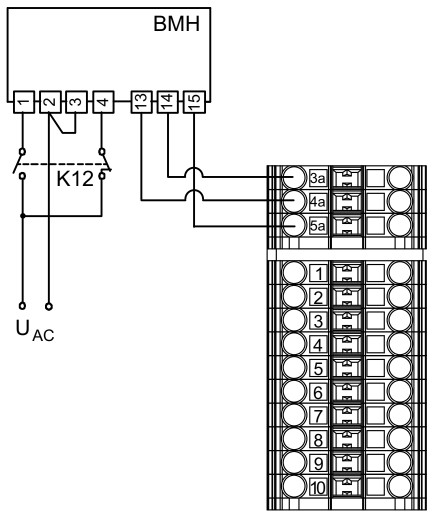
Cut-off in the DC and AC circuits/rapid application of the brake/integrated voltage relay.



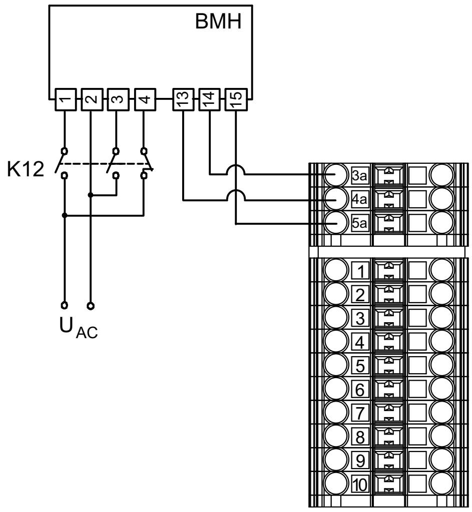



***BMH brake rectifier***

Cut-off in the AC circuit/normal application of the brake.

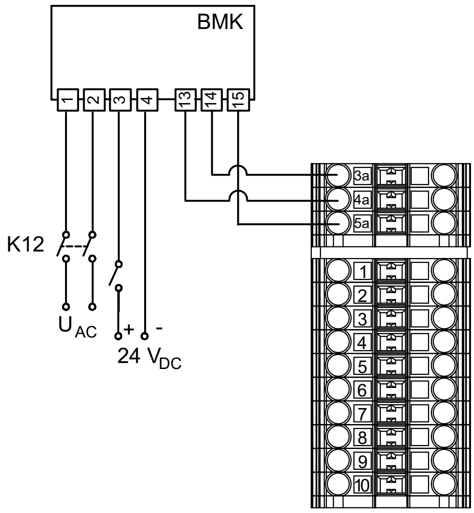


Cut-off in the DC and AC circuits/rapid application of the brake.




***BMK brake rectifier***

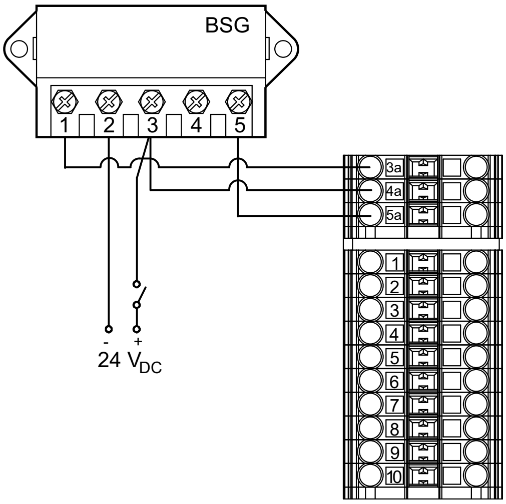
Cut-off in the DC and AC circuits/rapid application of the brake/integrated voltage relay.




| | |
|---|---|
| Connection 1, 2 | Energy supply |
| Connection 3, 4 | Signal (inverter) |

***Brake control unit BSG***

For DC voltage supply with DC 24 V.



## 9.13 Technical data of the BY brake

The following tables list the technical data of the brakes. The type and number of brake springs determines the level of the braking torque. Maximum braking torque $M_{B\ max}$ is installed as standard, unless specified otherwise in the order. Other brake spring combinations can result in reduced braking torque values $M_{B\ red}$.

| Brake type | $M_{Bmax}$ Nm | $M_{B\ red}$ Nm | $W_{insp}$ $10^3$ kJ | P W | $t_1$ ms | $t_2$ ms | $t_3$ ms |
|---|---|---|---|---|---|---|---|
| **BY2** | 20 | 10 | 60 | 30 | 40 | 15 | 90 |
| **BY4** | 40 | 20 | 90 | 40 | 40 | 15 | 110 |
| **BY8** | 80 | 40 | 120 | 50 | 60 | 30 | 140 |

$M_{B\ max}$ = Maximum braking torque
$M_{B\ red}$ = Optional braking torque
$W_{insp}$ = Permitted total braking work (braking work until service)
P = Power consumption of the coil
$t_1$ = Response time
$t_2$ = Application time AC/DC
$t_3$ = Application time AC

**INFORMATION**

The response and application times are recommended values in relation to the maximum braking torque.

***Motor/brake assignment***

The following table shows the standard assignments of motors and brakes:

| Motor type | Brake type | $M_{B1}$ Nm | $M_{B2}$ Nm | Speed class |
|---|---|---|---|---|
| **CMPZ71S** | BY2 | 14 | 10 | 2000 / 3000, 4500, 6000 |
| **CMPZ71M/L** | | 20 | 14 | |
| **CMPZ80S** | BY4 | 28 | 20 | 2000 / 3000, 4500 |
| **CMPZ80M/L** | | 40 | 28 | |
| **CMPZ100S** | BY8 | 55 | 40 | 2000 / 3000, 4500 |
| **CMPZ100M/L** | | 80 | 55 | |

$M_{B1}$ Preferred braking torque
$M_{B2}$ Optional braking torque

***Maximum permitted friction work***

The following table shows the permitted friction work depending on the application speed at which the braking process is triggered. The lower the speed, the higher the permitted braking work.

**INFORMATION**

If you do not stop the motor in an inverter-controlled manner but use the brake for mechanical deceleration, you must check whether the brake can supply the braking work required for the brake application speed in an EMERGENCY STOP situation. See also the section "EMERGENCY STOP properties" on page 200.

| Application speed rpm | Brake type | $M_{Bmax}$ Nm | $W_1$ for all applications kJ | $W_1$ Only travel drive applications kJ |
|---|---|---|---|---|
| 2000 | BY2 | 7 | 20 | 40 |
| | | 10 | 18 | 36 |
| | | 14 | 15 | 30 |
| | | 20 | 12 | 24 |
| | BY4 | 14 | 24 | 48 |
| | | 20 | 19.5 | 39 |
| | | 28 | 17 | 34 |
| | | 40 | 10.5 | 21 |
| | BY8 | 28 | 48 | 96 |
| | | 40 | 44 | 88 |
| | | 55 | 32 | 64 |
| | | 80 | 18 | 36 |
| 3000 | BY2 | 7 | 20 | 40 |
| | | 10 | 18 | 36 |
| | | 14 | 14 | 28 |
| | | 20 | 11 | 22 |
| | BY4 | 14 | 20 | 40 |
| | | 20 | 15 | 30 |
| | | 28 | 10 | 20 |
| | | 40 | 4.5 | 9 |
| | BY8 | 28 | 36 | 72 |
| | | 40 | 32 | 64 |
| | | 55 | 18 | 36 |
| | | 80 | 7 | 14 |

Table continued on next page.

| Application speed rpm | Brake type | $M_{Bmax}$ Nm | $W_1$ for all applications kJ | $W_1$ Only travel drive applications kJ |
|---|---|---|---|---|
| 4500 | BY2 | 7 | 16 | 32 |
| | | 10 | 14 | 28 |
| | | 14 | 10 | 20 |
| | | 20 | 6 | 12 |
| | BY4 | 14 | 15 | 30 |
| | | 20 | 9 | 18 |
| | | 28 | 5 | 10 |
| | | 40 | 3 | 6 |
| | BY8 | 28 | 22 | 44 |
| | | 40 | 18 | 36 |
| | | 55 | 11 | 22 |
| | | 80 | 4 | 8 |
| 6000 | BY2 | 7 | 14 | 28 |
| | | 10 | 13 | 26 |
| | | 14 | 8 | 16 |
| | | 20 | 4.5 | 9 |

$M_{B\,max}$ = Maximum braking torque
$W_1$ = Permitted braking work per cycle

## 9.14 Operating currents for the BY brake

The following tables list the operating currents of the brakes at different voltages. The following values are specified:

- Inrush current ratio $I_B/I_H$; $I_B$ = accelerator current, $I_H$ = holding current
- Holding current $I_H$
- Nominal voltage $V_N$

The accelerator current $I_B$ (= inrush current) only flows for a short time (ca. 120 ms) when the brake is released or during voltage dips below 70% of rated voltage.

The values for the holding currents $I_H$ are r.m.s. values (arithmetic mean value at DC 24 V). Use suitable measuring instruments for current measurements.

| | | BY2 | | BY4 | | BY8 | |
|---|---|---|---|---|---|---|---|
| **Maximum braking torque in Nm** | | 20 | | 40 | | 80 | |
| **Braking power in W** | | 30 | | 40 | | 50 | |
| **Inrush current ratio $I_B/I_H$** | | 6 | | 6.5 | | 7 | |
| **Nominal voltage $V_N$** | | | | | | | |
| **$V_{AC}$** | **$V_{DC}$** | **$I_H$ $A_{AC}$** | **$I_G$ $A_{DC}$** | **$I_H$ $A_{AC}$** | **$I_G$ $A_{DC}$** | **$I_H$ $A_{AC}$** | **$I_G$ $A_{DC}$** |
| | **24 (21.6 - 26.4)** | - | 1.4 | - | 1.6 | - | 2.1 |
| **110** (99 - 121) | | 0.47 | - | 0.63 | - | 0.8 | - |
| **230** (218 - 243) | | 0.21 | - | 0.28 | - | 0.355 | - |
| **400** (380 - 431) | | 0.12 | - | 0.16 | - | 0.2 | - |
| **460** (432 - 484) | | 0.11 | - | 0.14 | - | 0.18 | - |

$I_H$ Holding current, r.m.s. value in the supply cable to the SEW brake rectifier

$I_G$ Direct current with direct DC voltage supply

$V_N$ Rated voltage (rated voltage range)

## 9.15 Resistance of BY brake coils

| | | BY2 | | BY4 | | BY8 | |
|---|---|---|---|---|---|---|---|
| **Maximum braking torque in Nm** | | 20 | | 40 | | 80 | |
| **Braking power in W** | | 30 | | 40 | | 50 | |
| **Nominal voltage $V_N$** | | | | | | | |
| **$V_{AC}$** | **$V_{DC}$** | **$R_B$ Ω** | **$R_T$ Ω** | **$R_B$ Ω** | **$R_T$ Ω** | **$R_B$ Ω** | **$R_T$ Ω** |
| | **24 (21.6 - 26.4)** | 3.9 | 18.85 | 2.6 | 13.91 | 1.9 | 11.05 |
| **110** (99 - 121) | | 12.3 | 59.6 | 8.1 | 43.98 | 6 | 34.94 |
| **230** (218 - 243) | | 61.6 | 298.7 | 40.6 | 220.4 | 30.1 | 175.1 |
| **400** (380 - 431) | | 194.8 | 944.6 | 128.4 | 697 | 95.2 | 553.7 |
| **460** (432 - 484) | | 245.2 | 1189.1 | 161.6 | 877.4 | 119.8 | 697.1 |

$R_B$ Resistance of accelerator coil at 20 °C

$R_T$ Coil section resistance at 20 °C

$V_N$ Rated voltage (rated voltage range)

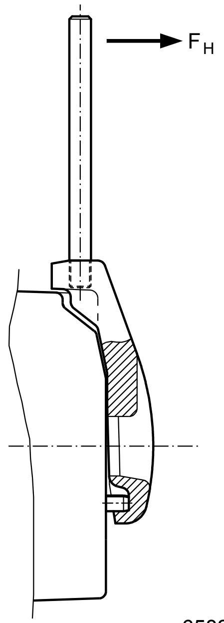
## 9.16 Braking work and braking torque

| Brake Type | Braking work until Maintenance | Order number of pressure plate | Braking torque settings | | | | |
|---|---|---|---|---|---|---|---|
| | | | Braking torque | Type and number of brake springs | | Order number of brake springs | |
| | $10^6$ J | | Nm | Stan-dard | Red | Standard | Red |
| **BY2** | 60 | 1644 3632 | 20 | 6 | - | 0186 6621 | 0183 7427 |
| | | | 14 | 4 | 2 | | |
| | | 1644 7824 | 10 | 3 | - | | |
| | | | 7 | 2 | 2 | | |
| **BY4** | 90 | 1644 5856 | 40 | 6 | - | 0186 663X | 0184 0037 |
| | | | 28 | 4 | 2 | | |
| | | 1644 7840 | 20 | 3 | - | | |
| | | | 14 | 2 | 2 | | |
| **BY8** | 120 | 1644 4876 | 80 | 6 | - | 1644 6011 | 1644 6038 |
| | | | 55 | 4 | 2 | | |
| | | 1644 7859 | 40 | 3 | - | | |
| | | | 28 | 2 | 2 | | |

## 9.17 Manual brake release

In brakemotors with ../HR "brake with self-re-engaging manual brake release", you can release the brake manually using the provided lever. The following table specifies the actuation force required at maximum braking torque to release the brake manually. The values are based on the assumption that you operate the lever at the upper end.

| Brake type | Motor size | Actuation force $F_H$ in N |
|---|---|---|
| **BY2** | **CMPZ71** | 50 |
| **BY4** | **CMPZ80** | 70 |
| **BY8** | **CMPZ100** | 90 |



65823AXX

9

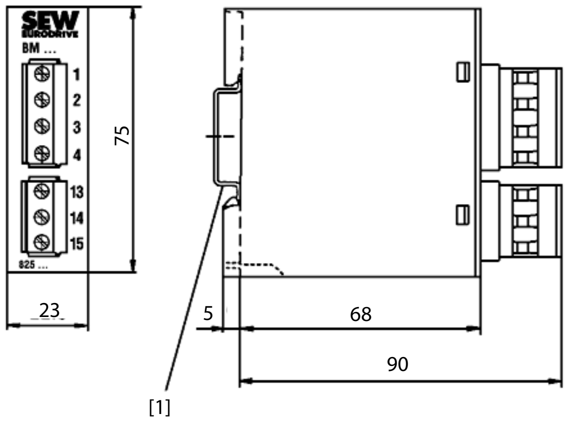
### *Retrofit set for manual brake release*

The manual brake release of the BY brake can be retrofitted with the following retrofit kits depending on the brake size:

| Retrofit set | Part number |
|---|---|
| **BY2** | **1750 842 8** |
| **BY4** | **1750 852 5** |
| **BY8** | **1750 862 2** |

## 9.18 Dimension drawings of the BY brake control

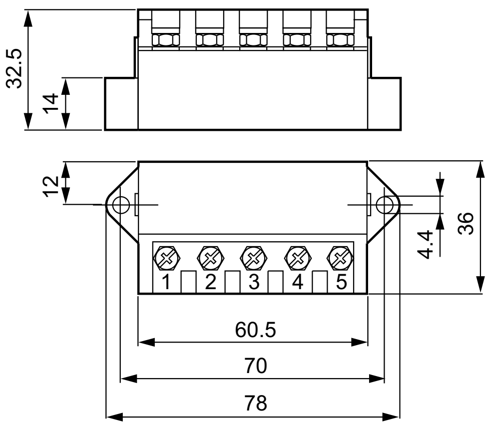
***Dimension drawing BME, BMP, BMH, BMK, BMKB, BMV***




52928axx

[1] DIN rail mounting EN 50022-35 x 7.5

***Dimension drawing BSG***




54243AXX

# 10 Motor Designs of CMP. Servomotors

## 10.1 Standard design – encoders

***Resolver***

*Type designation* /RH1M

*Description* SEW servomotors are delivered with 2-pole resolvers as standard. Further information on other resolvers is available on request.

***Option: Hiperface® encoder***

*Type designation* /ES1H, /AS1H, /AK0H, /EK0H, /AK1H, /EK1H

*Description* SEW-EURODRIVE offers Hiperface® encoders also as multi-turn absolute encoders as an alternative to the resolver. Encoders with a high resolution are also available in addition to the standard encoders.

**INFORMATION**

The encoder signal can be influenced by the speed when the brake is applied. It is therefore important that the inverter defines its encoder position again after this process. This is not necessary in regular operation when the brake is actuated at standstill.

When prefabricating the encoder cables, ensure correct polarity for the supply outputs.



CMP servomotors are delivered with a RH1M resolver as standard.

The following Hiperface® multi/single-turn encoders can be mounted as an option:

| Designation | Specification periods / revolution | Motor type | Brake type |
|---|---|---|---|
| **EK0H** | 128 | CMP40 | BP |
| **AK0H** | 128 | CMP40 - CMP.100 | BP |
| **ES1H, AS1H** | 1024 | CMP50 - 63 | BP |
| **EK1H, AK1H** | 1024 | CMP.71 - 100 | BP, BY |

### *Encoders technical data*

*Resolver*

*/RH1M*

| Part number for RH1M | CMP40<br>1335 3861 | CMP50, 63<br>0199 0314 | CMP.71 - 100<br>1644 5619 |
|---|---|---|---|
| Number of poles | 2 | 2 | 2 |
| Primary | Rotor | Rotor | Rotor |
| Input voltage | 7 V | 7 V | 7 V |
| Input frequency | 7 kHz | 7 kHz | 7 kHz |
| Gear ratio ± 10% | 0.5 | 0.5 | 0.5 |
| Phase shift ± 5° | +13° | +13° | +13° |
| Input impedance ± 15% | 130 + j120 Ω | 130 + j120 Ω | 130 + j120 Ω |
| Output impedance ± 15% | 200 + j270 Ω | 200 + j270 Ω | 200 + j270 Ω |
| Input resistance ± 10% | 82 Ω | 82 Ω | 82 Ω |
| Output resistance ± 10% | 68 Ω | 68 Ω | 68 Ω |
| Maximum electrical fault | ± 6' | ± 6' | ± 6' |
| Temperature range | -55 °C to +150 °C | -55 °C to +150 °C | -55 °C to +150 °C |

*Option: Hiperface® encoder*

*/EK0H, /AK0H*

| Type<br>Attachable to encoder | EK0H<br>0199 7424<br>CMP40 | AK0H[1)]<br>1335 6615<br>CMP40 - CMP.100 |
|---|---|---|
| Supply voltage | DC 7 - 12 V polarity reversal protected | |
| Maximum current consumption (without load) | 120 mA | |
| Maximum operating frequency | 26 kHz | |
| Pulses (sine cycles) per revolution | 128 | |
| Output amplitude per track | 0.8 - 1.1 $V_{pp}$ sin/cos | |
| Single-turn resolution | 4096 increments/revolution (15 bit) | |
| Multi-turn resolution | - | 4096 revolutions (12 bits) |
| Transmission protocol | Hiperface® | |
| Serial data output | Driver according to EIA RS-485 | |
| Vibration resistance (10 - 2000 Hz) | ≤ 100 m/s² (DIN IEC 68-2-6) | |
| Maximum speed | 12000 rpm | 9000 rpm |
| Temperature range | -20 °C to +110 °C | |

1) Not available in combination with BY brake

*Option: Hiperface® encoder*

*/ES1H, /AS1H*

| Type | ES1H<br>1335 6410 | AS1H<br>1335 6402 |
|---|---|---|
| **Attachable to encoder** | **CMP50, CMP63** | |
| Supply voltage | DC 7 - 8 - 12 V polarity reversal protected | |
| Max. current consumption | 140 mA | |
| Maximum operating frequency | 200 kHz | |
| Pulses (sine cycles) per revolution | 1024 | |
| Output amplitude per track | 0.9 - 1.1 $V_{pp}$ sin/cos | |
| Single-turn resolution | 32768 increments/revolution (15 bit) | |
| Multi-turn resolution | - | 4096 revolutions (12 bits) |
| Transmission protocol | Hiperface® | |
| Serial data output | Driver according to EIA RS-485 | |
| Vibration resistance (10 - 2000 Hz) | ≤ 200 $m/s^2$ (DIN IEC 68-2-6) | |
| Maximum speed | 12000 rpm | |
| Temperature range | -20 °C to +110 °C | |

*/EK1H, /AK1H*

| Type | EK1H<br>1644 4639 | AK1H<br>1333 7602 |
|---|---|---|
| **Attachable to encoder** | **CMP71 - 100** | |
| Supply voltage | DC 7 - 8 - 12 V polarity reversal protected | |
| Max. current consumption | 140 mA | |
| Maximum operating frequency | 200 kHz | |
| Pulses (sine cycles) per revolution | 1024 | |
| Output amplitude per track | 0.9 - 1.1 $V_{pp}$ sin/cos | |
| Single-turn resolution | 32768 increments/revolution (15 bit) | |
| Multi-turn resolution | - | 4096 revolutions (12 bits) |
| Transmission protocol | Hiperface® | |
| Serial data output | Driver according to EIA RS-485 | |
| Vibration resistance (10 - 2000 Hz) | ≤ 200 $m/s^2$ (DIN IEC 68-2-6) | |
| Maximum speed | 12000 rpm | |
| Temperature range | -20 °C to +110 °C | |

## 10.2 Standard design – motor protection

### *Thermal motor information with KTY*

*Type designation* /KY

*Description* This type detects the motor temperature continuously using a semi-conductor sensor for further processing in the inverter or controller.

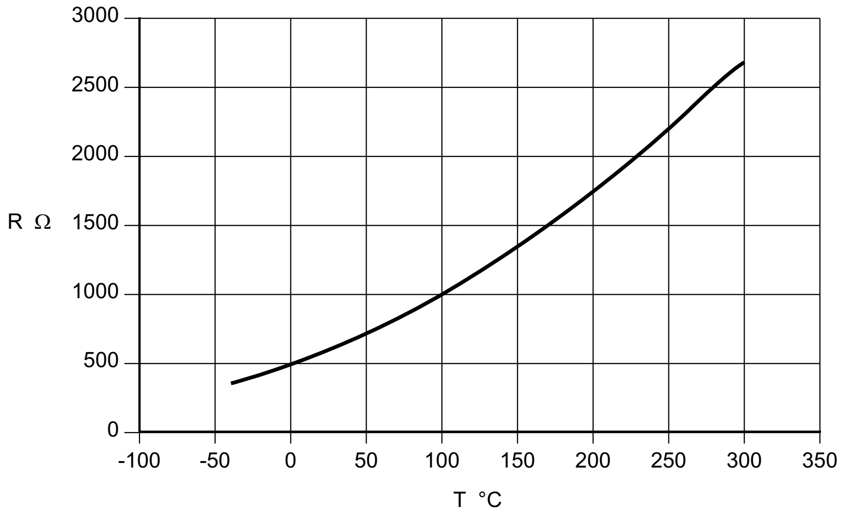
The inverter + /KY option can only take on the function of motor protection when it is used in combination with an inverter containing the thermal motor model.

### *Thermal motor information with KTY technical data*

*/KY* The temperature sensor KTY84 - 130 continuously detects the motor temperature.

| Technical data | KTY84 - 130 |
|---|---|
| Connection | Red (+)<br>Blue (-) |
| Total resistance at 20 - 25 °C | 540 Ω < R < 640 Ω |
| Test current | <3 mA |

Typical characteristic curve of KTY:




63578axx

## 10.3 Standard design – connection variants

***Assignment table for connectors and terminal boxes to CMP servomotors***

*System voltage 400 V, without forced cooling fan*

<table>
<tr><th>Motor type</th><th>Rated speed</th><th colspan="2">Plug connector/terminal box without brake</th><th colspan="2">Plug connector/terminal box with brake</th></tr>
<tr><td>CMP40S</td><td>3000</td><td colspan="2" rowspan="3">SM1</td><td colspan="2" rowspan="3">SB1</td></tr>
<tr><td>CMP40S</td><td>4500</td></tr>
<tr><td>CMP40S</td><td>6000</td></tr>
<tr><td>CMP40M</td><td>3000</td><td colspan="2" rowspan="3">SM1</td><td colspan="2" rowspan="3">SB1</td></tr>
<tr><td>CMP40M</td><td>4500</td></tr>
<tr><td>CMP40M</td><td>6000</td></tr>
<tr><td>CMP50S</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50S</td><td>4500</td></tr>
<tr><td>CMP50S</td><td>6000</td></tr>
<tr><td>CMP50M</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50M</td><td>4500</td></tr>
<tr><td>CMP50M</td><td>6000</td></tr>
<tr><td>CMP50L</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50L</td><td>4500</td></tr>
<tr><td>CMP50L</td><td>6000</td></tr>
<tr><td>CMP63S</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63S</td><td>4500</td></tr>
<tr><td>CMP63S</td><td>6000</td></tr>
<tr><td>CMP63M</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63M</td><td>4500</td></tr>
<tr><td>CMP63M</td><td>6000</td></tr>
<tr><td>CMP63L</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63L</td><td>4500</td></tr>
<tr><td>CMP63L</td><td>6000</td></tr>
<tr><td>CMP.71S</td><td>2000</td><td rowspan="4">SM1</td><td rowspan="4">KK, KKS</td><td rowspan="4">SB1</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>CMP.71S</td><td>3000</td></tr>
<tr><td>CMP.71S</td><td>4500</td></tr>
<tr><td>CMP.71S</td><td>6000</td></tr>
<tr><td>CMP.71M</td><td>2000</td><td rowspan="4">SM1</td><td rowspan="4">KK, KKS</td><td rowspan="4">SB1</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>CMP.71M</td><td>3000</td></tr>
<tr><td>CMP.71M</td><td>4500</td></tr>
<tr><td>CMP.71M</td><td>6000</td></tr>
<tr><td>CMP.71L</td><td>2000</td><td rowspan="4">SM1</td><td rowspan="4">KK, KKS</td><td rowspan="4">SB1</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>CMP.71L</td><td>3000</td></tr>
<tr><td>CMP.71L</td><td>4500</td></tr>
<tr><td>CMP.71L</td><td>6000</td></tr>
<tr><td>CMP.80S</td><td>2000</td><td rowspan="4">SM1, SMB</td><td rowspan="4">KK, KKS</td><td rowspan="4">SB1, SBB</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>CMP.80S</td><td>3000</td></tr>
<tr><td>CMP.80S</td><td>4500</td></tr>
<tr><td>CMP.80S</td><td>6000</td></tr>
<tr><td colspan="6">Table continued on next page.</td></tr>
</table>

| Motor type | Rated speed | Plug connector/terminal box without brake | | Plug connector/terminal box with brake | |
|---|---|---|---|---|---|
| CMP.80M | 2000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.80M | 3000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.80M | 4500 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.80M | 6000 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.80L | 2000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.80L | 3000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.80L | 4500 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.80L 1) | 6000 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.100S | 2000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.100S | 3000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.100S | 4500 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.100M | 2000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.100M | 3000 | SM1, SMB | KK, KKS | SB1, SBB | KK, KKS |
| CMP.100M | 4500 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.100L | 2000 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.100L | 3000 | SMB | KK, KKS | SBB | KK, KKS |
| CMP.100L 1) | 4500 | SMB | KK, KKS | SBB | KK, KKS |

1) CSA approval only possible with terminal box

*System voltage 400 V, with forced cooling fan*

| Motor type | Rated speed | Plug connector/terminal box without brake | | Plug connector/terminal box with brake | |
|---|---|---|---|---|---|
| CMP50S/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP50S/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP50S/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP50M/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP50M/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP50M/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP50L/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP50L/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP50L/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP63S/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP63S/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP63S/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP63M/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP63M/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP63M/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP63L/VR | 3000 | SM1 | KK | SB1 | KK |
| CMP63L/VR | 4500 | SM1 | KK | SB1 | KK |
| CMP63L/VR | 6000 | SM1 | KK | SB1 | KK |
| CMP.71S /VR | 2000 | SM1 | KK, KKS | SB1 | KK, KKS |
| CMP.71S /VR | 3000 | SM1 | KK, KKS | SB1 | KK, KKS |
| CMP.71S /VR | 4500 | SM1 | KK, KKS | SB1 | KK, KKS |
| CMP.71S /VR | 6000 | SM1 | KK, KKS | SB1 | KK, KKS |

Table continued on next page.

<table>
<tr><th>Motor type</th><th>Rated speed</th><th colspan="2">Plug connector/terminal box without brake</th><th colspan="2">Plug connector/terminal box with brake</th></tr>
<tr><td>**CMP.71M /VR**</td><td>2000</td><td rowspan="4">SM1</td><td rowspan="4">KK, KKS</td><td rowspan="4">SB1</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>**CMP.71M /VR**</td><td>3000</td></tr>
<tr><td>**CMP.71M /VR**</td><td>4500</td></tr>
<tr><td>**CMP.71M /VR**</td><td>6000</td></tr>
<tr><td>**CMP.71L /VR**</td><td>2000</td><td rowspan="2">SM1</td><td rowspan="4">KK, KKS</td><td rowspan="2">SB1</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>**CMP.71L /VR**</td><td>3000</td></tr>
<tr><td>**CMP.71L /VR**[1)]</td><td>4500</td><td rowspan="2">-</td><td rowspan="2">-</td></tr>
<tr><td>**CMP.71L /VR**[1)]</td><td>6000</td></tr>
<tr><td>**CMP.80S /VR**</td><td>2000</td><td rowspan="3">SM1, SMB</td><td rowspan="4">KK, KKS</td><td rowspan="3">SB1, SBB</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>**CMP.80S /VR**</td><td>3000</td></tr>
<tr><td>**CMP.80S /VR**</td><td>4500</td></tr>
<tr><td>**CMP.80S /VR**[2)]</td><td>6000</td><td>SMB</td><td>SBB</td></tr>
<tr><td>**CMP.80M /VR**</td><td>2000</td><td rowspan="2">SM1, SMB</td><td rowspan="4">KK, KKS</td><td rowspan="2">SB1, SBB</td><td rowspan="4">KK, KKS</td></tr>
<tr><td>**CMP.80M /VR**</td><td>3000</td></tr>
<tr><td>**CMP.80M /VR**[2)]</td><td>4500</td><td rowspan="2">SMB</td><td rowspan="2">SBB</td></tr>
<tr><td>**CMP.80M /VR**</td><td>6000</td></tr>
<tr><td>**CMP.80L /VR**</td><td>2000</td><td>SM1, SMB</td><td rowspan="3">KK, KKS</td><td>SB1, SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>**CMP.80L /VR**[2)]</td><td>3000</td><td rowspan="2">SMB</td><td rowspan="2">SBB</td></tr>
<tr><td>**CMP.80L /VR**</td><td>4500</td></tr>
<tr><td>**CMP.100S /VR**</td><td>2000</td><td>SM1, SMB</td><td rowspan="3">KK, KKS</td><td>SB1, SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>**CMP.100S /VR**[2)]</td><td>3000</td><td rowspan="2">SMB</td><td rowspan="2">SBB</td></tr>
<tr><td>**CMP.100S /VR**</td><td>4500</td></tr>
<tr><td>**CMP.100M /VR**</td><td>2000</td><td rowspan="2">SMB</td><td rowspan="3">KK, KKS</td><td rowspan="2">SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>**CMP.100M /VR**</td><td>3000</td></tr>
<tr><td>**CMP.100M /VR**</td><td>4500</td><td>-</td><td>-</td></tr>
<tr><td>**CMP.100L /VR**</td><td>2000</td><td rowspan="2">SMB</td><td rowspan="3">KK, KKS</td><td rowspan="2">SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>**CMP.100L /VR**[3)]</td><td>3000</td></tr>
<tr><td>**CMP.100L /VR**</td><td>4500</td><td>-</td><td>-</td></tr>
</table>

1) UL and CSA approval only possible with terminal box
2) UL and CSA approval only possible with SMB/SBB or terminal box
3) CSA approval only possible with terminal box

*System voltage 230 V, without forced cooling fan*

<table>
<tr><th>Motor type</th><th>Rated speed</th><th colspan="2">Plug connector/terminal box without brake</th><th colspan="2">Plug connector/terminal box with brake</th></tr>
<tr><td>CMP40S</td><td>3000</td><td colspan="2" rowspan="3">SM1</td><td colspan="2" rowspan="3">SB1</td></tr>
<tr><td>CMP40S</td><td>4500</td></tr>
<tr><td>CMP40S</td><td>6000</td></tr>
<tr><td>CMP40M</td><td>3000</td><td colspan="2" rowspan="3">SM1</td><td colspan="2" rowspan="3">SB1</td></tr>
<tr><td>CMP40M</td><td>4500</td></tr>
<tr><td>CMP40M</td><td>6000</td></tr>
<tr><td>CMP50S</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50S</td><td>4500</td></tr>
<tr><td>CMP50S</td><td>6000</td></tr>
<tr><td>CMP50M</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50M</td><td>4500</td></tr>
<tr><td>CMP50M</td><td>6000</td></tr>
<tr><td>CMP50L</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP50L</td><td>4500</td></tr>
<tr><td>CMP50L</td><td>6000</td></tr>
<tr><td>CMP63S</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63S</td><td>4500</td></tr>
<tr><td>CMP63S</td><td>6000</td></tr>
<tr><td>CMP63M</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63M</td><td>4500</td></tr>
<tr><td>CMP63M</td><td>6000</td></tr>
<tr><td>CMP63L</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK</td><td rowspan="3">SB1</td><td rowspan="3">KK</td></tr>
<tr><td>CMP63L</td><td>4500</td></tr>
<tr><td>CMP63L</td><td>6000</td></tr>
<tr><td>CMP.71S</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK, KKS</td><td rowspan="3">SB1</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>CMP.71S</td><td>4500</td></tr>
<tr><td>CMP.71S</td><td>6000</td></tr>
<tr><td>CMP.71M</td><td>3000</td><td rowspan="2">SM1</td><td rowspan="2">KK, KKS</td><td rowspan="2">SB1</td><td rowspan="2">KK, KKS</td></tr>
<tr><td>CMP.71M</td><td>4500</td></tr>
<tr><td>CMP.71L</td><td>3000</td><td>SM1</td><td>KK, KKS</td><td>SB1</td><td>KK, KKS</td></tr>
<tr><td>CMP.80S</td><td>3000</td><td>SM1, SMB</td><td rowspan="3">KK, KKS</td><td>SB1, SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>CMP.80S</td><td>4500</td><td rowspan="2">SMB</td><td rowspan="2">SBB</td></tr>
<tr><td>CMP.80S</td><td>6000</td></tr>
<tr><td>CMP.80M</td><td>3000</td><td rowspan="2">SMB</td><td rowspan="2">KK, KKS</td><td rowspan="2">SBB</td><td rowspan="2">KK, KKS</td></tr>
<tr><td>CMP.80M</td><td>4500</td></tr>
<tr><td>CMP.80L</td><td>3000</td><td>SMB</td><td>KK, KKS</td><td>SBB</td><td>KK, KKS</td></tr>
<tr><td colspan="6">Table continued on next page.</td></tr>
</table>

<table>
<tr><th>Motor type</th><th>Rated speed</th><th colspan="2">Plug connector/terminal box without brake</th><th colspan="2">Plug connector/terminal box with brake</th></tr>
<tr><td>CMP.100S</td><td>3000</td><td>SMB</td><td rowspan="2">KK, KKS</td><td>SBB</td><td rowspan="2">KK, KKS</td></tr>
<tr><td>CMP.100S</td><td>4500</td><td>-</td><td>-</td></tr>
<tr><td>CMP.100M[1)]</td><td>3000</td><td>SMB</td><td>KK, KKS</td><td>SBB</td><td>KK, KKS</td></tr>
</table>

1) CSA approval only possible with terminal box

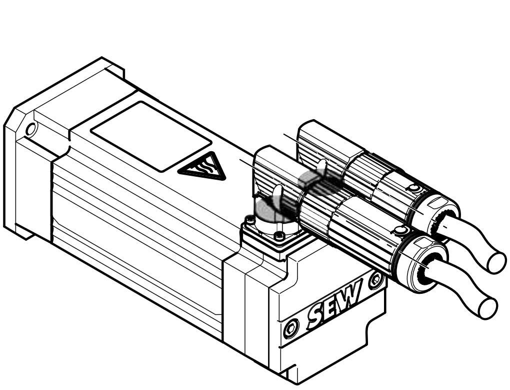
*System voltage 230 V, with forced cooling fan*

<table>
<tr><th>Motor type</th><th>Rated speed</th><th colspan="2">Plug connector/terminal box without brake</th><th colspan="2">Plug connector/terminal box with brake</th></tr>
<tr><td>CMP.71S /VR</td><td>3000</td><td rowspan="3">SM1</td><td rowspan="3">KK, KKS</td><td rowspan="3">SB1</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>CMP.71S /VR</td><td>4500</td></tr>
<tr><td>CMP.71S /VR[1)]</td><td>6000</td></tr>
<tr><td>CMP.71M /VR</td><td>3000</td><td rowspan="2">SM1</td><td rowspan="2">KK, KKS</td><td rowspan="2">SB1</td><td rowspan="2">KK, KKS</td></tr>
<tr><td>CMP.71M /VR[1)]</td><td>4500</td></tr>
<tr><td>CMP.71L /VR</td><td>3000</td><td>SM1</td><td>KK, KKS</td><td>SB1</td><td>KK, KKS</td></tr>
<tr><td>CMP.80S /VR[2)]</td><td>3000</td><td rowspan="3">SM1, SMB</td><td rowspan="3">KK, KKS</td><td rowspan="3">SB1, SBB</td><td rowspan="3">KK, KKS</td></tr>
<tr><td>CMP.80S /VR</td><td>4500</td></tr>
<tr><td>CMP.80S /VR[3)]</td><td>6000</td></tr>
<tr><td>CMP.80M /VR</td><td>3000</td><td>SMB</td><td rowspan="2">KK, KKS</td><td>SBB</td><td rowspan="2">KK, KKS</td></tr>
<tr><td>CMP.80M /VR</td><td>4500</td><td>-</td><td>-</td></tr>
<tr><td>CMP.80L /VR</td><td>3000</td><td>-</td><td>KK, KKS</td><td>-</td><td>KK, KKS</td></tr>
</table>

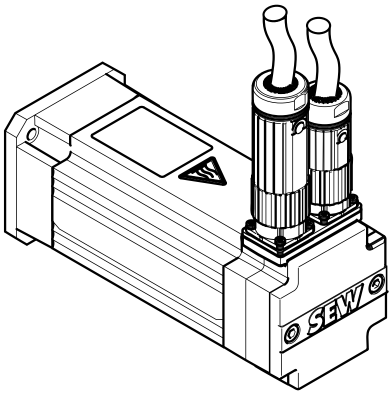
1) UL and CSA approval only possible with terminal box
2) UL and CSA approval only possible with SMB/SBB or terminal box
3) CSA approval only possible with terminal box

***1. Plug connector connection variant***

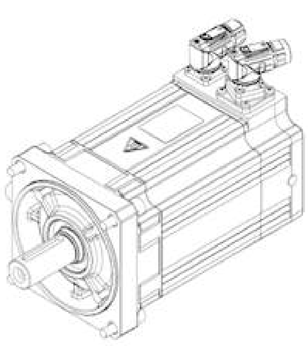
Plug connector "adjustable" and "radial".

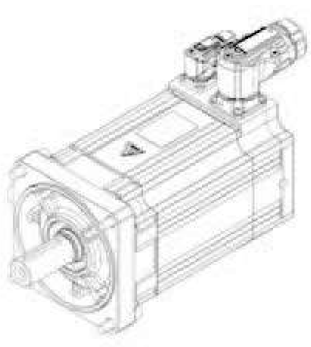



SM1/SB1 plug connector




SMB/SBB plug connector





### Power cables and plug connectors for CMP motors

| Cable type | | Connector type | Thread size | Cable cross section $mm^2$ | Part number Prefabricated cables | Part number Spare power plug* |
|---|---|---|---|---|---|---|
| Fixed installation | Motor cable | SM11 | M23 | 4 x 1.5 $mm^2$ | 0590 4544 | 0198 6740 |
| | | SM12 | M23 | 4 x 2.5 $mm^2$ | 0590 4552 | 0198 6740 |
| | | SM14 | M23 | 4 x 4 $mm^2$ | 0590 4560 | 0199 1639 |
| | | SMB6 | M40 | 4 x 6 $mm^2$ | 1335 0269 | 1334 9856 |
| | | SMB10 | M40 | 4 x 10 $mm^2$ | 1335 0277 | 1334 9864 |
| | | SMB16 | M40 | 4 x 16 $mm^2$ | 1335 0285 | 1334 9872 |
| | Brakemotor cable[1)] BP brake | SB11 | M23 | 4 x 1.5 $mm^2$ + 2 x 1 $mm^2$ | 1335 4345 | 0198 6740 |
| | | SB12 | M23 | 4 x 2.5 $mm^2$ + 2 x 1 $mm^2$ | 1335 4353 | 0198 6740 |
| | | SB14 | M23 | 4 x 4 $mm^2$ + 2 x 1 $mm^2$ | 1335 4361 | 0199 1639 |
| | | SBB6 | M40 | 4 x 6 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0196 | 1334 9856 |
| | | SBB10 | M40 | 4 x 10 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0218 | 1334 9864 |
| | | SBB16 | M40 | 4 x 16 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0226 | 1334 9872 |
| Cable carrier installation | Motor cable | SM11 | M23 | 4 x 1.5 $mm^2$ | 0590 6245 | 0198 6740 |
| | | SM12 | M23 | 4 x 2.5 $mm^2$ | 0590 6253 | 0198 9197 |
| | | SM14 | M23 | 4 x 4 $mm^2$ | 0590 4803 | 0199 1639 |
| | | SMB6 | M40 | 4 x 6 $mm^2$ | 1335 0293 | 1334 9856 |
| | | SMB10 | M40 | 4 x 10 $mm^2$ | 1335 0307 | 1334 9864 |
| | | SMB16 | M40 | 4 x 16 $mm^2$ | 1335 0315 | 1334 9872 |
| | Brakemotor cable[1)] BP brake | SB11 | M23 | 4 x 1.5 $mm^2$ + 2 x 1 $mm^2$ | 1335 4388 | 0198 9197 |
| | | SB12 | M23 | 4 x 2.5 $mm^2$ + 2 x 1 $mm^2$ | 1335 4396 | 0198 9197 |
| | | SB14 | M23 | 4 x 4 $mm^2$ + 2 x 1 $mm^2$ | 1342 1603 | 0199 1639 |
| | | SBB6 | M40 | 4 x 6 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0234 | 1334 9856 |
| | | SBB10 | M40 | 4 x 10 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0242 | 1334 9864 |
| | | SBB16 | M40 | 4 x 16 $mm^2$ + 2 x 1.5 $mm^2$ | 1335 0250 | 1334 9872 |

1) BP brake: 3-core cable, only 2 cores are used

* The complete connector service pack always includes the following parts:

- Power connector
- Insulation inserts
- Socket contacts

### *Power cables and plug connectors for CMPZ motors*

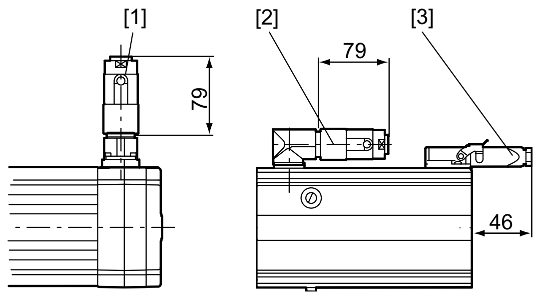
| Cable type | | Connector type | Thread size | Cable cross section | Part number | |
|---|---|---|---|---|---|---|
| | | | | mm$^2$ | Prefabricated cables | Spare power plug* |
| Fixed installation | Motor cable | SM11 | M23 | 4 x 1.5 mm$^2$ | 0590 4544 | 0198 6740 |
| | | SM12 | | 4 x 2.5 mm$^2$ | 0590 4552 | 0198 6740 |
| | | SM14 | | 4 x 4 mm$^2$ | 0590 4560 | 0199 1639 |
| | | SMB6 | M40 | 4 x 6 mm$^2$ | 1335 0269 | 1334 9856 |
| | | SMB10 | | 4 x 10 mm$^2$ | 1335 0277 | 1334 9864 |
| | | SMB16 | | 4 x 16 mm$^2$ | 1335 0285 | 1334 9872 |
| | Brakemotor cable for BY brake | SB11 | M23 | 4 x 1.5 mm$^2$ + 3 x 1 mm$^2$ | 1335 4272 | 0198 6740 |
| | | SB12 | | 4 x 2.5 mm$^2$ + 3 x 1 mm$^2$ | 1335 4280 | 0198 6740 |
| | | SB14 | | 4 x 4 mm$^2$ + 3 x 1 mm$^2$ | 1335 4299 | 0199 1639 |
| | | SBB6 | M40 | 4 x 6 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0129 | 1334 9856 |
| | | SBB10 | | 4 x 10 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0137 | 1334 9864 |
| | | SBB16 | | 4 x 16 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0145 | 1334 9872 |
| Cable carrier installation | Motor cable | SM11 | M23 | 4 x 1.5 mm$^2$ | 0590 6245 | 0198 6740 |
| | | SM12 | | 4 x 2.5 mm$^2$ | 0590 6253 | 0198 9197 |
| | | SM14 | | 4 x 4 mm$^2$ | 0590 4803 | 0199 1639 |
| | | SMB6 | M40 | 4 x 6 mm$^2$ | 1335 0293 | 1334 9856 |
| | | SMB10 | | 4 x 10 mm$^2$ | 1335 0307 | 1334 9864 |
| | | SMB16 | | 4 x 16 mm$^2$ | 1335 0315 | 1334 9872 |
| | Brakemotor cable for BY brake | SB11 | M23 | 4 x 1.5 mm$^2$ + 3 x 1 mm$^2$ | 1335 4302 | 0198 9197 |
| | | SB12 | | 4 x 2.5 mm$^2$ + 3 x 1 mm$^2$ | 1335 4310 | 0198 9197 |
| | | SB14 | | 4 x 4 mm$^2$ + 3 x 1 mm$^2$ | 1335 4329 | 0199 1639 |
| | | SBB6 | M40 | 4 x 6 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0153 | 1334 9856 |
| | | SBB10 | | 4 x 10 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0161 | 1334 9864 |
| | | SBB16 | | 4 x 16 mm$^2$ + 3 x 1.5 mm$^2$ | 1335 0188 | 1334 9872 |

* The complete connector service pack always includes the following parts:

- Power connector
- Insulation inserts
- Socket contacts

### *Plug connector connection variant technical data*

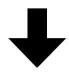
Illustration of the mating connectors:




59395axx

[1] Radial mating connector
[2] Angled mating connector
[3] Mating connector for forced cooling fan

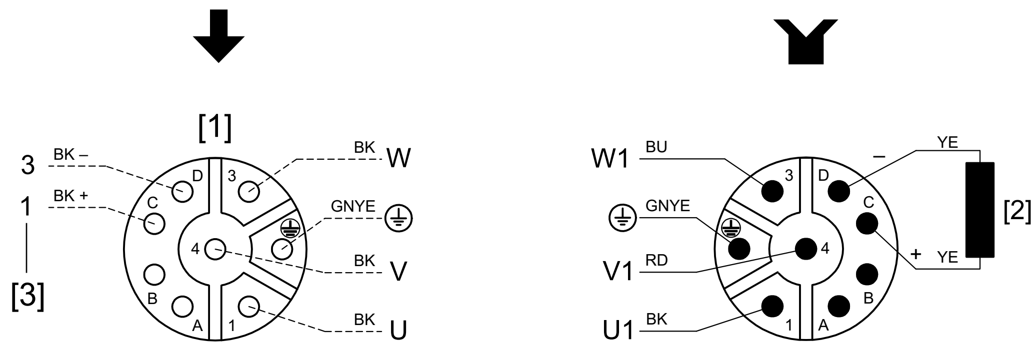
*Symbols used*

| | |
|---|---|
|  | Plug connector upper part (top view on flange socket)<br>To be connected by the customer |
|  | Plug connector lower part,<br>Connected at the factory |



*SM1 / SB1 power plug connector (M23)*

*Wiring diagram with/without BP brake*

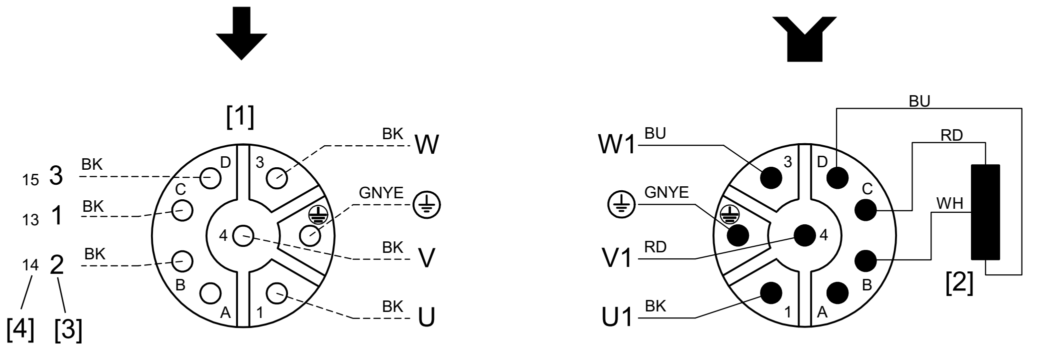



64623axx

[1] BP brake (optional)
[2] Brake coil
[3] Motor cable labeling

*SM1 / SB1 power plug connector (M23)*

*Wiring diagram with/without BY brake*




64624axx

[1] BY brake (optional)

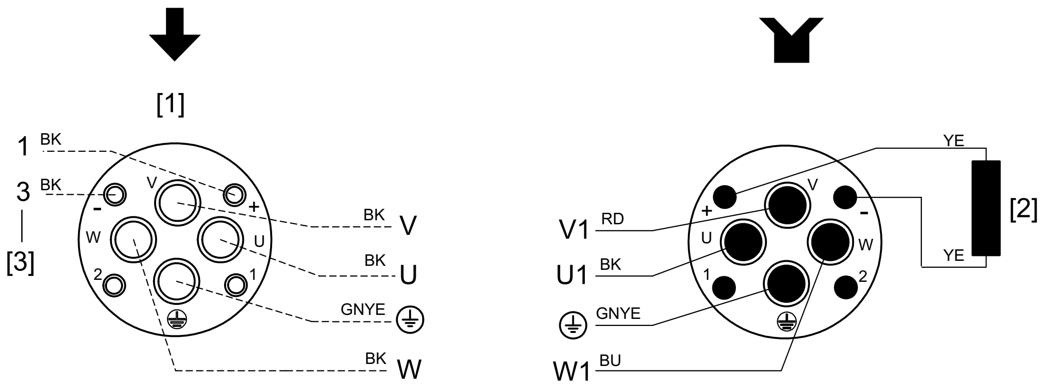
[2] Brake coil

[3] Motor cable labeling

[4] Brake rectifier labeling

*SMB / SBB power plug connector (M40)*

*Wiring diagram with/without BP brake*




64625axx

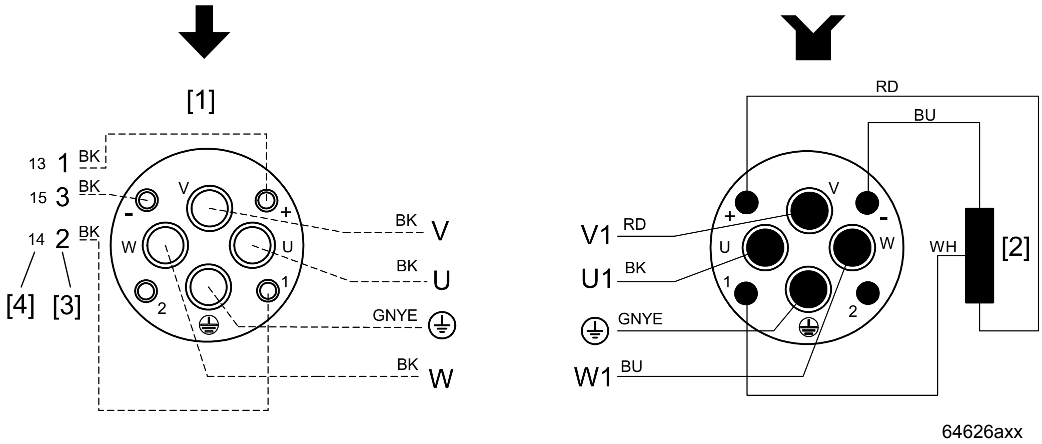
[1] BP brake (optional)

[2] Brake coil

[3] Motor cable labeling

*SMB / SBB power plug connector (M40)*

*Wiring diagram with/without BY brake*




[1] BY brake (optional)

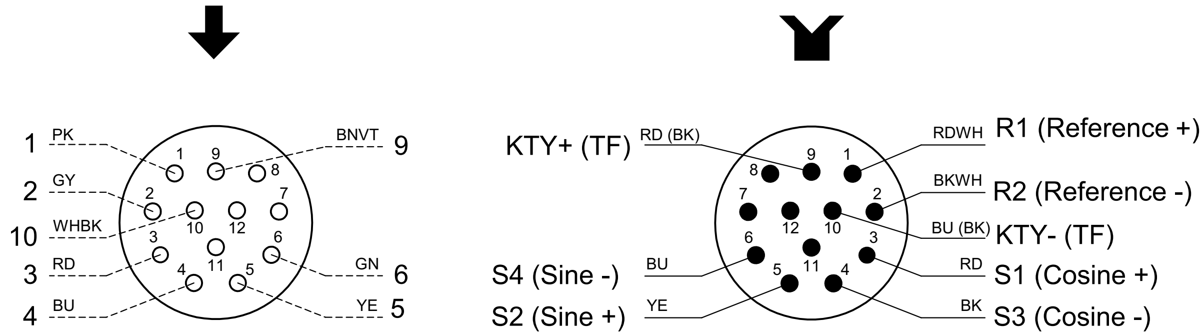
[2] Brake coil

[3] Motor cable labeling

[4] Brake rectifier labeling

*RH1M resolver signal plug connector*

*Wiring diagram*



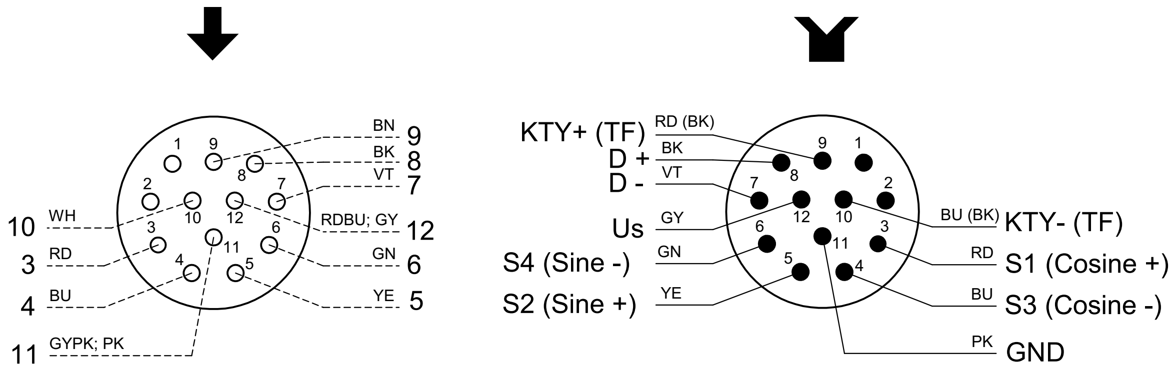

64627axx

*Contact assignment of plug connector lower part*

| Pin | Color code | Connection |
|---|---|---|
| 1 | RD / WH | R1 (reference +) |
| 2 | BK / WH | R2 (reference -) |
| 3 | RD | S1 (cosine +) |
| 4 | BK | S3 (cosine -) |
| 5 | YE | S2 (sine +) |
| 6 | BU | S4 (sine -) |
| 7 | - | - |
| 8 | - | - |
| 9 | RD | KTY + |
| 10 | BU | KTY - |
| 11 | - | - |
| 12 | - | - |

*ES1H, AS1H, AK0H, EK0H, AK1H encoder signal plug connector[1], EK1H[1]*

*Wiring diagram*




64628axx

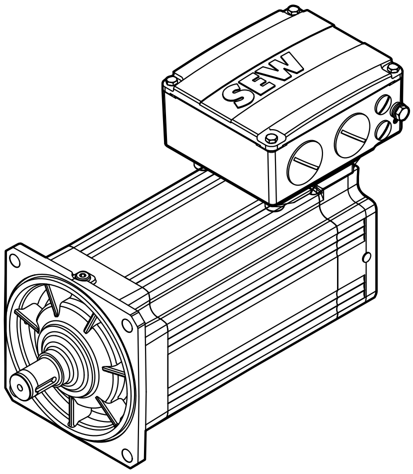
*Contact assignment of plug connector lower part*

| Pin | Color code | Connection |
|---|---|---|
| 1 | - | - |
| 2 | - | - |
| 3 | RD | S1 (cosine +) |
| 4 | BU | S3 (cosine -) |
| 5 | YE | S2 (sine +) |
| 6 | GN | S4 (sine -) |
| 7 | VT | D - |
| 8 | BK | D + |
| 9 | RD | KTY + |
| 10 | BU | KTY - |
| 11 | PK | Voltage reference (GND) |
| 12 | GY | Supply voltage Vs |

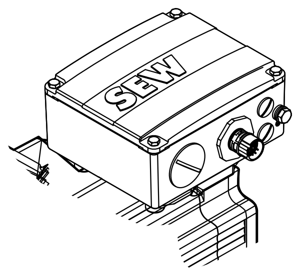
1) In preparation

### *2. Connection variant terminal box KK and KKS*

KK



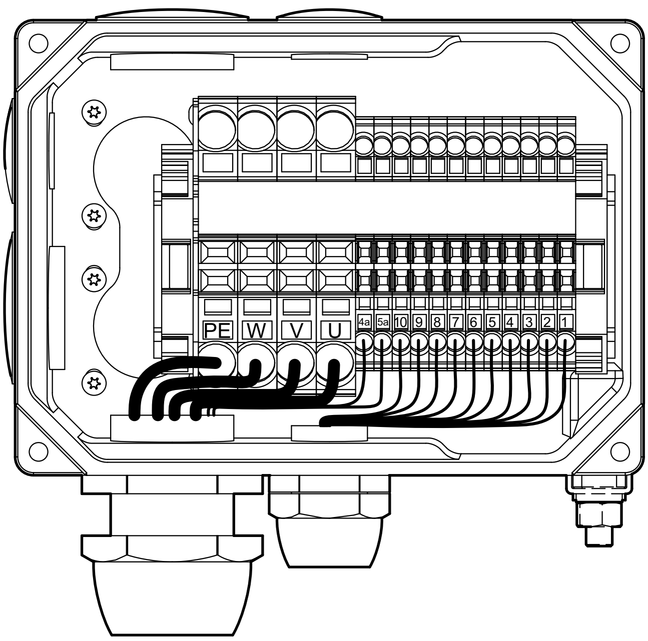
KKS



*Connection cross section*

| Motor type | Power connection | | | Encoder / resolver / thermal motor protection | |
|---|---|---|---|---|---|
| | **Connection** | **Maximum connection cross section** | **Cable entry** | **Connection** | **Cable entry** |
| **CMP50, CMP63** | Spring terminals | 6 mm$^2$ | M25 | Spring terminals | M20 |
| **CMP71, CMP80** | M6 stud | 10 mm$^2$ | M32 | | M16 |
| **CMP100** | M8 stud | 25 mm$^2$ | M40 | | |

### *CMP50 and CMP63*




65841axx

*Power rating*

| Pin | Core identification | Connection |
|---|---|---|
| U | (BK/WH)<br>Black with white lettering U, V, W | U |
| V | | V |
| W | | W |
| PE | (GN/YE) green / yellow | Protective earth |

*BP brake*

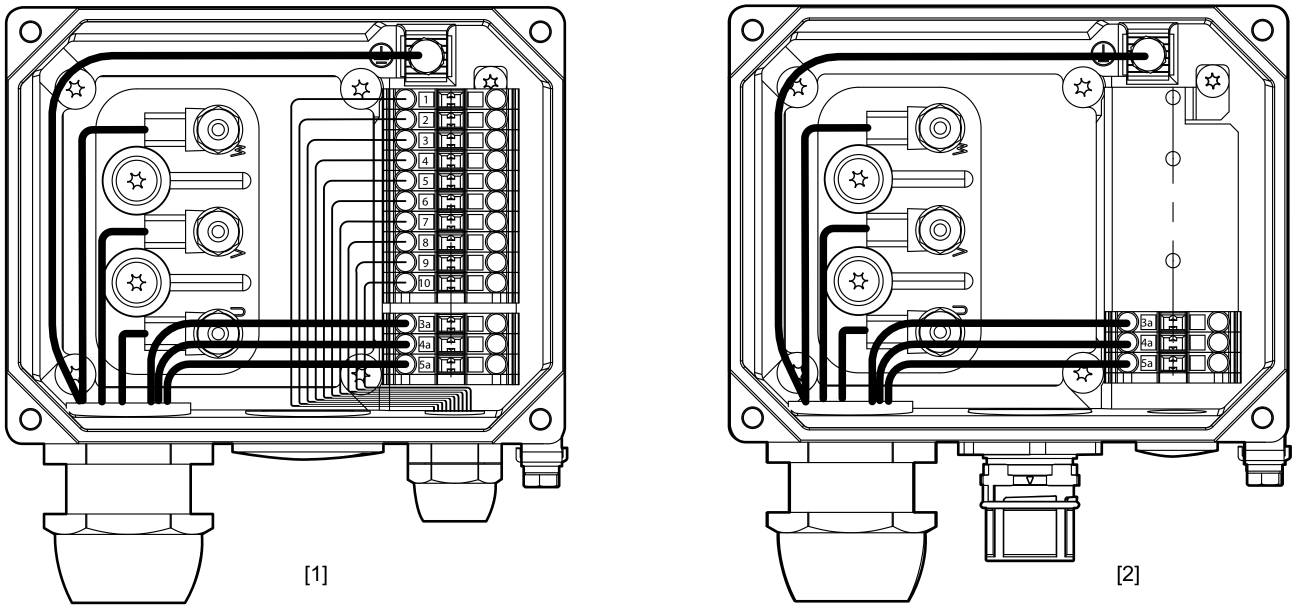
| Auxiliary terminal contacts | Core identification | BMV brake rectifier connection | BS brake controller connection |
|---|---|---|---|
| 4a | (BK/WH)<br>Black with white lettering 1, 2, 3 | 13 | 3 |
| 5a | | 15 | 5 |

The brake has a standard supply voltage of DC 24 V.

*Signal*

| Resolver | | | Encoder | | |
|---|---|---|---|---|---|
| 1 | ref + | Reference | 1 | cos + | Cosine |
| 2 | ref - | | 2 | ref cos | Reference |
| 3 | cos + | Cosine | 3 | sin+ | Sine |
| 4 | cos- | | 4 | ref sin | Reference |
| 5 | sin+ | Sine | 5 | D - | DATA |
| 6 | sin- | | 6 | D + | DATA |
| 7 | - | - | 7 | GND | Ground |
| 8 | - | - | 8 | Us | Supply voltage |
| 9 | KTY + / (TF) | Motor protection | 9 | KTY + / (TF) | Motor protection |
| 10 | KTY - / (TF) | | 10 | KTY - / (TF) | |

***CMP71 CMP100***




68635axx

[1] KK terminal box

[2] KKS terminal box

*Power rating*

| Pin | Core identification | Connection |
|---|---|---|
| U | (BK/WH)<br>Black with white lettering U, V, W | U |
| V | | V |
| W | | W |
| PE | (GN/YE) green / yellow | Protective earth |

*BP brake*

| Auxiliary terminal contacts | Core identification | BMV brake rectifier connection | BS brake controller connection |
|---|---|---|---|
| 4a | (BK/WH)<br>Black with white lettering 1, 2, 3 | 13 | 3 |
| 5a | | 15 | 5 |

The brake has a standard supply voltage of DC 24 V.

*BY brake*

| Auxiliary terminal contacts | Core identification | Connection of BME, BMP, BMH, BMK brake rectifiers | Connecting the BSG brake control unit |
|---|---|---|---|
| 3a | (BK/WH) Black with white lettering 1, 2, 3 | 14 | 1 |
| 4a | | 13 | 3 |
| 5a | | 15 | 5 |

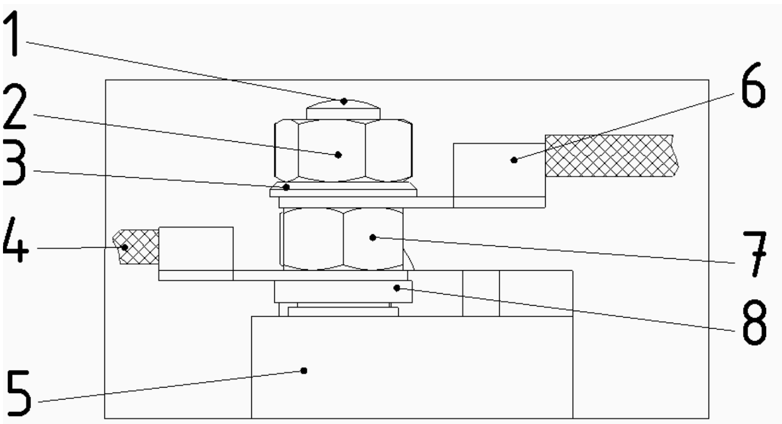
*Signal*

| Resolver | | | Encoder | | |
|---|---|---|---|---|---|
| 1 | ref + | Reference | 1 | cos + | Cosine |
| 2 | ref - | | 2 | ref cos | Reference |
| 3 | cos + | Cosine | 3 | sin+ | Sine |
| 4 | cos- | | 4 | ref sin | Reference |
| 5 | sin+ | Sine | 5 | D - | DATA |
| 6 | sin- | | 6 | D + | DATA |
| 7 | - | - | 7 | GND | Ground |
| 8 | - | - | 8 | Us | Supply voltage |
| 9 | KTY + / (TF) | Motor protection | 9 | KTY + / (TF) | Motor protection |
| 10 | KTY - / (TF) | | 10 | KTY - / (TF) | |



***Terminal box connection variant technical data***

The following figure shows the power connection in the terminal box.




54670axx

| | | | |
|---|---|---|---|
| [1] | Terminal stud | [5] | Terminal board |
| [2] | Upper nut | [6] | Customer's cable |
| [3] | Washer | [7] | Lower nut |
| [4] | Motor cable | [8] | Lock washer |

For designing the terminal box, positions 4, 6 and 7 are regarded as current-carrying.

## 10.4 Additional feature – ventilation

***Forced cooling fan***

*Type designation* /VR

*Description* Synchronous servomotors can be equipped with a forced cooling fan if requested. The VR forced cooling fan is available for DC 24 V (CMP50 - CMP100).

A forced cooling fan can be retrofitted to these motors later using a retrofit set.

**INFORMATION**

The forced cooling fan can only be used up to a maximum oscillation and shock load of 1 g.

*Mechanical installation*

Mounting the fan guard for the VR forced cooling fan:

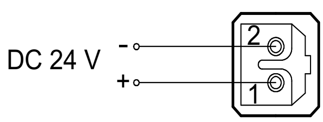
| Motor | Screws | Tightening torque |
|---|---|---|
| **CMP50, CMP63** | M4 × 8, self-tapping | 4 Nm |
| **CMP.71** | M6 × 20 | 4 Nm 1) |
| **CMP.80, CMP.100** | M8 × 20 | 10 Nm 1) |

1) Additional Loctite® thread lock fluid

*Electrical connection*

The VR forced cooling fan is only available for DC 24 V voltage.

- DC 24 V ± 20%
- Plug connector connection
- Maximum connection cross section 2 x 1 $mm^2$
- Cable gland Pg7 with inside diameter 7 mm




50990AXX

| Connector contact | Connection |
|---|---|
| **1** | 24 V + |
| **2** | 0 V |

*Retrofit set for CMP50/CMP63*

| | INFORMATION |
|---|---|
| | The forced cooling fan retrofit set for motors CMP50 - CMP63 may only be mounted by staff authorized by SEW-EURODRIVE. |

### *Forced cooling fan – technical data*

*/VR*

| Forced cooling fan type | VR | | | | |
|---|---|---|---|---|---|
| **Motor size** | **CMP50** | **CMP63** | **CMP.71** | **CMP.80** | **CMP.100** |
| Supply voltage DC | 24 V ± 10% | | | | |
| DC current consumption | 0.15 A | 0.25 A | 0.88 A | 0.88 A | 1.67 A |
| Power consumption | 3.5 W | 6 W | 21 W | 21 W | 40 W |
| Air discharge rate | 56 $m^3$/h | 80 $m^3$/h | 275 $m^3$/h | 275 $m^3$/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 | | | | |

10

*UWU52A switched-mode power supply*

The AC voltage type includes a VR forced cooling fan and the UWU52A switched-mode power supply.

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

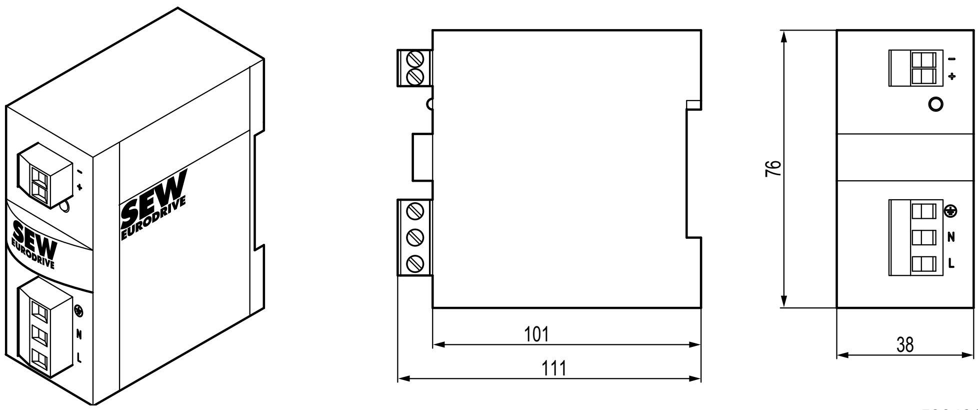
Output: DC 24 V; 2.5 A (40 °C); 2.0 A (55 °C)

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

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

Part number: 0188 1817.

Dimensions of the UWU52A switched-mode power supply:




59049AXX

*Forced cooling fan, cpl.*

| Forced cooling fan for motor type | Part number |
|---|---|
| CMP50 | 1332 8697 |
| CMP63 | 1332 7569 |
| CMP71 | 1333 7114 |
| CMP.71 /BP1 /BY2 | 1644 7697 |
| CMP80 | 1644 4841 |
| CMP80 /BP3 | 1644 7751 |
| CMPZ80 /BY4 | 1644 7735 |
| CMP100 | 1644 4973 |
| CMP.100 /BP5 /BY8 | 1644 7808 |

*Retrofit set for CMP50 - 100*

**INFORMATION**

The forced cooling fan retrofit set for the motors CMP50/63 may only be mounted by staff authorized by SEW-EURODRIVE.

| Retrofit set | Part number | Retrofit set | Part number | Retrofit set | Part number |
|---|---|---|---|---|---|
| **CMP50 VR kit** | **1333 2414** | **CMP63 VR kit** | **1333 2422** | **CMP71 VR kit** | **1335 5228** |
| | | | | **CMP.71 /BP1 /BY2** | **1335 5236** |
| Forced cooling fan, cpl. | | Forced cooling fan, cpl. | | Forced cooling fan, cpl. | |
| Machine screw M4x8-Tx-ST-A2F | | Machine screw M4x8-Tx-ST-A2F | | M6x20-8.8-ADB3 machine screw | |
| Lock washer | | Lock washer | | Grommet | |
| CMP50 / AS1H / ES1H / RH1M housing cover | | CMP63 / AS1H / ES1H / RH1M housing cover | | Sleeve | |
| Screw | | Screw | | Washer | |
| Washer | | Washer | | | |
| Housing cover seal for CMP50 | | Housing cover seal for CMP63 | | | |
| | | | | | |
| **CMP80 VR kKit** | **1335 5244** | **CMP100 VR kit** | **1335 5279** | | |
| **CMP80 /BP3** | **1335 5252** | **CMP.100 /BP5 /BY8** | **1335 5287** | | |
| **CMPZ80 /BY4** | **1335 5260** | | | | |
| Forced cooling fan, cpl. | | Forced cooling fan, cpl. | | | |
| M6x20-8.8-ADB3 machine screw | | M6x20-8.8-ADB3 machine screw | | | |
| Grommet | | Grommet | | | |
| Sleeve | | Sleeve | | | |
| Washer | | Washer | | | |

The forced cooling fan retrofit set is supplied as follows:

- Forced cooling fan, cpl.
- Accessory bag

# 11 Prefabricated Cables for CMP. Servomotors

## *11.1 Description*

SEW-EURODRIVE offers prefabricated cables with plugs for straightforward and reliable motor connection.

Cable and contact are connected using the crimp technique. The following cables are available in 1 m steps:

- Motor cables
- Brakemotor cables
- Resolver/motor protection cables
- Absolute encoder/motor protection cables
- Forced cooling fan cables

Prefabricated cables are divided into:

- Power cables (motor cable, brakemotor cable, extension cable)
- Feedback cables (resolver cable, encoder cable, extension cable).

***Preselection of cables***

Prefabricated cables were preselected by SEW-EURODRIVE according to the standard EN 60204. The routing types "fixed installation" and "cable carrier installation" were considered.

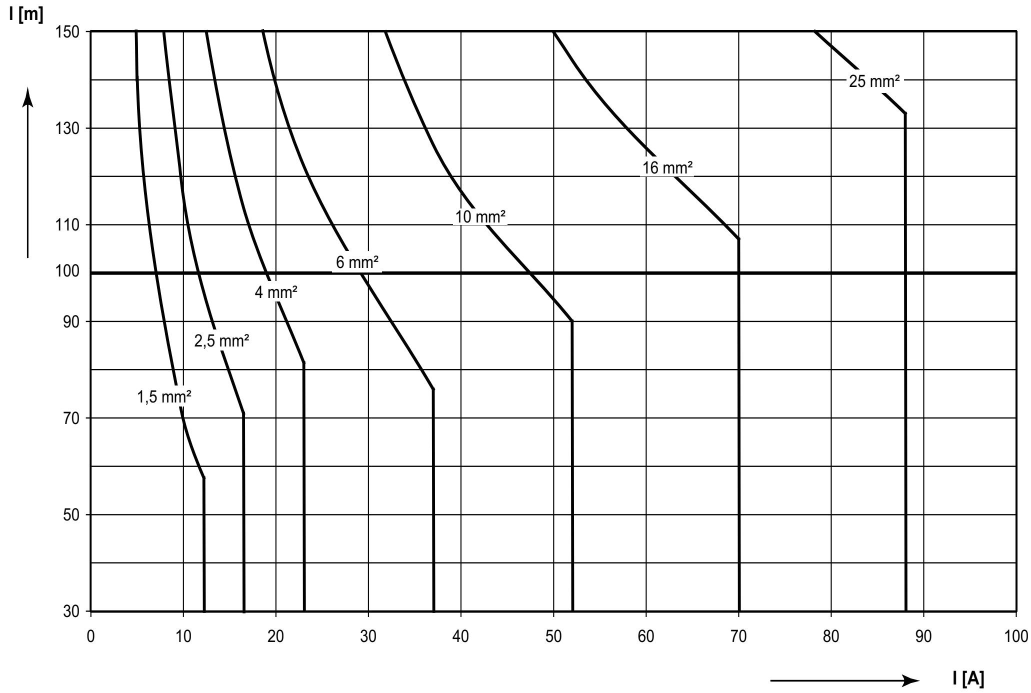
Using other standards for the machine construction can result in diverging cross sections.

## 11.2 Dimensioning the cable cross section

### *Project planning for cable cross section*

*Cable selection according to EN 60204*

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




54038AXX

The hybrid cables with cross sections 1.5 mm$^2$ to 10 mm$^2$ can be ordered from SEW-EURODRIVE.

*Cable load table*

Cable load through current **I** in ampere according to EN 60204-1 table 5, ambient temperature 40 °C.

| Cable cross section<br>[mm$^2$] | Three-core sheathed cable in pipe or cable<br>A | Three-core sheathed cable on top of each other on wall<br>A | Three-core sheathed cable lined up horizontally<br>A |
|---|---|---|---|
| 1.5 | 12.2 | 15.2 | 16.1 |
| 2.5 | 16.5 | 21.0 | 22 |
| 4 | 23 | 28.0 | 30 |
| 6 | 29 | 36.0 | 37 |
| 10 | 40 | 50.0 | 52 |
| 16 | 53 | 66.0 | 70 |
| 25 | 67 | 84.0 | 88 |
| 35 | 83 | 104.0 | 114 |

These data are merely recommended values and are **no substitute for the detailed project planning** of the cables depending on the concrete application considering the applicable regulations.

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.

## 11.3 Cable assignment: CMP and CMPZ, 400 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
|---|---|---|---|---|---|---|---|
| | rpm | A | m | mm$^2$ | Stand-alone motor | | |
| CMP40S | 3000 | 1.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40S | 4500 | 1.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40S | 6000 | 1.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 3000 | 0.95 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 4500 | 0.95 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 6000 | 1.1 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 3000 | 0.96 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 4500 | 1.32 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 6000 | 1.7 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 3000 | 1.68 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 4500 | 2.3 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 6000 | 3 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 3000 | 2.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 4500 | 3.15 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 6000 | 4.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 3000 | 2.15 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 4500 | 3.05 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 6000 | 3.9 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 3000 | 3.6 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 4500 | 5.4 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 6000 | 6.9 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 3000 | 4.95 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 4500 | 6.9 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 6000 | 9.3 | 75 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 6000 | 9.3 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S | 2000 | 3.4 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S | 3000 | 4.9 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S | 4500 | 7.3 | 95 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S | 4500 | 7.3 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S | 6000 | 9.6 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S | 6000 | 9.6 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |

Table continued on next page. Footnotes at the end of the table.

11

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. Fixed installation | Cable part no. Cable carrier installation | Cable part no. Cable carrier extension[1] |
|---|---|---|---|---|---|---|---|
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| **CMP.71M** | 2000 | 5 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71M** | 3000 | 7.5 | 90 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71M** | 3000 | 7.5 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M** | 4500 | 10.9 | 65 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71M** | 4500 | 10.9 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M** | 6000 | 14.7 | 80 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M** | 6000 | 14.7 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71L** | 2000 | 6.3 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71L** | 3000 | 9.4 | 80 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71L** | 3000 | 9.4 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71L** | 4500 | 14.1 | 85 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71L** | 4500 | 14.1 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71L** | 6000 | 18.8 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S** | 2000 | 6.9 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.80S** | 3000 | 10 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.80S** | 3000 | 10 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80S** | 4500 | 15.3 | 80 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80S** | 4500 | 15.3 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S** | 6000 | 20 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S** | 6000 | 20 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M** | 2000 | 9.3 | 75 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.80M** | 2000 | 9.3 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80M** | 3000 | 13.4 | 90 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80M** | 3000 | 13.4 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80M** | 4500 | 20.1 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80M** | 4500 | 20.1 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M** | 6000 | 26.4 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80L** | 2000 | 12.5 | 90 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80L** | 2000 | 12.5 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80L** | 3000 | 18.7 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80L** | 4500 | 27.8 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80L** | 6000 | 37.6 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100S** | 2000 | 13.3 | 85 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.100S** | 2000 | 13.3 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.100S** | 3000 | 19.6 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.100S** | 3000 | 19.6 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100S** | 4500 | 30 | 98 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100S** | 4500 | 30 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |

Table continued on next page. Footnotes at the end of the table.

| Motor | Rated speed | Standstill current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1] |
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| **CMP.100M** | 2000 | 14.7 | 75 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.100M** | 2000 | 14.7 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.100M** | 3000 | 21.8 | 85 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.100M** | 3000 | 21.8 | 100 | 6[2] | 1335 0269 | 06650293 | 1335 0021 |
| **CMP.100M** | 4500 | 33.1 | 90 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100M** | 4500 | 33.1 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L** | 2000 | 21.8 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100L** | 3000 | 32.3 | 90 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100L** | 3000 | 32.3 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L** | 4500 | 48.4 | 98 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L** | 4500 | 48.4 | 100 | 16 | 1335 0285 | 1335 0315 | 1335 0056 |

1) Currently there are only cable carrier extension cables
2) Change from S.1 to S.B

## 11.4 Cable assignment: CMP/VR and CMPZ/VR, 400 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm$^2$ | Stand-alone motor | | |
| CMP50S/VR | 3000 | 1.25 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S/VR | 4500 | 1.7 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S/VR | 6000 | 2.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M/VR | 3000 | 2.45 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M/VR | 4500 | 3.35 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M/VR | 6000 | 4.4 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L/VR | 3000 | 3.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L/VR | 4500 | 4.6 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L/VR | 6000 | 6.1 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S/VR | 3000 | 3 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S/VR | 4500 | 4.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S/VR | 6000 | 5.4 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M/VR | 3000 | 5.1 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M/VR | 4500 | 7.6 | 90 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M/VR | 4500 | 7.6 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63M/VR | 6000 | 9.8 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M/VR | 6000 | 9.8 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63L/VR | 3000 | 7.2 | 95 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L/VR | 3000 | 7.2 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63L /VR | 4500 | 10 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L /VR | 4500 | 10 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63L /VR | 6000 | 13.5 | 85 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63L /VR | 6000 | 13.5 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.71S /VR | 2000 | 4.6 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S /VR | 3000 | 6.7 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S /VR | 4500 | 9.9 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S /VR | 4500 | 9.9 | 100 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S /VR | 6000 | 13.1 | 85 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S /VR | 6000 | 13.1 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |

Table continued on next page. Footnotes at the end of the table.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1] |
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| **CMP.71M /VR** | 2000 | 7.3 | 95 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71M /VR** | 2000 | 7.3 | 100 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M /VR** | 3000 | 10.9 | 60 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71M /VR** | 3000 | 10.9 | 100 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M /VR** | 4500 | 15.9 | 70 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71M /VR** | 4500 | 15.9 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71M /VR** | 6000 | 21.5 | 85 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71M /VR** | 6000 | 21.5 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.71L /VR** | 2000 | 10.1 | 65 | 1,5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71L /VR** | 2000 | 10.1 | 100 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71L /VR** | 3000 | 15.1 | 75 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.71L /VR** | 3000 | 15.1 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S /VR** | 2000 | 9.5 | 70 | 1,5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.80S /VR** | 2000 | 9.5 | 100 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80S /VR** | 3000 | 13.8 | 80 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80S /VR** | 3000 | 13.8 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S /VR** | 4500 | 21 | 85 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S /VR** | 4500 | 21 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80S /VR** | 6000 | 27.5 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M /VR** | 2000 | 13.4 | 85 | 2,5 | 0590 4552 | 0590 6253 | 1333 2465 |
| **CMP.80M /VR** | 2000 | 13.4 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80M /VR** | 3000 | 19.3 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80M /VR** | 3000 | 19.3 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M /VR** | 4500 | 29 | 95 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M /VR** | 4500 | 29 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.80M /VR** | 6000 | 38 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.80L /VR** | 2000 | 20 | 90 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80L /VR** | 2000 | 20 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80L /VR** | 3000 | 30 | 90 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80L /VR** | 3000 | 30 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.80L /VR** | 4500 | 44.5 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100S /VR** | 2000 | 18.8 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.100S /VR** | 2000 | 18.8 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100S /VR** | 3000 | 27.5 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100S /VR** | 4500 | 42.5 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |

Table continued on next page. Footnotes at the end of the table.

11

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1] |
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| **CMP.100M /VR** | 2000 | 22.3 | 100 | 6[2] | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100M /VR** | 3000 | 33 | 85 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100M /VR** | 3000 | 33 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L /VR** | 2000 | 32.5 | 85 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.100L /VR** | 2000 | 32.5 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L /VR** | 3000 | 48 | 95 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP.100L /VR** | 3000 | 48 | 100 | 16 | 1335 0285 | 1335 0315 | 1335 0056 |

1) Currently there are only cable carrier extension cables

2) Change from S.1 to S.B

## *11.5 Cable assignment: CMP /BP, 400 V system voltage*

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm$^2$ | Brakemotor | | |
| CMP40S/BP | 3000 | 1.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40S/BP | 4500 | 1.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40S/BP | 6000 | 1.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 3000 | 0.95 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 4500 | 0.95 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 6000 | 1.1 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S/BP | 3000 | 0.96 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S/BP | 4500 | 1.32 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S/BP | 6000 | 1.7 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M/BP | 3000 | 1.68 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M/BP | 4500 | 2.3 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP | 6000 | 3 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 3000 | 2.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 4500 | 3.15 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 6000 | 4.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 3000 | 2.15 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 4500 | 3.05 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 6000 | 3.9 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 3000 | 3.6 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 4500 | 5.4 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 6000 | 6.9 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 3000 | 4.95 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 4500 | 6.9 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 6000 | 9.3 | 75 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 6000 | 9.3 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP | 2000 | 3.4 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP | 3000 | 4.9 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP | 4500 | 7.3 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP | 4500 | 7.3 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP | 6000 | 9.6 | 70 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP | 6000 | 9.6 | 80 | 2,5 | 1335 4353 | 1335 4396 | 1335 4248 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMP71M /BP** | 2000 | 5 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71M /BP** | 3000 | 7.5 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71M /BP** | 3000 | 7.5 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP** | 4500 | 10.9 | 65 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71M /BP** | 4500 | 10.9 | 80 | 2,5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP** | 6000 | 14.7 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP** | 6000 | 14.7 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71L /BP** | 2000 | 6.3 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71L /BP** | 3000 | 9.4 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71L /BP** | 3000 | 9.4 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CM 71L /BP** | 4500 | 14.1 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CM 71L /BP** | 4500 | 14.1 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71L /BP** | 6000 | 18.8 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP** | 2000 | 6.9 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP80S /BP[2)]** | 3000 | 10 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP80S /BP** | 3000 | 10 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80S /BP** | 4500 | 15.3 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80S /BP** | 4500 | 15.3 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80M /BP** | 2000 | 9.3 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP80M /BP** | 2000 | 9.3 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80M /BP** | 3000 | 13.4 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80M /BP** | 3000 | 13.4 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80M /BP** | 4500 | 20.1 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80M /BP** | 4500 | 20.1 | 85 | 6[3)] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80L /BP** | 2000 | 12.5 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80L /BP** | 2000 | 12.5 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80L /BP** | 3000 | 18.7 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80L /BP** | 4500 | 27.8 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP** | 2000 | 13.3 | 45 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP100S /BP** | 2000 | 13.3 | 45 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP100S /BP** | 3000 | 19.6 | 45 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP100S /BP** | 3000 | 19.6 | 70 | 6[3)] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP** | 4500 | 30 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP** | 4500 | 30 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMP100M /BP** | 2000 | 14.7 | 45 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP100M /BP** | 2000 | 14.7 | 45 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP100M /BP** | 3000 | 21.8 | 45 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP100M /BP** | 3000 | 21.8 | 70 | 6[3)] | 1335 0196 | 03350234 | 1335 0099 |
| **CMP100M /BP** | 4500 | 33.1 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100M /BP** | 4500 | 33.1 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP** | 2000 | 21.8 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100L /BP** | 3000 | 32.3 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100L /BP** | 3000 | 32.3 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP** | 4500 | 48.4 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP** | 4500 | 48.4 | 70 | 16 | 1335 0226 | 1335 0250 | 1335 0110 |

1) Currently there are only cable carrier extension cables
2) The maximum cable length can be increased to 70 m or 85 m if a cable with a core cross section of 6 $mm^2$ is used (change from S.1 to S.B). In this case, the brake cable cross section increases from 1 $mm^2$ to 1.5 $mm^2$.
3) Change from S.1 to S.B

## 11.6 Cable assignment: CMP /BP /VR, 400 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm² - 4 mm²: S.1
- 6 mm² - 16 mm²: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm² | Brakemotor | | |
| CMP50S /BP /VR | 3000 | 1.25 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S /BP /VR | 4500 | 1.7 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S /BP /VR | 6000 | 2.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP /VR | 3000 | 2.45 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP /VR | 4500 | 3.35 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP /VR | 6000 | 4.4 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP /VR | 3000 | 3.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP /VR | 4500 | 4.6 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP /VR | 6000 | 6.1 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP /VR | 3000 | 3 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP /VR | 4500 | 4.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP /VR | 6000 | 5.4 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP /VR | 3000 | 5.1 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP /VR | 4500 | 7.6 | 90 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP /VR | 4500 | 7.6 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63M /BP /VR | 6000 | 9.8 | 70 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP /VR | 6000 | 9.8 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63L /BP /VR | 3000 | 7.2 | 95 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP /VR | 3000 | 7.2 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63L /BP /VR | 4500 | 10 | 70 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP /VR | 4500 | 10 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63L /BP /VR | 6000 | 13.5 | 85 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63L /BP /VR | 6000 | 13.5 | 100 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| CMP71S /BP /VR | 2000 | 4.6 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP /VR | 3000 | 6.7 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP /VR | 4500 | 9.9 | 70 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP /VR | 4500 | 9.9 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP /VR | 6000 | 13.1 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP /VR | 6000 | 13.1 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMP71M /BP /VR** | 2000 | 7.3 | 80 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71M /BP /VR** | 2000 | 7.3 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP /VR** | 3000 | 10.9 | 60 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71M /BP /VR** | 3000 | 10.9 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP /VR** | 4500 | 15.9 | 70 | 2,5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP /VR** | 4500 | 15.9 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71M /BP /VR** | 6000 | 21.5 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71L /BP /VR** | 2000 | 10.1 | 65 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71L /BP /VR** | 2000 | 10.1 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71L /BP /VR** | 3000 | 15.1 | 75 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71L /BP /VR** | 3000 | 15.1 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP /VR** | 2000 | 9.5 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP80S /BP /VR** | 2000 | 9.5 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80S /BP[2] /VR** | 3000 | 13.8 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80S /BP /VR** | 3000 | 13.8 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP /VR** | 4500 | 21 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP /VR** | 4500 | 21 | 85 | 6[3] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP /VR** | 2000 | 13.4 | 55 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP80M /BP /VR** | 2000 | 13.4 | 50 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80M /BP /VR** | 3000 | 19.3 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80M /BP /VR** | 3000 | 19.3 | 85 | 6[3] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP /VR** | 4500 | 29 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP /VR** | 4500 | 29 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP80L /BP /VR** | 2000 | 20 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80L /BP /VR** | 2000 | 20 | 85 | 6[3] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80L /BP /VR** | 3000 | 30 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80L /BP /VR** | 3000 | 30 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP80L /BP /VR** | 4500 | 44.5 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100S /BP /VR** | 2000 | 18.8 | 45 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP100S /BP /VR** | 2000 | 18.8 | 70 | 6[3] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP /VR** | 3000 | 27.5 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP /VR** | 4500 | 42.5 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMP100M /BP /VR** | 2000 | 22.3 | 70 | 6[3)] | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100M /BP /VR** | 3000 | 33 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100M /BP /VR** | 3000 | 33 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP /VR** | 2000 | 32.5 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100L /BP /VR** | 2000 | 32.5 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP /VR** | 3000 | 48 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100L /BP /VR** | 3000 | 48 | 70 | 16 | 1335 0226 | 1335 0250 | 1335 0110 |

1) Currently there are only cable carrier extension cables

2) The maximum cable length can be increased to 70 m or 85 m if a cable with a core cross section of 6 $mm^2$ is used (change from S.1 to S.B). In this case, the brake cable cross section increases from 1 $mm^2$ to 1.5 $mm^2$.

3) Change from S.1 to S.B

## 11.7 Cable assignment: CMPZ /BY, 400 V system voltage

The following table allows for selecting power cables for CMP servo brakemotors with a system voltage of 400 V and a BY working brake with 400 V, 230 V or 110 V brake voltage.

An additional length for 110 V is specified in parenthesis for cases where the permitted cable length for 110 V is shorter than for 400 V/230 V.

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 $mm^2$ - 4 $mm^2$: S.1
- 6 $mm^2$ - 16 $mm^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| CMPZ71S /BY | 2000 | 3.4 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY | 3000 | 4.9 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY | 4500 | 7.3 | 96 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY | 4500 | 7.3 | 100 | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71S /BY | 6000 | 9.6 | 73 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY | 6000 | 9.6 | 100 | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY | 2000 | 5 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71M /BY | 3000 | 7.5 | 93 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71M /BY | 3000 | 7.5 | 100 | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY | 4500 | 10.9 | 64 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71M /BY | 4500 | 10.9 | 100 | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY | 6000 | 14.7 | 79 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY | 6000 | 14.7 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71L /BY | 2000 | 6.3 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71L /BY | 3000 | 9.4 | 74 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71L /BY | 3000 | 9.4 | 100 | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ 71L /BY | 4500 | 14.1 | 83 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ 71L /BY | 4500 | 14.1 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71L /BY | 6000 | 18.8 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80S /BY | 2000 | 6.9 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ80S /BY | 3000 | 10 | 70 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ80S /BY | 3000 | 10 | 100 (75) | 2,5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80S /BY | 4500 | 15.3 | 76 (75) | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80S /BY | 4500 | 15.3 | 100 (75) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80M /BY | 2000 | 9.3 | 75 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ80M /BY | 2000 | 9.3 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80M /BY | 3000 | 13.4 | 87 (75) | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80M /BY | 3000 | 13.4 | 100 (75) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80M /BY | 4500 | 20.1 | 93 (75) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80M /BY | 4500 | 20.1 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMPZ80L /BY** | 2000 | 12.5 | 93 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| **CMPZ80L /BY** | 2000 | 12.5 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ80L /BY** | 3000 | 18.7 | 100 (75) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ80L /BY** | 4500 | 27.8 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100S /BY** | 2000 | 13.3 | 88 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| **CMPZ100S /BY** | 2000 | 13.3 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ100S /BY** | 3000 | 19.6 | 95 (55) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ100S /BY** | 3000 | 19.6 | 100 (80) | 6[2)] | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100S /BY** | 4500 | 30 | 93 (80) | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100S /BY** | 4500 | 30 | 100 (80) | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ100M /BY** | 2000 | 14.7 | 79 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| **CMPZ100M /BY** | 2000 | 14.7 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ100M /BY** | 3000 | 21.8 | 85 (55) | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ100M /BY** | 3000 | 21.8 | 100 (80) | 6[2)] | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100M /BY** | 4500 | 33.1 | 84 (80) | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100M /BY** | 4500 | 33.1 | 100 (80) | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ100L /BY** | 2000 | 21.8 | 85 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ100L /BY** | 2000 | 21.8 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100L /BY** | 3000 | 32.3 | 87 (80) | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ100L /BY** | 3000 | 32.3 | 100 (80) | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ100L /BY** | 4500 | 48.4 | 96 (80) | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ100L /BY** | 4500 | 48.4 | 100 (80) | 16 | 1335 0145 | 1335 0188 | 1335 0110 |

1) Currently there are only cable carrier extension cables

2) Change from S.1 to S.B

Permitted cable lengths for DC 24 V BY working brakes are especially reduced. Note the following guidelines:

CMPZ71 . /BY: maximum 8 m

CMPZ80 . /BY: between 6.4 and 9 m depending on the cable cross section

CMPZ100 . /BY: between 4.5 and 7 m depending on the cable cross section

For project planning with DC 24 V BY working brake, consult SEW-EURODRIVE.

## 11.8 Cable assignment: CMPZ /BY /VR, 400 V system voltage

The following table allows for selecting power cables for CMP servo brakemotors with a system voltage of 400 V and a BY working brake with 400 V, 230 V or 110 V brake voltage.

An additional length for 110 V is specified in parenthesis for cases where the permitted cable length for 110 V is shorter than for 400 V/230 V.

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 $mm^2$ - 4 $mm^2$: S.1
- 6 $mm^2$ - 16 $mm^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| CMPZ71S /BY /VR | 2000 | 4.6 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY /VR | 3000 | 6.7 | 100 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY /VR | 4500 | 9.9 | 70 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY /VR | 4500 | 9.9 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71S /BY /VR | 6000 | 13.1 | 89 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71S /BY /VR | 6000 | 13.1 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71M /BY /VR | 2000 | 7.3 | 96 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71M /BY /VR | 2000 | 7.3 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY /VR | 3000 | 10.9 | 64 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71M /BY /VR | 3000 | 10.9 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY /VR | 4500 | 15.9 | 73 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71M /BY /VR | 4500 | 15.9 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71M /BY /VR | 6000 | 21.5 | 85 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71M /BY /VR | 6000 | 21.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ71L /BY /VR | 2000 | 10.1 | 69 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71L /BY /VR | 2000 | 10.1 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71L /BY /VR | 3000 | 15.1 | 76 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71L /BY /VR | 3000 | 15.1 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ 71L /BY /VR | 4500 | 22.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ71L /BY /VR | 6000 | 30 | 93 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ71L /BY /VR | 6000 | 30 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80S /BY /VR | 2000 | 9.5 | 73 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ80S /BY /VR | 2000 | 9.5 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80S /BY /VR | 3000 | 13.8 | 84 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80S /BY /VR | 3000 | 13.8 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80S /BY /VR | 4500 | 21 | 89 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80S /BY /VR | 4500 | 21 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80S /BY /VR | 6000 | 27.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm² | Brakemotor | | |
| CMPZ80M /BY /VR | 2000 | 13.4 | 87 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80M /BY /VR | 2000 | 13.4 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80M /BY /VR | 3000 | 19.3 | 97 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80M /BY /VR | 3000 | 19.3 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80M /BY /VR | 4500 | 29 | 96 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80M /BY /VR | 4500 | 29 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80M /BY /VR | 6000 | 38 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80L /BY /VR | 2000 | 20 | 93 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80L /BY /VR | 2000 | 20 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80L /BY /VR | 3000 | 30 | 93 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80L /BY /VR | 3000 | 30 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80L /BY /VR | 4500 | 44.5 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80L /BY /VR | 6000 | 60 | 100 | 16 | 1335 0145 | 1335 0188 | 1335 0110 |
| CMPZ100S /BY /VR | 2000 | 18.8 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ100S /BY /VR | 3000 | 27.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ100S /BY /VR | 4500 | 42.5 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100M /BY /VR | 2000 | 22.3 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ100M /BY /VR | 3000 | 33 | 84 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ100M /BY /VR | 3000 | 33 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100L /BY /VR | 2000 | 32.5 | 86 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ100L /BY /VR | 2000 | 32.5 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100L /BY /VR | 3000 | 48 | 97 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100L /BY /VR | 3000 | 48 | 100 | 16 | 1335 0145 | 1335 0188 | 1335 0110 |

1) Currently there are only cable carrier extension cables

Permitted cable lengths for DC 24 V BY working brakes are especially reduced. Note the following guidelines:

CMPZ71 . /BY: maximum 8 m

CMPZ80 . /BY: between 6.4 and 9 m depending on the cable cross section

CMPZ100 . /BY: between 4.5 and 7 m depending on the cable cross section

For project planning with DC 24 V BY working brake, consult SEW-EURODRIVE.

## 11.9 Cable assignment: CMP and CMPZ, 230 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 $mm^2$ - 4 $mm^2$: S.1
- 6 $mm^2$ - 16 $mm^2$: S.B

For the connector assignment, refer to page 225.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. Fixed installation | Cable part no. Cable carrier installation | Cable part no. Cable carrier extension[1)] |
|---|---|---|---|---|---|---|---|
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| CMP40S | 3000 | 1.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40S | 4500 | 1.2 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40S | 6000 | 1.36 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 3000 | 1.09 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 4500 | 1.5 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP40M | 6000 | 1.91 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 3000 | 1.65 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 4500 | 2.3 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50S | 6000 | 3.07 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 3000 | 2.85 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 4500 | 4 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50M | 6000 | 5.25 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 3000 | 3.84 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 4500 | 5.53 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP50L | 6000 | 7.6 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 3000 | 3.61 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 4500 | 5.25 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63S | 6000 | 6.78 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 3000 | 6.35 | 100 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 4500 | 9.78 | 70 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 4500 | 9.78 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63M | 6000 | 12.06 | 55 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63M | 6000 | 12.06 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP63L | 3000 | 8.76 | 75 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 3000 | 8.76 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP63L | 4500 | 12.01 | 55 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP63L | 4500 | 12.01 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.71S | 3000 | 8.7 | 75 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| CMP.71S | 3000 | 8.7 | 100 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S | 4500 | 12.8 | 90 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71S | 4500 | 12.8 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.71S | 6000 | 17 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |

Table continued on next page. Footnotes at the end of the table.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Stand-alone motor | | |
| CMP.71M | 3000 | 13.1 | 85 | 2.5 | 0590 4552 | 0590 6253 | 1333 2465 |
| CMP.71M | 3000 | 13.1 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.71M | 4500 | 19.2 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.71L | 3000 | 16.8 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.80S | 3000 | 17.7 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| CMP.80S | 4500 | 27 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.80S | 6000 | 35.5 | 75 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.80S | 6000 | 35.5 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| CMP.80M | 3000 | 23.5 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.80M | 4500 | 35 | 80 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.80M | 4500 | 35 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| CMP.80M | 6000 | 46.9 | 95 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| CMP.80M | 6000 | 46.9 | 100 | 16 | 1335 0285 | 1335 0315 | 1335 0056 |
| CMP.80L | 3000 | 32.5 | 85 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.80L | 3000 | 32.5 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| CMP.100S | 3000 | 34.2 | 80 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| CMP.100S | 3000 | 34.2 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| CMP.100M | 3000 | 40 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |

1) Currently there are only cable carrier extension cables

## 11.10 Cable assignment: CMP/VR and CMPZ/VR, 230 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor | Rated speed | Stand-still current $I_0$ | to cable length | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm$^2$ | Stand-alone motor | | |
| **CMP.71S /VR** | 3000 | 11.8 | 55 | 1.5 | 0590 4544 | 0590 6245 | 1333 2457 |
| **CMP.71S /VR** | 3000 | 11.8 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71S /VR** | 4500 | 17.4 | 100 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71S /VR** | 6000 | 23 | 80 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.71M /VR** | 3000 | 19.1 | 95 | 4 | 0590 4560 | 0590 4803 | 1333 2473 |
| **CMP.80S /VR** | 3000 | 24.5 | 100 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80S /VR** | 4500 | 37 | 75 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80S /VR** | 4500 | 37 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP80S /VR** | 6000 | 48.5 | 95 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |
| **CMP80S /VR** | 6000 | 48.5 | 100 | 16 | 1335 0285 | 1335 0315 | 1335 0056 |
| **CMP.80M /VR** | 3000 | 34 | 80 | 6 | 1335 0269 | 1335 0293 | 1335 0021 |
| **CMP.80M /VR** | 3000 | 34 | 100 | 10 | 1335 0277 | 1335 0307 | 1335 0048 |

1) Currently there are only cable carrier extension cables

## 11.11 Cable assignment: CMP /BP, 230 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. Fixed installation | Cable part no. Cable carrier installation | Cable part no. Cable carrier extension[1)] |
|---|---|---|---|---|---|---|---|
| | rpm | A | m | mm$^2$ | Brakemotor | | |
| CMP40S/BP | 3000 | 1.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40S/BP | 4500 | 1.2 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40S/BP | 6000 | 1.36 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 3000 | 1.09 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 4500 | 1.5 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP40M/BP | 6000 | 1.91 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S /BP | 3000 | 1.65 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S /BP | 4500 | 2.3 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50S /BP | 6000 | 3.07 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP | 3000 | 2.85 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP | 4500 | 4 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50M /BP | 6000 | 5.25 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 3000 | 3.84 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 4500 | 5.53 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP50L /BP | 6000 | 7.6 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 3000 | 3.61 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 4500 | 5.25 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63S /BP | 6000 | 6.78 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 3000 | 6.35 | 100 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 4500 | 9.78 | 70 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 4500 | 9.78 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63M /BP | 6000 | 12.06 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63M /BP | 6000 | 12.06 | 100 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| CMP63L /BP | 3000 | 8.76 | 75 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 3000 | 8.76 | 100 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP63L /BP | 4500 | 12.01 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP63L /BP | 4500 | 12.01 | 100 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| CMP71S /BP | 3000 | 8.7 | 75 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| CMP71S /BP | 3000 | 8.7 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP | 4500 | 12.8 | 80 | 2.5 | 1335 4353 | 1335 4396 | 1335 4248 |
| CMP71S /BP | 4500 | 12.8 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| CMP71S /BP | 6000 | 17 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |

Table continued on next page. Footnotes at the end of the table.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| **CMP71M /BP** | 3000 | 13.1 | 80 | 2,5 | 1335 4353 | 1335 4396 | 1335 4248 |
| **CMP71M /BP** | 3000 | 13.1 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71M /BP** | 4500 | 19.2 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71L /BP** | 3000 | 16.8 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP** | 3000 | 17.7 | 55 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP** | 4500 | 27 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP** | 3000 | 23.5 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP** | 4500 | 35 | 80 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP** | 4500 | 35 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP80L /BP** | 3000 | 32.5 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80L /BP** | 3000 | 32.5 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100S /BP** | 3000 | 34.2 | 70 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP100S /BP** | 3000 | 34.2 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP100M /BP** | 3000 | 40 | 70 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |

1) Currently there are only cable carrier extension cables

## 11.12 Cable assignment: CMP /BP /VR, 230 V system voltage

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | mm$^2$ | Brakemotor | | |
| **CMP71S /BP /VR** | 3000 | 11.8 | 55 | 1.5 | 1335 4345 | 1335 4388 | 1335 4221 |
| **CMP71S /BP /VR** | 3000 | 11.8 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71S /BP /VR** | 4500 | 17.4 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71S /BP /VR** | 6000 | 23 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP71M /BP /VR** | 3000 | 19.1 | 80 | 4 | 1335 4361 | 13421603 | 1335 4337 |
| **CMP80S /BP /VR** | 3000 | 24.5 | 85 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80S /BP /VR** | 4500 | 37 | 75 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80S /BP /VR** | 4500 | 37 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |
| **CMP80M /BP /VR** | 3000 | 34 | 80 | 6 | 1335 0196 | 1335 0234 | 1335 0099 |
| **CMP80M /BP /VR** | 3000 | 34 | 85 | 10 | 1335 0218 | 1335 0242 | 1335 0102 |

1) Currently there are only cable carrier extension cables

## 11.13 Cable assignment: CMPZ /BY, 230 V system voltage

The following table allows for selecting power cables for CMP servo brakemotors with a system voltage of 230 V and a BY working brake with 230 V or 110 V brake voltage.

An additional length for 110 V is specified in parenthesis for cases where the permitted cable length for 110 V is shorter than for 230 V.

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 $mm^2$ - 4 $mm^2$: S.1
- 6 $mm^2$ - 16 $mm^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Standstill current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1)] |
| | rpm | A | m | $mm^2$ | Brakemotor | | |
| CMPZ71S /BY | 3000 | 8.7 | 80 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| CMPZ71S /BY | 3000 | 8.7 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71S /BY | 4500 | 12.8 | 90 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ71S /BY | 4500 | 12.8 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71S /BY | 6000 | 17 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71M /BY | 3000 | 13.1 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71M /BY | 4500 | 19.2 | 98 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ71L /BY | 3000 | 16.8 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80S /BY | 3000 | 17.7 | 65 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| CMPZ80S /BY | 3000 | 17.7 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| CMPZ80S /BY | 4500 | 27 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80S /BY | 6000 | 35.5 | 78 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80S /BY | 6000 | 35.5 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80M /BY | 3000 | 23.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80M /BY | 4500 | 35 | 80 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80M /BY | 4500 | 35 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80M /BY | 6000 | 46.9 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ80L /BY | 3000 | 32.5 | 86 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ80L /BY | 3000 | 32.5 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100S /BY | 3000 | 34.2 | 82 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| CMPZ100S /BY | 3000 | 34.2 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| CMPZ100M /BY | 3000 | 40 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |

1) Currently there are only cable carrier extension cables

Permitted cable lengths for DC 24 V BY working brakes are especially reduced. Note the following guidelines:

CMPZ71 . /BY: maximum 8 m

CMPZ80 . /BY: between 6.4 and 9 m depending on the cable cross section

CMPZ100 . /BY: between 4.5 and 7 m depending on the cable cross section

For project planning with DC 24 V BY working brake, consult SEW-EURODRIVE.

## 11.14 Cable assignment: CMPZ /BY /VR, 230 V system voltage

The following table allows for selecting power cables for CMP servo brakemotors with a system voltage of 230 V and a BY working brake with 230 V or 110 V brake voltage.

An additional length for 110 V is specified in parenthesis for cases where the permitted cable length for 110 V is shorter than for 230 V.

The values in the following table are based on the values with a gray background in the "cable load table" on page 246.

The part numbers refer to the smallest connector that can be used:

- 1.5 mm$^2$ - 4 mm$^2$: S.1
- 6 mm$^2$ - 16 mm$^2$: S.B

For the connector assignment, refer to page 225.

| Motor type | Rated speed | Stand-still current $I_0$ | to cable lengths | Core cross section | Cable part no. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Fixed installation | Cable carrier installation | Cable carrier extension[1] |
| | rpm | A | m | mm$^2$ | Brakemotor | | |
| **CMPZ71S /BY /VR** | 3000 | 11.8 | 59 | 1.5 | 1335 4272 | 1335 4302 | 1335 4221 |
| **CMPZ71S /BY /VR** | 3000 | 11.8 | 100 | 2.5 | 1335 4280 | 1335 4310 | 1335 4248 |
| **CMPZ71S /BY /VR** | 4500 | 17.4 | 100 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ71S /BY /VR** | 6000 | 23 | 80 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ71M /BY /VR** | 3000 | 19.1 | 98 | 4 | 1335 4299 | 1335 4329 | 1335 4337 |
| **CMPZ71M /BY /VR** | 4500 | 28 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ71L /BY /VR** | 3000 | 27 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ80S /BY /VR** | 3000 | 24.5 | 100 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ80S /BY /VR** | 4500 | 37 | 76 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ80S /BY /VR** | 4500 | 37 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ80S /BY /VR** | 6000 | 48.5 | 97 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |
| **CMPZ80S /BY /VR** | 6000 | 48.5 | 100 | 16 | 1335 0145 | 1335 0188 | 1335 0110 |
| **CMPZ80M /BY /VR** | 3000 | 34 | 83 | 6 | 1335 0129 | 1335 0153 | 1335 0099 |
| **CMPZ80M /BY /VR** | 3000 | 34 | 100 | 10 | 1335 0137 | 1335 0161 | 1335 0102 |

1) Currently there are only cable carrier extension cables

Permitted cable lengths for DC 24 V BY working brakes are especially reduced. Note the following guidelines:

CMPZ71 . /BY: maximum 8 m

CMPZ80 . /BY: between 6.4 and 9 m depending on the cable cross section

CMPZ100 . /BY: between 4.5 and 7 m depending on the cable cross section

For project planning with DC 24 V BY working brake, consult SEW-EURODRIVE.

## 11.15 Encoder cable assignment: Plug connector connection variant / KKS

| Encoder | Connection to | | Cable part no. | | | |
|---|---|---|---|---|---|---|
| | MOVIDRIVE® | MOVIAXIS® | Fixed installation | Cable carrier installation | Fixed extension | Cable carrier extension |
| RH1M | X15 | | 0199 4875 | 0199 3194 | 0199 5421 | 0199 5413 |
| | | X13 | 1332 7429 | 1332 7437 | | |
| AS1H, ES1H<br>AK1H, EK1H<br>AK0H, EK0H | X15 | | 1332 4535 | 1332 4551 | 0199 5391 | 0199 5405 |
| | | X13 | | | | |

## 11.16 Encoder cable assignment: KK connection variant

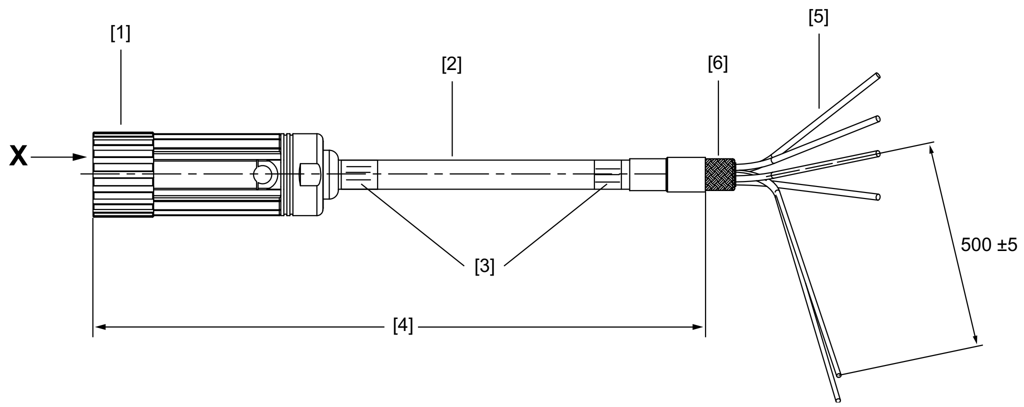
| Encoder | Connection to | | Cable part no. | |
|---|---|---|---|---|
| | MOVIDRIVE® | MOVIAXIS® | Fixed installation | Cable carrier installation |
| RH1M | X15 | | 1335 6259 | 1335 6267 |
| | | X13 | 1335 6356 | 1335 6364 |
| AK1H, EK1H<br>AK0H | X15 | | 1335 6291 | 1335 6305 |
| | | X13 | | |

## 11.17 Forced cooling fan cables

| Cable type | | Cable cross section | Part number |
|---|---|---|---|
| Fixed installation | Forced cooling fan cables | 3 x 1 $mm^2$ | 0198 6341 |
| Cable carrier installation | | 3 x 1 $mm^2$ | 0199 560X |

## 11.18 Structure of the prefabricated cables for CMP. servomotors

### *Motor cables/brakemotor cables for CMP servomotors*




54069AXX

[1] Connector: Intercontec BSTA 078
[2] SEW-EURODRIVE logo printed on cable
[3] Nameplate
[4] Cable length ≤ 10 m: Tolerance +200 mm.
Cable length ≥ 10 m: Tolerance +2%.
Permitted cable length according to the technical documents.
[5] Pre-fabricated cable end for inverter.
Required loose parts are supplied with the cable.
[6] Shielding pulled back approx. 20 mm +5 mm.



*Motor side*

The power cables on the motor side consist of an 8-pin plug connector and socket contacts.

The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal and ensure cable relief according to EN 61884.

*Prefabrication on inverter end*

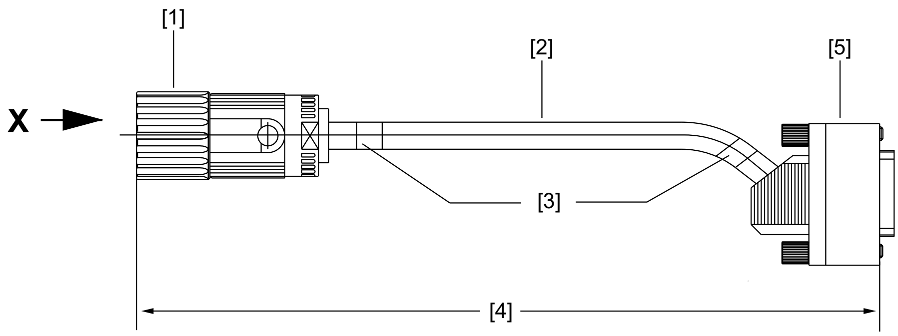
The individual cable cores of the motor and brakemotor cables are exposed and the shield is prepared for connection in the control cabinet. The cable for the inverter end still has to be prefabricated. The loose parts required are supplied with the cable in a separate bag.

*Loose parts*

The following loose parts are supplied in accordance with the core cross sections for connection to the power terminals on the inverter:

| Bag no. | Content |
|---|---|
| 1 | 4 x conductor end sleeves 1.5 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 1.5 mm$^2$ |
| 2 | 4 x conductor end sleeves 2.5 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 2.5 mm$^2$ |
| 3 | 4 x conductor end sleeves 4 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 4 mm$^2$ |

*Feedback cable*




54635AXX

[1] Connector: Intercontec ASTA
[2] Printed on connector: SEW-EURODRIVE
[3] Nameplate
[4] Cable length ≤ 10 m: Tolerance +200 mm
Cable length > 10 m: Tolerance +2%
Permitted cable length according to the technical documents.
[5] D-sub plug

*Motor side*

A 12-pin EMC signal plug connector from Intercontec with socket contacts is used on the motor end for RH.M/AS1H/ES1H. The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal.

*Prefabrication on inverter end*

A commercial D-sub EMC connector with pin contacts is used on the inverter end. A 9-pin or 15-pin connector matching the inverter is used.

*Hybrid cables*

The outer cable sheath on the motor and inverter end bears a nameplate with part number and logo of the prefabricated cable manufacturer. The ordered length and permitted tolerance are interrelated as follows:

- Cable length ≤ 10 m: Tolerance 200 mm.
- Cable length > 10 m: + 2% tolerance

**INFORMATION**

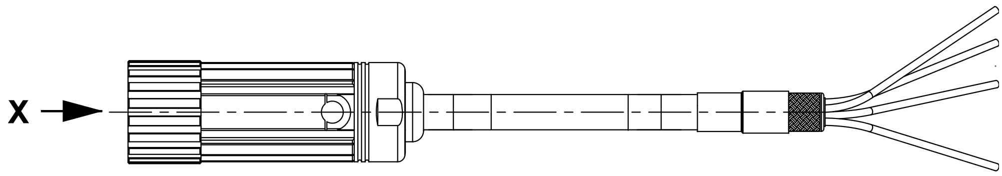
Refer to the system manual of the inverter for determining the maximum cable length.

Make sure that an EMC-compliant environment is maintained during project planning.

## 11.19 Power cables

### Motor cables

*CMP motor cable*

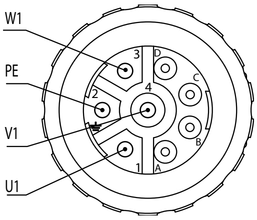
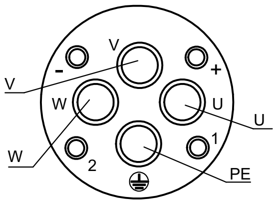



54619AXX

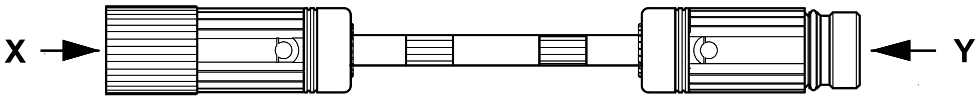
*CMP motor cable types*

| Plug connector type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| SM11 | 4 × 1.5 mm$^2$ | 0590 4544 | Fixed installation |
| SM11 | 4 × 1.5 mm$^2$ | 0590 6245 | Cable carrier installation |
| SM12 | 4 × 2.5 mm$^2$ | 0590 4552 | Fixed installation |
| SM12 | 4 × 2.5 mm$^2$ | 0590 6253 | Cable carrier installation |
| SM14 | 4 × 4 mm$^2$ | 0590 4560 | Fixed installation |
| SM14 | 4 × 4 mm$^2$ | 0590 4803 | Cable carrier installation |
| SMB6 | 4 × 6 mm$^2$ | 1335 0269 | Fixed installation |
| SMB6 | 4 × 6 mm$^2$ | 1335 0293 | Cable carrier installation |
| SMB10 | 4 × 10 mm$^2$ | 1335 0277 | Fixed installation |
| SMB10 | 4 × 10 mm$^2$ | 1335 0307 | Cable carrier installation |
| SMB16 | 4 × 16 mm$^2$ | 1335 0285 | Fixed installation |
| SMB16 | 4 × 16 mm$^2$ | 1335 0315 | Cable carrier installation |

*Pin assignment of the CMP motor cable*

| Plug connector view X | Pin | Cable core color | Assigned | Extra |
|---|---|---|---|---|
| **BSTA 078**<br>**SM1**<br> | 1 | (BK) Black | U | Bag of loose parts |
| | 2 | (GN/YE) Green/Yellow | PE | |
| | 3 | (BK) Black | W | |
| | 4 | (BK) Black | V | |
| **CSTA 264**<br>**SMB**<br> | | | | |

*CMP motor extension cables*



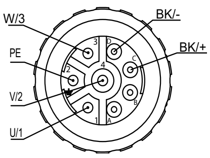
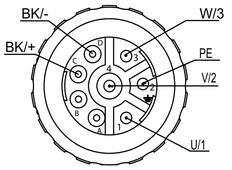
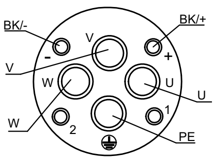
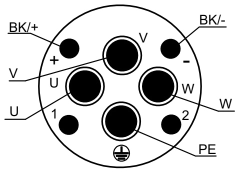

54878AXX

*CMP motor extension cable types*

| Plug connector type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| SM11 | $4 \times 1.5\ mm^2$ | 1333 2457 | Cable carrier installation |
| SM12 | $4 \times 2.5\ mm^2$ | 1333 2465 | Cable carrier installation |
| SM14 | $4 \times 4\ mm^2$ | 1333 2473 | Cable carrier installation |
| SMB6 | $4 \times 6\ mm^2$ | 1335 0021 | Cable carrier installation |
| SMB10 | $4 \times 10\ mm^2$ | 1335 0048 | Cable carrier installation |
| SMB16 | $4 \times 16\ mm^2$ | 1335 0056 | Cable carrier installation |

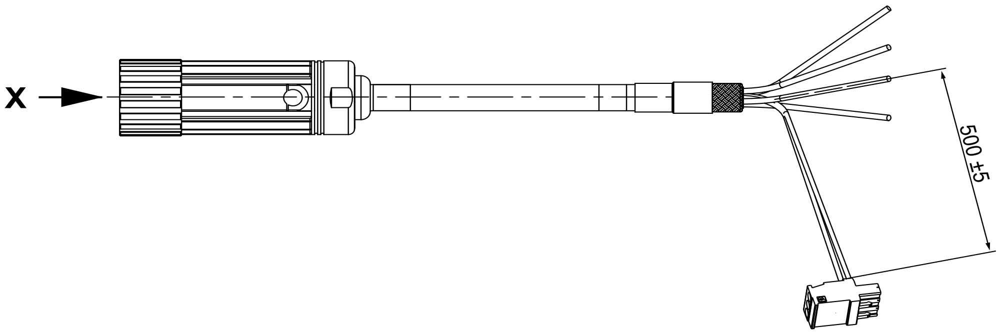


*Pin assignment of CMP motor extension cable*

<table>
<tr><th>Plug connector view X</th><th>Pin</th><th>Cable core color</th><th>Assigned</th><th>Pin</th><th>Plug connector view Y</th></tr>
<tr><td rowspan="4">BSTA 078<br>SM1<br>
</td><td>1</td><td rowspan="3">(BK/WH)<br>Black with<br>white lettering<br>U, V, W</td><td>U</td><td>1</td><td rowspan="4">BKUA 199<br>
</td></tr>
<tr><td>4</td><td>V</td><td>4</td></tr>
<tr><td>3</td><td>W</td><td>3</td></tr>
<tr><td>2</td><td>(GR/YE) green / yellow</td><td>PE</td><td>2</td></tr>
<tr><td>CSTA 264<br>SMB<br>
</td><td colspan="4"></td><td>CKUA 268<br>
</td></tr>
</table>

### Brakemotor cable for BP brake

*CMP brakemotor cable*



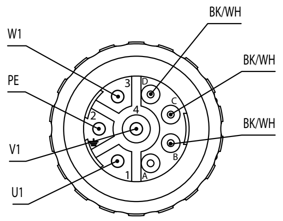

54620AXX

*Types of CMP brakemotor cables*

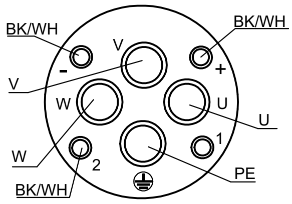
| Plug connector type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| SB11 | 4 × 1.5 mm$^2$ + 3 × 1 mm$^2$ | 1335 4345 | Fixed installation |
| SB11 | 4 × 1.5 mm$^2$ + 3 × 1 mm$^2$ | 1335 4388 | Cable carrier installation |
| SB12 | 4 × 2.5 mm$^2$ + 3 × 1 mm$^2$ | 1335 4353 | Fixed installation |
| SB12 | 4 × 2.5 mm$^2$ + 3 × 1 mm$^2$ | 1335 4396 | Cable carrier installation |
| SB14 | 4 × 4 mm$^2$ + 3 × 1 mm$^2$ | 1335 4361 | Fixed installation |
| SB14 | 4 × 4 mm$^2$ + 3 × 1 mm$^2$ | 1335 1603 | Cable carrier installation |
| SBB6 | 4 × 6 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0196 | Fixed installation |
| SBB6 | 4 × 6 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0234 | Cable carrier installation |
| SBB10 | 4 × 10 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0218 | Fixed installation |
| SBB10 | 4 × 10 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0242 | Cable carrier installation |
| SBB16 | 4 × 16 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0226 | Fixed installation |
| SBB16 | 4 × 16 mm$^2$ + 3 × 1.5 mm$^2$ | 1335 0250 | Cable carrier installation |

*Pin assignment of the CMP brakemotor cable*

<table>
<tr><th>Plug connector view X</th><th>Pin</th><th>Cable core color</th><th>Assigned</th><th>Extra</th></tr>
<tr><td rowspan="8">**BSTA 078**<br>**SB1**



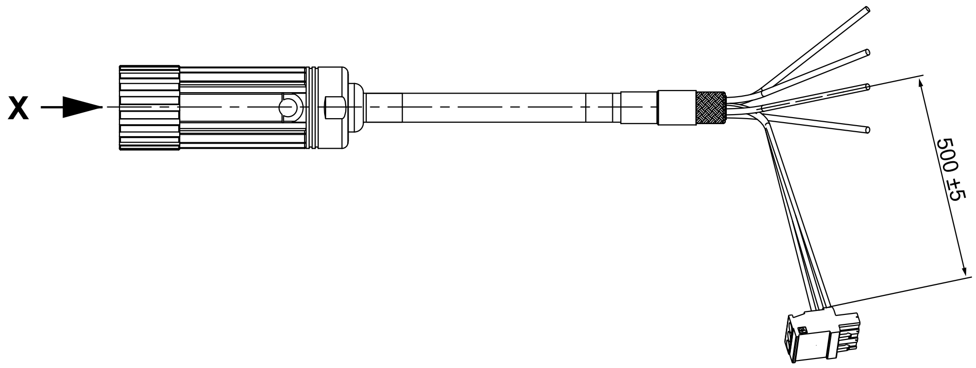
</td><td>1</td><td rowspan="3">(BK/WH) Black with white lettering U, V, W</td><td>U</td><td rowspan="9">Bag of loose parts</td></tr>
<tr><td>4</td><td>V</td></tr>
<tr><td>3</td><td>W</td></tr>
<tr><td>2</td><td>(GN/YE) Green/Yellow</td><td>PE</td></tr>
<tr><td>A</td><td>-</td><td>n. c.</td></tr>
<tr><td>B</td><td rowspan="3">(BK/WH) Black with white lettering</td><td>2.</td></tr>
<tr><td>C</td><td>1</td></tr>
<tr><td>D</td><td>3</td></tr>
<tr><td>**CSTA 264**<br>**SBB**



</td><td></td><td></td><td></td></tr>
</table>

### *Brakemotor cable for BY brake*

*CMP brakemotor cable*

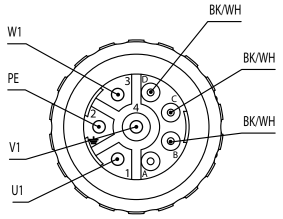
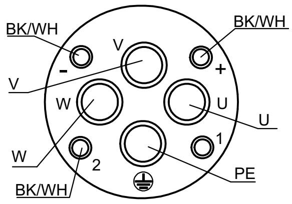



68660axx

*Types of CMP brakemotor cables*

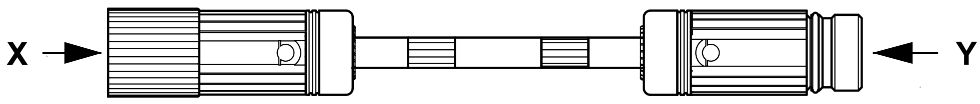
| Plug connector type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| SB11 | 4 × 1.5 $mm^2$ + 3 × 1 $mm^2$ | 1335 4272 | Fixed installation |
| SB11 | 4 × 1.5 $mm^2$ + 3 × 1 $mm^2$ | 1335 4302 | Cable carrier installation |
| SB12 | 4 × 2.5 $mm^2$ + 3 × 1 $mm^2$ | 1335 4280 | Fixed installation |
| SB12 | 4 × 2.5 $mm^2$ + 3 × 1 $mm^2$ | 1335 4310 | Cable carrier installation |
| SB14 | 4 × 4 $mm^2$ + 3 × 1 $mm^2$ | 1335 4299 | Fixed installation |
| SB14 | 4 × 4 $mm^2$ + 3 × 1 $mm^2$ | 1335 4329 | Cable carrier installation |
| SBB6 | 4 × 6 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0129 | Fixed installation |
| SBB6 | 4 × 6 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0153 | Cable carrier installation |
| SBB10 | 4 × 10 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0137 | Fixed installation |
| SBB10 | 4 × 10 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0161 | Cable carrier installation |
| SBB16 | 4 × 16 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0145 | Fixed installation |
| SBB16 | 4 × 16 $mm^2$ + 3 × 1.5 $mm^2$ | 1335 0188 | Cable carrier installation |

*Pin assignment of the CMP brakemotor cable*

<table>
<tr><th>Plug connector view X</th><th>Pin</th><th>Cable core color</th><th>Assigned</th><th>Extra</th></tr>
<tr><td rowspan="8">BSTA 078<br>SB1<br>
</td><td>1</td><td rowspan="3">(BK/WH) Black with white lettering U, V, W</td><td>U</td><td rowspan="9">Bag of loose parts</td></tr>
<tr><td>4</td><td>V</td></tr>
<tr><td>3</td><td>W</td></tr>
<tr><td>2</td><td>(GN/YE) Green/Yellow</td><td>PE</td></tr>
<tr><td>A</td><td>-</td><td>n. c.</td></tr>
<tr><td>B</td><td rowspan="3">(BK/WH) Black with white lettering</td><td>2.</td></tr>
<tr><td>C</td><td>1</td></tr>
<tr><td>D</td><td>3</td></tr>
<tr><td>CSTA 264<br>SBB<br>
</td><td></td><td></td><td></td></tr>
</table>

***Extension cable for BP and BY brake***

*CMP brakemotor extension cables*

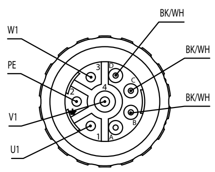
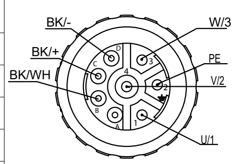
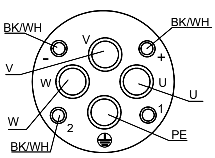
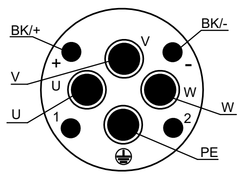



54878AXX

*CMP brakemotor extension cable types*

| Plug connector type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| SB11 | 4 × 1.5 mm² + 3 × 1 mm² | 1335 4221 | Cable carrier installation |
| SB12 | 4 × 2.5 mm² + 3 × 1 mm² | 1335 4248 | Cable carrier installation |
| SB14 | 4 × 4 mm² + 3 × 1 mm² | 1335 4337 | Cable carrier installation |
| SBB6 | 4 × 6 mm² + 3 × 1.5 mm² | 1335 0099 | Cable carrier installation |
| SBB10 | 4 × 10 mm² + 3 × 1.5 mm² | 1335 0102 | Cable carrier installation |
| SBB16 | 4 × 16 mm² + 3 × 1.5 mm² | 1335 0110 | Cable carrier installation |

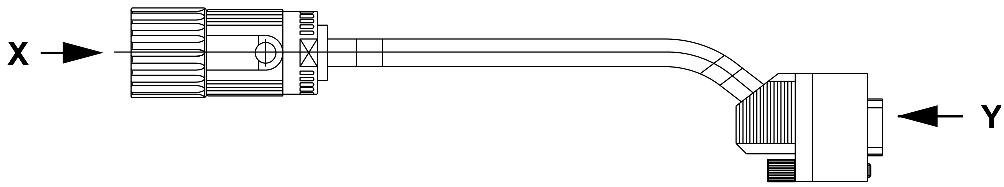
*Pin assignment of the CMP brakemotor extension cable*

<table>
<tr><th>Plug connector view X</th><th>Pin</th><th>Cable core color</th><th>Assigned</th><th>Pin</th><th>Plug connector view Y</th></tr>
<tr><td rowspan="8">BSTA 078<br>SB1<br></td><td>1</td><td rowspan="3">(BK/WH)<br>Black with<br>white lettering<br>U, V, W</td><td>U</td><td>1</td><td rowspan="8">BKUA 199<br></td></tr>
<tr><td>4</td><td>V</td><td>4</td></tr>
<tr><td>3</td><td>W</td><td>3</td></tr>
<tr><td>2</td><td>(GN/YE) Green/Yellow</td><td>PE</td><td>2</td></tr>
<tr><td>A</td><td>-</td><td>n. c.</td><td>A</td></tr>
<tr><td>B</td><td rowspan="3">(BK/WH) Black with white lettering</td><td>2.</td><td>B</td></tr>
<tr><td>C</td><td>1</td><td>C</td></tr>
<tr><td>D</td><td>3</td><td>D</td></tr>
<tr><td>CSTA 264<br>SBB<br></td><td></td><td></td><td></td><td></td><td>CKUA 268<br></td></tr>
</table>

## 11.20 Encoder cables

### *Resolver*

*Resolver cable RH.M for MOVIDRIVE® MDX60B/61B*



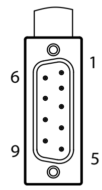
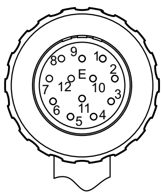

54704AXX

*RH.M resolver cable types for MOVIDRIVE® MDX60B/61B*

| Type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| CMP | 5 × 2 × 0.25 $mm^2$ | 0199 4875 | Fixed installation |
| CMP | 5 × 2 × 0.25 $mm^2$ | 0199 3194 | Cable carrier installation |

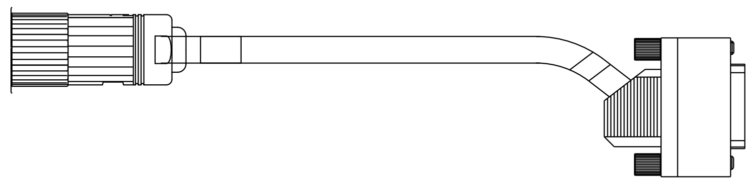
*Pin assignment of resolver cable RH.M for MOVIDRIVE® MDX60B/61B*

11

| Motor connection side | | | | | MOVIDRIVE® B connection | |
|---|---|---|---|---|---|---|
| Plug connector view X | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector view Y |
| ASTA 021FR | 1 | R1 (reference +) | (PK) Pink | R1 (reference +) | 3 | D-sub |
| 0198 6732 | 2 | R2 (reference -) | (GY) Gray | R2 (reference -) | 8 | 9-pin |
| 12-pin with socket contacts | 3 | S1 (cosine +) | (RD) Red | S1 (cosine +) | 2 |  |
|  | 4 | S3 (cosine -) | (BU) Blue | S3 (cosine -) | 7 | |
| | 5 | S2 (sine +) | (YE) Yellow | S2 (sine +) | 1 | |
| | 6 | S4 (sine -) | (GN) Green | S4 (sine -) | 6 | |
| | 7 | n. c. | - | - | - | |
| | 8 | n. c. | - | - | - | |
| | 9 | TF/KTY + | (BN) Brown/(VT) Violet[1)] | TF (KTY+) | 9 | |
| | 10 | TF/KTY - | (WH) White/(BK) Black[1)] | TF/KTY - | 5 | |
| | 11 | n. c. | - | - | - | |
| | 12 | n. c. | - | n. c. | 4 | |

1) Double assignment to increase cross section

*RH.M resolver cables for MOVIAXIS® MX*

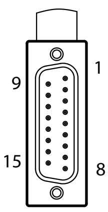
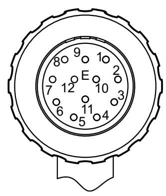



54629AXX

*RH.M resolver cable types for MOVIAXIS® MX*

| Type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| CMP | 5 × 2 × 0.25 mm$^2$ | 1332 7429 | Fixed installation |
| CMP | 5 × 2 × 0.25 mm$^2$ | 1332 7437 | Cable carrier installation |

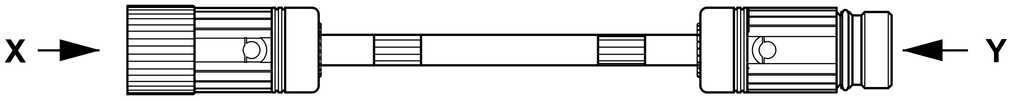
*Pin assignment of RH.M resolver cable for MOVIAXIS® MX*

| **Motor connection side** | | | | | **Connection MOVIAXIS® MX** | |
|---|---|---|---|---|---|---|
| **Plug connector view X** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector view Y** |
| **ASTA 021FR** | 1 | R1 (reference +) | (PK) Pink | R1 (reference +) | 5 | **D-sub** |
| **0198 6732** | 2 | R2 (reference -) | (GY) Gray | R2 (reference -) | 13 | 15-pin |
| 12-pin with socket contacts | 3 | S1 (cosine +) | (RD) Red | S1 (cosine +) | 2 |  |
|  | 4 | S3 (cosine -) | (BU) Blue | S3 (cosine -) | 10 | |
| | 5 | S2 (sine +) | (YE) Yellow | S2 (sine +) | 1 | |
| | 6 | S4 (sine -) | (GN) Green | S4 (sine -) | 9 | |
| | 7 | n. c. | - | n. c. | 3 | |
| | 8 | n. c. | - | n. c. | 4 | |
| | 9 | TF/KTY + | (BN) Brown/(VT) Violet[1] | TF/KTY + | 14 | |
| | 10 | TF/KTY - | (WH) White/(BK) Black[1] | TF/KTY - | 6 | |
| | 11 | n. c. | - | n. c. | 7 | |
| | 12 | n. c. | - | n. c. | 8 | |
| | | - | - | n. c. | 11 | |
| | | - | - | n. c. | 12 | |
| | | - | - | n. c. | 15 | |

1) Double assignment to increase cross section

All connectors are shown with view onto the pins.

*Extension cable for RH.M resolver*

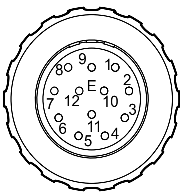
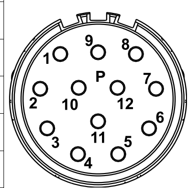



54630AXX

*Extension cable types for RH.M resolver*

| Type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| CMP | 5 × 2 × 0.25 mm$^2$ | 0199 5421 | Fixed installation |
| CMP | 5 × 2 × 0.25 mm$^2$ | 0199 5413 | Cable carrier installation |

*Pin assignment of extension cable for resolver RH.M*

| Plug connector view X | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector view Y |
|---|---|---|---|---|---|---|
| **ASTA 021FR**<br>**198 673 2**<br>12-pin with socket contacts<br> | 1 | R1 (reference +) | (PK) Pink | R1 (reference +) | 1 | **AKUA 020MR**<br>**199 647 9**<br>12-pin with pin contacts<br> |
| | 2 | R1 (reference -) | (GY) Gray | R1 (reference -) | 2 | |
| | 3 | S1 (cosine +) | (RD) Red | S1 (cosine +) | 3 | |
| | 4 | S3 (cosine -) | (BU) Blue | S3 (cosine -) | 4 | |
| | 5 | S2 (sine +) | (YE) Yellow | S2 (sine +) | 5 | |
| | 6 | S4 (sine -) | (GN) Green | S4 (sine -) | 6 | |
| | 7 | n. c. | - | n. c. | 7 | |
| | 8 | n. c. | - | n. c. | 8 | |
| | 9 | TF/KTY + | (BN) Brown/(VT) Violet[1] | TF/KTY + | 9 | |
| | 10 | TF/KTY - | (WH) White/(BK) Black[1] | TF/KTY - | 10 | |
| | 11 | n. c. | - | n. c. | 11 | |
| | 12 | n. c. | - | n. c. | 12 | |

1) Double assignment to increase cross section

The extension cable has the same pin assignment as all other contacts.

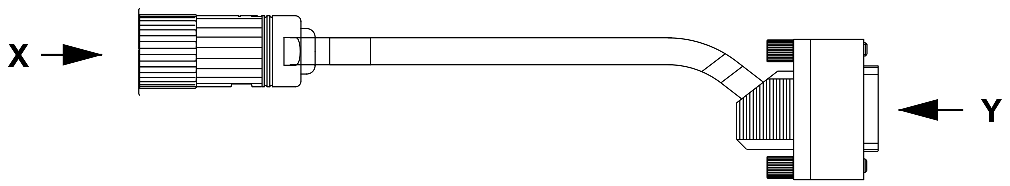
*Alternative plug connector for resolver cable RH.M*

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Part no. |
|---|---|---|
| RH.M | 6 x 2 x 0.06 - 1 mm$^2$ | 0198 6732 |

### *Hiperface® encoder*

*Figure of a **Hiperface® encoder cable for MOVIDRIVE® B and MOVIAXIS®MX***

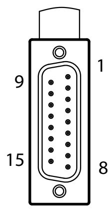
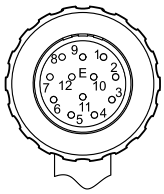



54629AXX

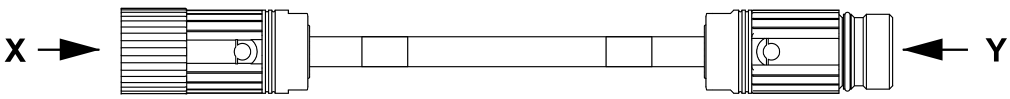
*Hiperface® encoder cable types for MOVIDRIVE® B and MOVIAXIS® MX*

| Type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| CMP | 6 × 2 × 0.25 mm$^2$ | 1332 4535 | Fixed installation |
| CMP | 6 × 2 × 0.25 mm$^2$ | 1332 4551 | Cable carrier installation |

*Pin assignment of **Hiperface® cables for AK0H/EK0H/AS1H/ES1H encoders***

| Motor connection side | | | | | MOVIAXIS® MX, MOVIDRIVE® B connection | |
|---|---|---|---|---|---|---|
| **Plug connector view X** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector view Y** |
| **ASTA 021FR** | 1 | n. c. | n. c. | n. c. | 3 | **D-sub** |
| **0198 6732** | 2 | n. c. | n. c. | n. c. | 5 | 15-pole |
| 12-pin with socket contacts | 3 | S1 (cosine +) | (RD) Red | S1 (cosine +) | 1 |   |
|  | 4 | S3 (cosine -) | (BU) Blue | S3 (cosine -) | 9 | |
| | 5 | S2 (sine +) | (YE) Yellow | S2 (sine +) | 2 | |
| | 6 | S4 (sine -) | (GN) Green | S4 (sine -) | 10 | |
| | 7 | DATA- | (VT) Violet | DATA- | 12 | |
| | 8 | DATA+ | (BK) Black | DATA+ | 4 | |
| | 9 | TF/KTY + | (BN) Brown | TF/KTY + | 14 | |
| | 10 | TF/KTY - | (WH) White | TF/KTY - | 6 | |
| | 11 | GND | (GY/PK) (Gray/Pink / (PK) Pink | GND | 8 | |
| | 12 | $U_s$ | (RD/BU) Red/Blue / (GY) Gray | $U_s$ | 15 | |
| | | - | - | n. c. | 7 | |
| | | - | - | n. c. | 11 | |
| | | - | - | n. c. | 13 | |

*Extension cable for Hiperface® encoders AK0H/EK0H/AS1H/ES1H*

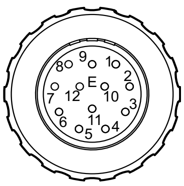
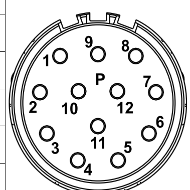



54634AXX

*Extension cable types for Hiperface® encoders AK0H/EK0H/AS1H/ES1H*

| Type | Number of cores and cable cross section | Part number | Installation |
|---|---|---|---|
| CMP | 6 × 2 × 0.25 mm$^2$ | 0199 5391 | Fixed installation |
| CMP | 6 × 2 × 0.25 mm$^2$ | 0199 5405 | Cable carrier installation |

*Pin assignment for extension cable for Hiperface® encoders AK0H/EK0H/AS1H/ES1H*

| Plug connector view X | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector view Y |
|---|---|---|---|---|---|---|
| **ASTA 021FR** **198 673 2** 12-pin with socket contacts  | 1 | n. c. | - | n. c. | 1 | **AKUA 020MR** **199 647 9** 12-pin with pin contacts  |
| | 2 | n. c. | - | n. c. | 2 | |
| | 3 | S1 (cosine +) | (RD) Red | S1 (cosine +) | 3 | |
| | 4 | S3 (cosine -) | (BU) Blue | S3 (cosine -) | 4 | |
| | 5 | S2 (sine +) | (YE) Yellow | S2 (sine +) | 5 | |
| | 6 | S4 (sine -) | (GN) Green | S4 (sine -) | 6 | |
| | 7 | DATA- | (VT) Violet | DATA- | 7 | |
| | 8 | DATA+ | (BK) Black | DATA+ | 8 | |
| | 9 | TF/KTY + | (BN) Brown | TF/KTY + | 9 | |
| | 10 | TF/KTY - | (WH) White | TF/KTY - | 10 | |
| | 11 | GND | (GY/PK) (Gray/Pink / (PK) Pink | GND | 11 | |
| | 12 | $U_s$ | (RD/BU) Red/Blue / (GY) Gray | $U_s$ | 12 | |

The extension cable has the same pin assignment as all other contacts.

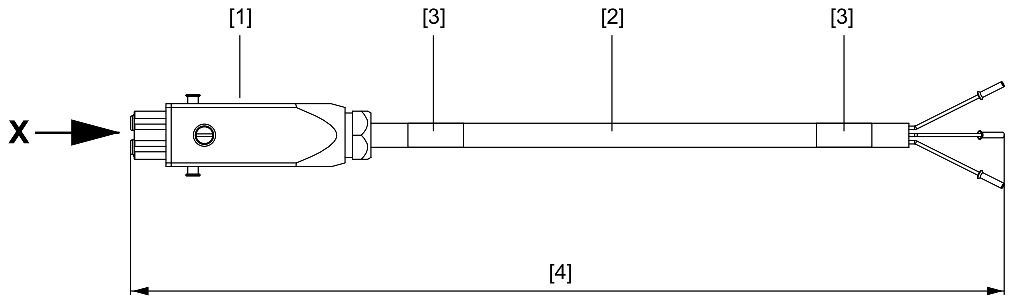
*Alternative plug connector cable for Hiperface® encoders AK0H/EK0H/AS1H/ES1H*

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Part no. |
|---|---|---|
| AK0H | 6 x 2 x 0.06 - 1 mm$^2$ | 0198 6732 |
| EK0H | | |
| AS1H | | |
| ES1H | | |

## 11.21 Forced cooling fan cable

### Cable for motors with VR forced cooling fan



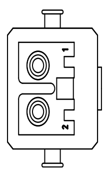

54649AXX

[1] Connector: STAK 200
[2] Printed on connector: SEW-EURODRIVE
[3] Nameplate
[4] Cable length ≤ 5 m: Tolerance +200 mm
Cable length ≥ 5 m: Tolerance +2%
Permitted cable length according to the technical documents.

### Cable types for motors with VR forced cooling fan

| Type | Cross section | Installation | Part number |
|---|---|---|---|
| CMP | 3 × 1 mm$^2$ (AWG 18) | Fixed installation | 0198 6341 |
| CMP | | Cable carrier installation | 0199 560X |

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

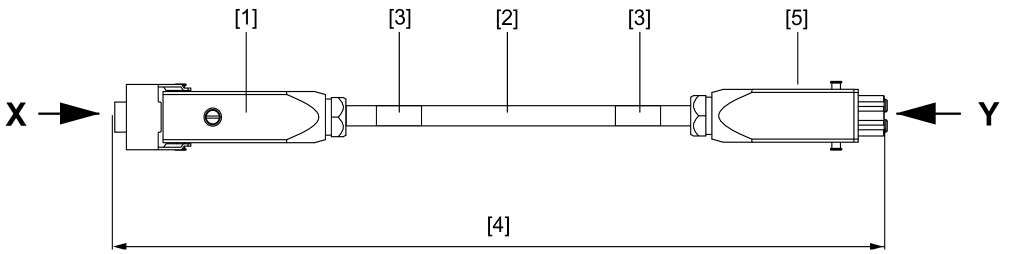
| STAK 200 plug connector view X | Pin | Core identification | Assigned | Pin | Connection type |
|---|---|---|---|---|---|
| **Connector with two socket contacts** | 1 | Digit 1 | 24 V + | Cut-off, length ca. 250 mm | Conductor end sleeves |
| | 2 | Digit 2 | 0 V | | |
|  | | | | | |

### Alternative connector for cable for the VR forced cooling fan

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Installation | Part number |
|---|---|---|---|
| VR | 3 x 1 mm$^2$ (AWG 18) | Fixed installation/cable carrier installation | 0198 4985 |

### *Extension cable for motors with VR forced cooling fan*




54646AXX

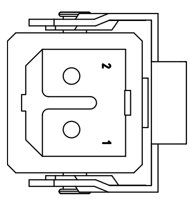
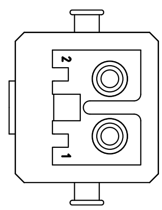
[1] Connector: STAS 200
[2] Printed on connector: SEW-EURODRIVE
[3] Nameplate
[4] Cable length ≤ 5 m: Tolerance +200 mm
Cable length ≥ 5 m: Tolerance +2%
Permitted cable length according to the technical documents.
[5] Socket: STAK 200

### *Extension cable types for motors with VR forced cooling fan*

| Type | Cross section | Installation | Part number |
|---|---|---|---|
| CMP | 3 × 1 $mm^2$ (AWG 18) | Fixed installation | 0199 5618 |
| CMP | | Cable carrier installation | 0199 5626 |

11

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

| STAS 200 plug connector view X | Pin | Core identification | Assigned | Pin | STAK 200 connection type view Y |
|---|---|---|---|---|---|
| **Connector with two pin contacts**  | 1 | Digit 1 | 24 V + | 1 | **Connector with two socket contacts**  |
| | 2 | Digit 2 | 0 V | 2 | |

The extension cable has the same pin assignment as all other contacts.

### *Alternative connector for cable for the VR forced cooling fan*

Signal plug connector with pins (complete)

| Type | Cross sections that can be selected | Part number |
|---|---|---|
| VR | 3 x 1 $mm^2$ | 0198 5693 |

## 11.22 Cable specification of power cables

### *Fixed installation*

*Motor cables*

| **Installation** | | **Fixed** | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm$^2$ (AWG 16)** | **4 x 2.5 mm$^2$ (AWG 14)** | **4 x 4 mm$^2$ (AWG 12)** | **4 x 6 mm$^2$ (AWG 10)** | **4 x 10 mm$^2$ (AWG 8)** |
| **Manufacturer** | | **HELUKABEL** | | | | |
| Manufacturer designation | | LI9YCY | | | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | fixed installation - 40 to +80 | | | | |
| Maximum temperature | °C | +80 | | | | |
| Minimum bending radius | mm | 45 | 55 | 65 | 73 | 85 |
| Diameter D | mm | 9.0 ± 0.2 | 11 ± 0.2 | 13 ± 0.2 | 14.3 ± 0.3 | 17.0 ± 0.6 |
| Core designation | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange, similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL | | | | |
| Capacitance core/shield | nF/km | 110 | 110 | 118 | 125 | 125 |
| Capacitance core/shield | nF/km | 70 | 70 | 75 | 80 | 80 |
| Halogen-free | | no | | | | |
| Silicon-free | | yes | | | | |
| CFC-free | | yes | | | | |
| Inner insulation (core) | | PP | | | | |
| Outer insulation (sheath) | | PVC | | | | |
| Flame-inhibiting/self-extinguishing | | no | | | | |
| Conductor material | | Cu | | | | |
| Shield | | Cu tinned | | | | |
| Weight (cable) | kg/km | 134 | 202 | 262 | 332 | 601 |

*Brakemotor cables*

| Installation | | Fixed | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm² (AWG 16) + 3 x 1 mm² (AWG 18)** | **4 x 2.5 mm² (AWG 14) + 3 x 1 mm² (AWG 18)** | **4 x 4 mm² (AWG 12) + 3 x 1 mm² (AWG 18)** | **4 x 6 mm² (AWG 10) + 3 x 1.5 mm² (AWG 16)** | **4 x 10 mm² (AWG 8) + 3 x 1.5 mm² (AWG 16)** |
| **Manufacturer** | | **HELUKABEL** | | | | |
| Manufacturer designation | | LI9YCY | | | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | Fixed installation: - 40 to +80 | | | | |
| Maximum temperature | °C | +80 | | | | |
| Minimum bending radius | mm | 60 | 68 | 75 | 85 | 100 |
| Diameter D | mm | 11.8 ± 0.4 | 13.4 ± 0.4 | 15.0 ± 0.5 | 17.0 ± 0.6 | 20.0 ± 1.0 |
| Core designation | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL | | | | |
| Capacitance core/shield | nF/km | 105 | 105 | 110 | 115 | 120 |
| Capacitance core/shield | nF/km | 60 | 60 | 70 | 75 | 78 |
| Haloge-free | | no | | | | |
| Silicon-free | | yes | | | | |
| CFC-free | | yes | | | | |
| Inner insulation (core) | | PP | | | | |
| Outer insulation (sheath) | | PVC | | | | |
| Flame-inhibiting/self-extinguishing | | yes | | | | |
| Conductor material | | Cu | | | | |
| Shield | | Cu tinned | | | | |
| Weight (cable) | kg/km | 229 | 292 | 393 | 542 | 938 |

### *Cable carrier installation*

*Motor cables*

| **Installation** | | **Cable carrier** | | | | |
|---|---|---|---|---|---|---|
| **Cable cross section** | | **4 x 1.5 mm$^2$ (AWG 16)** | **4 x 2.5 mm$^2$ (AWG 14)** | **4 x 4 mm$^2$ (AWG 12)** | **4 x 6 mm$^2$ (AWG 10)** | **4 x 10 mm$^2$ (AWG 8)** |
| **Manufacturer** | | **Nexans** | | | | |
| Manufacturer designation | | PSL(LC)C11Y-J 4 x - mm$^2$ | | PSL11YC11Y-J 4 x - mm$^2$ | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | -20 to +60 | | | | |
| Maximum temperature | °C | +90 (on conductor) | | | | |
| Minimum bending radius | mm | 134 | 140 | 135 | 155 | 180 |
| Diameter D | mm | 12.8 + 0.6 / -0.7 | 15.7 ± 0.3 | 13.2 ± 0.4 | 15.4 ± 0.4 | 17.8 ± 0.5 |
| Maximum acceleration | m/s$^2$ | 20 | | | | |
| Maximum velocity | m/min | 200 at max.travel distance of 5 m | | | | |
| Core designation | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL / cRUus | | | | |
| Capacitance core/shield | nF/km | 95 | 95 | 170 | 170 | 170 |
| Capacitance core/core | nF/km | 65 | 65 | 95 | 95 | 95 |
| Halogen-free | | yes | | | | |
| Silicon-free | | yes | | | | |
| CFC-free | | yes | | | | |
| Inner insulation (core) | | Polyolefin | | TPM | | |
| Outer insulation (sheath) | | TPU (PUR) | | | | |
| Flame-inhibiting/self-extinguishing | | yes | | | | |
| Conductor material | | E-Cu blank | | | | |
| Shield | | Braided tinned Cu shield (optically covered > 85%) | | | | |
| Weight (cable) | kg/km | 249 | 373 | 311 | 426 | 644 |
| Min. bending cycles | | ≥ 5 million | | | | |

*Brakemotor cables*

| Installation | | Cable carrier | | | | |
|---|---|---|---|---|---|---|
| **Cable cross section** | | **4 x 1.5 mm$^2$ (AWG 16) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 2.5 mm$^2$ (AWG 14) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 4 mm$^2$ (AWG 12) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 6 mm$^2$ (AWG 10) + 3 x 1.5 mm$^2$ (AWG 16)** | **4 x 10 mm$^2$ (AWG 8) + 3 x 1.5 mm$^2$ (AWG 16)** |
| **Manufacturer** | | **Nexans** | | | | |
| Manufacturer designation | | PSL(LC)C11Y-J 4x... +3A.../C | | PSL11YC11Y-J 4x... +3A.../C | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | -20 to +60 | | | | |
| Maximum temperature | °C | +90 (conductor) | | | | |
| Minimum bending radius | mm | 159 | 170 | 155 | 175 | 200 |
| Diameter D | mm | 15.0 ± 0.9 | 16.5 ± 0.7 | 15.3 ± 0.5 | 17.4 ± 0.5 | 20.5 ± 0.5 |
| Maximum acceleration | m/s$^2$ | 20 | | | | |
| Maximum velocity | m/min | 200 at a max. travel distance of 5 m | | | | |
| Core designation | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL / cRUus | | | | |
| Capacitance core/shield | nF/km | 105 | 105 | 170 | 170 | 170 |
| Capacitance core/core | nF/km | 65 | 65 | 95 | 95 | 95 |
| Halogen-free | | yes | | | | |
| Silicon-free | | yes | | | | |
| CFC-free | | yes | | | | |
| Inner insulation (cable) | | TPM | | | | |
| Outer insulation (sheath) | | Polyolefin | | TPU (PUR) | | |
| Flame-inhibiting/self-extinguishing | | yes | | | | |
| Conductor material | | E-Cu blank | | | | |
| Shield | | Braided tinned Cu shield (optically covered > 85%) | | | | |
| Weight (cable) | kg/km | 335 | 433 | 396 | 522 | 730 |
| Minimum bending cycles | | ≥ 5 million | | | | |

## 11.23 Cable specification of encoder cables

### Fixed installation of feedback cables

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **HELUKABEL** | |
| Manufacturer designation | | LI9YCY | |
| Operating voltage $V_0$ /V AC | V | 230 / 350 | |
| Temperature range | °C | Fixed installation -40 to +80 | |
| Maximum temperature | °C | + 80 | |
| Minimum bending radius | mm | 43 | 36.5 |
| Diameter D | mm | 8.6 ± 0.2 | 7.3 ± 0.2 |
| Core designation | | DIN 47 100 | |
| Sheath color | | Green, similar to RAL 6018 | |
| Approval(s) | | DESINA / VDE / cULus | |
| Capacitance core/shield | nF/km | 110 | |
| Capacitance core/core | nF/km | 70 | |
| Halogen-free | | no | |
| Silicon-free | | yes | |
| CFC-free | | yes | |
| Inner insulation (core) | | PP | |
| Outer insulation (sheath) | | PVC | |
| Flame-inhibiting/self-extinguishing | | no | |
| Conductor material | | Cu blank | |
| Shield | | Braided tinned Cu shield | |
| Weight (cable) | kg/km | 107 | 78 |

### Cable carrier installation of feedback cables

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **Nexans** | |
| Manufacturer designation | | SSL18YC11Y 6 x 2 x 0.25/ SSL11YC11Y 5 x 2 x 0.25 | |
| Operating voltage $V_0$ /V AC | V | 300 | |
| Temperature range | °C | -20 to + 60 | |
| Maximum temperature | °C | +90 (on conductor) | |
| Minimum bending radius | mm | 100 | 95 |
| Diameter D | mm | 9.8 ± 0.2 | 9,5 ± 0.2 |
| Maximum acceleration | m/s$^2$ | 20 | |
| Maximum velocity | m/min | 200 | |
| Core designation | | WH/BN, GN/YE, GY/PK, BU/RD, BK/VT, GY-PK/RD-BU | WH/BN, GN/YE, GY/PK, BU/RD, BK/VT |
| Sheath color | | Gray similar to RAL 6018 | |
| Approval(s) | | DESINA / VDE / cULus | |
| Capacitance core/shield | nF/km | 100 | |
| Capacitance core/core | nF/km | 55 | |
| Halogen-free | | yes | |
| Silicon-free | | yes | |
| CFC-free | | yes | |
| Table continued on next page | | | |

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **Nexans** | |
| Inner insulation (core) | | PP | |
| Outer insulation (sheath) | | TPE-U | |
| Flame-inhibiting/self-extinguishing | | yes | |
| Conductor material | | E-Cu blank | |
| Shield | | Braided tinned Cu shield | |
| Weight | kg/km | 130 | 120 |
| Minimum bending cycles | | ≥ 5 million | |

## 11.24 Cable specification of forced cooling fan cables

### Fixed installation of forced cooling fan cables

| Accessory designation | | VR |
|---|---|---|
| **Cable cross sections** | | **3 x 1 mm$^2$** |
| **Manufacturer** | | **Lapp** |
| Manufacturer designation | | Ölflex 110 Classic |
| Operating voltage $V_0$ /V AC | V | 300 / 500 |
| Temperature range | °C | -30 to +70 |
| Maximum temperature | °C | + 70 |
| Minimum bending radius | mm | 24 |
| Diameter D | mm | 6.0 ± 0.3 |
| Core designation | | VDE 0293 |
| Sheath color | | Silver gray, RAL 7001 |
| Approval(s) | | VDE |
| Capacitance core/shield | nF/km | - |
| Capacitance core/core | nF/km | - |
| Halogen-free | | no |
| Silicon-free | | yes |
| CFC-free | | yes |
| Inner insulation (core) | | PVC |
| Outer insulation (sheath) | | PVC |
| Flame-inhibiting/self-extinguishing | | no |
| Conductor material | | Cu blank |
| Shield | | - |
| Weight (cable) | kg/km | 65 |

### *Cable carrier installation of forced cooling fan cables*

| **Accessory designation** | | **VR** |
|---|---|---|
| **Cable cross sections** | | **3 x 1 mm$^2$** |
| **Manufacturer** | | **Nexans** |
| Manufacturer designation | | PSL 3 x 1.0 |
| Operating voltage $V_0$ /V AC | V | 300 |
| Temperature range | °C | - 30 to + 70 |
| Maximum temperature | °C | + 90 (on conductor) |
| Minimum bending radius | mm | 45 |
| Diameter D | mm | 5.7 ± 0.2 |
| Maximum acceleration | m/s$^2$ | 10 |
| Maximum velocity | m/min | 50 |
| Core designation | | 2 x WH with digit + 1 x GN/YE |
| Sheath color | | Black RAL 9005 |
| Approval(s) | | VDE / UL |
| Capacitance core/shield | nF/km | - |
| Capacitance core/core | nF/km | - |
| Halogen-free | | yes |
| Silicon-free | | yes |
| CFC-free | | yes |
| Inner insulation (core) | | TPM |
| Outer insulation (sheath) | | TPE-U |
| Flame-inhibiting/self-extinguishing | | yes |
| Conductor material | | E-Cu blank |
| Shield | | - |
| Weight | kg/km | 50 |
| Minimum bending cycles | | ≥ 5 million |

## 11.25 Crimp tools

An alternative for purchasing the prefabricated cables from SEW-EURODRIVE for motors with plug connectors is to purchase the required plug connectors.

In this case, the customers have to wire the plug connectors themselves. SEW-EURODRIVE offers the matching crimping tools to ensure correct connection of cable core and contact. Please quote the required part number in your order.

### *Power and brake contacts of CMP servomotors*

| **Tools required for assembly** | | | |
|---|---|---|---|
| **Type** | **for** | **SEW part number** | **Figure** |
| Crimping pliers | | 019 243 0 |  |
| For power connector SM1 / SB1 | | | |
| Positioner | Motor contact<br>2 mm ∅<br>Core cross section<br>0.35 - 4 $mm^2$ | 019 245 7 | |
| | Brake contact<br>1mm ∅<br>Core cross section<br>0.14 - 1 $mm^2$ | 019 244 9 | |
| For power connector SMB / SBB | | | |
| Crimping pliers | | 016 243 0 | |
| Positioner | Motor contact<br>2 mm ∅<br>Core cross section<br>0.35 - 4 $mm^2$ | 019 245 7 | |
| Crimping pliers | | 029 461 65 | |
| Positioner | Brake contact<br>1mm ∅<br>Core cross section<br>1.5 - 4 $mm^2$ | 032 560 65 | |
| Positioner | Brake contact<br>1mm ∅<br>Core cross section<br>6 - 10 $mm^2$ | 032 560 65 | |
| **Tools required for disassembly** | | | |
| Removal tool | Motor contact<br>2 mm ∅ | 019 247 3 |  |
| | Brake contact<br>1 mm ∅ | 019 246 5 | |
| Removal tool [1] | Insulator | 019 248 1 |  |

1) The removal tool is only required for **removal on the motor end**.

### *Resolver RH1M encoder system, Hiperface® single and multi turn AS1H and ES1H*

| Tools required for assembly | | | |
|---|---|---|---|
| **Type** | **for** | **SEW part number** | **Figure** |
| Crimping pliers | | 019 243 0 |  |
| Positioner | Contact 1 mm ∅<br>Core cross section 0.06 - 1 $mm^2$ | 019 244 9 | |
| **Tools required for removal** | | | |
| Removal tool | Contact 1 mm ∅<br>Core cross section 0.06 - 1 $mm^2$ | 019 246 5 |  |
| Removal tool 1) | Insulator | 019 248 1 |  |

1) The removal tool is only required for **removal on the motor end**.

# 12 CFM Servomotors

## *12.1 Key to the data tables*

The following table lists the short symbols used in the "Technical Data" table.

| | |
|---|---|
| $n_N$ | Speed class |
| $M_0$ | Standstill torque |
| $I_0$ | Standstill current |
| $M_{DYN}$ | Dynamic limit torque of the servomotor |
| $I_{max}$ | Maximum permitted motor current |
| $M_{0VR}$ | Standstill torque with forced cooling fan |
| $I_{0VR}$ | Standstill current with forced cooling fan |
| $J_{mot}$ | Mass moment of inertia of the motor |
| $J_{bmot}$ | Mass moment of inertia of the brakemotor |
| $M_{B1}$ | Standard braking torque |
| $M_{B2}$ | Reduced braking torque |
| $W_{max1}$ | Maximum permitted braking work per braking operation |
| $W_{max2}$ | Maximum permitted braking work per braking operation with reduced braking torque |
| $L_1$ | Inductance of the winding |
| $R_1$ | Ohmic resistance of the winding |
| $U_{p0}$ | Internal voltage at 1000 rpm |
| $m_{mot}$ | Weight of the motor |
| $m_{bmot}$ | Weight of the brakemotor |

## 12.2 Technical data of CFM synchronous servomotors; 400 V system voltage

| $n_N$ | Motor | $M_0$ | $I_0$ | $M_{DYN}$ | $I_{max}$ | $M_{0VR}$ | $I_{0VR}$ | $J_{mot}$ | $J_{bmot}$ | $M_{B1}$ | $M_{B2}$ | $W_{max1}$ | $W_{max2}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| rpm | | Nm | A | Nm | A | Nm | A | $10^{-4}$ $kgm^2$ | | Nm | | kJ | |
| **2000** | **CFM71S** | 5 | 2.2 | 16.5 | 8.8 | 7.3 | 3.2 | 4.99 | 6.72 | 10 | 5 | 18 | 22 |
| | **CFM71M** | 6.5 | 3 | 21.5 | 12 | 9.4 | 4.2 | 6.4 | 8.13 | 14 | 7 | 15 | 20 |
| | **CFM71L** | 9.5 | 4.2 | 31.4 | 16.8 | 13.8 | 6.1 | 9.21 | 10.94 | 14 | 10 | 15 | 18 |
| | **CFM90S** | 11 | 4.9 | 39.6 | 19.6 | 16 | 7.1 | 18.2 | 22 | 28 | 14 | 17 | 24 |
| | **CFM90M** | 14.5 | 6.9 | 52.2 | 28 | 21 | 10 | 23.4 | 27.2 | 40 | 20 | 10.5 | 19.5 |
| | **CFM90L** | 21 | 9.9 | 75.6 | 40 | 30.5 | 14.4 | 33.7 | 37.5 | 40 | 28 | 10.5 | 17 |
| | **CFM112S** | 23.5 | 10 | 82.3 | 40 | 34 | 14.5 | 68.9 | 84.2 | 55 | 28 | 32 | 48 |
| | **CFM112M** | 31 | 13.5 | 108.5 | 54 | 45 | 19.6 | 88.9 | 104.2 | 90 | 40 | 18 | 44 |
| | **CFM112L** | 45 | 20 | 157.5 | 80 | 65 | 29 | 128.8 | 144.1 | 90 | 55 | 18 | 32 |
| | **CFM112H** | 68 | 30.5 | 238 | 122 | 95 | 42.5 | 188.7 | 204 | 90 | 55 | 18 | 32 |
| 3000 | **CFM71S** | 5 | 3.3 | 16.5 | 13.2 | 7.3 | 4.8 | 4.99 | 6.72 | 10 | 5 | 14 | 20 |
| | **CFM71M** | 6.5 | 4.3 | 21.5 | 17.2 | 9.4 | 6.2 | 6.4 | 8.13 | 14 | 7 | 11 | 18 |
| | **CFM71L** | 9.5 | 6.2 | 31.4 | 25 | 13.8 | 9 | 9.21 | 10.94 | 14 | 10 | 11 | 14 |
| | **CFM90S** | 11 | 7.3 | 39.6 | 29 | 16 | 10.6 | 18.2 | 22 | 28 | 14 | 10 | 20 |
| | **CFM90M** | 14.5 | 10.1 | 52.2 | 40 | 21 | 14.6 | 23.4 | 27.2 | 40 | 20 | 4.5 | 15 |
| | **CFM90L** | 21 | 14.4 | 75.6 | 58 | 30.5 | 21 | 33.7 | 37.5 | 40 | 28 | 4.5 | 10 |
| | **CFM112S** | 23.5 | 15 | 82.3 | 60 | 34 | 22 | 68.9 | 84.2 | 55 | 28 | 18 | 36 |
| | **CFM112M** | 31 | 20.5 | 108.5 | 82 | 45 | 30 | 88.9 | 104.2 | 90 | 40 | 7 | 32 |
| | **CFM112L** | 45 | 30 | 157.5 | 120 | 65 | 44 | 128.8 | 144.1 | 90 | 55 | 7 | 18 |
| | **CFM112H** | 68 | 43 | 238 | 172 | 95 | 60 | 188.7 | 204 | 90 | 55 | 7 | 18 |
| 4500 | **CFM71S** | 5 | 4.9 | 16.5 | 19.6 | 7.3 | 7.2 | 4.99 | 6.72 | 10 | 5 | 10 | 16 |
| | **CFM71M** | 6.5 | 6.6 | 21.5 | 26 | 9.4 | 9.6 | 6.4 | 8.13 | 14 | 7 | 6 | 14 |
| | **CFM71L** | 9.5 | 9.6 | 31.4 | 38 | 13.8 | 14 | 9.21 | 10.94 | 14 | 10 | 6 | 10 |
| | **CFM90S** | 11 | 11.1 | 39.6 | 44 | 16 | 16.2 | 18.2 | 22 | 28 | 14 | 5 | 15 |
| | **CFM90M** | 14.5 | 14.7 | 52.2 | 59 | 21 | 21.5 | 23.4 | 27.2 | 40 | 20 | 3 | 9 |
| | **CFM90L** | 21 | 21.6 | 75.6 | 86 | 30.5 | 31.5 | 33.7 | 37.5 | 40 | 28 | 3 | 5 |
| | **CFM112S** | 23.5 | 22.5 | 82.3 | 90 | 34 | 32.5 | 68.9 | 84.2 | 55 | 25 | 11 | 22 |
| | **CFM112M** | 31 | 30 | 108.5 | 120 | 45 | 44 | 88.9 | 104.2 | 90 | 40 | 4 | 18 |
| | **CFM112L** | 45 | 46 | 157.5 | 184 | 65 | 67 | 128.8 | 144.1 | 90 | 55 | 4 | 11 |
| | **CFM112H** | 68 | 66 | 238 | 264 | 95 | 92 | 188.7 | 204 | 90 | 55 | 4 | 11 |
| 6000 | **CFM71S** | 5 | 6.5 | 16.5 | 26 | 7.3 | 9.5 | 4.99 | - | - | - | - | - |
| | **CFM71M** | 6.5 | 8.6 | 21.5 | 34 | 9.4 | 12.5 | 6.4 | - | - | - | - | - |
| | **CFM71L** | 9.5 | 12.5 | 31.4 | 50 | 13.8 | 18.2 | 9.21 | - | - | - | - | - |
| | **CFM90S** | 11 | 14.5 | 39.6 | 58 | 16 | 21 | 18.2 | - | - | - | - | - |
| | **CFM90M** | 14.5 | 19.8 | 52.2 | 79 | 21 | 29 | 23.4 | - | - | - | - | - |
| | **CFM90L** | 21 | 29.5 | 75.6 | 118 | 30.5 | 43 | 33.7 | - | - | - | - | - |

| $n_N$ | Motor | $L_1$ | $R_1$ | $U_{p0}$ | $m_{mot}$ | $m_{bmot}$ |
|---|---|---|---|---|---|---|
| rpm | | mH | mΩ | V/1000 rpm | kg | |
| **2000** | **CFM71S** | 52 | 7090 | 151 | 9.5 | 11.8 |
| | **CFM71M** | 36 | 4440 | 148 | 10.8 | 13.0 |
| | **CFM71L** | 24 | 2500 | 152 | 13.0 | 15.3 |
| | **CFM90S** | 18 | 1910 | 147 | 15.7 | 19.6 |
| | **CFM90M** | 12.1 | 1180 | 141 | 17.8 | 21.6 |
| | **CFM90L** | 8.4 | 692 | 146 | 21.9 | 26.5 |
| | **CFM112S** | 10 | 731 | 155 | 26.2 | 31.8 |
| | **CFM112M** | 7.5 | 453 | 153 | 30.5 | 36.0 |
| | **CFM112L** | 4.6 | 240 | 151 | 39.3 | 44.9 |
| | **CFM112H** | 2.6 | 115 | 147 | 54.2 | 59.8 |
| 3000 | **CFM71S** | 23 | 3150 | 101 | 9.5 | 11.8 |
| | **CFM71M** | 16 | 2000 | 100 | 10.8 | 13.0 |
| | **CFM71L** | 11 | 1120 | 102 | 13.0 | 15.3 |
| | **CFM90S** | 8.1 | 838 | 98 | 15.7 | 19.6 |
| | **CFM90M** | 5.7 | 533 | 96 | 17.8 | 21.6 |
| | **CFM90L** | 3.9 | 324 | 99 | 21.9 | 26.5 |
| | **CFM112S** | 4.6 | 325 | 103 | 26.2 | 31.8 |
| | **CFM112M** | 3.1 | 193 | 99 | 30.5 | 36.0 |
| | **CFM112L** | 2 | 103 | 101 | 39.3 | 44.9 |
| | **CFM112H** | 1.3 | 57 | 104 | 54.2 | 59.8 |
| 4500 | **CFM71S** | 10 | 1380 | 66 | 9.5 | 11.8 |
| | **CFM71M** | 6.9 | 828 | 64 | 10.8 | 13.0 |
| | **CFM71L** | 4.9 | 446 | 65 | 13.0 | 15.3 |
| | **CFM90S** | 3.45 | 358 | 64 | 15.7 | 19.6 |
| | **CFM90M** | 2.65 | 249 | 65 | 17.8 | 21.6 |
| | **CFM90L** | 1.73 | 148 | 66 | 21.9 | 26.5 |
| | **CFM112S** | 2 | 149 | 69 | 26.2 | 31.8 |
| | **CFM112M** | 1.5 | 92 | 68 | 30.5 | 36.0 |
| | **CFM112L** | 0.85 | 44 | 66 | 39.3 | 44.9 |
| | **CFM112H** | 0.54 | 24 | 67 | 54.2 | 59.8 |
| 6000 | **CFM71S** | 5.75 | 780 | 50 | 9.5 | - |
| | **CFM71M** | 3.93 | 493 | 49 | 10.8 | - |
| | **CFM71L** | 2.68 | 277 | 50 | 13.0 | - |
| | **CFM90S** | 2.03 | 212 | 49 | 15.7 | - |
| | **CFM90M** | 1.48 | 136 | 48 | 17.8 | - |
| | **CFM90L** | 0.93 | 77 | 48 | 21.9 | - |

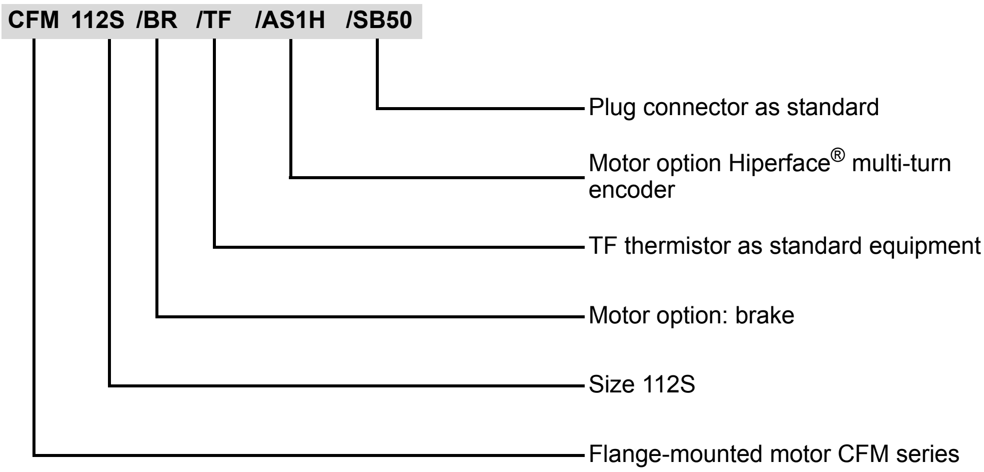
## 12.3 Technical data CFM synchronous servomotors; 230 V system voltage

| $n_N$ | Motor | $M_0$ | $I_0$ | $M_{DYN}$ | $I_{max}$ | $M_{0VR}$ | $I_{0VR}$ | $J_{mot}$ | $J_{bmot}$ | $M_{B1}$ | $M_{B2}$ | $W_{max1}$ | $W_{max2}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| rpm | | Nm | A | Nm | A | Nm | A | $10^{-4}$ kgm$^2$ | | Nm | | kJ | |
| 2000 | CFM71S | 5 | 3.95 | 16.5 | 15.8 | 7.3 | 5.7 | 4.99 | 6.72 | 10 | 5 | 18 | 22 |
| | CFM71M | 6.5 | 5.3 | 21.5 | 21 | 9.4 | 7.7 | 6.4 | 8.13 | 14 | 7 | 15 | 20 |
| | CFM71L | 9.5 | 7.4 | 31.4 | 29.5 | 13.8 | 10.7 | 9.21 | 10.94 | 14 | 10 | 15 | 18 |
| | CFM90S | 11 | 8.7 | 39.6 | 35 | 16 | 12.6 | 18.2 | 22 | 28 | 14 | 17 | 24 |
| | CFM90M | 14.5 | 12.1 | 52.2 | 48.5 | 21 | 17.5 | 23.4 | 27.2 | 40 | 20 | 10.5 | 19.5 |
| | CFM90L | 21 | 17.1 | 75.6 | 68 | 30.5 | 25 | 33.7 | 37.5 | 40 | 28 | 10.5 | 17 |
| | CFM112S | 23.5 | 18 | 82.3 | 72 | 34 | 26 | 68.9 | 84.2 | 55 | 28 | 32 | 48 |
| | CFM112M | 31 | 24.5 | 108.5 | 98 | 45 | 35.5 | 88.9 | 104.2 | 90 | 40 | 18 | 44 |
| | CFM112L | 45 | 35.5 | 157.5 | 142 | 65 | 51 | 128.8 | 144.1 | 90 | 55 | 18 | 32 |
| | CFM112H | 68 | 52 | 238 | 208 | 95 | 73 | 188.7 | 204. | 90 | 55 | 7 | 18 |
| 3000 | CFM71S | 5 | 5.9 | 16.5 | 23.5 | 7.3 | 8.6 | 4.99 | 6.72 | 10 | 5 | 14 | 20 |
| | CFM71M | 6.5 | 7.6 | 21.5 | 30.5 | 9.4 | 11 | 6.4 | 8.13 | 14 | 7 | 11 | 18 |
| | CFM71L | 9.5 | 11.1 | 31.4 | 44.5 | 13.8 | 16.1 | 9.21 | 10.94 | 14 | 10 | 11 | 14 |
| | CFM90S | 11 | 12.7 | 39.6 | 51 | 16 | 18.4 | 18.2 | 22 | 28 | 14 | 10 | 20 |
| | CFM90M | 14.5 | 17.4 | 52.2 | 70 | 21 | 25 | 23.4 | 27.2 | 40 | 20 | 4.5 | 15 |
| | CFM90L | 21 | 25.5 | 75.6 | 102 | 30.5 | 37 | 33.7 | 37.5 | 40 | 28 | 4.5 | 10 |
| | CFM112S | 23.5 | 27 | 82.3 | 108 | 34 | 39 | 68.9 | 84.2 | 55 | 28 | 18 | 36 |
| | CFM112M | 31 | 35 | 108.5 | 140 | 45 | 51 | 88.9 | 104.2 | 90 | 40 | 7 | 32 |
| | CFM112L | 45 | 48 | 157.5 | 192 | 65 | 70 | 128.8 | 144.1 | 90 | 55 | 7 | 18 |
| | CFM112H | 68 | 73 | 238 | 292 | 95 | 102 | 188.7 | 204. | 90 | 55 | 7 | 18 |
| 4500 | CFM71S | 5 | 8.5 | 16.5 | 34 | 7.3 | 12.3 | 4.99 | 6.72 | 10 | 5 | 10 | 16 |
| | CFM71M | 6.5 | 11.3 | 21.5 | 45 | 9.4 | 16.4 | 6.4 | 8.13 | 14 | 7 | 6 | 14 |
| | CFM71L | 9.5 | 17.1 | 31.4 | 68 | 13.8 | 25 | 9.21 | 10.94 | 14 | 10 | 6 | 10 |
| | CFM90S | 11 | 18.9 | 39.6 | 76 | 16 | 27.5 | 18.2 | 22 | 28 | 14 | 5 | 15 |
| | CFM90M | 14.5 | 26 | 52.2 | 104 | 21 | 37.5 | 23.4 | 27.2 | 40 | 20 | 3 | 9 |
| | CFM90L | 21 | 39 | 75.6 | 156 | 30.5 | 57 | 33.7 | 37.5 | 40 | 28 | 3 | 5 |
| | CFM112S | 23.5 | 38.5 | 82.3 | 154 | 34 | 56 | 68.9 | 84.2 | 55 | 25 | 11 | 22 |
| | CFM112M | 31 | 54 | 108.5 | 216 | 45 | 78 | 88.9 | 104.2 | 90 | 40 | 4 | 18 |
| 6000 | CFM71S | 5 | 11.6 | 16.5 | 46.5 | 7.3 | 16.8 | 4.99 | - | - | - | - | - |
| | CFM71M | 6.5 | 14.1 | 21.5 | 56 | 9.4 | 20.5 | 6.4 | - | - | - | - | - |
| | CFM71L | 9.5 | 21.5 | 31.4 | 86 | 13.8 | 31 | 9.21 | - | - | - | - | - |
| | CFM90S | 11 | 23.5 | 39.6 | 94 | 16 | 34 | 18.2 | - | - | - | - | - |
| | CFM90M | 14.5 | 37 | 52.2 | 148 | 21 | 54 | 23.4 | - | - | - | - | - |
| | CFM90L | 21 | 51 | 75.6 | 204 | 30.5 | 74 | 33.7 | - | - | - | - | - |

| $n_N$ | Motor | $L_1$ | $R_1$ | $U_{p0}$ | $m_{mot}$ | $m_{bmot}$ |
|---|---|---|---|---|---|---|
| rpm | | mH | mΩ | V/1000 rpm | kg | |
| 2000 | **CFM71S** | 16.3 | 2188 | 85 | 9.5 | 11.8 |
| | **CFM71M** | 11.4 | 1394 | 83 | 10.8 | 13.0 |
| | **CFM71L** | 7.7 | 802 | 86 | 13.0 | 15.3 |
| | **CFM90S** | 5.7 | 593 | 83 | 15.7 | 19.6 |
| | **CFM90M** | 3.95 | 382 | 81 | 17.8 | 21.6 |
| | **CFM90L** | 2.80 | 236 | 85 | 21.9 | 26.5 |
| | **CFM112S** | 3.10 | 225 | 86 | 26.2 | 31.8 |
| | **CFM112M** | 2.25 | 127 | 84 | 30.5 | 36.0 |
| | **CFM112L** | 1.46 | 76 | 85 | 39.3 | 44.9 |
| | **CFM112H** | 0.88 | 38 | 86 | 54.2 | 59.8 |
| 3000 | **CFM71S** | 7.2 | 973 | 57 | 9.5 | 11.8 |
| | **CFM71M** | 5.2 | 642 | 57 | 10.8 | 13.0 |
| | **CFM71L** | 3.45 | 347 | 57 | 13.0 | 15.3 |
| | **CFM90S** | 2.7 | 271 | 57 | 15.7 | 19.6 |
| | **CFM90M** | 1.91 | 182 | 56 | 17.8 | 21.6 |
| | **CFM90L** | 1.24 | 105 | 56 | 21.9 | 26.5 |
| | **CFM112S** | 1.42 | 100 | 57 | 26.2 | 31.8 |
| | **CFM112M** | 1.08 | 67 | 58 | 30.5 | 36.0 |
| | **CFM112L** | 0.78 | 35 | 63 | 39.3 | 44.9 |
| | **CFM112H** | 0.45 | 20 | 61 | 54.2 | 59.8 |
| 4500 | **CFM71S** | 3.30 | 449 | 38 | 9.5 | 11.8 |
| | **CFM71M** | 2.35 | 278 | 37.5 | 10.8 | 13.0 |
| | **CFM71L** | 1.55 | 149 | 36.5 | 13.0 | 15.3 |
| | **CFM90S** | 1.19 | 124 | 37.5 | 15.7 | 19.6 |
| | **CFM90M** | 0.84 | 81 | 36.5 | 17.8 | 21.6 |
| | **CFM90L** | 0.53 | 48 | 36.5 | 21.9 | 26.5 |
| | **CFM112S** | 0.68 | 50 | 40.5 | 26.2 | 31.8 |
| | **CFM112M** | 0.465 | 28 | 38 | 30.5 | 36.0 |
| 6000 | **CFM71S** | 1.80 | 243 | 28 | 9.5 | - |
| | **CFM71M** | 1.47 | 175 | 30 | 10.8 | - |
| | **CFM71L** | 0.91 | 89 | 29 | 13.0 | - |
| | **CFM90S** | 0.77 | 78 | 30 | 15.7 | - |
| | **CFM90M** | 0.42 | 42 | 25.5 | 17.8 | - |
| | **CFM90L** | 0.31 | 26 | 28 | 21.9 | - |

## 12.4 Type designation

***Example***

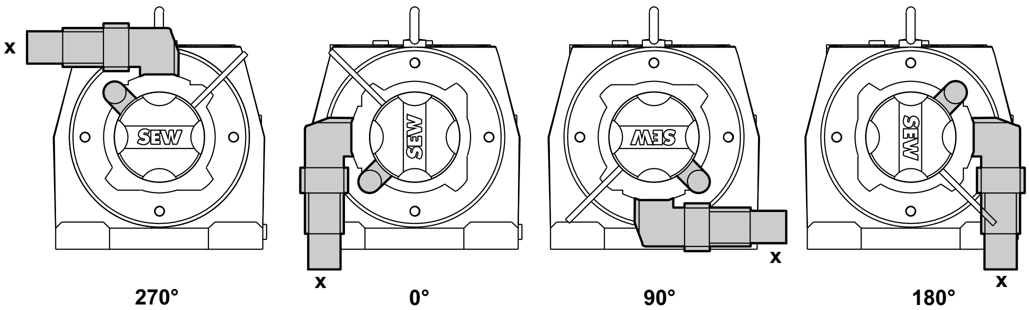



## 12.5 Important order information

***Plug connectors for CFM motors***

*Position of the power connector and the cable entry*

Possible positions of the power plug connector are 0°, 90°, 180° or 270° as viewed onto the B side of the motor (as viewed onto the fan end).

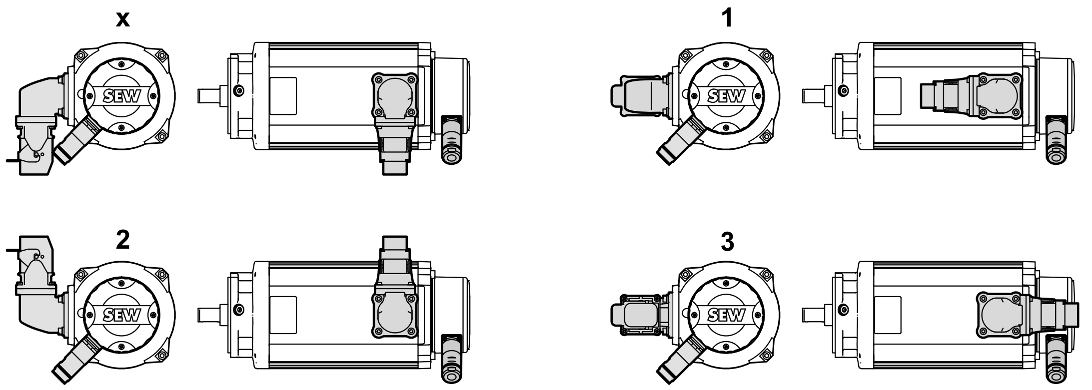



62884axx

*Position of the cable entry*

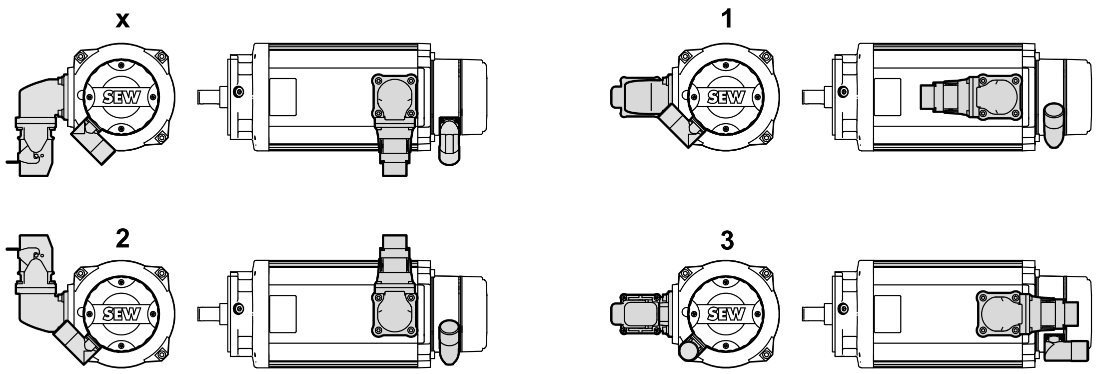
Positions "X", "1", "2" or "3" are possible with CFM motors ("X" = standard).

Cable entry position for CM..S.5:




63248AXX

Cable entry position for CM..S.6




63249AXX

Unless indicated otherwise, you will receive the power plug connector type 270° position with cable entry "3" and radial encoder plug (CM..S.5).

### Terminal box

*Position of the terminal box and the cable entry*

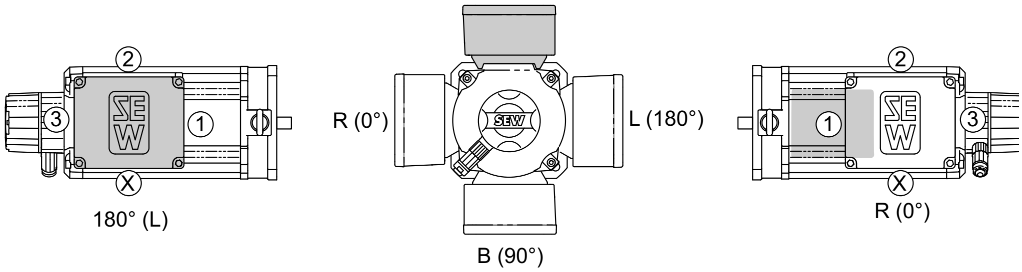
The product standard EN 60034 specifies that the following designations have to be used for terminal box positions:

- As viewed onto the output shaft = A end
- Designation as R (right), B (bottom), L (left) and T (top)

This new designation applies to motors without a gear unit in mounting position B3 (= M1). The previous designation is maintained for gearmotors.

The position of the motor terminal box has so far been specified with 0°, 90°, 180° or 270° as viewed onto the fan guard = B end.

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




62881AXX

Unless indicated otherwise, you will receive the terminal box type 0° with "X" cable entry, see page 305.

We recommend selecting cable entry "2" with mounting position M3.

**INFORMATION**

- The terminal box can only be rotated with the entire motor: 0°, 90° and 180°.
- The terminal box has a cable entry with positions "2", "3" and "X".
- The CM112H synchronous servomotor can only be ordered with terminal box.

| Position of the terminal box | R (0°) | B (90°) | L (180°) | T (270°) |
|---|---|---|---|---|
| Possible cable entries | X, 3 | X, 1, 3 | 1, 2 | X, 1, 3 |

## 12.6 Standards and regulations

***Conformance to standards***

Synchronous servomotors from SEW-EURODRIVE conform to the relevant standards and regulations, in particular to:

- IEC 60034-1, EN 60034-1.
  Rotating electrical machines, rating and performance.
- EN 60529
  Degrees of protection provided by enclosures (IP code).
- EN 50 262
  Metric threads of cable glands.
- DIN 42925
  Terminal box cable entries for three-phase AC motors.
- DIN 44082 / DIN 44081
  Thermistors; PTC, technical terms and tests.

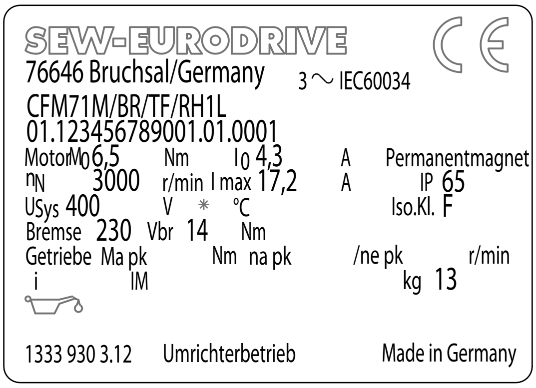
***Rated data***

The specific data of a synchronous servomotor are:

- Size
- Torque at standstill
- Rated speed
- Rated current
- Enclosure
- Thermal classification

This data is given on the nameplate of the motor. In accordance with IEC 60034 (EN 60034), the nameplate data apply to a maximum ambient temperature of 40 °C and a maximum altitude of 1000 m above sea level.

*Motor nameplate*




68126axx

## 12.7 Circuit breakers and protective equipment

***Preventive measures***

Permanent-field synchronous servomotors must be protected against overloads and short circuits.

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

The surface temperature may be in excess of 100 °C during operation. The brake housing can heat up to 90 °C with released brake and deenergized motor. This is why you must provide for preventive measures against accidental contact.

The motors are available with temperature detection (TF or KTY) to protect the motor winding against overheating.

As standard, the motors are equipped with **TF temperature sensors**.

TF temperature sensors comply with DIN 44081 or DIN 44082. Motor sizes CFM71 - CFM112 are also available with **KTY temperature sensors**.

The TF signal can be evaluated directly in the inverter when using a MOVIDRIVE® inverter.

Temperature sensors will respond at the maximum permitted winding temperature. Integrate the contacts of the temperature monitoring device into the monitoring circuit.

***EMC measures***

SEW-EURODRIVE synchronous servomotors are components for installation in machinery and systems. The designer of the machine or system is responsible for complying with the EMC Directive 2004/108/EC. Refer to the SEW publication "Drive Engineering - Practical Implementation, Drive Planning" for detailed information about this topic.

*Brakemotors*

Install the brake cables of brakemotors separately from the other power cables, maintaining a distance of at least 200 mm. Joint installation is only permitted if either the brake cable or the power cable is shielded.

*Encoder connection*

Observe the following instructions when connecting an encoder:

- Use a shielded cable with twisted pair conductors only.
- Connect the shield to the PE potential on both ends over a large surface area.
- Route signal cables separately from power cables or brake cables (minimum distance 200 mm).

*Thermal motor protection*

Install the connecting lead of TF / KTY separately from other power cables, maintaining a distance of at least 200 mm. Joint installation is only permitted if either the TF/KTY cable or the power cable is shielded.

## 12.8 Mechanical/electrical characteristics

| Design | CFM71-112 | |
|---|---|---|
| | **Standard** | **Optional** |
| **Degree of protection** | IP65 | - |
| **Thermal class** | F | - |
| **Motor protection** | TF | KTY |
| **Connection** | Plug connector | Terminal box |
| **Shaft end** | Smooth | With key, domed type A<br>RZ<br>Others on request |
| **Ambient temperature** | -20 °C to + 40 °C | -40 °C to + 60 °C |
| **Mounting position** | 270 ° | Any |
| **Standardization** | CE<br>VDE | CSA<br>NEMA<br>UL |
| **Noise levels / (EN 60034)** | Below specified value | - |
| **Feedback** | 2-pole resolver | 6-pole resolver<br>2-pole resolver[1)]<br>Encoder |
| **Brake** | - | BR |
| **Cooling** | Self-cooling | VR forced cooling fan |
| **2nd shaft end** | - | with key |
| **Vibration class** | "N" to EN/IEC 60034.... | |

1) phase-optimized

## 12.9 Overview of combinations: CFM with MOVIDRIVE®, 400 V system voltage

***Combination overview of synchronous servomotors/servo inverters for 400 V system voltage, peak torque in Nm***

*1. Rated speed $n_N$ = 2000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **0005** | **0008** | **0011** | **0014** | **0015** | **0022** | **0030** | **0040** | **0055** | **0075** | **0110** | **0150** | **0220** | **0300** | **0370** | **0450** |
| **CM71S** | $M_{max}$ Nm | 8.9 | 10.5 | 13.1 | 15.6 | 12.7 | 15.9 | 16.5 | | | | | | | | | |
| **CM71M** | $M_{max}$ Nm | 8.6 | 10.3 | 13.1 | 16.2 | 12.7 | 16.7 | 19.8 | 21.5 | | | | | | | | |
| **CM71L** | $M_{max}$ Nm | | 10.8 | 13.9 | 17.7 | 13.5 | 18.2 | 22.5 | 28.4 | 31.4 | | | | | | | |
| **CM90S** | $M_{max}$ Nm | | | 13.9 | 17.8 | 13.4 | 18.4 | 23.2 | 30.6 | 38.2 | 39.4 | | | | | | |
| **CM90M** | $M_{max}$ Nm | | | | 16.8 | 12.6 | 17.3 | 21.9 | 29.5 | 38.0 | 46.9 | 52.5 | | | | | |
| **CM90L** | $M_{max}$ Nm | | | | | | 17.5 | 22.2 | 30.1 | 39.3 | 49.6 | 70.3 | 75.8 | | | | |
| **CM112S** | $M_{max}$ Nm | | | | | | 19.3 | 24.6 | 33.4 | 43.6 | 54.8 | 76.2 | 81.9 | | | | |
| **CM112M** | $M_{max}$ Nm | | | | | | | 23.9 | 32.6 | 42.9 | 54.7 | 79.3 | 99.6 | 108.0 | | | |
| **CM112L** | $M_{max}$ Nm | | | | | | | | | 42.0 | 53.9 | 80.3 | 104.9 | 141.5 | 156.8 | | |
| **CM112H** | $M_{max}$ Nm | | | | | | | | | | 53.2 | 80.1 | 106.5 | 150.3 | 189.2 | 220.1 | 237.0 |

*2. Rated speed $n_N$ = 3000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **0005** | **0008** | **0011** | **0014** | **0015** | **0022** | **0030** | **0040** | **0055** |
| **CM71S** | $M_{max}$ Nm | 6.0 | 7.2 | 9.2 | 11.6 | 8.9 | 11.9 | 14.3 | 16.5 | |
| **CM71M** | $M_{max}$ Nm | | 7.2 | 9.3 | 11.9 | 9.0 | 12.2 | 15.1 | 19.1 | 21.5 |
| **CM71L** | $M_{max}$ Nm | | | 9.5 | 12.2 | 9.2 | 12.6 | 15.9 | 21.0 | 26.2 |
| **CM90S** | $M_{max}$ Nm | | | | 12.0 | 9.0 | 12.4 | 15.7 | 21.2 | 27.4 |
| **CM90M** | $M_{max}$ Nm | | | | | | 11.8 | 15.0 | 20.4 | 26.6 |
| **CM90L** | $M_{max}$ Nm | | | | | | | | 20.7 | 27.3 |
| **CM112S** | $M_{max}$ Nm | | | | | | | | 22.2 | 29.3 |
| **CM112M** | $M_{max}$ Nm | | | | | | | | | 28.2 |

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **0075** | **0110** | **0150** | **0220** | **0300** | **0370** | **0450** | **0550** | **0750** |
| **CM71L** | $M_{max}$ Nm | 30.8 | 31.5 | | | | | | | |
| **CM90S** | $M_{max}$ Nm | 34.0 | 39.2 | | | | | | | |
| **CM90M** | $M_{max}$ Nm | 33.7 | 47.8 | 51.6 | | | | | | |
| **CM90L** | $M_{max}$ Nm | 34.7 | 51.1 | 65.6 | 75.6 | | | | | |
| **CM112S** | $M_{max}$ Nm | 37.4 | 54.8 | 69.8 | 81.9 | | | | | |
| **CM112M** | $M_{max}$ Nm | 36.2 | 54.0 | 70.7 | 95.7 | 108.0 | | | | |
| **CM112L** | $M_{max}$ Nm | 35.8 | 53.9 | 71.6 | 101.0 | 126.9 | 147.4 | 156.8 | | |
| **CM112H** | $M_{max}$ Nm | | 56.6 | 75.7 | 108.6 | 139.9 | 167.0 | 197.1 | 223.2 | 237.0 |

*3. Rated speed $n_N$ = 4500 rpm*

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0005 | 0008 | 0011 | 0014 | 0015 | 0022 | 0030 | 0040 |
| **CM71S** | $M_{max}$ Nm | | | 6.3 | 8.1 | 6.1 | 8.3 | 10.4 | 13.4 |
| **CM71M** | $M_{max}$ Nm | | | | 7.9 | 5.9 | 8.1 | 10.2 | 13.6 |
| **CM71L** | $M_{max}$ Nm | | | | | | 8.2 | 10.4 | 14.0 |
| **CM90S** | $M_{max}$ Nm | | | | | | | 10.4 | 14.1 |
| **CM90M** | $M_{max}$ Nm | | | | | | | | 14.0 |

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 | 0370 | 0450 | 0550 | 0750 | 0900 | 1100 |
| **CM71S** | $M_{max}$ Nm | 16.1 | 16.5 | | | | | | | | | | |
| **CM71M** | $M_{max}$ Nm | 17.1 | 20.3 | 21.3 | | | | | | | | | |
| **CM71L** | $M_{max}$ Nm | 18.1 | 22.5 | 30.3 | 31.2 | | | | | | | | |
| **CM90S** | $M_{max}$ Nm | 18.4 | 23.4 | 33.6 | 39.2 | | | | | | | | |
| **CM90M** | $M_{max}$ Nm | 18.4 | 23.5 | 34.6 | 44.5 | 52.1 | | | | | | | |
| **CM90L** | $M_{max}$ Nm | 18.2 | 23.3 | 34.7 | 45.8 | 63.4 | 75.0 | | | | | | |
| **CM112S** | $M_{max}$ Nm | 19.5 | 25.0 | 37.4 | 49.2 | 67.5 | 81.9 | | | | | | |
| **CM112M** | $M_{max}$ Nm | | 24.6 | 37.1 | 49.4 | 69.6 | 87.4 | 101.5 | 108.0 | | | | |
| **CM112L** | $M_{max}$ Nm | | | 35 | 46.8 | 67.2 | 86.9 | 104.1 | 123.5 | 140.7 | 156.8 | | |
| **CM112H** | $M_{max}$ Nm | | | | | 70.9 | 92.5 | 112.1 | 135.5 | 157.7 | 189.4 | 231.6 | 237.0 |

*4. Rated speed $n_N$ = 6000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-5_3 (AC 400/500 V units) in SERVO operating modes (P700) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0005 | 0008 | 0011 | 0014 | 0015 | 0022 | 0030 | 0040 | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 | 0370 | 0450 |
| **CM71S** | $M_{max}$ Nm | | | | 6.1 | 4.6 | 6.3 | 8.0 | 10.6 | 13.3 | 15.8 | 16.5 | | | | | |
| **CM71M** | $M_{max}$ Nm | | | | | | 6.2 | 7.9 | 10.6 | 13.7 | 16.8 | 21.3 | | | | | |
| **CM71L** | $M_{max}$ Nm | | | | | | | 8.0 | 10.8 | 14.1 | 17.9 | 25.2 | 30.7 | 31.4 | | | |
| **CM90S** | $M_{max}$ Nm | | | | | | | | 10.8 | 14.2 | 18.1 | 26.6 | 34.2 | 39.4 | | | |
| **CM90M** | $M_{max}$ Nm | | | | | | | | | 13.7 | 17.5 | 26.1 | 34.3 | 46.9 | 51.9 | | |
| **CM90L** | $M_{max}$ Nm | | | | | | | | | | 17.1 | 25.6 | 33.9 | 48.0 | 60.9 | 71.3 | 75.2 |

## 12.10 Combination overview CFM with MOVIDRIVE®, 230 V system voltage

***Combination overview of synchronous servomotors/servo inverters for 230 V system voltage, peak torque in Nm***

*1. Rated speed $n_N$ = 2000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-2_3 (AC 230 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0015 | 0022 | 0037 | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 |
| **CM71S** | $M_{max}$ Nm | 12.9 | 14.6 | 16.5 | | | | | | |
| **CM71M** | $M_{max}$ Nm | 13.1 | 15.1 | 21.4 | | | | | | |
| **CM71L** | $M_{max}$ Nm | 14.0 | 16.3 | 25.6 | 31.3 | | | | | |
| **CM90S** | $M_{max}$ Nm | 13.8 | 16.2 | 26.8 | 38.0 | 39.6 | | | | |
| **CM90M** | $M_{max}$ Nm | 13.1 | 15.4 | 25.8 | 38.2 | 48.1 | 52.0 | | | |
| **CM90L** | $M_{max}$ Nm | | 15.8 | 26.6 | 40.0 | 51.9 | 70.9 | 74.9 | | |
| **CM112S** | $M_{max}$ Nm | | | 28.3 | 42.7 | 55.1 | 74.7 | 81.9 | | |
| **CM112M** | $M_{max}$ Nm | | | 27.4 | 41.6 | 54.6 | 76.8 | 94.4 | 108.0 | |
| **CM112L** | $M_{max}$ Nm | | | | 41.7 | 55.0 | 79.2 | 100.2 | 139.3 | 156.8 |
| **CM112H** | $M_{max}$ Nm | | | | | 56.6 | 82.2 | 105.5 | 153 | 177.9 |

*2. Rated speed $n_N$ = 3000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-2_3 (AC 230 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0015 | 0022 | 0037 | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 |
| **CM71S** | $M_{max}$ Nm | 9.1 | 10.6 | 15.8 | 16.5 | | | | | |
| **CM71M** | $M_{max}$ Nm | 9.3 | 10.9 | 17.2 | 21.5 | | | | | |
| **CM71L** | $M_{max}$ Nm | 9.4 | 11.0 | 18.2 | 25.8 | 31.0 | 31.4 | | | |
| **CM90S** | $M_{max}$ Nm | 9.5 | 11.2 | 18.7 | 27.7 | 35.1 | 39.5 | | | |
| **CM90M** | $M_{max}$ Nm | | | 18.1 | 27.2 | 35.3 | 48.4 | 52.2 | | |
| **CM90L** | $M_{max}$ Nm | | | 17.9 | 27.1 | 35.5 | 50.5 | 63.1 | 75.2 | |
| **CM112S** | $M_{max}$ Nm | | | 18.8 | 28.7 | 37.7 | 53.4 | 66.3 | 81.9 | |
| **CM112M** | $M_{max}$ Nm | | | | 29.1 | 38.4 | 55.3 | 69.9 | 97.0 | 108.0 |
| **CM112L** | $M_{max}$ Nm | | | | | 40.6 | 58.9 | 75.4 | 108.8 | 125.9 |
| **CM112H** | $M_{max}$ Nm | | | | | | 58.4 | 75.3 | 111.1 | 131.1 |

*3. Rated speed $n_N$ = 4500 rpm*

| Motor | | MOVIDRIVE® MDX61B...-2_3 (AC 230 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0015 | 0022 | 0037 | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 |
| **CM71S** | $M_{max}$ Nm | 6.4 | 7.5 | 12.1 | 16.3 | 16.5 | | | | |
| **CM71M** | $M_{max}$ Nm | 6.3 | 7.4 | 12.2 | 17.4 | 21.0 | 21.4 | | | |
| **CM71L** | $M_{max}$ Nm | | 7.2 | 12.1 | 17.9 | 22.8 | 29.9 | 31.3 | | |
| **CM90S** | $M_{max}$ Nm | | | 12.6 | 19.0 | 24.8 | 34.4 | 39.6 | | |
| **CM90M** | $M_{max}$ Nm | | | 12.1 | 18.3 | 24.1 | 34.3 | 42.8 | 52.0 | |
| **CM90L** | $M_{max}$ Nm | | | | 17.7 | 23.4 | 33.7 | 42.9 | 61.4 | 70.5 |
| **CM112S** | $M_{max}$ Nm | | | | 20.0 | 26.5 | 38.2 | 48.6 | 68.3 | 77.7 |
| **CM112M** | $M_{max}$ Nm | | | | | 24.8 | 36.1 | 46.3 | 67.4 | 78.5 |

*4. Rated speed $n_N$ = 6000 rpm*

| Motor | | MOVIDRIVE® MDX61B...-2_3 (AC 230 V units) in SERVO operating modes (P700) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0015 | 0022 | 0037 | 0055 | 0075 | 0110 | 0150 | 0220 | 0300 |
| **CM71S** | $M_{max}$ Nm | 4.7 | 5.6 | 9.2 | 13.2 | 15.9 | 16.6 | | | |
| **CM71M** | $M_{max}$ Nm | 5.0 | 5.9 | 9.9 | 14.6 | 18.2 | 21.4 | | | |
| **CM71L** | $M_{max}$ Nm | | | 9.6 | 14.5 | 18.7 | 25.6 | 30.3 | 31.4 | |
| **CM90S** | $M_{max}$ Nm | | | 10.2 | 15.4 | 20.1 | 28.5 | 35.3 | 39.4 | |
| **CM90M** | $M_{max}$ Nm | | | | 12.9 | 17.0 | 24.5 | 31.2 | 44.3 | 50.6 |
| **CM90L** | $M_{max}$ Nm | | | | | 17.9 | 25.9 | 33.1 | 48.3 | 56.5 |

## 12.11 Combinations: CFM with MOVIAXIS®, 400 V system voltage

***Combination overview of synchronous servomotors/servo inverters for 400 V system voltage, peak torque in Nm***

*1. Rated speed $n_N$ = 2000 rpm*

| **Motor** | | | **Assignment to MOVIAXIS® MXA size** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **1** | | **2** | | **3** | | **4** | **5** | **6** |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| **CM71S** | $I_{max}$ | % $I_N$ | 250 | 220 | | | | | | | | |
| | $M_{max}$ | Nm | 10.9 | 16.5 | | | | | | | | |
| **CM71M** | $I_{max}$ | % $I_N$ | | 250 | 150 | | | | | | | |
| | $M_{max}$ | Nm | | 19.2 | 21.5 | | | | | | | |
| **CM71L** | $I_{max}$ | % $I_N$ | | 250 | 210 | | | | | | | |
| | $M_{max}$ | Nm | | 21.6 | 31.4 | | | | | | | |
| **CM90S** | $I_{max}$ | % $I_N$ | | 250 | 245 | | | | | | | |
| | $M_{max}$ | Nm | | 22.1 | 39.4 | | | | | | | |
| **CM90M** | $I_{max}$ | % $I_N$ | | | 250 | 229 | | | | | | |
| | $M_{max}$ | Nm | | | 40.3 | 51.8 | | | | | | |
| **CM90L** | $I_{max}$ | % $I_N$ | | | 250 | 250 | 247 | | | | | |
| | $M_{max}$ | Nm | | | 41.8 | 60.6 | 75.1 | | | | | |
| **CM112S** | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | | | | | |
| | $M_{max}$ | Nm | | | 46.3 | 66.3 | 81.9 | | | | | |
| **CM112M** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 225 | | | | |
| | $M_{max}$ | Nm | | | | 67.4 | 86.6 | 108.0 | | | | |
| **CM112L** | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | | | |
| | $M_{max}$ | Nm | | | | | 88.7 | 126.9 | 156.8 | | | |
| **CM112H** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 250 | 191 | |
| | $M_{max}$ | Nm | | | | | | 132.0 | 171.4 | 234.4 | 237.0 | |

*2. Rated speed $n_N$ = 3000 rpm*

| **Motor** | | | **Assignment to MOVIAXIS® MXA size** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **1** | | **2** | | **3** | | **4** | **5** | **6** |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| **CM71S** | $I_{max}$ | % $I_N$ | | 250 | 165 | | | | | | | |
| | $M_{max}$ | Nm | | 13.8 | 16.5 | | | | | | | |
| **CM71M** | $I_{max}$ | % $I_N$ | | 250 | 215 | | | | | | | |
| | $M_{max}$ | Nm | | 14.5 | 21.5 | | | | | | | |
| **CM71L** | $I_{max}$ | % $I_N$ | | | 250 | 208 | | | | | | |
| | $M_{max}$ | Nm | | | 27.4 | 31.5 | | | | | | |
| **CM90S** | $I_{max}$ | % $I_N$ | | | 250 | 242 | | | | | | |
| | $M_{max}$ | Nm | | | 29.1 | 39.2 | | | | | | |
| **CM90M** | $I_{max}$ | % $I_N$ | | | 250 | 250 | 250 | 169 | | | | |
| | $M_{max}$ | Nm | | | 28.3 | 41.1 | 51.6 | 52.0 | | | | |
| **CM90L** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 242 | | | | |
| | $M_{max}$ | Nm | | | | 43.1 | 56.2 | 75.6 | | | | |
| **CM112S** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 250 | | | | |
| | $M_{max}$ | Nm | | | | 46.3 | 60.1 | 81.9 | | | | |
| **CM112M** | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 250 | 171 | | |
| | $M_{max}$ | Nm | | | | | 59.7 | 85.7 | 106.3 | 108.0 | | |
| **CM112L** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 250 | | |
| | $M_{max}$ | Nm | | | | | | 88.7 | 115.0 | 156.8 | | |
| **CM112H** | $I_{max}$ | % $I_N$ | | | | | | | | 250 | 250 | 172 |
| | $M_{max}$ | Nm | | | | | | | | 180.7 | 225.7 | 237.0 |

*3. Rated speed $n_N$ = 4500 rpm*

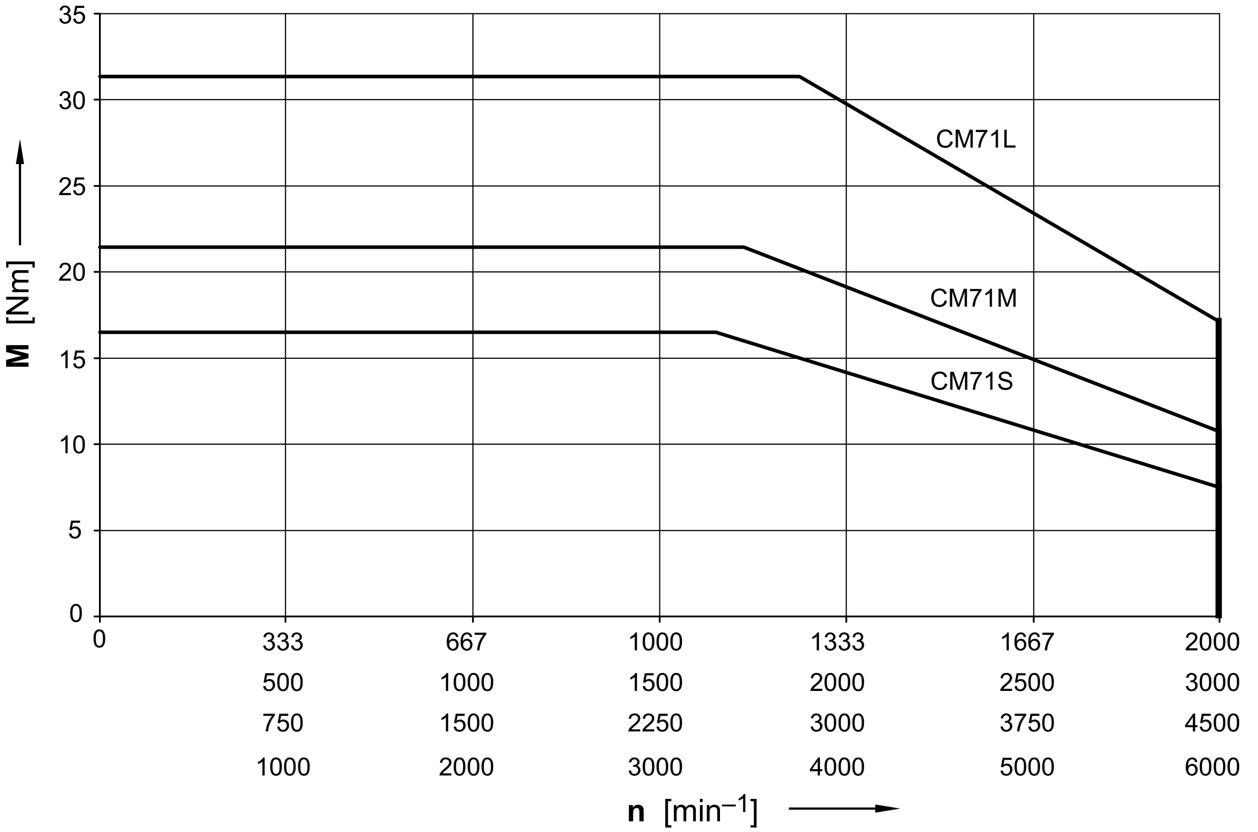
| Motor | | | Assignment to MOVIAXIS® MXA size | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | | 2 | | 3 | | 4 | 5 | 6 |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| **CM71S** | $I_{max}$ | % $I_N$ | | 250 | 245 | | | | | | | |
| | $M_{max}$ | Nm | | 9.9 | 16.5 | | | | | | | |
| **CM71M** | $I_{max}$ | % $I_N$ | | | 250 | 221 | | | | | | |
| | $M_{max}$ | Nm | | | 17.9 | 21.5 | | | | | | |
| **CM71L** | $I_{max}$ | % $I_N$ | | | 250 | 250 | 241 | | | | | |
| | $M_{max}$ | Nm | | | 19.2 | 26.8 | 31.5 | | | | | |
| **CM90S** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 185 | | | | |
| | $M_{max}$ | Nm | | | | 28.7 | 36.5 | 39.5 | | | | |
| **CM90M** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 246 | | | | |
| | $M_{max}$ | Nm | | | | 29.2 | 38.1 | 52.1 | | | | |
| **CM90L** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 179 | | |
| | $M_{max}$ | Nm | | | | | | 56.4 | 71.5 | 75.2 | | |
| **CM112S** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 188 | | |
| | $M_{max}$ | Nm | | | | | | 60.1 | 75.5 | 81.9 | | |
| **CM112M** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 250 | | |
| | $M_{max}$ | Nm | | | | | | 61.1 | 79.3 | 108.0 | | |
| **CM112L** | $I_{max}$ | % $I_N$ | | | | | | | | 250 | 250 | 184 |
| | $M_{max}$ | Nm | | | | | | | | 112.9 | 142.3 | 156.8 |
| **CM112H** | $I_{max}$ | % $I_N$ | | | | | | | | | 250 | 250 |
| | $M_{max}$ | Nm | | | | | | | | | 160.0 | 228.5 |

*4. Rated speed $n_N$ = 6000 rpm*

| Motor | | | Assignment to MOVIAXIS® MXA size | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | | 2 | | 3 | | 4 | 5 | 6 |
| **Type** | **$I_N$** | **A** | **2** | **4** | **8** | **12** | **16** | **24** | **32** | **48** | **64** | **100** |
| | **$I_{max}$** | **A** | **5** | **10** | **20** | **30** | **40** | **60** | **80** | **120** | **160** | **250** |
| **CM71S** | $I_{max}$ | % $I_N$ | | | 250 | 217 | | | | | | |
| | $M_{max}$ | Nm | | | 14.0 | 16.5 | | | | | | |
| **CM71M** | $I_{max}$ | % $I_N$ | | | 250 | 250 | 216 | | | | | |
| | $M_{max}$ | Nm | | | 14.5 | 19.8 | 21.5 | | | | | |
| **CM71L** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 208 | | | | |
| | $M_{max}$ | Nm | | | | 21.8 | 27.3 | 31.4 | | | | |
| **CM90S** | $I_{max}$ | % $I_N$ | | | | 250 | 250 | 242 | | | | |
| | $M_{max}$ | Nm | | | | 22.4 | 29.2 | 39.4 | | | | |
| **CM90M** | $I_{max}$ | % $I_N$ | | | | | 250 | 250 | 247 | | | |
| | $M_{max}$ | Nm | | | | | 28.9 | 41.8 | 51.9 | | | |
| **CM90L** | $I_{max}$ | % $I_N$ | | | | | | 250 | 250 | 246 | | |
| | $M_{max}$ | Nm | | | | | | 42.1 | 55.0 | 75.2 | | |

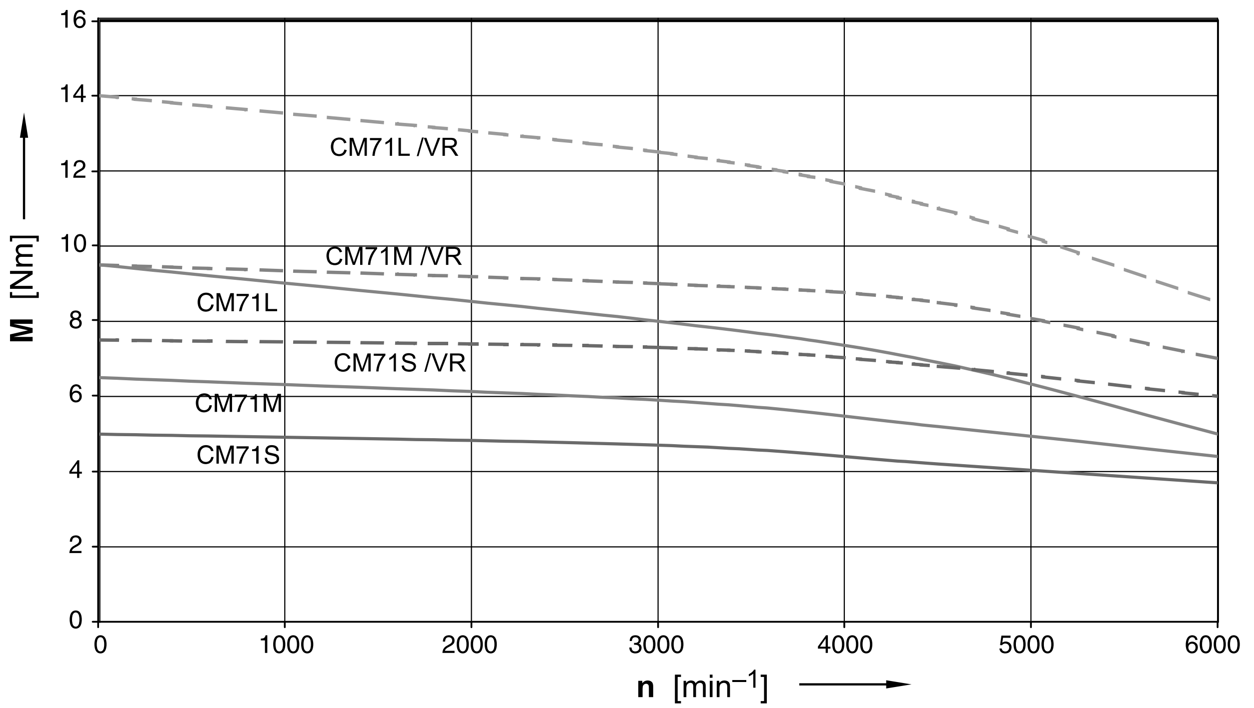
## 12.12 Dynamic and thermal limit characteristic curves

***CFM71*** Dynamic limit torques



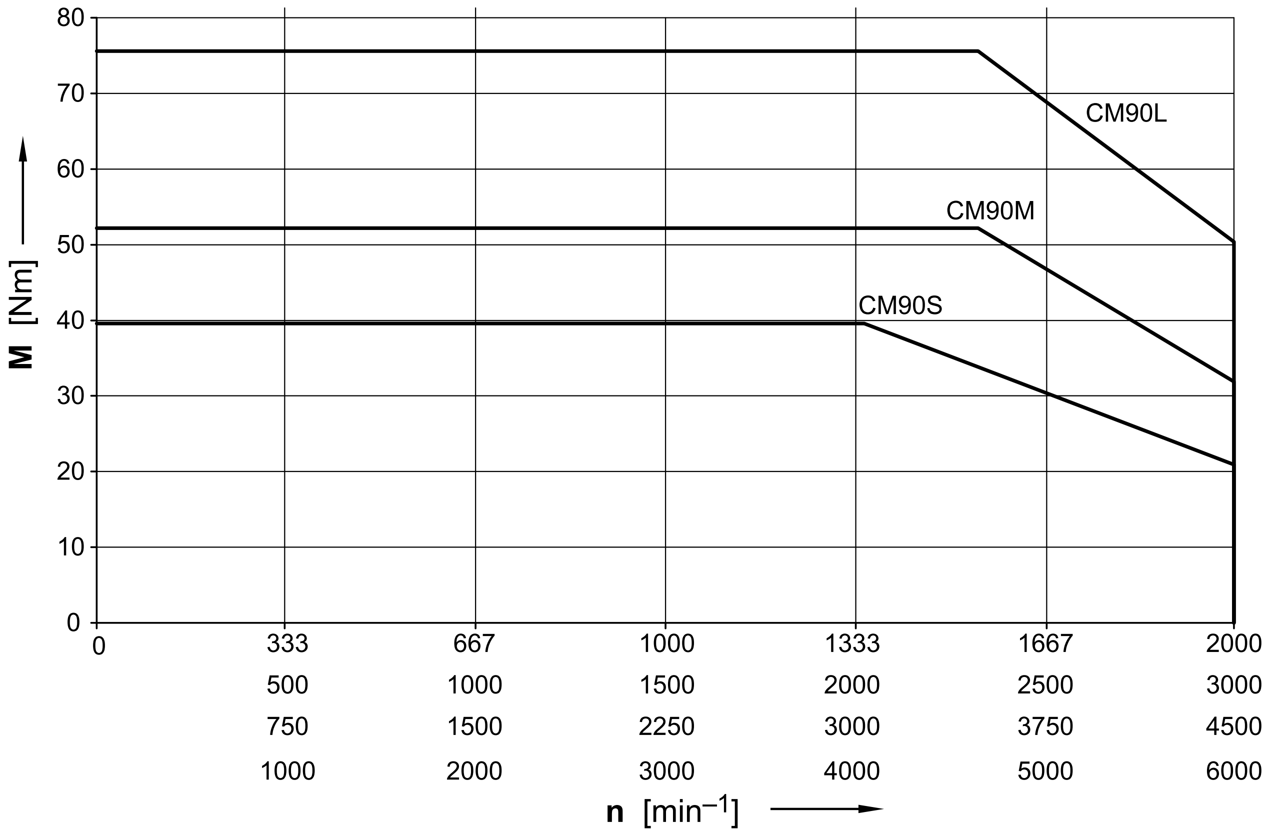

50439AXX

Thermal limit torques



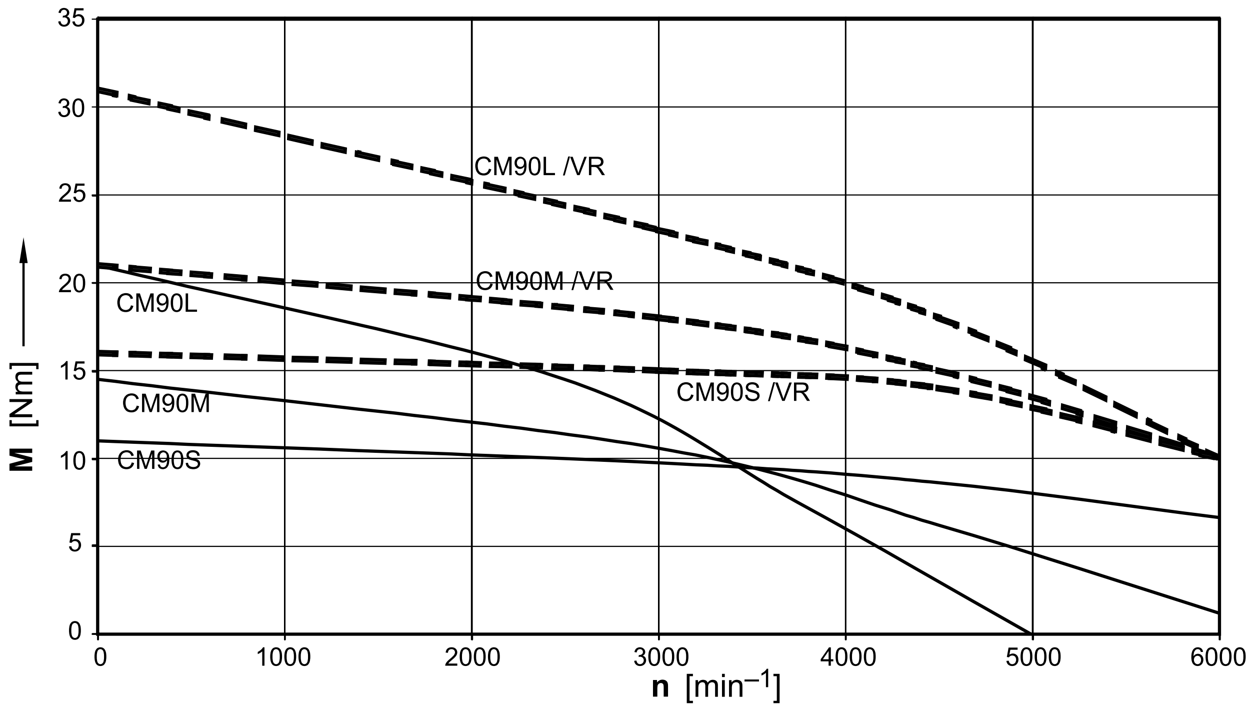

50438BXX

***CFM90*** Dynamic limit torques



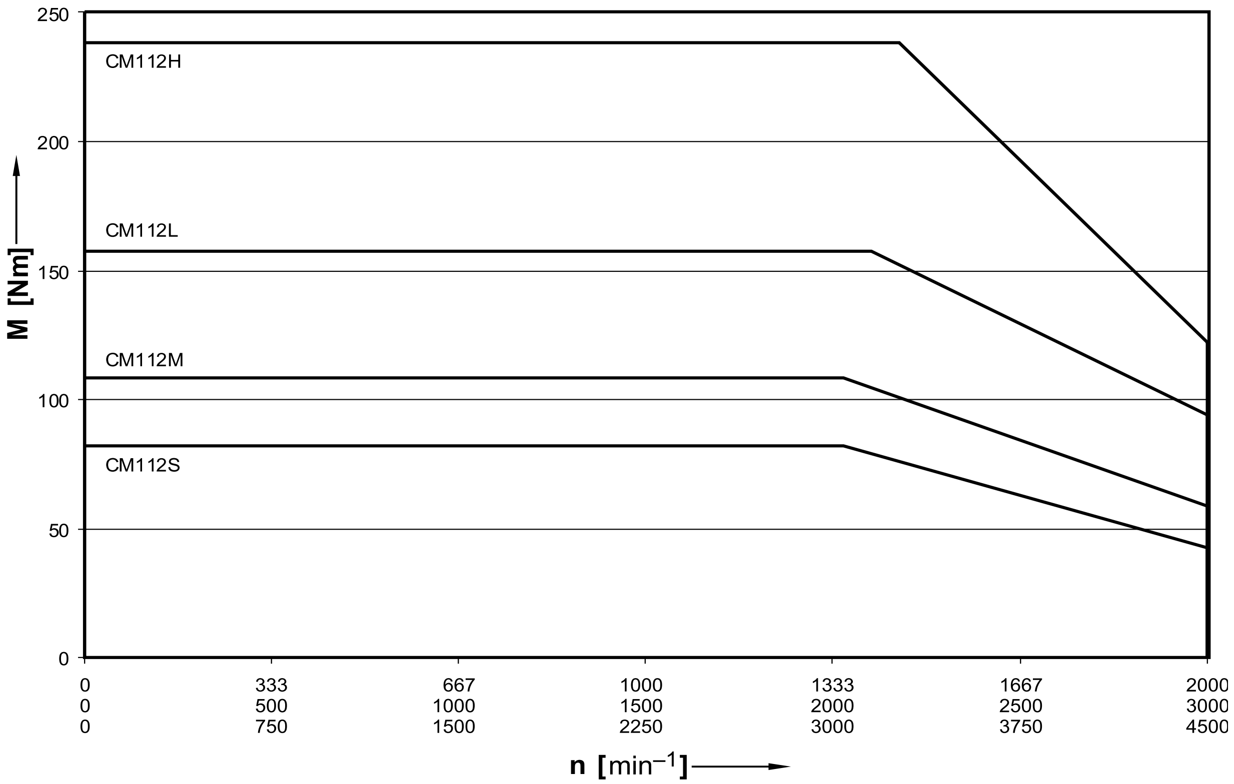

50441BXX

Thermal limit torques




50440AXX

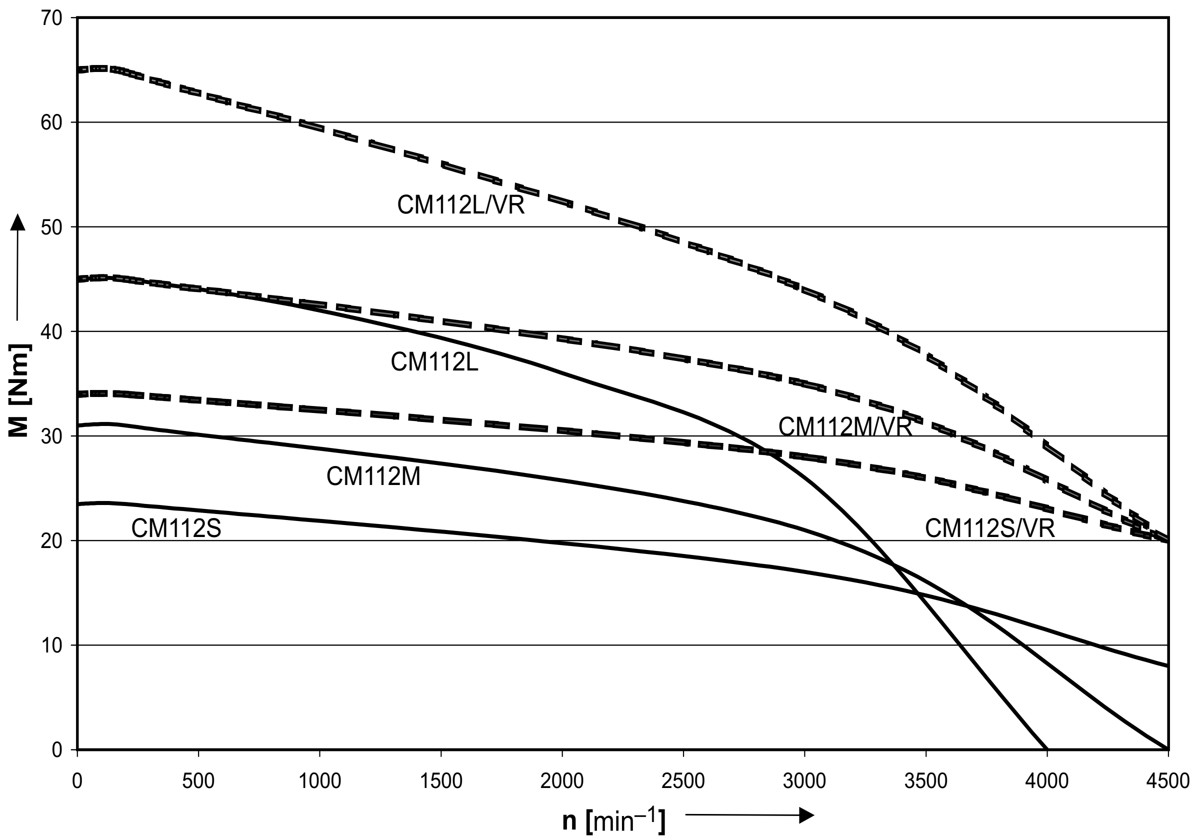
***CFM112*** Dynamic limit torques




06159AXX

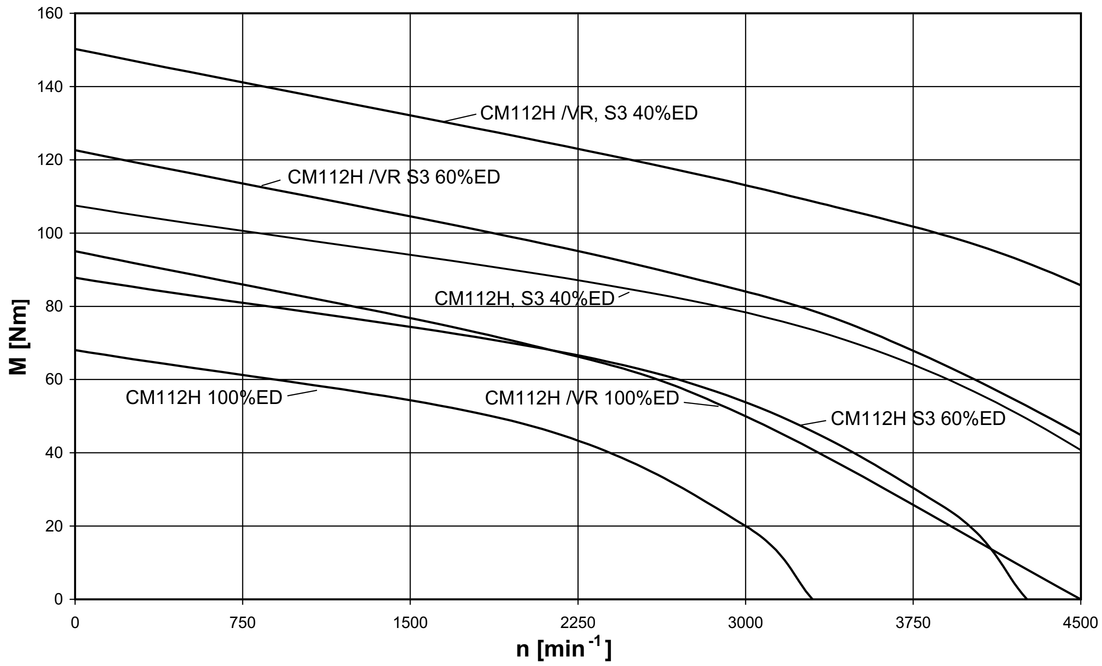


Thermal limit torques for CM112S-L




54822AXX

Thermal limit torques for CM112H




54960AXX

## 12.13 Derating for increased ambient temperature

The following applies for determining a first approximation of a random thermal limit curve: The thermal limit curve for higher ambient temperatures must be reduced in all points (speed-related limit torque) by $\Delta M_{TH}$:

$$\Delta M_{TH} = M_{TH} \times \left(1 - \sqrt{\frac{145 - T_U}{105}}\right)$$

$$M_{TH\_re} = M_{TH} - \Delta M_{TH}$$

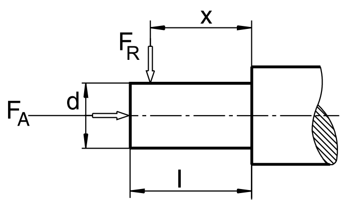
58657axx

| | |
|---|---|
| $\Delta M_{TH}$ | Thermal limit torque difference in Nm |
| $M_{TH}$ | Thermal limit torque in Nm |
| $T_A$ | Ambient temperature in °C |
| $M_{TH\_re}$ | Reduced thermal limit torque in Nm |

## 12.14 Overhung and axial loads

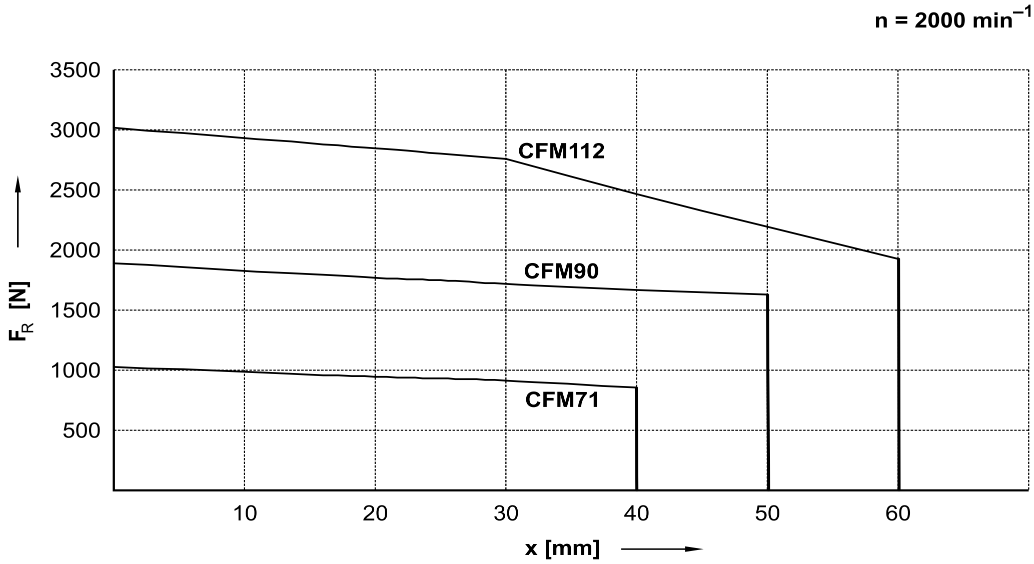
***Determining overhung load***

The permitted overhung loads FR at point x (distance from the shaft shoulder to the application point) are determined using the diagrams below. The diagrams are based on a nominal bearing service life of $L_{10h}$=12 500 h.




05590AXX

Diagram: Permitted overhung load $F_R$ at n = 2000 rpm

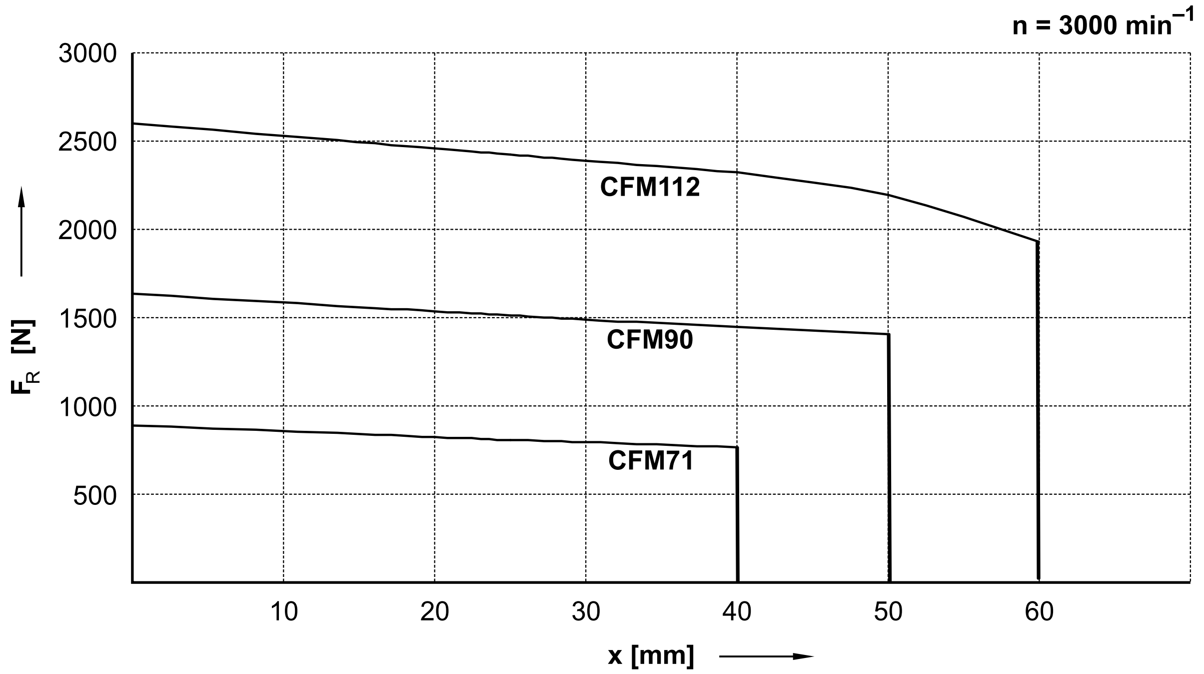



05506AXX

Permitted axial load $F_A$ at 2000 rpm:

CFM71: 300 N CFM90: 550 N CFM112: 900 N

Diagram: Permitted overhung load $F_R$ at n = 3000 rpm



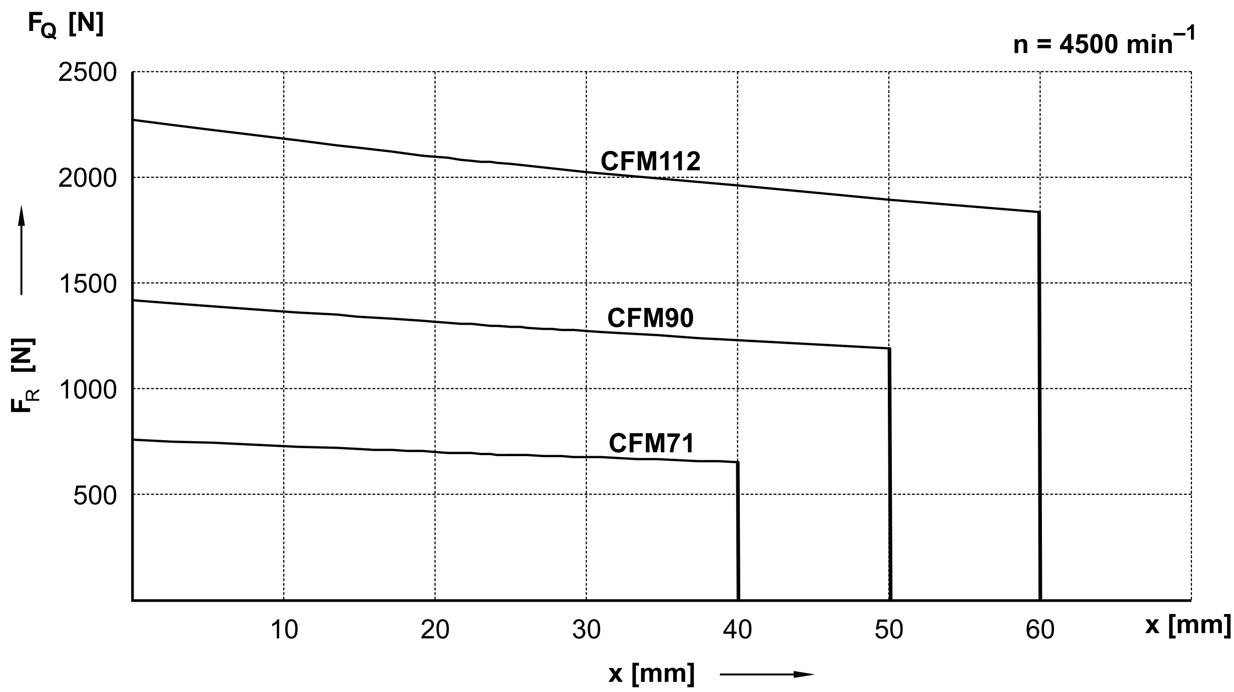

65884AXX

Permitted axial load $F_A$ at 3000 rpm:

CFM71: 250 N  CFM90: 500 N  CFM112: 800 N



Diagram: Permitted overhung load $F_R$ at n = 4500 rpm

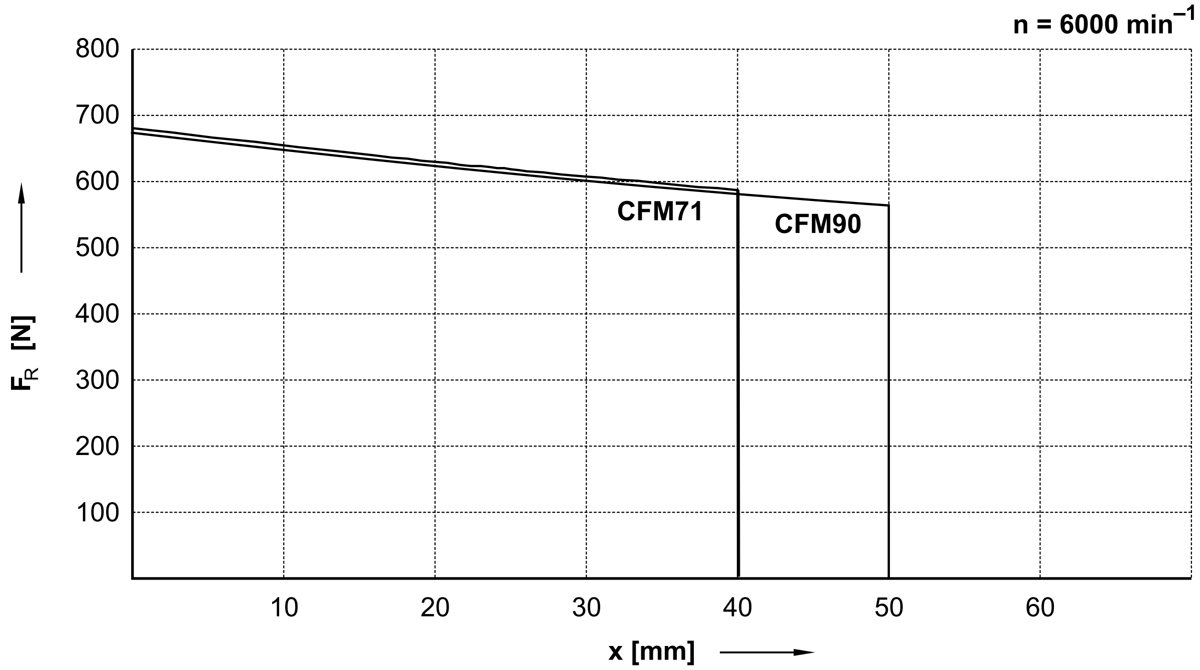



65885AXX

Permitted axial load $F_A$ at 4500 rpm:

CFM71: 200 N  CFM90: 400 N  CFM112: 600 N

Diagram: Permitted overhung load $F_R$ at n = 6000 rpm




65886AXX

Permitted axial load $F_A$ at 6000 rpm:

CFM71: 160 N CFM90: 300 N

***Used motor bearings***

| Motor type | A-side bearing | B-side bearing |
|---|---|---|
| **CFM71** | 6205-2Z-J-C3 | 6303-2Z-J-C3 |
| **CFM90** | 6207-2Z-J-C3 | 6305-2Z-J-C3 |
| **CFM112** | 6308-2Z-J-C3 | 6207-2Z-J-C3 |

***2nd shaft end*** Contact SEW-EURODRIVE regarding permitted load for the 2nd shaft end.

## 12.15 Motor equipment

The following motor options are available for CFM71 - 112 motors:

1. SM / SB plug connector
2. Terminal box KK / KK5 / KK6
3. B / BR brake
4. H1M / RH1L resolver
5. ES1H / AS1H absolute Hiperface® encoder
6. AV1Y, AV1H, EV1H absolute encoder
7. VR forced cooling fan
8. Encoder mounting adapter AV1A, EV1A, XV2A.

Other motor options are available on request.

### 1. SM / SB plug connector

CFM motors are connected via a rectangular plug connector (C148U, by Amphenol). This connector system offers the following advantages:

- One connector size for all connection cross sections from 1.5 mm$^2$ to 10 mm$^2$.
- Up to $I_0$ = 46 A.
- Metallic housing to ensure EMC
- Assembly without requiring special tools
- Control contacts in addition to the motor power contacts in one connector housing
- Separate insulation elements for power and control contacts
- UL certified

The other control contacts are assigned by SEW-EURODRIVE for connecting the BR brake. Socket contacts for core cross sections from 1 mm$^2$ or 1.5 mm$^2$ are used for this purpose.

*Type designation*

A four-digit type designation is assigned to the power plug connector and the encoder plug connector. The second position indicates whether only the motor power is connected, or the motor power combined with the brake. The fourth digit represents a code for the core cross section to be connected or indicates that the motor was delivered without mating connector.

| | | |
|---|---|---|
| 1st digit: | **S** | Connection via plug connector |
| 2nd digit: | **M** | Motor |
| | **B** | Brakemotor |
| 3rd digit: | **5** | Connector housing size and type of encoder cable entry (radial) |
| | **6** | Connector housing size and type of encoder cable entry (axial) |
| 4th digit: | **0** | Delivered without mating plug |

| | | |
|---|---|---|
| **M** as 2nd character means | 1: | 4 x 1.5 $mm^2$ |
| | 2: | 4 x 2.5 $mm^2$ |
| | 4: | 4 x 4 $mm^2$ |
| | 6: | 4 x 6 $mm^2$ |
| | 9: | 4 x 10 $mm^2$ |

| | | |
|---|---|---|
| **B** as 2nd character means | 1: | 4 x 1.5 $mm^2$ + 3 x 1 $mm^2$ |
| | 2: | 4 x 2.5 $mm^2$ + 3 x 1 $mm^2$ |
| | 4: | 4 x 4 $mm^2$ + 3 x 1 $mm^2$ |
| | 6: | 4 x 6 $mm^2$ + 3 x 1.5 $mm^2$ |
| | 9: | 4 x 10 $mm^2$ + 3 x 1.5 $mm^2$ |

*Example*

**S B 5 9**

9: 4 x 10 $mm^2$ motor core cross section and 3 x 1.5 $mm^2$ brake core cross section

5: Indicates the connector housing size and radial encoder cable entry

B: Motor and brake

S: Plug connector

In the basic version, SEW-EURODRIVE delivers CFM motors with the flange socket on the motor end and without SM50 / SB50 mating connector. The encoder cable entry is radial.

### *2. Connection with terminal box KK, KK5, KK6*

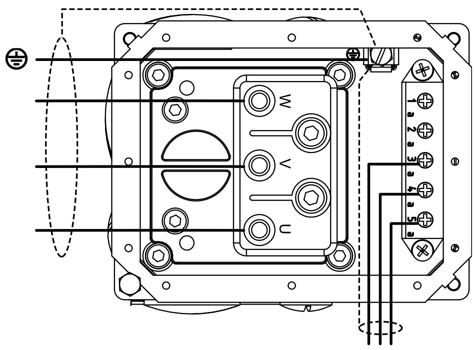
| Motor type | Power connection | | | Encoder/resolver/thermal motor protection | |
|---|---|---|---|---|---|
| | Connection | Maximum connection cross section | Cable entry | Connection | Cable entry |
| **CFM71..** | 3 x M5 | 4 x 6 mm$^2$ | M25 x 1.5 | Spring cage terminal in the encoder housing | M16 x 1.5 |
| **CFM90../112S** | 3 x M6 | 4 x 10 mm$^2$ | M32 x 1.5 | | M16 x 1.5 |
| **CFM112M / H** | 3 x M8 | 4 x 25 mm$^2$ | M50 x 1.5 | | M16 x 1.5 |

*EMC compliant cabling*

Make sure that

- the line type corresponds to the applicable regulations (rated currents are indicated on the nameplate),
- the signal lines consist of twisted pair wires and are collectively shielded (resolver lead as example: one pair each for reference, sine and cosine signals),
- the brake cables are routed separately from power cables, or that power cables and, if necessary, also brake cables are shielded to protect the brake against electromagnetic interference.

*Motor power connection*

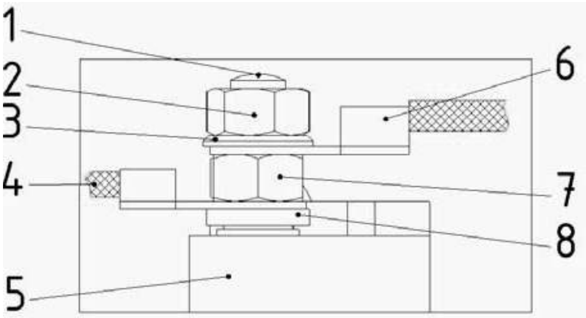



54642AXX

| Pin | Core identification | Connection |
|---|---|---|
| U | Black with white lettering U, V, W | U |
| V | | V |
| W | | W |
| PE | Green/yellow | Protective earth |

| Contact on the auxiliary terminal strip | Core identification | Connection of BME, BMH, BMK, BMP brake rectifiers | Connecting the BSG brake control unit |
|---|---|---|---|
| 3a | Black with white lettering 1, 2, 3 | 14 | 1 |
| 4a | | 13 | 3 |
| 5a | | 15 | 5 |

Figure: Power connection in the terminal box



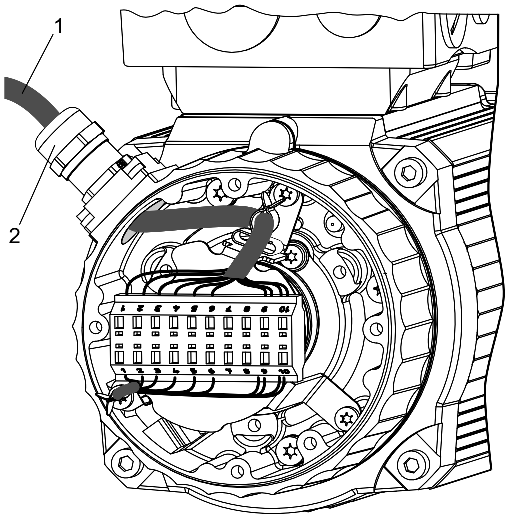

54670AXX

| | | | |
|---|---|---|---|
| 1 | Terminal stud | 5 | Terminal board |
| 2 | Upper nut | 6 | Customer's cable |
| 3 | Washer | 7 | Lower nut |
| 4 | Motor cable | 8 | Lock washer |

For designing the terminal box, positions 6, 7 and 4 are regarded as current-carrying.

*Resolver connection*

Figure: Connection of an RH1M resolver




68456axx

| | |
|---|---|
| 1 | Feedback cable |
| 2 | Cable gland |

*Encoder in delivery state*

The housing is closed with an M16 × 1.5 screw plug.

| Pin | RH1M / RH1L connection | AS1H / ES1H connection |
|---|---|---|
| 1 | R1 (reference +) | cos + |
| 2 | R2 (reference -) | ref cos |
| 3 | S1 (cosine +) | sin+ |
| 4 | S3 (cosine -) | ref sin |
| 5 | S2 (sine +) | D - |
| 6 | S4 (sine -) | D + |
| 7 | | GND |
| 8 | | Us |
| 9[1)] | TF (KTY+) | TF (KTY+) |
| 10[1)] | TF (KTY-) | TF (KTY-) |

1) Double assignment to increase cross section

*2. Connection with terminal box variant KK5/KK6*

The extended terminal box variant KK5/KK6 for the CM motors comprises the terminal box for the power and the plug connector for the signal evaluation.

**K K 5 0**

- 0: Delivery without mating signal connector
- 5: Radial encoder cable entry
  6: Axial encoder cable entry
- KK Terminal box

***3. Brakes***

The optional BR disk brake from SEW-EURODRIVE is integrated in the motor. It operates as a DC-operated fail-safe brake, which means the brake is released electrically. The brake is applied automatically when the voltage is switched off or there is a power outage.

*Note*

Due to the high peak current load and the DC voltage to be switched at inductive load, you always have to use contactors in utilization category AC 3 (EN 60947-4-1) to control the brake rectifiers or the BSG brake control unit.

*Motor size CFM 71, 90, 112*

As standard, the brakes are available for AC 110 V, AC 230 V, AC 400 V, AC 460 V and DC 24 V supply voltages. If no supply voltage is indicated for the brake, the brake will be delivered with a supply voltage of AC 400 V.

*Speed classes*

The BR brake for CFM71, CFM90 and CFM112 motors can be operated **up to a of 4500 rpm**.

*Standard variant*

As standard, synchronous servomotors CFM.. /BR are delivered with BME brake control for AC connection or BSG control unit for DC 24 V connection. The motors are ready for connection.

*Brake control (only size 71, 90, 112)*

Only SEW brake control systems are used for controlling the brake. All brake control systems are fitted with varistors as standard to protect against overvoltage.

For detailed information on brakes from SEW-EURODRIVE, refer to the publication "Drive Engineering Practical Implementation, SEW Disk Brakes".

The brakes are available with DC and AC voltage connection.

- AC voltage connection:
  - **BME**, equipped with DIN rail profile
- DC voltage connection:
  - **BSG**

There are two possible ways of electrical disconnection:

- Normal application times: Cut-off in the AC circuit.
- Particularly short application times: Cut-off in the AC and DC circuits.

The brake control systems are mounted in the control cabinet. Retaining screws are included in the scope of delivery.

The following options are available:

- AC supply, cut-off in the AC and DC circuits without additional switch contact, particularly short application times: **BMP**.
- AC supply, brake heating function when switched off: **BMH**.
- The **BMK/BMV** control system energizes the brake coil if the supply system and a DC 24 V signal (e.g. from the PLC) are present simultaneously. The brake is applied if one condition is not being met. BMK allows for shortest response and application times.

*Control cabinet*

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

| Brake control | Function | Voltage | Holding current $I_{Hmax}$ (A) | Type | Part number | Color code |
|---|---|---|---|---|---|---|
| **BME** | One-way rectifier with electronic switching | AC 150 - 500 V | 1.5 | BME 1.5 | 825 722 1 | Red |
| | | AC 42 - 150 V | 3.0 | BME 3 | 825 723 X | Blue |
| **BMH** | One-way rectifier with electronic switching and heating function | AC 150 - 500 V | 1.5 | BMH 1.5 | 825 818 X | Green |
| | | AC 42 - 150 V | 3 | BMH 3 | 825 819 8 | Yellow |
| **BMP** | One-way rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit | AC 150 - 500 V | 1.5 | BMP 1.5 | 825 685 3 | White |
| | | AC 42 - 150 V | 3.0 | BMP 3 | 826 566 6 | Light blue |
| **BMK** | One-way rectifier with electronic switching, DC 24 V control input and cut-off in the DC circuit | AC 150 - 500 V | 1.5 | BMK 1.5 | 826 463 5 | Water blue |
| | | AC 42 - 150 V | 3.0 | BMK 3 | 826 567 4 | Light red |
| **BSG** | Control unit for DC 24 V connection with electronic switch mode | DC 24 V | 5.0 | BSG | 825 459 1 | White |
| **BMV** | Electronic switch mode, DC 24 V control input and cut-off in the DC circuit | DC 24 V | 5.0 | BMVS | 1 300 006 3 | White |



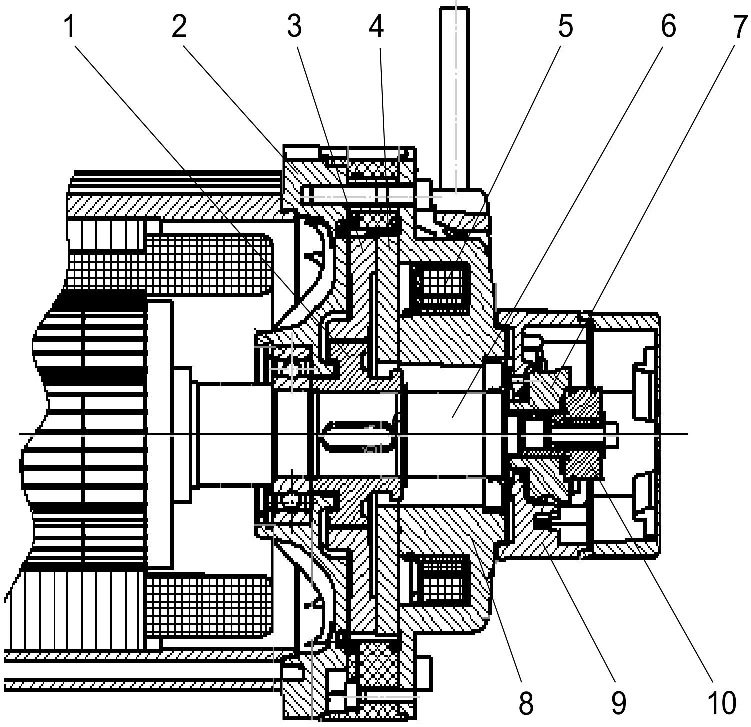
*Short response times*

A characteristic feature of the SEW brake is the patented two-coil system. This system consists of accelerator coil and coil section. The special SEW brake control system ensures that the accelerator coil is switched on with a high current inrush when the brake is released, after which the coil section is switched on. The result is a particularly short response time when releasing the brake. The brake disk moves clear very swiftly and the motor starts up with hardly any brake friction.

This principle of the two coil system also reduces self-induction so that the brake is applied more rapidly. The result is a reduced braking distance. The SEW brake can be cut off in the DC and AC circuits to achieve particularly short response times when applying the brake, for example for hoists.

*Basic structure of sizes 71, 90, 112*

Figure: Basic structure of the brake with RH1L resolver




54677AXX

| | | | |
|---|---|---|---|
| 1 | Driver | 6 | Motor shaft |
| 2 | Brake endshield | 7 | Spacer |
| 3 | Brake disk | 8 | Brake coil body |
| 4 | Pressure plate | 9 | Encoder housing |
| 5 | Brake coil | 10 | RH1L resolver |

***Technical data***

The following table shows the technical data of SEW brakes. The type and number of brake springs determines the level of the braking torque. Unless specified otherwise in the order, the maximum braking torque $M_{B1}$ is installed as standard. Other brake spring combinations can result in reduced braking torque values $M_{Bred}$.

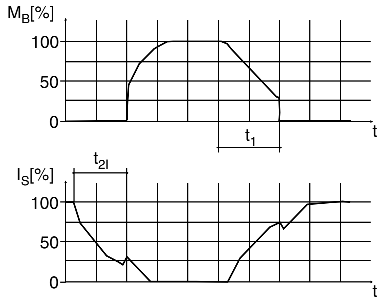
| Motor type | $M_{B1}$ Nm | $M_{B2}$ Nm | $W_{insp}$ $10^3$kJ | $t_1$ $10^{-3}$s | $t_2$II $10^{-3}$s | $t_2$I $10^{-3}$s |
|---|---|---|---|---|---|---|
| **CFM71S /BR1** | 10 | 5 | 60 | 20 | 40 | 100 |
| **CFM71M /BR1** | 14 | 7 | 60 | 25 | 30 | 90 |
| **CFM71L /BR1** | 14 | 10 | 60 | 30 | 20 | 80 |
| **CFM90S /BR2** | 28 | 14 | 90 | 30 | 35 | 120 |
| **CFM90M /BR2** | 40 | 20 | 90 | 35 | 25 | 90 |
| **CFM90L /BR2** | 40 | 28 | 90 | 40 | 25 | 90 |
| **CFM112S /BR8** | 55 | 28 | 180 | 35 | 35 | 100 |
| **CFM112M /BR8** | 90 | 40 | 180 | 40 | 25 | 80 |
| **CFM112L /BR8** | 90 | 55 | 180 | 40 | 25 | 80 |
| **CFM112H /BR8** | 90 | 55 | 180 | 40 | 25 | 80 |

| | |
|---|---|
| $M_{B1}$ | Maximum braking torque |
| $M_{B2}$ | Reduced braking torque |
| $W_{insp}$ | Braking work until maintenance |
| $t_1$ | Response time |
| $t_2$II | Brake application time for cut-off in the DC and AC circuits |
| $t_2$I | Brake application time for cut-off in the AC circuit |

The response and application times are recommended values in relation to the maximum braking torque.

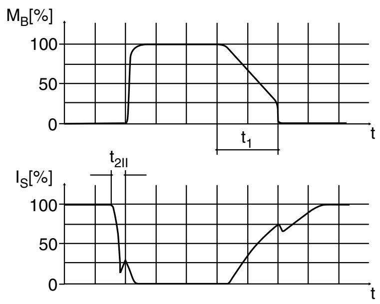
*Current and braking torque*

Cut-off in the AC circuit




54615AXX

Cut-off in the DC and AC circuits




54616AXX

$M_B$ = Braking torque

$I_S$ = Coil current

*Operating current*

The following tables list the operating currents of the brakes at different voltages. The following values are specified:

- Inrush current ratio $I_B/I_H$; $I_B$ = acceleration current, $I_H$ = holding current
- Holding current $I_H$
- Rated voltage $U_N$

The accelerator current $I_B$ (= inrush current) only flows for a short time (ca. 120 ms) when the brake is released or during voltage dips below 70% of rated voltage.

The values for the holding currents $I_H$ are r.m.s. values (arithmetic mean value at DC 24 V). Use suitable measuring instruments for current measurements.

| **Brake** | | **BR1** | **BR2** | **BR8** |
|---|---|---|---|---|
| **For motor** | | CFM71 | CFM90 | CFM112 |
| **$M_{Bmax}$ Nm** | | 18 | 40 | 90 |
| **$P_B$ W** | | 45 | 55 | 75 |
| **Inrush current ratio IB/IH** | | 4.0 | 4.0 | 6.3 |
| **Rated voltage $V_N$**<br>(...) Voltage tolerances | | **$I_H$ $A_{AC}$** | **$I_H$ $A_{AC}$** | **$I_H$ $A_{AC}$** |
| **$V_{AC}$** | **$V_{DC}$** | | | |
| | **24** (21.6 - 26.4) | 1.5 | 1.7 | 2.6 |
| **110** (99-121) | | 0.71 | 0.9 | 1.2 |
| **230** (218-243) | | 0.31 | 0.39 | 0.53 |
| **400** (380-431) | | 0.18 | 0.22 | 0.29 |
| **460** (432-484) | | 0.16 | 0.21 | 0.26 |



*Cross section of the brake cable*

Select the cross section of the brake cables according to the currents in your application. Remember to take the inrush current of the brake into account when selecting the cross section. When taking the voltage drop into account due to the inrush current, the value must not drop below 90% of the rated voltage.

*Note*

Wire cross sections of max. 2.5 $mm^2$ can be connected to the terminals of the brake control systems. Use intermediate terminals if the cross sections of the brake cable are larger than this value. Keep the distance between the intermediate terminal and the brake control system as short as possible.

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.

The permitted tolerance for the rated voltage outside the range limit is $\pm$ 5 % (BR1, BR2, BR8).

*Manual brake release*

A manual brake release kit according to the brake size can be ordered for retrofitting the manual brake release.

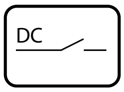
| Part number | Content |
|---|---|
| BR1 manual brake release kit 0 196 602 2 | 1 releasing lever<br>1 hand lever<br>2 hex nuts |
| BR2 manual brake release kit 0 196 603 0 | |
| BR8 manual brake release kit 0 196 604 9 | |

***Block diagrams of the brake control for terminal box***

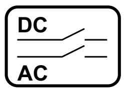
| | **INFORMATION** |
|---|---|
| | For operating the brake, apply the voltage specified on the nameplate.<br>Switch contacts must be designed according to utilization category AC3 to EN 60947-4.1. |

*Key*

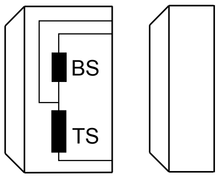

Cut-off in the AC circuit
(Standard application of the brake)



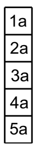

Cut-off in the DC circuit
(rapid brake application)



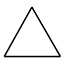

Cut-off in the DC and AC circuits
(rapid brake application)



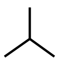

Brake
BS = Accelerator coil TS = Coil section




Auxiliary terminal strip in terminal box



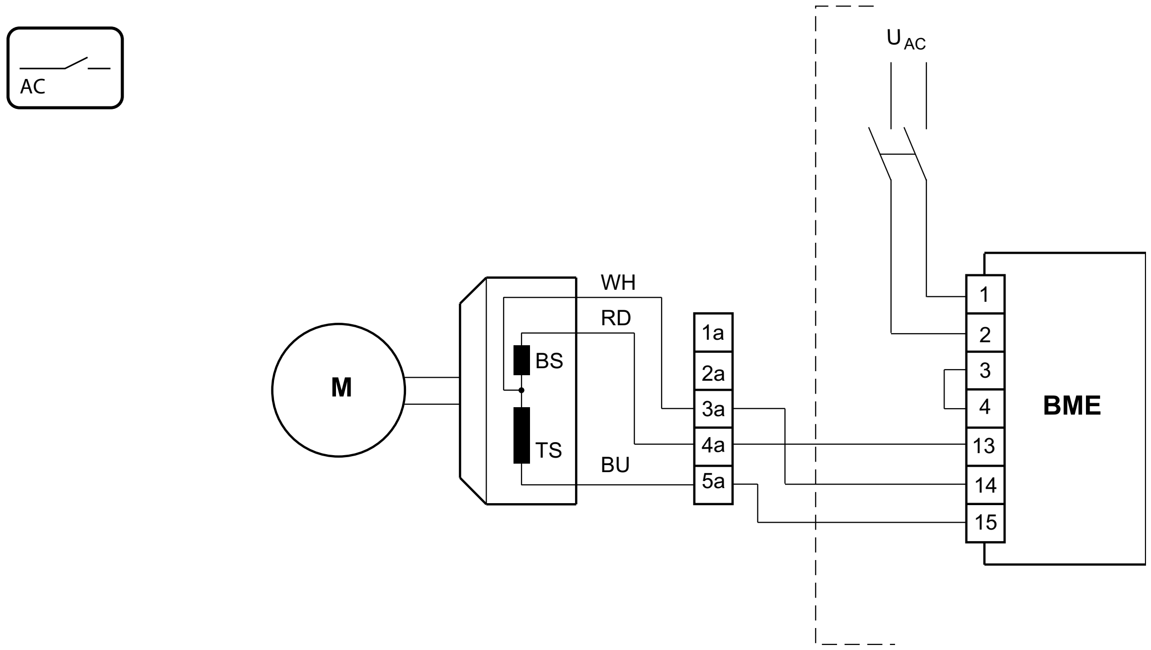
Motor with delta connection



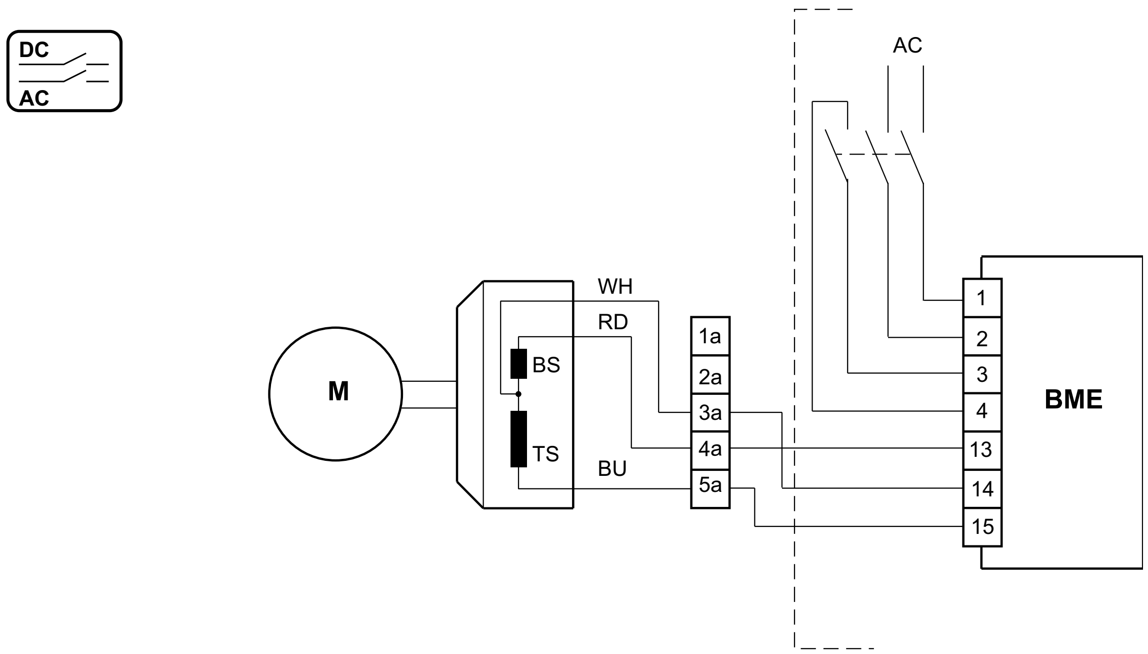
Motor with star connection

| | |
|---|---|
| | Control cabinet limit |
| **WH** | White |
| **RD** | Red |
| **BU** | Blue |
| **BN** | Brown |
| **BK** | Black |

*BME brake rectifier* Cut-off in the AC circuit / normal application of the brake.

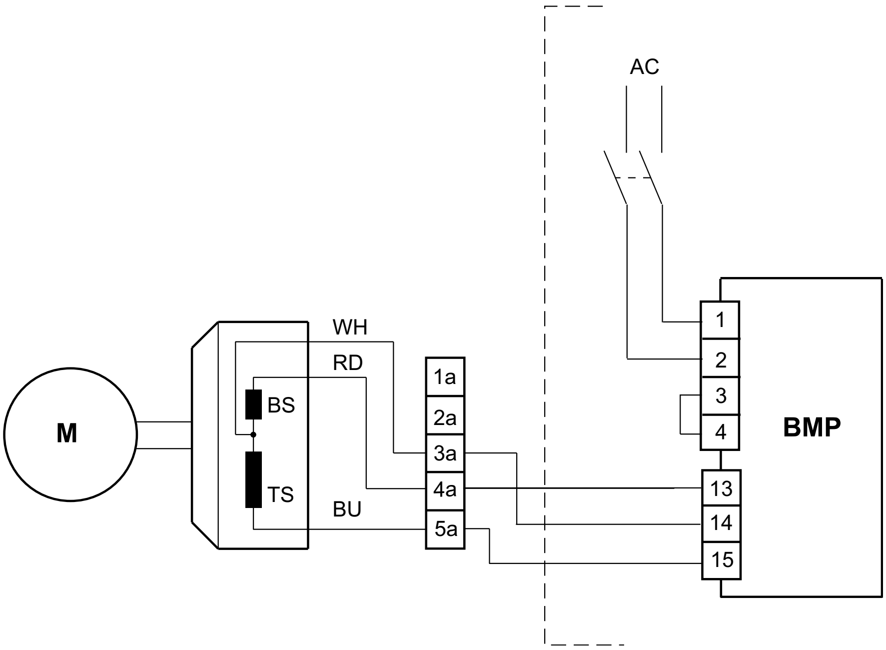



60704AXX



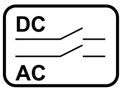

60705AXX

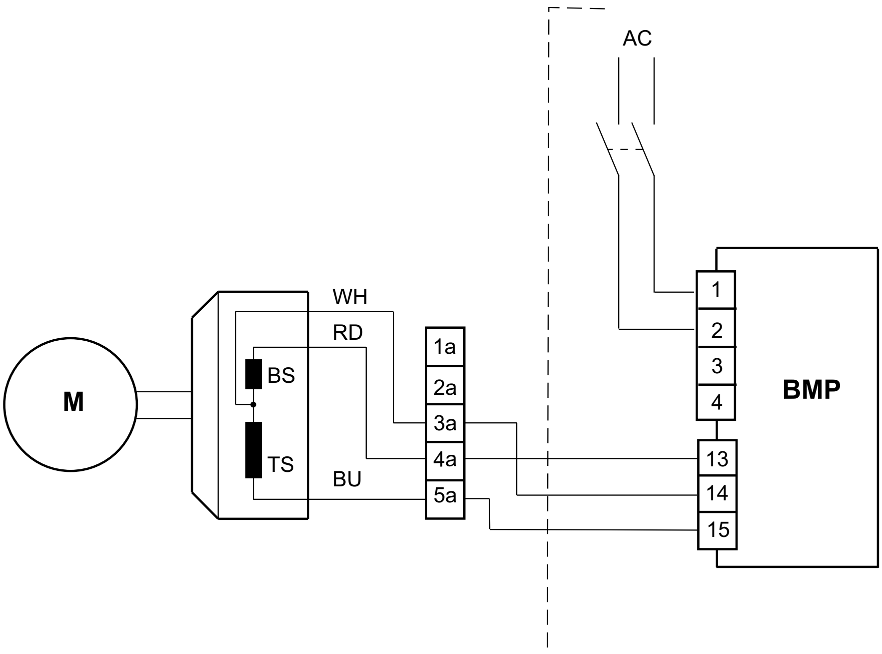
*BMP brake rectifier* Cut-off in the DC and AC circuits / rapid application of the brake / integrated voltage relay.


60706AXX



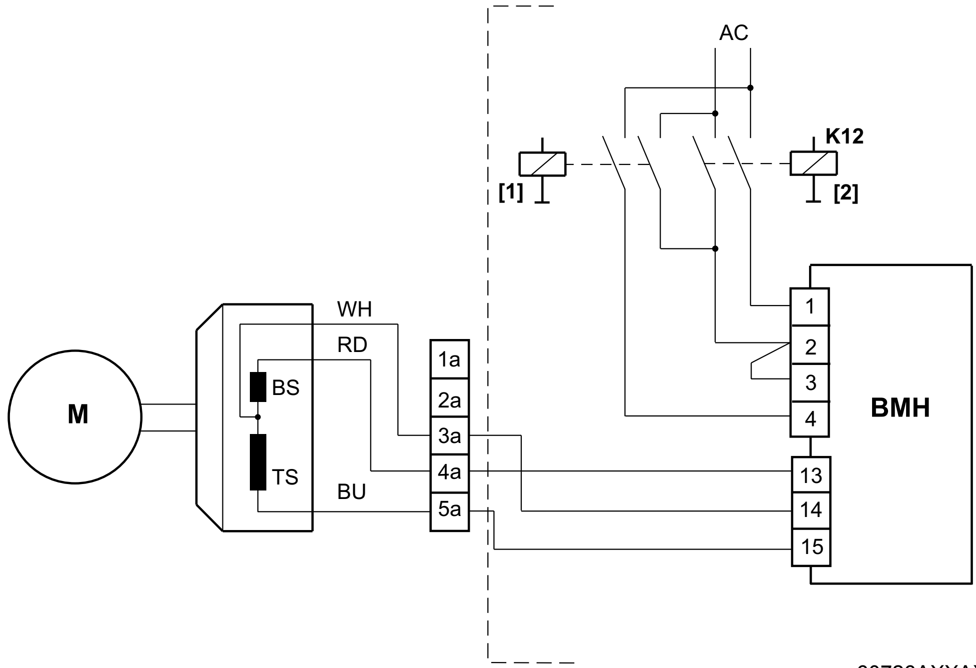



60707AXX

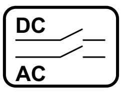
*BMH brake rectifier* Cut-off in the AC circuit / normal application of the brake.

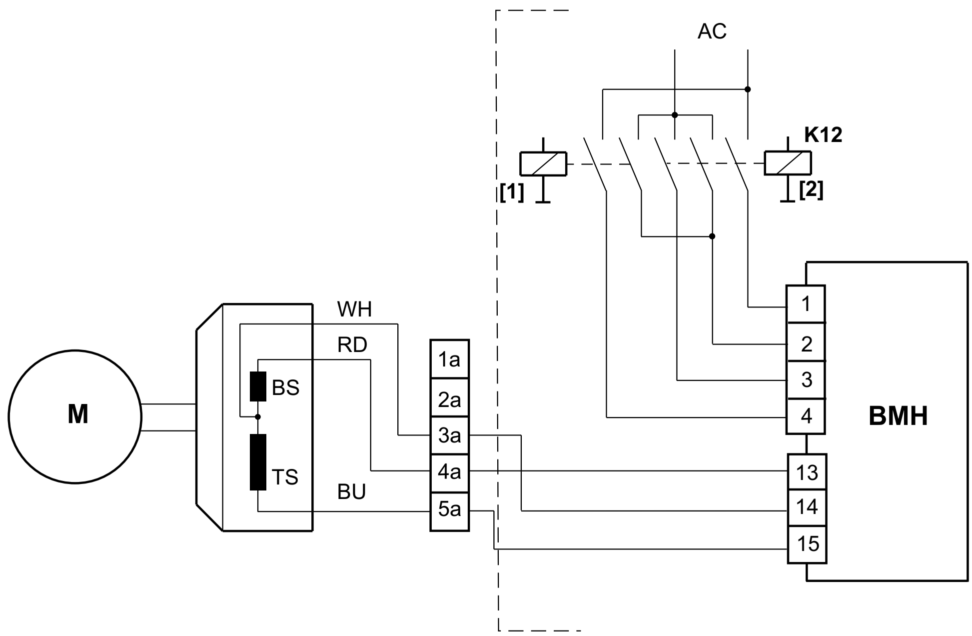
| | **INFORMATION** |
|---|---|
| | For releasing and heating the brake, apply the voltage specified on the nameplate.<br>K12 not activated: Heating mode<br>Contact rating of the BMH terminals:<br>• Terminals 1 and 4: AC11<br>• Terminal 3: AC3 in accordance with EN 60947-4-1. |


60726AXXAXX

[1] Heating [2] Ventilation

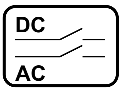


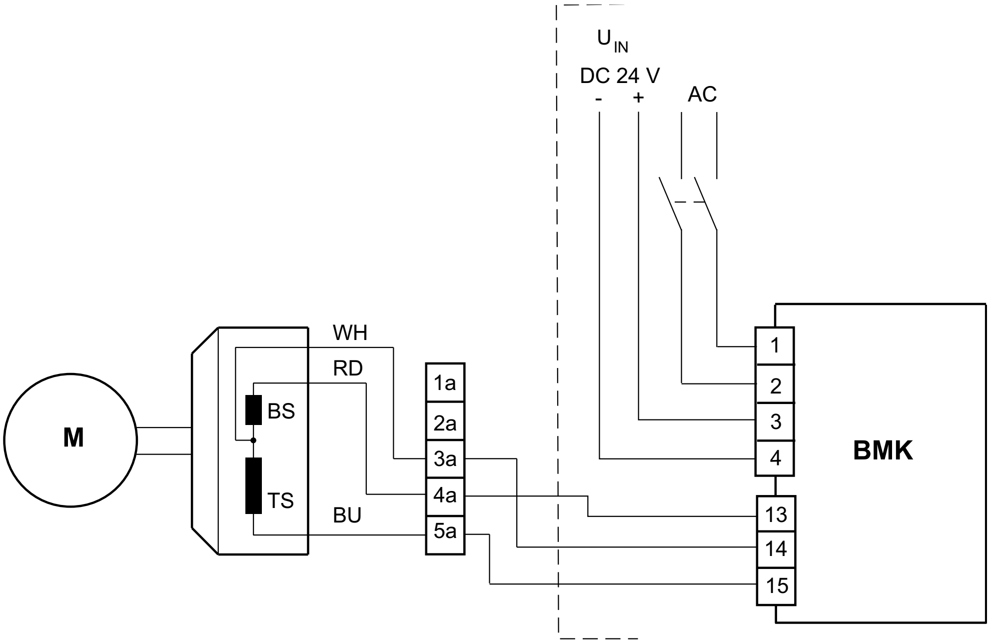




60727AXX

[1] Heating [2] Ventilation

*BMK brake rectifier* Cut-off in the DC and AC circuits / rapid application of the brake / integrated voltage relay / integrated DC 24 V control input.

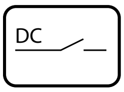


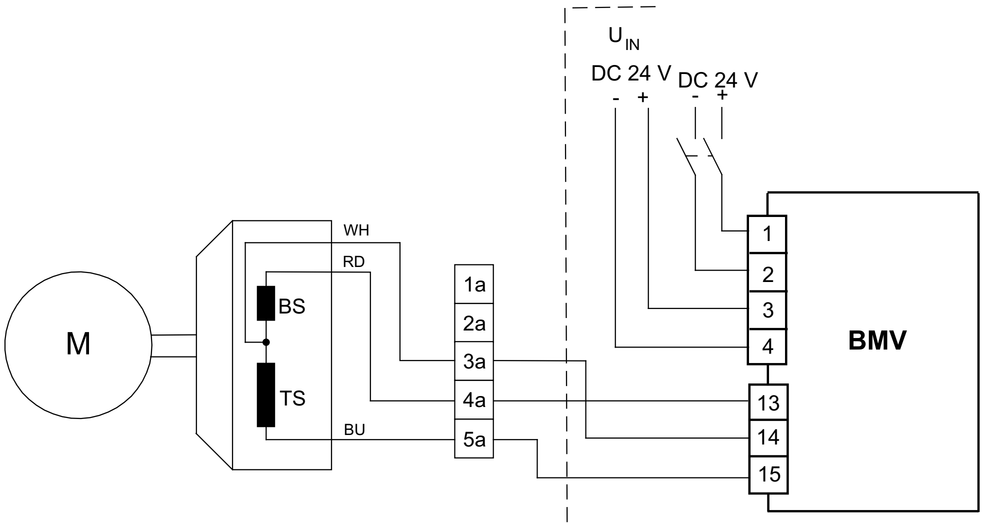




60735AXX



*BMV brake control* Cut-off in the DC circuit / rapid application of the brake / integrated DC 24 V control input.

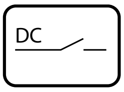


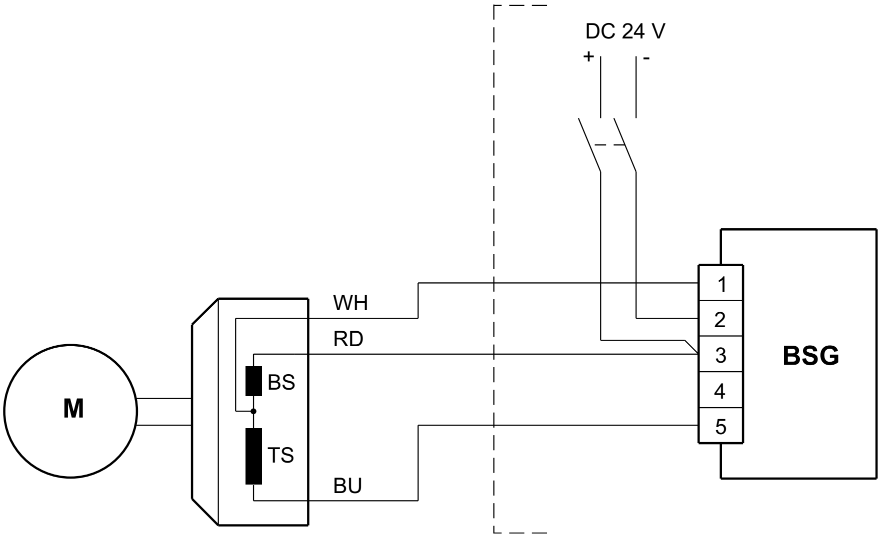




60736AXX

$U_{IN}$ = Control signal

*BSG control unit* For DC voltage supply with DC 24 V.



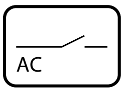

60737AXX

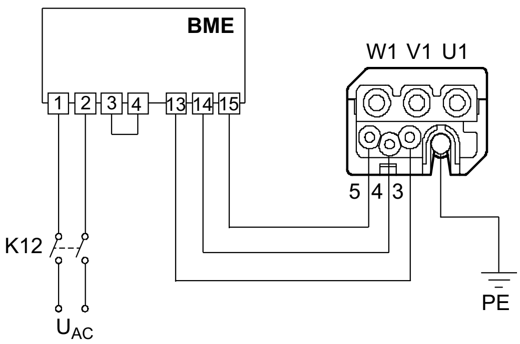
### *Block diagrams of the brake control for plug connectors*

| | INFORMATION |
|---|---|
| | For operating the brake, apply the voltage specified on the nameplate.<br>Switch contacts must be designed according to utilization category AC3 to EN 60947-4.1. |

Key see page 334.

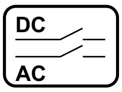
*BME brake rectifier* Cut-off in the AC circuit / normal application of the brake

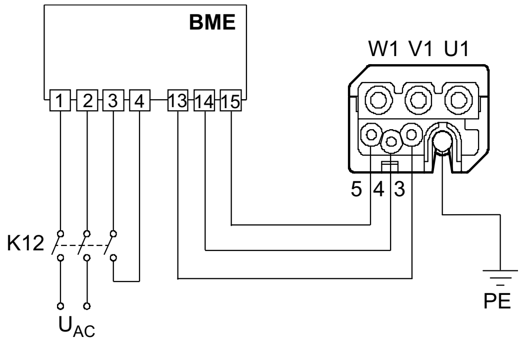



51231AXX

Cut-off in the DC and AC circuits / rapid application of the brake

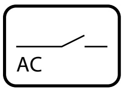


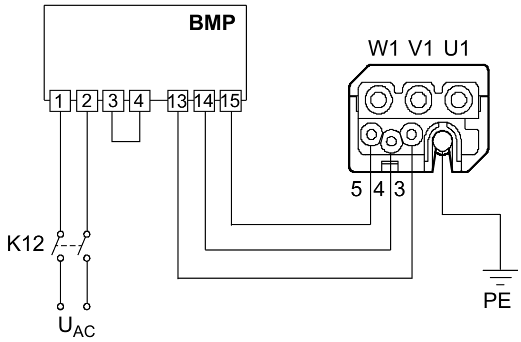




51232AXX

*BMP brake rectifier*

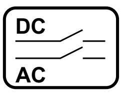
Cut-off in the DC circuit/quick application of the brake/integrated voltage relay

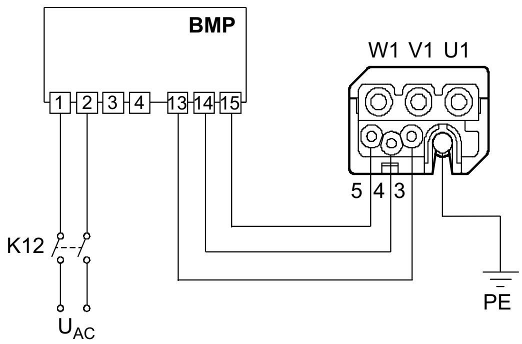



51234AXX

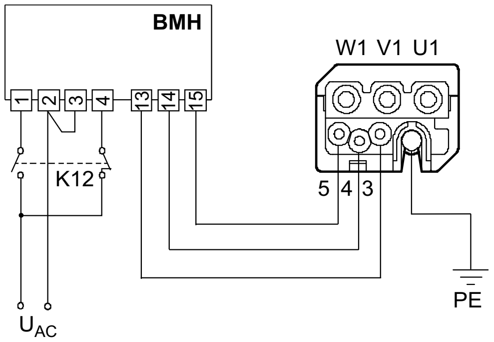
Cut-off in the DC and AC circuits / rapid application of the brake / integrated voltage relay



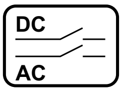

51233AXX

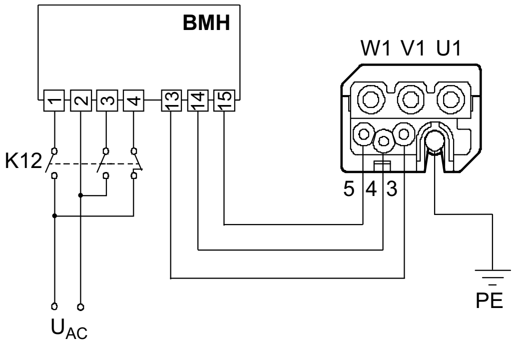
*BMH brake rectifier* Cut-off in the AC circuit / normal application of the brake


51235AXX

Cut-off in the DC and AC circuits / rapid application of the brake




51236AXX

**INFORMATION**

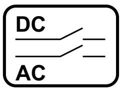
For releasing and heating the brake, apply the voltage specified on the nameplate.

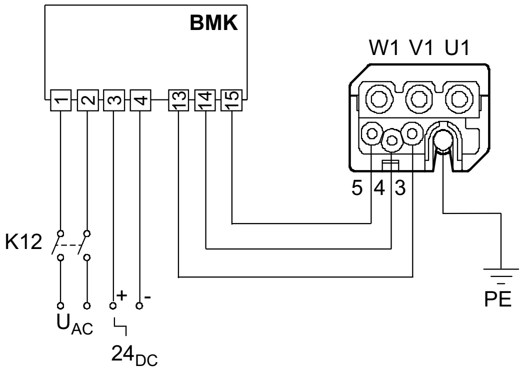
K12 not activated: Heating mode

Contact rating of the BMH terminals:

- Terminals 1 and 4: AC11
- Terminal 3: AC3 in accordance with EN 60947-4-1.

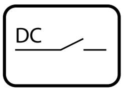
*BMK brake rectifier* Cut-off in the DC and AC circuits / rapid application of the brake / integrated voltage relay integrated DC 24 V control input.

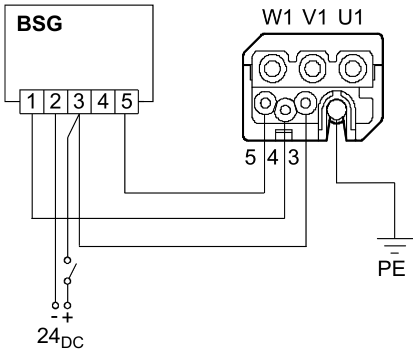



51237AXX

*BSG brake control unit* For DC voltage supply with DC 24 V

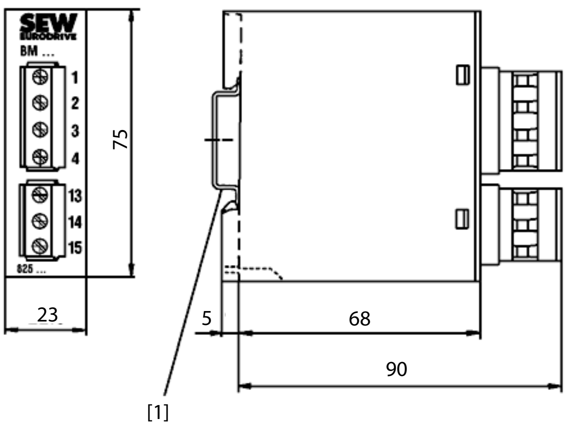



51238AXX

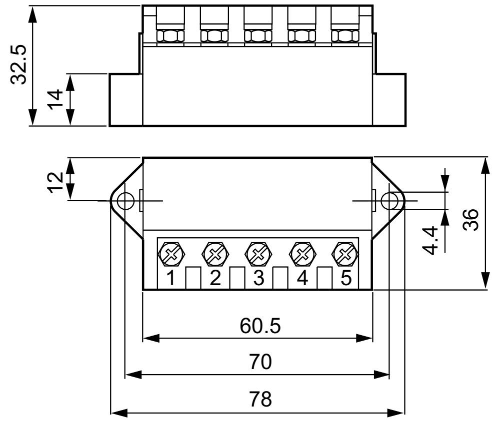
*Brake connection* For brake control block diagrams, refer to page 167.

*Dimension drawing* BME, BMP, BMH, BMK, BMKB, BMV




[1] DIN rail mounting EN 50022-35 x 7.5

*Dimension drawing*
*BSG*




54243AXX

### *4. Resolvers*

*Resolver for motor size CFM71 - 112*

| Type | RH1M/RH1L |
|---|---|
| **Number of poles** | 2 |
| **Primary** | Rotor |
| **Input voltage** | 7 V |
| **Input frequency** | 7 kHz |
| **Gear ratio ± 10%** | 0.5 |
| **Phase shift ± 5°** | +13° |
| **Input impedance ± 15%** | 130 +j 120 Ω |
| **Output impedance ± 15%** | 200 +j 270 Ω |
| **Input resistance ± 10%** | 82 Ω |
| **Output resistance ± 10%** | 68 Ω |
| **Maximum electrical fault** | ± 6' |
| **Temperature range** | -55 °C to +150 °C |

SEW servo gearmotors are supplied with 2-pole resolvers as standard. Further information on other resolvers is available on request.

### *5. Hiperface® encoder AS1H / ES1H*

SEW-EURODRIVE offers Hiperface® encoders as an alternative to resolvers.

**INFORMATION**

When prefabricating the encoder cables, ensure correct polarity for the supply outputs.

| Type | | ES1H | AS1H |
|---|---|---|---|
| **Supply voltage** | $V_B$ | DC 7 - 8 - 12 V polarity reversal protected | |
| **Max. current consumption** | $I_{in}$ | 140 mA | |
| **Maximum operating frequency** | $f_{max}$ | 200 kHz | |
| **Pulses (sine cycles) per revolution** | A, B | 1024 | |
| **Output amplitude per track** | | 1 $V_{PP}$ sin/cos | |
| **Single-turn resolution** | | 32768 increments/revolution (15 bit) | |
| **Multi-turn resolution** | | - | 4096 revolutions (12 bits) |
| **Transmission protocol** | | Hiperface® | |
| **Serial data output** | | Driver according to EIA RS-485 | |
| **Vibration (55 to 2000 Hz)** | | ≤ 200 $m/s^2$ (DIN IEC 68-2-6) | |
| **Maximum speed** | $n_{max}$ | 6000 rpm | |
| **Connection** | | 12-pin round connector (Intercontec) | |

### *6. AV1Y, AV1H, EV1H absolute encoders*

| Type | | AV1Y<br>0198 889 1 | AV1H<br>0187 189 7 | EV1H<br>0187 287 7 |
|---|---|---|---|---|
| **Supply voltage** | $V_B$ | DC 10 - 15 - 24 - 30 V polarity reversal protected | DC 7 - 12 V polarity reversal protected | |
| **Max. current consumption** | $I_{in}$ | 250 mA | 80 mA | |
| **Maximum operating frequency** | $f_{max}$ | $\geq$100 kHz | 200 kHz | |
| **Pulses (sine cycles) per revolution** | A, B | 512 | 1024 | |
| **Output amplitude per track** | | 1 $V_{PP}$ sin/cos | | |
| **Scanning code** | | Gray Code | - | |
| **Single-turn resolution** | | 4096 increments/revolution | 32768 increments/revolution | |
| **Multi-turn resolution** | | 4096 revolutions (12 bits) | | - |
| **Data transmission absolute values** | | Synchronous, serial (SSI) | Hiperface® | |
| **Serial data output** | | Driver according to EIA RS-485 | | |
| **Serial clock input** | | Optocoupler, recommended driver to EIA RS-485 | - | |
| **Cycle frequency** | | Permitted range:<br>90 - 300 - 1100 kHz (max. 100 m cable length with 300 kHz) | - | |
| **Clock-pulse space period** | | 12 - 35 µs | - | |
| **Vibration (55 to 2000 Hz)** | | $\leq$ 100 m/s$^2$ (DIN 150 68-2-6) | 200 m/s$^2$ (DIN 150 68-2-6) | |
| **Maximum speed** | $n_{max}$ | 6000 rpm | | |
| **Weight** | m | 0.30 kg | 0.55 kg | |
| **Operating temperature** | $\vartheta_B$ | -15°C to +60°C (EN 60721-3-3, class 3K3) | -20°C to +85°C (EN 60721-3-3, class 3K3) | |
| **Degree of protection** | | IP66 (EN 60529) | | |
| **Connection** | | 1 m (3.3 ft) cable with 17-pin round connector, suitable for female connector SPUC 17B FRAN | 1 m (3.3 ft) cable with 12-pin round connector (Intercontec) | |

***7. VR forced cooling fan***

CFM synchronous servomotors can be equipped with a forced cooling fan if required. The VR forced cooling fan is available for DC 24 V and AC 100 V.

| **Forced cooling fan type** | **VR** | | |
|---|---|---|---|
| For motor size | CFM71 | CFM90 | CFM112 |
| DC supply voltage in V | 24 ± 10 % | | |
| Current consumption DC A | 0.46 | | 0.75 |
| Power consumption in W | 11 | | 18 |
| Air discharge rate $m^3/h$ | 170 | 170 | 410 |
| Ambient temperature in °C | -20 to +60 | | |
| Degree of protection | IP54/IP55 | | |
| Electrical connection | Plug connector | | |
| Max. cable cross section in $mm^2$ | 3 × 1 | | |
| Connection cable, max. Ø | 7 mm | | |

*UWU52A switched-mode power supply*

The AC voltage type includes a VR forced cooling fan and the UWU52A switched-mode power supply.

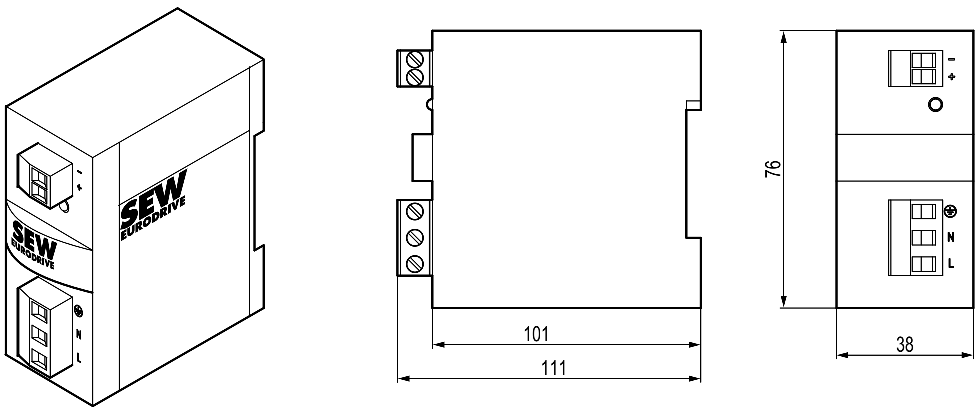
Input: AC 110 - 240 V; 1.04 - 0.63 A; 50 / 60 Hz

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; attachment to EN 60715 TH35 support rail in the control cabinet.

Part number: 0188 181 7.




59049AXX

*Forced cooling fan, cpl.*

| Forced cooling fan for motor type | Part number |
|---|---|
| 24 V, CFM71 | 0 187 380 6 |
| 24 V, CFM71BR | 0 187 381 4 |
| 24 V, CFM90 | 0 187 382 2 |
| 24 V, CFM90BR | 0 187 479 9 |
| 24 V, CFM112 | 0 187 384 9 |
| 24 V, CFM112BR | 0 187 383 0 |
| 24 V, CFM71BR KK | 0 187 622 8 |
| 24 V, CFM90BR KK | 0 187 624 4 |

*Retrofitting forced cooling fan*

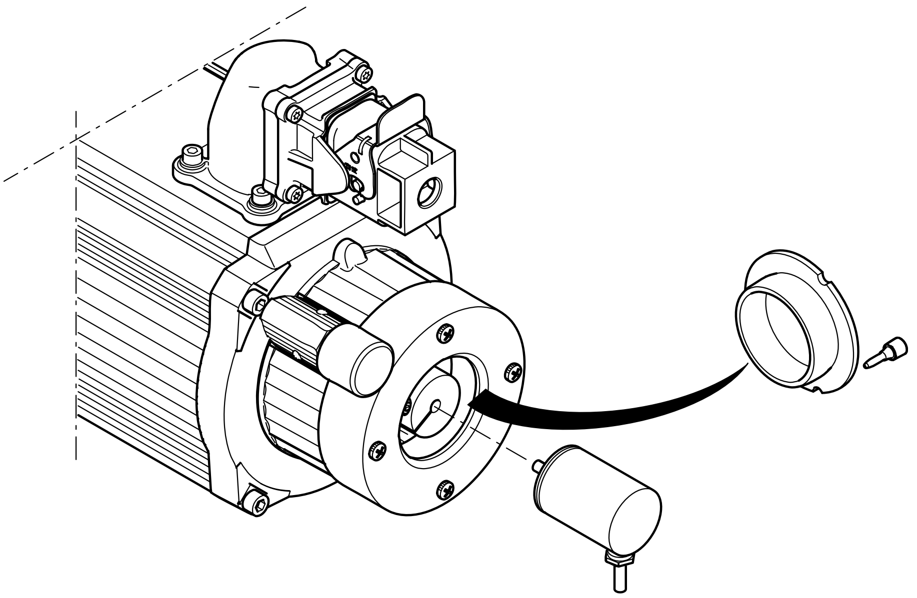
An accessory bag must be ordered for retrofitting a forced cooling fan.

| Accessory bag for motor type | Part number |
|---|---|
| CFM71 | 0 187 945 6 |
| CFM90 | 0 199 322 4 |
| CFM112 | 0 199 323 2 |
| CFM71 - 112BR | 0 199 324 0 |

Refer to the operating instructions of the motor for details on retrofitting a forced cooling fan.

### *8. Encoder mounting adapter AV1A/EV1A/XV2A*

The motors can be equipped with various encoder attachment fittings for mounting devices from different manufacturers.



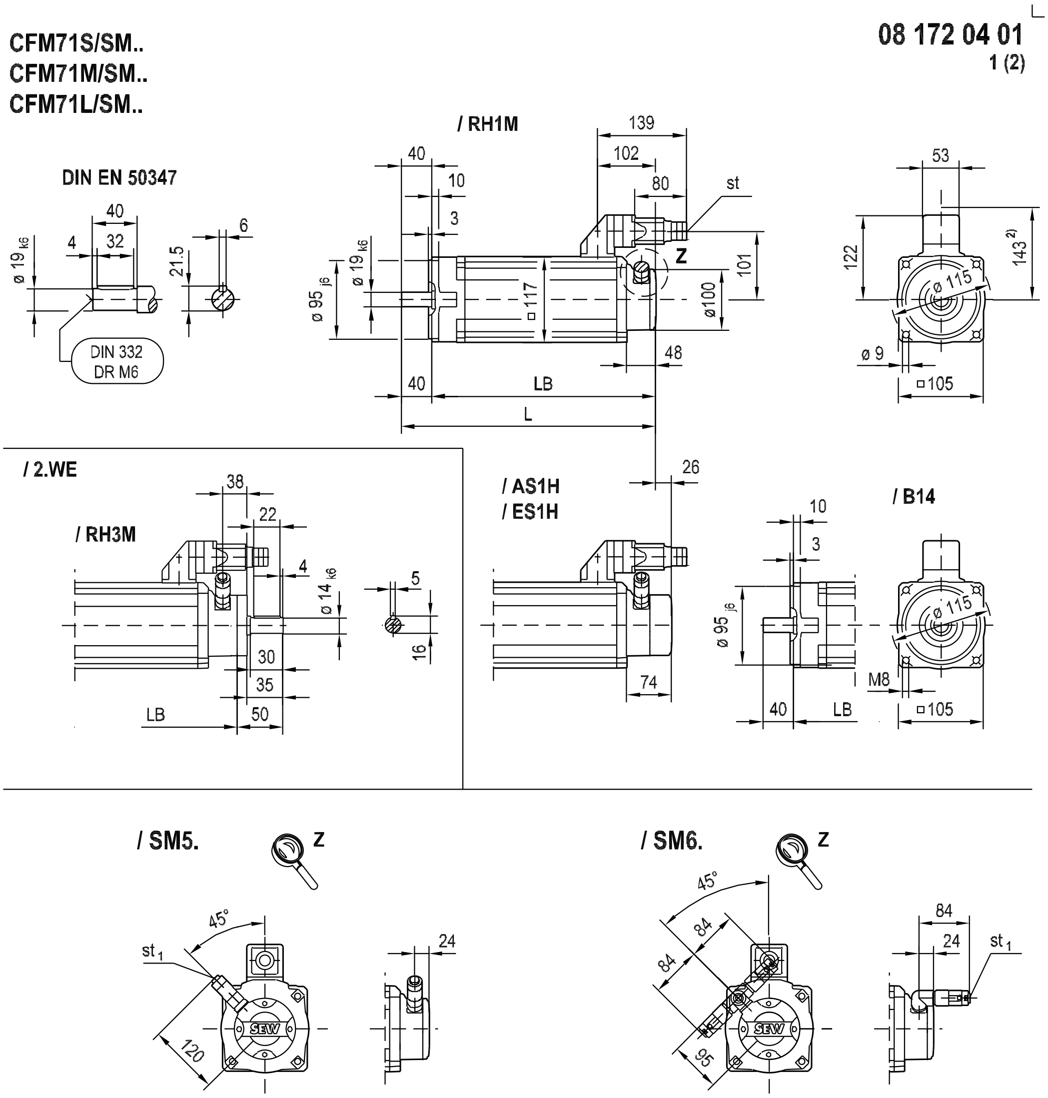
61563axx

The encoder is attached using 3 fixing clamps (screws with eccentric disks) for 3 mm flanges.

# 13 Dimension Drawings of CFM Servomotors/CFM Servo Brakemotors

## 13.1 Dimension sheets

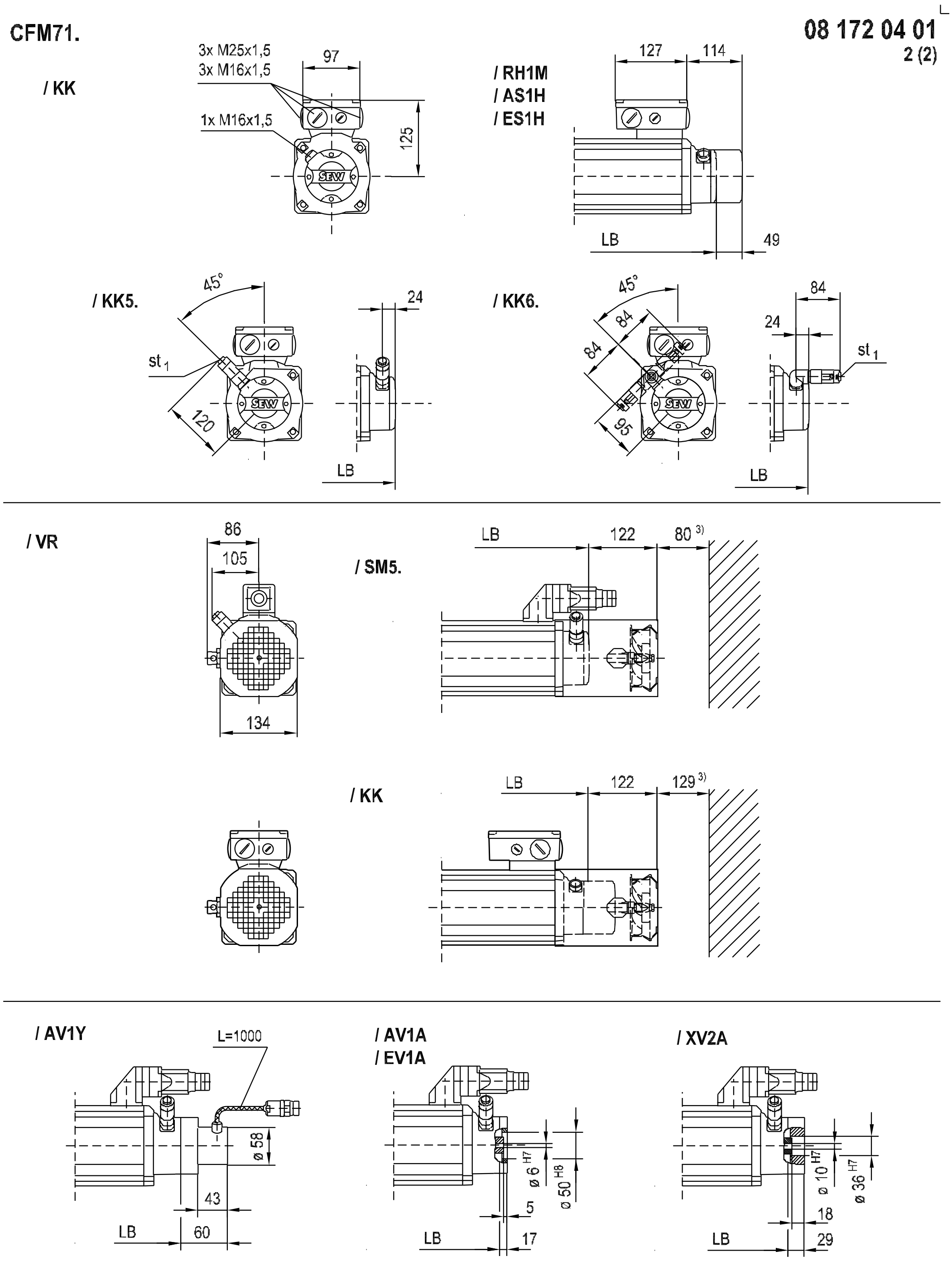
***Synchronous servomotors CFM71.. with plug connector and absolute encoder/resolver***




| | CFM71S/SM.. | CFM71M/SM.. | CFM71L/SM.. |
|---|---|---|---|
| L | 289 | 309 | 349 |
| LB | 249 | 269 | 309 |
| st[1)] | 8 -14 | 14 -17 | 14 -17 |
| $st_1$[1)] | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

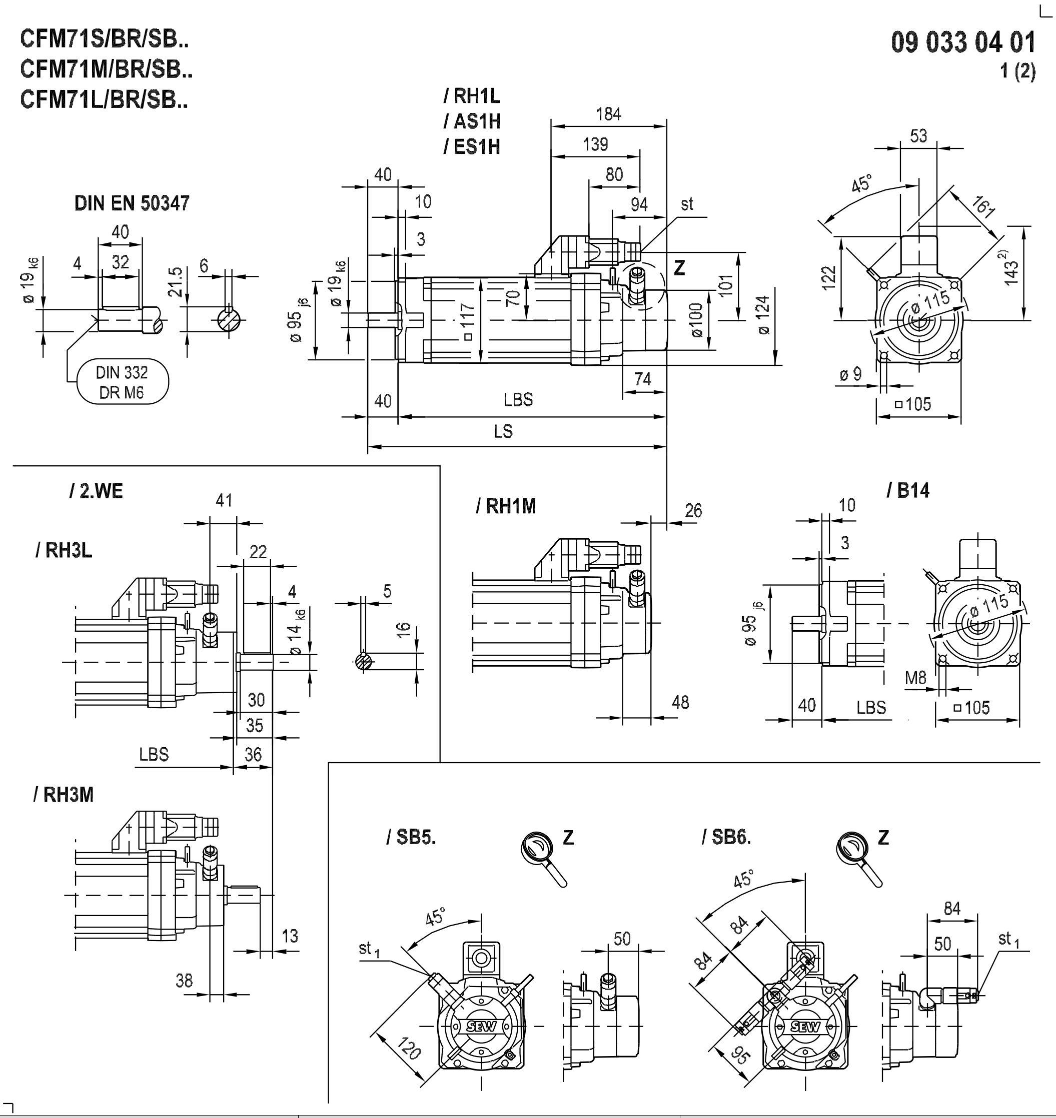
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

***Synchronous servo brake motors CFM71/BR.. with plug connector and absolute encoder/resolver***

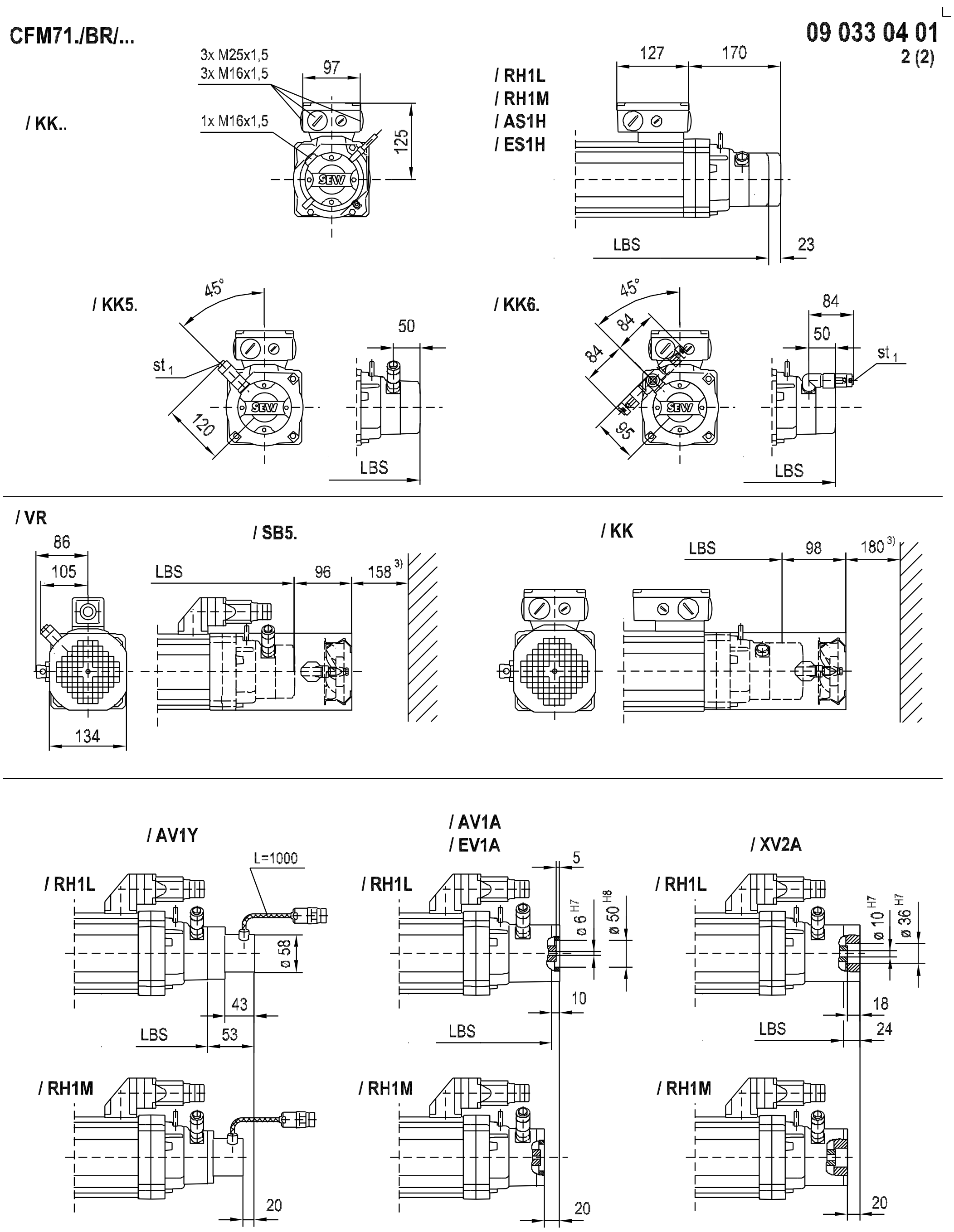





| | CFM71S/BR/SB.. | CFM71M/BR/SB.. | CFM71L/BR/SB.. |
|---|---|---|---|
| LS | 371 | 391 | 431 |
| LBS | 331 | 351 | 391 |
| st[1)] | 8 -14 | 14 -17 | 14 -17 |
| $st_1$[1)] | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

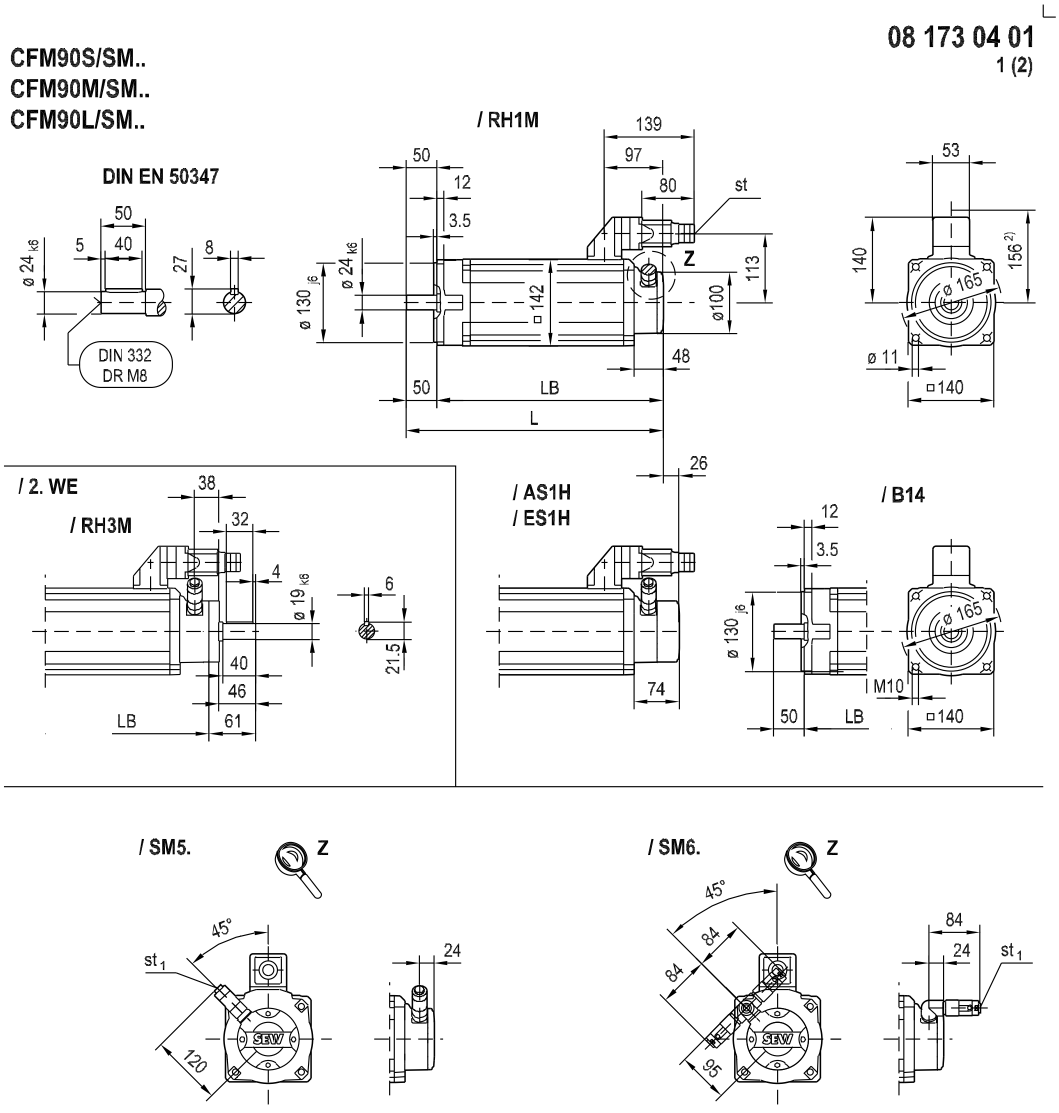
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

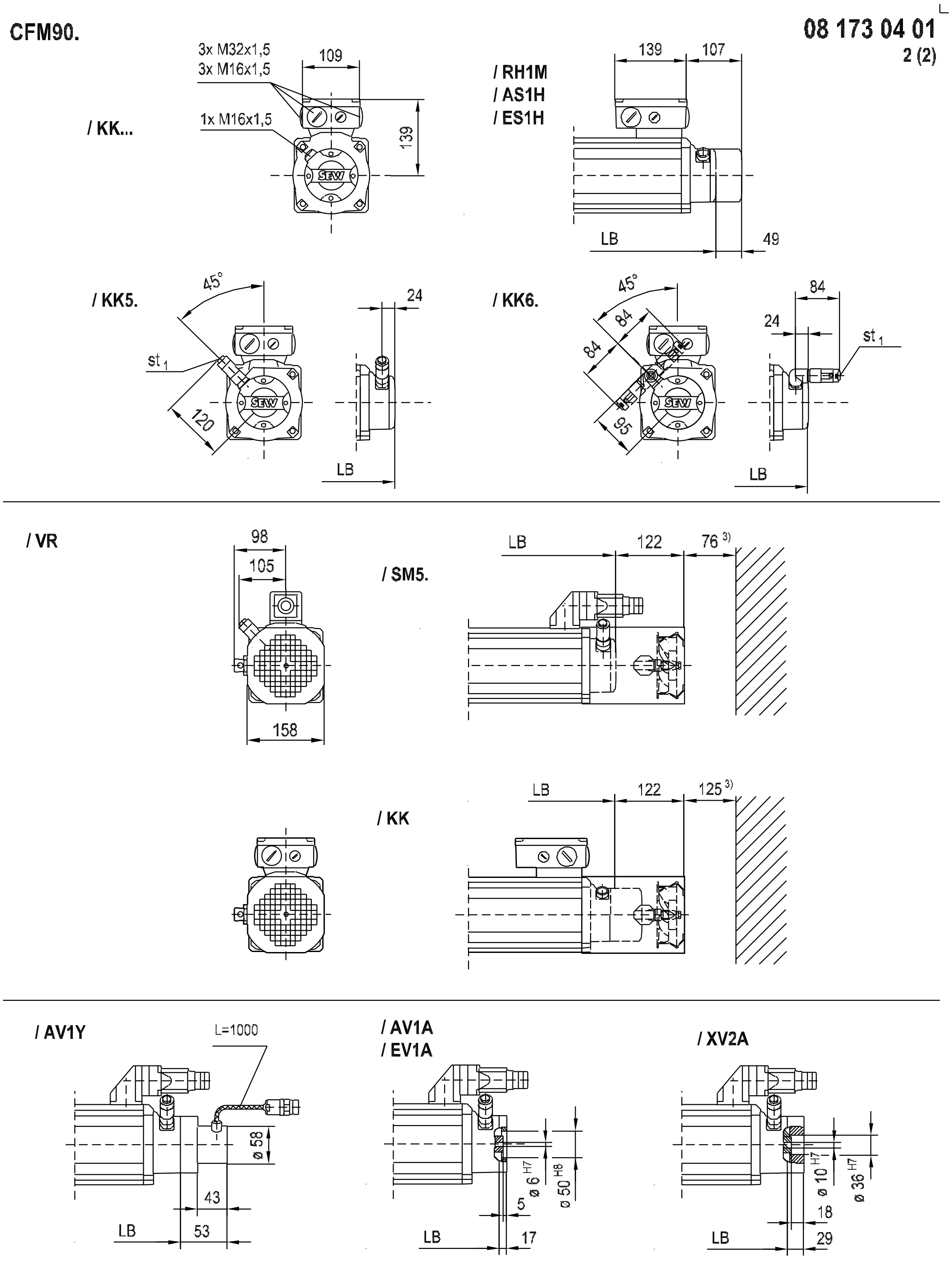
### *Synchronous servomotors CFM90.. with plug connector and absolute encoder/resolver*




| | CFM90S/SM.. | CFM90M/SM.. | CFM90L/SM.. |
|---|---|---|---|
| L | 341 | 368 | 422 |
| LB | 291 | 318 | 372 |
| st[1)] | 8 -14 | 14 -17 | 14 - 17 |
| $st_1$ | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

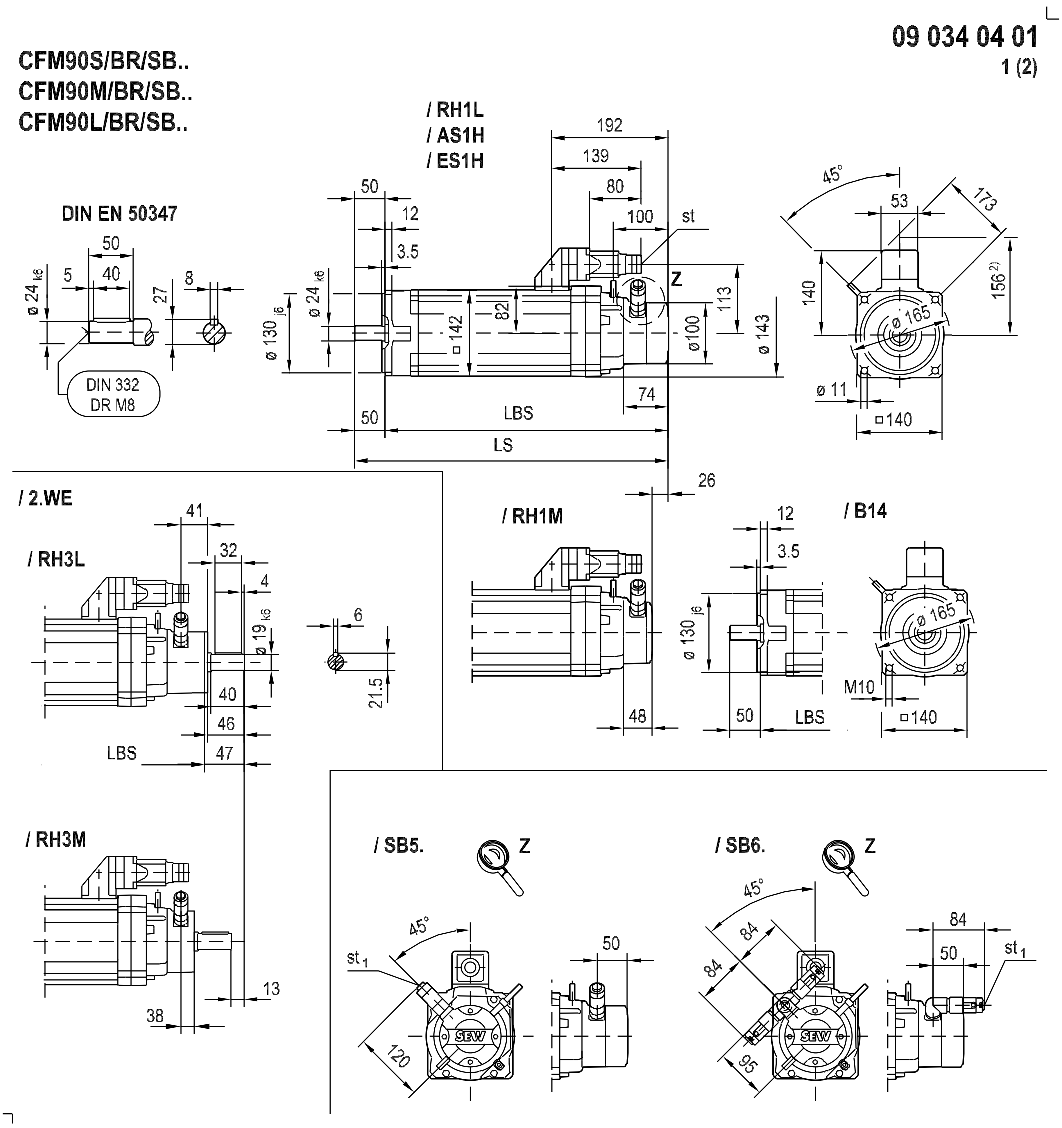
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

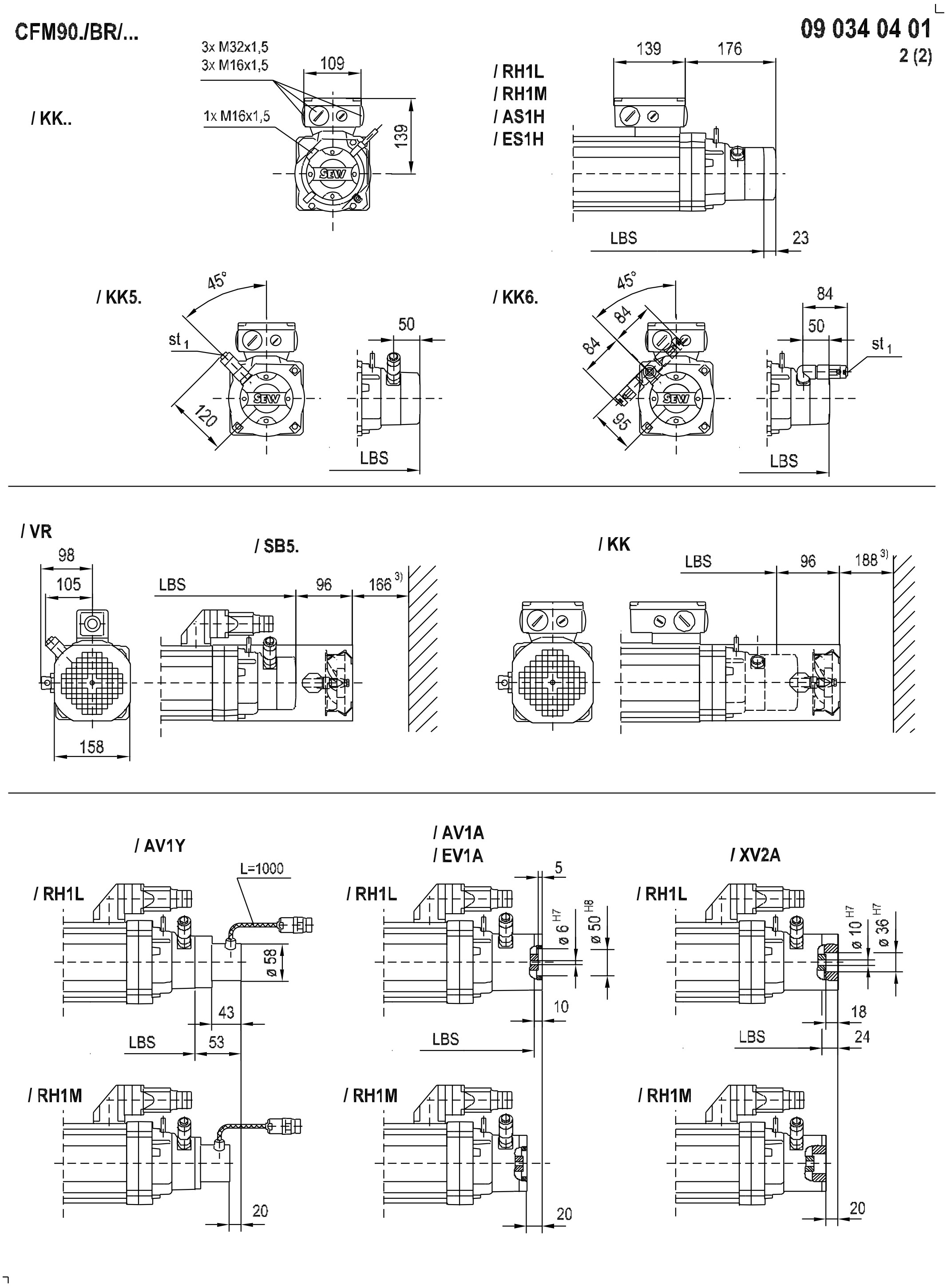
### *Synchronous servo brake motors CFM90/BR.. with plug connector and absolute encoder/resolver*




| | CFM90S/BR/SB.. | CFM90M/BR/SB.. | CFM90L/BR/SB.. |
|---|---|---|---|
| LS | 436 | 463 | 517 |
| LBS | 386 | 413 | 467 |
| st[1)] | 8 -14 | 14 -17 | 14 - 17 |
| $st_1$[1)] | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

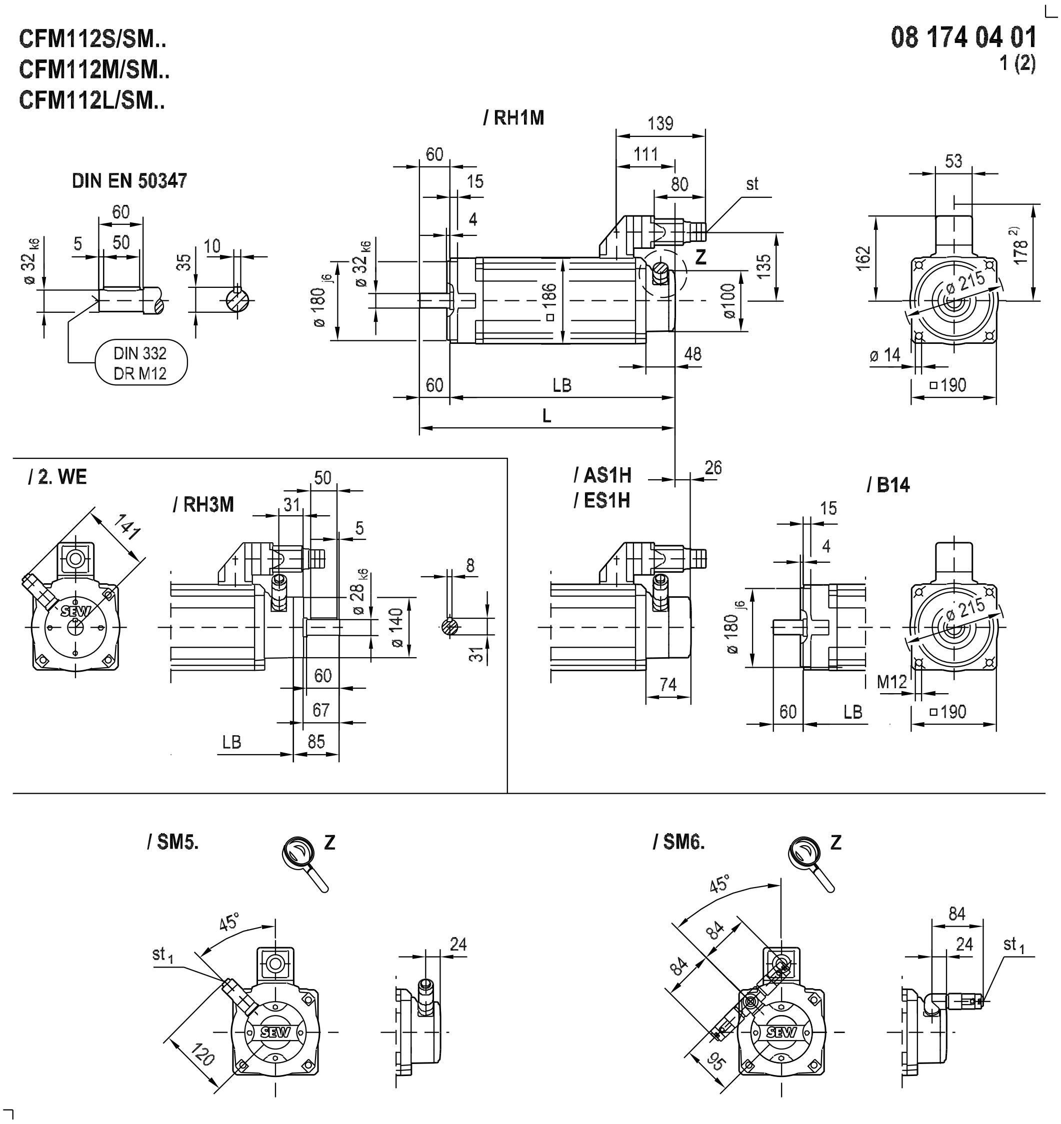
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

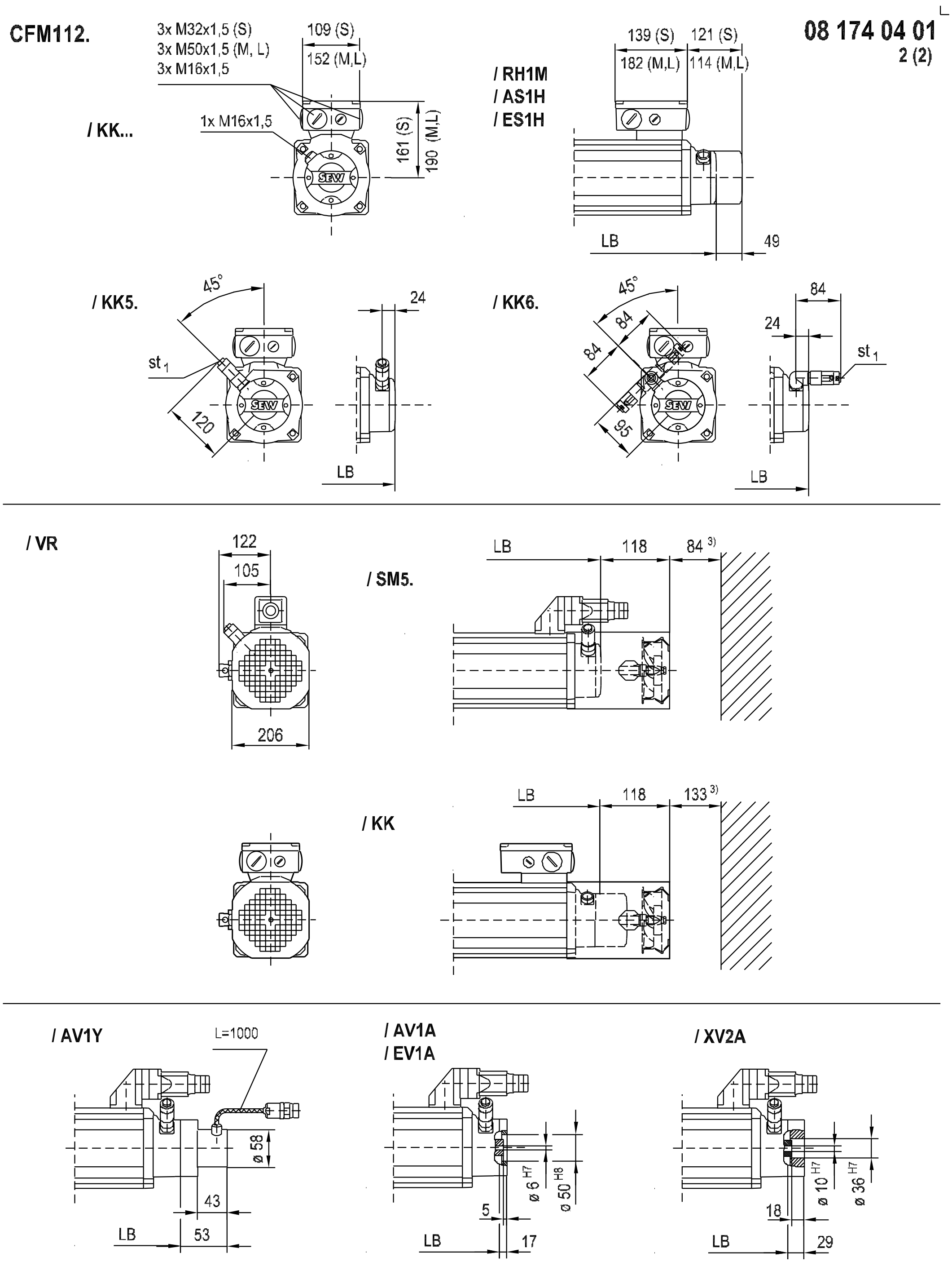
### *Synchronous servomotors CFM112.. with plug connector and absolute encoder/resolver*




| | CFM112S/SM.. | CFM112M/SM.. | CFM112L/SM.. |
|---|---|---|---|
| L | 379 | 406 | 460 |
| LB | 319 | 346 | 400 |
| st[1)] | 14 -17 | 17 - 23 | 17 -23 |
| $st_1$[1)] | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

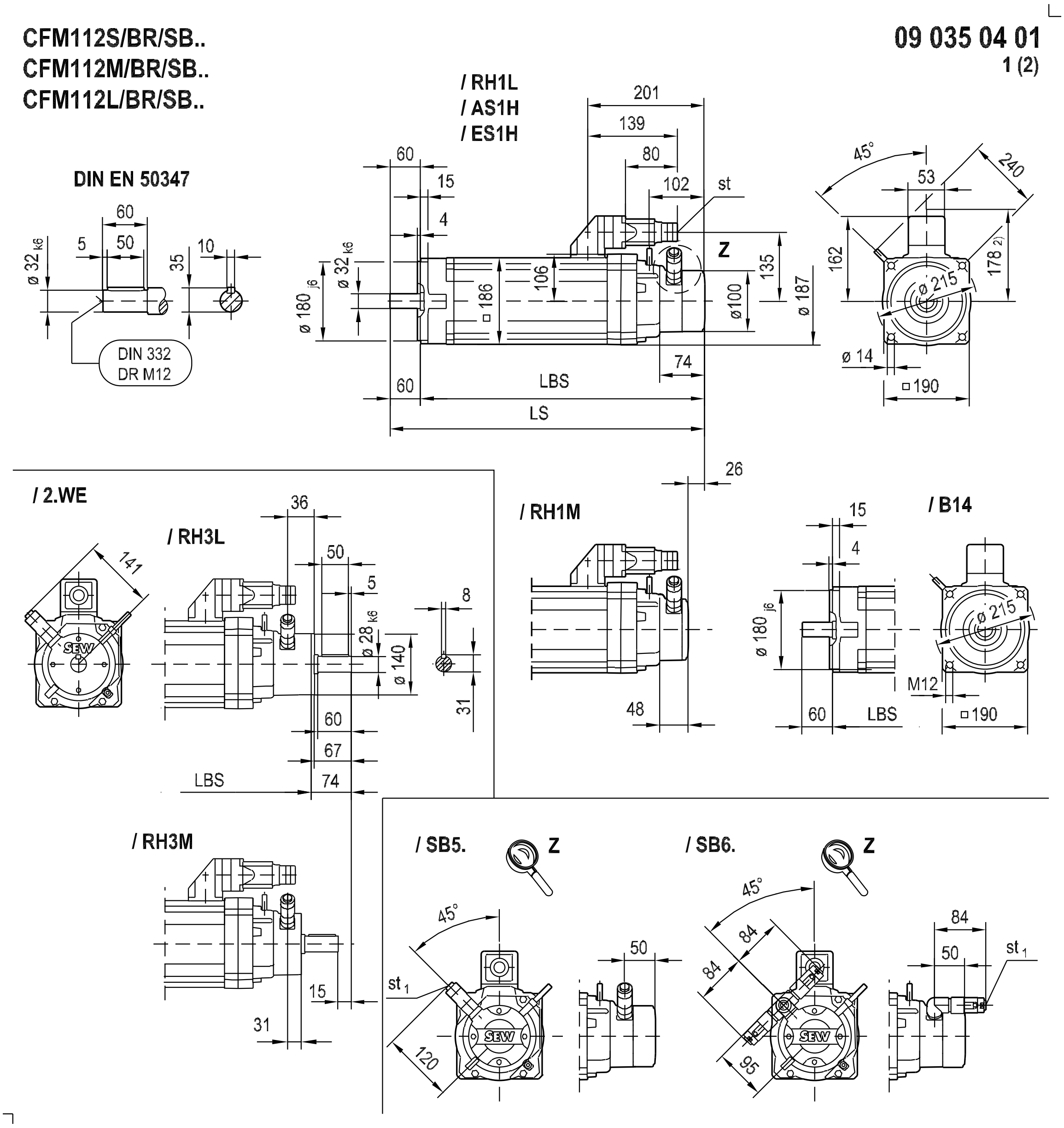
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

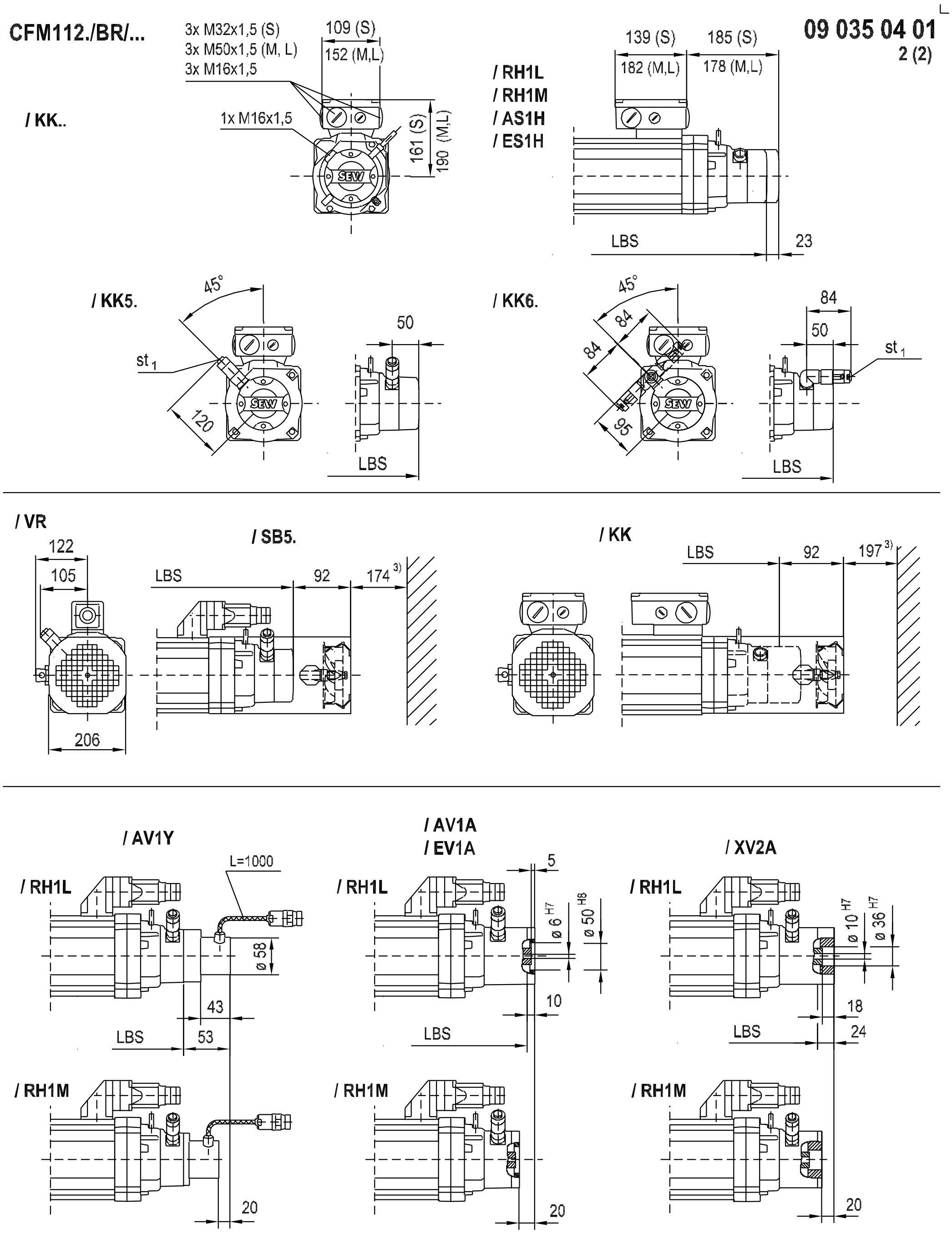
### *Synchronous servo brake motors CFM112/BR.. with plug connector and absolute encoder/resolver*




| | CFM112S/BR/SB.. | CFM112M/BR/SB.. | CFM112L/BR/SB.. |
|---|---|---|---|
| LS | 469 | 496 | 550 |
| LBS | 409 | 436 | 490 |
| st[1)] | 14 -17 | 17 - 23 | 17 -23 |
| $st_1$[1)] | 5.5 - 10.5 | 5.5 - 10.5 | 5.5 - 10.5 |

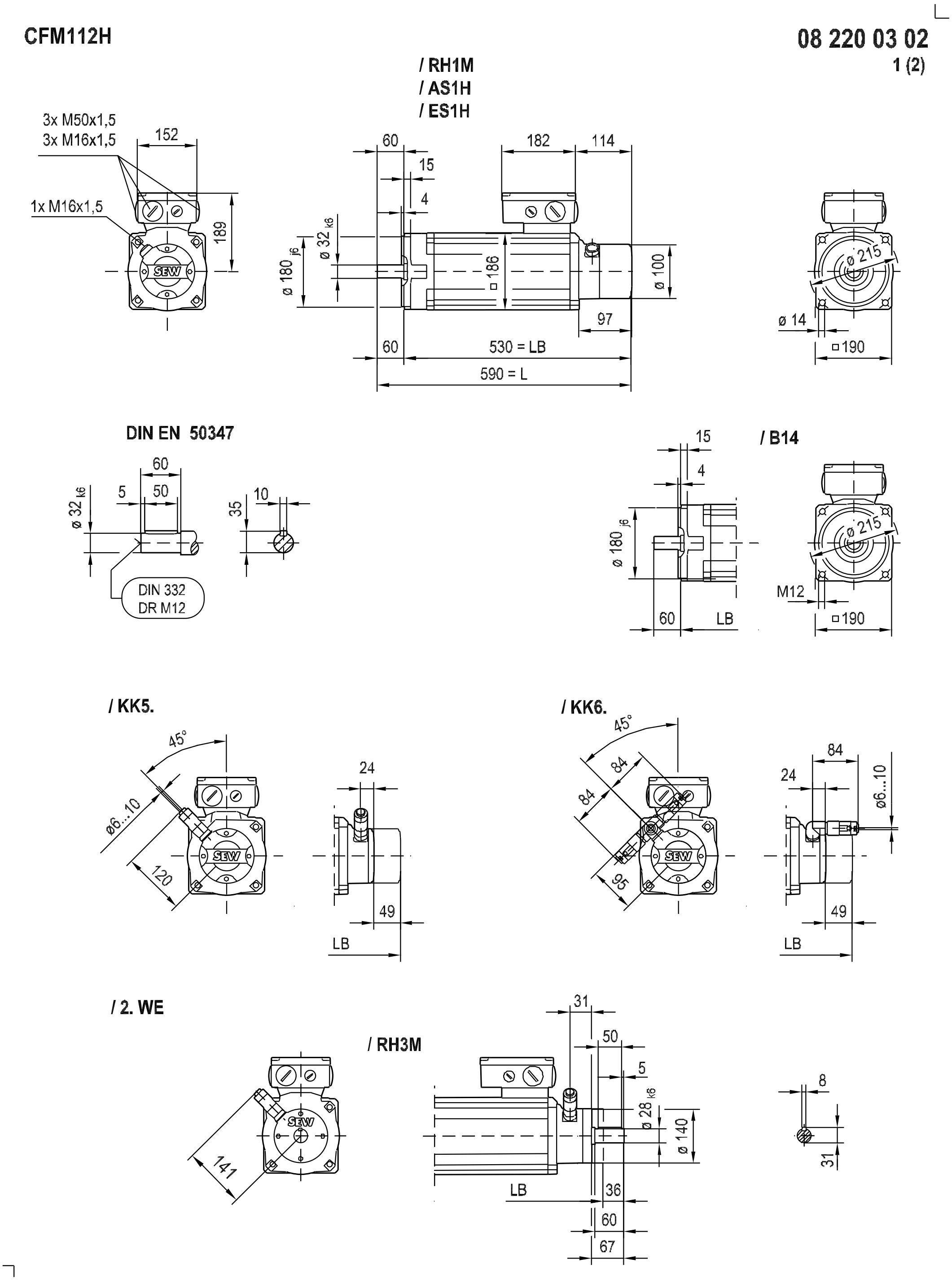
1) Diameter of cable to be connected

2) Space required for plug connector in locked condition




3) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

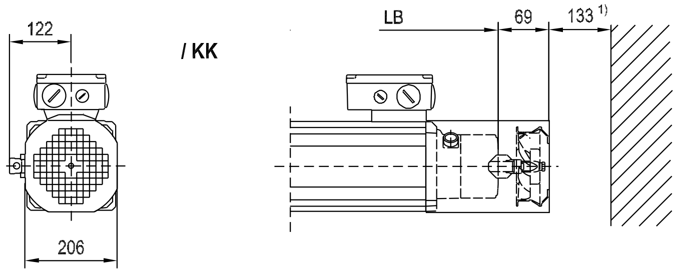
### *Synchronous servomotors CFM112H.. with terminal box and absolute encoder/resolver*



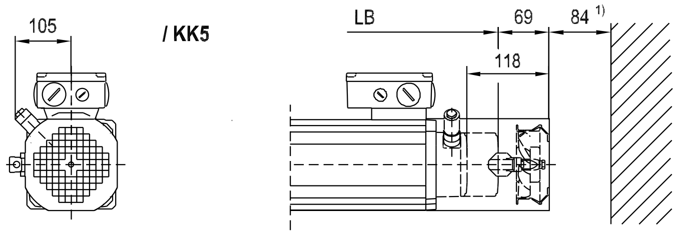
Z (Z)

/ VR

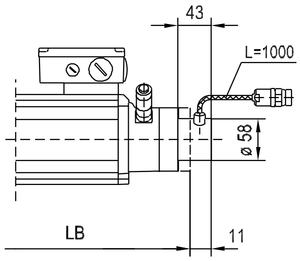
/ KK



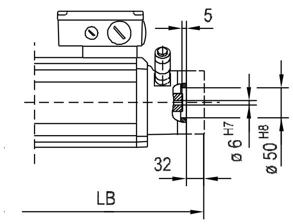

/ KK5



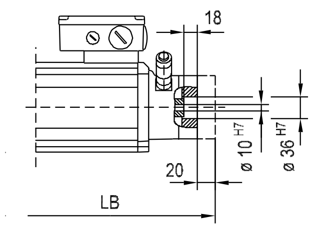

/ AV1Y




/ AV1A
/ EV1A

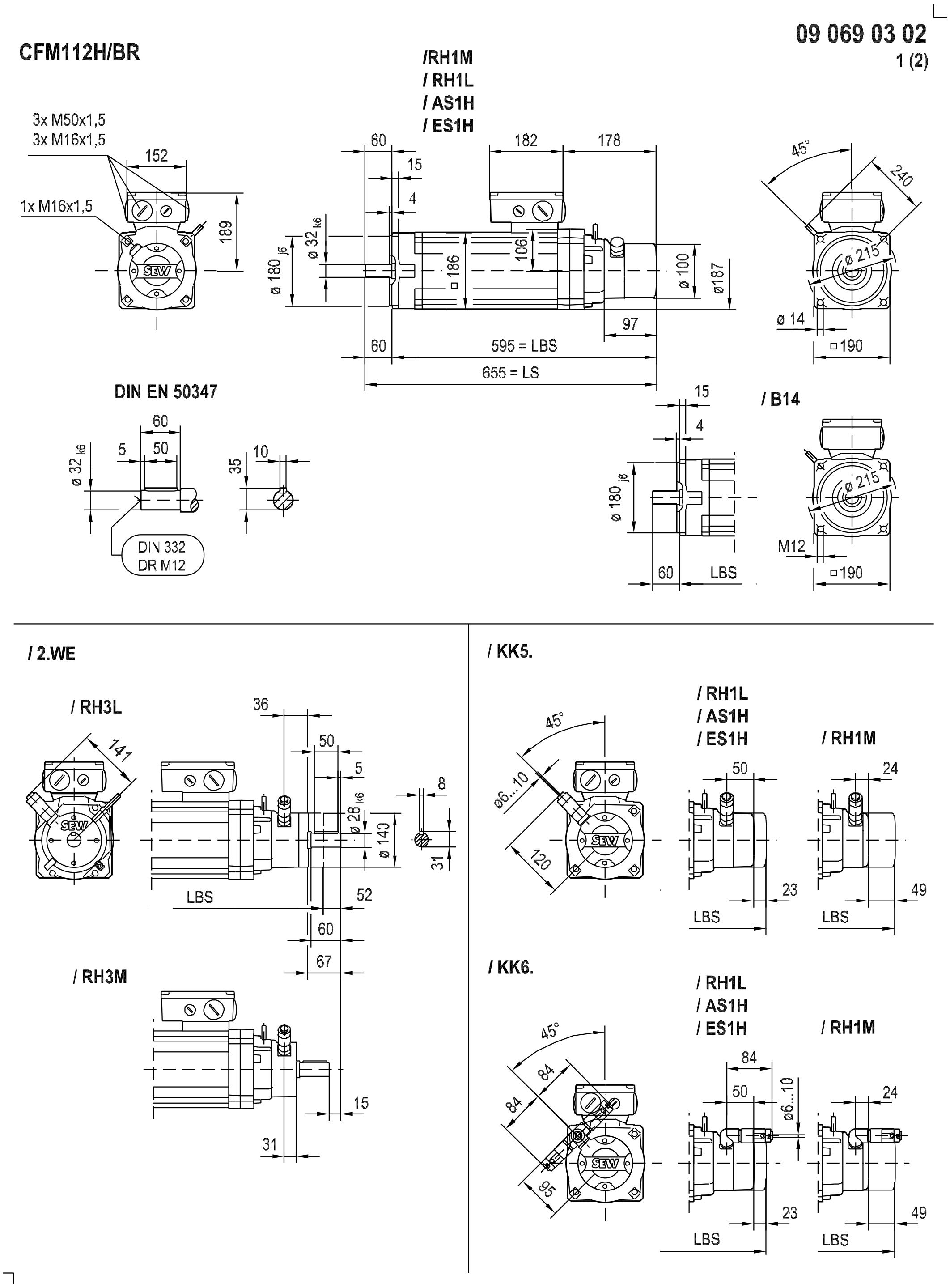



/ XV2A




1) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

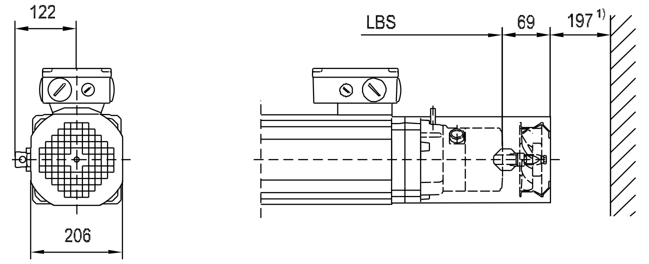
### *Synchronous servo brake motors CFM112H/BR.. with terminal box and absolute encoder/resolver*



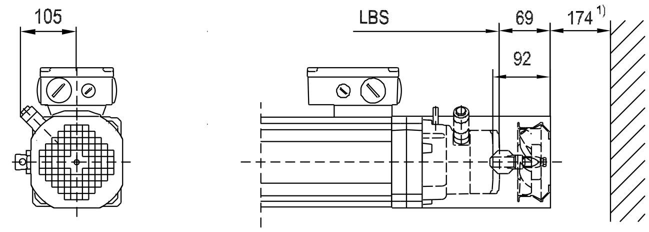
**CFM112H/BR** **09 069 03 02**
2 (2)

**/ VR**

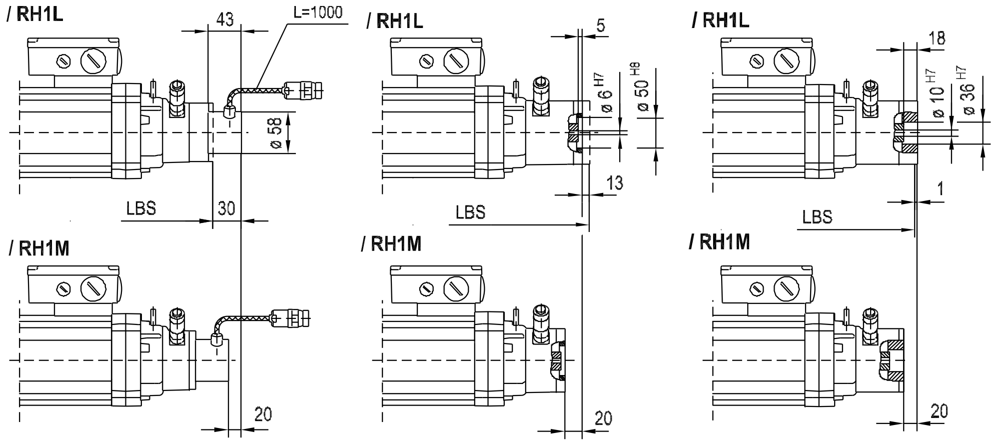
**/ KK**




**/ KK5**




**/ AV1Y** **/ AV1A / EV1A** **/ XV2A**




1) Space required to remove the fan guard in axial direction; leave at least sufficient space for a supply of cooling air

# 14 Prefabricated Cables, CFM Servomotor

## 14.1 Prefabricated cables and their structure

SEW-EURODRIVE offers prefabricated hybrid cables with plugs for straightforward and reliable motor connection. Cable and contact are connected using the crimp technique. The following cables are available in 1 m steps:

- Motor power
- Motor power + brake
- Resolver / motor protection
- Absolute encoder motor protection,
- Forced cooling fan.

Cables from Helukabel are used for fixed installation, cables from Nexans are used in cable carriers.

**INFORMATION**

For cable specifications, such as bending radius, approval and temperature range, please refer to the cable specification chapter on page 387 .

The size of the plug connector depends on the current level and the maximum cable length according to the speed.

Hybrid cables are divided into

- Power cables (motor cable, brakemotor cable, extension cable),
- Feedback cables (resolver cable, encoder cable, extension cable).



***Thread of plugs***

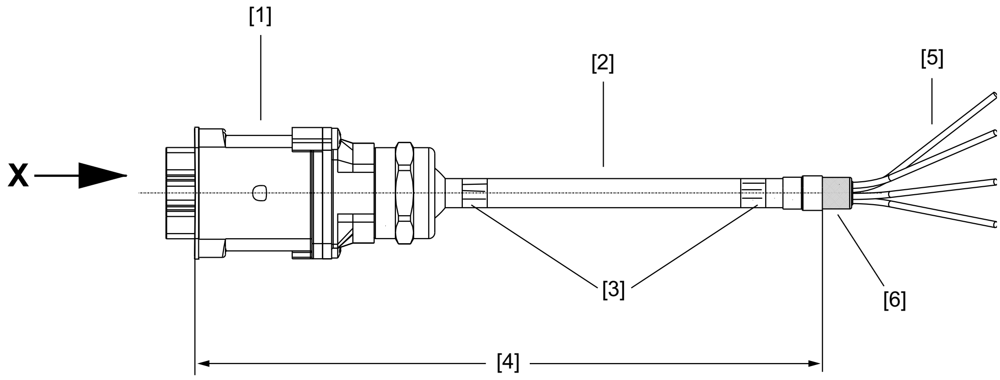
**INFORMATION**

The D-sub connectors are equipped with a common UNC thread.

***Notes on the wiring diagrams***

**All connectors are shown with view onto the pins.**

### *Structure of motor cables for CFM motors*




54102AXX

[1] Connector: Amphenol
[2] SEW-EURODRIVE logo printed on cable
[3] Nameplate
[4] Cable length ≤ 10 m: Tolerance +200 mm.
Cable length ≥ 10 m: Tolerance +2%.
Permitted cable length according to the technical documents.
[5] Pre-fabricated cable end for inverter.
Required loose parts are supplied with the cable.
[6] Shielding pulled back approx. 20 mm +5 mm.

***Motor side***

The cables on the motor end have a 6-pin EMC Amphenol plug connector and socket contacts.

The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal and ensure cable relief according to EN 61884.

***Inverter side***

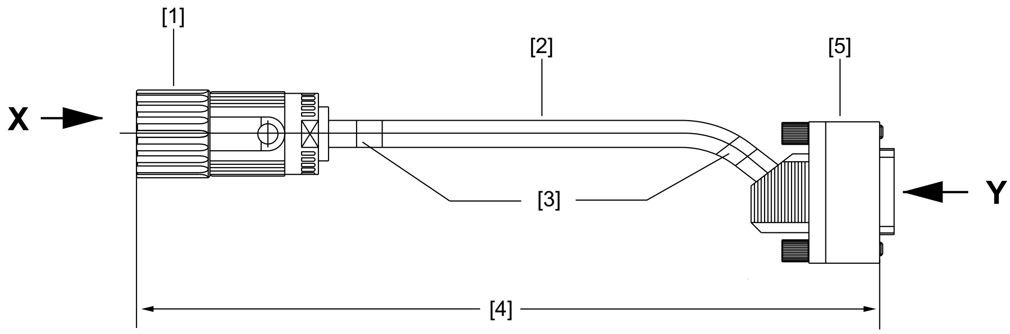
The individual cable cores of the motor and brakemotor cables are exposed and the shield is prepared for connection in the control cabinet. The cable for the inverter end has yet to be assembled. The loose parts required are supplied with the cable in a separate bag.

***Loose parts***

The following loose parts are supplied in accordance with the core cross sections for connection to the power terminals on the inverter:

| Bag no. | Motor | Content |
|---|---|---|
| 1 | CFM | 4 x conductor end sleeves 1.5 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 1.5 mm$^2$ |
| 2 | | 4 x conductor end sleeves 2.5 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 2.5 mm$^2$ |
| 3 | | 4 x conductor end sleeves 4 mm$^2$ , insulated<br>4 x M6 U-shaped cable lugs 4 mm$^2$<br>4 x M10 U-shaped cable lugs 4 mm$^2$ |
| 4 | | 4 x M6 U-shaped cable lugs 6 mm$^2$<br>4 x M10 U-shaped cable lugs 6 mm$^2$ |
| 5 | | 4 x M6 U-shaped cable lugs 10 mm$^2$<br>4 x M10 ring-type cable lugs 10 mm$^2$ |

### Structure of feedback cables




54635AXX

[1] Connector: Intercontec ASTA
[2] Printed on connector: SEW-EURODRIVE.
[3] Nameplate
[4] Cable length ≤ 10 m: Tolerance +200 mm.
Cable length ≥ 10 m: Tolerance +2%.
Permitted cable length according to the technical documents.
[5] Sub D plug

*Motor side*

A 12-pin EMC signal plug connector from Intercontec with socket contacts is used on the motor end for RH.M / RH.L / AS1H / ES1H. The shield is connected in the connector housing according to EMC requirements. All plug connectors seal the plug on the cable end with a lamellar seal.

A feedback cable is alternatively available for the corresponding terminal box. The individual cable strands are exposed and prepared for connection to the terminal box.

*Inverter side*

A commercial D-sub EMC connector with pin contacts is used on the inverter end. A 9-pin or 15-pin connector matching the inverter is used.

For feedback cables for MOVIDRIVE® compact inverters, please refer to the "MOVIDRIVE® compact" system manual.



*Hybrid cables*

The outer cable sheath on the motor and inverter end bears a nameplate with part number and logo of the prefabricated cable manufacturer. The ordered length and permitted tolerance are interrelated as follows:

- Cable length ≤ 10 m: Tolerance +200 mm.
- Cable length ≥ 10 m: + 2% tolerance

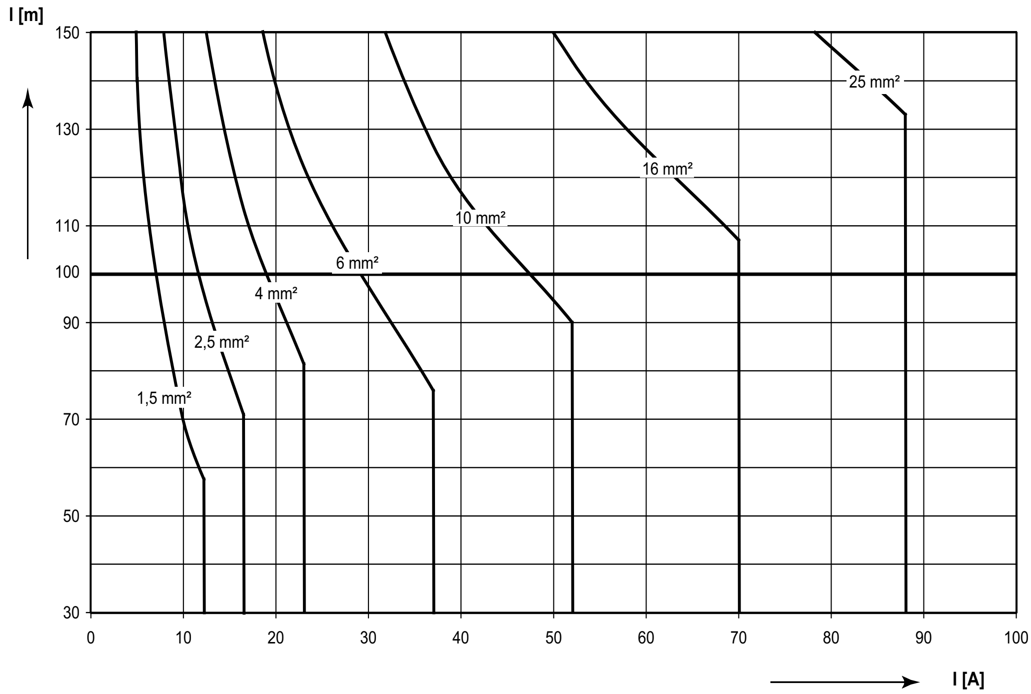
| | |
|---|---|
| | **INFORMATION** |
| i | Refer to the system manual of the inverter for determining the maximum cable length. |

Make sure that an EMC-compliant environment is maintained during project planning.

### *Project planning for cable cross section*

*Cable dimensioning to EN 60402*

Diagram: Minimum required cable cross section depending on cable length l in meters and current I in amperes:




54038AXX

The hybrid cables with cross sections 1.5 mm$^2$ to 10 mm$^2$ can be ordered from SEW-EURODRIVE.

*Cable load through current I in A according to EN 60204-1 table 5, ambient temperature 40 °C*

| Cable cross section mm$^2$ | Three-core sheathed cable in duct or cable A | Three-core sheathed cable on top of each other on wall A | Three-core sheathed cable next to each other A |
|---|---|---|---|
| 1.5 | 12.2 | 15.2 | 16.1 |
| 2.5 | 16.5 | 21.0 | 22 |
| 4 | 23 | 28.0 | 30 |
| 6 | 29 | 36.0 | 37 |
| 10 | 40 | 50.0 | 52 |
| 16 | 53 | 66.0 | 70 |
| 25 | 67 | 84.0 | 88 |
| 35 | 83 | 104.0 | 114 |

These data are merely recommended values and are **no substitute for the detailed project planning** of the cables depending on the concrete application considering the applicable regulations.

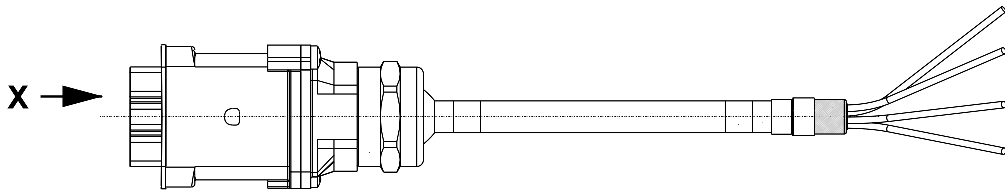
Observe the voltage drop that occurs along the cable in particular with the DC 24 V brake coil when dimensioning the cross sections for the brake cable. The acceleration current is decisive for the calculation.

*Assignment of servomotor and cable cross section*

| $n_N$ rpm | Motor | $M_0$ Nm | $I_0$ A | SM SB |
|---|---|---|---|---|
| **2000** | **CFM71S** | 5 | 2.2 | 51 |
| | **CFM71M** | 6.5 | 3 | 51 |
| | **CFM71L** | 9.5 | 4.2 | 51 |
| | **CFM90S** | 11 | 4.9 | 51 |
| | **CFM90M** | 14.5 | 6.9 | 51 |
| | **CFM90L** | 21 | 9.9 | 51 |
| | **CFM112S** | 23.5 | 10 | 51 |
| | **CFM112M** | 31 | 13.5 | 52 |
| | **CFM112L** | 45 | 20 | 54 |
| 3000 | **CFM71S** | 5 | 3.3 | 51 |
| | **CFM71M** | 6.5 | 4.3 | 51 |
| | **CFM71L** | 9.5 | 6.2 | 51 |
| | **CFM90S** | 11 | 7.3 | 51 |
| | **CFM90M** | 14.5 | 10.1 | 51 |
| | **CFM90L** | 21 | 14.4 | 52 |
| | **CFM112S** | 23.5 | 15 | 52 |
| | **CFM112M** | 31 | 20.5 | 54 |
| | **CFM112L** | 45 | 30 | 56 |
| 4500 | **CFM71S** | 5 | 4.9 | 51 |
| | **CFM71M** | 6.5 | 6.6 | 51 |
| | **CFM71L** | 9.5 | 9.6 | 51 |
| | **CFM90S** | 11 | 11.1 | 51 |
| | **CFM90M** | 14.5 | 14.7 | 52 |
| | **CFM90L** | 21 | 21.6 | 54 |
| | **CFM112S** | 23.5 | 22.5 | 54 |
| | **CFM112M** | 31 | 30 | 56 |
| | **CFM112L** | 45 | 46 | 59 |
| 6000 | **CFM71S** | 5 | 6.5 | 51 |
| | **CFM71M** | 6.5 | 8.6 | 51 |
| | **CFM71L** | 9.5 | 12.5 | 52 |
| | **CFM90S** | 11 | 14.5 | 52 |
| | **CFM90M** | 14.5 | 19.8 | 54 |
| | **CFM90L** | 21 | 29.5 | 56 |

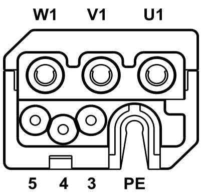
The assignments of SM / SB plug connectors are not binding. Given the dynamic properties in the system, other cross sections can also be implemented.

### *Power cable for CFM*




54622AXX

*Pin assignment of the motor cable*

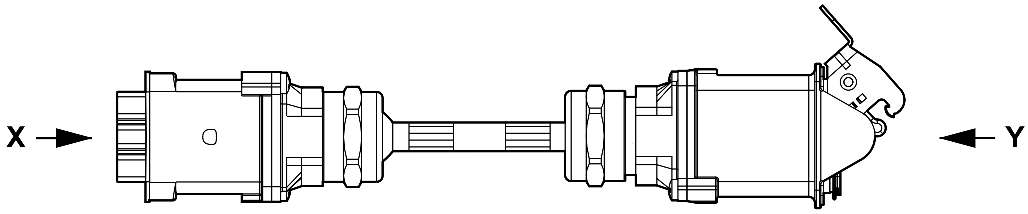
| Plug connector | Pin | Core identification | Assigned | Contact type | Extra |
|---|---|---|---|---|---|
| **C148U connector with socket contacts** | U1 | Black with white lettering U, V, W | U | Cut-off, length ca. 250 mm | |
| | V1 | | V | | |
| | W1 | | W | | |
|   **View X** | PE | Green/yellow | Protective earth | | Bag of loose parts |

*Motor cable types*

The cables are equipped with a plug for motor connection and conductor end sleeves for inverter connection.

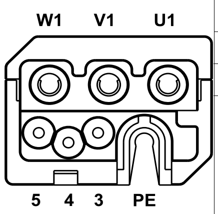
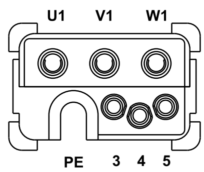
| Plug connector type | Number of cores and cable cross section | Part number | Installation type |
|---|---|---|---|
| **SM 51 / SM 61** | **4 × 1.5 mm$^2$ (AWG 16)** | 199 179 5 | Fixed installation |
| **SM 52 / SM 62** | **4 × 2.5 mm$^2$ (AWG 12)** | 199 181 7 | |
| **SM 54 / SM 64** | **4 × 4 mm$^2$ (AWG 10)** | 199 183 3 | |
| **SM 56 / SM 66** | **4 × 6 mm$^2$ (AWG 10)** | 199 185 X | |
| **SM 59 / SM 69** | **4 × 10 mm$^2$ (AWG 8)** | 199 187 6 | |
| **SM 51 / SM 61** | **4 × 1.5 mm$^2$ (AWG 16)** | 1333 1140 | Cable carrier installation |
| **SM 52 / SM 62** | **4 × 2.5 mm$^2$ (AWG 12)** | 1333 1159 | |
| **SM 54 / SM 64** | **4 × 4 mm$^2$ (AWG 10)** | 199 184 1 | |
| **SM 56 / SM 66** | **4 × 6 mm$^2$ (AWG 10)** | 199 186 8 | |
| **SM 59 / SM 69** | **4 × 10 mm$^2$ (AWG 8)** | 199 188 4 | |

Figure: Motor extension cable




54873AXX

*Pin assignment of motor extension cable*

| Plug connector | Pin | Core identification | Pin | Plug connector |
|---|---|---|---|---|
| **C148U adapter with socket contacts** | U1 | Black with white lettering U, V, W | U1 | **C148U plug with pin contacts** |
| | V1 | | V1 | |
| | W1 | | W1 | |
|   **View X** | PE | Green/yellow | PE |   **View Y** |
| | 3 | Black with white lettering 1, 2, 3 | 3 | |
| | 4 | | 4 | |
| | 5 | | 5 | |

The motor extension cable is a 1:1 connection of all pins.

*Types of motor extension cables*

The cables are equipped with a plug and adapter for extending the CFM motor cable.

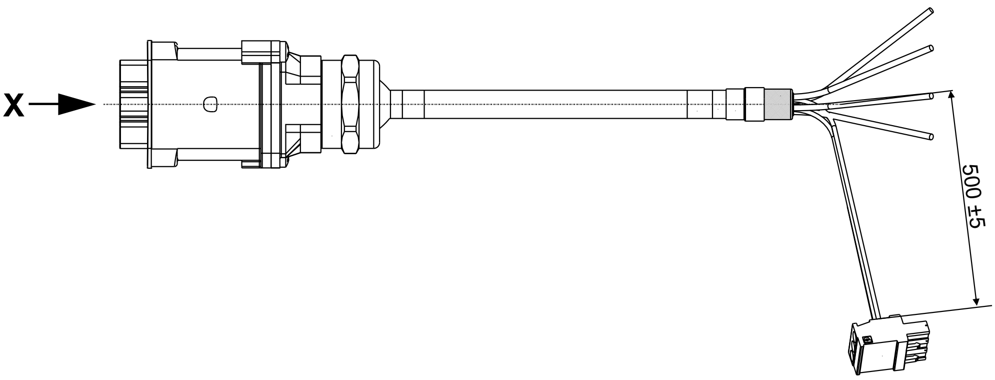
| Plug connector type | Number of cores and cable cross section | Part number | Installation type |
|---|---|---|---|
| **SM 51 / SM 61** | **4 × 1.5 mm$^2$ (AWG 16)** | 199 549 9 | Fixed installation |
| **SM 52 / SM 62** | **4 × 2.5 mm$^2$ (AWG 12)** | 199 551 0 | |
| **SM 54 / SM 64** | **4 × 4 mm$^2$ (AWG 10)** | 199 553 7 | |
| **SM 56 / SM 66** | **4 × 6 mm$^2$ (AWG 10)** | 199 555 3 | |
| **SM 59 / SM 69** | **4 × 10 mm$^2$ (AWG 8)** | 199 557 X | |
| **SM 51 / SM 61** | **4 × 1.5 mm$^2$ (AWG 16)** | 1333 1183 | Cable carrier installation |
| **SM 52 / SM 62** | **4 × 2.5 mm$^2$ (AWG 12)** | 1333 1191 | |
| **SM 54 / SM 64** | **4 × 4 mm$^2$ (AWG 10)** | 199 554 5 | |
| **SM 56 / SM 66** | **4 × 6 mm$^2$ (AWG 10)** | 199 556 1 | |
| **SM 59 / SM 69** | **4 × 10 mm$^2$ (AWG 8)** | 199 558 8 | |

*Alternative plug connectors*

Plug connectors for power supply with socket contacts (complete):

| Type | Cross sections | Part no. |
|---|---|---|
| **SM51 / SM61** | 4 x 1.5 mm$^2$ | 199 135 3 |
| **SM52 / SM62** | 4 x 2.5 mm$^2$ | 199 136 1 |
| **SM54 / SM64** | 4 x 4 mm$^2$ | 199 137 X |
| **SM56 / SM66** | 4 x 6 mm$^2$ | 199 138 8 |
| **SM59 / SM69** | 4 x 10 mm$^2$ | 199 139 6 |

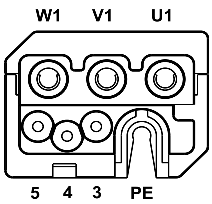
Figure: Brakemotor cable




54613AXX

*Pin assignment of brake motor cable*

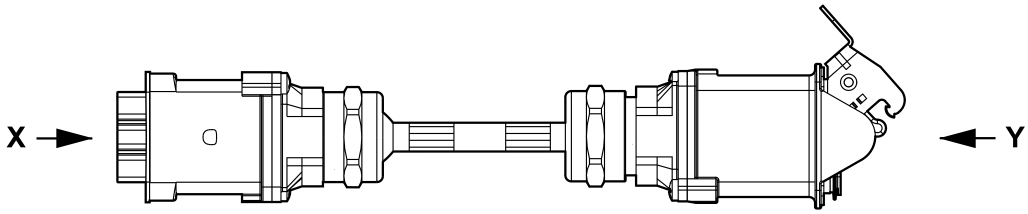
The brake motor cable is fabricated for the BME, BMP, BMH, BMK and BMV brake rectifiers. For the BSG control unit, the customers have to assemble the cable themselves.

| Plug connector | Pin | Core identification | Assigned | Contact type | Extra |
|---|---|---|---|---|---|
| **C148U connector with socket contacts** | U1 | Black with white lettering U, V, W | U | Cut-off, length ca. 250 mm | Bag of loose parts |
| | V1 | | V | | |
| | W1 | | W | | |
|   **View X** | PE | Green/yellow | (protective earth) | | |
| | 3 | Black with white lettering 1, 2, 3 | 1 | with Phoenix plug connector GMVSTBW 2.5/3ST | |
| | 4 | | 2 | | |
| | 5 | | 3 | | |

*Types of brake motor cables*

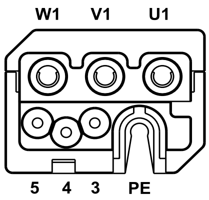
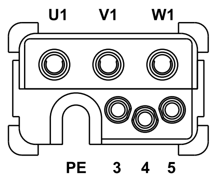
| Plug connector type, complete | Number of cores and cable cross section | Part number | Installation type |
|---|---|---|---|
| **SB 51 / SB 61** | **4 × 1.5 mm² + 3 × 1.0 mm²** | 199 189 2 | Fixed installation |
| **SB 52 / SB 62** | **4 × 2.5 mm² + 3 × 1.0 mm²** | 199 191 4 | |
| **SB 54 / SB 64** | **4 × 4 mm² + 3 × 1.0 mm²** | 199 193 0 | |
| **SB 56 / SB 66** | **4 × 6 mm² + 3 × 1.5 mm²** | 199 195 7 | |
| **SB 59 / SB 69** | **4 × 10 mm² + 3 × 1.5 mm²** | 199 197 3 | |
| **SB 51 / SB 61** | **4 × 1.5 mm² + 3 × 1.0 mm²** | 1333 1167 | Cable carrier installation |
| **SB 52 / SB 62** | **4 × 2.5 mm² + 3 × 1.0 mm²** | 1333 1175 | |
| **SB 54 / SB 64** | **4 × 4 mm² + 3 × 1.0 mm²** | 199 194 9 | |
| **SB 56 / SB 66** | **4 × 6 mm² + 3 × 1.5 mm²** | 199 196 5 | |
| **SB 59 / SB 69** | **4 × 10 mm² + 3 × 1.5 mm²** | 199 198 1 | |

Figure: Brakemotor extension cable




54873AXX

*Pin assignment of brake motor extension cable*

| Plug connector | Pin | Core identification | Pin | Plug connector |
|---|---|---|---|---|
| **C148U adapter with socket contacts** | U1 | Black with white lettering U, V, W | U1 | **C148U plug with pin contacts** |
| | V1 | | V1 | |
| | W1 | | W1 | |
|   **View X** | PE | Green/yellow | PE |   **View Y** |
| | 3 | Black with white lettering 1, 2, 3 | 3 | |
| | 4 | | 4 | |
| | 5 | | 5 | |

The brakemotor extension cable is a 1:1 connection of all pins.

*Types of brake motor extension cables*

| Plug connector type, complete | Number of cores and cable cross section | Part number | Installation type |
|---|---|---|---|
| **SK 51 / SK 61** | **4 × 1.5 mm² + 3 × 1.0 mm²** | 199 199 X | Fixed installation |
| **SK 52 / SK 62** | **4 × 2.5 mm² + 3 × 1.0 mm²** | 199 201 5 | |
| **SK 54 / SK 64** | **4 × 4 mm² + 3 × 1.0 mm²** | 199 203 1 | |
| **SK 56 / SK 66** | **4 × 6 mm² + 3 × 1.5 mm²** | 199 205 8 | |
| **SK 59 / SK 69** | **4 × 10 mm² + 3 × 1.5 mm²** | 199 207 4 | |
| **SK 51 / SK 61** | **4 × 1.5 mm² + 3 × 1.0 mm²** | 1333 1205 | Cable carrier installation |
| **SK 52 / SK 62** | **4 × 2.5 mm² + 3 × 1.0 mm²** | 1333 1215 | |
| **SK 54 / SK 64** | **4 × 4 mm² + 3 × 1.0 mm²** | 199 204 X | |
| **SK 56 / SK 66** | **4 × 6 mm² + 3 × 1.5 mm²** | 199 206 6 | |
| **SK 59 / SK 69** | **4 × 10 mm² + 3 × 1.5 mm²** | 199 208 2 | |

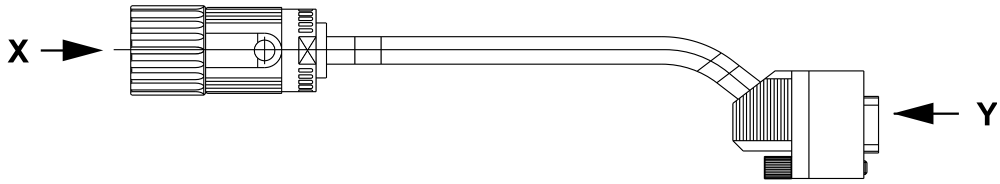
*Alternative plug connectors*

Plug connectors for power supply with socket contacts (complete).

| Type | Cross sections | Part no. |
|---|---|---|
| **SB51 / SB61** | **4 × 1.5 mm² + 3 × 1.0 mm²** | 199 142 6 |
| **SB52 / SB62** | **4 × 2.5 mm² + 3 × 1.0 mm²** | 199 143 4 |
| **SB54 / SB64** | **4 × 4 mm² + 3 × 1.0 mm²** | 199 144 2 |
| **SB56 / SB66** | **4 × 6 mm² + 3 × 1.5 mm²** | 199 145 0 |
| **SB59 / SB69** | **4 × 10 mm² + 3 × 1.5 mm²** | 199 146 9 |

### *Feedback cable*

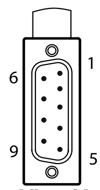
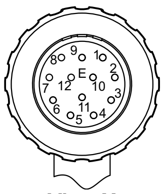
*Resolver cable, plug connector, MOVIDRIVE®*



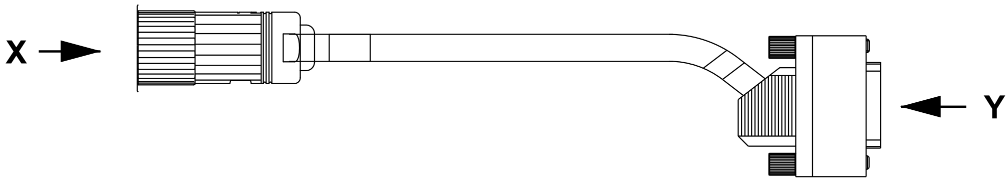

54704AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 mm$^2$ | 199 487 5 |
| CFM | Cable carrier installation | | 199 319 4 |

*Pin assignment of resolver cable RH.M / RH.L*

| RH1M resolver cable pin assignment | | | | | | |
|---|---|---|---|---|---|---|
| **Motor connection side** | | | | | **Connection MOVIDRIVE® MDX..B** | |
| **Plug connector** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector** |
| **ASTA021FR** | 1 | R1 (reference +) | Pink (PK) | R1 (reference +) | 3 | **Sub-D 9-pin** |
| **0198 6732** | 2 | R2 (reference -) | Gray (GY) | R2 (reference -) | 8 | |
| 12-pin with socket contacts | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 2 |   |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 7 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 1 | |
|   | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 6 | |
| | 7 | n.c. | - | - | - | **View Y** |
| | 8 | n.c. | - | - | - | |
| | 9 | TF/KTY + | Brown (BN) / violet (VT) | TF (KTY+) | 9 | |
| **View X** | 10 | TF/KTY - | White (WH) black (BK) | TF/KTY - | 5 | |
| | 11 | n.c. | - | - | - | |
| | 12 | n.c. | - | n.c. | 4 | |

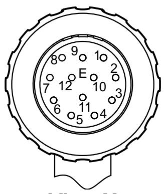
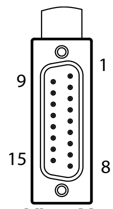
*Resolver cable, plug connector, MOVIAXIS®*




54629AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 mm² | 1332 742 9 |
| CFM | Cable carrier installation | | 1332 743 7 |

*Pin assignment of resolver cable RH.M / RH.L*

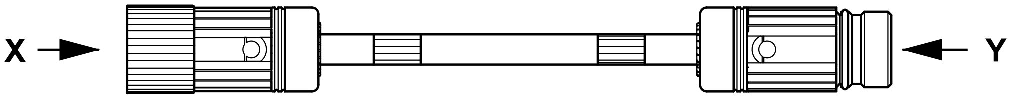
| RH1M resolver cable pin assignment | | | | | | |
|---|---|---|---|---|---|---|
| **Motor connection side** | | | | | **Connection MOVIAXIS® MXA** | |
| **Plug connector** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector** |
| **ASTA021FR** | 1 | R1 (reference +) | Pink (PK) | R1 (reference +) | 5 | |
| **0198 6732** | 2 | R2 (reference -) | Gray (GY) | R2 (reference -) | 13 | |
| 12-pin with socket contacts | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 2 | Sub-D 15-pin |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 10 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 1 | |
|  | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 9 |   |
| | 7 | n.c. | - | n.c. | 3 | |
| | 8 | n.c. | - | n.c. | 4 | |
| | 9 | TF/KTY + | Brown (BN) / violet (VT)[1] | TF/KTY + | 14 | |
| | 10 | TF/KTY - | White (WH) black (BK)[1] | TF/KTY - | 6 | |
| | 11 | n.c. | - | n.c. | 7 | |
| **View X** | 12 | n.c. | - | n.c. | 8 | **View Y** |
| | | - | - | n.c. | 11 | |
| | | - | - | n.c. | 12 | |
| | | - | - | n.c. | 15 | |

1) Double assignment to increase cross section

All connectors are shown with view onto the pins.

14

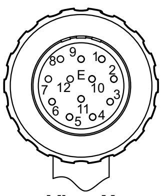
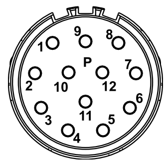
*Extension cable for resolver RH.M / RH.L*




54630AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 mm$^2$ | 199 542 1 |
| CFM | Cable carrier installation | | 199 541 3 |

*Pin assignment of extension cable for resolver RH.M / RH.L*

| Pin assignment of extension cable for resolver RH.M / RH.L | | | | | | |
|---|---|---|---|---|---|---|
| **Plug connector** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector** |
| **ASTA021FR**<br>**0198 6732**<br>12-pin with socket contacts<br><br>**View X** | 1 | R1 (reference +) | Pink (PK) | R1 (reference +) | 1 | AKUA020MR<br>**199 647 9**<br>12-pin with pin contacts<br><br>**View Y** |
| | 2 | R1 (reference -) | Gray (GY) | R1 (reference -) | 2 | |
| | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 3 | |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 4 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 5 | |
| | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 6 | |
| | 7 | n. c. | - | n. c. | 7 | |
| | 8 | n. c. | - | n. c. | 8 | |
| | 9 | TF/KTY + | Brown (BN) / violet (VT)[1)] | TF/KTY + | 9 | |
| | 10 | TF/KTY - | White (WH) black (BK)[1)] | TF/KTY - | 10 | |
| | 11 | n. c. | - | n. c. | 11 | |
| | 12 | n. c. | - | n. c. | 12 | |

1) Double assignment to increase cross section

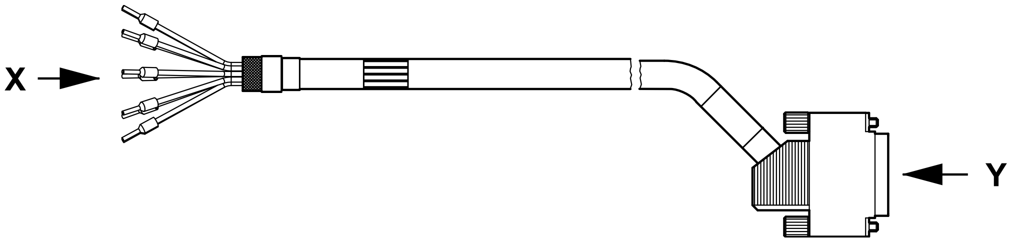
The extension cable has the same pin assignment as all other contacts.

*Alternative plug connectors*

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Part no. |
|---|---|---|
| **RH.M / RH.L** | 6 x 2 x 0.06 to 1 mm$^2$ | 198 673 2 |

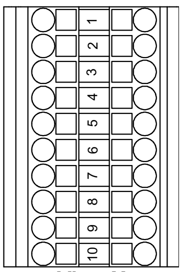
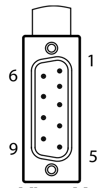
*Resolver cable, terminal box, CFM for MOVIDRIVE® with DC 5 V supply*




054637AXX

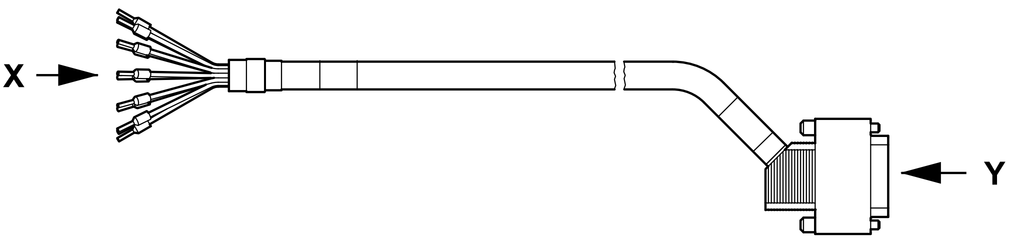
| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 $mm^2$ | 199 589 8 |
| CFM | Cable carrier installation | | 199 590 1 |

*Pin assignment of resolver cable RH.M / RH.L*

| Terminal box/RH1M resolver connection for CFM motors | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIDRIVE® MDX..B | |
| Terminal strip | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector |
|  View X | 1 | R1 (reference +) | Pink (PK) | R1 (reference +) | 3 | Sub-D 9-pin  View Y |
| | 2 | R2 (reference -) | Gray (GY) | R2 (reference -) | 8 | |
| | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 2 | |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 7 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 1 | |
| | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 6 | |
| | 7 | n.c. | - | n.c. | 4 | |
| | 8 | n.c. | - | - | - | |
| | 9 | TF/KTY + | Brown (BN) / violet (VT)[1)] | TF/KTY + | 9 | |
| | 10 | TF/KTY - | White (WH) black (BK)[1)] | TF/KTY - | 5 | |

1) Double assignment to increase cross section

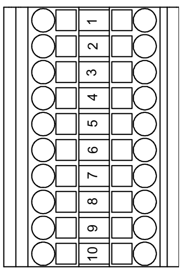
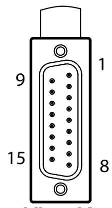
*Resolver cable, terminal box, CFM for MOVIAXIS®*



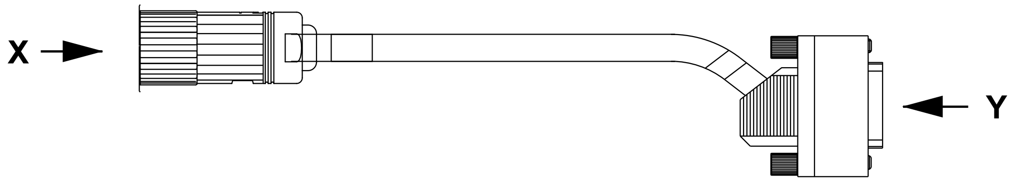

054639AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 mm$^2$ | 1332 762 3 |
| CFM | Cable carrier installation | | 1332 763 1 |

*Pin assignment of resolver cable RH.M / RH.L*

| Resolver cable terminal box connection, RH.M/RH.L resolver MOVIAXIS® MXA with DFS/CFM motors | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIAXIS® MXA | |
| Terminal strip | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector |
|  View X | 1 | R1 (REF +) | Pink (PK) | R1 (reference +) | 5 | Sub-D 15-pin   View Y |
| | 2 | R2 (REF -) | Gray (GY) | R2 (reference -) | 13 | |
| | 3 | S1 (COS +) | Red (RD) | S1 (cosine +) | 2 | |
| | 4 | S3 (COS -) | Blue (BU) | S3 (cosine -) | 10 | |
| | 5 | S2 (SIN +) | Yellow (YE) | S2 (sine +) | 1 | |
| | 6 | S4 (SIN -) | Green (GN) | S4 (sine -) | 9 | |
| | 7 | n. c | - | n. c | 3 | |
| | 8 | n. c | - | n. c | 4 | |
| | 9 | TF / TH / KTY + | Brown (BN) / violet (VT) | TF / TH / KTY + | 14 | |
| | 10 | TF / TH / KTY - | White (WH) black (BK) | TF / TH / KTY - | 6 | |
| | 11 | - | - | n. c | 7 | |
| | 12 | - | - | n. c | 8 | |
| | 13 | - | - | n. c | 11 | |
| | 14 | - | - | n. c | 12 | |
| | 15 | - | - | n. c | 15 | |

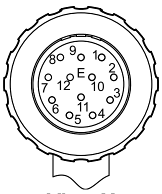
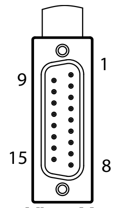
*Hiperface® encoder cable, plug connector MOVIAXIS®, MOVIDRIVE®*




54629AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | $6 \times 2 \times 0.25\ mm^2$ | 1332 453 5 |
| CFM | Cable carrier installation | | 1332 455 1 |

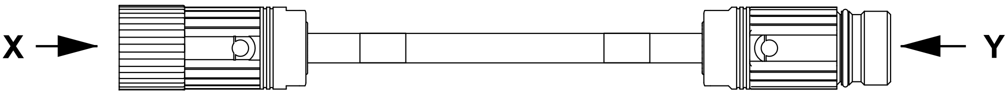
*Pin assignment of cable for Hiperface® encoders AS1H / ES1H / AV1H*

| Pin assignment of cable for Hiperface® encoders AS1H / ES1H / AV1H | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIAXIS® MXA MOVIDRIVE® MDX..B | |
| Plug connector | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector |
| **ASTA021FR** **0198 6732** 12-pin with socket contacts  **View X** | 1 | n. c. | n. c. | n. c. | 3 | D-sub 15-pin  **View Y** |
| | 2 | n. c. | n. c. | n. c. | 5 | |
| | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 1 | |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 9 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 2 | |
| | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 10 | |
| | 7 | DATA- | Violet (VT) | DATA- | 12 | |
| | 8 | DATA+ | Black (BK) | DATA+ | 4 | |
| | 9 | TF/KTY + | Brown (BN) | TF/KTY + | 14 | |
| | 10 | TF/KTY - | White (WH) | TF/KTY - | 6 | |
| | 11 | GND | Gray/pink (GY/PK)1) | GND | 8 | |
| | 12 | $U_s$ | Red/blue (RD/BU)1) | $U_s$ | 15 | |
| | | - | - | n. c. | 7 | |
| | | - | - | n. c. | 11 | |
| | | - | - | n. c. | 13 | |

1) Double assignment to increase cross section

14

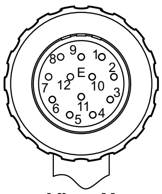
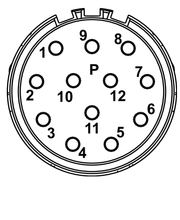
*Extension cable for Hiperface® encoder AS1H / ES1H / AV1H*




54634AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 6 × 2 × 0.25 mm$^2$ | 199 539 1 |
| CFM | Cable carrier installation | | 199 540 5 |

*Pin assignment of extension cable for Hiperface® encoder AS1H / ES1H / AV1H*

| Pin assignment of extension cable for RH.M resolver | | | | | | |
|---|---|---|---|---|---|---|
| **Plug connector** | **Pin no.** | **Description** | **Cable core color** | **Description** | **Pin no.** | **Plug connector** |
| **ASTA021FR**<br>**0198 6732**<br>12-pin with socket contacts<br><br>**View X** | 1 | n.c. | - | n.c. | 1 | AKUA020MR<br>**199 647 9**<br>12-pin with pin contacts<br><br>**View Y** |
| | 2 | n.c. | - | n.c. | 2 | |
| | 3 | S1 (cosine +) | Red (RD) | S1 (cosine +) | 3 | |
| | 4 | S3 (cosine -) | Blue (BU) | S3 (cosine -) | 4 | |
| | 5 | S2 (sine +) | Yellow (YE) | S2 (sine +) | 5 | |
| | 6 | S4 (sine -) | Green (GN) | S4 (sine -) | 6 | |
| | 7 | DATA- | Violet (VT) | DATA- | 7 | |
| | 8 | DATA+ | Black (BK) | DATA+ | 8 | |
| | 9 | TF/KTY + | Brown (BN) | TF/KTY + | 9 | |
| | 10 | TF/KTY - | White (WH) | TF/KTY - | 10 | |
| | 11 | GND | Gray/pink (GY/PK) / pink (PK) | GND | 11 | |
| | 12 | $U_s$ | Red/blue (RD/BU) / gray (GY) | $U_s$ | 12 | |

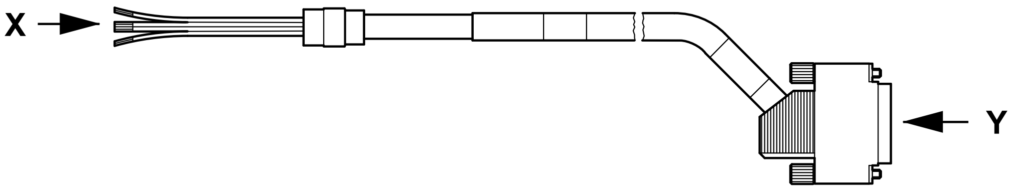
The extension cable has the same pin assignment as all other contacts.

*Alternative plug connectors*

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Part no. |
|---|---|---|
| AS1HES1H<br>AV1H | 6 x 2 x 0.06 to 1 mm$^2$ | 198 673 2 |

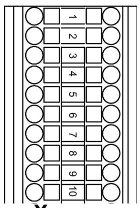
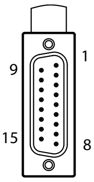
*Hiperface® encoder cable, terminal box, CFM for MOVIAXIS®, MOVIDRIVE®*




54641AXX

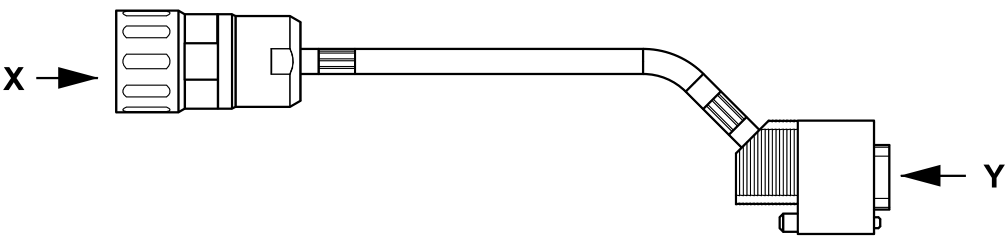
| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 6 × 2 × 0.25 $mm^2$ | 1332 457 8 |
| CFM | Cable carrier installation | | 1332 454 3 |

*Pin assignment for Hiperface® encoder cable AS1H / ES1H*

| Hiperface® cable, terminal box connection MOVIAXIS® MXA, MOVIDRIVE® MDX..B with CFM motors | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIAXIS® MXA MOVIDRIVE® MDX..B | |
| Terminal strip | Pin no. | Description | Cable core color | Description | Pin no. | Plug connector |
|  View X | 6 | Data + | Black (BK) | Data + | 4 | Sub-D 15-pin  View Y |
| | 5 | Data - | Violet (VT) | Data - | 12 | |
| | 1 | S1 (COS +) | Red (RD) | S1 (COS +) | 1 | |
| | 2 | S3 (COS -) | Blue (BU) | S3 (COS -) | 9 | |
| | 3 | S2 (SIN +) | Yellow (YE) | S2 (SIN +) | 2 | |
| | 4 | S4 (SIN -) | Green (GN) | S4 (SIN -) | 10 | |
| | 7 | GND | Gray pink (GYPK) / pink (PK) | GND | 8 | |
| | 8 | Us | Red blue (RDBU) | Us | 15 | |
| | 9 | TF / TH / KTY + | Brown (BN) | TF / TH / KTY + | 14 | |
| | 10 | TF / TH / KTY - | White (WH) | TF / TH / KTY - | 6 | |

14

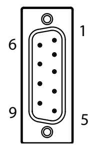
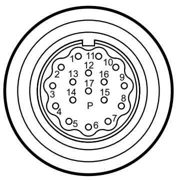
*Encoder cable AV1Y / DIP11A / B for MOVIDRIVE®*




54627AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 3 × 2 × 0.25 mm$^2$ | 0198 929 4 |
| CFM | Cable carrier installation | | 0198 930 8 |

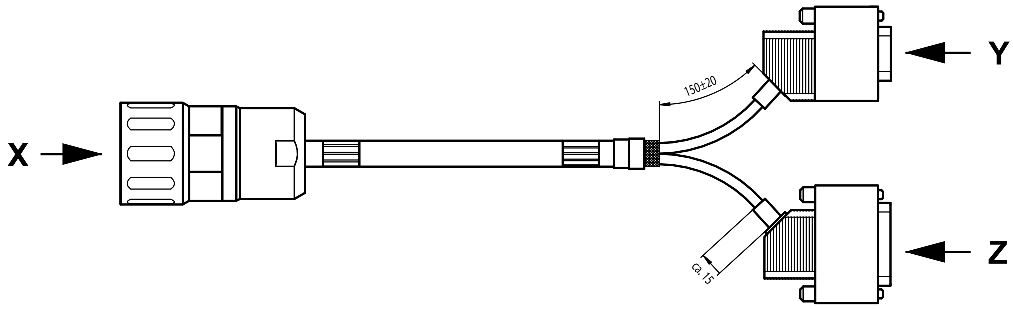
*Pin assignment of encoder cable AV1Y / DIP11A / B*

| Pin assignment | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIDRIVE® MDX..B | |
| Round connector | Pin no. | Resolver signal | Cable core color | Resolver signal | Pin no. | Plug connector |
| SPUC 17H FRON 005 17-pole | 1 | n. c | - | n. c | - | Sub-D 9-pin |
| | 2 | n. c | - | n. c | - | |
| | 3 | n. c | - | n. c | - | |
| | 4 | n. c | - | n. c | - | |
| | 5 | n. c | - | n. c | - | |
| | 6 | n. c | - | n. c | - |  |
|  | 7 | UB | White (WH) | UB | 9 | |
| | 8 | T+ | Pink (PK) | T+ | 3 | |
| | 9 | T- | Gray (GY) | T- | 8 | |
| | 10 | GND | Brown (BN) | GND | 5 | View Y |
| | 11 | n. c | - | n. c | - | |
| | 12 | n. c | - | n. c | - | |
| | 13 | n. c | - | n. c | - | |
| View X | 14 | D + | Yellow (YE) | D + | 1 | |
| | 15 | n. c | - | n. c | - | |
| | 16 | n. c | - | n. c | - | |
| | 17 | D - | Green (GN) | D - | 6 | |

## INFORMATION

The cable specification for cables 0198 9284 and 0198 9308 are available from SEW-EURODRIVE on request.

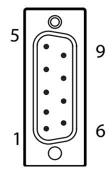
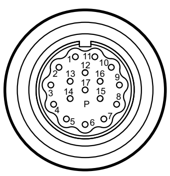
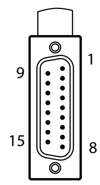
*Encoder cable AV1Y for MOVIDRIVE®*



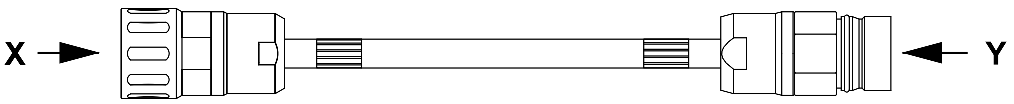

54645AXX

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 5 × 2 × 0.25 $mm^2$ | 1332 813 1 |
| CFM | Cable carrier installation | | 1332 812 3 |

*Pin assignment of encoder cable AV1Y MOVIDRIVE®*

| Pin assignment | | | | | | |
|---|---|---|---|---|---|---|
| Motor connection side | | | | | Connection MOVIDRIVE® MDX..B | |
| Round connector | Pin no. | Encoder signal | Cable core color | Encoder signal | Pin no. | Plug-connector |
| | 1 | n. c | - | n. c | - | |
| SPUC 17H FRON 005<br>17-pole | 2 | n. c | - | n. c | - | Sub-D 9-pin |
| | 3 | n. c | - | n. c | - | |
| | 4 | n. c | - | n. c | - |  |
| | 5 | n. c | - | n. c | - | |
| | 6 | n. c | - | n. c | - | |
|  | 7 | UB | White (WH) | UB | 9 | |
| | 8 | T+ | Pink (PK) | T+ | 3 | View Y |
| | 9 | T- | Gray (GY) | T- | 8 | |
| | 10 | GND | Brown (BN) | GND | 5 | |
| | 11 | n. c | - | n. c | - | Sub-D 15-pin |
| | 14 | D + | Black (BK) | D + | 1 | |
| View X | 17 | D - | Violet (VT) | D - | 6 | |
| | | | | | |  |
| | 12 | B | Red (RD) | B | 2 | |
| | 13 | B | Blue (BU) | B | 10 | |
| | 15 | A | Yellow (YE) | A | 1 | |
| | 16 | A | Green (GN) | A | 9 | View Z |

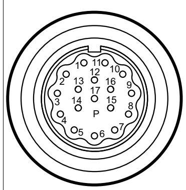
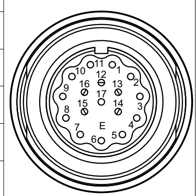
*Extension cable for AV1Y encoder*




54665AXX

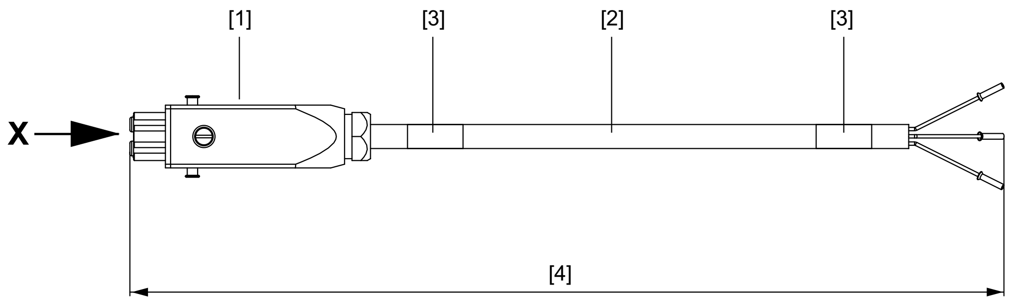
| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Cable carrier installation | 5 × 2 × 0.25 $mm^2$ | 0593 968 2 |

*Pin assignment of extension cable for AV1Y encoder*

| Plug connector | Pin no. | Resolver signal | Pin assignment<br>Cable core color | Resolver signal | Pin no. | Plug connector |
|---|---|---|---|---|---|---|
| **Round connector SPUC 17H**<br>0198 886 7<br>17-pin contact socket<br><br>**View X** | 1 | n. c. | - | n. c. | 1 | **SRUC 17G adapter**<br>0593 403 6<br>17-pin with pin contacts<br><br>**View Y** |
| | 2 | n. c. | - | n. c. | 2 | |
| | 3 | n. c. | - | n. c. | 3 | |
| | 4 | n. c. | - | n. c. | 4 | |
| | 5 | n. c. | - | n. c. | 5 | |
| | 6 | n. c. | - | n. c. | 6 | |
| | 7 | UB | White (WH) | UB | 7 | |
| | 8 | T+ | Pink (PK) | T+ | 8 | |
| | 9 | T- | Gray (GY) | T- | 9 | |
| | 10 | GND | Brown (BN) | GND | 10 | |
| | 11 | n.c. | - | n.c. | 11 | |
| | 12 | B | Red (RD) | B | 12 | |
| | 13 | B | Blue (BU) | B | 13 | |
| | 14 | D + | Black (BK) | D + | 14 | |
| | 15 | A | Yellow (YE) | A | 15 | |
| | 16 | A | Green (GN) | A | 16 | |
| | 17 | D - | Violet (VT) | D - | 17 | |

The extension cable has the same pin assignment as all other contacts.

*Cable for VR forced cooling fan*

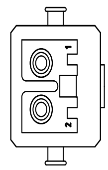



54649AXX

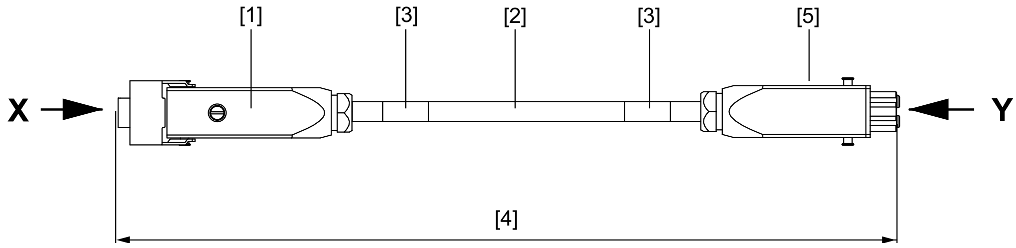
[1] Connector: STAK 200
[2] Printed on connector: SEW-EURODRIVE
[3] Nameplate
[4] Cable length ≤ 5 m: Tolerance +200 mm
Cable length ≥ 5 m: Tolerance +2%
Permitted cable length according to the technical documents.

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | 3 × 1 mm$^2$ | 198 634 1 |
| CFM | Cable carrier installation | | 199 560 X |

*Pin assignment of cable for VR forced cooling fan*

| STAK 200 plug connector | Pin | Core identification | Assigned | Pin | Connection type |
|---|---|---|---|---|---|
|  **View X Connector with two socket contacts** | 1 | Digit 1 | 24 V + | Cut-off, length ca. 250 mm | Conductor end sleeves |
| | 2 | Digit 2 | 0 V | | |

*Extension cable for VR forced cooling fan*

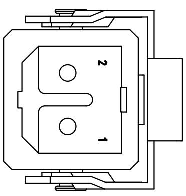
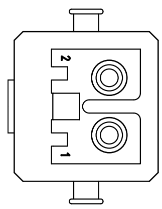



54646AXX

[1] Connector: STAS 200
[2] Printed on connector: SEW-EURODRIVE
[3] Nameplate
[4] Cable length ≤ 5 m: Tolerance +200 mm
Cable length ≥ 5 m: Tolerance +2%
Permitted cable length according to the technical documents.
[5] Socket: STAK 200

| Type | Installation | Cross section | Part number |
|---|---|---|---|
| CFM | Fixed installation | $3 \times 1$ mm$^2$ | 199 561 8 |
| CFM | Cable carrier installation | | 199 562 6 |

*Pin assignment of extension cable for forced cooling fan*

| STAS 200 plug connector | Pin | Core identification | Assigned | Pin | Connection type STAK 200 |
|---|---|---|---|---|---|
|  **View X Connector with two pin contacts** | 1 | Digit 1 | 24 V + | 1 |  **View Y Connector with two socket contacts** |
| | 2 | Digit 2 | 0 V | 2 | |

The extension cable has the same pin assignment as all other contacts.

*Alternative plug connector for CFM71, CFM90, CFM112*

Signal plug connector with socket contacts (complete)

| Type | Connectable cross sections | Part no. |
|---|---|---|
| VR | 3 x 1 mm$^2$ | 198 498 5 |

## 14.2 Cable specification

### *Fixed installation of power cables*

| **Installation** | | **Fixed** | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm$^2$ (AWG 16)** | **4 x 2.5 mm$^2$ (AWG 14)** | **4 x 4 mm$^2$ (AWG 12)** | **4 x 6 mm$^2$ (AWG 10)** | **4 x 10 mm$^2$ (AWG 8)** |
| **Manufacturer** | | **HELUKABEL** | | | | |
| Manufacturer designation | | LI9YCY | | | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | Fixed installation -40 to +80 | | | | |
| Max. temperature | °C | +80 | | | | |
| Min. bending radius | mm | 45 | 55 | 65 | 73 | 85 |
| Diameter D | mm | 9.0 ± 0.2 | 11 ± 0.2 | 13 ± 0.2 | 14.3 ± 0.3 | 17.0 ± 0.6 |
| Core identification | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange, similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL | | | | |
| Capacitance core/shielding | nF/km | 110 | 110 | 118 | 125 | 125 |
| Capacitance core/core | nF/km | 70 | 70 | 75 | 80 | 80 |
| Halogen-free | | No | | | | |
| Silicon-free | | Yes | | | | |
| CFC-free | | Yes | | | | |
| Inner insulation (core) | | PP | | | | |
| Outer insulation (sheath) | | PVC | | | | |
| Flame-inhibiting/self-extinguishing | | No | | | | |
| Conductor material | | Cu | | | | |
| Shielding | | Tinned Cu | | | | |
| Weight (cable) | kg/km | 134 | 202 | 262 | 332 | 601 |

### Cable carrier installation of power cables

| Installation | | Cable carrier | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm$^2$ (AWG 16)** | **4 x 2.5 mm$^2$ (AWG 14)** | **4 x 4 mm$^2$ (AWG 12)** | **4 x 6 mm$^2$ (AWG 10)** | **4 x 10 mm$^2$ (AWG 8)** |
| **Manufacturer** | | **Nexans** | | | | |
| Manufacturer designation | | PSL(LC)C11Y-J 4 x - mm$^2$ | | PSL11YC11Y-J 4 x - mm$^2$ | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | -20 to +60 | | | | |
| Max. temperature | °C | +90 (on conductor) | | | | |
| Min. bending radius | mm | 134 | 140 | 135 | 155 | 180 |
| Diameter D | mm | 12.8 + 0.6 / -0.7 | 15.7 ± 0.3 | 13.2 ± 0.4 | 15.4 ± 0.4 | 17.8 ± 0.5 |
| Maximum acceleration | m/s$^2$ | 20 | | | | |
| Max. velocity | m/min | 200 at max. travel distance of 5 m | | | | |
| Core identification | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL / cRUus | | | | |
| Capacitance core/shielding | nF/km | 95 | 95 | 170 | 170 | 170 |
| Capacitance core/core | nF/km | 65 | 65 | 95 | 95 | 95 |
| Halogen-free | | Yes | | | | |
| Silicon-free | | Yes | | | | |
| CFC-free | | Yes | | | | |
| Inner insulation (core) | | Polyolefin | | TPM | | |
| Outer insulation (sheath) | | TPU (PUR) | | | | |
| Flame-inhibiting/self-extinguishing | | Yes | | | | |
| Conductor material | | E-Cu blank | | | | |
| Shielding | | Braided tinned Cu shield (optically covered > 85 %) | | | | |
| Weight (cable) | kg/km | 249 | 373 | 311 | 426 | 644 |
| Min. bending cycles | | ≥ 5 million | | | | |

### *Fixed installation of brake power cables*

| Installation | | Fixed | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm$^2$ (AWG 16) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 2.5 mm$^2$ (AWG 14) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 4 mm$^2$ (AWG 12) + 3 x 1 mm$^2$ (AWG 18)** | **4 x 6 mm$^2$ (AWG 10) + 3 x 1.5 mm$^2$ (AWG 16)** | **4 x 10 mm$^2$ (AWG 8) + 3 x 1.5 mm$^2$ (AWG 16)** |
| **Manufacturer** | | **HELUKABEL** | | | | |
| Manufacturer designation | | LI9YCY | | | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | Fixed installation: -40 to +80 | | | | |
| Max. temperature | °C | +80 | | | | |
| Min. bending radius | mm | 60 | 68 | 75 | 85 | 100 |
| Diameter D | mm | 11.8 ± 0.4 | 13.4 ± 0.4 | 15.0 ± 0.5 | 17.0 ± 0.6 | 20.0 ± 1.0 |
| Core identification | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL | | | | |
| Capacitance core/shielding | nF/km | 105 | 105 | 110 | 115 | 120 |
| Capacitance core/core | nF/km | 60 | 60 | 70 | 75 | 78 |
| Halogen-free | | No | | | | |
| Silicon-free | | Yes | | | | |
| CFC-free | | Yes | | | | |
| Inner insulation (core) | | PP | | | | |
| Outer insulation (sheath) | | PVC | | | | |
| Flame-inhibiting/self-extinguishing | | Yes | | | | |
| Conductor material | | Cu | | | | |
| Shielding | | Tinned Cu | | | | |
| Weight (cable) | kg/km | 229 | 292 | 393 | 542 | 938 |

### *Cable carrier installation for brake power cables*

| Installation | | Cable carrier | | | | |
|---|---|---|---|---|---|---|
| **Cable cross sections** | | **4 x 1.5 mm² (AWG 16) + 3 x 1 mm² (AWG 18)** | **4 x 2.5 mm² (AWG 14) + 3 x 1 mm² (AWG 18)** | **4 x 4 mm² (AWG 12) + 3 x 1 mm² (AWG 18)** | **4 x 6 mm² (AWG 10) + 3 x 1.5 mm² (AWG 16)** | **4 x 10 mm² (AWG 8) + 3 x 1.5 mm² (AWG 16)** |
| **Manufacturer** | | **Nexans** | | | | |
| Manufacturer designation | | PSL(LC)C11Y-J 4x... +3A.../C | | PSL11YC11Y-J 4x... +3A.../C | | |
| Operating voltage $V_0$ / V AC | V | 600 / 1000 | | | | |
| Temperature range | °C | -20 to +60 | | | | |
| Max. temperature | °C | +90 (conductor) | | | | |
| Min. bending radius | mm | 159 | 170 | 155 | 175 | 200 |
| Diameter D | mm | 15.0 ± 0.9 | 16.5 ± 0.7 | 15.3 ± 0.5 | 17.4 ± 0.5 | 20.5 ± 0.5 |
| Maximum acceleration | m/s² | 20 | | | | |
| Max. velocity | m/min | 200 at max. travel distance of 5 m | | | | |
| Core identification | | BK with lettering WH + GN/YE | | | | |
| Sheath color | | Orange similar to RAL 2003 | | | | |
| Approval(s) | | DESINA / VDE / UL / cRUus | | | | |
| Capacitance core/shielding | nF/km | 105 | 105 | 170 | 170 | 170 |
| Capacitance core/core | nF/km | 65 | 65 | 95 | 95 | 95 |
| Halogen-free | | Yes | | | | |
| Silicon-free | | Yes | | | | |
| CFC-free | | Yes | | | | |
| Inner insulation (cable) | | TPM | | | | |
| Outer insulation (sheath) | | Polyolefin | | TPU (PUR) | | |
| Flame-inhibiting / self-extinguishing | | Yes | | | | |
| Conductor material | | E-Cu blank | | | | |
| Shielding | | Braided tinned Cu shield (optically covered > 85 %) | | | | |
| Weight (cable) | kg/km | 335 | 433 | 396 | 522 | 730 |
| Min. bending cycles | | ≥ 5 million | | | | |

### Fixed installation of feedback cables

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **HELUKABEL** | |
| Manufacturer designation | | LI9YCY | |
| Operating voltage $V_0$ / V AC | V | 230 / 350 | |
| Temperature range | °C | Fixed installation -40 to +80 | |
| Max. temperature | °C | + 80 | |
| Min. bending radius | mm | 43 | 36.5 |
| Diameter D | mm | 8.6 ± 0,2 | 7.3 ± 0,2 |
| Core identification | | DIN 47 100 | |
| Sheath color | | Green, similar to RAL 6018 | |
| Approval(s) | | DESINA / VDE / cULus | |
| Capacitance core/shielding | nF/km | 110 | |
| Capacitance core/core | nF/km | 70 | |
| Halogen-free | | No | |
| Silicone-free | | Yes | |
| CFC-free | | Yes | |
| Inner insulation (core) | | PP | |
| Outer insulation (sheath) | | PVC | |
| Flame-inhibiting/self-extinguishing | | No | |
| Conductor material | | Cu blank | |
| Shielding | | Braided tinned Cu | |
| Weight (cable) | kg/km | 107 | 78 |

### Cable carrier installation of feedback cables

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **Nexans** | |
| Manufacturer designation | | SSL18YC11Y 6 x 2 x 0.25 / SSL11YC11Y 5 x 2 x 0.25 | |
| Operating voltage $V_0$ / V AC | V | 300 | |
| Temperature range | °C | -20 to + 60 | |
| Max. temperature | °C | +90 (on conductor) | |
| Min. bending radius | mm | 100 | 95 |
| Diameter D | mm | 9.8 ± 0.2 | 9,5 ± 0.2 |
| Maximum acceleration | m/s$^2$ | 20 | |
| Max. velocity | m/min | 200 | |
| Core identification | | WH/BN, GN/YE, GY/PK, BU/RD, BK/VT, GY-PK/RD-BU | WH/BN, GN/YE, GY/PK, BU/RD, BK/VT |
| Sheath color | | Green similar to RAL 6018 | |
| Approval(s) | | DESINA / VDE / cULus | |
| Capacitance core/shielding | nF/km | 100 | |
| Capacitance core/core | nF/km | 55 | |
| Halogen-free | | Yes | |
| Silicone-free | | Yes | |
| CFC-free | | Yes | |
| Table continued on next page | | | |

| Accessory designation | | AS1H / ES1H /AK0H /EK0H /AK1H /EK1H | RH1M |
|---|---|---|---|
| **Cable cross sections** | | **6 x 2 x 0.25 mm$^2$** | **5 x 2 x 0.25 mm$^2$** |
| **Manufacturer** | | **Nexans** | |
| Inner insulation (core) | | PP | |
| Outer insulation (sheath) | | TPE-U | |
| Flame-inhibiting/self-extinguishing | | Yes | |
| Conductor material | | E-Cu blank | |
| Shielding | | Braided tinned Cu | |
| Weight | kg/km | 130 | 120 |
| Min. bending cycles | | ≥ 5 million | |

### *Fixed installation of forced cooling fan cables*

| Accessory designation | | VR |
|---|---|---|
| **Cable cross sections** | | **3 x 1 mm$^2$** |
| **Manufacturer** | | **Lapp** |
| Manufacturer designation | | Ölflex 110 Classic |
| Operating voltage $V_0$ / V AC | V | 300 / 500 |
| Temperature range | °C | -30 to +70 |
| Max. temperature | °C | + 70 |
| Min. bending radius | mm | 24 |
| Diameter D | mm | 6.0 ± 0.3 |
| Core identification | | VDE 0293 |
| Sheath color | | Silver gray, RAL 7001 |
| Approval(s) | | VDE |
| Capacitance core/shielding | nF/km | - |
| Capacitance core/core | nF/km | - |
| Halogen-free | | No |
| Silicone-free | | Yes |
| CFC-free | | Yes |
| Inner insulation (core) | | PVC |
| Outer insulation (sheath) | | PVC |
| Flame-inhibiting/self-extinguishing | | No |
| Conductor material | | Cu blank |
| Shielding | | - |
| Weight (cable) | kg/km | 65 |

### *Cable carrier installation for forced cooling fan cable*

| Accessory designation | | VR |
|---|---|---|
| **Cable cross sections** | | **3 x 1 mm$^2$** |
| **Manufacturer** | | **Nexans** |
| Manufacturer designation | | PSL 3 x 1.0 |
| Operating voltage $V_0$ / V AC | V | 300 |
| Temperature range | °C | - 30 to + 70 |
| Max. temperature | °C | +90 (on conductor) |
| Min. bending radius | mm | 45 |
| Diameter D | mm | 5,7 ± 0.2 |
| Maximum acceleration | m/s$^2$ | 10 |
| Max. velocity | m/min | 50 |
| Core identification | | 2 x WH with digit + 1 x GN/YE |
| Sheath color | | Black RAL 9005 |
| Approval(s) | | VDE / UL |
| Capacitance core/shielding | nF/km | - |
| Capacitance core/core | nF/km | - |
| Halogen-free | | Yes |
| Silicone-free | | Yes |
| CFC-free | | Yes |
| Inner insulation (core) | | TPM |
| Outer insulation (sheath) | | TPE-U |
| Flame-inhibiting/self-extinguishing | | Yes |
| Conductor material | | E-Cu blank |
| Shielding | | - |
| Weight | kg/km | 50 |
| Min. bending cycles | | ≥ 5 million |

# 15 Appendix

## *15.1 Cable dimension units according to AWG*

AWG stands for **A**merican **W**ire **G**auge and refers to the size of the wires. This number specifies the diameter or cross section of a wire in code. This type of cable designation is usually only used in the USA. However, the designations can also be seen in catalogs or data sheets in Europe.

| AWG designation | Cross section in mm$^2$ |
|---|---|
| 000000 (6/0) | 185 |
| 00000 (5/0) | 150 |
| 0000 (4/0) | 120 |
| 000 (3/0) | 90 |
| 00 (2/0) | 70 |
| 0 (1/0) | 50 |
| 1 | 50 |
| 2 | 35 |
| 3 | 25 |
| 4 | 25 |
| 5 | 16 |
| 6 | 16 |
| 7 | 10 |
| 8 | 10 |
| 9 | 6 |
| 10 | 6 |
| 11 | 4 |
| 12 | 4 |
| 13 | 2.5 |
| 14 | 2.5 |
| 15 | 2.5 |
| 16 | 1.5 |
| 16 | 1 |
| 18 | 1 |
| 19 | 0.75 |
| 20 | 0.5 |
| 21 | 0.5 |
| 22 | 0.34 |
| 23 | 0.25 |
| 24 | 0.2 |

## 15.2 Index

# 16 Address Directory

| Germany | | | |
|---|---|---|---|
| **Headquarters**<br>**Production**<br>**Sales** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal<br>P.O. Box<br>Postfach 3023 • D-76642 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-1970<br>http://www.sew-eurodrive.de<br>sew@sew-eurodrive.de |
| **Production / Industrial Gears** | **Bruchsal** | SEW-EURODRIVE GmbH & Co KG<br>Christian-Pähr-Str.10<br>D-76646 Bruchsal | Tel. +49 7251 75-0<br>Fax +49 7251 75-2970 |
| **Production** | **Graben** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 1<br>D-76676 Graben-Neudorf<br>P.O. Box<br>Postfach 1220 • D-76671 Graben-Neudorf | Tel. +49 7251 75-0<br>Fax +49 7251 75-2970 |
| | **Östringen** | SEW-EURODRIVE Östringen GmbH<br>Franz-Gurk-Straße 2<br>D-76684 Östringen<br>P.O. Box<br>Postfach 1174 • D-76677 Östringen | Tel. +49 7253 92540<br>Fax +49 7253 925490<br>oestringen@sew-eurodrive.de |
| **Service Competence Center** | **Central** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 1<br>D-76676 Graben-Neudorf | Tel. +49 7251 75-1710<br>Fax +49 7251 75-1711<br>sc-mitte@sew-eurodrive.de |
| | **North** | SEW-EURODRIVE GmbH & Co KG<br>Alte Ricklinger Straße 40-42<br>D-30823 Garbsen (near Hannover) | Tel. +49 5137 8798-30<br>Fax +49 5137 8798-55<br>sc-nord@sew-eurodrive.de |
| | **East** | SEW-EURODRIVE GmbH & Co KG<br>Dänkritzer Weg 1<br>D-08393 Meerane (near Zwickau) | Tel. +49 3764 7606-0<br>Fax +49 3764 7606-30<br>sc-ost@sew-eurodrive.de |
| | **South** | SEW-EURODRIVE GmbH & Co KG<br>Domagkstraße 5<br>D-85551 Kirchheim (near München) | Tel. +49 89 909552-10<br>Fax +49 89 909552-50<br>sc-sued@sew-eurodrive.de |
| | **West** | SEW-EURODRIVE GmbH & Co KG<br>Siemensstraße 1<br>D-40764 Langenfeld (near Düsseldorf) | Tel. +49 2173 8507-30<br>Fax +49 2173 8507-55<br>sc-west@sew-eurodrive.de |
| | **Electronics** | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal | Tel. +49 7251 75-1780<br>Fax +49 7251 75-1769<br>sc-elektronik@sew-eurodrive.de |
| | **Drive Service Hotline / 24 Hour Service** | | +49 180 5 SEWHELP<br>+49 180 5 7394357 |
| **Technical Offices** | **Augsburg** | SEW-EURODRIVE GmbH & Co KG<br>August-Wessels-Straße 27<br>D-86156 Augsburg | Tel. +49 821 22779-10<br>Fax +49 821 22779-50<br>tb-augsburg@sew-eurodrive.de |
| | **Berlin** | SEW-EURODRIVE GmbH & Co KG<br>Lilienthalstraße 3a<br>D-12529 Schönefeld | Tel. +49 306331131-30<br>Fax +49 306331131-36<br>tb-berlin@sew-eurodrive.de |
| | **Bodensee** | SEW-EURODRIVE GmbH & Co KG<br>Burgbergring 91<br>D-88662 Überlingen | Tel. +49 7551 9226-30<br>Fax +49 7551 9226-56<br>tb-bodensee@sew-eurodrive.de |
| | **Bremen** | SEW-EURODRIVE GmbH & Co KG<br>Bornstr.19 ... 22<br>D-28195 Bremen | Tel. +49 421 33918-10<br>Fax +49 421 33918-22<br>tb-bremen@sew-eurodrive.de |
| | **Dortmund** | SEW-EURODRIVE GmbH & Co KG<br>Hildastraße 10<br>D-44145 Dortmund | Tel. +49 231 912050-10<br>Fax +49 231 912050-20<br>tb-dortmund@sew-eurodrive.de |

| Germany | | | |
|---|---|---|---|
| | **Dresden** | SEW-EURODRIVE GmbH & Co KG<br>Hauptstraße 32<br>D-01445 Radebeul | Tel. +49 351 26338-0<br>Fax +49 351 26338-38<br>tb-dresden@sew-eurodrive.de |
| | **Erfurt** | SEW-EURODRIVE GmbH & Co KG<br>Dubliner Straße 12<br>D-99091 Erfurt | Tel. +49 361 21709-70<br>Fax +49 361 21709-79<br>tb-erfurt@sew-eurodrive.de |
| | **Güstrow** | SEW-EURODRIVE GmbH & Co KG<br>Am Gewerbegrund 3<br>D-18273 Güstrow<br>P.O. Box<br>Postfach 1216 • D-18262 Güstrow | Tel. +49 3843 8557-80<br>Fax +49 3843 8557-88<br>tb-guestrow@sew-eurodrive.de |
| | **Hamburg** | SEW-EURODRIVE GmbH & Co KG<br>Bramfelder Straße 119<br>D-22305 Hamburg | Tel. +49 40 298109-60<br>Fax +49 40 298109-70<br>tb-hamburg@sew-eurodrive.de |
| | **Hannover/ Garbsen** | SEW-EURODRIVE GmbH & Co KG<br>Alte Ricklinger Str.40-42<br>D-30823 Garbsen<br>P.O. Box<br>Postfach 1104 53 • D-30804 Garbsen | Tel. +49 5137 8798-10<br>Fax +49 5137 8798-50<br>tb-hannover@sew-eurodrive.de |
| | **Heilbronn** | SEW-EURODRIVE GmbH & Co KG<br>Zeppelinstraße 7<br>D-74357 Bönnigheim | Tel. +49 7143 8738-0<br>Fax +49 7143 8738-25<br>tb-heilbronn@sew-eurodrive.de |
| | **Herford** | SEW-EURODRIVE GmbH & Co KG<br>Radewiger Straße 21<br>D-32052 Herford<br>P.O. Box<br>Postfach 4108 • D-32025 Herford | Tel. +49 5221 9141-0<br>Fax +49 5221 9141-20<br>tb-herford@sew-eurodrive.de |
| | **Karlsruhe** | SEW-EURODRIVE GmbH & Co KG<br>Ettlinger Weg 2<br>D-76467 Bietigheim<br>P.O. Box<br>Postfach 43 • D-76463 Bietigheim | Tel. +49 7245 9190-10<br>Fax +49 7245 9190-20<br>tb-karlsruhe@sew-eurodrive.de |
| | **Kassel** | SEW-EURODRIVE GmbH & Co KG<br>Lange Straße 14<br>D-34253 Lohfelden | Tel. +49 561 95144-80<br>Fax +49 561 95144-90<br>tb-kassel@sew-eurodrive.de |
| | **Koblenz** | SEW-EURODRIVE GmbH & Co KG<br>Bahnstraße 17a<br>D-56743 Mendig | Tel. +49 2652 9713-30<br>Fax +49 2652 9713-40<br>tb-koblenz@sew-eurodrive.de |
| | **Lahr** | SEW-EURODRIVE GmbH & Co KG<br>Europastraße 3/1<br>D-77933 Lahr / Schwarzwald | Tel. +49 7821 90999-60<br>Fax +49 7821 90999-79<br>tb-lahr@sew-eurodrive.de |
| | **Langenfeld** | SEW-EURODRIVE GmbH & Co KG<br>Siemensstraße 1<br>D-40764 Langenfeld | Tel. +49 2173 8507-10<br>Fax +49 2173 8507-50<br>tb-langenfeld@sew-eurodrive.de |
| | **Magdeburg** | SEW-EURODRIVE GmbH & Co KG<br>Breiteweg 53<br>D-39179 Barleben | Tel. +49 39203 7577-1<br>Fax +49 39203 7577-9<br>tb-magdeburg@sew-eurodrive.de |
| | **Mannheim** | SEW-EURODRIVE GmbH & Co KG<br>Besselstraße 26<br>D-68219 Mannheim | Tel. +49 621 71683-10<br>Fax +49 621 71683-22<br>tb-mannheim@sew-eurodrive.de |
| | **München** | SEW-EURODRIVE GmbH & Co KG<br>Domagkstraße 5<br>D-85551 Kirchheim | Tel. +49 89 90955-110<br>Fax +49 89 90955-150<br>tb-muenchen@sew-eurodrive.de |
| | **Münster** | SEW-EURODRIVE GmbH & Co KG<br>Hafenplatz 4<br>D-48155 Münster | Tel. +49 251 41475-11<br>Fax +49 251 41475-50<br>tb-muenster@sew-eurodrive.de |

| Germany | | | |
|---|---|---|---|
| | **Nürnberg** | SEW-EURODRIVE GmbH & Co KG<br>Plattenäckerweg 6<br>D-90455 Nürnberg | Tel. +49 911 98884-50<br>Fax +49 911 98884-60<br>tb-nuernberg@sew-eurodrive.de |
| | **Regensburg** | SEW-EURODRIVE GmbH & Co KG<br>Im Gewerbepark A15<br>D-93059 Regensburg | Tel. +49 941 46668-68<br>Fax +49 941 46668-66<br>tb-regensburg@sew-eurodrive.de |
| | **Rhein-Main** | SEW-EURODRIVE GmbH & Co KG<br>Niederstedter Weg 5<br>D-61348 Bad Homburg | Tel. +49 6172 9617-0<br>Fax +49 6172 9617-50<br>tb-rheinmain@sew-eurodrive.de |
| | **Stuttgart** | SEW-EURODRIVE GmbH & Co KG<br>Friedrich-List-Straße 46<br>D-70771 Leinfelden-Echterdingen | Tel. +49 711 16072-0<br>Fax +49 711 16072-72<br>tb-stuttgart@sew-eurodrive.de |
| | **Ulm** | SEW-EURODRIVE GmbH & Co KG<br>Dieselstraße 14<br>D-89160 Dornstadt | Tel. +49 7348 9885-0<br>Fax +49 7348 9885-90<br>tb-ulm@sew-eurodrive.de |
| | **Würzburg** | SEW-EURODRIVE GmbH & Co KG<br>Nürnbergerstraße 118<br>D-97076 Würzburg-Lengfeld | Tel. +49 931 27886-60<br>Fax +49 931 27886-66<br>tb-wuerzburg@sew-eurodrive.de |
| | **Zwickau / Meerane** | SEW-EURODRIVE GmbH & Co KG<br>Dänkritzer Weg1<br>D-08393 Meerane | Tel. +49 3764 7606-0<br>Fax +49 3764 7606-20<br>tb-zwickau@sew-eurodrive.de |

| France | | | |
|---|---|---|---|
| **Production<br>Sales<br>Service** | **Haguenau** | SEW-USOCOME<br>48-54 route de Soufflenheim<br>B. P. 20185<br>F-67506 Haguenau Cedex | Tel. +33 3 88 73 67 00<br>Fax +33 3 88 73 66 00<br>http://www.usocome.com<br>sew@usocome.com |
| **Production** | **Forbach** | SEW-USOCOME<br>Zone industrielle<br>Technopôle Forbach Sud<br>B. P. 30269<br>F-57604 Forbach Cedex | Tel. +33 3 87 29 38 00 |
| **Assembly<br>Sales<br>Service** | **Bordeaux** | SEW-USOCOME<br>Parc d'activités de Magellan<br>62 avenue de Magellan - B. P. 182<br>F-33607 Pessac Cedex | Tel. +33 5 57 26 39 00<br>Fax +33 5 57 26 39 09 |
| | **Lyon** | SEW-USOCOME<br>Parc d'affaires Roosevelt<br>Rue Jacques Tati<br>F-69120 Vaulx en Velin | Tel. +33 4 72 15 37 00<br>Fax +33 4 72 15 37 15 |
| | **Nantes** | SEW-USOCOME<br>Parc d’activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 40 78 42 00<br>Fax +33 2 40 78 42 20 |
| | **Paris** | SEW-USOCOME<br>Zone industrielle<br>2 rue Denis Papin<br>F-77390 Verneuil I'Etang | Tel. +33 1 64 42 40 80<br>Fax +33 1 64 42 40 88 |
| **Technical Offices** | **Alsace** | SEW-USOCOME<br>1 rue Auguste Gasser<br>F-68360 Soultz | Tel. +33 3 89 74 51 62<br>Fax +33 3 89 76 58 71 |
| | **Aquitaine / Charentes** | SEW-USOCOME<br>Parc d'activités de Magellan<br>62 avenue de Magellan<br>B. P. 182<br>F-33607 Pessac Cedex | Tel. +33 5 57 26 39 00<br>Fax +33 5 57 26 39 09 |

| France | | | |
|---|---|---|---|
| | **Auvergne / Limousin** | SEW-USOCOME<br>Farges<br>F-19600 Chasteaux | Tel. +33 5 55 20 12 10<br>Fax +33 5 55 20 12 11 |
| | **Lower Normandy** | SEW-USOCOME<br>5 rue de la Limare<br>F-14250 Brouay | Tel. +33 2 31 37 92 86<br>Fax +33 2 31 74 68 15 |
| | **Bourgogne** | SEW-USOCOME<br>10 rue de la poste<br>F-71350 Saint Loup Géanges | Tel. +33 3 85 49 92 18<br>Fax +33 3 85 49 92 19 |
| | **Brittany** | SEW-USOCOME<br>Parc d'activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 28 21 12 52<br>Fax +33 2 28 21 12 84 |
| | **Centre / Poitou** | SEW-USOCOME<br>Parc d'activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 40 78 42 11<br>Fax +33 2 40 78 42 20 |
| | **Champagne-Ardenne** | SEW-USOCOME<br>Impasse des Ouises<br>F-10120 Saint André les Vergers | Tel. +33 3 25 79 63 24<br>Fax +33 3 25 79 63 25 |
| | **Franche-Comté** | SEW-USOCOME<br>Chemin des saules<br>F-25870 Venise | Tel. +33 3 81 60 20 47<br>Fax +33 3 81 87 75 93 |
| | **Île-de-France East / Aisne** | SEW-USOCOME<br>45 rue des Cinelles<br>F-77700 Bailly Romainvilliers | Tel. +33 1 64 17 02 47<br>Fax +33 1 64 17 66 49 |
| | **Île-de-France North / Picardy** | SEW-USOCOME<br>25bis rue Kléber<br>F-92300 Levallois Perret | Tel. +33 1 41 05 92 74<br>Fax +33 1 41 05 92 75 |
| | **Île-de-France South** | SEW-USOCOME<br>6 chemin des bergers<br>Lieu-dit Marchais<br>F-91410 Roinville sous Dourdan | Tel. +33 1 60 81 10 56<br>Fax +33 1 60 81 10 57 |
| | **Lorraine / Alsace North** | SEW-USOCOME<br>1 rue de la forêt<br>F-54250 Champigneulles | Tel. +33 3 83 96 28 04<br>Fax +33 3 83 96 28 07 |
| | **Midi-Pyrénées / Roussillon** | SEW-USOCOME<br>179 route de Grazac<br>F-31190 Caujac | Tel. +33 5 61 08 15 85<br>Fax +33 5 61 08 16 44 |
| | **Nord-Pas-de-Calais** | SEW-USOCOME<br>209 route d'Hesdigneul<br>F-62360 Hesdin l'Abbé | Tel. +33 3 21 10 86 86<br>Fax +33 3 21 10 86 87 |
| | **Paris / Île-de-France West** | SEW-USOCOME<br>42 avenue Jean Jaurès<br>F-78580 Maule | Tel. +33 1 30 90 89 86<br>Fax +33 1 30 90 93 15 |
| | **Pays de la Loire** | SEW-USOCOME<br>Parc d'activités de la forêt<br>4 rue des Fontenelles<br>F-44140 Le Bignon | Tel. +33 2 51 70 54 04<br>Fax +33 2 51 70 54 05 |
| | **Provence-Alpes-Côte d'Azur** | SEW-USOCOME<br>Résidence Les Hespérides Bât. B2<br>67 boulevard des Alpes<br>F-13012 Marseille | Tel. +33 4 91 18 00 11<br>Fax +33 4 91 18 00 12 |
| | **Rhône-Alpes East** | SEW-USOCOME<br>Montée de la Garenne<br>F-26750 Génissieux | Tel. +33 4 75 05 65 95<br>Fax +33 4 75 05 65 96 |

| | | | |
|---|---|---|---|
| **France** | | | |
| | **Rhône-Alpes North** | SEW-USOCOME<br>Parc d'affaires Roosevelt<br>Rue Jacques Tati<br>F-69120 Vaulx en Velin | Tel. +33 4 72 15 37 03<br>Fax +33 4 72 15 37 15 |
| | **Rhône-Alpes West** | SEW-USOCOME<br>Parc d'affaires Roosevelt<br>Rue Jacques Tati<br>F-69120 Vaulx en Velin | Tel. +33 4 72 15 37 04<br>Fax +33 4 72 15 37 15 |

| | | | |
|---|---|---|---|
| **Algeria** | | | |
| **Sales** | **Alger** | REDUCOM Sarl<br>16, rue des Frères Zaghnoune<br>Bellevue<br>16200 El Harrach Alger | Tel. +213 21 8214-91<br>Fax +213 21 8222-84<br>info@reducom-dz.com<br>http://www.reducom-dz.com |

| | | | |
|---|---|---|---|
| **Argentina** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Buenos Aires** | SEW EURODRIVE ARGENTINA S.A.<br>Centro Industrial Garin, Lote 35<br>Ruta Panamericana Km 37,5<br>1619 Garin | Tel. +54 3327 4572-84<br>Fax +54 3327 4572-21<br>sewar@sew-eurodrive.com.ar<br>http://www.sew-eurodrive.com.ar |

| | | | |
|---|---|---|---|
| **Australia** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Melbourne** | SEW-EURODRIVE PTY. LTD.<br>27 Beverage Drive<br>Tullamarine, Victoria 3043 | Tel. +61 3 9933-1000<br>Fax +61 3 9933-1003<br>http://www.sew-eurodrive.com.au<br>enquires@sew-eurodrive.com.au |
| | **Sydney** | SEW-EURODRIVE PTY. LTD.<br>9, Sleigh Place, Wetherill Park<br>New South Wales, 2164 | Tel. +61 2 9725-9900<br>Fax +61 2 9725-9905<br>enquires@sew-eurodrive.com.au |
| **Sales**<br>**Service** | **Adelaide** | SEW-EURODRIVE PTY. LTD.<br>9C Park Way<br>Mawson Lakes, SA 5095 | Tel. +61 8 8161 4000<br>Fax +61 8 8161 4002<br>enquires@sew-eurodrive.com.au |
| | **Brisbane** | SEW-EURODRIVE PTY.LTD.<br>1 /34 Collinsvale St<br>Rocklea, Queensland, 4106 | Tel. +61 7 3276 5100<br>Fax +61 7 3276 5102<br>enquires@sew-eurodrive.com.au |
| | **Perth** | SEW-EURODRIVE PTY. LTD.<br>10 Colin Jamieson Drive<br>Welshpool, WA 6106 | Tel. +61 8 9251-4900<br>Fax +61 8 9251-4903<br>enquires@sew-eurodrive.com.au |
| **Technical Office** | **Townsville** | SEW-EURODRIVE PTY. LTD.<br>12 Leyland Street<br>Garbutt, QLD 4814 | Tel. +61 7 4779 4333<br>Fax +61 7 4779 5333<br>enquires@sew-eurodrive.com.au |

| | | | |
|---|---|---|---|
| **Austria** | | | |
| **Assembly**<br>**Sales**<br>**Service** | **Wien** | SEW-EURODRIVE Ges.m.b.H.<br>Richard-Strauss-Strasse 24<br>A-1230 Wien | Tel. +43 1 617 55 00-0<br>Fax +43 1 617 55 00-30<br>http://www.sew-eurodrive.at<br>sew@sew-eurodrive.at |
| **Technical Offices** | **Linz** | SEW-EURODRIVE Ges.m.b.H.<br>Reuchlinstr. 6/3<br>A-4020 Linz | Tel. +43 732 655 109-0<br>Fax +43 732 655 109-20<br>tb-linz@sew-eurodrive.at |
| | **Graz** | SEW-EURODRIVE Ges.m.b.H.<br>Grabenstraße 231<br>A-8045 Graz | Tel. +43 316 685 756-0<br>Fax +43 316 685 755<br>tb-graz@sew-eurodrive.at |
| | **Dornbirn** | SEW-EURODRIVE Ges.m.b.H.<br>Lustenauerstraße 27/1<br>A-6850 Dornbirn | Tel. +43 5572 3725 99-0<br>Fax +43 5572 3725 99-20<br>tb-dornbirn@sew-eurodrive.at |

| Bangladesh | | | |
|---|---|---|---|
| **Sales** | **Dhaka** | Jainex Industrial and Engineering Ltd<br>B 12 Apon Nibash<br>East Nasirabad<br>Bangladesh | Tel. +880 1713103502<br>Fax +880 31 613041<br>jainexbd@onlinectg.net |

| Belarus | | | |
|---|---|---|---|
| **Sales** | **Minsk** | SEW-EURODRIVE BY<br>RybalkoStr. 26<br>BY-220033 Minsk | Tel.+375 17 298 47 56 / 298 47 58<br>Fax +375 17 298 47 54<br>http://www.sew.by<br>sales@sew.by |

| Belgium | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW Caron-Vector**<br>Research park Haasrode<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.be<br>info@sew-eurodrive.be |
| **Service Competence Center** | **Industrial Gears** | **SEW Caron-Vector**<br>Rue de Parc Industriel, 31<br>BE-6900 Marche-en-Famenne | Tel. +32 84 219-878<br>Fax +32 84 219-879<br>http://www.sew-eurodrive.be<br>service-wallonie@sew-eurodrive.be |
| | **Antwerp** | **SEW Caron-Vector**<br>Glasstraat, 19<br>BE-2170 Merksem | Tel. +32 3 64 19 333<br>Fax +32 3 64 19 336<br>http://www.sew-eurodrive.be<br>service-antwerpen@sew-eurodrive.be |

| Brazil | | | |
|---|---|---|---|
| **Production**<br>**Sales**<br>**Service** | **Sao Paulo** | SEW-EURODRIVE Brasil Ltda.<br>Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208<br>Guarulhos - 07251-250 - SP<br>SAT - SEW ATENDE - 0800 7700496 | Tel. +55 11 2489-9133<br>Fax +55 11 2480-3328<br>http://www.sew-eurodrive.com.br<br>sew@sew.com.br |

| Bulgaria | | | |
|---|---|---|---|
| **Sales** | **Sofia** | BEVER-DRIVE GmbH<br>Bogdanovetz Str.1<br>BG-1606 Sofia | Tel. +359 2 9151160<br>Fax +359 2 9151166<br>bever@mail.bg |

| Cameroon | | | |
|---|---|---|---|
| **Sales** | **Douala** | Electro-Services<br>Rue Drouot Akwa<br>B.P. 2024<br>Douala | Tel. +237 33 431137<br>Fax +237 33 431137<br>electrojemba@yahoo.fr |

| Canada | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Toronto** | SEW-EURODRIVE CO. OF CANADA LTD.<br>210 Walker Drive<br>Bramalea, ON L6T 3W1 | Tel. +1 905 791-1553<br>Fax +1 905 791-2999<br>http://www.sew-eurodrive.ca<br>l.watson@sew-eurodrive.ca |
| | **Vancouver** | SEW-EURODRIVE CO. OF CANADA LTD.<br>Tilbury Industrial Park<br>7188 Honeyman Street<br>Delta, BC V4G 1G1 | Tel. +1 604 946-5535<br>Fax +1 604 946-2513<br>b.wake@sew-eurodrive.ca |
| | **Montreal** | SEW-EURODRIVE CO. OF CANADA LTD.<br>2555 Rue Leger<br>Lasalle, PQ H8N 2V9 | Tel. +1 514 367-1124<br>Fax +1 514 367-3677<br>a.peluso@sew-eurodrive.ca |
| | Additional addresses for service in Canada provided on request! | | |

| Chile | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Santiago de Chile** | SEW-EURODRIVE CHILE LTDA.<br>Las Encinas 1295<br>Parque Industrial Valle Grande<br>LAMPA<br>RCH-Santiago de Chile<br>P.O. Box<br>Casilla 23 Correo Quilicura - Santiago - Chile | Tel. +56 2 75770-00<br>Fax +56 2 75770-01<br>http://www.sew-eurodrive.cl<br>ventas@sew-eurodrive.cl |

| China | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service** | **Tianjin** | SEW-EURODRIVE (Tianjin) Co., Ltd.<br>No. 46, 7th Avenue, TEDA<br>Tianjin 300457 | Tel. +86 22 25322612<br>Fax +86 22 25323273<br>info@sew-eurodrive.cn<br>http://www.sew-eurodrive.com.cn |
| **Assembly**<br>**Sales**<br>**Service** | **Suzhou** | SEW-EURODRIVE (Suzhou) Co., Ltd.<br>333, Suhong Middle Road<br>Suzhou Industrial Park<br>Jiangsu Province, 215021 | Tel. +86 512 62581781<br>Fax +86 512 62581783<br>suzhou@sew-eurodrive.cn |
| | **Guangzhou** | SEW-EURODRIVE (Guangzhou) Co., Ltd.<br>No. 9, JunDa Road<br>East Section of GETDD<br>Guangzhou 510530 | Tel. +86 20 82267890<br>Fax +86 20 82267922<br>guangzhou@sew-eurodrive.cn |
| | **Shenyang** | SEW-EURODRIVE (Shenyang) Co., Ltd.<br>10A-2, 6th Road<br>Shenyang Economic Technological Development Area<br>Shenyang, 110141 | Tel. +86 24 25382538<br>Fax +86 24 25382580<br>shenyang@sew-eurodrive.cn |
| | **Wuhan** | SEW-EURODRIVE (Wuhan) Co., Ltd.<br>10A-2, 6th Road<br>No. 59, the 4th Quanli Road, WEDA<br>430056 Wuhan | Tel. +86 27 84478388<br>Fax +86 27 84478389<br>wuhan@sew-eurodrive.cn |
| | **Xi'An** | SEW-EURODRIVE (Xi'An) Co., Ltd.<br>No. 12 Jinye 2nd Road<br>Xi'An High-Technology Industrial Development Zone<br>Xi'An 710065 | Tel. +86 29 68686262<br>Fax +86 29 68686311<br>xian@sew-eurodrive.cn |

| Colombia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bogotá** | SEW-EURODRIVE COLOMBIA LTDA.<br>Calle 22 No. 132-60<br>Bodega 6, Manzana B<br>Santafé de Bogotá | Tel. +57 1 54750-50<br>Fax +57 1 54750-44<br>http://www.sew-eurodrive.com.co<br>sewcol@sew-eurodrive.com.co |

| Croatia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Zagreb** | KOMPEKS d. o. o.<br>Zeleni dol 10<br>HR 10 000 Zagreb | Tel. +385 1 4613-158<br>Fax +385 1 4613-158<br>kompeks@inet.hr |

| Czech Republic | | | |
|---|---|---|---|
| **Sales** | **Prague** | SEW-EURODRIVE CZ S.R.O.<br>Business Centrum Praha<br>Lužná 591<br>CZ-16000 Praha 6 - Vokovice | Tel. +420 255 709 601<br>Fax +420 220 121 237<br>http://www.sew-eurodrive.cz<br>sew@sew-eurodrive.cz |
| **Technical Offices** | **Brno** | SEW-EURODRIVE CZ S.R.O.<br>Křenová 52<br>CZ -60200 Brno | Tel. +420 543 256 151 +420 543 256 163<br>Fax +420 543 256 845 |
| | **Hradec Králové** | SEW-EURODRIVE CZ S.R.O.<br>Čechova 498<br>CZ-50202 Hradec Králové | Tel. +420 495 510 141<br>Fax +420 495 521 313 |

| Czech Republic | | | |
|---|---|---|---|
| | **Plzeň** | SEW-EURODRIVE CZ S.R.O.<br>Areal KRPA a.s.<br>Zahradni 173/2<br>CZ-32600 Plzeň | Tel. +420 378 775 300<br>Fax +420 377 970 710 |
| | **Ostrava** | SEW-EURODRIVE CZ S.R.O.<br>Studentská 6202/17<br>CZ-708 00 Ostrava-Poruba | Tel. +420 597 329 044<br>Mobile +420 724 889 965 |
| | **Klatovy** | SEW-EURODRIVE CZ S.R.O.<br>Technická kancelář Klatovy<br>Domažlická 800<br>CZ-33901 Klatovy | Tel. +420 376 310 729<br>Fax +420 376 310 725 |

| Denmark | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Copenhagen** | SEW-EURODRIVEA/S<br>Geminivej 28-30<br>DK-2670 Greve | Tel. +45 43 9585-00<br>Fax +45 43 9585-09<br>http://www.sew-eurodrive.dk<br>sew@sew-eurodrive.dk |

| Egypt | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Cairo** | Copam Egypt<br>for Engineering & Agencies<br>33 El Hegaz ST, Heliopolis, Cairo | Tel. +20 2 22566-299 + 1 23143088<br>Fax +20 2 22594-757<br>http://www.copam-egypt.com/<br>copam@datum.com.eg |

| Estonia | | | |
|---|---|---|---|
| **Sales** | **Tallin** | ALAS-KUUL AS<br>Reti tee 4<br>EE-75301 Peetri küla, Rae vald, Harjumaa | Tel. +372 6593230<br>Fax +372 6593231<br>veiko.soots@alas-kuul.ee |

| Finland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lahti** | SEW-EURODRIVE OY<br>Vesimäentie 4<br>FIN-15860 Hollola 2 | Tel. +358 201 589-300<br>Fax +358 3 780-6211<br>http://www.sew-eurodrive.fi<br>sew@sew.fi |
| **Technical Offices** | **Helsinki** | SEW-EURODRIVE OY<br>Luutnantintie 5<br>FIN-00410 Helsinki | Tel. +358 201 589-300<br>Fax + 358 9 5666-311<br>sew@sew.fi |
| | **Vaasa** | SEW-EURODRIVE OY<br>Hietasaarenkatu 18<br>FIN-65100 Vaasa | Tel. +358 201 589-300<br>Fax +358 6 3127-470<br>sew@sew.fi |
| | **Rovaniemi** | SEW-EURODRIVE OY<br>Valtakatu 4 A<br>FIN-96100 Rovaniemi | Tel. +358 201 589-300<br>Fax +358 201 589-239<br>sew@sew.fi |
| **Production**<br>**Assembly** | **Karkkila** | SEW Industrial Gears Oy<br>Valurinkatu 6, PL 8<br>FI-03600 Karkkila, 03601 Karkkila | Tel. +358 201 589-300<br>Fax +358 201 589-310<br>sew@sew.fi<br>http://www.sew-eurodrive.fi |

| Gabon | | | |
|---|---|---|---|
| **Sales** | **Libreville** | ESG Electro Services Gabun<br>Feu Rouge Lalala<br>1889 Libreville<br>Gabun | Tel. +241 741059<br>Fax +241 741059<br>esg_services@yahoo.fr |

| Great Britain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Normanton** | SEW-EURODRIVE Ltd.<br>Beckbridge Industrial Estate<br>P.O. Box No.1<br>Normanton, West-Yorkshire<br>WF6 1QR | Tel. +44 1924 893-855<br>Fax +44 1924 893-702<br>http://www.sew-eurodrive.co.uk<br>info@sew-eurodrive.co.uk |
| **Technical Offices** | **London** | SEW-EURODRIVE Ltd.<br>764 Finchely Road, Temple Fortune<br>London<br>N.W.11 7TH | Tel. +44 20 8458-8949<br>Fax +44 20 8458-7417 |
| | **Midlands** | SEW-EURODRIVE Ltd.<br>5 Sugar Brook court,<br>Aston Road,<br>Bromsgrove, Worcs<br>B60 3EX | Tel. +44 1527 877-319<br>Fax +44 1527 575-245 |
| | **Scotland** | SEW-EURODRIVE Ltd.<br>Scottish Office<br>No 37 Enterprise House<br>Springkerse Business Park<br>Stirling<br>FK7 7UF<br>Scotland | Tel. +44 17 8647-8730<br>Fax +44 17 8645-0223 |

| Greece | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Athens** | Christ. Boznos & Son S.A.<br>12, K. Mavromichali Street<br>P.O. Box 80136<br>GR-18545 Piraeus | Tel. +30 2 1042 251-34<br>Fax +30 2 1042 251-59<br>http://www.boznos.gr<br>info@boznos.gr |
| **Technical Office** | **Thessaloniki** | Christ. Boznos & Son S.A.<br>Asklipiou 26<br>562 24 Evosmos, Thessaloniki | Tel. +30 2 310 7054-00<br>Fax +30 2 310 7055-15<br>info@boznos.gr |

| Hong Kong | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Hong Kong** | SEW-EURODRIVE LTD.<br>Unit No. 801-806, 8th Floor<br>Hong Leong Industrial Complex<br>No. 4, Wang Kwong Road<br>Kowloon, Hong Kong | Tel. +852 36902200<br>Fax +852 36902211<br>contact@sew-eurodrive.hk |

| Hungary | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Budapest** | SEW-EURODRIVE Kft.<br>H-1037 Budapest<br>Kunigunda u. 18 | Tel. +36 1 437 06-58<br>Fax +36 1 437 06-50<br>office@sew-eurodrive.hu |

| Iceland | | | |
|---|---|---|---|
| **Sales** | **Reykjavik** | VARMA & VELAVERK EHF<br>Dalshrauni 5<br>IS-220 Hafnarjördur | Tel. +354 585 1070<br>Fax +354 585)1071<br>varmaverk@varmaverk.is<br>http://www.varmaverk.is |

| India | | | |
|---|---|---|---|
| **Registered Office**<br>**Assembly**<br>**Sales**<br>**Service** | **Vadodara** | SEW-EURODRIVE India Private Limited<br>Plot No. 4, GIDC<br>POR Ramangamdi • Vadodara - 391 243<br>Gujarat | Tel. +91 265 3045200, +91 265 2831086<br>Fax +91 265 3045300, +91 265 2831087<br>http://www.seweurodriveindia.com<br>sales@seweurodriveindia.com<br>subodh.ladwa@seweurodriveindia.com |

| India | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Chennai** | SEW-EURODRIVE India Private Limited<br>Plot No. K3/1, Sipcot Industrial Park Phase II<br>Mambakkam Village<br>Sriperumbudur - 602105<br>Kancheepuram Dist, Tamil Nadu | Tel. +91 44 37188888<br>Fax +91 44 37188811<br>c.v.shivkumar@seweurodriveindia.com |
| **Technical Offices** | **Ahmedabad** | SEW-EURODRIVE India Private Limited<br>306, Shaan office complex, Behind Sakar-IV,<br>Ellisebridge, Ashram Road<br>Ahmedabad – Gujarat | Tel. +91 79 40072067/68<br>Fax +91 79 40072069<br>subodh.ladwa@seweurodriveindia.com |
| | **Bengaluru** | SEW-EURODRIVE India Private Limited<br>308, Prestige Centre Point<br>7, Edward Road<br>Bengaluru - 560052 - Karnataka | Tel. +91 80 22266565<br>Fax +91 80 22266569<br>salesbang@seweurodriveindia.com<br>ganesh@seweurodriveindia.com |
| | **Chennai** | SEW-EURODRIVE India Private Limited<br>2nd Floor, Josmans Complex,<br>No. 5, McNichols Road,<br>Chetpet<br>Chennai - 600031 - Tamil Nadu | Tel. +91 44 42849813<br>Fax +91 44 42849816<br>saleschen@seweurodriveindia.com<br>c.v.shivkumar@seweurodriveindia.com |
| | **Coimbatore** | SEW-EURODRIVE India Private Limited<br>Office No 60<br>Arpee Centre (Opp Annapoorna Hotel)<br>420 N, NSR Road, Saibaba Colony<br>Coimbatore 641 0111 - Tamil Nadu | Tel. +91 422 2455420<br>Fax +91 422 2443988<br>salescmb@seweurodriveindia.com<br>p.selvakumar@seweurodriveindia.com |
| | **Cuttack** | SEW-EURODRIVE India Private Limited<br>Plot No.- 1764,<br>Nuasahi, Nayapalli<br>Bhubaneswar-12<br>Orissa | Tel. +91 9937446333<br>manoranjan.sahoo@seweurodriveindia.<br>com |
| | **Hyderabad** | SEW-EURODRIVE India Private Limited<br>408, 4th Floor, Meridian Place<br>Green Park Road<br>Amerpeet<br>Hyderabad - 500016 - Andhra Pradesh | Tel. +91 40 23414698<br>Fax +91 40 23413884<br>saleshyd@seweurodriveindia.com<br>ma.choudary@seweurodriveindia.com |
| | **Jamshedpur** | SEW-EURODRIVE India Private Limited<br>Flat No.: B/2, B.S. Apartment<br>Road No.: 4, Contractor’s area,<br>Bistupur<br>Jamshedpur 831 001 - Chhattisgarh | Tel. +91 9934123671<br>siddaratha.mishra@seweurodriveindia.<br>com |
| | **Kolkata** | SEW EURODRIVE India Private Limited<br>2nd floor, Room No. 35<br>Chowringhee Court<br>55, Chowringhee Road<br>Kolkata - 700 071 - West Bengal | Tel. +91 33 22827457<br>Fax +91 33 22894204<br>saleskal@seweurodriveindia.com<br>a.j.biswas@seweurodriveindia.com |
| | **Lucknow** | SEW-EURODRIVE India Private Limited<br>69, Shiv Vihar Colony<br>Vikas Nagar-5<br>Lucknow 226022 - Uttar Pradesh | Tel. +91 9793627333<br>amit.nigam@seweurodriveindia.com |
| | **Mumbai** | SEW-EURODRIVE India Private Limited<br>312 A, 3rd Floor, Acme Plaza, J.B. Nagar,<br>Andheri Kurla Road, Andheri (E)<br>Mumbai - 400059 - Maharashtra | Tel. +91 22 28348440<br>Fax +91 22 28217858<br>salesmumbai@seweurodriveindia.com<br>p.s.ray@seweurodriveindia.com |
| | **Nagpur** | SEW-EURODRIVE India Private Limited<br>Piyush S .Kudawale<br>Ganga Residency, 204, Shahu Nagar,<br>Manewada-Besa Road, Post- Mhalgi Nagar,<br>Nagpur - 440034 | Tel. +91 9561089525<br>-piyush.kudawale@seweurodriveindia.c<br>om |

| India | | | |
|---|---|---|---|
| | **New Delhi** | SEW-EURODRIVE India Private Limited<br>418-419, Suneja Tower-1<br>District Centre, Janak Puri<br>New Delhi 110 058 | Tel. +91 11 25544111<br>Fax +91 11 25544113<br>salesdelhi@seweurodriveindia.com<br>vikram.juneja@seweurodriveindia.com |
| | **Pune** | SEW-EURODRIVE India Private Limited<br>Lunawat Prism 4th floor, S. No. 148,<br>Neena Co-Operative Housing Society, Paud Road,<br>Pune 411038 - Maharashtra | Tel. +91 20 25380730 / 735<br>Fax +91 20 25380721<br>salespune@seweurodriveindia.com<br>praveen.hosur@seweurodriveindia.com |
| | **Raipur** | SEW-EURODRIVE India Private Limited<br>A-42, Ashoka Millenium Complex,<br>Ring Road-1,<br>Raipur 492 001 - Chhattisgarh | Tel. +91 771 4090765<br>Fax +91 771 4090765<br>sutanu.sarkar@seweurodriveindia.com |

| Indonesia | | | |
|---|---|---|---|
| **Sales** | **Medan II** | PT. Serumpun Indah Lestari<br>Jl. Pulau Solor<br>NO. 8 Kawasan Industri Medan II | Tel. +62 61 687 1221<br>Fax +62 61 687 1429<br>serumpunindah@yahoo.com |

| Ireland | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Dublin** | Alperton Engineering Ltd.<br>48 Moyle Road<br>Dublin Industrial Estate<br>Glasnevin, Dublin 11 | Tel. +353 1 830-6277<br>Fax +353 1 830-6458<br>info@alperton.ie<br>http://www.alperton.ie |

| Israel | | | |
|---|---|---|---|
| **Sales** | **Tel-Aviv** | Liraz Handasa Ltd.<br>Ahofer Str 34B / 228<br>58858 Holon | Tel. +972 3 5599511<br>Fax +972 3 5599512<br>http://www.liraz-handasa.co.il<br>office@liraz-handasa.co.il |

| Italy | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Solaro** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via Bernini,14<br>I-20020 Solaro (Milano) | Tel. +39 02 96 9801<br>Fax +39 02 96 799781<br>http://www.sew-eurodrive.it<br>sewit@sew-eurodrive.it |
| **Technical Offices** | **Bologna** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via della Grafica, 47<br>I-40064 Ozzano dell'Emilia (Bo) | Tel. +39 051 65-23-801<br>Fax +39 051 796-595 |
| | **Caserta** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Viale Carlo III Km. 23,300<br>I-81020 S. Nicola la Strada (Caserta) | Tel. +39 0823 219011<br>Fax +39 0823 421414 |
| | **Milan** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via Bernini,14<br>I-20020 Solaro (Milano) | Tel. +39 02 96 980229<br>Fax +39 02 96 799781 |
| | **Pescara** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Viale Europa,132<br>I-65010 Villa Raspa di Spoltore (PE) | Tel. +39 085 41-59-427<br>Fax +39 085 41-59-643 |
| | **Torino** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Filiale Torino<br>c.so Unione Sovietica 612/15 - int. C<br>I-10135 Torino | Tel. +39 011 3473780<br>Fax +39 011 3473783 |
| | **Verona** | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via P. Sgulmero, 27/A<br>I-37132 Verona | Tel. +39 045 89-239-11<br>Fax +39 045 97-6079 |

| Ivory Coast | | | |
|---|---|---|---|
| **Sales** | **Abidjan** | SICA<br>Société industrielle & commerciale pour l'Afrique<br>165, Boulevard de Marseille<br>26 BP 1115 Abidjan 26 | Tel. +225 21 25 79 44<br>Fax +225 21 25 88 28<br>sicamot@aviso.ci |

| Japan | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Iwata** | SEW-EURODRIVE JAPAN CO., LTD<br>250-1, Shimoman-no,<br>Iwata<br>Shizuoka 438-0818 | Tel. +81 538 373811<br>Fax +81 538 373855<br>http://www.sew-eurodrive.co.jp<br>sewjapan@sew-eurodrive.co.jp |
| **Technical Offices** | **Fukuoka** | SEW-EURODRIVE JAPAN CO., LTD.<br>C-go, 5th-floor, Yakuin-Hiruzu-Bldg.<br>1-5-11, Yakuin, Chuo-ku<br>Fukuoka, 810-0022 | Tel. +81 92 713-6955<br>Fax +81 92 713-6860<br>sewkyushu@jasmine.ocn.ne.jp |
| | **Osaka** | SEW-EURODRIVE JAPAN CO., LTD.<br>Higobashi Shimizu Bldg. 10th flor<br>1-3-7 Tosabori, Nishi-ku<br>Osaka, 550-0001 | Tel. +81 6 6444--8330<br>Fax +81 6 6444--8338<br>sewosaka@crocus.ocn.ne.jp |
| | **Tokyo** | SEW-EURODRIVE JAPAN CO., LTD.<br>Omarimon Yusen Bldg. 13th floor<br>3-23-5 Nishinbashi, Minato-ku<br>Tokyo 105-0003 | Tel. +81 3 3239-0469<br>Fax +81 3 3239-0943<br>sewtokyo@basil.ocn.ne.jp |

| Kazakhstan | | | |
|---|---|---|---|
| **Sales** | **Almaty** | ТОО "СЕВ-ЕВРОДРАЙВ"<br>пр.Райымбека, 348<br>050061 г. Алматы<br>Республика Казахстан | Тел. +7 (727) 334 1880<br>Факс +7 (727) 334 1881<br>http://www.sew-eurodrive.kz<br>sew@sew-eurodrive.kz |

| Latvia | | | |
|---|---|---|---|
| **Sales** | **Riga** | SIA Alas-Kuul<br>Katlakalna 11C<br>LV-1073 Riga | Tel. +371 6 7139253<br>Fax +371 6 7139386<br>http://www.alas-kuul.com<br>info@alas-kuul.com |

| Lebanon | | | |
|---|---|---|---|
| **Sales** | **Beirut** | Gabriel Acar & Fils sarl<br>B. P. 80484<br>Bourj Hammoud, Beirut | Tel. +961 1 510 532<br>Fax +961 1 494 971<br>ssacar@inco.com.lb |
| Jordan<br>Kuwait<br>Saudi Arabia<br>Syria | **Beirut** | Middle East Drives S.A.L. (offshore)<br>Sin El Fil.<br>B. P. 55-378<br>Beirut | Tel. +961 1 494 786<br>Fax +961 1 494 971<br>info@medrives.com<br>http://www.medrives.com |

| Lithuania | | | |
|---|---|---|---|
| **Sales** | **Alytus** | UAB Irseva<br>Statybininku 106C<br>LT-63431 Alytus | Tel. +370 315 79204<br>Fax +370 315 56175<br>info@irseva.lt<br>http://www.sew-eurodrive.lt |

| Luxembourg | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Brussels** | **SEW Caron-Vector**<br>Research park Haasrode<br>Evenementenlaan 7<br>BE-3001 Leuven | Tel. +32 16 386-311<br>Fax +32 16 386-336<br>http://www.sew-eurodrive.be<br>info@sew-eurodrive.be |

| Malaysia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johore** | SEW-EURODRIVE SDN BHD<br>No. 95, Jalan Seroja 39, Taman Johor Jaya<br>81000 Johor Bahru, Johor<br>West Malaysia | Tel. +60 7 3549409<br>Fax +60 7 3541404<br>sales@sew-eurodrive.com.my |
| **Technical Offices** | **Kota Kinabalu** | SEW-EURODRIVE Sdn Bhd<br>(Kota Kinabalu Branch)<br>Lot No. 2,1st Floor, Inanam Baru<br>Phase III, Miles 5.1 /2, Jalan Tuaran, Inanam<br>89350 Kota Kinabalu<br>Sabah, Malaysia | Tel. +60 88 424792<br>Fax +60 88 424807 |
| | **Kuala Lumpur** | SEW-EURODRIVE Sdn. Bhd.<br>No. 2, Jalan Anggerik Mokara 31/46<br>Kota Kemuning Seksyen 31<br>40460 Shah Alam<br>Selangor Darul Ehsan | Tel. +60 3 5229633<br>Fax +60 3 5229622<br>sewpjy@po.jaring.my |
| | **Kuching** | SEW-EURODRIVE Sdn. Bhd.<br>Lot 268, Section 9 KTLD<br>Lorong 9, Jalan Satok<br>93400 Kuching, Sarawak<br>East Malaysia | Tel. +60 82 232380<br>Fax +60 82 242380 |
| | **Penang** | SEW-EURODRIVE Sdn. Bhd.<br>No. 38, Jalan Bawal<br>Kimsar Garden<br>13700 Prai, Penang | Tel. +60 4 3999349<br>Fax +60 4 3999348<br>seweurodrive@po.jaring.my |

| Mauritania | | | |
|---|---|---|---|
| **Sales** | **Zouérate** | AFRICOM - SARL<br>En Face Marché Dumez<br>P.B. 88<br>Zouérate | Tel. +222 544 0 314<br>Fax +222 544 0 538<br>cybertiris@mauritel.mr |

| Mexico | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Quéretaro** | SEW-EURODRIVE MEXICO SA DE CV<br>SEM-981118-M93<br>Tequisquiapan No. 102<br>Parque Industrial Quéretaro<br>C.P. 76220<br>Quéretaro, México | Tel. +52 442 1030-300<br>Fax +52 442 1030-301<br>http://www.sew-eurodrive.com.mx<br>scmexico@seweurodrive.com.mx |

| Morocco | | | |
|---|---|---|---|
| **Sales** | **Casablanca** | Afit<br>Route D'El Jadida<br>KM 14 RP8<br>Province de Nouaceur<br>Commune Rurale de Bouskoura<br>MA 20300 Casablanca | Tel. +212 522633700<br>Fax +212 522621588<br>fatima.haquiq@premium.net.ma<br>http://www.groupe-premium.com |

| Netherlands | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Rotterdam** | VECTOR Aandrijftechniek B.V.<br>Industrieweg 175<br>NL-3044 AS Rotterdam<br>Postbus 10085<br>NL-3004 AB Rotterdam | Tel. +31 10 4463-700<br>Fax +31 10 4155-552<br>http://www.vector.nu<br>info@vector.nu |

| New Zealand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Auckland** | SEW-EURODRIVE NEW ZEALAND LTD.<br>P.O. Box 58-428<br>82 Greenmount drive<br>East Tamaki Auckland | Tel. +64 9 2745627<br>Fax +64 9 2740165<br>http://www.sew-eurodrive.co.nz<br>sales@sew-eurodrive.co.nz |

| New Zealand | | | |
|---|---|---|---|
| | **Christchurch** | SEW-EURODRIVE NEW ZEALAND LTD.<br>10 Settlers Crescent, Ferrymead<br>Christchurch | Tel. +64 3 384-6251<br>Fax +64 3 384-6455<br>sales@sew-eurodrive.co.nz |
| **Technical Office** | **Palmerston North** | SEW-EURODRIVE NEW ZEALAND LTD.<br>C/-Grant Shearman, RD 5, Aronui Road<br>Palmerston North | Tel. +64 6 355-2165<br>Fax +64 6 355-2316<br>sales@sew-eurodrive.co.nz |

| Norway | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Moss** | SEW-EURODRIVE A/S<br>Solgaard skog 71<br>N-1599 Moss | Tel. +47 69 24 10 20<br>Fax +47 69 24 10 40<br>http://www.sew-eurodrive.no<br>sew@sew-eurodrive.no |

| Pakistan | | | |
|---|---|---|---|
| **Sales** | **Karachi** | Industrial Power Drives<br>Al-Fatah Chamber A/3, 1st Floor Central Commercial Area,<br>Sultan Ahmed Shah Road, Block 7/8,<br>Karachi | Tel. +92 21 452 9369<br>Fax +92-21-454 7365<br>seweurodrive@cyber.net.pk |

| Peru | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lima** | SEW DEL PERU MOTORES REDUCTORES S.A.C.<br>Los Calderos, 120-124<br>Urbanizacion Industrial Vulcano, ATE, Lima | Tel. +51 1 3495280<br>Fax +51 1 3493002<br>http://www.sew-eurodrive.com.pe<br>sewperu@sew-eurodrive.com.pe |

| Poland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Lodz** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Techniczna 5<br>PL-92-518 Łódź | Tel. +48 42 676 53 00<br>Fax +48 42 676 53 45<br>http://www.sew-eurodrive.pl<br>sew@sew-eurodrive.pl |
| | **24 Hour Service** | | Tel. +48 602 739 739<br>(+48 602 SEW SEW)<br>serwis@sew-eurodrive.pl |
| **Technical Office** | **Tychy** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Fabryczna 5<br>PL-43-100 Tychy | Tel. +48 32 32 32 610<br>Fax +48 32 32 32 647 |
| | **Bydgoszcz** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Fordońska 246<br>PL-85-959 Bydgoszcz | Tel. +48 52 3606590<br>Fax +48 52 3606591 |
| | **Poznan** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Romana Maya 1<br>PL-61-371 Poznań | Tel. +48 61 8741640<br>Fax +48 61 8741641 |
| | **Radom** | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Słowackiego 84<br>PL-26-600 Radom | Tel. +48 48 365 40 50<br>Fax +48 48 365 40 51 |

| Portugal | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Coimbra** | SEW-EURODRIVE, LDA.<br>Apartado 15<br>P-3050-901 Mealhada | Tel. +351 231 20 9670<br>Fax +351 231 20 3685<br>http://www.sew-eurodrive.pt<br>infosew@sew-eurodrive.pt |
| **Technical Offices** | **Lisboa** | SEW-EURODRIVE, LDA.<br>Núcleo Empresarial I de São Julião do Tojal<br>Rua de Entremuros, 54<br>Fracção I<br>P-2660-533 São Julião do Tojal | Tel. +351 21 958-0198<br>Fax +351 21 958-0245<br>esc.lisboa@sew-eurodrive.pt |

| Portugal | | | |
|---|---|---|---|
| | **Porto** | SEW-EURODRIVE, LDA.<br>Av. 25 de Abril, 68<br>4440-502 Valongo | Tel. +351 229 350 383<br>Fax +351 229 350 384<br>MobilTel. +351 9 32559110<br>esc.porto@sew-eurodrive.pt |

| Romania | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Bucharest** | Sialco Trading SRL<br>str. Madrid nr.4<br>011785 Bucuresti | Tel. +40 21 230-1328<br>Fax +40 21 230-7170<br>sialco@sialco.ro |

| Russia | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **St. Petersburg** | ZAO SEW-EURODRIVE<br>P.O. Box 36<br>195220 St. Petersburg Russia | Tel. +7 812 3332522 +7 812 5357142<br>Fax +7 812 3332523<br>http://www.sew-eurodrive.ru<br>sew@sew-eurodrive.ru |
| **Technical Office** | **Yekaterinburg** | ZAO SEW-EURODRIVE<br>Kominterna Str. 16<br>Office 614<br>RUS-620078 Ekaterinburg | Tel. +7 343 310 3977<br>Fax +7 343 310 3978<br>eso@sew-eurodrive.ru |
| | **Irkutsk** | ZAO SEW-EURODRIVE<br>5-Armii Str., 31<br>RUS-664011 Irkutsk | Tel. +7 3952 25 5880<br>Fax +7 3952 25 5881<br>iso@sew-eurodrive.ru |
| | **Moskau** | ZAO SEW-EURODRIVE<br>Malaja Semjonowskaja Str.<br>д. 9, корпус 2<br>RUS-107023 Moskau | Tel. +7 495 9337090<br>Fax +7 495 9337094<br>mso@sew-eurodrive.ru |
| | **Novosibirsk** | ZAO SEW-EURODRIVE<br>pr. K Marksa 30<br>RUS-630087 Novosibirsk | Tel. +7 383 3350200<br>Fax +7 383 3462544<br>nso@sew-eurodrive.ru |
| | **Togliatti** | ZAO SEW-EURODRIVE<br>Sportivnaya Str. 4B, office 2<br>Samarskaya obl.<br>RUS-445057 Togliatti | Tel. +7 8482 710529<br>Fax +7 8482 810590 |

| Senegal | | | |
|---|---|---|---|
| **Sales** | **Dakar** | SENEMECA<br>Mécanique Générale<br>Km 8, Route de Rufisque<br>B.P. 3251, Dakar | Tel. +221 338 494 770<br>Fax +221 338 494 771<br>senemeca@sentoo.sn<br>http://www.senemeca.com |

| Serbia | | | |
|---|---|---|---|
| **Sales** | **Beograd** | DIPAR d.o.o.<br>Ustanicka 128a<br>PC Košum, IV floor<br>SCG-11000 Beograd | Tel. +381 11 347 3244 / +381 11 288 0393<br>Fax +381 11 347 1337<br>office@dipar.rs |

| Singapore | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Singapore** | SEW-EURODRIVE PTE. LTD.<br>No 9, Tuas Drive 2<br>Jurong Industrial Estate<br>Singapore 638644 | Tel. +65 68621701<br>Fax +65 68612827<br>http://www.sew-eurodrive.com.sg<br>sewsingapore@sew-eurodrive.com |

| Slovakia | | | |
|---|---|---|---|
| **Sales** | **Bratislava** | SEW-Eurodrive SK s.r.o.<br>Rybničná 40<br>SK-831 06 Bratislava | Tel. +421 2 33595 202<br>Fax +421 2 33595 200<br>sew@sew-eurodrive.sk<br>http://www.sew-eurodrive.sk |

| Slovakia | | | |
|---|---|---|---|
| | **Žilina** | SEW-Eurodrive SK s.r.o.<br>Industry Park - PChZ<br>ulica M.R.Štefánika 71<br>SK-010 01 Žilina | Tel. +421 41 700 2513<br>Fax +421 41 700 2514<br>sew@sew-eurodrive.sk |
| | **Banská Bystrica** | SEW-Eurodrive SK s.r.o.<br>Rudlovská cesta 85<br>SK-974 11 Banská Bystrica | Tel. +421 48 414 6564<br>Fax +421 48 414 6566<br>sew@sew-eurodrive.sk |
| | **Košice** | SEW-Eurodrive SK s.r.o.<br>Slovenská ulica 26<br>SK-040 01 Košice | Tel. +421 55 671 2245<br>Fax +421 55 671 2254<br>sew@sew-eurodrive.sk |

| Slovenia | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Celje** | Pakman - Pogonska Tehnika d.o.o.<br>UI. XIV. divizije 14<br>SLO - 3000 Celje | Tel. +386 3 490 83-20<br>Fax +386 3 490 83-21<br>pakman@siol.net |

| South Africa | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Johannesburg** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Eurodrive House<br>Cnr. Adcock Ingram and Aerodrome Roads<br>Aeroton Ext. 2<br>Johannesburg 2013<br>P.O.Box 90004<br>Bertsham 2013 | Tel. +27 11 248-7000<br>Fax +27 11 494-3104<br>http://www.sew.co.za<br>info@sew.co.za |
| | **Cape Town** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Rainbow Park<br>Cnr. Racecourse & Omuramba Road<br>Montague Gardens<br>Cape Town<br>P.O.Box 36556<br>Chempet 7442<br>Cape Town | Tel. +27 21 552-9820<br>Fax +27 21 552-9830<br>Telex 576 062<br>cfoster@sew.co.za |
| | **Durban** | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>2 Monaco Place<br>Pinetown<br>Durban<br>P.O. Box 10433, Ashwood 3605 | Tel. +27 31 700-3451<br>Fax +27 31 700-3847<br>cdejager@sew.co.za |
| | **Nelspruit** | SEW-EURODRIVE (PTY) LTD.<br>7 Christie Crescent<br>Vintonia<br>P.O.Box 1942<br>Nelspruit 1200 | Tel. +27 13 752-8007<br>Fax +27 13 752-8008<br>robermeyer@sew.co.za |
| **Technical Offices** | **Port Elizabeth** | SEW-EURODRIVE PTY LTD.<br>8 Ruan Access Park<br>Old Cape Road<br>Greenbushes<br>6000 Port Elizabeth | Tel. +27 41 3722246<br>Fax +27 41 3722247<br>dtait@sew.co.za |
| | **Richards Bay** | SEW-EURODRIVE PTY LTD.<br>103 Bulion Blvd<br>Richards Bay<br>P.O. Box 458<br>Richards Bay, 3900 | Tel. +27 35 797-3805<br>Fax +27 35 797-3819<br>jswart@sew.co.za |

| South Korea | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Ansan-City** | SEW-EURODRIVE KOREA CO., LTD.<br>B 601-4, Banweol Industrial Estate<br>1048-4, Shingil-Dong<br>Ansan 425-120 | Tel. +82 31 492-8051<br>Fax +82 31 492-8056<br>http://www.sew-korea.co.kr<br>master.korea@sew-eurodrive.com |

| South Korea | | | |
|---|---|---|---|
| | **Busan** | SEW-EURODRIVE KOREA Co., Ltd.<br>No. 1720 - 11, Songjeong - dong<br>Gangseo-ku<br>Busan 618-270 | Tel. +82 51 832-0204<br>Fax +82 51 832-0230<br>master@sew-korea.co.kr |
| **Technical Offices** | **Daegu** | SEW-EURODRIVE KOREA Co., Ltd.<br>No.1108 Sungan officetel<br>87-36, Duryu 2-dong, Dalseo-ku<br>Daegu 704-712 | Tel. +82 53 650-7111<br>Fax +82 53 650-7112 |
| | **DaeJeon** | SEW-EURODRIVE KOREA Co., Ltd.<br>No. 1502, Hongin officetel<br>536-9, Bongmyung-dong, Yusung-ku<br>Daejeon 305-301 | Tel. +82 42 828-6461<br>Fax +82 42 828-6463 |
| | **Kwangju** | SEW-EURODRIVE KOREA Co., Ltd.<br>4fl., Dae-Myeong B/D<br>96-16 Unam-dong, Buk-ku<br>Kwangju 500-170 | Tel. +82 62 511-9172<br>Fax +82 62 511-9174 |
| | **Seoul** | SEW-EURODRIVE KOREA Co., Ltd.<br>No.504 Sunkyung officetel<br>106-4 Kuro 6-dong, Kuro-ku<br>Seoul 152-054 | Tel. +82 2 862-8051<br>Fax +82 2 862-8199 |

| Spain | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Bilbao** | SEW-EURODRIVE ESPAÑA, S.L.<br>Parque Tecnológico, Edificio, 302<br>E-48170 Zamudio (Vizcaya) | Tel. +34 94 43184-70<br>Fax +34 94 43184-71<br>http://www.sew-eurodrive.es<br>sew.spain@sew-eurodrive.es |
| **Technical Offices** | **Barcelona** | Delegación Barcelona<br>Avenida Francesc Maciá 40-44 Oficina 4.2<br>E-08208 Sabadell (Barcelona) | Tel. +34 93 7162200<br>Fax +34 93 7233007 |
| | **Lugo** | Delegación Noroeste<br>Apartado, 1003<br>E-27080 Lugo | Tel. +34 639 403348<br>Fax +34 982 202934 |
| | **Madrid** | Delegación Madrid<br>Gran Via. 48-2° A-D<br>E-28220 Majadahonda (Madrid) | Tel. +34 91 6342250<br>Fax +34 91 6340899 |
| | **Seville** | MEB<br>Pólogono Calonge, C/A Nave 2 - C<br>E-41.077 Sevilla | Tel. +34 954 356 361<br>Fax +34 954 356 274<br>mebsa.sevilla@mebsa.com |
| | **Valencia** | MEB<br>Músico Andreu i Piqueres, 4<br>E-46.900 Torrente (Valencia) | Tel. +34 961 565 493<br>Fax +34 961 566 688<br>mebsa.valencia@mebsa.com |

| Sri Lanka | | | |
|---|---|---|---|
| **Sales** | **Colombo** | SM International (Pte) Ltd<br>254, Galle Raod<br>Colombo 4, Sri Lanka | Tel. +94 1 2584887<br>Fax +94 1 2582981 |

| Sweden | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Jönköping** | SEW-EURODRIVE AB<br>Gnejsvägen 6-8<br>S-55303 Jönköping<br>Box 3100 S-55003 Jönköping | Tel. +46 36 3442 00<br>Fax +46 36 3442 80<br>http://www.sew-eurodrive.se<br>jonkoping@sew.se |
| **Sales** | **Göteborg** | SEW-EURODRIVE AB<br>Gustaf Werners gata 8<br>S-42132 Västra Frölunda | Tel. +46 31 70968 80<br>Fax +46 31 70968 93<br>goteborg@sew.se |

| Sweden | | | |
|---|---|---|---|
| | **Stockholm** | SEW-EURODRIVE AB<br>Björkholmsvägen 10<br>S-14146 Huddinge | Tel. +46 8 44986 80<br>Fax +46 8 44986 93<br>stockholm@sew.se |
| | **Malmö** | SEW-EURODRIVE AB<br>Borrgatan 5<br>S-21124 Malmö | Tel. +46 40 68064 80<br>Fax +46 40 68064 93<br>malmo@sew.se |
| | **Skellefteå** | SEW-EURODRIVE AB<br>Trädgårdsgatan 8<br>S-93131 Skellefteå | Tel. +46 910 7153 80<br>Fax +46 910 7153 93<br>skelleftea@sew.se |

| Switzerland | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Basel** | Alfred Imhof A.G.<br>Jurastrasse 10<br>CH-4142 Münchenstein bei Basel | Tel. +41 61 417 1717<br>Fax +41 61 417 1700<br>http://www.imhof-sew.ch<br>info@imhof-sew.ch |
| **Technical Offices** | **Rhaetian Switzerland** | André Gerber<br>Es Perreyres<br>CH-1436 Chamblon | Tel. +41 24 445 3850<br>Fax +41 24 445 4887 |
| | **Bern / Solothurn** | Rudolf Bühler<br>Muntersweg 5<br>CH-2540 Grenchen | Tel. +41 32 652 2339<br>Fax +41 32 652 2331 |
| | **Central Switzerland, Aargau** | Armin Pfister<br>Stierenweid<br>CH-4950 Huttwill, BE | Tel. +41 62 962 54 55<br>Fax +41 62 962 54 56 |
| | **Zürich, Ticino** | Gian-Michele Muletta<br>Fischerstrasse 61<br>CH-8132 Egg bei Zürich | Tel. +41 44 994 81 15<br>Fax +41 44 994 81 16 |
| | **Bodensee and East Switzerland** | Markus Künzle<br>Eichweg 4<br>CH-9403 Goldach | Tel. +41 71 845 2808<br>Fax +41 71 845 2809 |

| Taiwan (R.O.C.) | | | |
|---|---|---|---|
| **Sales** | **Nan Tou** | Ting Shou Trading Co., Ltd.<br>No. 55 Kung Yeh N. Road<br>Industrial District<br>Nan Tou 540 | Tel. +886 49 255353<br>Fax +886 49 257878 |
| | **Taipei** | Ting Shou Trading Co., Ltd.<br>6F-3, No. 267, Sec. 2<br>Tung Hwa South Road, Taipei | Tel. +886 2 27383535<br>Fax +886 2 27368268<br>Telex 27 245<br>sewtwn@ms63.hinet.net |

| Thailand | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Chonburi** | SEW-EURODRIVE (Thailand) Ltd.<br>700/456, Moo.7, Donhuaroh<br>Muang<br>Chonburi 20000 | Tel. +66 38 454281<br>Fax +66 38 454288<br>sewthailand@sew-eurodrive.com |
| **Technical Offices** | **Bangkok** | SEW-EURODRIVE (Thailand) Ltd.<br>6th floor, TPS Building<br>1023, Phattanakarn Road<br>Suanluang<br>Bangkok,10250 | Tel. +66 2 7178149<br>Fax +66 2 7178152<br>sewthailand@sew-eurodrive.com |
| | **Hadyai** | SEW-EURODRIVE (Thailand) Ltd.<br>Hadyai Country Home Condominium<br>59/101 Soi.17/1<br>Rachas-Utid Road.<br>Hadyai, Songkhla 90110 | Tel. +66 74 359441<br>Fax +66 74 359442<br>sewthailand@sew-eurodrive.com |

| Thailand | | | |
|---|---|---|---|
| | **Khonkaen** | SEW-EURODRIVE (Thailand) Ltd.<br>4th Floor, Kaow-U-HA MOTOR Bldg,<br>359/2, Mitraphab Road.<br>Muang District<br>Khonkaen 40000 | Tel. +66 43 225745<br>Fax +66 43 324871<br>sew-thailand@sew-eurodrive.com |

| Tunisia | | | |
|---|---|---|---|
| **Sales** | **Tunis** | T. M.S. Technic Marketing Service<br>Zone Industrielle Mghira 2<br>Lot No. 39<br>2082 Fouchana | Tel. +216 79 40 88 77<br>Fax +216 79 40 88 66<br>http://www.tms.com.tn<br>tms@tms.com.tn |

| Turkey | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Istanbul** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>Bagdat Cad. Koruma Cikmazi No. 3<br>TR-34846 Maltepe ISTANBUL | Tel. +90 216 4419163 / 4419164<br>Fax +90 216 3055867<br>http://www.sew-eurodrive.com.tr<br>sew@sew-eurodrive.com.tr |
| **Technical Offices** | **Adana** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>Kizilay Caddesi 8 Sokak No<br>6 Daðtekin Is Merkezi Kat 4 Daire 2<br>TR-01170 SEYHAN / ADANA | Tel. +90 322 359 94 15<br>Fax +90 322 359 94 16 |
| | **Ankara** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>Özcelik Is Merkezi, 14. Sok, No. 4/42<br>TR-06370 Ostim/Ankara | Tel. +90 312 385 33 90<br>Fax +90 312 385 32 58 |
| | **Bursa** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>Üçevler Mah. Bayraktepe Sok.<br>Akay İş Merkezi Kat:3 No: 7/6<br>TR Nilüfer/Bursa | Tel. +90 224 443 45 60<br>Fax +90 224 443 45 58 |
| | **Izmir** | SEW-EURODRIVE<br>Hareket Sistemleri San. ve Tic. Ltd. Sti.<br>1203/11 Sok. No. 4/613<br>Hasan Atli Is Merkezi<br>TR-35110 Yenisehir-İzmir | Tel. +90 232 469 62 64<br>Fax +90 232 433 61 05 |

| Ukraine | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Dnepropetrovsk** | SEW-EURODRIVE<br>Str. Rabochaja 23-B, Office 409<br>49008 Dnepropetrovsk | Tel. +380 56 370 3211<br>Fax +380 56 372 2078<br>http://www.sew-eurodrive.ua<br>sew@sew-eurodrive.ua |
| **Sales** | **Kiev** | SEW-EURODRIVE GmbH<br>S. Oleynika str. 21<br>02068 Kiev | Tel. +380 44 503 95 77<br>Fax +380 44 503 95 78<br>kso@sew-eurodrive.ua |
| | **Donetsk** | SEW-EURODRIVE GmbH<br>25th anniversary of RKKA av. 1-B, of. 805<br>Donetsk 83000 | Tel. +380 62 38 80 545<br>Fax +380 62 38 80 533<br>dso@sew-eurodrive.ua |

| United Arab Emirates | | | |
|---|---|---|---|
| **Sales**<br>**Service** | **Sharjah** | Copam Middle East (FZC)<br>Sharjah Airport International Free Zone<br>P.O. Box 120709<br>Sharjah | Tel. +971 6 5578-488<br>Fax +971 6 5578-499<br>copam_me@eim.ae |

| Uruguay | | | |
|---|---|---|---|
| **Sales** | **Montevideo** | SEW-EURODRIVE Uruguay, S. A.<br>Jose Serrato 3569 Esqina Corumbe<br>CP 12000 Montevideo | Tel. +598 2 21181-89<br>Fax +598 2 21181-89<br>sewuy@sew-eurodrive.com.uy |

| USA | | | |
|---|---|---|---|
| **Production**<br>**Assembly**<br>**Sales**<br>**Service**<br>**Corporate Offices** | **Southeast Region** | SEW-EURODRIVE INC.<br>1295 Old Spartanburg Highway<br>P.O. Box 518<br>Lyman, S.C. 29365 | Tel. +1 864 439-7537<br>Fax Sales +1 864 439-7830<br>Fax Manufacturing +1 864 439-9948<br>Fax Assembly +1 864 439-0566<br>Fax Confidential/HR +1 864 949-5557<br>http://www.seweurodrive.com<br>cslyman@seweurodrive.com |
| **Assembly**<br>**Sales**<br>**Service** | **Northeast Region** | SEW-EURODRIVE INC.<br>Pureland Ind. Complex<br>2107 High Hill Road, P.O. Box 481<br>Bridgeport, New Jersey 08014 | Tel. +1 856 467-2277<br>Fax +1 856 845-3179<br>csbridgeport@seweurodrive.com |
| | **Midwest Region** | SEW-EURODRIVE INC.<br>2001 West Main Street<br>Troy, Ohio 45373 | Tel. +1 937 335-0036<br>Fax +1 937 332-0038<br>cstroy@seweurodrive.com |
| | **Southwest Region** | SEW-EURODRIVE INC.<br>3950 Platinum Way<br>Dallas, Texas 75237 | Tel. +1 214 330-4824<br>Fax +1 214 330-4724<br>csdallas@seweurodrive.com |
| | **Western Region** | SEW-EURODRIVE INC.<br>30599 San Antonio St.<br>Hayward, CA 94544 | Tel. +1 510 487-3560<br>Fax +1 510 487-6433<br>cshayward@seweurodrive.com |
| | Additional addresses for service in the USA provided on request! | | |

| Venezuela | | | |
|---|---|---|---|
| **Assembly**<br>**Sales**<br>**Service** | **Valencia** | SEW-EURODRIVE Venezuela S.A.<br>Av. Norte Sur No. 3, Galpon 84-319<br>Zona Industrial Municipal Norte<br>Valencia, Estado Carabobo | Tel. +58 241 832-9804<br>Fax +58 241 838-6275<br>http://www.sew-eurodrive.com.ve<br>ventas@sew-eurodrive.com.ve<br>sewfinanzas@cantv.net |

| Vietnam | | | |
|---|---|---|---|
| **Sales** | **Ho Chi Minh City** | Nam Trung Co., Ltd<br>91 - 93 Tran Minh Quyen Street,<br>District 10, HCMC | Tel. +84 8 8301026<br>Fax +84 8 8392223<br>namtrungco@hcm.vnn.vn |

# Anfrage/Bestellung

**Kundendaten:**

Firma: ____________ Kunden-Nr: ____________
Abteilung: ____________
Name: ____________ Tel.: ____________
Straße/Postfach: ____________ Fax: ____________
____________ E-Mail: ____________
PLZ/Ort: ____________

**Ihr Ansprechpartner bei SEW:**

Name: ____________ Tel.: ____________
Technisches Büro: ____________ Fax: ____________

**Technische Daten:**

Stückzahl: ________ Wunsch-Liefertermin: ____________
Katalogbezeichnung: ____________

**Getriebeart:**

☐ Stirnradgetriebe ☐ Flachgetriebe ☐ Kegelradgetriebe ☐ Schneckengetriebe ☐ Spiroplan®-Getriebe
☐ Doppelgetriebe ☐ Servo-Getriebe ☐ Verstellgetriebe ☐ Elektrohängebahn ☐ Sonstiges: ________

**Leistung:** ________ kW **Abtriebsdrehzahl:** ________ 1/min **Abtriebsdrehmoment:** ________ Nm

**Schaltungen/Std:** ________ c/h **Einschaltdauer:** S ________ / ________ %ED
☐ 1-Schicht-Betrieb ☐ 2-Schicht-Betrieb ☐ 3-Schicht-Betrieb
☐ gleichförmig ☐ ungleichförmig ☐ stark ungleichförmig

**Bauform:**
M1 ☐ M2 ☐ M3 ☐ M4 ☐ M5 ☐ M6 ☐ Schwenk ☐

**Gehäuseform:**
☐ Fußbauform ☐ Flansch (Bohrung) ☐ Flansch (Gewinde)
☐ Drehmomentstütze ☐ Sonstiges: ____________

**Wellenausführung:**
☐ Vollwelle mit Passfeder ☐ Schrumpfscheibe Welle/Hohlwelle ∅: ________ mm
☐ Hohlwelle mit Passfeder ☐ TorqLOC® Flansch ∅: ________ mm

**Lage Welle** (bei Winkelgetrieben): ☐ A | ☐ B | ☐ AB
**Klemmenkastenlage:** ☐ 0°(R) ☐ 90°(B) | ☐ 180°(L) | ☐ 270°(T)
**Kabeleinführung:** ☐X ☐1 | ☐2 | ☐3

**Schutzart:**
IP54 ☐ IP55 ☐ IP56 ☐ IP65 ☐ IP66 ☐ IP69K ☐

**Wärmeklasse:**
130(B) ☐ 155(F) ☐ 180(H) ☐

**Oberflächen/Korrosionsschutz:**
KS ☐ OS1 ☐ OS2 ☐ OS3 ☐ OS4 ☐

**Netzspannung:** ________ V
Netzfrequenz: ☐ 50Hz ☐ 60Hz

**Schaltungsart:**
☐ Δ ☐ Y ☐ YY ☐ Y/Y

☐ für Umrichterbetrieb: Max. Frequenz: ________ Hz | **Regelbereich:** ________

**Gewünschte Optionen:**
☐ Bremse: Spannung ______ V Bremsmoment: ______ Nm
☐ Handbremslüftung: ☐ HR oder ☐ HF
☐ Fremdlüfter: Fremdlüfterspannung: ________ V
☐ Motorschutz: ☐ TF oder ☐ TH
☐ Geber: ____________
☐ Steckverbinderanschluss: ____________
☐ Umrichter: ____________
☐ RAL 7031 oder ☐ RAL ________

**Weitere Optionen:**

**Besondere Umgebungsbedingungen:**
Temperatur: von ______ °C bis ______ °C | ☐ Betrieb im Freien | ☐ Aufstellhöhe >1000m über NN
Weitere Umweltbedingungen: ____________

Sonstiges: ____________

**Ort, Datum** ____________ **Unterschrift:** ____________

# Die Motoren auf einen Blick

## CMP- und CMPZ-Servomotoren, 400-V-Systemspannung

| Motortyp | $M_0$ [Nm] | $M_{pk}$ [Nm] | $J_{Mot}$ CMP [$10^{-4}$ $kgm^2$] | $J_{Mot}$ CMPZ |
|---|---|---|---|---|
| **CMP40S** | 0.5 | 1.9 | 0.10 | – |
| **CMP40M** | 0.8 | 3.8 | 0.15 | – |
| **CMP50S** | 1.3 | 5.2 | 0.42 | – |
| **CMP50M** | 2.4 | 10.3 | 0.67 | – |
| **CMP50L** | 3.3 | 15.4 | 0.92 | – |
| **CMP63S** | 2.9 | 11.1 | 1.15 | – |
| **CMP63M** | 5.3 | 21.4 | 1.92 | – |
| **CMP63L** | 7.1 | 30.4 | 2.69 | – |
| **CMP.71S** | 6.4 | 19.2 | 3.01 | 9.32 |
| **CMP.71M** | 9.4 | 30.8 | 4.06 | 10.37 |
| **CMP.71L** | 13.1 | 46.9 | 6.16 | 12.47 |
| **CMP.80S** | 13.4 | 42.1 | 8.39 | 27.18 |
| **CMP.80M** | 18.7 | 62.6 | 11.51 | 30.3 |
| **CMP.80L** | 27.5 | 106.9 | 17.72 | 36.51 |
| **CMP.100S** | 25.5 | 68.3 | 19.34 | 79.76 |
| **CMP.100M** | 31 | 108.2 | 26.25 | 86.66 |
| **CMP.100L** | 47 | 178.8 | 40 | 100.41 |

## CFM-Servomotoren, 400-V-Systemspannung

| Motortyp | $M_0$ [Nm] | $M_{pk}$ [Nm] | $J_{Mot}$ [$10^{-4}$ $kgm^2$] |
|---|---|---|---|
| **CFM71S** | 5 | 16.5 | 4.89 |
| **CFM71M** | 6.5 | 21.5 | 6.27 |
| **CFM71L** | 9.5 | 31.4 | 9.02 |
| **CFM90S** | 11 | 39.6 | 17.4 |
| **CFM90M** | 14.5 | 52.2 | 22.3 |
| **CFM90L** | 21 | 75.6 | 32.1 |
| **CFM112S** | 23.5 | 82.3 | 68.4 |
| **CFM112M** | 31 | 108.5 | 88.2 |
| **CFM112L** | 45 | 157.5 | 128 |
| **CFM112H** | 68 | 238 | 190 |


SEW-EURODRIVE GmbH & Co KG
P.O. Box 3023
D-76642 Bruchsal/Germany
Phone +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com