Drive Technology \ Drive Automation \ System Integration \ Services

Catalog

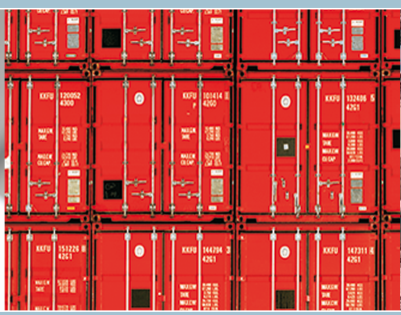
Electric Cylinders

CMS..50 – 71, CMSM..50 – 71

Edition 07/2016

20176945/EN



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1 Introduction

1.1 The SEW-EURODRIVE group of companies

1.1.1 Global presence

Driving the world – with innovative drive solutions for all industries and for every application. Products and systems from SEW-EURODRIVE are used all over the world. 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 14 manufacturing plants and 79 Drive Technology Centers worldwide as well as our customer support, which we consider an integrative service that continues our commitment to outstanding quality.

1.1.2 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, available space, and ambient conditions. Gear units and gearmotors offering a unique and finely tuned performance range and the best economic prerequisites to meet your drive requirements.

The modular DR.. motor series includes the energy-efficient motor types IE1 to IE4 and was designed and constructed with all worldwide requirements for energy efficiency classes in mind. The DR.. motor easily meets the requirements for approval and certification in all relevant countries. The energy-efficient drives achieve the highest efficiency in combination with SEW-EURODRIVE gear units.

The gearmotors are electronically enhanced by MOVITRAC® frequency inverters, MOVIDRIVE® drive inverters, and MOVIAXIS® multi-axis servo inverters – a combination that blends perfectly with the existing SEW-EURODRIVE program. As is the case with the mechanical systems, all development, production, and assembly is carried out entirely 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 ensure precision and dynamics. From single-axis or multi-axis applications to synchronized process sequences, servo drive systems from SEW-EURODRIVE enable flexible and customized implementation of your applications.

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 has developed hybrid cables to provide cost-effective functional solutions, irrespective of the system philosophy or scope. The latest developments from SEW-EURODRIVE: DRC.. electronic motor, MOVIGEAR® mechatronic drive system, MOVIFIT® decentralized drive controller, MOVIPRO® decentralized drive, positioning, and application controller, as well as MOVITRANS® system components for contactless energy transfer.

Power, quality, and robustness combined in a single standard product: with SEW-EURODRIVE, powerful movements are delivered by industrial gear units with high torques. The modular concept once again ensures optimum adaptation of industrial gear units to meet a wide range of different applications.

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1.1.3 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 drive tasks in all industries and applications.

1.2 Products and systems from SEW-EURODRIVE

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

- Industrial gear units
- Gearmotors and frequency inverters
- Servo drive systems
- Decentralized drive systems
- MAXOLUTION®

Products and systems used in applications of several groups are listed in a separate group entitled "products and systems covering several product groups". The following tables indicate the products and systems included in the respective product group:

Industrial gear units
• X, MC, ML series helical and bevel-helical gear units
• P002 – 102 series planetary gear units
• XP130 – 250 series planetary gear units
• P.X.. series planetary bevel-helical gear units
• Application solutions with connections
– Girth gears
– Swing base
– Gearmotor
– Motor
– Coupling
– Brake
– Lubrication system
For conveyor drives, bucket conveyors, agitators, cooling towers, crane systems, and much more

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Gearmotors and frequency inverters		
Gear units / gearmotors	**Motors**	**Frequency inverters**
• Helical gear units / helical gearmotors • Parallel-shaft helical gear units / parallel-shaft helical gearmotors • Helical-bevel gear units / gearmotors • Helical-worm gear units / helical-worm gearmotors • SPIROPLAN® right-angle gearmotors • EMS drives • Geared torque motors • Pole-changing gearmotors • Variable-speed gear units / variable-speed gearmotors • Aseptic gearmotors • Explosion-proof gear units / gearmotors • Explosion-proof variable-speed gear units / variable-speed gearmotors	• Asynchronous AC motors / AC brakemotors • Pole-changing AC motors / AC brakemotors • Energy-efficient motors • Explosion-proof AC motors / AC brakemotors • Torque motors • Single-phase motors / single-phase brakemotors • Asynchronous linear motors	• MOVITRAC® frequency inverters • MOVI4R-U® frequency inverters • MOVIDRIVE® drive inverters • Control, technology and communication options for inverters

Servo drive systems		
Servo gear units / gearmotors	**Servomotors**	**Servo drive inverters / servo inverters**
• Low backlash planetary servo gear units / planetary gearmotors • Low backlash helical-bevel servo gear units / helical-bevel gear units • R, F, K, S, W gear units / gearmotors • Explosion-proof servo gear units / servo gearmotors	• Asynchronous servomotors / servo brakemotors • Synchronous servomotors / servo brakemotors • Explosion-proof servomotors / servo brakemotors • Synchronous linear motors	• MOVIDRIVE® servo drive inverters • MOVIAXIS® multi-axis servo inverter • Control, technology and communication options for servo drive inverters and servo inverters

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<table>
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<td>• DRC.. electronic motors / MOVIGEAR® mechatronic drive systems
– DBC – Direct Binary Communication
– DAC – Direct AS-Interface Communication
– DSC – Direct SBus Communication
– SNI – Single Line Network Installation
• MOVIMOT® gearmotors with integrated frequency inverter
• MOVIMOT® motors / brakemotors with integrated frequency inverter
• MOVI-SWITCH® gearmotors with integrated switching and protection functions
• MOVI-SWITCH® motors / brakemotors with integrated switching and protection function
• Explosion-proof MOVIMOT® and MOVI-SWITCH® gearmotors</td>
<td>• Fieldbus interfaces
• Field distributors for decentralized installation
• MOVIFIT® product range
– MOVIFIT® FDC for controlling MOVIGEAR® and DRC.. drive units
– MOVIFIT® MC for controlling MOVIMOT® drives
– MOVIFIT® SC with integrated electronic motor switch
– MOVIFIT® FC with integrated frequency inverter
• MOVIPRO® product range
– MOVIPRO® SDC decentralized drive and positioning control</td>
<td>• MOVITRANS® system
– Stationary components for energy supply
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• Components of the type "functional safety"
• Diagnostic units</td></tr>
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In addition to its products and systems, SEW-EURODRIVE offers a comprehensive range of services. These include:

- Technical consulting
- User software
- Seminars and training
- Extensive technical documentation
- Worldwide customer service

Visit our website at

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→ **www.sew-eurodrive.com**

The website provides comprehensive information and services.

1.3 Documentation

1.3.1 Contents of this documentation

The present documentation describes in detail the following products from SEW-EURODRIVE:

- CMS.. standard electric cylinders / CMSM.. modular electric cylinders
- Options and accessories for electric cylinders

1.3.2 Additional documentation

The following catalogs are available from SEW-EURODRIVE in addition to the present catalog:

- CMP40 – CMP112, CMPZ71 – CMPZ100 Synchronous Servomotors

Please note that the complete range of technical documentation is available on our home page: **www.sew-eurodrive.com**

1.4 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

1.5 Copyright notice

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2 General product description

2.1 CMS.. electric cylinders

Applications with linear movement place high demands on the travel profile. Conventional solutions consisting of pneumatic and hydraulic cylinders will quickly reach their system limits in terms of performance.

Combining electric cylinders with the inverters from SEW-EURODRIVE results in intelligent drive systems that offer a high degree of flexibility and positioning accuracy, new options in programming, power control, and diagnostic functions. These translate into new and reliable concepts that can be integrated into a variety of production processes.

The CMS... electric cylinders are precise, powerful, and fast. When combined with drive electronics from SEW-EURODRIVE, they form economical, energy-efficient drive solutions that ensure a high level of process reliability in system operation and are easy to integrate into existing automation systems.

2.2 Overview of benefits

Mechatronic systems are becoming ever more prevalent in all branches of industry, replacing older technology that requires more maintenance and expense. Replacing a pneumatic cylinder with an electric cylinder offers many benefits for the user, including lower production costs and increased productivity and quality:

- Intelligent drive system with a high degree of flexibility (positioning, programming, power control, and diagnostic methods)
- Save on costs for compressed air (for pneumatic)
- Easy integration into automation processes
- Simple installation and mounting (no pipes have to be laid)
- Reduction in noise emissions due to controlled acceleration (protects mechanical components)
- Simple integration in automation processes by connection to all commercial bus systems: PROFIBUS, INTERBUS, INTERBUS LWL, DeviceNet™, CAN, CANopen

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2.3 Areas of applications

All applications that place demands on the **travel profile**, such as

- Torque dampening
- Different force profiles
- Maximum acceleration speeds
- Traveling to more than 2 positions

The electric cylinder can be used in the following areas:

- Metal processing machines
- Wood processing machines
- Handling systems
- Printing machines
- Plastic processing machines
- Food processing machines

2.4 Functional description

2.4.1 General

Synchronous servomotors from SEW-EURODRIVE are used as the basis for the CMS.. electric cylinder range.

The service life of the electric cylinders (threaded spindle and bearings) must be calculated, as it depends on the load cycle and travel cycle. The electric cylinders are equipped with a resolver that serves as a speed and position encoder. An absolute encoder (HIPERFACE® encoder) is available as an option. In connection with a servo inverter, you can freely define acceleration, velocity, position, and force profiles.

The repeat accuracy is 0.05 mm, if force and temperature are constant. The electric cylinders are available with or without brakes (holding brake only). The motor is available with plug connectors and terminal box.

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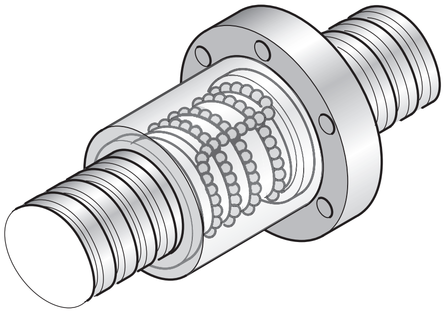
2.4.2 Operating principle of the recirculating ball screw and planetary roller screw drive

A distinction is made between 2 screw drive types for the electric cylinders:

- Recirculating ball screw (KGT)
- Planetary roller screw drive (PGT)

Recirculating ball screw (KGT)

The recirculating ball screw is used for all electric cylinders.



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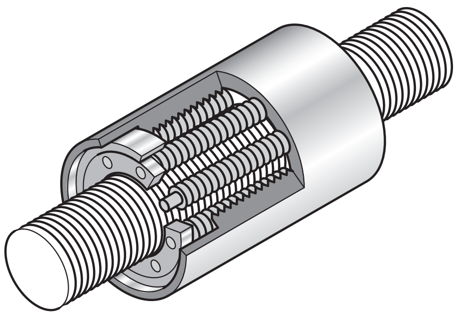
The recirculating ball screw transfers the load from the threaded spindle to the nut via ball bearings (power transmission by ball bearings).

Planetary roller screw drive (PGT)

The planetary roller screw drive can be used as an option in the **CMSB63** and **CMS71** electric cylinders.

Preferred fields of application for the PGT are:

- Low feed rates and high forces.
- Unfavorable operating conditions, such as die cutting.



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The planetary roller screw drive transfers the load from the threaded spindle to the nut via the convex thread edges of rollers (power transmission by planetary rollers).

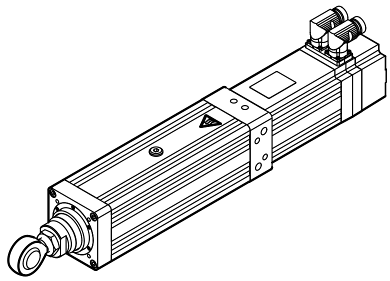
2.5 Design types

There are essentially 2 different types of CMS.. electric cylinder:

- CMS.. standard electric cylinders
- CMSM.. modular electric cylinders

2.5.1 Standard electric cylinders

CMSB50 – 71



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A CMP50 – 71 servomotor is used for the drive. An add-on component, comprising a threaded spindle and guide, is flanged onto the unit. All components and options of the motor, except the flanged endshield and the rotor (due to the larger bearing), are adopted from the CMP.

As standard, the drive is adapted to the customer's application via the flanged endshield on the drive side of the motor. The rotor turns the threaded spindle while the nut remains fixed. The nut is routed in an aluminum extruded housing via T-slot nuts.

The nut and piston rod are connected to each other. The piston rod has a smooth, high-quality corrosion-proof surface and is sealed with a sealing system. The joint head is connected to the piston rod. An oil bath lubrication system supplies the bearing points, threaded spindle, and seals with lubricant.

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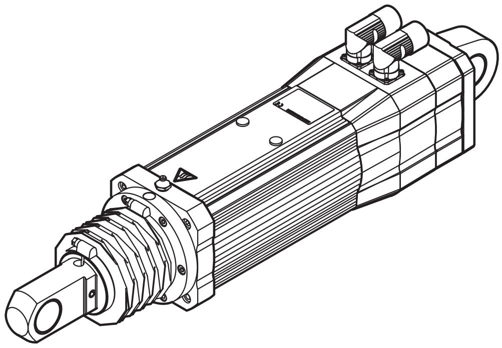
CMS71



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CMP synchronous servomotors from SEW-EURODRIVE are used as the basis for the CMS71 electric cylinder series.

The rotors are designed as a hollow shaft. The spindle nut of the recirculating ball screw or planetary roller screw drive is attached to the rotor. Depending on the direction of motor rotation, the threaded spindle is moved out of or into the rotor. The threaded spindle must be prevented from turning, so that it can transform the rotary motion of the rotor (spindle nut) into a linear motion. The threaded spindle is protected from heavy contamination by a bellows.

2.5.2 Electric cylinder, modular

CMSMB50 – 71

The CMSMB50 – 71 modular electric cylinder is a separate modular unit of the CMSB50 – 71 standard electric cylinders. They can be attached to the servomotors of the CMP series by means of adapters. The use of a third-party motor is also possible.

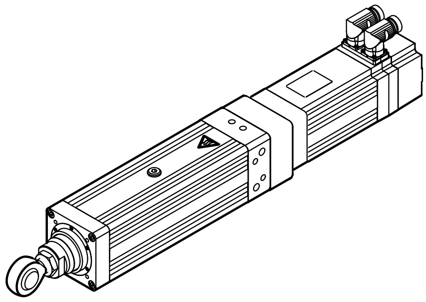
The following motor options are not permitted for attachment to the modular electric cylinders:

- CMPZ motors with flywheel fan
- BY brake

CMSMB50 – 71 with ACA, ACH adapter (axis-serial mounting)

The following adapter versions are available for mounting of the motor by the customer:

- /ACA prepared for serial mounting of servomotor CMP50 – 71 or third-party motor with keyway in shaft end
- /ACH prepared for serial mounting of servomotor CMP50 – 71 or third-party motor with plain shaft end



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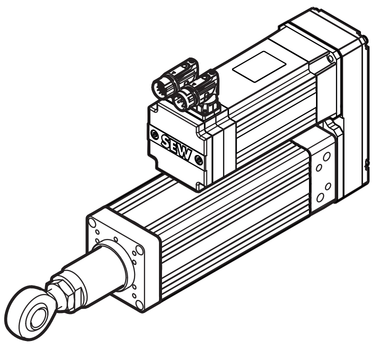
CMSMB50 – 71 with AP adapter (axis-parallel mounting)

Linear units from the CMSB50 – 71 series with mounted CMP50 – 71 servomotor (or third-party motor with plain shaft end) in axis-parallel mounting position.



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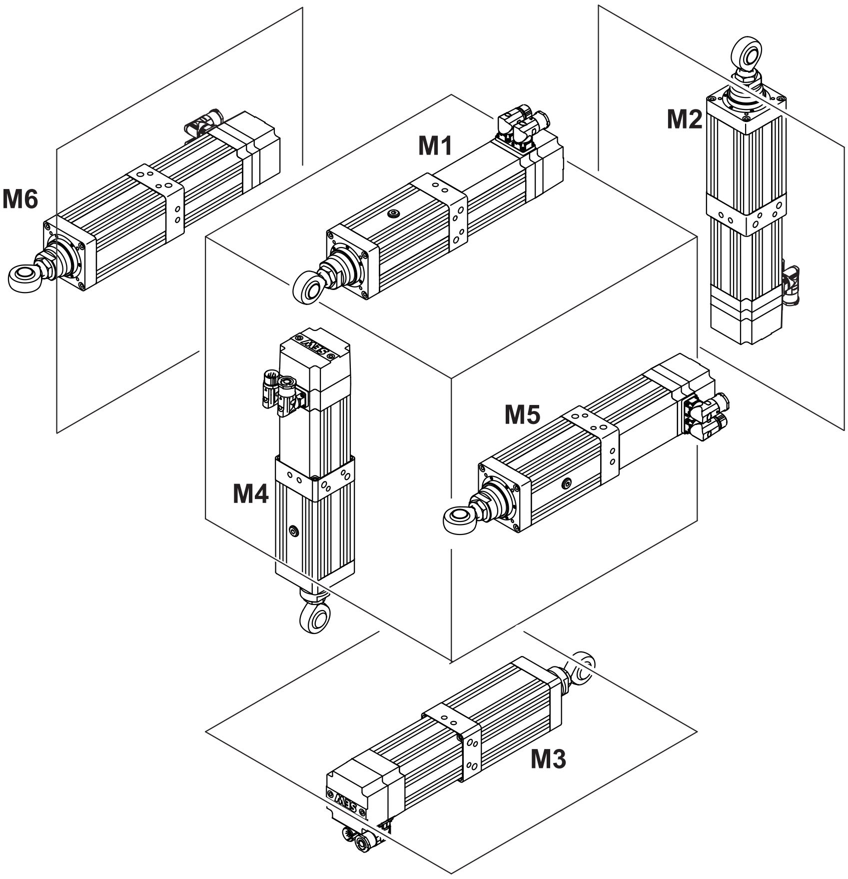
2.6 Mounting positions

All mounting positions (M0) are possible for CMS71 electric cylinders. With the CMSB50 – 71 and CMSMB50 – 71, mounting positions M2 and M4 are restricted, see chapter "Installation situation in customer’s application CMSB50 – 71, CMSMB50 – 71" (→ 🗎 297).



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2.7 Features

2.7.1 Storage conditions

The CMS.. electric cylinders are treated with an corrosion protection as standard.

The motor parts are protected against corrosion for 2 years when stored in unopened original packaging (for CMS71 with Vario lubrication system one year → battery service life).

Note the following storage conditions:

- Store CMS.. electric cylinders indoors.
- Keep the storage location clean and dry.
- The storage temperature should be between -10 °C and +70 °C.
- The humidity must not exceed 95%.
- The original packaging must not be damaged.

2.7.2 Operating temperatures

The electric cylinders are designed for use in a temperature range from -20 °C to +40 °C.

CMS71 with BS brake may only be used in a temperature range of -5 °C to 40 °C!

CMSB50/63/71 and CMSMB50/63/71: If the electric cylinder is installed with the piston rod pointing downwards, observe chapter "Installation situation and stroke range for CMSB50 – 71, CMSMB50 – 71" (→ 🗎 300).

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

2.7.3 Painting

The standard paint color is black, RAL 9005.

For the modular version, the linear unit is not painted. When painted in a requested color, only the motor is painted and the linear unit remains black.

2.7.4 Surface protection

In addition to standard surface protection, electric cylinders are available with surface protection OS1.

Surface protection	Ambient conditions	Sample applications
Standard	Suitable for machines and systems in buildings and rooms indoors with neutral atmospheres. Similar to corrosivity category[1]: • C1 (negligible)	• Machines and systems in the automobile industry • Transport systems in logistics • Conveyor belts at airports
OS1	Suitable for environments prone to condensation and atmospheres with low humidity or contamination, such as applications outdoors under roof or with protection device[1] According to corrosivity category: • C2 (low)	• Systems in saw mills • Hall gates • Agitators and mixers

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

2.7.5 International markets

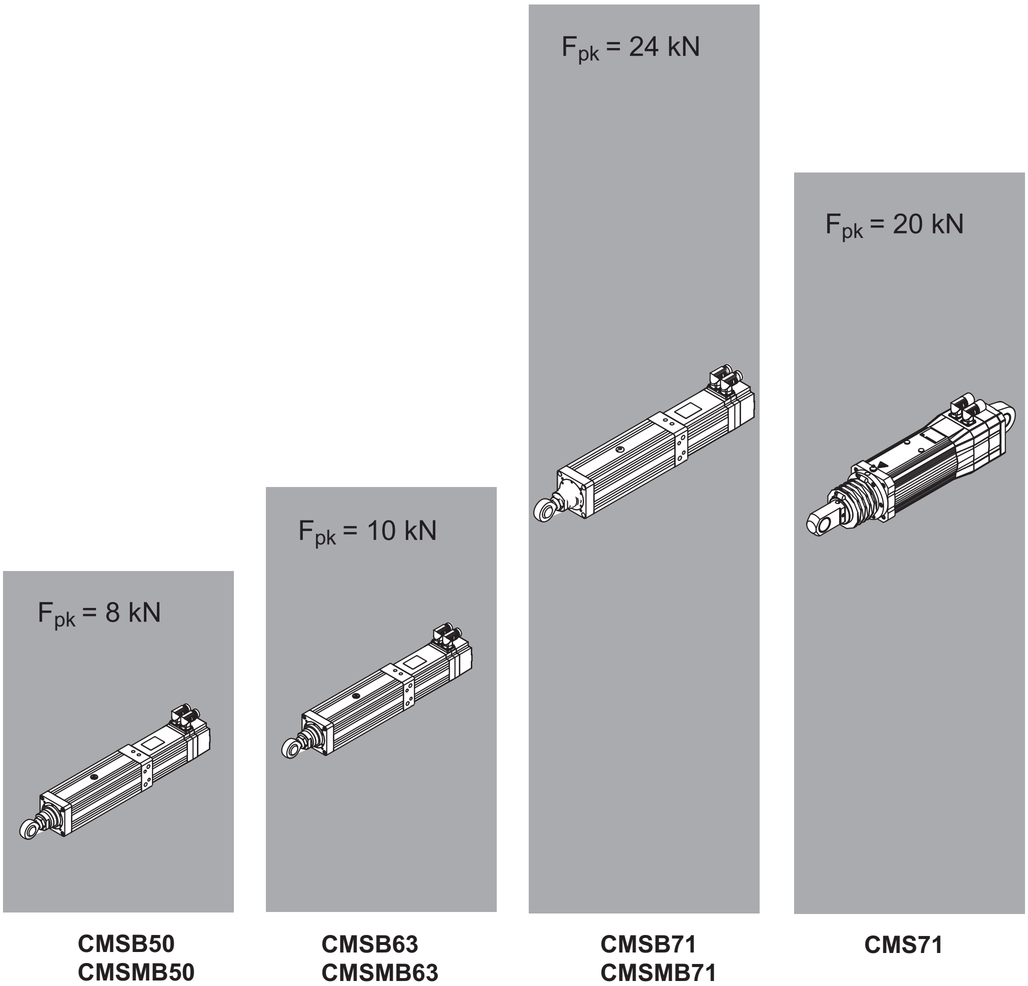
On request, SEW-EURODRIVE supplies motors registered for various markets or certified motors with connection conditions according to the relevant regulations.

Mark	Meaning
	CE mark to state compliance with European guidelines, such as the Low Voltage Directive
	UR logo to confirm that UL (Underwriters Laboratory) is informed about the registered components; register number by UL: E337323
MC170602	CSA mark to confirm the Canadian Standard Association (CSA) and the market conformity of AC motors
	EAC mark (EurAsian Conformity) Confirms compliance with the regulations of the economic and customs union of Russia, Belarus, and Kazakhstan
013	UkrSEPRO mark (Ukrainian Certification of Products) Confirms compliance with the technical regulations of the country Ukraine.

2.8 Comparison of electric cylinders

2.8.1 Peak feed force F_{pk}

The following figure shows an overview of the peak feed force F_{pk} of the electric cylinders:



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2.8.2 Feed rate v_{max}

The following figure shows an overview of the maximum feed rate against the maximum permitted speed of the electric cylinders.

Motor	Spindle	Stroke length	Max. feed rate v_{max}	Max. permitted speed	Spindle pitch p
		mm	m/s	1/min	mm
CMSB50 **CMSMB50**	KGT	70 – 600	0.375	4500	5
CMSB63 **CMSMB63**	PGT	100/200	0.375	4500	5
	KGT	60 – 600	0.45	4500	6
CMSB71	KGT	100 – 1200	0.45	4500	6
CMSMB71	KGT	100 – 1200	0.45	4500	6
CMS71	KGT	200	0.5	3000	10
	PGT	200	0.25	3000	5
	KGT	200	0.3	3000	6
	KGT	350	0.2	3000	6

KGT Recirculating ball screw
PGT Planetary roller screw drive

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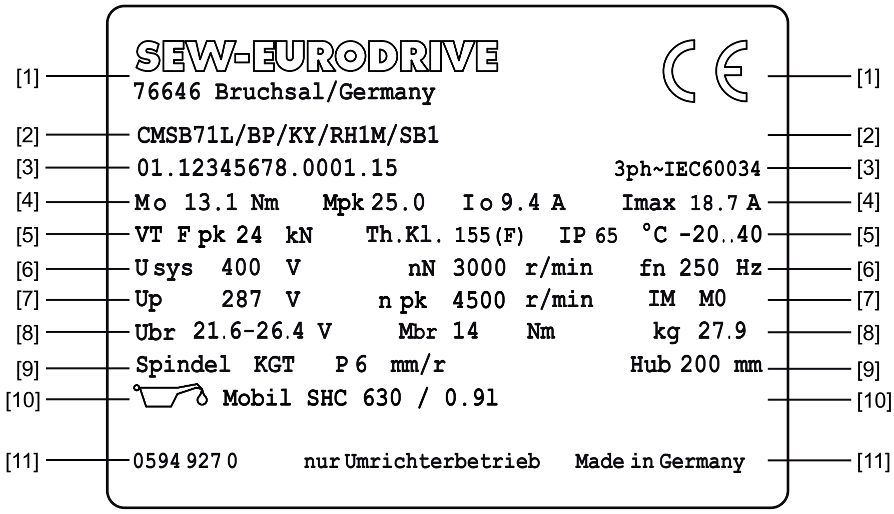
3 Type designation

The following characteristic unit data can be read from the type designation of the electric cylinder.

3.1 CMS.. standard electric cylinders – Nameplate

Each electric cylinder has a nameplate that provides important information. The following figure shows an example of a CMS.. standard electric cylinder nameplate:



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Line	Information
[1]	• Manufacturer, address • CE marking
[2]	• Type designation
[3]	• Serial number • Number of phases and underlying rating and performance standards (IEC 60034 X and/or equivalent national standard)
[4]	• M_0: Standstill torque • M_{pk}: Dynamic limit torque • I_{max}: Maximum permitted motor current
[5]	• VT: Variable torque • F_{pk}: Peak feed force • Th. Cl.: Thermal class • IP: Degree of protection • °C: Permitted ambient temperature
[6]	• U_{sys}: System voltage • n_N: Rated speed • f_n: Rated frequency

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Line	Information
[7]	• U_p: Internal voltage • n_{pk}: Maximum mechanically permitted speed • IM: Mounting position
[8]	• U_{br}: Brake voltage • M_{br}: Nominal braking torque • kg: Weight
[9]	• Spindle: Spindle • Stroke: Stroke length
[10]	• : Lubricant, lubricant quantity
[11]	• Part number nameplate • Suitability for inverter operation • Country of manufacture

3.2 CMS.. standard electric cylinders – Type designation

The following diagram shows the example of a type designation for a CMS.. standard electric cylinder:

Example: CMSB71L/BP/KY/RH1M/SB1/VR		
Electric cylinders	**CMS**	CMS.. standard electric cylinders
Generation	B	With oil bath lubrication
Size	**71**	
Length	**L**	Large
Mechanical attachments	**/BP**	BP holding brake
Standard equipment temperature sensor	**/KY**	KY temperature sensor
Encoder motor option	**/RH1M**	Resolver (standard)
Plug connector	**/SB1**	Brakemotor
Ventilation motor option	**/VR**	Forced cooling fan

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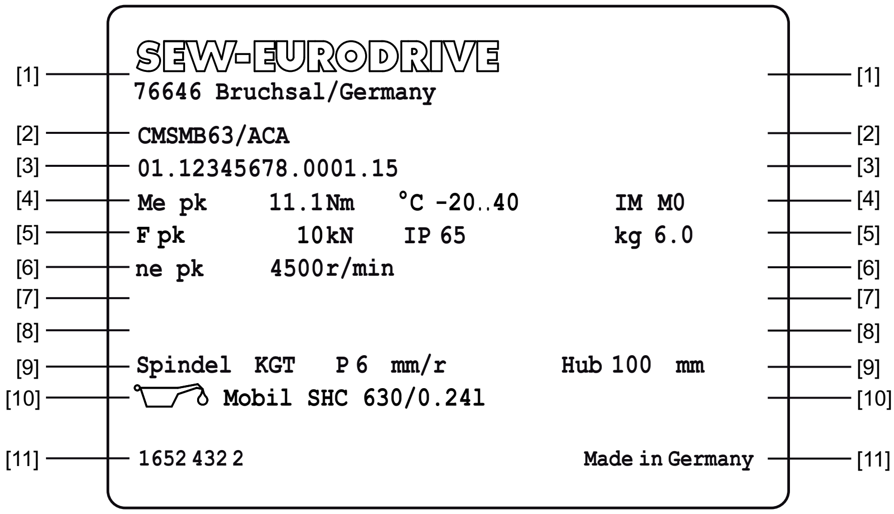
3.3 Nameplate of CMSM.. modular electric cylinder

CMSM.. modular electric cylinders have a nameplate attached to the modular unit. The nameplate shows the most important characteristics. The following figure shows an example of the nameplate of the modular unit.



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Line	Information
[1]	• Manufacturer, address
[2]	• Type designation
[3]	• Serial number
[4]	• M_{epk}: Max. permitted input torque • °C: Permitted ambient temperature • IM: Mounting position
[5]	• F_{pk}: Peak feed force • IP: Degree of protection • kg: Weight
[6]	• n_{epk}: Maximum permitted input speed
[9]	• Spindle: Spindle • Stroke: Stroke length
[10]	• : Lubricant, lubricant quantity
[11]	• Part number nameplate • Country of manufacture

If the modular unit is combined with a CMP motor, an additional nameplate that shows the motor characteristic data is attached to the motor.

3.4 Type designation CMSM.. modular electric cylinders

The following diagram shows an example of a type designation for a CMSM.. modular electric cylinder:

Example: CMSMB63/ACA		
Product	**CMSM**	CMSM.. modular electric cylinders
Generation	B	With oil bath lubrication
Size	**63**	
Mounting position	**/ACA**	Motor with key (CMP)
	–	Stroke length: • **CMSMB50**: 70, 100, 150, 200, 300, 400, 600 • **CMSMB63**: 60, 100, 160, 180, 200, 400, 600 • **CMSMB71**: 100, 160, 200, 400, 600, 800, 1000, 1200

3.5 Sample serial number of an electric cylinder

The following figure shows the example of a type serial number:

Example: 01. 12212343 01. 0001. 14	
01.	Sales organization
12212343	Order number (8 digits)
01.	Order item (2 digits)
0001	Quantity (4 digits)
14	End digits of the year of manufacture (2 digits)

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3.6 Designs and options for the CMS.. electric cylinders

3.6.1 Electric cylinders

Designation	Description
CMS..	Standard electric cylinders size 50/63/71
CMSM..	Electric cylinder, modular
B	Feature of the generation: with oil bath lubrication If the designation does not include a B: with grease lubrication
S – L	S = Small M = Medium L = Long

3.6.2 Adapter

Designation	Description
/ACA	For mounting on motor with key (CMP)
/ACH	For mounting on motor smooth shaft (CMP)
/AP	Design with parallel axes

3.6.3 Mechanical attachments

Designation	Description
/BP	Holding brake for CMSB71
/BK	Holding brake for CMSB..50 – 63
/BS	Holding brake for CMS71

3.6.4 Temperature sensor / temperature detection

Designation	Description
/KY	Temperature sensor for CMS..50 – 71 (standard)
/TF	Temperature sensor for CMS71 (standard)
/TH	Thermostat (bimetallic switch) for CMS71
/PK	Temperature sensor PT1000 for CMS..50 – 71

3.6.5 Encoders

Designation	Description
/RH1M	Resolver (standard)
/AK0H	Multi-turn HIPERFACE® encoder, cone shaft, for CMSB50/63/71, CMS71
/EK1H	Single-turn HIPERFACE® encoder, cone shaft, high resolution, for CMSB50/63/71, CMS71
/AK1H	Multi-turn HIPERFACE® encoder, cone shaft, high resolution, for CMSB50/63/71, CMS71

3.6.6 Connection options

Designation	Description
/SM1	M23 motor plug connector, socket on the motor side only, pluggable motor and encoder cables (standard)
/SB1	M23 brakemotor plug connector, socket on the motor side only, pluggable motor and encoder cables (standard)
/KK	Terminal box for CMSM.. modular electric cylinder

3.6.7 Cooling

Designation	Description
/VR	Forced cooling fan
/LC	Water cooling

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4 Design types

4.1 Connection variants

4.1.1 Plug connector connection variant

The electric cylinders are supplied with the SM./SB. plug connector system.

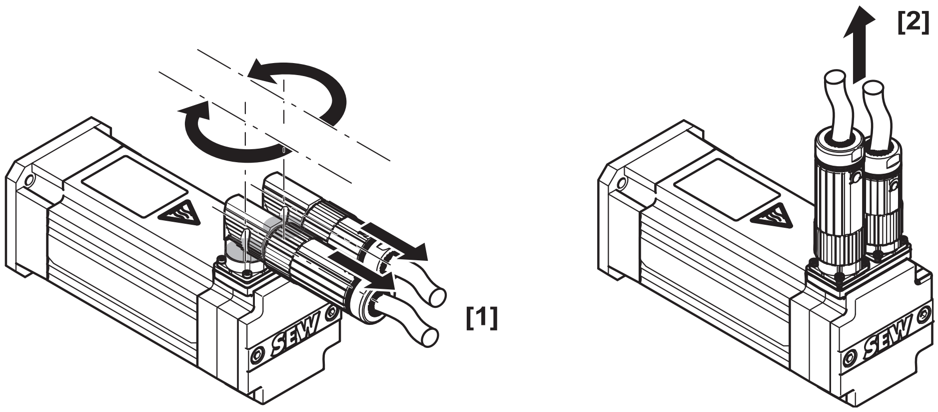
In the basic version, SEW-EURODRIVE delivers the electric cylinders with right-angle connector on the motor end and without mating connector. The encoder system is connected using a separate 12-pin round circular connector.

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

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

A "radial" position has been defined for the straight connector housing (radial output). The radial connectors [2] are available as options for CMS..50 – 71.

Additional information on available plug connectors can be found in the chapter Connection variants.



4792369803

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

The different plug connectors of the individual motor sizes are available in different versions. The following table shows the options:

Connector position		Plug connector
		SM1/SB1
between axes		X
adjustable	Steplessly adjustable positions	X

All electric cylinders are equipped with quick-lock right-angle or radial connectors (speedtec ®). If you use connectors without quick lock, the O-ring serves as vibration protection. The connector can only be screwed on until it reaches the O-ring. The connector is always sealed at the bottom. If you use self-assembled cables with quick lock, you must remove the O-ring.

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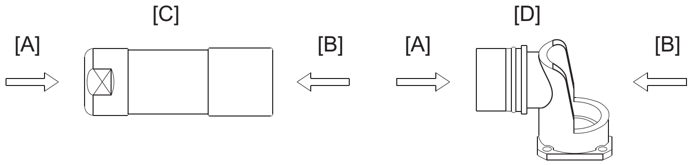
Key



8790995467

[A] View A
[B] View B
[C] Customer connector with socket contacts
[D] Flange socket with pin contacts installed at the factory

SM1/SB1 power connector (M23)

Wiring diagram with/without BP/BK/BS brake

14625714699

[1] BP/BK/BS-Brake (optional)

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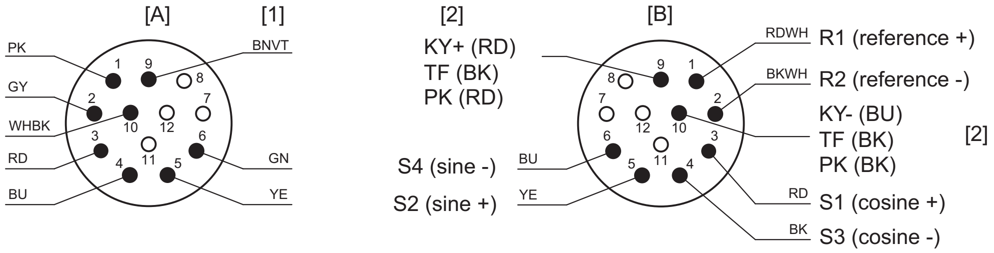
Wiring diagram for RH1M resolver signal plug connectors

Wiring diagram



9007208045732619

[1] Shield connected to the metal housing of the connector. Color code according to SEW-EURODRIVE cable
[2] KY+ (RD), KY- (BU), optional TF (BK), optional PK (RD/BK)

Pin assignment of plug connector lower part

Contact	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	KY+/TF/PK
10	BU	KY-/TF/PK
11	–	–
12	–	–

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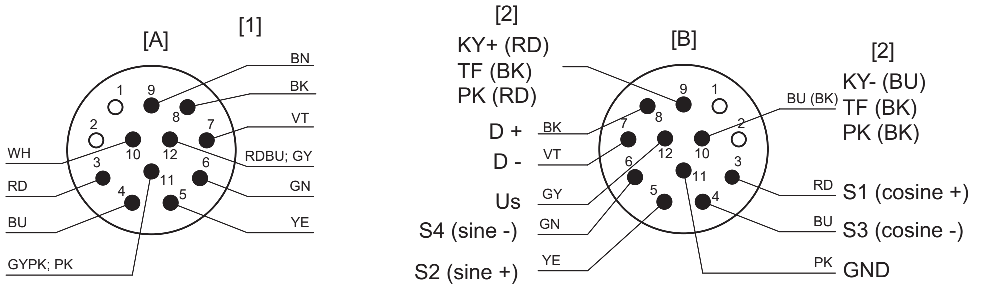
Connection of signal plug connector encoder AK0H, EK0H, AK1H, EK1H

Wiring diagram



9007208045734539

[1] Shield connected to the metal housing of the connector. Color code according to SEW-EURODRIVE cable

[2] KY+ (RD), KY-(BU), optional TF (BK), optional PK (RD/BK)

Pin assignment of plug connector lower part

Contact	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	KY+/TF/PK
10	BU	KY-/TF/PK
11	PK	Voltage reference (GND)
12	GY	Supply voltage Vs

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4.1.2 Connection option via terminal box

The connection with terminal box /KK, /KKS is possible for the CMSMB50 – 71 electric cylinders with CMP50 – 71.

Position of terminal box and cable entry

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

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

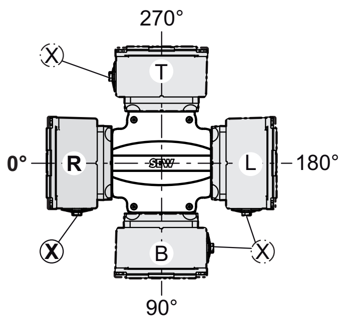
This new designation applies to motors without a gear unit in mounting position B3 (= M1). For gearmotors, the previous designation is retained.

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

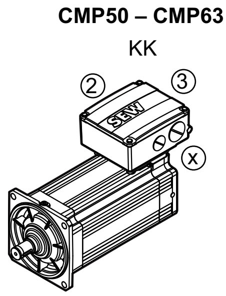
The following figure shows both designations. Where the mounting position of the motor changes, R, B, L and T are rotated accordingly.

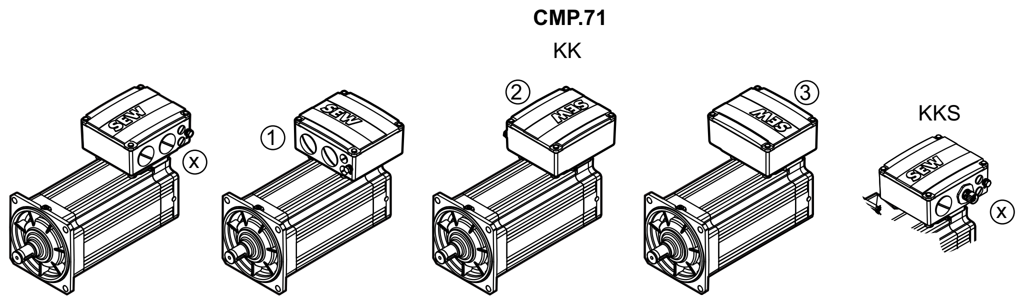
The cable entry position is specified with x, 1, 2, 3.

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



4792373515





15645069963

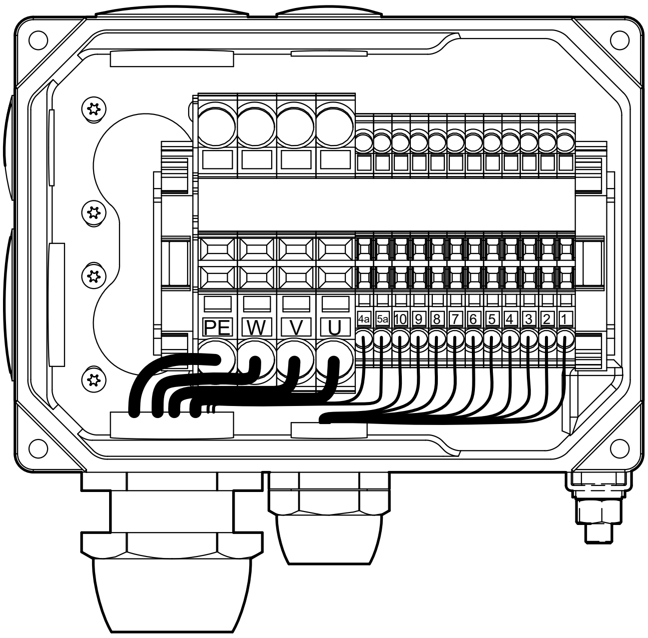
Connecting motor and encoder system via KK/KKS terminal box to CMSMB50 – 71

- Check the cable cross sections.
- Screw on the connections and ground wire.
- Check the winding connections in the terminal box and tighten them, if necessary.
- You have to use an EMC screw fitting for the cable entry of the signal line entry in order to ensure a flawless shielding.

Connection cross section

Motor	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	M6 stud	10 mm^2	M32		M16

Connecting CMSMB50/63



2900869771

Power

Pin	Core identification	Connection
U	(BK/WH) Black with white lettering U, V, W	U
V		V
W		W
PE	(GN/YE) Green/yellow	PE conductor

BP brake, BK brake

Auxiliary terminal contacts	Conductor identification		BMV brake rectifier connection	BS brake control unit connection
	BP	BK		
4a (RD)	+ (YE) Yellow	+ (RD) Red	13	3
5a (BU)	- (YE) Yellow	- (BU) Blue	15	5

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

NOTICE

Damage to the brake.

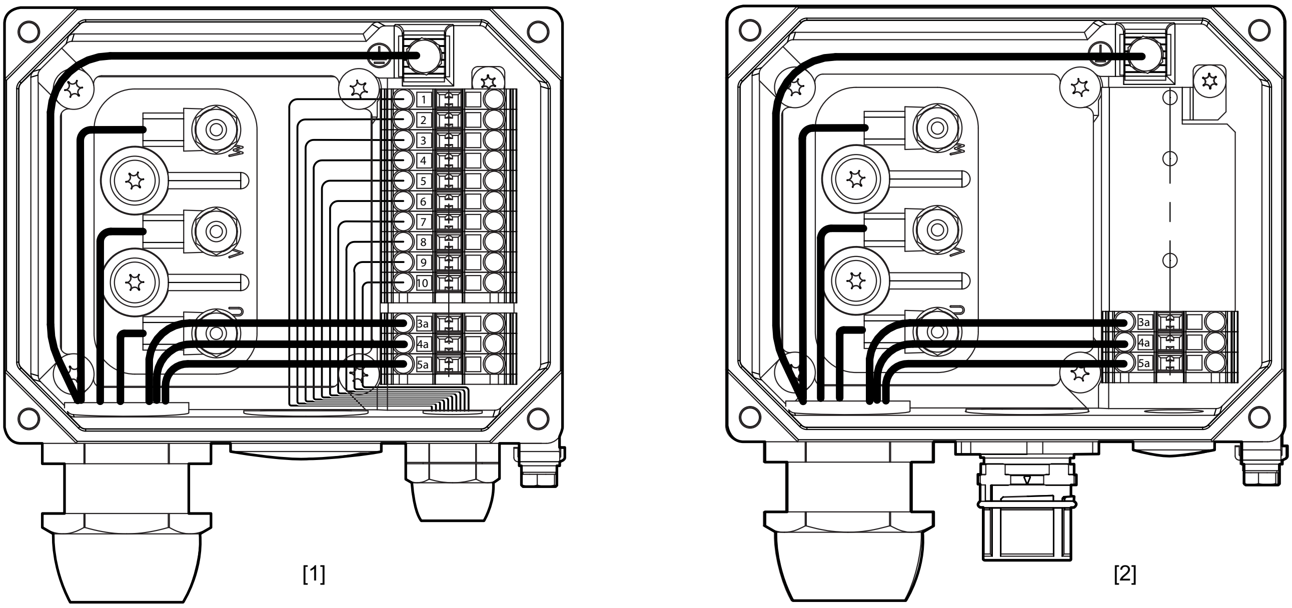
Possible damage to property.

- It is essential that you observe the correct polarity of the brake power supply.
- Check the polarity when replacing the brake.

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	KY+/PK/TF	Motor protection	9	KY+/PK/TF	Motor protection
10	KY-/PK/TF		10	KY-/PK/TF	

Connecting CMSMB71



3177814923

[1] KK terminal box

[2] KKS terminal box

Power rating

Pin	Core identification	Connection
U	(BK/WH) Black with white lettering U, V, W	U
V		V
W		W
PE	(GN/YE) Green/yellow	PE conductor

BP brake

Auxiliary terminal contacts	Conductor identification	BMV brake rectifier connection	BS brake control unit connection
4a	(BK/WH) Black with white lettering 1, 3	13	3
5a		15	5

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

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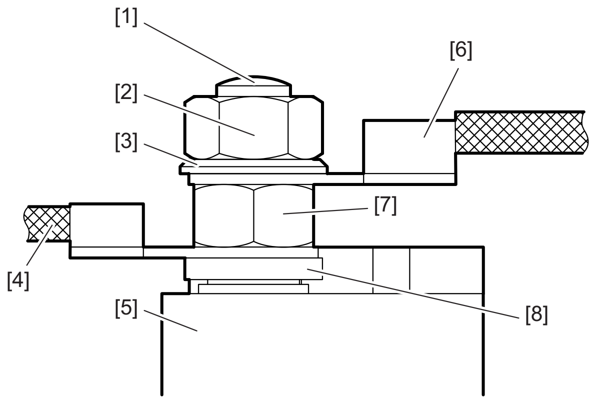
Signal

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	KY+/PK/TF	Motor protection	9	KY+/PK/TF	Motor protection
10	KY-/PK/TF		10	KY-/PK/TF	

Power connection on the terminal box

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



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

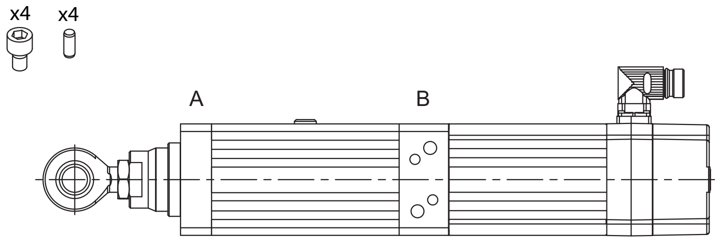
For designing the terminal box, positions 4, 6, and 7 are regarded as current-carrying.

4.2 Important order information

4.2.1 CMSB50, CMSMB50

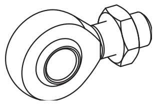
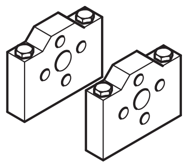
A-side and B-side mounting

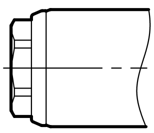
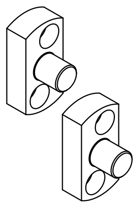
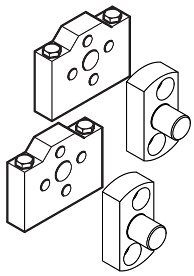
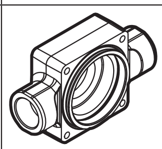
If the option FA, FSA, SA is chosen, the electric cylinder is supplied with 4 cap screws and 4 dowel pins.



The following design types are available.

The A-side mounting is also possible without ball joint head.

A-side mounting		B-side mounting	
Designation	**Standard**	**Designation**	**Standard**
Ball joint head KG16		Flange mounting kit FA	

A-side mounting		B-side mounting	
Designation	**Option**	**Designation**	**Option**
Without mounting		Pivot bearing mounting kit SA	
		Flange and pivot bearing mounting kit FSA	
		BU16 bushing design	

The dowel pins and cap screws are required only for the FA/SA and FSA versions. If no mounting option is selected, the accessories can be deselected during the order. No accessory bag is supplied with the BU option.

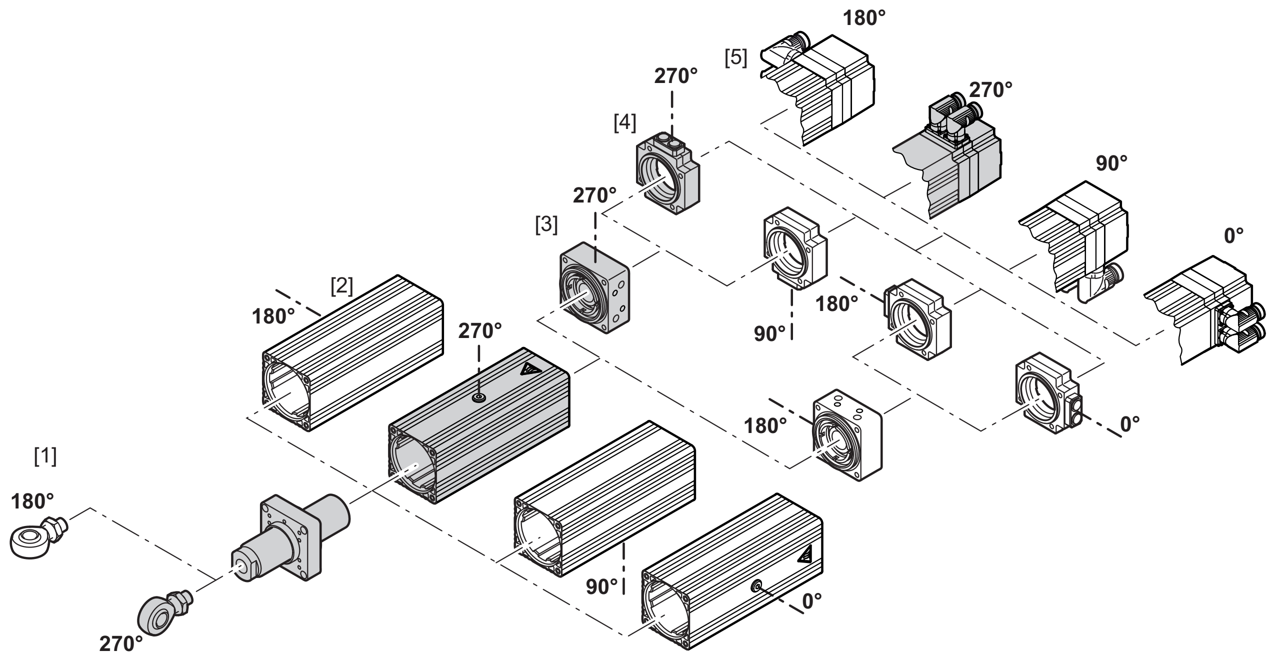
Position of the components CMSB50, CMSMB50 /ACH /ACA

The following figure shows the positions of the mount-on components. Note the following:

INFORMATION

The standard position of the mount-on components is 270°.

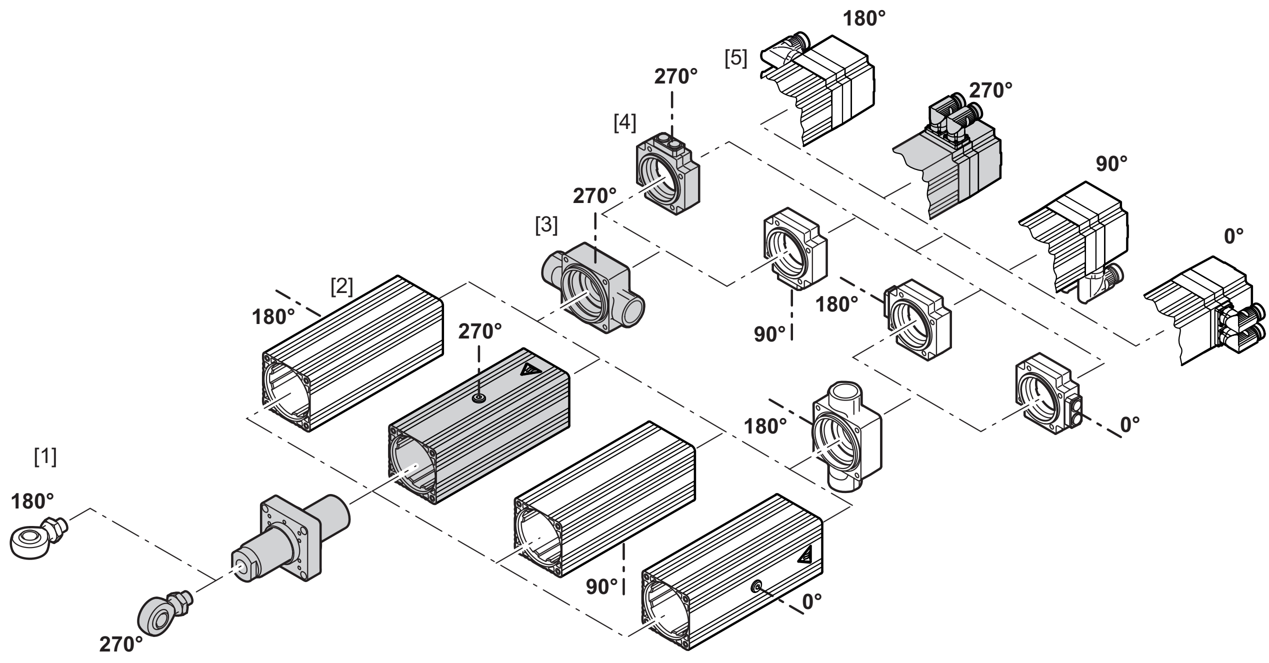
Standard



14987050635

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Position of cooling flange (LC version only)
[5] Connector position

Sockets (BU)

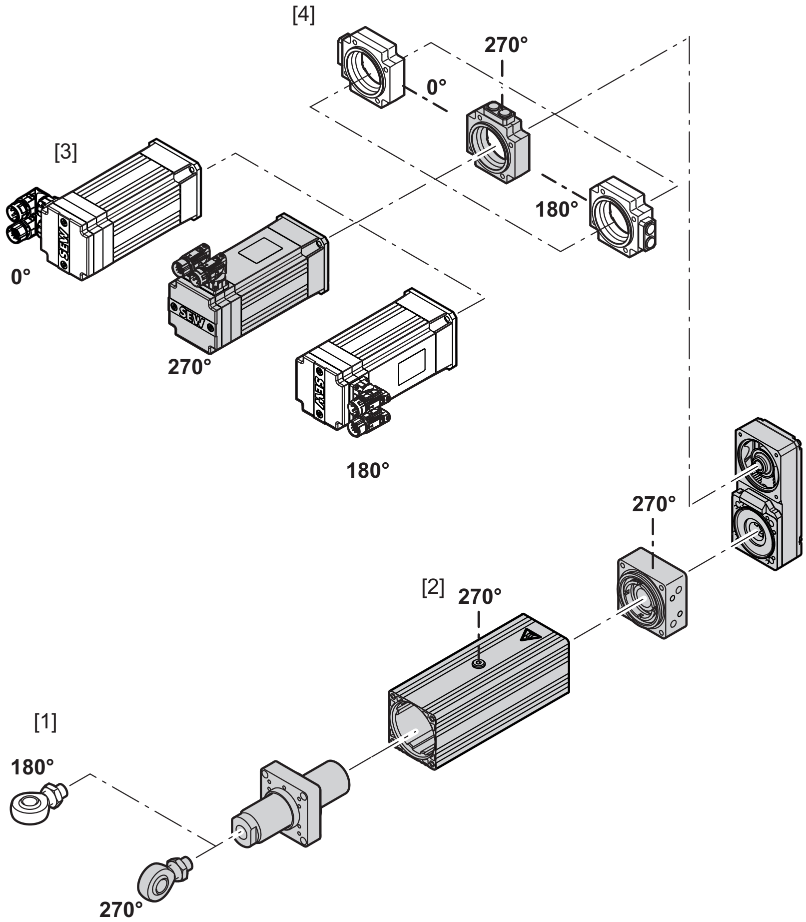


14987178635

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Position of cooling flange (LC version only)
[5] Connector position

Position of the CMSMB50 /AP mount-on components

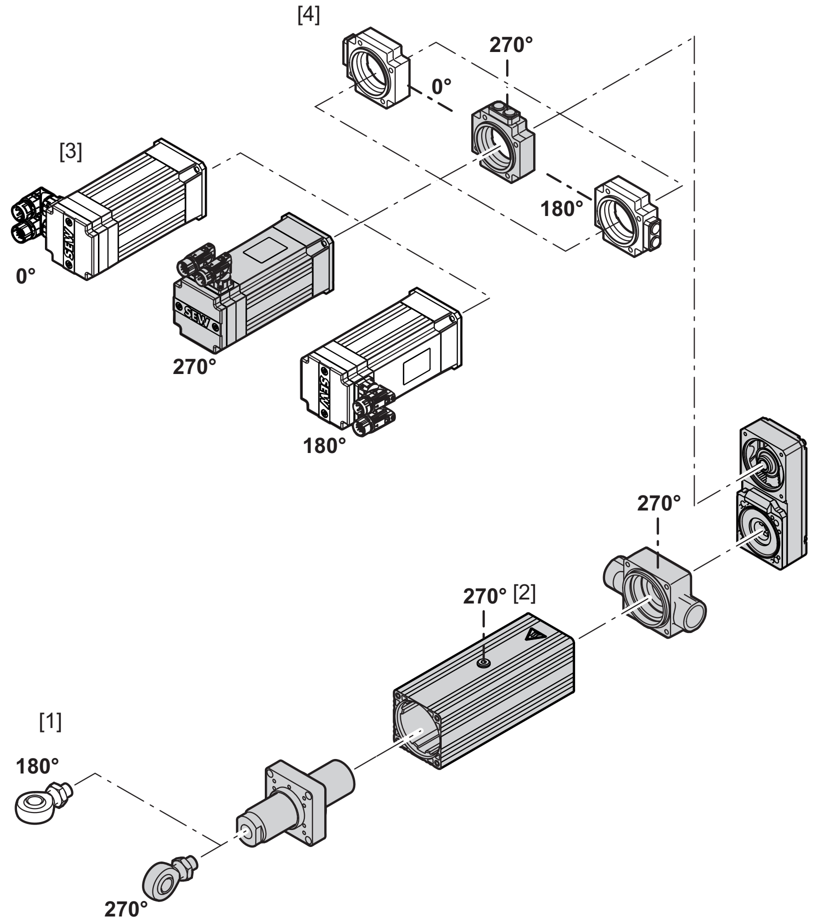
Standard



9007214832618507

[1] A-side mounting position
[2] Position of lubrication point
[3] Connector position
[4] Position of cooling flange (LC version only)

Sockets (BU)



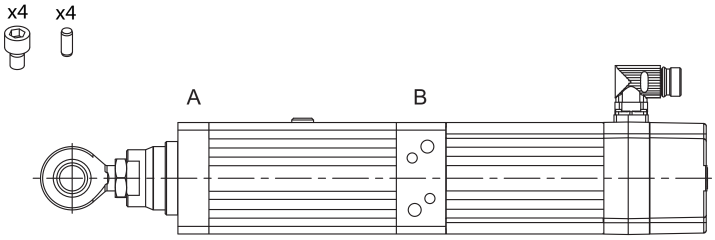
9007214241925259

[1] A-side mounting position
[2] Position of lubrication point
[3] Connector position
[4] Position of cooling flange (LC version only)

4.2.2 CMSB63, CMSMB63

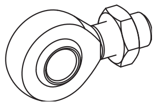
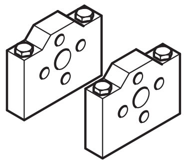
A-side and B-side mounting

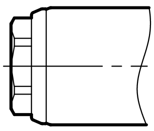
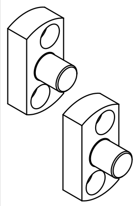
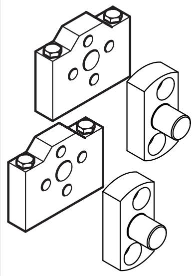
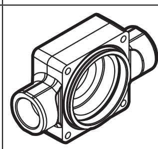
If the option FA, FSA, SA is chosen, the electric cylinder is supplied with 4 cap screws and 4 dowel pins.



The following design types are available.

The A-side mounting is also possible without ball joint head.

A-side mounting		B-side mounting	
Designation	**Standard**	**Designation**	**Standard**
Ball joint head KG20		Flange mounting kit FA	

A-side mounting		B-side mounting	
Designation	**Option**	**Designation**	**Option**
Without mounting		Pivot bearing mounting kit SA	
		Flange and pivot bearing mounting kit FSA	
		Bushing design BU20	

The dowel pins and cap screws are required only for the FA/SA and FSA versions. If no mounting option is selected, the accessories can be deselected during the order. No accessory bag is supplied with the BU option.

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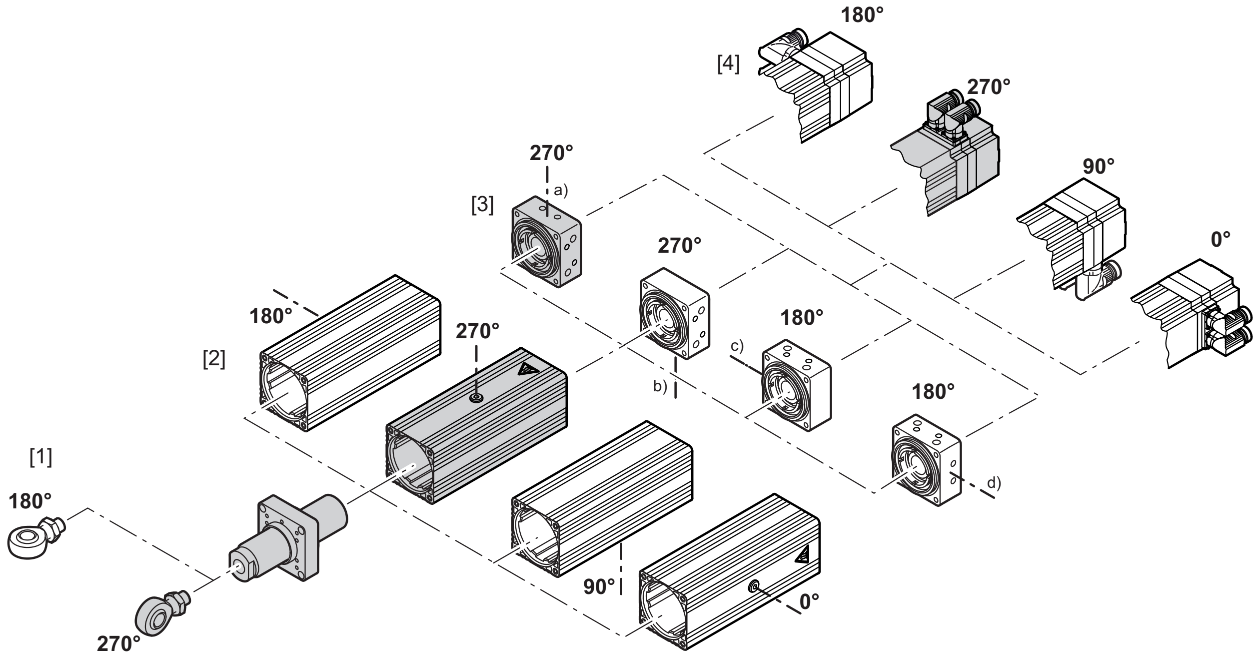
Position of the components CMSB63, CMSMB63 /ACH /ACA

The following figure shows the positions of the mount-on components Note the following:

INFORMATION

The standard position of the mount-on components is 270°.

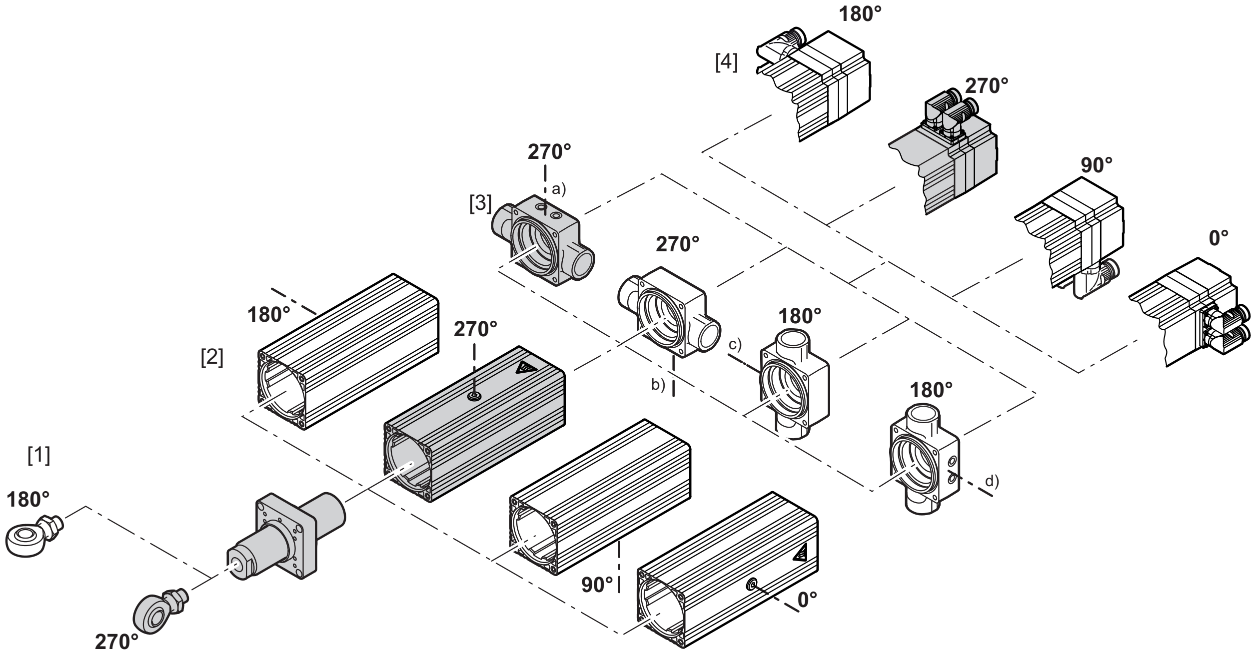
Standard



13939020555

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position (270° = screw contact surface right/left, 180° = screw contact surface top/bottom)
[4] Connector position
a) Cooling water connection 270°
b) Cooling water connection 90°
c) Cooling water connection 180°
d) Cooling water connection 0°

Sockets (BU)

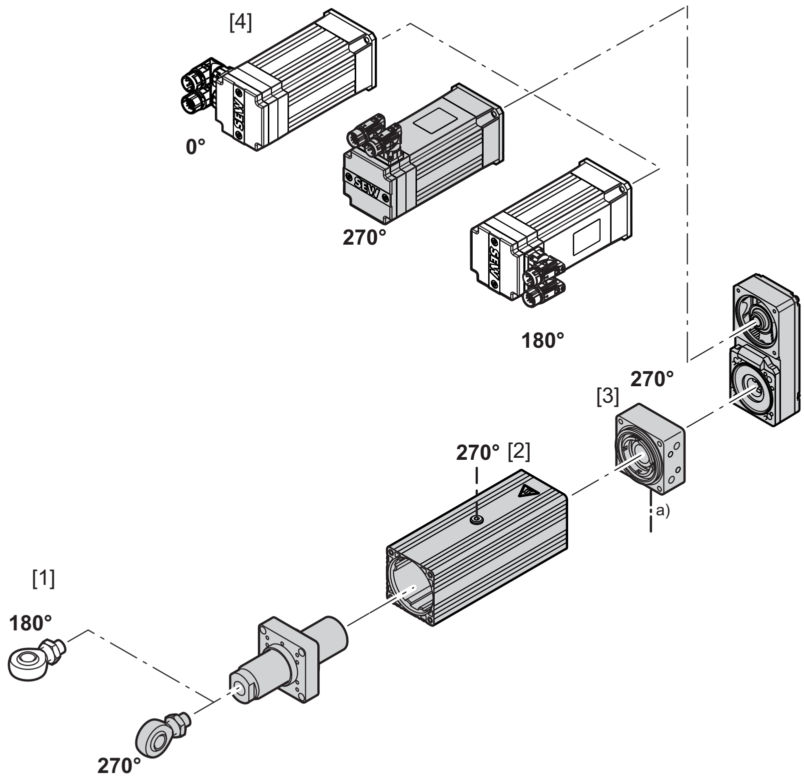


13939027851

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position (270° = sockets right/left, 180° = sockets top/bottom)
[4] Connector position
a) Cooling water connection 270°
b) Cooling water connection 90°
c) Cooling water connection 180°
d) Cooling water connection 0°

Position of the components CMSMB63 /AP

Standard



9007214832887819

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Connector position
a) Cooling water connection 90°

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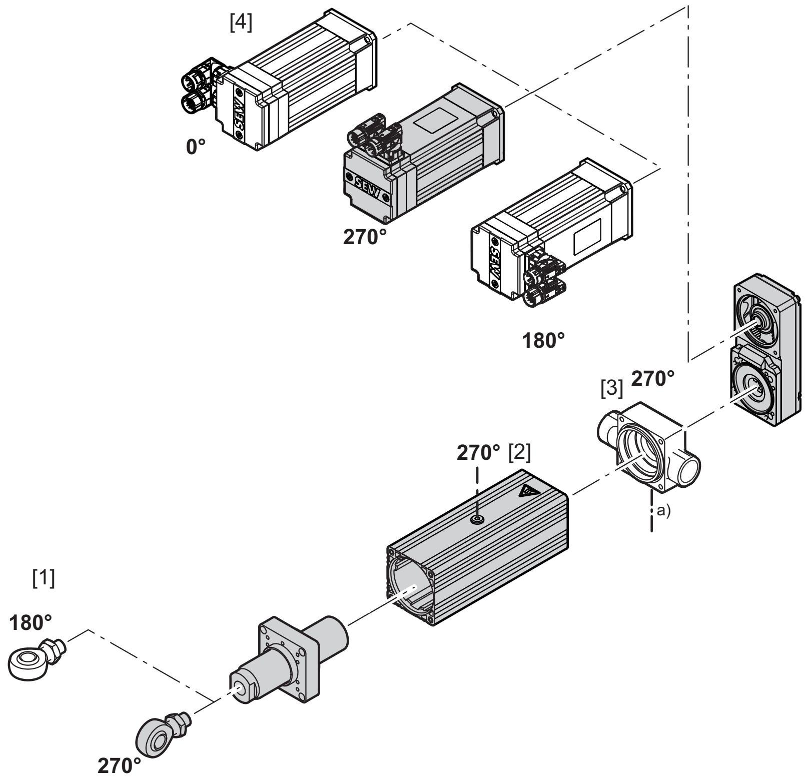
4

Sockets (BU)



9007213193763979

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Connector position
a) Cooling water connection 90°

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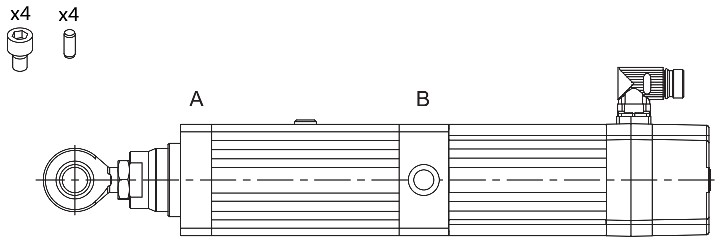
4.2.3 CMSB71, CMSMB71

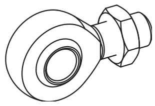
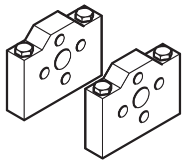
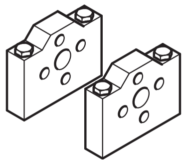
A-side and B-side mounting

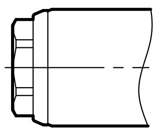
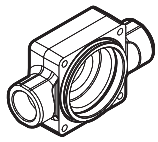
If the option FA is chosen, the electric cylinder is supplied with 4 cap screws and 4 dowel pins.



The following design types are available.

The A-side mounting is also possible without ball joint head.

A-side mounting		B-side mounting	
Designation	**Standard**	**Designation**	**Standard**
Ball joint head KG25		Flange mounting kit FA	
		Flange and pivot bearing mounting kit FSA	

A-side mounting		B-side mounting	
Designation	**Option**	**Designation**	**Option**
Without mounting		Bushing design BU25	

The dowel pins and cap screws are required only for the FA version. If no mounting option is selected, the accessories can be deselected during the order. No accessory bag is supplied with the BU option.

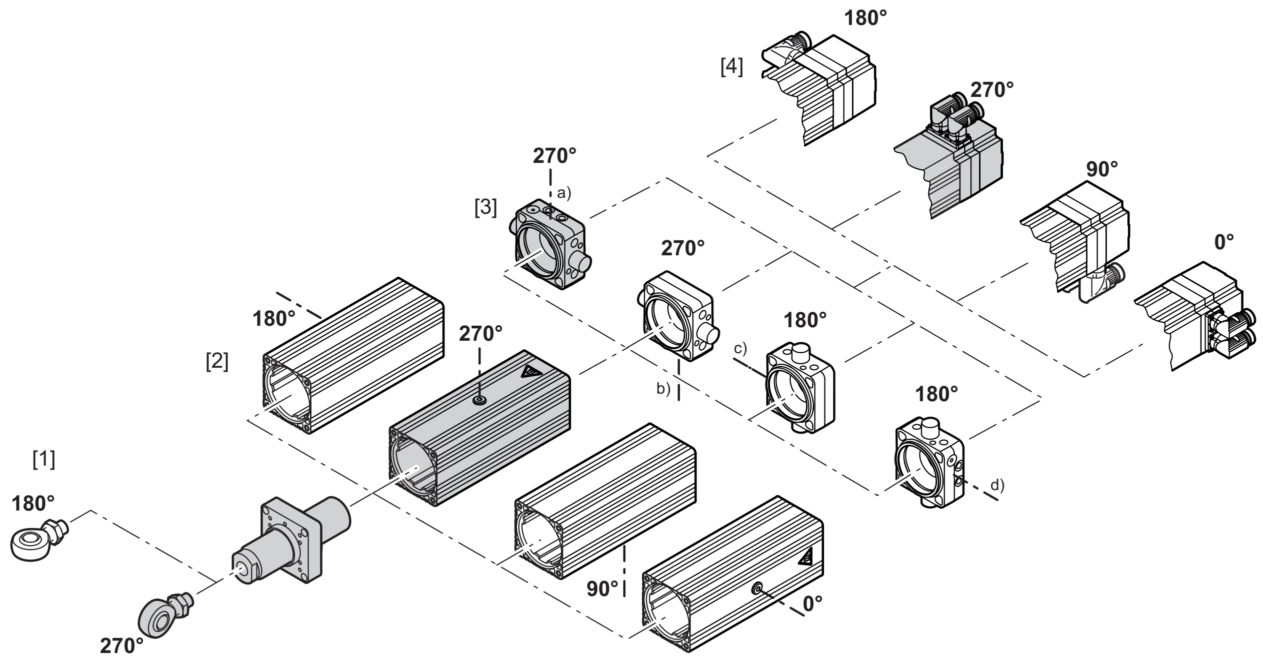
Position of the components CMSB71, CMSMB71 /ACH /ACA

The following figure shows the positions of the mount-on components Note the following:

INFORMATION

The standard position of the mount-on components is 270°.

Pins



13939030283

- [1] A-side mounting position
- [2] Position of lubrication point
- [3] B-side mounting position (270° = screw contact surface right/left, 180° = screw contact surface top/bottom)
- [4] Connector position/terminal box position
- a) Cooling water connection 270°
- b) Cooling water connection 90°
- c) Cooling water connection 180°
- d) Cooling water connection 0°

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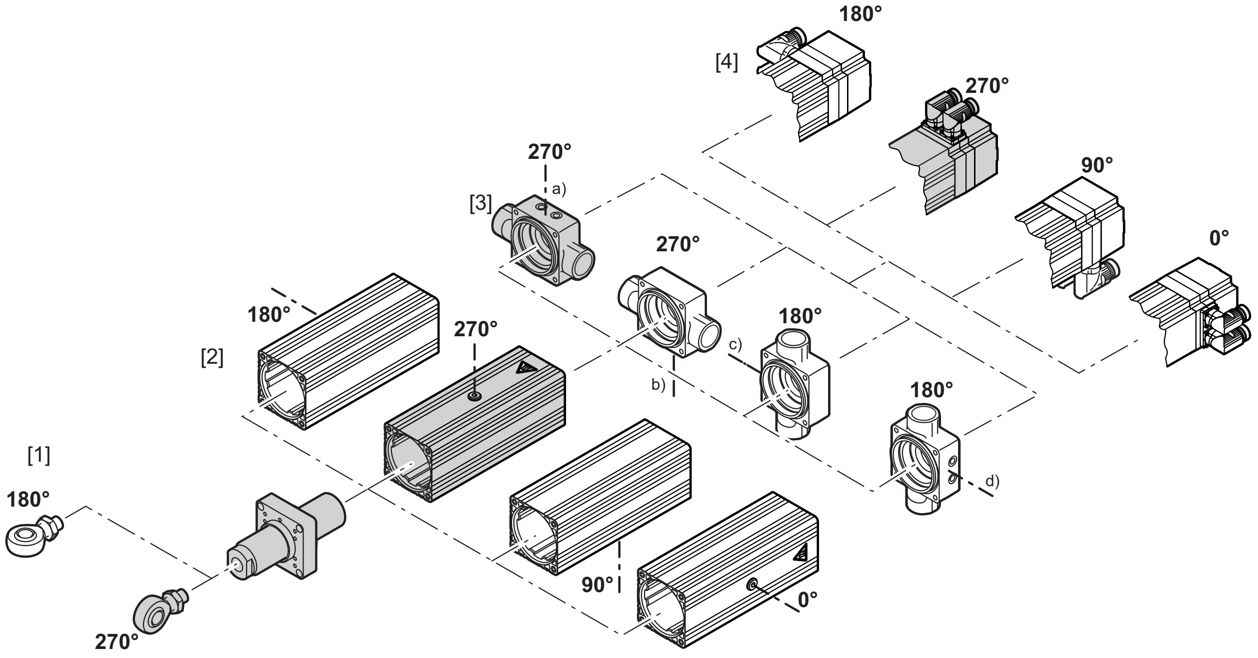
Sockets (BU)



15578171275

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position (270° = sockets right/left, 180° = sockets top/bottom)
[4] Connector position/terminal box position
a) Cooling water connection 270°
b) Cooling water connection 90°
c) Cooling water connection 180°
d) Cooling water connection 0°

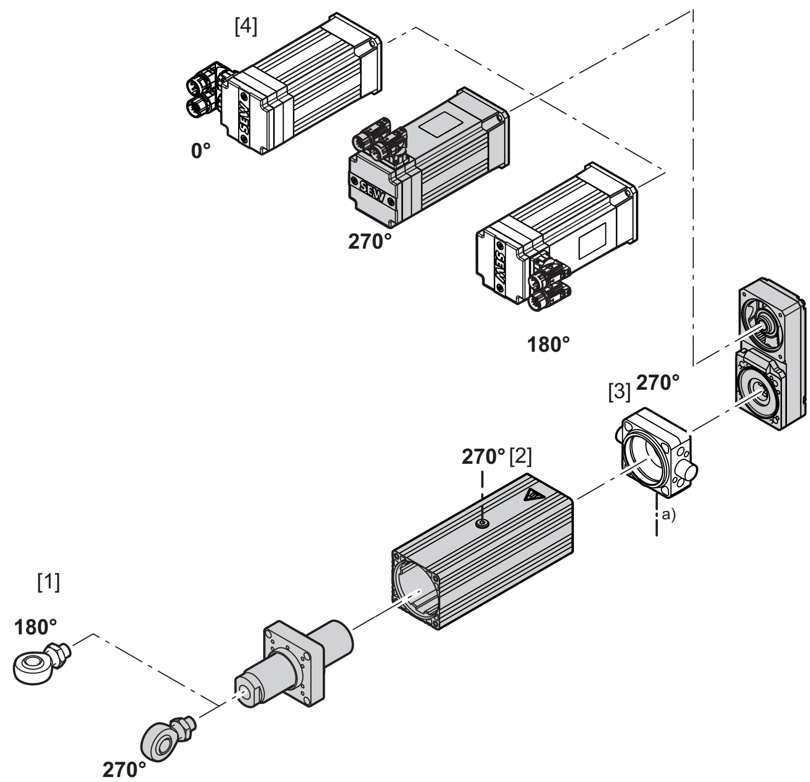
Position of the components CMSMB71 /AP

The following figure shows the positions of the mount-on components Note the following:

INFORMATION

The standard position of the mount-on components is 270°.

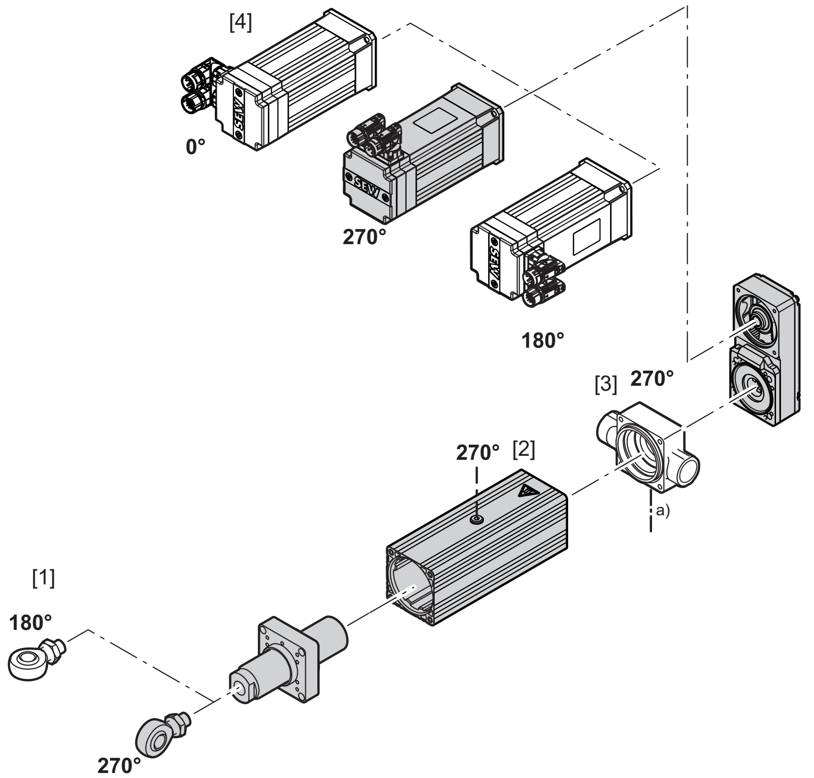
Pins



13939025419

[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Connector position/terminal box position
a) Cooling water connection 90°

Sockets (BU)



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[1] A-side mounting position
[2] Position of lubrication point
[3] B-side mounting position
[4] Connector position/terminal box position
a) Cooling water connection 90°

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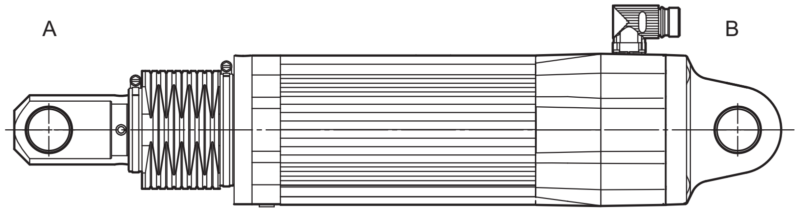
4.2.4 CMS71

A-side and B-side mounting



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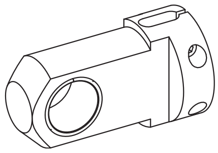
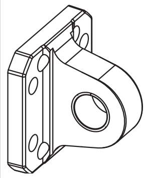
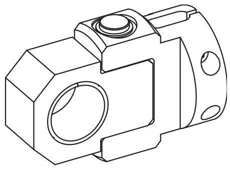
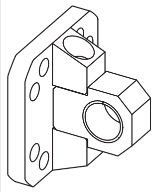
The following variants are available.

A-side mounting		B-side mounting	
Designation	**Standard**	**Designation**	**Standard**
Rigid rod end bearing SG 32		Rigid rod end bearing SG 32	

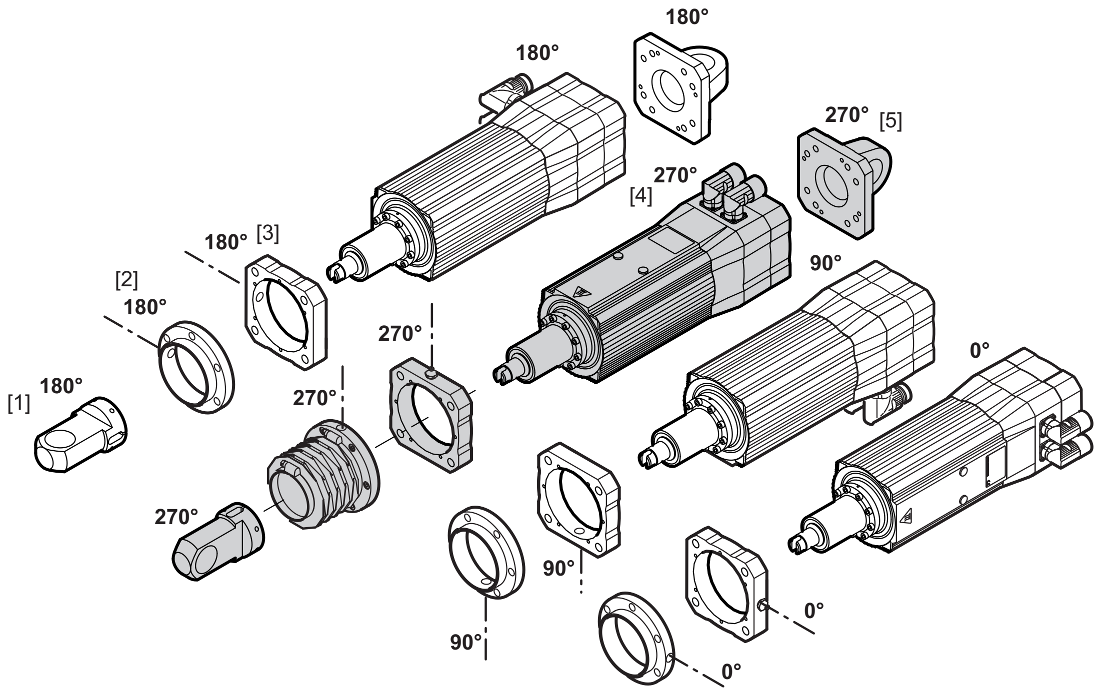
A-side mounting		B-side mounting	
Designation	**Option**	**Designation**	**Option**
Cardan joint KG 32		Cardan joint KG 32	

Position of the CMS71 mount-on components

The following figure shows the positions of the mount-on components. Note the following:

INFORMATION

The standard position of the lubrication point is 270°. Further positions can be selected in 90° steps. If a lubricator is installed, the connector position [4] and the position of the lubrication point [3] must be identical.



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[1] A-side mounting position
[2] Position of sealing air connection
[3] Position of lubrication point
[4] Connector position
[5] B-side mounting position

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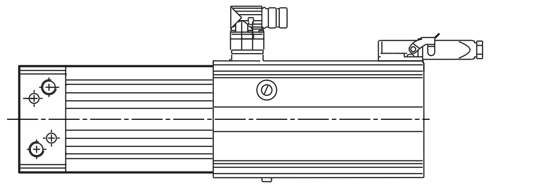
4.3 Optional equipment

4.3.1 Forced cooling fan /VR

The electric cylinders CMSB50 – 71, CMSMB50 – 71 can be equipped with an optional /VR forced cooling fan.

CMSB50 – 71		
Designation	**Option**	
/VR	DC 24 V	

INFORMATION

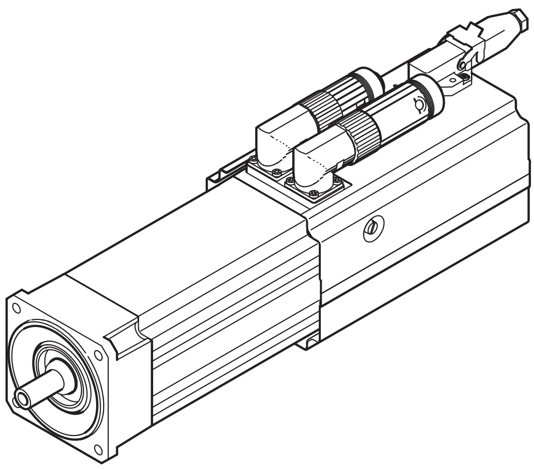
The forced cooling fan can only be used up to a maximum oscillation and shock load of 1 g.

Mechanical Installation

The hood of the forced cooling fan must be installed as follows:

Electric cylinders	Screws	Tightening torque
CMSB50, CMSMB50, CMSB63, CMSMB63	M4 × 8, self-tapping	4 Nm
CMSB71, CMSMB71	M6 × 20	4 Nm[1]

1) Additional Loctite® thread locking compound



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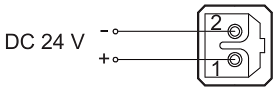
Electrical connection

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
- Pg7 cable gland with 7 mm inside diameter



Connector contact	Connection
1	24 V +
2	0 V

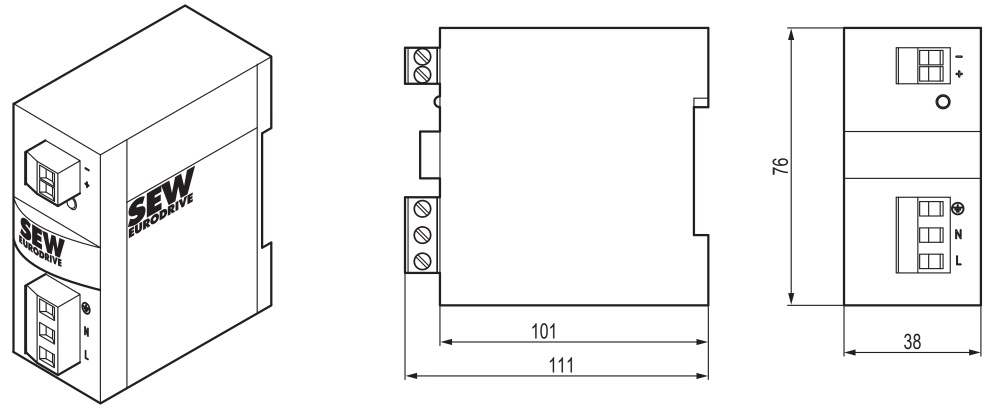
Technical data

Forced cooling fan	Forced cooling fan /VR		
Motor size	**CMSB50 CMSMB50**	**CMSB63 CMSMB63**	**CMSB71 CMSMB71**
Supply voltage DC	24 V± 10%	24 V± 10%	24 V± 10%
DC current consumption	0.15 A	0.25 A	0.88 A
Power consumption	3.5 W	6.0 W	21 W
Air discharge rate	56 m^3/h	80 m^3/h	275 m^3/h
Ambient temperature	-20 °C to +60 °C		
Degree of protection	IP54/IP55		
Electrical connection	Plug connector		
Max. cable cross-section	3 x 1 mm^2		
Inner diameter of the cable gland	7 mm		

UWU52A switched-mode power supply

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

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: Mounting on EN 60715 TH35 mounting rail in the control cabinet
Part number	01881817



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/VR forced cooling fan retrofit set

Forced cooling fan retrofit sets are available for the motors of CMSB50 – 71, CMSMB50 – 71.

INFORMATION

Before the forced cooling fan is retrofitted, make sure that the previously used motor plug connector/cables also are approved for the higher current consumption after the retrofit.

INFORMATION

The forced cooling fan retrofit set may only be mounted by staff authorized by SEW-EURODRIVE.

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Order information

Forced cooling fan, cpl.

Use the following part numbers for ordering a complete forced cooling fan:

Forced cooling fans for electric cylinders	Part number
CMSB50, CMSMB50	13328697
CMSB63, CMSMB63	13327569
CMSB71, CMSMB71	13337114
CMSB71, CMSMB71 with BP1	16447697

Retrofit set

The forced cooling fan retrofit set is supplied as follows:

- Forced cooling fan, cpl.
- Accessory bag

INFORMATION

The forced cooling fan retrofit set for CMS.. electric cylinders may only be mounted by staff authorized by SEW-EURODRIVE.

Content of retrofit set	Part number Retrofit set CMSB50 CMSMB50
Forced cooling fan, cpl.	13332414
Cap screw M4x8-Tx-ST-A2F	
Lock washer	
Housing cover CMSB50/AK1H/EK1H/RH1M	
Screw	
Washer	
Housing cover seal CMSB50	

Content of retrofit set	Part number Retrofit set CMSB63 CMSMB63
Forced cooling fan, cpl.	13332422
Cap screw M4x8-Tx-ST-A2F	
Lock washer	
Housing cover CMSB63/AK1H/EK1H/RH1M	
Screw	
Washer	
Housing cover seal CMSB63	

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Content of retrofit set	Part number Retrofit set CMSB71 CMSMB71	Part number of retrofit set CMSB71 with BP1 CMSMB71 with BP1
Forced cooling fan, cpl.	13355228	13355236
M6x20-8.8-ADB3 cap screw		
Grommet		
Sleeve		
Washer		

4.3.2 Liquid cooling

Liquid cooling can significantly increase the thermal capacity of the drive. The data for liquid cooling in the power diagrams for the "thermal limit torque" (→ 🗎 200) are based on the following parameters:

- Temperature of cooling liquid inlet 25 °C
- Temperature increase at cooling liquid outlet about 5 °C
- Flow rate: 2 l/min for CMSB50, CMSMB50
- Flow rate: 4 l/min for CMSB63/71, CMSMB63/71

Higher flow rates increase the cooling effect only slightly.

Cooling liquid requirements:

- Max. operating pressure 2 bar
- Demineralized and desalinated
- No foreign objects and sediments
- Observe frost protection

The components through which the cooling liquid flows are corrosion-protected. However, the cooling liquid must not contain chemically aggressive additives. Contact SEW-EURODRIVE if required.

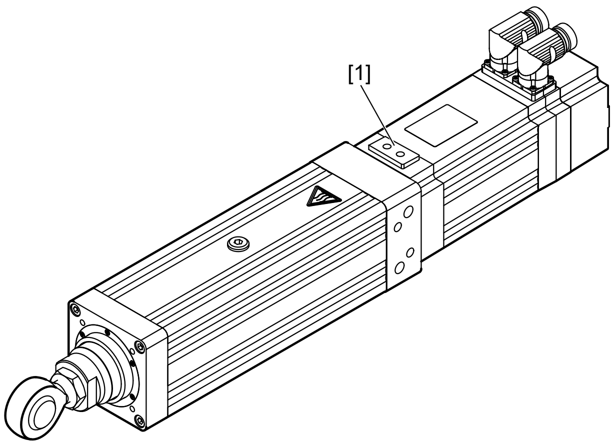
Liquid cooling at CMSB50, CMSMB50 (in preparation)

The CMSB50, CMSMB50 electric cylinders can be equipped with a connection option for liquid cooling as an option.

The inlet and outlet connection for the cooling liquid can be reversed.

CMSB50

A cooling option is provided between motor and linear unit in the drive-end endshield.



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[1] Cooling liquid connection 2 x G1/8 (flat gasket and screw fitting supplied by the customer)

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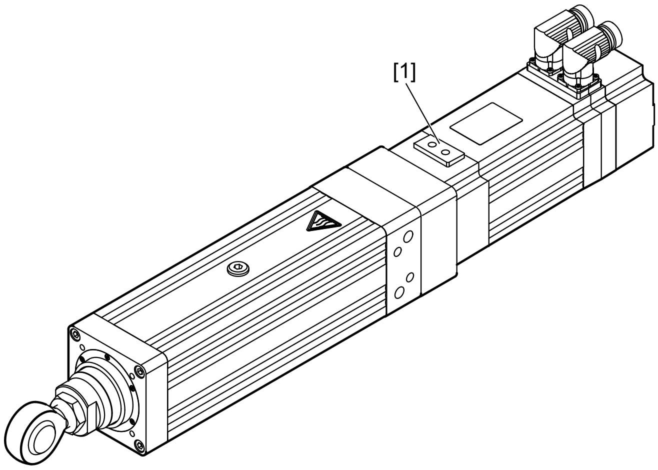
CMSMB50 /ACA, ACH

A cooling option is provided between motor and linear unit in the drive-end endshield.



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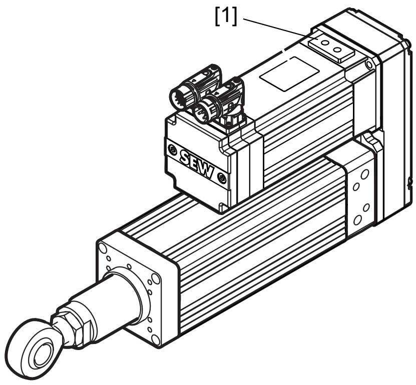
[1] Cooling liquid connection 2 x G1/8 (flat gasket and screw fitting supplied by the customer)

CMSMB50/AP

With this design, the liquid cooling is integrated in the servomotor flange.



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[1] Cooling liquid connection 2 x G1/8 (flat gasket and screw fitting supplied by the customer)

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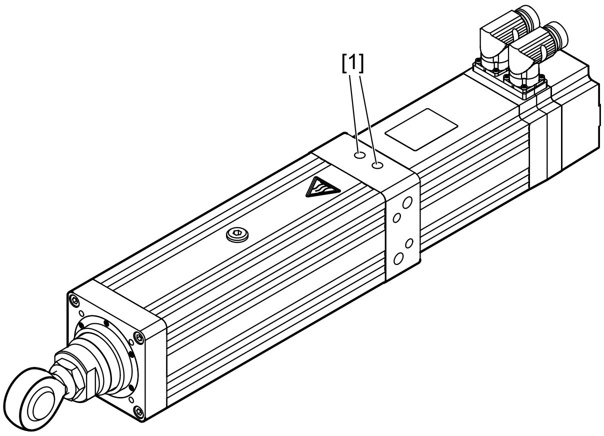
Liquid cooling at CMSB63/71, CMSMB63/71

The CMSB63/71, CMSMB63/71 is equipped with a liquid cooling connection option as standard.

Inlet and outlet connection for cooling liquid can be exchanged.



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[1] Cooling liquid connection 2xG1/8 (CMSB63), 2xG1/4 (CMSB71) (flat gasket and screw fitting supplied by the customer)

4.3.3 Lubricator

On request, the electric cylinders of size CMS71L can be equipped with a lubricator. With this option, the threaded spindle nut is relubricated continuously .

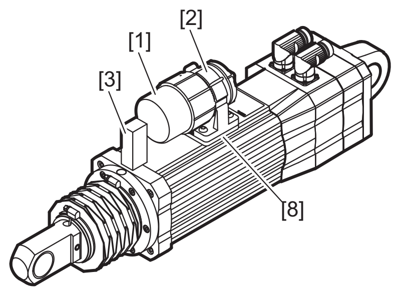
The lubricator comprises a drive unit with an electric motor, which is supplied with power either with a set of batteries (Vario lubrication system) or with 24 V and function monitoring (Control Time/impulse lubrication system). This motor drains the lubricant container via a piston. The Control lubrication system is connected to a customer control device via a cable (length 5 m, included in the scope of delivery).

The threaded elbow joints are mounted, filled with lubricant, and vented at the factory.

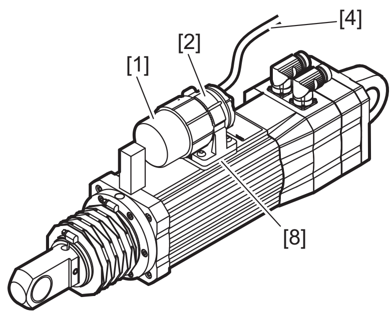
For cases with high annual operating time, e.g., 24 operating hours per day or an operational performance of > 20 km/day, contact SEW-EURODRIVE.

For installation and settings of the lubricator, refer to the document "Installation Instructions – CMS.. Electric Cylinder – Star Vario / Star Control" on the website www.sew-eurodrive.de.

Lubricator variants



Star Vario



Star Control

[1] Lubricant container
[2] Retaining clip
[3] Threaded elbow joint
[4] Connection cable
[8] Adapter plate

Star Vario (SV)

The Star Vario lubricator is powered by batteries, independently of the operating state of the electric cylinder. When the electric cylinder is started up, the lubricator must be activated separately. After activation, the lubricator continuously supplies the set lubricant quantity.

Star Vario divides the content of the lubricant container into several smaller dispensing cycles within the operating period. The Star Vario lubricator is set to a fixed dispensing time of 12 months and an LC unit of 60 cm^3 This mode is sufficient for common applications and cannot be changed.

Star Control Time (ST)

The Star Control Time lubricator is connected to the voltage supply or controller via a cable. The lubricator continuously supplies the set lubricant quantity when the supply voltage (24 V) is connected. The status (function, fill level) of the lubricator can be monitored via the controller. For further information, refer to the manufacturer's documentation from Perma.

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Star Control Time divides the content of the lubricant container into several smaller dispensing cycles within the operating period. The Star Control lubricator is set in TIME mode to a fixed dispensing quantity of 0.6 cm^3/100 hours and an LC unit with 60 cm^3. The mode cannot be changed.

Star Control Impulse (SI)

The Star Control Impulse lubricator is connected to the voltage supply or controller via a cable. The lubricator dispenses the set lubricant quantity in one amount when the supply voltage (24 V) is connected. To dispense another amount of lubricant, the voltage must be interrupted and connected again. For further information, refer to the manufacturer's documentation from Perma.

The status (function, fill level) of the lubricator can be monitored via the controller. The Star Control lubricator is set in IMPULSE mode to a fixed dispensing quantity of 0.6 cm^3/pulse and an LC unit with 60 cm^3. The mode cannot be changed.

Wearing parts

The lubricant container [1] and the battery set (only for Vario) are wearing parts. They must be replaced after one year.

These parts can be ordered directly from Perma using the following part numbers:

Designation	Perma part number
Lubricant container (LC unit) Lubricant volume: 60 cm^3 Lubricant: Fuchs Renolit CX-TOM 15	106211
Battery set (Vario)	101351
Cable, 5 m (Control)	108432

These parts cannot be ordered from SEW-EURODRIVE!

INFORMATION

Food grade lubricant is not available for the lubricators.

Lubricator retrofit set

Complete lubrication systems can be ordered from SEW-EURODRIVE for retrofitting. The retrofit set consists of parts [1], [2] with the following part numbers:

Designation	Part number
Lubricator retrofit set cpl. Vario (SV)	16525647
Lubricator retrofit set cpl., Control Time (ST)	16527380
Lubricator retrofit set lubricator cpl., Control Impulse (SI)	16527399

In addition, the threaded elbow joint 13333178 [3] has to be ordered from SEW-EURODRIVE, as it is not included in the retrofit set.

INFORMATION

The threaded elbow joint [3] must be bled during retrofitting!

4.3.4 Encoder

Resolver

Type designation

/RH1M

Description

Electric cylinders are delivered as standard with 2-pole resolvers. Further information on other resolvers is available on request.

HIPERFACE® encoder

The electric cylinders can optionally be ordered with the following HIPERFACE® multi-turn or single-turn encoders:

Designation	Periods/revolution specification
EK0H	128
AK0H[1)]	128
EK1H, AK1H[1)]	1024

1) Also available in safety-rated design

Type designation

/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.

INFORMATION

The encoder signal can be influenced when applying the brake from speed. 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.

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Technical data of encoders

Resolver

	RH1M
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 + j120 Ω
Output impedance ± 15%	200 + j270 Ω
Input resistance ± 10%	82 Ω
Output resistance ± 10%	68 Ω
Maximum electrical fault	± 6"
Temperature range	-55 °C to +150 °C

HIPERFACE® encoder

/AK0H, /EK1H, /AK1H

	AK0H[1]	EK1H	AK1H[1]
	CMSB50/63/71 CMS71	CMSB50/63/71 CMS71	CMSB50/63/71 CMS71
Supply voltage	DC 7 - 8 - 12 V polarity reversal protected		
Maximum current consumption	120 mA	140 mA	
Maximum operating frequency	26 kHz	200 kHz	
Pulses (sine cycles) per revolution	128	1024	
Output amplitude per track	0.8 – 1.1 V_{pp} sin/cos	0.9 – 1.1 V_{pp} sin/cos	
Single-turn resolution	4096 increments/revolution (15 bits)	32768 increments/revolution (15 bits)	
Multi-turn resolution	4096 revolutions (12 bits)	–	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)	≤ 200 m/s² (DIN IEC 68-2-6)	
Maximum speed	9000 1/min	12 000 1/min	
Connection	12-pin circular connector		
Temperature range	-20 °C to +110 °C		

1) Available in FS in combination with CMSM.. modular electric cylinders

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4.3.5 Standard type – 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.

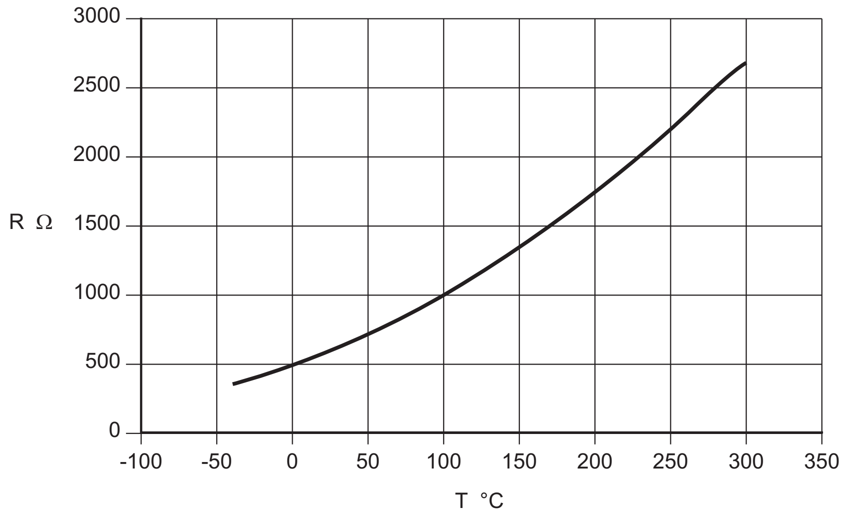
The inverter + /KY option can only take on the function of motor protection when it is used in combination with an inverter containing the thermal motor model.

Technical data

The temperature sensor KTY84 – 130 continuously detects the motor temperature.

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

Typical characteristic curve of KTY:



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PT1000 thermal motor protection

Type designation

/PK

Description

The thermal motor protection prevents the motor from overheating and thus being destroyed. A temperature sensor thus only protects indirectly, since it only determines a sensor value which first needs to be analytically examined.

The /PK version consists of a PT1000 platinum sensor, which is installed in one of the 3 motor windings.

In contrast to the /KY semiconductor sensor, the platinum sensor has an almost linear characteristic curve and is more accurate. In combination with a frequency inverter containing the thermal model of the motor, the frequency inverter can also provide a motor protection function because of the /PK.

Technical data

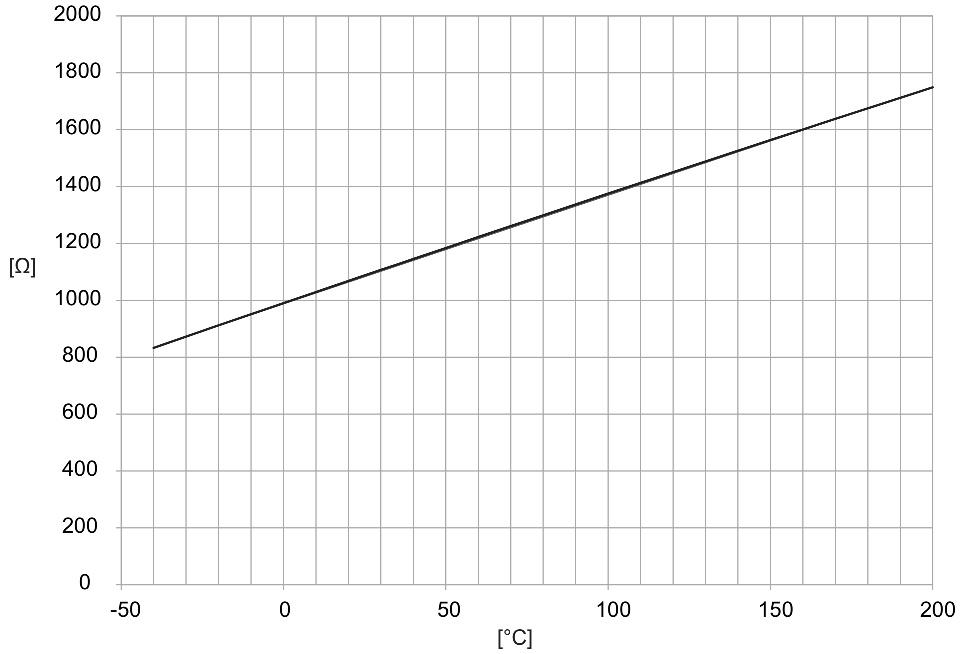
The PT1000 temperature sensor continuously records the motor temperature.

	PT1000
Connection	Red - black
Total resistance at 20 – 25 °C	1070 Ω < R < 110 Ω
Test current	< 3 mA

INFORMATION

The temperature sensor is unipolar, meaning that the result of the measurement is not affected if the cables are switched.

Typical characteristic curve of the PT1000, F0.6



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4.3.6 Switching and protective equipment of the motor series

Preventive measures

The electric cylinders must be protected against both overloads and short circuits.

Install the motors with sufficient axial and radial space for air to cool them adequately.

The surface temperature may be in excess of 100 °C during proper operation in accordance with thermal class F. Therefore, preventive measures against inadvertent contact are essential.

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

TF temperature sensor (CMS71L)

The PTC thermistors comply with DIN 44082.

Resistance measurement (measuring instrument with V ≤ 2.5 V or I < 1 mA):

- Standard measured values: 20...500 Ω, hot resistance > 4000 Ω

TF bimetallic switch (optional CMS71L)

The thermostats are connected in series and open when the permitted winding temperature is exceeded.

TH data	AC	DC	
Max. voltage	AC 60 V[1)]	DC 60 V	DC 24 V
Current (cosϕ = 1.0)	AC 2.5 A	DC 1.0 A	DC 1.6 A
Current (cosϕ = 0.6)	AC 1.6 A		

1) 250 VAC is permitted for the variant with terminal box

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 89/336/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 chapter "Prefabricated cables" (→ 🗎 263)).

Notes on the 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

Laying together is only permitted if either the KY/PK cable or the power cable is shielded. We recommend that you use prefabricated cables (see chapter "Prefabricated cables" (→ 🗎 263)).

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5 Project planning

Check the following points before beginning project planning:

- Ambient conditions
- Installation conditions (transverse forces and bending moments on the drive are not permitted. See chapter "Installation situation in customer's application CMSB50 – 71, CMSMB50 – 71" (→ 🗎 297).)
- Required positioning accuracy (0.05 mm)

To ensure fault-free operation, please complete the "Customer questionnaire" (→ 🗎 314) in the Annex and send it to SEW-EURODRIVE.

5.1 General project planning notes

5.1.1 Standards and regulations

Conformance to 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 severity.
- EN 60529, IEC 60034-5, EN 60034-5

  IP degrees of protection for housings.
- 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

The electric cylinders from SEW-EURODRIVE conform to the relevant standards and regulations, in particular to:

- EC directive 2014/35/EU ("Low Voltage Directive")
- EC directive 2006/42/EC ("Machinery Directive")
- CSA C22.2 No.100-14
- UL 1004-1
- UL 1004-6

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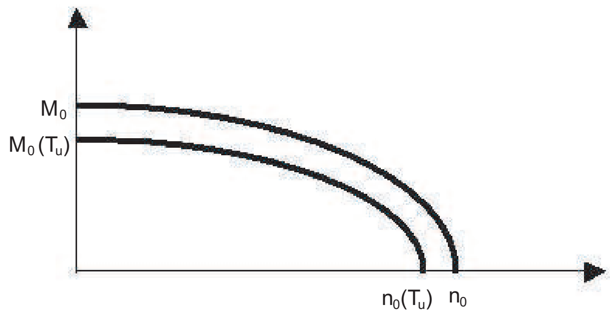
5.2 Derating for increased ambient temperature

The following derating applies for project planning of CMS standard electric cylinders in the ambient temperature range from + 40 °C to + 60 °C:

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



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

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

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T_U	Ambient temperature [°C]
M_0	Standstill torque under nominal conditions
$M_0(T_U)$	Standstill torque at increased temperature 40 °C < T_U < 60 °C
n_0	Thermal limit speed under nominal conditions
$n_0(T_U)$	Thermal limit speed at increased temperature 40 °C < T_U < 60 °C
K_e	Encoder factor for resolver = 1; for electronic encoders (e.g., HIPERFACE® encoders) = 0.9

INFORMATION

The CMS standard electric cylinders are designed as standard for a maximum ambient temperature of 40 °C. Please contact SEW-EURODRIVE if the motors are used at higher ambient temperatures.

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5.3 Service life

A service life of the electric cylinders of 10 000 operating hours can be achieved under the loads listed in the following table:

CMS..		Mean speed 1/min	Eff. force	Operational performance km
CMSB50/ CMSMB50	KGT 20x5	1000	1300	4500
CMSB63/ CMSMB63	KGT 25x6	1000	2400	4500
CMSB63	PGT 20x5	1000	2800	1400
CMSB71/ CMSMB71	KGT 32x6	1000	5000	2100
CMS71	KGT 32x6	400	3600	1400
CMS71	KGT 32x6	400	6700	170
CMS71	KGT 32x10	400	3600	2400
CMS71	PGT 24x5	400	7200	100

The following conditions apply:

- Horizontal mounting position
- Max. acceleration with M_0
- Ambient temperature +5 to +40 °C
- Steady motion without impulsive loads
- Standard lubricant

5.4 Service life of bearings and threaded spindles

The table shows the dynamic load rating C of the spindle and bearings.

C = Dynamic load rating of the spindles and bearings in N			
CMS..		**Spindle**	**Bearing**
CMSB50/ CMSMB50	With KGT 5 mm pitch	15000	25000
CMSB63/ CMSMB63	With KGT 6 mm pitch	34000	39000
CMSB63/ CMSMB63	With PGT 5 mm pitch	29000	39000
CMS71	With KGT 10 mm pitch	55000	60000
CMS71	With KGT 6 mm pitch	44000	60000
CMS71	With PGT 5 mm pitch	44000	60000
CMSB71/ CMSMB71	With KGT 6 mm pitch	55000	71500

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5.4.1 Threaded spindle

Service life (L) in revolutions:

$$L = \left(\frac{C_{spindle}}{K_A \times F_{cub}} \right)^3 \times 10^6$$

L = Service life in revolutions
$C_{spindle}$ = Dynamic load rating of the spindle in N
F_{cub} = Cubic load in N
K_A = Service factor

Cubic load (F_{cub}):

$$F_{cub} = \sqrt[3]{F1^3 \times \frac{t_1}{t_{total}} + F_2{}^3 \times \frac{t_2}{t_{total}} + F_3{}^3 \times \frac{t_3}{t_{total}} + F_n{}^3 \times \frac{t_n}{t_{total}} \times K_A}$$

$F_1 ... F_n$ = Feed force in travel section in N
$t_1 ... t_n$ = Proportion of time in travel section in seconds
K_A = Service factor

Working method	K_A Service factor
Constant movement	1.0
Moderate shock loads	1.25
Medium shock loads	1.5

Service life (L_h) in hours:

$$L_h = \frac{L}{n_m \times 60}$$

L_h = Service life in hours
L = Service life in revolutions
n_m = Average speed in 1/min

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5.4.2 Bearing

Service life (L) in revolutions:

$$L = \left(\frac{C_{Bearing}}{K_A \times F_{cub}} \right)^3 \times 10^6$$

L = Service life in revolutions
$C_{Bearing}$ = Dynamic load rating of the bearing in N
F_{cub} = Cubic load in N
K_A = Service factor

Service life (L_h) in hours:

$$L_h = \frac{L}{n_m \times 60}$$

L_h = Service life in hours
L = Service life in revolutions
n_m = Average speed in 1/min

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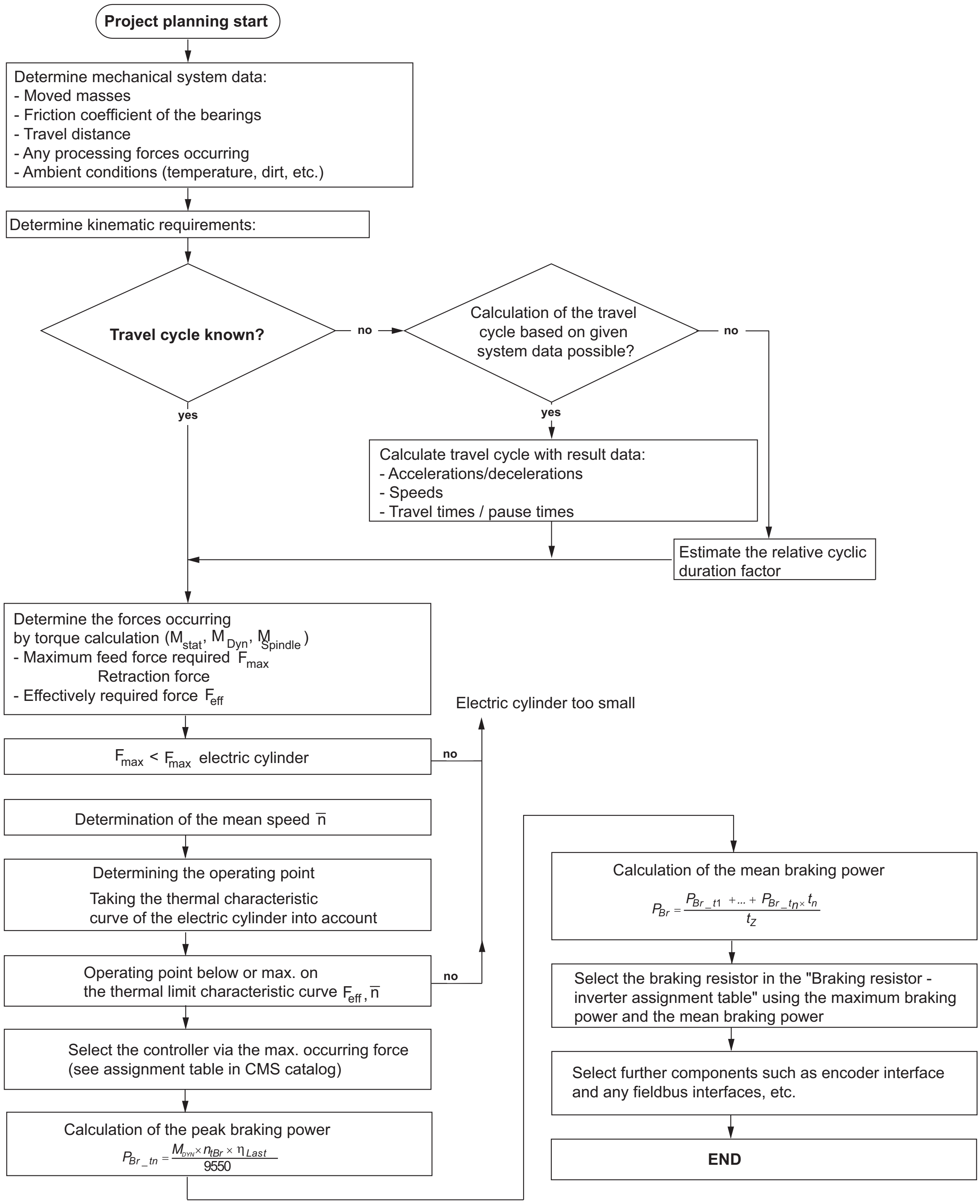
5.5 Project planning procedure

The following flow diagram illustrates the project planning procedure for an electric cylinder. Further information can be found in the following chapters.



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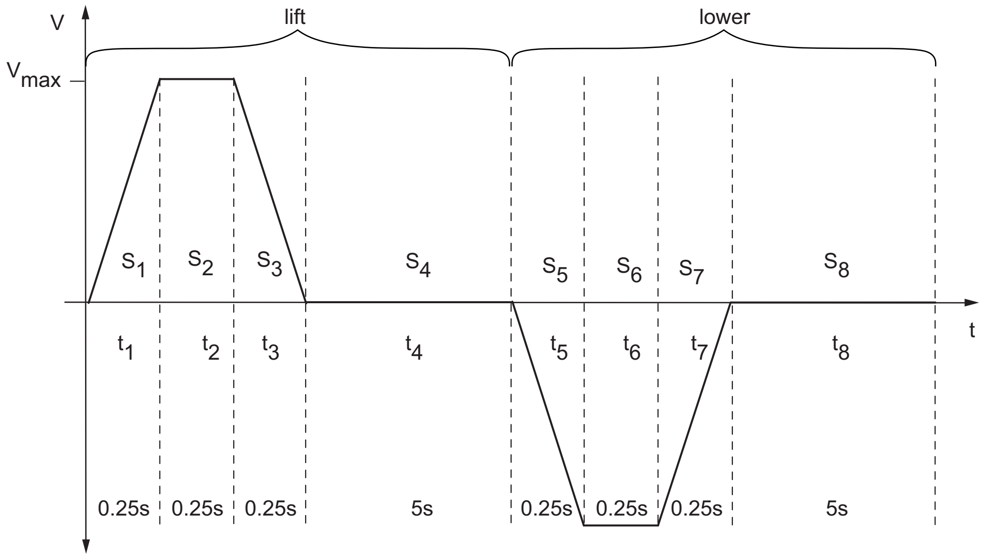
5.6 Calculation example for CMS71S with 6 mm spindle pitch

A vertical or perpendicular stroke movement is considered in this example.

Customer information:

Maximum velocity	v_{max}	0.25 m/s
Travel time	t_{stroke}	0.75 s
Rest period	t_P	5 s
Weight	m	530 kg
Travel distance	s	125 mm
System efficiency (friction in guides, bearings, etc.)	η	0.9 or 90%



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5.6.1 Calculating the maximum speed:

$$n_{max} = \frac{v}{p} = \frac{0{,}25\,\frac{m}{s}}{0{,}006m} = 41{,}66\,\frac{1}{s} \times 60\,\frac{s}{min} = 2500\,\frac{1}{min}$$

v = Velocity
n = Speed
p = Spindle pitch

The rated speed n_N = 3000 rpm is selected for this motor.

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5.6.2 Calculation of the average speed:

$$n_m = \frac{n_1 \times t_1 + n_2 \times t_2 + n_n \times t_n}{t_{Tot}}$$

$$n_m = \frac{4 \times (1250 \frac{U}{\min} \times 0{,}25\,\mathrm{s}) + 2 \times (2500 \frac{U}{\min} \times 0{,}25s)}{11{,}5s} = 217{,}39 \frac{U}{\min}$$

t_n = Time in the respective travel section
n = Speed
t_{Tot} = Total cycle time

5.6.3 Calculation of the maximum acceleration s1, s3, s5, s7:

$$a = \frac{v_{\max}}{t_1} = \frac{0{,}25 \frac{m}{s}}{0{,}25s} = 1 \frac{m}{s^2}$$

a = Acceleration
v_{max} = Maximum velocity
$t_{1,3,5,7}$ = Travel section time

5.6.4 Calculation of the stroke for travel section s_1, s_3, s_5, s_7:

$$s_{1,3,5,7} = \frac{1}{2} \times a \times t_{1,3,5,7}{}^2 = \frac{1}{2} \times 1 \frac{m}{s^2} \times (0{,}25\,\mathrm{s})^2 = 0{,}03125m = 31{,}25mm$$

$s_{1,3,5,7}$ = Travel section length
a = Acceleration
$t_{1,3,5,7}$ = Travel section time

5.6.5 Calculation of the stroke for travel section s_2 and s_6:

$$s_{2,6} = v_{\max} \times t_{2,6} = 0{,}25 \frac{m}{s} \times 0{,}25s = 0{,}0625m = 62{,}5mm$$

$s_{2,6}$ = Travel section
v_{max} = Maximum velocity
$t_{2.6}$ = Travel section time

5.6.6 Checking the stroke for travel sections s_1 to s_4 (extend):

$$s_{total} = s_1 + s_2 + s_3 + s_4$$
$$s_{total} = 125\,mm$$

s_{total} = Total travel section
$s_1 - s_4$ = Travel section 1 – travel section 4

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5.6.7 Calculation of the forces and torques

A CMSB71S (KGT) with spindle pitch p = 6 mm is chosen. The spindle efficiency is η = 93%. Together with the system efficiency of 0.9, this yields an overall efficiency:

$$\eta_{total} = \eta_{CMS} \times \eta_{system} = 0{,}93 \times 0{,}9 = 0{,}837$$

$$M_{\text{stat 1,2,3}} = \frac{F \times p}{2 \times \pi \times \eta} = \frac{(m \times g) \times p}{2 \times \pi \times \eta} = \frac{300kg \times 9{,}81\frac{m}{s^2} \times 0{,}006\text{m}}{2 \times \pi \times 0{,}837} = 3{,}36Nm$$

$$M_{\text{stat 4,5,6,7,8}} = \frac{F \times p}{2 \times \pi} \times \eta = \frac{(m \times g) \times p}{2 \times \pi} \times \eta = \frac{300kg \times 9{,}81\frac{m}{s^2} \times 0{,}006\text{m}}{2 \times \pi} \times 0{,}837 = 2{,}35Nm$$

$$M_{\text{dyn 1+5}} = \frac{F \times p}{2 \times \pi \times \eta} = \frac{(m \times a) \times p}{2 \times \pi \times \eta} = \frac{300kg \times 1\frac{m}{s^2} \times 0{,}006\text{m}}{2 \times \pi \times 0{,}837} = 0{,}34Nm$$

$$M_{\text{dyn 3+7}} = \frac{F \times p}{2 \times \pi} \times \eta = \frac{(m \times a) \times p}{2 \times \pi} \times \eta = \frac{300kg \times (-1\frac{m}{s^2}) \times 0{,}006\text{m}}{2 \times \pi} \times 0{,}837 = -0{,}24Nm$$

F = Force
M = Torque
M_{dyn} = Dynamic torque
M_{stat} = Static torque
p = Spindle pitch
η = Efficiency of threaded spindle or overall efficiency
g = Gravitational acceleration
a = Acceleration

Calculation of the forces according to the basic formula:

$$F = \frac{M \times 2 \times \pi}{P}$$

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5.6.8 Additional torque due to mass inertia of the electric cylinder

Use a CMSB71S electric cylinder (stroke 160 mm) with a ball screw (KGT) and BP brake. The drive should hold the respective positions electrically so that no brake is engaged during the pause times (travel section 4 and 8).

Calculation of the forces according to the basic formula:

$$F = \frac{M \times 2 \times \pi}{P}$$

J_{bmot} for stroke 160 mm CMSB71S = 7.96 kgcm² (values in catalog and operating instructions)

$$M_{CMSB71S} = \frac{J_{CMSB71S} \times n_{max} \times 2 \times \pi}{60 \frac{1}{s} \times t_1}$$

$$M_{CMSB71S} = \frac{7{,}96 \times 10^{-4} kgm^2 \times 2500 \frac{1}{min} \times 2 \times \pi}{60 \frac{1}{s} \times 0{,}25s} = 0{,}83 Nm$$

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J_{CMS71S}	= Mass moment of inertia CMSB71S
t_1	= Time during acceleration
n_{max}	= Maximum speed
M_{CMS71S}	= Additional torque CMSB71S

M_{max}/F_{max} in the individual travel sections (FA):

Travel section 1: $M_{max1} = M_{stat1} + M_{dyn1} + M_{CMSB71}$ = 3.36 Nm + 0.34 Nm + 0.83 Nm = 4.53 Nm

F_{max1} [1] = 4746.87 N

Travel section 2: $M_{max2} = M_{stat2}$ = 3.36 Nm

F_{max2} = 3516.18 N

Travel section 3: $M_{max3} = M_{stat3} + M_{dyn3} - M_{CMSB71}$ = 3.36 Nm + (−0.24 Nm) -0.83 = 2.28 Nm

F_{max3} = 2392.71 N

Travel section 4: $M_{max4} = M_{stat4}$ = 2.35 Nm

F_{max4} = 2463.29 N

Travel section 5: $M_{max5} = M_{stat5} - M_{dyn5} - M_{CMSB71}$ = −2.35 Nm + 0.34 Nm - 0.83 Nm = -1.18 Nm

F_{max5} = -1232.55 N

Travel section 6: $M_{max6} = M_{stat6}$ = -2.35 Nm

F_{max6} = -2463.29 N

Travel section 7: $M_{max7} = M_{stat7} + M_{dyn7} - M_{CMSB71}$ = 3.920 Nm - (-0.444 Nm) + 0.833 Nm = -3.43 Nm

F_{max7} = -3586.71 N

Travel section 8 $M_{max8} = M_{stat8}$ = 2.35 Nm

F_{max8} = 2463.29 N

1) Calculation of the forces according to the basic formula

5.6.9 Peak feed force

$$F_{max1} = \frac{M \times 2 \times \pi}{p}$$

$$F = \frac{4{,}53Nm \times 2 \times \pi}{0{,}006m} = 4746{,}87N$$

F_{max1} = Maximum force
M_{max1} = Maximum torque
p = Spindle pitch

5.6.10 Effective feed force

$$M_{eff} = \sqrt{\frac{t_1 \times M_{max1}{}^2 + t_2 \times M_{max2}{}^2 + t_2 \times M_{max1}{}^2 \times \ldots t_8 \times M_{max8}}{t_1 + t_2 + t_3 + \ldots t_8}}$$

$$M_{eff} = \sqrt{\frac{0{,}25s \times 4{,}53Nm^2 + 0{,}25s \times 3{,}36Nm^2 + 0{,}25s \times 2{,}28Nm^2 \times 0{,}25s + 2{,}35Nm^2 + 0{,}25s \times -1{,}18Nm^2 + 0{,}25s \times -2{,}35Nm^2 + 0{,}25s \times -3{,}43Nm^2 + 0{,}25s \times 2{,}35Nm^2}{11{,}5s}}$$

$$M_{eff} = 1{,}46$$

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$$F_{eff} = \frac{M_{eff} \times 2 \times \pi}{p}$$

$$F_{eff} = \frac{1{,}45Nm \times 2 \times \pi}{0{,}006m} = 1523{,}30N$$

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F_{eff} = Effective feed force
M_{eff} = Effective motor torque
M_{max} = Maximum torque
t_1 - t_8 = Time in the respective travel section

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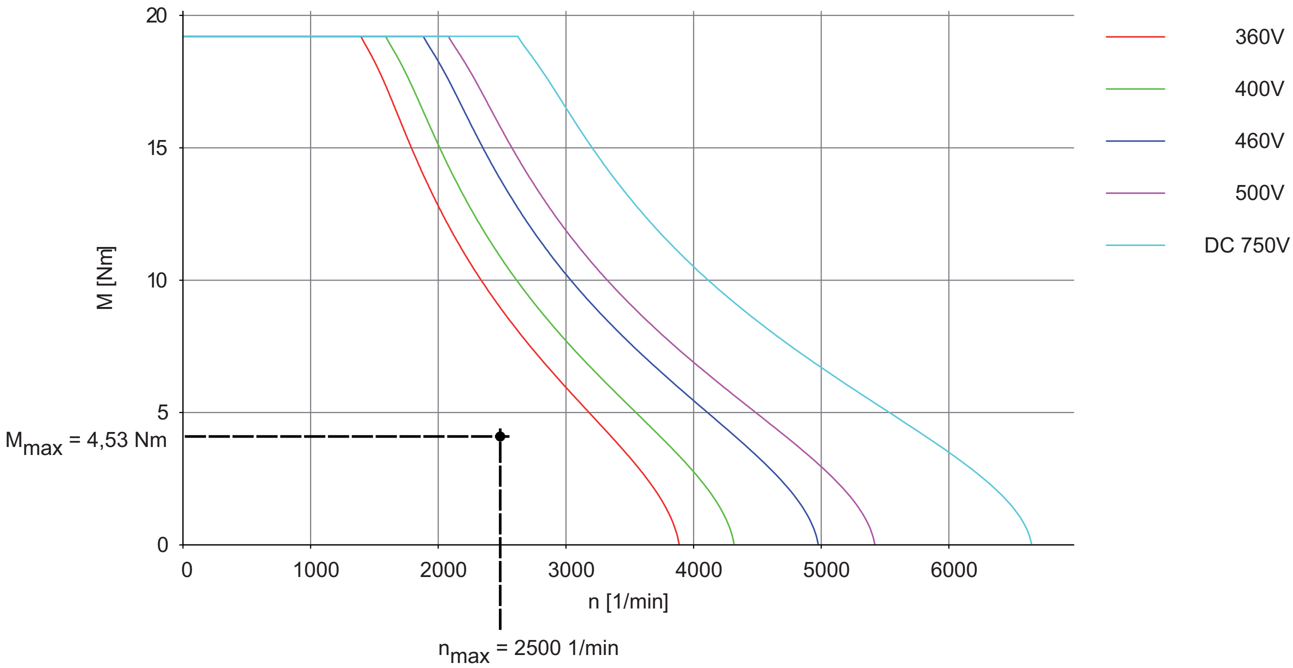
5.6.11 Check

In the following validation test, the selected CMSB71S n_N = 3000 1/min is qualified on the basis of the project planning results.

Validation against the dynamic and thermal limit characteristic curves of the CMSB71S

Dynamic



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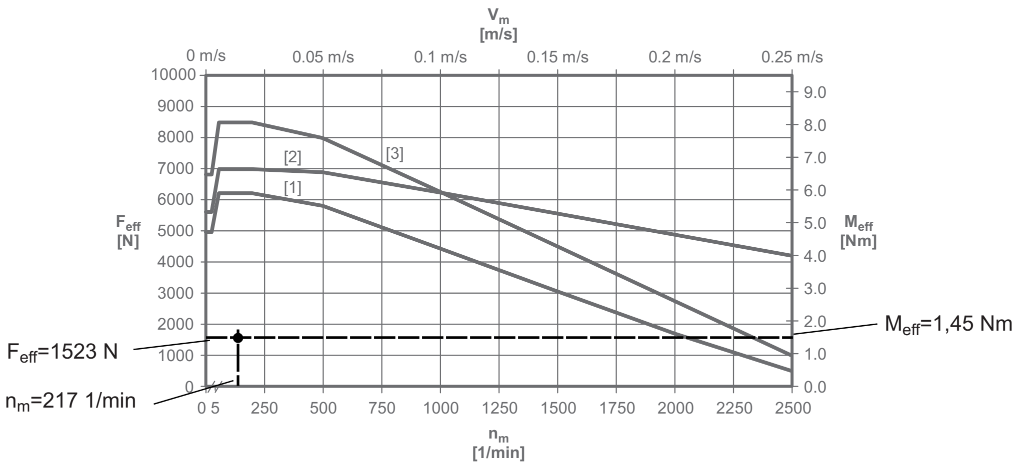
M_{max} Maximum necessary motor torque
n_{max} Maximum necessary motor speed

Thermal



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F_{eff} = Effective feed force
M_{eff} = Effective motor torque
n_m = Mean speed
v_m = Mean velocity
[1] F = Feed force
[2] F_W = Feed force with water cooling
[3] F_{VR} = Feed force with forced cooling fan

Validation of the brake (BP1) of the CMSB71S used

In the event that a brake is nevertheless to be engaged cyclically during the pause times, the suitability of the corresponding brake for the application is validated below.

The CMSB71S is equipped with the BP1 brake. Corresponding additional information can be found in the catalog "Synchronous servomotors" in the chapter "Project planning of BP brake"

The brake validation is divided into two fundamental conditions that have to be satisfied. The holding function and the emergency off function.

Holding function

The following condition applies for the holding function to be satisfied

The following applies: $M_{4,\ 100\ °C} > M_L$

$M_{4,\ 100\ °C}$ (BP1) = 8.4 Nm

As already determined in the previous sections, the static load in travel sections 4 and 8 is approx. 2463.29 N, corresponding to approx. 2.35 Nm holding torque of the motor. The holding torque $M_{4,100°C}$ of the BP brake is 8.4 Nm.

8.4 Nm > 2.35 Nm → Condition satisfied

$M_{4,\ 100\ °C}$ = Minimum static braking torque (holding torque) at 100 °C (in Nm)
M_L = Static load torque, in reference to the motor shaft (in Nm)

Emergency off function

The following conditions apply for the emergency off function to be satisfied

The following applies: $M_{1m,100°C} > M_L \times 1.2$

$M_{1m,100°C}$ (BP1) = 5.6 Nm

As already determined in the previous sections, the static load in travel sections 4 and 8 is approx. 2463.29 N, corresponding to approx. 2.35 Nm holding torque of the motor. The dynamic emergency off torque $M_{1m,\ 100°C}$ of the BP brake is 5.6 Nm.

5.6 Nm > 2.35 Nm x 1.2 (2.82) → Condition satisfied

$M_{4,\ 100\ °C}$ = Minimum averaged dynamic braking torque in the emergency off case at 100 °C
M_L = Static load torque, in reference to the motor shaft (in Nm)

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5.7 Calculation example for service life

5.7.1 Service life consideration I

The travel path per cycle is 0.25 m per 11.5 s.

The following estimated service life is given in the chapter "Service life" (→ 🗎 72) for CMSMB71:

CMS..		Mean speed 1/min	Eff. force	Operational per-formance km
CMSMB71	KGT 32x6	1000	5000	2100

Calculation of the working days until the operational performance of 2100 km is reached:

Operational performance per minute	1304.35 mm	
Operational performance per hour	78.26 m	
Operational performance per day (8 h)	626.09 m	0.62609 km
Operational performance per day (16 h)	1252.17 m	1.25217 km
Operational performance per day (24 h)	1878.26 m	1.87826 km

Number of working days until operational performance of 2100 km is reached		
Days at 8 hours/day	Days at 16 hours/day	Days at 24 hours/day
3354	1677	1118

As both the mean speed and the effective force in the application are below the specification/estimate for the service life in the catalog, it can be assumed that the CMSB71S will achieve far more than 10 000 operating hours in this application as long as the operating conditions given above can be observed.

5.7.2 Service life consideration II

Cubic feed force F_{cub}

$$F_{cub} = \sqrt[3]{F1^3 \times \frac{t_1}{t_{total}} + F_2{}^3 \times \frac{t_2}{t_{total}} + F_3{}^3 \times \frac{t_3}{t_{total}} + F_n{}^3 \times \frac{t_n}{t_{total}} \times K_A}$$

$F_1 - F_n$ = Feed force in travel section in N

$t_1 - t_n$ = Proportion of time in the travel sections in seconds

K_A is assumed to be 1.0.

$$F_{cub} = \sqrt[3]{4746{,}87N^3 \times \frac{0{,}25s}{11{,}5s} + 3516{,}13N^3 \times \frac{0{,}25s}{11{,}5s} + 2363{,}29N^3 \times \frac{0{,}25s}{11{,}5s} + (-1232{,}55)N^3 \times \frac{5s}{11{,}5s} + (-2463{,}29)N^3 \times \frac{0{,}25s}{11{,}5s} + (-3586{,}71)N^3 \times \frac{0{,}25s}{11{,}5s} + 5396N^3 \times \frac{0{,}25s}{11{,}5s} + 2463{,}29N^3 \times \frac{5s}{11{,}5s}}$$

$$F_{cub} = 2476{,}93N$$

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Spindle

Spindle service life in revolutions:

$$L = \left(\frac{C_{spindle}}{K_A \times F_{cub}}\right)^3 \times 10^6$$

$$L = \left(\frac{55000}{1{,}0 \times 2476{,}93N}\right)^3 \times 10^6$$

L = 10 948 241 937 revolutions

Spindle service life in hours:

$$L_h = \frac{L}{n_m \times 60}$$

$$L_h = \frac{10\,948\,241\,937\,revolutions}{217.39 \times 60}$$

L_h = 839 370 hours

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5

Bearing

Bearing service life in revolutions:

$$L = \left(\frac{C_{bearing}}{K_A \times F_{cub}}\right)^3 \times 10^6$$

$$L = \left(\frac{71500}{1.0 \times 2476\ 93N}\right)^3 \times 10^6$$

L = 24 053 287 536 revolutions

Bearing service life in hours:

$$L_h = \frac{L}{n_m \times 60}$$

$$L_h = \frac{24\,053\,287\,536\,revolutions}{\frac{217.391}{\text{min}} \times 60}$$

L_h = 1 844 096 hours

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6 Brakes

6.1 BK brakes

6.1.1 Description of the BK brake

The mechanical brake is a holding brake implemented as a permanent magnet brake.

The brake has a standard connection voltage of DC 24 V and operates with a constant braking torque per brake size.

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

If servomotors are operated on the MOVIAXIS® servo inverter, overvoltage protection is ensured. If the servomotors are operated with MOVIDRIVE® or inverters from other manufacturers, overvoltage protection must be implemented by the customer using, for example, varistors.

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 BK brake can be used up to a rated speed of 6000 1/min.

The BK brake is a permanent magnet holding brake with emergency off function. It differs from the BP brakes by its fixed coil polarity.

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

Electric cylinder with motor	Brake	Rated speed
CMSMB50 with CMP50S/M	BK02	3000/4500/6000
CMSMB63 with CMP63S	BK03	
CMSB50S/M/L and CMSMB50 with CMP50L	BK04	
CMSB63S/M and CMSMB63 with CMP63L/M	BK07	

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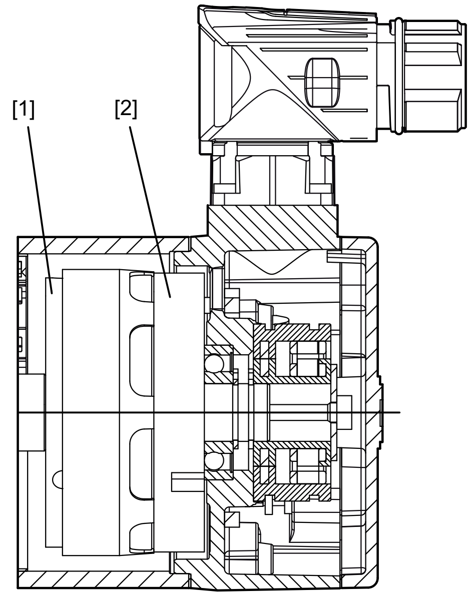
6.1.2 Principle of the BK brake

Basic design

The BK brake is a DC-operated permanent magnet brake that is released electrically and is applied using the magnetic force of the permanent magnets.

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

Principle structure of the 24 V permanent magnet brake:



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[1] Armature
[2] Complete brake

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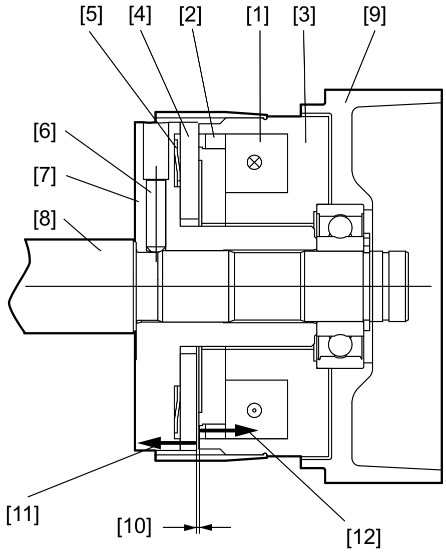
Basic function

In de-energized condition, the pressure plate is forced against the magnet body by the force of the permanent magnets. The motor is braked.

When the brake coil is energized with the corresponding DC voltage, the resulting electromagnetic force cancels the force of the permanent magnets. Now the force of the return spring pulls the pressure plate to the armature and in this way enables the rotor to turn.



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[1]	Brake coil	[7]	Armature
[2]	Permanent magnet	[8]	Motor shaft
[3]	Magnet body	[9]	Endshield
[4]	Pressure plate	[10]	Working air gap
[5]	Return spring	[11]	Electromagnetic force and force of the return spring
[6]	Set screw	[12]	Permanent magnet force

6.1.3 General information about BK brakes

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 according to the "project planning data" (→ 🗎 89).
2. Dimensioning and routing of the "cable" (→ 🗎 96).
3. Selecting the brake contactor.
4. Important "design information" (→ 🗎 90).

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6.1.4 Selecting the BK brake

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

If the application has to be held in place in an idle state by the brake against external loads (e.g., wind/press forces), the specifications for hoists have to be taken into consideration.

Selection criteria:

- Servomotor
- Level of the braking torque

The brake is selected on the basis of the braking torque. The correspondence of motor/brake/braking torque can be found in the chapter "Technical Data of the BK Brake".

Values determined / calculated during brake selection:

Basic specification	Link/supplement/comment
Motor	Brake, brake control
Braking torque	Is determined from the requirements of the application with respect to maximum deceleration and maximum permitted distance or time and the permitted braking work.
Brake application time	Type of brake control system (important for the electrical design for wiring diagrams).
Braking time **Braking distance** **Deceleration** **Braking accuracy**	The required data can only be observed if the aforementioned parameters meet the requirements.

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 holding torque and the required deceleration.

The nominal braking torque values of the BK brakes have been determined and checked in accordance with DIN VDE 0580.

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Working capacity

The necessary working capacity of the brake is determined by the application parameters and indicates how much braking energy the brake has to provide during braking.

INFORMATION

If the permitted braking work per braking operation W_1 is exceeded during braking from speed, or if the permitted total braking work W_{insp} is reached, there is no longer a guarantee that the brake will be applied. In this case, no braking will occur.

6.1.5 Important design information

EMC (electromagnetic compatibility)

The EMC instructions in the servo inverter documentation must also be taken into account for operating SEW servomotors with brake.

The instructions on "laying cables" (→ 🗎 96) must always be adhered to.

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).

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6.1.6 BK brake project planning

Data for brake dimensioning

The data of the application must be known for projecting a brake. The abbreviations used for project planning are summarized in the following table:

Designation	Meaning	Unit
η_G	Efficiency of the gear unit	
J_{ext}	External mass moment of inertia (in relation to motor shaft)	kgm^2
J_{Mot}	Mass moment of inertia of the motor	kgm^2
M_{1max}	Maximum dynamic braking torque in case of emergency switching off	Nm
$M_{1m,\ 100\ °C}$	Minimal averaged dynamic braking torque in case of emergency switching off at 100 °C	Nm
$M_{2,\ 20\ °C}$	Nominal torque for slipping brake disk (relative speed between brake disk and friction surface: 1 m/s) at 20 °C	Nm
$M_{4,\ 100\ °C}$	Minimum static braking torque (holding torque) at 100 °C	Nm
$M_{aEmergOff}$	Maximum permitted emergency switching off torque of the gear unit	Nm
i	Gear unit reduction ratio	
M_L	Static load torque, in relation to motor shaft	Nm
n	Motor speed	min^{-1}
n_m	Motor speed, from application or travel diagram	min^{-1}
n_D	Increase of motor speed until brake application	min^{-1}
$n_{m\ EmergStop}$	Real emergency stop speed, relevant for check	min^{-1}
s_b	Stopping distance	mm
t_2	Brake application time	s
t_B	Braking time	s
t_r	Response time or signal transmit time	s
v	Speed	m/s
W_1	Permitted braking work per braking operation	J
W_2	Permitted braking work per hour	J

Hold function

The selected braking torque $M_{4,\ 100\ °C}$ must at least be higher than the highest static load torque of the application.

$$M_{4,100°C} > M_L$$

Emergency switching off function for lifting applications

To ensure a deceleration of the load, for lifting applications, the lowest averaged dynamic braking torque $M_{1m,\ 100\ °C}$ must be higher than the highest static load torque of the application.

$$M_{1m,100°C} > M_L$$

Speed difference during brake application

Due to the response time, signal transmit time, and the brake application time, as well as the gravitational acceleration, it is possible that the hoist is in "free fall" for a short time resulting in a motor speed increased by n_D (hoist downwards) or reduced by n_D (travel unit and hoist upwards).

Calculation of the emergency stop speed (hoist downwards):

$$n_{m,EmergencyStop} = n_m + n_D$$

Calculation of the emergency stop speed (travel drive and hoist upwards):

$$n_{m,EmergencyStop} = n_m - n_D$$

$$n_D = \frac{9{,}55 \times M_L \times (t_r + t_2)}{J_{Mot} + J_{ext} \times \eta_G}$$

Working capacity in case of emergency switching off

Braking work per braking operation in case of emergency off:

$$W_1 = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,\mathrm{EmergStop}}{}^2 \times M_{1m,100°C}}{182.4 \times \left(M_{1m,100°C} \pm M_L\right)}$$

Observe the sign of the highest static load torque M_L in the formula. Use:

+ For vertical upward and horizontal movement
- For vertical downward movement

The braking work W_1 calculated here is validated against the permitted braking work per braking operation W_1 of the BK brake (see "Technical Data of the BK Brake").

According to the possible number of emergency off braking operations, the validation must also be performed against the permitted braking work per hour W_2 of the BP brake (see "Technical Data of the BK Brake").

$$W_{1(BKbrake)} > W_{1(calculated)}$$

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The following maximum permitted mass inertia ratios apply here:

Electric cylinder and motor	Brake	Permitted J_{ext}/J_{mot}
CMSMB50 with CMP50S/M	BK02	No limitation
CMSMB63 with CMP63S	BK03	J_{ext} / J_{mot} ≤ 30
CMSB50S/M/L and CMSMB50 with CMP50L	BK04	
CMSB63S/M and CMSMB63 with CMP63M/L	BK07	J_{ext} / J_{mot} ≤ 20

J_{ext} External mass moment of inertia in kgm^2
J_{mot} Mass inertia moment of the motor in kgm^2

Braking time / stopping distance

Braking time hoist downwards

$$t_B = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,\ EmergStop}}{9.55 \times \left(M_{1m,100°C} - M_L\right)}$$

Braking time horizontal drive, hoist upwards

$$t_B = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,EmergStop}}{9.55 \times \left(M_{1m,100°C} + M_L\right)}$$

Stopping distance

$$s_b = v \times 1000 \times (t_2 + t_r + \frac{1}{2} \times t_B)$$

6.1.7 Technical data of BK brakes

The following table shows the technical data of the BK brakes. These operate with a defined braking torque for each brake size.

Standard electric cylinders	Brake	$M_{4,\ 100\ °C}$	$M_{1m,\ 100\ °C}$	P	t_1	t_2
		Nm	Nm	W	ms	ms
CMSB50S/M/L	BK04	3.9	2.4	13.4	50	30
CMSB63S/M	BK07	7.1	3.9	15.0	70	30

Electric cylinder, modular	Brake	$M_{4,\ 100\ °C}$	$M_{1m,\ 100\ °C}$	P	t_1	t_2
		Nm	Nm	W	ms	ms
CMSMB50 (with CMP50S/M)	BK02	2.4	1.9	6.7	80	20
CMSMB50 (with CMP50L)	BK04	3.9	2.4	13.4	50	30
CMSMB63 (with CMP63S)	BK03	3.8	2.0	13.4	50	30
CMSMB63 (with CMP63M/L)	BK07	7.1	3.9	15.0	70	30

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
$M_{1m,\ 100\ °C}$ Minimal averaged dynamic braking torque in case of emergency switching off at 100 °C
P Power consumption of the coil
t_1 Brake response time
t_2 Brake application time

INFORMATION

The response and application times are guide values that were determined at maximum braking torque.

Possible response times of switching elements or controllers are not taken into account.

Permitted braking work for BK brake

Standard electric cylinders	Brake	W_1	W_2	W_{insp}
		kJ	kJ	10^3 kJ
CMSB50S/M/L	BK04	0.288	5.76	0.576
CMSB63S/M	BK07	0.740	14.8	1.48

Electric cylinder, modular	Brake	W_1	W_2	W_{insp}
		kJ	kJ	10^3 kJ
CMSMB50 (with CMP50S/M)	BK02	0.175	3.50	0.350
CMSMB50 (with CMP50L)	BK04	0.288	5.76	0.576
CMSMB63 (with CMP63S)	BK03	0.371	7.42	0.742
CMSMB63 (with CMP63M/L)	BK07	0.740	14.8	1.48

W_1 Permitted braking work per braking operation
W_2 Permitted braking work per hour
W_{insp} Permitted total braking work (braking work until maintenance)

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Operating currents for BK brakes

	BK01	BK02	BK03	BK04	BK07
Braking torque $M_{4,\ 100\ °C}$ in Nm	1.9	2.4	3.8	3.9	7.1
Braking power in W	8.8	6.7	13.4	13.4	15

Nominal voltage V_N	**I**	**I**	**I**	**I**	**I**
V_{DC}	**DC A**	**DC A**	**DC A**	**DC A**	**DC A**
24 (21.6 – 26.4)	0.365	0.280	0.557	0.557	0.623

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
I Operating current
V_N Nominal voltage (nominal voltage range)

When configuring the 24 V supply, it is not necessary to consider a current reserve for releasing the brake, i.e., the ratio of inrush current to operating current is 1.

Resistance values of BK brake coils

	BK01	BK02	BK03	BK04	BK07
Braking torque $M_{4,\ 100\ °C}$ in Nm	1.9	2.4	3.8	3.9	7.1
Braking power in W	8.8	6.7	13.4	13.4	15

Nominal voltage V_N	**R**	**R**	**R**	**R**	**R**
V_{DC}	**Ω**	**Ω**	**Ω**	**Ω**	**Ω**
24 (21.6 – 26.4)	65.7	85.5	43.1	43.1	38.6

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
R Coil resistance at 20 °C
V_N Nominal voltage (nominal voltage range)

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6.1.8 Dimensioning and routing of the cable

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 nominal voltage. The data sheets for the brakes provide information on the possible connection voltages and the resulting operating currents.

Information on the dimensioning of the cable cross sections and cable lengths can be found in the tables "Cable assignments".

Cable 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.

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 the following cables:

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

6.1.9 Selecting the braking 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 braking contactor for line 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 BK brake can also be controlled directly via the brake output of a MOVIAXIS® servo inverter.

Direct brake control

Specifications for direct brake control:

- Only the BK brakes BK01 – BK07 are permitted.
- Expressly excluded are all brakes from third-party manufacturers.
- Only prefabricated brakemotor cables from SEW-EURODRIVE may be used.
- The brakemotor cable must be shorter than 25 m.
- The project planning of the 24 V power supply for MOVIAXIS® must take all directly controlled brakes into consideration.
- The demands on the 24 V power supply for MOVIAXIS® must be satisfied to ensure direct brake control.

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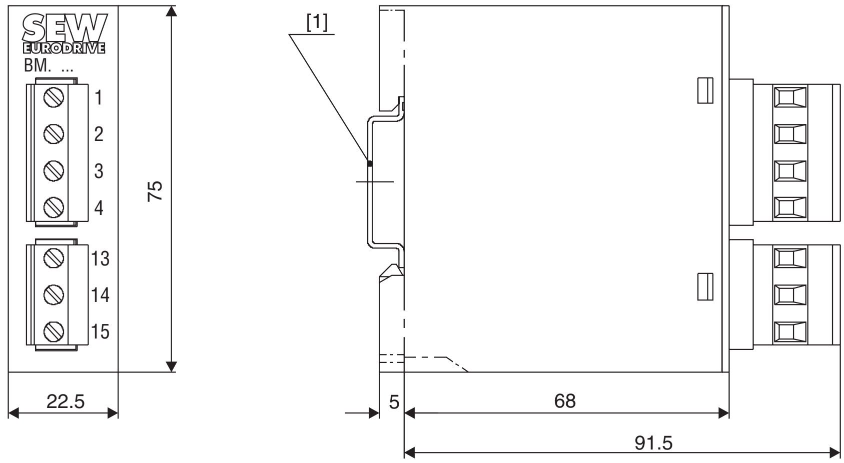
6.1.10 Dimensions drawings for BK brake controls

BMV

For information regarding the use of the BMV brake control, refer to chapter "Block diagram of brake control".



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1) Support rail mounting according to EN 50022-35-7.5 (not included in the delivery)

6.2 BP brake

6.2.1 Description of the BP brake

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

The brake has a standard connection voltage of DC 24 V and operates with one or two braking torques per motor size.

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

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

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

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:

Electric cylinder with motor	Brake	Rated speed
CMSB71S/M/L and CMSMB71 with CMP71S/M/L	BP1	2000/3000/4500/6000

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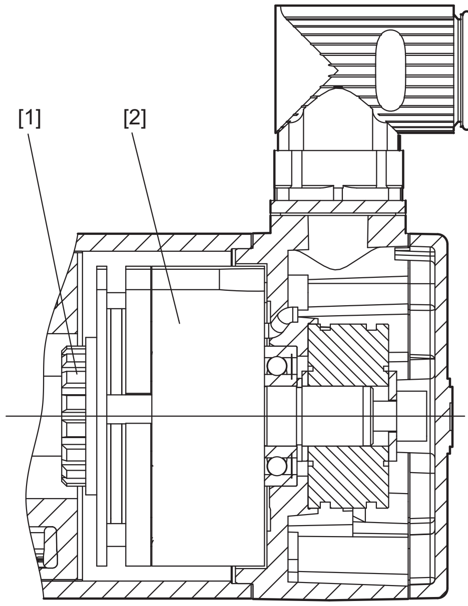
6.2.2 Principle of the BP brake

Basic design

The brake is a DC-operated electromagnetic disk brake that is released electrically and applied 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:



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[1] Driver
[2] Complete brake

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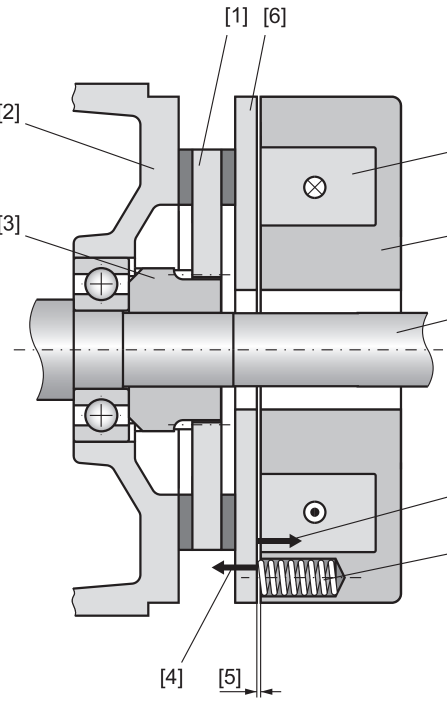
Basic function

The pressure plate is forced against the brake disk by the brake springs when the electromagnet is de-energized. 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 [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.



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

6.2.3 General information about BP brakes

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 according to the "project planning data" (→ 🗎 101).
2. Dimensioning and routing of the "cable" (→ 🗎 96).
3. Selecting the brake contactor.
4. Important "design information" (→ 🗎 90).

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6.2.4 Selecting the BP brake

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

If the application has to be held in place in an idle state by the brake against external loads (e.g., wind/press forces), the specifications for hoists have to be taken into consideration.

Selection criteria:

- Servomotor
- Level of the braking torque

The brake type is selected on the basis of the braking torque. The correspondence of motor/brake/braking torque can be found in the chapter "Technical Data of the BP Brake".

Braking torque

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

The nominal braking torque values of the BP brakes have been determined and checked in accordance with DIN VDE 0580.

6.2.5 BP brake project planning

Hold function

The selected braking torque $M_{4,\ 100\ °C}$ must be at least higher than the highest static load torque of the application.

$$M_{4,100°C} > M_L$$

The following table shows the number of permitted switching cycles of the BP brake until end of service life when used exclusively as holding brake.

Electric cylinder and motor	Brake	Approved switching cycles
CMSB71S/M/L and CMSMB71 with CMP71S/M/L	BP1	4 000 000

Emergency switching off function for lifting applications

To ensure a deceleration of the load, for lifting applications, the lowest averaged dynamic braking torque $M_{1m,\ 100\ °C}$ must be higher than the highest static load torque of the application.

$$M_{1m,100°C} > M_L \times 1.2$$

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Working capacity in case of emergency switching off

Braking work per braking operation in case of emergency off:

$$W_1 = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,\mathrm{EmergStop}}{}^2 \times M_{1m,100°C}}{182.4 \times \left(M_{1m,100°C} \pm M_L\right)}$$

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Observe the sign of the highest static load torque M_L in the formula. Use:

- \+ For vertical upward and horizontal movement
- \- For vertical downward movement

The braking work W_1 calculated here is validated against the permitted braking work per braking operation W_1 of the BP brake (see "Technical Data of the BP Brake").

According to the possible number of emergency off braking operations, the validation must also be performed against the permitted braking work per hour W_2 of the BP brake (see "Technical Data of the BP Brake").

$$W_{1(BPbrake)} > W_{1(calculated)}$$

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6.2.6 Technical data of BP brakes

The following table shows the technical data of the brakes. The type and number of brake springs used determines the level of the braking torque. Unless specified otherwise in the order, the brakemotors are delivered with the braking torques highlighted in gray .

Standard electric cylinders	Brake	$M_{2,\ 20\ °C}$	$M_{4,\ 100\ °C}$	$M_{1m,\ 100\ °C}$	P	t_1	t_2
		Nm	Nm	Nm	W	ms	ms
CMSB71S/M/L	BP1	14	8.4	5.6	19.5	200	75

Modular electric cylinder	Brake	$M_{2,\ 20\ °C}$	$M_{4,\ 100\ °C}$	$M_{1m,\ 100\ °C}$	P	t_1	t_2
		Nm	Nm	Nm	W	ms	ms
CMSMB71 with CMP71S/M/L	BP1	7	4.2	2.8	19.5	200	75
		14	8.4	5.6			

$M_{2,\ 20\ °C}$ Nominal torque for slipping brake disk (relative speed between brake disk and friction surface: 1 m/s) at 20 °C
$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
$M_{1m,\ 100\ °C}$ Minimal averaged dynamic braking torque in case of emergency switching off at 100 °C
P Power consumption of the coil
t_1 Brake response time
t_2 Brake application time

INFORMATION

The response and application times are guide values that were determined at maximum braking torque.

Possible response times of switching elements or controllers are not taken into account.

Permitted braking work for BP brake

Standard electric cylinders	Brake	W_1	W_2	W_{insp}
		kJ	kJ	10^3 kJ
CMSB71S/M/L	BP1	1.4	16.8	2.6

Electric cylinder, modular	Brake	W_1	W_2	W_{insp}
		kJ	kJ	10^3 kJ
		kJ	kJ	10^3 kJ
CMSMB71 (with CMP71S/M/L)	BP1	1.4	16.8	2.6

W_1 Permitted braking work per braking operation
W_2 Permitted braking work per hour
W_{insp} Permitted total braking work (braking work until maintenance)

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Operating currents for BP brakes

	BP1
Braking torque $M_{2,\ 20\ °C}$ in Nm	14
Braking power in W	19.5

Nominal voltage V_N	I
DC V	**DC A**
24 (21.6 – 26.4)	0.81

$M_{2,\ 20\ °C}$ Nominal torque for slipping brake disk (relative speed between brake disk and friction surface: 1 m/s) at 20 °C
I Operating current
V_N Nominal voltage (nominal voltage range)

When configuring the 24 V supply, it is not necessary to consider a current reserve for releasing the brake, i.e., the ratio of inrush current to operating current is 1.

Resistance values of BP brake coils

	BP1
Braking torque $M_{2,\ 20\ °C}$ in Nm	14
Braking power in W	19.5

Nominal voltage V_N	R
DC V	**Ω**
24 (21.6 – 26.4)	29.4

$M_{2,\ 20\ °C}$ Nominal torque for slipping brake disk (relative speed between brake disk and friction surface: 1 m/s) at 20 °C
R Coil resistance at 20 °C
V_N Nominal voltage (nominal voltage range)

Permitted switching work (emergency switching off operation)

The permitted number of switching cycles per hour is 10.

The minimum pause time between 2 switching cycles is 6 minutes.

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6.2.7 Selecting the braking 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 braking contactor for line 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.

Direct brake control

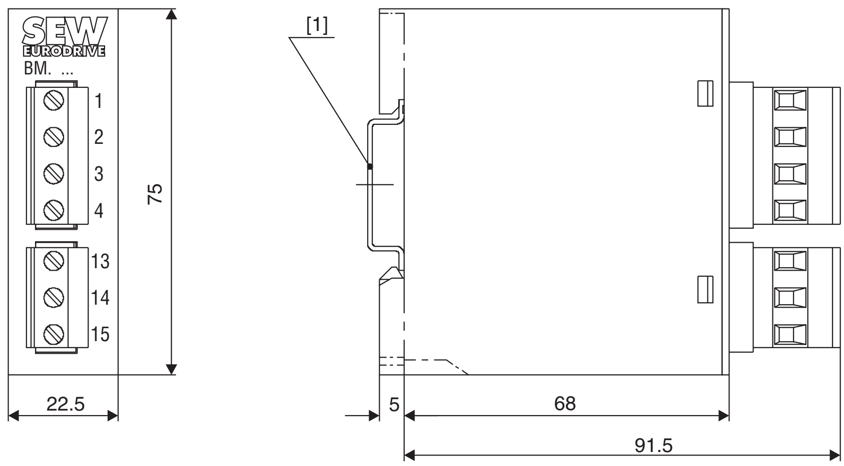
Specifications for direct brake control:

- Only the BP brake BP1 is permitted.
- Only prefabricated brakemotor cables from SEW-EURODRIVE may be used.
- The brakemotor cable must be shorter than 25 m.
- The project planning of the 24 V power supply for MOVIAXIS® must take all directly controlled brakes into consideration.
- The demands on the 24 V power supply for MOVIAXIS® must be satisfied to ensure direct brake control.

6.2.8 Dimension drawings for BP brake controls

BMV

For information regarding the use of the BMV brake control, refer to the chapter "Block diagram of the brake control".



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1) Mounting rail attachment to EN 50022-35-7.5 (not included in scope of delivery)

6.3 BS brake

6.3.1 Description of the BS brake

The mechanical brake is a holding brake implemented as a permanent magnet brake.

The brake has a standard connection voltage of DC 24 V and operates with a constant braking torque per brake size.

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

If servomotors are operated on the MOVIAXIS® servo inverter, overvoltage protection is ensured. If the servomotors are operated with MOVIDRIVE® or inverters from other manufacturers, overvoltage protection must be implemented by the customer using, for example, varistors.

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 BS brake can be used up to a rated speed of 4500 1/min.

The BS brake is a permanent magnet holding brake with emergency off function. It differs from the BP brakes by its fixed coil polarity.

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

Electric cylinder with motor	Brake	Rated speed
CMS71L	BS2	2000/3000/4500

6.3.2 General information on BS brake

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

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

1. Selection of the braking torque in accordance with the "project planning data" (→ 🗎 89).
2. Dimensioning and routing of the "cable" (→ 🗎 96).
3. If necessary, selection of the braking contactor.
4. Important "design information" (→ 🗎 108).

6.3.3 Selection of the BS brake

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

If the application has to be held in place in an idle state by the brake against external loads (e.g., wind/press forces), the specifications for hoists have to be taken into consideration.

Selection criteria:

- Servomotor
- Level of the braking torque

The brake is selected on the basis of the braking torque. The correspondence of motor/brake/braking torque can be found in the chapter "Technical Data".

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Values determined / calculated during brake selection:

Basic specification	Link/supplement/comment
Motor	Brake, brake control
Braking torque	Is determined from the requirements of the application with respect to maximum deceleration and maximum permitted distance or time and the permitted braking work.
Brake application time	Type of brake control system (important for the electrical design for wiring diagrams).
Braking time **Braking distance** **Deceleration** **Braking accuracy**	The required data can only be observed if the aforementioned parameters meet the requirements.

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 holding torque and the required deceleration.

The nominal braking torque values of the BK brakes have been determined and checked in accordance with DIN VDE 0580.

Working capacity

The necessary working capacity of the brake is determined by the application parameters and indicates how much braking energy the brake has to provide during braking.

INFORMATION

If the permitted braking work per braking operation W_1 is exceeded during braking from speed, or if the permitted total braking work W_{insp} is reached, there is no longer a guarantee that the brake will be applied. In this case, no braking will occur.

6.3.4 Important design information

EMC (electromagnetic compatibility)

The EMC instructions in the servo inverter documentation must also be taken into account for operating SEW servomotors with brake.

The instructions on "laying cables" (→ 🗎 96) must always be adhered to.

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).

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6.3.5 Project planning for the BS brake

Data for brake dimensioning

The data of the application must be known for projecting a brake. The abbreviations used for project planning are summarized in the following table:

Designation	Meaning	Unit
η_G	Efficiency of the gear unit	
J_{ext}	External mass moment of inertia (in relation to motor shaft)	kgm^2
J_{Mot}	Mass moment of inertia of the motor	kgm^2
M_{1max}	Maximum dynamic braking torque in case of emergency switching off	Nm
$M_{1m,\ 100\ °C}$	Minimal averaged dynamic braking torque in case of emergency switching off at 100 °C	Nm
$M_{2,\ 20\ °C}$	Nominal torque for slipping brake disk (relative speed between brake disk and friction surface: 1 m/s) at 20 °C	Nm
$M_{4,\ 100\ °C}$	Minimum static braking torque (holding torque) at 100 °C	Nm
$M_{aEmergOff}$	Maximum permitted emergency switching off torque of the gear unit	Nm
i	Gear unit reduction ratio	
M_L	Static load torque, in relation to motor shaft	Nm
n	Motor speed	min^{-1}
n_m	Motor speed, from application or travel diagram	min^{-1}
n_D	Increase of motor speed until brake application	min^{-1}
$n_{m\ EmergStop}$	Real emergency stop speed, relevant for check	min^{-1}
s_b	Stopping distance	mm
t_2	Brake application time	s
t_B	Braking time	s
t_r	Response time or signal transmit time	s
v	Speed	m/s
W_1	Permitted braking work per braking operation	J
W_2	Permitted braking work per hour	J

Hold function

The selected braking torque $M_{4,\ 100\ °C}$ must at least be higher than the highest static load torque of the application.

$$M_{4,100°C} > M_L$$

Emergency switching off function for lifting applications

To ensure a deceleration of the load, for lifting applications, the lowest averaged dynamic braking torque $M_{1m,\ 100\ °C}$ must be higher than the highest static load torque of the application.

$$M_{1m,100°C} > M_L$$

Speed difference during brake application

Due to the response time, signal transmit time, and the brake application time, as well as the gravitational acceleration, it is possible that the hoist is in "free fall" for a short time resulting in a motor speed increased by n_D (hoist downwards) or reduced by n_D (travel unit and hoist upwards).

Calculation of the emergency stop speed (hoist downwards):

$$n_{m,EmergencyStop} = n_m + n_D$$

Calculation of the emergency stop speed (travel drive and hoist upwards):

$$n_{m,EmergencyStop} = n_m - n_D$$

$$n_D = \frac{9{,}55 \times M_L \times (t_r + t_2)}{J_{Mot} + J_{ext} \times \eta_G}$$

Working capacity in case of emergency switching off

Braking work per braking operation in case of emergency off:

$$W_1 = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,\mathrm{EmergStop}}^2 \times M_{1m,100°C}}{182.4 \times (M_{1m,100°C} \pm M_L)}$$

Observe the sign of the highest static load torque M_L in the formula. Use:

- \+ For vertical upward and horizontal movement
- \- For vertical downward movement

The braking work W_1 calculated here is validated against the permitted braking work per braking operation W_1 of the BS brake (see "Technical Data").

According to the possible number of emergency off braking operations, the validation must also be performed against the permitted braking work per hour W_2 of the BS brake (see "Technical Data").

$$W_{1(BKbrake)} > W_{1(calculated)}$$

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Braking time / stopping distance

Braking time hoist downwards

$$t_B = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,\ EmergStop}}{9.55 \times \left(M_{1m,100°C} - M_L\right)}$$

Braking time horizontal drive, hoist upwards

$$t_B = \frac{(J_{Mot} + J_{ext} \times \eta_G) \times n_{m,EmergStop}}{9.55 \times \left(M_{1m,100°C} + M_L\right)}$$

Stopping distance

$$s_b = v \times 1000 \times (t_2 + t_r + \frac{1}{2} \times t_B)$$

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6.3.6 Technical data BS brake

The following table shows the technical data of the BS brakes. These operate with a defined braking torque for each brake size.

Electric cylinders	Brake	$M_{4,\ 100\ °C}$	$M_{1m,\ 100\ °C}$	P	t_1	t_2
		Nm	Nm	W	ms	ms
CMS71L	BS2	19	11	17	120	120

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
$M_{1m,\ 100\ °C}$ Minimal averaged dynamic braking torque in case of emergency switching off at 100 °C
P Power consumption of the coil
t_1 Brake response time
t_2 Brake application time

INFORMATION

The response and application times are guide values that were determined at maximum braking torque.

Possible response times of switching elements or controllers are not taken into account.

Permitted braking work for BS brake

Electric cylinders	Brake	W_1	W_2	W_{insp}
		kJ	kJ	10^3 kJ
CMSB71L	BS2	0.55	11	0.275

W_1 Permitted braking work per braking operation
W_2 Permitted braking work per hour
W_{insp} Permitted total braking work (braking work until maintenance)

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Operating currents for BS brakes

	BS2
Braking torque $M_{4,\ 100\ °C}$ in Nm	19
Braking power in W	17

Nominal voltage V_N	**I**
DC V	**DC A**
24 (21.6 – 26.4)	0.71

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
I Operating current
V_N Nominal voltage (nominal voltage range)

When configuring the 24 V supply, it is not necessary to consider a current reserve for releasing the brake, i.e., the ratio of inrush current to operating current is 1.

Resistance values of BS brake coils

	BS2
Braking torque $M_{4,\ 100\ °C}$ in Nm	19
Braking power in W	17

Nominal voltage V_N	**R**
DC V	**Ω**
24 (21.6 – 26.4)	34

$M_{4,\ 100\ °C}$ Minimum static braking torque (holding torque) at 100 °C
R Coil resistance at 20 °C
V_N Nominal voltage (nominal voltage range)

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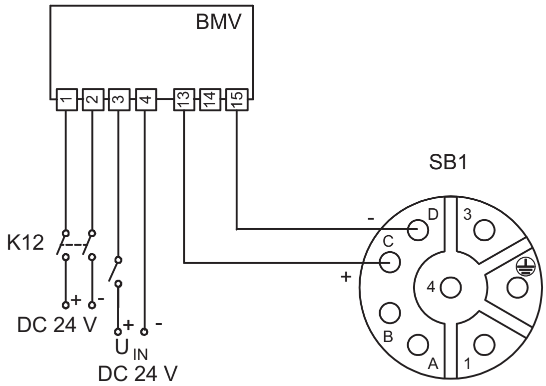
6.4 Block diagrams of the brake control – connector version

In every application, the BP/BK/BS holding brakes can be controlled via the BMV brake relay or a customer relay with varistor overvoltage protection. If the system complies with the specifications for direct brake control, then a BP/BK brake can also be controlled directly via the brake output of a MOVIAXIS® servo inverter.

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. For BMV: In applications with no demands on functional safety, it is sufficient to connect the brake via ports 3 and 4 (shown as NO contacts without designation). In applications with demands 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.

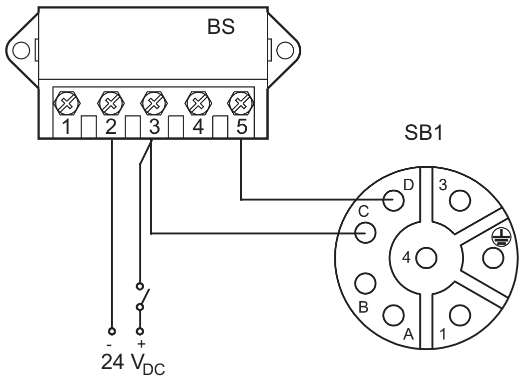
6.4.1 BMV brake controller



9007212241295115

Connection 1, 2	Power supply
Connection 3, 4	Signal (inverter)

6.4.2 BS brake contactor



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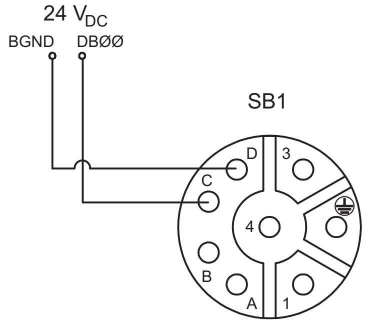
6.4.3 Direct 24 V brake supply

With MOVIAXIS®



9007207071783051

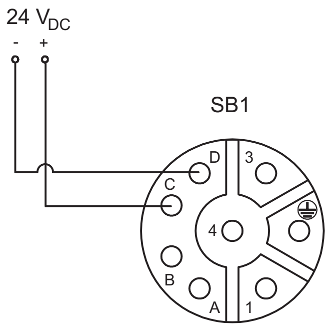
NOTICE

Damage to the brake.

Possible damage to property.

- It is essential that you observe the correct polarity of the brake power supply.
- Check the polarity when replacing the brake.

With non-SEW inverters



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

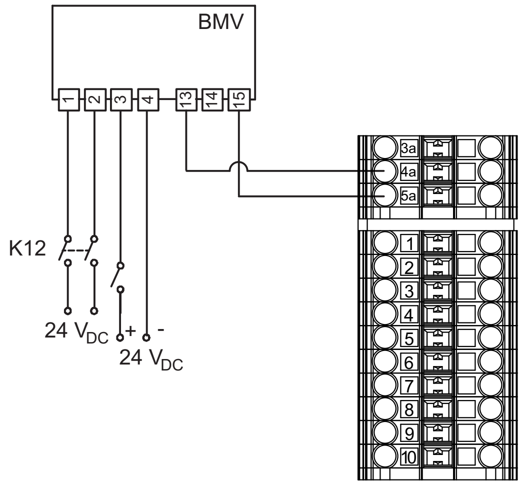
- Operation on non-SEW inverters.
- If the brake is not directly supplied from SEW-EURODRIVE inverters.

6.5 Block diagram of brake control – terminal box

In every application, the BP/BK holding brakes can be controlled via the BMV brake relay or a customer relay with varistor overvoltage protection. If the system complies with the specifications for direct brake control, then a BP/BK brake can also be controlled directly via the brake output of a MOVIAXIS® servo inverter.

In the following block diagrams, the contactor for the supply voltage of the brake rectifier is designated as K12. For BMV: In applications with no demands on functional safety, it is sufficient to connect the brake via ports 3 and 4 (shown as NO contacts without designation). In applications with demands 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.

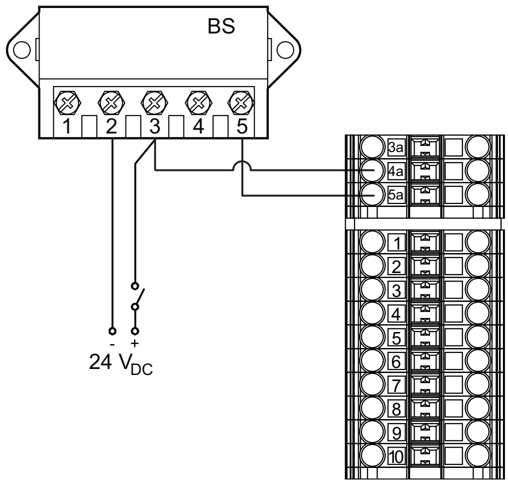
6.5.1 Brake control unit BMV – CMSMB71



2901729035

Connection 1, 2	Power supply
Connection 3, 4	Signal (inverter)

6.5.2 Braking contactor BS – CMSMB71



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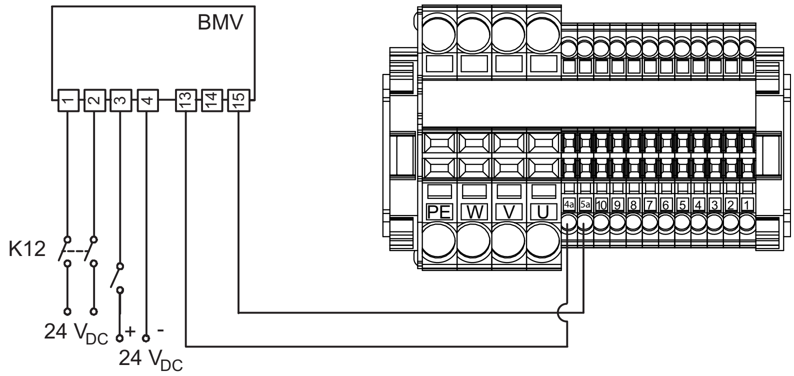
6

6.5.3 BMV brake control unit – CMSMB50/63



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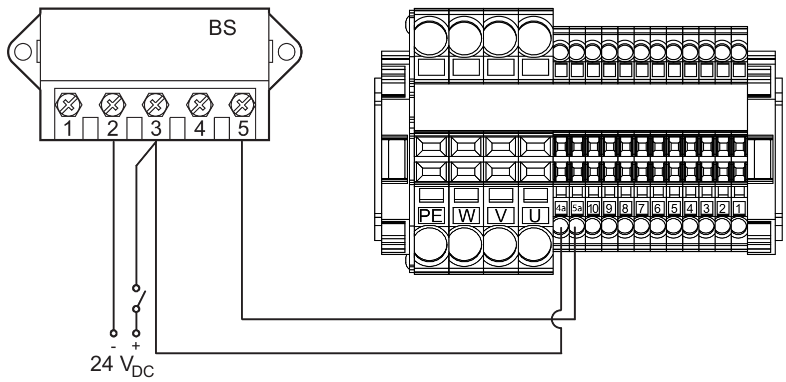
Connection 1, 2 Energy supply

Connection 3, 4 Signal (inverter)

6.5.4 BS braking contactor – CMSMB50/63



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7 Technical data

7.1 Key

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

n_N	Rated speed
n_{epk}	Maximum permitted input speed for short-time duty
M_{epk}	Maximum permitted input torque
M_0	Standstill torque (thermal continuous torque at a speed of 5 to 50 rpm)
M_{0VR}	Standstill torque (thermal continuous torque at a speed of 5 to 50 rpm) with forced cooling fan
M_{0LC}	Standstill torque with liquid cooling (see M_{0VR})
I_0	Standstill current
I_{0VR}	Standstill current with forced cooling fan
I_{0LC}	Standstill current with liquid cooling
M_{pk}	Maximum limit torque
I_{max}	Maximum current
J_{mot}	Mass moment of inertia without brake[1)]
J_{bmot}	Mass moment of inertia with brake[1)]
J_{add}	Additional mass moment of inertia without brake[2)]
J_{b_add}	Additional mass moment of inertia with brake[2)]
M_B	Braking torque
L_1	Inductance between connection phase and star point
R_1	Resistance between connection phase and star point
U_{p0cold}	Internal voltage at 1000 1/min
P	Spindle pitch
D	Nominal spindle diameter
F	Maximum permanent feed force
F_{VR}	Maximum permanent feed force with forced cooling fan
F_{pk}	Peak feed force [3)]
F_{LC}	Maximum permanent feed force with liquid cooling
m	Weight, variant without brake
m_{VR}	Weight, variant without brake, with forced cooling fan
m_{bmot}	Weight, variant with brake
m_{bmotVR}	Weight, variant with brake and forced cooling fan

1) For the complete electric cylinder (linear unit and spindle)
2) For project planning with SEW Workbench
3) Depending on max. inverter current, dynamic or static load on spindle; please contact SEW-EURODRIVE prior to project planning with maximum force.

7.2 Features

7.2.1 General properties

Design	
Thermal class	F (155 °C)
Ambient temperature	-20 °C to +40 °C -5 °C to + 40 °C for CMS71 with brake
Noise levels (EN 60034)	Below specified value
Vibration severity	"B" to EN 60034-14
Positioning accuracy (repetition accuracy) at constant force and temperature	± 0.05 mm

7.2.2 Properties CMSB50 – 71

Design	Standard			Optional		
	CMSB50	CMSB63	CMSB71	CMSB50	CMSB63	CMSB71
Degree of protection	IP65			–		
Motor protection	/KY, optional /PK			/PK		
Mounting position	M0 (all mounting positions possible)			–		
Cooling	Natural convection	Natural convection/ liquid cooling LC		VR forced cooling fan/liquid cooling LC	VR forced cooling fan	
Lubrication	Oil bath lubrication			Food grade lubricant		
Spindle protection	Smooth piston rod with sealing system			–		

7.2.3 Properties CMS71

Design	Standard	Optional
	CMS71	CMS71
Degree of protection	IP45 (IP65)[1)]	–
Motor protection	TF	KY/PK/TH
Mounting position	M0 (all mounting positions possible)	–
Cooling	Natural convection	–
Lubrication	Lubrication point with grease nipple DIN 71412-A	Lubricator Food grade lubricant

Design	Standard	Optional
	CMS71	CMS71
Spindle protection	Bellows	–

1) For electrical components

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7.3 Standard CMSB.. electric cylinder, system voltage 400 V

NOTICE

Adhere to the maximum permitted torque M_{pk} for electric cylinders of length M and L!
A current limitation is required on the frequency inverter.

INFORMATION

The maximum mechanical speed is n_{pk} = 4500 min^{-1}.

7.3.1 CMSB50S

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} / J_{b_mot}	$J_{addition}$ / $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{b_mot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	1.3	0.96	5.2	5.1	0.79	0.37	3.9	71	22.5	86.3	1.2	5.3	5.8	6.3
							1.18	0.65								
		100	1.3	0.96	5.2	5.1	0.82	0.40	3.9	71	22.5	86.3	1.2	5.3	6.1	6.6
							1.21	0.68								
		150	1.3	0.96	5.2	5.1	0.86	0.44	3.9	71	22.5	86.3	1.2	5.3	6.7	7.2
							1.25	0.72								
		200	1.3	0.96	5.2	5.1	0.9	0.48	3.9	71	22.5	86.3	1.2	5.3	7.2	7.7
							1.29	0.76								
		300	1.3	0.96	5.2	5.1	0.99	0.57	3.9	71	22.5	86.3	1.2	5.3	8.3	8.8
							1.38	0.85								
		400	1.3	0.96	5.2	5.1	1.1	0.68	3.9	71	22.5	86.3	1.2	5.3	9.9	10.5
							1.49	0.96								
		600	1.3	0.96	5.2	5.1	1.26	0.84	3.9	71	22.5	86.3	1.2	5.3	12.1	12.6
							1.65	1.12								
KGT 20x5	4500	70	1.3	1.32	5.2	7.0	0.79	0.37	3.9	37	11.6	62.4	1.2	5.3	5.8	6.3
							1.18	0.65								
		100	1.3	1.32	5.2	7.0	0.82	0.40	3.9	37	11.6	62.4	1.2	5.3	6.1	6.6
							1.21	0.68								
		150	1.3	1.32	5.2	7.0	0.86	0.44	3.9	37	11.6	62.4	1.2	5.3	6.7	7.2
							1.25	0.72								
		200	1.3	1.32	5.2	7.0	0.9	0.48	3.9	37	11.6	62.4	1.2	5.3	7.2	7.7
							1.29	0.76								
		300	1.3	1.32	5.2	7.0	0.99	0.57	3.9	37	11.6	62.4	1.2	5.3	8.3	8.8
							1.38	0.85								
		400	1.3	1.32	5.2	7.0	1.1	0.68	3.9	37	11.6	62.4	1.2	5.3	9.9	10.5
							1.49	0.96								
		600	1.3	1.32	5.2	7.0	1.26	0.84	3.9	37	11.6	62.4	1.2	5.3	12.1	12.6
							1.65	1.12								

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Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} / J_{b_mot}	$J_{addition}$ / $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{b_mot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm^2		Nm	mH	Ω	V	kN		kg	
KGT 20x5	6000	70	1.3	1.7	5.2	9.0	0.79	0.37	3.9	22.5	7.1	48.5	1.2	5.3	5.8	6.3
							1.18	0.65								
		100	1.3	1.7	5.2	9.0	0.82	0.40	3.9	22.5	7.1	48.5	1.2	5.3	6.1	6.6
							1.21	0.68								
		150	1.3	1.7	5.2	9.0	0.86	0.44	3.9	22.5	7.1	48.5	1.2	5.3	6.7	7.2
							1.25	0.72								
		200	1.3	1.7	5.2	9.0	0.9	0.48	3.9	22.5	7.1	48.5	1.2	5.3	7.2	7.7
							1.29	0.76								
		300	1.3	1.7	5.2	9.0	0.99	0.57	3.9	22.5	7.1	48.5	1.2	5.3	8.3	8.8
							1.38	0.85								
		400	1.3	1.7	5.2	9.0	1.1	0.68	3.9	22.5	7.1	48.5	1.2	5.3	9.9	10.5
							1.49	0.96								
		600	1.3	1.7	5.2	9.0	1.26	0.84	3.9	22.5	7.1	48.5	1.2	5.3	12.1	12.6
							1.65	1.12								

7.3.2 CMSB50M

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	2.4	1.68	7.6[1]	6.1[2]	1.04	0.37	3.9	38.5	10.0	90.3	2.3	8.0	6.8	7.3
					10.3[3]	9.6[3]	1.43	0.65								
		100	2.4	1.68	7.6[1]	6.1[2]	1.07	0.40	3.9	38.5	10.0	90.3	2.3	8.0	7.1	7.6
					10.3[3]	9.6[3]	1.46	0.68								
		150	2.4	1.68	7.6[1]	6.1[2]	1.11	0.44	3.9	38.5	10.0	90.3	2.3	8.0	7.7	8.2
					10.3[3]	9.6[3]	1.50	0.72								
		200	2.4	1.68	7.6[1]	6.1[2]	1.15	0.48	3.9	38.5	10.0	90.3	2.3	8.0	8.2	8.7
					10.3[3]	9.6[3]	1.54	0.76								
		300	2.4	1.68	7.6[1]	6.1[2]	1.24	0.57	3.9	38.5	10.0	90.3	2.3	8.0	9.3	9.8
					10.3[3]	9.6[3]	1.63	0.85								
		400	2.4	1.68	7.6[1]	6.1[2]	1.35	0.68	3.9	38.5	10.0	90.3	2.3	8.0	10.9	11.5
					10.3[3]	9.6[3]	1.74	0.96								
		600	2.5	1.68	7.6[1]	6.1[2]	1.51	0.84	3.9	38.5	10.0	90.3	2.3	8.0	13.1	13.6
					10.3[3]	9.6[3]	1.90	1.12								
KGT 20x5	4500	70	2.4	2.3	7.6[1]	8.3[2]	1.04	0.37	3.9	20.5	5.3	66.3	2.3	8.0	6.8	7.3
					10.3[3]	13.1[3]	1.43	0.65								
		100	2.4	2.3	7.6[1]	8.3[2]	1.07	0.40	3.9	20.5	5.3	66.3	2.3	8.0	7.1	7.6
					10.3[3]	13.1[3]	1.46	0.68								
		150	2.4	2.3	7.6[1]	8.3[2]	1.11	0.44	3.9	20.5	5.3	66.3	2.3	8.0	7.7	8.2
					10.3[3]	13.1[3]	1.50	0.72								
		200	2.4	2.3	7.6[1]	8.3[2]	1.15	0.48	3.9	20.5	5.3	66.3	2.3	8.0	8.2	8.7
					10.3[3]	13.1[3]	1.54	0.76								
		300	2.4	2.3	7.6[1]	8.3[2]	1.24	0.57	3.9	20.5	5.3	66.3	2.3	8.0	9.3	9.8
					10.3[3]	13.1[3]	1.63	0.85								
		400	2.4	2.3	7.6[1]	8.3[2]	1.35	0.68	3.9	20.5	5.3	66.3	2.3	8.0	10.9	11.5
					10.3[3]	13.1[3]	1.74	0.96								
		600	2.4	2.3	7.6[1]	8.3[2]	1.51	0.84	3.9	20.5	5.3	66.3	2.3	8.0	13.1	13.6
					10.3[3]	13.1[3]	1.90	1.12								
KGT 20x5	6000	70	2.4	3.0	7.6[1]	10.8[2]	1.04	0.37	3.9	12.0	3.2	50.5	2.3	8.0	6.8	7.3
					10.3[3]	17.1[3]	1.43	0.65								
		100	2.4	3.0	7.6[1]	10.8[2]	1.07	0.40	3.9	12.0	3.2	50.5	2.3	8.0	7.1	7.6
					10.3[3]	17.1[3]	1.46	0.68								
		150	2.4	3.0	7.6[1]	10.8[2]	1.11	0.44	3.9	12.0	3.2	50.5	2.3	8.0	7.7	8.2
					10.3[3]	17.1[3]	1.50	0.72								
		200	2.4	3.0	7.6[1]	10.8[2]	1.15	0.48	3.9	12.0	3.2	50.5	2.3	8.0	8.2	8.7
					10.3[3]	17.1[3]	1.54	0.76								
		300	2.4	3.0	7.6[1]	10.8[2]	1.24	0.57	3.9	12.0	3.2	50.5	2.3	8.0	9.3	9.8
					10.3[3]	17.1[3]	1.63	0.85								
		400	2.4	3.0	7.6[1]	10.8[2]	1.35	0.68	3.9	12.0	3.2	50.5	2.3	8.0	10.9	11.5
					10.3[3]	17.1[3]	1.74	0.96								
		600	2.4	3.0	7.6[1]	10.8[2]	1.51	0.84	3.9	12.0	3.2	50.5	2.3	8.0	13.1	13.6
					10.3[3]	17.1[3]	1.90	1.12								

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.3.3 CMSB50L

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	3.3	2.2	7.6[1]	5.3[2]	1.29	0.37	3.9	30.5	7.4	98.3	3.2	8.0	7.6	8.1
					15.4[3]	13.6[3]	1.68	0.35								
		100	3.3	2.2	7.6[1]	5.3[2]	1.32	0.40	3.9	30.5	7.4	98.3	3.2	8.0	7.9	8.4
					15.4[3]	13.6[3]	1.71	0.38								
		150	3.3	2.2	7.6[1]	5.3[2]	1.36	0.44	3.9	30.5	7.4	98.3	3.2	8.0	8.5	9.0
					15.4[3]	13.6[3]	1.75	0.42								
		200	3.3	2.2	7.6[1]	5.3[2]	1.40	0.48	3.9	30.5	7.4	98.3	3.2	8.0	9.0	9.5
					15.4[3]	13.6[3]	1.79	0.46								
		300	3.3	2.2	7.6[1]	5.3[2]	1.49	0.57	3.9	30.5	7.4	98.3	3.2	8.0	10.1	10.6
					15.4[3]	13.6[3]	1.88	0.55								
		400	3.3	2.2	7.6[1]	5.3[2]	1.60	0.68	3.9	30.5	7.4	98.3	3.2	8.0	11.7	12.2
					15.4[3]	13.6[3]	1.99	0.66								
		600	3.3	2.2	7.6[1]	5.3[2]	1.76	0.84	3.9	30.5	7.4	98.3	3.2	8.0	13.9	14.4
					15.4[3]	13.6[3]	2.15	0.82								
KGT 20x5	4500	70	3.3	3.15	7.6[1]	7.6[2]	1.29	0.37	3.9	14.6	3.6	68	3.2	8.0	7.6	8.1
					15.4[3]	19.5[3]	1.68	0.35								
		100	3.3	3.15	7.6[1]	7.6[2]	1.32	0.40	3.9	14.6	3.6	68	3.2	8.0	7.9	8.4
					15.4[3]	19.5[3]	1.71	0.38								
		150	3.3	3.15	7.6[1]	7.6[2]	1.36	0.44	3.9	14.6	3.6	68	3.2	8.0	8.5	9.0
					15.4[3]	19.5[3]	1.75	0.42								
		200	3.3	3.15	7.6[1]	7.6[2]	1.40	0.48	3.9	14.6	3.6	68	3.2	8.0	9.0	9.5
					15.4[3]	19.5[3]	1.79	0.46								
		300	3.3	3.15	7.6[1]	7.6[2]	1.49	0.57	3.9	14.6	3.6	68	3.2	8.0	10.1	10.6
					15.4[3]	19.5[3]	1.88	0.55								
		400	3.3	3.15	7.6[1]	7.6[2]	1.60	0.68	3.9	14.6	3.6	68	3.2	8.0	11.7	12.2
					15.4[3]	19.5[3]	1.99	0.66								
		600	3.3	3.15	7.6[1]	7.6[2]	1.76	0.84	3.9	14.6	3.6	68	3.2	8.0	13.9	14.4
					15.4[3]	19.5[3]	2.15	0.82								
KGT 20x5	6000	70	3.3	4.2	7.6[1]	10.1[2]	1.29	0.37	3.9	8.2	1.9	51	3.2	8.0	7.6	8.1
					15.4[3]	26.0[3]	1.68	0.35								
		100	3.3	4.2	7.6[1]	10.1[2]	1.32	0.40	3.9	8.2	1.9	51	3.2	8.0	7.9	8.4
					15.4[3]	26.0[3]	1.71	0.38								
		150	3.3	4.2	7.6[1]	10.1[2]	1.36	0.44	3.9	8.2	1.9	51	3.2	8.0	8.5	9.0
					15.4[3]	26.0[3]	1.75	0.42								
		200	3.3	4.2	7.6[1]	10.1[2]	1.40	0.48	3.9	8.2	1.9	51	3.2	8.0	9.0	9.5
					15.4[3]	26.0[3]	1.79	0.46								
		300	3.3	4.2	7.6[1]	10.1[2]	1.49	0.57	3.9	8.2	1.9	51	3.2	8.0	10.1	10.6
					15.4[3]	26.0[3]	1.88	0.55								
		400	3.3	4.2	7.6[1]	10.1[2]	1.60	0.68	3.9	8.2	1.9	51	3.2	8.0	11.7	12.2
					15.4[3]	26.0[3]	1.99	0.66								
		600	3.3	4.2	7.6[1]	10.1[2]	1.76	0.84	3.9	8.2	1.9	51	3.2	8.0	13.9	14.4
					15.4[3]	26.0[3]	2.15	0.82								

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	2.9	2.15	11.1	12.9	1.72	0.57	7.1	36.5	6.79	90	2.4	10	8.8	9.4
		60	2.9	2.15	11.1	12.9	2.29	0.75	7.1	36.5	6.79	90	2.4	10	8.8	9.4
		100	2.9	2.15	11.1	12.9	1.81	0.66	7.1	36.5	6.79	90	2.4	10	9.5	10.1
		100	2.9	2.15	11.1	12.9	2.38	0.84	7.1	36.5	6.79	90	2.4	10	9.5	10.1
		160	2.9	2.15	11.1	12.9	1.94	0.79	7.1	36.5	6.79	90	2.4	10	10.4	11.0
		160	2.9	2.15	11.1	12.9	2.51	0.97	7.1	36.5	6.79	90	2.4	10	10.4	11.0
		180	2.9	2.15	11.1	12.9	1.99	0.84	7.1	36.5	6.79	90	2.4	10	10.9	11.5
		180	2.9	2.15	11.1	12.9	2.56	1.02	7.1	36.5	6.79	90	2.4	10	10.9	11.5
		200	2.9	2.15	11.1	12.9	2.04	0.89	7.1	36.5	6.79	90	2.4	10	11.0	11.6
		200	2.9	2.15	11.1	12.9	2.61	1.07	7.1	36.5	6.79	90	2.4	10	11.0	11.6
		400	2.9	2.15	11.1	12.9	2.50	1.35	7.1	36.5	6.79	90	2.4	10	15.0	15.6
		400	2.9	2.15	11.1	12.9	3.07	1.53	7.1	36.5	6.79	90	2.4	10	15.0	15.6
		600	2.9	2.15	11.1	12.9	2.96	1.81	7.1	36.5	6.79	90	2.4	10	18.0	18.6
		600	2.9	2.15	11.1	12.9	3.53	1.99	7.1	36.5	6.79	90	2.4	10	18.0	18.6
KGT 25x6	4500	60	2.9	3.05	11.1	18.3	1.72	0.57	7.1	18.3	3.34	64	2.4	10	8.8	9.4
		60	2.9	3.05	11.1	18.3	2.29	0.75	7.1	18.3	3.34	64	2.4	10	8.8	9.4
		100	2.9	3.05	11.1	18.3	1.81	0.66	7.1	18.3	3.34	64	2.4	10	9.5	10.1
		100	2.9	3.05	11.1	18.3	2.38	0.84	7.1	18.3	3.34	64	2.4	10	9.5	10.1
		160	2.9	3.05	11.1	18.3	1.94	0.79	7.1	18.3	3.34	64	2.4	10	10.4	11.0
		160	2.9	3.05	11.1	18.3	2.51	0.97	7.1	18.3	3.34	64	2.4	10	10.4	11.0
		180	2.9	3.05	11.1	18.3	1.99	0.84	7.1	18.3	3.34	64	2.4	10	10.9	11.5
		180	2.9	3.05	11.1	18.3	2.56	1.02	7.1	18.3	3.34	64	2.4	10	10.9	11.5
		200	2.9	3.05	11.1	18.3	2.04	0.89	7.1	18.3	3.34	64	2.4	10	11.0	11.6
		200	2.9	3.05	11.1	18.3	2.61	1.07	7.1	18.3	3.34	64	2.4	10	11.0	11.6
		400	2.9	3.05	11.1	18.3	2.50	1.35	7.1	18.3	3.34	64	2.4	10	15.0	15.6
		400	2.9	3.05	11.1	18.3	3.07	1.53	7.1	18.3	3.34	64	2.4	10	15.0	15.6
		600	2.9	3.05	11.1	18.3	2.96	1.81	7.1	18.3	3.34	64	2.4	10	18.0	18.6
		600	2.9	3.05	11.1	18.3	3.53	1.99	7.1	18.3	3.34	64	2.4	10	18.0	18.6
KGT 25x6	6000	60	2.9	3.9	11.1	23.4	1.72	0.57	7.1	11.2	2.1	50	2.4	10	8.8	9.4
		60	2.9	3.9	11.1	23.4	2.29	0.75	7.1	11.2	2.1	50	2.4	10	8.8	9.4
		100	2.9	3.9	11.1	23.4	1.81	0.66	7.1	11.2	2.1	50	2.4	10	9.5	10.1
		100	2.9	3.9	11.1	23.4	2.38	0.84	7.1	11.2	2.1	50	2.4	10	9.5	10.1
		160	2.9	3.9	11.1	23.4	1.94	0.79	7.1	11.2	2.1	50	2.4	10	10.4	11.0
		160	2.9	3.9	11.1	23.4	2.51	0.97	7.1	11.2	2.1	50	2.4	10	10.4	11.0
		180	2.9	3.9	11.1	23.4	1.99	0.84	7.1	11.2	2.1	50	2.4	10	10.9	11.5
		180	2.9	3.9	11.1	23.4	2.56	1.02	7.1	11.2	2.1	50	2.4	10	10.9	11.5
		200	2.9	3.9	11.1	23.4	2.04	0.89	7.1	11.2	2.1	50	2.4	10	11.0	11.6
		200	2.9	3.9	11.1	23.4	2.61	1.07	7.1	11.2	2.1	50	2.4	10	11.0	11.6
		400	2.9	3.9	11.1	23.4	2.50	1.35	7.1	11.2	2.1	50	2.4	10	15.0	15.6
		400	2.9	3.9	11.1	23.4	3.07	1.53	7.1	11.2	2.1	50	2.4	10	15.0	15.6
		600	2.9	3.9	11.1	23.4	2.96	1.81	7.1	11.2	2.1	50	2.4	10	18.0	18.6
		600	2.9	3.9	11.1	23.4	3.53	1.99	7.1	11.2	2.1	50	2.4	10	18.0	18.6

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Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
PGT 20x5	3000	100	2.9	2.15	11.1	12.9	1.62	0.47	7.1	36.5	6.79	90	2.8	10	9.5	10.1
		100	2.9	2.15	11.1	12.9	2.19	0.65	7.1	36.5	6.79	90	2.8	10	9.5	10.1
		200	2.9	2.15	11.1	12.9	1.74	0.59	7.1	36.5	6.79	90	2.8	10	11.0	11.6
		200	2.9	2.15	11.1	12.9	2.31	0.77	7.1	36.5	6.79	90	2.8	10	11.0	11.6
	4500	100	2.9	3.05	11.1	18.3	1.62	0.47	7.1	18.3	3.34	64	2.8	10	9.5	10.1
		100	2.9	3.05	11.1	18.3	2.19	0.65	7.1	18.3	3.34	64	2.8	10	9.5	10.1
		200	2.9	3.05	11.1	18.3	1.74	0.59	7.1	18.3	3.34	64	2.8	10	11.0	11.6
		200	2.9	3.05	11.1	18.3	2.31	0.77	7.1	18.3	3.34	64	2.8	10	11.0	11.6
	6000	100	2.9	3.9	11.1	23.4	1.62	0.47	7.1	11.2	2.1	50	2.8	10	9.5	10.1
		100	2.9	3.9	11.1	23.4	2.19	0.65	7.1	11.2	2.1	50	2.8	10	9.5	10.1
		200	2.9	3.9	11.1	23.4	1.74	0.59	7.1	11.2	2.1	50	2.8	10	11.0	11.6
		200	2.9	3.9	11.1	23.4	2.31	0.77	7.1	11.2	2.1	50	2.8	10	11.0	11.6

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Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	5.3	3.6	11.1[1]	7.9 [2]	2.45	0.53	7.1	22	3.56	100	4.1	10	10.3	10.9
		60	5.3	3.6	21.4[3]	21.6[2]	3.02	0.53	7.1	22	3.56	100	4.1	10	10.3	10.9
		100	5.3	3.6	11.1[1]	7.9[3]	2.55	0.63	7.1	22	3.56	100	4.1	10	11.0	11.6
		100	5.3	3.6	21.4[2]	21.6[2]	3.12	0.63	7.1	22	3.56	100	4.1	10	11.0	11.6
		160	5.3	3.6	11.1[1]	7.9[3]	2.68	0.76	7.1	22	3.56	100	4.1	10	11.9	12.5
		160	5.3	3.6	21.4[2]	21.6[2]	3.25	0.76	7.1	22	3.56	100	4.1	10	11.9	12.5
		180	5.3	3.6	11.1[1]	7.9[3]	2.73	0.81	7.1	22	3.56	100	4.1	10	12.4	13.0
		180	5.3	3.6	21.4[2]	21.6[2]	3.30	0.81	7.1	22	3.56	100	4.1	10	12.4	13.0
		200	5.3	3.6	11.1[1]	7.9[3]	2.78	0.86	7.1	22	3.56	100	4.1	10	12.5	13.1
		200	5.3	3.6	21.4[2]	21.6[2]	3.35	0.86	7.1	22	3.56	100	4.1	10	12.5	13.1
		400	5.3	3.6	11.1[1]	7.9[3]	3.24	1.32	7.1	22	3.56	100	4.1	10	16.5	17.1
		400	5.3	3.6	21.4[2]	21.6[2]	3.81	1.32	7.1	22	3.56	100	4.1	10	16.5	17.1
		600	5.3	3.6	11.1[1]	7.9[3]	3.70	1.78	7.1	22	3.56	100	4.1	10	19.5	20.1
		600	5.3	3.6	21.4[2]	21.6[2]	4.27	1.78	7.1	22	3.56	100	4.1	10	19.5	20.1
KGT 25x6	4500	60	5.3	5.4	11.1[1]	11.9[3]	2.45	0.53	7.1	9.8	1.48	67	4.1	10	10.3	10.9
		60	5.3	5.4	21.4[2]	32.4[2]	3.02	0.53	7.1	9.8	1.48	67	4.1	10	10.3	10.9
		100	5.3	5.4	11.1[1]	11.9[3]	2.55	0.63	7.1	9.8	1.48	67	4.1	10	11.0	11.6
		100	5.3	5.4	21.4[2]	32.4[2]	3.12	0.63	7.1	9.8	1.48	67	4.1	10	11.0	11.6
		160	5.3	5.4	11.1[1]	11.9[3]	2.68	0.76	7.1	9.8	1.48	67	4.1	10	11.9	12.5
		160	5.3	5.4	21.4[2]	32.4[2]	3.25	0.76	7.1	9.8	1.48	67	4.1	10	11.9	12.5
		180	5.3	5.4	11.1[1]	11.9[3]	2.73	0.81	7.1	9.8	1.48	67	4.1	10	12.4	13.0
		180	5.3	5.4	21.4[2]	32.4[2]	3.30	0.81	7.1	9.8	1.48	67	4.1	10	12.4	13.0
		200	5.3	5.4	11.1[1]	11.9[3]	2.78	0.86	7.1	9.8	1.48	67	4.1	10	12.5	13.1
		200	5.3	5.4	21.4[2]	32.4[2]	3.35	0.86	7.1	9.8	1.48	67	4.1	10	12.5	13.1
		400	5.3	5.4	11.1[1]	11.9[3]	3.24	1.32	7.1	9.8	1.48	67	4.1	10	16.5	17.1
		400	5.3	5.4	21.4[2]	32.4[2]	3.81	1.32	7.1	9.8	1.48	67	4.1	10	16.5	17.1
		600	5.3	5.4	11.1[1]	11.9[3]	3.70	1.78	7.1	9.8	1.48	67	4.1	10	19.5	20.1
		600	5.3	5.4	21.4[2]	32.4[2]	4.27	1.78	7.1	9.8	1.48	67	4.1	10	19.5	20.1
KGT 25x6	6000	60	5.3	6.9	11.1[1]	15.2[3]	2.45	0.53	7.1	5.9	0.92	52	4.1	10	10.3	10.9
		60	5.3	6.9	21.4[2]	41.4[2]	3.02	0.53	7.1	5.9	0.92	52	4.1	10	10.3	10.9
		100	5.3	6.9	11.1[1]	15.2[3]	2.55	0.63	7.1	5.9	0.92	52	4.1	10	11.0	11.6
		100	5.3	6.9	21.4[2]	41.4[2]	3.12	0.63	7.1	5.9	0.92	52	4.1	10	11.0	11.6
		160	5.3	6.9	11.1[1]	15.2[3]	2.68	0.76	7.1	5.9	0.92	52	4.1	10	11.9	12.5
		160	5.3	6.9	21.4[2]	41.4[2]	3.25	0.76	7.1	5.9	0.92	52	4.1	10	11.9	12.5
		180	5.3	6.9	11.1[1]	15.2[3]	2.73	0.81	7.1	5.9	0.92	52	4.1	10	12.4	13.0
		180	5.3	6.9	21.4[2]	41.4[2]	3.30	0.81	7.1	5.9	0.92	52	4.1	10	12.4	13.0
		200	5.3	6.9	11.1[1]	15.2[3]	2.78	0.86	7.1	5.9	0.92	52	4.1	10	12.5	13.1
		200	5.3	6.9	21.4[2]	41.4[2]	3.35	0.86	7.1	5.9	0.92	52	4.1	10	12.5	13.1
		400	5.3	6.9	11.1[1]	15.2[3]	3.24	1.32	7.1	5.9	0.92	52	4.1	10	16.5	17.1
		400	5.3	6.9	21.4[2]	41.4[2]	3.81	1.32	7.1	5.9	0.92	52	4.1	10	16.5	17.1
		600	5.3	6.9	11.1[1]	15.2[3]	3.70	1.78	7.1	5.9	0.92	52	4.1	10	19.5	20.1
		600	5.3	6.9	21.4[2]	41.4[2]	4.27	1.78	7.1	5.9	0.92	52	4.1	10	19.5	20.1
PGT 20x5	3000	100	5.3	3.6	11.1[1]	7.9[3]	2.35	0.43	7.1	22	3.56	100	5.2	10	11.0	11.6
		100	5.3	3.6	21.4[2]	21.6[2]	2.92	0.43	7.1	22	3.56	100	5.2	10	11.0	11.6
		200	5.3	3.6	11.1[1]	7.9[3]	2.48	0.56	7.1	22	3.56	100	5.2	10	12.5	13.1
		100	5.3	3.6	21.4[2]	21.6[2]	3.05	0.56	7.1	22	3.56	100	5.2	10	12.5	13.1
PGT 20x5	4500	100	5.3	5.4	11.1[1]	11.9[3]	2.35	0.43	7.1	9.8	1.48	67	5.2	10	11.0	11.6
		100	5.3	5.4	21.4[2]	32.4[2]	2.92	0.43	7.1	9.8	1.48	67	5.2	10	11.0	11.6
		200	5.3	5.4	11.1[1]	11.9[3]	2.48	0.56	7.1	9.8	1.48	67	5.2	10	12.5	13.1
		200	5.3	5.4	21.4[2]	32.4[2]	3.05	0.56	7.1	9.8	1.48	67	5.2	10	12.5	13.1

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot} J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
PGT 20x5	6000	100	5.3	6.9	11.1 1)	15.2 3)	2.35	0.43	7.1	5.9	0.92	52	5.2	10	11.0	11.6
		100	5.3	6.9	21.4 2)	41.4 2)	2.92	0.43	7.1	5.9	0.92	52	5.2	10	11.0	11.6
		200	5.3	6.9	11.1 1)	15.2 3)	2.48	0.56	7.1	5.9	0.92	52	5.2	10	12.5	13.1
		200	5.3	6.9	21.4 2)	41.4 2)	3.05	0.56	7.1	5.9	0.92	52	5.2	10	12.5	13.1

1) Maximum permitted torque
2) Default motor values
3) Maximum permitted current

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7.3.6 CMSB71S

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$			Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	6.4	3.4	19.2	17.0	7.17	7.59	4.14	14	33.5	3.48	128	6.2	18	20.2	21.2
		160	6.4	3.4	19.2	17.0	7.54	7.96	4.51	14	33.5	3.48	128	6.2	18	21.6	23.6
		200	6.4	3.4	19.2	17.0	7.78	8.20	4.75	14	33.5	3.48	128	6.2	18	22.5	24.5
		400	6.4	3.4	19.2	17.0	9.10	9.52	6.07	14	33.5	3.48	128	6.2	18	29.3	30.3
		600	6.4	3.4	19.2	17.0	10.32	10.74	7.29	14	33.5	3.48	128	6.2	18	33.9	34.9
		800	6.4	3.4	19.2	17.0	11.54	11.96	8.51	14	33.5	3.48	128	6.2	18	38.1	39.1
		1000	6.4	3.4	19.2	17.0	12.77	13.19	9.74	14	33.5	3.48	128	6.2	18	42.7	43.7
		1200	6.4	3.4	19.2	17.0	13.99	14.41	10.96	14	33.5	3.48	128	6.2	18	47.3	48.3
KGT 32x6	3000	100	6.4	4.9	19.2	25.0	7.17	7.59	4.14	14	15.7	1.48	87.5	6.2	18	20.2	21.2
		160	6.4	4.9	19.2	25.0	7.54	7.96	4.51	14	15.7	1.48	87.5	6.2	18	21.6	23.6
		200	6.4	4.9	19.2	25.0	7.78	8.20	4.75	14	15.7	1.48	87.5	6.2	18	22.5	24.5
		400	6.4	4.9	19.2	25.0	9.10	9.52	6.07	14	15.7	1.48	87.5	6.2	18	29.3	30.3
		600	6.4	4.9	19.2	25.0	10.32	10.74	7.29	14	15.7	1.48	87.5	6.2	18	33.9	34.9
		800	6.4	4.9	19.2	25.0	11.54	11.96	8.51	14	15.7	1.48	87.5	6.2	18	38.1	39.1
		1000	6.4	4.9	19.2	25.0	12.77	13.19	9.74	14	15.7	1.48	87.5	6.2	18	42.7	43.7
		1200	6.4	4.9	19.2	25.0	13.99	14.41	10.96	14	15.7	1.48	87.5	6.2	18	47.3	48.3
KGT 32x6	4500	100	6.4	7.3	19.2	38.0	7.17	7.59	4.14	14	7.1	0.72	59	6.2	18	20.2	21.2
		160	6.4	7.3	19.2	38.0	7.54	7.96	4.51	14	7.1	0.72	59	6.2	18	21.6	23.6
		200	6.4	7.3	19.2	38.0	7.78	8.20	4.75	14	7.1	0.72	59	6.2	18	22.5	24.5
		400	6.4	7.3	19.2	38.0	9.10	9.52	6.07	14	7.1	0.72	59	6.2	18	29.3	30.3
		600	6.4	7.3	19.2	38.0	10.32	10.74	7.29	14	7.1	0.72	59	6.2	18	33.9	34.9
		800	6.4	7.3	19.2	38.0	11.54	11.96	8.51	14	7.1	0.72	59	6.2	18	38.1	39.1
		1000	6.4	7.3	19.2	38.0	12.77	13.19	9.74	14	7.1	0.72	59	6.2	18	42.7	43.7
		1200	6.4	7.3	19.2	38.0	13.99	14.41	10.96	14	7.1	0.72	59	6.2	18	47.3	48.3
KGT 32x6	6000	100	6.4	9.6	19.2	50.0	7.17	7.59	4.14	14	4.15	0,395	45	6.2	18	20.2	21.2
		160	6.4	9.6	19.2	50.0	7.54	7.96	4.51	14	4.15	0,395	45	6.2	18	21.6	23.6
		200	6.4	9.6	19.2	50.0	7.78	8.20	4.75	14	4.15	0,395	45	6.2	18	22.5	24.5
		400	6.4	9.6	19.2	50.0	9.10	9.52	6.07	14	4.15	0,395	45	6.2	18	29.3	30.3
		600	6.4	9.6	19.2	50.0	10.32	10.74	7.29	14	4.15	0,395	45	6.2	18	33.9	34.9
		800	6.4	9.6	19.2	50.0	11.54	11.96	8.51	14	4.15	0,395	45	6.2	18	38.1	39.1
		1000	6.4	9.6	19.2	50.0	12.77	13.19	9.74	14	4.15	0,395	45	6.2	18	42.7	43.7
		1200	6.4	9.6	19.2	50.0	13.99	14.41	10.96	14	4.15	0,395	45	6.2	18	47.3	48.3

7.3.7 CMSB71M

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$			Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	8.22	8.64	4.14	14	21.5	1.87	127	8.2	24	21.6	22.6
		160	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	8.59	9.01	4.51	14	21.5	1.87	127	8.2	24	23.0	25.0
		200	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	8.83	9.25	4.75	14	21.5	1.87	127	8.2	24	23.9	25.9
		400	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	10.15	10.57	6.07	14	21.5	1.87	127	8.2	24	30.7	31.7
		600	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	11.37	11.79	7.29	14	21.5	1.87	127	8.2	24	35.3	36.3
		800	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	12.59	13.01	8.51	14	21.5	1.87	127	8.2	24	39.5	40.5
		1000	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	13.82	14.24	9.74	14	21.5	1.87	127	8.2	24	44.1	45.1
		1200	9.4	5.0	25.0[1)] (30.8)[2)]	16.5[3)] (26.0)[2)]	15.04	15.46	10.96	14	21.5	1.87	127	8.2	24	48.7	49.7
KGT 32x6	3000	100	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	8.22	8.64	4.14	14	9.7	0.81	85	8.2	24	21.6	22.6
		160	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	8.59	9.01	4.51	14	9.7	0.81	85	8.2	24	23.0	25.0
		200	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	8.83	9.25	4.75	14	9.7	0.81	85	8.2	24	23.9	25.9
		400	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	10.15	10.57	6.07	14	9.7	0.81	85	8.2	24	30.7	31.7
		600	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	11.37	11.79	7.29	14	9.7	0.81	85	8.2	24	35.3	36.3
		800	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	12.59	13.01	8.51	14	9.7	0.81	85	8.2	24	39.5	40.5
		1000	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	13.82	14.24	9.74	14	9.7	0.81	85	8.2	24	44.1	45.1
		1200	9.4	7.5	25.0[1)] (30.8)[2)]	27.0[3)] (39.0)[2)]	15.04	15.46	10.96	14	9.7	0.81	85	8.2	24	48.7	49.7
KGT 32x6	4500	100	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	8.22	8.64	4.14	14	4.55	0,385	58	8.2	24	21.6	22.6
		160	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	8.59	9.01	4.51	14	4.55	0,385	58	8.2	24	23.0	25.0
		200	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	8.83	9.25	4.75	14	4.55	0,385	58	8.2	24	23.9	25.9
		400	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	10.15	10.57	6.07	14	4.55	0,385	58	8.2	24	30.7	31.7
		600	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	11.37	11.79	7.29	14	4.55	0,385	58	8.2	24	35.3	36.3
		800	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	12.59	13.01	8.51	14	4.55	0,385	58	8.2	24	39.5	40.5
		1000	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	13.82	14.24	9.74	14	4.55	0,385	58	8.2	24	44.1	45.1
		1200	9.4	10.9	25.0[1)] (30.8)[2)]	39.2[3)] (57.0)[2)]	15.04	15.46	10.96	14	4.55	0,385	58	8.2	24	48.7	49.7

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$			Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	8.22	8.64	4.14	14	2.55	0,205	43.5	8.2	24	21.6	22.6
		160	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	8.59	9.01	4.51	14	2.55	0,205	43.5	8.2	24	23.0	25.0
		200	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	8.83	9.25	4.75	14	2.55	0,205	43.5	8.2	24	23.9	25.9
		400	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	10.15	10.57	6.07	14	2.55	0,205	43.5	8.2	24	30.7	31.7
		600	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	11.37	11.79	7.29	14	2.55	0,205	43.5	8.2	24	35.3	36.3
		800	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	12.59	13.01	8.51	14	2.55	0,205	43.5	8.2	24	39.5	40.5
		1000	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	13.82	14.24	9.74	14	2.55	0,205	43.5	8.2	24	44.1	45.1
		1200	9.4	14.7	25.0[1] (30.8)[2]	52.9[3] (76.0)[2]	15.04	15.46	10.96	14	2.55	0,205	43.5	8.2	24	48.7	49.7

1) Max. permitted torque
2) Default motor values
3) Max. permitted current

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7.3.8 CMSB71L

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$			Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	13.1	6.3	25.0[1)] (46.9)[2)]	12.7[3)] (39.0)[2)]	10.32	10.74	4.14	14	16.2	1.2	142	12	24	24.6	25.6
		160	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	10.69	11.11	4.51	14	16.2	1.2	142	12	24	26.0	27.0
		200	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	10.93	11.35	4.75	14	16.2	1.2	142	12	24	26.9	27.9
		400	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	12.25	12.67	6.07	14	16.2	1.2	142	12	24	33.7	34.7
		600	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	13.47	13.89	7.29	14	16.2	1.2	142	12	24	38.3	39.3
		800	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	14.69	15.11	8.51	14	16.2	1.2	142	12	24	42.5	43.5
		1000	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	15.92	16.34	9.74	14	16.2	1.2	142	12	24	47.1	48.1
		1200	13.1	6.3	25.0[1)] 46.9[2)]	12.7[3)] (39.0)[2)]	17.14	17.56	10.96	14	16.2	1.2	142	12	24	51.7	52.7
KGT 32x6	3000	100	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	10.32	10.74	4.14	14	7.3	0.56	96	12	24	24.6	25.6
		160	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	10.69	11.11	4.51	14	7.3	0.56	96	12	24	26.0	27.0
		200	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	10.93	11.35	4.75	14	7.3	0.56	96	12	24	26.9	27.9
		400	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	12.25	12.67	6.07	14	7.3	0.56	96	12	24	33.7	34.7
		600	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	13.47	13.89	7.29	14	7.3	0.56	96	12	24	38.3	39.3
		800	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	14.69	15.11	8.51	14	7.3	0.56	96	12	24	42.5	43.5
		1000	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	15.92	16.34	9.74	14	7.3	0.56	96	12	24	47.1	48.1
		1200	13.1	9.4	25.0[1)] (46.9)[2)]	18.8[3)] (58.0)[2)]	17.14	17.56	10.96	14	7.3	0.56	96	12	24	51.7	52.7
KGT 32x6	4500	100	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	10.32	10.74	4.14	14	3.25	0.24	64	12	24	24.6	25.6
		160	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	10.69	11.11	4.51	14	3.25	0.24	64	12	24	26.0	27.0
		200	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	10.93	11.35	4.75	14	3.25	0.24	64	12	24	26.9	27.9
		400	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	12.25	12.67	6.07	14	3.25	0.24	64	12	24	33.7	34.7
		600	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	13.47	13.89	7.29	14	3.25	0.24	64	12	24	38.3	39.3
		800	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	14.69	15.11	8.51	14	3.25	0.24	64	12	24	42.5	43.5
		1000	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	15.92	16.34	9.74	14	3.25	0.24	64	12	24	47.1	48.1
		1200	13.1	14.1	25.0[1)] (46.9)[2)]	28.2[3)] (87.0)[2)]	17.14	17.56	10.96	14	3.25	0.24	64	12	24	51.7	52.7

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Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add} J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²			Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	10.32	10.74	4.14	14	1.84	0,145	48	12	24	24.6	25.6
		160	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	10.69	11.11	4.51	14	1.84	0,145	48	12	24	26.0	27.0
		200	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	10.93	11.35	4.75	14	1.84	0,145	48	12	24	26.9	27.9
		400	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	12.25	12.67	6.07	14	1.84	0,145	48	12	24	33.7	34.7
		600	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	13.47	13.89	7.29	14	1.84	0,145	48	12	24	38.3	39.3
		800	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	14.69	15.11	8.51	14	1.84	0,145	48	12	24	42.5	43.5
		1000	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	15.92	16.34	9.74	14	1.84	0,145	48	12	24	47.1	48.1
		1200	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	17.14	17.56	10.96	14	1.84	0,145	48	12	24	51.7	52.7

1) Max. permitted torque
2) Default motor values
3) Max. permitted current

7.3.9 CMS71L

The following tables show the technical data.

INFORMATION

Stroke length 200 mm → n_{pk} = 3000 min^{-1} (max. mechanical speed)

Stroke length 350 mm → n_{pk} = 2000 min^{-1} (max. mechanical speed)

Spindle	n_N	Stroke length	M_0	I_0	M_{pk}	I_{max}	J_{mot}	J_{bmot}	J_{add}	J_{b_add}	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$				Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	200	9.5	4.2	22.1[1] (31.4)[2]	9.2[3] (16.8)[2]	32.5	37.5	23.3	26.6	19	24	2.5	151	6.7	20	19	20
		350	9.5	4.2	16.6)[1] (31.4)[2]	7.3)[3] (16.8)[2]	45.3	50.3	36.1	39.4	19	24	2.5	151	6.7	15[4]	25	26
	3000	200	9.5	6.2	22.1[1] (31.4)[2]	13.6[3] (25)[2]	32.5	37.5	23.3	26.6	19	11	1.12	102	6.7	20	19	20
		350	9.5	6.2	16.6[1] (31.4)[2]	10.8[3] (25)[2]	45.3	50.3	36.1	39.4	19	11	1.12	102	6.7	15[4]	25	26
	4500	200	9.5	9.6	22.1[1] (31.4)[2]	21.1[3] (38)[2]	32.5	37.5	23.3	26.6	19	4.5	0.5	65	6.7	20	19	20
		350	9.5	9.6	16.6[1] (31.4)[2]	16.8[3] (38)[2]	45.3	50.3	36.1	39.4	19	4.5	0.5	65	6.7	15[4]	25	26
KGT 32x10	2000	200	9.5	4.2	31.4	16.8	32.5	37.5	23.3	26.6	19	24	2.5	151	3.6	17	19	20
	3000	200	9.5	6.2	31.4	25	32.5	37.5	23.3	26.6	19	11	1.12	102	3.6	17	19	20
	4500	200	9.5	9.6	31.4	38	32.5	37.5	23.3	26.6	19	4.5	0.5	65	3.6	17	19	20
PGT 24x5	2000	200	9.5	4.2	24.4[1] (31.4)[2]	10.5[3] (16.8)[4]	32.5	37.5	23.3	26.6	19	24	2.5	151	7.2	20	19	20
	3000	200	9.5	6.2	24.4[1] (31.4)[2]	15.5[3] (25)[2]	32.5	37.5	23.3	26.6	19	11	1.12	102	7.2	20	19	20
	4500	200	9.5	9.6	24.4[1] (31.4)[2]	24[3] (38)[2]	32.5	37.5	23.3	26.6	19	4.5	0.5	65	7.2	20	19	20

1) Max. permitted torque
2) Default motor values
3) Max. permitted current
4) In case of tensile loads, a peak feed force Fpk of 20 kN is possible

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7.3.10 Motors with forced cooling fan

The table below shows the technical data of the CMS.. with forced cooling fan option.

Standard electric cylinders CMSB..

	n_N	M_{0VR}	F_{VR}	I_{0VR}
	min^{-1}	Nm	kN	A
CMSB50S	3000	1..4	1.5	1.0
	4500	1.4	1.5	1.4
	6000	1.4	1.5	1.8
CMSB50M	3000	3.0	3.2	2.1
	4500	3.0	3.2	2.8
	6000	3.0	3.2	3.7
CMSB50L	3000	4.2	4.4	2.7
	4500	4.2	4.4	4.0
	6000	4.2	4.4	5.3
CMSB63S	3000	3.7	2.9	2.7
	4500	3.7	2.9	3.9
	6000	3.7	2.9	4.9
CMSB63M	3000	8.3	6.5	5.7
	4500	8.3	6.5	8.5
	6000	8.3	6.5	10.9
CMSB71S	2000	11.0	8.5	5.8
	3000	11.0	8.5	8.5
	4500	11.0	8.5	12.6
	6000	11.0	8.5	16.6
CMSB71M	2000	14.2	11.0	7.6
	3000	14.2	11.0	11.4
	4500	14.2	11.0	16.5
	6000	14.2	11.0	22.3
CMSB71L	2000	20.7	16.0	10.0
	3000	20.7	16.0	15.0
	4500	20.7	16.0	22.4

7.4 Modular CMSMB.. electric cylinder, system voltage 400 V

NOTICE

Adhere to the maximum permitted torque M_{epk} for electric cylinders of length M and L!

A current limitation is required on the frequency inverter.

INFORMATION

The maximum mechanical speed is n_{epk} = 4500 min^{-1}.

7.4.1 CMSMB50/AP/CMP50S with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{b_mot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{b_mot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	1.2	0.85	5.2	5.1	1.78 1.89	1.36	2.4	71	22.5	86.3	1.1	5.3	7.0	7.4
		100	1.2	0.85	5.2	5.1	1.81 1.92	1.39	2.4	71	22.5	86.3	1.1	5.3	7.3	7.7
		150	1.2	0.85	5.2	5.1	1.85 1.96	1.43	2.4	71	22.5	86.3	1.1	5.3	7.9	8.3
		200	1.2	0.85	5.2	5.1	1.90 2.01	1.48	2.4	71	22.5	86.3	1.1	5.3	8.4	8.8
		300	1.2	0.85	5.2	5.1	1.98 2.09	1.56	2.4	71	22.5	86.3	1.1	5.3	9.5	9.9
		400	1.2	0.85	5.2	5.1	2.09 2.20	1.67	2.4	71	22.5	86.3	1.1	5.3	11.2	11.6
		600	1.2	0.85	5.2	5.1	2.26 2.37	1.84	2.4	71	22.5	86.3	1.1	5.3	13.3	13.7
KGT 20x5	4500	70	1.2	1.2	5.2	7.0	1.78 1.89	1.36	2.4	37	11.6	62.4	1.1	5.3	7.0	7.4
		100	1.2	1.2	5.2	7.0	1.81 1.92	1.39	2.4	37	11.6	62.4	1.1	5.3	7.3	7.7
		150	1.2	1.2	5.2	7.0	1.85 1.96	1.43	2.4	37	11.6	62.4	1.1	5.3	7.9	8.3
		200	1.2	1.2	5.2	7.0	1.90 2.01	1.48	2.4	37	11.6	62.4	1.1	5.3	8.4	8.8
		300	1.2	1.2	5.2	7.0	1.98 2.09	1.56	2.4	37	11.6	62.4	1.1	5.3	9.5	9.9
		400	1.2	1.2	5.2	7.0	2.09 2.20	1.67	2.4	37	11.6	62.4	1.1	5.3	11.2	11.6
		600	1.2	1.2	5.2	7.0	2.26 2.37	1.84	2.4	37	11.6	62.4	1.1	5.3	13.3	13.7

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{b_mot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{b_mot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	6000	70	1.2	1.5	5.2	9.0	1.78	1.36	2.4	22.5	7.1	48.5	1.1	5.3	7.0	7.4
							1.89									
		100	1.2	1.5	5.2	9.0	1.81	1.39	2.4	22.5	7.1	48.5	1.1	5.3	7.3	7.7
							1.92									
		150	1.2	1.5	5.2	9.0	1.85	1.43	2.4	22.5	7.1	48.5	1.1	5.3	7.9	8.3
							1.96									
		200	1.2	1.5	5.2	9.0	1.90	1.48	2.4	22.5	7.1	48.5	1.1	5.3	8.4	8.8
							2.01									
		300	1.2	1.5	5.2	9.0	1.98	1.56	2.4	22.5	7.1	48.5	1.1	5.3	9.5	9.9
							2.09									
		400	1.2	1.5	5.2	9.0	2.09	1.67	2.4	22.5	7.1	48.5	1.1	5.3	11.2	11.6
							2.20									
		600	1.2	1.5	5.2	9.0	2.26	1.84	2.4	22.5	7.1	48.5	1.1	5.3	13.3	13.7
							2.37									

7.4.2 CMSMB50/AP/CMP50S with belt transmission i=36/27 ~ 1.33

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	1.2	0.85	5.2	5.1	1.09 1.20	0.67	2.4	71	22.5	86.3	1.5	7.0	7.0	7.4
		100	1.2	0.85	5.2	5.1	1.11 1.22	0.69	2.4	71	22.5	86.3	1.5	7.0	7.3	7.7
		150	1.2	0.85	5.2	5.1	1.13 1.24	0.71	2.4	71	22.5	86.3	1.5	7.0	7.9	8.3
		200	1.2	0.85	5.2	5.1	1.15 1.26	0.73	2.4	71	22.5	86.3	1.5	7.0	8.4	8.8
		300	1.2	0.85	5.2	5.1	1.20 1.31	0.78	2.4	71	22.5	86.3	1.5	7.0	9.5	9.9
		400	1.2	0.85	5.2	5.1	1.26 1.37	0.84	2.4	71	22.5	86.3	1.5	7.0	11.2	11.6
		600	1.2	0.85	5.2	5.1	1.36 1.47	0.94	2.4	71	22.5	86.3	1.5	7.0	13.3	13.7
KGT 20x5	4500	70	1.2	1.2	5.2	7.0	1.09 1.20	0.67	2.4	37	11.6	62.4	1.5	7.0	7.0	7.4
		100	1.2	1.2	5.2	7.0	1.11 1.22	0.69	2.4	37	11.6	62.4	1.5	7.0	7.3	7.7
		150	1.2	1.2	5.2	7.0	1.13 1.24	0.71	2.4	37	11.6	62.4	1.5	7.0	7.9	8.3
		200	1.2	1.2	5.2	7.0	1.15 1.26	0.73	2.4	37	11.6	62.4	1.5	7.0	8.4	8.8
		300	1.2	1.2	5.2	7.0	1.20 1.31	0.78	2.4	37	11.6	62.4	1.5	7.0	9.5	9.9
		400	1.2	1.2	5.2	7.0	1.26 1.37	0.84	2.4	37	11.6	62.4	1.5	7.0	11.2	11.6
		600	1.2	1.2	5.2	7.0	1.36 1.47	0.94	2.4	37	11.6	62.4	1.5	7.0	13.3	13.7
KGT 20x5	6000	70	1.2	1.5	5.2	9.0	1.09 1.20	0.67	2.4	22.5	7.1	48.5	1.5	7.0	7.0	7.4
		100	1.2	1.5	5.2	9.0	1.11 1.22	0.69	2.4	22.5	7.1	48.5	1.5	7.0	7.3	7.7
		150	1.2	1.5	5.2	9.0	1.13 1.24	0.71	2.4	22.5	7.1	48.5	1.5	7.0	7.9	8.3
		200	1.2	1.5	5.2	9.0	1.15 1.26	0.73	2.4	22.5	7.1	48.5	1.5	7.0	8.4	8.8
		300	1.2	1.5	5.2	9.0	1.20 1.31	0.78	2.4	22.5	7.1	48.5	1.5	7.0	9.5	9.9
		400	1.2	1.5	5.2	9.0	1.26 1.37	0.84	2.4	22.5	7.1	48.5	1.5	7.0	11.2	11.6
		600	1.2	1.5	5.2	9.0	1.36 1.47	0.94	2.4	22.5	7.1	48.5	1.5	7.0	13.3	13.7

7.4.3 CMSMB50/AP/..CMP50M with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} / J_{bmot}	$J_{addition}$ / $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	2.3	1.6	7.6[1]	6.1[2]	2.03	1.36	2.4	38.5	10.0	90.3	2.1	8.0	8	8.4
					10.3[3]	9.6[3]	2.14									
		100	2.3	1.6	7.6[1]	6.1[2]	2.06	1.39	2.4	38.5	10.0	90.3	2.1	8.0	8.3	8.7
					10.3[3]	9.6[3]	2.17									
		150	2.3	1.6	7.6[1]	6.1[2]	2.10	1.43	2.4	38.5	10.0	90.3	2.1	8.0	8.9	9.3
					10.3[3]	9.6[3]	2.21									
		200	2.3	1.6	7.6[1]	6.1[2]	2.15	1.48	2.4	38.5	10.0	90.3	2.1	8.0	9.4	9.8
					10.3[3]	9.6[3]	2.26									
		300	2.3	1.6	7.6[1]	6.1[2]	2.23	1.56	2.4	38.5	10.0	90.3	2.1	8.0	10.5	10.9
					10.3[3]	9.6[3]	2.34									
		400	2.3	1.6	7.6[1]	6.1[2]	2.34	1.67	2.4	38.5	10.0	90.3	2.1	8.0	12.2	12.9
					10.3[3]	9.6[3]	2.45									
		600	2.3	1.6	7.6[1]	6.1[2]	2.51	1.84	2.4	38.5	10.0	90.3	2.1	8.0	14.3	14.7
					10.3[3]	9.6[3]	2.62									
KGT 20x5	4500	70	2.3	2.1	7.6[1]	8.3[2]	2.03	1.36	2.4	20.5	5.3	66.3	2.1	8.0	8	8.4
					10.3[3]	13.1[3]	2.14									
		100	2.3	2.1	7.6[1]	8.3[2]	2.06	1.39	2.4	20.5	5.3	66.3	2.1	8.0	8.3	8.7
					10.3[3]	13.1[3]	2.17									
		150	2.3	2.1	7.6[1]	8.3[2]	2.10	1.43	2.4	20.5	5.3	66.3	2.1	8.0	8.9	9.3
					10.3[3]	13.1[3]	2.21									
		200	2.3	2.1	7.6[1]	8.3[2]	2.15	1.48	2.4	20.5	5.3	66.3	2.1	8.0	9.4	9.8
					10.3[3]	13.1[3]	2.26									
		300	2.3	2.1	7.6[1]	8.3[2]	2.23	1.56	2.4	20.5	5.3	66.3	2.1	8.0	10.5	10.9
					10.3[3]	13.1[3]	2.34									
		400	2.3	2.1	7.6[1]	8.3[2]	2.34	1.67	2.4	20.5	5.3	66.3	2.1	8.0	12.2	12.9
					10.3[3]	13.1[3]	2.45									
		600	2.3	2.1	7.6[1]	8.3[2]	2.51	1.84	2.4	20.5	5.3	66.3	2.1	8.0	14.3	14.7
					10.3[3]	13.1[3]	2.62									
KGT 20x5	6000	70	2.3	2.8	7.6[1]	10.8[2]	2.03	1.36	2.4	12.0	3.2	50.5	2.1	8.0	8	8.4
					10.3[3]	17.1[3]	2.14									
		100	2.3	2.8	7.6[1]	10.8[2]	2.06	1.39	2.4	12.0	3.2	50.5	2.1	8.0	8.3	8.7
					10.3[3]	17.1[3]	2.17									
		150	2.3	2.8	7.6[1]	10.8[2]	2.10	1.43	2.4	12.0	3.2	50.5	2.1	8.0	8.9	9.3
					10.3[3]	17.1[3]	2.21									
		200	2.3	2.8	7.6[1]	10.8[2]	2.15	1.48	2.4	12.0	3.2	50.5	2.1	8.0	9.4	9.8
					10.3[3]	17.1[3]	2.26									
		300	2.3	2.8	7.6[1]	10.8[2]	2.23	1.56	2.4	12.0	3.2	50.5	2.1	8.0	10.5	10.9
					10.3[3]	17.1[3]	2.34									
		400	2.3	2.8	7.6[1]	10.8[2]	2.34	1.67	2.4	12.0	3.2	50.5	2.1	8.0	12.2	12.9
					10.3[3]	17.1[3]	2.45									
		600	2.3	2.8	7.6[1]	10.8[2]	2.51	1.84	2.4	12.0	3.2	50.5	2.1	8.0	14.3	14.7
					10.3[3]	17.1[3]	2.62									

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.4 CMSMB50/AP/..CMP50M with belt transmission i=36/27 ~ 1.33

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	2.3	1.6	5.7[1]	4.2[2]	1.34	0.67	2.4	38.5	10.0	90.3	2.8	8.0	8	8.4
					10.3[3]	9.6[3]	1.45									
		100	2.3	1.6	5.7[1]	4.2[2]	1.36	0.69	2.4	38.5	10.0	90.3	2.8	8.0	8.3	8.7
					10.3[3]	9.6[3]	1.47									
		150	2.3	1.6	5.7[1]	4.2[2]	1.38	0.71	2.4	38.5	10.0	90.3	2.8	8.0	8.9	9.3
					10.3[3]	9.6[3]	1.49									
		200	2.3	1.6	5.7[1]	4.2[2]	1.40	0.73	2.4	38.5	10.0	90.3	2.8	8.0	9.4	9.8
					10.3[3]	9.6[3]	1.51									
		300	2.3	1.6	5.7[1]	4.2[2]	1.45	0.78	2.4	38.5	10.0	90.3	2.8	8.0	10.5	10.9
					10.3[3]	9.6[3]	1.56									
		400	2.3	1.6	5.7[1]	4.2[2]	1.51	0.84	2.4	38.5	10.0	90.3	2.8	8.0	12.2	12.9
					10.3[3]	9.6[3]	1.62									
		600	2.3	1.6	5.7[1]	4.2[2]	1.61	0.94	2.4	38.5	10.0	90.3	2.8	8.0	14.3	14.7
					10.3[3]	9.6[3]	1.72									
KGT 20x5	4500	70	2.3	2.1	5.7[1]	5.8[2]	1.34	0.67	2.4	20.5	5.3	66.3	2.8	8.0	8	8.4
					10.3[3]	13.1[3]	1.45									
		100	2.3	2.1	5.7[1]	5.8[2]	1.36	0.69	2.4	20.5	5.3	66.3	2.8	8.0	8.3	8.7
					10.3[3]	13.1[3]	1.47									
		150	2.3	2.1	5.7[1]	5.8[2]	1.38	0.71	2.4	20.5	5.3	66.3	2.8	8.0	8.9	9.3
					10.3[3]	13.1[3]	1.49									
		200	2.3	2.1	5.7[1]	5.8[2]	1.40	0.73	2.4	20.5	5.3	66.3	2.8	8.0	9.4	9.8
					10.3[3]	13.1[3]	1.51									
		300	2.3	2.1	5.7[1]	5.8[2]	1.45	0.78	2.4	20.5	5.3	66.3	2.8	8.0	10.5	10.9
					10.3[3]	13.1[3]	1.56									
		400	2.3	2.1	5.7[1]	5.8[2]	1.51	0.84	2.4	20.5	5.3	66.3	2.8	8.0	12.2	12.9
					10.3[3]	13.1[3]	1.62									
		600	2.3	2.1	5.7[1]	5.8[2]	1.61	0.94	2.4	20.5	5.3	66.3	2.8	8.0	14.3	14.7
					10.3[3]	13.1[3]	1.72									
	6000	70	2.3	2.8	5.7[1]	5.8[2]	1.34	0.67	2.4	12.0	3.2	50.5	2.8	8.0	8	8.4
					10.3[3]	13.1[3]	1.45									
KGT 20x5	6000	100	2.3	2.8	5.7[1]	7.6[2]	1.36	0.69	2.4	12.0	3.2	50.5	2.8	8.0	8.3	8.7
					10.3[3]	17.1[3]	1.47									
		150	2.3	2.8	5.7[1]	7.6[2]	1.38	0.71	2.4	12.0	3.2	50.5	2.8	8.0	8.9	9.3
					10.3[3]	17.1[3]	1.49									
		200	2.3	2.8	5.7[1]	7.6[2]	1.40	0.73	2.4	12.0	3.2	50.5	2.8	8.0	9.4	9.8
					10.3[3]	17.1[3]	1.51									
		300	2.3	2.8	5.7[1]	7.6[2]	1.45	0.78	2.4	12.0	3.2	50.5	2.8	8.0	10.5	10.9
					10.3[3]	17.1[3]	1.56									
		400	2.3	2.8	5.7[1]	7.6[2]	1.51	0.84	2.4	12.0	3.2	50.5	2.8	8.0	12.2	12.9
					10.3[3]	17.1[3]	1.62									
		600	2.3	2.8	5.7[1]	7.6[2]	1.61	0.94	2.4	12.0	3.2	50.5	2.8	8.0	14.3	14.7
					10.3[3]	17.1[3]	1.72									

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

20176945/EN – 07/2016

7.4.5 CMSMB50/AP/..CMP50L with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	2.6	1.7	7.6[1]	5.3[2]	2.28	1.36	3.9	30.5	7.4	98.3	2.7	8.0	8.8	9.3
					15.4[3]	13.6[3]	2.69									
		100	2.6	1.7	7.6[1]	5.3[2]	2.31	1.39	3.9	30.5	7.4	98.3	2.7	8.0	9.1	9.6
					15.4[3]	13.6[3]	2.72									
		150	2.6	1.7	7.6[1]	5.3[2]	2.35	1.43	3.9	30.5	7.4	98.3	2.7	8.0	9.7	10.2
					15.4[3]	13.6[3]	2.76									
		200	2.6	1.7	7.6[1]	5.3[2]	2.40	1.48	3.9	30.5	7.4	98.3	2.7	8.0	10.2	10.7
					15.4[3]	13.6[3]	2.81									
		300	2.6	1.7	7.6[1]	5.3[2]	2.48	1.56	3.9	30.5	7.4	98.3	2.7	8.0	11.3	11.8
					15.4[3]	13.6[3]	2.89									
		400	2.6	1.7	7.6[1]	5.3[2]	2.59	1.67	3.9	30.5	7.4	98.3	2.7	8.0	13	13.5
					15.4[3]	13.6[3]	3.00									
		600	2.6	1.7	7.6[1]	5.3[2]	2.76	1.84	3.9	30.5	7.4	98.3	2.7	8.0	15.1	15.6
					15.4[3]	13.6[3]	3.17									
KGT 20x5	4500	70	2.6	2.4	7.6[1]	7.6[2]	2.28	1.36	3.9	14.6	3.6	68	2.7	8.0	8.8	9.3
					15.4[3]	19.5[3]	2.69									
		100	2.6	2.4	7.6[1]	7.6[2]	2.31	1.39	3.9	14.6	3.6	68	2.7	8.0	9.1	9.6
					15.4[3]	19.5[3]	2.72									
		150	2.6	2.4	7.6[1]	7.6[2]	2.35	1.43	3.9	14.6	3.6	68	2.7	8.0	9.7	10.2
					15.4[3]	19.5[3]	2.76									
		200	2.6	2.4	7.6[1]	7.6[2]	2.40	1.48	3.9	14.6	3.6	68	2.7	8.0	10.2	10.7
					15.4[3]	19.5[3]	2.81									
		300	2.6	2.4	7.6[1]	7.6[2]	2.48	1.56	3.9	14.6	3.6	68	2.7	8.0	11.3	11.8
					15.4[3]	19.5[3]	2.89									
		400	2.6	2.4	7.6[1]	7.6[2]	2.59	1.67	3.9	14.6	3.6	68	2.7	8.0	13	13.5
					15.4[3]	19.5[3]	3.00									
		600	2.6	2.4	7.6[1]	7.6[2]	2.76	1.84	3.9	14.6	3.6	68	2.7	8.0	15.1	15.6
					15.4[3]	19.5[3]	3.17									
KGT 20x5	6000	70	2.6	3.2	7.6[1]	10.1[2]	2.28	1.36	3.9	8.2	1.9	51	2.7	8.0	8.8	9.3
					15.4[3]	26.0[3]	2.69									
		100	2.6	3.2	7.6[1]	10.1[2]	2.31	1.39	3.9	8.2	1.9	51	2.7	8.0	9.1	9.6
					15.4[3]	26.0[3]	2.72									
		150	2.6	3.2	7.6[1]	10.1[2]	2.35	1.43	3.9	8.2	1.9	51	2.7	8.0	9.7	10.2
					15.4[3]	26.0[3]	2.76									
		200	2.6	3.2	7.6[1]	10.1[2]	2.40	1.48	3.9	8.2	1.9	51	2.7	8.0	10.2	10.7
					15.4[3]	26.0[3]	2.81									
		300	2.6	3.2	7.6[1]	10.1[2]	2.48	1.56	3.9	8.2	1.9	51	2.7	8.0	11.3	11.8
					15.4[3]	26.0[3]	2.89									
		400	2.6	3.2	7.6[1]	10.1[2]	2.59	1.67	3.9	8.2	1.9	51	2.7	8.0	13	13.5
					15.4[3]	26.0[3]	3.00									
		600	2.6	3.2	7.6[1]	10.1[2]	2.76	1.84	3.9	8.2	1.9	51	2.7	8.0	15.1	15.6
					15.4[3]	26.0[3]	3.17									

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

7.4.6 CMSMB50/AP/..CMP50L with belt transmission i=36/27 ~ 1.33

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} / J_{bmot}	$J_{addition}$ / $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 20x5	3000	70	2.6	1.7	5.7[1)]	3.8[2)]	1.59	0.67	3.9	30.5	7.4	98.3	3.6	8.0	8.8	9.3
					15.4[3)]	13.6[3)]	2.00									
		100	2.6	1.7	5.7[1)]	3.8[2)]	1.61	0.69	3.9	30.5	7.4	98.3	3.6	8.0	9.1	9.6
					15.4[3)]	13.6[3)]	2.02									
		150	2.6	1.7	5.7[1)]	3.8[2)]	1.63	0.71	3.9	30.5	7.4	98.3	3.6	8.0	9.7	10.2
					15.4[3)]	13.6[3)]	2.04									
		200	2.6	1.7	5.7[1)]	3.8[2)]	1.65	0.73	3.9	30.5	7.4	98.3	3.6	8.0	10.2	10.7
					15.4[3)]	13.6[3)]	2.06									
		300	2.6	1.7	5.7[1)]	3.8[2)]	1.70	0.78	3.9	30.5	7.4	98.3	3.6	8.0	11.3	11.8
					15.4[3)]	13.6[3)]	2.11									
		400	2.6	1.7	5.7[1)]	3.8[2)]	1.76	0.84	3.9	30.5	7.4	98.3	3.6	8.0	13	13.5
					15.4[3)]	13.6[3)]	2.17									
		600	2.6	1.7	5.7[1)]	3.8[2)]	1.86	0.94	3.9	30.5	7.4	98.3	3.6	8.0	15.1	15.6
					15.4[3)]	13.6[3)]	2.27									
KGT 20x5	4500	70	2.6	2.4	5.7[1)]	5.5[2)]	1.59	0.67	3.9	14.6	3.6	68	3.6	8.0	8.8	9.3
					15.4[3)]	19.5[3)]	2.00									
		100	2.6	2.4	5.7[1)]	5.5[2)]	1.61	0.69	3.9	14.6	3.6	68	3.6	8.0	9.1	9.6
					15.4[3)]	19.5[3)]	2.02									
		150	2.6	2.4	5.7[1)]	5.5[2)]	1.63	0.71	3.9	14.6	3.6	68	3.6	8.0	9.7	10.2
					15.4[3)]	19.5[3)]	2.04									
		200	2.6	2.4	5.7[1)]	5.5[2)]	1.65	0.73	3.9	14.6	3.6	68	3.6	8.0	10.2	10.7
					15.4[3)]	19.5[3)]	2.06									
		300	2.6	2.4	5.7[1)]	5.5[2)]	1.70	0.78	3.9	14.6	3.6	68	3.6	8.0	11.3	11.8
					15.4[3)]	19.5[3)]	2.11									
		400	2.6	2.4	5.7[1)]	5.5[2)]	1.76	0.84	3.9	14.6	3.6	68	3.6	8.0	13	13.5
					15.4[3)]	19.5[3)]	2.17									
		600	2.6	2.4	5.7[1)]	5.5[2)]	1.86	0.94	3.9	14.6	3.6	68	3.6	8.0	15.1	15.6
					15.4[3)]	19.5[3)]	2.27									
KGT 20x5	6000	70	2.6	3.2	5.7[1)]	7.3[2)]	1.59	0.67	3.9	8.2	1.9	51	3.6	8.0	8.8	9.3
					15.4[3)]	26.0[3)]	2.00									
		100	2.6	3.2	5.7[1)]	7.3[2)]	1.61	0.69	3.9	8.2	1.9	51	3.6	8.0	9.1	9.6
					15.4[3)]	26.0[3)]	2.02									
		150	2.6	3.2	5.7[1)]	7.3[2)]	1.63	0.71	3.9	8.2	1.9	51	3.6	8.0	9.7	10.2
					15.4[3)]	26.0[3)]	2.04									
		200	2.6	3.2	5.7[1)]	7.3[2)]	1.65	0.73	3.9	8.2	1.9	51	3.6	8.0	10.2	10.7
					15.4[3)]	26.0[3)]	2.06									
		300	2.6	3.2	5.7[1)]	7.3[2)]	1.70	0.78	3.9	8.2	1.9	51	3.6	8.0	11.3	11.8
					15.4[3)]	26.0[3)]	2.11									
		400	2.6	3.2	5.7[1)]	7.3[2)]	1.76	0.84	3.9	8.2	1.9	51	3.6	8.0	13	13.5
					15.4[3)]	26.0[3)]	2.17									
		600	2.6	3.2	5.7[1)]	7.3[2)]	1.86	0.94	3.9	8.2	1.9	51	3.6	8.0	15.1	15.6
					15.4[3)]	26.0[3)]	2.27									

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.7 CMSMB63/AP with CMP63S with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	2.9	2.15	11.1	12.9	4.09	3.19	3.8	36.5	6.79	90	2.1	10	11.5	12.1
		60	2.9	2.15	11.1	12.9	4.39	3.19	3.8	36.5	6.79	90	2.1	10	11.5	12.1
		100	2.9	2.15	11.1	12.9	4.18	3.28	3.8	36.5	6.79	90	2.1	10	12.2	12.8
		100	2.9	2.15	11.1	12.9	4.48	3.28	3.8	36.5	6.79	90	2.1	10	12.2	12.8
		160	2.9	2.15	11.1	12.9	4.32	3.42	3.8	36.5	6.79	90	2.1	10	13.1	13.7
		160	2.9	2.15	11.1	12.9	4.62	3.42	3.8	36.5	6.79	90	2.1	10	13.1	13.7
		180	2.9	2.15	11.1	12.9	4.37	3.47	3.8	36.5	6.79	90	2.1	10	13.6	14.2
		180	2.9	2.15	11.1	12.9	4.67	3.47	3.8	36.5	6.79	90	2.1	10	13.6	14.2
		200	2.9	2.15	11.1	12.9	4.41	3.51	3.8	36.5	6.79	90	2.1	10	14.4	15.0
		200	2.9	2.15	11.1	12.9	4.71	3.51	3.8	36.5	6.79	90	2.1	10	14.4	15.0
		400	2.9	2.15	11.1	12.9	4.90	4.00	3.8	36.5	6.79	90	2.1	10	18.0	18.6
		400	2.9	2.15	11.1	12.9	5.20	4.00	3.8	36.5	6.79	90	2.1	10	18.0	18.6
		600	2.9	2.15	11.1	12.9	5.36	4.46	3.8	36.5	6.79	90	2.1	10	21.3	21.9
		600	2.9	2.15	11.1	12.9	5.66	4.46	3.8	36.5	6.79	90	2.1	10	21.3	21.9
KGT 25x6	4500	60	2.9	3.05	11.1	18.3	4.09	3.19	3.8	18.3	3.34	64	2.1	10	11.5	12.1
		60	2.9	3.05	11.1	18.3	4.39	3.19	3.8	18.3	3.34	64	2.1	10	11.5	12.1
		100	2.9	3.05	11.1	18.3	4.18	3.28	3.8	18.3	3.34	64	2.1	10	12.2	12.8
		100	2.9	3.05	11.1	18.3	4.48	3.28	3.8	18.3	3.34	64	2.1	10	12.2	12.8
		160	2.9	3.05	11.1	18.3	4.32	3.42	3.8	18.3	3.34	64	2.1	10	13.1	13.7
		160	2.9	3.05	11.1	18.3	4.62	3.42	3.8	18.3	3.34	64	2.1	10	13.1	13.7
		180	2.9	3.05	11.1	18.3	4.37	3.47	3.8	18.3	3.34	64	2.1	10	13.6	14.2
		180	2.9	3.05	11.1	18.3	4.67	3.47	3.8	18.3	3.34	64	2.1	10	13.6	14.2
		200	2.9	3.05	11.1	18.3	4.41	3.51	3.8	18.3	3.34	64	2.1	10	14.4	15.0
		200	2.9	3.05	11.1	18.3	4.71	3.51	3.8	18.3	3.34	64	2.1	10	14.4	15.0
		400	2.9	3.05	11.1	18.3	4.90	4.00	3.8	18.3	3.34	64	2.1	10	18.0	18.6
		400	2.9	3.05	11.1	18.3	5.20	4.00	3.8	18.3	3.34	64	2.1	10	18.0	18.6
		600	2.9	3.05	11.1	18.3	5.36	4.46	3.8	18.3	3.34	64	2.1	10	21.3	21.9
		600	2.9	3.05	11.1	18.3	5.66	4.46	3.8	18.3	3.34	64	2.1	10	21.3	21.9
KGT25 x6	6000	60	2.9	3.9	11.1	23.4	4.09	3.19	3.8	11.2	2.1	50	2.1	10	11.5	12.1
		60	2.9	3.9	11.1	23.4	4.39	3.19	3.8	11.2	2.1	50	2.1	10	11.5	12.1
		100	2.9	3.9	11.1	23.4	4.18	3.28	3.8	11.2	2.1	50	2.1	10	12.2	12.8
		100	2.9	3.9	11.1	23.4	4.48	3.28	3.8	11.2	2.1	50	2.1	10	12.2	12.8
		160	2.9	3.9	11.1	23.4	4.32	3.42	3.8	11.2	2.1	50	2.1	10	13.1	13.7
		160	2.9	3.9	11.1	23.4	4.62	3.42	3.8	11.2	2.1	50	2.1	10	13.1	13.7
		180	2.9	3.9	11.1	23.4	4.37	3.47	3.8	11.2	2.1	50	2.1	10	13.6	14.2
		180	2.9	3.9	11.1	23.4	4.67	3.47	3.8	11.2	2.1	50	2.1	10	13.6	14.2
		200	2.9	3.9	11.1	23.4	4.41	3.51	3.8	11.2	2.1	50	2.1	10	14.4	15.0
		200	2.9	3.9	11.1	23.4	4.71	3.51	3.8	11.2	2.1	50	2.1	10	14.4	15.0
		400	2.9	3.9	11.1	23.4	4.90	4.00	3.8	11.2	2.1	50	2.1	10	18.0	18.6
		400	2.9	3.9	11.1	23.4	5.20	4.00	3.8	11.2	2.1	50	2.1	10	18.0	18.6
		600	2.9	3.9	11.1	23.4	5.36	4.46	3.8	11.2	2.1	50	2.1	10	21.3	21.9
		600	2.9	3.9	11.1	23.4	5.66	4.46	3.8	11.2	2.1	50	2.1	10	21.3	21.9

7.4.8 CMSMB63/AP with CMP63S with belt transmission i = 41/25 ~ 1.64

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	5.3	3.6	6.8[1]	4.7[2]	2.76	1.43	7.1	22	3.56	100	5.7	10	13.2	14.0
		60	5.3	3.6	21.4[3]	21.6[3]	3.33	1.43	7.1	22	3.56	100	5.7	10	13.2	14.0
		100	5.3	3.6	6.8[1]	4.7[2]	2.79	1.46	7.1	22	3.56	100	5.7	10	13.9	14.7
		100	5.3	3.6	21.4[3]	21.6[3]	3.36	1.46	7.1	22	3.56	100	5.7	10	13.9	14.7
		160	5.3	3.6	6.8[1]	4.7[2]	2.84	1.51	7.1	22	3.56	100	5.7	10	14.8	15.6
		160	5.3	3.6	21.4[3]	21.6[3]	3.41	1.51	7.1	22	3.56	100	5.7	10	14.8	15.6
		180	5.3	3.6	6.8[1]	4.7[2]	2.86	1.53	7.1	22	3.56	100	5.7	10	15.3	16.1
		180	5.3	3.6	21.4[3]	21.6[3]	3.43	1.53	7.1	22	3.56	100	5.7	10	15.3	16.1
		200	5.3	3.6	6.8[1]	4.7[2]	2.88	1.55	7.1	22	3.56	100	5.7	10	16.1	16.9
		200	5.3	3.6	21.4[3]	21.6[3]	3.45	1.55	7.1	22	3.56	100	5.7	10	16.1	16.9
		400	5.3	3.6	6.8[1]	4.7[2]	3.06	1.73	7.1	22	3.56	100	5.7	10	19.7	20.5
		400	5.3	3.6	21.4[3]	21.6[3]	3.63	1.73	7.1	22	3.56	100	5.7	10	19.7	20.5
		600	5.3	3.6	6.8[1]	4.7[2]	3.23	1.90	7.1	22	3.56	100	5.7	10	23.0	23.8
		600	5.3	3.6	21.4[3]	21.6[3]	3.80	1.90	7.1	22	3.56	100	5.7	10	23.0	23.8
KGT 25x6	4500	60	5.3	5.4	6.8[1]	7.0[2]	2.76	1.43	7.1	9.8	1.48	67	5.7	10	13.2	14.0
		60	5.3	5.4	21.4[3]	32.4[3]	3.33	1.43	7.1	9.8	1.48	67	5.7	10	13.2	14.0
		100	5.3	5.4	6.8[1]	7.0[2]	2.79	1.46	7.1	9.8	1.48	67	5.7	10	13.9	14.7
		100	5.3	5.4	21.4[3]	32.4[3]	3.36	1.46	7.1	9.8	1.48	67	5.7	10	13.9	14.7
		160	5.3	5.4	6.8[1]	7.0[2]	2.84	1.51	7.1	9.8	1.48	67	5.7	10	14.8	15.6
		160	5.3	5.4	21.4[3]	32.4[3]	3.41	1.51	7.1	9.8	1.48	67	5.7	10	14.8	15.6
		180	5.3	5.4	6.8[1]	7.0[2]	2.86	1.53	7.1	9.8	1.48	67	5.7	10	15.3	16.1
		180	5.3	5.4	21.4[3]	32.4[3]	3.43	1.53	7.1	9.8	1.48	67	5.7	10	15.3	16.1
		200	5.3	5.4	6.8[1]	7.0[2]	2.88	1.55	7.1	9.8	1.48	67	5.7	10	16.1	16.9
		200	5.3	5.4	21.4[3]	32.4[3]	3.45	1.55	7.1	9.8	1.48	67	5.7	10	16.1	16.9
		400	5.3	5.4	6.8[1]	7.0[2]	3.06	1.73	7.1	9.8	1.48	67	5.7	10	19.7	20.5
		400	5.3	5.4	21.4[3]	32.4[3]	3.63	1.73	7.1	9.8	1.48	67	5.7	10	19.7	20.5
		600	5.3	5.4	6.8[1]	7.0[2]	3.23	1.90	7.1	9.8	1.48	67	5.7	10	23.0	23.8
		600	5.3	5.4	21.4[3]	32.4[3]	3.80	1.90	7.1	9.8	1.48	67	5.7	10	23.0	23.8
KGT 25x6	6000	60	5.3	6.9	6.8[1]	9.0[2]	2.76	1.43	7.1	5.9	0.92	52	5.7	10	13.2	14.0
		60	5.3	6.9	21.4[3]	41.4[3]	3.33	1.43	7.1	5.9	0.92	52	5.7	10	13.2	14.0
		100	5.3	6.9	6.8[1]	9.0[2]	2.79	1.46	7.1	5.9	0.92	52	5.7	10	13.9	14.7
		100	5.3	6.9	21.4[3]	41.4[3]	3.36	1.46	7.1	5.9	0.92	52	5.7	10	13.9	14.7
		160	5.3	6.9	6.8[1]	9.0[2]	2.84	1.51	7.1	5.9	0.92	52	5.7	10	14.8	15.6
		160	5.3	6.9	21.4[3]	41.4[3]	3.41	1.51	7.1	5.9	0.92	52	5.7	10	14.8	15.6
		180	5.3	6.9	6.8[1]	9.0[2]	2.86	1.53	7.1	5.9	0.92	52	5.7	10	15.3	16.1
		180	5.3	6.9	21.4[3]	41.4[3]	3.43	1.53	7.1	5.9	0.92	52	5.7	10	15.3	16.1
		200	5.3	6.9	6.8[1]	9.0[2]	2.88	1.55	7.1	5.9	0.92	52	5.7	10	16.1	16.9
		200	5.3	6.9	21.4[3]	41.4[3]	3.45	1.55	7.1	5.9	0.92	52	5.7	10	16.1	16.9
		400	5.3	6.9	6.8[1]	9.0[2]	3.06	1.73	7.1	5.9	0.92	52	5.7	10	19.7	20.5
		400	5.3	6.9	21.4[3]	41.4[3]	3.63	1.73	7.1	5.9	0.92	52	5.7	10	19.7	20.5
		600	5.3	6.9	6.8[1]	9.0[2]	3.23	1.90	7.1	5.9	0.92	52	5.7	10	23.0	23.8
		600	5.3	6.9	21.4[3]	41.4[3]	3.80	1.90	7.1	5.9	0.92	52	5.7	10	23.0	23.8

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.9 CMSMB63/AP with CMP63M with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	5.3	3.6	11.1[1]	7.9[2]	4.79	3.46	7.1	22	3.56	100	3.5	10	13.2	14.0
		60	5.3	3.6	21.4[3]	21.6[2]	5.36	3.46	7.1	22	3.56	100	3.5	10	13.2	14.0
		100	5.3	3.6	11.1[1]	7.9[3]	4.88	3.55	7.1	22	3.56	100	3.5	10	13.9	14.7
		100	5.3	3.6	21.4[2]	21.6[2]	5.45	3.55	7.1	22	3.56	100	3.5	10	13.9	14.7
		160	5.3	3.6	11.1[1]	7.9[3]	5.02	3.69	7.1	22	3.56	100	3.5	10	14.8	15.6
		160	5.3	3.6	21.4[2]	21.6[2]	5.59	3.69	7.1	22	3.56	100	3.5	10	14.8	15.6
		180	5.3	3.6	11.1[1]	7.9[3]	5.07	3.74	7.1	22	3.56	100	3.5	10	15.3	16.1
		180	5.3	3.6	21.4[2]	21.6[2]	5.64	3.74	7.1	22	3.56	100	3.5	10	15.3	16.1
		200	5.3	3.6	11.1[1]	7.9[3]	5.11	3.78	7.1	22	3.56	100	3.5	10	16.1	16.9
		200	5.3	3.6	21.4[2]	21.6[2]	5.68	3.78	7.1	22	3.56	100	3.5	10	16.1	16.9
		400	5.3	3.6	11.1[1]	7.9[3]	5.60	4.27	7.1	22	3.56	100	3.5	10	19.7	20.5
		400	5.3	3.6	21.4[2]	21.6[2]	6.17	4.27	7.1	22	3.56	100	3.5	10	19.7	20.5
		600	5.3	3.6	11.1[1]	7.9[3]	6.06	4.73	7.1	22	3.56	100	3.5	10	23.0	23.8
		600	5.3	3.6	21.4[2]	21.6[2]	6.63	4.73	7.1	22	3.56	100	3.5	10	23.0	23.8
KGT 25x6	4500	60	5.3	5.4	11.1[1]	11.9[3]	4.79	3.46	7.1	9.8	1.48	67	3.5	10	13.2	14.0
		60	5.3	5.4	21.4[2]	32.4[2]	5.36	3.46	7.1	9.8	1.48	67	3.5	10	13.2	14.0
		100	5.3	5.4	11.1[1]	11.9[3]	4.88	3.55	7.1	9.8	1.48	67	3.5	10	13.9	14.7
		100	5.3	5.4	21.4[2]	32.4[2]	5.45	3.55	7.1	9.8	1.48	67	3.5	10	13.9	14.7
		160	5.3	5.4	11.1[1]	11.9[3]	5.02	3.69	7.1	9.8	1.48	67	3.5	10	14.8	15.6
		160	5.3	5.4	21.4[2]	32.4[2]	5.59	3.69	7.1	9.8	1.48	67	3.5	10	14.8	15.6
		180	5.3	5.4	11.1[1]	11.9[3]	5.07	3.74	7.1	9.8	1.48	67	3.5	10	15.3	16.1
		180	5.3	5.4	21.4[2]	32.4[2]	5.64	3.74	7.1	9.8	1.48	67	3.5	10	15.3	16.1
		200	5.3	5.4	11.1[1]	11.9[3]	5.11	3.78	7.1	9.8	1.48	67	3.5	10	16.1	16.9
		200	5.3	5.4	21.4[2]	32.4[2]	5.68	3.78	7.1	9.8	1.48	67	3.5	10	16.1	16.9
		400	5.3	5.4	11.1[1]	11.9[3]	5.60	4.27	7.1	9.8	1.48	67	3.5	10	19.7	20.5
		400	5.3	5.4	21.4[2]	32.4[2]	6.17	4.27	7.1	9.8	1.48	67	3.5	10	19.7	20.5
		600	5.3	5.4	11.1[1]	11.9[3]	6.06	4.73	7.1	9.8	1.48	67	3.5	10	23.0	23.8
		600	5.3	5.4	21.4[2]	32.4[2]	6.63	4.73	7.1	9.8	1.48	67	3.5	10	23.0	23.8
KGT 25x6	6000	60	5.3	6.9	11.1[1]	15.2[3]	4.79	3.46	7.1	5.9	0.92	52	3.5	10	13.2	14.0
		60	5.3	6.9	21.4[2]	41.4[2]	5.36	3.46	7.1	5.9	0.92	52	3.5	10	13.2	14.0
		100	5.3	6.9	11.1[1]	15.2[3]	4.88	3.55	7.1	5.9	0.92	52	3.5	10	13.9	14.7
		100	5.3	6.9	21.4[2]	41.4[2]	5.45	3.55	7.1	5.9	0.92	52	3.5	10	13.9	14.7
		160	5.3	6.9	11.1[1]	15.2[3]	5.02	3.69	7.1	5.9	0.92	52	3.5	10	14.8	15.6
		160	5.3	6.9	21.4[2]	41.4[2]	5.59	3.69	7.1	5.9	0.92	52	3.5	10	14.8	15.6
		180	5.3	6.9	11.1[1]	15.2[3]	5.07	3.74	7.1	5.9	0.92	52	3.5	10	15.3	16.1
		180	5.3	6.9	21.4[2]	41.4[2]	5.64	3.74	7.1	5.9	0.92	52	3.5	10	15.3	16.1
		200	5.3	6.9	11.1[1]	15.2[3]	5.11	3.78	7.1	5.9	0.92	52	3.5	10	16.1	16.9
		200	5.3	6.9	21.4[2]	41.4[2]	5.68	3.78	7.1	5.9	0.92	52	3.5	10	16.1	16.9
		400	5.3	6.9	11.1[1]	15.2[3]	5.60	4.27	7.1	5.9	0.92	52	3.5	10	19.7	20.5
		400	5.3	6.9	21.4[2]	41.4[2]	6.17	4.27	7.1	5.9	0.92	52	3.5	10	19.7	20.5
		600	5.3	6.9	11.1[1]	15.2[3]	6.06	4.73	7.1	5.9	0.92	52	3.5	10	23.0	23.8
		600	5.3	6.9	21.4[2]	41.4[2]	6.63	4.73	7.1	5.9	0.92	52	3.5	10	23.0	23.8

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.10 CMSMB63/AP with CMP63M with belt transmission i = 41/25 ~ 1.64

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	5.3	3.6	6.8[1]	4.7[2]	2.76	1.43	7.1	22	3.56	100	5.7	10	13.2	14.0
		60	5.3	3.6	21.4[3]	21.6[3]	3.33	1.43	7.1	22	3.56	100	5.7	10	13.2	14.0
		100	5.3	3.6	6.8[1]	4.7[2]	2.79	1.46	7.1	22	3.56	100	5.7	10	13.9	14.7
		100	5.3	3.6	21.4[3]	21.6[3]	3.36	1.46	7.1	22	3.56	100	5.7	10	13.9	14.7
		160	5.3	3.6	6.8[1]	4.7[2]	2.84	1.51	7.1	22	3.56	100	5.7	10	14.8	15.6
		160	5.3	3.6	21.4[3]	21.6[3]	3.41	1.51	7.1	22	3.56	100	5.7	10	14.8	15.6
		180	5.3	3.6	6.8[1]	4.7[2]	2.86	1.53	7.1	22	3.56	100	5.7	10	15.3	16.1
		180	5.3	3.6	21.4[3]	21.6[3]	3.43	1.53	7.1	22	3.56	100	5.7	10	15.3	16.1
		200	5.3	3.6	6.8[1]	4.7[2]	2.88	1.55	7.1	22	3.56	100	5.7	10	16.1	16.9
		200	5.3	3.6	21.4[3]	21.6[3]	3.45	1.55	7.1	22	3.56	100	5.7	10	16.1	16.9
		400	5.3	3.6	6.8[1]	4.7[2]	3.06	1.73	7.1	22	3.56	100	5.7	10	19.7	20.5
		400	5.3	3.6	21.4[3]	21.6[3]	3.63	1.73	7.1	22	3.56	100	5.7	10	19.7	20.5
		600	5.3	3.6	6.8[1]	4.7[2]	3.23	1.90	7.1	22	3.56	100	5.7	10	23.0	23.8
		600	5.3	3.6	21.4[3]	21.6[3]	3.80	1.90	7.1	22	3.56	100	5.7	10	23.0	23.8
KGT 25x6	4500	60	5.3	5.4	6.8[1]	7.0[2]	2.76	1.43	7.1	9.8	1.48	67	5.7	10	13.2	14.0
		60	5.3	5.4	21.4[3]	32.4[3]	3.33	1.43	7.1	9.8	1.48	67	5.7	10	13.2	14.0
		100	5.3	5.4	6.8[1]	7.0[2]	2.79	1.46	7.1	9.8	1.48	67	5.7	10	13.9	14.7
		100	5.3	5.4	21.4[3]	32.4[3]	3.36	1.46	7.1	9.8	1.48	67	5.7	10	13.9	14.7
		160	5.3	5.4	6.8[1]	7.0[2]	2.84	1.51	7.1	9.8	1.48	67	5.7	10	14.8	15.6
		160	5.3	5.4	21.4[3]	32.4[3]	3.41	1.51	7.1	9.8	1.48	67	5.7	10	14.8	15.6
		180	5.3	5.4	6.8[1]	7.0[2]	2.86	1.53	7.1	9.8	1.48	67	5.7	10	15.3	16.1
		180	5.3	5.4	21.4[3]	32.4[3]	3.43	1.53	7.1	9.8	1.48	67	5.7	10	15.3	16.1
		200	5.3	5.4	6.8[1]	7.0[2]	2.88	1.55	7.1	9.8	1.48	67	5.7	10	16.1	16.9
		200	5.3	5.4	21.4[3]	32.4[3]	3.45	1.55	7.1	9.8	1.48	67	5.7	10	16.1	16.9
		400	5.3	5.4	6.8[1]	7.0[2]	3.06	1.73	7.1	9.8	1.48	67	5.7	10	19.7	20.5
		400	5.3	5.4	21.4[3]	32.4[3]	3.63	1.73	7.1	9.8	1.48	67	5.7	10	19.7	20.5
		600	5.3	5.4	6.8[1]	7.0[2]	3.23	1.90	7.1	9.8	1.48	67	5.7	10	23.0	23.8
		600	5.3	5.4	21.4[3]	32.4[3]	3.80	1.90	7.1	9.8	1.48	67	5.7	10	23.0	23.8
KGT 25x6	6000	60	5.3	6.9	6.8[1]	9.0[2]	2.76	1.43	7.1	5.9	0.92	52	5.7	10	13.2	14.0
		60	5.3	6.9	21.4[3]	41.4[3]	3.33	1.43	7.1	5.9	0.92	52	5.7	10	13.2	14.0
		100	5.3	6.9	6.8[1]	9.0[2]	2.79	1.46	7.1	5.9	0.92	52	5.7	10	13.9	14.7
		100	5.3	6.9	21.4[3]	41.4[3]	3.36	1.46	7.1	5.9	0.92	52	5.7	10	13.9	14.7
		160	5.3	6.9	6.8[1]	9.0[2]	2.84	1.51	7.1	5.9	0.92	52	5.7	10	14.8	15.6
		160	5.3	6.9	21.4[3]	41.4[3]	3.41	1.51	7.1	5.9	0.92	52	5.7	10	14.8	15.6
		180	5.3	6.9	6.8[1]	9.0[2]	2.86	1.53	7.1	5.9	0.92	52	5.7	10	15.3	16.1
		180	5.3	6.9	21.4[3]	41.4[3]	3.43	1.53	7.1	5.9	0.92	52	5.7	10	15.3	16.1
		200	5.3	6.9	6.8[1]	9.0[2]	2.88	1.55	7.1	5.9	0.92	52	5.7	10	16.1	16.9
		200	5.3	6.9	21.4[3]	41.4[3]	3.45	1.55	7.1	5.9	0.92	52	5.7	10	16.1	16.9
		400	5.3	6.9	6.8[1]	9.0[2]	3.06	1.73	7.1	5.9	0.92	52	5.7	10	19.7	20.5
		400	5.3	6.9	21.4[3]	41.4[3]	3.63	1.73	7.1	5.9	0.92	52	5.7	10	19.7	20.5
		600	5.3	6.9	6.8[1]	9.0[2]	3.23	1.90	7.1	5.9	0.92	52	5.7	10	23.0	23.8
		600	5.3	6.9	21.4[3]	41.4[3]	3.80	1.90	7.1	5.9	0.92	52	5.7	10	23.0	23.8

1) Max. permitted torque
2) Max. permitted current
3) Default motor values

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7.4.11 CMSMB63/AP with CMP63L with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	7.1	4.95	11.1[1]	7.9[2]	5.59	3.46	7.1	14.2	2.07	100	5.0	10	15.0	15.8
		60	7.1	4.95	30.4[3]	29.7[3]	6.16	3.46	7.1	14.2	2.07	100	5.0	10	15.0	15.8
		100	7.1	4.95	11.1[1]	7.9[2]	5.68	3.55	7.1	14.2	2.07	100	5.0	10	15.7	16.5
		100	7.1	4.95	30.4[3]	29.7[3]	6.25	3.55	7.1	14.2	2.07	100	5.0	10	15.7	16.5
		160	7.1	4.95	11.1[1]	7.9[2]	5.82	3.69	7.1	14.2	2.07	100	5.0	10	16.6	17.4
		160	7.1	4.95	30.4[3]	29.7[3]	6.39	3.69	7.1	14.2	2.07	100	5.0	10	16.6	17.4
		180	7.1	4.95	11.1[1]	7.9[2]	5.87	3.74	7.1	14.2	2.07	100	5.0	10	17.1	17.9
		180	7.1	4.95	30.4[3]	29.7[3]	6.44	3.74	7.1	14.2	2.07	100	5.0	10	17.1	17.9
		200	7.1	4.95	11.1[1]	7.9[2]	5.91	3.78	7.1	14.2	2.07	100	5.0	10	17.9	18.7
		200	7.1	4.95	30.4[3]	29.7[3]	6.48	3.78	7.1	14.2	2.07	100	5.0	10	17.9	18.7
		400	7.1	4.95	11.1[1]	7.9[2]	6.40	4.27	7.1	14.2	2.07	100	5.0	10	21.5	22.3
		400	7.1	4.95	30.4[3]	29.7[3]	6.97	4.27	7.1	14.2	2.07	100	5.0	10	21.5	22.3
		600	7.1	4.95	11.1[1]	7.9[2]	6.86	4.73	7.1	14.2	2.07	100	5.0	10	24.8	25.6
		600	7.1	4.95	30.4[3]	29.7[3]	7.43	4.73	7.1	14.2	2.07	100	5.0	10	24.8	25.6
KGT 25x6	4500	60	7.1	6.9	11.1[1]	11.0[2]	5.59	3.46	7.1	7.2	1.07	71	5.0	10	15.0	15.8
		60	7.1	6.9	30.4[3]	41.4[3]	6.16	3.46	7.1	7.2	1.07	71	5.0	10	15.0	15.8
		100	7.1	6.9	11.1[1]	11.0[2]	5.68	3.55	7.1	7.2	1.07	71	5.0	10	15.7	16.5
		100	7.1	6.9	30.4[3]	41.4[3]	6.25	3.55	7.1	7.2	1.07	71	5.0	10	15.7	16.5
		160	7.1	6.9	11.1[1]	11.0[2]	5.82	3.69	7.1	7.2	1.07	71	5.0	10	16.6	17.4
		160	7.1	6.9	30.4[3]	41.4[3]	6.39	3.69	7.1	7.2	1.07	71	5.0	10	16.6	17.4
		180	7.1	6.9	11.1[1]	11.0[2]	5.87	3.74	7.1	7.2	1.07	71	5.0	10	17.1	17.9
		180	7.1	6.9	30.4[3]	41.4[3]	6.44	3.74	7.1	7.2	1.07	71	5.0	10	17.1	17.9
		200	7.1	6.9	11.1[1]	11.0[2]	5.91	3.78	7.1	7.2	1.07	71	5.0	10	17.9	18.7
		200	7.1	6.9	30.4[3]	41.4[3]	6.48	3.78	7.1	7.2	1.07	71	5.0	10	17.9	18.7
		400	7.1	6.9	11.1[1]	11.0[2]	6.40	4.27	7.1	7.2	1.07	71	5.0	10	21.5	22.3
		400	7.1	6.9	30.4[3]	41.4[3]	6.97	4.27	7.1	7.2	1.07	71	5.0	10	21.5	22.3
		600	7.1	6.9	11.1[1]	11.0[2]	6.86	4.73	7.1	7.2	1.07	71	5.0	10	24.8	25.6
		600	7.1	6.9	30.4[3]	41.4[3]	7.43	4.73	7.1	7.2	1.07	71	5.0	10	24.8	25.6
KGT 25x6	6000	60	7.1	9.3	11.1[1]	14.9[2]	5.59	3.46	7.1	4.0	0.62	53	5.0	10	15.0	15.8
		60	7.1	9.3	30.4[3]	55.8[3]	6.16	3.46	7.1	4.0	0.62	53	5.0	10	15.0	15.8
		100	7.1	9.3	11.1[1]	14.9[2]	5.68	3.55	7.1	4.0	0.62	53	5.0	10	15.7	16.5
		100	7.1	9.3	30.4[3]	55.8[3]	6.25	3.55	7.1	4.0	0.62	53	5.0	10	15.7	16.5
		160	7.1	9.3	11.1[1]	14.9[2]	5.82	3.69	7.1	4.0	0.62	53	5.0	10	16.6	17.4
		160	7.1	9.3	30.4[3]	55.8[3]	6.39	3.69	7.1	4.0	0.62	53	5.0	10	16.6	17.4
		180	7.1	9.3	11.1[1]	14.9[2]	5.87	3.74	7.1	4.0	0.62	53	5.0	10	17.1	17.9
		180	7.1	9.3	30.4[3]	55.8[3]	6.44	3.74	7.1	4.0	0.62	53	5.0	10	17.1	17.9
		200	7.1	9.3	11.1[1]	14.9[2]	5.91	3.78	7.1	4.0	0.62	53	5.0	10	17.9	18.7
		200	7.1	9.3	30.4[3]	55.8[3]	6.48	3.78	7.1	4.0	0.62	53	5.0	10	17.9	18.7
		400	7.1	9.3	11.1[1]	14.9[2]	6.40	4.27	7.1	4.0	0.62	53	5.0	10	21.5	22.3
		400	7.1	9.3	30.4[3]	55.8[3]	6.97	4.27	7.1	4.0	0.62	53	5.0	10	21.5	22.3
		600	7.1	9.3	11.1[1]	14.9[2]	6.86	4.73	7.1	4.0	0.62	53	5.0	10	24.8	25.6
		600	7.1	9.3	30.4[3]	55.8[3]	7.43	4.73	7.1	4.0	0.62	53	5.0	10	24.8	25.6

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

7.4.12 CMSMB63/AP with CMP63L with belt transmission i = 41/25 ~ 1.64

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	60	7.1	4.95	6.8[1]	4.7[2]	3.56	1.43	7.1	14.2	2.07	100	8.2	10	15.0	15.8
		60	7.1	4.95	30.4[3]	29.7[3]	4.13	1.43	7.1	14.2	2.07	100	8.2	10	15.0	15.8
		100	7.1	4.95	6.8[1]	4.7[2]	3.59	1.46	7.1	14.2	2.07	100	8.2	10	15.7	16.5
		100	7.1	4.95	30.4[3]	29.7[3]	4.16	1.46	7.1	14.2	2.07	100	8.2	10	15.7	16.5
		160	7.1	4.95	6.8[1]	4.7[2]	3.64	1.51	7.1	14.2	2.07	100	8.2	10	16.6	17.4
		160	7.1	4.95	30.4[3]	29.7[3]	4.21	1.51	7.1	14.2	2.07	100	8.2	10	16.6	17.4
		180	7.1	4.95	6.8[1]	4.7[2]	3.66	1.53	7.1	14.2	2.07	100	8.2	10	17.1	17.9
		180	7.1	4.95	30.4[3]	29.7[3]	4.23	1.53	7.1	14.2	2.07	100	8.2	10	17.1	17.9
		200	7.1	4.95	6.8[1]	4.7[2]	3.68	1.55	7.1	14.2	2.07	100	8.2	10	17.9	18.7
		200	7.1	4.95	30.4[3]	29.7[3]	4.25	1.55	7.1	14.2	2.07	100	8.2	10	17.9	18.7
		400	7.1	4.95	6.8[1]	4.7[2]	3.86	1.73	7.1	14.2	2.07	100	8.2	10	21.5	22.3
		400	7.1	4.95	30.4[3]	29.7[3]	4.43	1.73	7.1	14.2	2.07	100	8.2	10	21.5	22.3
		600	7.1	4.95	6.8[1]	4.7[2]	4.03	1.90	7.1	14.2	2.07	100	8.2	10	24.8	25.6
		600	7.1	4.95	30.4[3]	29.7[3]	4.60	1.90	7.1	14.2	2.07	100	8.2	10	24.8	25.6
KGT 25x6	4500	60	7.1	6.9	6.8[1]	7.0[2]	3.56	1.43	7.1	7.2	1.07	71	8.2	10	15.0	15.8
		60	7.1	6.9	30.4[3]	41.4[3]	4.13	1.43	7.1	7.2	1.07	71	8.2	10	15.0	15.8
		100	7.1	6.9	6.8[1]	7.0[2]	3.59	1.46	7.1	7.2	1.07	71	8.2	10	15.7	16.5
		100	7.1	6.9	30.4[3]	41.4[3]	4.16	1.46	7.1	7.2	1.07	71	8.2	10	15.7	16.5
		160	7.1	6.9	6.8[1]	7.0[2]	3.64	1.51	7.1	7.2	1.07	71	8.2	10	16.6	17.4
		160	7.1	6.9	30.4[3]	41.4[3]	4.21	1.51	7.1	7.2	1.07	71	8.2	10	16.6	17.4
		180	7.1	6.9	6.8[1]	7.0[2]	3.66	1.53	7.1	7.2	1.07	71	8.2	10	17.1	17.9
		180	7.1	6.9	30.4[3]	41.4[3]	4.23	1.53	7.1	7.2	1.07	71	8.2	10	17.1	17.9
		200	7.1	6.9	6.8[1]	7.0[2]	3.68	1.55	7.1	7.2	1.07	71	8.2	10	17.9	18.7
		200	7.1	6.9	30.4[3]	41.4[3]	4.25	1.55	7.1	7.2	1.07	71	8.2	10	17.9	18.7
		400	7.1	6.9	6.8[1]	7.0[2]	3.86	1.73	7.1	7.2	1.07	71	8.2	10	21.5	22.3
		400	7.1	6.9	30.4[3]	41.4[3]	4.43	1.73	7.1	7.2	1.07	71	8.2	10	21.5	22.3
		600	7.1	6.9	6.8[1]	7.0[2]	4.03	1.90	7.1	7.2	1.07	71	8.2	10	24.8	25.6
		600	7.1	6.9	30.4[3]	41.4[3]	4.60	1.90	7.1	7.2	1.07	71	8.2	10	24.8	25.6
KGT 25x6	6000	60	7.1	9.3	6.8[1]	4.7[2]	3.56	1.43	7.1	4.0	0.62	53	8.2	10	15.0	15.8
		60	7.1	9.3	30.4[3]	55.8[3]	4.13	1.43	7.1	4.0	0.62	53	8.2	10	15.0	15.8
		100	7.1	9.3	6.8[1]	4.7[2]	3.59	1.46	7.1	4.0	0.62	53	8.2	10	15.7	16.5
		100	7.1	9.3	30.4[3]	55.8[3]	4.16	1.46	7.1	4.0	0.62	53	8.2	10	15.7	16.5
		160	7.1	9.3	6.8[1]	4.7[2]	3.64	1.51	7.1	4.0	0.62	53	8.2	10	16.6	17.4
		160	7.1	9.3	30.4[3]	55.8[3]	4.21	1.51	7.1	4.0	0.62	53	8.2	10	16.6	17.4
		180	7.1	9.3	6.8[1]	4.7[2]	3.66	1.53	7.1	4.0	0.62	53	8.2	10	17.1	17.9
		180	7.1	9.3	30.4[3]	55.8[3]	4.23	1.53	7.1	4.0	0.62	53	8.2	10	17.1	17.9
		200	7.1	9.3	6.8[1]	4.7[2]	3.68	1.55	7.1	4.0	0.62	53	8.2	10	17.9	18.7
		200	7.1	9.3	30.4[3]	55.8[3]	4.25	1.55	7.1	4.0	0.62	53	8.2	10	17.9	18.7
		400	7.1	9.3	6.8[1]	4.7[2]	3.86	1.73	7.1	4.0	0.62	53	8.2	10	21.5	22.3
		400	7.1	9.3	30.4[3]	55.8[3]	4.43	1.73	7.1	4.0	0.62	53	8.2	10	21.5	22.3
		600	7.1	9.3	6.8[1]	4.7[2]	4.03	1.90	7.1	4.0	0.62	53	8.2	10	24.8	25.6
		600	7.1	9.3	30.4[3]	55.8[3]	4.60	1.90	7.1	4.0	0.62	53	8.2	10	24.8	25.6

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.13 CMSMB71/AP with CMP71S with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	6.4	3.9	19.2	17	16.74	13.64	14	33.5	3.48	128	5.0	18	24.2	26.2
		100	6.4	3.9	19.2	17	17.16	13.64	14	33.5	3.48	128	5.0	18	24.2	26.2
		160	6.4	3.9	19.2	17	17.11	14.01	14	33.5	3.48	128	5.0	18	25.6	27.6
		160	6.4	3.9	19.2	17	17.53	14.01	14	33.5	3.48	128	5.0	18	25.6	27.6
		200	6.4	3.9	19.2	17	17.35	14.25	14	33.5	3.48	128	5.0	18	26.5	28.5
		200	6.4	3.9	19.2	17	17.77	14.25	14	33.5	3.48	128	5.0	18	26.5	28.5
		400	6.4	3.9	19.2	17	18.67	15.57	14	33.5	3.48	128	5.0	18	33.3	35.3
		400	6.4	3.9	19.2	17	19.09	15.57	14	33.5	3.48	128	5.0	18	33.3	35.3
		600	6.4	3.9	19.2	17	19.89	16.79	14	33.5	3.48	128	5.0	18	37.9	39.9
		600	6.4	3.9	19.2	17	20.31	16.79	14	33.5	3.48	128	5.0	18	37.9	39.9
		800	6.4	3.9	19.2	17	21.11	18.01	14	33.5	3.48	128	5.0	18	42.1	44.1
		800	6.4	3.9	19.2	17	21.53	18.01	14	33.5	3.48	128	5.0	18	42.1	44.1
		1000	6.4	3.9	19.2	17	22.33	19.23	14	33.5	3.48	128	5.0	18	46.7	48.7
		1000	6.4	3.9	19.2	17	22.75	19.23	14	33.5	3.48	128	5.0	18	46.7	48.7
		1200	6.4	3.9	19.2	17	23.56	20.46	14	33.5	3.48	128	5.0	18	51.3	53.3
		1200	6.4	3.9	19.2	17	23.98	20.46	14	33.5	3.48	128	5.0	18	51.3	53.3
KGT 32x6	3000	100	6.4	4.9	19.2	25	16.74	13.64	14	15.7	1.48	87.5	5.0	18	24.2	26.2
		100	6.4	4.9	19.2	25	17.16	13.64	14	15.7	1.48	87.5	5.0	18	24.2	26.2
		160	6.4	4.9	19.2	25	17.11	14.01	14	15.7	1.48	87.5	5.0	18	25.6	27.6
		160	6.4	4.9	19.2	25	17.53	14.01	14	15.7	1.48	87.5	5.0	18	25.6	27.6
		200	6.4	4.9	19.2	25	17.35	14.25	14	15.7	1.48	87.5	5.0	18	26.5	28.5
		200	6.4	4.9	19.2	25	17.77	14.25	14	15.7	1.48	87.5	5.0	18	26.5	28.5
		400	6.4	4.9	19.2	25	18.67	15.57	14	15.7	1.48	87.5	5.0	18	33.3	35.3
		400	6.4	4.9	19.2	25	19.09	15.57	14	15.7	1.48	87.5	5.0	18	33.3	35.3
		600	6.4	4.9	19.2	25	19.89	16.79	14	15.7	1.48	87.5	5.0	18	37.9	39.9
		600	6.4	4.9	19.2	25	20.31	16.79	14	15.7	1.48	87.5	5.0	18	37.9	39.9
		800	6.4	4.9	19.2	25	21.11	18.01	14	15.7	1.48	87.5	5.0	18	42.1	44.1
		800	6.4	4.9	19.2	25	21.53	18.01	14	15.7	1.48	87.5	5.0	18	42.1	44.1
		1000	6.4	4.9	19.2	25	22.33	19.23	14	15.7	1.48	87.5	5.0	18	46.7	48.7
		1000	6.4	4.9	19.2	25	22.75	19.23	14	15.7	1.48	87.5	5.0	18	46.7	48.7
		1200	6.4	4.9	19.2	25	23.56	20.46	14	15.7	1.48	87.5	5.0	18	51.3	53.3
		1200	6.4	4.9	19.2	25	23.98	20.46	14	15.7	1.48	87.5	5.0	18	51.3	53.3
KGT 32x6	4500	100	6.4	7.3	19.2	38	16.74	13.64	14	7.1	0.72	59	5.0	18	24.2	26.2
		100	6.4	7.3	19.2	38	17.16	13.64	14	7.1	0.72	59	5.0	18	24.2	26.2
		160	6.4	7.3	19.2	38	17.11	14.01	14	7.1	0.72	59	5.0	18	25.6	27.6
		160	6.4	7.3	19.2	38	17.53	14.01	14	7.1	0.72	59	5.0	18	25.6	27.6
		200	6.4	7.3	19.2	38	17.35	14.25	14	7.1	0.72	59	5.0	18	26.5	28.5
		200	6.4	7.3	19.2	38	17.77	14.25	14	7.1	0.72	59	5.0	18	26.5	28.5
		400	6.4	7.3	19.2	38	18.67	15.57	14	7.1	0.72	59	5.0	18	33.3	35.3
		400	6.4	7.3	19.2	38	19.09	15.57	14	7.1	0.72	59	5.0	18	33.3	35.3
		600	6.4	7.3	19.2	38	19.89	16.79	14	7.1	0.72	59	5.0	18	37.9	39.9
		600	6.4	7.3	19.2	38	20.31	16.79	14	7.1	0.72	59	5.0	18	37.9	39.9
		800	6.4	7.3	19.2	38	21.11	18.01	14	7.1	0.72	59	5.0	18	42.1	44.1
		800	6.4	7.3	19.2	38	21.53	18.01	14	7.1	0.72	59	5.0	18	42.1	44.1
		1000	6.4	7.3	19.2	38	22.33	19.23	14	7.1	0.72	59	5.0	18	46.7	48.7
		1000	6.4	7.3	19.2	38	22.75	19.23	14	7.1	0.72	59	5.0	18	46.7	48.7
		1200	6.4	7.3	19.2	38	23.56	20.46	14	7.1	0.72	59	5.0	18	51.3	53.3
		1200	6.4	7.3	19.2	38	23.98	20.46	14	7.1	0.72	59	5.0	18	51.3	53.3

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	6.4	9.6	19.2	50	16.74	13.64	14	4.15	0,395	45	5.0	18	24.2	26.2
		100	6.4	9.6	19.2	50	17.16	13.64	14	4.15	0,395	45	5.0	18	24.2	26.2
		160	6.4	9.6	19.2	50	17.11	14.01	14	4.15	0,395	45	5.0	18	25.6	27.6
		160	6.4	9.6	19.2	50	17.53	14.01	14	4.15	0,395	45	5.0	18	25.6	27.6
		200	6.4	9.6	19.2	50	17.35	14.25	14	4.15	0,395	45	5.0	18	26.5	28.5
		200	6.4	9.6	19.2	50	17.77	14.25	14	4.15	0,395	45	5.0	18	26.5	28.5
		400	6.4	9.6	19.2	50	18.67	15.57	14	4.15	0,395	45	5.0	18	33.3	35.3
		400	6.4	9.6	19.2	50	19.09	15.57	14	4.15	0,395	45	5.0	18	33.3	35.3
		600	6.4	9.6	19.2	50	19.89	16.79	14	4.15	0,395	45	5.0	18	37.9	39.9
		600	6.4	9.6	19.2	50	20.31	16.79	14	4.15	0,395	45	5.0	18	37.9	39.9
		800	6.4	9.6	19.2	50	21.11	18.01	14	4.15	0,395	45	5.0	18	42.1	44.1
		800	6.4	9.6	19.2	50	21.53	18.01	14	4.15	0,395	45	5.0	18	42.1	44.1
		1000	6.4	9.6	19.2	50	22.33	19.23	14	4.15	0,395	45	5.0	18	46.7	48.7
		1000	6.4	9.6	19.2	50	22.75	19.23	14	4.15	0,395	45	5.0	18	46.7	48.7
		1200	6.4	9.6	19.2	50	23.56	20.46	14	4.15	0,395	45	5.0	18	51.3	53.3
		1200	6.4	9.6	19.2	50	23.98	20.46	14	4.15	0,395	45	5.0	18	51.3	53.3

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7.4.14 CMSMB71/AP with CMP71S with belt transmission i = 57/47 ~ 1.21

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	6.4	3.9	19.2	17	11.93	8.83	14	33.5	3.48	128	6.0	18	24.2	26.2
		100	6.4	3.9	19.2	17	12.35	8.83	14	33.5	3.48	128	6.0	18	24.2	26.2
		160	6.4	3.9	19.2	17	12.18	9.08	14	33.5	3.48	128	6.0	18	25.6	27.6
		160	6.4	3.9	19.2	17	12.60	9.08	14	33.5	3.48	128	6.0	18	25.6	27.6
		200	6.4	3.9	19.2	17	12.34	9.24	14	33.5	3.48	128	6.0	18	26.5	28.5
		200	6.4	3.9	19.2	17	12.76	9.24	14	33.5	3.48	128	6.0	18	26.5	28.5
		400	6.4	3.9	19.2	17	13.24	10.14	14	33.5	3.48	128	6.0	18	33.3	35.3
		400	6.4	3.9	19.2	17	13.66	10.14	14	33.5	3.48	128	6.0	18	33.3	35.3
		600	6.4	3.9	19.2	17	14.07	10.97	14	33.5	3.48	128	6.0	18	37.9	39.9
		600	6.4	3.9	19.2	17	14.49	10.97	14	33.5	3.48	128	6.0	18	37.9	39.9
		800	6.4	3.9	19.2	17	14.90	11.80	14	33.5	3.48	128	6.0	18	42.1	44.1
		800	6.4	3.9	19.2	17	15.32	11.80	14	33.5	3.48	128	6.0	18	42.1	44.1
		1000	6.4	3.9	19.2	17	15.73	12.63	14	33.5	3.48	128	6.0	18	46.7	48.7
		1000	6.4	3.9	19.2	17	16.15	12.63	14	33.5	3.48	128	6.0	18	46.7	48.7
		1200	6.4	3.9	19.2	17	16.57	13.47	14	33.5	3.48	128	6.0	18	51.3	53.3
		1200	6.4	3.9	19.2	17	16.99	13.47	14	33.5	3.48	128	6.0	18	51.3	53.3
KGT 32x6	3000	100	6.4	4.9	19.2	25	11.93	8.83	14	15.7	1.48	87.5	6.0	18	24.2	26.2
		100	6.4	4.9	19.2	25	12.35	8.83	14	15.7	1.48	87.5	6.0	18	24.2	26.2
		160	6.4	4.9	19.2	25	12.18	9.08	14	15.7	1.48	87.5	6.0	18	25.6	27.6
		160	6.4	4.9	19.2	25	12.60	9.08	14	15.7	1.48	87.5	6.0	18	25.6	27.6
		200	6.4	4.9	19.2	25	12.34	9.24	14	15.7	1.48	87.5	6.0	18	26.5	28.5
		200	6.4	4.9	19.2	25	12.76	9.24	14	15.7	1.48	87.5	6.0	18	26.5	28.5
		400	6.4	4.9	19.2	25	13.24	10.14	14	15.7	1.48	87.5	6.0	18	33.3	35.3
		400	6.4	4.9	19.2	25	13.66	10.14	14	15.7	1.48	87.5	6.0	18	33.3	35.3
		600	6.4	4.9	19.2	25	14.07	10.97	14	15.7	1.48	87.5	6.0	18	37.9	39.9
		600	6.4	4.9	19.2	25	14.49	10.97	14	15.7	1.48	87.5	6.0	18	37.9	39.9
		800	6.4	4.9	19.2	25	14.90	11.80	14	15.7	1.48	87.5	6.0	18	42.1	44.1
		800	6.4	4.9	19.2	25	15.32	11.80	14	15.7	1.48	87.5	6.0	18	42.1	44.1
		1000	6.4	4.9	19.2	25	15.73	12.63	14	15.7	1.48	87.5	6.0	18	46.7	48.7
		1000	6.4	4.9	19.2	25	16.15	12.63	14	15.7	1.48	87.5	6.0	18	46.7	48.7
		1200	6.4	4.9	19.2	25	16.57	13.47	14	15.7	1.48	87.5	6.0	18	51.3	53.3
		1200	6.4	4.9	19.2	25	16.99	13.47	14	15.7	1.48	87.5	6.0	18	51.3	53.3
KGT 32x6	4500	100	6.4	7.3	19.2	38	11.93	8.83	14	7.1	0.72	59	6.0	18	24.2	26.2
		100	6.4	7.3	19.2	38	12.35	8.83	14	7.1	0.72	59	6.0	18	24.2	26.2
		160	6.4	7.3	19.2	38	12.18	9.08	14	7.1	0.72	59	6.0	18	25.6	27.6
		160	6.4	7.3	19.2	38	12.60	9.08	14	7.1	0.72	59	6.0	18	25.6	27.6
		200	6.4	7.3	19.2	38	12.34	9.24	14	7.1	0.72	59	6.0	18	26.5	28.5
		200	6.4	7.3	19.2	38	12.76	9.24	14	7.1	0.72	59	6.0	18	26.5	28.5
		400	6.4	7.3	19.2	38	13.24	10.14	14	7.1	0.72	59	6.0	18	33.3	35.3
		400	6.4	7.3	19.2	38	13.66	10.14	14	7.1	0.72	59	6.0	18	33.3	35.3
		600	6.4	7.3	19.2	38	14.07	10.97	14	7.1	0.72	59	6.0	18	37.9	39.9
		600	6.4	7.3	19.2	38	14.49	10.97	14	7.1	0.72	59	6.0	18	37.9	39.9
		800	6.4	7.3	19.2	38	14.90	11.80	14	7.1	0.72	59	6.0	18	42.1	44.1
		800	6.4	7.3	19.2	38	15.32	11.80	14	7.1	0.72	59	6.0	18	42.1	44.1
		1000	6.4	7.3	19.2	38	15.73	12.63	14	7.1	0.72	59	6.0	18	46.7	48.7
		1000	6.4	7.3	19.2	38	16.15	12.63	14	7.1	0.72	59	6.0	18	46.7	48.7
		1200	6.4	7.3	19.2	38	16.57	13.47	14	7.1	0.72	59	6.0	18	51.3	53.3
		1200	6.4	7.3	19.2	38	16.99	13.47	14	7.1	0.72	59	6.0	18	51.3	53.3

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Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	6.4	9.6	19.2	50	11.93	8.83	14	4.15	0,395	45	6.0	18	24.2	26.2
		100	6.4	9.6	19.2	50	12.35	8.83	14	4.15	0,395	45	6.0	18	24.2	26.2
		160	6.4	9.6	19.2	50	12.18	9.08	14	4.15	0,395	45	6.0	18	25.6	27.6
		160	6.4	9.6	19.2	50	12.60	9.08	14	4.15	0,395	45	6.0	18	25.6	27.6
		200	6.4	9.6	19.2	50	12.34	9.24	14	4.15	0,395	45	6.0	18	26.5	28.5
		200	6.4	9.6	19.2	50	12.76	9.24	14	4.15	0,395	45	6.0	18	26.5	28.5
		400	6.4	9.6	19.2	50	13.24	10.14	14	4.15	0,395	45	6.0	18	33.3	35.3
		400	6.4	9.6	19.2	50	13.66	10.14	14	4.15	0,395	45	6.0	18	33.3	35.3
		600	6.4	9.6	19.2	50	14.07	10.97	14	4.15	0,395	45	6.0	18	37.9	39.9
		600	6.4	9.6	19.2	50	14.49	10.97	14	4.15	0,395	45	6.0	18	37.9	39.9
		800	6.4	9.6	19.2	50	14.90	11.80	14	4.15	0,395	45	6.0	18	42.1	44.1
		800	6.4	9.6	19.2	50	15.32	11.80	14	4.15	0,395	45	6.0	18	42.1	44.1
		1000	6.4	9.6	19.2	50	15.73	12.63	14	4.15	0,395	45	6.0	18	46.7	48.7
		1000	6.4	9.6	19.2	50	16.15	12.63	14	4.15	0,395	45	6.0	18	46.7	48.7
		1200	6.4	9.6	19.2	50	16.57	13.47	14	4.15	0,395	45	6.0	18	51.3	53.3
		1200	6.4	9.6	19.2	50	16.99	13.47	14	4.15	0,395	45	6.0	18	51.3	53.3

7.4.15 CMSMB71/AP with CMP71M with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	9.4	5.0	25.0[1]	16.5[2]	17.84	13.64	14	21.5	1.87	127	7.5	24	25.6	27.6
		100	9.4	5.0	30.8[3]	26.0[3]	18.26	13.64	14	21.5	1.87	127	7.5	24	25.6	27.6
		160	9.4	5.0	25.0[1]	16.5[2]	18.21	14.01	14	21.5	1.87	127	7.5	24	27.0	29.0
		160	9.4	5.0	30.8[3]	26.0[3]	18.63	14.01	14	21.5	1.87	127	7.5	24	27.0	29.0
		200	9.4	5.0	25.0[1]	16.5[2]	18.45	14.25	14	21.5	1.87	127	7.5	24	27.9	29.9
		200	9.4	5.0	30.8[3]	26.0[3]	18.87	14.25	14	21.5	1.87	127	7.5	24	27.9	29.9
		400	9.4	5.0	25.0[1]	16.5[2]	19.77	15.57	14	21.5	1.87	127	7.5	24	34.7	36.7
		400	9.4	5.0	30.8[3]	26.0[3]	20.19	15.57	14	21.5	1.87	127	7.5	24	34.7	36.7
		600	9.4	5.0	25.0[1]	16.5[2]	20.99	16.79	14	21.5	1.87	127	7.5	24	39.3	41.3
		600	9.4	5.0	30.8[3]	26.0[3]	21.41	16.79	14	21.5	1.87	127	7.5	24	39.3	41.3
		800	9.4	5.0	25.0[1]	16.5[2]	22.21	18.01	14	21.5	1.87	127	7.5	24	43.5	45.5
		800	9.4	5.0	30.8[3]	26.0[3]	22.63	18.01	14	21.5	1.87	127	7.5	24	43.5	45.5
		1000	9.4	5.0	25.0[1]	16.5[2]	23.43	19.23	14	21.5	1.87	127	7.5	24	48.1	50.1
		1000	9.4	5.0	30.8[3]	26.0[3]	23.85	19.23	14	21.5	1.87	127	7.5	24	48.1	50.1
		1200	9.4	5.0	25.0[1]	16.5[2]	24.66	20.46	14	21.5	1.87	127	7.5	24	52.7	54.7
		1200	9.4	5.0	30.8[3]	26.0[3]	25.08	20.46	14	21.5	1.87	127	7.5	24	52.7	54.7
KGT 32x6	3000	100	9.4	7.5	25.0[1]	27.0[2]	17.84	13.64	14	9.7	0.81	85	7.5	24	25.6	27.6
		100	9.4	7.5	30.8[3]	39.0[3]	18.26	13.64	14	9.7	0.81	85	7.5	24	25.6	27.6
		160	9.4	7.5	25.0[1]	27.0[2]	18.21	14.01	14	9.7	0.81	85	7.5	24	27.0	29.0
		160	9.4	7.5	30.8[3]	39.0[3]	18.63	14.01	14	9.7	0.81	85	7.5	24	27.0	29.0
		200	9.4	7.5	25.0[1]	27.0[2]	18.45	14.25	14	9.7	0.81	85	7.5	24	27.9	29.9
		200	9.4	7.5	30.8[3]	39.0[3]	18.87	14.25	14	9.7	0.81	85	7.5	24	27.9	29.9
		400	9.4	7.5	25.0[1]	27.0[2]	19.77	15.57	14	9.7	0.81	85	7.5	24	34.7	36.7
		400	9.4	7.5	30.8[3]	39.0[3]	20.19	15.57	14	9.7	0.81	85	7.5	24	34.7	36.7
		600	9.4	7.5	25.0[1]	27.0[2]	20.99	16.79	14	9.7	0.81	85	7.5	24	39.3	41.3
		600	9.4	7.5	30.8[3]	39.0[3]	21.41	16.79	14	9.7	0.81	85	7.5	24	39.3	41.3
		800	9.4	7.5	25.0[1]	27.0[2]	22.21	18.01	14	9.7	0.81	85	7.5	24	43.5	45.5
		800	9.4	7.5	30.8[3]	39.0[3]	22.63	18.01	14	9.7	0.81	85	7.5	24	43.5	45.5
		1000	9.4	7.5	25.0[1]	27.0[2]	23.43	19.23	14	9.7	0.81	85	7.5	24	48.1	50.1
		1000	9.4	7.5	30.8[3]	39.0[3]	23.85	19.23	14	9.7	0.81	85	7.5	24	48.1	50.1
		1200	9.4	7.5	25.0[1]	27.0[2]	24.66	20.46	14	9.7	0.81	85	7.5	24	52.7	54.7
		1200	9.4	7.5	30.8[3]	39.0[3]	25.08	20.46	14	9.7	0.81	85	7.5	24	52.7	54.7
KGT 32x6	4500	100	9.4	10.9	25.0[1]	39.2[2]	17.84	13.64	14	4.55	0,385	58	7.5	24	25.6	27.6
		100	9.4	10.9	30.8[3]	57.0[3]	18.26	13.64	14	4.55	0,385	58	7.5	24	25.6	27.6
		160	9.4	10.9	25.0[1]	39.2[2]	18.21	14.01	14	4.55	0,385	58	7.5	24	27.0	29.0
		160	9.4	10.9	30.8[3]	57.0[3]	18.63	14.01	14	4.55	0,385	58	7.5	24	27.0	29.0
		200	9.4	10.9	25.0[1]	39.2[2]	18.45	14.25	14	4.55	0,385	58	7.5	24	27.9	29.9
		200	9.4	10.9	30.8[3]	57.0[3]	18.87	14.25	14	4.55	0,385	58	7.5	24	27.9	29.9
		400	9.4	10.9	25.0[1]	39.2[2]	19.77	15.57	14	4.55	0,385	58	7.5	24	34.7	36.7
		400	9.4	10.9	30.8[3]	57.0[3]	20.19	15.57	14	4.55	0,385	58	7.5	24	34.7	36.7
		600	9.4	10.9	25.0[1]	39.2[2]	20.99	16.79	14	4.55	0,385	58	7.5	24	39.3	41.3
		600	9.4	10.9	30.8[3]	57.0[3]	21.41	16.79	14	4.55	0,385	58	7.5	24	39.3	41.3
		800	9.4	10.9	25.0[1]	39.2[2]	22.21	18.01	14	4.55	0,385	58	7.5	24	43.5	45.5
		800	9.4	10.9	30.8[3]	57.0[3]	22.63	18.01	14	4.55	0,385	58	7.5	24	43.5	45.5
		1000	9.4	10.9	25.0[1]	39.2[2]	23.43	19.23	14	4.55	0,385	58	7.5	24	48.1	50.1
		1000	9.4	10.9	30.8[3]	57.0[3]	23.85	19.23	14	4.55	0,385	58	7.5	24	48.1	50.1
		1200	9.4	10.9	25.0[1]	39.2[2]	24.66	20.46	14	4.55	0,385	58	7.5	24	52.7	54.7
		1200	9.4	10.9	30.8[3]	57.0[3]	25.08	20.46	14	4.55	0,385	58	7.5	24	52.7	54.7

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	9.4	14.7	25.0 1)	52.9 2)	17.84	13.64	14	2.55	0,205	43.5	7.5	24	25.6	27.6
		100	9.4	14.7	30.8 3)	76.0 3)	18.26	13.64	14	2.55	0,205	43.5	7.5	24	25.6	27.6
		160	9.4	14.7	25.0 1)	52.9 2)	18.21	14.01	14	2.55	0,205	43.5	7.5	24	27.0	29.0
		160	9.4	14.7	30.8 3)	76.0 3)	18.63	14.01	14	2.55	0,205	43.5	7.5	24	27.0	29.0
		200	9.4	14.7	25.0 1)	52.9 2)	18.45	14.25	14	2.55	0,205	43.5	7.5	24	27.9	29.9
		200	9.4	14.7	30.8 3)	76.0 3)	18.87	14.25	14	2.55	0,205	43.5	7.5	24	27.9	29.9
		400	9.4	14.7	25.0 1)	52.9 2)	19.77	15.57	14	2.55	0,205	43.5	7.5	24	34.7	36.7
		400	9.4	14.7	30.8 3)	76.0 3)	20.19	15.57	14	2.55	0,205	43.5	7.5	24	34.7	36.7
		600	9.4	14.7	25.0 1)	52.9 2)	20.99	16.79	14	2.55	0,205	43.5	7.5	24	39.3	41.3
		600	9.4	14.7	30.8 3)	76.0 3)	21.41	16.79	14	2.55	0,205	43.5	7.5	24	39.3	41.3
		800	9.4	14.7	25.0 1)	52.9 2)	22.21	18.01	14	2.55	0,205	43.5	7.5	24	43.5	45.5
		800	9.4	14.7	30.8 3)	76.0 3)	22.63	18.01	14	2.55	0,205	43.5	7.5	24	43.5	45.5
		1000	9.4	14.7	25.0 1)	52.9 2)	23.43	19.23	14	2.55	0,205	43.5	7.5	24	48.1	50.1
		1000	9.4	14.7	30.8 3)	76.0 3)	23.85	19.23	14	2.55	0,205	43.5	7.5	24	48.1	50.1
		1200	9.4	14.7	25.0 1)	52.9 2)	24.66	20.46	14	2.55	0,205	43.5	7.5	24	52.7	54.7
		1200	9.4	14.7	30.8 3)	76.0 3)	25.08	20.46	14	2.55	0,205	43.5	7.5	24	52.7	54.7

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.16 CMSMB71/AP with CMP71M with belt transmission i = 57/47 ~ 1.21

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	9.4	5.0	20.7[1)]	12.0[2)]	13.03	6.73	14	21.5	1.87	127	9.0	24	25.6	27.6
		100	9.4	5.0	30.8[3)]	26.0[3)]	13.45	6.73	14	21.5	1.87	127	9.0	24	25.6	27.6
		160	9.4	5.0	20.7[1)]	12.0[2)]	13.28	6.98	14	21.5	1.87	127	9.0	24	27.0	29.0
		160	9.4	5.0	30.8[3)]	26.0[3)]	13.70	6.98	14	21.5	1.87	127	9.0	24	27.0	29.0
		200	9.4	5.0	20.7[1)]	12.0[2)]	13.44	7.14	14	21.5	1.87	127	9.0	24	27.9	29.9
		200	9.4	5.0	30.8[3)]	26.0[3)]	13.86	7.14	14	21.5	1.87	127	9.0	24	27.9	29.9
		400	9.4	5.0	20.7[1)]	12.0[2)]	14.34	8.04	14	21.5	1.87	127	9.0	24	34.7	36.7
		400	9.4	5.0	30.8[3)]	26.0[3)]	14.76	8.04	14	21.5	1.87	127	9.0	24	34.7	36.7
		600	9.4	5.0	20.7[1)]	12.0[2)]	15.17	8.87	14	21.5	1.87	127	9.0	24	39.3	41.3
		600	9.4	5.0	30.8[3)]	26.0[3)]	15.59	8.87	14	21.5	1.87	127	9.0	24	39.3	41.3
		800	9.4	5.0	20.7[1)]	12.0[2)]	16.00	9.70	14	21.5	1.87	127	9.0	24	43.5	45.5
		800	9.4	5.0	30.8[3)]	26.0[3)]	16.42	9.70	14	21.5	1.87	127	9.0	24	43.5	45.5
		1000	9.4	5.0	20.7[1)]	12.0[2)]	16.83	10.53	14	21.5	1.87	127	9.0	24	48.1	50.1
		1000	9.4	5.0	30.8[3)]	26.0[3)]	17.25	10.53	14	21.5	1.87	127	9.0	24	48.1	50.1
		1200	9.4	5.0	20.7[1)]	12.0[2)]	17.67	11.37	14	21.5	1.87	127	9.0	24	52.7	54.7
		1200	9.4	5.0	30.8[3)]	26.0[3)]	18.09	13.47	14	21.5	1.87	127	9.0	24	52.7	54.7
KGT 32x6	3000	100	9.4	7.5	20.7[1)]	18.0[2)]	13.03	6.73	14	9.7	0.81	85	9.0	24	25.6	27.6
		100	9.4	7.5	30.8[3)]	39.0[3)]	13.45	6.73	14	9.7	0.81	85	9.0	24	25.6	27.6
		160	9.4	7.5	20.7[1)]	18.0[2)]	13.28	6.98	14	9.7	0.81	85	9.0	24	27.0	29.0
		160	9.4	7.5	30.8[3)]	39.0[3)]	13.70	6.98	14	9.7	0.81	85	9.0	24	27.0	29.0
		200	9.4	7.5	20.7[1)]	18.0[2)]	13.44	7.14	14	9.7	0.81	85	9.0	24	27.9	29.9
		200	9.4	7.5	30.8[3)]	39.0[3)]	13.86	7.14	14	9.7	0.81	85	9.0	24	27.9	29.9
		400	9.4	7.5	20.7[1)]	18.0[2)]	14.34	8.04	14	9.7	0.81	85	9.0	24	34.7	36.7
		400	9.4	7.5	30.8[3)]	39.0[3)]	14.76	8.04	14	9.7	0.81	85	9.0	24	34.7	36.7
		600	9.4	7.5	20.7[1)]	18.0[2)]	15.17	8.87	14	9.7	0.81	85	9.0	24	39.3	41.3
		600	9.4	7.5	30.8[3)]	39.0[3)]	15.59	8.87	14	9.7	0.81	85	9.0	24	39.3	41.3
		800	9.4	7.5	20.7[1)]	18.0[2)]	16.00	9.70	14	9.7	0.81	85	9.0	24	43.5	45.5
		800	9.4	7.5	30.8[3)]	39.0[3)]	16.42	9.70	14	9.7	0.81	85	9.0	24	43.5	45.5
		1000	9.4	7.5	20.7[1)]	18.0[2)]	16.83	10.53	14	9.7	0.81	85	9.0	24	48.1	50.1
		1000	9.4	7.5	30.8[3)]	39.0[3)]	17.25	10.53	14	9.7	0.81	85	9.0	24	48.1	50.1
		1200	9.4	7.5	20.7[1)]	18.0[2)]	17.67	11.37	14	9.7	0.81	85	9.0	24	52.7	54.7
		1200	9.4	7.5	30.8[3)]	39.0[3)]	18.09	13.47	14	9.7	0.81	85	9.0	24	52.7	54.7
KGT 32x6	4500	100	9.4	10.9	20.7[1)]	26.2[2)]	13.03	6.73	14	4.55	0,385	58	9.0	24	25.6	27.6
		100	9.4	10.9	30.8[3)]	57.0[3)]	13.45	6.73	14	4.55	0,385	58	9.0	24	25.6	27.6
		160	9.4	10.9	20.7[1)]	26.2[2)]	13.28	6.98	14	4.55	0,385	58	9.0	24	27.0	29.0
		160	9.4	10.9	30.8[3)]	57.0[3)]	13.70	6.98	14	4.55	0,385	58	9.0	24	27.0	29.0
		200	9.4	10.9	20.7[1)]	26.2[2)]	13.44	7.14	14	4.55	0,385	58	9.0	24	27.9	29.9
		200	9.4	10.9	30.8[3)]	57.0[3)]	13.86	7.14	14	4.55	0,385	58	9.0	24	27.9	29.9
		400	9.4	10.9	20.7[1)]	26.2[2)]	14.34	8.04	14	4.55	0,385	58	9.0	24	34.7	36.7
		400	9.4	10.9	30.8[3)]	57.0[3)]	14.76	8.04	14	4.55	0,385	58	9.0	24	34.7	36.7
		600	9.4	10.9	20.7[1)]	26.2[2)]	15.17	8.87	14	4.55	0,385	58	9.0	24	39.3	41.3
		600	9.4	10.9	30.8[3)]	57.0[3)]	15.59	8.87	14	4.55	0,385	58	9.0	24	39.3	41.3
		800	9.4	10.9	20.7[1)]	26.2[2)]	16.00	9.70	14	4.55	0,385	58	9.0	24	43.5	45.5
		800	9.4	10.9	30.8[3)]	57.0[3)]	16.42	9.70	14	4.55	0,385	58	9.0	24	43.5	45.5
		1000	9.4	10.9	20.7[1)]	26.2[2)]	16.83	10.53	14	4.55	0,385	58	9.0	24	48.1	50.1
		1000	9.4	10.9	30.8[3)]	57.0[3)]	17.25	10.53	14	4.55	0,385	58	9.0	24	48.1	50.1
		1200	9.4	10.9	20.7[1)]	26.2[2)]	17.67	11.37	14	4.55	0,385	58	9.0	24	52.7	54.7
		1200	9.4	10.9	30.8[3)]	57.0[3)]	18.09	13.47	14	4.55	0,385	58	9.0	24	52.7	54.7

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Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	9.4	14.7	20.7[1]	35.3[2]	13.03	6.73	14	2.55	0,205	43.5	9.0	24	25.6	27.6
		100	9.4	14.7	30.8[3]	76.0[3]	13.45	6.73	14	2.55	0,205	43.5	9.0	24	25.6	27.6
		160	9.4	14.7	20.7[1]	35.3[2]	13.28	6.98	14	2.55	0,205	43.5	9.0	24	27.0	29.0
		160	9.4	14.7	30.8[3]	76.0[3]	13.70	6.98	14	2.55	0,205	43.5	9.0	24	27.0	29.0
		200	9.4	14.7	20.7[1]	35.3[2]	13.44	7.14	14	2.55	0,205	43.5	9.0	24	27.9	29.9
		200	9.4	14.7	30.8[3]	76.0[3]	13.86	7.14	14	2.55	0,205	43.5	9.0	24	27.9	29.9
		400	9.4	14.7	20.7[1]	35.3[2]	14.34	8.04	14	2.55	0,205	43.5	9.0	24	34.7	36.7
		400	9.4	14.7	30.8[3]	76.0[3]	14.76	8.04	14	2.55	0,205	43.5	9.0	24	34.7	36.7
		600	9.4	14.7	20.7[1]	35.3[2]	15.17	8.87	14	2.55	0,205	43.5	9.0	24	39.3	41.3
		600	9.4	14.7	30.8[3]	76.0[3]	15.59	8.87	14	2.55	0,205	43.5	9.0	24	39.3	41.3
		800	9.4	14.7	20.7[1]	35.3[2]	16.00	9.70	14	2.55	0,205	43.5	9.0	24	43.5	45.5
		800	9.4	14.7	30.8[3]	76.0[3]	16.42	9.70	14	2.55	0,205	43.5	9.0	24	43.5	45.5
		1000	9.4	14.7	20.7[1]	35.3[2]	16.83	10.53	14	2.55	0,205	43.5	9.0	24	48.1	50.1
		1000	9.4	14.7	30.8[3]	76.0[3]	17.25	10.53	14	2.55	0,205	43.5	9.0	24	48.1	50.1
		1200	9.4	14.7	20.7[1]	35.3[2]	17.67	11.37	14	2.55	0,205	43.5	9.0	24	52.7	54.7
		1200	9.4	14.7	30.8[3]	76.0[3]	18.09	13.47	14	2.55	0,205	43.5	9.0	24	52.7	54.7

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

7.4.17 CMSMB71/AP with CMP71L with belt transmission i=1:1

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	13.1	6.3	25.0[1]	12.7[2]	19.94	13.64	14	16.2	1.2	142	10.5	24	28.6	30.6
		100	13.1	6.3	46.9[3]	39.0[3]	20.36	13.64	14	16.2	1.2	142	10.5	24	28.6	30.6
		160	13.1	6.3	25.0[1]	12.7[2]	20.31	14.01	14	16.2	1.2	142	10.5	24	30.0	32.0
		160	13.1	6.3	46.9[3]	39.0[3]	20.73	14.01	14	16.2	1.2	142	10.5	24	30.0	32.0
		200	13.1	6.3	25.0[1]	12.7[2]	20.55	14.25	14	16.2	1.2	142	10.5	24	30.9	32.9
		200	13.1	6.3	46.9[3]	39.0[3]	20.97	14.25	14	16.2	1.2	142	10.5	24	30.9	32.9
		400	13.1	6.3	25.0[1]	12.7[2]	21.87	15.57	14	16.2	1.2	142	10.5	24	37.7	39.7
		400	13.1	6.3	46.9[3]	39.0[3]	22.29	15.57	14	16.2	1.2	142	10.5	24	37.7	39.7
		600	13.1	6.3	25.0[1]	12.7[2]	23.09	16.79	14	16.2	1.2	142	10.5	24	42.3	44.3
		600	13.1	6.3	46.9[3]	39.0[3]	23.51	16.79	14	16.2	1.2	142	10.5	24	42.3	44.3
		800	13.1	6.3	25.0[1]	12.7[2]	24.31	18.01	14	16.2	1.2	142	10.5	24	46.5	48.5
		800	13.1	6.3	46.9[3]	39.0[3]	24.73	18.01	14	16.2	1.2	142	10.5	24	46.5	48.5
		1000	13.1	6.3	25.0[1]	12.7[2]	25.53	19.23	14	16.2	1.2	142	10.5	24	51.1	53.1
		1000	13.1	6.3	46.9[3]	39.0[3]	25.95	19.23	14	16.2	1.2	142	10.5	24	51.1	53.1
		1200	13.1	6.3	25.0[1]	12.7[2]	26.76	20.46	14	16.2	1.2	142	10.5	24	55.7	57.7
		1200	13.1	6.3	46.9[3]	39.0[3]	27.18	20.46	14	16.2	1.2	142	10.5	24	55.7	57.7
KGT 32x6	3000	100	13.1	9.4	25.0[1]	18.8[2]	19.94	13.64	14	7.3	0.56	96	10.5	24	28.6	30.6
		100	13.1	9.4	46.9[3]	58.0[3]	20.36	13.64	14	7.3	0.56	96	10.5	24	28.6	30.6
		160	13.1	9.4	25.0[1]	18.8[2]	20.31	14.01	14	7.3	0.56	96	10.5	24	30.0	32.0
		160	13.1	9.4	46.9[3]	58.0[3]	20.73	14.01	14	7.3	0.56	96	10.5	24	30.0	32.0
		200	13.1	9.4	25.0[1]	18.8[2]	20.55	14.25	14	7.3	0.56	96	10.5	24	30.9	32.9
		200	13.1	9.4	46.9[3]	58.0[3]	20.97	14.25	14	7.3	0.56	96	10.5	24	30.9	32.9
		400	13.1	9.4	25.0[1]	18.8[2]	21.87	15.57	14	7.3	0.56	96	10.5	24	37.7	39.7
		400	13.1	9.4	46.9[3]	58.0[3]	22.29	15.57	14	7.3	0.56	96	10.5	24	37.7	39.7
		600	13.1	9.4	25.0[1]	18.8[2]	23.09	16.79	14	7.3	0.56	96	10.5	24	42.3	44.3
		600	13.1	9.4	46.9[3]	58.0[3]	23.51	16.79	14	7.3	0.56	96	10.5	24	42.3	44.3
		800	13.1	9.4	25.0[1]	18.8[2]	24.31	18.01	14	7.3	0.56	96	10.5	24	46.5	48.5
		800	13.1	9.4	46.9[3]	58.0[3]	24.73	18.01	14	7.3	0.56	96	10.5	24	46.5	48.5
		1000	13.1	9.4	25.0[1]	18.8[2]	25.53	19.23	14	7.3	0.56	96	10.5	24	51.1	53.1
		1000	13.1	9.4	46.9[3]	58.0[3]	25.95	19.23	14	7.3	0.56	96	10.5	24	51.1	53.1
		1200	13.1	9.4	25.0[1]	18.8[2]	26.76	20.46	14	7.3	0.56	96	10.5	24	55.7	57.7
		1200	13.1	9.4	46.9[3]	58.0[3]	27.18	20.46	14	7.3	0.56	96	10.5	24	55.7	57.7
KGT 32x6	4500	100	13.1	14.1	25.0[1]	28.2[2]	19.94	13.64	14	3.25	0.24	64	10.5	24	28.6	30.6
		100	13.1	14.1	46.9[3]	87.0[3]	20.36	13.64	14	3.25	0.24	64	10.5	24	28.6	30.6
		160	13.1	14.1	25.0[1]	28.2[2]	20.31	14.01	14	3.25	0.24	64	10.5	24	30.0	32.0
		160	13.1	14.1	46.9[3]	87.0[3]	20.73	14.01	14	3.25	0.24	64	10.5	24	30.0	32.0
		200	13.1	14.1	25.0[1]	28.2[2]	20.55	14.25	14	3.25	0.24	64	10.5	24	30.9	32.9
		200	13.1	14.1	46.9[3]	87.0[3]	20.97	14.25	14	3.25	0.24	64	10.5	24	30.9	32.9
		400	13.1	14.1	25.0[1]	28.2[2]	21.87	15.57	14	3.25	0.24	64	10.5	24	37.7	39.7
		400	13.1	14.1	46.9[3]	87.0[3]	22.29	15.57	14	3.25	0.24	64	10.5	24	37.7	39.7
		600	13.1	14.1	25.0[1]	28.2[2]	23.09	16.79	14	3.25	0.24	64	10.5	24	42.3	44.3
		600	13.1	14.1	46.9[3]	87.0[3]	23.51	16.79	14	3.25	0.24	64	10.5	24	42.3	44.3
		800	13.1	14.1	25.0[1]	28.2[2]	24.31	18.01	14	3.25	0.24	64	10.5	24	46.5	48.5
		800	13.1	14.1	46.9[3]	87.0[3]	24.73	18.01	14	3.25	0.24	64	10.5	24	46.5	48.5
		1000	13.1	14.1	25.0[1]	28.2[2]	25.53	19.23	14	3.25	0.24	64	10.5	24	51.1	53.1
		1000	13.1	14.1	46.9[3]	87.0[3]	25.95	19.23	14	3.25	0.24	64	10.5	24	51.1	53.1
		1200	13.1	14.1	25.0[1]	28.2[2]	26.76	20.46	14	3.25	0.24	64	10.5	24	55.7	57.7
		1200	13.1	14.1	46.9[3]	87.0[3]	27.18	20.46	14	3.25	0.24	64	10.5	24	55.7	57.7

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	13.1	18.8	25.0 1)	37.6 2)	19.94	13.64	14	1.84	0,145	48	10.5	24	28.6	30.6
		100	13.1	18.8	46.9 3)	115.0 3)	20.36	13.64	14	1.84	0,145	48	10.5	24	28.6	30.6
		160	13.1	18.8	25.0 1)	37.6 2)	20.31	14.01	14	1.84	0,145	48	10.5	24	30.0	32.0
		160	13.1	18.8	46.9 3)	115.0 3)	20.73	14.01	14	1.84	0,145	48	10.5	24	30.0	32.0
		200	13.1	18.8	25.0 1)	37.6 2)	20.55	14.25	14	1.84	0,145	48	10.5	24	30.9	32.9
		200	13.1	18.8	46.9 3)	115.0 3)	20.97	14.25	14	1.84	0,145	48	10.5	24	30.9	32.9
		400	13.1	18.8	25.0 1)	37.6 2)	21.87	15.57	14	1.84	0,145	48	10.5	24	37.7	39.7
		400	13.1	18.8	46.9 3)	115.0 3)	22.29	15.57	14	1.84	0,145	48	10.5	24	37.7	39.7
		600	13.1	18.8	25.0 1)	37.6 2)	23.09	16.79	14	1.84	0,145	48	10.5	24	42.3	44.3
		600	13.1	18.8	46.9 3)	115.0 3)	23.51	16.79	14	1.84	0,145	48	10.5	24	42.3	44.3
		800	13.1	18.8	25.0 1)	37.6 2)	24.31	18.01	14	1.84	0,145	48	10.5	24	46.5	48.5
		800	13.1	18.8	46.9 3)	115.0 3)	24.73	18.01	14	1.84	0,145	48	10.5	24	46.5	48.5
		1000	13.1	18.8	25.0 1)	37.6 2)	25.53	19.23	14	1.84	0,145	48	10.5	24	51.1	53.1
		1000	13.1	18.8	46.9 3)	115.0 3)	25.95	19.23	14	1.84	0,145	48	10.5	24	51.1	53.1
		1200	13.1	18.8	25.0 1)	37.6 2)	26.76	20.46	14	1.84	0,145	48	10.5	24	55.7	57.7
		1200	13.1	18.8	46.9 3)	115.0 3)	27.18	20.46	14	1.84	0,145	48	10.5	24	55.7	57.7

1) Maximum permitted torque
2) Max. permitted current
3) Default motor values

7.4.18 CMSMB71/AP with CMP71L with belt transmission i = 57/47 ~ 1.21

Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} / J_{bmot}	$J_{addition}$ / $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	kgcm²		Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	13.1	6.3	20.7[1)]	10.7[2)]	15.13	10.93	14	16.2	1.2	142	12.7	24	28.6	30.6
		100	13.1	6.3	46.9[3)]	39.0[3)]	15.55	10.93	14	16.2	1.2	142	12.7	24	28.6	30.6
		160	13.1	6.3	20.7[1)]	10.7[2)]	15.38	11.18	14	16.2	1.2	142	12.7	24	30.0	32.0
		160	13.1	6.3	46.9[3)]	39.0[3)]	15.80	11.18	14	16.2	1.2	142	12.7	24	30.0	32.0
		200	13.1	6.3	20.7[1)]	10.7[2)]	15.54	11.34	14	16.2	1.2	142	12.7	24	30.9	32.9
		200	13.1	6.3	46.9[3)]	39.0[3)]	15.96	11.34	14	16.2	1.2	142	12.7	24	30.9	32.9
		400	13.1	6.3	20.7[1)]	10.7[2)]	16.44	12.24	14	16.2	1.2	142	12.7	24	37.7	39.7
		400	13.1	6.3	46.9[3)]	39.0[3)]	16.86	12.24	14	16.2	1.2	142	12.7	24	37.7	39.7
		600	13.1	6.3	20.7[1)]	10.7[2)]	17.27	13.07	14	16.2	1.2	142	12.7	24	42.3	44.3
		600	13.1	6.3	46.9[3)]	39.0[3)]	17.69	13.07	14	16.2	1.2	142	12.7	24	42.3	44.3
		800	13.1	6.3	20.7[1)]	10.7[2)]	18.10	13.90	14	16.2	1.2	142	12.7	24	46.5	48.5
		800	13.1	6.3	46.9[3)]	39.0[3)]	18.52	13.90	14	16.2	1.2	142	12.7	24	46.5	48.5
		1000	13.1	6.3	20.7[1)]	10.7[2)]	18.93	14.73	14	16.2	1.2	142	12.7	24	51.1	53.1
		1000	13.1	6.3	46.9[3)]	39.0[3)]	19.35	14.73	14	16.2	1.2	142	12.7	24	51.1	53.1
		1200	13.1	6.3	20.7[1)]	10.7[2)]	19.77	15.57	14	16.2	1.2	142	12.7	24	55.7	57.7
		1200	13.1	6.3	46.9[3)]	39.0[3)]	20.19	15.57	14	16.2	1.2	142	12.7	24	55.7	57.7
KGT 32x6	3000	100	13.1	9.4	20.7[1)]	16.0[2)]	15.13	10.93	14	7.3	0.56	96	12.7	24	28.6	30.6
		100	13.1	9.4	46.9[3)]	58.0[3)]	15.55	10.93	14	7.3	0.56	96	12.7	24	28.6	30.6
		160	13.1	9.4	20.7[1)]	16.0[2)]	15.38	11.18	14	7.3	0.56	96	12.7	24	30.0	32.0
		160	13.1	9.4	46.9[3)]	58.0[3)]	15.80	11.18	14	7.3	0.56	96	12.7	24	30.0	32.0
		200	13.1	9.4	20.7[1)]	16.0[2)]	15.54	11.34	14	7.3	0.56	96	12.7	24	30.9	32.9
		200	13.1	9.4	46.9[3)]	58.0[3)]	15.96	11.34	14	7.3	0.56	96	12.7	24	30.9	32.9
		400	13.1	9.4	20.7[1)]	16.0[2)]	16.44	12.24	14	7.3	0.56	96	12.7	24	37.7	39.7
		400	13.1	9.4	46.9[3)]	58.0[3)]	16.86	12.24	14	7.3	0.56	96	12.7	24	37.7	39.7
		600	13.1	9.4	20.7[1)]	16.0[2)]	17.27	13.07	14	7.3	0.56	96	12.7	24	42.3	44.3
		600	13.1	9.4	46.9[3)]	58.0[3)]	17.69	13.07	14	7.3	0.56	96	12.7	24	42.3	44.3
		800	13.1	9.4	20.7[1)]	16.0[2)]	18.10	13.90	14	7.3	0.56	96	12.7	24	46.5	48.5
		800	13.1	9.4	46.9[3)]	58.0[3)]	18.52	13.90	14	7.3	0.56	96	12.7	24	46.5	48.5
		1000	13.1	9.4	20.7[1)]	16.0[2)]	18.93	14.73	14	7.3	0.56	96	12.7	24	51.1	53.1
		1000	13.1	9.4	46.9[3)]	58.0[3)]	19.35	14.73	14	7.3	0.56	96	12.7	24	51.1	53.1
		1200	13.1	9.4	20.7[1)]	16.0[2)]	19.77	15.57	14	7.3	0.56	96	12.7	24	55.7	57.7
		1200	13.1	9.4	46.9[3)]	58.0[3)]	20.19	15.57	14	7.3	0.56	96	12.7	24	55.7	57.7
KGT 32x6	4500	100	13.1	14.1	20.7[1)]	24.0[2)]	15.13	10.93	14	3.25	0.24	64	12.7	24	28.6	30.6
		100	13.1	14.1	46.9[3)]	87.0[3)]	15.55	10.93	14	3.25	0.24	64	12.7	24	28.6	30.6
		160	13.1	14.1	20.7[1)]	24.0[2)]	15.38	11.18	14	3.25	0.24	64	12.7	24	30.0	32.0
		160	13.1	14.1	46.9[3)]	87.0[3)]	15.80	11.18	14	3.25	0.24	64	12.7	24	30.0	32.0
		200	13.1	14.1	20.7[1)]	24.0[2)]	15.54	11.34	14	3.25	0.24	64	12.7	24	30.9	32.9
		200	13.1	14.1	46.9[3)]	87.0[3)]	15.96	11.34	14	3.25	0.24	64	12.7	24	30.9	32.9
		400	13.1	14.1	20.7[1)]	24.0[2)]	16.44	12.24	14	3.25	0.24	64	12.7	24	37.7	39.7
		400	13.1	14.1	46.9[3)]	87.0[3)]	16.86	12.24	14	3.25	0.24	64	12.7	24	37.7	39.7
		600	13.1	14.1	20.7[1)]	24.0[2)]	17.27	13.07	14	3.25	0.24	64	12.7	24	42.3	44.3
		600	13.1	14.1	46.9[3)]	87.0[3)]	17.69	13.07	14	3.25	0.24	64	12.7	24	42.3	44.3
		800	13.1	14.1	20.7[1)]	24.0[2)]	18.10	13.90	14	3.25	0.24	64	12.7	24	46.5	48.5
		800	13.1	14.1	46.9[3)]	87.0[3)]	18.52	13.90	14	3.25	0.24	64	12.7	24	46.5	48.5
		1000	13.1	14.1	20.7[1)]	24.0[2)]	18.93	14.73	14	3.25	0.24	64	12.7	24	51.1	53.1
		1000	13.1	14.1	46.9[3)]	87.0[3)]	19.35	14.73	14	3.25	0.24	64	12.7	24	51.1	53.1
		1200	13.1	14.1	20.7[1)]	24.0[2)]	19.77	15.57	14	3.25	0.24	64	12.7	24	55.7	57.7
		1200	13.1	14.1	46.9[3)]	87.0[3)]	20.19	15.57	14	3.25	0.24	64	12.7	24	55.7	57.7

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Spindle	n_N	Stroke length	M_0	I_0	M_{epk}	I_{max}	J_{mot} J_{bmot}	$J_{addition}$ $J_{b\_addition}$	M_B	L_1	R_1	U_{p0cold}	F	F_{pk}	m	m_{bmot}
DxP	min^{-1}	mm	Nm	A	Nm	A	$kgcm^2$		Nm	mH	Ω	V	kN		kg	
KGT 32x6	6000	100	13.1	18.8	20.7[1)]	32.0[2)]	15.13	10.93	14	1.84	0,145	48	12.7	24	28.6	30.6
		100	13.1	18.8	46.9[3)]	115.0[3)]	15.55	10.93	14	1.84	0,145	48	12.7	24	28.6	30.6
		160	13.1	18.8	20.7[1)]	32.0[2)]	15.38	11.18	14	1.84	0,145	48	12.7	24	30.0	32.0
		160	13.1	18.8	46.9[3)]	115.0[3)]	15.80	11.18	14	1.84	0,145	48	12.7	24	30.0	32.0
		200	13.1	18.8	20.7[1)]	32.0[2)]	15.54	11.34	14	1.84	0,145	48	12.7	24	30.9	32.9
		200	13.1	18.8	46.9[3)]	115.0[3)]	15.96	11.34	14	1.84	0,145	48	12.7	24	30.9	32.9
		400	13.1	18.8	20.7[1)]	32.0[2)]	16.44	12.24	14	1.84	0,145	48	12.7	24	37.7	39.7
		400	13.1	18.8	46.9[3)]	115.0[3)]	16.86	12.24	14	1.84	0,145	48	12.7	24	37.7	39.7
		600	13.1	18.8	20.7[1)]	32.0[2)]	17.27	13.07	14	1.84	0,145	48	12.7	24	42.3	44.3
		600	13.1	18.8	46.9[3)]	115.0[3)]	17.69	13.07	14	1.84	0,145	48	12.7	24	42.3	44.3
		800	13.1	18.8	20.7[1)]	32.0[2)]	18.10	13.90	14	1.84	0,145	48	12.7	24	46.5	48.5
		800	13.1	18.8	46.9[3)]	115.0[3)]	18.52	13.90	14	1.84	0,145	48	12.7	24	46.5	48.5
		1000	13.1	18.8	20.7[1)]	32.0[2)]	18.93	14.73	14	1.84	0,145	48	12.7	24	51.1	53.1
		1000	13.1	18.8	46.9[3)]	115.0[3)]	19.35	14.73	14	1.84	0,145	48	12.7	24	51.1	53.1
		1200	13.1	18.8	20.7[1)]	32.0[2)]	19.77	15.57	14	1.84	0,145	48	12.7	24	55.7	57.7
		1200	13.1	18.8	46.9[3)]	115.0[3)]	20.19	15.57	14	1.84	0,145	48	12.7	24	55.7	57.7

1) Maximum permitted torque
2) Maximum permitted current
3) Default motor values

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7.4.19 Linear units

The following chapters show the technical data of the linear units CMSMB50, CMSMB63, and CMSMB71 without drive.

NOTICE

Take into account the maximum permitted torque M_{epk}!

A current limitation is required on the frequency inverter.

INFORMATION

Technical data of the CMSM. /ACH /ACA in combination with CMP motors from SEW-EURODRIVE are identical with the technical data of the CMSB..

CMSMB50 /ACH /ACA

Spindle	n_{epk}	Stroke length	M_{epk}	J /ACH /ACA	F_{pk}	m
DxP	min^{-1}	mm	Nm	$kgcm^2$	kN	kg
KGT 20x5	4500	70	5.2	0.47	8.0	4.3
		100	5.2	0.50	8.0	4.6
		150	5.2	0.54	8.0	5.1
		200	5.2	0.58	8.0	5.7
		300	5.2	0.67	8.0	6.7
		400	5.2	0.78	8.0	8.4
		600	5.2	0.95	8.0	10.6

CMSMB63 /ACH /ACA

Spindle	n_{epk}	Stroke length	M_{epk}	J /ACH /ACA	F_{pk}	m
DxP	min^{-1}	mm	Nm	$kgcm^2$	kN	kg
KGT 25x6	4500	60	11.1	0.85	10	6.4
		100	11.1	0.95	10	7.1
		160	11.1	1.08	10	8.0
		180	11.1	1.13	10	8.3
		200	11.1	1.17	10	8.7
		400	11.1	1.67	10	12.9
		600	11.1	2.13	10	16.2

CMSMB71 /ACH /ACA

Spindle	n_{epk}	Stroke length	M_{epk}	J /ACH /ACA	F_{pk}	m
DxP	min^{-1}	mm	Nm	$kgcm^2$	kN	kg
KGT 32x6	4500	100	25.0	5.89	24	15.4
		160	25.0	6.26	24	16.8
		200	25.0	6.50	24	17.7
		400	25.0	7.82	24	24.5
		600	25.0	9.04	24	29.1
		800	25.0	10.27	24	33.3
		1000	25.0	11.49	24	37.9
		1200	25.0	12.71	24	42.5

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7.4.20 Motors with forced cooling fan

The table below shows the technical data of the CMS.. with forced cooling fan option.

CMSMB../AP modular electric cylinders with gear ratio 1:1

	n_N	M_{0VR}	F_{VR}	I_{0VR}
	min^{-1}	Nm	kN	A
CMSMB50/AP /CMP50S	3000	1.4	1.5	1.0
	4500	1.4	1.5	1.4
	6000	1.4	1.5	1.8
CMSMB50/AP /CMP50M	3000	2.9	3.1	2.0
	4500	2.9	3.1	2.7
	6000	2.9	3.1	3.6
CMSMB50/AP /CMP50L	3000	4.0	4.3	2.6
	4500	4.0	4.3	3.8
	6000	4.0	4.3	5.0
CMSMB63/AP /CMP63S	3000	3.8	2.9	2.8
	4500	3.8	2.9	4.0
	6000	3.8	2.9	5.1
CMSMB63/AP /CMP63M	3000	7.6	5.9	5.1
	4500	7.6	5.9	7.7
	6000	7.6	5.9	9.8
CMSMB63/AP /CMP63L	3000	10.9	8.4	7.6
	4500	10.9	8.4	10.6
	6000	10.9	8.4	14.2
CMSMB71/AP /CMP71S	2000	10.2	7.9	5.4
	3000	10.2	7.9	7.9
	4500	10.2	7.9	11.7
	6000	10.2	7.9	15.4
CMSMB71/AP /CMP71M	2000	14.9	11.5	7.9
	3000	14.9	11.5	12.0
	4500	14.9	11.5	17.3
	6000	14.9	11.5	23.3
CMSMB71/AP /CMP71L	2000	23.3	18.0	11.2
	3000	23.3	18.0	16.8
	4500	23.3	18.0	25.2
	6000	23.3	18.0	33.7

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CMSMB../AP modular electric cylinders with gear ratio > 1:1

	n_N	M_{0VR}	F_{VR}	I_{0VR}
	min^{-1}	Nm	kN	A
CMSMB50/AP /CMP50S i = 36/27 ~ 1.33	3000	1.4	2.0	1.0
	4500	1.4	2.0	1.4
	6000	1.4	2.0	1.8
CMSMB50/AP /CMP50M i = 36/27 ~ 1.33	3000	2.9	4.1	2.0
	4500	2.9	4.1	2.7
	6000	2.9	4.1	3.6
CMSMB50/AP /CMP50L i = 36/27 ~ 1.33	3000	4.0	5.7	2.6
	4500	4.0	5.7	3.8
	6000	4.0	5.7	5.0
CMSMB63/AP /CMP63S i = 41/25 ~ 1.64	3000	3.8	4.7	2.8
	4500	3.8	4.7	4.0
	6000	3.8	4.7	5.1
CMSMB63/AP /CMP63M i = 41/25 ~ 1.64	3000	7.5	9.6	5.1
	4500	7.5	9.6	7.6
	6000	7.5	9.6	9.8
CMSMB63/AP /CMP63L i = 41/25 ~ 1.64	3000	10.9	13.7	7.6
	4500	10.9	13.7	10.6
	6000	10.9	13.7	14.2
CMSMB71/AP /CMP71S i = 57/47 ~ 1.21	2000	10.2	9.5	5.4
	3000	10.2	9.5	7.9
	4500	10.2	9.5	11.7
	6000	10.2	9.5	15.4
CMSMB71/AP /CMP71M i = 57/47 ~ 1.21	2000	15.2	13.9	8.1
	3000	15.2	13.9	12.2
	4500	15.2	13.9	17.6
	6000	15.2	13.9	23.8
CMSMB71/AP /CMP71L i = 57/47 ~ 1.21	2000	23.8	21.5	11.4
	3000	23.8	21.5	17.1
	4500	23.8	21.5	25.6
	6000	23.8	21.5	34.2

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CMSMB../ACH, /ACA modular electric cylinders

	n_N	M_{0VR}	F_{VR}	I_{0VR}
	min^{-1}	Nm	kN	A
CMSMB50/ACH /ACA /CMP50S	3000	1.4	1.5	1.0
	4500	1.4	1.5	1.4
	6000	1.4	1.5	1.8
CMSMB50/ACH /ACA /CMP50M	3000	3.0	3.2	2.1
	4500	3.0	3.2	2.8
	6000	3.0	3.2	3.7
CMSMB50/ACH /ACA /CMP50L	3000	4.2	4.4	2.7
	4500	4.2	4.4	4.0
	6000	4.2	4.4	5.3
CMSMB63/ACH /ACA /CMP63S	3000	3.7	2.9	2.7
	4500	3.7	2.9	3.9
	6000	3.7	2.9	4.9
CMSMB63/ACH /ACA /CMP63M	3000	8.3	6.5	5.7
	4500	8.3	6.5	8.5
	6000	8.3	6.5	10.9
CMSMB63/ACH /ACA /CMP63L	3000	9.7	7.5	6.8
	4500	9.7	7.5	9.5
	6000	9.7	7.5	12.7
CMSMB71/ACH /ACA /CMP71S	2000	11.0	8.5	5.8
	3000	11.0	8.5	8.5
	4500	11.0	8.5	12.6
	6000	11.0	8.5	16.6
CMSMB71/ACH /ACA /CMP71M	2000	14.2	11.0	7.6
	3000	14.2	11.0	11.4
	4500	14.2	11.0	16.5
	6000	14.2	11.0	22.3
CMSMB71/ACH /ACA /CMP71L	2000	20.7	16.0	10.0
	3000	20.7	16.0	15.0
	4500	20.7	16.0	22.4
	6000	20.7	16.0	30.0

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7.5 Motors with liquid cooling, system voltage 400 V

7.5.1 Standard electric cylinders CMSB..

	n_N	M_{0LC}	F_{LC}	I_{0LC}
	min^{-1}	Nm	kN	A
CMSB50S	3000	1.3	1.4	0.9
	4500	1.3	1.4	1.3
	6000	1.3	1.4	1.7
CMSB50M	3000	2.8	3.0	1.9
	4500	2.8	3.0	2.6
	6000	2.8	3.0	3.4
CMSB50L	3000	4.0	4.2	2.6
	4500	4.0	4.2	3.8
	6000	4.0	4.2	5.0
CMSB63S	3000	3.0	2.7	2.2
	4500	3.0	2.7	3.1
	6000	3.0	2.7	3.9
CMSB63M	3000	5.5	5.0	3.6
	4500	5.5	5.0	5.4
	6000	5.5	5.0	7.0
CMSB71S	2000	7.2	7.0	3.7
	3000	7.2	7.0	5.3
	4500	7.2	7.0	8.0
	6000	7.2	7.0	10.5
CMSB71M	2000	9.7	9.4	5.1
	3000	9.7	9.4	7.4
	4500	9.7	9.4	10.8
	6000	9.7	9.4	14.5
CMSB71L	2000	14.5	14.0	7.1
	3000	14.5	14.0	10.2
	4500	14.5	14.0	14.7
	6000	14.5	14.0	19.7

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7.5.2 CMSMB../AP modular electric cylinders with gear ratio 1:1

	n_N	M_{0LC}	F_{LC}	I_{0LC}
	min^{-1}	Nm	kN	A
CMSMB50/AP /CMP50S	3000	1.4	1.5	1.0
	4500	1.4	1.5	1.4
	6000	1.4	1.5	1.8
CMSMB50/AP /CMP50M	3000	3.0	3.2	2.0
	4500	3.0	3.2	2.8
	6000	3.0	3.2	3.7
CMSMB50/AP /CMP50L	3000	3.9	4.1	2.5
	4500	3.9	4.1	3.7
	6000	3.9	4.1	4.9
CMSMB63/AP /CMP63S	3000	2.5	2.3	1.8
	4500	2.5	2.3	5.0
	6000	2.5	2.3	3.2
CMSMB63/AP /CMP63M	3000	4.4	4.0	2.9
	4500	4.4	4.0	4.3
	6000	4.4	4.0	5.5
CMSMB63/AP /CMP63L	3000	5.8	5.3	3.9
	4500	5.8	5.3	5.4
	6000	5.8	5.3	7.3
CMSMB71/AP /CMP71S	2000	5.4	5.2	2.7
	3000	5.4	5.2	3.9
	4500	5.4	5.2	5.8
	6000	5.4	5.2	7.6
CMSMB71/AP /CMP71M	2000	8.0	7.8	4.1
	3000	8.0	7.8	6.0
	4500	8.0	7.8	8.8
	6000	8.0	7.8	11.7
CMSMB71/AP /CMP71L	2000	12.0	11.5	5.9
	3000	12.0	11.5	8.7
	4500	12.0	11.5	11.9
	6000	12.0	11.5	16.0

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7.5.3 CMSMB../AP modular electric cylinders with gear ratio > 1:1

	n_N	M_{0LC}	F_{LC}	I_{0LC}
	min^{-1}	Nm	kN	A
CMSMB50/AP /CMP50S i = 36/27 ~ 1.33	3000	1.4	2.0	1.0
	4500	1.4	2.0	1.4
	6000	1.4	2.0	1.8
CMSMB50/AP /CMP50M i = 36/27 ~ 1.33	3000	3.0	4.2	2.0
	4500	3.0	4.2	2.8
	6000	3.0	4.2	3.7
CMSMB50/AP /CMP50L i = 36/27 ~ 1.33	3000	3.8	5.4	2.5
	4500	3.8	5.4	3.6
	6000	3.8	5.4	4.8
CMSMB63/AP /CMP63S i = 41/25 ~ 1.64	3000	2.5	3.7	1.8
	4500	2.5	3.7	2.5
	6000	2.5	3.7	3.2
CMSMB63/AP /CMP63M i = 41/25 ~ 1.64	3000	4.4	6.5	2.9
	4500	4.4	6.5	4.3
	6000	4.4	6.5	5.5
CMSMB63/AP /CMP63L i = 41/25 ~ 1.64	3000	5.9	8.7	3.9
	4500	5.9	8.7	5.5
	6000	5.9	8.7	7.4
CMSMB71/AP /CMP71S i = 57/47 ~ 1.21	2000	5.3	6.2	2.6
	3000	5.3	6.2	3.8
	4500	5.3	6.2	5.7
	6000	5.3	6.2	7.5
CMSMB71/AP /CMP71M i = 57/47 ~ 1.21	2000	8.0	9.4	4.1
	3000	8.0	9.4	6.0
	4500	8.0	9.4	8.8
	6000	8.0	9.4	11.7
CMSMB71/AP /CMP71L i = 57/47 ~ 1.21	2000	11.9	13.9	5.8
	3000	11.9	13.9	8.6
	4500	11.9	13.9	11.8
	6000	11.9	13.9	15.9

7.5.4 CMSMB../ACH, /ACA modular electric cylinders

	n_N	M_{LC}	F_{LC}	I_{0LC}
	min^{-1}	Nm	kN	A
CMSMB50/ACH /ACA /CMP50S	3000	1.3	1.4	0.9
	4500	1.3	1.4	1.3
	6000	1.3	1.4	1.7
CMSMB50/ACH /ACA /CMP50M	3000	2.8	3.0	1.9
	4500	2.8	3.0	2.6
	6000	2.8	3.0	3.4
CMSMB50/ACH /ACA /CMP50L	3000	4.0	4.2	2.6
	4500	4.0	4.2	3.8
	6000	4.0	4.2	5.0
CMSMB63/ACH /ACA /CMP63S	3000	3.0	2.7	2.2
	4500	3.0	2.7	3.1
	6000	3.0	2.7	3.9
CMSMB63/ACH /ACA /CMP63M	3000	5.5	5.0	3.6
	4500	5.5	5.0	5.4
	6000	5.5	5.0	7.0
CMSMB63/ACH /ACA /CMP63L	3000	7.3	6.5	4.9
	4500	7.3	6.5	6.9
	6000	7.3	6.5	9.3
CMSMB71/ACH /ACA /CMP71S	2000	7.2	7.0	3.7
	3000	7.2	7.0	5.3
	4500	7.2	7.0	8.0
	6000	7.2	7.0	10.5
CMSMB71/ACH /ACA /CMP71M	2000	9.7	9.4	5.1
	3000	9.7	9.4	7.4
	4500	9.7	9.4	10.8
	6000	9.7	9.4	14.5
CMSMB71/ACH /ACA /CMP71L	2000	14.5	14.0	7.1
	3000	14.5	14.0	10.2
	4500	14.5	14.0	14.7
	6000	14.5	14.0	19.7

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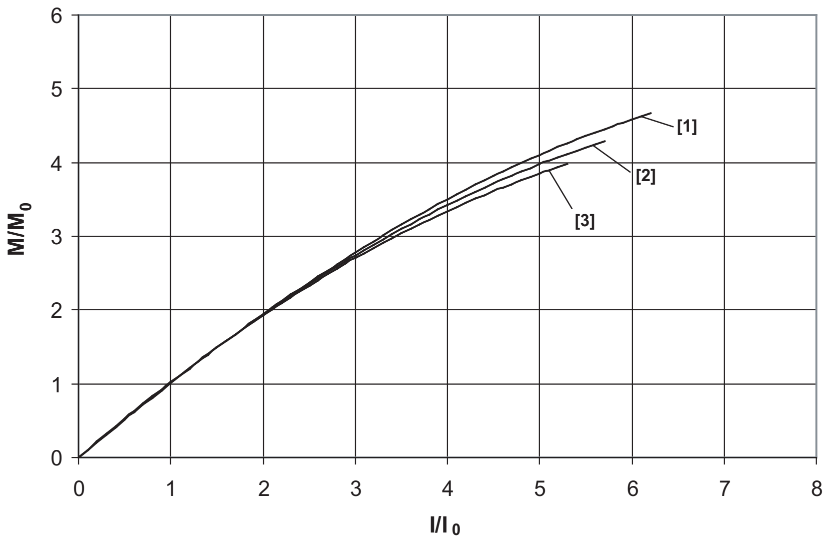
7.6 Torque-current characteristic curves

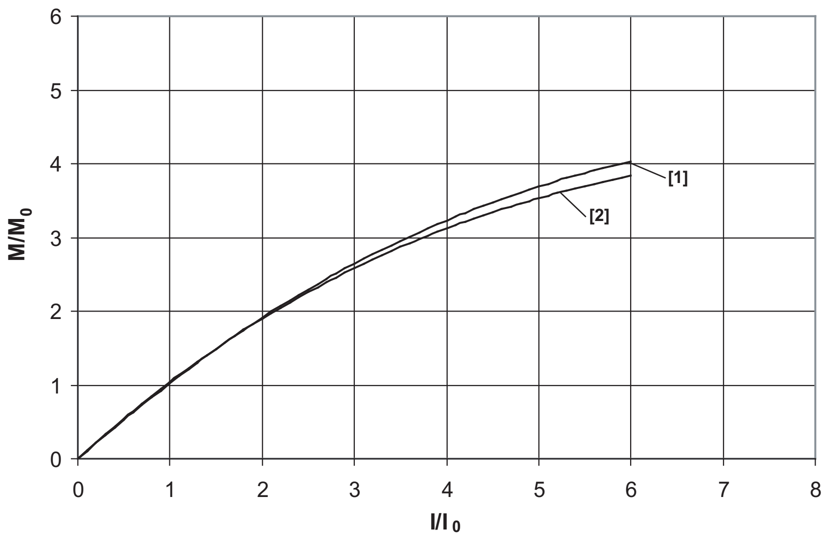
7.6.1 CMSB50, CMSMB50



4800435467

[1] CMSB50L, CMSMB50 (with CMP50L)
[2] CMSB50M, CMSMB50 (with CMP50M)
[3] CMSB50S, CMSMB50 (with CMP50S)

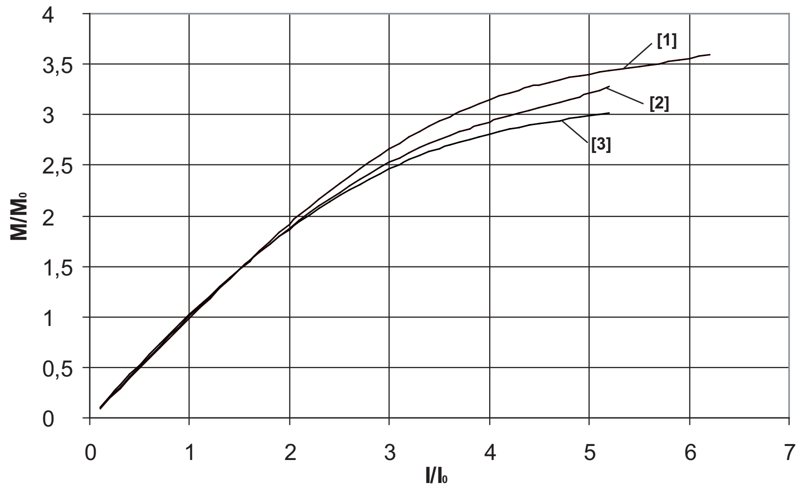
7.6.2 CMSB63, CMSMB63



12468430987

[1] CMS63M, CMSMB63 (with CMP63M)
[2] CMS63S, CMSMB63 (with CMP63S)

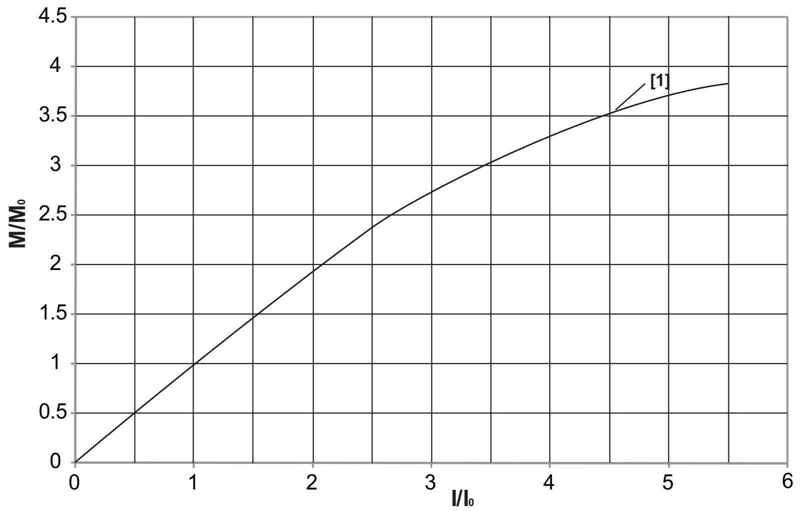
7.6.3 CMSB71, CMSMB71



12468435467

[1] CMSB71L, CMSMB71 (with CMP71L)
[2] CMSB71M, CMSMB71 (with CMP71M)
[3] CMSB71S, CMSMB71 (with CMP71S)

7.6.4 CMS71



9007204623503883

[1] CMS71L

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7.7 Characteristic curves of dynamic limit torque

7.7.1 Definition

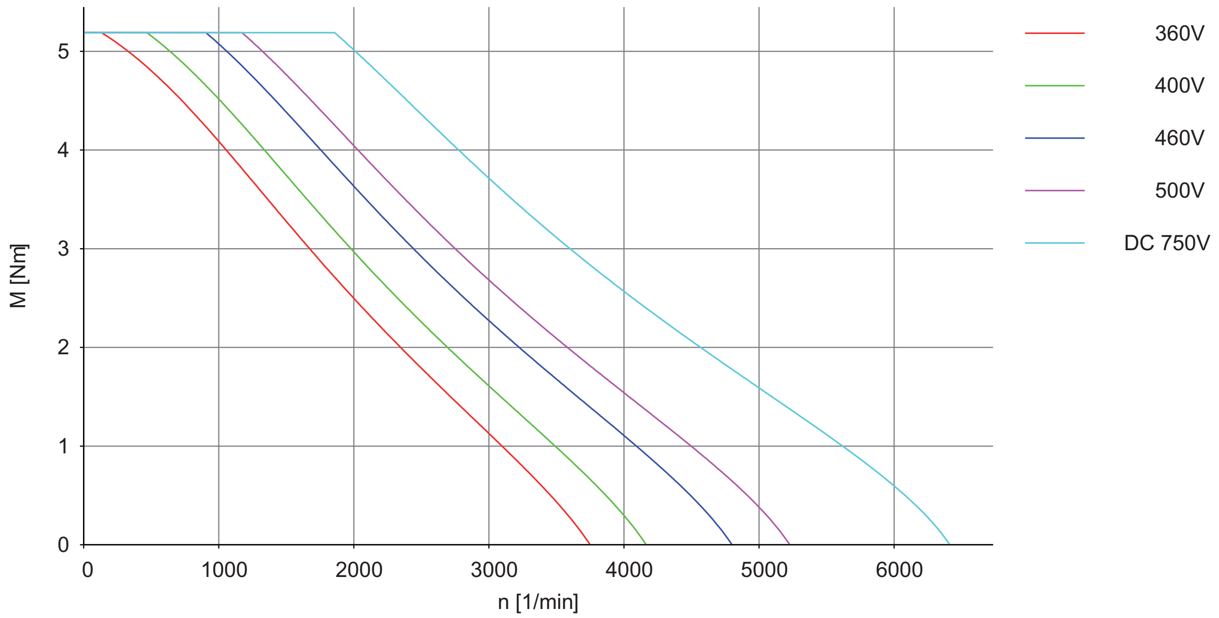
M = Maximum dynamic torque for a maximum line voltage on the inverter of 360 V, 400 V, 460 V, or 500 V

7.7.2 Key

DC 750 V	Controlled on DC 750 V constant
500 V	500 V line voltage, non-controlled
460 V	460 V line voltage, non-controlled
400 V	400 V line voltage, non-controlled
360 V	360 V line voltage, non-controlled

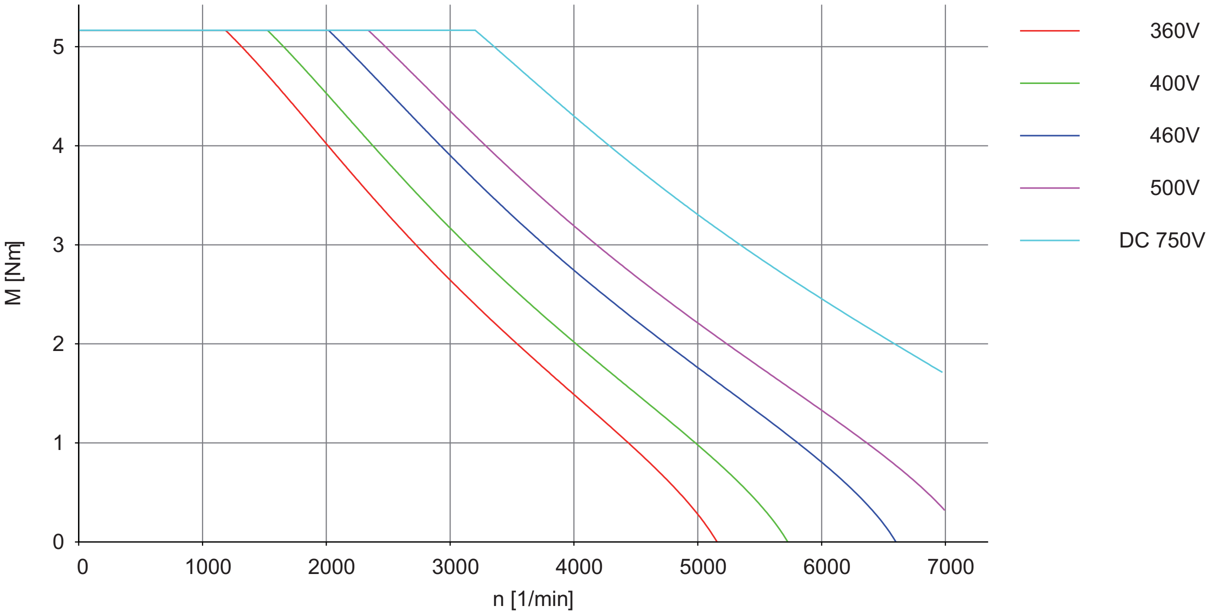
7.7.3 CMSB50, CMSMB50 /ACA, /ACH, /AP

CMSB50S, CMSMB50 (with CMP50S) /ACA, /ACH, /AP, n_N = 3000 1/min



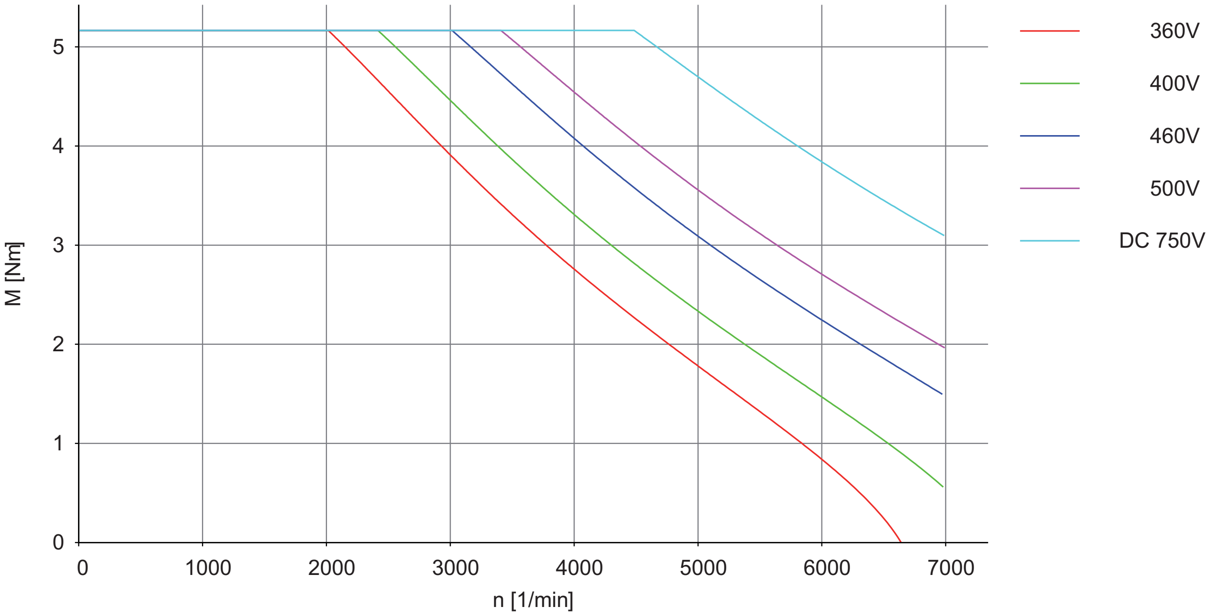
15692215691

CMSB50S, CMSMB50 (with CMP50S) /ACA, /ACH, /AP, n_N = 4500 1/min



15692218123

CMSB50S, CMSMB50 (with CMP50S) /ACA, /ACH, /AP, n_N = 6000 1/min



15692220555

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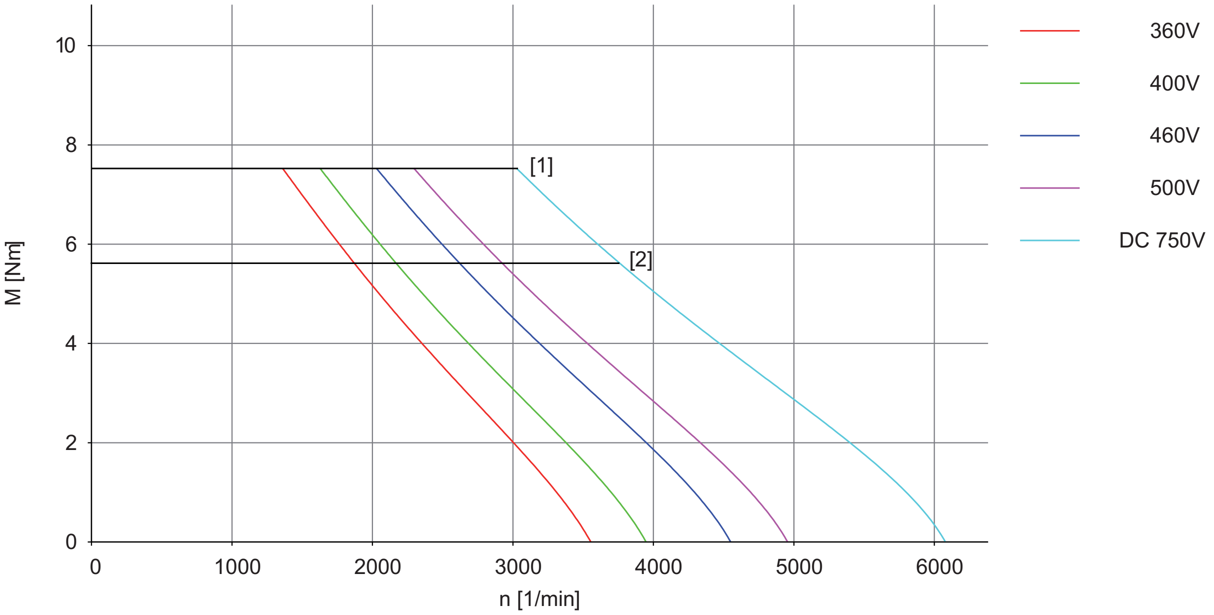
CMSB50M, CMSMB50 (with CMP50M) /ACA, /ACH, /AP, n_N = 3000 1/min



15692208395

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN
CMSB50M, CMSMB50 (with CMP50M) /ACH, /ACA (/AP i = 1:1)

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN
CMSMB50/AP/CMP50M: i = 36/27 ~ 1.33

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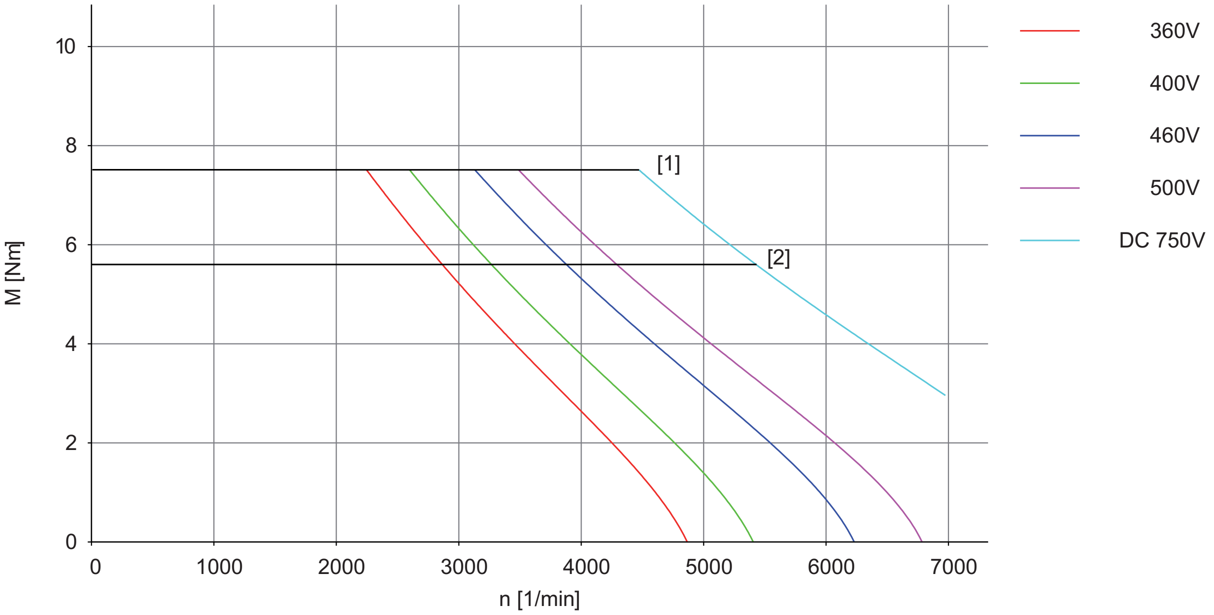
CMSB50M, CMSMB50 (with CMP50M) /ACA, /ACH, /AP, n_N = 4500 1/min

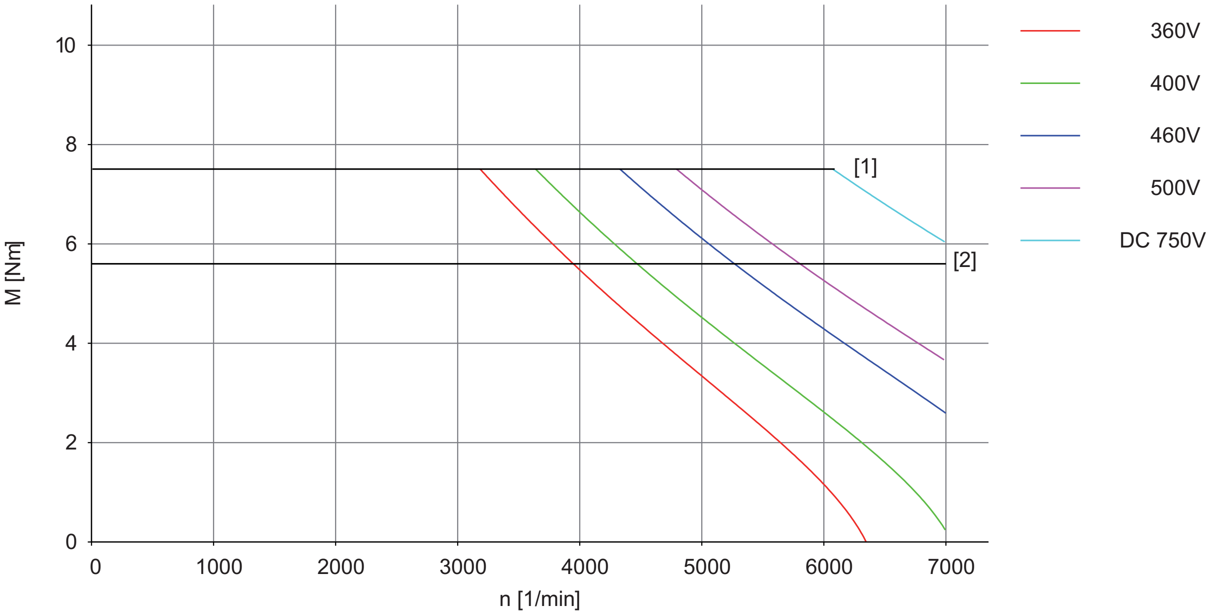


15692210827

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN
CMSB50M, CMSMB50 (with CMP50M) /ACH, /ACA (/AP i = 1:1)

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN
CMSMB50/AP/CMP50M: i = 36/27 ~ 1.33

CMSB50M, CMSMB50 (with CMP50M) /ACA, /ACH, /AP, n_N = 6000 1/min



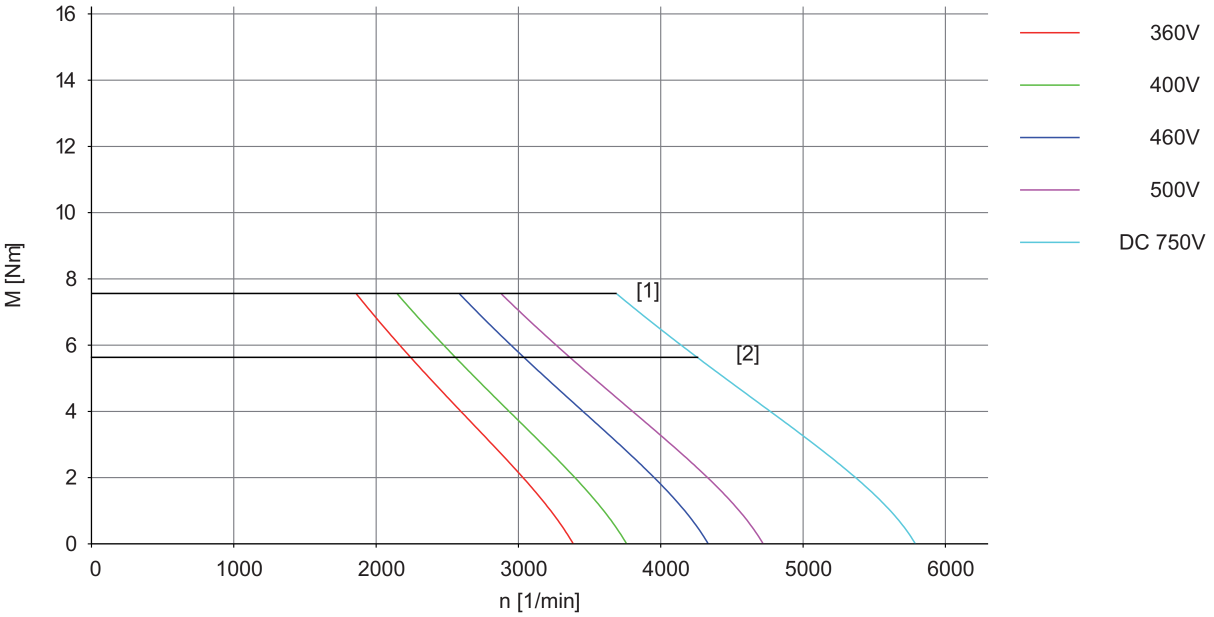
15692213259

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN

CMSMB50/AP/CMP50M: i = 36/27 ~ 1.33

CMSB50L, CMSMB50 (with CMP50L) /ACA, /ACH, /AP, n_N = 3000 1/min

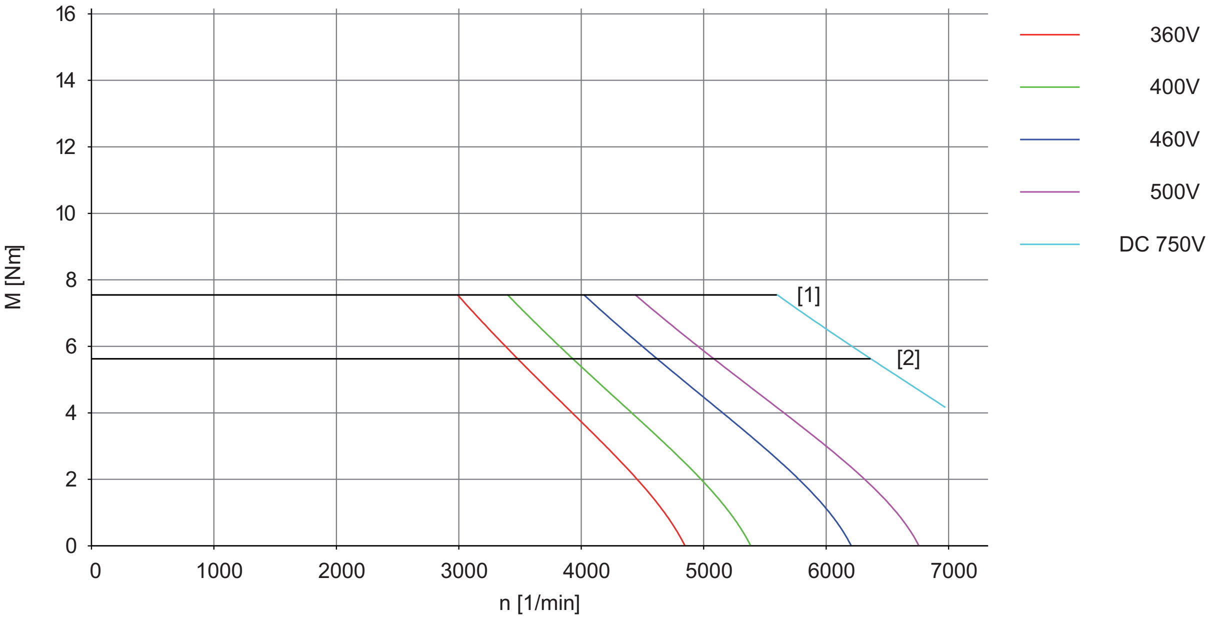


15692201099

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN
CMSMB50/AP/CMP50L: i = 36/27 ~ 1.33

CMSB50L, CMSMB50 (with CMP50L) /ACA, /ACH, /AP, n_N = 4500 1/min



15692203531

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN
CMSMB50/AP/CMP50L: i = 36/27 ~ 1.33

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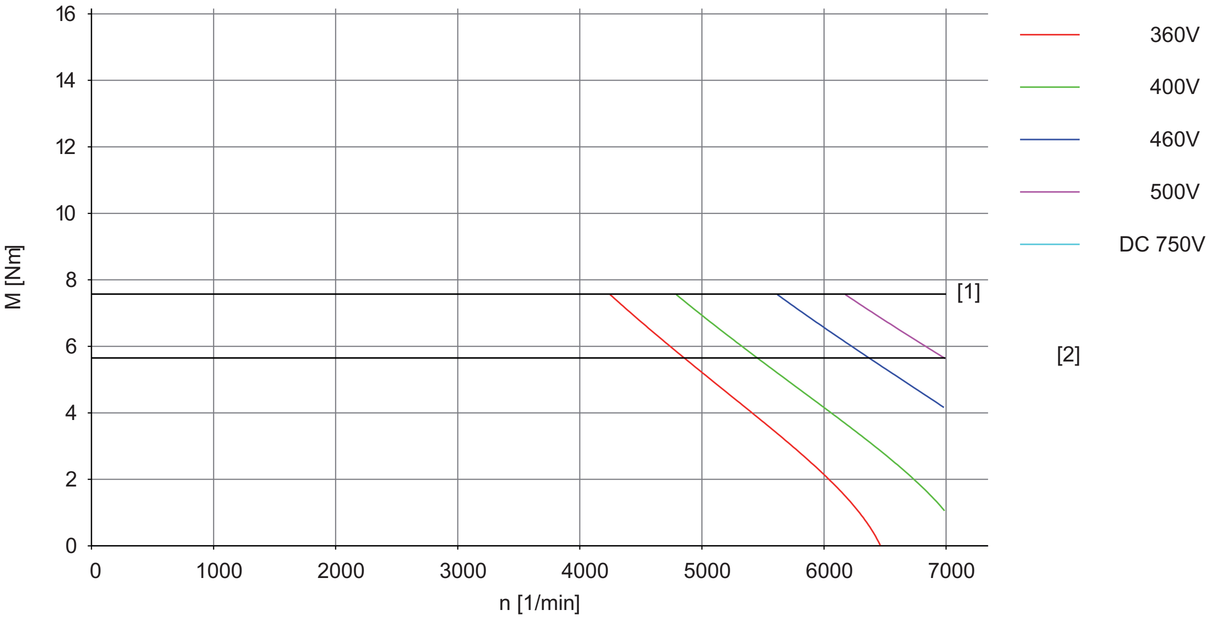
CMSB50L, CMSMB50 (with CMP50L) /ACA, /ACH, /AP, n_N = 6000 1/min



15692205963

[1] Max. permitted torque: 7.6 Nm ≙ F_{max} = 8 kN

[2] Max. permitted torque: 5.7 Nm ≙ F_{max} = 8 kN
CMSMB50/AP/CMP50L: i = 36/27 ~ 1.33

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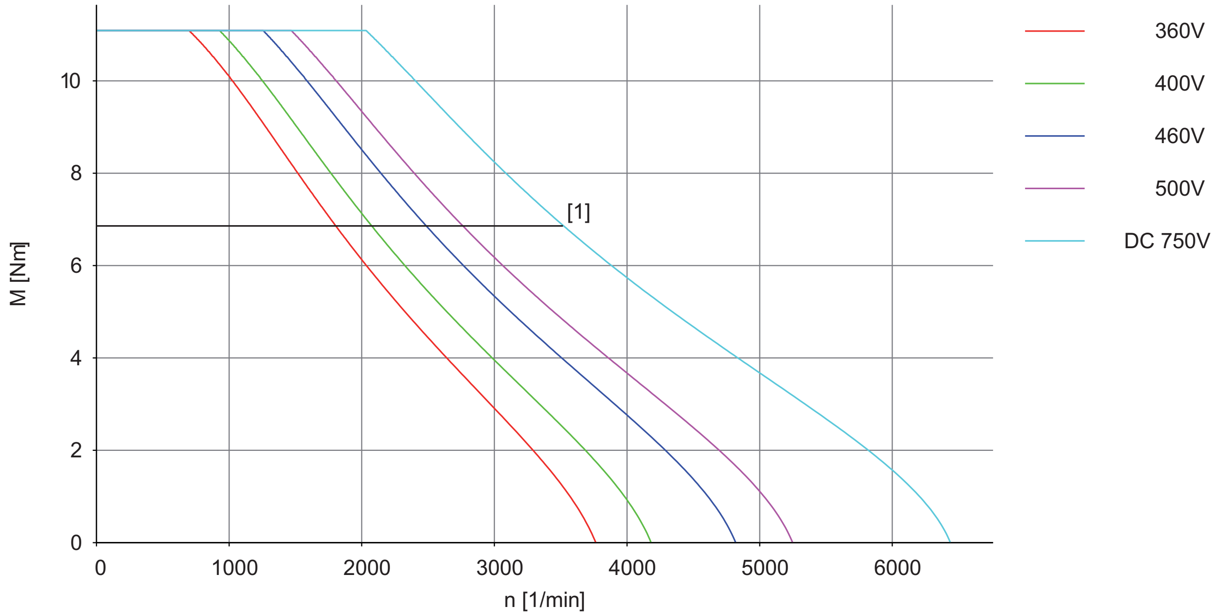
7.7.4 CMSB63, CMSMB63 /ACA, /ACH, /AP

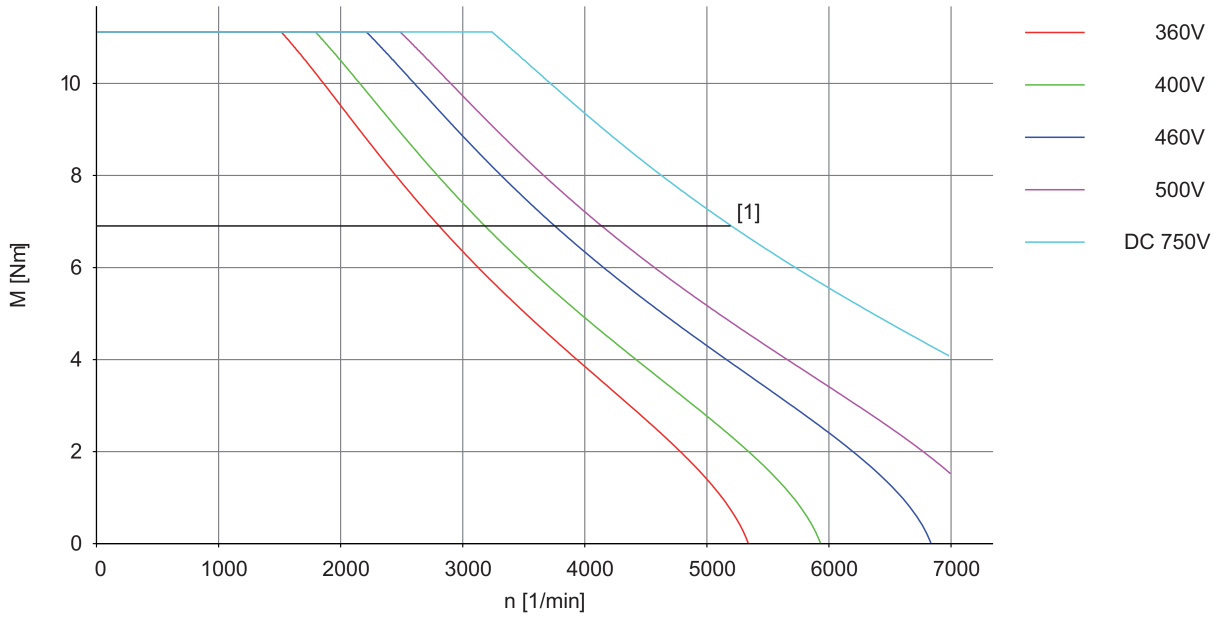
CMSB63S, CMSMB63 (with CMP63S) /ACA, /ACH, /AP, n_N = 3000 1/min



15692237579

[1] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN
CMSMB63/AP/CMP63S: i = 41/25 ~ 1.64

CMSB63S, CMSMB63 (with CMP63S) /ACA, /ACH, /AP, n_N = 4500 1/min



15692240011

[1] Max. permitted torque: 6.8 Nm ≙ F_{max} = 8 kN
CMSMB63/AP/CMP63S: i = 41/25 ~ 1.64

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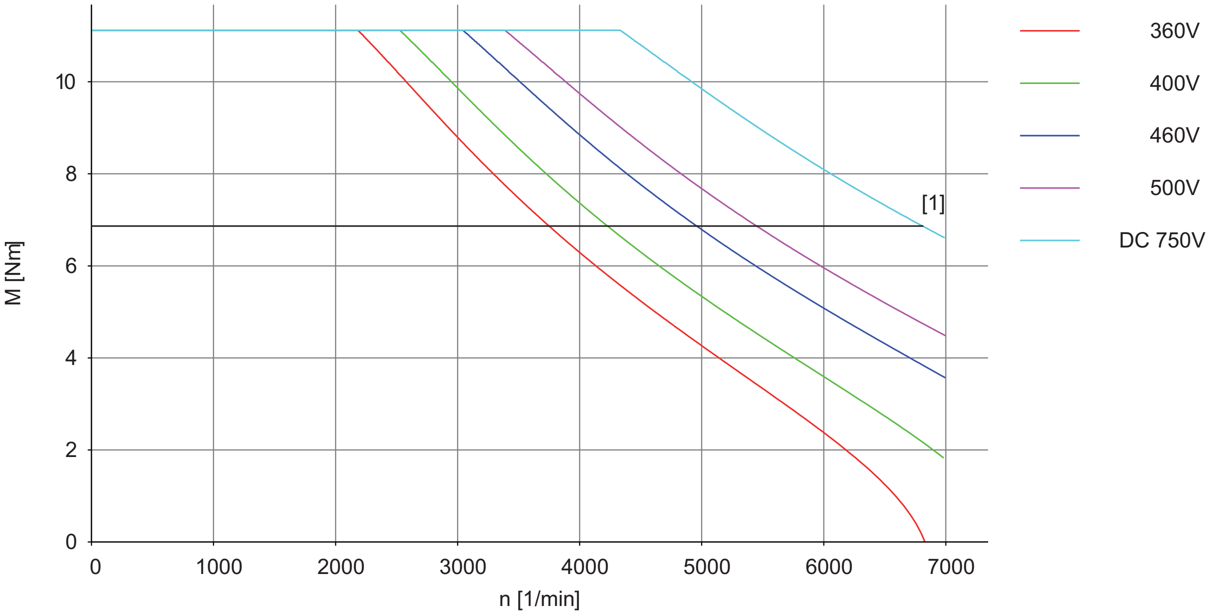
CMSB63S, CMSMB63 (with CMP63S) /ACA, /ACH, /AP, n_N = 6000 1/min



15692242443

[1] Max. permitted torque: 6.8 Nm ≙ F_{max} = 8 kN
CMSMB63/AP/CMP63S: i = 41/25 ~ 1.64

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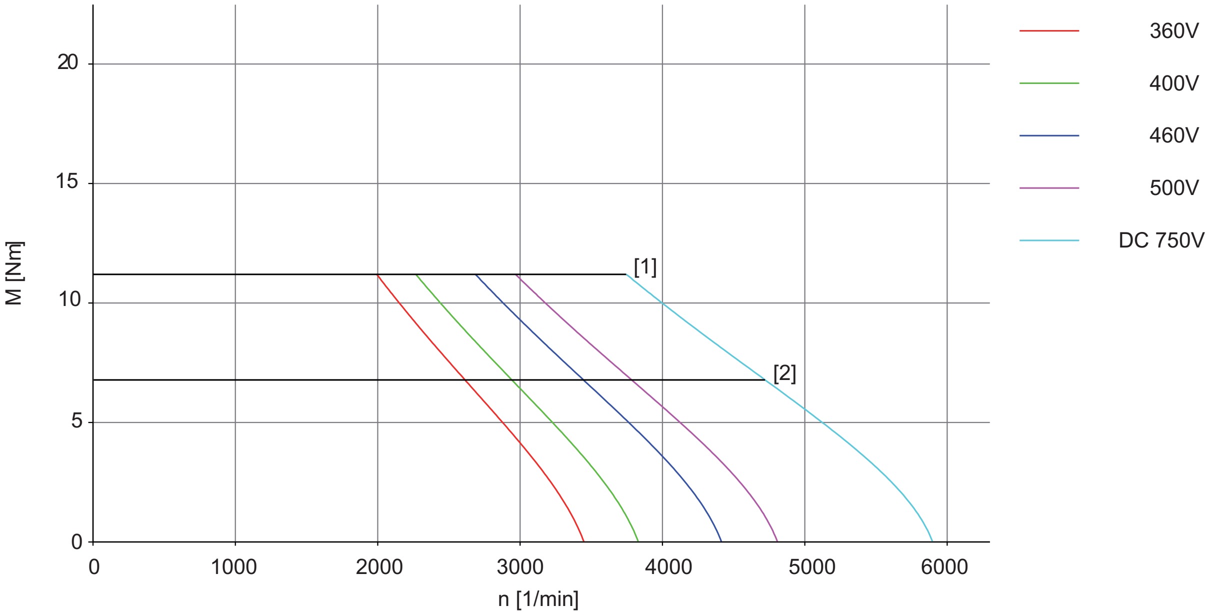
CMSB63M, CMSMB63 (with CMP63M) /ACA, /ACH, /AP, n_N = 3000 1/min



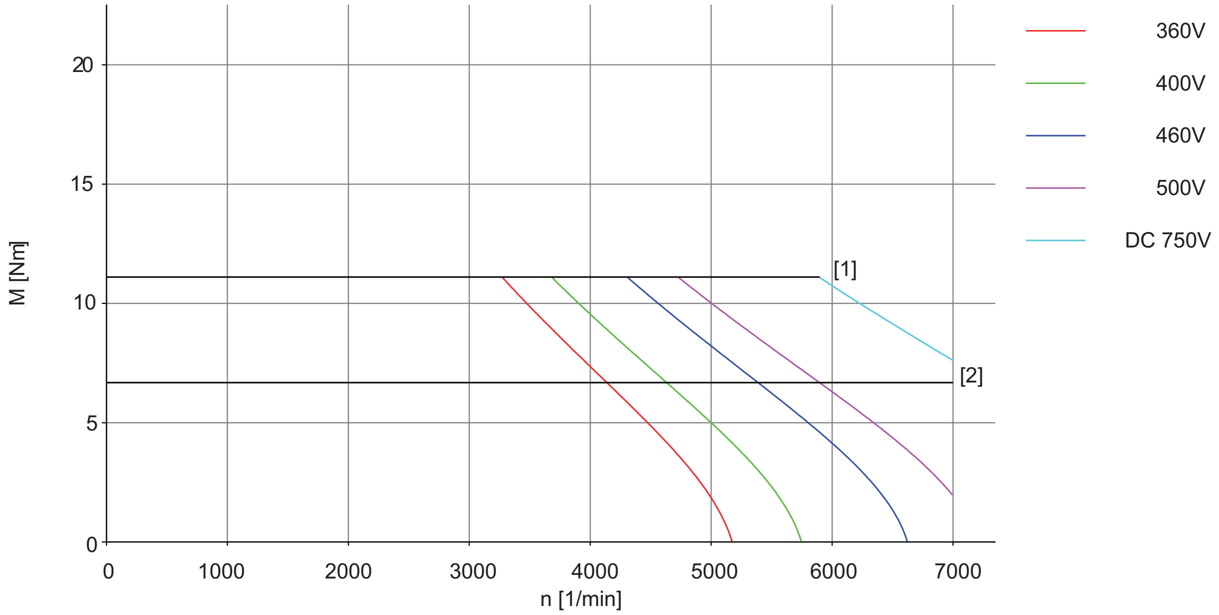
15692230283

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN

CMSMB63/AP/CMP63M: i = 41/25 ~ 1.64

CMSB63M, CMSMB63 (with CMP63M) /ACA, /ACH, /AP, n_N = 4500 1/min



15692232715

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN

CMSMB63/AP/CMP63M: i = 41/25 ~ 1.64

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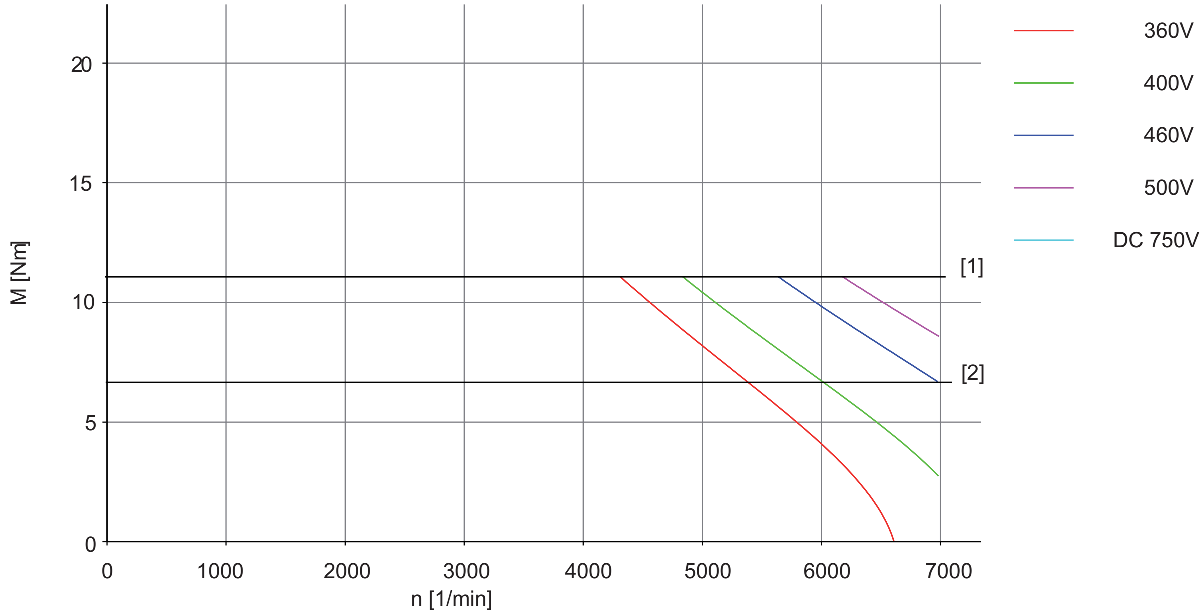
CMSB63M, CMSMB63 (with CMP63M) /ACA, /ACH, /AP, n_N = 6000 1/min

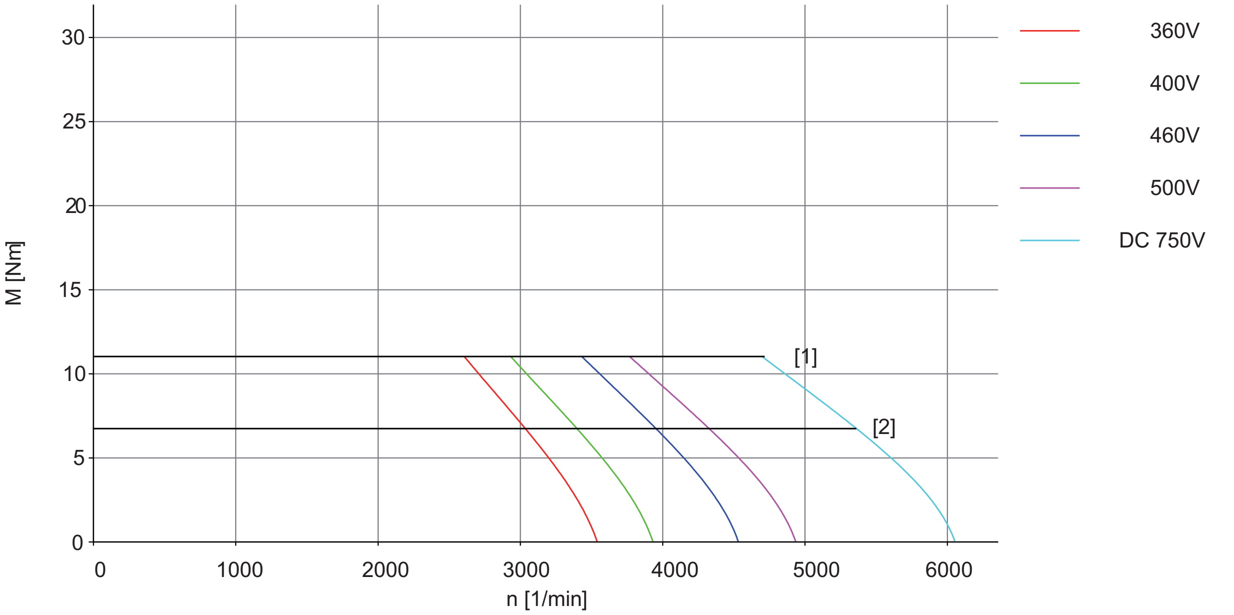


15692235147

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN
CMSMB63/AP/CMP63M: i = 41/25 ~ 1.64

CMSMB63 (with CMS63L) /ACA, /ACH, /AP, n_N = 3000 1/min

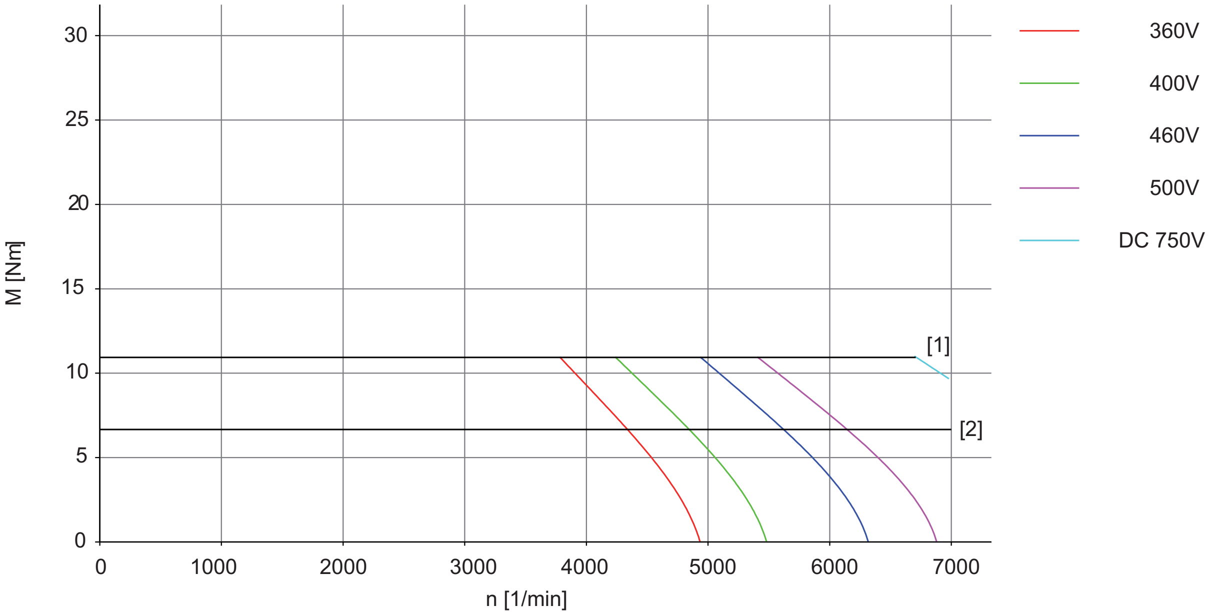


15692222987

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN
CMSMB63L /ACA, /ACH, (/AP i = 1:1)

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN
Only CMSMB63/AP/CMP63L: i = 41/25 ~ 1.64

CMSMB63 (with CMP63L) /ACA, /ACH, /AP, n_N = 4500 1/min

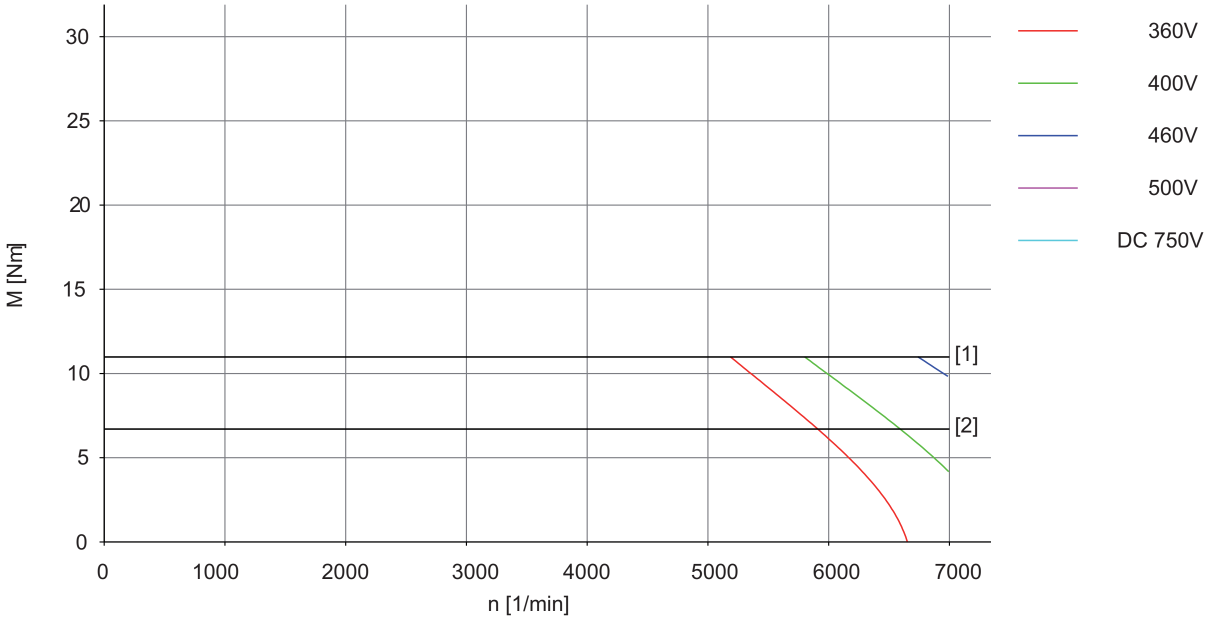


15692225419

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN
CMSMB63L /ACA, /ACH, (/AP i = 1:1)

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN
Only CMSMB63/AP/CMP63L: i = 41/25 ~ 1.64

7.7.5 CMSMB63 (with CMP63L) /ACA, /ACH, /AP, n_N = 6000 1/min



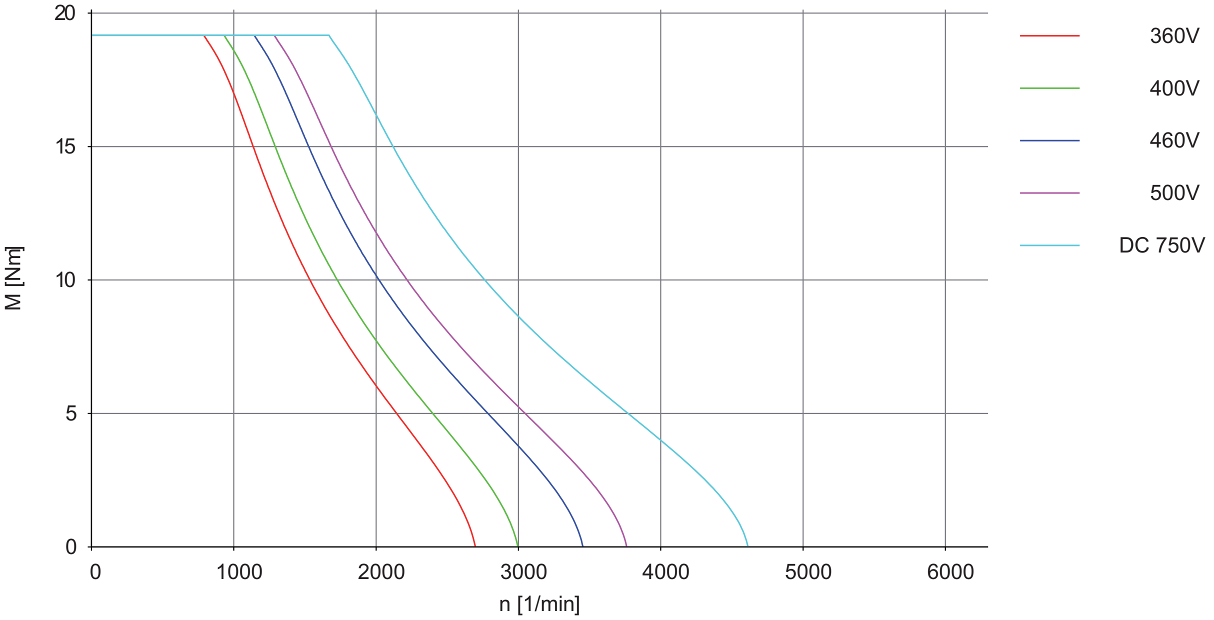
15692227851

[1] Max. permitted torque: 11.1 Nm ≙ F_{max} = 10 kN
CMSMB63L /ACA, /ACH, (/AP i = 1:1)

[2] Max. permitted torque: 6.8 Nm ≙ F_{max} = 10 kN
Only CMSMB63/AP/CMP63L: i = 41/25 ~ 1.64

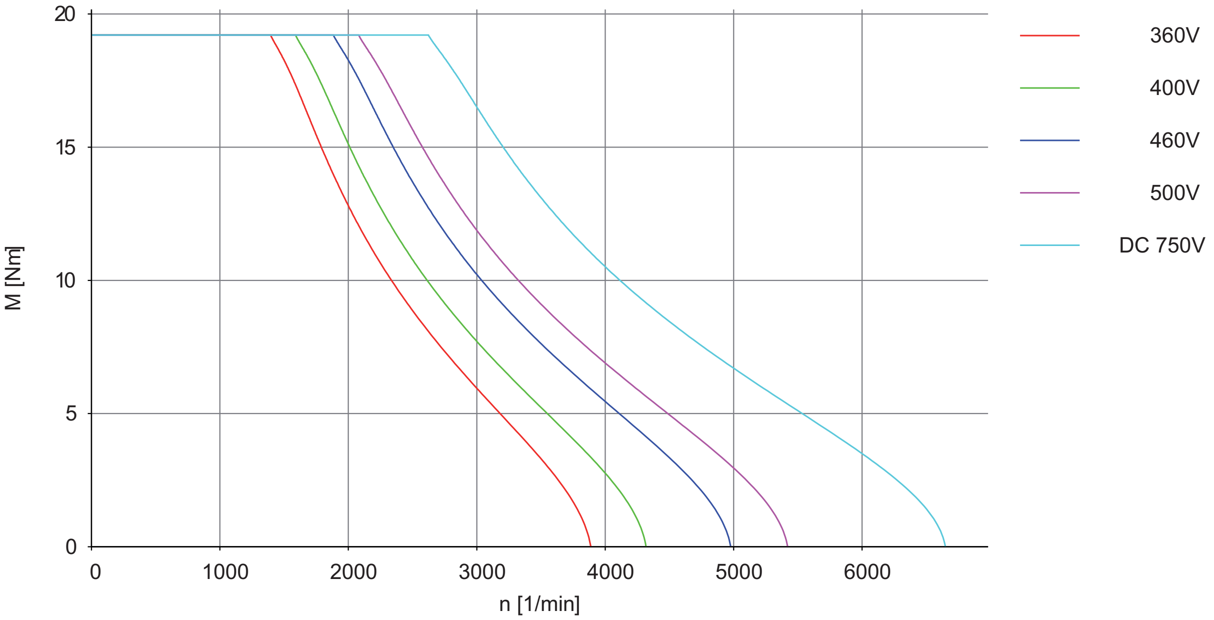
7.7.6 CMSB71, CMSMB71 /ACA, /ACH, /AP

CMSB71S, CMSMB71 (with CMP71S) /ACA, /ACH, /AP, n_N = 2000 1/min



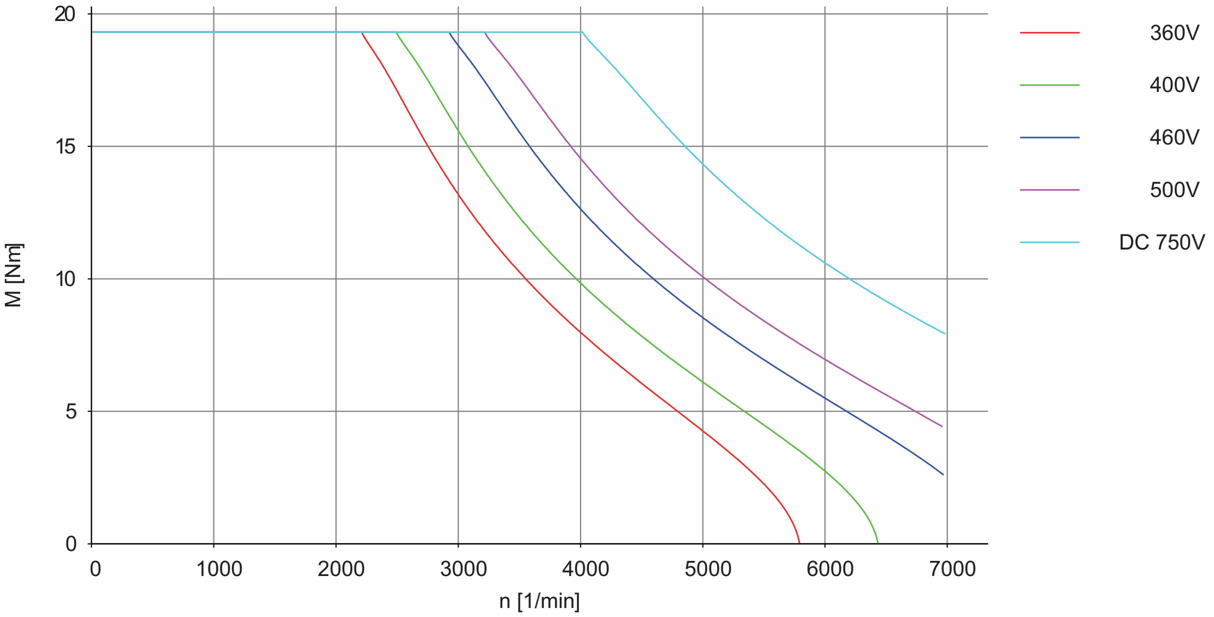
15692264331

CMSB71S, CMSMB71 (with CMP71S) /ACA, /ACH, /AP, n_N = 3000 1/min



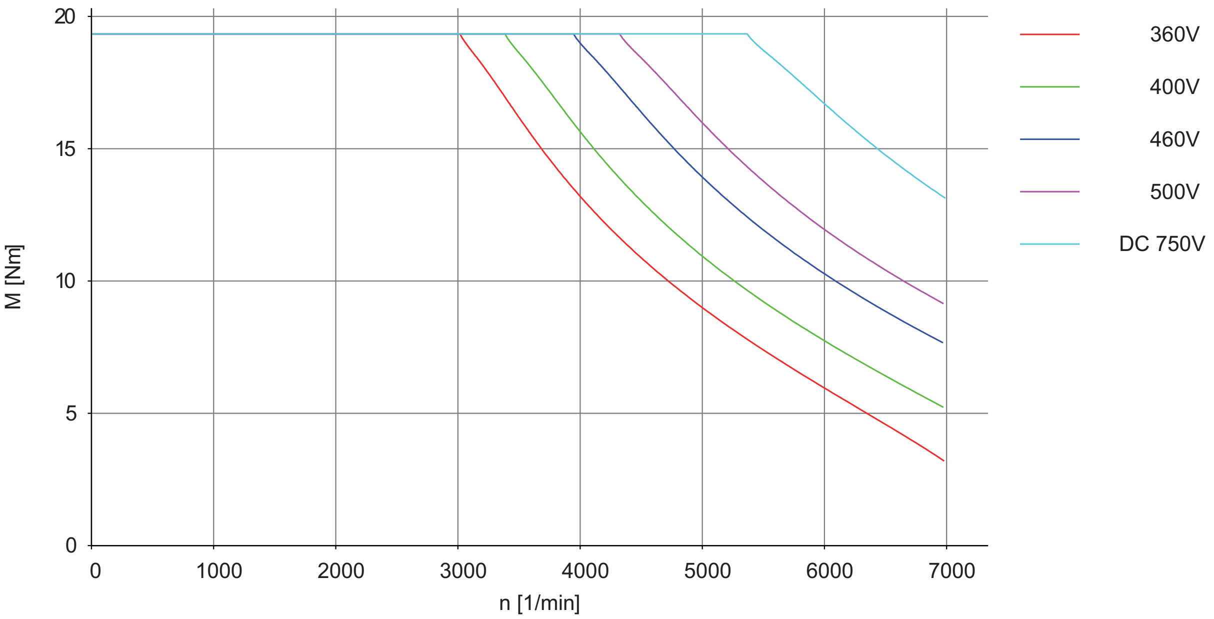
15692266763

CMSB71S, CMSMB71 (with CMP71S) /ACA, /ACH, /AP, n_N = 4500 1/min



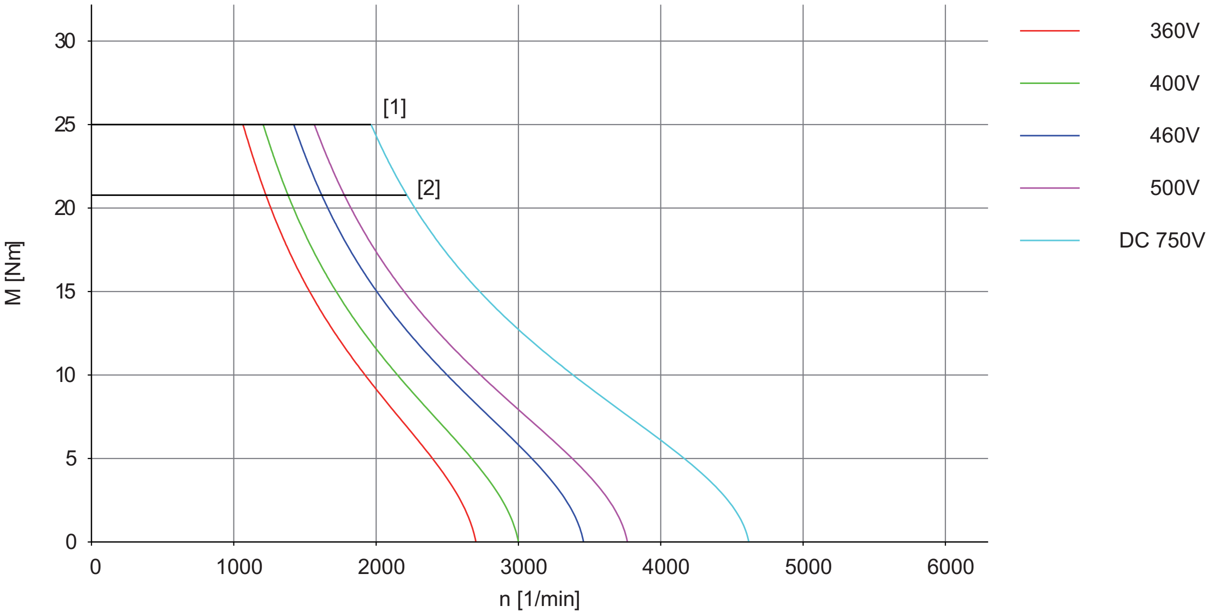
15692269195

CMSB71S, CMSMB71 (with CMP71S) /ACA, /ACH, /AP, n_N = 6000 1/min



15692271627

CMSB71M, CMSMB71 (with CMP71M) /ACA, /ACH, /AP, n_N = 2000 1/min



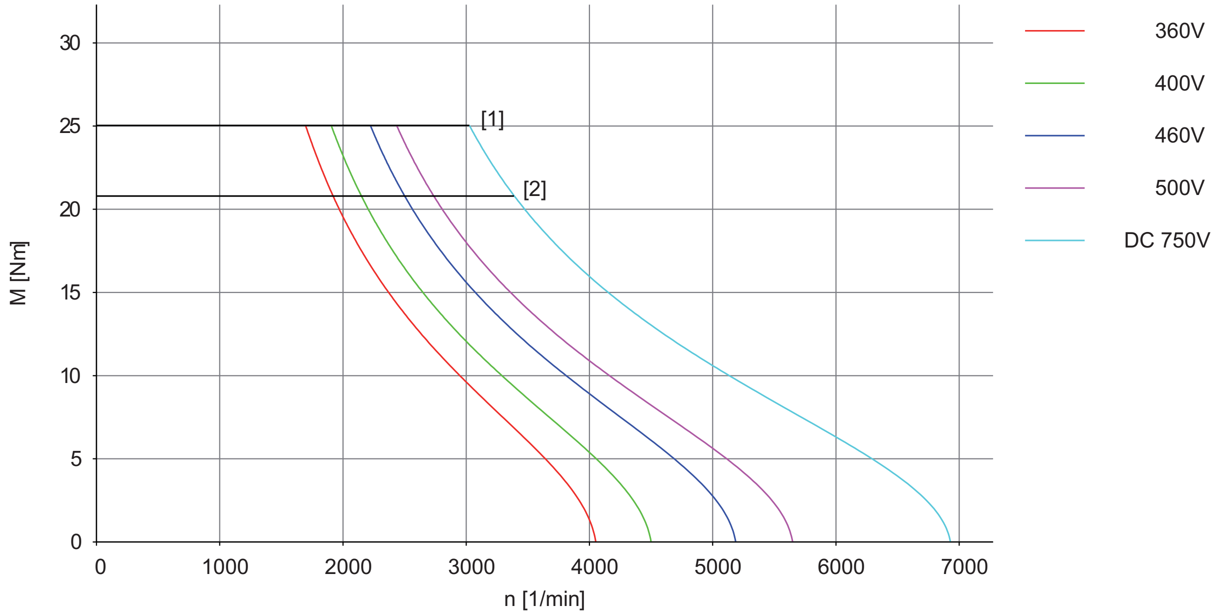
15692254603

[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN

CMSMB71/AP/CMP71M: i = 57/47 ~ 1.21

CMSB71M, CMSMB71 (with CMP71M) /ACA, /ACH, /AP, n_N = 3000 1/min



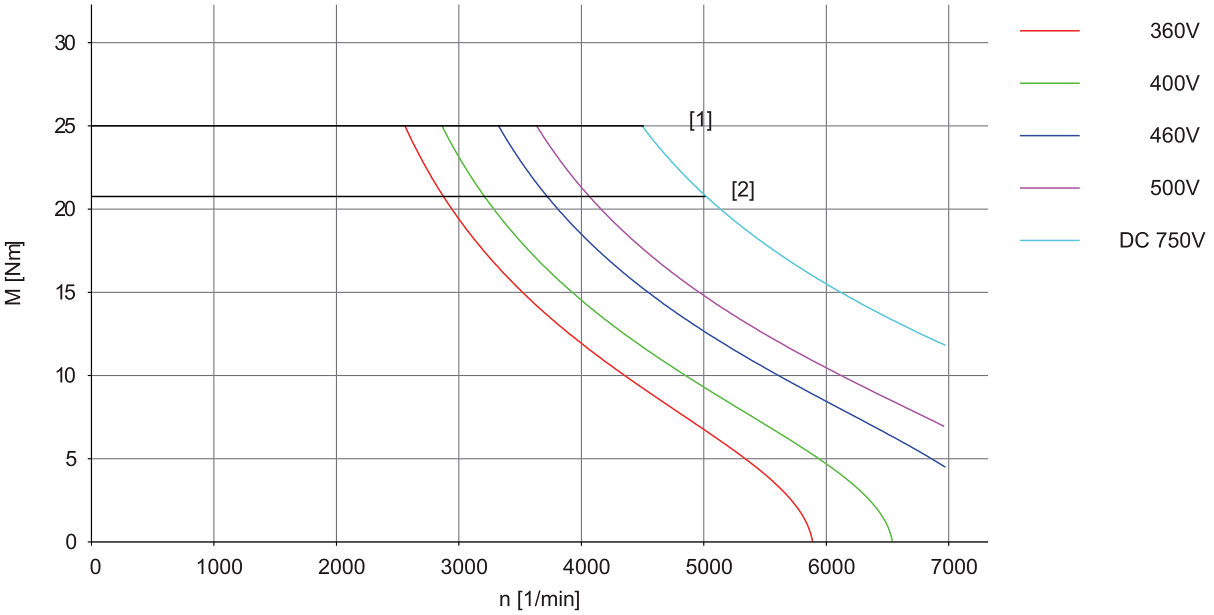
15692257035

[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN
CMSMB71/AP/CMP71M: i = 57/47 ~ 1.21

20176945/EN – 07/2016

CMSB71M, CMSMB71 (with CMP71M) /ACA, /ACH, /AP, n_N = 4500 1/min



15692259467

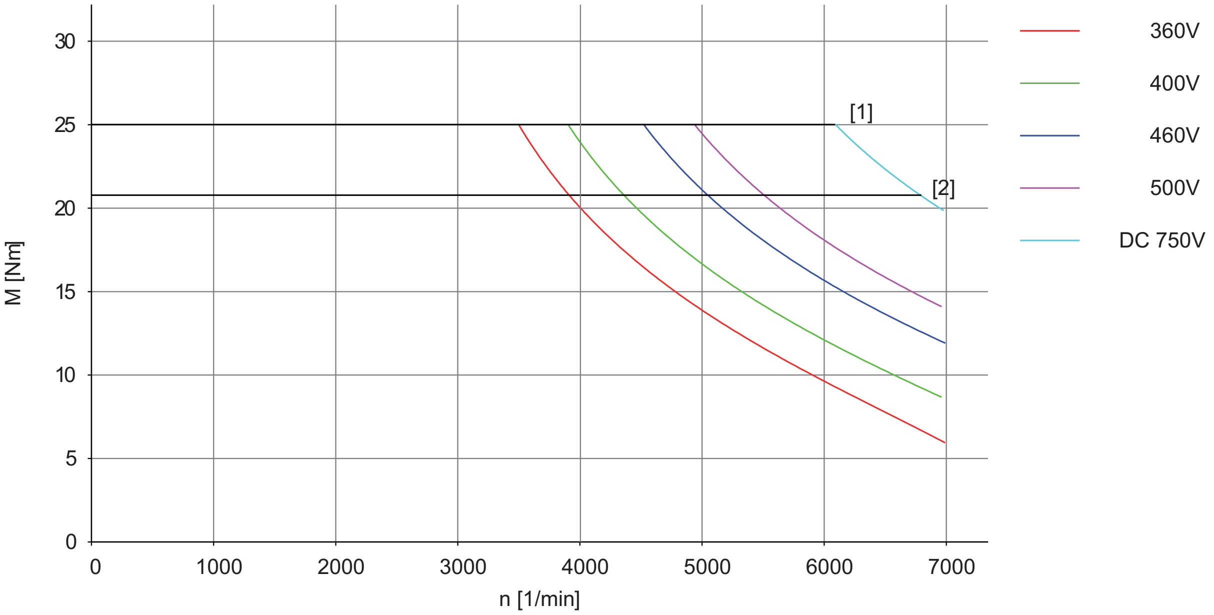
[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN

CMSMB71/AP/CMP71M: i = 57/47 ~ 1.21

20176945/EN – 07/2016

CMSB71M, CMSMB71 (with CMP71M) /ACA, /ACH, /AP, n_N = 6000 1/min



15692261899

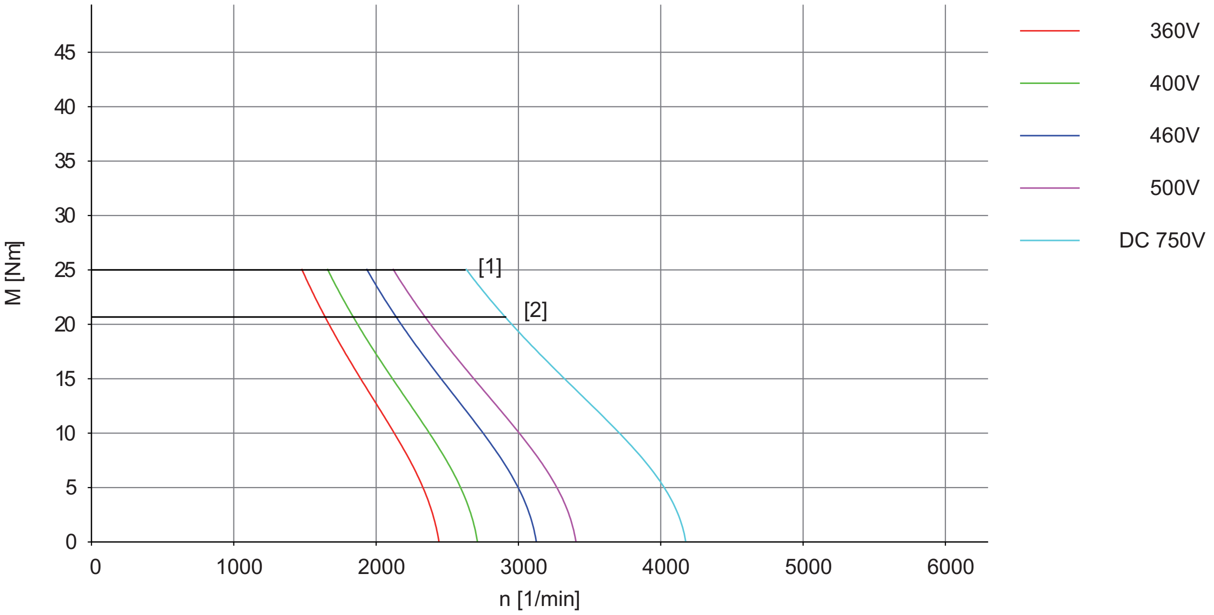
[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN

CMSMB71/AP/CMP71M: i = 57/47 ~ 1.21

20176945/EN – 07/2016

CMSB71L, CMSMB71 (with CMP71L) /ACA, /ACH, /AP, n_N = 2000 1/min

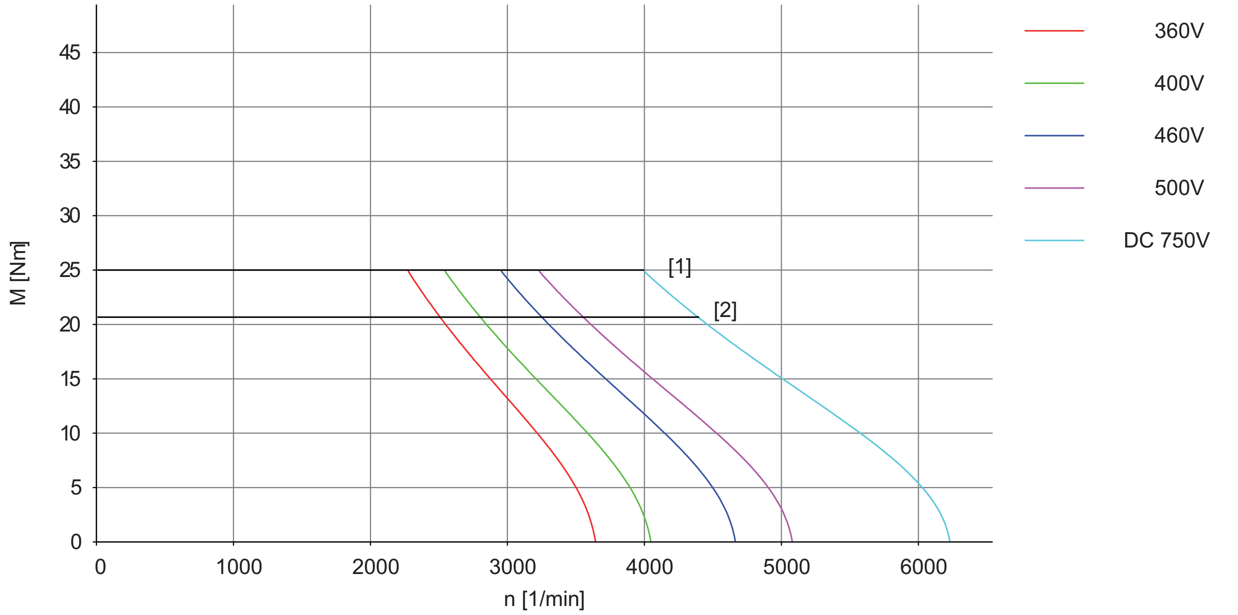


15692244875

[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN
CMSMB71/AP/CMP71L: i = 57/47 ~ 1.21

CMSB71L, CMSMB71 (with CMP71L) /ACA, /ACH, /AP, n_N = 3000 1/min



15692247307

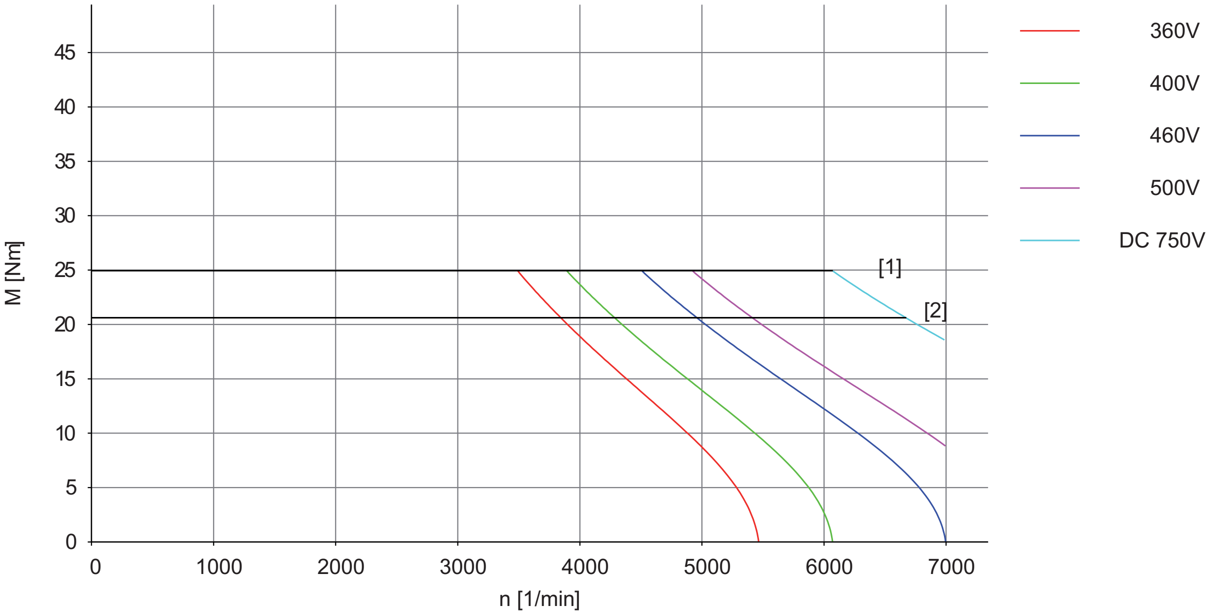
[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN

CMSMB71/AP/CMP71L: i = 57/47 ~ 1.21

20176945/EN – 07/2016

CMSB71L, CMSMB71 (with CMP71L) /ACA, /ACH, /AP, n_N = 4500 1/min



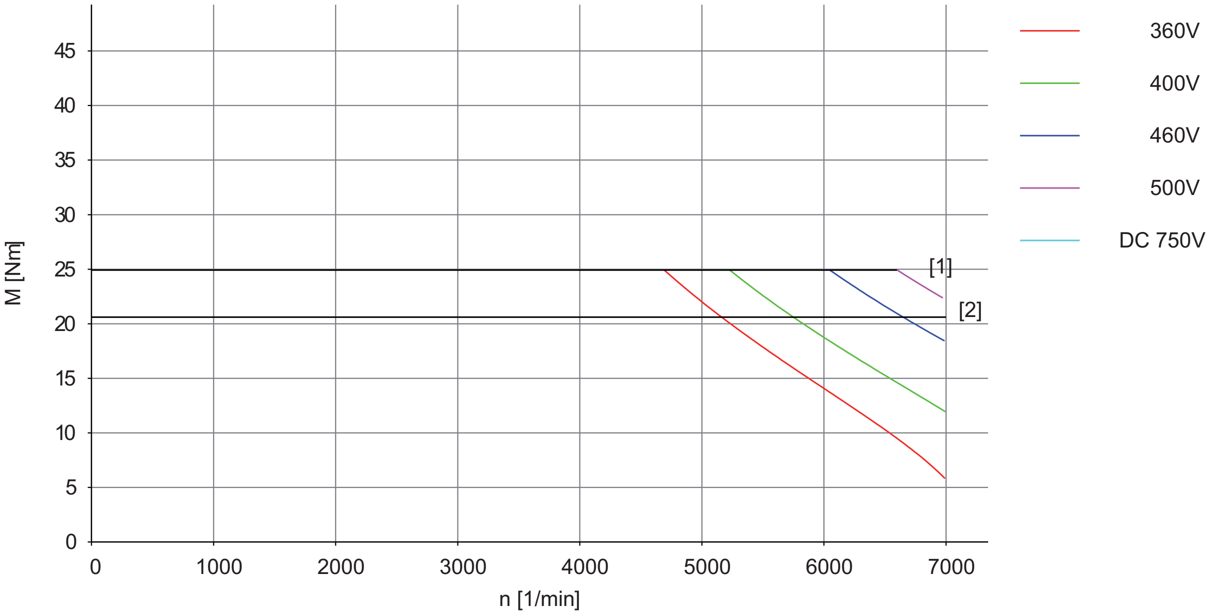
15692249739

[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN

CMSMB71/AP/CMP71L: i = 57/47 ~ 1.21

CMSB71L, CMSMB71 (with CMP71L) /ACA, /ACH, /AP, n_N = 6000 1/min



15692252171

[1] Max. permitted torque: 25 Nm ≙ F_{max} = 24 kN

[2] Max. permitted torque: 20.7 Nm ≙ F_{max} = 24 kN
CMSMB71/AP/CMP71L: i = 57/47 ~ 1.21

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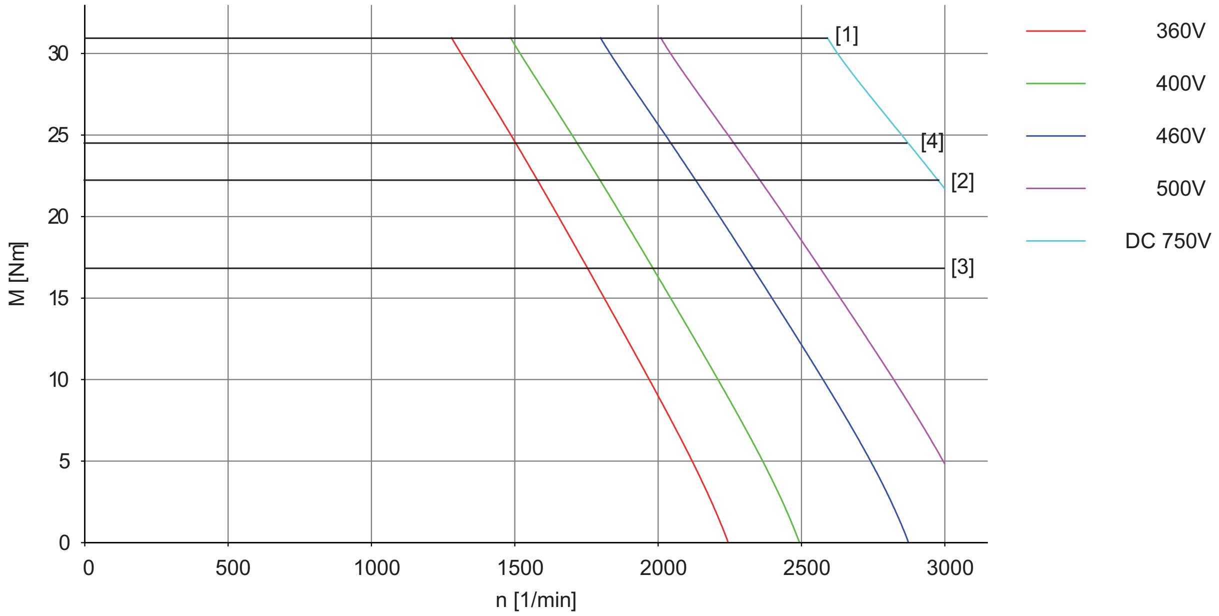
7.7.7 CMS71L

CMS71L n_N = 2000 1/min



15692193803

[1] Max. permitted torque: 31.4 Nm ≙ F_{max} = 17 kN
KGT, pitch 10, stroke 200 mm

[2] Max. permitted torque: 24.4 Nm ≙ F_{max} = 20 kN
KGT, pitch 6, stroke 200 mm

[3] Max. permitted torque: 22.1 Nm ≙ F_{max} = 15 kN
KGT, pitch 6, stroke 350 mm

[4] Max. permitted torque: 16.6 Nm ≙ F_{max} = 20 kN
PGT, pitch 5, stroke 200 mm

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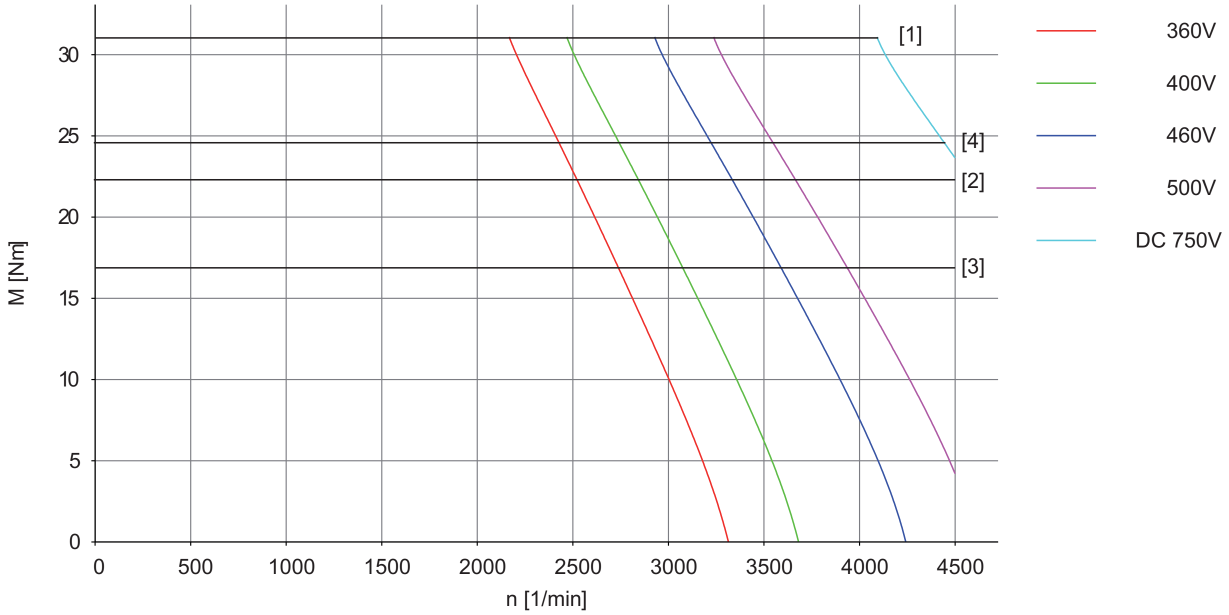
CMS71L n_N = 3000 1/min



15692196235

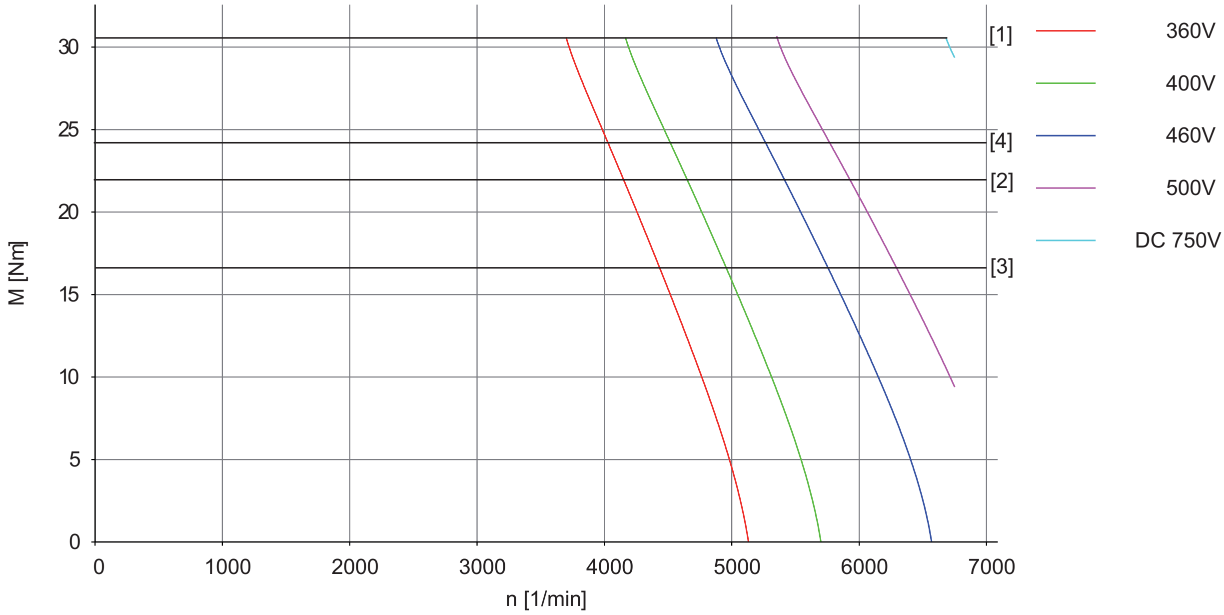
[1] Max. permitted torque: 31.4 Nm ≙ F_{max} = 17 kN
KGT, pitch 10, stroke 200 mm

[2] Max. permitted torque: 24.4 Nm ≙ F_{max} = 20 kN
KGT, pitch 6, stroke 200 mm

[3] Max. permitted torque: 22.1 Nm ≙ F_{max} = 15 kN
KGT, pitch 6, stroke 350 mm

[4] Max. permitted torque: 16.6 Nm ≙ F_{max} = 20 kN
PGT, pitch 5, stroke 200 mm

CMS71L n_N = 4500 1/min



15692198667

[1]	Max. permitted torque: 31.4 Nm ≙ F_{max} = 17 kN KGT, pitch 10, stroke 200 mm
[2]	Max. permitted torque: 24.4 Nm ≙ F_{max} = 20 kN KGT, pitch 6, stroke 200 mm
[3]	Max. permitted torque: 22.1 Nm ≙ F_{max} = 15 kN KGT, pitch 6, stroke 350 mm
[4]	Max. permitted torque: 16.6 Nm ≙ F_{max} = 20 kN PGT, pitch 5, stroke 200 mm

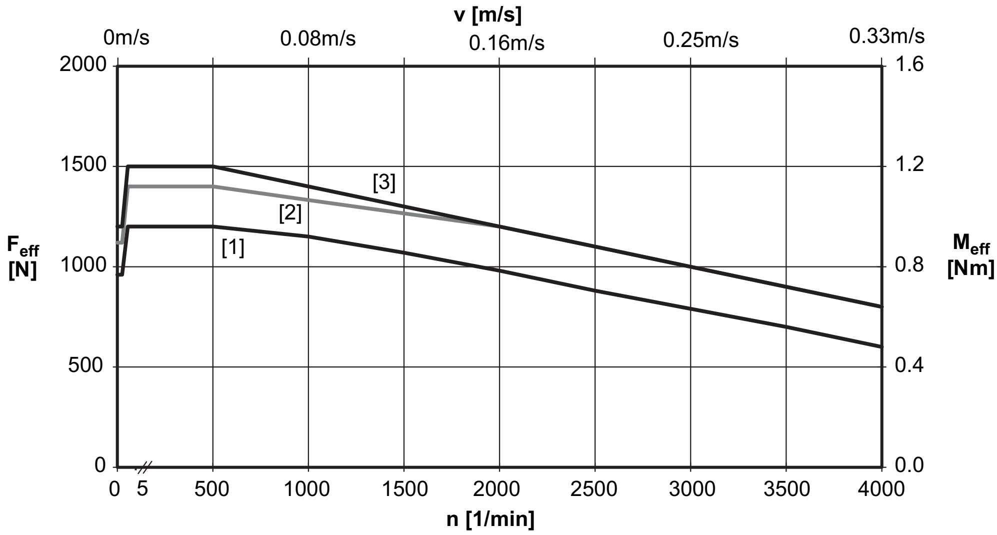
7.8 Characteristic curves of thermal limit torque

7.8.1 CMSB50..

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

CMSB50S



15478929931

[1]	F
[2]	F_{LC}
[3]	F_{VR}

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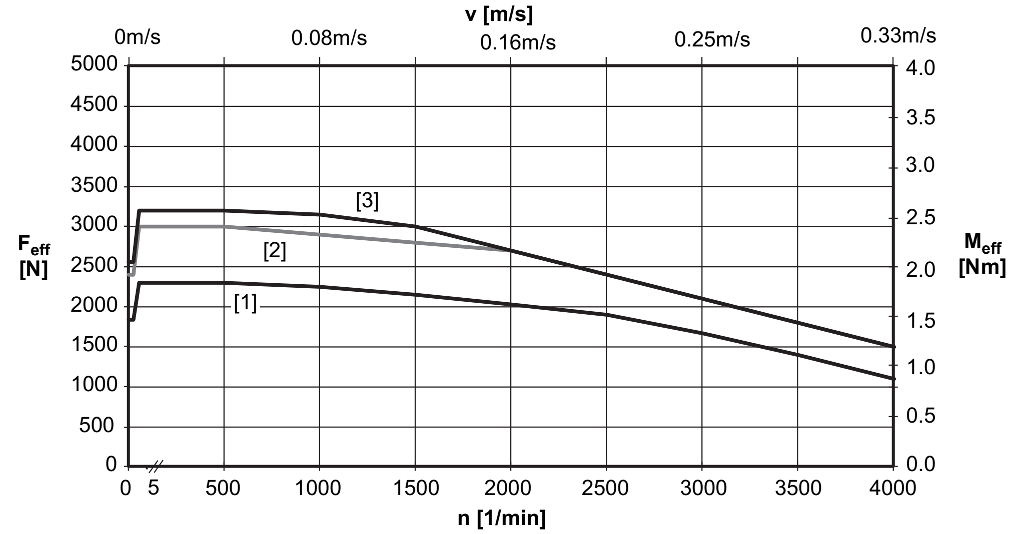
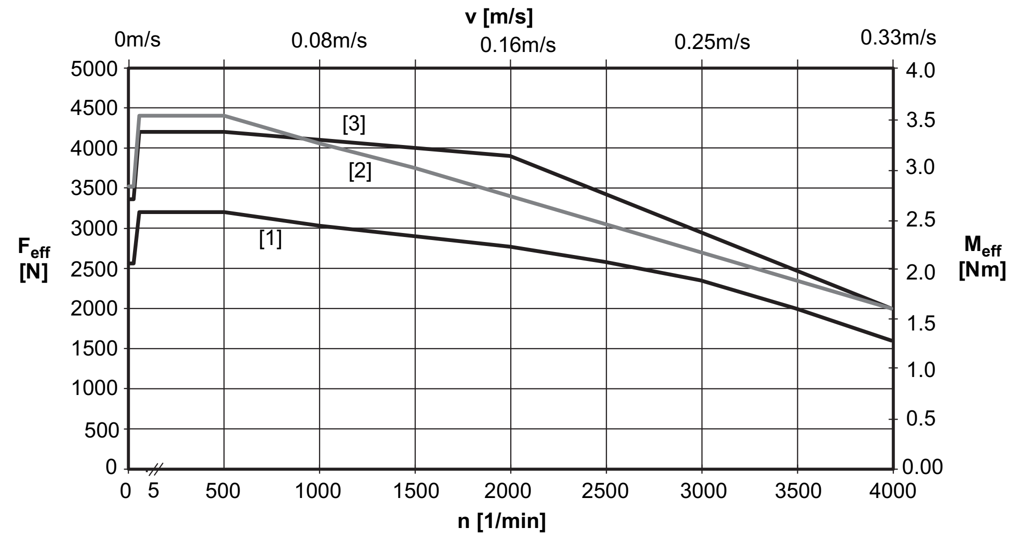
CMSB50M



15478927499

[1]	F
[2]	F_{LC}
[3]	F_{VR}

CMSB50L



15478925067

[1]	F
[2]	F_{VR}
[3]	F_{LC}

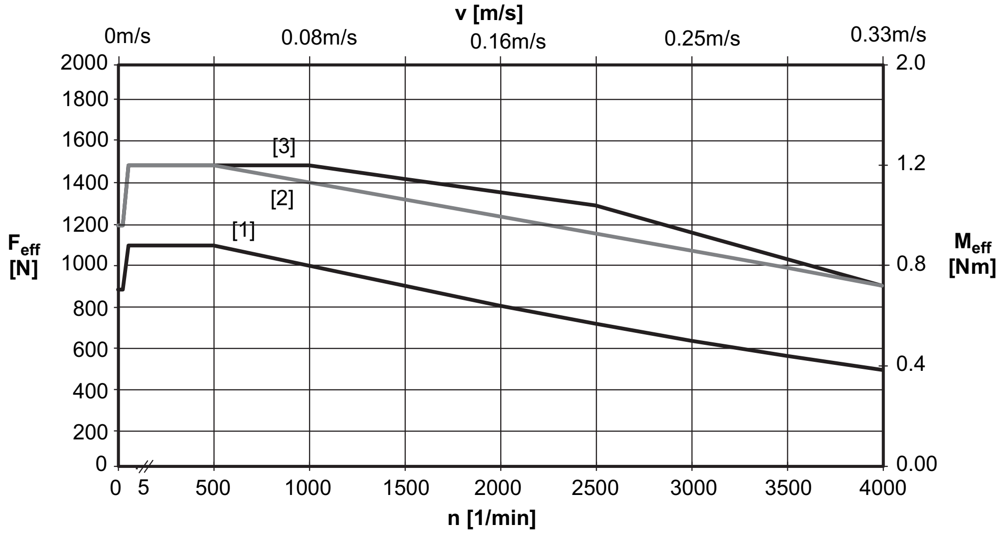
20176945/EN – 07/2016

7.8.2 CMSMB50.. /AP

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

CMSMB50 /AP with CMP50S, with belt transmission i = 1:1



15478954891

[1]	F
[2]	F_{VR}
[3]	F_{LC}

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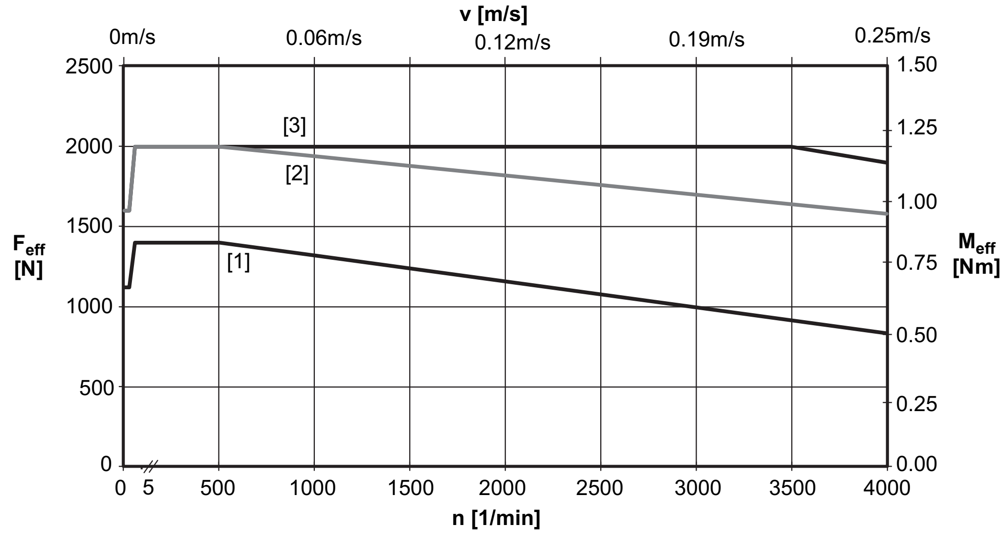
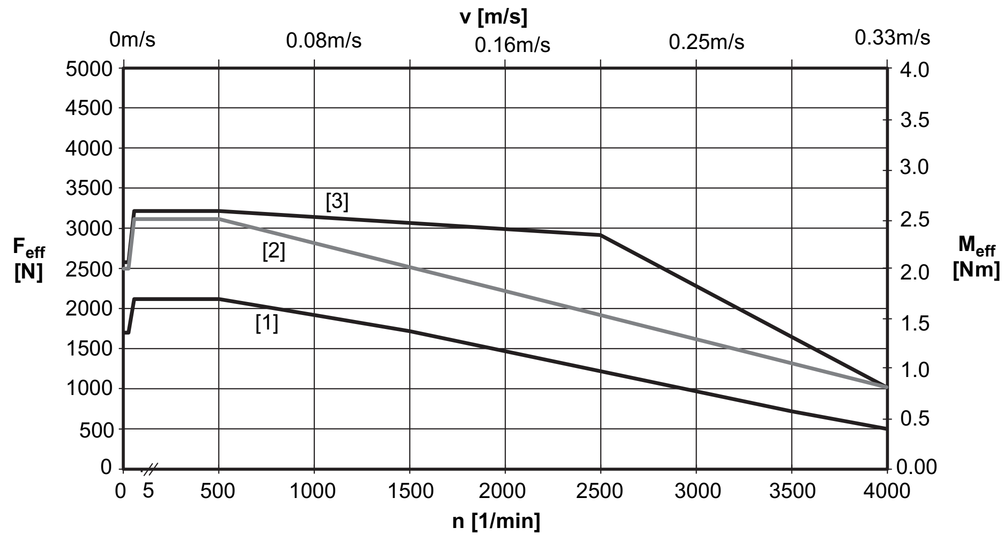
CMSMB50 /AP with CMP50S, with belt transmission i = 30 36/27 ~ 1.33



15478957323

[1]	F
[2]	F_{VR}
[3]	F_{LC}

CMSMB50 /AP with CMP50M, with belt transmission i = 1:1

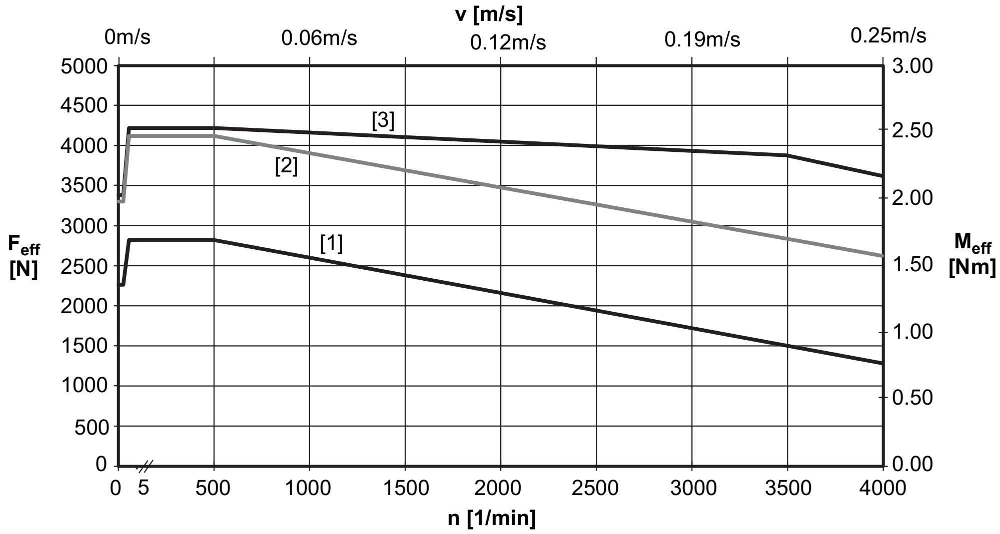


15478937227

[1]	F
[2]	F_{VR}
[3]	F_{LC}

20176945/EN – 07/2016

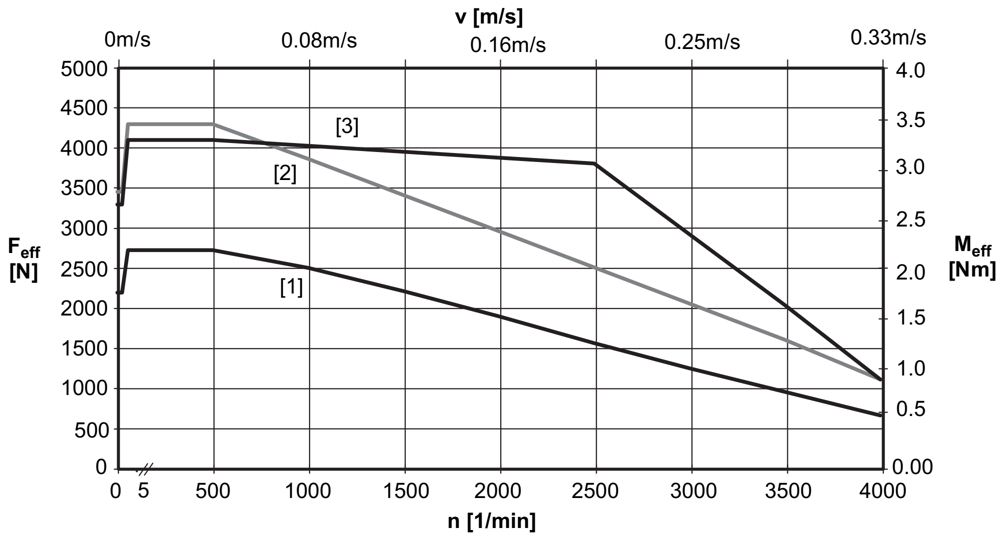
CMSMB50 /AP with CMS50M, with belt transmission i = 36/27 ~ 1.33



15478952459

[1] F
[2] F_{VR}
[3] F_{LC}

CMSMB50 /AP with CMS50L, with belt transmission i = 1:1

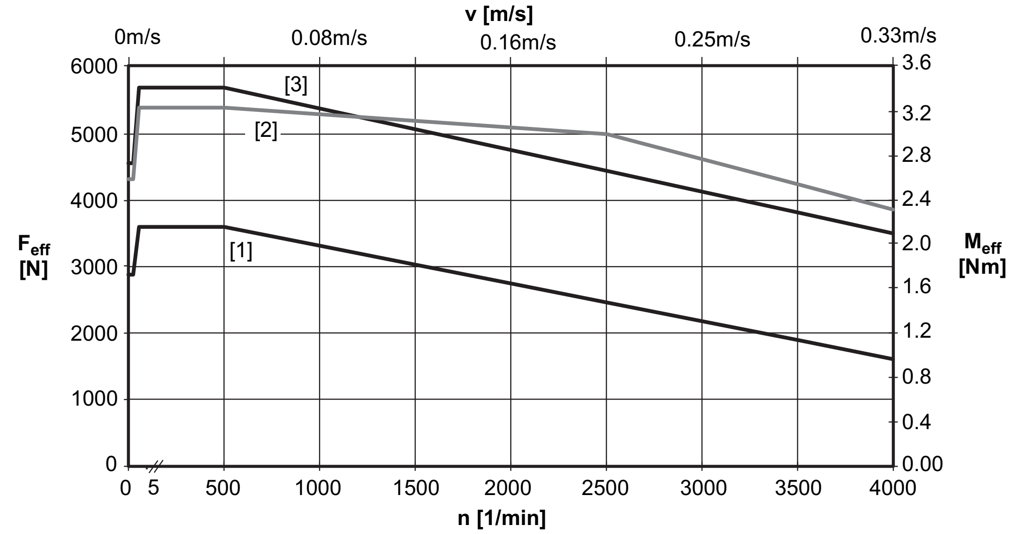


15478932363

[1] F
[2] F_{VR}
[3] F_{LC}

20176945/EN – 07/2016

CMSMB50 /AP with CMS50L, with belt transmission i = 36/27 ~ 1.33



15478934795

[1]	F
[2]	F_{LC}
[3]	F_{VR}

20176945/EN – 07/2016

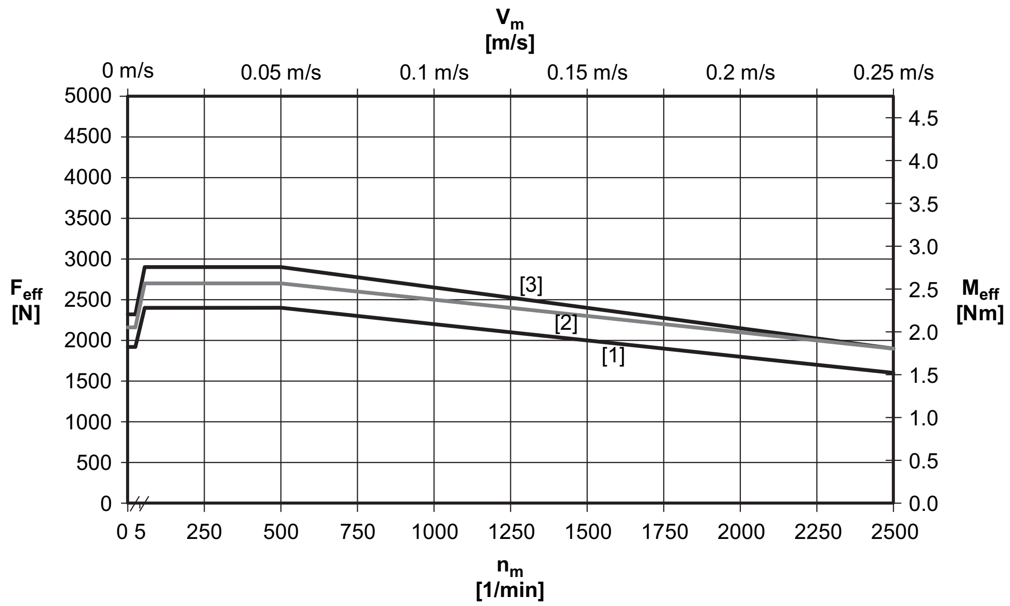
7.8.3 CMSB63..

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

CMSB63S

Spindle KGT25 x 6 , pitch 6 mm/revolution

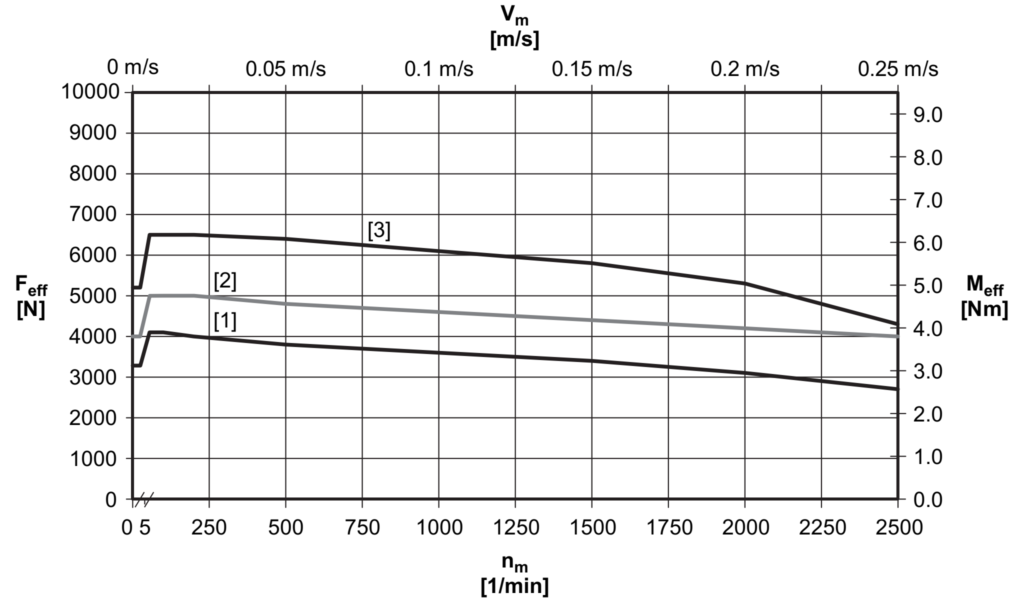


9007204623554827

[1]	F
[2]	F_{LC}
[3]	F_{VR}

CMSB63M

Spindle KGT25 x 6 , pitch 6 mm/revolution



9007204623557515

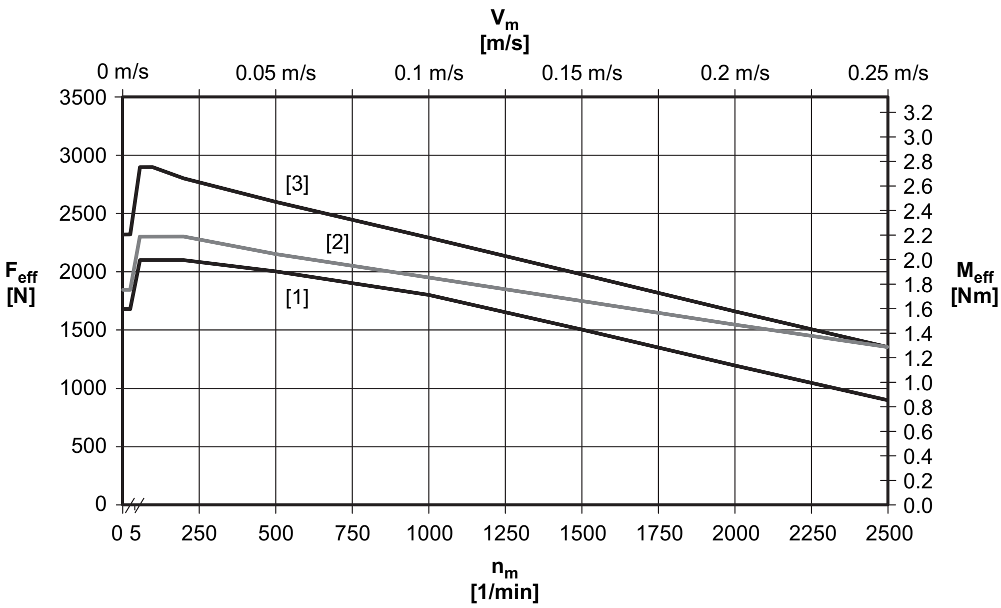
[1]	F
[2]	F_{LC}
[3]	F_{VR}

7.8.4 CMSMB63.. /AP

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

CMSMB63 /AP with CMP63S, with belt transmission i = 1:1

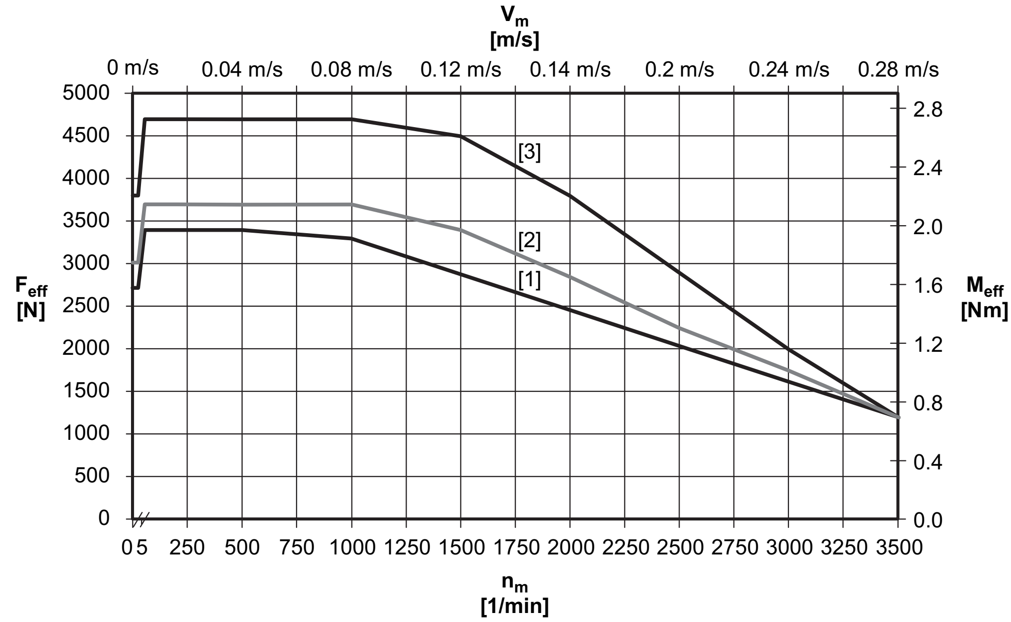


12052012555

[1]	F
[2]	F_{LC}
[3]	F_{VR}

20176945/EN – 07/2016

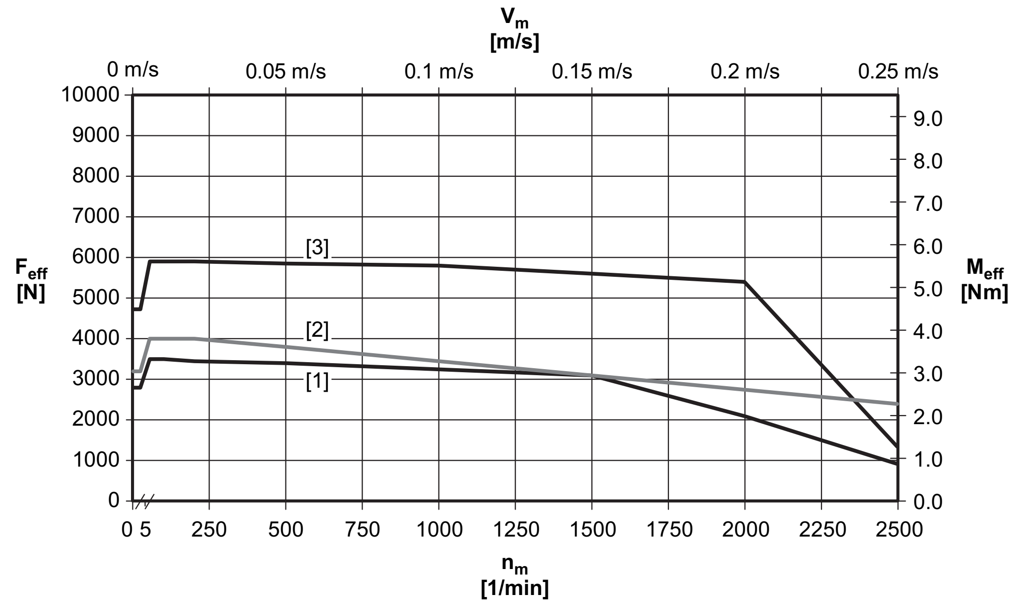
CMSMB63 /AP with CMP63S, with belt transmission i = 41/25 ~ 1.64



15658636939

[1]	F
[2]	F_{LC}
[3]	F_{VR}

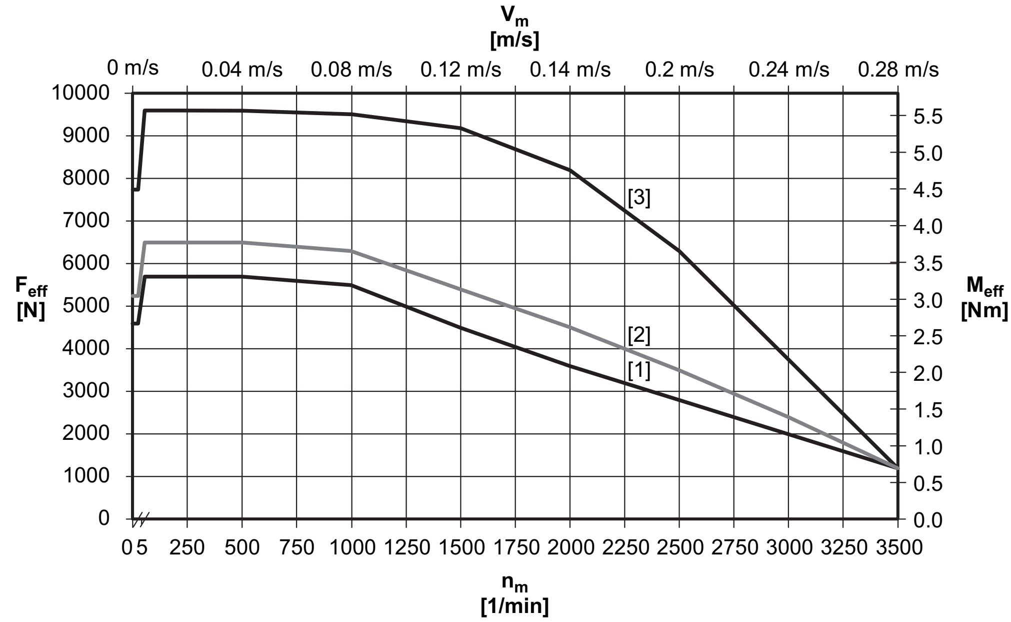
CMSMB63 /AP with CMP63M, with belt transmission i = 1:1



12052010635

[1]	F
[2]	F_{LC}
[3]	F_{VR}

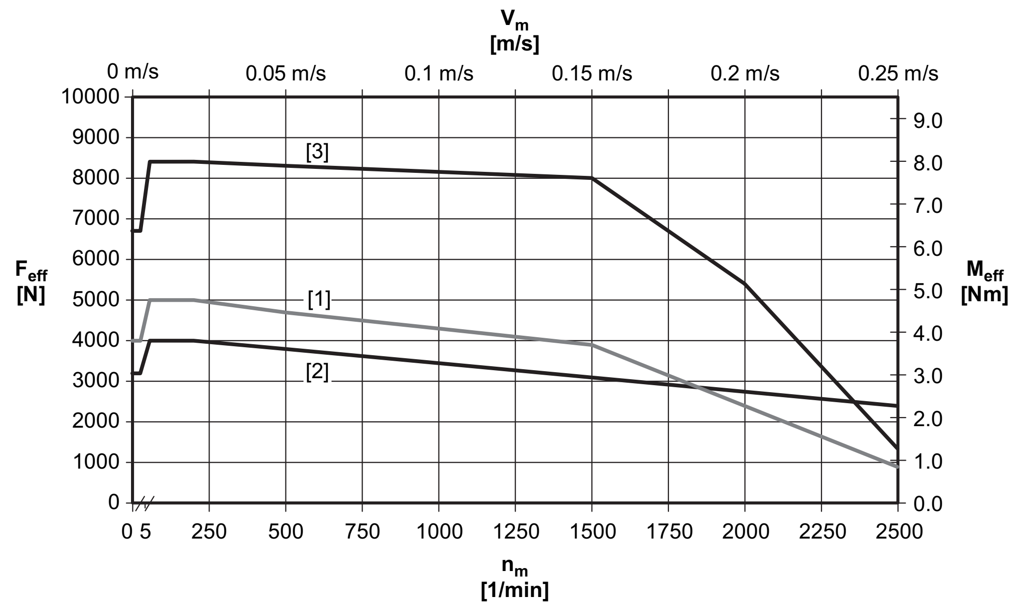
CMSMB63 /AP with CMP63M, with belt transmission i = 41/25 ~ 1.64



15658642443

[1] F
[2] F_{LC}
[3] F_{VR}

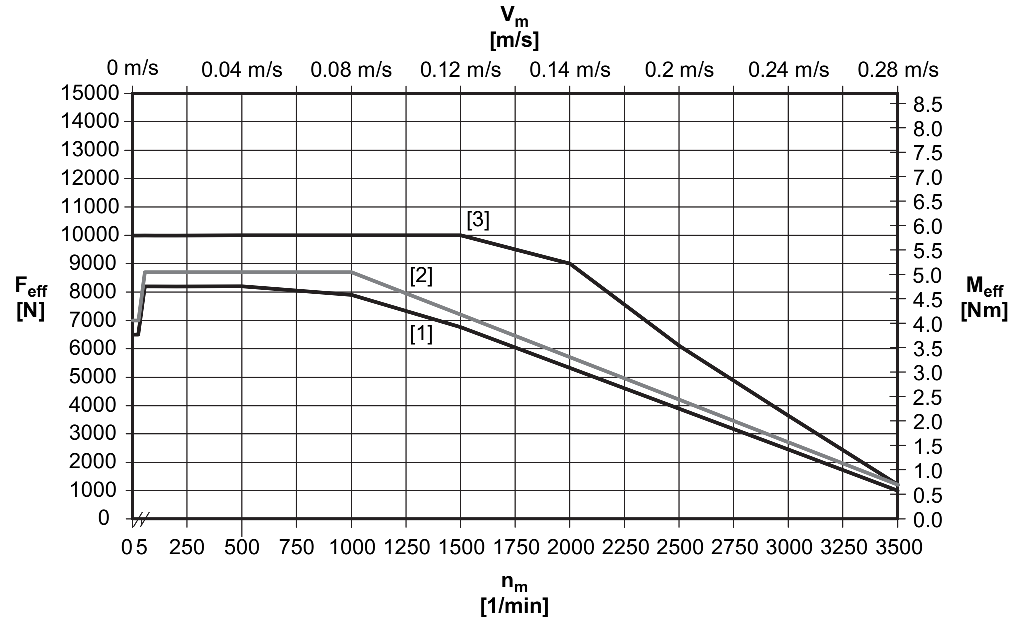
CMSMB63 /AP with CMP63L, with belt transmission i = 1:1



12052008715

[1] F
[2] F_{LC}
[3] F_{VR}

CMSMB63 /AP with CMP63L, gear ratio, belt transmission i = 41/25 ~ 1.64



15658660363

[1]	F
[2]	F_{LC}
[3]	F_{VR}

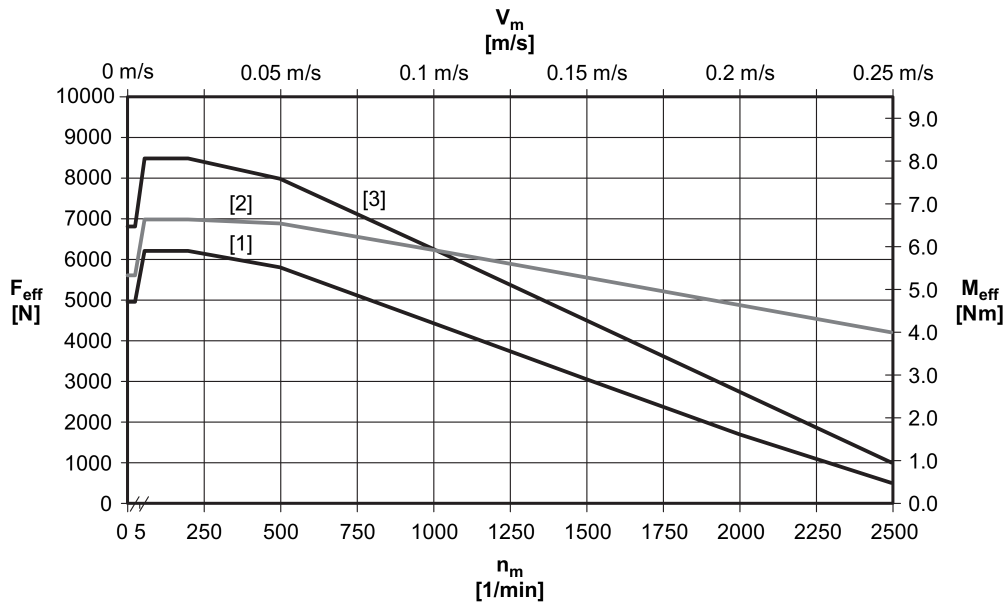
20176945/EN – 07/2016

7.8.5 CMSB71..

Key:

F_{eff} Effective feed force
F Maximum permanent feed force
F_{LC} Maximum permanent feed force with liquid cooling
F_{VR} Maximum permanent feed force with forced cooling fan
M_{eff} Effective motor torque
n_m Mean speed
v_m Mean velocity

CMSB71S

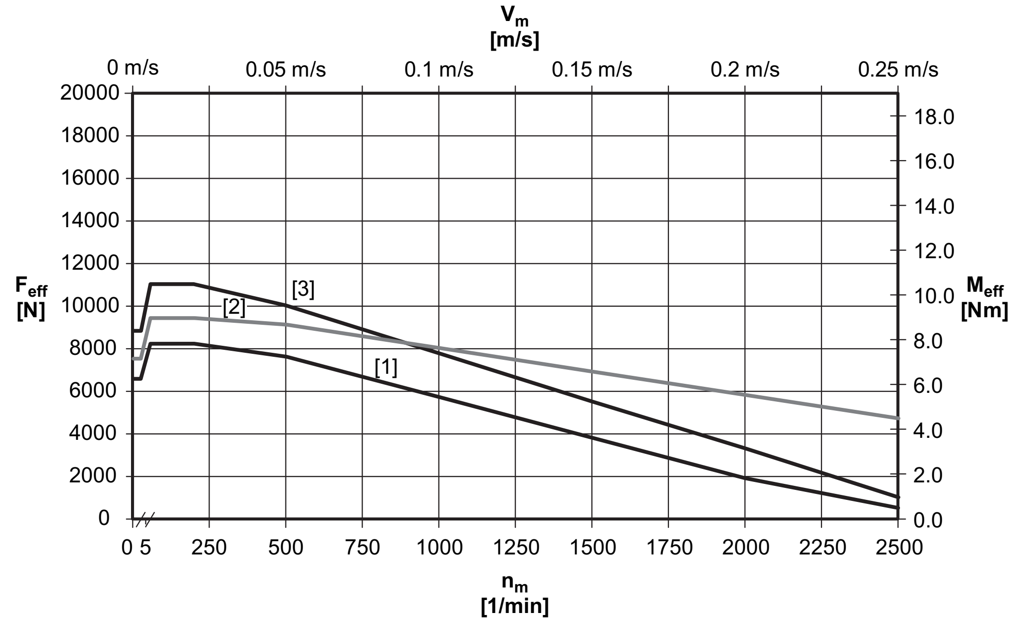


12052006795

[1] F
[2] F_{LC}
[3] F_{VR}

20176945/EN – 07/2016

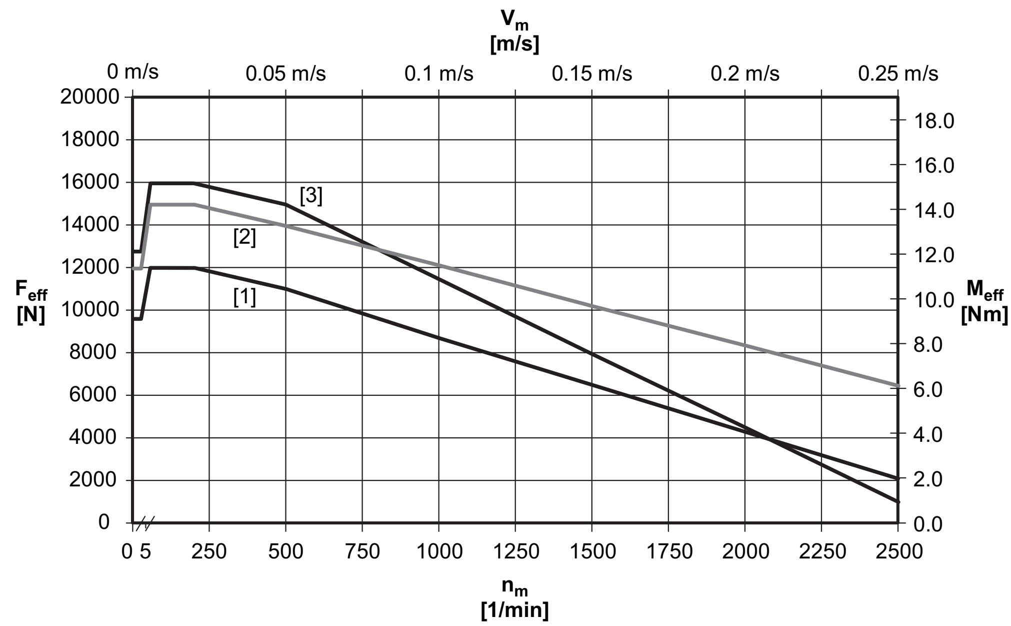
CMSB71M



12052004875

[1]	F
[2]	F_{LC}
[3]	F_{VR}

CMSB71L



12052002955

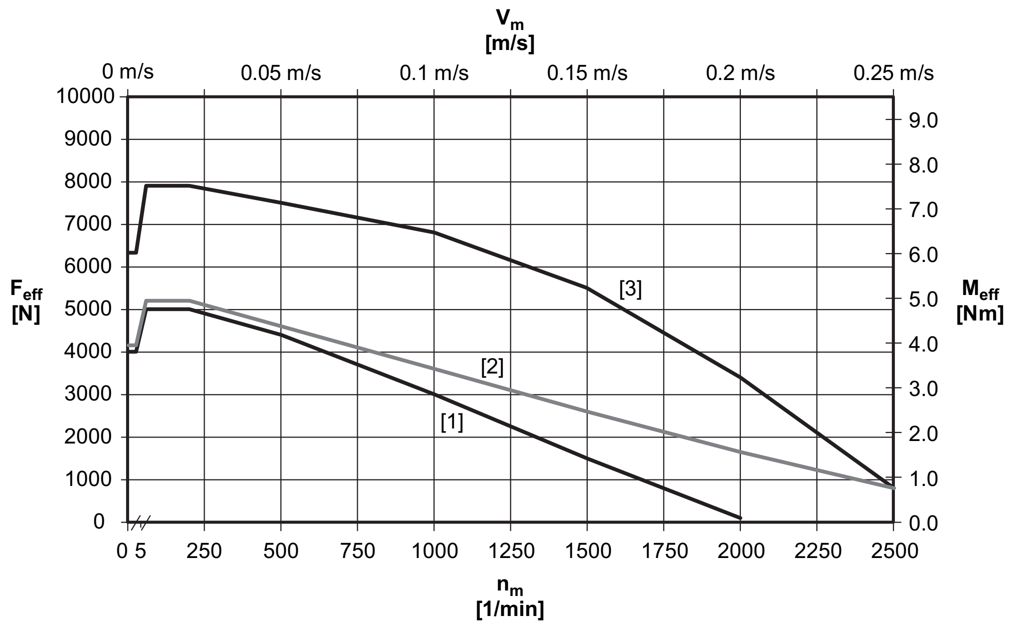
[1]	F
[2]	F_{LC}
[3]	F_{VR}

7.8.6 CMSMB71.. /AP

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

CMSMB71 /AP with CMP71S, with belt transmission i = 1:1



12052018315

[1]	F
[2]	F_{LC}
[3]	F_{VR}

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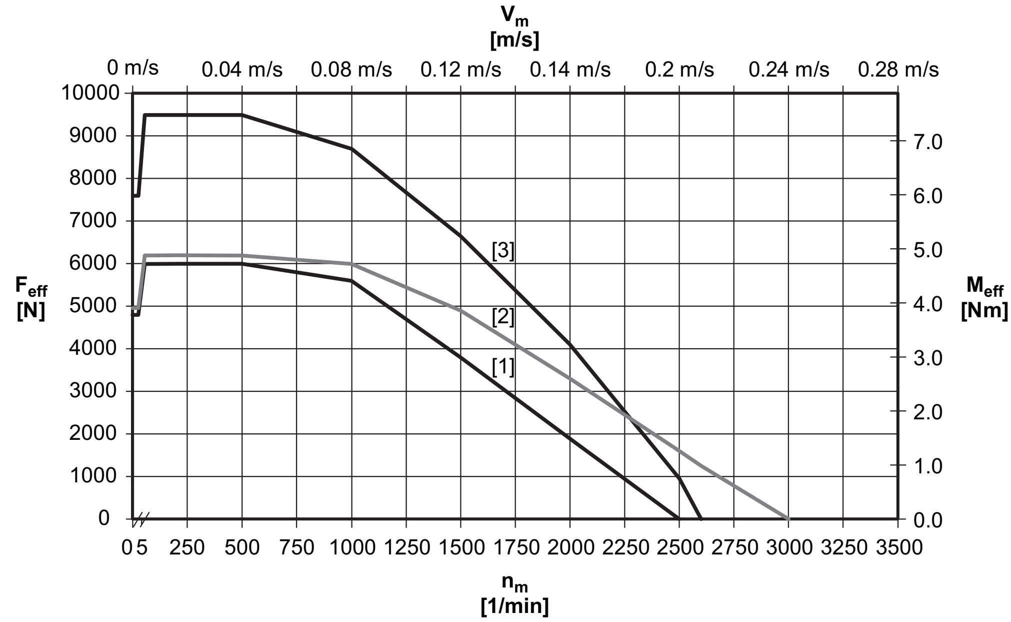
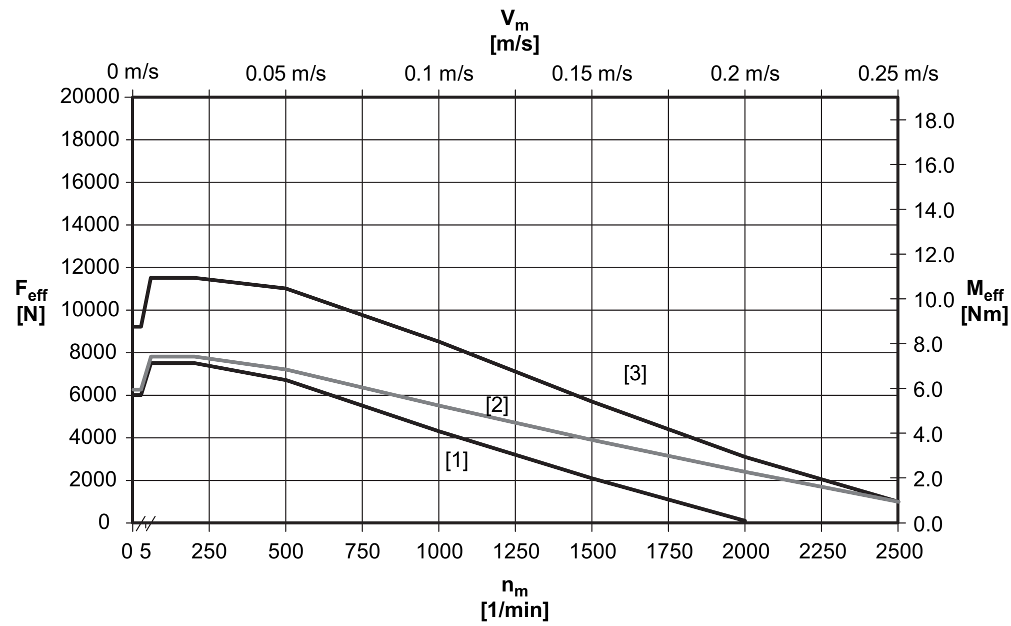
CMSMB71 /AP with CMP71S, with belt transmission i = 57/47 ~ 1.21



15658695691

[1] F
[2] F_{LC}
[3] F_{VR}

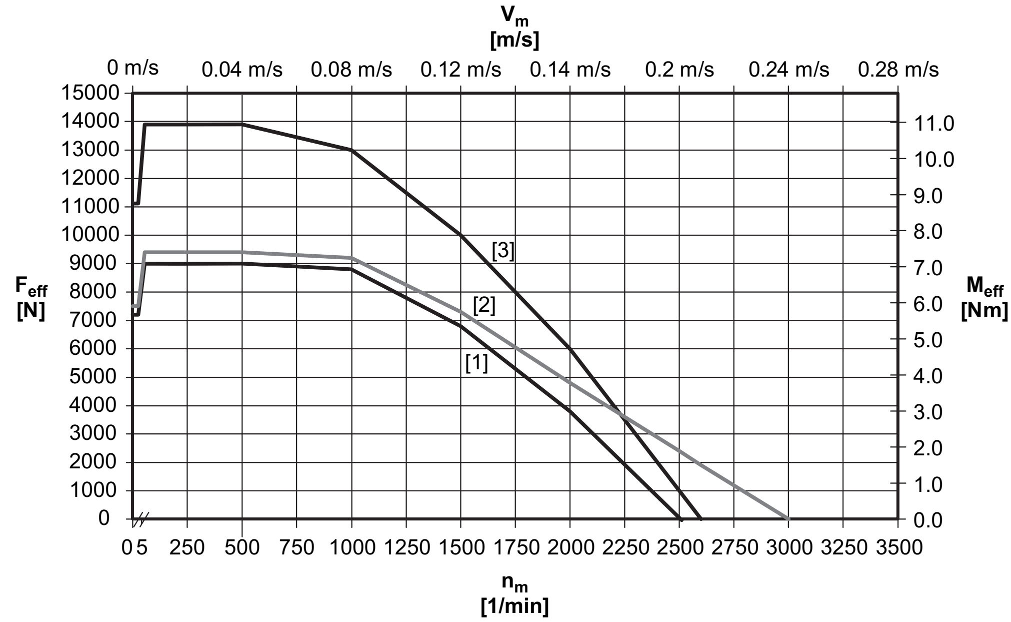
CMSMB71 /AP with CMP71M, with belt transmission i = 1:1



12052016395

[1] F
[2] F_{LC}
[3] F_{VR}

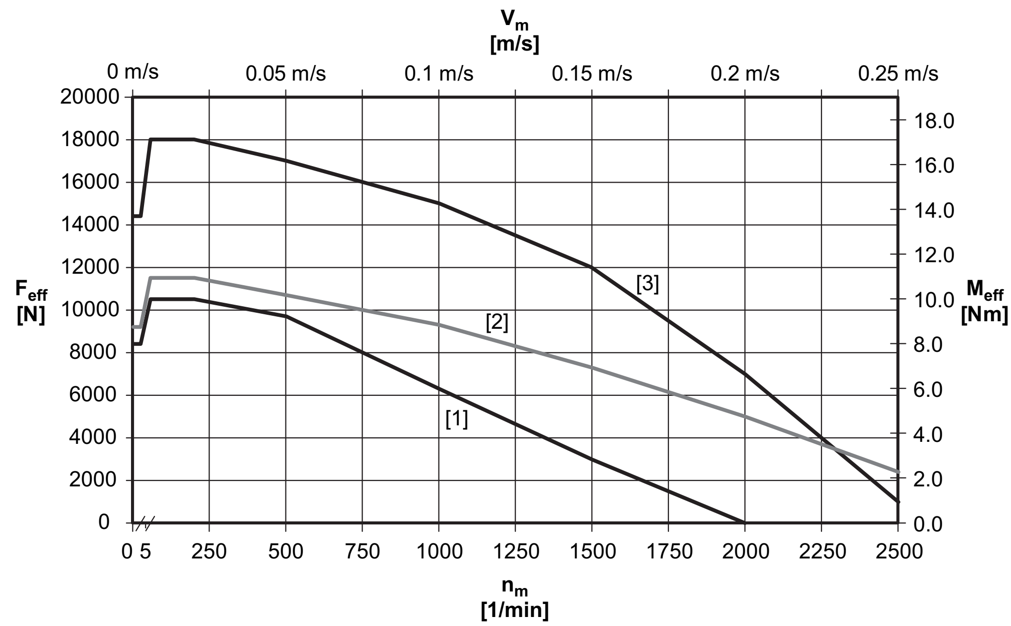
CMSMB71 /AP with CMP71M, with belt transmission i = 57/47 ~ 1.21



15658700811

[1] F
[2] F_{LC}
[3] F_{VR}

CMSMB71 /AP with CMP71L, with belt transmission i = 1:1

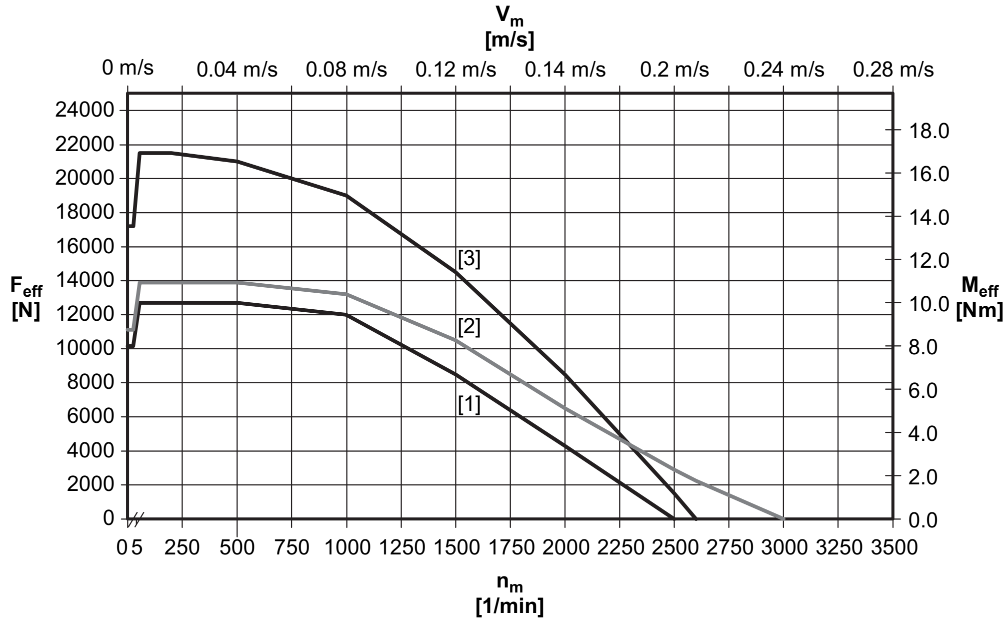


12052014475

[1] F
[2] F_{LC}
[3] F_{VR}

20176945/EN – 07/2016

CMSMB71L /AP with CMP71L, with belt transmission i = 57/47 ~ 1.21



15658705931

[1]	F
[2]	F_{LC}
[3]	F_{VR}

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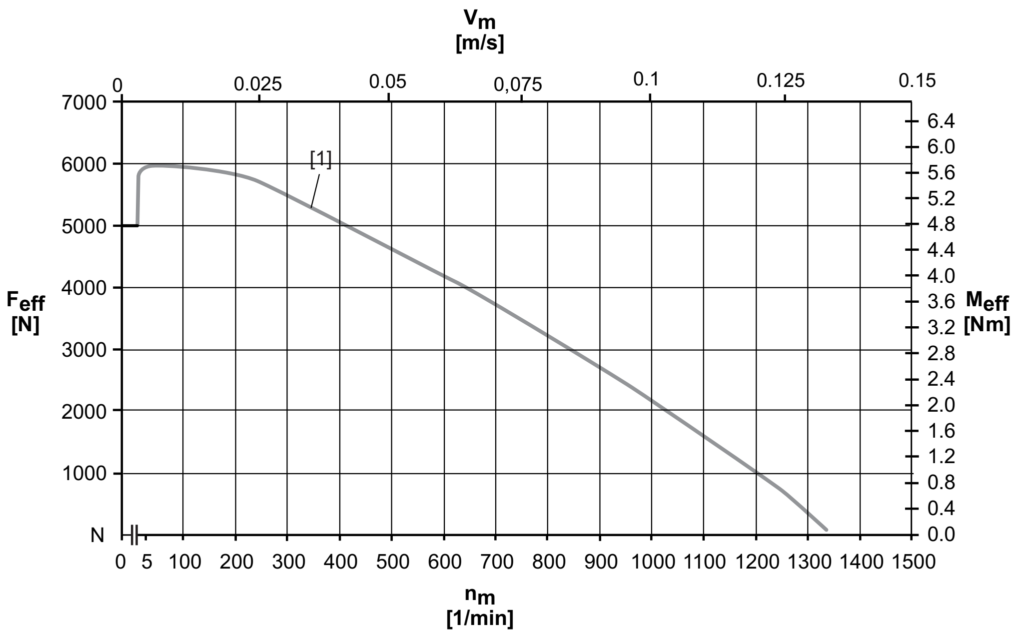
7.8.7 CMS71..

Key:

F_{eff}	Effective feed force
F	Maximum permanent feed force
F_{LC}	Maximum permanent feed force with liquid cooling
F_{VR}	Maximum permanent feed force with forced cooling fan
M_{eff}	Effective motor torque
n_m	Mean speed
v_m	Mean velocity

Spindle KGT32 x 6 , pitch 6 mm/revolution



9007204623560203

[1] 40 °C ambient temperature

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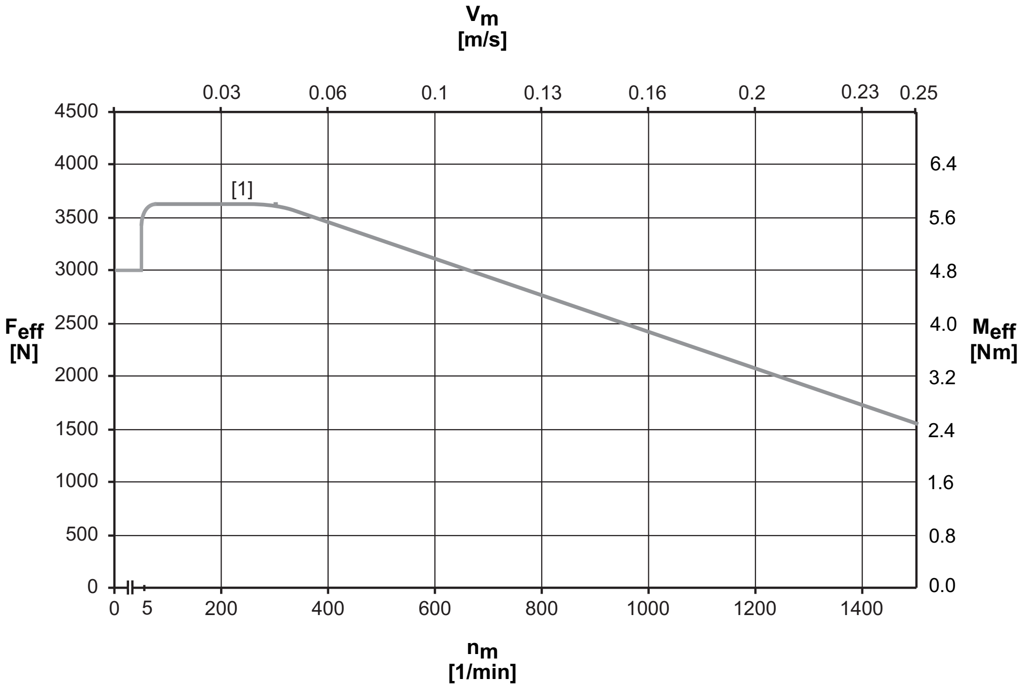
7

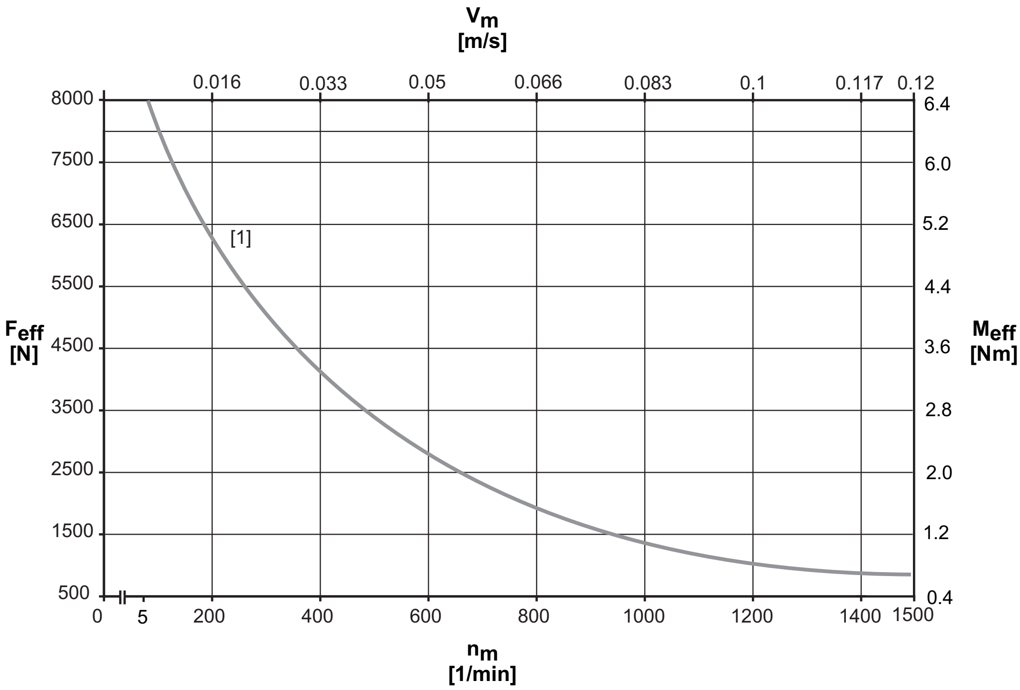
Spindle KGT32 x 10 , pitch 10 mm/revolution



9007204623562891

[1] 40 °C ambient temperature

Spindle PGT25 x 5 , pitch 5 mm/revolution



9007204623565579

[1] 40 °C ambient temperature

7.9 Overview of combinations

The assignment tables refer to the maximum possible force of the electric cylinders. Other combination are also possible. In this case the max. permitted currents for electric cylinders must be adhered. The effective capacity utilization of the electric cylinder / servo inverter combinations are not considered in the tables. These values depend on the travel and load cycle in the application and must be configured.

INFORMATION

Currents must be limited to the maximum permitted current of the electric cylinders listed in the tables!

7.9.1 CMSB50S/M/L and CMSMB50/AP with CMP50S/M/L, belt transmission i = 1:1

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB50S CMSMB/AP CMP50S	I_{max}	A	5.0	5.1	5.1							
	F_{pk}	N	5196	5300	5300							
CMSB50M CMSMB/AP CMP50M	I_{max}	A	5.0	6.1	6.1							
	F_{pk}	N	6666	8000	8000							
CMSB50L CMSMB/AP CMP50L	I_{max}	A	5.0	5.3	5.3							
	F_{pk}	N	7692	8000	8000							

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB50S CMSMB/AP CMP50S	I_{max}	A	5.0	7.0	7.0							
	F_{pk}	N	3785	5300	5300							
CMSB50M CMSMB/AP CMP50M	I_{max}	A	5.0	8.3	8.3							
	F_{pk}	N	4878	8000	8000							
CMSB50L CMSMB/AP CMP50L	I_{max}	A	5.0	7.6	7.6							
	F_{pk}	N	5263	8000	8000							

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Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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**
CMSB50S CMSMB/AP CMP50S	I_{max}	A	5.0	9.0	9.0							
	F_{pk}	N	2944	5300	5300							
CMSB50M CMSMB/AP CMP50M	I_{max}	A	5.0	10.0	10.8							
	F_{pk}	N	3700	7407	8000							
CMSB50L CMSMB/AP CMP50L	I_{max}	A	5.0	10.0	10.1							
	F_{pk}	N	3960	7920	8000							

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MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB50S CMSMB/AP CMP50S	I_{max}	A		4.5	5.1	5.1	5.1						
	F_{pk}	N		4676	5300	5300	5300						
CMSB50M CMSMB/AP CMP50M	I_{max}	A		4.5	6.1	6.1	6.1						
	F_{pk}	N		6000	8000	8000	7920						
CMSB50L CMSMB/AP CMP50L	I_{max}	A		4.5	5.3	5.3	5.3						
	F_{pk}	N		6923	8000	8000	8000						

Rated speed n_N = 4500 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB50S CMSMB/AP CMP50S	I_{max}	A		4.5	6.2	7.0	6.0	7.0					
	F_{pk}	N		3407	4694	5300	4542	5300					
CMSB50M CMSMB/AP CMP50M	I_{max}	A		4.5	6.2	8.0	6.0	8.3					
	F_{pk}	N		4390	6048	7804	5853	7990					
CMSB50L CMSMB/AP CMP50L	I_{max}	A		4.5	6.2	7.6	6.0	7.6					
	F_{pk}	N		4736	6526	8000	6315	8000					

Rated speed n_N = 6000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB50S CMSMB/AP CMP50S	I_{max}	A				8.0	6.0	8.25	9.0	9.0			
	F_{pk}	N				5962	3533	4858	5300	5300			
CMSB50M CMSMB/AP CMP50M	I_{max}	A				8.0	6.0	8.25	10.5	10.8			
	F_{pk}	N				5925	4444	6111	7777	8000			
CMSB50L CMSMB/AP CMP50L	I_{max}	A				8.0	6.0	8.25	10.1	10.1			
	F_{pk}	N				6336	4752	6534	8000	8000			

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7.9.2 Axis-parallel CMSMB50 /AP with CMP50/S/M/L, belt transmission i = 36/27 ~ 1.33

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP50S	I_{max}	A	5.0	5.1								
	F_{pk}	N	6862	7000								
CMSMB/AP CMP50M	I_{max}	A	4.2	4.2								
	F_{pk}	N	8000	8000								
CMSMB/AP CMP50L	I_{max}	A	3.8	3.8								
	F_{pk}	N	8000	8000								

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP50S	I_{max}	A	5.0	7.0	7.0							
	F_{pk}	N	5000	7000	7000							
CMSMB/AP CMP50M	I_{max}	A	5.0	5.8	5.8							
	F_{pk}	N	6896	8000	8000							
CMSMB/AP CMP50L	I_{max}	A	5.0	5.5	5.5							
	F_{pk}	N	7272	8000	8000							

Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP50S	I_{max}	A	5.0	9.0	9.0							
	F_{pk}	N	3888	7000	7000							
CMSMB/AP CMP50M	I_{max}	A	5.0	7.6	7.6							
	F_{pk}	N	5333	8000	8000							
CMSMB/AP CMP50L	I_{max}	A	5.0	7.3	7.3							
	F_{pk}	N	5479	8000	8000							

MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0005	0008	0011	0014	0015	0022	0030	0040	0055	0075	0110
	I_N	A	2	2.4	3.1	4	4	5.5	7	9.5	12.5	16	24
	I_{max}	A	4	4.5	6.2	8	6	8.25	10.5	14.3	18.8	24	36
CMSMB/AP CMP50S	I_{max}	A	4.0	4.5	5.1								
	F_{pk}	N	5490	6176	7000								
CMSMB/AP CMP50M	I_{max}	A	4.0	4.2	4.2								
	F_{pk}	N	7619	8000	8000								
CMSMB/AP CMP50L	I_{max}	A	3.8	3.8	3.8								
	F_{pk}	N	8000	8000	8000								

Rated speed n_N = 4500 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0005	0008	0011	0014	0015	0022	0030	0040	0055	0075	0110
	I_N	A	2	2.4	3.1	4	4	5.5	7	9.5	12.5	16	24
	I_{max}	A	4	4.5	6.2	8	6	8.25	10.5	14.3	18.8	24	36
CMSMB/AP CMP50S	I_{max}	A		4.5	6.2	7.0	6.0						
	F_{pk}	N		4500	6200	7000	6000						
CMSMB/AP CMP50M	I_{max}	A		4.5	5.8	5.8	5.8						
	F_{pk}	N		6206	8000	8000	8000						
CMSMB/AP CMP50L	I_{max}	A		4.5	5.5	5.5	5.5						
	F_{pk}	N		6545	8000	8000	8000						

Rated speed n_N = 6000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0005	0008	0011	0014	0015	0022	0030	0040	0055	0075	0110
	I_N	A	2	2.4	3.1	4	4	5.5	7	9.5	12.5	16	24
	I_{max}	A	4	4.5	6.2	8	6	8.25	10.5	14.3	18.8	24	36
CMSMB/AP CMP50S	I_{max}	A				8.0	6.0	8.25	9.0				
	F_{pk}	N				6222	4666	6416	7000				
CMSMB/AP CMP50M	I_{max}	A				7.5	6.0	7.6	7.6				
	F_{pk}	N				8000	6400	8000	8000				
CMSMB/AP CMP50L	I_{max}	A				7.3	6.0	7.3	7.3				
	F_{pk}	N				8000	6575	8000	8000				

7.9.3 CMSB63S/M and CMSMB63/AP with CMP63S/M/L, belt transmission i = 1:1

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB63S CMSMB63/AP CMP63S	I_{max}	A		10.0	12.9	12.9						
	F_{pk}	N		7751	10000	10000						
CMSB63M CMSMB/AP CMP63M	I_{max}	A	5.0	7.9	7.9							
	F_{pk}	N	6329	10000	10000							
CMSMB63/AP CMP63L	I_{max}	A	5.0	7.9	7.9							
	F_{pk}	N	6329	10000	10000							

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB63S CMSMB/AP CMP63S	I_{max}	A		10.0	18.3	18.3						
	F_{pk}	N		5464	10000	10000						
CMSB63M CMSMB/AP CMP63M	I_{max}	A	5.0	10.0	11.9							
	F_{pk}	N	4201	8403	10000							
CMSMB/AP CMP63L	I_{max}	A	5.0	10.0	11.0							
	F_{pk}	N	4545	9090	10000							

Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB63S CMSMB/AP CMP63S	I_{max}	A			20.0	23.4	23.4					
	F_{pk}	N			8547	10000	10000					
CMSB63M CMSMB/AP CMP63M	I_{max}	A		10.0	15.2	15.2						
	F_{pk}	N		6578	10000	10000						
CMSMB/AP CMP63L	I_{max}	A		10.0	14.9	14.9						
	F_{pk}	N		6711	10000	10000						

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MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB63S CMSMB/AP CMP63S	I_{max}	A						8.25	10.5	12.9	12.9		
	F_{pk}	N						6395	8139	10000	10000		
CMSB63M CMSMB/AP CMP63M	I_{max}	A				7.9	6.0	7.9	7.9				
	F_{pk}	N				10000	7594	10000	10000				
CMSMB/AP CMP63L	I_{max}	A				7.9	6.0	7.9	7.9				
	F_{pk}	N				10000	7594	10000	10000				

Rated speed n_N = 4500 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB63S CMSMB/AP CMP63S	I_{max}	A								14.3	18.3	18.3	
	F_{pk}	N								7814	10000	10000	
CMSB63M CMSMB/AP CMP63M	I_{max}	A						8.25	10.5	11.9			
	F_{pk}	N						6932	8823	10000			
CMSMB/AP CMP63L	I_{max}	A						8.25	10.5	11.0			
	F_{pk}	N						7500	9545	10000			

Rated speed n_N = 6000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSB63S CMSMB/AP CMP63S	I_{max}	A								14.3	18.8	23.4	
	F_{pk}	N								6111	8034	10000	
CMSB63M CMSMB/AP CMP63M	I_{max}	A							10.5	14.3	15.2		
	F_{pk}	N							6907	9407	10000		
CMSMB/AP CMP63L	I_{max}	A							10.5	14.3	14.9		
	F_{pk}	N							7046	9597	10000		

7.9.4 Axis-parallel CMSMB63 /AP with CMP63/S/M/L, belt transmission i = 41/25 ~ 1.64

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP63S	I_{max}	A	5.0	5.8								
	F_{pk}	N	8620	10000								
CMSMB/AP CMP63M	I_{max}	A	4.7	4.7								
	F_{pk}	N	10000	10000								
CMSMB/AP CMP63L	I_{max}	A	4.7	4.7								
	F_{pk}	N	10000	10000								

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP63S	I_{max}	A	5.0	8.2								
	F_{pk}	N	6097	10000								
CMSMB/AP CMP63M	I_{max}	A	5.0	7.0								
	F_{pk}	N	7142	10000								
CMSMB/AP CMP63L	I_{max}	A	5.0	7.0								
	F_{pk}	N	7142	10000								

Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSMB/AP CMP63S	I_{max}	A	5.0	10.0	10.5							
	F_{pk}	N	4761	9523	10000							
CMSMB/AP CMP63M	I_{max}	A	5.0	9.0	9.0							
	F_{pk}	N	5263	10000	10000							
CMSMB/AP CMP63L	I_{max}	A	5.0	9.5	9.5							
	F_{pk}	N	5555	10000	10000							

MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSMB/AP CMP63S	I_{max}	A		4.5	5.8	5.8	5.8						
	F_{pk}	N		7758	10000	10000	10000						
CMSMB/AP CMP63M	I_{max}	A		4.5	4.7	4.7	4.7						
	F_{pk}	N		9574	10000	10000	10000						
CMSMB/AP CMP63L	I_{max}	A		4.5	4.7	4.7	4.7						
	F_{pk}	N		9574	10000	10000	10000						

Rated speed n_N = 4500 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSMB/AP CMP63S	I_{max}	A				8.0	6.0	8.2					
	F_{pk}	N				9756	7317	10000					
CMSMB/AP CMP63M	I_{max}	A				7.0	6.0	7.0					
	F_{pk}	N				10000	8571	10000					
CMSMB/AP CMP63L	I_{max}	A				7.0	6.0	7.0					
	F_{pk}	N				10000	8571	10000					

Rated speed n_N = 6000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSMB/AP CMP63S	I_{max}	A				8.0	6.0	8.25	10.5	10.5			
	F_{pk}	N				7619	5714	7857	10000	10000			
CMSMB/AP CMP63M	I_{max}	A				8.0	6.0	8.25	9.5				
	F_{pk}	N				8421	6315	8684	10000				
CMSMB/AP CMP63L	I_{max}	A				8.0	6.0	8.25	9.5				
	F_{pk}	N				8888	6666	9166	10000				

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7.9.5 CMSB71S/M/L and CMSMB71/AP with CMP71S/M/L, belt transmission i = 1:1 ~ 1.33

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 2000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB71S CMSMB/AP CMP71S	I_{max}	A		10.0	17.0	17.0						
	F_{pk}	N		10588	18000	18000						
CMSB71M CMSMB/AP CMP71M	I_{max}	A		10.0	18.8	18.8						
	F_{pk}	N		12765	24000	24000						
CMSB71L CMSMB/AP CMP71L	I_{max}	A		10.0	12.7	12.7						
	F_{pk}	N		18897	24000	24000						

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB71S CMSMB/AP CMP71S	I_{max}	A			20.0	25.0	25.0					
	F_{pk}	N			14400	18000	18000					
CMSB71M CMSMB/AP CMP71M	I_{max}	A			20.0	27.0	27.0					
	F_{pk}	N			17777	24000	24000					
CMSB71L CMSMB/AP CMP71L	I_{max}	A		10.0	18.8	18.8						
	F_{pk}	N		12765	24000	24000						

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB71S CMSMB/AP CMP71S	I_{max}	A				30.0	38.0	38.0				
	F_{pk}	N				14210	18000	18000				
CMSB71M CMSMB/AP CMP71M	I_{max}	A				30.0	39.2	39.2				
	F_{pk}	N				18367	24000	24000				
CMSB71L CMSMB/AP CMP71L	I_{max}	A			20.0	28.2	28.2					
	F_{pk}	N			17021	24000	24000					

Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size		1			2		3		4	5	6
	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
CMSB71S CMSMB/AP CMP71S	I_{max}	A					40.0	50.0	50.0			
	F_{pk}	N					14400	18000	18000			
CMSB71M CMSMB/AP CMP71M	I_{max}	A					40.0	52.9	52.9			
	F_{pk}	N					18147	24000	24000			

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Motor	Size		Assignment to MOVIAXIS®									
			1			2		3		4	5	6
	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
CMSB71L CMSMB/AP CMP71L	I_{max}	A				30.0	37.6	37.6				
	F_{pk}	N				19148	24000	24000				

MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 2000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0005	0008	0011	0014	0015	0022	0030	0040	0055	0075	0110
	I_N	A	2	2.4	3.1	4	4	5.5	7	9.5	12.5	16	24
	I_{max}	A	4	4.5	6.2	8	6	8.25	10.5	14.3	18.8	24	36
CMSB71S CMSMB/AP CMP71S	I_{max}	A								14.3	17.0	17.0	
	F_{pk}	N								15141	18000	18000	
CMSB71M CMSMB/AP CMP71M	I_{max}	A								14.3	18.8	18.8	
	F_{pk}	N								18255	24000	24000	
CMSB71L CMSMB/AP CMP71L	I_{max}	A							10.5	12.7	12.7		
	F_{pk}	N							19842	24000	24000		

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0005	0008	0011	0014	0015	0022	0030	0040	0055	0075	0110
	I_N	A	2	2.4	3.1	4	4	5.5	7	9.5	12.5	16	24
	I_{max}	A	4	4.5	6.2	8	6	8.25	10.5	14.3	18.8	24	36
CMSB71S CMSMB/AP CMP71S	I_{max}	A									18.8	24.0	25.0
	F_{pk}	N									13536	17280	18000
CMSB71M CMSMB/AP CMP71M	I_{max}	A									18.8	24.0	27.0
	F_{pk}	N									16711	21333	24000
CMSB71L CMSMB/AP CMP71L	I_{max}	A								14.3	18.8	18.8	
	F_{pk}	N								18255	24000	24000	

Rated speed n_N = 4500 1/min, size 2 – 6, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		0022	0030	0040	0055	0075	0110	0150	0220	0300	0370	0450
	I_N	A	5.5	7	9.5	12.5	16	24	32	46	60	73	89
	I_{max}	A	8.25	10.5	14.3	18.8	24	36	48	69	90	109.5	133.5
CMSB71S CMSMB/AP CMP71S	I_{max}	A					24.0	36.0	38.0				
	F_{pk}	N					11368	17052	18000				
CMSB71M CMSMB/AP CMP71M	I_{max}	A					24.0	36.0	39.2				
	F_{pk}	N					14693	22040	24000				
CMSB71L CMSMB/AP CMP71L	I_{max}	A				18.8	24.0	28.2					
	F_{pk}	N				16000	20571	24000					

Rated speed n_N = 6000 1/min, size 2 – 6, PWM 8 kHz

Motor			**Assignment to MOVIDRIVE®**										
	Size		**0022**	**0030**	**0040**	**0055**	**0075**	**0110**	**0150**	**0220**	**0300**	**0370**	**0450**
	I_N	**A**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**	**32**	**46**	**60**	**73**	**89**
	I_{max}	**A**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**	**48**	**69**	**90**	**109.5**	**133.5**
CMSB71S CMSMB/AP CMP71S	I_{max}	A						36.0	48.0	50.0			
	F_{pk}	N						12960	17280	18000			
CMSB71M CMSMB/AP CMP71M	I_{max}	A						36.0	48.0	52.9			
	F_{pk}	N						16332	21776	24000			
CMSB71L CMSMB/AP CMP71L	I_{max}	A					24.0	36.0	37.6				
	F_{pk}	N					15319	22978	24000				

7.9.6 Axis-parallel CMSMB71 /AP with CMP71/S/M/L, belt transmission i = 57/47 ~ 1.21

MOVIAXIS®, system voltage 400 V

Rated speed n_N = 2000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size			1		2		3		4	5	6
	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
CMSMB/AP CMP71S	I_{max}	A		10.0	17.0	17.0						
	F_{pk}	N		12764	21700	21700						
CMSMB/AP CMP71M	I_{max}	A	5.0	10.0	12.0							
	F_{pk}	N	10000	20000	24000							
CMSMB/AP CMP71L	I_{max}	A	5.0	10.0	10.7							
	F_{pk}	N	11214	22429	24000							

Rated speed n_N = 3000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size			1		2		3		4	5	6
	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
CMSMB/AP CMP71S	I_{max}	A			20.0	25.0	25.0					
	F_{pk}	N			17360	21700	21700					
CMSMB/AP CMP71M	I_{max}	A		10.0	18.0	18.0						
	F_{pk}	N		13333	24000	24000						
CMSMB/AP CMP71L	I_{max}	A		10.0	16.0	16.0						
	F_{pk}	N		15000	24000	24000						

Rated speed n_N = 4500 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size			1		2		3		4	5	6
	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
CMSMB/AP CMP71S	I_{max}	A				30.0	38.0	38.0				
	F_{pk}	N				17131	21700	21700				
CMSMB/AP CMP71M	I_{max}	A			20.0	26.2	26.2					
	F_{pk}	N			18320	24000	24000					
CMSMB/AP CMP71L	I_{max}	A			20.0	24.0	24.0					
	F_{pk}	N			20000	24000	24000					

Rated speed n_N = 6000 1/min, PWM 8 kHz

Motor			Assignment to MOVIAXIS®									
	Size			1		2		3		4	5	6
	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
CMSMB/AP CMP71S	I_{max}	A				30.0	40.0	50.0				
	F_{pk}	N				13020	17360	21700				
CMSMB/AP CMP71M	I_{max}	A			20.0	30.0	35.3					
	F_{pk}	N			13597	20396	24000					
CMSMB/AP CMP71L	I_{max}	A			20.0	30.0	32.0					
	F_{pk}	N			15000	22500	24000					

MOVIDRIVE®, system voltage 400 V

Rated speed n_N = 2000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSMB/AP CMP71S	I_{max}	A							10.5	14.3	17.0		
	F_{pk}	N							11117	15141	18000		
CMSMB/AP CMP71M	I_{max}	A						8.25	10.5	12.0			
	F_{pk}	N						16500	21000	24000			
CMSMB/AP CMP71L	I_{max}	A						8.25	10.5	10.7			
	F_{pk}	N						18504	23551	24000			

Rated speed n_N = 3000 1/min, size 0 – 2, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0005**	**0008**	**0011**	**0014**	**0015**	**0022**	**0030**	**0040**	**0055**	**0075**	**0110**
	I_N	A	**2**	**2.4**	**3.1**	**4**	**4**	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**
	I_{max}	A	**4**	**4.5**	**6.2**	**8**	**6**	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**
CMSMB/AP CMP71S	I_{max}	A									18.8	24.0	25.0
	F_{pk}	N									16318	20832	21700
CMSMB/AP CMP71M	I_{max}	A							10.5	14.3	18.0	18.0	
	F_{pk}	N							14000	19066	24000	24000	
CMSMB/AP CMP71L	I_{max}	A							10.5	14.3	18.0		
	F_{pk}	N							15750	21450	24000		

Rated speed n_N = 4500 1/min, size 2 – 6, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0022**	**0030**	**0040**	**0055**	**0075**	**0110**	**0150**	**0220**	**0300**	**0370**	**0450**
	I_N	A	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**	**32**	**46**	**60**	**73**	**89**
	I_{max}	A	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**	**48**	**69**	**90**	**109.5**	**133.5**
CMSMB/AP CMP71S	I_{max}	A					24.0	36.0	38.0				
	F_{pk}	N					13705	20557	21700				
CMSMB/AP CMP71M	I_{max}	A			14.3	18.8	24.0	26.2					
	F_{pk}	N			13099	17221	21984	24000					
CMSMB/AP CMP71L	I_{max}	A			14.3	18.8	24.0	24.0					
	F_{pk}	N			14300	18800	24000	24000					

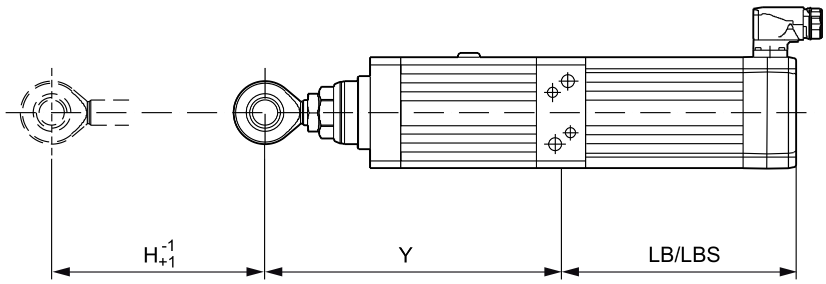
Rated speed n_N = 6000 1/min, size 2 – 6, PWM 8 kHz

Motor			Assignment to MOVIDRIVE®										
	Size		**0022**	**0030**	**0040**	**0055**	**0075**	**0110**	**0150**	**0220**	**0300**	**0370**	**0450**
	I_N	A	**5.5**	**7**	**9.5**	**12.5**	**16**	**24**	**32**	**46**	**60**	**73**	**89**
	I_{max}	A	**8.25**	**10.5**	**14.3**	**18.8**	**24**	**36**	**48**	**69**	**90**	**109.5**	**133.5**
CMSMB/AP CMP71S	I_{max}	A						36.0	48.0	50			
	F_{pk}	N						15624	20832	21700			
CMSMB/AP CMP71M	I_{max}	A					24.0	35.3	35.3				
	F_{pk}	N					16317	24000	24000				
CMSMB/AP CMP71L	I_{max}	A				18.8	24.0	32.0	32.0				
	F_{pk}	N				14100	18000	24000	24000				

8 Dimension Sheets

8.1 Important information on dimension sheets

Key:



18183628939

H	Stroke length
Y	Housing length
LB	Length of motor
LBS	Length of brakemotor

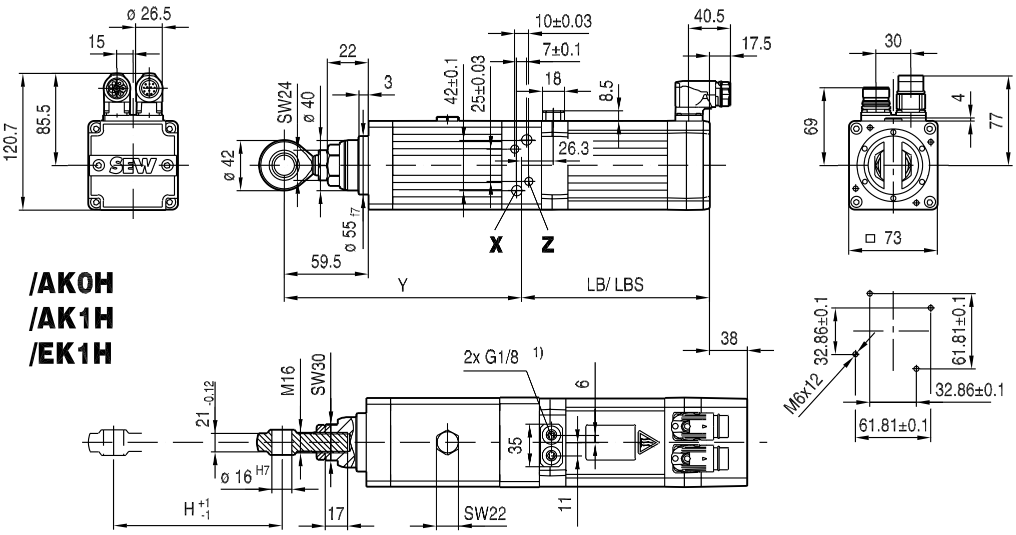
8.2 CMSB50 S/M/L

08 717 00 15
1 (2)

CMSB50 S/M/L
CMSB50 S/M/L BK

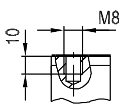
/SM1
/SB1

/RH1M



	H	Y
CMSB50S/M/L	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

X



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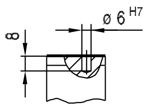
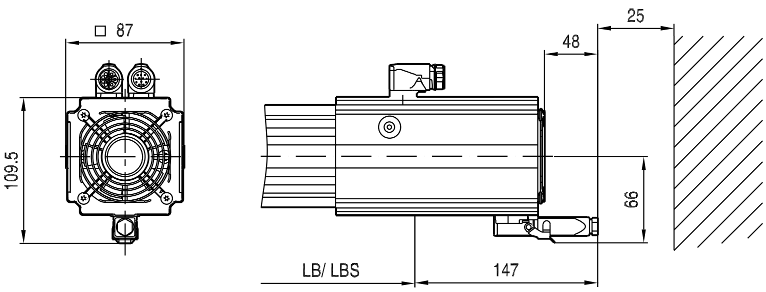


	LB	LBS
CMSB50S	156,4	185,1
CMSB50M	195,4	224,1
CMSB50L	234,4	263,1

/VR



1) Cooling water connection

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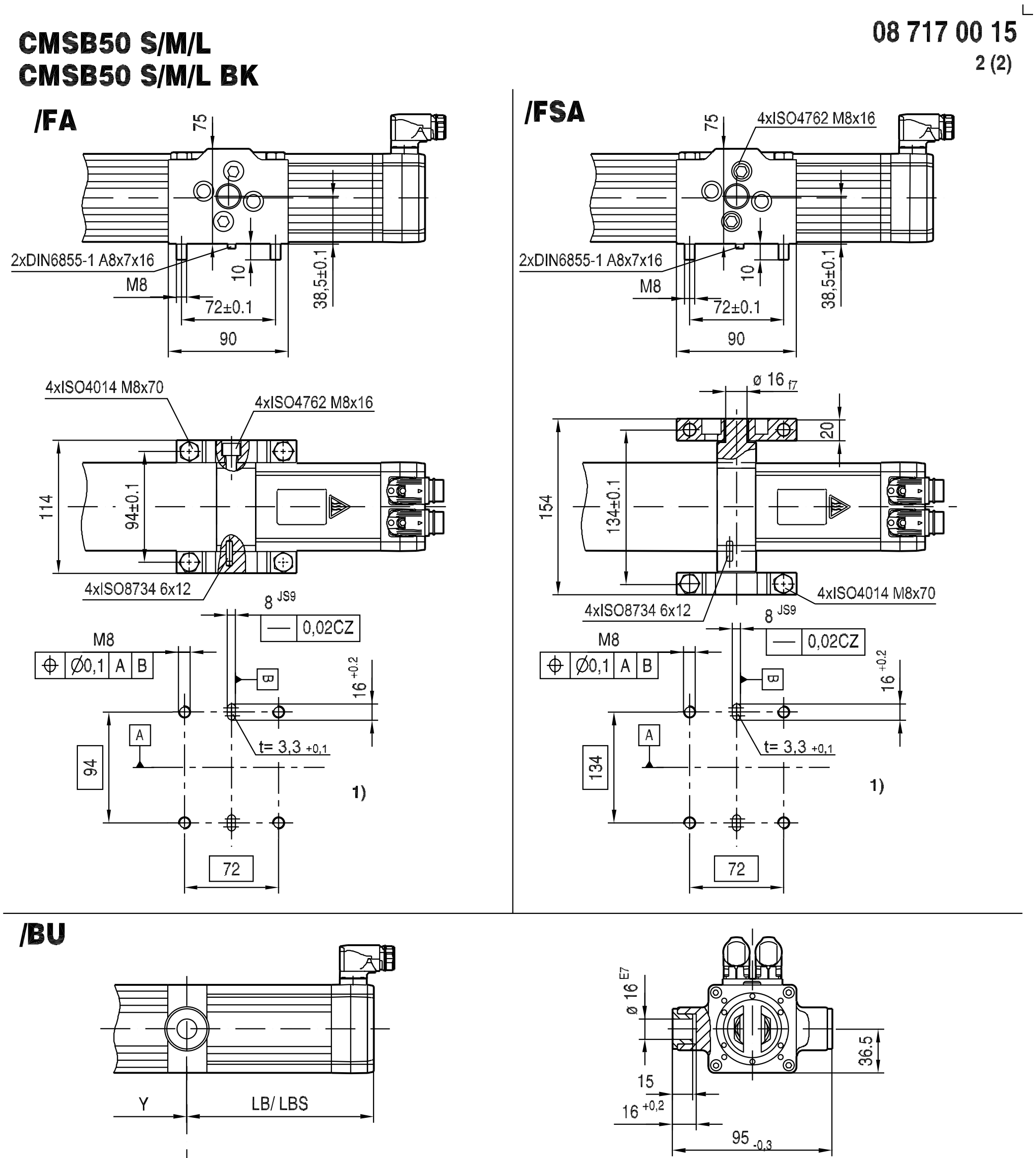
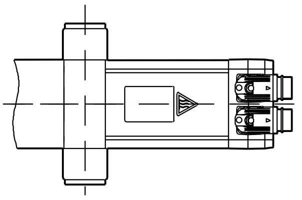


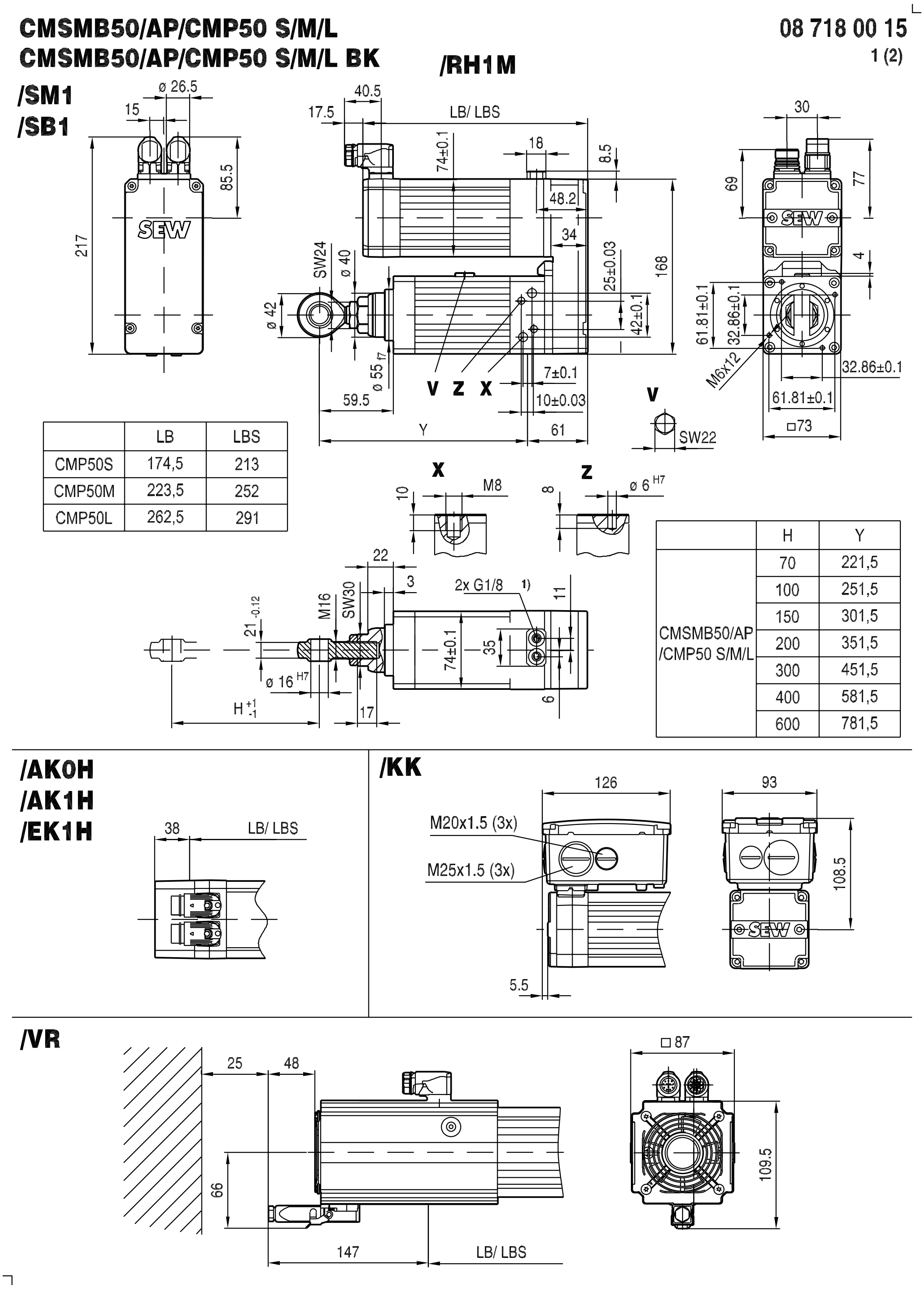


	H	Y
CMSB50S/M/L	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

	LB	LBS
CMSB50S	156,4	185,1
CMSB50M	195,4	224,1
CMSB50L	234,4	263,1

1) Customer's hole pattern

8.3 CMSMB50/AP/CMP50 S/M/L



	LB	LBS
CMP50S	174,5	213
CMP50M	223,5	252
CMP50L	262,5	291

	H	Y
CMSMB50/AP /CMP50 S/M/L	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

1) Cooling water connection

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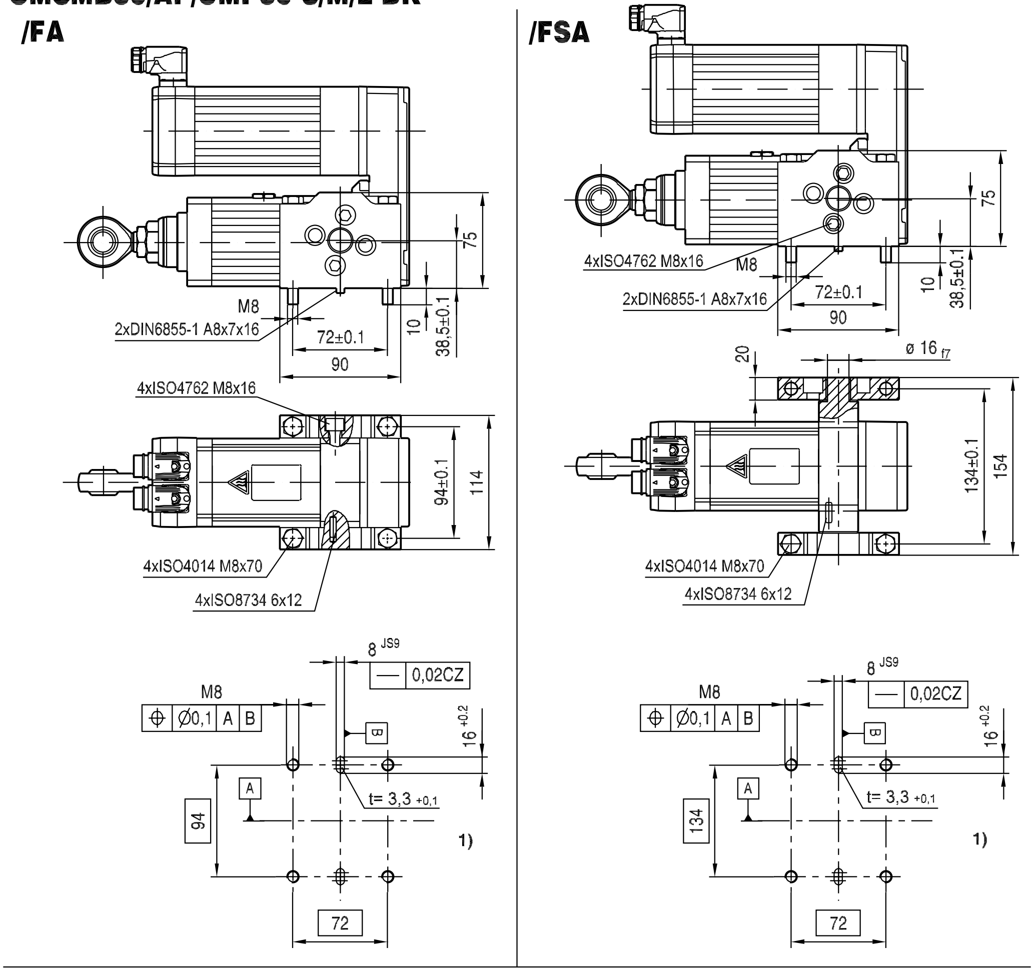
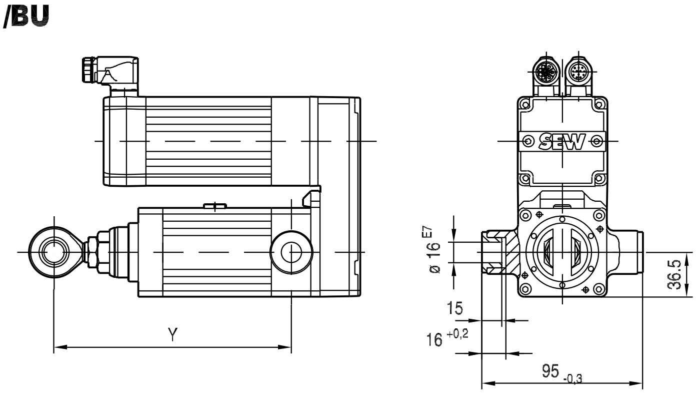
CMSMB50/AP/CMP50 S/M/L
CMSMB50/AP/CMP50 S/M/L BK

08 718 00 15
2 (2)





	H	Y
CMSB50S/M/L	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

1) Customer's hole pattern

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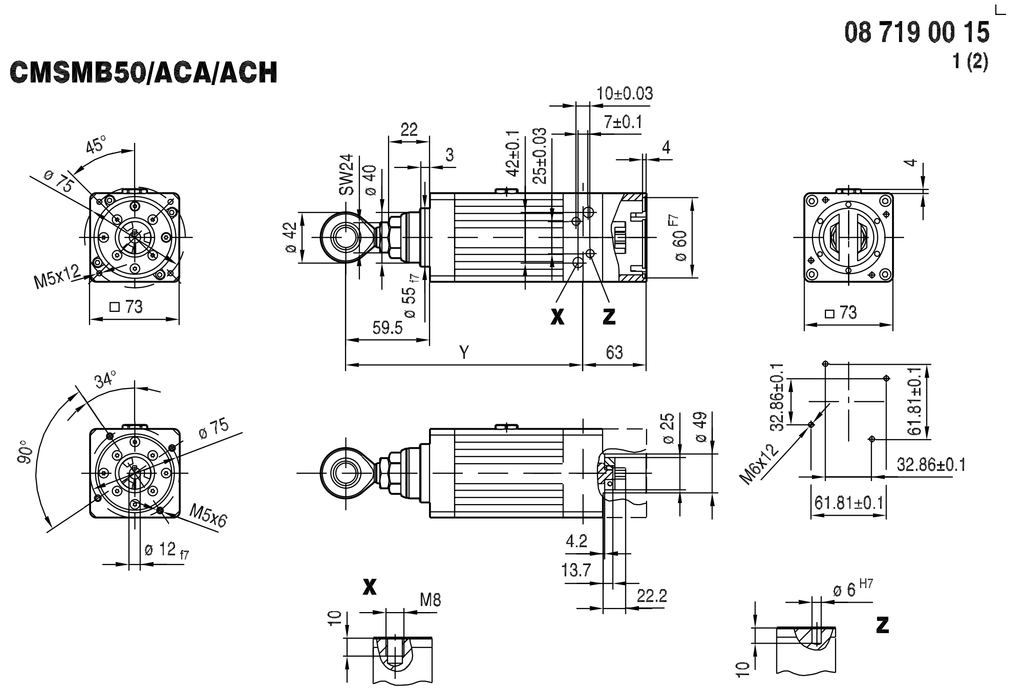
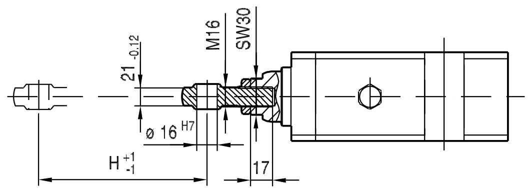
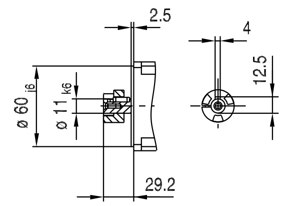
8.4 CMSMB50/ACA/ACH



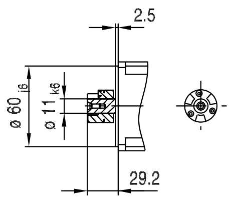


	H	Y
CMSMB50S/M/L /ACA/ACH	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

/ACA 1)



/ACH 1)



1) Motor side

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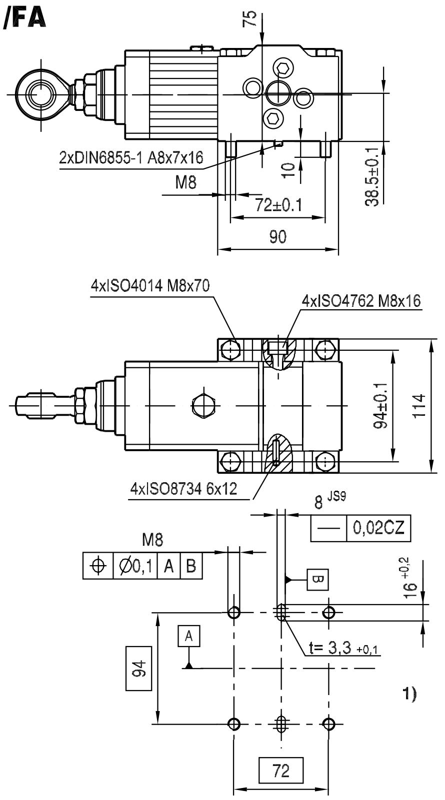
CMSMB50/ACA/ACH

08 719 00 15
2 (2)

/FA



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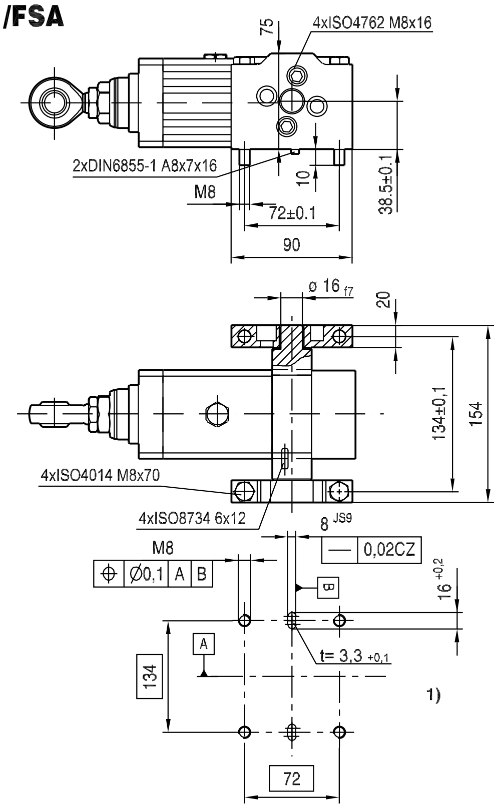

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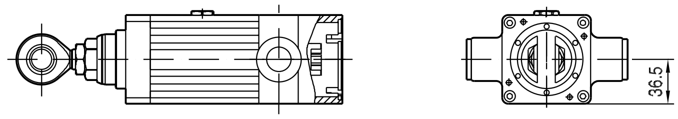

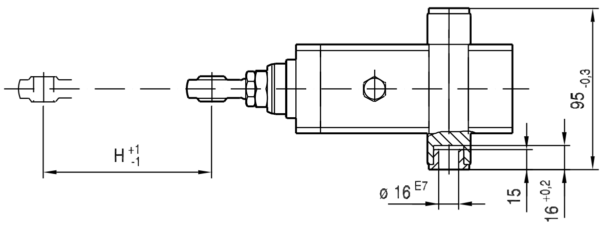

	H	Y
CMSMB50S/M/L /ACA/ACH	70	221,5
	100	251,5
	150	301,5
	200	351,5
	300	451,5
	400	581,5
	600	781,5

1) Motor side

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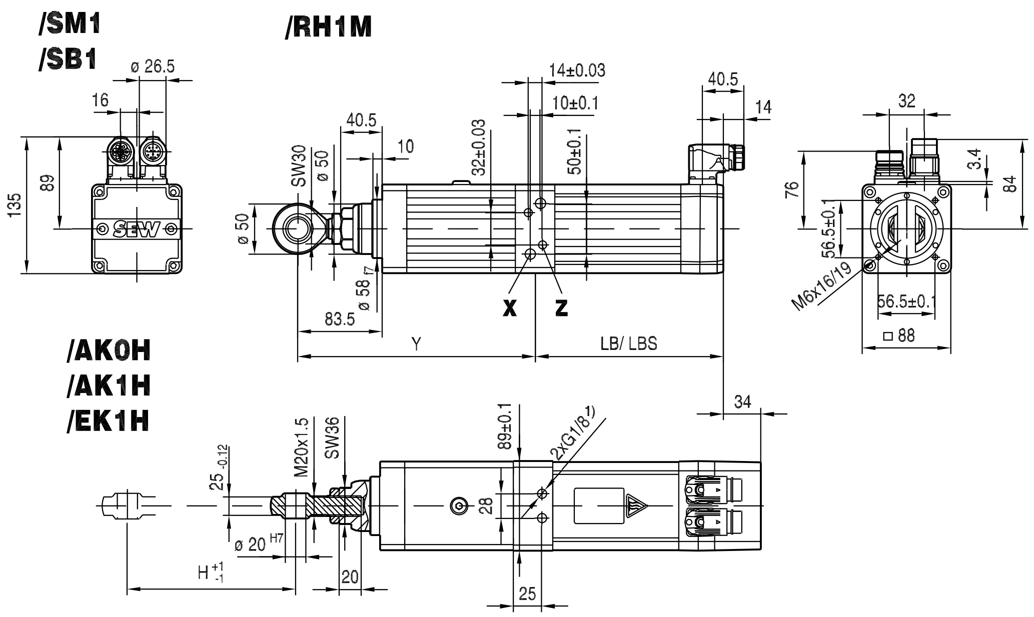
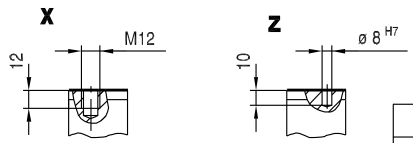
8.5 CMSB63 S/M

08 711 00 15
1 (2)

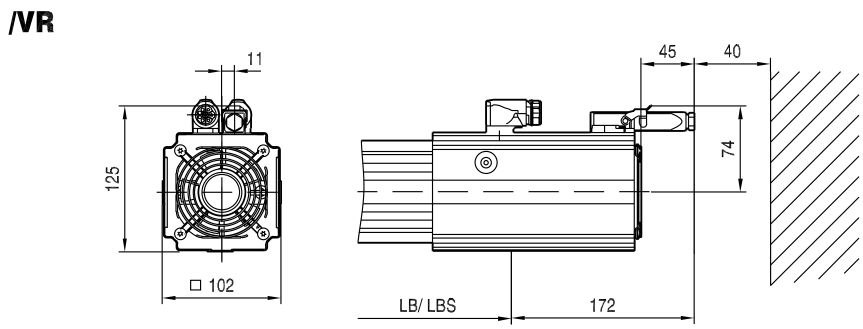
CMSB63 S/M
CMSB63 S/M BK



	H	Y
CMSB63S/M	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5



	LB	LBS
CMSB63S	163,7	192,2
CMSB63M	214,2	242,7



1) Cooling water connection

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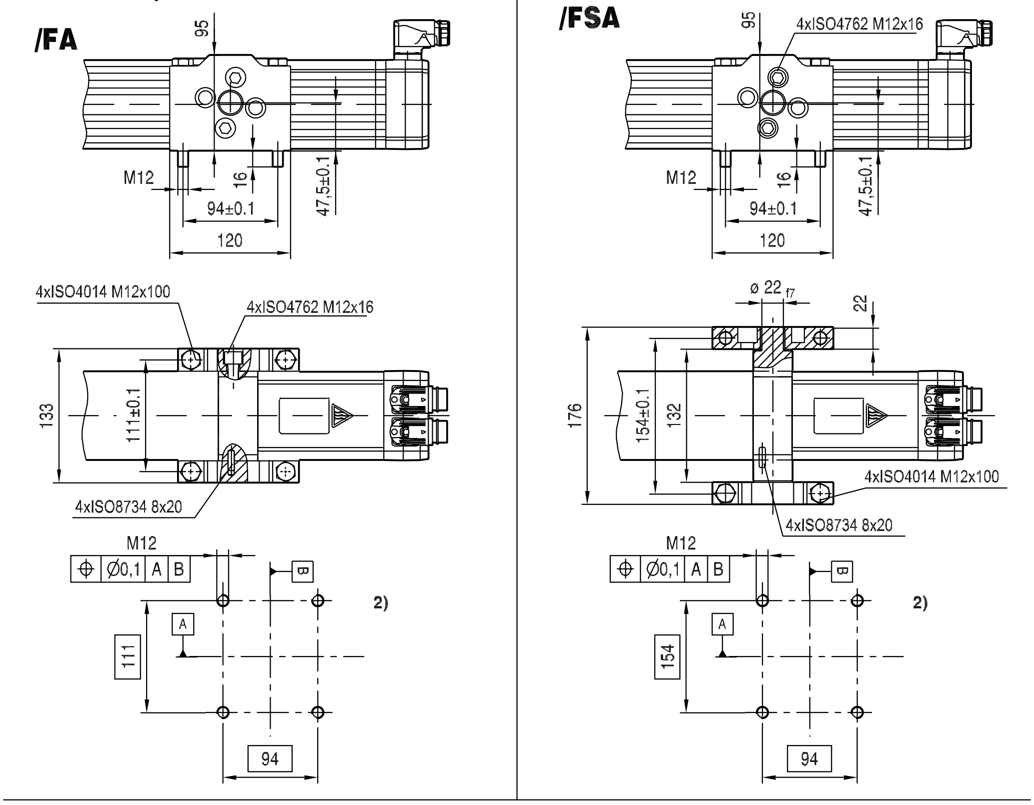
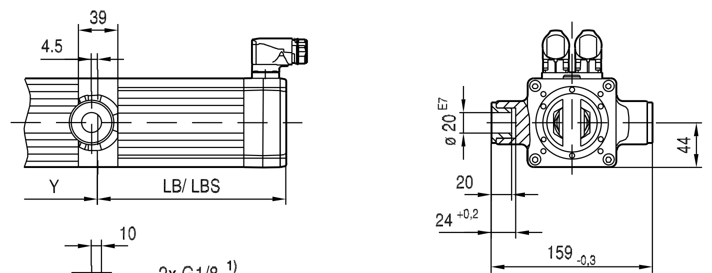
CMSB63 S/M
CMSB63 S/M BK

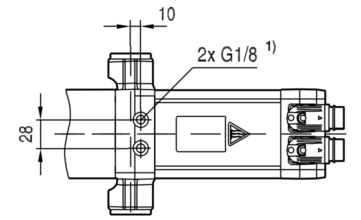
08 711 00 15
2 (2)

/FA **/FSA**



/BU





	H	Y
CMSB63S/M	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5

	LB	LBS
CMSB63S	163,7	192,2
CMSB63M	214,2	242,7

1) Cooling water connection

2) Customer's hole pattern

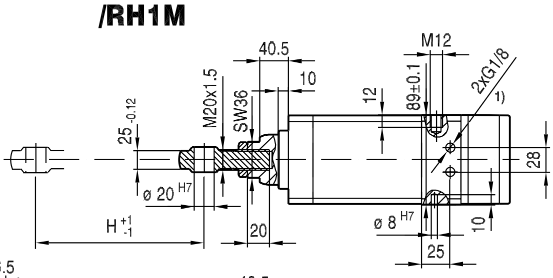
8.6 CMSMB63/AP/CMP63 S/M/L

08 714 00 15
1 (2)

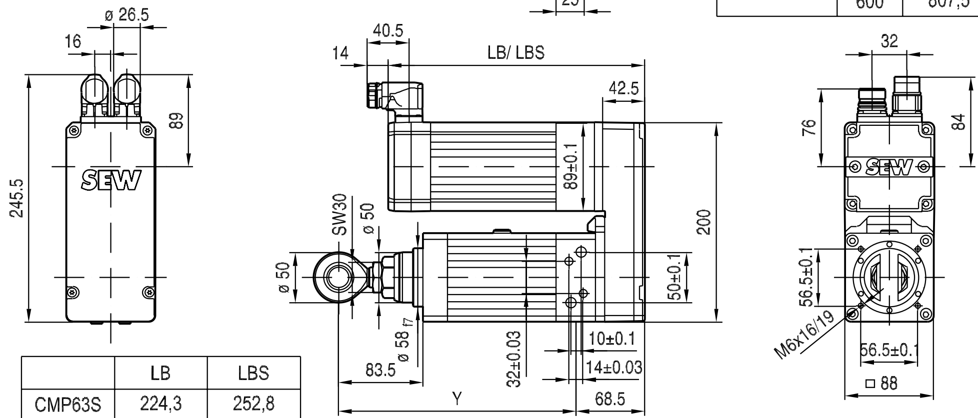
CMSMB63/AP/CMP63 S/M/L
CMSMB63/AP/CMP63 S/M/L BK

/SM1
/SB1

/RH1M

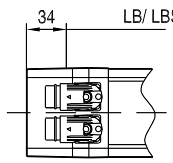


	H	Y
CMSMB63/AP/ CMP63S/M/L	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5

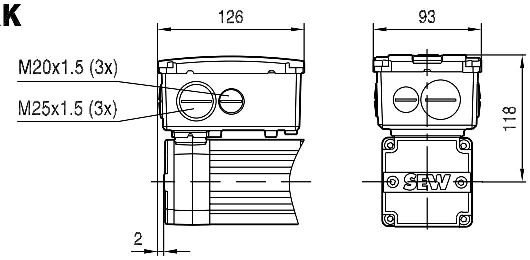


	LB	LBS
CMP63S	224,3	252,8
CMP63M	274,3	302,8
CMP63L	324,3	352,8

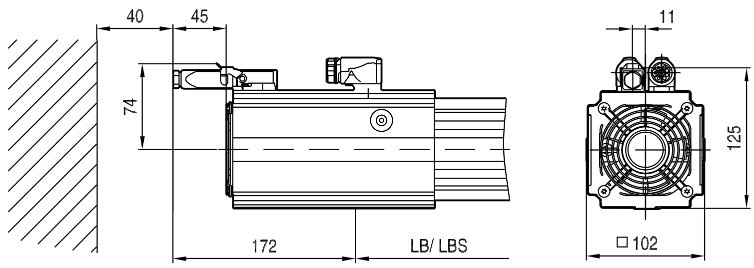
/AK0H
/AK1H
/EK1H



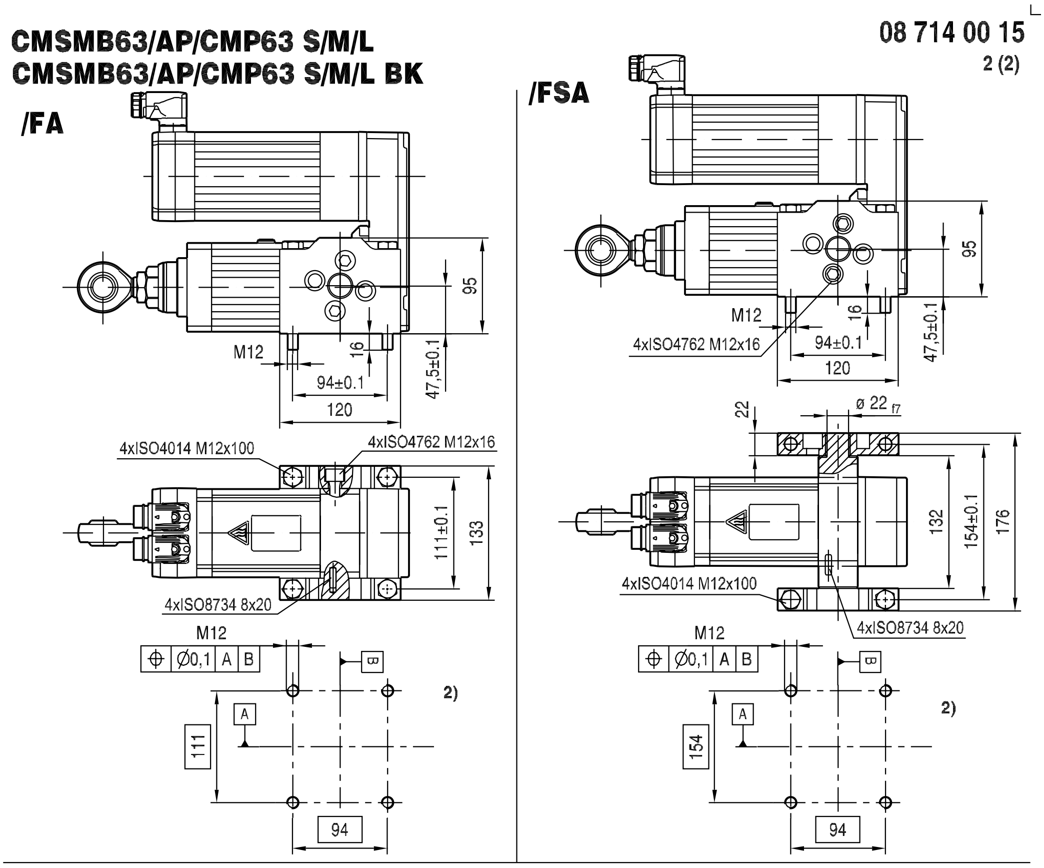
/KK



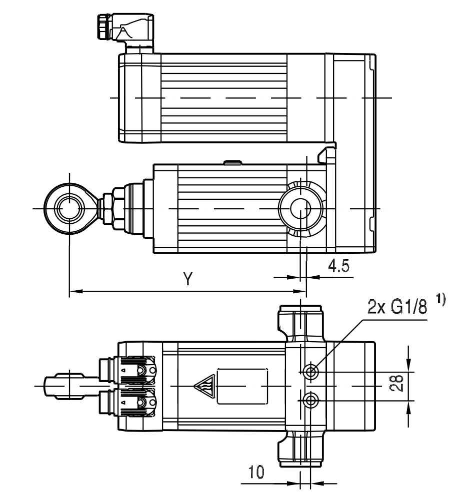
/VR

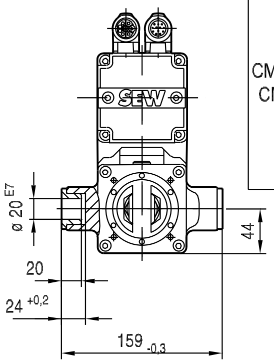


1) Cooling water connection



/BU





	H	Y
CMSMB63/AP/ CMP63S/M/L	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5

	LB	LBS
CMP63S	224,3	252,8
CMP63M	274,3	302,8
CMP63L	324,3	352,8

1) Cooling water connection

2) Customer's hole pattern

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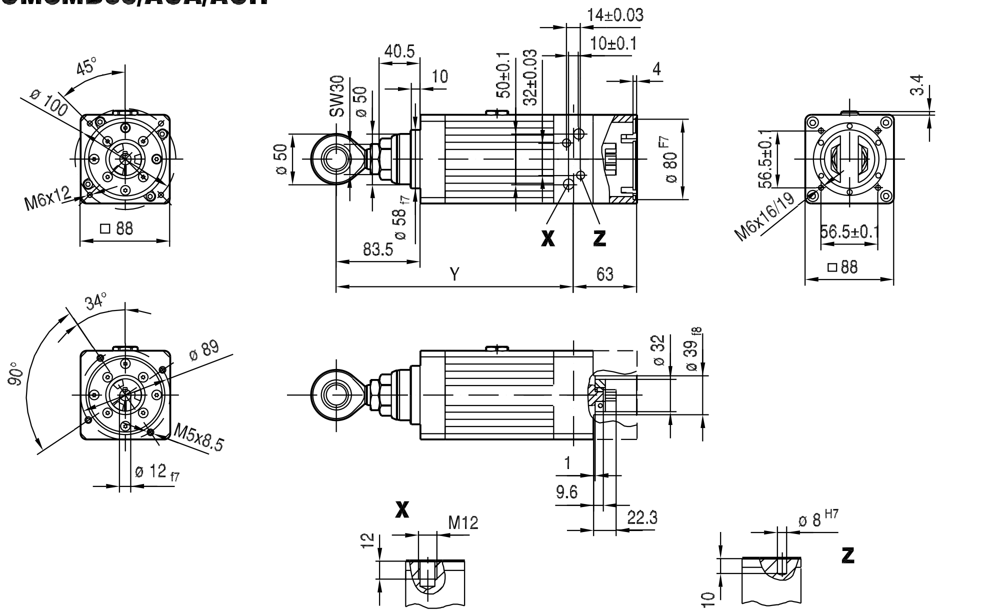
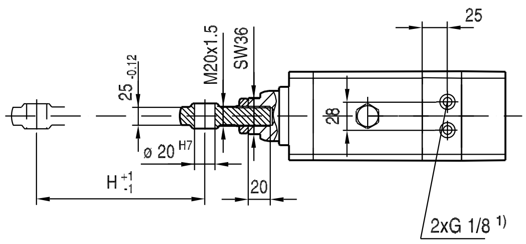
8.7 CMSMB63/ACA/ACH

08 716 00 15
1 (2)

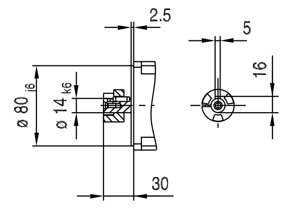
CMSMB63/ACA/ACH



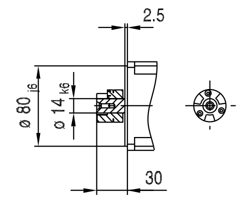


	H	Y
CMSMB63S/M /ACA/ACH	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5

/ACA 1)



/ACH 1)



1) Cooling water connection

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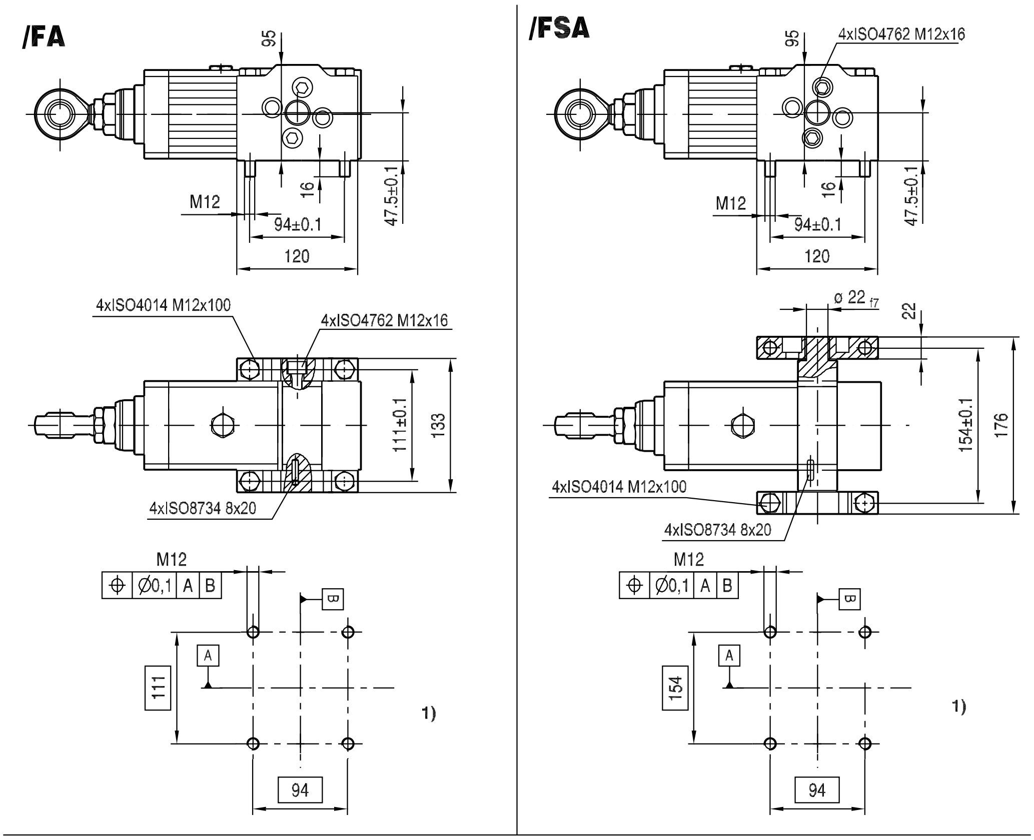
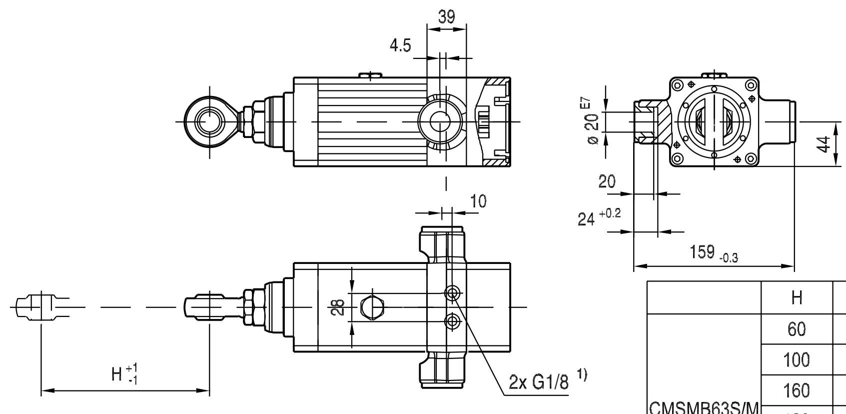
CMSMB63/ACA/ACH

08 716 00 15
2 (2)





	H	Y
CMSMB63S/M /ACA/ACH	60	235,5
	100	275,5
	160	335,5
	180	355,5
	200	375,5
	400	607,5
	600	807,5

1) Cooling water connection
2) Flush on the outside

3) Motor side

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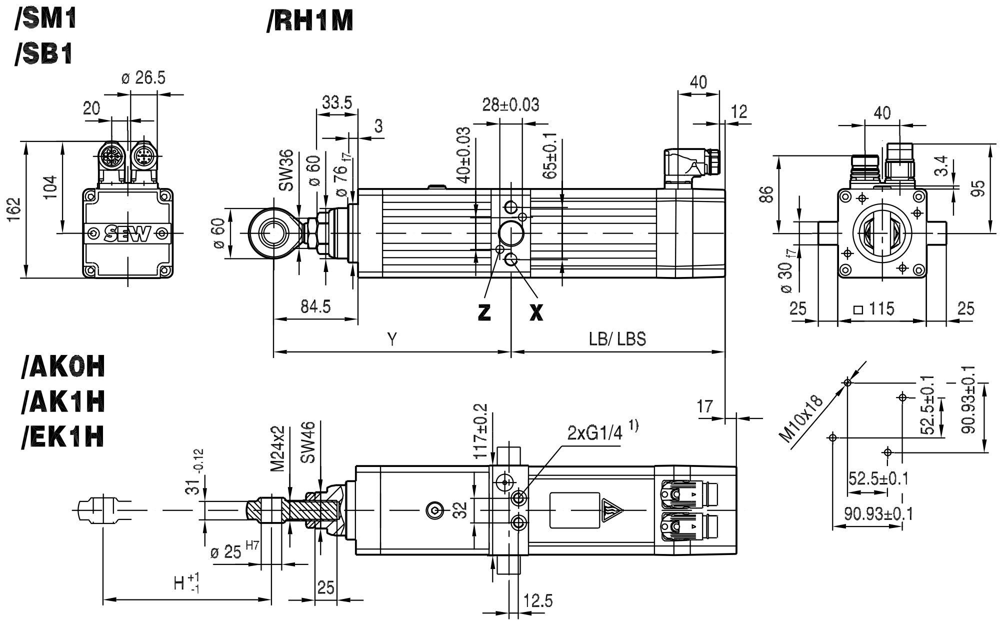
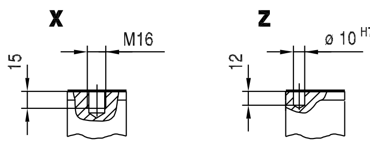
8.8 CMSB71 S/M/L

CMSB71 S/M/L
CMSB71 S/M/L BP

08 720 00 15
1 (2)

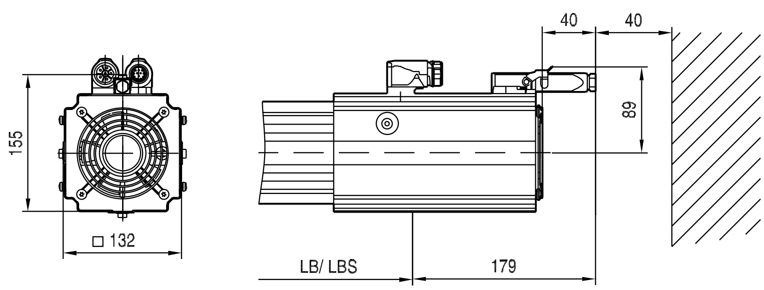


	H	Y
CMSB71S/M/L	100	326
	160	386
	200	426
	400	686
	600	886
	800	1146
	1000	1346
	1200	1546

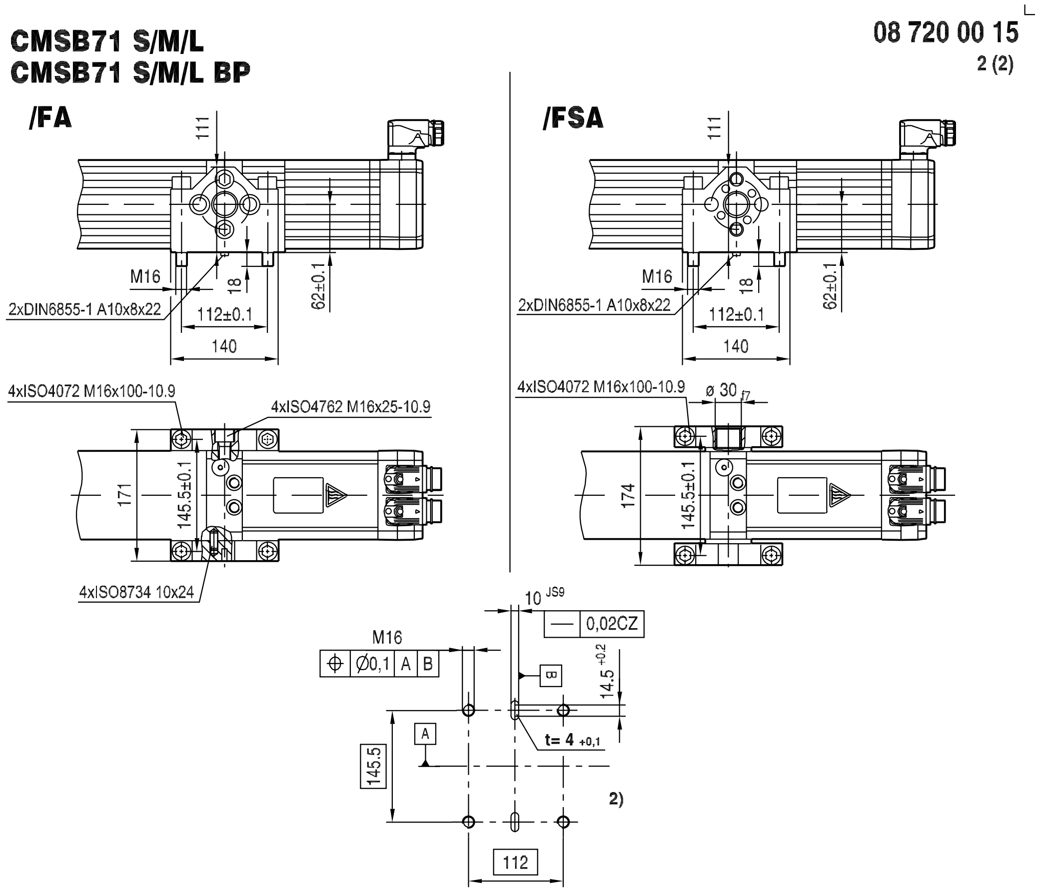


	LB	LBS
CMSB71S	211	276
CMSB71M	236	301
CMSB71L	286	351

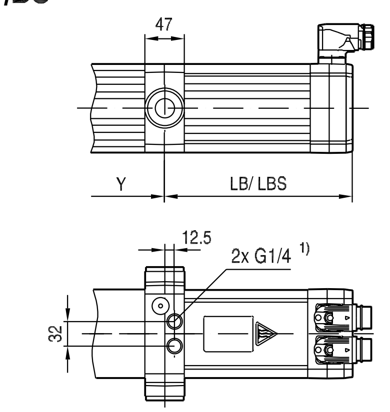
/VR

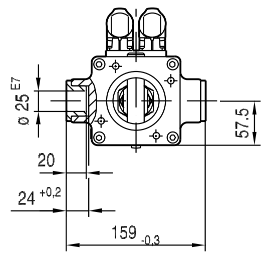


1) Cooling water connection



/BU





	LB	LBS
CMSB71S	211	276
CMSB71M	236	301
CMSB71L	286	351

	H	Y
CMSB71S/M/L	100	326
	160	386
	200	426
	400	686
	600	886
	800	1146
	1000	1346
	1200	1546

1) Cooling water connection

2) Customer's hole pattern

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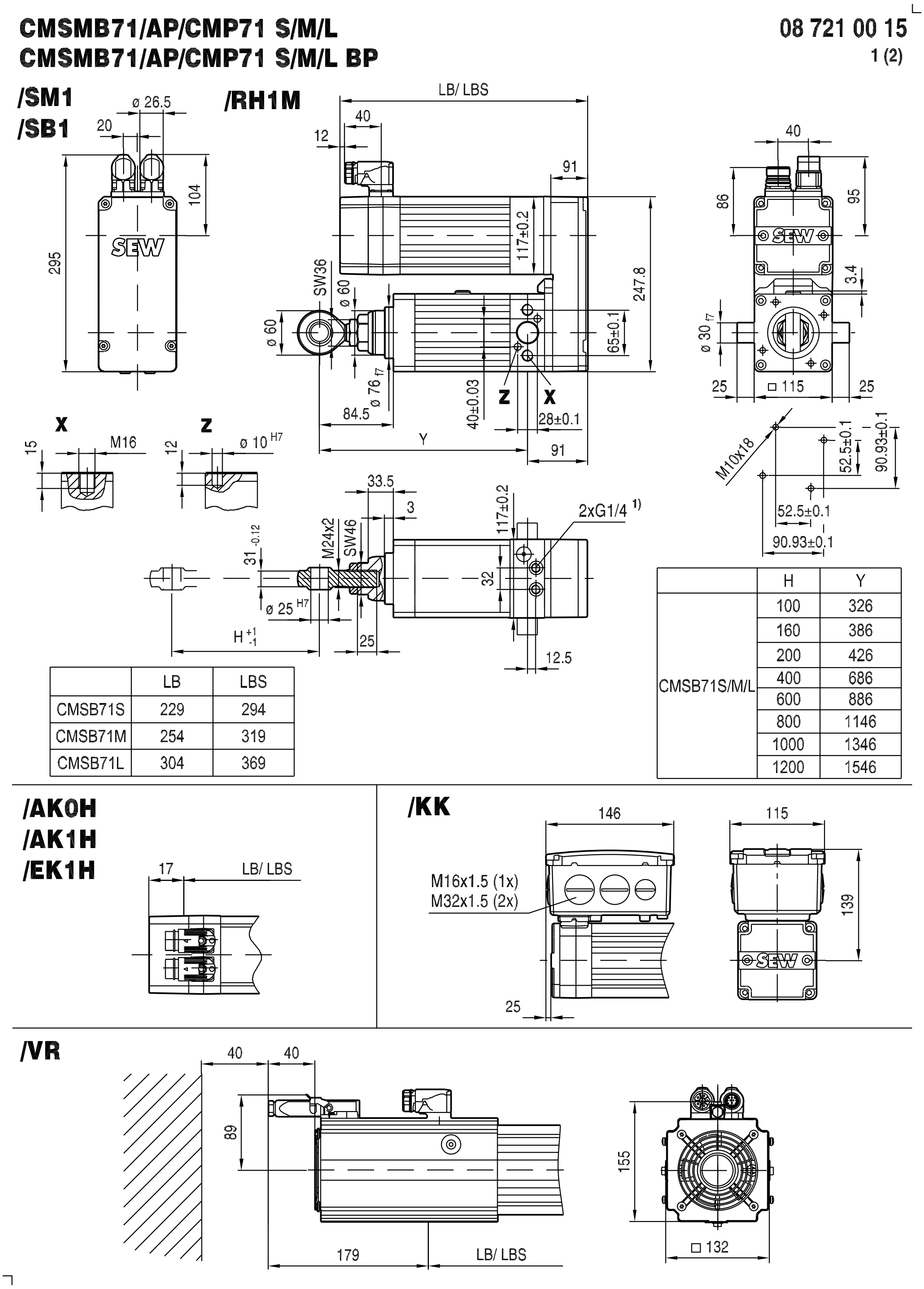
8.9 CMSMB71/AP/CMP71 S/M/L



	LB	LBS
CMSB71S	229	294
CMSB71M	254	319
CMSB71L	304	369

	H	Y
CMSB71S/M/L	100	326
	160	386
	200	426
	400	686
	600	886
	800	1146
	1000	1346
	1200	1546

1) Cooling water connection

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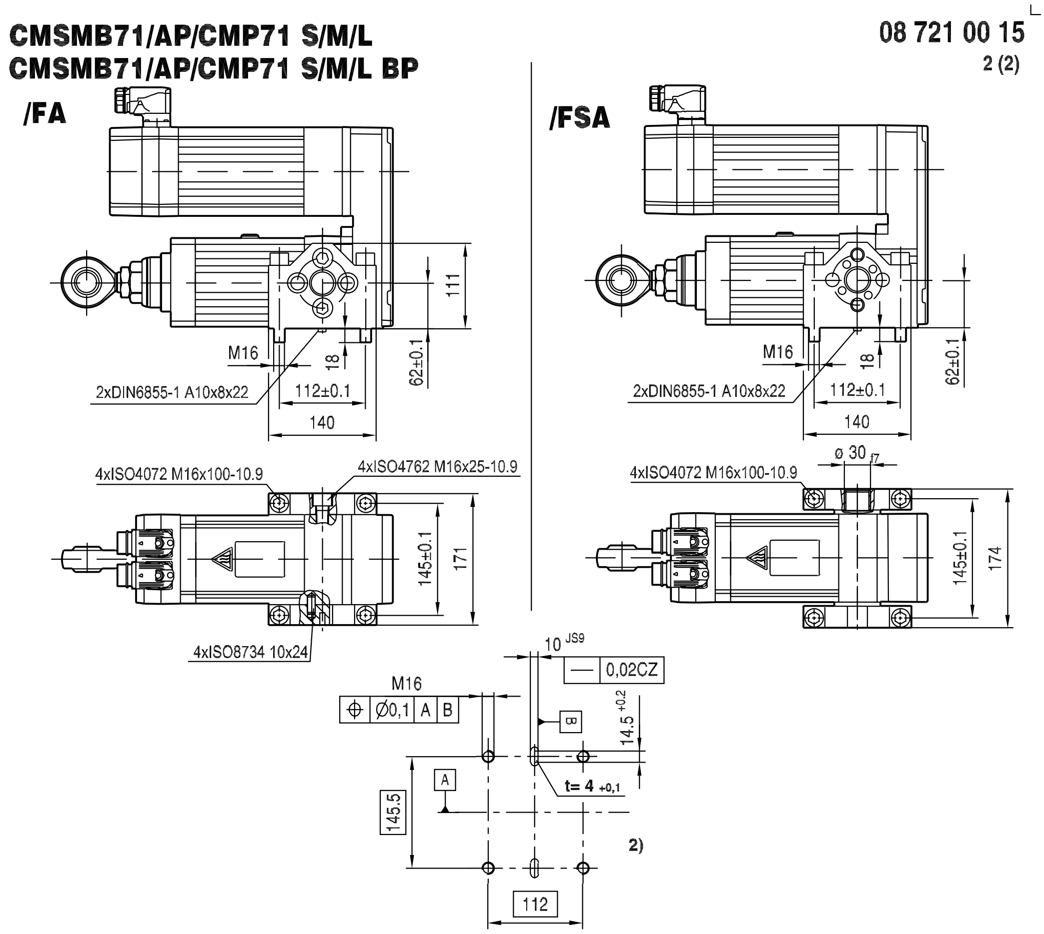

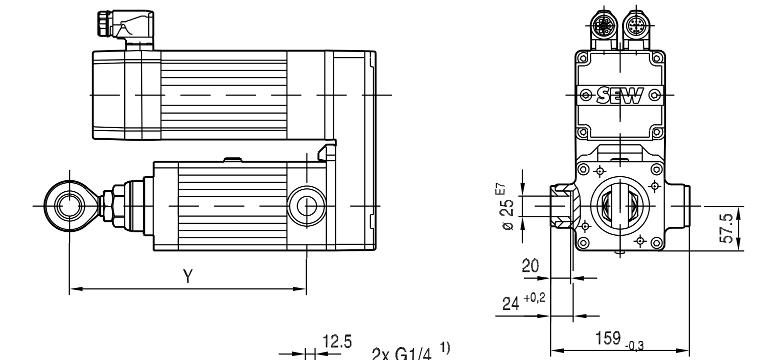

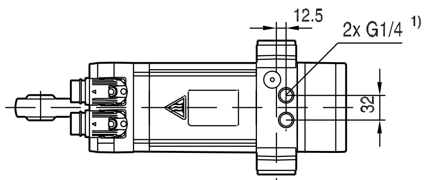

	LB	LBS
CMSB71S	229	294
CMSB71M	254	319
CMSB71L	304	369

1) Cooling water connection

2) Customer's hole pattern

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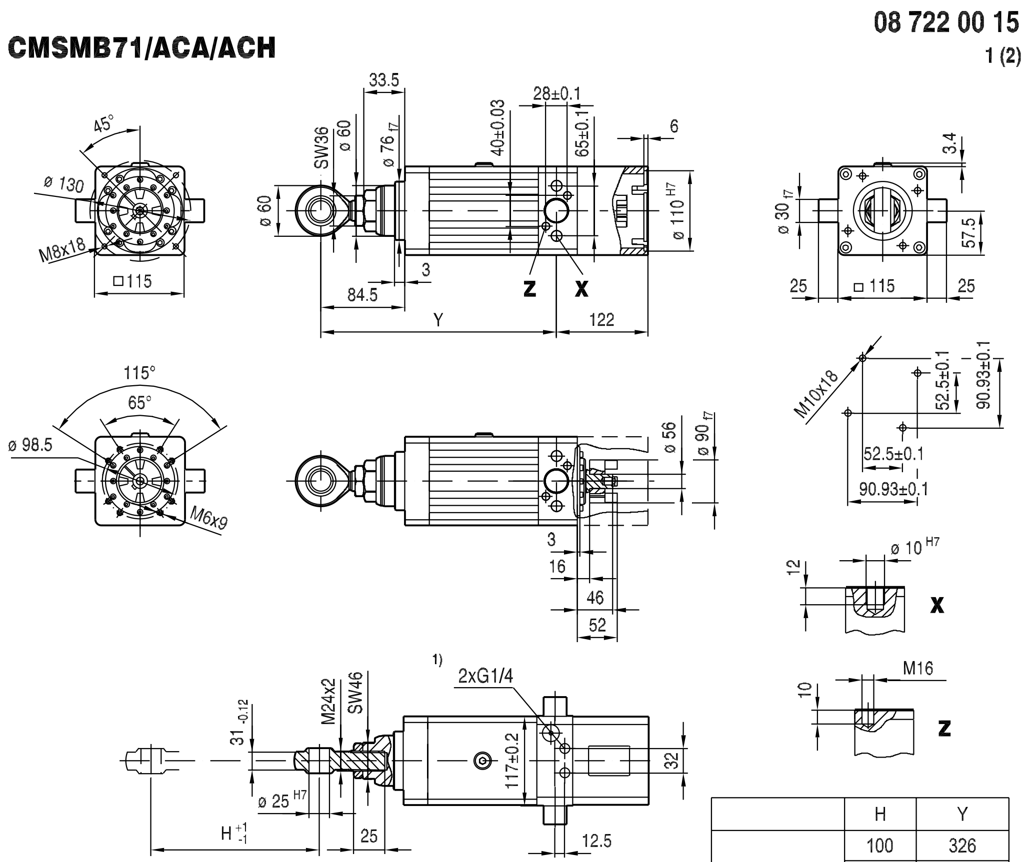
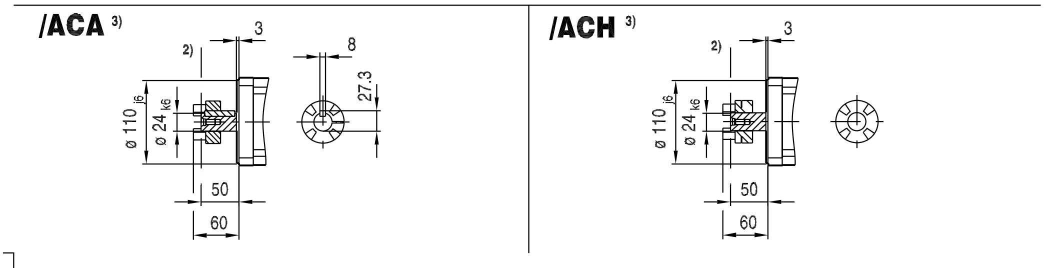
8.10 CMSMB71/ACA/ACH



	H	Y
CMSMB71S/M/L /ACA/ACH	100	326
	160	386
	200	426
	400	686
	600	886
	800	1146
	1000	1346
	1200	1546



1) Cooling water connection
2) Flush on the outside
3) Motor side

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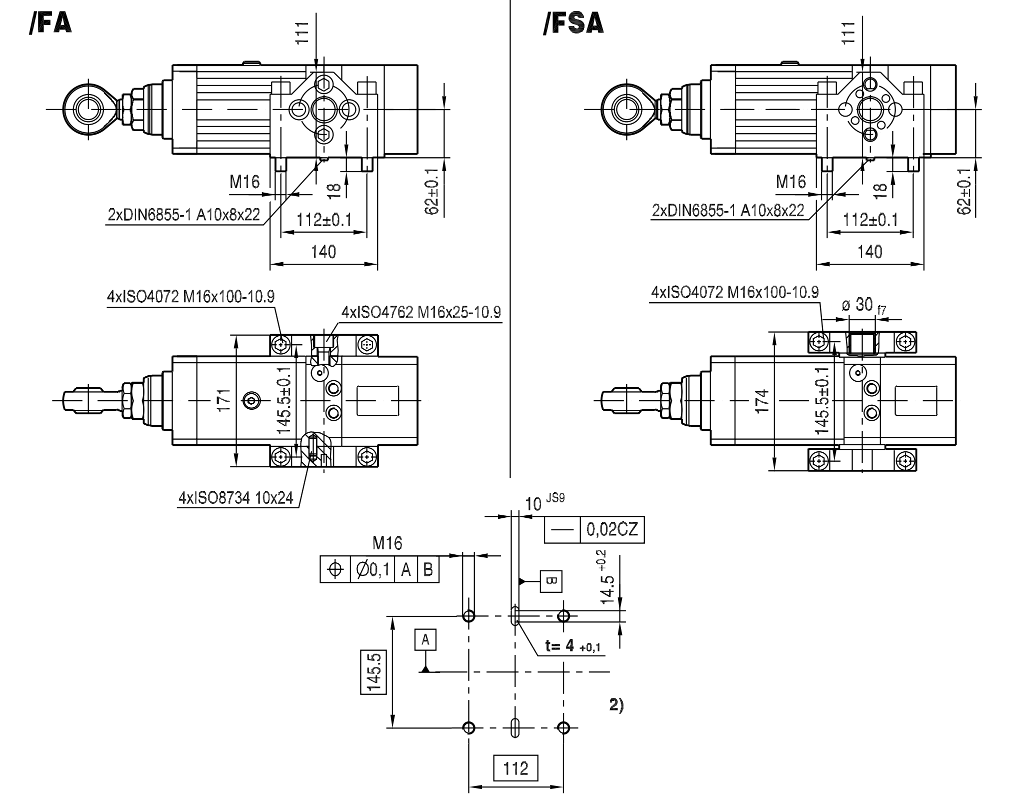
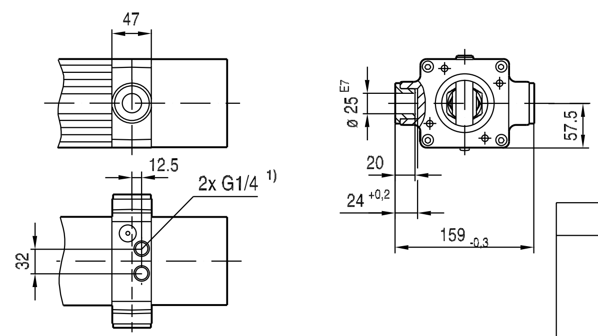
CMSMB71/ACA/ACH

08 722 00 15
2 (2)



/BU



	H	Y
CMSMB71S/M/L /ACA/ACH	100	326
	160	386
	200	426
	400	686
	600	886
	800	1146
	1000	1346
	1200	1546

1) Cooling water connection

2) Motor side

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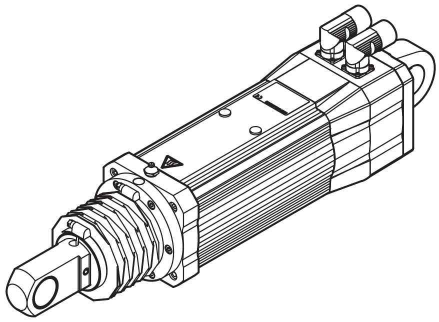
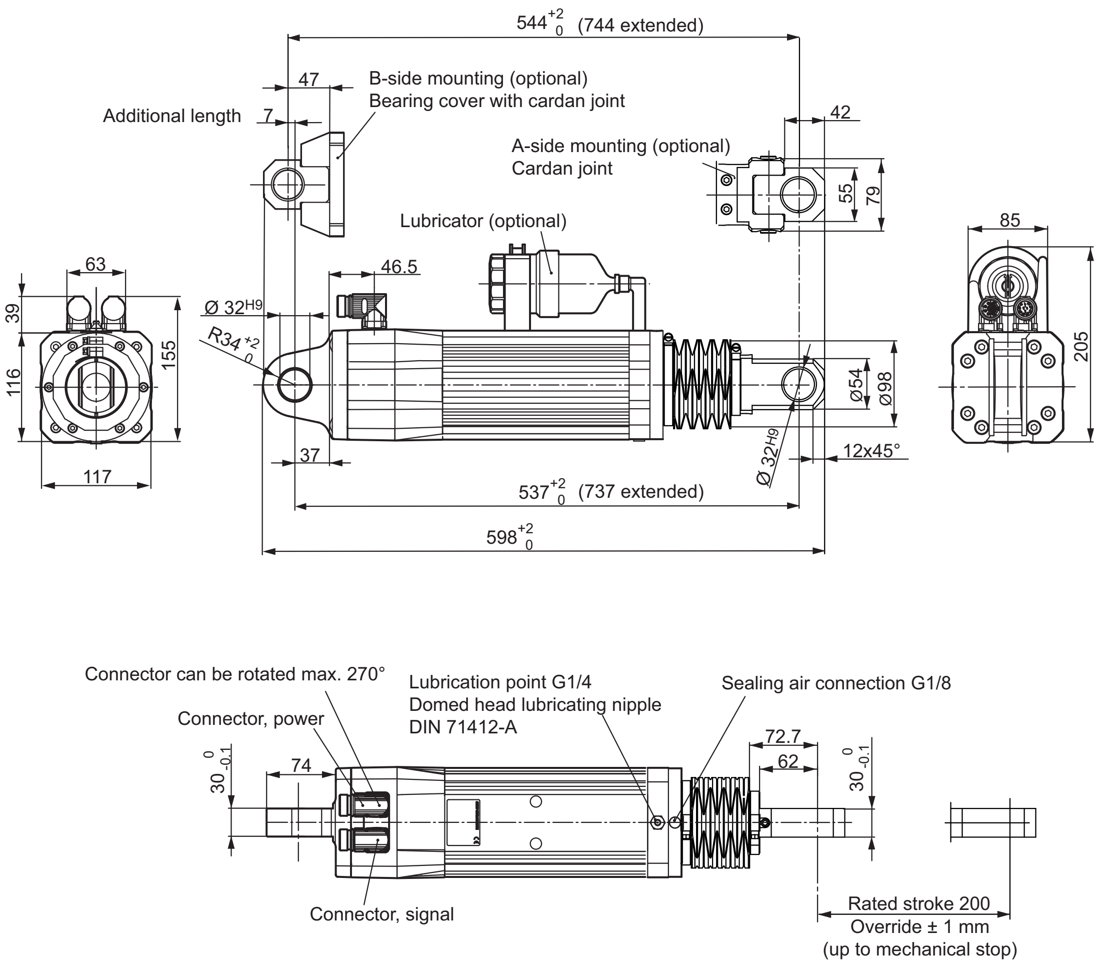
8.11 Installation dimensions for CMS71L

INFORMATION

The CMS71L electric cylinder variants with or without brake, with A-side cardan joint or with rigid rod end bearing have the same installation dimensions. In the variant with B-side cardan joint, the distance between the two fastening bolts is 7 mm longer!

8.11.1 Installation dimensions of CMS71L/BS/RH1M (resolver) for a stroke length of 200 mm





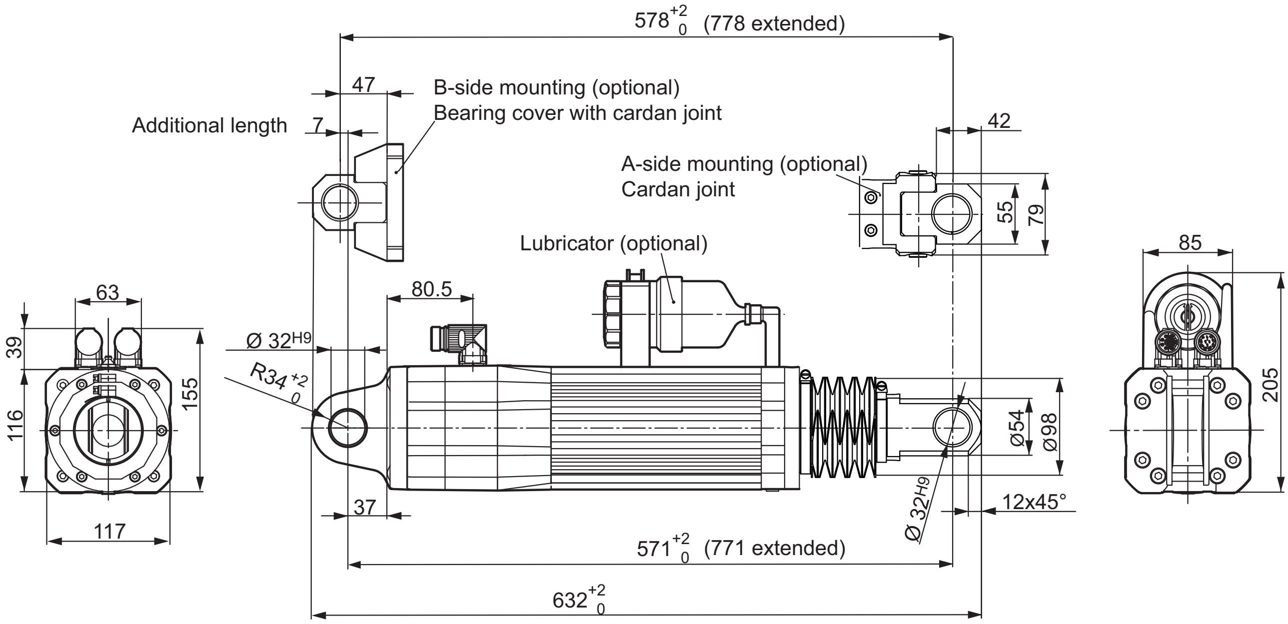
9007204622722955

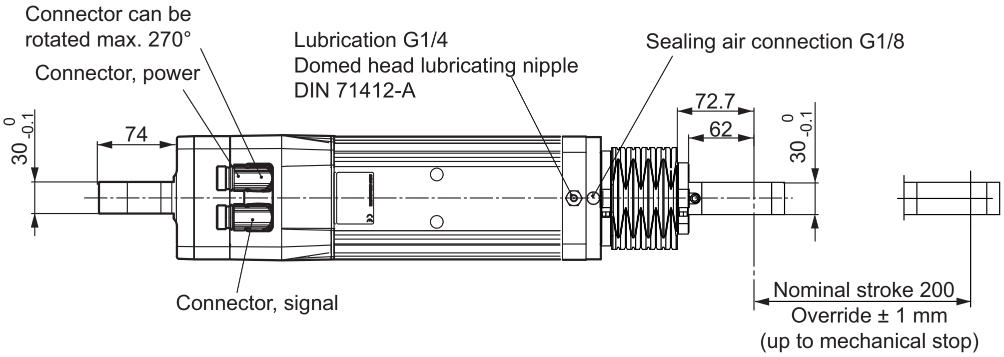
20176945/EN – 07/2016

8.11.2 Installation dimensions of CMS71L/BS/AK1H (absolute encoder) for a stroke length of 200 mm

INFORMATION

For variants with absolute encoder, the total length is longer by 34 mm!

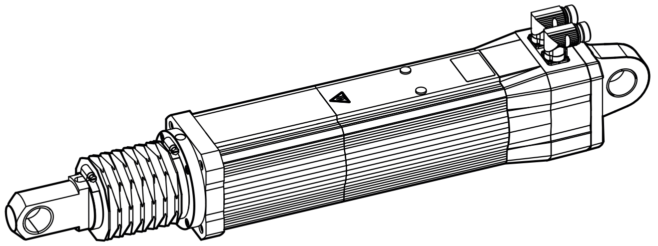


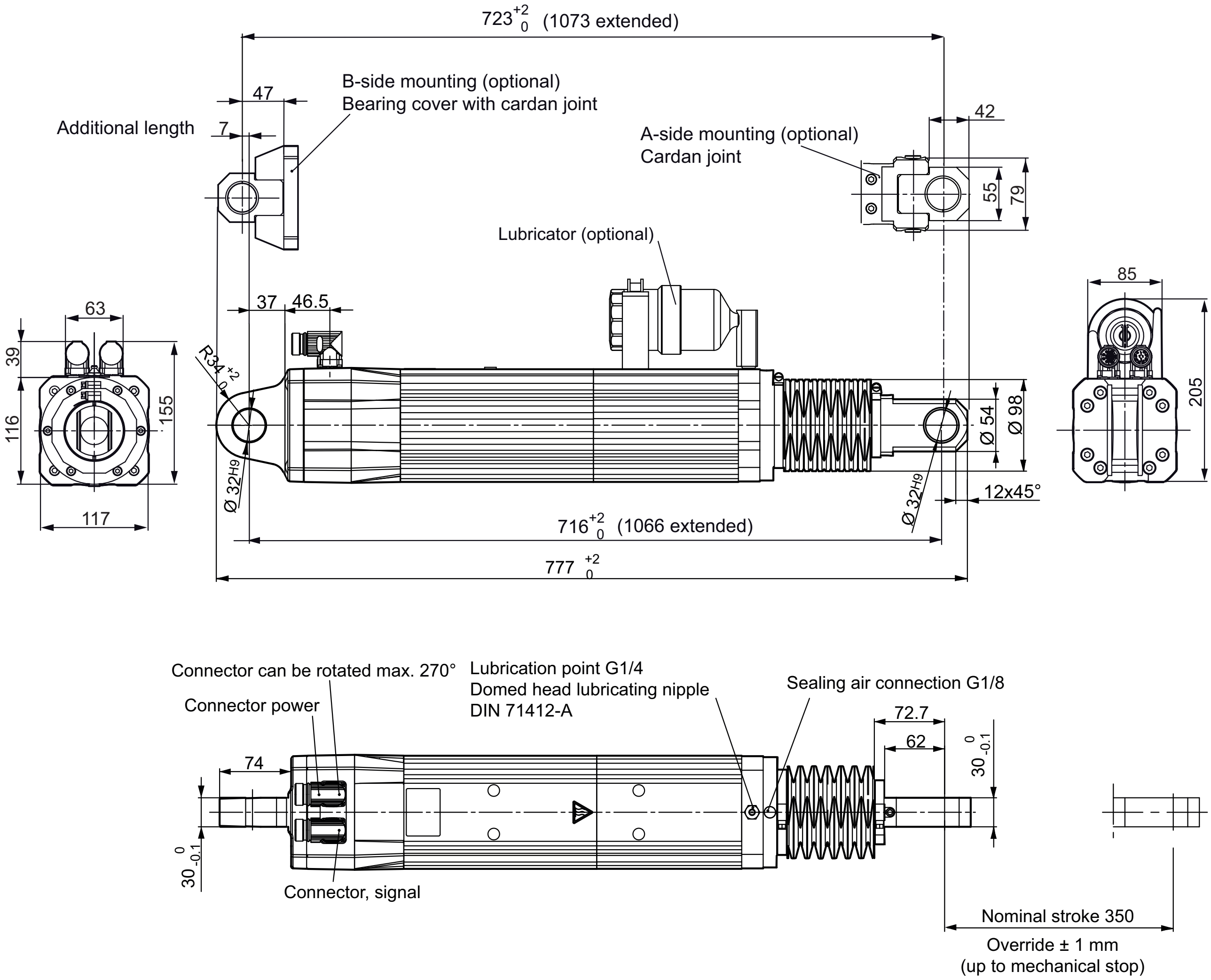


9007204622726027

20176945/EN – 07/2016

8.11.3 Installation dimensions of CMS71L/BS/RH1M (resolver) for a stroke length of 350 mm





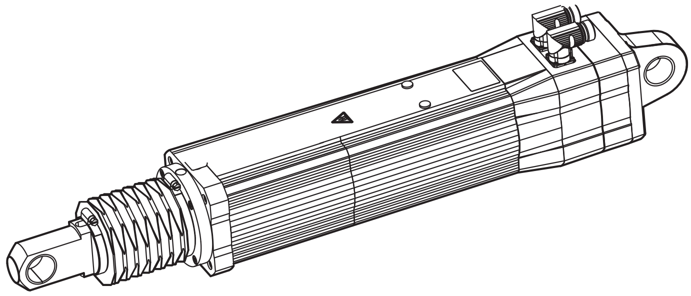
9007204622728715

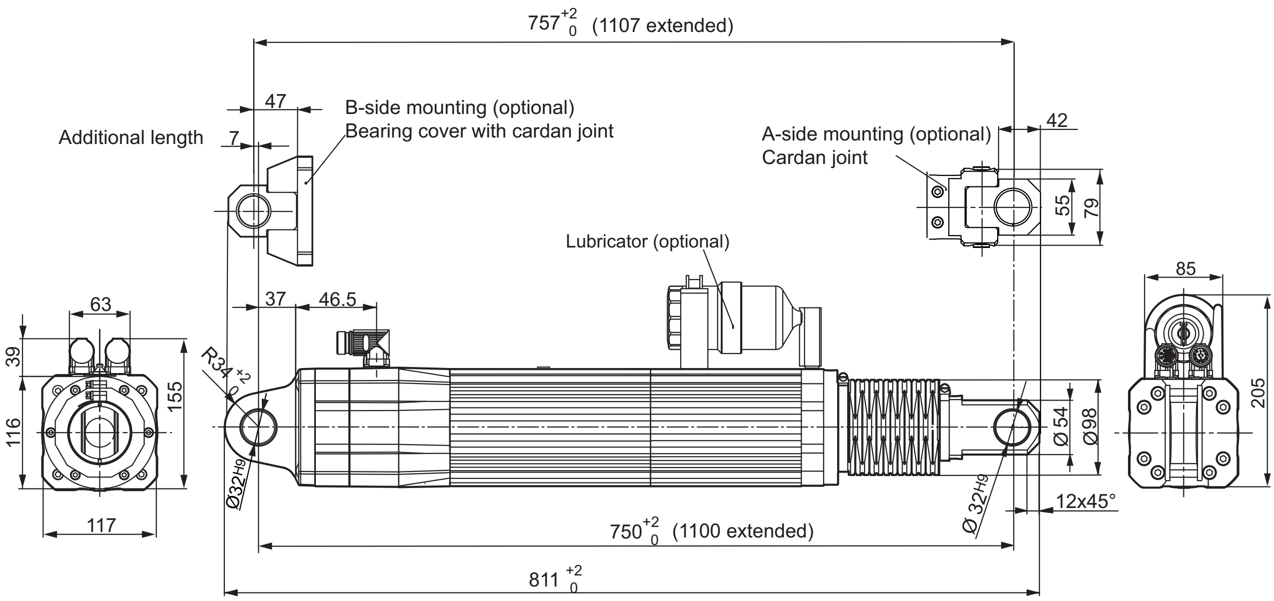
20176945/EN – 07/2016

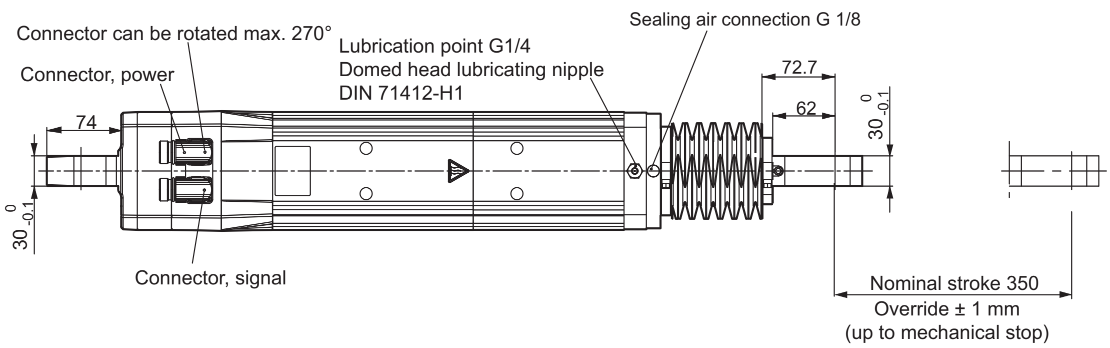
8.11.4 Installation dimensions of CMS71L/BS/AK1H (absolute encoder) for a stroke length of 350 mm

INFORMATION

For variants with absolute encoder, the total length is longer by 34 mm.







9007204622731787

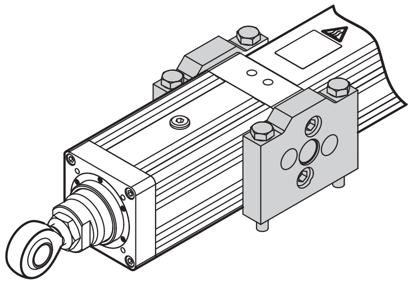
20176945/EN – 07/2016

8.12 Additional mounting options

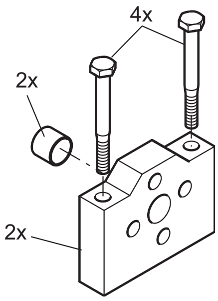
8.12.1 Installation dimensions for CMSB50, CMSMB50, CMSB63, CMSMB63

Flange mounting /FA CMSB50, CMSB63

The following 3 figures show the mounting options for the electric cylinder. This should be attached to a mounting surface with the gray-shaded mount-on components. The mount-on components can be mounted in 90° steps.



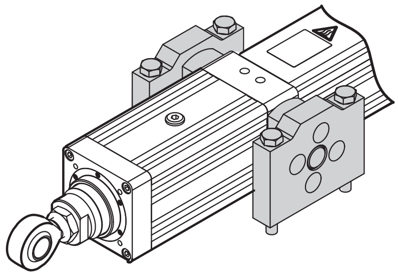
9007204622713739

	Part number CMSB50	Part number CMSB63
Flange mounting kit 	16526848	16521102

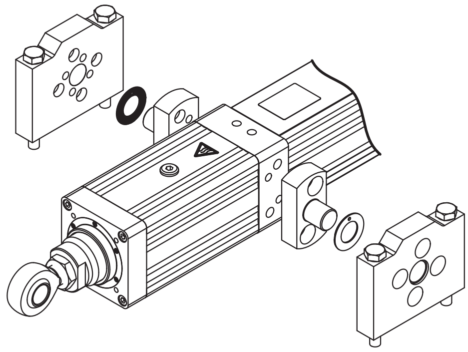
20176945/EN – 07/2016

Pivot bearing mounting /FSA CMSB50, CMSB63

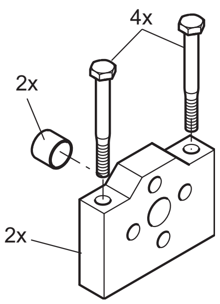
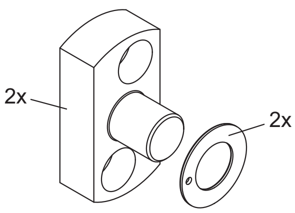
The following figure shows the mounting option for the electric cylinder. This should be attached to a mounting surface with the gray-shaded mount-on components.



9007204622716811

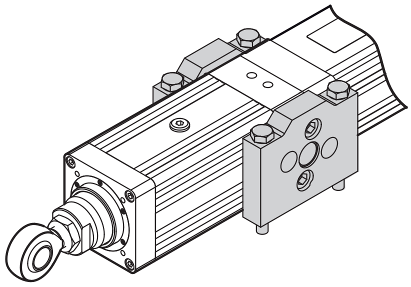


18204418699

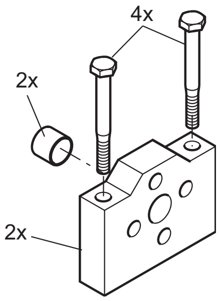
	Part number CMSB50	Part number CMSB63
Flange mounting kit 	16526848	16521102
Pivot bearing mounting kit 	16526899	16521129

Flange mounting /FA CMSMB50, CMSMB63

The following figure shows the flange mounting option for the CMSM.. modular electric cylinder. This should be attached to a mounting surface with the mount-on components. The mount-on components can be mounted in steps of 90°.



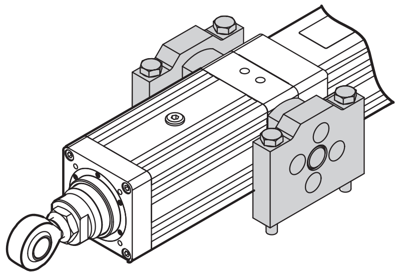
9007211838194699

	Part number CMSB50	Part number CMSB63
Flange mounting kit 	16526848	16521102

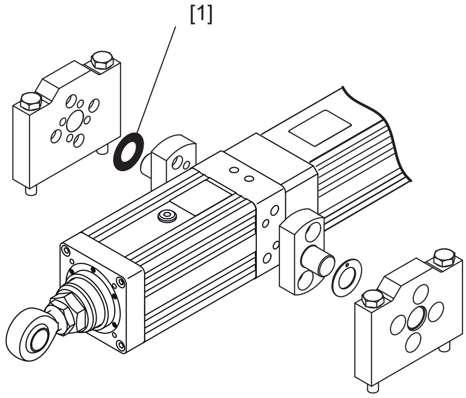
20176945/EN – 07/2016

Pivot bearing mounting /FSA CMSMB50, CMSMB63

The following figure shows the pivot bearing mounting option for the CMSM.. modular electric cylinder. This should be attached to a mounting surface with the mount-on components.

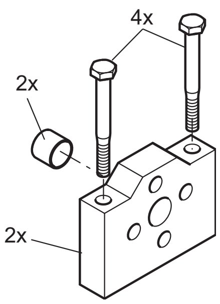
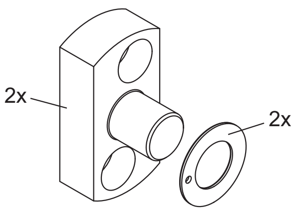


9007211838259979



18204776203

[1] Insert the thrust washer with bearing surface facing towards the motor.

	Part number CMSB50	Part number CMSB63
Flange mounting kit 	16526848	16521102
Pivot bearing mounting kit 	16526899	16521129

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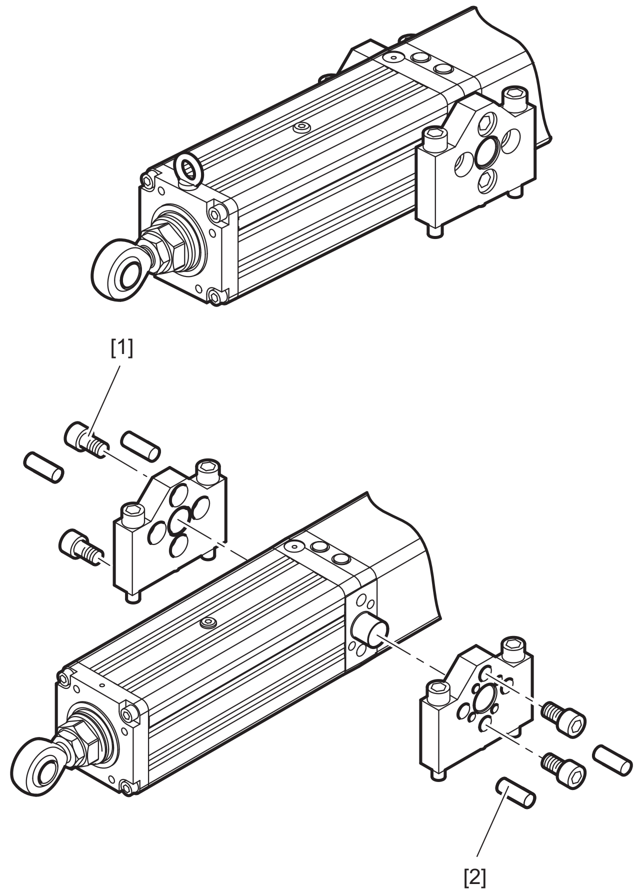
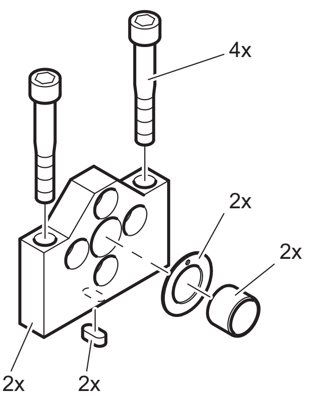
8.12.2 Installation dimensions CMSB71, CMSMB71

Flange mounting /FA CMSB71, CMSMB71

The following figure shows the flange mounting option for the CMSB71 standard electric cylinders and CMSMB71 modular electric cylinders. This should be attached to a mounting surface with the mount-on components. The mount-on components can be mounted in steps of 90°.



[1] Screws from accessory bag
[2] Dowel pins from accessory bag

	Part number CMSB71	Part number CMSB71
Flange mounting kit  	16524144	16524144

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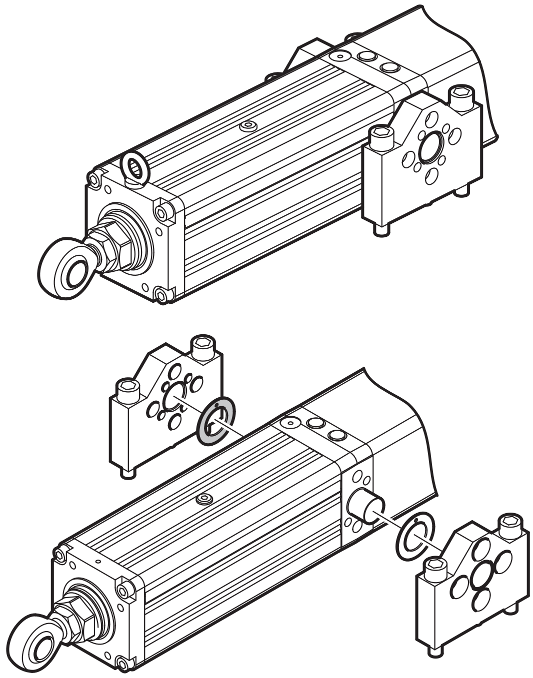
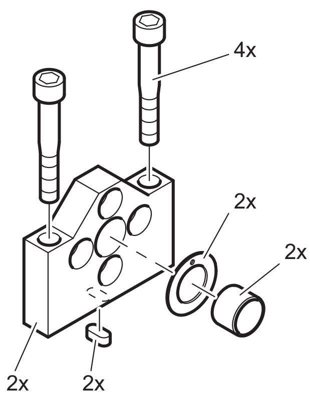
Pivot bearing mounting /FSA CMSB71, CMSMB71

The following figure shows the pivot bearing mounting option for the CMSB71 standard electric cylinders and CMSMB71 modular electric cylinders. This should be attached to a mounting surface with the mount-on components.



	Part number CMSB71	Part number CMSB71
Pivot bearing mounting kit  	16524144	16524144

9 Prefabricated cables

9.1 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 steps of 1 m:

- 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 (encoder cable, extension cable).

9.1.1 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.

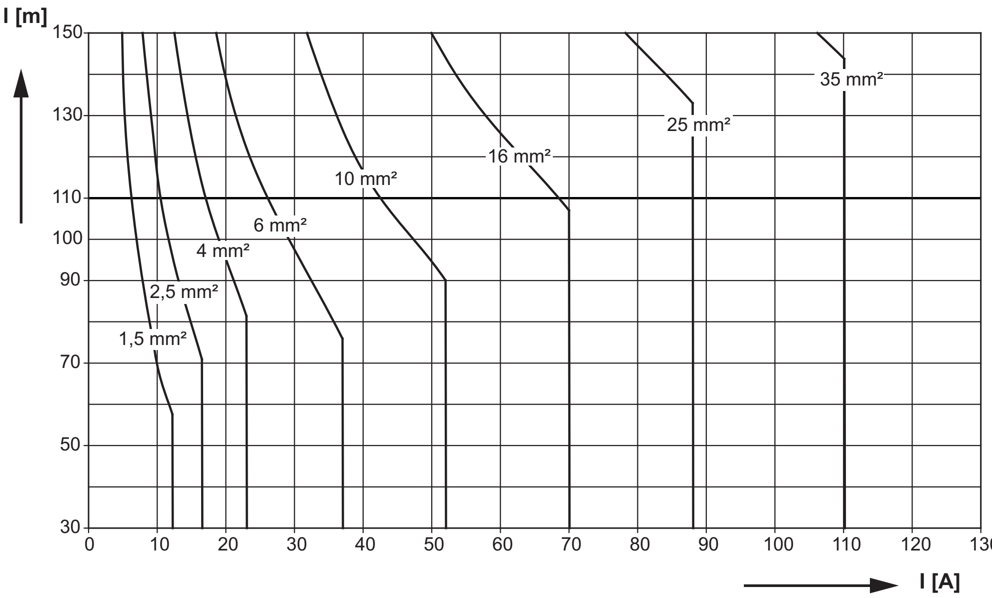
INFORMATION

If the system requires UL approval, then the power cables between motor and inverter must have a minimum cross section of 2.5 mm^2 (AWG14) according to NEC430.22 (National Fire Protection Association; Edition 2011).

9.2 Project planning for cable cross section

9.2.1 Cable dimensioning to EN 60204

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



18014403327547531

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

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

9.2.2 Cable load table

Cable load through current **I** in ampere according to EN 60204-1 (edition 2006) table 6, ambient temperature 40 °C.

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

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

Observe the voltage drop 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.

9.2.3 General information on cable assignment tables

The values in the cable assignment table are based on the values highlighted in gray in the "Cable load table " (→ 🗎 265).

The connector assignment can be found in the assignment tables for Connectors and terminal boxes.

The cable length limits derive from the normative specifications on voltage drop I_0/ I_{0VR} (< 5%) for cables according to standard EN 60204-1 (edition 2008), and from the derating of the plug connectors.

When the plant requires a UL certification, the power cables between motor and inverter must be designed with a minimum cross section of 2.5 mm² (AWG14) according to NEC 430.22 (National Fire Protection Association; Edition 2011).

9.3 Cable assignments, system voltage 400 V

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

- 1.5 mm² – 4 mm²: SM1/SB1

9.3.1 Motor cable CMSB50 – 71, CMS71L

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installation	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm²	Stand-alone motor		
CMSB50S	3000	0.96	100	1.5	05904544	05906245	13332457
CMSB50S	4500	1.32	100	1.5	05904544	05906245	13332457
CMSB50S	6000	1.7	100	1.5	05904544	05906245	13332457
CMSB50M	3000	1.68	100	1.5	05904544	05906245	13332457
CMSB50M	4500	2.3	100	1.5	05904544	05906245	13332457
CMSB50M	6000	3	100	1.5	05904544	05906245	13332457
CMSB50L	3000	2.2	100	1.5	05904544	05906245	13332457
CMSB50L	4500	3.15	100	1.5	05904544	05906245	13332457
CMSB50L	6000	4.2	100	1.5	05904544	05906245	13332457
CMSB63S	3000	2.15	100	1.5	05904544	05906245	13332457
CMSB63S	4500	3.05	100	1.5	05904544	05906245	13332457
CMSB63S	6000	3.9	100	1.5	05904544	05906245	13332457
CMSB63M	3000	3.6	100	1.5	05904544	05906245	13332457
CMSB63M	4500	5.4	100	1.5	05904544	05906245	13332457
CMSB63M	6000	6.9	100	1.5	05904544	05906245	13332457
CMSB71S	2000	3.4	100	1.5	05904544	05906245	13332457
CMSB71S	3000	4.9	100	1.5	05904544	05906245	13332457
CMSB71S	4500	7.3	90	1.5	05904544	05906245	13332457
CMSB71S	4500	7.3	100	2.5	05904552	05906253	13332465
CMSB71S	6000	9.6	70	1.5	05904544	05906245	13332457
CMSB71S	6000	9.6	100	2.5	05904552	05906253	13332465
CMSB71M	2000	5	100	1.5	05904544	05906245	13332457
CMSB71M	3000	7.5	90	1.5	05904544	05906245	13332457
CMSB71M	3000	7.5	100	2.5	05904552	05906253	13332465
CMSB71M	4500	10.9	60	1.5	05904544	05906245	13332457
CMSB71M	4500	10.9	100	2.5	05904552	05906253	13332465
CMSB71M	6000	14.7	75	2.5	05904552	05906253	13332465
CMSB71M	6000	14.7	100	4	05904560	05904803	13332473
CMSB71L	2000	6.3	100	1.5	05904544	05906245	13332457
CMSB71L	3000	9.4	70	1.5	05904544	05906245	13332457
CMSB71L	3000	9.4	100	2.5	05904552	05906253	13332465
CMSB71L	4500	14.1	80	2.5	05904552	05906253	13332465
CMSB71L	4500	14.1	100	4	05904560	05904803	13332473
CMSB71L	6000	18.8	100	4	05904560	05904803	13332473
CMS71L	2000	4.2	100	1.5	05904544	05906245	13332457
CMS71L	3000	6.2	100	1.5	05904544	05906245	13332457
CMS71L	4500	9.6	70	1.5	05904544	05906245	13332457
CMS71L	4500	9.6	100	2.5	05904552	05906253	13332465

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9.3.2 Motor cable CMSB50 – 71 with /VR forced cooling fan

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installation	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm^2	Stand-alone motor		
CMSB50S /VR	3000	1.0	100	1.5	05904544	05906245	13332457
CMSB50S /VR	4500	1.4	100	1.5	05904544	05906245	13332457
CMSB50S /VR	6000	1.8	100	1.5	05904544	05906245	13332457
CMSB50M /VR	3000	2.1	100	1.5	05904544	05906245	13332457
CMSB50M /VR	4500	2.8	100	1.5	05904544	05906245	13332457
CMSB50M /VR	6000	3.7	100	1.5	05904544	05906245	13332457
CMSB50L /VR	3000	2.7	100	1.5	05904544	05906245	13332457
CMSB50L /VR	4500	4.0	100	1.5	05904544	05906245	13332457
CMSB50L /VR	6000	5.3	100	1.5	05904544	05906245	13332457
CMSB63S /VR	3000	2.7	100	1.5	05904544	05906245	13332457
CMSB63S /VR	4500	3.9	100	1.5	05904544	05906245	13332457
CMSB63S /VR	6000	4.9	100	1.5	05904544	05906245	13332457
CMSB63M /VR	3000	5.7	100	1.5	05904544	05906245	13332457
CMSB63M /VR	4500	8.5	80	1.5	05904544	05906245	13332457
CMSB63M /VR	4500	8.5	100	2.5	05904552	05906253	13332465
CMSB63M /VR	6000	10.9	60	1.5	05904544	05906245	13332457
CMSB63M /VR	6000	10.9	100	2.5	05904552	05906253	13332465
CMSB71S /VR	2000	5.8	100	1.5	05904544	05906245	13332457
CMSB71S /VR	3000	8.5	80	1.5	05904544	05906245	13332457
CMSB71S /VR	3000	8.5	100	2.5	05904552	05906253	13332465
CMSB71S /VR	4500	12.6	50	1.5	05904544	05906245	13332457
CMSB71S /VR	4500	12.6	90	2.5	05904552	05906253	13332465
CMSB71S /VR	4500	12.6	100	4	05904560	05904803	13332473
CMSB71S /VR	6000	16.6	70	2.5	05904552	05906253	13332465
CMSB71S /VR	6000	16.6	100	4	05904560	05904803	13332473
CMSB71M /VR	2000	7.6	90	1.5	05904544	05906245	13332457
CMSB71M /VR	2000	7.6	100	2.5	05904552	05906253	13332465
CMSB71M /VR	3000	11.4	60	1.5	05904544	05906245	13332457
CMSB71M /VR	3000	11.4	100	2.5	05904552	05906253	13332465
CMSB71M /VR	4500	16.5	70	2.5	05904552	05906253	13332465
CMSB71M /VR	4500	16.5	100	4	05904560	05904803	13332473
CMSB71M /VR	6000	22.3	85	4	05904560	05904803	13332473
CMSB71L /VR	2000	10.0	65	1.5	05904544	05906245	13332457
CMSB71L /VR	2000	10.0	100	2.5	05904552	05906253	13332465
CMSB71L /VR	3000	15.0	75	2.5	05904552	05906253	13332465
CMSB71L /VR	3000	15.0	100	4	05904560	05904803	13332473
CMSB71L /VR	4500	22.4	80	4	05904560	05904803	13332473

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9.3.3 Motor cable CMSB50 – 71 with liquid cooling

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installation	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm^2	Stand-alone motor		
CMSB50S	3000	0.9	100	1.5	05904544	05906245	13332457
CMSB50S	4500	1.3	100	1.5	05904544	05906245	13332457
CMSB50S	6000	1.7	100	1.5	05904544	05906245	13332457
CMSB50M	3000	1.9	100	1.5	05904544	05906245	13332457
CMSB50M	4500	2.6	100	1.5	05904544	05906245	13332457
CMSB50M	6000	3.4	100	1.5	05904544	05906245	13332457
CMSB50L	3000	2.6	100	1.5	05904544	05906245	13332457
CMSB50L	4500	3.8	100	1.5	05904544	05906245	13332457
CMSB50L	6000	5.0	100	1.5	05904544	05906245	13332457
CMSB63S	3000	2.2	100	1.5	05904544	05906245	13332457
CMSB63S	4500	3.1	100	1.5	05904544	05906245	13332457
CMSB63S	6000	3.9	100	1.5	05904544	05906245	13332457
CMSB63M	3000	3.6	100	1.5	05904544	05906245	13332457
CMSB63M	4500	5.4	100	1.5	05904544	05906245	13332457
CMSB63M	6000	7.0	95	1.5	05904544	05906245	13332457
CMSB63M	6000	7.0	100	2.5	05904552	05906253	13332465
CMSB71S	2000	3.7	100	1.5	05904544	05906245	13332457
CMSB71S	3000	5.3	100	1.5	05904544	05906245	13332457
CMSB71S	4500	8.0	85	1.5	05904544	05906245	13332457
CMSB71S	4500	8.0	100	2.5	05904552	05906253	13332465
CMSB71S	6000	10.5	60	1.5	05904544	05906245	13332457
CMSB71S	6000	10.5	100	2.5	05904552	05906253	13332465
CMSB71M	2000	5.1	100	1.5	05904544	05906245	13332457
CMSB71M	3000	7.4	90	1.5	05904544	05906245	13332457
CMSB71M	3000	7.4	100	2.5	05904552	05906253	13332465
CMSB71M	4500	10.8	60	1.5	05904544	05906245	13332457
CMSB71M	4500	10.8	100	2.5	05904552	05906253	13332465
CMSB71M	6000	14.5	75	2.5	05904552	05906253	13332465
CMSB71M	6000	14.5	100	4	05904560	05904803	13332473
CMSB71L	2000	7.1	95	1.5	05904544	05906245	13332457
CMSB71L	2000	7.1	100	2.5	05904552	05906253	13332465
CMSB71L	3000	10.2	65	1.5	05904544	05906245	13332457
CMSB71L	3000	10.2	100	2.5	05904552	05906253	13332465
CMSB71L	4500	14.7	75	2.5	05904552	05906253	13332465
CMSB71L	4500	14.7	100	4	05904560	05904803	13332473
CMSB71L	6000	19.7	90	4	05904560	05904803	13332473

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9.3.4 Brakemotor cable CMSB50 – 71 and CMS71L

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installation	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm^2	Stand-alone motor		
CMSB50S /BK	3000	0.96	100	1.5	13354345	13354388	13354221
CMSB50S /BK	4500	1.32	100	1.5	13354345	13354388	13354221
CMSB50S /BK	6000	1.7	100	1.5	13354345	13354388	13354221
CMSB50M /BK	3000	1.68	100	1.5	13354345	13354388	13354221
CMSB50M /BK	4500	2.3	100	1.5	13354345	13354388	13354221
CMSB50M /BK	6000	3	100	1.5	13354345	13354388	13354221
CMSB50L /BK	3000	2.2	100	1.5	13354345	13354388	13354221
CMSB50L /BK	4500	3.15	100	1.5	13354345	13354388	13354221
CMSB50L /BK	6000	4.2	100	1.5	13354345	13354388	13354221
CMSB63S /BK	3000	2.15	100	1.5	13354345	13354388	13354221
CMSB63S /BK	4500	3.05	100	1.5	13354345	13354388	13354221
CMSB63S /BK	6000	3.9	100	1.5	13354345	13354388	13354221
CMSB63M /BK	3000	3.6	100	1.5	13354345	13354388	13354221
CMSB63M /BK	4500	5.4	100	1.5	13354345	13354388	13354221
CMSB63M /BK	6000	6.9	100	1.5	13354345	13354388	13354221
CMSB71S /BP	2000	3.4	100	1.5	13354345	13354388	13354221
CMSB71S /BP	3000	4.9	100	1.5	13354345	13354388	13354221
CMSB71S /BP	4500	7.3	90	1.5	13354345	13354388	13354221
CMSB71S /BP	4500	7.3	100	2.5	13354353	13354396	13354248
CMSB71S /BP	6000	9.6	70	1.5	13354345	13354388	13354221
CMSB71S /BP	6000	9.6	100	2.5	13354353	13354396	13354248
CMSB71M /BP	2000	5	100	1.5	13354345	13354388	13354221
CMSB71M /BP	3000	7.5	90	1.5	13354345	13354388	13354221
CMSB71M /BP	3000	7.5	100	2.5	13354353	13354396	13354248
CMSB71M /BP	4500	10.9	60	1.5	13354345	13354388	13354221
CMSB71M /BP	4500	10.9	100	2.5	13354353	13354396	13354248
CMSB71M /BP	6000	14.7	75	2.5	13354353	13354396	13354248
CMSB71M /BP	6000	14.7	100	4	13354361	13421603	13354337
CMSB71L /BP	2000	6.3	100	1.5	13354345	13354388	13354221
CMSB71L /BP	3000	9.4	70	1.5	13354345	13354388	13354221
CMSB71L /BP	3000	9.4	100	2.5	13354353	13354396	13354248
CMSB71L /BP	4500	14.1	80	2.5	13354353	13354396	13354248
CMSB71L /BP	4500	14.1	100	4	13354361	13421603	13354337
CMSB71L /BP	6000	18.8	100	4	13354361	13421603	13354337
CMS71L /BS	2000	4.2	100	1.5	13354345	13354388	13354221
CMS71L /BS	3000	6.2	100	1.5	13354345	13354388	13354221
CMS71L /BS	4500	9.6	70	1.5	13354345	13354388	13354221
CMS71L /BS	4500	9.6	100	2.5	13354353	13354396	13354248

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9.3.5 Brakemotor cable for CMSB50 – 71 with /VR forced cooling fan

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installation	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm^2	Stand-alone motor		
CMSB50S /BK /VR	3000	1.0	100	1.5	13354345	13354388	13354221
CMSB50S /BK /VR	4500	1.4	100	1.5	13354345	13354388	13354221
CMSB50S /BK /VR	6000	1.8	100	1.5	13354345	13354388	13354221
CMSB50M /BK /VR	3000	2.1	100	1.5	13354345	13354388	13354221
CMSB50M /BK /VR	4500	2.8	100	1.5	13354345	13354388	13354221
CMSB50M /BK /VR	6000	3.7	100	1.5	13354345	13354388	13354221
CMSB50L /BK /VR	3000	2.7	100	1.5	13354345	13354388	13354221
CMSB50L /BK /VR	4500	4.0	100	1.5	13354345	13354388	13354221
CMSB50L /BK /VR	6000	5.3	100	1.5	13354345	13354388	13354221
CMSB63S /BK /VR	3000	2.7	100	1.5	13354345	13354388	13354221
CMSB63S /BK /VR	4500	3.9	100	1.5	13354345	13354388	13354221
CMSB63S /BK /VR	6000	4.9	100	1.5	13354345	13354388	13354221
CMSB63M /BK /VR	3000	5.7	100	1.5	13354345	13354388	13354221
CMSB63M /BK /VR	4500	8.5	80	1.5	13354345	13354388	13354221
CMSB63M /BK /VR	4500	8.5	100	2.5	13354353	13354396	13354248
CMSB63M /BK /VR	6000	10.9	60	1.5	13354345	13354388	13354221
CMSB63M /BK /VR	6000	10.9	100	2.5	13354353	13354396	13354248
CMSB71S /BP /VR	2000	5.8	100	1.5	13354345	13354388	13354221
CMSB71S /BP /VR	3000	8.5	80	2.5	13354353	13354396	13354248
CMSB71S /BP /VR	4500	12.6	50	1.5	13354345	13354388	13354221
CMSB71S /BP /VR	4500	12.6	90	2.5	13354353	13354396	13354248
CMSB71S /BP /VR	6000	16.6	70	2.5	13354353	13354396	13354248
CMSB71S /BP /VR	6000	16.6	100	4	13354361	13421603	13354337
CMSB71M /BP /VR	2000	7.6	90	1.5	13354345	13354388	13354221
CMSB71M /BP /VR	2000	7.6	100	2.5	13354353	13354396	13354248
CMSB71M /BP /VR	3000	11.4	60	1.5	13354345	13354388	13354221
CMSB71M /BP /VR	3000	11.4	100	2.5	13354353	13354396	13354248
CMSB71M /BP /VR	4500	16.5	70	2.5	13354353	13354396	13354248
CMSB71M /BP /VR	4500	16.5	100	4	13354361	13421603	13354337
CMSB71M /BP /VR	6000	22.3	85	4	13354361	13421603	13354337
CMSB71L /BP /VR	2000	10.0	65	1.5	13354345	13354388	13354221
CMSB71L /BP /VR	2000	10.0	100	2.5	13354353	13354396	13354248
CMSB71L /BP /VR	3000	15.0	75	2.5	13354353	13354396	13354248
CMSB71L /BP /VR	3000	15.0	100	4	13354361	13421603	13354337
CMSB71L /BP /VR	4500	22.4	80	4	13354361	13421603	13354337

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9.3.6 Brakemotor cable CMSB50 – 71 with liquid cooling

Motor	Rated speed	Standstill current I_0	To cable lengths	Conductor cross section	Cable part number		
					Fixed installa-tion	Cable carrier installation	Cable carrier extension
	1/min	A	m	mm²	Stand-alone motor		
CMSB50S /BK	3000	0.9	100	1.5	13354345	13354388	13354221
CMSB50S /BK	4500	1.3	100	1.5	13354345	13354388	13354221
CMSB50S /BK	6000	1.7	100	1.5	13354345	13354388	13354221
CMSB50M /BK	3000	1.9	100	1.5	13354345	13354388	13354221
CMSB50M /BK	4500	2.6	100	1.5	13354345	13354388	13354221
CMSB50M /BK	6000	3.4	100	1.5	13354345	13354388	13354221
CMSB50L /BK	3000	2.6	100	1.5	13354345	13354388	13354221
CMSB50L /BK	4500	3.8	100	1.5	13354345	13354388	13354221
CMSB50L /BK	6000	5.0	100	1.5	13354345	13354388	13354221
CMSB63S /BK	3000	2.2	100	1.5	13354345	13354388	13354221
CMSB63S /BK	4500	3.1	100	1.5	13354345	13354388	13354221
CMSB63S /BK	6000	3.9	100	1.5	13354345	13354388	13354221
CMSB63M /BK	3000	3.6	100	1.5	13354345	13354388	13354221
CMSB63M /BK	4500	5.4	100	1.5	13354345	13354388	13354221
CMSB63M /BK	6000	7.0	95	1.5	13354345	13354388	13354221
CMSB63M /BK	6000	7.0	100	2.5	13354353	13354396	13354248
CMSB71S /BP	2000	3.7	100	1.5	13354345	13354388	13354221
CMSB71S /BP	3000	5.3	100	1.5	13354345	13354388	13354221
CMSB71S /BP	4500	8.0	85	1.5	13354345	13354388	13354221
CMSB71S /BP	4500	8.0	100	2.5	13354353	13354396	13354248
CMSB71S /BP	6000	10.5	60	1.5	13354345	13354388	13354221
CMSB71S /BP	6000	10.5	100	2.5	13354353	13354396	13354248
CMSB71M /BP	2000	5.1	100	1.5	13354345	13354388	13354221
CMSB71M /BP	2000	7.4	90	1.5	13354345	13354388	13354221
CMSB71M /BP	3000	7.4	100	2.5	13354353	13354396	13354248
CMSB71M /BP	3000	10.8	60	1.5	13354345	13354388	13354221
CMSB71M /BP	4500	10.8	100	2.5	13354353	13354396	13354248
CMSB71M /BP	4500	14.5	75	2.5	13354353	13354396	13354248
CMSB71M /BP	6000	14.5	100	4	13354361	13421603	13354337
CMSB71L /BP	2000	7.1	95	1.5	13354345	13354388	13354221
CMSB71L /BP	2000	7.1	100	2.5	13354353	13354396	13354248
CMSB71L /BP	3000	10.2	65	1.5	05904544	05906245	13332457
CMSB71L /BP	3000	10.2	100	2.5	05904552	05906253	13332465
CMSB71L /BP	4500	14.7	75	2.5	05904552	05906253	13332465
CMSB71L /BP	4500	14.7	100	4	05904560	05904803	13332473
CMSB71L /BP	6000	19.7	90	4	05904560	05904803	13332473

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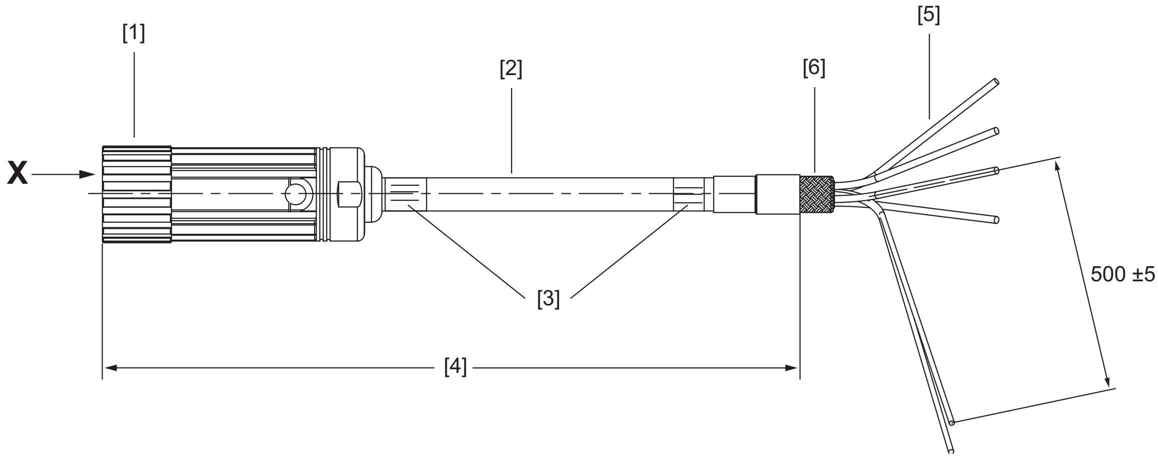
9.4 Structure of the prefabricated cables for electric cylinders

9.4.1 Motor cables/brakemotor cables



4818640779

[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 documents
[5] Pre-fabricated cable end for inverter. Required loose parts are supplied with the cable
[6] Shielding 20 mm, pulled back approximately + 5 mm

Assembly on the 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 connector on the cable end with a lamellar seal and ensure cable relief according to EN 61884.

Assembly on the amplifier side

The individual cable conductors 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 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 conductor cross sections for connection to the power terminals on the inverter:

Bag no.	Contents
1	4 x conductor end sleeves 1.5 mm², insulated 4 x M6 U-shaped cable lugs 1.5 mm²
2	4 x conductor end sleeves 2.5 mm², insulated 4 x M6 U-shaped cable lugs 2.5 mm²
3	4 x conductor end sleeves 4 mm², insulated 4 x M6 U-shaped cable lugs 4 mm²

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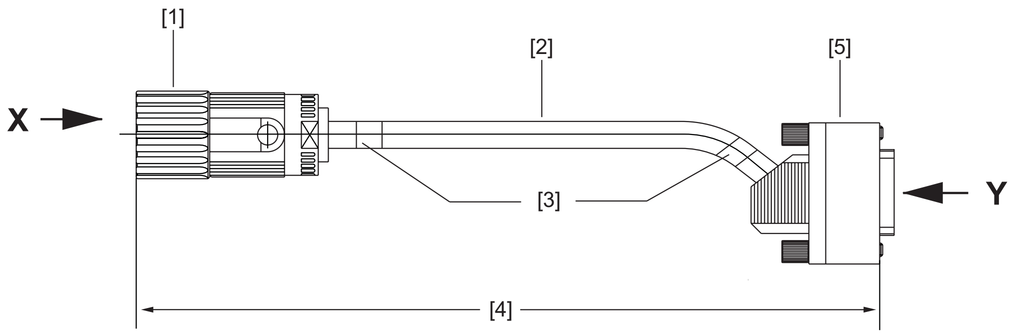
9.4.2 Feedback cables



4818646539

[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 connector

Assembly on the motor side

A 12-pin EMC signal plug connector with socket contacts from Intercontec is used on the motor end for RH.M/AK1H/EK1H/AK0H. The shield is connected in the housing according to EMC requirements. All plug connectors seal the connector on the cable end with a lamellar seal.

Assembly on the amplifier 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.

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

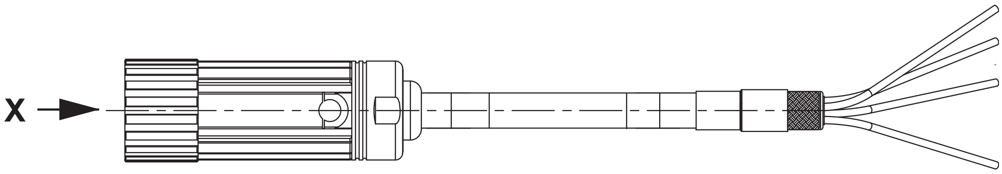
Refer to the system manual of the inverter for configuring the maximum cable length.

Make sure that an EMC-compliant environment is maintained during project planning.

9.5 Power cables for CMS.. electric cylinders

9.5.1 Motor cable with connector on motor end

Motor cable illustration



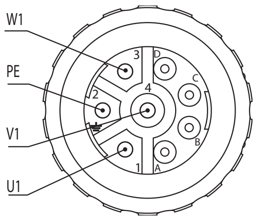
4818831115

Motor cables

Plug connector	Number of cores and cable cross section	Part number	Installation type
SM11	4 × 1.5 mm²	05904544	Fixed installation
SM11	4 × 1.5 mm²	05906245	Cable carrier installation
SM12	4 × 2.5 mm²	05904552	Fixed installation
SM12	4 × 2.5 mm²	05906253	Cable carrier installation
SM14	4 × 4 mm²	05904560	Fixed installation
SM14	4 × 4 mm²	05904803	Cable carrier installation

Pin assignment of the motor cable

BSTA

Plug connector view X	Contact	Cable conductor color	Assigned	Extra
BSTA 078 SM1 	1	(BK) Black	U	Bag of loose parts
	2	(GN/YE) Green/Yellow	PE	
	3	(BK) Black	W	
	4	(BK) Black	V	

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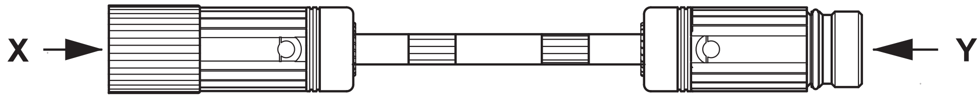
9.5.2 Motor cable extension cable

Illustration of motor extension cable



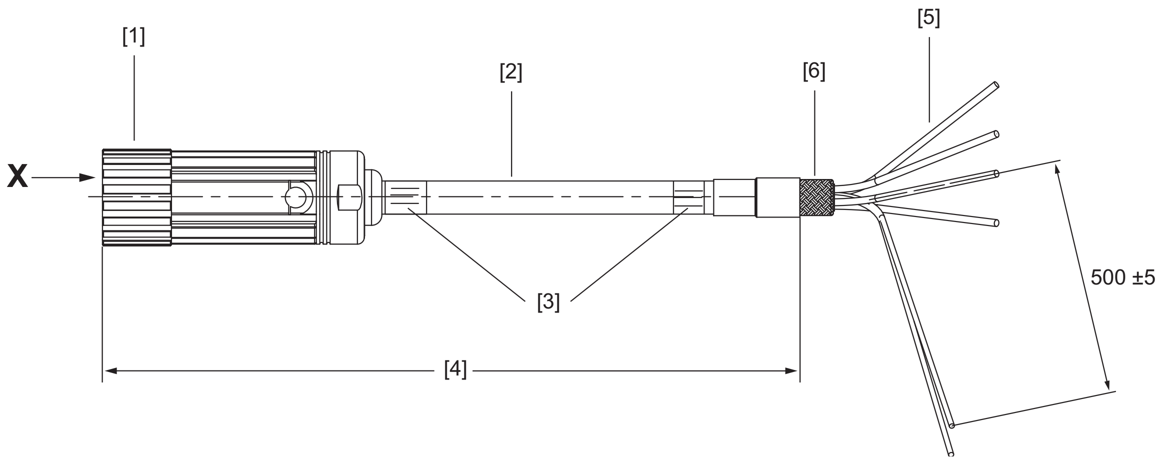
4818839179

Motor extension cable

Plug connector	Number of cores and cable cross section	Part number	Installation type
SM11	4 × 1.5 mm²	13332457	Cable carrier installation
SM12	4 × 2.5 mm²	13332465	Cable carrier installation
SM14	4 × 4 mm²	13332473	Cable carrier installation

9.5.3 Brakemotor cables for BP/BK brake with connector at motor end

Illustration of brakemotor cable



4818640779

Brakemotor cables

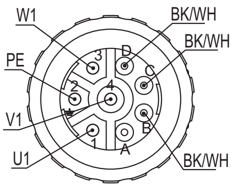
Plug connector	Number of cores and cable cross section	Part number	Installation type
SB11	4 × 1.5 mm² + 3 × 1 mm²	13354345	Fixed installation
SB11	4 × 1.5 mm² + 3 × 1 mm²	13354388	Cable carrier installation
SB12	4 × 2.5 mm² + 3 × 1 mm²	13354353	Fixed installation
SB12	4 × 2.5 mm² + 3 × 1 mm²	13354396	Cable carrier installation
SB14	4 × 4 mm² + 3 × 1 mm²	13354361	Fixed installation
SB14	4 × 4 mm² + 3 × 1 mm²	13421603	Cable carrier installation

INFORMATION

As for the power cables for brakemotors with BP/BK brake only two signal lines are required, the third signal conductor is cut off during cable assembly.

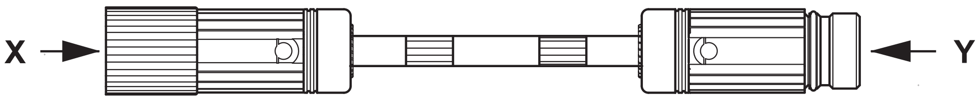
Pin assignment of brakemotor cable

BSTA

<table>
<tr><th>Plug connector view X</th><th>Contact</th><th>Cable conductor color</th><th>Assigned</th><th>Extra</th></tr>
<tr><td rowspan="8">BSTA 078
SB1
</td><td>1</td><td rowspan="3">(BK/WH) Black with white lettering
U, V, W</td><td>U</td><td rowspan="8">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>W</td><td>–</td><td>n. c.</td></tr>
<tr><td>C</td><td rowspan="2">(BK/WH) Black with white lettering
1, 3</td><td>1 +</td></tr>
<tr><td>D</td><td>3 –</td></tr>
</table>

9.5.4 Brakemotor extension cable

Illustration of brakemotor extension cable



4818839179

CMS brakemotor extension cable

Plug connector	Number of cores and cable cross section	Part number	Installation type
SB11	$4 \times 1.5\ mm^2 + 3 \times 1\ mm^2$	13354221	Cable carrier installation
SB12	$4 \times 2.5\ mm^2 + 3 \times 1\ mm^2$	13354248	Cable carrier installation
SB14	$4 \times 4\ mm^2 + 3 \times 1\ mm^2$	13354337	Cable carrier installation

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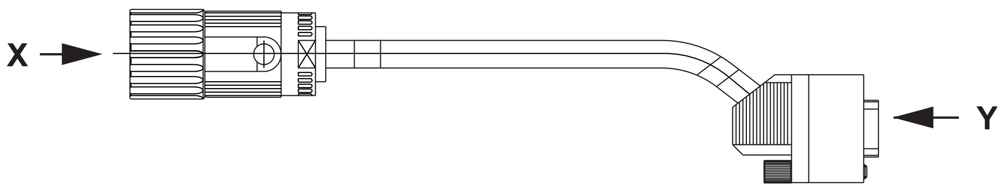
9.6 Encoder cables for CMS.. electric cylinders

9.6.1 Resolver

MOVIDRIVE® MDX60B/61B

Illustration of RH1M resolver cable



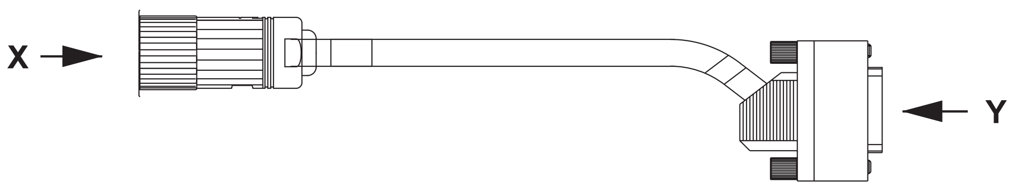
4819177867

RH1M resolver cables

Number of cores and cable cross section	Part number	Installation
4 x 2 x 0.25 mm² + 2 x 0.5 mm²	01994875	Fixed installation
4 x 2 x 0.25 mm² + 2 x 0.5 mm²	01993194	Cable carrier installation

MOVIAXIS® MX

Illustration of RH1M resolver cable



4819185931

RH1M resolver cables

Number of cores and cable cross section	Part number	Installation
5 × 2 × 0.25 mm²	13327429	Fixed installation
5 × 2 × 0.25 mm²	13327437	Cable carrier installation

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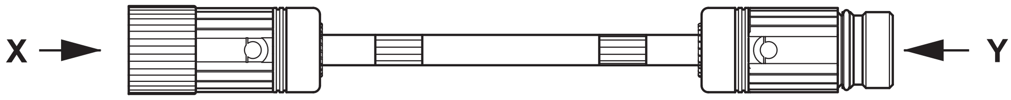
Extension cables

Illustration of RH1M extension cable



4819192715

RH1M extension cables

Number of cores and cable cross section	Part number	Installation type
5 × 2 × 0.25 mm²	01995421	Fixed installation
5 × 2 × 0.25 mm²	01995413	Cable carrier installation

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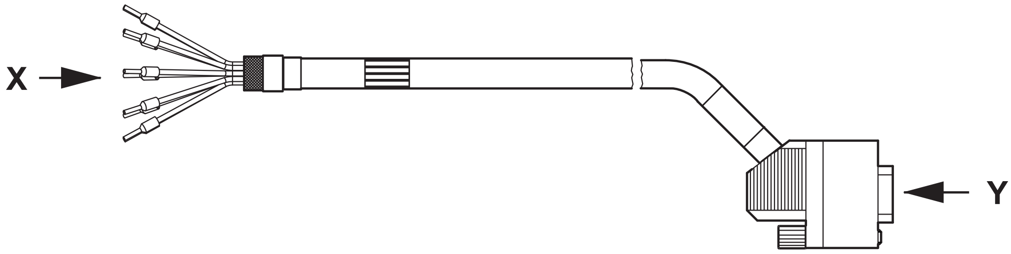
Terminal box

MOVIDRIVE®

Illustration of RH1M resolver cable for terminal box

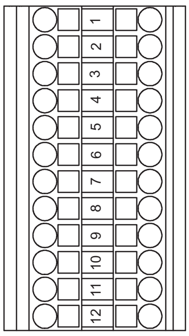
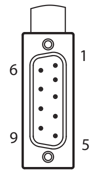


18472985611

Resolver cable to terminal box

Number of cores and cross-sections	Part number	Installation
5 × 2 × 0.25 mm²	13356356	Fixed installation
5 × 2 × 0.25 mm²	13356364	Cable carrier installation

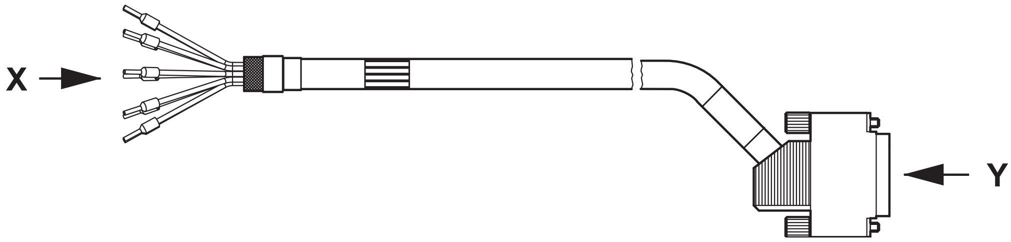
Pin assignment of resolver cables – terminal box for RH1M

Motor connection side				Inverter connection side	
Terminal strip View X	Contact	Description	Color coding	Contact	Plug connector View Y
	1	R1 (reference +)	Pink (PK)	3	**D-sub 9-pin** 
	2	R2 (reference -)	Gray (GY)	8	
	3	S1 (cosine +)	Red (RD)	2	
	4	S3 (cosine -)	Blue (BU)	7	
	5	S2 (sine +)	Yellow (YE)	1	
	6	S4 (sine -)	Green (GN)	6	
	7	–	–	–	
	8	n.c.	–	–	
	9	TF/KTY+/PK	Brown+violet (BN+VT)[1)]	9	
	10	TF/KTY-/PK	White+black (WH+BK)[1)]	5	
	11	n.c.	n.c.	–	
	12	n.c.	n.c.	–	

1) Double assignment to increase cross-section

MOVIAXIS®

Illustration of RH1M resolver cable for terminal box

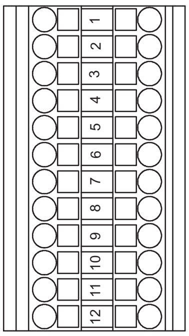
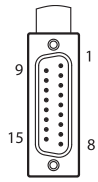


4838463371

RH1M resolver cables for terminal box

Number of cores and cable cross section	Part number	Installation type
5 × 2 × 0.25 mm²	13356356	Fixed installation
5 × 2 × 0.25 mm²	13356364	Cable carrier installation

Pin assignment of RH1M resolver cables for terminal box

Motor connection side				Inverter connection side	
Terminal strip View X	**Contact**	**Description**	**Color coding**	**Contact**	**Plug connector View Y**
	1	R1 (reference +)	Pink (PK)	5	**D-sub 15-pin** 
	2	R2 (reference -)	Gray (GY)	13	
	3	S1 (cosine +)	Red (RD)	2	
	4	S3 (cosine -)	Blue (BU)	10	
	5	S2 (sine +)	Yellow (YE)	1	
	6	S4 (sine -)	Green (GN)	9	
	7	n.c.	–	4	
	8	n.c.	–	–	
	9	+TEMP_M	Brown+violet (BN+VT)	14	
	10	-TEMP_M	White+black (WH+BK)	6	
	11	n.c.	n.c.	–	
	12	n.c.	n.c.	–	

9.6.2 HIPERFACE® encoder

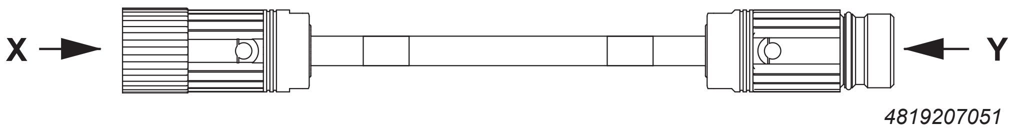
MOVIDRIVE® B and MOVIAXIS® MX

Illustration of HIPERFACE®encoder cable

HIPERFACE® encoder cables

Number of cores and cable cross section	Part number	Installation type
4 × 2 × 0.25 mm² + 2 × 0.5 mm²	13324535	Fixed installation
4 × 2 × 0.25 mm² + 2 × 0.5 mm²	13324551	Cable carrier installation

Illustration of HIPERFACE® encoder extension cable



HIPERFACE® encoder extension cables

Number of cores and cable cross section	Part number	Installation type
6 × 2 × 0.25 mm²	01995391	Fixed installation
6 × 2 × 0.25 mm²	01995405	Cable carrier installation

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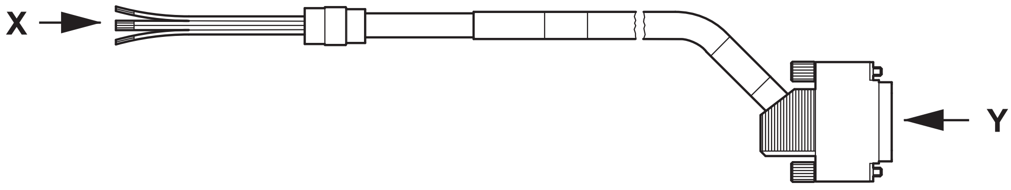
Illustration of HIPERFACE® encoder cable for terminal box

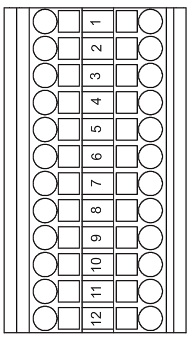
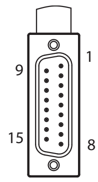


4838486411

HIPERFACE® encoder cables for terminal box

Number of cores and cable cross section	Part number	Installation type
6 × 2 × 0.25 mm^2	13356291	Fixed installation
6 × 2 × 0.25 mm^2	13356305	Cable carrier installation

Pin assignment of HIPERFACE® encoder cables for terminal box

Motor connection side				Inverter connection side	
Terminal strip View X	**Contact**	**Description**	**Color coding**	**Contact**	**Plug connector View Y**
	6	Data +	Black (BK)	4	D-sub 15-pin 
	5	Data -	Violet (VT)	12	
	1	S1 (COS +)	Red (RD)	1	
	2	S3 (COS -)	Blue (BU)	9	
	3	S2 (SIN +)	Yellow (YE)	2	
	4	S4 (SIN -)	Green (GN)	10	
	7	GND	Gray-pink+pink (GYPK +PK)	8	
	8	Us	Red-blue+gray (RDBU+GY)	15	
	9	Us	Brown (BN)	14	
	10	Us	White (WH)	6	

9.7 Mating connector combination

9.7.1 Power cables

Cable		Connector	Cable cross section	Part number	
			mm²	Prefabricated cables	Replacement power connectors[1)]
Fixed installation	Motor cables	SM11	4 x 1.5 mm²	05904544	01986740
		SM12	4 x 2.5 mm²	05904552	01986740
		SM14	4 x 4 mm²	05904560	01991639
	Brakemotor cable[2)]	SB11	4 x 1.5 mm² + 2 x 1 mm²	13354345	01986740
		SB12	4 x 2.5 mm² + 2 x 1 mm²	13354353	01986740
		SB14	4 x 4 mm² + 2 x 1 mm²	13354361	01991639
Cable carrier installation	Motor cables	SM11	4 x 1.5 mm²	05906245	01986740
		SM12	4 x 2.5 mm²	05906253	01989197
		SM14	4 x 4 mm²	05904803	01991639
	Brakemotor cable[2)]	SB11	4 x 1.5 mm² + 2 x 1 mm²	13354388	01989197
		SB12	4 x 2.5 mm² + 2 x 1 mm²	13354396	01989197
		SB14	4 x 4 mm² + 2 x 1 mm²	13421603	01991639

1) The complete connector service pack always includes the following parts: Power connector, insulation inserts, female contacts

2) Brake: 3-conductor cable, only 2 cores are used

9.7.2 Encoder cable

Cable		Cable cross section	Frequency inverter	Part number	
		mm²		Prefabricated cables	Replacement power connectors[1)]
Fixed installation	Resolver cable	4 x 2 x 0.25 mm² x 0.5 mm²	MOVIDRIVE®	01994875	01986732
		5 x 2 x 0.25 mm²	MOVIAXIS®	13327429	
Cable carrier installation	Resolver cable	4 x 2 x 0.25 mm² x 0.5 mm²	MOVIDRIVE®	01993194	01986732
		5 x 2 x 0.25 mm²	MOVIAXIS®	13327437	
Fixed installation	HIPERFACE® cable	4 x 2 x 0.25 mm² x 0.5 mm²	MOVIDRIVE®/ MOVIAXIS®	13324535	01986732
Cable carrier installation	HIPERFACE® cable	4 x 2 x 0.25 mm² x 0.5 mm²	MOVIDRIVE®/ MOVIAXIS®	13324551	01986732

1) The complete connector service pack always includes the following parts: Power connector, insulation inserts, female contacts

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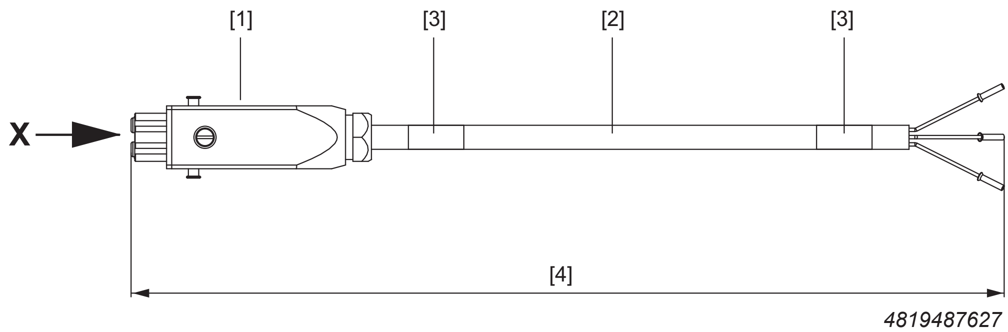
9.8 Forced cooling fan cables

9.8.1 Figure of cable for motors with /VR forced cooling fan



[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

9.8.2 Cable for motors with /VR forced cooling fan

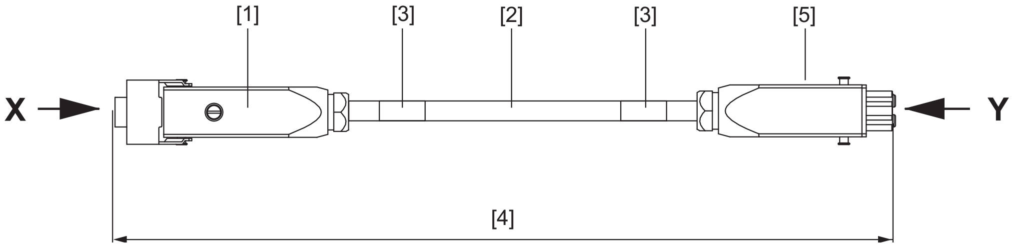
Cross section	Installation	Part number
3 × 1 mm^2	Fixed installation	01986341
	Cable carrier installation	0199560X

9.8.3 Alternative connector for cable for /VR forced cooling fan

Signal plug connector with socket contacts (complete)

Connectable cross sections	Installation	Part number
3 x 1 mm^2	Fixed installation/ cable carrier installation	01984985

9.8.4 Extension cable for motors with /VR forced cooling fan



[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 line length according to the technical documents.
[5] Socket: STAK 200

9.8.5 Extension cable for motors with /VR forced cooling fan

Cross section	Installation	Part number
3 × 1 mm^2	Fixed installation	01995618
	Cable carrier installation	01995626

9.8.6 Alternative connector for cable for /VR forced cooling fan

Signal plug connector with pin contacts (complete)

Connectable cross sections	Part number
3 x 1 mm^2	01985693

9.9 Cable specification of power cables for electric cylinders

9.9.1 Fixed installation

Motor cables

Installation		**Fixed**				
Cable cross sections		**4 x 1.5 mm²**	**4 x 2.5 mm²**	**4 x 4 mm²**	**4 x 6 mm²**	**4 x 10 mm²**
Manufacturers		**HELUKABEL**				
Manufacturer designation		LI9YCY				
Operating voltage U_0/U 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
Conductor identification		BK with lettering WH + GN/YE				
Sheath color		Orange, similar to RAL 2003				
Approval(s)		DESINA/VDE/UL				
Capacitance conductor/ shielding	nF/km	110	130	160	160	125
Capacitance conductor/ conductor	nF/km	70	70	75	80	80
Halogen-free		no				
Silicon-free		Yes				
CFC-free		Yes				
Inner insulation (conductor)		PP				
Outer insulation (sheath)		PVC				
Flame retardant/self-extinguishing		Yes				
Conductor material		Cu				
Shielding		Tinned Cu				
Weight (cable)	kg/km	134	202	262	332	601

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Brakemotor cables

Installation		Fixed				
Cable cross sections		**4 x 1.5 mm² 3 x 1 mm²**	**4 x 2.5 mm² 3 x 1 mm²**	**4 x 4 mm² 3 x 1 mm²**	**4 x 6 mm² 3 x 1.5 mm²**	**4 x 10 mm² 3 x 1.5 mm²**
Manufacturers		**HELUKABEL**				
Manufacturer designation		LI9YCY				
Operating voltage U_0/U 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
Conductor identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA/VDE/UL				
Capacitance conductor/ shielding	nF/km	105	105	110	115	120
Capacitance conductor/ conductor	nF/km	60	60	70	75	78
Halogen-free		no				
Silicon-free		Yes				
CFC-free		Yes				
Inner insulation (conductor)		PP				
Outer insulation (sheath)		PVC				
Flame retardant/self-extinguishing		Yes				
Conductor material		Cu				
Shielding		Tinned Cu				
Weight (cable)	kg/km	229	292	393	542	938

9.9.2 Cable carrier installation

Motor cables

Installation		Cable carrier				
Cable cross sections		**4 x 1.5 mm²**	**4 x 2.5 mm²**	**4 x 4 mm²**	**4 x 6 mm²**	**4 x 10 mm²**
Manufacturers		**Nexans**				
Manufacturer designation		PSL(LC)C11Y-J 4 x – mm²		PSL11YC11Y-J 4 x – mm²		
Operating voltage U_0/U 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/s²	20				
Max. velocity	m/min	200 at max. travel path of 5 m				
Conductor identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA/VDE/UL/cRUus				
Capacitance conductor/shielding	nF/km	95	95	170	170	170
Capacitance conductor/conductor	nF/km	65	65	95	95	95
Halogen-free		Yes				
Silicon-free		Yes				
CFC-free		Yes				
Inner insulation (conductor)		Polyolefin		TPM		
Outer insulation (sheath)		TPU (PUR)				
Flame retardant/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				

Brakemotor cables

Installation		Cable carrier				
Cable cross sections		**4 x 1.5 mm²** **3 x 1 mm²**	**4 x 2.5 mm²** **3 x 1 mm²**	**4 x 4 mm²** **3 x 1 mm²**	**4 x 6 mm²** **3 x 1.5 mm²**	**4 x 10 mm²** **3 x 1.5 mm²**
Manufacturers		**Nexans**				
Manufacturer designation		PSL(LC)C11Y-J 4x... +3A.../C		PSL11YC11Y-J 4x... +3A.../C		
Operating voltage U_0/U 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 path of 5 m				
Conductor identification		BK with lettering WH + GN/YE				
Sheath color		Orange similar to RAL 2003				
Approval(s)		DESINA/VDE/UL/cRUus				
Capacitance conductor/shielding	nF/km	105	105	170	170	170
Capacitance conductor/conductor	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 retardant/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				

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9.10 Cable specification of encoder cables

9.10.1 Fixed installation of feedback cables

Accessory designation		**AK0H/AK1H/EK1H**	**RH.M**
Cable cross sections		**4 x 2 x 0.25 mm² + 2 x 0.5 mm²**	**5 x 2 x 0.25 mm²**
Manufacturers		**HELUKABEL**	
Manufacturer designation		LI9YCY	
Operating voltage U_0 /U 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
Conductor identification		DIN 47 100	
Sheath color		Green, similar to RAL 6018	
Approval(s)		DESINA/VDE/cuRUs	
Capacitance conductor/shielding	nF/km	110	
Capacitance conductor/conductor	nF/km	70	
Halogen-free		no	
Silicone-free		Yes	
CFC-free		Yes	
Inner insulation (conductor)		PP	
Outer insulation (sheath)		PVC	
Flame retardant/self-extinguishing		no	
Conductor material		Cu blank	
Shielding		Braided tinned Cu	
Weight (cable)	kg/km	107	78

9.10.2 Cable carrier installation of feedback cables

Accessory designation		**AK0H/AK1H/EK1H**	**RH.M**
Cable cross sections		**4 x 2 x 0.25 mm² + 2 x 0.5 mm²**	**5 x 2 x 0.25 mm²**
Manufacturers		**Nexans**	
Manufacturer designation		SSL18YC11Y 6 x 2 x 0.25 SSL11YC11Y 5 x 2 x 0.25	
Operating voltage U_0 /U 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/s²	20	
Max. velocity	m/min	200	
Conductor 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/cuRUs	
Capacitance conductor/shielding	nF/km	100	
Capacitance conductor/conductor	nF/km	55	
Halogen-free		Yes	
Silicone-free		Yes	
CFC-free		Yes	
Inner insulation (conductor)		PP	
Outer insulation (sheath)		TPE-U	
Flame retardant/self-extinguishing		Yes	
Conductor material		E-Cu blank	
Shielding		Braided tinned Cu	
Weight	kg/km	130	120
Min. bending cycles		≥ 5 million	

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9.11 Cable specification of forced cooling fan cables for electric cylinders

9.11.1 Fixed installation of forced cooling fan cables

Accessory designation		**/VR**
Cable cross sections		**3 x 1 mm²**
Manufacturers		**Lapp**
Manufacturer designation		Ölflex 110 Classic
Operating voltage U_0 /U 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
Conductor identification		VDE 0293
Sheath color		Silver gray, RAL 7001
Approval(s)		VDE
Capacitance conductor/shielding	nF/km	–
Capacitance conductor/conductor	nF/km	–
Halogen-free		no
Silicone-free		Yes
CFC-free		Yes
Inner insulation (conductor)		PVC
Outer insulation (sheath)		PVC
Flame retardant/self-extinguishing		no
Conductor material		Cu blank
Shielding		–
Weight (cable)	kg/km	65

9.11.2 Cable carrier installation for forced cooling fan cable

Accessory designation		**/VR**
Cable cross sections		**3 x 1 mm²**
Manufacturers		**Nexans**
Manufacturer designation		PSL 3 x 1.0
Operating voltage U_0 /U 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
Conductor identification		2 x WH with digit + 1 x GN/YE
Sheath color		Black RAL 9005
Approval(s)		VDE/UL
Capacitance conductor/shielding	nF/km	–
Capacitance conductor/conductor	nF/km	–
Halogen-free		Yes
Silicone-free		Yes
CFC-free		Yes
Inner insulation (conductor)		TPM
Outer insulation (sheath)		TPE-U
Flame retardant/self-extinguishing		Yes
Conductor material		E-Cu blank
Shielding		–
Weight	kg/km	50
Min. bending cycles		≥ 5 million

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10 Design and operating notes

10.1 General maintenance work

With the exception of the threaded spindle, the CMS.. electric cylinders are maintenance-free. Replace defective parts if possible.

Observe the following points:

- Remove any traces of dirt, chips, dust, etc. from the bellows (only CMS71L) with a soft cloth, according to the ambient conditions.
- Mobile cables are subject to wear and must be checked for visible changes in regular intervals.
- With CMSMB./AP with toothed belt drive, the toothed belt must be replaced after 10 million double strokes at regular intervals.

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10.2 Mechanical stroke limiting

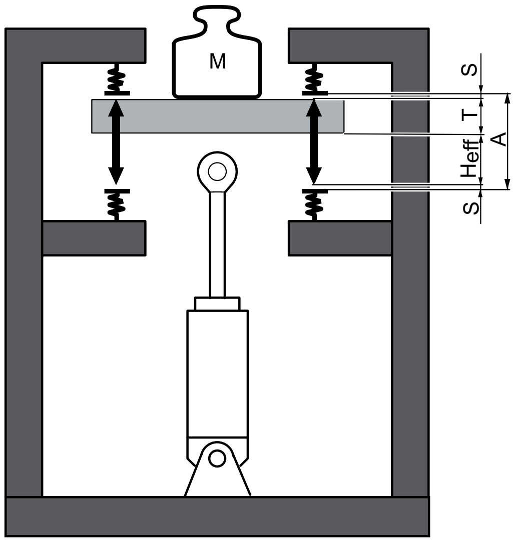
INFORMATION

The customer must limit the stroke of the electric cylinder by providing for appropriate measures in the extended and retracted position, e.g., by using limit stops, buffers or shock absorbers.

The maximum permitted feed force of the electric cylinder must not be exceeded. That is why the mechanical limiting elements built-in by the customer must be able to absorb the reactive forces and kinetic energy that is created when the end position stops are reached. Soft, damping elements are necessary. Their purpose is to absorb the energy and then limit the end position mechanically. As a rule, you should use buffers or shock absorbers that are dimensioned accordingly.

INFORMATION

The rated stroke length (H_{CMS}), e.g., CMS71L stroke 200 mm, is only available in limited form for the customer application because safety distances (S) to the limit stops restrict the effective stroke (H_{eff}). The safety distances (S) have to be defined by the customer.



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H_{eff}	Effective stroke	A	Distance between limit stops
H_{CMS}	Nominal stroke CMS	T	Partial width
A	Safety distance	M	Mass

10.2.1 Calculating the effective stroke

The effective stroke can be calculated as follows:

$H_{eff} = A - T - 2 \times S$

or

$H_{eff} = H_{CMS} - 2 \times S$

$\rightarrow \; H_{eff} < H_{CMS}$

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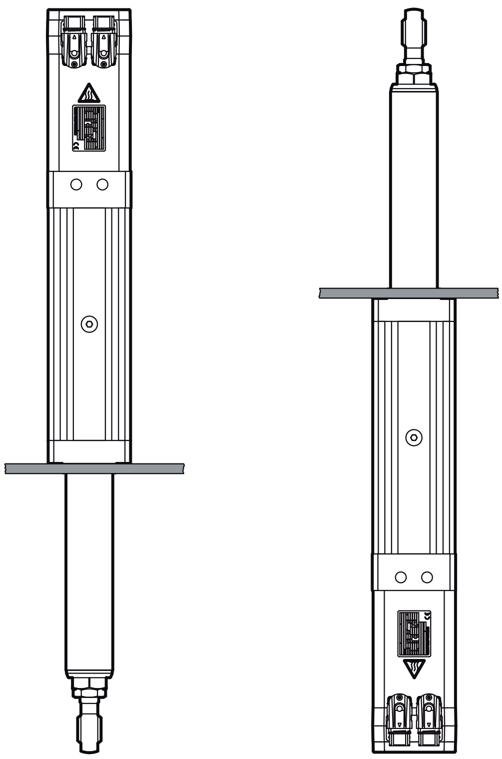
10.3 Installation situation in customer's application CMSB50 – 71, CMSMB50 – 71

10.3.1 Attachment on the output end of the piston rod



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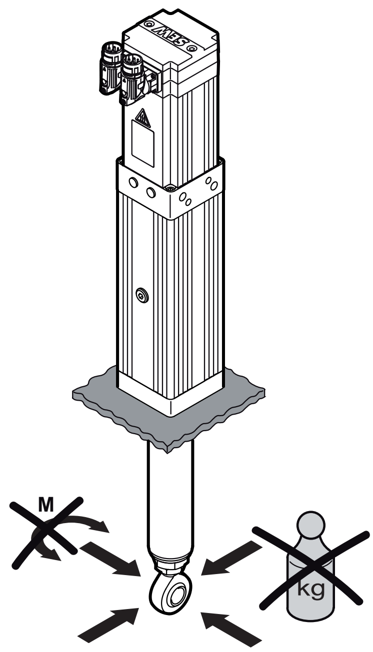
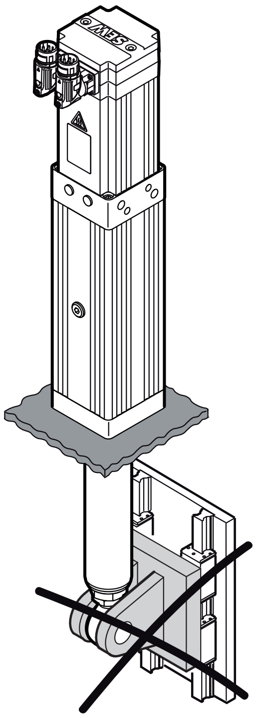
- Attachment only on the output end of the piston rod is only permitted in vertical installation (max. ± 5° from the ideal vertical) with the piston rod pointing downwards or upwards.

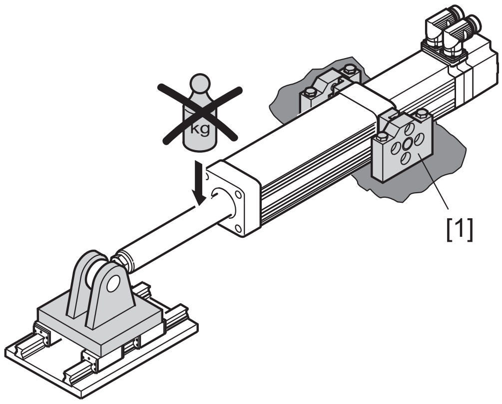


- No overhung loads and torques on the piston rod



- No additional guides of the piston rod

10.3.2 Attachment via pivot bearing



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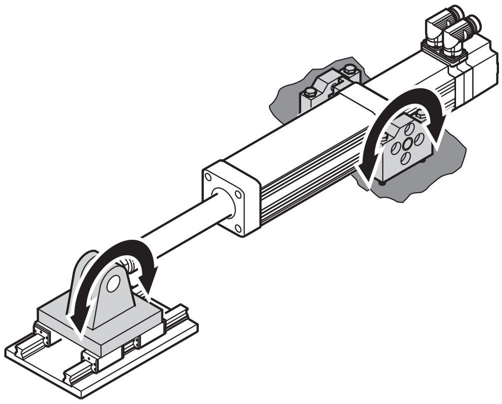
- No overhung loads on the drive



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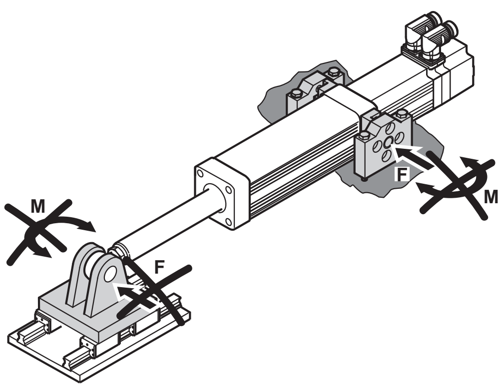
- Joint must be free to move, do not clamp in place



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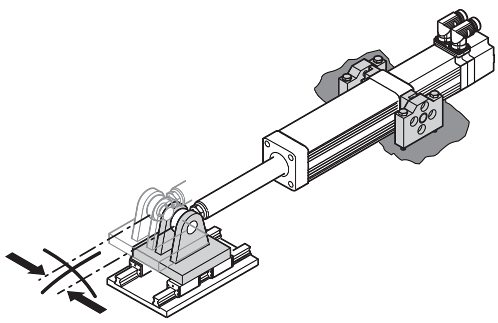
- Do not induce loads and torques via joints



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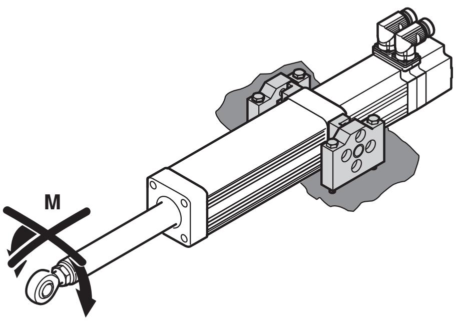
- Do not offset the installed components



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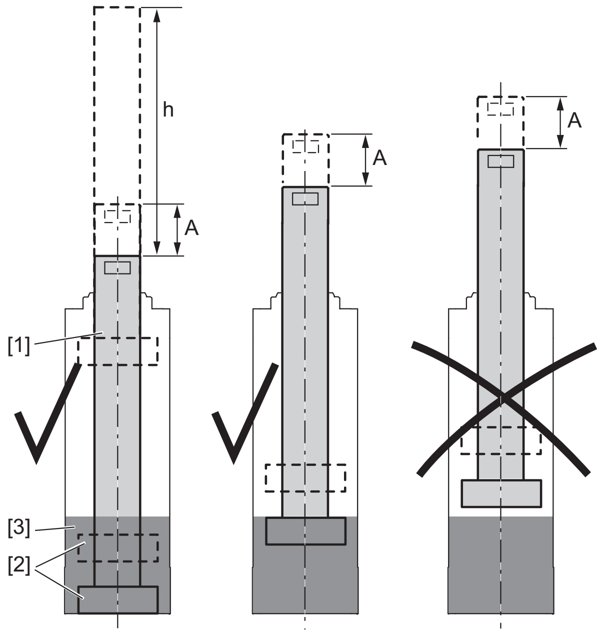
- Do not induce torque loads over the piston rod

10.3.3 Installation situation and stroke range for CMSB50 – 71, CMSMB50 – 71

Installation with piston rod pointing upwards

When mounting the electric cylinder, note that the spindle nut is not lubricated in case of incorrect stroke setting. With short working strokes [A] from the retracted position of the piston rod, the end position of the spindle nut [2] must be smaller than half the stroke length [1/2 h] -25 mm of the total stroke [h] of the electric cylinder.



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[1] Piston rod
[2] Spindle nut
[3] Oil

Installation with piston rod pointing downwards

For applications where the piston rod extends downwards, a lubricant pump is integrated to ensure lubrication. The pumping effect of the extending and retracting piston rod is used via internal valves to ensure lubrication of the electric cylinder.

Observe the following restrictions when installing the electric cylinder:

	DxP spindle	Minimum speed	Minimum stroke
		1/min	mm
For ambient temperatures of -10 °C – 40 °C			
CMSB50, CMSMB50	KGT20x5	220	50
CMSB63, CMSMB63	KGT25x6	180	50
CMSB71, CMSMB71	KGT32x6	180	50
For ambient temperatures of -20 °C – 40 °C			
CMSB50, CMSMB50	KGT20x5	600	50
CMSB63, CMSMB63	KGT25x6	500	50
CMSB71, CMSMB71	KGT32x6	500	50

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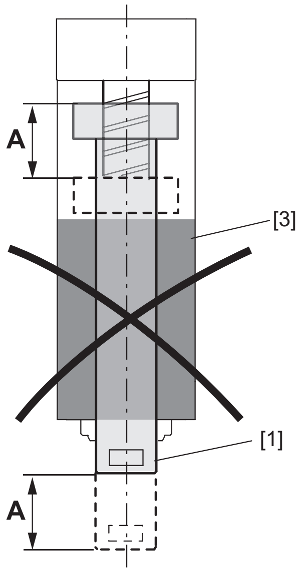
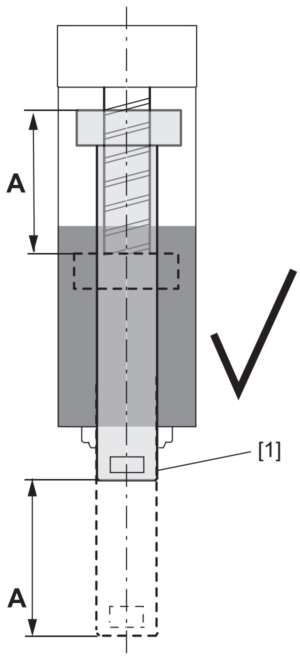
Observe the following stroke settings when installing the electric cylinder:



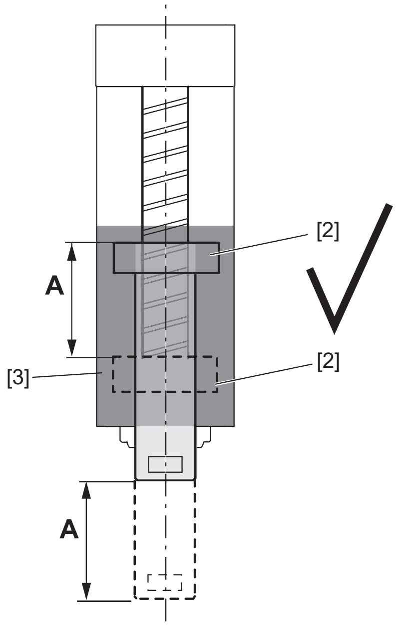
Short, permanent working strokes [A] from retracted piston rod position [1], above medium stroke position (above the oil level [3]), are not permitted.

INFORMATION

- For applications with the working stroke above the oil level, please contact SEW-EURODRIVE.
- Please note the following restrictions. These are of a general nature. In addition, the lubrication system provides a broader spectrum that must be checked for individual customer applications. Contact SEW-EURODRIVE.



Working strokes [A] from retracted piston rod position [1] must be extended at least up to half the stroke length +25 mm.



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Working strokes [A] below the medium stroke position of the nominal stroke are permitted if the spindle nut [2] is completely immersed in the oil [3]. The working stroke [A] must be at least 8 mm.

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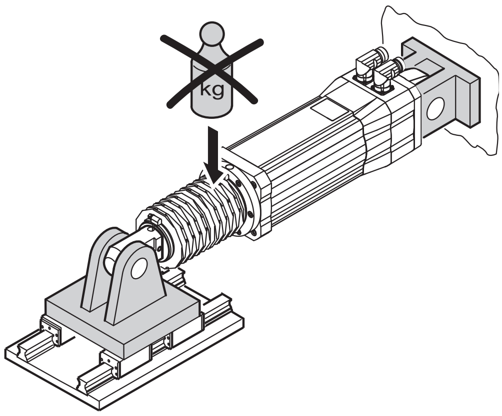
10.3.4 Installation notes CMS71



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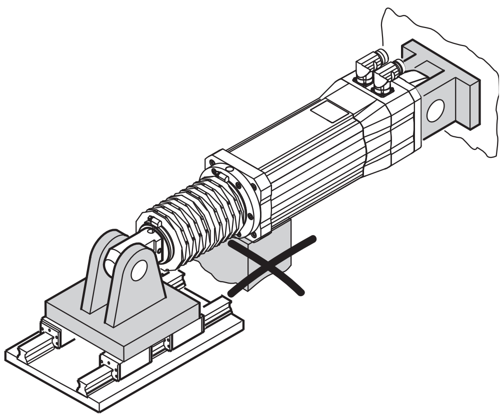
- No overhung loads on the drive



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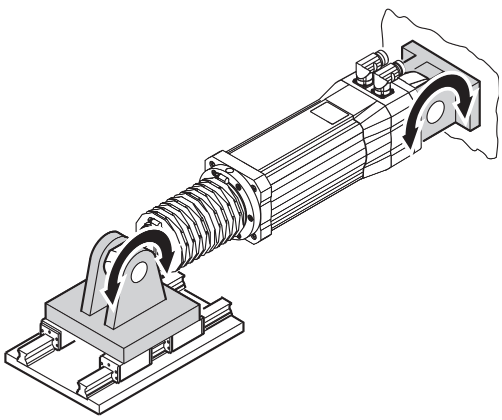
- No additional fastenings or supports (statically redundant)



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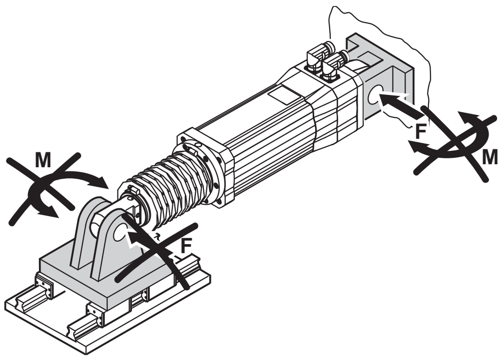
- Joints must be free to move; do not clamp in place

- Do not induce loads and torques via joints



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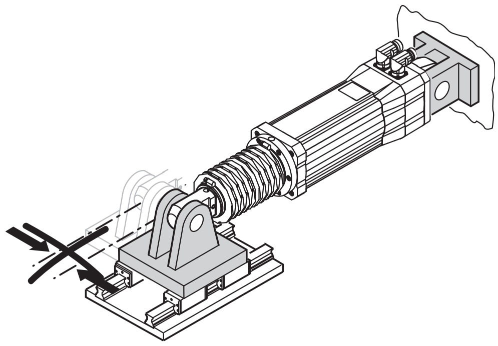
- Do not offset from the mounting position see "Installation tolerances" (→ 🗎 307)



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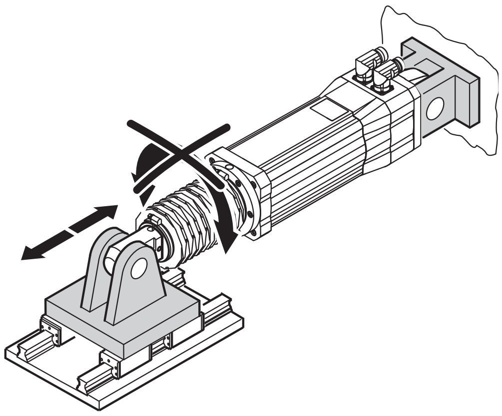
- Install so that the unit is not subject to torque (torsion)



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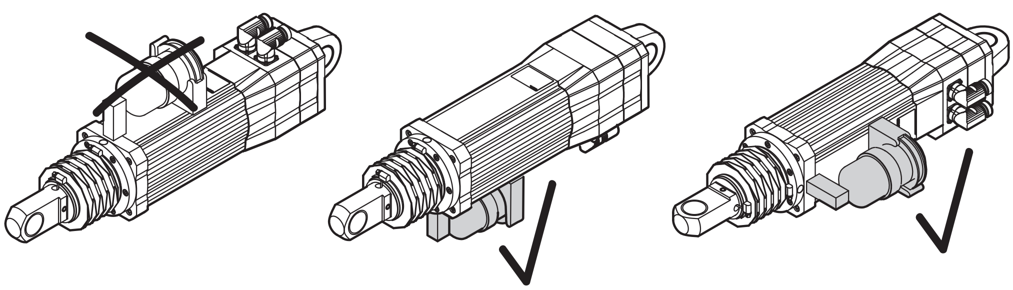

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- For **horizontal** mounting position with lubricator option: position lubricator on the side or bottom. If this mounting situation cannot be avoided, contact SEW-EURODRIVE.

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INFORMATION

For the external installation of the lubricator (not directly on the motor) contact SEW-EURODRIVE.

INFORMATION

In case of high thermal loads, dissipated heat can affect the lubricant properties.

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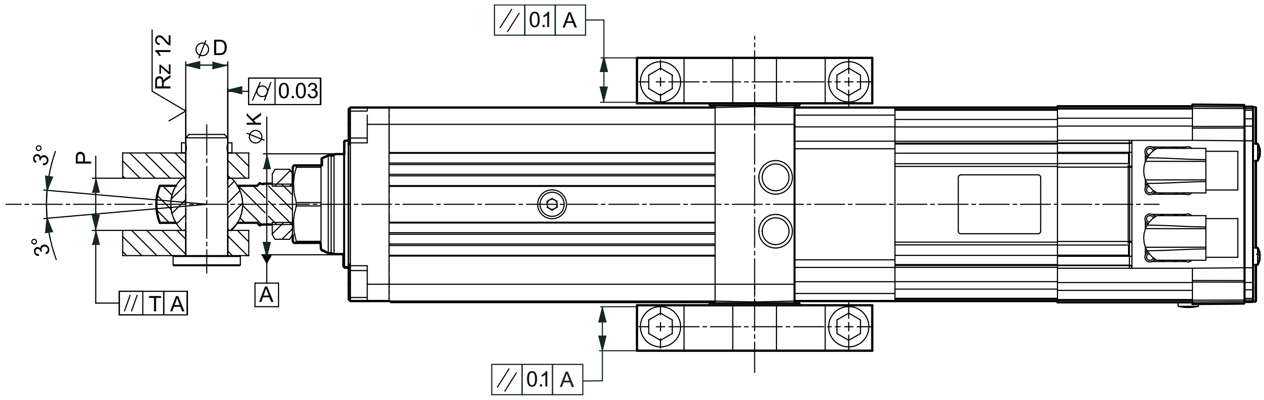
10.3.5 Geometry tolerances for mounting CMSB50 – 71, CMSMB50 – 71 at the customer site

The following figure describes the mounting situation for both mounting sides of the drive.



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CMS..	K	D	P	T
CMSB50 **CMSMB50**	Ø 40	Ø 16 h7	21 +0.1	0.1 for stroke 70 – 300
				0.2 for stroke 400 – 600
CMSB63 **CMSMB63**	Ø 50	Ø 20 h7	25 +0.1	0.1 for stroke 60 – 200
				0.2 for stroke 400 – 600
CMSB71 **CMSMB71**	Ø 60	Ø 25 h7	31 +0.1	0.1 for stroke 100 – 200
				0.2 for stroke 400 – 600
				0.3 for stroke 800 – 1200

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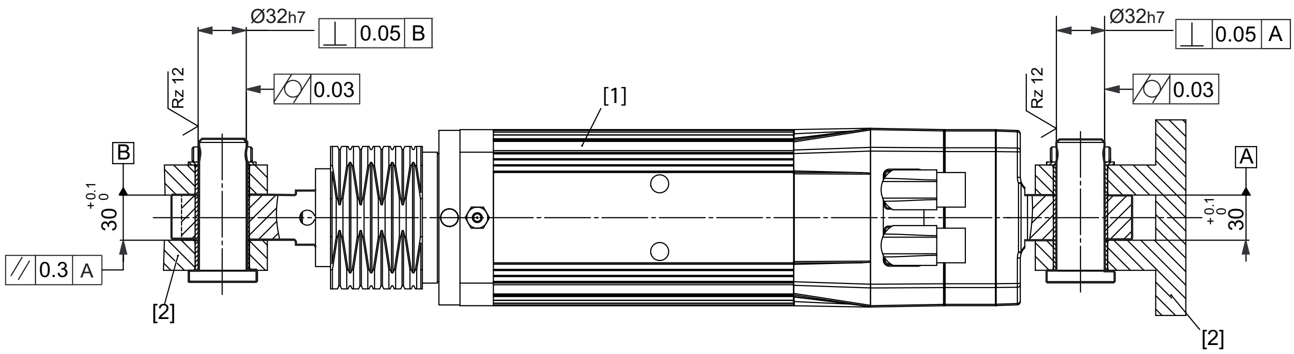
10.3.6 Tolerances of the installation tolerances by the customer for CMS71

The following figure describes the mounting situation for both mounting sides of the drive.

Standard



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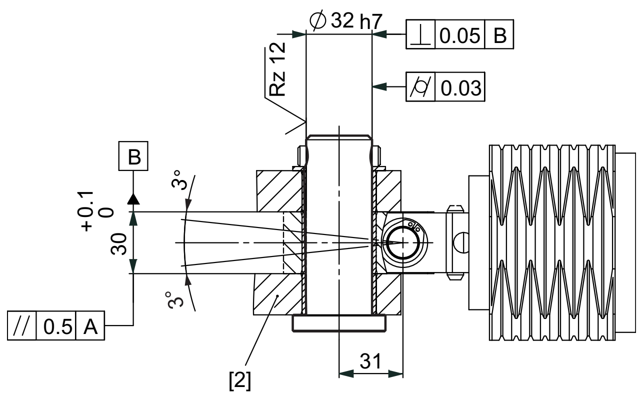
[1] Electric cylinders

[2] Customer-supplied parts

Please observe the following information:

- The max. axial offset between A – B is ±0.15 mm
- The parts supplied by the customer must meet the requirements described above.
- If mounting tolerances cannot be complied with, contact SEW-EURODRIVE. An electric cylinder with a cardan joint might fit the mounting situation.

Cardan joint



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Please observe the following information:

- The max. axial offset between A – B is ±0.5 mm

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10.4 Lubrication

10.4.1 Oil bath lubrication of CMSB50 – 71, CMSMB50 – 71

The CMSB50 – 71, CMSMB50 – 71 electric cylinders are equipped with an oil bath lubrication that requires little maintenance. The only maintenance required is a regular visual inspection for leaks. The oil need not be changed in usual applications.

The CMSB50 – 71, CMSMB50 – 71 electric cylinders are filled with the lubricant Mobil SHC630 as standard. This lubricant is used for recirculating ball screws and planetary roller screws.

As an alternative, you can order CMSB50 – 71, CMSMB50 – 71 with food-grade Klüber Klübersynth UH1 6-220N oil from SEW-EURODRIVE.

INFORMATION

The use of food-grade lubricants can significantly reduce the service life, depending on the mounting position.

Applications with higher demands

An oil change might make sense for applications with the following higher requirements:

- Travel cycles with a cyclic duration factor > 60 % in connection with an operational performance of > 1 km/hour.
- Working strokes < 10 mm with stroke frequencies > 5 Hz
- Expected service life > 10 000 operating hours of nominal operation

Contact SEW-EURODRIVE if required.

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10.4.2 Lubrication of the threaded spindle CMS71

There may be a loss of lubricant between the nut and spindle in threaded spindles. Lubricants also decrease in quality and effectiveness with age and wear. This means lubrication is required at regular intervals.

The lubrication for threaded spindles is to be specified accurately in terms of type, quantity and relubrication intervals. These depend on:

- Load
- Speed
- Cyclic duration factor
- Type of threaded spindle (recirculating ball screw or planetary screw drive)
- Ambient temperature
- Degree of pollution caused by dust, humidity, etc.

INFORMATION

The following information is intended as recommendations only. It is not intended to replace individual project planning for every application.

Permanent relubrication (for example via connection to lubrication system) is basically the preferred solution over lubrication at certain intervals.

Relubrication at intervals is generally not recommended for planetary screw drives, which can require about 2 to 5 times more lubricant than recirculating ball screws.

General information

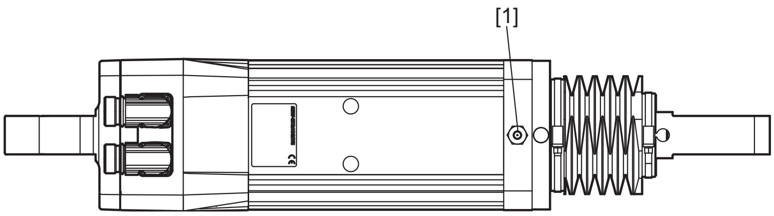
INFORMATION

The lubricating grease discharged into the electric cylinder accumulates in the inside of the drive. The used lubricants have to be removed from the inside of the motor after 5 years at the latest.

Service work must be performed by SEW-EURODRIVE service only. During service work, the spindle must be dismantled and the old lubricant removed from the spindle's surface.

Size CMS71

A domed head lubricating nipple DIN 71412 [1] is installed as standard on the motor. The electric cylinder can be regreased manually using a grease gun via the grease nipple.



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10.4.3 Lubricant for recirculating ball screws and planetary roller screw drives for CMS71

CMS71 electric cylinders are filled with the lubricant Fuchs RENOLIT CX-TOM15 as standard at the factory.

Instead, you can order the CMS71 motor with food-grade lubricant CASSIDIA GREASE GTS2 from Bremer & Leguil.

INFORMATION

The electric cylinders may only be regreased using the lubricant indicated on the nameplate.

Lubricating grease	Part number
Fuchs Renolit CX-TOM15 400-g cartridge (DIN 1284)	03207196

The 400-g cartridges are suitable for hand-lever grease guns in line with DIN 1283 with connection piece for DIN 71412 domed head lubricating nipple.

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10.4.4 Relubrication interval

NOTICE

Improper relubrication may result in damages to the electric cylinder.

If insufficient lubricant is applied, the lubricant film will be disrupted and the service life reduced as a result. Excessive lubrication increases friction and results in heat generation.

- The relubrication intervals must be determined individually depending on the loads and cycle times. The following information applies only to the application examples described.
- The drive must generally be relubricated at least once a year.
- Always use the appropriate amount of lubricant for the individual application.
- Ensure that the lubricant contains no contaminants.
- Clean the grease nipple before fitting the grease gun.
- Pay attention not to create air bubbles in the lubricant or lubricant lines.

For continuous relubrication, lubricators can be installed, see chapter "Lubricator" (→ 🗎 61).

CMS71 with ball screw (KGT)

Example

CMS71, 10 mm/spindle pitch revolution

- 0.2 m travel path
- Average traveling velocity 0.2 m/s
- 4000 N load

Continuous relubrication

0.8 cm^3/100 km = 0.008 cm^3/1 km

Relubrication intervals

Relubrication quantity 2 cm^3

- after a travel path of 250 km/25 million revolutions of the threaded spindle nut

CMS71 with planetary roller screw drive (PGT)

Example

CMS71, 5 mm/spindle pitch revolution

- 0.2 m travel path
- Average traveling velocity 0.2 m/s
- 4000 N load

Continuous relubrication

2 cm^3/100 km = 0.02 cm^3/1 km

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10.5 Venting

Pay attention to the following when using the CMS71 electric cylinders in dusty environments: Ensure that no dust is drawn in during the stroke movement via the vent of the bellows in the pivot joint.

There are two possibilities to do so:

- Sealing air (see chapter "Sealing air" (→ 🗎 313)).
- Filter ventilation (saving of compressed air), see chapter "Filter ventilation CMS71" (→ 🗎 312).

10.5.1 Filter ventilation CMS71

INFORMATION

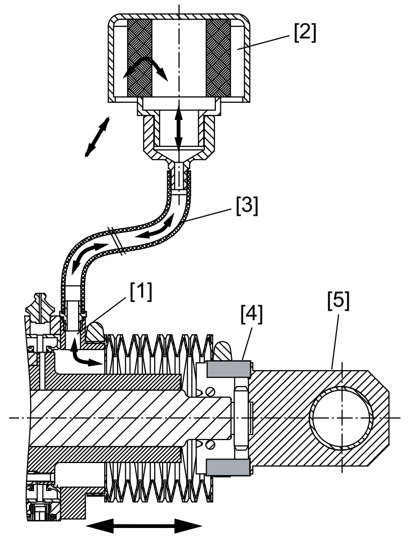
The filter ventilation is not included in the SEW-EURODRIVE delivery.

For filter ventilation, a suitable filter [2] is installed at the sealing air connection [1] with G1/8 thread. If there is not enough space, the filter can be connected to the electric cylinder via a hose [3] (hose length: max. 1 m, inner diameter: 9 mm).

SEW recommends a type L1.0807-11 filter from Argo-Hythos. This is an inexpensive filter that is used for venting hydraulic vessels on construction machines.

This filter safely keeps back dust particles < 3 µm under very low pressure. Other filters, such as pneumatic mufflers, sintered metal filters, etc., may not be used.

In addition to this, the standard venting via the joint must be sealed. The sealed joint can be ordered as an option “without bellows venting” or retrofitted using 2 x sealing element [4], SEW Part No. 13342093. Older versions are sealed with rubber.



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[1]	Sealing air connection	[4]	Sealing element
[2]	Filters	[5]	Joint
[3]	Hose		

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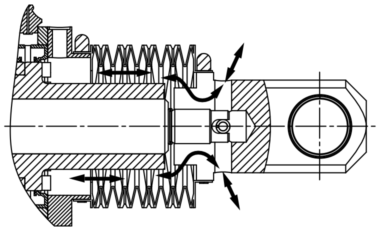
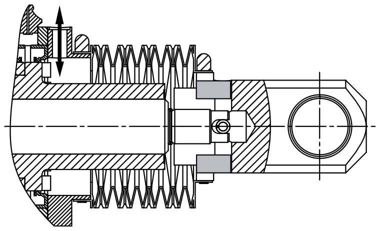
10.5.2 Bellows venting

The following variants are available for CSM71.



Without plug (standard)



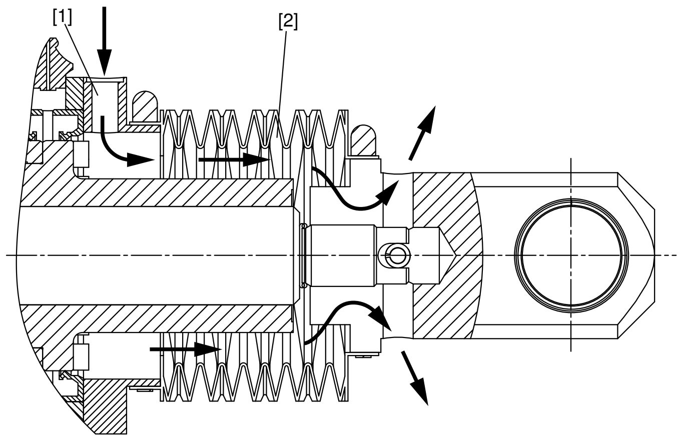
With plug

The vent of the bellows is closed. Venting must therefore be assured via a sealing air connection, see chapter "Sealing air" (→ 🗎 313).

10.5.3 Sealing air

At the factory, the drive is equipped with a sealing air connection [1] thread G1/8 as standard. This is why the electric cylinder can also be used in dusty environments.

To do this, the space within the bellows [2] can be placed under slight positive pressure (max. 0.5 bar). The positive pressure prevents dust, etc., from entering the motor.



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[1] Sealing air connection
[2] Bellows

The compressed air volume flow ($V_{sealing\ air}$) required depends on the travel speed (v) of the threaded spindle:

$V_{sealing\ air} \geq 300 \times v$

$V_{sealing\ air}$ Volumetric flow in liters/min
v Travel speed in m/s

This ensures that sufficient compressed air flows in during extension and that no negative pressure develops in the space [2].

The compressed air must be dry and free of oil, according to DIN-ISO 8573-1 class 3 (common in pressurized air systems).

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11 Appendix

11.1 Customer questionnaire

Company: ____

Address: ____

Contact person: ____

Details of the application: ____
____
____
____
____

Axial load: Compressive load ☐ Tensile load ☐

Maximum force [N]:_______________

Static force [N]:_______________

Lifting speed [mm/s]:_______________

Stroke length [mm]:________________

Braking torque [Nm]:____________ Brake: yes ☐ no ☐

Mounting position: Horizontal ☐ Vertical ☐ Angle from the horizontal _______ ° [Grad]

Cyclic duration factor [%]:_________________

Working cycles:_____________________

Travel cycle (v-t diagram):

Operating conditions:
Ambient temperature [°C]:____________

Environment: Dust ☐ Chips ☐ Liquid ☐ Other:_______________________________

Mounting / style of installation: ____

Bellows: ____

Service life:____

Resolver ☐ Absolute (Hiperface® encoder) ☐

Date:_________

Sketch of the installation situation:

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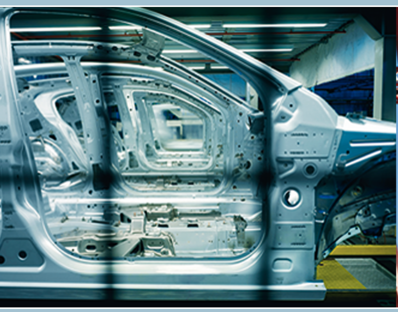

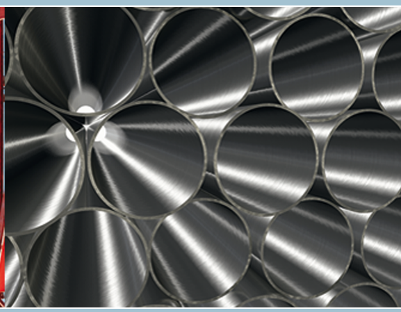


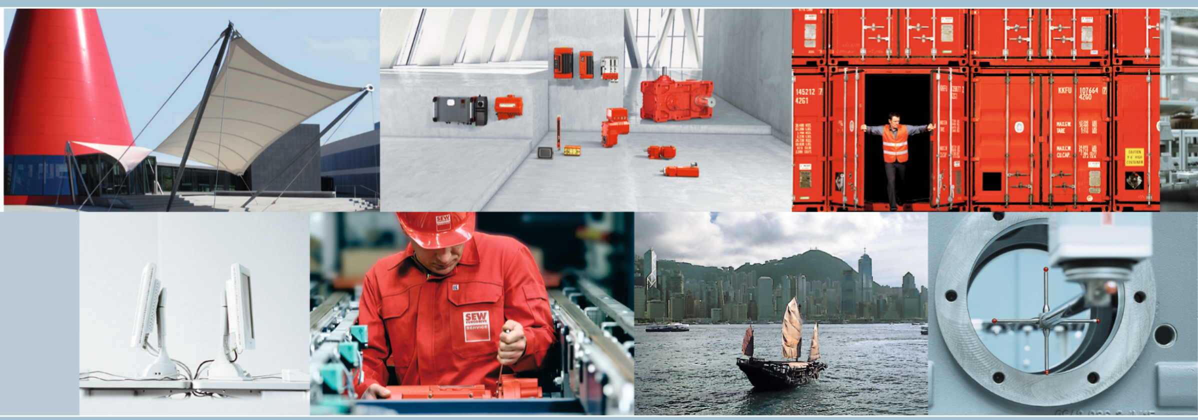

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