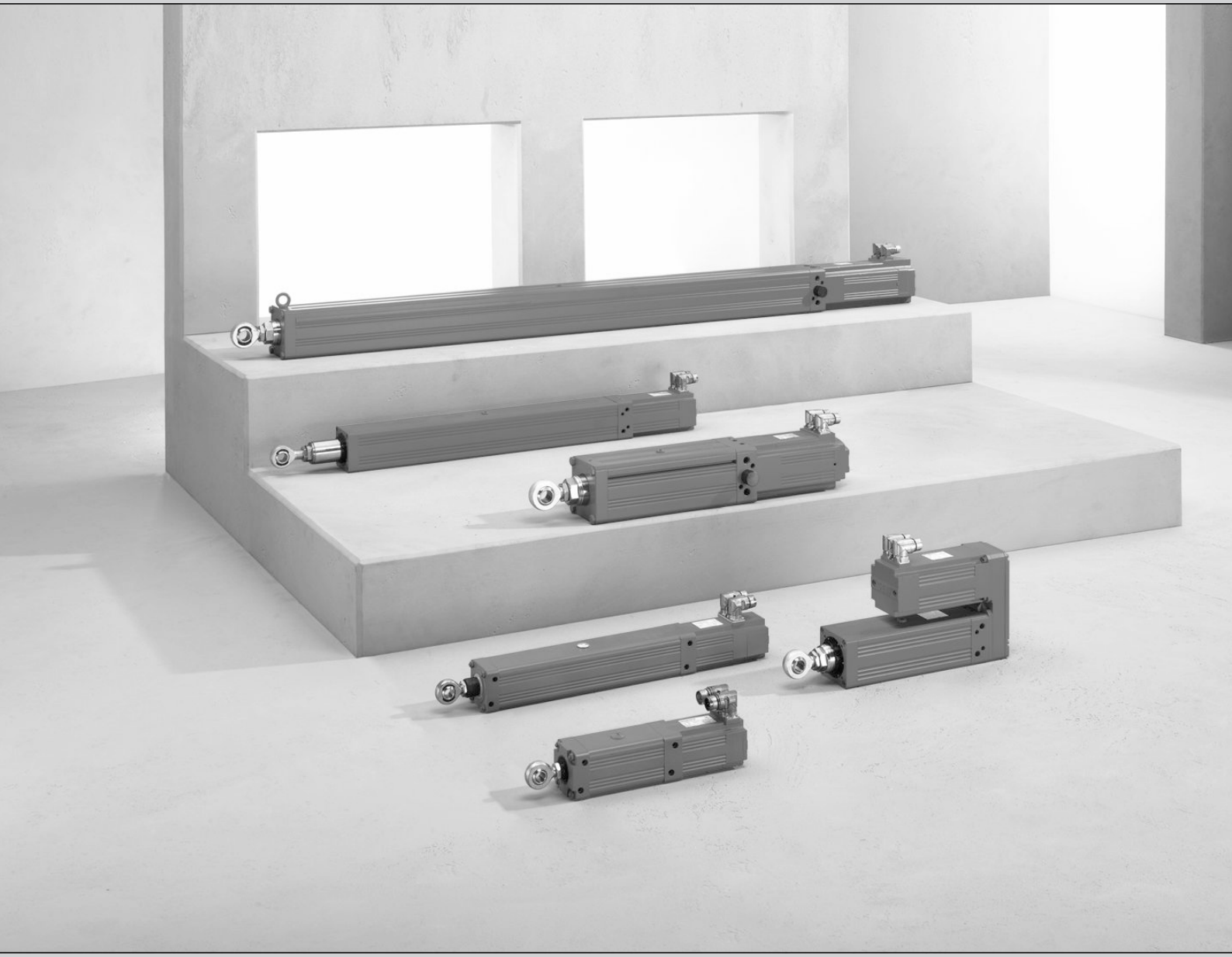
SEW EURODRIVE

Operating instructions



Electric Cylinders
CMS..50 – 71

Edition 05/2015

22138609/EN

Contents

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1 General information

1.1 About this documentation

This documentation is an integral part of the product. The documentation is intended for all employees who perform assembly, installation, startup, and service work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or require further information, contact SEW-EURODRIVE.

1.2 Structure of the safety notes

1.2.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety notes.

Signal word	Meaning	Consequences if disregarded
⚠ **DANGER**	Imminent hazard	Severe or fatal injuries.
⚠ **WARNING**	Possible dangerous situation	Severe or fatal injuries.
⚠ **CAUTION**	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the drive system or its environment.
INFORMATION	Useful information or tip: Simplifies handling of the drive system.	

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1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:

SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

Meaning of the hazard symbols

The hazard symbols in the safety notes have the following meaning:

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning of risk of crushing
	Warning of suspended load
	Warning of automatic restart

1.2.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- ⚠ **SIGNAL WORD** Type and source of hazard.

  Possible consequence(s) if disregarded.

  – Measure(s) to prevent the hazard.

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1.3 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the unit!

1.4 Exclusion of liability

Read the information in this documentation, otherwise safe operation is impossible. You must comply with the information contained in this documentation to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, SEW-EURODRIVE assumes no liability for defects.

1.5 Copyright notice

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2 Safety notes

The following basic safety notes must be read carefully to prevent injury to persons and damage to property. The user must ensure that the basic safety notes are read and observed. Ensure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

2.1 Preliminary information

The following safety notes are concerned with the use of CMS.. standard/modular electric cylinders.

Also observe the supplementary safety notes in the individual sections of this documentation.

2.2 General information

⚠ WARNING

Danger of fatal injury during operation as the motors and gearmotors can have live, bare (in the event of open connectors/terminal boxes) and movable or rotating parts as well as hot surfaces.

Severe or fatal injuries.

- All work related to transport, storage, installation, assembly, connection, startup, maintenance and repair may only be carried out by qualified personnel.
- For transport, storage, installation, assembly, connection, startup, maintenance and repair it is important that you adhere to the information in the following documents:
  - Warning and safety signs on the motor/gearmotor
  - All the project planning documents, startup instructions and wiring diagrams related to the drive
  - System-specific regulations and requirements
  - National/regional safety and accident prevention regulations.
- Never install damaged products.
- Never operate or energize the unit without the necessary protection covers or housing.
- Use the unit only for its intended purpose.
- Make sure the unit is installed and operated properly.

This documentation provides additional information.

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2.3 Target group

Any mechanical work may only be performed by adequately qualified personnel. Qualified personnel in the context of this documentation are persons familiar with the design, mechanical installation, troubleshooting and servicing of the product who possess the following qualifications:

- Training in mechanical engineering, e.g. as a mechanic or mechatronics technician (final examinations must have been passed).
- They are familiar with these operating instructions.

Any electronic work may only be performed by adequately qualified electricians. Qualified electricians in the context of this documentation are persons familiar with electrical installation, startup, troubleshooting and servicing of the product who possess the following qualifications:

- Training in electrical engineering, e.g. as an electrician, electronics or mechatronics technician (final examinations must have been passed).
- They are familiar with these operating instructions.

All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately.

All qualified personnel must wear appropriate protective clothing.

2.4 Designated use

CMS.. electric cylinders are drive motors designed for use in industrial and commercial systems. If motors are subject to loads other than those permitted, or if they are used areas of application other than industrial and commercial systems, you must first contact SEW-EURODRIVE.

The CMS.. electric cylinders meet the requirements of EC directive 2006/95/EC (low voltage directive). Do not take the unit into operation until you have established that the end product complies with the EC Machinery Directive 2006/42/EC.

Observe the technical data and information on the connection requirements as provided on the nameplate and in the documentation.

2.5 Other applicable documentation

The following publications and documents have to be observed as well:

- Wiring diagrams available from SEW-EURODRIVE
- Catalog "Electric Cylinders CMS..50 – 71"
- "CMP40 – 112, CMPZ71 – CMPZ100 Synchronous Servomotors" operating instructions
- "Synchronous Servomotors" catalog

2.6 Transport/storage

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. It may be necessary to suspend startup.

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Tighten the eyebolts securely. They are designed for the weight of the CMS.. electric cylinder only; do not attach any additional loads.

The installed lifting eyebolts are in accordance with DIN 580. The loads and regulations specified in that document must always be observed. If the CMS.. electric cylinder is equipped with two lifting eyes or eyebolts, then both of these should be used for transportation. In this case, the tension force vector of the slings must not exceed a 45° angle in accordance with DIN 580.

Use suitable, sufficiently rated handling equipment if necessary. Reattach these in the case of further transportation.

Store the CMS.. electric cylinder in a dry, dust-free environment if it is not to be installed straight away. The CMS.. electric cylinder can be stored for one year without requiring any special measures before startup.

2.7 Installation

Also adhere to the information in chapter "Mechanical installation (→ 🗎 20)" and "Electrical installation".

The units must be installed and cooled according to the regulations and specifications in the corresponding documentation.

Protect the electric cylinders from excessive strain. Ensure that components are not damaged, particularly during transportation and handling.

The following applications are prohibited unless explicitly permitted:

- Use in potentially explosive atmospheres
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.

2.8 Electrical connection

All work may only be carried out by qualified personnel. During work, the low-voltage machine must be at standstill, de-energized, and safeguarded against accidental restart. This also applies to auxiliary circuits (e.g. anti-condensation heating or forced cooling fan).

Check whether the unit is de-energized.

Exceeding the tolerances in EN 60034-1 (VDE 0530, part 1) – voltage + 5%, frequency + 2%, curve shape, symmetry – increases the heating and influences electromagnetic compatibility. Also comply with EN 50110 (where necessary, observe other applicable national regulations, such as DIN VDE 0105 for Germany).

Observe the wiring information and differing data on the nameplate as well as the wiring diagram provided with the motor.

The connection must be a permanently secure electrical connection (no protruding wire ends):

- Use the corresponding cable end equipment.
- Establish a secure protective earth connection.

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When the motor is connected, the distances to non-insulated and live parts must not be shorter than the minimum values according to IEC 60664 and national regulations. With low voltage, the distances should be no shorter than the following values, in compliance with IEC 60664:

Nominal voltage V_N	Distance
≤ 500 V	3 mm
≤ 690 V	5.5 mm

The connection box must be free from foreign objects, dirt and humidity. Unused cable entry openings and the box itself must be closed so that they are dust- and waterproof. Secure the key for test mode without output elements. When operating low-voltage machines with brakes, check that the brake is functioning correctly before startup.

2.9 Startup/operation

Whenever changes to normal operation occur, such as increased temperatures, noise, vibrations, etc., you should determine the cause. Consult the manufacturer if required. Never deactivate protection devices, even in test mode. Switch off the motor/CMS.. electric cylinder if you are not sure.

Regularly clean air ducts in case of a high degree of pollution.

2.9.1 Surface temperature during operation

Servomotors/CMS.. electric cylinders get very hot during operation.

Touching the servomotor/CMS.. electric cylinder when it has not been cooled can result in burns. The servomotor can have a surface temperature of more than 100 °C during operation.

Never touch the servomotor/CMS.. electric cylinder during operation or in the cool down phase after it has been switched off.

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2.10 Safety notes on the motor

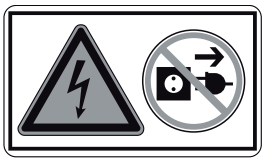
⚠ CAUTION

Safety notes or signs can become dirty or illegible over time.

Risk of injury due to illegible symbols.

- Always make sure that safety, warning, and operating notes are legible.
- Replace damaged safety notes and signs.

The safety notes on the motor must be observed. They have the following meaning:

Safety note	Meaning
	Do not unplug the signal plug connector while it is energized!
	For motors with BK brake: It is essential that you observe the correct polarity of BK brake supply. Check the polarity when replacing the brake.

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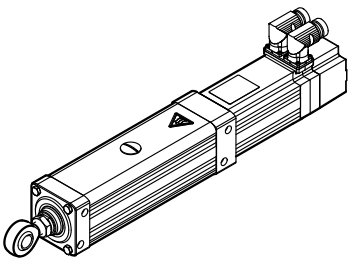
3 Electric cylinder design

3.1 Designs

Generally, there are two different types of CMS.. electric cylinders:

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

3.1.1 CMS.. standard electric cylinders



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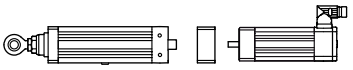
The basic servomotors (CMP) are mounted directly as before.

3.1.2 CMSM.. modular electric cylinders



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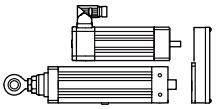

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For the modular design, the linear units can be mounted to a basic servomotor (CMP) by means of an adapter (axes either in parallel or in series). The use of a third-party motor is also possible.

The letter "M" in the type code stands for modular design.

3.2 "Generation" characteristic

The type designation now also contains the characteristic "Generation". To distinguish different versions. It is used to indicate a further development of the product in the type designation.

All drives with oil bath technology are drives of generation "B". The type designations for drives with grease lubrication remain unchanged.

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3.3 Sizes

SEW-EURODRIVE offers 4 product variants in 4 sizes:

- CMS50
- CMSB50/63/71
- CMSMB50/63/71
- CMS71

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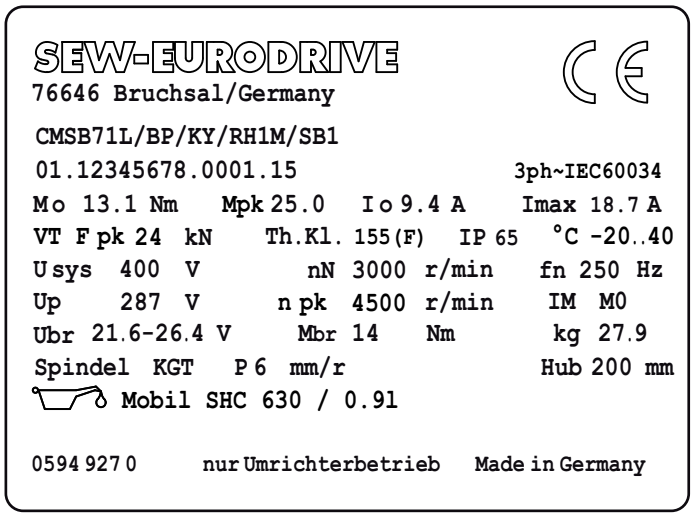
3.4 CMS.. standard electric cylinders - Nameplate

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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Type	Motor type
No.	Serial number
M_o	Standstill torque (thermal continuous torque at a speed of 5 to 50 1/min)
I_0	Standstill current
F_{pk}	Peak feed force
I_{max}	Maximum permitted motor current
IP	Degree of protection
U_{sys}	Motor voltage
°C	Ambient temperature range
Th.cl.	Thermal class
n_N	Rated speed
n_{pk}	Maximum mechanically permitted speed
kg	Weight
U_{br}	Brake voltage range
Spindle	Spindle type
P	Spindle pitch
Stroke	Stroke length
IM	Mounting position
	Lubricant
i	Gear ratio belt drive
M_{br}	Maximum braking torque
M_{pk}	Dynamic limit torque of the servomotor
f_n	Max. permitted frequency
U_{sys}	Rotor voltage

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3.5 CMS.. standard electric cylinders - Type designation

The following figure shows the example of a type designation:

Example: CMSB71L/BP/KY/RH1M/SB1/VR		
Type	CMS	CMS.. standard electric cylinders
Generation	B	With oil bath lubrication
Size	71	
Length	L	Large
Mechanical mount-on components	/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

3.6 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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3.7 Designs and options for the CMS.. electric cylinders

3.7.1 Electric cylinders

Designation	
CMS..	Standard electric cylinders size 50/63/71
CMSM..	Modular electric cylinders
S – L	S = short; M = medium; L = long

3.7.2 Generation

Designation	Option
B	With oil bath lubrication and piston rod If designation B is not available: with grease lubrication and piston rod.

3.7.3 Adapter

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

3.7.4 Mechanical attachments

Designation	Option
/BP	Holding brake for CMS..50 – 71
/BK	Holding brake for CMS..50 – 63
/BS	Holding brake for CMS71

3.7.5 Temperature sensor / temperature detection

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

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3.7.6 Encoders

Designation	Option
/RH1M	Resolver (standard)
/ES1H	Single-turn Hiperface® encoder, spread shaft, high resolution for CMS50/71, CMSB63
/AS1H	Multi-turn Hiperface® encoder, spread shaft, high resolution for CMS50/71, CMSB63
/AK0H	Multi-turn Hiperface® encoder, cone shaft, for CMS50/71, CMSB50/63/71
/EK1H	Single-turn Hiperface® encoder, cone shaft, high resolution for CMSB50/71, CMSB63[1)], CMS71[1)]
/AK1H	Multi-turn Hiperface® encoder, cone shaft, high resolution for MSB50/71, CMSB63[1)], CMS71[1)]

1) in preparation

3.7.7 Connection options

Designation	Option
/SM1	M23 motor plug connector, socket on motor end only, pluggable motor and encoder cables (standard)
/SB1	M23 brakemotor plug connector, socket on motor end only, pluggable motor and encoder cables (standard)

3.7.8 Ventilation

Designation	Option
/VR	Forced cooling fan

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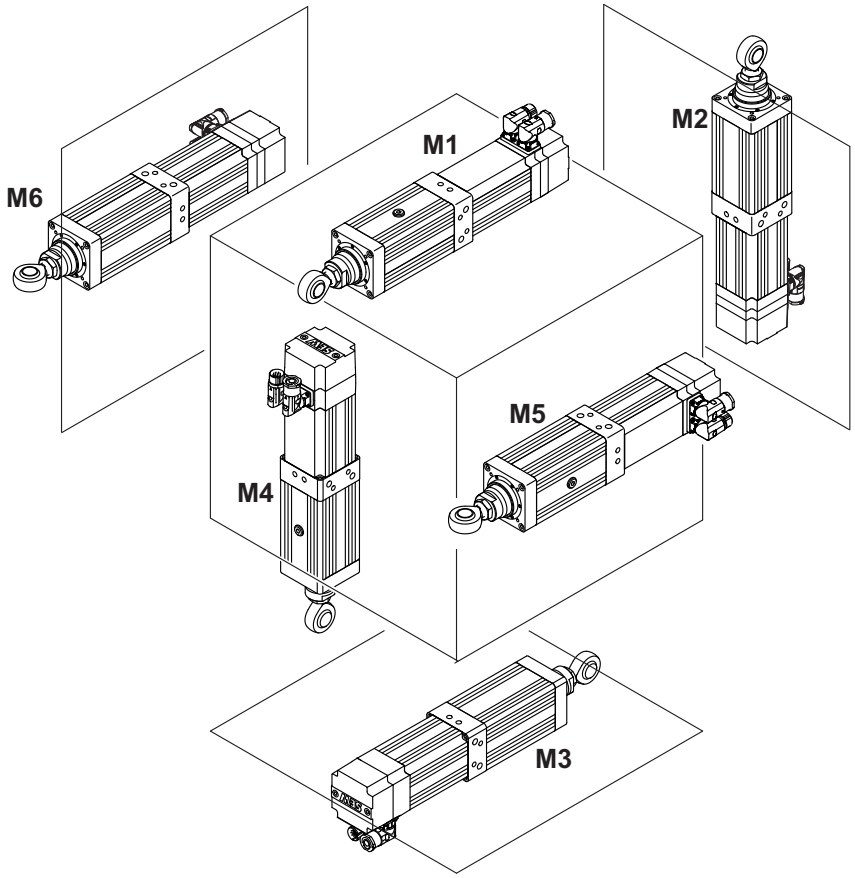
3.8 Mounting Positions

All mounting positions are possible with all electric cylinders (M0). Observe chapter "Installation situation and stroke range" (→ 🗎 26).



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3.9 Standards

3.9.1 Conformity with directives

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

- EC directive 2006/95/EC ("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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4 Mechanical installation

4.1 Before you start

Install the electric cylinder only if the following conditions are met:

- The electric cylinder must be undamaged (no damage caused by shipping or storage).
- The specifications on the nameplate of the electric cylinder correspond to the supply system or the output voltage of the servo inverter.
- The ambient temperature is between -20 °C and +40 °C.
- The installation altitude must be no higher than 1000 m above sea level, otherwise the drive must be designed to meet the special ambient conditions.
- The surrounding area is free from oils, acids, gases, vapors, radiation, etc.

4.2 Required tools/resources

- Standard tools
- Belt tension device if necessary

4.3 Storage conditions

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

The motor parts are protected against corrosion for two years when stored in unopened original packaging (with Vario lubrication system one year → battery 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%
- Original packaging must not be damaged

4.4 Operating temperatures

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

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

CMSB50/63/71 and CMSMB50/63/71: If you use the electric cylinder with the piston rod pointing downwards, observe chapter "Installation situation and stroke range" (→ 🗎 26).

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

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4.5 Installing the electric cylinder

⚠ WARNING

Risk of unexpected restart of the drive.

Severe or fatal injuries or damage to property.

- De-energize the electric cylinder before you start working on the unit.
- Safeguard the electric cylinder against unintentional restart.

⚠ CAUTION

The electric cylinder can get very hot during operation.

Risk of burns.

- Never touch the electric cylinder during operation or in the cool down phase once it has been switched off.

⚠ WARNING

With lifting applications, make sure that the holding torque $M_{4,\ 100°C}$ of the brake is bigger than the corresponding load torque of the application.

Severe or fatal injuries.

- Observe the project planning guidelines.
- The spindles that are used are not self-locking.
- See chapter "Possible maximum holding forces" (→ 🗎 104).

NOTICE

Improper mounting may result in damages to the electric cylinder.

Possible damage to property.

- Observe the following notes.

- Mount the electric cylinder only on a level, vibration-free and torsionally rigid support structure.
- Make sure the customer's counter-bearing is unobstructed and can move freely.
- Carefully align the electric cylinder and the driven machine to avoid placing any unacceptable strain on the spindle (observe permissible axial load data).
- Make sure that the electric cylinder is not subject to overhung loads and bending moments.
- Do not jolt or hammer the spindle end.
- Protect the bellows, the threaded spindle and the piston rod against mechanical damage.
- Mount the electric cylinder in the specified mounting position only.
- Make sure that the warm exhaust air of other devices is not sucked in.

4.5.1 Installation in damp locations or outdoors

- Try to arrange the motor and encoder connection so that the connector cables do not point upwards.

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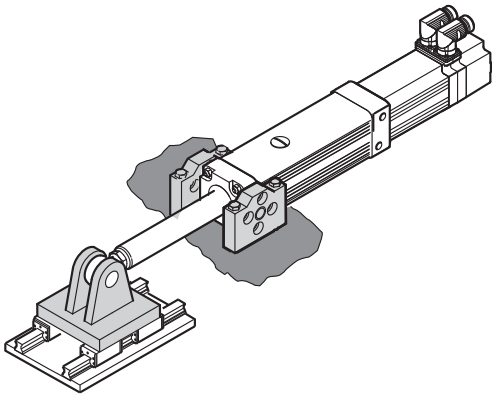
- Clean the sealing surfaces of the connector (motor or encoder connection) before reassembly.
- Replace any brittle seals.
- If necessary, restore the anticorrosive paint coat.
- Check that the degree of protection is maintained.
- Attach covers (canopy) for installation in the open.

4.6 Installation situation at the customer

4.6.1 Installation notes CMS50, CMSB50/63/71, CMSMB50/63/71 (/ACH /ACA /AP)



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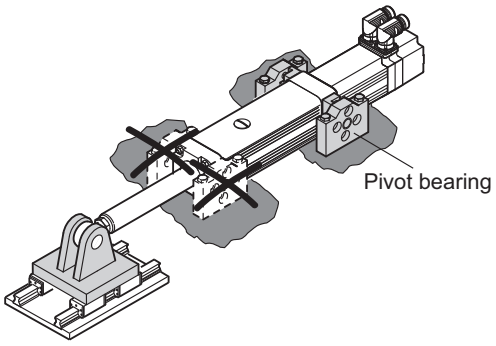
- Attachment only on the output end of the piston rod is permitted only for the CMS types:
  - CMS50 stroke 70 mm with/without brake.



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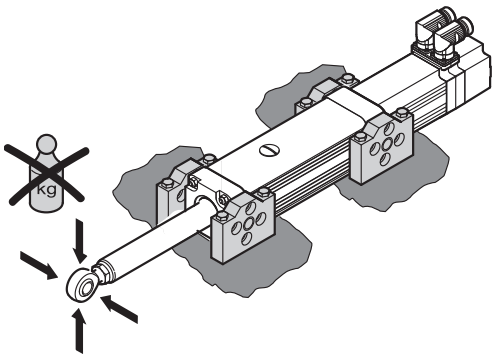
- No statically redundant bearing. When using a pivot bearing, do not use additional attachments (only CMS50).



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- No overhung loads on the drive

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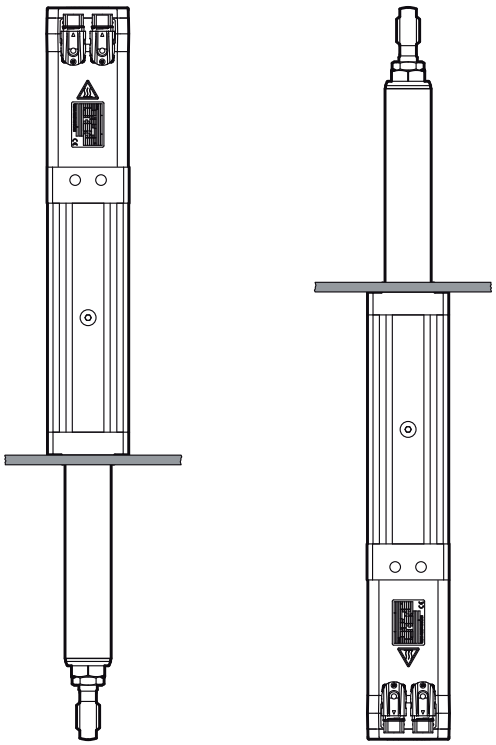
Attachment on the output end of the piston rod



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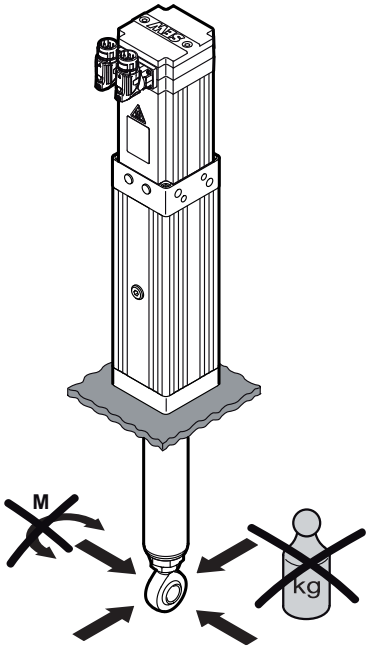
- Attachment only on the output end of the piston rod is only permitted in vertical installation (max. ± 5° from the ideal vertical) with the piston rod pointing downwards or upwards.



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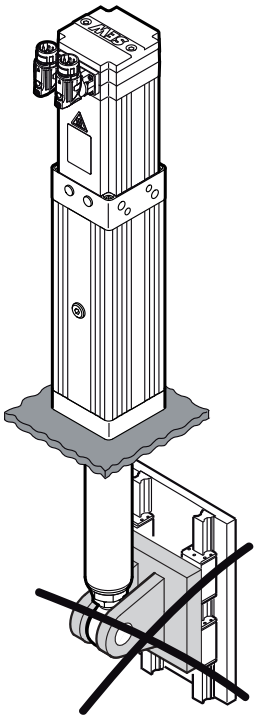
- No overhung loads and torques on the piston rod



- No additional guides of the piston rod

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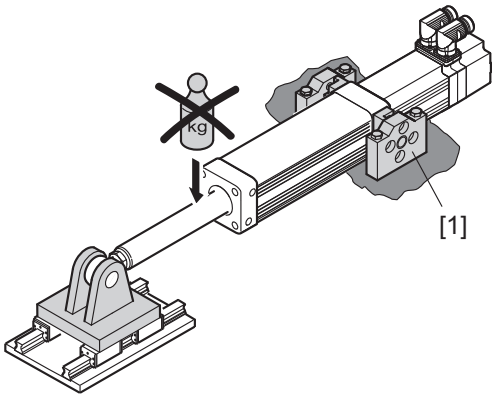
Attachment via pivot bearing



- No overhung loads on the drive

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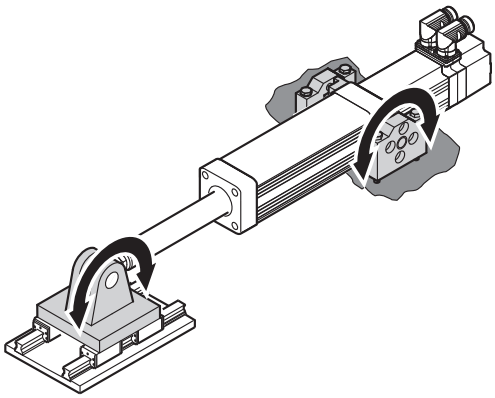

- Joint must be free to move, do not clamp in place

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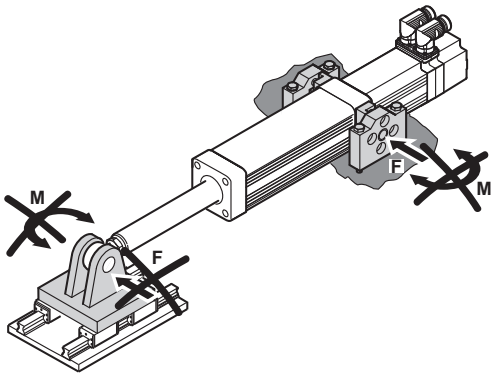

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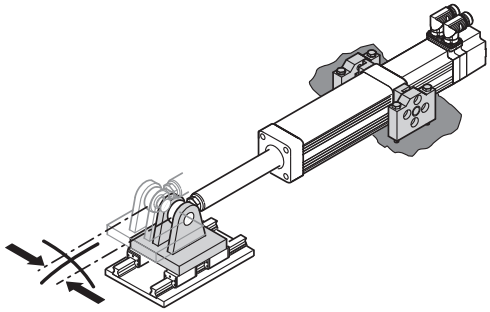
- Do not induce loads and torques via joints



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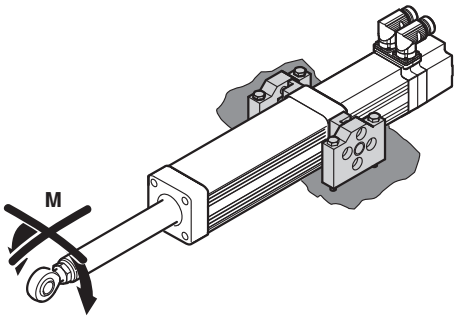
- Do not offset the installed components



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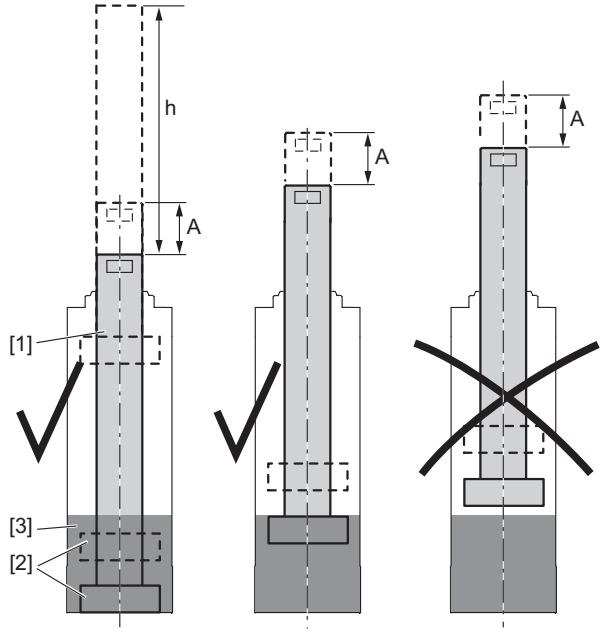
- Do not induce torque loads over the piston rod

4.6.2 Installation situation and stroke range CMSB50/63/71, CMSMB50/63/71

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], the end position of the spindle nut [2] must be smaller than half the stroke length [1/2 h] of the total stroke [h] of the electric cylinder.



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[1] Piston rod
[2] Spindle nut
[3] Oil

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Installation with piston rod pointing downwards

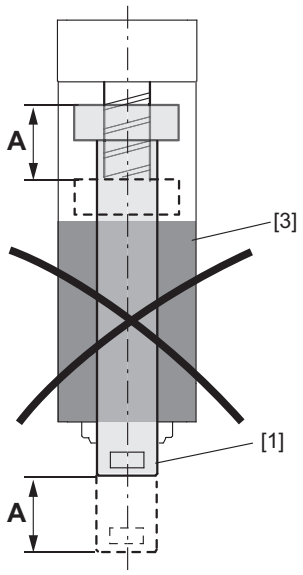
For applications where the piston rod extends downwards, a lubricant pump is integrated to ensure lubrication. The pumping effect of the extending and retracting piston rod is used via internal valves to ensure lubrication of the electric cylinder.

Observe the following restrictions when installing the electric cylinder.

For ambient temperatures of -10 °C – 40 °C			
	DxP spindle	Minimum speed	Minimum stroke
		1/min	mm
CMS(M)B50	KGT20x5	220	50
CMS(M)B63	KGT25x6	180	50
CMS(M)B71	KGT32x6	180	50

For ambient temperatures of -20 °C – 40 °C			
	DxP spindle	Minimum speed	Minimum stroke
		1/min	mm
CMS(M)B50	KGT20x5	600	50
CMS(M)B63	KGT25x6	500	50
CMS(M)B71	KGT32x6	500	50

Observe the following stroke settings when installing the electric cylinder:



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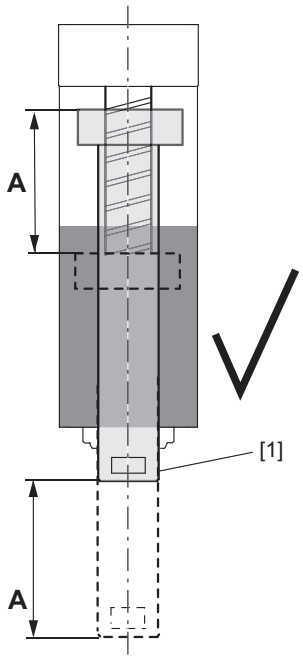
Short, permanent working strokes [A] from retracted piston rod position [1], above medium stroke position (above the oil level [3]), are not permitted.

INFORMATION

- For applications with the working stroke above the oil level, please contact SEW-EURODRIVE.
- Please note the following restrictions. They have general character. In addition, the lubrication system provides a broader spectrum that must be checked for individual customer applications. Contact SEW-EURODRIVE.



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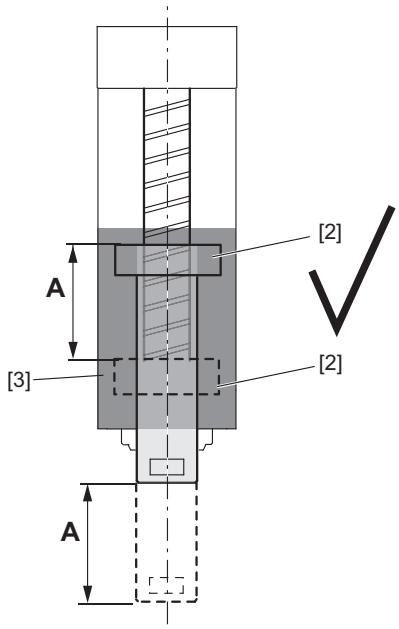
Working strokes [A] from retracted piston rod position [1] must be extended at least up to half the stroke length +25 mm.



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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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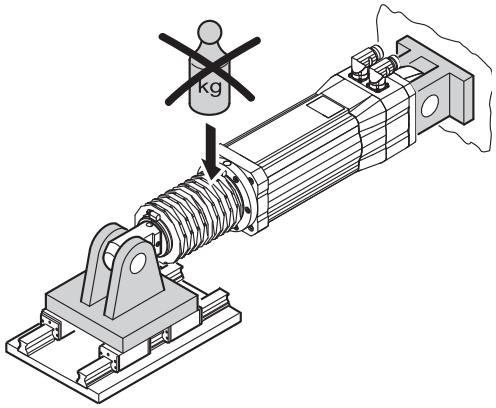
4.6.3 Installation notes CMS71



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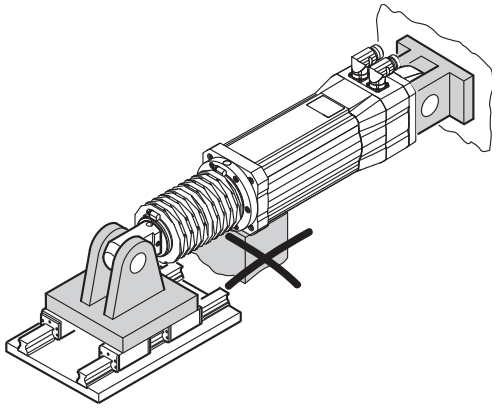
- No overhung loads on the drive



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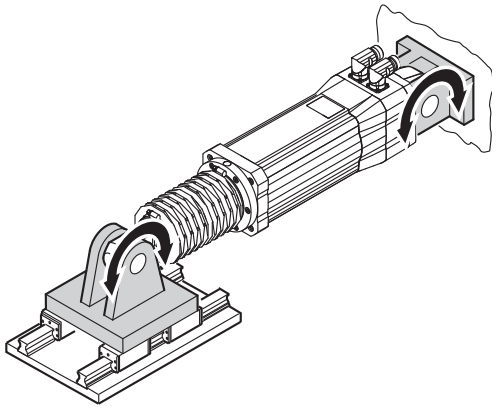
- No additional fastenings or supports (statically redundant)



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- Joints must be free to move; do not clamp in place.

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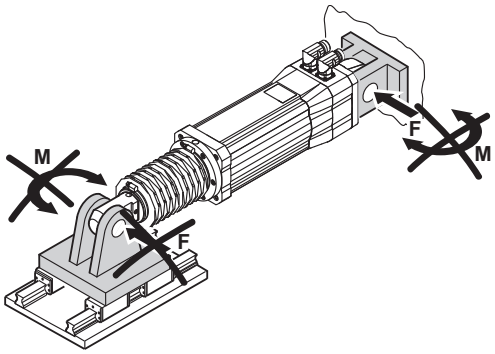

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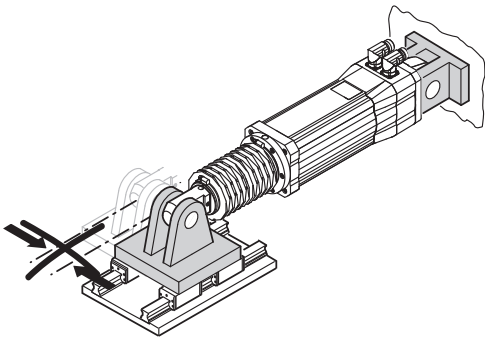
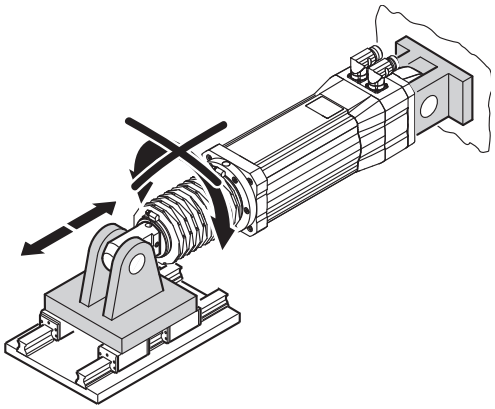
- Do not induce loads and torques via joints.



4139234571

- Do not offset from the mounting position see installation tolerances (→ 🗎 32)



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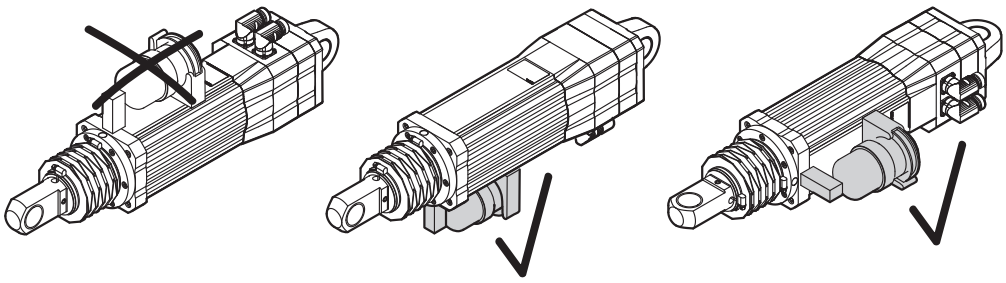
- Install so that the unit is not subject to torque (torsion).



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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

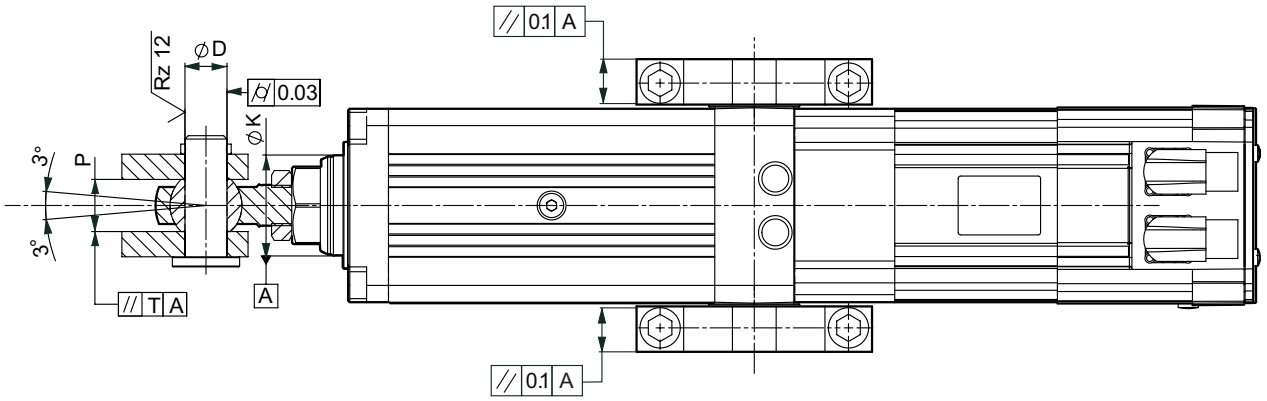
For the external installation of the lubricator (not directly on the motor) contact SEW-EURODRIVE.

INFORMATION

In case of high thermal capacity utilization, dissipated heat can affect the lubricant properties.

4.6.4 Tolerances for mounting CMS50, CMSB50/63/71, CMSMB50/63/71 at the customer site

The following figure describes the mounting situation for both mounting sides of the drive.



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Type	K	D	P	T
CMS50	Ø 32	Ø 16 h7	21 +0.1	0.1 for stroke 70 – 300
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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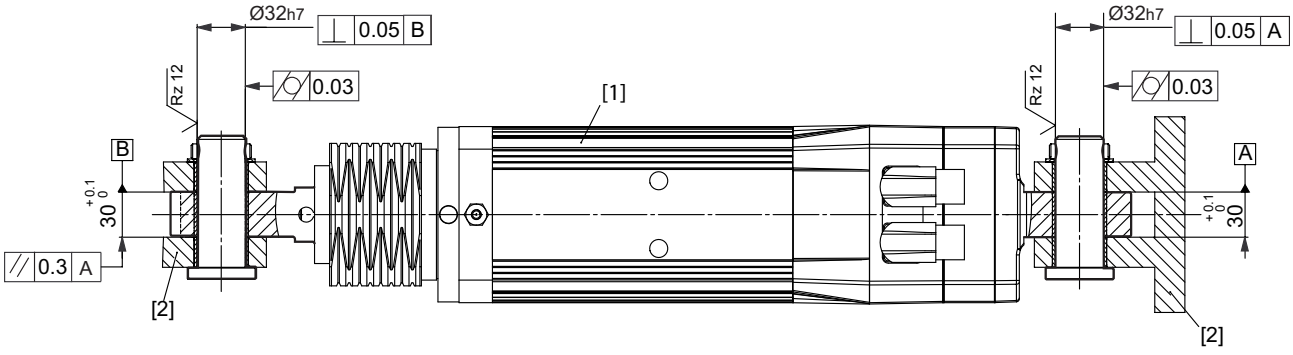
4.6.5 Tolerances of the installation tolerances by the customer for CMS71

The following figure describes the mounting situation for both mounting sides of the drive.

Standard



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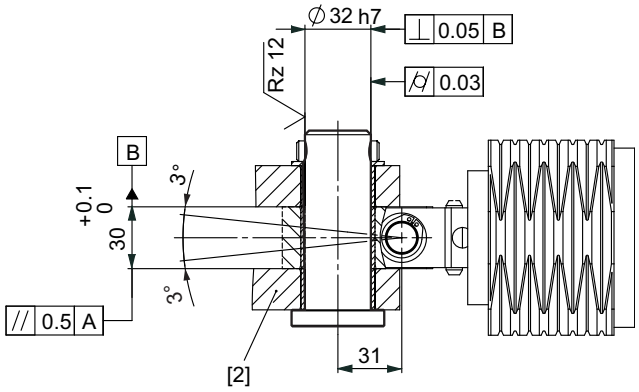
[1] Electric cylinders

[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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4.7 Mechanical stroke limiting

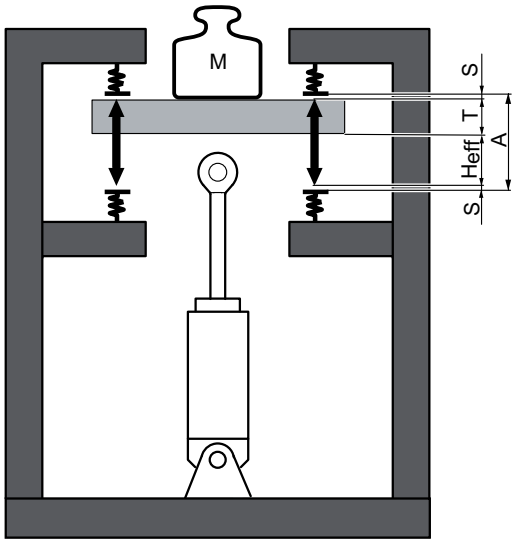
INFORMATION

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}).



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H_{eff}	Effective stroke	A	Distance between limit stops
H_{CMS}	Nominal stroke CMS	T	Partial width
S	Safety distance	M	Weight

4.7.1 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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4.8 VR forced cooling fan

The electric cylinders CMS50, CMSB50/63/71, CMSMB50/63/71 can be equipped with an optional VR forced cooling fan.

INFORMATION

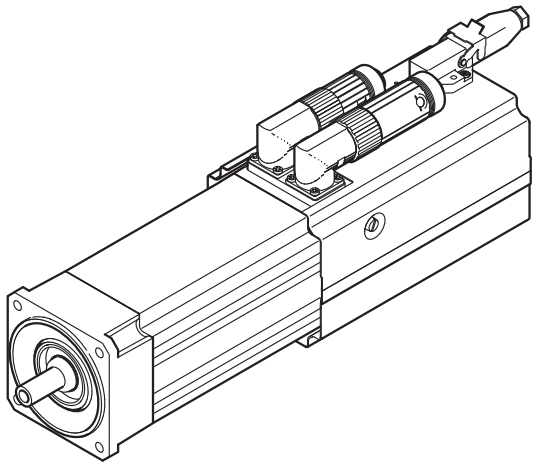
The forced cooling fan can only be used up to a maximum oscillation and shock load of 1 g.

4.8.1 Mechanical Installation

Mounting the fan guard for the VR forced cooling fan:

Motor	Screws	Tightening torque
CMS50, CMSB50, 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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4.8.2 Retrofit set for CMS50, CMSB50/63/71, CMSMB50/63/71

Forced cooling fan retrofit sets are available for the motors of CMS50, CMSB50/63/71, CMSMB50/63/71.

INFORMATION

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

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.

For information on the retrofit set, refer to the "Synchronous Servomotors" catalog.

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5 Electrical Installation

⚠ WARNING

Risk of injury due to electric shock.

Severe or fatal injuries.

- Wire the motor according to the regulations.
- De-energize the unit.
- Check whether the unit is de-energized.

- It is essential to comply with the notes in chapter 2 during installation.
- Observe the information on the motor nameplate.
- Observe the information on the wiring diagram that is supplied with the motor.
- Switch contacts in utilization category AC-3 to EN 60947-4-1 must be used for switching motor and brake.
- Use switch contacts in utilization category DC-3 according to EN 60947-4-1 for switching the brake with DC 24 V.
- Exceeding the tolerances in EN 60034-1 (VDE 0530, part 1) – voltage + 5%, frequency + 2%, curve shape, symmetry – increases the heating and influences electromagnetic compatibility. Also observe EN 50110 (and, if applicable, other national regulations, such as DIN VDE 0105 for Germany).
- The connection box must be free from foreign objects, dirt and humidity. Unused cable entry openings and the connection box itself must be sealed so that they are dust- and water-proof.
- Secure the key for test mode without output elements.
- Before starting up the motor with brake, check whether the brake works correctly.
- When motors are powered by inverters, you must adhere to the wiring instructions issued by the inverter manufacturer.
- Observe the operating instructions of the inverter.

5.1 Additional regulations

The generally applicable installation regulations for low-voltage electric equipment (such as DIN IEC 60364, DIN EN 50110) must be complied with when setting up electrical machinery.

5.2 Compulsory use of the wiring diagrams

Connect the motor only as shown in the wiring diagram(s) included with the motor. **Do not connect or start up the motor if the wiring diagram is missing.** The applicable wiring diagrams are available from SEW-EURODRIVE free of charge.

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5.3 Wiring notes

5.3.1 Protecting the brake control system against interference

To protect the brake control system against interference, do not route unshielded brake cables together with switched-mode power cables.

Switched-mode power cables include in particular:

- Output cables from servo inverters, converters, soft start units and brake units
- Supply cables for braking resistors and similar options

5.3.2 Thermal motor protection

NOTICE

Electromagnetic interference of the drives.

Possible damage to property.

- Install the connecting lead of the KTY separately from other power cables maintaining a distance of at least 200 mm. The cables can only be routed together if either the KTY cable or the power cable is shielded.

5.4 Notes regarding the connection of the power and signal cables via the connector system

The cable entry of the power and signal cable is installed using an adjustable right-angle connector. SEW-EURODRIVE recommends to adjust the adjustable right-angle connector while the mating connector is plugged in. A torque of > 8 Nm is required to screw the right-angle connector to the motor.

5.4.1 SM1/SB1 connector positions

NOTICE

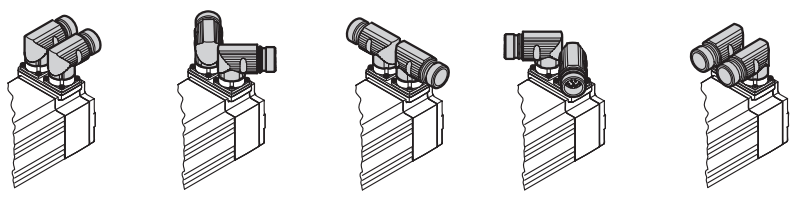
Damage to the right-angle connector in case of rotation without mating connector.

Damage to the plug connector and the sealing surface.

- Adjust the right-angle connector only while the mating connector is plugged in.
- If you do not have a mating connector at hand, do NOT use pliers to adjust the right-angle connector.

The right-angle plug connectors SM1/SB1 can be rotated to achieve any required position.

The following figure shows examples of the differently adjusted plug connectors SM1/SB1:



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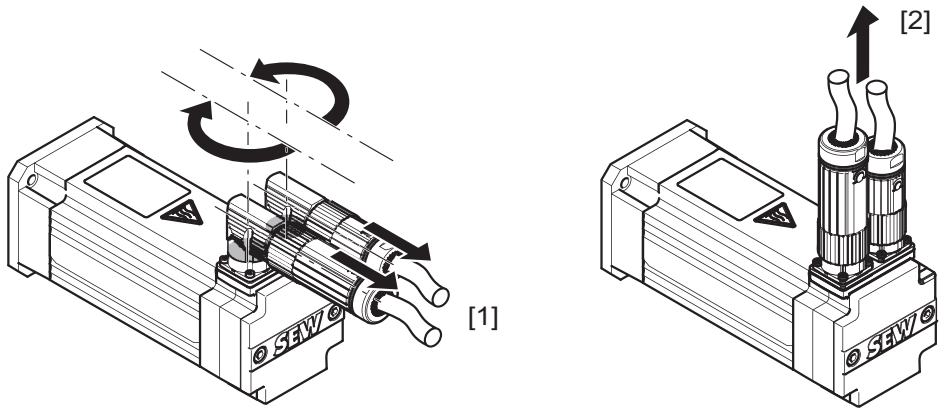
A "radial" position has been defined for the straight plug connectors (radial output). The radial plug connectors [2] are optional (not available for CMS71L):



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

INFORMATION

- Comply with the permitted bending radii of the cables.
- When using low-capacity trailing cables, the bending radii are larger than for the previously used standard cables.
- SEW-EURODRIVE recommends the use of low-capacity cables.

INFORMATION

The connector should only be rotated to install and connect the motor. Do not turn the plug connector regularly once it has been installed.

5.5 Connecting the motor and the encoder system via plug connector SM./ SB.

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

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

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

NOTICE

Potential damage to the right-angle connector.

Possible damage to property.

- Do not align the right-angle connector frequently.

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

If you are using self-assembled cables with quick lock, you have to remove the O-ring.

5.5.1 Plug connectors on cable side

Unit designation of the plug connectors

The following diagram shows a type designation:

S M 1 2	
S	**S:** Connector
M	**M**: Motor, **B**: Brakemotor
1	**1**: Connector size 1 (1.5 – 4 mm^2)
2	Cross section **1**: 1.5 mm^2, **2**: 2.5 mm^2, **4**: 4 mm^2

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Power cable and plug connector for CMP.. motors

Cable type		Connector type	Thread size	Cable cross section	Part number	
					Prefabricated cables	Replacement mating connector
Fixed installation	Motor cable	SM11	M23	4 x 1.5 mm²	05904544	01986740
		SM12		4 x 2.5 mm²	05904552	01986740
		SM14		4 x 4 mm²	05904560	01991639
	Brakemotor cable[1)]	SB11	M23	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 cable	SM11	M23	4 x 1.5 mm²	05906245	01986740
		SM12		4 x 2.5 mm²	05906253	01989197
		SM14		4 x 4 mm²	05904803	01991639
	Brakemotor cable[1)]	SB11	M23	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) BP/BK brake: 3-core cable, only 2 cores are used

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

- Power connector,
- Insulation inserts,
- Socket contacts.

Extension cables for power cables are listed in the "Synchronous Servomotors" catalog.

Replaced brakemotor cables

The brake cores of the replaced brakemotor cables are labeled differently from today's standard. This applies to the following cables:

Cable type		Connector type	Cable cross section	Part number	
				Prefabricated cables	Signal connector*
Fixed installation	Brakemotor cable[1)]	SB11	4 x 1.5 mm² + 2 x 1 mm²	13324853	01986740
		SB12	4 x 2.5 mm² + 2 x 1 mm²	13332139	01986740
		SB14	4 x 4 mm² + 2 x 1 mm²	13332147	01991639
Cable carrier installation	Brakemotor cable[1)]	SB11	4 x 1.5 mm² + 2 x 1 mm²	13331221	01989197
		SB12	4 x 2.5 mm² + 2 x 1 mm²	13332155	01989197
		SB14	4 x 4 mm² + 2 x 1 mm²	13332163	01991639

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

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Dependence of mating connector on cable diameter and crimping area

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

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

5.5.2 Encoder cables

Cable type		Cable cross section	Frequency inverter type	Part number	
				Prefabricated cables	Signal connector*
Fixed installation	Resolver cable	5 x 2 x 0.25 mm²	MOVIDRIVE®	01994875	01986732
			MOVIAXIS®	13327429	
Cable carrier installation			MOVIDRIVE®	01993194	
			MOVIAXIS®	13327437	
Fixed installation	HIPERFACE® cable	6 x 2 x 0.25 mm²	MOVIDRIVE® / MOVIAXIS®	13324535	01986732
Cable carrier installation			MOVIDRIVE® / MOVIAXIS®	13324551	

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

- Feedback connector,
- Insulation inserts,
- Socket contacts.

Extension cables for power and feedback cables are listed in the "Synchronous Servomotors" catalog.

5.5.3 Forced cooling fan cables

Cable type		Cable cross section	Part number
Fixed installation	Forced cooling fan cables	3 x 1 mm²	01986341
Cable carrier installation		3 x 1 mm²	0199560X

Extension cables for forced cooling fan cables are listed in the "Synchronous Servomotors" catalog.

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5.5.4 Prefabricated cables

Prefabricated cables are available from SEW-EURODRIVE for connection with the SM./SB. plug connector system.

For information on the prefabricated cables and part numbers, refer to the "Synchronous Servomotors" catalog.

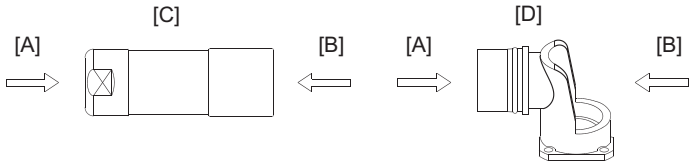
If you assemble cables yourself, observe the manual "Cable assembly".

Note the following points if you want to assemble the cables yourself:

- The socket contacts for the motor connection are implemented as crimping contacts. Only use suitable tools for crimping.
- Strip the insulation off the connection leads. Apply heat shrink tubing to the connectors.
- Incorrectly installed socket contacts can be removed without removal tools.

5.5.5 Wiring diagrams – plug connectors for CMP. motors

Key



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[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

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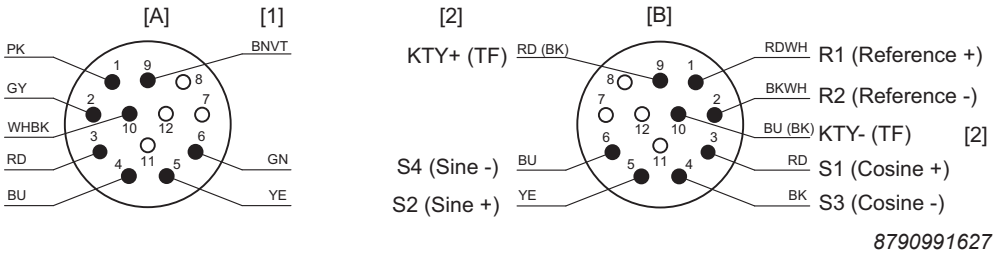
[1] BP/BK/BS-Brake (optional)

Wiring diagram for RH1M resolver signal plug connectors

Wiring diagram



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[1] Shield connected to the metal housing of the connector. Colors according to SEW-EURODRIVE cables
[2] KTY+ (RD), KTY-(BU), optional TF (BK)

Pin assignment of plug connector lower part

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

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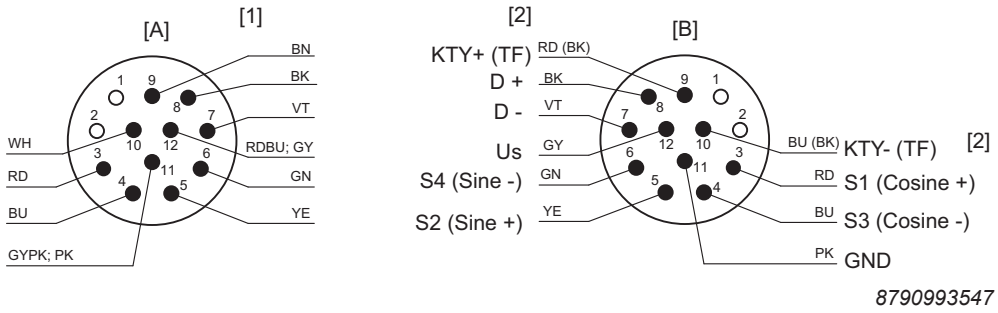
Connection of signal plug connector encoder AK0H, EK0H, AK1H, EK1H, AS1H, ES1H

Wiring diagram



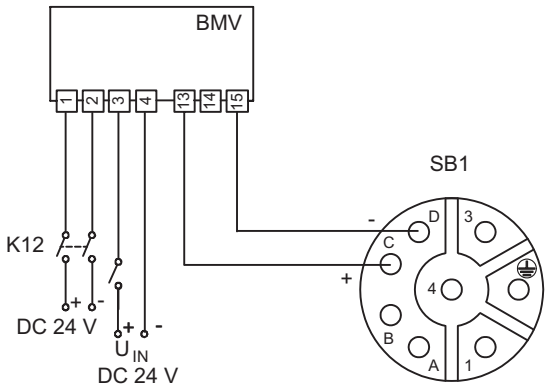
[1] Shield connected to the metal housing of the connector. Colors according to SEW-EURODRIVE cables
[2] KTY+ (RD), KTY-(BU), optional TF (BK)

Pin assignment of plug connector lower part

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

5.5.6 Wiring diagrams of the brake control for BP/BK/BS brake

BMV brake controller



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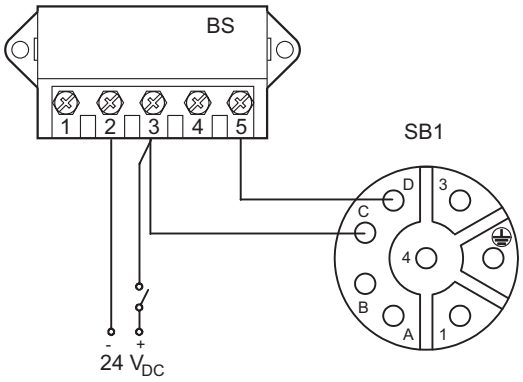
Connection 1, 2	Power supply
Connection 3, 4	Signal (inverter)

BS brake contactor



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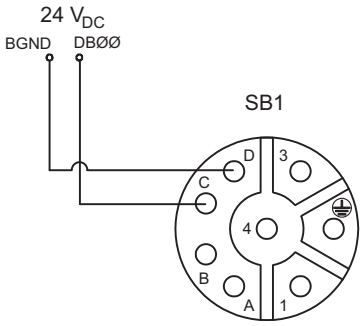
Direct 24 V brake supply

Via MOVIAXIS®



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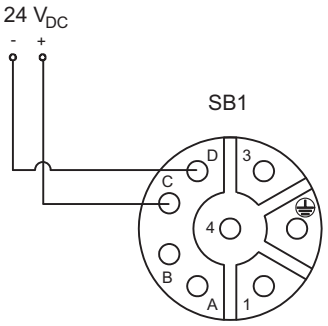
NOTICE

Damage to the BK/BS brake.

Possible damage to property.

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

With non-SEW inverters



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In the following cases, the brake must be protected from overvoltage, e.g. via a varistor protection circuit:

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

5.6 Connecting the motor and the encoder system via KK/KKS terminal box to CMSMB50/63/71

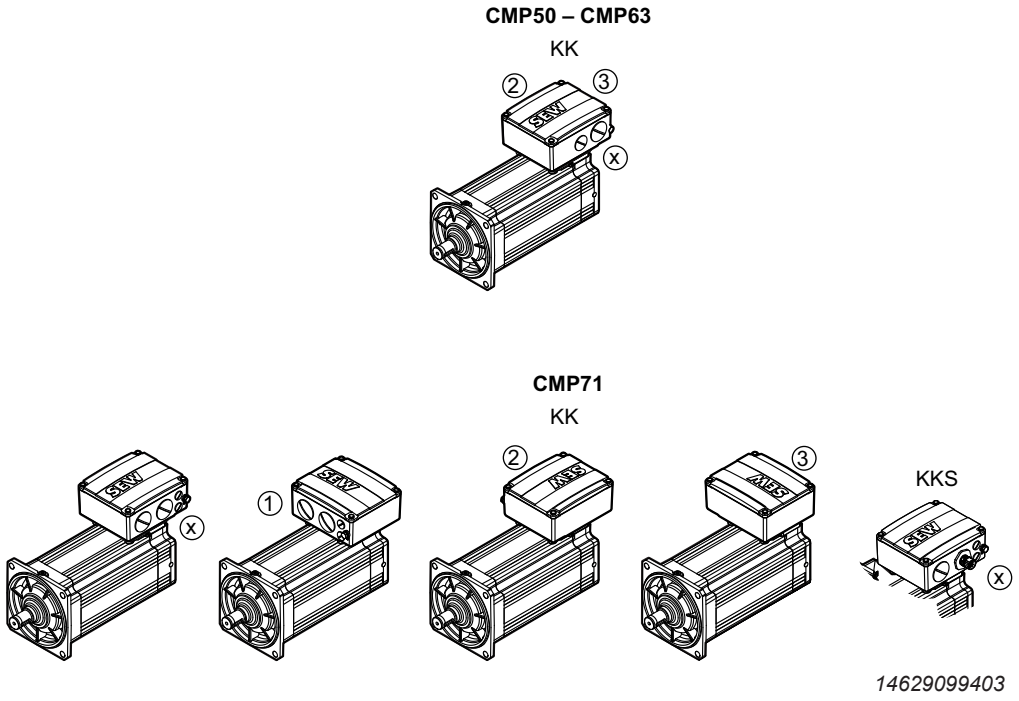
- Check the cable cross sections.
- Screw on the connections and PE conductors.
- Check the winding connections in the terminal box and tighten them, if necessary.
- You have to use an EMC cable gland for the signal cable entry in order to ensure a flawless shielding.

5.6.1 Connection option via terminal box

Optionally, you can connect the power and signal cables via a terminal box.

- /KK option: Connection of the power and signal cable via conductor end sleeves in the terminal box.

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



For motor sizes CMP50 and 63 in a fixed mounting position "x", the cable entry is possible from three sides.

Connection cross section

Motor type	Power connection			Encoder / resolver / thermal motor protection	
	Connection	Maximum connection cross section	Cable entry	Connection	Cable entry
CMP50, CMP63	Spring terminals	6 mm²	M25	Spring terminals	M20
CMP71	M6 stud	10 mm²	M32		M16

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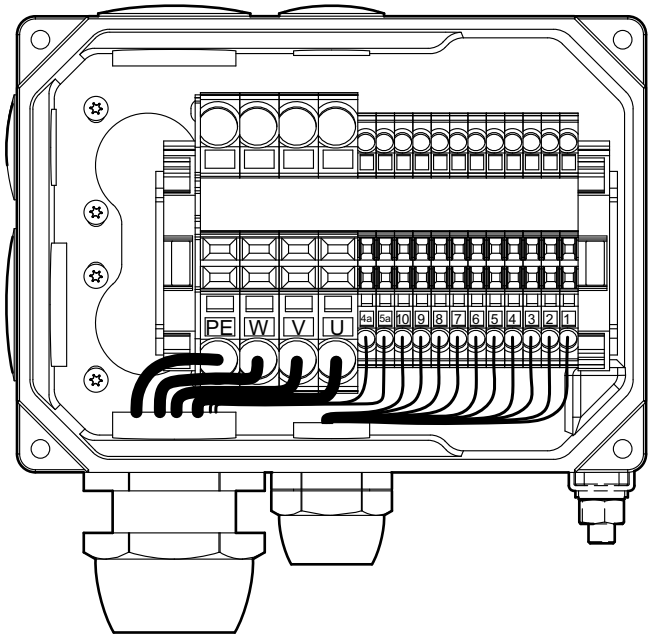
5.6.2 Connecting CMSMB50/63



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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	Core identification		BMV brake rectifier connection	BS brake controller connection
	BP	BK		
4 a (RD)	+ (YE) Yellow	+ (RD) Red	13	3
5a (BU)	– (YE) Yellow	– (BU) Blue	15	5

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

NOTICE

Damage to the BK brake.

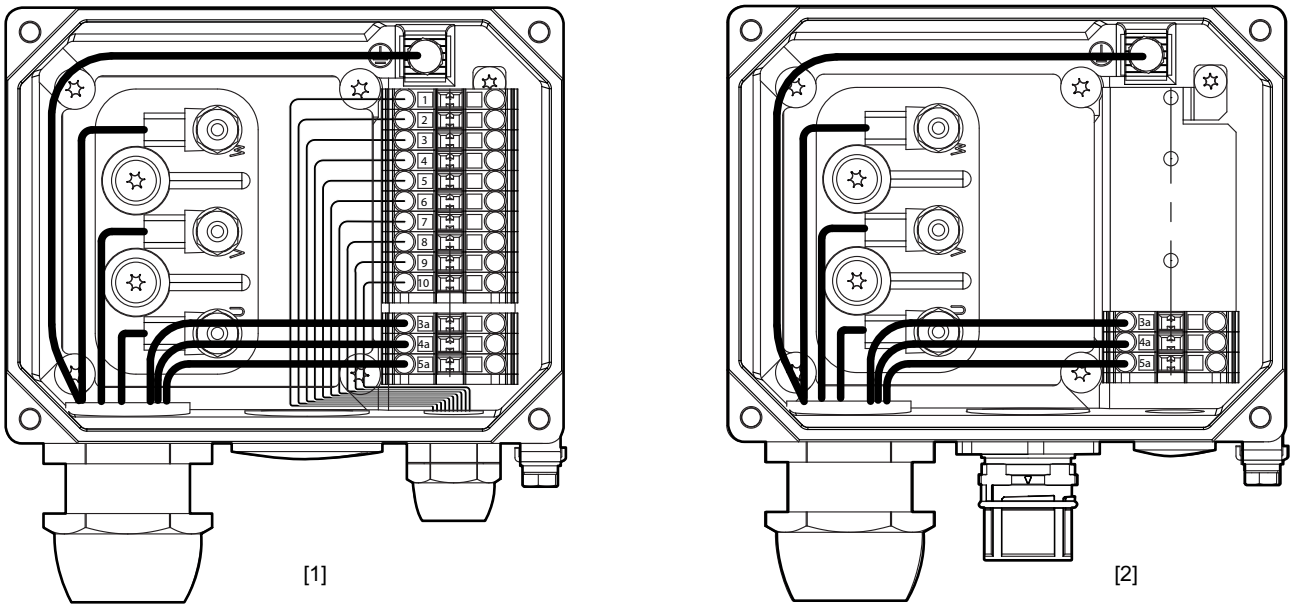
Possible damage to property.

- It is essential that you observe the correct polarity of BK brake 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	KTY + / (TF)	Motor protection	9	KTY + / (TF)	Motor protection
10	KTY - / (TF)		10	KTY - / (TF)	

5.6.3 Connecting CMSMB71



[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

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BP brake

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

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

Signal

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

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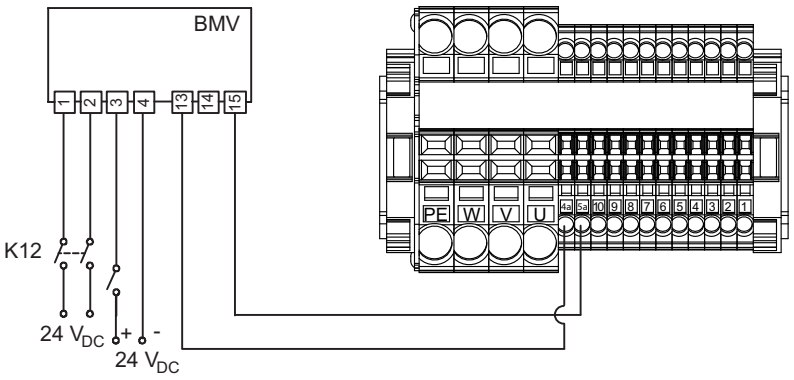
5.6.4 Wiring diagrams of the brake control for BP/BK brake

In every application, the BP/BK holding brake 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.

BMV brake control unit – CMSMB50/63



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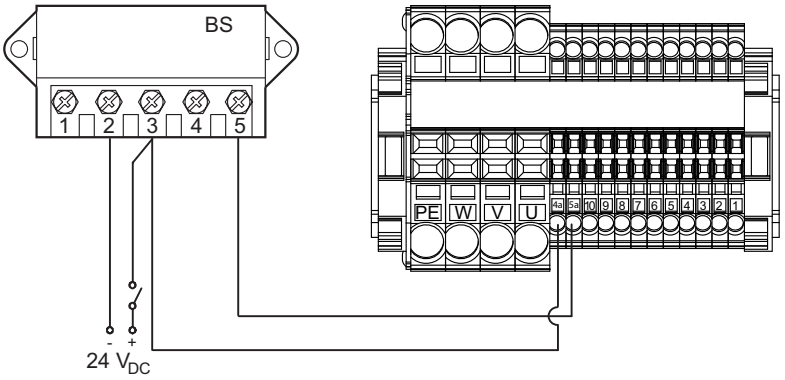
Connection 1, 2 Energy supply

Connection 3, 4 Signal (inverter)

BS braking contactor – CMSMB50/63



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5.7 Options

5.7.1 BP/BK/BS brake

The mechanical BP brake is a holding brake implemented as a spring-loaded brake. The BK and BS brakes are permanent magnet holding brakes, they are released electrically and are applied by the magnetic force of the permanent magnets. They differ from the BP brakes by the fixed coil polarity.

For further information, refer to chapter Technical Data (→ 🗎 51).

5.7.2 Thermal motor protection

NOTICE

Due to the low thermal time constants of the winding, thermal motor protection for CMS50 – CMP.71S motors is only possible when, in addition to a temperature sensor, a current monitoring device (I^2t, rms current monitoring) or a motor model for thermal protection, as installed in SEW servo systems, is activated.

Complete motor protection at full motor/electric cylinder capacity utilization is only ensured if the signals are evaluated by SEW-EURODRIVE inverters.

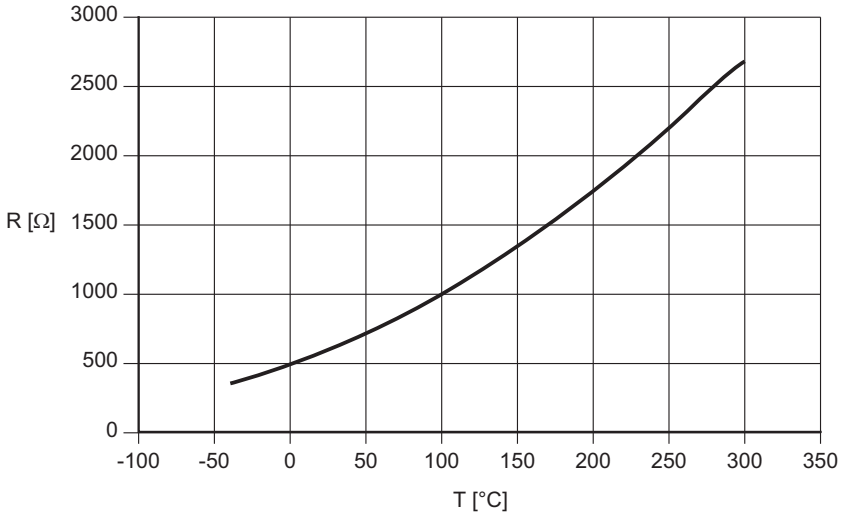
Temperature sensor KTY84 – 130

NOTICE

Possible damage to the temperature sensor and the motor winding

Use test currents < 3 mA in the circuit of the KTY sensor, since high self-heating of the temperature sensor can damage its insulation and the motor winding.

Typical characteristic curve of KTY:



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For detailed information on connecting the KTY sensor, refer to the contact assignments of resolver/encoder cables. Observe the correct polarity.

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TF temperature sensor

NOTICE

Too high input voltage at the temperature sensor input can damage the motor winding and the insulation of the sensor as well as the semiconductor.

Possible damage to property.

- Make sure that the TF evaluation unit is connected correctly.
- Do not connect a voltage > 10 V.

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

5.7.3 VR forced cooling fan

For the electric cylinder sizes CMS50, CMSB50/63/71, CMSMB50/63/71, the synchronous servomotors can be equipped with a VR forced cooling fan as an option.

Electrical connection

⚠ CAUTION

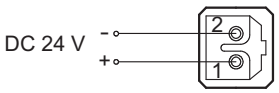
Starting up the fan before it is installed.

Risk of injury due to rotating parts.

- The fan may only be started up once it is installed.

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



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Connector contact	Connection
1	24 V +
2	0 V

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6 Startup

6.1 Important notes on startup

⚠ WARNING

Risk of injury due to electric shock.

Severe or fatal injuries.

- It is essential to comply with the safety notes in chapter 2 during installation!
- Use switch contacts in utilization category AC-3 according to EN 60947-4-1 for switching the motor and the brake.
- When motors are powered by inverters, you must adhere to the wiring instructions issued by the inverter manufacturer.
- Observe the operating instructions of the frequency inverter.

⚠ WARNING

With lifting applications, make sure that the holding torque $M_{4,\ 100\ °C}$ of the brake is bigger than the corresponding load torque of the application.

Severe or fatal injuries.

- Observe the project planning guidelines.
- The spindles that are used are not self-locking.
- See chapter "Possible maximum holding forces" (→ 🗎 104).

⚠ WARNING

The electric cylinders may not execute any safety functions without master safety systems.

Severe or fatal injuries.

- Use master safety systems to ensure that equipment and personnel are protected.

⚠ WARNING

Risk of crushing due to incorrect use, installation or operation leading to vertical movement of the spindle.

Severe or fatal injuries.

- Take measures to prevent inadvertent contact.

⚠ CAUTION

The electric cylinder can get very hot during operation.

Risk of burns.

- Never touch the electric cylinder during operation or in the cool down phase once it has been switched off.

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NOTICE

The rated speed (n_N) of the motor can be higher than the mechanically permitted speed (n_{pk}).

Possible damage to property.

- Limit the maximum speed at the servo inverter. For information on the procedure, refer to the documentation of the servo inverter.

NOTICE

With electric cylinders, the maximum limit torque (M_{pk}) and the maximum current (I_{max}) may not be exceeded, not even for acceleration.

Possible damage to property.

- Limit the maximum current/the maximum torque on the servo inverter.

6.2 Before startup

- The motors may only be operated in combination with frequency inverters.
- Before startup, frequency inverters must be configured using the MotionStudio software.
- A suitable frequency inverter is chosen during project planning. For further information on project planning, refer to the "Synchronous Servomotors" catalog.
- The drive must be undamaged and not blocked.
- All connections have to be made correctly.
- All protective covers have to be fitted correctly.
- All motor protection devices must be active.
- There must not be any other sources of danger.
- The motor surface must not be covered by heat-sensitive or insulating materials.
- When motors with BK brake are stored for more than 6 months, the function of the BK brake must be checked. We recommend a running-in routine (3 minutes running at 300 1/min, brake application 1-2 times per second).

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7 Inspection/maintenance

⚠ WARNING

Risk of crushing if the drive starts up unintentionally.

Severe or fatal injuries.

- De-energize the electric cylinder before you start working on the unit.
- Safeguard the electric cylinder against unintentional restart.

⚠ CAUTION

The electric cylinder can get very hot during operation.

Risk of burns.

- Never touch the electric cylinder during operation or in the cool down phase once it has been switched off.

NOTICE

Improper inspection/maintenance may result in damages to the electric cylinder.

Possible damage to property.

- Note the following information.

- Strictly observe the safety notes in the individual chapters.
- Components may be subject to mechanical loads. Before removing the electric cylinder, ensure that the structure provided by the customer is supported and secured.
- Before starting work, isolate the electric cylinder and brake from the power supply. Safeguard the electric cylinder against unintentional restart.
- Use only genuine spare parts in accordance with the valid spare parts list.

7.1 General maintenance work

The electric cylinder is maintenance-free except for the threaded spindles. Replace defective parts if possible.

Depending on the ambient conditions, remove any traces of dirt, chips, dust, etc. from the bellows (only CMS71L) with a soft cloth.

Mobile cables are subject to wear and must be checked for visible changes in regular intervals.

With CMSMB./AP with toothed belt, you have to replace the toothed belt in regular intervals.

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7.2 Lubrication of the threaded spindle CMS50/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 not recommended for planetary screw drives, which can require about 2-5 times more lubricant than recirculating ball screws.

7.2.1 General information

INFORMATION

The amount of lubricant filled into the electric cylinder accumulates inside the drive. Used lubricant must be removed from the inside of the motor after five years at the latest.

Service work must be performed by SEW-EURODRIVE service only. During service work, the spindle must be removed from the unit and the old lubricant removed from the spindle's surface.

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7.2.2 Size CMS50

A taper greasing nipple DIN 71412 [1] for manual relubrication with a grease gun is installed as standard on the spindle nut in the inside of the motor. The grease nipple is accessible via screw plugs [1]. In order to reach it, slowly move the drive until the grease nipple is visible.

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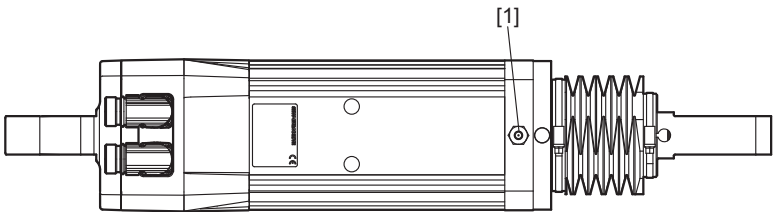
7.2.3 Size CMS71

A taper greasing nipple DIN 71412 [1] for manual relubrication with a grease gun is installed as standard on the motor.



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7.3 Lubricant for recirculating ball screws and planetary roller screw drives for CMS50 and CMS71

CMS.. electric cylinders are filled with the lubricant Fuchs RENOLIT CX-TOM15 as standard.

Instead, you can order the CMS50/71 motor with food-grade lubricant OBEEN FS 2 from Castrol.

INFORMATION

Only the following lubricants may be used for relubricating the electric cylinders:

- Standard: Fuchs RENOLIT CX-TOM15
- Food grade: Castrol OBEEN FS 2

The lubricant Fuchs Renolit CX-TOM15 is available as 400 g cartridge (DIN 1284) from SEW-EURODRIVE under part no. 03207196.

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The cartridge is suitable for grease guns in line with DIN 1283 with connection piece for DIN 71412 taper greasing nipples.

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7.4 Relubrication interval

NOTICE

Improper relubrication may result in damages to the electric cylinder.

Possible damage to property.

- Observe the following notes.

- The relubrication intervals must be determined individually depending on the load and cycle times. The following information only applies to the application examples described.
- The drive must generally be relubricated once a year.
- The following information only applies to the application examples described.
- Always use the appropriate amount of lubricant for the individual application.
- If insufficient lubricant is applied, the lubricant film is disrupted and the service life thereby reduced.
- Excessive lubrication increases friction and results in heat generation.
- When relubricating the drive, always pay attention to cleanliness.
- There should be no dirt in the lubricant.
- Wipe the grease nipple with a cloth before applying the grease gun.
- Make sure there is no trapped air in the lubricant or lubricant supply lines.

7.4.1 CMS50S with ball screw (KGT)

Example

CMS50S, 5 mm/spindle pitch revolution

- 0.15 m travel distance
- Mean travel speed 0.15 m/s
- 1300 N load

Relubrication

Relubrication quantity 1 cm^3

- After a travel distance of 200 km

  or

- 20 million revolutions of the threaded spindle nut

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7.4.2 CMS71L with ball screw (KGT)

Example

CMS71L, 10 mm / spindle pitch revolution

- 0.2 m travel distance
- Mean travel speed 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 distance of 250 km

  or
- 25 million revolutions of the threaded spindle nut

7.4.3 CMS71L with planetary roller screw drive (PGT)

Example

CMS71L, 5 mm / spindle pitch revolution

- 0.2 m travel distance
- Mean travel speed 0.2 m/s
- 4000 N load

continuous relubrication

2 cm^3/100 km = 0.02 cm^3/1 km

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7.5 Lubricator – only for CMS71

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

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 rod. The Control lubrication system is connected to a customer control device via a cable (length 5 m, included in the delivery).

The threaded elbow joints are mounted, filled with lubricant and vented by default.

The time between lubrications is set to one year at the production plant and is sufficient for normal applications.

For cases with high annual operating time, e.g. 24 operating hours per day or an operational performance of > 2 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.

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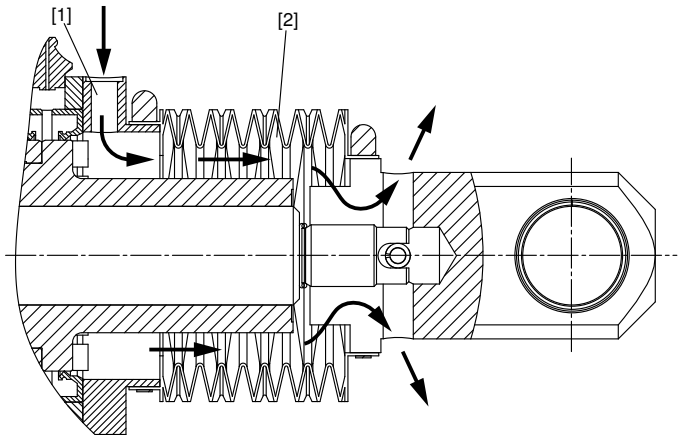
7.6 Sealing air

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 be used in dusty environments in particular.

In this case, 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 ($V_{Sealingair}$) that is required depends on the travel speed (v) of the threaded spindle.

$V_{sealing\ air} \geq 300\ v$	Volume flow $V_{Sealingair}$ in liter/min
	Travel speed v 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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7.7 Filter ventilation CMS71

If the electric cylinder CMS71 is used in dusty environments, you must make sure that no dust is sucked in through the venting [4] of the bellows in the joint during the lifting motion.

There are two possibilities to do so:

- Sealing air
- Filter ventilation (no compressed air required)

INFORMATION

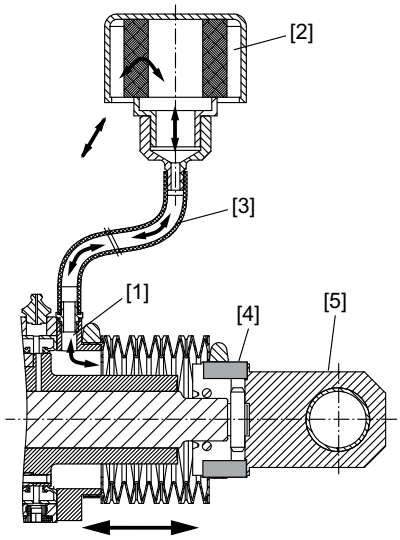
The filter ventilation is not included in the SEW-EURODRIVE delivery.

For this purpose, 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]. Max. hose length 1 m, inner diameter > 9 mm.

SEW recommends a type L1.0807-11 filter from Argo-Hythos http://www.argo-hytos.com. 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 default venting via the joint must be sealed. The sealed joint can be ordered under "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
[2] Filter
[3] Hose
[4] Sealing element
[5] Joint

7.8 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 are based on the following parameters:

- Temperature of cooling liquid inlet 25 °C

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- Temperature increase at cooling liquid outlet about 5 °C
- Flow rate: 2 l/min for CMSB50, CMSMB50
- Flow rate: 4 l/min for CMSB63/70, CMSMB63/70

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
- Frost protection, if necessary

The components through which the cooling liquid flows are corrosion-protected. The cooling liquid must not contain any chemically aggressive additives; contact SEW-EURODRIVE if necessary.

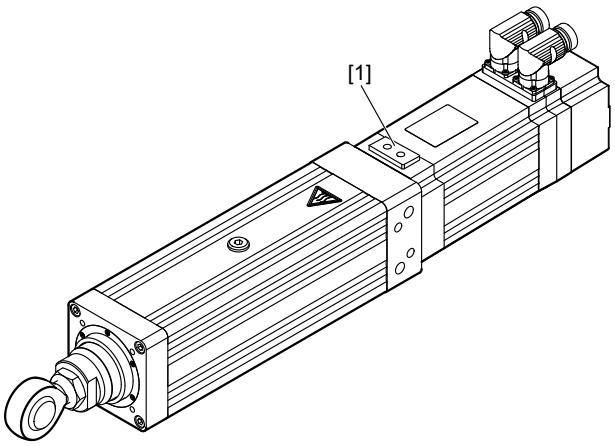
7.8.1 Liquid cooling at CMSB50, CMSMB50 (in preparation)

The CMSB50, CMSMB50 can optionally be equipped with a connection option for liquid cooling.

Inlet and outlet connection for cooling liquid can be exchanged.

CMSB50 (similar to CMSMB50/ACH, ACA)

In this case, a cooling option is provided between motor and linear unit in the coupling housing.



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

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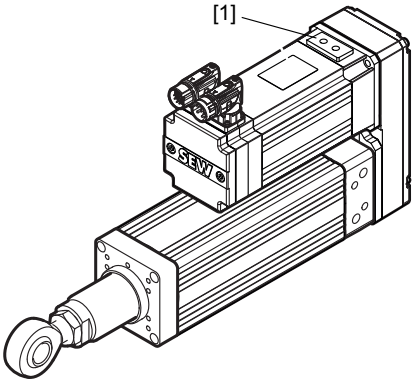
CMSMB50/AP

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



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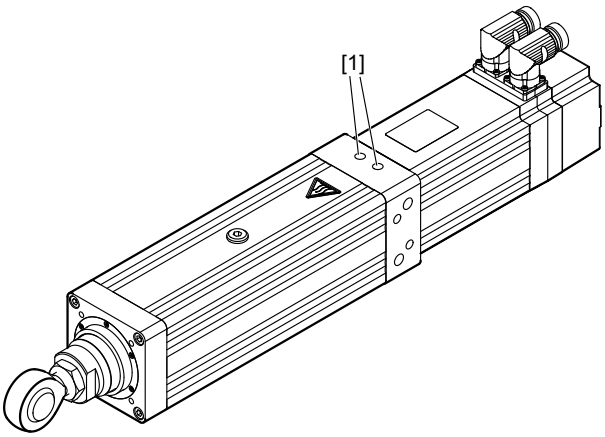
[1] Cooling liquid connection 2x G1/8; 8 mm deep (flange seal and screw fitting supplied by the customer)

7.8.2 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 2x G1/8 (flange seal and screw fitting supplied by the customer)

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7.9 Oil bath lubrication of CMSB50/63/71, CMSMB50/63/71

The CMSB50/63/71, CMSMB50/63/71 electric cylinders are equipped with an oil bath lubrication with little maintenance requirements. The only required maintenance measure is a regular visual check for leaks. The oil need not be changed in usual applications.

An oil change might make sense for applications with the following higher requirements:

- Travel cycles with a cyclic duration factor > 60% and an operational performance of > 1 km/hour.
- Working strokes < 10 mm with stroke frequencies > 5 Hz
- Expected service life > 10 000 hours of nominal operation

Please contact SEW-EURODRIVE in such cases.

The CMSB50/63/71, CMSMB50/63/71 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 CMSB50/63/71, CMSMB50/63/71 with food-grade Castrol OPTIMOL OPTILEB GT from SEW-EURODRIVE.

7.10 Size CMSB50/63/71 and CMSMB50/63/71 with oil bath lubrication

INFORMATION

The oil screw plug of the electric cylinder must not be opened.

The sealing system and the components have been developed and tested to complement each other. Observe the following notes in order not to reduce the service life:

- Do not paint the piston rod
- Do not expose the piston rod to potential damage resulting from hard components
- Protect the piston rod from clinging foreign substances (e.g. cleaning agent, sweat)
- Make sure that the joints are free to move
- Visually check for any leakages regularly, at least every other week

7.10.1 Replacement interval of wearing parts

The drive reaches the end of its service life after 10 000 hours of nominal operation. A general overhaul and refit of the drive is not recommended.

Electric cylinders	Replacement intervals of the components	
CMSB50/63/71, CMSMB50/63/71	Threaded spindle	Not necessary
	A- and B-side bearing	Not necessary
	Gasket	Not necessary
CMSMB50/63/71/AP	Toothed belt	7.5 million double strokes

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7.11 Size CMS50 and CMS71 with grease lubrication

The drive reaches the end of its service life after 10 000 hours of nominal operation. A general overhaul and refit of the drive is not recommended.

Replacement intervals of the components	
Threaded spindle	Not necessary
A- and B-side bearing	Not necessary
Oil seals	After half of the service life (5000 hours)[1)]
Plain bearing bush	Customer side[1)]
Bellows	After half of the service life (5000 hours)[1)]

1) only for CMS71L

7.12 Service life

An estimated service life of the electric cylinders of 10 000 operating hours can be achieved based on the loads listed in the following table:

CMS type		Mean speed min^{-1}	eff. Force	Operational performance km
CMS50	KGT 15x5	400	1200	280
CMSB50	KGT 20x5	1000	1300	4500
CMSB63	KGT 25x6	1000	2400	4500
CMSB63	PGT 20x5	1000	2800	1400
CMS71	KGT 32x6	400	3600	1400
CMS71	KGT 32x6	400	6700	170
CMS71	KGT 32x10	400	3600	2400
CMS71	PGT 24x5	400	7200	100
CMSB71	KGT 32x6	1000	5000	2100

The following conditions apply:

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

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8 Technical data

8.1 Key to the data tables

n_N	Rated speed
n_{pk}	Maximum mechanically permitted speed
M_0	Standstill torque (thermal continuous torque at a speed of 5 to 50 1/min)
M_{0VR}	Standstill torque (thermal continuous torque at a speed of 5 to 50 1/min) with forced cooling fan
I_0	Standstill current
I_{0VR}	Standstill current with forced cooling fan
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
$J_{addition}$	Additional mass moment of inertia without brake[2)]
$J_{baddition}$	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 min^{-1}
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)]
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 motor and spindle

2) for project planning with SEW Workbench

3) Depending on max. inverter current, dynamic or static load of spindle; please contact SEW-EURODRIVE prior to project planning with maximum force.

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8.2 General features

Design	
Thermal class	F (155 °C)
Ambient temperature	-20 °C to +40 °C[1)]
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

1) CMS71 with brake -5°C – 40°C

8.3 CMS50

8.3.1 Features

The table below shows the features.

Design	Standard	Optional
Degree of protection	IP65	
Motor protection	KTY	
Mounting position	any	
Cooling	Natural convection	VR forced cooling fan
Lubrication	Via housing bore, with taper greasing nipple DIN 71412-A	Food grade lubricant
Spindle protection	Smooth piston rod with sealing system	

8.3.2 Technical data

INFORMATION

Stroke length 300 mm → n_{pk} = 2500 min^{-1} (max. mechanical speed)

Stroke length 70 and 150 mm → n_{pk} = 4500 min^{-1} (max. mechanical speed)

The following tables show the technical data.

CMS50S

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 15x5	3000	70	1.3	0.96	5.2	5.1	0.54	0.6	0.12	4.3	71	22.49	86	1.2	5.3	5.8	6.4
		150					0.56	0.62	0.14							6.5	7.1
		300					0.61	0.67	0.19							7.8	8.4
	4500	70	1.3	1.32	5.2	7.0	0.54	0.6	0.12	4.3	37	11.61	62	1.2	5.3	5.8	6.4
		150					0.56	0.62	0.14							6.5	7.1
		300					0.61	0.67	0.19							7.8	8.4
	6000	70	1.3	1.7	5.2	9.0	0.54	0.6	0.12	4.3	22.5	7.11	48.5	1.2	5.3	5.8	6.4
		150					0.56	0.62	0.14							6.5	7.1
		300					0.61	0.67	0.19							7.8	8.4

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CMS50M

NOTICE

Take into account the maximum permitted torque M_{pk}.

A current limiting is required on the frequency inverter.

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 15x5	3000	70	2.4	1.68	5.2[1] (10.3)[2]	3.6[3] (9.6)[2]	0.79	0.85	0.12	4.3	38.5	9.96	90	2.2	5.3	6.8	7.4
		150					0.81	0.87	0.14							7.5	8.1
		300					0.86	0.92	0.19							8.8	9.4
	4500	70	2.4	2.3	5.21) (10.3)2)	5.03) (13.1)2)	0.79	0.85	0.12	4.3	20.5	5.28	66	2.2	5.3	6.8	7.4
		150					0.81	0.87	0.14							7.5	8.1
		300					0.86	0.92	0.19							8.8	9.4
	6000	70	2.4	3.0	5.21) (10.3)2)	6.53) (17.1)[2]	0.79	0.85	0.12	4.3	12.0	3.21	50.5	2.2	5.3	6.8	7.4
		150					0.81	0.87	0.14							7.5	8.1
		300					0.86	0.92	0.19							8.8	9.4

1) Maximum permitted torque

2) Standard motor values

3) Maximum permitted current

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8.4 CMSB50, CSMB50

8.4.1 Features

The table below shows the features.

Design	Standard	Optional
Degree of protection	IP65	
Motor protection	KTY	
Mounting position	M0	
Cooling	Natural convection	VR forced cooling fan/liquid cooling
Lubrication	Oil bath lubrication	Food grade lubricant
Spindle protection	Smooth piston rod with sealing system	

8.4.2 Technical data

INFORMATION

Stroke length 70, 100, 150, 200, 300, 400 and 600 mm → n_{epk} = 4500 min^{-1} (max. mechanical speed)

NOTICE

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

A current limiting is required on the frequency inverter.

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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								
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								

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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	kgcm²		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
KGT 20x5	6000	70	1.2	1.5	5.2	9.0	1.78 1.89	1.36	2.4	22.5	7.1	48.5	1.1	5.3	7.0	7.4
		100	1.2	1.5	5.2	9.0	1.81 1.92	1.39	2.4	22.5	7.1	48.5	1.1	5.3	7.3	7.7
		150	1.2	1.5	5.2	9.0	1.85 1.96	1.43	2.4	22.5	7.1	48.5	1.1	5.3	7.9	8.3
		200	1.2	1.5	5.2	9.0	1.90 2.01	1.48	2.4	22.5	7.1	48.5	1.1	5.3	8.4	8.8
		300	1.2	1.5	5.2	9.0	1.98 2.09	1.56	2.4	22.5	7.1	48.5	1.1	5.3	9.5	9.9
		400	1.2	1.5	5.2	9.0	2.09 2.20	1.67	2.4	22.5	7.1	48.5	1.1	5.3	11.2	11.6
		600	1.2	1.5	5.2	9.0	2.26 2.37	1.84	2.4	22.5	7.1	48.5	1.1	5.3	13.3	13.7

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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_{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	kgcm²		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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	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	1.5	7.0	13.3	13.7
KGT 20x5	6000	70	1.2	1.5	5.2	9.0	1.78 1.89	1.36	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	1.81 1.92	1.39	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	1.85 1.96	1.43	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	1.90 2.01	1.48	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	1.98 2.09	1.56	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	2.09 2.20	1.67	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	2.26 2.37	1.84	2.4	22.5	7.1	48.5	1.5	7.0	13.3	13.7

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CMSB50M

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	2.5	1.75	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	2.5	1.75	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	2.5	1.75	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	2.5	1.75	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	2.5	1.75	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	2.5	1.75	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	1.75	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	2.5	2.2	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	2.5	2.2	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	2.5	2.2	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	2.5	2.2	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	2.5	2.2	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	2.5	2.2	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	2.5	2.2	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	2.5	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	2.5	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	2.5	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	2.5	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	2.5	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	2.5	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	2.5	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) Standard motor values

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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_{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	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) Standard motor values

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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_{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	2.3	1.6	5.7 [1]	4.2 [2]	2.03	1.36	2.4	38.5	10.0	90.3	2.8	8.0	8	8.4
					10.3 [3]	9.6 [3]	2.14									
		100	2.3	1.6	5.7 [1]	4.2 [2]	2.06	1.39	2.4	38.5	10.0	90.3	2.8	8.0	8.3	8.7
					10.3 [3]	9.6 [3]	2.17									
		150	2.3	1.6	5.7 [1]	4.2 [2]	2.10	1.43	2.4	38.5	10.0	90.3	2.8	8.0	8.9	9.3
					10.3 [3]	9.6 [3]	2.21									
		200	2.3	1.6	5.7 [1]	4.2 [2]	2.15	1.48	2.4	38.5	10.0	90.3	2.8	8.0	9.4	9.8
					10.3 [3]	9.6 [3]	2.26									
		300	2.3	1.6	5.7 [1]	4.2 [2]	2.23	1.56	2.4	38.5	10.0	90.3	2.8	8.0	10.5	10.9
					10.3 [3]	9.6 [3]	2.34									
		400	2.3	1.6	5.7 [1]	4.2 [2]	2.34	1.67	2.4	38.5	10.0	90.3	2.8	8.0	12.2	12.9
					10.3 [3]	9.6 [3]	2.45									
		600	2.3	1.6	5.7 [1]	4.2 [2]	2.51	1.84	2.4	38.5	10.0	90.3	2.8	8.0	14.3	14.7
					10.3 [3]	9.6 [3]	2.62									
KGT 20x5	4500	70	2.3	2.1	5.7 [1]	5.8 [2]	2.03	1.36	2.4	20.5	5.3	66.3	2.8	8.0	8	8.4
					10.3 [3]	13.1 [3]	2.14									
		100	2.3	2.1	5.7 [1]	5.8 [2]	2.06	1.39	2.4	20.5	5.3	66.3	2.8	8.0	8.3	8.7
					10.3 [3]	13.1 [3]	2.17									
		150	2.3	2.1	5.7 [1]	5.8 [2]	2.10	1.43	2.4	20.5	5.3	66.3	2.8	8.0	8.9	9.3
					10.3 [3]	13.1 [3]	2.21									
		200	2.3	2.1	5.7 [1]	5.8 [2]	2.15	1.48	2.4	20.5	5.3	66.3	2.8	8.0	9.4	9.8
					10.3 [3]	13.1 [3]	2.26									
		300	2.3	2.1	5.7 [1]	5.8 [2]	2.23	1.56	2.4	20.5	5.3	66.3	2.8	8.0	10.5	10.9
					10.3 [3]	13.1 [3]	2.34									
		400	2.3	2.1	5.7 [1]	5.8 [2]	2.34	1.67	2.4	20.5	5.3	66.3	2.8	8.0	12.2	12.9
					10.3 [3]	13.1 [3]	2.45									
		600	2.3	2.1	5.7 [1]	5.8 [2]	2.51	1.84	2.4	20.5	5.3	66.3	2.8	8.0	14.3	14.7
					10.3 [3]	13.1 [3]	2.62									
	6000	70	2.3	2.8	5.7 [1]	7.6 [2]	2.03	1.36	2.4	12.0	3.2	50.5	2.8	8.0	8	8.4
					10.3 [3]	17.1 [3]	2.14									
KGT 20x5	6000	100	2.3	2.8	5.7 [1]	7.6 [2]	2.06	1.39	2.4	12.0	3.2	50.5	2.8	8.0	8.3	8.7
					10.3 [3]	17.1 [3]	2.17									
		150	2.3	2.8	5.7 [1]	7.6 [2]	2.10	1.43	2.4	12.0	3.2	50.5	2.8	8.0	8.9	9.3
					10.3 [3]	17.1 [3]	2.21									
		200	2.3	2.8	5.7 [1]	7.6 [2]	2.15	1.48	2.4	12.0	3.2	50.5	2.8	8.0	9.4	9.8
					10.3 [3]	17.1 [3]	2.26									
		300	2.3	2.8	5.7 [1]	7.6 [2]	2.23	1.56	2.4	12.0	3.2	50.5	2.8	8.0	10.5	10.9
					10.3 [3]	17.1 [3]	2.34									
		400	2.3	2.8	5.7 [1]	7.6 [2]	2.34	1.67	2.4	12.0	3.2	50.5	2.8	8.0	12.2	12.9
					10.3 [3]	17.1 [3]	2.45									
		600	2.3	2.8	5.7 [1]	7.6 [2]	2.51	1.84	2.4	12.0	3.2	50.5	2.8	8.0	14.3	14.7
					10.3 [3]	17.1 [3]	2.62									

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

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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	3000	70	3.5	2.25	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	3.5	2.25	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	3.5	2.25	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	3.5	2.25	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	3.5	2.25	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	3.5	2.25	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	3.5	2.25	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	3.5	3.3	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	3.5	3.3	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	3.5	3.3	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	3.5	3.3	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	3.5	3.3	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	3.5	3.3	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	3.5	3.3	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	3.5	4.3	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	3.5	4.3	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	3.5	4.3	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	3.5	4.3	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	3.5	4.3	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	3.5	4.3	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	3.5	4.3	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) Standard motor values

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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_{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	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) Standard motor values

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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_{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	2.6	1.7	5.7 [1]	3.8 [2]	2.28	1.36	3.9	30.5	7.4	98.3	3.6	8.0	8.8	9.3
					15.4 [3]	13.6 [3]	2.69									
		100	2.6	1.7	5.7 [1]	3.8 [2]	2.31	1.39	3.9	30.5	7.4	98.3	3.6	8.0	9.1	9.6
					15.4 [3]	13.6 [3]	2.72									
		150	2.6	1.7	5.7 [1]	3.8 [2]	2.35	1.43	3.9	30.5	7.4	98.3	3.6	8.0	9.7	10.2
					15.4 [3]	13.6 [3]	2.76									
		200	2.6	1.7	5.7 [1]	3.8 [2]	2.40	1.48	3.9	30.5	7.4	98.3	3.6	8.0	10.2	10.7
					15.4 [3]	13.6 [3]	2.81									
		300	2.6	1.7	5.7 [1]	3.8 [2]	2.48	1.56	3.9	30.5	7.4	98.3	3.6	8.0	11.3	11.8
					15.4 [3]	13.6 [3]	2.89									
		400	2.6	1.7	5.7 [1]	3.8 [2]	2.59	1.67	3.9	30.5	7.4	98.3	3.6	8.0	13	13.5
					15.4 [3]	13.6 [3]	3.00									
		600	2.6	1.7	5.7 [1]	3.8 [2]	2.76	1.84	3.9	30.5	7.4	98.3	3.6	8.0	15.1	15.6
					15.4 [3]	13.6 [3]	3.17									
KGT 20x5	4500	70	2.6	2.4	5.7 [1]	5.5 [2]	2.28	1.36	3.9	14.6	3.6	68	3.6	8.0	8.8	9.3
					15.4 [3]	19.5 [3]	2.69									
		100	2.6	2.4	5.7 [1]	5.5 [2]	2.31	1.39	3.9	14.6	3.6	68	3.6	8.0	9.1	9.6
					15.4 [3]	19.5 [3]	2.72									
		150	2.6	2.4	5.7 [1]	5.5 [2]	2.35	1.43	3.9	14.6	3.6	68	3.6	8.0	9.7	10.2
					15.4 [3]	19.5 [3]	2.76									
		200	2.6	2.4	5.7 [1]	5.5 [2]	2.40	1.48	3.9	14.6	3.6	68	3.6	8.0	10.2	10.7
					15.4 [3]	19.5 [3]	2.81									
		300	2.6	2.4	5.7 [1]	5.5 [2]	2.48	1.56	3.9	14.6	3.6	68	3.6	8.0	11.3	11.8
					15.4 [3]	19.5 [3]	2.89									
		400	2.6	2.4	5.7 [1]	5.5 [2]	2.59	1.67	3.9	14.6	3.6	68	3.6	8.0	13	13.5
					15.4 [3]	19.5 [3]	3.00									
		600	2.6	2.4	5.7 [1]	5.5 [2]	2.76	1.84	3.9	14.6	3.6	68	3.6	8.0	15.1	15.6
					15.4 [3]	19.5 [3]	3.17									
KGT 20x5	6000	70	2.6	3.2	5.7 [1]	7.3 [2]	2.28	1.36	3.9	8.2	1.9	51	3.6	8.0	8.8	9.3
					15.4 [3]	26.0 [3]	2.69									
		100	2.6	3.2	5.7 [1]	7.3 [2]	2.31	1.39	3.9	8.2	1.9	51	3.6	8.0	9.1	9.6
					15.4 [3]	26.0 [3]	2.72									
		150	2.6	3.2	5.7 [1]	7.3 [2]	2.35	1.43	3.9	8.2	1.9	51	3.6	8.0	9.7	10.2
					15.4 [3]	26.0 [3]	2.76									
		200	2.6	3.2	5.7 [1]	7.3 [2]	2.40	1.48	3.9	8.2	1.9	51	3.6	8.0	10.2	10.7
					15.4 [3]	26.0 [3]	2.81									
		300	2.6	3.2	5.7 [1]	7.3 [2]	2.48	1.56	3.9	8.2	1.9	51	3.6	8.0	11.3	11.8
					15.4 [3]	26.0 [3]	2.89									
		400	2.6	3.2	5.7 [1]	7.3 [2]	2.59	1.67	3.9	8.2	1.9	51	3.6	8.0	13	13.5
					15.4 [3]	26.0 [3]	3.00									
		600	2.6	3.2	5.7 [1]	7.3 [2]	2.76	1.84	3.9	8.2	1.9	51	3.6	8.0	15.1	15.6
					15.4 [3]	26.0 [3]	3.17									

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

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8.5 CMSB63, CMSMB63

8.5.1 Features

The table below shows the features.

Design	Standard	Optional
Degree of protection	IP65	
Motor protection	KTY	
Mounting position	M0	
Cooling	Natural convection/water cooling	VR forced cooling fan
Lubrication	Oil bath lubrication	Food grade lubricant
Spindle protection	Smooth piston rod with sealing system	

8.5.2 Technical data

INFORMATION

Stroke length 60, 100, 160, 180, 200, 400 und 600 mm → n_{pk} = 4500 min^{-1} (max. mechanical speed)

NOTICE

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

A current limiting is required on the frequency inverter.

CMSB63S

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 25x6	3000	100	2.9	2.15	11.1	12.9	1.92	2.26	0.77	9.3	36.5	6.79	90	2.4	10	9.5	10.5
		200					2.24	2.58	1.09							11	12
		400					2.64	2.98	1.49							15	16
		600					3.1	3.44	1.95							18	19
	4500	100	2.9	3.05	11.1	18.3	1.92	2.26	0.77	9.3	18.3	3.34	64	2.4	10	9.5	10.5
		200					2.24	2.58	1.09							11	12
		400					2.64	2.98	1.49							15	16
		600					3.1	3.44	1.95							18	19
	6000	100	2.9	3.9	11.1	23.4	1.92	2.26	0.77	9.3	11.2	2.1	50	2.4	10	9.5	10.5
		200					2.24	2.58	1.09							11	12
		400					2.64	2.98	1.49							15	16
		600					3.1	3.44	1.95							18	19
PGT 20x5	3000	100	2.9	2.15	11.1	12.9	1.69	2.03	0.54	9.3	36.5	6.79	90	2.8	10	9.5	10.5
		200					1.81	2.15	0.66							11	12
	4500	100		3.05		18.3	1.69	2.03	0.54		18.3	3.34	64			9.5	10.5
		200					1.81	2.15	0.66							11	12
	6000	100		3.9		23.4	1.69	2.03	0.54		11.2	2.1	50			9.5	10.5
		200					1.81	2.15	0.66							11	12

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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_{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 25x6	3000	100	2.9	2.15	11.1	12.9	4.47	4.81	3.32	9.3	36.5	6.79	90	2.1	10	12.2	13.2
		160					4.64	4.95	3.46							13.1	14.1
		180					4.66	5.00	3.51							13.6	14.6
		200					4.70	5.04	3.55							14.4	15.4
		400					5.19	5.53	4.04							18.0	19.0
		600					5.65	5.99	4.50							21.3	22.3
KGT 25x6	4500	100	2.9	3.05	11.1	18.3	4.47	4.81	3.32	9.3	18.3	3.34	64	2.1	10	12.2	13.2
		160					4.64	4.95	3.46							13.1	14.1
		180					4.66	5.00	3.51							13.6	14.6
		200					4.70	5.04	3.55							14.4	15.4
		400					5.19	5.53	4.04							18.0	19.0
		600					5.65	5.99	4.50							21.3	22.3
KGT 25x6	6000	100	2.9	3.9	11.1	23.4	4.47	4.81	3.32	9.3	11.2	2.1	50	2.1	10	12.2	13.2
		160					4.64	4.95	3.46							13.1	14.1
		180					4.66	5.00	3.51							13.6	14.6
		200					4.70	5.04	3.55							14.4	15.4
		400					5.19	5.53	4.04							18.0	19.0
		600					5.65	5.99	4.50							21.3	22.3

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

Spin-dle	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	kgcm²			Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	100	2.9	2.15	6.8[1] (11.1)[2]	5.8[3] (12.9)[2]	4.04	4.38	2.89	9.3	36.5	6.79	90	3.4	10	12.2	13.2
		160					4.21	4.55	3.06							13.1	14.1
		180					4.27	4.61	3.12							13.6	14.6
		200					4.33	4.67	3.18							14.4	15.4
		400					4.93	5.27	3.78							18.0	19.0
		600					5.50	5.84	4.35							21.3	22.3
KGT 25x6	4500	100	2.9	3.05	6.8[1] (11.1)[2]	8.2[3] (18.3)[2]	4.04	4.38	2.89	9.3	18.3	3.34	64	3.4	10	12.2	13.2
		160					4.21	4.55	3.06							13.1	14.1
		180					4.27	4.61	3.12							13.6	14.6
		200					4.33	4.67	3.18							14.4	15.4
		400					4.93	5.27	3.78							18.0	19.0
		600					5.50	5.84	4.35							21.3	22.3
KGT 25x6	6000	100	2.9	3.9	6.8[1] (11.1)[2]	10.5[3] (23.4)[2]	4.04	4.38	2.89	9.3	11.2	2.1	50	3.4	10	12.2	13.2
		160					4.21	4.55	3.06							13.1	14.1
		180					4.27	4.61	3.12							13.6	14.6
		200					4.33	4.67	3.18							14.4	15.4
		400					4.93	5.27	3.78							18.0	19.0
		600					5.50	5.84	4.35							21.3	22.3

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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CMSB63M

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 25x6	3000	100	5.3	3.6	11.1[1] (21.4)[2]	7.9[3] (21.6)[2]	2.69	3.03	0.77	9.3	22	3.56	100	4.1	10	11	12
		200					3.01	3.35	1.09							12.5	13.5
		400					3.41	3.75	1.49							16.5	17.5
		600					3.87	4.21	1.95							19.5	20.5
	4500	100	5.3	5.4		11.9[3] (32.4)[2]	2.69	3.03	0.77	9.3	9.8	1.48	67	4.1	10	11	12
		200					3.01	3.35	1.09							12.5	13.5
		400					3.41	3.75	1.49							16.5	17.5
		600					3.87	4.21	1.95							19.5	20.5
	6000	100	5.3	6.9		15.2[3] (41.4)[2]	2.69	3.03	0.77	9.3	5.9	0.92	52	4.1	10	11	12
		200					3.01	3.35	1.09							12.5	13.5
		400					3.41	3.75	1.49							16.5	17.5
		600					3.87	4.21	1.95							19.5	20.5
PGT 20x5	3000	100	5.3	3.6	11.1[1] (21.4)[2]	7.9[3] (21.6)[2]	2.46	2.8	0.54	9.3	22	3.56	100	5.2	10	11	12
		200					2.58	2.92	0.66							12.5	13.5
	4500	100	5.3	5.4		11.9[3] (32.4)[2]	2.46	2.8	0.54		9.8	1.48	67			11	12
		200					2.58	2.92	0.66							12.5	13.5
	6000	100	5.3	6.9		15.2[3] (41.4)[2]	2.46	2.8	0.54		5.9	0.92	52			11	12
		200					2.58	2.92	0.66							12.5	13.5

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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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_{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	kgcm²			Nm	mH	Ω	V	kN		kg	
KGT 25x6	3000	100	5.3	3.6	11.1[1] (21.4)[2]	7.9[3] (21.6)[2]	5.24	5.58	3.32	9.3	22	3.56	100	3.5		13.9	14.9
		160					5.38	5.72	3.42							14.8	15.8
		180					5.43	5.77	3.51							15.3	16.3
		200					5.47	5.81	3.55							16.1	17.1
		400					5.96	6.30	4.04							19.7	20.7
		600					6.42	6.76	4.50							23.0	24.0
KGT 25x6	4500	100	5.3	5.4	11.1[1] (21.4)[2]	11.9[3] (32.4)[2]	5.24	5.58	3.32	9.3	9.8	1.48	67	3.5	10	13.9	14.9
		160					5.38	5.72	3.42							14.8	15.8
		180					5.43	5.77	3.51							15.3	16.3
		200					5.47	5.81	3.55							16.1	17.1
		400					5.96	6.30	4.04							19.7	20.7
		600					6.42	6.76	4.50							23.0	24.0
KGT 25x6	6000	100	5.3	6.9	11.1[1] (21.4)[2]	15.2[3] (41.4)[2]	5.24	5.58	3.32	9.3	5.9	3.56	52	3.5	10	13.9	14.9
		160					5.38	5.72	3.42							14.8	15.8
		180					5.43	5.77	3.51							15.3	16.3
		200					5.47	5.81	3.55							16.1	17.1
		400					5.96	6.30	4.04							19.7	20.7
		600					6.42	6.76	4.50							23.0	24.0

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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

Spin-dle	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 25x6	3000	100	5.3	3.6	6.8 [1) 2)] (21.4) [2)]	4.7 [3)] (21.6) [2)]	4.81	5.15	2.89	9.3	22	3.56	100	5.7	10	13.9	14.9
		160	5.3	3.6			4.98	5.32	3.06							14.8	15.8
		180	5.3	3.6			5.04	5.38	3.12							15.3	16.3
		200	5.3	3.6			5.10	5.44	3.18							16.1	17.1
		400	5.3	3.6			5.70	6.04	3.78							19.7	20.7
		600	5.3	3.6			6.27	6.61	4.35							23.0	24.0
KGT 25x6	4500	100	5.3	5.4	6.8 [1)] (21.4) [2)]	7.0 [3)] (32.4) [2)]	4.81	5.15	2.89	9.3	9.8	1.48	67	5.7	10	13.9	14.9
		160	5.3	5.4			4.98	5.32	3.06							14.8	15.8
		180	5.3	5.4			5.04	5.38	3.12							15.3	16.3
		200	5.3	5.4			5.10	5.44	3.18							16.1	17.1
		400	5.3	5.4			5.70	6.04	3.78							19.7	20.7
		600	5.3	5.4			6.27	6.61	4.35							23.0	24.0
KGT 25x6	6000	100	5.3	6.9	6.8 [1)] (21.4) [2)]	9.0 [3)] (41.4) [2)]	4.81	5.15	2.89	9.3	5.9	3.56	52	5.7	10	13.9	14.9
		160	5.3	6.9			4.98	5.32	3.06							14.8	15.8
		180	5.3	6.9			5.04	5.38	3.12							15.3	16.3
		200	5.3	6.9			5.10	5.44	3.18							16.1	17.1
		400	5.3	6.9			5.70	6.04	3.78							19.7	20.7
		600	5.3	6.9			6.27	6.61	4.35							23.0	24.0

1) Max. permitted torque

2) Motor standard values

3) Max. permitted current

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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_{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 25x6	3000	100	7.1	4.95	11.1[1] (30.4)[2]	7.9[3] (29.7)[2]	6.01	6.35	3.32	9.3	14.2	2.07	100	5.0	10	15.7	16.7
		160					6.15	6.49	3.46							16.6	17.6
		180					6.20	6.54	3.51							17.1	18.1
		200					6.24	6.58	3.55							17.9	18.9
		400					6.73	7.07	4.04							21.5	22.5
		600					7.19	7.53	4.50							24.8	25.8
KGT 25x6	4500	100	7.1	6.90	11.1[1] (30.4)[2]	11.0[3] (41.4)[2]	6.01	6.35	3.32	9.3	7.2	1.07	71	5.0	10	15.7	16.7
		160					6.15	6.49	3.46							16.6	17.6
		180					6.20	6.54	3.51							17.1	18.1
		200					6.24	6.58	3.55							17.9	18.9
		400					6.73	7.07	4.04							21.5	22.5
		600					7.19	7.53	4.50							24.8	25.8
KGT 25x6	6000	100	7.1	9.3	11.1[1] (30.4)[2]	14.9[3] (55.8)[2]	6.01	6.35	3.32	9.3	4.0	0.62	53	5.0	10	15.7	16.7
		160					6.15	6.49	3.46							16.6	17.6
		180					6.20	6.54	3.51							17.1	18.1
		200					6.24	6.58	3.55							17.9	18.9
		400					6.73	7.07	4.04							21.5	22.5
		600					7.19	7.53	4.50							24.8	25.8

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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

Spin-dle	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 25x6	3000	100	7.1	4.95	6.8[1] (30.4)[2]	4.7[3] (29.7)[2]	5.58	5.92	2.89	9.3	14.2	2.07	100	8.2	10	15.7	16.7
		160					5.75	6.09	3.06							16.6	17.6
		180					5.81	6.15	3.12							17.1	18.1
		200					5.87	6.21	3.18							17.9	18.9
		400					6.47	6.81	3.78							21.5	22.5
		600					7.04	7.38	4.35							24.8	25.8
KGT 25x6	4500	100	7.1	6.90	6.8[1] (30.4)[2]	7.0[3] (41.4)[2]	5.58	5.92	2.89	9.3	7.2	1.07	71	8.2	10	15.7	16.7
		160					5.75	6.09	3.06							16.6	17.6
		180					5.81	6.15	3.12							17.1	18.1
		200					5.87	6.21	3.18							17.9	18.9
		400					6.47	6.81	3.78							21.5	22.5
		600					7.04	7.38	4.35							24.8	25.8
KGT 25x6	6000	100	7.1	9.3	6.8[1] (30.4)[2]	9.5[3] (55.8)[2]	5.58	5.92	2.89	9.3	4.0	0.62	53	8.2	10	15.7	16.7
		160					5.75	6.09	3.06							16.6	17.6
		180					5.81	6.15	3.12							17.1	18.1
		200					5.87	6.21	3.18							17.9	18.9
		400					6.47	6.81	3.78							21.5	22.5
		600					7.04	7.38	4.35							24.8	25.8

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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8.6 CMSB71, CMSMB71

8.6.1 Features

The table below shows the features.

Design	Standard	Optional
Degree of protection	IP65	
Motor protection	KTY	
Mounting position	M0	
Cooling	Natural convection/water cooling	VR forced cooling fan
Lubrication	Oil bath lubrication	Food grade lubricant
Spindle protection	Smooth piston rod with sealing system	

8.6.2 Technical data

INFORMATION

Stroke length 100, 160, 200, 400, 600, 800, 1000 und 1200 mm → n_{pk} = 4500 min^{-1} (max. mechanical speed)

NOTICE

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

A current limitation is required on the frequency inverter.

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CMSB71S

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 32x6	2000	100	6.4	3.9	19.2	17.0	7.17	7.59	4.14	14	33.5	3.48	128	6.2	18	20.2	21.2
		160					7.54	7.96	4.51							21.6	23.6
		200					7.78	8.20	4.75							22.5	24.5
		400					9.10	9.52	6.07							29.3	30.3
		600					10.32	10.74	7.29							33.9	34.9
		800					11.54	11.96	8.51							38.1	39.1
		1000					12.77	13.19	9.74							42.7	43.7
		1200					13.99	14.41	10.96							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					7.54	7.96	4.51							21.6	23.6
		200					7.78	8.20	4.75							22.5	24.5
		400					9.10	9.52	6.07							29.3	30.3
		600					10.32	10.74	7.29							33.9	34.9
		800					11.54	11.96	8.51							38.1	39.1
		1000					12.77	13.19	9.74							42.7	43.7
		1200					13.99	14.41	10.96							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					7.54	7.96	4.51							21.6	23.6
		200					7.78	8.20	4.75							22.5	24.5
		400					9.10	9.52	6.07							29.3	30.3
		600					10.32	10.74	7.29							33.9	34.9
		800					11.54	11.96	8.51							38.1	39.1
		1000					12.77	13.19	9.74							42.7	43.7
		1200					13.99	14.41	10.96							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					7.54	7.96	4.51							21.6	23.6
		200					7.78	8.20	4.75							22.5	24.5
		400					9.10	9.52	6.07							29.3	30.3
		600					10.32	10.74	7.29							33.9	34.9
		800					11.54	11.96	8.51							38.1	39.1
		1000					12.77	13.19	9.74							42.7	43.7
		1200					13.99	14.41	10.96							47.3	48.3

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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_{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 32x6	2000	100	6.4	3.4	19.2	17.0	16.67	17.09	14.06	14	33.5	3.48	128	5.0	18	24.2	26.2
		160					17.04	17.46	14.43							25.6	27.6
		200					17.28	17.70	14.67							26.5	28.5
		400					18.60	19.02	15.99							33.3	35.3
		600					19.82	20.24	17.21							37.9	39.9
		800					21.04	21.46	18.43							42.1	44.1
		1000					22.26	22.68	19.65							46.7	48.7
		1200					23.49	23.91	20.88							51.3	53.3
KGT 32x6	3000	100	6.4	4.9	19.2	25.0	16.67	17.09	14.06	14	15.7	1.48	87.5	5.0	18	24.2	26.2
		160					17.04	17.46	14.43							25.6	27.6
		200					17.28	17.70	14.67							26.5	28.5
		400					18.60	19.02	15.99							33.3	35.3
		600					19.82	20.24	17.21							37.9	39.9
		800					21.04	21.46	18.43							42.1	44.1
		1000					22.26	22.68	19.65							46.7	48.7
		1200					23.49	23.91	20.88							51.3	53.3
KGT 32x6	4500	100	6.4	7.3	19.2	38.0	16.67	17.09	14.06	14	7.1	0.72	59	5.0	18	24.2	26.2
		160					17.04	17.46	14.43							25.6	27.6
		200					17.28	17.70	14.67							26.5	28.5
		400					18.60	19.02	15.99							33.3	35.3
		600					19.82	20.24	17.21							37.9	39.9
		800					21.04	21.46	18.43							42.1	44.1
		1000					22.26	22.68	19.65							46.7	48.7
		1200					23.49	23.91	20.88							51.3	53.3
KGT 32x6	6000	100	6.4	9.6	19.2	50.0	16.67	17.09	14.06	14	4.15	0,395	45	5.0	18	24.2	26.2
		160					17.04	17.46	14.43							25.6	27.6
		200					17.28	17.70	14.67							26.5	28.5
		400					18.60	19.02	15.99							33.3	35.3
		600					19.82	20.24	17.21							37.9	39.9
		800					21.04	21.46	18.43							42.1	44.1
		1000					22.26	22.68	19.65							46.7	48.7
		1200					23.49	23.91	20.88							51.3	53.3

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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_{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 32x6	2000	100	6.4	3.4	19.2	17.0	15.67	16.43	13.02	14	33.5	3.48	128	6.0	21.7	24.2	26.2
		160					16.02	16.79	13.36							25.6	27.6
		200					16.24	17.02	13.58							26.5	28.5
		400					17.48	18.29	14.81							33.3	35.3
		600					18.63	19.46	15.94							37.9	39.9
		800					19.77	20.63	17.06							42.1	44.1
		1000					20.92	21.81	18.19							46.7	48.7
		1200					22.08	22.99	19.33							51.3	53.3
KGT 32x6	3000	100	6.4	4.9	19.2	25.0	15.67	16.43	13.02	14	15.7	1.48	87.5	6.0	21.7	24.2	26.2
		160					16.02	16.79	13.36							25.6	27.6
		200					16.24	17.02	13.58							26.5	28.5
		400					17.48	18.29	14.81							33.3	35.3
		600					18.63	19.46	15.94							37.9	39.9
		800					19.77	20.63	17.06							42.1	44.1
		1000					20.92	21.81	18.19							46.7	48.7
		1200					22.08	22.99	19.33							51.3	53.3
KGT 32x6	4500	100	6.4	7.3	19.2	38.0	15.67	16.43	13.02	14	7.1	0.72	59	6.0	21.7	24.2	26.2
		160					16.02	16.79	13.36							25.6	27.6
		200					16.24	17.02	13.58							26.5	28.5
		400					17.48	18.29	14.81							33.3	35.3
		600					18.63	19.46	15.94							37.9	39.9
		800					19.77	20.63	17.06							42.1	44.1
		1000					20.92	21.81	18.19							46.7	48.7
		1200					22.08	22.99	19.33							51.3	53.3
KGT 32x6	6000	100	6.4	9.6	19.2	50.0	15.67	16.43	13.02	14	4.15	0,395	45	6.0	21.7	24.2	26.2
		160					16.02	16.79	13.36							25.6	27.6
		200					16.24	17.02	13.58							26.5	28.5
		400					17.48	18.29	14.81							33.3	35.3
		600					18.63	19.46	15.94							37.9	39.9
		800					19.77	20.63	17.06							42.1	44.1
		1000					20.92	21.81	18.19							46.7	48.7
		1200					22.08	22.99	19.33							51.3	53.3

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CMSB71M

Spin-dle	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 32x6	2000	100	9.4	7.5	25.0[1] (30.8)[2]	18.8[3] (26.0)[2]	8.22	8.64	4.14	14	21.5	1.87	127	8.2	24	21.6	22.6
		160					8.59	9.01	4.51							23.0	25.0
		200					8.83	9.25	4.75							23.9	25.9
		400					10.15	10.57	6.07							30.7	31.7
		600					11.37	11.79	7.29							35.3	36.3
		800					12.59	13.01	8.51							39.5	40.5
		1000					13.82	14.24	9.74							44.1	45.1
		1200					15.04	15.46	10.96							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					8.59	9.01	4.51							23.0	25.0
		200					8.83	9.25	4.75							23.9	25.9
		400					10.15	10.57	6.07							30.7	31.7
		600					11.37	11.79	7.29							35.3	36.3
		800					12.59	13.01	8.51							39.5	40.5
		1000					13.82	14.24	9.74							44.1	45.1
		1200					15.04	15.46	10.96							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					8.59	9.01	4.51							23.0	25.0
		200					8.83	9.25	4.75							23.9	25.9
		400					10.15	10.57	6.07							30.7	31.7
		600					11.37	11.79	7.29							35.3	36.3
		800					12.59	13.01	8.51							39.5	40.5
		1000					13.82	14.24	9.74							44.1	45.1
		1200					15.04	15.46	10.96							48.7	49.7
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					8.59	9.01	4.51							23.0	25.0
		200					8.83	9.25	4.75							23.9	25.9
		400					10.15	10.57	6.07							30.7	31.7
		600					11.37	11.79	7.29							35.3	36.3
		800					12.59	13.01	8.51							39.5	40.5
		1000					13.82	14.24	9.74							44.1	45.1
		1200					15.04	15.46	10.96							48.7	49.7

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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

Spin-dle	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 32x6	2000	100	9.4	5.0	25.0 (30.8)	18.0 (26.0)	17.72	18.14	14.06	14	21.5	1.87	127	7.5	24	25.6	27.6
		160					18.09	18.51	14.43							27.0	29.0
		200					18.33	18.75	14.67							27.9	29.9
		400					19.65	20.07	15.99							34.7	36.7
		600					20.87	21.29	17.21							39.3	41.3
		800					22.09	22.51	18.43							43.5	45.5
		1000					23.31	23.73	19.65							48.1	50.1
		1200					24.54	24.96	20.88							52.7	54.7
KGT 32x6	3000	100	9.4	7.5	25.0 (30.8)	27.0 (39.0)	17.72	18.14	14.06	14	9.7	0.81	85	7.5	24	25.6	27.6
		160					18.09	18.51	14.43							27.0	29.0
		200					18.33	18.75	14.67							27.9	29.9
		400					19.65	20.07	15.99							34.7	36.7
		600					20.87	21.29	17.21							39.3	41.3
		800					22.09	22.51	18.43							43.5	45.5
		1000					23.31	23.73	19.65							48.1	50.1
		1200					24.54	24.96	20.88							52.7	54.7
KGT 32x6	4500	100	9.4	10.9	25.0 (38.8)	39.2 (57.0)	17.72	18.14	14.06	14	4.55	0,385	58	7.5	24	25.6	27.6
		160					18.09	18.51	14.43							27.0	29.0
		200					18.33	18.75	14.67							27.9	29.9
		400					19.65	20.07	15.99							34.7	36.7
		600					20.87	21.29	17.21							39.3	41.3
		800					22.09	22.51	18.43							43.5	45.5
		1000					23.31	23.73	19.65							48.1	50.1
		1200					24.54	24.96	20.88							52.7	54.7
KGT 32x6	6000	100	9.4	14.7	25.0 (38.8)	52.9 (76.0)	17.72	18.14	14.06	14	2.55	0,205	43.5	7.5	24	25.6	27.6
		160					18.09	18.51	14.43							27.0	29.0
		200					18.33	18.75	14.67							27.9	29.9
		400					19.65	20.07	15.99							34.7	36.7
		600					20.87	21.29	17.21							39.3	41.3
		800					22.09	22.51	18.43							43.5	45.5
		1000					23.31	23.73	19.65							48.1	50.1
		1200					24.54	24.96	20.88							52.7	54.7

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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_{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 32x6	2000	100	9.4	5.0	20.7[1] (30.8)[2]	12.0[3] (26.0)[2]	16.65	17.07	12.99	14	21.5	1.87	127	9	24	25.6	27.6
		160					17.06	17.48	13.40							27.0	29.0
		200					17.33	17.75	13.67							27.9	29.9
		400					18.77	19.19	15.11							34.7	36.7
		600					20.12	20.54	16.46							39.3	41.3
		800					21.46	21.88	17.80							43.5	45.5
		1000					22.80	23.22	19.14							48.1	50.1
		1200					24.15	24.57	20.49							52.7	54.7
KGT 32x6	3000	100	9.4	7.5	20.7 [1] (30.8)[2]	18.0[3] (39.0)[2]	16.65	17.07	12.99	14	9.7	0.81	85	9	24	25.6	27.6
		160					17.06	17.48	13.40							27.0	29.0
		200					17.33	17.75	13.67							27.9	29.9
		400					18.77	19.19	15.11							34.7	36.7
		600					20.12	20.54	16.46							39.3	41.3
		800					21.46	21.88	17.80							43.5	45.5
		1000					22.80	23.22	19.14							48.1	50.1
		1200					24.15	24.57	20.49							52.7	54.7
KGT 32x6	4500	100	9.4	10.9	20.7[1] (30.8)[2]	26.2[3] (57.0)[2]	16.65	17.07	12.99	14	4.55	0,385	58	9	24	25.6	27.6
		160					17.06	17.48	13.40							27.0	29.0
		200					17.33	17.75	13.67							27.9	29.9
		400					18.77	19.19	15.11							34.7	36.7
		600					20.12	20.54	16.46							39.3	41.3
		800					21.46	21.88	17.80							43.5	45.5
		1000					22.80	23.22	19.14							48.1	50.1
		1200					24.15	24.57	20.49							52.7	54.7
KGT 32x6	6000	100	9.4	14.7	20.7[1] (30.8)[2]	35.3[3] (76.0)[2]	16.65	17.07	12.99	14	2.55	0,205	43.5	9	24	25.6	27.6
		160					17.06	17.48	13.40							27.0	29.0
		200					17.33	17.75	13.67							27.9	29.9
		400					18.77	19.19	15.11							34.7	36.7
		600					20.12	20.54	16.46							39.3	41.3
		800					21.46	21.88	17.80							43.5	45.5
		1000					22.80	23.22	19.14							48.1	50.1
		1200					24.15	24.57	20.49							52.7	54.7

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

CMSB71L

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 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					10.69	11.11	4.51							26.0	27.0
		200					10.93	11.35	4.75							26.9	27.9
		400					12.25	12.67	6.07							33.7	34.7
		600					13.47	13.89	7.29							38.3	39.3
		800					14.69	15.11	8.51							42.5	43.5
		1000					15.92	16.34	9.74							47.1	48.1
		1200					17.14	17.56	10.96							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					10.69	11.11	4.51							26.0	27.0
		200					10.93	11.35	4.75							26.9	27.9
		400					12.25	12.67	6.07							33.7	34.7
		600					13.47	13.89	7.29							38.3	39.3
		800					14.69	15.11	8.51							42.5	43.5
		1000					15.92	16.34	9.74							47.1	48.1
		1200					17.14	17.56	10.96							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					10.69	11.11	4.51							26.0	27.0
		200					10.93	11.35	4.75							26.9	27.9
		400					12.25	12.67	6.07							33.7	34.7
		600					13.47	13.89	7.29							38.3	39.3
		800					14.69	15.11	8.51							42.5	43.5
		1000					15.92	16.34	9.74							47.1	48.1
		1200					17.14	17.56	10.96							51.7	52.7
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					10.69	11.11	4.51							26.0	27.0
		200					10.93	11.35	4.75							26.9	27.9
		400					12.25	12.67	6.07							33.7	34.7
		600					13.47	13.89	7.29							38.3	39.3
		800					14.69	15.11	8.51							42.5	43.5
		1000					15.92	16.34	9.74							47.1	48.1
		1200					17.14	17.56	10.96							51.7	52.7

1) Max. permitted torque
2) Motor standard values
3) Max. permitted current

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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_{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 32x6	2000	100	13.1	6.3	25.0[1] (46.9)[2]	12.7[3] (39.0)[2]	19.82	20.24	14.06	14	16.2	1.2	142	10.5	24	28.6	30.6
		160					20.19	20.61	14.43							30.0	32.0
		200					20.43	20.85	14.67							30.9	32.9
		400					21.75	22.17	15.99							37.7	39.7
		600					22.97	23.39	17.21							42.3	44.3
		800					24.19	24.61	18.43							46.5	48.5
		1000					25.41	25.83	19.65							51.1	53.1
		1200					26.64	27.06	20.88							55.7	57.7
KGT 32x6	3000	100	13.1	9.4	25.0 [1] (46.9)[2]	18.8[3] (58.0)[2]	19.82	20.24	14.06	14	7.3	0.56	96	10.5	24	28.6	30.6
		160					20.19	20.61	14.43							30.0	32.0
		200					20.43	20.85	14.67							30.9	32.9
		400					21.75	22.17	15.99							37.7	39.7
		600					22.97	23.39	17.21							42.3	44.3
		800					24.19	24.61	18.43							46.5	48.5
		1000					25.41	25.83	19.65							51.1	53.1
		1200					26.64	27.06	20.88							55.7	57.7
KGT 32x6	4500	100	13.1	14.1	25.0[1] (46.9)[2]	28.2[3] (87.0)[2]	19.82	20.24	14.06	14	3.25	0.24	64	10.5	24	28.6	30.6
		160					20.19	20.61	14.43							30.0	32.0
		200					20.43	20.85	14.67							30.9	32.9
		400					21.75	22.17	15.99							37.7	39.7
		600					22.97	23.39	17.21							42.3	44.3
		800					24.19	24.61	18.43							46.5	48.5
		1000					25.41	25.83	19.65							51.1	53.1
		1200					26.64	27.06	20.88							55.7	57.7
KGT 32x6	6000	100	13.1	18.8	25.0[1] (46.9)[2]	37.6[3] (115)[2]	19.82	20.24	14.06	14	1.84	0,145	48	10.5	24	28.6	30.6
		160					20.19	20.61	14.43							30.0	32.0
		200					20.43	20.85	14.67							30.9	32.9
		400					21.75	22.17	15.99							37.7	39.7
		600					22.97	23.39	17.21							42.3	44.3
		800					24.19	24.61	18.43							46.5	48.5
		1000					25.41	25.83	19.65							51.1	53.1
		1200					26.64	27.06	20.88							55.7	57.7

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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_{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	kgcm²			Nm	mH	Ω	V	kN		kg	
KGT 32x6	2000	100	13.1	6.3	20.7[1] (46.9)[2]	10.7[3] (39.0)[2]	18.75	19.17	15.09	14	16.2	1.2	142	12.7	24	28.6	30.6
		160					19.16	19.58	15.50							30.0	32.0
		200					19.43	19.85	15.77							30.9	32.9
		400					20.87	21.29	17.21							37.7	39.7
		600					22.22	22.64	18.56							42.3	44.3
		800					23.56	23.98	19.90							46.5	48.5
		1000					24.90	25.32	21.24							51.1	53.1
		1200					26.25	26.67	22.59							57.7	55.7
KGT 32x6	3000	100	13.1	9.4	20.7[1] (46.9)[2]	16.0[3] (58.0)[2]	18.75	19.17	15.09	14	7.3	0.56	96	12.7	24	28.6	30.6
		160					19.16	19.58	15.50							30.0	32.0
		200					19.43	19.85	15.77							30.9	32.9
		400					20.87	21.29	17.21							37.7	39.7
		600					22.22	22.64	18.56							42.3	44.3
		800					23.56	23.98	19.90							46.5	48.5
		1000					24.90	25.32	21.24							51.1	53.1
		1200					26.25	26.67	22.59							55.7	57.7
KGT 32x6	4500	100	13.1	14.1	20.7[1] (46.9)[2]	24.0[3] (87.0)[2]	18.75	19.17	15.09	14	3.25	0.24	64	12.7	24	28.6	30.6
		160					19.16	19.58	15.50							30.0	32.0
		200					19.43	19.85	15.77							30.9	32.9
		400					20.87	21.29	17.21							37.7	39.7
		600					22.22	22.64	18.56							42.3	44.3
		800					23.56	23.98	19.90							46.5	48.5
		1000					24.90	25.32	21.24							51.1	53.1
		1200					26.25	26.67	22.59							55.7	57.7
KGT 32x6	6000	100	13.1	18.8	20.7[1] (46.9)[2]	32.0[3] (115)[2]	18.75	19.17	15.09	14	1.84	0,145	48	12.7	24	28.6	30.6
		160					19.16	19.58	15.50							30.0	32.0
		200					19.43	19.85	15.77							30.9	32.9
		400					20.87	21.29	17.21							37.7	39.7
		600					22.22	22.64	18.56							42.3	44.3
		800					23.56	23.98	19.90							46.5	48.5
		1000					24.90	25.32	21.24							51.1	53.1
		1200					26.25	26.67	22.59							55.7	57.7

1) Max. permitted torque

2) Standard motor values

3) Max. permitted current

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8.7 CMS71L

8.7.1 Features

Design	Standard	Optional
Degree of protection	IP45 (IP65)[1)]	
Motor protection	TF	KTY/TH
Mounting position	any	
Cooling	Natural convection	
Lubrication	Fixed lubrication point with taper greasing nipple DIN 71412-A	Lubricator, chapter 7.6
Spindle protection	Bellows	

1) For electrical components

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8.7.2 CMS71L

The following tables show the technical data.

INFORMATION

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

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

NOTICE

Take into account the maximum permitted torque M_{pk}.

A current limitation is required on the frequency inverter.

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 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		4.2	16.6)[1] (31.4)[2]	7.3)[3] (16.8)[2]	45.3	50.3	36.1	39.4		24	2.5	151		15[4]	25	26
	3000	200		6.2	22.1[1] (31.4)[2]	13.6[3] (25)[2]	32.5	37.5	23.3	26.6		11	1.12	102		20	19	20
		350		6.2	16.6[1] (31.4)[2]	10.8[3] (25)[2]	45.3	50.3	36.1	39.4		11	1.12	102		15[4]	25	26
	4500	200		9.6	22.1[1] (31.4)[2]	21.1[3] (38)[2]	32.5	37.5	23.3	26.6		4.5	0.5	65		20	19	20
		350		9.6	16.6[1] (31.4)[2]	16.8[3] (38)[2]	45.3	50.3	36.1	39.4		4.5	0.5	65		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		6.2		25						11	1.12	102				
	4500	200		9.6		38						4.5	0.5	65				
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		6.2		15.5[3] (25)[2]						11	1.12	102				
	4500	200		9.6		24[3] (38)[2]						4.5	0.5	65				

1) Max. permitted torque

2) Motor standard 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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8.8 Motors with forced cooling fan

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

8.8.1 CMS50, CMSB50/63/71 /ACA /ACH, CMSMB50/63/71 /ACA /ACH

CMS50 CMSB50/63/71 /ACA /ACH CMSMB50/63/71 /ACA /ACH	n_N min^{-1}	M_{0VR} Nm	F_{0VR} N	I_{0VR} A
CMS50S	3000	1.7	1500	1.26
	4500			1.7
	6000			2.2
CMS50M	3000	2.8	2500	2.0
	4500			2.7
	6000			3.5
CMSB50S	3000	1.4	1500	1.0
	4500			1.4
	6000			1.8
CMSB50M	3000	3.0	3200	2.1
	4500			2.8
	6000			3.7
CMSB50L	3000	4.2	4400	2.7
	4500			4.0
	6000			5.3
CMSB63S	3000	3.7	2900	2.7
	4500			3.9
	6000			4.9
CMSB63M	3000	8.3	6500	5.7
	4500			8.5
	6000			10.9
CMSB63L	3000	9.7	7500	6.8
	4500			9.5
	6000			12.7
CMSB71S	2000	11.0	8500	5.8
	3000			8.5
	4500			12.6
	6000			16.6
CMSB71M	2000	14.2	11000	7.6
	3000			11.4
	4500			16.5
	6000			22.3
CMSB71L	2000	20.7	16000	10.0
	3000			15.0
	4500			22.4

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8.8.2 CMSMB63/71 /AP without gear ratio

CMSMB50/63/71 /AP without gear ratio	n_N	M_{0VR}	F_{0VR}	I_{0VR}
	min^{-1}	Nm	N	A
CMSMB50/AP CMP50S	3000	1.4	1500	1.0
	4500			1.4
	6000			1.8
CMSMB50/AP CMP50M	3000	3.0	3100	2.1
	4500			2.8
	6000			3.7
CMSMB50/AP CMP50L	3000	4.1	4300	2.7
	4500			3.9
	6000			5.2
CMSB63/AP CMP63S	3000	3.8	2900	2.8
	4500			4.0
	6000			5.1
CMSB63/AP CMP63M	3000	7.6	5900	5.1
	4500			7.7
	6000			9.8
CMSB63/AP CMP63L	3000	10.9	8400	7.6
	4500			10.6
	6000			14.2
CMSB71/AP CMP71S	2000	10.2	7900	5.4
	3000			7.9
	4500			11.7
	6000			15.4
CMSB71/AP CMP71M	2000	14.9	11500	7.9
	3000			12.0
	4500			17.3
	6000			23.3
CMSB71/AP CMP71L	2000	23.3	18000	11.2
	3000			16.8
	4500			25.2
	6000			33.7

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8.8.3 CMSMB63/71 /AP with gear ratio

CMSMB50/63/71 /AP with gear ratio	n_N	M_{0VR}	F_{0VR}	I_{0VR}
	min^{-1}	Nm	N	A
CMSMB50/AP CMP50S	3000	1.4	2000	1.0
	4500			1.4
	6000			1.8
CMSMB50/AP CMP50M	3000	3.0	4100	2.1
	4500			2.8
	6000			3.7
CMSMB50/AP CMP50L	3000	4.1	5700	2.7
	4500			3.9
	6000			5.2
CMSB63/AP CMP63S	3000	3.8	4700	2.8
	4500			4.0
	6000			5.1
CMSB63/AP CMP63M	3000	7.5	9600	5.1
	4500			7.6
	6000			9.8
CMSB63/AP CMP63L	3000	10.9	13700	7.6
	4500			10.6
	6000			14.2
CMSB71/AP CMP71S	2000	10.2	9500	5.4
	3000			7.9
	4500			11.7
	6000			15.4
CMSB71/AP CMP71M	2000	15.2	13900	8.1
	3000			12.2
	4500			17.6
	6000			23.8
CMSB71/AP CMP71L	2000	23.8	21500	11.4
	3000			17.1
	4500			25.6
	6000			34.2

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8.9 Brakes BP/BK/BS

The standard connection voltage of the brakes is DC 24 V and they operate with a constant braking torque. The brakes cannot be retrofitted and can operate without brake rectifier or brake control unit. Observe the maximum currents of the brakes when connecting them. Overvoltage protection must be implemented by the customer, for example using varistors.

The brakes can be used at all speeds.

The brakes are released electrically and are applied once the voltage is disconnected.

NOTICE

Damage to the BK/BS brake.

Possible damage to property.

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

INFORMATION

- Comply with the applicable regulations issued by the relevant employer's liability insurance association regarding phase failure protection and the associated circuit/circuit modification!
- In view of the DC voltage to be switched and the high level of current load, it is essential to use either special brake contactors or AC contactors with contacts in utilization category AC-3 according to EN 60947-4-1.

The mechanical brake is not used as service brake but as emergency brake or holding brake for general machine standstill.

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

8.9.1 Maximum possible holding forces without safety

Electric cylinder	Spindle pitch	Threaded spindle	Holding force
	mm		N
CMSB50 CMSMB50	5	KGT	5000
CMSB63 CMSMB63	6	KGT	10000
CMSB71 CMSMB71	6	KGT	15000
CMS71L	6	KGT	20000
CMS71L	10	KGT	12500
CMS71L	5	PGT	29000

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8.10 Technical data of BP brakes

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

Electric cylinder	Brake	$M_{2,\ 20\ °C}$ Nm	$M_{4,\ 100\ °C}$ Nm	$M_{1m,\ 100\ °C}$ Nm	P W	t_1 ms	t_2 ms
CMS50	BP04	4.3	2.6	1.7	10.2	200	75
CMSB63 CMSMB63	BP09	9.3	5.6	3.7	16	200	75
CMSB71 CMSMB71	BP1	14	8.4	5.6	19.5	200	75

Standard braking torque
Optional braking torque

$M_{2,\ 20\ °C}$ 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 were not taken into account.

8.10.1 Operating currents for BP brakes

	BP04	BP09	BP1
Braking torque $M_{2,\ 20\ °C}$ in Nm	4.3	9.3	14
Braking power in W	10.2	16	19.5

Nominal voltage V_N V_{DC}	I A_{DC}	I A_{DC}	I A_{DC}
24 (21.6 – 26.4)	0.42	0.67	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
U_N Nominal voltage (nominal voltage range)

When dimensioning 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.

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8.10.2 Resistance values of BP brake coils

	BP04	BP09	BP1
Braking torque $M_{2,\ 20\ °C}$ in Nm	4.3	9.3	14
Braking power in W	10.2	16	19.5

Nominal voltage V_N V_{DC}	R Ω	R Ω	R Ω
24 (21.6 – 26.4)	56.5	35	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

U_N Nominal voltage (nominal voltage range)

8.10.3 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.

8.10.4 BP brake switching cycles

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.

Motor type	Brake type	Approved switching cycles
CMS50	BP04	1 000 000
CMSB63 CMSMB63	BP09	1 500 000
CMSB71 CMSMB71	BP1	4 000 000

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8.11 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.

Electric cylinder	Brake type	$M_{4,\ 100\ °C}$ Nm	$M_{1m,\ 100\ °C}$ Nm	P W	t_1 ms	t_2 ms
CMSMB50 (with CMP50S/M)	BK02	2.4	1.9	6.7	80	20
CMSMB63 (with CMP63S)	BK03	3.8	2.0	13.4	50	30
CMSMB50 (with CMP50L) CMSB50	BK04	3.9	2.4	13.4	50	30
CMSMB63 (with CMP63M/L) CMSB63	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 were not taken into account.

8.11.1 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 U_N V_{DC}	I A_{DC}	I A_{DC}	I A_{DC}	I A_{DC}	I A_{DC}
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
U_N Nominal voltage (nominal voltage range)

When dimensioning 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.

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8.11.2 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 U_N **V_{DC}**	**R** **Ω**	**R** **Ω**	**R** **Ω**	**R** **Ω**	**R** **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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8.12 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 cylinder	Brake type	$M_{4,\ 100\ °C}$ Nm	$M_{1m,\ 100\ °C}$ Nm	P W	t_1 ms	t_2 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 were not taken into account.

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8.12.1 Operating currents for BS brakes

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

Nominal voltage V_N V_{DC}	I A_{DC}
24 (21.6 – 26.4)	0.71

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

When dimensioning 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.

8.12.2 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 V_{DC}	R 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
U_N Nominal voltage (nominal voltage range)

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8.13 Encoder

The following encoders are used for electric cylinders.

8.13.1 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

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8.13.2 Hiperface® encoder

/ES1H, /AS1H, /AK0H, /EK1H, /AK1H

SEW-EURODRIVE offers Hiperface® encoders as an alternative to the resolver.

Type	ES1H	AS1H	AK0H	EK1H	AK1H
	CMS50/71 CMSB63	CMS50/71 CMSB63	CMS50/71 CMSMB50/63/71	CMSB50/71 CMSB63[1)] CMS71[1)]	CMSB50/71 CMSB63[1)] CMS71[1)]
Supply voltage	DC 7 - 8 - 12 V polarity reversal protected				
Max. current consumption	140 mA		120 mA	140 mA	
Maximum operating frequency	200 kHz		26 kHz	200 kHz	
Pulses (sine cycles) per revolution	1024		128	1024	
Output amplitude per track	0.9 - 1.1 V_{SS} sin / cos		0.8 -1.1 V_{SS} sin / cos	0.9 - 1.1 V_{SS} sin/cos	
Single-turn resolution	32768 increments/revolution (15 bits)		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 to EIA RS-485				
Vibration resistance (10-2000 Hz)	≤ 200 m/s² (DIN IEC 68-2-6)		≤ 100 m/s² (DIN IEC 68-2-6)	≤ 200 m/s² (DIN IEC 68-2-6)	
Maximum speed	12 000 min^{-1}		9000 min^{-1}	12 000 min^{-1}	
Connection	12-pin circulator connector				
Temperature range	-20 °C to +110 °C				

1) in preparation

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9 Malfunctions

9.1 Notes

⚠ WARNING

Risk of crushing if the drive starts up unintentionally.

Severe or fatal injuries.

- De-energize the electric cylinder before you start working on the unit.
- Safeguard the electric cylinder against unintentional restart.

⚠ WARNING

In lifting applications, note that the load torque of the application to be held in place must be less than the holding torque of the brake used.

Severe or fatal injuries.

- Observe the project planning guidelines.
- The spindles that are used are not self-locking.

⚠ CAUTION

The electric cylinder can get very hot during operation.

Risk of burns.

- Never touch the electric cylinder during operation or in the cool down phase once it has been switched off.

NOTICE

Improper troubleshooting may result in damages to the electric cylinder.

Possible damage to property.

- Note the following information.

- Components may be subject to mechanical loads. Support and secure the customer structure before removing the electric cylinder.
- Use only genuine spare parts in accordance with the valid spare parts list.
- Strictly observe the safety notes in the individual chapters.

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9.2 Customer service

Please have the following information available if you require customer service assistance:

- Complete nameplate data
- Nature and extent of the problem
- Time the failure occurred and any accompanying circumstances
- Assumed cause
- Digital photo if possible

9.3 Standard electric cylinder malfunctions

Fault	Possible cause	Measure
Electric cylinder does not start	Supply cable interrupted	Check connections, correct if necessary
	Fuse blown	Replace fuse
	Motor protection tripped	Check motor protection for correct setting, correct fault if necessary
	Servo inverter faulty, overloaded, incorrectly wired or incorrectly set	Check servo inverter, check wiring
Incorrect direction of rotation	Electric cylinder connected incorrectly	Check servo inverter, check setpoints
Electric cylinder hums and has high current consumption	Drive is blocked	Check drive
	Brake does not release	→ Chapter "Brake malfunctions"
	Encoder cable malfunction	Check encoder cable
Electric cylinder heats up excessively (measure temperature)	Overload	Measure the power, use larger motor or reduce load if necessary
	Insufficient cooling	Correct cooling air supply or clear cooling air passages, retrofit forced cooling fan or use water cooling if necessary
	Ambient temperature too high	Observe permitted temperature range
	Nominal duty cycle (S1 to S10, DIN 57530) exceeded, e.g. caused by excessive starting frequency	Adjust the nominal duty cycle of the motor to the required operating conditions; consult an expert to determine the proper drive, if necessary
Running noise on electric cylinder	Bearing/spindle damage	Contact SEW-EURODRIVE.
Position of the piston rod does not match the controller specification or changes independently	Mechanical damage to the CMS internally	Contact SEW-EURODRIVE.

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9.4 Inverter malfunctions

INFORMATION

Operating the electric cylinder with an inverter may also cause the described malfunctions (→ 🗎 113). Please refer to the inverter operating instructions for the meaning of the problems that occur and to find information about rectifying the problems.

Please have the following information to hand if you require the assistance of our customer service:

- Complete nameplate data
- Nature and extent of the problem
- Time the failure occurred and any accompanying circumstances
- Assumed cause
- Digital photo if possible

9.5 Brake malfunctions

Fault	Possible cause	Measure
Brake does not release	Incorrect operating voltage on the brake	Apply correct voltage.
		Reversed polarity, only for BS2 brake.
	Max. permitted working air gap exceeded because brake lining worn down	Contact SEW-EURODRIVE.
	Voltage drop along supply cable > 10%	Ensure correct connection voltage; check cable cross section.
	Brake coil has interturn short circuit or a short circuit to frame	Contact SEW-EURODRIVE.
Motor does not brake	Brake lining worn	Contact SEW-EURODRIVE.
	Incorrect braking torque	
Brake worn	Brake release times incorrect	Adjust brake release times to startup and deceleration processes.

9.6 Disposal

This product consists of:

- Iron
- Aluminum
- Copper
- Plastics
- Electronic components

Dispose of all components in accordance with applicable regulations.

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10 Address list

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	Drive Service Hotline / 24 Hour Service	+420 800 739 739 (800 SEW SEW)	Service Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz
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Assembly Sales Service	Copenhagen	SEW-EURODRIVEA/S Geminivej 28-30 DK-2670 Greve	Tel. +45 43 95 8500 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies 33 El Hegaz ST Heliopolis, Cairo	Tel. +20 222566299 Fax +20 2 22594-757 http://www.copam-egypt.com copam@copam-egypt.com
Estonia			
Sales	Tallin	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 http://www.alas-kuul.ee veiko.soots@alas-kuul.ee
Finland			
Assembly Sales Service	Hollola	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Service	Hollola	SEW-EURODRIVE OY Keskikankaantie 21 FIN-15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production Assembly	Karkkila	SEW Industrial Gears Oy Santasalonkatu 6, PL 8 FI-03620 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 http://www.sew-eurodrive.fi sew@sew.fi

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France			
Production Sales Service	Hagenau	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 F-67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
Production	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 F-57604 Forbach Cedex	Tel. +33 3 87 29 38 00
	Brumath	SEW-USOCOME 1 rue de Bruxelles F-67670 Mommenheim	Tel. +33 3 88 37 48 48
Assembly Sales Service	Bordeaux	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 F-33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles F-44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
	Paris	SEW-USOCOME Zone industrielle 2 rue Denis Papin F-77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Gabon			
is supported by Germany.			
Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. Box Postfach 3023 – D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 D-76646 Bruchsal	Tel.. +49 7251 75-0 Fax +49 7251 75-2970
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf P.O. Box Postfach 1220 – D-76671 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
	Östringen	SEW-EURODRIVE GmbH & Co KG, Werk Östringen Franz-Gurk-Straße 2 D-76684 Östringen	Tel. +49 7253 9254-0 Fax +49 7253 9254-90 oestringen@sew-eurodrive.de
Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 D-30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 D-08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 dtc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 D-85551 Kirchheim (München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 dtc-sued@sew-eurodrive.de

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Germany			
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 D-40764 Langenfeld (Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 dtc-west@sew-eurodrive.de
Drive Center	Berlin	SEW-EURODRIVE GmbH & Co KG Alexander-Meißner-Straße 44 D-12526 Berlin	Tel. +49 306331131-30 Fax +49 306331131-36 dc-berlin@sew-eurodrive.de
	Ludwigshafen	SEW-EURODRIVE GmbH & Co KG c/o BASF SE Gebäude W130 Raum 101 D-67056 Ludwigshafen	Tel. +49 7251 75 3759 Fax +49 7251 75 503759 dc-ludwigshafen@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 D-66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de
	Ulm	SEW-EURODRIVE GmbH & Co KG Dieselstraße 18 D-89160 Dornstadt	Tel. +49 7348 9885-0 Fax +49 7348 9885-90 dc-ulm@sew-eurodrive.de
	Würzburg	SEW-EURODRIVE GmbH & Co KG Nürnbergerstraße 118 D-97076 Würzburg-Lengfeld	Tel. +49 931 27886-60 Fax +49 931 27886-66 dc-wuerzburg@sew-eurodrive.de
Drive Service Hotline / 24 Hour Service			+49 800 SEWHELP +49 800 7394357
Great Britain			
Assembly Sales Service	Normanton	SEW-EURODRIVE Ltd. DeVilliers Way Trident Park Normanton West Yorkshire WF6 1GX	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk
	Drive Service Hotline / 24 Hour Service		Tel. 01924 896911
Greece			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Hungary			
Sales Service	Budapest	SEW-EURODRIVE Kft. Csillaghegyí út 13. H-1037 Budapest	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 IS-104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
India			
Registered Office Assembly Sales Service	Vadodara	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200 Fax +91 265 3045300 http://www.seweurodriveindia.com salesvadodara@seweurodrivein-dia.com
Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35301400 salespune@seweurodriveindia.com

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Indonesia			
Sales	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com
	Surabaya	PT. TRIAGRI JAYA ABADI Jl. Sukosemolo No. 63, Galaxi Bumi Permai G6 No. 11 Surabaya 60111	Tel. +62 31 5990128 Fax +62 31 5962666 sales@triagri.co.id http://www.triagri.co.id
	Surabaya	CV. Multi Mas Jl. Raden Saleh 43A Kav. 18 Surabaya 60174	Tel. +62 31 5458589 Fax +62 31 5317220 sianhwa@sby.centrin.net.id http://www.cvmultimas.com
Ireland			
Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie
Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Solaro	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 02 96 9801 Fax +39 02 96 79 97 81 http://www.sew-eurodrive.it sewit@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pècheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 21 21 81 05 Fax +225 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp hamamatsu@sew-eurodrive.co.jp
Kazakhstan			
Sales	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz
	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz

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	Ulaanbaatar	SEW-EURODRIVE LLP Representative office in Mongolia Suite 407, Tushig Centre Seoul street 23, Sukhbaatar district, Ulaanbaatar 14250	Tel. +976-77109997 Fax +976-77109997 http://www.sew-eurodrive.mn sew@sew-eurodrive.mn
Kenya			
is supported by Tanzania.			
Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C LV-1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com
Lebanon			
Sales Lebanon	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales / Jordan / Kuwait / Saudi Arabia / Syria	Beirut	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C LT-63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.sew-eurodrive.lt irmantas@irseva.lt
Luxembourg			
Assembly Sales Service	Brussels	SEW-EURODRIVE n.v./s.a. Researchpark Haasrode 1060 Evenementenlaan 7 BE-3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 http://www.sew-eurodrive.lu info@sew-eurodrive.be
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Madagascar			
Sales	Antananarivo	Ocean Trade BP21bis. Andraharo Antananarivo 101 Madagascar	Tel. +261 20 2330303 Fax +261 20 2330330 oceantrabp@moov.mg
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Mexiko			
Assembly Sales Service	Quéretaro	SEW-EURODRIVE MEXICO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Quéretaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Mongolia			
Technical Office	Ulaanbaatar	SEW-EURODRIVE LLP Representative office in Mongolia Suite 407, Tushig Centre Seoul street 23, Sukhbaatar district, Ulaanbaatar 14250	Tel. +976-77109997 Fax +976-77109997 http://www.sew-eurodrive.mn sew@sew-eurodrive.mn

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Morocco			
Sales Service	Mohammedia	SEW-EURODRIVE SARL 2 bis, Rue Al Jahid 28810 Mohammedia	Tel. +212 523 32 27 80/81 Fax +212 523 32 27 89 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB Mining & Industrial Services Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
New Zealand			
Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	EISNL Engineering Solutions and Drives Ltd Plot 9, Block A, Ikeja Industrial Estate (Ogba Scheme) Adeniyi Jones St. End Off ACME Road, Ogba, Ikeja, Lagos	Tel. +234 1 217 4332 http://www.eisnl.com team.sew@eisnl.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 seweurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L De la Victoria 112, Esquina nueva Asunción Departamento Central Fernando de la Mora, Barrio Bernardino	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com

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Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 P-3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Romania			
Sales Service	Bucharest	Sialco Trading SRL str. Brazilia nr. 36 011783 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro
Russia			
Assembly Sales Service	St. Petersburg	ZAO SEW-EURODRIVE P.O. Box 36 RUS-195220 St. Petersburg	Tel. +7 812 3332522 / +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Sambia			
is supported by South Africa.			
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor SRB-11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs
Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bratislava	SEW-Eurodrive SK s.r.o. Rybničná 40 SK-831 06 Bratislava	Tel.+421 2 33595 202, 217, 201 Fax +421 2 33595 200 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 SK-040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 Mobile +421 907 671 976 sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 SLO - 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

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South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 248-7289 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za
South Korea			
Assembly Sales Service	Ansan	SEW-EURODRIVE KOREA CO., LTD. 7, Dangjaengi-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-eurodrive.kr master.korea@sew-eurodrive.com
	Busan	SEW-EURODRIVE KOREA CO., LTD. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230
Spain			
Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Sri Lanka			
Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
Swaziland			
Sales	Manzini	C G Trading Co. (Pty) Ltd PO Box 2960 Manzini M200	Tel. +268 2 518 6343 Fax +268 2 518 5033 engineering@cgtrading.co.sz
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
Taiwan			
Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw

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Taiwan			
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
Tanzania			
Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz central.mailbox@sew.co.tz
Thailand			
Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn
Turkey			
Assembly Sales Service	Kocaeli-Gebze	SEW-EURODRİVE Hareket Sistemleri San. Ve TIC. Ltd. Sti Gebze Organize Sanayi Böl. 400 Sok No. 401 41480 Gebze Kocaeli	Tel. +90 262 9991000 04 Fax +90 262 9991009 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr
Ukraine			
Assembly Sales Service	Dnipropetrovsk	ООО «СЕВ-Евродрайв» ул.Рабочая, 23-В, офис 409 49008 Днепропетровск	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua
United Arab Emirates			
Sales Service	Sharjah	Copam Middle East (FZC) Sharjah Airport International Free Zone P.O. Box 120709 Sharjah	Tel. +971 6 5578-488 Fax +971 6 5578-499 copam_me@eim.ae
Uruguay			
Assembly Sales	Montevideo	SEW-EURODRIVE Uruguay, S. A. Jose Serrato 3569 Esqina Corumbe CP 12000 Montevideo	Tel. +598 2 21181-89 Fax +598 2 21181-90 sewuy@sew-eurodrive.com.uy
USA			
Production Assembly Sales Service	Southeast Region	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Production +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly Sales Service	Northeast Region	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 332-0038 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
	Additional addresses for service in USA provided on request!		

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Uzbekistan			
Technical Office	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz
Venezuela			
Assembly Sales Service	Valencia	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 http://www.sew-eurodrive.com.ve ventas@sew-eurodrive.com.ve sewfinanzas@cantv.net
Vietnam			
Sales	Ho Chi Minh City	Nam Trung Co., Ltd Huế - South Vietnam / Construction Materials 250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province HCM office: 91 Tran Minh Quyen Street District 10, Ho Chi Minh City	Tel. +84 8 8301026 Fax +84 8 8392223 khanh-nguyen@namtrung.com.vn http://www.namtrung.com.vn
	Hanoi	MICO LTD Quảng Trị - North Vietnam / All sectors except Construction Materials 8th Floor, Ocean Park Building, 01 Dao Duy Anh St, Ha Noi, Viet Nam	Tel. +84 4 39386666 Fax +84 4 3938 6888 nam_ph@micogroup.com.vn http://www.micogroup.com.vn

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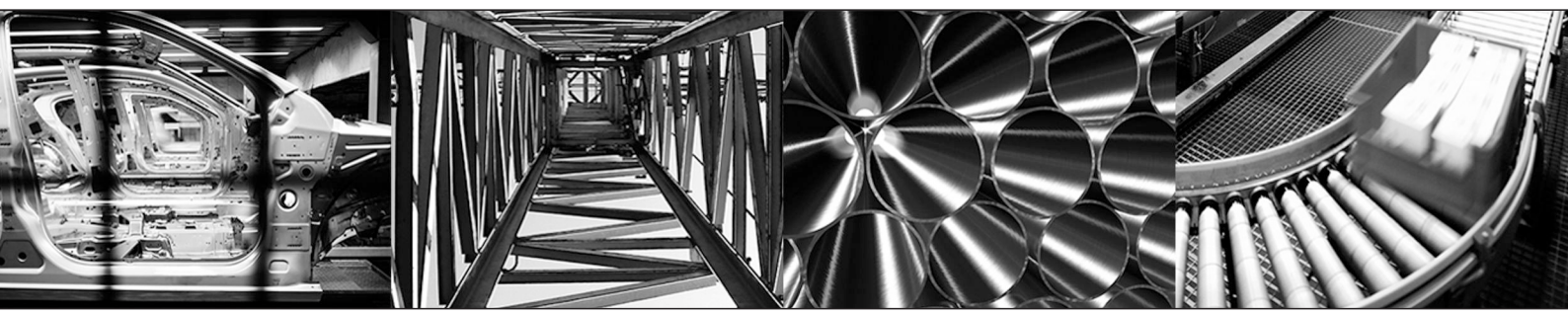

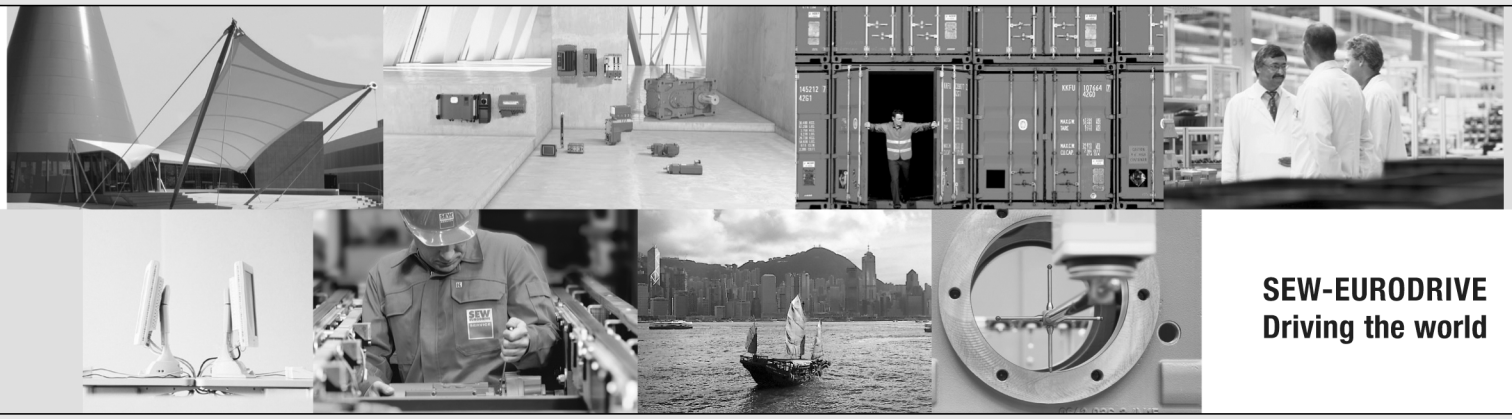

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Driving the world

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