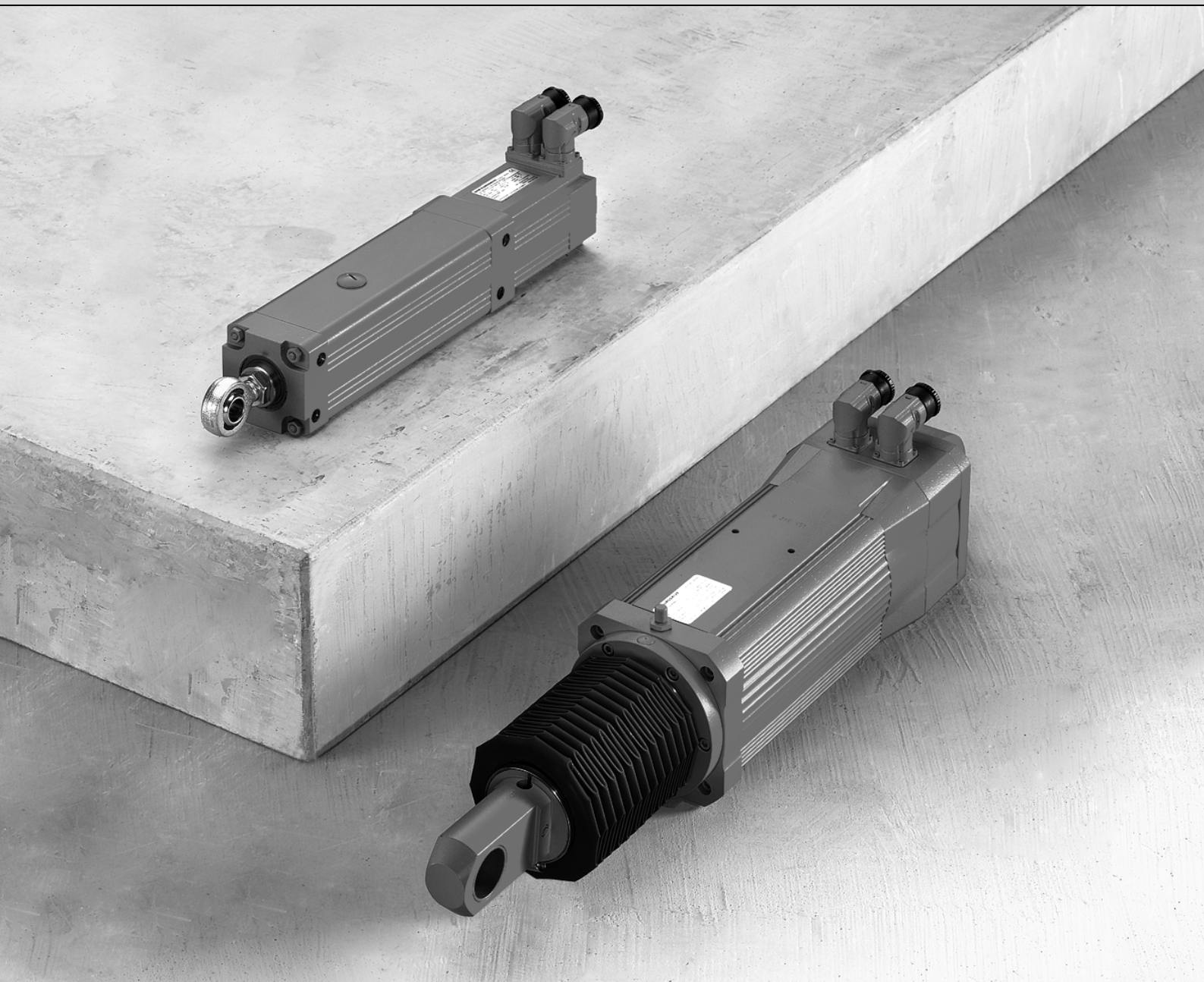




**SEW**  
**EURODRIVE**

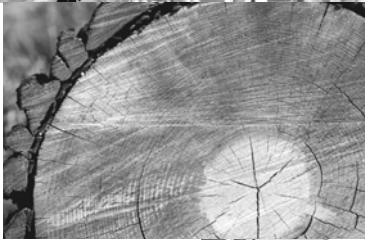


## **CMS Electric Cylinder**

Edition 11/2007

11704217 / EN

Addendum to the Operating Instructions






## Contents

<b>1</b>	<b>Mechanical Installation</b> .....	<b>4</b>
1.1	Note .....	4
1.2	Mechanical stroke limiting.....	4
1.3	Calculating the stroke lengths.....	5
1.4	New stroke length of CMS50S.....	6
1.5	Position of the mount-on components of CMS50 .....	8
1.6	Position of the mount-on components of CMS71 .....	9
<b>2</b>	<b>Operation of the Star Vario / Star Control Lubricator</b> .....	<b>10</b>
2.1	Star Vario .....	10
2.2	Star Control.....	12
<b>3</b>	<b>Technical Data</b> .....	<b>14</b>
3.1	CMS50 .....	14




## 1 Mechanical Installation

### 1.1 Note

	<b>STOP</b>
	<p>This addendum contains modifications and additions made to the "CMS Electric Cylinder" operating instructions, publication no. 11562617, edition 05/07.</p> <p><b>Please use the data specified in this addendum instead of the data in the operation instructions.</b></p> <p><b>This document does not replace the detailed operating instructions.</b></p>


### 1.2 Mechanical stroke limiting

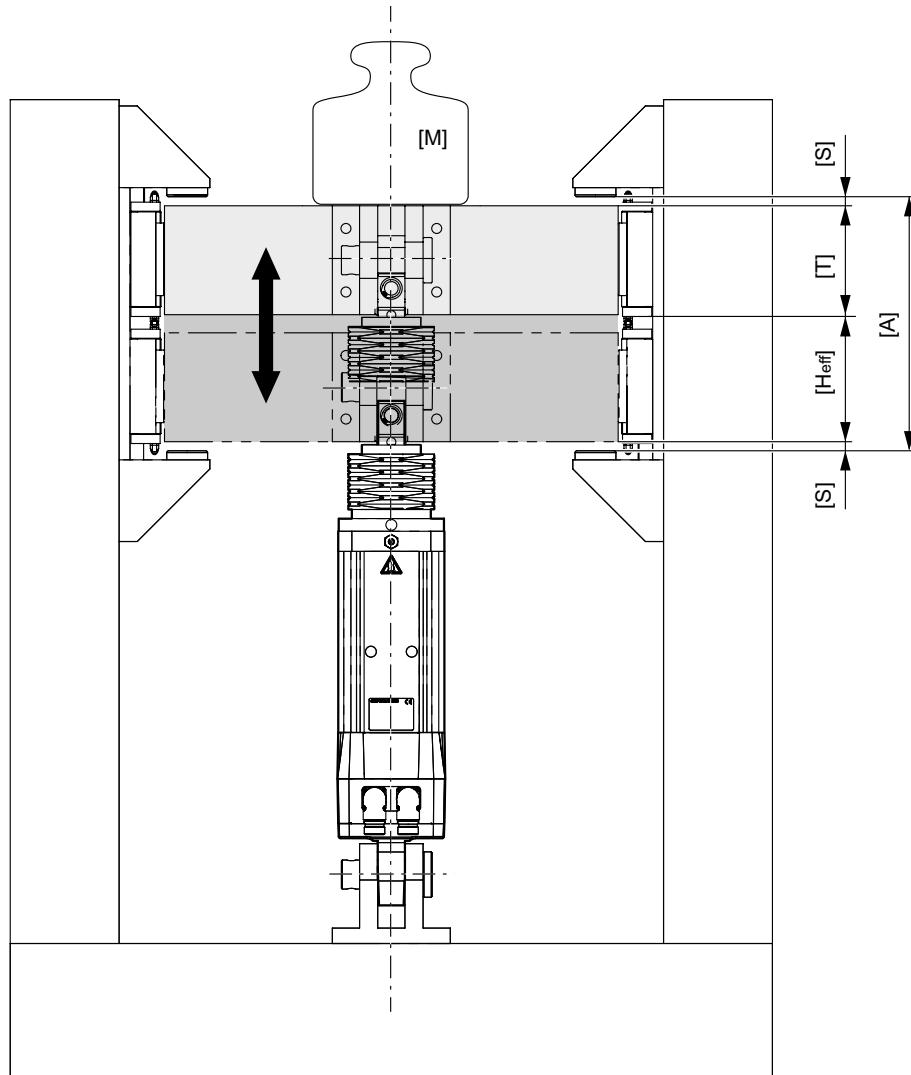
	<b>STOP</b>
	<p>The customer must limit the stroke of the CMS through appropriate measures in the extended and retracted position, e.g. by using limit stops, cushioning or shock absorbers.</p>

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 in order to prevent the maximum permitted feed thrust of the CMS from being exceeded. This requires soft, damping elements. Their purpose is to absorb the energy and then limit the end position mechanically. As a rule, you should use cushioning or shock absorbers that are dimensioned accordingly.



### 1.3 Calculating the stroke lengths

	<b>STOP</b>
	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 ( $H_{eff}$ ).



601321227

- |               |                  |     |                              |
|---------------|------------------|-----|------------------------------|
| [ $H_{eff}$ ] | Effective stroke | [A] | Distance between limit stops |
| [ $H_{CMS}$ ] | Rated stroke CMS | [T] | Partial width                |
| [S]           | Safety distance  | [M] | Weight                       |

#### 1.3.1 Calculating the effective stroke

The effective stroke can be calculated as follows:

$$H_{eff} = A - T - 2 \times S$$

or

$$H_{eff} = H_{CMS} - 2 \times S$$

$$\rightarrow H_{eff} < H_{CMS}$$



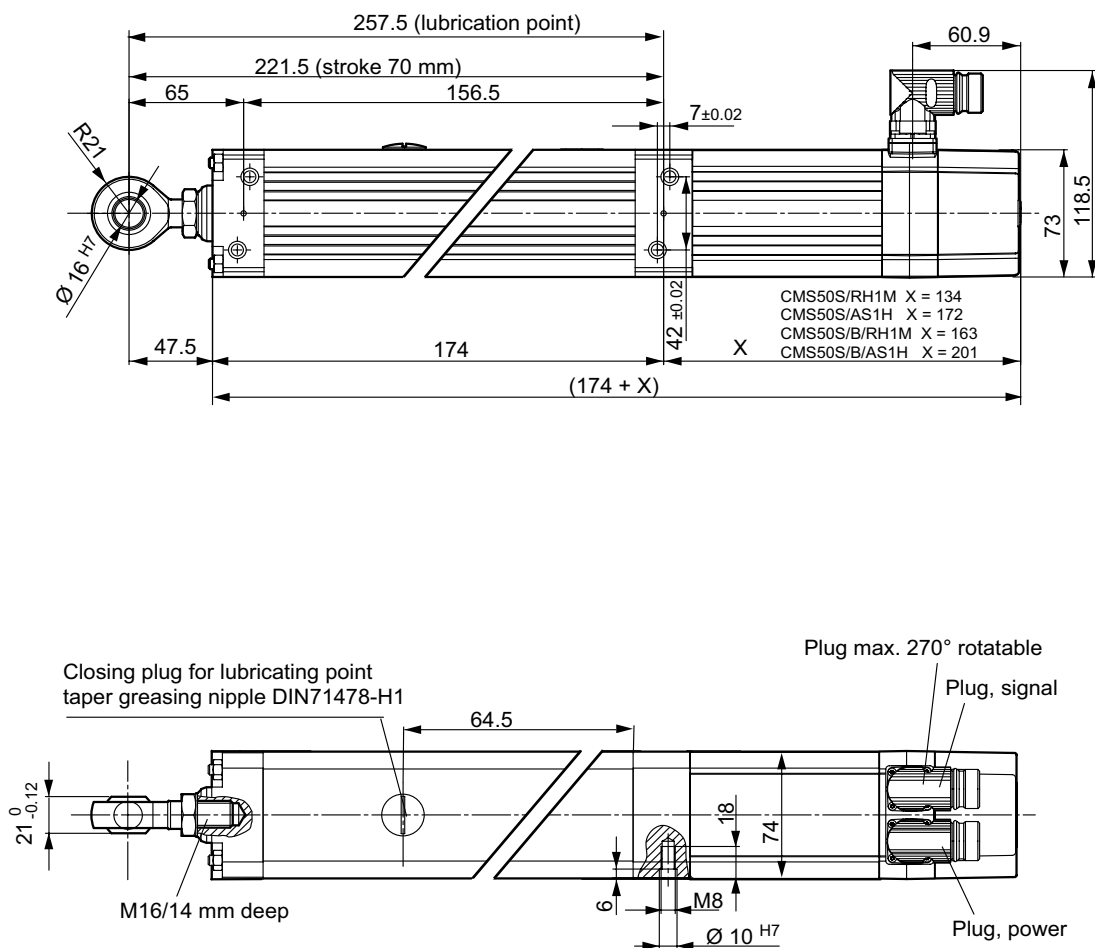
## Mechanical Installation

### New stroke length of CMS50S

#### 1.4 New stroke length of CMS50S

The CMS50S is now available with the new stroke length 70 mm and 300 mm. For electrical and mechanical data, please refer to section 2.

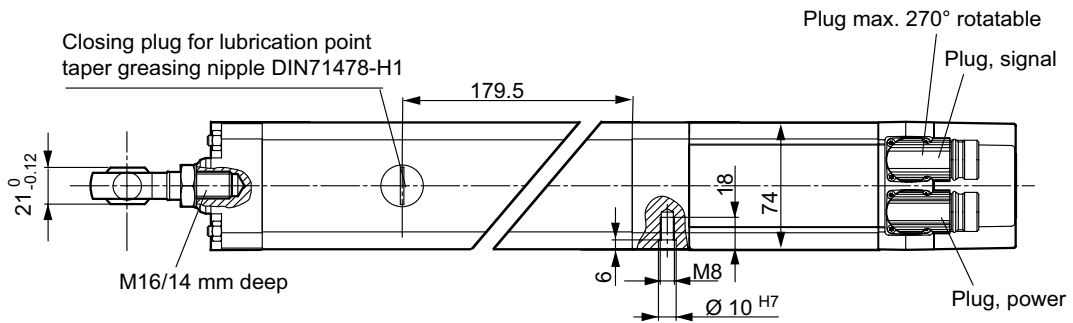
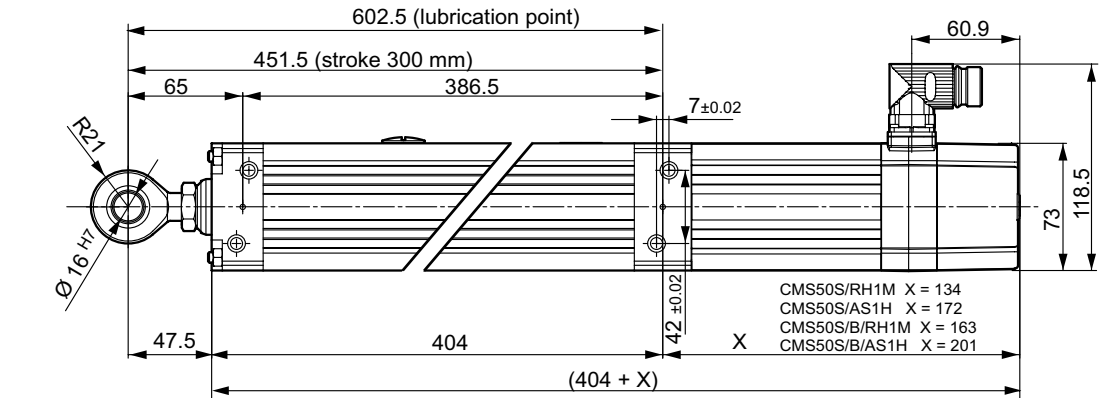
##### 1.4.1 Mounting dimensions for a stroke length of 70 mm



599623051



1.4.2 Mounting dimensions for a stroke length of 300 mm



599624715



## Mechanical Installation

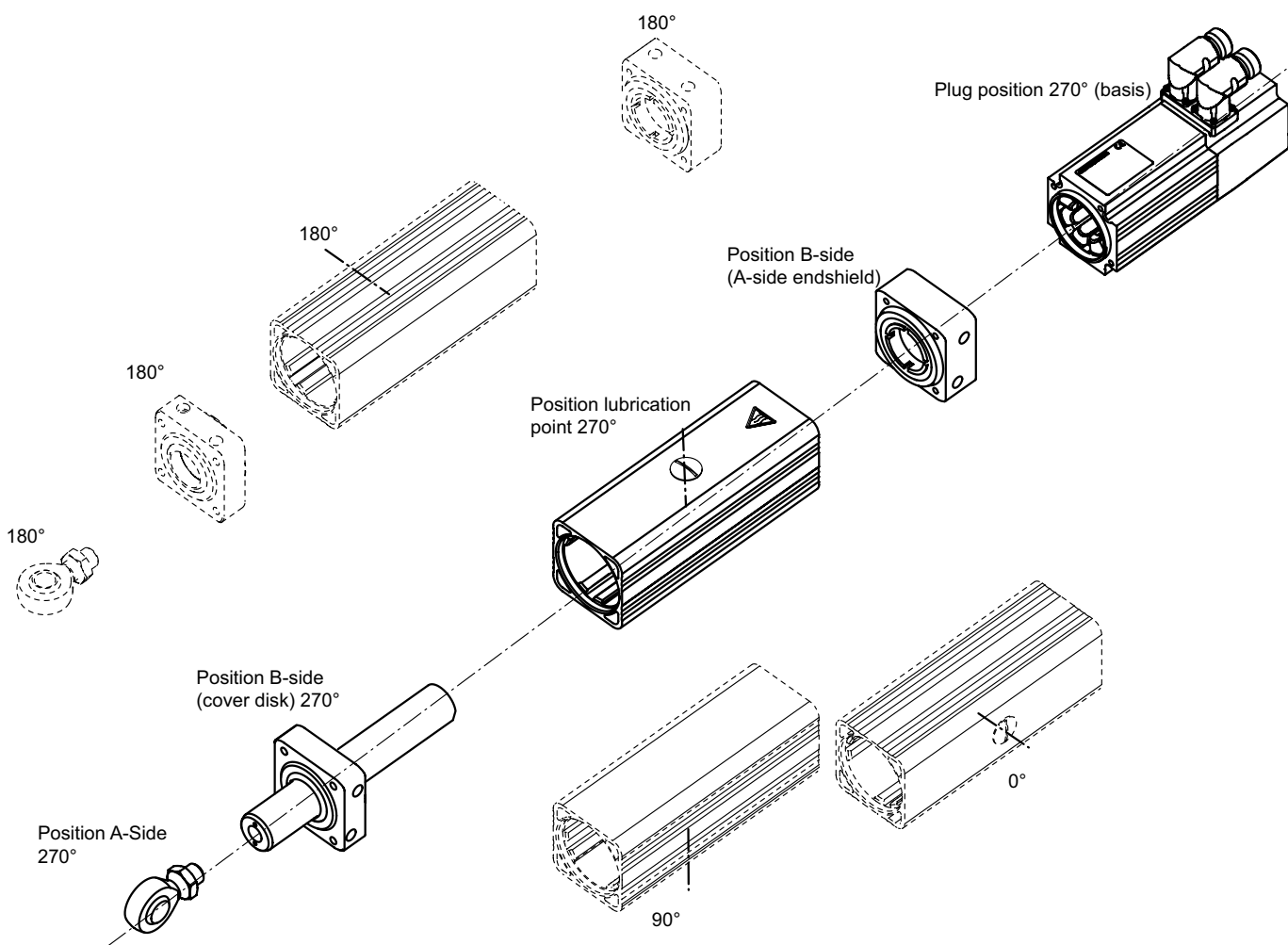
### Position of the mount-on components of CMS50

#### 1.5 Position of the mount-on components of CMS50



#### NOTE

- The standard position of the mount-on components is 270°. This is based on the basic connector position of 270°.
- The A-side endshield and the cover disc can only be rotated together.



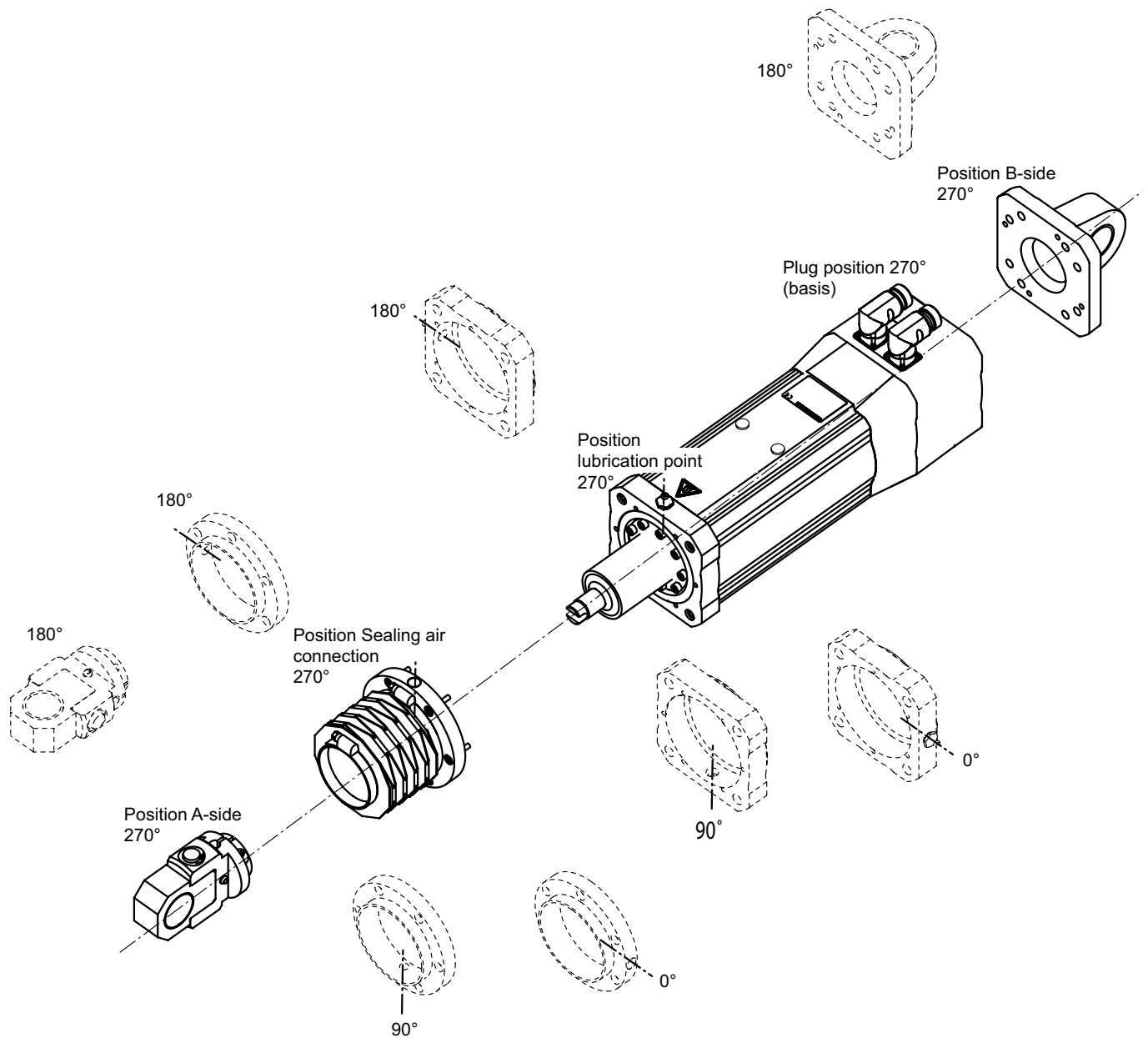
631432459





1.6 Position of the mount-on components of CMS71


	<p><b>NOTE</b></p>
	<ul style="list-style-type: none"> <li>• The standard position of the mount-on components is 270°. This is based on the basic connector position of 270°.</li> <li>• Lubricators can only be mounted on if the lubricating point is positioned at 270°.</li> </ul>



633772427



## 2 Operation of the Star Vario / Star Control Lubricator


	<b>STOP</b>
	<p>This chapter's content is an excerpt from the current perma operating instructions.</p> <p><b>SEW-EURODRIVE does not assume liability for the correctness and completeness of the content.</b></p> <p><b>A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information given in the Star Vario and Star Control lubricator operating instructions by perma-tec GmbH &amp; Co KG.</b></p>

### 2.1 Star Vario

#### 2.1.1 During operation

Observe the following points when operating the Star Vario lubricator.


- Perform inspections at regular intervals during operation. Do especially check for leaks and inspect the state of the lubricator (chapter 8.6.4 of the SEW operating instructions).
- Refer to the table in section 2.1.3 in case of malfunctions. Do consult the SEW customer service if the problem cannot be solved.
- Check the fill level of the transparent LC unit regularly<sup>1)</sup>.
- Do observe section 2.1.2 when changing the settings after startup.

	<b>STOP</b>
	<ul style="list-style-type: none"> <li>• You must never change the settings of the 4-way code switch during operation or after startup!</li> </ul>

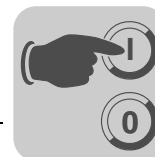
#### 2.1.2 Changing the settings

The operating time and the size of the LC unit can only be set when a new LC unit is being installed. If the setting is to be changed during operation or after the startup, a new, completely filled LC unit and a new battery set must be used.

If the setting is to be changed during operation, the control and the monitoring electronics are interfered. Thus perma-tec cannot guarantee for a precise lubrication.

	<b>STOP</b>
	<p>Do always use a new, completely filled LC unit and a new battery set each time you changed the settings.</p> <p>You must never use an LC unit that is already partially empty.</p>

1) Lubricant container



### 2.1.3 Faults

Fault	Possible cause	Remedy
<b>Lubricator does not work</b>	Switch on the cover is in "OFF" position	Set switch to "ON"
	No batteries in the drive system	Insert batteries
	Old batteries	Insert new batteries
	Components are not properly connected	Connect the components properly or tighten the screws
<b>Lubricator indicates an empty container via flashing red and green LED, but LC unit is not empty.</b>	Settings have been changed during operation or erroneous settings have been selected during startup	Insert full LC unit and new batteries → restart
<b>Lubricator does not use the entire container content</b>	Old batteries	Insert new batteries
	Unit has been operated at a temperature below -10 °C for a longer period	Do only operate the unit within the recommended temperature range
	Settings have been changed during operation or erroneous settings have been selected during startup	Insert full LC unit and new batteries → restart
<b>Lubricator indicates a working system via flashing green LED, but LC unit is empty</b>	Settings have been changed during operation or erroneous settings have been selected during startup	Insert full LC unit and new batteries → restart
<b>Lubricator indicates a system fault via flashing red LED</b>	Pipes or connection parts clogged	Clean pipes and connection parts, switch the unit off and back on
	Back pressure is too high	Reduce back pressure




## 2.2 Star Control


### 2.2.1 During operation


Observe the following points when operating the lubricator.

- Perform inspections at regular intervals during operation. Do especially check for leaks and inspect the state of the lubricator (chapter 8.6.4 of the SEW operating instructions).
- Check the fill level of the transparent LC unit regularly<sup>1)</sup>.
- Refer to the table in section 2.2.3 in case of malfunctions. Do consult the SEW customer service if the problem cannot be solved.

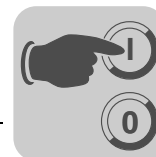
	<b>STOP</b>
	<ul style="list-style-type: none"> <li>• Do observe section 2.2.2 when changing the settings after startup.</li> </ul>

### 2.2.2 Changing the dispensing quantity after startup

1. Unplug the unit
2. Remove the lubricator from the lubrication point
3. Remove the LC unit from the drive.
4. Set the "VOL" code switch to this position 
5. A white pin sticks out on the bottom of the drive. Press and hold it.
6. Now connect the drive to the power supply.
7. As soon as the motor starts, you may release the pin unplug the drive.
8. Now select the desired settings for the "TIME" and "VOL" code switches.
9. Again, press and hold the pin on the bottom of the drive.
10. Connect the drive to the power supply.
11. Release the pin after 3 seconds and unplug the drive.
12. Re-assemble the drive.

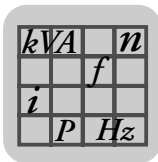
	<b>STOP</b>
	<p>Depending on the fill level of the installed LC unit, the end signal may be erroneous after this procedure! This is why you must manually check the end of the lubrication period.</p>

1) Lubricant container



### 2.2.3 Faults


Fault	Possible cause	Remedy
<b>Lubricator does not work</b>	Cable not connected properly	Connect the cable according to the connection assignment Check connection assignment
	Cable break	Check voltage at the plug, replace cable
	No voltage	Check voltage supply. Too many perma Star Control units connected
	Relay in the unit is defective	Replace relay
<b>Lubricator indicates a working system via flashing green LED, but LC unit is empty</b>	Setting of the "VOL" switch does not correspond to the installed LC unit	Install full LC unit
	Partially empty LC unit replaced with an almost empty LC unit	
<b>Lubricator indicates a system fault via flashing red LED</b>	Pipes and/or connection parts may be clogged	Clean pipes and connection parts, switch the unit off and back on
	Back pressure is too high	Reduce back pressure
<b>Lubricator is dispensing too quickly</b>	Wrong "VOL" switch setting	Correct the switch setting
	Wrong "TIME" switch setting	
<b>Lubricator indicates an empty container via flashing red and green LED, but LC unit is not empty.</b>	Setting of the "VOL" switch does not correspond to the installed LC unit	Install full LC unit
	Almost empty LC unit replaced with a partially empty LC unit	
<b>Lubricator does not dispense the altered quantity</b>	Switch setting not changed correctly	See section 2.2.2



### 3 Technical Data

#### 3.1 CMS50

##### 3.1.1 Electrical data

	<b>STOP</b>
	Stroke length 70 mm → maximum mechanical speed 4500 min <sup>-1</sup> Stroke length 300 mm → maximum mechanical speed 2500 min <sup>-1</sup>

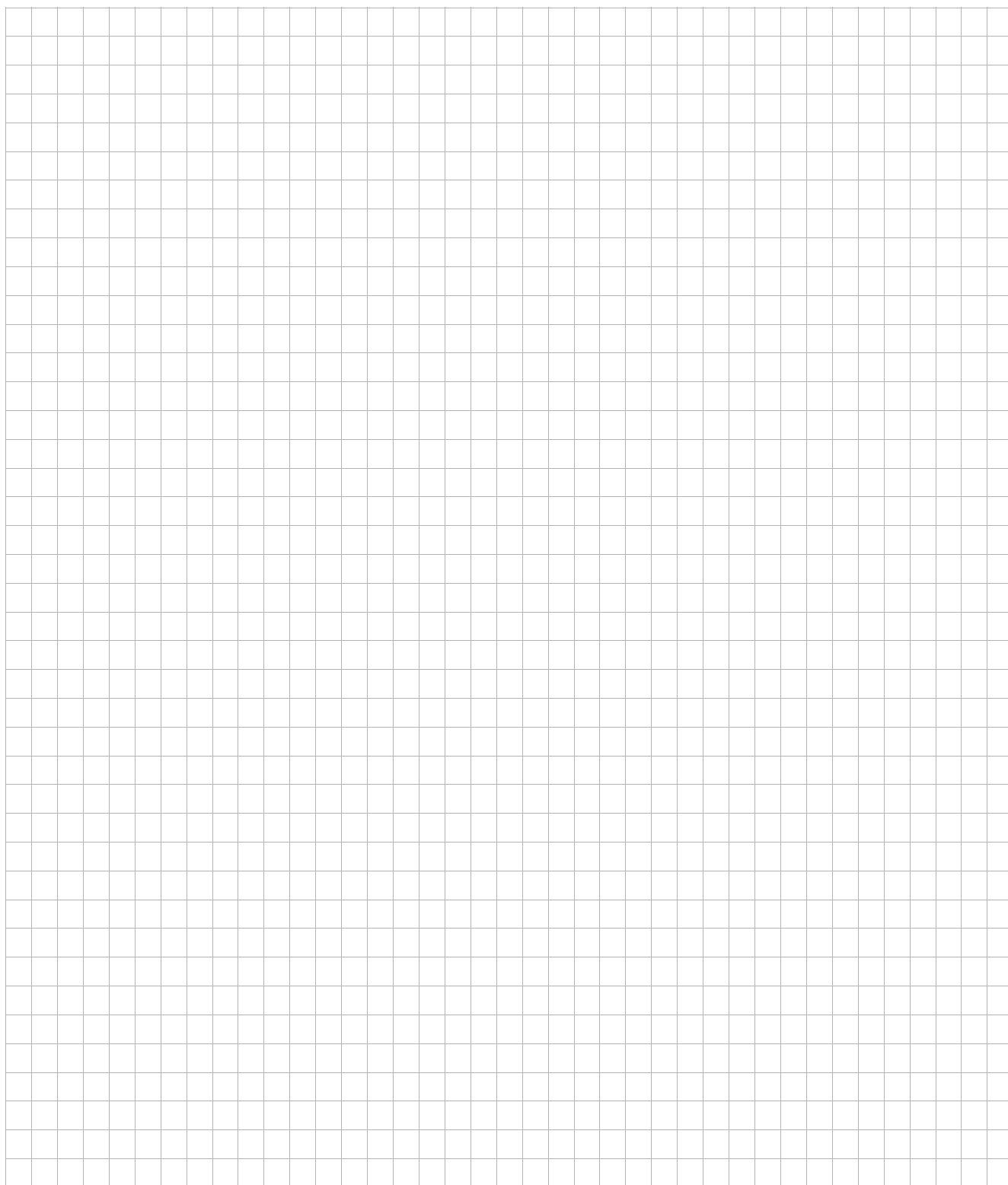
Rated speed $n_N$	Stroke length	3000 min <sup>-1</sup>		4500 min <sup>-1</sup>		
		70 mm	300 mm	70 mm	300 mm	
Static torque	$M_0$	[Nm]	1.3		1.3	
Standstill current	$I_0$	[A]	0.96		1.32	
Max. torque	$M_{DYN}$	[Nm]	5.2		5.2	
Maximum current	$I_{max}$	[A]	5.1		7.0	
Mass moment of inertia without brake <sup>1)</sup>	$J_{mot}$	[10 <sup>-4</sup> kgm <sup>2</sup> ]	0.54	0.61	0.54	0.61
Mass moment of inertia with brake <sup>1)</sup>	$J_{motB}$	[10 <sup>-4</sup> kgm <sup>2</sup> ]	0.60	0.67	0.60	0.67
Mass moment of inertia of the spindle	$J_{spindle}$	[10 <sup>-4</sup> kgm <sup>2</sup> ]	0.12	0.19	0.12	0.19
Braking torque	$M_B$	[Nm]	4.3		4.3	
Inductance	$L_1$	[mH]	71		37	
Ohmic resistance	$R_1$	[m]	22.49		11.6	
Rotor voltage	$U_{p0}$	[V/1000 min <sup>-1</sup> ]	86		62	

1) for the complete motor and spindle

##### 3.1.2 Mechanical data

Rated speed $n_N$	Stroke length	3000 min <sup>-1</sup>		4500 min <sup>-1</sup>		
		70 mm	300 mm	70 mm	300 mm	
Spindle pitch	$P$	[mm]	5		5	
Spindle diameter	$D$	[mm]	16		16	
Maximum permanent feed thrust	$F$	[N]	1300		1300	
Peak feed thrust <sup>1)</sup>	$F_{max}$	[N]	5300		5300	
Weight, variant without brake	$m$	[kg]	5.8	7.8	5.8	7.8
Weight, variant with brake	$m_B$	[kg]	6.4	8.4	6.4	8.4

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



## How we're driving the world

With people who think fast and develop the future with you.

With a worldwide service network that is always close at hand.

With drives and controls that automatically improve your productivity.

With comprehensive knowledge in virtually every branch of industry today.

With uncompromising quality that reduces the cost and complexity of daily operations.



**SEW-EURODRIVE**  
Driving the world

With a global presence that offers responsive and reliable solutions. Anywhere.

With innovative technology that solves tomorrow's problems today.

With online information and software updates, via the Internet, available around the clock.

**SEW**  
**EURODRIVE**

SEW-EURODRIVE GmbH & Co KG  
P.O. Box 3023 · D-76642 Bruchsal / Germany  
Phone +49 7251 75-0 · Fax +49 7251 75-1970  
sew@sew-eurodrive.com

→ [www.sew-eurodrive.com](http://www.sew-eurodrive.com)