

# UNIMOTION

## MAINTENANCE AND ASSEMBLY INSTRUCTIONS

MCE and MSCE

MINI ELECTRIC  
CYLINDERS and  
SLIDERS



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## GENERAL INFORMATION






It is important to read this instruction manual before handling the product. Otherwise, the product might get damaged.

In this instruction manual, the mini electric cylinder (with or without the guiding unit and with or without the preassembled standard motor together with the cables and drive) and slider (with or without the preassembled standard motor together with the cables and drive) are designated as product. There are also an abbreviations MCE and MSCE used, by which the mini electric cylinder and mini electric slider is defined, respectively.

## AVAILABLE DOCUMENTS FOR THE PRODUCT

MCE and MSCE (mini electric cylinders and sliders)	Catalogue
Assembly instructions for VK MG (motor adapter with a coupling)	Assembly instructions
Assembly instructions for MSD MG (motor side drive with a timing belt)	Assembly instructions
Stepper systems (motors, drives, cables)	Catalogue
Closed loop stepping system manual (STDF EC – EtherCAT, STDF EN – Ethernet, STDF PD – Pulse-direction)	Manual

## USED SYMBOLS

	Remark, note
	Warning!
	Danger! Risk of coming into contact with power conducting parts! The power supply must be disconnected!
	For more information, please refer to the specified documentation
	Use different tightening torque as it is presented in the section “Recommended tightening torques”

## RECOMMENDED TIGHTENING TORQUES

### Recommended tightening torques of the screws

Tightening torque (8.8)	Thread size						
	M2	M2,5	M3	M4	M5	M6	M8
$M_{A, \max}$ [Nm]	0,4	0,7	1,3	2,8	5,6	9,6	23,0

**Table 1:** Recommended tightening torques of the screws of strength class 8.8.

## GENERAL SAFETY INSTRUCTIONS

To ensure the right functionality of the product, it must be handled with care. It is not allowed to put any tools or any other items which can cause damage to the product on the product. The product must be protected against any liquid that can cause damage to it.

For information on the conditions in which the product can operate, please see the section "Operating conditions" or contact us. If the product isn't in use, place it in a dry, clean environment and cover it to prevent any damage.

### SAFE OPERATION

The product must not be put into service until the final machinery into which it is installed has been declared in conformity with the provisions of the machinery directives, where appropriate. Each operation of the product that is not in compliance with its intended use can lead to the product being damaged, or can cause accidents and at the same time stoppages in production. To ensure a safe operation, please refer to this instruction manual and the operating manual of other machinery, where the product is to be incorporated.

#### Requirements for personnel

The product may only be installed, operated, maintained, repaired or dismantled by appropriately qualified personnel. All qualified personnel must have read and understood this instruction manual.

#### Checking the product

In accordance with the safety directives, the operating company must subject the product to thorough checking prior to putting it into operation; after carrying out repairs, and after malfunctions have occurred.

### MODIFICATION OF THE PRODUCT

The product must not be modified without our written consent. Any such unauthorized modification will make void our liability in respect of the product. The operating company may only carry out the maintenance and repair work detailed in this instruction manual.

### LABELS AND NOTICES

All notices and labels attached to the product must be fully visible and must not be removed. They must ensure compliance with all the instructions contained on them. Damaged or illegible notices and labels must be replaced.

### WARRANTY

The warranty conditions are laid down in the terms and conditions of delivery and payment issued at the time of order. Warranty cover will be annulled if:



- the product is not operated in accordance with the stipulated regulation use,
- the instructions set out in this operating manual are not followed,
- the product is modified without the consent of the manufacturers,
- the screws sealed by locking varnish are unlocked.

The manufacturer's warranty in respect of maintenance and repair work applies only if original replacement parts are used.

## OPERATING CONDITIONS

Ambient temperature	0 °C ~ +50 °C
Ambient temperature without a preassembled standard motor	0 °C ~ +60 °C
Protection class	IP40
Duty cycle	100 %

**Table 2:** Operating conditions.

-  In case of special operating conditions, please contact us.
-  For the values of the maximum permissible axial load, lateral load, drive torque, travel and rotational speed and acceleration, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.

 **Overloading**

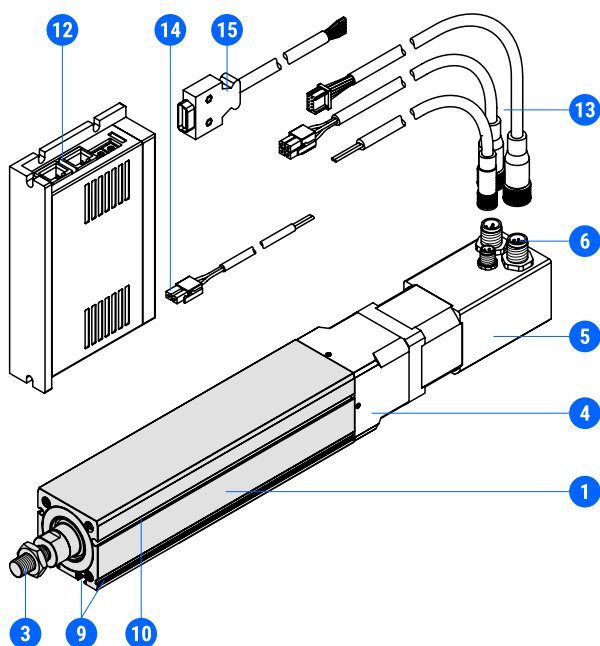
Overloading the product can lead to the product being damaged.

## PRODUCT DESCRIPTION

### STRUCTURAL DESIGN

#### MCE

#### With a standard motor, motor adapter VK, drive and cables



- 1 – Compact aluminium cylinder profile
- 2 – Piston rod (stainless steel) with an anti-rotation device
- 3 – Piston rod end (optionally with a female thread)
- 4 – Motor adapter VK with a coupling
- 5 – Preassembled motor (with/without a brake)
- 6 – Standard connectors (motor, encoder and brake – optionally)
- 7 – Motor side drive with a timing belt
- 8 – Drive shaft of a precision ball screw drive
- 9 – Slots for mounting
- 10 – Slots for the magnetic field sensors or mounting the sensor holder
- 11 – Guiding unit
- 12 – Drive
- 13 – Drive-motor cables
- 14 – Power cable
- 15 – Signal cable

Figure 1: MCE with a standard motor, motor adapter VK, drive and cables.

#### With a standard motor, motor side drive MSD and guiding unit

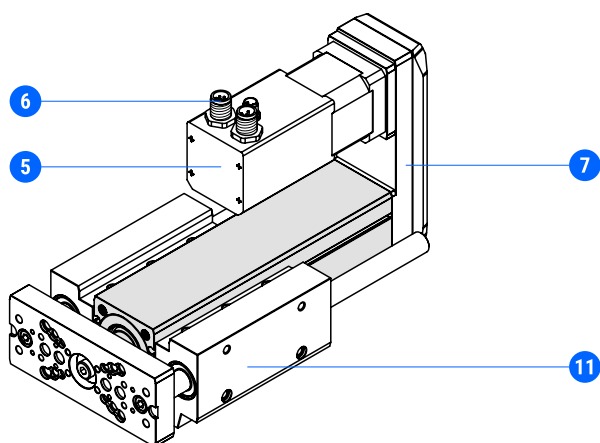


Figure 2: MCE with a standard motor, motor side drive MSD and guiding unit.

#### Without a motor

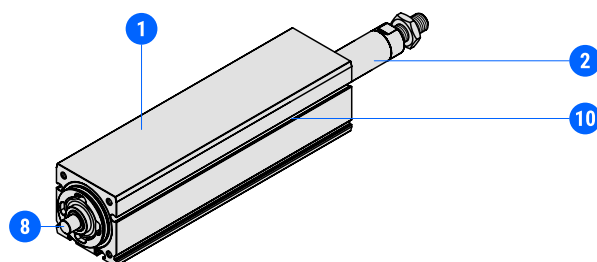
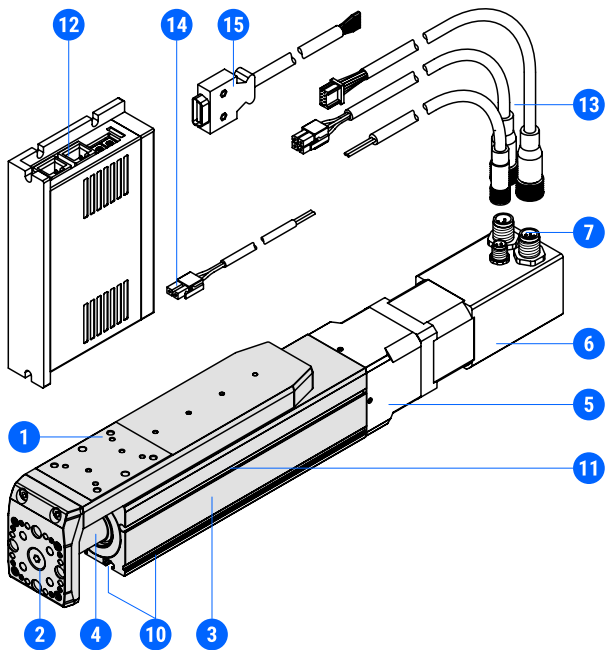


Figure 3: MCE without a motor.

## MSCE

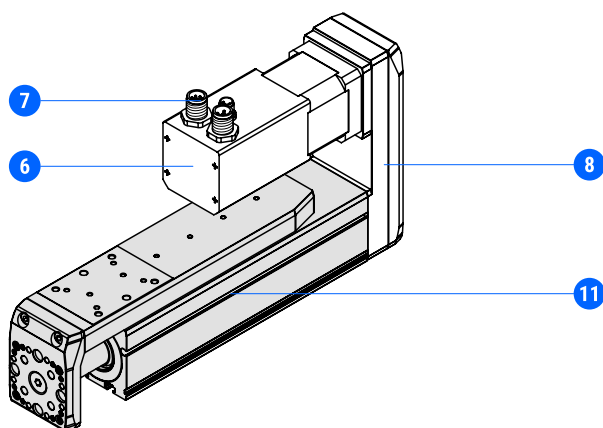
### With a standard motor, motor adapter VK, drive and cables



- 1 – Aluminium slide with an integrated linear guiding system
- 2 – Front plate
- 3 – Compact aluminium base profile
- 4 – Positioning rod
- 5 – Motor adapter VK with a coupling
- 6 – Preassembled motor (with/without a brake)
- 7 – Standard connectors (motor, encoder and brake – optionally)
- 8 – Motor side drive with a timing belt
- 9 – Drive shaft of a precision ball screw drive
- 10 – Slots for mounting
- 11 – Slots for the magnetic field sensors or mounting the sensor holder
- 12 – Drive
- 13 – Drive-motor cables
- 14 – Power cable
- 15 – Signal cable

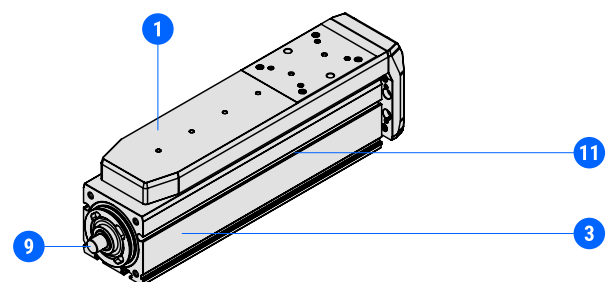
**Figure 4:** MSCE with a standard motor, motor adapter VK, drive and cables.

### With a standard motor, motor side drive MSD



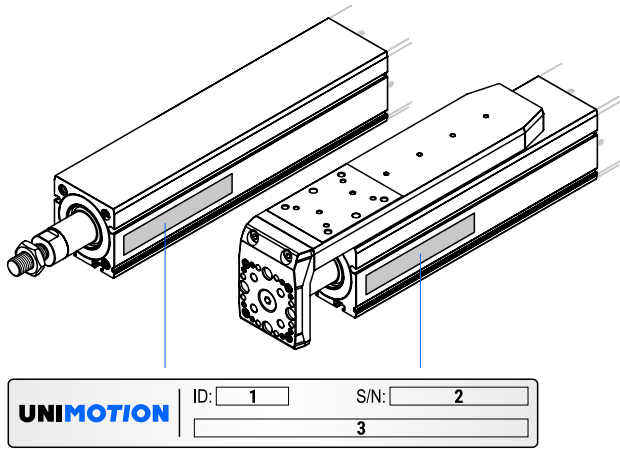
**Figure 5:** MSCE with a standard motor and a motor side drive MSD.

### Without a motor



**Figure 6:** MSCE without a motor.

## IDENTIFICATION LABEL



- 1 – ID number
- 2 – Serial number
- 3 – Product ordering code

**i** The label must be fully visible and must ensure compliance with all the instructions it contains. Damaged or illegible labels must be replaced.

Figure 7: Identification label of the product.



## TRANSPORT AND STORAGE

### TRANSPORT


The product is carefully packed for its safe transportation.

To correctly carry of the product, please take into consideration the following handling instructions:

- during carrying, the piston rod of the MCE or the positioning rod (slide) of the MSCE must be fully retracted,
- the MCE or MSCE must only be lifted by the cylinder profile or by the base profile, respectively,
- the MCE or MSCE must never be lifted by the piston rod or by the slide, respectively, since the ball screw drive is not self-locking,
- for the case of vertical or inclined positioned product, the piston rod (of the MCE) or the slide (of the MSCE) must be secured during transport,
- during carrying, the product must be prevented from swinging and dropping,
- if the standard motor is preassembled, during transporting the support of the motor must always be provided,
- the product weight must be taken into account.

 **Never stand under the product being carried**

Risk of serious injury or even death.

-  For the product weight calculations, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.


### STORING THE PRODUCT


The product needs to be stored in a dry and roofed place and protected against corrosion and humidity. Make sure that there is no danger of the product getting damaged. Short storage time should be ensured.


## MOUNTING


### MOUNTING OPTIONS

#### Mounting the product


 For the mounting accessories, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

 Mounting accessories are not pre-assembled to the product in the factory before shipment.

 **Never use other mounting points as it is presented**  
The product can be mounted only by the presented points (see Figure 8 or 10), otherwise the product may be damaged.

 **Avoid from collision of the mounting screws and the product**

There must never be any collision of the mounting screws and the product, otherwise the product may be damaged. The length of the mounting screws must be selected properly.

 For the mounting holes dimensions of the product and accessories, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

#### MCE

The product can be mounted as follows (see Figure 8):

- 1 – by the cylinder profile
- 2 – by the front cap
- 3 – by the piston rod end
- 4 – by the motor side drive (MSD)
- 5 – by the guiding unit
- 6 – by the back mount (accessory)

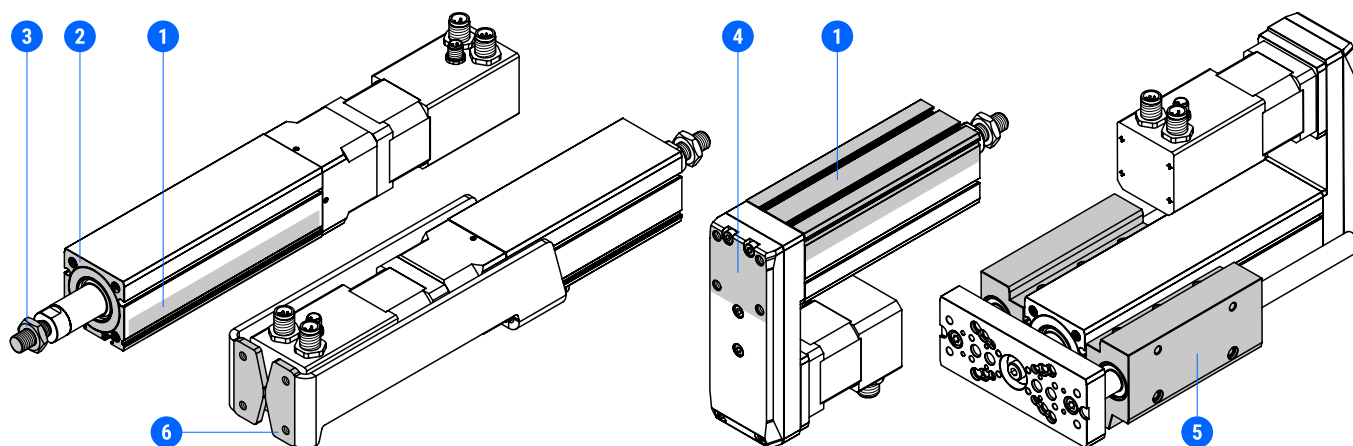
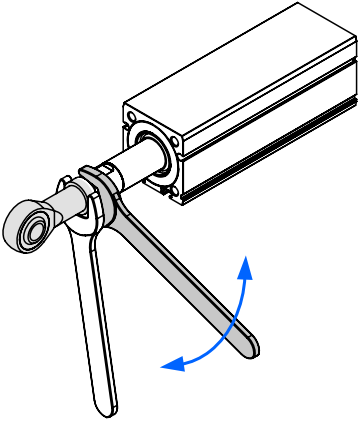


Figure 8: Mounting the MCE.

**⚠ The piston rod must not be subjected to torsion when tightening or loosening the hex nut**

In order to avoid torsion, use one wrench to hold the piston rod accessory in proper position, then tighten or loosen the hex nut with the second wrench, see Figure 9.

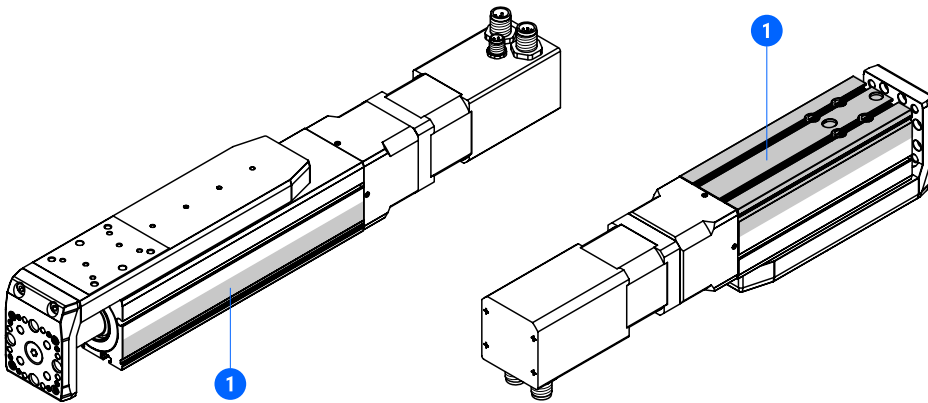


**Figure 9:** Tightening and loosening the hex nut to mount the piston rod accessory.

## MSCE

The product can be mounted as follows (see Figure 10):

1 – by the base profile



**Figure 10:** Mounting the MSCE.

## Mounting the attachment

**⚠ Never use other mounting points as it is presented**

The attachments can be mounted only on the presented points (see Figure 11 or 13), otherwise the product may be damaged.

**⚠ Avoid from collision of the attachment and the product**

There must never be any collision of the mounted attachment and the product, otherwise the product may be damaged.

**⚠ Avoid from collision of the mounting screws and the product**

There must never be any collision of the mounting screws and the product, otherwise the product may be damaged. The length of the mounting screws must be selected properly.

- 📖 For the mounting holes dimensions of the product and accessories, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

## MCE

The attachments can be mounted as follows (see Figure 11):

- 1 – on the piston rod end
- 2 – on the guiding unit

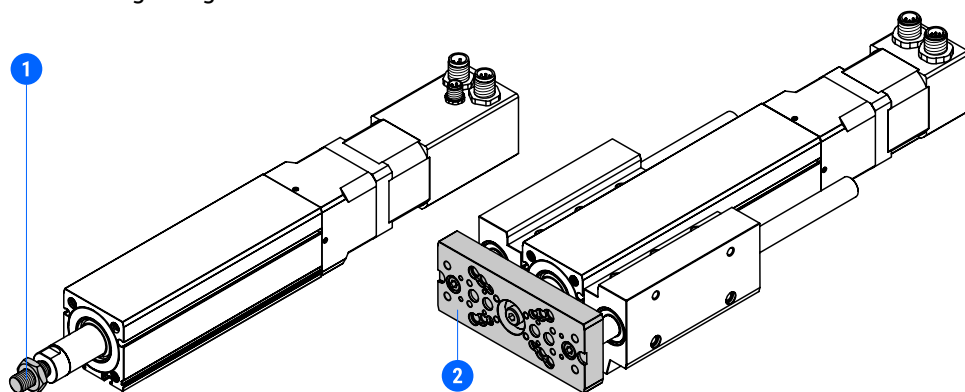


Figure 11: Mounting the attachments to the MCE.

**⚠ The piston rod must not be subjected to torsion when tightening or loosening the hex nut**

In order to avoid torsion, use one wrench to hold the piston rod in position, then tighten or loosen the hex nut with the second wrench, see Figure 12. If the attachment is fastened on the piston rod end using the tapped mounting hole, please refer to Figure 9.

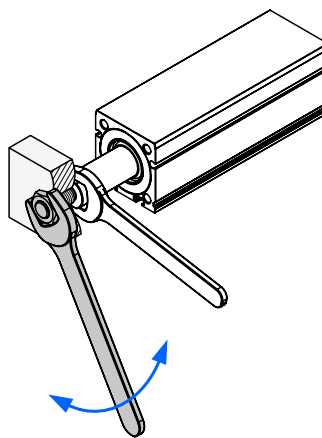
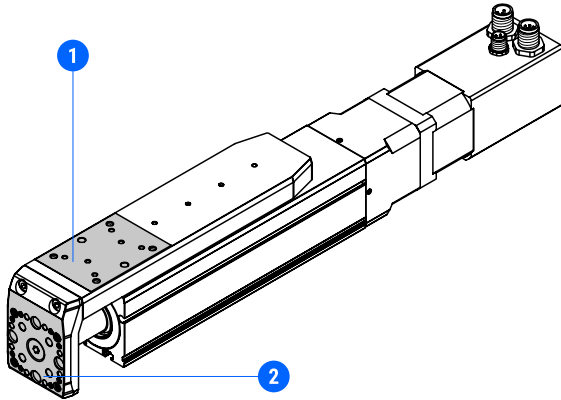


Figure 12: Tightening and loosening the hex nut to mount the attachment on the piston rod end.

## MSCE

The attachments can be mounted as follows (see Figure 13):


- 1 – on the slide
- 2 – on the front plate



**Figure 13:** Mounting the attachments to the MSCE.

## ORIENTATION

The product can be mounted in any orientation using a suitable combination of the mounting attachments.

 For the mounting accessories, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

### **Unexpected movement of the components**

Risk of serious injury or even death.

When the product is mounted vertically or in an inclined position, prevent the piston rod (MCE) or the slide (MSCE) from dropping due to the no self-locking effect of the ball screw drive. To avoid dropping of the mentioned moving components it is recommended to install a suitable motor with a holding brake.

## PERMISSIBLE LOADS

### ⚠ Overloading

Overloading the product can lead to the product being damaged.

ℹ For the values of the maximum permissible axial load, lateral load, drive torque, travel and rotational speed and acceleration (of the product and the product accessories), please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.

## MCE

### ⚠ The piston rod must not be subjected to the torsional loads

The piston rod must not be subjected to the torsional moment. In the case of the presence of any torsional loads, the guiding unit might be used, see Figure 14.

In the case of using other external guiding system, the exactly parallel alignment of the electric cylinder and the piston rod must be ensured.

ℹ For mounting the attachment to the piston rod end in order to avoid torsion, please refer to the section "Mounting → Mounting the attachment".

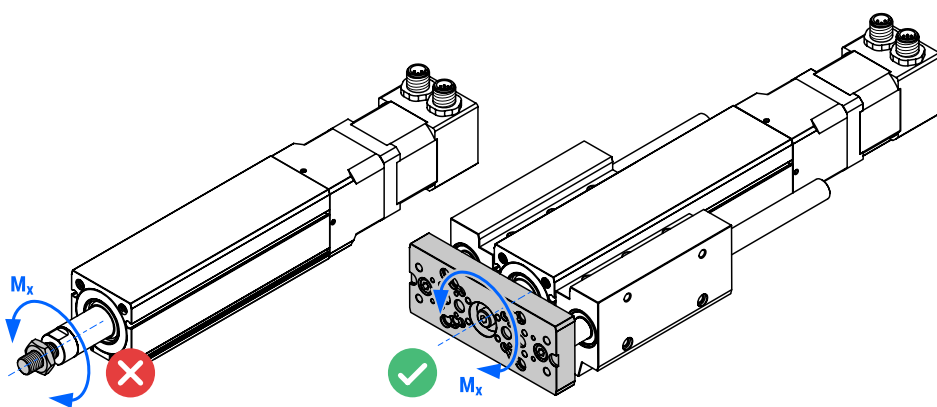


Figure 14: Piston rod subjected to the torsional moment  $M_x$ .

## MSCE

### ⚠ The slide must not be subjected to the loads causing its warping

The improper mounting of the attachment to the slide can cause the slide being warped (Figure 15). Service life of the product can be drastically decreased.

The attachments must always be mounted to the mounting surface, as it is presented in the Figure 13.

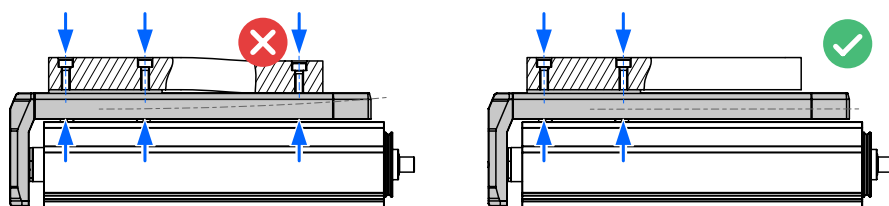


Figure 15: Warping of the slide.

## ACCESSORIES – OVERVIEW

**i** For information about materials, dimensions and the maximum permissible loads of the accessories, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

**i** Accessories are not pre-assembled to the product in the factory before shipment.

### MCE

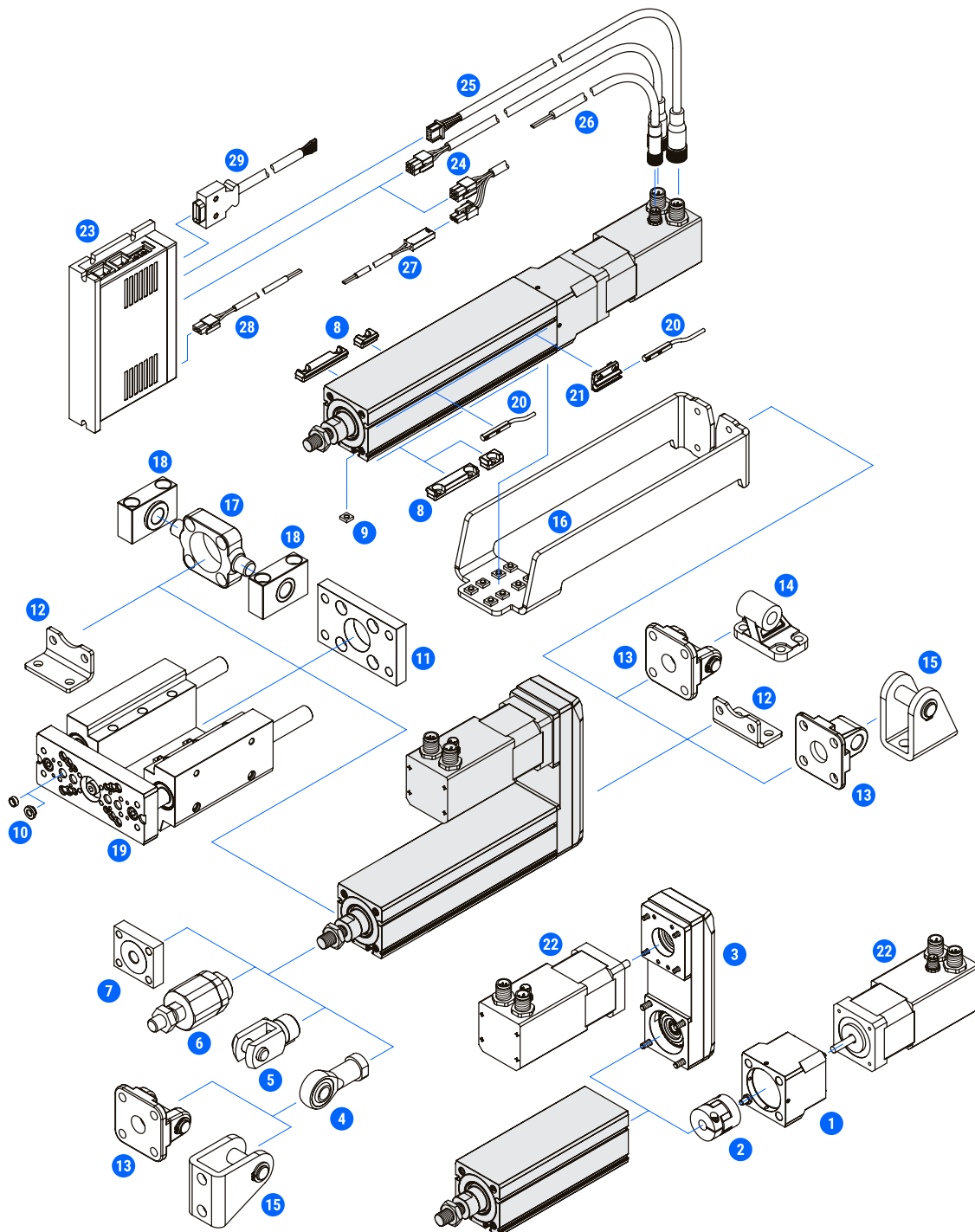


Figure 16: Overview of the MCEs accessories.

#	Accessories	Compatible with MCE size			
		25	32	45	
1	Motor adapter VK	•	•	•	Motor adapters
2	Coupling	•	•	•	Elastomer couplings
3	Motor side drive MSD	•	•	•	Motor side drives
4	Rod eye SGS	•	•	•	Piston rod accessories
5	Rod clevis SG	•	•	•	
6	Self-aligning joint FK	•	•	•	
7	Coupling piece KSZ	•	•	•	
8	Clamping fixture	•	•	•	Mounting attachment accessories
9	Slot nut	•	•	•	
10	Centering ring	•	•	•	
11	Flange mounting MAFL	•	•	•	
12	Foot mounting MAHP	•	•	•	
13	Swivel/clevis mount MASU	•	•	•	
14	Swivel foot mounting MLG	—	—	•	
15	Clevis foot mounting MLBU	•	•	—	
16	Back mount ABM	•	•	•	
17	Trunnion mount MZK	—	•	•	
18	Trunnion support MLZ	—	•	•	Guiding units
19	Guiding unit GUC	•	•	•	
20	Magnetic field sensor	•	•	•	Limit switches
21	Sensor holder HMG	•	—	—	
22	Motor	•	•	•	Motors
23	Drive	•	•	•	Drives
24	Motor cable	•*	•*	•	Cables
25	Encoder cable	•	•	•	
26	Brake cable	•*	•*	•	
27	Brake to terminal cable*	•	•	—	
28	Power cable	•	•	•	
29	Signal cable	•	•	•	

\* For the stepper motor size of 28, the motor and the brake cables are combined into one cable.  
For connectivity between the brake and the terminal, an additional brake to terminal cable is used.

**Table 3:** Overview of the MCEs accessories.



MSCE

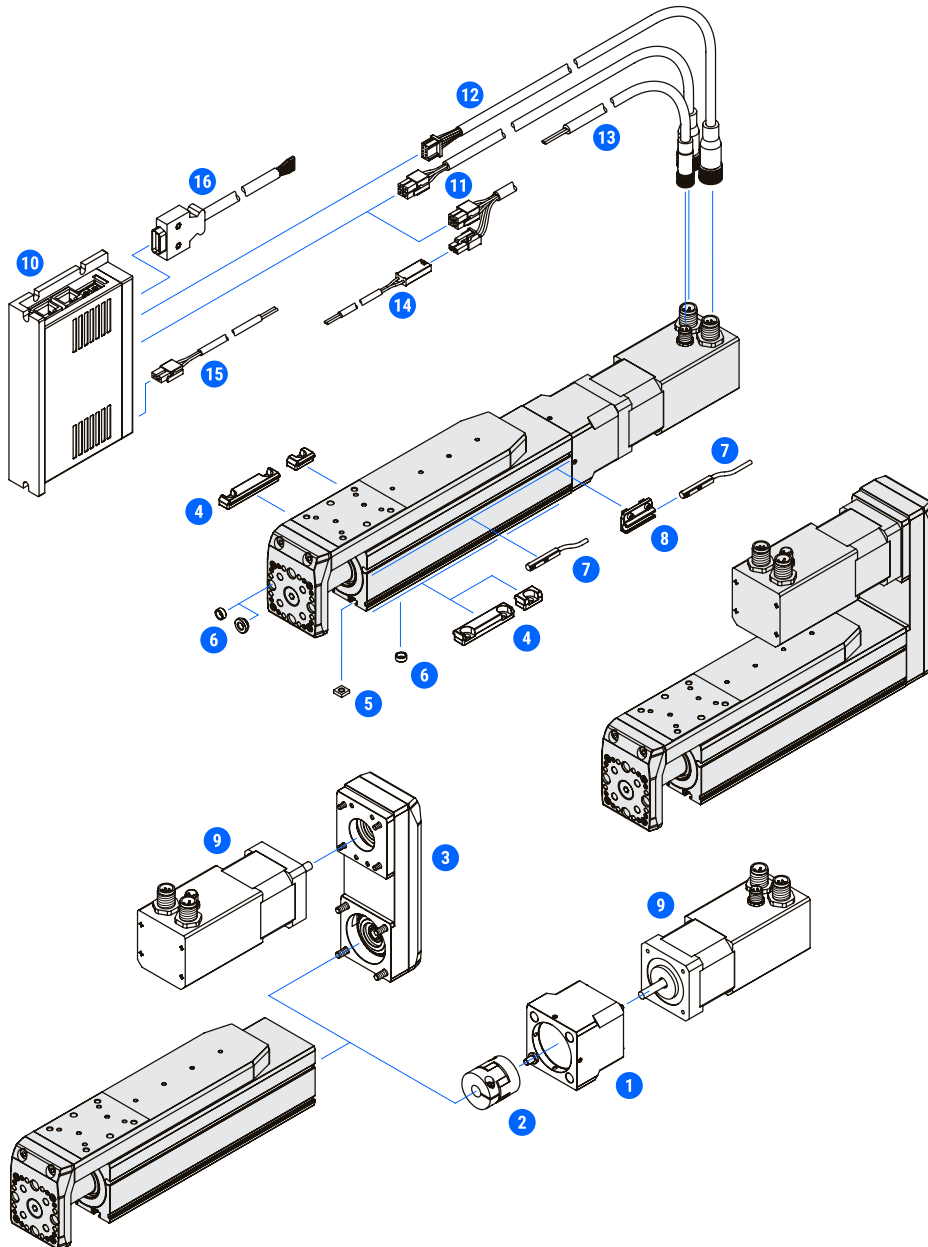


Figure 17: Overview of the MSCEs accessories.

#	Accessories	Compatible with MSCE size			
		25	32	45	
1	Motor adapter VK	•	•	•	Motor adapters
2	Coupling	•	•	•	Elastomer couplings
3	Motor side drive MSD	•	•	•	Motor side drives
4	Clamping fixture	•	•	•	Mounting attachment accessories
5	Slot nut	•	•	•	
6	Centering ring	•	•	•	
7	Magnetic field sensor	•	•	•	Limit switches
8	Sensor holder HMG	•	—	—	Motors
9	Motor	•	•	•	
10	Drive	•	•	•	Drives
11	Motor cable	•*	•*	•	Cables
12	Encoder cable	•	•	•	
13	Brake cable	•*	•*	•	
14	Brake to terminal cable*	•	•	—	
15	Power cable	•	•	•	
16	Signal cable	•	•	•	

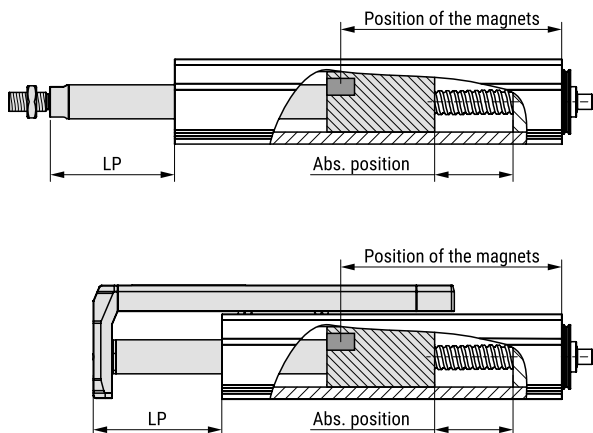
\* For the stepper motor size of 28, the motor and the brake cables are combined into one cable. For connectivity between the brake and the terminal, an additional brake to terminal cable is used.

**Table 4:** Overview of the MSCEs accessories.

## MAGNETIC FIELD SENSOR

### Position of the magnets

- i** The position of the magnets can be calculated using the absolute position or distance LP, see Figure 18 and Table 5, where both MCE and MSCE are taken into account.



**Figure 18:** Position of the magnets for the MCE and MSCE.

MCE/MSCE	MCE			MSCE		
	Position of the magnets [mm]		LP [mm]	Position of the magnets [mm]		LP [mm]
25	Abs. position + 37,0	LP - E + 27,0	Abs. position + E + 10,0	Abs. position + 37,0	LP + 25,0	Abs. position + 12,0
32	Abs. position + 44,5	LP - E + 32,5	Abs. position + E + 12,0	Abs. position + 44,5	LP + 30,5	Abs. position + 14,0
45	Abs. position + 54,0	LP - E + 38,0	Abs. position + E + 16,0	Abs. position + 54,0	LP + 36,0	Abs. position + 18,0

**Table 5:** Position of the magnets.

Abs. position	Absolute position	[mm]
LP	Distance LP	[mm]
E	Extended piston rod	[mm]

- It should be noted that the following condition must be taken into consideration:  
 $0 \leq \text{Absolute position} \leq \text{Absolute stroke}$

## Assembly instructions

- Magnetic field sensor can be mounted by using the slot for the magnetic field sensor placed on the both sides of the MCE/MSCE profile.  
For the MCE/MSCE size of 25, mounting of the magnetic field sensor requires an HMG sensor holder.
- For information about the profile slots and the magnetic field sensors, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders).

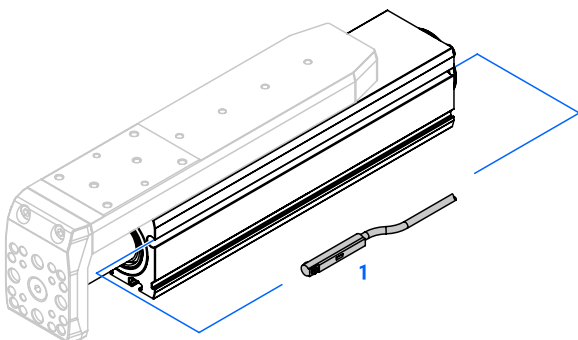
- Avoid from collision of the magnetic field sensors and the moving components**  
There must never be any collision of the mounted magnetic field sensors and the moving components of the product or structure, otherwise the product may be damaged.

- Risk of coming into contact with power conducting parts!**  
The power supply should be disconnected and secured against reconnection!

## Magnetic field sensor (without an HMG sensor holder)

- Valid for the MCE/MSCE size of 32 and 45.

**STEP 1:** The magnetic field sensor 1 must be placed in the slot of the MCE/MSCE profile.

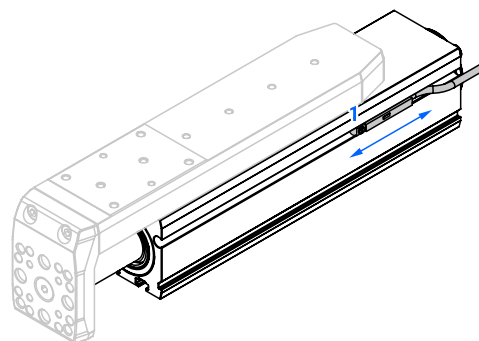


**Figure 19:** Mounting the sensor. step 1.

**STEP 2:** Adjust the magnetic field sensor 1 to the desired position. The position of the magnets can be found in Table 5.

**STEP 3:** Tighten the clamping screw of the magnetic field sensor 1.

- Tighten the clamping screw of the magnetic field sensor with a tightening torque of max. 0,6 Nm.



**Figure 20:** Mounting the sensor. step 2 and 3.

## Magnetic field sensor with an HMG sensor holder

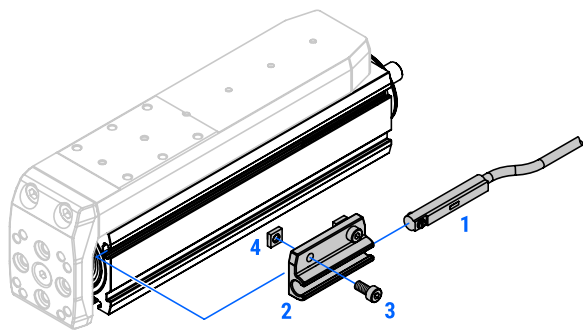
**i** Valid for the MCE/MSCE size of 25.

**STEP 1:** The magnetic field sensor **1** must be placed in the slot of the sensor holder **2**. Tighten the clamping screw of the magnetic field sensor **1**.

**⚠** Tighten the clamping screw of the magnetic field sensor with a tightening torque of max. 0,6 Nm.

**STEP 2:** Mount the screws **3** and the slot nuts **4** (of the sensor holder) onto the sensor holder **2**. Do not tighten them.

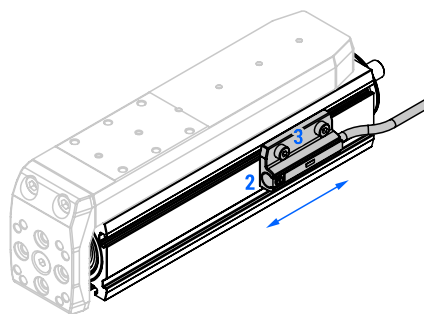
**STEP 3:** The sensor holder **2** together with the magnetic field sensor **1** must be placed in the slot of the MCE/MSCE profile.



**Figure 21:** Mounting the sensor with the sensor holder: step 1, 2 and 3.

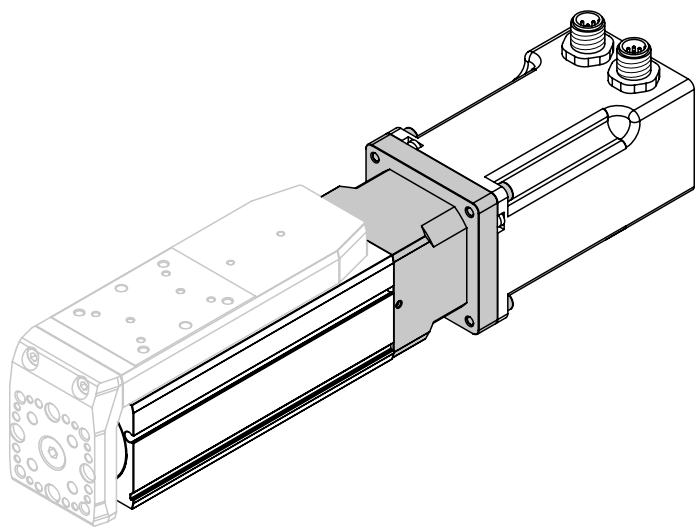
**STEP 4:** Adjust the sensor holder **2** together with the magnetic field sensor to the desired position. The position of the magnets can be found in Table 5.

**STEP 5:** Tighten the screws **3** of the sensor holder **2** to fix it.



**Figure 22:** Mounting the sensor with the sensor holder: step 4 and 5.

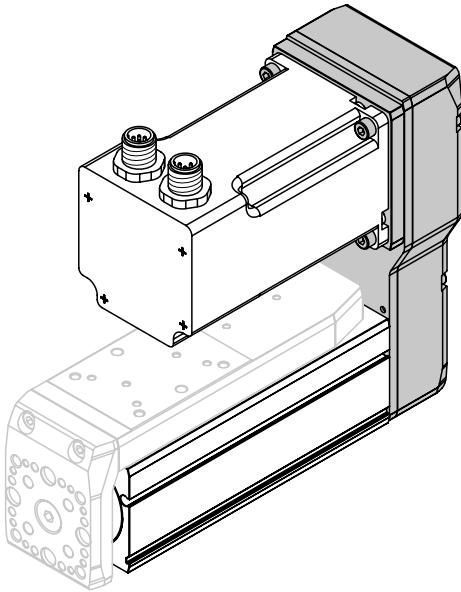
## MOTOR ADAPTER WITH A COUPLING



**Figure 23:** Mounting the motor on the MCE/MSCE in-line with a motor adapter VK and a coupling.

**i** For assembly instructions for the motor adapter VK with a coupling, please refer to the assembly instructions for VK MG (motor adapter with a coupling).

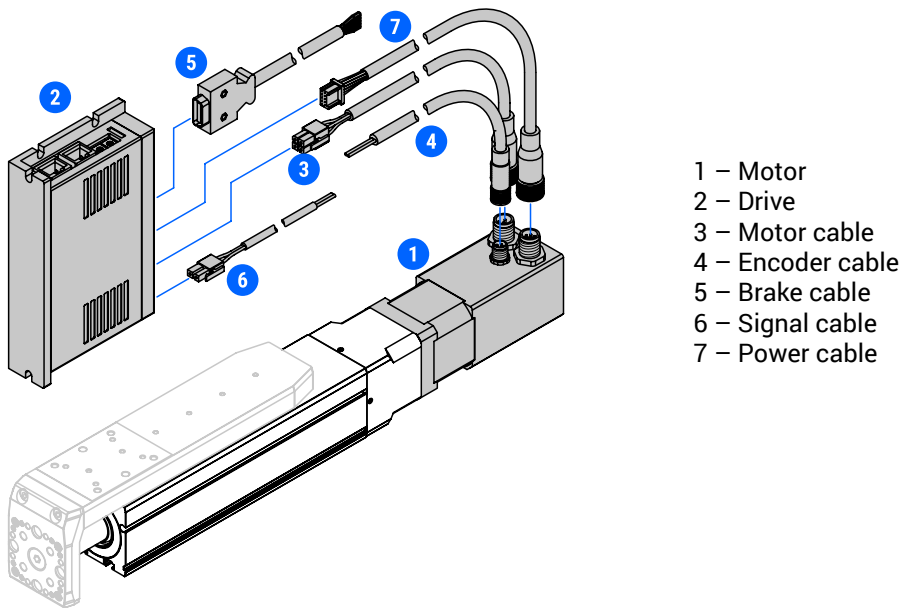
## MOTOR SIDE DRIVE WITH A TIMING BELT



- For assembly instructions for the motor side drive MSD with a timing belt, please refer to the assembly instructions for MSD MG (motor side drive with a timing belt).

**Figure 24:** Mounting the motor on the MCE/MSCE in-parallel with a motor side drive MSD and a timing belt.

## ELECTRICAL CONNECTION OF THE SYSTEM



**Figure 25:** Electrical connection of the system (symbolic presentation).

**⚠ Risk of coming into contact with power conducting parts!**

During the mounting procedure, the power supply should be disconnected and secured against reconnection!

**⚠ Safety and operating precautions of the close loop stepping system**

It is important to read the safety and operating precautions of the close loop stepping system before connecting the whole system. Otherwise, the product might get damaged.

**📖** For information about the electrical connection of the system together with all necessary precautions, please refer to the manual for used close loop stepping system.


**i** For the case of usage of the non-standard cables, the pin layout of the motor and drive connectors must be taken into consideration.

**📖** For information about the pin layout, please refer to the manual for used close loop stepping system and catalogue Stepper systems.

## INITIAL START-UP

### Before the initial start-up, check the followings:

- electrical wiring and connection of the system,
- mounted elements,
- tightened mounting screws,
- there are no physical stop limits over the entire maximum permissible travel range,
- the limit switches are correctly adjusted,
- there is no overloading of the product,
- operating conditions,
- direction of the movement of the piston rod (MCE) or the slide (MSCE) depending on the motor shaft rotation,
- homing procedure (by the limit switch or physical end position, where the maximum permissible drive torque of the product and homing travel speed of 10 mm/s are not exceeded),
- application requirements.

 For the values of the maximum permissible axial load, lateral load, drive torque, travel and rotational speed and acceleration, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.

### **Overloading**

Overloading the product can lead to the product being damaged.

### **Unexpected movement of the components**

During the operation, prevent the moving components of the product getting into the contact (within the entire travel range) with foreign objects, machine structure or persons. Perform the initial operation of the product with low dynamic response (~ 10 mm/s). Due to the no self-locking effect of the ball screw drive the possible unexpected movement of the piston rod (MCE) or the slide (MSCE) must be taken into consideration.

### **Avoid from collision caused by the incorrectly adjusted limit switches**

Observe the maximum travel range of the MCE or MSCE. Make sure that over the entire travel range there are no physical stop limits, otherwise the product might get damaged.

### **Short circuiting caused by improper electrical connection of the system**


All the cables connectors must be assigned and plugged in correctly, otherwise the product might get damaged.

### **Risk of burns from hot surfaces of the product**

It should be noted, that during the operating process hot surfaces of the product may occur. Before handling the procedure, allow the product to cool down to the appropriate temperature.

### **Loss of the reference when removing the motor**

In the case the motor is removed, the reference position may be lost. After the motor is remounted, it is important to perform a homing procedure.

 It should be noted that identical products can generate different running noises during the operation.


## OPERATION

The product must not be put into operation until the final machinery into which it is installed has been declared in conformity with the provisions of the machinery directives, where appropriate.

The product is ready for operation process only after a successful test run was performed.

### **Overloading**

Overloading the product can lead to the product being damaged.

 For the values of the maximum permissible axial load, lateral load, drive torque, travel and rotational speed and acceleration, please refer to the product catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.


### **Unexpected movement of the components**

During the operation, prevent the moving components of the product getting into the contact (within the entire travel range) with foreign objects, machine structure or persons. Due to the no self-locking effect of the ball screw drive the possible unexpected movement of the piston rod (MCE) or the slide (MSCE) must be taken into consideration.

## MAINTENANCE

### LUBRICATION

The product is life-time pre-lubricated and does not require any maintenance.

 Each MCE and MSCE is optimally pre-lubricated in the factory before shipment and ready for a maintenance-free operating process.

### CLEANING

The product can be cleaned only with a clean, soft and dry (or slightly damp) cloth.

### **Risk of coming into contact with power conducting parts!**

During the cleaning procedure, the power supply should be disconnected and secured against reconnection!

### **Do not use aggressive cleaning agents**

Aggressive cleaning agents can lead to the product being damaged.



## REPAIR

### MCE / MSCE

Mini electric cylinder MCE and mini electric slider MSCE can not be repaired. It can be only replaced with an identical MCE or MSCE.

**i** For more information, please contact us.

### MOTOR AND DRIVE

If the motor or drive require the repair, please contact us.

## DISASSEMBLY AND REPLACEMENT

#### **⚠ Risk of coming into contact with power conducting parts!**

During the disassembly or replacing procedure, the power supply should be disconnected and secured against reconnection!

#### **⚠ Unexpected movement of the components**

Risk of serious injury or even death.

During the disassembly or replacing procedure, prevent the piston rod (MCE) or the slide (MSCE) from dropping due to the no self-locking effect of the ball screw drive.

#### **⚠ Risk of burns from hot surfaces of the product**

It should be noted, that during the operating process hot surfaces of the product may occur. Before the disassembly procedure, allow the product to cool down to the appropriate temperature.

### DISASSEMBLY

#### **Dismounting procedure:**

- disconnect the drive from the power supply,
- disconnect all the electrical installation,
- dismount the attachments,
- dismount the mounting accessories,
- dismount the accessories (motor adapter, motor side drive, magnetic field sensors).

**i** For dismounting the product properly, please refer to the mounting procedure.

**i** For dismounting the motor adapter or motor side drive, please refer to the assembly instructions for VK MG (motor adapter with a coupling) or MSD MG (motor side drive with a timing belt), respectively.

### REPLACEMENT

**i** For replacement procedure, please refer to the dismounting and mounting procedure of the product.

## DISPOSAL

At the end of the product service life the product and its components must be disposed in accordance with the applicable national and international directives.

The product is in general assembled from different materials such as aluminium, steel, plastic, grease and optionally also from electronic components.

**i** For more information about the materials, please contact us.

## TECHNICAL DATA

Technical data together with the characteristic curves can be found in the product catalogue.

**i** For information about the technical data, please refer to the catalogue MCE and MSCE (mini electric cylinders and sliders) and catalogue Stepper systems.

# UNIMOTION



**We cover all major markets.** If you wish to contact us, send us an enquiry and we would be happy to assist you.

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