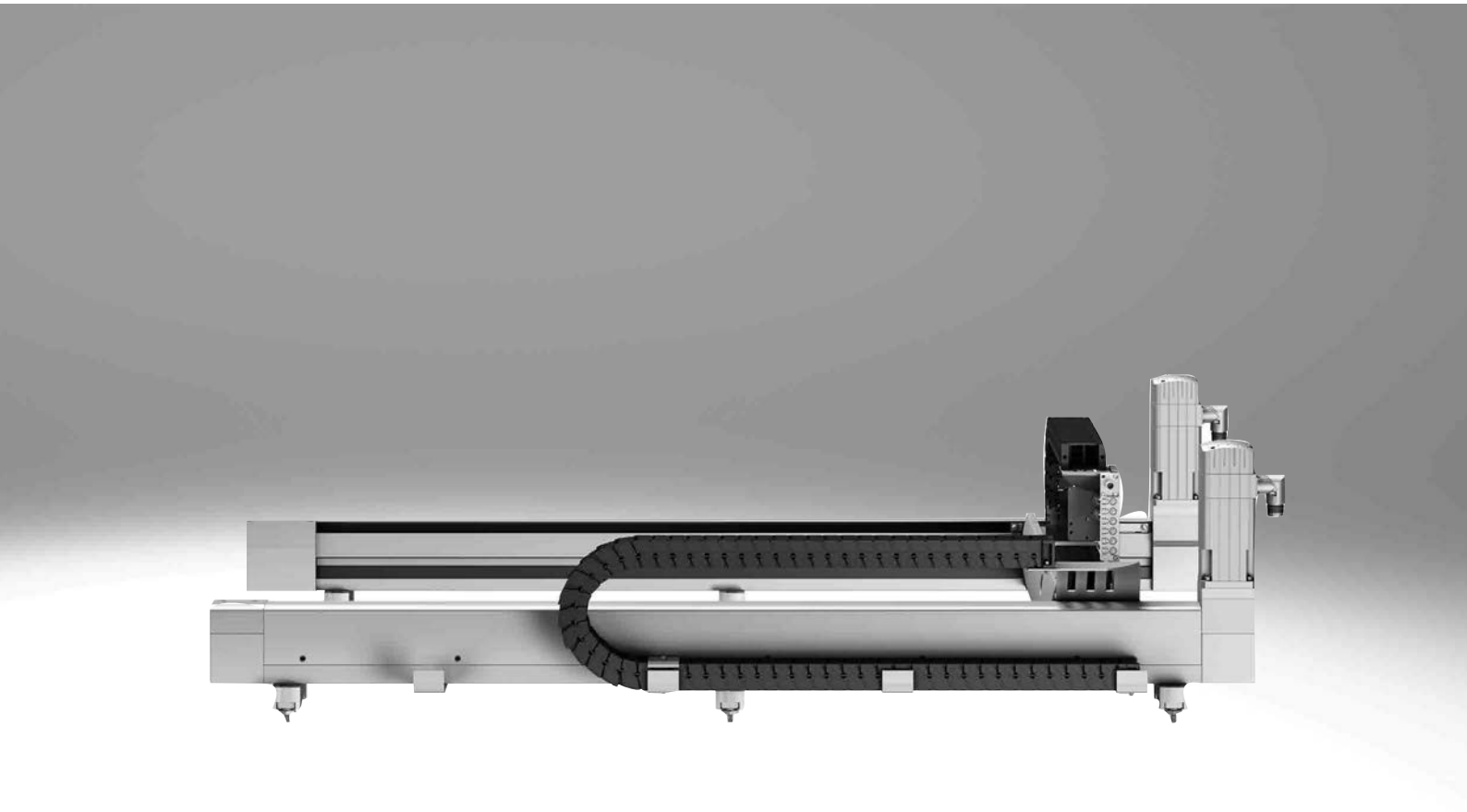
# Planar surface gantries EXCH



# Characteristics

**At a glance**

## General information

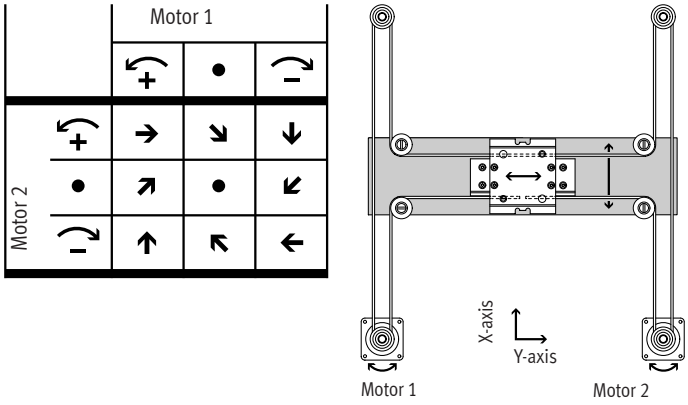
- Optimal dynamic response when compared with other Cartesian gantry systems
- The drive concept ensures low moving dead weight
- Flat system design
- Perfectly matched drive and controller package
- High acceleration in both axis directions

## Application examples

- Fast repositioning of parts and modules in a large, rectangular working space, e.g.:
  - Sorting
  - Loading, unloading
  - Gluing, cutting

## Operating principle

A slide is moved in a two-dimensional space (X-axis/Y-axis) via a toothed belt. The system is powered by two fixed motors. The motors are coupled to the toothed belt. The belt is guided via pulleys so that the slide can move to any position in a working space when the motors are actuated.
When using attachment components, additional processes can be carried out by independent Z-axes.



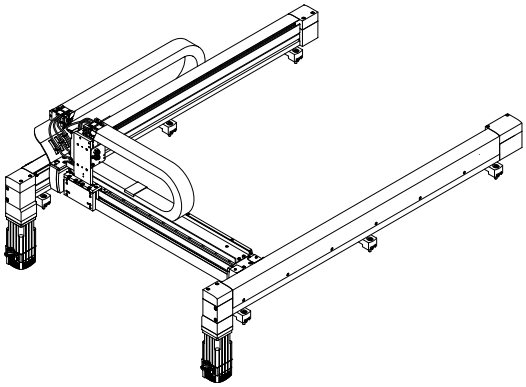

| Type | | EXCH-40 | EXCH-60 |
|---|---|---|---|
| Guide | | Recirculating ball bearing guide | |
| Stroke of the | | | |
| X-axis | [mm] | 200 ... 2000 | 500 ... 2500 |
| Y-axis | [mm] | 200 ... 1000 | 500 ... 1500 |
| Z-axis | [mm] | 50, 100, 150, 200 | |
| Rated load at max. dynamic response[1] | [kg] | 4 | 6 |
| Max. speed | | | |
| Horizontal | [m/s] | 5 | 5 |
| Vertical | [m/s] | 4 | 3 |
| Max. acceleration | | | |
| Horizontal | [m/s²] | 50 | |
| Vertical | [m/s²] | 30 | |
| Repetition accuracy[2] | [mm] | ±0.1 | |
| Mounting position[3] | | Horizontal or vertical | |

1) Rated load = tool load (attachment component (Z-axis) + gripper, for example) + payload
2) The repetition accuracy relates to the centre point of the slide
3) Vertical mounting position only permitted with motors with brake and braking resistors

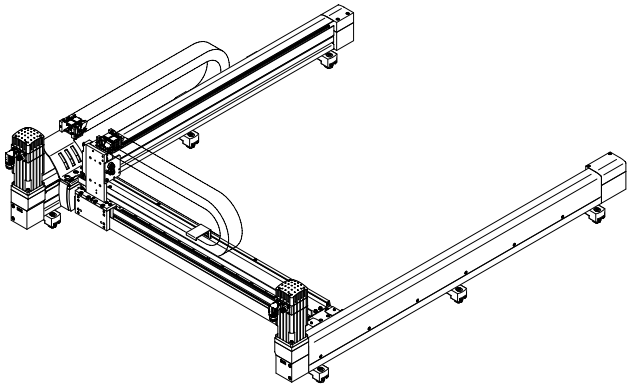
# Characteristics

**Motor mounting variants**

EXCH-...-B – Motor underneath



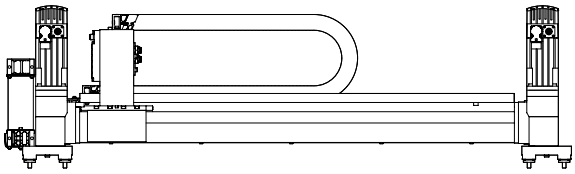
EXCH-...-T – Motor on top



**Mounting positions**

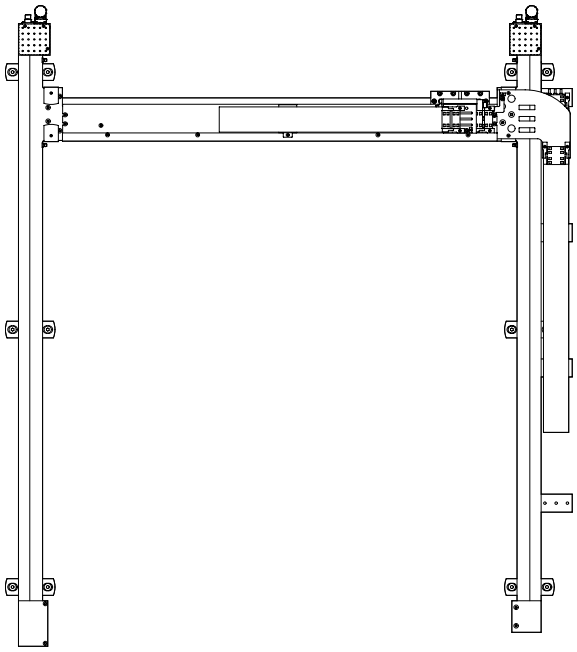
Horizontal

- Installation always has energy chain at the top



Vertical

- Only the X-axes may be installed vertically
- Motors must be on top so that the energy chain can hang freely
- In combination with a control cabinet, the integrated safety relay unit with power failure detection (order code S2) must be ordered
- Only in combination with the more powerful motors.
  - EXCH-40: order code AB2
  - EXCH-60: order code AB3
- Only use motors with brake
- Braking resistors are essential



**Note**

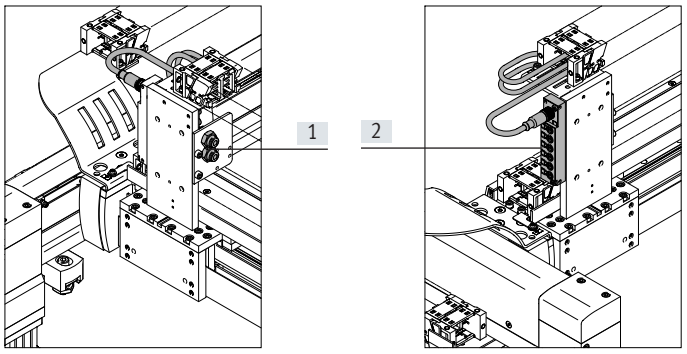
During commissioning, the motor brake must be released for safety purposes.

# Characteristics

**Selection of attachment components (Z-axis)**

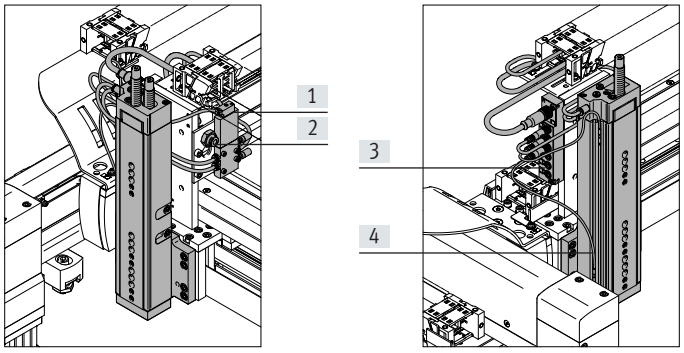
Without attachment component

The following are already installed on delivery:
[1] 2 compressed air supply ports for e.g. Z-axis
[2] Multi-pin plug distributor (6-way) for bundling signals:
– e.g. proximity sensors



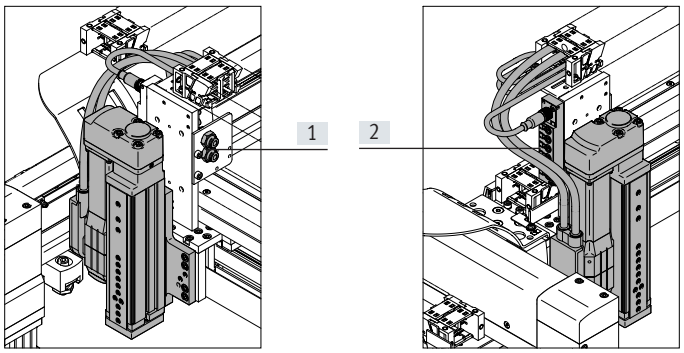

Attachment component, pneumatic (mini slide DGSL)

The following are already installed on delivery:
[1] Solenoid valve for controlling the drive
[2] 1 compressed air supply port for e.g. gripper
[3] Multi-pin plug distributor (6-way) for bundling signals:
– For mini slide DGSL:
– 2 proximity sensors
– 1 solenoid valve
– 3 connections available
[4] Proximity sensors for sensing the end positions




Attachment component, electric (mini slide EGSL)

The following are already installed on delivery:
[1] 2 compressed air supply ports for e.g. gripper
[2] Multi-pin plug distributor (6-way) for bundling signals:
– e.g. proximity sensors




Additional information ➔ page 16

# Type codes

| 001 | Series | |
|---|---|---|
| **EXCH** | Planar surface gantry | |

| 002 | Size | |
|---|---|---|
| **40** | 40 | |
| **60** | 60 | |

| 003 | Stroke of the X-axis [mm] | |
|---|---|---|
| **200** | 200 | |
| **2500** | 2500 | |

| 004 | Stroke of the Y-axis [mm] | |
|---|---|---|
| **200** | 200 | |
| **1500** | 1500 | |

| 005 | Guide | |
|---|---|---|
| **KF** | Recirculating ball bearing guide | |

| 006 | Motor type | |
|---|---|---|
| **AB1** | Servo motor AC, size 70, with brake | |
| **AB2** | Servo motor AC, size 100, with brake | |
| **AB3** | Servo motor AC, size 140, with brake | |
| **AS1** | Servo motor AC, size 70 | |
| **AS2** | Servo motor AC, size 100 | |
| **AS3** | Servo motor AC, size 140 | |
| **W** | Without motor | |

| 007 | Motor attachment position | |
|---|---|---|
| **B** | Underneath | |
| **T** | Top | |

| 008 | Energy chain connection side | |
|---|---|---|
| **L** | Left | |

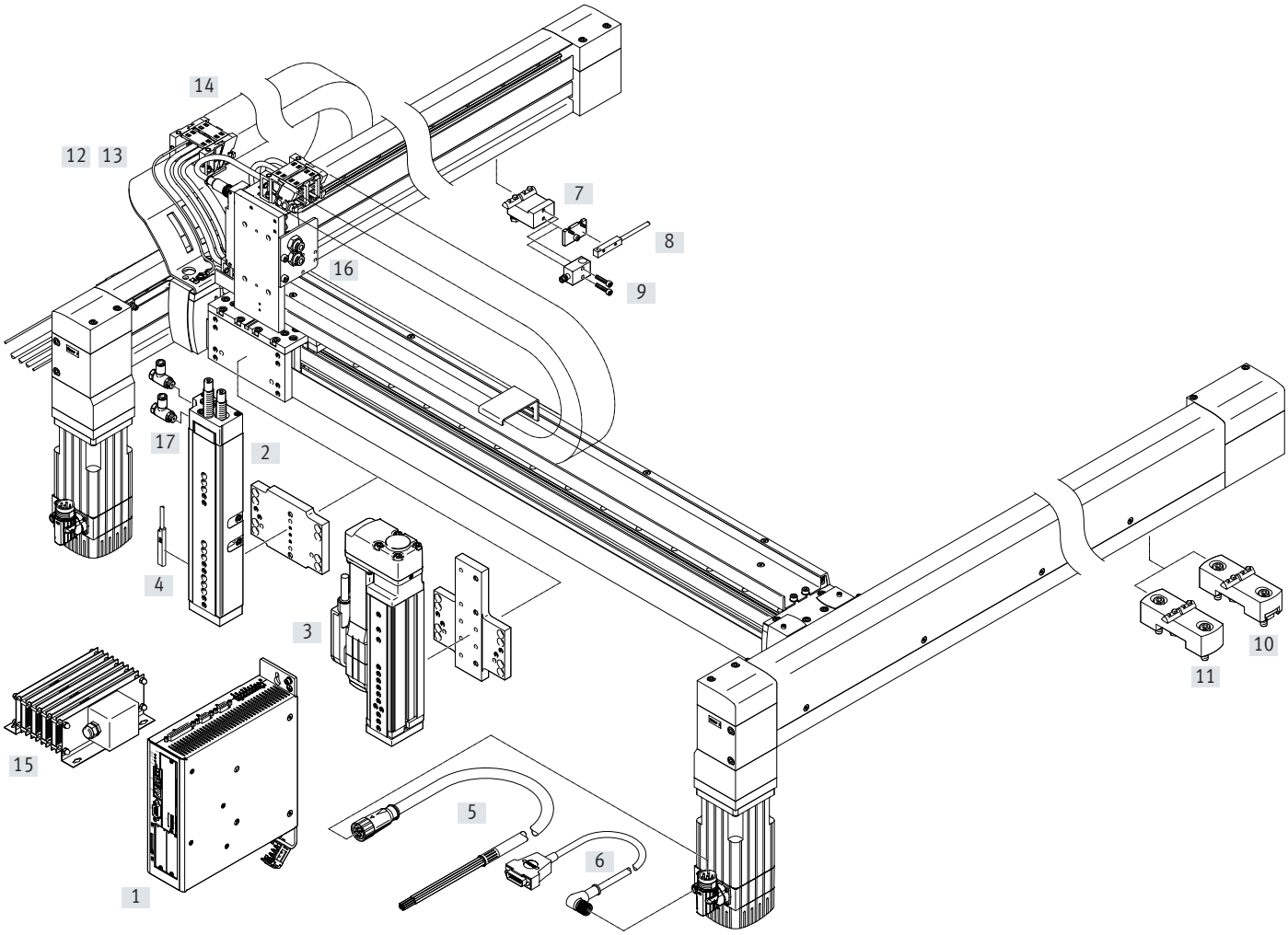
| 009 | Attachment components | |
|---|---|---|
| **T0** | None | |
| **P1** | Pneumatic lifting unit, stroke 50 mm | |
| **P2** | Pneumatic lifting unit, stroke 100 mm | |
| **P3** | Pneumatic lifting unit, stroke 150 mm | |
| **P4** | Pneumatic lifting unit, stroke 200 mm | |
| **E1** | Electric lifting unit, stroke 100 mm | |
| **E2** | Electric lifting unit, stroke 200 mm | |

| 010 | Cable length | |
|---|---|---|
| **5K** | 5 m | |
| **10K** | 10 m | |

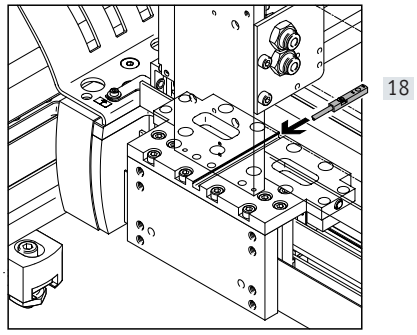
| 011 | Mounting kit | |
|---|---|---|
| **P** | With mounting kit | |
| | With adjusting kit | |

| 012 | Document language | |
|---|---|---|
| **DE** | German | |
| **EN** | English | |
| **ES** | Spanish | |
| **FR** | French | |
| **IT** | Italian | |
| **RU** | Russian | |
| **ZH** | Chinese | |

# Peripherals overview




Proximity sensor for sensing the position of the slide on the Y-axis



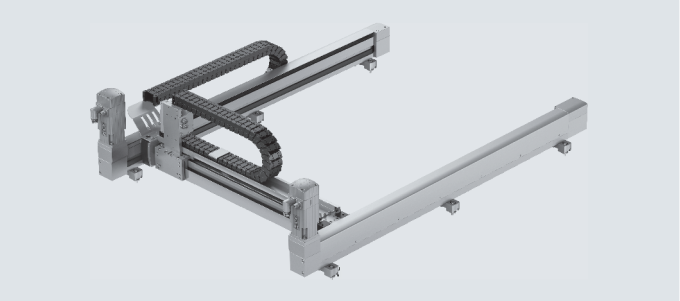
# Peripherals overview

**Attachments and accessories**

| Type | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Motor controller<br>CMMP-AS | • For controlling the planar surface gantry | 34 |
| [2] | Mini slide<br>P1, P2, P3, P4 | • Pneumatic attachment component (mini slide DGSL) for the Z-axis | 30 |
| [3] | Mini slide<br>E1, E2 | • Electric attachment component (mini slide EGSL) with motor cable NEBM and encoder cable NEBM for the Z-axis | 30 |
| [4] | Proximity sensor<br>SME-10M | • For position sensing on the Z-axis<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-P... | 33 |
| [5] | Motor cable<br>NEBM-M23G8 | • Connecting cable between motor and motor controller CMMP-AS<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-A... | 34 |
| [6] | Encoder cable<br>NEBM-M12W8 | • Connecting cable between encoder and motor controller CMMP-AS<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-A... | 34 |
| [7] | Sensor mounting<br>EAPR | • For mounting the proximity sensors SIES-Q8B and SIES-V3B on the X-axis<br>• Not included in the scope of delivery of the planar surface gantry | 32 |
| [8] | Proximity sensor<br>SIES-Q8B | • For position sensing on the X-axis<br>• Not included in the scope of delivery of the planar surface gantry | 33 |
| [9] | Proximity sensor<br>SIES-V3B | • For position sensing on the X-axis<br>• Not included in the scope of delivery of the planar surface gantry | 33 |
| [10] | Adjusting kit<br>EADC-12 | • Height-adjustable mounting kit for the planar surface gantry<br>• Included in the scope of delivery of the planar surface gantry. If no adjusting kit is selected in the modular product system, the mounting kit will automatically be delivered | 32 |
| [11] | Mounting kit<br>EAHM-E12 | • Non-height-adjustable mounting kit for the planar surface gantry | 32 |
| [12] | Multi-pin plug distributor<br>NEDU | • For connecting up to 6 inputs/outputs<br>• Included in the scope of delivery of the planar surface gantry | nedu |
| [13] | Plug socket with cable<br>SIM | • Connecting cable between multi-pin plug distributor NEDU and the controller<br>• Included in the scope of delivery of the planar surface gantry | sim |
| [14] | Energy chain | • For EXCH-40: type IGUS E6.29.040.075.0<br>• For EXCH-60: type IGUS E6.35.050.075.0 | – |
| [15] | Braking resistor<br>CACR-KL2 | • Essential in the case of a vertical mounting position | 33 |
| [16] | Plastic tubing<br>PUN-H-6x1 | • Two compressed air tubes are connected to the bulkhead fittings and routed in the energy chains on delivery (for pneumatic Z-axis, one tube on the valve and one on the bulkhead fitting) | pun |
| [17] | One-way flow control valve<br>GRLA | • For regulating speed<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-P... | – |
| [18] | Proximity sensor<br>SIES-8M | • For position sensing on the Y-axis<br>• Not included in the scope of delivery of the planar surface gantry | 33 |
| | Motor cable<br>NEBM-T1G8 | • Connecting cable between motor on the Z-axis and motor controller CMMP-AS<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-E... | 34 |
| | Encoder cable<br>NEBM-T1G8 | • Connecting cable between encoder on the Z-axis and motor controller CMMP-AS<br>• Included in the scope of delivery of the planar surface gantry EXCH-...-E... | 34 |

# Data sheet

Size
40, 60

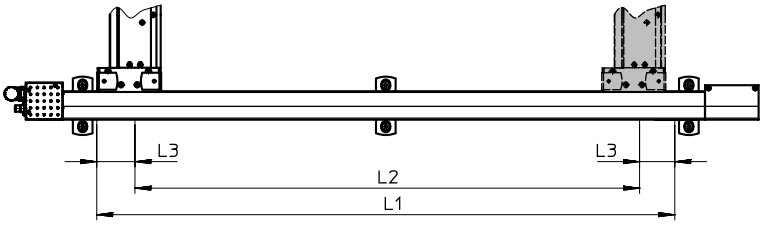


| General technical data | | | |
|---|---|---|---|
| Size | | 40 | 60 |
| Design | | Planar surface gantry | |
| Guide | | Recirculating ball bearing guide | |
| Stroke of the | | | |
| X-axis | [mm] | 200 ... 2000 | 500 ... 2500 |
| Y-axis | [mm] | 200 ... 1000 | 500 ... 1500 |
| Z-axis | [mm] | 50, 100, 150, 200 | |
| EXCH-...-E1 | [mm] | 100 | |
| EXCH-...-E2 | [mm] | 200 | |
| EXCH-...-P1 | [mm] | 50 | |
| EXCH-...-P2 | [mm] | 100 | |
| EXCH-...-P3 | [mm] | 150 | |
| EXCH-...-P4 | [mm] | – | 200 |
| Rated load at max. dynamic response[1] | [kg] | 4 | 6 |
| Max. torque[2] | [Nm] | → Page 12 | |
| Max. no-load torque[2][3] | [Nm] | → Page 13 | |
| Max. acceleration[4] | | | |
| Horizontal | [m/s²] | 50 | |
| Vertical | [m/s²] | 30 | |
| Max. speed[4] | | | |
| Horizontal | [m/s] | 5 | |
| Vertical | [m/s] | 4 | 3 |
| Repetition accuracy | [mm] | ±0.1 | |
| Mounting position[5] | | Horizontal or vertical | |
| Type of mounting | | Mounting kit, adjusting kit | |

1) Rated load = tool load (attachment component (Z-axis) + gripper, for example) + payload
2) These values must also be complied with when installing third-party motors
3) At v=0.2 m/s and 45° travel.
4) These data apply only under ideal conditions.
For a precise configuration, please consult a sales engineer from Festo.
Additional information → page 13
5) Vertical installation only permitted with motors with brake and braking resistors

## Factoring in software end positions

When selecting the strokes for the X- and Y-axis, the dimension L3 for the software end positions must be taken into account in addition to the working stroke L2. This dimension is freely selectable.
Setting pieces with L3 = 30 mm are included in the scope of delivery of the planar surface gantry.



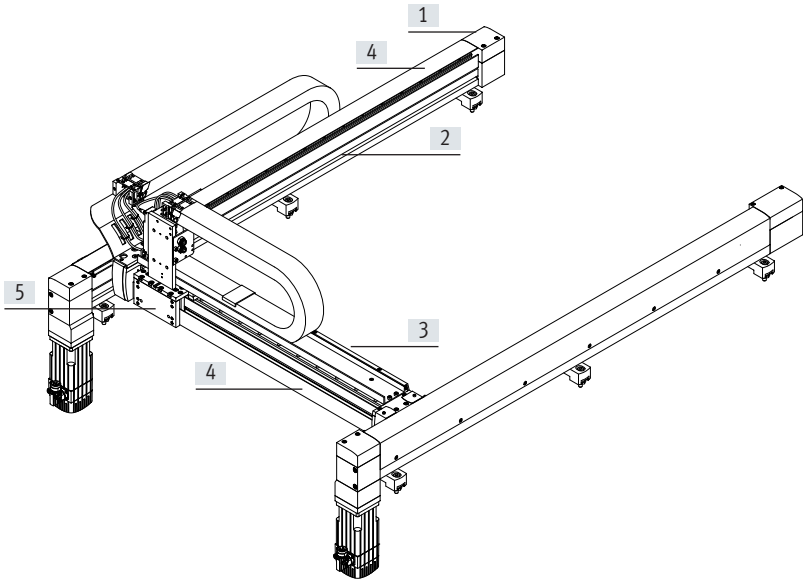

Stroke L1 = working stroke L2 + 2x software end position L3

# Data sheet

| Operating and environmental conditions | | | |
|---|---|---|---|
| Size | | 40 | 60 |
| Degree of protection | | IP40 | |
| Ambient temperature[1] | [°C] | +10 ... +50 | |
| Storage temperature | [°C] | –10 ... +60 | |
| Relative humidity | [%] | 0 ... 90 (non-condensing) | |
| Sound pressure level | [dB(A)] | 74 | 81 |
| Duty cycle | [%] | 100 | |
| CE marking (see declaration of conformity) | | To EU Machinery Directive | |

1) Note operating range of proximity sensors and motors

## Materials




| Size | | 40 | 60 |
|---|---|---|---|
| [1] | Drive and end caps | Aluminium | |
| [2] | Profiles of the X-axis | Aluminium | |
| [3] | Profile of the Y-axis | Aluminium | |
| [4] | Covering | | |
| | X-axis | Aluminium | |
| | Y-axis | Aluminium | |
| [5] | Slide | Aluminium | |
| – | Coupling | Aluminium with elastomer ring gear | Clamping hub: aluminium<br>Expanding mandrel hub: stainless steel<br>Ring gear: elastomer |
| | Guide | Steel | |
| | Drive pinion | Steel | |
| | Ball bearing | Steel | |
| | Toothed belt | PU with steel cord | |
| | Note on materials | RoHS-compliant | |
| | | Contains paint-wetting impairment substances | |

# Data sheet

| **Weights [kg]** | | |
|---|---|---|
| Size | 40 | 60 |
| Product weight with 0 mm stroke (without rated load, motors, axial kits, mounting kits) | | |
| X-axis and Y-axis | 16.6 | 37.9 |
| Y-axis (without slide) | 6.0 | 11.5 |
| Additional weight per 100 mm stroke | | |
| X-axis | 1.69 | 2.21 |
| Y-axis | 0.81 | 0.99 |
| Axial kit[1)] | | |
| For EMMS-AS-70/-100 | 0.66 | 1.33 |
| For EMMS-AS-100/-140 | 1.02 | 2.06 |
| Motor[1)] | | |
| Without brake | | |
| EXCH-...-AS1 | 2.7 | – |
| EXCH-...-AS2 | 4.8 | 6.9 |
| EXCH-...-AS3 | – | 9.6 |
| With brake | | |
| EXCH-...-AB1 | 2.9 | – |
| EXCH-...-AB2 | 5.3 | 7.5 |
| EXCH-...-AB3 | – | 10.4 |
| Attachment component (Z-axis) | | |
| Electric | | |
| EXCH-...-E1 | 3.4 | 5.3 |
| EXCH-...-E2 | 4.0 | 6.2 |
| Pneumatic | | |
| EXCH-...-P1 | 1.8 | 2.7 |
| EXCH-...-P2 | 2.4 | 3.6 |
| EXCH-...-P3 | 2.7 | 4.3 |
| EXCH-...-P4 | – | 5.0 |
| Mounting kit for X-axis | | |
| Adjusting kit[1)] | 0.78 | 0.89 |
| Mounting kit[1)] | 0.33 | 0.37 |

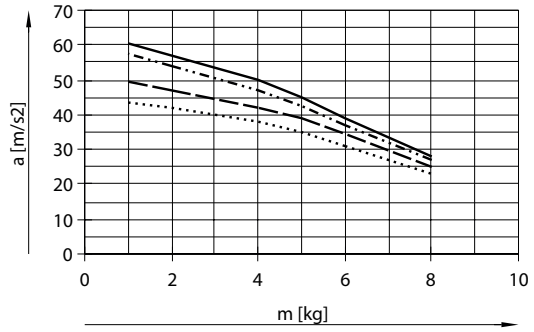
1) Weight per component

# Data sheet

**Acceleration a as a function of the rated load m and stroke of the Y-axis**

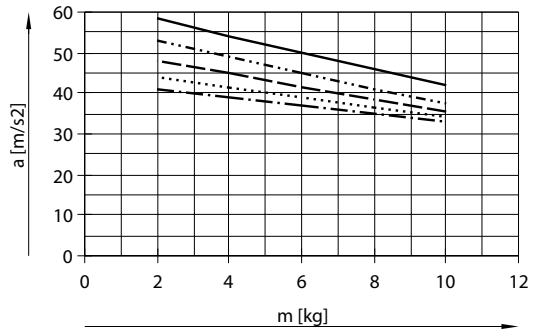
The following data apply to a horizontal mounting position. For a vertical mounting position, please get in touch with your local contact at Festo.
The centre of gravity of the slide is at the height of the slide in the Z-direction and in the centre of the slide in the X-/Y-directions.

EXCH-40




Stroke, Y-axis = 400 mm
Stroke, Y-axis = 500 mm
Stroke, Y-axis = 750 mm
Stroke, Y-axis = 1000 mm

EXCH-60




Stroke, Y-axis = 500 mm
Stroke, Y-axis = 750 mm
Stroke, Y-axis = 1000 mm
Stroke, Y-axis = 1250 mm
Stroke, Y-axis = 1500 mm

# Data sheet

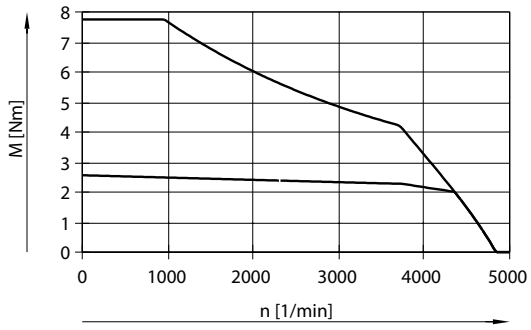
## Torque M as a function of rotational speed n

Typical motor characteristic curve with nominal voltage and optimal motor controller. The torque may briefly exceed the nominal torque. The rms value of the torque for the particular positioning cycle must remain below the nominal torque.

The "Handling Guide Online" tool can be used to configure the planar surface gantry with other combinations (motor/motor controller).

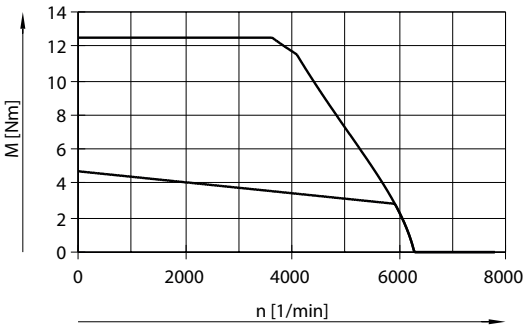
### EXCH-40

In combination with:
EMMS-AS-70-M-LS-RM, EMMS-AS-70-M-LS-RMB
and CMMP-AS-C5-3A




Max. torque
Nominal torque

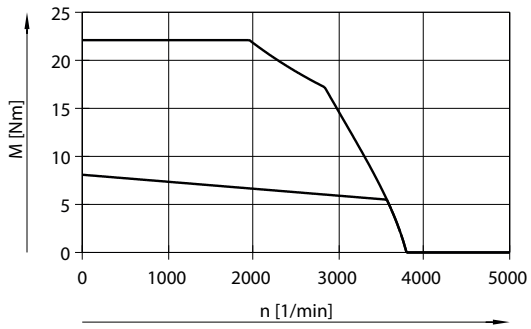
In combination with:
EMMS-AS-100-S-HS-RM, EMMS-AS-100-S-HS-RMB
and CMMP-AS-C5-11A




Max. torque
Nominal torque

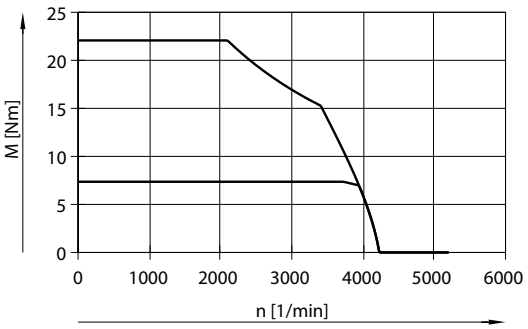
### EXCH-60

In combination with:
EMMS-AS-100-M-HS-RM, EMMS-AS-100-M-HS-RMB
and CMMP-AS-C5-11A




Max. torque
Nominal torque

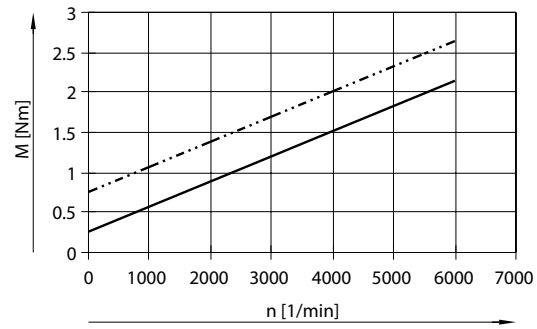
In combination with:
EMMS-AS-140-S-HV-RM, EMMS-AS-140-S-HV-RMB
and CMMP-AS-C5-11A




Max. torque
Nominal torque

# Data sheet

## No-load torque M as a function of rotational speed n




EXCH-40
EXCH-60

## Characteristic load values

The following data apply to a horizontal mounting position. For a vertical mounting position, please get in touch with your local contact at Festo.

The system is subject to the greatest load in the case of 45° travel. The following data apply in this case:

## Formula for calculating the required torque M and the required nominal rotational speed n

**For EXCH-40:**

$M_{45°} = a \times (9.79 \times m_L + 4.89 \times m_{Ay} + 10.21 \times J_m + 19.58) \times 10^{-3} + M_R$

$n_{45°} = 975 \times v$

**For EXCH-60:**

$M_{45°} = a \times (14.07 \times m_L + 7.03 \times m_{Ay} + 7.11 \times J_m + 49.24) \times 10^{-3} + M_R$

$n_{45°} = 679 \times v$

$a$ = acceleration [m/s²]
$v$ = speed [m/s]
$m_{Ay}$ = product weight of the Y-axis [kg] ➔ page 10
$m_L$ = attachment component (Z-axis) [kg] with payload
$J_m$ = moment of inertia of the motor [kgcm²] ➔ table below
$M_R$ = no-load torque [Nm] ➔ page 13
$n_{45°}$ = nominal rotational speed at 45° travel [rpm]

**Allocation of planar surface gantry to servo motor for X-/Y-axis**

| Planar surface gantry | Motor | Moment of inertia of motor [kgcm²] |
|---|---|---|
| EXCH-40-...-AB1 | EMMS-AS-70-M-LS-RMB | 0.68 |
| EXCH-40-...-AS1 | EMMS-AS-70-M-LS-RM | 0.611 |
| EXCH-40-...-AB2[1)] | EMMS-AS-100-S-HS-RMB | 3.085 |
| EXCH-40-...-AS2 | EMMS-AS-100-S-HS-RM | 2.529 |
| EXCH-60-...-AB2 | EMMS-AS-100-M-HS-RMB | 5.285 |
| EXCH-60-...-AS2 | EMMS-AS-100-M-HS-RM | 4.729 |
| EXCH-60-...-AB3[1)] | EMMS-AS-140-S-HV-RMB | 9.271 |
| EXCH-60-...-AS3 | EMMS-AS-140-S-HV-RM | 8.189 |

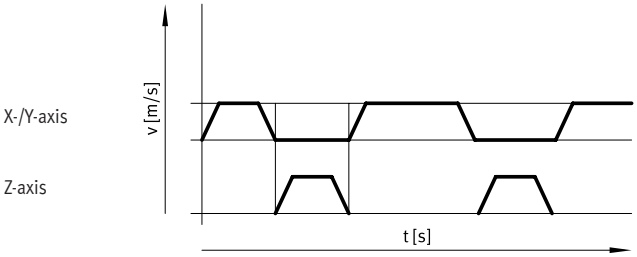
1) Essential when the planar surface gantry is mounted vertically.

# Data sheet

## Example calculation

Given:
Planar surface gantry
EXCH-40-1000-500-KF-AS2-B-L-E1-...
with attached motor
EMMS-AS-100-S-HS-RMB

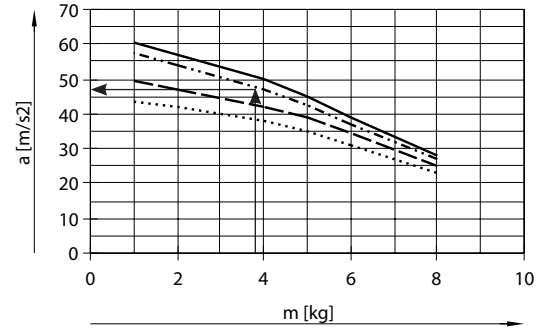
$a_{max}$ = 25 m/s²
$v_{max}$ = 2 m/s
Payload = 0.5 kg
Attachment component on Z-axis: EGSL-BS-45-100-10P




Calculation:
1. What is the max. acceleration permitted by the mechanical system?

Moving mass $m_L$ on the Y-axis:
Z-axis 3.40 kg
Payload 0.50 kg
= 3.90 kg

Stroke of the Y-axis:
500 mm




Stroke, Y-axis = 400 mm
Stroke, Y-axis = 500 mm
Stroke, Y-axis = 750 mm
Stroke, Y-axis = 1000 mm

Result:
In the case of a moving mass $m_L$ of 3.9 kg, the maximum permissible acceleration is 46 m/s².
The required acceleration of 25 m/s² is thus permissible.

**Note**

The following data apply to a horizontal mounting position. For a vertical mounting position, please get in touch with your local contact at Festo.

The centre of gravity of the slide is at the height of the slide in the Z-direction and in the centre of the slide in the X-/Y-directions.

# Data sheet

## Example calculation

2. Is the attached motor sufficient for this load?

Given:

$a_{max}$ = 25 m/s²
$v_{max}$ = 2 m/s
$m_{Ay}$ = 10.05 kg
$m_L$ = 3.90 kg
$J_m$ = 3.085 kgcm²

$M_{45°} = a \times (9.79 \times m_L + 4.89 \times m_{Ay} + 10.21 \times J_m + 19.58) \times 10^{-3} + M_R$

$n_{45°} = 975 \times v$

a = acceleration [m/s²]
v = speed [m/s]
$m_{Ay}$ = product weight of the Y-axis [kg] ➔ page 10
$m_L$ = attachment component (Z-axis) [kg] with payload
$J_m$ = moment of inertia of the motor [kgcm²] ➔ table below
$M_R$ = no-load torque [Nm] ➔ page 13
$n_{45°}$ = nominal rotational speed at 45° travel [rpm]

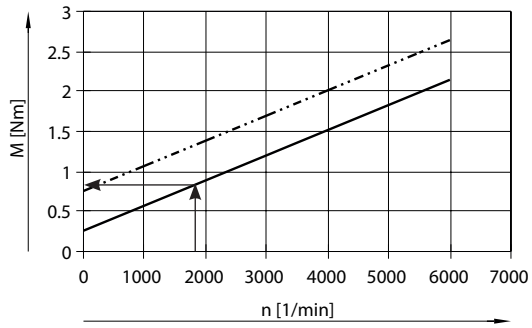
**Note**

These requirements for the dynamic response apply to 45° travel.

The dynamic values may be higher for travel only in the X- or Y-direction.

Determining M45°

$n_{45°}$ = 975 x 2 ms = 1950 rpm



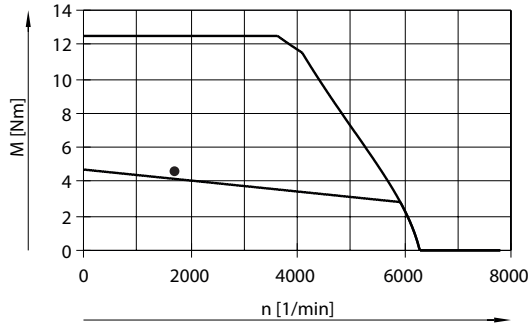

No-load torque:
EXCH-40
EXCH-60

$M_R$ = 0.9 Nm

$M_{45°} = a \times (9.79 \times m_L + 4.89 \times m_{Ay} + 10.21 \times J_m + 19.58) \times 10^{-3} + M_R$

$M_{45°} = 25\ m/s^2 \times (9.79 \times 3.9\ kg + 4.89 \times 10.05\ kg + 10.21 \times 3.085\ kgcm^2 + 19.58) \times 10^{-3} + 0.9\ Nm = 4.36\ Nm$

Result:




Max. torque
Nominal torque

The value for the torque is above the nominal torque and below the maximum torque.
This torque is only required in the acceleration phases.
The rms value of the torque for the particular positioning cycle must remain below the nominal torque.

# Data sheet

## Selection of attachment components

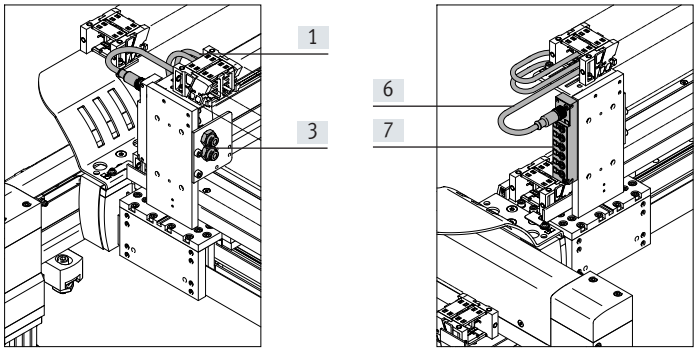
The following variants for the Z-axis can optionally be selected using the modular product system
➔ page 30:

- Without attachment component
- With pneumatic attachment component (mini slide DGSL)
- With electric attachment component (mini slide EGSL)

The drives are fully connected on delivery. Cables and tubes are routed as far as the output of the energy chain (X-axis).

### EXCH-...-T0... (without attachment component)

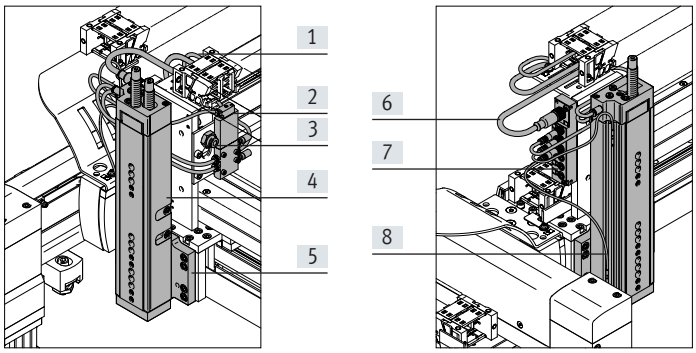
The following are pre-installed:
- 2 compressed air supply ports for e.g. Z-axis
- Multi-pin plug distributor for bundling signals:
  - e.g. proximity sensors




| Components | | Number of components |
|---|---|---|
| [1] | Compressed air tubing | 2 |
| [3] | Bulkhead fitting | 2 |
| [6] | Plug socket with cable | 1 |
| [7] | Multi-pin plug distributor (6-way) | 1 |
| – | Earthing cable | 2 |

### EXCH- ... -P... (pneumatic attachment component)

The following are pre-installed:
- Solenoid valve for controlling the drive
- 1 compressed air supply port for e.g. gripper
- Proximity sensors for sensing the end positions
- Multi-pin plug distributor for bundling signals:
  - For mini slide DGSL:
  - 2 proximity sensors
  - 1 solenoid valve
  - 3 connections available




| Components | | Number of components |
|---|---|---|
| [1] | Compressed air tubing | 2 |
| [2] | Solenoid valve | 1 |
| [3] | Bulkhead fitting | 1 |
| [4] | Mini slide DGSL-...-Y3A[1)] | 1 |
| [5] | Adapter plate | 1 |
| [6] | Plug socket with cable | 1 |
| [7] | Multi-pin plug distributor (6-way) | 1 |
| [8] | Proximity sensor | 2 |
| – | Earthing cable | 2 |

1) For EXCH-40, the mini slide DGSL-16 is used with progressive shock absorbers.
For EXCH-60, the mini slide DGSL-20 is used with progressive shock absorbers.
Additional information ➔ Internet: dgsl

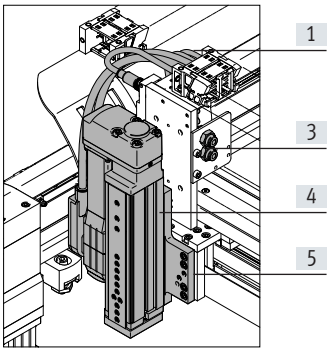
# Data sheet

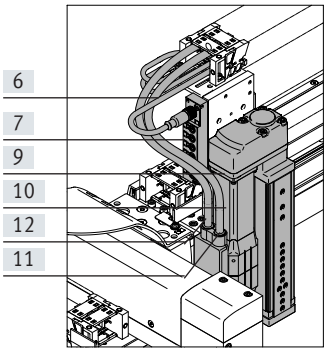
## Selection of attachment components

EXCH-...-E... (electric attachment component)

The following are pre-installed:

- 2 compressed air supply ports for e.g. gripper
- Multi-pin plug distributor for bundling signals:
  - e.g. proximity sensors



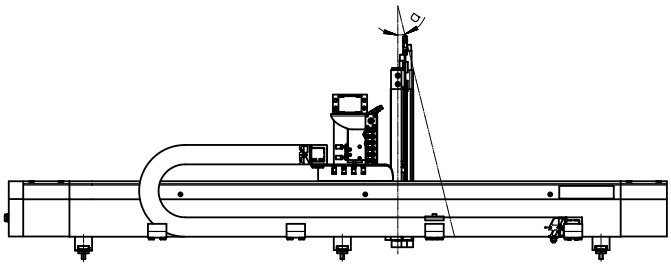




| Components | | Number of components |
|---|---|---|
| [1] | Compressed air tubing | 2 |
| [3] | Bulkhead fitting | 2 |
| [4] | Mini slide EGSL[1)] | 1 |
| [5] | Adapter plate | 1 |
| [6] | Plug socket with cable | 1 |
| [7] | Multi-pin plug distributor (6-way) | 1 |
| [9] | Parallel kit | 1 |
| [10] | Motor | 1 |
| [11] | Motor cable | 1 |
| [12] | Encoder cable | 1 |
| – | Earthing cable | 2 |

1) For EXCH-40, the mini slide EGSL-45 is used with a pitch of 10 mm.
For EXCH-60, the mini slide EGSL-55 is used with a pitch of 12.7 mm.
Additional information → Internet: egsl

## Mounting position of the Z-axis

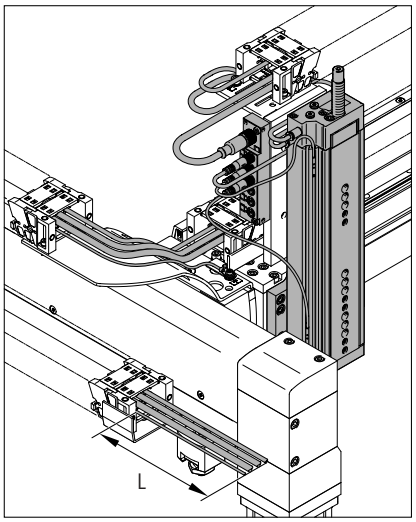
Due to manufacturing tolerances and the backlash in the guides, the angle between the X- and Z-axes may not be exactly 90° in certain circumstances.
Max. deviation:
EXCH-40: α = ±1.1°
EXCH-60: α = ±2.1°




## Selection of cable lengths

2 cable lengths (5 m or 10 m) can be selected using the modular product system → page 30. This specification relates to the output of the energy chain at the X-axis (dimension L) and describes the minimum length by which the cables and tubing protrude. The selected length applies to the following components:

- Compressed air tubing
- Plug sockets with cable
- Motor cables
- Encoder cables
- Earthing cables



# Data sheet

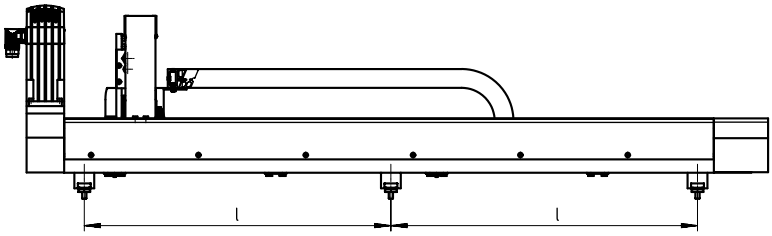
## Number of profile mountings

Irrespective of the mounting position, a different number of profile mountings needs to be used depending on the stroke of the X-axis.
The required number is mounted on delivery.

| Stroke of the X-axis [mm] | Number of profile mountings per axis EXCH-40 | EXCH-60 |
|---|---|---|
| 200 ... 499 | 2 | – |
| 500 ... 899 | 2 | |
| 900 ... 1799 | 3 | |
| 1800 ... 2000 | 4 | |
| 2000 ... 2500 | – | 4 |

## Distances between the profile mountings

The profile mountings must be evenly spaced by distance l.




For EXCH-40

$$l_1 = \frac{l + 141}{n - 1}$$

For EXCH-60

$$l_1 = \frac{l + 328}{n - 1}$$

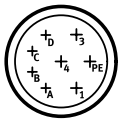
$l_1$ = distance
l = stroke
n = number of profile mountings per axis

# Data sheet

**Pin allocations**

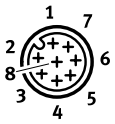
Motors on the X-/Y-axis

Motor (M23, pins)




| PIN | Function | | Colour |
|---|---|---|---|
| 1 | U | Phase U | BK (1) |
| PE | PE | Protective earthing | GNYE |
| 3 | W | Phase W | BK (3) |
| 4 | V | Phase V | BK (2) |
| A | $M_T$+ | Temperature sensor | WH |
| B | $M_T$– | Temperature sensor | BN |
| C | BR+ | Brake | GN |
| D | BR– | Brake | YE |

Encoder (M12, pins)

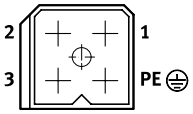



| PIN | Function |
|---|---|
| 1 | –SENS |
| 2 | +SENS |
| 3 | DATA |
| 4 | DATA/ |
| 5 | 0 V |
| 6 | CLOCK/ |
| 7 | CLOCK |
| 8 | UP |

Motor on the Z-axis

Motor

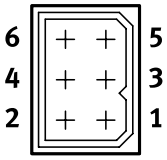
Black plug




| PIN | Function | | Colour |
|---|---|---|---|
| 1 | V | Phase | BK (2) |
| 2 | W | Phase | BK (3) |
| 3 | U | Phase | BK (1) |
| PE | PE | Protective earthing | GNYE |

Temperature sensor and brake

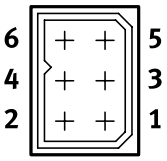
Blue plug




| PIN | Function | | Colour |
|---|---|---|---|
| 1 | $M_T$+ | Temperature sensor | WH |
| 2 | $M_T$– | Temperature sensor | BN |
| 3 | BR+ | Brake | GN |
| 4 | BR– | Brake | YE |
| 5 | n.c. | | – |
| 6 | n.c. | | – |

Encoder

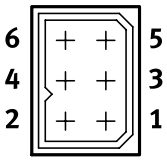
Red plug




| PIN | Function |
|---|---|
| 1 | DATA |
| 2 | DATA/ |
| 3 | 0 V |
| 4 | UP |
| 5 | CLOCK/ |
| 6 | CLOCK |

Encoder

Yellow plug

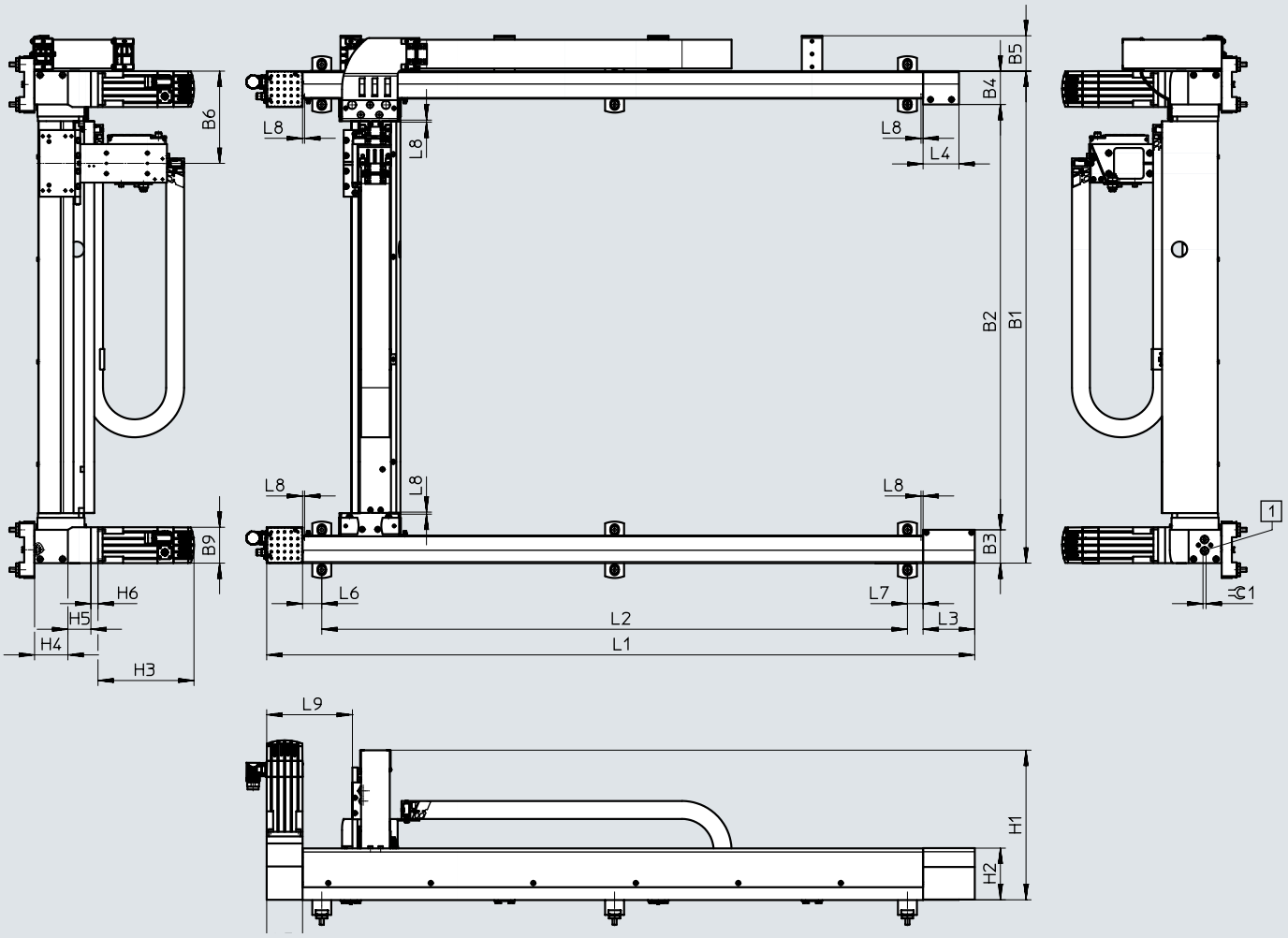



| PIN | Function |
|---|---|
| 1 | –SENS |
| 2 | +SENS |
| 3 | n.c. |
| 4 | n.c. |
| 5 | n.c. |
| 6 | n.c. |

# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

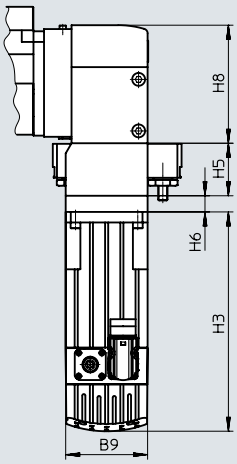
EXCH-40-...-T – Motor mounting position on top



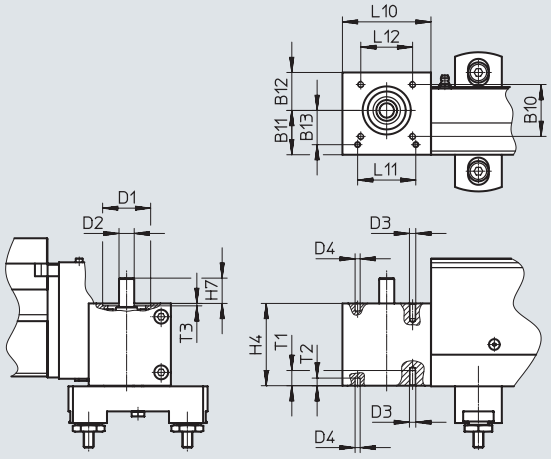

[1] Screw for toothed belt tension

L8 Safety distance per side

EXCH-40-...-B – Motor mounting position underneath



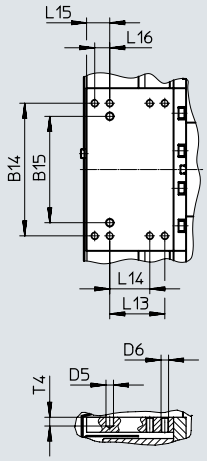

EXCH-40-... – Motor interface



# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

EXCH-40-... – Slide




| Type | B3 | B4 | B5 | B6 | B9 | B10 | B11 | B12 | B13 ±0.05 | B14 ±0.1 |
|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-70 | 65 | 65 | 69 | 179.9 | 70 | 41 | 35 | 30 | 27 | 106 |
| With EMMS-AS-100 | 65 | 65 | 69 | 179.9 | 100.5 | | | | | |

| Type | B15 ±0.03 | D1 Ø H7 | D2 Ø h6 | D3 | D4 Ø H7 | D5 Ø H7 | D6 | H1 | H2 | H3 |
|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-70 | 85 | 38 | 12 | M5 | 4 | 6 | M6 | Approx. 293 | 100.8 | 187.3 |
| With EMMS-AS-100 | | | | | | | | | | 192.3 |

| Type | H4 | H5 | H6 | H7 | H8 | L3 | L4 | L5 | L6 | L7 | L8 | L9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-70 | 65 | 44.9 | 13.8 | 20 | 100.3 | 101 | 70 | 70 | 37.5 | 30.5 | 4 | 167.2 |
| With EMMS-AS-100 | | 57 | 20.1 | | | | | | | | | |

| Type | L10 | L11 ±0.03 | L12 | L13 ±0.1 | L14 ±0.1 | L15 | L16 ±0.1 | T1 | T2 | T3 | T4 | =C1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-70 | 70 | 46 | 41 | 44 | 32 | 18.5 | 12 | 12 | 6 | 1.9 | 7 | 6 |
| With EMMS-AS-100 | | | | | | | | | | | | |

Stroke-dependent dimensions

| Stroke of the X-axis | L1 | L2 |
|---|---|---|
| 500 | 882 | 641 |
| 750 | 1132 | 891 |
| 1000 | 1382 | 1141 |
| 1500 | 1882 | 1641 |
| 200 ... 2000 | 382+stroke | ➔ Page 18 |

| Stroke of the Y-axis | B1 | B2 |
|---|---|---|
| 400 | 760 | 630 |
| 500 | 860 | 730 |
| 750 | 1100 | 980 |
| 1000 | 1360 | 1230 |
| 200 ... 1000 | 360+stroke | 230+stroke |

**Note**

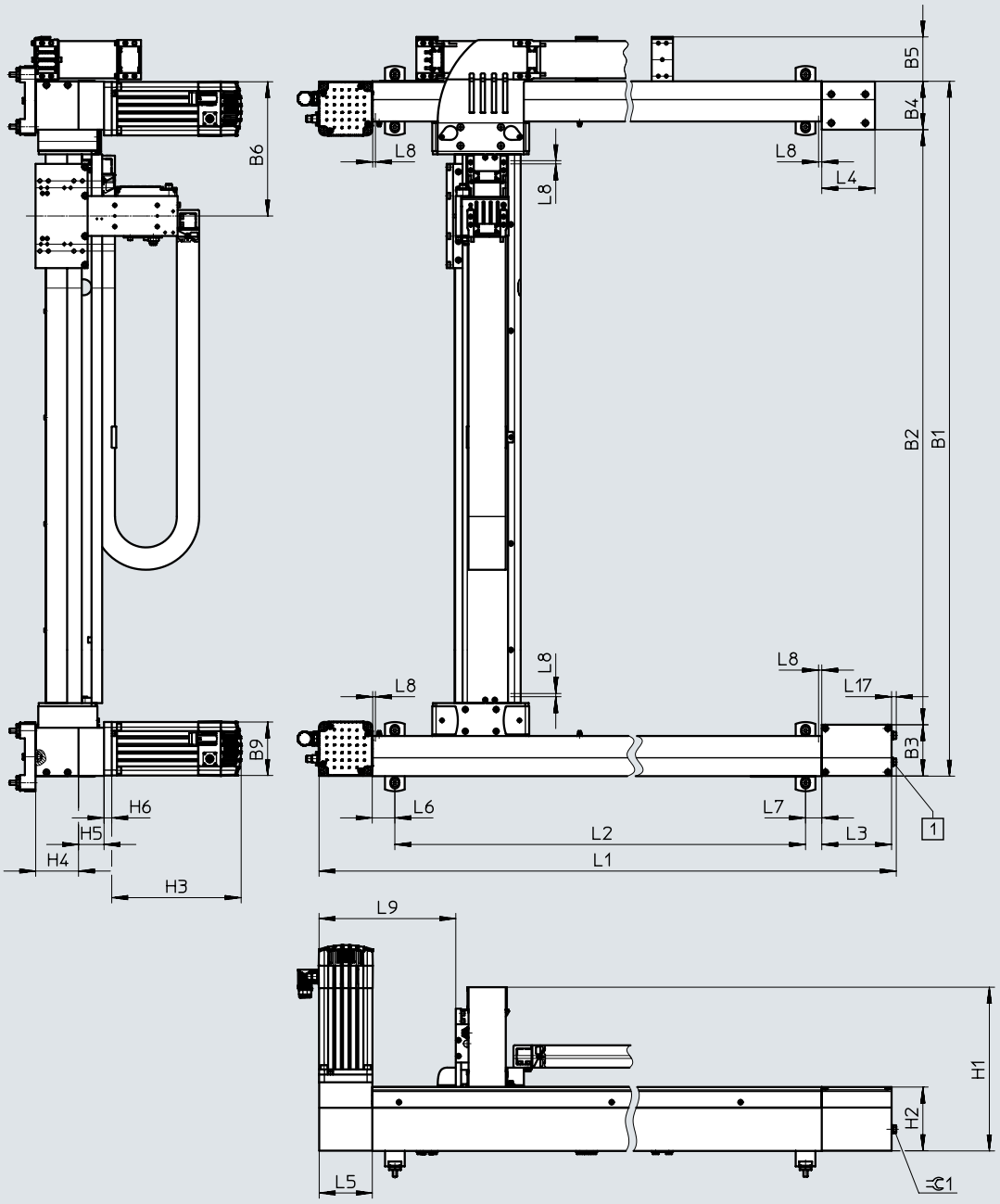
Depending on the stroke of the X-axis, a different number of profile mountings is required. The distance between the profile mountings must always be the same (➔ page 18).

The tension of the toothed belt must be set before commissioning. The tools required to do this (e.g. frequency meter) are not included in the scope of delivery.

# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

EXCH-60-...-T – Motor mounting position on top




[1] Screw for toothed belt tension

L8 Safety distance per side

# Data sheet

| Type | B3 | B4 | B5 | B6 | B9 | H1 |
|---|---|---|---|---|---|---|
| With EMMS-AS-100 | 96.6 | 91 | 83.5 | 253.3 | 100.5 | Approx. 310 |
| With EMMS-AS-140 | | | | | 140.5 | |

| Type | H2 | H3 | H4 | H5 | H6 | L3 | L4 |
|---|---|---|---|---|---|---|---|
| With EMMS-AS-100 | 120.1 | 243.3 | 80.6 | 48 | 14.5 | 131.2 | 100 |
| With EMMS-AS-140 | | 209 | | | 24.5 | | |

| Type | L5 | L6 | L7 | L8 | L9 | L17 | =C1 |
|---|---|---|---|---|---|---|---|
| With EMMS-AS-100 | 100 | 42.5 | 30.5 | 6 | 257 | 8.9 | 13 |
| With EMMS-AS-140 | | | | | | | |

Stroke-dependent dimensions

| Stroke of the X-axis | L1 | L2 |
|---|---|---|
| 750 | 1393 | 1078 |
| 1000 | 1643 | 1328 |
| 1500 | 2143 | 1828 |
| 2000 | 2643 | 2328 |
| 500 ... 2500 | 643 + stroke | → Page 18 |

| Stroke of the Y-axis | B1 | B2 |
|---|---|---|
| 500 | 1007 | 819 |
| 750 | 1257 | 1069 |
| 1000 | 1507 | 1319 |
| 1250 | 1757 | 1569 |
| 1500 | 2007 | 1819 |
| 500 ... 1500 | 507 + stroke | 319 + stroke |

**Note**

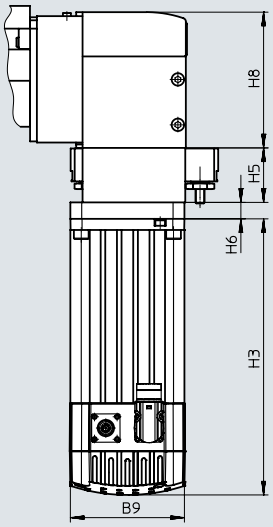
Depending on the stroke of the X-axis, a different number of profile mountings is required. The distance between the profile mountings must always be the same (→ page 18).

The tension of the toothed belt must be set before commissioning. The tools required to do this (e.g. frequency meter) are not included in the scope of delivery.

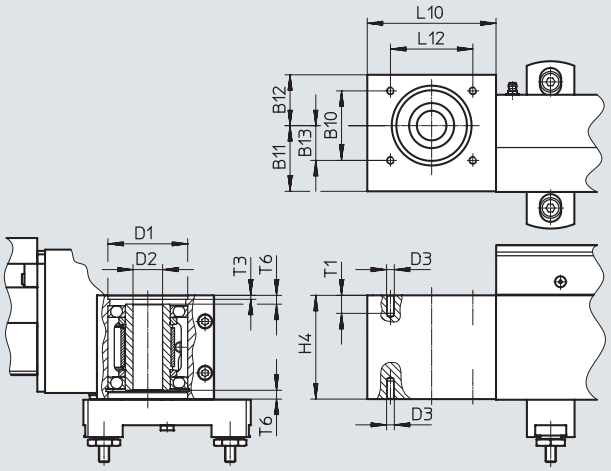
# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

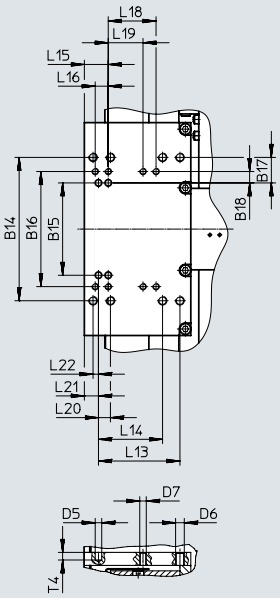
EXCH-60-...-B – Motor mounting position underneath




EXCH-60-... – Motor interface




EXCH-60-... – Slide




| Type | B9 | B10 ±0.1 | B11 | B12 | B13 ±0.05 | B14 ±0.1 | B15 ±0.03 | B16 ±0.1 | B17 ±0.1 | B18 ±0.1 | D1 Ø H7 | D2 Ø H7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-100 | 100.5 | 54 | 51 | 39.5 | 27 | 132 | 85 | 106 | 23.5 | 10.5 | 62 | 23 |
| With EMMS-AS-140 | 140.5 | | | | | | | | | | | |

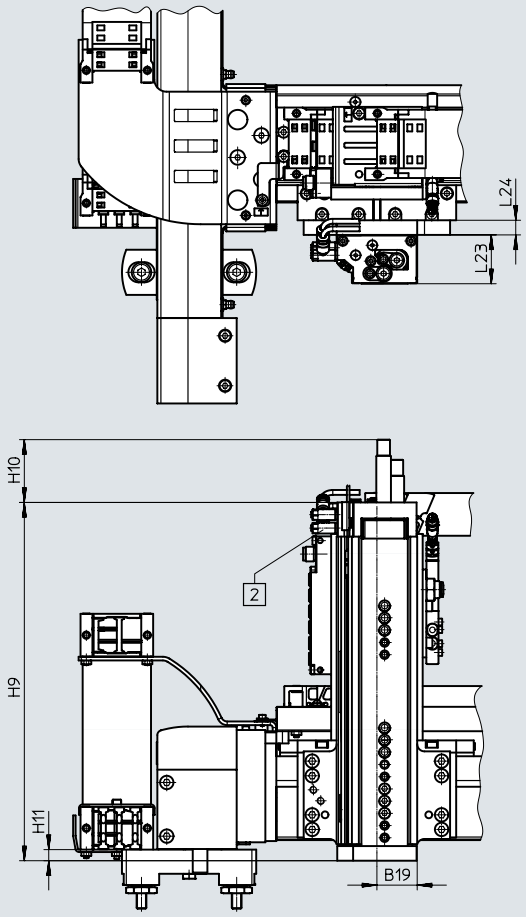
| Type | D3 | D5 Ø H7 | D6 | D7 | H3 | H4 | H5 | H6 | H8 | L10 | L12 ±0.1 | L13 ±0.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-100 | M6 | 6 | M8 | M6 | 243.3 | 80.6 | 48 | 14.5 | 119.6 | 100 | 64 | 75 |
| With EMMS-AS-140 | | | | | 209 | | | 24.5 | | | | |

| Type | L14 ±0.1 | L15 | L16 ±0.1 | L18 ±0.1 | L19 ±0.1 | L20 ±0.1 | L21 | L22 | T1 | T3 | T4 | T6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With EMMS-AS-100 | 59 | 22 | 12 | 44 | 32 | 11 | 13 | 5 | 14 | 3.1 | 7 | 6.9 |
| With EMMS-AS-140 | | | | | | | | | | | | |

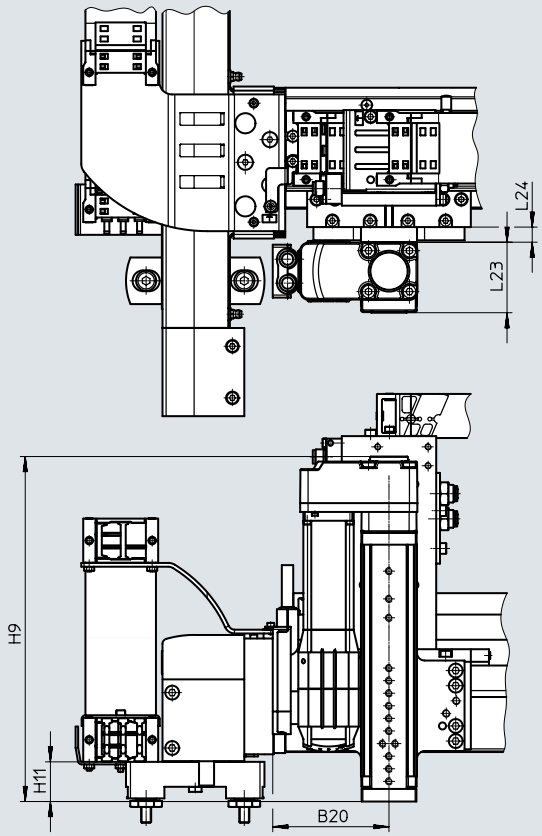
# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

EXCH-40-...-P...
With pneumatic attachment component (mini slide DGSL)




EXCH-40-...-E...
With electric attachment component (mini slide EGSL)



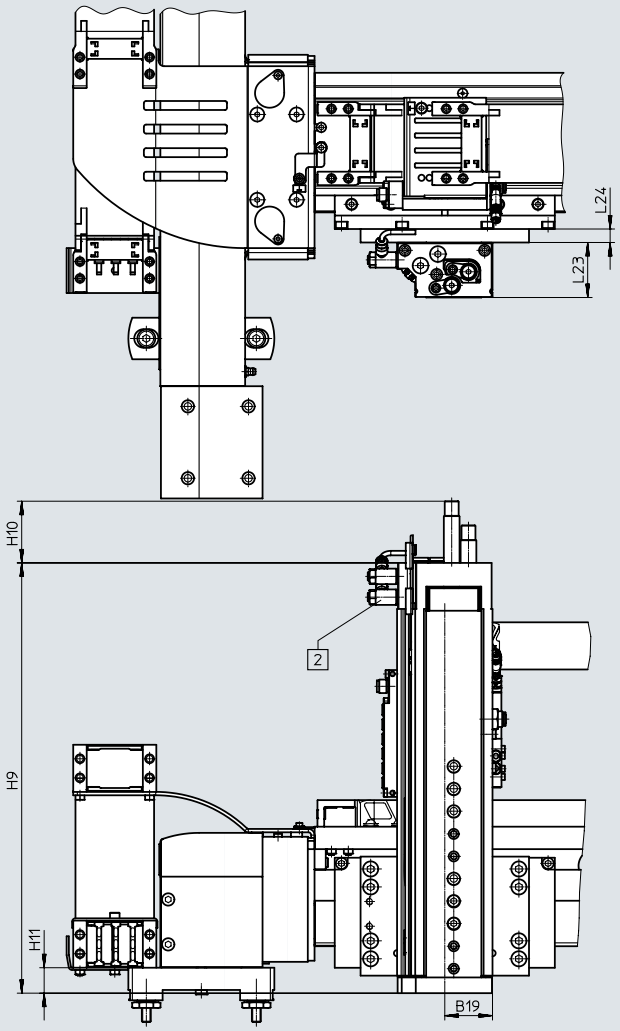

[2] One-way flow control valves are included in the scope of delivery.

| Type | B19 | B20 | H9 | H10 max. | H11 | L23 | L24 |
|---|---|---|---|---|---|---|---|
| **With pneumatic attachment component (mini slide DGSL)** | | | | | | | |
| EXCH-40-...-P1 | 33 | – | 164.6 | 51.9 | 9.1 | 40±0.08 | 12 |
| EXCH-40-...-P2 | | | 243.6 | | | | |
| EXCH-40-...-P3 | | | 293.6 | | | | |
| **With electric attachment component (mini slide EGSL)** | | | | | | | |
| EXCH-40-...-E1 | – | 92.3 | 274 | – | 31.5 | 56 | 12 |
| EXCH-40-...-E2 | | | 374 | | | | |

# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

EXCH-60-...-P...
With pneumatic attachment component (mini slide DGSL)



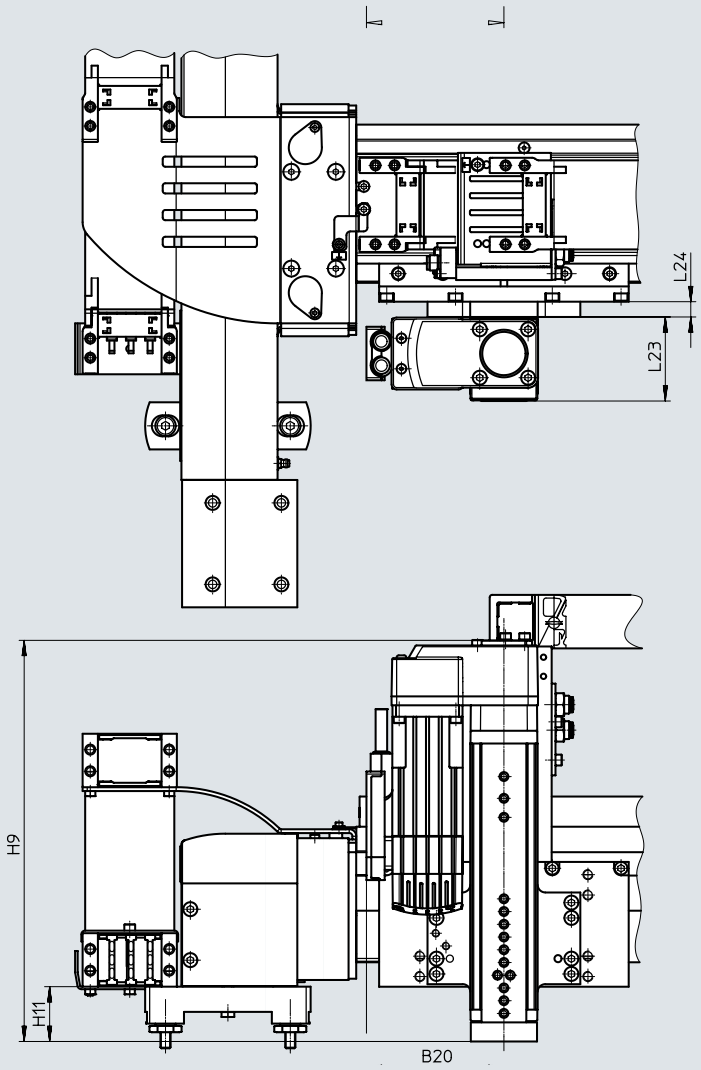

[2] One-way flow control valves are included in the scope of delivery.

| Type | B19 | H9 | H10<br>max. | H11 | L23<br>±0.08 | L24 |
|---|---|---|---|---|---|---|
| EXCH-60-...-P1 | 42.5 | 183.2 | 55.5 | 22.7 | 49 | 12 |
| EXCH-60-...-P2 | | 270.2 | | | | |
| EXCH-60-...-P3 | | 333.2 | | | | |
| EXCH-60-...-P4 | | 383.2 | | | | |

# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

EXCH-60-...-E...
With electric attachment component (mini slide EGSL)

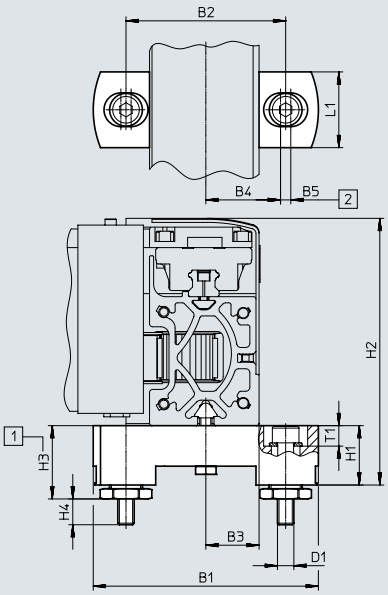



| Type | B20 | H9 | H11 | L23 | L24 |
|---|---|---|---|---|---|
| EXCH-60-...-E1 | 108 | 315 | 43 | 66 | 12 |
| EXCH-60-...-E2 | | 415 | | | |

# Data sheet

**Dimensions** Download CAD data ➔ www.festo.com

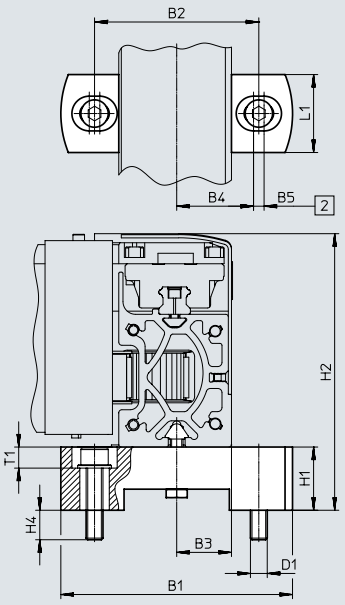
Adjusting kit EADC




[1] Adjustable
[2] Width of elongated hole
Height differences of up to 5 mm can be compensated using the adjusting kit.
Can be ordered via:
Modular product system ➔ page 30
or accessories ➔ page 32

| For size | B1 | B2 | B3 | B4 ±0.2 | B5 | D1 | H1 | H2 | H3 min. | H3 max. | H4 max. | L1 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 110 | 78 | 26 | 36.5 | 5 | M8 | 29 | 129.8 | 34.8 | 39.8 | 14 | 37 | 10 |
| 60 | 130 | 98 | 36.5 | 46.5 | 5 | M8 | 29 | 149.1 | 34.8 | 39.8 | 14 | 37 | 10 |

Mounting kit




[2] Width of elongated hole
No compensation is possible using the mounting kit.
Can be ordered via:
Modular product system ➔ page 30
or accessories ➔ page 32

| For size | B1 | B2 | B3 | B4 ±0.2 | B5 | D1 | H1 +0.2 | H2 | H4 max. | L1 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 110 | 78 | 26 | 36.5 | 5 | M8 | 30 | 131.3 | 14 | 37 | 10 |
| 60 | 130 | 98 | 36.5 | 46.5 | 5 | M8 | 30 | 150.1 | 14 | 37 | 10 |

# Data sheet

**Allocation of planar surface gantry to servo motor for X-/Y-axis**

| Planar surface gantry | Motor |
|---|---|
| EXCH-40-...-AB1 | EMMS-AS-70-M-LS-RMB |
| EXCH-40-...-AS1 | EMMS-AS-70-M-LS-RM |
| EXCH-40-...-AB2[1)] | EMMS-AS-100-S-HS-RMB |
| EXCH-40-...-AS2 | EMMS-AS-100-S-HS-RM |
| EXCH-60-...-AB2 | EMMS-AS-100-M-HS-RMB |
| EXCH-60-...-AS2 | EMMS-AS-100-M-HS-RM |
| EXCH-60-...-AB3[1)] | EMMS-AS-140-S-HV-RMB |
| EXCH-60-...-AS3 | EMMS-AS-140-S-HV-RM |

1) Essential when the planar surface gantry is mounted vertically.

**Allocation of planar surface gantry to servo motor for Z-axis**

| Planar surface gantry | Motor |
|---|---|
| EXCH-40-...-E1 | EMMS-AS-40-M-LS-TMB |
| EXCH-40-...-E2 | EMMS-AS-40-M-LS-TMB |
| EXCH-60-...-E1 | EMMS-AS-55-M-LS-TMB |
| EXCH-60-...-E2 | EMMS-AS-55-M-LS-TMB |

**Note**

Third-party motors with a driving torque that is too high can damage the planar surface gantry. When selecting the motors, please observe the limits specified in the technical data. During commissioning, the motor brake must be released for safety purposes.

**Combinations of motor and motor controller**

| Planar surface gantry | Order code (➔ page 30) for Motor type for X-/Y-axis | Attachment component for Z-axis | Motor controller |
|---|---|---|---|
| EXCH-40-... | AB1, AS1 | P1, P2, P3 | 2x CMMP-AS-C5-3A |
| | | E1, E2 | 2x CMMP-AS-C5-3A,<br>1 or 2x CMMP-AS-C2-3A, for front unit (per electric axis) |
| | AB2, AS2 | P1, P2, P3 | 2x CMMP-AS-C5-11A-P3 |
| | | E1, E2 | 2x CMMP-AS-C5-11A-P3,<br>1 or 2x CMMP-AS-C2-3A, for front unit (per electric axis) |
| EXCH-60-... | AB2, AS2 | P1, P2, P3, P4 | 2x CMMP-AS-C5-11A-P3 |
| | | E1, E2 | 2x CMMP-AS-C5-11A-P3,<br>1 or 2x CMMP-AS-C2-3A, for front unit (per electric axis) |
| | AB3, AS3 | P1, P2, P3, P4 | 2x CMMP-AS-C5-11A-P3 |
| | | E1, E2 | 2x CMMP-AS-C5-11A-P3,<br>1 or 2x CMMP-AS-C2-3A, for front unit (per electric axis) |

**Note**

Motor controllers must be ordered separately as accessories ➔ page 34.
Control system on request.

The "Handling Guide Online" tool can be used to configure the planar surface gantry with other combinations (motor/motor controller).

# Ordering data – Modular product system

**Ordering table**

| Size | | 40 | 60 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|
| Module no. | | **1923050** | **1939785** | | | | |
| Product type | | EXCH series H | | | **EXCH** | | EXCH |
| Size | | 40 | 60 | | **-...** | | |
| Stroke of the X-axis | [mm] | 200 ... 2000 | 500 ... 2500 | | | | |
| Stroke of the Y-axis | [mm] | 200 ... 1000 | 500 ... 1500 | | | | |
| Guide | | Recirculating ball bearing guide | | | **-KF** | | -KF |
| Motor type | | Servo motor, size 70, with brake | – | [1] | **-AB1** | | |
| | | Servo motor, size 100, with brake | | [3] | **-AB2** | | |
| | | – | Servo motor, size 140, with brake | [2] [3] | **-AB3** | | |
| | | Servo motor, size 70 | – | [1] | **-AS1** | | |
| | | Servo motor, size 100 | | | **-AS2** | | |
| | | – | Servo motor, size 140 | [2] | **-AS3** | | |
| | | Without motor | | [4] | **-W** | | |
| Motor mounting position | | Underneath | | | **-B** | | |
| | | On top | | | **-T** | | |
| Energy chain connection side | | Left | | | **-L** | | -L |
| Attachment components | | Without | | | **-T0** | | |
| | | Electric lifting unit, 100 mm stroke | | | **-E1** | | |
| | | Electric lifting unit, 200 mm stroke | | | **-E2** | | |
| | | Pneumatic lifting unit, 50 mm stroke | | | **-P1** | | |
| | | Pneumatic lifting unit, 100 mm stroke | | | **-P2** | | |
| | | Pneumatic lifting unit, 150 mm stroke | | | **-P3** | | |
| | | – | Pneumatic lifting unit, 200 mm stroke | | **-P4** | | |

[1] AB1, AS1 Not in combination with size 60
[2] AB3, AS3 Not in combination with size 40
[3] AB2, AB3 Essential in the case of a vertical mounting position
EXCH-40: AB2, EXCH-60: AB3
[4] W Not in combination with C, CC, CS, C2, B1, B2, B3, B6, B7, B8, S1, S2, B (operator unit)

**Note**

In combination with characteristic W (without motor), the planar surface gantry EXCH is delivered without coupling housing and without coupling.

# Ordering data – Modular product system

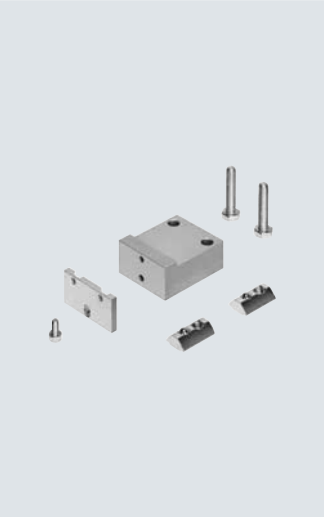
**Ordering table**

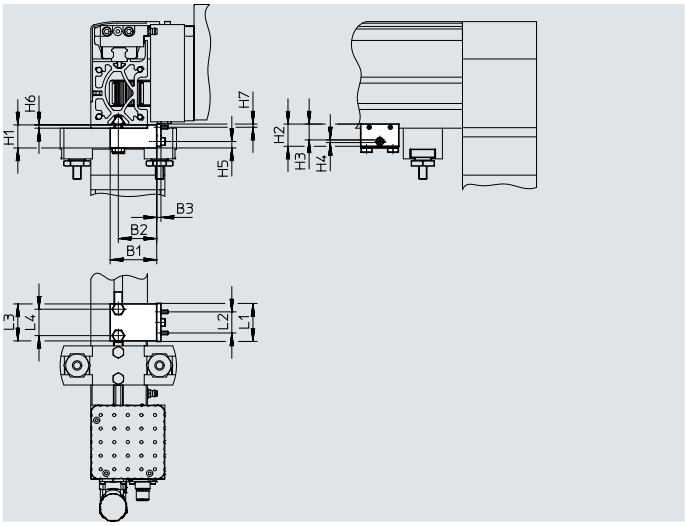
| Size | 40 | 60 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|
| Cable length | Without | | | **–** | | |
| | With cable length 5 m | | | **-5K** | | |
| | With cable length 10 m | | | **-10K** | | |
| Mounting kit | With adjusting kit | | | | | |
| | With mounting kit | | | **-P** | | |
| Document language | German | | | **-DE** | | |
| | English | | | **-EN** | | |
| | Spanish | | | **-ES** | | |
| | French | | | **-FR** | | |
| | Italian | | | **-IT** | | |
| | Russian | | | **-RU** | | |
| | Chinese | | | **-ZH** | | |

# Accessories

**Sensor mounting EAPR**
For proximity sensors
SIES-V3B and SIES-Q8B
(for sensing the slide position on the X-axis)

Material:
Switch lug: steel
Sensor bracket: wrought aluminium alloy
RoHS-compliant



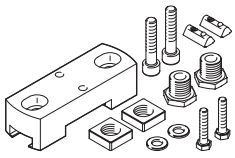
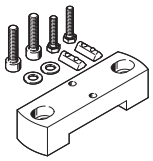



**Dimensions and ordering data**

| For size | B1 | B2 | B3 | H1 | H2 | H3 ±0.1 | H4 | H5 | H6 –0.1 | H7 –0.2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 44 | 36.3 | 4 | 21.8 | 21 | 15 | 2.5 | 6.1 | 3.1 | 3 |
| 60 | 54 | 46.3 | 4 | 21 | 21 | 15 | 2.5 | 5.3 | 2.3 | 3 |

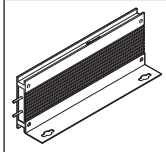
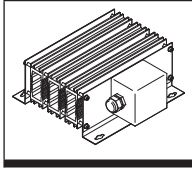
| For size | L1 | L2 | L3 | L4 | Weight [g] | Part no. | Type |
|---|---|---|---|---|---|---|---|
| 40 | 36 | 20 | 35 | 25 | 120 | **2536353** | **EAPR-E12-40** |
| 60 | 36 | 20 | 35 | 25 | 150 | **2478805** | **EAPR-E12-60** |

**Ordering data**

| | For size | Description | Part no. | Type |
|---|---|---|---|---|
| **Adjusting kit EADC** | | | | |
|  | 40 | For mounting and aligning the planar surface gantry. The kit is height-adjustable | **8029165** | **EADC-E12-40** |
| | 60 | | **8029166** | **EADC-E12-60** |
| **Mounting kit EAHM** | | | | |
|  | 40 | For mounting the planar surface gantry. The kit is not height-adjustable | **3489340** | **EAHM-E12-K-40** |
| | 60 | | **3489318** | **EAHM-E12-K-60** |

# Accessories

**Ordering data**

| | For type | Resistance value [Ω] | Nominal power [W] | Weight [g] | Part no. | Type |
|---|---|---|---|---|---|---|
| **Braking resistor CACR (essential in the case of a vertical mounting position)** | | | | | | |
|  | EXCH-...-B1/B2/B3 | 50 | 200 | 550 | **2882342** | **CACR-LE2-50-W500** |
|  | EXCH-...-B6/B7/B8 | 40 | 800 | 2400 | **2882343** | **CACR-KL2-40-W2000** |

## Permissible proximity sensor for sensing the position of the slide on the Y-axis

**Ordering data – Proximity sensor for T-slot, inductive**

Data sheets → Internet: sies

| | Type of mounting | Electrical connection | Switching output | Cable length [m] | Part no. | Type |
|---|---|---|---|---|---|---|
|  | Insertable in the slot from above, flush with the cylinder profile | Plug M8x1, 3-pin | PNP, N/O contact | 0.3 | **551387** | **SIES-8M-PS-24V-K-0.3-M8D** |

## Permissible proximity sensors for sensing the positions on the Z-axis

**Ordering data – Proximity sensors for T-slot**

Data sheets → Internet: smt

| | Type of mounting | Electrical connection | Switching output | Cable length [m] | Part no. | Type |
|---|---|---|---|---|---|---|
| **With mini slide DGSL (magneto-resistive)** | | | | | | |
|  | Insertable in the slot from above, flush with the cylinder profile | Plug M8x1, 3-pin | PNP, N/O contact | 0.3 | **551367** | **SME-10M-DS-24V-E-0.3-L-M8D** |
| **With mini slide EGSL (inductive)** | | | | | | |
|  | Insertable in the slot from above, flush with the cylinder profile | Plug M8x1, 3-pin | PNP, N/O contact | 0.3 | **551387** | **SIES-8M-PS-24V-K-0.3-M8D** |

## Permissible proximity sensors in combination with sensor mounting EAPR-E12

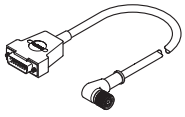
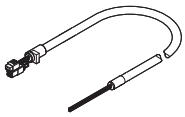
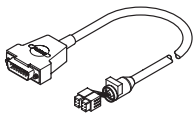
**Ordering data – Proximity sensors**

Data sheets → Internet: sies

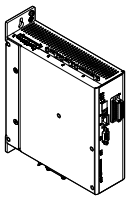
| | Type of mounting | Electrical connection | Switching output | Part no. | Type |
|---|---|---|---|---|---|
| **N/O contact** | | | | | |
|  | Screwed on | Plug M8x1, 3-pin | PNP | **150491** | **SIES-V3B-PS-S-L** |
| **N/C contact** | | | | | |
|  | Screwed on | Cable, 3-wire | NPN | **174550** | **SIES-Q8B-NO-K-L** |

# Accessories

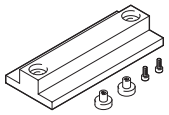
**Ordering data – Cables**

| | Description | Cable length [m] | Part no. | Type |
|---|---|---|---|---|
| **For X-/Y-axis** | | | | |
|  | **Motor cable NEBM** | | | |
| | • Min. bending radius: 64 mm<br>• Suitable for energy chains<br>• Ambient temp.:<br>–40 ... +90°C | 5 | **550310** | **NEBM-M23G8-E-5-Q9N-LE8** |
| | | 10 | **550311** | **NEBM-M23G8-E-10-Q9N-LE8** |
|  | **Encoder cable NEBM** | | | |
| | • Min. bending radius: 75 mm<br>• Suitable for energy chains<br>• Ambient temp.:<br>–10 ... +80°C | 5 | **550318** | **NEBM-M12W8-E-5-N-S1G15** |
| | | 10 | **550319** | **NEBM-M12W8-E-10-N-S1G15** |
| **For Z-axis** | | | | |
|  | **Motor cable NEBM** | | | |
| | • Min. bending radius: 55 mm<br>• Suitable for energy chains<br>• Ambient temp.:<br>–40 ... +90°C | 10 | **550307** | **NEBM-T1G8-E-10-Q7N-LE8** |
| | | 15 | **550308** | **NEBM-T1G8-E-15-Q7N-LE8** |
|  | **Encoder cable NEBM** | | | |
| | • Min. bending radius: 75 mm<br>• Suitable for energy chains<br>• Ambient temp.:<br>–10 ... +80°C | 10 | **550315** | **NEBM-T1G8-E-10-N-S1G15** |
| | | 15 | **550316** | **NEBM-T1G8-E-15-N-S1G15** |

**Ordering data – Motor controller**

| | For size | Output voltage [V AC] | Nominal output current [A] | Nominal power [VA] | Part no. | Type |
|---|---|---|---|---|---|---|
|  | **For planar surface gantry** | | | | | |
| | 40 | 3x 0 ... 270 | 5 | 1000 | **1622902** | **CMMP-AS-C5-3A-M0** |
| | 40, 60 | 3x 0 ... 360 | 5 | 3000 | **1622903** | **CMMP-AS-C5-11A-P3-M0** |
| | **For attachment components** | | | | | |
| | 40, 60 | 3x 0 ... 270 | 2.5 | 500 | **1622901** | **CMMP-AS-C2-3A-M0** |

**Ordering data**

| | For size | Description | Part no. | Type |
|---|---|---|---|---|
| **Adjusting tool EADT** | | | | |
|  | 40, 60 | For aligning and checking the levelness of the planar surface gantry | **3197697** | **EADT-W-E12** |

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