

## Rotary gripper module EHMD

**FESTO**



### Characteristics

#### At a glance

Link [ehmd](#)

- The most compact rotary gripper module in its class is ideal for handling small objects in a wide variety of applications.
- It is particularly suitable for laboratory automation, e.g. for easily opening a large range of sample vials
- The rotary movement is generated by a stepper motor
- The gripping motion is generated either electrically via a stepper motor or pneumatically via a cylinder
- The Z module automatically adjusts to the thread pitches of the covers
- The gripper can grip in force mode when combined with the servo drive CMMT-ST, enabling flexible gripping
- The servo drive CMMT-ST allows simple control: via I/O interface, IO-Link®, Modbus® TCP, EtherCAT®, PROFINET, EtherNet/IP

#### Rotation

##### Closed-loop control

- Enables the motor torque to be controlled via the motor current. This allows the torque to be limited when closing a cover
- No step loss is possible in the event of overload
- It is possible to use the entire output torque of the motor

##### Open-loop control

- The motor is activated in microstep operation with a constant, defined phase current
- Holding current reduction is required to prevent overheating
- A torque reserve is required to prevent step losses

##### Homing

- The encoder zero pulse can be used to home the axis of rotation
- One zero pulse per rotation
- Defined angular orientation based on this zero pulse

#### Gripping

##### Closed-loop control

- Makes it possible to control the motor torque via the motor current
- The gripping force of the gripper can be set by a limited driving torque of the drive screw

##### Open-loop control

- The motor is activated in microstep operation with a constant, defined phase current
- Holding current reduction is required to prevent overheating
- The gripper drive is spring-mounted for force setting so that defined gripping forces can be set in positioning mode

##### Homing

- The gripper motor has an incremental encoder. There is no end position sensor
- In the opening direction, homing must be to a stop

#### Note:

- Specially developed gripper jaws enable microwell plates to be picked or transported (for SBS/ANSI formats).
- (See accessories)

## Characteristics

### Engineering tools

[Link](#) [engineering tools](#)


Save time with engineering tools: Smart engineering for the optimal solution. Our goal is to increase your productivity. Our engineering tools play an integral part in achieving this goal. They help you size your system correctly, tap into unimagined productivity reserves and generate additional productivity along the entire value chain. In every phase of your project, from the initial contact to the modernisation of your machine, you will come across a number of different tools that will be of use to you.

#### Electric Motion Sizing

- Create the optimum drive package quickly and reliably. Electric Motion Sizing calculates suitable combinations of electric axis, electric motor and servo drive using just a few application details. It provides all the relevant data including the bill of materials and documentation for your selected combination. This avoids design errors and results in significantly improved energy efficiency for the system. A smooth connection to the Festo Automation Suite also makes commissioning easier for you.

#### Festo Automation Suite

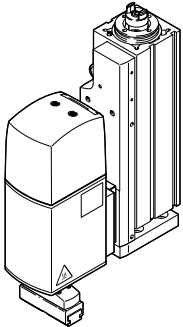
- Parameterisation, programming and commissioning in a clear and user-friendly interface
- Optimal support for complex processes thanks to guided wizards (e.g. for initial commissioning, drive configuration, etc.)
- Quick access to the required documents and further information
- Easy integration of electric drives in the controller programming

### Diagrams

[Link](#) [ehmd](#)


The diagrams shown in this document are also available online. These can be used to display precise values.

### Overview



Combination options with mini slides EGSC-BS, EGSL, electric slide EGSK and three-dimensional gantry EXCL

#### EHMD-40

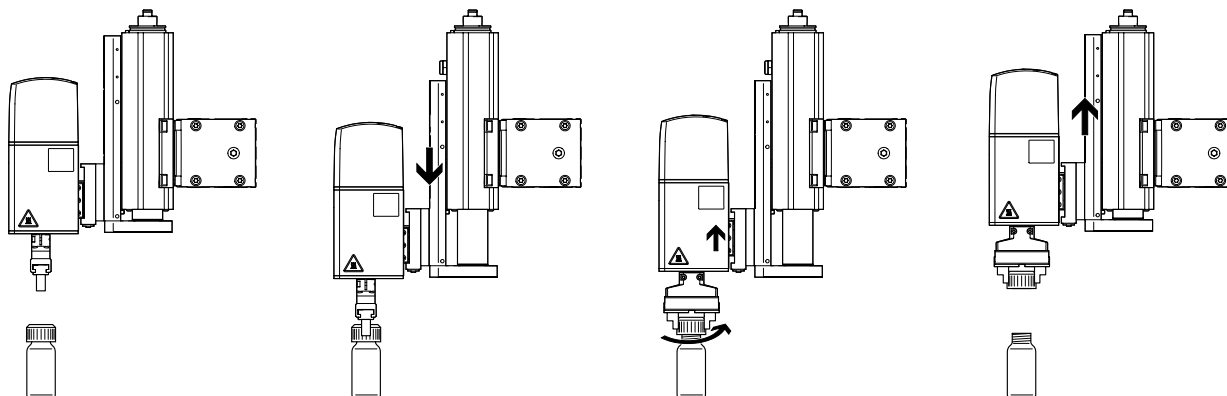
- With EGSC-BS-25/32
- With EGSL-35/45
- With EXCL-15
- With EGSK-20/26

#### EHMD-50

- With EGSC-32/35/45
- With EGSK-20/26
- With EXCL-15

## Characteristics

### Application example



Screwing covers onto vials and removing them  
(explanation of links)

Figure 1

- Mini slide EGSC-BS retracted
- Mounting EHAM-E20

Figure 2

- Mini slide EGSC-BS extends
- Rotary gripper module EHMD grips the cover

Figure 3:

- Rotary gripper module EHMD turns and removes the cover from the vial
- The mounting EHAM-E20 takes on the Z-compensation without the need to move the mini slide (Z-axis)

Figure 4

- Once the cover has been removed, the mini slide EGSC-BS retracts
- The Z compensation moves back into the lower end position due to the weight

Type code

|      |                            |  |
|------|----------------------------|--|
| 001  | Series                     |  |
| EHMD | Rotary gripper module      |  |
| 002  | Size [mm]                  |  |
| 40   | 40                         |  |
| 50   | 50                         |  |
| 003  | Rotary module drive system |  |
| RE   | Electric                   |  |

|     |                        |  |
|-----|------------------------|--|
| 004 | Gripper drive system   |  |
| GP  | Pneumatic              |  |
| GE  | Electric               |  |
| 005 | Stroke per gripper jaw |  |
|     | 5 mm                   |  |
| 15  | 15 mm                  |  |
| 16  | 16 mm                  |  |

## Datasheet

## General technical data

|                         |                                                                |                                                       |       |                                                 |
|-------------------------|----------------------------------------------------------------|-------------------------------------------------------|-------|-------------------------------------------------|
| Size                    | 40                                                             |                                                       |       | 50                                              |
| Gripper drive system    | Pneumatic                                                      | Electric                                              |       |                                                 |
| Stroke per gripper jaws | 5 mm                                                           |                                                       | 15 mm |                                                 |
| Design                  | Electric rotary drive<br>Pneumatic gripper                     | Electric rotary drive<br>Electric gripper             |       | Electric rotary drive<br>Electric gripper drive |
| Type of motor           | Stepper motor                                                  |                                                       |       |                                                 |
| Position detection      | Rotation: motor encoder<br>Gripping: slot for proximity switch | Rotation: motor encoder<br>Gripping: motor encoder    |       |                                                 |
| Referencing             | Rotation: encoder index                                        | Rotation: encoder index<br>Gripping: fixed stop block |       |                                                 |
| Gripper function        | Parallel                                                       |                                                       |       |                                                 |
| Number of gripper jaws  | 2                                                              |                                                       |       |                                                 |
| Rotation angle          | Infinite                                                       |                                                       |       |                                                 |
| Type of mounting        | Via dovetail slot                                              |                                                       |       |                                                 |
| Mounting position       | optional                                                       |                                                       |       |                                                 |
| Product weight          | 577 g                                                          | 681 g                                                 | 724 g | 1,255 g                                         |

## Technical data – Rotation

|                                           |                         |                         |                        |
|-------------------------------------------|-------------------------|-------------------------|------------------------|
| Size                                      | 40                      |                         | 50                     |
| Stroke per gripper jaws                   | 5 mm                    | 15 mm                   |                        |
| Operating mode, rotation                  | Hybrid stepper motor    |                         |                        |
| Max. output torque                        | 0.3 Nm                  |                         | 1 Nm                   |
| Max. drive output speed                   | 240 rpm                 |                         |                        |
| Nominal voltage DC                        | 24 V                    |                         |                        |
| Nominal current per phase, rotation       | 0.9 A                   |                         | 2.8 A                  |
| Holding torque motor, rotation            | 0.3 Nm                  |                         | 1 Nm                   |
| Winding resistance phase, rotation        | 5.8 Ohm                 |                         | 0.83 Ohm               |
| Winding inductance phase, rotation        | 11 mH                   |                         | 2.3 mH                 |
| Step angle full step, rotation            | 1.8 deg                 |                         |                        |
| Step angle tolerance, rotation            | ±5%                     |                         |                        |
| Mass moment of inertia, rotation          | 0.125 kgcm <sup>2</sup> | 0.234 kgcm <sup>2</sup> | 0.51 kgcm <sup>2</sup> |
| Electrical connection 1, connector system | Connection pattern F1   |                         | PTSM                   |
| Electrical connection 1, connection type  | Plugs                   |                         |                        |

## Encoder technical data – Rotation

|                                                    |                                    |
|----------------------------------------------------|------------------------------------|
| Nominal operating voltage DC, rotation             | 5 V                                |
| Max. current consumption, rotation                 | 60 mA                              |
| Pulses per revolution, rotation                    | 500                                |
| Rotor position sensor                              | Incremental encoder                |
| Rotor position encoder interface                   | RS422 TTL AB channels + zero index |
| Rotor position sensor, encoder measuring principle | Optical                            |

## Datasheet

| Technical data – Gripping                               |                                          |                                         |            |                                               |
|---------------------------------------------------------|------------------------------------------|-----------------------------------------|------------|-----------------------------------------------|
| Size                                                    | 40                                       |                                         |            | 50                                            |
| Gripper drive system                                    | Pneumatic                                | Electric                                |            |                                               |
| Stroke per gripper jaws                                 | 5 mm                                     |                                         | 15 mm      |                                               |
| Design                                                  | Electric rotary drive, Pneumatic gripper | Electric rotary drive, Electric gripper |            | Electric rotary drive, Electric gripper drive |
| Gripping force per gripper jaw                          | 5 ... 35 N                               | 7 ... 35 N                              | 3 ... 14 N | 18 ... 67 N                                   |
| Residual gripping force in the event of a power failure | –                                        | 10 N                                    | 4 N        | –                                             |
| Nominal voltage DC                                      | 24 V                                     |                                         |            |                                               |
| Nominal motor current                                   | –                                        |                                         |            |                                               |
| Note on motor nominal current                           | –                                        | 0.5 A for gripper drive                 |            | –                                             |
| Motor holding torque                                    | –                                        | 0.043 Nm                                |            | 0.115 Nm                                      |
| Phase winding resistance                                | –                                        | 5.6 Ohm                                 |            | 2 Ohm                                         |
| Phase winding inductance                                | –                                        | 4 mH                                    |            | 2.8 mH                                        |
| Stepper angle for complete step                         | –                                        | 1.8 deg                                 |            |                                               |
| Stepping angle tolerance                                | –                                        | ±5%                                     |            |                                               |
| Mass moment of inertia                                  | –                                        | 0.009 kgcm²                             |            | 0.038 kgcm²                                   |
| Max. drive output speed                                 | 240 rpm                                  |                                         |            |                                               |
| Feed constant                                           | 1.48 mm/U                                |                                         | 4.4 mm/U   | 2.3 mm/U                                      |
| Max. gripping speed per gripper jaw                     | –                                        | 25 mm/s                                 | 70 mm/s    | 10 mm/s                                       |
| Electrical connection 1, connection type                | Plugs                                    |                                         |            |                                               |
| Electrical connection 1, connector system               | Connection pattern F1                    |                                         |            | PTSM                                          |

| Encoder technical data – Gripping                  |                                    |
|----------------------------------------------------|------------------------------------|
| Nominal operating voltage DC                       | 24 V                               |
| Max. current consumption                           | 60 mA                              |
| Pulses per revolution                              | 500                                |
| Rotor position sensor                              | Incremental encoder                |
| Rotor position encoder interface                   | RS422 TTL AB channels + zero index |
| Rotor position sensor, encoder measuring principle | Optical                            |

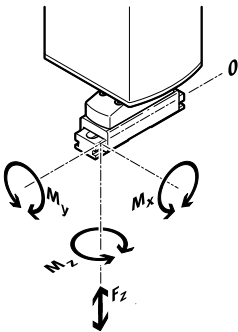
| Operating and environmental conditions                   |                                                                                  |             |
|----------------------------------------------------------|----------------------------------------------------------------------------------|-------------|
| Size                                                     | 40                                                                               | 50          |
| Gripper drive system                                     | Pneumatic                                                                        | Electric    |
| Operating pressure                                       | 1.5 ... 8 bar                                                                    | –           |
| Ambient temperature                                      | 0 ... 40°C                                                                       | 18 ... 28°C |
| Storage temperature                                      | -20 ... 70°C                                                                     |             |
| Relative air humidity                                    | 0 - 85%, Non-condensing                                                          |             |
| Degree of protection                                     | IP20                                                                             |             |
| Insulation protection class                              | B                                                                                |             |
| Duty cycle                                               | 100%                                                                             |             |
| Vibration resistance                                     | Transport application test with severity level 1 to FN 942017-4 and EN 60068-2-6 |             |
| Corrosion resistance class CRC <sup>1)</sup>             | 1 - Low corrosion stress                                                         |             |
| CE mark (see declaration of conformity) <sup>2)</sup>    | To EU EMC Directive<br>In accordance with EU RoHS Directive                      |             |
| CE marking (see declaration of conformity) <sup>3)</sup> | To UK instructions for EMC                                                       |             |
| KC mark                                                  | KC-EMV                                                                           | –           |
| Approval                                                 | RCM trademark                                                                    |             |

1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)2) More information [www.festo.com/catalogue/ehmd](http://www.festo.com/catalogue/ehmd) → Support/Downloads3) More information [www.festo.com/catalogue/ehmd](http://www.festo.com/catalogue/ehmd) → Support/Downloads

Datasheet

| Materials              |                                  |               |
|------------------------|----------------------------------|---------------|
| Size                   | 40                               | 50            |
| Gripper drive system   | Pneumatic                        | Electric      |
| Material housing       | Anodised wrought aluminium alloy |               |
| Note on materials      | RoHS-compliant                   | –             |
| Material cover         | PA                               | PA-reinforced |
| LABS (PWIS) conformity | VDMA24364 zone III               |               |

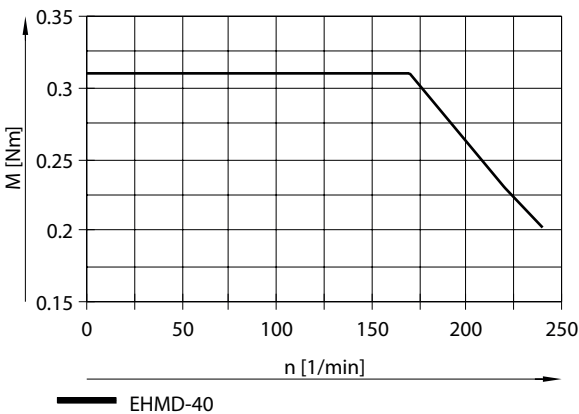
Characteristic static load values on the gripper jaws



The indicated permissible forces and torques apply to a single gripper jaw. They include the lever arm, additional applied loads created by the workpiece or external gripper fingers and acceleration forces occurring during movement. The zero coordinate line (gripper jaw guide) must be taken into consideration when calculating torques.

|                                        |           |          |
|----------------------------------------|-----------|----------|
| Size                                   | 40        | 50       |
| Gripper drive system                   | Pneumatic | Electric |
| Stroke per gripper jaws                | 5 mm      | 15 mm    |
| Max. force on gripper jaw $F_z$ static | 30 N      | 15 N     |
| Max. torque at gripper $M_x$ static    | 0.7 Nm    | 1.5 Nm   |
| Max. torque at gripper $M_y$ static    | 1.5 Nm    | 5 Nm     |
| Max. torque at gripper $M_z$ static    | 0.7 Nm    | 1.5 Nm   |

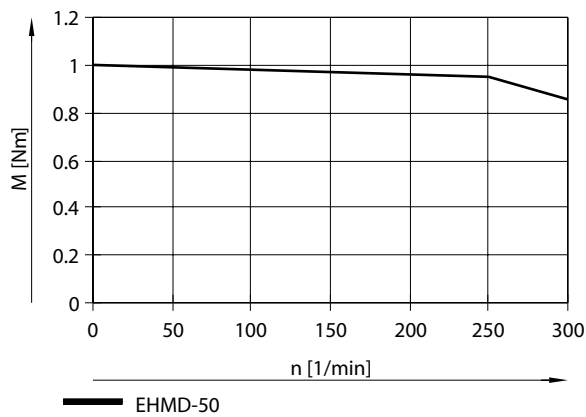
For rotation: torque M as a function of rotational speed n for EHMD-40



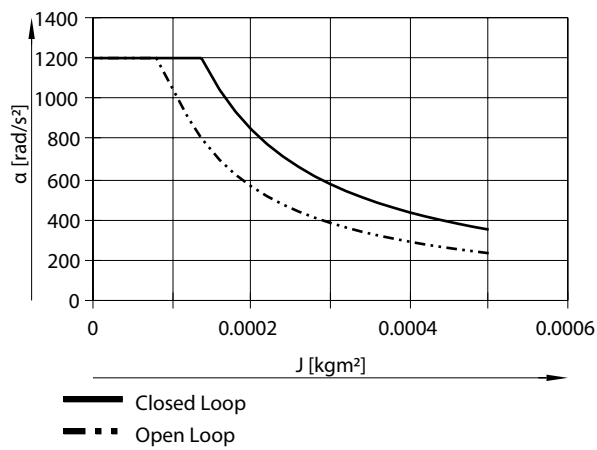


## Datasheet

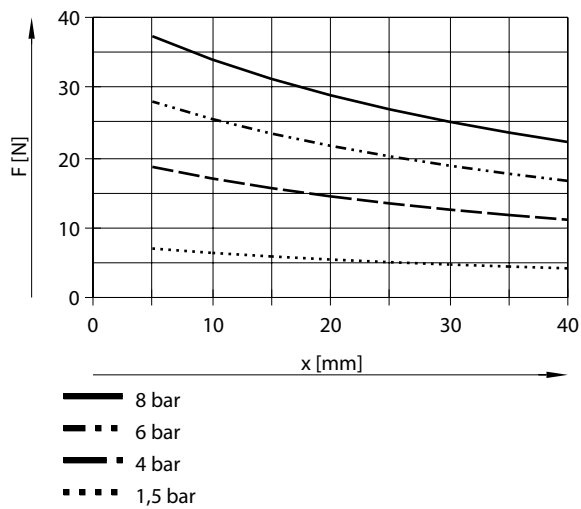
For rotation: torque  $M$  as a function of rotational speed  $n$  for EHMD-50



For rotation: angular acceleration as a function of moment of inertia  $J$  for EHMD-40

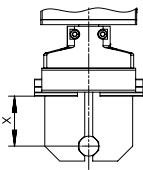


For gripping, pneumatic: gripping force  $F$  as a function of lever arm  $x$  and operating pressure  $d$  for EHMD-40



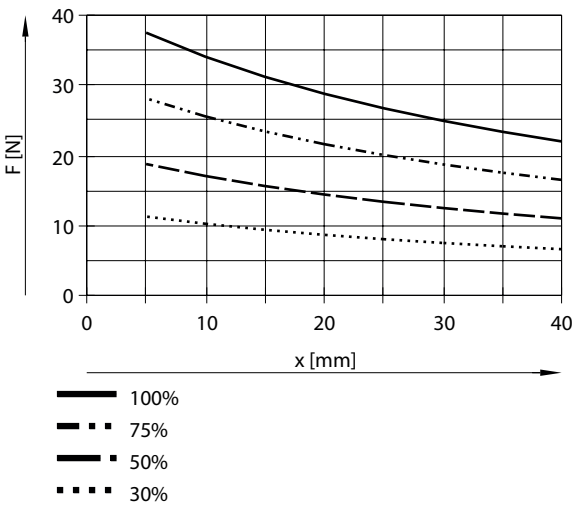
Datasheet

For gripping, electrical, with CMMT-ST: gripping force as a function of lever arm x and force specification for EHMD-...

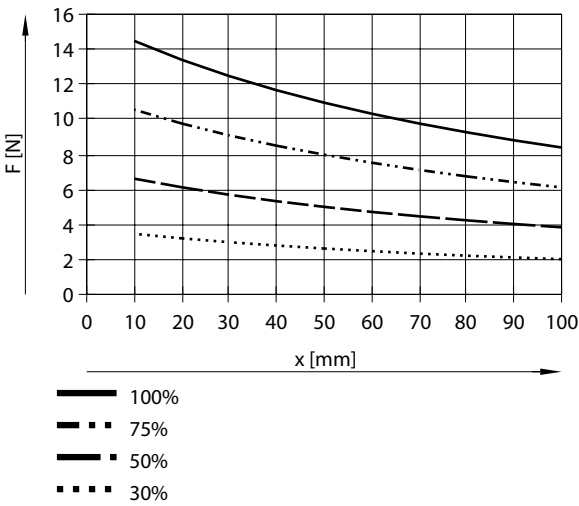


Even if the size of the workpiece is not known, it is possible to close the gripper with a specific gripping force by limiting the torque. With the CMMT-ST, the force mode can be used to close the gripper. The force setpoint is specified as a percentage value and corresponds to the motor current in relation to the nominal current.

For gripping, electrical, with CMMT-ST: gripping force as a function of lever arm x and force specification for EHMD-40-GE



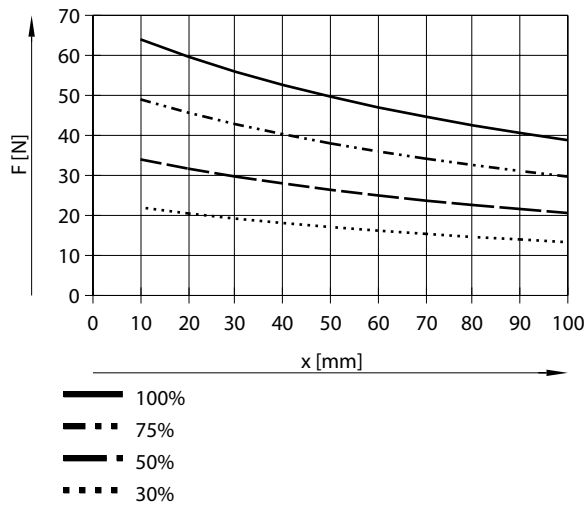
For gripping, electrical, with CMMT-ST: gripping force as a function of lever arm x and force specification for EHMD-40-GE-16



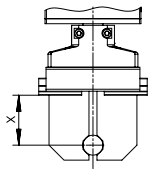
The characteristic curves show typical gripping forces when new. Depending on the function, these may fluctuate as a result of internal friction.

## Datasheet

For gripping, electrical, with CMMT-ST: gripping force as a function of lever arm  $x$  and force specification for EHMD-50

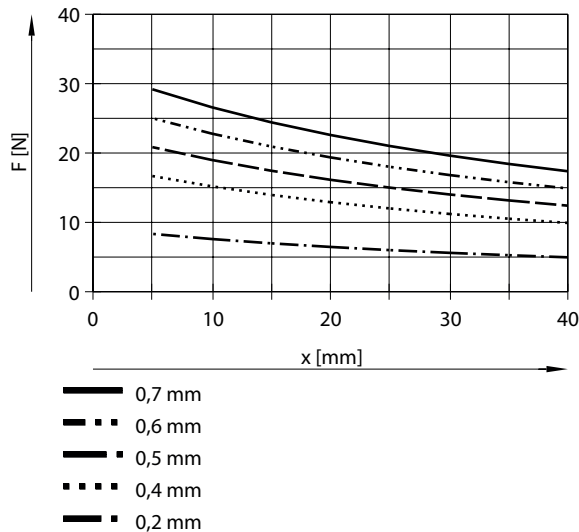


For gripping, electric, with servo drive: gripping force as a function of lever arm  $x$  and travel allowance for EHMD-...



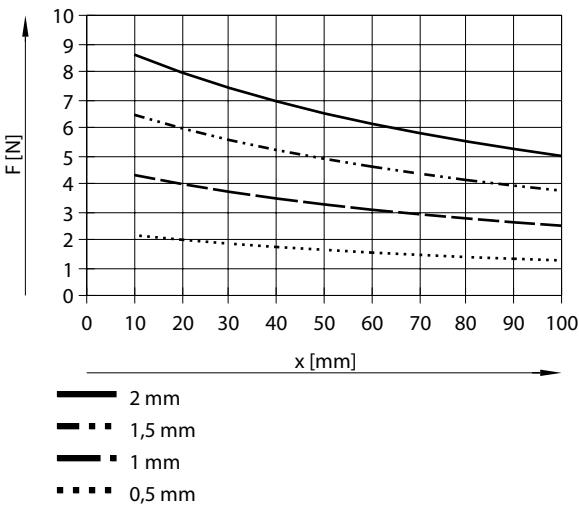
If the workpiece size is known, a specific gripping force can be achieved via the spring deflection of the gripper drive. The gripper is moved further in by a certain distance after it has come into contact with the workpiece. The gripper fingers then remain stationary while the drive continues to move and the spring is tensioned.

For gripping, electric, with servo drive: gripping force as a function of lever arm  $x$  and travel time for EHMD-40-GE

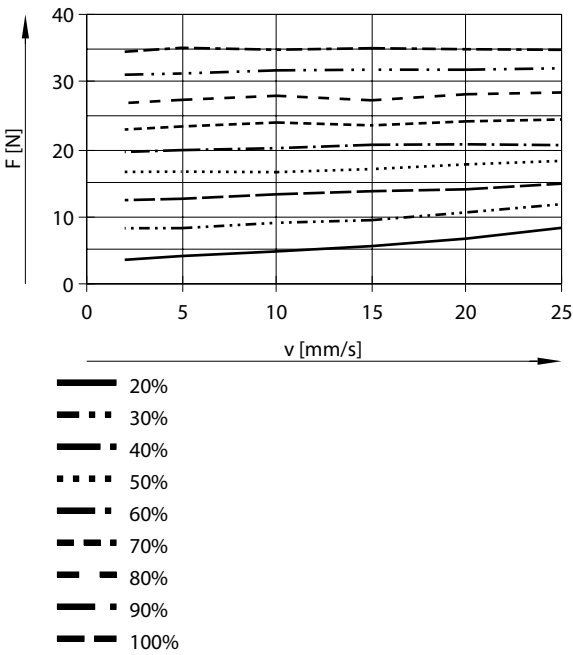


Datasheet

For gripping, electric, with servo drive: gripping force as a function of lever arm x and travel allowance for EHMD-40-GE-16

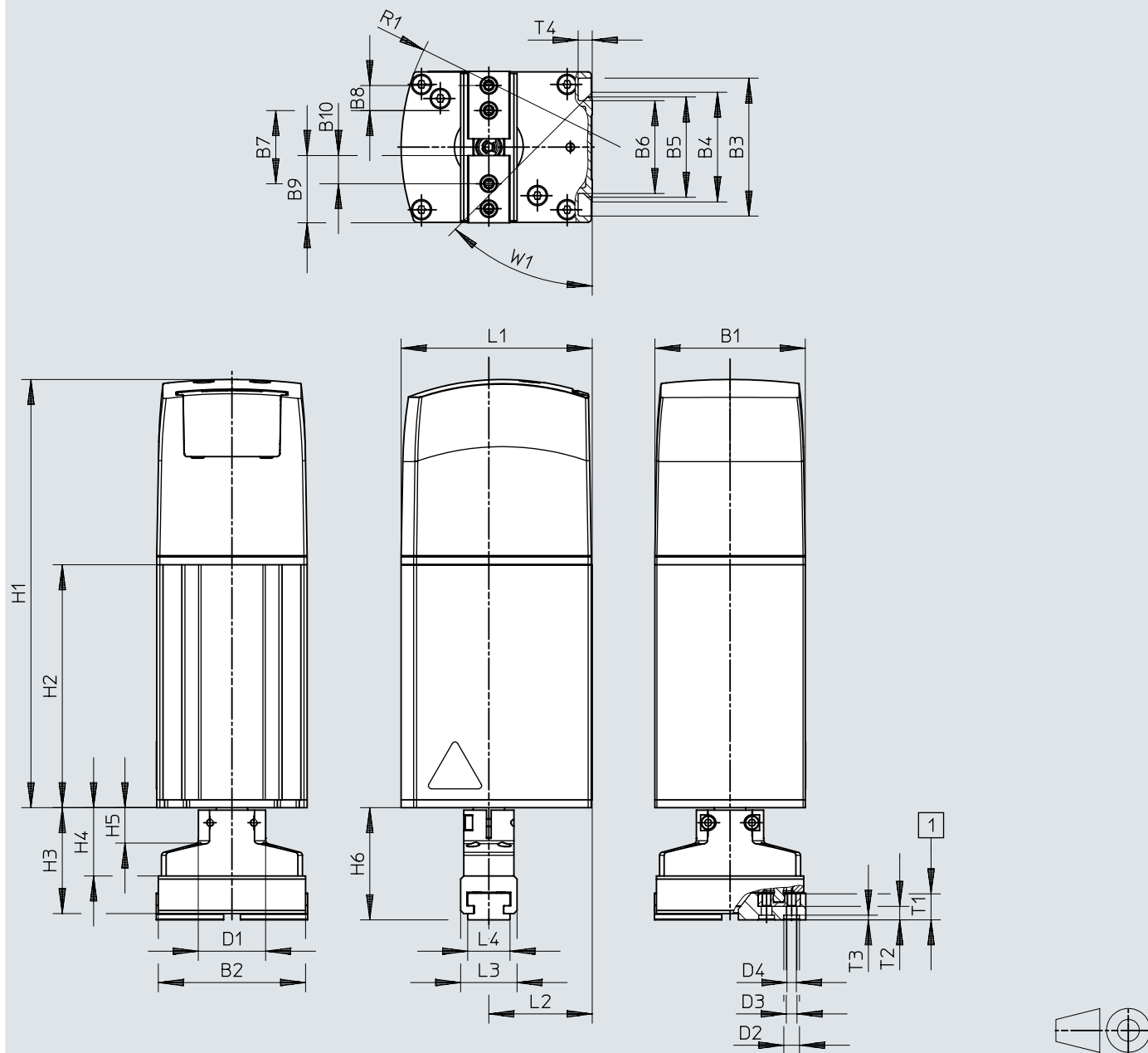


Gripping force  $F$  as a function of speed  $v$  for EHMD-40



- Requirement:
- Servo drive CMMT-ST in force mode
  - Ambient temperature of 25 °C

## Dimensions

Download CAD data [www.festo.com](http://www.festo.com)

[1] Max. screw-in depth

[2] Included in the scope of delivery: 4x screws M3x12, 4x centring sleeves ZBH-5 (for gripper finger)

Dimensions

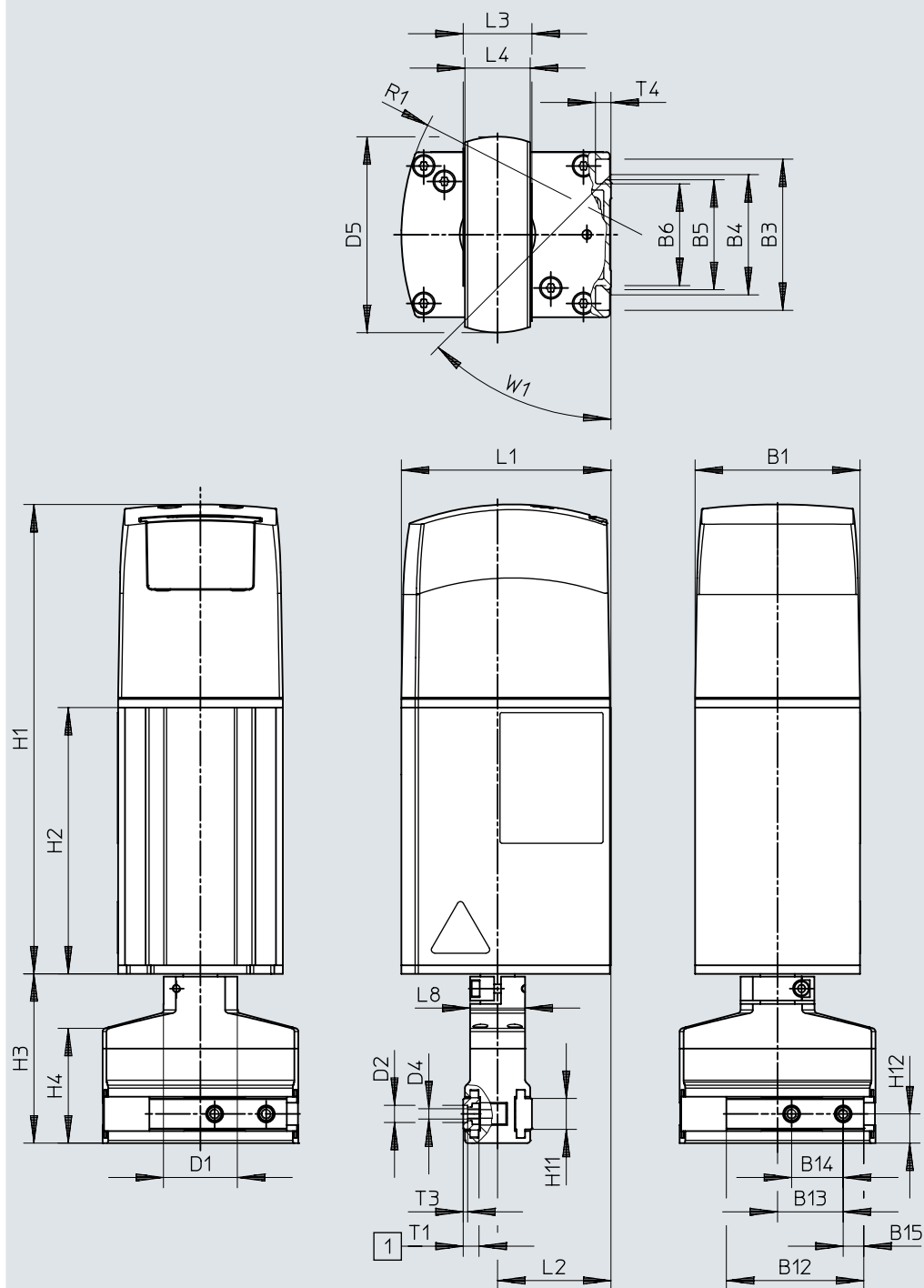
|               | B1 | B2 | B3 | B4<br>±0,15 | B5 | B6   | B7   |      | B8<br>±0,08 | B9   | B10 |
|---------------|----|----|----|-------------|----|------|------|------|-------------|------|-----|
|               |    |    |    |             |    |      | min. | max. |             |      |     |
| EHMD-40-RE-GE | 48 | 47 | 44 | 35          | 32 | 29,6 | 18   | 28   | 8           | 21,5 | 9   |

|               | D1<br>Ø | D2<br>Ø<br>H9 | D3<br>Ø | D4 | H1    | H2   | H3   | H4   | H5   | H6   |
|---------------|---------|---------------|---------|----|-------|------|------|------|------|------|
| EHMD-40-RE-GE | 21,5    | 5             | 3,4     | M3 | 136,6 | 77,5 | 33,8 | 21,8 | 11,3 | 35,8 |

|               | L1 | L2 | L3 | L4   | R1 | T1  | T2  | T3  | T4  | W1  |
|---------------|----|----|----|------|----|-----|-----|-----|-----|-----|
| EHMD-40-RE-GE | 61 | 33 | 18 | 13,5 | 70 | 8,3 | 4,3 | 1,5 | 4,5 | 45° |

## Dimensions

Dimensions – EHMD-40-RE-GE-16

Download CAD data [www.festo.com](http://www.festo.com)

[1] Max. screw-in depth

Dimensions

|                  | B1 | B3 | B4<br>±0,15 | B5 | B6   | B12 | B13  |      | B14 | B15 |
|------------------|----|----|-------------|----|------|-----|------|------|-----|-----|
|                  |    |    |             |    |      |     | min. | max. |     |     |
| EHMD-40-RE-GE-16 | 48 | 44 | 35          | 32 | 29,6 | 40  | 6    | 22   | 15  | 6   |

|                  | D1<br>Ø | D2<br>Ø<br>H8 | D4 | D5<br>Ø | H1    | H2   | H3   | H4   | H11 | H12 |
|------------------|---------|---------------|----|---------|-------|------|------|------|-----|-----|
| EHMD-40-RE-GE-16 | 21,5    | 5             | M3 | 57      | 136,6 | 77,5 | 49,3 | 33,2 | 9   | 8,5 |

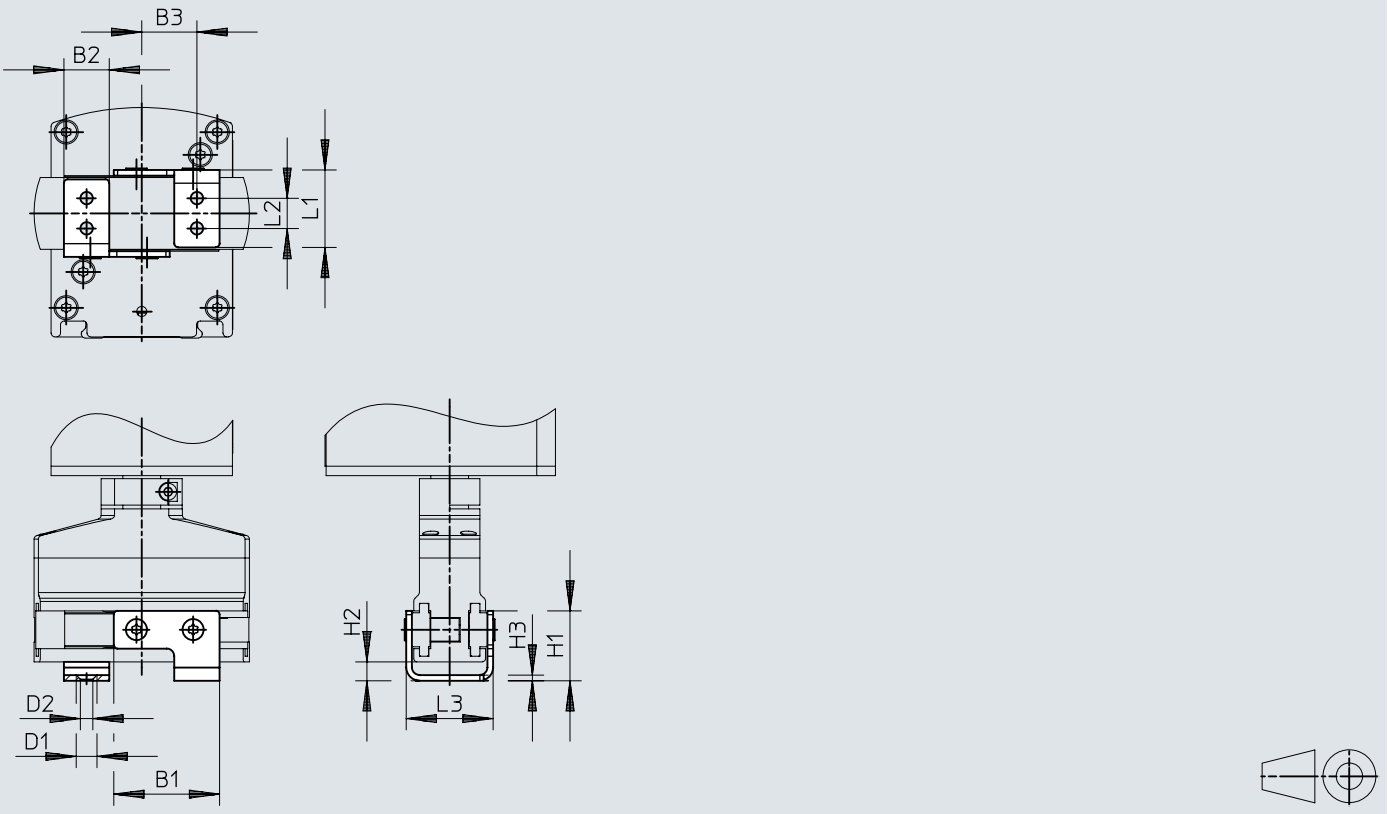
|                  | L1 | L2 | L3 | L4 | L8 | R1 | T1  | T3  | T4  | W1  |
|------------------|----|----|----|----|----|----|-----|-----|-----|-----|
| EHMD-40-RE-GE-16 | 61 | 33 | 20 | 19 | 16 | 70 | 4,6 | 1,3 | 4,5 | 45° |



Dimensions

Dimensions – EHMD-40-RE-GE-16 with bracket for gripper jaw mounting

Download CAD data [www.festo.com](http://www.festo.com)



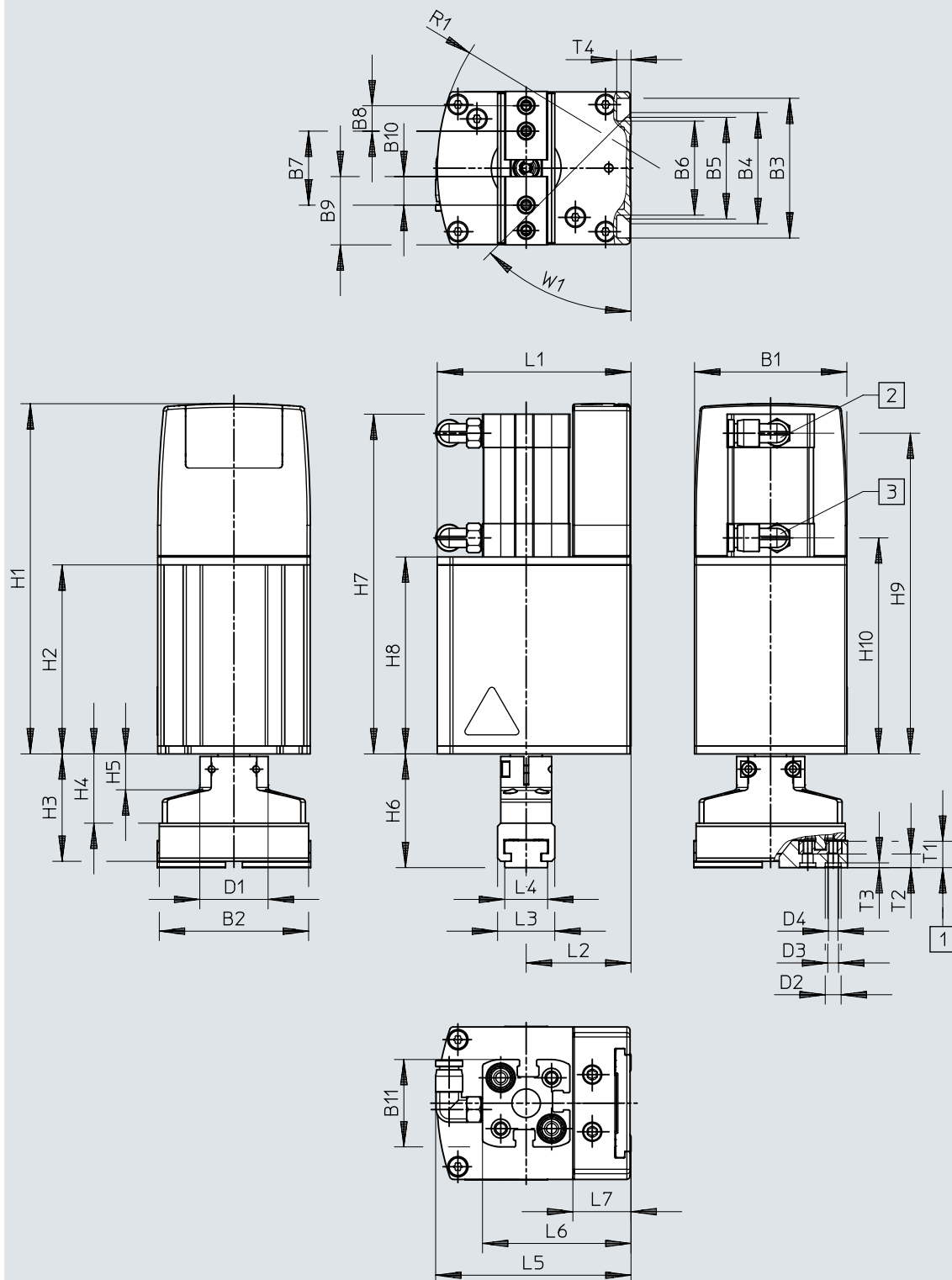
[1] Included in the scope of delivery of the gripper: 2x angle bracket, 8x countersunk screws M3x6, 4x centring sleeves ZBH-5

|                | B1 | B2 | B3   |      | D1<br>Ø | D2<br>Ø | H1   | H2 | H3  | L1   | L2 | L3 | L4 |
|----------------|----|----|------|------|---------|---------|------|----|-----|------|----|----|----|
|                |    |    | min. | max. |         |         |      |    |     |      |    |    |    |
| EHMD-...-GE-16 | 28 | 12 | 7    | 23   | 5,5     | 3,3     | 18,5 | 5  | 1,5 | 20,5 | 8  | 23 | 19 |

## Dimensions

Dimensions – EHMD-40-RE-GP

Download CAD data [www.festo.com](http://www.festo.com)



- [1] Max. screw-in depth
- [2] Push-in fitting for opening the gripper
- [3] Push-in fitting for closing the gripper
- [4] Included in the scope of delivery: 4x screws M3x12, 4x centring sleeves ZBH-5 (for gripper finger)

## Dimensions

|               | B1 | B2 | B3 | B4    | B5 | B6   | B7   |      | B8    | B9   | B10 | B11  | D1   |
|---------------|----|----|----|-------|----|------|------|------|-------|------|-----|------|------|
|               |    |    |    | ±0,15 |    |      | min. | max. | ±0,08 |      |     |      | ∅    |
| EHMD-40-RE-GP | 48 | 47 | 44 | 35    | 32 | 29,6 | 18   | 28   | 8     | 21,5 | 9   | 27,5 | 21,5 |

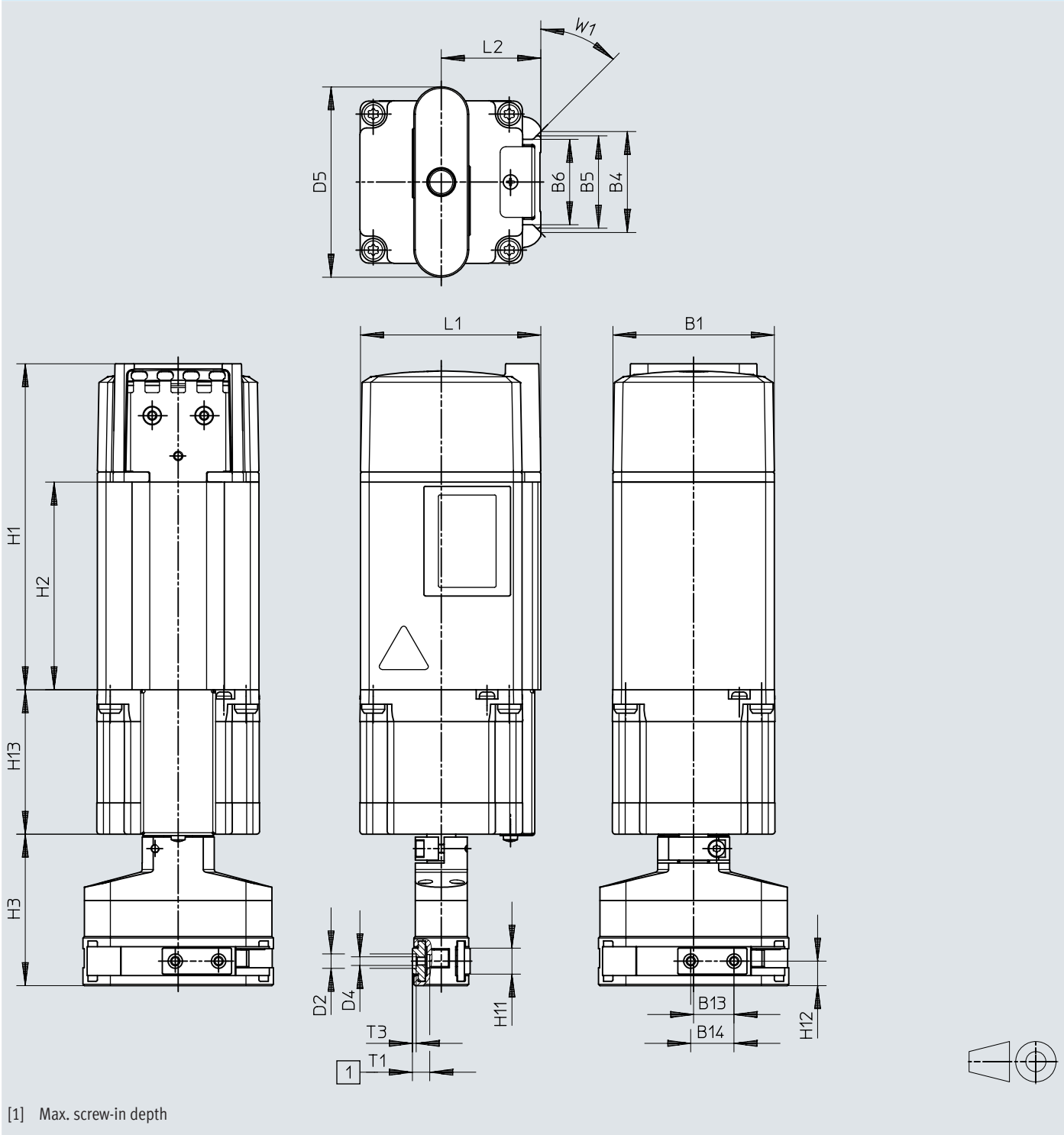
|               | D2<br>∅<br>H9 | D3<br>∅ | D4 | H1    | H2   | H3   | H4   | H5   | H6   | H7  | H8 | H9  | H10 |
|---------------|---------------|---------|----|-------|------|------|------|------|------|-----|----|-----|-----|
| EHMD-40-RE-GP | 5             | 3,4     | M3 | 110,3 | 59,5 | 33,8 | 21,8 | 11,3 | 35,8 | 107 | 62 | 101 | 68  |

|               | L1 | L2 | L3 | L4   | L5   | L6   | L7   | R1 | T1  | T2  | T3  | T4  | W1  |
|---------------|----|----|----|------|------|------|------|----|-----|-----|-----|-----|-----|
| EHMD-40-RE-GP | 61 | 33 | 18 | 13,5 | 61,5 | 46,8 | 18,3 | 70 | 8,3 | 4,3 | 1,5 | 4,5 | 45° |

Dimensions

Dimensions – EHMD-50-RE-GE-15 Download CAD data [www.festo.com](http://www.festo.com)



## Dimensions

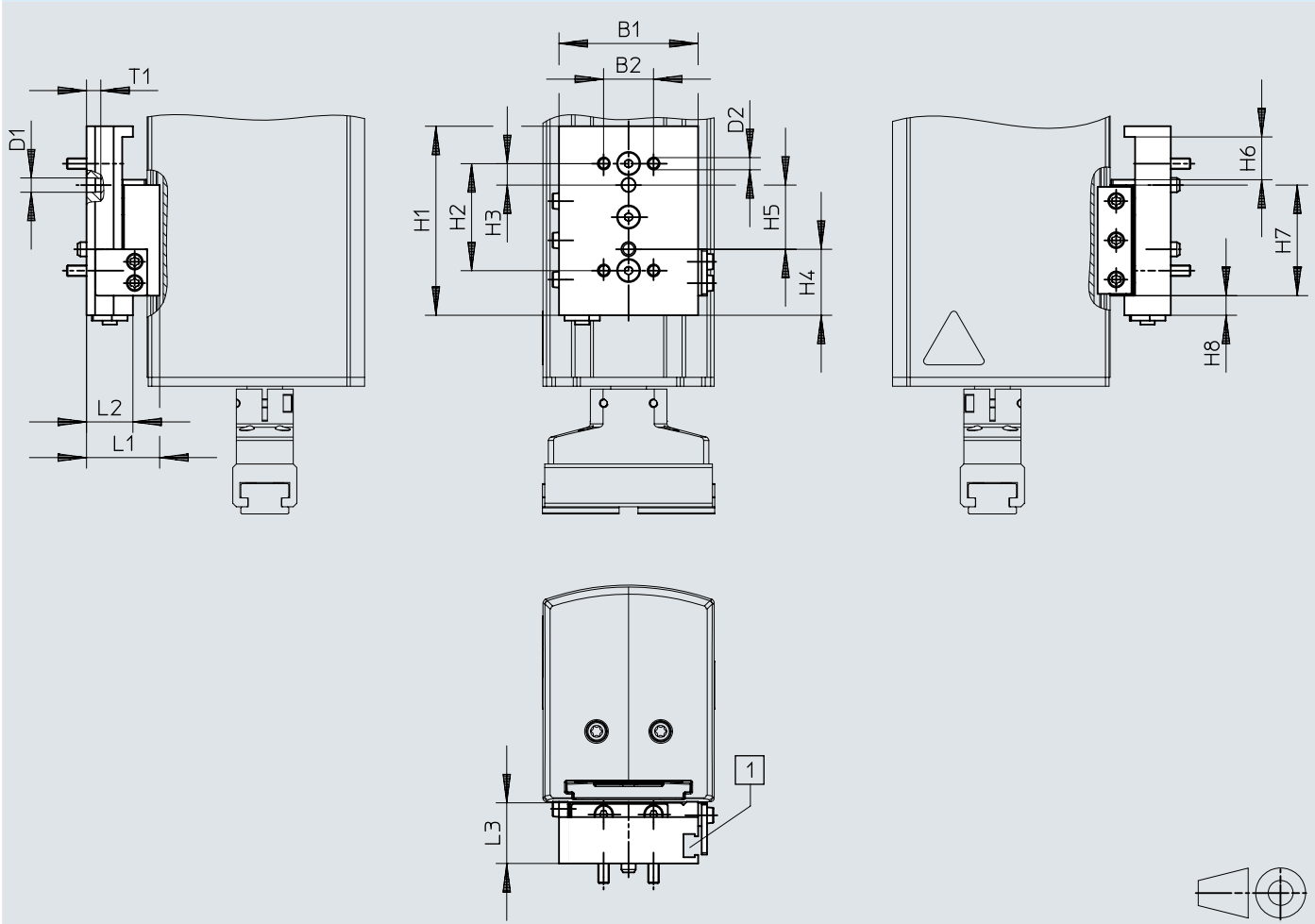
|                  | B1 | B4<br>±0,15 | B5 | B6   | B13  |      | B14<br>±0,03 | D2<br>Ø<br>H8 | D4 | D5<br>Ø |
|------------------|----|-------------|----|------|------|------|--------------|---------------|----|---------|
|                  |    |             |    |      | min. | max. |              |               |    |         |
| EHMD-50-RE-GE-15 | 56 | 35          | 32 | 29,6 | 6,5  | 21,5 | 15           | 5             | M3 | 66      |

|                  | H1  | H2 | H3   | H11 | H12 | H13  | L1   | L2   | T1 | T3  | W1  |
|------------------|-----|----|------|-----|-----|------|------|------|----|-----|-----|
| EHMD-50-RE-GE-15 | 113 | 72 | 52,5 | 9   | 8,5 | 50,1 | 62,5 | 34,5 | 6  | 1,3 | 45° |

Dimensions

Dimensions – Mounting EHAM-E20-40-Z Download CAD data [www.festo.com](http://www.festo.com)



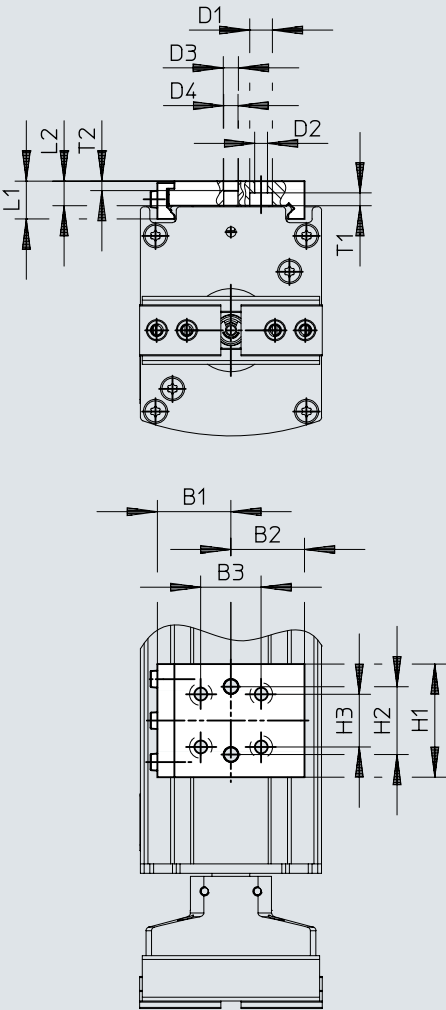
- [1] T-slot for proximity switch
- [2] Included in the scope of delivery: 4x screws M3x8, 2x centring pins ZBS-4 (for mounting on Z-axis)
- [3] Mounting option via dovetail mounting. The mounting component compensates for the thread pitch when turning (fitting/removing) covers on vials without needing additional movement of the Z-axis. (Z compensation = 12 mm)

|               | B1 | B2 | D1<br>Ø<br>H8 | D3<br>Ø | H1 | H2 | H3 | H4   | H5<br>±0,05 | H6 | H7 | H8  | L1   | L2 | L3 | T1  |
|---------------|----|----|---------------|---------|----|----|----|------|-------------|----|----|-----|------|----|----|-----|
| EHAM-E20-40-Z | 39 | 14 | 4             | 3,4     | 53 | 30 | 6  | 18,5 | 18          | 12 | 31 | 5,5 | 20,5 | 13 | 17 | 2,5 |

Dimensions

Dimensions – Mounting EHAM-E20-40

Download CAD data [www.festo.com](http://www.festo.com)

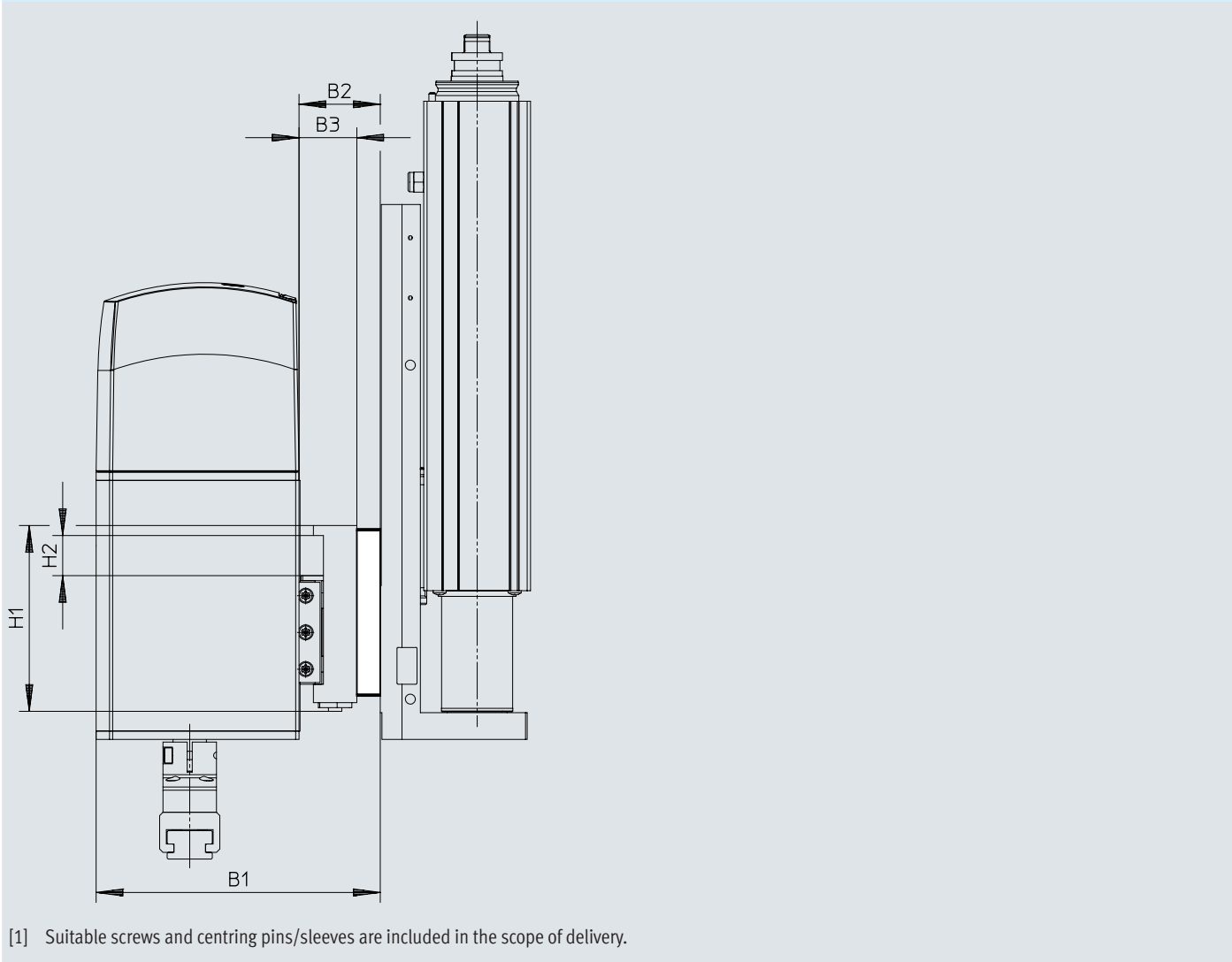


[1] Included in the scope of delivery: 4x screws M3x8, 2x centring pins ZBS-4 (for mounting on Z-axis)

|             | B1   | B2   | B3 | D1<br>Ø | D2<br>Ø | D3<br>Ø<br>H8 | D4<br>Ø | H1 | H2<br>±0,05 | H3 | L1 | L2  | T1  | T2  |
|-------------|------|------|----|---------|---------|---------------|---------|----|-------------|----|----|-----|-----|-----|
| EHAM-E20-40 | 19,5 | 19,5 | 16 | 6       | 3,4     | 4             | 3,8     | 30 | 18          | 14 | 10 | 6,5 | 3,4 | 2,5 |

Dimensions

Dimensions – With flexible mounting EHAM-E20-40-Z Download CAD data [www.festo.com](http://www.festo.com)



|                    | 1)            | B1 | B2   | B3   | H1   | H2 <sup>2)</sup> |
|--------------------|---------------|----|------|------|------|------------------|
| EHAM-E20-40-E19-25 | EGSC-BS-25/32 | 85 | 24,3 | 17,3 | 55,6 | 12               |
| EHAM-E20-40-E8-35  | EGSL-BS-35/45 |    |      |      |      |                  |
| EHAM-E20-40-E9-20  | EGSK-20/26    |    |      |      |      |                  |

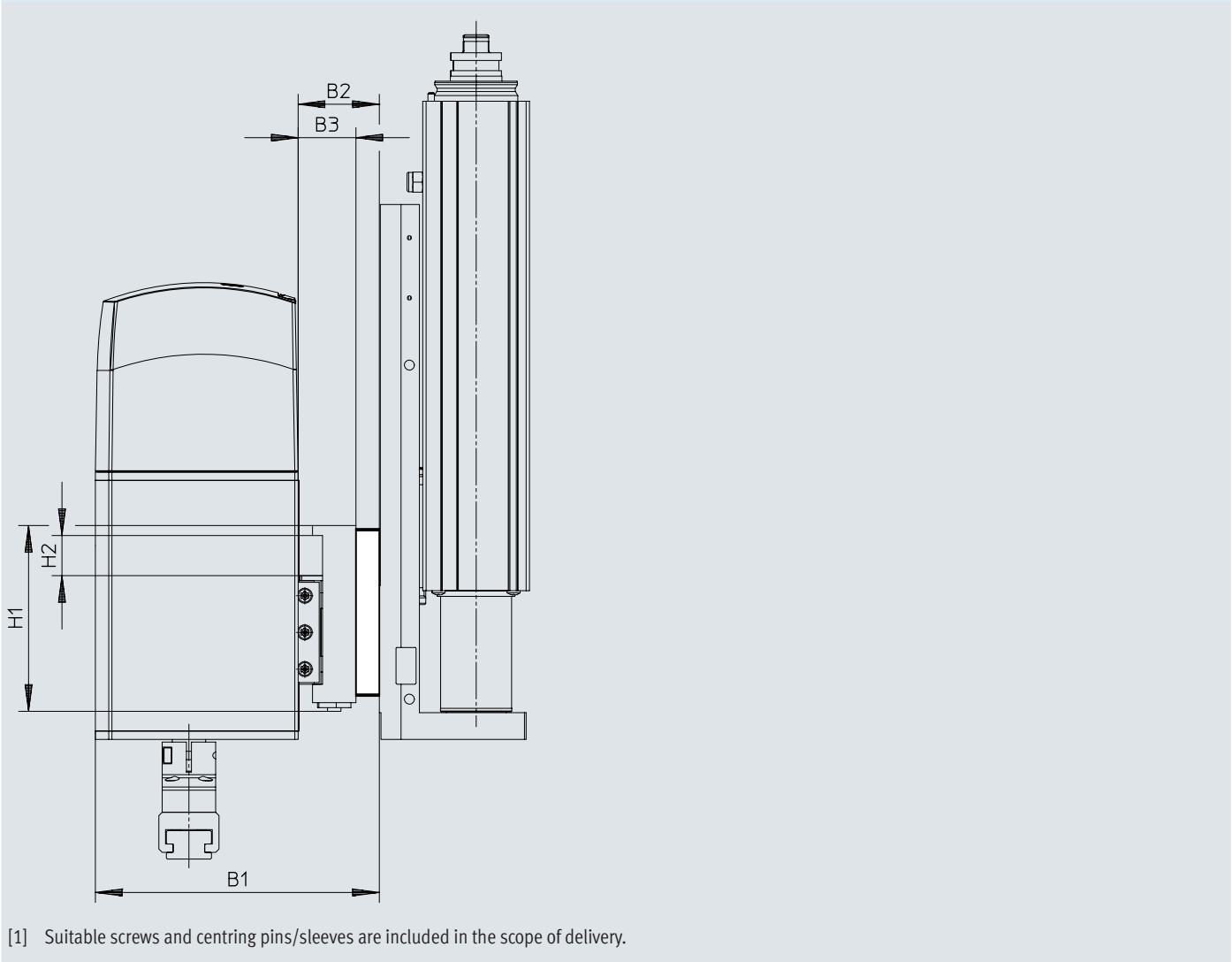
1) Stroke  
2) Automatic Z-stroke compensation.



Dimensions

Dimensions – With rigid mountings EHAM-E20-40

Download CAD data [www.festo.com](http://www.festo.com)

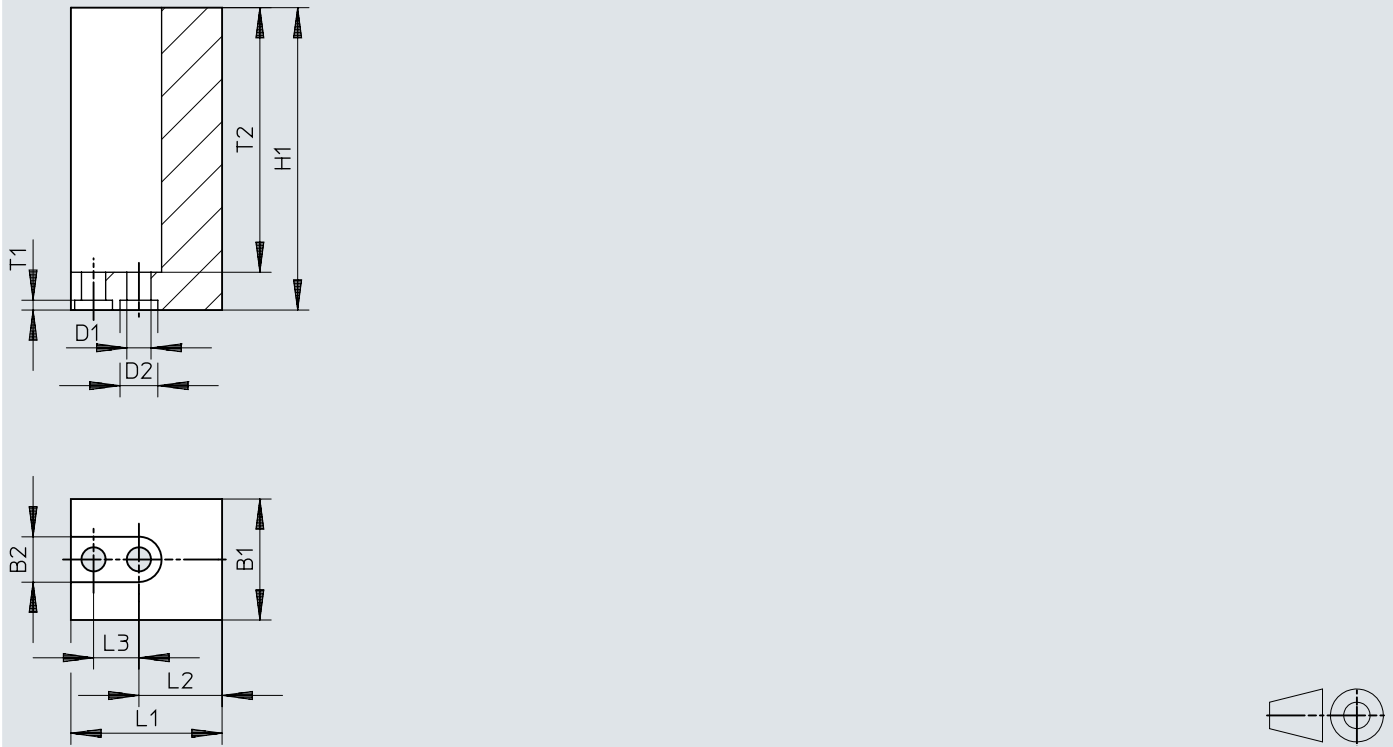


|                    | 1)            | B1   | B2   | B3  | H1 |
|--------------------|---------------|------|------|-----|----|
| EHAM-E20-40-E19-25 | EGSC-BS-25/32 | 74,5 | 13,8 | 6,8 | 30 |
| EHAM-E20-40-E8-35  | EGSL-BS-35/45 |      |      |     |    |
| EHAM-E20-40-E9-20  | EGSK-20/26    |      |      |     |    |

1) Stroke

Dimensions

Dimensions – Gripper jaw blank BUB-HGPT Download CAD data [www.festo.com](http://www.festo.com)



[1] Use the matching screws and centring sleeves included with the rotary gripper module EHMD to mount it.

|               | B1    | B2  | D1<br>Ø | D2<br>Ø | H1    | L1    | L2 <sup>1)</sup> | L3 <sup>1)</sup> | T1   | T2 |
|---------------|-------|-----|---------|---------|-------|-------|------------------|------------------|------|----|
|               | ±0,05 | H13 | H13     | H8      | ±0,05 | ±0,05 |                  |                  | +0,1 |    |
| BUB-HGPT-16-B | 16    | 6   | 3,2     | 5       | 40    | 21    | 10               | 8                | 1,3  | 35 |

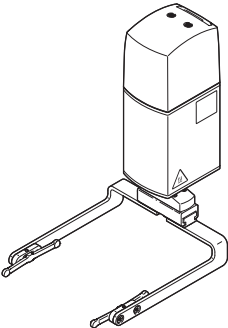
1) Tolerance for centring hole ±0.02 mm Tolerance for thread ±0.1 mm

Ordering data

| Ordering data for size 40                                                         |                            |                      |                         |          |                  |
|-----------------------------------------------------------------------------------|----------------------------|----------------------|-------------------------|----------|------------------|
|                                                                                   | Rotary module drive system | Gripper drive system | Stroke per gripper jaws | Part no. | Type             |
|  | Electric                   | Pneumatic            | 5 mm                    | 4790698  | EHMD-40-RE-GP    |
|                                                                                   |                            | Electric             |                         | 4788875  | EHMD-40-RE-GE    |
|                                                                                   |                            |                      | 15 mm                   | 8099502  | EHMD-40-RE-GE-16 |

| Ordering data for size 50                                                          |                            |                      |                         |          |                  |
|------------------------------------------------------------------------------------|----------------------------|----------------------|-------------------------|----------|------------------|
|                                                                                    | Rotary module drive system | Gripper drive system | Stroke per gripper jaws | Part no. | Type             |
|  | Electric                   | Electric             | 15 mm                   | 8176191  | EHMD-50-RE-GE-15 |

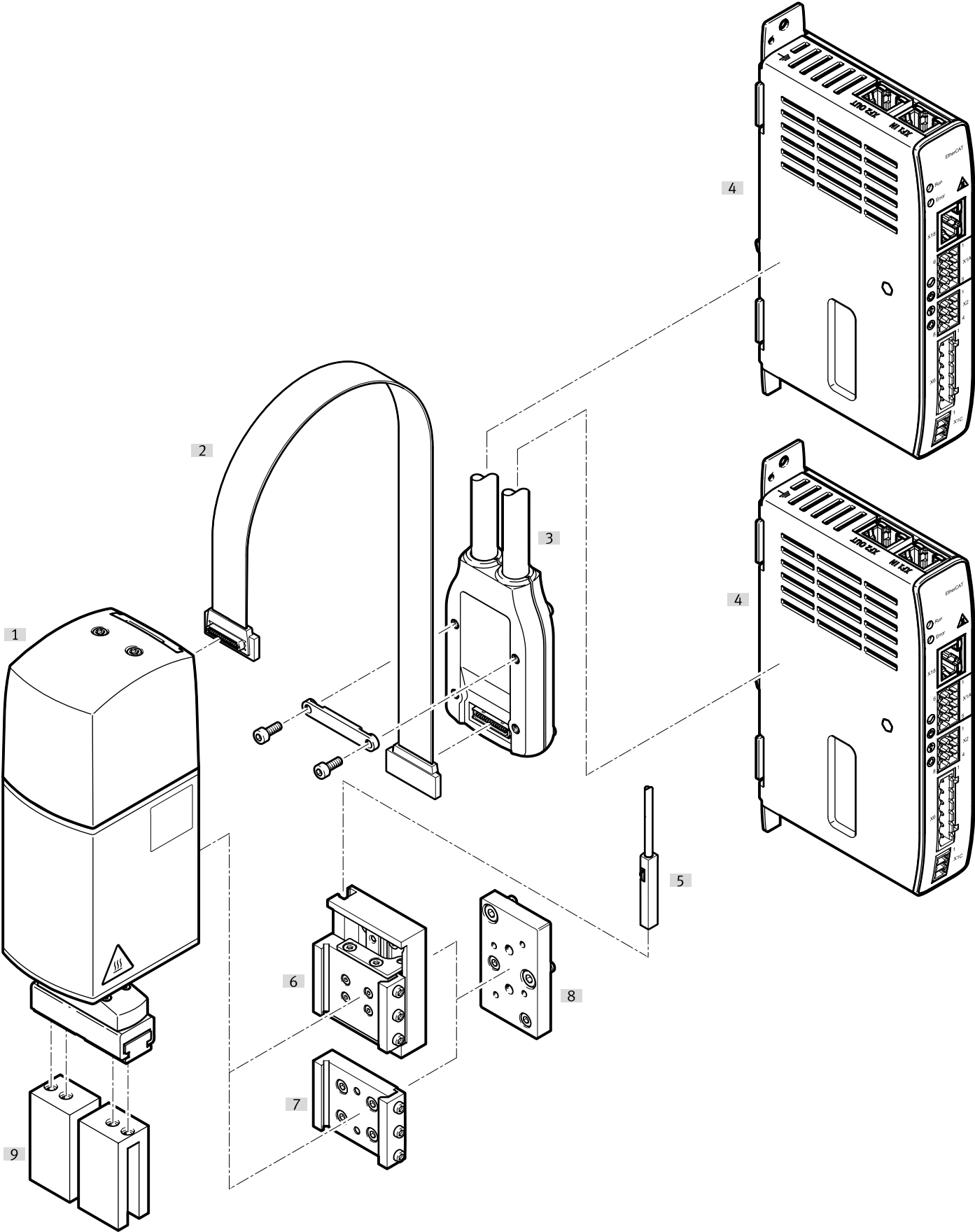
Transport of microwell plates



- Suitable for:EHMD-40-RE-GP and EHMD-40-RE-GE
- Specially developed gripper jaws enable microwell plates to be picked or transported (for SBS/ANSI formats).
- (see accessories for ordering details)

Peripherals

Peripherals overview electric gripping

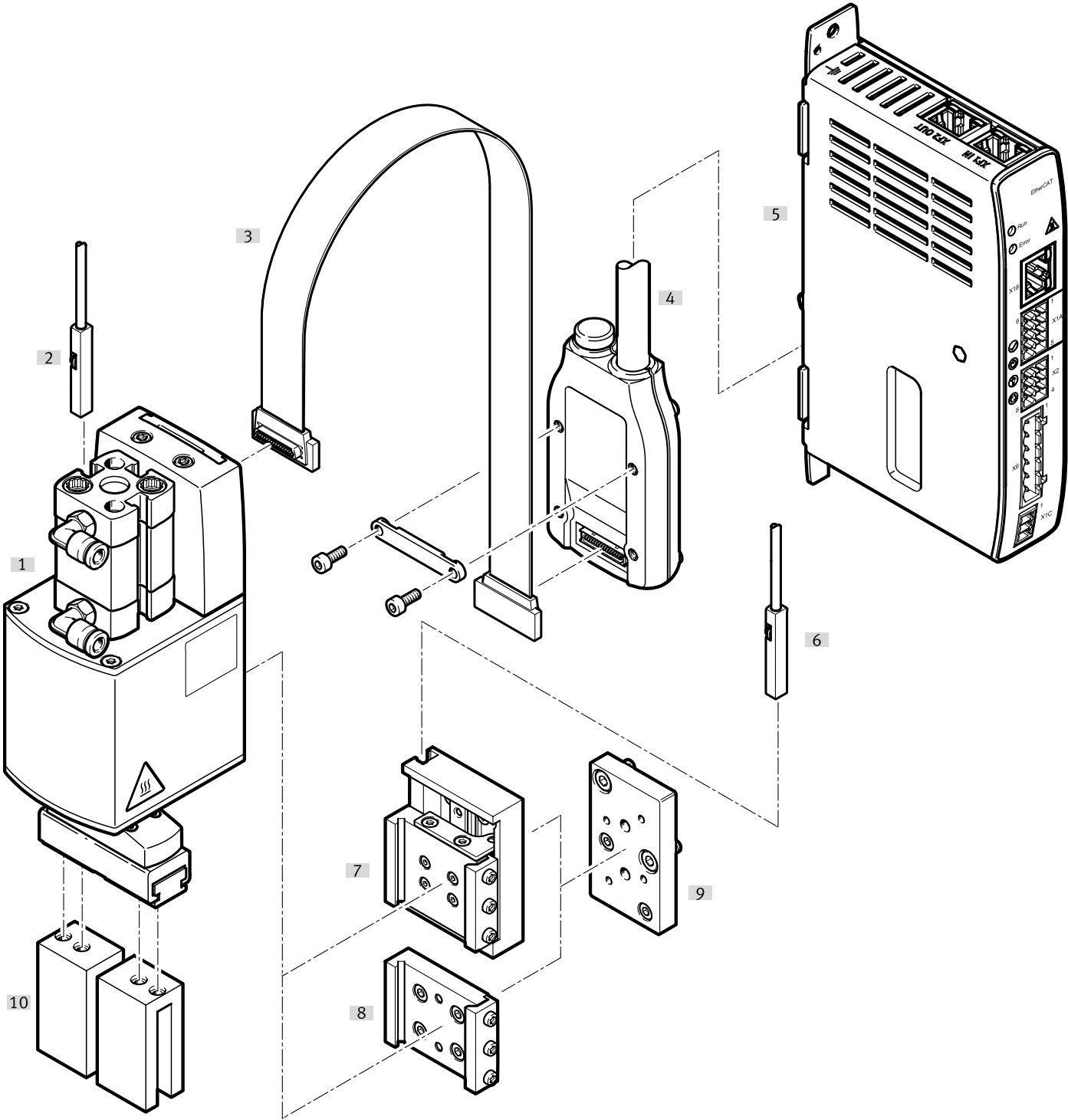


## Peripherals

| Accessories                                      |                                                                                                                                                                                                                                     | → Link               |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Type/order code                                  | Description                                                                                                                                                                                                                         |                      |
| [1] Rotary gripper module EHMD                   | Electric drive                                                                                                                                                                                                                      | <a href="#">ehmd</a> |
| [2] Motor cable NEBM-F1W31                       | <ul style="list-style-type: none"> <li>Connecting cable between EHMD and motor cable NEBM-SF1</li> <li>The cable is mandatory for compliance with the EMC Directive</li> </ul>                                                      | <a href="#">35</a>   |
| [3] Motor cable NEBM-SF1                         | Cable with adapter between motor cable NEBM-F1 and servo drive CMMT-ST                                                                                                                                                              | <a href="#">35</a>   |
| [4] Servo drive CMMT-ST                          | For positioning the rotary or gripping motion                                                                                                                                                                                       | <a href="#">35</a>   |
| [5] Proximity switch, T-slot SIES-M8             | Inductive proximity sensor for sensing the Z-compensation position                                                                                                                                                                  | <a href="#">35</a>   |
| [6] Mounting (with Z-compensation) EHAM-E20-40-Z | <ul style="list-style-type: none"> <li>Mounting option via dovetail mounting</li> <li>The mounting makes it possible to fit or remove covers from vials, for example, without additional Z-axis (Z-compensation = 12 mm)</li> </ul> | <a href="#">34</a>   |
| [7] Mounting (rigid) EHAM-E20-40                 | Mounting option via dovetail mounting                                                                                                                                                                                               | <a href="#">34</a>   |
| [8] Adapter kit EHAM-E20-40-E...                 | To fit the mountings on the Z-axes: <ul style="list-style-type: none"> <li>Mini slide EGSC-BS-25/32</li> <li>Mini slide EGSL-BS-35/45</li> <li>Electric slide EGSK-20/26</li> </ul>                                                 | <a href="#">34</a>   |
| [9] Gripper jaw blank BUB-HGPT-16-B              | <ul style="list-style-type: none"> <li>Blanks specially matched to the gripper jaws for manufacturing gripper fingers.</li> <li>Not permitted for EHMD-40-RE-GE-16</li> </ul>                                                       | <a href="#">34</a>   |

Peripherals

Peripherals overview pneumatic gripping



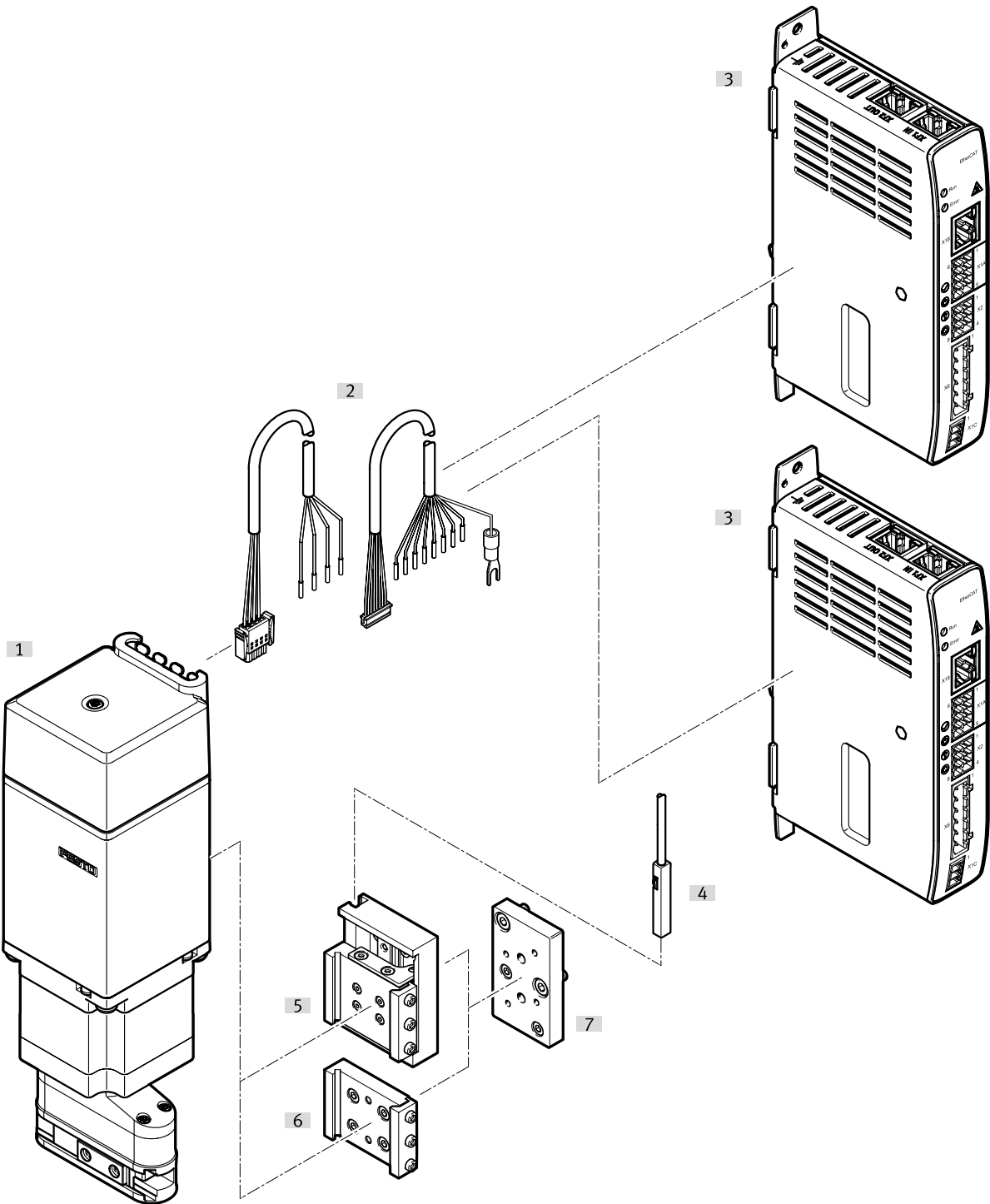
| Accessories                          |                                                                                                                                                                             | → Link               |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Type/order code                      | Description                                                                                                                                                                 |                      |
| [1] Rotary gripper module EHMD       | Electric drive                                                                                                                                                              | <a href="#">ehmd</a> |
| [2] Proximity switch, T-slot SMT-M8  | Proximity sensor for sensing the position of the gripper fingers (open/closed)                                                                                              | <a href="#">36</a>   |
| [2] Proximity switch, T-slot SME-M8  | Proximity sensor for sensing the position of the gripper fingers (open/closed)                                                                                              | <a href="#">36</a>   |
| [3] Motor cable NEBM-F1W31           | <ul style="list-style-type: none"><li>Connecting cable between EHMD and motor cable NEBM-SF1</li><li>The cable is mandatory for compliance with the EMC Directive</li></ul> | <a href="#">35</a>   |
| [4] Motor cable NEBM-SF1             | Cable with adapter between motor cable NEBM-F1 and servo drive CMMT-ST                                                                                                      | <a href="#">35</a>   |
| [5] Servo drive CMMT-ST              | For positioning the rotary movement                                                                                                                                         | <a href="#">35</a>   |
| [6] Proximity switch, T-slot SIES-M8 | Inductive proximity sensor for sensing the Z-compensation position                                                                                                          | <a href="#">35</a>   |

## Peripherals

| Accessories                                      |                                                                                                                                                                                                                                         | → Link             |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Type/order code                                  | Description                                                                                                                                                                                                                             |                    |
| [7] Mounting (with Z-compensation) EHAM-E20-40-Z | <ul style="list-style-type: none"> <li>• Mounting option via dovetail mounting</li> <li>• The mounting makes it possible to fit or remove covers from vials, for example, without additional Z-axis (Z-compensation = 12 mm)</li> </ul> | <a href="#">34</a> |
| [8] Mounting (rigid) EHAM-E20-40                 | Mounting option via dovetail mounting                                                                                                                                                                                                   | <a href="#">34</a> |
| [9] Adapter kit EHAM-E20-40-E...                 | To fit the mountings on the Z-axes: <ul style="list-style-type: none"> <li>• Mini slide EGSC-BS-25/32</li> <li>• Mini slide EGSL-BS-35/45</li> <li>• Electric slide EGSK-20/26</li> </ul>                                               | <a href="#">34</a> |
| [10] Gripper jaw blank BUB-HGPT-16-B             | Blanks specially matched to the gripper jaws for manufacturing gripper fingers                                                                                                                                                          | <a href="#">34</a> |

Peripherals

Peripherals overview electric gripping



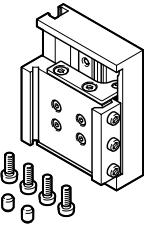
| Accessories                                      |                                                                                                                                                                                                                                 | → Link               |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Type/order code                                  | Description                                                                                                                                                                                                                     |                      |
| [1] Rotary gripper module EHMD                   | Electric drive                                                                                                                                                                                                                  | <a href="#">ehmd</a> |
| [2] Motor cable NEBM-L15G24                      | <ul style="list-style-type: none"><li>Connecting cable between EHMD and motor cable NEBM-SF1</li><li>The cable is mandatory for compliance with the EMC Directive</li></ul>                                                     | <a href="#">35</a>   |
| [3] Servo drive CMMT-ST                          | For positioning the rotary or gripping motion                                                                                                                                                                                   | <a href="#">35</a>   |
| [4] Proximity switch, T-slot SIES-M8             | Inductive proximity sensor for sensing the Z-compensation position                                                                                                                                                              | <a href="#">35</a>   |
| [5] Mounting (with Z-compensation) EHAM-E20-40-Z | <ul style="list-style-type: none"><li>Mounting option via dovetail mounting</li><li>With the mounting, covers can be fitted on or removed from vials, for example, without additional Z-axis (Z-compensation = 12 mm)</li></ul> | <a href="#">34</a>   |
| [6] Mounting (rigid) EHAM-E20-40                 | Mounting option via dovetail mounting                                                                                                                                                                                           | <a href="#">34</a>   |

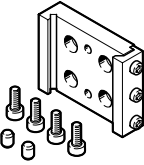


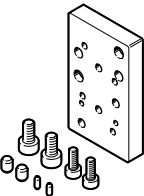
Peripherals

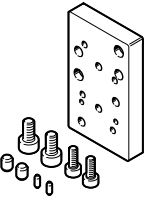
| Accessories                      |                                                                                                                                                                                       | → Link             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Type/order code                  | Description                                                                                                                                                                           |                    |
| [7] Adapter kit EHAM-E20-40-E... | To fit the mountings on the Z-axes: <ul style="list-style-type: none"><li>• Mini slide EGSC-BS-25/32</li><li>• Mini slide EGSL-BS-35/45</li><li>• Electric slide EGSK-20/26</li></ul> | <a href="#">34</a> |

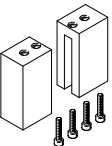
## Accessories

| Mounting EHAM-E20-40-Z                                                           |                   |                         |                |          |               |
|----------------------------------------------------------------------------------|-------------------|-------------------------|----------------|----------|---------------|
|                                                                                  | Mounting position | Material adapter plate  | Product weight | Part no. | Type          |
|  | Vertical          | Wrought aluminium alloy | 82 g           | 5293408  | EHAM-E20-40-Z |

| Mounting EHAM-E20-40                                                             |                   |                         |                |          |             |
|----------------------------------------------------------------------------------|-------------------|-------------------------|----------------|----------|-------------|
|                                                                                  | Mounting position | Material adapter plate  | Product weight | Part no. | Type        |
|  | optional          | Wrought aluminium alloy | 26 g           | 4991965  | EHAM-E20-40 |

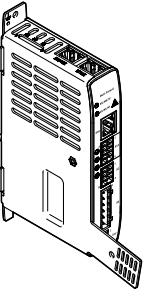
| Adapter kit EHAM-E20-40-E for EHMD-40                                              |                    |                   |                         |                |          |                    |
|------------------------------------------------------------------------------------|--------------------|-------------------|-------------------------|----------------|----------|--------------------|
|                                                                                    | Description        | Mounting position | Material adapter plate  | Product weight | Part no. | Type               |
|  | For EG-SL-BS-35/45 | optional          | Wrought aluminium alloy | 24 g           | 8081015  | EHAM-E20-40-E8-35  |
|                                                                                    | For EGSC-BS-25/32  |                   |                         | 30 g           | 8080760  | EHAM-E20-40-E19-25 |
|                                                                                    | for EGSK-20/26     |                   |                         | 36 g           | 8081016  | EHAM-E20-40-E9-20  |

| Adapter kit EHAM-E20-40-E for EHMD-50                                              |                   |                   |                         |                |          |                    |
|------------------------------------------------------------------------------------|-------------------|-------------------|-------------------------|----------------|----------|--------------------|
|                                                                                    | Description       | Mounting position | Material adapter plate  | Product weight | Part no. | Type               |
|  | For EGSC-BS-35/45 | optional          | Wrought aluminium alloy | 24 g           | 8081015  | EHAM-E20-40-E8-35  |
|                                                                                    | For EGSC-BS-32    |                   |                         | 30 g           | 8080760  | EHAM-E20-40-E19-25 |
|                                                                                    | For EGSK-20/26    |                   |                         | 36 g           | 8081016  | EHAM-E20-40-E9-20  |

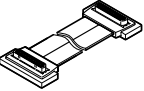
| Gripper jaw blank BUB-HGPT                                                         |                                      |                          |                                |          |               |
|------------------------------------------------------------------------------------|--------------------------------------|--------------------------|--------------------------------|----------|---------------|
|                                                                                    | Type of mounting <sup>1)</sup>       | Material unmachined part | Product weight per gripper jaw | Part no. | Type          |
|  | Via through-hole and centring sleeve | Wrought aluminium alloy  | 29 g                           | 560244   | BUB-HGPT-16-B |

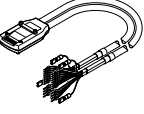
1) Not permitted for EHMD-40-RE-GE-16.

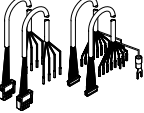
## Accessories

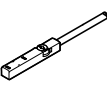
| Servo drive                                                                       |                                                   |                                      |           | Link <a href="#">cmmt-st</a> |
|-----------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------|-----------|------------------------------|
|                                                                                   | Type of mounting <sup>1)</sup>                    | Field bus, protocol                  | Part no.  | Type                         |
|  | Mounting plate, attached with screws, With H-rail | EtherCAT®, EtherNet/IP, PROFINET IRT | ★ 8163946 | CMMT-ST-C8-1C-MP-S0          |
|                                                                                   |                                                   |                                      |           |                              |

1) The assortment of plugs NEKM is included in the scope of delivery of the servo drive.

| Motor cable NEBM...-DF1W31                                                        |                                                                                               |              |          | Link <a href="#">nebm</a>    |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|----------|------------------------------|
|                                                                                   | Description                                                                                   | Cable length | Part no. | Type                         |
|  | For EHMD-40-...-GE und EHMD-40-...-GP, Connecting cable between EHMD and motor cable NEBM-SF1 | 0.2 m        | 8113317  | NEBM-F1W31-XC-0.2-F1N-DF1W31 |
|                                                                                   |                                                                                               | 0.5 m        | 8079819  | NEBM-F1W31-XC-0.5-F1N-DF1W31 |

| Motor cable NEBM...-LE                                                              |                                                                               |              |          | Link <a href="#">nebm</a>    |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------|----------|------------------------------|
|                                                                                     | Description                                                                   | Cable length | Part no. | Type                         |
|  | For EHMD-40-...-GE, Line with adapter between motor cable NEBM-F1 and CMMO-ST | 2.6 m        | 5213342  | NEBM-SF1W31-EH-2.6-Q15N-LE28 |
|                                                                                     |                                                                               | 5 m          | 8113307  | NEBM-SF1W31-EH-5-Q15N-LE28   |
|                                                                                     |                                                                               | 10 m         | 8113309  | NEBM-SF1W31-EH-10-Q15N-LE28  |
|                                                                                     | For EHMD-40-...-GP, Line with adapter between motor cable NEBM-F1 and CMMO-ST | 2.6 m        | 5213343  | NEBM-SF1W31-EH-2.6-Q15N-LE14 |
|                                                                                     |                                                                               | 5 m          | 8113308  | NEBM-SF1W31-EH-5-Q15N-LE14   |
|                                                                                     |                                                                               | 10 m         | 8113310  | NEBM-SF1W31-EH-10-Q15N-LE14  |

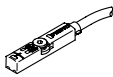
| Connecting cable NEBM-L15G24                                                        |                                                            |              |          | Link <a href="#">nebm</a> |
|-------------------------------------------------------------------------------------|------------------------------------------------------------|--------------|----------|---------------------------|
|                                                                                     | Description                                                | Cable length | Part no. | Type                      |
|  | For EHMD-50-..., Connecting cable between EHMD and CMMT-ST | 1 m          | 8178801  | NEBM-L15G24-ES-1-LE24     |
|                                                                                     |                                                            | 3 m          | 8178802  | NEBM-L15G24-ES-3-LE24     |
|                                                                                     |                                                            | 5 m          | 8178803  | NEBM-L15G24-ES-5-LE24     |
|                                                                                     |                                                            | 10 m         | 8178804  | NEBM-L15G24-ES-10-LE24    |

| Proximity switch for T-slot, inductive                                              |                            |                                                                     |                  |                                          |              |          | Link <a href="#">sies-8m</a> |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------|------------------|------------------------------------------|--------------|----------|------------------------------|
|                                                                                     | Switching element function | Type of mounting                                                    | Switching output | Electrical connection 1, connection type | Cable length | Part no. | Type                         |
|  | N/C contact                | Flush with T-slot, Screw-clamped, Insertable in the slot from above | NPN              | Cable                                    | 7.5 m        | ★ 551401 | SIES-8M-NO-24V-K-7,5-OE      |
|                                                                                     |                            |                                                                     |                  | Cable with plug                          | 0.3 m        | ★ 551402 | SIES-8M-NO-24V-K-0,3-M8D     |
|                                                                                     |                            |                                                                     | PNP              | Cable                                    | 7.5 m        | ★ 551391 | SIES-8M-PO-24V-K-7,5-OE      |
|                                                                                     |                            |                                                                     |                  | Cable with plug                          | 0.3 m        | ★ 551392 | SIES-8M-PO-24V-K-0,3-M8D     |
|                                                                                     | N/O contact                |                                                                     | NPN              | Cable                                    | 7.5 m        | 551396   | SIES-8M-NS-24V-K-7,5-OE      |
|                                                                                     |                            |                                                                     |                  | Cable with plug                          | 0.3 m        | 551397   | SIES-8M-NS-24V-K-0,3-M8D     |
|                                                                                     |                            |                                                                     | PNP              | Cable                                    | 7.5 m        | 551386   | SIES-8M-PS-24V-K-7,5-OE      |
|                                                                                     |                            |                                                                     |                  | Cable with plug                          | 0.3 m        | 551387   | SIES-8M-PS-24V-K-0,3-M8D     |

## Accessories

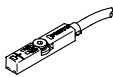
## Proximity switch for T-slot, magneto-resistive

Link [smt-8m](#)

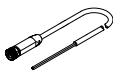
|                                                                                  | Switching element function | Type of mounting                                 | Switching output | Electrical connection 1, connection type | Cable length | Part no. | Type                      |
|----------------------------------------------------------------------------------|----------------------------|--------------------------------------------------|------------------|------------------------------------------|--------------|----------|---------------------------|
|  | N/O contact                | Screw-clamped, Insertable in the slot from above | NPN              | Cable                                    | 2.5 m        | ★ 574338 | SMT-8M-A-NS-24V-E-2,5-OE  |
|                                                                                  |                            |                                                  |                  | Cable with plug                          | 0.3 m        | ★ 574339 | SMT-8M-A-NS-24V-E-0,3-M8D |
|                                                                                  |                            |                                                  | PNP              | Cable                                    | 2.5 m        | ★ 574335 | SMT-8M-A-PS-24V-E-2,5-OE  |
|                                                                                  |                            |                                                  |                  | Cable with plug                          | 0.3 m        | ★ 574334 | SMT-8M-A-PS-24V-E-0,3-M8D |
|                                                                                  |                            |                                                  |                  |                                          |              | ★ 574337 | SMT-8M-A-PS-24V-E-0,3-M12 |

## Proximity switch for T-slot, magnetic, reed

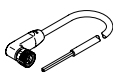
Link [sme-8m](#)

|                                                                                  | Switching element function | Type of mounting                                 | Switching output    | Electrical connection 1, connection type | Cable length | Part no. | Type                    |
|----------------------------------------------------------------------------------|----------------------------|--------------------------------------------------|---------------------|------------------------------------------|--------------|----------|-------------------------|
|  | N/O contact                | Screw-clamped, Insertable in the slot from above | Contacting, bipolar | Cable                                    | 2.5 m        | 543872   | SME-8M-ZS-24V-K-2,5-OE  |
|                                                                                  |                            |                                                  |                     |                                          |              | 543862   | SME-8M-DS-24V-K-2,5-OE  |
|                                                                                  |                            |                                                  |                     |                                          | 5 m          | 543863   | SME-8M-DS-24V-K-5,0-OE  |
|                                                                                  |                            |                                                  |                     | Cable with plug                          | 0.3 m        | 543861   | SME-8M-DS-24V-K-0,3-M8D |

## Connecting cable NEBA, straight

|                                                                                    | Electrical connection 1, connector system | Electrical connection 2, connector system | Electrical connection 2, number of connections/cores | Cable length | Part no.  | Type                  |
|------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------------|--------------|-----------|-----------------------|
|  | M8x1, A-coded, to EN 61076-2-104          | Open end                                  | 3                                                    | 2.5 m        | ★ 8078223 | NEBA-M8G3-U-2.5-N-LE3 |
|                                                                                    |                                           |                                           |                                                      | 5 m          | ★ 8078224 | NEBA-M8G3-U-5-N-LE3   |

## Connecting cable NEBA, angled

|                                                                                    | Electrical connection 1, connector system | Electrical connection 2, connector system | Electrical connection 2, number of connections/cores | Cable length | Part no.  | Type                  |
|------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------------|--------------|-----------|-----------------------|
|  | M8x1, A-coded, to EN 61076-2-104          | Open end                                  | 3                                                    | 2.5 m        | ★ 8078230 | NEBA-M8W3-U-2.5-N-LE3 |
|                                                                                    |                                           |                                           |                                                      | 5 m          | ★ 8078231 | NEBA-M8W3-U-5-N-LE3   |

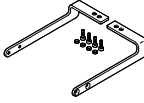
## Centring pin ZBS-4

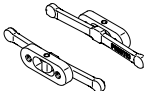
|                                                                                    | Material sleeve            | Size of pack | Product weight | Part no. | Type  |
|------------------------------------------------------------------------------------|----------------------------|--------------|----------------|----------|-------|
|  | High-alloy stainless steel | 10           | 0.5 g          | 562959   | ZBS-4 |

## Centring sleeve ZBH-5

|                                                                                    | Material sleeve | Size of pack | Product weight | Part no. | Type    |
|------------------------------------------------------------------------------------|-----------------|--------------|----------------|----------|---------|
|  | Steel           | 10           | 1 g            | 8146543  | ZBH-5-B |

Accessories

| Gripper jaw mounting for microwell plates (only for EHMD-40-RE-GP and EHMD-40-RE-GE) |                            |                |          |                        |
|--------------------------------------------------------------------------------------|----------------------------|----------------|----------|------------------------|
|                                                                                      | Material bracket           | Product weight | Part no. | Type                   |
|     | High-alloy stainless steel | 95 g           | 8191126  | EHAA-G1-E20-40-GGA1-AP |

| Gripping jaws for microwell plates (only for EHMD-40-RE-GP and EHMD-40-RE-GE)     |                            |                |          |                   |
|-----------------------------------------------------------------------------------|----------------------------|----------------|----------|-------------------|
|                                                                                   | Material gripper jaws      | Product weight | Part no. | Type              |
|  | High-alloy stainless steel | 24.4 g         | 8119108  | DHAS-GG-B18-16-A1 |