

## Cantilever axes ELCC

**FESTO**

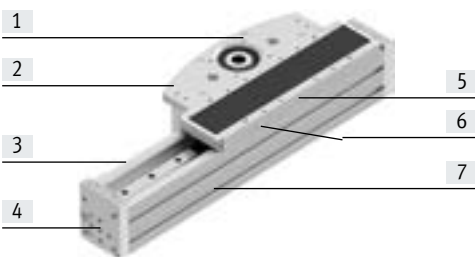


## Key features

### At a glance

- High rigidity thanks to innovative design principle
- Very small moving mass
- Able to move high loads of up to 100 kg vertically
- Optionally with NSF-H1 lubricant for the food zone
- Toothed belt material can be selected from:
  - Chloroprene rubber for long service life
  - Uncoated PU for the food zone
  - PU coated with steel reinforcement cords for long service life and resilience to certain cooling lubricants

### The technology in detail



- [1] Interface for motor mounting
- [2] Drive head
- [3] Cantilever profile
- [4] Front end
- [5] Connection for clamping unit or sealing air (available on both sides)
- [6] Connection for lubrication hole (available on both sides)
- [7] Mounting slot for accessories

### Protection against particles



- Stainless steel cover strip provides basic protection for the guide

### Motor attachment (can also be mounted underneath)

#### Axial



#### With right-angle gear unit



### Additional slide



- Rigidity and load-bearing capacity are increased by having twice as many roller carriages and a greater distance between bearings

### Clamping unit



- For holding loads securely (frictional locking)
- Integrated into the axis so it does not protrude
- Acts directly on the guide (in any position)
- Can also be used for emergency braking operations

### Displacement encoder system



- The position is detected incrementally and without contact
- To improve absolute accuracy
- 2-channel solutions are possible together with the motor encoder and a safety relay unit
- For sizes 60/70 the displacement encoder system is attached on the outside; for sizes 90/110 it is integrated underneath the toothed belt

### Sealing air connection



- Application of negative pressure minimises the dispersal of abraded particles into the environment
- Application of gauge pressure prevents dirt from getting into the axis
- Cannot be used in combination with the clamping unit

## Key features

Complete system comprising toothed belt axis, motor, motor controller and motor mounting kit

Cantilever axis



### Motor



Servo motor:  
EMMT-AS, EMME-AS, EMMS-AS  
Stepper motor:  
EMMS-ST



#### Note

There are complete solutions for the cantilever axis ELCC and the motors ensuring excellent compatibility.

### Servo drive



Servo drive:  
CMMT-AS  
Servo drive for extra-low voltage:  
CMMT-ST

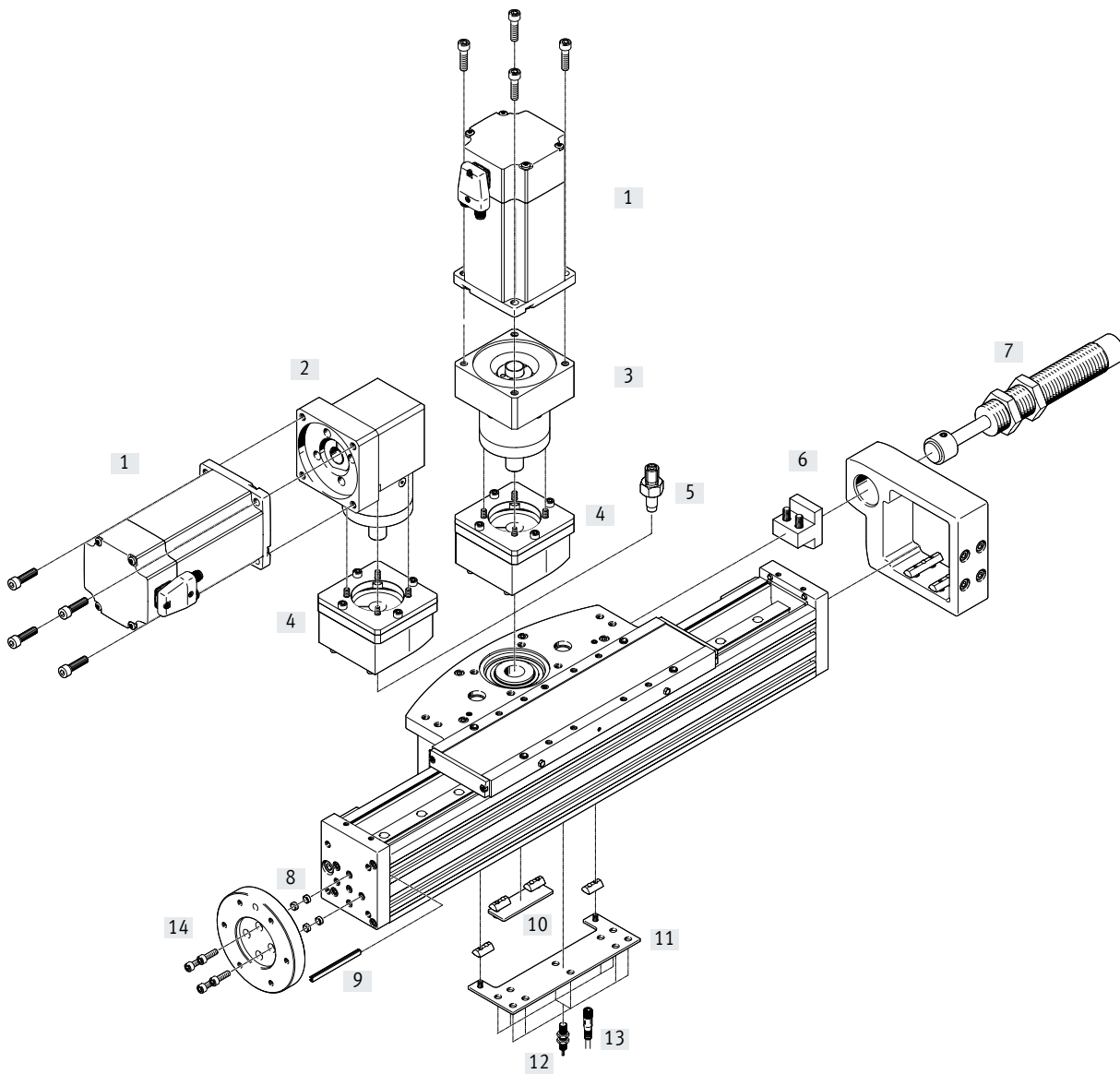
### Motor mounting kit



Kit comprising:

- Motor flange
- Coupling housing
- Coupling
- Screws

Peripherals overview



## Peripherals overview

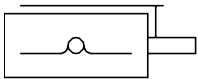
| Accessories                             |   |  |                 |
|---|---|--|-----------------|
| Type                                    | Description   |  | → Page/Internet |
| [1] Motor<br>EMME                       | Motors specially matched to the axis, with or without gear unit, with or without brake  |  | 23              |
| [2] Right-angle gear unit<br>EMGA-...-A | With gear ratio $i = 3$ and $i = 5$   |  | 23              |
| [3] Gear unit<br>EMGA-...-A             | With gear ratio $i = 3$ and $i = 5$   |  | 23              |
| [4] Axial kit<br>EAMM                   | For axial motor mounting (comprises: coupling, coupling housing and motor flange)   |  | 23              |
| [5] Drive shaft<br>EAMB                 | <ul style="list-style-type: none"> <li>• Can, if required, be used as an alternative interface</li> <li>• No drive shaft is required for the axis/motor combinations → page 25</li> </ul>                                   |  | 29              |
| [6] Shock absorber retainer<br>DAYP-E21 | For mounting a shock absorber on the axis   |  | 27              |
| [7] Shock absorber<br>YSR               | <ul style="list-style-type: none"> <li>• Protects the axis from damage in the event of power failure or unintended lowering</li> <li>• Max. impact energy must be observed</li> </ul>                                       |  | 29              |
| [8] Centring pin/sleeve<br>ZBS, ZBH     | <ul style="list-style-type: none"> <li>• For centring attachments on the front end</li> <li>• For mounting the drive head</li> </ul>  |  | 29              |
| [9] Slot cover<br>ABP                   | For protecting against contamination  |  | 29              |
| [10] Switch lug<br>DASI-E21-SL          | For sensing the slide position  |  | 26              |
| [11] Sensor bracket<br>DASI-E21-SR      | For mounting the inductive proximity switches (round design) on the axis  |  | 26              |
| [12] Proximity switch, M8<br>SIEN-M8    | Inductive proximity switch, round design  |  | 30              |
| [13] Connecting cable<br>NEBU           | For proximity switch SIEN-M8  |  | 30              |
| [14] Adapter kit<br>DHAA-R              | For interface to ISO 9409-1:2004  |  | 28              |
| – Adapter kit<br>DHAA                   | <ul style="list-style-type: none"> <li>• Drive/drive connections</li> <li>• Drive/gripper connections</li> </ul>  |  | dhaa            |
| – Slot nut<br>NST                       | For mounting attachments  |  | 29              |
| – Connecting shaft<br>KSK               | <ul style="list-style-type: none"> <li>• For torsion-resistant transmission of torques</li> <li>• For slip-free transmission of feed rates</li> <li>• To operate two cantilever axes in parallel using one motor</li> </ul> |  | 29              |



## Type codes

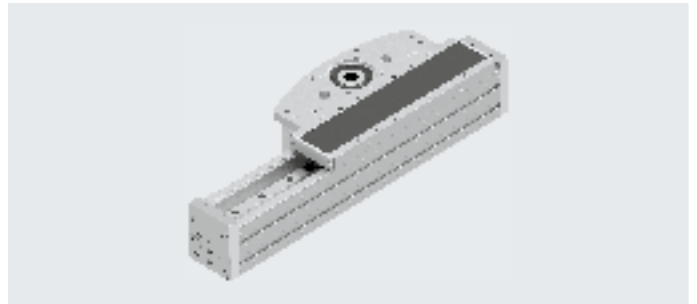
| 001  |  | Series                               |
|------|--|--------------------------------------|
| ELCC |  | Cantilever axis                      |
| 002  |  | Drive system                         |
| TB   |  | Toothed belt                         |
| 003  |  | Guide                                |
| KF   |  | Recirculating ball bearing guide     |
| 004  |  | Size                                 |
| 60   |  | 60                                   |
| 70   |  | 70                                   |
| 90   |  | 90                                   |
| 110  |  | 110                                  |
| 005  |  | Stroke                               |
| ...  |  | 50 ... 2000                          |
| 006  |  | Stroke reserve                       |
| ...  |  | 0 ... 999                            |
| 007  |  | Additional slide                     |
|      |  | None                                 |
| ZR   |  | 1 slide right                        |
| ZL   |  | 1 slide left                         |
| ZLC  |  | 1 slide on left, with clamping unit  |
| ZRC  |  | 1 slide on right, with clamping unit |

| 008 |  | Protection against particles                                  |
|-----|--|---|
| P0  |  | Without strip cover   |
| P9  |  | With cover strip  |
| 009 |  | Additional characteristics                                    |
|     |  | None  |
| F1  |  | Food-safe according to supplementary information on materials |
| 010 |  | Material of toothed belt                                      |
| CR  |  | Chloroprene rubber  |
| PU1 |  | Uncoated PU, FDA-compliant                                    |
| PU2 |  | Coated PU   |
| 011 |  | Displacement encoder  |
|     |  | None  |
| M1  |  | With displacement encoder, incremental, resolution 2.5 µm     |
| 012 |  | Clamping unit   |
|     |  | None  |
| C   |  | Attached  |
| 013 |  | Operating instructions  |
|     |  | With operating instructions                                   |
| DN  |  | No operating instructions                                     |

## Data sheet



-  Size  
60 ... 110
-  Stroke length  
50 ... 2000 mm

**General technical data**

| Size                              | 60                                | 70          | 90          | 110         |
|-----------------------------------|-----------------------------------|-------------|-------------|-------------|
| Design                            | Electromechanical cantilever axis |             |             |             |
| Guide                             | Recirculating ball bearing guide  |             |             |             |
| Mounting position                 | Any                               |             |             |             |
| Working stroke <sup>1)</sup>      | [mm] 50 ... 1300                  | 50 ... 1500 | 50 ... 2000 | 50 ... 2000 |
| Max. feed force $F_x$             | [N] 300                           | 600         | 1200        | 2500        |
| Max. no-load torque <sup>2)</sup> | [Nm] 0.6                          | 1.2         | 2.5         | 4           |
| Max. driving torque               | [Nm] 4.6                          | 9.2         | 30.6        | 85.9        |
| Max. speed                        | [m/s] 5                           |             |             |             |
| Max. acceleration                 | [m/s <sup>2</sup> ] 50            | 30          |             |             |
| Repetition accuracy               | [mm] ±0.05                        |             |             |             |

1) Longer strokes on request

2) At 0.2 m/s

**Operating and environmental conditions**

|                                   |                  |
|-----------------------------------|------------------|
| Ambient temperature <sup>1)</sup> | [°C] -10 ... +60 |
| Degree of protection              | IP20             |
| Duty cycle                        | [%] 100          |

1) Note operating range of proximity switches

**Weights [g]**

| Size                                    | 60   | 70   | 90   | 110   |
|---|------|------|------|-------|
| Total mass at 0 mm stroke <sup>1)</sup> |      |      |      |       |
| ELCC-...                                | 2510 | 4750 | 9300 | 17000 |
| ELCC-...-ZL/ZR                          | 805  | 2010 | 2997 | 4777  |
| ELCC-...-C                              | -    | 278  | 416  | 772   |
| Moving mass at 0 mm stroke              |      |      |      |       |
| ELCC-...                                | 1636 | 3210 | 5487 | 10017 |
| ELCC-...-ZL/ZR                          | 1102 | 2306 | 3721 | 6936  |
| Additional weight per 10 mm stroke      |      |      |      |       |
| ELCC-...                                | 38   | 63   | 97   | 148   |

1) Total mass = stationary mass + moving mass

**Toothed belt**

| Size                     | 60           | 70     | 90    | 110    |
|--------------------------|--------------|--------|-------|--------|
| Pitch                    | [mm] 3       | 3      | 5     | 8      |
| Elongation <sup>1)</sup> |              |        |       |        |
| ELCC-...-CR              | [%] 0.17     | 0.22   | 0.14  | 0.17   |
| ELCC-...-PU1/PU2         | [%] 0.07     | 0.08   | 0.06  | -      |
| Width                    | [mm] 30      | 50     | 75    | 100    |
| Effective diameter       | [mm] 30.558  | 30.558 | 50.93 | 68.755 |
| Feed constant            | [mm/rev.] 96 | 96     | 160   | 216    |

1) At max. feed force

## Data sheet

| Mass moment of inertia |                          | 60  | 70   | 90   | 110   |
|------------------------|--------------------------|-----|------|------|-------|
| Size                   |                          |     |      |      |       |
| $J_0$                  | [kg mm <sup>2</sup> ]    | 594 | 1063 | 5518 | 15710 |
| $J_H$ per metre stroke | [kg mm <sup>2</sup> /m]  | 887 | 1471 | 6290 | 17491 |
| $J_L$ per kg payload   | [kg mm <sup>2</sup> /kg] | 233 | 233  | 648  | 1182  |

The mass moment of inertia  $J_A$  of the whole axis is calculated as follows:

## Basic version

$$J_A = J_0 + J_H \times l \text{ [m]} + J_L \times m_N \text{ [kg]}$$

## With gear unit

$$J_A = J_G + \frac{J_0 + J_H \cdot l \text{ [m]} + J_L \cdot m_N \text{ [kg]}}{i^2}$$

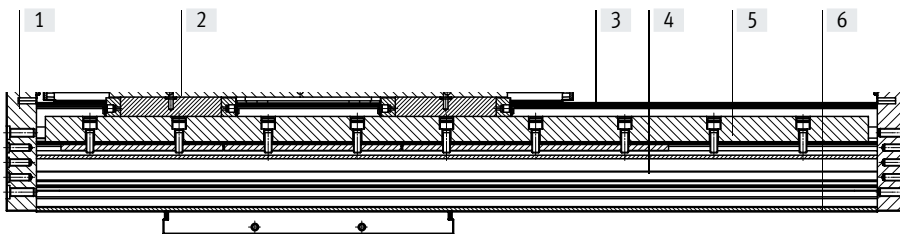
$J_G$  = Mass moment of inertia of the gear unit

$l$  = Working stroke

$m_N$  = Payload

## Materials

## Sectional view



| Axis Size         | 60   | 70 | 90 | 110 |
|-------------------|--|----|----|-----|
| [1] End cap       | Anodised wrought aluminium alloy                               |    |    |     |
| [2] Drive head    | Anodised wrought aluminium alloy                               |    |    |     |
| [3] Cover strip   | Stainless steel strip, non-corroding                           |    |    |     |
| [4] Toothed belt  |  |    |    |     |
| ELCC-...-CR       | Polychloroprene with glass cord and nylon coating              |    |    |     |
| ELCC-...-PU1      | Polyurethane with steel cord (for food zone)                   |    |    |     |
| ELCC-...-PU2      | Polyurethane with steel cord and fabric coating                |    |    |     |
| [5] Guide rail    | Rolled steel, corrotect coated                                 |    |    |     |
| [6] Profile       | Anodised wrought aluminium alloy                               |    |    |     |
| - Slide           | Anodised cast aluminium  |    |    |     |
| Note on materials | RoHS-compliant<br>Contains paint-wetting impairment substances |    |    |     |

| Technical data – Displacement encoder system       |       | 60   | 70  | 90 | 110 |
|--|-------|--|-----|----|-----|
| Size   |       |  |     |    |     |
| Resolution   | [μm]  | 2.5  |     |    |     |
| Max. travel speed with displacement encoder system | [m/s] | 4  |     |    |     |
| Encoder signal                                     |       | 5 V TTL; A/A, B/B; reference signal (N/N) cyclical every 5 mm (zero pulse) |     |    |     |
| Signal output                                      |       | Line driver, alternating, resistant to sustained short circuit             |     |    |     |
| Electrical connection                              |       | 8-pin plug, round design, M12  |     |    |     |
| Cable length                                       | [mm]  | 160  | 160 | 45 | 25  |

| Operating and environmental conditions – Displacement encoder system |      | 60                                | 70 | 90 | 110 |
|--|------|-----------------------------------|----|----|-----|
| Ambient temperature  | [°C] | -10 ... +70                       |    |    |     |
| Degree of protection   |      | IP64                              |    |    |     |
| CE marking (see declaration of conformity)                           |      | To EU EMC Directive <sup>1)</sup> |    |    |     |

1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.



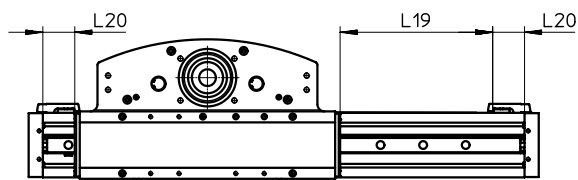
Data sheet

| Technical data – Clamping unit  |                                |  |            |            |
|---|--------------------------------|--|------------|------------|
| Size  |                                | 70   | 90         | 110        |
| Pneumatic connection  |                                | M5   |            |            |
| Clamping type   |                                | Clamping via spring force, compressed air to release |            |            |
| Static holding force  | [N]                            | 450  | 550        | 850        |
| Max. number of emergency braking operations <sup>1)</sup> at reference energy | [J]                            | 1000<br>30   | 1000<br>30 | 1000<br>30 |
| Number of clamping operations under nominal load                              | [millions of switching cycles] | 0.05   | 0.05       | 0.05       |

1) Emergency braking refers to braking the payload if the drive axis loses power.

| Operating and environmental conditions – Clamping unit |   |
|--|---|
| Operating medium                                       | Compressed air to ISO 8573-1:2010 [7:4:4] |
| Operating pressure                                     | [bar] 4 ... 6.5                           |
| Ambient temperature                                    | [°C] -10 ... +60                          |

Stroke reserve



L19 = Nominal stroke  
L20 = Stroke reserve

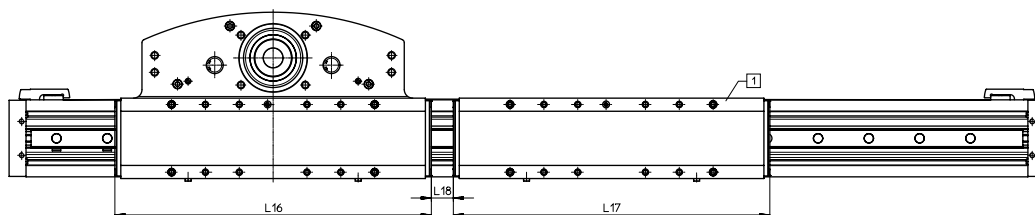
- The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation
- The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke
- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:  
Type ELCC-TB-KF-70-500-20H-...  
Nominal stroke = 500 mm  
2x 20 mm stroke reserve = 40 mm  
Working stroke = 540 mm  
(540 mm = 500 mm + 2x 20 mm)

Working stroke reduction

For axis ELCC with additional slide ZL/ZR

For a cantilever axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between the two slides



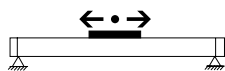
L16 = Slide length  
L17 = Additional slide length  
L18 = Distance between the two slides  
[1] Additional slide

Example:  
Type ELCC-TB-KF-70-1500-...-ZR  
Working stroke without additional slide = 1500 mm  
L18 = 50 mm  
L17 = 356 mm  
Working stroke with additional slide = 1094 mm  
(1500 mm - 50 mm - 356 mm)

| Dimensions – Additional slide        |      |      |      |      |      |
|--------------------------------------|------|------|------|------|------|
| Size                                 |      | 60   | 70   | 90   | 110  |
| Length L17                           | [mm] | 280  | 356  | 374  | 458  |
| Min. distance between the slides L18 |      |      |      |      |      |
| ELCC-...-P0                          | [mm] | ≥ 5  | ≥ 5  | ≥ 5  | ≥ 5  |
| ELCC-...-P9                          | [mm] | ≥ 50 | ≥ 50 | ≥ 50 | ≥ 50 |

Data sheet

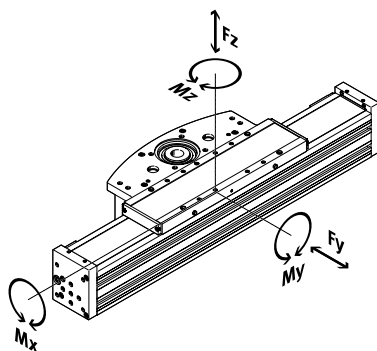
Characteristic load values of the axis in slide operation



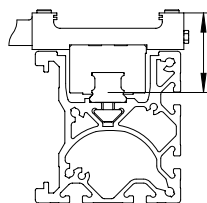
In slide operation, the profile is fixed and mounted in such a way that it does not sag.

The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect.

These values must not be exceeded during dynamic operation. Special attention must be paid to the deceleration phase.



Distance from the slide surface to the centre of the guide



| Distance from the slide surface to the centre of the guide |      |      |      |      |      |
|--|------|------|------|------|------|
| Size   |      | 60   | 70   | 90   | 110  |
| Dimension x  | [mm] | 29.9 | 39.1 | 43.8 | 54.0 |

| Max. permissible forces and torques for a service life of 5000 km in slide operation |      |      |      |       |       |
|--|------|------|------|-------|-------|
| Size   |      | 60   | 70   | 90    | 110   |
| F <sub>y</sub> <sub>max.</sub>   | [N]  | 4200 | 9600 | 13900 | 20600 |
| F <sub>z</sub> <sub>max.</sub>   | [N]  | 4100 | 9400 | 13500 | 20000 |
| M <sub>x</sub> <sub>max.</sub>   | [Nm] | 35   | 105  | 165   | 315   |
| M <sub>y</sub> <sub>max.</sub>   | [Nm] | 290  | 825  | 1300  | 2365  |
| M <sub>z</sub> <sub>max.</sub>   | [Nm] | 285  | 795  | 1230  | 2285  |

**Note**  
For a guide system to have a service life of 5000 km, the load comparison factor must have a value of  $f_v < 1$ , based on the maximum permissible forces and torques for a service life of 5000 km.

If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

F<sub>1</sub>/M<sub>1</sub> = dynamic value

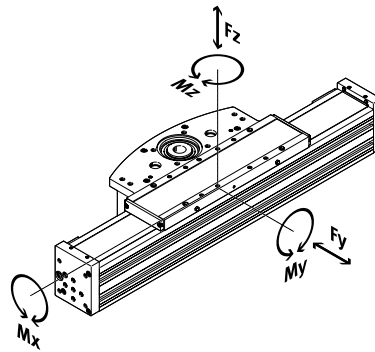
F<sub>2</sub>/M<sub>2</sub> = maximum value

Data sheet

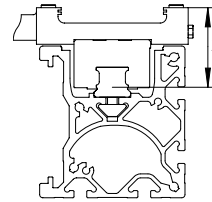
Characteristic load values of the axis in cantilever operation



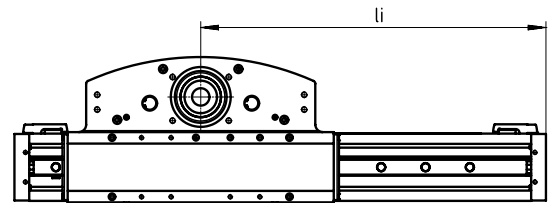
In cantilever operation, the axis is subjected to a higher load because of deflection. The torques are thus reduced in comparison to the slide operation. The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the deceleration phase.



Distance from the slide surface to the centre of the guide



Axis position



Distance from the slide surface to the centre of the guide

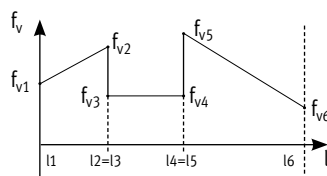
| Size             | 60   | 70   | 90   | 110  |
|------------------|------|------|------|------|
| Dimension x [mm] | 29.9 | 39.1 | 43.8 | 54.0 |

Max. permissible forces and torques for a service life of 5000 km in cantilever operation

| Size                     | 60   | 70   | 90    | 110   |
|--------------------------|------|------|-------|-------|
| Fy <sub>perm.</sub> [N]  | 4200 | 9600 | 13900 | 20600 |
| Fz <sub>perm.</sub> [N]  | 4100 | 9400 | 13500 | 20000 |
| Mx <sub>perm.</sub> [Nm] | 20   | 50   | 75    | 180   |
| My <sub>perm.</sub> [Nm] | 110  | 240  | 350   | 885   |
| Mz <sub>perm.</sub> [Nm] | 90   | 190  | 295   | 615   |

Step 1:

Calculating the load comparison factor f<sub>vi</sub> for the different axis positions l<sub>i</sub>



$$f_{vi} = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}}$$

$$f_{vi} = f_{v1}, f_{v2}, f_{v3}, f_{v4}, f_{v5}, f_{v6}$$

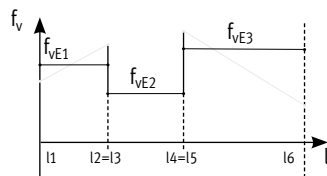
If all f<sub>vi</sub> ≤ 1, it can be assumed, for the purpose of simplicity, that:

Total load comparison factor f<sub>vG</sub> corresponds to the largest f<sub>vi</sub> and steps 2-3 can be omitted.

If any f<sub>vi</sub> > 1, the precise total load comparison factor f<sub>vG</sub> should be calculated using steps 2 and 3.

Step 2:

Calculating the substitute load comparison factors for the different partial strokes f<sub>vEi</sub>



$$f_{vEi} = \sqrt[3]{\frac{(f_{vi} + f_{vi+1}) \cdot (f_{vi}^2 + f_{vi+1}^2)}{4}}$$

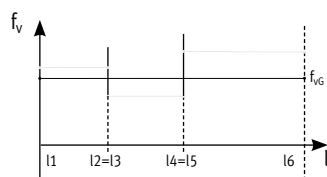
$$f_{vEi} = f_{vE1}, f_{vE2}, f_{vE3}$$

f<sub>vEi</sub> = Substitute load comparison factor for partial stroke 1

l<sub>1</sub> to l<sub>2</sub> = Partial stroke 1

Step 3:

Calculating the load comparison factor f<sub>vG</sub> for the total stroke



$$f_{vG} = \sqrt[3]{\sum \frac{f_{vEi}^3 \cdot (l_{i+1} - l_i)}{l_{ges}}}$$

f<sub>vG</sub> = Load comparison factor for the total stroke

Step 4:

Calculating the service life

$$L = \frac{5000 \text{ km}}{f_{vG}^3}$$

## Data sheet

### Calculating the service life

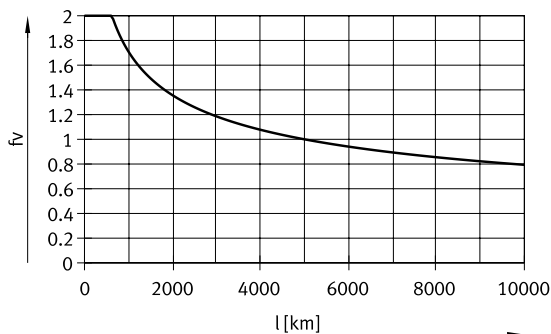
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the total load comparison factor  $f_{vE}$  against the service life.

These values are only theoretical. You must consult your local Festo contact for a total load comparison factor  $f_{vE}$  greater than 1.5.

#### Total load comparison factors $f_{vE}$ as a function of service life

Example:

A user wants to move an X kg load. Using the formula (→ page 10/11) gives a value of 1.5 for the total load comparison factor  $f_{vE}$ . According to the graph, the guide has a service life of approx. 1500 km.



**Note**  
 Engineering software  
 PositioningDrives  
 www.festo.com

The software can be used to calculate a guide workload for a service life of 5000 km.

### Comparison of the characteristic load values for 5000 km with dynamic forces and torques of recirculating ball bearing guides

The characteristic load values of bearing guides are standardised to ISO and JIS using dynamic and static forces and torques. These forces and torques are based on an expected service life of the guide system of 100 km according to ISO or 50 km according to JIS.

As the characteristic load values are dependent on the service life, the maximum permissible forces and torques for a 5000 km service life cannot be compared with the dynamic forces and torques of bearing guides to ISO/JIS.

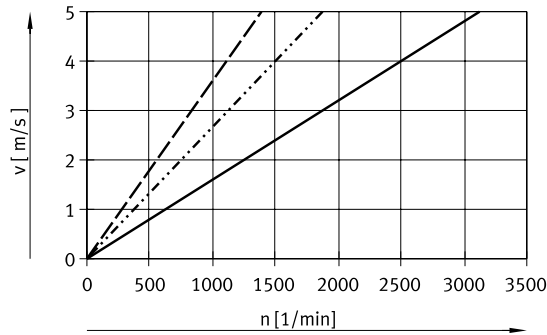
To make it easier to compare the guide capacity of cantilever axes ELCC with bearing guides, the table below lists the theoretically permissible forces and torques for a calculated service life of 100 km. This corresponds to the dynamic forces and torques to ISO.

These 100 km values have been calculated mathematically and are only to be used for comparing with dynamic forces and torques to ISO. The drives must not be loaded with these characteristic values as this could damage the axes.

| Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only) |      |       |       |       |       |
|--|------|-------|-------|-------|-------|
| Size   |      | 60    | 70    | 90    | 110   |
| $F_{y_{max}}$  | [N]  | 17101 | 39712 | 57255 | 84489 |
| $F_{z_{max}}$  | [N]  | 16410 | 37901 | 54354 | 80725 |
| $M_{x_{max}}$  | [Nm] | 138   | 401   | 643   | 1221  |
| $M_{y_{max}}$  | [Nm] | 1126  | 3138  | 4838  | 8982  |
| $M_{z_{max}}$  | [Nm] | 1086  | 2954  | 4548  | 8488  |

Data sheet

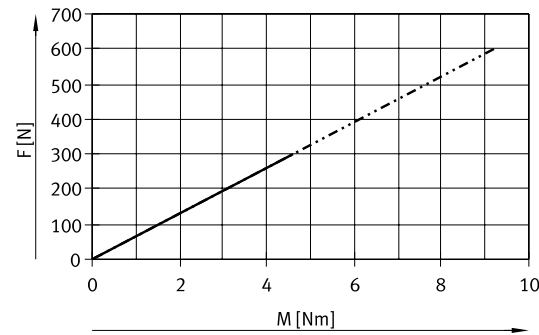
Speed v as a function of rotational speed n



- ELCC-TB-KF-60/70
- ⋯ ELCC-TB-KF-90
- - - ELCC-TB-KF-110

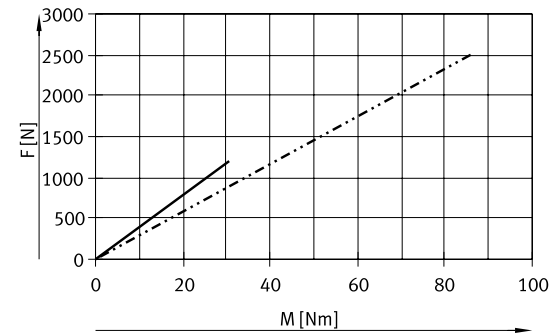
Theoretical feed force F as a function of input torque M

Size 60/70



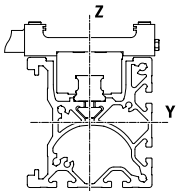
- ELCC-TB-KF-60
- ⋯ ELCC-TB-KF-70

Size 90/110



- ELCC-TB-KF-90
- ⋯ ELCC-TB-KF-110

Second moment of area



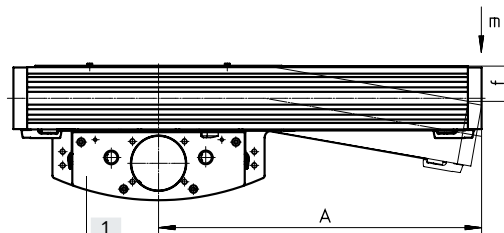
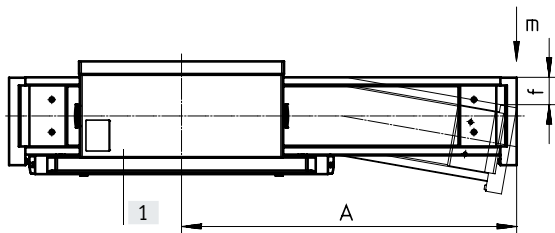
| Size  |                    | 60                   | 70                   | 90                 | 110                |
|-------|--------------------|----------------------|----------------------|--------------------|--------------------|
| $I_y$ | [mm <sup>4</sup> ] | $240.60 \times 10^3$ | $959.74 \times 10^3$ | $2.67 \times 10^6$ | $6.83 \times 10^6$ |
| $I_z$ | [mm <sup>4</sup> ] | $304.21 \times 10^3$ | $928.74 \times 10^3$ | $2.05 \times 10^6$ | $4.93 \times 10^6$ |

Data sheet

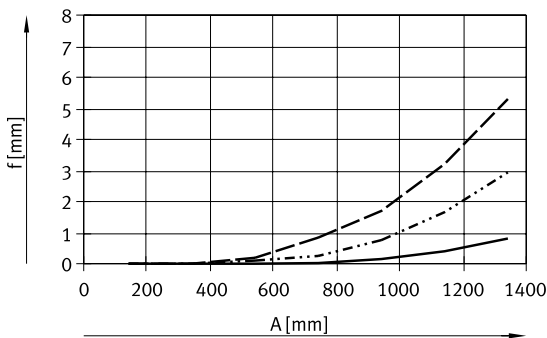
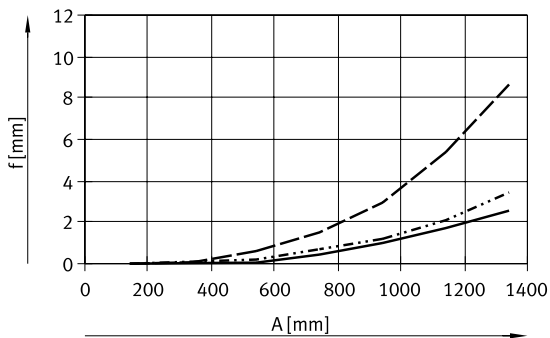
**Deflection  $f$  as a function of the cantilever extension  $A$  and the payload  $m$**

Interface for drive head [1], horizontal

Interface for drive head [1], vertical



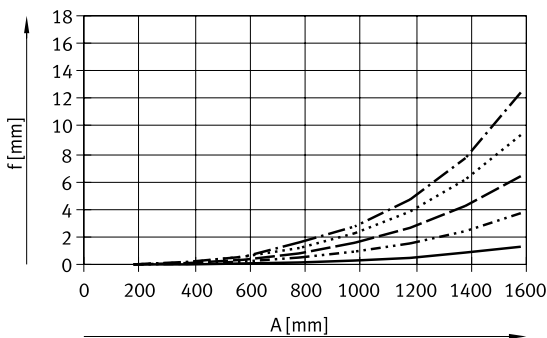
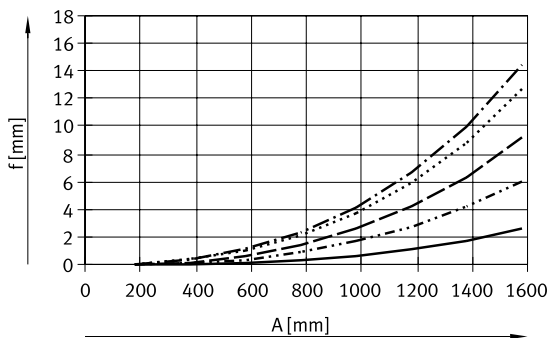
Size 60



- $m = 0$  kg
- $m = 5$  kg
- - -  $m = 10$  kg

- $m = 0$  kg
- $m = 5$  kg
- - -  $m = 10$  kg

Size 70



- $m = 0$  kg
- $m = 10$  kg
- - -  $m = 20$  kg
- · - ·  $m = 30$  kg
- - - -  $m = 35$  kg

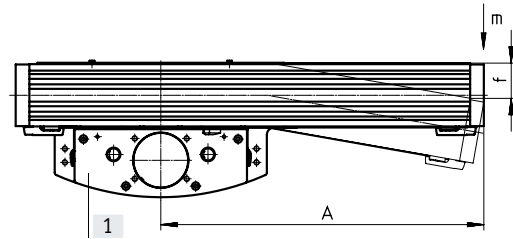
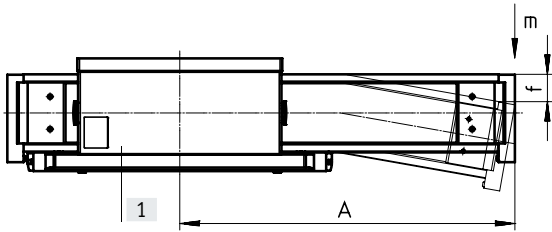
- $m = 0$  kg
- $m = 10$  kg
- - -  $m = 20$  kg
- · - ·  $m = 30$  kg
- - - -  $m = 35$  kg

Data sheet

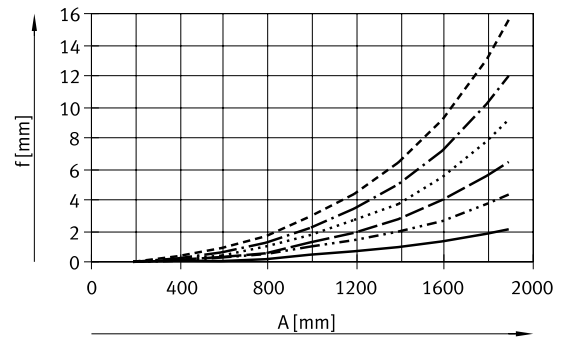
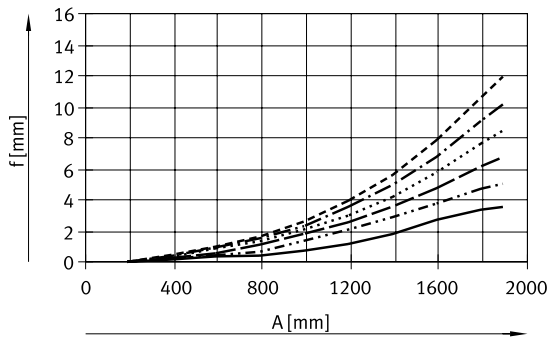
Deflection  $f$  as a function of the cantilever extension  $A$  and the payload  $m$

Interface for drive head [1], horizontal

Interface for drive head [1], vertical



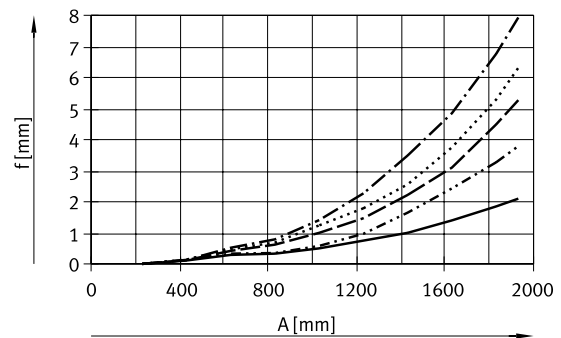
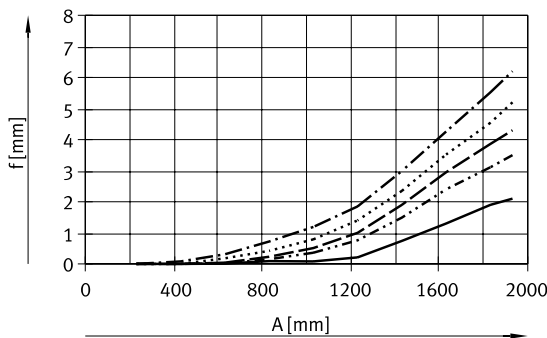
Size 90



- $m = 0$  kg
- ⋯  $m = 10$  kg
- -  $m = 20$  kg
- · -  $m = 30$  kg
- · - ·  $m = 40$  kg
- - -  $m = 50$  kg

- $m = 0$  kg
- ⋯  $m = 10$  kg
- -  $m = 20$  kg
- · -  $m = 30$  kg
- · - ·  $m = 40$  kg
- - -  $m = 50$  kg

Size 110



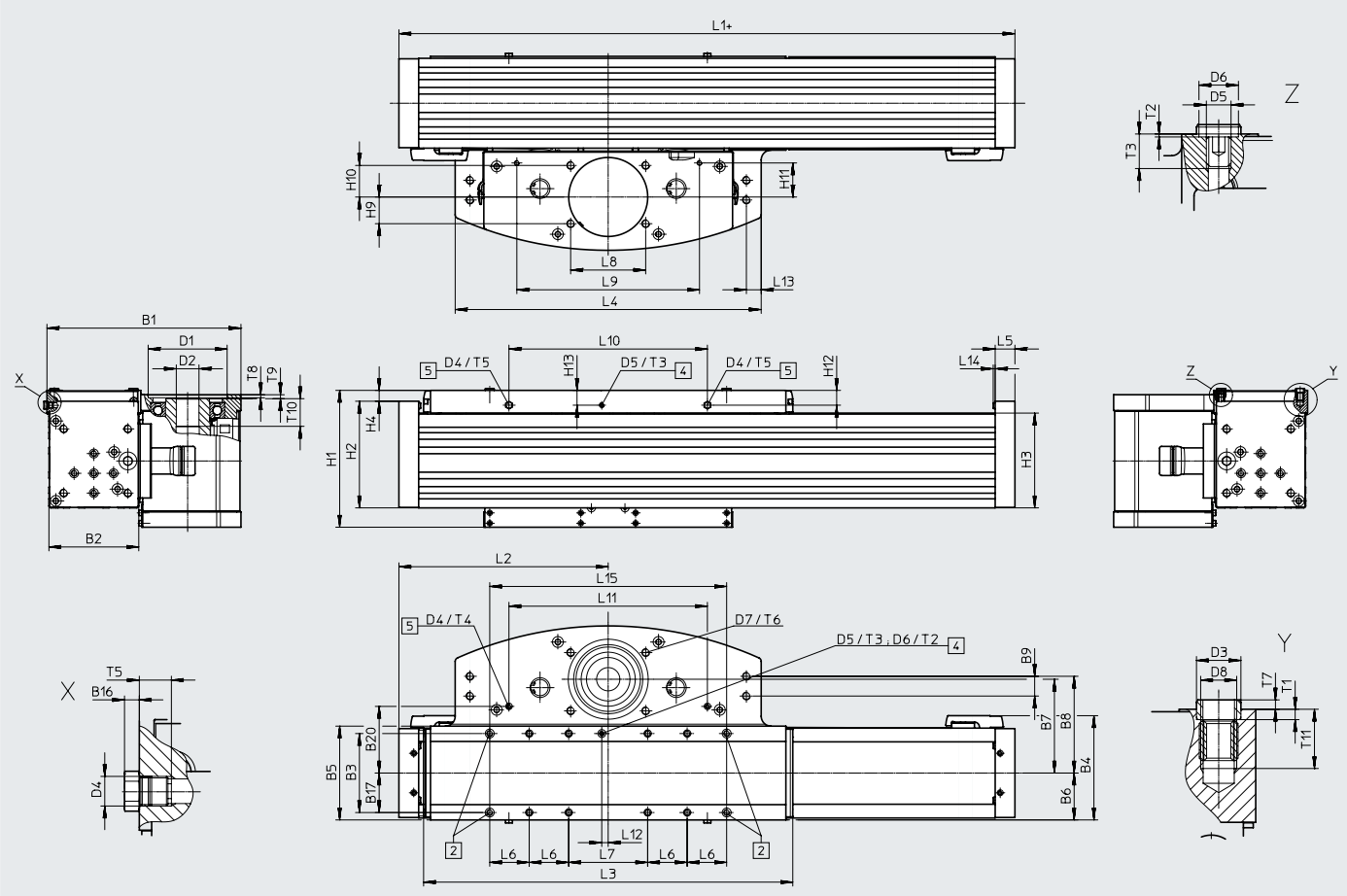
- $m = 0$  kg
- ⋯  $m = 20$  kg
- -  $m = 30$  kg
- · -  $m = 40$  kg
- - -  $m = 50$  kg

- $m = 0$  kg
- ⋯  $m = 20$  kg
- -  $m = 30$  kg
- · -  $m = 40$  kg
- - -  $m = 50$  kg

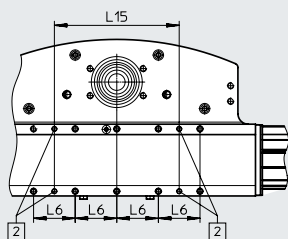
Data sheet

Dimensions

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Size 60



- [2] Drill holes for centring pin/sleeve ZBS/ZBH
- [4] Connections for clamping unit and sealing air
- [5] Lubrication holes
- + plus stroke length + 2x stroke reserve

| Size | B1    | B2   | B3  | B4    | B5  | B6   | B7   | B8   | B9 | B16 | B17  |
|------|-------|------|-----|-------|-----|------|------|------|----|-----|------|
| 60   | 150.5 | 59.5 | 60  | 77.1  | 69  | 34.5 | 75   | 71.5 | 15 | 3   | 29.5 |
| 70   | 167.5 | 73   | 78  | 94.1  | 90  | 45   | 81.5 | 81.5 | 16 | 3   | 39   |
| 90   | 196.5 | 91   | 80  | 105.6 | 95  | 47.5 | 95   | 98   | 20 | 3   | 40   |
| 110  | 247.5 | 113  | 100 | 130.3 | 117 | 58.5 | 120  | 112  | 20 | 3   | 50   |

| Size | B20  | D1      | D2      | D3      | D4 | D5 | D6      | D7 | D8 | H1    | H2    |
|------|------|---------|---------|---------|----|----|---------|----|----|-------|-------|
|      |      | ∅<br>H7 | ∅<br>H7 | ∅<br>H7 |    |    | ∅<br>H7 |    |    |       |       |
| 60   | -    | 48      | 16      | 5       | M6 | M5 | 8       | M6 | M5 | 78.6  | 58    |
| 70   | 53   | 48      | 16      | 9       | M6 | M5 | 8       | M6 | M5 | 112   | 86    |
| 90   | 67.5 | 80      | 23      | 9       | M6 | M5 | 8       | M8 | M6 | 138.6 | 108   |
| 110  | 66   | 95      | 32      | 12      | M6 | M5 | 8       | M8 | M8 | 170.6 | 136.5 |



## Data sheet

| Size | H3  | H4   | H9 | H10 | H11  | H12  | H13 | L1  | L2<br>Min. | L3  | L4  |
|------|-----|------|----|-----|------|------|-----|-----|------------|-----|-----|
| 60   | 47  | 9    | 13 | 13  | 29   | 14.3 | 13  | 330 | 165        | 280 | 233 |
| 70   | 73  | 11   | 13 | 13  | 29   | 16   | 16  | 406 | 203        | 356 | 253 |
| 90   | 95  | 11   | 27 | 32  | 34.5 | 15   | 15  | 424 | 212        | 374 | 310 |
| 110  | 120 | 14.5 | 40 | 40  | 48.5 | 22   | 22  | 508 | 254        | 458 | 358 |

| Size | L5 | L6 | L7  | L8 | L9  | L10 | L11 | L12  | L13 | L14 | L15 |
|------|----|----|-----|----|-----|-----|-----|------|-----|-----|-----|
| 60   | 20 | 40 | –   | 51 | 120 | 64  | –   | 10   | 7   | 2   | 120 |
| 70   | 20 | 40 | 70  | 51 | 120 | 187 | 187 | 5.5  | 12  | 2   | 230 |
| 90   | 20 | 40 | 80  | 76 | 185 | 201 | 201 | 6.5  | 15  | 2   | 240 |
| 110  | 20 | 40 | 120 | 80 | 210 | 248 | 248 | 14.2 | 15  | 2   | 280 |

| Size | T1  | T2  | T3 | T4  | T5  | T6 | T7  | T8  | T9 | T10 | T11  |
|------|-----|-----|----|-----|-----|----|-----|-----|----|-----|------|
| 60   | 2.5 | 0.6 | 7  | –   | 6.5 | 12 | 2.5 | 2.1 | 4  | 26  | 10   |
| 70   | 2.1 | 0.6 | 7  | 6.1 | 6.5 | 12 | 1.9 | 2.1 | 4  | 26  | 10   |
| 90   | 2.1 | 0.6 | 7  | 6.5 | 6.5 | 16 | 1.9 | 3.1 | 4  | 28  | 12   |
| 110  | 2.6 | 0.6 | 7  | 6.5 | 6.5 | 17 | 2.4 | 2.8 | 4  | 33  | 16.2 |

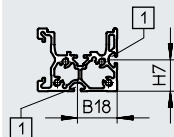
Data sheet

**Dimensions**

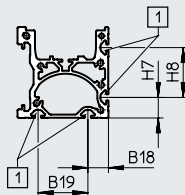
Download CAD data → [www.festo.com](http://www.festo.com)

Profile

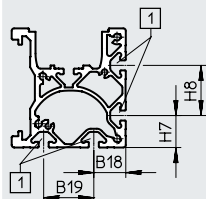
Size 60



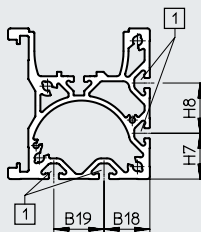
Size 70



Size 90



Size 110



[1] Mounting slot for slot nut

| Size | H7   | H8 | B18   | B19 |
|------|------|----|-------|-----|
| 60   | 23.5 | -  | 29.75 | -   |
| 70   | 16.5 | 40 | 16.5  | 40  |
| 90   | 25.5 | 40 | 25.5  | 40  |
| 110  | 36.5 | 40 | 36.5  | 40  |

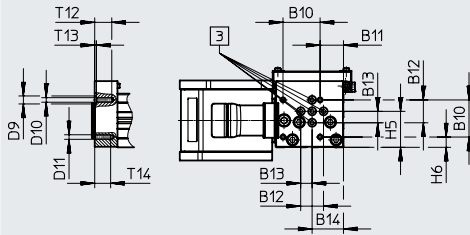
Data sheet

Dimensions

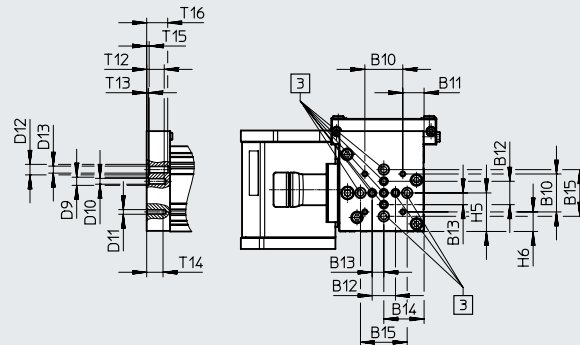
Download CAD data → [www.festo.com](http://www.festo.com)

Interface on front end for mounting the payload

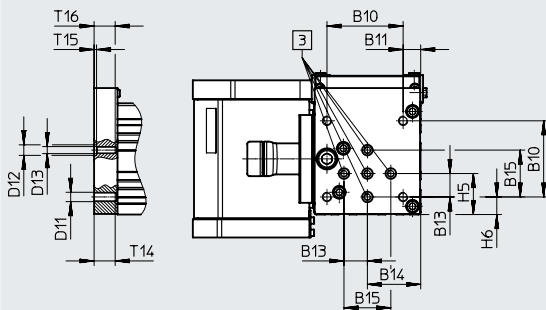
Size 60



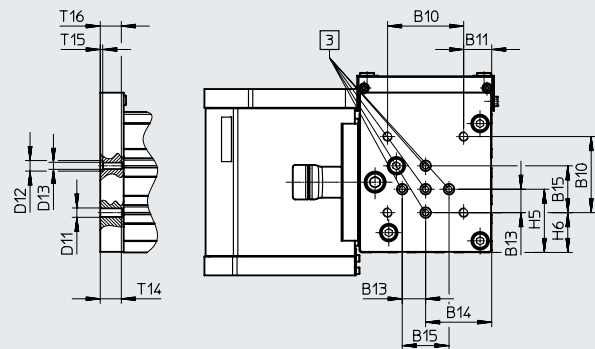
Size 70



Size 90



Size 110



[3] Mounting slot for slot nut

| Size | B10  | B11  | B12 | B13 | B14  | B15 | D9<br>∅<br>H7 | D10 | D11 |
|------|------|------|-----|-----|------|-----|---------------|-----|-----|
| 60   | 32.5 | 20.5 | 20  | 10  | 27.5 | –   | 7             | M4  | M4  |
| 70   | 32.5 | 18.3 | 20  | 10  | 34.5 | 40  | 7             | M5  | M4  |
| 90   | 65   | 15   | –   | 20  | 45.5 | 40  | –             | –   | M8  |
| 110  | 65   | 24   | –   | 20  | 56.5 | 40  | –             | –   | M8  |

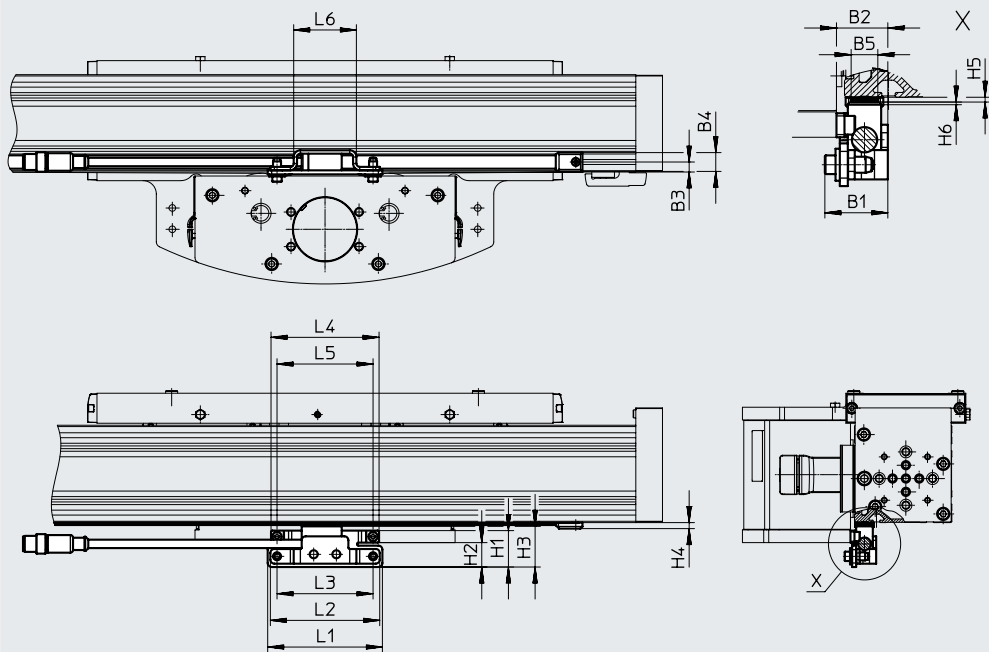
| Size | D12<br>∅<br>H7 | D13 | H5   | H6    | T12 | T13 | T14 | T15 | T16 |
|------|----------------|-----|------|-------|-----|-----|-----|-----|-----|
| 60   | –              | –   | 31.5 | 9     | 15  | 1.6 | 14  | –   | –   |
| 70   | 9              | M6  | 33   | 16.75 | 15  | 1.6 | 14  | 2.1 | 18  |
| 90   | 9              | M6  | 35   | 15    | –   | –   | 18  | 2.1 | 18  |
| 110  | 9              | M6  | 54   | 34    | –   | –   | 18  | 2.1 | 18  |

Data sheet

**Dimensions**

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

ELCC-TB-KF-60/70-...-M1 – with incremental displacement encoder system

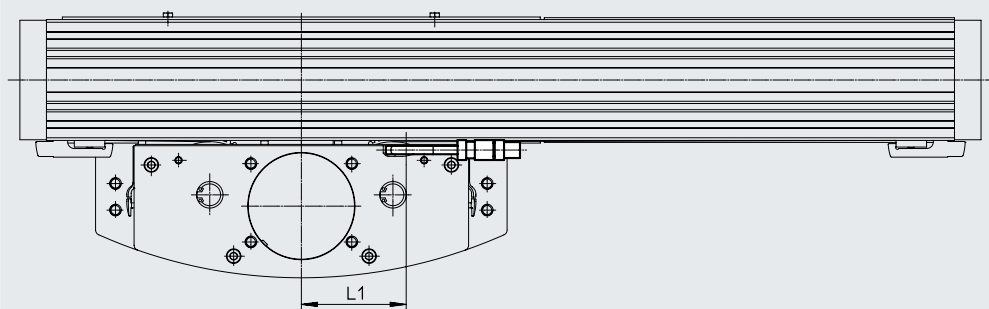


Encoder cable  
(connection to motor controller/safety system  
→ page 30)

| Size | B1   | B2   | B3  | B4   | B5 | H1   | H2   | H3   |
|------|------|------|-----|------|----|------|------|------|
| 60   | 32.6 | 26.8 | 15  | 14.1 | 10 | 30.5 | 19.1 | 30.5 |
| 70   | 23.6 | 19.3 | 7.5 | 14.1 | 10 | 27.3 | 18.3 | 30.5 |

| Size | H4  | H5  | H6 | L1 | L2 | L3 | L4 | L5 | L6 |
|------|-----|-----|----|----|----|----|----|----|----|
| 60   | 4.5 | 1.8 | 1  | 86 | 82 | 72 | 81 | 72 | 47 |
| 70   | 4.5 | 1.8 | 1  | 86 | 82 | 72 | 81 | 72 | 47 |

ELCC-TB-KF-90/110-...-M1 – with incremental displacement encoder system



Encoder cable  
(connection to motor controller/safety system  
→ page 30)

| Size | L1 |
|------|----|
| 90   | 79 |
| 110  | 79 |

## Data sheet

## Ordering data – Standard version

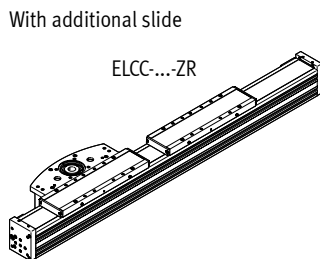
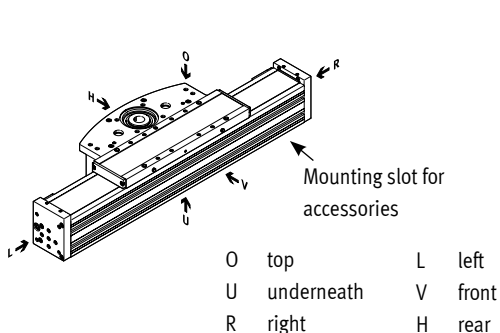
## Key features:

- Stroke reserve: 0 mm
- Without cover strip
- Toothed belt material: Chloroprene rubber

| Size | Stroke [mm] | Part no. | Type                         |
|------|-------------|----------|------------------------------|
| 60   | 200         | 8082386  | ELCC-TB-KF-60-200-0H-P0-CR   |
|      | 300         | 8082387  | ELCC-TB-KF-60-300-0H-P0-CR   |
|      | 500         | 8082388  | ELCC-TB-KF-60-500-0H-P0-CR   |
|      | 600         | 8082389  | ELCC-TB-KF-60-600-0H-P0-CR   |
|      | 800         | 8082390  | ELCC-TB-KF-60-800-0H-P0-CR   |
|      | 1000        | 8082391  | ELCC-TB-KF-60-1000-0H-P0-CR  |
| 70   | 200         | 8082392  | ELCC-TB-KF-70-200-0H-P0-CR   |
|      | 300         | 8082393  | ELCC-TB-KF-70-300-0H-P0-CR   |
|      | 500         | 8082394  | ELCC-TB-KF-70-500-0H-P0-CR   |
|      | 600         | 8082395  | ELCC-TB-KF-70-600-0H-P0-CR   |
|      | 800         | 8082396  | ELCC-TB-KF-70-800-0H-P0-CR   |
|      | 1000        | 8082397  | ELCC-TB-KF-70-1000-0H-P0-CR  |
|      | 1200        | 8082398  | ELCC-TB-KF-70-1200-0H-P0-CR  |
| 90   | 200         | 8082399  | ELCC-TB-KF-90-200-0H-P0-CR   |
|      | 300         | 8082400  | ELCC-TB-KF-90-300-0H-P0-CR   |
|      | 500         | 8082401  | ELCC-TB-KF-90-500-0H-P0-CR   |
|      | 600         | 8082402  | ELCC-TB-KF-90-600-0H-P0-CR   |
|      | 800         | 8082403  | ELCC-TB-KF-90-800-0H-P0-CR   |
|      | 1000        | 8082404  | ELCC-TB-KF-90-1000-0H-P0-CR  |
|      | 1200        | 8082405  | ELCC-TB-KF-90-1200-0H-P0-CR  |
|      | 1500        | 8082406  | ELCC-TB-KF-90-1500-0H-P0-CR  |
|      | 1700        | 8082407  | ELCC-TB-KF-90-1700-0H-P0-CR  |
|      | 2000        | 8082408  | ELCC-TB-KF-90-2000-0H-P0-CR  |
| 110  | 200         | 8082409  | ELCC-TB-KF-110-200-0H-P0-CR  |
|      | 300         | 8082410  | ELCC-TB-KF-110-300-0H-P0-CR  |
|      | 500         | 8082411  | ELCC-TB-KF-110-500-0H-P0-CR  |
|      | 600         | 8082412  | ELCC-TB-KF-110-600-0H-P0-CR  |
|      | 800         | 8082413  | ELCC-TB-KF-110-800-0H-P0-CR  |
|      | 1000        | 8082414  | ELCC-TB-KF-110-1000-0H-P0-CR |
|      | 1200        | 8082415  | ELCC-TB-KF-110-1200-0H-P0-CR |
|      | 1500        | 8082416  | ELCC-TB-KF-110-1500-0H-P0-CR |
|      | 1700        | 8082417  | ELCC-TB-KF-110-1700-0H-P0-CR |
|      | 2000        | 8082418  | ELCC-TB-KF-110-2000-0H-P0-CR |

## Ordering data – Modular product system

### Orientation guide



| Ordering table                    |               | 60  | 70                                  | 90  | 110   | Conditions  | Code         | Enter code |
|-----------------------------------|---------------|---|-------------------------------------|---|---|-------------|--------------|------------|
| Module no.                        |               | <b>8060571</b>                                      | <b>8060572</b>                      | <b>8060573</b>  | <b>8060574</b>  |             |              |            |
| Function                          |               | Cantilever axis                                     |                                     |   |   |             | <b>ELCC</b>  | ELCC       |
| Drive system                      |               | Toothed belt  |                                     |   |   |             | <b>-TB</b>   | -TB        |
| Guide                             |               | Recirculating ball bearing guide                    |                                     |   |   |             | <b>-KF</b>   | -KF        |
| Size                              |               | 60  | 70                                  | 90  | 110   |             | -...         |            |
| Stroke                            | Standard [mm] | 200, 300, 500, 600, 800, 1000                       | 200, 300, 500, 600, 800, 1000, 1200 | 200, 300, 500, 600, 800, 1000, 1200, 1500, 1700, 2000 | 200, 300, 500, 600, 800, 1000, 1200, 1500, 1700, 2000 |             | -...         |            |
|                                   | Variable [mm] | 50 ... 1300   | 50 ... 1500                         | 50 ... 2000   | 50 ... 2000   |             | -...         |            |
| Stroke reserve                    | [mm]          | 0 ... 999 (0 = no stroke reserve)                   |                                     |   |   | [1]         | <b>-...H</b> |            |
| Additional slide                  |               | None  |                                     |   |   |             |              |            |
|                                   |               | Slide on left                                       |                                     |   |   | [2]         | <b>-ZL</b>   |            |
|                                   |               | Slide on right                                      |                                     |   |   | [2]         | <b>-ZR</b>   |            |
|                                   |               | -   | Slide on left, with clamping unit   |   | [2]   | <b>-ZLC</b> |              |            |
|                                   |               | -   | Slide on right, with clamping unit  |   | [2]   | <b>-ZRC</b> |              |            |
| Protection against particles      |               | Without cover strip                                 |                                     |   |   |             | <b>-P0</b>   |            |
|                                   |               | With cover strip                                    |                                     |   |   |             | <b>-P9</b>   |            |
| Additional features               |               | None  |                                     |   |   |             |              |            |
|                                   |               | Food-safe as per supplementary material information |                                     |   |   | [3]         | <b>-F1</b>   |            |
| Material of toothed belt          |               | Chloroprene rubber                                  |                                     |   |   |             | <b>-CR</b>   |            |
|                                   |               | Uncoated PU for the food zone                       |                                     |   | -   |             | <b>-PU1</b>  |            |
|                                   |               | PU-coated   |                                     |   | -   |             | <b>-PU2</b>  |            |
| Displacement encoder, incremental |               | None  |                                     |   |   |             |              |            |
|                                   |               | Resolution 2.5 µm                                   |                                     |   |   |             | <b>-M1</b>   |            |
| Clamping unit                     |               | None  |                                     |   |   |             |              |            |
|                                   |               | -   | Attached                            |   |   |             | <b>-C</b>    |            |
| Operating instructions            |               | With operating instructions                         |                                     |   |   |             |              |            |
|                                   |               | Without operating instructions                      |                                     |   |   |             | <b>-DN</b>   |            |

[1] ...H The sum of nominal reserve and 2x stroke reserve must not exceed the maximum stroke length

[2] ZL, ZR, ZLC, ZRC Reduction in working stroke in combination with additional slide → page 15

[3] F1 Select corresponding material for toothed belt in combination with feature F1

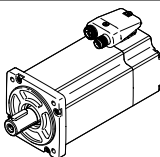
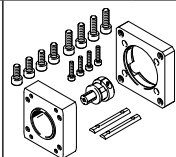
## Accessories

**Note**

For the optimum selection of axis/  
motor combinations

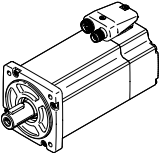
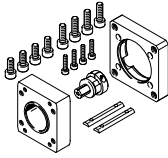
→ Engineering software  
PositioningDrives  
[www.festo.com](http://www.festo.com)

**Permissible axis/motor combinations with axial kit**

| Motor/gear unit <sup>1)</sup>   | Axial kit   |                 |
|---|---|-----------------|
|  |  |                 |
| Type  | Part no.  | Type            |
| <b>ELCC-TB-KF-60</b>  |   |                 |
| <b>With servo motor</b>   |   |                 |
| EMME-AS-80-...  | 8063592   | EAMM-A-N48-80P  |
| <b>With servo motor and gear unit</b>   |   |                 |
| EMMT-AS-60-..., EMME-AS-60-...<br>EMGA-60-P-...-EAS-60                            | 1456618   | EAMM-A-N48-60H  |
| EMMT-AS-80-..., EMME-AS-80-...<br>EMGA-80-P-...-EAS-80                            | 1258793   | EAMM-A-N48-80G  |
| <b>With servo motor and right-angle gear unit</b>                                 |   |                 |
| EMMT-AS-60-..., EMME-AS-60-...<br>EMGA-60-A-...-60P                               | 1456618   | EAMM-A-N48-60H  |
| EMMT-AS-80-..., EMME-AS-80-...<br>EMGA-80-A-...-80P                               | 1258793   | EAMM-A-N48-80G  |
| <b>ELCC-TB-KF-70</b>  |   |                 |
| <b>With servo motor</b>   |   |                 |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...                              | 1201894   | EAMM-A-N48-100A |
| <b>With servo motor and gear unit</b>   |   |                 |
| EMMT-AS-80-..., EMME-AS-80-...<br>EMGA-80-P-...-EAS-80                            | 1258793   | EAMM-A-N48-80G  |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...<br>EMGA-80-P-...-SAS-100     | 1258793   | EAMM-A-N48-80G  |
| <b>With servo motor and right-angle gear unit</b>                                 |   |                 |
| EMMT-AS-80-..., EMME-AS-80-...<br>EMGA-80-A-...-80P                               | 1258793   | EAMM-A-N48-80G  |

1) The input torque must not exceed the max. permissible transferable torque of the axial kit.

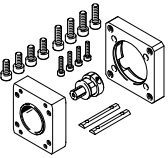
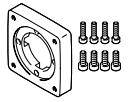
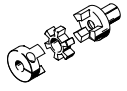


## Accessories

| Permissible axis/motor combinations with axial kit                               |   |                    |
|--|---|--------------------|
| Motor/gear unit <sup>1)</sup>  | Axial kit   |                    |
|  |  |                    |
| Type   | Part no.  | Type               |
| Data sheets → Internet: eamm-a   |   |                    |
| <b>ELCC-TB-KF-90</b>   |   |                    |
| <b>With servo motor</b>  |   |                    |
| EMMS-AS-140-...  | 1201691   | EAMM-A-N80-140A    |
| <b>With servo motor and gear unit</b>  |   |                    |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...<br>EMGA-80-P-...-SAS-100    | 2372096   | EAMM-A-N80-80G     |
| <b>With servo motor and right-angle gear unit</b>                                |   |                    |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...<br>EMGA-80-A-...-100A       | 2372096   | EAMM-A-N80-80G     |
| <b>ELCC-TB-KF-110</b>  |   |                    |
| <b>With servo motor and gear unit</b>  |   |                    |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...<br>EMGA-80-P-...-SAS-100    | 3660191   | EAMM-A-L95-80G-G2  |
| EMMS-AS-140-...<br>EMGA-120-P-...-SAS-140  | 3659941   | EAMM-A-L95-120G-G2 |
| <b>With servo motor and right-angle gear unit</b>                                |   |                    |
| EMMT-AS-100-..., EMME-AS-100-...,<br>EMMS-AS-100-...<br>EMGA-80-A-...-100A       | 3660191   | EAMM-A-L95-80G-G2  |

1) The input torque must not exceed the max. permissible transferable torque of the axial kit.



## Accessories

| Part components of the axial kit  |   |   |  |   |
|---|---|---|--|---|
| Axial kit   | Comprising:   |   |  |   |
|   | Motor flange  | Coupling  | Coupling housing   | Screw set   |
|  |  |  |  |  |
| Part no.<br>Type  | Part no.<br>Type  | Part no.<br>Type  | Part no.<br>Type   | Part no.<br>Type  |
| <b>ELCC-TB-KF-60</b>  |   |   |  |   |
| 8063592<br>EAMM-A-N48-80P   | –   | 558002<br>EAMD-42-40-19-16X25   | 5204317<br>EAMK-A-N48-80P  | –   |
| 1456618<br>EAMM-A-N48-60H   | 1460111<br>EAMF-A-48C-60G/H   | 1377840<br>EAMD-32-32-14-16X20  | 1345949<br>EAMK-A-N48-48C  | 4984529<br>EAHM-L5-M6-45  |
| 1258793<br>EAMM-A-N48-80G   | 1190375<br>EAMF-A-48C-80G   | 1781043<br>EAMD-42-40-20-16X25-U  | 1345949<br>EAMK-A-N48-48C  | 1201874<br>EAHM-L5-M6-50  |
| <b>ELCC-TB-KF-70</b>  |   |   |  |   |
| 1201894<br>EAMM-A-N48-100A  | 1201924<br>EAMF-A-48C-100A  | 558002<br>EAMD-42-40-19-16X25   | 1345949<br>EAMK-A-N48-48C  | 1201874<br>EAHM-L5-M6-50  |
| 1258793<br>EAMM-A-N48-80G   | 1190375<br>EAMF-A-48C-80G   | 1781043<br>EAMD-42-40-20-16X25-U  | 1345949<br>EAMK-A-N48-48C  | 1201874<br>EAHM-L5-M6-50  |
| <b>ELCC-TB-KF-90</b>  |   |   |  |   |
| 1201691<br>EAMM-A-N80-140A  | 1190796<br>EAMF-A-80A-140A  | 558005<br>EAMD-56-46-24-23X27   | 1345953<br>EAMK-A-N80-80A  | 1201751<br>EAHM-L5-M8-75  |
| 2372096<br>EAMM-A-N80-80G   | 2372201<br>EAMF-A-80A-80G   | 558004<br>EAMD-56-46-20-23X27   | 1345953<br>EAMK-A-N80-80A  | 1201712<br>EAHM-L5-M8-60  |
| <b>ELCC-TB-KF-110</b>   |   |   |  |   |
| 3660191<br>EAMM-A-L95-80G-G2  | 3305700<br>EAMF-A-95B-80G   | 3717812<br>EAMD-67-51-20-32X32-U  | 3712650<br>EAMK-A-L95-95A/B-G2   | –   |
| 3659941<br>EAMM-A-L95-120G-G2   | 3659724<br>EAMF-A-95A-120G-G2   | 558006<br>EAMD-67-51-25-32X32-U   | 3712650<br>EAMK-A-L95-95A/B-G2   | 567496<br>EAHM-L2-M8-70   |

## Accessories

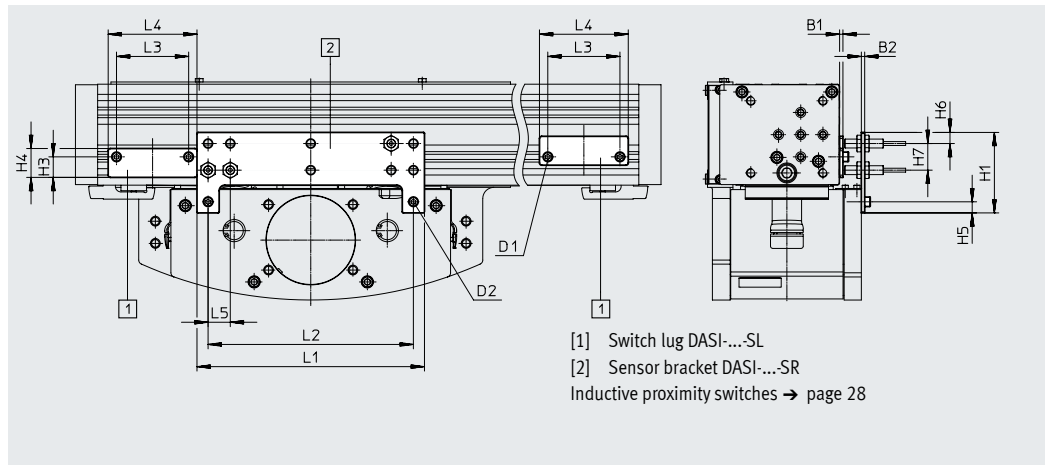
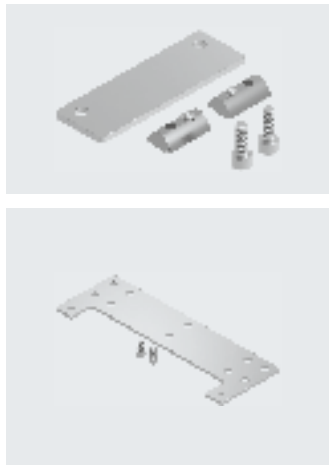
### Switch lug DAYP-E21-SL

For position sensing using a proximity switch SIEN-8MB

Material:  
Galvanised steel  
RoHS-compliant

### Sensor bracket DAYP-E21-SR

For proximity switch SIEN-8MB



#### Dimensions and ordering data

| For size | B1 | B2 | D1 | D2 | H1    | H3   | H4 | H5 |
|----------|----|----|----|----|-------|------|----|----|
| 60       | 3  | 3  | M4 | M5 | 77.8  | 19   | 24 | 10 |
| 70       | 3  | 3  | M4 | M5 | 101.5 | 16   | 21 | 10 |
| 90       | 3  | 3  | M5 | M5 | 72.5  | 18.5 | 26 | 10 |
| 110      | 3  | 3  | M5 | M5 | 83.5  | 18.5 | 26 | 10 |

| For size | H6 | H7 | L1  | L2  | L3 | L4 | L5 |
|----------|----|----|-----|-----|----|----|----|
| 60       | 10 | 28 | 140 | 120 | 50 | 60 | 20 |
| 70       | 10 | 22 | 140 | 120 | 50 | 60 | 20 |
| 90       | 10 | 24 | 205 | 185 | 65 | 80 | 20 |
| 110      | 10 | 24 | 230 | 210 | 65 | 80 | 20 |


| Switch lug |            |          |                       |                  | Sensor bracket |            |          |                    |                  |
|------------|------------|----------|-----------------------|------------------|----------------|------------|----------|--------------------|------------------|
| For size   | Weight [g] | Part no. | Type                  | PE <sup>1)</sup> | For size       | Weight [g] | Part no. | Type               | PE <sup>1)</sup> |
| 60         | 40         | 8081324  | DASI-E21-60-S8-SL     | 1                | 60             | 132        | 8081066  | DASI-E21-60-S8-SR  | 1                |
| 70         | 36         | 8081063  | DASI-E21-70-S8-SL     |                  | 70             | 225        | 8081064  | DASI-E21-70-S8-SR  |                  |
| 90         | 77         | 8081061  | DASI-E21-90/110-S8-SL |                  | 90             | 247        | 8081060  | DASI-E21-90-S8-SR  |                  |
| 110        | 77         | 8081061  | DASI-E21-90/110-S8-SL |                  | 110            | 326        | 8081062  | DASI-E21-110-S8-SR |                  |

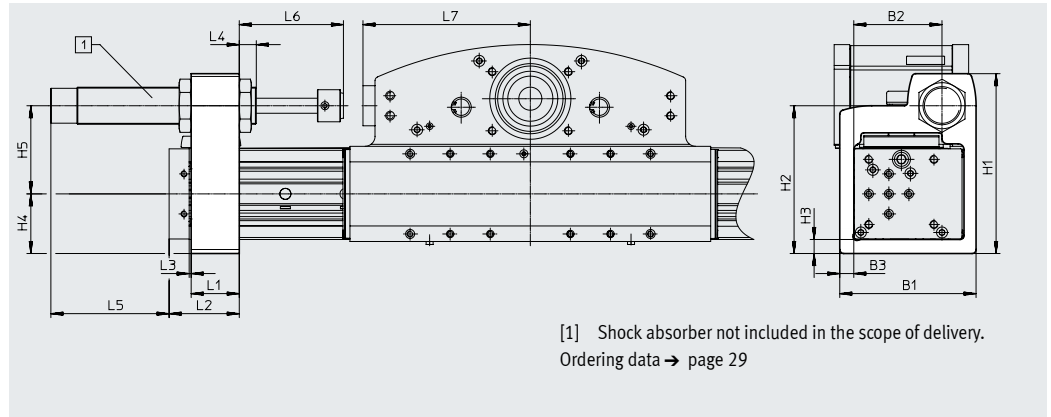
1) Packaging unit

Accessories

**Shock absorber retainer DAYP-E21**

Material:  
Retainer, stop: Anodised wrought aluminium alloy  
RoHS-compliant

 **Note**  
The additional length of the profile required for the installation space must be taken into account when ordering the axis (stroke specification).



| Dimensions and ordering data |     |     |    |       |       |    |      |      |    |            |
|------------------------------|-----|-----|----|-------|-------|----|------|------|----|------------|
| For size                     | B1  | B2  | B3 | H1    | H2    | H3 | H4   | H5   | L1 | L2<br>Min. |
| 60                           | 78  | 46  | 10 | 120.5 | 101.5 | 10 | 37.5 | 64   | 28 | 50         |
| 70                           | 106 | 70  | 10 | 143.5 | 118   | 10 | 44.5 | 73.5 | 32 | 54         |
| 90                           | 136 | 88  | 14 | 179.5 | 147.5 | 14 | 59.5 | 88   | 48 | 70         |
| 110                          | 178 | 113 | 20 | 218.5 | 178.5 | 20 | 76.5 | 102  | 48 | 70         |

| For size | L3<br>Min. | L4<br>Min. | L5  | L6<br>Min. | L7    | Weight<br>[g] | Part no.       | Type                | PE <sup>1)</sup> |
|----------|------------|------------|-----|------------|-------|---------------|----------------|---------------------|------------------|
| 60       | 2          | 13         | 41  | 58.5       | 126.5 | 356           | <b>8067058</b> | <b>DAYP-E21-60</b>  | 1                |
| 70       | 2          | 23         | 75  | 84.5       | 138.5 | 586           | <b>8067060</b> | <b>DAYP-E21-70</b>  |                  |
| 90       | 2          | 17         | 118 | 104        | 167   | 1552          | <b>8067062</b> | <b>DAYP-E21-90</b>  |                  |
| 110      | 2          | 17         | 118 | 104        | 191   | 2323          | <b>8067064</b> | <b>DAYP-E21-110</b> |                  |

1) Packaging unit

Accessories

**Adapter kit DHAA-R**

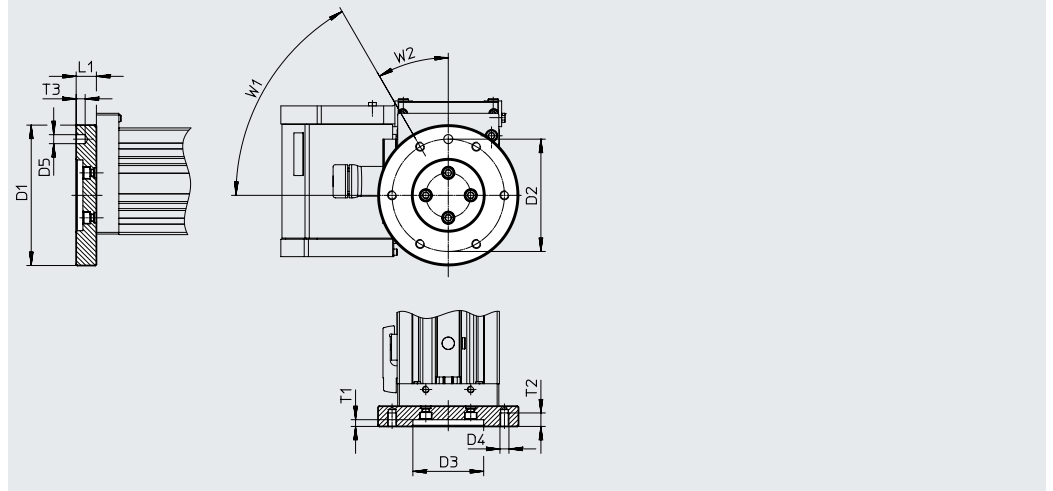
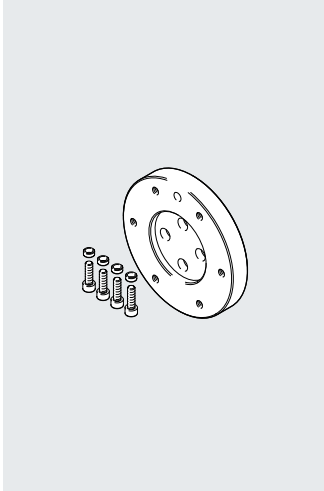
For interface to ISO 9409-1:2004

Material:

Adapter plate: Wrought aluminium alloy

Screws: Galvanised steel

RoHS-compliant



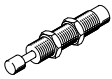






**Dimensions and ordering data**

| For size | D1<br>∅<br>h8 | D2<br>∅ | D3<br>∅<br>H7 | D4 | D5<br>∅<br>H7 | L1 | T1 |
|----------|---------------|---------|---------------|----|---------------|----|----|
| 70       | 125           | 100     | 63            | M8 | 8             | 18 | 6  |
| 90       |               |         |               |    |               |    |    |
| 110      |               |         |               |    |               |    |    |

| For size | T2 | T3 | W1  | W2  | Weight<br>[g] | Part no.       | Type                              | PE <sup>1)</sup> |
|----------|----|----|-----|-----|---------------|----------------|-----------------------------------|------------------|
| 70       | 12 | 8  | 60° | 30° | 559           | <b>8082459</b> | <b>DHAA-R-E21-70...110RF1-100</b> | 1                |
| 90       |    |    |     |     |               |                |                                   |                  |
| 110      |    |    |     |     |               |                |                                   |                  |





1) Packaging unit



## Accessories

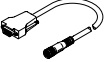
| Ordering data   |             | For size  | Description | Part no. | Type                  | PE <sup>1)</sup> |
|---|-------------|---|-------------|----------|-----------------------|------------------|
| <b>Shock absorber YSR</b>   |             |   |             |          |                       |                  |
|    | 60          | For use in combination with shock absorber retainer DAYP-E21  |             | 34574    | YSR-20-25-C           | 1                |
|   | 70          |   |             | 160273   | YSR-25-40-C           |                  |
|   | 90, 110     |   |             | 160274   | YSR-32-60-C           |                  |
| <b>Slot nut NST</b>   |             |   |             |          |                       |                  |
|    | 60, 70      | For profile slot  |             | 150914   | NST-5-M5              | 1                |
|   |             |   |             | 8047843  | NST-5-M5-10           | 10               |
|   |             |   |             | 8047878  | NST-5-M5-50           | 50               |
|   | 90, 110     | For profile slot  |             | 150915   | NST-8-M6              | 1                |
|   |             |   |             | 8047868  | NST-8-M6-10           | 10               |
| 8047869   | NST-8-M6-50 | 50  |             |          |                       |                  |
| <b>Centring pin/sleeve ZBS/ZBH</b>  |             |   |             |          |                       |                  |
|    | 60          | For mounting the drive head   |             | 150928   | ZBS-5                 | 10               |
|   | 70, 90      |   |             | 150927   | ZBH-9                 |                  |
|   | 110         |   |             | 189653   | ZBH-12                |                  |
|   | 60, 70      | For centring on the front end   |             | 186717   | ZBH-7                 |                  |
|   | 70, 90, 110 |   |             | 150927   | ZBH-9                 |                  |
| <b>Slot cover ABP</b>   |             |   |             |          |                       |                  |
|    | 60, 70      | • For mounting slot<br>• Every 0.5 m  |             | 151681   | ABP-5                 | 2                |
|   | 90, 110     |   |             | 151682   | ABP-8                 |                  |
| <b>Drive shaft EAMB</b>   |             |   |             |          |                       |                  |
|  | 60, 70      | • Can, if required, be used as an alternative interface<br>• No drive shaft is required for the axis/motor combinations → page 25                             |             | 558036   | EAMB-24-6-15X21-16X20 | 1                |
|   | 90          |   |             | 558037   | EAMB-34-6-25X26-23X27 |                  |
|   | 110         |   |             | 558038   | EAMB-44-7-35X30-32X32 |                  |
| <b>Clamping component EADT</b>  |             |   |             |          |                       |                  |
|  | 60          | Tool for retensioning the cover strip   |             | 8058451  | EADT-S-L5-70          | 1                |
|   | 70, 90      |   |             | 8097157  | EADT-S-L5-90          |                  |
|   | 110         |   |             | 8058450  | EADT-S-L5-120         |                  |
| <b>Connecting shaft KSK</b>   |             |   |             |          |                       |                  |
|  | 60, 70      | • For torsion-resistant transmission of torques<br>• For slip-free transmission of feed rates<br>• To operate two cantilever axes in parallel using one motor |             | 562521   | KSK-80-               | 1                |
|   | 90          |   |             | 562522   | KSK-120-              |                  |
|   | 110         |   |             | 562523   | KSK-185-              |                  |

1) Packaging unit

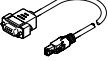
## Accessories

| Ordering data – Proximity switches M8 (round design), inductive                  |                       |     |                  |                  |          | Data sheets → Internet: sien |
|--|-----------------------|-----|------------------|------------------|----------|------------------------------|
|  | Electrical connection | LED | Switching output | Cable length [m] | Part no. | Type                         |
| <b>N/O contact</b>   |                       |     |                  |                  |          |                              |
|  | Cable, 3-wire         | ■   | PNP              | 2.5              | 150386   | SIEN-M8B-PS-K-L              |
|  |                       |     | NPN              | 2.5              | 150384   | SIEN-M8B-NS-K-L              |
|  | Plug M8x1, 3-pin      | ■   | PNP              | –                | 150387   | SIEN-M8B-PS-S-L              |
|  |                       |     | NPN              | –                | 150385   | SIEN-M8B-NS-S-L              |
| <b>N/C contact</b>   |                       |     |                  |                  |          |                              |
|  | Cable, 3-wire         | ■   | PNP              | 2.5              | 150390   | SIEN-M8B-PO-K-L              |
|  |                       |     | NPN              | 2.5              | 150388   | SIEN-M8B-NO-K-L              |
|  | Plug M8x1, 3-pin      | ■   | PNP              | –                | 150391   | SIEN-M8B-PO-S-L              |
|  |                       |     | NPN              | –                | 150389   | SIEN-M8B-NO-S-L              |

| Ordering data – Connecting cables  |                              |                              |                  |          | Data sheets → Internet: nebu |
|--|------------------------------|------------------------------|------------------|----------|------------------------------|
|  | Electrical connection, left  | Electrical connection, right | Cable length [m] | Part no. | Type                         |
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire      | 2.5              | 159420   | SIM-M8-3GD-2,5-PU            |
|  |                              |                              | 2.5              | 541333   | NEBU-M8G3-K-2.5-LE3          |
|  |                              |                              | 5                | 541334   | NEBU-M8G3-K-5-LE3            |
|  | Angled socket, M8x1, 3-pin   | Cable, open end, 3-wire      | 2.5              | 541338   | NEBU-M8W3-K-2.5-LE3          |
|  |                              |                              | 5                | 541341   | NEBU-M8W3-K-5-LE3            |

| Ordering data – Encoder cables for displacement encoder system, ELCC-...-M1        |   |                              |                  |          | Data sheets → Internet: nebm |
|--|---|------------------------------|------------------|----------|------------------------------|
|  | Electrical connection, left             | Electrical connection, right | Cable length [m] | Part no. | Type                         |
|  | Displacement encoder system ELCC-...-M1 | Motor controller CMMP-AS     | 5                | 1599105  | NEBM-M12G8-E-5-S1G9-V3       |
|  |   |                              | 10               | 1599106  | NEBM-M12G8-E-10-S1G9-V3      |
|  |   |                              | 15               | 1599107  | NEBM-M12G8-E-15-S1G9-V3      |
|  |   |                              | X <sup>1)</sup>  | 1599108  | NEBM-M12G8-E-...-S1G9-V3     |

1) Max. cable length 25 m.

| Ordering data – Adapters   |   |          |                      |
|--|---|----------|----------------------|
|  | Description   | Part no. | Type                 |
|  | Required in combination with the servo drive CMMT-AS as adapter between encoder cable NEBM-M12G8-...-V3 and interface X3 (position encoder 2) | 8106112  | NEFM-S1G9-K-0,5-R3G8 |