

## Positioning axes DMES

**FESTO**



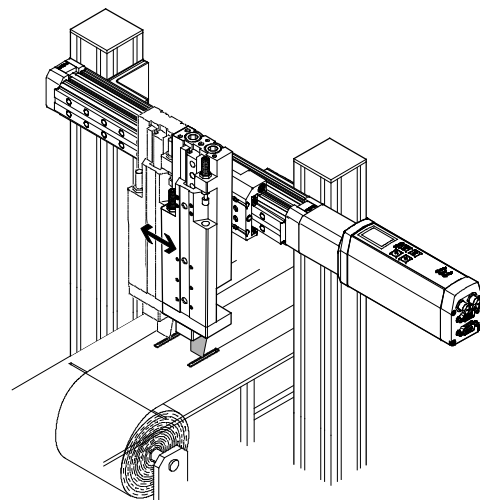
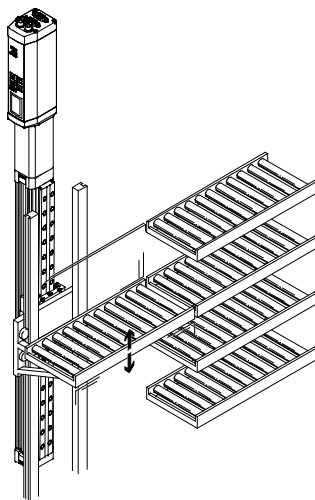
# Positioning axes DMES

Key features

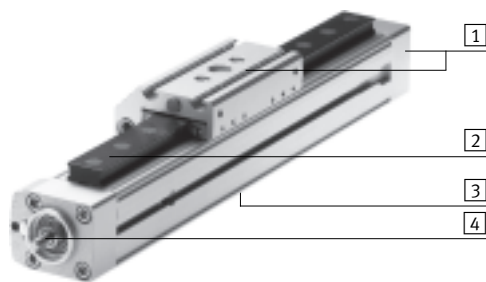
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| At a glance                                                                                                                                                                                              |                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General                                                                                                                                                                                                  | Properties                                                                                                                                                                                                                 | Range of applications                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p>DMES positioning axes are mechanical linear drives that are specially designed for movements involving high forces.</p> <p>The mechanical interfaces are compatible with the spindle axis DGE-SP.</p> | <ul style="list-style-type: none"> <li>• High mechanical torques</li> <li>• High feed forces up to 3,000 N</li> <li>• Self-retarding lead-screw spindle</li> <li>• Compact dimensions</li> <li>• Cost optimised</li> </ul> | <ul style="list-style-type: none"> <li>• Alternatively: <ul style="list-style-type: none"> <li>– without guide</li> <li>– with plain-bearing guide GF</li> <li>– with recirculating ball bearing guide KF</li> </ul> </li> <li>• For format adjustment: <ul style="list-style-type: none"> <li>– in printing, paper and foil wrapping machines</li> <li>– in packaging machines</li> <li>– in feed technology</li> </ul> </li> </ul> |

| Application examples        |                                                        |
|-----------------------------|--------------------------------------------------------|
| Adjusting sorting conveyors | Programming formats for paper or foil cutting machines |



| The technology in detail |            |
|--------------------------|------------|
| Positioning axis → 4     | Motor → 42 |



- 1 Mechanical interfaces are identical to spindle axes DGE-...-SP
- 2 Choice of two guide variants:
  - GF: Plain-bearing guide
  - KF: Recirculating ball bearing guide
- 3 Slot for proximity sensor
- 4 Lead-screw spindle, for use with high forces

The lead-screw spindle is self-retarding, which means that slow movements cannot be excluded in the event of vibration.

The entire system with intelligent motor unit MTR-DCI is self-locking.



Motor unit  
MTR-DCI



Intelligent servo motor  
EMMS-ST



Servo motor  
EMMS-AS

A range of specially adapted complete solutions is available for the positioning axes DMES and the motors.

Two motor interfaces are available:

- Axial motor interface
- Parallel motor interface

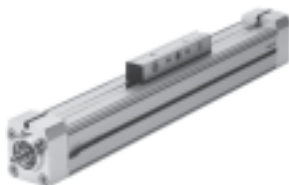
# Positioning axes DMES

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Key features

## Wide choice of variants

### Basic design DMES, without guide



- For connection to an existing guide
- For small loads

### Plain-bearing guide DMES-GF



- With standard slide (GK) or extended slide (GV)
- For medium loads
- For medium guide precision

### Recirculating ball bearing guide DMES-KF



- With standard slide (GK) or extended slide (GV)
- For higher loads
- For high guide precision

### Protected version DMES-GA

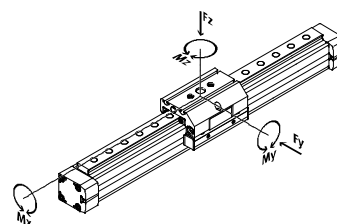
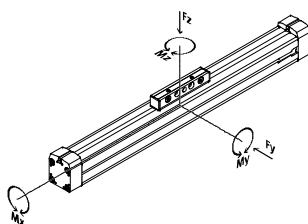


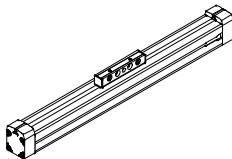
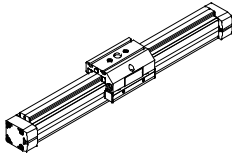
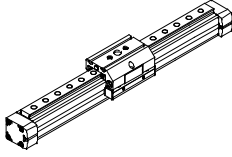
- With standard slide (GK)
- With plain or recirculating ball bearing guide as an option
- Guide and slide are fitted with a cover to protect against the ingress of particles from above and from the side

## Guide characteristics

The specifications shown in the table are maximum values.

The precise values for each of the variants can be found in the relevant technical data in the catalogue.

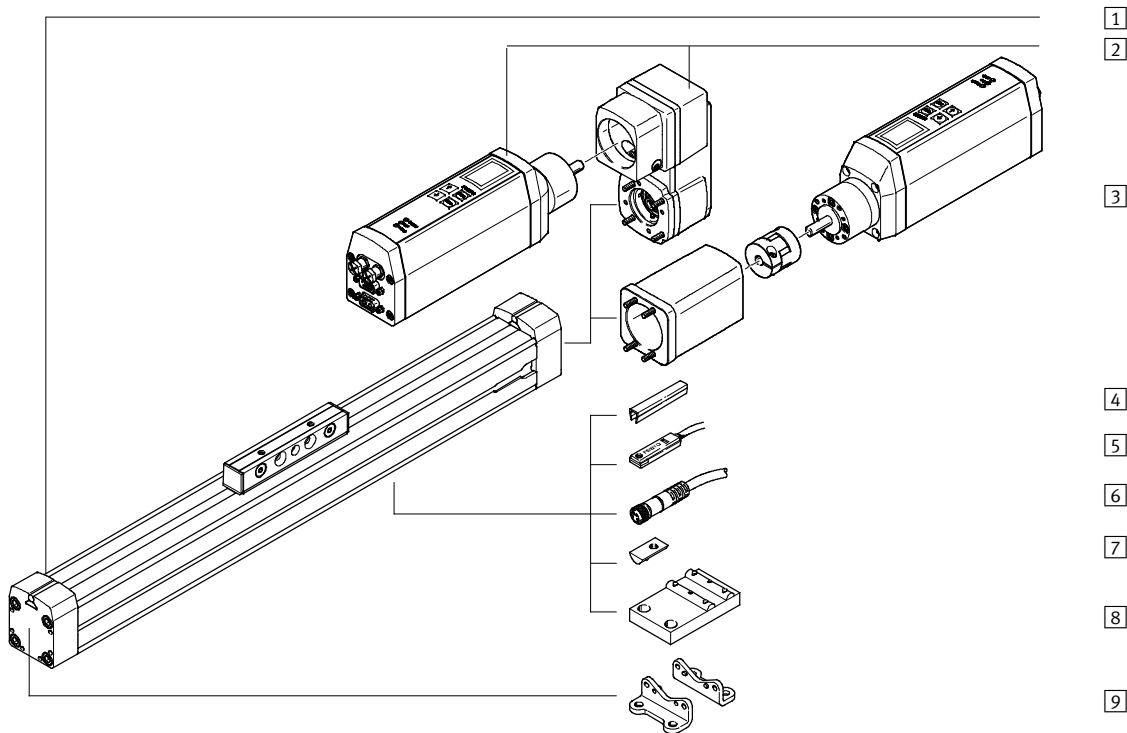


|                                                                                     | Size | Working stroke<br>[mm] | Speed<br>[m/s] | Repetition<br>accuracy<br>[mm] | Feed force<br>[N] | Forces and torques |           |            |            |            | → Page/<br>Internet |
|-------------------------------------------------------------------------------------|------|------------------------|----------------|--------------------------------|-------------------|--------------------|-----------|------------|------------|------------|---------------------|
|                                                                                     |      |                        |                |                                |                   | Fy<br>[N]          | Fz<br>[N] | Mx<br>[Nm] | My<br>[Nm] | Mz<br>[Nm] |                     |
| Basic design DMES                                                                   |      |                        |                |                                |                   |                    |           |            |            |            |                     |
|  | 18   | 50 ... 400             | 0.05           | ±0.05                          | 240               | 36                 | 80        | 0.4        | 2          | 0.7        | 6                   |
|                                                                                     | 25   | 50 ... 700             | 0.05           | ±0.05                          | 500               | 80                 | 100       | 1.3        | 4          | 1.6        |                     |
|                                                                                     | 40   | 50 ... 1,200           | 0.05           | ±0.05                          | 1,000             | 92                 | 390       | 2.2        | 20         | 4.6        |                     |
|                                                                                     | 63   | 50 ... 1,800           | 0.05           | ±0.07                          | 3,000             | 300                | 900       | 12         | 80         | 22         |                     |
| Plain-bearing guide DMES-GF                                                         |      |                        |                |                                |                   |                    |           |            |            |            |                     |
|  | 18   | 50 ... 400             | 0.05           | ±0.05                          | 240               | 930                | 930       | 7          | 45         | 45         | 20                  |
|                                                                                     | 25   | 50 ... 700             | 0.05           | ±0.05                          | 500               | 1,650              | 1,650     | 23         | 95         | 95         |                     |
|                                                                                     | 40   | 50 ... 1,200           | 0.05           | ±0.05                          | 1,000             | 3,990              | 3,990     | 89         | 360        | 360        |                     |
|                                                                                     | 63   | 50 ... 1,800           | 0.05           | ±0.07                          | 3,000             | 7,250              | 7,250     | 290        | 980        | 980        |                     |
| Recirculating ball bearing guide DMES-KF                                            |      |                        |                |                                |                   |                    |           |            |            |            |                     |
|  | 18   | 50 ... 400             | 0.05           | ±0.05                          | 240               | 930                | 930       | 7          | 45         | 45         | 20                  |
|                                                                                     | 25   | 50 ... 700             | 0.05           | ±0.05                          | 500               | 3,080              | 3,080     | 45         | 170        | 170        |                     |
|                                                                                     | 40   | 50 ... 1,200           | 0.05           | ±0.05                          | 1,000             | 7,300              | 7,300     | 170        | 660        | 660        |                     |
|                                                                                     | 63   | 50 ... 1,800           | 0.05           | ±0.07                          | 3,000             | 13,900             | 14,050    | 580        | 1,820      | 1,820      |                     |

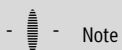
## Positioning axes DMES, without guide

Peripherals overview

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| Variants and accessories                    |                                                                                                            |                 |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------|
| Type/Order code                             | Brief description                                                                                          | → Page/Internet |
| 1 Positioning axis DMES                     | Electromechanical axis without guide                                                                       | 6               |
| 2 Intelligent servo unit and parallel kit U | Complete package for parallel motor attachment, comprising parallel kit and intelligent motor unit MTR-DCI | 14              |
| 3 Intelligent servo unit and axial kit AX   | Complete package for axial motor attachment, comprising axial kit and intelligent motor unit MTR-DCI       | 14              |
| 4 Slot cover B/S                            | For protecting against ingress of dirt                                                                     | 49              |
| 5 Proximity sensor SMT-8                    | For providing a proximity signal or safety sensing                                                         | 48              |
| 6 Connecting cable KM8                      | For proximity sensor                                                                                       | 48              |
| 7 Slot nut for mounting slot Y              | For mounting attachments                                                                                   | 49              |
| 8 Central support M                         | For mounting the axis                                                                                      | 46              |
| 9 Foot mounting F                           | For mounting the axis (can only be attached to end cap, must be combined with central support)             | 46              |



Note

Servo, stepper motors and the corresponding mounting kits must be ordered separately → 42

## Positioning axes DMES, without guide

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Type code

|                        |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
|------------------------|-----------------------------------------|------|---|----|---|-----|---|----|---|-----|---|--|----|----|--|
|                        |                                         | DMES | - | 25 | - | 500 | - | AX | : | ZUB | - |  | 2Y | 2M |  |
| <b>Type</b>            |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| DMES                   | Positioning axis                        |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Size</b>            |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Stroke [mm]</b>     |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Motor unit</b>      |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| AX                     | Intelligent servo unit and axial kit    |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| U                      | Intelligent servo unit and parallel kit |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Accessories</b>     |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ZUB                    | Accessories supplied loose              |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Slot cover</b>      |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ...S                   | Sensor slot                             |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ...B                   | Mounting slot                           |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Slot nut</b>        |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ...Y                   | For mounting slot                       |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Central support</b> |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ...M                   | Central support                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| <b>Foot mounting</b>   |                                         |      |   |    |   |     |   |    |   |     |   |  |    |    |  |
| ...F                   | Foot mounting                           |      |   |    |   |     |   |    |   |     |   |  |    |    |  |

# Positioning axes DMES, without guide

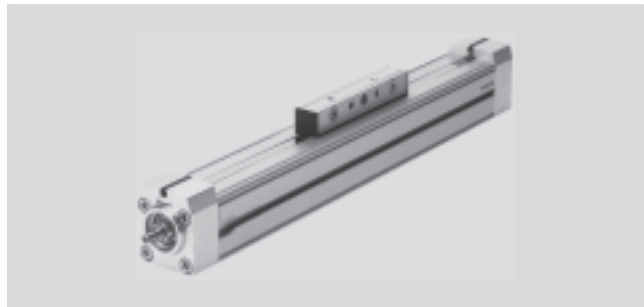
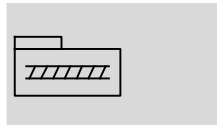
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Technical data

Function



www.festo.com



- Ø - Size  
18 ... 63
- I - Stroke length  
50 ... 1,800 mm

| General technical data                    |                     |                                                       |            |              |              |
|-------------------------------------------|---------------------|-------------------------------------------------------|------------|--------------|--------------|
| Size                                      |                     | 18                                                    | 25         | 40           | 63           |
| Design                                    |                     | Electromechanical linear axis with lead-screw spindle |            |              |              |
| Guide                                     |                     | None                                                  |            |              |              |
| Assembly position                         |                     | Any                                                   |            |              |              |
| Working stroke                            | [mm]                | 50 ... 400                                            | 50 ... 700 | 50 ... 1,200 | 50 ... 1,800 |
| Max. feed force $F_x$                     | [N]                 | 240                                                   | 500        | 1,000        | 3,000        |
| Max. driving torque                       | [Nm]                | 0.3                                                   | 0.9        | 3            | 14           |
| Max. no-load driving torque <sup>1)</sup> | [Nm]                | 0.07                                                  | 0.2        | 0.45         | 1.1          |
| Max. radial force <sup>2)</sup>           | [N]                 | 40                                                    | 75         | 250          | 800          |
| Max. speed                                | [m/s]               | 0.05                                                  |            |              |              |
| Max. acceleration                         | [m/s <sup>2</sup> ] | 2.5                                                   |            |              |              |
| Repetition accuracy                       | [mm]                | ±0.05                                                 |            |              | ±0.07        |
| Positioning rigidity                      | [N/mm]              | 1,700                                                 | 2,300      | 4,200        | 5,600        |
| Duty cycle                                | [%]                 | 100                                                   |            |              |              |
| Reversing backlash <sup>3)</sup>          | [mm]                | < 0.1                                                 |            |              |              |

1) Measured at a speed of 200 rpm.

2) On drive shaft

3) In new condition

| Operating and environmental conditions |                |
|----------------------------------------|----------------|
| Ambient temperature <sup>1)</sup>      | [°C] 0 ... +50 |
| Protection class                       | IP40           |

1) Note operating range of proximity sensors

| Weights [kg]                                |      |      |      |       |
|---------------------------------------------|------|------|------|-------|
| Size                                        | 18   | 25   | 40   | 63    |
| Basic weight with 0 mm stroke <sup>1)</sup> | 0.49 | 0.98 | 2.9  | 10.05 |
| Additional weight per 100 mm stroke         | 0.2  | 0.36 | 0.74 | 1.97  |
| Moving load                                 | 0.06 | 0.15 | 0.47 | 1.51  |

1) Without coupling housing

## Positioning axes DMES, without guide

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Technical data

| Mass moment of inertia    |                          |        |        |        |        |
|---------------------------|--------------------------|--------|--------|--------|--------|
| Size                      |                          | 18     | 25     | 40     | 63     |
| $J_0$                     | [kg cm <sup>2</sup> ]    | 0.0028 | 0.0147 | 0.1824 | 1.7747 |
| $j_H$ per metre stroke    | [kg cm <sup>2</sup> /m]  | 0.0210 | 0.0980 | 0.8400 | 5.5600 |
| $j_L$ per kg working load | [kg cm <sup>2</sup> /Kg] | 0.0006 | 0.0023 | 0.0041 | 0.0091 |

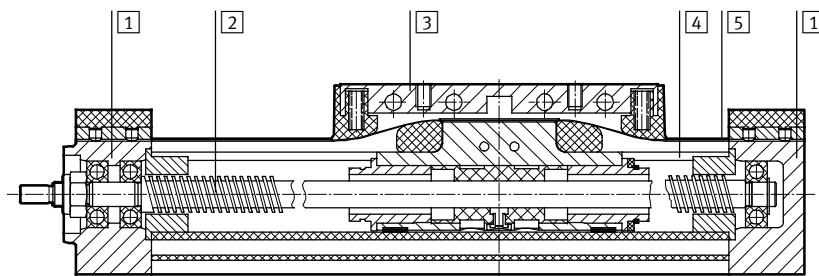
The mass moment of inertia  $J_A$  of the entire axis is calculated as follows:

$$J_A = J_0 + j_H \times \text{working stroke [m]} + j_L \times m_{\text{working load [kg]}}$$

| Spindle  |           |     |     |    |    |
|----------|-----------|-----|-----|----|----|
| Size     |           | 18  | 25  | 40 | 63 |
| Diameter | [mm]      | 8   | 12  | 20 | 32 |
| Pitch    | [mm/rev.] | 1.5 | 2.5 | 4  | 6  |

### Materials

Sectional view



| Positioning axis |                                   |
|------------------|-----------------------------------|
| 1 Cover          | Wrought aluminium alloy, anodised |
| 2 Spindle        | Steel                             |
| 3 Piston, driver | Wrought aluminium alloy, anodised |
| 4 Profile        | Wrought aluminium alloy, anodised |
| 5 Cover strip    | High-alloy stainless steel        |

# Positioning axes DMES, without guide

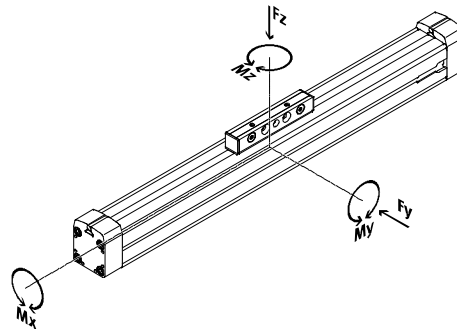
Technical data

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## Characteristic load values

The indicated forces refer to the centre line of the internal diameter of the profile.

They must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



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

$$\frac{|F_y|}{F_{y_{max}}} + \frac{|F_z|}{F_{z_{max}}} + \frac{|M_x|}{M_{x_{max}}} + \frac{|M_y|}{M_{y_{max}}} + \frac{|M_z|}{M_{z_{max}}} \leq 1$$



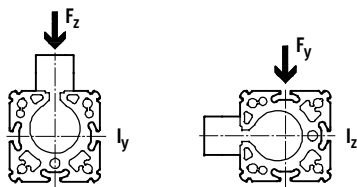
Note

Positioning axes DMES without guide are not designed to absorb lateral forces or torques on the slide.

## Permissible forces and torques

| Size                                | 18  | 25  | 40  | 63  |
|-------------------------------------|-----|-----|-----|-----|
| F <sub>y</sub> <sub>max.</sub> [N]  | 36  | 80  | 92  | 300 |
| F <sub>z</sub> <sub>max.</sub> [N]  | 80  | 100 | 390 | 900 |
| M <sub>x</sub> <sub>max.</sub> [Nm] | 0.4 | 1.3 | 2.2 | 12  |
| M <sub>y</sub> <sub>max.</sub> [Nm] | 2   | 4   | 20  | 80  |
| M <sub>z</sub> <sub>max.</sub> [Nm] | 0.7 | 1.6 | 4.6 | 22  |

## 2nd moment of area



| Size                              | 18   | 25    | 40    | 63     |
|-----------------------------------|------|-------|-------|--------|
| I <sub>y</sub> [cm <sup>4</sup> ] | 6.90 | 20.92 | 76.24 | 587.74 |
| I <sub>z</sub> [cm <sup>4</sup> ] | 6.83 | 21.20 | 71.01 | 464.30 |



Note

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



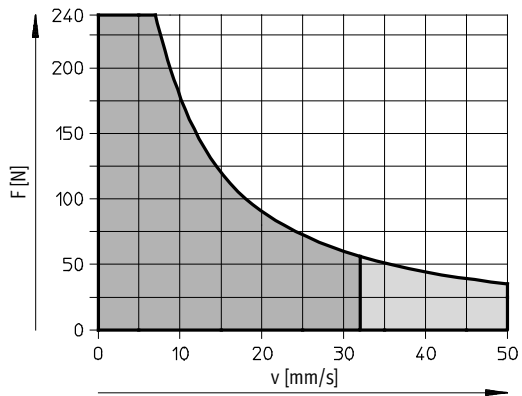
# Positioning axes DMES, without guide

Technical data

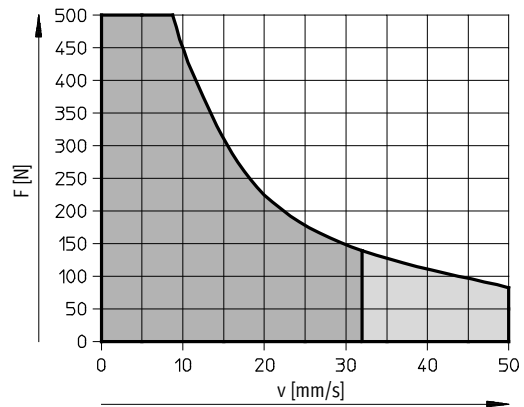
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## Maximum permissible feed force $F$ as a function of the feed speed $v$

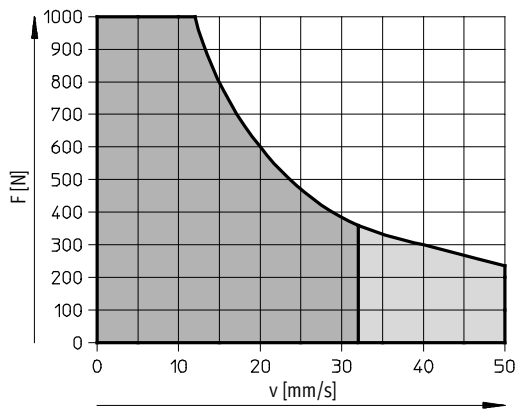
Size 18



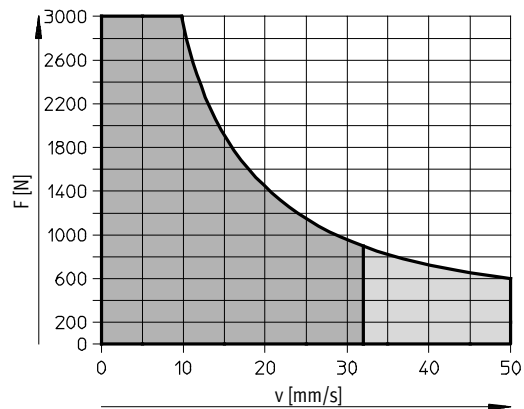
Size 25



Size 40



Size 63



- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

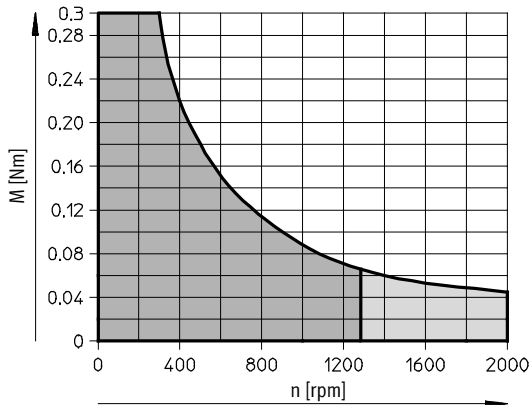
# Positioning axes DMES, without guide

Technical data

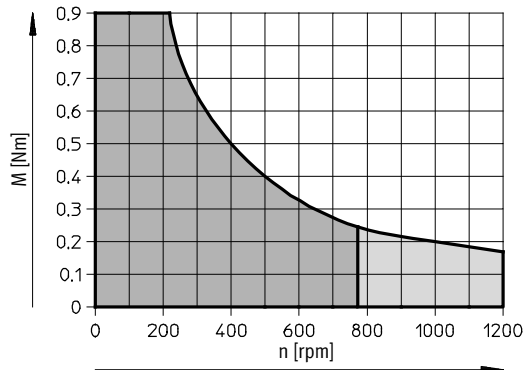
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## Maximum permissible driving torque M as a function of n (rpm)

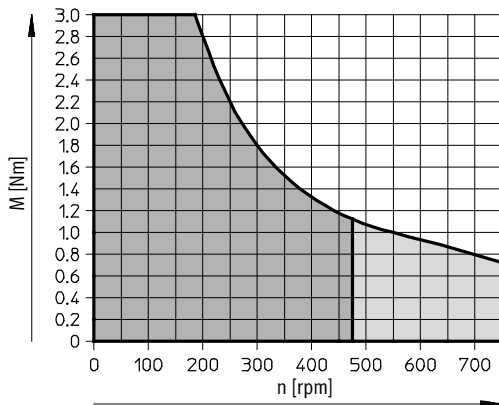
Size 18



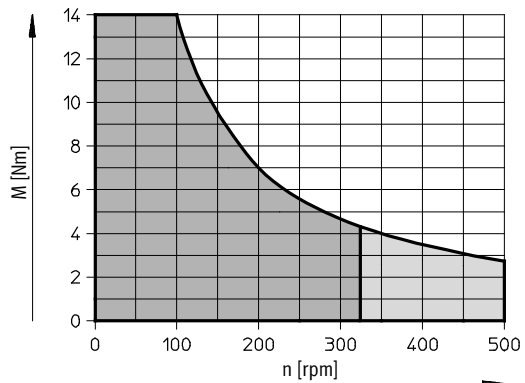
Size 25



Size 40

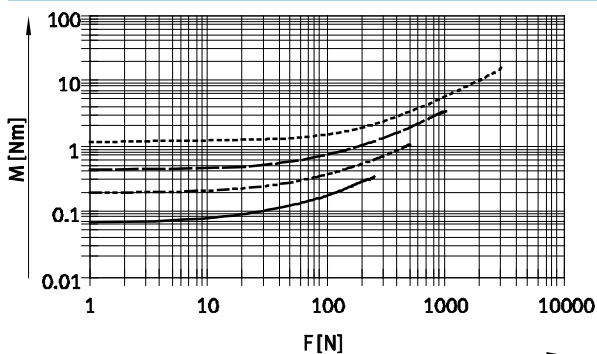


Size 63

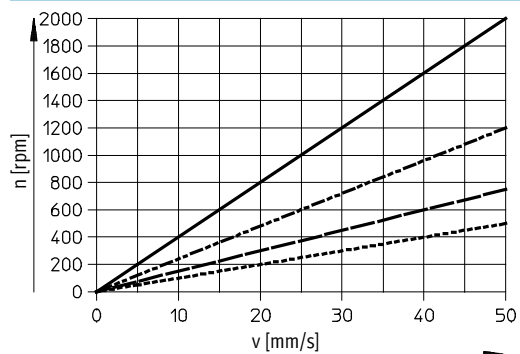


- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

## Driving torque M as a function of the feed force F



## Speed as a function of the feed speed v



- DMES-18
- - - DMES-25
- · - DMES-40
- DMES-63

### Technical data

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

Technical drawing of the Size 18 actuator, showing front, side, and end views with dimensions in mm.

**Front View (Top Left):** Shows a square body with a central circular feature. Dimensions include a width of 12 mm, a height of 4.7 mm, a central hole diameter of  $\phi 30$ , and a 45° chamfer. The mounting holes are labeled M4.

**Side View (Bottom Left):** Shows the profile of the actuator body with a width of 12 mm and a height of 4.7 mm.

**End View (Bottom Left):** Shows the circular end face with a central hole and four mounting holes.

**Top View (Top Right):** Shows the top of the actuator with a central circular feature and four mounting holes. Dimensions include a width of 12 mm, a height of 4.7 mm, a central hole diameter of  $\phi 30$ , and a 45° chamfer. The mounting holes are labeled M4.

**Side View (Bottom Right):** Shows the profile of the actuator body with a width of 12 mm and a height of 4.7 mm.

**Front View (Top Right):** Shows the front of the actuator with a central circular feature and four mounting holes. Dimensions include a width of 12 mm, a height of 4.7 mm, a central hole diameter of  $\phi 30$ , and a 45° chamfer. The mounting holes are labeled M4.

**Side View (Bottom Right):** Shows the profile of the actuator body with a width of 12 mm and a height of 4.7 mm.

**End View (Bottom Right):** Shows the circular end face with a central hole and four mounting holes.

**Technical Drawing Details:**

- Dimensions:** 12, 4.7,  $\phi 30$ , 45°, M4, 147+, 84.6, 30  $\pm 0.1$ , 6  $\text{H7}$ , 5.5, 16, 9, 5, 11, 20, 73.5, 80, 26, 12, 20, 14, 27, 41, 2, 43.7, 41,  $\phi 3$ , 49.7, 24, 7, 28, 34  $\pm 0.2$ , 14, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.
- Mounting Holes:** M4, M5.
- Surface Finish:** Ra 0.8, Ra 1.6, Ra 3.2, Ra 6.3, Ra 12.5, Ra 25, Ra 50, Ra 100, Ra 200, Ra 400, Ra 800, Ra 1600, Ra 3200, Ra 6300, Ra 12500, Ra 25000, Ra 50000, Ra 100000, Ra 200000, Ra 400000, Ra 800000, Ra 1600000, Ra 3200000, Ra 6300000, Ra 12500000, Ra 25000000, Ra 50000000, Ra 100000000, Ra 200000000, Ra 400000000, Ra 800000000, Ra 1600000000, Ra 3200000000, Ra 6300000000, Ra 12500000000, Ra 25000000000, Ra 50000000000, Ra 100000000000, Ra 200000000000, Ra 400000000000, Ra 800000000000, Ra 1600000000000, Ra 3200000000000, Ra 6300000000000, Ra 12500000000000, Ra 25000000000000, Ra 50000000000000, Ra 100000000000000, Ra 200000000000000, Ra 400000000000000, Ra 800000000000000, Ra 1600000000000000, Ra 3200000000000000, Ra 6300000000000000, Ra 12500000000000000, Ra 25000000000000000, Ra 50000000000000000, Ra 100000000000000000, Ra 200000000000000000, Ra 400000000000000000, Ra 800000000000000000, Ra 1600000000000000000, Ra 3200000000000000000, Ra 6300000000000000000, Ra 12500000000000000000, Ra 25000000000000000000, Ra 50000000000000000000, Ra 100000000000000000000, Ra 200000000000000000000, Ra 400000000000000000000, Ra 800000000000000000000, Ra 1600000000000000000000, Ra 3200000000000000000000, Ra 6300000000000000000000, Ra 12500000000000000000000, Ra 25000000000000000000000, Ra 50000000000000000000000, Ra 100000000000000000000000, Ra 200000000000000000000000, Ra 400000000000000000000000, Ra 800000000000000000000000, Ra 1600000000000000000000000, Ra 3200000000000000000000000, Ra 6300000000000000000000000, Ra 12500000000000000000000000, Ra 25000000000000000000000000, Ra 50000000000000000000000000, Ra 100000000000000000000000000, Ra 200000000000000000000000000, Ra 400000000000000000000000000, Ra 800000000000000000000000000, Ra 1600000000000000000000000000, Ra 3200000000000000000000000000, Ra 6300000000000000000000000000, Ra 12500000000000000000000000000, Ra 25000000000000000000000000000, Ra 50000000000000000000000000000, Ra 100000000000000000000000000000, Ra 200000000000000000000000000000, Ra 400000000000000000000000000000, Ra 800000000000000000000000000000, Ra 1600000000000000000000000000000, Ra 3200000000000000000000000000000, Ra 6300000000000000000000000000000, Ra 12500000000000000000000000000000, Ra 25000000000000000000000000000000, Ra 50000000000000000000000000000000, Ra 100000000000000000000000000000000, Ra 200000000000000000000000000000000, Ra 400000000000000000000000000000000, Ra 800000000000000000000000000000000, Ra 1600000000000000000000000000000000, Ra 3200000000000000000000000000000000, Ra 6300000000000000000000000000000000, Ra 12500000000000000000000000000000000, Ra 25000000000000000000000000000000000, Ra 50000000000000000000000000000000000, Ra 100000000000000000000000000000000000, Ra 200000000000000000000000000000000000, Ra 400000000000000000000000000000000000, Ra 800000000000000000000000000000000000, Ra 1600000000000000000000000000000000000, Ra 3200000000000000000000000000000000000, Ra 6300000000000000000000000000000000000, Ra 12500000000000000000000000000000000000, Ra 25000000000000000000000000000000000000, Ra 50000000000000000000000000000000000000, Ra 100000000000000000000000000000000000000, Ra 200000000000000000000000000000000000000, Ra 400000000000000000000000000000000000000, Ra 80000

**Size 25/40/63**

Technical drawing showing the dimensions and components of a coupling for Size 25/40/63. The drawing includes a front view, a side view, and an end view.

**Dimensions:**

- Front View:** H3, T1, D2, T2, L3, L1+, L2, L11, L3, B12, B11, L3, B14, H2, D1, D5, J2.
- Side View:** L6, L7, D4, D3, T3, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100.
- End View:** H1, H5, H4, J2, D6, B5, B6, B3, B4, B1.

**Legend:**

- 1 Coupling housing
- 2 Coupling
- 3 Centring hole for foot mounting HP
- 4 Lubrication opening
- + = plus stroke length

| Size | H4   | H5   | J2 | L1  | L2   | L3 | L6    | L7  | L8  | L9 | L11 | L13 |     |     | T1 | T2 | T3   |
|------|------|------|----|-----|------|----|-------|-----|-----|----|-----|-----|-----|-----|----|----|------|
|      |      |      |    |     |      |    |       |     |     |    |     | 1)  | 2)  | 3)  |    |    |      |
| 25   | 19.6 | 26.5 | 4  | 175 | 87.5 | 25 | 108.8 | 30  | –   | 50 | 105 | 88  | 101 | –   | 13 | 2  | 7.5  |
| 40   | 26.5 | 37   | 5  | 250 | 126  | 31 | 170.8 | 70  | 130 | 40 | 151 | 121 | 135 | –   | 13 | 6  | 10   |
| 63   | 44.5 | 61   | 8  | 328 | 164  | 36 | 233.8 | 110 | 190 | 70 | 196 | 150 | 150 | 150 | 21 | 6  | 12.5 |

- 1) When combined with motor unit MTR-DCI with gear reduction 7:1.
- 2) When combined with motor unit MTR-DCI with gear reduction 14:1.
- 3) When combined with motor unit MTR-DCI with gear reduction 22:1.

# Positioning axes DMES, without guide

Technical data

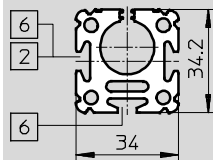
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## Dimensions

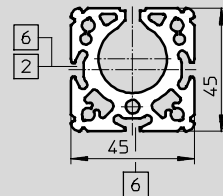
Download CAD data → [www.festo.com](http://www.festo.com)

### Profile

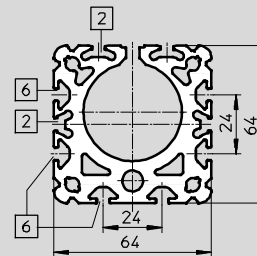
#### Size 18



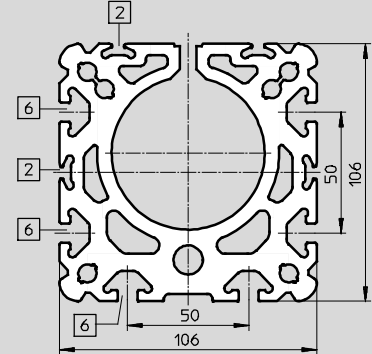
#### Size 25



#### Size 40



#### Size 63



2 Sensor slot for proximity sensor

6 Mounting slot for slot nut NST

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### Order processing for positioning axis DMES in combination with intelligent motor unit MTR-DCI

Ordering table → 15

The motor unit design must be defined separately.



Ordering table → 41

The module number of the intelligent motor unit must not be specified when ordering with order code “AX” or “U”. It is determined automatically.



#### 4 Order example

| Part No. | Type                           |
|----------|--------------------------------|
|          | Positioning axis DMES          |
| 533 700  | DMES-25-700-AX:ZUB-2S2Y1M1F    |
|          | Intelligent motor unit MTR-DCI |
| —        | MTR-DCI-42S-VCSC-EG7-R2IO      |



13

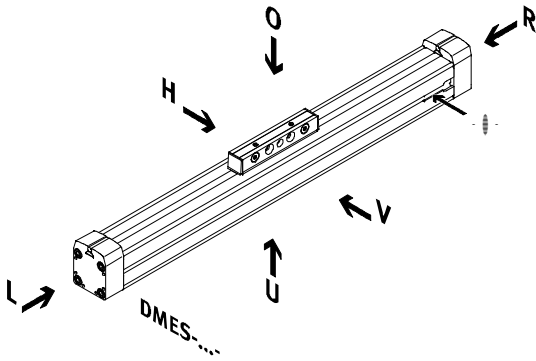
# Positioning axes DMES, without guide

Ordering data – Modular products

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## Order code

Mandatory data



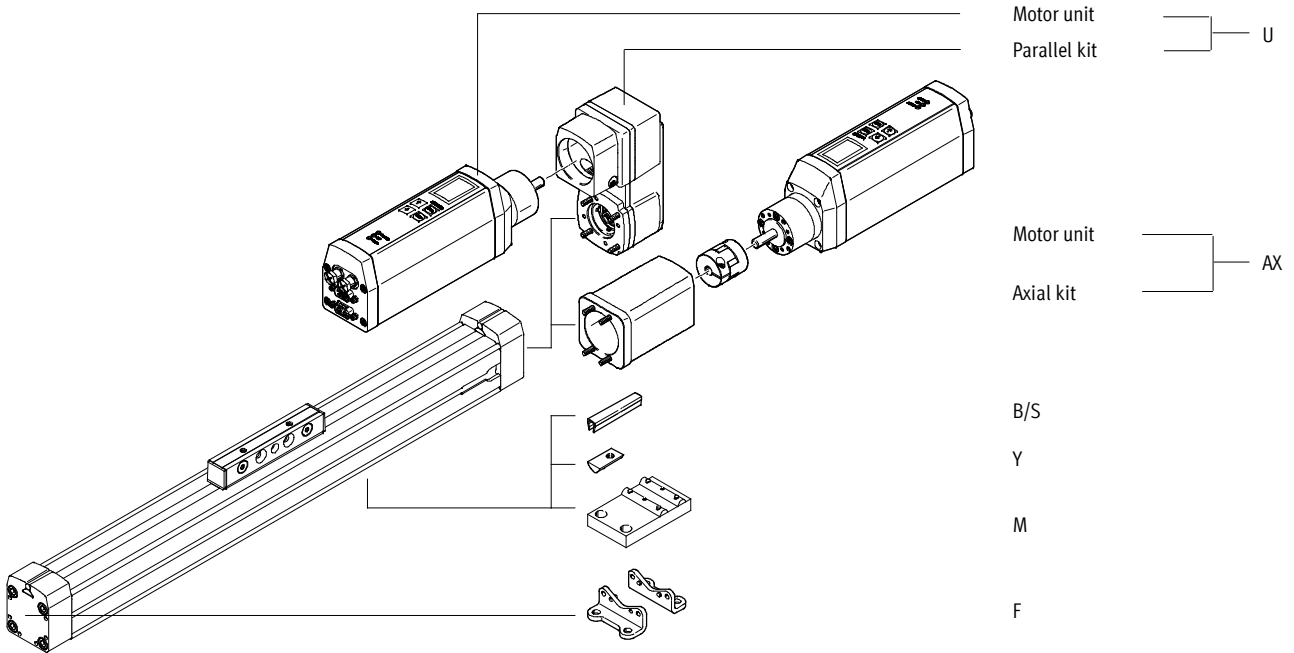
- Note

The insertion point for the proximity sensor is located on the right-hand side of the positioning axis.

O top  
U underneath  
V front  
H rear  
R right  
L left

## Order code

Options



# Positioning axes DMES, without guide

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Ordering data – Modular products

| M Mandatory data           |          |      |              | O Options  |             |                              |
|----------------------------|----------|------|--------------|------------|-------------|------------------------------|
| Module No.                 | Function | Size | Stroke       | Motor unit | Accessories | Accessories supplied loose   |
| 533 699                    | DMES     | 18   | 50 ... 1,800 | AX<br>U    |             | ...S, ...B, ...Y, ...M, ...F |
| 533 700                    |          | 25   |              |            |             |                              |
| 533 701                    |          | 40   |              |            |             |                              |
| 533 702                    |          | 63   |              |            |             |                              |
| <b>Order example</b>       |          |      |              |            |             |                              |
| 533 700                    | DMES     | - 25 | - 700        | -          | : ZUB       | - 2S2Y2M                     |
| MTR-DCI-...S-...SC-E-...IO |          |      |              |            |             |                              |

| Ordering table              |                                                   |            |              |              |                 |       |               |
|-----------------------------|---------------------------------------------------|------------|--------------|--------------|-----------------|-------|---------------|
| Size                        | 18                                                | 25         | 40           | 63           | Condi-<br>tions | Code  | Enter<br>code |
| M Module No.                | 533 699                                           | 533 700    | 533 701      | 533 702      |                 |       |               |
| Function                    | Positioning axis without guided slide             |            |              |              |                 | DMES  | DMES          |
| Size                        | 18                                                | 25         | 40           | 63           |                 | -...  |               |
| Stroke [mm]                 | 50 ... 400                                        | 50 ... 700 | 50 ... 1,200 | 50 ... 1,800 |                 | -...  |               |
| O Motor unit                | Axial kit and motor unit (enclosed separately)    |            |              |              | 1               | -AX   |               |
|                             | Parallel kit and motor unit (enclosed separately) |            |              |              | 1               | U     |               |
| Accessories                 | Supplied separately                               |            |              |              |                 | :ZUB- | :ZUB-         |
| Slot cover    Sensor slot   | 1 ... 10                                          |            |              |              |                 | ...S  |               |
| Mounting slot               | -                                                 | -          | 1 ... 10     |              |                 | ...B  |               |
| Slot nut      Mounting slot | 1 ... 10                                          |            |              |              |                 | ...Y  |               |
| Central support             | 1 ... 10                                          |            |              |              |                 | ...M  |               |
| Foot mounting               | 1 ... 10                                          |            |              |              |                 | ...F  |               |

1 AX, U Order processing for intelligent motor unit MTR-DCI → 41.

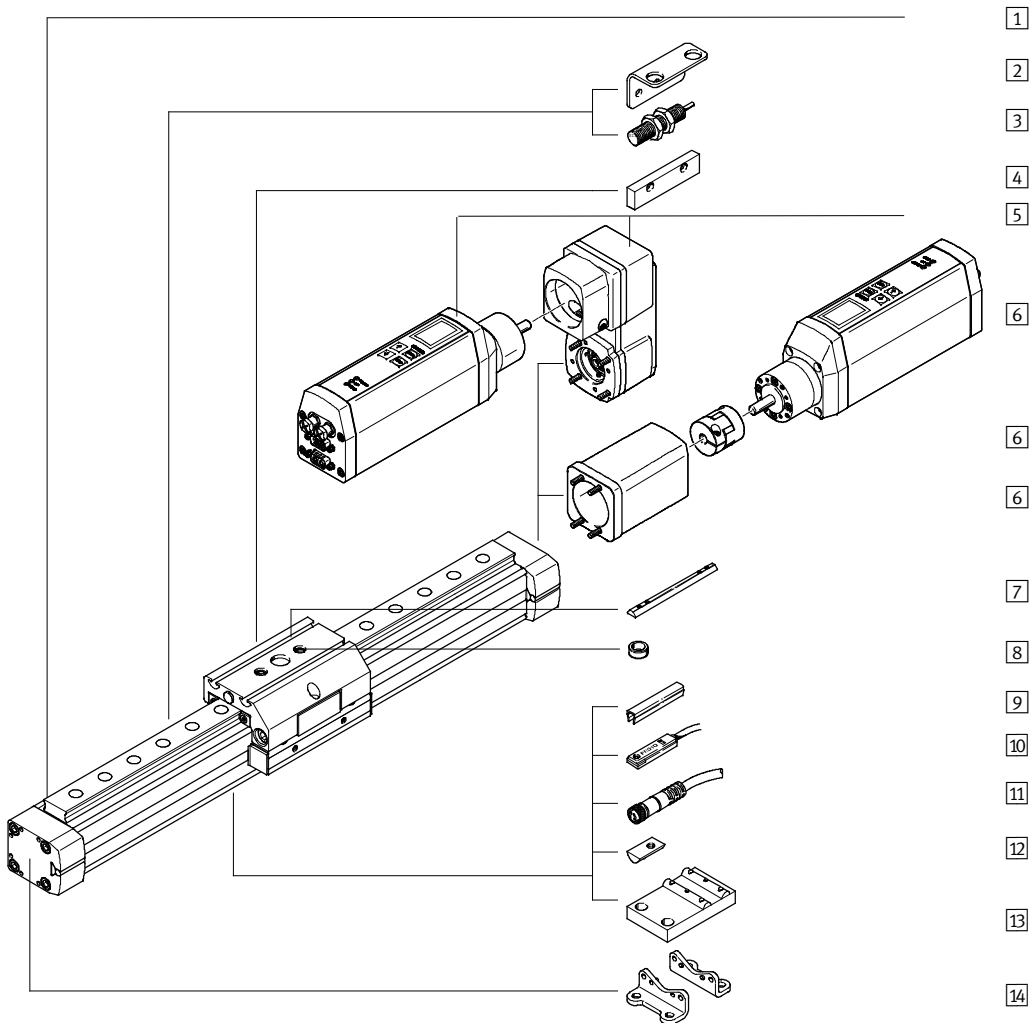
## Transfer order code

|                            |      |   |  |   |  |   |  |   |     |   |  |
|----------------------------|------|---|--|---|--|---|--|---|-----|---|--|
|                            | DMES | - |  | - |  | - |  | : | ZUB | - |  |
| MTR-DCI-...S-...SC-E-...IO |      |   |  |   |  |   |  |   |     |   |  |

# Positioning axes DMES-GF/-KF, with guide

Peripherals overview

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## Positioning axes DMES-GF/-KF, with guide

Peripherals overview

| Variants and accessories          |                                                                                                            |       |    |                 |  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|-------|----|-----------------|--|
| Type/Order code                   | Brief description                                                                                          | GK/GV | GA | → Page/Internet |  |
| 1 Positioning axis DMES           | Electromechanical axis with spindle and plain-bearing guide or recirculating ball bearing guide            | ■     | ■  | 20              |  |
| 2 Sensor retainer T               | Adapter for mounting the inductive proximity sensors on the axis                                           | ■     | –  | 47              |  |
| 3 Inductive proximity sensor SIEN | For providing a proximity signal or safety sensing                                                         | ■     | –  | 48              |  |
| 4 Switching lug L                 | For sensing the slide position with inductive proximity sensors                                            | ■     | –  | 47              |  |
| 5 Motor unit and parallel kit U   | Complete package for parallel motor attachment, comprising parallel kit and intelligent motor unit MTR-DCI | ■     | ■  | 39              |  |
| 6 Motor unit and axial kit AX     | Complete package for axial motor attachment, comprising axial kit and intelligent motor unit MTR-DCI       | ■     | ■  | 39              |  |
| 7 Slot nut for slide X            | For mounting loads and attachments on the slide                                                            | ■     | ■  | 49              |  |
| 8 Centring sleeves Z              | For centring loads and attachments on the slide                                                            | ■     | ■  | 49              |  |
| 9 Slot cover B/S                  | For protecting against ingress of dirt                                                                     | ■     | ■  | 49              |  |
| 10 Proximity sensor SMT-8         | For providing a proximity signal or safety sensing                                                         | ■     | ■  | 48              |  |
| 11 Connecting cable KM8           | For proximity sensor                                                                                       | ■     | ■  | 48              |  |
| 12 Slot nut for mounting slot Y   | For mounting attachments                                                                                   | ■     | ■  | 49              |  |
| 13 Central support M              | For mounting the axis                                                                                      | ■     | ■  | 46              |  |
| 14 Foot mounting F                | For mounting the axis (can only be attached to end cap, must be combined with central support)             | ■     | ■  | 46              |  |

GK: Standard slide  
GV: Extended slide  
GA: Protected version



Note

Servo, stepper motors and the corresponding mounting kits must be ordered separately → 42

## Positioning axes DMES-GF/-KF, with guide

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Type code

|                                  |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
|----------------------------------|----------------------------------|------|---|----|---|-----|---|----|---|----|---|----|---|--|---|----|
|                                  |                                  | DMES | - | 25 | - | 500 | - | KF | - | GK | - | SH | - |  | - | AX |
| <b>Type</b>                      |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| DMES                             | Positioning axis                 |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Size</b>                      |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Stroke [mm]</b>               |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Guide</b>                     |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| GF                               | Plain-bearing guide              |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| KF                               | Recirculating ball bearing guide |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Slide</b>                     |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| GK                               | Standard slide                   |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| GV                               | Extended slide                   |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| GA                               | Protected version                |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Slide attachment position</b> |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| SV                               | Front                            |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| SH                               | Rear                             |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Additional slide</b>          |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| KL                               | Left                             |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| KR                               | Right                            |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| <b>Motor unit</b>                |                                  |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| AX                               | Motor unit and axial kit         |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |
| U                                | Motor unit and parallel kit      |      |   |    |   |     |   |    |   |    |   |    |   |  |   |    |

## Positioning axes DMES-GF/-KF, with guide

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Type code

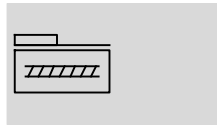
|                         |                                 | : ZUB | - |  | 2X | 2M |  | Z | 2T | L |
|-------------------------|---------------------------------|-------|---|--|----|----|--|---|----|---|
| <b>Accessories</b>      |                                 |       |   |  |    |    |  |   |    |   |
| ZUB                     | Accessories supplied loose      |       |   |  |    |    |  |   |    |   |
| <b>Slot cover</b>       |                                 |       |   |  |    |    |  |   |    |   |
| ...S                    | Sensor slot                     |       |   |  |    |    |  |   |    |   |
| ...B                    | Mounting slot                   |       |   |  |    |    |  |   |    |   |
| <b>Slot nut</b>         |                                 |       |   |  |    |    |  |   |    |   |
| ...Y                    | For mounting slot               |       |   |  |    |    |  |   |    |   |
| ...X                    | For slide                       |       |   |  |    |    |  |   |    |   |
| <b>Central support</b>  |                                 |       |   |  |    |    |  |   |    |   |
| ...M                    | Central support                 |       |   |  |    |    |  |   |    |   |
| <b>Foot mounting</b>    |                                 |       |   |  |    |    |  |   |    |   |
| ...F                    | Foot mounting                   |       |   |  |    |    |  |   |    |   |
| <b>Centring sleeves</b> |                                 |       |   |  |    |    |  |   |    |   |
| ...Z                    | For slide                       |       |   |  |    |    |  |   |    |   |
| <b>Mounting bracket</b> |                                 |       |   |  |    |    |  |   |    |   |
| ...T                    | For inductive proximity sensors |       |   |  |    |    |  |   |    |   |
| <b>Switching lug</b>    |                                 |       |   |  |    |    |  |   |    |   |
| L                       | Switching lug                   |       |   |  |    |    |  |   |    |   |

# Positioning axes DMES-GF/-KF, with guide

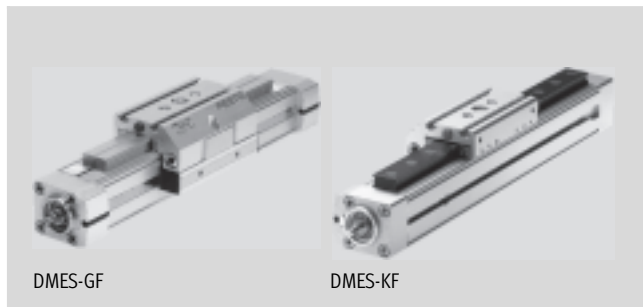
FESTO

Technical data

Function



- - Size  
18 ... 63
- - Stroke length  
50 ... 1,800 mm



| General technical data                    |                     |                                                              |            |              |              |
|-------------------------------------------|---------------------|--------------------------------------------------------------|------------|--------------|--------------|
| Size                                      |                     | 18                                                           | 25         | 40           | 63           |
| Design                                    |                     | Electromechanical linear axis with lead-screw spindle        |            |              |              |
| Guide                                     |                     | With plain-bearing guide or recirculating ball bearing guide |            |              |              |
| Assembly position                         |                     | Any                                                          |            |              |              |
| Working stroke                            | [mm]                | 50 ... 400                                                   | 50 ... 700 | 50 ... 1,200 | 50 ... 1,800 |
| Max. feed force F <sub>x</sub>            | [N]                 | 240                                                          | 500        | 1,000        | 3,000        |
| Max. driving torque                       | [Nm]                | 0.3                                                          | 0.9        | 3            | 14           |
| Max. no-load driving torque <sup>1)</sup> | [Nm]                | 0.07                                                         | 0.2        | 0.45         | 1.1          |
| Max. radial force <sup>2)</sup>           | [N]                 | 40                                                           | 75         | 250          | 800          |
| Max. speed                                | [m/s]               | 0.05                                                         |            |              |              |
| Max. acceleration                         | [m/s <sup>2</sup> ] | 2.5                                                          |            |              |              |
| Repetition accuracy                       | [mm]                | ±0.05                                                        |            |              | ±0.07        |
| Positioning rigidity                      | [N/mm]              | 1,700                                                        | 2,300      | 4,200        | 5,600        |
| Duty cycle                                | [%]                 | 100                                                          |            |              |              |
| Reversing backlash <sup>3)</sup>          | [mm]                | < 0.1                                                        |            |              |              |

- 1) Measured at a speed of 200 rpm.  
 2) On drive shaft  
 3) In new condition

| Operating and environmental conditions |      |           |
|----------------------------------------|------|-----------|
| Ambient temperature <sup>1)</sup>      | [°C] | 0 ... +50 |
| Protection class                       |      | IP40      |

- 1) Note operating range of proximity sensors

| Weights [kg]                                |       |       |       |       |       |       |       |       |       |
|---------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size                                        |       | 18    |       | 25    |       | 40    |       | 63    |       |
| Guide type                                  |       | GF    | KF    | GF    | KF    | GF    | KF    | GF    | KF    |
| Basic weight with 0 mm stroke <sup>1)</sup> | GK    | 0.77  | 0.93  | 1.52  | 1.70  | 4.11  | 5.06  | 13.31 | 16.48 |
|                                             | GV    | 1.16  | 1.37  | 2.34  | 2.61  | 6.53  | 8.06  | 21.75 | 27.14 |
|                                             | GA    | 1.49  | 1.65  | 2.73  | 2.90  | 7.15  | 8.14  | –     | –     |
| Additional weight per 100 mm stroke         | GK    | 0.238 | 0.294 | 0.466 | 0.547 | 0.841 | 1.170 | 2.079 | 2.958 |
|                                             | GV    | 0.238 | 0.294 | 0.466 | 0.547 | 0.841 | 1.170 | 2.079 | 2.958 |
|                                             | GA    | 0.313 | 0.369 | 0.556 | 0.638 | 0.965 | 1.294 | –     | –     |
| Moving load                                 | GK    | 0.29  | 0.38  | 0.55  | 0.66  | 1.49  | 1.83  | 4.48  | 5.29  |
|                                             | GV    | 0.48  | 0.56  | 0.88  | 0.99  | 2.38  | 2.72  | 7.06  | 7.88  |
|                                             | GA    | 0.71  | 0.81  | 1.19  | 1.30  | 2.90  | 3.24  | –     | –     |
| Additional slide                            | KL/KR | –     | 0.29  | –     | 0.440 | –     | 1.21  | –     | 3.55  |

- 1) Without coupling housing

## Positioning axes DMES-GF/-KF, with guide

FESTO

Technical data

| Mass moment of inertia     |                          |                          |        |        |        |        |        |        |        |
|----------------------------|--------------------------|--------------------------|--------|--------|--------|--------|--------|--------|--------|
| Size                       |                          | 18                       |        | 25     |        | 40     |        | 63     |        |
| Guide type                 |                          | GF                       | KF     | GF     | KF     | GF     | KF     | GF     | KF     |
| $J_0$                      | GK [kg cm <sup>2</sup> ] | 0.0030                   | 0.0030 | 0.0156 | 0.0158 | 0.1865 | 0.1879 | 1.8018 | 1.8093 |
|                            | GV [kg cm <sup>2</sup> ] | 0.0048                   | 0.0049 | 0.0263 | 0.0265 | 0.3327 | 0.3340 | 3.2184 | 3.2258 |
|                            | GA [kg cm <sup>2</sup> ] | 0.0038                   | 0.0039 | 0.0209 | 0.0212 | 0.2463 | 0.2476 | –      | –      |
| $j_H$ per metre stroke     |                          | [kg cm <sup>2</sup> /m]  |        | 0.0210 |        | 0.0980 |        | 0.8400 |        |
| $j_L$ per kg working load  |                          | [kg cm <sup>2</sup> /Kg] |        | 0.0006 |        | 0.0023 |        | 0.0041 |        |
| $j_W$ for additional slide |                          | [kg cm <sup>2</sup> ]    |        | –      |        | 0.0010 |        | –      |        |

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

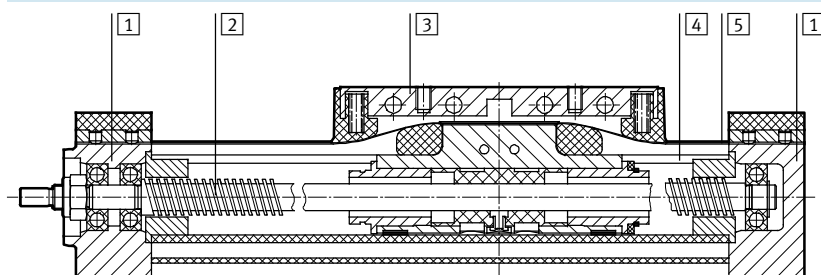
$$J_A = J_0 + j_H \times \text{working stroke [m]} + j_L \times m_{\text{working load [kg]}} + i \times j_W$$

$i$  = Number of additional slides

| Spindle  |           |     |     |    |    |
|----------|-----------|-----|-----|----|----|
| Size     |           | 18  | 25  | 40 | 63 |
| Diameter | [mm]      | 8   | 12  | 20 | 32 |
| Pitch    | [mm/rev.] | 1.5 | 2.5 | 4  | 6  |

### Materials

Sectional view



| Positioning axis |                   |                                   |
|------------------|-------------------|-----------------------------------|
| 1                | Cover             | Wrought aluminium alloy, anodised |
| 2                | Spindle           | Steel                             |
| 3                | Piston, driver    | Wrought aluminium alloy, anodised |
| 4                | Profile           | Wrought aluminium alloy, anodised |
| 5                | Cover strip       | High-alloy stainless steel        |
| –                | Guide rail for GF | Anodised aluminium                |
| –                | Guide rail for KF | Hardened steel                    |

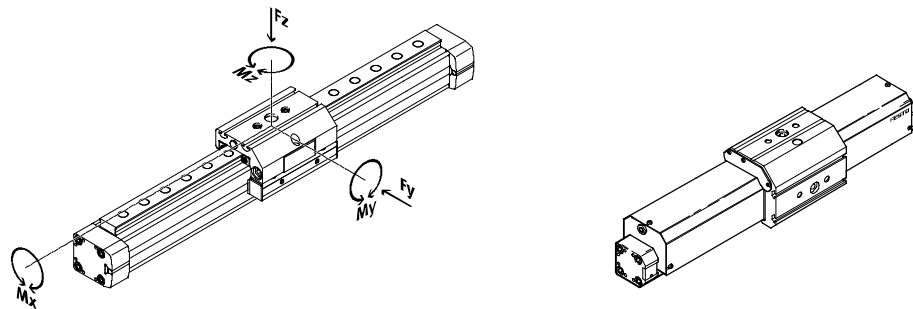
# Positioning axes DMES-GF/-KF, with guide

Technical data

FESTO

## Characteristic load values for axis with standard slide GK or protected version GA

The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.

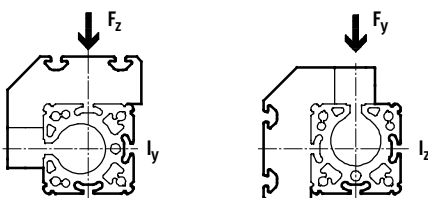


If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

$$\frac{|F_y|}{F_{y_{\max.}}} + \frac{|F_z|}{F_{z_{\max.}}} + \frac{|M_x|}{M_{x_{\max.}}} + \frac{|M_y|}{M_{y_{\max.}}} + \frac{|M_z|}{M_{z_{\max.}}} \leq 1$$

| Permissible forces and torques      |     |     |       |       |       |       |       |       |  |
|-------------------------------------|-----|-----|-------|-------|-------|-------|-------|-------|--|
| Size                                | 18  |     | 25    |       | 40    |       | 63    |       |  |
| Guide type                          | GF  | KF  | GF    | KF    | GF    | KF    | GF    | KF    |  |
| F <sub>y</sub> <sub>max.</sub> [N]  | 930 | 930 | 1,760 | 2,600 | 3,070 | 4,300 | 3,880 | 6,600 |  |
| F <sub>z</sub> <sub>max.</sub> [N]  | 930 | 930 | 1,760 | 2,600 | 4,300 | 4,300 | 6,600 | 6,600 |  |
| M <sub>x</sub> <sub>max.</sub> [Nm] | 7   | 7   | 24    | 45    | 98    | 160   | 220   | 400   |  |
| M <sub>y</sub> <sub>max.</sub> [Nm] | 23  | 23  | 52    | 85    | 210   | 330   | 580   | 910   |  |
| M <sub>z</sub> <sub>max.</sub> [Nm] | 23  | 23  | 52    | 85    | 210   | 330   | 580   | 910   |  |

## 2nd moment of area



| Size                              | 18    |       | 25    |       | 40     |        | 63     |        |  |
|-----------------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--|
| Guide type                        | GF    | KF    | GF    | KF    | GF     | KF     | GF     | KF     |  |
| I <sub>y</sub> [cm <sup>4</sup> ] | 11.19 | 14.37 | 39.10 | 47.60 | 125.38 | 176.24 | 709.04 | 992.06 |  |
| I <sub>z</sub> [cm <sup>4</sup> ] | 7.11  | 7.16  | 25.85 | 23.34 | 84.76  | 95.43  | 614.44 | 693.35 |  |

-  - Note  
Sizing software  
PositioningDrives  
→ [www.festo.com](http://www.festo.com)

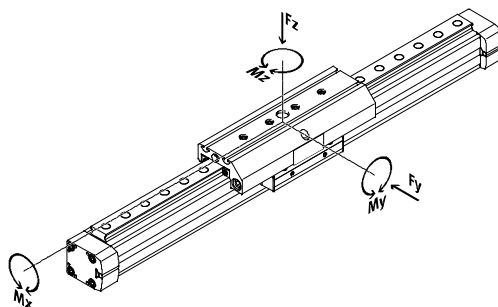
# Positioning axes DMES-GF/-KF, with guide

FESTO

Technical data

## Characteristic load values for axis with extended slide GV

The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.

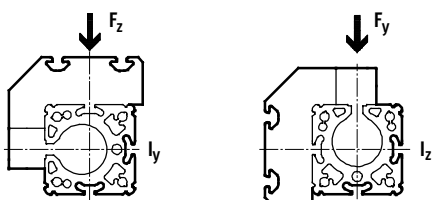


If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

$$\frac{|F_{y}|}{F_{y_{\max.}}} + \frac{|F_{z}|}{F_{z_{\max.}}} + \frac{|M_{x}|}{M_{x_{\max.}}} + \frac{|M_{y}|}{M_{y_{\max.}}} + \frac{|M_{z}|}{M_{z_{\max.}}} \leq 1$$

| Permissible forces and torques      |     |     |       |       |       |       |       |        |  |
|-------------------------------------|-----|-----|-------|-------|-------|-------|-------|--------|--|
| Size                                | 18  |     | 25    |       | 40    |       | 63    |        |  |
| Guide type                          | GF  | KF  | GF    | KF    | GF    | KF    | GF    | KF     |  |
| F <sub>y</sub> <sub>max.</sub> [N]  | 930 | 930 | 1,650 | 3,080 | 3,990 | 7,300 | 7,250 | 13,900 |  |
| F <sub>z</sub> <sub>max.</sub> [N]  | 930 | 930 | 1,650 | 3,080 | 3,990 | 7,300 | 7,250 | 14,050 |  |
| M <sub>x</sub> <sub>max.</sub> [Nm] | 7   | 7   | 23    | 45    | 89    | 170   | 290   | 580    |  |
| M <sub>y</sub> <sub>max.</sub> [Nm] | 45  | 45  | 95    | 170   | 360   | 660   | 980   | 1,820  |  |
| M <sub>z</sub> <sub>max.</sub> [Nm] | 45  | 45  | 95    | 170   | 360   | 660   | 980   | 1,820  |  |

## 2nd moment of area



| Size                              | 18    |       | 25    |       | 40     |        | 63     |        |  |
|-----------------------------------|-------|-------|-------|-------|--------|--------|--------|--------|--|
| Guide type                        | GF    | KF    | GF    | KF    | GF     | KF     | GF     | KF     |  |
| I <sub>y</sub> [cm <sup>4</sup> ] | 11.19 | 14.37 | 39.10 | 47.60 | 125.38 | 176.24 | 709.04 | 992.06 |  |
| I <sub>z</sub> [cm <sup>4</sup> ] | 7.11  | 7.16  | 25.85 | 23.34 | 84.76  | 95.43  | 614.44 | 693.35 |  |

# Positioning axes DMES-GF/-KF, with guide

Technical data

FESTO

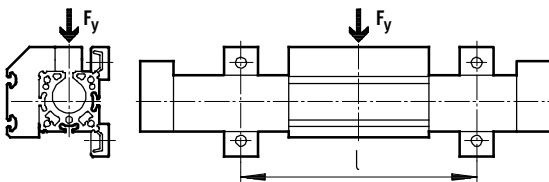
## Deflection of the positioning axis as a function of the working load $F$ and the support span $l$

The following diagrams can be used to determine the deflection of a positioning axis supported externally at

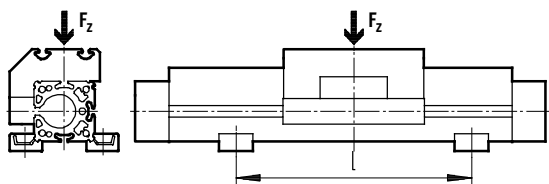
both ends (see drawing below). A differentiation is made between two load directions. The axis may also

need to be supported with central supports MUP in order to limit deflection in the case of large strokes.

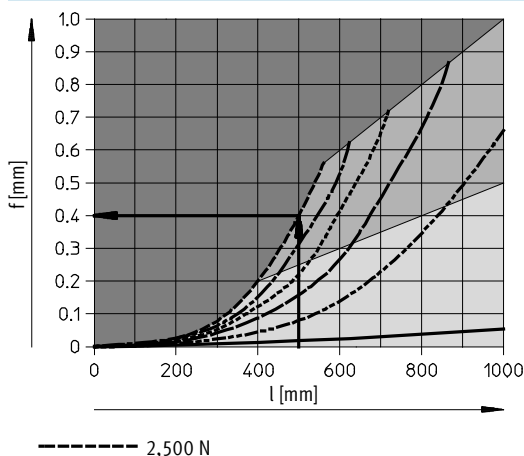
### Deflection along the y-axis



### Deflection along the z-axis



### Example showing how to determine deflection



Impermissible range:

The positioning axis may not be used.

Static range:

The slide must not be moved under load.

Static and dynamic range:

The slide must be moved under load.

#### Given:

Positioning axis  
DMES-25-700-KF...

Working stroke = 700 mm  
Total length of the positioning axis,  
dimensional drawing → 31  
700 mm + 175 mm = 875 mm  
Working load  $F$  = 2,500 N  
Support span  $l$  = 500 mm

#### To be found:

Deflection  $f$

#### Procedure:

A support span of 500 mm (see X-axis) and a working load of 2,500 N (see characteristic curve) produces a deflection of 0.4 mm.

#### Note:

The slide may not be moved under this load as the operating point is in the static area of the diagram. In order to be able to operate the slide dynamically, the support span must be reduced to 400 mm.



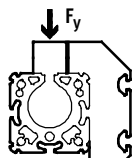
# Positioning axes DMES-GF/-KF, with guide

FESTO

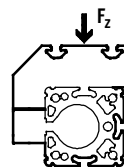
Technical data

## Deflection of the positioning axis as a function of the working load $F$ and the working stroke $l$

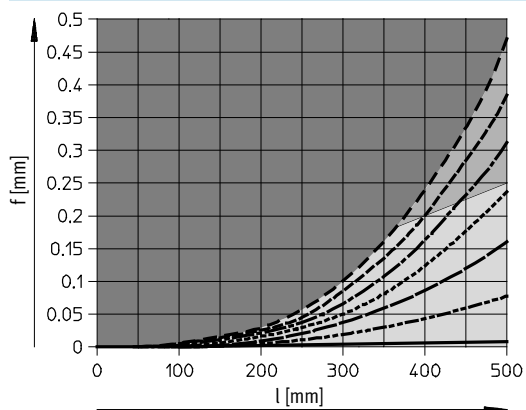
Along the y-axis



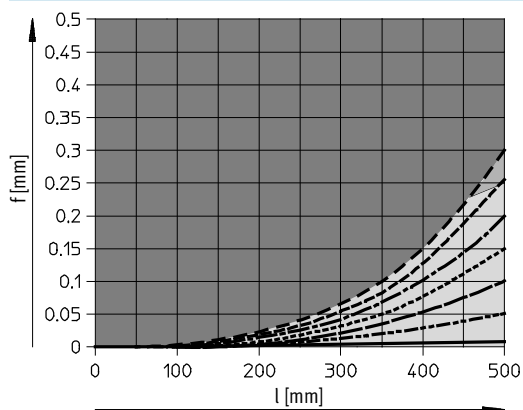
Along the z-axis



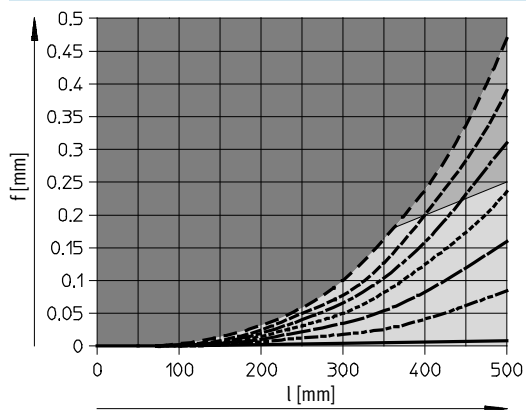
### DMES-18-GF, with plain-bearing guide



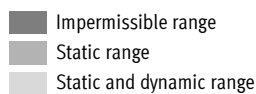
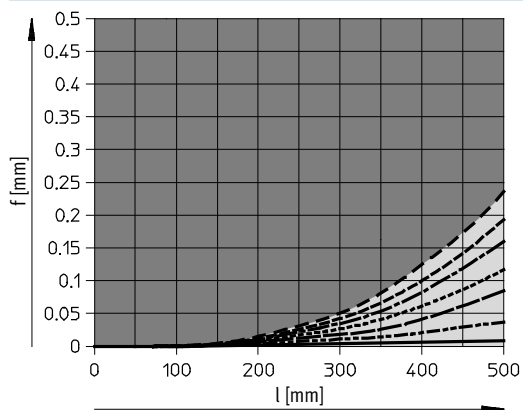
### DMES-18-GF, with plain-bearing guide



### DMES-18-KF, with recirculating ball bearing guide



### DMES-18-KF, with recirculating ball bearing guide



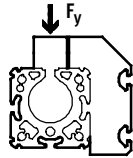
# Positioning axes DMES-GF/-KF, with guide

FESTO

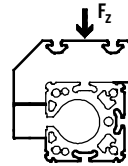
Technical data

## Deflection of the positioning axis as a function of the working load $F$ and the working stroke $l$

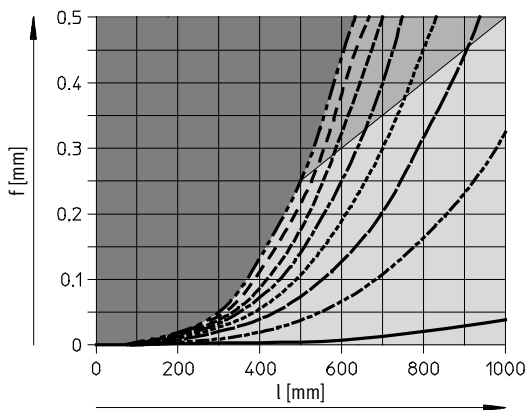
Along the y-axis



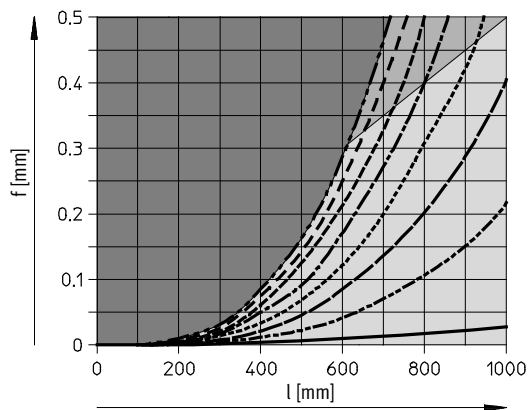
Along the z-axis



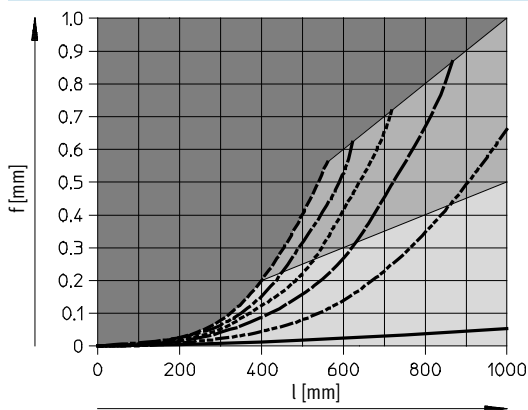
### DMES-25-GF, with plain-bearing guide



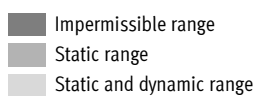
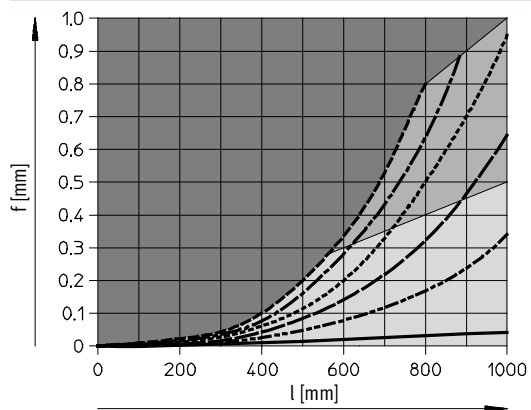
### DMES-25-GF, with plain-bearing guide



### DMES-25-KF, with recirculating ball bearing guide



### DMES-25-KF, with recirculating ball bearing guide



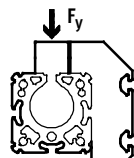
# Positioning axes DMES-GF/-KF, with guide

FESTO

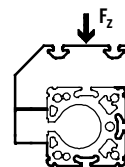
Technical data

## Deflection of the positioning axis as a function of the working load $F$ and the working stroke $l$

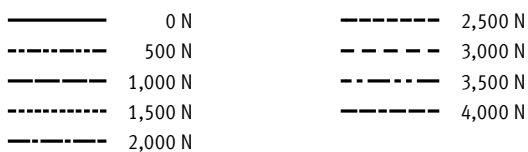
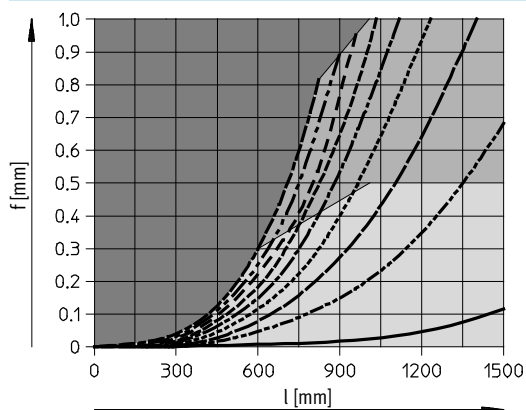
Along the y-axis



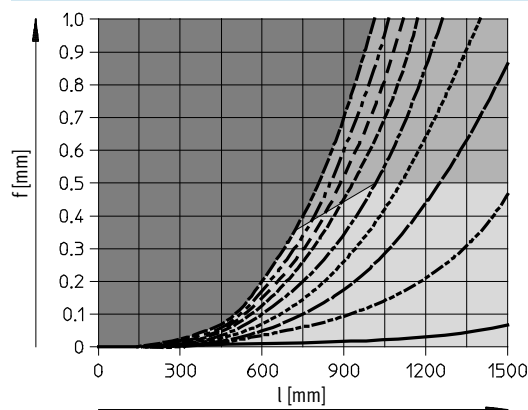
Along the z-axis



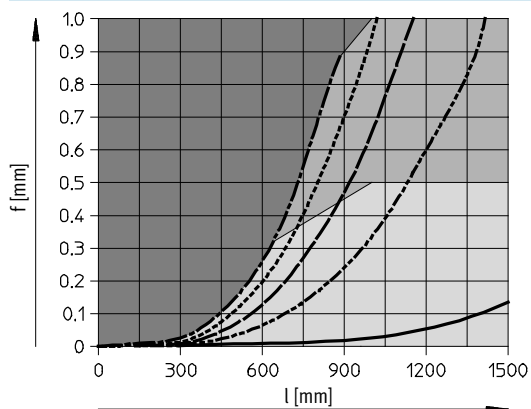
### DMES-40-GF, with plain-bearing guide



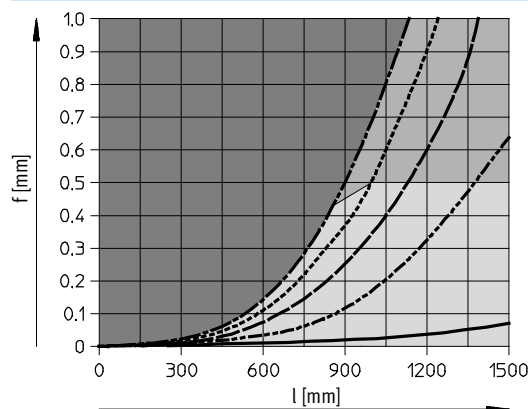
### DMES-40-GF, with plain-bearing guide



### DMES-40-KF, with recirculating ball bearing guide



### DMES-40-KF, with recirculating ball bearing guide



Impermissible range  
 Static range  
 Static and dynamic range

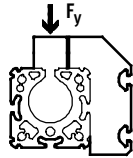
# Positioning axes DMES-GF/-KF, with guide

Technical data

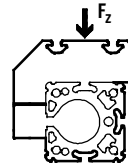
FESTO

## Deflection of the positioning axis as a function of the working load $F$ and the working stroke $l$

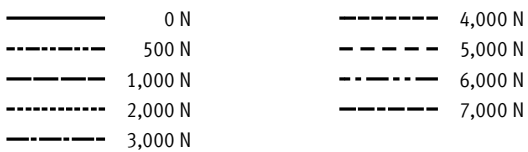
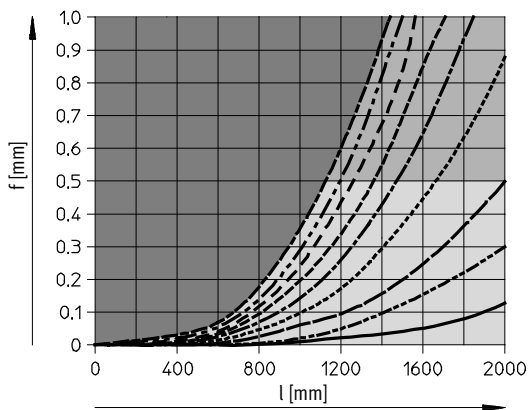
Along the y-axis



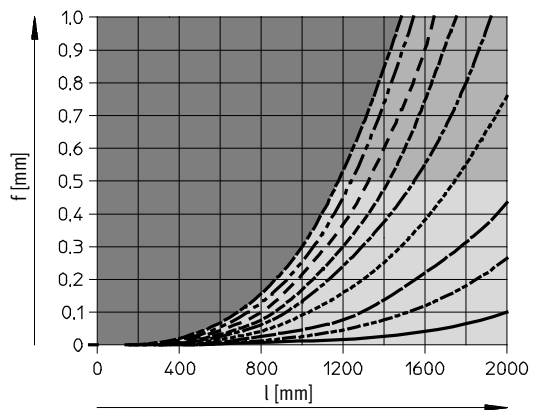
Along the z-axis



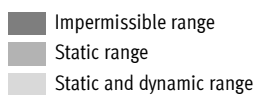
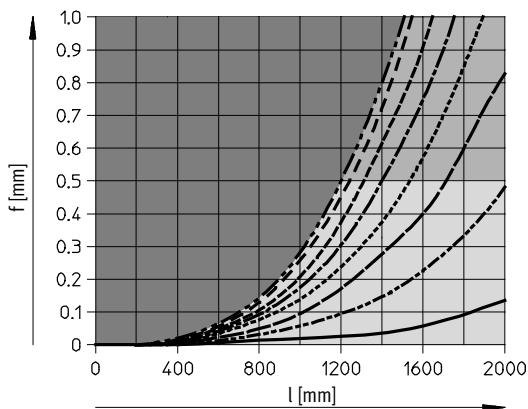
### DMES-63-GF, with plain-bearing guide



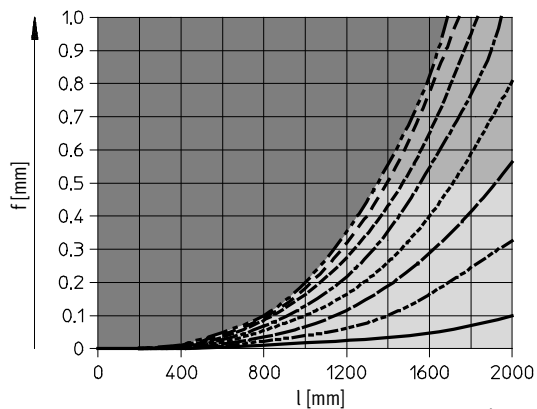
### DMES-63-GF, with plain-bearing guide



### DMES-63-KF, with recirculating ball bearing guide



### DMES-63-KF, with recirculating ball bearing guide



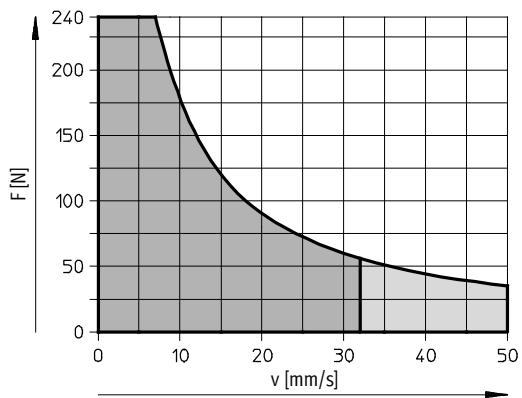
# Positioning axes DMES-GF/-KF, with guide

Technical data

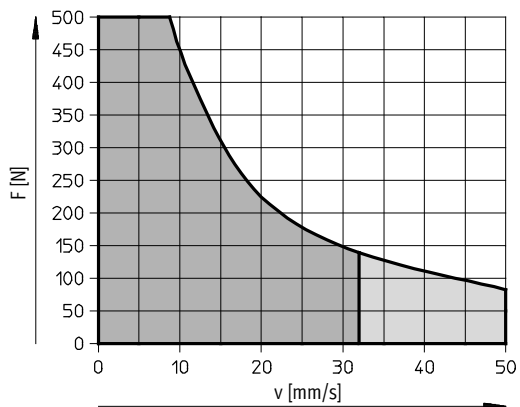
FESTO

## Maximum permissible feed force $F$ as a function of the feed speed $v$

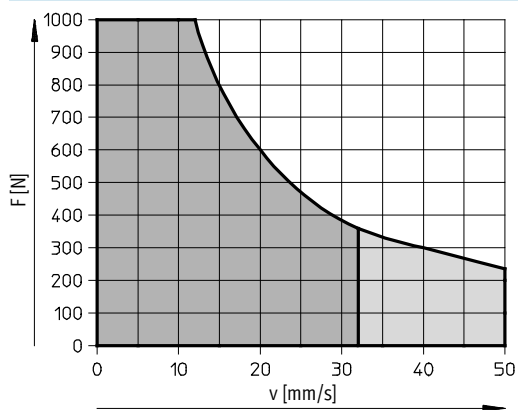
Size 18



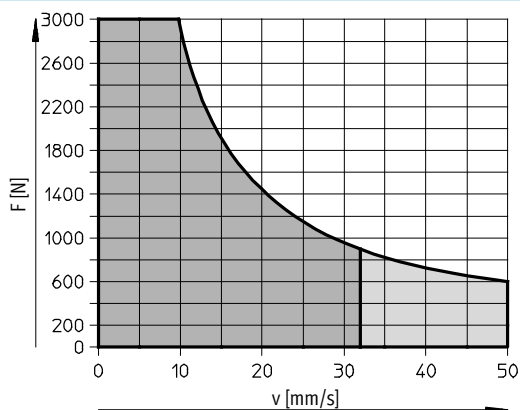
Size 25



Size 40



Size 63



- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

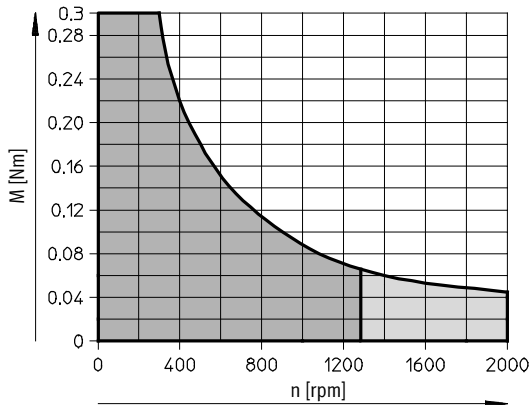
# Positioning axes DMES-GF/-KF, with guide

Technical data

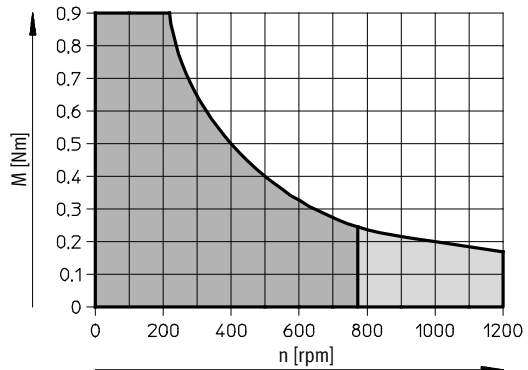
FESTO

## Maximum permissible driving torque M as a function of n (rpm)

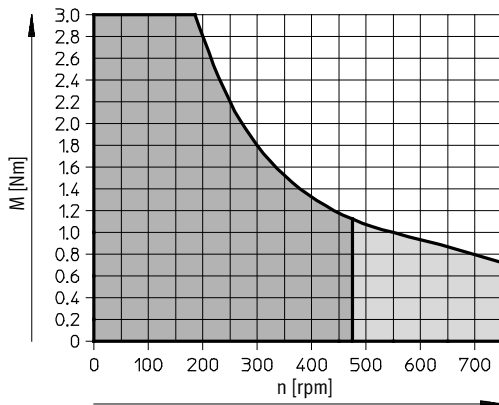
Size 18



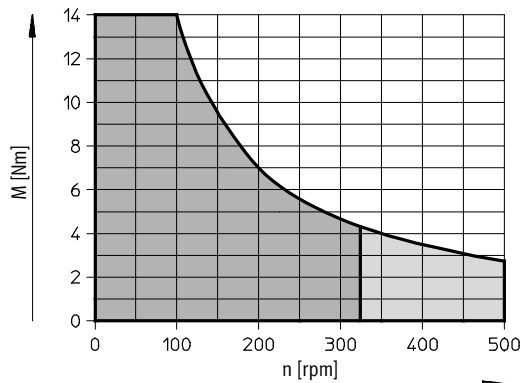
Size 25



Size 40

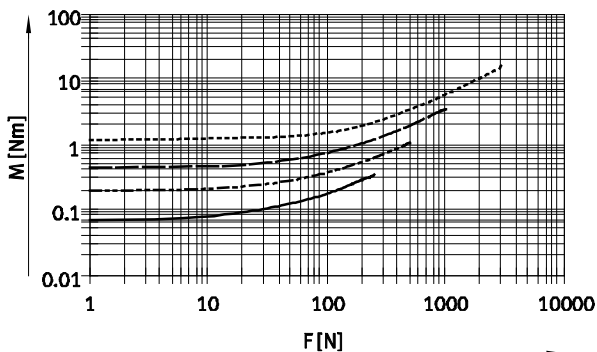


Size 63

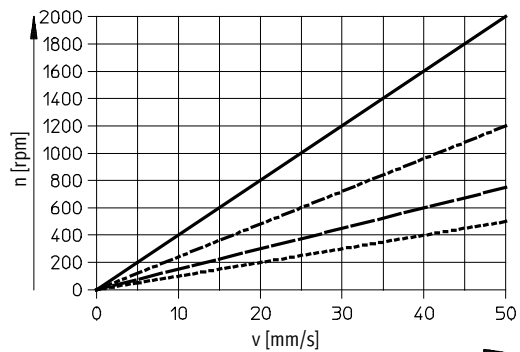


- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

## Driving torque M as a function of the feed force F



## Speed as a function of the feed speed v



- DMES-18
- - - DMES-25
- · - DMES-40
- DMES-63

# Positioning axes DMES-GF/-KF, with guide

FESTO

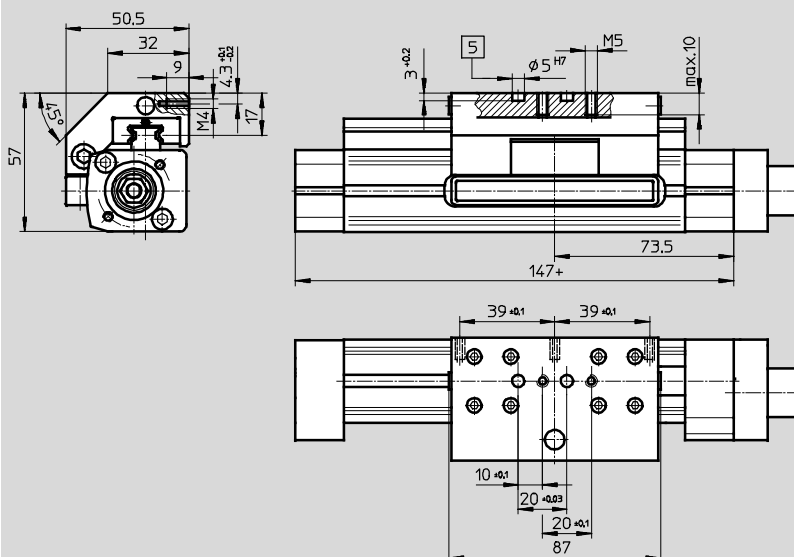
Technical data

## Dimensions

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

Standard slide GK

Size 18

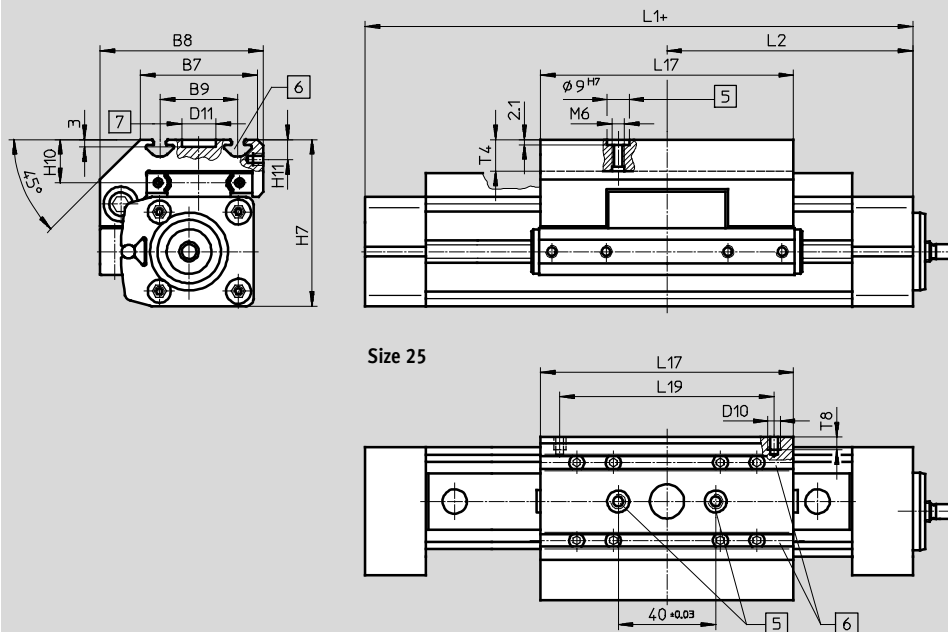


5 Hole for centring pin ZBS-5

Basic dimensions

→ 11

Size 25/40/63



5 Hole for centring pin ZBH-9

6 Mounting slot for slot nut NSTL

7 Hole for central mounting SLZZ

+ = plus stroke length

Basic dimensions

→ 11

Size 25

| Size | B7   | B8   | B9   | D10 | D11<br>Ø<br>G7 | H7    | H10  | H11  | L1  | L2   | L17 | L19  | T4   | T8   |
|------|------|------|------|-----|----------------|-------|------|------|-----|------|-----|------|------|------|
|      |      |      | ±0.2 |     |                |       |      | +0.3 |     |      |     | ±0.1 | max. |      |
| 25   | 48   | 67   | 32   | M5  | 14             | 68.5  | 18.5 | 8.2  | 175 | 87.5 | 105 | 88   | 12.5 | 8.5  |
| 40   | 78.5 | 96.5 | 55   | M5  | 25             | 90.5  | 20   | 7    | 250 | 126  | 167 | 150  | 12.5 | 8.5  |
| 63   | 121  | 142  | 90   | M8  | 25             | 144.5 | 30   | 12.5 | 328 | 164  | 230 | 200  | 20.5 | 10.5 |

# Positioning axes DMES-GF/-KF, with guide

Technical data

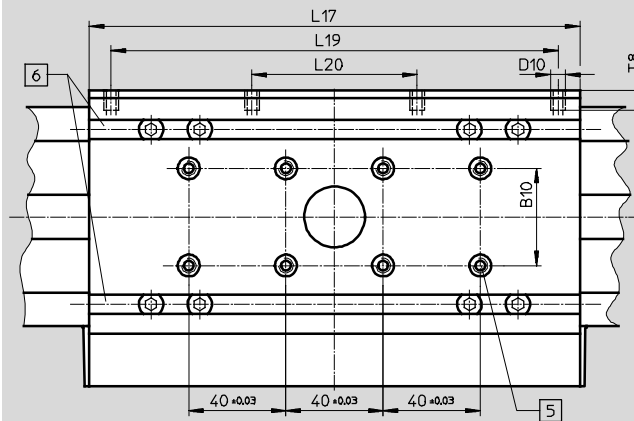
**FESTO**

## Dimensions

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

Standard slide GK

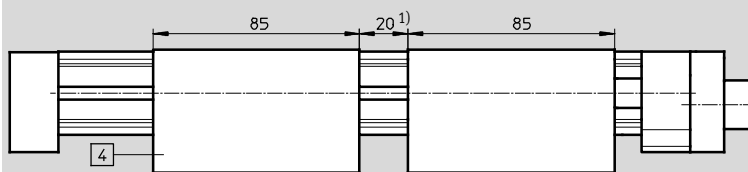
Size 40/63



- 5 Hole for centring pin ZBH-9
- 6 Mounting slot for slot nut NSTL
- + = plus stroke length

Additional slide KL/KR

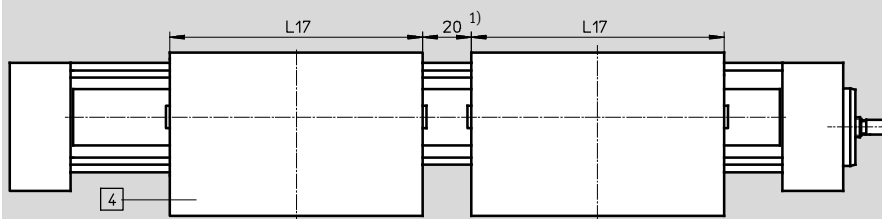
Size 18



- 4 Additional slide  
DMES-...-KL/KR

1) Recommended minimum distance for access to lubrication nipple

Size 25/40/63



- 4 Additional slide  
DMES-...-KL/KR

1) Recommended minimum distance for access to lubrication nipple

| Size | D10 | L17 | L19  | L20  | T8   |
|------|-----|-----|------|------|------|
|      |     |     | ±0.1 | ±0.1 |      |
| 25   | M5  | 105 | 88   | –    | 8.5  |
| 40   | M5  | 167 | 150  | 58   | 8.5  |
| 63   | M8  | 230 | 200  | 72   | 10.5 |



# Positioning axes DMES-GF/-KF, with guide

Technical data

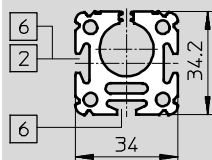
**FESTO**

## Dimensions

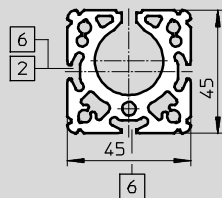
Download CAD data → [www.festo.com](http://www.festo.com)

### Profile

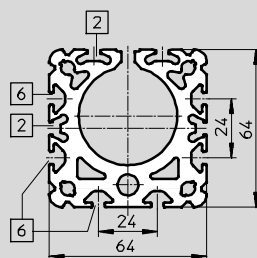
#### Size 18



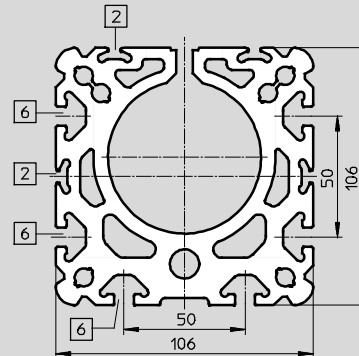
#### Size 25



#### Size 40



#### Size 63



2 Sensor slot for proximity sensor

6 Mounting slot for slot nut NST

# Positioning axes DMES-GF/-KF, with guide

Technical data

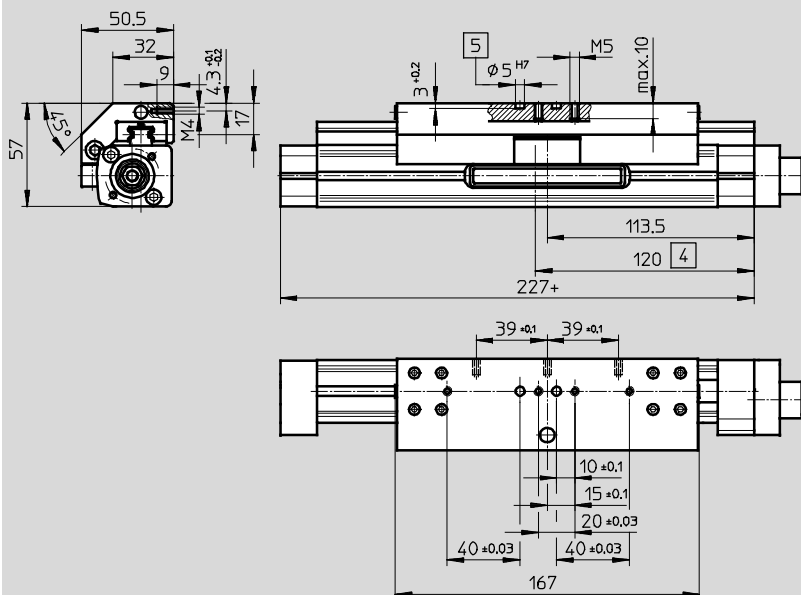
FESTO

## Dimensions

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

Extended slide GV

Size 18



- 4 Lubrication opening
- 5 Hole for centring pin ZBS-5
- + = plus stroke length

Basic dimensions

→ 11

# Positioning axes DMES-GF/-KF, with guide

Technical data

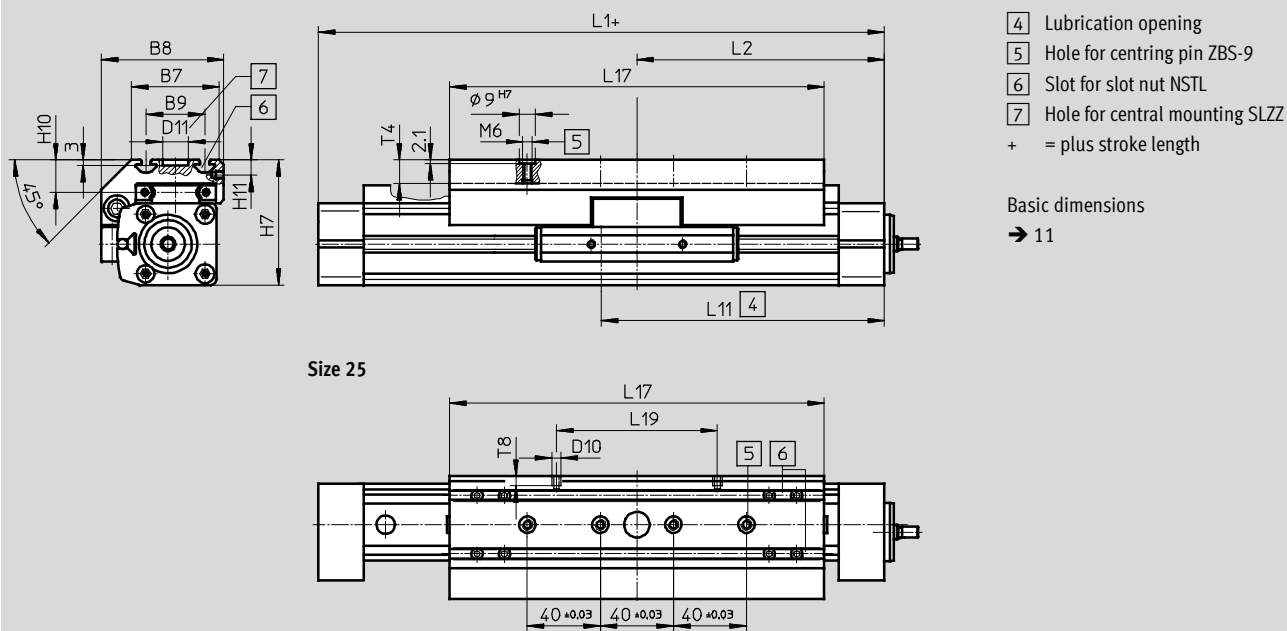
**FESTO**

## Dimensions

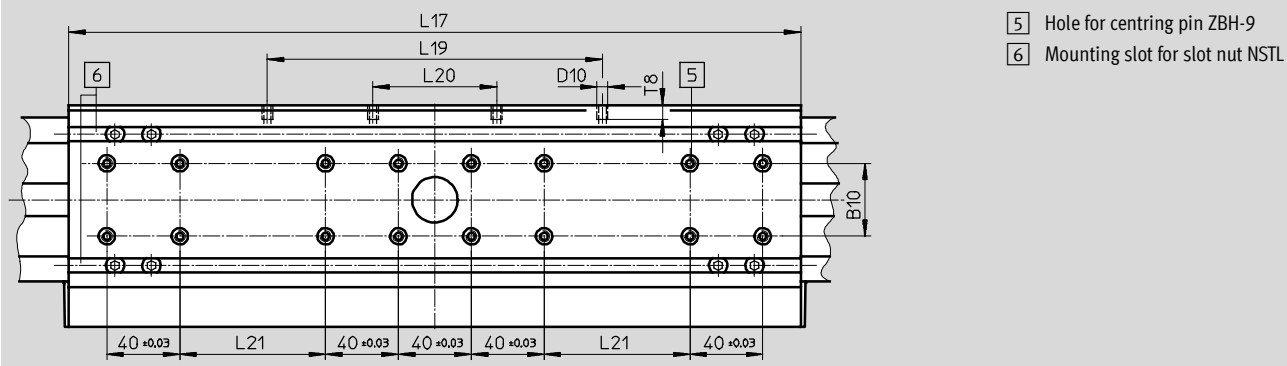
Download CAD data → [www.festo.com](http://www.festo.com)

Extended slide GV

Size 25/40/63



Size 40



| Size | B7   | B8   | B9   | B10 | D10 | D11<br>Ø<br>G7 | H7    | H10  | H11  |
|------|------|------|------|-----|-----|----------------|-------|------|------|
|      |      |      | ±0.2 |     |     |                |       |      | +0.3 |
| 25   | 48   | 67   | 32   | –   | M5  | 14             | 68.5  | 18.5 | 8.2  |
| 40   | 78.5 | 96.5 | 55   | 20  | M5  | 25             | 90.5  | 20   | 7    |
| 63   | 121  | 142  | 90   | 40  | M8  | 25             | 144.5 | 30   | 12.5 |

| Size | L1  | L2    | L11 | L17  | L19  | L20  | L21  | T4   | T8   |
|------|-----|-------|-----|------|------|------|------|------|------|
|      |     |       |     | ±0.1 | ±0.1 | ±0.1 | ±0.1 | max. |      |
| 25   | 275 | 137.5 | 155 | 205  | 88   | –    | –    | 12.5 | 8.5  |
| 40   | 420 | 211   | 236 | 337  | 150  | 58   | 40   | 12.5 | 8.5  |
| 63   | 578 | 289   | 321 | 480  | 200  | 72   | 120  | 20.5 | 10.5 |

# Positioning axes DMES-GF/-KF, with guide

Technical data

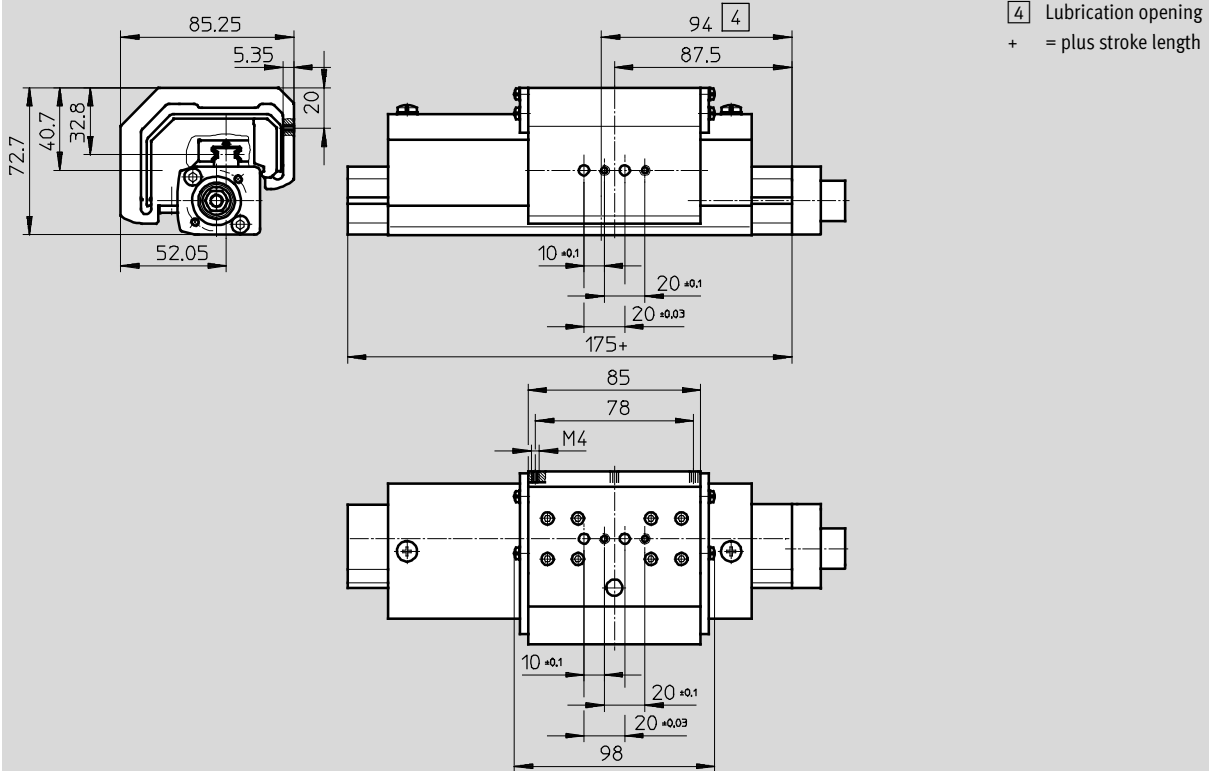
**FESTO**

## Dimensions

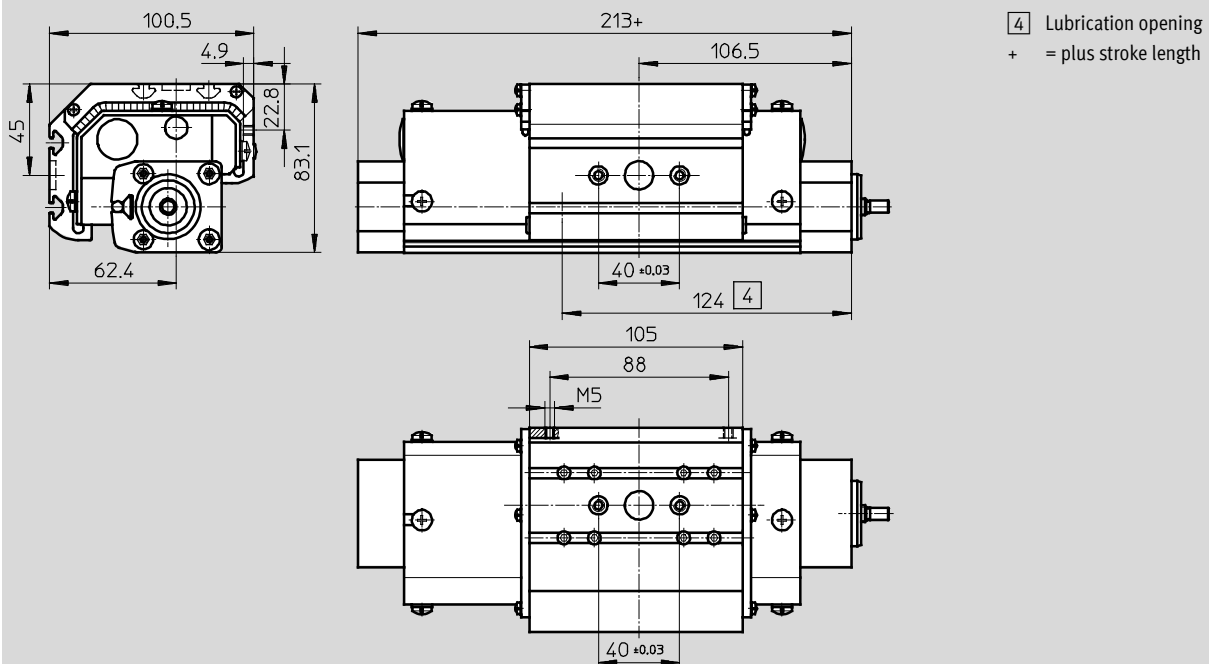
Download CAD data → [www.festo.com](http://www.festo.com)

Protected version GA

### Size 18



### Size 25



# Positioning axes DMES-GF/-KF, with guide

Technical data

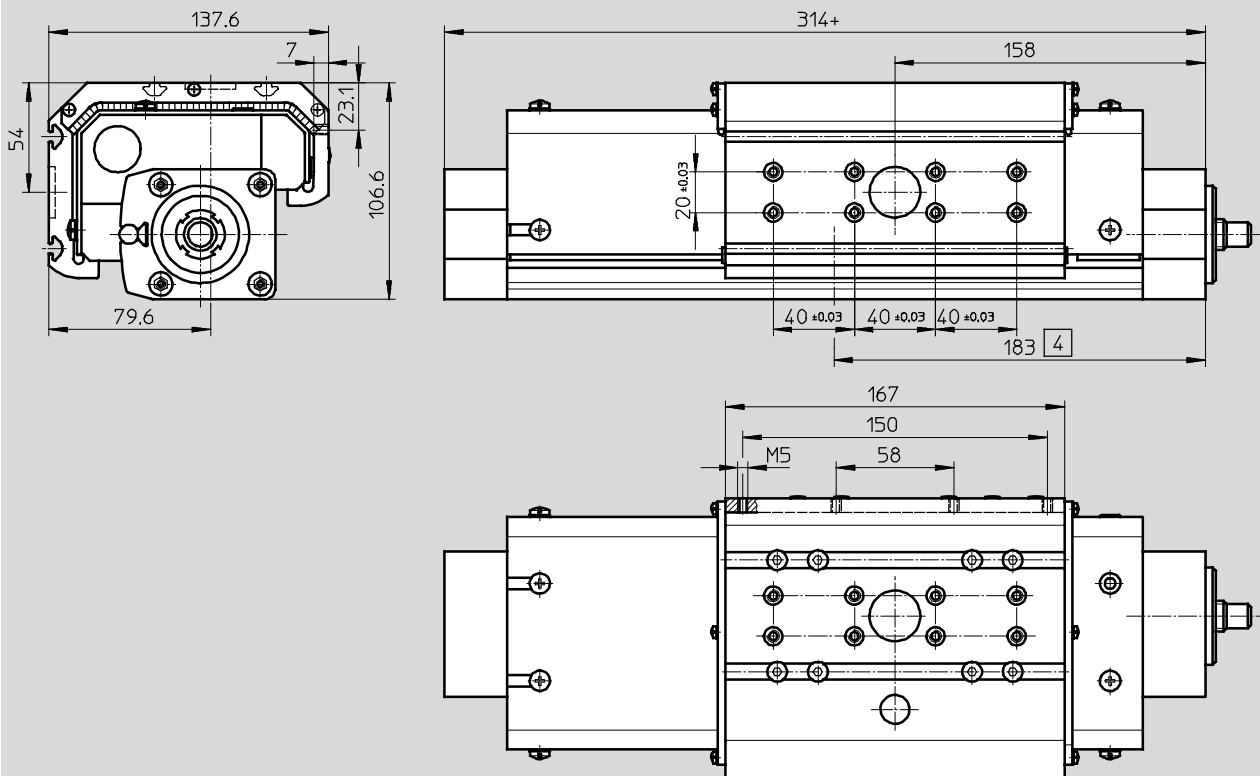
**FESTO**

## Dimensions

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

Protected version GA

Size 40



4 Lubrication opening  
+ = plus stroke length

**FESTO**

### Order processing for positioning axis DMES in combination with intelligent motor unit MTR-DCI

Ordering table → 40

The motor unit design must be defined separately.

Ordering table → 41

The module number of the intelligent motor unit must not be specified when ordering with order code “AX” or “U”. It is determined automatically.

#### 4 Order example

|          |                                      |
|----------|--------------------------------------|
| Part No. | Type                                 |
|          | Positioning axis DMES                |
| 533 700  | DMES-25-700-KF-GK-SH-AX-ZUB-2S2Y1M1F |
|          | Intelligent motor unit MTR-DCI       |
| —        | MTR-DCI-42S-VCSC-EG7-R2IO            |

Servo, stepper motors and the corresponding mounting kits must be ordered separately → 42

# Positioning axes DMES-GF/-KF, with guide

FESTO

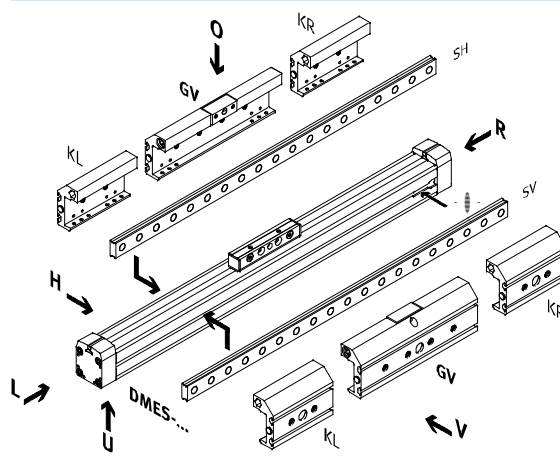
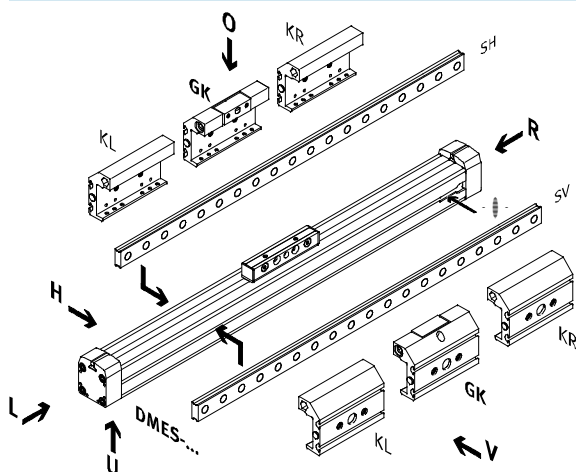
Ordering data – Modular products

## Order code

Mandatory data

DMES-...-GK

DMES-...-GV



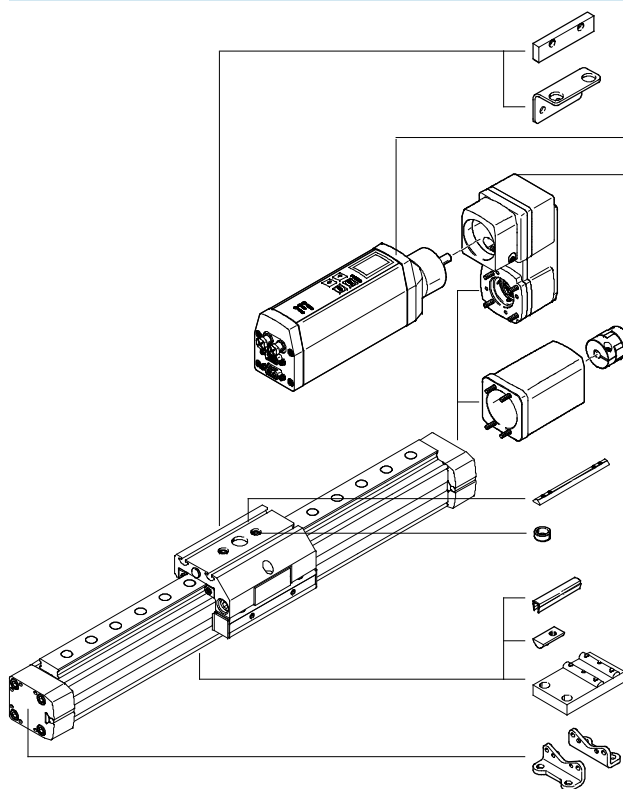
- - Note

The insertion point for the proximity sensor is located on the right-hand side of the positioning axis.

O top  
U underneath  
V front  
H rear  
R right  
L left

## Order code

Options



L

T

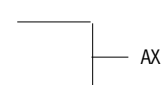
Motor unit

Parallel kit



Motor unit

Axial kit



X

Z

B/S

Y

M

F

# Positioning axes DMES-GF/-KF, with guide

FESTO

Ordering data – Modular products

| M Mandatory data             |           |              | O Options |                           |            |                            |
|------------------------------|-----------|--------------|-----------|---------------------------|------------|----------------------------|
| Module No.                   | Function  | Stroke       | Guide     | Slide attachment position | Motor unit | Accessories                |
|                              | Size      |              | Slide     | Additional slide          |            | Accessories supplied loose |
| 533 699                      | DMES 18   | 50 ... 1,800 | GF        | SV                        | AX         | ...S, ...B, ...Y,          |
| 533 700                      | 25        |              | KF        | SH                        | U          | ...X, ...M, ...F,          |
| 533 701                      | 40        |              |           |                           |            | ...Z, ...T, L              |
| 533 702                      | 63        |              |           |                           |            |                            |
| Order example                |           |              |           |                           |            |                            |
| 533 701                      | DMES - 40 | - 800        | - KF - GV | - SV - KL                 | -          | : ZUB - 2X2M20Z            |
| MTR-DCI-...S-VCSC-E...-...IO |           |              |           |                           |            |                            |

| Ordering table                                   |                                                   |            |              |              |                 |       |               |
|--------------------------------------------------|---------------------------------------------------|------------|--------------|--------------|-----------------|-------|---------------|
| Size                                             | 18                                                | 25         | 40           | 63           | Condi-<br>tions | Code  | Enter<br>code |
| M Module No.                                     | 533 699                                           | 533 700    | 533 701      | 533 702      |                 |       |               |
| Function                                         | Positioning axis with slide                       |            |              |              |                 | DMES  | DMES          |
| Size                                             | 18                                                | 25         | 40           | 63           |                 | ...   |               |
| Stroke [mm]                                      | 50 ... 400                                        | 50 ... 700 | 50 ... 1,200 | 50 ... 1,800 |                 | ...   |               |
| O Guide                                          | Plain-bearing guide                               |            |              |              | 1               | -GF   |               |
|                                                  | Recirculating ball bearing guide                  |            |              |              | 1               | -KF   |               |
| Slide                                            | Standard slide                                    |            |              |              | 2               | -GK   |               |
|                                                  | Extended slide                                    |            |              |              | 2               | -GV   |               |
|                                                  | Protected version                                 |            |              |              | 2               | -GA   |               |
| Slide attachment position                        | Slide at front                                    |            |              |              | 2               | -SV   |               |
|                                                  | Slide at rear                                     |            |              |              | 2               | -SH   |               |
| Additional slide                                 | Additional slide, standard, at left               |            |              |              | 3               | -KL   |               |
|                                                  | Additional slide, standard, at right              |            |              |              | 3               | -KR   |               |
| Motor unit                                       | Axial kit and motor unit (enclosed separately)    |            |              |              | 4               | -AX   |               |
|                                                  | Parallel kit and motor unit (enclosed separately) |            |              |              | 4               | -U    |               |
| Accessories                                      | Supplied separately                               |            |              |              |                 | :ZUB- | :ZUB-         |
| Slot cover                                       | Sensor slot                                       | 1 ... 10   |              |              |                 | ...S  |               |
|                                                  | Mounting slot                                     | -          | 1 ... 10     |              |                 | ...B  |               |
| Slot nut                                         | Mounting slot                                     | 1 ... 10   |              |              |                 | ...Y  |               |
|                                                  | Slide                                             | -          | 1 ... 10     |              | 2               | ...X  |               |
| Central support                                  | 1 ... 10                                          |            |              |              |                 | ...M  |               |
| Foot mounting                                    | 1 ... 10                                          |            |              |              |                 | ...F  |               |
| Centring sleeve (pack of 10)                     | 10 ... 90                                         |            |              |              | 2               | ...Z  |               |
| Mounting bracket for inductive proximity sensors | 1 ... 5                                           |            |              |              | 5               | ...T  |               |
| Switching lug                                    | 1                                                 |            |              |              | 5               | L     |               |

1 GF, KF Only with slide GK, GV or GA and with slide attachment position SV or SH.

2 GK, GV, GA, SV, SH, X, Z  
Only with guide GF or KF

3 KL, KR Only with guide KF (recirculating ball bearing guide) and with slide GK or GV

4 AX, U Order processing for intelligent motor unit MTR-DCI → 41

5 T, L Only with slide GK or GV

## Transfer order code

|                              |      |   |  |   |  |   |  |   |  |   |  |   |  |   |     |   |  |
|------------------------------|------|---|--|---|--|---|--|---|--|---|--|---|--|---|-----|---|--|
|                              | DMES | - |  | - |  | - |  | - |  | - |  | - |  | : | ZUB | - |  |
| MTR-DCI-...S-VCSC-E...-...IO |      |   |  |   |  |   |  |   |  |   |  |   |  |   |     |   |  |



### Accessories – Motor units MTR-DCI

### Accessories – Motor units MTR-DCI

### Accessories – Motor units MTR-DCI

### Accessories – Motor units MTR-DCI

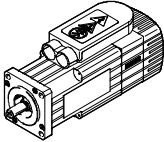
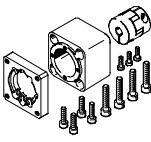
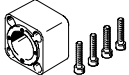
### Accessories – Motor units MTR-DCI

### Accessories – Motor units MTR-DCI

# Positioning axes DMES

Accessories

FESTO

| Permissible axis/motor combinations with axial kit – Without gear unit            |                                                                                   |                                                                                   |                                                                                     |                                                                                     | Technical data → Internet: eamm-a |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
| Motor unit                                                                        | Axial kit                                                                         | Axial kit consisting of:                                                          |                                                                                     |                                                                                     |                                   |
|                                                                                   |                                                                                   | Motor flange                                                                      | Coupling                                                                            | Coupling housing                                                                    |                                   |
|  |  |  |  |  |                                   |
| Type                                                                              | Part No.<br>Type                                                                  | Part No.<br>Type                                                                  | Part No.<br>Type                                                                    | Part No.<br>Type                                                                    |                                   |
| <b>DMES-18</b>                                                                    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| With servo motor                                                                  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>EMMS-AS-40-...</b>                                                             | 550 961<br>EAMM-A-E20-40A                                                         | 552 163<br>EAMF-A-28B-40A                                                         | 540 751<br>EAMC-15-22-5-6                                                           | 170 374<br>EAMK-A-E20-28B                                                           |                                   |
| <b>EMMS-AS-55-...</b>                                                             | 550 963<br>EAMM-A-E20-55A                                                         | 529 946<br>EAMF-A-28A/B-55A                                                       | 529 953<br>EAMC-15-22-5-9                                                           | 170 374<br>EAMK-A-E20-28B                                                           |                                   |
| With stepper motor                                                                |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>EMMS-ST-42-...</b>                                                             | 550 962<br>EAMM-A-E20-42A                                                         | 552 164<br>EAMF-A-28B-42A                                                         | 530 085<br>EAMC-15-22-5-5                                                           | 170 374<br>EAMK-A-E20-28B                                                           |                                   |
| With motor unit                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>MTR-DCI-32S-...</b>                                                            | 556 991<br>EAMM-A-E20-32B                                                         | –                                                                                 | 533 707<br>EAMC-15-20-5-6                                                           | 533 703<br>EAMK-A-E20-32B                                                           |                                   |
| <b>DMES-25</b>                                                                    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| With servo motor                                                                  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>EMMS-AS-40-...</b>                                                             | 550 964<br>EAMM-A-E32-40A                                                         | 550 985<br>EAMF-A-44A/B-40A                                                       | 123 040<br>EAMC-30-35-6-6                                                           | 124 631<br>EAMK-A-E32-44A                                                           |                                   |
| <b>EMMS-AS-55-...</b>                                                             | 550 965<br>EAMM-A-E32-55A                                                         | 529 942<br>EAMF-A-44A/B-55A                                                       | 530 941<br>EAMC-30-35-6-9                                                           | 124 631<br>EAMK-A-E32-44A                                                           |                                   |
| With stepper motor                                                                |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>EMMS-ST-57-...</b>                                                             | 550 966<br>EAMM-A-E32-57A                                                         | 530 081<br>EAMF-A-44A/B-57A                                                       | 530 087<br>EAMC-30-35-6-6.35                                                        | 124 631<br>EAMK-A-E32-44A                                                           |                                   |
| With motor unit                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                   |
| <b>MTR-DCI-42S-...G7</b>                                                          | 556 992<br>EAMM-A-E32-42B                                                         | –                                                                                 | 533 708<br>EAMC-30-32-6-8                                                           | 533 704<br>EAMK-A-E32-42B                                                           |                                   |
| <b>MTR-DCI-42S-...G14</b>                                                         | 556 993<br>EAMM-A-E32-42C                                                         | –                                                                                 | 533 708<br>EAMC-30-32-6-8                                                           | 538 578<br>EAMK-A-E32-42C                                                           |                                   |



Note

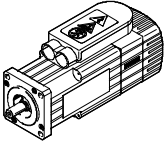
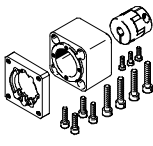
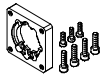
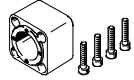
At ambient temperatures below room temperature, the frictional torques increase in the case of the DMES-...-GF (plain-bearing guide). Depending on the combination of motor/motor unit and positioning axis, it may not be possible to reach the maximum feed force of the axis.

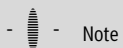
The following tool is available for sizing:  
PositioningDrives  
sizing software  
→ [www.festo.com](http://www.festo.com)

# Positioning axes DMES

Accessories

FESTO

| Permissible axis/motor combinations with axial kit – Without gear unit            |                                                                                   |                                                                                   |                                                                                     | Technical data → Internet: eamm-a                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Motor/motor unit                                                                  | Axial kit                                                                         | Axial kit consisting of:                                                          |                                                                                     |                                                                                     |
|                                                                                   |                                                                                   | Motor flange                                                                      | Coupling                                                                            | Coupling housing                                                                    |
|  |  |  |  |  |
| Type                                                                              | Part No.<br>Type                                                                  | Part No.<br>Type                                                                  | Part No.<br>Type                                                                    | Part No.<br>Type                                                                    |
| <b>DMES-40</b>                                                                    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| With servo motor                                                                  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| EMMS-AS-70-...                                                                    | 557 448<br>EAMM-A-E48-64A-70A                                                     | 529 945<br>EAMF-A-64A/B-70A                                                       | 525 864<br>EAMC-40-66-11-12                                                         | 529 940<br>EAMK-A-E48-64A                                                           |
| EMMS-AS-100-...                                                                   | 550 973<br>EAMM-A-E48-100A                                                        | 529 947<br>EAMF-A-64A/C/D-100A                                                    | 529 952<br>EAMC-40-66-12-19                                                         | 529 940<br>EAMK-A-E48-64A                                                           |
| With stepper motor                                                                |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| EMMS-ST-87-...                                                                    | 550 972<br>EAMM-A-E48-87A                                                         | 533 140<br>EAMF-A-64A/B-87A                                                       | 525 864<br>EAMC-40-66-11-12                                                         | 529 940<br>EAMK-A-E48-64A                                                           |
| With motor unit                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| MTR-DCI-52S-...-G7                                                                | 556 994<br>EAMM-A-E48-52B                                                         | –                                                                                 | 533 709<br>EAMC-42-50-12-12                                                         | 533 705<br>EAMK-A-E48-52B                                                           |
| MTR-DCI-52S-...-G14                                                               | 556 995<br>EAMM-A-E48-52C                                                         | –                                                                                 | 533 709<br>EAMC-42-50-12-12                                                         | 538 579<br>EAMK-A-E48-52C                                                           |
| <b>DMES-63</b>                                                                    |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| With servo motor                                                                  |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| EMMS-AS-70-...                                                                    | 550 975<br>EAMM-A-E72-70A                                                         | 529 945<br>EAMF-A-64A/B-70A                                                       | 550 999<br>EAMC-40-66-11-20                                                         | 529 941<br>EAMK-A-E72-64A                                                           |
| EMMS-AS-100-...                                                                   | 550 978<br>EAMM-A-E72-100A                                                        | 529 947<br>EAMF-A-64A/C/D-100A                                                    | 132 847<br>EAMC-40-66-19-20                                                         | 529 941<br>EAMK-A-E72-64A                                                           |
| With stepper motor                                                                |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| EMMS-ST-87-...                                                                    | 550 977<br>EAMM-A-E72-87A                                                         | 533 140<br>EAMF-A-64A/B-87A                                                       | 550 999<br>EAMC-40-66-11-20                                                         | 529 941<br>EAMK-A-E72-64A                                                           |
| With motor unit                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| MTR-DCI-62S-...                                                                   | 556 996<br>EAMM-A-E72-62B                                                         | –                                                                                 | 533 710<br>EAMC-42-50-14-20                                                         | 533 706<br>EAMK-A-E72-62B                                                           |



Note

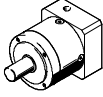
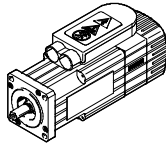
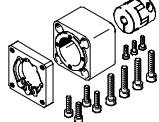
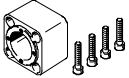
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sizing software  
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# Positioning axes DMES

Accessories

FESTO

| Permissible axis/motor combinations with axial kit – With gear unit               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | Technical data → Internet: eamm-a                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Gear unit                                                                         | Motor                                                                             | Axial kit                                                                         | Axial kit consisting of:                                                          |                                                                                     |                                                                                     |
|                                                                                   |                                                                                   |                                                                                   | Motor flange                                                                      | Coupling                                                                            | Coupling housing                                                                    |
|  |  |  |  |  |  |
| Type                                                                              | Type                                                                              | Part No.<br>Type                                                                  | Part No.<br>Type                                                                  | Part No.<br>Type                                                                    | Part No.<br>Type                                                                    |
| <b>DMES-63</b>                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| With servo motor                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| <b>EMGA-60-P-G...-SAS-70</b>                                                      | <b>EMMS-AS-70-S-...</b>                                                           | <b>550 974</b><br>EAMM-A-E72-60G                                                  | <b>550 987</b><br>EAMF-A-64A/B-60G                                                | <b>550 999</b><br>EAMC-40-66-11-20                                                  | <b>529 941</b><br>EAMK-A-E72-64A                                                    |
| <b>EMGA-80-P-G...-SAS-70</b>                                                      | <b>EMMS-AS-70-M-...</b>                                                           | <b>550 976</b><br>EAMM-A-E72-80G                                                  | <b>533 139</b><br>EAMF-A-64A/C-80G                                                | <b>123 849</b><br>EAMC-40-66-20-20                                                  | <b>529 941</b><br>EAMK-A-E72-64A                                                    |
| With stepper motor                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| <b>EMGA-80-P-G...-SST-87</b>                                                      | <b>EMMS-ST-87-L-...</b>                                                           | <b>550 976</b><br>EAMM-A-E72-80G                                                  | <b>533 139</b><br>EAMF-A-64A/C-80G                                                | <b>123 849</b><br>EAMC-40-66-20-20                                                  | <b>529 941</b><br>EAMK-A-E72-64A                                                    |



Note

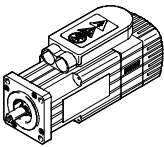
At ambient temperatures below room temperature, the frictional torques increase in the case of the DMES-...-GF (plain-bearing guide). Depending on the combination of motor/motor unit and positioning axis, it may not be possible to reach the maximum feed force of the axis.

The following tool is available for sizing:  
PositioningDrives  
sizing software  
→ [www.festo.com](http://www.festo.com)

# Positioning axes DMES

FESTO

Accessories

| Permissible axis/motor combinations with parallel kit – Without gear unit         |                                                                                    |                       | Technical data → Internet: eamm-u |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------|-----------------------------------|
| Motor/motor unit                                                                  | Parallel kit                                                                       |                       |                                   |
|  |  |                       |                                   |
| Type                                                                              | Part No.                                                                           | Type                  |                                   |
| <b>DMES-18</b>                                                                    |                                                                                    |                       |                                   |
| With servo motor                                                                  |                                                                                    |                       |                                   |
| <b>EMMS-AS-40-...</b>                                                             | <b>543 226</b>                                                                     | <b>EAMM-U-E24-40A</b> |                                   |
| With motor unit                                                                   |                                                                                    |                       |                                   |
| <b>MTR-DCI-32S-...</b>                                                            | <b>543 225</b>                                                                     | <b>EAMM-U-E24-32B</b> |                                   |
| <b>DMES-25</b>                                                                    |                                                                                    |                       |                                   |
| With servo motor                                                                  |                                                                                    |                       |                                   |
| <b>EMMS-AS-55-...</b>                                                             | <b>543 230</b>                                                                     | <b>EAMM-U-E32-55A</b> |                                   |
| With motor unit                                                                   |                                                                                    |                       |                                   |
| <b>MTR-DCI-42S-...-G7</b>                                                         | <b>543 228</b>                                                                     | <b>EAMM-U-E32-42B</b> |                                   |
| <b>MTR-DCI-42S-...-G14</b>                                                        | <b>543 229</b>                                                                     | <b>EAMM-U-E32-42C</b> |                                   |
| <b>DMES-40</b>                                                                    |                                                                                    |                       |                                   |
| With servo motor                                                                  |                                                                                    |                       |                                   |
| <b>EMMS-AS-70-...</b>                                                             | <b>543 234</b>                                                                     | <b>EAMM-U-E48-70A</b> |                                   |
| With motor unit                                                                   |                                                                                    |                       |                                   |
| <b>MTR-DCI-52S-...-G7</b>                                                         | <b>543 232</b>                                                                     | <b>EAMM-U-E48-52B</b> |                                   |
| <b>MTR-DCI-52S-...-G14</b>                                                        | <b>543 233</b>                                                                     | <b>EAMM-U-E48-52C</b> |                                   |

## Note

At ambient temperatures below room temperature, the frictional torques increase in the case of the DMES-...-GF (plain-bearing guide). Depending on the combination of motor/motor unit and positioning axis, it may not be possible to reach the maximum feed force of the axis. The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

The following tool is available for sizing:  
PositioningDrives  
sizing software  
→ [www.festo.com](http://www.festo.com)

## Positioning axes DMES

Accessories

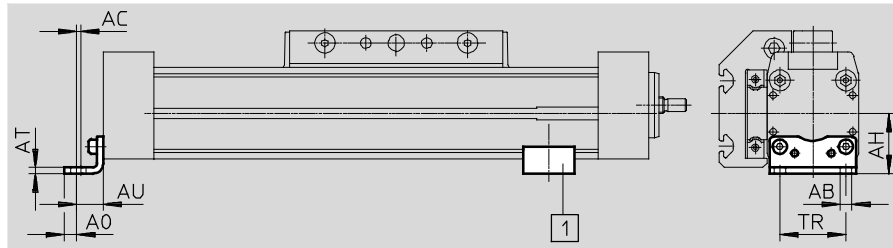
FESTO

### Foot mounting HP (order code F)

Material:  
Galvanised steel  
Free of copper, PTFE and silicone



HP-25



1 Position of the central support along the profile is freely selectable

#### Dimensions and ordering data

| For size | AB<br>Ø | AC | AH   | AO   | AT | AU   | TR   | Weight<br>[g] | Part No. | Type  |
|----------|---------|----|------|------|----|------|------|---------------|----------|-------|
| 18       | 5.5     | 2  | 24   | 4.8  | 3  | 13.2 | 24   | 59            | 158 472  | HP-18 |
| 25       | 5.5     | 2  | 29.5 | 6    | 3  | 13   | 32.5 | 61            | 150 731  | HP-25 |
| 40       | 6.6     | 2  | 46   | 8.5  | 5  | 17.5 | 45   | 188           | 150 733  | HP-40 |
| 63       | 11      | 3  | 69   | 13.5 | 6  | 28   | 75   | 305           | 150 735  | HP-63 |

### Central support MUP (order code M)

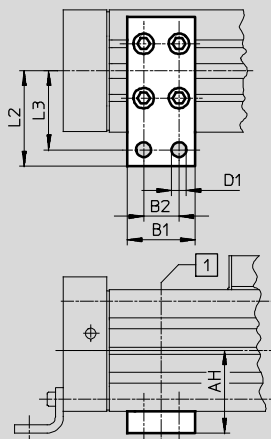
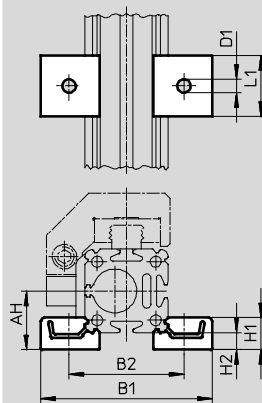
Material:  
Galvanised steel  
Free of copper, PTFE and silicone



MUP-40

#### Size 18/25

#### Size 40/63



1 Position of the central support along the profile is freely selectable

#### Dimensions and ordering data

| For size | AH   | B1   | B2 | D1<br>Ø | H1 | H2 | L1 | L2 | L3 | Weight<br>[g] | Part No. | Type      |
|----------|------|------|----|---------|----|----|----|----|----|---------------|----------|-----------|
| 18       | 24   | 70.5 | 47 | 5.5     | 13 | 7  | 25 | –  | –  | 33            | 150 736  | MUP-18/25 |
| 25       | 29.5 | 81   | 58 | 5.5     | 13 | 7  | 25 | –  | –  | 33            | 150 736  | MUP-18/25 |
| 40       | 46   | 35   | 22 | 6.6     | –  | –  | –  | 47 | 40 | 126           | 150 738  | MUP-40    |
| 63       | 69   | 50   | 26 | 11      | –  | –  | –  | 77 | 65 | 340           | 150 800  | MUP-63    |

# Positioning axes DMES

FESTO

Accessories

## Sensor bracket HWS

for inductive proximity sensors

(order code T)

Material:

Galvanised steel



## Switch lug SF

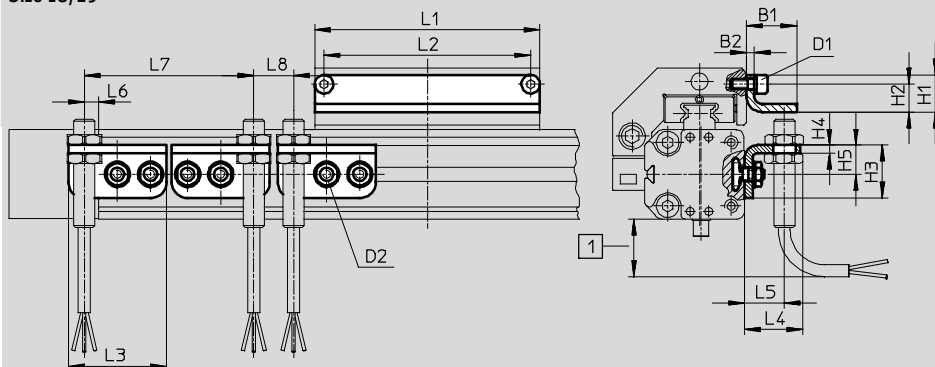
(order code L)

Material:

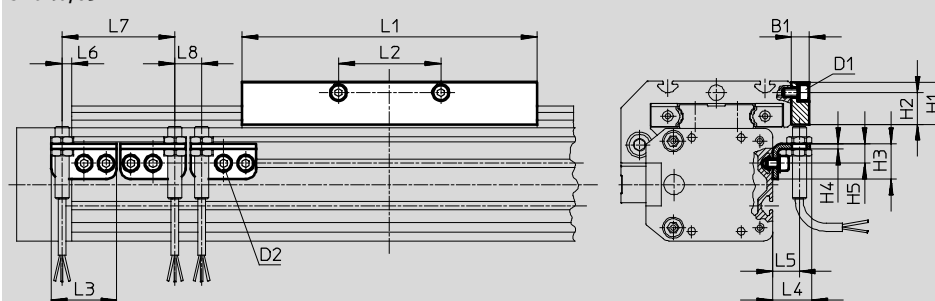
Galvanised steel



Size 18/25



Size 40/63



1 Protruding sensor cable, ensure sufficient installation space

## Dimensions and ordering data

| For size | D1 | D2 | B1 | B2 | H1   | H2   | H3 | H4 | H5 | L1  | L2 | L3 | L4   | L5 |
|----------|----|----|----|----|------|------|----|----|----|-----|----|----|------|----|
| 18       | M4 | M5 | 19 | 3  | 14   | 10.5 | 20 | 3  | 11 | 85  | 78 | 37 | 22.5 | 15 |
| 25       | M5 | M5 | 27 | 3  | 20.5 | 15.3 | 20 | 3  | 11 | 105 | 88 | 37 | 34.5 | 27 |
| 40       | M5 | M5 | 10 | –  | 24   | 18   | 20 | 3  | 11 | 167 | 58 | 37 | 22.5 | 15 |
| 63       | M8 | M5 | 10 | –  | 35   | 25   | 20 | 3  | 11 | 230 | 72 | 37 | 22.5 | 15 |

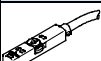
| For size | L6<br>max. | L7<br>min. | L8<br>min. | Weight<br>[g] | Part No. | Type         |
|----------|------------|------------|------------|---------------|----------|--------------|
| 18       | 5.5        | 64         | 15         | 34            | 188 968  | HWS-18/25-M8 |
|          |            |            |            | 59            | 188 964  | SF-18        |
| 25       | 5.5        | 64         | 15         | 34            | 188 968  | HWS-18/25-M8 |
|          |            |            |            | 75            | 188 965  | SF-25        |
| 40       | 5.5        | 64         | 15         | 37            | 188 969  | HWS-40-M8    |
|          |            |            |            | 328           | 188 966  | SF-40        |
| 63       | 5.5        | 64         | 15         | 45            | 188 970  | HWS-63-M8    |
|          |            |            |            | 630           | 188 967  | SF-63        |

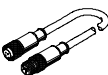
## Positioning axes DMES

Accessories

**FESTO**

| Ordering data – Inductive proximity sensors M8                                    |                       |         |                  |     |                  | Technical data ➔ Internet: sien |                 |
|-----------------------------------------------------------------------------------|-----------------------|---------|------------------|-----|------------------|---------------------------------|-----------------|
|                                                                                   | Electrical connection |         | Switching output | LED | Cable length [m] | Part No.                        | Type            |
|                                                                                   | Cable                 | Plug M8 |                  |     |                  |                                 |                 |
| N/O contact                                                                       |                       |         |                  |     |                  |                                 |                 |
|  | 3-wire                | –       | PNP              | ■   | 2.5              | 150 386                         | SIEN-M8B-PS-K-L |
|  | –                     | 3-pin   | PNP              | ■   | –                | 150 387                         | SIEN-M8B-PS-S-L |
|                                                                                   |                       |         |                  |     |                  |                                 |                 |
| N/C contact                                                                       |                       |         |                  |     |                  |                                 |                 |
|  | 3-wire                | –       | PNP              | ■   | 2.5              | 150 390                         | SIEN-M8B-PO-K-L |
|  | –                     | 3-pin   | PNP              | ■   | –                | 150 391                         | SIEN-M8B-PO-S-L |

| Ordering data – Proximity sensors for T-slot, magneto-resistive                    |                                                                                  |                  |                       |                  |          | Technical data → Internet: smt |  |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------|-----------------------|------------------|----------|--------------------------------|--|
|                                                                                    | Type of mounting                                                                 | Switching output | Electrical connection | Cable length [m] | Part No. | Type                           |  |
| N/O contact                                                                        |                                                                                  |                  |                       |                  |          |                                |  |
|  | Insertable in the slot lengthwise, flush with the cylinder profile, short design | PNP              | Plug M8x1, 3-pin      | 0.3              | 574334   | SMT-8M-A-PS-24V-E-0,3-M8D      |  |
|                                                                                    |                                                                                  |                  | Cable, 3-wire         | 2.5              | 574335   | SMT-8M-A-PS-24V-E-2,5-OE       |  |

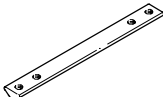
| Ordering data – Connecting cable                                                    |                         |            |                     |          | Technical data ➔ Internet: km8 |  |
|-------------------------------------------------------------------------------------|-------------------------|------------|---------------------|----------|--------------------------------|--|
|                                                                                     | Assembly                | Connection | Cable length<br>[m] | Part No. | Type                           |  |
| Straight socket                                                                     |                         |            |                     |          |                                |  |
|  | Union nut M8, both ends | 3-pin      | 0.5                 | 175 488  | KM8-M8-GSGD-0,5                |  |
|                                                                                     |                         |            | 1                   | 175 489  | KM8-M8-GSGD-1                  |  |
|                                                                                     |                         |            | 2.5                 | 165 610  | KM8-M8-GSGD-2,5                |  |
|                                                                                     |                         |            | 5                   | 165 611  | KM8-M8-GSGD-5                  |  |



# Positioning axes DMES

Accessories

**FESTO**

| Ordering data                                                                       |             |                                  | Technical data → Internet: mounting attachment |          |            |                  |
|-------------------------------------------------------------------------------------|-------------|----------------------------------|------------------------------------------------|----------|------------|------------------|
|                                                                                     | For size    | Comment                          | Order code                                     | Part No. | Type       | PU <sup>1)</sup> |
| Slot nut NST                                                                        |             |                                  |                                                |          |            |                  |
|    | 18/25       | For mounting slot                | Y                                              | 526 091  | NST-HMV-M4 | 10               |
|                                                                                     | 40          |                                  |                                                | 150 914  | NST-5-M5   | 1                |
|                                                                                     | 63          |                                  |                                                | 150 915  | NST-8-M6   | 1                |
| Slot nut NSTL                                                                       |             |                                  |                                                |          |            |                  |
|    | 25          | For slide                        | X                                              | 158 410  | NSTL-25    | 1                |
|                                                                                     | 40          |                                  |                                                | 158 412  | NSTL-40    | 1                |
|                                                                                     | 63          |                                  |                                                | 158 414  | NSTL-63    | 1                |
| Centring pin ZBS/centring sleeve ZBH                                                |             |                                  |                                                |          |            |                  |
|    | 18          | For slide                        | Z                                              | 150 928  | ZBS-5      | 10               |
|                                                                                     | 25/40/63    |                                  |                                                | 150 927  | ZBH-9      | 10               |
| Slot cover ABP                                                                      |             |                                  |                                                |          |            |                  |
|    | 40          | For mounting slot<br>every 0.5 m | B                                              | 151 681  | ABP-5      | 2                |
|                                                                                     | 63          |                                  |                                                | 151 682  | ABP-8      | 2                |
| Slot cover ABP-S                                                                    |             |                                  |                                                |          |            |                  |
|  | 18/25/40/63 | For sensor slot<br>every 0.5 m   | S                                              | 151 680  | ABP-5-S    | 2                |

1) Packaging unit