

# Positioning axes DMES



# Positioning axes DMES

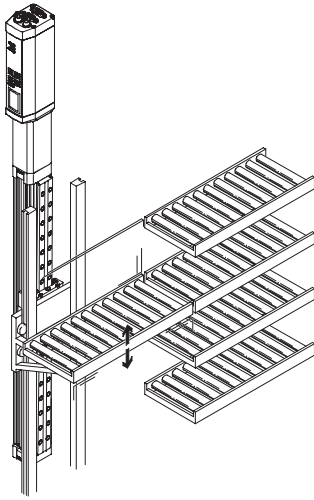
Key features

FESTO

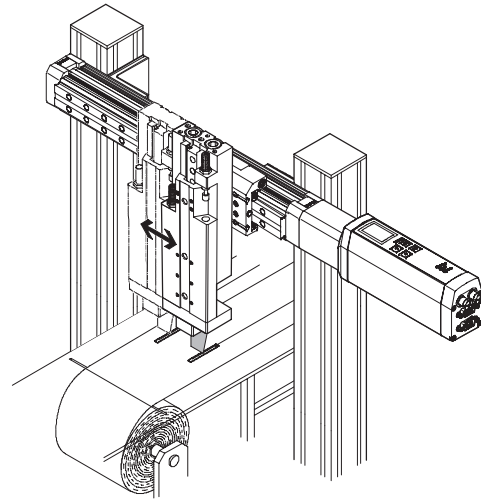
At a glance		
General	Properties	Range of applications
<p>DMES positioning axes are mechanical linear drives that are specially designed for movements involving high forces.</p> <p>The mechanical interfaces are compatible with the spindle axis DGE-SP.</p>	<ul style="list-style-type: none"> <li>• High 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



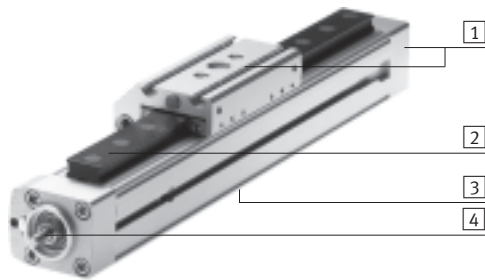
Programming formats for paper or foil cutting machines



## 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, MTR-ST      Servo motor EMMS-AS, MTR-AC

A range of specially adapted complete solutions is available for the positioning axes DMES and the motors. Two motor interfaces are available:

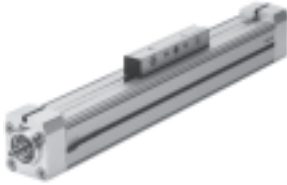
- Axial motor interface
- Parallel motor interface

# Positioning axes DMES

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

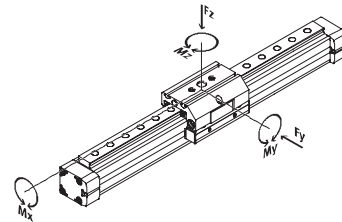
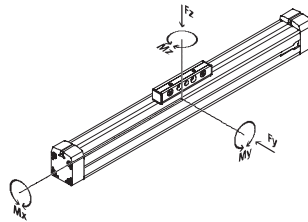


- With standard slide (GK)
- With plain or recirculating ball bearing guide as an option
- Guide and slide are fitted with a cover to protect against the ingress of particles from above and from the side

## Guide characteristics

The specifications shown in the table are maximum values.

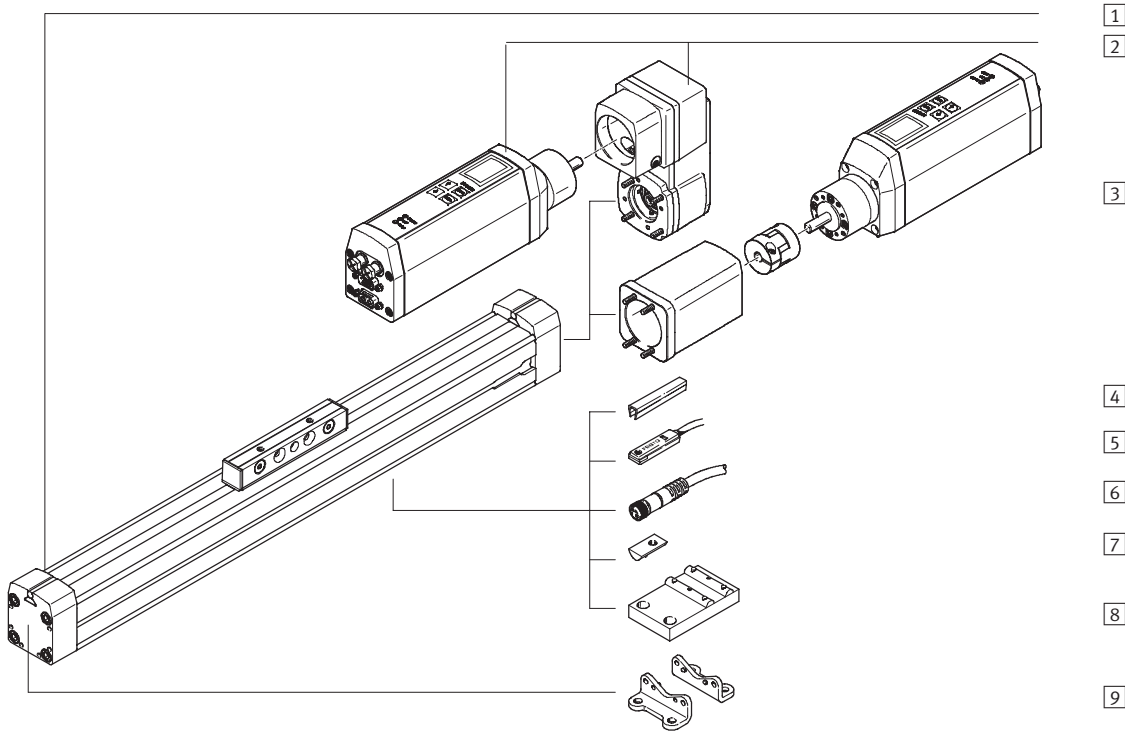
The precise values for each of the variants can be found in the relevant technical data in the catalogue.



	Size	Working stroke [mm]	Speed [m/s]	Repetition accuracy [mm]	Feed force [N]	Forces and torques					→ Page/ Internet
						Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	
<b>Basic design DMES</b>											
	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	
<b>Plain-bearing guide DMES-GF</b>											
	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	
<b>Recirculating ball bearing guide DMES-KF</b>											
	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



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	52
5 Proximity sensor SMT-8	For providing a proximity signal or safety sensing	51
6 Connecting cable KM8	For proximity sensor	51
7 Slot nut for mounting slot Y	For mounting attachments	52
8 Central support M	For mounting the axis	49
9 Foot mounting F	For mounting the axis (can only be attached to end cap, must be combined with central support)	49

**Note**

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

# Positioning axes DMES, without guide

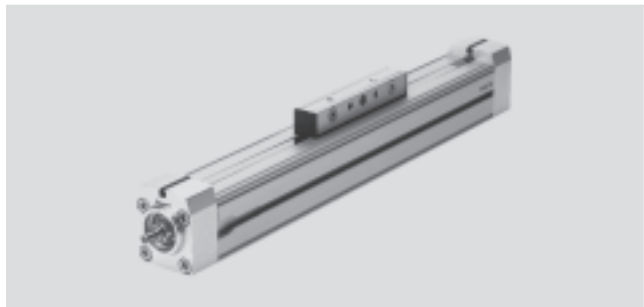
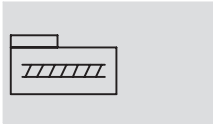
Type code

		DMES	-	25	-	500	-	AX	:	ZJB	-			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>																		
ZJB	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

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		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

Technical data

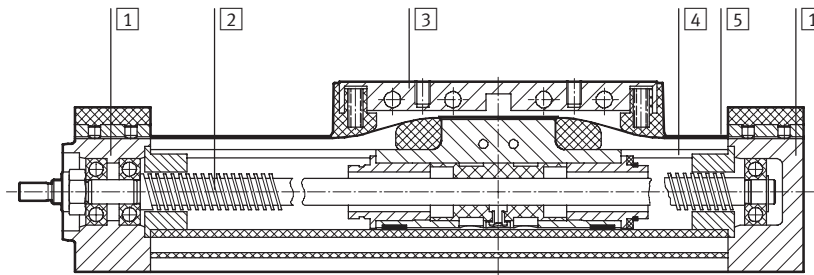
Mass moment of inertia					
Size		18	25	40	63
$J_0$	[kg cm <sup>2</sup> ]	0.0028	0.0147	0.1824	1.7747
$j_H$ per metre stroke	[kg cm <sup>2</sup> /m]	0.0210	0.0980	0.8400	5.5600
$j_L$ per kg working load	[kg cm <sup>2</sup> /Kg]	0.0006	0.0023	0.0041	0.0091

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

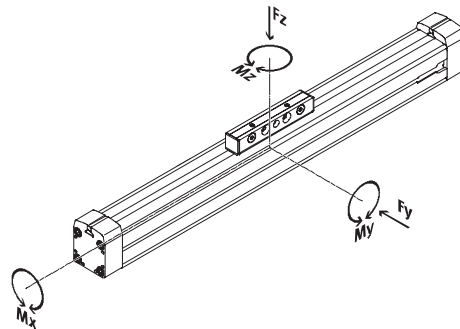
# Positioning axes DMES, without guide

Technical data

## 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.



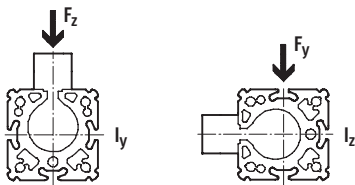
If the axis is subjected to more than two of the indicated forces simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

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


 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)

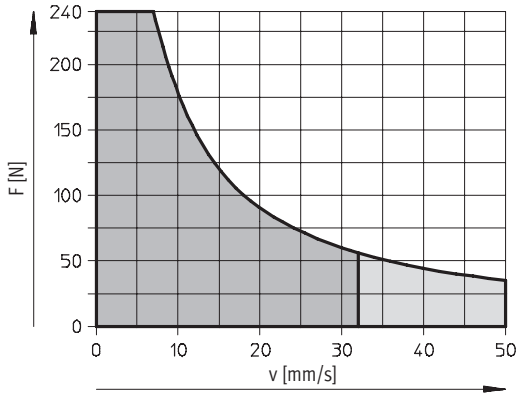


# Positioning axes DMES, without guide

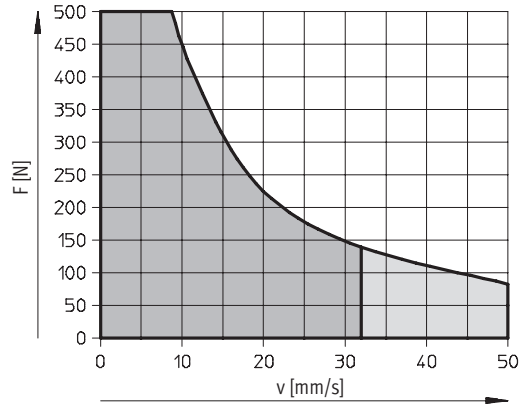
Technical data

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

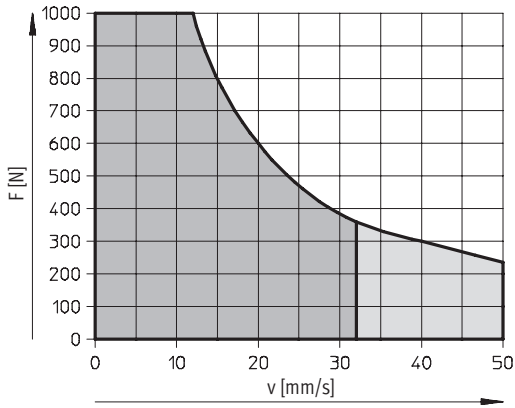
Size 18



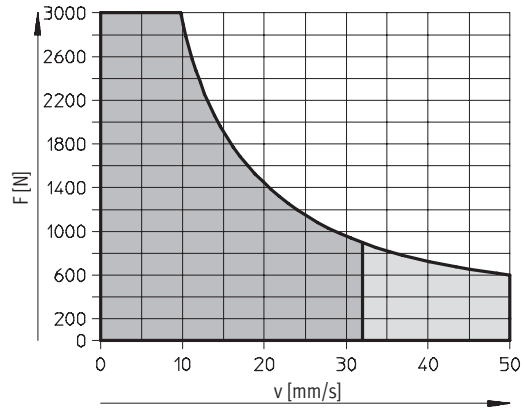
Size 25



Size 40



Size 63



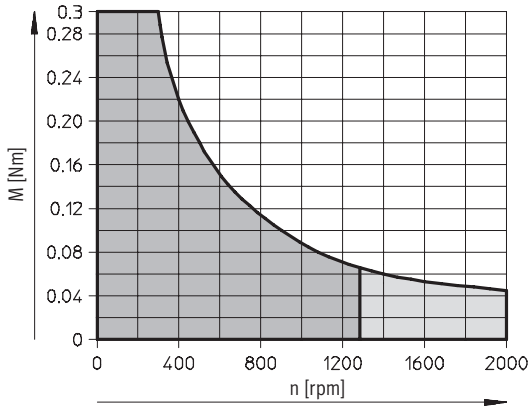
- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

# Positioning axes DMES, without guide

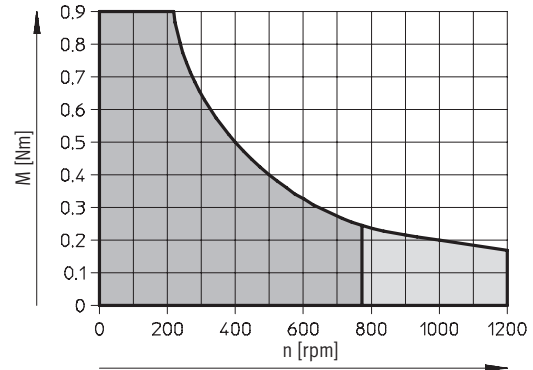
Technical data

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

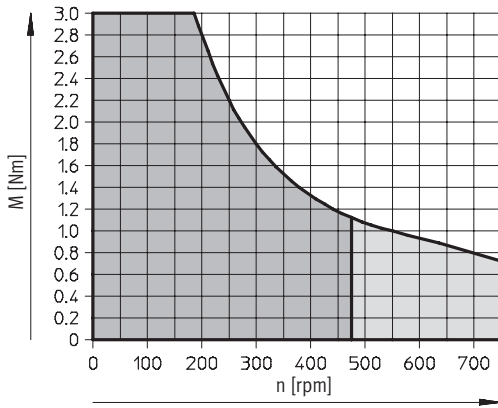
Size 18



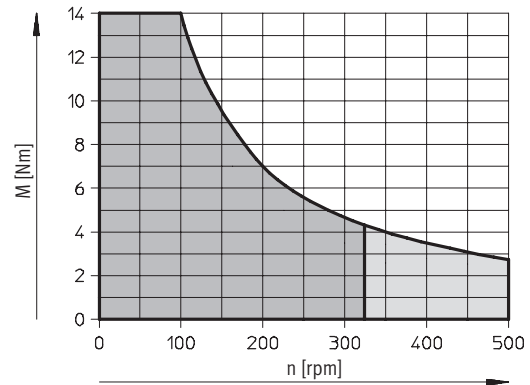
Size 25



Size 40

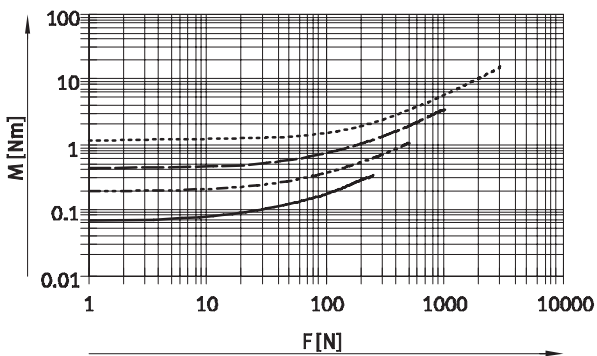


Size 63

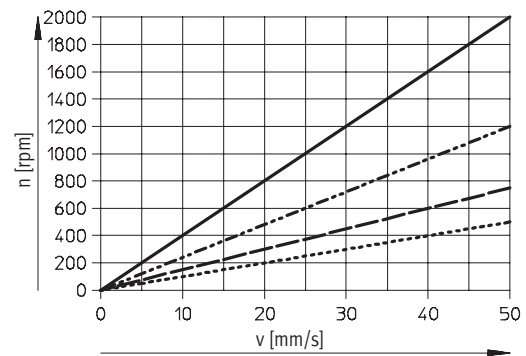


- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

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



## Speed as a function of the feed speed v

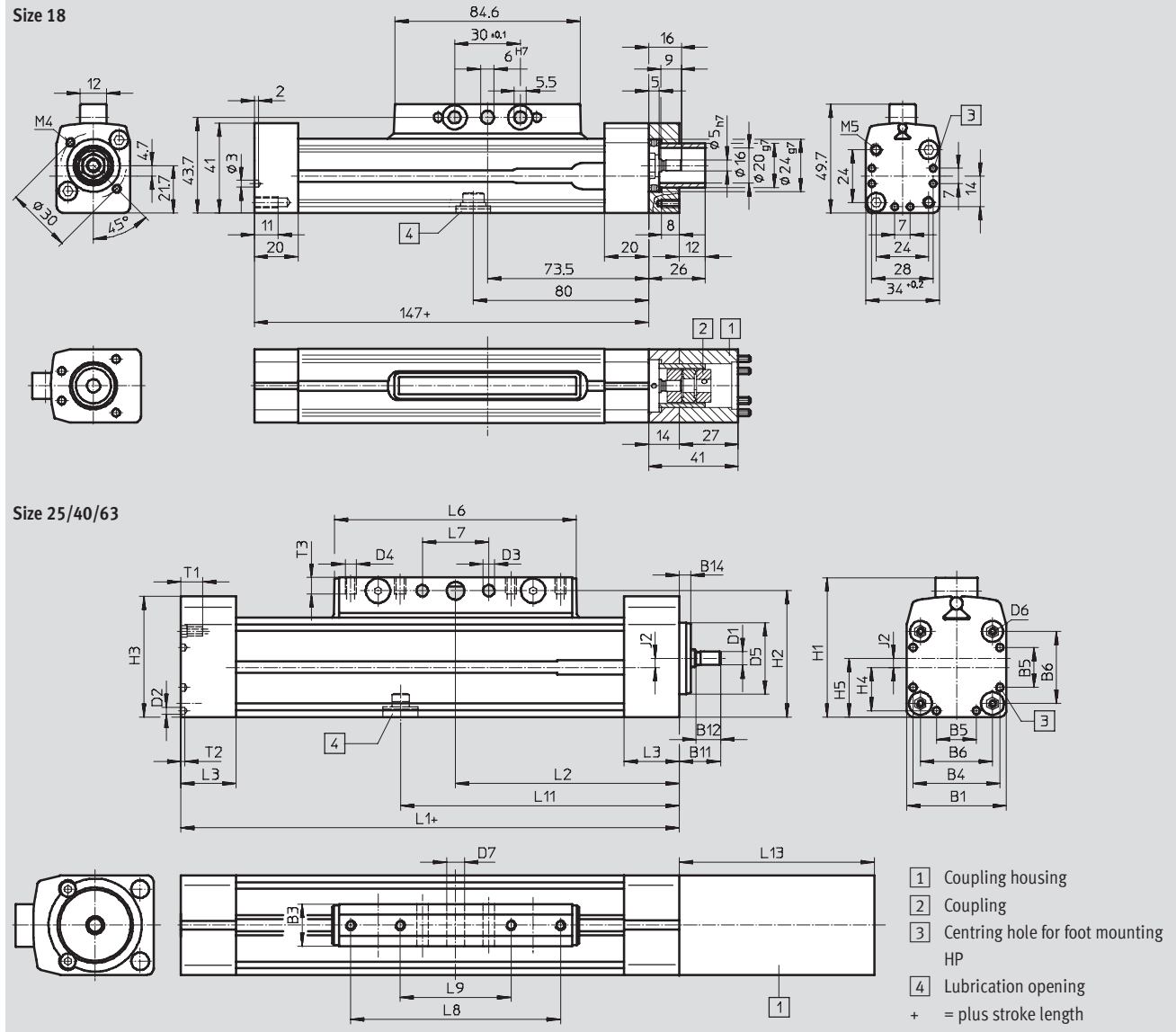


- DMES-18
- - - - - DMES-25
- - - - - DMES-40
- - - - - DMES-63

# Positioning axes DMES, without guide

Technical data

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



Size	B1 +0.4	B3	B4	B5	B6	B11	B12	B14	D1 ∅ h7	D2 ∅	D3 ∅	D4	D5 ∅ g7	D6	D7 ∅ H10	H1	H2	H3
25	45	19	39.1	18	32.5	18.5	11	4	6	3.3	5.2	M5	32	M4	8	63	57	54.5
40	64	21	53	28	49	33.5	23	5	12	4.4	6.5	M6	48	M5	10	86	78	76.5
63	106	24	89	44	83	47.5	25	7	20	6.4	8.5	M8	72	M8	12	131	122	127.5

Size	H4	H5	J2	L1	L2	L3	L6	L7 ±0.1	L8 ±0.1	L9 ±0.1	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

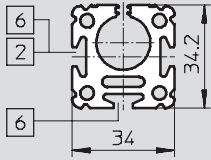
Technical data

## Dimensions

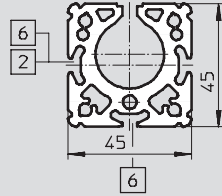
Download CAD data → [www.festo.com](http://www.festo.com)

Profile

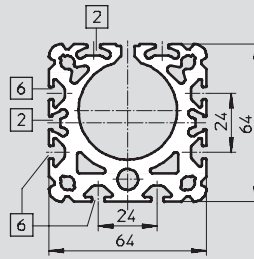
Size 18



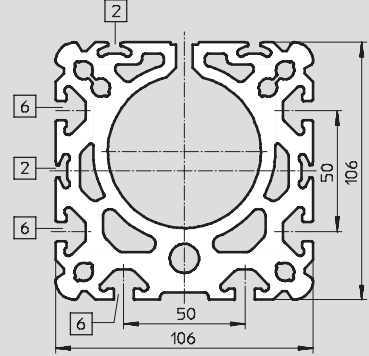
Size 25



Size 40



Size 63



2 Sensor slot for proximity sensor

6 Mounting slot for slot nut NST

# Positioning axes DMES, without guide

Ordering data – Modular products

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

1 Ordering positioning axis DMES Ordering table → 15

The drive unit and corresponding accessories are configured in the ordering table for the positioning axis DMES.

The code “AX” or “U” is used to specify whether an intelligent motor unit MTR-DCI and an axial or a parallel kit are required for the positioning axis.

The motor unit design must be defined separately.

Module No.	Function	Size	Stroke	Motor unit	Accessories	Necessarily supplied items
533 000	DMES	25	700	AX		Motor unit, MTR-DCI
533 001	DMES	40	700	AX		Motor unit, MTR-DCI
533 002	DMES	63	700	AX		Motor unit, MTR-DCI

Ordering table	00	01	02	03	Ordering table	Ordering table
Motor unit	533 000	533 001	533 002	533 003		
Motor unit	533 000	533 001	533 002	533 003		
Motor unit	533 000	533 001	533 002	533 003		

3 Ordering intelligent motor unit MTR-DCI Ordering table → 9

The motor unit order code determined from table 2 must now be completed with the “gear unit” and “parameterisation interface” codes.

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

Module No.	Motor unit	Type of motor	Range/Size	Stroke/Stroke	Rated voltage	Prog. Voltage	High-speed encoder	Motor unit	Parameterisation interface	Technical connection technology
533 000	533 000	533 000	533 000	533 000	533 000	533 000	533 000	533 000	533 000	533 000

Ordering table	00	01	02	03	Ordering table	Ordering table
Motor unit	533 000	533 001	533 002	533 003		
Motor unit	533 000	533 001	533 002	533 003		
Motor unit	533 000	533 001	533 002	533 003		

## 2 Permissible combinations with intelligent motor unit MTR-DCI

Positioning axis	Motor unit
DMES-18-...	MTR-DCI-32S-VCSC-E...
DMES-25-...	MTR-DCI-42S-VCSC-E...
DMES-40-...	MTR-DCI-52S-VCSC-E...
DMES-63-...	MTR-DCI-62S-VDSC-E...

## 4 Order example

Part No.	Type
533 700	Positioning axis DMES
533 700	DMES-25-700-AX:ZUB-2S2Y1M1F
533 000	Intelligent motor unit MTR-DCI
533 000	MTR-DCI-42S-VCSC-EG7-R210

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

**New**  
**Parallel kit**

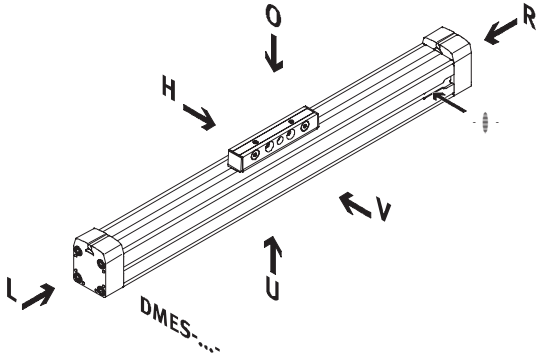
**Positioning axes DMES, without guide**


Ordering data – Modular products

**FESTO**

**Order code**

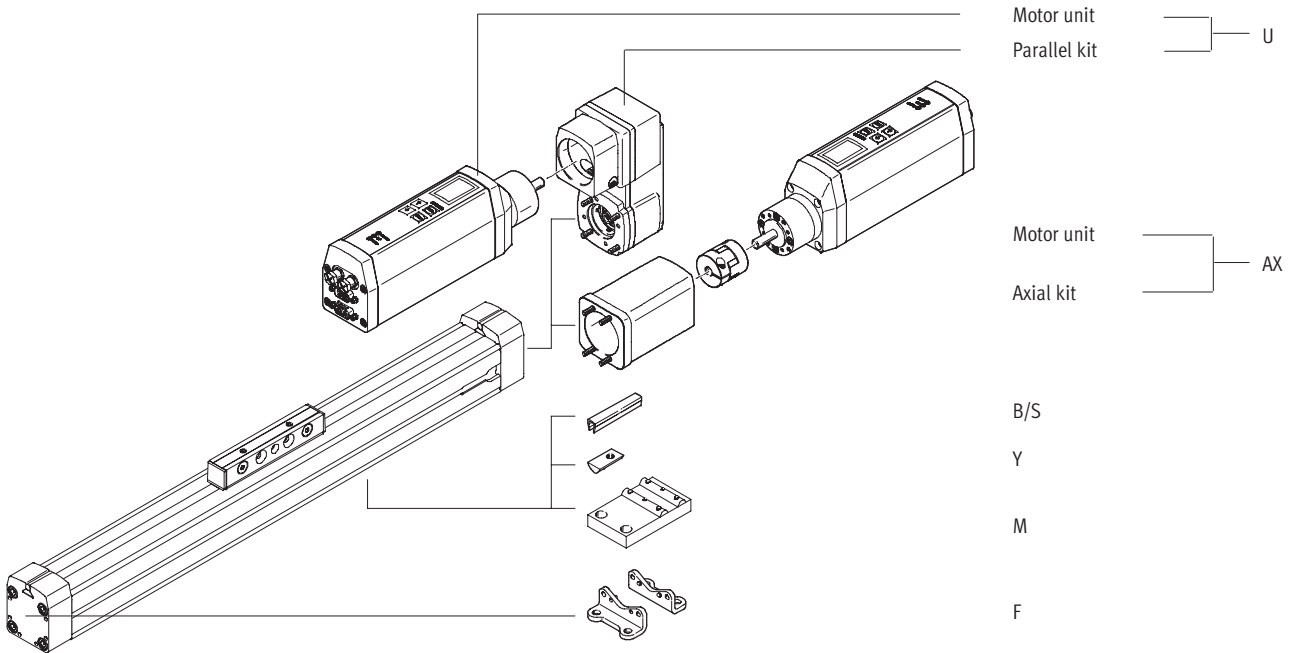
Mandatory data



<p>-  - Note</p> <p>The insertion point for the proximity sensor is located on the right-hand side of the positioning axis.</p>	<p>O top U underneath V front H rear R right L left</p>
--	---

**Order code**

Options



## Positioning axes DMES, without guide

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 U		...S, ...B, ...Y, ...M, ...F
533 700		25				
533 701		40				
533 702		63				
<b>Order example</b>						
<b>533 700</b>	<b>DMES</b>	<b>- 25</b>	<b>- 700</b>	<b>:</b>	<b>ZUB</b>	<b>- 2S2Y2M</b>
MTR-DCI-...S-...SC-E...-...IO						

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

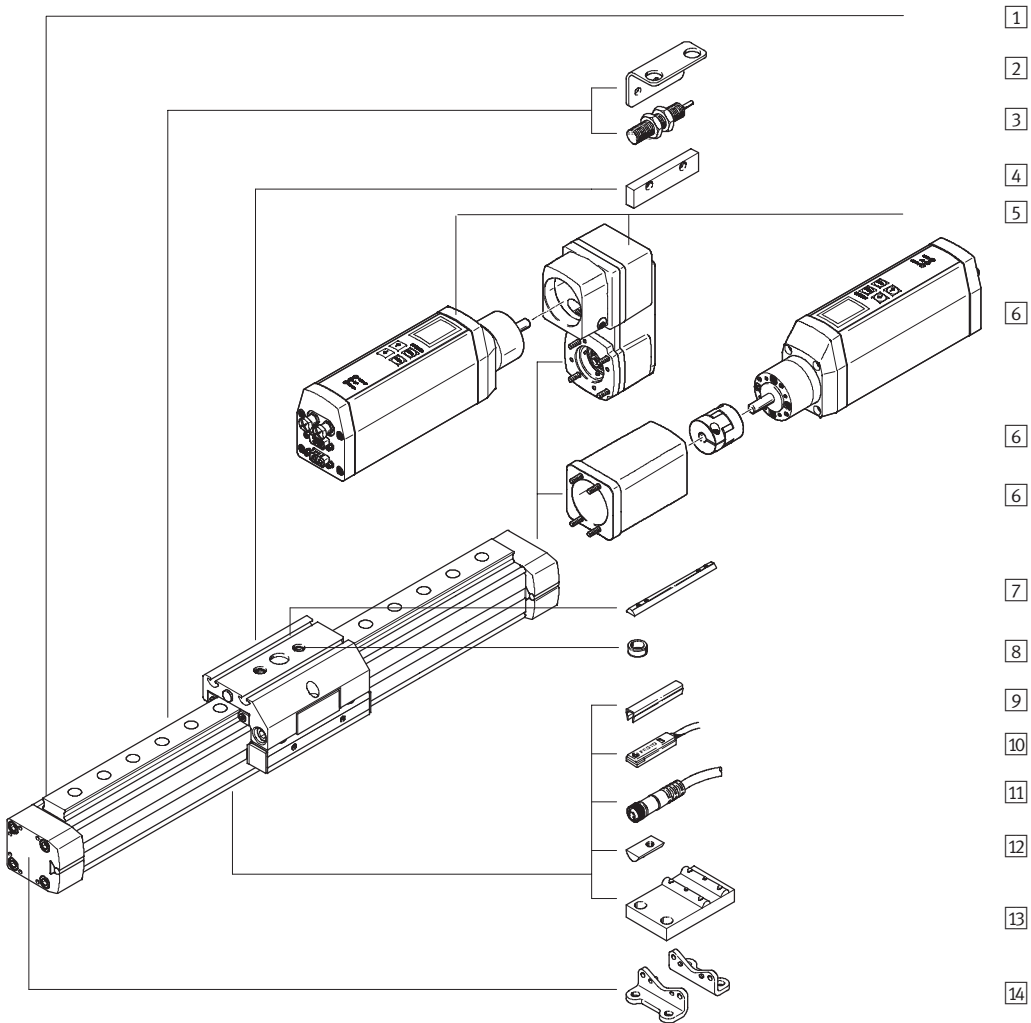
**AX, U** Order processing for intelligent motor unit MTR-DCI → 9.

### Transfer order code

<input type="text"/>	<b>DMES</b>	-	<input type="text"/>	-	<input type="text"/>	-	<input type="text"/>	:	<b>ZUB</b>	-	<input type="text"/>
MTR-DCI-...S-...SC-E...-...IO											

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

Peripherals overview



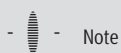


## Positioning axes DMES-GF/-KF, with guide

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	■	-	50
3	Inductive proximity sensor SIEN	For providing a proximity signal or safety sensing	■	-	51
4	Switching lug L	For sensing the slide position with inductive proximity sensors	■	-	50
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	■	■	52
8	Centring sleeves Z	For centring loads and attachments on the slide	■	■	52
9	Slot cover B/S	For protecting against ingress of dirt	■	■	52
10	Proximity sensor SMT-8	For providing a proximity signal or safety sensing	■	■	51
11	Connecting cable KM8	For proximity sensor	■	■	51
12	Slot nut for mounting slot Y	For mounting attachments	■	■	52
13	Central support M	For mounting the axis	■	■	49
14	Foot mounting F	For mounting the axis (can only be attached to end cap, must be combined with central support)	■	■	49

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

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

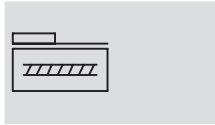
Type code

		: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

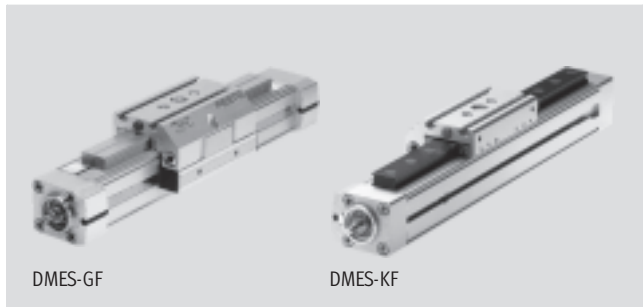
Technical data

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 $F_x$	[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	
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

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	0.0210	0.0980	0.0980	0.8400	0.8400	5.5600	5.5600
$j_L$ per kg working load		[kg cm <sup>2</sup> /Kg]	0.0006	0.0006	0.0023	0.0023	0.0041	0.0041	0.0091	0.0091
$j_W$ for additional slide		[kg cm <sup>2</sup> ]	–	0.0002	–	0.0010	–	0.0049	–	0.0324

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

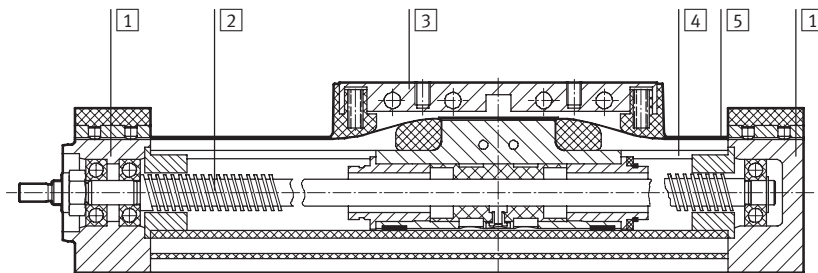
$$J_A = J_0 + j_H \times \text{working stroke [m]} + j_L \times m_{\text{working load [kg]}} + i \times j_W$$

$i$  = 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

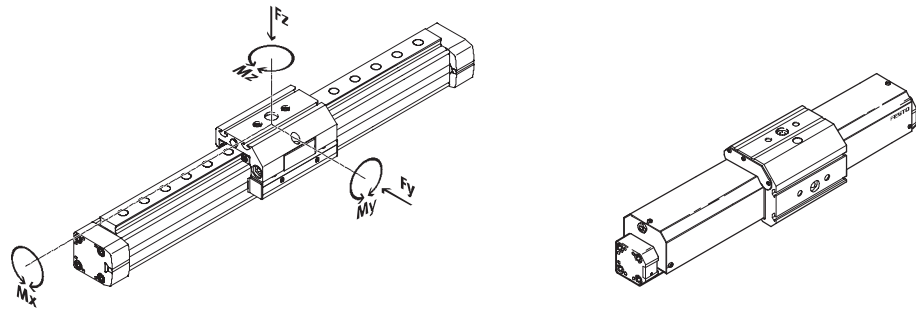
# Positioning axes DMES-GF/-KF, with guide

Technical data



## 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.



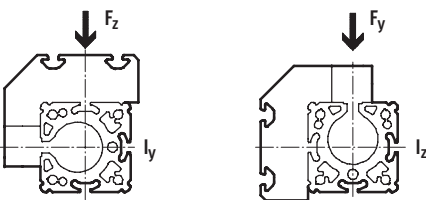
If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

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

### 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

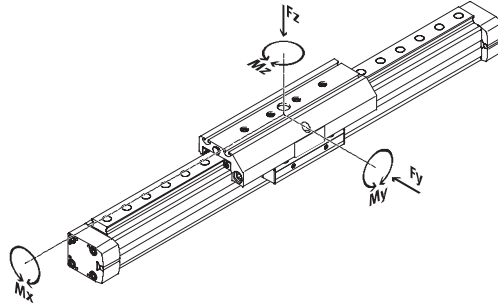
- - Note  
 Sizing software  
 PositioningDrives  
[www.festo.com](http://www.festo.com)

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

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.



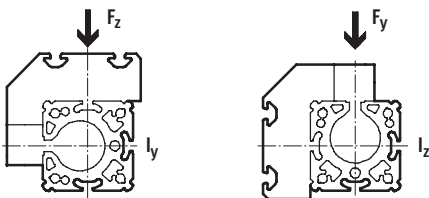
If the axis is subjected to more than two of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

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

## 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

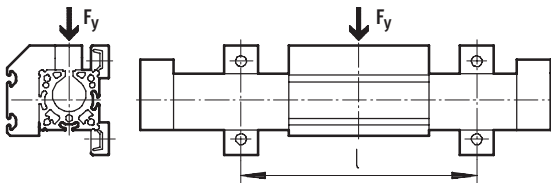
Technical data

FESTO

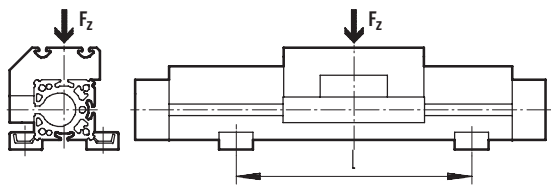
## Deflection of the positioning axis as a function of the working load $F$ and the support span $l$

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.

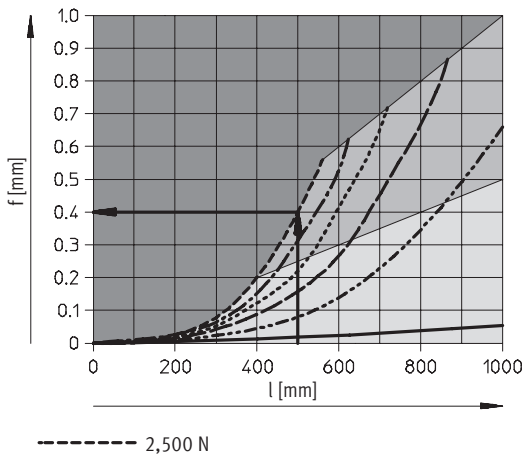
### Deflection along the y-axis



### Deflection along the z-axis



### Example showing how to determine deflection



#### Given:

Positioning axis  
DMES-25-700-KF-...  
  
Working stroke = 700 mm  
Total length of the positioning axis,  
dimensional drawing  $\rightarrow$  31  
700 mm + 175 mm = 875 mm  
Working load  $F$  = 2,500 N  
Support span  $l$  = 500 mm

#### 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.

#### To be found:

Deflection  $f$

- 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.

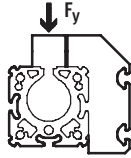


# Positioning axes DMES-GF/-KF, with guide

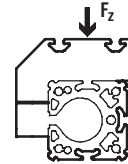
Technical data

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

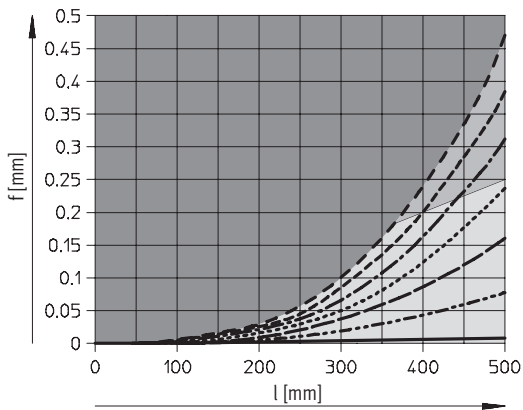
Along the y-axis



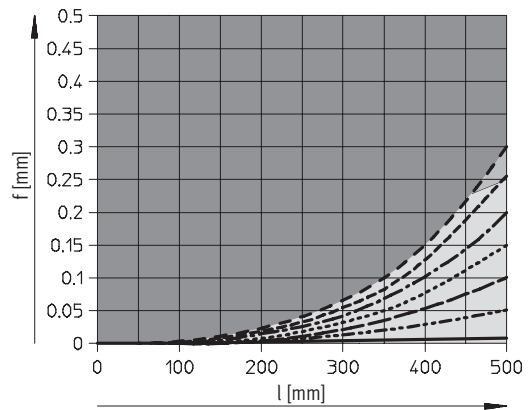
Along the z-axis



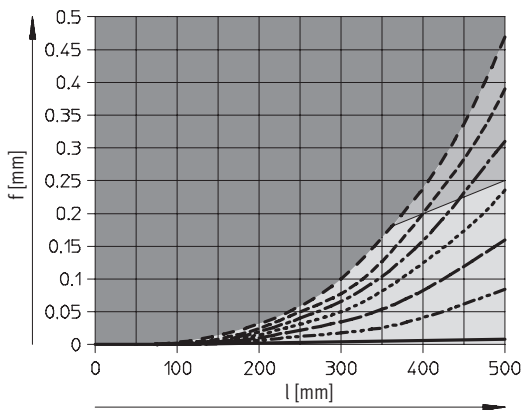
### DMES-18-GF, with plain-bearing guide



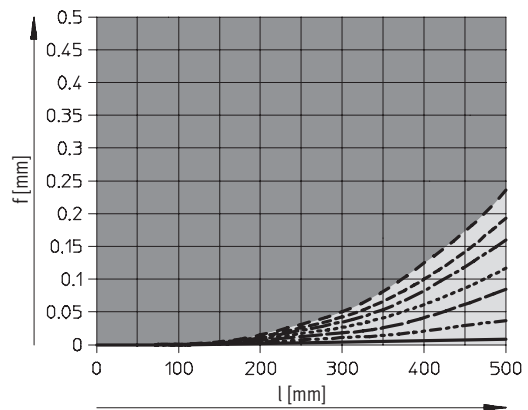
### DMES-18-GF, with plain-bearing guide



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



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



- Impermissible range
- Static range
- Static and dynamic range

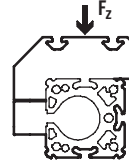
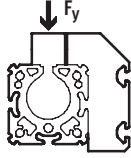
# Positioning axes DMES-GF/-KF, with guide

Technical data

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

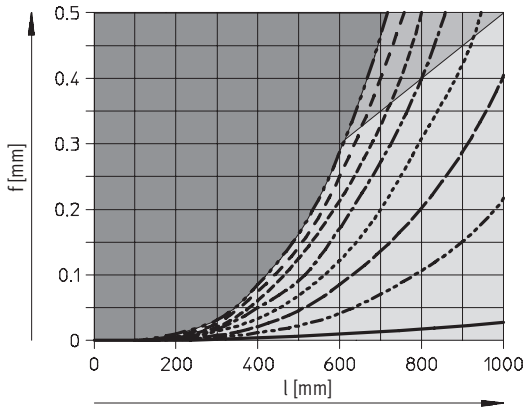
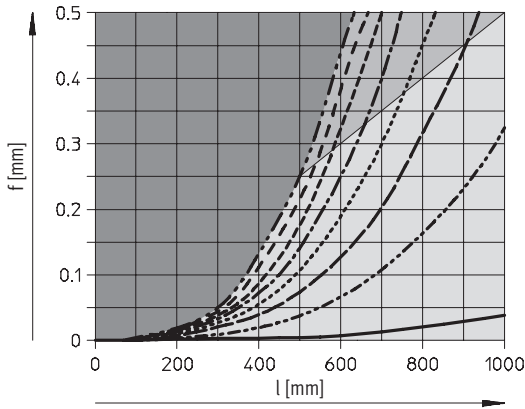
Along the y-axis

Along the z-axis



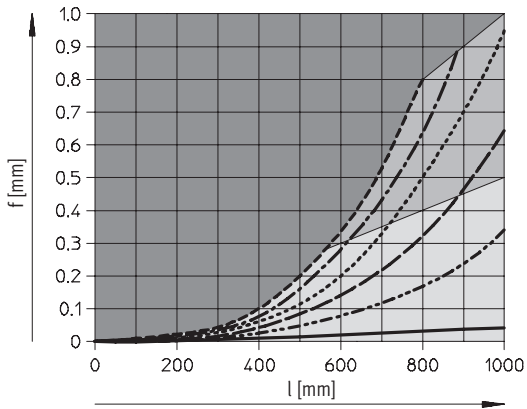
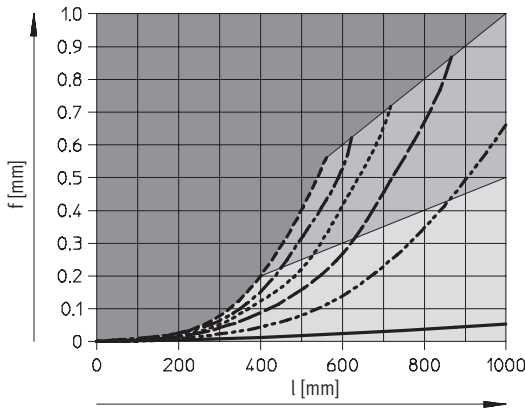
DMES-25-GF, with plain-bearing guide

DMES-25-GF, with plain-bearing guide



DMES-25-KF, with recirculating ball bearing guide

DMES-25-KF, with recirculating ball bearing guide



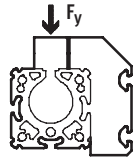
- Impermissible range
- Static range
- Static and dynamic range

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

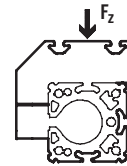
Technical data

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

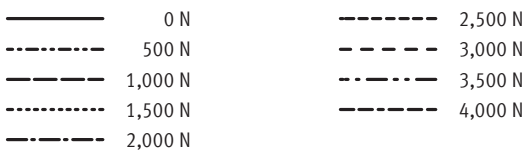
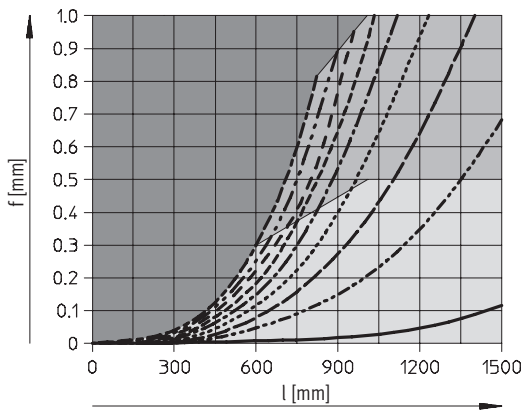
Along the y-axis



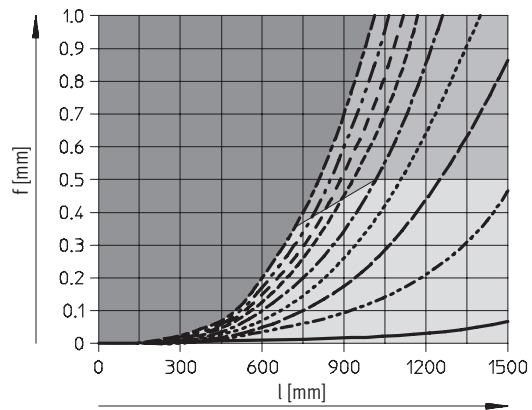
Along the z-axis



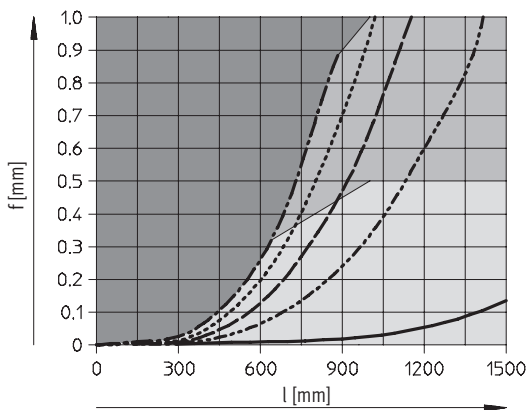
### DMES-40-GF, with plain-bearing guide



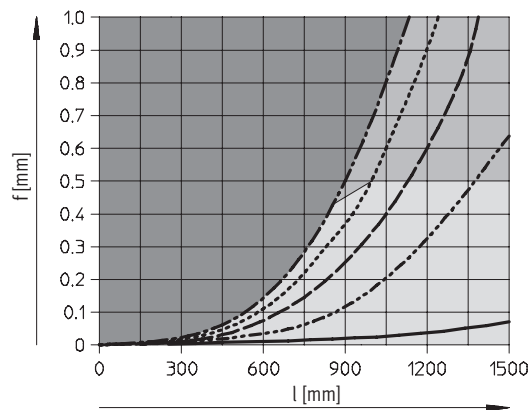
### DMES-40-GF, with plain-bearing guide



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



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



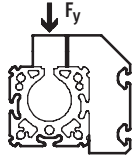
- Impermissible range
- Static range
- Static and dynamic range

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

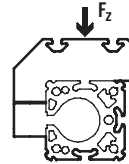
Technical data

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

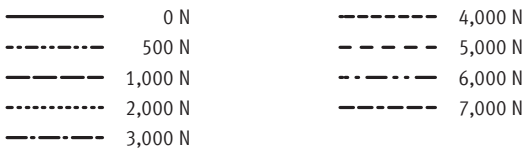
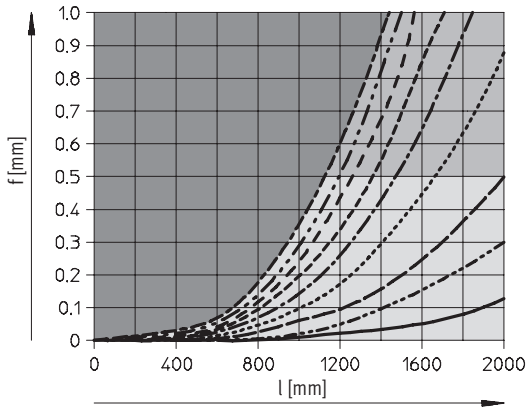
Along the y-axis



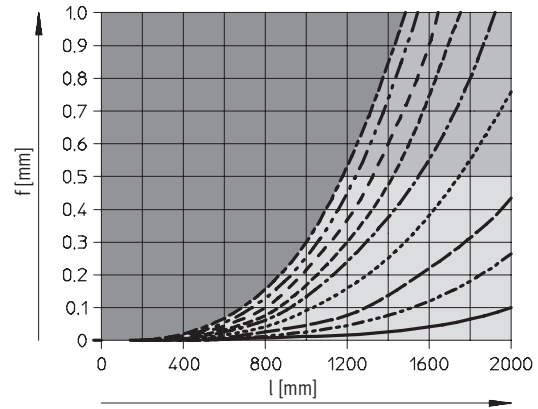
Along the z-axis



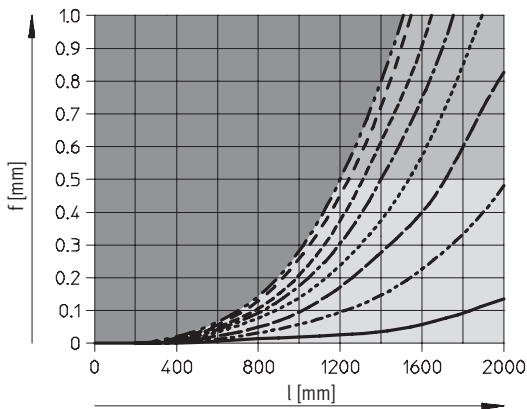
### DMES-63-GF, with plain-bearing guide



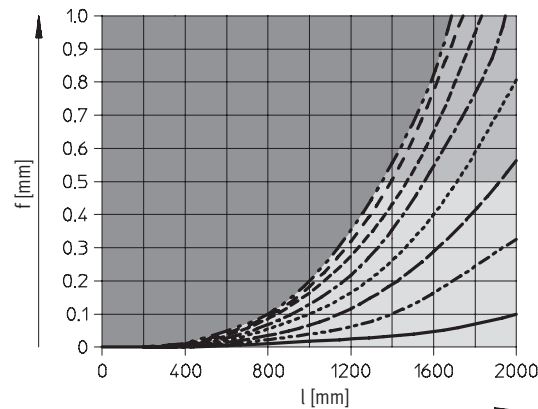
### DMES-63-GF, with plain-bearing guide



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



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



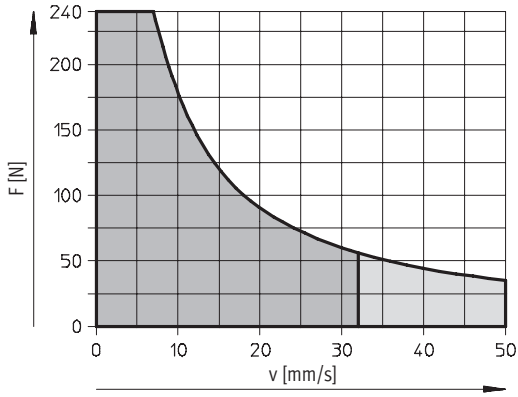
- Impermissible range
- Static range
- Static and dynamic range

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

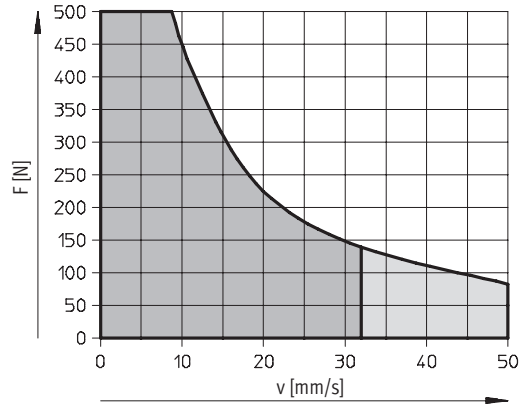
Technical data

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

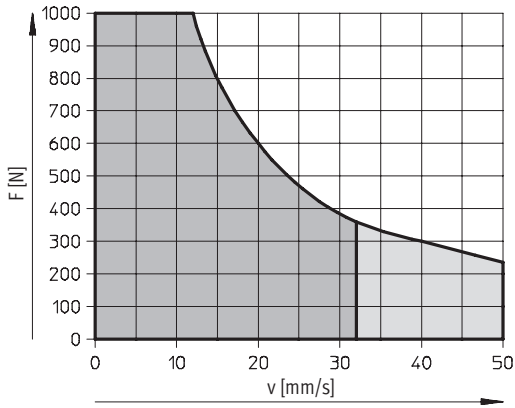
Size 18



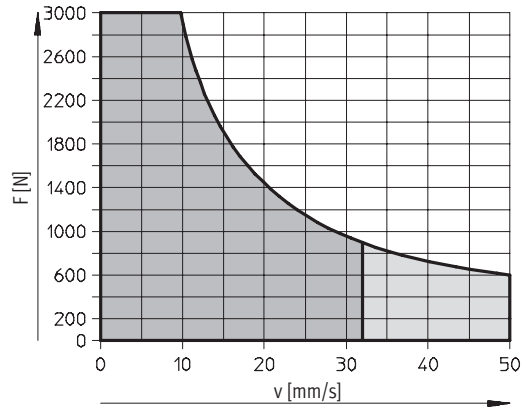
Size 25



Size 40



Size 63



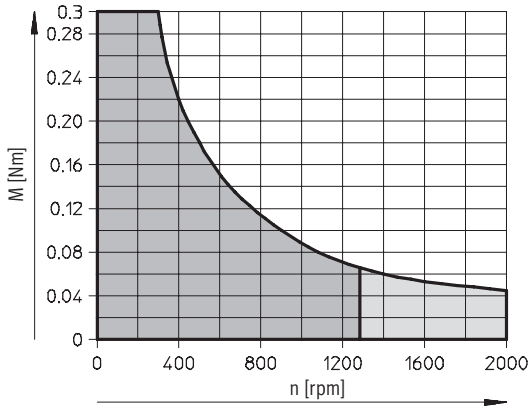
- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

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

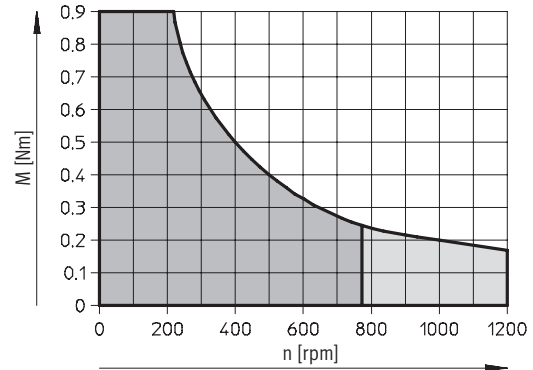
Technical data

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

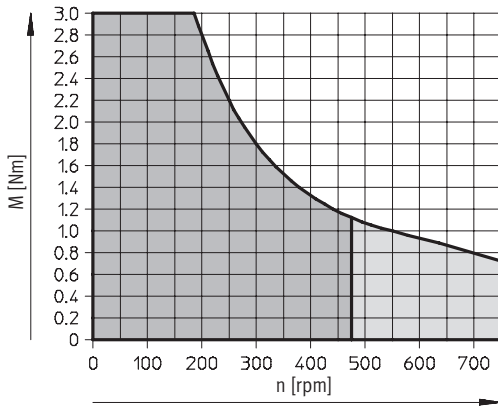
Size 18



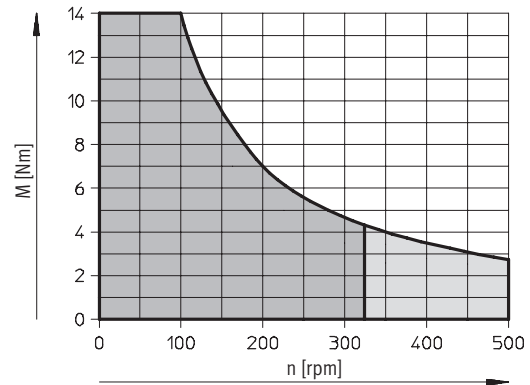
Size 25



Size 40

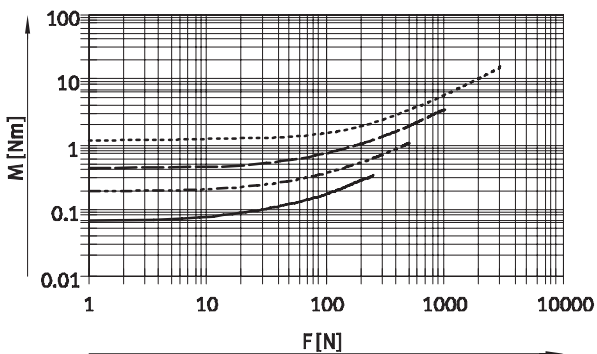


Size 63

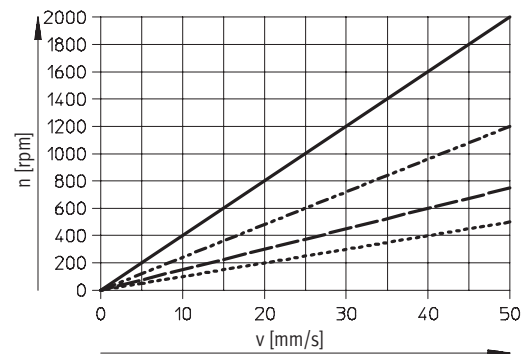


- Recommended operating range
- Permissible operating range (duty cycle < 50% recommended)

## 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

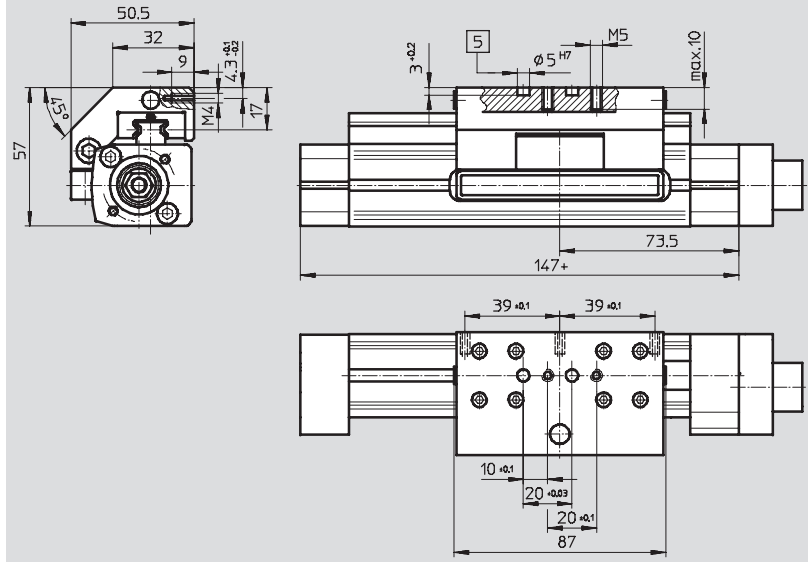
# Positioning axes DMES-GF/-KF, with guide

Technical data

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

Standard slide GK

Size 18

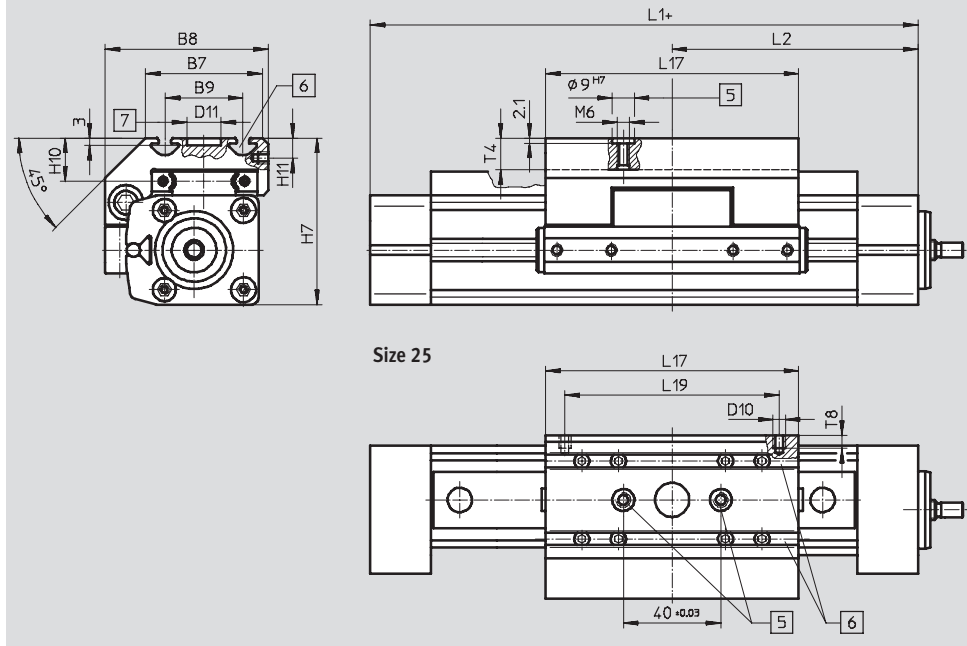


5 Hole for centring pin ZBS-5

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	B7	B8	B9	D10	D11	H7	H10	H11	L1	L2	L17	L19	T4	T8
			±0.2		∅ G7			+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

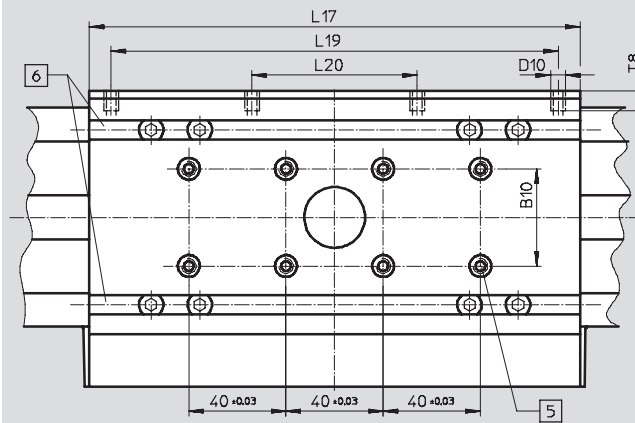
FESTO

## Dimensions

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

Standard slide GK

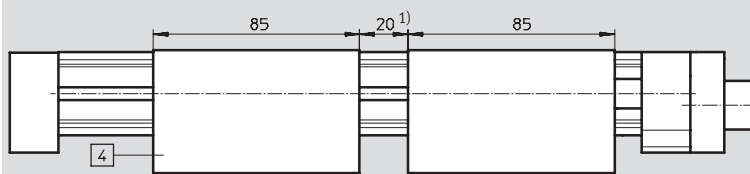
Size 40/63



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

## Additional slide KL/KR

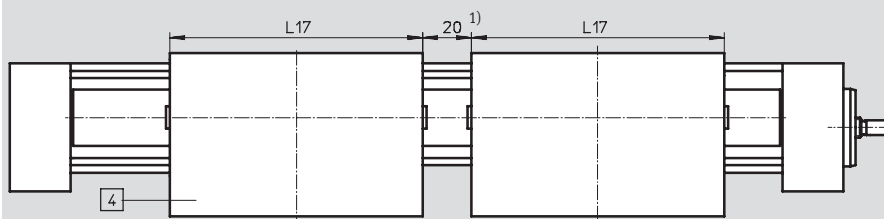
Size 18



- 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

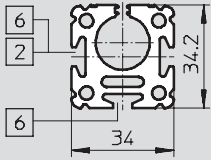
Technical data

## Dimensions

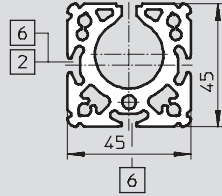
Download CAD data → [www.festo.com](http://www.festo.com)

Profile

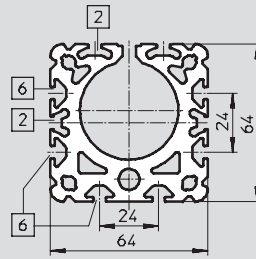
Size 18



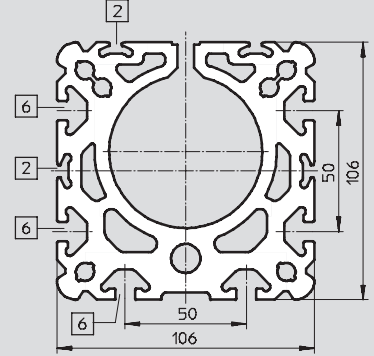
Size 25



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

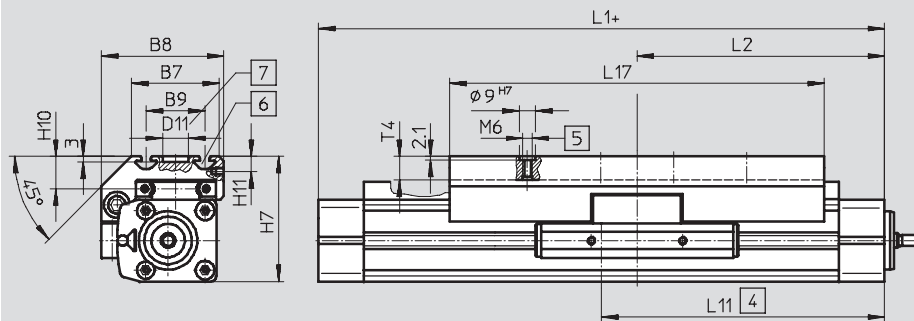
FESTO

## Dimensions

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

Extended slide GV

Size 25/40/63

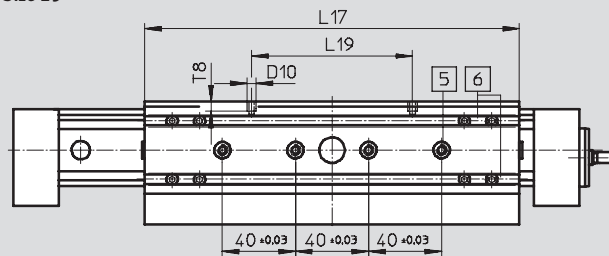


- 4 Lubrication opening
- 5 Hole for centring pin ZBS-9
- 6 Slot for slot nut NSTL
- 7 Hole for central mounting SLZZ
- + = plus stroke length

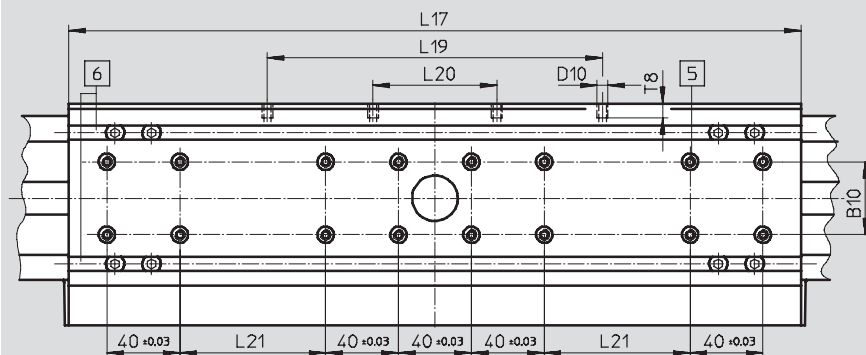
Basic dimensions

→ 11

Size 25



Size 40



- 5 Hole for centring pin ZBH-9
- 6 Mounting slot for slot nut NSTL

Size	B7	B8	B9	B10	D10	D11	H7	H10	H11
			±0.2	–	M5	∅ G7			+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

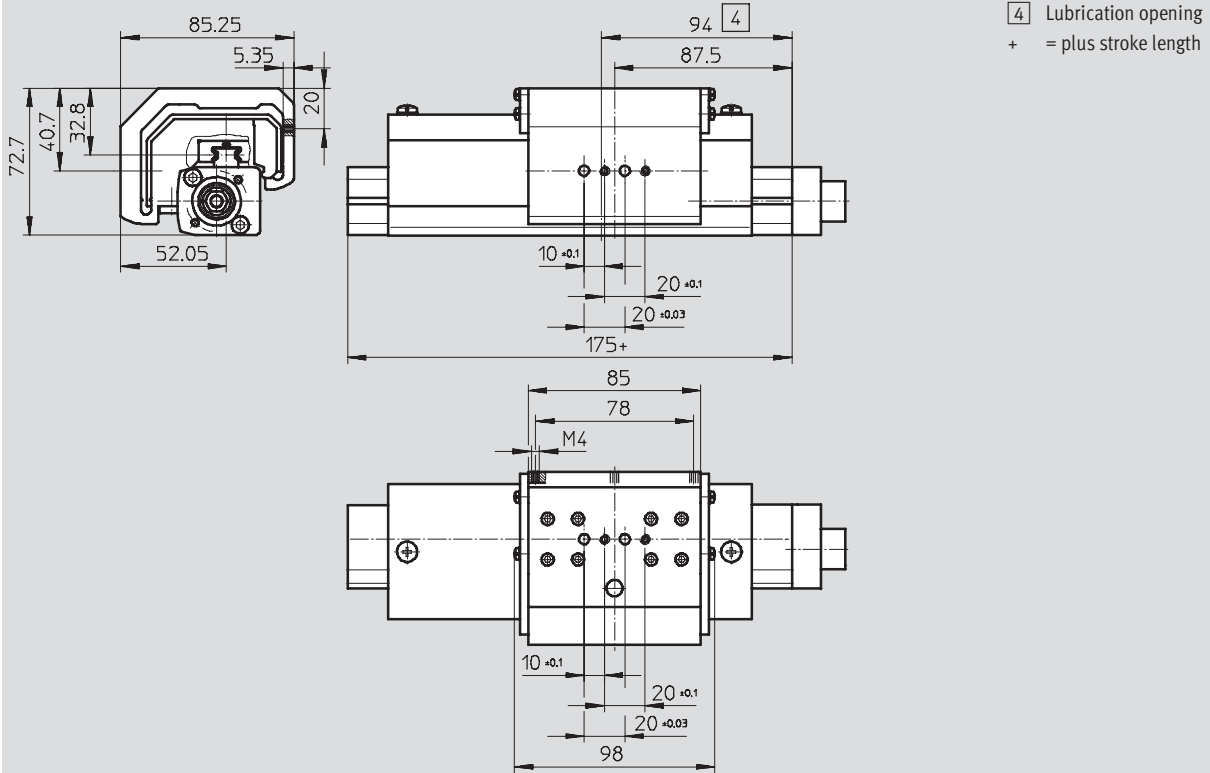
FESTO

## Dimensions

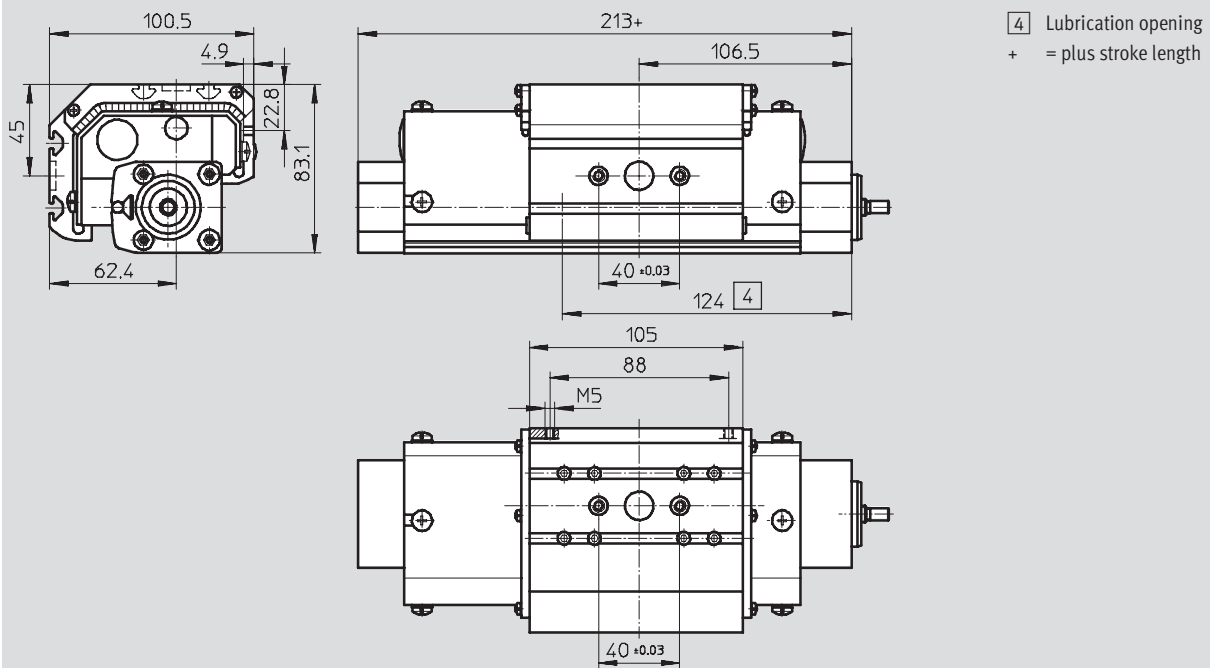
Download CAD data → [www.festo.com](http://www.festo.com)

Protected version GA

Size 18



Size 25



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

Technical data

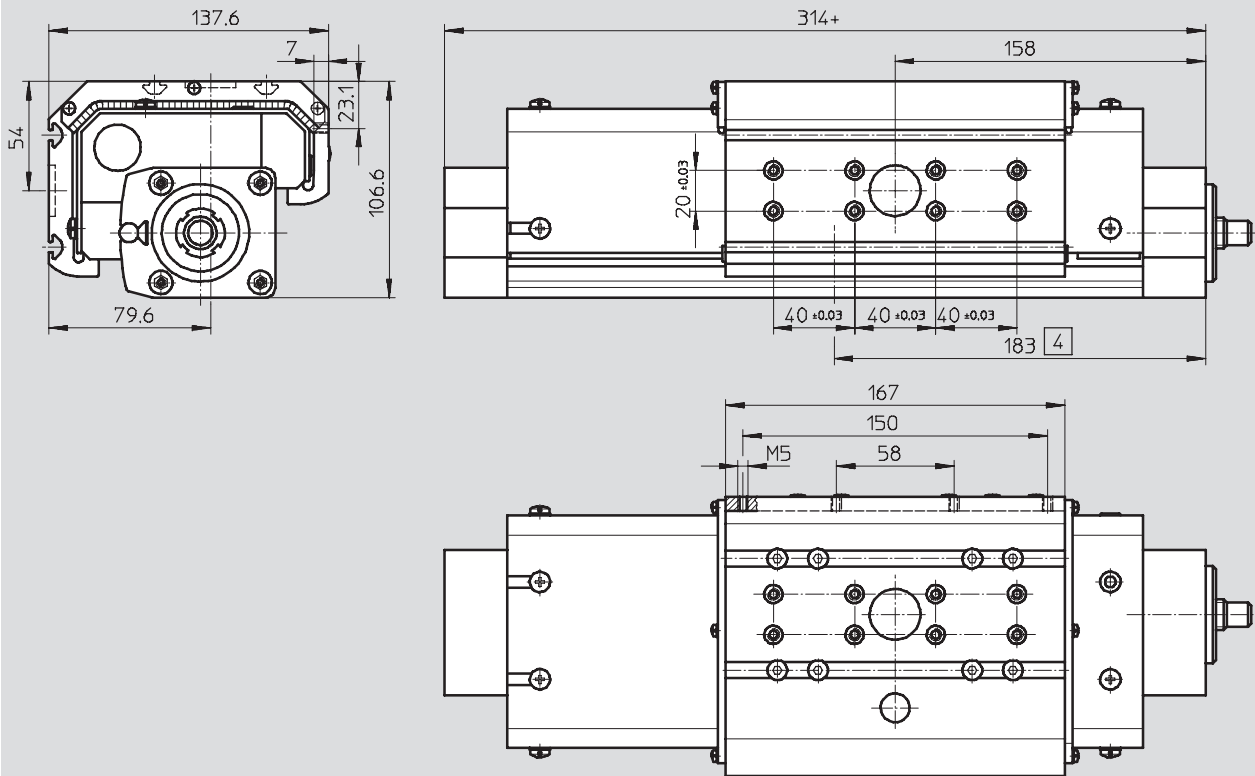
FESTO

## Dimensions

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

Protected version GA

Size 40



4 Lubrication opening  
+ = plus stroke length



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

Ordering data – Modular products

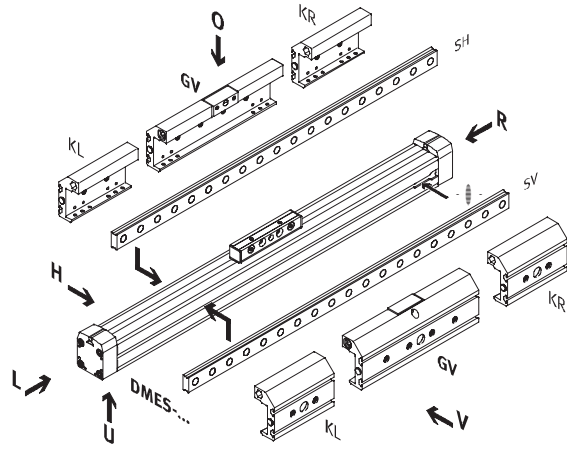
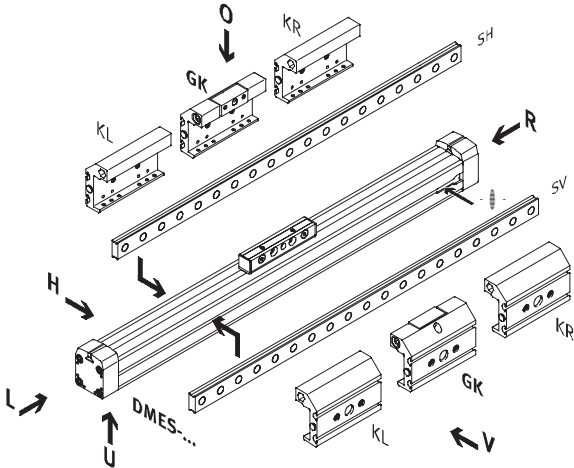
**FESTO**

### Order code

Mandatory data

DMES-...-GK

DMES-...-GV



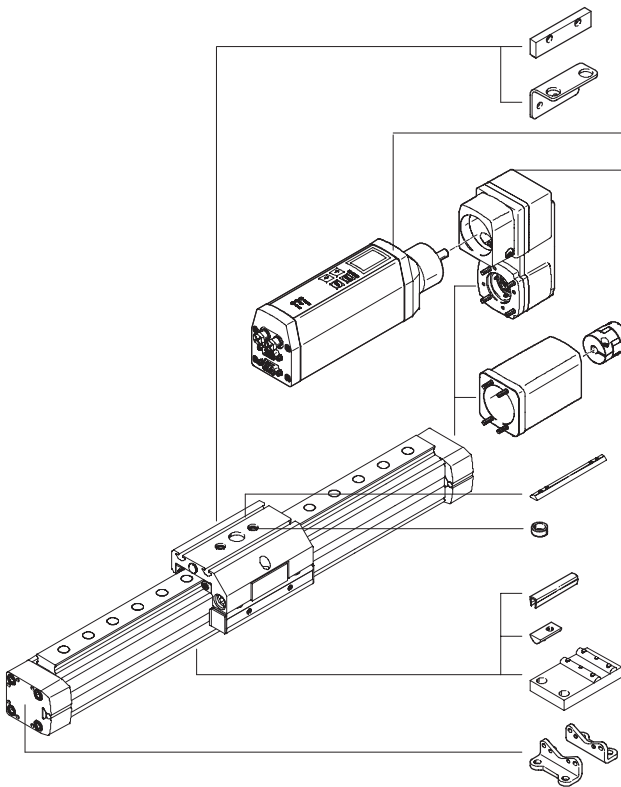
 Note

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



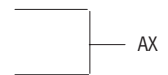
L

T

Motor unit  
Parallel kit



Motor unit  
Axial kit



X

Z

B/S

Y

M

F

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

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, ...X, ...M, ...F, ...Z, ...T, L			
533 700	25		KF	SH	U				
533 701	40								
533 702	63								
<b>Order example</b>									
<b>533 701</b>	<b>DMES - 40</b>	<b>- 800</b>	<b>- KF</b>	<b>- GV</b>	<b>- SV</b>	<b>- KL</b>	<b>-</b>	<b>: ZUB</b>	<b>- 2X2M20Z</b>
MTR-DCI-...S-VCSC-E...-...IO									

Ordering table										
Size	18	25	40	63	Condi- tions	Code	Enter 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 → 9
- 5 T, L Only with slide GK or GV

**Transfer order code**

	<b>DMES</b>	<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>-</b>		<b>:</b>	<b>ZUB</b>	<b>-</b>		
MTR-DCI-...S-VCSC-E...-...IO																				



# Positioning axes DMES

Accessories – Motor units MTR-DCI

M Mandatory data										
Module No.	Motor unit		Flange/size		Nominal voltage		Measuring system		Parameterisation interface	
Order example	Motor type		Torque class		Plug design		Gearing unit		Electrical connection technology	
	MTR	DCI	32 42 52 62	S	VC VD	SC	E	G7 G14 G22	R2 H2	IO CO PB DN
	533 742	MTR	- DCI	- 42	S	- VC	SC	- E	G7	- R2

Ordering table										
Size	32	42	52	62	Condi- tions	Code	Enter code			
M Module No.	533 736			533 754						
Motor unit	Motor unit						MTR	MTR		
Motor type	DC servo motor with integrated position controller						-DCI	-DCI		
Flange/size	32	42	52	62	-...					
Torque class	Standard torque class						S	S		
Nominal voltage	[M] 24 DC				-	-VC				
	[M] -				48 DC	-VD				
Plug design	Straight plug						SC	SC		
Measuring system	Encoder						-E	-E		
Gearing unit	Integrated planetary gearing i = 6.75						G7			
	Integrated planetary gearing i = 13.73						G14			
				Integrated planetary gearing i = 22.21			G22			
Parameterisation interface	RS232 interface						-R2			
	RS232 interface + control panel						-H2			
Electrical connection technology	I/O interface						IO			
	CANopen						CO			
	Profibus DP						PB			
	DeviceNet						DN			

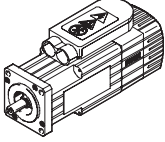
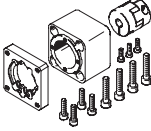
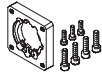

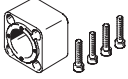
Transfer order code

	MTR	- DCI		S		SC	- E		-		-	
--	-----	-------	--	---	--	----	-----	--	---	--	---	--

# Positioning axes DMES

Accessories

FESTO

Permissible axis/motor combinations with axial kit – Without gear unit				
Motor unit	Axial kit	Axial kit comprises:		
		Motor flange	Coupling	Coupling housing
				
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
<b>DMES-18</b>				
With servo motor				
EMMS-AS-40-...	550 961	552 163	540 751	170 374
MTR-AC-40-3S-A...	EAMM-A-E20-40A	EAMF-A-28B-40A	KSE-15-22-D05-D06	DGE-KG-18-SP-FL28
EMMS-AS-55-...	550 963	529 946	529 953	170 374
MTR-AC-55-3S-A...	EAMM-A-E20-55A	MTR-FL28-AC55	KSE-15-22-D05-D09	DGE-KG-18-SP-FL28
With stepper motor				
EMMS-ST-42-...	550 962 EAMM-A-E20-42A	552 164 EAMF-A-28B-42A	530 085 KSE-15-22-D05-D05	170 374 DGE-KG-18-SP-FL28
With intelligent motor unit				
MTR-DCI-32S-...	556 991 EAMM-A-E20-32B	–	533 707 KSE-15-20-D05-D06	533 703 DME-KG-18-AX-D32-L27
<b>DMES-25</b>				
With servo motor				
EMMS-AS-40-...	550 964	550 985	123 040	124 631
MTR-AC-40-3S-A...	EAMM-A-E32-40A	EAMF-A-44-40A	KSE-30-35-D06-D06	DGE-KG-25-SP-FL44
EMMS-AS-55-...	550 965	529 942	530 941	124 631
MTR-AC-55-3S-A...	EAMM-A-E32-55A	MTR-FL44-AC55	KSE-30-35-D06-D09	DGE-KG-25-SP-FL44
With stepper motor				
EMMS-ST-57-...	550 966 EAMM-A-E32-57A	530 081 MTR-FL44-ST57	530 087 KSE-30-35-D06-D06.35	124 631 DGE-KG-25-SP-FL44
With intelligent motor unit				
MTR-DCI-42S-...G7	556 992 EAMM-A-E32-42B	–	533 708 KSE-30-32-D06-D08	533 704 DME-KG-25-AX-D42-L88
MTR-DCI-42S-...G14	556 993 EAMM-A-E32-42C	–	533 708 KSE-30-32-D06-D08	538 578 DME-KG-25-AX-D42-L101

-  - Note

At ambient temperatures below room temperature the moment of friction of the DMES-...-GF (plain-bearing) will increase.

Depending on the combination of motor/motor unit and positioning axis the maximum feed force of the axis cannot be reached.

The following tool is available for selecting and sizing the unit:

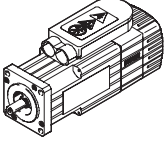
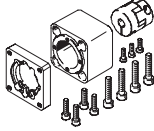
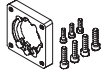

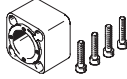
-  - Note


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

# Positioning axes DMES

Accessories

FESTO

Permissible axis/motor combinations with axial kit – Without gear unit				
Motor/motor unit	Axial kit	Axial kit comprises:		
		Motor flange	Coupling	Coupling housing
				
Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
<b>DMES-40</b>				
With servo motor				
EMMS-AS-70-...	557 448	529 945	525 864	529 940
MTR-AC-70-3S-A...	EAMM-A-E48-64-70A	MTR-FL64-AC70	KSE-40-66-D11-D12	DGE-KG-40-SP-FL64
EMMS-AS-100-...	550 973	529 947	529 952	529 940
MTR-AC-100-3S-A...	EAMM-A-E48-100A	MTR-FL64-AC100	KSE-40-66-D12-D19	DGE-KG-40-SP-FL64
With stepper motor				
EMMS-ST-87-...	550 972 EAMM-A-E48-87A	533 140 MTR-FL64-ST87	525 864 KSE-40-66-D11-D12	529 940 DGE-KG-40-SP-FL64
With intelligent motor unit				
MTR-DCI-52S-...-G7	556 994 EAMM-A-E48-52B	–	533 709 KSE-42-50-D12-D12	533 705 DME-KG-40-AX-D52-L121
MTR-DCI-52S-...-G14	556 995 EAMM-A-E48-52C	–	533 709 KSE-42-50-D12-D12	538 579 DME-KG-40-AX-D52-L135
<b>DMES-63</b>				
With servo motor				
EMMS-AS-70-...	550 975	529 945	550 999	529 941
MTR-AC-70-3S-A...	EAMM-A-E72-70A	MTR-FL64-AC70	KSE-40-66-D11-D20	DGE-KG-63-SP-FL64
EMMS-AS-100-...	550 978	529 947	132 847	529 941
MTR-AC-100-3S-A...	EAMM-A-E72-100A	MTR-FL64-AC100	KSE-40-66-D19-D20	DGE-KG-63-SP-FL64
With stepper motor				
EMMS-ST-87-...	550 977 EAMM-A-E72-87A	533 140 MTR-FL64-ST87	550 999 KSE-40-66-D11-D20	529 941 DGE-KG-63-SP-FL64
With intelligent motor unit				
MTR-DCI-62S-...	556 996 EAMM-A-E72-62B	–	533 710 KSE-42-50-D14-D20	533 706 DME-KG-63-AX-D62-L150

 Note

At ambient temperatures below room temperature the moment of friction of the DMES-...-GF (plain-bearing) will increase.

Depending on the combination of motor/motor unit and positioning axis the maximum feed force of the axis cannot be reached.

The following tool is available for selecting and sizing the unit:

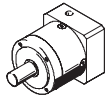
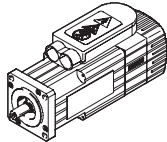
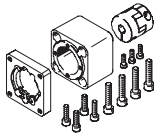


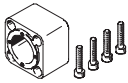
 Note


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

# Positioning axes DMES

Accessories

FESTO


Permissible axis/motor combinations with axial kit – With gear unit					
Gear unit	Motor	Axial kit	Axial kit comprises:		
			Motor flange	Coupling	Coupling housing
					
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
<b>DMES-63</b>					
With servo motor					
<b>EMGA-60-P-G...-SAS-70</b>	<b>EMMS-AS-70-S...</b>	550 974 EAMM-A-E72-60G	550 987 EAMF-A-64-60G	550 999 KSE-40-66-D11-D20	529 941 DGE-KG-63-SP-FL64
<b>EMGA-80-P-G...-SAS-70</b>	<b>EMMS-AS-70-M...</b>	550 976 EAMM-A-E72-80G	533 139 MTR-FL64-PL80	123 849 KSE-40-66-D20-D20	529 941 DGE-KG-63-SP-FL64
With stepper motor					
<b>EMGA-80-P-G...-SST-87</b>	<b>EMMS-ST-87-L...</b>	550 976 EAMM-A-E72-80G	533 139 MTR-FL64-PL80	123 849 KSE-40-66-D20-D20	529 941 DGE-KG-63-SP-FL64

 - Note

At ambient temperatures below room temperature the moment of friction of the DMES-...-GF (plain-bearing) will increase.

Depending on the combination of motor/motor unit and positioning axis the maximum feed force of the axis cannot be reached.

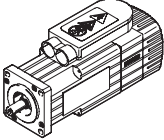
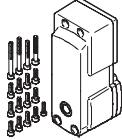
The following tool is available for selecting and sizing the unit:


 - Note

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

## Positioning axes DMES

Accessories

Permissible axis/motor combinations with parallel kit – Without gear unit		
Motor/motor unit	Parallel kit	
		
Type	Part No.	Type
<b>DMES-18</b>		
With servo motor		
<b>EMMS-AS-40-...</b>	543 226	EAMM-U-E24-40A
<b>MTR-AC-40-3S-A...</b>		
With intelligent motor unit		
<b>MTR-DCI-32S-...</b>	543 225	EAMM-U-E24-32B
<b>DMES-25</b>		
With servo motor		
<b>EMMS-AS-55-...</b>	543 230	EAMM-U-E32-55A
<b>MTR-AC-55-3S-A...</b>		
With intelligent motor unit		
<b>MTR-DCI-42S-...-G7</b>	543 228	EAMM-U-E32-42B
<b>MTR-DCI-42S-...-G14</b>	543 229	EAMM-U-E32-42C
<b>DMES-40</b>		
With servo motor		
<b>EMMS-AS-70-...</b>	543 234	EAMM-U-E48-70A
<b>MTR-AC-70-3S-A...</b>		
With intelligent motor unit		
<b>MTR-DCI-52S-...-G7</b>	543 232	EAMM-U-E48-52B
<b>MTR-DCI-52S-...-G14</b>	543 233	EAMM-U-E48-52C

 - Note

At ambient temperatures below room temperature the moment of friction of the DMES-...-GF (plain-bearing) will increase.

Depending on the combination of motor/motor unit and positioning axis the maximum feed force of the axis cannot be reached.

If parallel kits are used, the relevant no-load driving torque of the kit must be taken into account.

The following tool is available for selecting and sizing the unit:

 - Note

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

# Positioning axes DMES

Accessories

FESTO

## Axial kit EAMM-A-...

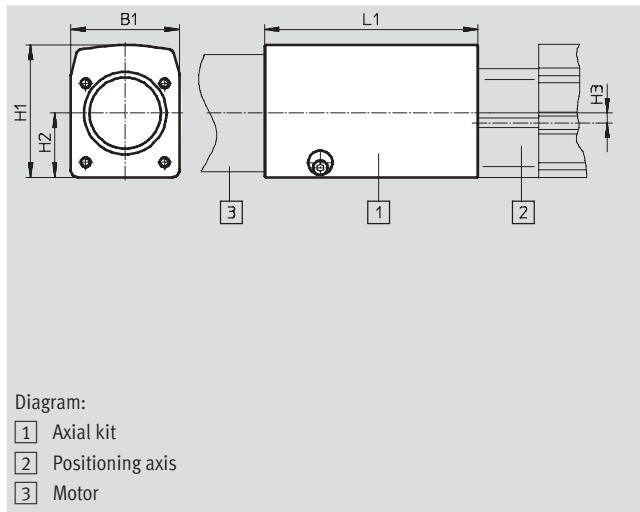
Material:

Coupling housing: Die-cast aluminium

Coupling hubs: Wrought aluminium alloy

Clamping component: High-alloy steel

Screws: Galvanised steel



General technical data										
EAMM-A-...	E20-					E32-				
	32B	40A	42A	55A	40A	42B	42C	55A	57A	
Transferable torque [Nm]	1.5	1	1	1	7.5	7	7	7.5	7.5	
Mass moment of inertia [kg mm <sup>2</sup> ]	0.23	0.13			6.1	5.87		6.1		
Max. speed [rpm]	10,000		12,000		8,000					
Assembly position	Any									

EAMM-A-...	E48-					E72-					
	52B	52C	64-70A	87A	100A	62B	70A	60G	80G	87A	100A
Transferable torque [Nm]	17	17	17	17	17	17	17	17	17	17	17
Mass moment of inertia	35.5		42.3			35.5	42.3				
Max. speed [rpm]	6,000		6,500			6,000	6,500				
Assembly position	Any										

Operating and environmental conditions	
Ambient temperature [°C]	0 ... 50
Storage temperature [°C]	-25 ... +60
Protection class <sup>1)</sup>	IP40
Relative air humidity [%]	0 ... 95


1) Only with combined attachment of motor and axis

# Positioning axes DMES

Accessories

FESTO

Dimensions and ordering data							
Type	B1	H1	H2	H3	L1	Weight [g]	Part No. Type
EAMM-A-E20-32B	33.6	41	21.6	0	27	100	556 991 EAMM-A-E20-32B
EAMM-A-E20-40A	33.5	31.5	15.75	0	27.4	80	550 961 EAMM-A-E20-40A
EAMM-A-E20-42A					35.7	100	550 962 EAMM-A-E20-42A
EAMM-A-E20-55A					29.5	140	550 963 EAMM-A-E20-55A
EAMM-A-E32-40A	45	45	26.5	4	52.5	250	550 964 EAMM-A-E32-40A
EAMM-A-E32-42B	44.8	54.4	26.4		88	340	556 992 EAMM-A-E32-42B
EAMM-A-E32-42C					101	380	556 993 EAMM-A-E32-42C
EAMM-A-E32-55A	45	45	26.5		53.7	280	550 965 EAMM-A-E32-55A
EAMM-A-E32-57A					55	290	550 966 EAMM-A-E32-57A
EAMM-A-E48-52B	63.8	76.4	36.9	5	121	1 120	556 994 EAMM-A-E48-52B
EAMM-A-E48-52C					135	1,210	556 995 EAMM-A-E48-52C
EAMM-A-E48-64-70A	65	64	32		86.2	785	557 448 EAMM-A-E48-64-70A
EAMM-A-E48-87A					87.7	1,500	550 972 EAMM-A-E48-87A
EAMM-A-E48-100A					91.2	1,280	550 973 EAMM-A-E48-100A
EAMM-A-E72-60G	105.6	114.8	60.8	8	106.9	3,190	550 974 EAMM-A-E72-60G
EAMM-A-E72-62B	105.1	127.3	60.8		150	2,800	556 996 EAMM-A-E72-62B
EAMM-A-E72-70A	105.6	114.8	60.8		98.7	2,370	550 975 EAMM-A-E72-70A
EAMM-A-E72-80G					106.9	3,190	550 976 EAMM-A-E72-80G
EAMM-A-E72-87A					100.2	3,040	550 977 EAMM-A-E72-87A
EAMM-A-E72-100A					103.7	3,240	550 978 EAMM-A-E72-100A

-  - Note

Permissible axis/motor combinations

→ 42

# Positioning axes DMES

Accessories



## Parallel kit EAMM-U-...

Material:

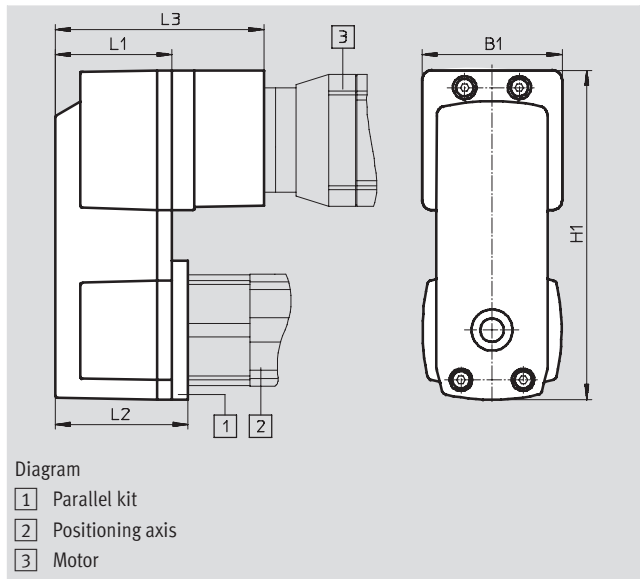
Coupling housing: Die-cast aluminium

Clamping component, clamping sleeve, toothed belt pulleys:

High-alloy steel

Toothed belt: Polychloroprene

Screws: Galvanised steel



General technical data									
EAMM-U-...	E24-			E32-			E48-		
	32B	40A		42B	42C	55A	52B	52C	70A
Transferable torque [Nm]	1	1		3	3	3	5.5	5.5	5.5
No-load drive torque [Nm]	0.05	0.05		0.1	0.1	0.1	0.3	0.3	0.3
Mass moment of inertia [kgmm <sup>2</sup> ]	3.016	3.016		10.22	10.22	10.22	71.138	71.138	71.138
Max. speed [rpm]	3,000								
Assembly position	Any								

Operating and environmental conditions	
Ambient temperature [°C]	0 ... 50
Storage temperature [°C]	-25 ... +60
Protection class <sup>1)</sup>	IP40
Relative air humidity [%]	0 ... 95

1) Only with combined attachment of motor and axis

Dimensions and ordering data								
Type	B1	H1	L1	L2	L3	Weight [g]	Part No.	Type
EAMM-U-E24-32B	43.3	110.05	39	-	-	240	543 225	EAMM-U-E24-32B
EAMM-U-E24-40A						240	543 226	EAMM-U-E24-40A
EAMM-U-E32-42B	56.4	132.7	47	53.5	84	660	543 228	EAMM-U-E32-42B
EAMM-U-E32-42C						690	543 229	EAMM-U-E32-42C
EAMM-U-E32-55A						540	543 230	EAMM-U-E32-55A
EAMM-U-E48-52B	85.8	189.9	58	66.5	106	1 700	543 232	EAMM-U-E48-52B
EAMM-U-E48-52C						1 800	543 233	EAMM-U-E48-52C
EAMM-U-E48-70A						1 300	543 234	EAMM-U-E48-70A

- - Note

Permissible axis/motor combinations  
→ 45



# Positioning axes DMES

Accessories

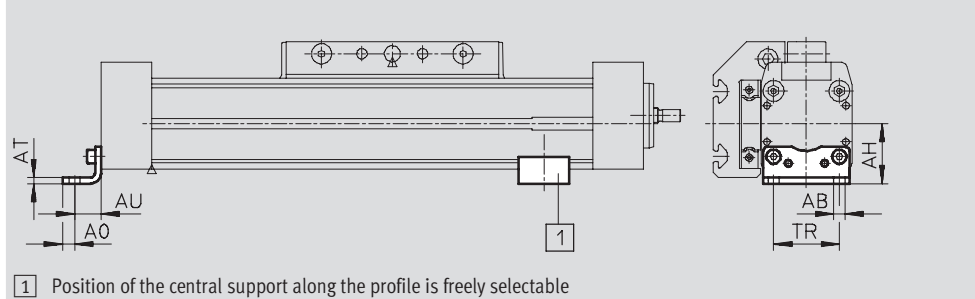
FESTO

**Foot mounting HP**  
(order code F)

Material:  
Galvanised steel  
Free of copper, PTFE and silicone



HP-25



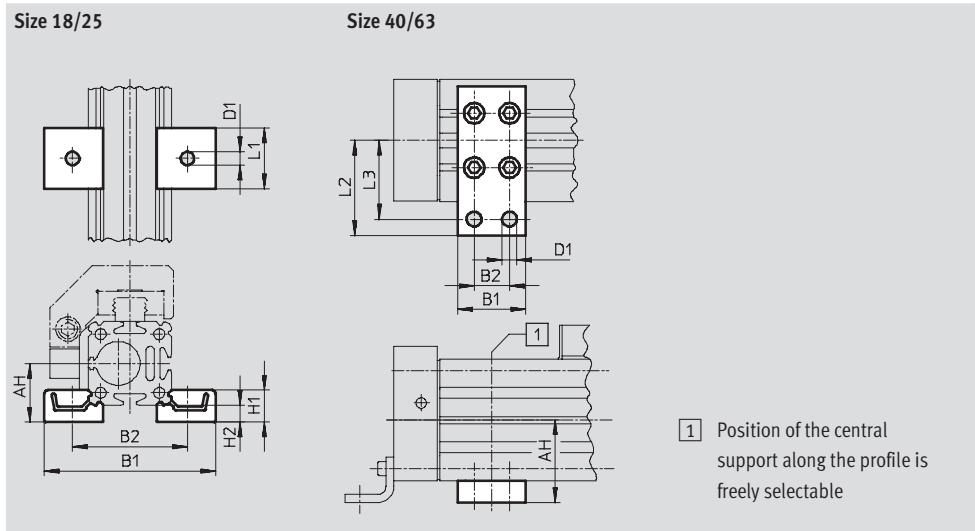
Dimensions and ordering data									
For size	AB ∅	AH	A0	AT	AU	TR	Weight [g]	Part No.	Type
18	5.5	24	4.8	3	13.2	24	59	158 472	HP-18
25	5.5	29.5	6	3	13	32.5	61	150 731	HP-25
40	6.6	46	8.5	5	17.5	45	188	150 733	HP-40
63	11	69	13.5	6	28	75	305	150 735	HP-63

**Central support MUP**  
(order code M)

Material:  
Galvanised steel  
Free of copper, PTFE and silicone



MUP-40



Dimensions and ordering data												
For size	AH	B1	B2	D1 ∅	H1	H2	L1	L2	L3	Weight [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

Accessories



## Sensor retainer HWS

For inductive proximity sensors

(order code: T)

Material:

Galvanised steel



## Switching lug SF

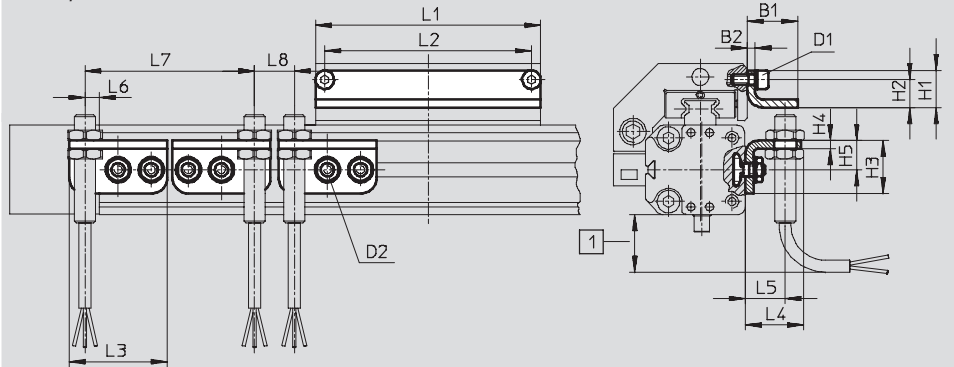
(order code: L)

Material:

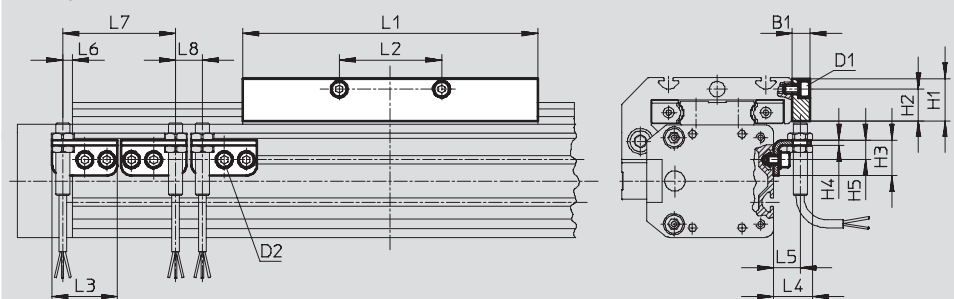
Galvanised steel



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

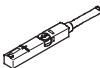

For size	L6 max.	L7 min.	L8 min.	Weight [g]	Part No.	Type
18	5.5	64	15	34	188 968	HWS-18/25-M8
				59	188 964	SF-18
25	5.5	64	15	34	188 968	HWS-18/25-M8
				75	188 965	SF-25
40	5.5	64	15	37	188 969	HWS-40-M8
				328	188 966	SF-40
63	5.5	64	15	45	188 970	HWS-63-M8
				630	188 967	SF-63

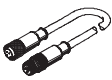
# Positioning axes DMES

Accessories

**FESTO**

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


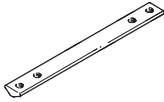



Ordering data – Proximity sensor for T-slot, magneto-resistive						Technical data → Internet: smt	
	Type of mounting		Switch output	Electrical connection	Cable length [m]	Part No.	Type
	Insertable in the slot	Flush with cylinder profile					
<b>N/O contact</b>							
	Insertable in the slot from above, flush with cylinder profile		PNP	Plug M8x1, 3-pin	0.3	<b>543 866</b>	<b>SMT-8M-PS-24V-K-0,3-M8D</b>
			NPN	Plug M8x1, 3-pin	0.3	<b>543 871</b>	<b>SMT-8M-NS-24V-K-0,3-M8D</b>
	Insertable in the slot lengthwise, flush with the cylinder profile		PNP	Cable, 3-wire	2.5	<b>175 436</b>	<b>SMT-8-PS-K-LED-24-B</b>
				Plug M8x1, 3-pin	0.3	<b>175 484</b>	<b>SMT-8-PS-S-LED-24-B</b>

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

# Positioning axes DMES

Accessories

**FESTO**

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

1) Packaging unit quantity