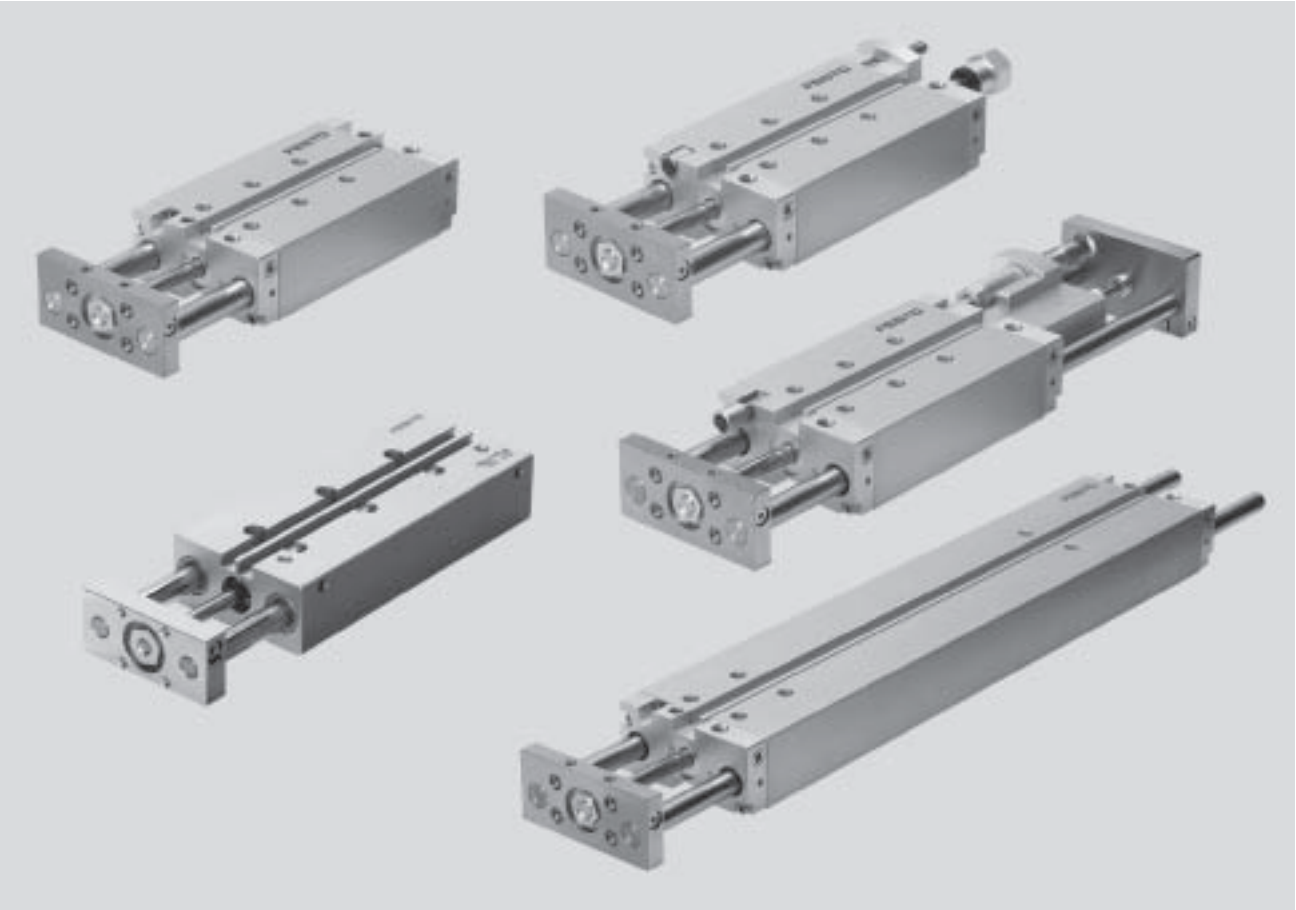
Guided drives DFM/DFM-B

FESTO

- Drive and guide unit in a single housing
- Sturdy and accurate
- High resistance to torque and lateral forces
- Wide range of variants

Guided drives DFM/DFM-B

Key features



Drive and guide unit in a single housing

- Minimal space requirement
- Minimal assembly time
- Choice of supply ports
- Versatile mounting options

Sturdy and accurate

- Good protection against torsion
- Rigid construction
- Maintenance-free

High resistance to torques and lateral forces

- With plain-bearing guide:
  It offers high rigidity thanks to its large-diameter guide rods and four plain-bearing bushes.
- With recirculating ball bearing guide:
  For applications involving torque loads.

Wide choice of variants

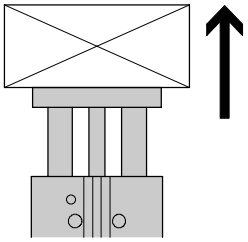
- With adjustable end position
- With shock absorber
- Long-stroke version
- With pneumatic end-position cushioning PPV

Guided drives DFM/DFM-B

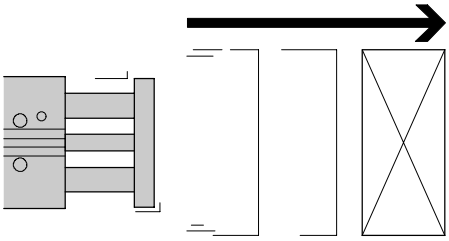
Key features

Use in conveyor systems

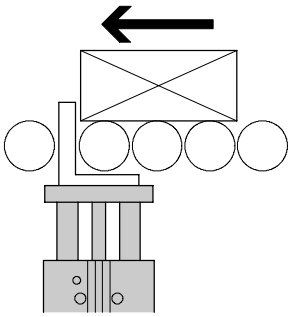
Lifting



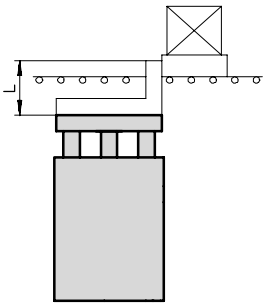
Pushing



Stopping



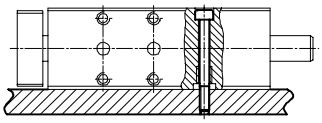
Stopping via stop bracket



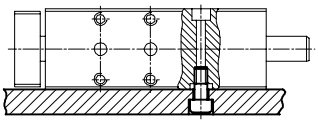
It is recommended to fit a buffer on the workpiece carrier.

Mounting options

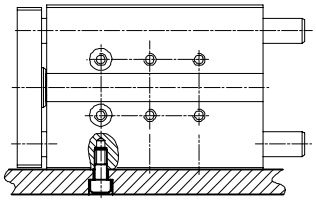
Flat from above



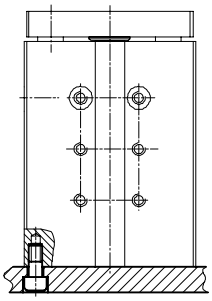
Flat from below



On side from below

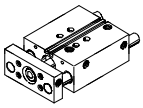
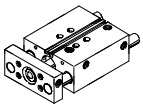
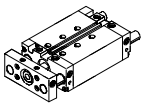
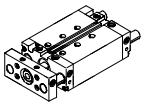


On end



Guided drives DFM/DFM-B

Product range overview

Function	Version	Type	Piston ∅ [mm]	Stroke [mm]	
Double-acting	**DFM basic version with recirculating ball bearing guide**				
		**DFM** Piston rod at one end	12, 16	10, 20, 25, 30, 40, 50, 80, 100	10 ... 100
			20, 25	20, 25, 30, 40, 50, 80, 100	20 ... 100
			32	20, 25, 30, 40, 50, 80, 100, 125, 160, 200	20 ... 200
			40, 50, 63, 80, 100	25, 50, 80, 100, 125, 160, 200	25 ... 200
	DFM basic version with plain-bearing guide				
		**DFM** Piston rod at one end	12, 16	10, 20, 25, 30, 40, 50, 80, 100	10 ... 100
			20, 25	20, 25, 30, 40, 50, 80, 100	20 ... 100
			32	20, 25, 30, 40, 50, 80, 100, 125, 160, 200	20 ... 200
			40, 50, 63, 80, 100	25, 50, 80, 100, 125, 160, 200	25 ... 200
	DFM-B with recirculating ball bearing guide				
		**DFM-B** Piston rod at one end	12, 16	10, 20, 25, 30, 40, 50, 80, 100, 125, 160, 200	10 ... 200
			20, 25, 32	20, 25, 30, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400	20 ... 400
			40, 50, 63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400	25 ... 400
	DFM-B with plain-bearing guide				
		**DFM-B** Piston rod at one end	12, 16	10, 20, 25, 30, 40, 50, 80, 100, 125, 160, 200	10 ... 200
			20, 25, 32	20, 25, 30, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400	20 ... 400
			40, 50, 63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400	25 ... 400

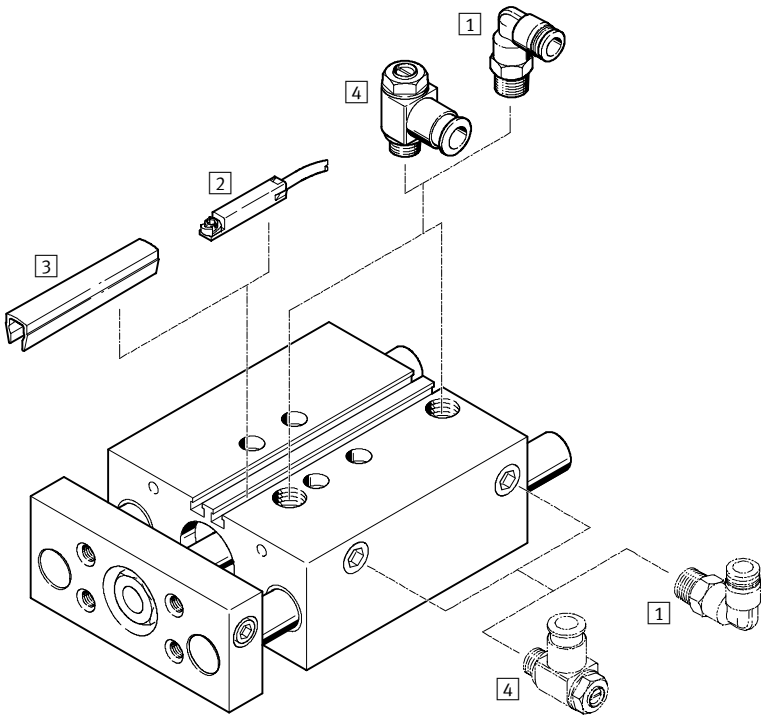
Guided drives DFM/DFM-B

Product range overview

Type	Position sensing	Cushioning			Precision end-position adjustment		➔ Page
		Not adjustable	Adjustable for heavy loads	Self-adjusting end position adjustable for heavy loads	Advanced end position	Retracted end position	
	A	P	PPV	YSRW	AJ	EJ	
DFM basic version with recirculating ball bearing guide							
DFM Piston rod at one end	■	■	–	–	–	–	1 / 6.2-52
DFM basic version with plain-bearing guide							
DFM Piston rod at one end	■	■	–	–	–	–	1 / 6.2-52
DFM-B with recirculating ball bearing guide							
DFM-B Piston rod at one end	■	■	■ ∅ 16 and above	■ ∅ 20 and above	■	■ ∅ 20 and above	1 / 6.2-74
DFM-B with plain-bearing guide							
DFM-B Piston rod at one end	■	■	■	–	■	■	1 / 6.2-74

Guided drives DFM

Peripherals overview



Accessories		
	Brief description	**➔ Page**
1 Push-in fitting QS	For connecting compressed air tubing with standard O.D. to CETOP RP 54 P	Volume 3
2 Proximity sensor SME-/SMT-8	Can be integrated in the profile barrel	1 / 6.2-104
3 Slot cover ABP-5-S	To protect the sensor cable and keep dirt out of the sensor slots	1 / 6.2-105
4 One-way flow control valve GRLA	To regulate speed	1 / 6.2-105
– Centring sleeves ZBH	4 pieces included in scope of delivery	1 / 6.2-104

Guided drives DFM

Type codes

DFM	–	50	–	80	–	P	–	A

Type	
Double-acting	
DFM	Guided drive

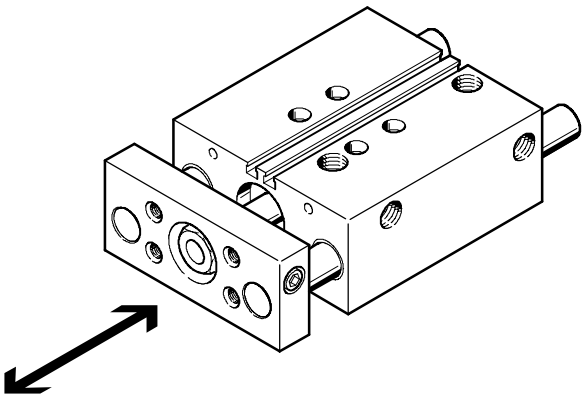
Piston ∅ [mm]

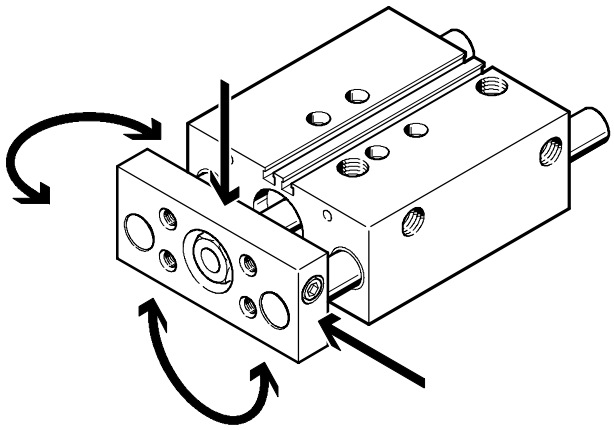
Stroke [mm]

Cushioning	
P	Non-adjustable at both ends

Position sensing	
A	Via proximity sensor

High functionality	
Direction of movement	Excellent protection against torsion, high resistance to torques and lateral forces



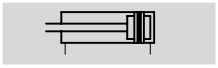


Guided drives DFM

Technical data

FESTO

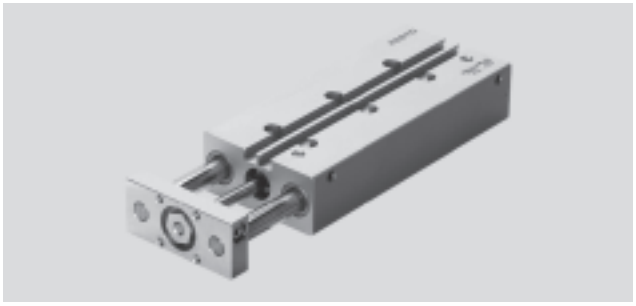
Function



www.festo.com/en/
Spare_parts_service

Ø Diameter
12 ... 100 mm

l Stroke length
10 ... 200 mm



General technical data										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Pneumatic connection	M5	M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄4	G1⁄4	G3⁄8	G3⁄8
Operating medium	Filtered compressed air, lubricated or unlubricated									
Operating pressure [bar]	2 ... 10			1.5 ... 10			1 ... 10		0.5 ... 10	
Design	Piston									
	Piston rod									
	Guide rods with yoke									
Cushioning	Non-adjustable at both ends									
Position sensing	Via proximity sensor									
Type of mounting	Via through-holes									
	Via female threads									
Assembly position	Any									
Protection against torsion/guide	Guide rod with yoke/with plain-bearing or ball bearing guide									

Ambient conditions		
Variant	Plain-bearing guide GF	Recirculating ball bearing guide KF
Ambient temperature[1] [°C]	–20 ... +80	–5 ... +60
Corrosion resistance class CRC[2]	2	1

1) Note operating range of proximity sensors.
2) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Speeds [m/s]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Cushioning P										
Maximum speed, advancing	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.4	0.4
Maximum speed, retracting	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.4	0.4

Forces [N]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Theoretical force at 6 bar, advancing	68	121	188	295	482	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting	51	90	141	247	415	686	1057	1750	2827	4418

Guided drives DFM

Technical data

Impact energy [J]										
Piston ∅	12	16	20	25	32	40	50	63	80	100
Max. impact energy at the end positions	0.09	0.10	0.14	0.35	0.40	0.52	0.64	0.70	0.75	1.00

Permissible impact velocity:

$$v_{zul.} = \sqrt{\frac{2 \times E_{zul.}}{m_{Eigen} + m_{Last}}}$$

Maximum permissible load:

$$m_{Last} = \frac{2 \times E_{zul.}}{v^2} - m_{Eigen}$$

- Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive cylinder and the permissible impact energy.

DFM with plain-bearing guide GF										
Stroke	Piston ∅ [mm]									
[mm]	12	16	20	25	32	40	50	63	80	100
Product weight [g]										
10	340	450	–	–	–	–	–	–	–	–
20	375	515	780	1250	1770	–	–	–	–	–
25	405	540	825	1270	1835	2145	3410	4420		
30	435	575	865	1340	1915	–	–	–	–	–
40	495	710	1060	1420	2120	–	–	–	–	–
50	540	770	1150	1630	2230	2520	4060	5140		
80	690	920	1350	1990	2795	2980	4960	5720		
100	775	1090	1595	2230	3095	3535	5500	7990		
125	–	–	–	–	3915	6300	8760	8760		
160	–	–	–	–	4520	7230	9040	9040		
200	–	–	–	–	5390	8250	10140	10150		
Moving load [g]										
10	170	230	–	–	–	–	–	–	–	–
20	190	250	400	650	1040	–	–	–	–	–
25	190	260	420	670	1070	1190	2050	2510	4140	6300
30	200	280	440	690	1090	–	–	–	–	–
40	230	340	550	760	1150	–	–	–	–	–
50	250	370	580	800	1210	1330	2280	2740	4720	7110
80	290	430	680	910	1480	1600	2720	3190	5460	8140
100	320	470	740	990	1590	1720	2910	3370	5730	8520
125	–	–	–	–	1840	1960	3300	3760	6080	9000
160	–	–	–	–	2040	2170	3630	4090	6550	9670
200	–	–	–	–	2280	2400	4000	4460	7100	10430

Guided drives DFM

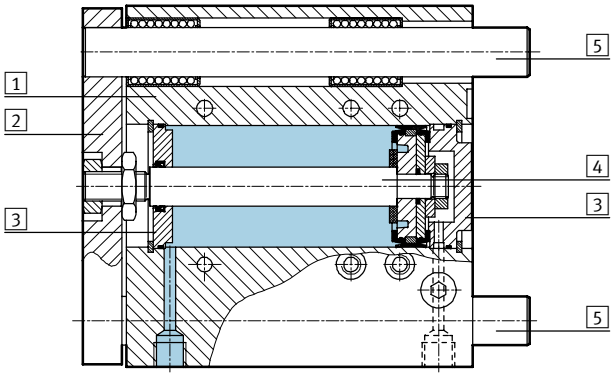
Technical data

FESTO

DFM with recirculating ball bearing guide KF										
Stroke	Piston ∅ [mm]									
[mm]	12	16	20	25	32	40	50	63	80	100
Product weight [g]										
10	320	425	–	–	–	–	–	–	–	–
20	340	485	735	1185	1585	–	–	–	–	–
25	380	510	760	1215	1640	1955	3085	4130		
30	405	535	810	1290	1715	–	–	–	–	–
40	470	650	970	1425	1850	–	–	–	–	–
50	510	705	1050	1535	1995	2345	3655	4835		
80	560	880	1290	1875	2425	2870	4440	5340		
100	725	990	1330	2090	2730	3170	4880	6140		
125	–	–	–	–	3620	5580	7380			
160	–	–	–	–	4165	6365	8130			
200	–	–	–	–	4800	7340	9240			
Moving load [g]										
10	150	200	–	–	–	–	–	–	–	–
20	160	220	360	590	860	–	–	–	–	–
25	160	230	380	600	880	1000	1720	2180	3670	5700
30	170	240	390	620	900	–	–	–	–	–
40	190	290	480	670	960	–	–	–	–	–
50	200	300	500	700	980	1100	1880	2340	4090	6320
80	230	350	570	790	1160	1280	2180	2640	4630	7110
100	250	380	620	850	1240	1360	2310	2770	4840	7410
125	–	–	–	–	1400	1530	2580	3040	5090	7780
160	–	–	–	–	1540	1670	2810	3270	5450	8310
200	–	–	–	–	1710	1830	3070	3530	5860	8910

Materials

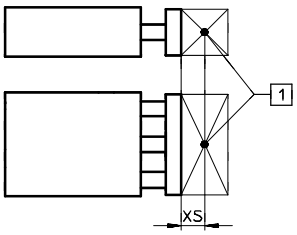
Sectional view



Variant		Plain-bearing guide GF	Recirculating ball bearing guide KF
1	Housing	Wrought aluminium alloy, anodised	Wrought aluminium alloy, anodised
2	Yoke plate	Tempered steel	Tempered steel
3	Bearing and end caps	Wrought aluminium alloy, anodised	Wrought aluminium alloy, anodised
4	Piston rod	High-alloy stainless steel	High-alloy stainless steel
5	Guide rods	High-alloy stainless steel	Tempered steel
–	Static seals	Nitrile rubber	Nitrile rubber
–	Dynamic seals	Polyurethane	Polyurethane
–	Lubricant	Klüberplex BE 31-102	Klüberplex BE 31-102
Note on materials		–	Free of copper, PTFE and silicone

Maximum effective load F [N]

Plain-bearing guide GF and recirculating ball bearing guide KF

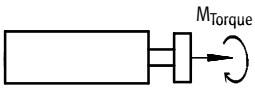


1 Centre of gravity of effective load

Piston ∅ [mm]		XS [mm]	Stroke [mm]										
			10	20	25	30	40	50	80	100	125	160	200
12	GF	25	28	24	23	21	31	28	22	19	–	–	–
	KF		27	23	21	20	23	22	20	19	–	–	–
16	GF	50	63	56	53	51	73	67	55	49	–	–	–
	KF		45	31	27	24	58	56	51	48	–	–	–
20	GF	50	–	67	64	61	110	103	86	77	–	–	–
	KF		–	45	39	35	91	88	80	75	–	–	–
25	GF	50	–	121	116	112	123	115	96	86	–	–	–
	KF		–	88	86	84	100	97	89	85	–	–	–
32	GF	50	–	188	180	173	161	150	166	150	168	146	127
	KF		–	120	118	116	112	109	134	128	144	135	126
40	GF	50	–	–	180	–	–	150	166	150	168	146	127
	KF		–	–	118	–	–	109	134	128	144	135	126
50	GF	50	–	–	257	–	–	216	234	212	229	200	174
	KF		–	–	182	–	–	168	201	193	211	199	188
63	GF	50	–	–	257	–	–	216	234	212	229	200	174
	KF		–	–	182	–	–	168	201	193	211	199	188
80	GF	125	–	–	276	–	–	311	352	329	304	274	245
	KF		–	–	220	–	–	275	329	318	306	291	277
100	GF	125	–	–	452	–	–	509	568	533	494	446	400
	KF		–	–	332	–	–	415	495	480	463	442	422

Permissible torque load M [Nm]

Plain-bearing guide GF and recirculating ball bearing guide KF



Piston ∅ [mm]		Stroke [mm]										
		10	20	25	30	40	50	80	100	125	160	200
12	GF	0.60	0.50	0.48	0.45	0.65	0.60	0.45	0.40	–	–	–
	KF	0.55	0.47	0.44	0.42	0.47	0.45	0.41	0.38	–	–	–
16	GF	1.44	1.30	1.23	1.18	1.68	1.56	1.28	1.14	–	–	–
	KF	1.03	0.71	0.62	0.55	1.34	1.29	1.18	1.12	–	–	–
20	GF	–	1.85	1.75	1.70	3.00	2.80	2.35	2.10	–	–	–
	KF	–	1.30	1.13	1.01	2.64	2.56	2.34	2.23	–	–	–
25	GF	–	4.15	3.95	3.80	4.20	3.90	3.25	2.90	–	–	–
	KF	–	3.00	2.92	2.85	3.40	3.30	3.02	2.89	–	–	–
32	GF	–	7.30	7.00	6.70	6.20	5.80	6.40	5.80	6.50	5.70	5.00
	KF	–	4.70	4.60	4.55	4.40	4.25	5.25	5.00	5.60	5.25	4.90
40	GF	–	–	7.90	–	–	6.55	7.25	6.55	7.35	6.40	5.55
	KF	–	–	5.20	–	–	4.80	5.90	5.65	6.35	5.95	5.55
50	GF	–	–	14.15	–	–	11.85	12.85	11.65	12.55	11.00	9.60
	KF	–	–	10.00	–	–	9.30	11.00	10.60	11.60	11.00	10.30
63	GF	–	–	15.90	–	–	13.30	14.45	13.10	14.10	12.30	10.70
	KF	–	–	11.30	–	–	10.50	12.50	12.00	13.20	12.40	11.70
80	GF	–	–	21.40	–	–	24.20	27.20	25.50	23.50	21.30	19.00
	KF	–	–	17.10	–	–	21.30	25.50	24.70	23.70	22.60	21.50
100	GF	–	–	42.40	–	–	47.80	53.40	50.10	46.40	42.00	37.60
	KF	–	–	25.70	–	–	32.20	38.40	37.20	35.90	34.20	32.70

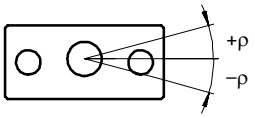
Guided drives DFM

Technical data

FESTO

Torsional backlash ρ

Plain-bearing guide GF and recirculating ball bearing guide KF in retracted state, without load



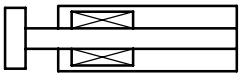
Piston ∅		12	16	20	25	32	40	50	63	80	100
Torsional backlash [°]	GF	0.09	0.09	0.07	0.07	0.06	0.06	0.05	0.05	0.03	0.03
	KF	0.08	0.08	0.07	0.07	0.05	0.05	0.05	0.05	0.03	0.03

Deflection of piston rod

Bearing backlash plain-bearing guide GF and recirculating ball bearing guide KF (without load)

DFM-12 ... 20 stroke ≤ 30 mm

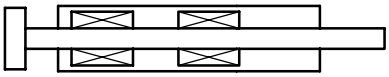
1 bearing per guide rod



DFM-12 ... 20 stroke > 30 mm

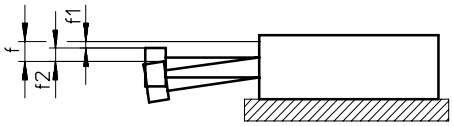
DFM-25 ... 100:

2 bearings per guide rod



Piston ∅		12	16	20	25	32	40	50	63	80	100
Bearing backlash [mm]	GF	0.11	0.11	0.11	0.10	0.13	0.13	0.12	0.12	0.12	0.12
	KF	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07

Mean deflection f1 due to bearing backlash as a function of the stroke l



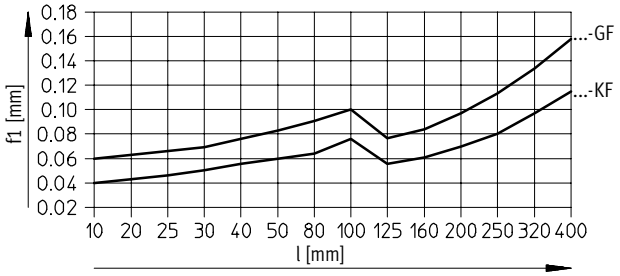
f = f1 + f2

f = Total deflection of piston rod

f1 = Deflection due to bearing backlash

f2 = Deflection due to lateral force

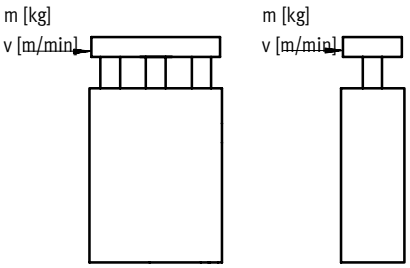
DFM with 2 bearings per guide rod



Used as stopper cylinder

Permissible impact energy

The permissible kinetic impact energy at the end stop must not be exceeded.

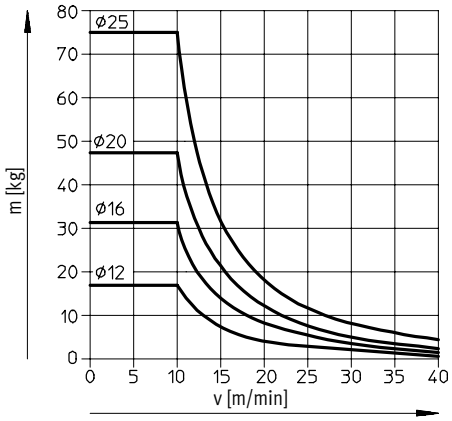


- Note

Only guided drives with plain-bearing guide GF may be used in this way ($l_{max.}$ = 50 mm).

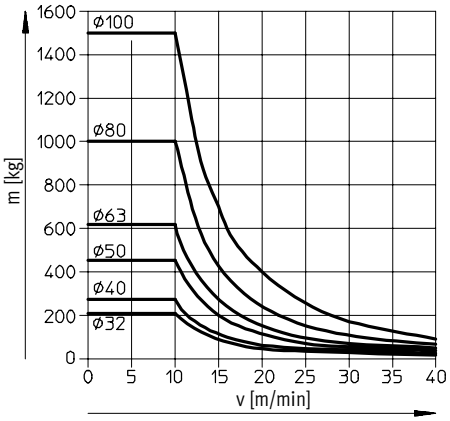
Impact mass m as a function of the impact velocity v

DFM-12 ... 25-GF
Stroke < 30 mm



The values in the above graph are based on the assumption that the workpiece carrier is fitted with a flexible buffer with a deformation of 1 mm. Only guided drives with plain-bearing guide GF and a stroke of < 30 mm may be used.

DFM-32 ... 100-GF
Stroke < 50 mm



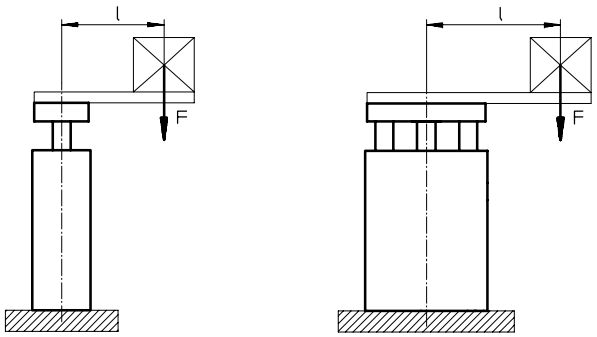
The values in the above graph are based on the assumption that the workpiece carrier is fitted with a flexible buffer with a deformation of 2 mm. Only guided drives with plain-bearing guide GF and a stroke of < 50 mm may be used.

Guided drives DFM

Technical data

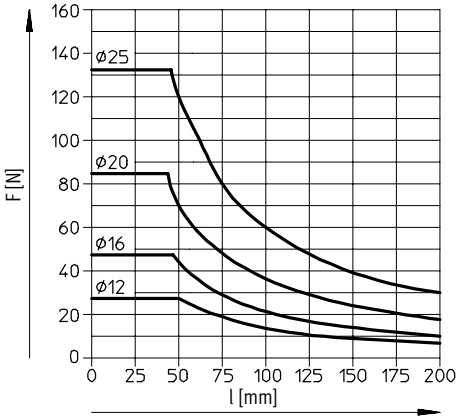
Used as lifting cylinder

Permissible load with plain-bearing guide GF

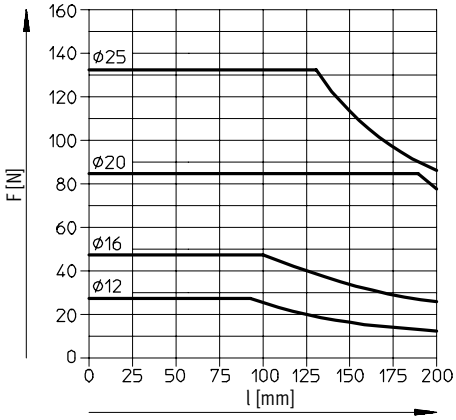


F = Longitudinal force [N]
L = Lever arm [mm]

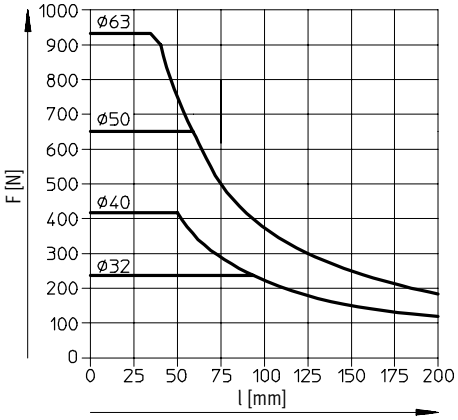
DFM-12 ... 25-GF
Stroke 30 mm



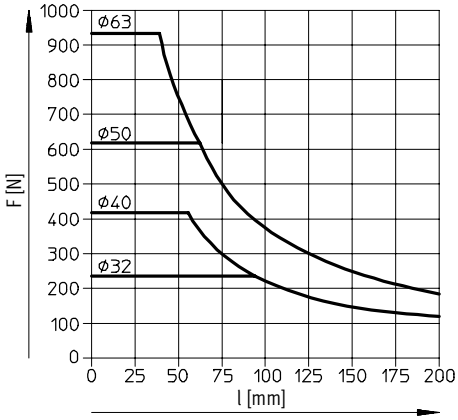
DFM-12 ... 25-GF
Stroke 40 ... 100 mm



DFM-32 ... 63-GF
Stroke 50 mm



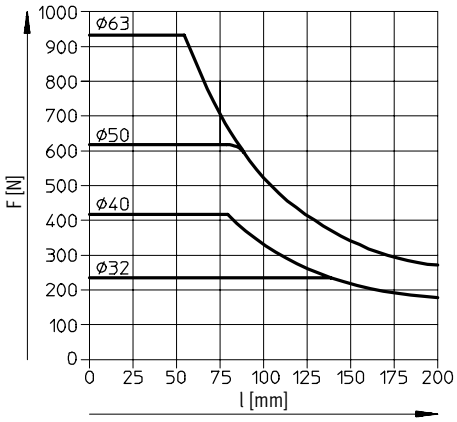
DFM-32 ... 63-GF
Stroke 80 ... 100 mm



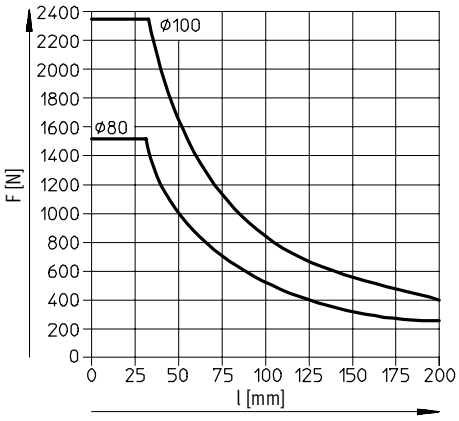
Used as lifting cylinder

Permissible load with plain-bearing guide GF

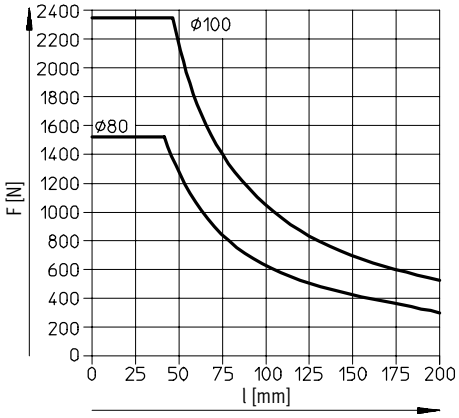
DFM-32 ... 63-GF
Stroke 125 ... 200 mm



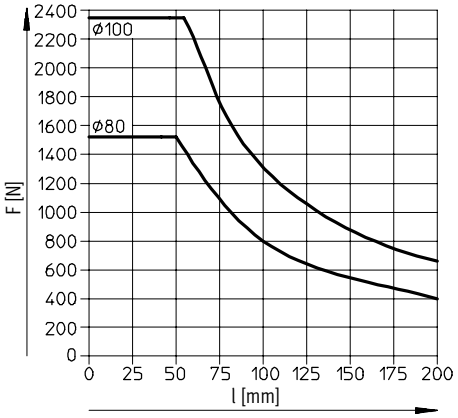
DFM-80 ... 100-GF
Stroke 25 mm



DFM-80 ... 100-GF
Stroke 50 mm



DFM-80 ... 100-GF
Stroke 80 ... 200 mm



Guided drives DFM

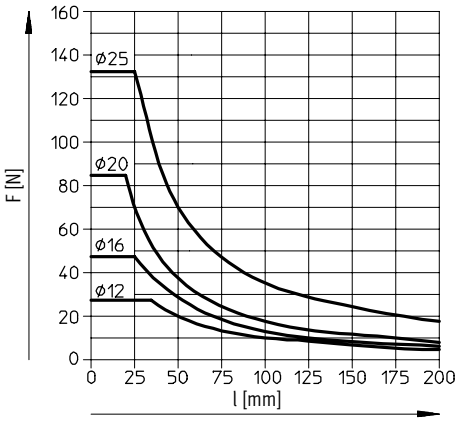
Technical data

FESTO

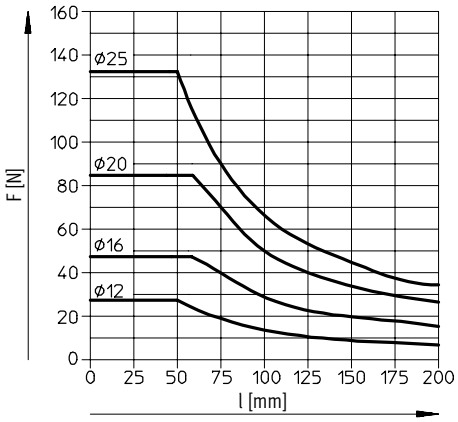
Used as lifting cylinder

Permissible load with recirculating ball bearing guide KF

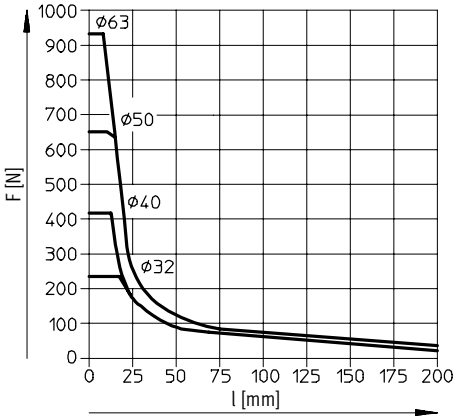
DFM-12 ... 25-KF
Stroke 30 mm



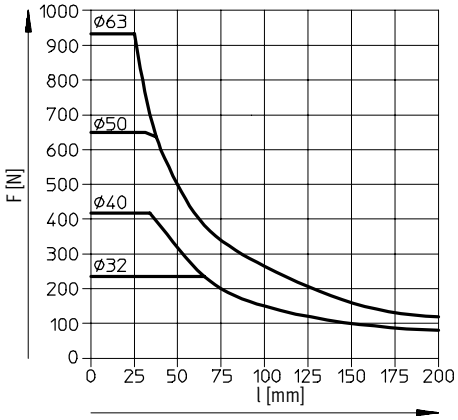
DFM-12 ... 25-KF
Stroke 40 ... 100 mm



DFM-32 ... 63-KF
Stroke 50 mm



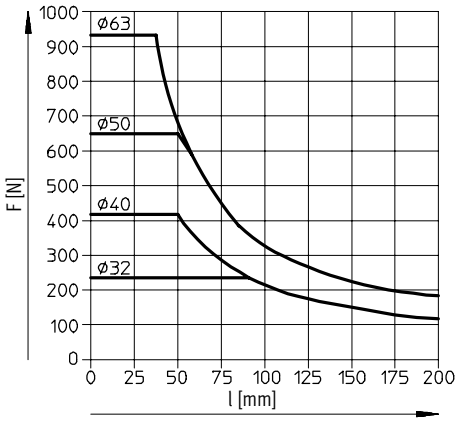
DFM-32 ... 63-KF
Stroke 80 ... 100 mm



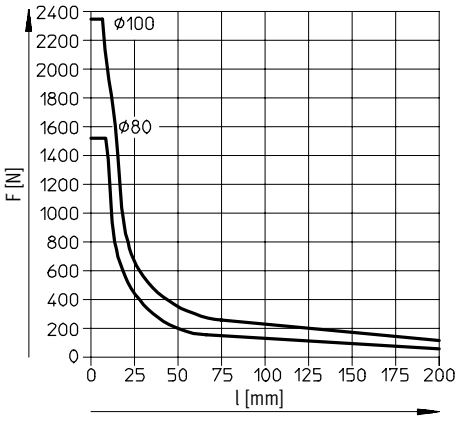
Used as lifting cylinder

Permissible load with recirculating ball bearing guide KF

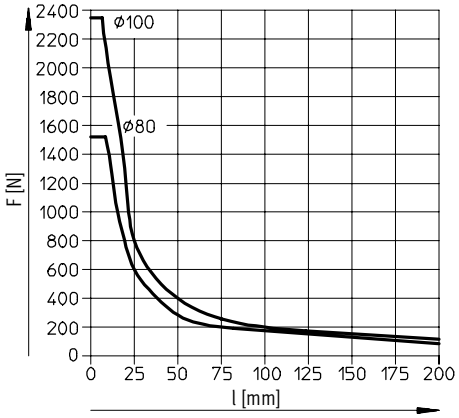
DFM-32 ... 63-KF
Stroke 125 ... 200 mm



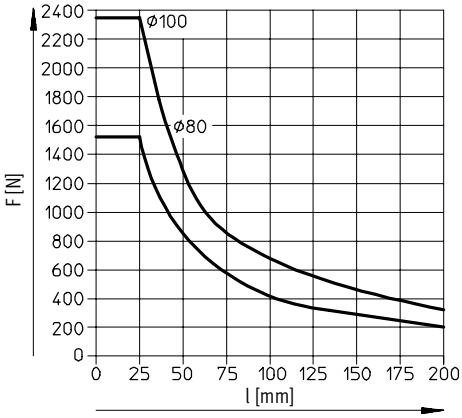
DFM-80 ... 100-KF
Stroke 25 mm



DFM-80 ... 100-KF
Stroke 50 mm



DFM-80 ... 100-KF
Stroke 80 ... 200 mm



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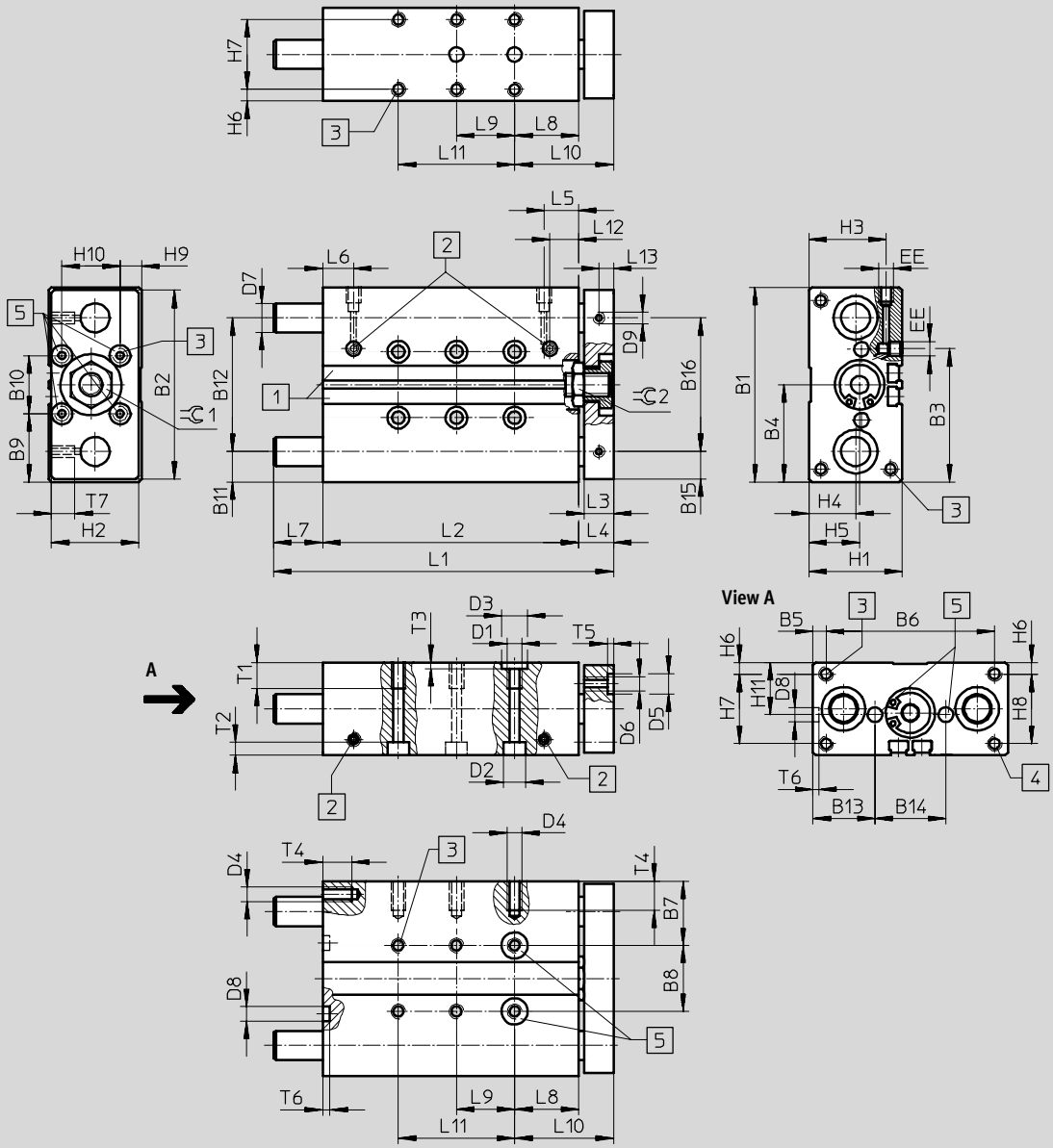
Piston ∅ 12 ... 16 mm



[1] Mounting slot for proximity sensor SME-/SMT-8

[2] Supply port optionally at side or top

[3] Mounting thread

[4] Mounting thread (not with ∅ 12 ... 20)

[5] Tolerance between centring holes ±0.02 mm (∅ 12 and 16 mm have no centring holes on the flange plates)

Guided drives DFM

Technical data

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	D1	D2 ∅	D3 ∅ H7	D4
12	60	58	42.4	30	4.5	51	20.5	19	20	20	9.5	41	19.5	21	8.5	41	M5	8	9	M4
16	67	65	45.9	33.5	4.5	58	22	23	23.5	20	10.5	46	21.3	24.4	–	–	M5	7.5	9	M5

∅ [mm]	D5 ∅ H7	D6	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	D9	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
12	–	M4	10h8	8h6	5	M4	M5	28	26	24	14	14	4	20	–	4	20	14
16	–	M5	12h8	10h6	5	–	M5	32	30	26.5	16	17.4	4	24	–	7.4	20	16

∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11
12	10	59	46	10	13	11.4	9.5	–	21	–	34	–
	20	69	56					–		–		–
	25	74	61					–		20		–
	30	79	66					–		20		–
	40	89	76					6		20		–
	50	105	86					6		40		–
	80	135	116					6		40		–
	100	155	136					6		40		80
16	10	60	48	10	12	11.9	10.6	–	22	–	34	–
	20	70	58					–		–		–
	25	75	63					–		20		–
	30	80	68					–		20		–
	40	107	78					17		20		–
	50	117	88					17		40		–
	80	147	118					17		40		–
	100	167	138					17		40		80

∅ [mm]	Stroke [mm]	L12	L13	T1	T2	T3	T4	T5	T6	T7	⫧1	⫧2
12	10	11.4	5	9	9.4	2.1	8	–	1	8	10	10
	20											
	25											
	30											
	40											
	50											
	80											
	100											
16	10	11.9	–	9	4.6	2.1	10	–	1	–	14	14
	20											
	25											
	30											
	40											
	50											
	80											
	100											

Guided drives DFM

Technical data

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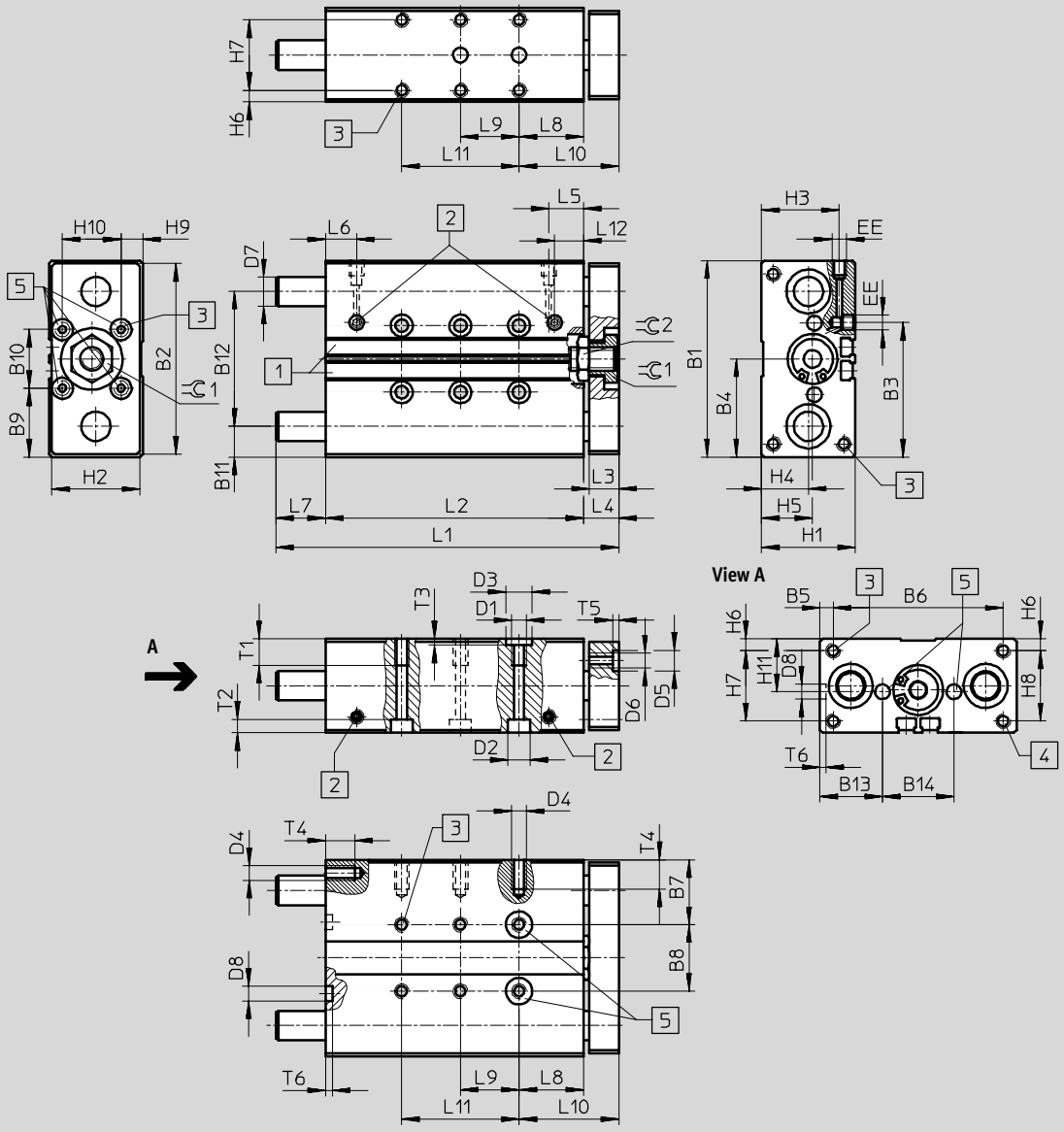
Piston ∅ 20 ... 25 mm



[1] Mounting slot for proximity sensor SME-/SMT-8

[2] Supply port optionally at side or top

[3] Mounting thread

[4] Mounting thread (not with ∅ 12 ... 20)

[5] Tolerance between centring holes ±0.02 mm

Note

In the case of the drives DFM-25 ... 100 with stroke lengths of 40 mm and more, the guide rods project beyond the edge of the housing when the unit is in its retracted end position. If a drive is to be mounted on its end cap against a surface, a recess should be provided in this surface to allow the guide rods to move freely.

Guided drives DFM

Technical data

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7	D4
20	83	81	53.6	41.5	6.5	70	26.5	30	26.5	30	12.5	58	26	31	M6	9	9	M5
25	95	93	70	47.5	15.5	64	30	35	27.5	40	13.5	68	29	37	M6	9	9	M6

∅ [mm]	D5 ∅ H7	D6	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
20	9	M5	14h8	12h6	7	M5	36	34	29.5	17	17	4.5	27	–	7	20	18
25	9	M6	16h8	14h6	7	G1/8	44	42	34.8	19	23.9	4.5	35	35	12	20	22

∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11
20	20	75	61	12	14	14	10.5	–	26	–	40	–
	25	80	66					–		20		–
	30	85	71					–		20		–
	40	121	81					26		20		–
	50	131	91					26		40		–
	80	161	121					26		40		–
	100	181	141					26		40		80
25	20	93	65.6	12	14	17.5	9.5	13.4	26	–	40	–
	25	98	70.6					13.4		20		–
	30	103	75.6					13.4		20		–
	40	123	85.6					23.4		20		–
	50	133	95.6					23.4		40		–
	80	163	125.6					23.4		40		–
	100	183	145.6					23.4		40		80

∅ [mm]	Stroke [mm]	L12	T1	T2	T3	T4	T5	T6	⫧1	⫧2
20	20	14	12	5.7	2.1	10	2.1	1.6	17	17
	25									
	30									
	40									
	50									
	80									
	100									
25	20	15	14	5.7	2.1	12	2.1	1.6	17	17
	25									
	30									
	40									
	50									
	80									
	100									

Guided drives DFM

Technical data

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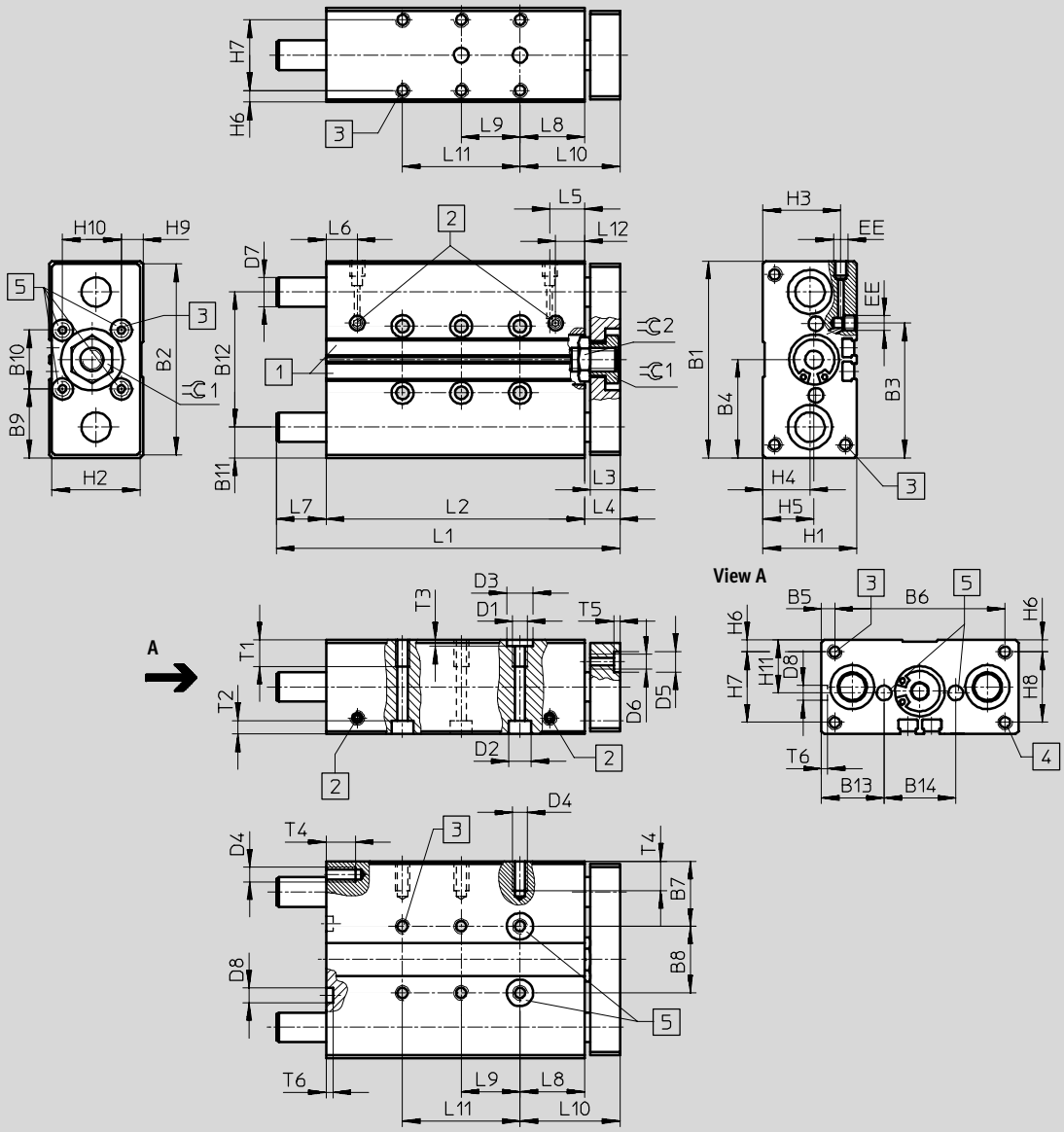
Piston ∅ 32 ... 63 mm



1 Mounting slot for proximity sensor SME-/SMT-8

2 Supply port optionally at side or top

3 Mounting thread

4 This mounting thread is not available with ∅ 12 ... 20

5 Tolerance between centring holes ±0.02 mm

Note

In the case of the drives DFM-25 ... 100 with stroke lengths of 40 mm and more, the guide rods project beyond the edge of the housing when the unit is in its retracted end position. If a drive is to be mounted on its end cap against a surface, a recess should be provided in this surface to allow the guide rods to move freely.

Guided drives DFM

Technical data

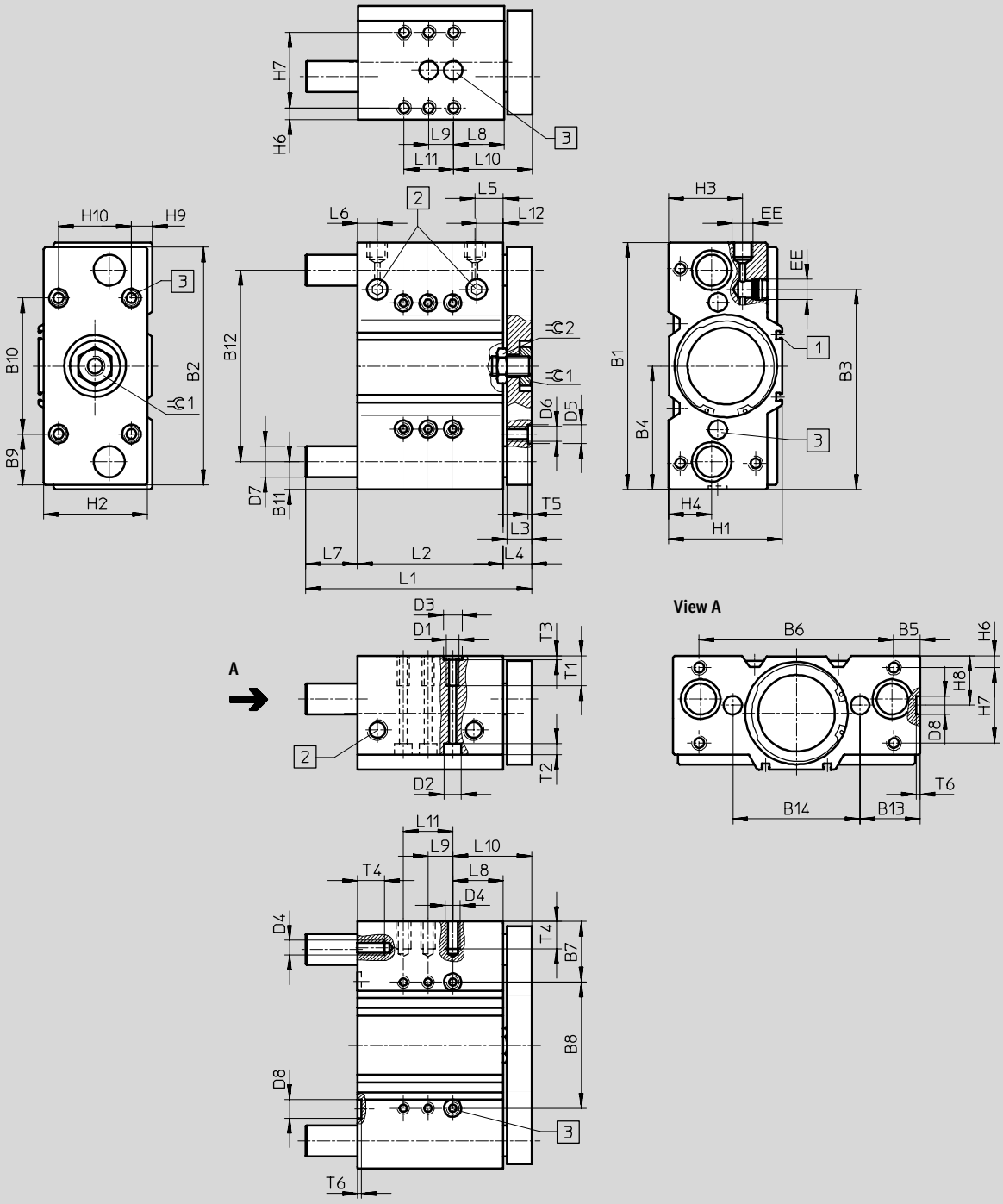
∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7	D4
32	110	108	81	55	20	70	33.5	43	35	40	16	78	32.5	45	M8	11	12	M6
40	120	118	94	60	15	90	34.5	51	35	50	16	88	32.5	55	M8	11	12	M8
50	148	146	116.5	74	19	110	42	64	44	60	19	110	40	68	M8	11	12	M8
63	162	160	139	81	9	144	41	80	41	80	18.4	125	39.5	83	M10	15	12	M10

∅ [mm]	D5 ∅ H7	D6	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
32	9	M6	20h8	16h6	9	G1⁄8	49	47	38.5	22	23.5	6	37	37	8.5	30	24.5
40	9	M6	20h8	16h6	9	G1⁄8	54	52	40.5	24	25	6	42	42	10	30	27
50	12	M8	25h8	20h6	12	G1⁄4	64	62	50.5	29.5	29.7	7	50	50	12	40	32
63	12	M8	25h8	20h6	12	G1⁄4	78	76	55	32	36.8	9	60	60	19	40	39

∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11	L12	T1	T2	T3	T4	T5	T6	=⊂1	=⊂2
32	20	101	68	14	16	17	12	17	29	–	45	–	17	15	6.8	2.6	12	2.1	2.1	17	22
	25	106	73					17		20		–									
	30	111	78					17		20		–									
	40	121	88					17		20		–									
	50	131	98					17		40		–									
	80	179	128					35		40		–									
	100	199	148					35		40		80									
	125	244	173					55		40		80									
	160	279	208					55		40		120									
	200	319	248					55		40		160									
40	25	106	76	14	16	17.8	13.1	14	29	20	45	–	17.8	15	6.8	2.6	16	2.1	2.1	17	22
	50	131	101					14		40		–									
	80	179	131					32		40		–									
	100	199	151					32		40		80									
	125	244	176					52		40		80									
	160	279	211					52		40		120									
	200	319	251					52		40		160									
50	25	118	77	16	18	17.8	14.2	23	32	20	50	–	17.8	15	6.8	2.6	16	2.6	2.6	19	24
	50	143	102					23		40		–									
	80	194	132					44		40		–									
	100	214	152					44		40		80									
	125	259	177					64		40		80									
	160	294	212					64		40		120									
	200	334	252					64		40		160									
63	25	118	83	16	18	18.5	14.8	17	32	20	50	–	18.5	20	9	2.6	20	2.6	2.6	19	24
	50	143	108					17		40		–									
	80	194	138					38		40		80									
	100	214	158					38		40		80									
	125	259	183					58		40		120									
	160	294	218					58		40		160									
	200	334	258					58		40		200									

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 80 ... 100 mm



1 Mounting slot for proximity sensor SME-/SMT-8

2 Supply port optionally at side or top

3 Tolerance between centring holes ±0.02 mm

Note

In the case of the drives DFM-25... 100 with stroke lengths of 40 mm and more, the guide rods project beyond the edge of the housing when the unit is in its retracted end position. If the guided drive is to be mounted on its end cap against a surface, a recess should be provided in this surface to allow the guide rods to move freely.

Guided drives DFM

Technical data

FESTO

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7
80	200	192	162.5	100	21.5	157	48.5	103	41	110	22.5	155	48.5	103	M10	15	12
100	240	232	201	120	21	198	54	132	56	120	26	188	57	126	M12	18	15

∅ [mm]	D4	D5 ∅ H7	D6	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	EE	H1	H2	H3	H4	H6	H7	H8	H9	H10
80	M10	12	M10	30h8	25h6	12	G3⁄8	92	84	61	35	9	62	40	16	60
100	M12	15	M12	35h8	30h6	15	G3⁄8	112	104	66	39.5	10	68	44	16	80

∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11	L12	T1	T2	T3	T4	T5	T6	⌭1	⌭2
80	25	137	93	20	23	23	16	21	41	20	64	–	24	20	9	2.6	20	2.6	2.6	27	24
	50	183	118					42		40		–									
	80	243	148					72		40		–									
	100	263	168					72		40		80									
	125	288	193					72		40		80									
	160	323	228					72		40		120									
	200	363	268					72		40		160									
100	25	150	109	20	23	29	20	18	13	40	36	–	29	25	11	3.1	24	3.1	3.1	32	30
	50	197	134					40		40		80									
	80	257	164					70		40		80									
	100	277	184					70		40		120									
	125	302	209					70		40		160									
	160	337	244					70		40		160									
	200	377	284					70		40		200									

Guided drives DFM

Technical data

FESTO

Ordering data – Plain-bearing guide GF

	Part No.	Type	Part No.	Type	Part No.	Type
Stroke [mm]	Piston ∅ 12 mm		Piston ∅ 16 mm		Piston ∅ 20 mm	
10	170 824	DFM-12-10-P-A-GF	170 832	DFM-16-10-P-A-GF	–	–
20	170 825	DFM-12-20-P-A-GF	170 833	DFM-16-20-P-A-GF	170 840	DFM-20-20-P-A-GF
25	170 826	DFM-12-25-P-A-GF	170 834	DFM-16-25-P-A-GF	170 841	DFM-20-25-P-A-GF
30	170 827	DFM-12-30-P-A-GF	170 835	DFM-16-30-P-A-GF	170 842	DFM-20-30-P-A-GF
40	170 828	DFM-12-40-P-A-GF	170 836	DFM-16-40-P-A-GF	170 843	DFM-20-40-P-A-GF
50	170 829	DFM-12-50-P-A-GF	170 837	DFM-16-50-P-A-GF	170 844	DFM-20-50-P-A-GF
80	170 830	DFM-12-80-P-A-GF	170 838	DFM-16-80-P-A-GF	170 845	DFM-20-80-P-A-GF
100	170 831	DFM-12-100-P-A-GF	170 839	DFM-16-100-P-A-GF	170 846	DFM-20-100-P-A-GF
125	–	–	–	–	–	–
160	–	–	–	–	–	–
200	–	–	–	–	–	–
Stroke [mm]	Piston ∅ 25 mm		Piston ∅ 32 mm		Piston ∅ 40 mm	
10	–	–	–	–	–	–
20	170 847	DFM-25-20-P-A-GF	170 854	DFM-32-20-P-A-GF	–	–
25	170 848	DFM-25-25P-A-GF	170 855	DFM-32-25-P-A-GF	170 864	DFM-40-25-P-A-GF
30	170 849	DFM-25-30-P-A-GF	170 856	DFM-32-30-P-A-GF	–	–
40	170 850	DFM-25-40-P-A-GF	170 857	DFM-32-40-P-A-GF	–	–
50	170 851	DFM-25-50-P-A-GF	170 858	DFM-32-50-P-A-GF	170 865	DFM-40-50-P-A-GF
80	170 852	DFM-25-80-P-A-GF	170 859	DFM-32-80-P-A-GF	170 866	DFM-40-80-P-A-GF
100	170 853	DFM-25-100-P-A-GF	170 860	DFM-32-100-P-A-GF	170 867	DFM-40-100-P-A-GF
125	–	–	170 861	DFM-32-125-P-A-GF	170 868	DFM-40-125-P-A-GF
160	–	–	170 862	DFM-32-160-P-A-GF	170 869	DFM-40-160-P-A-GF
200	–	–	170 863	DFM-32-200-P-A-GF	170 870	DFM-40-200-P-A-GF
Stroke [mm]	Piston ∅ 50 mm		Piston ∅ 63 mm		Piston ∅ 80 mm	
10	–	–	–	–	–	–
20	–	–	–	–	–	–
25	170 871	DFM-50-25-P-A-GF	170 878	DFM-63-25-P-A-GF	170 885	DFM-80-25-P-A-GF
30	–	–	–	–	–	–
40	–	–	–	–	–	–
50	170 872	DFM-50-50-P-A-GF	170 879	DFM-63-50-P-A-GF	170 886	DFM-80-50-P-A-GF
80	170 873	DFM-50-80-P-A-GF	170 880	DFM-63-80-P-A-GF	170 887	DFM-80-80-P-A-GF
100	170 874	DFM-50-100-P-A-GF	170 881	DFM-63-100-P-A-GF	170 888	DFM-80-100-P-A-GF
125	170 875	DFM-50-125-P-A-GF	170 882	DFM-63-125-P-A-GF	170 889	DFM-80-125-P-A-GF
160	170 876	DFM-50-160-P-A-GF	170 883	DFM-63-160-P-A-GF	170 890	DFM-80-160-P-A-GF
200	170 877	DFM-50-200-P-A-GF	170 884	DFM-63-200-P-A-GF	170 891	DFM-80-200-P-A-GF
Stroke [mm]	Piston ∅ 100 mm					
10	–	–				
20	–	–				
25	170 892	DFM-100-25-P-A-GF				
30	–	–				
40	–	–				
50	170 893	DFM-100-50-P-A-GF				
80	170 894	DFM-100-80-P-A-GF				
100	170 895	DFM-100-100-P-A-GF				
125	170 896	DFM-100-125-P-A-GF				
160	170 897	DFM-100-160-P-A-GF				
200	170 898	DFM-100-200-P-A-GF				

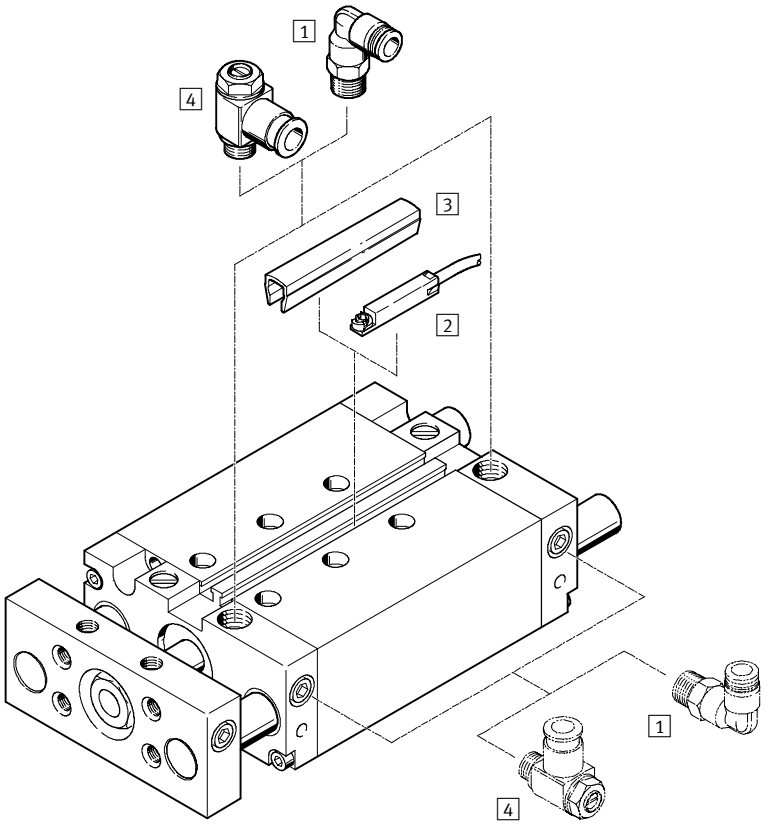
Core Range

Ordering data – Recirculating ball bearing guide KF

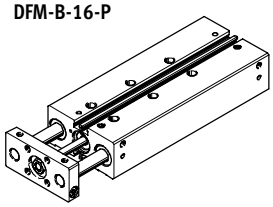
Stroke [mm]	Part No.	Type	Part No.	Type	Part No.	Type
	Piston ∅ 12 mm		Piston ∅ 16 mm		Piston ∅ 20 mm	
10	**170 899**	**DFM-12-10-P-A-KF**	**170 907**	**DFM-16-10-P-A-KF**	–	–
20	**170 900**	**DFM-12-20-P-A-KF**	**170 908**	**DFM-16-20-P-A-KF**	**170 915**	**DFM-20-20-P-A-KF**
25	**170 901**	**DFM-12-25-P-A-KF**	**170 909**	**DFM-16-25-P-A-KF**	**170 916**	**DFM-20-25-P-A-KF**
30	**170 902**	**DFM-12-30-P-A-KF**	**170 910**	**DFM-16-30-P-A-KF**	**170 917**	**DFM-20-30-P-A-KF**
40	**170 903**	**DFM-12-40-P-A-KF**	**170 911**	**DFM-16-40-P-A-KF**	**170 918**	**DFM-20-40-P-A-KF**
50	**170 904**	**DFM-12-50-P-A-KF**	**170 912**	**DFM-16-50-P-A-KF**	**170 919**	**DFM-20-50-P-A-KF**
80	**170 905**	**DFM-12-80-P-A-KF**	**170 913**	**DFM-16-80-P-A-KF**	**170 920**	**DFM-20-80-P-A-KF**
100	**170 906**	**DFM-12-100-P-A-KF**	**170 914**	**DFM-16-100-P-A-KF**	**170 921**	**DFM-20-100-P-A-KF**
125	–	–	–	–	–	–
160	–	–	–	–	–	–
200	–	–	–	–	–	–
Stroke [mm]	Piston ∅ 25 mm		Piston ∅ 32 mm		Piston ∅ 40 mm	
10	–	–	–	–	–	–
20	**170 922**	**DFM-25-20-P-A-KF**	**170 929**	**DFM-32-20-P-A-KF**	–	–
25	**170 923**	**DFM-25-25P-A-KF**	**170 930**	**DFM-32-25-P-A-KF**	**170 939**	**DFM-40-25-P-A-KF**
30	**170 924**	**DFM-25-30-P-A-KF**	**170 931**	**DFM-32-30-P-A-KF**	–	–
40	**170 925**	**DFM-25-40-P-A-KF**	**170 932**	**DFM-32-40-P-A-KF**	–	–
50	**170 926**	**DFM-25-50-P-A-KF**	**170 933**	**DFM-32-50-P-A-KF**	**170 940**	**DFM-40-50-P-A-KF**
80	**170 927**	**DFM-25-80-P-A-KF**	**170 934**	**DFM-32-80-P-A-KF**	**170 941**	**DFM-40-80-P-A-KF**
100	**170 928**	**DFM-25-100-P-A-KF**	**170 935**	**DFM-32-100-P-A-KF**	**170 942**	**DFM-40-100-P-A-KF**
125	–	–	**170 936**	**DFM-32-125-P-A-KF**	**170 943**	**DFM-40-125-P-A-KF**
160	–	–	**170 937**	**DFM-32-160-P-A-KF**	**170 944**	**DFM-40-160-P-A-KF**
200	–	–	**170 938**	**DFM-32-200-P-A-KF**	**170 945**	**DFM-40-200-P-A-KF**
Stroke [mm]	Piston ∅ 50 mm		Piston ∅ 63 mm		Piston ∅ 80 mm	
10	–	–	–	–	–	–
20	–	–	–	–	–	–
25	**170 946**	**DFM-50-25-P-A-KF**	**170 953**	**DFM-63-25-P-A-KF**	**170 960**	**DFM-80-25-P-A-KF**
30	–	–	–	–	–	–
40	–	–	–	–	–	–
50	**170 947**	**DFM-50-50-P-A-KF**	**170 954**	**DFM-63-50-P-A-KF**	**170 961**	**DFM-80-50-P-A-KF**
80	**170 948**	**DFM-50-80-P-A-KF**	**170 955**	**DFM-63-80-P-A-KF**	**170 962**	**DFM-80-80-P-A-KF**
100	**170 949**	**DFM-50-100-P-A-KF**	**170 956**	**DFM-63-100-P-A-KF**	**170 963**	**DFM-80-100-P-A-KF**
125	**170 950**	**DFM-50-125-P-A-KF**	**170 957**	**DFM-63-125-P-A-KF**	**170 964**	**DFM-80-125-P-A-KF**
160	**170 951**	**DFM-50-160-P-A-KF**	**170 958**	**DFM-63-160-P-A-KF**	**170 965**	**DFM-80-160-P-A-KF**
200	**170 952**	**DFM-50-200-P-A-KF**	**170 959**	**DFM-63-200-P-A-KF**	**170 966**	**DFM-80-200-P-A-KF**
Stroke [mm]	Piston ∅ 100 mm					
10	–	–				
20	–	–				
25	**170 967**	**DFM-100-25-P-A-KF**				
30	–	–				
40	–	–				
50	**170 968**	**DFM-100-50-P-A-KF**				
80	**170 969**	**DFM-100-80-P-A-KF**				
100	**170 970**	**DFM-100-100-P-A-KF**				
125	**170 971**	**DFM-100-125-P-A-KF**				
160	**170 972**	**DFM-100-160-P-A-KF**				
200	**170 973**	**DFM-100-200-P-A-KF**				

Guided drives DFM-B

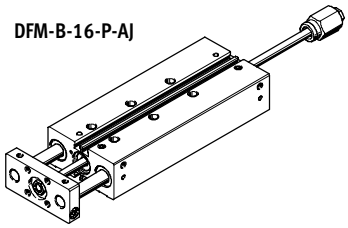
Peripherals overview



DFM-B-16-P

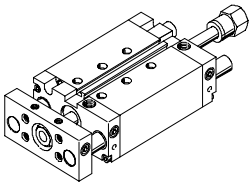


DFM-B-16-P-AJ

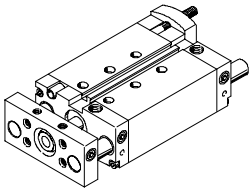


Variants

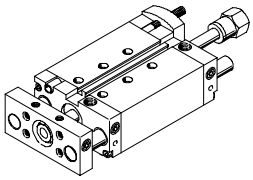
AJ



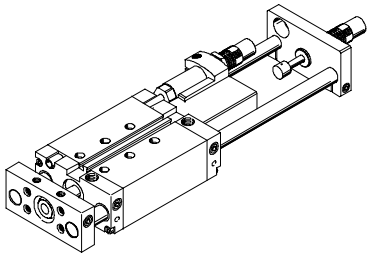
EJ



AJ + EJ



YSRW

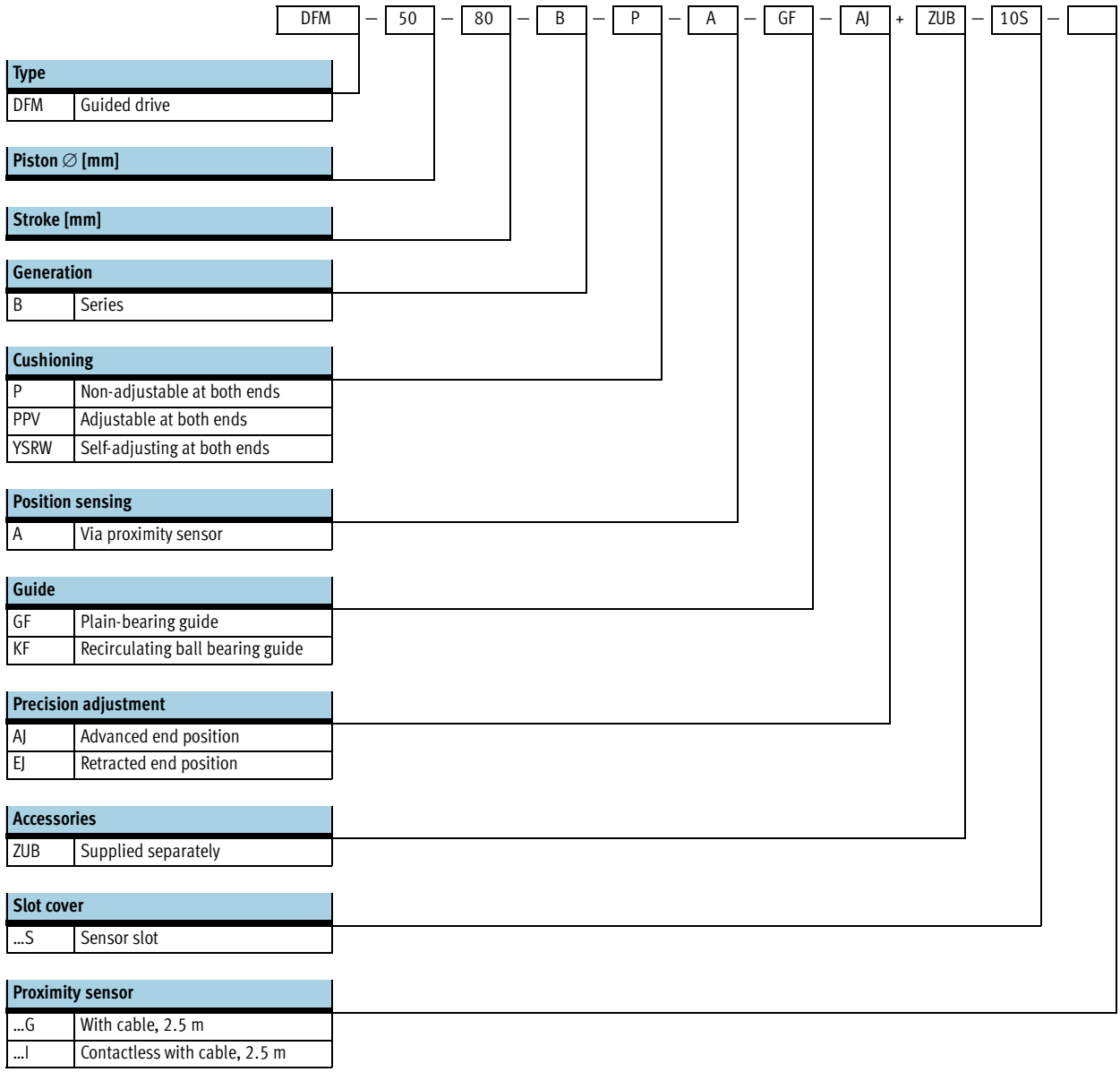


Accessories

		Brief description	➔ Page
1	Push-in fitting QS	For connecting compressed air tubing with standard O.D. to CETOP RP 54 P	Volume 3
2	Proximity sensor SME-/SMT-8	Can be integrated in the profile barrel	1 / 6.2-104
3	Slot cover ABP-5-S	To protect the sensor cable and keep dirt out of the sensor slots	1 / 6.2-105
4	One-way flow control valve GRLA	To regulate speed	1 / 6.2-105
–	Centring sleeves ZBH	4 or 6 pieces included in scope of delivery	1 / 6.2-104

Guided drives DFM-B

Type codes



Guided drives DFM-B

Technical data

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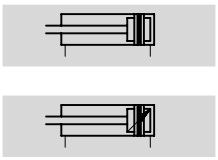
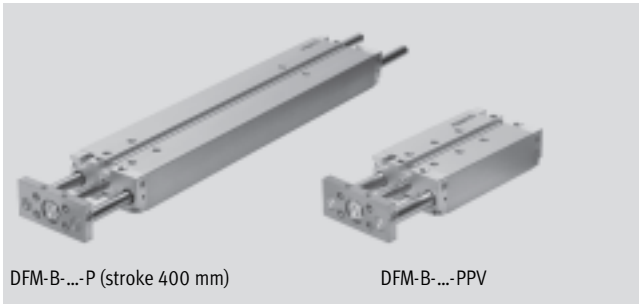
Function

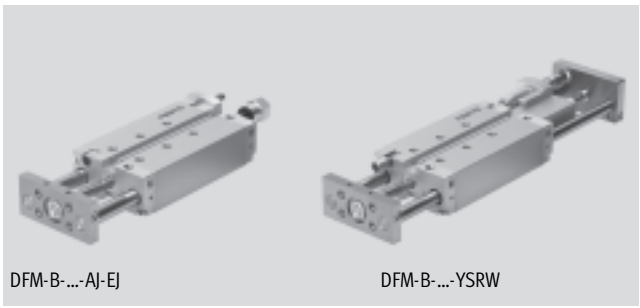


Diameter
12 ... 63 mm

Stroke length
10 ... 400 mm



DFM-B-...-P (stroke 400 mm) DFM-B-...-PPV



DFM-B-...-AJ-EJ DFM-B-...-YSRW

General technical data									
Piston ∅		12	16	20	25	32	40	50	63
Pneumatic connection		M5	M5	M5	G1⁄8	G1⁄8	G1⁄8	G1⁄4	G1⁄4
Operating medium		Filtered compressed air, lubricated or unlubricated							
Operating pressure	[bar]	2 ... 10	2 ... 10	2 ... 10	1.5 ... 10	1.5 ... 10	1.5 ... 10	1 ... 10	1 ... 10
Design		Piston							
		Piston rod							
		Guide rods with yoke							
Cushioning		Non-adjustable at both ends							
		–	Adjustable at both ends						
		–	–	Self-adjusting at both ends					
Cushioning length (PPV)	[mm]	–	12	15	15	16	17	19	19
Position sensing		Via proximity sensor							
Type of mounting		Via through-holes							
		Via female threads							
Assembly position		Any							
Protection against torsion/guide		Guide rod with yoke/with plain-bearing or ball bearing guide							
Variant AJ, EJ and YSRW									
Setting range	[mm]	0 ... 10							
Variant YSRW with shock absorber									
Repetition accuracy	[mm]	–	–	Max. 0.05	Max. 0.05	Max. 0.05	Max. 0.05	Max. 0.05	Max. 0.05

Ambient conditions				
		Plain-bearing guide GF	Recirculating ball bearing guide KF	Variant YSRW with shock absorber
Ambient temperature[1]	[°C]	–20 ... +80	–5 ... +60	0 ... +60
Corrosion resistance class CRC[2]		2	–	–

1) Note operating range of proximity sensors.
2) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Guided drives DFM-B

Technical data

FESTO

Speeds [m/s]								
Piston ∅	12	16	20	25	32	40	50	63
Cushioning P, precision stroke adjustment AJ and EJ								
Maximum speed, advancing	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6
Maximum speed, retracting	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6
Cushioning PPV, YSRW								
Maximum speed, advancing	–	1.5	1.5	1.5	1.5	1.5	1.0	1.0
Maximum speed, retracting	–	1.5	1.5	1.5	1.5	1.5	1.0	1.0

Forces [N]								
Piston ∅	12	16	20	25	32	40	50	63
Cushioning P, PPV, YSRW, precision stroke adjustment EJ								
Theoretical force at 6 bar, advancing	68	121	188	295	482	754	1178	1870
Theoretical force at 6 bar, retracting	51	90	141	247	415	686	1057	1750
Precision stroke adjustment AJ and AJ+EJ								
Theoretical force at 6 bar, advancing	51	90	141	247	415	686	1057	1750
Theoretical force at 6 bar, retracting	51	90	141	247	415	686	1057	1750

Impact energy [J]								
Piston ∅	12	16	20	25	32	40	50	63
Cushioning P								
Max. impact energy at the end positions	0.09	0.15	0.2	0.35	0.40	0.7	1.0	1.3
Cushioning YSRW								
Max. energy absorption per stroke	–	–	4	8	12	35	35	70
Max. energy absorption per hour	–	–	21000	30000	41000	68000	68000	100000

Permissible impact velocity:

$$v_{zul.} = \sqrt{\frac{2 \times E_{zul.}}{m_{Eigen} + m_{Last}}}$$

Maximum permissible load:

$$m_{Last} = \frac{2 \times E_{zul.}}{v^2} - m_{Eigen}$$

Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load. Allowance must also be made for the limits of the cushioning capacity of the drive cylinder and the permissible impact energy.

Guided drives DFM-B

Technical data

FESTO

DFM-B with plain-bearing guide GF, cushioning P, PPV								
Stroke	Piston ∅ [mm]							
[mm]	12	16	20	25	32	40	50	63
Product weight [g]								
10	385	621	–	–	–	–	–	–
20	432	680	1026	1474	2163	–	–	–
25	452	706	1068	1530	2238	2606	4290	5568
30	476	736	1109	1586	2337	–	–	–
40	523	795	1215	1726	2489	–	–	–
50	570	854	1298	1838	2640	3047	5019	6457
80	712	1033	1572	2218	3210	3663	5909	7503
100	803	1148	1733	2435	3502	3981	6376	8116
125	962	1352	2000	2800	4018	4534	7151	9050
160	1128	1560	2293	3193	4549	5118	8017	10137
200	1318	1797	2628	3642	5158	5786	9007	11379
250	–	–	3237	4430	6259	6962	10813	13509
320	–	–	3823	5215	7322	8129	12545	15682
400	–	–	4493	6113	8537	9462	14525	18165
Moving load [g]								
10	201	283	–	–	–	–	–	–
20	216	302	506	715	1147	–	–	–
25	223	312	520	734	1176	1305	2217	2640
30	230	322	534	753	1230	–	–	–
40	245	342	586	823	1289	–	–	–
50	260	362	615	861	1347	1476	2567	2990
80	304	423	724	1022	1644	1776	3002	3426
100	333	463	781	1098	1764	1893	3189	3613
125	420	579	917	1289	2059	2188	3586	4009
160	472	649	1016	1422	2264	2393	3913	4336
200	530	730	1129	1573	2499	2627	4286	4710
250	–	–	1489	2017	3164	3293	5351	5774
320	–	–	1688	2283	3574	3703	6005	6428
400	–	–	1914	2587	4042	4171	6752	7176

Guided drives DFM-B

Technical data

FESTO

DFM-B with recirculating ball bearing guide KF, cushioning P, PPV								
Stroke	Piston ∅ [mm]							
[mm]	12	16	20	25	32	40	50	63
Product weight [g]								
10	345	543	–	–	–	–	–	–
20	388	596	935	1395	1932	–	–	–
25	405	619	974	1447	1998	2366	3907	5185
30	427	647	1012	1499	2079	–	–	–
40	470	700	1105	1624	2213	–	–	–
50	513	754	1181	1729	2346	2753	4523	5961
80	641	916	1428	2074	2817	3270	5272	6865
100	723	1020	1577	2276	3073	3552	5682	7423
125	852	1190	1809	2599	3490	4006	6327	8226
160	1002	1378	2079	2966	3958	4526	7094	9214
200	1174	1593	2388	3384	4494	5121	7971	10343
250	–	–	2905	4073	5369	6072	9419	12115
320	–	–	3445	4805	6305	7112	10953	14091
400	–	–	4063	5642	7376	8301	12707	16347
Moving load [g]								
10	168	239	–	–	–	–	–	–
20	178	254	437	631	933	–	–	–
25	183	261	447	646	954	1082	1830	2254
30	188	268	458	661	990	–	–	–
40	198	283	498	716	1030	–	–	–
50	208	297	520	746	1071	1199	2067	2491
80	238	341	602	873	1271	1400	2361	2785
100	259	370	646	934	1352	1481	2492	2915
125	316	452	748	1083	1548	1677	2758	3182
160	352	503	824	1189	1690	1819	2986	3410
200	392	561	911	1310	1852	1981	3247	3671
250	–	–	1180	1656	2291	2420	3953	4377
320	–	–	1332	1868	2575	2703	4410	4833
400	–	–	1505	2111	2899	3027	4931	5355

Guided drives DFM-B

Technical data

FESTO

Additional weights with precision stroke adjustment AJ – GF, KF

When using the precision stroke adjustment AJ, the following weight must be taken into account in addition to the load specified from page 1 / 6.2-76:

Product weight [g] precision stroke adjustment AJ (piston rod + stop)

Stroke	Piston ∅ [mm]							
[mm]	12	16	20	25	32	40	50	63
10	55.4	58.8	–	–	–	–	–	–
20	57.6	61	75.6	115.4	185.7	–	–	–
25	58.7	62.1	77.6	118.5	190.2	188.7	350.7	350.5
30	59.9	63.3	79.6	121.6	194.7	–	–	–
40	62.1	65.5	83.6	127.8	203.6	–	–	–
50	64.3	67.7	87.5	134	212.5	211	390.4	390.2
80	71	74.4	99.5	152.6	239.3	237.8	438	437.8
100	75.5	78.9	107.5	165	257.2	255.7	469.8	469.6
125	81.1	84.5	117.3	180.5	279.5	278	509.5	509.3
160	88.9	92.3	131.2	202.5	310.8	309.3	565.1	564.9
200	97.8	101.2	147.1	227	346.5	345	628.6	628.4
250	–	–	167	258.1	391.2	389.7	708.1	707.9
320	–	–	194.8	301.5	453.8	452.3	819.2	819
400	–	–	226.5	351.1	525.2	523.7	946.3	946.1

Moving load [g] precision stroke adjustment AJ (piston rod + stop)

Stroke	Piston ∅ [mm]							
[mm]	12	16	20	25	32	40	50	63
10	51.5	52.3	–	–	–	–	–	–
20	53.7	54.5	76	116.6	185.9	–	–	–
25	54.8	55.6	78	119.7	190.4	190	351.7	351.7
30	56	56.8	80	122.8	194.9	–	–	–
40	58.2	59	84	129	203.8	–	–	–
50	60.4	61.2	87.9	135.2	212.7	212.7	391.4	391.4
80	67.1	67.9	99.9	153.8	239.5	239.5	439	439
100	71.6	72.4	107.8	166.2	257.4	257.4	470.8	470.8
125	77.2	78	117.7	181.7	279.7	279.7	510.5	510.5
160	85	85.8	131.6	203.4	311	311	566.1	566.1
200	93.9	94.7	147.5	228.2	346.7	346.7	629.6	629.6
250	–	–	167.4	259.3	391.4	391.4	709.1	709.1
320	–	–	195.2	302.7	454	454	820.2	820.2
400	–	–	226.9	352.3	525.4	525.4	947.3	947.3

Guided drives DFM-B

Technical data

FESTO

Additional weights with precision stroke adjustment EJ – GF, KF

When using the precision stroke adjustment EJ, the following weight must be taken into account in addition to the load specified from page 1 / 6.2-76:

Product weight [g] precision stroke adjustment EJ (piston rod + stop)						
Stroke	Piston ∅ [mm]					
[mm]	20	25	32	40	50	63
20	55.7	117.1	134.1	–	–	–
25	56.4	119.1	136.1	153.9	302.8	354
30	57.2	121	138	–	–	–
40	58.8	125	142	–	–	–
50	60.3	129	146	163.8	318.3	369.5
80	65	140.9	157.9	175.7	336.9	388.1
100	68.1	148.8	165.8	183.6	349.4	400.6
125	71.9	158.8	175.8	193.6	364.9	416.1
160	77.4	172.7	189.7	207.5	386.6	437.8
200	83.6	188.5	205.5	223.3	411.4	462.6
250	91.3	208.4	225.4	243.2	442.4	493.6
320	102.2	236.2	253.2	271	485.9	537.1
400	114.6	268	285	302.8	535.5	586.7

DFM-B with recirculating ball bearing guide KF, cushioning YSRW						
Stroke	Piston ∅ [mm]					
[mm]	20	25	32	40	50	63
Product weight [g]						
20	1684	2641	3717	–	–	–
25	1733	2707	3801	4995	7594	10816
30	1780	2773	3884	–	–	–
40	1874	2903	4053	–	–	–
50	1970	3035	4222	5455	8275	11657
80	2257	3429	4720	5999	9092	12629
100	2444	3687	5047	6352	9614	13298
125	2677	4008	5458	6801	10294	14137
160	3015	4473	6050	7446	11255	15319
200	3401	5004	6728	8183	12354	16670
250	3855	5641	7545	9074	13700	18340
320	4530	6569	8730	10363	15623	20704
400	5302	7631	10085	11837	17821	23405
Moving load [g]						
20	874	1323	1933	–	–	–
25	894	1350	1969	2386	3735	4996
30	914	1378	2005	–	–	–
40	953	1432	2077	–	–	–
50	993	1487	2149	2566	4021	5282
80	1111	1650	2365	2782	4365	5625
100	1190	1759	2509	2926	4594	5855
125	1289	1896	2690	3106	4880	6141
160	1427	2087	2942	3359	5281	6542
200	1585	2305	3230	3647	5739	7000
250	1782	2578	3590	4007	6312	7572
320	2059	2959	4095	4512	7114	8374
400	2375	3396	4671	5088	8030	9290

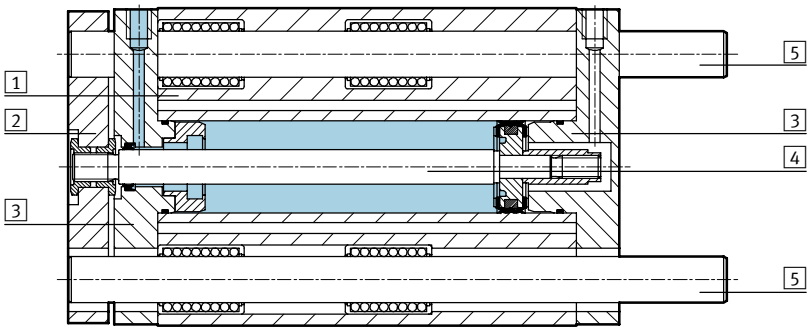
Guided drives DFM-B

Technical data

FESTO

Materials

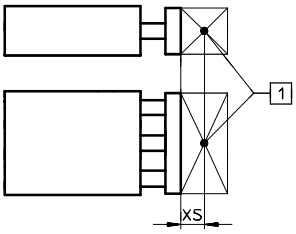
Sectional view



Variant		Plain-bearing guide GF	Recirculating ball bearing guide KF
1	Housing	Wrought aluminium alloy, anodised	Wrought aluminium alloy, anodised
2	Yoke plate	Tempered steel	Tempered steel
3	Bearing and end caps	Wrought aluminium alloy, anodised	Wrought aluminium alloy, anodised
4	Piston rod	High-alloy stainless steel	High-alloy stainless steel
5	Guide rods	High-alloy stainless steel	Tempered steel
–	Static seals	Nitrile rubber	Nitrile rubber
–	Dynamic seals	Polyurethane	Polyurethane
–	Lubricant	Klüberplex BE 31-102	Klüberplex BE 31-102
Note on materials		–	Free of copper, PTFE and silicone

Maximum effective load F [N]

Plain-bearing guide GF and recirculating ball bearing guide KF



1 Centre of gravity of effective load

Piston ∅ [mm]		XS [mm]	Stroke [mm] 10	20	25	30	40	50	80	100	125	160	200	250	320	400
12	GF	25	53	47	45	43	39	36	28	25	23	20	15	–	–	–
	KF		47	42	40	38	35	32	26	23	20	16	13	–	–	–
16	GF	50	95	86	83	79	73	67	55	49	37	30	25	–	–	–
	KF		75	69	66	64	58	56	51	48	30	21	17	–	–	–
20	GF	50	–	99	96	92	110	103	86	77	71	63	55	47	41	35
	KF		–	80	77	75	91	88	80	75	65	56	47	40	34	29
25	GF	50	–	121	116	112	123	115	96	86	86	76	67	53	45	39
	KF		–	88	86	84	100	97	89	85	80	66	56	46	38	32
32	GF	50	–	188	180	173	161	150	166	150	168	146	127	106	91	78
	KF		–	120	118	116	112	109	134	128	144	135	126	135	125	100
40	GF	50	–	–	180	–	–	150	166	150	168	146	127	106	91	78
	KF		–	–	118	–	–	109	134	128	144	135	126	135	125	100
50	GF	50	–	–	257	–	–	216	234	212	229	200	174	145	124	105
	KF		–	–	182	–	–	168	201	193	211	199	188	179	158	130
63	GF	50	–	–	257	–	–	216	234	212	229	200	174	145	124	105
	KF		–	–	182	–	–	168	201	193	211	199	188	179	158	130

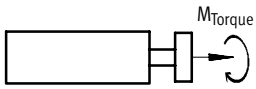
Guided drives DFM-B

Technical data

FESTO

Permissible torque load M [Nm]

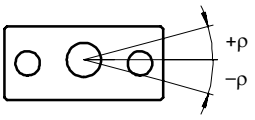
Plain-bearing guide GF and recirculating ball bearing guide KF



Piston ∅ [mm]		Stroke [mm] 10	20	25	30	40	50	80	100	125	160	200	250	320	400
12	GF	1.10	0.95	0.90	0.85	0.80	0.75	0.60	0.50	0.45	0.40	0.30	–	–	–
	KF	0.95	0.85	0.80	0.75	0.70	0.65	0.50	0.45	0.40	0.30	0.25	–	–	–
16	GF	2.20	2.00	1.90	1.80	1.70	1.50	1.30	1.10	0.85	0.70	0.60	–	–	–
	KF	1.70	1.60	1.50	1.45	1.35	1.30	1.20	1.10	0.70	0.50	0.40	–	–	–
20	GF	–	2.90	2.80	2.70	3.20	3.00	2.50	2.20	2.10	1.80	1.60	1.40	1.20	1.00
	KF	–	2.30	2.20	2.15	2.60	2.55	2.30	2.20	1.90	1.60	1.40	1.20	1.00	0.85
25	GF	–	4.15	3.95	3.80	4.20	3.90	3.25	2.90	2.90	2.60	2.30	1.80	1.50	1.30
	KF	–	3.00	2.92	2.85	3.40	3.30	3.02	2.89	2.70	2.20	1.90	1.50	1.30	1.10
32	GF	–	7.30	7.00	6.70	6.20	5.80	6.40	5.80	6.50	5.70	5.00	4.10	3.50	3.00
	KF	–	4.70	4.60	4.55	4.40	4.25	5.25	5.00	5.60	5.25	4.90	5.20	4.80	3.90
40	GF	–	–	7.90	–	–	6.55	7.25	6.55	7.35	6.40	5.55	4.60	4.0	3.40
	KF	–	–	5.20	–	–	4.80	5.90	5.65	6.35	5.95	5.55	5.95	5.50	4.40
50	GF	–	–	14.15	–	–	11.85	12.85	11.65	12.55	11.00	9.60	7.98	6.82	5.78
	KF	–	–	10.00	–	–	9.30	11.00	10.6	11.60	11.00	10.30	9.82	8.67	7.17
63	GF	–	–	15.90	–	–	13.30	14.45	13.10	14.10	12.30	10.70	9.06	7.75	6.56
	KF	–	–	11.30	–	–	10.50	12.50	12.00	13.20	12.40	11.70	11.16	9.85	8.15

Torsional backlash ρ

Plain-bearing guide GF and recirculating ball bearing guide KF in retracted state, without load



Piston ∅		12	16	20	25	32	40	50	63
Torsional backlash [°]	GF	0.09	0.09	0.07	0.07	0.06	0.06	0.05	0.05
	KF	0.08	0.08	0.07	0.07	0.05	0.05	0.05	0.05

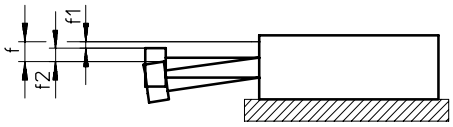
Guided drives DFM-B

Technical data

FESTO

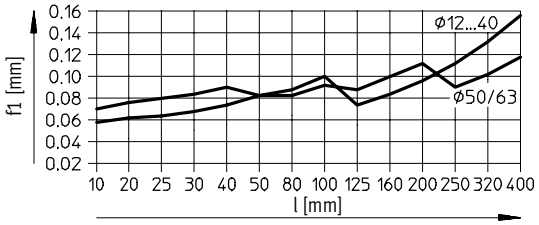
Deflection of piston rod

Mean deflection f1 due to bearing backlash as a function of the stroke l



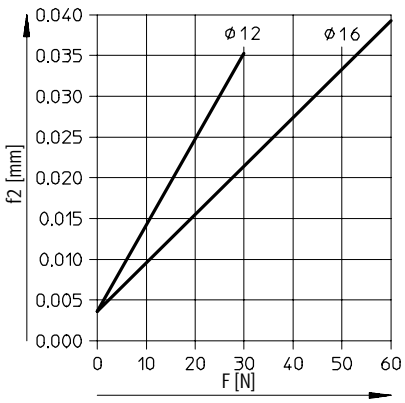
f = f1 + f2
f = Total deflection of piston rod
f1 = Deflection due to bearing backlash
f2 = Deflection due to lateral force

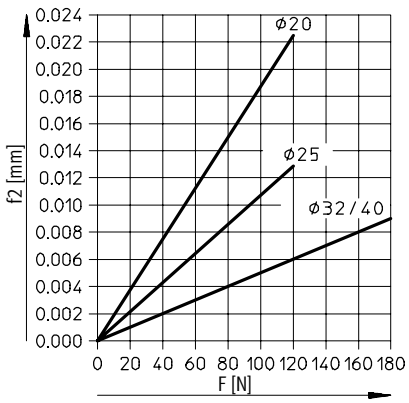
DFM-GF with 2 bearings per guide rod

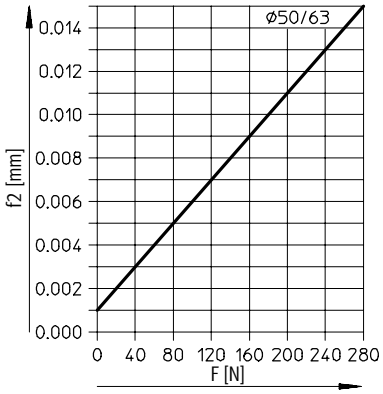


Deflection f2 due to lateral force F as a function of the stroke with plain-bearing guide GF

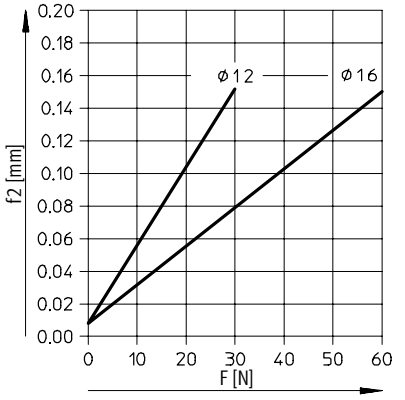
Stroke 50 mm

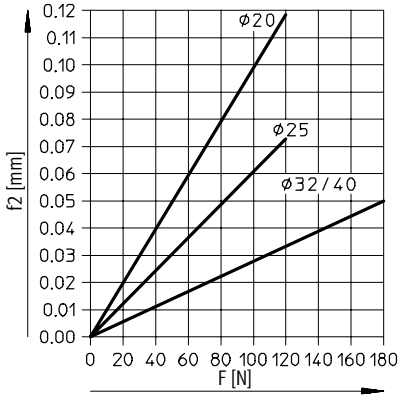


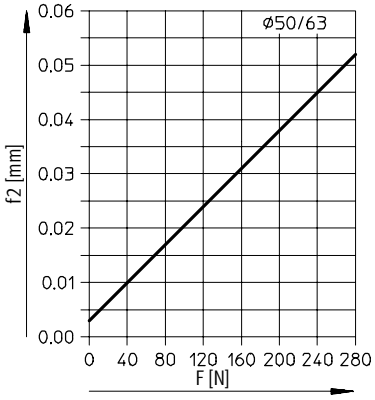




Stroke 100 mm





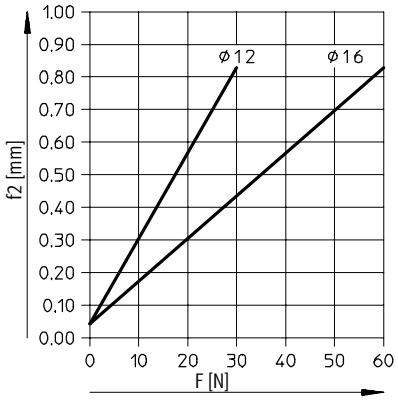


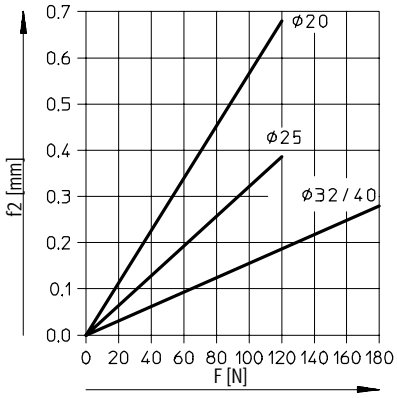
Guided drives DFM-B

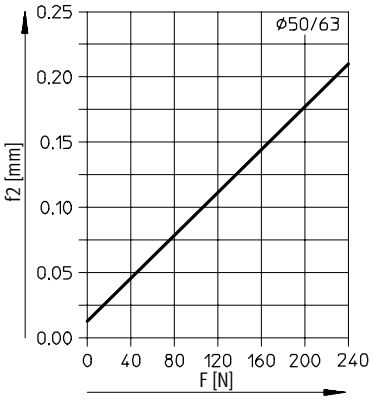
Technical data

Deflection f2 due to lateral force F as a function of the stroke with plain-bearing guide GF

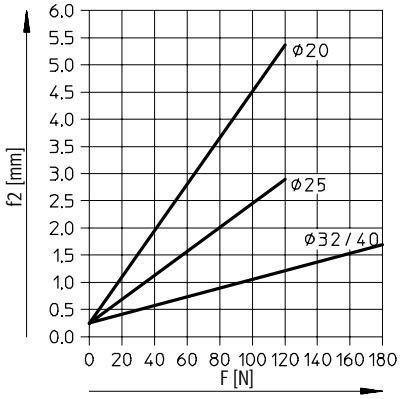
Stroke 200 mm

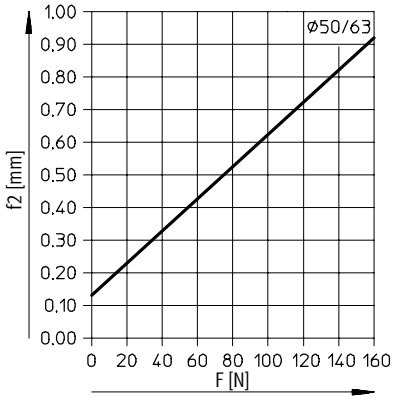






Stroke 400 mm



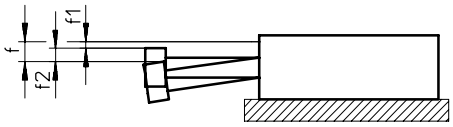


Guided drives DFM-B

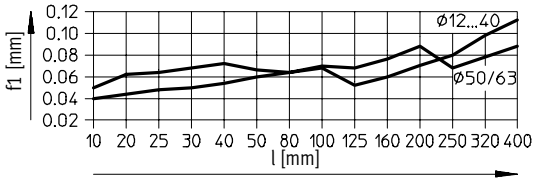
Technical data

Deflection of piston rod

Mean deflection f1 due to bearing backlash as a function of the stroke l



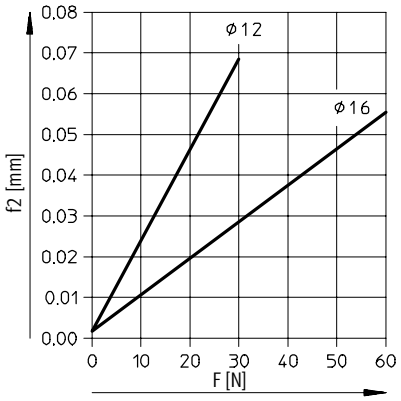
DFM-KF with 2 bearings per guide rod

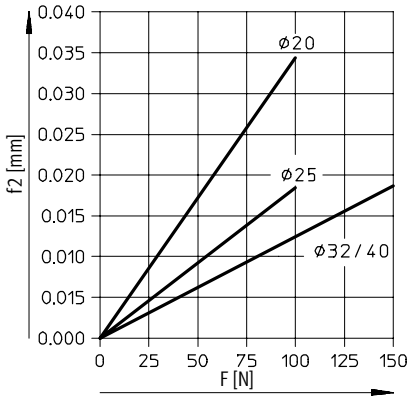


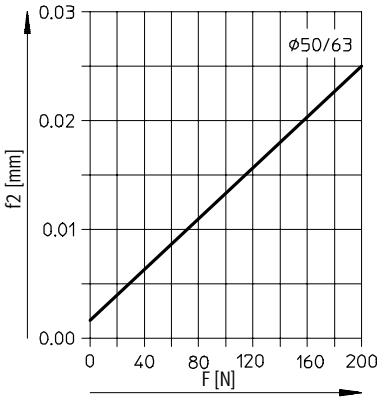
f = f1 + f2
f = Total deflection of piston rod
f1 = Deflection due to bearing backlash
f2 = Deflection due to lateral force

Deflection f2 due to lateral force F as a function of the stroke with recirculating ball bearing guide KF

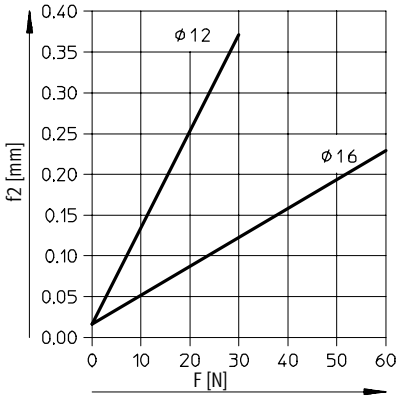
Stroke 50 mm

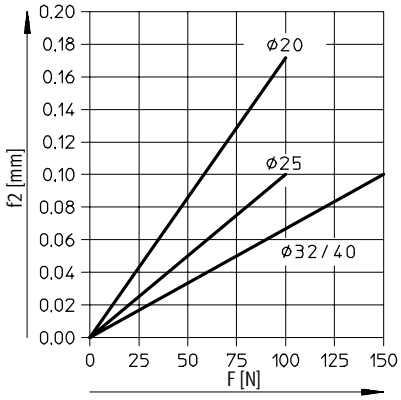


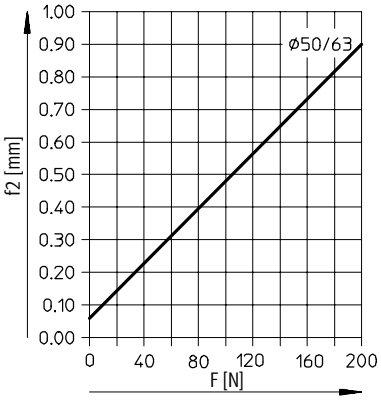




Stroke 100 mm







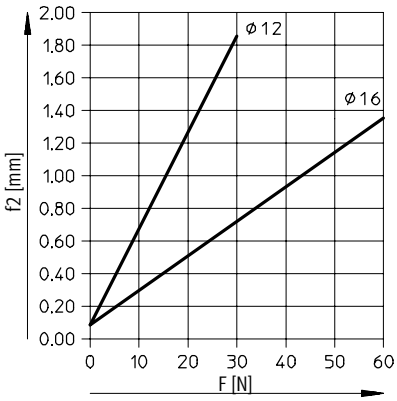
Guided drives DFM-B

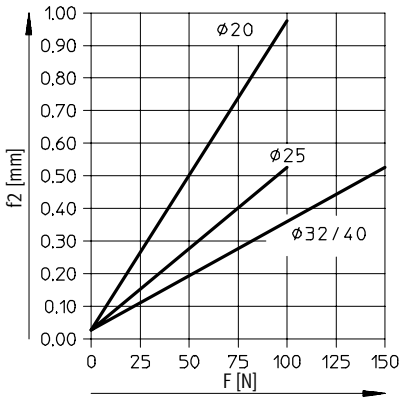
Technical data

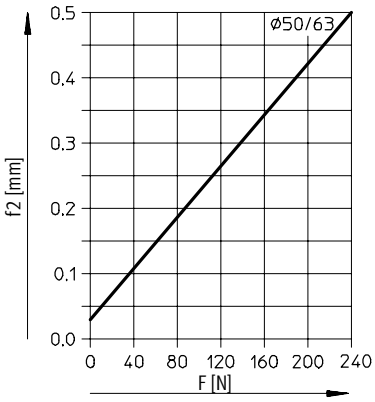
FESTO

Deflection f2 due to lateral force F as a function of the stroke with recirculating ball bearing guide KF

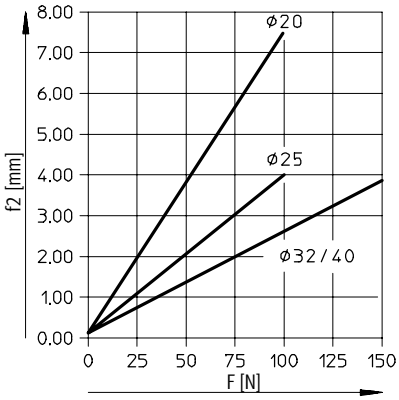
Stroke 200 mm

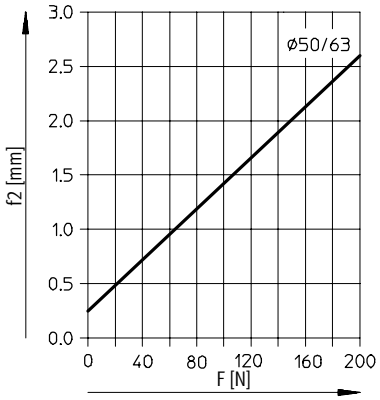






Stroke 400 mm

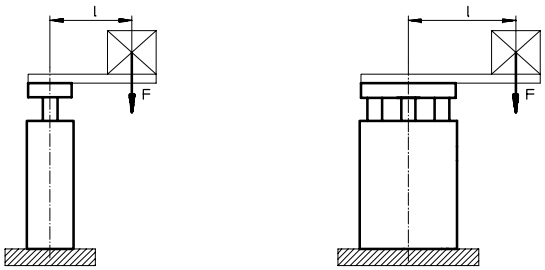




Guided drives DFM-B

Technical data

Used as lifting cylinder



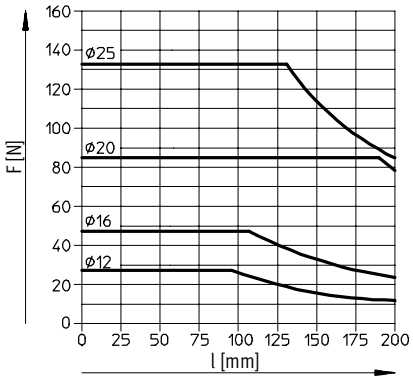
F = Longitudinal force [N]
L = Lever arm [mm]

Note

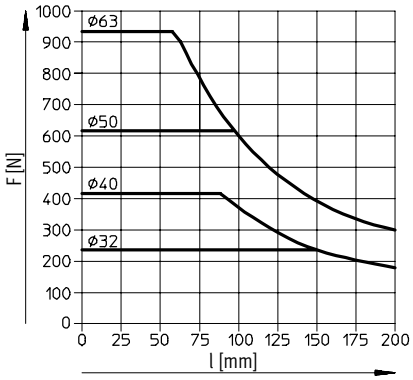
Additional graphs ➔ starting on page 1 / 6.2-58.

Permissible load with plain-bearing guide GF

Stroke 40 ... 400 mm



Stroke 250 ... 400 mm

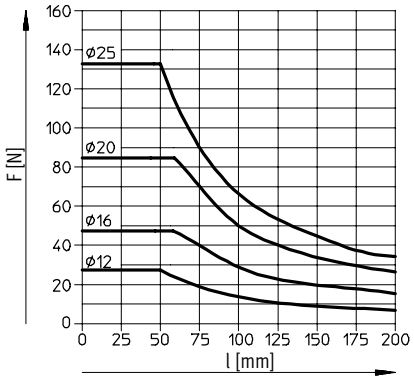


Guided drives DFM-B

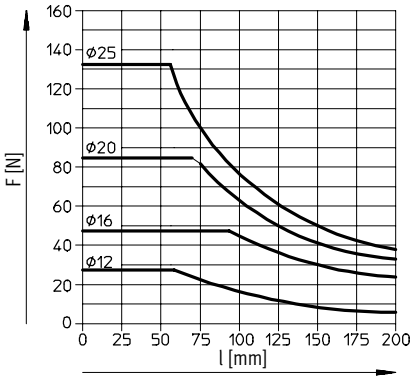
Technical data

Permissible load with recirculating ball bearing guide KF

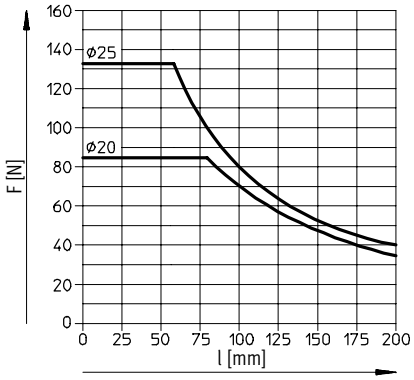
Stroke 40 ... 100 mm



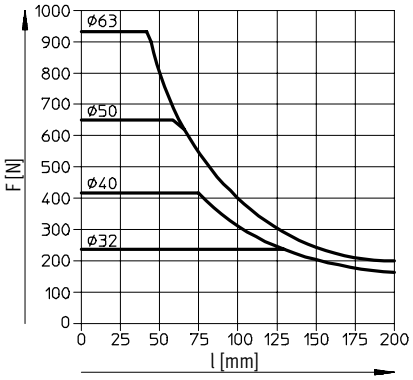
Stroke 125 ... 200 mm



Stroke 250 ... 400 mm



Stroke 200 ... 400 mm



Guided drives DFM-B

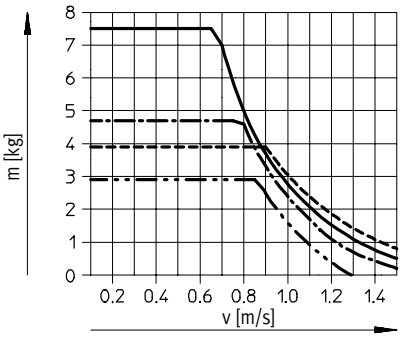
Technical data

FESTO

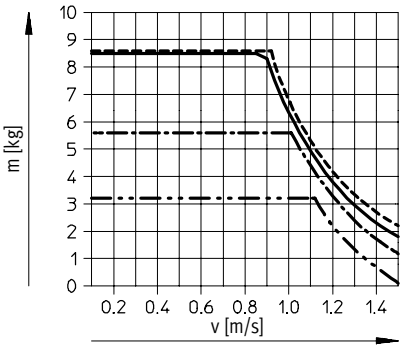
Permissible load m as a function of the permissible speed v

Horizontal operation, cushioning YSRW

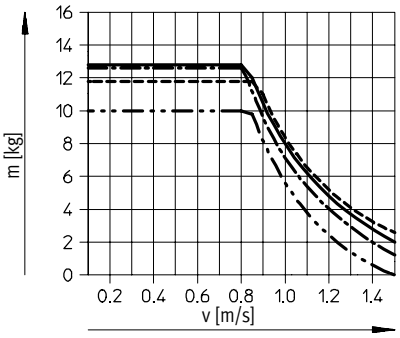
DFM-20-...-B-YSRW



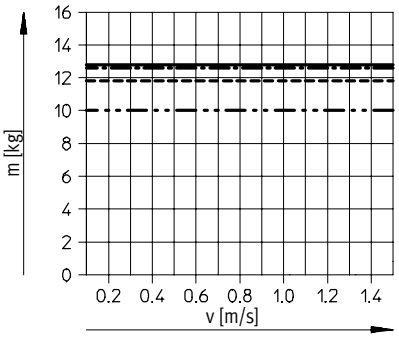
DFM-25-...-B-YSRW



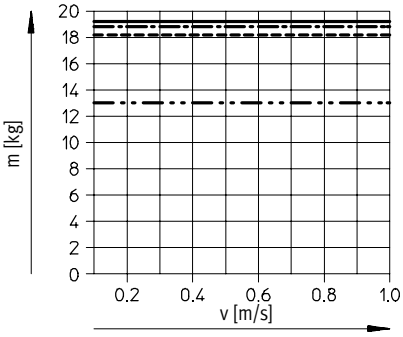
DFM-32-...-B-YSRW



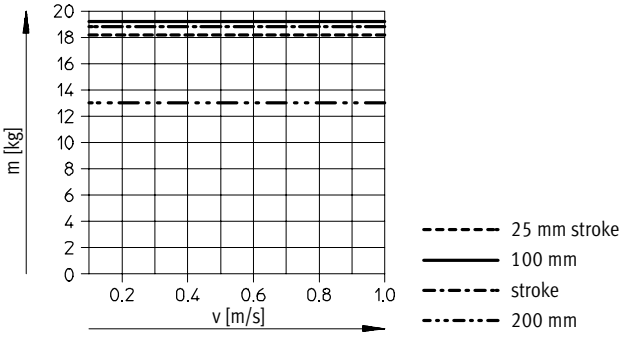
DFM-40-...-B-YSRW



DFM-50-...-B-YSRW



DFM-63-...-B-YSRW



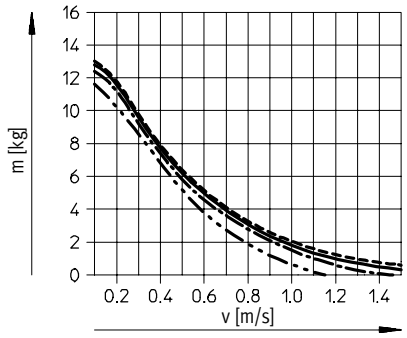
Guided drives DFM-B

Technical data

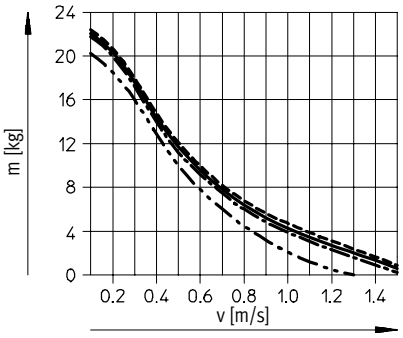
FESTO

Vertical operation, cushioning YSRW

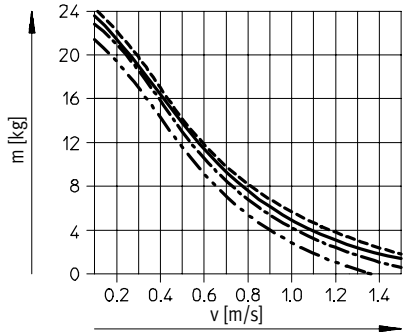
DFM-20-...-B-YSRW



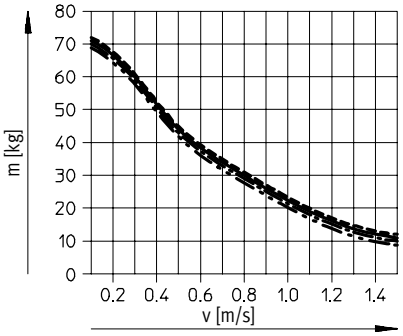
DFM-25-...-B-YSRW



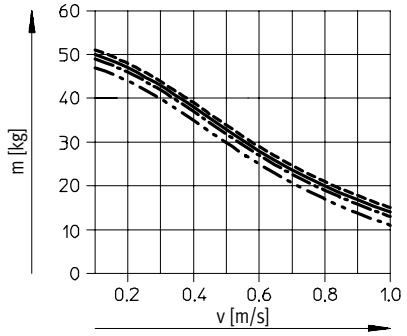
DFM-32-...-B-YSRW



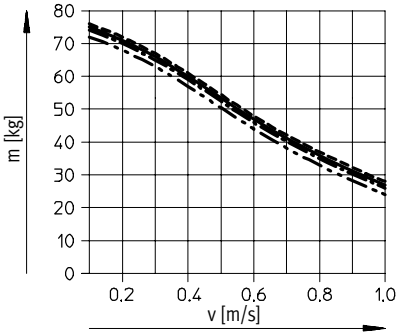
DFM-40-...-B-YSRW

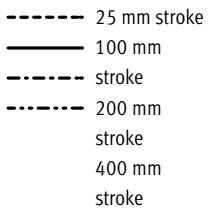


DFM-50-...-B-YSRW



DFM-63-...-B-YSRW





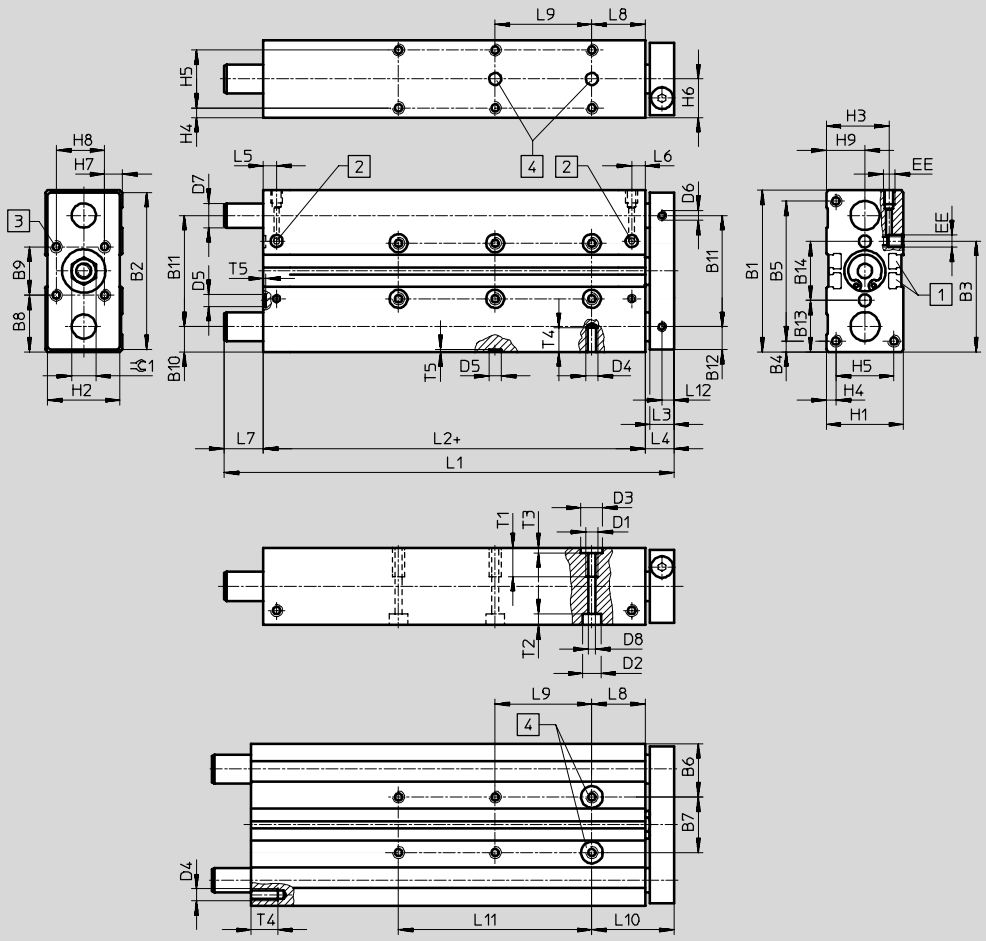
Guided drives DFM-B

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 12, 16 mm



1 Mounting slot for proximity sensor SME-/SMT-8
2 Supply port optionally at side or top
3 Mounting thread
4 Centring holes
+ = plus stroke length

Guided drives DFM-B

Technical data

FESTO

∅ [mm]	B1	B2	B3	B4	B5	B6	B7 ±0.02 1)	B8	B9	B10	B11	B12	B13	B14 ±0.02 1)	D1	D2 ∅
12	60	58	40.7	4.5	51	20.5	19	20	20	9.5	41	8.5	19.5	21	M5	8
16	67	65	45	4.5	58	22	23	23.5	20	10.5	46	9.5	21.3	24.4	M5	7.5

1) Tolerance between centring holes

∅ [mm]	D3 ∅ H7	D4	D5 ∅ H7	D6 ∅	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	EE	H1	H2	H3	H4	H5	H6	H7	H8
12	9	M4	5	M4	10	8	4.3	M5	28	26	24	4	20	14	4	20
16	9	M5	5	M4	12	10	4.3	M5	32	30	26.5	4	24	16	7.4	20

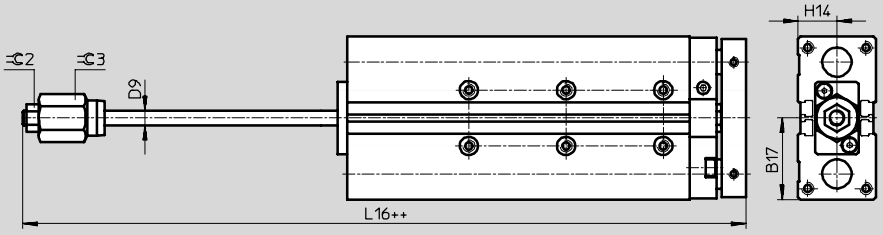
∅ [mm]	H9	L2	L3	L4	L5	L6	L8	L10	L12	T1	T2	T3	T4	T5	=C1
12	14	40	10	13	14.8	11.2	21	34	5	10	9.4	2.1	8	1	10
16	16	58	10	12	9.8	9.3	22	34	5	12	4.6	2.1	10	1	10

Stroke [mm]	Piston ∅ [mm]							
	12				16			
	L1	L7	L9 ±0.02 1)	L11	L1	L7	L9 ±0.02 1)	L11
10	74	11	–	–	80	–	–	–
20	84	11	–	–	90	–	–	–
25	89	11	20	–	95	–	20	–
30	94	11	20	–	100	–	20	–
40	104	11	20	–	110	–	20	–
50	114	11	40	–	120	–	40	–
80	144	11	40	–	150	–	40	–
100	164	11	40	80	170	–	40	80
125	230	52	40	80	229	34	40	80
160	265	52	40	120	264	34	40	120
200	305	52	40	160	304	34	40	160

1) Tolerance between centring holes

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 12, 16 mm – Precision stroke adjustment, advanced end position AJ



++ = plus 2 stroke lengths

∅ [mm]	B17	D9 ∅	H14	L16	=C2	=C3
12	30.5	6	14	90.6	10	17
16	33.5	6	16	107.9	10	17

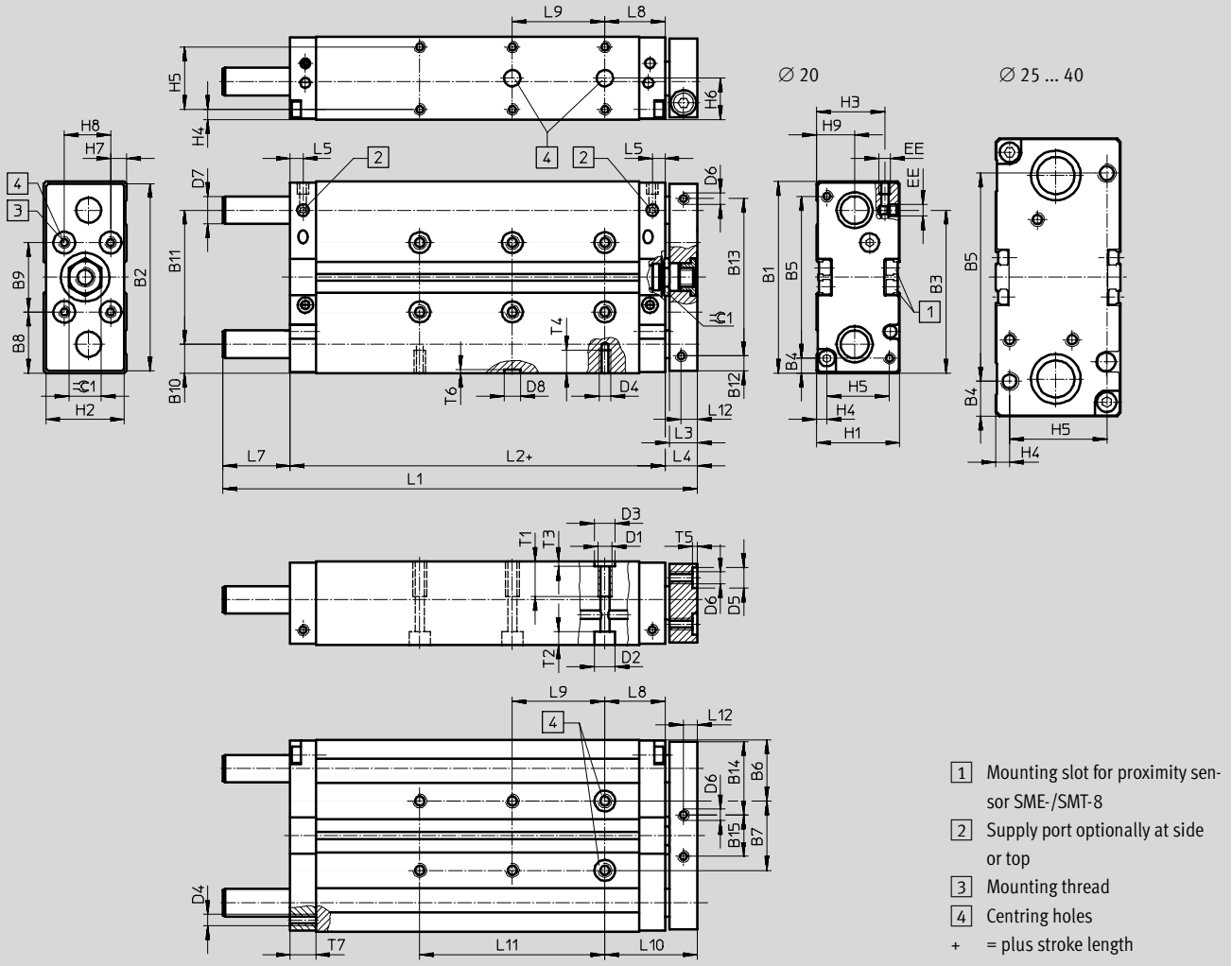
Guided drives DFM-B

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 20 ... 40 mm



1 Mounting slot for proximity sensor SME-/SMT-8
2 Supply port optionally at side or top
3 Mounting thread
4 Centring holes
+ = plus stroke length

Note

In the case of the drives DFM-20 ... 40-B, the guide rods project beyond the edge of the housing when the unit is in its retracted end position. If a drive is to be mounted on its end cap against a surface, a recess should be provided in this surface to allow the guide rods to move freely.
Exceptions: DFM-40-...-B with stroke lengths 20, 30 and 40 mm.

Guided drive DFM-B

Technical data

FESTO

∅ [mm]	B1	B2	B3	B4	B5	B6	B7 ±0.02[1)]	B8	B9 ±0.02[1)]	B10	B11	B12	B13	B14	B15	D1	D2 ∅
20	83	81	70.5	6.5	70	26.5	30	26.5	30	12.5	58	6.5	68	31.5	18	M6	9
25	95	93	67	15.5	64	30	35	27.5	40	13.5	68	13.5	68	32.5	28	M6	9
32	110	108	77	20	70	33.5	43	35	40	16	78	16	78	41	26	M8	11
40	120	118	86	15	90	34.5	51	35	50	16	88	15	88	41	36	M8	11

1) Tolerance between centring holes

∅ [mm]	D3 ∅ H7	D4	D5 ∅ H7	D6 ∅	D7 ∅ GF	D7 ∅ KF	D8 ∅ H7	EE	H1	H2	H3	H4	H5	H6	H7	H8
20	9	M5	9	M5	14	12	7	M5	36	34	29.5	4.5	27	18	7	20
25	9	M6	9	M6	16	14	7	G1/8	44	42	34.8	4.5	35	22	12	20
32	12	M6	9	M6	20	16	9	G1/8	49	47	39	6	37	24.5	8.5	30
40	12	M8	9	M6	20	16	9	G1/8	54	52	41.5	6	42	27	10	30

∅ [mm]	H9	L2	L3	L4	L5	L8	L10	L12	T1	T2	T3	T4	T5	T6	T7	⌯1
20	16.5	62	12	14	5.5	26	40	6	15	5.7	2.1	10	2.1	1.6	11	14
25	19	70	12	14	8.5	26	40	6	15	5.7	2.1	12	2.1	1.6	15	17
32	21	75	14	16	8.5	29	45	7	20	6.8	2.6	11	2.1	2.1	15	17
40	26	76	14	16	8.5	29	45	7	20	6.8	2.6	16	2.1	2.1	15	17

Stroke	Piston ∅ [mm]															
	20				25				32				40			
[mm]	L1	L7	L9 ±0.02[1)]	L11	L1	L7	L9 ±0.02[1)]	L11	L1	L7	L9 ±0.02[1)]	L11	L1	L7	L9 ±0.02[1)]	L11
20	105	9	20	–	111	7	20	–	118	7	20	–	–	–	–	–
25	110	9	20	–	116	7	20	–	123	7	20	–	123	6	20	–
30	115	9	20	–	121	7	20	–	133	12	20	–	–	–	–	–
40	135	19	20	–	141	17	20	–	143	12	20	–	–	–	–	–
50	145	19	40	–	151	17	40	–	153	12	40	–	153	11	40	–
80	185	29	40	80	196	32	40	80	208	37	40	–	208	36	40	–
100	205	29	40	80	216	32	40	80	228	37	40	80	228	36	40	80
125	257	56	40	80	271	62	40	80	283	67	40	80	283	66	40	80
160	292	56	40	120	306	62	40	120	318	67	40	120	318	66	40	120
200	332	56	40	160	346	62	40	160	358	67	40	160	358	66	40	160
250	472	146	40	200	476	142	40	200	483	142	40	200	483	141	40	200
320	592	146	40	240	546	142	40	240	553	142	40	240	553	141	40	240
400	622	146	40	320	626	142	40	320	633	142	40	320	633	141	40	320

1) Tolerance between centring holes

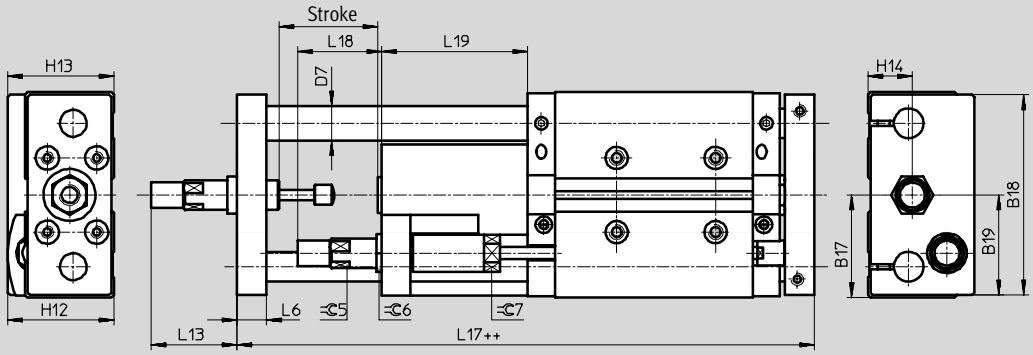
Guided drive DFM-B

Technical data

FESTO

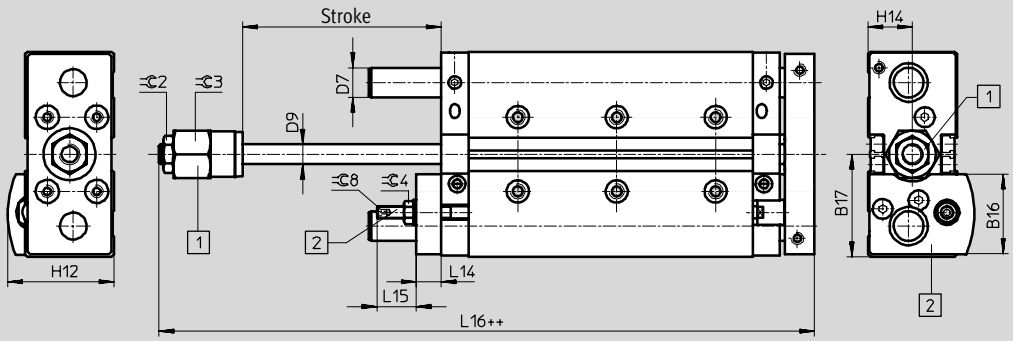
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 20 ... 40 mm – Self-adjusting cushioning YSRW



++ = plus 2 stroke lengths

Piston ∅ 20 ... 40 mm – Precision stroke adjustment, advanced end position AJ and retracted end position EJ



1 Variant AJ
2 Variant EJ
++ = plus 2 stroke lengths

Guided drive DFM-B

Technical data

FESTO

∅ [mm]	B16	B17	B18	B19	D7 ∅ GF	D7 ∅ KF	D9 ∅	H12	H13	H14	L6	L13	L14
20	32.5	41.5	81	40.5	14	12	8	43	43	18	12	36.5	10
25	38.6	47.5	90	45	16	14	10	49.5	50.5	22	14	43	12
32	43.4	55	105	52.5	20	16	12	56.5	56	24.5	16	52	12
40	46.2	60	116	58	20	16	12	62.5	63.5	27	16	72	12

∅ [mm]	L15	L16	L17	L18	L19	⌭2	⌭3	⌭4	⌭5	⌭6	⌭7	⌭8
20	16	110	153.5	34	59	13	19	8	11	15	13	2.5
25	23.5	119.5	176.5	37.5	71	17	24	13	13	17	16	4
32	18.5	129.5	190.5	48.5	76	17	30	13	15	17	19	4
40	18.5	132	209.5	55.5	95	17	30	13	20	22	27	4

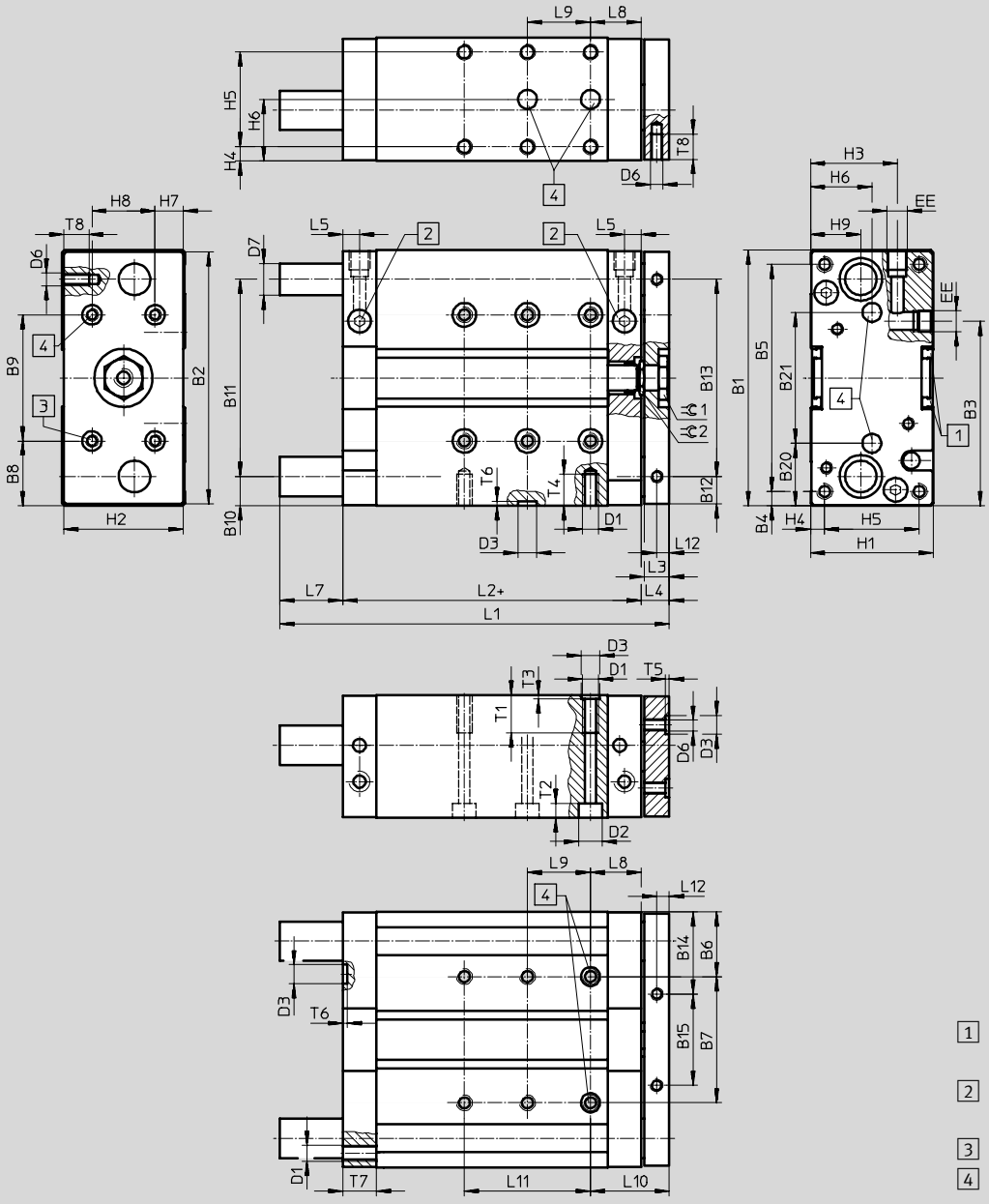
Guided drive DFM-B

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 50 ... 63 mm



1 Mounting slot for proximity sensors
2 Supply port optionally at side or top
3 Mounting thread
4 Centring holes

Guided drives DFM-B

Technical data

FESTO

∅ [mm]	B1	B2	B3	B4	B5	B6	B7 ±0.02[1)]	B8	B9 ±0.02[1)]	B10	B11	B12	B13	B14	B15	B20	B21 ±0.02[1)]
50	148	146	104.5	19	110	42	64	44	60	19	110	18	110	52	42	40	68
63	162	160	117	9	144	41	80	41	80	18.5	125	17.5	125	51	58	39.5	83

∅ [mm]	D1	D2 ∅ H7	D3 ∅ H7	D6 ∅	D7 ∅ GF	D7 ∅ KF	EE	H1	H2	H3	H4	H5	H6	H7	H8
50	M8	11	12	M8	25	20	G¼	64	62	48.5	7	50	32	12	40
63	M10	15	12	M8	25	20	G¼	78	76	55	9	60	39	19	40

∅ [mm]	H9	L2	L3	L4	L5	L8	L10	L12	T1	T2	T3	T4	T5	T6	T7	T8	⌭1	⌭2
50	29	88	16	18	10.5	32	50	8	20	9.8	2.6	16	2.6	2.6	21	16	24	19
63	32	89	16	18	10.5	32	50	8	24	9	2.6	20	2.6	2.6	21	16	24	19

Stroke [mm]	Piston ∅ [mm] 50 L1	50 L7	50 L9 ±0.02[1)]	50 L11	63 L1	63 L7	63 L9 ±0.02[1)]	63 L11
25	137	6	20	–	137	5	20	–
50	177	21	40		177	20	40	
80	227	41			227	40		80
100	247			80	247			
125	293	62			293	61		120
160	328			120	328			160
200	368			160	368			200
250	495	139		200	495	138		240
320	565			240	565			320
400	645			320	645			

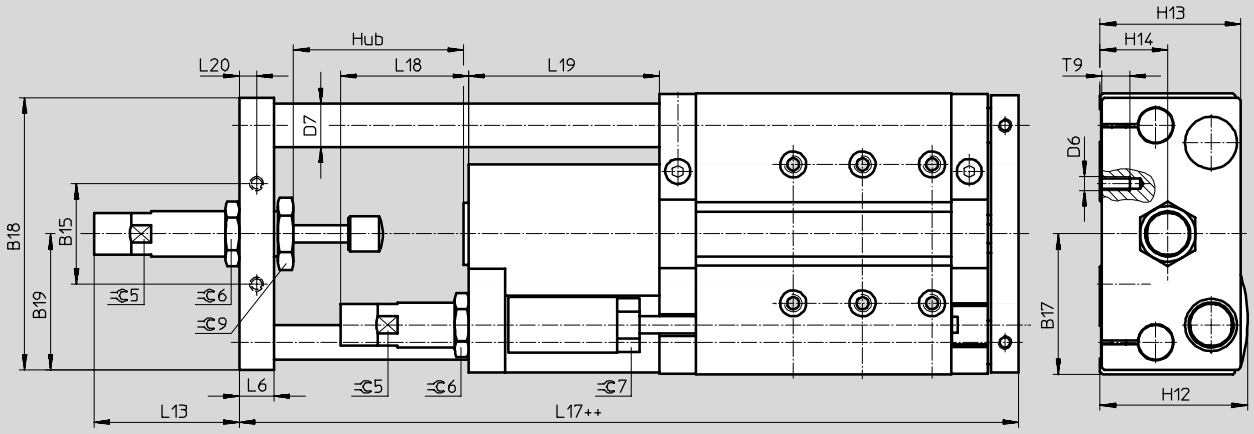
1) Tolerance between centring holes

Guided drives DFM-B

Technical data

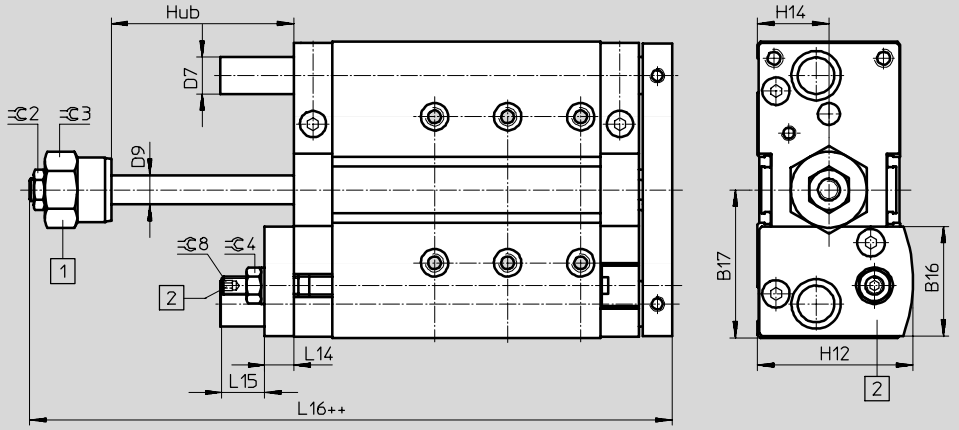
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Piston ∅ 50 ... 63 mm – Self-adjusting cushioning YSRW



++ = plus 2 stroke lengths

Piston ∅ 50 ... 63 mm – Precision stroke adjustment, advanced end position AJ and retracted end position EJ



1 Variant AJ
2 Variant EJ
++ = plus 2 stroke lengths

Guided drives DFM-B

Technical data

∅ [mm]	B15	B16	B17	B18	B19	D6	D7 ∅ GF	D7 ∅ KF	D9 ∅	H12	H13	H14	L6	L13	L14
50	42	57.6	74	157	72	M8	25	20	16	74	71	32	16	67.6	16
63	58	60	81	144	78.5	M8	25	20	16	81	81	39	20	83.3	16

∅ [mm]	L15	L16	L17	L18	L19	L20	T9	⌭2	⌭3	⌭4	⌭5	⌭6	⌭7	⌭8	⌭9
50	24.5	152.1	226.4	58.5	93	8	16	19	36	17	20	27	22	5	30
63	23.5	151.8	249.2	74	110	10	16	19	36	17	24	32	27	5	36

Guided drives DFM-B, with plain-bearing guide GF

Ordering data – Modular products

FESTO

M **Mandatory data**

Module No.	Design	Size	Stroke	Generation	Cushioning	Position sensing	Guide
529 119	DFM	12	10 ... 400	B	P	A	GF
529 120		16			PPV		
532 316		20					
532 317		25					
532 318		32					
532 319		40					
534 769		50					
534 770		63					
Ordering example							
532 319	**DFM**	**– 40**	**– 400**	**– B**	**– P**	**– A**	**– GF**

Ordering table

Size		12	16	20	25	32	40	50	63	Conditions	Code	Enter code
M	Module No.	**529 119**	**529 120**	**532 316**	**532 317**	**532 318**	**532 319**	**534 769**	**534 770**			
	Design	Guide axis, modular									**DFM**	DFM
	Size	12	16	20	25	32	40	50	63		-...	
	Stroke [mm]	10	10	–	–	–	–	–	–		-...	
		20	20	20	20	20	–	–	–		-...	
		25	25	25	25	25	25	25	25		-...	
		30	30	30	30	30	–	–	–		-...	
		40	40	40	40	40	–	–	–		-...	
		50	50	50	50	50	50	50	50		-...	
		80	80	80	80	80	80	80	80		-...	
		100	100	100	100	100	100	100	100		-...	
		125	125	125	125	125	125	125	125		-...	
		160	160	160	160	160	160	160	160		-...	
		200	200	200	200	200	200	200	200		-...	
		–	–	250	250	250	250	250	250		-...	
		–	–	320	320	320	320	320	320		-...	
		–	–	400	400	400	400	400	400		-...	
	Generation	B series									**-B**	-B
	Cushioning	Flexible cushioning rings/plates at both ends									**-P**	
		–	Pneumatic cushioning adjustable at both ends							1	**-PPV**	
	Position sensing	Via proximity sensor									**-A**	-A
↓	Guide	Plain-bearing guide									**-GF**	-GF

1 **PPV** Not in combination with precision adjustment AJ, EJ.

Transfer order code

	DFM	–		–		–	**B**	–		–	**A**	– **GF**

Guided drives DFM-B, with plain-bearing guide GF

Ordering data – Modular products

FESTO

0 Options					
Precision adjustment in the end positions, advanced	Precision adjustment in the end positions, retracted	Accessories	Slot cover for sensor slot	Proximity sensor with cable	Proximity sensor, contactless with cable
AJ	EJ	ZUB	...S	...G	...I
– AJ	– EJ	ZUB	– 10S	10G	10I

Ordering table

Size		12	16	20	25	32	40	50	63	Conditions	Code		Enter code
0 Precision adjustment in the end positions, advanced		Precision adjustment advanced								2	-AJ		
Precision adjustment in the end positions, retracted		–	–	Precision adjustment retracted						2	-EJ		
Accessories		Supplied separately									ZUB-		ZUB-
Slot cover for sensor slot		1 ... 10									...S		
Proximity sensor	With cable 2.5 m	1 ... 10									...G		
	Contactless with cable 2.5 m	1 ... 10									...I		

2 **AJ, EJ** Not with cushioning PPV.

Transfer order code

–		–		ZUB	–			

Guided drives DFM-B, with recirculating ball bearing guide KF

Ordering data – Modular products

FESTO

M **Mandatory data**

Module No.	Design	Size	Stroke	Generation	Cushioning	Position sensing	Guide
529 119	DFM	12	10 ... 400	B	P	A	KF
529 120		16			PPV		
532 316		20			YSRW		
532 317		25					
532 318		32					
532 319		40					
534 769		50					
534 770		63					
Ordering example							
532 319	**DFM**	**40**	**400**	**B**	**P**	**A**	**KF**

Ordering table

	Size	12	16	20	25	32	40	50	63	Conditions	Code	Enter code
M	Module No.	**529 119**	**529 120**	**532 316**	**532 317**	**532 318**	**532 319**	**534 769**	**534 770**			
	Design	Guide axis, modular									**DFM**	DFM
	Size	12	16	20	25	32	40	50	63		-...	
	Stroke [mm]	10	10	–	–	–	–	–	–		-...	
		20	20	20	20	20	–	–	–		-...	
		25	25	25	25	25	25	25	25		-...	
		30	30	30	30	30	–	–	–		-...	
		40	40	40	40	40	–	–	–		-...	
		50	50	50	50	50	50	50	50		-...	
		80	80	80	80	80	80	80	80		-...	
		100	100	100	100	100	100	100	100		-...	
		125	125	125	125	125	125	125	125		-...	
		160	160	160	160	160	160	160	160		-...	
		200	200	200	200	200	200	200	200		-...	
		–	–	250	250	250	250	250	250		-...	
		–	–	320	320	320	320	320	320		-...	
		–	–	400	400	400	400	400	400		-...	
	Generation	B series									**-B**	-B
	Cushioning	Flexible cushioning rings/plates at both ends									**-P**	
		–	Pneumatic cushioning adjustable at both ends							1	**-PPV**	
		–	–	Shock absorber with progressive cushioning						2	**-YSRW**	
	Position sensing	Via proximity sensor									**-A**	-A
↓	Guide	Recirculating ball bearing guide									**-KF**	-KF

1 **PPV** Not in combination with precision adjustment AJ, EJ.

2 **YSRW** Not with precision adjustment AJ, EJ, since already integrated.

Transfer order code

	DFM	–		–		–	**B**	–		–	**A**	–	**KF**

Guided drives DFM-B, with recirculating ball bearing guide KF

Ordering data – Modular products

FESTO

0 Options					
Precision adjustment in the end positions, advanced	Precision adjustment in the end positions, retracted	Accessories	Slot cover for sensor slot	Proximity sensor with cable	Proximity sensor, contactless with cable
AJ	EJ	ZUB	...S	...G	...I
– **AJ**	– **EJ**	**ZUB**	– **10S**	**10G**	**10I**

Ordering table

Size		12	16	20	25	32	40	50	63	Conditions	Code		Enter code
0 Precision adjustment in the end positions, advanced		Precision adjustment advanced								3	**-AJ**		
Precision adjustment in the end positions, retracted		–	–	Precision adjustment retracted						3	**-EJ**		
Accessories		Supplied separately									**ZUB-**		ZUB-
Slot cover for sensor slot		1 ... 10									**...S**		
Proximity sensor	With cable 2.5 m	1 ... 10									**...G**		
	Contactless with cable 2.5 m	1 ... 10									**...I**		

3 **AJ, EJ** Not with cushioning PPV, YSRW.

Transfer order code

–		–		**ZUB**	–			

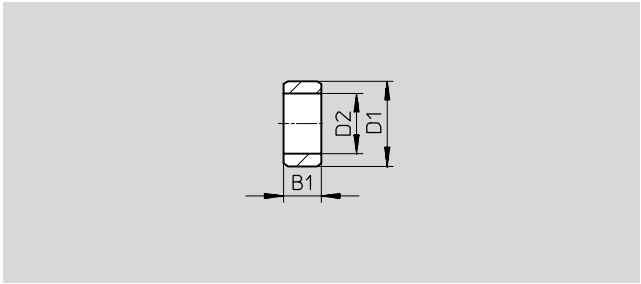
Guided drives DFM/DFM-B

Accessories

FESTO

Centring sleeve ZBH

Material:
High-alloy steel

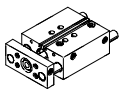


Dimensions and ordering data (repeat order)

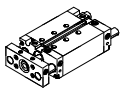
B1 –0.2	D1 ∅ h7	D2 ∅	CRC[1]	Weight [g]	Part No.	Type	PU[2]
2.4	5	3.2	2	1	**189 652**	**ZBH-5**	**10**
3	7	5.3	2	1	**186 717**	**ZBH-7**	**10**
4	9	6.4	2	1	**150 927**	**ZBH-9**	**10**
5	12	10.3	2	1	**189 653**	**ZBH-12**	**10**
6	15	12.4	2	1	**191 409**	**ZBH-15**	**10**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
2) Packaging unit quantity.

Centring sleeves included in scope of delivery

DFM	Piston ∅ [mm]	Centring sleeves for housing	Centring sleeves for yoke plate
	12	**2x ZBH-5, 2x ZBH-9**	–
	16	**2x ZBH-5, 2x ZBH-9**	–
	20	**2x ZBH-7, 2x ZBH-9**	**2x ZBH-9**
	25	**2x ZBH-7, 2x ZBH-9**	**2x ZBH-9**
	32	**2x ZBH-9, 2x ZBH-12**	**2x ZBH-9**
	40	**2x ZBH-9, 2x ZBH-12**	**2x ZBH-9**
	50	**2x ZBH-12**	**2x ZBH-12**
	63	**2x ZBH-12**	**2x ZBH-12**
	80	**2x ZBH-12**	**2x ZBH-12**
	100	**2x ZBH-15**	**2x ZBH-15**

Centring sleeves included in scope of delivery

DFM-B	Piston ∅ [mm]	Centring sleeves for housing	Centring sleeves for yoke plate
	12	**2x ZBH-5, 2x ZBH-9**	–
	16	**2x ZBH-5, 2x ZBH-9**	–
	20	**2x ZBH-7, 2x ZBH-9**	**2x ZBH-9**
	25	**2x ZBH-7, 2x ZBH-9**	**2x ZBH-9**
	32	**2x ZBH-9, 2x ZBH-12**	**2x ZBH-9**
	40	**2x ZBH-9, 2x ZBH-12**	**2x ZBH-9**
	50	**2x ZBH-12**	**2x ZBH-12**
	63	**2x ZBH-12**	**2x ZBH-12**
	–	–	–
	–	–	–

Ordering data – Proximity sensors for slot type 8, magneto-resistive

Technical data ➔ 1 / 10.2-13

	Assembly	Switch output	Electrical connection: Cable	Plug M8	Plug M12	Cable length [m]	Part No.	Type
NO contact								
	Insertable from above	PNP	3-core	–	–	2.5	**525 898**	**SMT-8F-PS-24V-K2,5-OE**
		NPN					**525 909**	**SMT-8F-NS-24V-K2,5-OE**
		–	2-core	–	–	2.5	**525 908**	**SMT-8F-ZS-24V-K2,5-OE**
		PNP	–	3-pin	–	0.3	**525 899**	**SMT-8F-PS-24V-K0,3-M8D**
		NPN					**525 910**	**SMT-8F-NS-24V-K0,3-M8D**
		PNP	–	–	3-pin	0.3	**525 900**	**SMT-8F-PS-24V-K0,3-M12**
	Insertable from end, flush with the cylinder profile	PNP	3-core	–	–	2.5	**175 436**	**SMT-8-PS-K-LED-24-B**
			–	3-pin	–	0.3	**175 484**	**SMT-8-PS-S-LED-24-B**
NC contact								
	Insertable from above	PNP	3-core	–	–	7.5	**525 911**	**SMT-8F-PO-24V-K7,5-OE**

Core Range

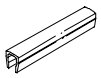
Ordering data – Proximity sensors for slot type 8, magnetic reed — Technical data ➔ 1 / 10.2-16

	Assembly	Electrical connection		Cable length [m]	Part No.	Type
		Cable	Plug M8			
NO contact						
	Insertable from above	3-core	–	2.5	525 895	SME-8F-DS-24V-K2,5-OE
				5.0	525 897	SME-8F-DS-24V-K5,0-OE
		2-core	–	2.5	525 907	SME-8F-ZS-24V-K2,5-OE
		–	3-pin	0.3	525 896	SME-8F-DS-24V-K0,3-M8D
	Insertable from end, flush with the cylinder profile	3-core	–	2.5	150 855	SME-8-K-LED-24
		–	3-pin	0.3	150 857	SME-8-S-LED-24
NC contact						
	Insertable from above	3-core	–	7.5	525 906	SME-8F-DO-24V-K7,5-OE

Ordering data – Plug sockets — Technical data ➔ 1 / 10.2-100

	Assembly	Switch output		Connection	Cable length [m]	Part No.	Type
		PNP	NPN				
Straight socket							
	Union nut M8	■	■	3-pin	2.5	159 420	SIM-M8-3GD-2,5-PU
					5	159 421	SIM-M8-3GD-5-PU
	Union nut M12	■	■	3-pin	2.5	159 428	SIM-M12-3GD-2,5-PU
					5	159 429	SIM-M12-3GD-5-PU
Angled socket							
	Union nut M8	■	■	3-pin	2.5	159 422	SIM-M8-3WD-2,5-PU
					5	159 423	SIM-M8-3WD-5-PU
	Union nut M12	■	■	3-pin	2.5	159 430	SIM-M12-3WD-2,5-PU
					5	159 431	SIM-M12-3WD-5-PU

Ordering data – Slot cover for slot type 8

	Assembly	Length [m]	Part No.	Type
	Insertable from above	2x 0.5	151 680	ABP-5-S

Ordering data – One-way flow control valves — Technical data ➔ Volume 2

	Connection		Material	Part No.	Type
	Thread	for tubing O.D.			
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
		6		193 139	GRLA-M5-QS-6-D
	G1/8	3		193 142	GRLA-1/8-QS-3-D
		4		193 143	GRLA-1/8-QS-4-D
		6		193 144	GRLA-1/8-QS-6-D
		8		193 145	GRLA-1/8-QS-8-D
	G1/4	6		193 146	GRLA-1/4-QS-6-D
		8		193 147	GRLA-1/4-QS-8-D
		10		193 148	GRLA-1/4-QS-10-D
	G3/8	6		193 149	GRLA-3/8-QS-6-D
		8		193 150	GRLA-3/8-QS-8-D
		10		193 151	GRLA-3/8-QS-10-D

Core Range