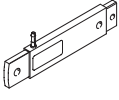
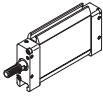
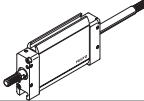
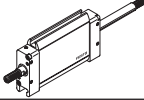
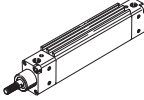
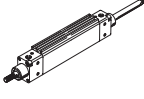
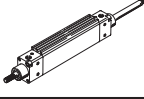


## Flat cylinders EZH/DZF/DZH

**FESTO**



Product range overview

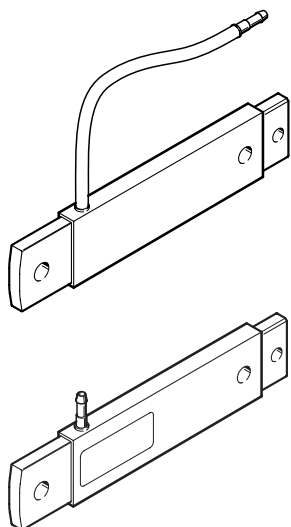
Function	Design	Type	Piston $\varnothing$ [mm]	Stroke [mm]	
Single-acting		<b>EZH</b> Piston rod at one end	1.5x6.5	10	
			2.5x9	10, 20	
			5x20	25, 50	
			10x40	40	
Double-acting		<b>DZF</b> Piston rod at one end	12, 18, 25	10, 25, 40, 50, 80, 100, 125, 160, 200	1 ... 200
			32, 40, 50, 63	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 320	1 ... 320
		<b>DZF-...-S2</b> Through piston rod	12, 18, 25	-	1 ... 200
			32, 40, 50, 63	-	1 ... 320
		<b>DZF-...-S20</b> Through, hollow piston rod	12, 18, 25	-	1 ... 200
			32, 40, 50, 63	-	1 ... 320
Double-acting		<b>DZH</b> Piston rod at one end	16	25, 40, 50, 80, 100, 125, 160, 200	1 ... 200
			20	25, 40, 50, 80, 100, 125, 160, 200, 250, 320	1 ... 320
			25	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1 ... 500
			32, 40, 50, 63	25, 40, 50, 80, 100, 125, 160, 200, 250, 300	1 ... 1000
		<b>DZH-...-S2</b> Through piston rod	16	-	1 ... 200
			20	-	1 ... 320
			25	-	1 ... 500
			32, 40, 50, 63	-	1 ... 1000
		<b>DZH-...-S20</b> Through, hollow piston rod	16	-	1 ... 200
			20	-	1 ... 320
			25	-	1 ... 500

## Product range overview

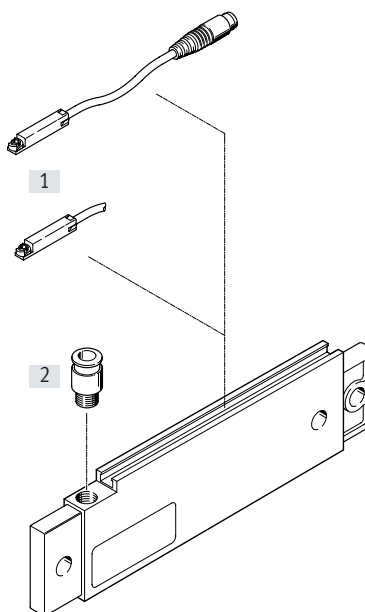
Type	Position sensing	Piston rod		Protected against rotation	Heat-resistant up to 120°C S6	→ Page/Internet
		With female thread	With male thread			
<b>EZH</b> Piston rod at one end	■ for 10x40	–	–	■	–	4
<b>DZF</b> Piston rod at one end	■	■	■	■	■	8
<b>DZF-...-S2</b> Through piston rod	■	■	■	■	–	
<b>DZF-...-S20</b> Through, hollow piston rod	■	–	■	■	–	
<b>DZH</b> Piston rod at one end	■	–	■	■	■	22
<b>DZH-...-S2</b> Through piston rod	■	–	■	■	–	
<b>DZH-...-S20</b> Through, hollow piston rod	■	–	■	■	–	

## Peripherals overview and type codes

### Piston surface 1.5x6.5/2.5x9/5x20



### Piston surface 10x40



Accessories	Description	→ Page/Internet
[1] Proximity switch SME/SMT-8	Can be integrated in the cylinder profile barrel	37
[2] Push-in fitting QSM-G1/8-...-I, QS-G1/8-...-I	For connecting tubing with standard O.D.	qs

### Type codes

001	Series
EZH	Flat cylinder, single-acting

002	Equivalent piston diameter
10/40	22.2 mm
5/20	11.5 mm
2,5/9	5.5 mm
1,5/6,5	3.4 mm

003	Stroke [mm]
10	10
20	20
25	25
40	40
50	50

004	Position sensing
	None
A	For proximity sensor

005	Generation
	None
B	Function-optimised

## Data sheet

Without end-position sensing



-  $\varnothing$  - Diameter  
approx. 3 ... 22 mm

- | - Stroke length  
10 ... 50 mm

With end position sensing



## General technical data

Piston surface	1.5x6.5	2.5x9	2.5x9	5x20	5x20	10x40
Stroke length	10	10	20	25	50	40
Equivalent piston $\varnothing$	3	6	6	12	12	22
Pneumatic connection	Barbed fitting PK-3 for 3 mm plastic tubing					G1/8
Design	Piston, piston rod					
Cushioning	None					
Position sensing	-	-	-	-	-	Via proximity switch
Type of mounting	With cross bore					
Mounting position	Any					

## Operating and environmental conditions

Piston surface	1.5x6.5	2.5x9	2.5x9	5x20	5x20	10x40
Stroke length	10	10	20	25	50	40
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure						
	[MPa]	0.3 ... 0.6	0.28 ... 0.6	0.28 ... 0.6	0.25 ... 0.6	0.25 ... 0.6
	[bar]	3.0 ... 6.0	2.8 ... 6.0	2.8 ... 6.0	2.5 ... 6.0	2.5 ... 6.0
	[psi]	43.5 ... 87	40.6 ... 87	40.6 ... 87	36.25 ... 87	36.25 ... 87
Ambient temperature <sup>1)</sup>	[°C]	0 ... +60				
Corrosion resistance class CRC <sup>2)</sup>		2				

1) Note operating range of proximity switches

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Forces [N]

Piston surface	1.5x6.5	2.5x9	2.5x9	5x20	5x20	10x40
Stroke length	10	10	20	25	50	40
Theoretical force at 6 bar, advancing	3.8	10	10	52	49	205
Theoretical spring return force						
min.	1	3	2.8	8	10.6	18
max.	1.7	4	4.4	10.6	13.6	28

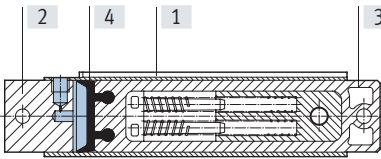
## Weight [g]

Piston surface	1.5x6.5	2.5x9	2.5x9	5x20	5x20	10x40
Stroke length	10	10	20	25	50	40
Product weight	4	11	17	108	145	242

Data sheet

Materials

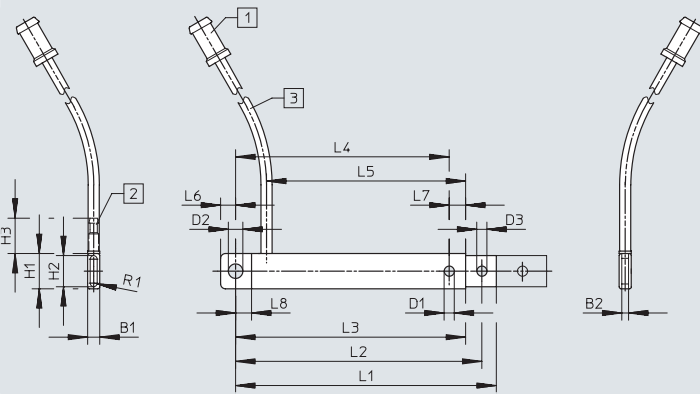
Sectional view



Piston surface	1.5x6.5	2.5x9	2.5x9	5x20	5x20	10x40
Stroke length	10	10	20	25	50	40
[1] Housing	Aluminium					
[2] Cover	Aluminium					
[3] Rectangular piston	Reinforced polyamide	Nickel-plated copper alloy	Nickel-plated steel		Reinforced polyamide	
[4] Seal	NBR					
- Note on materials	Contains paint-wetting impairment substances		-			
PWIS conformity	VDMA24364-B2-L					

Dimensions EZH-1.5/6.5-10

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

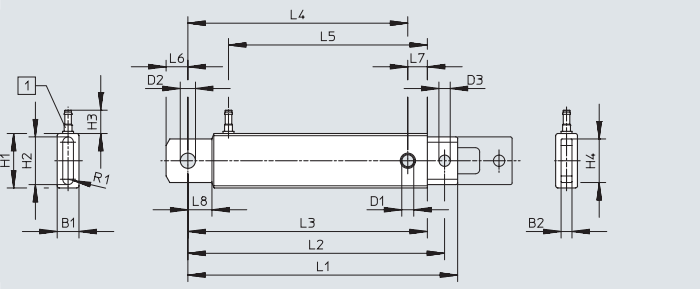


- [1] Barbed fitting for 3 mm plastic tubing
- [2] Barbed fitting for 1.5 mm plastic tubing
- [3] Tubing length 200 mm

Type	B1	B2	D1 ∅	D2 ∅ H11	D3 ∅	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7	L8	R1
EZH-1.5/6.5-10	-0.1								±0.8	±0.9	±0.3	±0.4					0.725

EZH-2.5/9-... and EZH-5/20-...

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



- [1] Barbed fitting for 3 mm plastic tubing

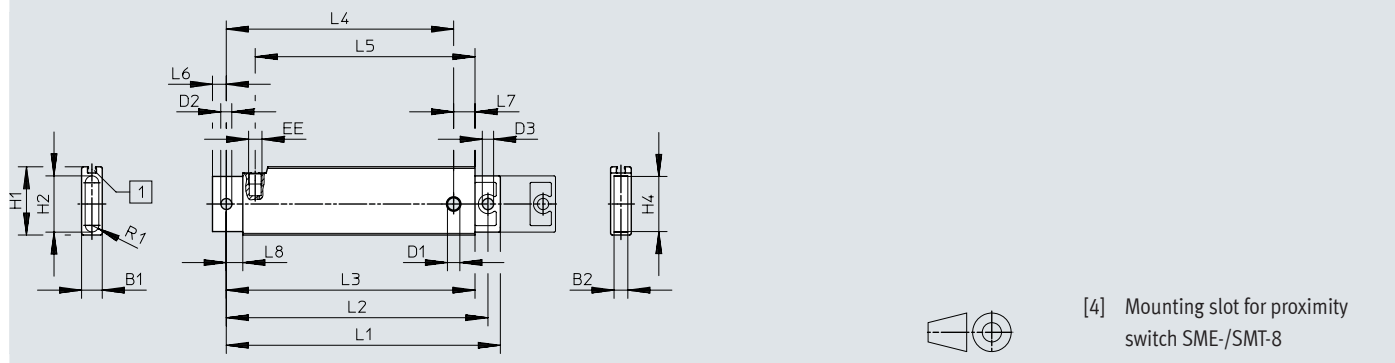
Type	B1	B2	D1 ∅	D2 ∅ H11	D3 ∅	H1	H2	H3	H4
EZH-2.5/9-10	4.9±0.05	2.5	3.1	4	3.1	12	9.9	10.7	9
EZH-2.5/9-20	4.9±0.05	2.5	3.1	4	3.1	12	9.9	10.7	9
EZH-5/20-25	10 <sub>-0.1</sub>	5	5.5	7	5.2	25	21.9	10.7	20
EZH-5/20-50	10 <sub>-0.1</sub>	5	5.5	7	5.2	25	21.9	10.7	20

Type	L1	L2	L3	L4	L5	L6	L7	L8	R1
			±0.3	±0.4					
EZH-2.5/9-10	62.4±0.7	58.4±0.8	54	49.5	43.6	4.5	4.5	5.5	1.2
EZH-2.5/9-20	94.5±0.7	90.5±0.8	86.1	81.6	75.5	4.5	4.5	5.5	1.2
EZH-5/20-25	123.9 <sub>+0.6/-0.8</sub>	117.9 <sub>+0.7/-0.9</sub>	110	101	91.3	10	9	11	2.45
EZH-5/20-50	195.9 <sub>+0.6/-0.8</sub>	189.9 <sub>+0.7/-0.9</sub>	182	173	163.3	10	9	11	2.45

Data sheet

Dimensions EZH-10/40-40-A-B

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



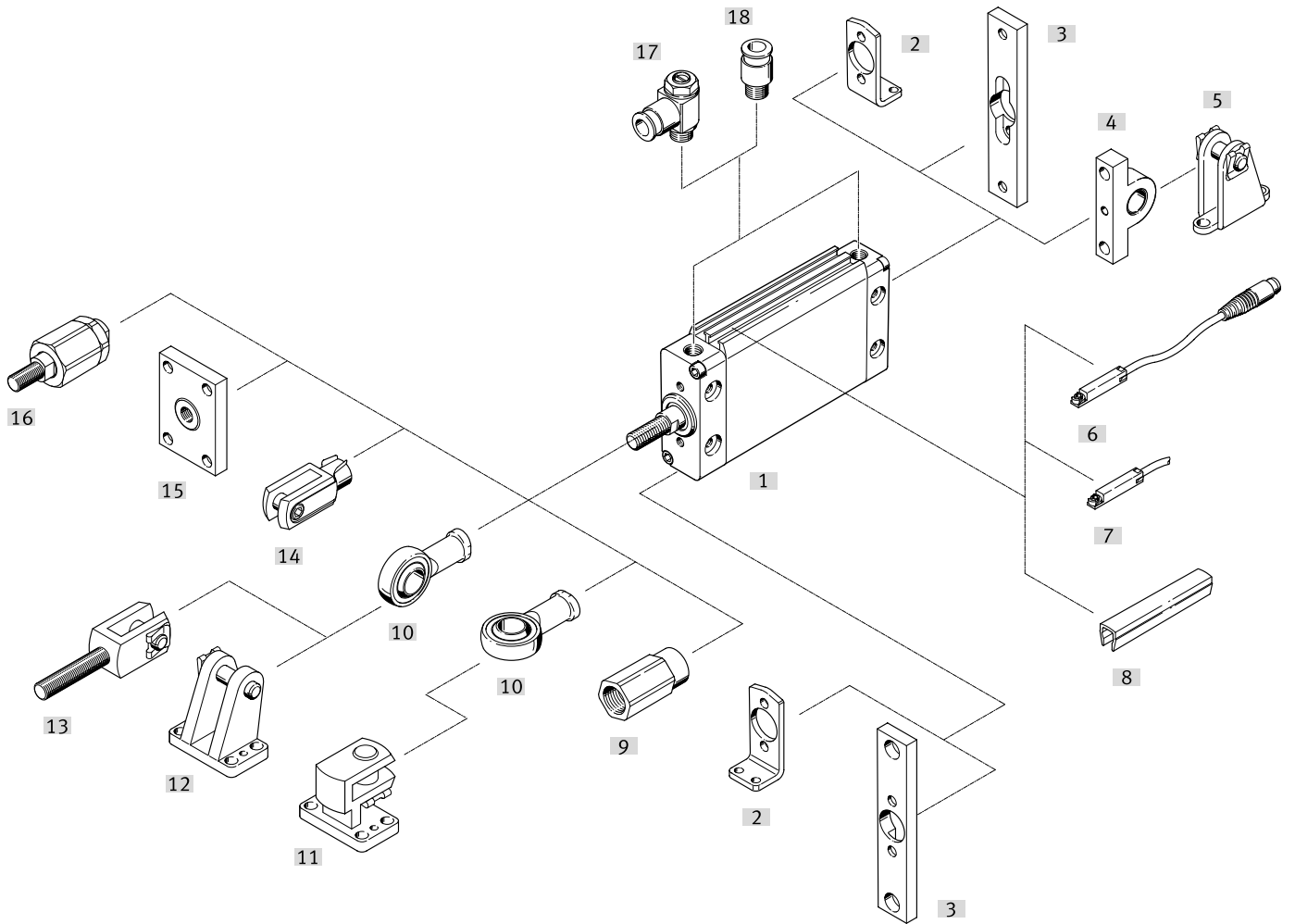
Type	B1	B2	D1 ∅	D2 ∅ H11	D3 ∅	EE	H1	H2	H4 -0.1/-0.3
EZH-10/40-40-A-B	15	10	8.5	8	8.2	G1/8	49.5	40.7	40

Type	L1	L2	L3	L4	L5	L6	L7	L8	R1
EZH-10/40-40-A-B	+0.7/-1.4	+0.9/-1.6	±0.4	±0.4					
EZH-10/40-40-A-B	198.9	189.9	180.5	165	159.5	10	15.5	12	4.925

Ordering data

Type	Piston surface [mm]	Stroke [mm]	Part no.	Type
<b>Without end-position sensing</b>				
	1.5x6.5	10	13009	EZH-1.5/6.5-10
	2.5x9	10	164991	EZH-2.5/9-10-B
		20	164992	EZH-2.5/9-20-B
	5x20	25	164993	EZH-5/20-25-B
		50	164994	EZH-5/20-50-B
<b>With end-position sensing</b>				
	10x40	40	164990	EZH-10/40-40-A-B

Peripherals overview





## Peripherals overview

Mounting components and accessories		Description	Piston Ø 16 ... 40 mm	Piston Ø 50 ... 63 mm	→ Page/Internet
[1]	Flat cylinder DZF				11
[2]	Foot mounting HZF	For bearing and end caps	■	■	19
[3]	Flange mounting FZF	For bearing and end caps	■	■	19
[4]	Swivel flange SZF	For end caps	■	■	20
[5]	Clevis foot LZF	–	■	■	20
[6] [7]	Proximity switch SME/SMT-8	Can be integrated in the cylinder profile barrel	■	■	36
[8]	Slot cover ABP-5-S	For protecting the sensor cables and the sensor slots from contamination	■	■	37
[9]	Adapter AD	For suction cup with connection	■ S20	–	21
[10]	Rod eye SGS	With spherical bearing	■	■	21
[11]	Right-angle clevis foot LQG	–	■	■	20
[12]	Clevis foot LBG	–	■	■	20
[13]	Rod clevis SGA	With male thread	■	■	21
[14]	Rod clevis SG	Permits a swivelling movement of the cylinder in one plane	■	■	21
[15]	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■	■	21
[16]	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	21
[17]	One-way flow control valve GRIA/GRLZ	For regulating speed	■	■	38
[18]	Push-in fitting QS	For connecting tubing with standard O.D.	■	■	qs

## Type codes

001	Series
DZF	Flat cylinder, double-acting

002	Piston diameter [mm]
12	12
18	18
25	25
32	32
40	40
50	50
63	63

003	Stroke [mm]
10	10
25	25
40	40
50	50
80	80
100	100
125	125
160	160
200	200
250	250
320	320
...	10 ... 320

004	Piston rod thread type
	Female thread
A	Male thread

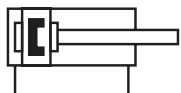
005	Cushioning
P	Elastic cushioning rings/plates on both sides




006	Position sensing
A	For proximity sensor

007	Piston rod type
	At one end
S2	Through piston rod
S20	Through, hollow piston rod

008	Temperature resistance
	Standard
S6	Heat-resistant seals max. 120 °C

## Data sheet



-  - Diameter  
12 ... 63 mm
-  - Stroke length  
1 ... 320 mm
-  - [www.festo.com](http://www.festo.com)

**General technical data**

Piston $\varnothing$	12	18	25	32	40	50	63
Pneumatic connection	M5	M5	M5	G1/8	G1/8	G1/4	G1/4
Piston rod thread	Female	M3	M4	M5	M6	M8	M10
	Male	M6	M8	M10x1.25	M10x1.25	M12x1.25	M16x1.5
Design	Piston, piston rod						
Cushioning	Elastic cushioning rings/pads at both ends						
Position sensing	Via proximity switch						
Type of mounting	With through-hole						
	With female thread						
	Via accessories						
Mounting position	Any						

**Operating pressure**

Piston $\varnothing$	12	18	25	32	40	50	63
	[MPa]	0.16 ... 1	0.1 ... 1				
	[bar]	1.6 ... 10	1 ... 10				
	[psi]	23.2 ... 145	14.5 ... 145				

**Environmental conditions**

Flat cylinder	DZF...	DZF...S6
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature <sup>1)</sup>	[°C]	-20 ... +80
Corrosion resistance class CRC <sup>2)</sup>		2

1) Note operating range of proximity switches

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

**Forces [N] and impact energy [J]**

Piston $\varnothing$	12	18	25	32	40	50	63
Theoretical force at 6 bar, advancing		68	162	295	483	754	1178
	S2/S20	51	122	247	415	633	990
Theoretical force at 6 bar, retracting		51	122	247	415	633	990
	S2/S20	51	122	247	415	633	990
Max. impact energy at the end positions <sup>1)</sup>		0.09	0.10	0.10	0.40	0.52	0.70

1) The values are reduced by approx. 50% at an ambient temperature of 80 °C

## Data sheet

Torque [Nm] and angle of rotation [°]							
Piston ø	12	18	25	32	40	50	63
Max. torque at the piston rod <sup>1)</sup>	0.1	0.2	0.5	0.8	1.0	1.2	1.5
Max. angle of rotation of the piston rod	±2.5	±1.2	±1.0	±0.8	±0.6	±0.5	±0.4

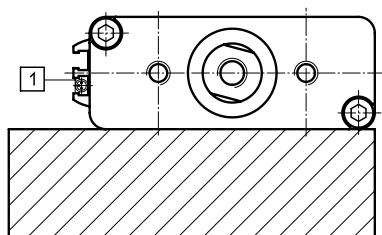
1) The max. torque must not be exceeded even when attaching mounting components to the piston rod

Weight [g]							
Piston ø	12	18	25	32	40	50	63
Product weight with 0 mm stroke	96	107	168	272	480	855	1380
Additional weight per 10 mm stroke	9	13	18	24	40	64	91

### Safety distances

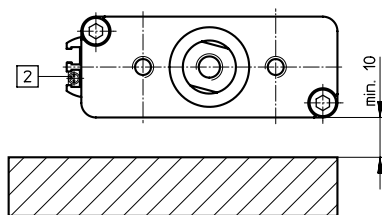
#### Cylinder to ferritic components

If the cylinder is mounted on a ferritic component, piston position sensing is possible using proximity switches SMT-8.



[1] SMT-8...

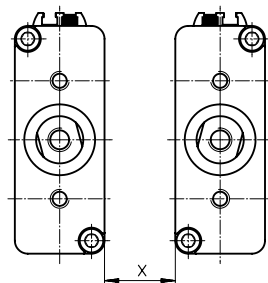
If a proximity switch SME-8 with a piston diameter of 12 to 32 mm is used, a minimum distance to the ferritic component of 10 mm must be maintained.



[2] SME-8...

#### Cylinder to cylinder

Safety distance X must be maintained when positioning cylinders in series, as the stray fields of the switching magnets can result in faulty switching.

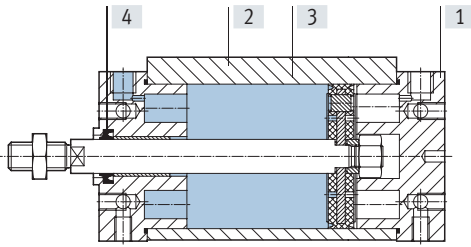


Piston ø		12	18	25	32	40	50	63
Min. safety distance X [mm]	SMT-8...	35			25	45		80
	SME-8...	50			45	65		50

Data sheet

Materials

Sectional view



Flat cylinder	DZF...	DZF...-S6
[1] Bearing cap	Wrought aluminium alloy	Wrought aluminium alloy
[2] Cylinder barrel	Anodised wrought aluminium alloy	Anodised wrought aluminium alloy
[3] Piston rod	$\varnothing 12 \dots 25$ High-alloy stainless steel	High-alloy stainless steel
	$\varnothing 32 \dots 63$ High-alloy steel	High-alloy steel
[4] Dynamic seals	Polyurethane	Fluoro rubber
- PWIS conformity	VDMA24364-B1/B2-L	

Dimensions

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

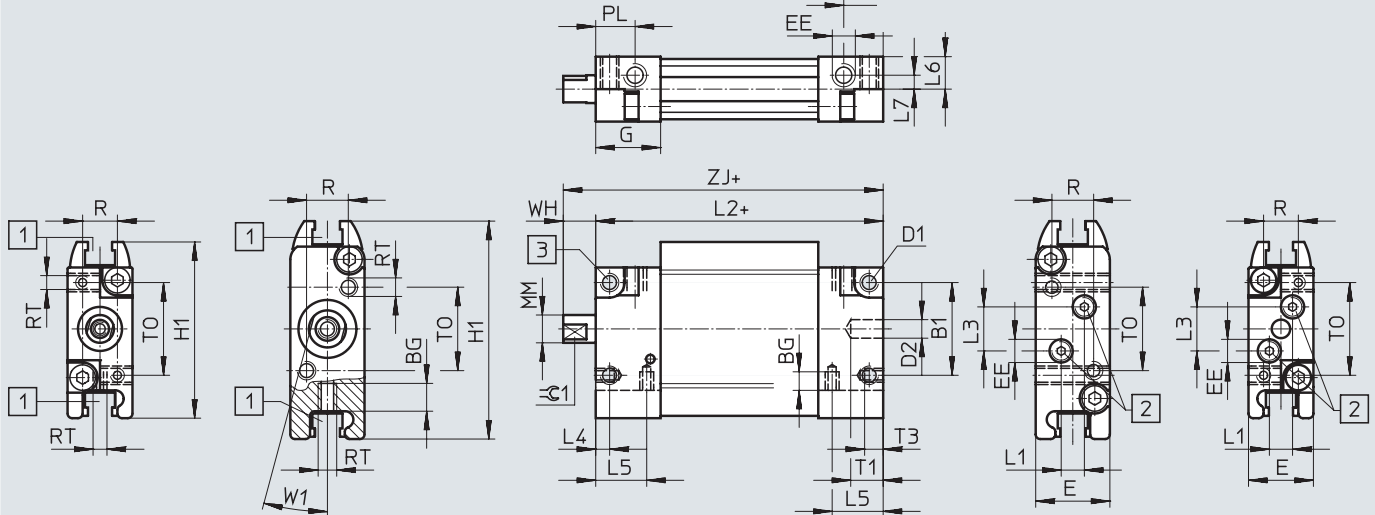
$\varnothing 12, 18$

DZF-12

DZF-18

PL DZF-18

DZF-12



- [1] Mounting slot for proximity switch
- [2] Additional supply ports, sealed with blanking plugs

- [3] Max. tightening torque  
+ = plus stroke length

$\varnothing$	B1	BG	D1	D2 $\varnothing$ H9	E	EE	G	H1	L1	L2	L3	L4	L5
[mm]													
12	20	4	M4	4	14	M5	14	38	5	62	9.5	3	11
18	20	6	M4	4	16	M5	14	47	5	62	9.5	3.5	5

$\varnothing$	L6	L7	MM $\varnothing$	PL	R	RT	T1	T3	TO	WH	ZJ	$\approx \varnothing 1$ h13	Max. tightening torque [Nm] +10%
[mm]													
12	7	3	6	8.5	7.5	M3	7	4	20	7	69	5	0.8/2.9 <sup>1)</sup>
18	-	2.5	8	8.5	9	M4	7	9	18	7	69	7	2.9

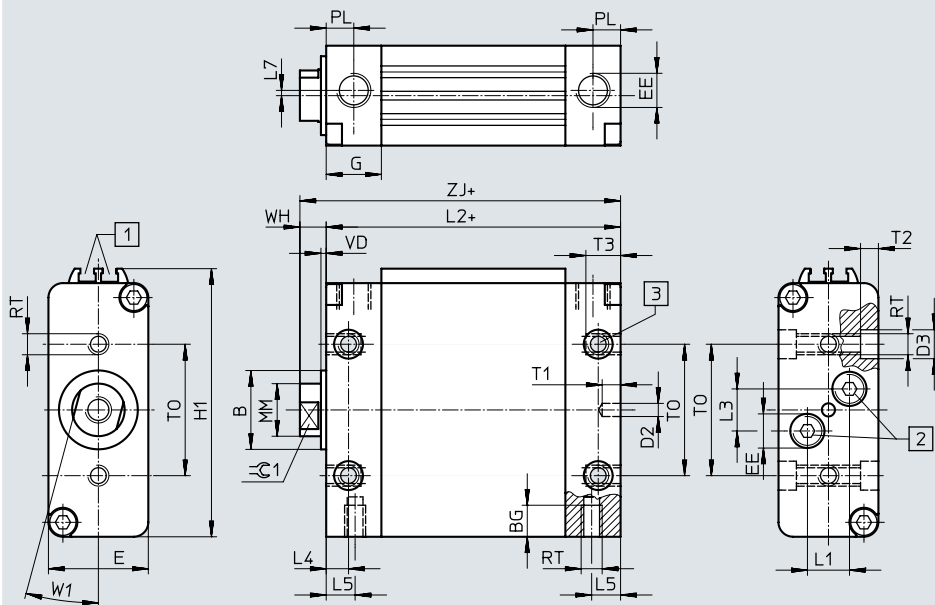
1) For M3/M4

Data sheet

Dimensions

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

∅ 25 ... 63



[1] Mounting slot for proximity switch

[2] Additional supply ports, sealed with blanking plugs

[3] Max. tightening torque

+ = plus stroke length

∅ [mm]	B ∅ h9	BG	D2 ∅ H9	D3 ∅	E	EE	G	H1	L1	L2	L3	L4	L5
25	16	8	4	8	20	M5	12	56	6	62	10	5	5
32	20	9	4	10	24	G1/8	17	65	7.5	72	14.5	8.5	8.5
40	25	9	4	10	30	G1/8	17	82	7.5	76	14.5	8.5	8.5
50	30	12	5	11	38	G1/4	21	102	16	82	16	8.5	8.5
63	30	14	5	15	50	G1/4	21	126.5	21	82	19	8.5	8.5

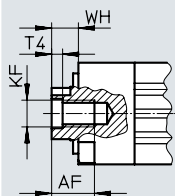
∅ [mm]	L7	MM ∅	PL	RT	T1	T2	T3	T0	VD	W1 ±1	WH	ZJ	⊖C1 h13	Max. tightening torque [Nm] +10%
25	1	10	6	M5	7	4	8	25	2	15°	8	70	9	4
32	1.5	12	8.5	M6	7	4	9	32	2	15°	8	80	10	9.9
40	–	16	8.5	M6	7	5	9	40	2	15°	9	85	13	9.9
50	–	20	10.5	M8	7	6	12	50	2	15°	10	92	17	20
63	–	20	10.5	M10	7	6	14	60	2	15°	10	92	17	35

Data sheet

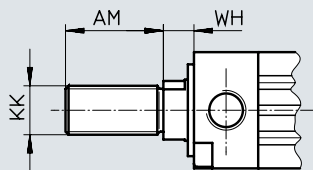
Dimensions – Variants

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

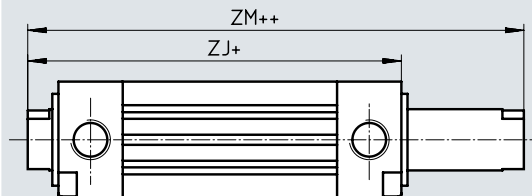
Female thread



Male thread

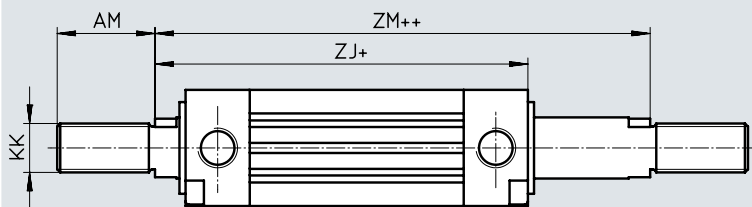


S2 – Through piston rod with female thread



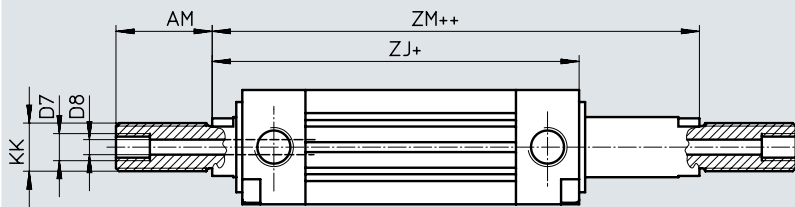
+ = plus stroke length  
++ = plus 2x stroke length

S2 – Through piston rod with male thread



+ = plus stroke length  
++ = plus 2x stroke length

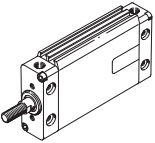
S20 – Through, hollow piston rod



+ = plus stroke length  
++ = plus 2x stroke length

∅	AF	AM	D7	D8 ∅	KF	KK	T4	WH	ZJ	ZM
[mm]										
12	8	16	-	1.8	M3	M6	1.5	7	69	76
18	10	20	-	2.8	M4	M8	1.5	7	69	76
25	12	22	-	3.8	M5	M10x1.25	2	8	70	78
32	14	22	-	4.5	M6	M10x1.25	2.6	8	80	88
40	16	24	-	6	M8	M12x1.25	3.3	9	85	94
50	20	32	G1/8	8	M10	M16x1.5	4.7	10	92	102
63	20	32	G1/8	8	M10	M16x1.5	4.7	10	92	102

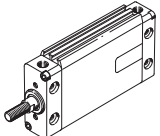
Data sheet

Ordering data		Stroke [mm]	Piston rod with female thread		Piston rod with male thread	
Type	Piston ø [mm]		Part no.	Type	Part no.	Type
	12	10	164003	DZF-12-10-P-A	161224	DZF-12-10-A-P-A
		25	164004	DZF-12-25-P-A	161225	DZF-12-25-A-P-A
		40	164005	DZF-12-40-P-A	161226	DZF-12-40-A-P-A
		50	164006	DZF-12-50-P-A	161227	DZF-12-50-A-P-A
		80	164007	DZF-12-80-P-A	161228	DZF-12-80-A-P-A
		100	164008	DZF-12-100-P-A	161229	DZF-12-100-A-P-A
		125	164009	DZF-12-125-P-A	161230	DZF-12-125-A-P-A
		160	164010	DZF-12-160-P-A	161231	DZF-12-160-A-P-A
		200	164011	DZF-12-200-P-A	161232	DZF-12-200-A-P-A
	18	10	164015	DZF-18-10-P-A	161237	DZF-18-10-A-P-A
		25	164016	DZF-18-25-P-A	161238	DZF-18-25-A-P-A
		40	164017	DZF-18-40-P-A	161239	DZF-18-40-A-P-A
		50	164018	DZF-18-50-P-A	161240	DZF-18-50-A-P-A
		80	164019	DZF-18-80-P-A	161241	DZF-18-80-A-P-A
		100	164020	DZF-18-100-P-A	161242	DZF-18-100-A-P-A
		125	164021	DZF-18-125-P-A	161243	DZF-18-125-A-P-A
		160	164022	DZF-18-160-P-A	161244	DZF-18-160-A-P-A
		200	164023	DZF-18-200-P-A	161245	DZF-18-200-A-P-A
	25	10	164027	DZF-25-10-P-A	161250	DZF-25-10-A-P-A <sup>1)</sup>
		25	164028	DZF-25-25-P-A	161251	DZF-25-25-A-P-A <sup>1)</sup>
		40	164029	DZF-25-40-P-A	161252	DZF-25-40-A-P-A <sup>1)</sup>
		50	164030	DZF-25-50-P-A	161253	DZF-25-50-A-P-A <sup>1)</sup>
		80	164031	DZF-25-80-P-A	161254	DZF-25-80-A-P-A <sup>1)</sup>
		100	164032	DZF-25-100-P-A	161255	DZF-25-100-A-P-A <sup>1)</sup>
		125	164033	DZF-25-125-P-A	161256	DZF-25-125-A-P-A <sup>1)</sup>
		160	164034	DZF-25-160-P-A	161257	DZF-25-160-A-P-A <sup>1)</sup>
		200	164035	DZF-25-200-P-A	161258	DZF-25-200-A-P-A <sup>1)</sup>
	32	10	164039	DZF-32-10-P-A	161263	DZF-32-10-A-P-A <sup>1)</sup>
		25	164040	DZF-32-25-P-A	161264	DZF-32-25-A-P-A <sup>1)</sup>
		40	164041	DZF-32-40-P-A	161265	DZF-32-40-A-P-A <sup>1)</sup>
		50	164042	DZF-32-50-P-A	161266	DZF-32-50-A-P-A <sup>1)</sup>
		80	164043	DZF-32-80-P-A	161267	DZF-32-80-A-P-A <sup>1)</sup>
		100	164044	DZF-32-100-P-A	161268	DZF-32-100-A-P-A <sup>1)</sup>
		125	164045	DZF-32-125-P-A	161269	DZF-32-125-A-P-A <sup>1)</sup>
		160	164046	DZF-32-160-P-A	161270	DZF-32-160-A-P-A <sup>1)</sup>
200		164047	DZF-32-200-P-A	161271	DZF-32-200-A-P-A <sup>1)</sup>	
250		164048	DZF-32-250-P-A	161272	DZF-32-250-A-P-A <sup>1)</sup>	
320		164049	DZF-32-320-P-A	161273	DZF-32-320-A-P-A <sup>1)</sup>	

1) The scope of delivery includes a hex nut for the piston rod thread

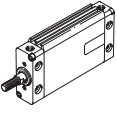
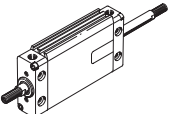
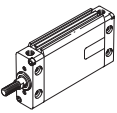
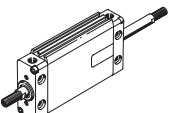


## Data sheet

Ordering data						
Type	Piston $\varnothing$ [mm]	Stroke [mm]	Piston rod with female thread		Piston rod with male thread	
			Part no.	Type	Part no.	Type
	40	10	164053	DZF-40-10-P-A	161278	DZF-40-10-A-P-A <sup>1)</sup>
		25	164054	DZF-40-25-P-A	161279	DZF-40-25-A-P-A <sup>1)</sup>
		40	164055	DZF-40-40-P-A	161280	DZF-40-40-A-P-A <sup>1)</sup>
		50	164056	DZF-40-50-P-A	161281	DZF-40-50-A-P-A <sup>1)</sup>
		80	164057	DZF-40-80-P-A	161282	DZF-40-80-A-P-A <sup>1)</sup>
		100	164058	DZF-40-100-P-A	161283	DZF-40-100-A-P-A <sup>1)</sup>
		125	164059	DZF-40-125-P-A	161284	DZF-40-125-A-P-A <sup>1)</sup>
		160	164060	DZF-40-160-P-A	161285	DZF-40-160-A-P-A <sup>1)</sup>
		200	164061	DZF-40-200-P-A	161286	DZF-40-200-A-P-A <sup>1)</sup>
		250	164062	DZF-40-250-P-A	161287	DZF-40-250-A-P-A <sup>1)</sup>
	320	164063	DZF-40-320-P-A	161288	DZF-40-320-A-P-A <sup>1)</sup>	
	50	10	164067	DZF-50-10-P-A	161293	DZF-50-10-A-P-A <sup>1)</sup>
		25	164068	DZF-50-25-P-A	161294	DZF-50-25-A-P-A <sup>1)</sup>
		40	164069	DZF-50-40-P-A	161295	DZF-50-40-A-P-A <sup>1)</sup>
		50	164070	DZF-50-50-P-A	161296	DZF-50-50-A-P-A <sup>1)</sup>
		80	164071	DZF-50-80-P-A	161297	DZF-50-80-A-P-A <sup>1)</sup>
		100	164072	DZF-50-100-P-A	161298	DZF-50-100-A-P-A <sup>1)</sup>
		125	164073	DZF-50-125-P-A	161299	DZF-50-125-A-P-A <sup>1)</sup>
		160	164074	DZF-50-160-P-A	161300	DZF-50-160-A-P-A <sup>1)</sup>
		200	164075	DZF-50-200-P-A	161301	DZF-50-200-A-P-A <sup>1)</sup>
		250	164076	DZF-50-250-P-A	161302	DZF-50-250-A-P-A <sup>1)</sup>
		320	164077	DZF-50-320-P-A	161303	DZF-50-320-A-P-A <sup>1)</sup>
		63	10	164081	DZF-63-10-P-A	161308
	25		164082	DZF-63-25-P-A	161309	DZF-63-25-A-P-A <sup>1)</sup>
	40		164083	DZF-63-40-P-A	161310	DZF-63-40-A-P-A <sup>1)</sup>
	50		164084	DZF-63-50-P-A	161311	DZF-63-50-A-P-A <sup>1)</sup>
	80		164085	DZF-63-80-P-A	161312	DZF-63-80-A-P-A <sup>1)</sup>
	100		164086	DZF-63-100-P-A	161313	DZF-63-100-A-P-A <sup>1)</sup>
	125		164087	DZF-63-125-P-A	161314	DZF-63-125-A-P-A <sup>1)</sup>
	160		164088	DZF-63-160-P-A	161315	DZF-63-160-A-P-A <sup>1)</sup>
	200		164089	DZF-63-200-P-A	161316	DZF-63-200-A-P-A <sup>1)</sup>
	250		164090	DZF-63-250-P-A	161317	DZF-63-250-A-P-A <sup>1)</sup>
	320		164091	DZF-63-320-P-A	161318	DZF-63-320-A-P-A <sup>1)</sup>

1) The scope of delivery includes a hex nut for the piston rod thread

Data sheet

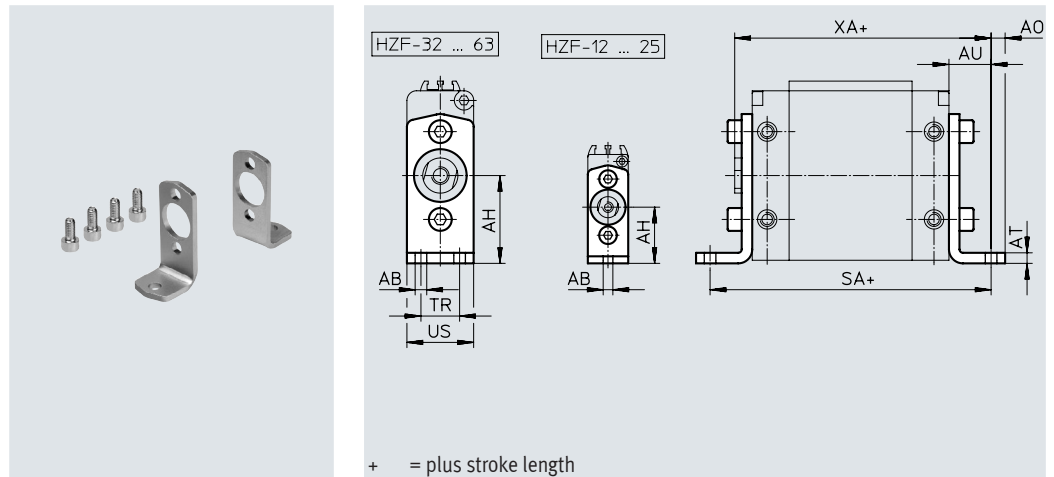
Ordering data – Variants						
Type	Piston ø [mm]	Stroke [mm]	Piston rod with female thread		Piston rod with male thread	
			Part no.	Type	Part no.	Type
<b>Variable stroke</b>						
	12	1 ... 200	164000	DZF-12-...-P-A	161220	DZF-12-...-A-P-A
	18	1 ... 200	164012	DZF-18-...-P-A	161233	DZF-18-...-A-P-A
	25	1 ... 200	164024	DZF-25-...-P-A	161246	DZF-25-...-A-P-A <sup>1)</sup>
	32	1 ... 320	164036	DZF-32-...-P-A	161259	DZF-32-...-A-P-A <sup>1)</sup>
	40	1 ... 320	164050	DZF-40-...-P-A	161274	DZF-40-...-A-P-A <sup>1)</sup>
	50	1 ... 320	164064	DZF-50-...-P-A	161289	DZF-50-...-A-P-A <sup>1)</sup>
	63	1 ... 320	164078	DZF-63-...-P-A	161304	DZF-63-...-A-P-A <sup>1)</sup>
<b>S2 – Through piston rod</b>						
	12	1 ... 200	164001	DZF-12-...-P-A-S2	161221	DZF-12-...-A-P-A-S2
	18	1 ... 200	164013	DZF-18-...-P-A-S2	161234	DZF-18-...-A-P-A-S2
	25	1 ... 200	164025	DZF-25-...-P-A-S2	161247	DZF-25-...-A-P-A-S2 <sup>1)</sup>
	32	1 ... 320	164037	DZF-32-...-P-A-S2	161260	DZF-32-...-A-P-A-S2 <sup>1)</sup>
	40	1 ... 320	164051	DZF-40-...-P-A-S2	161275	DZF-40-...-A-P-A-S2 <sup>1)</sup>
	50	1 ... 320	164065	DZF-50-...-P-A-S2	161290	DZF-50-...-A-P-A-S2 <sup>1)</sup>
	63	1 ... 320	164079	DZF-63-...-P-A-S2	161305	DZF-63-...-A-P-A-S2 <sup>1)</sup>
<b>S6 – Heat-resistant up to 120°C</b>						
	12	1 ... 200	164002	DZF-12-...-P-A-S6	161223	DZF-12-...-A-P-A-S6
	18	1 ... 200	164014	DZF-18-...-P-A-S6	161236	DZF-18-...-A-P-A-S6
	25	1 ... 200	164026	DZF-25-...-P-A-S6	161249	DZF-25-...-A-P-A-S6 <sup>1)</sup>
	32	1 ... 320	164038	DZF-32-...-P-A-S6	161262	DZF-32-...-A-P-A-S6 <sup>1)</sup>
	40	1 ... 320	164052	DZF-40-...-P-A-S6	161277	DZF-40-...-A-P-A-S6 <sup>1)</sup>
	50	1 ... 320	164066	DZF-50-...-P-A-S6	161292	DZF-50-...-A-P-A-S6 <sup>1)</sup>
	63	1 ... 320	164080	DZF-63-...-P-A-S6	161307	DZF-63-...-A-P-A-S6 <sup>1)</sup>
<b>S20 – Through, hollow piston rod</b>						
	12	1 ... 200	–	–	161222	DZF-12-...-A-P-A-S20
	18	1 ... 200	–	–	161235	DZF-18-...-A-P-A-S20
	25	1 ... 200	–	–	161248	DZF-25-...-A-P-A-S20 <sup>1)</sup>
	32	1 ... 320	–	–	161261	DZF-32-...-A-P-A-S20 <sup>1)</sup>
	40	1 ... 320	–	–	161276	DZF-40-...-A-P-A-S20 <sup>1)</sup>
	50	1 ... 320	–	–	161291	DZF-50-...-A-P-A-S20 <sup>1)</sup>
	63	1 ... 320	–	–	161306	DZF-63-...-A-P-A-S20 <sup>1)</sup>

1) The scope of delivery includes a hex nut for the piston rod thread

## Accessories

### Foot mounting HZF

Material:  
Steel



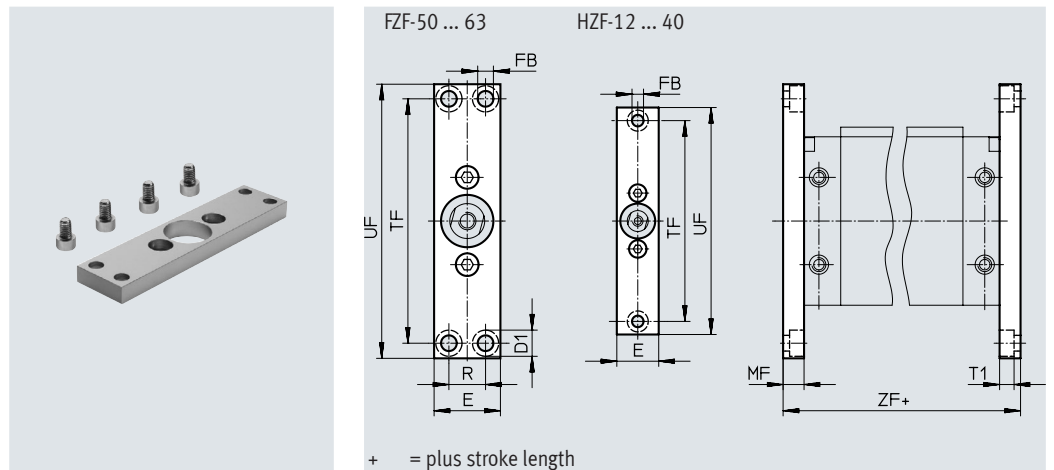
Dimensions and ordering data													
For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	SA	TR	US	XA	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
12	4.5	25	5	2	13	88	-	14	82	1	21	161804	HZF-12
18	5.5	29	5	2	17	96	-	16	86	1	30	161805	HZF-18
25	5.5	28	6	3	16	94	-	20	86	1	58	161806	HZF-25
32	5.5	32	5.5	3	18	108	13	24	98	1	82	161807	HZF-32
40	5.5	40	7	4	20	116	16	30	105	1	142	161808	HZF-40
50	6.6	50	8	4	24	130	22	38	116	1	249	161809	HZF-50
63	9	63	10	4	27	136	30	50	119	1	436	161810	HZF-63

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

### Flange mounting FZF

Material:  
Wrought aluminium alloy



Dimensions and ordering data													
For $\varnothing$	D1 $\varnothing$	E	FB $\varnothing$	MF	R	T1	TF	UF	ZF	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
12	8	14	4.5	8	-	4.5	75	90	78	2	23	161811	FZF-12
18	8	16	4.5	8	-	4.5	80	94	78	2	28	161812	FZF-18
25	10	20	5.5	10	-	5.7	100	112	82	2	56	161813	FZF-25
32	11	24	6.6	10	-	6.5	115	130	92	2	78	161814	FZF-32
40	11	30	6.6	10	-	6.3	132	146	96	2	109	161815	FZF-40
50	15	38	9	12	21	8.3	140	157	106	2	167	161816	FZF-50
63	15	50	9	15	33	8.3	140	157	112	2	299	161817	FZF-63

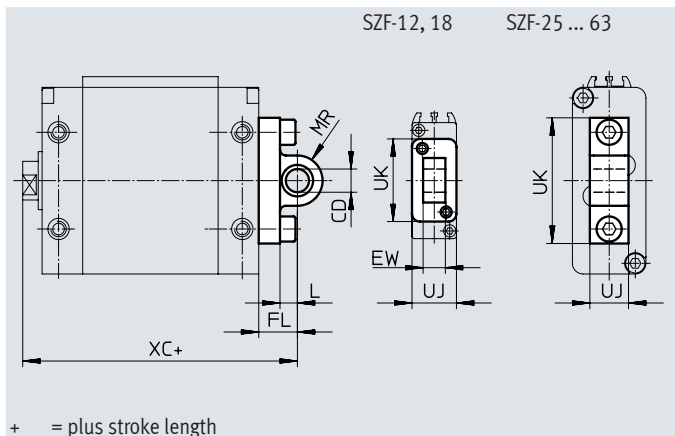
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Accessories

### Swivel flange SZF

Material:  
High-alloy steel



#### Dimensions and ordering data

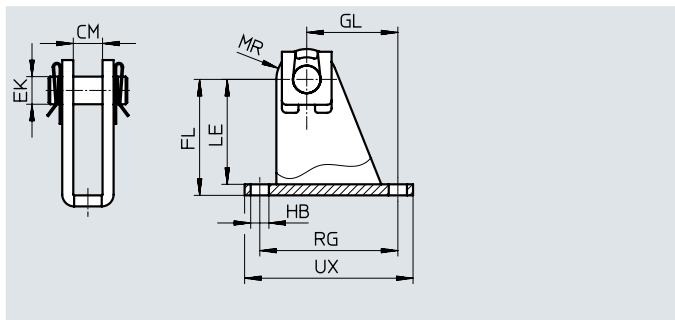
For $\varnothing$	CD $\varnothing$ H9	EW h12	FL	L	MR	UJ	UK	XC	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
12	8	7	16	13	7	14	26	85	2	20	161818	SZF-12
18	8	7	18	15	7	16	26	87	2	25	161819	SZF-18
25	8	–	14	8	7.5	9	37	84	2	25	161820	SZF-25
32	10	–	15	6	10	10.5	44	95	2	45	161821	SZF-32
40	12	–	18	9	13	10.5	52	103	2	65	161822	SZF-40
50	12	–	20	9	13	20	65	112	2	175	161823	SZF-50
63	16	–	24	13	17	25	78	116	2	255	161824	SZF-63

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

### Clevis foot LZF

Material:  
Steel

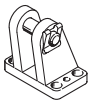


#### Dimensions and ordering data

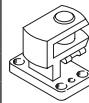
For $\varnothing$	CM	EK $\varnothing$ H8	FL	GL	HB $\varnothing$	LE	MR	RG	UX	Weight [g]	Part no.	Type
12	7.1 <sub>+0.4</sub>	8	32 <sub>+0.4/-0.2</sub>	18	4.5	29	8	30	37	45	163962	LZF-12/18
18	7.1 <sub>+0.4</sub>	8	32 <sub>+0.4/-0.2</sub>	18	4.5	29	8	30	37	45	163962	LZF-12/18
25	9.1 <sub>+0.4</sub>	8	35 <sub>+0.4/-0.2</sub>	25.5	5.5	32	9.5	40	49	64	163963	LZF-25
32	10.6 <sub>+0.4</sub>	10	42 <sub>+0.4/-0.2</sub>	33	6.6	38	11	50	60	123	163964	LZF-32
40	10.6 <sub>+0.4</sub>	12	51 <sub>+0.4/-0.2</sub>	29.5	6.6	47	14	50	60	163	163965	LZF-40
50	20.1 <sub>+0.5</sub>	12	55 <sub>+0.6/-0.2</sub>	24	9	50	14	30	46	246	163966	LZF-50
63	25.1 <sub>+0.5</sub>	16	68 <sub>+0.6/-0.2</sub>	32	11	63	18	40	60	413	163967	LZF-63

## Accessories


## Ordering data – Mounting components

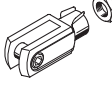
Designation	For ø	Part no.	Type
Clevis foot LBG			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63

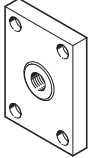
Data sheets → Internet: clevis foot

Designation	For ø	Part no.	Type
Right angle clevis foot LQG			
	32	31768	LQG-32
	40	31769	LQG-40
	50	31770	LQG-50
	63	31771	LQG-63

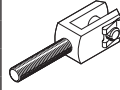
## Ordering data – Piston rod attachments

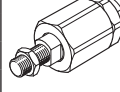
Designation	For ø	Part no.	Type
Rod eye SGS			
	12	9254	SGS-M6
	18	9255	SGS-M8
	25	9261	SGS-M10x1.25
	32		
	40	9262	SGS-M12x1.25
	50	9263	SGS-M16x1.5
	63		

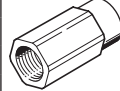
Designation	For ø	Part no.	Type
Rod clevis SG			
	12	3110	SG-M6
	18	3111	SG-M8
	25	6144	SG-M10x1.25
	32		
	40	6145	SG-M12x1.25
	50	6146	SG-M16x1.5
	63		

Designation	For ø	Part no.	Type
Coupling piece KSZ			
	12	36123	KSZ-M6
	18	36124	KSZ-M8
	25	36125	KSZ-M10x1.25
	32		
	40	36126	KSZ-M12x1.25
	50	36127	KSZ-M16x1.5
	63		

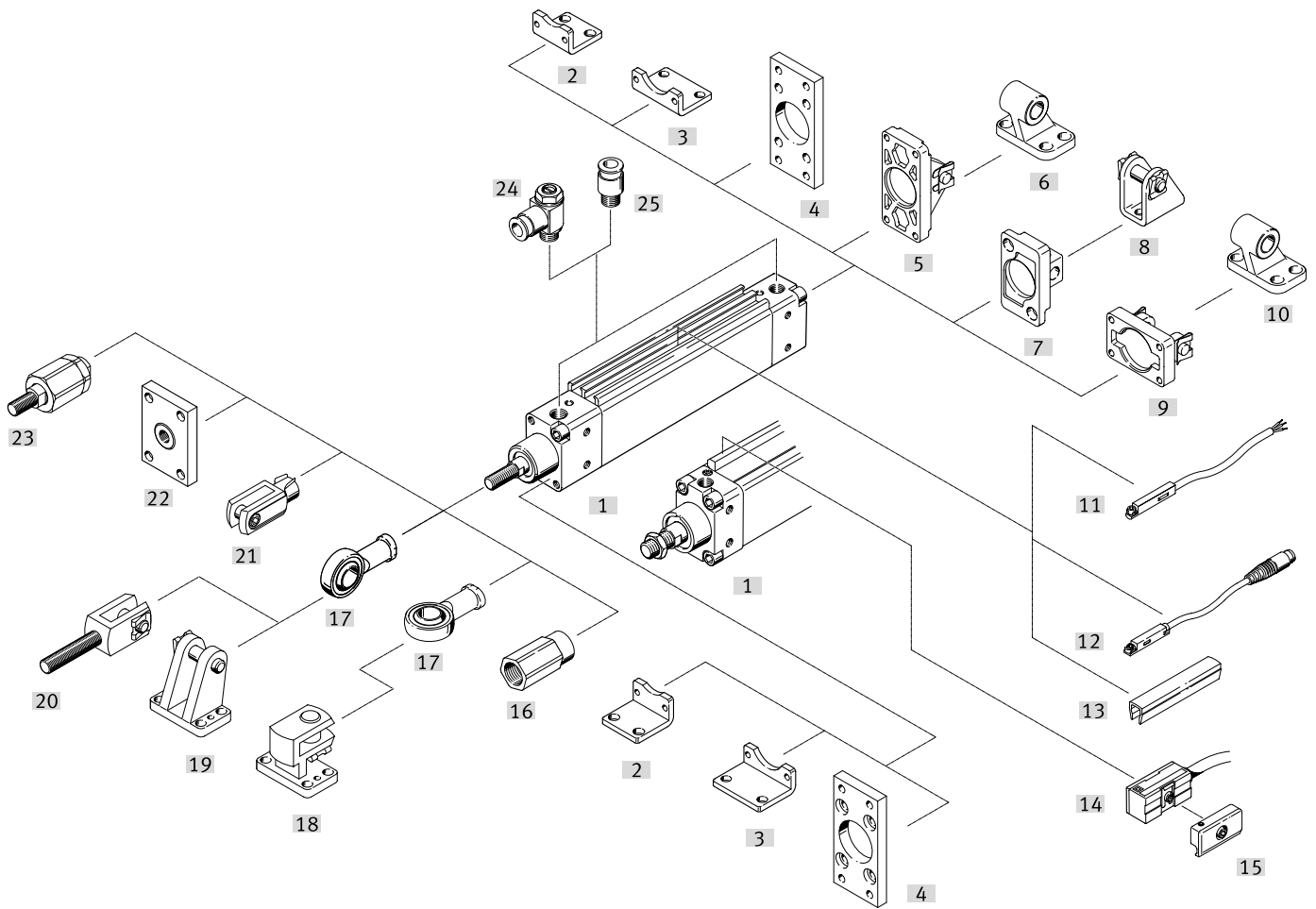
Data sheets → Internet: piston rod attachment

Designation	For ø	Part no.	Type
Rod clevis SGA			
	12	-	-
	18	-	-
	25	32954	SGA-M10x1.25
	32		
	40	10767	SGA-M12x1.25
	50	10768	SGA-M16x1.5
	63		

Designation	For ø	Part no.	Type
Self-aligning rod coupler FK			
	12	2061	FK-M6
	18	2062	FK-M8
	25	6140	FK-M10x1.25
	32		
	40	6141	FK-M12x1.25
	50	6142	FK-M16x1.5
	63		

Designation	For ø	Part no.	Type
Adapter AD			
	12	157328	AD-M6-M5
		157329	AD-M6-1/8
		157330	AD-M6-1/4
	18	157331	AD-M8-1/8
		157332	AD-M8-1/4
	25	157333	AD-M10x1.25-1/8
	32	157334	AD-M10x1.25-1/4
	40	160256	AD-M12x1.25-1/4
		160257	AD-M12x1.25-3/8

Peripherals overview



## Peripherals overview

Mounting components and accessories		Description	Piston $\varnothing$ 16 ... 20	Piston $\varnothing$ 25	Piston $\varnothing$ 32 ... 63	→ Page/Internet
[1]	Flat cylinder DZH					25
[2]	Foot mounting, narrow HZS	For bearing and end caps	■	■	■	31
[3]	Foot mounting, wide HZB	For bearing and end caps	■	■	■	31
[4]	Flange mounting FZS	For bearing and end caps	■	■	■	31
[5]	Swivel flange, narrow SZS	For end caps	–	–	■	33
[6]	Clevis foot LBZB/LBZS	–	–	–	■	34
[7]	Swivel flange, narrow SZSB	For end caps	■	■	–	33
[8]	Clevis foot LBN	–	■	■	–	34
[9]	Swivel flange, wide SZB	For end caps	–	–	■	33
[10]	Clevis foot LN	–	–	–	■	34
[11] [12]	Proximity switch SME/SMT-8	Can be integrated in the cylinder profile barrel	■	■	–	37
[13]	Slot cover ABP-5-S	For protecting the sensor cables and the sensor slots from contamination	■	■	–	37
[14]	Proximity switch SMEO-1/SMTO-1/SMPO-1	–	–	–	■	36
[15]	Mounting kit SMB-1	–	–	–	■	36
[16]	Adapter AD	For suction cup with connection	■ S20	■ S20	–	35
[17]	Rod eye SGS	With spherical bearing	■	■	■	35
[18]	Right-angle clevis foot LQG	–	■	■	■	35
[19]	Clevis foot LBG	–	■	■	■	35
[20]	Rod clevis SGA	With male thread	■	■	■	35
[21]	Rod clevis SG	Permits a swivelling movement of the cylinder in one plane	■	■	■	35
[22]	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■	■	■	35
[23]	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	■	35
[24]	One-way flow control valve GRLA/GRLZ	For regulating speed	■	■	■	38
[25]	Push-in fitting QS	For connecting tubing with standard O.D.	■	■	■	qs

## Type codes

001	Series
DZH	Flat cylinder, double-acting

002	Piston diameter
16	16
20	20
25	25
32	32
40	40
50	50
63	63

003	Stroke
25	25
40	40
50	50
80	80
100	100
125	125
160	160
200	200
250	250
300	300
400	400
...	1 ... 1000

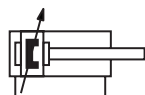
004	Position sensing
A	For proximity sensor




005	Piston rod type
	At one end
S2	Through piston rod
S20	Through, hollow piston rod

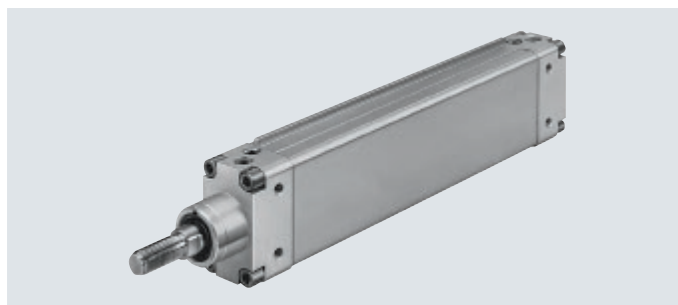
006	Temperature resistance
	Standard
S6	Heat-resistant seals max. 120 °C



## Data sheet



-  - Diameter  
16 ... 63 mm
-  - Stroke length  
1 ... 1000 mm
-  - [www.festo.com](http://www.festo.com)



General technical data		16	20	25	32	40	50	63
Piston $\varnothing$		16	20	25	32	40	50	63
Pneumatic connection		M5	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
Piston rod end	Male thread	M6	M8	M10x1.25	M10x1.25	M12x1.25	M16x1.5	M16x1.5
Design		Piston, piston rod						
Protection against rotation/guide		Oval piston						
Stroke	[mm]	1 ... 200	1 ... 320	1 ... 500	1 ... 1000			
Cushioning		Pneumatic cushioning, adjustable at both ends						
Cushioning length	[mm]	14	17	17	19	21	23	23
Position sensing		Via proximity switch						
Type of mounting		With female thread						
		Via accessories						
Mounting position		Any						

Operating pressure		16	20	25	32	40	50	63
Piston $\varnothing$		16	20	25	32	40	50	63
	[MPa]	0.1 ... 1			0.06 ... 1			
	[bar]	1.0 ... 10			0.6 ... 10			
	[psi]	14.5 ... 145			8.7 ... 145			

Environmental conditions		DZH-...		DZH-...-S6		
Flat cylinder		DZH-...		DZH-...-S6		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]				
Note on the operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)				
Ambient temperature <sup>1)</sup>	[°C]	-20 ... +80			0 ... +120	
Corrosion resistance class CRC <sup>2)</sup>		2			2	

1) Note operating range of proximity switches

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Data sheet

Forces [N] and torques [Nm]							
Piston $\varnothing$	16	20	25	32	40	50	63
Theoretical force at 6 bar, advancing	121	188	295	483	754	1178	1870
<i>S2/S20</i>	104	158	247	415	633	989	1682
Theoretical force at 6 bar, retracting	104	158	247	415	633	989	1682
<i>S2/S20</i>	104	158	247	415	633	989	1682
Max. torque at the piston rod <sup>1)</sup>	0.5	0.6	0.8	1.0	1.2	1.7	2.0

1) The max. torque must not be exceeded even when attaching mounting components to the piston rod

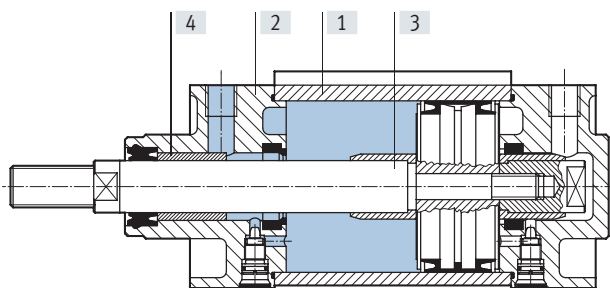
Weight [g]							
Piston $\varnothing$	16	20	25	32	40	50	63
Product weight with 0 mm stroke	140	230	330	500	820	1200	1690
Additional weight per 10 mm stroke	11	15	21	30	40	60	80

Minimum stroke length [mm] for contactless position sensing with a proximity switch							
Piston $\varnothing$	32	40	50	63			
<b>SMEO-1/SMT0-1</b>							
Plug	10						
Cable							

Minimum stroke length [mm] for contactless position sensing with two proximity switches							
Piston $\varnothing$	32	40	50	63			
<b>SMEO-1</b>							
Plug	To one another	86	87	90	91		
	To the caps	46	48	49	50		
Cable	To one another	63	64	67	68		
	To the caps	48	50	51	53		
<b>SMT0-1</b>							
Plug	To one another	105	107	106	107		
	To the caps	Not possible, as the plug covers the pneumatic connection					
Cable	To one another	82	84	85	86		
	To the caps	19	21	20	22		

### Materials

#### Sectional view



Flat cylinder	DZH...	DZH...-S6
[1] Cylinder barrel	Anodised aluminium	Anodised aluminium
[2] Bearing cap	Aluminium	Aluminium
[3] Piston rod	$\varnothing$ 16 ... 25 High-alloy steel	High-alloy steel
[4] Dynamic seals	Polyurethane	Fluoro rubber
- Note on materials	RoHS-compliant	
- PWIS conformity	VDMA24364-B2-L	

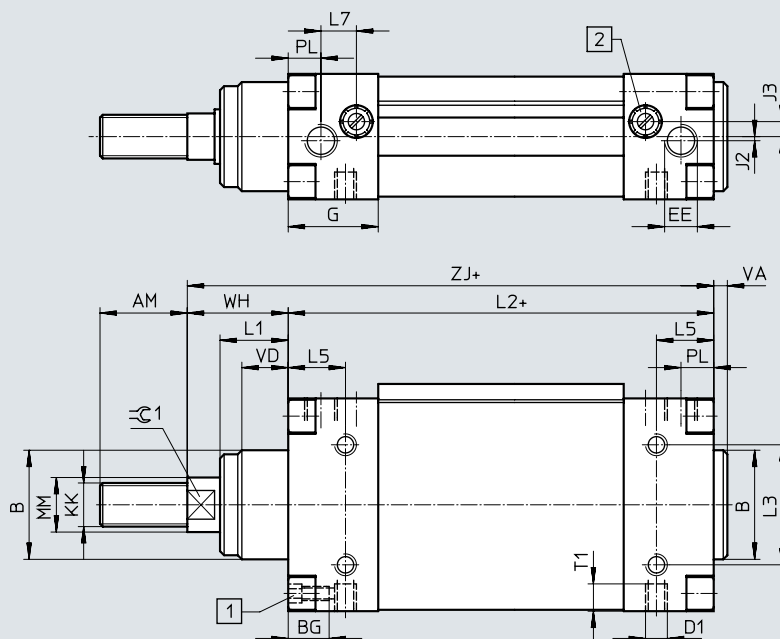
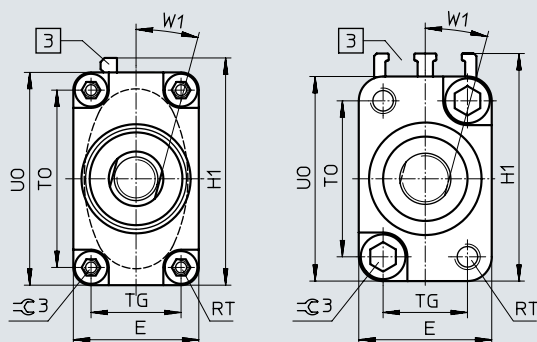
Data sheet

Dimensions

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

DZH-32 ... 63

DZH-16 ... 25



- [1] Socket head screw with female thread
- [2] Adjusting screw for adjustable end-position cushioning
- [3]  $\varnothing$  16 ... 25: Mounting slot for proximity switch  
 $\varnothing$  32 ... 63: Mounting rail for proximity switch
- + = plus stroke length

$\varnothing$ [mm]	AM	B $\varnothing$ f10	BG	D1	D8 $\varnothing$	E	EE	G	H1	J2	J3	KK	L1	L2	L3	L5
16	16	16	5.5	M4	2.3	20	M5	20.5	35.5	-0.7	2.8	M6	12	78.5 $\pm$ 0.5	12	12
20	20	20	5.5	M4	3.2	23	G1/8	25	39.5	-0.7	5	M8	14	90.5 $\pm$ 0.5	15	15
25	22	22	7	M5	3.8	26	G1/8	26	44.5	-0.3	4.2	M10x1.25	14	92.5 $\pm$ 0.5	18	16
32	22	30	13	M6	-	36	G1/8	27	53.3	-	3	M10x1.25	16	94 $\pm$ 0.7	18	13
40	24	35	13	M6	-	40	G1/4	33	66.3	-	6	M12x1.25	20	105 $\pm$ 0.7	32	16.5
50	32	40	15	M8	-	46	G1/4	32.5	82.3	2.5	3	M16x1.5	25	106 $\pm$ 0.7	44	21
63	32	42	15	M10	-	54	G3/8	36.5	108.3	4	5	M16x1.5	28	115 $\pm$ 0.7	64	22.5

$\varnothing$ [mm]	L7	MM $\varnothing$	PL	RT	T1	TG	TO	U0	VA	VD	WH $\pm$ 1	W1	ZJ	ZM	$\approx$ C1	$\approx$ C3
16	8.5	6	7.5	M4	5.5	12	23	31	2.5	12	17.5	15°	96	114.4 $\pm$ 0.4	5	4
20	10.5	8	9.3	M4	5.5	15	27	35	2.5	14	18.5	15°	109	128 $\pm$ 0.4	7	4
25	10	10	10.5	M5	7	16.5	30.5	40	2.5	14	20.5	15°	113	134 $\pm$ 0.4	9	5
32	10.2	12	9	M5	9	24.5	36.5	48	4	16	26	15°	120	147.1 $\pm$ 0.5	10	6
40	13.2	16	11	M5	9	28	50	62	5.5	20	30	15°	135	165.3 $\pm$ 0.5	13	6
50	14	20	10.5	M6	10	33	65	78	5	17	37.5	15°	143.5	181.5 $\pm$ 0.5	17	6
63	14.5	20	12.5	M6	12	40	90	104	6	20	40	15°	155	195.3 $\pm$ 0.5	17	6

Note

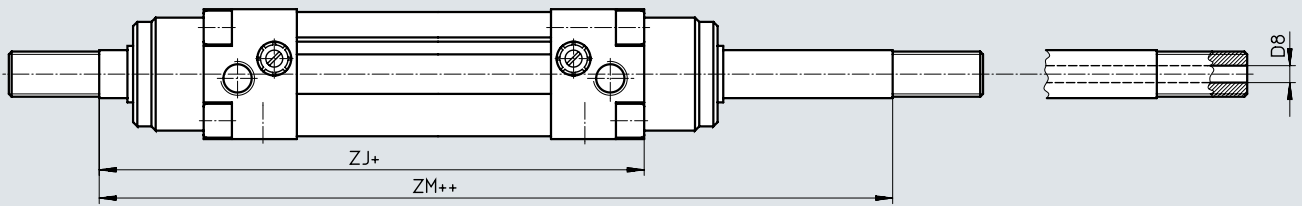
The maximum permissible torque must not be exceeded when additional components are screwed onto the piston rod. Counterhold at the spanner flats  $\approx$ C1.

Data sheet

Dimensions

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

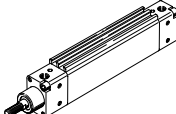
Variant S2 – Through piston rod, S20 – Through, hollow piston rod



+ = plus stroke length  
 ++ = plus 2x stroke length

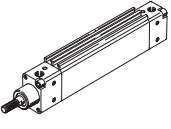
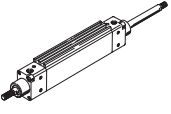
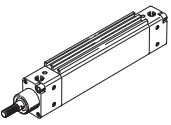
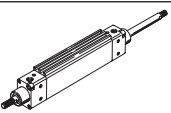
∅ [mm]	D8 ∅	ZJ	ZM
16	2.3	96	114.4 ±0.4
20	3.2	109	128 ±0.4
25	3.8	113	134 ±0.4
32	-	120	147.1 ±0.5
40	-	135	165.3 ±0.5
50	-	143.5	181.5 ±0.5
63	-	155	195.3 ±0.5

## Data sheet

Ordering data						
Type	Stroke [mm]	Part no.	Type	Stroke [mm]	Part no.	Type
	<b>Piston ø 16 mm</b>			<b>Piston ø 20 mm</b>		
	25	151145	DZH-16-25-PPV-A	25	151134	DZH-20-25-PPV-A
	40	151146	DZH-16-40-PPV-A	40	151135	DZH-20-40-PPV-A
	50	151147	DZH-16-50-PPV-A	50	151136	DZH-20-50-PPV-A
	80	151148	DZH-16-80-PPV-A	80	151137	DZH-20-80-PPV-A
	100	151149	DZH-16-100-PPV-A	100	151138	DZH-20-100-PPV-A
	125	151150	DZH-16-125-PPV-A	125	151139	DZH-20-125-PPV-A
	160	151151	DZH-16-160-PPV-A	160	151140	DZH-20-160-PPV-A
	200	151152	DZH-16-200-PPV-A	200	151141	DZH-20-200-PPV-A
	250	–		250	151142	DZH-20-250-PPV-A
300	–		300	–		
	320	–		320	151143	DZH-20-320-PPV-A
<b>Piston ø 25 mm</b>			<b>Piston ø 32 mm</b>			
25	151121	DZH-25-25-PPV-A <sup>1)</sup>	25	14041	DZH-32-25-PPV-A <sup>1)</sup>	
40	151122	DZH-25-40-PPV-A <sup>1)</sup>	40	14042	DZH-32-40-PPV-A <sup>1)</sup>	
50	151123	DZH-25-50-PPV-A <sup>1)</sup>	50	14043	DZH-32-50-PPV-A <sup>1)</sup>	
80	151124	DZH-25-80-PPV-A <sup>1)</sup>	80	14044	DZH-32-80-PPV-A <sup>1)</sup>	
100	151125	DZH-25-100-PPV-A <sup>1)</sup>	100	14045	DZH-32-100-PPV-A <sup>1)</sup>	
125	151126	DZH-25-125-PPV-A <sup>1)</sup>	125	14046	DZH-32-125-PPV-A <sup>1)</sup>	
160	151127	DZH-25-160-PPV-A <sup>1)</sup>	160	14047	DZH-32-160-PPV-A <sup>1)</sup>	
200	151128	DZH-25-200-PPV-A <sup>1)</sup>	200	14048	DZH-32-200-PPV-A <sup>1)</sup>	
250	151129	DZH-25-250-PPV-A <sup>1)</sup>	250	14049	DZH-32-250-PPV-A <sup>1)</sup>	
300	–		300	14050	DZH-32-300-PPV-A <sup>1)</sup>	
320	151130	DZH-25-320-PPV-A <sup>1)</sup>	320	–		
400	151131	DZH-25-400-PPV-A <sup>1)</sup>	400	–		
500	151132	DZH-25-500-PPV-A <sup>1)</sup>	500	–		
<b>Piston ø 40 mm</b>			<b>Piston ø 50 mm</b>			
25	14052	DZH-40-25-PPV-A <sup>1)</sup>	25	14063	DZH-50-25-PPV-A <sup>1)</sup>	
40	14053	DZH-40-40-PPV-A <sup>1)</sup>	40	14064	DZH-50-40-PPV-A <sup>1)</sup>	
50	14054	DZH-40-50-PPV-A <sup>1)</sup>	50	14065	DZH-50-50-PPV-A <sup>1)</sup>	
80	14055	DZH-40-80-PPV-A <sup>1)</sup>	80	14066	DZH-50-80-PPV-A <sup>1)</sup>	
100	14056	DZH-40-100-PPV-A <sup>1)</sup>	100	14067	DZH-50-100-PPV-A <sup>1)</sup>	
125	14057	DZH-40-125-PPV-A <sup>1)</sup>	125	14068	DZH-50-125-PPV-A <sup>1)</sup>	
160	14058	DZH-40-160-PPV-A <sup>1)</sup>	160	14069	DZH-50-160-PPV-A <sup>1)</sup>	
200	14059	DZH-40-200-PPV-A <sup>1)</sup>	200	14070	DZH-50-200-PPV-A <sup>1)</sup>	
250	14060	DZH-40-250-PPV-A <sup>1)</sup>	250	14071	DZH-50-250-PPV-A <sup>1)</sup>	
300	14061	DZH-40-300-PPV-A <sup>1)</sup>	300	14072	DZH-50-300-PPV-A <sup>1)</sup>	
<b>Piston ø 63 mm</b>						
25	14074	DZH-63-25-PPV-A <sup>1)</sup>				
40	14075	DZH-63-40-PPV-A <sup>1)</sup>				
50	14076	DZH-63-50-PPV-A <sup>1)</sup>				
80	14077	DZH-63-80-PPV-A <sup>1)</sup>				
100	14078	DZH-63-100-PPV-A <sup>1)</sup>				
125	14079	DZH-63-125-PPV-A <sup>1)</sup>				
160	14080	DZH-63-160-PPV-A <sup>1)</sup>				
200	14081	DZH-63-200-PPV-A <sup>1)</sup>				
250	14082	DZH-63-250-PPV-A <sup>1)</sup>				
300	14083	DZH-63-300-PPV-A <sup>1)</sup>				

1) The scope of delivery includes a hex nut for the piston rod thread

Data sheet

Ordering data – Variants				
Type	Piston ø [mm]	Stroke [mm]	Part no.	Type
<b>Variable stroke</b>				
	16	1 ... 200	150295	DZH-16-...-PPV-A
	20	1 ... 320	150294	DZH-20-...-PPV-A
	25	1 ... 500	150293	DZH-25-...-PPV-A <sup>1)</sup>
	32	1 ... 1000	14040	DZH-32-...-PPV-A <sup>1)</sup>
	40	1 ... 1000	14051	DZH-40-...-PPV-A <sup>1)</sup>
	50	1 ... 1000	14062	DZH-50-...-PPV-A <sup>1)</sup>
	63	1 ... 1000	14073	DZH-63-...-PPV-A <sup>1)</sup>
<b>S2 – Through piston rod</b>				
	16	1 ... 200	151155	DZH-16-...-PPV-A-S2
	20	1 ... 320	151154	DZH-20-...-PPV-A-S2
	25	1 ... 500	151153	DZH-25-...-PPV-A-S2 <sup>1)</sup>
	32	1 ... 1000	151772	DZH-32-...-PPV-A-S2 <sup>1)</sup>
	40	1 ... 1000	151773	DZH-40-...-PPV-A-S2 <sup>1)</sup>
	50	1 ... 1000	151774	DZH-50-...-PPV-A-S2 <sup>1)</sup>
	63	1 ... 1000	151775	DZH-63-...-PPV-A-S2 <sup>1)</sup>
<b>S6 – Heat-resistant up to 120°C</b>				
	16	1 ... 200	151156	DZH-16-...-PPV-A-S6
	20	1 ... 320	151157	DZH-20-...-PPV-A-S6
	25	1 ... 500	151158	DZH-25-...-PPV-A-S6 <sup>1)</sup>
	32	1 ... 1000	16531	DZH-32-...-PPV-A-S6 <sup>1)</sup>
	40	1 ... 1000	16532	DZH-40-...-PPV-A-S6 <sup>1)</sup>
	50	1 ... 1000	16533	DZH-50-...-PPV-A-S6 <sup>1)</sup>
	63	1 ... 1000	16534	DZH-63-...-PPV-A-S6 <sup>1)</sup>
<b>S20 – Through, hollow piston rod</b>				
	16	1 ... 200	158379	DZH-16-...-PPV-A-S20
	20	1 ... 320	158380	DZH-20-...-PPV-A-S20
	25	1 ... 500	158381	DZH-25-...-PPV-A-S20 <sup>1)</sup>

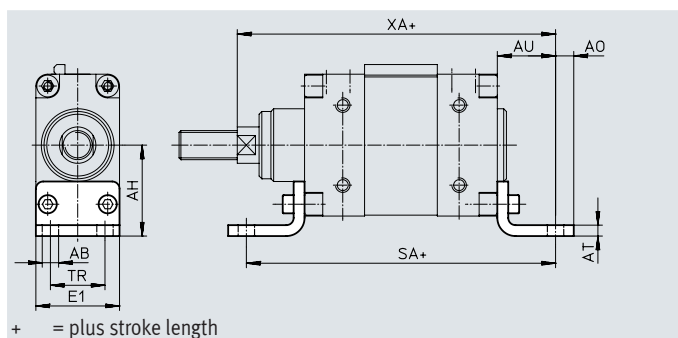
1) The scope of delivery includes a hex nut for the piston rod thread

Ordering data – Sets of wearing parts		
Piston ø	Part no.	Type
16	121125	DZH-16-PPV-A
20	121126	DZH-20-PPV-A
25	121127	DZH-25-PPV-A
32	108706	DZH-32-PPV-A
40	108707	DZH-40-PPV-A
50	108708	DZH-50-PPV-A
63	108709	DZH-63-PPV-A

## Accessories

### Foot mounting HZS

Material:  
Steel



+ = plus stroke length

#### Dimensions and ordering data

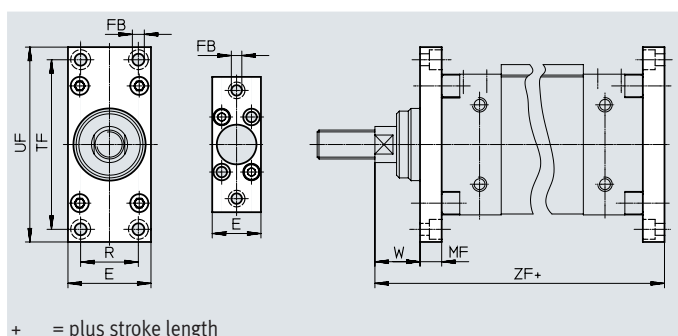
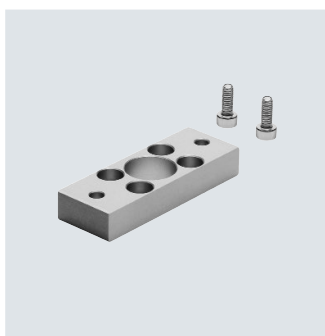
For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	E1	SA	TR	XA	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
16	4.5	24.5	4	4	21	20	120.5	12	117	1	61	151933	HZS-16
20	4.5	27.5	4	4	21	23	132.5	15	130	1	72	151932	HZS-20
25	5.5	30	5	4	25	26	142.5	16.5	138	1	99	151931	HZS-25
32	7	32	8	4	24	36	142	24	144	1	114	14879	HZS-32
40	9	40	10	5	28	40	161	25	163	1	175	14880	HZS-40
50	9	50	10	6	32	46	170	30	175.5	1	283	14881	HZS-50
63	9	62	15	6	35	54	185	38	190	1	381	14882	HZS-63

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

### Flange mounting FZS

Material:  
Wrought aluminium alloy



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	E	FB $\varnothing$	MF	R	TF	UF	W	ZF	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
16	21	4.8	10	–	48	60	7.5	106	2	27	151930	FZS-16
20	24	4.8	10	–	54	70	8.5	119	2	35	151929	FZS-20
25	27	5.8	10	–	60	75	10.5	123	2	43	151928	FZS-25
32	36	5.8	10	24	62	75	16	130	2	59	14887	FZS-32
40	40	5.8	10	28	78	90	20	145	2	76	14888	FZS-40
50	46	6.8	12	32	94	108	25.5	155.5	2	132	14889	FZS-50
63	54	6.8	15	40	120	134	25	170	2	248	14890	FZS-63

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

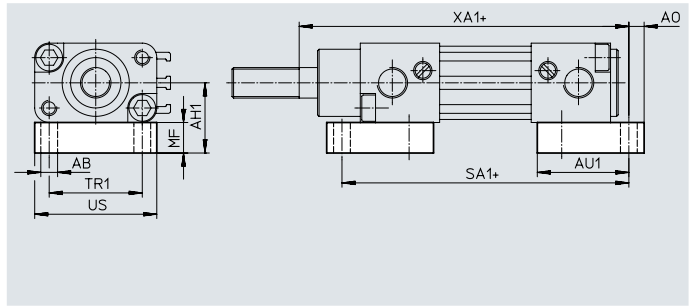
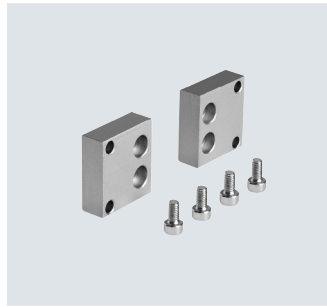
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

# Flat cylinder DZH

## Accessories

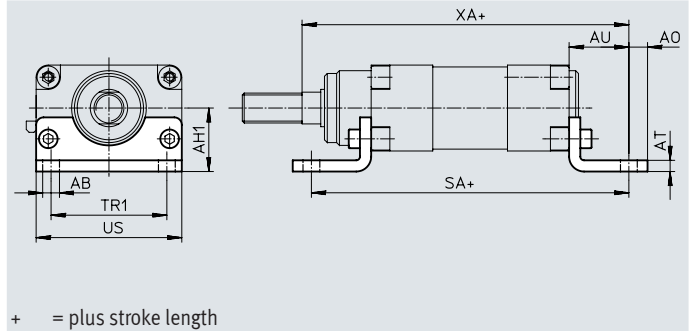
### Foot mounting HZB For piston $\varnothing$ 16 ... 25 mm

Material:  
Wrought aluminium alloy



### For piston $\varnothing$ 32 ... 63 mm

Material:  
Steel



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	AB $\varnothing$	AH1	AO	AT	AU	AU1	MF	SA	SA1	TR1	US	XA	XA1	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
16	4.5	20	4	-	-	23	10	-	88.5	23	30	-	101	2	48	151936	HZB-16
20	4.5	21.5	4	-	-	26	10	-	100.5	27	35	-	114	2	62	151935	HZB-20
25	5.5	23	5	-	-	30	10	-	104.5	30.5	40	-	119	2	85	151934	HZB-25
32	7	26	8	4	24	-	-	142	-	32	48	144	-	1	139	14875	HZB-32
40	9	29	10	5	28	-	-	161	-	46	62	163	-	1	243	14876	HZB-40
50	9	34	10	6	32	-	-	170	-	62	78	175.5	-	1	426	14877	HZB-50
63	9	38	15	6	35	-	-	185	-	88	104	190	-	1	673	14878	HZB-63

1) Corrosion resistance class CRC 1 to Festo standard FN 940070

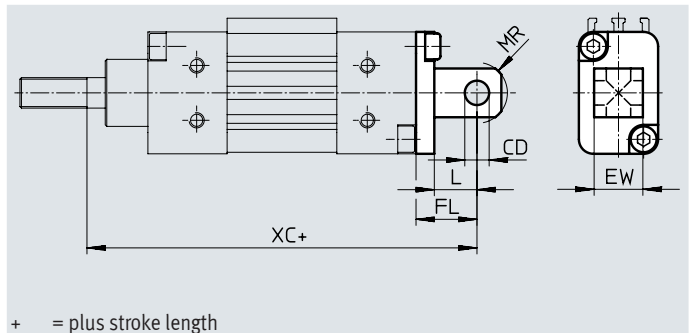
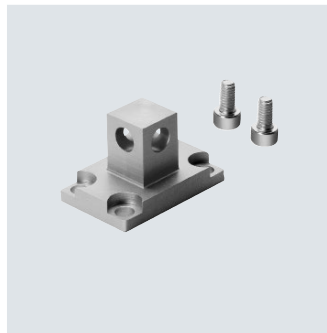
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

### Swivel flange SZSB, narrow/wide for piston $\varnothing$ 16 ... 25 mm

Material:  
High-alloy stainless steel  
Free of copper and PTFE  
RoHS-compliant



+ = plus stroke length

#### Dimensions and ordering data

For $\varnothing$	CD $\varnothing$ H8	EW	FL	L	XC	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
16	4	8	14	8	110	2	27	151927	SZSB-16
20	6	12	16	10	125	2	39	151926	SZSB-20
25	8	16	20	14	133	2	66	151925	SZSB-25

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

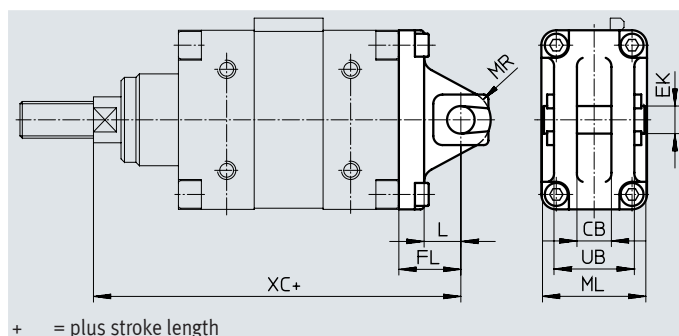
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.



## Accessories

**Swivel flange SZS, narrow**  
For piston  $\varnothing$  32 ... 63 mm

Material:  
Die-cast aluminium  
Free of copper and PTFE  
RoHS-compliant



+ = plus stroke length

**Dimensions and ordering data**

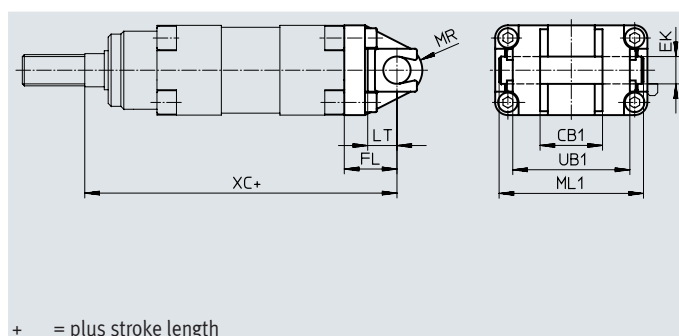
For $\varnothing$	CB	EK $\varnothing$ e8	FL	L min.	ML	MR	UB	XC	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
32	9.4	10	22	13.5	35.6	11	25.8	142	2	79	14883	SZS-32
40	12.4	12	25	15.5	39.6	13	28.8	160	2	117	14884	SZS-40
50	14.4	12	27	15.5	45.6	13	34.8	170.5	2	167	14885	SZS-50
63	16.4	16	35	22.4	53.6	17	40.8	190	2	333	14886	SZS-63

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

**Swivel flange SZB, wide**  
For piston  $\varnothing$  32 ... 63 mm

Material:  
High-alloy stainless steel  
Free of copper and PTFE  
RoHS-compliant



+ = plus stroke length

**Dimensions and ordering data**

For $\varnothing$	CB1	EK $\varnothing$ e8	FL	LT	ML1	MR	UB1	XC	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
32	16	10	22	14	47	11	36 <sub>-0.7</sub>	142	2	172	30798	SZB-32
40	28	12	25	15.5	61	13	52 <sub>-1</sub>	160	2	288	30799	SZB-40
50	32	12	27	16	77	13	60 <sub>-1</sub>	170.5	2	430	30629	SZB-50
63	40	16	35	23	103	17	70 <sub>-1</sub>	190	2	679	30630	SZB-63

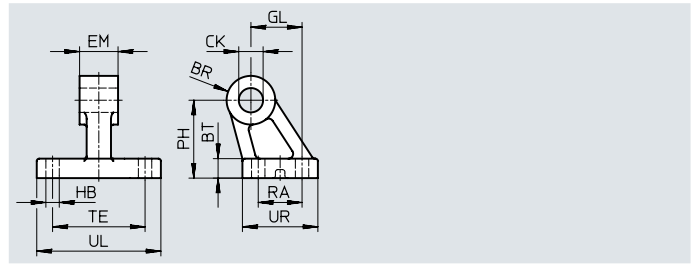
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Accessories

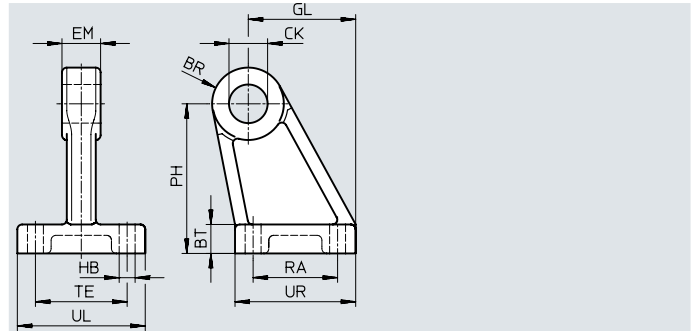
### Clevis foot LBZB For piston $\varnothing$ 32 mm

Material:  
Tempered steel  
Free of copper and PTFE  
RoHS-compliant



### Clevis foot LBZS For piston $\varnothing$ 32 ... 63 mm

Material:  
Stainless steel casting  
Free of copper and PTFE  
RoHS-compliant



#### Dimensions and ordering data


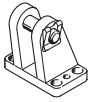
For $\varnothing$	BR	BT	CK $\varnothing$	EM -0.3	GL	HB $\varnothing$	PH	RA	TE	UL	UR	CRC <sup>1)</sup>	Weight [g]	Part no.	Type
<b>LBZB</b>															
32	10	8	10 <sup>H9</sup>	15.8	21	5.5	32	18	38	41	31	2	131	33842	LBZB-32
<b>LBZS</b>															
32	10	8	10 <sup>H8</sup>	9	21	5.5	33.5	18	24	35	31	2	92	33843	LBZS-32
40	11	10	12 <sup>H8</sup>	12	24	5.5	40	22	28	39	35	2	138	33844	LBZS-40
50	13	12	12 <sup>H8</sup>	14	33	6.6	51.5	30	30	45	45	2	244	33845	LBZS-50
63	15	12	16 <sup>H8</sup>	16	37	6.6	62	35	38	53	51	2	321	33846	LBZS-63

1) Corrosion resistance class CRC 2 to Festo standard FN 940070


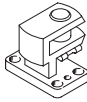
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Accessories



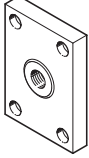
## Ordering data – Mounting components

Designation	For $\varnothing$	Part no.	Type
<b>Clevis foot LBN</b>			
	16	6058	LBN-12/16
	20	6059	LBN-20/25
	25		
<b>Clevis foot LBG</b>			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63




Data sheets → Internet: clevis foot

Designation	For $\varnothing$	Part no.	Type
<b>Clevis foot LN</b>			
	32	5147	LN-32
	40	5148	LN-40
	50	5149	LN-50
	63	5150	LN-63
<b>Right angle clevis foot LQG</b>			
	32	31768	LQG-32
	40	31769	LQG-40
	50	31770	LQG-50
	63	31771	LQG-63


## Ordering data – Piston rod attachments

Designation	For $\varnothing$	Part no.	Type
<b>Rod eye SGS</b>			
	16	9254	SGS-M6
	20	9255	SGS-M8
	25	9261	SGS-M10x1.25
	32		
	40	9262	SGS-M12x1.25
	50	9263	SGS-M16x1.5
	63		
<b>Rod clevis SG</b>			
	16	3110	SG-M6
	20	3111	SG-M8
	25	6144	SG-M10x1.25
	32		
	40	6145	SG-M12x1.25
	50	6146	SG-M16x1.5
	63		
<b>Coupling piece KSZ</b>			
	16	36123	KSZ-M6
	20	36124	KSZ-M8
	25	36125	KSZ-M10x1.25
	32		
	40	36126	KSZ-M12x1.25
	50	36127	KSZ-M16x1.5
	63		


Data sheets → Internet: piston rod attachment

Designation	For $\varnothing$	Part no.	Type
<b>Rod clevis SGA</b>			
	16	–	–
	20	–	–
	25	32954	SGA-M10x1.25
	32		
	40	10767	SGA-M12x1.25
	50	10768	SGA-M16x1.5
	63		
<b>Self-aligning rod coupler FK</b>			
	16	2061	FK-M6
	20	2062	FK-M8
	25	6140	FK-M10x1.25
	32		
	40	6141	FK-M12x1.25
	50	6142	FK-M16x1.5
	63		
<b>Adapter AD</b>			
	16	157328	AD-M6-M5
		157329	AD-M6-1/8
		157330	AD-M6-1/4
	20	157331	AD-M8-1/8
		157332	AD-M8-1/4
	25	157333	AD-M10x1.25-1/8
		157334	AD-M10x1.25-1/4


## Accessories

Ordering data – Proximity switch in block design, magneto-resistive							Data sheets → Internet: smto
Mounting	Switching output	Electrical connection		Cable length [m]	Part no.	Type	
		Cable	Plug M8				
<b>N/O contact</b>							
	Via accessories	PNP	3-wire	–	2.5	151683	SMTO-1-PS-K-LED-24-C
			–	3-pin	–	151685	SMTO-1-PS-S-LED-24-C
		NPN	3-wire	–	2.5	151684	SMTO-1-NS-K-LED-24-C
			–	3-pin	–	151686	SMTO-1-NS-S-LED-24-C


  

Ordering data – Proximity switch in block design, magnetic reed							Data sheets → Internet: smeo
Mounting	Electrical connection		Cable length [m]	Part no.	Type		
	Cable	Plug M8					
<b>N/O contact</b>							
	Via accessories	3-wire	–	2.5	30459	SMEO-1-LED-24-B	
		3-wire	–	5.0	151672	SMEO-1-LED-24-K5-B	
		–	3-pin	–	150848	SMEO-1-S-LED-24-B	









  

Ordering data – Rectangular proximity switch, pneumatic					Data sheets → Internet: smpo	
Mounting	Pneumatic connection			Part no.	Type	
<b>3/2-way valve, normally closed</b>						
	Via accessories	Barbed fitting for tubing I.D. 3 mm			31008	SMPO-1-H-B



  

Ordering data – Mounting kit				Data sheets → Internet: smb
Mounting			Part no.	Type
	For cylinder with mounting rod diameter 6 mm or DUO guide rail as mounting profile		11886	SMB-1

## Accessories

Ordering data – Proximity switch for T-slot, magneto-resistive						Data sheets → Internet: smt
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2.5-OE
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0.3-M8D
			Plug M12x1, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0.3-M12
		NPN	Cable, 3-wire	2.5	574338	SMT-8M-A-NS-24V-E-2.5-OE
			Plug M8x1, 3-pin	0.3	574339	SMT-8M-A-NS-24V-E-0.3-M8D
<b>N/C contact</b>						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7.5-OE
Ordering data – Proximity switch for T-slot, magnetic reed						Data sheets → Internet: sme
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	543862	SME-8M-DS-24V-K-2.5-OE
			5.0	543863	SME-8M-DS-24V-K-5.0-OE	
			Cable, 2-wire	2.5	543872	SME-8M-ZS-24V-K-2.5-OE
			Plug M8x1, 3-pin	0.3	543861	SME-8M-DS-24V-K-0.3-M8D
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150855	SME-8-K-LED-24
			Plug M8x1, 3-pin	0.3	150857	SME-8-S-LED-24
<b>N/C contact</b>						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160 251	SME-8-O-K-LED-24
Ordering data – Connecting cables						Data sheets → Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3	
			5	541334	NEBU-M8G3-K-5-LE3	
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541363	NEBU-M12G5-K-2.5-LE3	
			5	541364	NEBU-M12G5-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541338	NEBU-M8W3-K-2.5-LE3	
			5	541341	NEBU-M8W3-K-5-LE3	
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541367	NEBU-M12W5-K-2.5-LE3	
			5	541370	NEBU-M12W5-K-5-LE3	
Ordering data – Slot cover for T-slot						
	Mounting	Length	Part no.	Type		
	Inserted from above	2x 0.5 m	151680	ABP-5-S		

Accessories

Ordering data – One-way flow control valves				Data sheets → Internet: grl	
	Connection		Material	Part no.	Type
	Thread	For tubing O.D.			
<b>For exhaust air</b>					
	M5	3	Metal design	193137	GRLA-M5-QS-3-D
		4		193138	GRLA-M5-QS-4-D
		6		193139	GRLA-M5-QS-6-D
	G1/8	3		193142	GRLA-1/8-QS-3-D
		4		193143	GRLA-1/8-QS-4-D
		6		193144	GRLA-1/8-QS-6-D
		8		193145	GRLA-1/8-QS-8-D
		10		193146	GRLA-1/8-QS-10-D
	G1/4	6		193147	GRLA-1/4-QS-6-D
		8		193148	GRLA-1/4-QS-8-D
		10		193148	GRLA-1/4QS-10-D
	G3/8	6		193149	GRLA-3/8-QS-6-D
		8		193150	GRLA-3/8-QS-8-D
		10		193151	GRLA-3/8-QS-10-D
	<b>For supply air</b>				
	M5	3	Metal design	193153	GRLZ-M5-QS-3-D
		4		193154	GRLZ-M5-QS-4-D
		6		193155	GRLZ-M5-QS-6-D
	G1/8	3		193156	GRLZ-1/8-QS-3-D
		4		193157	GRLZ-1/8-QS-4-D
		6		193158	GRLZ-1/8-QS-6-D
		8		193159	GRLZ-1/8-QS-8-D