

Slide units SPZ, twin piston



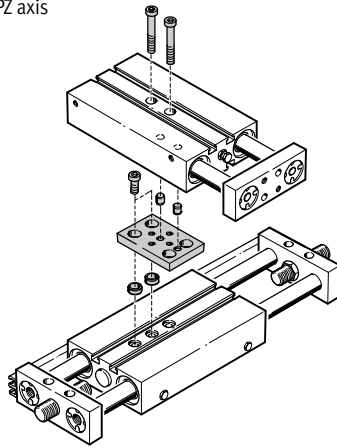
# Slide units SPZ, twin piston

Key features

## Multi-axis and drive combinations

The slide unit SPZ can be combined with different drives. An adapter kit is required for mounting between the two drives.

DPZ-/SPZ axis

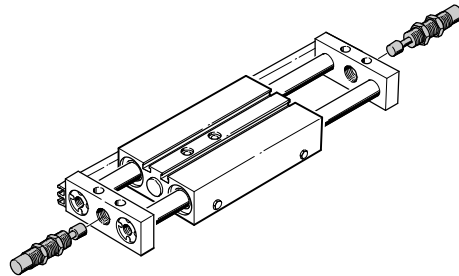


Adapter kits

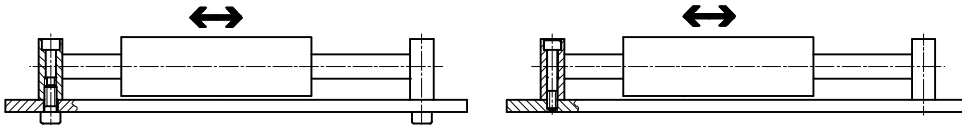
→ [www.festo.com](http://www.festo.com)

## Shock absorbers for slide operation

- From 30 ... 900 mm/s
- In slide operation, shock absorbers provide highly dynamic but gentle operating characteristics




## Slide operation SPZ-...



# Slide units SPZ, twin piston

Overview and type codes

Function	Version	Piston Ø [mm]	Stroke [mm]	Position sensing A	Plain bearing guide GF	Recirculating ball bearing guide KF
Double-acting		10	10, 25, 40, 50	■	■	■
		16, 20, 25, 32	10, 25, 40, 50, 80, 100			

SPZ – 16 – 100 – P – A – KF

**Type**

Double-acting	
SPZ	Slide unit

**Piston Ø [mm]**

**Stroke [mm]**

**Cushioning**

P	Flexible cushioning rings/plates at both ends
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**Position sensing**

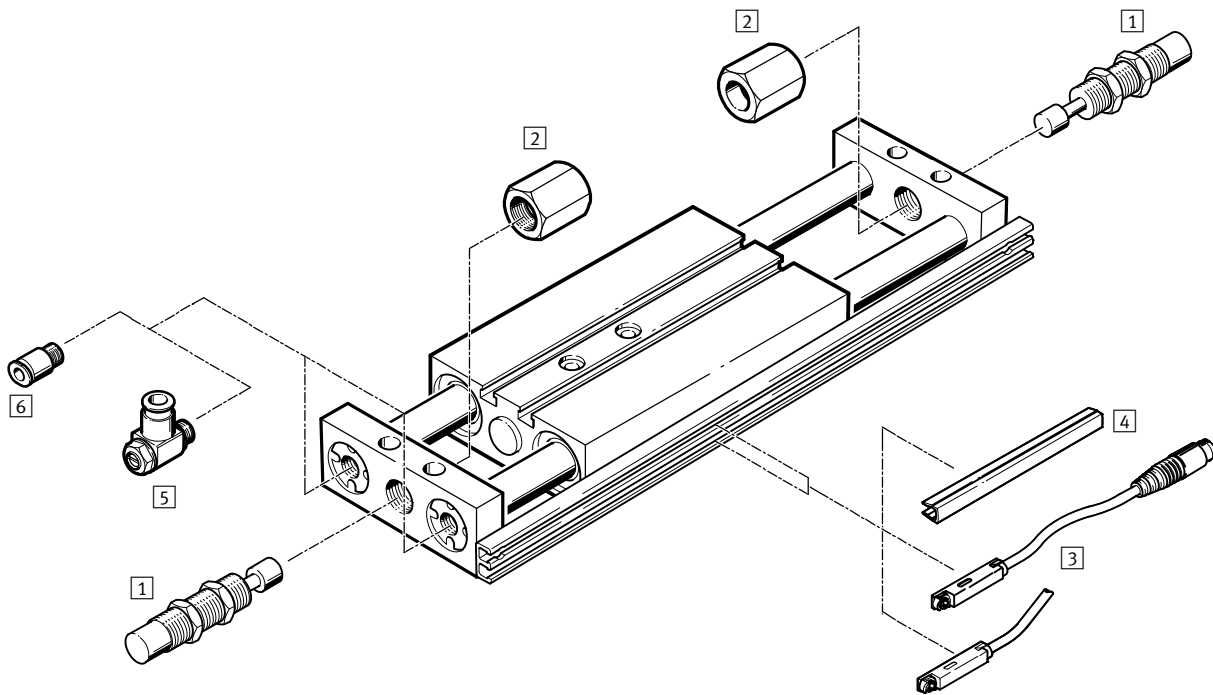
A	For proximity sensor
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**Guide**

	Plain bearing guide
KF	Recirculating ball bearing guide

# Slide units SPZ, twin piston

Peripherals overview

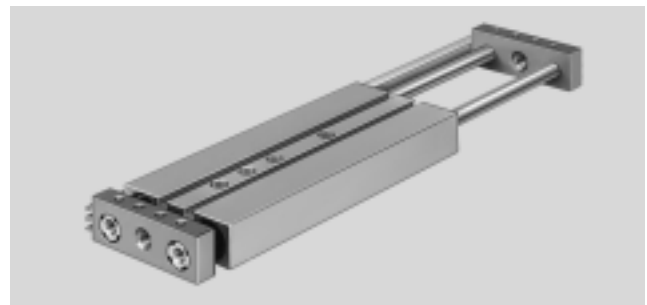
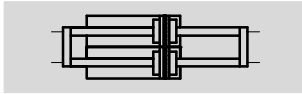



Accessories					
	Brief description	Piston Ø		→ Page/Internet	
		10, 16 mm	20, 25, 32 mm		
1	Shock absorber YSR-C	Hydraulic shock absorber with rapidly increasing cushioning characteristic	■	■	13
2	Stop limiters YSRA	Stroke limiter for shock absorber	■	■	13
3	Proximity sensor SME/SMT-8	Can be integrated in the cylinder profile barrel	Plain bearing guide	Plain bearing guide	14
4	Slot cover ABP-5-S	To protect the sensor cable and keep dirt out of the sensor slots	■	■	14
5	One-way flow control valve GRLA	To regulate speed	■	■	15
6	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	■	■	quick star
-	Centring pin ZBS	2 pieces included in scope of delivery	■	-	15
-	Centring sleeve ZBH	2 pieces included in scope of delivery	-	■	15
-	Adapters	For drive/drive combinations	■	■	16
		For drive/gripper combinations			gripper


# Slide units SPZ, twin piston

Technical data

Function



-  - Diameter  
10 ... 32 mm

-  - Stroke length  
10 ... 100 mm

-  - [www.festo.com](http://www.festo.com)

General technical data					
Piston $\varnothing$	10	16	20	25	32
Pneumatic connection	M5	M5	M5	M5	G $\frac{1}{8}$
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]				
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)				
Operating pressure [bar]	2,5 ... 10	1 ... 10			
Constructional design	Slide				
	Parallel piston rods				
Cushioning	Flexible cushioning rings/plates at both ends				
Position sensing	For proximity sensing				
Type of mounting	Via through-holes				
	With female thread				
	With mounting plate				
Mounting position	Any				
Protection against torsion/guide	Parallel piston rods/with plain-bearing guide or ball bearing guide				

Ambient conditions		
Variant	Plain-bearing guide GF	Recirculating ball bearing guide KF
Ambient temperature <sup>1)</sup> [°C]	-20 ... +80	
Corrosion resistance class CRC <sup>2)</sup>	2	-

1) Note operating range of proximity sensors.

2) 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 surrounding industrial atmosphere or media such as cooling or lubricating agents.

Forces [N]					
Piston $\varnothing$	10	16	20	25	32
Theoretical force at 6 bar, advancing	60	180	282	452	724
Theoretical force at 6 bar, retracting	60	180	282	452	724

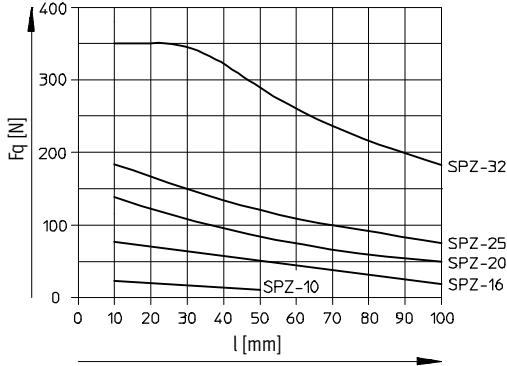
# Slide units SPZ, twin piston

Technical data

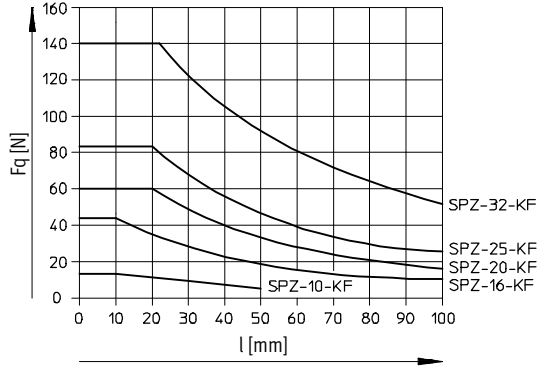
## Permissible lateral force $F_Q$ as a function of stroke $l$



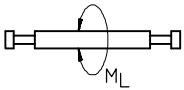
Plain-bearing guide GF



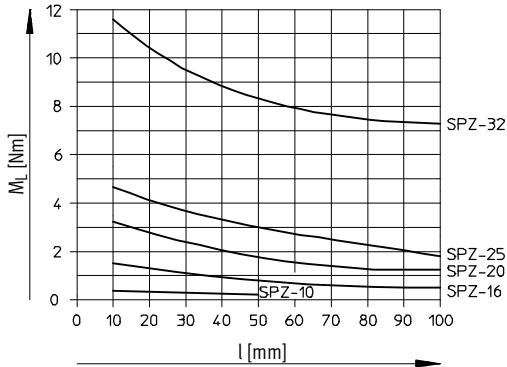
Recirculating ball bearing guide KF



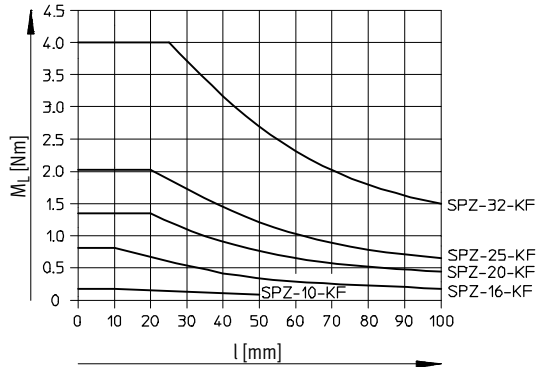
## Permissible torque $M_L$ as a function of stroke $l$



Plain-bearing guide GF



Recirculating ball bearing guide KF

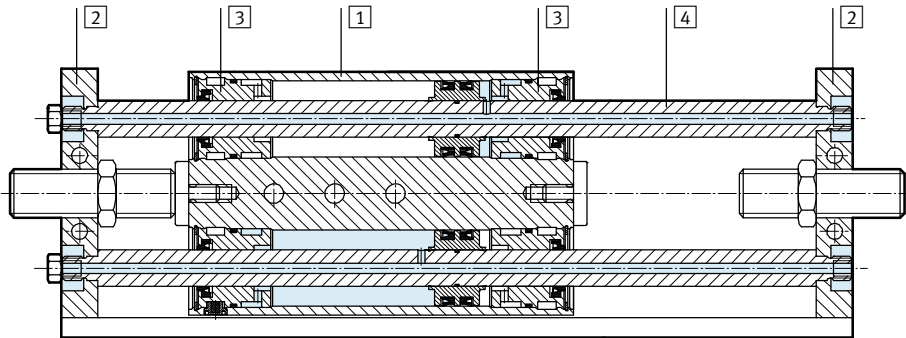


# Slide units SPZ, twin piston

Technical data

## Materials

Sectional view



Slide unit		
1	Housing	Wrought aluminium alloy
2	Yoke plate	Tool steel
3	Plug cap	GF Brass
		KF Wrought aluminium alloy
4	Piston rod	GF High-alloy stainless steel
		KF Tempered steel
-	Seals	Polyurethane, nitrile rubber

# Slide units SPZ, twin piston

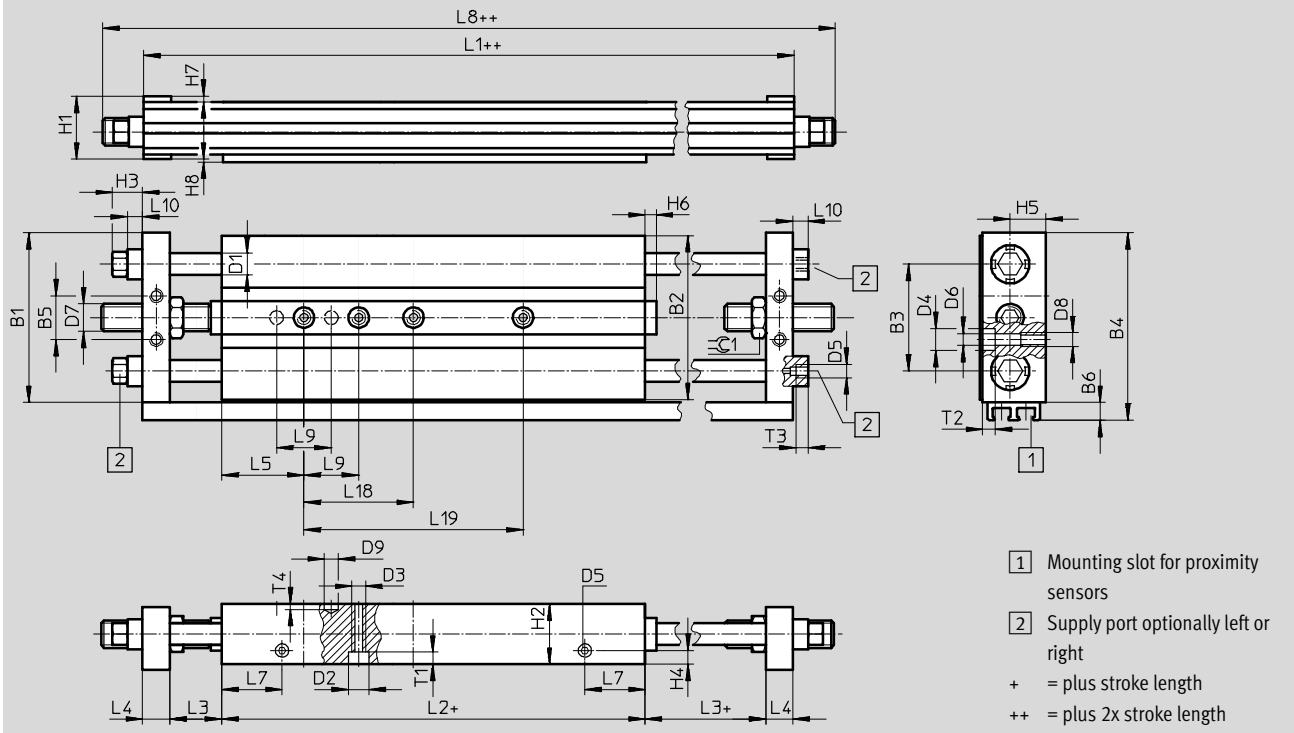
Technical data

FESTO

## Dimensions

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

Piston Ø 10, 16 mm, plain-bearing guide GF



Ø	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D5	D6	D7	D8	D9	H1	H2	H3
[mm]							Ø	Ø		Ø		Ø			Ø			
10	52	50	33	58.5	16	6.5	6	7.5	M5	8	M5	4.2	M10x1	M5	5	20	19	10
16	62	60	39	68.5	16	6.5	8	7.5	M5	8	M5	4.2	M10x1	M5	5	23	22	11

Ø	H4	H5	H6	H7	H8	L1	L2	L3	L4	L5	L7	L8	L9 <sup>1)</sup>	L10	T1	T2	T3	T4	≡C1
[mm]																			
10	5	11.5	4	2	1	129.6	71.6	19	10	30	23.4	159.6	20	4.5	4.4	3.4	5	2	13
16	5	13	4	2	1	132.6	74.6	19	10	30	22	162.6	20	5.5	4.4	4.6	4.5	2	13

Stroke	L18 <sup>1)</sup>	L19 <sup>1)</sup>
[mm]	±0.03	±0.03
10	-	-
25	-	-
40	40	-
50	40	-
80	40	80
100	40	80

1) Tolerance for centring hole ±0.03 mm  
Tolerance for thread ±0.2 mm



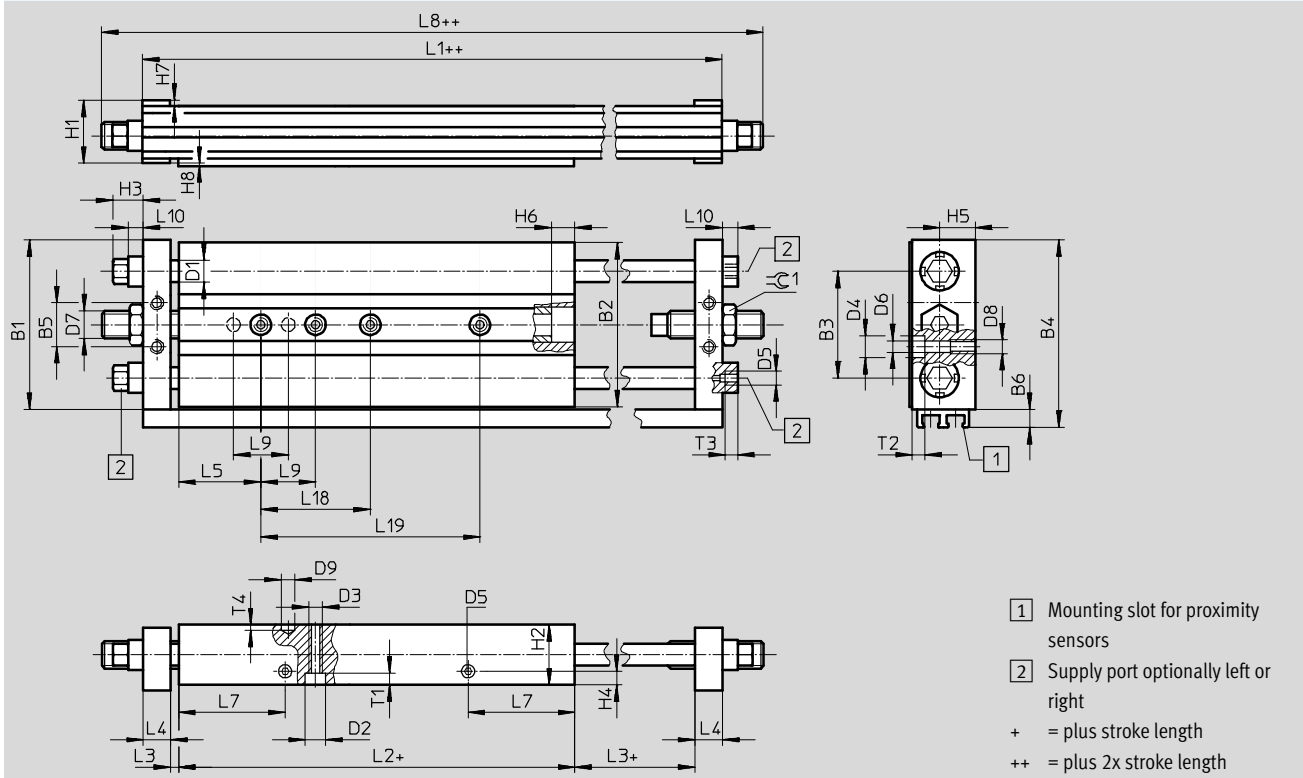
# Slide units SPZ, twin piston

Technical data

## Dimensions

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

Piston Ø 10, 16 mm, recirculating ball bearing guide KF



Ø	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D5	D6	D7	D8	D9	H1	H2	H3	H4
[mm]							Ø	Ø		Ø		Ø			Ø				
10	52	50	33	58.5	16	6.5	6	7.5	M5	8	M5	4.2	M10x1	M5	5	20	19	10	5
16	62	60	39	68.5	16	6.5	8	7.5	M5	8	M5	4.2	M10x1	M5	5	23	22	11	5

Ø	H5	H6	H7	H8	L1	L2	L3	L4	L5	L7	L8	L9 <sup>1)</sup>	L10	T1	T2	T3	T4	∅C1
[mm]																		
10	11.5	7.5	2	1	129.6	107.6	1	10	30	40.7	159.6	20	4.5	4.4	3.4	5	2	13
16	13	7.5	2	1	132.6	106.6	3	10	30	38.9	158.6	20	5.5	4.4	4.6	4.5	2	13

Stroke	L18 <sup>1)</sup>	L19 <sup>1)</sup>
[mm]	±0.03	±0.03
10	-	-
25	-	-
40	40	-
50	40	-
80	40	80
100	40	80

1) Tolerance for centring hole ±0.03 mm  
Tolerance for thread ±0.2 mm

# Slide units SPZ, twin piston

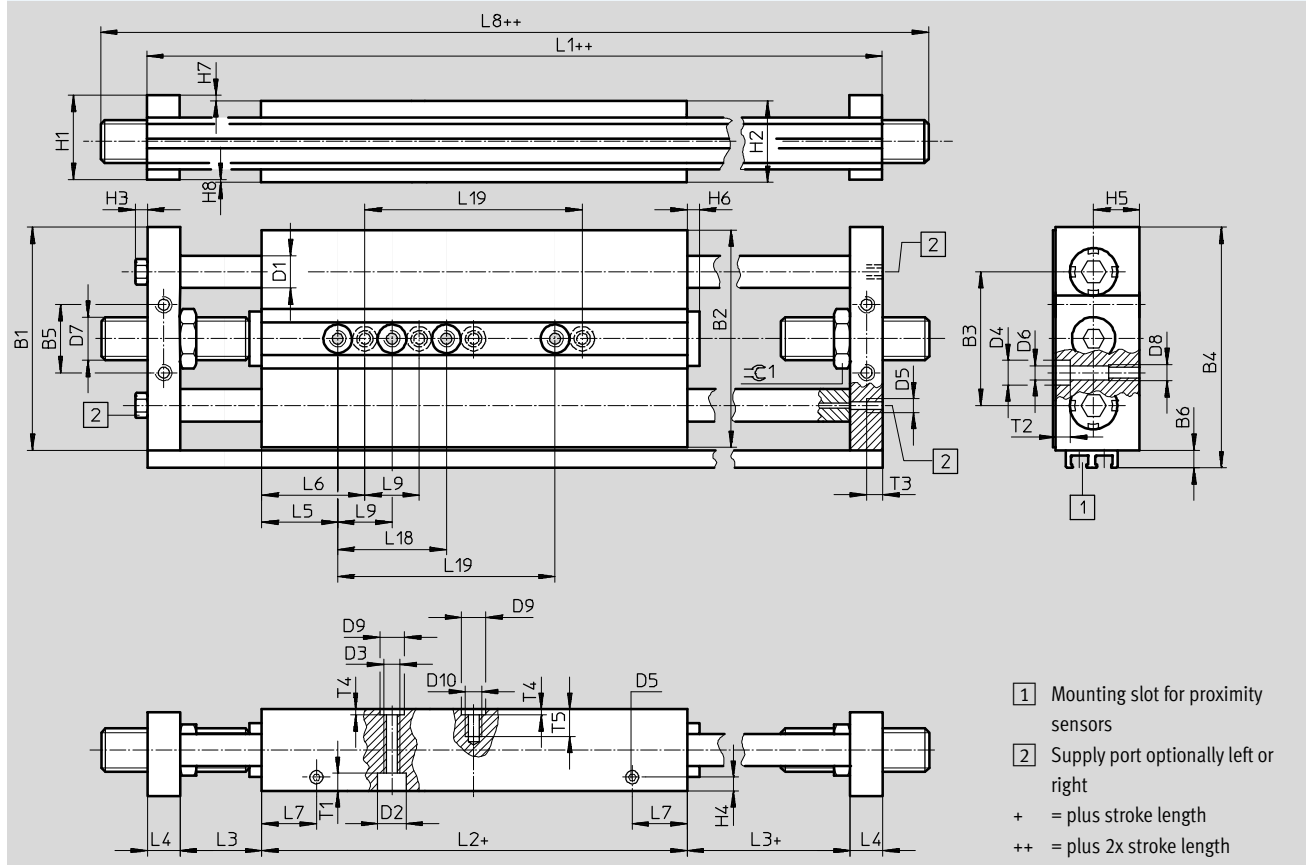
Technical data



## Dimensions

Piston  $\varnothing$  20, 25, 32 mm, plain-bearing guide GF

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



$\varnothing$	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	H1	H2	H3
[mm]							$\varnothing$	$\varnothing$	$\varnothing$	$\varnothing$	$\varnothing$	$\varnothing$			$\varnothing$	$\varnothing$			
20	74	72	45.6	80.5	23	6.5	10	9	M6	9.5	M5	5.2	M12x1	M6	9	M6	25	24	5
25	82	80	49.2	88.5	25	6.5	12	10.5	6.4	9.5	M5	5.2	M16x1	M6	9	M6	31	30	5
32	100	98	57	106.5	24	6.5	16	10.5	6.4	10.5	G1/8	6.2	M16x1	M8	9	M6	39	38	-

$\varnothing$	H4	H5	H6	H7	H8	L1	L2	L3	L4	L5	L6	L7	L8	L9 <sup>1)</sup>	T1	T2	T3	T4	T5	$\leq \varnothing 1$
[mm]																				
20	5	14	4	2	1	146.6	76.6	23	12	30	-	22.8	178.6	20	5.4	5	6	2.1	10	15
25	5	17	4.5	2	1	160.6	76.6	30	12	28	38	20.2	194.6	20	6.4	5	6	2.1	10	19
32	7.5	21	4.5	2	1	170.1	80.1	30	15	35	45	25	204.1	20	6.4	6.5	10	2.1	10	19

Stroke	L18 <sup>1)</sup>	L19 <sup>1)</sup>
[mm]	$\pm 0.03$	$\pm 0.03$
10	-	-
25	-	-
40	40	-
50	40	-
80	40	80
100	40	80

1) Tolerance for centring hole  $\pm 0.03$  mm  
Tolerance for thread  $\pm 0.2$  mm

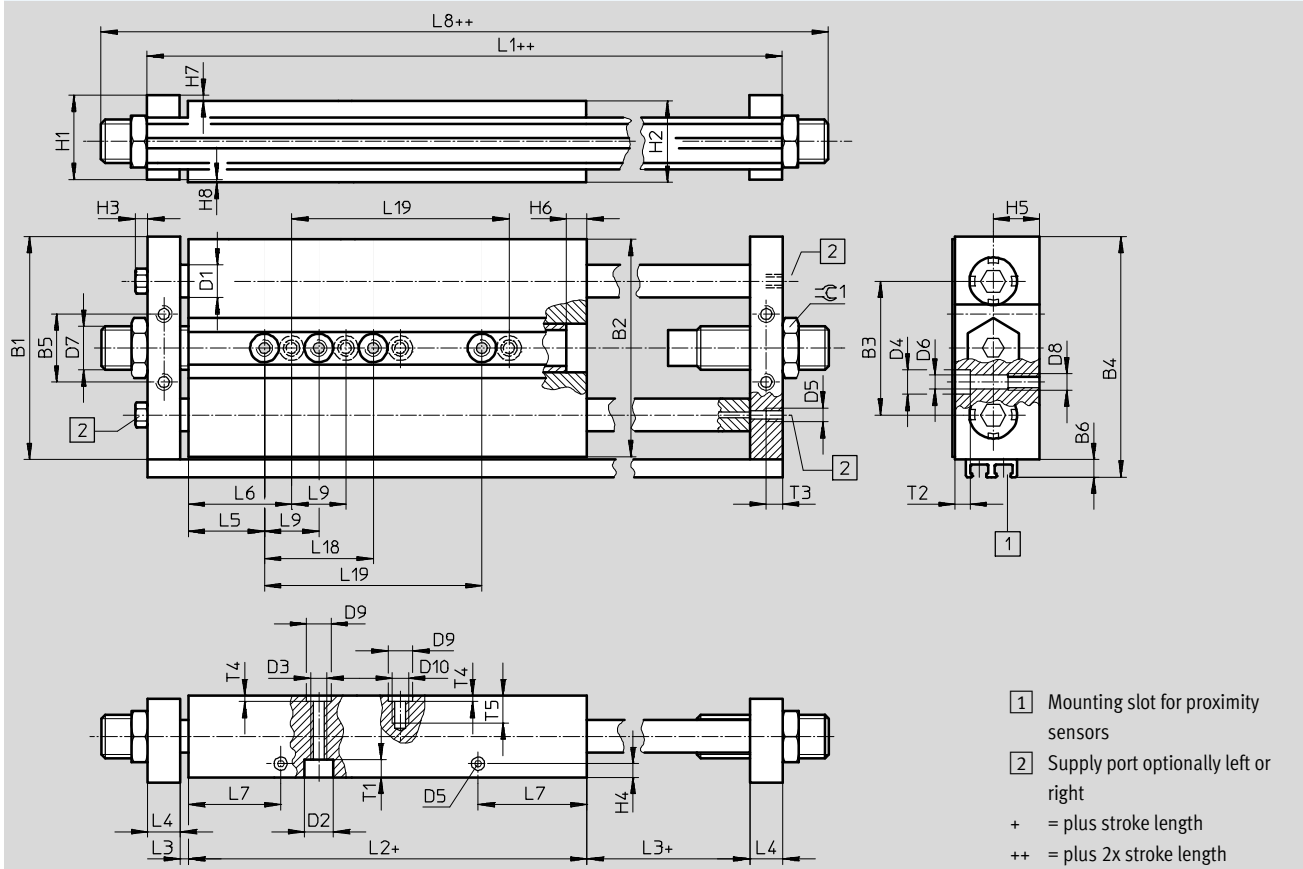
# Slide units SPZ, twin piston

Technical data

## Dimensions

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

Piston Ø 20, 25, 32 mm, recirculating ball bearing guide KF



- 1 Mounting slot for proximity sensors
- 2 Supply port optionally left or right
- + = plus stroke length
- ++ = plus 2x stroke length

Ø	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	H1	H2	H3
[mm]							Ø	Ø	Ø	Ø		Ø			Ø				
20	74	72	45.6	80.5	23	6.5	10	9	M6	9.5	M5	5.2	M12x1	M6	9	M6	25	24	5
25	82	80	49.2	88.5	25	6.5	12	10.5	6.4	9.5	M5	5.2	M16x1	M6	9	M6	31	30	5
32	100	98	57	106.5	24	6.5	16	10.5	6.4	10.5	G <sup>1</sup> / <sub>8</sub>	6.2	M16x1	M8	9	M6	39	38	-


Ø	H4	H5	H6	H7	H8	L1	L2	L3	L4	L5	L6	L7	L8	L9 <sup>1)</sup>	T1	T2	T3	T4	T5	≈1
[mm]																				
20	5	14	6.5	2	1	146.6	120.6	1	12	30	-	43.4	184.6	20	5.4	5	6	2.1	10	15
25	5	17	7.5	2	1	160.6	130.6	3	12	28	38	40	202.6	20	6.4	5	6	2.1	10	19
32	7.5	21	7.5	2	1	170.1	134.1	3	15	35	45	44.9	206.1	20	6.4	6.5	10	2.1	10	19

Stroke	L18 <sup>1)</sup>	L19 <sup>1)</sup>
[mm]	±0.03	±0.03
10	-	-
25	-	-
40	40	-
50	40	-
80	40	80
100	40	80

1) Tolerance for centring hole ±0.03 mm  
Tolerance for thread ±0.2 mm

# Slide units SPZ, twin piston

Technical data

Ordering data						
Type	Piston Ø [mm]	Stroke [mm]	Plain-bearing guide GF		Recirculating ball bearing guide KF	
			Part No.	Type <sup>1)</sup>	Part No.	Type <sup>1)</sup>
	10	10	32 714	SPZ-10-10-P-A	162 166	SPZ-10-10-P-A-KF
		25	32 715	SPZ-10-25-P-A	162 167	SPZ-10-25-P-A-KF
		40	32 716	SPZ-10-40-P-A	162 168	SPZ-10-40-P-A-KF
		50	32 717	SPZ-10-50-P-A	162 169	SPZ-10-50-P-A-KF
	16	10	32 719	SPZ-16-10-P-A	162 171	SPZ-16-10-P-A-KF
		25	32 720	SPZ-16-25-P-A	162 172	SPZ-16-25-P-A-KF
		40	32 721	SPZ-16-40-P-A	162 173	SPZ-16-40-P-A-KF
		50	32 722	SPZ-16-50-P-A	162 174	SPZ-16-50-P-A-KF
		80	32 723	SPZ-16-80-P-A	162 175	SPZ-16-80-P-A-KF
		100	32 724	SPZ-16-100-P-A	162 176	SPZ-16-100-P-A-KF
	20	10	32 726	SPZ-20-10-P-A	162 178	SPZ-20-10-P-A-KF
		25	32 727	SPZ-20-25-P-A	162 179	SPZ-20-25-P-A-KF
		40	32 728	SPZ-20-40-P-A	162 180	SPZ-20-40-P-A-KF
		50	32 729	SPZ-20-50-P-A	162 181	SPZ-20-50-P-A-KF
		80	32 730	SPZ-20-80-P-A	162 182	SPZ-20-80-P-A-KF
		100	32 731	SPZ-20-100-P-A	162 183	SPZ-20-100-P-A-KF
	25	10	32 733	SPZ-25-10-P-A	162 185	SPZ-25-10-P-A-KF
		25	32 734	SPZ-25-25-P-A	162 186	SPZ-25-25-P-A-KF
		40	32 735	SPZ-25-40-P-A	162 187	SPZ-25-40-P-A-KF
		50	32 736	SPZ-25-50-P-A	162 188	SPZ-25-50-P-A-KF
		80	32 737	SPZ-25-80-P-A	162 189	SPZ-25-80-P-A-KF
		100	32 738	SPZ-25-100-P-A	162 190	SPZ-25-100-P-A-KF
	32	10	159 721	SPZ-32-10-P-A	162 192	SPZ-32-10-P-A-KF
		25	159 722	SPZ-32-25-P-A	162 193	SPZ-32-25-P-A-KF
		40	159 723	SPZ-32-40-P-A	162 194	SPZ-32-40-P-A-KF
		50	159 724	SPZ-32-50-P-A	162 195	SPZ-32-50-P-A-KF
		80	159 725	SPZ-32-80-P-A	162 196	SPZ-32-80-P-A-KF
		100	159 726	SPZ-32-100-P-A	162 197	SPZ-32-100-P-A-KF

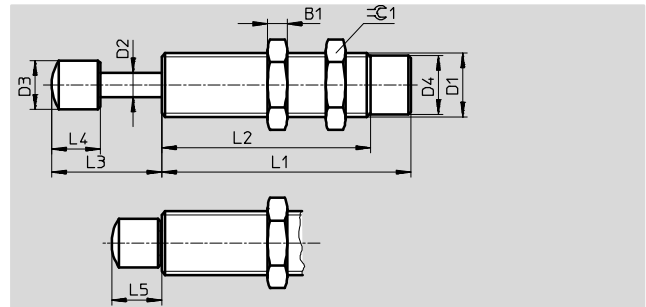
1) 2 centring pins or sleeves are included in the scope of delivery.

# Slide units SPZ, twin piston

Accessories

## Shock absorber YSR-C

Material:  
 YSR-7-5-C, YSR-8-8-C: Nickel-plated brass  
 YSR-12-12-C: Galvanised steel  
 Free of copper, PTFE and silicone

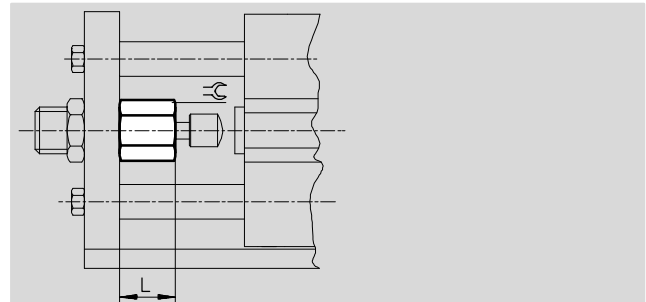


Dimensions and ordering data												Part No.	Type	
For $\varnothing$	B1	D1	D2 $\varnothing$	D3 $\varnothing$	D4 $\varnothing$	L1 $\pm 0.1$	L2 $\pm 0.3$	L3 $+0.7/-0.35$	L4 $\pm 0.2$	L5 $+0.55/-0.25$	$\approx C$			
[mm]														
10, 16	3.5	M10x1	3	6 $\pm 0.1$	8.6 $\pm 0.05$	34	23	12.3	7	7.3	13	<b>160 272</b>	<b>YSR-7-5-C</b>	
20	4	M12x1	4	8 $\pm 0.2$	10.4 $\pm 0.1$	46	33	16.3	8	8.3	15	<b>34 571</b>	<b>YSR-8-8-C</b>	
25, 32	5	M16x1	6	12 $\pm 0.2$	14.5 $\pm 0.1$	64	51	24.5	12	12.5	19	<b>34 572</b>	<b>YSR-12-12-C</b>	

## Stop limiter YSRA

for use when shock absorbers are fitted  
 (not in the case of recirculating ball bearing guide)

Material:  
 Steel

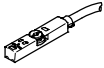
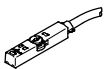


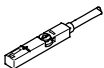

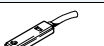
Dimensions and ordering data					
For $\varnothing$	L	$\approx C$	For shock absorbers	Weight	Part No. Type
[mm]				[g]	
10, 16	15	13	YSR-7-5-C	12	<b>150 932</b> <b>YSRA-7-C</b>
20	19	15	YSR-8-8-C	28	<b>150 933</b> <b>YSRA-8-C</b>
25, 32	25.5	19	YSR-12-12-C	48	<b>150 934</b> <b>YSRA-12-C</b>



# Slide units SPZ, twin piston

Accessories

FESTO

Ordering data – Proximity sensors for T-slot, magneto-resistive						Technical data → Internet: smt
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with 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
N/C contact						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7,5-OE

Ordering data – Proximity sensors for T-slot, magnetic reed						Technical data → Internet: sme
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	543 862	SME-8M-DS-24V-K-2,5-OE
				5.0	543 863	SME-8M-DS-24V-K-5,0-OE
			Cable, 2-wire	2.5	543 872	SME-8M-ZS-24V-K-2,5-OE
			Plug M8x1, 3-pin	0.3	543 861	SME-8M-DS-24V-K-0,3-M8D
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150 855	SME-8-K-LED-24
			Plug M8x1, 3-pin	0.3	150 857	SME-8-S-LED-24
N/C contact						
	Insertable 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					Technical data → 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	541 333	NEBU-M8G3-K-2.5-LE3
			5	541 334	NEBU-M8G3-K-5-LE3
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 363	NEBU-M12G5-K-2.5-LE3
			5	541 364	NEBU-M12G5-K-5-LE3
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 338	NEBU-M8W3-K-2.5-LE3
			5	541 341	NEBU-M8W3-K-5-LE3
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 367	NEBU-M12W5-K-2.5-LE3
			5	541 370	NEBU-M12W5-K-5-LE3



Ordering data – Slot cover for T-slot					
	Mounting	Length	Part No.	Type	
	Insertable from above	2x 0.5 m	151 680	ABP-5-S	

# Slide units SPZ, twin piston

Accessories



Ordering data – One-way flow control valves				Technical data → Internet: grla	
	Connection		Material	Part No.	Type
	Thread	For tubing O.D.			
	M5	3	Metal design	<b>193 137</b>	<b>GRLA-M5-QS-3-D</b>
		4		<b>193 138</b>	<b>GRLA-M5-QS-4-D</b>
		6		<b>193 139</b>	<b>GRLA-M5-QS-6-D</b>
	G $\frac{1}{8}$	3		<b>193 142</b>	<b>GRLA-<math>\frac{1}{8}</math>-QS-3-D</b>
		4		<b>193 143</b>	<b>GRLA-<math>\frac{1}{8}</math>-QS-4-D</b>
		6		<b>193 144</b>	<b>GRLA-<math>\frac{1}{8}</math>-QS-6-D</b>
		8		<b>193 145</b>	<b>GRLA-<math>\frac{1}{8}</math>-QS-8-D</b>

Ordering data – Accessories				Technical data → Internet: zbs	
	For dia. [mm]	Material	Part No.	Type	PE <sup>1)</sup>
Centring pin ZBS					
	10, 16	Stainless steel Free of copper, PTFE and silicone	<b>150 928</b>	<b>ZBS-5</b>	10
Centring sleeve ZBH					
	20, 25, 30	Stainless steel Free of copper, PTFE and silicone	<b>150 927</b>	<b>ZBH-9</b>	10

1) Packaging unit quantity


# Slide units SPZ, twin piston

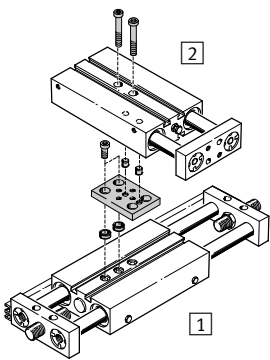
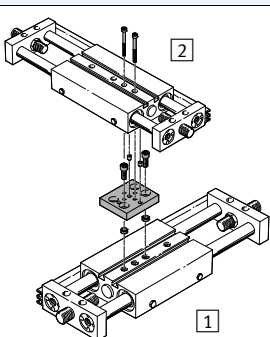
Accessories



**Adapter kit**  
**BPL**

Material:  
Wrought aluminium alloy  
Free of copper and PTFE  
RoHS-compliant

 Note  
The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/drive combinations with adapter kit						Download CAD data → <a href="http://www.festo.com">www.festo.com</a>	
Combination	[1] Drive	[2] Drive	Adapter kit				
	Size	Size	CRC <sup>1)</sup>	Part No.	Type		
	DPZ	SPZ	BPL				
	20, 25, 32	10, 16	2	<b>150929</b>	<b>BPL-1</b>		
	20, 25, 32	20		<b>150930</b>	<b>BPL-2</b>		
	25, 32	25		<b>150931</b>	<b>BPL-3</b>		
	32	32		<b>150931</b>	<b>BPL-3</b>		
	SPZ	SPZ	BPL				
	20, 25, 32	10, 16	2	<b>150929</b>	<b>BPL-1</b>		
	20, 25, 32	20		<b>150930</b>	<b>BPL-2</b>		
	25, 32	25		<b>150931</b>	<b>BPL-3</b>		
	32	32		<b>150931</b>	<b>BPL-3</b>		

1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.