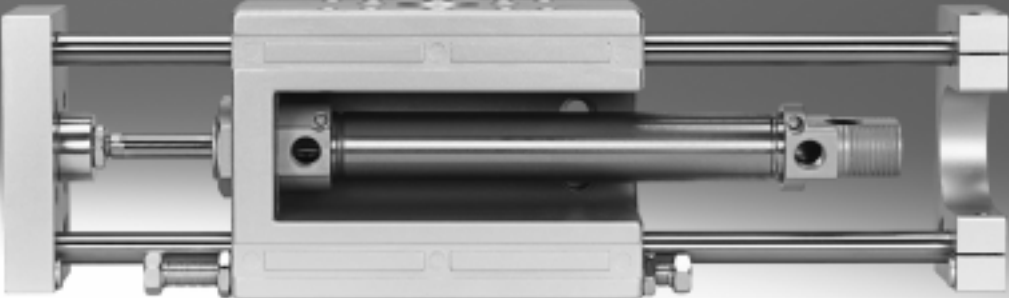


Linear units SLE



Linear units SLE

Key features

FESTO

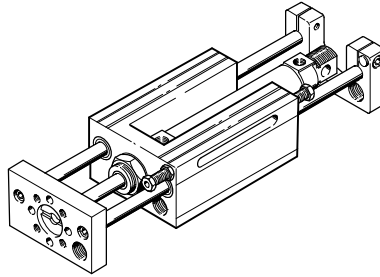
Version

The linear unit SLE is a combination of a guide unit and a standard cylinder. The cylinder moves a flange plate.

The modular system allows for individualised end-position cushioning and end-position sensing solutions.

Basic unit

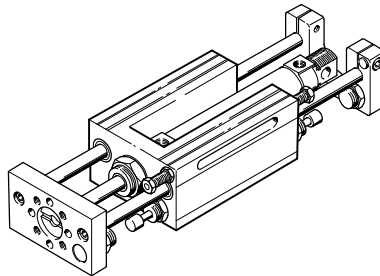
SLE-...-G



Standard unit

SLE-...-S

with two self-adjusting shock absorbers and two inductive proximity sensors with PNP output



Linear units SLE

Key features

Multi-axis combinations

The linear unit SLE can be combined with a further linear unit SLE or a linear drive SLM to produce a range of 2-axis or 3-axis systems.

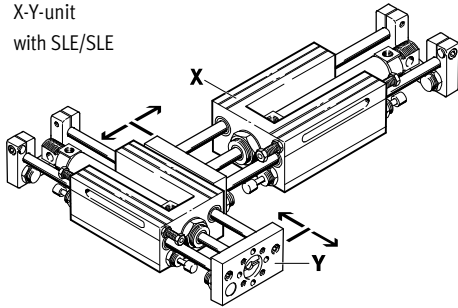
The units are bolted together directly for multi-axis operation.

The centring pins and sleeves required to secure the units together are included in the scope of delivery.

Linear drive SLM
→ Internet: slm

with linear unit SLE

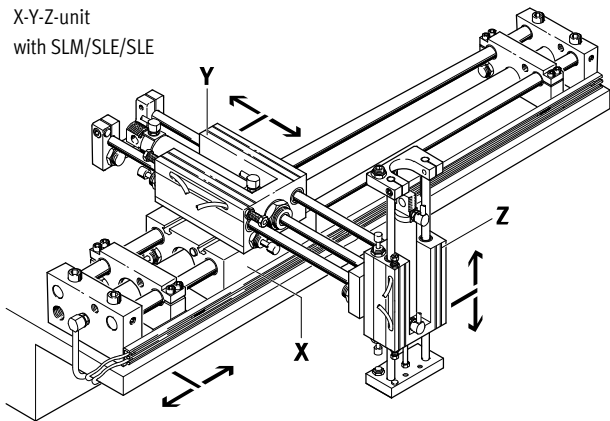
X-Y-unit
with SLE/SLE



X	Y	Z
2 axes		
SLE-16	SLE-10	-
SLE-20	SLE-16	-
SLE-25	SLE-16	-
SLE-32	SLE-20 or SLE-25	-
SLE-40	SLE-32	-
SLE-50	SLE-40	-
3 axes		
SLE-20	SLE-16	SLE-10
SLE-25	SLE-16	SLE-10
SLE-32	SLE-20 or SLE-25	SLE-16
SLE-40	SLE-32	SLE-20 or SLE-25
SLE-50	SLE-40	SLE-32

with linear drive SLM

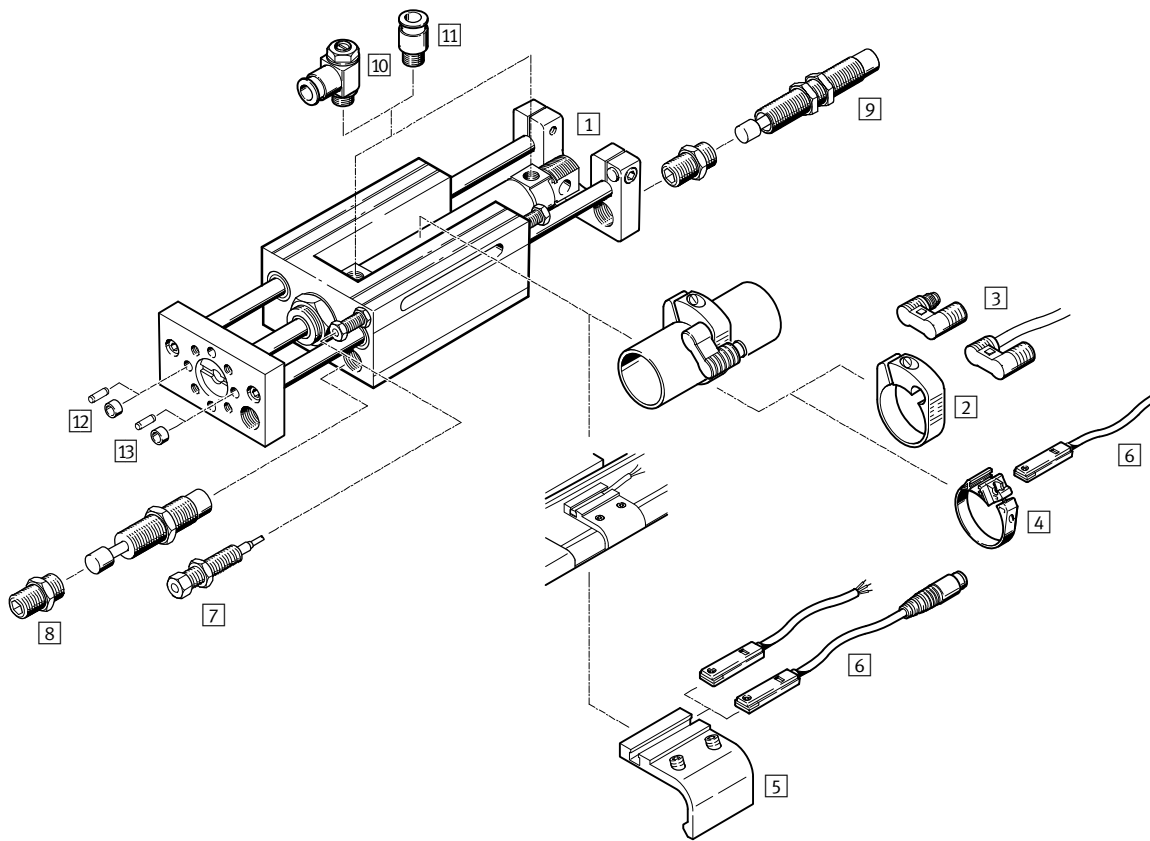
X-Y-Z-unit
with SLM/SLE/SLE



X	Y	Z
2 axes		
SLM-12	SLE-10	-
SLM-20	SLE-16	-
SLM-32	SLE-20 or SLE-25	-
SLM-40	SLE-32	-
3 axes		
SLM-20	SLE-16	SLE-10
SLM-32	SLE-20 or SLE-25	SLE-16
SLM-40	SLE-32	SLE-20 or SLE-25

Linear units SLE

Peripherals overview



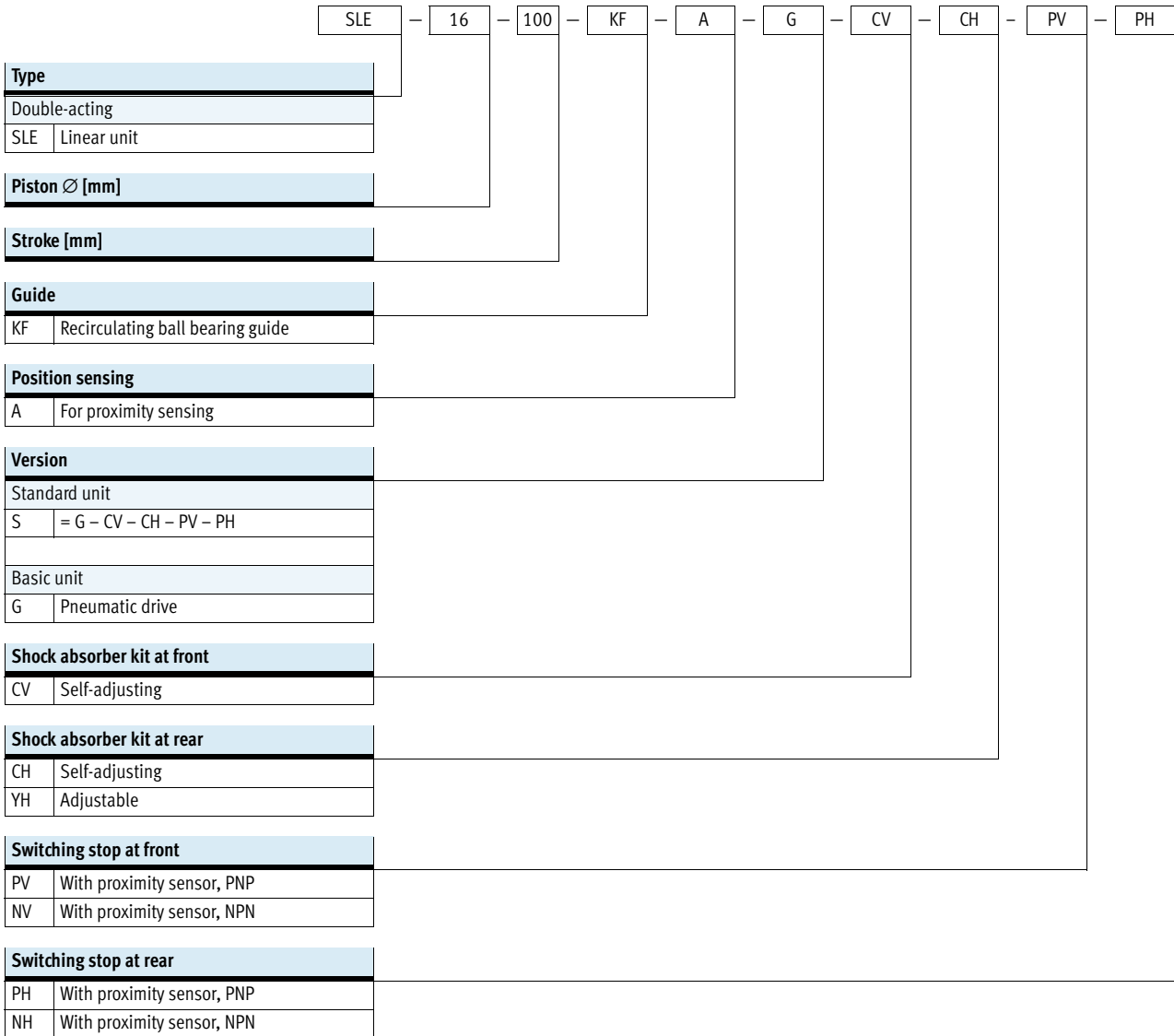
Linear units SLE

Peripherals overview

Accessories						
	Description	Piston Ø 10 ... 20 mm	Piston Ø 25 mm	Piston Ø 32 ... 50 mm	→ Page/Internet	
1	Standard cylinder DSNU	Drive for the flange plate	■	■	-	17
	Standard cylinder DNC	Drive for the flange plate	-	-	■	17
2	Mounting kit SMBR	For attachment to standard cylinder DSNU	■	■	-	17
3	Proximity sensor SMEO/SMTO-4U	Can be integrated in mounting kit SMBR	■	■	-	17
4	Mounting kit SMBR-8	For attachment to standard cylinder DSNU	■ Ø 20	■	-	18
5	Mounting kit SMB-8-FENG	For attachment to standard cylinder DNC	-	-	■	18
6	Proximity sensor SME/SMT-8	Can be integrated in mounting kit SMBR-8 or SMB-8-FENG	■ Ø 20	■	■	18
7	Switching stop with proximity sensor SL-...-SIE-PS/SL-...-SIE-NS	Can be integrated in end plate	■	■	■	16
8	Shock absorber kit, self-adjusting SLE-...-YSR-C	For slowing higher speeds to a stop	■	■	■	16
9	Shock absorber kit, adjustable SLZ-...-KF-A	For slowing higher speeds to a stop	■ Ø 20	■	■	16
10	One-way flow control valve GRLA	For speed regulation	■	■	■	19
11	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	■	■	■	qs
12	Centring pin ZBS	For centring loads and attachment components	■	-	-	17
13	Centring sleeve ZBH	For centring loads and attachment components	-	■	■	17

Linear units SLE

Type codes



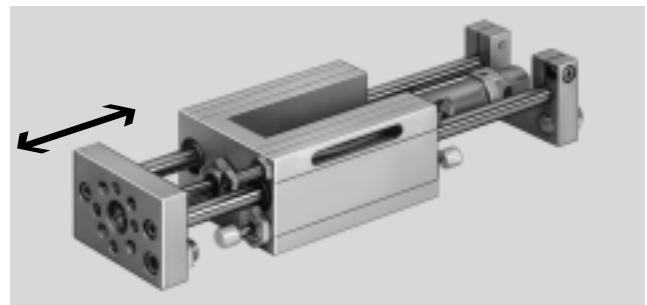
Linear units SLE

Technical data

Function



 www.festo.com



- \varnothing - Diameter
10 ... 50 mm
- | - Stroke length
10 ... 500 mm

General technical data							
Piston \varnothing	10	16	20	25	32	40	50
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320		10 ... 500		
Pneumatic connection	M5		G1/8		G1/4		
Mode of operation	Double-acting						
Constructional design	Linear unit Standard cylinder						
End-position cushioning via shock absorber	Self-adjusting at both ends - Adjusted from the rear						
Position sensing	For proximity sensing						
Type of mounting	Via through-holes Via female thread						
Mounting position	Any						
Protection against torsion/guide	Guide rods with yoke/ball bearing guide						

Operating and environmental conditions							
Piston \varnothing	10	16	20	25	32	40	50
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				1.5 ... 12		
Ambient temperature ¹⁾ [°C]	-20 ... +80						

1) Note operating range of proximity sensors.

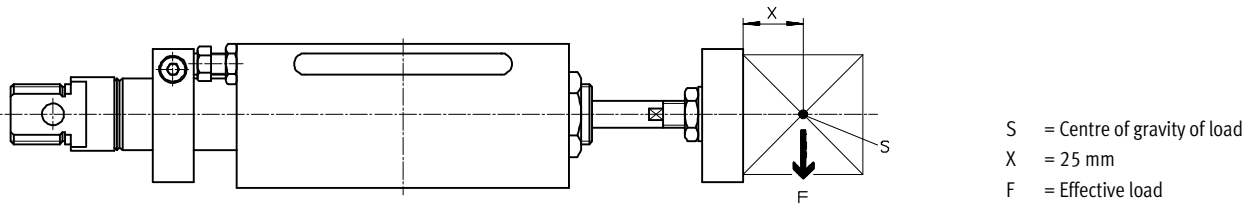
Forces [N]							
Piston \varnothing	10	16	20	25	32	40	50
Theoretical force at 6 bar, advancing	47	121	188	295	483	754	1178
Theoretical force at 6 bar, retracting	40	104	158	247	415	633	990

Linear units SLE

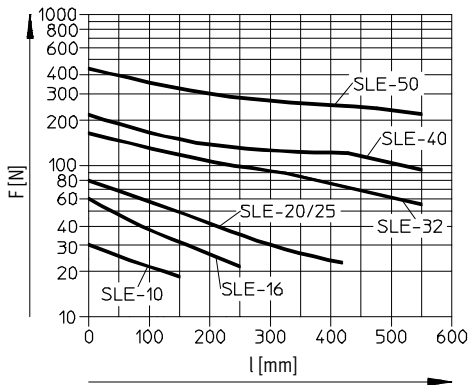
Technical data

FESTO

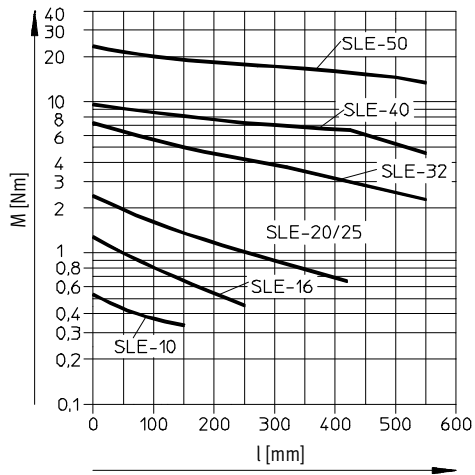
Permissible dynamic load



Permissible effective load F as a function of the stroke l



Permissible torque M as a function of the stroke l

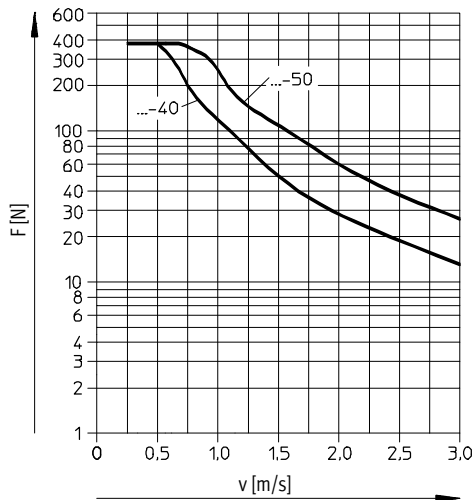
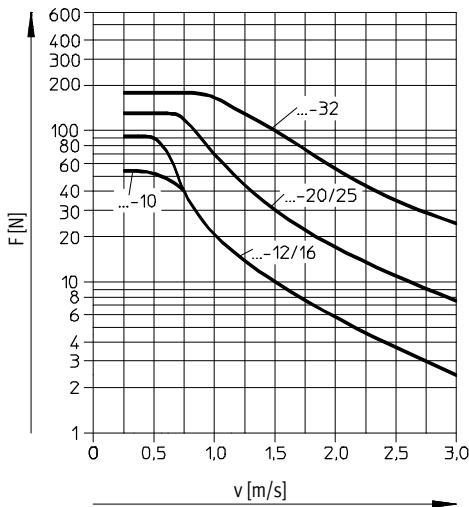


Permissible shock absorber load F as a function of the impact velocity v with horizontal installation

$$F \geq m_L \times g$$

$$g = 9.81 \text{ N/mm}^2$$

$$m_L = \text{Load [kg]}$$



Linear units SLE

Technical data

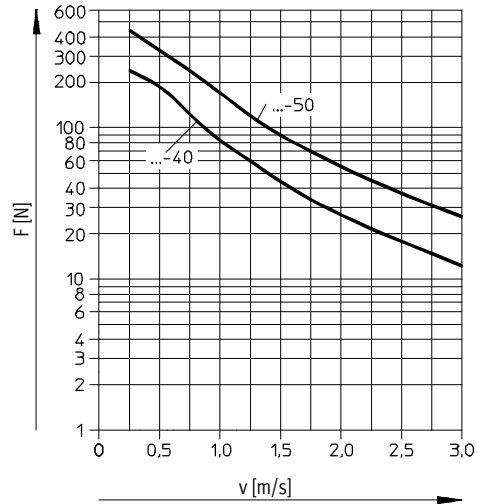
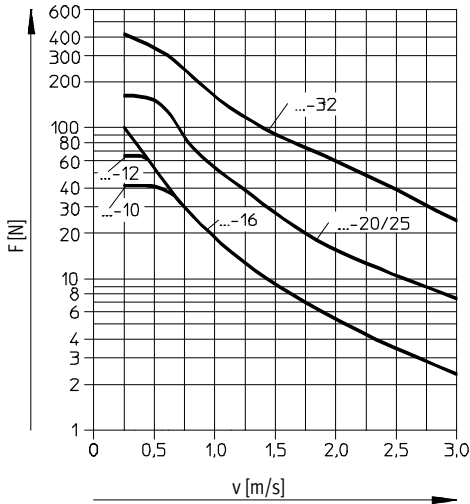
Permissible shock absorber load F as a function of the impact velocity v
with vertical installation

$$F \geq (m_L + m_E) \times g$$

$$g = 9.81 \text{ N/mm}^2$$

m_E = Moving load (dead weight) [kg]

m_L = Load [kg]



Weights [g]							
Piston Ø	10	16	20	25	32	40	50
Product weight with 0 mm stroke	560	913	1882	1942	4300	6175	9200
Additional weight per 10 mm stroke	10	13	19	23	57	85	125
Moving load with 0 mm stroke	160	230	500	500	1500	2200	3600
Additional load per 10 mm stroke	8	8	12	12	31	49	77

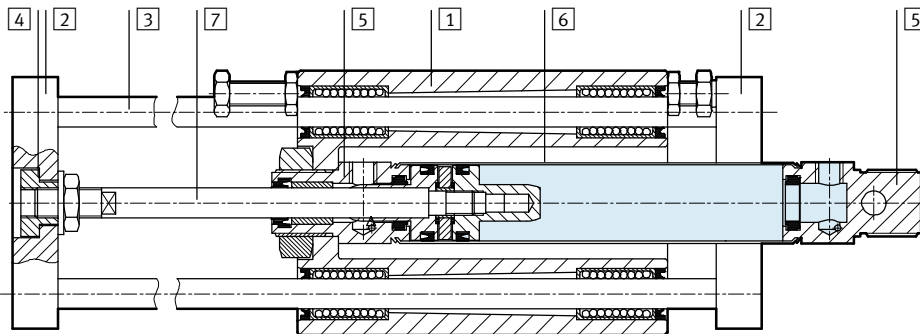
Linear units SLE

Technical data

FESTO

Materials

Sectional view



Linear unit

1	Housing	Ø 10 ... 25	Die-cast aluminium
		Ø 32 ... 50	Wrought aluminium alloy
2	Yoke/end plate		Aluminium
3	Guide rod		Tempered steel
4	Coupling		Steel
5	Bearing and end caps	Ø 10 ... 25	Wrought aluminium alloy
		Ø 32 ... 50	Die-cast aluminium
6	Cylinder barrel	Ø 10 ... 25	High-alloy stainless steel
		Ø 32 ... 50	Wrought aluminium alloy
7	Piston rod	Ø 10 ... 25	High-alloy stainless steel
		Ø 32 ... 50	High-alloy steel
-	Seals		Polyurethane, nitrile rubber

Linear units SLE

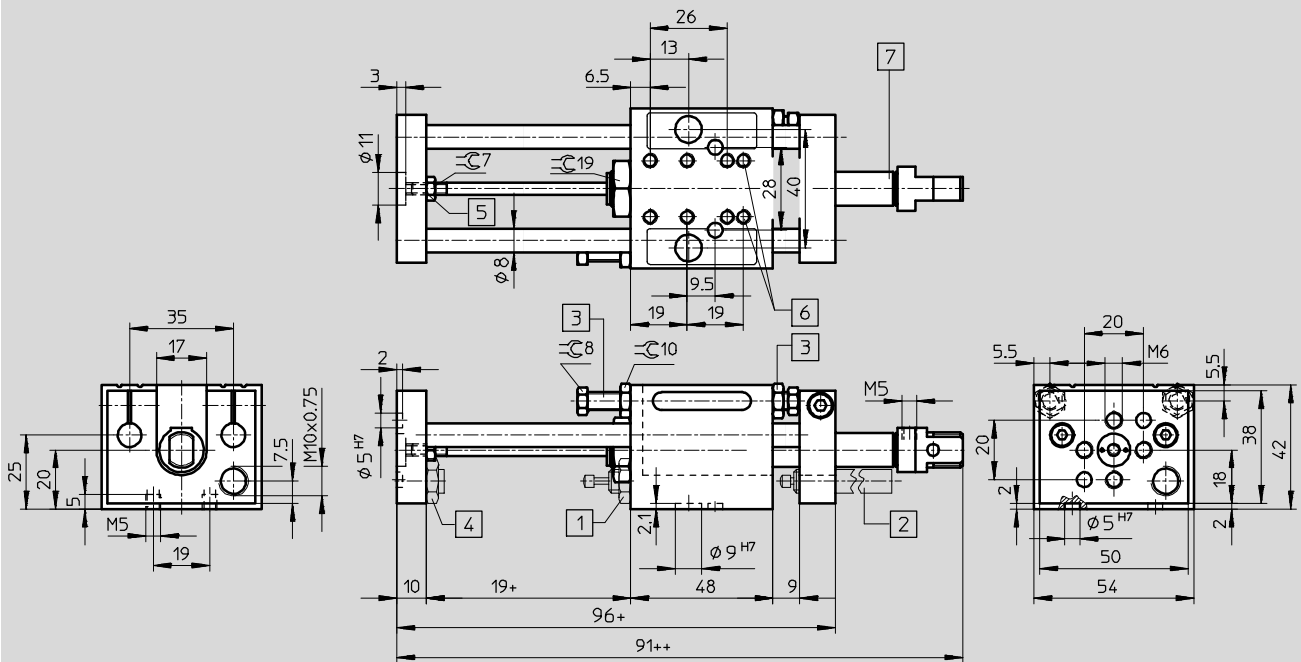
Technical data

FESTO

Dimensions

Piston \varnothing 10 mm

Download CAD data → www.festo.com



- 1 Self-adjusting shock absorber, for front and rear mounting
- 2 Adjustable shock absorber, can only be mounted to yoke at rear

- 3 Switching stop with proximity sensor, PNP/NPN, for front and rear mounting
- 4 Shock absorber stop

- 5 Compensating coupling for radial and axial alignment
- 6 Mounting thread
- 7 Drive DSNU

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

Linear units SLE

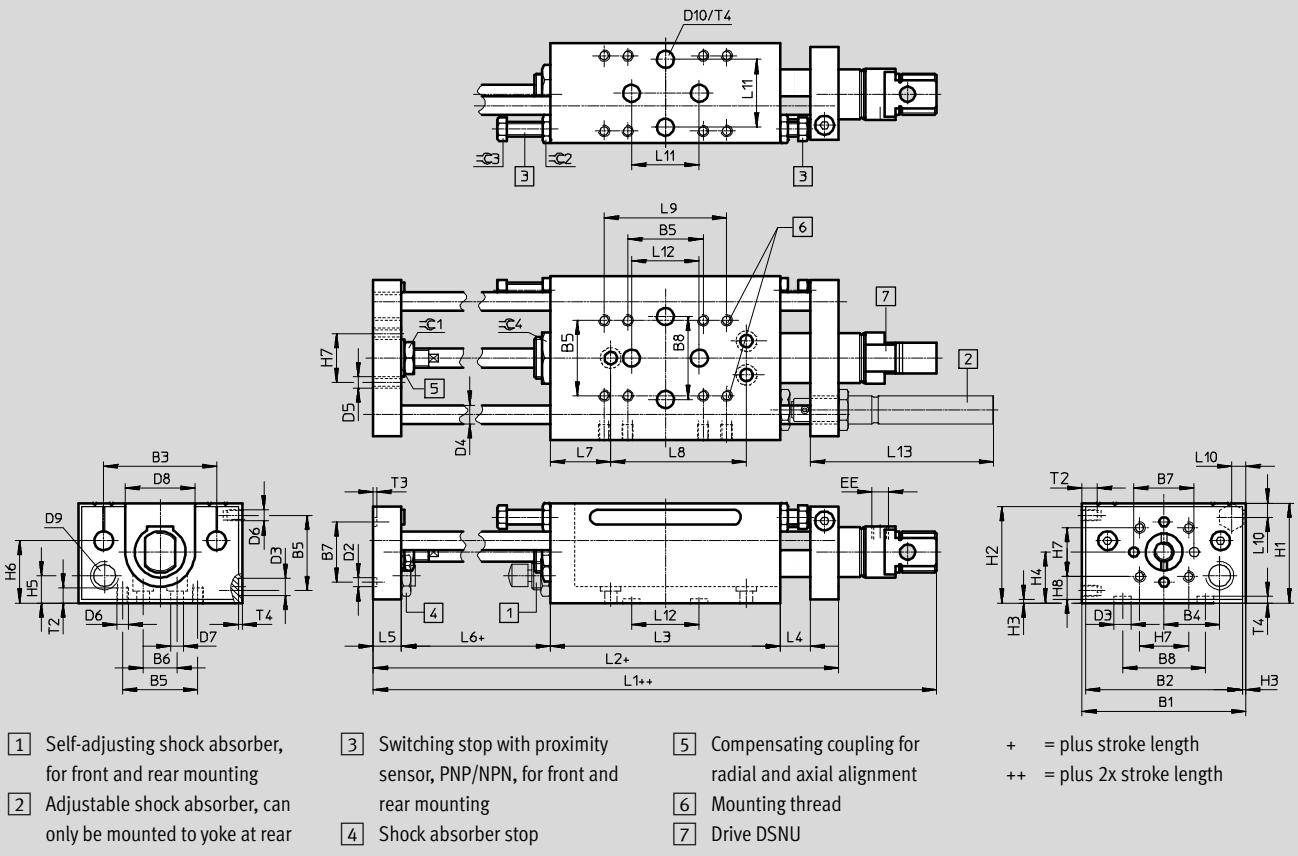
Technical data



Dimensions

Piston \varnothing 16 ... 25 mm

Download CAD data → www.festo.com



\varnothing	B1	B2	B3	B4	B5	B6	B7	B8	D2	D3	D4	D5	D6	D7	D8
[mm]			± 0.03					± 0.03	\varnothing H7	\varnothing H7	\varnothing h6			\varnothing	
16	64	60	44	22	26	14	28	40	5	9	8	M6	M5	5.5	26
20	87	83	60	29.5	40	18	32	40	5	9	10	M6	M6	6.6	37
25	87	83	60	29.5	40	18	32	40	5	9	10	M6	M6	6.6	37

\varnothing	D9	D10	EE	H1	H2	H3	H4	H5	H6	H7	H8	L1	L2	L3	L4
[mm]		\varnothing H7							± 0.1						
16	M10x0.75	5	M5	43	39	2	22	10	25	19	10.5	116	143	86	12
20	M15x1	9	G1/8	53	49	2	27	14.5	33	26	12	145.5	197	122	16
25	M15x1	9	G1/8	53	49	2	27	14.5	33	26	12	149	197	122	16

\varnothing	L5	L6	L7	L8	L9	L10	L11	L12	L13	T2	T3	T4	$\approx C1$	$\approx C2$	$\approx C3$	$\approx C4$
[mm]				± 0.2			± 0.03	± 0.03								
16	12	21	21	54	40	6	-	32	-	7	2	2	10	10	8	19
20	15	29	32	72	65	7.5	40	40	97	8	2	2.1 ^{+0.2}	13	13	11	27
25	15	29	32	72	65	7.5	40	40	97	8	2	2.1 ^{+0.2}	17	13	11	27

Linear units SLE

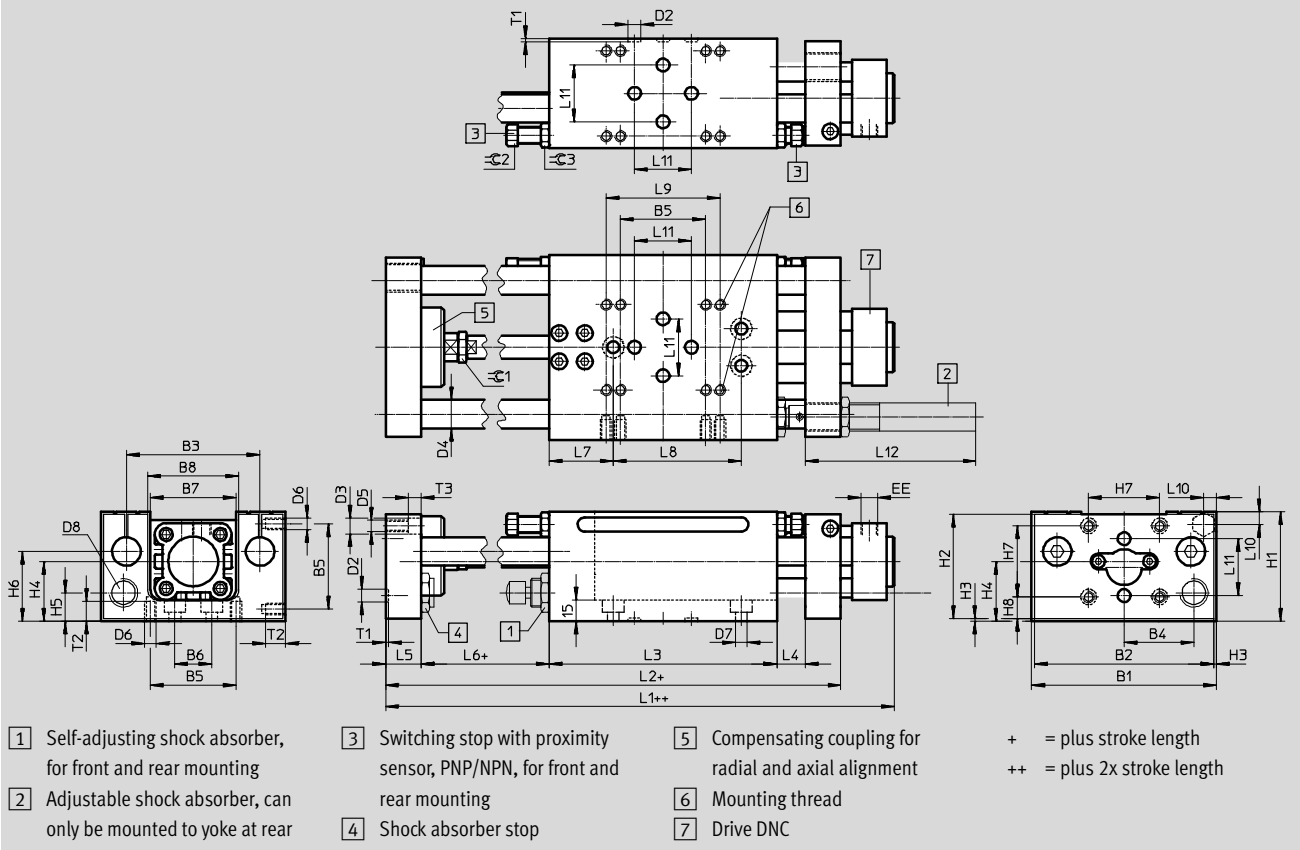
Technical data

FESTO

Dimensions

Piston \varnothing 32 ... 50 mm

Download CAD data → www.festo.com



\varnothing	B1	B2	B3	B4	B5	B6	B7	B8	D2	D3	D4	D5	D6	D7
[mm]			± 0.03						\varnothing H7	\varnothing	\varnothing h6			\varnothing
32	115	111	84	41.5	50	26	52	55	9	11	16	M8	M6	8.4
40	130	126	94	49	60	26	60	64	9	11	20	M8	M8	8.4
50	154	150	113	58	60	30	72	76	9	15	25	M10	M8	8.4

\varnothing	D8	EE	H1	H2	H3	H4	H5	H6	H7	H8	L1	L2
[mm]								± 0.1				
32	M20x1.25	G1/8	70	66	2	40.5	17	43	40	18.5	172	250
40	M20x1.25	G1/4	77	73	2	46	20	49	50	15	196	260
50	M24x1.25	G1/4	90	86	2	53.5	19	52	60	16.5	213	305

\varnothing	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	T1	T2	T3	$\varnothing C1$	$\varnothing C2$	$\varnothing C3$
[mm]									± 0.03	max.	+0.2					
32	160	20	20	30	45	90	75	9	40	115	2.1	10	7.3	17	13	15
40	160	20	25	30	45	90	80	9	40	115	2.1	14	9	19	13	15
50	192	25	25	38	66	90	80	10	40	138	2.1	14	11	24	13	15

Linear units SLE

Ordering data – Modular products



Ordering table											
Size	10	16	20	25	32	40	50	Condi- tions	Code	Enter code	
M Module No.	150088	150090	150091	150092	150093	150094	150921				
Drive function	Linear unit								SLE	SLE	
Size [mm]	10	16	20	25	32	40	50		-...		
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320	10 ... 500					-...		
Guide	Via ball bearings								-KF	-KF	
Position sensing	For proximity sensing								-A	-A	
Basic unit	Linear unit with pneumatic drive								-G	-G	
O Shock absorber	at front	Self-adjusting shock absorber, with stop at front								-CV	
	at rear	Self-adjusting shock absorber, with stop at rear								-CH	
		-	-	Adjustable shock absorber, with stop at rear					-YH		
Sensor (bonded)	at front	Inductive sensor with 2.5 m cable, PNP, with stop sleeve at front								-PV	
		Inductive sensor with 2.5 m cable, NPN, with stop sleeve at front								-NV	
	at rear	Inductive sensor with 2.5 m cable, PNP, with stop sleeve at rear								-PH	
		Inductive sensor with 2.5 m cable, NPN, with stop sleeve at rear								-NH	

Transfer order code

	SLE	-		-		-	KF	-	A	-	G	-		-		-	
--	------------	---	--	---	--	---	-----------	---	----------	---	----------	---	--	---	--	---	--

Linear units SLE

Ordering data – Modular products, package solution

Ordering table										
Size	10	16	20	25	32	40	50	Condi- tions	Code	Enter code
M Module No.	150088	150090	150091	150092	150093	150094	150921			
Drive function	Linear unit								SLE	SLE
Size [mm]	10	16	20	25	32	40	50		-...	
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320	10 ... 500					-...	
Guide	Via ball bearings								-KF	-KF
Position sensing	For proximity sensing								-A	-A
Standard unit	Package solution S = G-CV-CH-PV-PH								-S	-S

Transfer order code

-
 -
 -

 -

 -

Linear units SLE

Accessories

FESTO

Shock absorber kit

SLE-...-YSR-C, self-adjusting
(order code CV, CH)

Material:

YSR-8-8-C: Nickel-plated brass
YSR-12-12-C, YSR-16-20-C,
YSR-20-25-C: Galvanised steel
Free of copper, PTFE and silicone



Ordering data			
For Ø [mm]	Including shock absorber	Part No.	Type
10	YSR-8-8-C	116246	SLE-10-YSR-C
16	YSR-8-8-C	116247	SLE-16-YSR-C
20, 25	YSR-12-12-C	116248	SLE-20/25-YSR-C
32	YSR-16-20-C	116249	SLE-32-YSR-C
40	YSR-16-20-C	116250	SLE-40-YSR-C
50	YSR-20-25-C	118698	SLE-50-YSR-C

Shock absorber kit

SLZ-...-KF-A, adjustable
(order code YV, YH)

Material:

Galvanised steel



Ordering data			
For Ø [mm]	Including shock absorber	Part No.	Type
20, 25	DYSR-12-12-Y5	114032	SLZ-25-KF-A
32, 40	DYSR-16-20-Y5	114033	SLZ-32-KF-A
50	DYSR-20-25-Y5	114034	SLZ-50-KF-A

Switching stop SL-...-SIE-PS

(order code PV, PH)

Kit with inductive proximity sensor
PNP

Switching stop SL-...-SIE-NS

(order code NV, NH)

Kit with inductive proximity sensor
NPN





Ordering data				
For Ø [mm]	Switch output	Including proximity sensor	Part No.	Type
10, 16	PNP	SIEN-4B-PS-K-L	116251	SL-10/16-SIE-PS
	NPN	SIEN-4B-NS-K-L	116252	SL-10/16-SIE-NS
20, 25	PNP	SIEN-4B-PS-K-L	116253	SL-20/25-SIE-PS
	NPN	SIEN-4B-NS-K-L	116254	SL-20/25-SIE-NS
32, 40, 50	PNP	SIEN-6,5B-PS-K-L	117525	SL-32/50-SIE-PS
	NPN	SIEN-6,5B-NS-K-L	117526	SL-32/50-SIE-NS

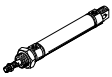
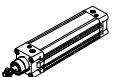
Linear units SLE


Accessories


FESTO


Ordering data – Accessories					
	For Ø [mm]	Material	Part No.	Type	PU ¹⁾
Centring pin ZBS Technical data → Internet: zbs					
	10 ... 20	Stainless steel Free of copper, PTFE and silicone	150928	ZBS-5	10
Centring sleeve ZBH Technical data → Internet: zbh					
	25 ... 50	Stainless steel Free of copper, PTFE and silicone	150927	ZBH-9	10

1) Packaging unit quantity

Ordering data – Standard cylinders				Technical data → Internet: standard cylinder			
Designation	For Ø	Part No.	Type	Designation	For Ø	Part No.	Type
Standard cylinder DSNU				Standard cylinder DNC			
	10	14325	DSNU-10-...-P-A		32	163304	DNC-32-...-PPV-A
	16	14320	DSNU-16-...-PPV-A		40	163336	DNC-40-...-PPV-A
	20	14321	DSNU-20-...-PPV-A		50	163368	DNC-50-...-PPV-A
	25	14322	DSNU-25-...-PPV-A				

Ordering data – Proximity sensors, round design, magneto-resistive							Technical data → Internet: smto	
	Mounting	Switch output	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
			Cable	Plug M8				
Normally open contact								
	Via accessories	PNP	3-wire	–	2.5	In-line	152836	SMTO-4U-PS-K-LED-24
			–	3-pin	–	–	In-line	152742
		NPN	3-wire	–	2.5	In-line	152837	SMTO-4U-NS-K-LED-24
			–	3-pin	–	–	In-line	152743

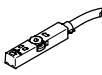
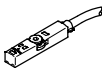
Ordering data – Proximity sensors, round design, magnetic reed						Technical data → Internet: smeo	
	Mounting	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8				
Normally open contact							
	Via accessories	3-wire	–	2.5	In-line	36198	SMEO-4U-K-LED-24
			–	–	5	In-line	175401
		–	–	3-pin	–	In-line	151526

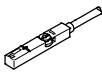


Ordering data – Mounting kits for proximity sensors SMEO/SMTO-4U			Technical data → Internet: smbr	
	For Ø	Part No.	Type	
	10	19273	SMBR-10	
	16	19275	SMBR-16	
	20	19276	SMBR-20	
	25	19277	SMBR-25	


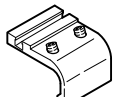
Linear units SLE

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	543862	SME-8M-DS-24V-K-2,5-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
			Plug M8x1, 3-pin	0.3	543861	SME-8M-DS-24V-K-0,3-M8D
	Insertable 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
N/C contact						
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160251	SME-8-O-K-LED-24


Ordering data – Mounting kits for proximity sensors SME/SMT-8						Technical data → Internet: smb	
	For Ø	Part No.	Type		For Ø	Part No.	Type
	20	175095	SMBR-8-20		32	175705	SMB-8-FENG-32/40
	25	175096	SMBR-8-25		40	175706	SMB-8-FENG-50/63
					50		

Linear units SLE

Accessories



Ordering data – Connecting cables				Technical data → Internet: nebu		
	Electrical connection, left		Electrical connection, right	Cable length [m]	Part No.	Type
	Thread	For tubing OD				
	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 – One-way flow control valves				Technical data → Internet: grla	
	Connection		Material	Part No.	Type
	Thread	For tubing OD			
	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
	G1/4	6		193146	GRLA-1/4-QS-6-D
		8		193147	GRLA-1/4-QS-8-D
		10		193148	GRLA-1/4-QS-10-D