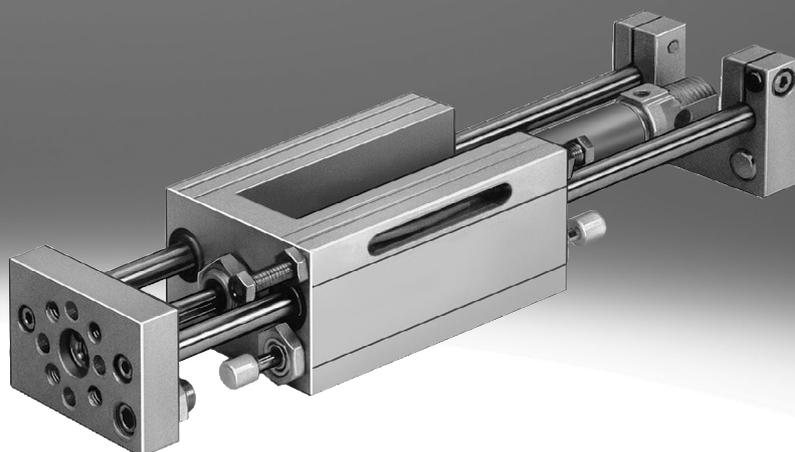


Linear drive units SLE

FESTO



Key features

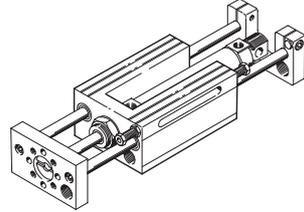
Version

The linear drive unit SLE is a combination of a guide unit and a standards-based cylinder. The drive moves a flange plate

The modular system enables customised end-position cushioning and end-position sensing solutions.

Basic unit

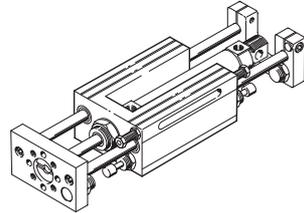
SLE-...-G



Standard unit

SLE-...-S

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



Type codes

001	Series
SLE	Linear drive unit

002	Size
10	10
16	16
20	20
25	25
32	32
40	40
50	50

003	Stroke
...	10 ... 500

004	Guide
KF	Recirculating ball bearing guide

005	Position sensing
A	For proximity sensor

006	Solution package
S	Solution package=G - CV - CH - PV - PH

007	Basic unit
G	Linear drive unit with pneumatic drive

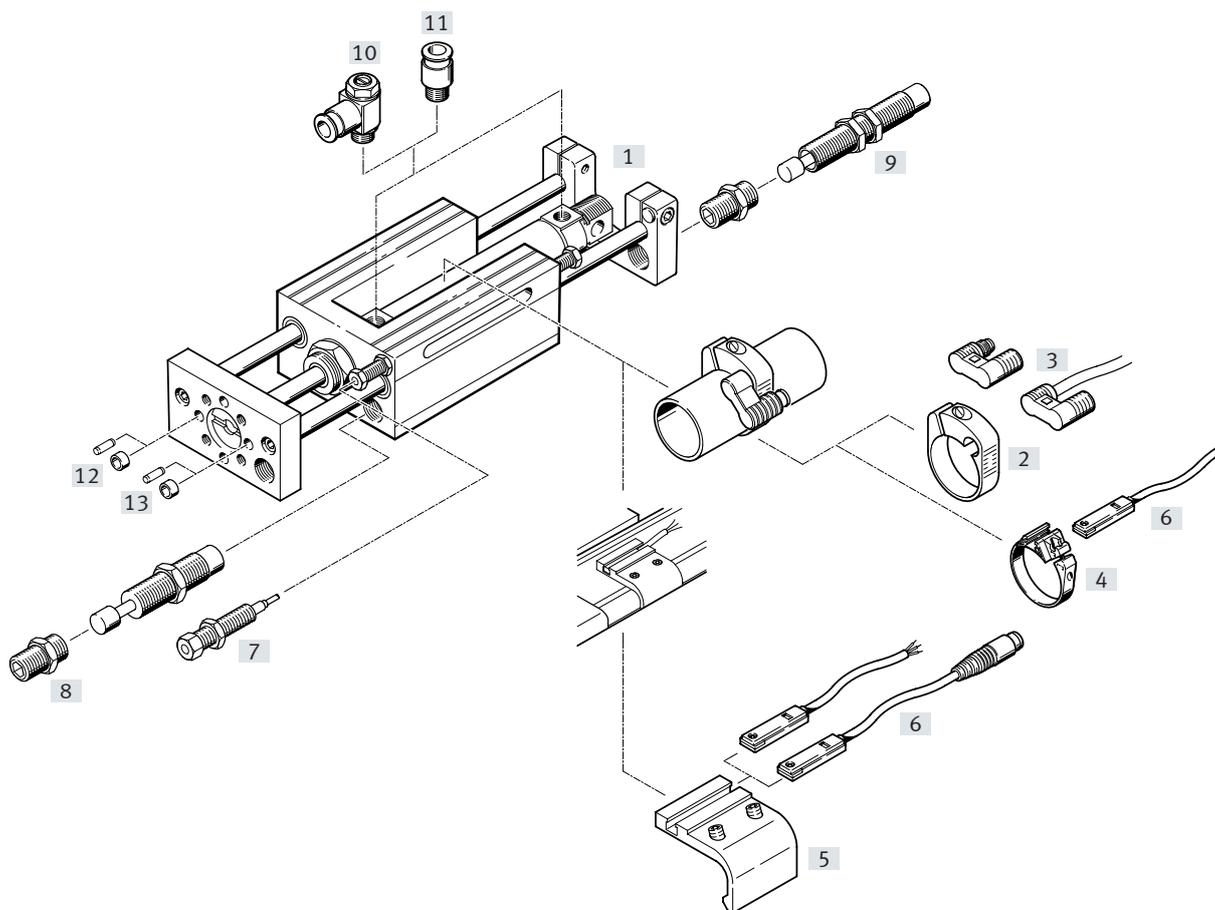
008	Shock absorber at front
	None
CV	Shock absorber, self-adjusting, with stop, at front
YV	Shock absorber, adjustable, with stop at front

009	Shock absorber at rear
	None
CH	Shock absorber, self-adjusting, with stop at rear
YH	Shock absorber, adjustable, with stop at rear

010	Sensor at front
	None
PV	Inductive proximity sensor, PNP, cable 2.5 m, stop sleeve, at front
NV	Inductive proximity sensor, NPN, 2.5 m cable, stop sleeve, at front

011	Sensor at rear
	None
PH	Inductive proximity sensor, PNP, cable 2.5 m, stop sleeve, rear
NH	Inductive proximity sensor, NPN, cable 2.5 m, stop sleeve, at rear

Peripherals overview

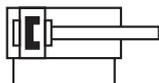


Peripherals overview

Accessories		Brief description	Piston ø 10 ... 20 mm	Piston ø 25 mm	Piston ø 32 ... 50 mm	→ Page/Internet
[1]	Standards-based cylinder DSNU	Drive for the flange plate	■	■	–	18
	Standards-based cylinder DNC	Drive for the flange plate	–	–	■	18
[2]	Mounting kit SMBR	To be fitted on the standards-based cylinder DSNU	■	■	–	18
[3]	Proximity switch SMEO/SMT0-4U	Can be integrated in mounting kit SMBR	■	■	–	18
[4]	Mounting kit SMBR-8	To be fitted on the standards-based cylinder DSNU	■ ø 20	■	–	19
[5]	Mounting kit SMB-8-FENG	To be fitted on the standards-based cylinder DNC	–	–	■	19
[6]	Proximity switch SME/SMT-8	Can be integrated in mounting kit SMBR- 8 or SMB-8-FENG	■ ø 20	■	■	19
[7]	Switching stop with proximity switch SL-...-SIE-PS/SL-...-SIE-NS	Can be integrated in end plate	■	■	■	17
[8]	Shock absorber kit, self-adjusting SLE-...-YSR-C	Higher speeds can be decelerated using shock absorbers	■	■	■	17
[9]	Shock absorber kit, adjustable SLZ-...-KF-A	Higher speeds can be decelerated using shock absorbers	■ ø 20	■	■	17
[10]	One-way flow control valve GRLA	For regulating speed	■	■	■	20
[11]	Push-in fitting QS	For connecting tubing with standard O.D.	■	■	■	qs
[12]	Centring pin ZBS	For centring loads and attachments	■	–	–	18
[13]	Centring sleeve ZBH	For centring loads and attachments	–	■	■	18

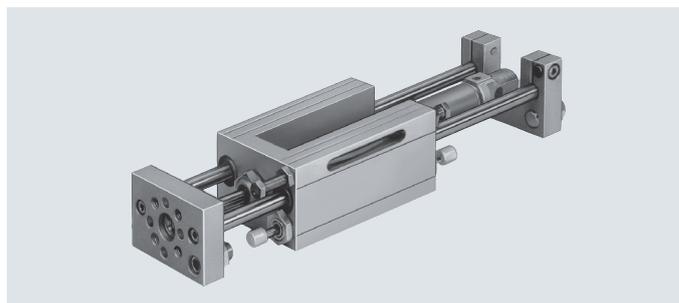
Datasheet

Function



 www.festo.com

 Repair service



-  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	
Operating mode	Double-acting						
Design	Linear drive unit						
	Standards-based cylinder						
End-position cushioning via shock absorber	Self-adjusting at both ends						
	-		Adjustable at rear				
Position sensing	Via proximity switch						
Type of mounting	Via through-hole						
	With female thread						
Mounting position	Any						
Protection against rotation/guide	Guide rods with yoke/ball bearing guide						

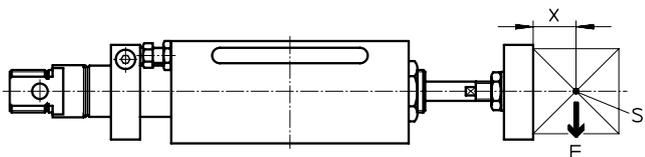
Operating and environmental conditions							
Piston \varnothing	10	16	20	25	32	40	50
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]						
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)						
Operating pressure	[MPa]	0.25 ... 1			0.15 ... 1.2		
	[psi]	35 ... 145			21 ... 180		
	[bar]	2.5 ... 10			1.5 ... 12		
	Ambient temperature ¹⁾ [°C]	-20 ... +80					

1) Note operating range of proximity switches.

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

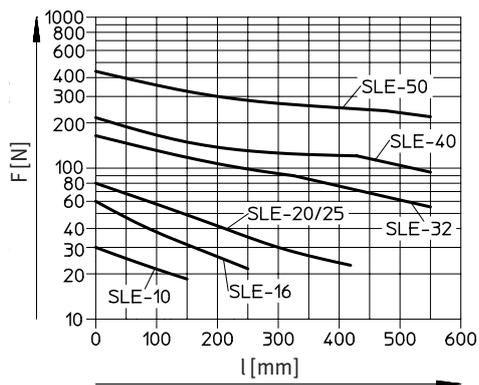
Datasheet

Permissible dynamic load

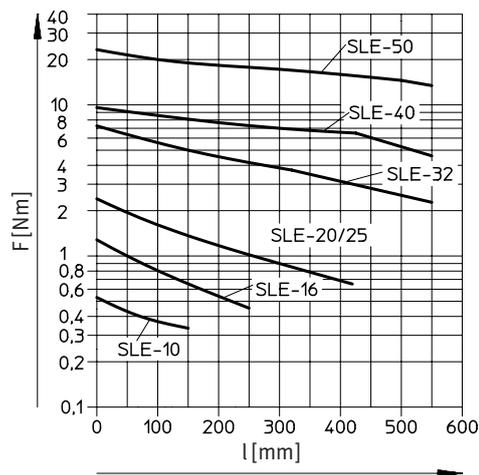


S = Centre of gravity of the payload
 X = 25 mm
 F = Payload

Permissible payload F as a function of stroke l



Permissible torque M as a function of stroke l

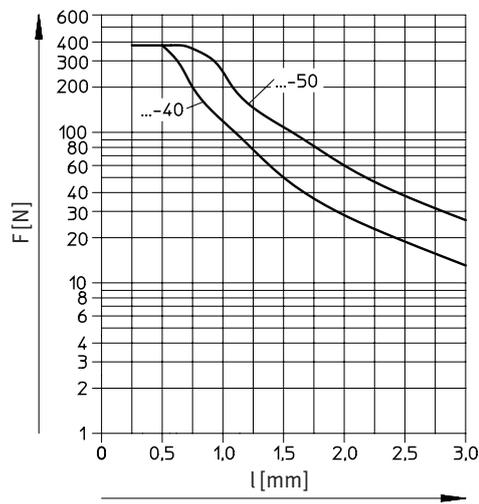
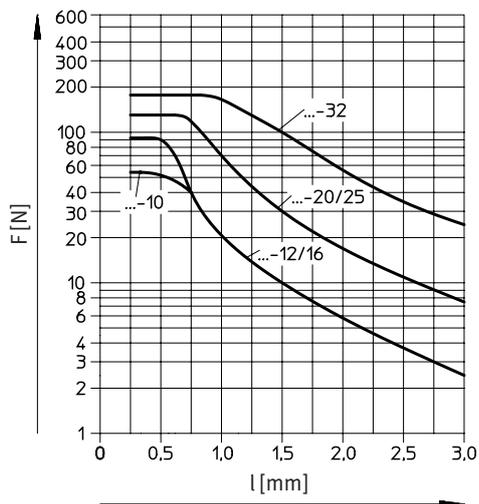


Permissible shock absorber load F as a function of the impact velocity v

With horizontal installation

$F \geq m_L \times g$

$g = 9.81 \text{ m/s}^2$
 $m_L = \text{load [kg]}$



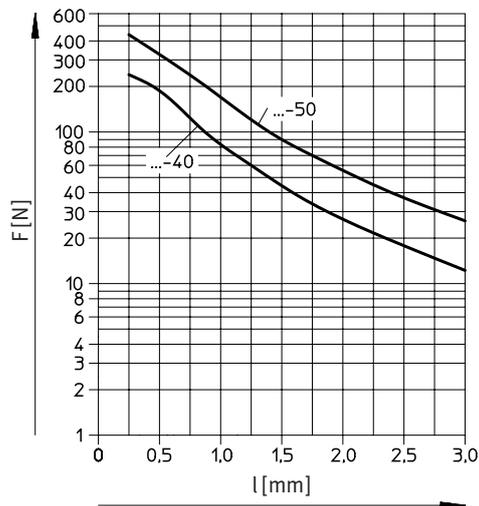
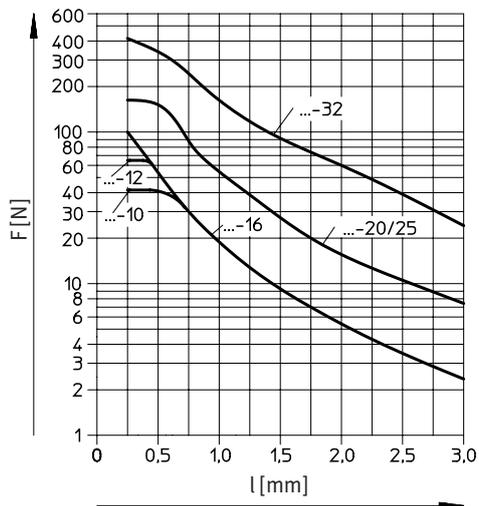
Datasheet

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

With vertical installation

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

- $g = 9.81 \text{ m/s}^2$
- m_E = moving mass
(dead weight) [kg]
- m_l = load [kg]

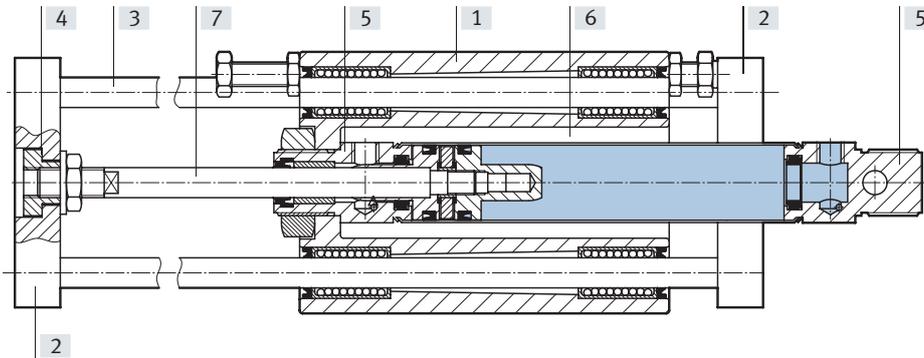


Weight [g]							
Piston \varnothing	10	16	20	25	32	40	50
Product weight with 0 mm stroke	560	913	1882	1942	4300	6175	9200
Additional weight per 10 mm stroke	10	13	19	23	57	85	125
Moving mass with 0 mm stroke	160	230	500	500	1500	2200	3600
Additional mass per 10 mm stroke	8	8	12	12	31	49	77

Datasheet

Materials

Sectional view



Linear drive unit

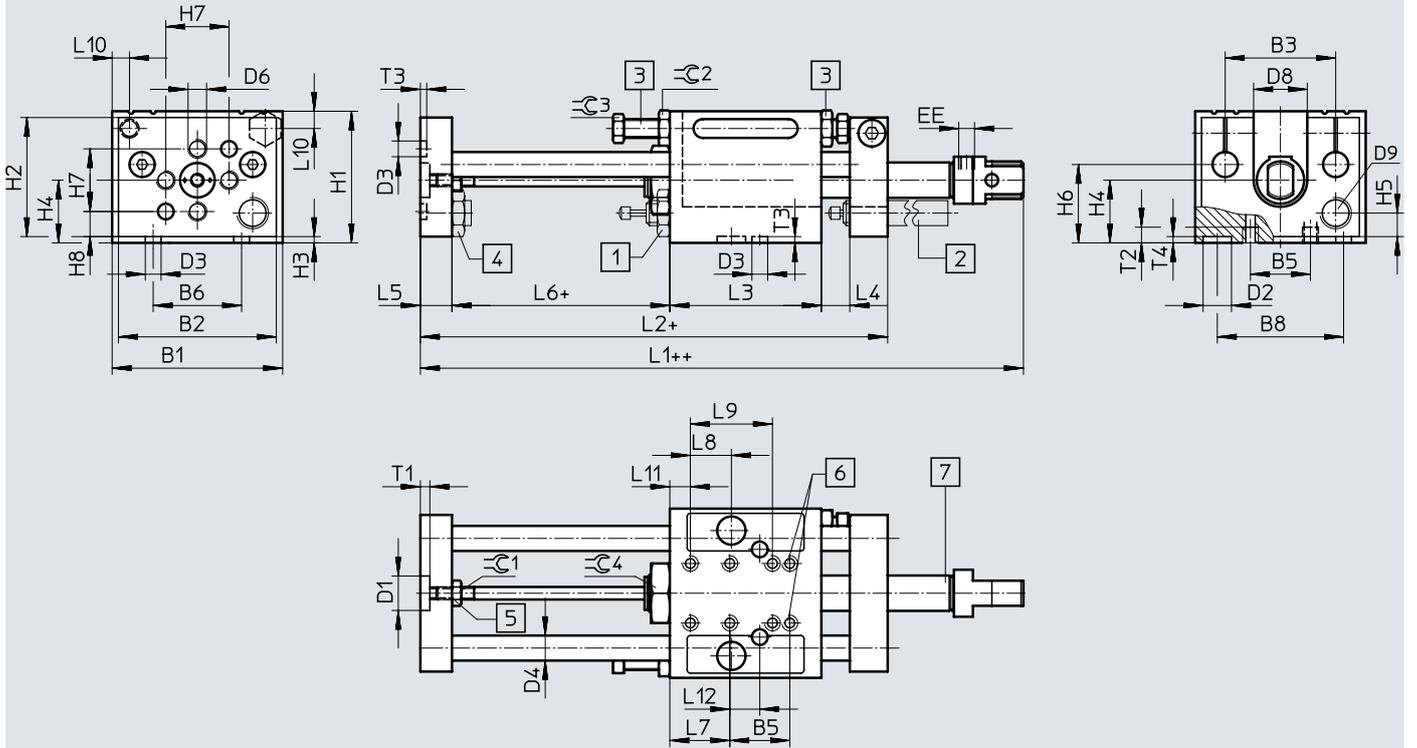
[1]	Housing	$\varnothing 10 \dots 25$ $\varnothing 32 \dots 50$	Die-cast aluminium Wrought aluminium alloy
[2]	Yoke/end plate		Aluminium
[3]	Guide rod		Quenched and tempered steel
[4]	Coupling		Steel
[5]	Bearing and end caps	$\varnothing 10 \dots 25$ $\varnothing 32 \dots 50$	Wrought aluminium alloy Die-cast aluminium
[6]	Cylinder barrel	$\varnothing 10 \dots 25$ $\varnothing 32 \dots 50$	High-alloy stainless steel Wrought aluminium alloy
[7]	Piston rod	$\varnothing 10 \dots 25$ $\varnothing 32 \dots 50$	High-alloy stainless steel High-alloy steel
-	Seals		Polyurethane, nitrile rubber

Datasheet

Dimensions

Download CAD data → www.festo.com

Piston \varnothing 10 mm



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

- [3] Switching stop with proximity switch, PNP/NPN, for front and rear mounting
- [4] Stop for shock absorber

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

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

Datasheet

∅	B1	B2	B3	B5	B6	B8	D1	D2	D3	D4	D5	D6	D8	D9
[mm]			±0.03		±0.03	±0.03	∅	∅ H7	∅ H7	∅			∅	
10	54	50	35	19	28	40	11	9	5	8	M5	M6	17	M10x0.75

∅	EE	H1	H2	H3	H4	H5	H6	H7 ¹⁾	H8	L1	L2	L3	L4	L5
[mm]								±0.03						
10	M5	42	38	2	20	7.5	25	20	8	91	96	48	9	10

∅	L6	L7	L8	L9	L10	L11	L12	T1	T2	T3	T4	≈G1	≈G2	≈G3	≈G4
[mm]											+0.2				
10	19	19	13	26	5.5	6.5	9.5	3	5	2	2.1	7	10	8	19

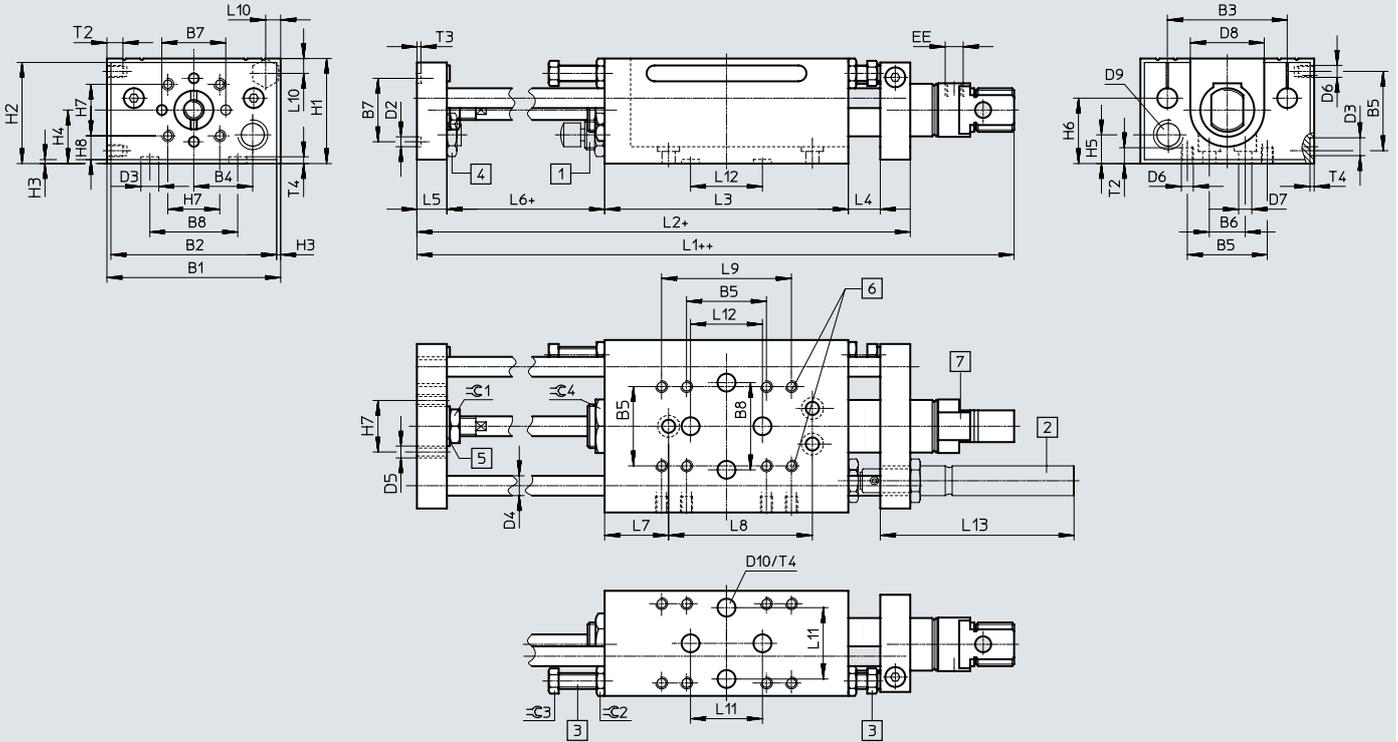
1) Tolerance for centring hole ±0.03 mm

Datasheet

Dimensions

Download CAD data → www.festo.com

Piston \varnothing 16 ... 25 mm



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

- [3] Switching stop with proximity switch, PNP/NPN, for front and rear mounting
- [4] Stop for shock absorber

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

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

Datasheet

∅ [mm]	B1	B2	B3 ±0.03	B4	B5	B6	B7	B8 ±0.03	D2 ∅ H7	D3 ∅ H7	D4 ∅ h6	D5	D6	D7 ∅	D8
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

∅ [mm]	D9	D10 ∅ H7	EE	H1	H2	H3	H4	H5	H6 ±0.1	H7	H8	L1	L2	L3	L4
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

∅ [mm]	L5	L6	L7	L8 ±0.2	L9	L10	L11 ±0.03	L12 ±0.03	L13	T2	T3	T4	≈C1	≈C2	≈C3	≈C4
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

Datasheet

∅ [mm]	B1	B2	B3 ±0.03	B4	B5	B6	B7	B8	D2 ∅ H7	D3 ∅	D4 ∅ h6	D5	D6	D7 ∅
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

∅ [mm]	D8	EE	H1	H2	H3	H4	H5	H6 ±0.1	H7	H8	L1	L2
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

∅ [mm]	L3	L4	L5	L6	L7	L8	L9	L10	L11 ±0.03	L12 max.	T1 +0.2	T2	T3	≈G1	≈G2	≈G3
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

Ordering data – Modular product system

Ordering table											
Size	10	16	20	25	32	40	50	Conditions	Code	Enter code	
Module no.	150088	150090	150091	150092	150093	150094	150921				
Function	Linear drive unit								SLE	SLE	
Size [mm]	10	16	20	25	32	40	50		-...		
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320		10 ... 500				-...		
Guide	With linear ball bearings								-KF	-KF	
Position sensing	Via proximity switch								-A	-A	
Basic unit	Linear drive unit with pneumatic drive								-G	-G	
Shock absorber	Front	Self-adjusting shock absorber, with stop at front								-CV	
	Rear	Self-adjusting shock absorber, with stop at rear								-CH	
		-	-	Adjustable shock absorber, with stop at rear					-YH		
Sensor (bonded)	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	
	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	

Ordering data – Modular products, package solution

Ordering table										
Size	10	16	20	25	32	40	50	Conditions	Code	Enter code
Module no.	150088	150090	150091	150092	150093	150094	150921			
Function	Linear drive unit								SLE	SLE
Size [mm]	10	16	20	25	32	40	50		-...	
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320		10 ... 500				-...	
Guide	With linear ball bearings								-KF	-KF
Position sensing	Via proximity switch								-A	-A
Standard unit	Package solution S = G-CV-CH-PV-PH								-S	-S

Accessories

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



Ordering data			
For \varnothing [mm]	Includes shock absorber → www.festo.com	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 \varnothing [mm]	Includes shock absorber → www.festo.com	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 switch
PNP



Switching stop SL-...-SIE-NS

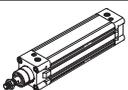
(Order code: NV, NH)
Kit with inductive proximity switch
NPN

Ordering data				
For \varnothing [mm]	Switching output	Includes proximity switch → www.festo.com	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

Accessories

Ordering data – Accessories							
	For ø [mm]	Material	Part no.	Type	PU ¹⁾		
Centring pin ZBS					Datasheets → Internet: zbs		
	10 ... 20	Stainless steel	150928	ZBS-5	10		
Centring sleeve ZBH					Datasheets → Internet: zbh		
	25 ... 50	Stainless steel	8137184	ZBH-9-B	10		

1) Packaging unit

Ordering data – Standards-based cylinders				Datasheets → Internet: standards-based cylinder			
Designation	For ø	Part no.	Type	Designation	For ø	Part no.	Type
Standards-based cylinder DSNU				Standards-based 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 switches, round design, magneto-resistive								Datasheets → Internet: smto	
	Mounting	Switching output	Electrical connection		Cable length [m]	Outlet direction of connection	Part no.	Type	
			Cable	Plug M8					
N/O									
	With accessories	PNP	3-core	–	2.5	In-line	152836	SMTO-4U-PS-K-LED-24	
			–	3-pin	–	In-line	152742	SMTO-4U-PS-S-LED-24	
		NPN	3-core	–	2.5	In-line	152837	SMTO-4U-NS-K-LED-24	
			–	3-pin	–	In-line	152743	SMTO-4U-NS-S-LED-24	

Ordering data – Proximity switches, round design, magnetic reed								Datasheets → Internet: smeo	
	Mounting	Electrical connection		Cable length [m]	Outlet direction of connection	Part no.	Type		
		Cable	Plug M8						
N/O									
	With accessories	3-core	–	2.5	In-line	36198	SMEO-4U-K-LED-24		
			5	In-line	175401	SMEO-4U-K5-LED-24			
		–	3-pin	–	In-line	151526	SMEO-4U-S-LED-24-B		

Ordering data – Mounting kit for proximity switches SMEO/SMTO-4U				Datasheets → Internet: smbr	
Designation	For ø	Part no.	Type		
	10	19273	SMBR-10		
	16	19275	SMBR-16		
	20	19276	SMBR-20		
	25	19277	SMBR-25		

Accessories

Ordering data – Proximity switch for T-slot, magneto-resistive						Datasheets → Internet: smt
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type

N/O						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-core	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
			1x M12 plug, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0.3-M12
		NPN	Cable, 3-core	2.5	574338	SMT-8M-A-NS-24V-E-2.5-OE
			1x M8 plug, 3-pin	0.3	574339	SMT-8M-A-NS-24V-E-0.3-M8D

N/C						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-core	7.5	574340	SMT-8M-A-PO-24V-E-7.5-OE

Ordering data – Proximity switches for T-slot, magnetic reed						Datasheets → Internet: sme
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type

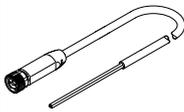
N/O							
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-core	2.5	543862	SME-8M-DS-24V-K-2.5-OE	
				5.0	543863	SME-8M-DS-24V-K-5.0-OE	
			Plug M8x1, 3-pin	Cable, 2-core	2.5	543872	SME-8M-ZS-24V-K-2.5-OE
				Plug M8x1, 3-pin	0.3	543861	SME-8M-DS-24V-K-0.3-M8D
				Cable, 3-core	2.5	150855	SME-8-K-LED-24

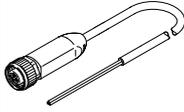
N/C						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-core	7.5	160251	SME-8-O-K-LED-24

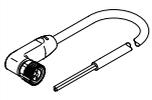
Ordering data – Mounting kits for proximity switches SME/SMT-8				Datasheets → Internet: smb			
Designation	For ø	Part no.	Type	Designation	For ø	Part no.	Type

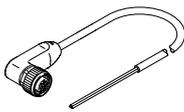
	20	175095	SMBR-8-20		32	175705	SMB-8-FENG-32/40
	25	175096	SMBR-8-25		40		
						50	175706

Accessories

Connecting cables NEBA, straight, M8 connection						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	8078224	NEBA-M8G3-U-5-N-LE3

Connecting cables NEBA, straight, M12 connection						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078236	NEBA-M12G5-U-2.5-N-LE3
				5 m	8078237	NEBA-M12G5-U-5-N-LE3

Connecting cables NEBA, angled, M8 connection						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	8078230	NEBA-M8W3-U-2.5-N-LE3
				5 m	8078231	NEBA-M8W3-U-5-N-LE3

Connecting cables NEBA, angled, M12 connection						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	Open end	3	2.5 m	8078245	NEBA-M12W5-U-2.5-N-LE3
				5 m	8078246	NEBA-M12W5-U-5-N-LE3

Ordering data – One-way flow control valves					Datasheets → Internet: grla	
	Connection		Material	Part no.	Type	
	Thread	For tubing O.D.				
	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	