

Linear drives SLM, with guided slide



# Linear drives SLM, with guided slide

Key features

FESTO

## Version

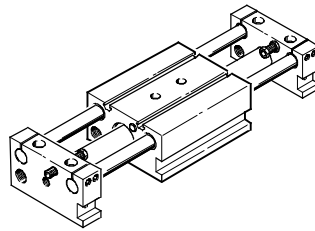
The linear drive SLM is a combination of a slide unit and a rodless linear drive. The drive moves the slide. The

transmission of movement is accomplished via a magnetic coupling. The modular system allows

for individualised end-position cushioning and end-position sensing solutions.

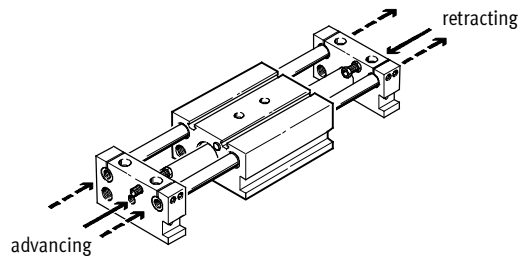
## Basic unit

### SLM-...-G



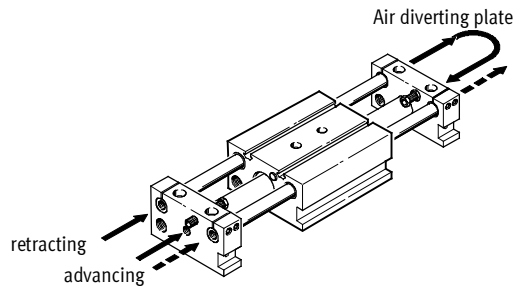
### SLM-...-GL

with hollow guide rods



### SLM-...-GU

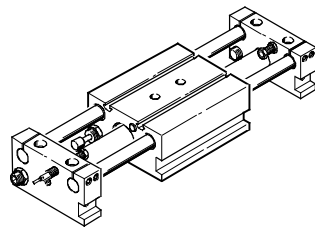
with hollow guide rods, air diverting plate and supply port on one side



## Standard unit

### SLM-...-S

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



# Linear drives SLM, with guided slide

Key features

## Multi-axis combinations

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

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

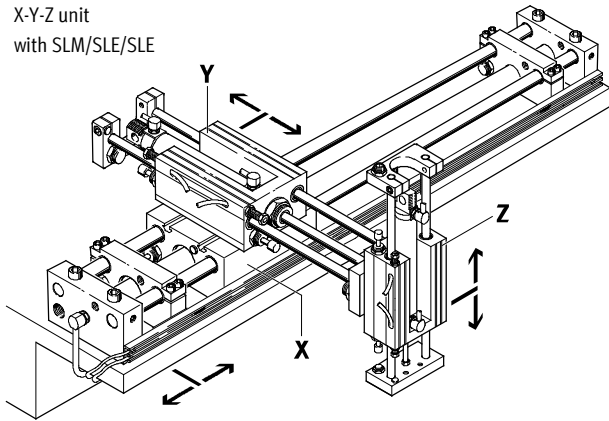
The units are bolted together directly for multi-axis operation.

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

Linear unit SLE

→ Internet: [sle](http://sle)

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

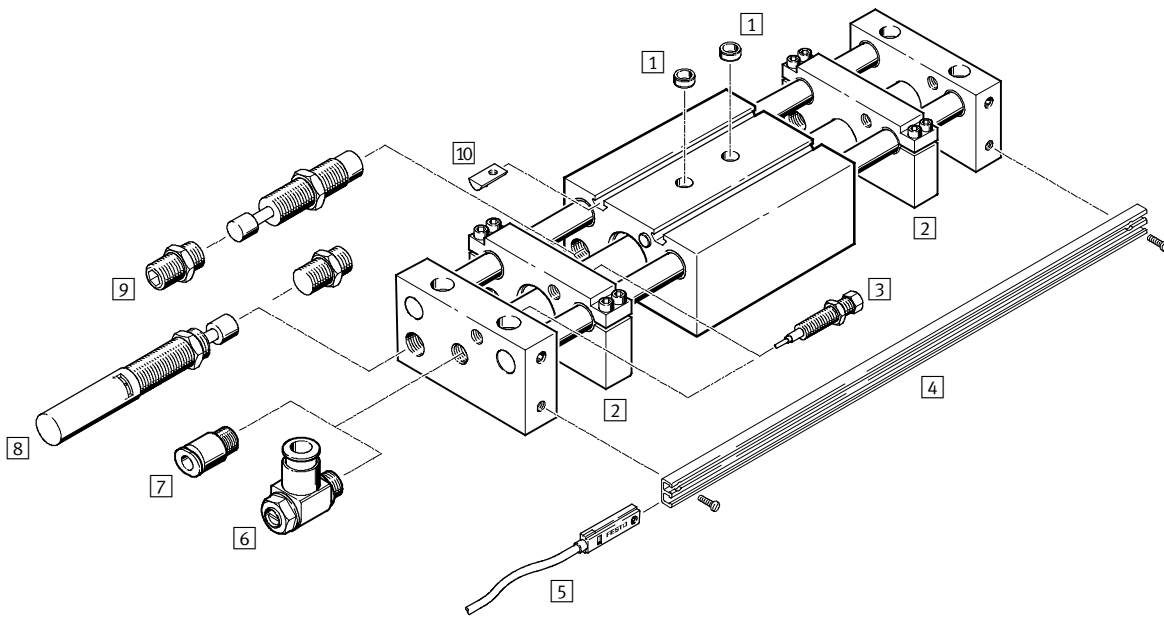


X	Y	Z
<b>2 axes</b>		
SLM-12	SLE-10	-
SLM-20	SLE-16	-
SLM-32	SLE-20 or SLE-25	-
SLM-40	SLE-32	-
<b>3 axes</b>		
SLM-20	SLE-16	SLE-10
SLM-32	SLE-20 or SLE-25	SLE-16
SLM-40	SLE-32	SLE-20 or SLE-25

# Linear drives SLM, with guided slide

Peripherals overview

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# Linear drives SLM, with guided slide

Peripherals overview

Accessories		
	Brief description	→ Page/Internet
1	Centring sleeve ZBH	For centring loads and attachments on the slide 16
2	Stop plate SLM-...-KF-A	For variable stroke adjustment 16
3	Switching stop with proximity sensor SL-...-SIE-PS/SL-...-SIE-NS	Can be integrated in the end or stop plate 15
4	Mounting rail SLZS/SLMS	For mounting proximity sensors SME/SMT-8 16
5	Proximity sensor SME/SMT-8	Can be integrated in the mounting rail SLZS/SLMS 16
6	One-way flow control valve GRLA	For speed regulation 17
7	Push-in fitting QS	For connecting compressed air tubing with standard O.D. quick star
8	Shock absorber kit, adjustable SLZ-...-KF-A	For slowing higher speeds to a stop 15
9	Shock absorber kit, self-adjusting SLZ-...-YSR-C	For slowing higher speeds to a stop 15
10	Slot nut NST	For mounting loads and attachments on the slide 16

# Linear drives SLM, with guided slide

Type code

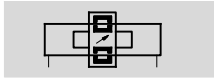
SLM - 25 - 125 - KF - A - G - CV - CH - PV - PH - HV - HH - E - 41

<b>Type</b>	
Double-acting	
SLM	Linear drive
<b>Piston Ø [mm]</b>	
25	
<b>Stroke [mm]</b>	
125	
<b>Guide</b>	
KF	Recirculating ball bearing guide
<b>Position sensing</b>	
A	For proximity sensing
<b>Version</b>	
Standard unit	
S	= G - CV - CH - PV - PH
Basic unit	
G	Pneumatic drive
GL	Pneumatic drive and hollow guide rods
GU	Pneumatic drive, hollow guide rods and air diverting plate
<b>Shock absorber kit at front</b>	
CV	Self-adjusting
YV	Adjustable
<b>Shock absorber kit at rear</b>	
CH	Self-adjusting
YH	Adjustable
<b>Switching stop at front</b>	
PV	With proximity sensor, PNP
NV	With proximity sensor, NPN
<b>Switching stop at rear</b>	
PH	With proximity sensor, PNP
NH	With proximity sensor, NPN
<b>Stroke adjustment at front</b>	
HV	Stop plate at front
<b>Stroke adjustment at rear</b>	
HH	Stop plate at rear
<b>Mounting rail</b>	
E	Mounting rail
<b>Accessories</b>	
...I	Slot nut, 1 ... 10 pieces

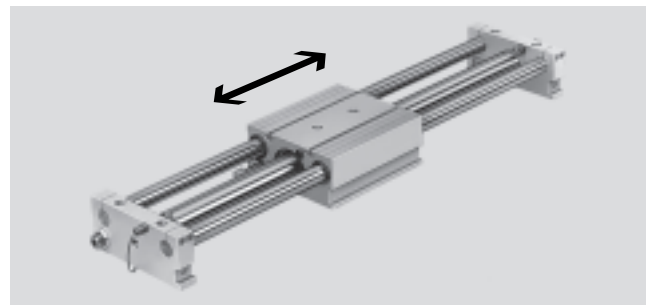
# Linear drives SLM, with guided slide



Technical data

Function



 www.festo.com



-  - Diameter  
12 ... 40 mm
-  - Stroke length  
10 ... 1500 mm

General technical data						
Piston Ø	12	16	20	25	32	40
Stroke [mm]	10 ... 500	10 ... 800	10 ... 1500			
Pneumatic connection	M5		G1/8		G1/4	
Mode of operation	Double-acting					
Constructional design	Slide unit					
	Rodless linear drive					
End-position cushioning via shock absorber	Self-adjusting at both ends					
	-	-	Adjustable at both ends			
Position sensing	For proximity sensing					
Type of mounting	Via through-holes					
	Via female thread					
Mounting position	Any					
Protection against torsion/guide	Guide rods with slide/ball bearing guide					

Operating and environmental conditions						
Piston Ø	12	16	20	25	32	40
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]					
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)					
Operating pressure [bar]	≤7					
Ambient temperature <sup>1)</sup> [°C]	-20 ... +60					

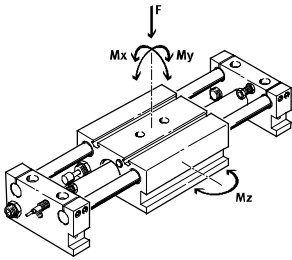
1) Note operating range of proximity sensors.

Forces [N]						
Piston Ø	12	16	20	25	32	40
Theoretical force at 6 bar, advancing	68	121	188	295	483	754
Theoretical force at 6 bar, retracting	68	121	188	295	483	754
Breakaway force of the magnetic coupling	100	160	270	400	680	1050

# Linear drives SLM, with guided slide

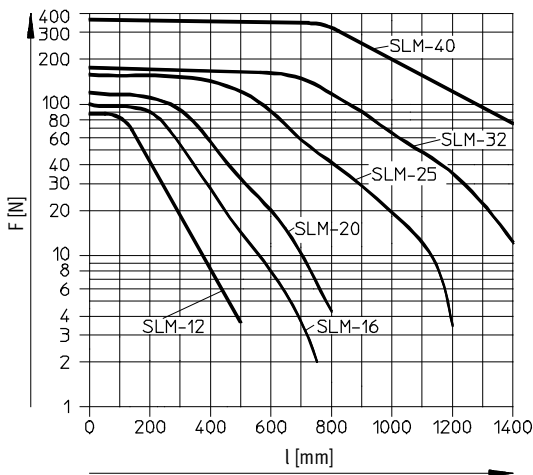
Technical data

## Permissible dynamic load

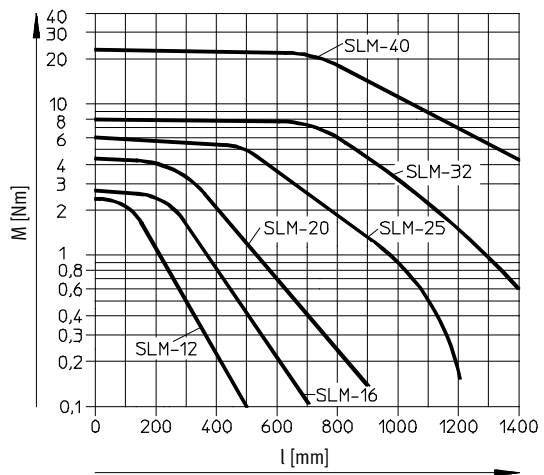


F = Load  
 $M \geq M_x$   
 $M \geq M_y$   
 $M \geq M_z$

### Permissible effective load F as a function of the stroke l



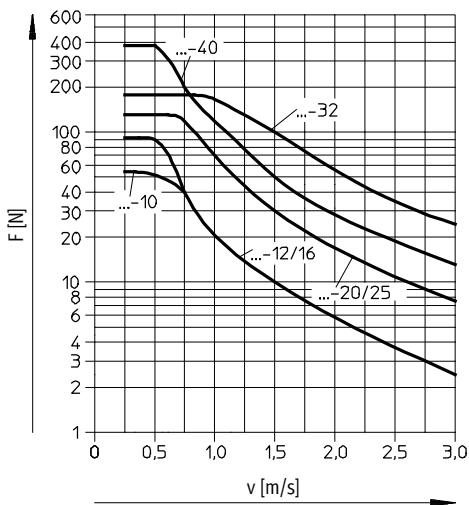
### Permissible torque M as a function of the stroke l



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

$F \geq m_L \times g$

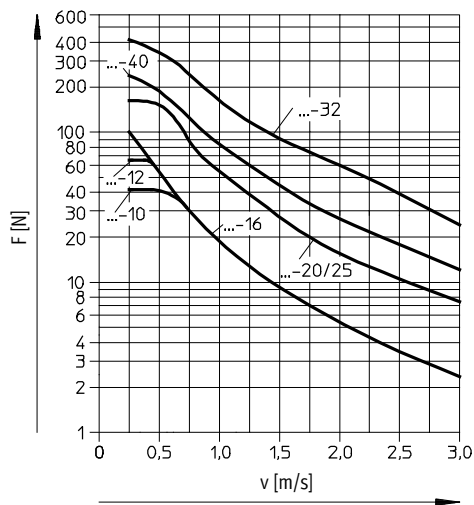
$g = 9.81 \text{ N/mm}^2$   
 $m_L = \text{Load [kg]}$



### with vertical installation

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

$g = 9.81 \text{ N/mm}^2$   
 $m_E = \text{Moving load (dead weight) [kg]}$   
 $m_L = \text{Load [kg]}$





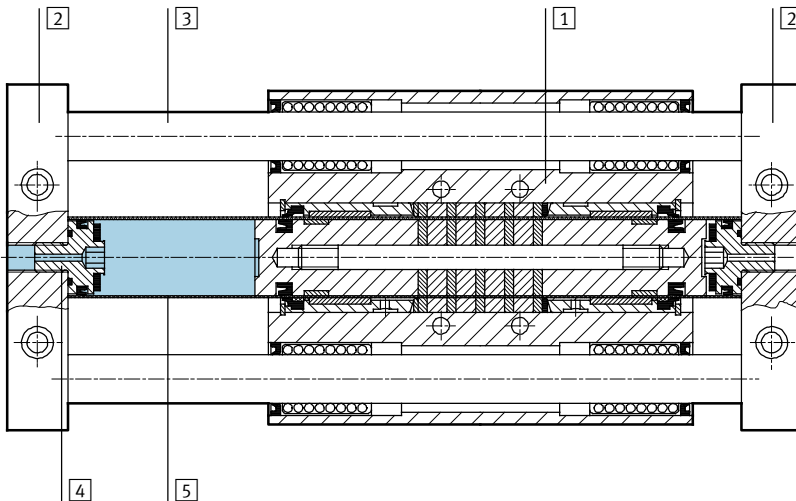
# Linear drives SLM, with guided slide

Technical data

Weights [g]						
Piston $\varnothing$	12	16	20	25	32	40
Basic weight with 0 mm stroke	1110	1730	2620	3800	6400	9550
Additional weight per 10 mm stroke	10	15	21	36	55	85
Moving load	620	1080	1400	2150	3150	5080

## Materials

Sectional view



Linear drive	
1	Slide Wrought aluminium alloy
2	End plate Wrought aluminium alloy
3	Guide rod Steel
4	Cylinder barrel attachment Wrought aluminium alloy
5	Cylinder barrel High-alloy stainless steel
-	Stop plate Wrought aluminium alloy
-	Seals Nitrile rubber

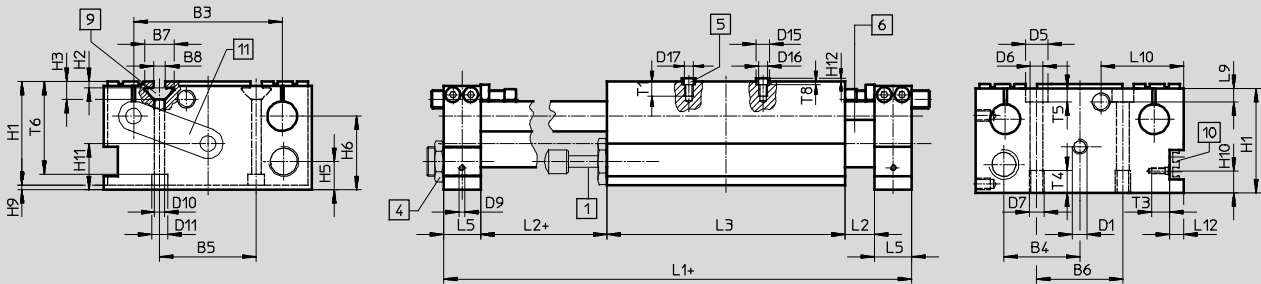
# Linear drives SLM, with guided slide

Technical data

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## Dimensions

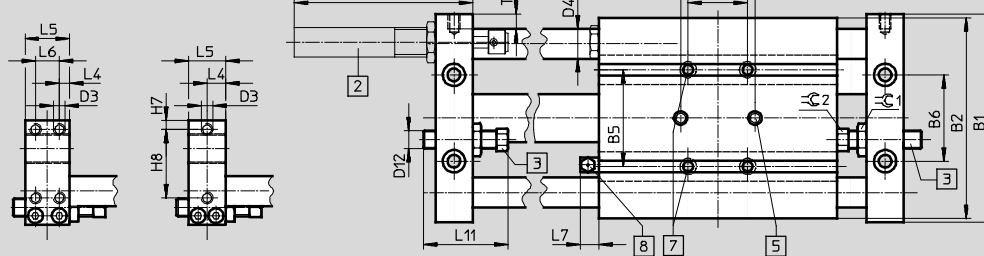
Download CAD data → [www.festo.com](http://www.festo.com)



### View A

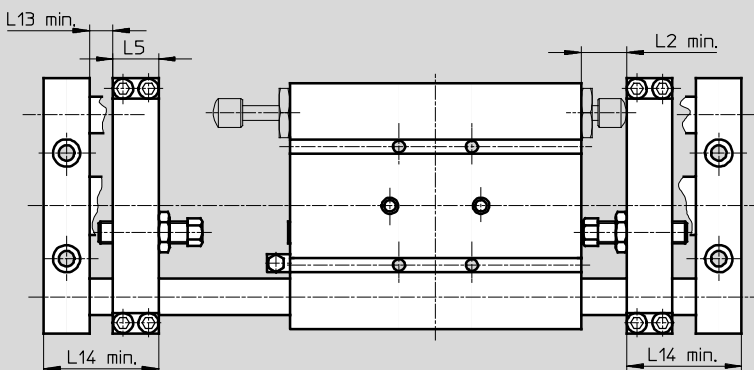
SLM-40

SLM-12 ... 32



- 1 Self-adjusting shock absorber, for front and rear mounting
  - 2 Adjustable shock absorber, for front and rear mounting on the end plate
  - 3 Switching stop with proximity sensor, PNP/NPN, for front and rear mounting
  - 4 Shock absorber stop
  - 5 Centring sleeves (2 included in scope of delivery)
  - 6 Pneumatic linear drive
  - 7 Mounting thread/through-hole
  - 8 Lubrication nipple
  - 9 Slot nut
  - 10 Mounting rail for proximity sensor SME/SMT-8
  - 11 Air diverting plate
- + = plus stroke length

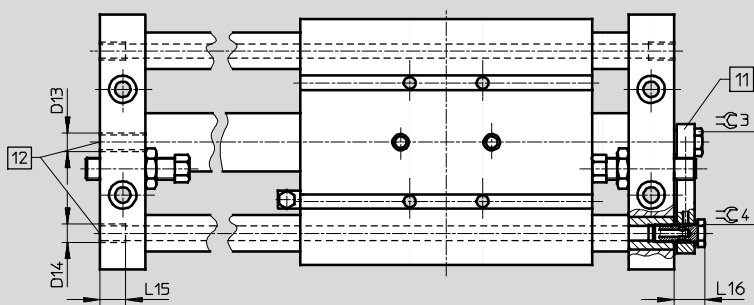
### with stop plate



Note

In the case of stroke settings with stop plates front and/or rear, the stroke is reduced by L5 and L13 min at each end.

### with hollow guide rod and air diverting plate



- 11 Air diverting plate
- 12 Supply port

# Linear drives SLM, with guided slide

Technical data

∅	B1	B2	B3	B4	B5	B6	B7	B8	D1	D3	D4	D5	D6	D7	D9	D10
[mm]			±0.03		±0.2	±0.2					∅ h6	∅	∅			∅
12	74	71	52	26.5	26	35	11.6	5	M5	M5	8	10	5.3	M6	M4	5.3
16	84	80	58	31	32	40	11.6	5	M5	M5	10	10	5.3	M6	M4	5.5
20	100	96	72	36.5	40	47	11.6	5	G $\frac{1}{8}$	M6	12	11	6.8	M8	M4	5.5
25	114	110	80	39.5	45	48	11.6	5	G $\frac{1}{8}$	M6	16	10.5	6.8	M8	M4	5.5
32	140	135	100	51	65	58	20	8	G $\frac{1}{8}$	M8	20	15	8.5	M10	M4	6.6
40	166	160	118	63	75	78	20	8	G $\frac{1}{4}$	M6	25	15	8.5	M10	M4	6.6

∅	D11	D12	D13	D14	D15	D16	D17	H1	H2	H3	H5	H6	H7	H8	H9
[mm]	∅				∅ H7	∅								±0.2	
12	9	M6x0.75	M5	-	9	6.4	M6	38	1.8	6.4	11.5	27	3.5	31	2
16	10	M6x0.75	M5	M5	9	6.4	M6	40	1.8	6.4	12	28.5	4.5	31	2
20	10	M8x1	G $\frac{1}{8}$	M5	9	6.4	M6	50	1.8	6.4	16	36	5	40	2
25	10	M8x1	G $\frac{1}{8}$	G $\frac{1}{8}$	9	6.4	M6	55	1.8	6.4	14	36.5	5	34	2
32	11	M12x1	G $\frac{1}{8}$	G $\frac{1}{8}$	9	6.4	M6	70	4.5	12.5	19	49.5	6	46	3
40	11	M12x1	G $\frac{1}{4}$	G $\frac{1}{4}$	9	6.4	M6	75	4.5	12.5	19	51	5.5	51.5	3

∅	H10	H11	H12	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
[mm]											±0.2					
12	16	15.5	1.9	139	12	85	7.5	15	-	11	19	6.5	37	33	-	7
16	16	19	1.9	154	12	100	7.5	15	-	11	32	6	31.5	33	-	7
20	16	22	1.9	192	16	120	10	20	-	12.5	26	8	44	45	-	10
25	16	25	1.9	212	16	140	10	20	-	12.5	26	8	45	45	-	10
32	14.8	31	1.9	250	20	160	12.5	25	-	12.5	40	9	55.5	57	9.5	13
40	15.8	36.5	1.9	270	20	180	6.5	25	12	12.5	50	9	61.5	57	10	13

∅	L14	L15	L16	L17 <sup>1)</sup>	L18	T1	T2	T3	T4	T5	T6	T8	≈C1	≈C2	≈C3	≈C4
[mm]												±0.2				
12	37	-	-	40	-	10	7	12	10	5.7	30.5	2.1	10	8	-	-
16	37	8	12.5	40	-	10	6.5	12	10	5.7	34.3	2.1	10	8	13	-
20	50	8	19.5	40	97	10	9	12	12	6.8	44	2.1	13	11	13	8
25	50	10	19.5	40	97	10	9	12	12	6.8	49.3	2.1	13	11	13	-
32	63	14	15.5	40	115	10	10	12	15	9	62.5	2.1	19	13	13	-
40	63	15	17	40	115	10	10	12	16	9	61	2.1	19	13	17	-

1) Tolerance for centring hole: ±0.03 mm  
Tolerance for thread: ±0.1 mm

# Linear drives SLM, with guided slide

Ordering data – Modular products

**M** Mandatory data →

Module No.	Drive function	Size	Stroke	Guide	Position sensing	Basic unit
32 781	SLM	12	10 ... 1500	KF	A	G
32 782		16				GL
32 783		20				GU
32 784		25				
32 785		32				
32 786		40				
<b>Ordering example</b>						
<b>32 784</b>	<b>SLM</b>	<b>- 25</b>	<b>- 900</b>	<b>- KF</b>	<b>- A</b>	<b>- GU</b>

Ordering table										
Size	12	16	20	25	32	40	Condi- tions	Code	Enter code	
<b>M</b> Module No.	<b>32 781</b>	<b>32 782</b>	<b>32 783</b>	<b>32 784</b>	<b>32 785</b>	<b>32 786</b>				
Drive function	Linear unit							<b>SLM</b>		SLM
Size [mm]	12	16	20	25	32	40		-...		
Stroke [mm]	10 ... 500		10 ... 800		10 ... 1500			-...		
Guide	Via ball bearings							<b>-KF</b>		-KF
Position sensing	For proximity sensing							<b>-A</b>		-A
Basic unit	Linear unit with pneumatic drive							<b>-G</b>		
	- Linear unit with pneumatic drive and hollow guide rods							<b>-GL</b>		
	- Linear unit with pneumatic drive, hollow guide rods and air diverting plate							<b>-GU</b>		

Transfer order code

**SLM** -  -  - **KF** - **A** -  -

# Linear drives SLM, with guided slide

Ordering data – Modular products



Options							
Shock absorber at front	Shock absorber at rear	Sensor at front	Sensor at rear	Stroke adjustment at front	Stroke adjustment at rear	Mounting rail	Slot nut
CV YV	CH YH	PV NV	PH NH	HV	HH	E	...I
CV	- CH	- PV	- PH	- HV	- HH	- E	- 4I

Ordering table											
Size	12	16	20	25	32	40	Condi- tions	Code	Enter code		
Shock absorber	at front	Self-adjusting shock absorber, with stop at front							-CV		
		Adjustable shock absorber, with stop at front							-YV		
	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		
Stroke adjustment	at front	Stop plate at front						1	-HV		
	at rear	Stop plate at rear						2	-HH		
Mounting rail	Mounting rail							-E			
Slot nut	1 ... 10							...I			

- 1 HV Not in combination with YV
- 2 HH Not in combination with YH

Transfer order code

-  -  -  -  -  -  -

# Linear drives SLM, with guided slide

Ordering data – Modular products, package solution

**M** Mandatory data

Module No.	Drive function	Size	Stroke	Guide	Position sensing	Standard unit
32 781	SLM	12	10 ... 1500	KF	A	S
32 782		16				
32 783		20				
32 784		25				
32 785		32				
32 786		40				
<b>Ordering example</b>						
<b>32 782</b>	<b>SLM</b>	<b>- 16</b>	<b>- 750</b>	<b>- KF</b>	<b>- A</b>	<b>- S</b>

**Ordering table**

Size	12	16	20	25	32	40	Condi- tions	Code	Enter code
<b>M</b> Module No.	<b>32 781</b>	<b>32 782</b>	<b>32 783</b>	<b>32 784</b>	<b>32 785</b>	<b>32 786</b>			
Drive function	Linear unit							<b>SLM</b>	SLM
Size [mm]	12	16	20	25	32	40		-...	
Stroke [mm]	10 ... 500		10 ... 800		10 ... 1500			-...	
Guide	Via ball bearings							<b>-KF</b>	-KF
Position sensing	For proximity sensing							<b>-A</b>	-A
Standard unit	Package solution S = G-CV-CH-PV-PH							<b>-S</b>	-S

Transfer order code

**SLM**  -  -  - **KF**  - **A**  - **S**

## Linear drives SLM, with guided slide

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Accessories

### Shock absorber kit

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

Material:

YSR-8-8-C: Nickel-plated brass

YSR-12-12-C, YSR-16-20-C:

Galvanised steel

Free of copper, PTFE and silicone



Ordering data			
For Ø [mm]	Including shock absorber Technical data → Internet: ysr	Part No.	Type
12, 16	YSR-8-8-C	115 315	SLZ-16-YSR-C
20, 25	YSR-12-12-C	115 316	SLZ-25-YSR-C
32, 40	YSR-16-20-C	115 317	SLZ-32-YSR-C

### Shock absorber kit

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

Material:

Galvanised steel



Ordering data			
For Ø [mm]	Including shock absorber Technical data → Internet: dysr	Part No.	Type
20, 25	DYSR-12-12-Y5	114 032	SLZ-25-KF-A
32, 40	DYSR-16-20-Y5	114 033	SLZ-32-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

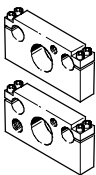
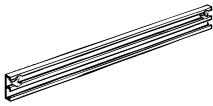




Ordering data				
For Ø [mm]	Switch output	Including proximity sensor Technical data → Internet: sien	Part No.	Type
12, 16	PNP	SIEN-4B-PS-K-L	116 251	SL-10/16-SIE-PS
	NPN	SIEN-4B-NS-K-L	116 252	SL-10/16-SIE-NS
20, 25	PNP	SIEN-4B-PS-K-L	116 253	SL-20/25-SIE-PS
	NPN	SIEN-4B-NS-K-L	116 254	SL-20/25-SIE-NS
32, 40	PNP	SIEN-6,5B-PS-K-L	117 525	SL-32/50-SIE-PS
	NPN	SIEN-6,5B-NS-K-L	117 526	SL-32/50-SIE-NS

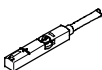
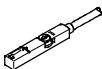
# Linear drives SLM, with guided slide

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Accessories

Ordering data – Accessories						
	For Ø [mm]	Material	Order code	Part No.	Type	PU <sup>1)</sup>
<b>Stop plate SLM-...-KF-A</b>						
	12	Wrought aluminium alloy	HV, HH	119 527	SLM-12-...-KF-A	1
	16			119 528	SLM-16-...-KF-A	1
	20			119 529	SLM-20-...-KF-A	1
	25			119 530	SLM-25-...-KF-A	1
	32			119 531	SLM-32-...-KF-A	1
	40			119 532	SLM-40-...-KF-A	1
	<b>Mounting rail SLZS/SLMS for proximity sensor</b>					
	12	Wrought aluminium alloy	E	150 916	SLZS-16-...-...	1
	16			152 744	SLMS-16-...-...	1
	20			150 917	SLZS-25-...-...	1
	25			152 745	SLMS-25-...-...	1
	32			150 918	SLZS-32-...-...	1
	40			150 919	SLZS-40-...-...	1
<b>Slot nut NST</b> <span style="float: right;">Technical data → Internet: nst</span>						
	12 ... 25	Non-alloyed tempered steel	I	150 914	NST-5-M5	1
	32, 40	Free of copper, PTFE and silicone		150 915	NST-8-M6	1
<b>Centring sleeve ZBH</b> <span style="float: right;">Technical data → Internet: zbh</span>						
	16 ... 40	Stainless steel Free of copper, PTFE and silicone	-	150 927	ZBH-9	10

1) Packaging unit quantity

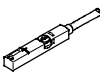


Ordering data – Proximity sensors for T-slot, magneto-resistive						Technical data → Internet: smt
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
<b>N/O contact</b>						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	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		
<b>N/C contact</b>						
	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





# Linear drives SLM, with guided slide


Accessories

FESTO

Ordering data – Proximity sensors for T-slot, magnetic reed						Technical data → Internet: smt	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type	
<b>N/O contact</b>							
	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	
			Plug M8x1, 3-pin	2.5	543 872	SME-8M-ZS-24V-K-2,5-OE	
				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	
				0.3	150 857	SME-8-S-LED-24	
<b>N/C contact</b>							
	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 [m]	Part No.	Type
	Insertable from above	2x 0.5	151 680	ABP-5-S

Ordering data – One-way flow control valves				Technical data → Internet: grla	
	Connection		Material	Part No.	Type
	Thread	For tubing OD			
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
		6		193 139	GRLA-M5-QS-6-D
	G1/8	3		193 142	GRLA-1/8-QS-3-D
		4		193 143	GRLA-1/8-QS-4-D
		6		193 144	GRLA-1/8-QS-6-D
		8		193 145	GRLA-1/8-QS-8-D
	G1/4	6		193 146	GRLA-1/4-QS-6-D
		8		193 147	GRLA-1/4-QS-8-D
		10		193 148	GRLA-1/4-QS-10-D