



- Multi-axis and drive combinations
- Recirculating ball bearing guide
- Individualised position sensing and end-position cushioning

# Linear drives SLM, with guided slide

Key features



## Version

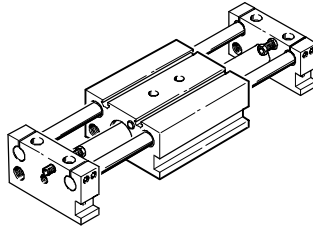
The linear drive SLM is a combination of a slide unit and a rodless linear drive. The drive moves the slide.

The transmission of movement is accomplished via a magnetic coupling.

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

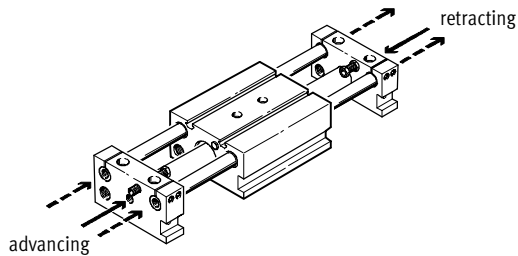
## Basic unit

### SLM-...-G



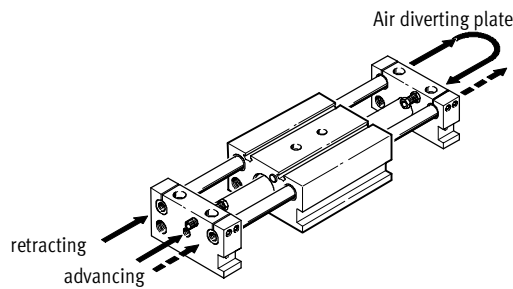
### SLM-...-GL

with hollow guide rods



### SLM-...-GU

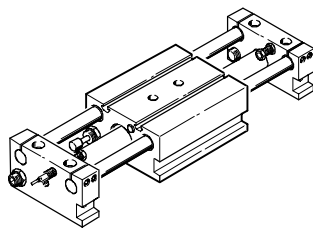
with hollow guide rods, air diverting plate and supply port on one side



## 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.

These multi-axis configurations are formed by screwing the units together, either directly or using an adapter plate. A linear unit SLE can be combined with another linear unit SLE using either method, however direct mounting is almost always required for a linear drive SLM and linear unit SLE.

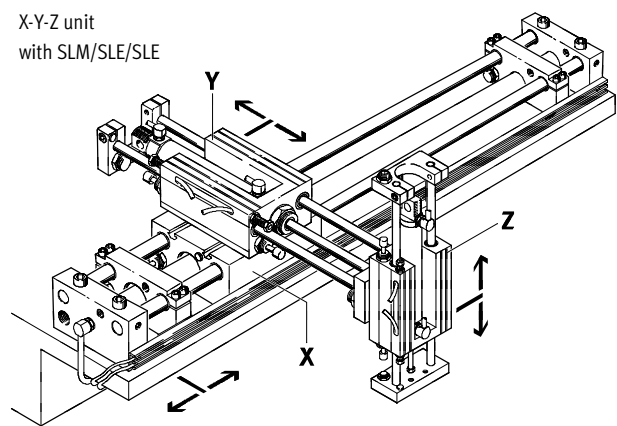
The centring pins and sleeves required to secure the units together are included in the scope of delivery.

Linear unit SLE  
→ 1 / 6.2-110

X	Y	Z
<b>2 axes</b>		
SLM-12	SLE-10	–
SLM-16 <sup>1)</sup>	SLE-10	–
SLM-20	SLE-16	–
SLM-25 <sup>2)</sup>	SLE-16	–
SLM-32	SLE-20 or SLE-25	–
SLM-40	SLE-32	–
<b>3 axes</b>		
SLM-20	SLE-16	SLE-10
SLM-25 <sup>2)</sup>	SLE-16	SLE-10
SLM-32	SLE-20 or SLE-25	SLE-16
SLM-40	SLE-32	SLE-20 or SLE-25

- 1) An adapter plate SLEP-10 (→ 1 / 3.2-28) is required for mounting (direct mounting is not possible).
- 2) An adapter plate SLEP-16 (→ 1 / 3.2-28) is required for mounting (direct mounting is not possible).

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



Rodless cylinders  
Magnetically coupled

3.2

## Drive combinations

The linear drive SLM can be combined with different drives. An adapter kit is required to secure the two drives together.

Adapter kits  
→ Volume 5

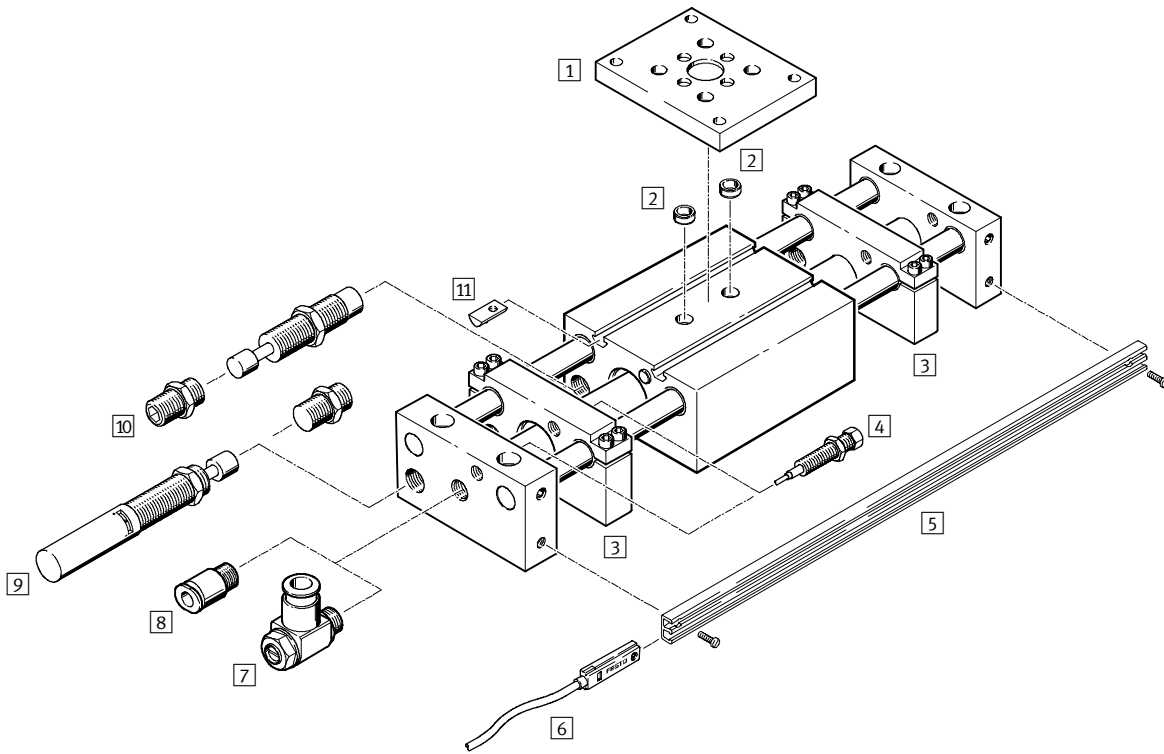
# Linear drives SLM, with guided slide

Peripherals overview



Rodless cylinders  
Magnetically coupled

3.2



# Linear drives SLM, with guided slide

Peripherals overview

Accessories		
	Brief description	→ Page
1	Adapter plate SLEP	1 / 3.2-28
2	Centring sleeve ZBH	1 / 3.2-29
3	Stop plate SLM-...-KF-A	1 / 3.2-29
4	Switching stop with proximity sensor SL-...-SIE-PS/SL-...-SIE-NS	1 / 3.2-28
5	Mounting rail SLZS/SLMS	1 / 3.2-29
6	Proximity sensor SME/SMT-8	1 / 3.2-29
7	One-way flow control valve GRLA	1 / 3.2-30
8	Push-in fitting QS	Volume 3
9	Shock absorber kit, adjustable SLZ-...-KF-A	1 / 3.2-27
10	Shock absorber kit, self-adjusting SLZ-...-YSR-C	1 / 3.2-27
11	Slot nut NST	1 / 3.2-29

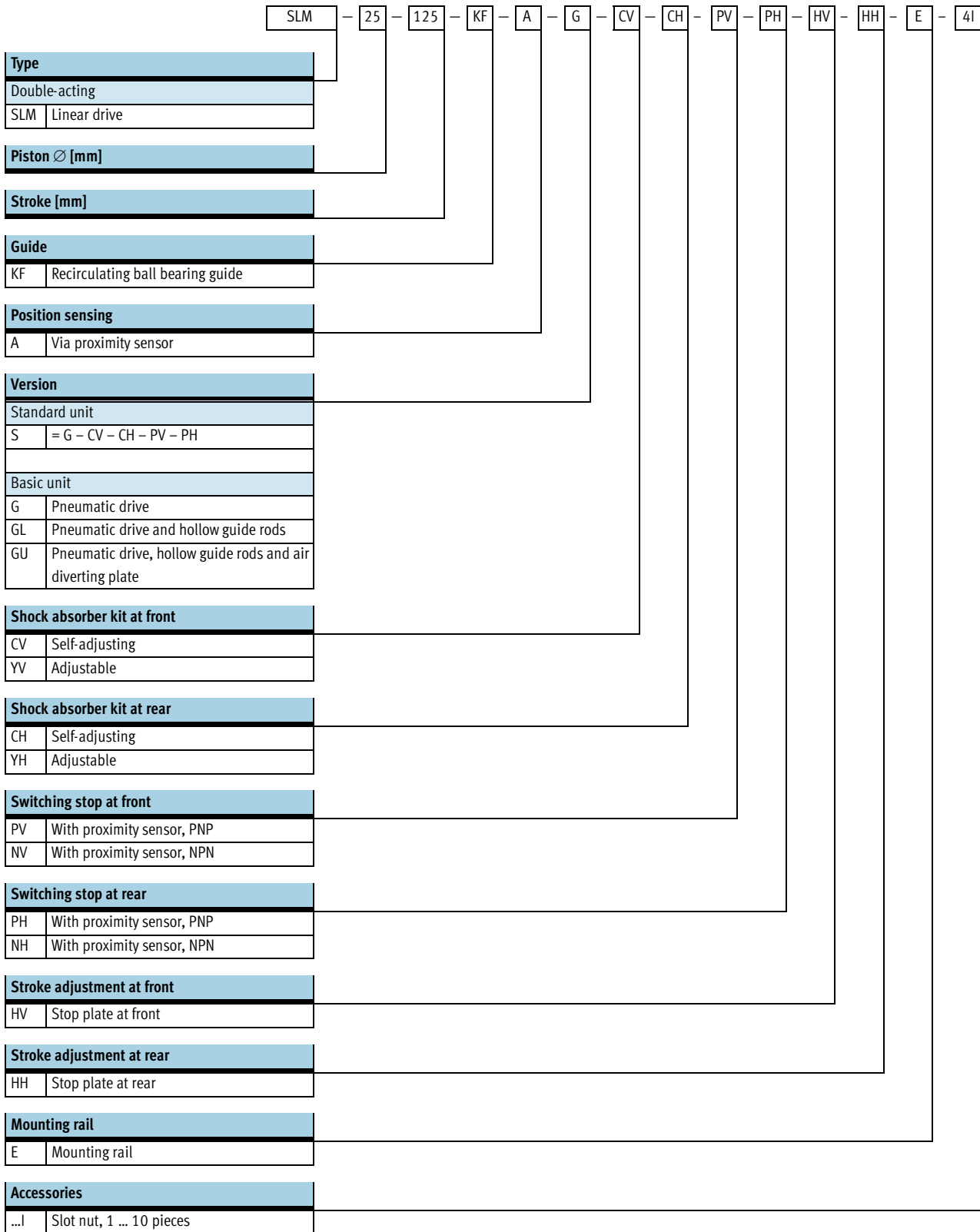
# Linear drives SLM, with guided slide

Type code



Rodless cylinders  
Magnetically coupled

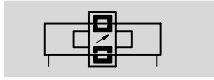
3.2



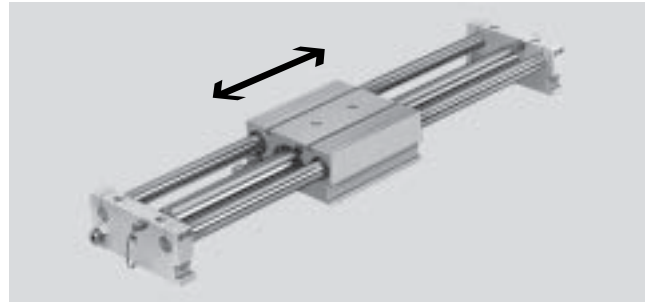
# Linear drives SLM, with guided slide

Technical data

Function



[www.festo.com/en/Spare\\_parts\\_service](http://www.festo.com/en/Spare_parts_service)



- $\varnothing$  - Diameter  
12 ... 40 mm
- | - Stroke length  
10 ... 1500 mm

General technical data						
Piston $\varnothing$	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	Via proximity sensor					
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 $\varnothing$	12	16	20	25	32	40
Operating medium	Filtered compressed air, lubricated or unlubricated					
Operating pressure [bar]	$\leq 7$					
Ambient temperature <sup>1)</sup> [°C]	-20 ... +60					

1) Note operating range of proximity sensors.

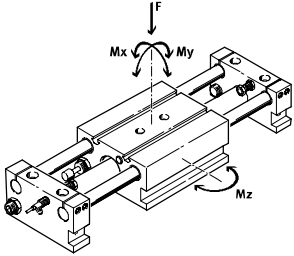
Forces [N]						
Piston $\varnothing$	12	16	20	25	32	40
Theoretical force at 6 bar, advancing	68	121	188	295	483	754
Theoretical force at 6 bar, retracting	68	121	188	295	483	754
Breakaway force of the magnetic coupling	100	160	270	400	680	1050

# Linear drives SLM, with guided slide

Technical data

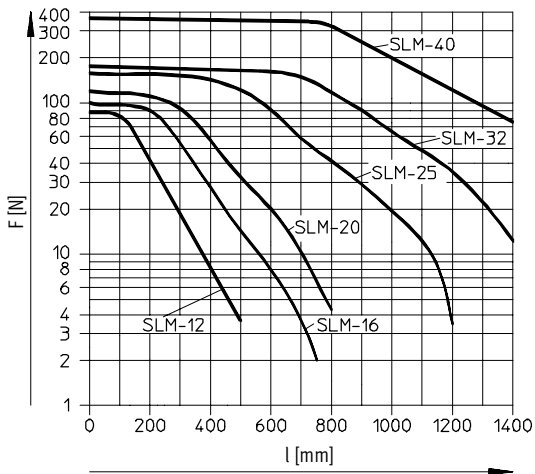


## Permissible dynamic load

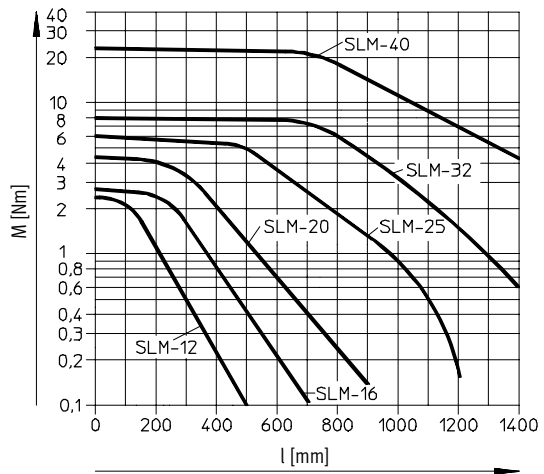


$F = \text{Load}$   
 $M \geq M_x$   
 $M \geq M_y$   
 $M \geq M_z$

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



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



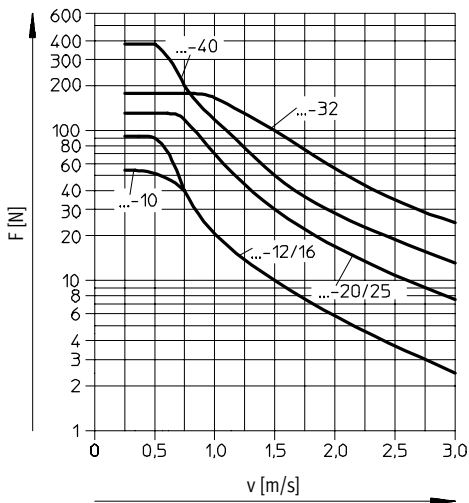
## Permissible shock absorber load F as a function of the impact velocity v

with horizontal installation

$$F \geq m_L \times g$$

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

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



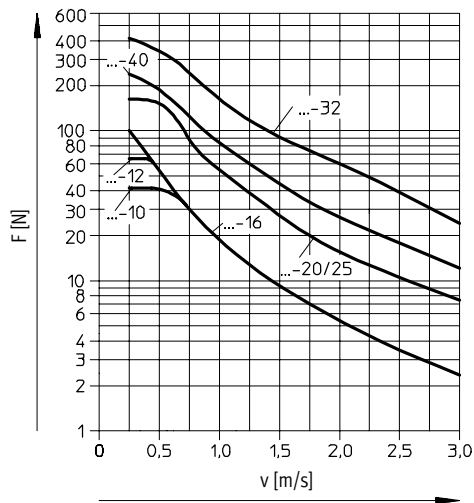
with vertical installation

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

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

$$m_E = \text{Moving load (dead weight) [kg]}$$

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





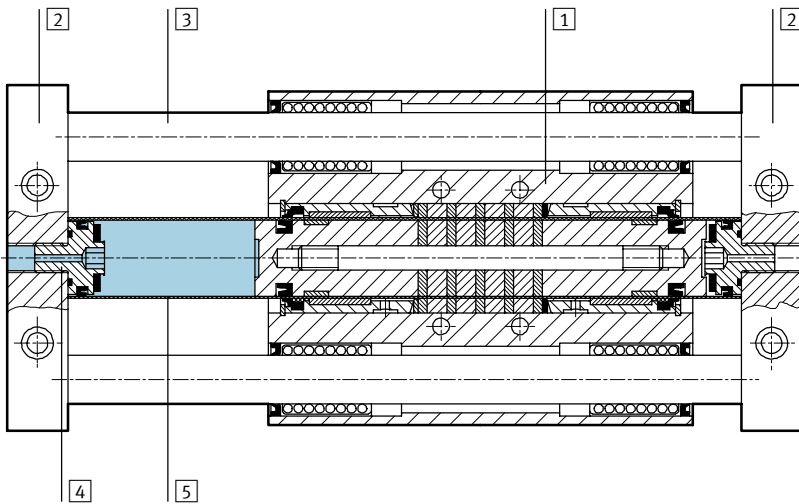
# Linear drives SLM, with guided slide

Technical data

Weights [g]						
Piston Ø	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

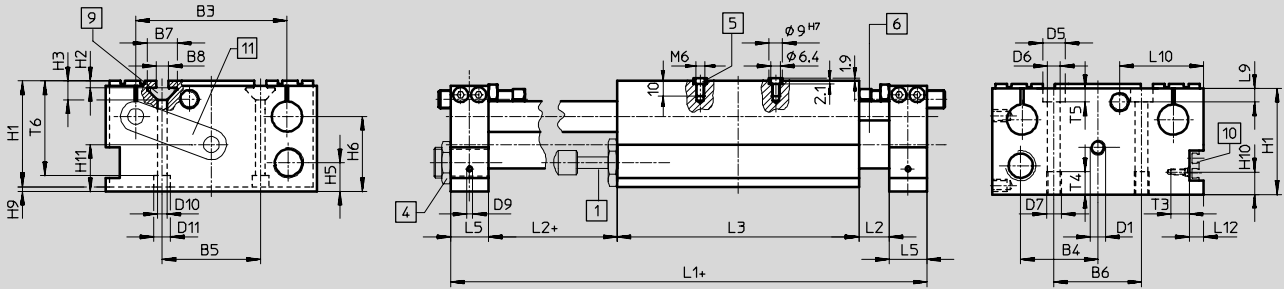
# Linear drives SLM, with guided slide

Technical data



## Dimensions

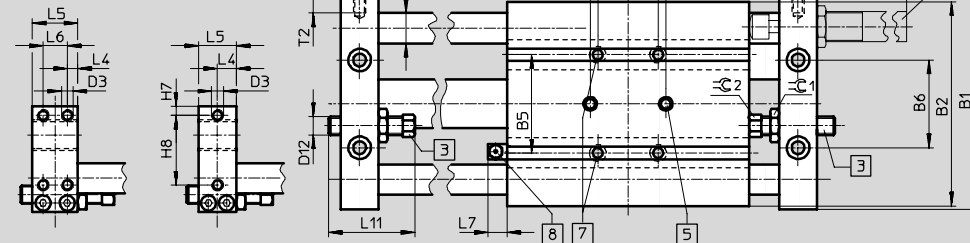
Download CAD data → [www.festo.com/en/engineering](http://www.festo.com/en/engineering)



View A

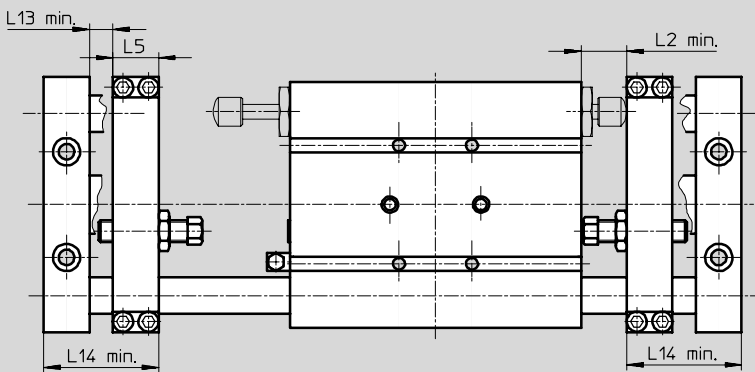
SLM-40

SLM-12 ... 32

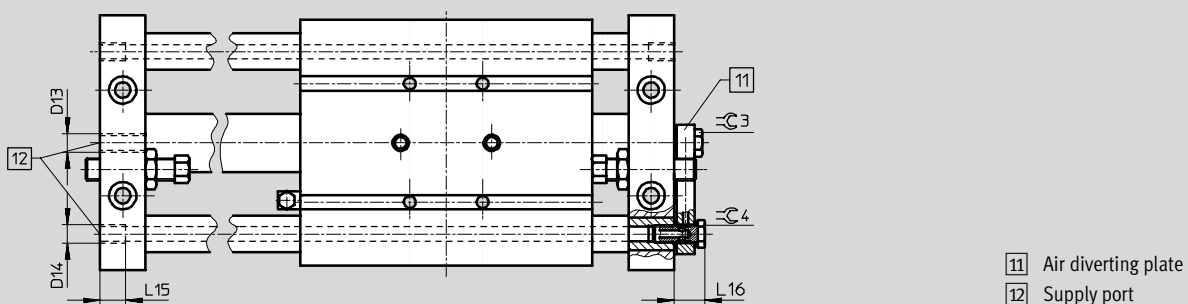


- 1 Self-adjusting shock absorber, for front and rear mounting
  - 2 Adjustable shock absorber, for front and rear mounting on the end plate
  - 3 Switching stop with proximity sensor, PNP/NPN, for front and rear mounting
  - 4 Shock absorber stop
  - 5 Centring sleeves (2 included in scope of delivery)
  - 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



## 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 ∅ h6	D5 ∅	D6 ∅	D7	D9
[mm]															
12	74	71	52	26.5	26	35	11.6	5	M5	M5	8	10	5.3	M6	M4
16	84	80	58	31	32	40	11.6	5	M5	M5	10	10	5.3	M6	M4
20	100	96	72	36.5	40	47	11.6	5	G $\frac{1}{8}$	M6	12	11	6.8	M8	M4
25	114	110	80	39.5	45	48	11.6	5	G $\frac{1}{8}$	M6	16	10.5	6.8	M8	M4
32	140	135	100	51	65	58	20	8	G $\frac{1}{8}$	M8	20	15	8.5	M10	M4
40	166	160	118	63	75	78	20	8	G $\frac{1}{4}$	M6	25	15	8.5	M10	M4

∅	D10 ∅	D11 ∅	D12	D13	D14	H1	H2	H3	H4	H5	H6	H7	H8	H9
[mm]														
12	5.3	9	M6x0.75	M5	–	38	1.8	6.4	77	11.5	27	3.5	31	2
16	5.5	10	M6x0.75	M5	M5	40	1.8	6.4	77	12	28.5	4.5	31	2
20	5.5	10	M8x1	G $\frac{1}{8}$	M5	50	1.8	6.4	128	16	36	5	40	2
25	5.5	10	M8x1	G $\frac{1}{8}$	G $\frac{1}{8}$	55	1.8	6.4	128	14	36.5	5	34	2
32	6.6	11	M12x1	G $\frac{1}{8}$	G $\frac{1}{8}$	70	4.5	12.5	160	19	49.5	6	46	3
40	6.6	11	M12x1	G $\frac{1}{4}$	G $\frac{1}{4}$	75	4.5	12.5	160	19	51	5.5	51.5	3

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

∅	L12	L13	L14	L15	L16	T2	T3	T4	T5	T6	≈C1	≈C2	≈C3	≈C4
[mm]														
12	–	7	37	–	–	7	12	10	5.7	30.5	10	8	–	–
16	–	7	37	8	12.5	6.5	12	10	5.7	34.3	10	8	13	–
20	–	10	50	8	19.5	9	12	12	6.8	44	13	11	13	8
25	–	10	50	10	19.5	9	12	12	6.8	49.3	13	11	13	–
32	9.5	13	63	14	15.5	10	12	15	9	62.5	19	13	13	–
40	10	13	63	15	17	10	12	16	9	61	19	13	17	–

Rodless cylinders  
Magnetically coupled

**3.2**

# Linear drives SLM, with guided slide

Ordering data – Modular products



Rodless cylinders  
Magnetically coupled

3.2

**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	Via proximity sensor							<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



Rodless cylinders  
Magnetically coupled

3.2

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	Via proximity sensor							<b>-A</b>	-A
Standard unit	Package solution S = G-CV-CH-PV-PH							<b>-S</b>	-S

Transfer order code

	<b>SLM</b>	-		-		-	<b>KF</b>	-	<b>A</b>	-	<b>S</b>
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# Linear drives SLM, with guided slide

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 → 1 / 9.0-2	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 → 1 / 9.0-2	Part No.	Type
20, 25	YSR-12-12	114 032	SLZ-25-KF-A
32, 40	YSR-16-20	114 033	SLZ-32-KF-A

# Linear drives SLM, with guided slide

Accessories



## 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 → Volume 4	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

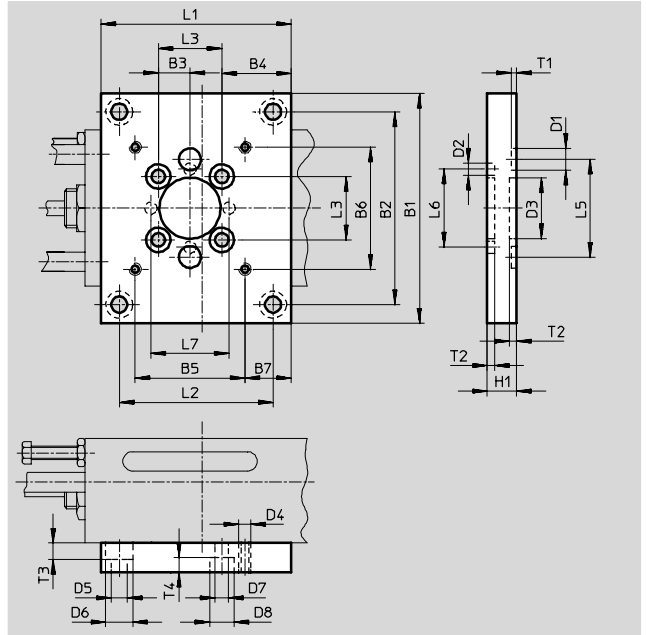
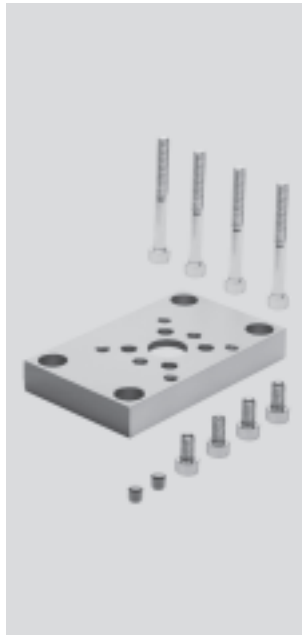
Rodless cylinders  
Magnetically coupled

### 3.2

## Adapter plate SLEP

Material:

Wrought aluminium alloy



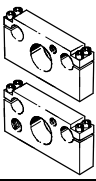
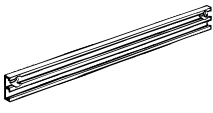


Dimensions and ordering data																		
For Ø	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3	D4	D5	D6	D7	D8	H1	L1	L2
[mm]								Ø H7	Ø H7	Ø G7		Ø	Ø	Ø	Ø			
16	82	68	9.5	20	32	32	13.5	9	5	14	M5	5.5	10	5.5	10	12	50	36
25	94	79	13	23.5	45	26	14	9	5	25	M5	6.6	11	5.5	10	12	73	58

For Ø	L3	L5	L6	L7	T1	T2	T3	T4	Weight	Part No.	Type
[mm]									[g]		
16	19	40	28	-	2.1	3	5.7	6.7	122	150 909	SLEP-10
25	26	40	32	32	2.1	3	6.8	6.7	205	150 910	SLEP-16






# Linear drives SLM, with guided slide

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 → 1 / 10.1-17</span>						
	12 ... 25	Non-alloyed tempered steel Free of copper, PTFE and silicone	I	150 914	NST-5-M5	1
	32, 40			150 915	NST-8-M6	1
<b>Centring sleeve ZBH</b> <span style="float: right;">Technical data → 1 / 10.1-19</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 slot type 8, magneto-resistive							Technical data → 1 / 10.2-13		
	Mounting	Switch output	Electrical connection			Cable length [m]	Part No.	Type	
			Cable	Plug M8	Plug M12				
<b>Normally open contact</b>									
	Insertable from above	PNP	3-wire	–	–	2.5	525 898	SMT-8F-PS-24V-K2,5-OE	☐
		NPN		–	–		525 909	SMT-8F-NS-24V-K2,5-OE	☐
		–	2-wire	–	–	2.5	525 908	SMT-8F-ZS-24V-K2,5-OE	☐
		PNP	3-pin	–	–	0.3	525 899	SMT-8F-PS-24V-K0,3-M8D	☐
		NPN		–	–		525 910	SMT-8F-NS-24V-K0,3-M8D	☐
	Insertable from end	PNP	3-wire	–	–	2.5	175 436	SMT-8-PS-K-LED-24-B	☐
		–	3-pin	–	–	0.3	175 484	SMT-8-PS-S-LED-24-B	☐
<b>Normally closed contact</b>									
	Insertable from above	PNP	3-wire	–	–	7.5	525 911	SMT-8F-PO-24V-K7,5-OE	☐

 Core Range

# Linear drives SLM, with guided slide

Accessories



Rodless cylinders  
Magnetically coupled

3.2

Ordering data – Proximity sensors for slot type 8, magnetic reed					Technical data → 1 / 10.2-16	
	Mounting	Electrical connection		Cable length [m]	Part No.	Type
		Cable	Plug M8			
<b>Normally open contact</b>						
	Insertable from above	3-wire	–	2.5	525 895	SME-8F-DS-24V-K2,5-OE
			–	5.0	525 897	SME-8F-DS-24V-K5,0-OE
		2-wire	–	2.5	525 907	SME-8F-ZS-24V-K2,5-OE
		–	3-pin	0.3	525 896	SME-8F-DS-24V-K0,3-M8D
	Insertable from end	3-wire	–	2.5	150 855	SME-8-K-LED-24
		–	3-pin	0.3	150 857	SME-8-S-LED-24
<b>Normally closed contact</b>						
	Insertable from above	3-wire	–	7.5	525 906	SME-8F-DO-24V-K7,5-OE

Ordering data – Plug sockets					Technical data → 1 / 10.2-100		
	Mounting	Switch output		Connection	Cable length [m]	Part No.	Type
		PNP	NPN				
<b>Straight socket</b>							
	M8 locknut	■	■	3-pin	2.5	159 420	SIM-M8-3GD-2,5-PU
					5	159 421	SIM-M8-3GD-5-PU
	M12 locknut	■	■	3-pin	2.5	159 428	SIM-M12-3GD-2,5-PU
					5	159 429	SIM-M12-3GD-5-PU
<b>Angled socket</b>							
	M8 locknut	■	■	3-pin	2.5	159 422	SIM-M8-3WD-2,5-PU
					5	159 423	SIM-M8-3WD-5-PU
	M12 locknut	■	■	3-pin	2.5	159 430	SIM-M12-3WD-2,5-PU
					5	159 431	SIM-M12-3WD-5-PU

Ordering data – Slot cover for slot type 8				Part No.	Type
	Mounting	Length [m]			
	Insertable from above	2x 0.5		151 680	ABP-5-S

Ordering data – One-way flow control valves				Technical data → Volume 2	
	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

Core Range