

Linear drives SLM, with guide

FESTO



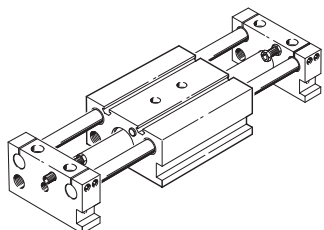
Key features

Version

The linear drive SLM is a combination of a slide unit and a rodless linear drive. The drive moves the slide. The movement is transferred via a magnetic coupling. The modular system enables customised end-position cushioning and end-position sensing solutions.

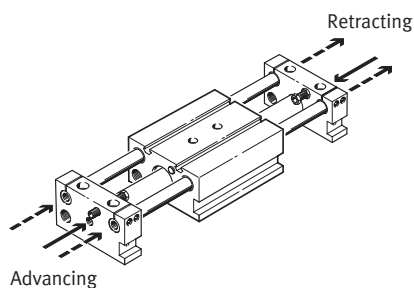
Basic unit

SLM-...-G



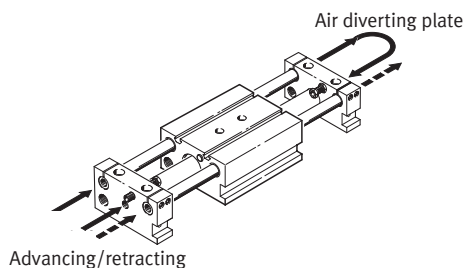
SLM-...-GL

With hollow guide rods



SLM-...-GU

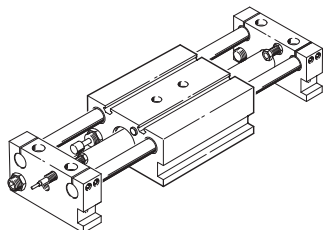
With hollow guide rods, air diverting plate and supply port on one side



Standard unit

SLM-...-S

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

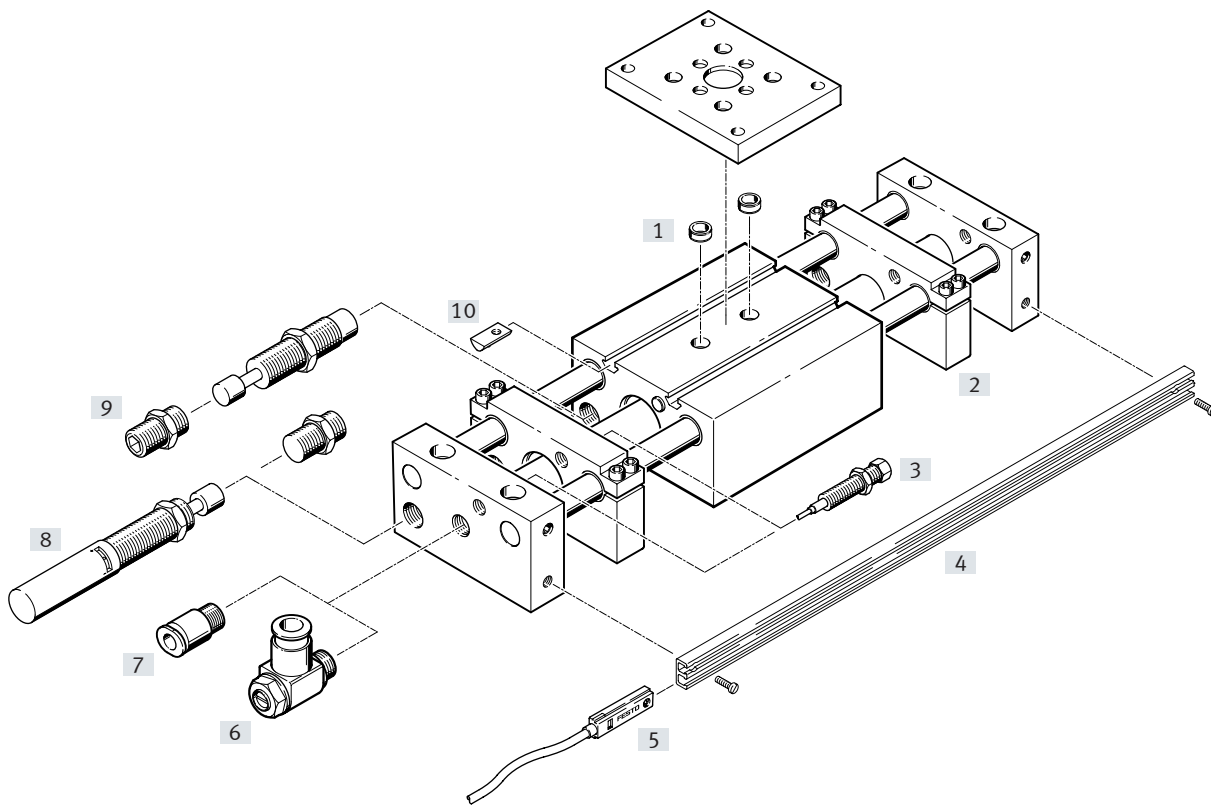


Type codes

001	Series	
SLM	Linear drive	
002	Piston diameter	
12	12	
16	16	
20	20	
25	25	
32	32	
40	40	
003	Stroke	
...	10 ... 1500	
004	Guide	
KF	Recirculating ball bearing guide	
005	Position sensing	
A	For proximity sensor	
006	Basic unit	
G	Linear drive unit with pneumatic drive	
GL	Linear drive unit with pneumatic drive and hollow guide rods	
GU	Linear drive unit with pneumatic drive and hollow guide rods and reversing plate	
007	Shock absorber at front	
	None	
CV	Shock absorber, self-adjusting, with stop, at front	
YV	Shock absorber, adjustable, with stop at front	

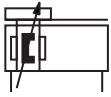
008	Shock absorber at rear	
	None	
CH	Shock absorber, self-adjusting, with stop at rear	
YH	Shock absorber, adjustable, with stop at rear	
009	Sensor at front	
	None	
PV	Inductive proximity sensor, PNP, cable 2.5 m, stop sleeve, at front	
NV	Inductive proximity sensor, NPN, 2.5 m cable, stop sleeve, at front	
010	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	
011	Stroke adjustment at front	
	None	
HV	Stop plate at front	
012	Stroke adjustment at rear	
	None	
HH	Stop plate at rear	
013	Mounting rail	
	None	
E	Mounting rail	
014	Slot nut	
	None	
...I	1 ... 10 units	



Peripherals overview



Accessories		Description	→ Page/Internet
[1]	Centring sleeve ZBH	For centring loads and attachments on the slide	13
[2]	Stop plate SLM-...-KF-A	For variable stroke adjustment	13
[3]	Switching stop with proximity switch SL-...-SIE-PS/SL-...-SIE-NS	Can be integrated into the end or stop plate	12
[4]	Profile strip SLZS/SLMS	For mounting proximity switches SME/SMT-8	13
[5]	Proximity switch SME/SMT-8	Can be integrated in the profile strip SLZS/SLMS	13
[6]	One-way flow control valve GRLA	For regulating speed	15
[7]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[8]	Shock absorber kit, adjustable SLZ-...-KF-A	Higher speeds can be decelerated by using shock absorbers	12
[9]	Shock absorber kit, self-adjusting SLZ-...-YSR-C	Higher speeds can be decelerated by using shock absorbers	12
[10]	Slot nut NST	For mounting loads and attachments on the slide	13

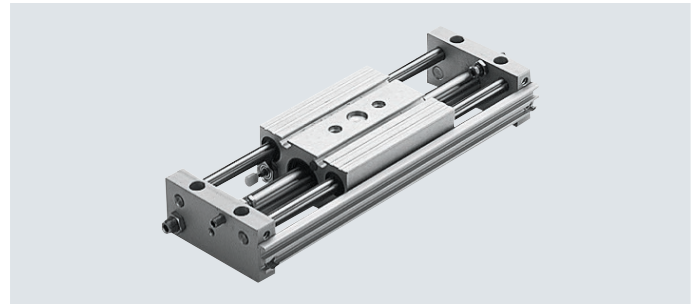
Datasheet



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


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Repair service



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	
Operating mode	Double-acting					
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 switch					
Type of mounting	Via through-hole					
	With female thread					
Mounting position	Any					
Protection against rotation/guide	Guide rods with slide/ball guide					

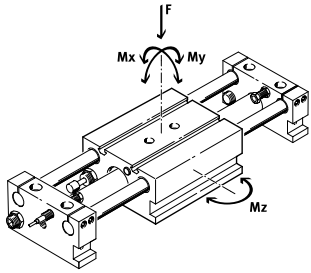
Operating and environmental conditions						
Piston \varnothing	12	16	20	25	32	40
Operating medium	Compressed air to ISO 8573-1:2010 [7:--:-]					
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure [bar]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

1) Note operating range of proximity switches.

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

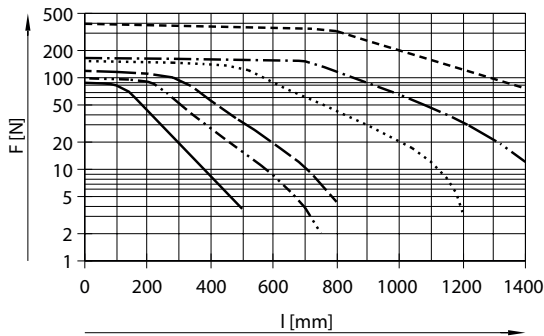
Datasheet

Permissible dynamic load



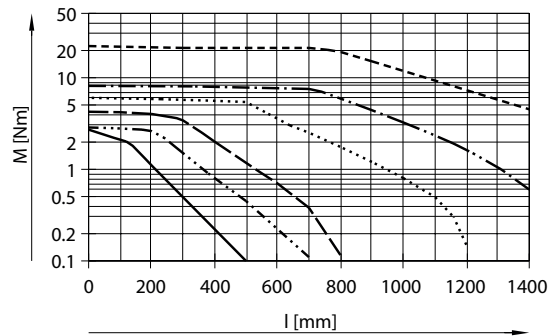
$F = \text{load}$
 $M \geq M_x$
 $M \geq M_y$
 $M \geq M_z$

Permissible payload F as a function of stroke l



- SLM-12
- SLM-16
- SLM-20
- SLM-25
- · - · SLM-32
- SLM-40

Permissible torque M as a function of stroke l

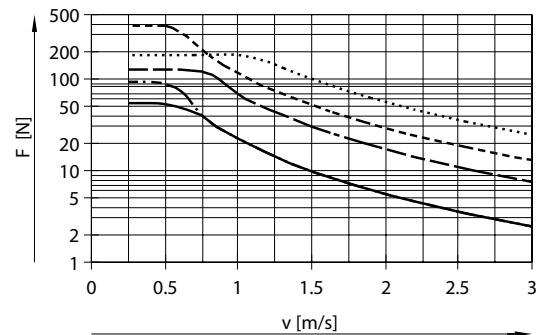


- SLM-12
- SLM-16
- SLM-20
- SLM-25
- · - · SLM-32
- SLM-40

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

With horizontal installation

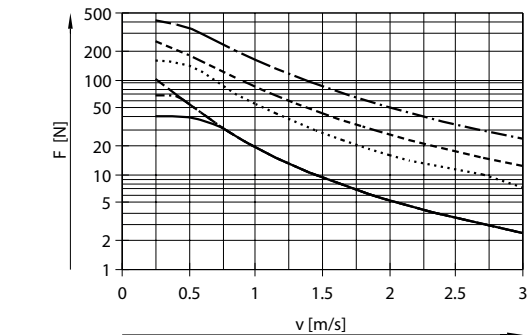
$F \geq m_L \times g$
 $g = 9.81 \text{ N/mm}^2$
 $m_L = \text{load [kg]}$



- SLM-12
- SLM-16
- SLM-20
- SLM-25
- · - · SLM-32
- SLM-40

With vertical installation

$F \geq (m_L + m_E) \times g$
 $g = 9.81 \text{ N/mm}^2$
 $m_E = \text{moving mass (dead weight)}$
 [kg]
 $m_L = \text{load [kg]}$



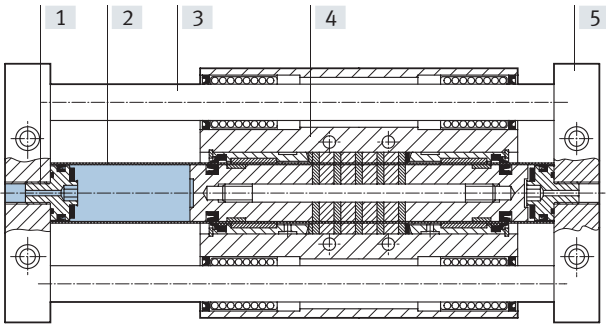
- SLM-12
- SLM-16
- SLM-20
- SLM-25
- · - · SLM-32
- SLM-40

Datasheet

Weight [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 mass	620	1080	1400	2150	3150	5080

Materials

Sectional view



Linear drive

[1]	Cylinder barrel attachment	Wrought aluminium alloy
[2]	Cylinder barrel	High-alloy stainless steel
[3]	Guide rod	Steel
[4]	Slide	Wrought aluminium alloy
[5]	End plate	Wrought aluminium alloy
-	Stop plate	Wrought aluminium alloy
-	Seals	NBR

Datasheet

∅ [mm]	B1	B2	B3 ±0.03	B4	B5 ±0.2	B6 ±0.2	B7	B8	D1	D3	D4 ∅ h6	D5 ∅	D6 ∅	D7	D9	D10 ∅
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	G1/8	M6	12	11	6.8	M8	M4	5.5
25	114	110	80	39.5	45	48	11.6	5	G1/8	M6	16	10.5	6.8	M8	M4	5.5
32	140	135	100	51	65	58	20	8	G1/8	M8	20	15	8.5	M10	M4	6.6
40	166	160	118	63	75	78	20	8	G1/4	M6	25	15	8.5	M10	M4	6.6

∅ [mm]	D11 ∅	D12	D13	D14	D15 ∅ H7	D16 ∅	D17	H1	H2	H3	H5	H6	H7	H8 ±0.2	H9
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	G1/8	M5	9	6.4	M6	50	1.8	6.4	16	36	5	40	2
25	10	M8x1	G1/8	G1/8	9	6.4	M6	55	1.8	6.4	14	36.5	5	34	2
32	11	M12x1	G1/8	G1/8	9	6.4	M6	70	4.5	12.5	19	49.5	6	46	3
40	11	M12x1	G1/4	G1/4	9	6.4	M6	75	4.5	12.5	19	51	5.5	51.5	3

∅ [mm]	H10	H11	H12	L1	L2	L3	L4	L5	L6	L7	L8 ±0.2	L9	L10	L11	L12	L13
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

∅ [mm]	L14	L15	L16	L17 ¹⁾	L18	T1	T2	T3	T4	T5	T6	T8 +0.2	≈C1	≈C2	≈C3	≈C4
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

Ordering data – Modular product system

Ordering table										
Size	12	16	20	25	32	40	Conditions	Code	Enter code	
Module no.	32781	32782	32783	32784	32785	32786				
Function	Linear drive unit							SLM	SLM	
Size [mm]	12	16	20	25	32	40		-...		
Stroke [mm]	10 ... 500	10 ... 800		10 ... 1500				-...		
Guide	With ball bushings							-KF	-KF	
Position sensing	Via proximity switch							-A	-A	
Basic unit	Linear drive unit with pneumatic drive							-G		
	-	Linear drive unit with pneumatic drive and hollow guide rods						-GL		
	-	Linear drive unit with pneumatic drive, hollow guide rods and air diverting plate						-GU		
Shock absorber	Front	Self-adjusting shock absorber, with stop at front							-CV	
		-	-	Adjustable shock absorber, with stop at front					-YV	
	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	
Stroke adjustment	Front	Stop plate at the front					[1]	-HV		
	Rear	Stop plate at the rear					[2]	-HH		
Mounting rail	Mounting rail							-E		
Slot nut	1 ... 10							-...I		

Ordering data – Modular products, package solution

Ordering table									
Size	12	16	20	25	32	40	Conditions	Code	Enter code
Module no.	32781	32782	32783	32784	32785	32786			
Function	Linear drive unit							SLM	SLM
Size [mm]	12	16	20	25	32	40		-...	
Stroke [mm]	10 ... 500	10 ... 800		10 ... 1500				-...	
Guide	With ball bushings							-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 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



Ordering data		Part no.	Type
For \varnothing [mm]	Includes shock absorber Datasheets → Internet: ysr		
12, 16	YSR-8-8-C	115315	SLZ-16-YSR-C
20, 25	YSR-12-12-C	115316	SLZ-25-YSR-C
32, 40	YSR-16-20-C	115317	SLZ-32-YSR-C

Shock absorber kit SLZ-...-KF-A, adjustable (Order code: YV, YH)

Material:
Galvanised steel



Ordering data		Part no.	Type
For \varnothing [mm]	Includes shock absorber Datasheets → Internet: dysr		
20, 25	DYSR-12-12-Y5	114032	SLZ-25-KF-A
32, 40	DYSR-16-20-Y5	114033	SLZ-32-KF-A

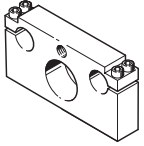
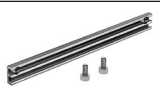


Switching stop SL-...-SIE-PS (Order code: PV, PH) Kit with inductive proximity switch PNP



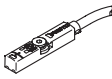
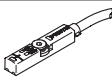
Switching stop SL-...-SIE-NS (Order code: NV, NH) Kit with inductive proximity switch NPN

Ordering data		Part no.	Type
For \varnothing [mm]	Switching output	Includes proximity switch Datasheets → Internet: sien	
12, 16	PNP	SIEN-4B-PS-K-L	116251 SL-1 0/16-SIE-PS
	NPN	SIEN-4B-NS-K-L	116252 SL-1 0/16-SIE-NS
20, 25	PNP	SIEN-4B-PS-K-L	116253 SL-2 0/25-SIE-PS
	NPN	SIEN-4B-NS-K-L	116254 SL-2 0/25-SIE-NS
32, 40	PNP	SIEN-6.5B-PS-K-L	117525 SL-3 2/50-SIE-PS
	NPN	SIEN-6.5B-NS-K-L	117526 SL-3 2/50-SIE-NS

Accessories

Ordering data – Accessories						
	For ø [mm]	Material	Order code	Part no.	Type	PU ¹⁾
Stop plate SLM-...-KF-A						
	12	Wrought aluminium alloy	HV, HH	119527	SLM-12-...-KF-A	1
	16			119528	SLM-16-...-KF-A	1
	20			119529	SLM-20-...-KF-A	1
	25			119530	SLM-25-...-KF-A	1
	32			119531	SLM-32-...-KF-A	1
	40			119532	SLM-40-...-KF-A	1
Mounting rail SLZS/SLMS for proximity switch						
	12	Wrought aluminium alloy	E	150916	SLZS-16-...-...	1
	16			152744	SLMS-16-...-...	1
	20			150917	SLZS-25-...-...	1
	25			152745	SLMS-25-...-...	1
	32			150918	SLZS-32-...-...	1
	40			150919	SLZS-40-...-...	1
Slot nut NST Datasheets → Internet: nst						
	12 ... 25	Non-alloyed tempered steel	I	150914	NST-5-M5	1
	32, 40			150915	NST-8-M6	1
Centring sleeve ZBH Datasheets → Internet: zbh						
	16 ... 40	Stainless steel	–	8137184	ZBH-9-B	10

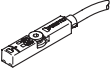
1) Packaging unit

Ordering data – Proximity switch for T-slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O Datasheets → Internet: smt						
	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
			Plug M12x1, 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
			Plug M8x1, 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

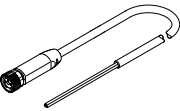
Accessories

Ordering data – Proximity switch for T-slot, magnetic reed

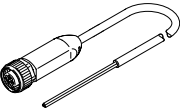
Datasheets → Internet: sme

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
		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

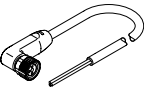
Connecting cables NEBA, straight, M8 connection

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

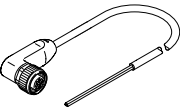
Connecting cables NEBA, straight, M12 connection

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

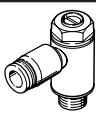
Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/cores	Cable length	Part no.	Type
 M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	8078230	NEBA-M8W3-U-2.5-N-LE3
			5 m	8078231	NEBA-M8W3-U-5-N-LE3

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

Accessories

Ordering data – Slot cover for T-slot				
	Mounting	Length [m]	Part no.	Type
	Insertable	2x 0.5	151680	ABP-5-S

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