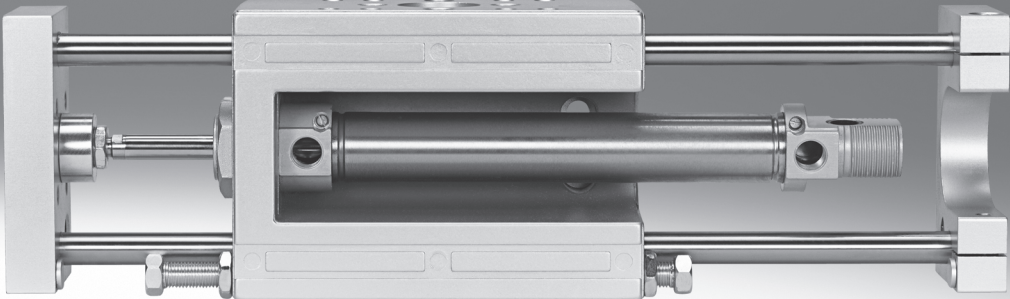


Linear units SLE



# Linear units SLE

Key features

FESTO

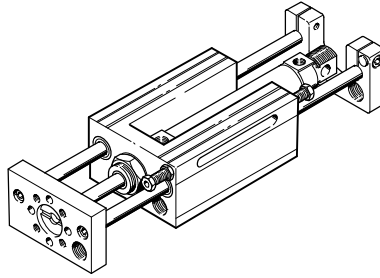
## Version

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

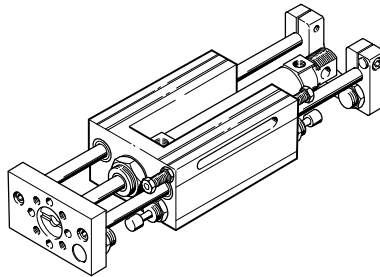
**SLE-...-G**



## 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.

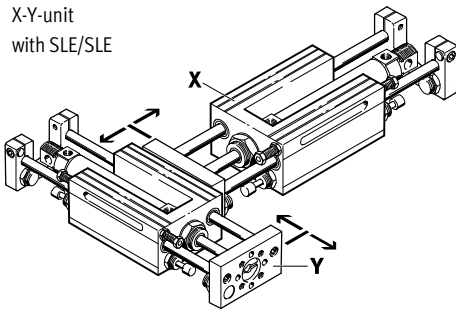
The units are bolted together directly for multi-axis operation.

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

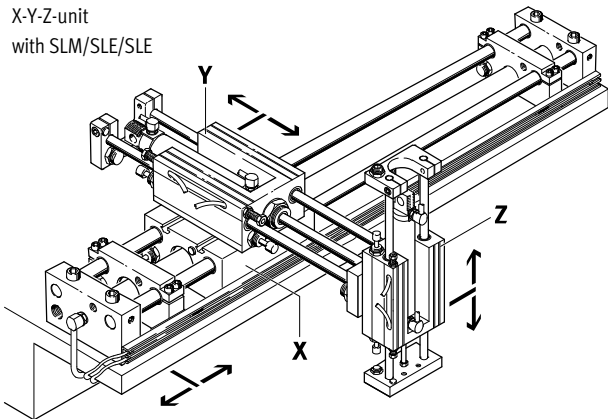
X-Y-unit  
with SLE/SLE



X	Y	Z
<b>2 axes</b>		
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	-
<b>3 axes</b>		
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

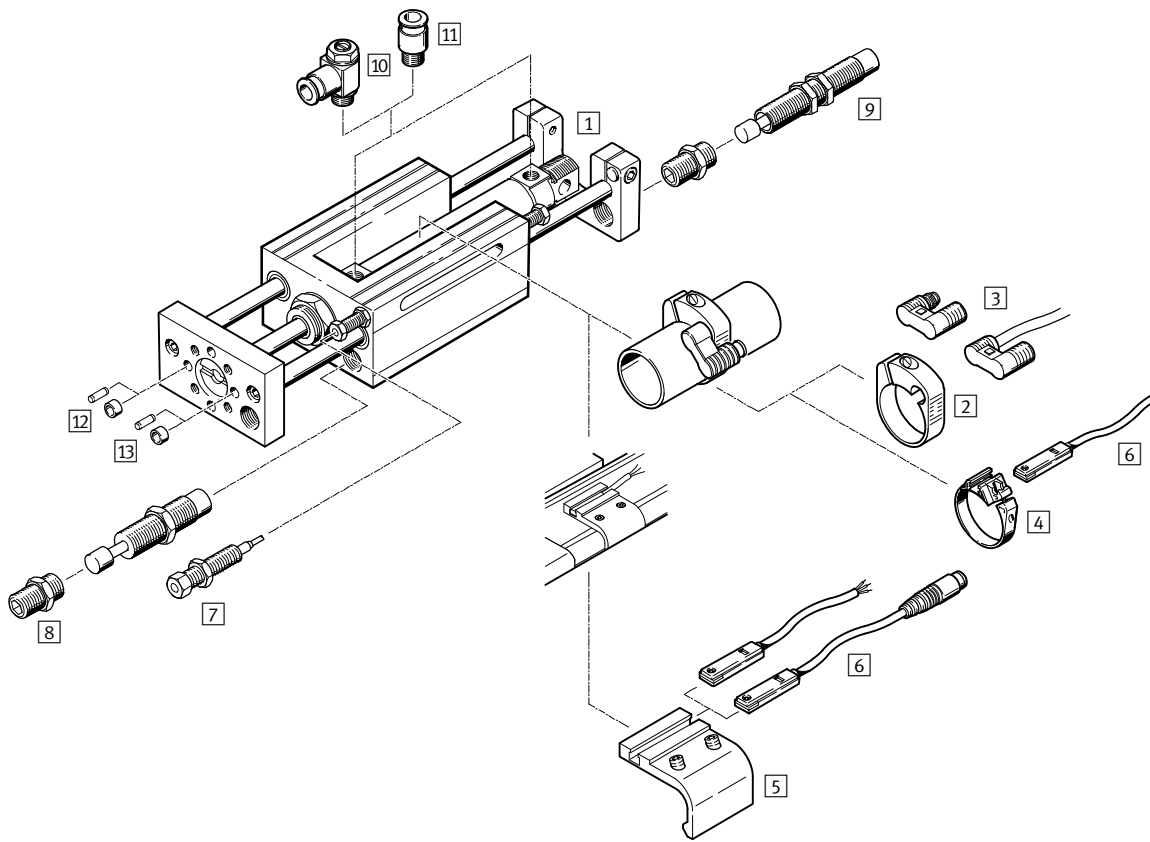
X-Y-Z-unit  
with SLM/SLE/SLE



X	Y	Z
<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 units SLE

Peripherals overview



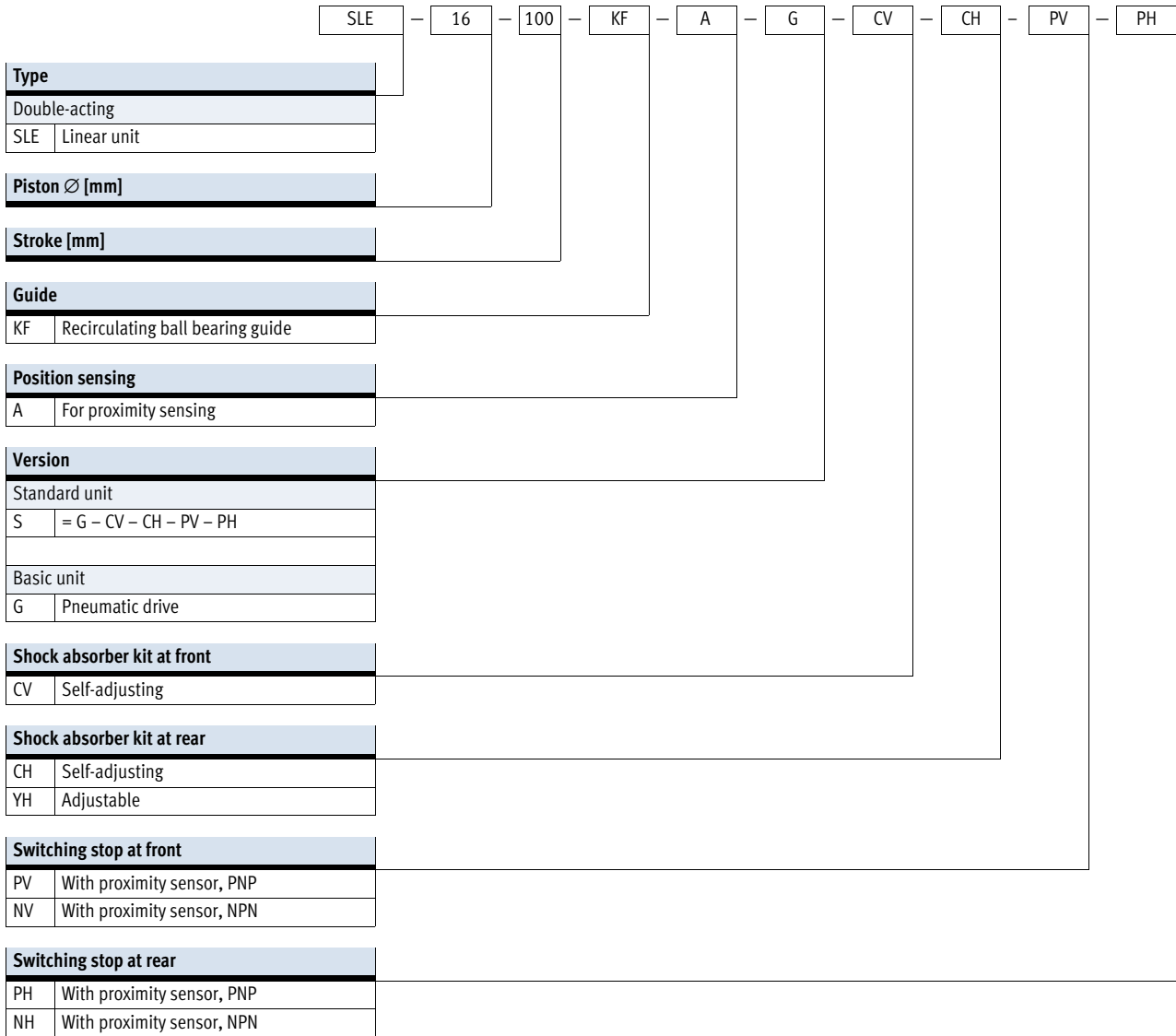
# Linear units SLE

Peripherals overview

Accessories					
	Description	Piston Ø 10 ... 20 mm	Piston Ø 25 mm	Piston Ø 32 ... 50 mm	→ Page/Internet
1	Standard cylinder DSNU	■	■	-	17
	Standard cylinder DNC	-	-	■	17
2	Mounting kit SMBR	■	■	-	17
3	Proximity sensor SMEO/SMT0-4J	■	■	-	17
4	Mounting kit SMBR-8	■ Ø 20	■	-	18
5	Mounting kit SMB-8-FENG	-	-	■	18
6	Proximity sensor SME/SMT-8	■ Ø 20	■	■	18
7	Switching stop with proximity sensor SL-...-SIE-PS/SL-...-SIE-NS	■	■	■	16
8	Shock absorber kit, self-adjusting SLE-...-YSR-C	■	■	■	16
9	Shock absorber kit, adjustable SLZ-...-KF-A	■ Ø 20	■	■	16
10	One-way flow control valve GRLA	■	■	■	20
11	Push-in fitting QS	■	■	■	qs
12	Centring pin ZBS	■	-	-	17
13	Centring sleeve ZBH	-	■	■	17

# Linear units SLE

Type codes



# Linear units SLE

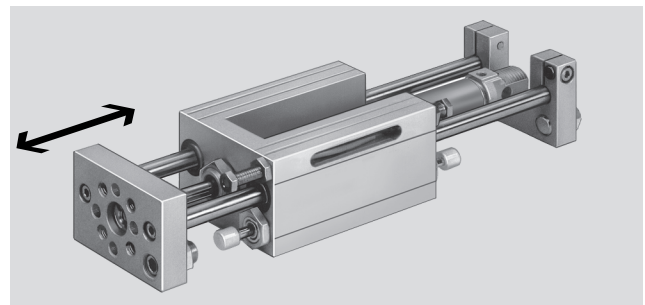
Technical data

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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 <sup>1)</sup> [°C]	-20 ... +80						

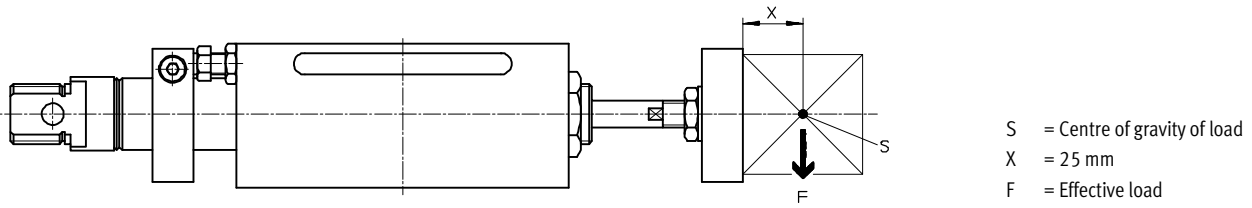
1) Note operating range of proximity sensors.

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

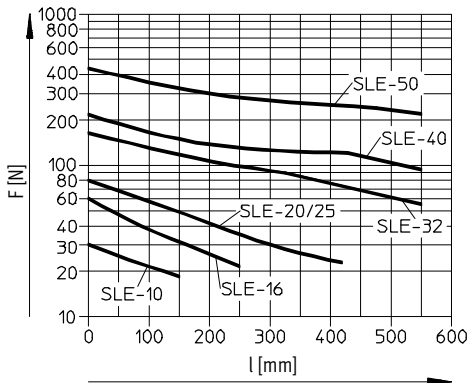
# Linear units SLE

Technical data

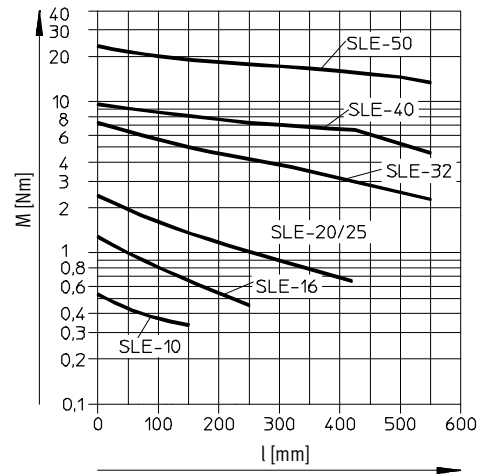
## Permissible dynamic load



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



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



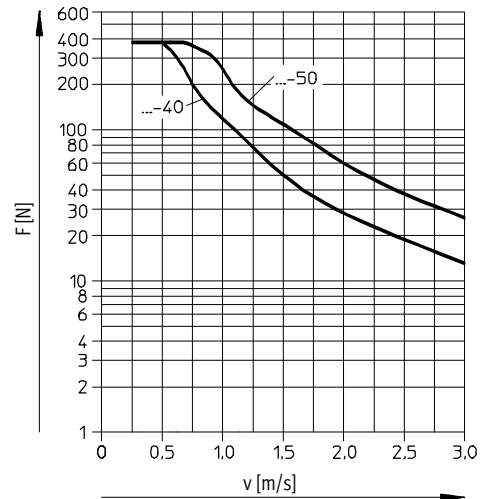
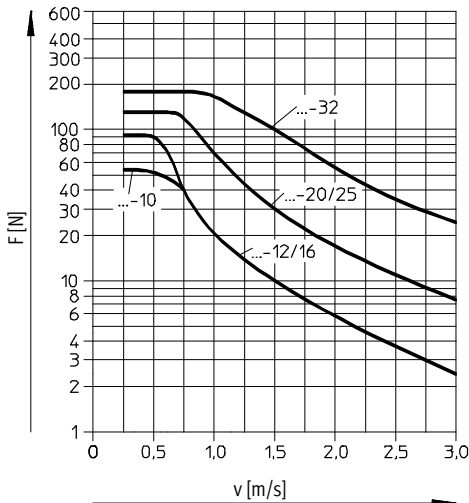
## Permissible shock absorber load F as a function of the impact velocity v

with horizontal installation

$$F \approx m_L \times g$$

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

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





# Linear units SLE

Technical data

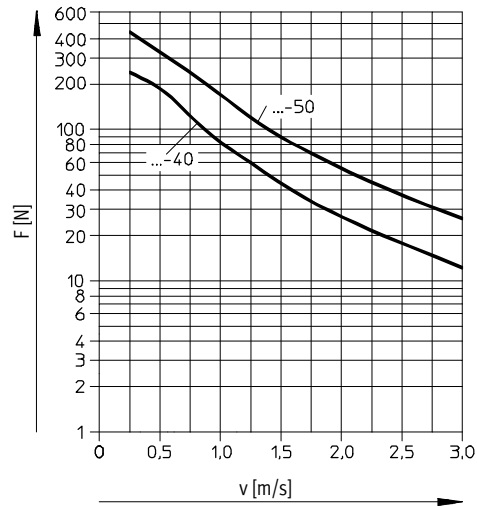
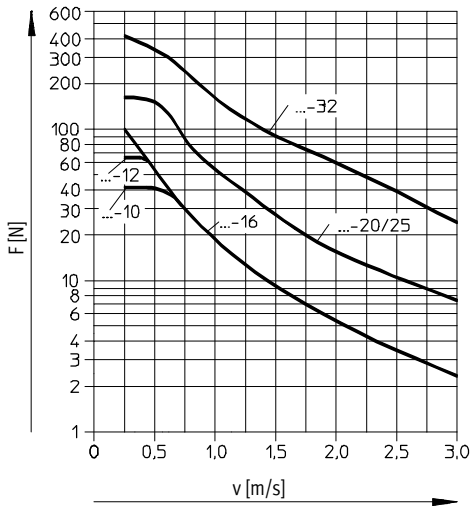
**Permissible shock absorber load F as a function of the impact velocity v**  
with vertical installation

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

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

$m_E$  = Moving load (dead weight) [kg]

$m_L$  = Load [kg]



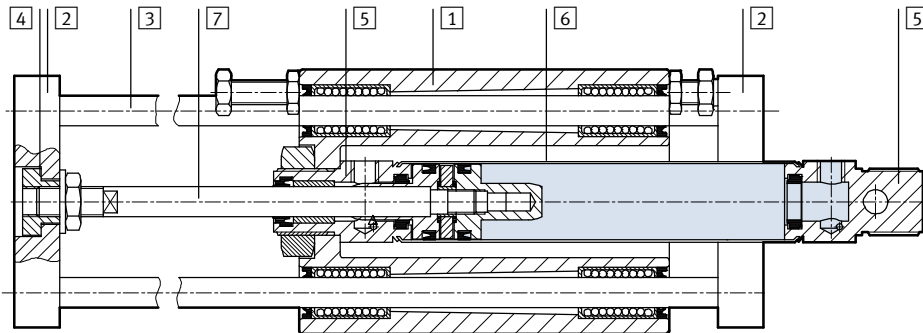
Weights [g]							
Piston Ø	10	16	20	25	32	40	50
Product weight with 0 mm stroke	560	913	1882	1942	4300	6175	9200
Additional weight per 10 mm stroke	10	13	19	23	57	85	125
Moving load with 0 mm stroke	160	230	500	500	1500	2200	3600
Additional load per 10 mm stroke	8	8	12	12	31	49	77

# Linear units SLE

Technical data

## Materials

Sectional view



## Linear unit

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

# Linear units SLE

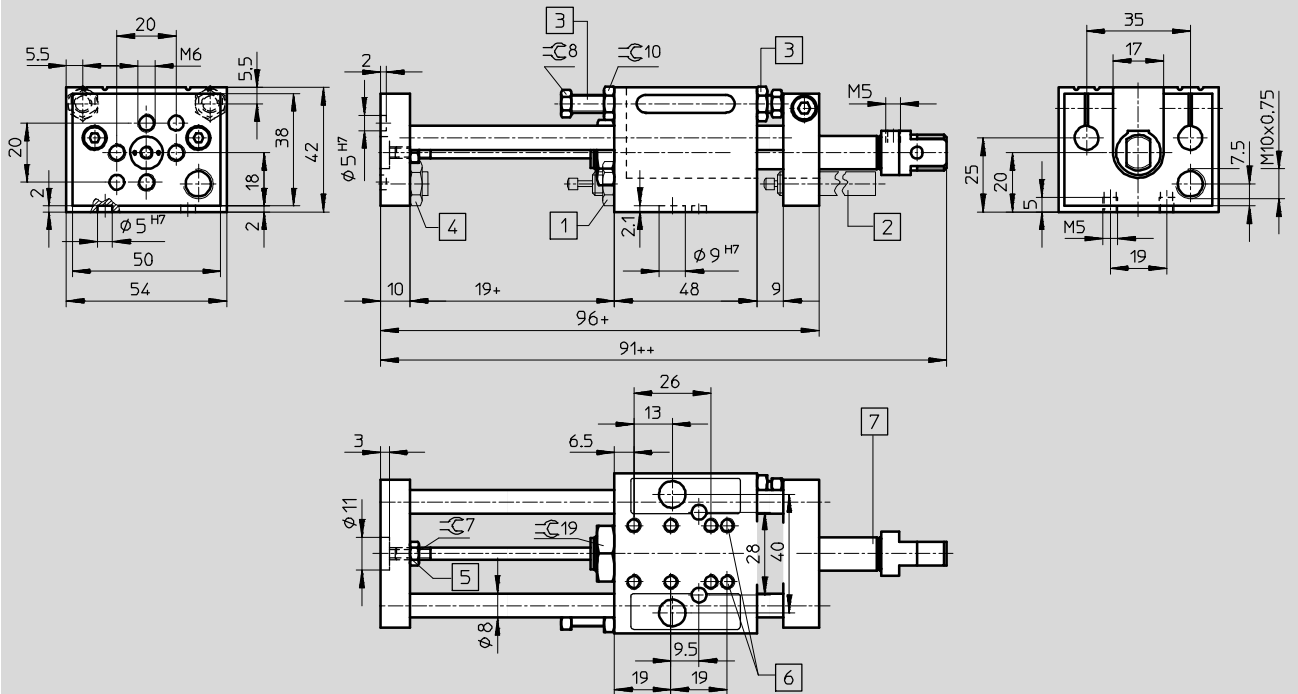
Technical data

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## Dimensions

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

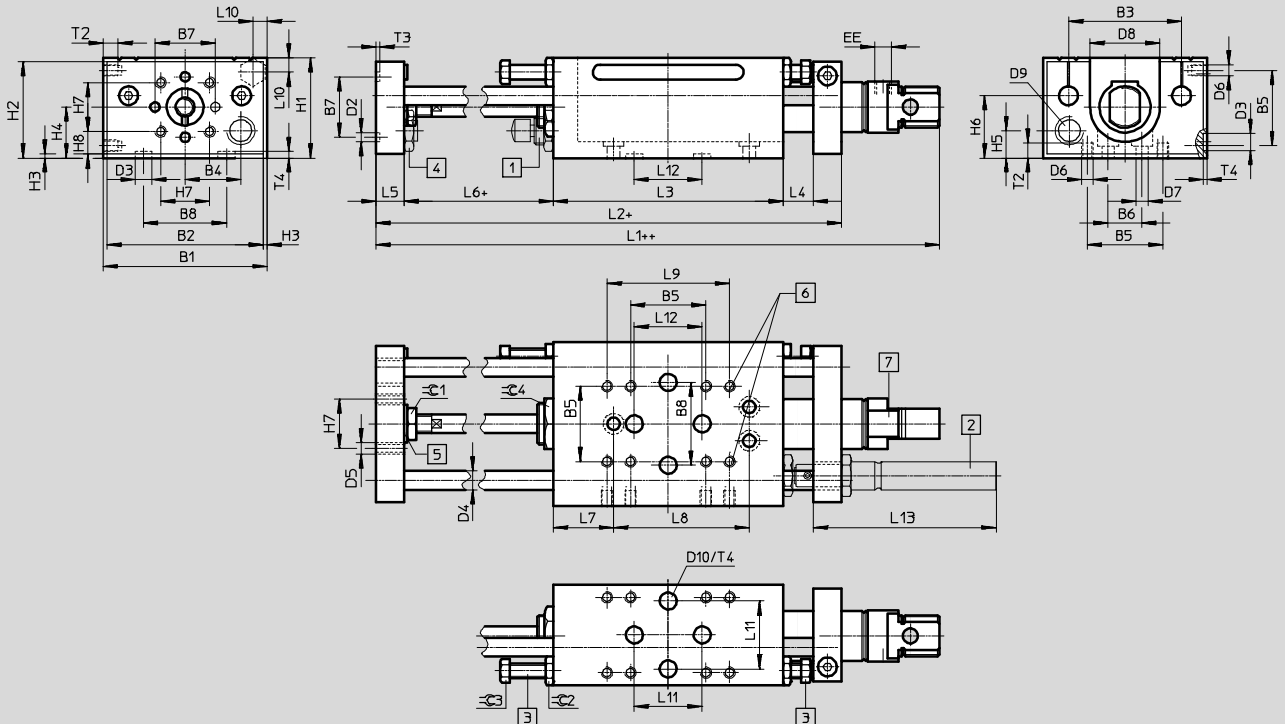
Technical data



## Dimensions

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

Piston Ø 16 ... 25 mm



- 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

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

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

Ø	L5	L6	L7	L8	L9	L10	L11	L12	L13	T2	T3	T4	≡C1	≡C2	≡C3	≡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 <sup>+0.2</sup>	13	13	11	27
25	15	29	32	72	65	7.5	40	40	97	8	2	2.1 <sup>+0.2</sup>	17	13	11	27

# Linear units SLE

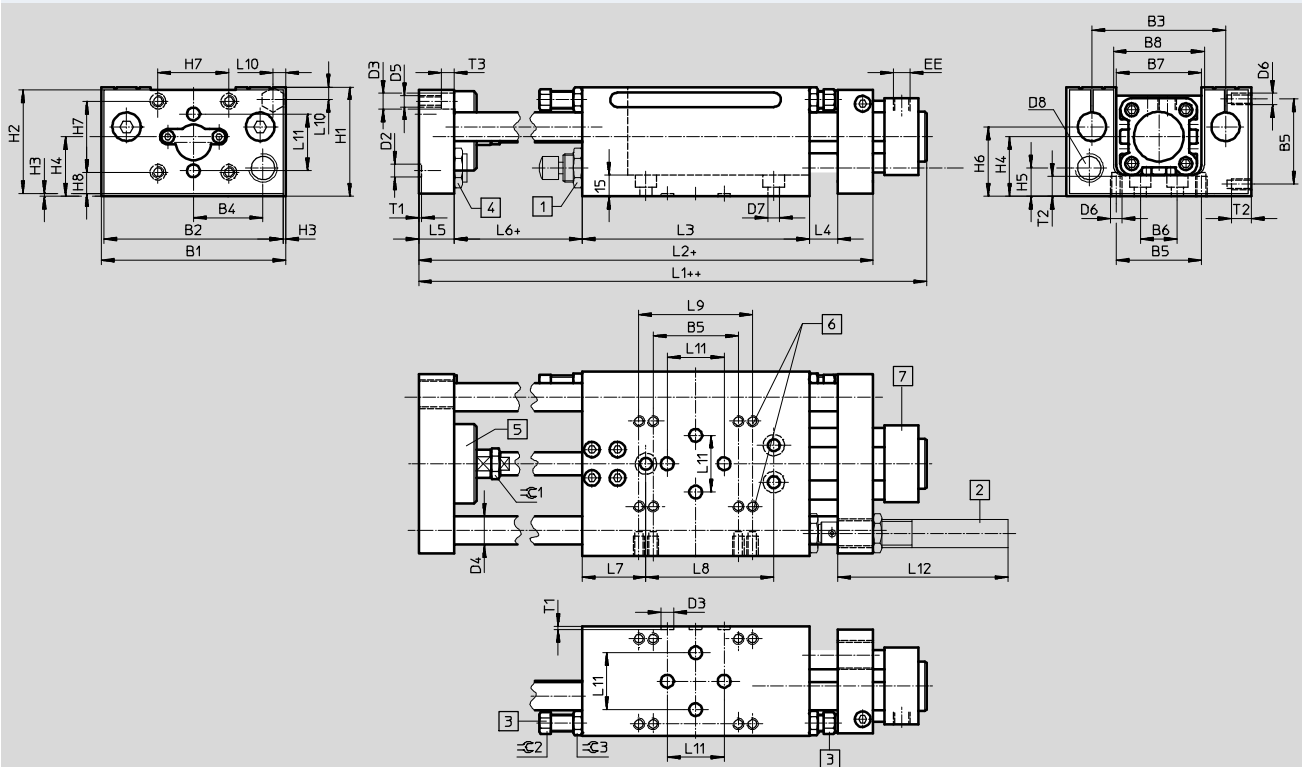
Technical data



## Dimensions

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

Piston Ø 32 ... 50 mm



- 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 DNC
- + = plus stroke length  
++ = plus 2x stroke length

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

Ø	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

Ø	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	T1	T2	T3	≈C1	≈C2	≈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	
<b>M</b> Module No.	<b>150088</b>	<b>150090</b>	<b>150091</b>	<b>150092</b>	<b>150093</b>	<b>150094</b>	<b>150921</b>				
Drive function	Linear unit								<b>SLE</b>	SLE	
Size [mm]	10	16	20	25	32	40	50		-...		
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320	10 ... 500					-...		
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>	-G	
<b>O</b> Shock absorber	at front	Self-adjusting shock absorber, with stop at front								<b>-CV</b>	
	at rear	Self-adjusting shock absorber, with stop at rear								<b>-CH</b>	
		-	-	Adjustable shock absorber, with stop at rear					<b>-YH</b>		
Sensor (bonded)	at front	Inductive sensor with 2.5 m cable, PNP, with stop sleeve at front								<b>-PV</b>	
		Inductive sensor with 2.5 m cable, NPN, with stop sleeve at front								<b>-NV</b>	
	at rear	Inductive sensor with 2.5 m cable, PNP, with stop sleeve at rear								<b>-PH</b>	
		Inductive sensor with 2.5 m cable, NPN, with stop sleeve at rear								<b>-NH</b>	

Transfer order code

-  -  -  -  -  -  -  -  -

# Linear units SLE

Ordering data – Modular products, package solution

Ordering table										
Size	10	16	20	25	32	40	50	Condi- tions	Code	Enter code
<b>M</b> Module No.	<b>150088</b>	<b>150090</b>	<b>150091</b>	<b>150092</b>	<b>150093</b>	<b>150094</b>	<b>150921</b>			
Drive function	Linear unit								<b>SLE</b>	SLE
Size [mm]	10	16	20	25	32	40	50		-...	
Stroke [mm]	10 ... 100	10 ... 200	10 ... 320	10 ... 500					-...	
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

## 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



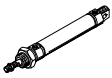
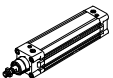
# Linear units SLE


Accessories


FESTO


Ordering data – Accessories					
	For Ø [mm]	Material	Part No.	Type	PU <sup>1)</sup>
Centring pin ZBS <span style="float: right;">Technical data → Internet: zbs</span>					
	10 ... 20	Stainless steel Free of copper, PTFE and silicone	<b>150928</b>	<b>ZBS-5</b>	10
Centring sleeve ZBH <span style="float: right;">Technical data → Internet: zbh</span>					
	25 ... 50	Stainless steel Free of copper, PTFE and silicone	<b>150927</b>	<b>ZBH-9</b>	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	<b>14325</b>	<b>DSNU-10-...-P-A</b>		32	<b>163304</b>	<b>DNC-32-...-PPV-A</b>
	16	<b>14320</b>	<b>DSNU-16-...-PPV-A</b>		40	<b>163336</b>	<b>DNC-40-...-PPV-A</b>
	20	<b>14321</b>	<b>DSNU-20-...-PPV-A</b>		50	<b>163368</b>	<b>DNC-50-...-PPV-A</b>
	25	<b>14322</b>	<b>DSNU-25-...-PPV-A</b>				

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	<b>152836</b>	<b>SMT0-4U-PS-K-LED-24</b>
			–	3-pin	–	–	In-line	<b>152742</b>
		NPN	3-wire	–	2.5	In-line	<b>152837</b>	<b>SMT0-4U-NS-K-LED-24</b>
			–	3-pin	–	–	In-line	<b>152743</b>

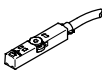
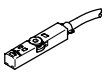
Ordering data – Proximity sensors, round design, magnetic reed						Technical data → Internet: smeo	
	Mounting	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8				
Normally open contact							
	Via accessories	3-wire	–	2.5	In-line	<b>36198</b>	<b>SMEO-4U-K-LED-24</b>
			–	5	In-line	<b>175401</b>	<b>SMEO-4U-K5-LED-24</b>
		–	3-pin	–	–	In-line	<b>151526</b>

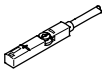

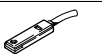
Ordering data – Mounting kits for proximity sensors SMEO/SMT0-4U			Technical data → Internet: smbr	
	For Ø	Part No.	Type	
	10	<b>19273</b>	<b>SMBR-10</b>	
	16	<b>19275</b>	<b>SMBR-16</b>	
	20	<b>19276</b>	<b>SMBR-20</b>	
	25	<b>19277</b>	<b>SMBR-25</b>	


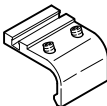
# Linear units SLE

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	
				5.0	543863	SME-8M-DS-24V-K-5,0-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	
	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
		Straight socket, M8x1, 3-pin		Cable, open end, 3-wire	2.5	541333
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

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