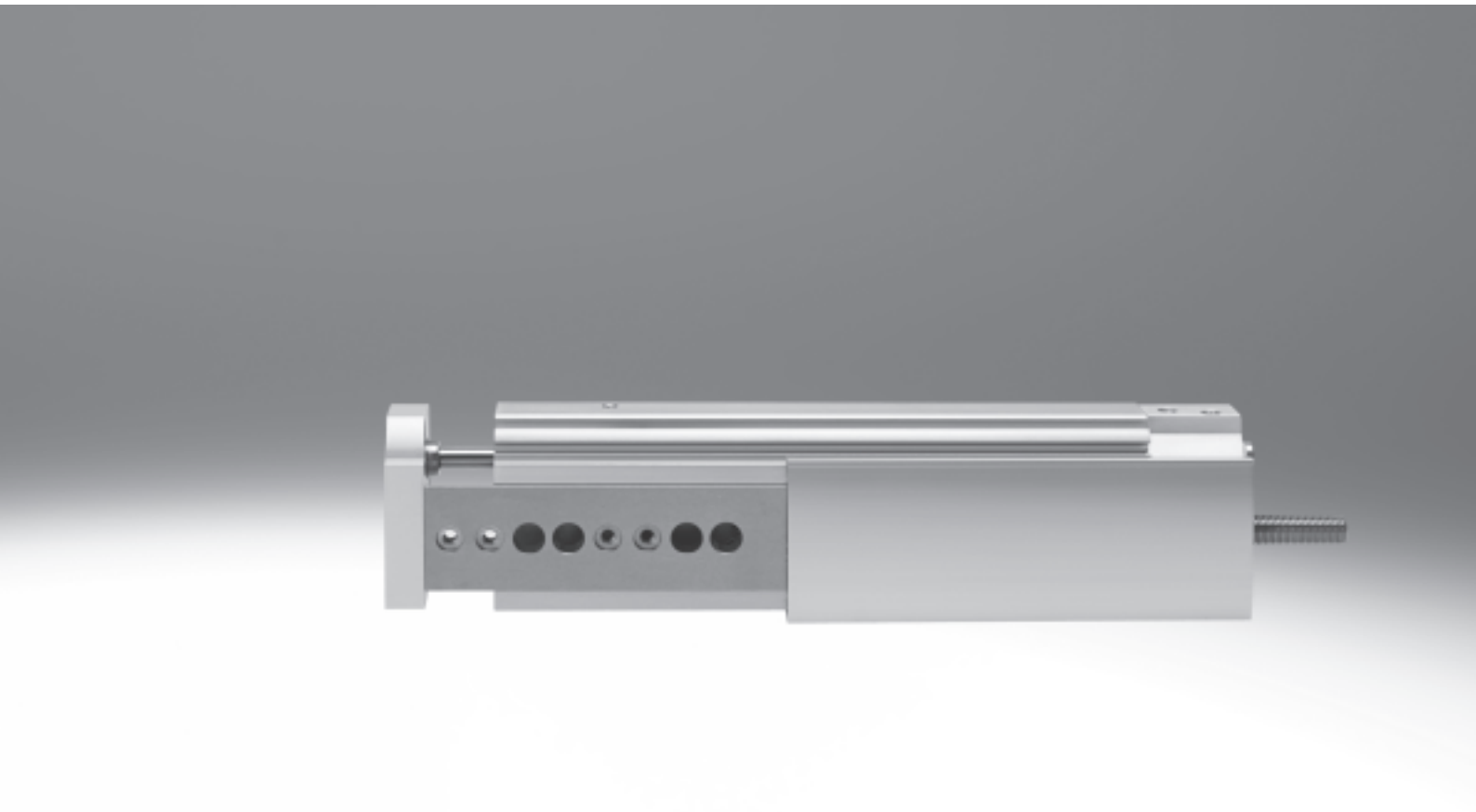
Mini slides DGSL

FESTO



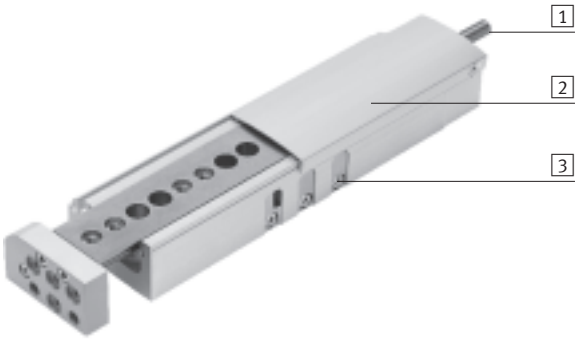
Mini slides DGSL

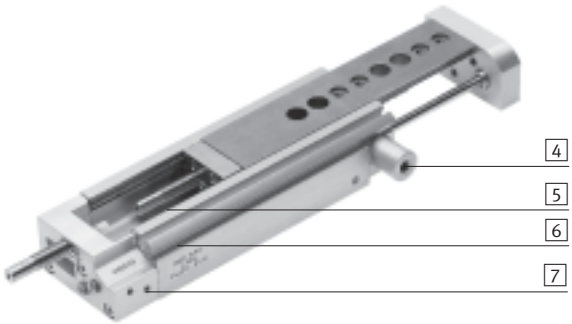
Key features

General information

- Double-acting drives
- Wide range of options for mounting on:
  - Drives, grippers
- System product for handling and assembly technology
- Highly elastic thanks to wide range of assembly and connection options on:
  - Drive body, slide, yoke plate

The technology in detail





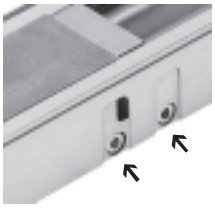
1 Cushioning

- Choice of four cushioning types:
  - Elastic cushioning without metal end position (P)
  - Elastic cushioning without metal end position, short design (E)
  - Elastic cushioning with metal end position (P1)
  - Hydraulic shock absorbers (Y3)

2 Cover

- The cover stops foreign parts or dirt getting into the guide
- The cover comes in different lengths and can be trimmed as required by the customer

3 Coarse stroke adjustment



- The end stop for the advanced end position can be adjusted mechanically, for example to shorten the stroke

4 Clamping unit

- Mechanical clamping, for fixing the slide in any position; frictional locking (C)

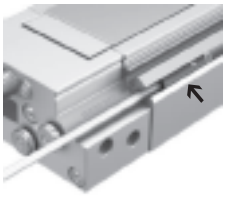
4 End-position locking

- Mechanical locking when the end position is reached, for fixing the slide in the unpressurised, retracted state; positive locking (E3)

5 Innovative guide unit

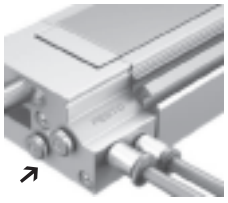
- Wide roller track, which provides extremely high rigidity
- High load capacity
- High precision
- Housing and steel slide form a guide: there are no accumulative tolerances

6 Position sensing



- Proximity sensors can be integrated, so there are no projecting parts
- Two slots for mounting
- Clearly visible from the side and from above

7 Supply ports

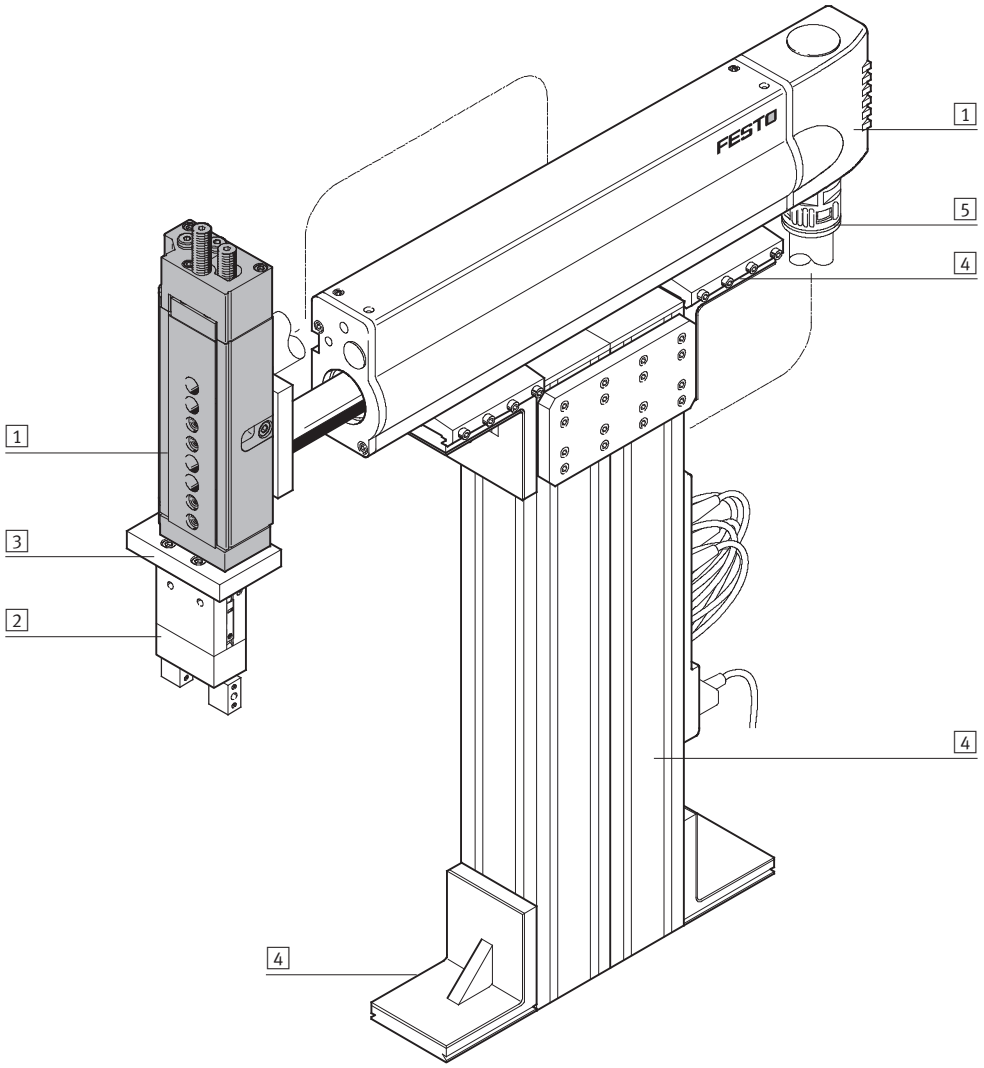


- Choice of two sides:
  - On front face
  - At the side

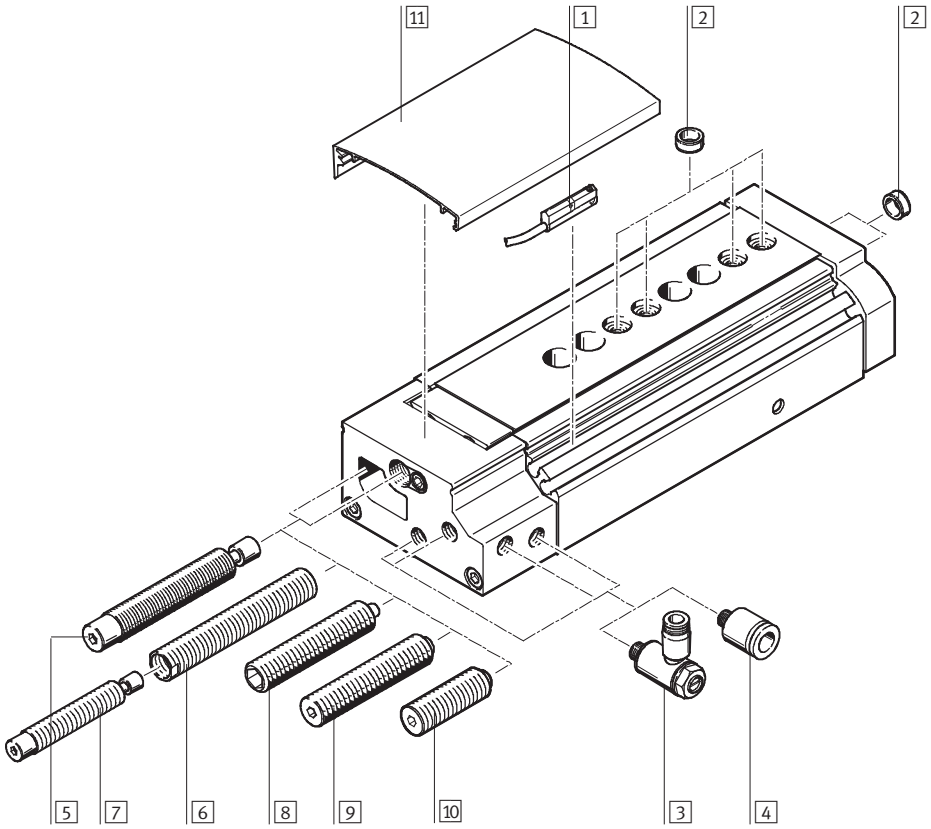
Mini slides DGSL

System example

System product for handling and assembly technology



System components and accessories			
		Brief description	**➔ Page/Internet**
1	Drives	Wide range of combinations possible within handling and assembly technology	drive
2	Grippers	Wide range of variations possible within handling and assembly technology	gripper
3	Adapters	For drive/drive and drive/gripper connections	adapter kit
4	Basic components	Profiles and profile connections as well as profile/drive connections	basic component
5	Installation components	For a clear, safe layout of electrical cables and tubing	installation component
–	Axes	Wide range of combinations possible within handling and assembly technology	axis
–	Motors	Servo and stepper motors, with or without gearing	motor



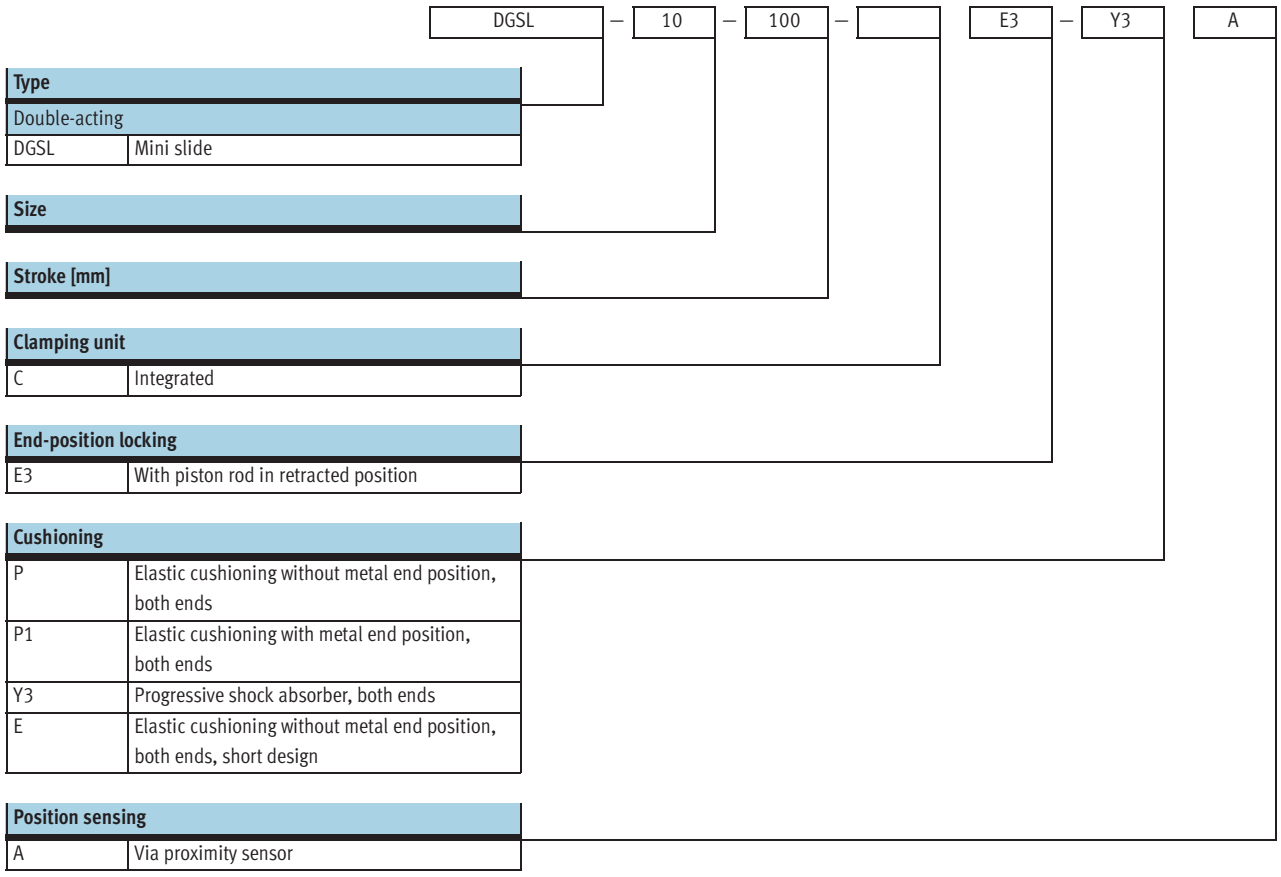
Note

End stops must not be removed.

Accessories			
		Brief description	**➔ Page/Internet**
1	Proximity sensor SME/SMT-10	For position sensing. Can be integrated in the sensor slot, so there are no projecting parts	47
2	Centring sleeve ZBH	For centring loads and attachments (centring sleeves are included in the scope of delivery of the mini slide)	46
3	One-way flow control valve GRLA	For regulating speed	47
4	Push-in fitting QSM	For connecting compressed air tubing with standard O.D.	47
5	Cushioning with shock absorber Y3	For large loads and high speed. Ensures precise, metal-to-metal contact after the cushioning	46
6	Reducing sleeve DAYH	For installing a smaller shock absorber. For applications where the cushioning energy lies between the cushioning Y3 and P1	46
7	Shock absorber DYSW	➔ 12 (shock absorber selection)	46
8	Cushioning with stop P1	Precision metal stop for small loads at low speed	46
9	Cushioning P	• Flexible stop for medium loads at medium speed • (standard design)	46
10	Cushioning E	• Flexible stop for medium loads at medium speed • (short design)	46
11	Cover DADS	• For protection, to stop foreign parts or dirt getting into the guide • The cover can be trimmed as required by the customer	45

Mini slides DGSL

Type codes



Type	
Double-acting	
DGSL	Mini slide

Size

Stroke [mm]

Clamping unit	
C	Integrated

End-position locking	
E3	With piston rod in retracted position

Cushioning	
P	Elastic cushioning without metal end position, both ends
P1	Elastic cushioning with metal end position, both ends
Y3	Progressive shock absorber, both ends
E	Elastic cushioning without metal end position, both ends, short design

Position sensing	
A	Via proximity sensor

Mini slides DGSL

Technical data

FESTO

Function

- Ø - Size
  4 ... 25

- I - Stroke length
  10 ... 200 mm

Wearing parts kits
➔ 45

Technical data:
- DGSL-C (with clamping unit)
- DGSL-E3 (with end-position locking)

➔ 40

General technical data										
Size			4	6	8	10	12	16	20	25
Pneumatic connection			M3			M5			G1/8	
Design			Scotch yoke system							
Guide			Ball bearing cage guide							
Type of mounting			Via through-hole							
			Via female thread							
Cushioning		P	Elastic cushioning without metal end position, both ends							
		E	Elastic cushioning without metal end position, both ends, short design							
		P1	Elastic cushioning with metal end position, both ends, adjustable							
		Y3	–		With progressive shock absorber, both ends					
Position sensing			Via proximity sensor							
Mounting position			Any							
Max. advancing speed		[m/s]	0.5		0.8					
Max. retracting speed		[m/s]	0.5		0.8					
Repetition accuracy	P1/Y3	[mm]	±0.01							
	P	[mm]	0.3							

Operating and environmental conditions										
Size			4	6	8	10	12	16	20	25
Operating medium			Dried compressed air, lubricated or unlubricated							
Min. operating pressure		[bar]	2.5	1.5			1			
Max. operating pressure		[bar]	8							
Ambient temperature[1)]		[°C]	0 ... +60							

1) Note operating range of proximity sensors.

Piston Ø, forces and impact energy										
Size			4	6	8	10	12	16	20	25
Piston Ø		[mm]	6	8	10	12	16	20	25	32
Theoretical force at 6 bar, advancing		[N]	17	30	47	68	121	188	295	483
Theoretical force at 6 bar, retracting		[N]	13	23	40	51	104	158	247	415
Impact energy in the end positions	P, E	[Nm]	0.015	0.05	0.08	0.12	0.25	0.35	0.45	0.55
	P1	[Nm]	0.005	0.02	0.03	0.04	0.06	0.12	0.2	0.25
	Y3	[Nm]	–	–	0.8	1.3	2.5	4	8	12
	1)	[Nm]	–	–	–	0.8	1.3	2.5	4	8

1) With reducing sleeve and next smallest shock absorber.

Mini slides DGSL

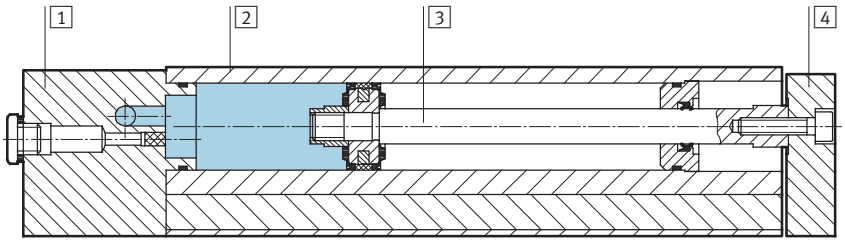
Technical data

Weight [g]									
Size	Stroke	4	6	8	10	12	16	20	25
Product weight without cushioning component									
	10	82	158	235	396	604	896	1,535	2,520
	20	93	179	263	434	660	954	1,649	2,670
	30	104	197	289	470	711	1,008	1,746	2,824
	40	–	215	313	507	762	1,072	1,857	2,983
	50	–	232	370	548	813	1,143	1,991	3,137
	80	–	–	454	727	1,112	1,365	2,295	4,019
	100	–	–	–	813	1,229	1,712	2,921	4,519
	150	–	–	–	–	1,499	2,034	3,620	5,344
	200	–	–	–	–	–	–	4,248	6,139
Moving load without cushioning component									
	10	31	68	101	163	256	403	660	998
	20	34	76	111	180	279	432	710	1,052
	30	38	83	121	194	299	459	750	1,115
	40	–	90	130	208	320	486	801	1,181
	50	–	99	152	226	340	519	858	1,244
	80	–	–	185	299	456	618	998	1,567
	100	–	–	–	334	507	776	1,254	1,761
	150	–	–	–	–	614	910	1,566	2,102
	200	–	–	–	–	–	–	1,807	2,432
Cushioning component									
	P	2	3.6	6	14	23	45.6	82.4	106
	E	1	2	3	9	12	15	31	40
	P1	1.6	3	5	12	19.7	39.6	77.3	104
	Y3	–	–	6	11	21	42	67	91
	1)	–	–	–	18	33	52	91	131

1) With reducing sleeve and next smallest shock absorber.

Materials

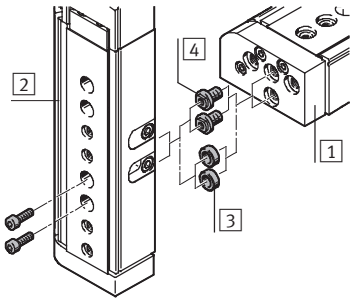
Sectional view

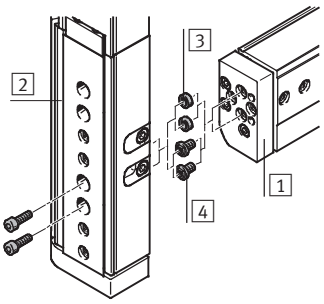


Mini slide		
1	End cap	Anodised aluminium
2	Housing	Anodised aluminium
3	Piston rod	High-alloy steel
4	Yoke plate	Anodised aluminium
–	Guide	Tempered steel
–	Seals	Thermoplastic rubber, hydrogenated nitrile rubber, nitrile rubber
	Note on materials	Free of copper and PTFE

Possible combinations without adapter plate

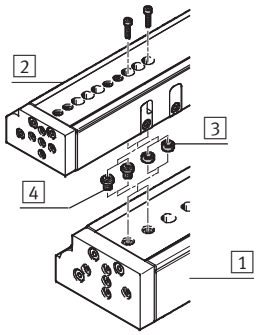
Pick & place





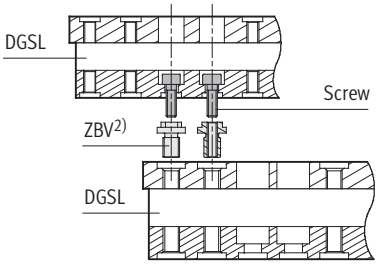
3 Centring sleeve ZBH
4 Connector sleeve ZBV

Piggy-back assembly



3 Centring sleeve ZBH
4 Connector sleeve ZBV

Mounting example with connector sleeve ZBV

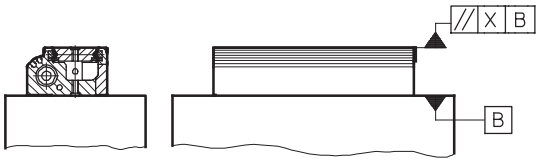


	1 Basic drive							
	Size	4	6	8	10	12	16	20	25
2 Assembly drive	4	2x M3x7 2x ZBH-5[1]	2x M3x10 2x ZBH-5[1]	ZBV-M4-7[2]	ZBV-M4-7[2]	–	–	–	–
	6	–	2x M3x10 2x ZBH-5[1]	ZBV-M4-7[2]	ZBV-M4-7[2]	–	–	–	–
	8	–	–	2x M4x12 2x ZBH-7[1]	2x M4x12 2x ZBH-7[1]	ZBV-M5-7[2]	ZBV-M5-7[2]	–	–
	10	–	–	–	2x M4x14 2x ZBH-7[1]	ZBV-M5-7[2]	ZBV-M5-7[2]	–	–
	12	–	–	–	–	2x M5x14 2x ZBH-7[1]	2x M5x16 2x ZBH-7[1]	ZBV-M6-9[2]	ZBV-M6-9[2]
	16	–	–	–	–	–	2x M5x18 2x ZBH-7[1]	ZBV-M6-9[2]	ZBV-M6-9[2]
	20	–	–	–	–	–	–	2x M6x20 2x ZBH-9[1]	2x M6x20 2x ZBH-9[1]
	25	–	–	–	–	–	–	–	2x M6x30 2x ZBH-9[1]

1) Centring sleeves ZBH are included in the scope of delivery of the mini slide DGSL
2) Connector sleeves ZBV ➔ 46

Parallelism [mm]

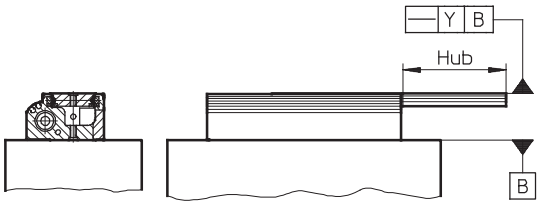
The term parallelism refers to the accuracy of alignment between the mounting surface and the slide surface.



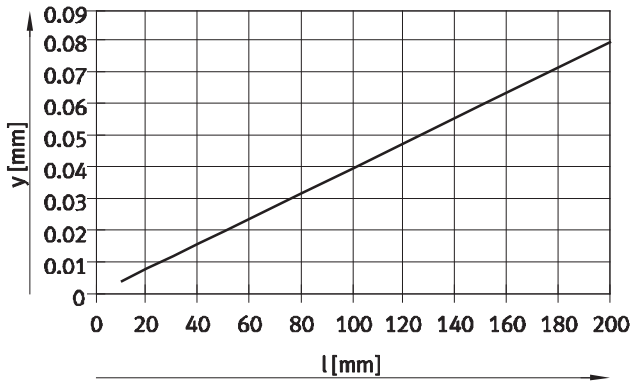
Size	Stroke [mm]	4	6	8	10	12	16	20	25
Parallelism X	10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	20	0.02	0.02	0.02	0.02	0.025	0.025	0.025	0.025
	30	0.025	0.025	0.025	0.025	0.025	0.025	0.03	0.03
	40	–	0.025	0.025	0.025	0.03	0.03	0.035	0.035
	50	–	0.03	0.03	0.03	0.035	0.035	0.04	0.04
	80	–	–	0.035	0.035	0.04	0.04	0.045	0.045
	100	–	–	–	0.045	0.05	0.05	0.055	0.055
	150	–	–	–	–	0.075	0.075	0.08	0.08
	200	–	–	–	–	–	–	0.08	0.08

Linearity [mm]

The term linearity refers to the accuracy of alignment between the mounting surface and the slide surface as a function of the stroke.



Linear travel accuracy y as a function of stroke length l



Mini slides DGSL

Technical data

Adjustable end-position range

Coarse adjustment of the advanced end position

The mini slide DGSL allows the advanced fixed stop to be adjusted by removing the cover.

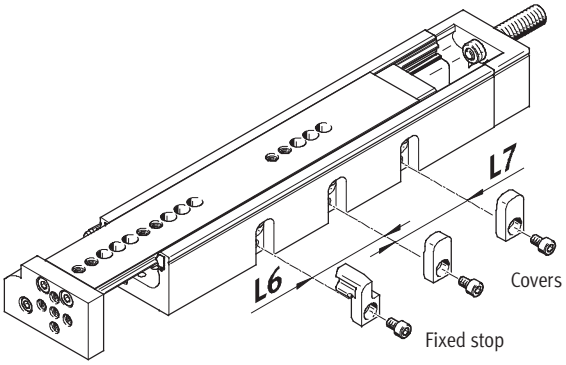
This permits stroke reduction down to the next but one smaller standard stroke through a combination of coarse and precision adjustments.

Advantages:

- Can be flexibly adapted to the application
- Integrated, which means reduced conversion effort and costs
- Large setting range

Note

Removal of the fixed stops can result in the destruction of the mini slide DGSL.



Size	4		6		8		10		12		16		20		25	
Stroke [mm]	L6	L7	L6	L7	L6	L7	L6	L7	L6	L7	L6	L7	L6	L7	L6	L7
10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	10	–	14	–	10	–	–	–	–	–	–	–	–	–	–	–
30	10	–	14	–	16	–	–	–	–	–	–	–	–	–	–	–
40	–	–	14	–	16	–	–	–	–	–	–	–	–	–	–	–
50	–	–	14	14	16	–	–	–	–	–	–	–	–	–	–	–
80	–	–	–	–	16	16	24	–	29	–	35	–	–	–	55	–
100	–	–	–	–	–	–	24	24	29	–	35	–	44	–	55	–
150	–	–	–	–	–	–	–	–	29	29	35	–	44	–	55	–
200	–	–	–	–	–	–	–	–	–	–	–	–	44	44	55	–

Example:
DGSL-12-150-...
Max. stroke = 150 mm

By adjusting the fixed stop by the dimension L6:
Stroke = 150 – 29 = 121 mm

By adjusting the fixed stop by the dimension L6 and L7:
Stroke = 150 – 29 – 29 = 92 mm

The stroke can additionally be reduced by means of precision adjustment:
Stroke = 150 – 29 – 29 – 29
= 63 mm

Precision adjustment of the advanced and retracted end position ➔ 11

Adjustable end-position range

Precision adjustment of the advanced and retracted end position

Precision adjustment of the required stroke reduction is possible using the cushioning components (on the slide and in the end cap).

Advantages:

- Precision adjustment is accurately fixed by the clamping component
- No readjustment required, position is fully retained under load
- Quick and easy adjustment, only one tool required

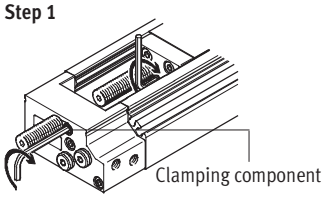
Step 1:
Loosen the clamping component.

Step 2:
Position the slide by hand in the desired end position.

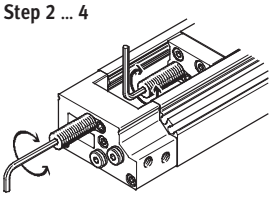
Step 3:
Turn the stop element using an Allen key until the end position is reached.

Step 4:
Tighten the clamping component.

Step 1



Step 2 ... 4

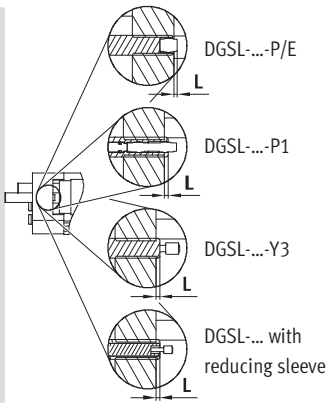


Adjustable end-position range [mm] per end position/stroke reduction									
Size		4	6	8	10	12	16	20	25
Advanced end position									
With cushioning	P	–14.5	–16.5	–19.5	–27.5	–29	–37.5	–50.5	–55
	E	–4.5	–5	–4.5	–13	–9	–3.5	–6.5	–11.5
	P1	–14.5	–16.5	–19.5	–27.5	–29	–37.5	–50.5	–55
	Y3	–	–	–15	–24	–29	–36.5	–44	–56
	1)	–	–	–15	–24	–29	–36.5	–44	–56
Retracted end position									
With cushioning	P	–13.5	–15	–18.5	–20	–25.5	–39.5	–49.5	–49
	E	–3.5	–3.5	–3.5	–5.5	–5.5	–5.5	–5.5	–5.5
	P1	–13.5	–15	–18.5	–20	–25.5	–39.5	–49.5	–49
	Y3	–	–	–14	–15	–25.5	–38.5	–42	–51.5
	1)	–	–	–14	–15	–25.5	–38.5	–42	–51.5

1) With reducing sleeve and next smallest shock absorber.

Note

The distance L of the cushioning component (➔ operating instructions) must not be fallen below (factory setting).



Note

The setting range of the advanced and retracted end position is restricted when using the cushioning type “E”.

Shock absorber selection

Effective load m as a function of impact velocity v

With the mini slide DGSL the shock absorber can be replaced and thus the cushioning behaviour can be influenced (depending on the effective load).

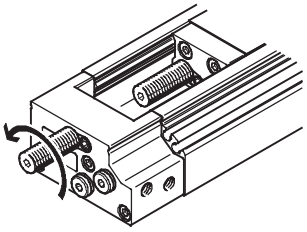
This is done by removing the existing shock absorbers on the DGSL and replacing them with a smaller shock absorber as appropriate to the application (➔ description below).

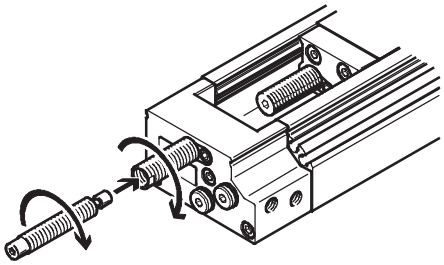
Graphs
for selecting a suitable shock absorber as a function of the mounting position of the mini slide
➔ from 13.

Ordering data
Shock absorbers DYSW, DYEF and reducing sleeve DAYH ➔ 46.

With smaller loads:

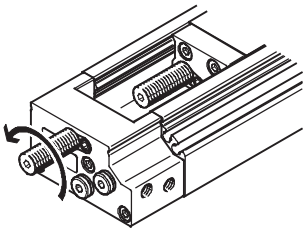
The next smallest shock absorber DYSW can be installed with the help of the reducing sleeve DAYH.

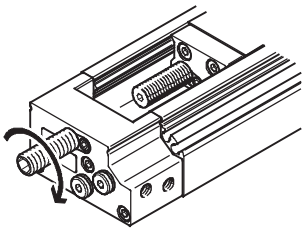




With very small loads:

The shock absorber DYEF can be installed.

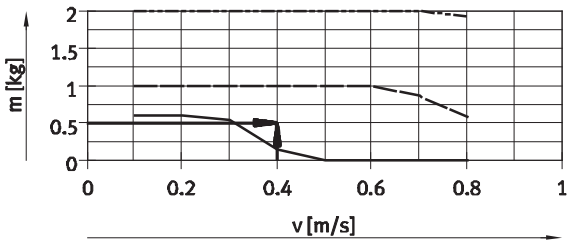




Selection example:

Existing drive:
Mini slide: DGSL-10-...-Y3-A

Given:
Effective load: 500 g
Impact velocity: 0.4 m/s
Mounting position: Horizontal



DYSW-5-8 (cushioning Y3)
DYSW-4-6 with DAYH-4
DYEF-M8-Y1F

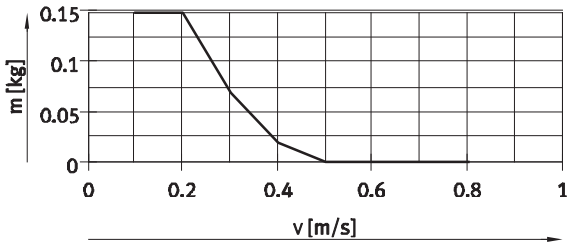
Result:
The first cushioning curve, which is located above the point of intersection, is the most suitable for this case. Due to the low effective load of less than one kilogram, the cushioning characteristics are greatly improved by replacing the shock absorber DYSW-5-8 integrated in the mini slide with the reducing sleeve DAYH-4 and the next smallest shock absorber DYSW-4-6.

Fundamentally, the following applies: shock absorbers must be loaded. Since the shock absorber DYSW-4-6 is more fully utilised in this case, both the service life of the shock absorber and the cushioning characteristics are improved.

Shock absorber selection

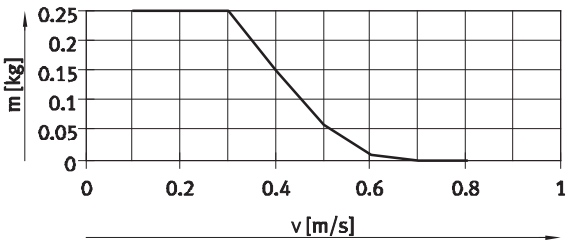
Effective load m as a function of impact velocity v – horizontal mounting position

DGSL-4



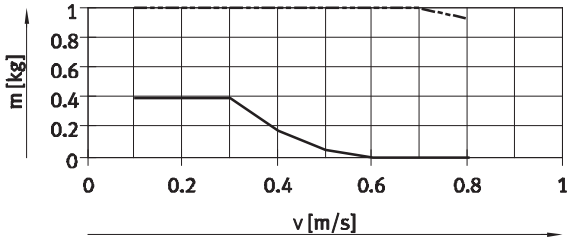
DYEF-M4-Y1F (cushioning P1)

DGSL-6



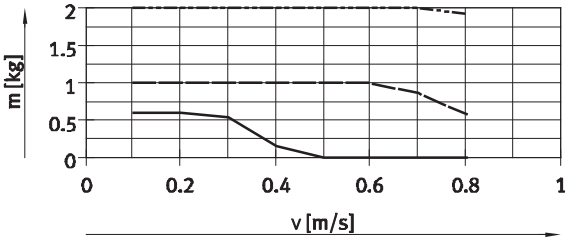
DYEF-M5-Y1F (cushioning P1)

DGSL-8



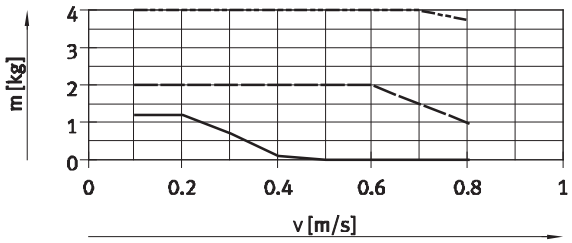
DYSW-4-6 (cushioning Y3)
DYEF-M6-Y1F

DGSL-10



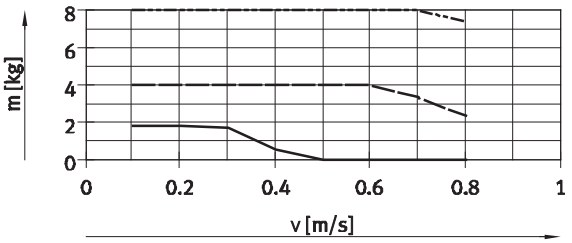
DYSW-5-8 (cushioning Y3)
DYSW-4-6 with DAYH-4
DYEF-M8-Y1F

DGSL-12



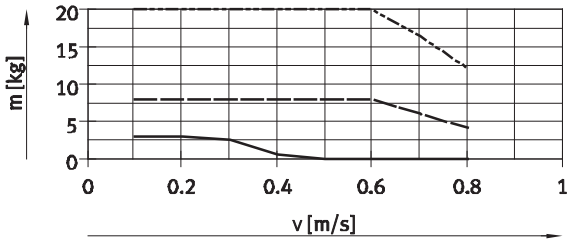
DYSW-7-10 (cushioning Y3)
DYSW-5-8 with DAYH-5
DYEF-M10-Y1F

DGSL-16



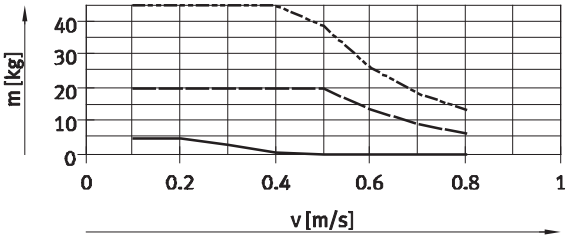
DYSW-8-14 (cushioning Y3)
DYSW-7-10 with DAYH-7
DYEF-M12-Y1F

DGSL-20



DYSW-10-17 (cushioning Y3)
DYSW-8-14 with DAYH-8
DYEF-M14-Y1F

DGSL-25

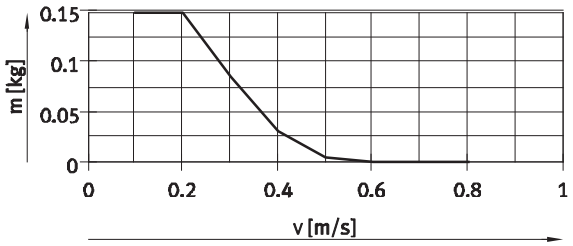


DYSW-12-20 (cushioning Y3)
DYSW-10-17 with DAYH-10
DYEF-M16-Y1F

Shock absorber selection

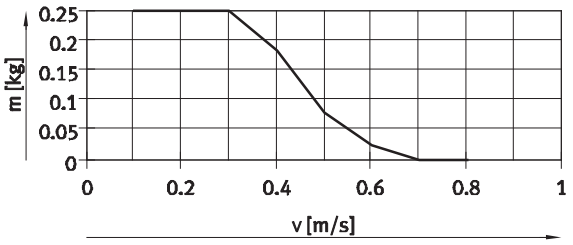
Effective load m as a function of impact velocity v – vertical mounting position, effective load moving upwards

DGSL-4



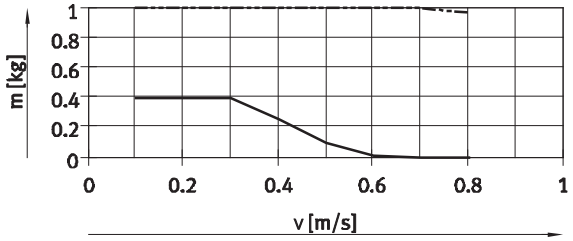
DYEF-M4-Y1F (cushioning P1)

DGSL-6



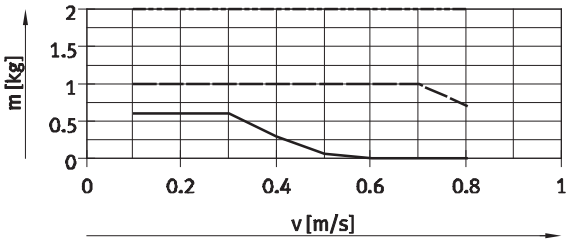
DYEF-M5-Y1F (cushioning P1)

DGSL-8



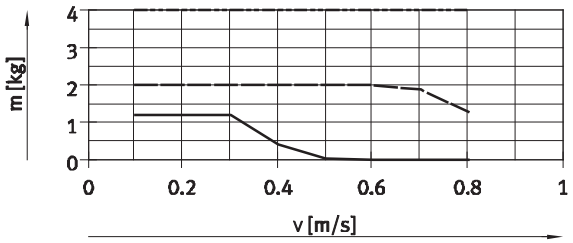
DYSW-4-6 (cushioning Y3)
DYEF-M6-Y1F

DGSL-10



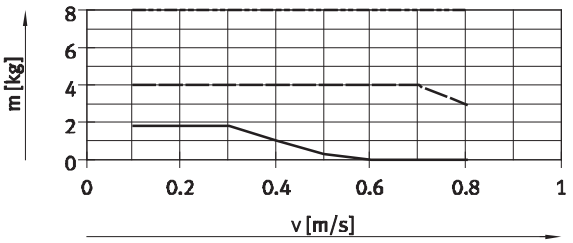
DYSW-5-8 (cushioning Y3)
DYSW-4-6 with DAYH-4
DYEF-M8-Y1F

DGSL-12



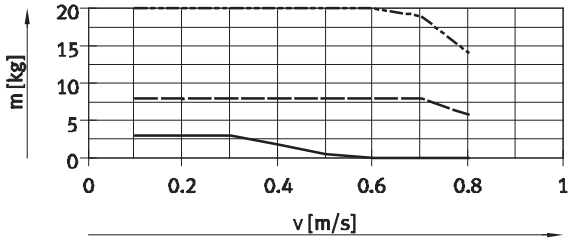
DYSW-7-10 (cushioning Y3)
DYSW-5-8 with DAYH-5
DYEF-M10-Y1F

DGSL-16



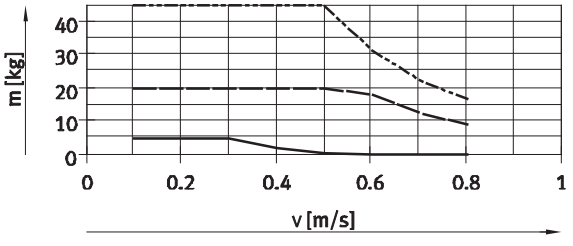
DYSW-8-14 (cushioning Y3)
DYSW-7-10 with DAYH-7
DYEF-M12-Y1F

DGSL-20



DYSW-10-17 (cushioning Y3)
DYSW-8-14 with DAYH-8
DYEF-M14-Y1F

DGSL-25

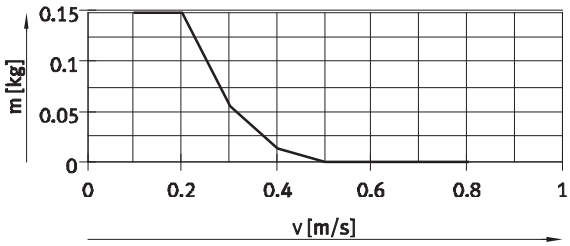


DYSW-12-20 (cushioning Y3)
DYSW-10-17 with DAYH-10
DYEF-M16-Y1F

Shock absorber selection

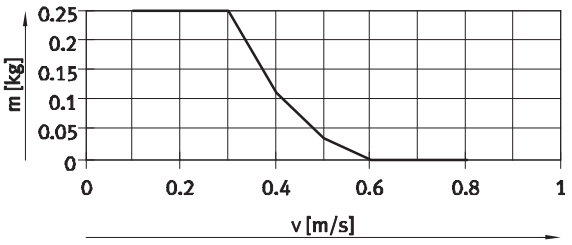
Effective load m as a function of impact velocity v – vertical mounting position, effective load moving downwards

DGSL-4



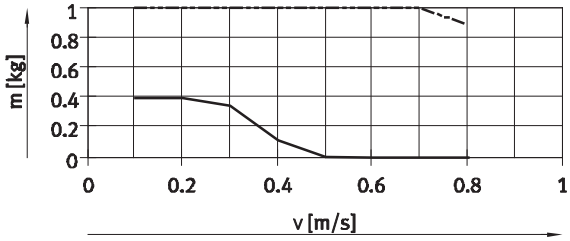
DYEF-M4-Y1F (cushioning P1)

DGSL-6



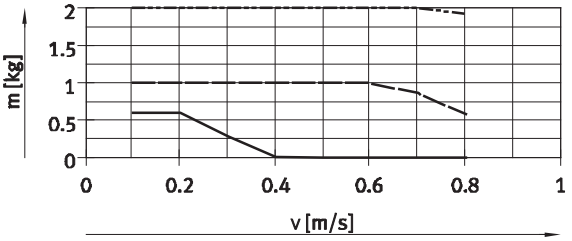
DYEF-M5-Y1F (cushioning P1)

DGSL-8



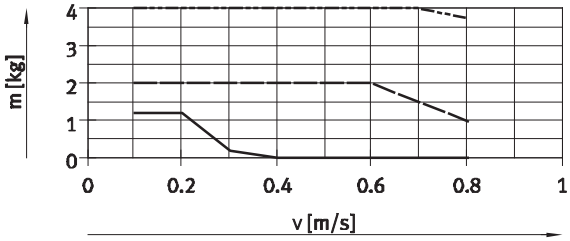
DYSW-4-6 (cushioning Y3)
DYEF-M6-Y1F

DGSL-10



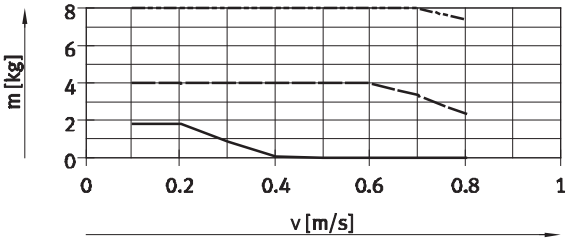
DYSW-5-8 (cushioning Y3)
DYSW-4-6 with DAYH-4
DYEF-M8-Y1F

DGSL-12



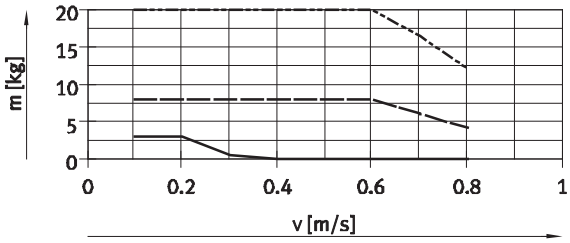
DYSW-7-10 (cushioning Y3)
DYSW-5-8 with DAYH-5
DYEF-M10-Y1F

DGSL-16



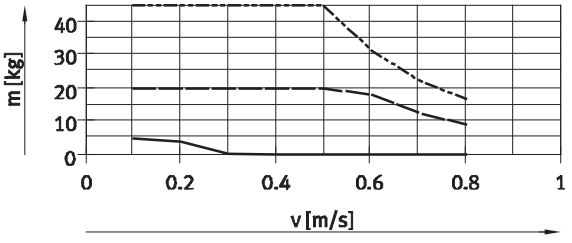
DYSW-8-14 (cushioning Y3)
DYSW-7-10 with DAYH-7
DYEF-M12-Y1F

DGSL-20



DYSW-10-17 (cushioning Y3)
DYSW-8-14 with DAYH-8
DYEF-M14-Y1F

DGSL-25



DYSW-12-20 (cushioning Y3)
DYSW-10-17 with DAYH-10
DYEF-M16-Y1F

Shock absorber selection

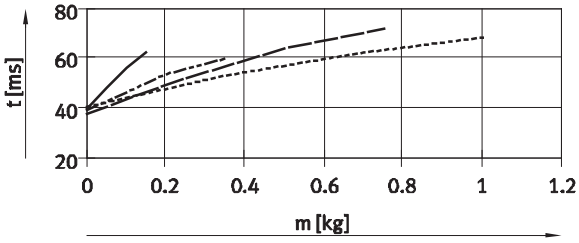
Travel time t as a function of effective load m and cushioning P/E – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

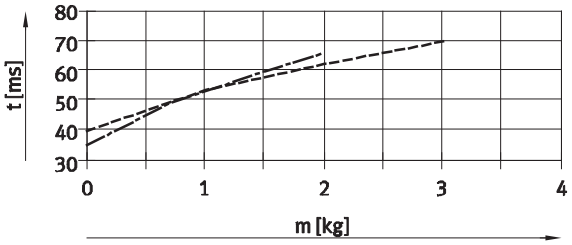
Vertical mounting position
➔ 19

Advancing

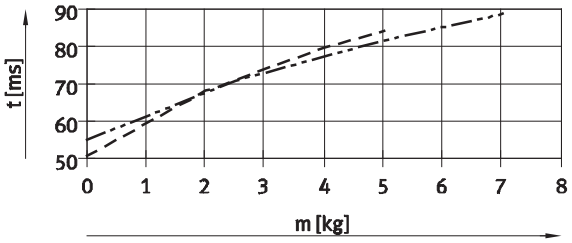
Stroke 10 mm, size 4 ... 10



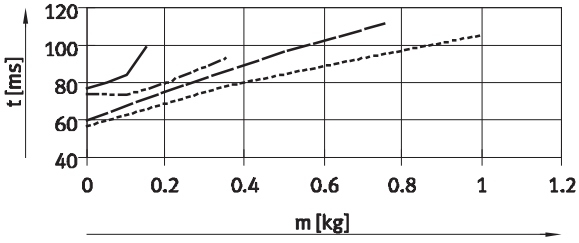
Stroke 10 mm, size 12 ... 16



Stroke 10 mm, size 20 ... 25

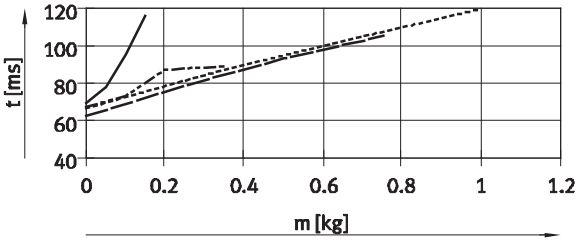


Stroke 30 mm, size 4 ... 10

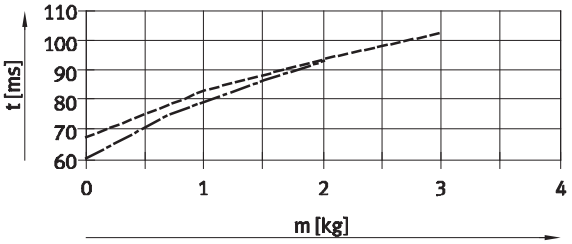


Retracting

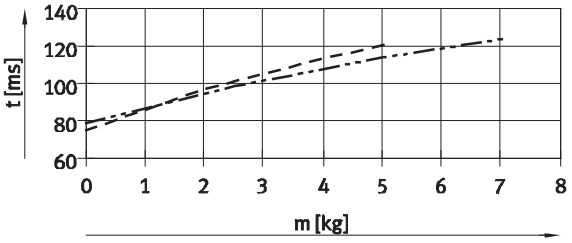
Stroke 10 mm, size 4 ... 10



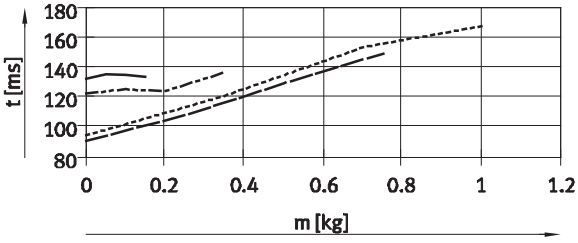
Stroke 10 mm, size 12 ... 16



Stroke 10 mm, size 20 ... 25



Stroke 30 mm, size 4 ... 10



DGSL-4
DGSL-6
DGSL-8
DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

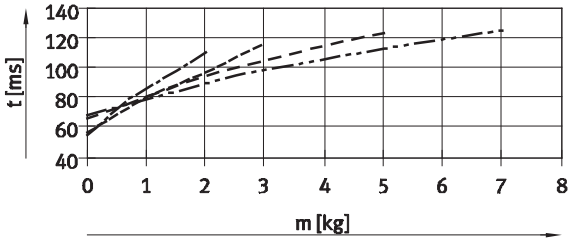
Travel time t as a function of effective load m and cushioning P/E – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

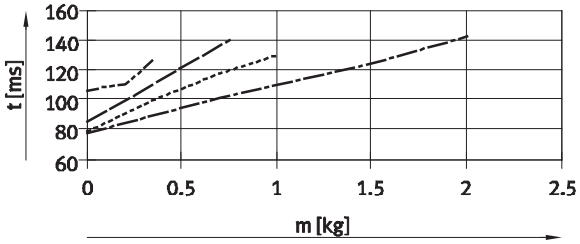
Vertical mounting position
➔ 19

Advancing

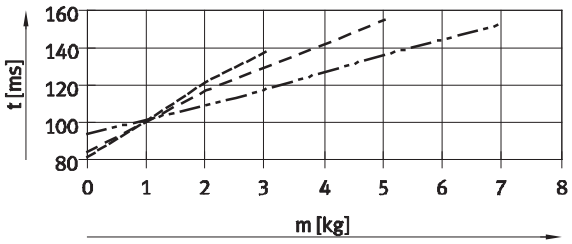
Stroke 30 mm, size 12 ... 25



Stroke 50 mm, size 6 ... 12



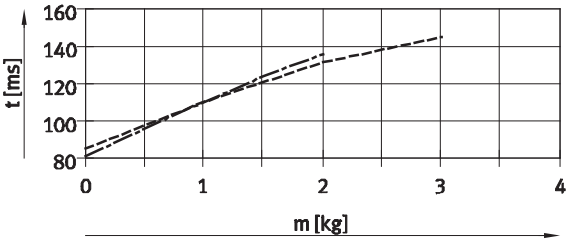
Stroke 50 mm, size 16 ... 25



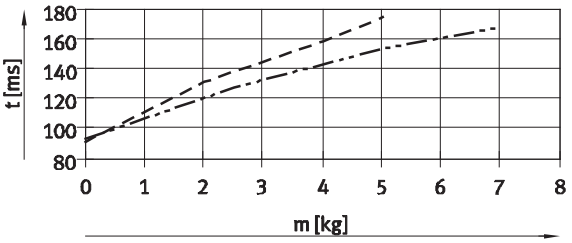
DGSL-6
DGSL-8
DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Retracting

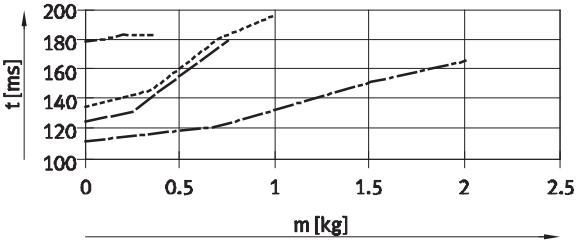
Stroke 30 mm, size 12 ... 16



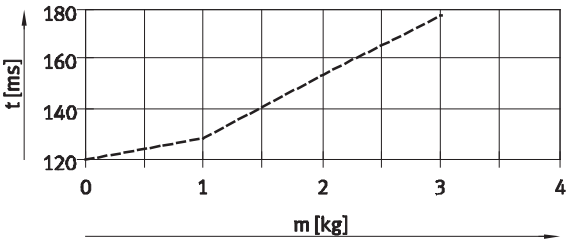
Stroke 30 mm, size 20 ... 25



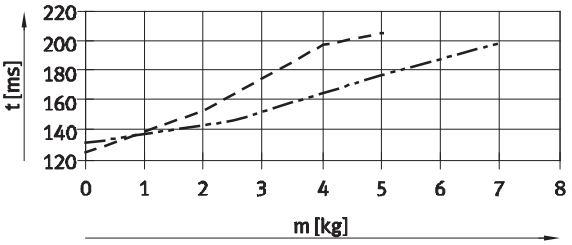
Stroke 50 mm, size 6 ... 12



Stroke 50 mm, size 16



Stroke 50 mm, size 20 ... 25



Shock absorber selection

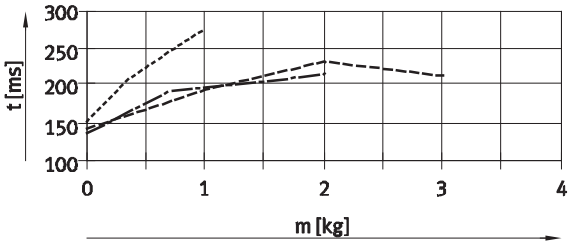
Travel time t as a function of effective load m and cushioning P/E – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

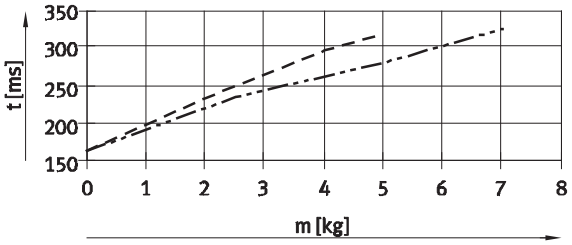
Vertical mounting position
➔ 19

Advancing

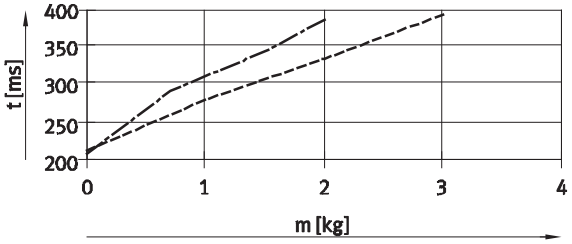
Stroke 100 mm, size 10 ... 16



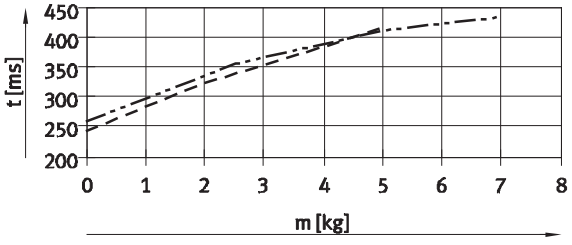
Stroke 100 mm, size 20 ... 25



Stroke 150 mm, size 12 ... 16

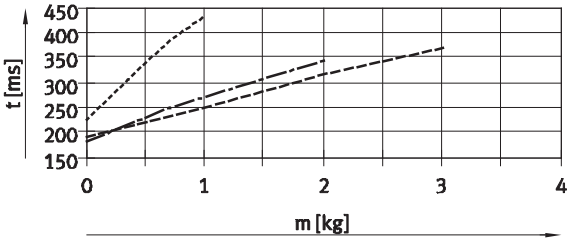


Stroke 150 mm, size 20 ... 25

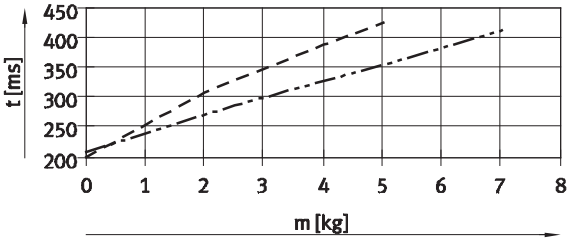


Retracting

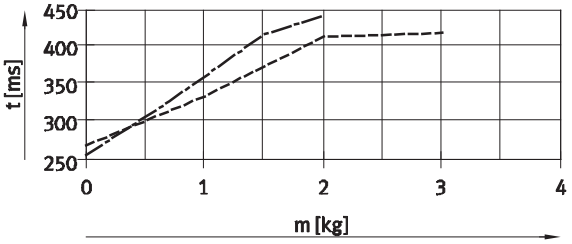
Stroke 100 mm, size 10 ... 16



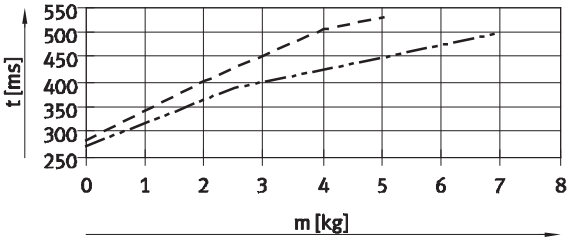
Stroke 100 mm, size 20 ... 25



Stroke 150 mm, size 12 ... 16



Stroke 150 mm, size 20 ... 25



DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

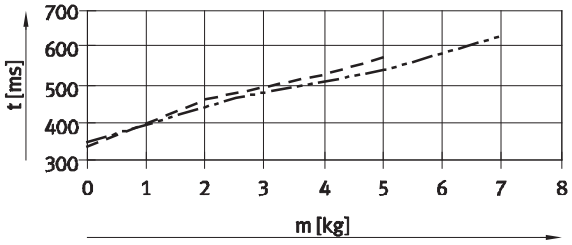
Travel time t as a function of effective load m and cushioning P/E – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

Vertical mounting position
➔ 19

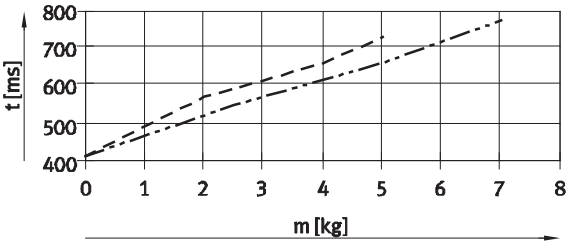
Advancing

Stroke 200 mm, size 20 ... 25



Retracting

Stroke 200 mm, size 20 ... 25



– – – – DGSL-20
– — · · — DGSL-25

Vertical mounting position

The travel times for a vertical mounting position are calculated by multiplying the data for a horizontal mounting position by a correction factor ka (advancing) and kr (retracting), see adjacent table.

Given:
Stroke = 200 mm
Size = 20
Effective load = 3 kg
Ascertained travel time th (horizontal), see graph:
– Advancing = 500 ms
– Retracting = 600 ms
Calculated travel time tv (vertical):
– Advancing: tv = th x ka
  tv = 500 ms x 0.9 = 450 ms
– Retracting: tv = th x kr
  tv = 600 ms x 1.1 = 660 ms

Stroke [mm]	Size	Advancing (ka)[1)]	Retracting (kr)
10	4, 6, 8, 10	0.95	1.1
	12, 16, 20, 25	0.95	1.2
30	4, 6, 8, 10	0.95	1.1
	12, 16, 20, 25	0.95	1.2
50	6, 8, 10, 12	0.9	1.1
	16, 20, 25	1.1	1.2
100	10, 12, 16, 20, 25	1	1.1
150	12, 16, 20, 25	1	1.1
200	20, 25	0.9	1.1

1) Downward.

Shock absorber selection

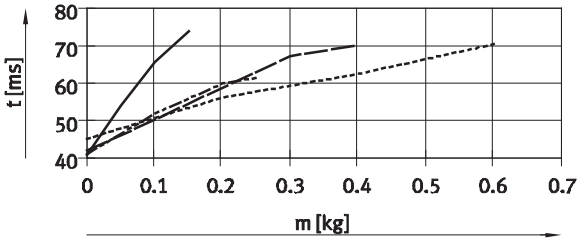
Travel time t as a function of effective load m and cushioning P1 – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

Vertical mounting position
➔23

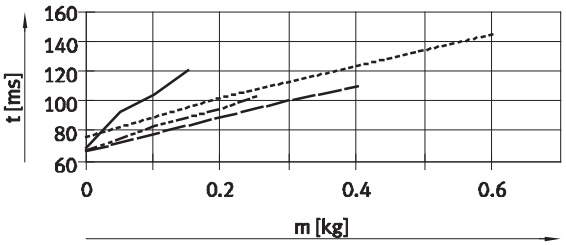
Advancing

Stroke 10 mm, size 4 ... 10

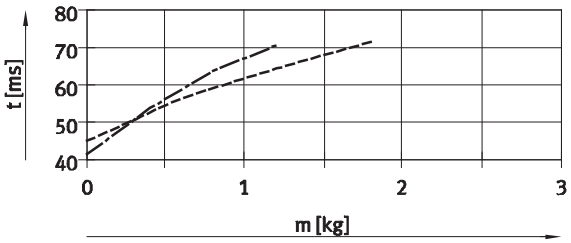


Retracting

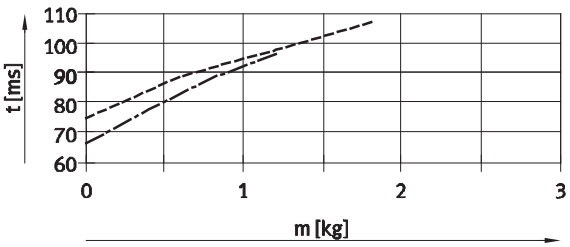
Stroke 10 mm, size 4 ... 10



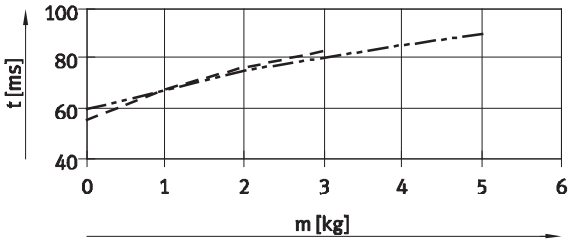
Stroke 10 mm, size 12 ... 16



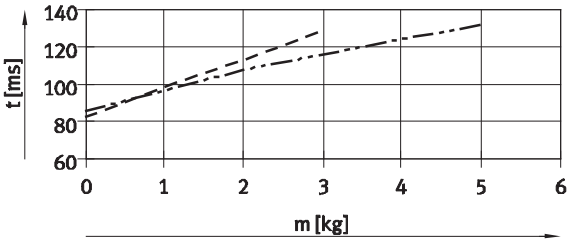
Stroke 10 mm, size 12 ... 16



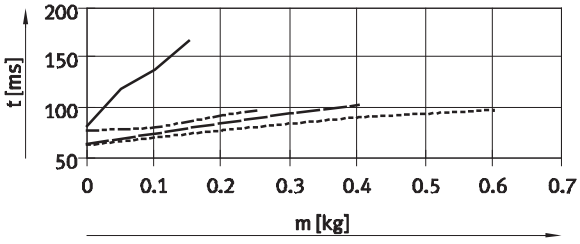
Stroke 10 mm, size 20 ... 25



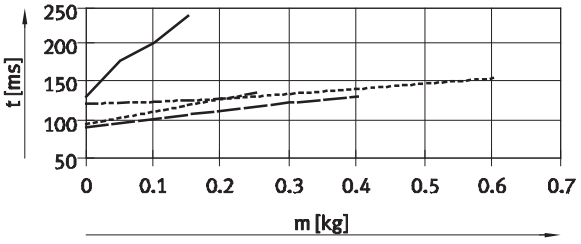
Stroke 10 mm, size 20 ... 25



Stroke 30 mm, size 4 ... 10



Stroke 30 mm, size 4 ... 10



DGSL-4
DGSL-6
DGSL-8
DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

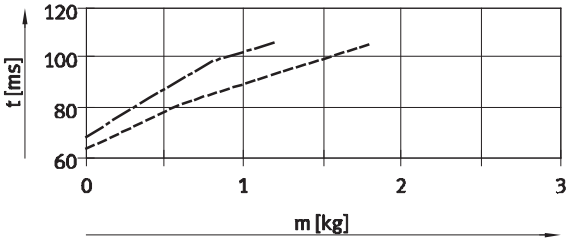
Travel time t as a function of effective load m and cushioning P1 – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

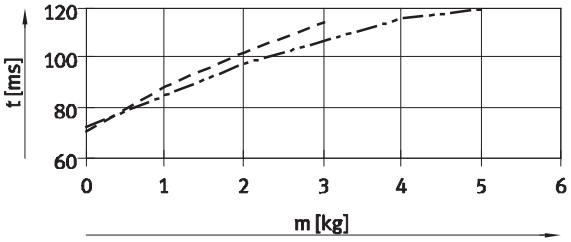
Vertical mounting position
➔23

Advancing

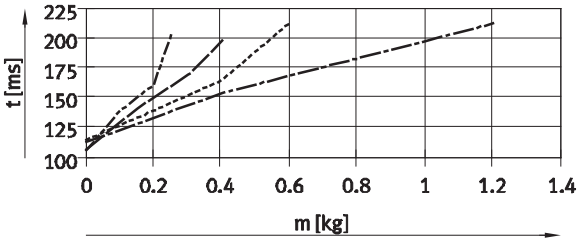
Stroke 30 mm, size 12 ... 16



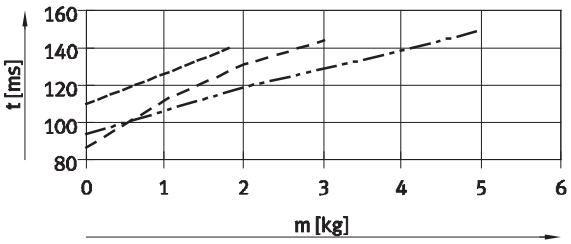
Stroke 30 mm, size 20 ... 25



Stroke 50 mm, size 6 ... 12

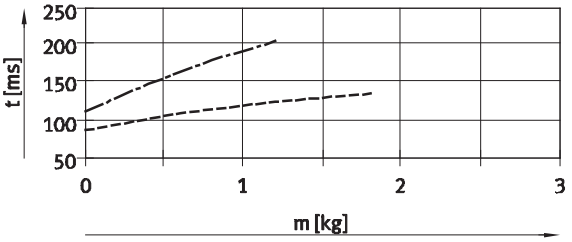


Stroke 50 mm, size 16 ... 25

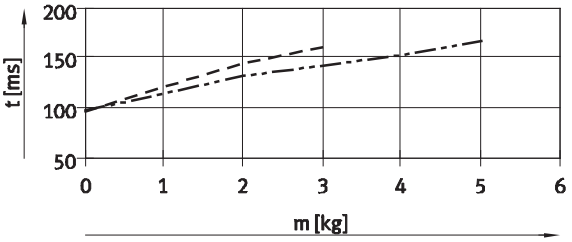


Retracting

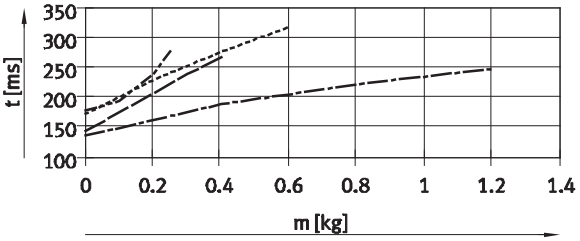
Stroke 30 mm, size 12 ... 16



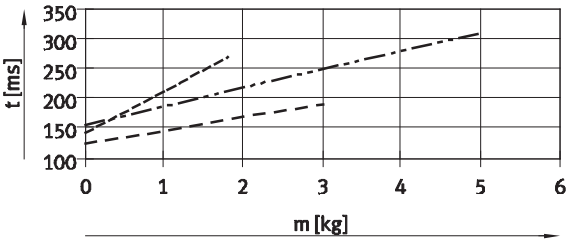
Stroke 30 mm, size 20 ... 25



Stroke 50 mm, size 6 ... 12



Stroke 50 mm, size 16 ... 25



DGSL-6
DGSL-8
DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

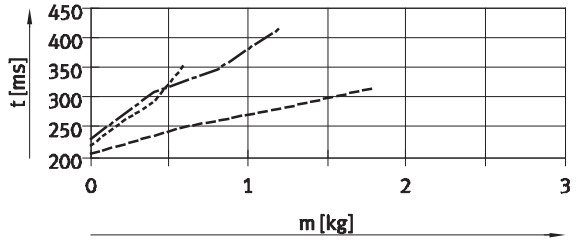
Travel time t as a function of effective load m and cushioning P1 – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

Vertical mounting position
➔23

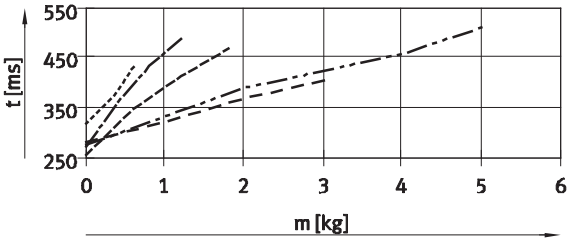
Advancing

Stroke 100 mm, size 10 ... 16

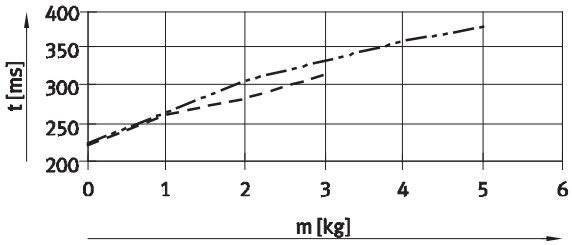


Retracting

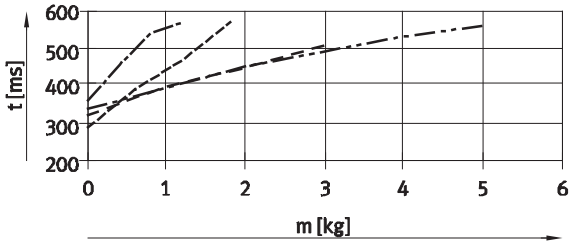
Stroke 100 mm, size 10 ... 25



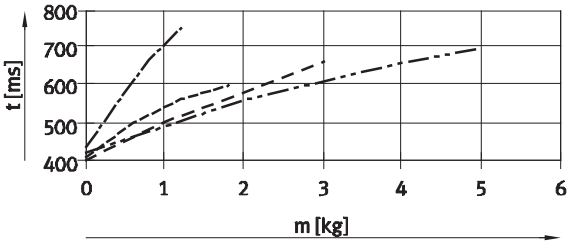
Stroke 100 mm, size 20 ... 25



Stroke 150 mm, size 12 ... 25



Stroke 150 mm, size 12 ... 25



DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

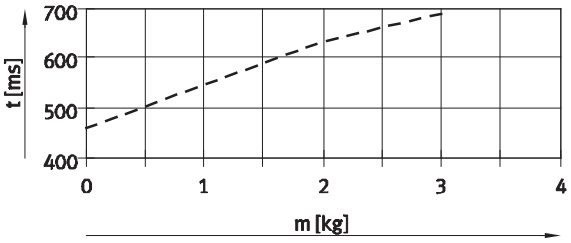
Travel time t as a function of effective load m and cushioning P1 – horizontal mounting position

The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

Vertical mounting position ➔23

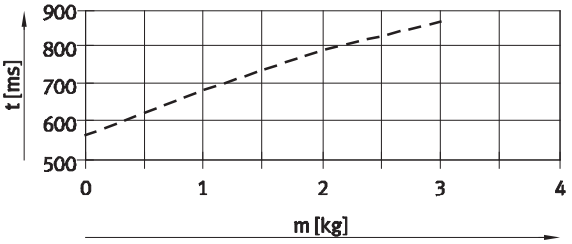
Advancing

Stroke 200 mm, size 20

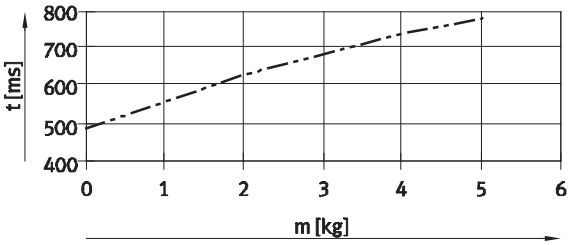


Retracting

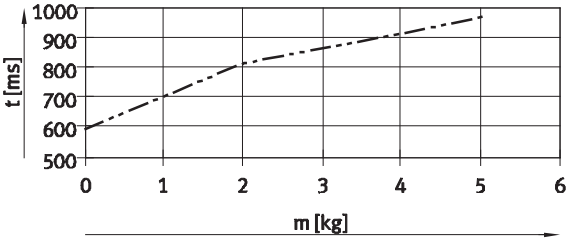
Stroke 200 mm, size 20



Stroke 200 mm, size 25



Stroke 200 mm, size 25



– – – – DGSL-20
– — · — DGSL-25

Vertical mounting position

The travel times for a vertical mounting position are calculated by multiplying the data for a horizontal mounting position by a correction factor ka (advancing) and kr (retracting), see adjacent table.

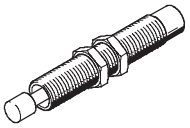
Given:
Stroke = 200 mm
Size = 20
Effective load = 2 kg
Ascertained travel time th (horizontal), see graph:
– Advancing = 640 ms
– Retracting = 780 ms
Calculated travel time tv (vertical):
– Advancing: tv = th x ka
  tv = 640 ms x 0.9 = 576 ms
– Retracting: tv = th x kr
  tv = 780 ms x 1.1 = 858 ms

Stroke [mm]	Size	Advancing (ka)[1)]	Retracting (kr)
10	4, 6, 8, 10	1	1.1
	12, 16, 20, 25	1.1	1.2
30	4, 6, 8, 10	1	1.1
	12, 16, 20, 25	1.1	1.2
50	6, 8, 10, 12	1	1.1
	16, 20, 25	0.9	1.1
100	10, 12, 16, 20, 25	0.95	1.1
150	12, 16, 20, 25	0.95	1.1
200	20, 25	0.9	1.1

1) Downward.

Shock absorber selection

Travel time t as a function of effective load m and cushioning Y3 – horizontal mounting position

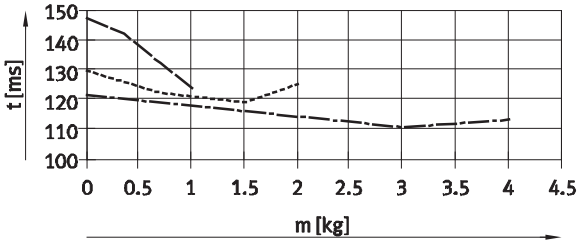


The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

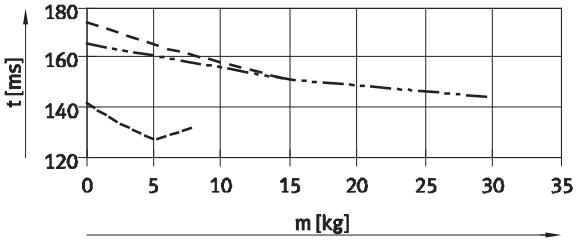
Vertical mounting position
➔25

Advancing

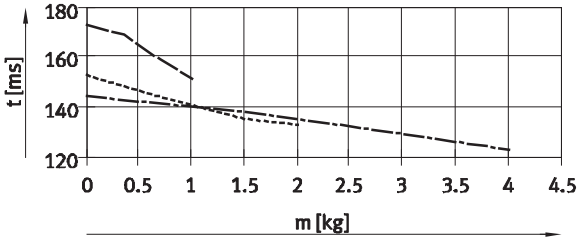
Stroke 30 mm, size 8 ... 12



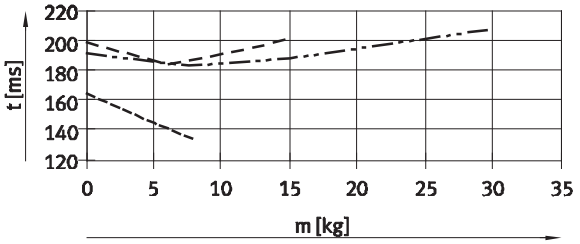
Stroke 30 mm, size 16 ... 25



Stroke 50 mm, size 8 ... 12

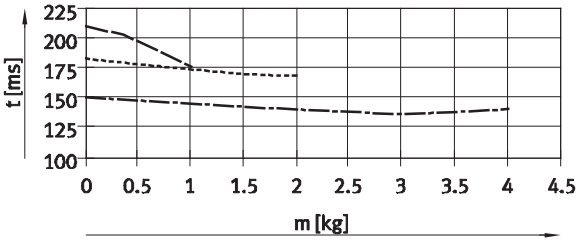


Stroke 50 mm, size 16 ... 25

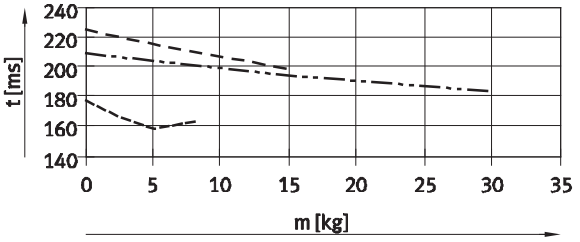


Retracting

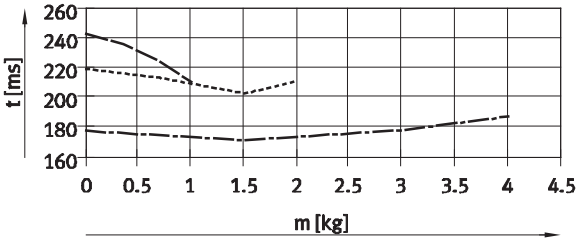
Stroke 30 mm, size 8 ... 12



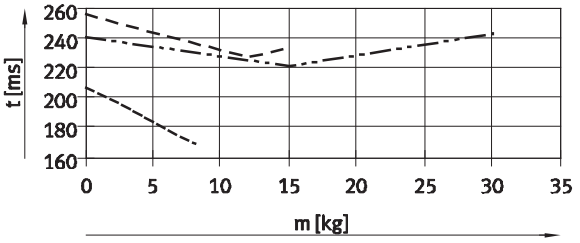
Stroke 30 mm, size 16 ... 25



Stroke 50 mm, size 8 ... 12



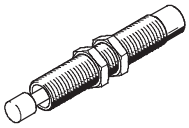
Stroke 50 mm, size 16 ... 25



DGSL-8
DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Shock absorber selection

Travel time t as a function of effective load m and cushioning Y3 – horizontal mounting position

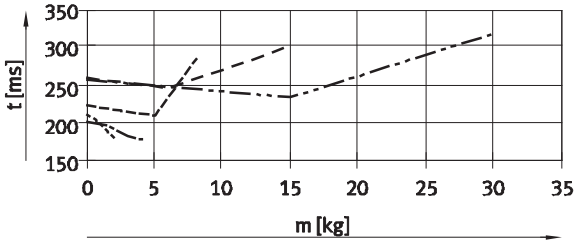


The values in the graphs are determined by calculation.
The travel time as a function of effective load must not be reduced below the values shown, because the kinetic impact or residual energy in the end positions can result in damage to the drive.

Vertical mounting position ➔25

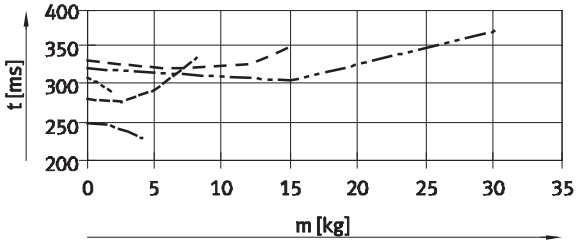
Advancing

Stroke 100 mm, size 10 ... 25

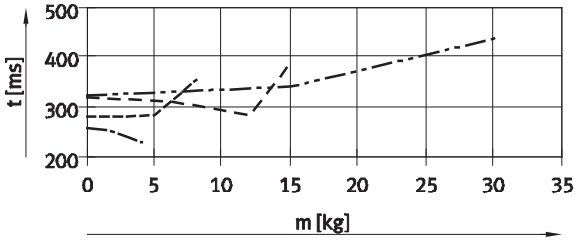


Retracting

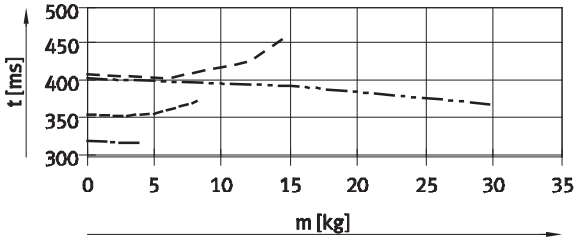
Stroke 100 mm, size 10 ... 25



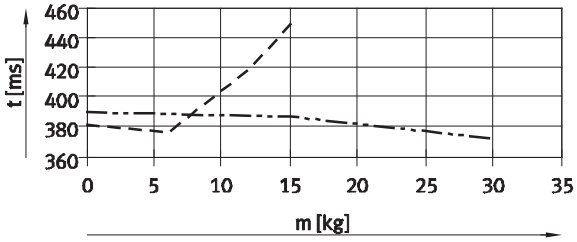
Stroke 150 mm, size 12 ... 25



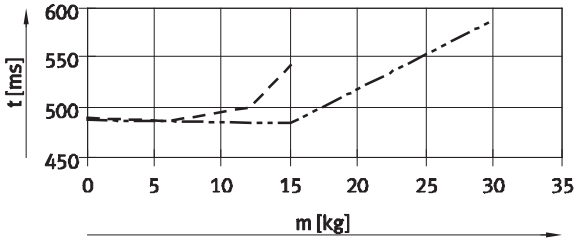
Stroke 150 mm, size 12 ... 25



Stroke 200 mm, size 20 ... 25



Stroke 200 mm, size 20 ... 25



DGSL-10
DGSL-12
DGSL-16
DGSL-20
DGSL-25

Vertical mounting position

The travel times for a vertical mounting position are calculated by multiplying the data for a horizontal mounting position by a correction factor ka (advancing) and kr (retracting), see adjacent table.

Given:
Stroke = 200 mm
Size = 20
Effective load = 10 kg
Ascertained travel time th (horizontal), see graph:
- Advancing = 405 ms
- Retracting = 490 ms

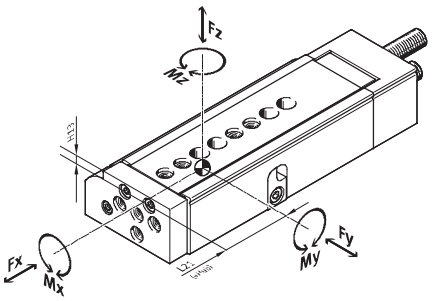
Calculated travel time tv (vertical):
- Advancing: tv = th x ka
  tv = 405 ms x 0.9 = 365 ms
- Retracting: tv = th x kr
  tv = 490 ms x 1.5 = 735 ms

Stroke [mm]	Size	Advancing (ka)[1)]	Retracting (kr)
30	8, 10, 12	0.95	1.2
	16, 20, 25	0.9	1.5
50	8, 10, 12	0.9	1.5
	16, 20, 25	0.9	1.5
100	10, 12, 16, 20, 25	0.8	1.5
150	12, 16, 20, 25	0.9	1.5
200	20, 25	0.9	1.5

1) Downward.

Dynamic characteristic load values

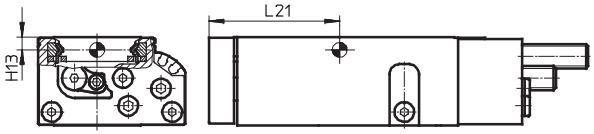
Torques are indicated with reference to the centre of the guide.
These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



If the drive is simultaneously subjected to several of the indicated forces and torques, the following equation must be satisfied in addition to the indicated maximum loads:

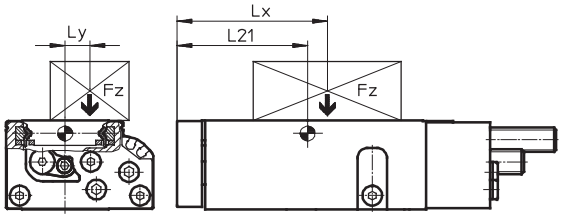
$$\frac{|Fy|}{Fy_{max.}} + \frac{|Fz|}{Fz_{max.}} + \frac{|Mx|}{Mx_{max.}} + \frac{|My|}{My_{max.}} + \frac{|Mz|}{Mz_{max.}} \leq 1$$

Position of the guide centre



Calculation example

Given:



Mini slide	= DGSL-10
Stroke length	= 80 mm
Lever arm L_x	= 50 mm
Lever arm L_y	= 30 mm
Load F_z	= 0.8 kg
Acceleration a	= 0 m/s²

To be calculated:

F_y, F_z, Mx, My, Mz
and
verification of operation
with combined load

Solution:

L21 = 83 mm from table

F_y = 0 N

F_z = m x g
= 0.8 kg x 9.81 m/s² = 7.848 N

M_x = m x g x L_y
= 0.8 kg x 9.81 m/s² x 30 mm = 0.236 Nm

M_y = m x g x [(L21+stroke)-L_x]
= 0.8 kg x 9.81 m/s² x [(83 mm + 80 mm) – 50 mm] = 0.886 Nm

M_z = 0 Nm

Combined load:

$$\frac{|Fy|}{Fy_{max.}} + \frac{|Fz|}{Fz_{max.}} + \frac{|Mx|}{Mx_{max.}} + \frac{|My|}{My_{max.}} + \frac{|Mz|}{Mz_{max.}}$$

$$= 0 + \frac{7.848N}{1200N} + \frac{0.236Nm}{18Nm} + \frac{0.886Nm}{12Nm} + 0 = 0.094 \leq 1$$

Permissible forces and torques						Geometric characteristics	
Size	Stroke [mm]	Fy_{max} [N]	Fz_{max} [N]	Mx_{max} [Nm]	My_{max}, Mz_{max} [Nm]	H13 [mm]	L21 [mm]
4							
	10	343	343	2	2	2.7	31
	20	368	368	2	2		36
	30	387	387	2	2		42
6							
	10	540	540	6	4.5	3.4	37
	20	590	590	7	5		42
	30	631	631	8	5.5		47
	40	677	677	8	5.5		52
	50	719	719	8	5.5		57

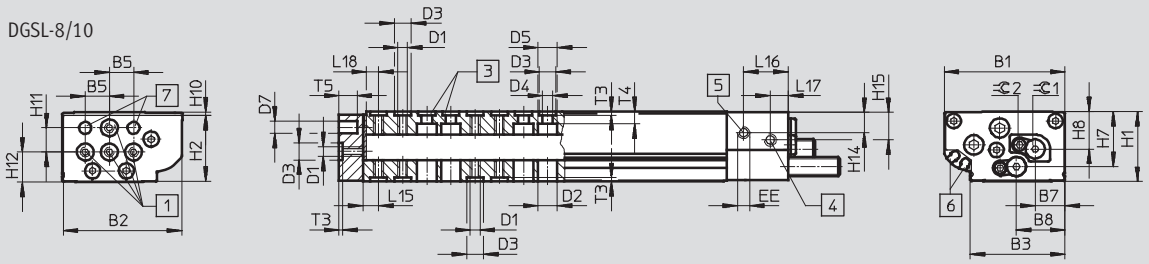
Permissible forces and torques						Geometric characteristics	
Size	Stroke [mm]	Fy_{max} [N]	Fz_{max} [N]	Mx_{max} [Nm]	My_{max}, Mz_{max} [Nm]	H13 [mm]	L21 [mm]
8							
	10	657	657	7	5.5	3.25	41
	20	745	745	8	5.5		46
	30	850	850	9	5.5		51
	40	934	934	10	5.5		56
	50	962	962	10	8		67
	80	971	971	10	8		82
10							
	10	927	927	15	6	4.2	43
	20	1,003	1,003	15	7		46
	30	1,078	1,078	15	8		51
	40	1,152	1,152	15	9		56
	50	1,175	1,175	18	9		61
	80	1,200	1,200	18	12		83
	100	1,250	1,250	18	12		96
12							
	10	942	942	15	8	5.2	44
	20	1,006	1,006	15	9		49
	30	1,075	1,075	15	10		54
	40	1,142	1,142	18	11		59
	50	1,200	1,200	18	12		64
	80	1,280	1,280	20	15		88
	100	1,340	1,340	20	15		98
	150	1,400	1,400	20	15		124
16							
	10	1,769	1,769	35	20	6.4	54
	20	2,021	2,021	35	22		59
	30	2,274	2,274	35	22		64
	40	2,527	2,527	40	25		69
	50	2,780	2,780	40	25		74
	80	2,800	2,800	50	27		89
	100	2,850	2,850	50	43		113
	150	2,900	2,900	50	43		138
20							
	10	2,911	2,911	60	30	7.55	56
	20	3,143	3,143	60	30		61
	30	3,354	3,354	60	30		66
	40	3,612	3,612	60	40		71
	50	3,816	3,816	70	50		76
	80	4,032	4,032	80	50		91
	100	4,200	4,200	85	80		121
	150	4,400	4,400	90	80		152
	200	4,600	4,600	90	80		177
25							
	10	3,270	3,270	100	60	8.55	64
	20	3,744	3,744	100	60		69
	30	4,205	4,205	100	60		74
	40	4,643	4,643	110	60		79
	50	4,650	4,650	120	60		84
	80	4,700	4,700	130	80		112
	100	4,750	4,750	130	80		129
	150	4,800	4,800	130	80		154
	200	4,800	4,800	130	80		179

Dimensions

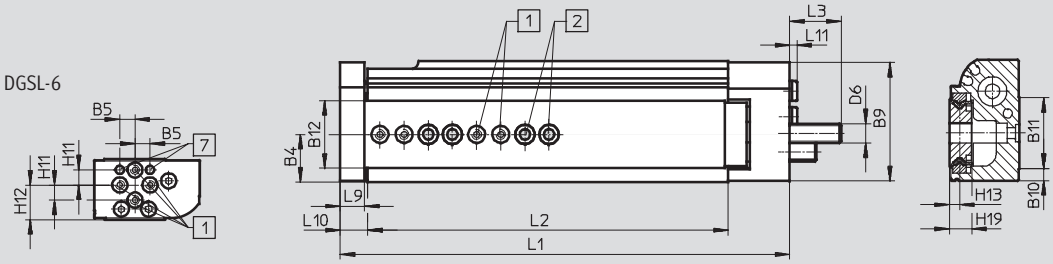
Download CAD Data ➔ **www.festo.com/us/cad**

Size 4 ... 10

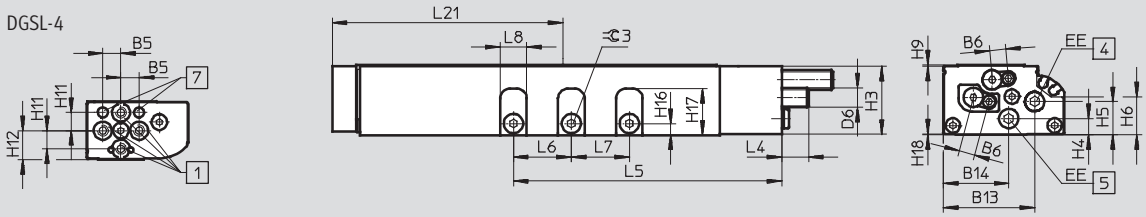
DGSL-8/10



DGSL-6



DGSL-4



1 Mounting thread (centring sleeves included in the scope of delivery)
2 Through-holes for mounting the drive
3 Centring holes (centring sleeves included in the scope of delivery)
4 Supply port, advancing
5 Supply port, retracting
6 Slots for proximity sensor SME/SMT-10
7 Centring hole

L10 Distance between outer edge of yoke plate and housing
L15 Distance between centre of centring hole and outer edge of slide
L18 Distance between centre of centring hole and outer edge of housing

General dimensions

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
4	28	27.4	18.1	9.4	5	3.55	6.3	11.95	27.5	2	17.2	12.4	23.15	16.15	M3
6	35	34.5	26	13.5	5	5	8.2	13.5	34.5	3.5	19.9	20	28.1	18.9	M3
8	42	41.3	31.2	16.6	10	6	10.3	16.25	41.5	4.5	24	24.1	33	24.4	M4
10	50	49	39.2	19.65	10	6.8	12.35	20.1	49	5	29.2	28	37.7	27	M4

Size	D2 ∅	D3 ∅	D4 ∅	D5 ∅	D6	D7 ∅	EE	H1 ±0.08	H2	H3	H4	H5	H6	H7	H8
4	6.2	5^{H7}	3.3	6	M4x0.5	3^{H7}	M3	16	15.4	15.1	3.85	6.3	8.6	8.4	8.1
6	6.2	5^{H7}	3.3	6	M5x0.5	3^{H7}	M3	20	19	19.25	4.7	7.8	10.2	16	10.55
8	8	7^{H7}	4.3	8	M6x0.5	5^{H7}	M3	24	22.7	23	6.5	10.6	14	18.9	13.3
10	8	7^{H7}	4.3	8	M8x1	5^{H7}	M5	29	27.1	28	6.8	13.8	15.8	22.8	15.5

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3 +0.1	T4	T5	⌭ 2[1]	⌭ 3
4	0.65	0.3	5	8	2.7	5.35	5.85	3	10.6	0.25	5.3	1.3	2.3	4	1.3	2
6	0.5	0.5	5	11.5	3.4	6.5	7.2	3.7	13.1	0.27	6.5	1.3	3.3	6	1.5	2.5
8	0.6	0.9	10	8.7	3.25	7.8	10.5	4.1	16.8	0.35	6.6	1.6	3.8	7.5	2	2.5
10	0.6	1.4	10	12.5	4.2	8.75	11.75	4.8	19.25	0.4	9	1.6	5	7.5	2.5	3

1) With size 4, the scope of delivery of the drive includes an Allen key

Stroke-dependent dimensions

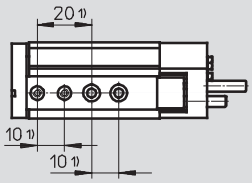
Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21
4	10	72.1	48	36.35	–	–	6.5	5.5	6.6	2.5	4	13.25	4.25	3	31
	20	81.2	57.1	37.95	10										36
	30	91.2	67.1	47.95	11										42
6	10	81.1	54	33.1	–		8	8	9.6	2.5	5.1	13.25	4.25	3.5	37
	20	91.1	64	43.1	14										42
	30	101.1	74	53.1											47
	40	111.1	84	63.1											52
	50	121.1	94	73.1											57
8	10	90.2	59.6	34.6	–	–	8	10	11.6	2.5	7	14.65	4.35	5.5	41
	20	100.2	69.6	44.6	10										46
	30	110.2	79.6	54.6	16										51
	40	120.2	89.6	64.6											56
	50	142.2	111.6	74.6											67
	80	172.2	141.6	104.6		16									82
10	10	103.1	66	41.3	–	–	11	10	11.6	2.5	6.4	18.5	7	5	43
	20	112.8	75.7	51											46
	30	122.8	85.7	61											51
	40	132.8	95.7	71											56
	50	142.8	105.7	81											61
	80	186.2	149.1	111	24										83
	100	206.2	169.1	131	24	24									96

Cushioning-dependent dimensions

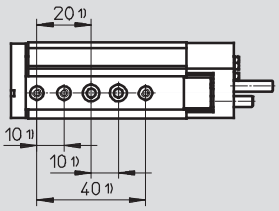
Size	Cushioning	L3 max.	L4 max.	⫧1	
				For adjusting the cushioning stroke	For adjusting the end position
4	P	15.2	7.8	–	1.3
	E	5.7	0	–	1.3
	P1	14	6	1.3	2.5
6	P	17.6	8.1	–	1.5
	E	6.6	0	–	1.5
	P1	15.5	5.8	1.5	3
8	P	21.1	10.7	–	2
	E	6.6	0	–	2
	P1	19	9.1	2	4
	Y3	24.3	23.9	–	2
10	P	22.8	12.5	–	2.5
	E	8.8	0	–	2.5
	P1	20.5	10.2	2.5	5
	Y3	25.5	14.9	–	2.5

Hole pattern for mounting threads and centring holes

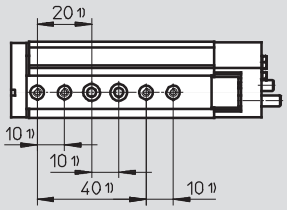
DGSL-4-10



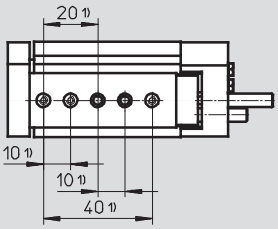
DGSL-4-20



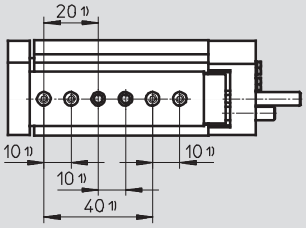
DGSL-4-30



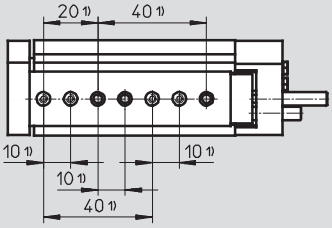
DGSL-6-10



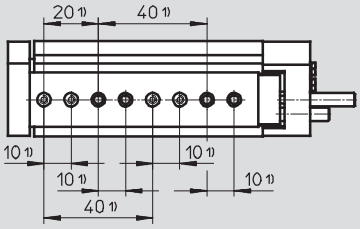
DGSL-6-20



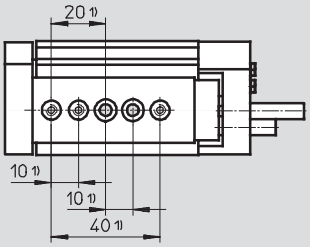
DGSL-6-30



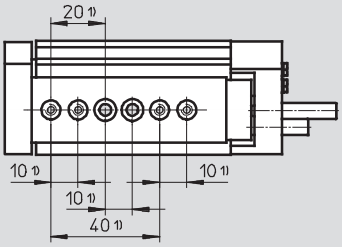
DGSL-6-40/50



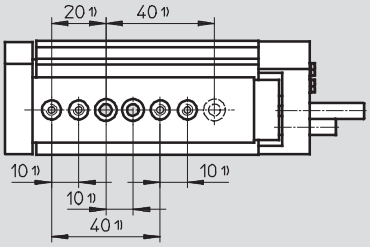
DGSL-8-10



DGSL-8-20

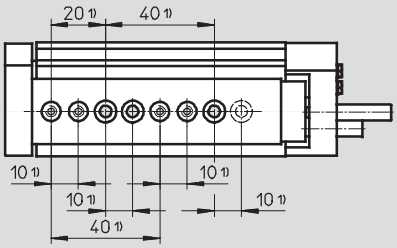


DGSL-8-30

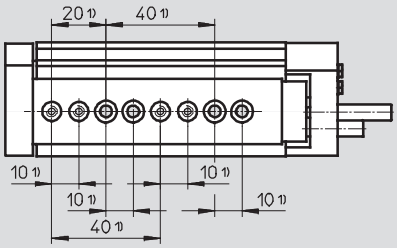


Hole pattern for mounting threads and centring holes

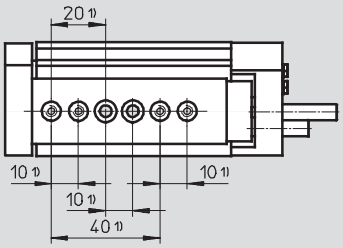
DGSL-8-40



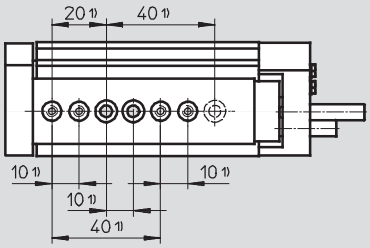
DGSL-8-50/80



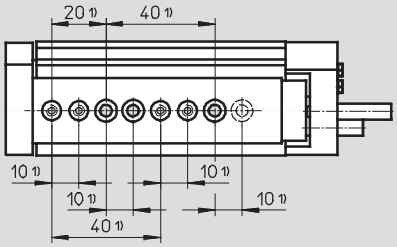
DGSL-10-10



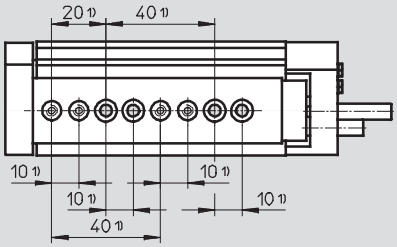
DGSL-10-20



DGSL-10-30

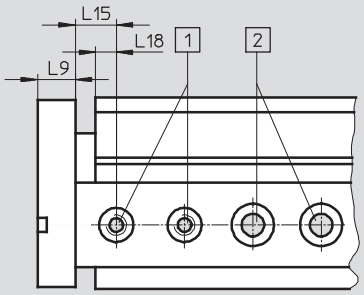


DGSL-10-40 ... 100



Distances from yoke plate to mounting threads and centring holes

DGSL-4 ... 10



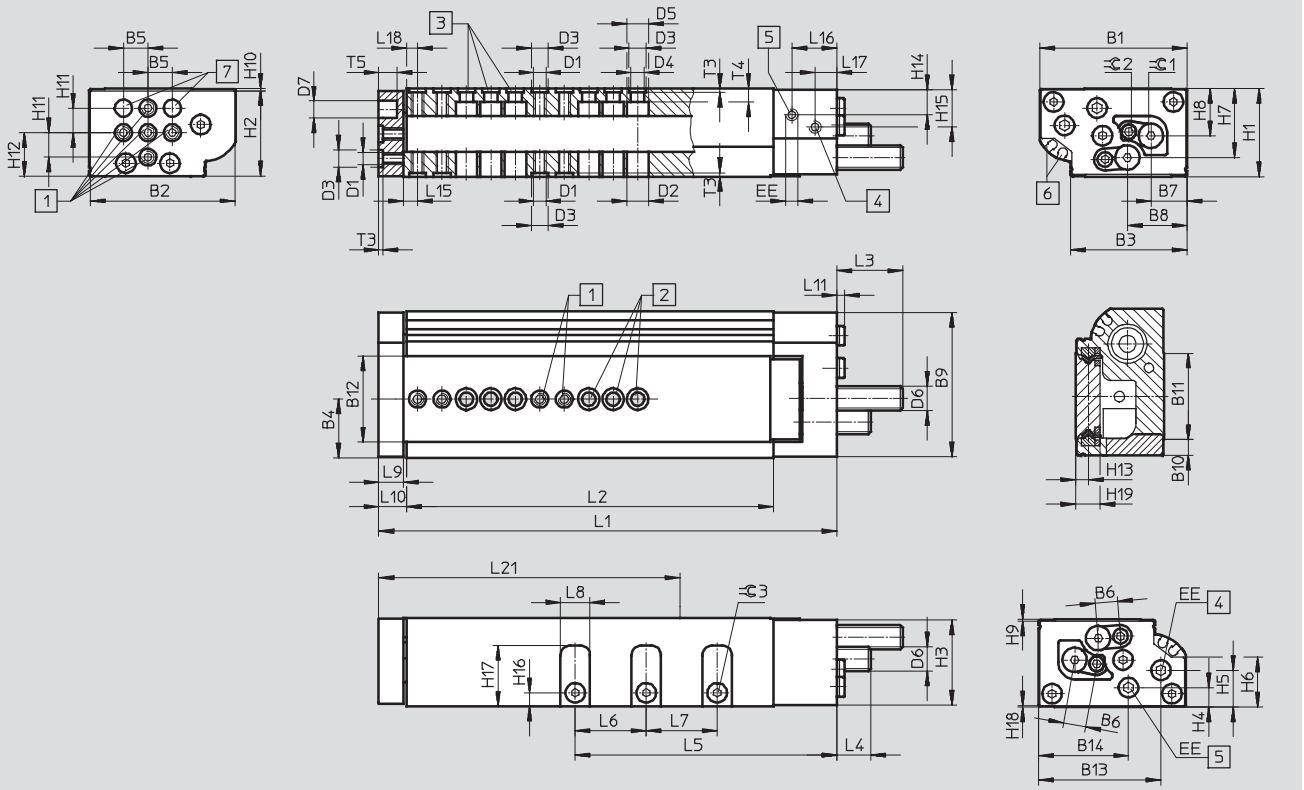
[1] Centring holes with thread
[2] Through-holes for mounting the drive

1) Tolerance for centring hole ±0.02
Tolerance for through-hole ±0.1

Size	L9	L15 ±0.05	L18
4	5.5	4	3
6	8	5.1	3.5
8	10	7	5.5
10	10	6.4	5

Dimensions Download CAD Data ➔ **www.festo.com/us/cad**

Size 12/16



1 Mounting thread (centring sleeves included in the scope of delivery)
2 Through-holes for mounting the drive
3 Centring holes (centring sleeves included in the scope of delivery)
4 Supply port, advancing
5 Supply port, retracting
6 Slots for proximity sensor SME/SMT-10
7 Centring hole

L10 Distance between outer edge of yoke plate and housing
L15 Distance between centre of centring hole and outer edge of slide
L18 Distance between centre of centring hole and outer edge of housing

General dimensions

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
12	60	59	47.6	24	10	9.2	14.7	24.3	59	6.4	35.35	35.2	50	36.7	M5
16	66	65	53.5	26.7	10	11.1	16.7	27.5	65	7.75	37.9	38	50.4	36.7	M5

Size	D2 ∅	D3 ∅	D4 ∅	D5 ∅	D6	D7 ∅	EE	H1 ±0.08	H2	H3	H4	H5	H6	H7	H8
12	8.8	7^{H7}	5.5	8.8	M10x1	8^{H7}	M5	36	34.8	34.7	8	15.1	20.35	28.2	19.3
16	8.8	7^{H7}	5.5	9.2	M12x1	8^{H7}	M5	40	38	39	8.5	16.7	20.6	31.7	20.8

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3 +0.1	T4	T5	⌀2	⌀3
12	0.8	0.95	10	17.9	5.2	10.75	15.75	5.5	24.9	0.5	10	1.6	5.6	7.5	3	3
16	0.5	1.5	10	20	6.4	10.5	16.7	7	26.6	0.5	12.4	1.6	6.1	9	4	4

Stroke-dependent dimensions

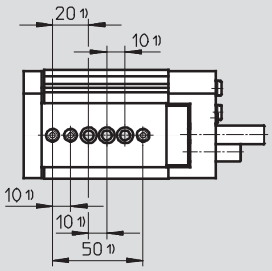
Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21
12	10	106.2	68.6	42.4	–	–	12	10	11.6	2.5	5.8	18.5	7.5	4.5	44
	20	116.2	78.6	52.4											49
	30	126.2	88.6	62.4											54
	40	136.2	98.6	72.4											59
	50	146.2	108.6	82.4											64
	80	197.6	160	112.4	29										88
	100	217.6	180	132.4											98
	150	267.6	230	182.4		29									124
16	10	124.1	82.5	45	–	–	14	12	13.6	2.5	6.8	21	7	5.5	54
	20	134.6	93	54.6											59
	30	144.6	103	64.6											64
	40	154.6	113	74.6											69
	50	164.6	123	84.6											74
	80	194.6	153	114.6	35										89
	100	243.6	202	134.6											113
	150	293.6	252	184.6											138

Cushioning-dependent dimensions

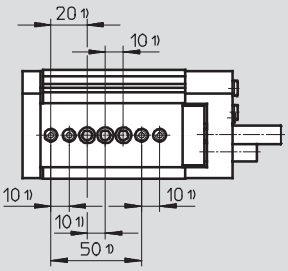
Size	Cushioning	L3 max.	L4 max.	⫧1	
				For adjusting the cushioning stroke	For adjusting the end position
12	P	28.1	14.9	–	3
	E	8.8	0	–	3
	P1	26	12.8	3	6
	Y3	36.9	23.7	–	3
16	P	42.3	26.1	–	4
	E	8.8	0	–	4
	P1	40	23.8	4	8
	Y3	51.9	35.7	–	4

Hole pattern for mounting threads and centring holes

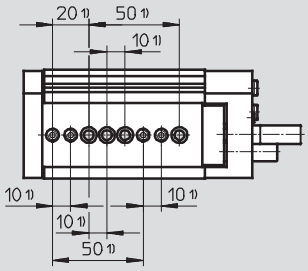
DGSL-12-10



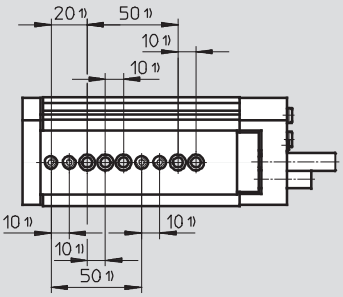
DGSL-12-20



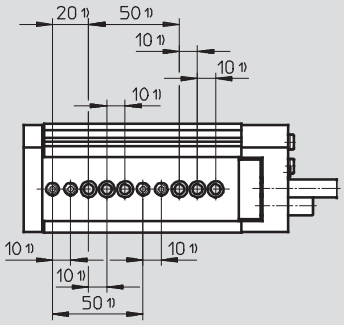
DGSL-12-30



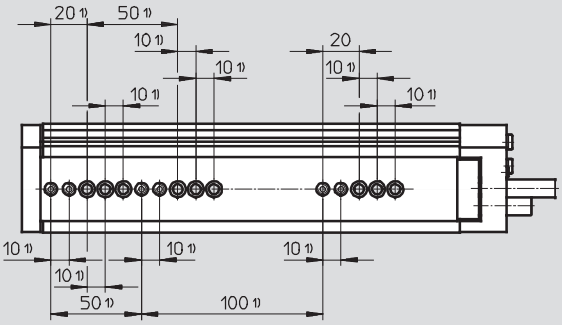
DGSL-12-40



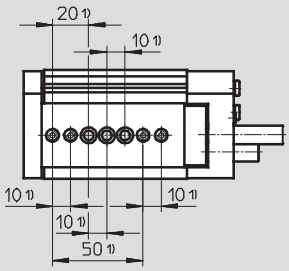
DGSL-12-50 ... 100



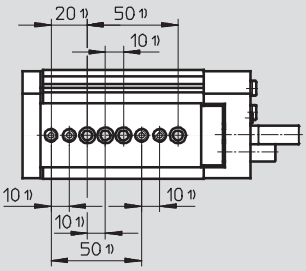
DGSL-12-150



DGSL-16-10

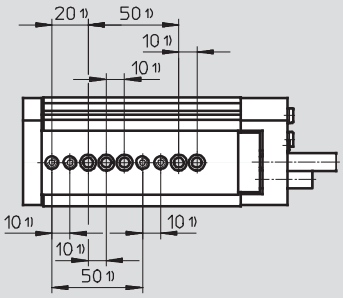


DGSL-16-20

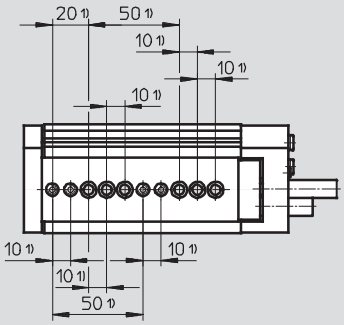


Hole pattern for mounting threads and centring holes

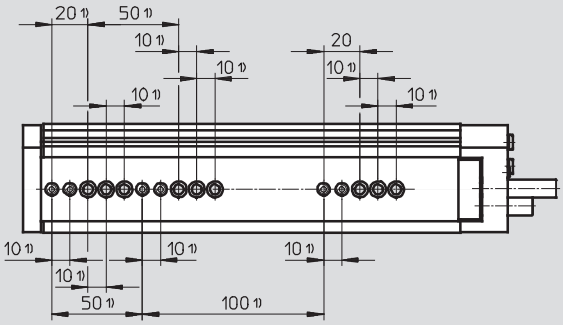
DGSL-16-30



DGSL-16-40 ... 100

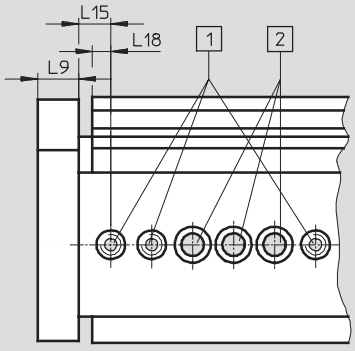


DGSL-16-150



Distances from yoke plate to mounting threads and centring holes

DGSL-12/16



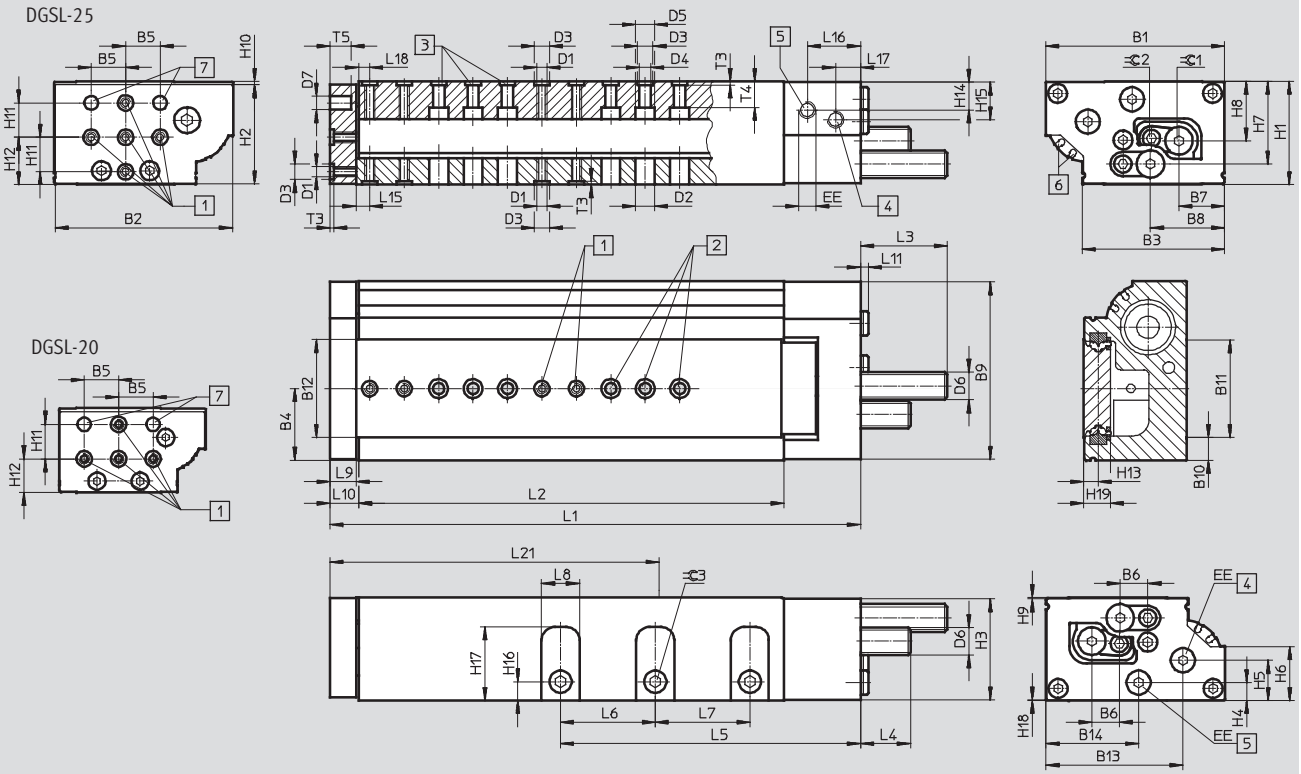
1 Centring holes with thread
2 Through-holes for mounting the drive

1) Tolerance for centring hole ±0.02
Tolerance for through-hole ±0.1

Size	L9	L15 ±0.05	L18
12	10	5.8	4.5
16	12	6.8	5.5

Dimensions Download CAD Data ➔ **www.festo.com/us/cad**

Size 20/25



1 Mounting thread (centring sleeves included in the scope of delivery)
2 Through-holes for mounting the drive
3 Centring holes (centring sleeves included in the scope of delivery)
4 Supply port, advancing
5 Supply port, retracting
6 Slots for proximity sensor SME/SMT-10
7 Centring hole

L10 Distance between outer edge of yoke plate and housing
L15 Distance between centre of centring hole and outer edge of slide
L18 Distance between centre of centring hole and outer edge of housing

General dimensions

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
20	85	84	68.85	34.5	20	14	21.4	36.35	83.4	10	48.9	49.2	64.1	48.6	M6
25	104	103	82.6	41.6	20	16.2	26.4	43.1	103	13.25	56.5	56.7	79.4	53.7	M6

Size	D2 ∅	D3 ∅	D4 ∅	D5 ∅	D6	D7 ∅	EE	H1 ±0.08	H2	H3	H4	H5	H6	H7	H8
20	11	9^{H7}	6.6	11	M14x1	8^{H7}	G⅛	49	46.5	47.7	10.3	20.6	23.2	38.2	26.1
25	11	9^{H7}	6.6	11	M16x1	8^{H7}	G⅛	60	57.5	58.5	10.5	23.4	31.2	48	34.5

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3 +0.1	T4	T5	C 2	C 3
20	0.5	2	20	19.6	7.55	14.7	14.7	10	33.3	0.8	14.5	2.1	8.8	10	4	5
25	1	2	20	27.5	8.55	16.6	22.2	11	42.7	0.5	15.5	2.1	15.1	12	5	6

Stroke-dependent dimensions

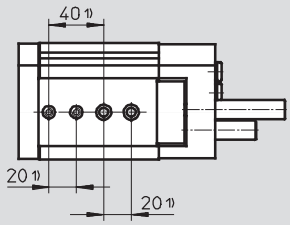
Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21
20	10	141.2	84.6	59.1	–	–	17	14	15.6	4.6	7.8	29.3	10.5	6.5	56
	20	151.2	94.6	69.1											61
	30	161.2	104.6	79.1											66
	40	171.2	114.6	89.1											71
	50	183.2	126.6	99.1											76
	80	211.2	154.6	129.1											91
	100	270.2	213.6	149.1	44										121
	150	333.2	276.6	199.1											152
	200	383.2	326.6	252.1		44									177
25	10	157.1	96	63.7	–	–	22	15	16.6	4.6	8	30.9	12.2	6.5	64
	20	167.1	106	72.2											69
	30	177.1	116	82.2											74
	40	187.1	126	92.2											79
	50	197.1	136	102.2											84
	80	253.1	192	132.2	55										112
	100	286.1	225	152.2											129
	150	338.1	277	202.2											154
	200	388.1	327	254.2											179

Cushioning-dependent dimensions

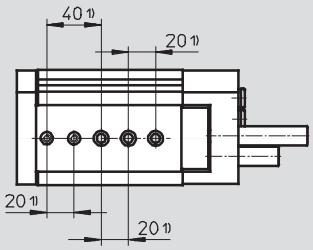
Size	Cushioning	L3 max.	L4 max.	⇜1	
				For adjusting the cushioning stroke	For adjusting the end position
20	P	52.4	31.2	–	4
	E	8.8	0	–	4
	P1	50.1	28.9	4	8
	Y3	55.5	34.3	–	4
25	P	51.9	30.5	–	5
	E	8.8	0	–	5
	P1	49.6	28.2	5	10
	Y3	65.2	43.8	–	5

Hole pattern for mounting threads and centring holes

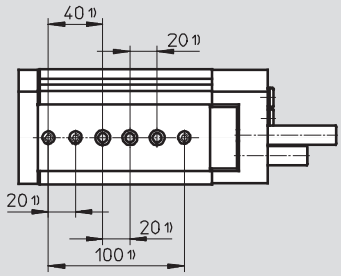
DGSL-20-10/20



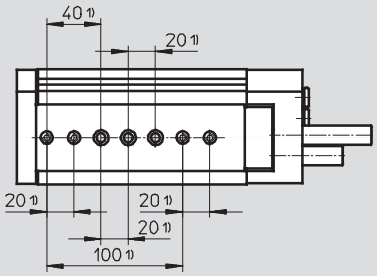
DGSL-20-30/40



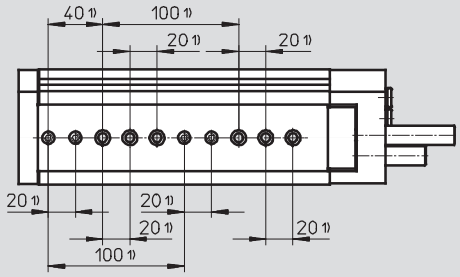
DGSL-20-50



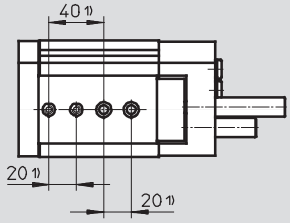
DGSL-20-80



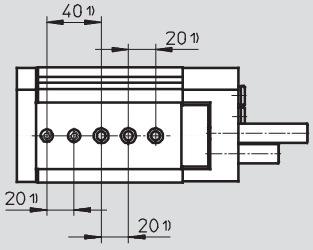
DGSL-20-100 ... 200



DGSL-25-10

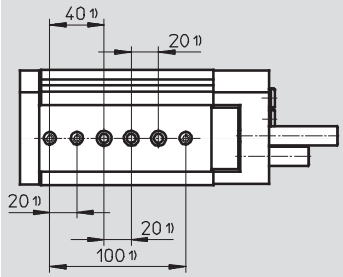


DGSL-25-20

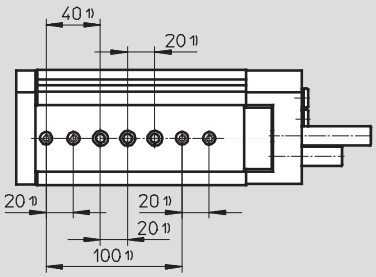


Hole pattern for mounting threads and centring holes

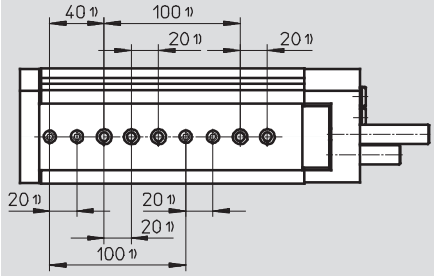
DGSL-25-30/40



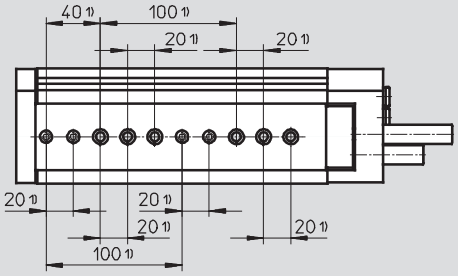
DGSL-25-50



DGSL-25-80

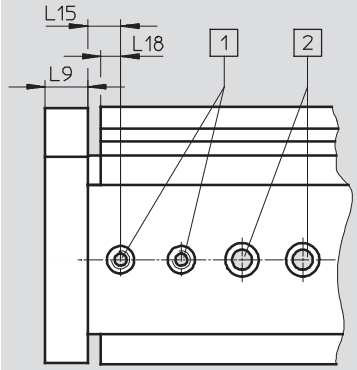


DGSL-25-100 ... 200



Distances from yoke plate to mounting threads and centring holes

DGSL-20/25



[1] Centring holes with thread
[2] Through-holes for mounting the drive

1) Tolerance for centring hole ±0.02
Tolerance for through-hole ±0.1

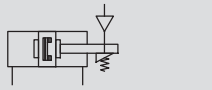
Size	L9	L15 ±0.05	L18
20	14	7.8	6.5
25	15	8	6.5

Mini slides DGSL-C/-E3

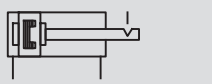
Technical data

Function

C – Clamping unit



E3 – End-position locking



Size

6 … 25

Wearing parts kits

➔ 45

Note

Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed.

Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.

General technical data – Clamping unit								
Size		6	8	10	12	16	20	25
Function		– Mechanical clamping – For fixing the slide in any position – Frictional locking						
Clamping type with effective direction		At both ends						
		Clamping via spring force, released via air pressure						
Pneumatic connection		M5						
Mounting position		Any						
Static holding force	[N]	80	80	180	180	350	350	600
Product weight	[g]	10	10	15	15	50	50	50

Operating and environmental conditions – Clamping unit		
Operating medium		Dried compressed air, lubricated or unlubricated
Min. release pressure	[bar]	3
Max. operating pressure	[bar]	≤ 10

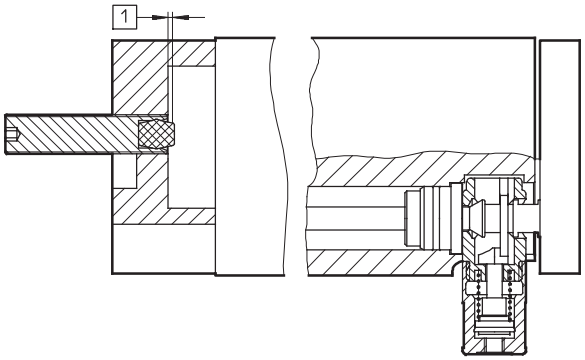
General technical data – End-position locking								
Size		6	8	10	12	16	20	25
Function		– Mechanical locking when the end position is reached – For fixing the slide in the unpressurised, retracted state – Positive locking						
Clamping type with effective direction		At both ends						
		Clamping via spring force, air pressure to unlock						
Pneumatic connection		M5						
Mounting position		Any						
Static holding force	[N]	60	60	160	160	250	380	640
Product weight	[g]	13	13	26	26	64	64	65

Operating and environmental conditions – End-position locking		
Operating medium		Dried compressed air, lubricated or unlubricated
Operating pressure	[bar]	3 … 8

Adjustable end-position range

When using end-position locking (E3), the adjustable range of the retracted end position is reduced by the following values.

1 Adjustable end-position range

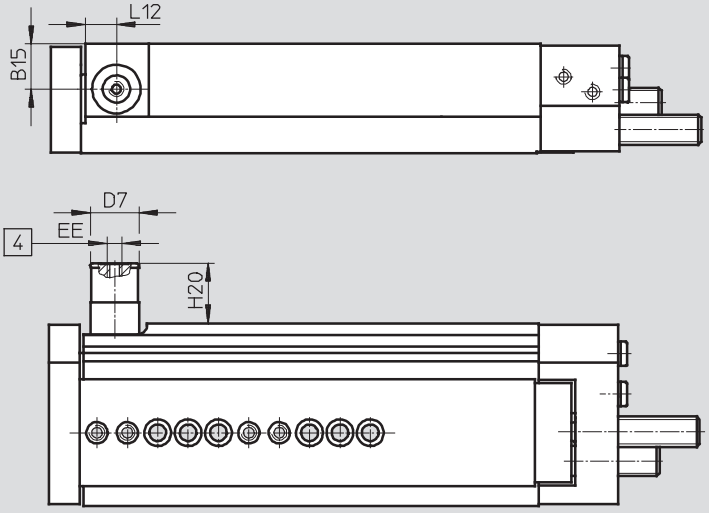


Size	1
6, 8	max. 1.5 mm
10, 12	max. 2.3 mm
16, 20, 25	max. 2.7 mm

Dimensions

Download CAD Data ➔ **www.festo.com/us/cad**

C – Clamping unit/E3 – End-position locking



4 Supply port

Size	B15	D7 ∅	EE	H20		L12
				C	E3	
6	7.2	12	M5	10.7	21.2	7.3
8	9.9	12		10.5	21	7.3
10	11.2	16		11.8	21.2	10.5
12	14.8	16		10.5	19.9	10.3
16	14	20		27.5	30.5	13
20	17	20		21.3	24.3	14
25	22.55	20		17.75	20.65	14

Ordering data

Size	Stroke [mm]	Part No.	Type
With cushioning P			
4	10	**543910**	**DGSL-4-10-PA**
	20	**543911**	**DGSL-4-20-PA**
	30	**543912**	**DGSL-4-30-PA**
6	10	**543916**	**DGSL-6-10-PA**
	20	**543917**	**DGSL-6-20-PA**
	30	**543918**	**DGSL-6-30-PA**
	40	**543919**	**DGSL-6-40-PA**
	50	**543920**	**DGSL-6-50-PA**
8	10	**543926**	**DGSL-8-10-PA**
	20	**543927**	**DGSL-8-20-PA**
	30	**543928**	**DGSL-8-30-PA**
	40	**543929**	**DGSL-8-40-PA**
	50	**543930**	**DGSL-8-50-PA**
	80	**543931**	**DGSL-8-80-PA**
10	10	**543942**	**DGSL-10-10-PA**
	20	**543943**	**DGSL-10-20-PA**
	30	**543944**	**DGSL-10-30-PA**
	40	**543945**	**DGSL-10-40-PA**
	50	**543946**	**DGSL-10-50-PA**
	80	**543947**	**DGSL-10-80-PA**
	100	**543948**	**DGSL-10-100-PA**
12	10	**543961**	**DGSL-12-10-PA**
	20	**543962**	**DGSL-12-20-PA**
	30	**543963**	**DGSL-12-30-PA**
	40	**543964**	**DGSL-12-40-PA**
	50	**543965**	**DGSL-12-50-PA**
	80	**543966**	**DGSL-12-80-PA**
	100	**543967**	**DGSL-12-100-PA**
	150	**543968**	**DGSL-12-150-PA**
16	10	**543983**	**DGSL-16-10-PA**
	20	**543984**	**DGSL-16-20-PA**
	30	**543985**	**DGSL-16-30-PA**
	40	**543986**	**DGSL-16-40-PA**
	50	**543987**	**DGSL-16-50-PA**
	80	**543988**	**DGSL-16-80-PA**
	100	**543989**	**DGSL-16-100-PA**
	150	**543990**	**DGSL-16-150-PA**
20	10	**544005**	**DGSL-20-10-PA**
	20	**544006**	**DGSL-20-20-PA**
	30	**544007**	**DGSL-20-30-PA**
	40	**544008**	**DGSL-20-40-PA**
	50	**544009**	**DGSL-20-50-PA**
	80	**544010**	**DGSL-20-80-PA**
	100	**544011**	**DGSL-20-100-PA**
	150	**544012**	**DGSL-20-150-PA**
	200	**544013**	**DGSL-20-200-PA**
25	10	**544030**	**DGSL-25-10-PA**
	20	**544031**	**DGSL-25-20-PA**
	30	**544032**	**DGSL-25-30-PA**
	40	**544033**	**DGSL-25-40-PA**
	50	**544034**	**DGSL-25-50-PA**
	80	**544035**	**DGSL-25-80-PA**
	100	**544036**	**DGSL-25-100-PA**
	150	**544037**	**DGSL-25-150-PA**
	200	**544038**	**DGSL-25-200-PA**

Size	Stroke [mm]	Part No.	Type
With cushioning E			
4	10	**570158**	**DGSL-4-10-EA**
	20	**570159**	**DGSL-4-20-EA**
	30	**570160**	**DGSL-4-30-EA**
6	10	**570161**	**DGSL-6-10-EA**
	20	**570162**	**DGSL-6-20-EA**
	30	**570163**	**DGSL-6-30-EA**
	40	**570164**	**DGSL-6-40-EA**
	50	**570165**	**DGSL-6-50-EA**
8	10	**570166**	**DGSL-8-10-EA**
	20	**570167**	**DGSL-8-20-EA**
	30	**570168**	**DGSL-8-30-EA**
	40	**570169**	**DGSL-8-40-EA**
	50	**570170**	**DGSL-8-50-EA**
	80	**570171**	**DGSL-8-80-EA**
10	10	**570172**	**DGSL-10-10-EA**
	20	**570173**	**DGSL-10-20-EA**
	30	**570174**	**DGSL-10-30-EA**
	40	**570175**	**DGSL-10-40-EA**
	50	**570176**	**DGSL-10-50-EA**
	80	**570177**	**DGSL-10-80-EA**
	100	**570178**	**DGSL-10-100-EA**
12	10	**570179**	**DGSL-12-10-EA**
	20	**570180**	**DGSL-12-20-EA**
	30	**570181**	**DGSL-12-30-EA**
	40	**570182**	**DGSL-12-40-EA**
	50	**570183**	**DGSL-12-50-EA**
	80	**570184**	**DGSL-12-80-EA**
	100	**570185**	**DGSL-12-100-EA**
	150	**570186**	**DGSL-12-150-EA**
16	10	**570187**	**DGSL-16-10-EA**
	20	**570188**	**DGSL-16-20-EA**
	30	**570189**	**DGSL-16-30-EA**
	40	**570190**	**DGSL-16-40-EA**
	50	**570191**	**DGSL-16-50-EA**
	80	**570192**	**DGSL-16-80-EA**
	100	**570193**	**DGSL-16-100-EA**
	150	**570194**	**DGSL-16-150-EA**
20	10	**570195**	**DGSL-20-10-EA**
	20	**570196**	**DGSL-20-20-EA**
	30	**570197**	**DGSL-20-30-EA**
	40	**570198**	**DGSL-20-40-EA**
	50	**570199**	**DGSL-20-50-EA**
	80	**570200**	**DGSL-20-80-EA**
	100	**570201**	**DGSL-20-100-EA**
	150	**570202**	**DGSL-20-150-EA**
	200	**570203**	**DGSL-20-200-EA**
25	10	**570204**	**DGSL-25-10-EA**
	20	**570205**	**DGSL-25-20-EA**
	30	**570206**	**DGSL-25-30-EA**
	40	**570207**	**DGSL-25-40-EA**
	50	**570208**	**DGSL-25-50-EA**
	80	**570209**	**DGSL-25-80-EA**
	100	**570210**	**DGSL-25-100-EA**
	150	**570211**	**DGSL-25-150-EA**
	200	**570212**	**DGSL-25-200-EA**

Ordering data

Size	Stroke [mm]	Part No.	Type
With cushioning P1			
4	10	**543913**	**DGSL-4-10-P1A**
	20	**543914**	**DGSL-4-20-P1A**
	30	**543915**	**DGSL-4-30-P1A**
6	10	**543921**	**DGSL-6-10-P1A**
	20	**543922**	**DGSL-6-20-P1A**
	30	**543923**	**DGSL-6-30-P1A**
	40	**543924**	**DGSL-6-40-P1A**
	50	**543925**	**DGSL-6-50-P1A**
8	10	**543932**	**DGSL-8-10-P1A**
	20	**543933**	**DGSL-8-20-P1A**
	30	**543934**	**DGSL-8-30-P1A**
	40	**543935**	**DGSL-8-40-P1A**
	50	**543936**	**DGSL-8-50-P1A**
	80	**543937**	**DGSL-8-80-P1A**
10	10	**543949**	**DGSL-10-10-P1A**
	20	**543950**	**DGSL-10-20-P1A**
	30	**543951**	**DGSL-10-30-P1A**
	40	**543952**	**DGSL-10-40-P1A**
	50	**543953**	**DGSL-10-50-P1A**
	80	**543954**	**DGSL-10-80-P1A**
	100	**543955**	**DGSL-10-100-P1A**
12	10	**543969**	**DGSL-12-10-P1A**
	20	**543970**	**DGSL-12-20-P1A**
	30	**543971**	**DGSL-12-30-P1A**
	40	**543972**	**DGSL-12-40-P1A**
	50	**543973**	**DGSL-12-50-P1A**
	80	**543974**	**DGSL-12-80-P1A**
	100	**543975**	**DGSL-12-100-P1A**
	150	**543976**	**DGSL-12-150-P1A**
16	10	**543991**	**DGSL-16-10-P1A**
	20	**543992**	**DGSL-16-20-P1A**
	30	**543993**	**DGSL-16-30-P1A**
	40	**543994**	**DGSL-16-40-P1A**
	50	**543995**	**DGSL-16-50-P1A**
	80	**543996**	**DGSL-16-80-P1A**
	100	**543997**	**DGSL-16-100-P1A**
	150	**543998**	**DGSL-16-150-P1A**
20	10	**544014**	**DGSL-20-10-P1A**
	20	**544015**	**DGSL-20-20-P1A**
	30	**544016**	**DGSL-20-30-P1A**
	40	**544017**	**DGSL-20-40-P1A**
	50	**544018**	**DGSL-20-50-P1A**
	80	**544019**	**DGSL-20-80-P1A**
	100	**544020**	**DGSL-20-100-P1A**
	150	**544021**	**DGSL-20-150-P1A**
	200	**544022**	**DGSL-20-200-P1A**
25	10	**544039**	**DGSL-25-10-P1A**
	20	**544040**	**DGSL-25-20-P1A**
	30	**544041**	**DGSL-25-30-P1A**
	40	**544042**	**DGSL-25-40-P1A**
	50	**544043**	**DGSL-25-50-P1A**
	80	**544044**	**DGSL-25-80-P1A**
	100	**544045**	**DGSL-25-100-P1A**
	150	**544046**	**DGSL-25-150-P1A**
	200	**544047**	**DGSL-25-200-P1A**

Size	Stroke [mm]	Part No.	Type
With cushioning Y3			
4	10	–	
	20	–	
	30	–	
6	10	–	
	20	–	
	30	–	
	40	–	
	50	–	
8	10	–	
	20	–	
	30	**543938**	**DGSL-8-30-Y3A**
	40	**543939**	**DGSL-8-40-Y3A**
	50	**543940**	**DGSL-8-50-Y3A**
	80	**543941**	**DGSL-8-80-Y3A**
10	10	–	
	20	–	
	30	**543956**	**DGSL-10-30-Y3A**
	40	**543957**	**DGSL-10-40-Y3A**
	50	**543958**	**DGSL-10-50-Y3A**
	80	**543959**	**DGSL-10-80-Y3A**
	100	**543960**	**DGSL-10-100-Y3A**
12	10	–	
	20	–	
	30	**543977**	**DGSL-12-30-Y3A**
	40	**543978**	**DGSL-12-40-Y3A**
	50	**543979**	**DGSL-12-50-Y3A**
	80	**543980**	**DGSL-12-80-Y3A**
	100	**543981**	**DGSL-12-100-Y3A**
	150	**543982**	**DGSL-12-150-Y3A**
16	10	–	
	20	–	
	30	**543999**	**DGSL-16-30-Y3A**
	40	**544000**	**DGSL-16-40-Y3A**
	50	**544001**	**DGSL-16-50-Y3A**
	80	**544002**	**DGSL-16-80-Y3A**
	100	**544003**	**DGSL-16-100-Y3A**
	150	**544004**	**DGSL-16-150-Y3A**
20	10	–	
	20	–	
	30	**544023**	**DGSL-20-30-Y3A**
	40	**544024**	**DGSL-20-40-Y3A**
	50	**544025**	**DGSL-20-50-Y3A**
	80	**544026**	**DGSL-20-80-Y3A**
	100	**544027**	**DGSL-20-100-Y3A**
	150	**544028**	**DGSL-20-150-Y3A**
	200	**544029**	**DGSL-20-200-Y3A**
25	10	–	
	20	–	
	30	**544048**	**DGSL-25-30-Y3A**
	40	**544049**	**DGSL-25-40-Y3A**
	50	**544050**	**DGSL-25-50-Y3A**
	80	**544051**	**DGSL-25-80-Y3A**
	100	**544052**	**DGSL-25-100-Y3A**
	150	**544053**	**DGSL-25-150-Y3A**
	200	**544054**	**DGSL-25-200-Y3A**

Ordering data for modular products ➔ 44

Mini slides DGSL

Ordering data – Modular products

FESTO

M Mandatory data					O Options		M	
Module No.	**Function**	**Size**	**Stroke**		**Clamping unit**	**End-position locking**	**Cushioning**	**Position sensing**
543902	DGSL	4	10 ... 200		C	E3	P	A
543903		6					P1	
543904		8					Y3	
543905		10					E	
543906		12						
543907		16						
543908		20						
543909		25						
Ordering example								
543904	**DGSL**	**8**	**30**			**E3**	**Y3**	**A**

Ordering table

Size		4	6	8	10	12	16	20	25	Conditions	Code	Enter code
M	Module No.	**543902**	**543903**	**543904**	**543905**	**543906**	**543907**	**543908**	**543909**			
	Function	Mini slide with recirculating ball bearing guide									**DGSL**	DGSL
											–	–
	Size	4	6	8	10	12	16	20	25		...	
											–	–
	Stroke [mm]	10									**10**	
		20									**20**	
		30									**30**	
		–	40								**40**	
		–	50								**50**	
		–	–	80							**80**	
		–	–	–	100						**100**	
		–	–	–	–	150					**150**	
		–	–	–	–	–	–	200			**200**	
O											**–**	–
	Clamping unit	–	Attached								**C**	
	End-position locking	–	With piston rod in retracted position							1	**E3**	
M											**–**	–
	Cushioning	Elastic cushioning rings/pads at both ends, end positions adjustable									**P**	
		Elastic cushioning rings/pads at both ends, end positions adjustable, with fixed stop									**P1**	
		–	–	Progressive shock absorber at both ends						2	**Y3**	
		Elastic cushioning rings/pads at both ends, end positions adjustable, short design									**E**	
	Position sensing	Via proximity sensor									**A**	A

1 **E3** Not with clamping unit C

2 **Y3** Minimum stroke 30 mm

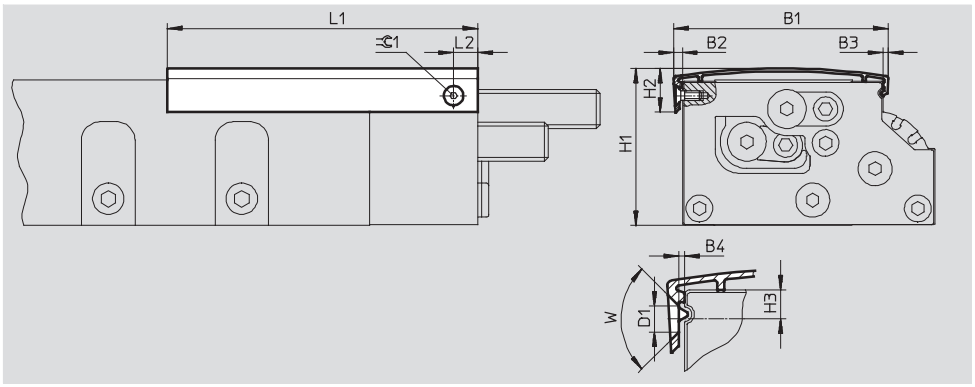
Transfer order code

	DGSL	–		–		–			–	**A**

Ordering data – Wearing parts kits					
Size	Part No.	Type	Size	Part No.	Type
4	**713743**	**DGSL-4-...**	12	**713747**	**DGSL-12-...**
6	**713744**	**DGSL-6-...**	16	**713748**	**DGSL-16-...**
8	**713745**	**DGSL-8-...**	20	**713749**	**DGSL-20-...**
10	**713746**	**DGSL-10-...**	25	**713750**	**DGSL-25-...**

Cover DADS

Materials:
Anodised aluminium
Free of copper, PTFE and silicone
RoHS-compliant



Dimensions and ordering data																
For size	Length [mm]	B1	B2	B3	B4	D1	H1	H2	H3	L1	L2	W	⊂1	Weight [g]	Part No.	Type
4	30	22	1.9	–	0.4	2.8	17.9	7.5	2	40	4.5	90°	–	2	**1086663**	**DADS-AB-G6-4-30**
	500									500				27	**1212468**	**DADS-AB-G6-4-500**
6	50	31.2	1.4	–	0	2.8	22	8.2	2.5	63	6	90°	–	4	**1066625**	**DADS-AB-G6-6-50**
	500									500				33	**1212476**	**DADS-AB-G6-6-500**
8	80	36.3	1.9	–	0.3	2.8	26.5	8.2	2	93	7	90°	–	8	**1087413**	**DADS-AB-G6-8-80**
	500									500				42	**1212478**	**DADS-AB-G6-8-500**
10	50	43.6	2.8	2.2	1.2	3.4	32	12	3.4	70	10	90°	2	11	**1162400**	**DADS-AB-G6-10-50**
	100									120				18	**1090689**	**DADS-AB-G6-10-100**
	500									500				75	**1212479**	**DADS-AB-G6-10-500**
12	50	51.7	2.7	2	0.5	3.4	38.8	12.8	4.25	72	10	90°	2	12	**1162406**	**DADS-AB-G6-12-50**
	150									170				28	**1090732**	**DADS-AB-G6-12-150**
	500									500				82	**1212480**	**DADS-AB-G6-12-500**
16	50	60	4.3	3.1	2.25	3.4	43.7	15.2	5	73	10	90°	2	21	**1162410**	**DADS-AB-G6-16-50**
	150									173				49	**1066591**	**DADS-AB-G6-16-150**
	500									500				141	**1212503**	**DADS-AB-G6-16-500**
20	50	74.8	3.6	2.8	1.2	4.4	53.2	18.9	6.5	74	10	90°	2.5	28	**1162412**	**DADS-AB-G6-20-50**
	100									124				46	**1162415**	**DADS-AB-G6-20-100**
	200									224				83	**1090823**	**DADS-AB-G6-20-200**
	500									500				184	**1212521**	**DADS-AB-G6-20-500**
25	50	88.4	3.5	2.7	0.7	4.4	64.7	18.3	6	78	10	90°	2.5	34	**1162417**	**DADS-AB-G6-25-50**
	100									128				55	**1162419**	**DADS-AB-G6-25-100**
	200									228				98	**1090895**	**DADS-AB-G6-25-200**
	500									500				213	**1212523**	**DADS-AB-G6-25-500**

Note

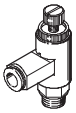
With the 500 mm covers, the mounting hole must be made by the customer.

The cover can be trimmed as required by the customer.

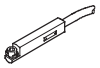
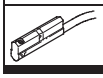
Ordering data

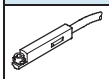
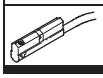
	For size	Brief description	Order code	Part No.	Type	PU[1]
Centring sleeve ZBH					Technical data ➔ Internet: zbh	
	4, 6	For centring loads and attachments (the scope of delivery of the mini slide includes six centring sleeves)	–	**189652**	**ZBH-5**	10
	8, 10, 12, 16			**186717**	**ZBH-7**	
	20, 25			**150927**	**ZBH-9**	
Connector sleeve ZBV					Technical data ➔ Internet: zbv	
	8, 10	• For connecting two mini slides DGSL • Sizing information refers to the y axis	–	**548802**	**ZBV-M4-7**	3
	12, 16			**548803**	**ZBV-M5-7**	
	20, 25			**548804**	**ZBV-M6-9**	
Shock absorber DYEF-...-Y1					Technical data ➔ Internet: dyef	
	4	Elastic cushioning, without metal stop	P	**1179810**	**DYEF-M4-Y1**	1
	6			**1179818**	**DYEF-M5-Y1**	
	8			**1179831**	**DYEF-M6-Y1**	
	10			**1179834**	**DYEF-M8-Y1**	
	12			**1179837**	**DYEF-M10-Y1**	
	16			**1179840**	**DYEF-M12-Y1**	
	20			**1179863**	**DYEF-M14-Y1**	
	25			**1179879**	**DYEF-M16-Y1**	
Shock absorber DYEF-S-...-Y1					Technical data ➔ Internet: dyef	
	4	Elastic cushioning, without metal stop, short design	E	**1152500**	**DYEF-S-M4-Y1**	1
	6			**1152507**	**DYEF-S-M5-Y1**	
	8			**1152524**	**DYEF-S-M6-Y1**	
	10			**1152536**	**DYEF-S-M8-Y1**	
	12			**1152959**	**DYEF-S-M10-Y1**	
	16			**1153004**	**DYEF-S-M12-Y1**	
	20			**1153017**	**DYEF-S-M14-Y1**	
	25			**1153023**	**DYEF-S-M16-Y1**	
Shock absorber DYEF-...-Y1F					Technical data ➔ Internet: dyef	
	4	Elastic cushioning, with metal stop	P1	**548370**	**DYEF-M4-Y1F**	1
	6			**548371**	**DYEF-M5-Y1F**	
	8			**548372**	**DYEF-M6-Y1F**	
	10			**548373**	**DYEF-M8-Y1F**	
	12			**548374**	**DYEF-M10-Y1F**	
	16			**548375**	**DYEF-M12-Y1F**	
	20			**548376**	**DYEF-M14-Y1F**	
	25			**548377**	**DYEF-M16-Y1F**	
Shock absorber DYSW					Technical data ➔ Internet: dysw	
	8	Progressive shock absorber, both ends	Y3	**548070**	**DYSW-4-6-Y1F**	1
	10			**548071**	**DYSW-5-8-Y1F**	
	12			**548072**	**DYSW-7-10-Y1F**	
	16			**548073**	**DYSW-8-14-Y1F**	
	20			**548074**	**DYSW-10-17-Y1F**	
	25			**548075**	**DYSW-12-20-Y1F**	
Reducing sleeve DAYH						
	10	For DYSW-4-6	–	**1165476**	**DAYH-4**	1
	12	For DYSW-5-8		**1165480**	**DAYH-5**	
	16	For DYSW-7-10		**1165484**	**DAYH-7**	
	20	For DYSW-8-14		**1165488**	**DAYH-8**	
	25	For DYSW-10-17		**1165491**	**DAYH-10**	

1) Packaging unit

Ordering data					
	For size	Brief description	Part No.	Type	PU[1]
One-way flow control valve GRLA				Technical data ➔ Internet: grla	
	4, 6, 8	• For regulating speed • Only one GRLA-M3-QS-3 can be mounted on the front face with size 4	**175041**	**GRLA-M3-QS-3**	1
			175038	**GRLA-M3**	
	10, 12, 16		**193137**	**GRLA-M5-QS-3-D**	
			193138	**GRLA-M5-QS-4-D**	
	20, 25		**193143**	**GRLA-⅛-QS-4-D**	
			193144	**GRLA-⅛-QS-6-D**	
	20, 25		**162965**	**GRLA-⅛-QS-6-RS-B**	
			162966	**GRLA-⅛-QS-8-RS-B**	
Push-in fitting QSM				Technical data ➔ Internet: quick star	
	4, 6, 8	For connecting compressed air tubing with standard O.D.	**153301**	**QSM-M3-3**	10
	10, 12, 16		**153304**	**QSM-M5-4**	
	20, 25		**153307**	**QSM-⅛-6**	

1) Packaging unit

Ordering data – Proximity sensors for C-slot, magneto-resistive						Technical data ➔ Internet: smt
	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire, in-line	2.5	**525915**	**SMT-10F-PS-24V-K2,5L-OE**
			Plug M8x1, 3-pin, in-line	0.3	**525916**	**SMT-10F-PS-24V-K0,3L-M8D**
			Plug M8x1, 3-pin, angled	0.3	**526675**	**SMT-10F-PS-24V-K0,3Q-M8D**
	Insertable in the slot lengthwise	PNP	Plug M8x1, 3-pin, in-line	0.3	**173220**	**SMT-10-PS-SL-LED-24**
			Cable, 3-wire, in-line	2.5	**173218**	**SMT-10-PS-KL-LED-24**

Ordering data – Proximity sensors for C-slot, magnetic reed						Technical data ➔ Internet: sme
	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	Contacting	Plug M8x1, 3-pin, in-line	0.3	**525914**	**SME-10F-DS-24V-K0,3L-M8D**
			Cable, 3-wire, in-line	2.5	**525913**	**SME-10F-DS-24V-K2,5L-OE**
			Cable, 2-wire, in-line	2.5	**526672**	**SME-10F-ZS-24V-K2,5L-OE**
	Insertable in the slot lengthwise	Contacting	Plug M8x1, 3-pin, in-line	0.3	**173212**	**SME-10-SL-LED-24**
			Cable, 3-wire, in-line	2.5	**173210**	**SME-10-KL-LED-24**

Note

Proximity sensors SME
are not permitted for size 4.

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**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-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**

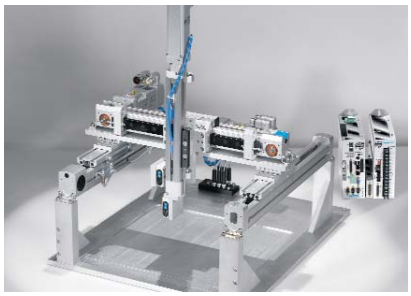
Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.

Custom Automation Components
Complete custom engineered solutions

Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.

Electromechanical
Electromechanical actuators, motors, controllers & drives

Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply

PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!
Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

Festo North America

Festo Regional Contact Center

5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Canada

USA Customers:

For ordering assistance,
Call: 1.800.99.FESTO (1.800.993.3786)
Fax: 1.800.96.FESTO (1.800.963.3786)
Email: customer.service@us.festo.com

For technical support,
Call: 1.866.GO.FESTO (1.866.463.3786)
Fax: 1.800.96.FESTO (1.800.963.3786)
Email: product.support@us.festo.com

Canadian Customers:

Call: 1.877.GO.FESTO (1.877.463.3786)
Fax: 1.877.FX.FESTO (1.877.393.3786)
Email: festo.canada@ca.festo.com

USA Headquarters

Festo Corporation
395 Moreland Road
P.O. Box 18023
Hauppauge, NY 11788, USA
www.festo.com/us

USA Sales Offices

Appleton
North 922 Tower View Drive, Suite N
Greenville, WI 54942, USA

Boston
120 Presidential Way, Suite 330
Woburn, MA 01801, USA

Chicago
1441 East Business Center Drive
Mt. Prospect, IL 60056, USA

Dallas
1825 Lakeway Drive, Suite 600
Lewisville, TX 75057, USA

Detroit – Automotive Engineering Center
2601 Cambridge Court, Suite 320
Auburn Hills, MI 48326, USA

New York
395 Moreland Road
Hauppauge, NY 11788, USA

Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA 94550, USA

United States

USA Headquarters, East: Festo Corp., 395 Moreland Road, Hauppauge, NY 11788
Phone: 1.631.435.0800; Fax: 1.631.435.8026;
Email: info@festo-usa.com **www.festo.com/us**

Canada

Headquarters: Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4
Phone: 1.905.624.9000; Fax: 1.905.624.9001;
Email: festo.canada@ca.festo.com **www.festo.ca**

Mexico

Headquarters: Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquinahuac,
54020 Tlalnepantla, Edo. de México
Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;
Email: festo.mexico@mx.festo.com **www.festo.com/mx**

Central USA
Festo Corporation
1441 East Business
Center Drive
Mt. Prospect, IL 60056, USA
Phone: 1.847.759.2600
Fax: 1.847.768.9480

Western USA
Festo Corporation
4935 Southfront Road,
Suite F
Livermore, CA 94550, USA
Phone: 1.925.371.1099
Fax: 1.925.245.1286

Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

www.festo.com