

Linear drives DGP/DGPL



Linear drives DGP/DGPL

Selection aid

FESTO

General information

- Compact, fitting length relative to stroke
- Highly adaptable, thanks to wide choice of mounting and attachment options
- Adjustable end-position cushioning systems
- Can be combined with the modular system for handling and assembly technology
- Maintenance-free (for up to 5000 km with a recirculating ball bearing guide)
- Wide choice of variants:
 - Clamping unit
 - Extended slide
 - Air connections on both sides
 - Electronic cushioning with SoftStop SPC11

Basic design DGP

- Piston \varnothing 18 ... 80 mm
- Stroke lengths 10 ... 3000 mm
- As a drive for external guides
- For small loads



With plain-bearing guide DGPL-GF-GK/-GV

- Piston \varnothing 18 ... 80 mm
- Stroke lengths 10 ... 3000 mm
- Minimal backlash
- For medium loads and low torques



With recirculating ball bearing guide DGPL-KF-GK/-GV

- Piston \varnothing 18 ... 80 mm
- Stroke lengths 10 ... 3000 mm
- Backlash-free
- Precision, rigid guide
- For high loads and torques



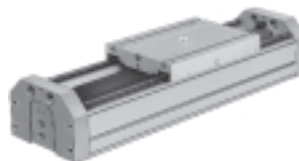
Protected version DGPL-GA

- Piston \varnothing 18 ... 40 mm
- Stroke lengths 10 ... 2000 mm
- Guide and slide are fitted with a cover to protect against the ingress of particles from above and from the side
- Backlash-free
- Precision, rigid guide
- For high loads and torques



With heavy-duty guide DGPL-HD

- Piston \varnothing 18 ... 40 mm
- Stroke lengths 10 ... 2160 mm
- Backlash-free
- Maximum precision

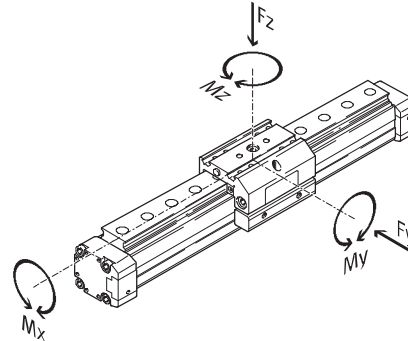


Linear drives DGP/DGPL

Selection aid

Guide characteristics

The data in the table are values from type GK. The precise values for each variant can be found in the corresponding data sheet included in the catalogue.



Version	Piston \varnothing [mm]	Stroke ¹⁾ [mm]	Theoretical force at 6 bar [N]	Forces and torques					→ Page/Internet
				Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	
Basic version without guide DGP									
	18	10 ... 1800	153	-	120	0.5	11	1	6
	25	10 ... 3000	295		330	1	20	3	
	32	10 ... 3000	483		480	2	40	5	
	40	10 ... 3000	754		800	4	60	8	
	50	10 ... 3000	1178		1200	7	120	15	
	63	10 ... 3000	1870		1600	8	120	24	
	80	10 ... 3000	3016		5000	32	750	140	
With plain-bearing guide DGPL-GF									
	18	10 ... 1800	153	330	330	2.2	10	10	24
	25	10 ... 3000	295	430	430	5.4	14	14	
	32	10 ... 3000	483	430	430	8.5	18	18	
	40	10 ... 3000	754	1010	1010	23	34	34	
	50	10 ... 3000	1178	1010	1010	32	52	52	
	63	10 ... 3000	1870	2000	2000	74	140	140	
	80	10 ... 3000	3016	2000	2000	100	230	230	
With recirculating ball bearing guide DGPL-KF									
	18	10 ... 1800	153	930	930	7	23	23	24
	25	10 ... 3000	295	3080	3080	45	85	85	
	32	10 ... 3000	483	3080	3080	63	127	127	
	40	10 ... 3000	754	7300	7300	170	330	330	
	50	10 ... 3000	1178	7300	7300	240	460	460	
	63	10 ... 3000	1870	14050	14050	580	910	910	
	80	10 ... 3000	3016	14050	14050	745	1545	1545	
With heavy-duty guide DGPL-HD									
	HD18	10 ... 1710	153	1820	1820	70	115	112	46
	HD25	10 ... 2160	295	5400	5600	260	415	400	
	HD40	10 ... 2110	754	5400	5600	375	560	540	

1) With effective strokes of over 2000 mm the installation of the drive unit must be with the sealing strip facing down; longer strokes available on request.

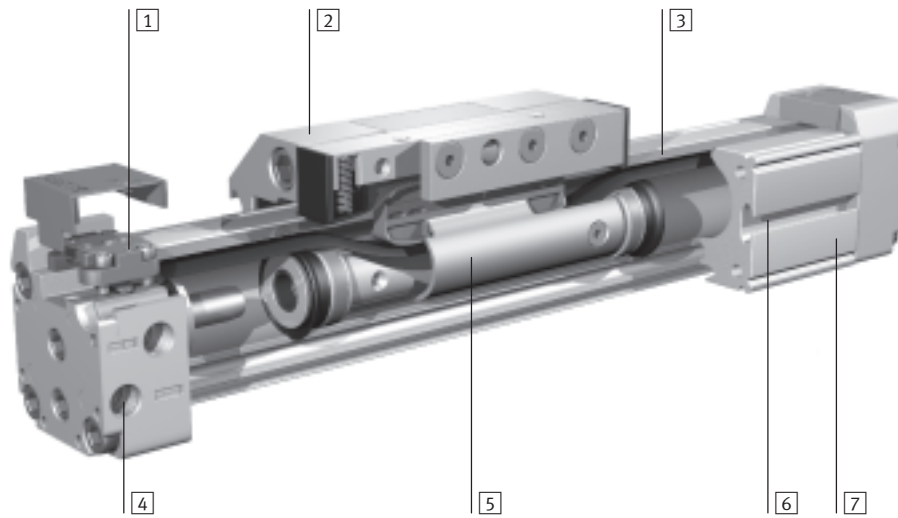
- - Note
Piston \varnothing 8 and 12
Linear drives DGC
→ Internet: dgc

Linear drives DGP/DGPL

Key features

FESTO

The technology in detail



- 1 Adjustable end-position cushioning, alternatively:
 - Shock absorber
 - SoftStop SPC11
- 2 Slide is permanently attached to the driver

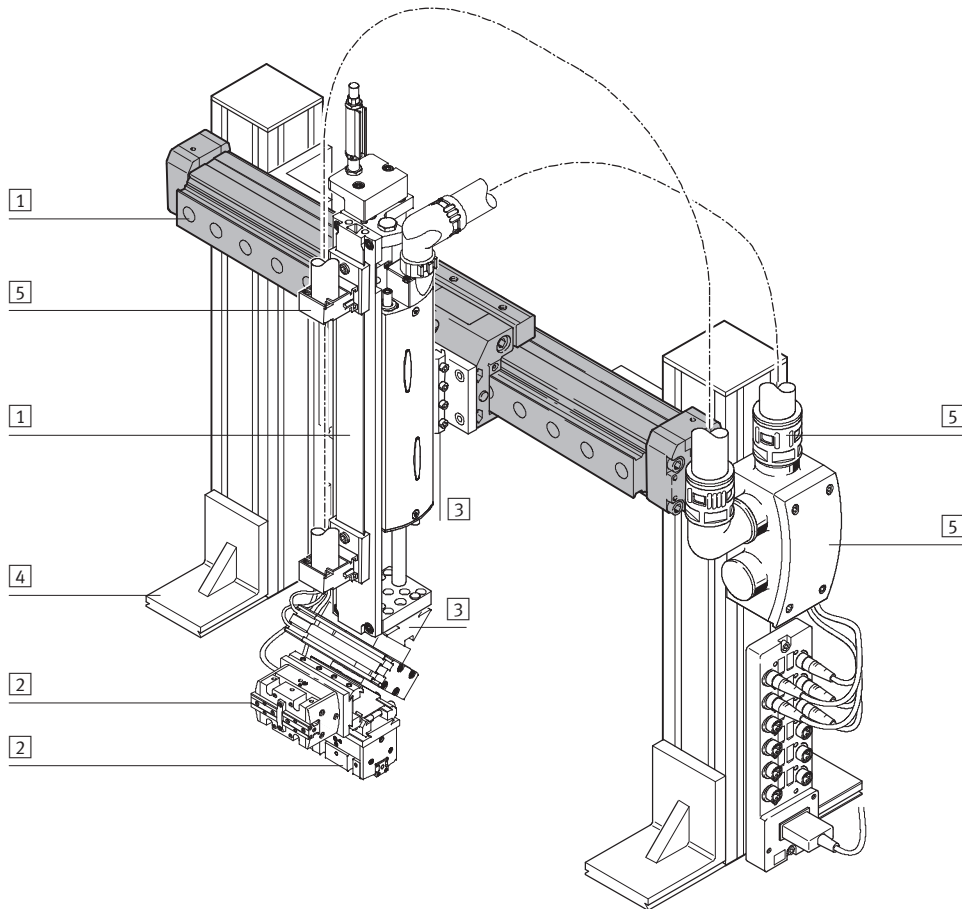
- 3 Cover strip protects the drive against the ingress of dirt
- 4 Choice of supply port positions, options on three sides on the end cap

- 5 Piston
- 6 Mounting/sensor slot for integral proximity sensors, additional slot for slot nuts with piston \varnothing 32 and above
- 7 Stable profile

Linear drives DGP/DGPL

Key features

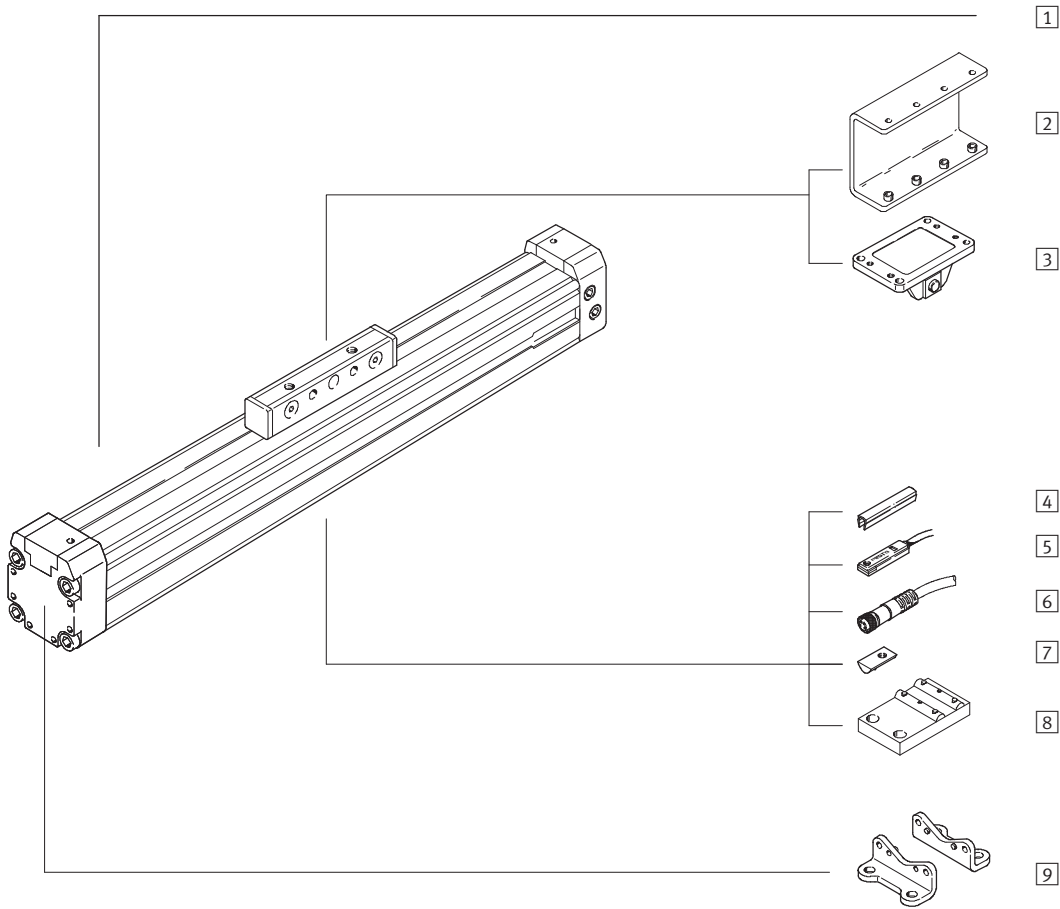
System product for handling and assembly technology



System components and accessories		
	Brief description	→ Page/Internet
1	Linear drives	Wide range of combination options within handling and assembly technology drive
2	Grippers	Wide range of combination options within handling and assembly technology gripper
3	Adapters	For combining drives with drives and drives with grippers adapter kit
4	Basic components	Profiles and profile connectors as well as profile/drive connectors basic component
5	Installation components	For achieving a clear-cut, safe layout for electrical cables and tubing installation component
-	Axes	Wide range of combination options within handling and assembly technology axes
-	Motors	Servo and stepper motors, with or without gearing motor

Linear drives DGP

Peripherals overview



Linear drives DGP

Peripherals overview

Variants and accessories		
Type	Brief description	→ Page/Internet
1 Linear drive DGP	Pneumatic linear drive with driver	8
2 Load inverter AK	The driver should be mounted pointing downwards with long strokes > 2 m or in unfavourable environments. By using the load inverter it means that the load can be attached from above.	61
3 Moment compensator FK	For compensating misalignments when using external guides	62
4 Slot cover B/S	For protecting against dirt and securing proximity sensor cables	65
5 Proximity sensor G/H/I/J/N	For sensing the driver position	67
6 Cable with socket V	For proximity sensors	67
7 Slot nut for profile slot Y	For mounting attachments	65
8 Central support M	For mounting the axis, particularly with long strokes	59
9 Foot mounting F	For mounting the axis	58

Linear drives DGP

Type code

	DGP	-	25	-	500	-	PPV	-	A	-	B	-	KV	-	GK	-	D2
Type																	
DGP	Linear drive																
Piston Ø																	
Stroke [mm]																	
Cushioning																	
PPV	Adjustable end-position cushioning																
Position sensing																	
A	Via magnet																
Generation																	
B	B series																
Clamping unit																	
KV	Front																
KH	Rear																
Basic design																	
GK	Standard driver																
GV	Extended driver																
Supply port/accessories																	
D2	Supply port at both ends																
FK	Moment compensator																
AK	Load inverter																

Linear drives DGP

Type code



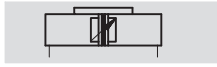
		+ ZUB	-	2S2B			F	2H	2V
Accessories									
ZUB	Accessories supplied loose								
Slot cover									
...S	Sensor slot								
...B	Mounting slot								
Slot nut									
...Y	For profile barrel								
Central support									
...M	Central support								
Foot mounting									
...F	Foot mounting								
Proximity sensor									
...G	With cable, 2.5 m								
...H	With plug								
...I	Contactless, with cable, 2.5 m								
...J	Contactless, plug								
...N	NC contact with cable, 2.5 m								
Cable with socket									
...V	2.5 m								

Linear drives DGP

Technical data

FESTO

Function



www.festo.com

Wearing parts kits
→ 20

- Ø - Diameter
18 ... 80 mm
- | - Stroke length
1 ... 3000 mm



General technical data							
Piston Ø	18	25	32	40	50	63	80
Constructional design	Pneumatic linear drive with driver						
Protection against torsion/guide	Slotted profile barrel						
Mode of operation	Double-acting						
Driver principle	Positive-locking (slot)						
Mounting position	Any						
Pneumatic connection	M5	G $\frac{1}{8}$		G $\frac{1}{4}$		G $\frac{3}{8}$	G $\frac{1}{2}$
Stroke length [mm]	10 ... 1800		10 ... 3000 ¹⁾				
Cushioning (PPV)	Adjustable at both ends						
Cushioning length [mm]	16	18	20	30			83
Position sensing	Via magnet						

1) With effective strokes of over 2000 mm the installation of the drive unit must be with the sealing strip facing down; longer strokes available on request.

Operating and environmental conditions							
Piston Ø	18	25	32	40	50	63	80
Operating medium	Filtered compressed air, lubricated or unlubricated						
Operating pressure [bar]	2 ... 8			1.5 ... 8			
Ambient temperature ¹⁾ [°C]	-10 ... +60						
ATEX	Specified types → www.festo.com						

1) Note operating range of proximity sensors.

Forces [N] and impact energy [Nm]							
Piston Ø	18	25	32	40	50	63	80
Theoretical force at 6 bar	153	295	483	754	1178	1870	3016
Impact energy	→ 13						

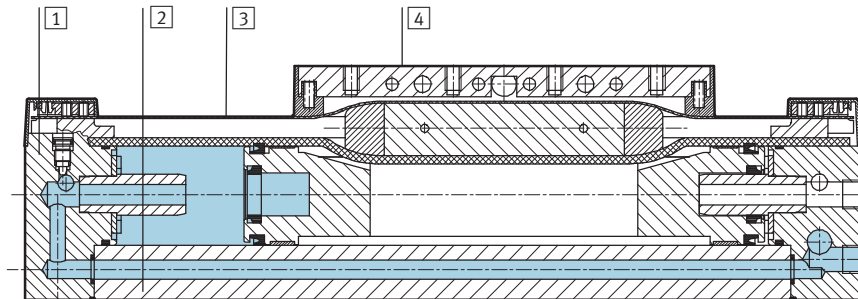
Weights [kg]							
Piston Ø	18	25	32	40	50	63	80
Basic weight with 0 mm stroke	0.46	0.84	1.55	2.65	5.88	9.1	17.3
Additional weight per 10 mm stroke	0.016	0.036	0.041	0.057	0.111	0.148	0.158
Moving load	0.08	0.18	0.32	0.55	1.55	1.76	5.0

Linear drives DGP

Technical data

Materials

Sectional view



Axis	18	25	32	40	50	63	80
1 End cap	Anodised aluminium						
2 Profile	Anodised aluminium						
3 Cover strip	Corrosion resistant steel						Polyurethane
4 Driver	Anodised aluminium						
Seals	Nitrile rubber, polyurethane						
-							

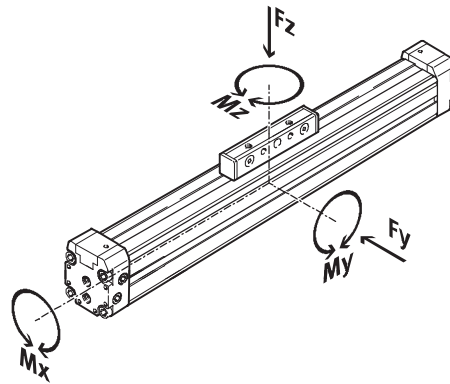
Linear drives DGP

Technical data

FESTO

Characteristic load values

The indicated forces and torques refer to the centre line of the internal diameter of the profile barrel. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

$$0.4 \times \frac{Fz}{Fz_{max.}} + \frac{Mx}{Mx_{max.}} + \frac{My}{My_{max.}} + 0.2 \times \frac{Mz}{Mz_{max.}} \leq 1$$

$$\frac{Fz}{Fz_{max.}} \leq 1 \quad \frac{Mz}{Mz_{max.}} \leq 1$$

Permissible forces and torques								
Piston Ø		18	25	32	40	50	63	80
Standard driver GK								
Fy _{max.}	[N]	-						
Fz _{max.}	[N]	120	330	480	800	1200	1600	5000
Mx _{max.}	[Nm]	0.5	1	2	4	7	8	32
My _{max.}	[Nm]	11	20	40	60	120	120	750
Mz _{max.}	[Nm]	1	3	5	8	15	24	140
Extended driver GV								
Fy _{max.}	[N]	-						
Fz _{max.}	[N]	120	330	480	800	1200	-	-
Mx _{max.}	[Nm]	1	2	4	8	14	16	-
My _{max.}	[Nm]	22	40	80	120	240	240	-
Mz _{max.}	[Nm]	2	6	10	16	30	48	-

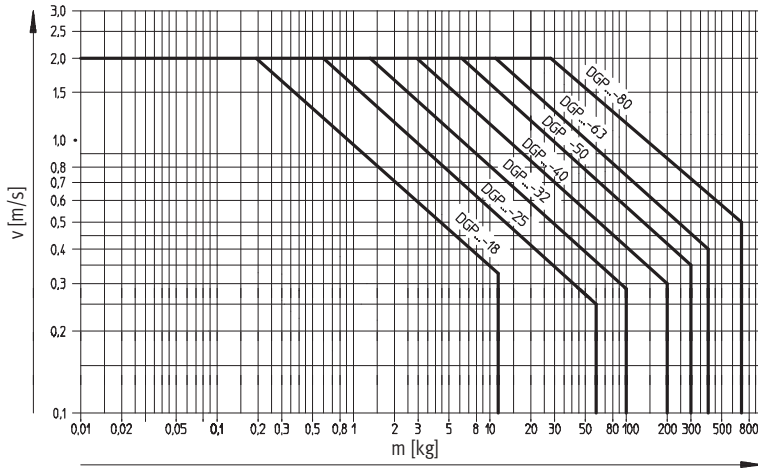
-  - Note
Sizing software
ProDrive
→ www.festo.com


Linear drives DGP

Technical data

Operating range of the integrated end-position cushioning PPV

Maximum permissible speed v as a function of the moving load m



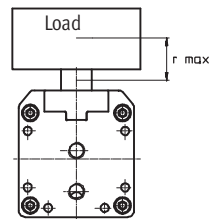
-  Note
The data applies to a horizontal mounting position, applied load on top.
 m = Applied load + moving load
(→ 10)
The graph opposite refers to r_{max} .

Pneumatic linear drives

The end-position cushioning must be adjusted to ensure jerk-free operation. If the operating conditions are outside the permissible range, the load to be moved must be externally

cushioned using suitable equipment (shock absorbers, stops, etc), preferably at the centre of gravity of the mass.

with driver DGP



$r_{max} = 20$ mm
for piston $\varnothing 18$ mm

$r_{max} = 50$ mm
for piston $\varnothing 25 \dots 80$ mm
(data for greater load distances on request)

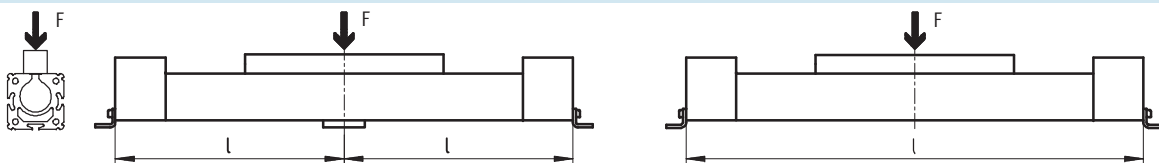
Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports MUP in order to restrict deflection with long stroke

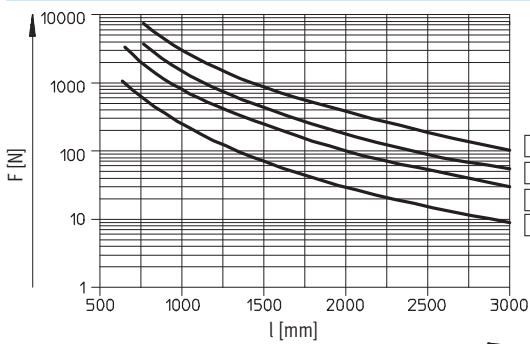
lengths. The following diagrams serve to determine the maximum permissible support span l as a

function of the force F acting upon the axis.

Force on the surface of the slide

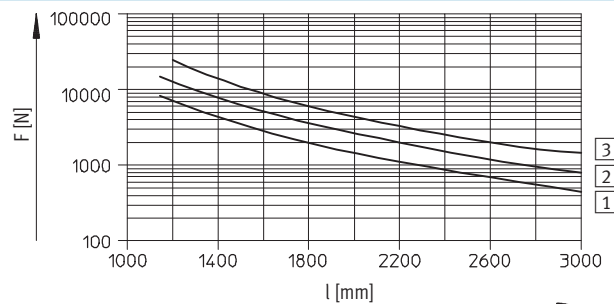


Piston $\varnothing 18 \dots 40$



- 1 DGP...18
- 2 DGP...25
- 3 DGP...32
- 4 DGP...40

Piston $\varnothing 50 \dots 80$



- 1 DGP...50
- 2 DGP...63
- 3 DGP...80

Linear drives DGP

Technical data

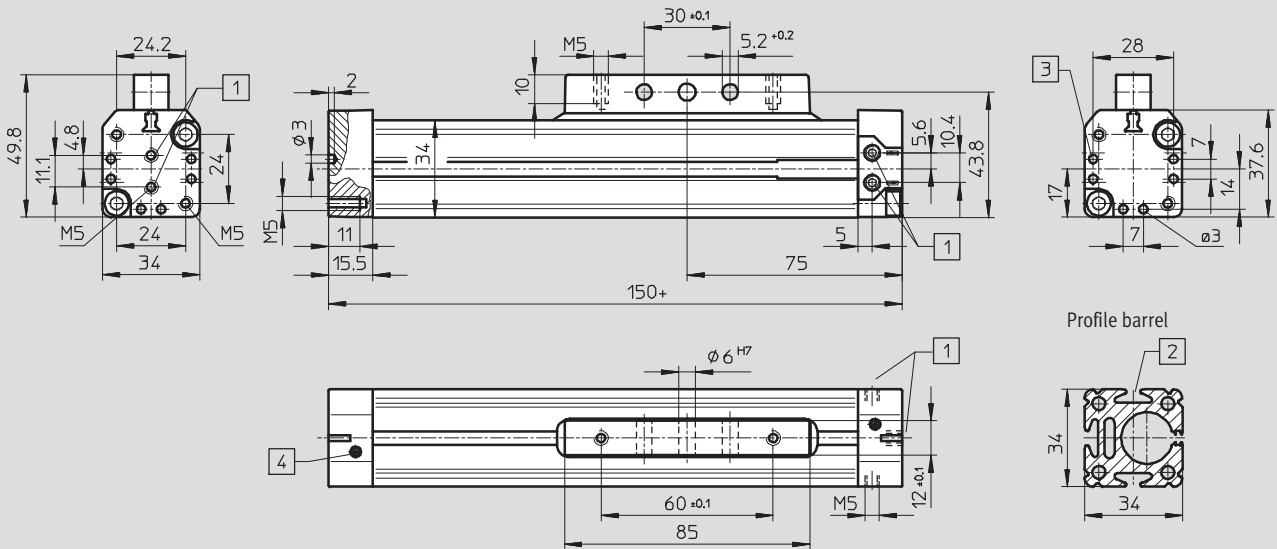


Dimensions

Download CAD data → www.festo.com

Standard driver GK

Piston Ø 18



1 Supply ports at one end, option of three sides of an end cap (D2 variant: supply port at both ends, option of three sides per end cap)

2 Sensor slot for proximity sensor

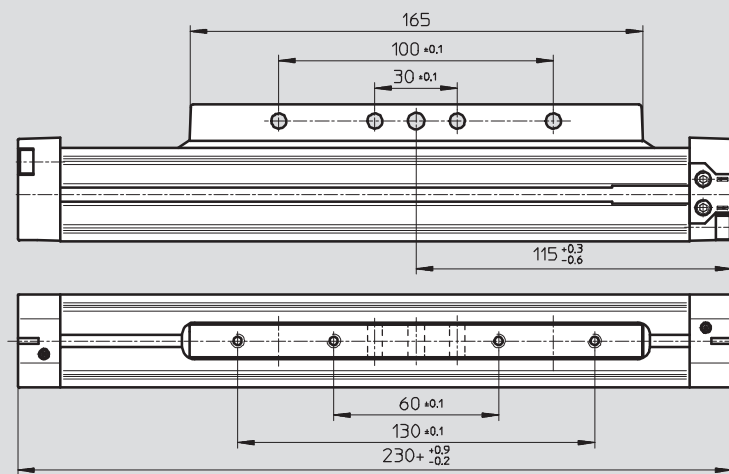
3 Mounting hole for foot mounting HP

4 Regulating screw for adjustable end-position cushioning

+ = plus stroke length

Extended driver GV

Piston Ø 18



+ = plus stroke length

Linear drives DGP

Technical data

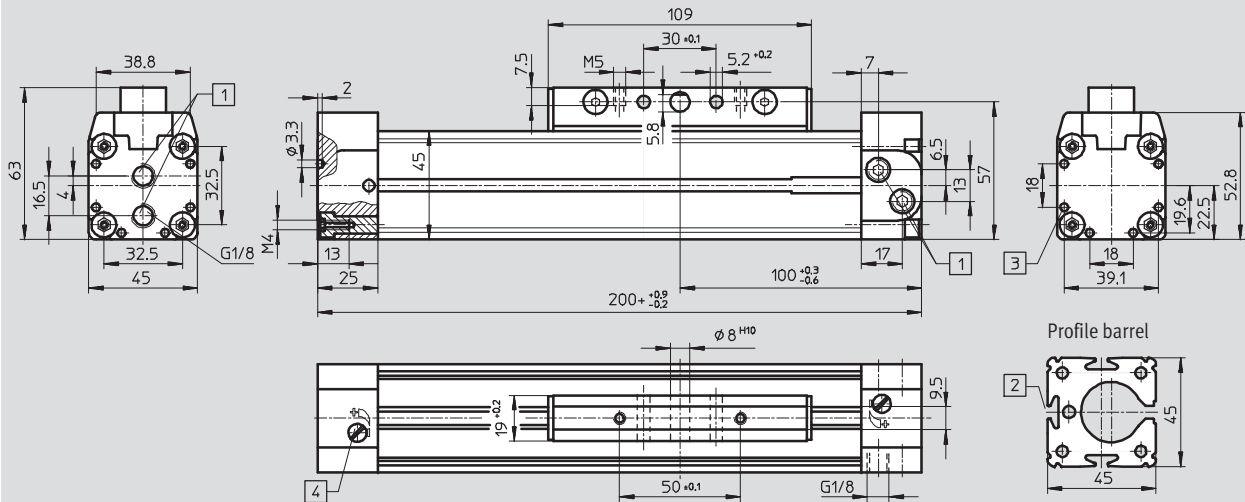
FESTO

Dimensions

Download CAD data → www.festo.com

Standard driver GK

Piston Ø 25

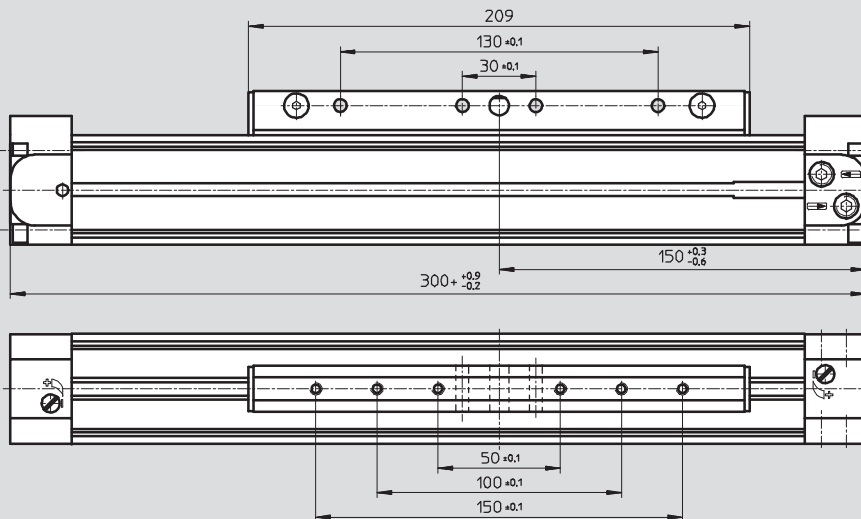


- 1 Supply ports at one end, option of three sides of an end cap (D2 variant: supply port at both ends, option of three sides per end cap)
- 2 Sensor slot for proximity sensor
- 3 Mounting hole for foot mounting HP
- 4 Regulating screw for adjustable end-position cushioning

+ = plus stroke length

Extended driver GV

Piston Ø 25



+ = plus stroke length

Linear drives DGP

Technical data

FESTO

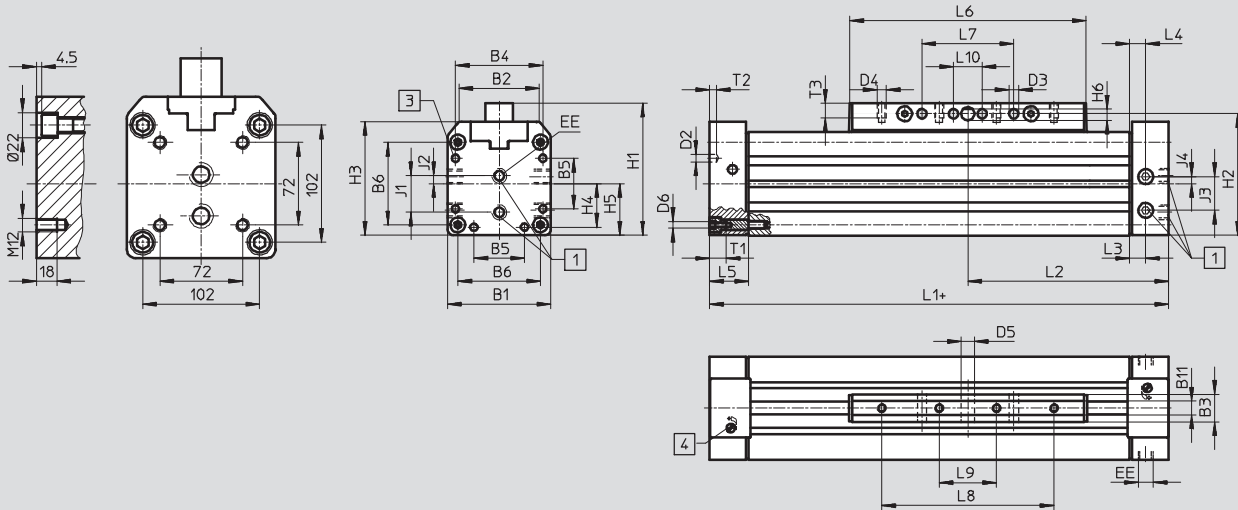
Dimensions

Download CAD data → www.festo.com

Standard driver GK

Piston Ø 80

Piston Ø 32 ... 63



1 Supply ports at one end, option of three sides of an end cap (D2 variant: supply port at both ends, option of three sides per end cap)

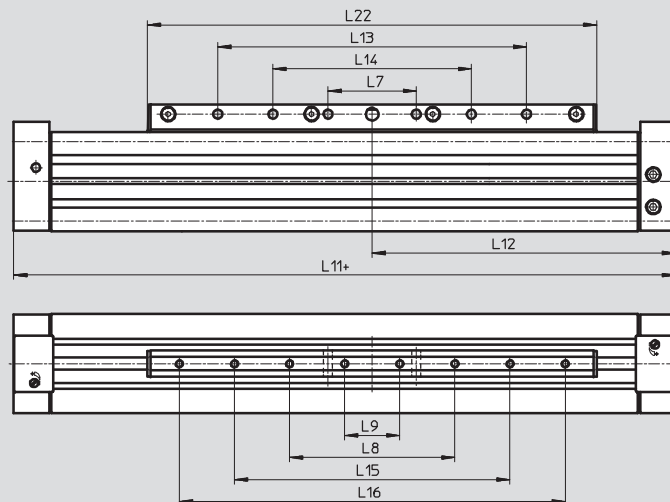
3 Mounting hole for foot mounting HP

4 Regulating screw for adjustable end-position cushioning

+ = plus stroke length

Extended driver GV

Piston Ø 32 ... 63



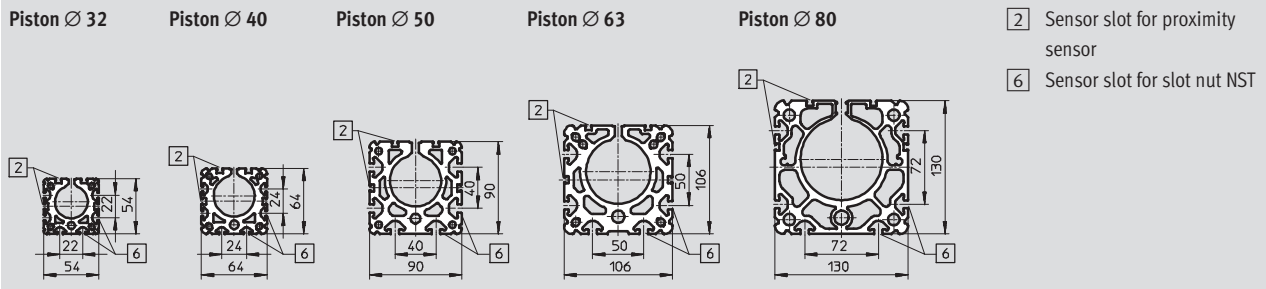
+ = plus stroke length

Linear drives DGP

Technical data

FESTO

Profile barrel



∅ [mm]	B1	B2	B3 ±0.2	B4	B5	B6	B11	D2 ∅	D3 ∅ ±0.2	D4	D5 ∅ H10	D6	EE	H1	H2
32	54	35.8	19	46	21	40	9.5	4.3	5.2	M5	8	M5	G $\frac{1}{8}$	72	66
40	64	45.7	21	53	28	49			6.5	M6	10		G $\frac{1}{4}$	86	78
50	90	69.2	24	76	44	72	12	6.3	8.5	M8	12	M6	G $\frac{1}{4}$	115	106
63	106	84.8		89		83							M8	G $\frac{3}{8}$	131
80	130	102.5	36	-	-	-	-	-	12.2	M12	20	-	G $\frac{1}{2}$	174	158

∅ [mm]	H3	H4	H5	H6	J1	J2	J3	J4	L1	L2	L3	L4	L5	L6
32	62	23	27	5.8	19	4.2	14	4.7	250	125	17	8.5	31	135
40	71.8	26.5	32	7.7	22	5	21	9.1	300	150	11.5	11.5		171
50	99	36	45	9.7	31.8	6.8	29.3	6	350	175	14	14	34	206
63	115	44.5	53		36	8	31	14	400	200				234
80	140.5	51	65	-			33.3	3.6	520	260	19	19	45	334

∅ [mm]	L7	L8	L9	L10 ±0.15	L11 +0.9/-0.2	L12 +0.3/-0.6	L13 ±0.1	L14 ±0.1	L15 ±0.1	L16 ±0.1	L22	T1	T2	T3
32	50 ±0.1	100 ±0.1	30 ±0.1	-	380	190	180	-	160	230	265	13.2	3	7.5
40	70 ±0.1	130 ±0.1	40 ±0.1		470	235	160	250	220	-	341		4	10.5
50	80 ±0.1	150 ±0.1	50 ±0.1		550	275	280	-	250	350	406	15.2	6	12.5
63	110 ±0.1	190 ±0.1	70 ±0.1		650	325	380	310	430	484	21.2			
80	180 ±0.15	230 ±0.15	115 ±0.15	60	-	-	-	-	-	-	-	-	-	19

Linear drives DGP

Technical data – Clamping unit

FESTO

Clamping unit DGPL-...-KV/KH

The clamping unit is clamped in the unpressurised state.

General technical data					
Piston Ø		18	25	32	40
Constructional design	Spring actuated clamping profile				
Stroke	[mm]	10 ... 1800	10 ... 3000		

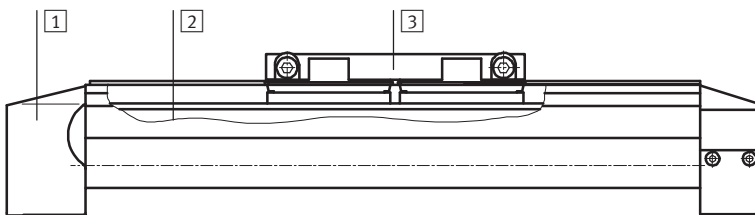
Operating and environmental conditions					
Piston Ø		18	25	32	40
Operating pressure	[bar]	4 ... 8			
Grade of filtration	[µm]	40			
Connection		G $\frac{1}{8}$			
Ambient temperature ¹⁾	[°C]	-10 ... +60			

1) Note for proximity sensors

Clamping unit weights [kg]					
Piston Ø		18	25	32	40
Basic weight with 0 mm stroke		0.388	0.649	0.985	1.446
Additional weight per 10 mm stroke		0.018	0.026	0.034	0.041
Moving load with 0 mm stroke		0.061	0.120	0.153	0.213

Materials

Sectional view



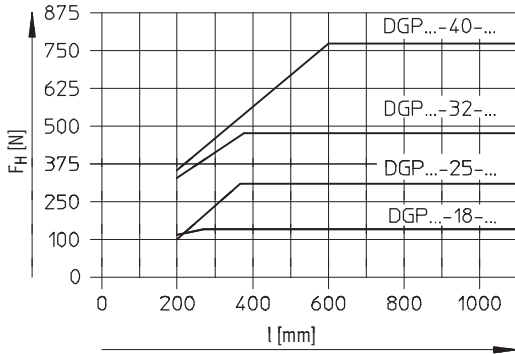
Clamping unit	
1	Housing Anodised aluminium
2	Clamping profile Anodised aluminium
3	Driver Anodised aluminium
-	Cover Acrylic butadiene styrene
-	Seals Polyurethane

Linear drives DGP

Technical data – Clamping unit

Clamping unit DGP...-K...

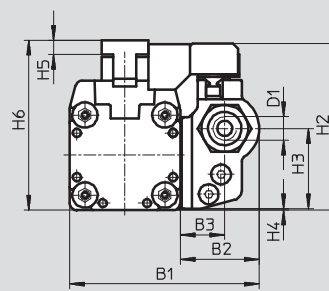
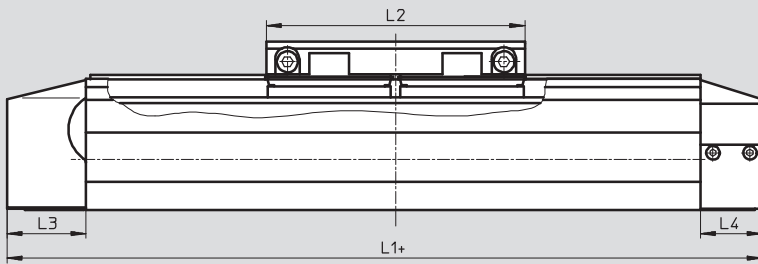
Holding force F_H of the clamping unit dependent on the stroke l



- - Note
 Environmental conditions:
 Clamping surfaces oil, grease and dirt-free

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length

- - Note
 Clamping units DGP...-K... have a supply port at one end.

For \varnothing	B1	B2	B3	B4	D1	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6
[mm]	max.	max.	max.	max.						± 0.1							
18	56.8	31.2	17.2	-	G1/8	-	56.7	28.5	0.5	8.2	58	176	85	32	25	16.5	9.5
25	72	33.3	19.3				67.8	32.7	0.6	5.9	69.2	207	105			7	-
32	83	32.7	17.7				76.8	41	1	5.9	78.2	251	131		31	1	
40	96.4	37.1	23.1				90	54.6	1.7	5.4	91.7	301	167				

Linear drives DGP

Ordering data

Ordering data – Standard stroke		
Piston Ø	Part No.	Type
25	526 645	DGP-25-250-PPV-A-B
	526 646	DGP-25-400-PPV-A-B
	526 647	DGP-25-500-PPV-A-B
	526 648	DGP-25-1000-PPV-A-B
32	526 653	DGP-32-250-PPV-A-B
	526 654	DGP-32-400-PPV-A-B
	526 655	DGP-32-500-PPV-A-B
	526 656	DGP-32-1000-PPV-A-B
40	526 661	DGP-40-250-PPV-A-B
	526 662	DGP-40-400-PPV-A-B
	526 663	DGP-40-500-PPV-A-B
	526 664	DGP-40-1000-PPV-A-B

Ordering data – Variable stroke		
Piston Ø	Part No.	Type
18	158 971	DGP-18-...-PPV-A-B
25	161 780	DGP-25-...-PPV-A-B
32	161 781	DGP-32-...-PPV-A-B
40	161 782	DGP-40-...-PPV-A-B
50	161 783	DGP-50-...-PPV-A-B
63	161 784	DGP-63-...-PPV-A-B
80	161 785	DGP-80-...-PPV-A-B

Ordering data – Wearing parts kits		
Piston Ø	Part No.	Type
18	384 266	DGP-18-...-PPV-A
25	123 563	DGP-25-...-PPV-A
32	123 564	DGP-32-...-PPV-A
40	123 565	DGP-40-...-PPV-A
50	123 566	DGP-50-...-PPV-A
63	123 567	DGP-63-...-PPV-A
80	123 568	DGP-80-...-PPV-A

Linear drives DGP

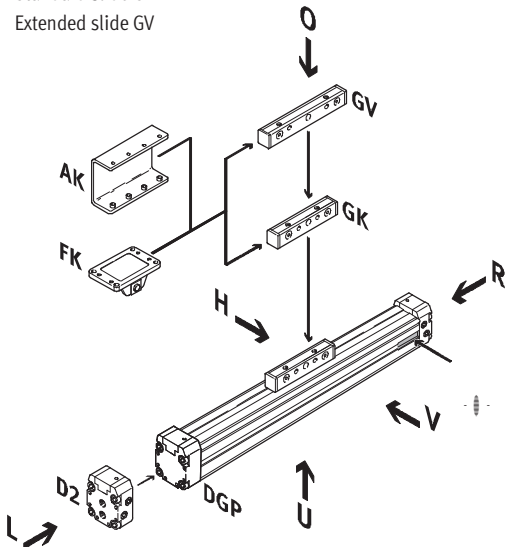
Ordering data – Modular products

Order code

Mandatory data

GK	Standard slide	AK	Load inverter
GV	Extended slide	KV	Clamping unit at front
D2	Supply port at both ends	KH	Clamping unit at rear
FK	Moment compensator		

Standard slide GK
Extended slide GV

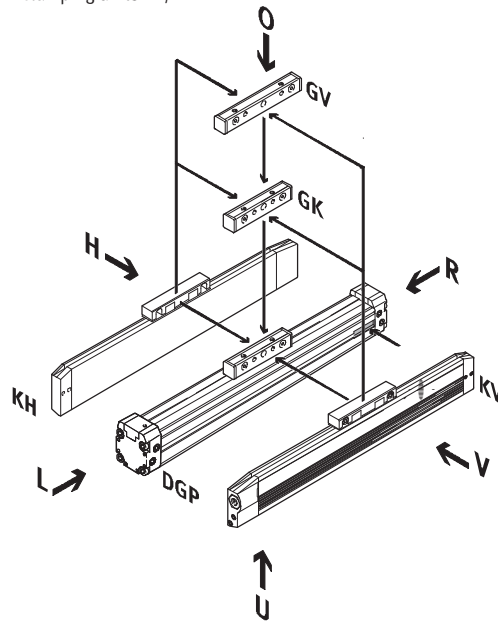


- - Note

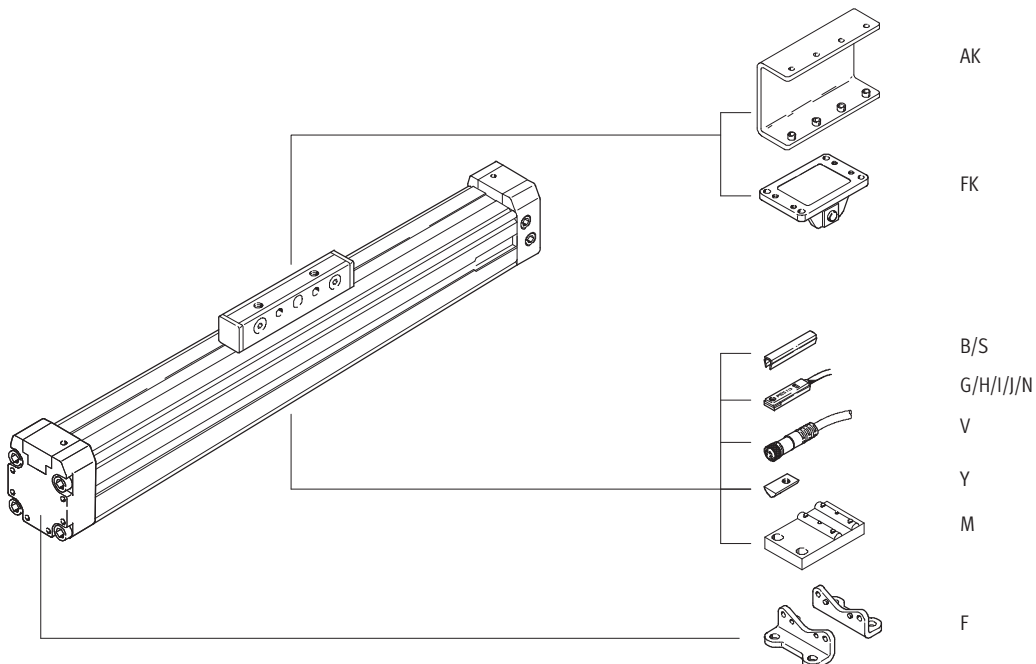
The insertion point for the proximity sensor is located on the right-hand side of the pneumatic linear drive DGP.

O top
U underneath
R right
L left
V front
H rear

Clamping units KH/KV



Options



Linear drives DGP

Ordering data – Modular products

FESTO

M Mandatory data							O Options →			
Module No.	Drive function	Size	Stroke	Cushioning	Position sensing	Generation	Clamping unit	Basic design	Supply port/driver	
175 133	DGP	18	10 ... 300	PPV	A	B	KV KH	GK GV	D2 FK AK	
175 134		25	0							
175 135		32								
175 136		40								
175 137		50								
175 138		63								
175 139		80								
Ordering example										
175 134	DGP	- 25	- 500	- PPV	- A	- B	- KH	- GV	- D2	

Ordering table											
Size	18	25	32	40	50	63	80	Conditions	Code	Enter code	
M Module No.	175 133	175 134	175 135	175 136	175 137	175 138	175 139				
Drive function	Pneumatic linear drive								DGP	DGP	
Size	18	25	32	40	50	63	80	-...			
Stroke [mm]	10 ... 1800	10 ... 3000						[1]	-...		
Cushioning	Pneumatic cushioning adjustable at both ends								-PPV		
Position sensing	Via magnet								-A	-A	
Generation	B series								-B	-B	
O Clamping unit	Front				-	-	-		-KV		
	Rear				-	-	-		-KH		
Basic design	Standard piston/slide								-GK		
	Extended piston/slide							-	-GV		
Supply port	At both ends								-D2		
Driver	Moment compensator, assembled for DGP (FKP)								-FK		
	Load inverter							-	-AK		

[1] **Stroke** With piston diameter 18 and piston/slide extended (-GV):
Restricted stroke 10 ... 1750 mm

Transfer order code

DGP - - - - A - B - - - -

Linear drives DGP

Ordering data – Modular products

Options

Accessories	Slot cover	Slot nut	Central support	Foot mounting	Proximity sensor	Cable with socket
ZUB	...S ...B	...Y	...M	...F	...G ...H ...I ...J ...N	...V
: ZUB	- 10S			F	2H	2V

Ordering table

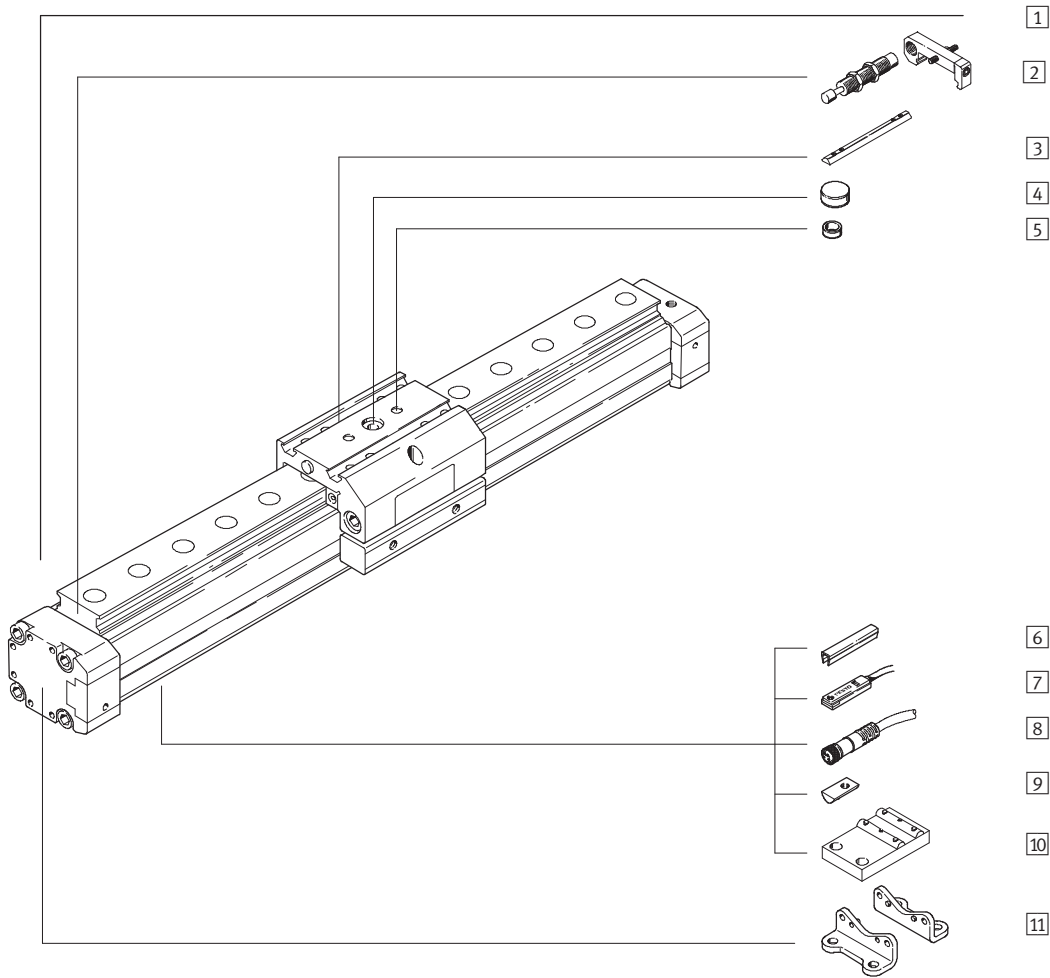
Size	18	25	32	40	50	63	80	Condi- tions	Code	Enter code	
Accessories	Supplied separately								:ZUB-	:ZUB-	
Slot cover, 2 pcs., 0.5 m	Sensor slot	1 ... 10								...S	
	Mounting slot	-	-	1 ... 10						...B	
Slot nut	Profile	-	-	1 ... 10						...Y	
	barrel										
Central support	1 ... 10								...M		
Foot mounting	1 ... 10								...F		
Proximity sensor, magnetic	with cable, 2.5 m	1 ... 10 (SME-8-K-LED-24)								...G	
	with plug	1 ... 10 (SME-8-S-LED-24)								...H	
Proximity sensor, magnetic, contactless	with cable, 2.5 m	1 ... 10 (SMT-8-PS-K-LED-24)								...I	
	with plug	1 ... 10 (SMT-8-PS-S-LED-24)								...J	
Proximity sensor, magnetic	NC contact with cable, 2.5 m	1 ... 10 (SME-8-O-K-LED-24)								...N	
Cable with socket, 2.5 m	1 ... 10 (SIM-M8-3GD-2,5-PU)								...V		

Transfer order code

: ZUB [] - [] [] [] [] [] [] []

Linear drives DGPL, with guide

Peripherals overview



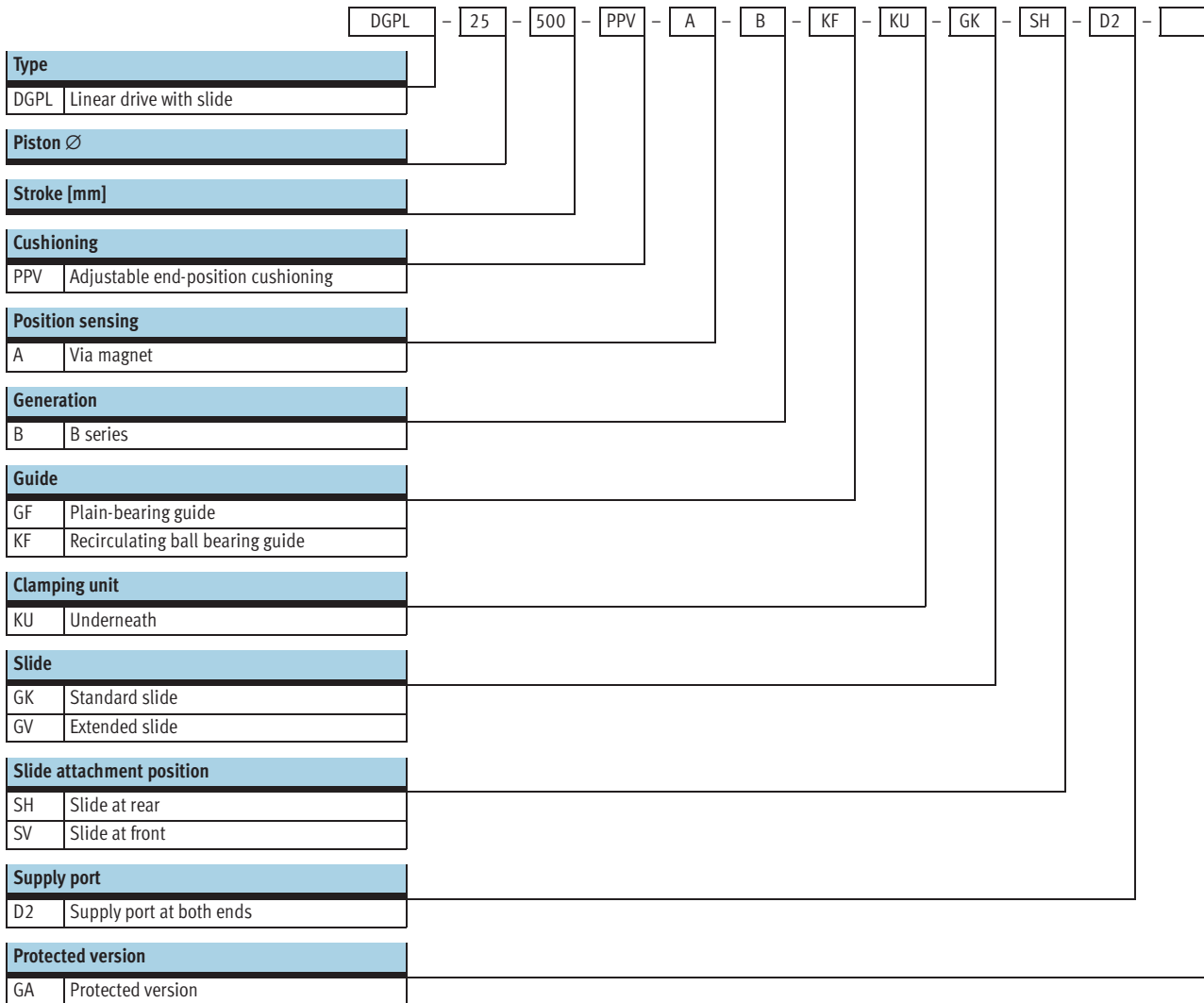
Linear drives DGPL, with guide

Peripherals overview

Variants and accessories				
Type	Brief description	GF/KF	GA	→ Page/Internet
1 Linear axis DGPL	Pneumatic linear drive with slide	■	■	26
2 Shock absorber kit C	For slowing higher speeds to a stop	■	-	63
2 Shock absorber kit E	For slowing higher speeds to a stop	-	■	64
3 Slot nut for slide X	For mounting loads and attachments on the slide	■	■	65
4 Central mounting Q	For centring loads and attachments on the slide	■	■	65
5 Centring pins/sleeves Z	For centring loads and attachments on the slide	■	■	65
6 Slot cover B/S	For protecting against dirt and securing proximity sensor cables	■	■	65
7 Proximity sensor G/H/I/J/N	For sensing the slide position	■	■	67
8 Cable with socket V	For proximity sensors	■	■	67
9 Slot nut for profile barrel Y	For mounting attachments	■	■	65
10 Central support M	For mounting the axis	■	■	59
11 Foot mounting F	For mounting the axis	■	■	58

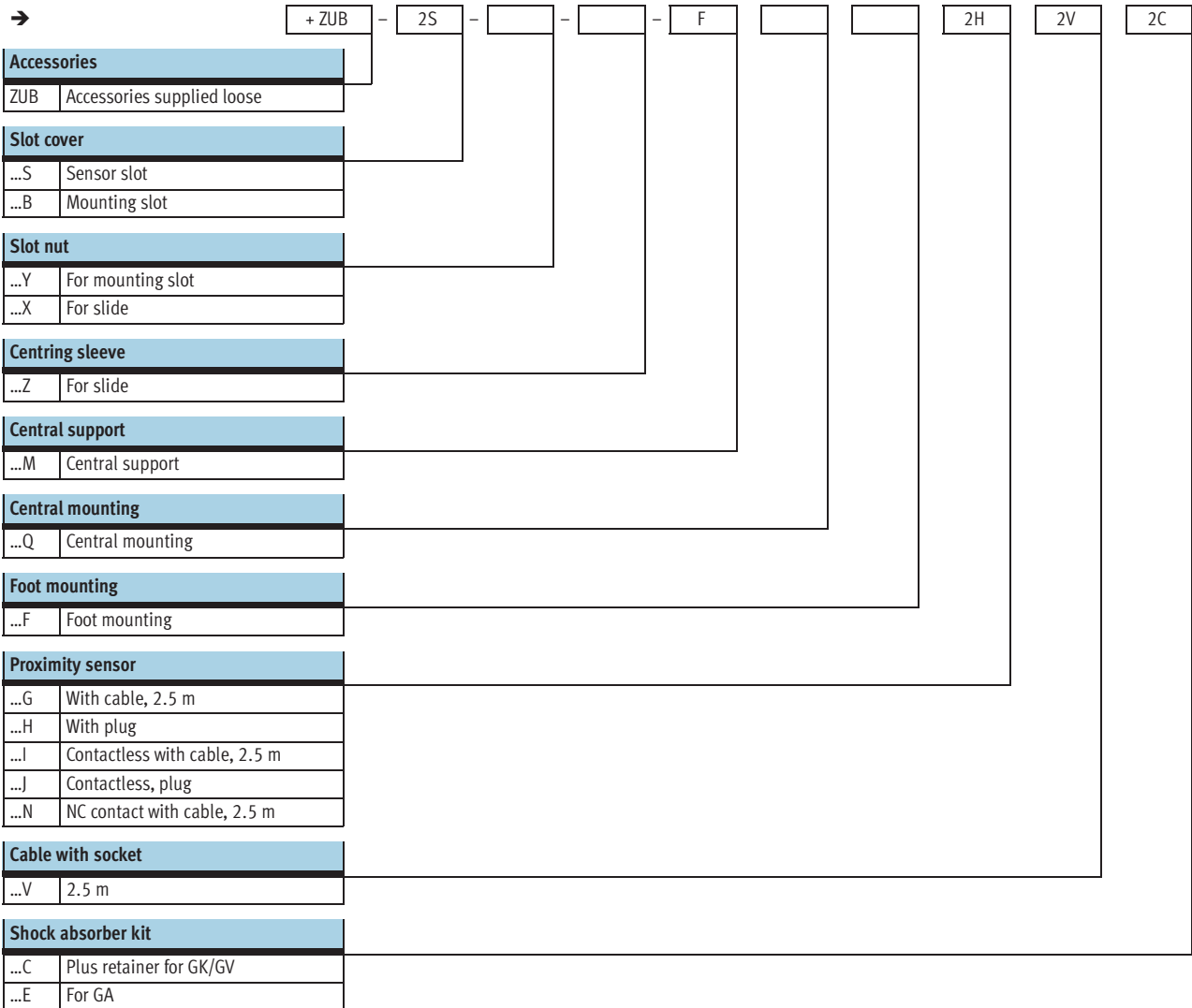
Linear drives DGPL, with guide

Type code



Linear drives DGPL, with guide

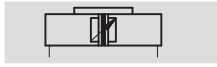
Type code



Linear drives DGPL, with guide

Technical data

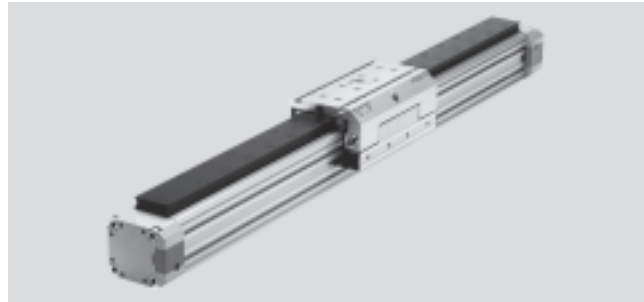
Function



www.festo.com

Wearing parts kits
→ 42

- Ø - Diameter
18 ... 80 mm
- | - Stroke length
1 ... 3000 mm



General technical data							
Piston Ø	18	25	32	40	50	63	80
Constructional design	Pneumatic linear drive with slide						
Protection against torsion/guide	Guide rail with slide and plain-bearing guide GF or recirculating ball bearing guide KF						
Mode of operation	Double-acting						
Driver principle	Positive-locking (slot)						
Mounting position	Any						
Pneumatic connection	M5	G1/8		G1/4		G3/8	G1/2
Stroke length [mm]	10 ... 1800		10 ... 3000 ¹⁾				
Cushioning	Adjustable at both ends Self-adjusting at both ends						
Cushioning length (PPV) [mm]	16	18	20	30			83
Position sensing	Via magnet						
Max. speed	GF [m/s]	1					
	KF [m/s]	3					
	GA [m/s]	-	3				-

1) With effective strokes of over 2000 mm the installation of the drive unit must be with the sealing strip facing down; longer strokes available on request.

Operating and environmental conditions							
Piston Ø	18	25	32	40	50	63	80
Operating medium	Filtered compressed air, lubricated or unlubricated						
Operating pressure [bar]	2 ... 8			1.5 ... 8			
Ambient temperature ¹⁾ [°C]	-10 ... +60						
Corrosion resistance for variant GF [CRC ²⁾]	2						
ATEX	Specified types → www.festo.com						

1) Note operating range of proximity sensors.
2) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Forces [N] and impact energy [Nm]							
Piston Ø	18	25	32	40	50	63	80
Theoretical force at 6 bar	153	295	483	754	1178	1870	3016
Impact energy	→ 34						

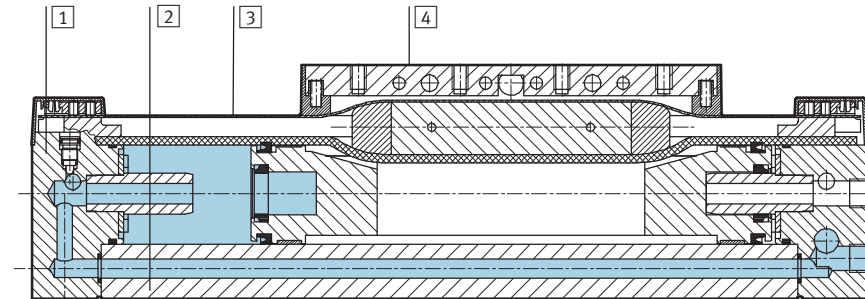
Linear drives DGPL, with guide

Technical data

Weights [kg]		18	25	32	40	50	63	80
Piston \varnothing		18	25	32	40	50	63	80
Basic weight with 0 mm stroke	GF	0.75	1.37	2.39	3.89	8.6	13.54	25.4
	KF	0.83	1.52	2.72	4.48	9.6	15.37	28.7
	GA	–	1.69			–	–	–
Additional weight per 10 mm stroke	GF	0.022	0.042	0.051	0.072	0.132	0.181	0.202
	KF	0.026	0.053	0.069	0.097	0.167	0.236	0.270
	GA	–	26			–	–	–
Moving load	GF	0.23	0.37	0.53	0.96	1.77	2.79	7.10
	KF	0.29	0.43	0.58	1.15	1.96	3.22	7.50
	GA	–	0.91			–	–	–

Materials

Sectional view



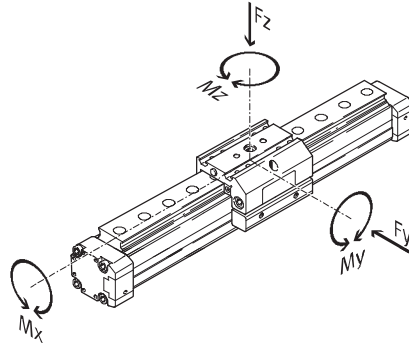
Axis	18	25	32	40	50	63	80
1 End cap	Anodised aluminium						
2 Profile	Anodised aluminium						
3 Cover strip	Corrosion resistant steel						Polyurethane
4 Driver	Anodised aluminium						
– Slide	Anodised aluminium						
– Guide rail	GF	Anodised aluminium					
	KF	Steel	Corrosion resistant steel				
– Seals	Nitrile rubber, polyurethane						

Linear drives DGPL, with guide

Technical data

Characteristic load values for drive with plain-bearing guide GF

The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

$$\frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} + \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} \leq 1$$

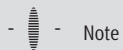


Note

All values for the GF version refer to a speed of 0.2 m/s.

Permissible forces and torques

Piston Ø	18	25	32	40	50	63	80
Standard slide GK							
F _y _{max.} [N]	340	430	430	1010	1010	2000	2000
F _z _{max.} [N]	340	430	430	1010	1010	2000	2000
M _x _{max.} [Nm]	2.2	5.4	8.5	23	32	74	100
M _y _{max.} [Nm]	10	14	18	34	52	140	230
M _z _{max.} [Nm]	10	14	18	34	52	140	230
Extended slide GV							
F _y _{max.} [N]	330	400	395	930	870	1780	–
F _z _{max.} [N]	330	400	395	930	870	1780	–
M _x _{max.} [Nm]	2	5	8	21	28	66	–
M _y _{max.} [Nm]	18	25	30	58	83	235	–
M _z _{max.} [Nm]	18	25	30	58	83	235	–



Note

Sizing software

ProDrive

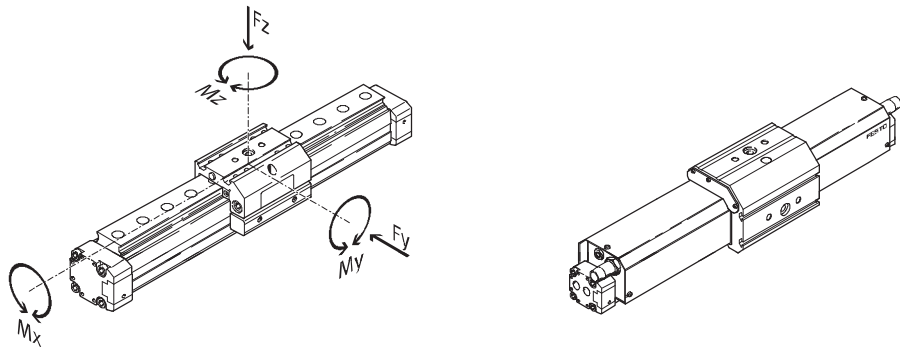
→ www.festo.com

Linear drives DGPL, with guide

Technical data

Characteristic load values for axis with recirculating ball bearing guide KF or protected version GA


The indicated forces and torques refer to the centre of the guide rail. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

$$\frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} + \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} \leq 1$$

Permissible forces and torques								
Piston Ø		18	25	32	40	50	63	80
Standard slide GK								
F _y _{max.}	[N]	930	3080	3080	7300	7300	14050	14050
F _z _{max.}	[N]	930	3080	3080	7300	7300	14050	14050
M _x _{max.}	[Nm]	7	45	63	170	240	580	745
M _y _{max.}	[Nm]	23	85	127	330	460	910	1545
M _z _{max.}	[Nm]	23	85	127	330	460	910	1545
Extended slide GV								
F _y _{max.}	[N]	930	3080	3080	7300	7300	14050	–
F _z _{max.}	[N]	930	3080	3080	7300	7300	14050	–
M _x _{max.}	[Nm]	7	45	63	170	240	580	–
M _y _{max.}	[Nm]	45	170	250	660	920	1820	–
M _z _{max.}	[Nm]	45	170	250	660	920	1820	–

 Note
The values for standard slide GK and piston Ø 18 ... 40 apply to variant GA.

Linear drives DGPL, with guide

Technical data – Plain-bearing guide

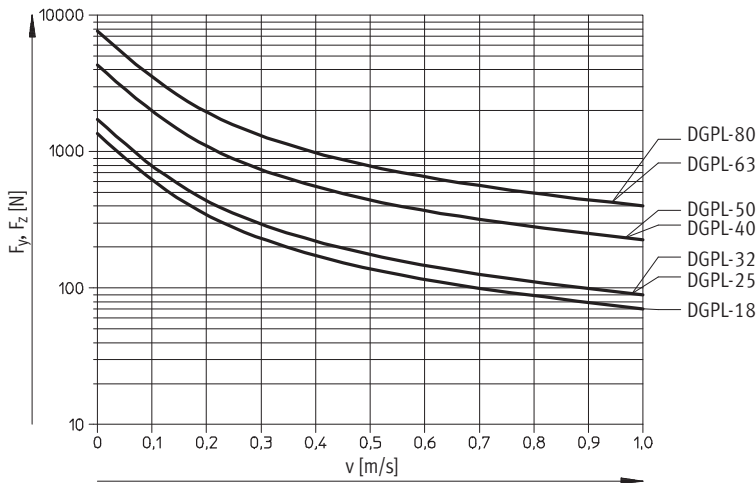
Maximum permissible static and dynamic characteristic load values

Standard slide and plain-bearing guide DGPL-...-GF-GK-S

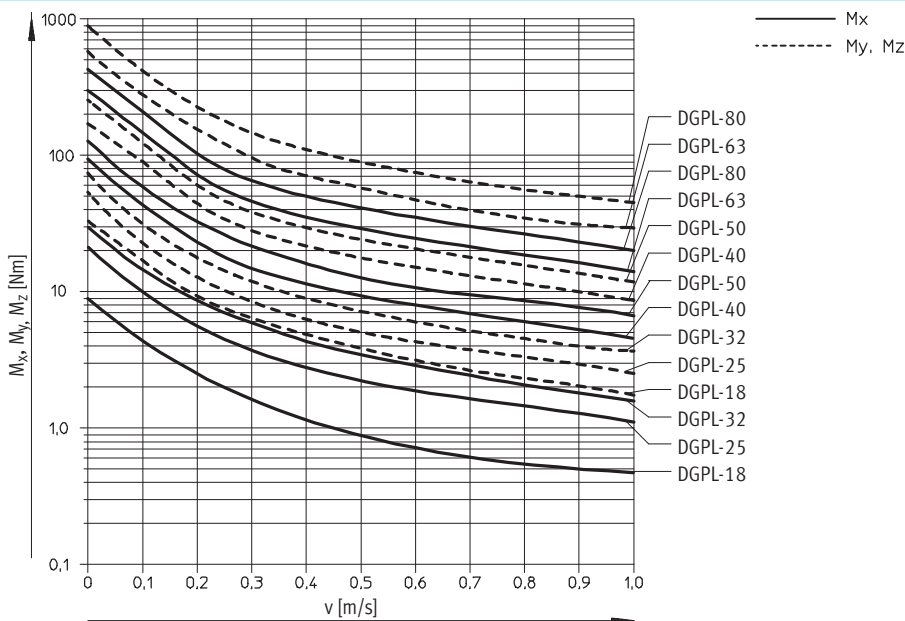
The pneumatic linear drive with plain-bearing guide DGPL-...-GF is designed for a maximum speed of 1 m/s. At higher speeds and vertical application, it is recommended that

pneumatic linear drives with recirculating ball bearing guide DGPL-...-KF are used as an alternative.

Maximum permissible speed v as a function of the force F



Maximum permissible speed v as a function of the permissible torque M



Linear drives DGPL, with guide

Technical data – Plain-bearing guide

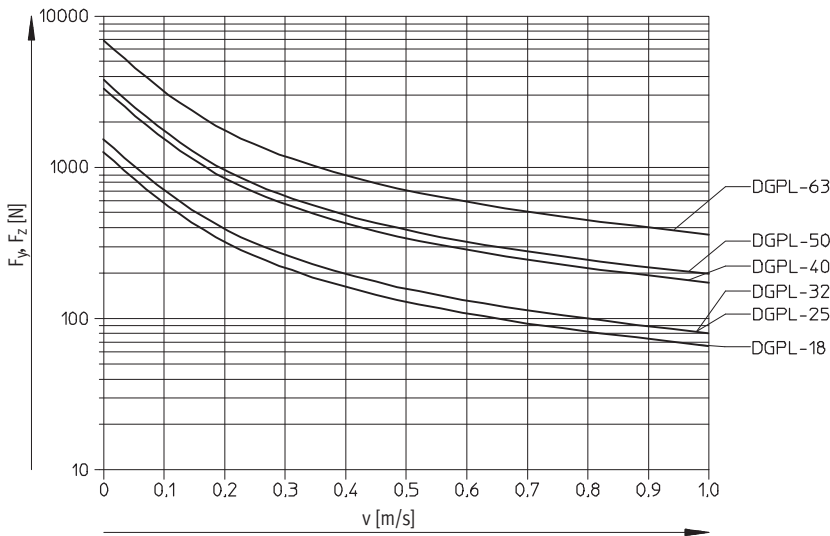
Maximum permissible static and dynamic characteristic load values

Extended slide and plain-bearing guide DGPL-...-GF-GV-S

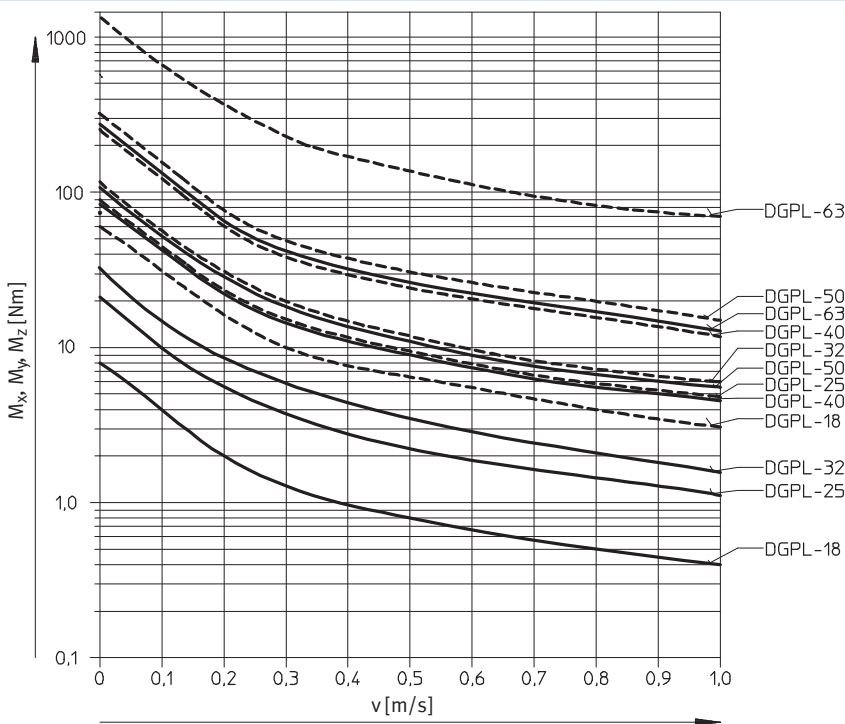
The pneumatic linear drive with plain-bearing guide DGPL-...-GF is designed for a maximum speed of 1 m/s. At higher speeds and vertical application, it is recommended that

pneumatic linear drives with recirculating ball bearing guide DGPL-...-KF are used as an alternative.

Maximum permissible speed in m/s as a function of the force F



Maximum permissible speed in m/s as a function of the permissible torque M

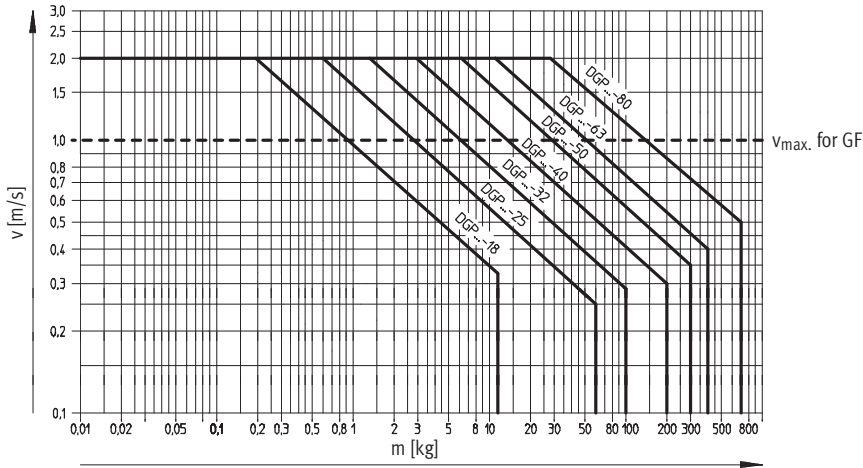


Linear drives DGPL, with guide

Technical data

Operating range of the integrated end-position cushioning PPV

Maximum permissible speed v as a function of the moving load M



Note

The data applies to a horizontal mounting position, applied load on top.

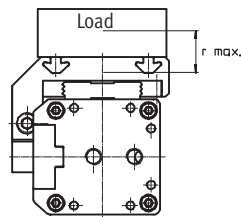
m = Applied load + moving load
→ 29

The graph opposite refers to r_{max} .

Pneumatic linear drives

The end-position cushioning must be adjusted to ensure jerk-free operation. If the operating conditions are outside the permissible range, the load to be moved must be externally cushioned using suitable equipment (shock absorbers, stops, etc), preferably at the centre of gravity of the mass.

with slide DGPL



$r_{max} = 20$ mm
for piston $\varnothing 18$ mm

$r_{max} = 50$ mm
for piston $\varnothing 25 \dots 80$ mm
(data for greater load distances on request)

- - Note

Evenness of applied loads on pneumatic linear drives with slide DGPL: To avoid distortion or loosening of the guide elements, the

bearing surface of the assembly must maintain a flatness of at least 0.03 mm.

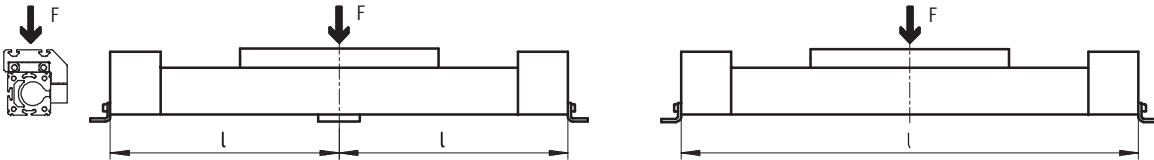
Linear drives DGPL, with guide

Technical data

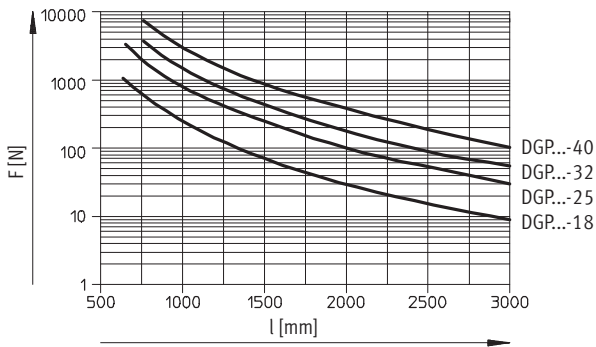
Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports MUP in order to restrict deflection with long stroke lengths. The following diagrams serve to determine the maximum permissible support span l as a function of the force F acting upon the axis.

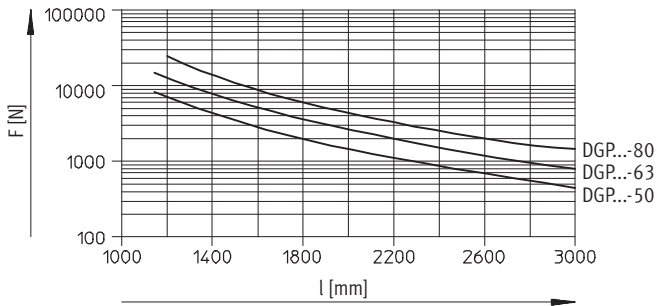
Force on the surface of the slide



Piston $\varnothing 18 \dots 40$



Piston $\varnothing 50 \dots 80$



Linear drives DGPL, with guide

Technical data

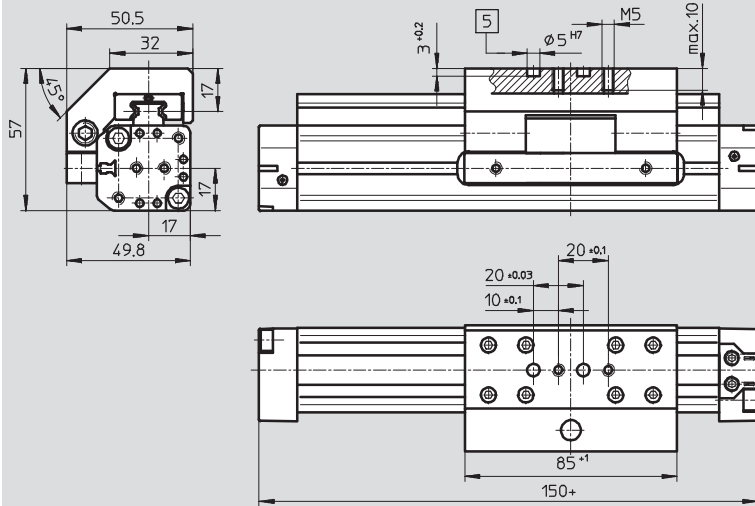
FESTO

Dimensions

Download CAD data → www.festo.com

Standard slide GK

Piston Ø 18



5 Holes for centring pin ZBS 5

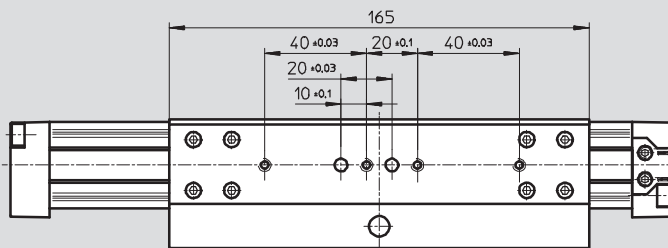
+ = plus stroke length

Basic dimensions

→ 14

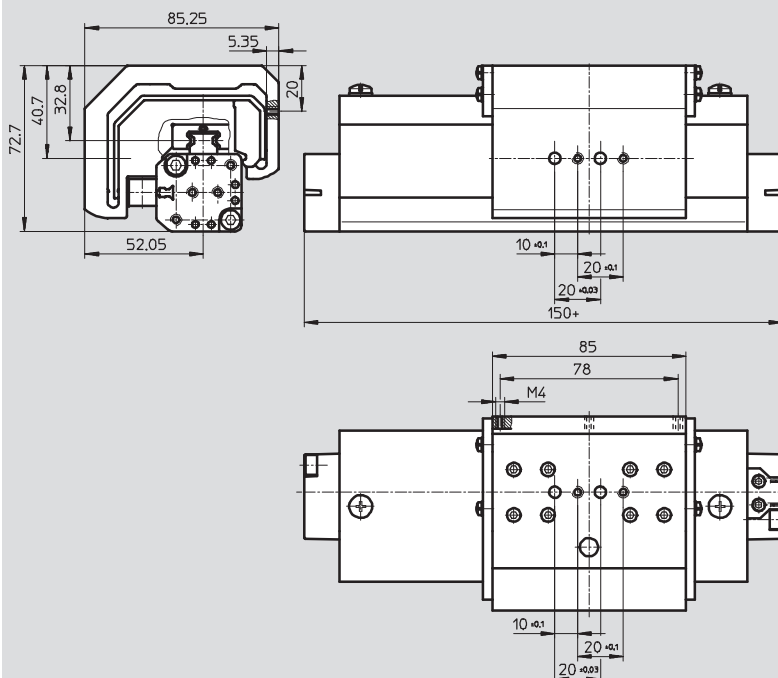
Extended slide GV

Piston Ø 18



Protected version GA

Piston Ø 18



Linear drives DGPL, with guide

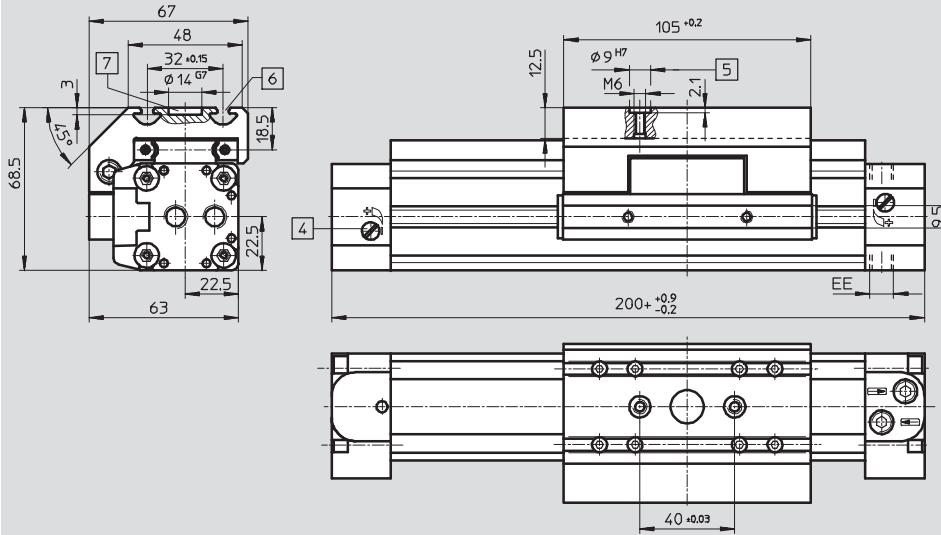
Technical data

Dimensions

Download CAD data → www.festo.com

Standard slide GK

Piston Ø 25



- 4 Regulating screw for adjustable end-position cushioning
- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL-25
- 7 Hole for central mounting SLZZ

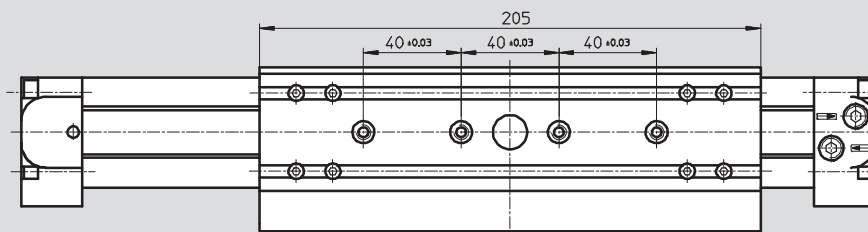
+ = plus stroke length

Basic dimensions

→ 15

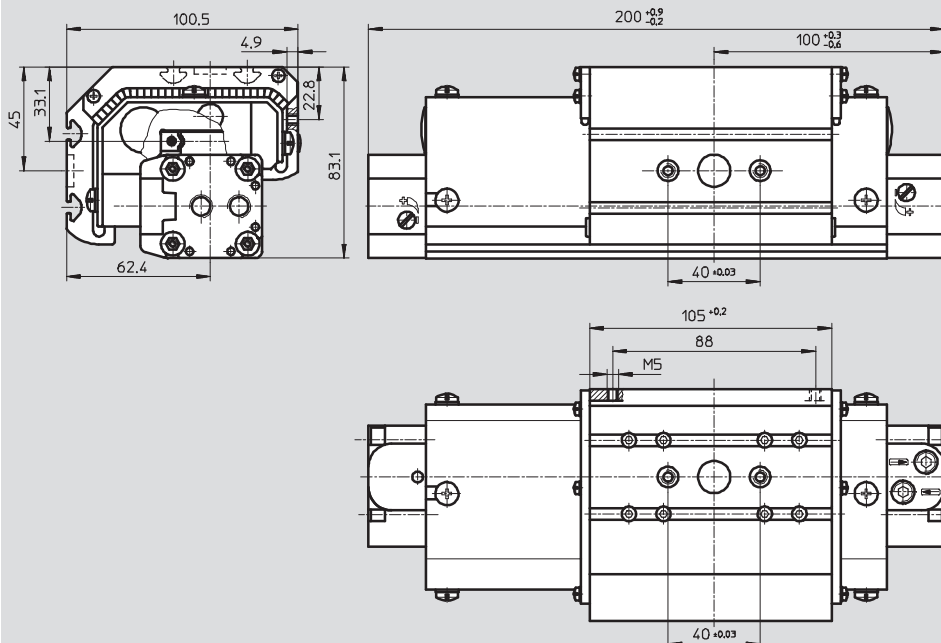
Extended slide GV

Piston Ø 25



Protected version GA

Piston Ø 25



Linear drives DGPL, with guide

Technical data

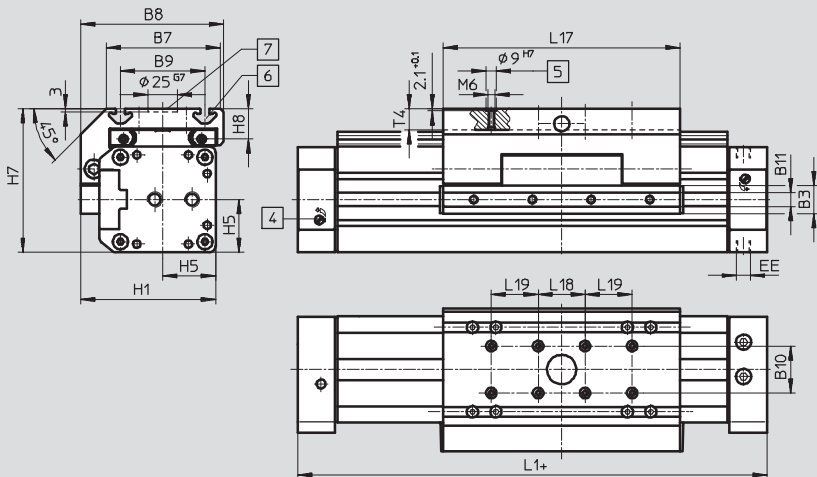
FESTO

Dimensions

Download CAD data → www.festo.com

Standard slide GK

Piston $\varnothing 32 \dots 80$



- 4 Regulating screw for adjustable end-position cushioning
- 5 Hole for centring sleeve ZBH-9
- 6 Mounting slot for slot nut NSTL
- 7 Hole for central mounting SLZZ

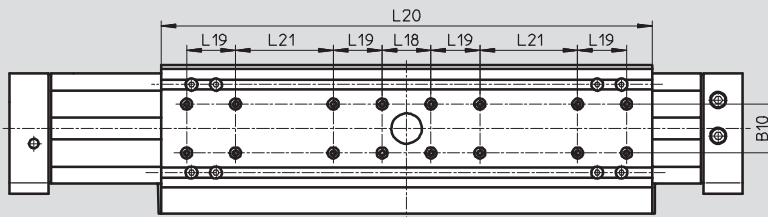
+ = plus stroke length

Basic dimensions

→ 16

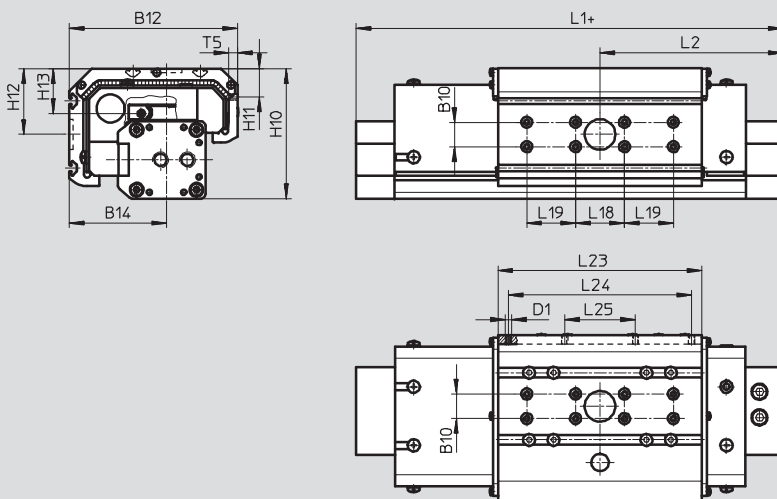
Extended slide GV

Piston $\varnothing 32 \dots 63$



Protected version GA

Piston $\varnothing 32 \dots 40$



Linear drives DGPL, with guide

Technical data

∅ [mm]	B3 +0.2	B7	B8	B9	B10 ±0.03	B11	B12	B14	D1	EE
32	19	63	79	47 ±0.15	20	9.5	112.1	67.6	-	G $\frac{1}{8}$
40	21	78.5	96.5	55 ±0.2			137.6	79.6	M5	G $\frac{1}{4}$
50	24	97	122	72 ±0.2	40	12	-	-	-	G $\frac{3}{8}$
63		121	142	90 ±0.25			G $\frac{1}{2}$			
80	36	151.5	188	112 ±0.5/-0.2	-	-	-	-	G $\frac{1}{2}$	

∅ [mm]	H1	H5	H7	H8	H10	H11	H12	H13	L1	L2
32	72	27	77.5	18.5	93.1	-	49.5	34.1	250	125
40	86	32	90.5	20	106.6	23.1	54	36.1	300	150
50	115	45	122.5	26	-	-	-	-	350	175
63	131	53	144.5	30					400	200
80	174	65	175	36.5	520	260				

∅ [mm]	L17	L18 ±0.03	L19 ±0.03	L20	L21 ±0.1	L23	L24	L25	T4 max.	T5
32	131 ±0.2	40	-	261	40	131	-	-	12.5	-
40	167 ±0.2		40	337	167	150	58	7		
50	202 ±0.2		402	80	-	-	-	18.5	-	
63	230 ±0.2		480	120	-	-	-	20.5	-	
80	320 -0.3		-	-	-	-	-	27	-	

Linear drives DGPL, with guide

Technical data – Clamping unit

FESTO

Clamping unit DGPL-...-KU

The clamping unit is clamped in the unpressurised state.



General technical data					
Piston Ø		18	25	32	40
Constructional design	Spring actuated clamping profile				
Stroke	[mm]	10 ... 1800	10 ... 3000		

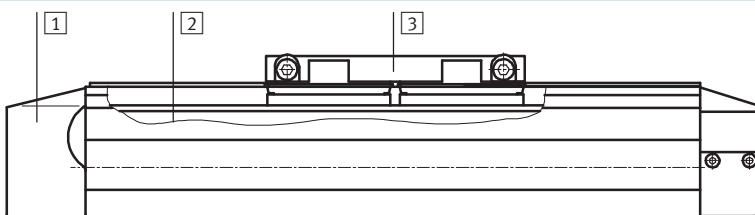
Operating and environmental conditions					
Piston Ø		18	25	32	40
Operating pressure	[bar]	4 ... 8			
Grade of filtration	[µm]	40			
Pneumatic connection		G1/8			
Ambient temperature ¹⁾	[°C]	-10 ... +60			

1) Note for proximity sensors.

Clamping unit weights [kg]					
Piston Ø		18	25	32	40
Basic weight with 0 mm stroke		0.388	0.649	0.985	1.446
Additional weight per 10 mm stroke		0.018	0.026	0.034	0.041
Moving load with 0 mm stroke		0.061	0.120	0.153	0.213

Materials

Sectional view



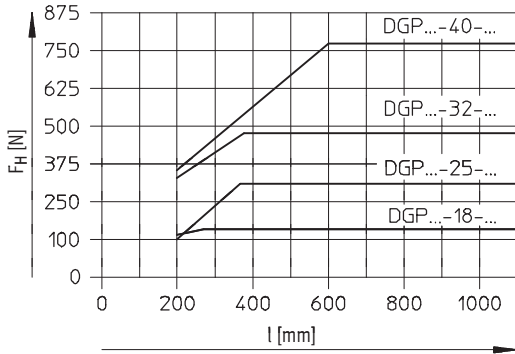
Clamping unit		
1	Housing	Anodised aluminium
2	Clamping profile	Anodised aluminium
3	Driver	Anodised aluminium
-	Cover	Acrylic butadiene styrene
-	Seals	Polyurethane

Linear drives DGPL, with guide

Technical data – Clamping unit

Clamping unit DGP...-...-K...

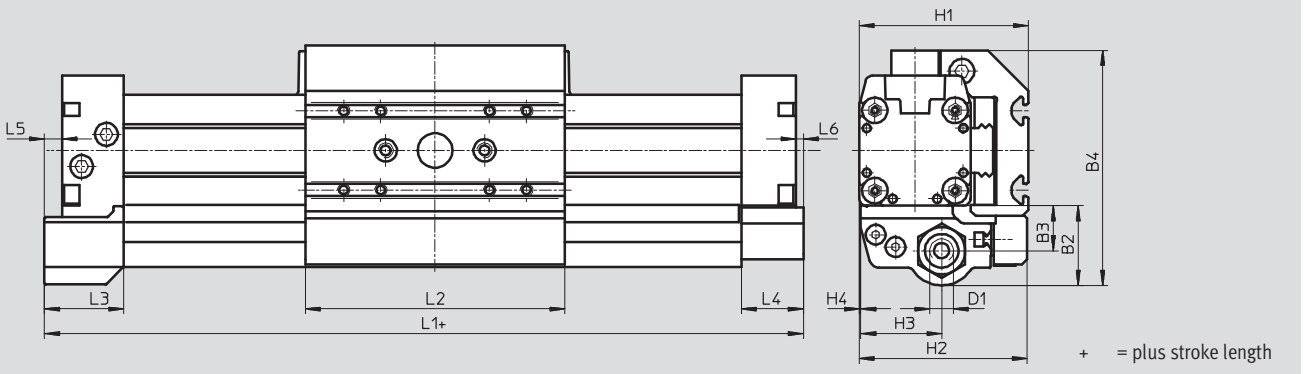
Holding force F_H of the clamping unit dependent on the stroke l



- - Note
 Environmental conditions:
 Clamping surfaces oil, grease and dirt-free.

Dimensions

Download CAD data → www.festo.com



- - Note
 Clamping units DGP...-...-K... have a supply port at one end only.

For \varnothing	B1	B2	B3	B4	D1	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	
[mm]	max.	max.	max.	max.						± 0.1								
18	-	31.2	17.2	81	G $\frac{1}{8}$	57	56.7	28.5	0.5	8.2	-	176	85	32	25	16.5	9.5	
25		33.3	19.3	96.3		68.5	67.8	32.7	0.6	5.9	-	207	105			7	-	
32		32.7	17.7	104.7		77.5	76.8	41	1	5.9	-	251	131			31	1	
40		37.1	23.1	123.1		90.5	90	54.6	1.7	5.4	-	301	167					

Linear drives DGPL, with guide


Ordering data

Ordering data – Standard stroke		
Piston Ø	Part No.	Type
25	526 649	DGPL-25-250-PPV-A-B-KF
	526 650	DGPL-25-400-PPV-A-B-KF
	526 651	DGPL-25-500-PPV-A-B-KF
	526 652	DGPL-25-1000-PPV-A-B-KF
32	526 657	DGPL-32-250-PPV-A-B-KF
	526 658	DGPL-32-400-PPV-A-B-KF
	526 659	DGPL-32-500-PPV-A-B-KF
	526 660	DGPL-32-1000-PPV-A-B-KF
40	526 665	DGPL-40-250-PPV-A-B-KF
	526 666	DGPL-40-400-PPV-A-B-KF
	526 667	DGPL-40-500-PPV-A-B-KF
	526 668	DGPL-40-1000-PPV-A-B-KF

Ordering data – Variable stroke for plain-bearing guide GF		
Piston Ø	Part No.	Type
18	161 974	DGPL-18-...-PPV-A-GF-B
25	161 786	DGPL-25-...-PPV-A-GF-B
32	161 787	DGPL-32-...-PPV-A-GF-B
40	161 788	DGPL-40-...-PPV-A-GF-B
50	161 789	DGPL-50-...-PPV-A-GF-B
63	161 790	DGPL-63-...-PPV-A-GF-B
80	161 791	DGPL-80-...-PPV-A-GF-B

Ordering data – Variable stroke for recirculating ball bearing guide KF		
Piston Ø	Part No.	Type
18	161 977	DGPL-18-...-PPV-A-KF-B
25	161 792	DGPL-25-...-PPV-A-KF-B
32	161 793	DGPL-32-...-PPV-A-KF-B
40	161 794	DGPL-40-...-PPV-A-KF-B
50	161 795	DGPL-50-...-PPV-A-KF-B
63	161 796	DGPL-63-...-PPV-A-KF-B
80	161 797	DGPL-80-...-PPV-A-KF-B

Ordering data – Wearing parts kits		
Piston Ø	Part No.	Type
18	384 266	DGPL-18-...-PPV-A
25	123 563	DGPL-25-...-PPV-A
32	123 564	DGPL-32-...-PPV-A
40	123 565	DGPL-40-...-PPV-A
50	123 566	DGPL-50-...-PPV-A
63	123 567	DGPL-63-...-PPV-A
80	123 568	DGPL-80-...-PPV-A

 Note
 Piston Ø 8 and 12
 Linear drives DGC
 → Internet: dgc

Linear drives DGPL, with guide

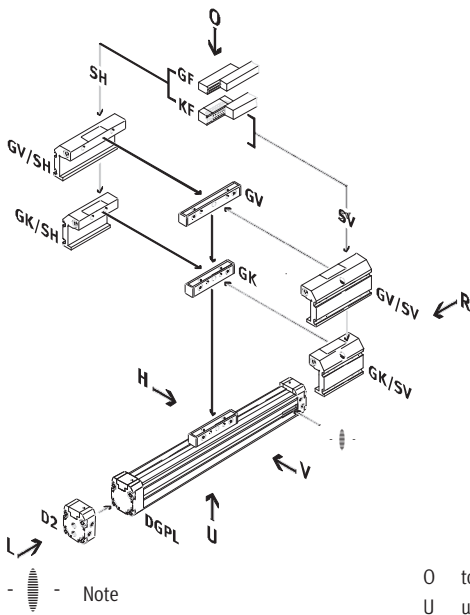
Ordering data – Modular products

Order code

Mandatory data

GK	Standard slide	D2	Supply port
GV	Extended slide	KU	Clamping unit underneath
SH	Slide at rear		
SV	Slide at front		

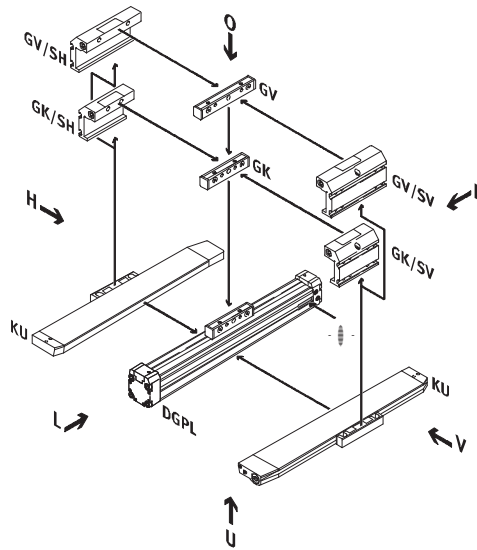
Standard slide GK
Extended slide GV



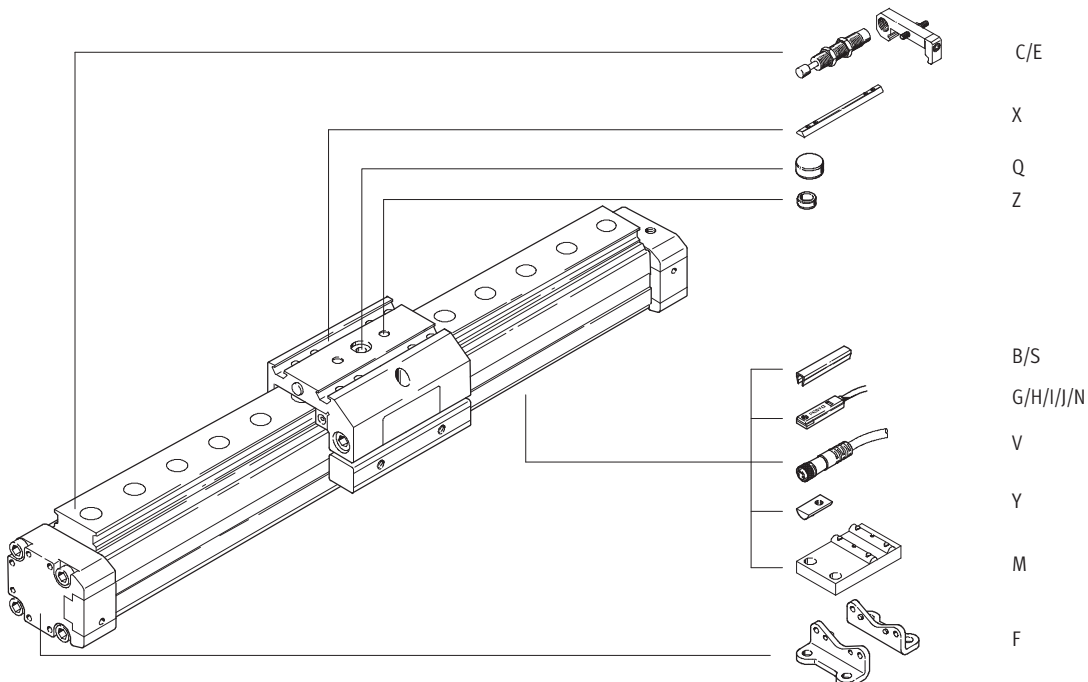
The insertion point for the proximity sensor is located on the right-hand side of the pneumatic linear drive DGPL.

- O top
- U underneath
- R right
- L left
- V front
- H rear

Clamping unit KU



Options



Linear drives DGPL, with guide

Ordering data – Modular products

M Mandatory data								O Options →			
Module No.	Drive function	Size	Stroke	Cushioning	Position sensing	Generation	Guide	Clamping unit	Basic design	Slide attachment position	Supply port
175 133	DGPL	18	10 ...	P	A	B	GF	KU	GK	SV	D2
175 134		25	3000	PPV			KF		GV	SH	
175 135		32									
175 136		40									
175 137		50									
175 138		63									
175 139		80									
Ordering example											
175 138	DGPL	- 63	- 800	- PPV	- A	- B	- KF	-	- GK	- SH	- D2

Ordering table												
Size	18	25	32	40	50	63	80	Conditions	Code	Enter code		
M Module No.	175 133	175 134	175 135	175 136	175 137	175 138	175 139					
Drive function	Pneumatic linear drive									DGPL	DGPL	
Size	18	25	32	40	50	63	80		-...			
Stroke [mm]	10 ... 1800		10 ... 3000						1	-...		
Cushioning	Pneumatic cushioning adjustable at both ends									-PPV		
Position sensing	Via magnet									-A	-A	
Generation	B series									-B	-B	
Guide	Plain-bearing guide									-GF		
	Recirculating ball bearing guide									-KF		
O Clamping unit	Underneath						-	-	-		-KU	
Basic design	Standard piston/slide									-GK		
	Extended piston/slide							-		-GV		
Slide attachment position	At rear									-SH		
	At front									-SV		
Supply port	At both ends									-D2		

1 Stroke With piston diameter 18 and piston/slide extended (-GV):
Restricted stroke 10 ... 1750 mm

Transfer order code

Linear drives DGPL, with guide

Ordering data – Modular products



Options										
Protected version	Accessories	Slot cover	Slot nut	Centring sleeve	Central support	Central mounting	Foot mounting	Proximity sensor	Cable with socket	Shock absorber kit
GA	ZUB	...S ...B	...X ...Y	...Z	...M	...Q	...F	...G ...H ...I ...J ...N	...V	...C ...E
-	: ZUB	- 2S2B	5Y2X	20Z		Q	F	2G		2C

Ordering table											
Size	18	25	32	40	50	63	80	Condi- tions	Code	Enter code	
Protected version	Protected roller bearing design for harsh environment							-	-	-	[2] -GA
Accessories	Supplied separately								:ZUB-	:ZUB-	
Slot cover, Sensor slot	1 ... 10								...S		
2 pcs., 0.5 m Mounting slot	-	-	1 ... 10					...B			
Slot nut Slide	1 ... 10								...X		
Mounting slot	-	-	1 ... 10					...Y			
Centring sleeve (pack of 10)	10, 20, 30, 40, 50, 60, 70, 80, 90								...Z		
Central support	1 ... 10								...M		
Central mounting	-	1 ... 10						...Q			
Foot mounting	1 ... 10								...F		
Proximity sensor, magnetic	with cable, 2.5 m	1 ... 10 (SME-8-K-LED-24)								...G	
	with plug	1 ... 10 (SME-8-S-LED-24)								...H	
Proximity sensor, magnetic, contactless	with cable, 2.5 m	1 ... 10 (SMT-8-PS-K-LED-24)								...I	
	with plug	1 ... 10 (SMT-8-PS-S-LED-24)								...J	
Proximity sensor, magnetic	NC contact with cable, 2.5 m	1 ... 10 (SME-8-O-K-LED-24)								...N	
Cable with socket, 2.5 m	1 ... 10 (SIM-M8-3GD-2,5-PU)								...V		
Shock absorber kit	1 ... 10								...C		
	1 ... 10							-	-	-	[3] ...E

[2] GA Only with recirculating ball bearing guide KF.

[3] E Only with protected version GA.

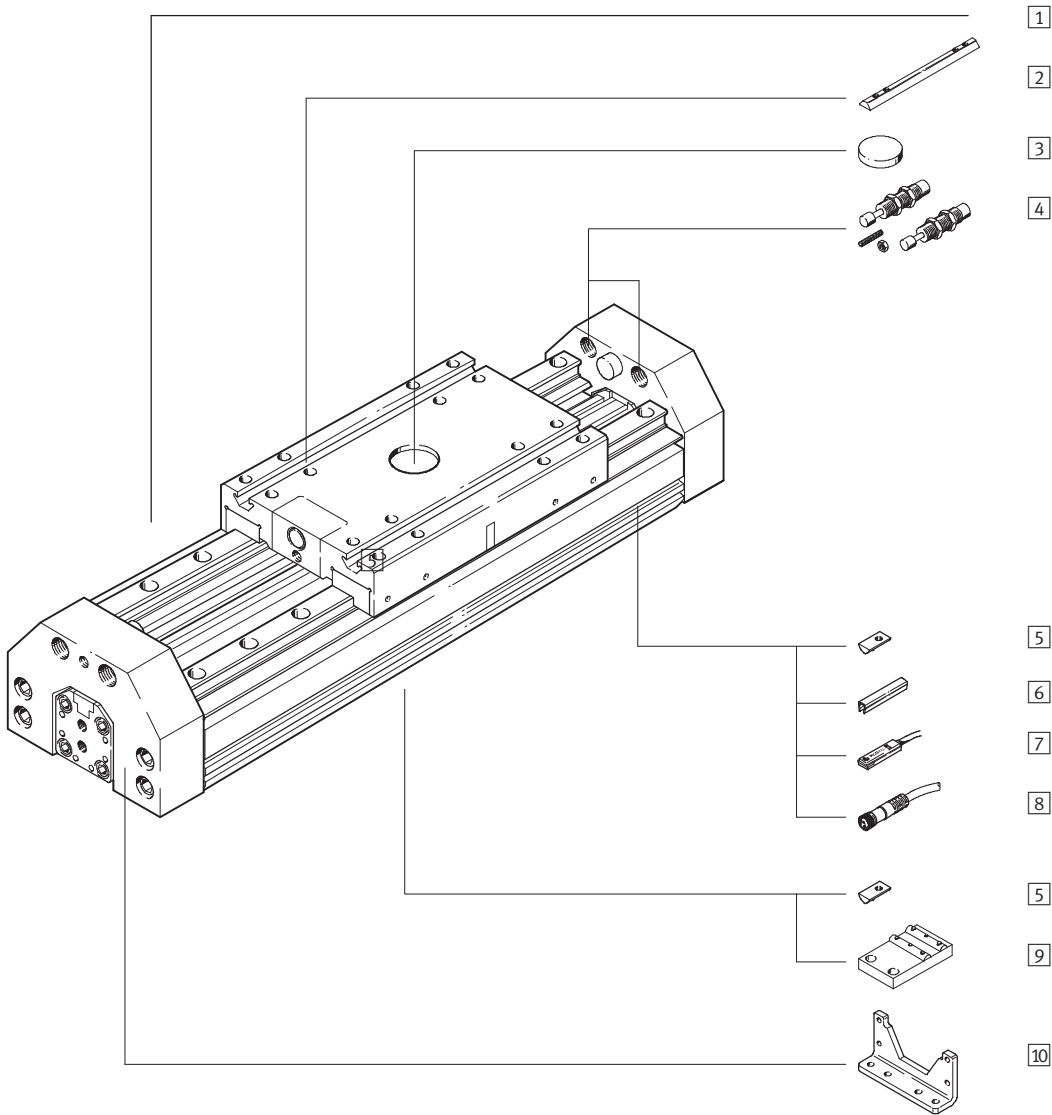
Transfer order code

- [] : ZUB - [] [] [] [] [] [] [] [] [] [] []

Linear drives DGPL-HD, with heavy-duty guide

Peripherals overview

FESTO



Linear drives DGPL-HD, with heavy-duty guide

Peripherals overview

Variants and accessories		
Type	Brief description	→ Page/Internet
1 Linear axis DGPL-HD	Pneumatic linear drive with heavy-duty guide	48
2 Slot nut for slide X	For mounting loads and attachments on the slide	66
3 Central mounting Q	For centring loads and attachments on the slide	66
4 Shock absorber kit D	For slowing higher speeds to a stop	64
5 Slot nut for side mounting slot Y	For mounting attachments	66
6 Slot cover B/S	For protecting against ingress of dirt	66
7 Proximity sensor G/H/I/J/N	For sensing the slide position	67
8 Cable with socket V	For proximity sensors	67
5 Slot nut for mounting slot underneath U	For mounting attachments	66
9 Central support M	For mounting the axis	60
10 Foot mounting F	For mounting the axis	60

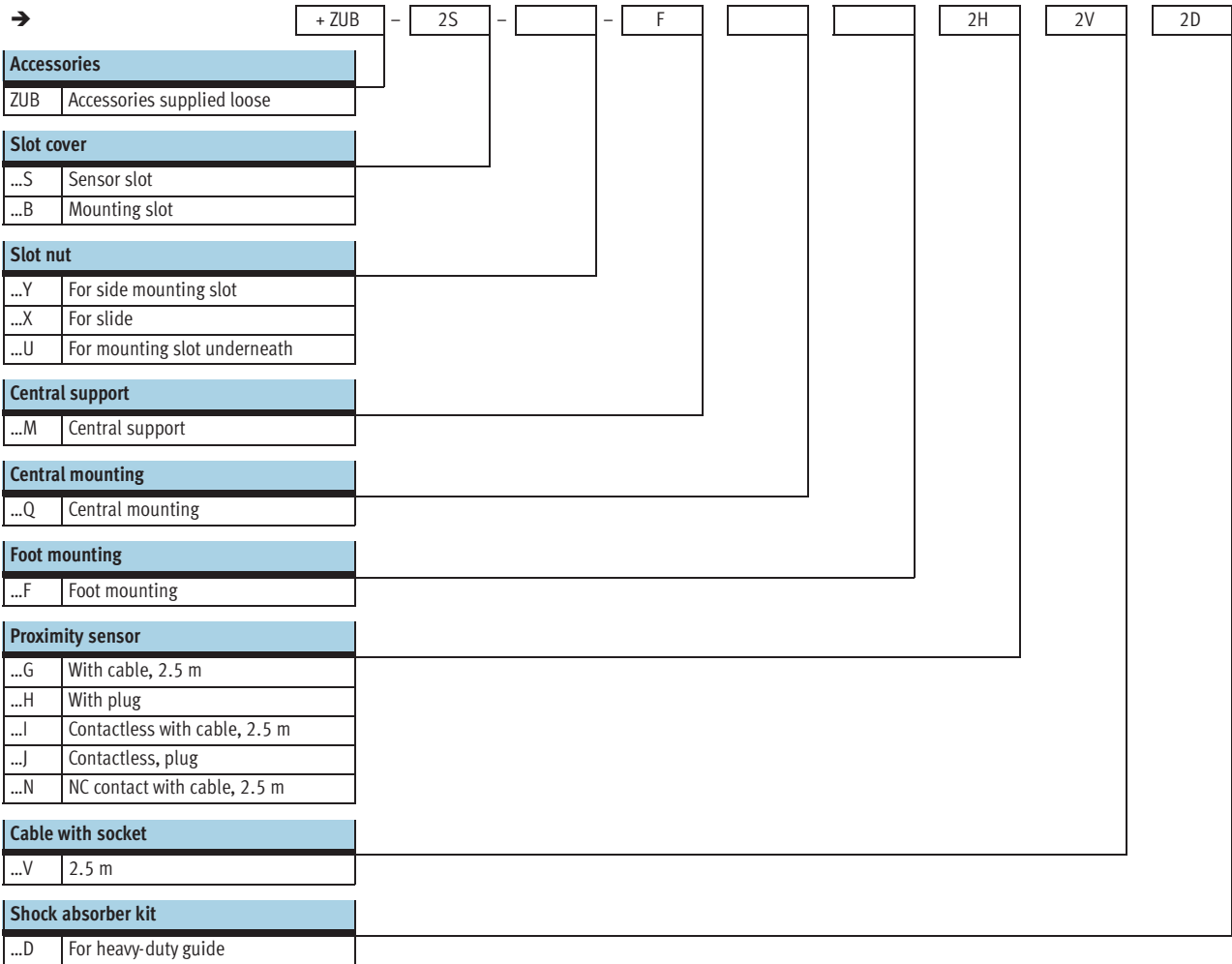
Linear drives DGP-HD, with heavy-duty guide

Type code

	DGPL	-	25	-	500	-	PPV	-	A	-	B	-	GK	-	D2
Type															
DGPL	Linear drive with heavy-duty guide														
Piston Ø															
25															
Stroke [mm]															
500															
Cushioning															
PPV	Adjustable end-position cushioning														
Position sensing															
A	Via magnet														
Generation															
B	B series														
Basic design															
GK	Standard slide														
Supply port															
D2	Supply port at both ends														

Linear drives DGP-HD, with heavy-duty guide

Type code

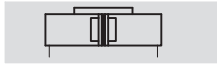


Linear drives DGPL-HD, with heavy-duty guide

FESTO

Technical data

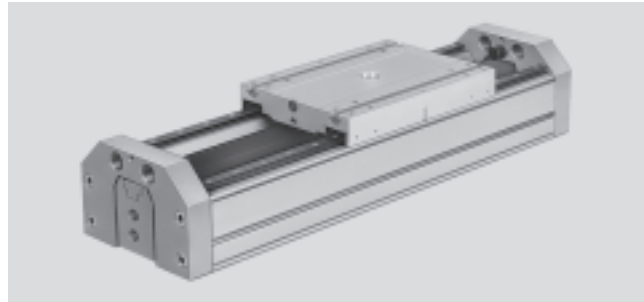
Function





www.festo.com

Wearing parts kits

→ 55



-  - Diameter
18 ... 40 mm
-  - Stroke length
10 ... 2160 mm

General technical data						
Piston Ø	18-HD18	18-HD25	25-HD25	25-HD40	32-HD40	40-HD40
Constructional design	Pneumatic linear drive with heavy-duty guide					
Protection against torsion/guide	Slotted profile barrel/recirculating ball bearing guide					
Mode of operation	Double-acting					
Driver principle	Positive-locking (slot)					
Mounting position	Any					
Pneumatic connection	M5			G $\frac{1}{8}$		G $\frac{1}{4}$
Stroke length [mm]	10 ... 1710	10 ... 1640	10 ... 2160	10 ... 2110		
Cushioning P	Non-adjustable at both ends Self-adjusting at both ends					
Cushioning length [mm]	-					
Position sensing	Via magnet					
Max. speed [m/s]	3					

Operating and environmental conditions						
Piston Ø	18-HD18	18-HD25	25-HD25	25-HD40	32-HD40	40-HD40
Operating medium	Filtered compressed air, lubricated or unlubricated					
Operating pressure [bar]	2 ... 8					1.5 ... 8
Ambient temperature ¹⁾ [°C]	-10 ... +60					

1) Note operating range of proximity sensors.

Forces [N]						
Piston Ø	18-HD18	18-HD25	25-HD25	25-HD40	32-HD40	40-HD40
Theoretical force at 6 bar	153		295		483	754

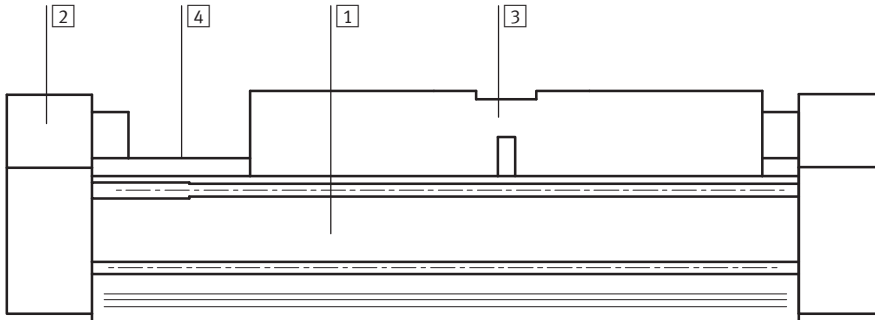
Weights [kg]						
Piston Ø	18-HD18	18-HD25	25-HD25	25-HD40	32-HD40	40-HD40
Basic weight with 0 mm stroke	3.7	4.4	5.1	13.9	14.4	15.4
Additional weight per 10 mm stroke	0.089	0.133	0.152	0.212	0.217	0.233
Moving load	0.530	1.86	1.96	3.48	3.615	3.850

Linear drives DGPL-HD, with heavy-duty guide

Technical data

Materials

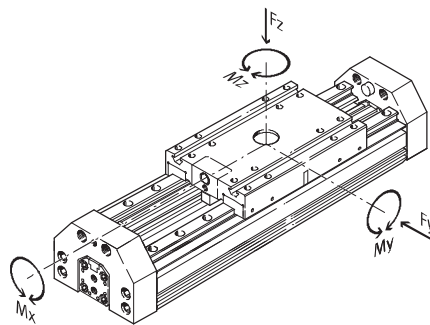
Sectional view



Axis		
1	Profile	Anodised aluminium
2	End cap	Anodised aluminium
3	Slide	Anodised aluminium
4	Guide rail	Steel
-	Seals	Nitrile rubber, polyurethane

Characteristic load values for drive with heavy-duty guide HD

The indicated forces and torques refer to the centre of the heavy-duty guide. They must not be exceeded in the dynamic range. Special attention must be paid to the cushioning phase.



If the drive is subjected to more than two of the indicated forces and torques simultaneously, the following equations must be satisfied in addition to the indicated maximum loads:

$$\frac{F_y}{F_{y_{max}}} + \frac{F_z}{F_{z_{max}}} + \frac{M_x}{M_{x_{max}}} + \frac{M_y}{M_{y_{max}}} + \frac{M_z}{M_{z_{max}}} \leq 1$$

Permissible forces and torques				
Piston Ø		HD-18	HD25	HD-40
F _y _{max.}	[N]	1820	5400	5400
F _z _{max.}	[N]	1820	5600	5600
M _x _{max.}	[Nm]	70	260	375
M _y _{max.}	[Nm]	115	415	560
M _z _{max.}	[Nm]	112	400	540

Linear drives DGPL-HD, with heavy-duty guide

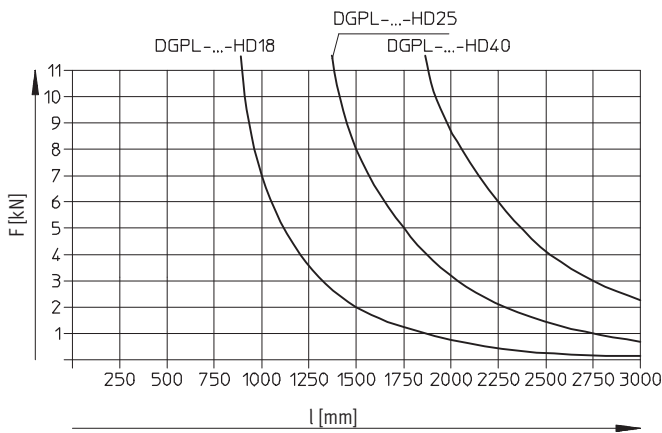
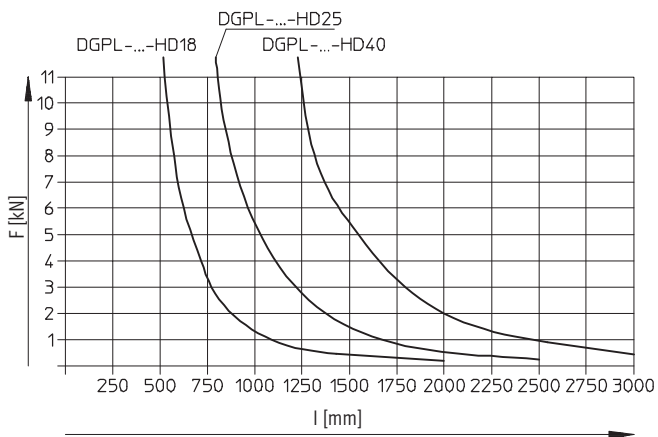
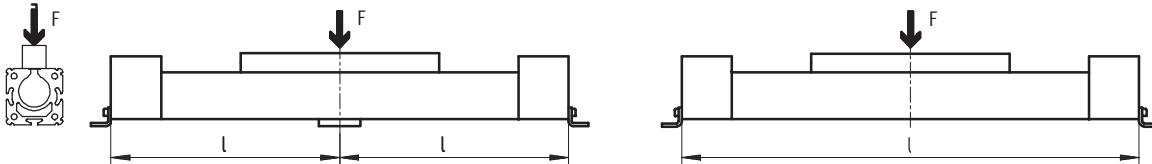
Technical data



Maximum permissible support span l as a function of the force F

The axis may need to be supported with central supports MUP in order to restrict deflection with long stroke lengths. The following diagrams serve to determine the maximum permissible support span l as a function of the force F acting upon the axis.

Force on the surface of the slide



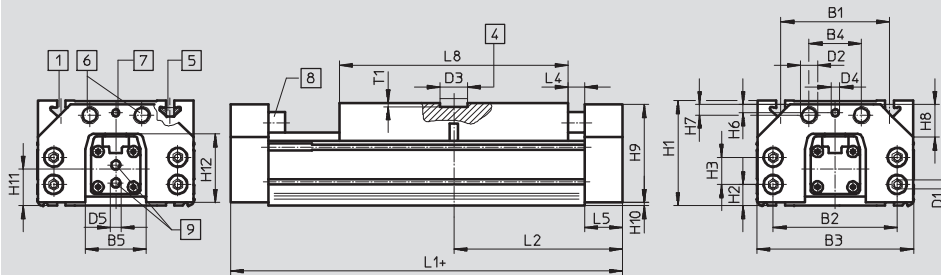
Linear drives DGPL-HD, with heavy-duty guide

Technical data

FESTO

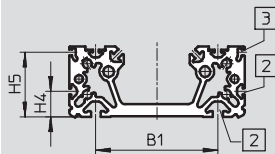
Dimensions

Download CAD data → www.festo.com



- 1 Mounting slot for slot nut NSTH
 - 2 Mounting slot for slot nut NST
 - 3 Sensor slot for proximity sensor
 - 4 Central mounting SLZZ
 - 5 Slot nut NSTH
 - 6 Thread for shock absorber YHD or YSR...-C
 - 7 Thread for threaded pin (shock absorber kit)
 - 8 Rubber buffer
 - 9 Supply port at one end (D2 variant: supply port at both ends)
- + = plus stroke length

Profile



Heavy-duty guide [mm]	B1	B2 ±0.2	B3	B4	B5	D1	D2	D3 ∅ G7	D4	D5	H1	H2	H3	H4
18-HD18	80 ±0.3	85	116	40	36	M5	M12x1	25	M6	M5	70	12.8	19.5 ±0.1	15
18-HD25	100 ±0.3	114	144	48	56 ±0.5	M8	M16x1		M8	G $\frac{1}{8}$	93.5	18.5	25 ±0.2	22
25-HD25	140 ±0.35	156	185	54	68		M22x1.5			G $\frac{1}{4}$	124.5	21	48 ±0.2	36
25-HD40														
32-HD40														
40-HD40														

Heavy-duty guide [mm]	H5	H6	H7	H8	H9	H10	H11	H12	L1	L2	L4	L5	L8	T1
18-HD18	43.3	5.9	8.7	20x45°	68	0.8	25.5	49	240	120	15	25	160	3.5
18-HD25	53.8	9	9.8	30x45°	90	2	33	63	310	155		35	210	
25-HD25	83.8	5.5	15.5	34x45°	120		59	89	354	177		32	260	4
25-HD40														
32-HD40														
40-HD40														

Linear drives DGPL-HD, with heavy-duty guide

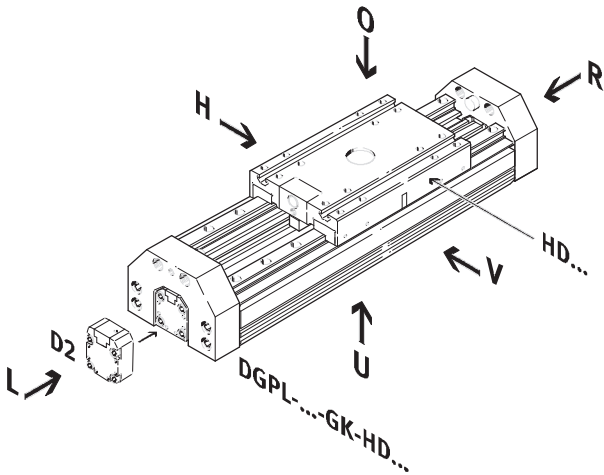
Ordering data – Modular products

Order code

Mandatory data

GK Standard slide
D2 Supply port

With heavy-duty guide HD



-  - Note

The insertion point for the proximity sensor is located at the left-hand side of the heavy-duty guide

- O top
- U underneath
- R right
- L left
- V front
- H rear

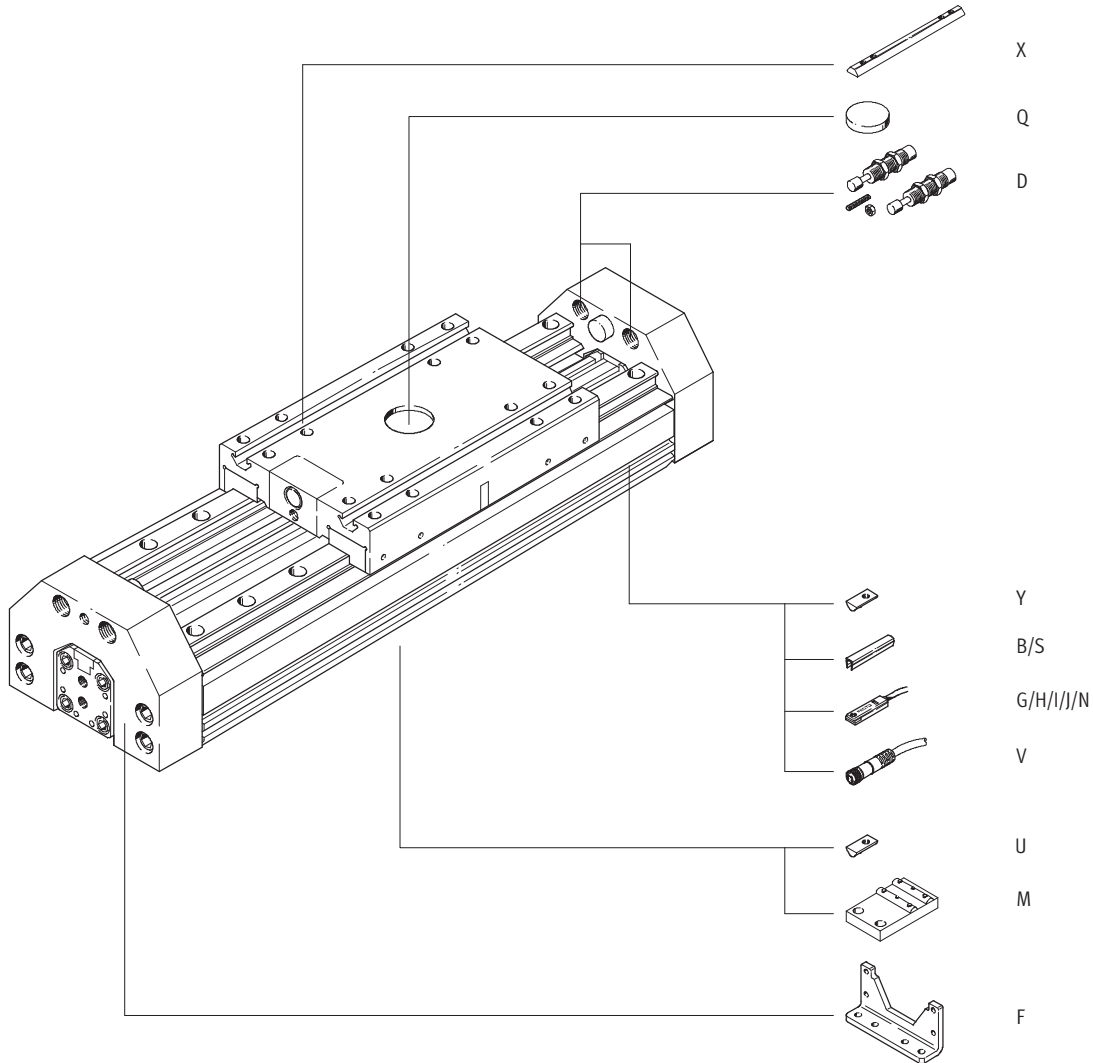
Ordering data – Wearing parts kits		
Piston Ø	Part No.	Type
18	384 266	DGP-18-...-PPV-A
25	123 563	DGP-25-...-PPV-A
32	123 564	DGP-32-...-PPV-A
40	123 565	DGP-40-...-PPV-A
50	123 566	DGP-50-...-PPV-A
63	123 567	DGP-63-...-PPV-A
80	123 568	DGP-80-...-PPV-A

Linear drives DGPL-HD, with heavy-duty guide

Ordering data – Modular products

Order code

Options



Linear drives DGPL-HD, with heavy-duty guide

Ordering data – Modular products

M Mandatory data							O Options →	
Module No.	Drive function	Size	Stroke	Cushioning	Position sensing	Guide	Basic design	Supply port
175 133	DGPL	18	10 ... 2160	PPV	A	HD18	GK	D2
175 134		25				HD25		
175 135		32				HD40		
175 136		40						
Ordering example								
175 134	DGPL	- 25	- 800	- PPV	- A	- HD25	- GK	- D2

Ordering table								
Size	18	25	32	40	Condi- tions	Code	Enter code	
M Module No.	175 133	175 134	175 135	175 136				
Drive function	Pneumatic linear drive with heavy-duty guide					DGPL		DGPL
Size	18	25	32	40		-...		
Stroke [mm]	HD18	10 ... 1710	-	-		-...		
	HD25	10 ... 1650	10 ... 2160	-		-...		
	HD40	-	10 ... 2110	-		-...		
Cushioning	Pneumatic cushioning adjustable at both ends					-PPV		-PPV
Position sensing	Via magnet					-A		-A
Guide	Heavy-duty guide HD	HD18	-	-		-HD18		
		HD25	-	-		-HD25		
		-	HD40	-		-HD40		
O Basic design	Standard piston/slide					-GK		
↓ Supply port	At both ends					-D2		

Transfer order code

Linear drives DGPL-HD, with heavy-duty guide

Ordering data – Modular products

Options								
Accessories	Slot cover	Slot nut	Central support	Central mounting	Foot mounting	Proximity sensor, magnetic	Cable with socket	Shock absorber kit
ZUB	...S ...B	...X ...Y ...U	...M	...Q	...F	...G ...H ...I ...J ...N	...V	...D
: ZUB	2S2B	2X5Y5U		2Q	F	2G		2D

Ordering table												
Size	18		25		32		40		Condi- tions	Code	Enter code	
↓	Accessories	Supplied separately								:ZUB-	:ZUB-	
0	Slot cover, 2 pcs., 0.5 m	Sensor slot	1 ... 10								...S	
		Mounting slot	1 ... 10								...B	
	Slot nut	Slide	1 ... 10								...X	
		Mounting slot	1 ... 10								...Y	
		Mounting slot underneath	1 ... 10								...U	
	Central support	1 ... 10								...M		
	Central mounting	1 ... 10								...Q		
	Foot mounting	1 ... 10								...F		
	Proximity sensor, magnetic	with cable, 2.5 m	1 ... 10 (SME-8-K-LED-24)								...G	
		with plug	1 ... 10 (SME-8-S-LED-24)								...H	
	Proximity sensor, magnetic, contactless	with cable, 2.5 m	1 ... 10 (SMT-8-PS-K-LED-24)								...I	
		with plug	1 ... 10 (SMT-8-PS-S-LED-24)								...J	
	Proximity sensor, magnetic	NC contact with cable, 2.5 m	1 ... 10 (SME-8-O-K-LED-24)								...N	
	Cable with socket, 2.5 m	1 ... 10 (SIM-M8-3GD-2,5-PU)								...V		
	Shock absorber kit	1 ... 10								...D		

Transfer order code

: -

Linear drives DGP/DGPL

Accessories

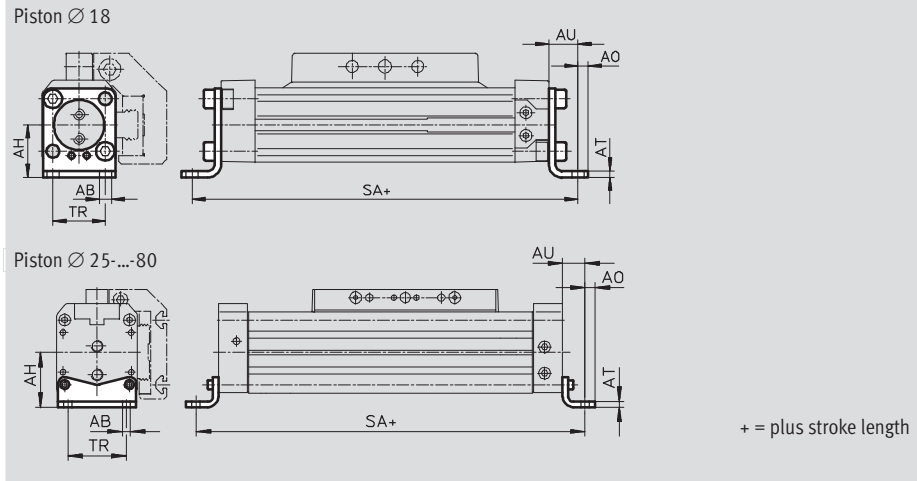
FESTO

Foot mounting HP
(order code F)

Material:
Galvanised steel
Free of copper, PTFE and silicone



HP-25



Dimensions and ordering data											
For \varnothing [mm]	AB \varnothing	AH	AO	AT	AU	SA		TR	Weight [g]	Part No.	Type
						GK	GV				
18	5.5	24	4.8	3	13.2	176.5	256.4	24	59	158 472	HP-18
25	5.5	29.5	6	3	13	226	326	32.5	61	150 731	HP-25
32	6.6	37	7	4	17	284	414	38	117	150 732	HP-32
40	6.6	46	8.5	5	17.5	335	505	45	188	150 733	HP-40
50	9	61	11	6	25	400	600	65	243	150 734	HP-50
63	11	69	13.5	6	28	456	706	75	305	150 735	HP-63
80	13	85	12	8	28	576	-	72	620	158 453	HP-80

Linear drives DGP/DGPL

Accessories

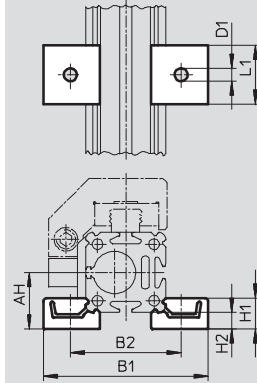
FESTO

Central support MUP
(order code M)

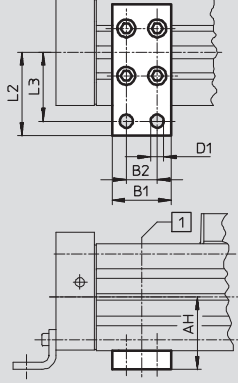
Material:
Galvanised steel
Free of copper, PTFE and silicone



Piston \varnothing 18 and 25



Piston \varnothing 32 ... 63



1 Position of the central support along the profile barrel is freely selectable

Dimensions and ordering data

For \varnothing	AH	B1	B2	D1	H1	H2	L1	L2	L3	Weight	Part No.	Type
[mm]				\varnothing						[g]		
18	24	70.5	47	5.5	13	7	25	-	-	29	150 736	MUP-18/25
25	29.5	81	58	5.5	13	7	25	-	-	33	150 736	MUP-18/25
32	37	35	22	6.6	-	-	-	41.5	35	89	150 737	MUP-32
40	46	35	22	6.6	-	-	-	47	40	126	150 738	MUP-40
50	61	50	26	11	-	-	-	70	58	241	150 739	MUP-50
63	69	50	26	11	-	-	-	77	65	340	150 800	MUP-63
80	85	50	26	11	-	-	-	88	76	590	158 455	MUP-80

Linear drives DGP/DGPL

Accessories



Foot mounting HHP

for heavy-duty guide

(order code F)

Material:

Galvanised steel



Central support MUP

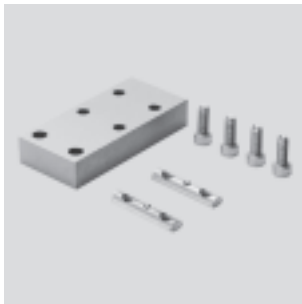
for heavy-duty guide

(order code M)

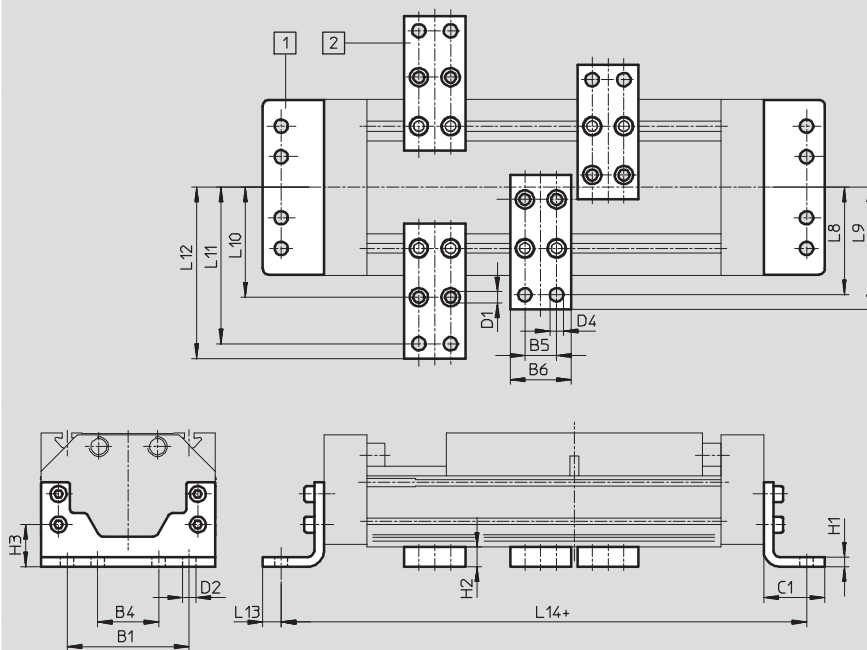
Material:

Galvanised steel

Free of copper, PTFE and silicone



DGPL-...-HD18/-HD25/-HD40



- 1 Foot mounting HHP
- 2 Central support MUP

+ = plus stroke length

Dimensions and ordering data											
For heavy-duty guide [mm]	B1	B4	B5	B6	C1	D1 ∅	D2 ∅	D4 ∅	H1	H2	H3
HD18	80	40	22	35	34	5.5	6.6	6.6	8	14	26.8
HD25	100	50	26	50	50	9	11	11	8	16	34.5
HD40	140	70	26	50	50	9	11	11	10	16	37

For heavy-duty guide [mm]	L8	L9	L10	L11	L12	L13	L14	Weight [g]	Part No.	Type
HD18	68	75	64	92	99	9	290	357	161 993	HHP-18
								126	150 738	MUP-40
HD25	88	100	90	128	140	15	380	794	161 994	HHP-25
								347	150 739	MUP-50
HD40	108	120	110	148	160	15	424	1 318	161 995	HHP-40
								347	150 739	MUP-50

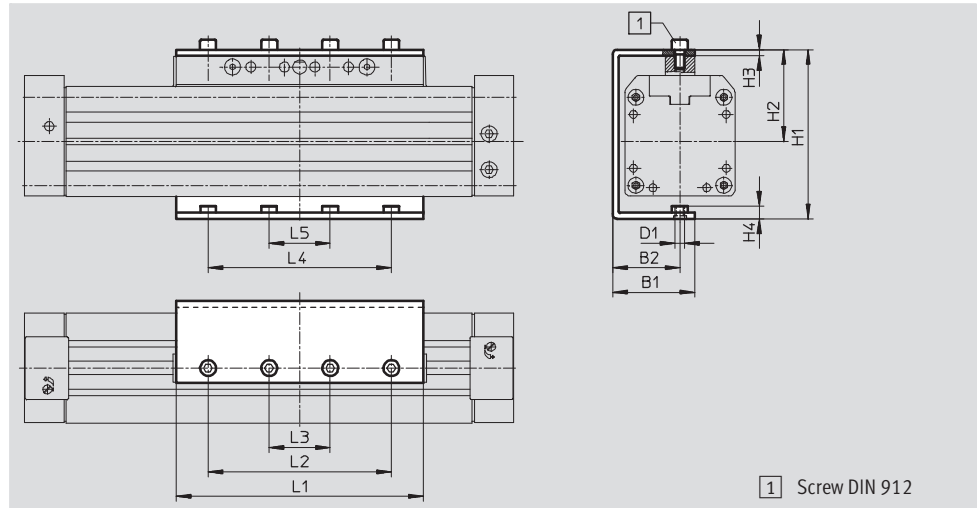
Linear drives DGP/DGPL

Accessories



Load inverter AK
for DGP
(order code AK)

Material:
Galvanised steel



Dimensions and ordering data									
For Ø	B1	B2	D1	H1	H2	H3	H4	L1	L2
[mm]									
18	29	23	M5	62.7	35.8	3	5	79.6	–
25	39	29.5	M5	76.1	43.5	3	5	105	–
32	43.5	34	M5	87	49	4	6	131	100
40	50.5	40	M6	104	58	4	8.1	167	130
50	67	55	M8	138.5	75	5	10.5	202	150
63	77	65	M8	156.5	84	6	11.5	230	190

For Ø	L3	L4	L5	1	CRC ¹⁾	Weight	Part No.	Type
[mm]						[g]		
18	60	60	20	M5x12	2	227	196 105	AK-18
25	50	50	20	M5x10		380	196 106	AK-25
32	30	100	30	M5x12		690	196 107	AK-32
40	40	130	40	M6x14		1050	196 108	AK-40
50	50	150	50	M8x16		2080	196 109	AK-50
63	70	190	70	M8x18		2820	196 110	AK-63

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Linear drives DGP/DGPL

Accessories

FESTO

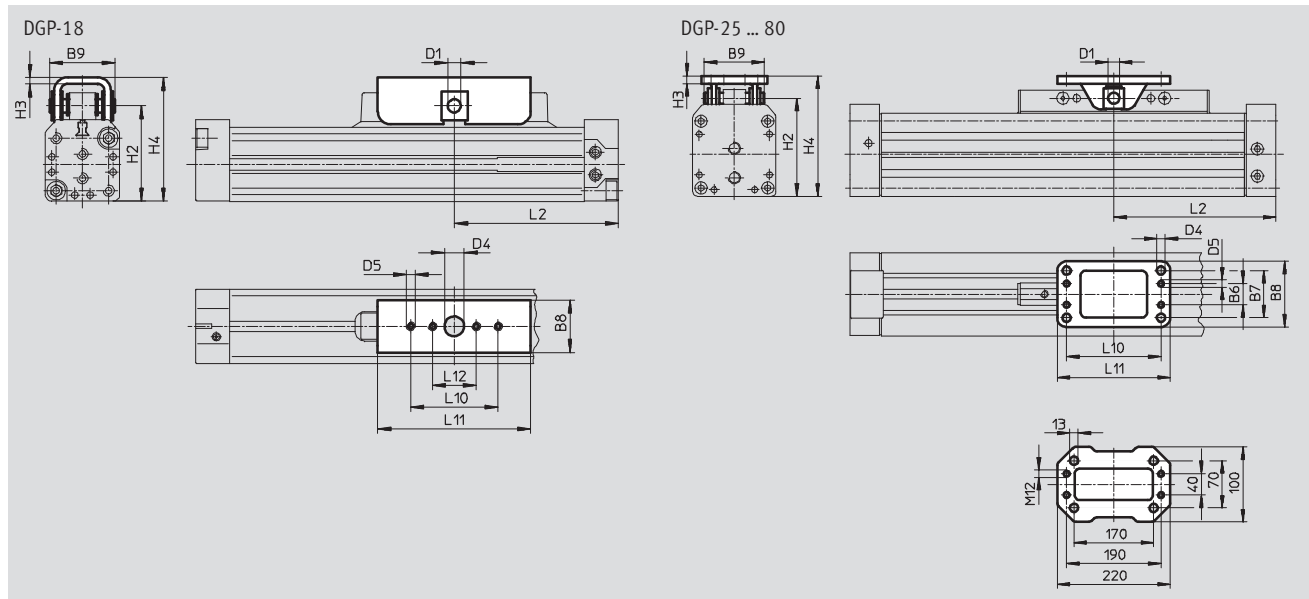
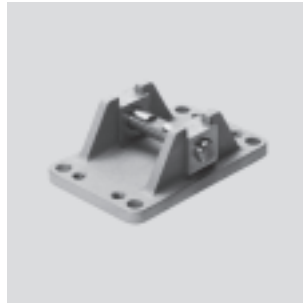
Moment compensator FKP

for DGP

(order code FK)

Material:

Galvanised steel



Dimensions and ordering data																
For \varnothing	B6	B7	B8	B9	D1 \varnothing	D4 \varnothing	D5	H2	H3	H4	L2	L10	L11	L12	Part No.	Type
[mm]																
18	-	-	26	30	6	9	M4	43.8	3	57.8	75	40	70	20	158 474	FKP-18
25	20	40	54	50	8	5.5	M5	57	5	75	100	66	80	-	150 801	FKP-25/32
32	20	40	54	50	8	5.5	M5	66	5	84	125	66	80	-	150 801	FKP-25/32
40	24	44	58	60	10	6.5	M6	78	6	99	150	76	90	-	150 802	FKP-40
50	23	51	71	63	12	9	M8	106	8	130	175	102	122	-	150 803	FKP-50/63
63	23	51	71	63	12	9	M8	122	8	146	200	102	122	-	150 803	FKP-50/63
80	-	-	-	94	20	-	-	158	13	194.5	258	-	-	-	158 457	FKP-80

Linear drives DGP/DGPL

Accessories


Shock absorber YSR-...-C

for DGPL
(order code C)

Material:

Housing: galvanised steel; piston rod: high-alloy steel,
seals: nitrile rubber, polyurethane
Free of copper, PTFE and silicone



 Note

Shock absorber YSRW with progressive characteristics
→ Internet: ysrw

Ordering data		Part No.	Type
For Ø [mm]	Weight [g]		
18	50	34 571	YSR-8-8-C
25	70	34 572	YSR-12-12-C
32	70	34 572	YSR-12-12-C
40	140	34 573	YSR-16-20-C
50	140	34 573	YSR-16-20-C
63	240	34 574	YSR-20-25-C
80	240	34 574	YSR-20-25-C

Shock absorber retainer KYP

for DGPL
(order code C)

Material:

Retainer: Aluminium
Sleeve: Corrosion resistant steel

Shock absorber not included in scope of delivery.



1 Shock absorber retainer KYP (if the retainer is in contact with the end cap, i.e. cap serves to secure position, the entire stroke length can be utilised)

2 Shock absorber YSR-...-C

3 Position retainer (included in scope of delivery) either behind or underneath the shock absorber retainer KYP

Dimensions and ordering data							
For Ø	B8	D1	D5	H2	H4	Weight [g]	Part No. Type
18	14	M12x1	M4	50.5	4.5	65	158 907 KYP-18
25	19	M16x1	M5	69.5	6	95	158 908 KYP-25
32	25	M16x1	M5	80	8	130	158 909 KYP-32
40	32	M22x1.5	M5	102	8	209	158 910 KYP-40
50	35	M22x1.5	M8	124	10	415	158 911 KYP-50
63	44	M26x1.5	M10	152.5	11.5	609	158 912 KYP-63
80	44	M26x1.5	M10	179.5	11.5	774	158 913 KYP-80

Linear drives DGP/DGPL

Accessories

FESTO

Shock absorber DG-GA

in end position

for DGPL

protected version GA

(order code E)

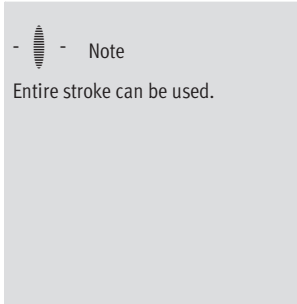
Material:

Housing: galvanised steel; piston rod:

high-alloy steel,

seals: nitrile rubber, polyurethane

Free of copper, PTFE and silicone



Ordering data			
For \varnothing	Weight [g]	Part No.	Type
25	70	192 875	DG-GA-25-YSR
32	93	192 876	DG-GA-32-YSR
40	140	192 877	DG-GA-40-YSR

Shock absorber kit YHD

for heavy-duty guide

(order code D)

Material:

Housing: Galvanised steel

Seals: TPE-U(PU) NBR

Free of copper, PTFE and silicone




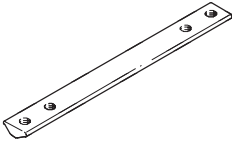


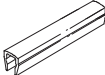
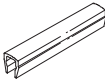
Ordering data			
For size	Weight [g]	Part No.	Type
18	203	174 544	YHD-18
25	293	174 545	YHD-25
40	515	174 546	YHD-40

Ordering data – One-way flow control valves			Technical data → Internet: grla		
	Connection		Material	Part No.	Type
	Thread	For tubing OD			
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
	G $\frac{1}{8}$	4		193 143	GRLA- $\frac{1}{8}$ -QS-4-D
		6		193 144	GRLA- $\frac{1}{8}$ -QS-6-D
	G $\frac{1}{4}$	6		193 146	GRLA- $\frac{1}{4}$ -QS-6-D
		8		193 147	GRLA- $\frac{1}{4}$ -QS-8-D
	G $\frac{3}{8}$	8		193 150	GRLA- $\frac{3}{8}$ -QS-8-D
		10		193 151	GRLA- $\frac{3}{8}$ -QS-10-D
	G $\frac{1}{2}$	12		193 152	GRLA- $\frac{1}{2}$ -QS-12-D

Linear drives DGP/DGPL

Accessories

FESTO


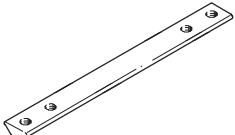



Ordering data for DGP/DGPL				Technical data → Internet: mounting attachment		
	For Ø [mm]	Remarks	Order code	Part No.	Type	PU ¹⁾
Slot nut NST						
	25	For mounting slot	Y	526 091	NST-HMV-M4	1
	32, 40			150 914	NST-5-M5	1
	50, 63, 80			150 915	NST-8-M6	1
Slot nut NSTL						
	25	For slide	X	158 410	NSTL-25	1
	32			158 411	NSTL-32	1
	40			158 412	NSTL-40	1
	50			158 413	NSTL-50	1
	63			158 414	NSTL-63	1
	80			161 356	NSTL-80	1
Centring pin/sleeve ZBS/ZBH						
	18	For slide	Z	150 928	ZBS-5	10
	25 ... 80			150 927	ZBH-9	10
Central mounting SLZZ						
	25	For slide	Q	150 900	SLZZ-16/10	1
	32, 40			150 901	SLZZ-25/16	
	50 ... 80			150 904	SLZZ-50/40	1
Slot cover ABP						
	32, 40	For mounting slot each 0.5 m	B	151 681	ABP-5	2
	50, 63, 80			151 682	ABP-8	
Slot cover ABP-S						
	18 ... 80	For sensor slot each 0.5 m	S	563 360	ABP-5-S1	2

1) Packaging unit quantity

Linear drives DGP/DGPL

Accessories

FESTO

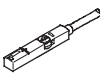

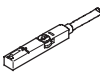
Ordering data for heavy-duty guide DGPL-HD				Technical data → Internet: mounting attachment		
	For heavy-duty guide [mm]	Remarks	Order code	Part No.	Type	PU ¹⁾
Slot nut NST						
	18, 25	For profile barrel at side	Y	150 914	NST-5-M5	1
	40			150 915	NST-8-M6	1
	18	For profile barrel underneath	U	150 914	NST-5-M5	1
	25, 40			150 915	NST-8-M6	1
Slot nut NSTH						
	18	For slide	X	161 020	NSTH-18	1
	25			161 021	NSTH-25	1
	40			161 022	NSTH-40	1
Central mounting SLZZ						
	18 ... 40	For slide	Q	150 901	SLZZ-25/16	1
Slot cover ABP						
	18, 25 underneath	For mounting slot at side and underneath each 0.5 m	B	151 681	ABP-5	2
	25 at side, 40			151 682	ABP-8	
Slot cover ABP-S						
	18 ... 40	For sensor slot each 0.5 m	S	151 680	ABP-5-S	2

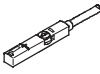


1) Packaging unit quantity



Linear drives DGP/DGPL

Accessories

FESTO

Ordering data – Proximity sensors for T-slot, magneto-resistive					Technical data → Internet: smt	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile	PNP	Cable, 3-wire	2.5	543 867	SMT-8M-PS-24V-K-2,5-OE
			Plug M8x1, 3-pin	0.3	543 866	SMT-8M-PS-24V-K-0,3-M8D
			Plug M12x1, 3-pin	0.3	543 869	SMT-8M-PS-24V-K-0,3-M12
	Insertable in the slot lengthwise, flush with the cylinder profile	PNP	Cable, 3-wire	2.5	543 870	SMT-8M-NS-24V-K-2,5-OE
			Plug M8x1, 3-pin	0.3	543 871	SMT-8M-NS-24V-K-0,3-M8D
N/C contact						
	Insertable in the slot from above, flush with cylinder profile	PNP	Cable, 3-wire	7.5	543 873	SMT-8M-PO-24V-K7,5-OE

Ordering data – Proximity sensors for T-slot, magnetic reed					Technical data → Internet: sme	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	543 862	SME-8M-DS-24V-K-2,5-OE
				5.0	543 863	SME-8M-DS-24V-K-5,0-OE
			Plug M8x1, 3-pin	2.5	543 872	SME-8M-ZS-24V-K-2,5-OE
				0.3	543 861	SME-8M-DS-24V-K-0,3-M8D
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150 855	SME-8-K-LED-24
			Plug M8x1, 3-pin	0.3	150 857	SME-8-S-LED-24
N/C contact						
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160 251	SME-8-O-K-LED-24

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 333	NEBU-M8G3-K-2.5-LE3
			5	541 334	NEBU-M8G3-K-5-LE3
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 363	NEBU-M12G5-K-2.5-LE3
			5	541 364	NEBU-M12G5-K-5-LE3
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 338	NEBU-M8W3-K-2.5-LE3
			5	541 341	NEBU-M8W3-K-5-LE3
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 367	NEBU-M12W5-K-2.5-LE3
			5	541 370	NEBU-M12W5-K-5-LE3