Linear Actuators DGC

FESTO

- Quick and easy installation
- Optimized mounting options
- Precise and reliable
- Use as individual component or for multi-axis applications

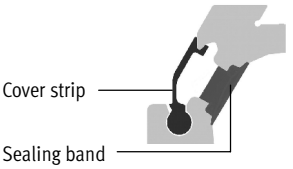
design award winner 2004

Linear Actuators DGC

Key features

General

- Compact – fitting length relative to stroke
- Loads and devices can be directly mounted on the slide
- Three types of cushioning available:
  - Flexible cushioning
  - Pneumatic cushioning
  - Hydraulic cushioning
- All settings accessible from one side:
  - Precision end-position adjustment
  - Position of proximity sensors
  - Mounting of drive
  - Speed regulation
  - Pneumatic end-position cushioning
- Sealing system



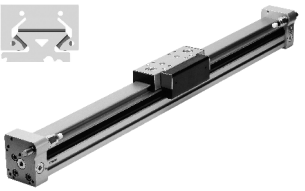
Advantages of the sealing system
- Long strokes without restrictions
  - DGC-18 to 3,000 mm
  - Above DGC-25 to 5,000 mm
- Virtually zero-leakage

Wide choice of variants

Basic design DGC-G

- Piston ∅ 8 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0.2 mm
- For small loads
- Operating behaviour with torque load = Average

Plain-bearing guide DGC-GF

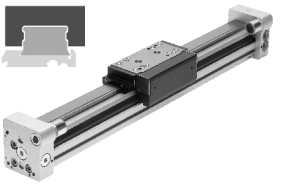


- Piston ∅ 18 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0.05 mm
- For small and medium loads
- Operating behaviour with torque load = Average

Recirculating ball bearing guide DGC-KF

- Piston ∅ 8 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0 mm
- For medium and large loads
- Precision mounting interface with stainless steel slide
- Operating behaviour with torque load = Very good

Recirculating ball bearing guide with protected guide DGC-KF-GP



- Piston ∅ 18 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0 mm
- The protected guide cleans the guide rail and protects the recirculating ball bearing guide by means of an additional wiper seal and lubrication unit

Passive guide axis DGC-FA

- Without drive
- Piston ∅ 8 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0 mm
- Precision guide, suitable for DGC-KF. Can be used as machine component or as twin guide with DGC-KF

Passive guide axis with protected guide DGC-FA-GP

- Without drive
- Piston ∅ 18 … 40 mm
- Stroke lengths from 1 … 5,000 mm[1)]
- Guide backlash = 0 mm
- The protected guide cleans the guide rail and protects the recirculating ball bearing guide by means of an additional wiper seal and lubrication unit

1) Up to 8,500 mm on request

Versatile

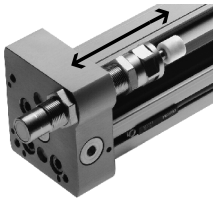
1 Compressed air connections

- Optionally on 2 sides (on the end face or from the front)
- For DGC-G/DGC-GF/DGC-KF

2 Proximity sensor G/H/I/J

- Proximity sensors can be integrated, which means there is no projection. Cable can be guided through the slot behind a second sensor
- For DGC-G/DGC-GF/DGC-KF

3 Precision end-position adjustment

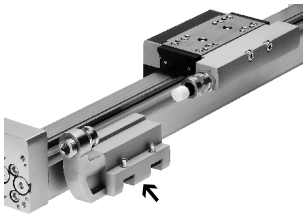


- Between 0 ... 25 mm per side
- For DGC-GF/DGC-KF/DGC-FA

4 Profile mounting M

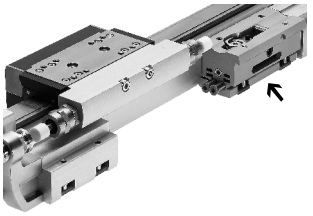
- Profile mounting attachment remains on the base plate after the drive is dismantled. This means faster assembly and removal without repeat adjustment
- For DGC-G/DGC-GF/DGC-KF/DGC-FA

5 Mechanical end-position limiter YWZ



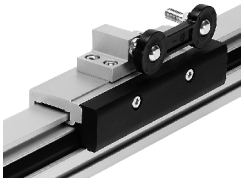
- For variable end-position adjustment, e.g. for format adjustments
- The end stop can be mounted at any position within the stroke
- For DGC-GF/DGC-KF/DGC-FA

6 Intermediate position Z1/Z2/Z3



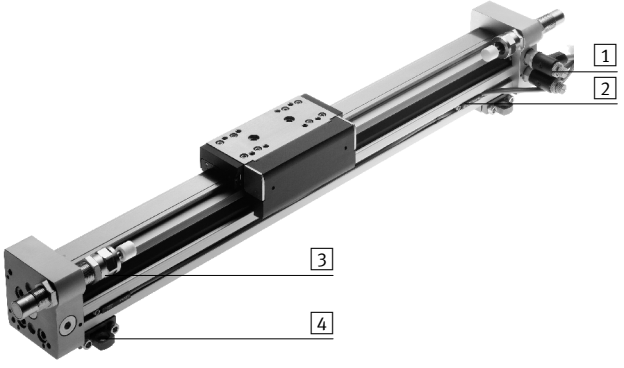
- Permits variable intermediate positions
- The intermediate position module can be mounted at any position within the stroke
- Precision repetition accuracy (0.02 mm) with highly dynamic response
- For DGC-KF

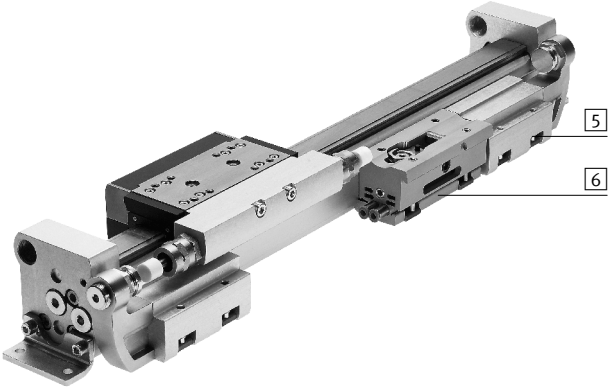
Driver FK



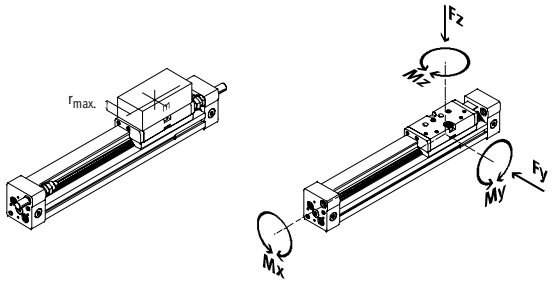
- Compensates inaccuracies during mounting of the linear drive and external guide
- Max. offset 2.5 mm
- For DGC-G

Example





Product variants

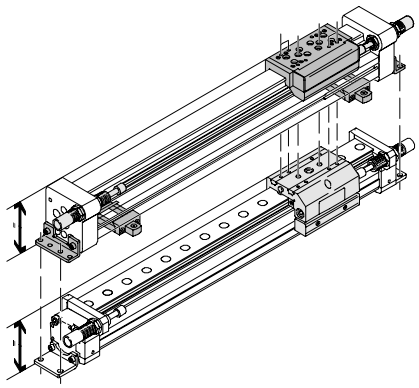


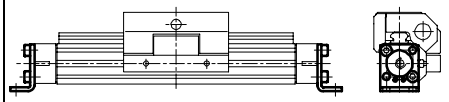
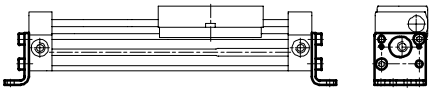
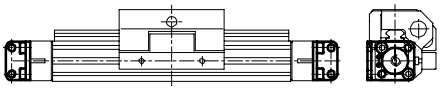
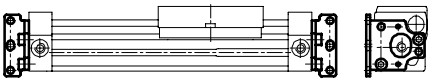
	Piston ∅ [mm]	Theoretical force at 6 bar [N]	Max. perm. applied load[1] m [kg] / at max. load distance r [mm]	Guide characteristics Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	➔ Page
Basic design DGC-G									
	8	30	0.06 / 25	150	150	0.5	2	2	8
	12	68	0.1 / 35	300	300	1.3	5	5	
	18	153	– / –	70	340	1.9	12	4	
	25	295	– / –	180	540	4	20	5	
	32	483	– / –	250	800	9	40	12	
	40	754	– / –	370	1,100	12	60	25	
Plain-bearing guide DGC-GF									
	18	153	3 / 35	440	540	3.4	20	8.5	20
	25	295	8 / 50	640	1,300	8.5	40	20	
	32	483	11 / 50	900	1,800	15	70	33	
	40	754	15 / 50	1,380	2,000	28	110	54	
Recirculating ball bearing guide DGC-KF/DGC-KF-GP									
	8	30	0.7 / 25	300	300	1.7	4.5	4.5	32
	12	68	1.8 / 35	650	650	3.5	10	10	
	18	153	10 / 35	1,850	1,850	16	51	51	
	25	295	30 / 50	3,050	3,050	36	97	97	
	32	483	30 / 50	3,310	3,310	54	150	150	
	40	754	50 / 50	6,890	6,890	144	380	380	
Passive guide axis without drive DGC-FA/DGC-FA-GP									
	8	0	0.7 / 25	300	300	1.7	4.5	4.5	48
	12	0	1.8 / 35	650	650	3.5	10	10	
	18	0	10 / 35	1,850	1,850	16	51	51	
	25	0	30 / 50	3,050	3,050	36	97	97	
	32	0	30 / 50	3,310	3,310	54	150	150	
	40	0	50 / 50	6,890	6,890	144	380	380	

1) At v = 0.5 m/s with shock absorber YSRW

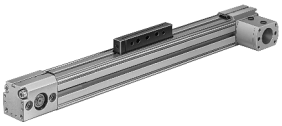
Interchangeability with linear actuator DGPL

Special foot mountings for the drive DGC allow the linear drive DGPL to be replaced with the linear drive DGC-GF/-KF with identical slide position and identical interfaces.

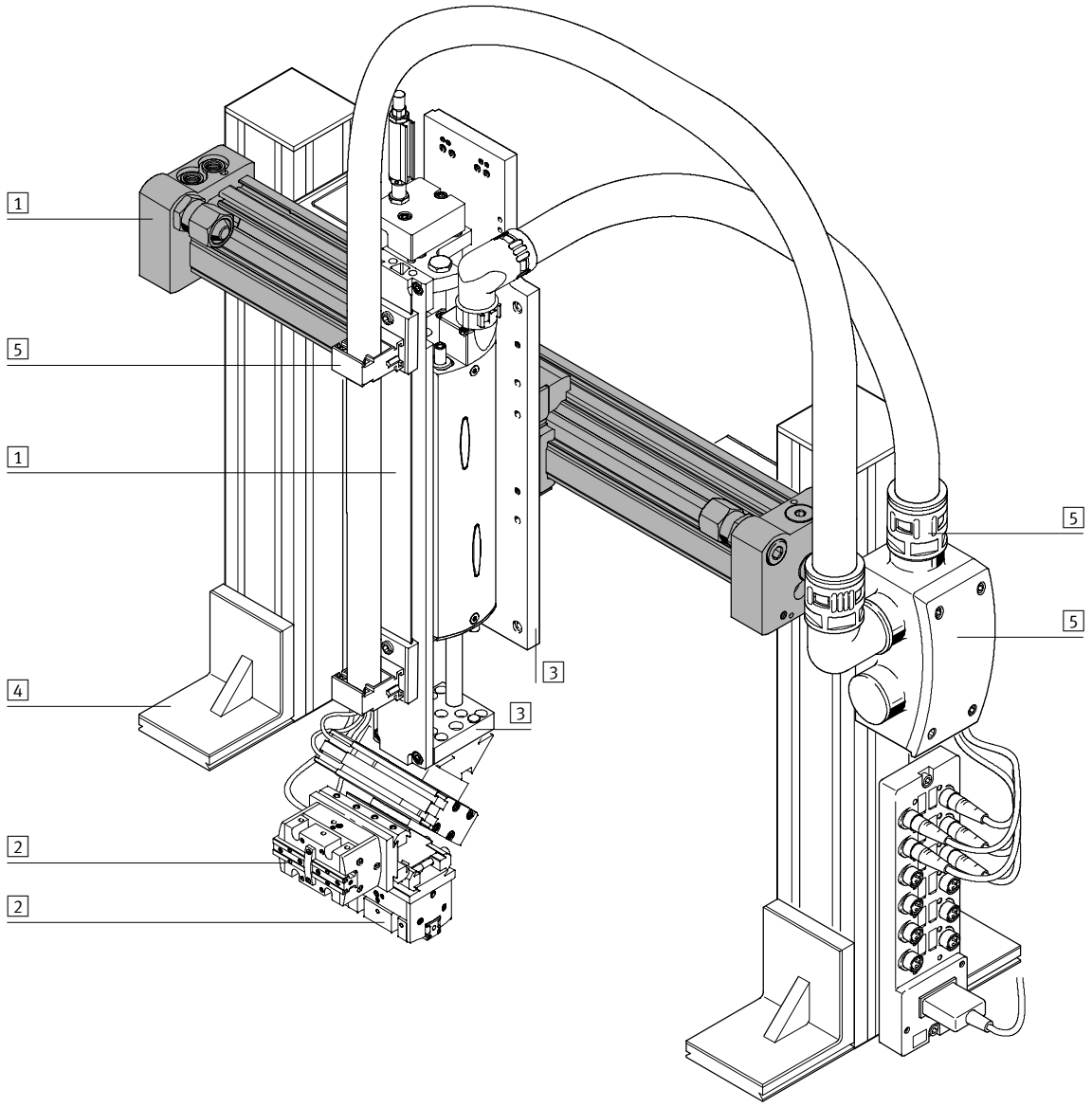


Slide position	Linear drive DGPL	Linear drive DGC-GF/-KF	Foot mounting required ➔ 62
Top			Type HPC-...-SO/ HPC-...-S
Rear			Type HPC-...-SH/ HPC-...-S

Alternatives

Electromechanical actuators		Rodless cylinders, magnetically coupled
Belt driven actuator DGE-ZR	Ball screw actuator DGE-SP	Linear drives DGO
		
Advantages: Positioning drive for approaching several positions	Positioning drive for approaching several positions	Hermetically sealed drive

System product for handling and assembly technology



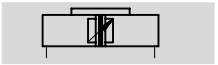
System elements and accessories		
		Brief description
1	Drives	Wide range of combinations possible within handling and assembly technology
2	Gripper	Wide range of variations possible within handling and assembly technology
3	Adapter	For drive/drive and drive/gripper connections
4	Basic components	Profiles and profile connections as well as profile/drive connections
5	Installation components	For manageable and secure guidance of electrical cables and tubing
–	Axes	Wide range of combinations possible within handling and assembly technology
–	Motors	Servo and stepper motors, with or without gearing

Linear Actuators DGC-G

Technical data

FESTO

Function

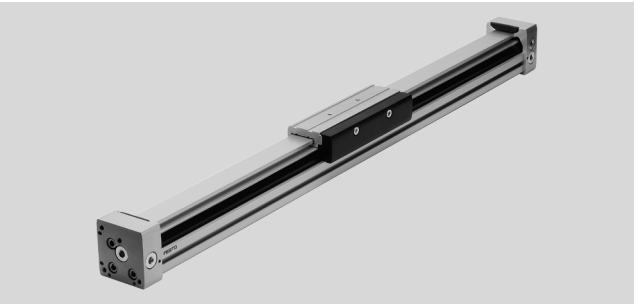


Diameter
8 … 40 mm

Stroke length
1 … 5,000 mm

www.festo.com/en/
Spare_parts_service

Wearing parts kits
➔ 17



General technical data							
Piston ∅		8	12	18	25	32	40
Stroke	[mm]	1 … 1,500	1 … 2,000	1 … 3,000	1 … 5,000[1]		
Pneumatic connection		M5			G⅛		G¼
Mode of operation		Double-acting					
Design		Rodless drive					
Driver principle		Slotted cylinder, mechanically coupled					
Guide		Basic guide					
Assembly position		Any					
Cushioning	P	Non-adjustable at either end		–			
➔ 11	PPV	–		Adjustable at both ends			
	YSR…	Self-adjusting at both ends		–			
Cushioning length with PPV cushioning	[mm]	–		16.5	15.5	17.5	29.5
Position sensing		For proximity sensing					
Type of mounting		Profile mounting					
		Foot mounting					
		Direct mounting					
Max. speed	[m/s]	1	1.2	3			
Stroke tolerance	[mm]	0 … 1.7		0 … 2.5			

1) Strokes up to 8,500 mm on request.

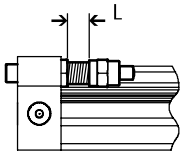
Operating and environmental conditions							
Piston ∅		8	12	18	25	32	40
Operating pressure	[bar]	2.5 … 8		2 … 8			1.5 … 8
Operating medium		Filtered compressed air, lubricated or unlubricated					
Ambient temperature[1]	[°C]	+5 … +60	–10 … +60				
Corrosion resistance class CRC[2]		2					

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 normal industrial environment or media such as coolants or lubricating agents.

Forces [N] and impact energy [Nm]						
Piston ∅	8	12	18	25	32	40
Theoretical force at 6 bar	30	68	153	295	483	754
Perm. impact energy at end positions	➔ 11					

Weights [g]						
Piston ∅	8	12	18	25	32	40
Basic weight with 0 mm stroke	170	290	546	1,004	2,126	4,121
Additional weight per 10 mm stroke	9	12	22	34	54	77
Moving load	36	65	178	287	508	1,312

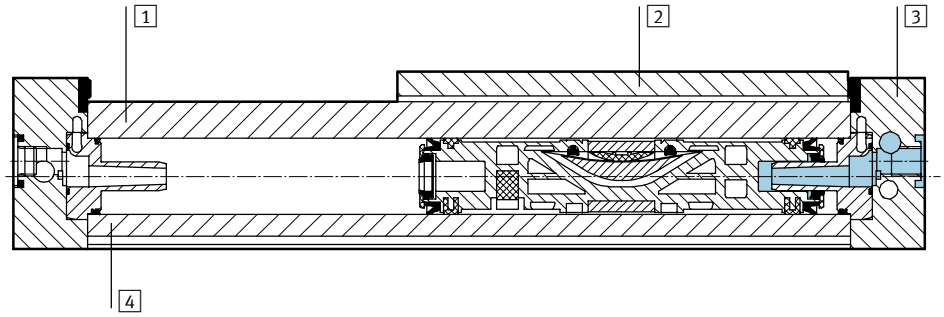
Adjustable end-position range L [mm]



Piston ∅	8	12	18	25	32	40
Cushioning P/PPV	0 … 5		–			
Cushioning YSR/YSRW	0 … 10		–			

Materials

Sectional view

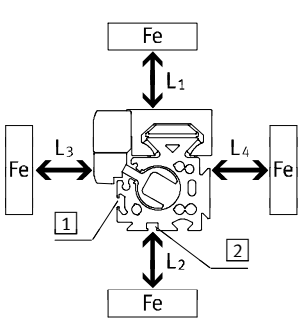


Cylinder		
1	Guide rail	Anodised aluminium
2	Slide	Anodised aluminium
3	End cap	Anodised aluminium
4	Cylinder barrel	Anodised aluminium
–	Piston seal	Polyurethane
–	Sealing band/cover strip	Polyurethane
–	Slide elements	Polyacetate

Influence of ferritic materials on proximity sensors

Ferritic materials (steel parts or panels) directly next to the proximity sensors can cause sensing malfunctions. The following safety distances must be observed.

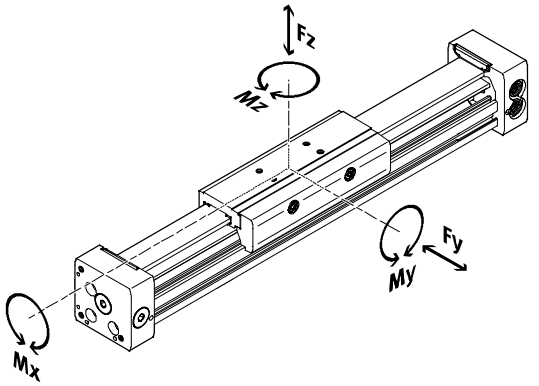
The distance depends on the position of the proximity sensor (see 1 and 2).



Piston ∅			8	12	18	25	32	40
Distance L1	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0
Distance L2	1	[mm]	20	10	10	10	0	0
	2	[mm]	–	–	25	25	25	25
Distance L3	1	[mm]	30	25	25	25	25	25
	2	[mm]	–	–	10	10	0	0
Distance L4	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0

Characteristic load values

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



Note
In order to avoid frictional restraint of the guide in the case of the basic drive DGC-G when used in vertical mode and with a high torque load, the variant with the recirculating ball bearing guide DGC-KF is recommended.
➔ 32

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

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

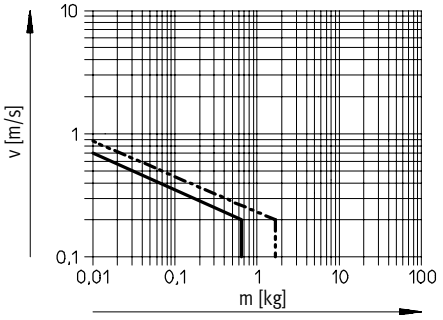
Permissible forces and torques

Piston ∅		8	12	18	25	32	40
$Fy_{max.}$	[N]	150	300	70	180	250	370
$Fz_{max.}$	[N]	150	300	340	540	800	1,100
$Mx_{max.}$	[Nm]	0.5	1.3	1.9	4	9	12
$My_{max.}$	[Nm]	2	5	12	20	40	60
$Mz_{max.}$	[Nm]	2	5	4	5	12	25

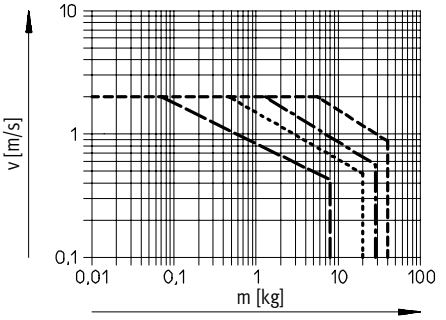
Selection and ordering aid
ProDrive
www.festo.com/en/engineering

Maximum permissible piston speed v as a function of working load m

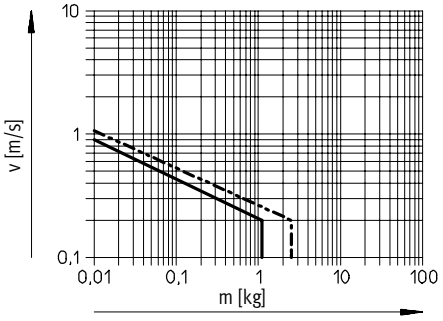
∅ 8/12 with P cushioning



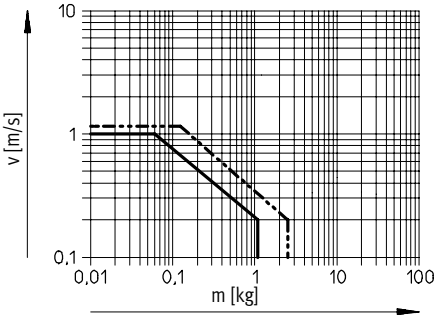
∅ 18 ... 40 with PPV cushioning



∅ 8/12 with YSR cushioning



∅ 8/12 with YSRW cushioning



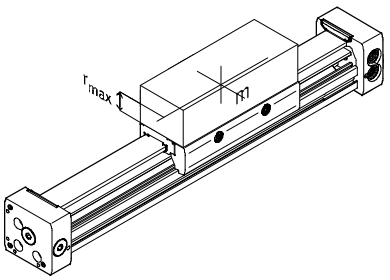
∅ 8
∅ 12
∅ 18
∅ 25
∅ 32
∅ 40

Note

This data represents the maximum values that can be achieved.
Values fluctuate in practice relative to the size of the effective load.

Operating range of cushioning

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



Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of at least 0.03 mm.

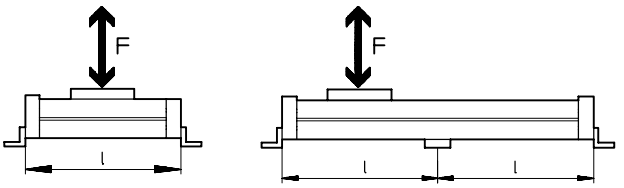
Data for horizontal assembly position:

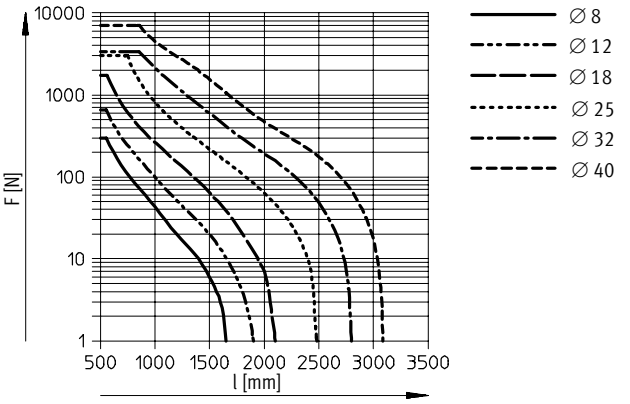
Piston ∅		8	12	18	25	32	40
Distance $r_{max.}$	[mm]	25	35	35	50	50	50

Number of profile mountings MUC dependent on force due to load F and support span l

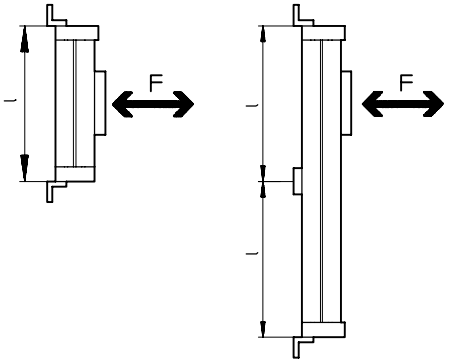
In order to limit deflection in the case of large strokes, the drive may need to be supported. The following diagrams serve to determine the maximum permissible support span as a function of the assembly position and the perpendicular force.

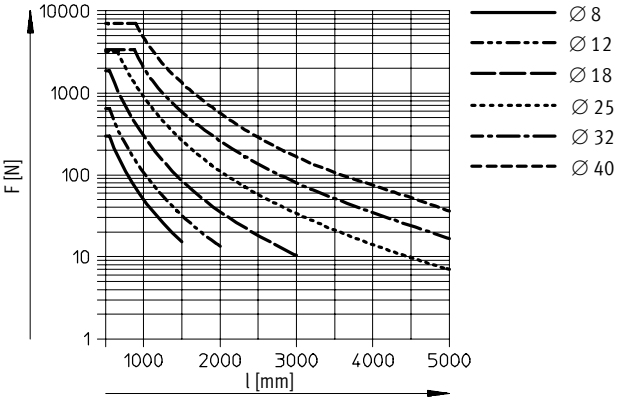
Horizontal assembly position





Vertical assembly position





Example:

The drive DGC-25-1500 is subjected to a force of 300 N in horizontal assembly position.

The drive has an overall length of:
l = stroke length + L1 (see dimensions)
= 1,500 mm + 200 mm
= 1,700 mm

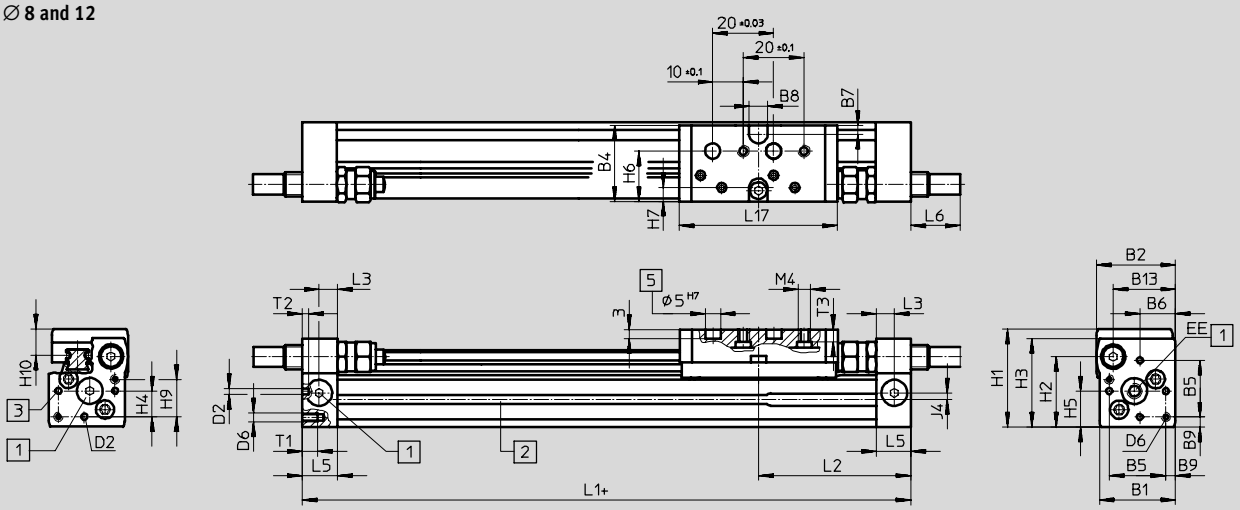
According to the diagram, the max. support span is 1,300 mm for the drive DGC-25 with a force of 300 N.

In this example, profile mounting attachments are required as the max. support span (1,300 mm) is smaller than the overall length of the drive (1,700 mm).

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

∅ 8 and 12



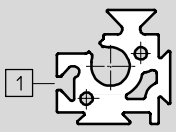
\+ plus stroke length
1 Supply port optional on three faces
2 Sensor slot for proximity sensor
3 Mounting hole for foot mounting or centring pin
5 Hole for centring pin ZBS

∅ [mm]	B1	B2	B4	B5	B6	B7	B8 ±0.05	B9 ±0.1	B13	D2 ∅ H8	D6	EE	H1	H2	H3	H4	H5
8	25	26	25.5	18.6	11.7	3	6	3.2	20.5	2	M3	M5	32	23	29	8.5	11.7
12	30.2	31	30.5	20.6	13.5	3	8	4.8	25	2	M4	M5	37.5	28.5	34.5	8.7	13.5

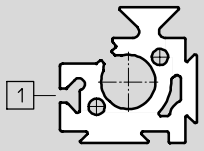
∅ [mm]	H6	H7	H9	H10	J4	L1 +0.5/ −0.4	L2	L3	L5	L6			L17	T1	T2	T3
										P	YSR	YSRW				
8	16.5	4.5	12.3	8.7	2.2	100	50.1	6	11.5	0	16	16.2	52	5	2	4
12	20.5	5	14.7	9.8	3	125	62.1	8	16	0	11.3	12.3	65	6	2	5

Profile barrel

∅ 8



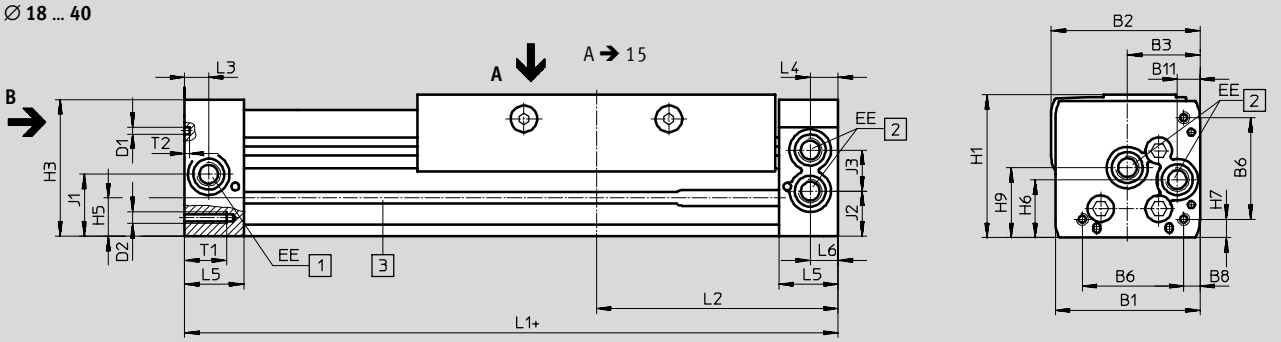
∅ 12



1 Sensor slot for proximity sensor

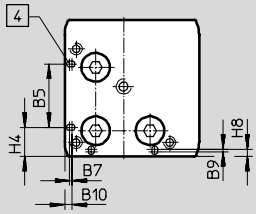
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

∅ 18 ... 40

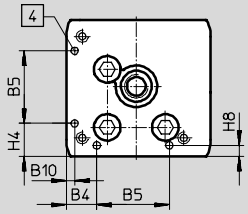


View B

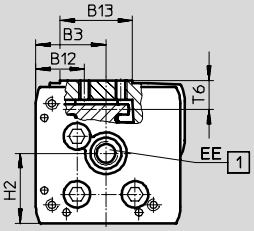
∅ 18



∅ 25 ... 40



∅ 18 ... 40



\+ plus stroke length
1 Supply port optional on two faces
2 Supply port optional on two faces, for supplying from one end
3 Sensor slot for proximity sensor
4 Mounting hole for foot mounting HPC

∅ [mm]	B1	B2	B3 ±0.05	B4 ±0.1	B5 ±0.05	B6 ±0.1	B7	B8 ±0.1	B9	B10	B11 ±0.05	B12	B13
18	44.5	46.3	19.5	8.8	21	31	0.3	3.8	0.4	2.4	5.5	19.3	20
25	59.8	61.6	30	12.65	30	42	–	6.65	–	3.5	9.3	20.15	30
32	73	75.5	38.5	5.7	63.1	57.5	–	8.5	–	14	14.9	20.5	35
40	91	94.5	45	17.2	55	65	–	12.2	–	8	16.5	19.8	45

∅ [mm]	D1 ∅ ±0.05	D2	EE	H1	H2	H3	H4 ±0.1	H5	H6 ±0.1	H7	H8 ±0.1	H9 ±0.1
18	2	M4	M5	49.8	23.1	48.3	10.3	13.4	20	5.3	2.4	25.2
25	3	M5	G1⁄8	58.5	29	56.5	13	15.8	24	7	4.5	29
32	3	M6	G1⁄8	73	30	71.5	5.7	17	27.7	8.5	14	35.2
40	4	M6	G1⁄4	88	41.5	85	17.2	25	36.5	12.2	8	44

∅ [mm]	J1	J2 ±0.1	J3 ±0.1	L1 +0.9/–0.2	L2	L3	L4	L5	L6	T1	T2	T6
18	20	16.5	11	150	74.5	5.7	5.8	15	5.5	9	2	10.7
25	26.1	18.6	17	200	100	10.5	10.6	24.5	10.6	17.5	2	12
32	30	22	18.5	250	124.8	14.5	14.5	30.5	14.5	15	2	13.8
40	35	26	26	300	150	14.6	14.6	33.5	14.6	20	3	16.8

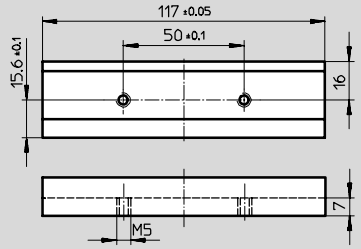
Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

Slide

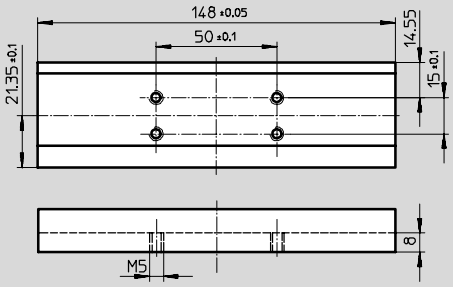
Ø 18

View A



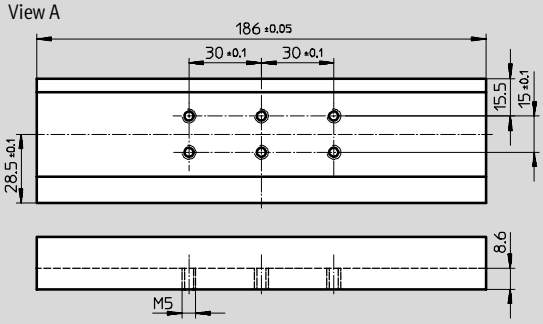
Ø 25

View A



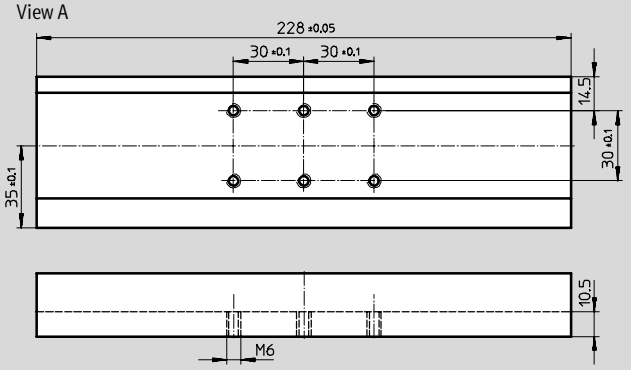
Ø 32

View A



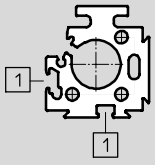
Ø 40

View A

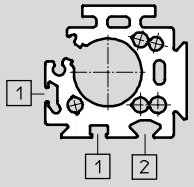


Profile barrel

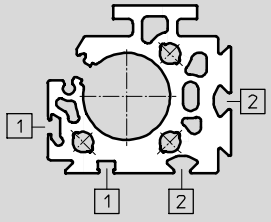
Ø 18



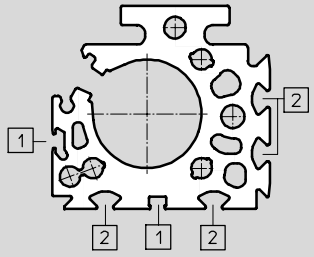
Ø 25



Ø 32



Ø 40

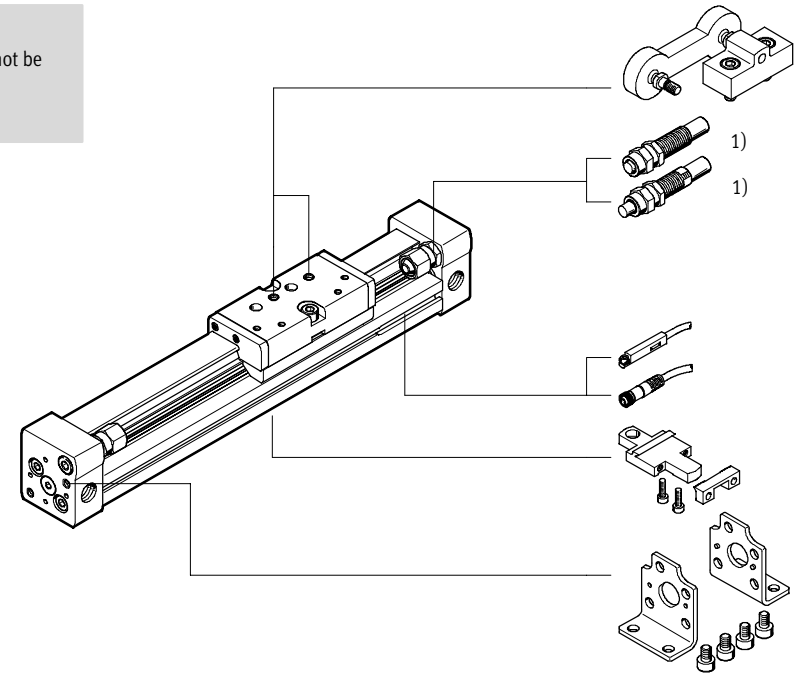


1 Sensor slot for proximity sensor
2 Mounting slot for slot nut

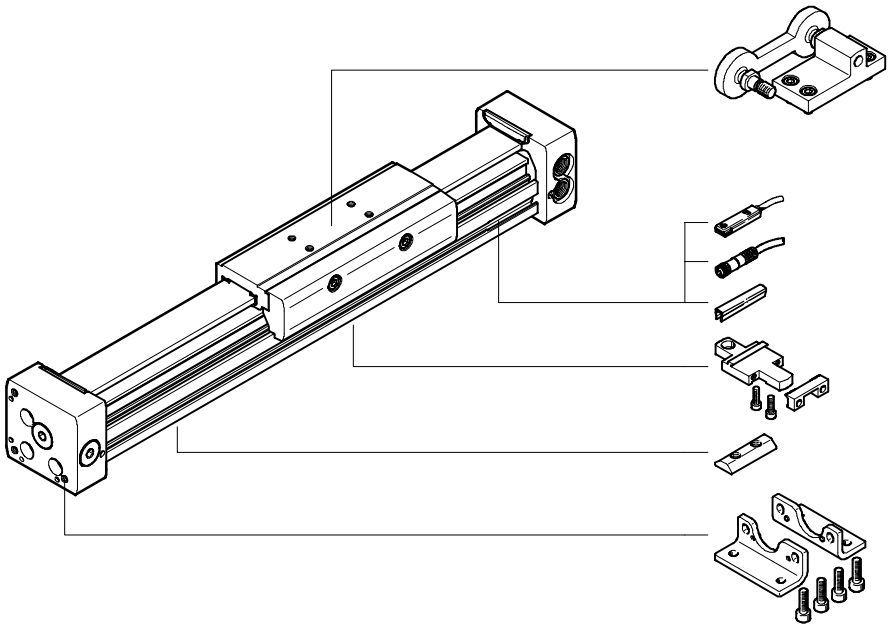
Order code
Mandatory data/options

DGC-8/-12

Note
1) End stops must not be removed.



DGC-18 ... 40



M Mandatory data								O Options	
Module No.	**Function**	**Piston ∅**	**Stroke**	**Guide**	**Cushioning**	**Position sensing**		**Accessories**	**User's manual**
530 906 530 907 532 446 532 447 532 448 532 449	DGC	8 12 18 25 32 40	1 … 5,000	G	P PPV YSR YSRW	A		F, …M, FK, …B, …G, …H, …I, …J, …V, …L	O
Order example									
530 906	**DGC**	– **8**	– **300**	– **G**	– **P**	– **A**	+	**F2M**	–

Ordering table

Size			8	12	18	25	32	40	Condi-tions	Code	Enter code
M	Module No.		**530 906**	**530 907**	**532 446**	**532 447**	**532 448**	**532 449**			
	Function		Linear drive							**DGC**	DGC
	Piston ∅	[mm]	8	12	18	25	32	40		**-...**	
	Stroke	[mm]	1 … 1,500	1 … 2,000	1 … 3,000	1 … 5,000			1	**-...**	
	Guide		Basic design							**-G**	-G
	Cushioning		Flexible cushioning rings/plates at both ends		–	–	–	–		**-P**	
			–	–	Pneumatic cushioning, adjustable at both ends					**-PPV**	
			Shock absorber, self-adjusting		–	–	–	–		**-YSR**	
			Shock absorber, self-adjusting, progressive		–	–	–	–		**-YSRW**	
	Position sensing		For proximity sensing							**-A**	-A
O	Accessories		Supplied loose (can be retrofitted)							**+**	+
	Foot mounting		1							**F**	
	Profile mounting		1 … 9							**...M**	
	Driver		Alignment compensator							**FK**	
	Slot nut for mounting slot		–	–	–	1 … 9				**...B**	
	Proximity sensor	Cable, 2.5 m	1 … 9							**...G**	
		Plug M8	1 … 9							**...H**	
	Proximity sensor, contactless, PNP	Cable, 2.5 m	1 … 9							**...I**	
		Plug M8	1 … 9							**...J**	
	Plug socket with cable	M8, 2.5 m	1 … 9							**...V**	
	Slot cover for sensor slot		–	–	1 … 9					**...L**	
	User's manual		Express waiver – no user manual to be included							**-O**	

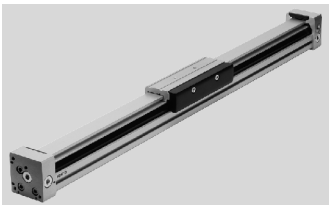
1 **Stroke** Size 25, 32, 40: Strokes up to 8,500 mm on request.

Transfer order code

	DGC	–		–		–	**G**	–		–	**A**	+	

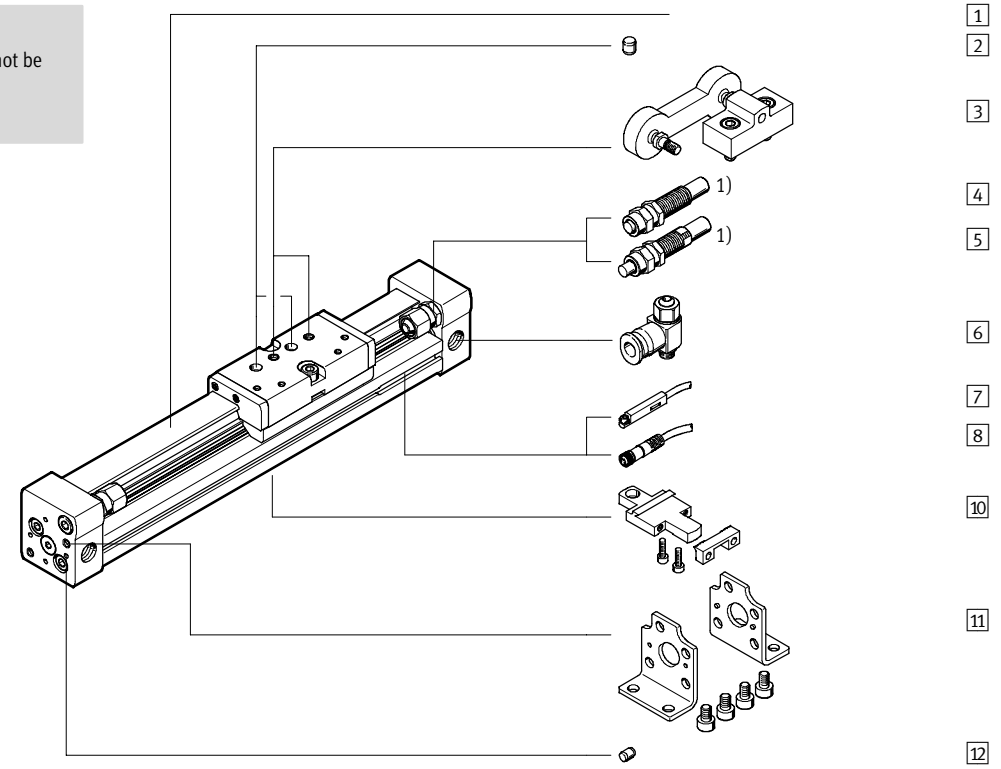
Ordering data – Wearing parts kits

Piston ∅ [mm]	Part No.	Type
8	665 333	DGC-8-G
12	665 334	DGC-12-G
18	684 407	DGC-18
25	684 408	DGC-25
32	684 409	DGC-32
40	684 410	DGC-40

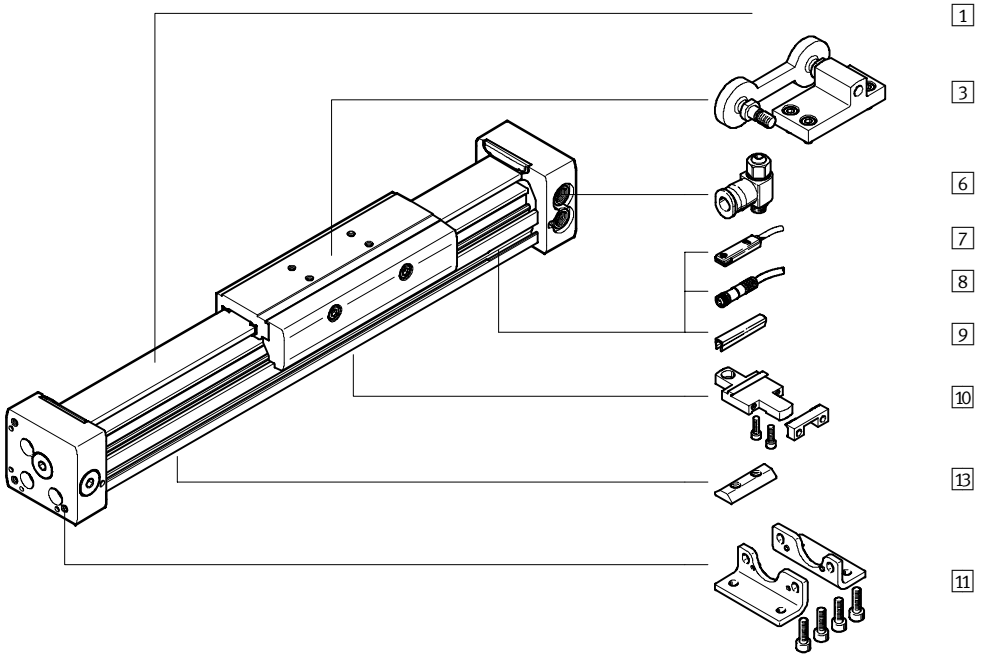


DGC-8/-12

Note
1) End stops must not be removed.



DGC-18 ... 40



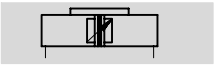
Variants and accessories				
	Type	**For piston ∅**	**Brief description**	**➔ Page**
1	Linear drive DGC-G	8 … 40	Linear drive without accessories, basic design	8
2	Centering pin[1)] ZBS	8, 12	For centering loads and attachments on the slide	-71
3	Driver FK	8 … 40	Compensates inaccuracies in the mounting of the linear drive and external guide	-66
–	Cushioning P	8, 12	Non-adjustable, flexible cushioning. Used only at low speeds.	17
–	Cushioning PPV	18 … 40	Adjustable pneumatic end-position cushioning. Used at medium speeds.	17
4	Shock absorber YSR	8, 12	Self-adjusting hydraulic shock absorber with spring return and linear cushioning characteristic	17
5	Shock absorber YSRW	8, 12	Self-adjusting hydraulic shock absorber with spring return and progressive cushioning characteristic	17
6	One-way flow control valve GRLA	8 … 40	For speed regulation	-71
7	Proximity sensor G/H/I/J	8 … 40	For sensing the slide position	-72
8	Plug socket with cable V	8 … 40	For proximity sensor	-72
9	Slot cover L	18 … 40	For protecting against ingress of dirt and securing proximity sensor cables	-71
10	Profile mounting M	8 … 40	Simple and precise mounting option via dovetail connection	-65
11	Foot mounting F	8 … 40	For mounting on end cap	-61
12	Centering pin[1)] ZBS	8, 12	For centering the drive without foot mountings (user-specific)	-71
13	Slot nut B	25 … 40	For mounting attachments	-71

1) Included in the scope of delivery for the drive.

Linear Actuators DGC-GF, With Plain-bearing Guide

Technical data

Function

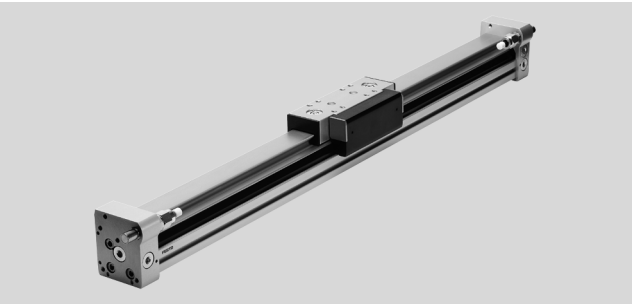


Diameter
18 … 40 mm

Stroke length
1 … 5,000 mm

www.festo.com/en/
Spare_parts_service

Wearing parts kits
➔ 29



General technical data					
Piston ∅		18	25	32	40
Stroke	[mm]	1 … 3,000	1 … 5,000[1]		
Pneumatic connection		M5	G1⁄8		G1⁄4
Mode of operation		Double-acting			
Design		Rodless drive			
Driver principle		Slotted cylinder, mechanically coupled			
Guide		Plain-bearing guide			
Assembly position		Any			
Cushioning	PPV	Adjustable at both ends			
➔ 23	YSR…	Self-adjusting at both ends			
Cushioning length with PPV cushioning	[mm]	16.5	15.5	17.5	29.5
Position sensing		For proximity sensing			
Type of mounting		Profile mounting			
		Foot mounting			
		Direct mounting			
Max. speed	[m/s]	3			
Stroke tolerance	[mm]	0 … 2.5			

1) Strokes up to 8,500 mm on request.

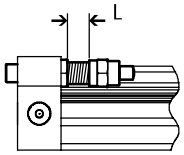
Operating and environmental conditions					
Piston ∅		18	25	32	40
Operating pressure	[bar]	2 … 8			1.5 … 8
Operating medium		Filtered compressed air, lubricated or unlubricated			
Ambient temperature[1]	[°C]	–10 … +60			
Corrosion resistance class CRC[2]		2			

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 normal industrial environment or media such as coolants or lubricating agents.

Forces [N] and impact energy [Nm]				
Piston ∅	18	25	32	40
Theoretical force at 6 bar	153	295	483	754
Perm. impact energy at end positions	➔ 23			

Weights [g]				
Piston ∅	18	25	32	40
Basic weight with 0 mm stroke	763	1,609	2,532	5,252
Additional weight per 10 mm stroke	23	35	55	76
Moving load	267	526	824	1,725

Adjustable end-position range L [mm]



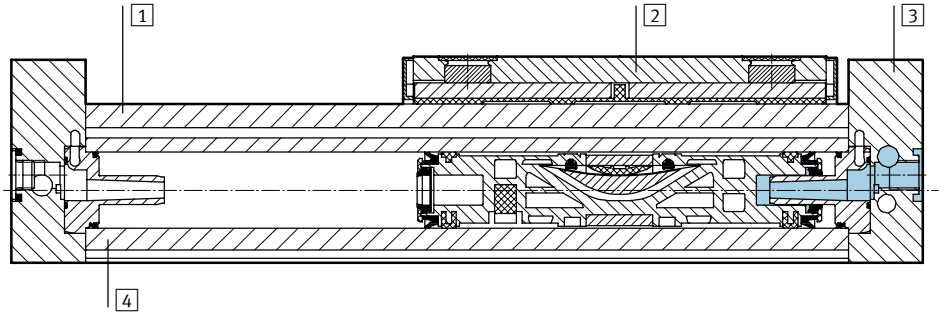
Note

The permissible kinetic energy decreases if the stroke is reduced with PPV adjustable cushioning at both ends.

Piston ∅	18	25	32	40
Cushioning PPV	0 ... 2	0 ... 4	0 ... 5	
Cushioning YSR/YSRW	0 ... 10			

Materials

Sectional view

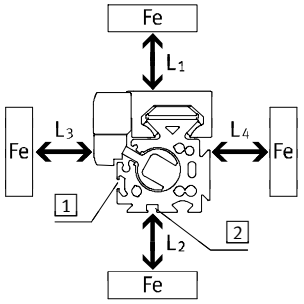


Cylinder		
1	Guide rail	Anodised aluminium
2	Slide	Anodised aluminium
3	End cap	Anodised aluminium
4	Cylinder barrel	Anodised aluminium
–	Piston seal	Polyurethane
–	Sealing band/cover strip	Polyurethane
–	Slide elements	Polyacetate

Influence of ferritic materials on proximity sensors

Ferritic materials (steel parts or panels) directly next to the proximity sensors can cause sensing malfunctions. The following safety distances must be observed.

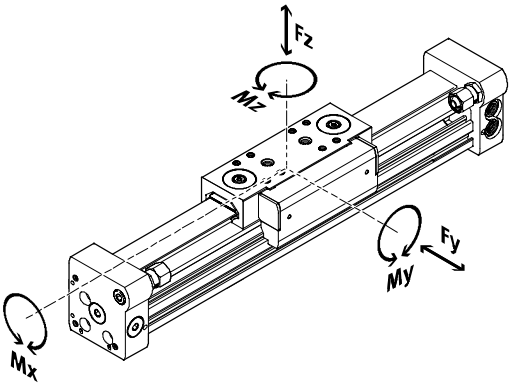
The distance depends on the position of the proximity sensor (see 1 and 2).



Piston ∅			8	12	18	25	32	40
Distance L1	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0
Distance L2	1	[mm]	20	10	10	10	0	0
	2	[mm]	–	–	25	25	25	25
Distance L3	1	[mm]	30	25	25	25	25	25
	2	[mm]	–	–	10	10	0	0
Distance L4	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0

Characteristic load values

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



Note
In order to avoid frictional restraint of the guide in the case of the drive DGC-GF with plain-bearing guide when used in vertical mode and with a high torque load, the variant with the recirculating ball bearing guide DGC-KF is recommended.
➔ 32

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

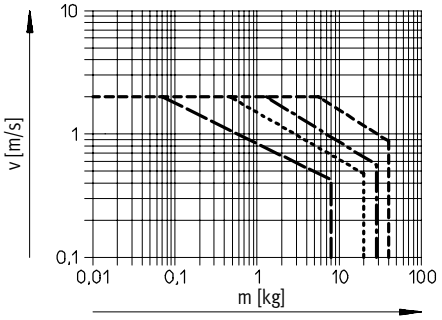
$$\frac{Fy}{Fy_{max.}} + \frac{Fz}{Fz_{max.}} + \frac{Mx}{Mx_{max.}} + \frac{My}{My_{max.}} + \frac{Mz}{Mz_{max.}} \leq 1$$

Permissible forces and torques referred to a speed of travel of 0.2 m/s					
Piston ∅		18	25	32	40
$Fy_{max.}$	[N]	440	640	900	1,380
$Fz_{max.}$	[N]	540	1,300	1,800	2,000
$Mx_{max.}$	[Nm]	3.4	8.5	15	28
$My_{max.}$	[Nm]	20	40	70	110
$Mz_{max.}$	[Nm]	8.5	20	33	54

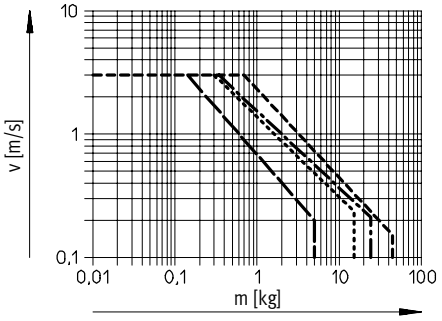
Selection and ordering aid
ProDrive
www.festo.com/en/engineering

Maximum permissible piston speed v as a function of working load m

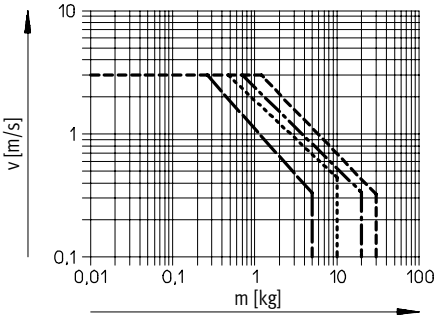
with PPV cushioning



with YSR cushioning



with YSRW cushioning



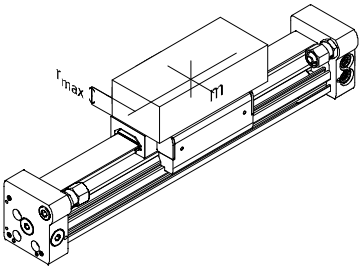
— — — ∅ 18
- - - - - - ∅ 25
— · — · — ∅ 32
— — — — — ∅ 40

Operating range of cushioning

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

Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of at least 0.03 mm.



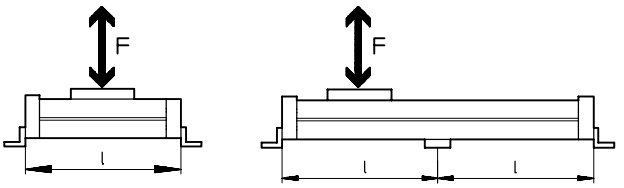
Data for horizontal assembly position:

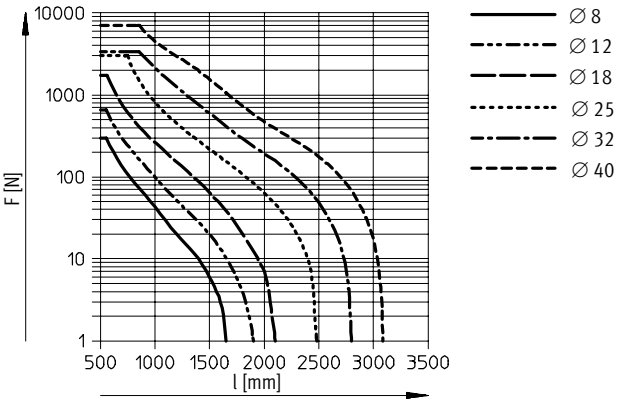
Piston ∅	8	12	18	25	32	40
Distance $r_{max.}$ [mm]	25	35	35	50	50	50

Number of profile mountings MUC dependent on force due to load F and support span l

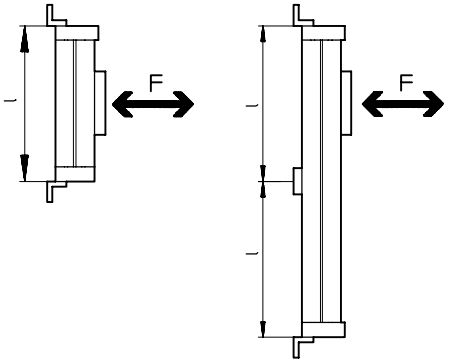
In order to limit deflection in the case of large strokes, the drive may need to be supported. The following diagrams serve to determine the maximum permissible support span as a function of the assembly position and the perpendicular force.

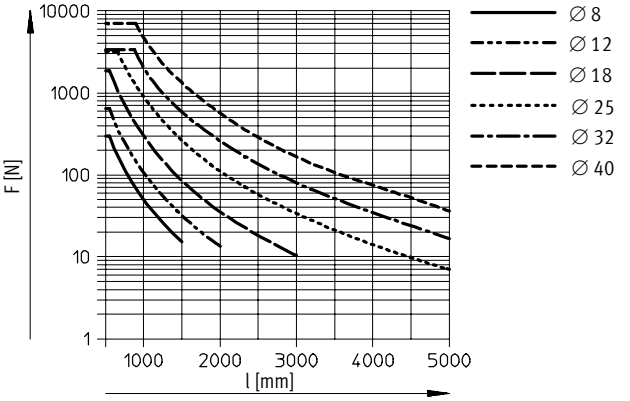
Horizontal assembly position





Vertical assembly position





Example:

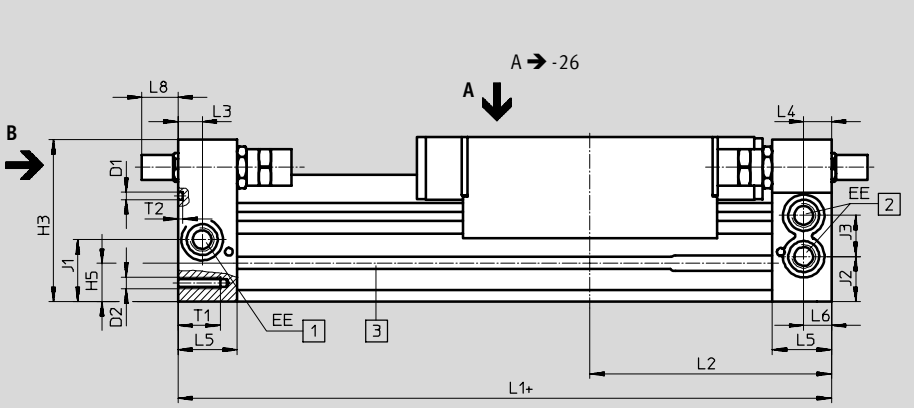
The drive DGC-25-1500 is subjected to a force of 300 N in horizontal assembly position.

The drive has an overall length of:
l = stroke length + L1 (see dimensions)
= 1,500 mm + 200 mm
= 1,700 mm

According to the diagram, the max. support span is 1,300 mm for the drive DGC-25 with a force of 300 N.

In this example, profile mounting attachments are required as the max. support span (1,300 mm) is smaller than the overall length of the drive (1,700 mm).

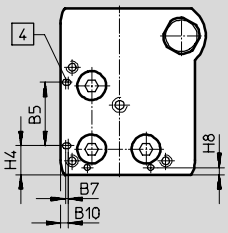
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



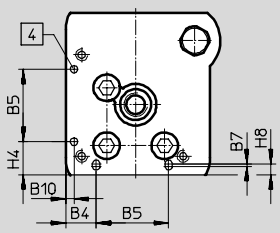
\+ plus stroke length
1 Supply port optional on two faces
2 Supply port optional on two faces, for supplying from one end
3 Sensor slot for proximity sensor
4 Mounting hole for foot mounting HPC

View B

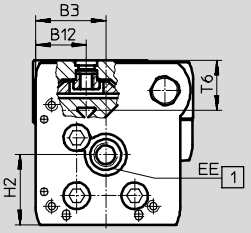
∅ 18



∅ 25 ... 40



∅ 18 ... 40



∅ [mm]	B1	B2	B3 ±0.05	B4 ±0.1	B5 ±0.05	B6 ±0.1	B7	B8 ±0.1	B9	B10	B11 ±0.05	B12	B13 ±0.1	D1 ∅ ±0.05
18	44.5	49.9	19.5	8.8	21	31	0.8	3.8	1	2.4	5.5	15.5	39	2
25	59.8	66	30	12.65	30	42	1	6.65	1	3.5	9.3	21	53.5	3
32	73	79	38.5	5.7	63.1	57.5	–	8.5	1.5	14	14.9	18	66.5	3
40	91	98.5	45	17.2	55	65	–	12.2	2	8	16.5	24.8	80.5	4

∅ [mm]	D2	EE	H1	H2 ±0.1	H3	H4 ±0.1	H5	H6 ±0.1	H7 ±0.1	H8 ±0.1	H9 ±0.1	H10 ±0.1	J1 ±0.1
18	M4	M5	56.3	23.1	55	9.6	13.4	20	4.6	2.4	25.2	46	20
25	M5	G⅛	68	29	67	13.65	15.8	24	7.65	4.5	29	55.5	26.1
32	M6	G⅛	78.5	30	77	5.7	17	27.7	8.5	14	35.2	63.8	30
40	M6	G¼	99.5	41.5	97.5	17.2	25	36.5	12.2	8	44	81.5	35

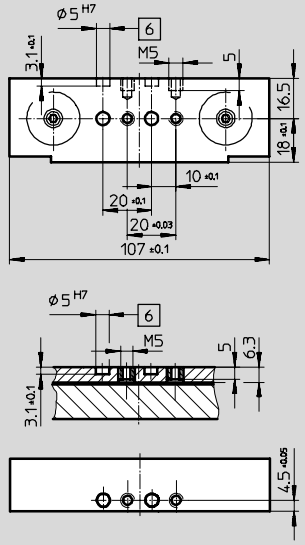
∅ [mm]	J2 ±0.1	J3 ±0.1	L1 +0.9/–0.2	L2	L3	L4	L5	L6	L8 PPV	L8 YSR	L8 YSRW	T1	T2	T6
18	16.5	11	150	74.5	5.7	5.8	15	5.5	0	15.9	19.4	9	2	17.1
25	18.6	17	200	100	10.5	10.6	24.5	10.6	0	12.5	15	17.5	2	20.5
32	22	18.5	250	124.8	14.5	14.5	30.5	14.5	0	8.5	15.5	15	2	21.3
40	26	26	300	150	14.6	14.6	33.5	14.6	0	12.8	21	20	3	30.7

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Slide

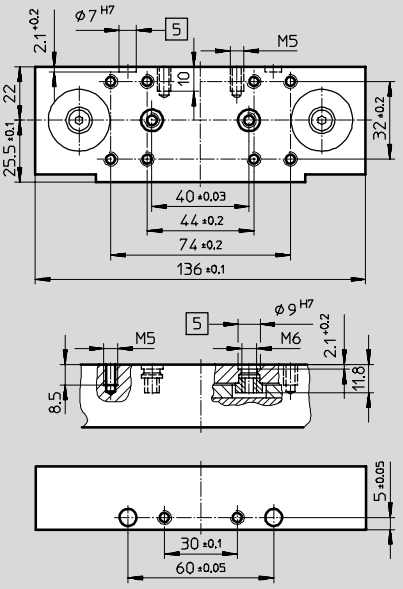
∅ 18

View A



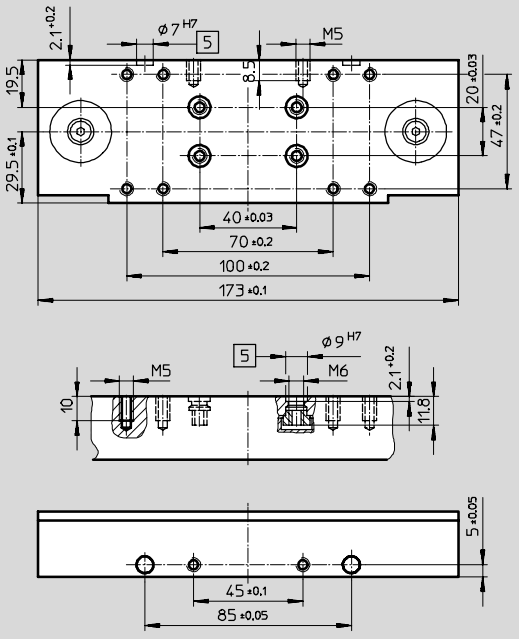
∅ 25

View A



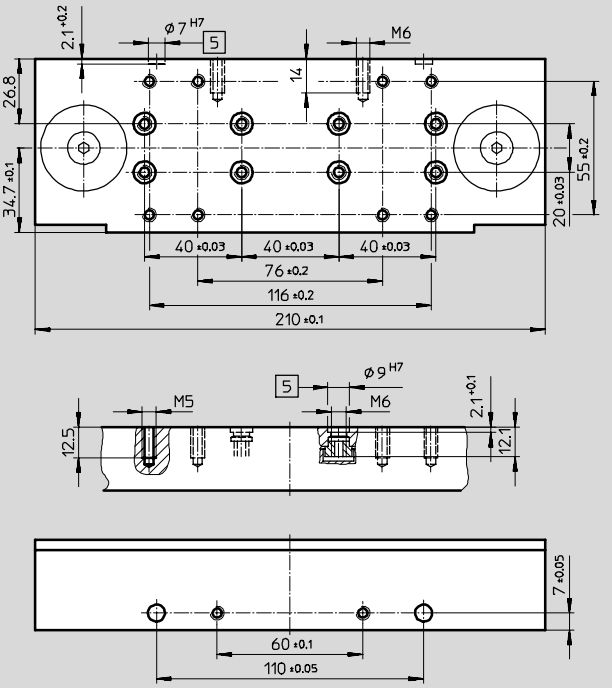
∅ 32

View A



∅ 40

View A

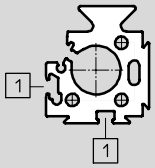


5 Hole for centring sleeve ZBH

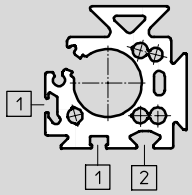
6 Hole for centring pin ZBS

Profile barrel

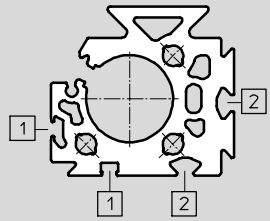
∅ 18



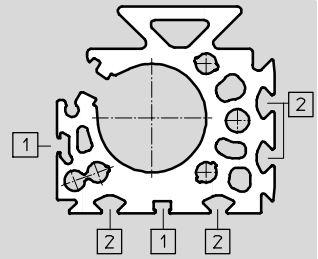
∅ 25



∅ 32



∅ 40

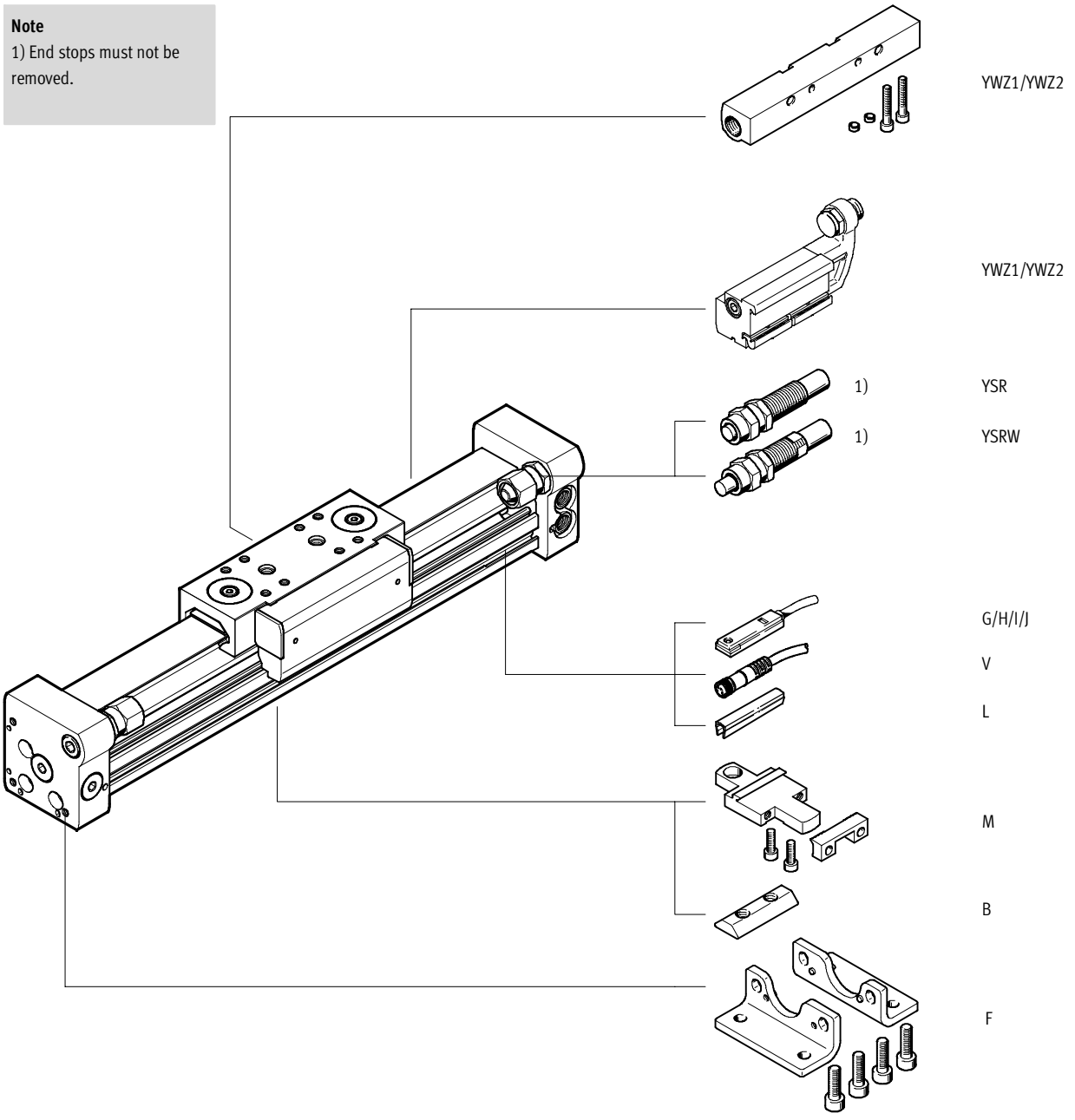


1 Sensor slot for proximity sensor
2 Mounting slot for slot nut

Order code
Mandatory data/options

Note

1) End stops must not be removed.



Linear Actuators DGC-GF, with plain-bearing guide

Ordering data – Modular products

FESTO

M Mandatory data							O Options	
Module No.	**Function**	**Piston ∅**	**Stroke**	**Guide**	**Cushioning**	**Position sensing**	**Accessories**	**User's manual**
532 446 532 447 532 448 532 449	DGC	18 25 32 40	1 … 5,000	GF	PPV YSR YSRW	A	F, …M, …B, YWZ1, YWZ2, …G, …H, …I, …J, …V, …L	O
Order example								
532 446	**DGC**	– **18**	– **250**	– **GF**	– **PPV**	– **A**	+ **F2M2I2V**	–

Ordering table

Size			18	25	32	40	Conditions	Code		Enter code
M	Module No.		**532 446**	**532 447**	**532 448**	**532 449**				
	Function		Linear drive					**DGC**		DGC
	Piston ∅	[mm]	18	25	32	40		**-...**		
	Stroke	[mm]	1 … 3,000	1 … 5,000			1	**-...**		
	Guide		Plain-bearing guide					**-GF**		-GF
	Cushioning		Pneumatic cushioning, adjustable at both ends					**-PPV**		
			Shock absorber, self-adjusting					**-YSR**		
			Shock absorber, self-adjusting, progressive					**-YSRW**		
	Position sensing		For proximity sensing					**-A**		-A
O	Accessories		Supplied loose (can be retrofitted)					**+**		+
	Foot mounting		1					**F**		
	Profile mounting		1 … 9					**...M**		
	Slot nut for mounting slot		–	1 … 9				**...B**		
	Mechanical end-position limiter		Variable end position, at one end				2	**YWZ1**		
			Variable end position, at both ends				2	**YWZ2**		
	Proximity sensor	Cable, 2.5 m	1 … 9					**...G**		
		Plug M8	1 … 9					**...H**		
	Proximity sensor, contactless, PNP	Cable, 2.5 m	1 … 9					**...I**		
		Plug M8	1 … 9					**...J**		
	Plug socket with cable	M8, 2.5 m	1 … 9					**...V**		
	Slot cover for sensor slot		1 … 9					**...L**		
	User's manual		Express waiver – no user manual to be included					**-O**		

1 **Stroke** Size 25, 32, 40: Strokes up to 8,500 mm on request.

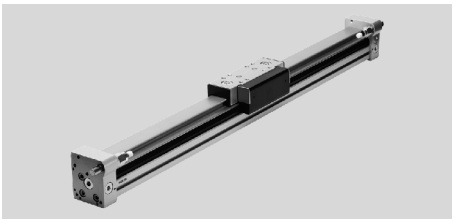
2 **YWZ1, YWZ2** Only with YSR or YSRW cushioning.

Transfer order code

	DGC	–		–		–	**GF**	–		–	**A**	+

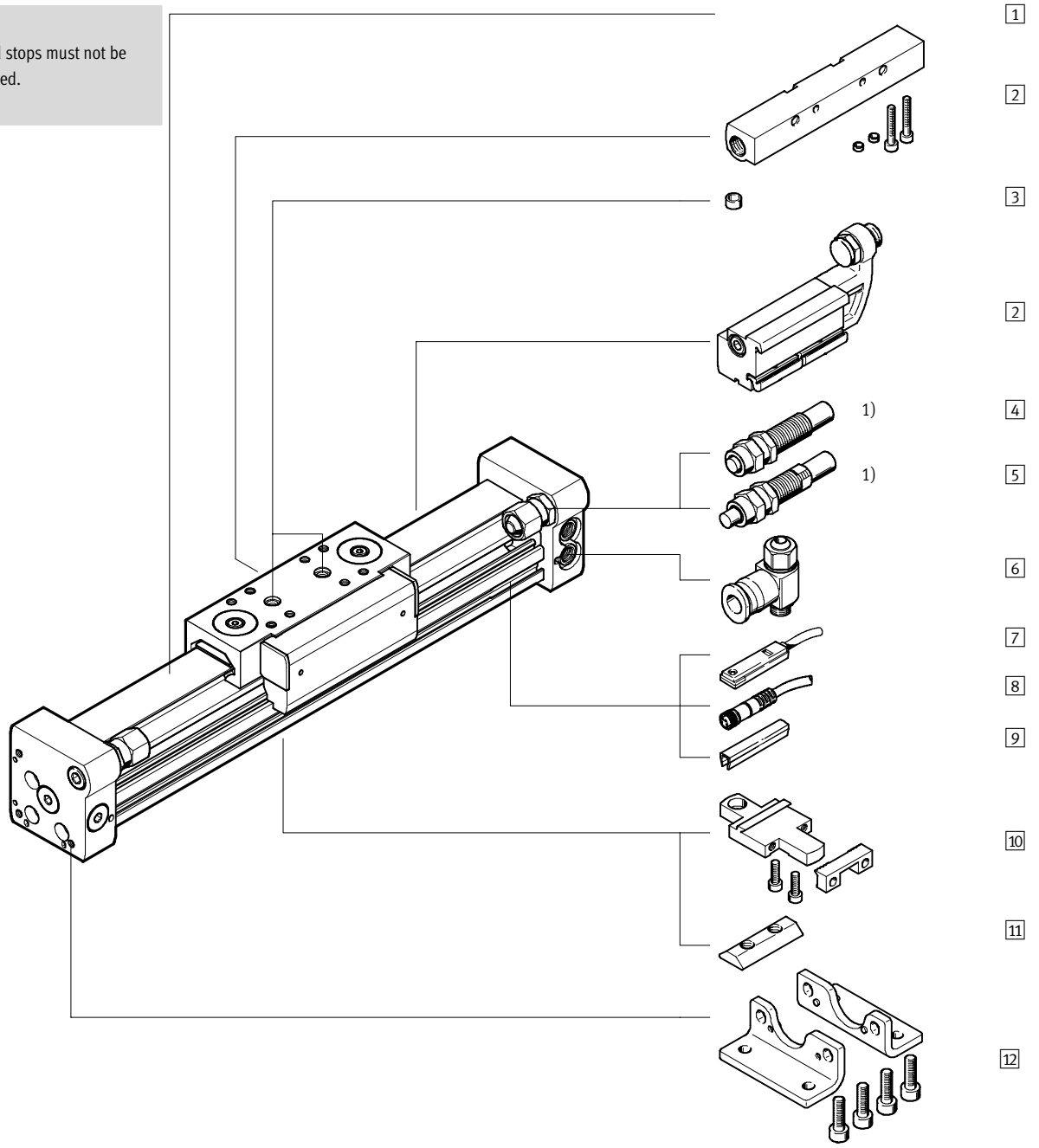
Ordering data – Wearing parts kits

Piston ∅ [mm]	Part No.	Type	Piston ∅ [mm]	Part No.	Type
18	684 407	DGC-18	32	684 409	DGC-32
25	684 408	DGC-25	40	684 410	DGC-40



Note

1) End stops must not be removed.



Variants and accessories				
	Type	**For piston ∅**	**Brief description**	**➔ Page**
1	Linear drive DGC-GF	18 … 40	Linear drive without accessories, plain-bearing guide	20
2	Mechanical end-position limiter YWZ	18 … 40	For variable end-position adjustment, e.g. with format adjustments	-67
3	Centering pin/sleeve[1)] ZBS/ZBH	18 … 40	For centering loads and attachments on the slide	-71
–	Cushioning PPV	18 … 40	Adjustable pneumatic end-position cushioning. Used at medium speeds.	29
4	Shock absorber YSR	18 … 40	Self-adjusting hydraulic shock absorber with spring return and linear cushioning characteristic	29
5	Shock absorber YSRW	18 … 40	Self-adjusting hydraulic shock absorber with spring return and progressive cushioning characteristic	29
6	One-way flow control valve GRLA	18 … 40	To regulate speed	-71
7	Proximity sensor G/H/I/J	18 … 40	For sensing the slide position	-72
8	Plug socket with cable V	18 … 40	For proximity sensor	-72
9	Slot cover L	18 … 40	For protecting against ingress of dirt and securing proximity sensor cables	-71
10	Profile mounting M	18 … 40	Simple and precise mounting option via dovetail connection	-65
11	Slot nut B	25 … 40	For mounting attachments	-71
12	Foot mounting F	18 … 40	For mounting on end cap	-61

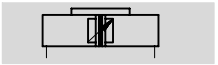
1) Included in the scope of delivery for the drive.

Linear Actuators DGC-KF, With Recirculating Ball Bearing Guide

Technical data

FESTO

Function



Diameter
8 … 40 mm

Stroke length
1 … 5,000 mm

www.festo.com/en/
Spare_parts_service

Wearing parts kits
➔ 45

General technical data							
Piston ∅		8	12	18	25	32	40
Stroke	[mm]	1 … 1,300	1 … 1,900	1 … 3,000	1 … 5,000[1]		
Pneumatic connection		M5			G1⁄8		G1⁄4
Mode of operation		Double-acting					
Design		Rodless drive					
Driver principle		Slotted cylinder, mechanically coupled					
Guide		External recirculating ball bearing guide					
Assembly position		Any					
Cushioning	P	Non-adjustable at either end		–			
➔ 35	PPV	–		Adjustable at both ends			
	YSR…	Self-adjusting at both ends					
Cushioning length with PPV cushioning	[mm]	–		16.5	15.5	17.5	29.5
Position sensing		For proximity sensing					
Type of mounting		Profile mounting					
		Foot mounting					
		Direct mounting					
Max. speed	[m/s]	1	1.2	3			
Repetition accuracy	[mm]	0.02 (with shock absorber YSR/YSRW)					
Stroke tolerance	[mm]	0 … 1.7		0 … 2.5			

1) Strokes up to 8,500 mm on request.

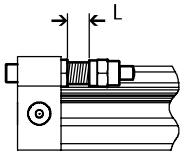
Operating and environmental conditions							
Piston ∅		8	12	18	25	32	40
Operating pressure	[bar]	2.5 … 8		2 … 8			1.5 … 8
Operating medium		Filtered compressed air, lubricated or unlubricated					
Ambient temperature[1]	[°C]	–10 … +60					
Corrosion resistance class CRC[2]		1					

1) Note operating range of proximity sensors
2) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Forces [N]							
Piston ∅		8	12	18	25	32	40
Theoretical force at 6 bar		30	68	153	295	483	754
Perm. impact energy at end positions		➔ 35					

Weights [g]						
Piston ∅	8	12	18	25	32	40
Basic weight with 0 mm stroke	225	391	975	2,113	2,837	6,996
Additional weight per 10 mm stroke	11	16	31	49	74	117
Moving load	77	149	331	732	1,146	2,330

Adjustable end-position range L [mm]



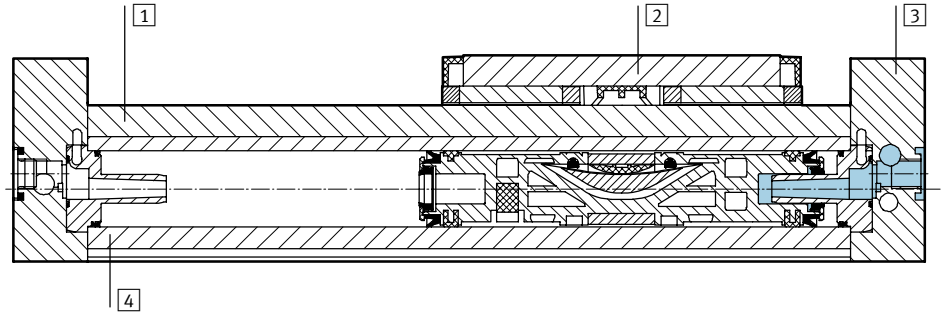
Note

The permissible kinetic energy decreases if the stroke is reduced with PPV adjustable cushioning at both ends.

Piston ∅	8	12	18	25	32	40
Cushioning P/PPV	0 … 5		0 … 2	0 … 4	0 … 5	
Cushioning YSR/YSRW	0 … 10		0 … 20	0 … 25		

Materials

Sectional view

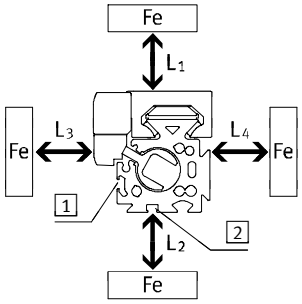


Cylinder		
1	Guide rail	High-alloy steel
2	Slide	High-alloy steel
3	End cap	Anodised aluminium
4	Cylinder barrel	Anodised aluminium
–	Piston seal	Polyurethane
–	Sealing band/cover strip	Polyurethane
–	Note on materials	Free of copper, PTFE and silicone

Influence of ferritic materials on proximity sensors

Ferritic materials (steel parts or panels) directly next to the proximity sensors can cause sensing malfunctions. The following safety distances must be observed.

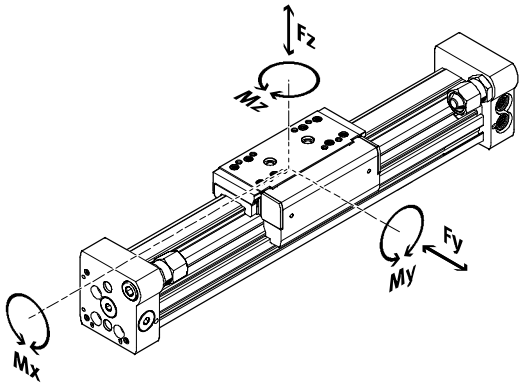
The distance depends on the position of the proximity sensor (see 1 and 2).



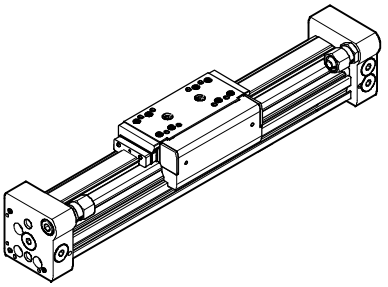
Piston ∅			8	12	18	25	32	40
Distance L1	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0
Distance L2	1	[mm]	20	10	10	10	0	0
	2	[mm]	–	–	25	25	25	25
Distance L3	1	[mm]	30	25	25	25	25	25
	2	[mm]	–	–	10	10	0	0
Distance L4	1	[mm]	0	0	0	0	0	0
	2	[mm]	–	–	0	0	0	0

Characteristic load values for linear drive with recirculating ball bearing guide and guide

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



GP – Protected guide



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

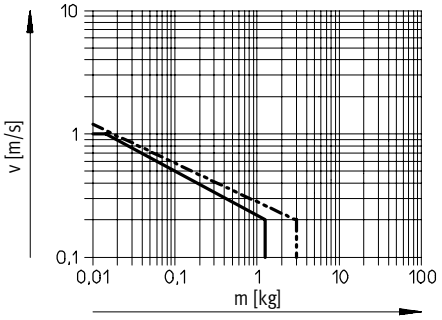
$$\frac{Fy}{Fy_{max.}} + \frac{Fz}{Fz_{max.}} + \frac{Mx}{Mx_{max.}} + \frac{My}{My_{max.}} + \frac{Mz}{Mz_{max.}} \leq 1$$

Permissible forces and torques							
Piston ∅		8	12	18	25	32	40
$Fy_{max.}$	[N]	300	650	1,850	3,050	3,310	6,890
$Fz_{max.}$	[N]	300	650	1,850	3,050	3,310	6,890
$Mx_{max.}$	[Nm]	1.7	3.5	16	36	54	144
$My_{max.}$	[Nm]	4.5	10	51	97	150	380
$Mz_{max.}$	[Nm]	4.5	10	51	97	150	380

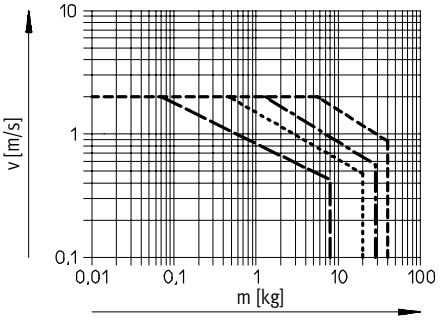
Selection and ordering aid
ProDrive
www.festo.com/en/engineering

Maximum permissible piston speed v as a function of working load m

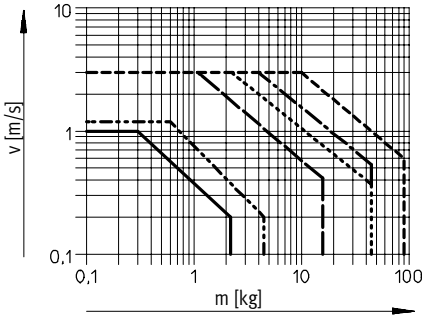
∅ 8/12 with P cushioning



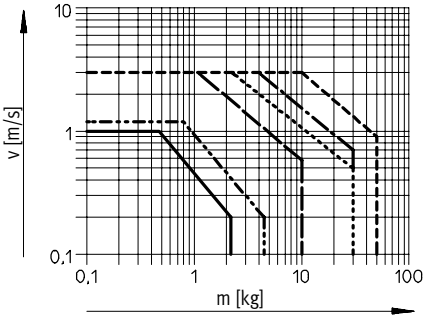
∅ 18 ... 40 with PPV cushioning



∅ 8 ... 40 with YSR cushioning



∅ 8 ... 40 with YSRW cushioning



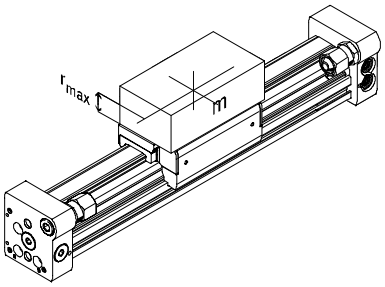
∅ 8 ∅ 25
∅ 12 ∅ 32
∅ 18 ∅ 40

Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load.

Operating range of cushioning

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



Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of at least:
with piston ∅ 8 and 12: 0.03 mm
with piston ∅ 18 ... 40: 0.01 mm

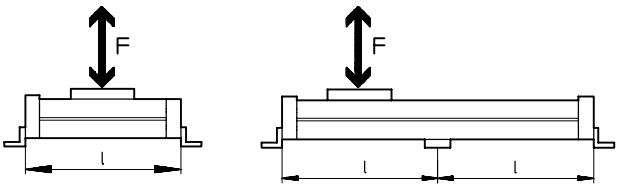
The data applies to a horizontal mounting position:

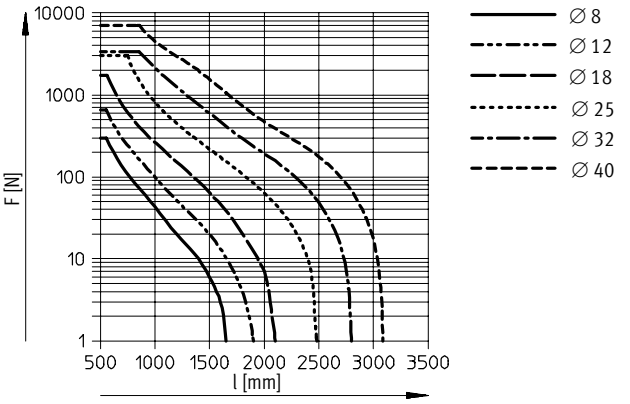
Piston ∅		8	12	18	25	32	40
Distance $r_{max.}$	[mm]	25	35	35	50	50	50

Number of profile mountings MUC dependent on force due to load F and support span l

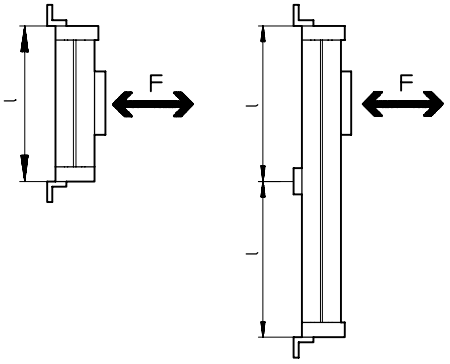
In order to limit deflection in the case of large strokes, the drive may need to be supported. The following diagrams serve to determine the maximum permissible support span as a function of the mounting position and the perpendicular force.

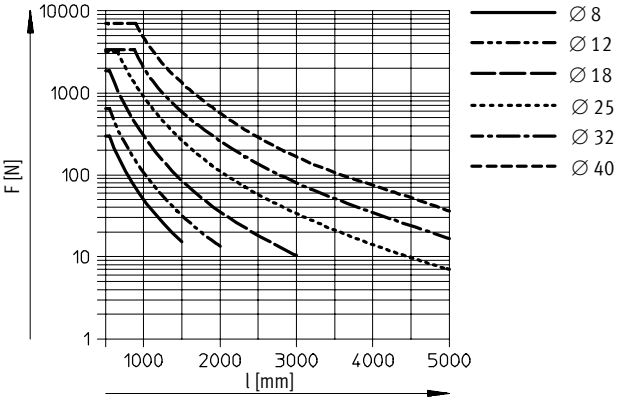
Horizontal assembly position





Vertical assembly position





Example:

The drive DGC-25-1500 is subjected to a force of 300 N in horizontal assembly position.

The drive has an overall length of:
l = stroke length + L1 (see dimensions)
= 1,500 mm + 200 mm
= 1,700 mm

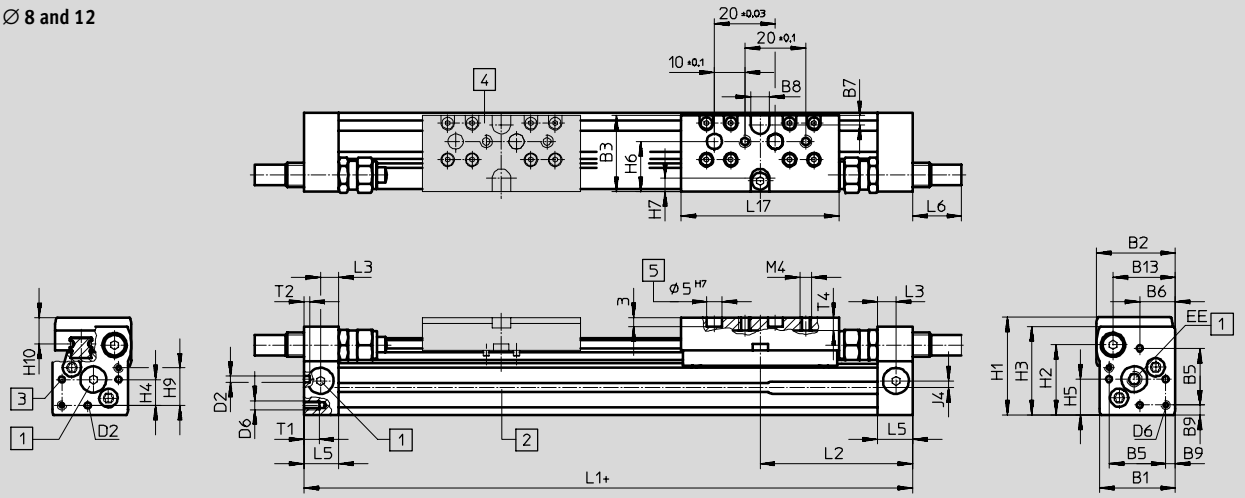
According to the diagram, the max. support span is 1,300 mm for the drive DGC-25 with a force of 300 N.

In this example, profile mounting attachments are required as the max. support span (1,300 mm) is smaller than the overall length of the drive (1,700 mm).

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

∅ 8 and 12



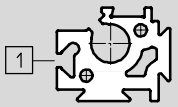
\+ plus stroke length
1 Supply port
options on three faces
2 Slot for proximity sensor
3 Mounting hole for foot
mounting or centring pin
4 Additional slide KL
5 Hole for centring pin ZBS

∅ [mm]	B1	B2	B3	B5	B6	B7	B8 ±0.05	B9 ±0.1	B13	D2 ∅ H8	D6	EE	H1	H2	H3	H4	H5
8	25	26	25	18.6	11.7	3	6	3.2	20.5	2	M3	M5	32	23	29	8.5	11.7
12	30.2	31	31	20.6	13.5	3	8	4.8	25	2	M4	M5	37.5	28.5	34.5	8.7	13.5

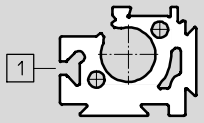
∅ [mm]	H6	H7	H9	H10	J4	L1 +0.5/ −0.4	L2	L3	L5	L6 P	L6 YSR	L6 YSRW	L17	T1	T2	T4
8	16.5	4.5	12.3	8.7	2.2	100	50.1	6	11.5	0	16	16.2	52	5	2	4.3
12	20.5	5	14.7	9.8	3	125	62.1	8	16	0	11.3	12.3	65	6	2	5

Profile barrel

∅ 8



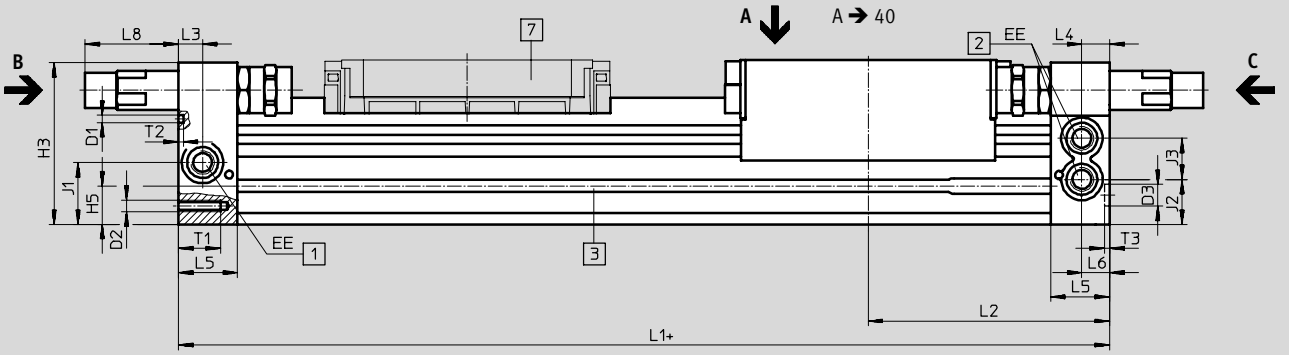
∅ 12



1 Slot for proximity sensor

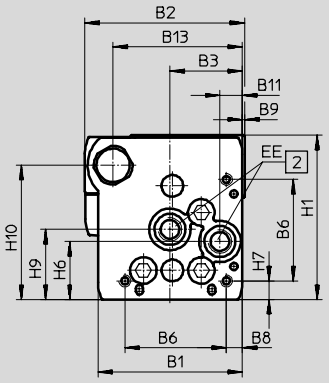
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

∅ 18 ... 40



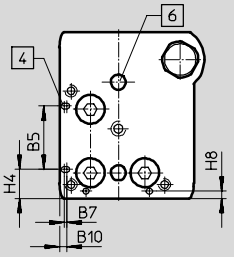
View C

∅ 18 ... 40

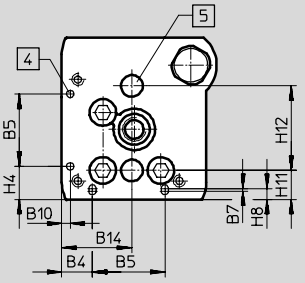


View B

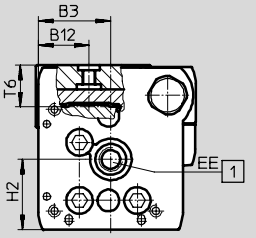
∅ 18



∅ 25 ... 40



∅ 18 ... 40



\+ plus stroke length

1 Compressed air connection options on two faces

2 Compressed air connection options on two faces, for supplying from one end only

3 Slot for proximity sensor

4 Mounting hole for foot mounting HPC

5 Hole for centring sleeve ZBH

6 Hole for centring pin ZBS

7 Additional slide

∅ [mm]	B1	B2	B3 ±0.05	B4 ±0.1	B5 ±0.05	B6 ±0.1	B7	B8 ±0.1	B9	B10	B11 ±0.05	B12
18	44.5	49.9	19.5	8.8	21	31	0.8	3.8	1	2.4	5.5	15.5
25	59.8	66	30	12.65	30	42	1	6.65	1	3.5	9.3	21
32	73	79	38.5	5.7	63.1	57.5	–	8.5	1.5	14	14.9	18
40	91	98.5	45	17.2	55	65	–	12.2	2	8	16.5	24.8

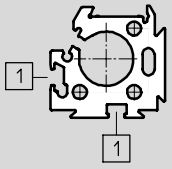
∅ [mm]	B13 ±0.1	B14 ±0.05	D1 ∅ ±0.05	D2	D3 ∅ H7	EE	H1	H2 ±0.1	H3	H4 ±0.1	H5	H6 ±0.1
18	39	19.5	2	M4	5	M5	56.3	23.1	55	9.6	13.4	20
25	53	29	3	M5	9	G1⁄8	68	29	67	13.65	15.8	24
32	65	38.5	3	M6	9	G1⁄8	78.5	30	77	5.7	17	27.7
40	80.5	45	4	M6	9	G1⁄4	99.5	41.5	97.5	17.2	25	36.5

∅ [mm]	H7 ±0.1	H8 ±0.1	H9 ±0.1	H10 ±0.1	H11 ±0.05	H12 ±0.05	J1 ±0.1	J2 ±0.1	J3 ±0.1	L1 KF +0.9/–0.2	L1 KF-GP +0.9/–0.2
18	4.6	2.4	25.2	46	8.5	30	20	16.5	11	150	157
25	7.65	4.5	29	55.5	12	35	26.1	18.6	17	200	205
32	8.5	14	35.2	63.8	11.45	50	30	22	18.5	250	250
40	12.2	8	44	81.5	15	60	35	26	26	300	312

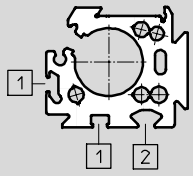
∅ [mm]	L2 KF	L2 KF-GP	L3	L4	L5	L6	L8 PPV	L8 YSR	L8 YSRW	T1	T2	T3 +0.2	T6
18	74.5	78	5.7	5.8	15	5.5	0	29.9	32.4	9	2	3.1	15
25	100	102.5	10.5	10.6	24.5	10.6	0	35.6	38.6	17.5	2	2.1	17.3
32	124.8	124.8	14.5	14.5	30.5	14.5	0	19.5	28	15	2	2.1	20
40	150	156	14.6	14.6	33.5	14.6	0	38.5	43.5	20	3	2.1	25.7

Profile barrel

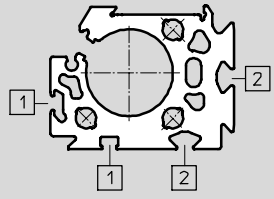
∅ 18



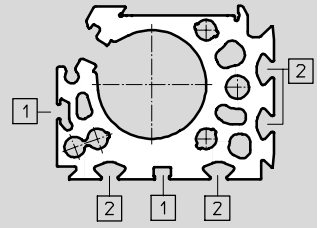
∅ 25



∅ 32



∅ 40



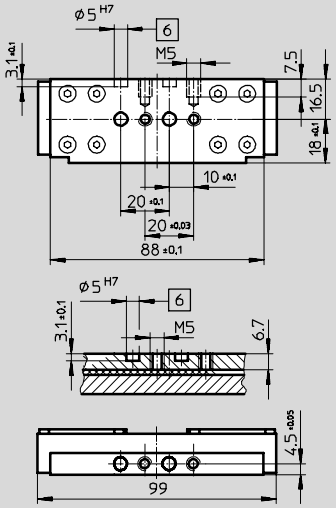
1 Slot for proximity sensor
2 Mounting slot for slot nut

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Slide

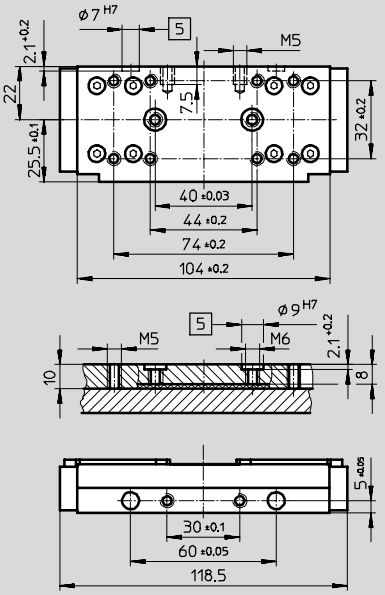
∅ 18

View A



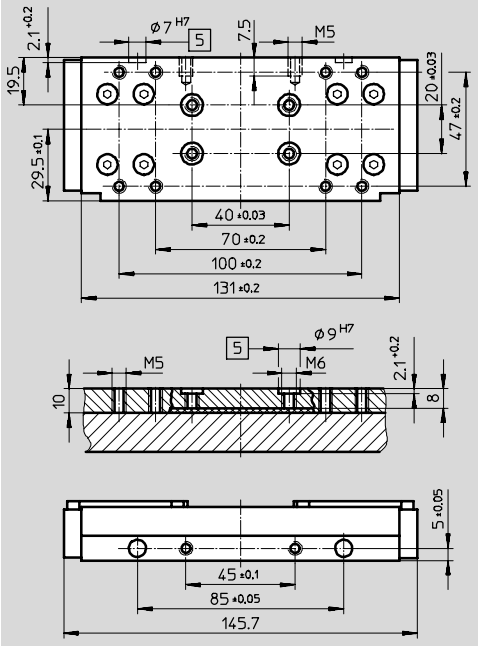
∅ 25

View A



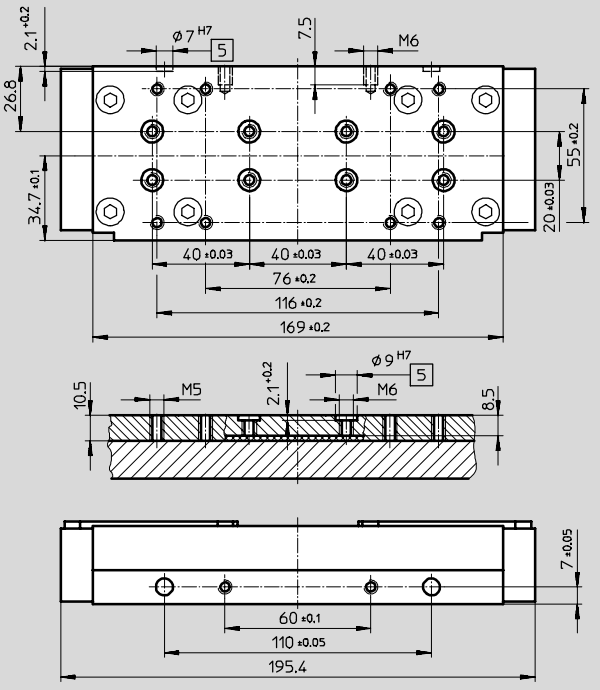
∅ 32

View A



∅ 40

View A



5 Hole for centring sleeve ZBH

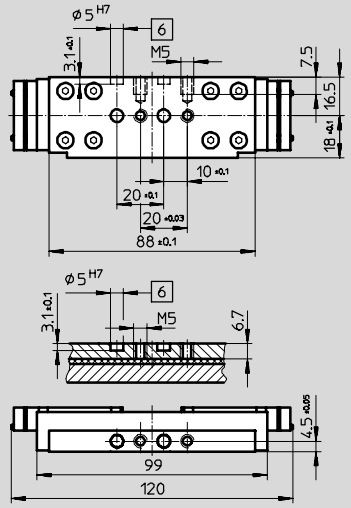
6 Hole for centring pin ZBS

Dimensions Download CAD-Data ➔ **www.festo.com/en/engineering**

Slide, variant GP – Protected recirculating ball bearing guide

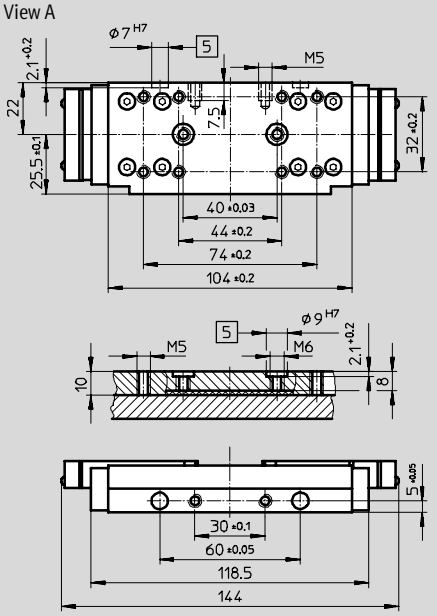
Ø 18

View A



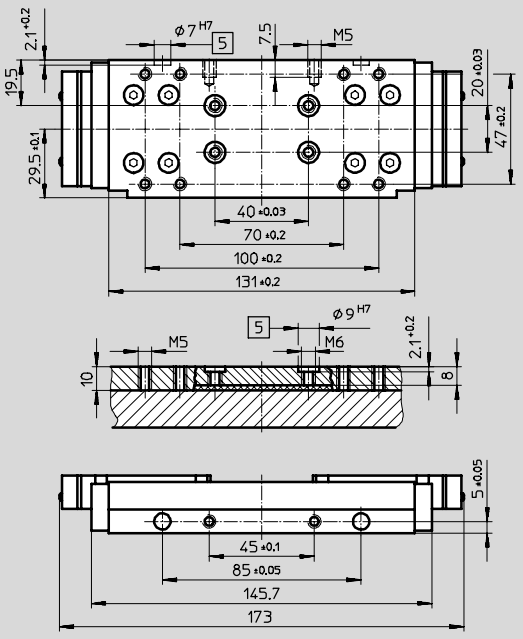
Ø 25

View A



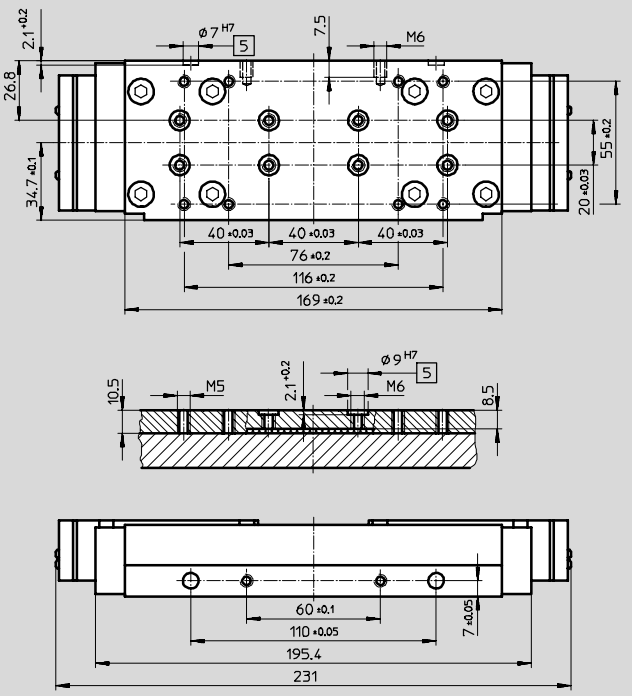
Ø 32

View A



Ø 40

View A



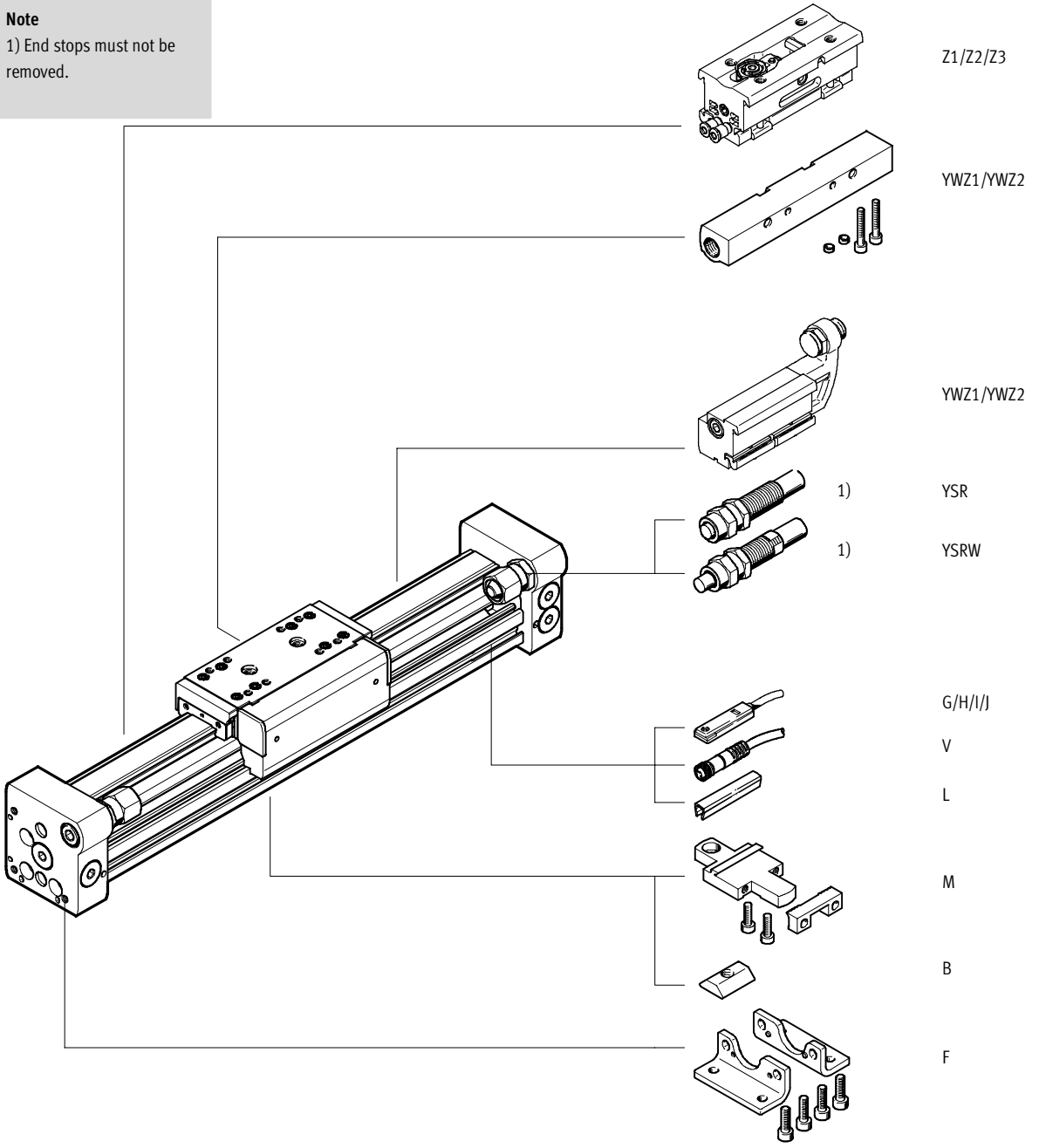
5 Hole for centring sleeve ZBH

6 Hole for centring pin ZBS

Order code
Mandatory data/options

Note

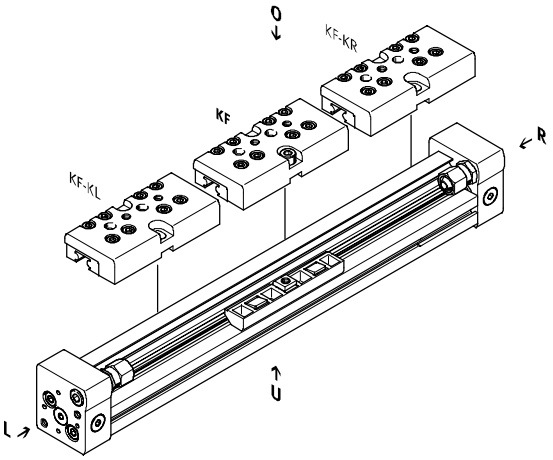
1) End stops must not be removed.



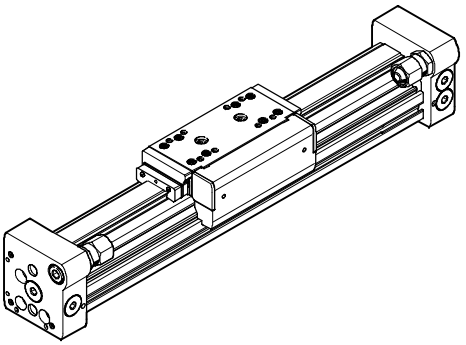
		Z1/Z2/Z3
		YWZ1/YWZ2
		YWZ1/YWZ2
	1)	YSR
	1)	YSRW
		G/H/I/J
		V
		L
		M
		B
		F

Order code

KL/KR – With additional slide



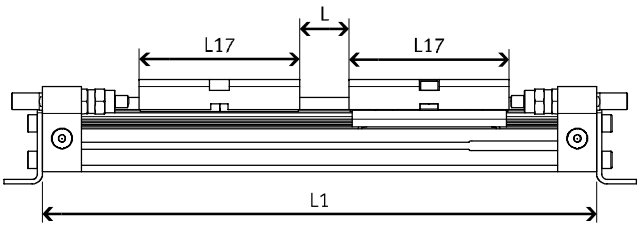
GP – With protected recirculating ball bearing guide



Effective stroke reduction when ordering an additional slide KL or KR

For a linear drive DGC with additional slide, the effective stroke is reduced by the length of the additional slide and the distance between both slides.

Given:
DGC-12-500-...
L = 20 mm
L17 = 65 mm



∅ [mm]	8	12	18	25	32	40
L17	52	65	99	118.5	145.7	195.4

The effective stroke is reduced to
415 mm = 500 mm – 20 mm – 65 mm

Linear Actuators DGC-KF, With Recirculating Ball Bearing Guide

Ordering data – Modular products

FESTO

M Mandatory data

Module No.	Function		Piston ∅		Stroke		Guide		Cushioning		Position sensing
530 906	DGC		8		1 … 5 000		KF		P		A
530 907			12						PPV		
532 446			18						YSR		
532 447			25						YSRW		
532 448			32								
532 449			40								
Ordering example											
530 907	**DGC**	–	**12**	–	**250**	–	**KF**	–	**YSRW**	–	**A**

Ordering table

Size			8	12	18	25	32	40	Condi-tions	Code		Enter code
M	Module No.		**530 906**	**530 907**	**532 446**	**532 447**	**532 448**	**532 449**				
	Function		Linear drive							**DGC**		DGC
	Piston ∅	[mm]	8	12	18	25	32	40		**-...**		
	Stroke	[mm]	1 … 1,300	1 … 1,900	1 … 3,000	1 … 5,000			1	**-...**		
	Guide		Recirculating ball bearing guide							**-KF**		-KF
	Cushioning		Flexible cushioning rings/ plates at both ends		–	–	–	–		**-P**		
			–	–	Pneumatic cushioning, adjustable at both ends					**-PPV**		
			Shock absorber, self-adjusting							**-YSR**		
			Shock absorber, self-adjusting, progressive							**-YSRW**		
↓	Position sensing		Via proximity sensor							**-A**		-A

1 **Stroke** Size 25, 32, 40: Strokes up to 8,500 mm on request

Transfer order code

	DGC	–		–		–	**KF**	–		–	**A**	–

➔ 0 **Options**

Slide	Additional slide at left	Additional slide at right	Acces-sories	Accessories supplied loose	User documentation
GP	KL	KR		F, ...M, ...B, YWZ1, YWZ2, Z1, Z2, Z3, ...G, ...H, ...I, ...J, ...V, ...L	O
–	– KL	– KR	ZUB	– F2M	–

Ordering table

Size			8	12	18	25	32	40	Condi-tions	Code	Enter code
0	Slide		–	–	Protected recirculating ball bearing guide				2	-GP	
	Additional slide at left		Additional slide, standard, at left						3	-KL	
	Additional slide at right		Additional slide, standard, at right						3	-KR	
	Accessories		Supplied loose (can be retrofitted)							ZUB-	ZUB-
	Foot mounting		1							F	
	Profile mounting		1 ... 9							...M	
	Slot nut for mounting slot		–	–	–	1 ... 9				...B	
	Mechanical end-position limitation		–	–	Variable end position, at one end				4	YWZ1	
			–	–	Variable end position, at both ends				4	YWZ2	
	Intermediate position		–	–	–	1 intermediate position		–	5	-Z1	
			–	–	–	2 intermediate positions		–	5	-Z2	
			–	–	–	3 intermediate positions		–	5	-Z3	
	Proximity sensor	Cable, 2.5 m	1 ... 9							...G	
		Plug M8	1 ... 9							...H	
	Proximity sensor, contactless, PNP	Cable, 2.5 m	1 ... 9							...I	
		Plug M8	1 ... 9							...J	
	Plug socket with cable	M8, 2.5 m	1 ... 9							...V	
	Slot cover for sensor slot		–	–	1 ... 9					...L	
	User documentation		Express waiver – no operating instructions to be included (already available)							-O	

2 **GP** Not with cushioning YSR and YSRW

3 **KL, KR** For a linear drive DGC with additional slide, the effective stroke is reduced by the length of the additional slide and the distance between both slides

4 **YWZ1, YWZ2** Only with cushioning YSR or YSRW

5 **Z1, Z2, Z3** Only with cushioning YSR or YSRW and mechanical end-position limitation YWZ1 or YWZ2

Transfer order code

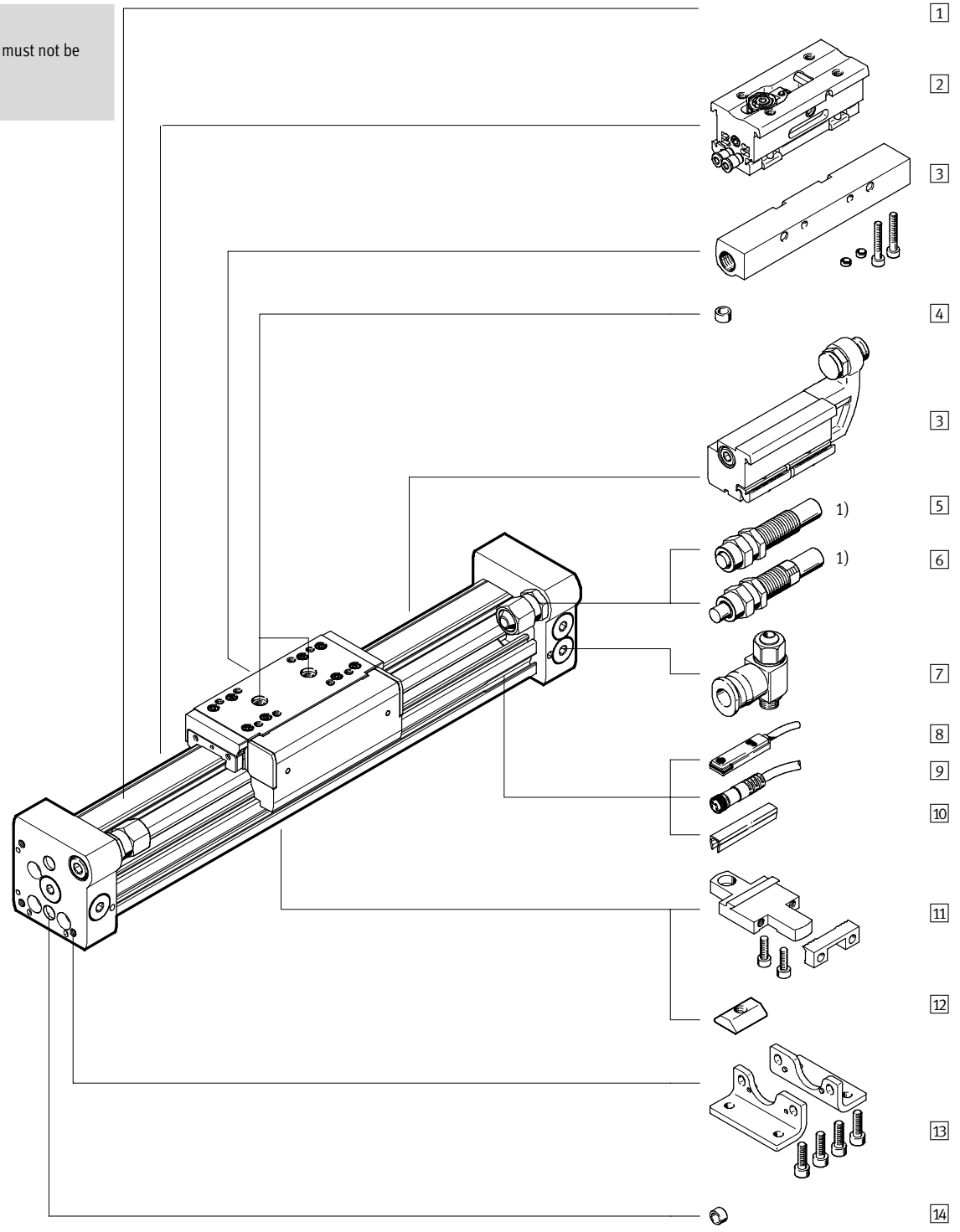
– | | – | | – | | – | | ZUB – | | – | |

Ordering data – Wearing parts kits

Piston ∅ [mm]	Part No.	Type
8	665 335	DGC-8-KF
12	665 336	DGC-12-KF
18	684 407	DGC-18
25	684 408	DGC-25
32	684 409	DGC-32
40	684 410	DGC-40

Note

1) End stops must not be removed.



Variants and accessories				
	Type	**For piston ∅**	**Brief description**	**➔ Page**
1	Linear drive DGC-KF	8 … 40	Linear drive without accessories, with recirculating ball bearing guide.	32
2	Intermediate position module Z1/Z2/Z3	25, 32	Permits up to three intermediate positions.	70
3	Mechanical end-position limiter YWZ	18 … 40	For variable end-position adjustment, e.g. for format adjustments.	-67
4	Centering pin/sleeve[1)] ZBS/ZBH	8 … 40	For centering loads and attachments on the slide.	-71
–	Cushioning P	8, 12	Non-adjustable, flexible cushioning. Used only at low speeds.	44
–	Cushioning PPV	18 … 40	Adjustable pneumatic end-position cushioning. Used at medium speeds.	44
5	Shock absorber YSR	8 … 40	Self-adjusting hydraulic shock absorber with spring return and linear cushioning characteristic.	44
6	Shock absorber YSRW	8 … 40	Self-adjusting hydraulic shock absorber with spring return and progressive cushioning characteristic.	44
7	One-way flow control valve GRLA	8 … 40	For regulating speed.	-71
8	Proximity sensor G/H/I/J	8 … 40	For sensing the slide position.	-72
9	Plug socket with cable V	8 … 40	For proximity sensor.	-72
10	Slot cover L	18 … 40	For protecting against ingress of dirt and securing proximity sensor cables.	-71
11	Profile mounting M	8 … 40	Simple and precise mounting option via dovetail connection.	-65
12	Slot nut B	25 … 40	For mounting attachments.	-71
13	Foot mounting F	8 … 40	For mounting on end cap.	-61
14	Centering pin/sleeve[1)] ZBS/ZBH	8 … 40	For centering the drive without foot mountings (user-specific).	-71

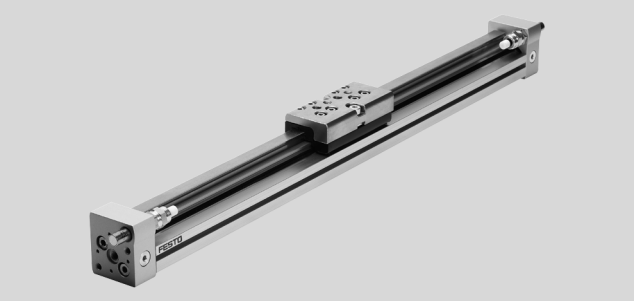
1) Included in the scope of delivery of the drive.

Passive Guide Axes DGC-FA, Without Drive

Technical data

FESTO

- Ø - Diameter
  8 … 40 mm
- | - Stroke length
  1 … 5,000 mm



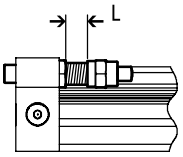
General technical data							
Piston ∅		8	12	18	25	32	40
Stroke	[mm]	1 … 1,300	1 … 1,900	1 … 3,000	1 … 5,000		
Guide		External recirculating ball bearing guide					
Assembly position		Any					
Cushioning		Non-adjustable at either end					
➔ 50		Self-adjusting at both ends					
Type of mounting		Profile mounting					
		Foot mounting					
		Direct mounting					
Max. speed	[m/s]	1	1.2	3			
Repetition accuracy	[mm]	0.02 (with shock absorber YSR/YSRW)					
Stroke tolerance	[mm]	0 … 1.7		0 … 2.5			

Operating and environmental conditions		
Ambient temperature	[°C]	–10 … +60
Corrosion resistance class CRC[1)]		1

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Weights [g]						
Piston ∅	8	12	18	25	32	40
Basic weight per 0 mm stroke	225	391	975	2,113	2,837	6,996
Additional weight per 10 mm stroke	11	16	31	49	47	117
Moving load	77	149	331	732	1,146	2,330

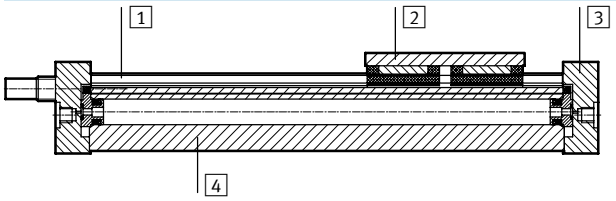
Adjustable end-position range L [mm]



Piston ∅		8	12	18	25	32	40
Cushioning P	[mm]	0 … 5		–			
Cushioning YSR/YSRW	[mm]	0 … 10		0 … 20	0 … 25		

Materials

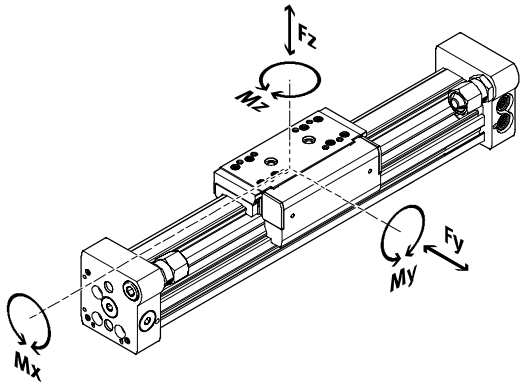
Sectional view



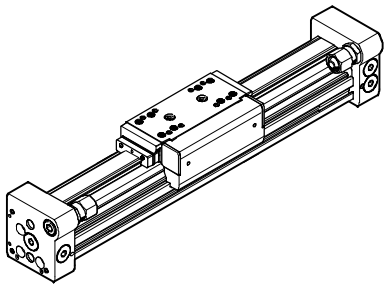
Passive guide axes		
1	Guide rail	High-alloy steel
2	Slide	High-alloy steel
3	End cap	Anodised aluminium
4	Cylinder barrel	Anodised aluminium
–	Sealing band	Polyurethane

Characteristic load values

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



GP – Protected guide



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.

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

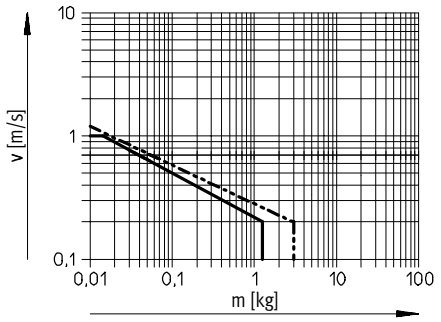
Permissible forces and torques

Piston ∅		8	12	18	25	32	40
$Fy_{max.}$	[N]	300	650	1,850	3,050	3,310	6,890
$Fz_{max.}$	[N]	300	650	1,850	3,050	3,310	6,890
$Mx_{max.}$	[Nm]	1.7	3.5	16	36	54	144
$My_{max.}$	[Nm]	4.5	10	51	97	150	380
$Mz_{max.}$	[Nm]	4.5	10	51	97	150	380

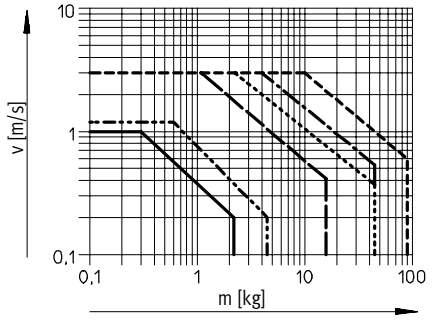
Selection and ordering aid
ProDrive
www.festo.com/en/engineering

Maximum permissible slide speed v as a function of working load m

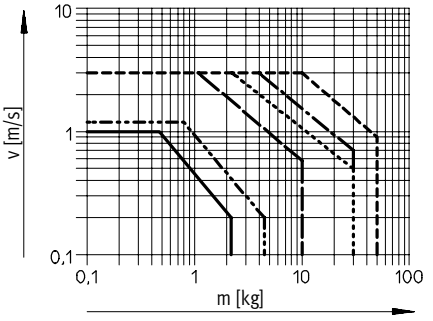
Piston ∅ 8/12 with P cushioning



Piston ∅ 8 ... 40 with YSR cushioning



Piston ∅ 8 ... 40 with YSRW cushioning



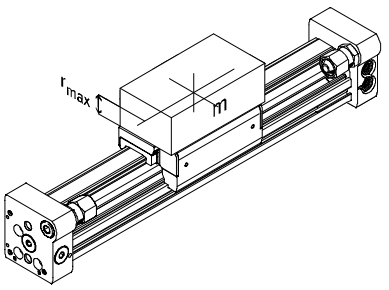
∅ 8 ∅ 25
∅ 12 ∅ 32
∅ 18 ∅ 40

Note

This data represents the maximum values that can be achieved. Values fluctuate in practice relative to the size of the effective load.

Operating range of cushioning

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



Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of at least:
with piston ∅ 8 and 12: 0.03 mm
with piston ∅ 18 ... 40: 0.01 mm

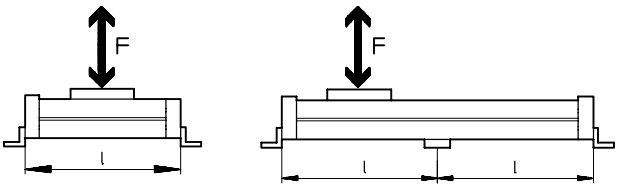
The data applies to a horizontal mounting position:

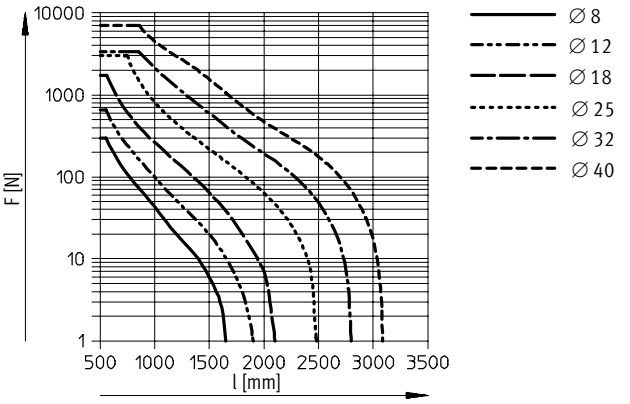
Piston ∅	8	12	18	25	32	40
Distance $r_{max.}$ [mm]	25	35	35	50	50	50

Number of profile mountings MUC dependent on force due to weight F and support span l

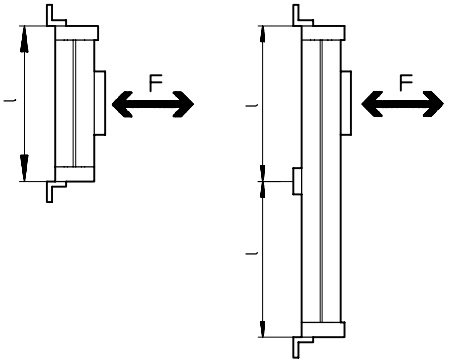
In order to limit deflection in the case of large strokes, the guide axis may need to be supported. The following diagrams serve to determine the maximum permissible support span as a function of the mounting position and the perpendicular force.

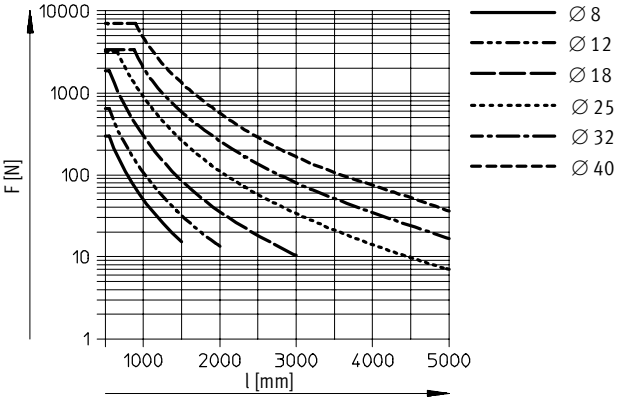
Horizontal assembly position





Vertical assembly position





Example:

The guide axis DGC-25-1500 is subjected to a force of 300 N in the horizontal assembly position.

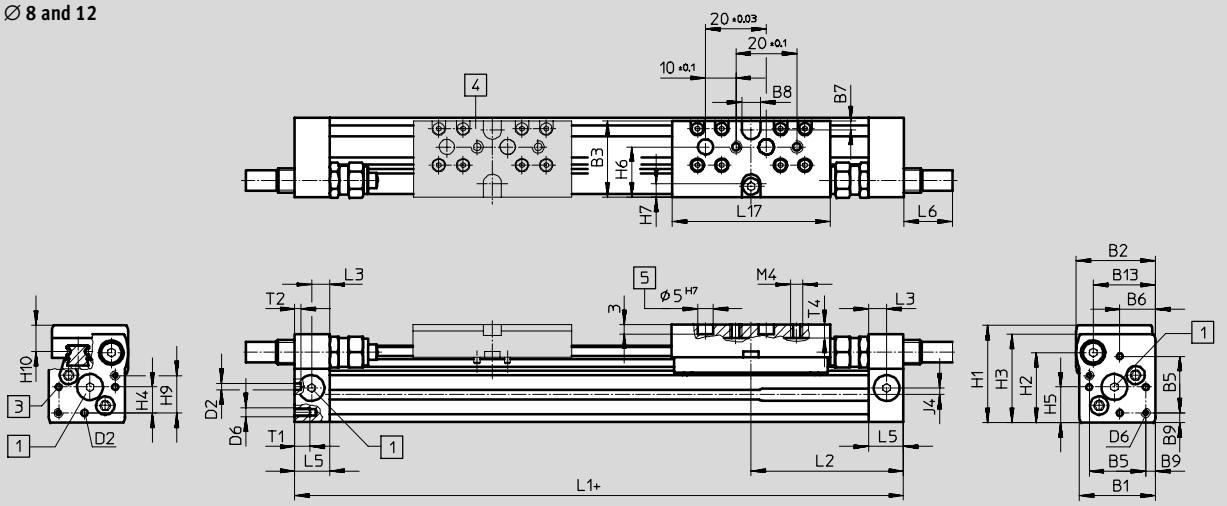
The axis has an overall length of:
l = stroke length + L1 (see dimensions)
= 1,500 mm + 200 mm
= 1,700 mm

According to the diagram, the max. support span is 1,300 mm for the axis DGC-25 with a force of 300 N.

In this example, profile mounting attachments are required as the max. support span (1,300 mm) is smaller than the overall length of the axis (1,700 mm).

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

∅ 8 and 12



\+ plus stroke length

1 The ports on the end caps are sealed with blanking plugs

3 Mounting hole for foot mounting or centring pin

4 Additional slide KL

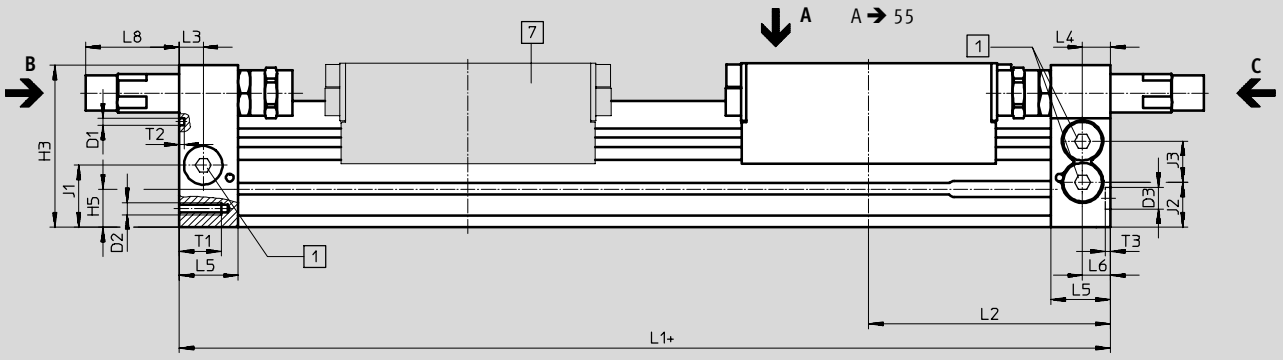
5 Hole for centring pin ZBS

∅ [mm]	B1	B2	B3	B5	B6	B7	B8 ±0.05	B9 ±0.1	B13	D2 ∅ H8	D6	H1	H2	H3	H4	H5
8	25	26	25	18.6	11.7	3	6	3.2	20.5	2	M3	32	23	29	8.5	11.7
12	30.2	31	31	20.6	13.5	3	8	4.8	25	2	M4	37.5	28.5	34.5	8.7	13.5

∅ [mm]	H6	H7	H9	H10	J4	L1 +0.5/ −0.4	L2	L3	L5	L6 P	L6 YSR	L6 YSRW	L17	T1	T2	T4
8	16.5	4.5	12.3	8.7	2.2	100	50.1	6	11.5	0	16	16.2	52	5	2	4.3
12	20.5	5	14.7	9.8	3	125	62.1	8	16	0	11.3	12.3	65	6	2	5

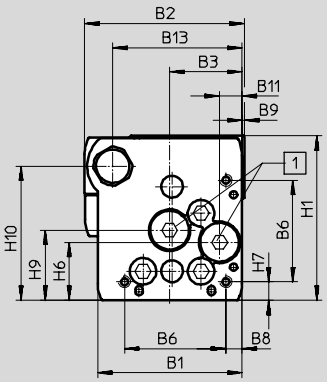
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

∅ 18 ... 40



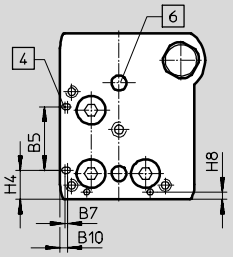
View C

∅ 18 ... 40

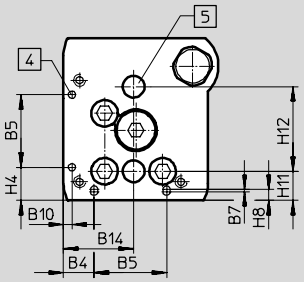


View B

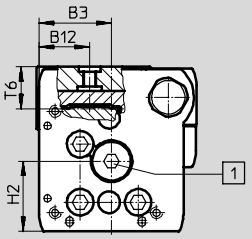
∅ 18



∅ 25 ... 40



∅ 18 ... 40



\+ plus stroke length

[1] The ports on the end caps are sealed with blanking plugs

[4] Mounting hole for foot mounting HPC

[5] Hole for centring sleeve ZBH

[6] Hole for centring pin ZBS

[7] Additional slide

Passive Guide Axes DGC-FA, Without Drive

Technical data

∅ [mm]	B1	B2	B3 ±0.05	B4 ±0.1	B5 ±0.05	B6 ±0.1	B7	B8 ±0.1	B9	B10	B11 ±0.05	B12
18	44.5	49.9	19.5	8.8	21	31	0.8	3.8	1	2.4	5.5	15.5
25	59.8	66	30	12.65	30	42	1	6.65	1	3.5	9.3	21
32	73	79	38.5	5.7	63.1	57.5	–	8.5	1.5	14	14.9	18
40	91	98.5	45	17.2	55	65	–	12.2	2	8	16.5	24.8

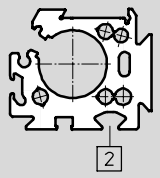
∅ [mm]	B13 ±0.1	B14 ±0.05	D1 ∅ ±0.05	D2	D3 ∅ H7	H1	H2 ±0.1	H3	H4 ±0.1	H5	H6 ±0.1
18	39	19.5	2	M4	5	56.3	23.1	55	9.6	13.4	20
25	53	29	3	M5	9	68	29	67	13.65	15.8	24
32	65	38.5	3	M6	9	78.5	30	77	5.7	17	27.7
40	80.5	45	4	M6	9	99.5	41.5	97.5	17.2	25	36.5

∅ [mm]	H7 ±0.1	H8 ±0.1	H9 ±0.1	H10 ±0.1	H11 ±0.05	H12 ±0.05	J1 ±0.1	J2 ±0.1	J3 ±0.1	L1 KF +0.9/–0.2	L1 KF-GP +0.9/–0.2
18	4.6	2.4	25.2	46	8.5	30	20	16.5	11	150	157
25	7.65	4.5	29	55.5	12	35	26.1	18.6	17	200	205
32	8.5	14	35.2	63.8	11.45	50	30	22	18.5	250	250
40	12.2	8	44	81.5	15	60	35	26	26	300	312

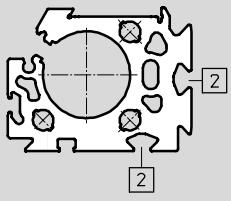
∅ [mm]	L2 KF	L2 KF-GP	L3	L4	L5	L6	L8 YSR	L8 YSRW	T1	T2	T3 +0.2	T6
18	74.5	78	5.7	5.8	15	5.5	29.9	32.4	9	2	3.1	15
25	100	102.5	10.5	10.6	24.5	10.6	35.6	38.6	17.5	2	2.1	17.3
32	124.8	124.8	14.5	14.5	30.5	14.5	19.5	28	15	2	2.1	20
40	150	156	14.6	14.6	33.5	14.6	38.5	43.5	20	3	2.1	25.7

Profile barrel

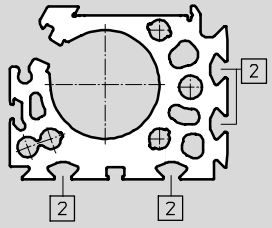
∅ 25



∅ 32



∅ 40



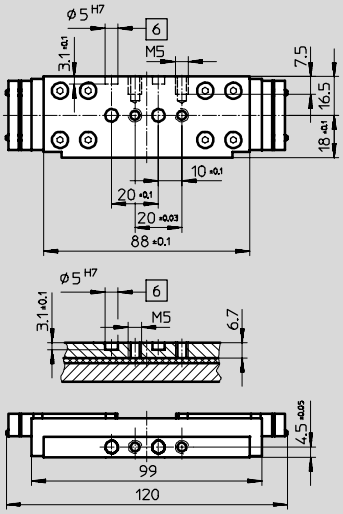
2 Mounting slot for slot nut

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Slide

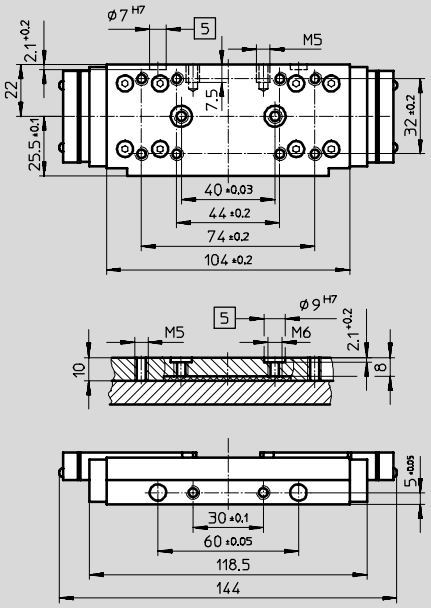
Ø 18

View A



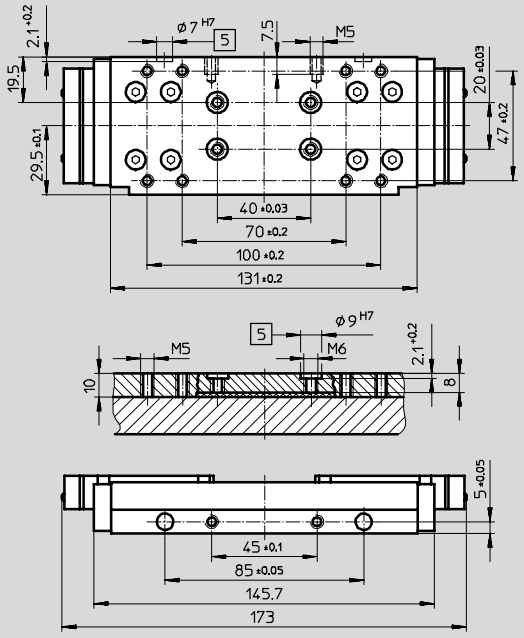
Ø 25

View A



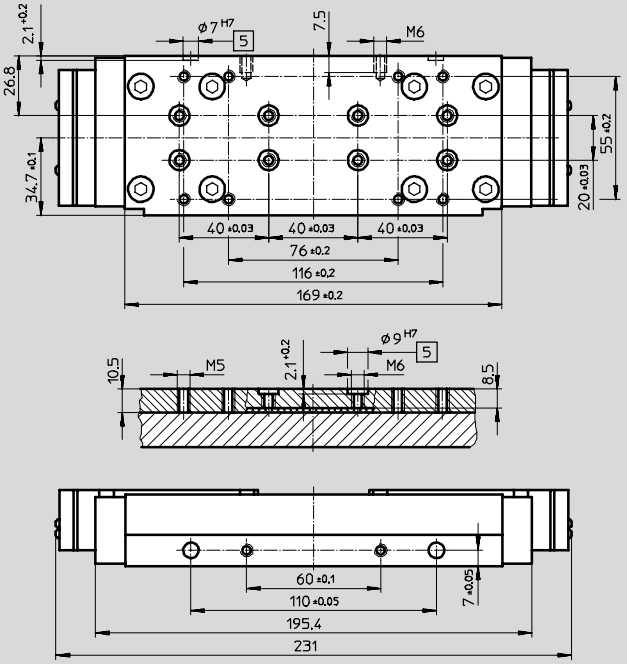
Ø 32

View A



Ø 40

View A



5 Hole for centring sleeve ZBH

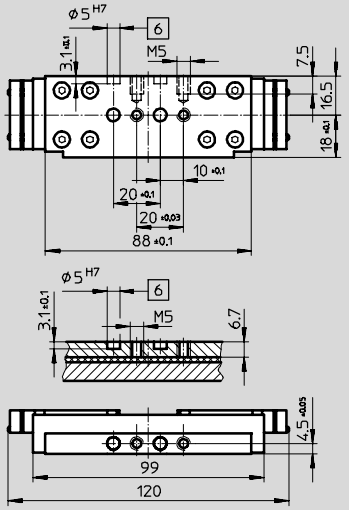
6 Hole for centring pin ZBS

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Slide, variant GP – Protected recirculating ball bearing guide

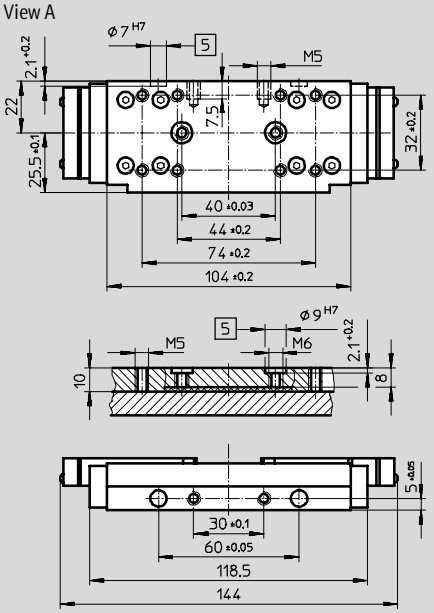
∅ 18

View A



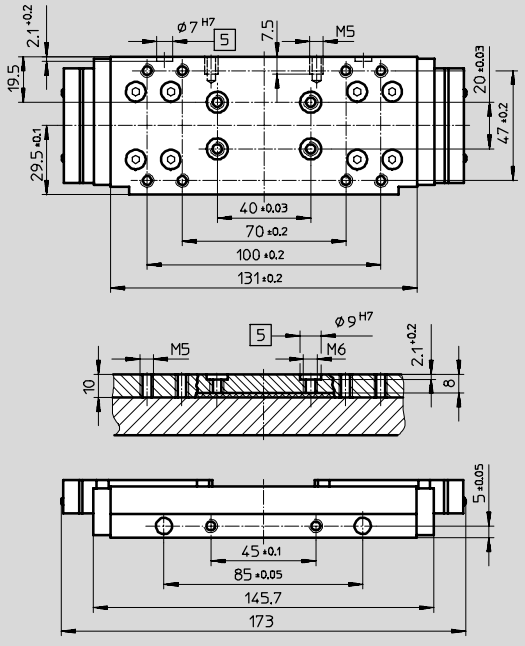
∅ 25

View A



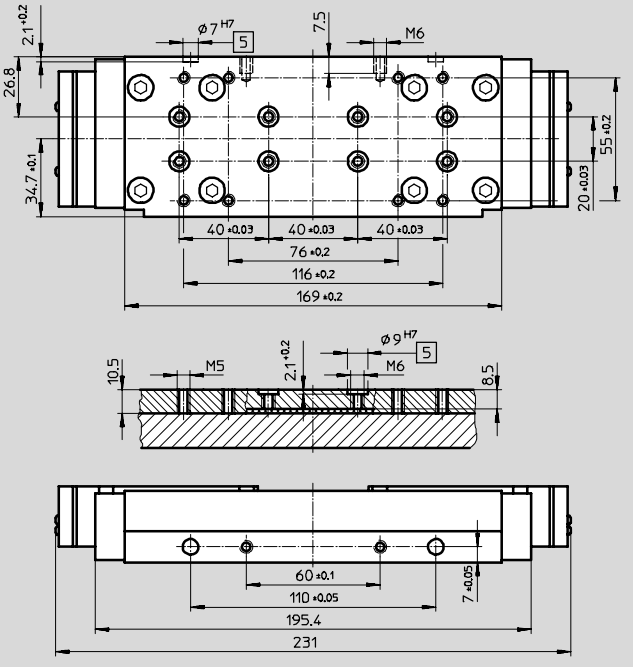
∅ 32

View A



∅ 40

View A

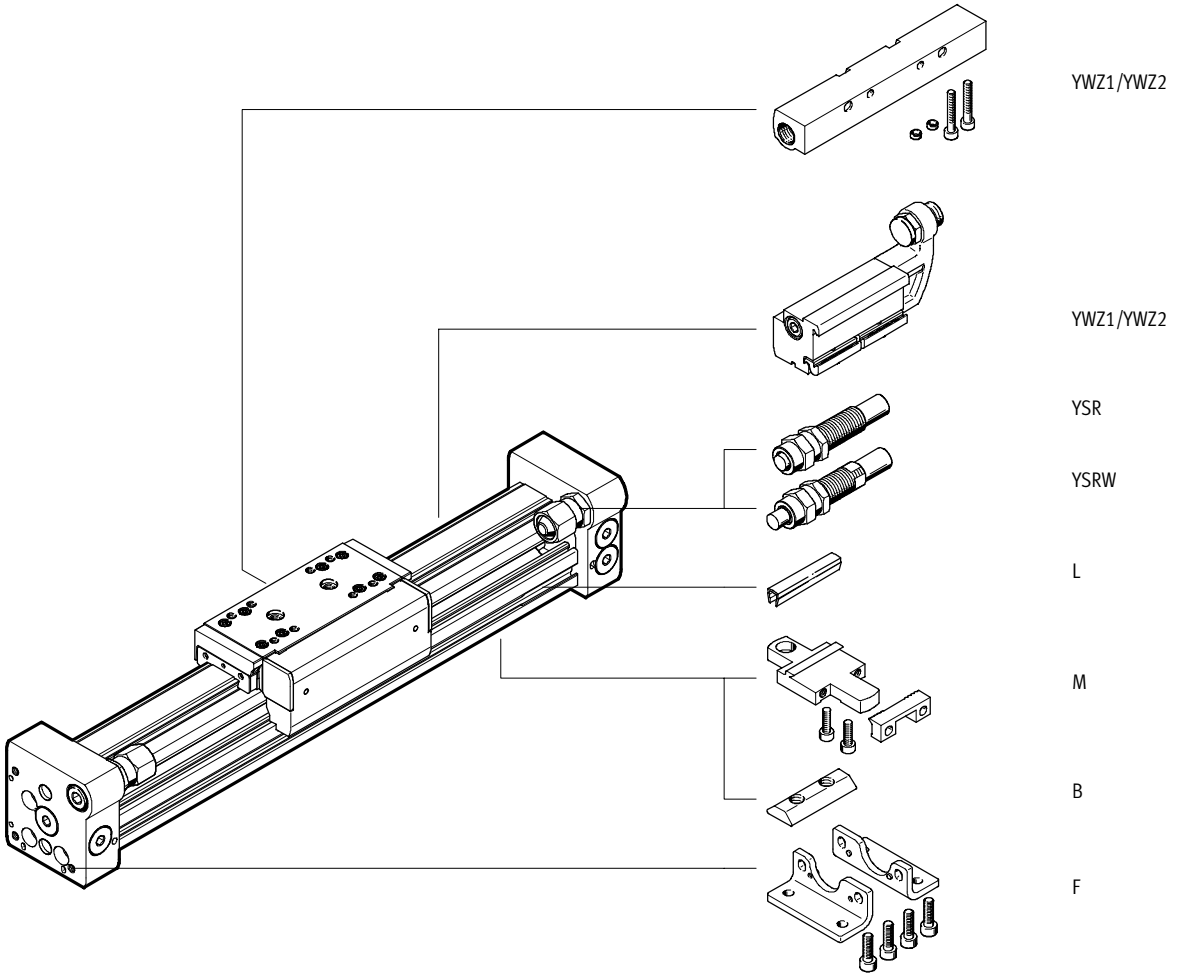


5 Hole for centring sleeve ZBH

6 Hole for centring pin ZBS

Order code

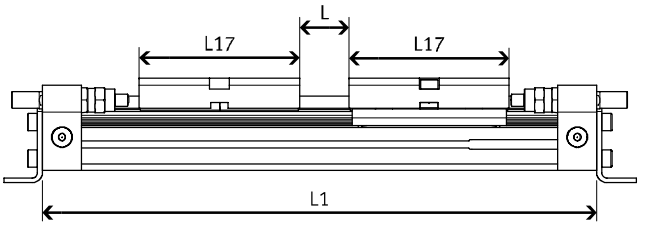
Mandatory data/options



Effective stroke reduction when ordering an additional slide K

For a guide axis DGC with additional slide, the effective stroke is reduced by the length of the additional slide and the distance between both slides.

Given:
DGC-12-500-...
L = 20 mm
L17= 65 mm



∅ [mm]	8	12	18	25	32	40
L17	52	65	99	118.5	145.7	195.4

The effective stroke is reduced to
415 mm = 500 mm – 20 mm – 65 mm

Passive Guide Axes DGC-FA, Without Drive

Ordering data – Modular products

FESTO

M Mandatory data						O Options			
Module No.	Function	Piston ∅	Stroke	Guide	Cushioning	Slide	Additional slide	Accessories	User's manual
530 906 530 907 532 446 532 447 532 448 532 449	DGC	8 12 18 25 32 40	1 … 5 00 0	FA	P YSR YSRW	GP	…K	F, …M, …B, YWZ1, YWZ2, …L	O
Order example									
530 906	**DGC**	**8**	**250**	**FA**	**YSR**		**1K**	**F3M**	

Ordering table

Size			8	12	18	25	32	40	Conditions	Code	Enter code
M	Module No.		**530 906**	**530 907**	**532 446**	**532 447**	**532 448**	**532 449**			
	Function		Linear axis							**DGC**	DGC
	Piston ∅	[mm]	8	12	18	25	32	40		**-…**	
	Stroke	[mm]	1 … 1 300	1 … 1 900	1 … 3 000	1 … 5 000				**-…**	
	Guide		Guide axis without drive							**-FA**	-FA
	Cushioning		Flexible cushioning rings/plates at both ends							**-P**	
			Shock absorber, self-adjusting							**-YSR**	
			Shock absorber, self-adjusting, progressive							**-YSRW**	
O	Slide		–	–	Protected recirculating ball bearing guide				1	**-GP**	
	Additional slide		1 … 2						2	**-…K**	
	Accessories		Supplied loose (can be retrofitted)							**+**	+
	Foot mounting		1							**F**	
	Profile mounting		1 … 9							**…M**	
	Slot nut for mounting slot		–	–	–	1 … 9				**…B**	
	Mechanical end-position limiter		–	–	Variable end position, at one end				3	**YWZ1**	
			–	–	Variable end position, at both ends				3	**YWZ2**	
	Slot cover for sensor slot		–	–	1 … 9					**…L**	
	User's manual		Express waiver – no user manual to be included							**-O**	

1 **GP** Not with YSR and YSRW cushioning

2 **K** For a guide axis DGC with additional slide, the effective stroke is reduced by the length of the additional slide and the distance between both slides

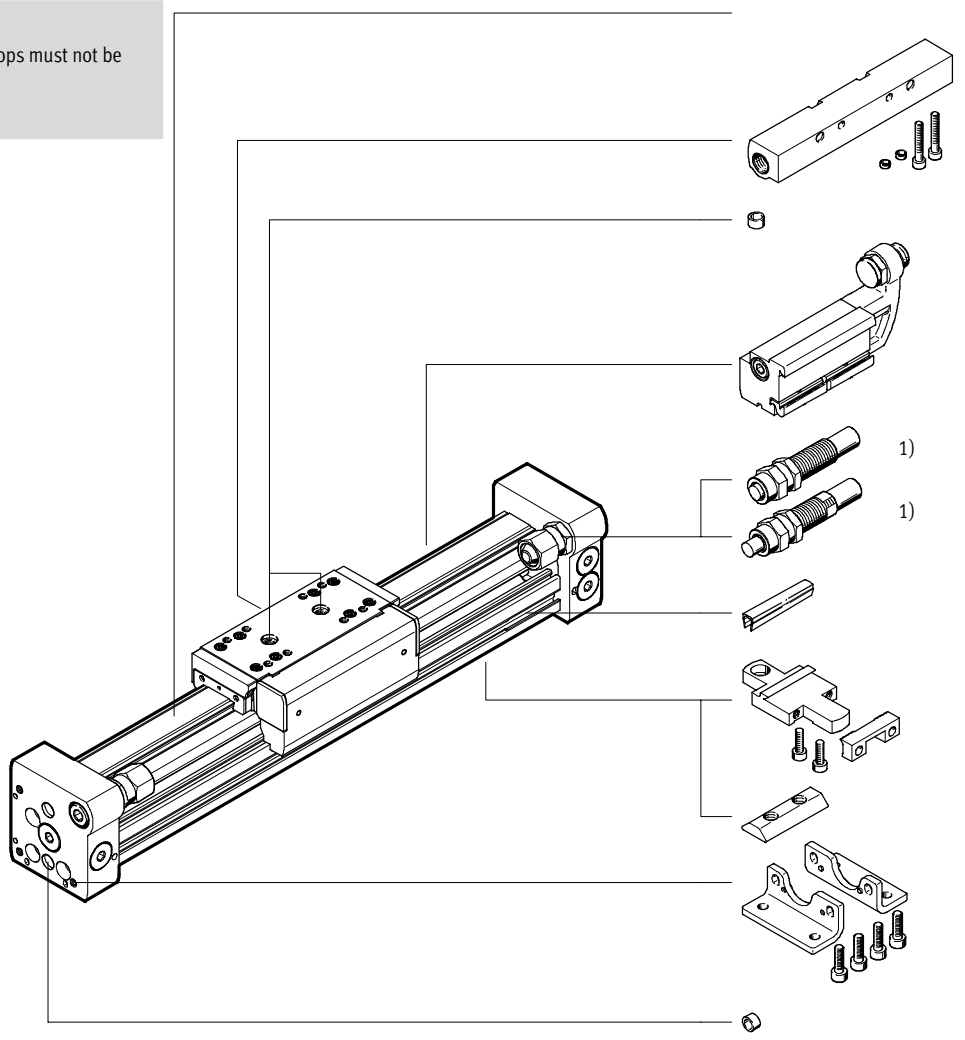
3 **YWZ1, YWZ2** Only with YSR or YSRW cushioning

Transfer order code

	DGC	–		–		–	FA	–		–		–		+		–			

Note

1) End stops must not be removed.



Passive Guide Axes DGC-FA, Without Drive

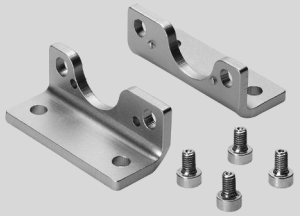
Peripherals overview

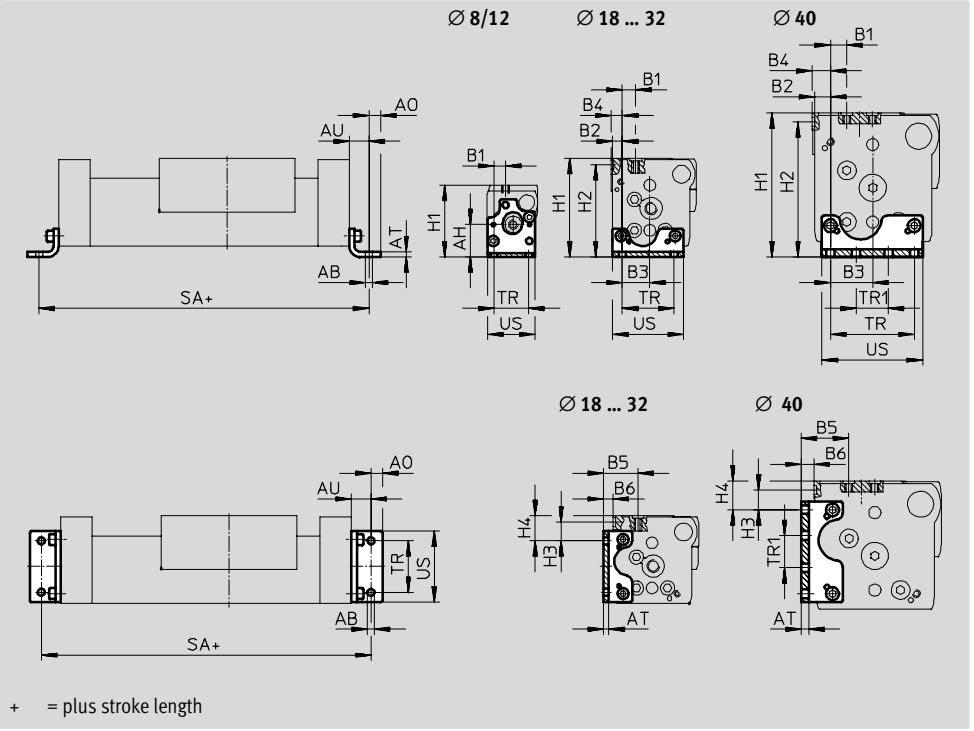
Variants and accessories			
	Type	**Brief description**	**➔ Page**
1	Passive guide axis DGC-FA	Passive guide axis without accessories	-48
2	Mechanical end-position limiter YWZ	For variable end-position adjustment, e.g. with format adjustments	-67
3	Centring pin/sleeve[1)] ZBS/ZBH	For centring loads and attachments on the slide	-71
–	Cushioning P	Non-adjustable, flexible cushioning. Only used for low speeds	-58
4	Shock absorber YSR	Self-adjusting hydraulic shock absorber with spring return and linear cushioning characteristic	-58
5	Shock absorber YSRW	Self-adjusting hydraulic shock absorber with spring return and progressive cushioning characteristic	-58
6	Slot cover L	For protecting against ingress of dirt and securing proximity sensor cables	-71
7	Profile mounting M	Simple and precise mounting option via dovetail connection	-65
8	Slot nut B	For mounting attachments	-71
9	Foot mounting F	For mounting on end cap	-61
10	Centring pin/sleeve[1)] ZBS/ZBH	For centring the drive DGC without foot mountings (user-specific)	-71

1) Included in the scope of delivery for the axis

Foot mounting HPC
(order code: F)

Material:
Galvanised steel





Dimensions and ordering data

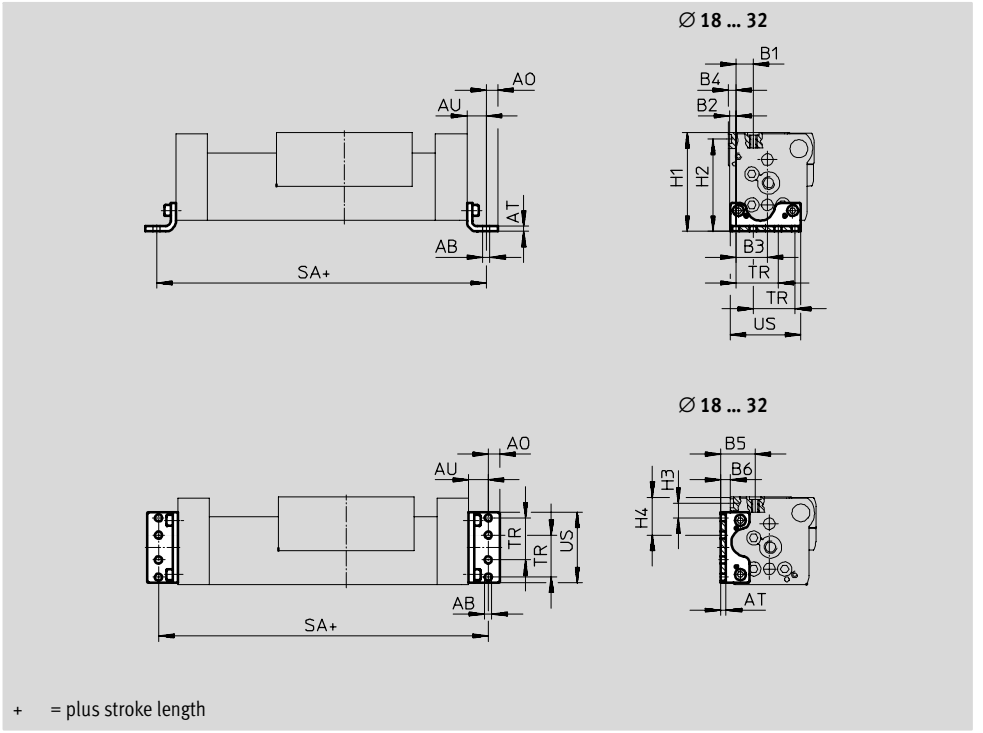
For Ø [mm]	AB Ø	AH	AO	AT	AU	B1		B2	B3
						G	GF/KF		
8	3.4	16.7	3	2	9	6	6	–	–
12	4.5	18.5	4.5	2	11.5	5.4	5.4	–	–
18	5.5	–	6.75	3	13.25	15	11.2	4.3	15.2
25	5.5	–	9	4	15	12.5	13.35	7.65	22.35
32	6.6	–	10	5	19	11.5	9	9	29.5
40	6.6	–	10	6	20	7.6	12.6	12.2	32.8

For Ø [mm]	B4	B5		B6	H1		H2	H3
	GF/KF	G	GF/KF	GF/KF	G	GF/KF	GF/KF	GF/KF
8	–	–	–	–	37	37	–	–
12	–	–	–	–	42.5	42.5	–	–
18	5.3	27	23.2	6.7	57.5	64	59.5	16.7
25	8.65	29.15	30	8	67	76.5	71.5	15
32	10.5	29.5	27	7.5	82	87.5	82.5	8
40	14.2	31.8	36.8	10	100	111.5	104.5	15.3

For Ø [mm]	H4		SA	TR	TR1	US	Weight	Part No.	Type
	G	GF/KF	+0.9/–0.2	±0.1	±0.1		[g]		
8	–	–	118	18	–	24.4	26	**526 385**	**HPC-8**
12	–	–	148	20	–	29.6	38	**526 388**	**HPC-12**
18	14.7	21.5	176	30	–	38.6	58	**533 667**	**HPC-18**
25	10.5	20	230	40	–	55	131	**533 668**	**HPC-25**
32	7.5	13	288	56.5	19.5	68	239	**533 669**	**HPC-32**
40	10.8	22.3	340	65	25	78	348	**533 670**	**HPC-40**

Foot mounting HPC-S
(when replacing linear drive DGPL
with linear drive DGC-GF/-KF)

Material:
Galvanised steel



\+ = plus stroke length

Dimensions and ordering data

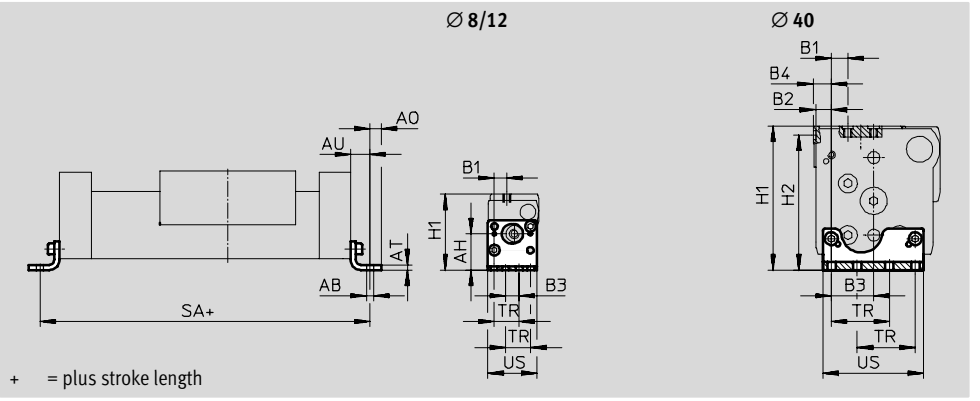
For ∅ [mm]	AB ∅	AO	AT	AU	B1	B2	B3	B4	B5	B6
18	5.5	4.75	3	13.25	12	3.5	15.6	4.5	24	7.5
25	5.5	6	3	13	16.25	4.75	24.25	5.75	29.5	7.5
32	6.6	7	4	17	9	9	29.5	10.5	27	7.5

For ∅ [mm]	H1	H2	H3	H4	SA +0.9/–0.2	TR ±0.1	US	Weight [g]	Part No.	Type
18	64	59.5	16.7	28	176.5	24	40	54.5	**535 600**	**HPC-18-S**
25	75.5	70.5	11.45	29.75	226	32.5	55	89.5	**535 601**	**HPC-25-S**
32	87.5	82.5	8	31.5	284	38	68	180	**538 413**	**HPC-32-S**

Foot mounting HPC-SO
(when replacing linear drive DGPL
with linear drive DGC-GF/-KF)

Material:
Galvanised steel

HPC-12-SO



\+ = plus stroke length

Dimensions and ordering data

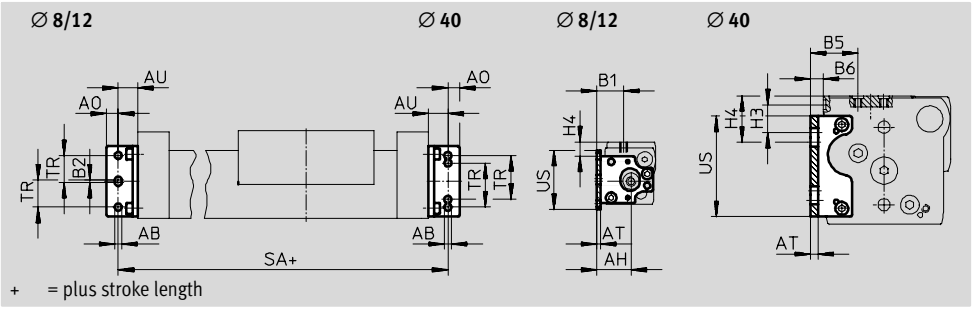
For ∅ [mm]	AB ∅	AH	AO	AT	AU	B1	B2	B3
8	3.4	18.7	3	2	9	6.5	–	7
12	3.4	23.5	3	2	9	9.3	–	9.4
40	6.6	–	8.5	5	17.5	12.5	12.3	32.7

For ∅ [mm]	B4	H1	H2	SA +0.9/–0.2	TR ±0.1	US	Weight [g]	Part No.	Type
8	–	39	–	118	13	25.4	26	**529 346**	**HPC-8-SO**
12	–	47.5	–	143	18.6	33.8	42	**529 348**	**HPC-12-SO**
40	14.3	104.5	97.5	335	45	78	264	**536 745**	**HPC-40-SO**

Foot mounting HPC-SH
(when replacing linear drive DGPL
with linear drive DGC-GF/-KF)

Material:
Galvanised steel

HPC-12-SH



Dimensions and ordering data

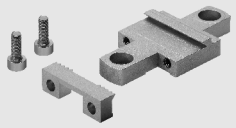
For ∅ [mm]	AB ∅	AH	AO	AT	AU	B1	B2	B5
8	3.4	17.8	3	2	9	13.8	1.5	–
12	3.4	21.1	3	2	9	16.5	1.4	–
40	6.6	–	8.5	5	17.5	–	–	36

For ∅ [mm]	B6	H3	H4	SA +0.9/–0.2	TR ±0.1	US	Weight [g]	Part No.	Type
8	–	–	7.25	118	13	30.5	25	**529 347**	**HPC-8-SH**
12	–	–	4.5	143	18.6	41.8	41.5	**529 349**	**HPC-12-SH**
40	9.2	21.6	36	335	45	78	275	**536 746**	**HPC-40-SH**

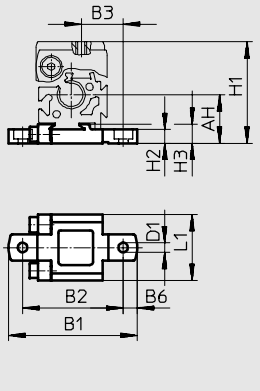
Profile mounting MUC
(order code: M)

Material:
High-alloy steel

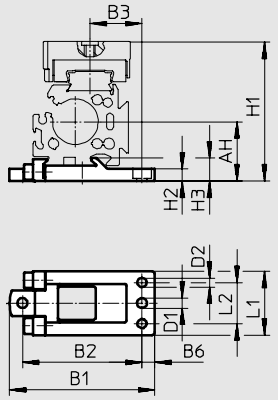
MUC-12



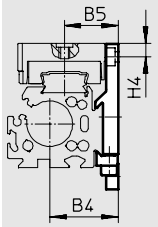
∅ 8/12



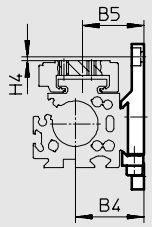
∅ 18 ... 40



∅ 18 ... 40-GF/KF



∅ 18 ... 40-G



Position of the profile mounting attachment along the profile barrel is freely selectable.

Dimensions and ordering data

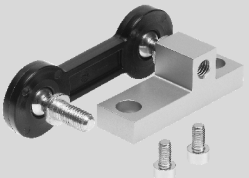
For ∅ [mm]	AH	B1	B2 ±0.2	B3 G	B3 GF/KF	B4	B5 G	B5 GF/KF	B6	D1 ∅	D2 ∅ H7
8	17.7	47	36.7	15.35	15.35	–	–	–	5.1	3.5	–
12	18.5	52.5	42.2	16.5	16.5	–	–	–	5.1	3.5	–
18	27.2	67.8	56	32.5	28.7	27.2	27	28.7	5.7	5.5	5
25	32.5	79.5	65.5	35.15	28.5	37.5	36.15	29.5	7	5.5	5
32	37.5	94	80	35	35	47.5	37	37	7	5.5	5
40	47	110.5	96	43	43	57	46.8	46.8	7	6.5	6

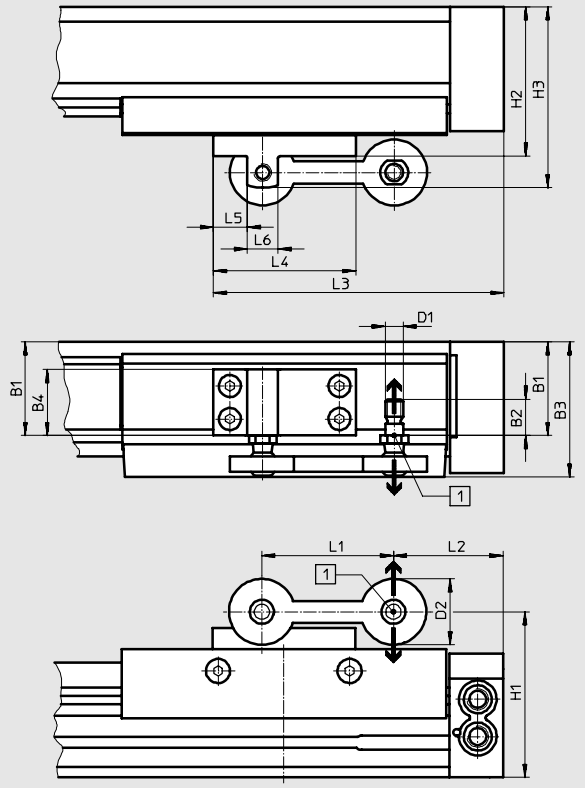
For ∅ [mm]	H1 G	H1 GF/KF	H2	H3	H4 G	H4 GF/KF	L1	L2	Weight [g]	Part No.	Type
8	37	37	5	7	–	–	24	–	28	**526 384**	**MUC-8**
12	42.5	42.5	4.5	7	–	–	24	–	32	**526 387**	**MUC-12**
18	57.5	64	5.7	9.9	0.1	6.4	33	20.5	78	**531 752**	**MUC-18**
25	67	76.5	6.5	12.5	2.07	7.43	35	22.5	113	**531 753**	**MUC-25**
32	82	87.5	6.5	13	1.5	4	45	30	174	**531 754**	**MUC-32**
40	100	111.5	8.5	16	0.2	11.3	60	44	346	**531 755**	**MUC-40**

Driver FKC
(order code: FK)

Materials:
Plate: Wrought aluminium alloy

Joint: Polyamide
Ball pin: High-alloy steel





Note
Compensation possible in direction of arrow.

1 Radial deviation ±2.5 mm

Dimensions and ordering data									
For ∅ [mm]	Max. offset between linear drive and external guide [mm]	Max. permissible load in direction of force (backlash-free) [N]	Ambient temperature [°C]	B1	B2	B3	B4	D1	D2
8	±2.5	550	–10 … +60	17.5	10.2	30	16	M5	20
12		550		18.5	10.2	31	16	M5	20
18		1,400		29.3	16.5	47.8	20	M8	30
25		1,400		42.65	16.5	61.15	30	M8	30
32		1,400		43	16.5	61.5	30	M8	30
40		1,400		57.3	16.5	75.8	45	M8	30

For ∅ [mm]	H1	H2	H3	L1	L2	L3	L4	L5	L6	CRC[1)]	Weight [g]	Part No.	Type
8	43.5	42	48	40	5.1	62.6	35	13	9	1	29.3	**529 350**	**FKC-8/12**
12	49	47.5	53.5	40	17.1	74.6	35	13	9	1	29.3	**529 350**	**FKC-8/12**
18	66.8	59.8	73.8	60	24.5	107	65	15.5	14	1	96.8	**538 714**	**FKC-18**
25	75.5	68	82.5	60	50	132.5	65	15.5	14	1	119	**538 715**	**FKC-25**
32	90	82.5	97	60	77.5	162	75	17.5	14	1	122.3	**538 961**	**FKC-32**
40	105	97.5	113	60	103	187.5	75	17.5	14	1	180.2	**538 962**	**FKC-40**

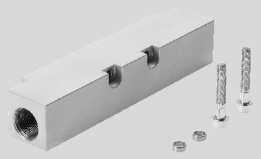
1) Corrosion resistance class 1 to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Shock absorber retainer DADP
Stop KYC
(order code: YWZ1 or YWZ2)

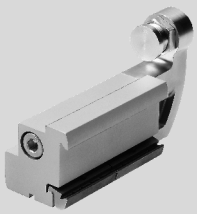
Materials: Stop
Housing: Anodised aluminium
Stop bracket: Stainless steel casting
Clamp: High-alloy steel
Free of copper and PTFE

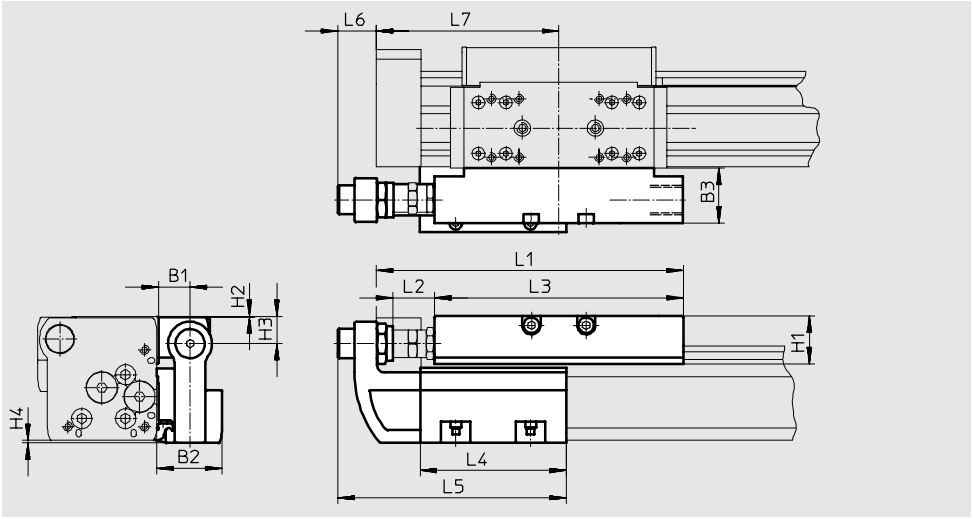
Materials: Shock absorber retainer
Housing: Anodised aluminium
Free of copper and PTFE

Shock absorber retainer DADP



Stop KYC





Note

- Shock absorber not included in scope of delivery.
  Existing shock absorbers can be removed from the end caps of the linear drive and installed in the shock absorber retainer.
  Under no circumstances may the linear drive and the intermediate position module be operated without a shock absorber.

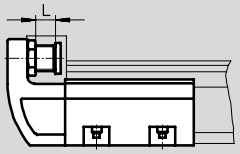
Dimensions

For ∅ [mm]		B1	B2	B3	H1	H2	H3	H4
18	GF	16	34.5	29	20.7	0.2	12.5	0.7
	KF	16	34.5	29	20.7	0.2	12.5	0.7
25	GF	16.5	35	28	25.5	0.5	15	1.4
	KF	16.5	35	30	25.5	0.5	15	1.4
32	GF	16.5	35	28	25.5	0.5	15	1.7
	KF	16.5	35	30	25.5	0.5	15	1.7
40	GF	16	35.7	29	32	0.5	21.5	1.6
	KF	16	35.7	35	37	0.5	21.5	2

For ∅ [mm]		L1	L2 min.	L3	L4	L5	L6	L7
18	GF	128	14.5	107	80	118.5	23.5	69.5
	KF	128	14.5	107	80	118.5	23.5	69.5
25	GF	168	22.5	136	80	125	20.5	100
	KF	168	22.5	136	80	125	20.5	100
32	GF	206.8	42.8	164	120	165	14.5	124.8
	KF	206.8	27.3	164	120	165	14.5	124.8
40	GF	255	30.8	210	156	220.5	31	150
	KF	255	31	210	156	220.5	31	150

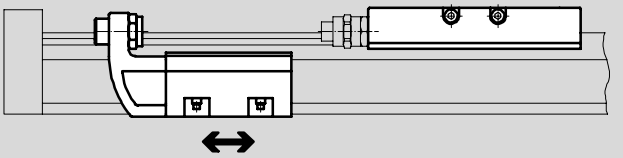
Technical data and ordering codes

Precision adjustment



Note
The stop KYC can be used in both directions.

Installation example



Note
The stop KYC can be mounted at any position within the stroke.

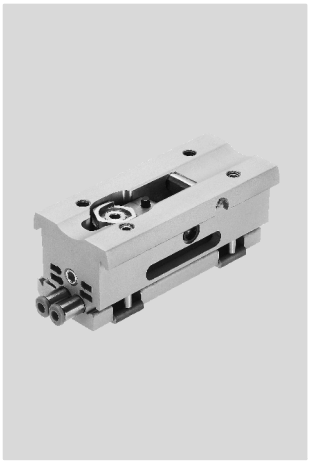
For ∅ [mm]		Precision adjustment L [mm]	Ambient temperature [°C]	CRC[1)]	Weight [g]	Part No.	Type
Shock absorber retainer							
18	GF	10	–10 … +80	2	140	**541 725**	**DADP-DGC-18-GF**
	KF				130	**541 729**	**DADP-DGC-18-KF**
25	GF	10			205	**541 726**	**DADP-DGC-25-GF**
	KF				180	**541 730**	**DADP-DGC-25-KF**
32	GF	10			225	**541 727**	**DADP-DGC-32-GF**
	KF				215	**541 731**	**DADP-DGC-32-KF**
40	GF	15			380	**541 728**	**DADP-DGC-40-GF**
	KF				460	**541 732**	**DADP-DGC-40-KF**
Stop							
18		10	–10 … +80	2	400	**541 691**	**KYC-18**
25		10			560	**541 692**	**KYC-25**
32		10			790	**541 693**	**KYC-32**
40		15			1,525	**541 694**	**KYC-40**

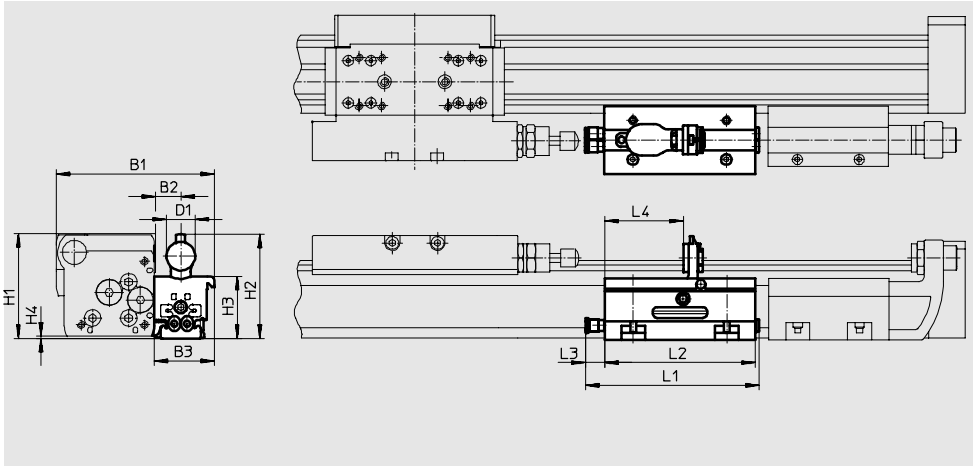
1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Intermediate position module DADM
(order code: Z1, Z2 or Z3)

Materials:
Housing: Anodised aluminium
Stop screw, nut:
Galvanised steel

Clamp, lever:
High-alloy steel
Free of copper and PTFE





Note

- Shock absorber not included in scope of delivery.
  Existing shock absorbers can be removed from the end caps of the linear drive and installed in the shock absorber retainer.
  Under no circumstances may the linear drive and the intermediate position module be operated without a shock absorber.
- A shock absorber retainer DADP and a stop KYC are additionally needed when using an intermediate position module.
- The projection (dimension H4) must be noted when using the drive in combination with the add-on intermediate position DADM. Mounting via foot mountings HP or profile mountings MUC is recommended in this case.

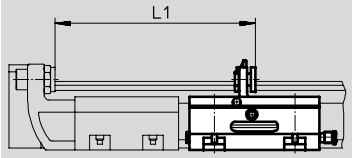
Dimensions

For ∅ [mm]	B1	B2	B3	D1	H1	H2
25	105	16.5	40	19	69.4	68.6
32	117.5	16.5	40	19	80.2	79.7

For ∅ [mm]	H3	H4	L1	L2	L3	L4
25	41	1.4	116	100	13.4	52.2
32	52	1.7	116	100	13.4	52.2

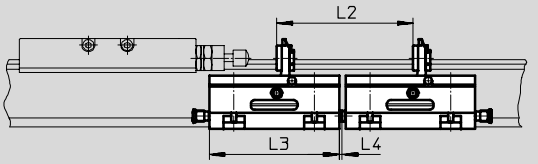
Minimum distance

between end stop and intermediate position



∅	L1
25	145.3
32	185.3

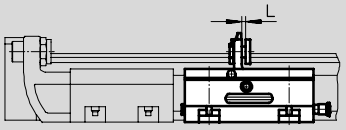
between two intermediate positions



∅	L2	L3	L4
25	105	100	2.5
32	105	100	2.5

Technical data and ordering codes

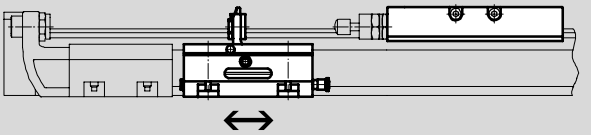
Precision adjustment L



Note

The intermediate position module DADM can be used in both directions.
A shock absorber retainer DADP and a stop KYC are additionally needed when using an intermediate position module.

Installation example



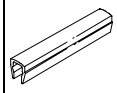
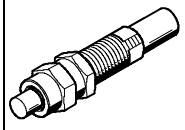
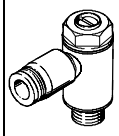
Note

The intermediate position module DADM can be mounted at any position within the stroke.

For ∅ [mm]	Operating pressure [bar]	Impact velocity [m/s]	Swivel time [ms]	Repetition accuracy [mm]	Pneumatic connection	Precision adjustment L [mm]
25 32	2.5 ... 8	→ 35	100	0.02	QS-4	2

For ∅ [mm]	Ambient temperature [°C]	CRC[1)]	Installation position	Position sensing	Weight [g]	Part No.	Type
25	−10 ... +60	2	Any	Via proximity sensor SME/SMT-10	430	**541 700**	**DADM-DGC-25-A**
32					530	**541 701**	**DADM-DGC-32-A**

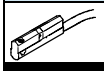
1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Ordering data						
	For ∅	Remarks	Order code	Part No.	Type	PU[1]
Slot nut NST						
	25 … 40	For mounting slot	B	**547 264**	**HMBN-5-1M5**	10
Centering pin/sleeve ZBS/ZBH						
	8 … 18	For slide	–	**150 928**	**ZBS-5**	10
	25 … 40			**150 927**	**ZBH-9**	
	8, 12	For end cap	–	**525 273**	**ZBS-2**	
	18			**150 928**	**ZBS-5**	
	25 … 40			**150 927**	**ZBH-9**	
Slot cover ABP-S						
	18 … 40	For sensor slot every 0.5 m	L	**151 680**	**ABP-5-S**	2
Shock absorber YSRW						
	8	For DGC basic version and recirculating ball bearing guide	YSRW	**540 344**	**YSRW-DGC-8**	1
	12			**540 345**	**YSRW-DGC-12**	
	18	For DGC with plain-bearing guide		**540 346**	**YSRW-DGC-18-GF**	
	25			**540 348**	**YSRW-DGC-25-GF**	
	32			**540 350**	**YSRW-DGC-32-GF**	
	40			**540 352**	**YSRW-DGC-40-GF**	
	18	For DGC with recirculating ball bearing guide		**540 347**	**YSRW-DGC-18-KF**	
	25			**540 349**	**YSRW-DGC-25-KF**	
	32			**540 351**	**YSRW-DGC-32-KF**	
	40			**540 353**	**YSRW-DGC-40-KF**	
One-way flow control valve GRLA						
	8 … 18	Metal design	–	**193 137**	**GRLA-M5-QS-3-D**	1
				193 138	**GRLA-M5-QS-4-D**	
	25, 32			**193 142**	**GRLA-⅛-QS-3-D**	
				193 143	**GRLA-⅛-QS-4-D**	
				193 144	**GRLA-⅛-QS-6-D**	
				193 145	**GRLA-⅛-QS-8-D**	
	40			**193 146**	**GRLA-¼-QS-6-D**	
				193 147	**GRLA-¼-QS-8-D**	
				193 148	**GRLA-¼-QS-10-D**	

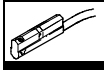
1) Packaging unit quantity

Proximity sensors for piston ∅ 8/12 and intermediate position module DADM

Ordering data – Proximity sensors for slot type 10 (C-slot), magneto-resistive

	Assembly	Electrical connection		Switch output	Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8					
N/O contact								
	Flush	–	3-pin	PNP	0.3	In-line	**173 220**	**SMT-10-PS-SL-LED-24**
		3-wire	–		2.5		**173 218**	**SMT-10-PS-KL-LED-24**

Ordering data – Proximity sensors for slot type 10 (C-slot), magnetic reed

	Assembly	Electrical connection		Cable length [m]	Connection direction	Part No.	Type
		Cable	Plug M8				
N/O contact							
	Flush	–	3-pin	0.3	In-line	**173 212**	**SME-10-SL-LED-24**
		3-wire	–	2.5		**173 210**	**SME-10-KL-LED-24**

Proximity sensors for piston ∅ 18 … 40

Ordering data – Proximity sensors for slot type 8 (T-slot), magneto-resistive

	Assembly	Switch output	Electrical connection			Cable length [m]	Part No.	Type
			Cable	Plug M8	Plug M12			
N/O contact								
	Insertable from above	PNP	3-wire	–	–	2.5	**525 898**	**SMT-8F-PS-24V-K2,5-OE**
		NPN					**525 909**	**SMT-8F-NS-24V-K2,5-OE**
		–	2-wire	–	–	2.5	**525 908**	**SMT-8F-ZS-24V-K2,5-OE**
		PNP	–	3-pin	–	0.3	**525 899**	**SMT-8F-PS-24V-K0,3-M8D**
		NPN					**525 910**	**SMT-8F-NS-24V-K0,3-M8D**
		PNP	–	–	3-pin	0.3	**525 900**	**SMT-8F-PS-24V-K0,3-M12**
	Insertable from end, flush with the cylinder profile	PNP	3-wire	–	–	2.5	**175 436**	**SMT-8-PS-K-LED-24-B**
			–	3-pin	–	0.3	**175 484**	**SMT-8-PS-S-LED-24-B**
N/C contact								
	Insertable from above	PNP	3-wire	–	–	7.5	**525 911**	**SMT-8F-PO-24V-K7,5-OE**

Proximity sensors for piston ∅ 18 … 40

Ordering data – Proximity sensors for slot type 8 (T-slot), magnetic reed

	Assembly	Electrical connection		Cable length [m]	Part No.	Type
		Cable	Plug M8			
N/O contact						
	Insertable from above	3-wire	–	2.5	**525 895**	**SME-8F-DS-24V-K2,5-OE**
				5.0	**525 897**	**SME-8F-DS-24V-K5,0-OE**
		2-wire	–	2.5	**525 907**	**SME-8F-ZS-24V-K2,5-OE**
		–	3-pin	0.3	**525 896**	**SME-8F-DS-24V-K0,3-M8D**
	Insertable from end, flush with the cylinder profile	3-wire	–	2.5	**150 855**	**SME-8-K-LED-24**
		–	3-pin	0.3	**150 857**	**SME-8-S-LED-24**
N/C contact						
	Insertable from end, flush with the cylinder profile	3-wire	–	7.5	**160 251**	**SME-8-O-K-LED-24**

Ordering data – Plug socket with cable

	Assembly	Switch output		Connection	Cable length [m]	Part No.	Type
		PNP	NPN				
Straight socket							
	Union nut M8	■	■	3-pin	2.5	**159 420**	**SIM-M8-3GD-2,5-PU**
					5	**159 421**	**SIM-M8-3GD-5-PU**
	Union nut M12	■	■	3-pin	2.5	**159 428**	**SIM-M12-3GD-2,5-PU**
					5	**159 429**	**SIM-M12-3GD-5-PU**
Angled socket							
	Union nut M8	■	■	3-pin	2.5	**159 422**	**SIM-M8-3WD-2,5-PU**
					5	**159 423**	**SIM-M8-3WD-5-PU**
	Union nut M12	■	■	3-pin	2.5	**159 430**	**SIM-M12-3WD-2,5-PU**
					5	**159 431**	**SIM-M12-3WD-5-PU**