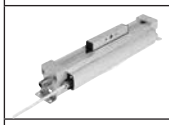
Linear drives DGCI, with displacement encoder

FESTO

Product range overview

Function	Type	Description
Drives	**Rodless**	
	DDLI 	• Without guide • With displacement encoder for contactless measurement • Based on linear drive DGC-K • Supply ports on end face • System product for handling and assembly technology
	DGCI 	• With guide • With displacement encoder for contactless measurement • Based on linear drive DGC • Supply ports optionally on end face or front • System product for handling and assembly technology
	With piston rod	
	DNCI 	• With displacement encoder for contactless measurement • Various piston rod variants • Standards-based cylinder to ISO 15552
	DDPC 	• With displacement encoder for contactless measurement • Various piston rod variants • Standards-based cylinder to ISO 15552
	DNC/DSBC 	• With attached potentiometer MLO-LWG • Various piston rod variants • Standards-based cylinder to ISO 15552
Semi-rotary drive	**Semi-rotary drive** 	• Based on semi-rotary drive DSM • Integrated rotary potentiometer • Compact design • Wide range of mounting options

Product range overview

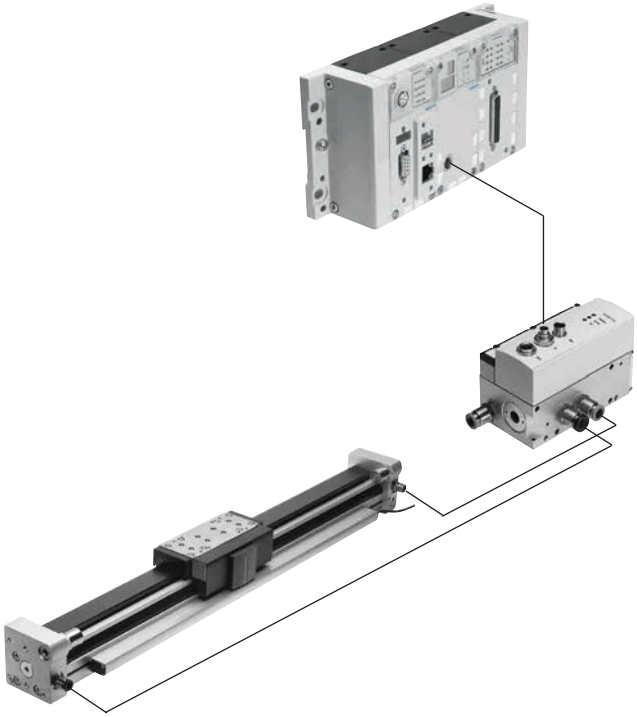
Piston ∅	Stroke/swivel angle	Suitable			
		For positioning with	For end-position controller		For use as a measuring cylinder
	[mm/°]	CPX-CMAX	CPX-CMPX	SPC11	
Rodless					
25, 32, 40, 63	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000	■	■	■	■
18, 25, 32, 40, 63	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000	■	■	■	■
With piston rod					
32, 40, 50, 63	10 ... 2000	–	–	–	■
	100 ... 750	■	■	■	–
80, 100	10 ... 2000	–	–	–	■
	100 ... 750	■	■	■	–
32, 40, 50, 63, 80	100, 150, 225, 300, 360, 450, 600, 750	■	■	■	■
Semi-rotary drive					
25, 40, 63	270	■	■	■	■

Key features

Servo-pneumatic drive technology

Positioning and Soft Stop applications as an integral component of the valve terminal CPX – the modular peripheral system for decentralised automation tasks. The modular design means that valves, digital inputs and outputs, positioning modules and end-position controllers, as appropriate to the application, can be combined in almost any way on the CPX terminal.

Benefits:
- Pneumatics and electrics – control and positioning on one platform
- Innovative positioning technology – piston rod drives, rodless drives, rotary drives
- Actuation via fieldbus
- Remote maintenance, remote diagnostics, web server, SMS and e-mail alerts are all possible via TCP/IP
- Modules can be quickly exchanged and expanded without altering the wiring



Axis controller CPX-CMAX

Data sheets ➔ Internet: cpx-cmax

Free choice:
Position and force control, directly actuated or selected from one of 128 configurable position sets.
If you are looking for something more:
The configurable record sequencing function enables simple functional sequences to be realised with the axis controller CPX-CMAX.
Everything is recognisable:
the auto-identification function identifies each participant with its device data on the controller CPX-CMAX.

Also included:
Actuation of a brake or clamping unit via the proportional directional control valve VPWP is also part of the scope of performance of the controller CPX-CMAX.
Up to 8 modules (max. 8 axes) can be operated in parallel and independently of each other.
Commissioning via FCT (Festo configuration software) or via fieldbus:
no programming, only configuration.

Benefits:
- Greater flexibility
- OEM friendly – commissioning also via fieldbus
- Easy installation and fast commissioning
- Cost-effective
- You program the system in your PLC environment

Key features

End-position controller CPX-CMPX

Data sheets ➔ Internet: cpx-cmpx

Fast travel between the mechanical end stops of the cylinder, stopping gently and without impact in the end position.
Fast commissioning via control panel, fieldbus or handheld unit.
Improved downtime control.
Actuation of a brake or clamping unit via the proportional directional control valve VPWP is an integral part of the controller CMPX.

Depending on the fieldbus chosen, up to 9 end-position controllers can be actuated on the CPX terminal.
All system data can be read and written via the fieldbus, including, for example, the mid-positions.

Benefits:
- Greater flexibility
- OEM friendly – commissioning also via fieldbus
- Easy installation and fast commissioning
- Cost-effective
  - Up to 30% faster cycle rates
  - Significantly reduced system vibration
- Improved work ergonomics thanks to significantly reduced noise level
- The extended diagnostics help to reduce the service time of the machine

Proportional directional control valve VPWP

Data sheets ➔ Internet: vpwp

The 5/3-way proportional directional control valve for applications with Soft Stop and pneumatic positioning.
Fully digitalised – with integrated pressure sensors, with new diagnostic functions.
In sizes 4, 6, 8 and 10.
Flow rates of 350, 700, 1400 and 2000 l/min.

With switching output for controlling a brake.
Colour-coded supply ports.
Pre-assembled cables guarantee error-free and fast connection with the controllers CPX-CMPX and CPX-CMAX.

- Benefits:
- Easy installation and fast commissioning
- Reduction of system downtimes thanks to the new diagnostic options
- With switching output for controlling a brake/clamping unit

Measuring module CPX-CMIX

Data sheets ➔ Internet: cpx-cmix

Fully digital data acquisition and transmission means that pneumatic cylinders can be used as sensors. With very high repetition accuracy and incorporating both analogue and digital measuring sensors.

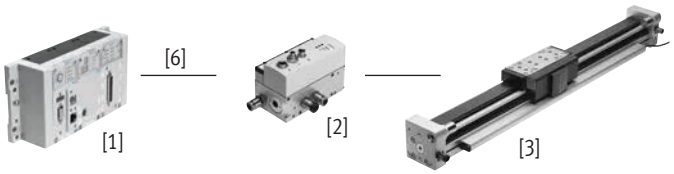
Suitable for the linear drive DGCI with displacement encoder for measuring absolute values, for the piston rod drive DNCI/DDPC with incremental displacement encoder or even for a potentiometer type MLO.

Benefits:
- All process steps can be documented, which improves quality
- An adjustable contact force (via pressure regulator) increases the precision of the "displacement sensor"
- With displacement encoders for measuring absolute values, the actual position is immediately available after the system is switched on

Drive options

System with linear drive DDLI, DGCI

Data sheets ➔ Internet: ddli or dgci



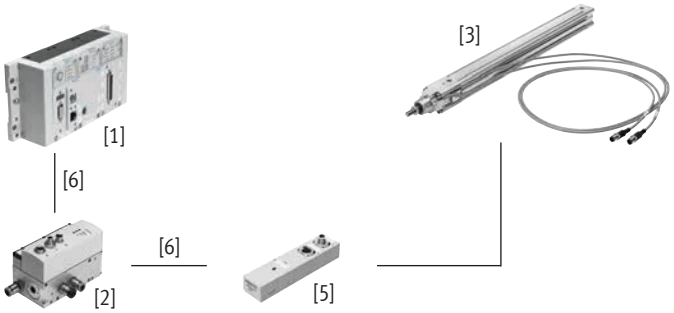
[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Linear drive DDLI, DGCI with displacement encoder
[6] Connecting cable KVI-CP-3-...

- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- Diameter:
  – With DGCI: 18 ... 63 mm
  – With DDLI: 25 ... 63 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Application areas: Soft Stop and pneumatic positioning
- Loads from 1 ... 180 kg
- No sensor interface required

Benefits:
- Complete drive unit
- DDLI for easy connection to customer's guide system
- Excellent running characteristics
- For fast and accurate positioning up to ±0.2 mm (only with axis controller CPX-CMAX)

System with standards-based cylinder DNCI, DDPC

Data sheets ➔ Internet: dnci



[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Standards-based cylinder DNCI, DDPC with displacement encoder
[5] Sensor interface CASM-S-D3-R7
[6] Connecting cable KVI-CP-3-...

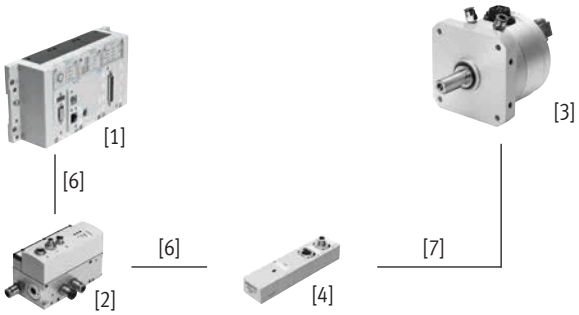
- Standards-based cylinder with integrated displacement encoder, conforms to DIN ISO 6432, VDMA 24 562, NF E 49 003.1 and Uni 10 290
- Displacement encoder with contactless and incremental measurement
- Diameter: 32 ... 100 mm
- Stroke: 100 ... 750 mm
- Application areas: Soft Stop and pneumatic positioning
- Loads from 3 ... 450 kg and the corresponding sensor interface CASM-S-D3-R7
- Pre-assembled cables guarantee error-free and fast electrical connection

Benefits:
- Compact drive unit
- Can be used universally
- Also with guide unit
- For fast and accurate positioning up to ±0.5 mm (only with axis controller CPX-CMAX)

Drive options

System with semi-rotary drive DSMI

Data sheets ➔ Internet: dsmi



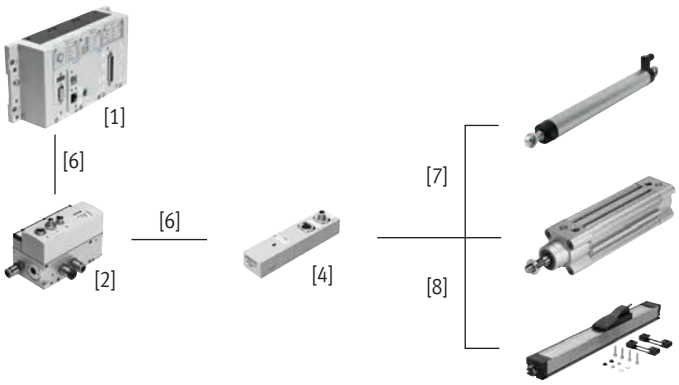
[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Swivel module DSMI with displacement encoder
[4] Sensor interface CASM-S-D2-R3
[6] Connecting cable KVI-CP-3-...
[7] Connecting cable NEBC-P1W4-K-0.3-N-M12G5

- Semi-rotary drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Application areas: Soft Stop and pneumatic positioning
- Mass moments of inertia of 15 ... 6000 kgcm^2 and the corresponding sensor interface CASM-S-D2-R3
- Pre-assembled cables guarantee error-free and fast connection to the proportional directional control valve VPWP

Benefits:
- Complete drive unit, compact, can be used immediately
- High angular acceleration
- With adjustable fixed stops
- For fast and accurate positioning down to ±0.2° (only with axis controller CPX-CMAX)

System with potentiometer

Data sheets ➔ Internet: casm



[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[4] Sensor interface CASM-S-D2-R3
[6] Connecting cable KVI-CP-3-...
[7] Connecting cable NEBC-P1W4-K-0.3-N-M12G5
[8] Connecting cable NEBC-A1W3-K-0.4-N-M12G5

- Attachable potentiometers with absolute measurement, with high degree of protection
- With connecting rod or moment compensator
- Measuring range:
  Connecting rod: 100 ... 750 mm
  Moment compensator:
  225 ... 2000 mm
- Pre-assembled cables guarantee error-free and fast connection with the sensor interface CASM
- Application areas: Soft Stop and pneumatic positioning with cylinder diameters of 25 ... 80 mm
- Loads from 1 ... 300 kg

Benefits:
- Easy installation and fast commissioning
- Cost-effective
- Can also be used in harsh ambient conditions
- Variety of drives: CPX-CMPX and CPX-CMAX also support cylinders with external displacement encoder

Drive options

System components for Soft Stop systems with end-position controller CPX-CMPX

	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encoder		→ Page/ Internet
	DDLI/DGCI	DNCI, DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
End-position controller CPX-CMPX	■	■	■	■	■	cmpx
Proportional directional control valve VPWP	■	■	■	■	■	vpwp
Sensor interface CASM-S-D2-R3	–	–	■	■	–	casm
Sensor interface CASM-S-D3-R7	–	■	–	–	–	casm
Connecting cable KVI-CP-3-...	■	■	■	■	■	kvi
Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	nebc
Connecting cable NEBP-M16W6-...	–	–	–	–	■	vpwp

System components for pneumatic positioning systems with axis controller CPX-CMAX

	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encoder		→ Page/ Internet
	DDLI/DGCI	DNCI, DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
Axis controller CPX-CMAX	■	■	■	■	■	cmax
Proportional directional control valve VPWP	■	■	■	■	■	vpwp
Sensor interface CASM-S-D2-R3	–	–	■	■	–	casm
Sensor interface CASM-S-D3-R7	–	■	–	–	–	casm
Connecting cable KVI-CP-3-...	■	■	■	■	■	kvi
Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	nebc
Connecting cable NEBP-M16W6-...	–	–	–	–	■	vpwp

System components for measuring cylinders with measuring module CPX-CMIX

	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encoder		→ Page/ Internet
	DDLI/DGCI	DNCI, DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
Measuring module CPX-CMIX-M1-1	■	■	■	■	■	cmix
Sensor interface CASM-S-D2-R3	–	–	■	■	–	casm
Sensor interface CASM-S-D3-R7	–	■	–	–	–	casm
Connecting cable KVI-CP-3-...	(■)[1)]	■	■	■	(■)	kvi
Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	nebc
Connecting cable NEBP-M16W6-...	–	–	–	–	■	vpwp

1) As an extension

Type codes

001	Series	
DGCI	Linear drive with displacement encoder	

002	Piston diameter	
18	18	
25	25	
32	32	
40	40	
63	63	

003	Stroke	
...	100 ... 2000	

004	Guide	
KF	Recirculating ball bearing guide	

005	Alternative supply port	
	None	
Q	Threaded connection	
QD	Push-in fitting at both ends, front side	
QR	Push-in fitting at one end, front, right	

006	Slide	
	Standard	
GP	Protected recirculating ball bearing guide	

007	Lubrication	
	Standard	
H1	Food-safe lubrication	

008	Lubrication function	
	None	
C	Lubrication adapter	

009	Additional slide left	
	None	
KL	Additional slide, standard, left	

010	Additional slide, right	
	None	
KR	Additional slide standard, right	

011	Clamping unit	
	None	
1H	Holding function, 1-channel	

012	Actuation type	
	None	
PN	Pneumatically actuated	

013	Cushioning	
	None	
YSR	Self-adjusting shock absorber	
YSRW	Shock absorber, self-adjusting, progressive	

014	EU certification	
EX2	II 3GD	

015	Accessories	
	None	
ZUB-	Accessories supplied loose	

016	Type of mounting	
	Without mounting bracket	
F	Foot mounting	
M	Profile mounting	

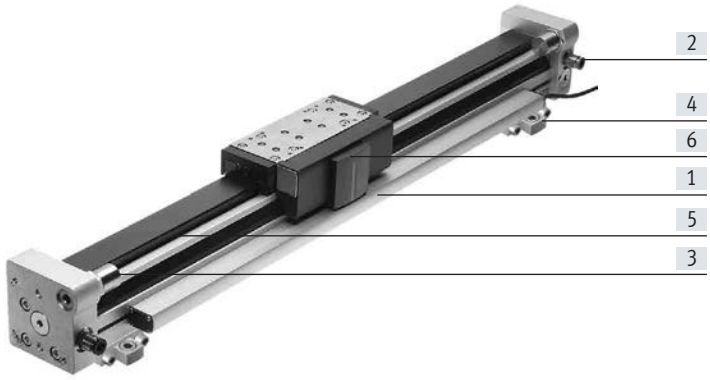
017	L - Slot cover, sensor slot	
	None	
L	1 ... 9 pcs.	

018	B - Slot nut, mounting slot	
	None	
B	1 ... 9 pcs.	

019	User documentation	
	None	
O	Express waiver - no operating instructions to be included (already available)	

Key features

At a glance



[1] Displacement encoder

- High degree of protection IP67
- Non-contacting
- Measures absolute values

[2] Compressed air supply ports

- Optionally on two sides (on the end face or at the front)
- Optionally with different coloured push-in fittings for simple and error-free tubing connections

[3] End stops

- Metal fixed stop
- Shock absorber, precisely adjustable

[4] Profile mounting

- Profile mountings remain on the base plate after the drive is dismantled. This saves time during assembly and removal

[5] Recirculating ball bearing guide

- Piston Ø 18 ... 63 mm
- Stroke length 100 ... 2000 mm
- Guide backlash = 0 mm
- For medium and large loads
- Precision mounting interface with stainless steel slide
- Operating behaviour under torque load = very good

[6] Recirculating ball bearing guide with protected guide

- Piston Ø 18 ... 40 mm
- Stroke length 100 ... 2000 mm
- Guide backlash = 0 mm
- The protected guide cleans the guide rail and protects the recirculating ball bearing guide using an additional wiper seal and lubrication unit

– Guide axis DGC-FA

- Without drive
- Piston Ø 8 ... 63 mm
- Stroke length 1 ... 5000 mm
- Guide backlash = 0 mm
- Precision guide, suitable for DGCI. Can be used as a machine component or as a twin guide with DGCI

– Guide axis with protected guide DGC-FA-GP

- Without drive
- Piston Ø 18 ... 63 mm
- Stroke length 1 ... 5000 mm
- Guide backlash = 0 mm
- The protected guide cleans the guide rail and protects the recirculating ball bearing guide using an additional wiper seal and lubrication unit

Key features

Options

Central lubrication

The lubrication adapter enables the guide of the linear drive DGCI to be permanently lubricated in applications in humid or wet ambient conditions using semi or fully automatic relubrication devices.
The adapters are suitable for oils and greases.

- For piston Ø 25, 32, 40, 63 mm
- Connections:
  – On both sides of the slide
  – In three places (front, top, rear) on each side

Clamping unit – 1H-PN

- 1-channel design, for holding loads
- Reliable holding is guaranteed since the forces act directly on the slide
- A limited number of emergency braking operations are permissible with size 40
- No stroke reduction; the drive is extended by the length of the clamping unit

- For piston Ø 25, 32, 40 mm

Additional slide – KL/KR

- Additional slide, either to the right or left of the main slide
- To increase the torques

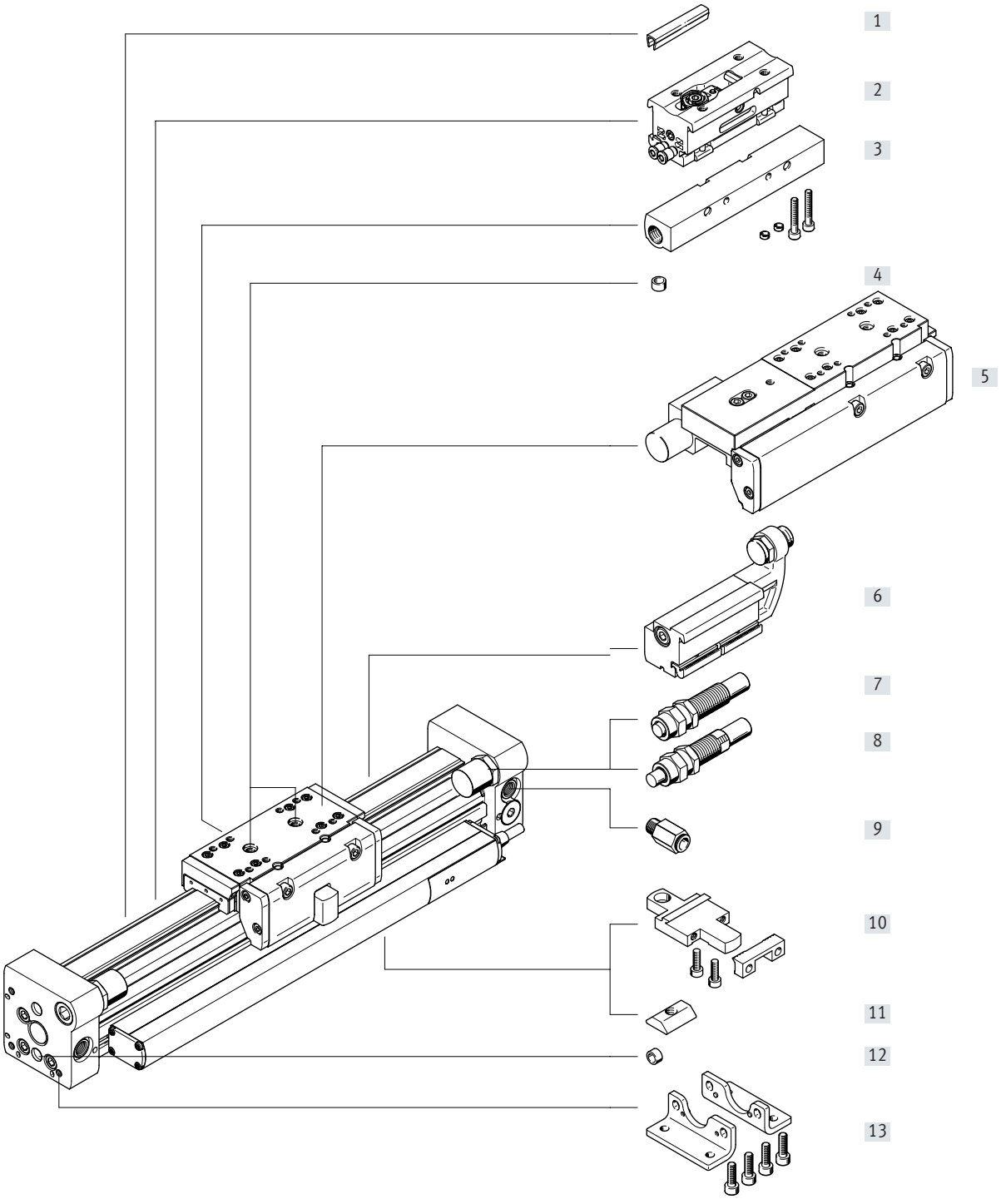
- For piston Ø 18, 25, 32, 40, 63 mm

NSF-H1 lubricant for the food zone – H1

The linear drive is of limited suitability for the food zone.
Additional information: www.festo.com/sp
→ Certificates
Not approved for use in the food zone:

- DGCI-...-GP (protected version)
- DGCI-... with integrated shock absorbers

Peripherals overview



Note

The drive must not be operated without end stops or shock absorbers.

Peripherals overview

Variants and accessories

	Type/order code	For piston ø	Description	→ Page/Internet
[1]	Slot cover ABP-S	18 ... 63	For protecting against contamination and securing the proximity switch cable	42
[2]	Intermediate-position DADM-DGC	25, 32	Facilitates intermediate positions with metal fixed stop. The module can be attached	40
[3]	Shock absorber retainer DADP-DGC	18 ... 63	For variable end-position adjustment in combination with the stop KYC	38
[4]	Centring pin/sleeve[1)] ZBS/ZBH	18 ... 63	For centring loads and attachments on the slide	42
[5]	Clamping unit 1H-PN	25, 32, 40	For holding loads	30
[6]	Stop KYC	18 ... 63	For variable end-position adjustment in combination with the shock absorber retainer DADP-DGC	38
[7]	Shock absorber YSR	18 ... 63	Self-adjusting, hydraulic shock absorber with spring return and linear cushioning characteristics.	42
[8]	Shock absorber YSRW	18 ... 63	Self-adjusting, hydraulic shock absorber with spring return and progressive cushioning characteristics	42
[9]	Push-in fitting QS	18 ... 63	For connecting tubing with standard O.D.	33
[10]	Profile mounting MUC	18 ... 63	Simple and precise mounting option via dovetail connection.	37
[11]	Slot nut HMBM	25 ... 63	For mounting attachments	42
[12]	Centring pin/sleeve[1)] ZBS/ZBH	18 ... 63	For centring the drive without foot mountings (user-specific)	42
[13]	Foot mounting HPC	18 ... 63	For mounting on the end cap	36
–	Proportional directional control valve VPWP	18 ... 63	Regulates the compressed air and therefore the position of the slide	42

1) Included in the scope of delivery of the drive

Note

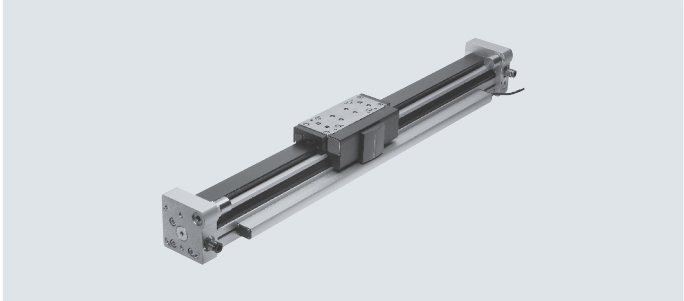
Allocation table of drives and associated proportional directional control valves

→ page 42

Data sheet

www.festo.com

- Diameter
  18 and 63 mm
- Stroke length
  100 ... 2000 mm



General technical data Piston ø		18	25	32	40	63
Design		Rodless linear drive with displacement encoder				
Mode of operation		Double-acting				
Moment compensator principle		Slotted cylinder, mechanically coupled				
Guide		External recirculating ball bearing guide				
Mounting position		Any				
Type of mounting		Profile mounting				
		Foot mounting				
		Direct mounting				
Cushioning ➔ Page 19		Via metal fixed stop				
		With self-adjusting shock absorber at both ends				
Position sensing		With attached displacement encoder				
Measuring principle (displacement encoder)		Digital, magnetostrictive, non-contacting and absolute measurement				
Pneumatic connection[1]		M5	G1/8		G1/4	G3/8
Stroke[2]	[mm]	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000				
Protected version		Optional				–
Max. velocity[3]	[m/s]	5				
Stroke tolerance	[mm]	0 ... 2.5				

1) Recommended push-in fittings ➔ page 42
With pre-assembled push-in fittings, the tubing diameters apply ➔ 20
2) Note stroke reduction in combination with CPX-CMAX
3) Only applies to applications with end-position controller CPX-CMPX, SPC11 and axis controller CPX-CMAX. Otherwise a maximum speed of 3 m/s is permitted.

Operating and environmental conditions Piston ø		18	25	32	40	63
Operating pressure	[bar]	2 ... 8			1.5 ... 8	
Operating pressure[1]	[bar]	4 ... 8				
Operating medium[2]		Compressed air to ISO 8573-1:2010 [6:4:4]				
Note on the operating/pilot medium		Operation with lubricated medium not possible Pressure dew point 10°C below ambient/medium temperature				
Ambient temperature	[°C]	–10 ... +60				
Vibration resistance to DIN/IEC 68, Part 2-6		At 10 ...58 Hz: 0.15 mm				
		At 58 ...150 Hz: 2G				
Continuous shock resistance to DIN/IEC 68 Part 2-27		Half sine 15 g, 11 ms				
CE marking (see declaration of conformity)[3]		To EU EMC Directive				
Certification		C-Tick				
Food-safe[4]		➔ Supplementary material information				
Corrosion resistance class CRC[5]		1				

1) Only applies to applications with end-position controller CPX-CMPX, SPC11 and axis controller CPX-CMAX
2) The proportional directional control valve VPWP, MPYE used requires these characteristic values
3) For information about the area of use, see the EC declaration of conformity: www.festo.com/sp ➔ Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
4) Additional information is available at www.festo.com/sp ➔ Certificates.
5) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Data sheet

ATEX[1]	
Explosion-proof ambient temperature	0°C ≤ Ta ≤ +50°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)
ATEX category for gas	II 3G
Type of ignition protection for gas	Ex nA IIC T4 X Gc
ATEX category for dust	II 3D
Type of ignition protection for dust	Ex tc IIIC T120°C X Dc IP65

1) Note the ATEX certification of the accessories.

Forces [N] and impact energy [Nm]						
Piston ø		18	25	32	40	63
Theoretical force at 6 bar		153	295	483	754	1870
Impact energy at the end positions						
With fixed stop		0.4	0.5	0.7	0.7	0.7
With shock absorber YSR / YSRW		→ Page 19				

Positioning characteristics with axis controller CPX-CMAX						
Piston ø		18	25	32	40	63
Mounting position		Any				
Resolution	[mm]	0.01				
Repetition accuracy	[mm]	→ Page 17				
Minimum load, horizontal[1]	[kg]	1	2	3	5	12
Maximum load, horizontal[1]	[kg]	15	30	50	75	180
Minimum load, vertical[1]	[kg]	1	2	3	5	12
Maximum load, vertical[1]	[kg]	5	10	15	25	60
Minimum travel speed	[m/s]	0.05				
Max. travel speed	[m/s]	5				3
Typical positioning time, long stroke[2]	[s]	0.75/1.15	0.65/1.00	0.65/1.05	0.70/1.05	1.05/1.20
Typical positioning time, short stroke[3]	[s]	0.38/0.65	0.38/0.60	0.38/0.60	0.38/0.60	0.65/0.65
Minimum positioning stroke[4]	[%]	≤ 3				
Stroke reduction[5]	[mm]	20	25	25	35	35
Recommended proportional directional control valve						
For CPX-CMAX		→ Page 42				

1) Load = payload + load of all moving parts on the drive
2) At 6 bar, horizontal mounting position, DGCI-XX-1000, 800 mm positioning travel at min./max. load
3) At 6 bar, horizontal mounting position, DGCI-XX-1000, 100 mm positioning travel at min./max. load
4) In relation to the maximum stroke of the drive, but never more than 20 mm.
5) The stroke reduction must be maintained on each side of the drive, the max. stroke for variable positioning is thus: stroke – 2x stroke reduction

Force control characteristics with axis controller CPX-CMAX						
Piston ø		18	25	32	40	63
Mounting position		Any				
Maximum controllable force[1]	[N]	138	266	435	679	1683
Typical friction forces[2]	[N]	40	60	40	50	70
Repetition accuracy of pressure control[3][4]	[%]	< ±2				

1) Advancing/retracting at 6 bar
2) These values can fluctuate greatly from cylinder to cylinder and are not guaranteed.
These friction forces must also be taken into consideration when using an external guide or when the cylinder is moving other components subject to friction
3) This value defines the repetition accuracy with which the internal pressure differential in the cylinder, which corresponds to the prescribed force setpoint value, is controlled and relates to the maximum controllable force
4) The effective force at the workpiece and its accuracy depend largely on the friction in the system as well as the repetition accuracy of the internal control system. Note that friction forces always work against the direction of movement of the piston. The following formula can be used as a rule of thumb to approximate the force F at the workpiece:
$F = F_{setpoint} \pm F_{friction\ forces} \pm$ repetition accuracy of pressure control

Data sheet

Positioning characteristics with Soft Stop end-position controller CPX-CMPX, SPC11						
Piston ø		18	25	32	40	63
Mounting position		Any				
Repetition accuracy[1]	[mm]	±2				
Minimum load, horizontal[2]	[kg]	1	2	3	5	12
Maximum load, horizontal[2]	[kg]	15	30	50	75	180
Minimum load, vertical[2]	[kg]	1	2	3	5	12
Maximum load, vertical[2]	[kg]	5	10	15	25	60
Travel time	[s]	→ SoftStop engineering software: → www.festo.com				
Recommended proportional directional control valve						
For CPX-CMPX		→ Page 43				
For SPC11		→ Page 44				

1) One intermediate position. The accuracy in the end positions depends solely on the design of the end stops

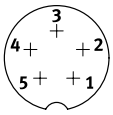
2) Load = payload + load of all moving parts on the drive

Electrical data – Displacement encoder		
Output signal		Digital
Linearity error[1]	[%]	< ±0.02, min. ±50 µm
Max. travel speed	[m/s]	5
Degree of protection		IP67
CE marking (see declaration of conformity)		To EU EMC Directive[2]
Power supply	[V DC]	24 (±25%)
Current consumption	[mA]	Typically 100
Max. temperature coefficient	[ppm/°K]	15
Electrical connection		Cable with 5-pin plug, round design, M9
Cable length	[m]	1.5
Cable quality		Suitable for use with energy chains

1) Always refers to max. stroke.

2) For information about the area of use, see the EC declaration of conformity: www.festo.com/sp → Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Pin allocation of the plug



Pin	Function
1	24 V
2	n. c.
3	0 V

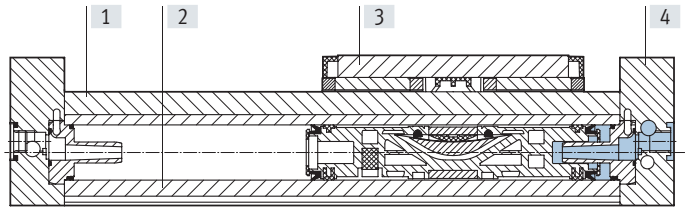
Pin	Function
4	CAN_H
5	CAN_L
–	Shielding

Data sheet

Weight [g]					
Piston ø	18	25	32	40	63
DGCI-...					
Basic weight at 0 mm stroke	1200	2400	3100	7300	22500
Additional weight per 10 mm stroke	38	56	81	124	243
Moving load	360	770	1170	2360	8200
Moving load on additional slide	300	650	950	2000	5600
DGCI-...-1H-PN – with clamping unit					
Basic weight at 0 mm stroke	–	3436	4582	12386	–
Additional weight per 10 mm stroke	–	0.056	0.081	0.124	–
Moving load	–	1430	2084	5519	–

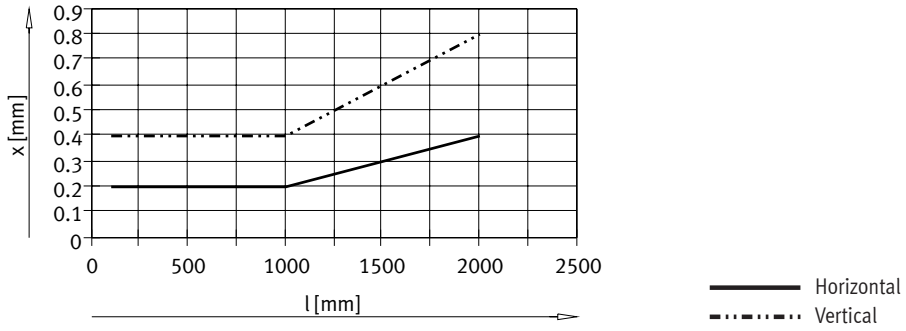
Materials

Sectional view



Linear drives		
[1]	Guide rail	High-alloy steel
[2]	Cylinder profile, housing	Anodised aluminium
[3]	Slide	High-alloy steel
[4]	End cap	Anodised aluminium
–	Seals, sealing band	Polyurethane
–	Guide band, dirt wiper seal, ball return	Polyacetal
–	Cover	Polyacetal, polyamide, powder-coated aluminium
–	Displacement encoder	Anodised aluminium, glass-fibre reinforced polyphthalamide
–	Cable	Polyurethane
–	Note on materials	Free of copper and PTFE

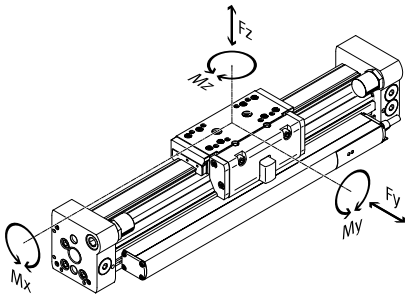
Repetition accuracy x as a function of stroke l



Data sheet

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

The indicated forces and torques refer to the slide surface and the centre of the slide.
These values must not be exceeded during dynamic operation. Special attention must be paid to the deceleration phase.



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

$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

F1/M1 = dynamic value
F2/M2 = maximum value

Permissible forces and torques

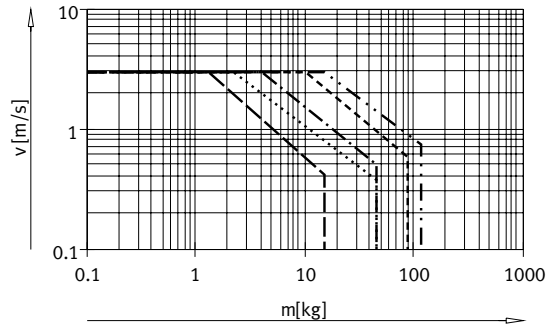
Piston ø		18	25	32	40	63
$Fy_{max.}$	[N]	1850	3050	3310	6890	15200
$Fz_{max.}$	[N]	1850	3050	3310	6890	15200
$Mx_{max.}$	[Nm]	16	36	54	144	529
$My_{max.}$	[Nm]	51	97	150	380	1157
$Mz_{max.}$	[Nm]	51	97	150	380	1157

Note
To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of 0.01 mm:

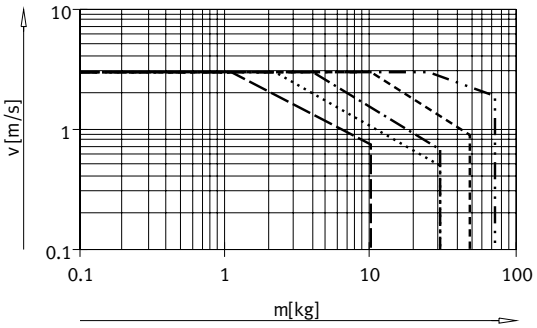
Data sheet

Maximum permissible piston speed with shock absorber v as a function of payload m

Piston Ø 18 ... 63 with cushioning YSR



Piston Ø 18 ... 63 with cushioning YSRW



DGCI-18
DGCI-25
DGCI-32
DGCI-40
DGCI-63

Note

These specifications represent the maximum values that can be achieved. In practice, values fluctuate relative to the size of the payload.

Technical data – Clamping unit

Size		25	32	40
Pneumatic connection		M5	M5	M5
Clamping type		Clamping via spring force, compressed air to release		
Static holding force	[N]	320	500	1200
Max. number of emergency braking operations[1)] at reference energy	 [J]	– –	– –	750 35
Number of clamping operations under rated load	[millions of switching cycles]	0.45	0.55	0.05

1) Emergency braking refers to braking the payload if the drive axis loses power.

Operating and environmental conditions – Clamping unit

Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Operating pressure		
Clamping unit open	[bar]	4.5 ... 8
Clamping unit closed	[bar]	Unpressurised
Ambient temperature	[°C]	–10 ... +60

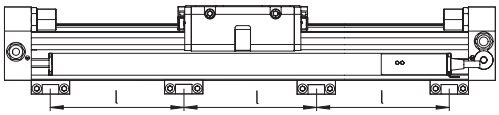
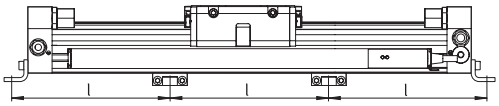
Note

No stroke reduction when a clamping unit is used, the drive is extended by the length of the clamping unit.

Data sheet

Number of profile mountings MUC as a function of overall length

Excessive distances between the profile mountings can reduce the positioning accuracy. The following table shows the required minimum number of profile and foot mountings.

Stroke [mm]	Number of mounting attachments		
	Order code M	Order code F	
	Profile mounting	Foot mounting +	Profile mounting
			
100 ... 400	2	2	0
401 ... 600	2	2	1
601 ... 1200	3	2	1
1201 ... 1400	3	2	2
1401 ... 2000	4	2	2

Tubing diameter with pre-assembled push-in fittings

Size	Stroke	⌀ in [mm]			
	[mm]	6	8	10	12
DGCI-18	100 ... 2000	■	–	–	–
DGCI-25	100 ... 160	■	–	–	–
	225 ... 2000	–	■	–	–
DGCI-32	100 ... 2000	–	■	–	–
DGCI-40	100 ... 750	–	■	–	–
	850 ... 2000	–	–	■	–
DGCI-63	100 ... 300	–	■	–	–
	360 ... 750	–	–	■	–
	850 ... 2000	–	–	–	■

Data sheet

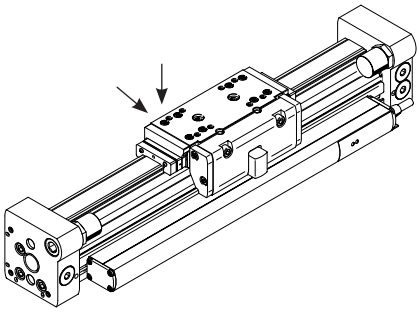
Central lubrication

The lubrication adapter enables the guide of the linear drive DGCI to be permanently lubricated in applications in humid or wet ambient conditions using semi or fully automatic relubrication devices.

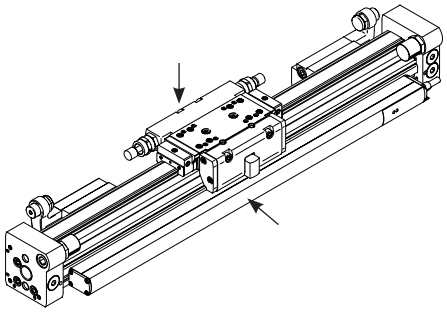
- For piston ø 25, 32, 40, 63
- The modules are suitable for oils and greases.
- The dimensions of the linear drive DGCI are the same with and without central lubrication modules.
- Both lubrication adapters must be connected
- There are three connection options on each side
- Can be used in combination with:
  - Standard slide GK
  - Additional slide KL, KR
- Cannot be used in combination with:
  - Protected recirculating ball bearing guide GP

Connection options

Only the connection at the rear or on the top can be used in combination with shock absorbers in the end caps.

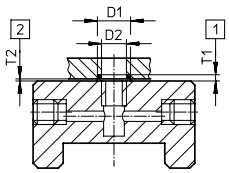


Only the connection on the front or top can be used in combination with shock absorber retainer DADP.



Connection option for customer design

The drawing on the right shows the connection option on the top lubrication interface using a customer design.



D1 $8^{+0.2}$ mm
D2 6 mm
T1 $0.6_{-0.05}$ mm
T2 $0.1^{+0.2}$ mm
O-ring ø 6x1 mm (DIN 3771)

[1] Slot depth for O-ring
[2] Required air gap

Additional dimensions ➔ page 28

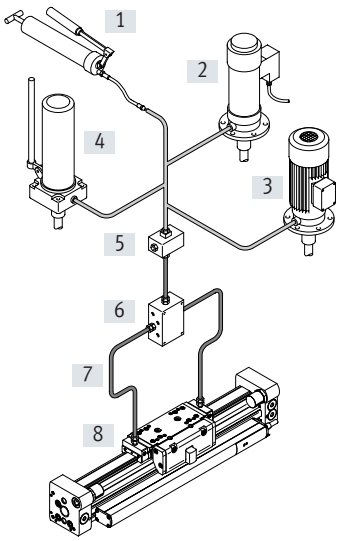
Design of a central lubrication system

A central lubrication system requires various additional components. The illustration shows different options (using a hand pump, pneumatic container pump or electric container pump) required as a minimum for designing a central lubrication system.

Festo does not sell these additional components; however, they can be obtained from the following companies:

- Lincoln
- Bielomatik
- SKF (Vogel)

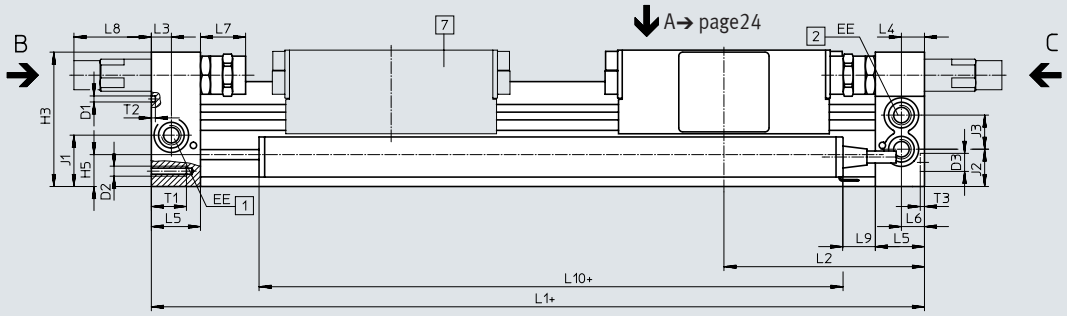
Festo recommends these companies because they can supply all the necessary components.



[1] Hand pump
[2] Pneumatic container pump
[3] Electric container pump
[4] Manually operated container pump
[5] Nipple block
[6] Distributor block
[7] Tubing or piping
[8] Fittings

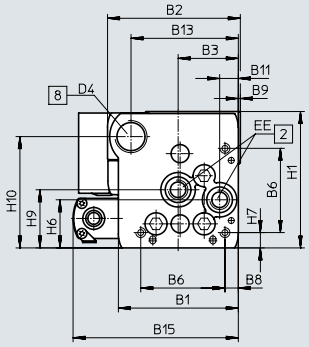
Data sheet

Dimensions Download CAD data ➔ www.festo.com

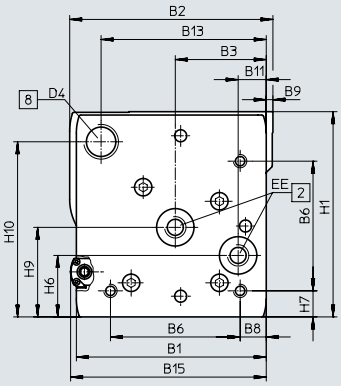


View C

ø 18 ... 40

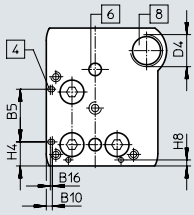


ø 63

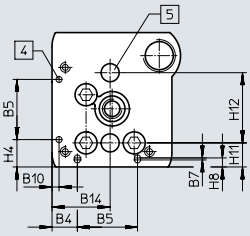


View B

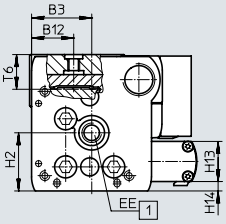
ø 18



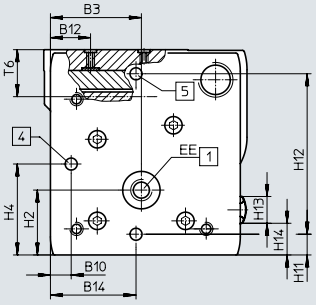
ø 25 ... 40



ø 18 ... 40



ø 63



\+ plus stroke length

[1] Option of supply port at either end (on the end face or at the front)

[2] Option of supply port at either end, for supply port at one end (on the end face or at the front)

[4] Mounting hole for foot mounting HPC

[5] Drilled hole for centring pin ZBS

[6] Drilled hole for centring sleeve ZBH

[7] Additional slide

[8] Thread for end stop

Data sheet

ø [mm]	B1	B2	B3	B4 ±0.1	B5 ±0.05	B6	B7	B8 ±0.1	B9	B10	B11	B12
18	44.5	49.9	19.5	8.8	21	31	–	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
63	142	149	68	–	–	97	–	19.5	5	15.5	21	30

ø [mm]	B13	B14 ±0.05	B15	B16	D1 ø	D2	D3 ø H7	D4	EE	H1	H2	H3
18	39	19.5	68.3	0.8	2±0.05	M4	5	M12x1	M5	56.3	23.1	55
25	53	29	82.4	–	3±0.05	M5	9	M16x1	G1/8	68	29	67
32	65	38.5	97.8	–	3±0.05	M6	9	M16x1	G1/8	78.5	30	77
40	80.5	45	110.3	–	4±0.05	M6	9	M22x1.5	G1/4	99.5	41.5	97.5
63	123.5	68	146.3	–	9^{H7}	M10	9	M26x1.5	G3/8	153.5	48.5	151

ø [mm]	H4 ±0.1	H5	H6	H7	H8	H9	H10	H11	H12 ±0.05	H13	H14	J1	J2	J3
18	9.6	13.4	20	4.6	2.4	25.2	46	8.5±0.15	30	20	2.3	20	16.5	11
25	13.65	15.8	24	7.65	4.5	29	55.5	12±0.15	35	20	4.7	26.1	18.6	17
32	5.7	17	27.7	8.5	14	35.2	63.8	11.45±0.15	50	20	5.9	30	22	18.5
40	17.2	25	36.5	12.2	8	44	81.5	15±0.15	60	20	13.9	35	26	26
63	68	34.8	46	19.5	–	67	131	15.5±0.2	120	20	23.7	41.5	39.5	31.5

ø	L1			L2			L3	L4	L5	L6	L7		
[mm]	KF	KF-GP	1H-PN	KF	KF-GP	1H-PN					KF	KF-GP	KF-YSR(W)
18	150	157	–	74.5	78	–	5.7	5.8	15	5.5	14.5 ... 16.5	18 ... 20	14.5 ... 34.5
25	200	205	271	100	102.5	100	10.5	10.6	24.5	10.6	22.5 ... 26.5	25 ... 29	22.5 ... 47.5
32	250	250	320.5	124.8	124.8	124.8	14.5	14.5	30.5	14.5	27.3 ... 32.3	27.3 ... 32.3	27.3 ... 52.3
40	300	312	458	150	156	150	14.6	14.6	33.5	14.6	31 ... 36	37 ... 42	31 ... 56
63	400	–	–	200	–	–	20	20	44	20	41 ... 46	–	41 ... 76

ø	L8		L9		L10	T1	T2	T3	T6	Stroke tolerance
[mm]	YSR	YSRW	KF ±0.2	KF-GP ±0.2	max.			+0.2		
18	29.9	32.6	–	3.5	119	9	2	3.1	15	0 ... 2.5
25	35.6	38.6	16.5	19	119	17.5	2	2.1	17.3	
32	19.5	28	35.3	35.3	119	15	2	2.1	20	
40	38.5	43.5	17	23	119	20	2	2.1	25.7	
63	38.3	48.3	97	–	119	27.5	$2.1^{+0.2}$	2.1	36.1	

Note

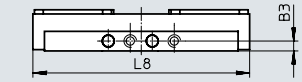
For reasons of functional safety of the displacement encoder and stability of the linear drive DGCI, the distance L7 must not fall below the values in the table.

Data sheet

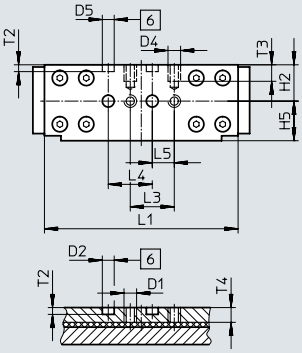
Dimensions Download CAD data ➔ www.festo.com

Slide

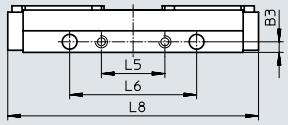
Ø 18



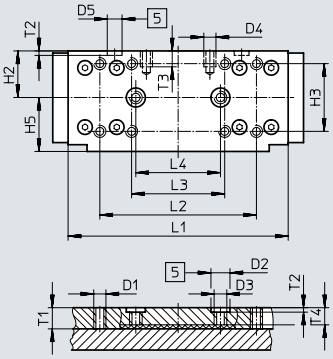
View A



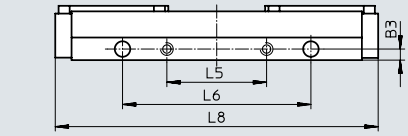
Ø 25



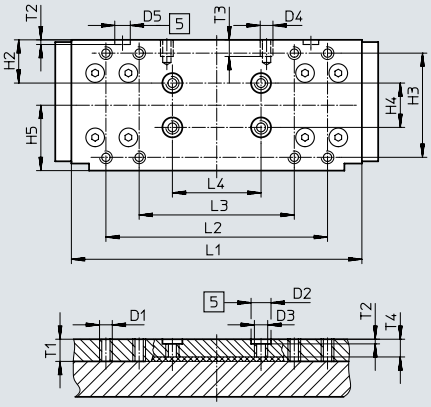
View A



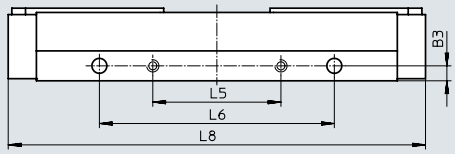
Ø 32



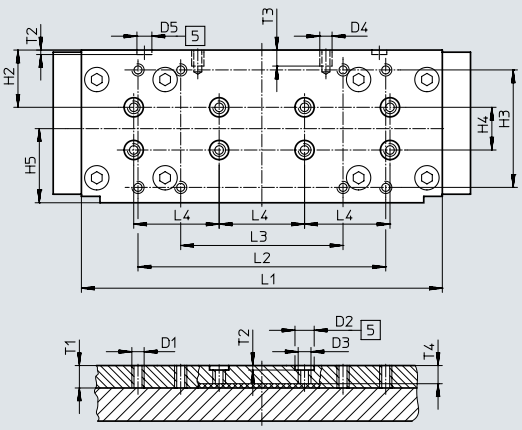
View A



Ø 40



View A



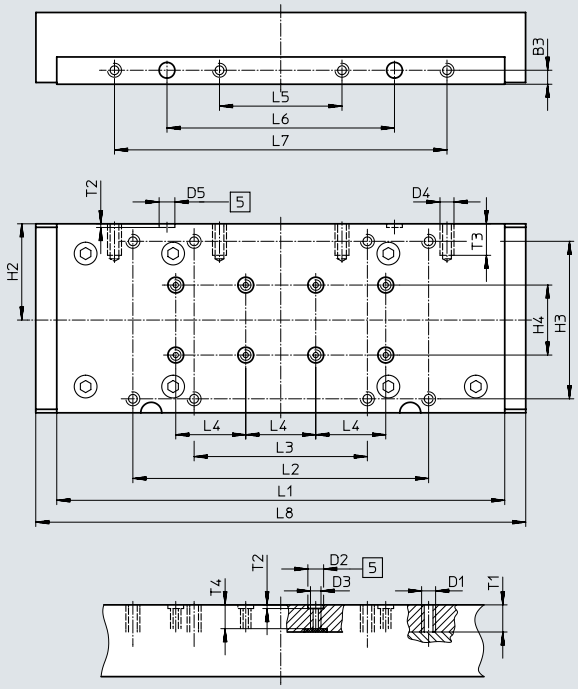
[5] Drilled hole for centring sleeve ZBH
[6] Drilled hole for centring pin ZBS

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Slide

Ø 63



[5] Drilled hole for centring sleeve ZBH

ø [mm]	B3 ±0.05	D1	D2 ø H7	D3	D4	D5 ø H7	H2	H3	H4 ±0.03	H5 ±0.1	L1
18	4.5	M5	5	–	M5	5	16.5	–	–	18	88±0.1
25	5	M5	9	M6	M5	7	22	32±0.2	–	25.5	104±0.2
32	5	M5	9	M6	M5	7	19.5	47±0.2	20	29.5	131±0.2
40	7	M5	9	M6	M6	7	26.8	55±0.2	20	34.7	169±0.2
63	8	M8	9	M6	M8	9	55	90±0.3	40	–	256±0.1

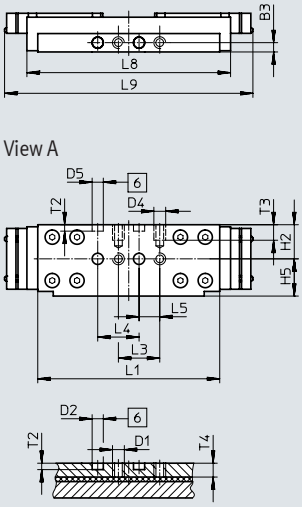
ø [mm]	L2 ±0.2	L3	L4 ±0.03	L5 ±0.1	L6 ±0.05	L7 ±0.1	L8	T1	T2	T3	T4
18	–	20±0.1	20	10	–	–	99	–	3.1±0.1	7.5	6.7
25	74	44±0.2	40	30	60	–	118.5	10	2.1±0.2	7.5	8
32	100	70±0.2	40	45	85	–	145.7	10	2.1±0.2	7.5	8
40	116	76±0.2	40	60	110	–	195.4	10.5	2.1±0.2	7.5	8.5
63	169	99±0.2	40	70	130	190	280	15.5	2.1±0.2	18	13.6

Data sheet

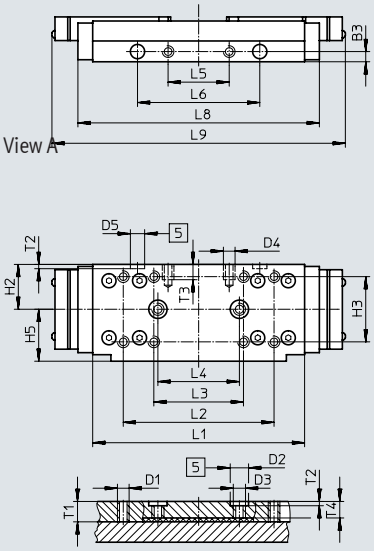
Dimensions Download CAD data ➔ www.festo.com

Slide, variant GP – Protected recirculating ball bearing guide

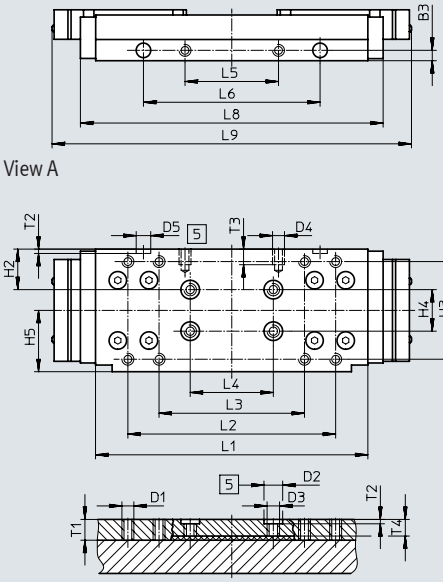
Ø 18



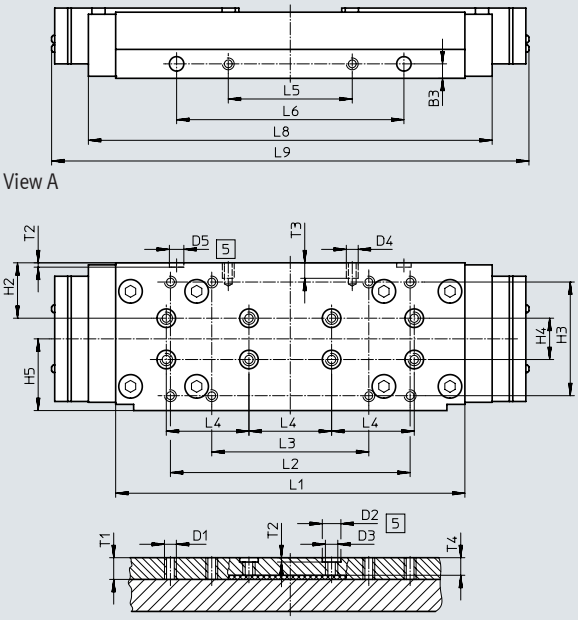
Ø 25



Ø 32



Ø 40



[5] Drilled hole for centring sleeve ZBH

[6] Drilled hole for centring pin ZBS

Data sheet

ø [mm]	B3 ±0.05	D1	D2 ø H7	D3	D4	D5 ø H7	H2	H3
18	4.5	M5	5	–	M5	5	16.5	–
25	5	M5	9	M6	M5	7	22	32±0.2
32	5	M5	9	M6	M5	7	19.5	47±0.2
40	7	M5	9	M6	M6	7	26.8	55±0.2

ø [mm]	H4 ±0.03	H5 ±0.1	L1	L2 ±0.2	L3	L4 ±0.03	L5 ±0.1	L6 ±0.05
18	–	18	88±0.1	–	20±0.1	20	10	–
25	–	25.5	104±0.2	74	44±0.2	40	30	60
32	20	29.5	131±0.2	100	70±0.2	40	45	85
40	20	34.7	169±0.2	116	76±0.2	40	60	110

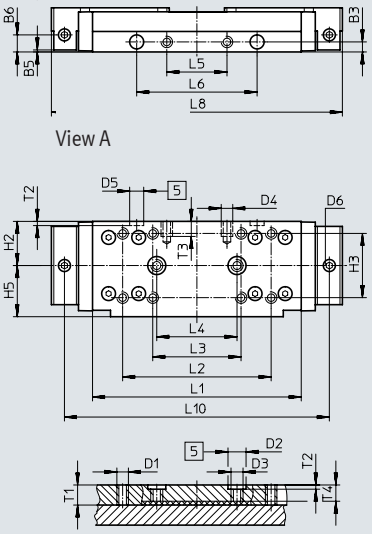
ø [mm]	L8	L9	T1	T2	T3	T4
18	99	120	–	3.1±0.1	7.5	6.7
25	118.5	144	10	2.1±0.2	7.5	8
32	145.7	173	10	2.1±0.2	7.5	8
40	195.4	231	10.5	2.1±0.2	7.5	8.5

Data sheet

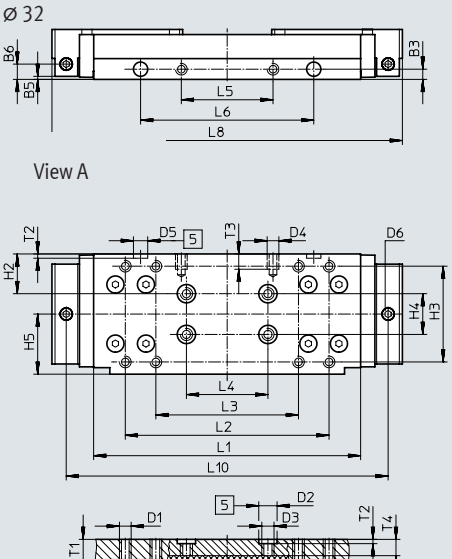
Dimensions Download CAD data ➔ www.festo.com

Slide, variant C – Lubrication adapter

Ø 25



Ø 32



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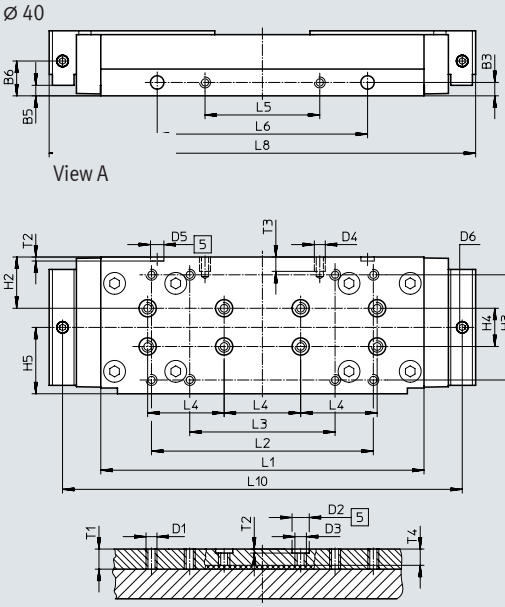
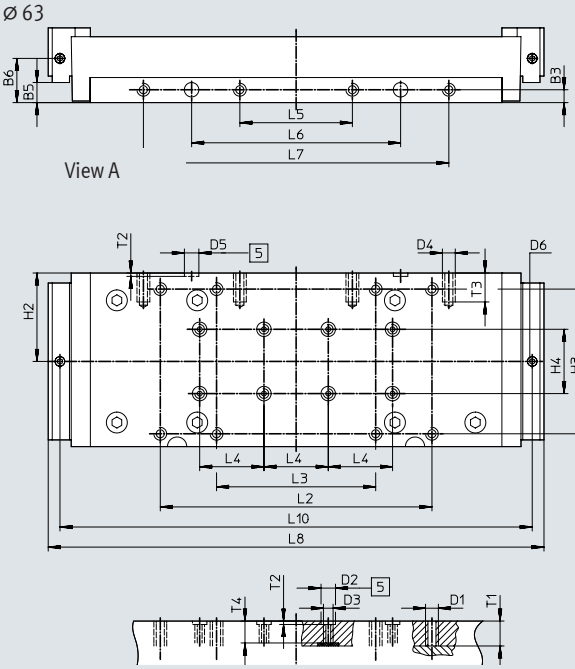


Ø 63



[5] Drilled hole for centring sleeve ZBH

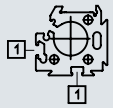
Data sheet

ø [mm]	B3 ±0.05	B5 ±0.05	B6	D1	D2 ø H7	D3	D4	D5 ø H7	D6	H2	H3	H4 ±0.03	H5 ±0.1
25	5	1	8.5	M5	9	M6	M5	7	M6x1	22	32±0.2	–	25.5
32	5	1.5	7.5	M5	9	M6	M5	7	M6x1	19.5	47±0.2	20	29.5
40	7	18.2	18.2	M5	9	M6	M6	7	M6x1	26.8	55±0.2	20	34.7
63	8	12.5	27.5	M8	9	M6	M8	9	M6x1	55	90±0.3	40	–

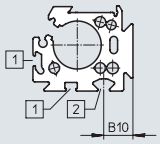
ø [mm]	L1	L2 ±0.2	L3 ±0.2	L4 ±0.03	L5 ±0.1	L6 ±0.05	L7 ±0.1	L8	L10	T1	T2 +0.2	T3	T4
25	104±0.2	74	44	40	30	60	–	145	132	10	2.1	7.5	8
32	131±0.2	100	70	40	45	85	–	172	158	10	2.1	7.5	8
40	169±0.2	116	76	40	60	110	–	224.4	210.4	10.5	2.1	7.5	8.5
63	256±0.1	169	99	40	70	130	190	308.4	293.8	15.5	2.1	18	13.6

Profile barrel

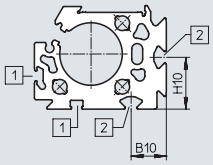
Ø 18



Ø 25



Ø 32



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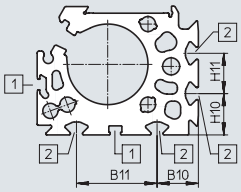
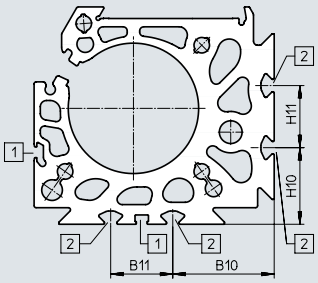


Ø 63



[1] Sensor slot for proximity switch
[2] Mounting slot for slot nut

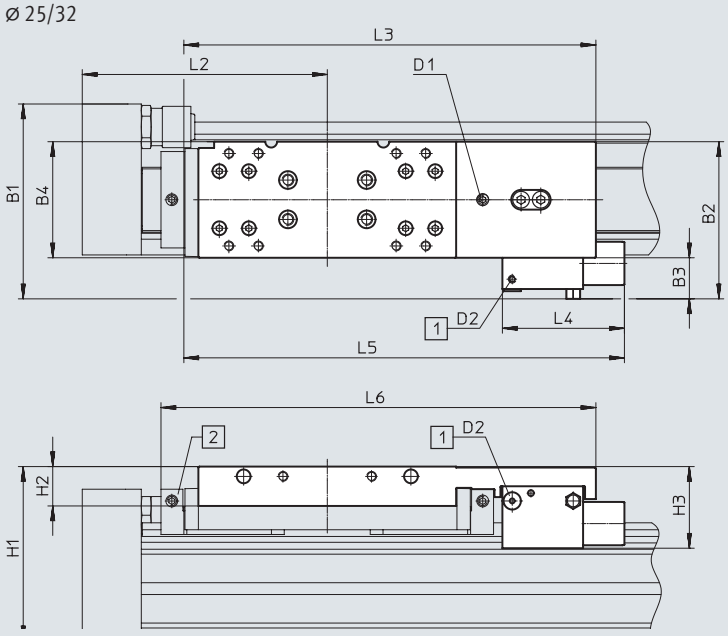
ø [mm]	B10	B11	H10	H11
25	15.23	–	–	–
32	18	–	26.5	–
40	20.5	40	20.5	20
63	49	30	37	30

Data sheet

Dimensions Download CAD data ➔ www.festo.com

1H – With clamping unit

Ø 25/32



Note

Overall length L1 at stroke = 0 mm ➔ page 22

With subsequent installation/modification, note that the dimension H1 is greater on a linear drive with clamping unit.

[1] Supply port

[2] Lubrication adapter

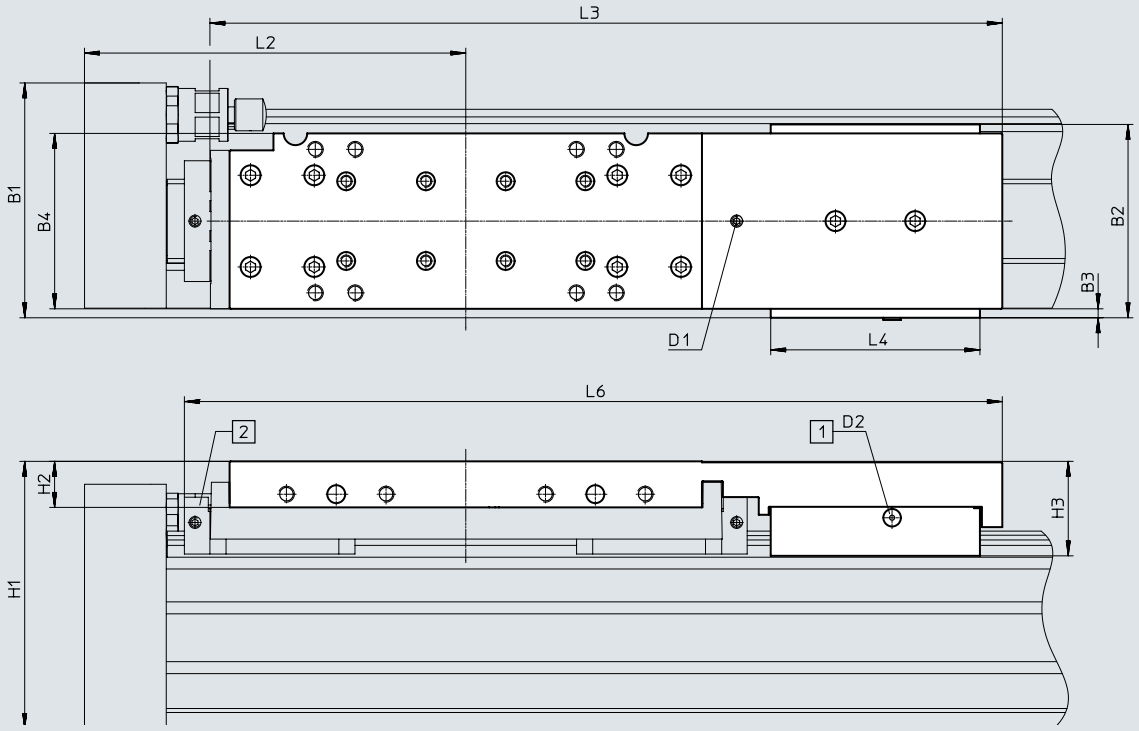
Type	B1	B2	B3	B4	H1	H2	H3	D1	D2	L2	L3	L4	L5	L6
DGCI-25-...-1H-PN	83.6	64.9	17.6	47.5	79	21	39.5	M6	M5	100	182.3	63	198	–
DGCI-25-...-C-1H-PN														193.8
DGCI-32-...-1H-PN	99.9	79.9	20.9	59	88.5	20	41.5	M6	M5	124.8	209.4	62	223.9	–
DGCI-32-...-C-1H-PN														221

Data sheet

Dimensions Download CAD data ➔ www.festo.com

1H – With clamping unit

Ø 40



Note

Overall length L1 at stroke = 0 mm ➔ page 22

With subsequent installation/modification, note that the dimension H1 is greater on a linear drive with clamping unit.

[1] Supply port

[2] Lubrication adapter

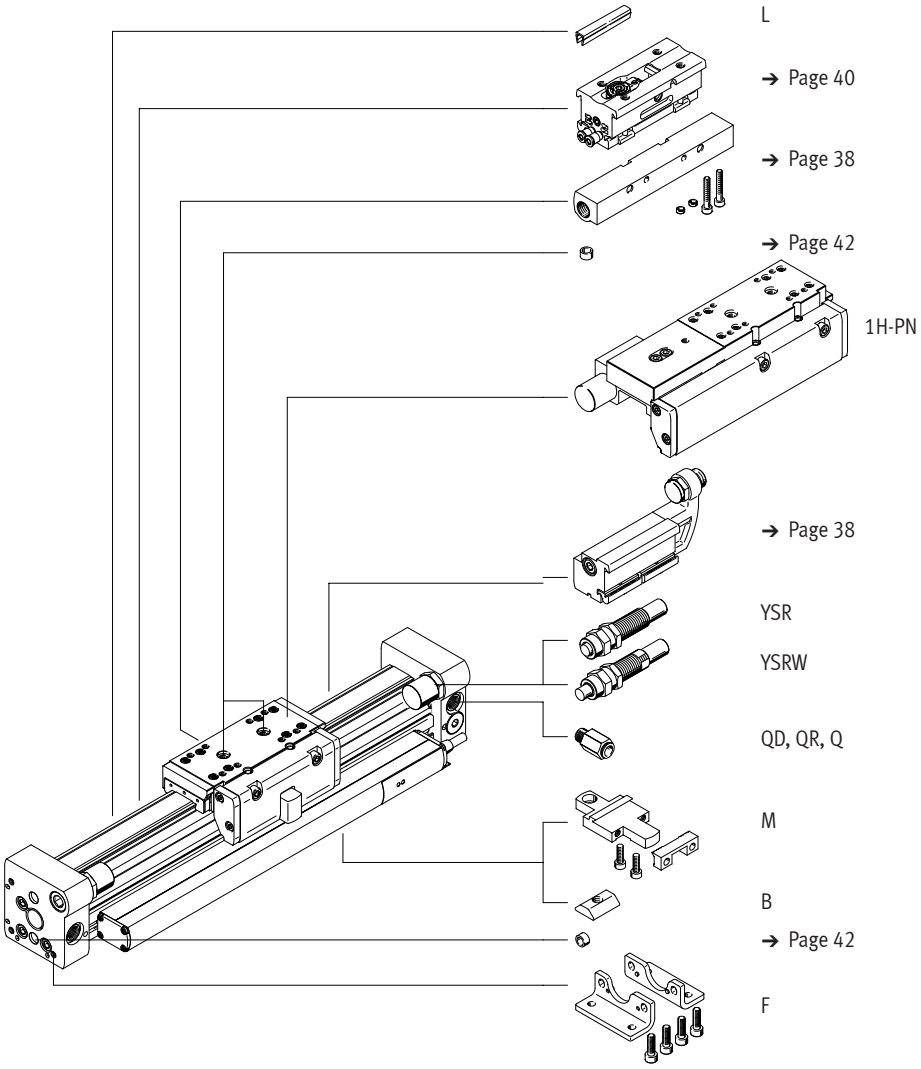
Type	B1	B2	B3	B4	H1	H2	H3	D1	D2	L2	L3	L4	L6
DGCI-40-...-1H-PN	109.9	97	11.7	69.4	113.5	28	48.9	M6	M5	150	331.2	105	–
DGCI-40-...-C-1H-PN													345.7

Ordering data – Modular product system

Order code

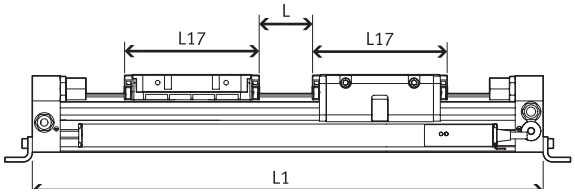
Note

1) End stops or shock absorbers must not be removed.



Working stroke reduction when ordering an additional slide KL or KR

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



ø [mm]	L17 DGCI-...-KF	DGCI-...-KF-...-GP
18	99	120
25	118.5	144
32	145.7	173
40	195.4	231
63	280	–

Assuming:
DGCI-18-500-...
L = 20 mm
L17= 99 mm

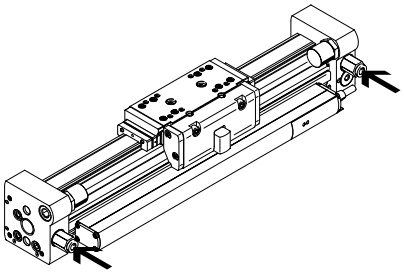
The working stroke is reduced to
381 mm = 500 mm – 20 mm – 99 mm

Ordering data – Modular product system

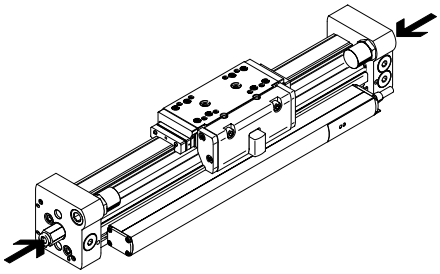
Order code – Alternative supply port

Four different supply port options (see below) can be selected when ordering the linear drive.
To facilitate commissioning, the linear drive is supplied with different coloured push-in fittings (black or blue releasing ring) and without push-in fittings in the case of the variant DGCI-...Q.

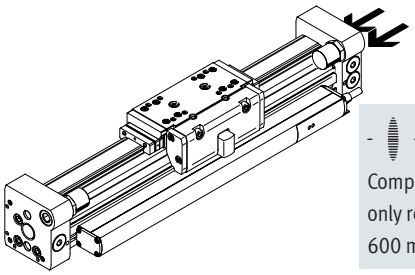
Push-in fitting at both ends, front (standard)
DGCI-...



Push-in fitting at both ends, front side
DGCI-...-QD

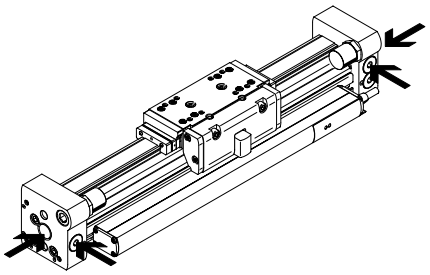


Push-in fitting at one end, end face
DGCI-...-QR



Note
Compressed air supply at one end is only recommended for strokes up to 600 mm.

No push-in fitting, end face open
DGCI-...Q



Direction of movement of the slide:

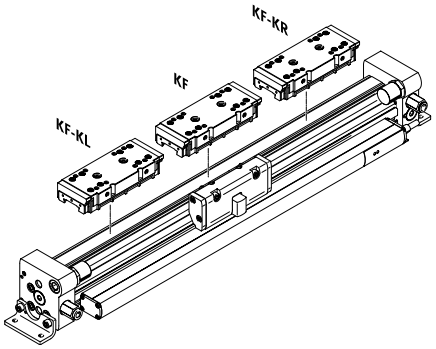
S To the right:
Fitting with black releasing ring
B To the left:
Fitting with blue releasing ring

Alternative port option

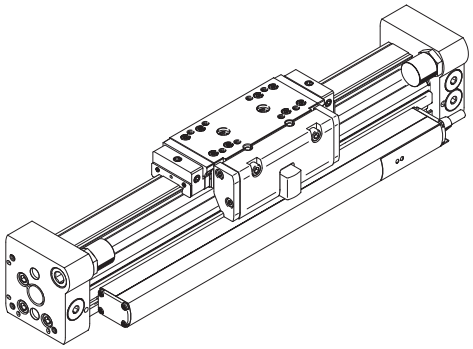
K Supply ports open
A Supply ports closed

Order code

KL/KR – With additional slide



GP – With protected recirculating ball bearing guide



Note
In the case of the variant with GP, only fixed stops may be used in the end caps.
Shock absorbers may only be used in combination with the shock absorber retainer DADP-DGC.

Ordering data – Modular product system

Ordering table

Size		18	25	32	40	63	Conditions	Code		Enter code
Module no.		**544425**	**544426**	**544427**	**544428**	**544429**				
Function		Linear drive with displacement encoder						**DGCI**		DGCI
Piston ø	[mm]	18	25	32	40	63		**-...**		
Stroke	[mm]	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000						**-...**		
Guide		Recirculating ball bearing guide						**-KF**		-KF
Alternative supply port		Push-in fitting at both ends, front (standard)								
		Push-in fitting at both ends, front side						**-QD**		
		Push-in fitting at one end, front, right					[1]	**-QR**		
		Threaded connection (end face open, front face sealed)						**-Q**		
		M5	G1/8	G1/8	G1/4	G3/8				

[1] QR Only for strokes 100 ... 600 mm

Ordering data – Modular product system

Ordering table

Size	18	25	32	40	63	Conditions	Code	Enter code
Slide	Protected recirculating ball bearing guide				–	[2]	**-GP**	
Lubrication	Standard							
	Food-safe lubrication					[3]	**-H1**	
Lubrication function	Standard							
	–	Lubrication adapter					**-C**	
Additional slide on left	Additional slide, standard, left					[4]	**-KL**	
Additional slide on right	Additional slide, standard, right					[4]	**-KR**	
Clamping unit	–	None			–			
	–	1-channel			–	[5]	**-1H**	
Actuation type	–	None			–			
	–	Pneumatically actuated			–	[5]	**-PN**	
Cushioning	Adjustable mechanical stop without cushioning (standard)							
	Shock absorber, self-adjusting						**-YSR**	
	Shock absorber, self-adjusting, progressive						**-YSRW**	
EU certification	II 3GD					[7]	**-EX2**	
Accessories							**ZUB-**	ZUB-
Type of mounting	Foot mounting (includes 0 ... 2 profile mountings depending on the stroke)					[8]	**F**	
	Profile mounting (2 ... 4 depending on the stroke)					[8]	**M**	
Slot cover, sensor slot	1 ... 9						**...L**	
Slot nut, mounting slot	–	1 ... 9					**...B**	
User documentation	Express waiver - no operating instructions to be included as already available (operating instructions in PDF format are available free of charge on our website at http://www.festo.com)						**O**	

[2] GP Not with shock absorber YSR, YSRW and lubrication adapter C

[3] H1 Not with protected version GP, cushioning YSR, YSRW or clamping unit 1H

[4] KL, KR For a linear drive DGCI with additional slide (KL, KR), the usable stroke per additional slide is reduced by the dimension in the table ➔ page 32 plus the installation distance between the two slides.

[5] 1H, PN Not with protected version GP; additional slide KL, KR or lubrication H1
Only with cushioning YSRW
1H only with PN

[7] EX2 Not with protected version GP and lubrication adapter C, clamping unit 1H-PN

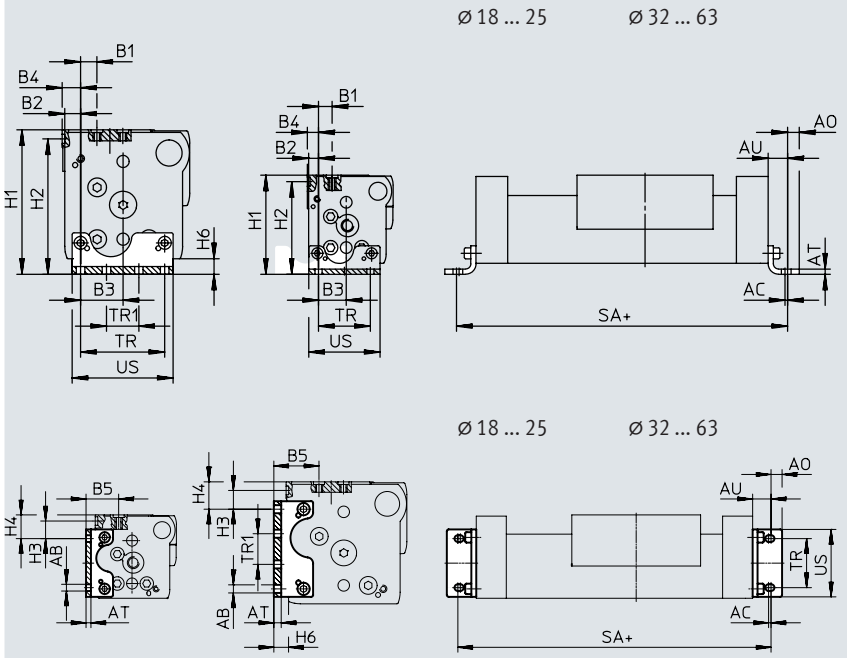
[8] F, M Allocation table ➔ page 20

Accessories

Foot mounting HPC
(order code: F)

Material:
Galvanised steel

Note
Additional profile mountings MUC are required for strokes above 400 mm → page 20



Dimensions and ordering data

For Ø [mm]	AB Ø	AC	AO	AT	AU	B1	B2	B3
18	5.5	2	6.75	3	13.25	11.2	4.3	15.2
25	5.5	2	9	4	15	13.35	7.65	22.35
32	6.6	2	10	5	19	9	9	29.5
40	6.6	2	10	6	20	12.6	12.2	32.8
63	11	3	13.5	8	28	17.5	12.5	55.5

For Ø [mm]	B4	B5	H1	H2	H3	H4
18	5.3	23.2	64	59.5	16	21.5
25	8.65	29.5	76.5	71.5	14.35	19.35
32	10.5	27	87.5	82.5	8	13
40	14.2	36.8	111.5	104.5	15.3	22.3
63	17.5	49	172.5	164.5	22	30

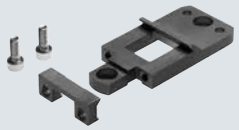
For Ø [mm]	H6	SA –0.2	TR ±0.1	TR1 ±0.1	US	Weight [g]	Part no.	Type[1]
18	7.7	176.5	30	–	38.6	58	**533667**	**HPC-18**
25	8.5	230	40	–	55	131	**533668**	**HPC-25**
32	9	288	56.5	19.5	68	239	**533669**	**HPC-32**
40	12	340	65	25	78	348	**533670**	**HPC-40**
63	19	456	111	39	133	1245	**545237**	**HPC-63**

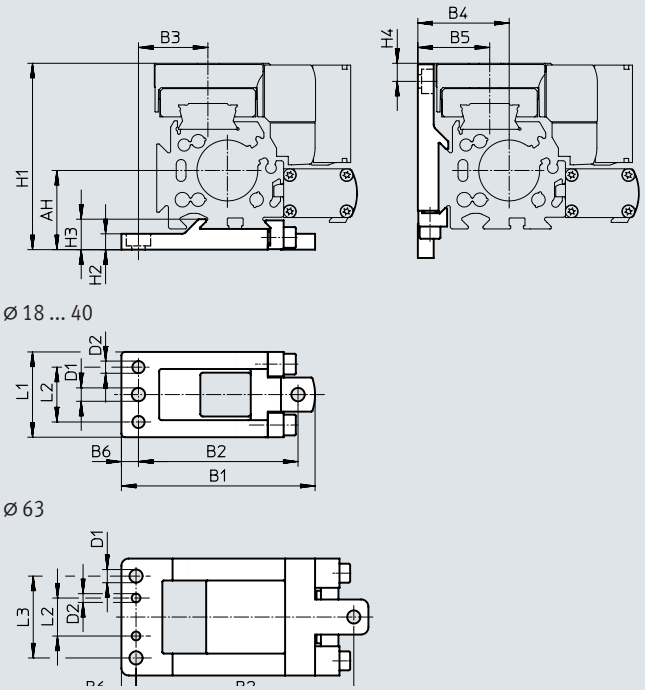
1) Suitable for ATEX

Accessories

Profile mounting MUC
(order code: M)

Material:
High-alloy steel





The profile mounting can only be mounted underneath in combination with the clamping unit, shock absorber retainer DADP and intermediate-position module DADM.
Application areas ➔ page 20

Dimensions and ordering data

For ø [mm]	AH	B1	B2 ±0.2	B3	B4	B5	B6	D1 ø H13	D2 ø H7
18	27.2	67.8±0.2	56±0.15	28.7	27.2	23.2	5.7	5.5	5
25	32.5	79.5±0.2	65.5±0.15	28.5	37.5	29.5	7	5.5	5
32	37.5	94±0.2	80±0.15	35	47.5	37	7	5.5	5
40	47	110.5±0.2	96±0.15	43	57	46.8	7	6.5	6
63	75	169±0.5	149±0.2	72.5	87	69	10	9	6

For ø [mm]	H1	H2	H3	H4	L1	L2 ±0.05	L3 ±0.2	Weight [g]	Part no.	Type[1]
18	64	$5.7_{-0.2}$	9.9±0.1	6.4	33±0.1	20.5	–	78	**531752**	**MUC-18**
25	76.5	$6.5_{-0.2}$	12.5±0.1	7.43	35±0.1	22.5	–	113	**531753**	**MUC-25**
32	87.5	$6.5_{-0.2}$	13±0.1	4	45±0.1	30	–	174	**531754**	**MUC-32**
40	111.5	$8.5_{-0.2}$	16±0.1	11.3	60±0.1	44	–	346	**531755**	**MUC-40**
63	172.5	11	25.5	15	80±0.4	26	56	1080	**531757**	**MUC-63**

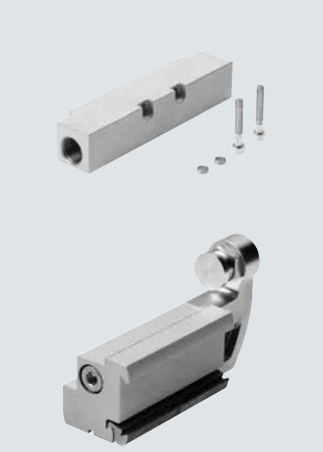
1) Suitable for ATEX

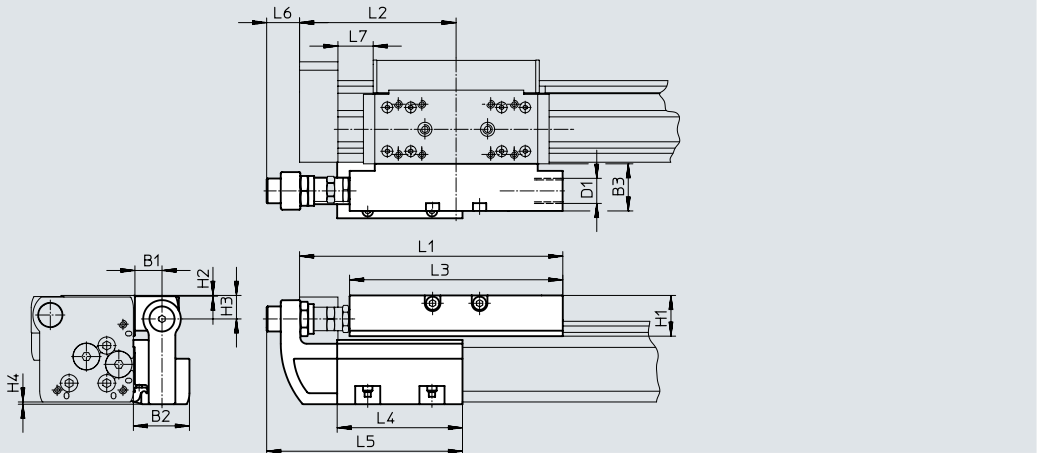
Accessories

Shock absorber retainer DADP-DGC
Stop KYC

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





Note
Shock absorbers are not included in the scope of delivery.
Existing stop elements can be removed from the end caps of the linear drive and installed in the shock absorber retainer.

Dimensions

For Ø [mm]	B1	B2	B3	D1	H1	H2	H3	H4	L1
18	16	34.5	29	M12x1	20.7	0.2	12.5	0.7	128
25	16.5	35	30	M16x1	25.5	0.5	15	1.4	168
32	16.5	35	30	M16x1	25.5	0.5	15	1.7	206.8
40	16	35.7	35	M22x1.5	37	0.5	21.5	2	255
63	25	50	40	M26x1.5	51.5	1.5	33	0	328

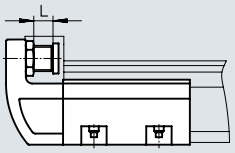
For Ø [mm]	L2	L3	L4	L5	L6	L7		
						KF	KF-GP	KF-YSR(W)
18	74.5	107	80	118.5	23.5	≥14.5	≥18	≥14.5
25	100	136	80	125	20.5	≥22.5	≥25	≥22.5
32	124.8	164	120	165	14.5	≥27.3	≥27.3	≥27.3
40	150	210	156	220.5	31	≥31	≥37	≥31
63	200	256	200	268	24	≥41	–	≥41

Note
For reasons of functional safety of the displacement encoder and stability of the linear drive DGCI, the distance L7 must not fall below the values in the table.

Accessories

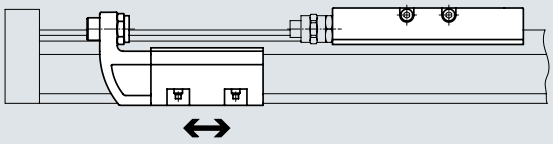
Technical data and ordering data

Precision adjustment



The stop KYC can be used in both directions.

Mounting example



The stop KYC can be mounted at any position along the stroke.
The following measurement must be taken into account Dimension L7
➔ page 38

For Ø [mm]	Max. impact force [N]	Ambient temperature [°C]	CRC[1]	Weight [g]	Part no.	Type[2]
Shock absorber retainer DADP-DGC						
18	1100	–10 ... +80	2	130	**541729**	**DADP-DGC-18-KF**
25	1400			180	**541730**	**DADP-DGC-25-KF**
32	1700			215	**541731**	**DADP-DGC-32-KF**
40	3500			460	**541732**	**DADP-DGC-40-KF**
63	4300			1080	**545245**	**DADP-DGC-63**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.
2) Suitable for ATEX

For Ø [mm]	Precision adjustment L [mm]	Ambient temperature [°C]	CRC[1]	Weight [g]	Part no.	Type[2]
Stop KYC						
18	10	–10 ... +80	2	400	**541691**	**KYC-18**
25	10			560	**541692**	**KYC-25**
32	10			790	**541693**	**KYC-32**
40	15			1525	**541694**	**KYC-40**
63	15			2950	**545243**	**KYC-63**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.
2) Suitable for ATEX

Note

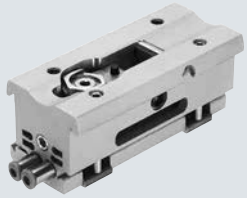
Permissible impact energy
➔ page 15

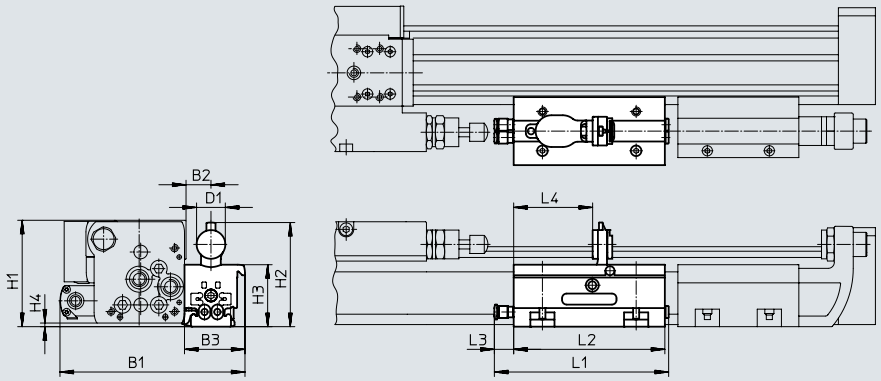
Accessories

Intermediate-position module DADM-DGC

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

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





Note

- Shock absorbers are not included in the scope of delivery.
  Existing shock absorbers can be removed from the end caps of the linear unit 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-DGC and a stop KYC are additionally needed when using an intermediate-position module.
- The projection (dimension H4) must be observed when using the drive in combination with the intermediate-position module DADM-DGC. Mounting via foot mountings HPC or profile mountings MUC is recommended in this case.

Dimensions

For Ø [mm]	B1	B2	B3	D1	H1	H2
25	122.5	16.5	40	19	69.4	68.6
32	138	16.5	40	19	80.2	79.7

For Ø [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

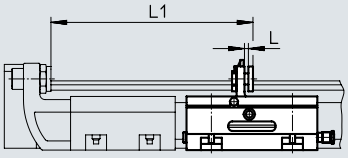
Note

Permissible impact energy
→ page 15

Accessories

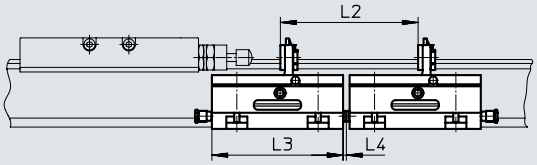
Minimum distance

Between end stop and intermediate position



ø	L1
25	145.3
32	185.3

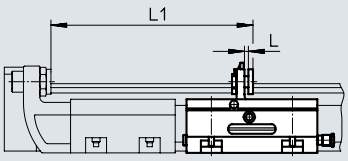
Between two intermediate positions



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

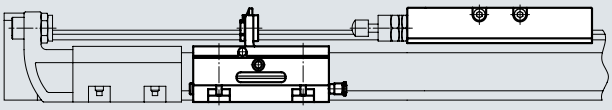
Technical data and ordering data

Precision adjustment L



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

Mounting example



The intermediate-position module DADM-DGC can be mounted at any place along the stroke.

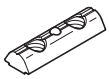
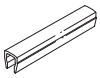
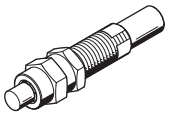
For ø [mm]	Operating pressure [bar]	Impact velocity [m/s]	Swivel time [ms]	Repetition accuracy [mm]	Pneumatic connection	Precision adjustment L [mm]
25	2.5 ... 8	→ Page 19	.100	0.02	QS-4	2
32						

For ø [mm]	Ambient temperature [°C]	CRC[1)]	Mounting position	Position sensing	Weight [g]	Part no.	Type
25	–10 ... +60	2	Any	For proximity switch SME/SMT-10	430	**541700**	**DADM-DGC-25-A**
32					530	**541701**	**DADM-DGC-32-A**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

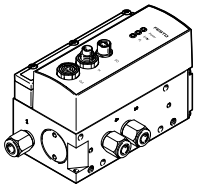
Accessories

Ordering data

	For ø	Comment	Order code	Part no.	Type	PU[1]
Slot nut HMBN[2]						Data sheets → Internet: hmbn
	25 ... 40	For mounting slot	B	**547264**	**HMBN-5-1M5**	10
	63			**186566**	**HMBN-5-2M5**	
Centring pin/sleeve ZBS, ZBH[2]						Data sheets → Internet: zbs, zbh
	18	For slide	–	**150928**	**ZBS-5**	10
	25 ... 63			**150927**	**ZBH-9**	
	18	For cap	–	**150928**	**ZBS-5**	
	25 ... 63			**150927**	**ZBH-9**	
Slot cover ABP-S						Data sheets → Internet: abp
	18 ... 63	For sensor slot Each 0.5 m	L	**151680**	**ABP-5-S**	2
Shock absorber YSRW[2]						Data sheets → Internet: ysrw
	18		YSRW	**540347**	**YSRW-DGC-18-KF**	1
	25			**540349**	**YSRW-DGC-25-KF**	
	32			**540351**	**YSRW-DGC-32-KF**	
	40			**1232870**	**YSRW-DGC-40/50-B**	
	63			**543069**	**YSRW-DGC-63**	

1) Packaging unit
2) Suitable for ATEX

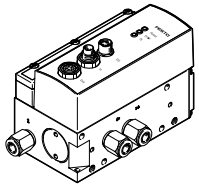
Ordering data – Proportional directional control valves and push-in fittings

	For ø	Stroke	Proportional directional control valve Data sheets → Internet: vpwp		Push-in fitting for DGCI Data sheets → Internet: qs		
	[mm]	[mm]	Part no.	Type[2]	Part no.	Type	PU[1]
	**For applications with axis controller CPX-CMAX**						
	18	100 ... 2000	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**153306**	**QSM-M5-6**	10
	25	100 ... 160	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**186096**	**QS-G1/8-6**	
		225 ... 600	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
		750 ... 2000	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	32	100 ... 400	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
		450 ... 2000	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	40	100 ... 300	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186099**	**QS-G1/4-8**	
		360 ... 750	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186099**	**QS-G1/4-8**	
		850 ... 2000	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186101**	**QS-G1/4-10**	
	63	100 ... 300	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186100**	**QS-G3/8-8**	
		360 ... 750	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186102**	**QS-G3/8-10**	
		850 ... 2000	**1552544**	**VPWP-10-L-5-Q-10-E-G-EX1**	**186103**	**QS-G3/8-12**	

1) Packaging unit
2) Suitable for ATEX

Accessories

Ordering data – Proportional directional control valves and push-in fittings

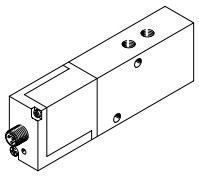


For Ø	Stroke	Proportional directional control valve Data sheets → Internet: vpwp		Push-in fitting for DGCI Data sheets → Internet: qs		
[mm]	[mm]	Part no.	Type[2]	Part no.	Type	PU[1]
For applications with Soft Stop end-position controller CPX-CMPX, horizontal						
18	100 ... 1750	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**153306**	**QSM-M5-6**	10
	2000	**550171**	**VPWP-6-L-5-Q-10-E-...**	**153306**	**QSM-M5-6**	
25	100 ... 160	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**186096**	**QS-G1/8-6**	
	225 ... 300	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	360 ... 2000	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
32	100	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**186096**	**QS-G1/8-6**	
	160 ... 1000	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	1250 ... 2000	**550172**	**VPWP-8-L-5-Q-10-E-...**	**186098**	**QS-G1/8-8**	
40	100 ... 500	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186099**	**QS-G1/4-8**	
	600 ... 750	**550172**	**VPWP-8-L-5-Q-10-E-...**	**186099**	**QS-G1/4-8**	
	850 ... 2000	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186101**	**QS-G1/4-10**	
63	100 ... 160	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186100**	**QS-G3/8-8**	
	225 ... 300	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186100**	**QS-G3/8-8**	
	360 ... 450	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186102**	**QS-G3/8-10**	
	500 ... 2000	**1552544**	**VPWP-10-L-5-Q-10-E-G-EX1**	**186103**	**QS-G3/8-12**	
For applications with Soft Stop end-position controller CPX-CMPX, vertical						
18	100 ... 1750	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**153306**	**QSM-M5-6**	10
	2000	**550171**	**VPWP-6-L-5-Q-10-E-...**	**153306**	**QSM-M5-6**	
25	100 ... 160	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**186096**	**QS-G1/8-6**	
	225 ... 750	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	850 ... 2000	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
32	100	**550170**	**VPWP-4-L-5-Q6-10-E-...**	**186096**	**QS-G1/8-6**	
	160 ... 300	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	360 ... 1750	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186098**	**QS-G1/8-8**	
	2000	**550172**	**VPWP-8-L-5-Q-10-E-...**	**186098**	**QS-G1/8-8**	
40	100 ... 225	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186099**	**QS-G1/4-8**	
	300 ... 750	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186099**	**QS-G1/4-8**	
	850 ... 1000	**550171**	**VPWP-6-L-5-Q-10-E-...**	**186101**	**QS-G1/4-10**	
	1250 ... 2000	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186101**	**QS-G1/4-10**	
63	100 ... 160	**550170**	**VPWP-4-L-5-Q8-10-E-...**	**186100**	**QS-G3/8-8**	
	225 ... 300	**550171**	**VPWP-6-L-5-Q8-10-E-...**	**186100**	**QS-G3/8-8**	
	360 ... 450	**550172**	**VPWP-8-L-5-Q10-10-E-...**	**186102**	**QS-G3/8-10**	
	500 ... 2000	**1552544**	**VPWP-10-L-5-Q-10-E-G-EX1**	**186103**	**QS-G3/8-12**	

1) Packaging unit
2) Suitable for ATEX

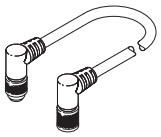
Accessories

Ordering data – Proportional directional control valves and push-in fittings

	For ø [mm]	Stroke [mm]	Proportional directional control valve Data sheets → Internet: mpye Part no.	Type	Push-in fitting for DGCI Data sheets → Internet: qs Part no.	Type	PU[1]
	**For applications with Soft Stop end-position controller SPC11-MTS-AIF-2, horizontal**						
	18	100 ... 300	**154200**	**MPYE-5-M5-010-B**	**153306**	**QSM-M5-6**	10
		360 ... 1750	**151692**	**MPYE-5-1/8-LF-010-B**	**153306**	**QSM-M5-6**	
		2 000	**151693**	**MPYE-5-1/8-HF-010-B**	**153306**	**QSM-M5-6**	
	25	100 ... 160	**151692**	**MPYE-5-1/8-LF-010-B**	**186096**	**QS-G1/8-6**	
		225 ... 300	**151692**	**MPYE-5-1/8-LF-010-B**	**186098**	**QS-G1/8-8**	
		360 ... 2000	**151693**	**MPYE-5-1/8-HF-010-B**	**186098**	**QS-G1/8-8**	
	32	100	**151692**	**MPYE-5-1/8-LF-010-B**	**186096**	**QS-G1/8-6**	
		160 ... 1000	**151693**	**MPYE-5-1/8-HF-010-B**	**186098**	**QS-G1/8-8**	
		1250 ... 2000	**151694**	**MPYE-5-1/4-010-B**	**186098**	**QS-G1/8-8**	
	40	100 ... 500	**151693**	**MPYE-5-1/8-HF-010-B**	**186099**	**QS-G1/4-8**	
		600 ... 750	**151694**	**MPYE-5-1/4-010-B**	**186099**	**QS-G1/4-8**	
		850 ... 2000	**151694**	**MPYE-5-1/4-010-B**	**186101**	**QS-G1/4-10**	
	63	100 ... 160	**151692**	**MPYE-5-1/8-LF-010-B**	**186100**	**QS-G3/8-8**	
		225 ... 300	**151693**	**MPYE-5-1/8-HF-010-B**	**186100**	**QS-G3/8-8**	
		360 ... 450	**151694**	**MPYE-5-1/4-010-B**	**186102**	**QS-G3/8-10**	
		500 ... 2000	**151695**	**MPYE-5-3/8-010-B**	**186103**	**QS-G3/8-12**	
	For applications with Soft Stop end-position controller SPC11-MTS-AIF-2, vertical						
	18	100 ... 300	**154200**	**MPYE-5-M5-010-B**	**153306**	**QSM-M5-6**	10
		360 ... 1750	**151692**	**MPYE-5-1/8-LF-010-B**	**153306**	**QSM-M5-6**	
		2000	**151693**	**MPYE-5-1/8-HF-010-B**	**153306**	**QSM-M5-6**	
	25	100 ... 160	**151692**	**MPYE-5-1/8-LF-010-B**	**186096**	**QS-G1/8-6**	
		225 ... 750	**151692**	**MPYE-5-1/8-LF-010-B**	**186098**	**QS-G1/8-8**	
		850 ... 2000	**151693**	**MPYE-5-1/8-HF-010-B**	**186098**	**QS-G1/8-8**	
	32	100	**151692**	**MPYE-5-1/8-LF-010-B**	**186096**	**QS-G1/8-6**	
		160 ... 300	**151692**	**MPYE-5-1/8-LF-010-B**	**186098**	**QS-G1/8-8**	
		360 ... 1750	**151693**	**MPYE-5-1/8-HF-010-B**	**186098**	**QS-G1/8-8**	
		2000	**151694**	**MPYE-5-1/4-010-B**	**186098**	**QS-G1/8-8**	
	40	100 ... 225	**151692**	**MPYE-5-1/8-LF-010-B**	**186099**	**QS-G1/4-8**	
		300 ... 750	**151693**	**MPYE-5-1/8-HF-010-B**	**186099**	**QS-G1/4-8**	
		850 ... 1000	**151693**	**MPYE-5-1/8-HF-010-B**	**186101**	**QS-G1/4-10**	
		1250 ... 2000	**151694**	**MPYE-5-1/4-010-B**	**186101**	**QS-G1/4-10**	
	63	100 ... 160	**151692**	**MPYE-5-1/8-LF-010-B**	**186100**	**QS-G3/8-8**	
		225 ... 300	**151693**	**MPYE-5-1/8-HF-010-B**	**186100**	**QS-G3/8-8**	
		360 ... 450	**151694**	**MPYE-5-1/4-010-B**	**186102**	**QS-G3/8-10**	
		500 ... 2000	**151695**	**MPYE-5-3/8-010-B**	**186103**	**QS-G3/8-12**	

1) Packaging unit

Ordering data – 44

	Description	Cable length [m]	Part no.	Type[2]
Connection between axis controller CPX-CMAX/end-position controller CPX-CMPX and proportional directional control valve VPWP				
	Angled plug and angled socket	0.25	**540327**	**KVI-CP-3-WS-WD-0.25**
		0.5	**540328**	**KVI-CP-3-WS-WD-0.5**
		2	**540329**	**KVI-CP-3-WS-WD-2**
		5	**540330**	**KVI-CP-3-WS-WD-5**
		8	**540331**	**KVI-CP-3-WS-WD-8**
	Straight plug and straight socket	2	**540332**	**KVI-CP-3-GS-GD-2**
		5	**540333**	**KVI-CP-3-GS-GD-5**
		8	**540334**	**KVI-CP-3-GS-GD-8**

2) Suitable for ATEX

Festo - Your Partner in Automation

1 Festo Inc.

5300 Explorer Drive
Mississauga, ON L4W 5G4
Canada

Festo Customer Interaction Center
Tel: 1 877 463 3786
Fax: 1 877 393 3786
Email: customer.service.ca@festo.com

2 Festo Pneumatic

Av. Ceylán 3,
Col. Tequesquináhuac
54020 Tlalnepantla,
Estado de México

Multinational Contact Center
01 800 337 8669

ventas.mexico@festo.com

3 Festo Corporation

1377 Motor Parkway
Suite 310
Islandia, NY 11749

Festo Customer Interaction Center
1 800 993 3786
1 800 963 3786
customer.service.us@festo.com

4 Regional Service Center

7777 Columbia Road
Mason, OH 45040

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