Linear drives DGCI, with displacement encoder

FESTO



Product range overview

Function	Туре	Description
Direct	D. H	
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	Semi-rotary drive	·
drive	Som roary arre	Based on semi-rotary drive DSM Integrated rotary potentiometer Compact design Wide range of mounting options

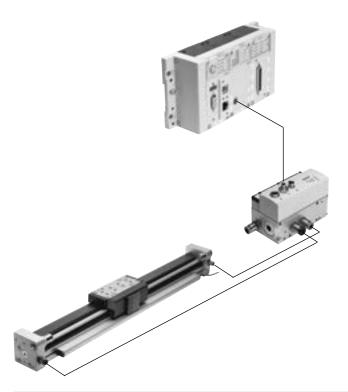
Product range overview

Piston Ø	Stroke/swivel angle	Suitable				
	_	For positioning with	For end-position controll	er	For use as a measuring	
	[mm/°]	CPX-CMAX	CPX-CMPX	SPC11	cylinder	
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,	•	•	-	•	
0)	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	•	•	•	•	
00	730					
Semi-rotary driv	je					
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



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.

Data sheets → Internet: cpx-cmax

- 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



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.

Data sheets → Internet: cpx-cmpx

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



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.

Data sheets → Internet: vpwp

- · 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



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.

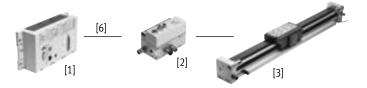
Suitable for the linear drive DGCI with displacement encoder for measuring absolute values, for the piston rod drive DNCI/DDPC with incremental displacement encoder or even for a potentiometer type MLO.

Data sheets → Internet: cpx-cmix

- 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



- [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-...

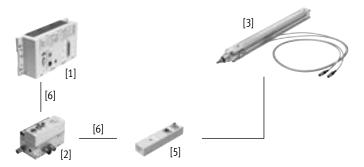
- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- · Diameter:
 - With DGCI: 18 ... 63 mm
 - With DDLI: 25 ... 63 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Application areas: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

Data sheets → Internet: ddli or dgci

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



- [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

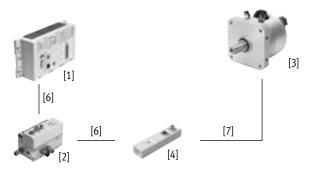
- Displacement encoder with contactless and incremental measurement
- Diameter: 32 ... 100 mm
- Stroke: 100 ... 750 mm
- Application areas: Soft Stop and pneumatic positioning
- Loads from 3 ... 450 kg and the corresponding sensor interface CASM-S-D3-R7
- Pre-assembled cables guarantee error-free and fast electrical connection

Data sheets → Internet: dnci

- · 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



- [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

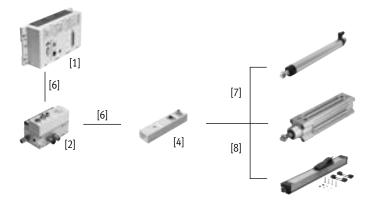
- Semi-rotary drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque:5 ... 40 Nm
- Application areas: Soft Stop and pneumatic positioning
- Mass moments of inertia of 15 ... 6000 kgcm² 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

Data sheets → Internet: dsmi

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



- [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

Data sheets → Internet: casm

- 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 sys	stems with end-position	on 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	•	•	•	•	•	стрх
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 po	System components for pneumatic positioning systems with axis controller CPX-CMAX							
	Linear drive	Standards-based cylin- der	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		

	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encode	er	→ Page/ Internet
	DDLI/DGCI	DNCI, DDPC	DSMI	MLO-LWG/-TLF	MME-MTS	
Measuring module CPX-CMIX-M1-1	•	•	-	-	-	cmix
Gensor interface CASM-S-D2-R3	-	-	•	•	_	casm
Gensor interface CASM-S-D3-R7	-	•	-	-	-	casm
Connecting cable KVI-CP-3	(■)¹)	•	•	•	(■)	kvi
Connecting cable NEBC-P1W4	-	-	•	■/-	-	nebc
Connecting cable IEBC-A1W3	-	-	-	-/ ■	-	nebc
Connecting cable IEBP-M16W6	-	-	-	-		vpwp

¹⁾ As an extension

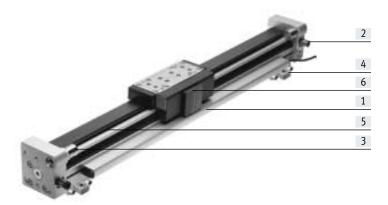
Type codes

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
800	Lubrication function
	None
С	Lubrication adapter
009	Additional slide left
	None
KL	Additional slide, standard, left
	<u>'</u>

Additional slide, right	
None	
Additional slide standard, right	
Clamping unit	
None	
Holding function, 1-channel	
Actuation type	
None	
Pneumatically actuated	
Cushioning	
None	
Self-adjusting shock absorber	
Shock absorber, self-adjusting, progressive	
EU certification	
II 3GD	
Accessories	
None	
Accessories supplied loose	
Type of mounting	
Without mounting bracket	
Foot mounting	
Profile mounting	
L - Slot cover, sensor slot	
None	
1 9 pcs.	
B - Slot nut, mounting slot	
None	
1 9 pcs.	
User documentation	
User documentation None	
	None Additional slide standard, right Clamping unit None Holding function, 1-channel Actuation type None Pneumatically actuated Cushioning None Self-adjusting shock absorber Shock absorber, self-adjusting, progressive EU certification II 3GD Accessories None Accessories supplied loose Type of mounting Without mounting bracket Foot mounting Profile mounting L - Slot cover, sensor slot None 1 9 pcs. B - Slot nut, mounting slot None

Key features

At a glance



[1] Displacement encoder

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

[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

[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
- [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

[3] End stops

- · Metal fixed stop
- Shock absorber, precisely adjustable
- 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

[4] Profile mounting

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

Additional slide – KL/KR

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

• For piston Ø 25, 32, 40 mm

• 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.

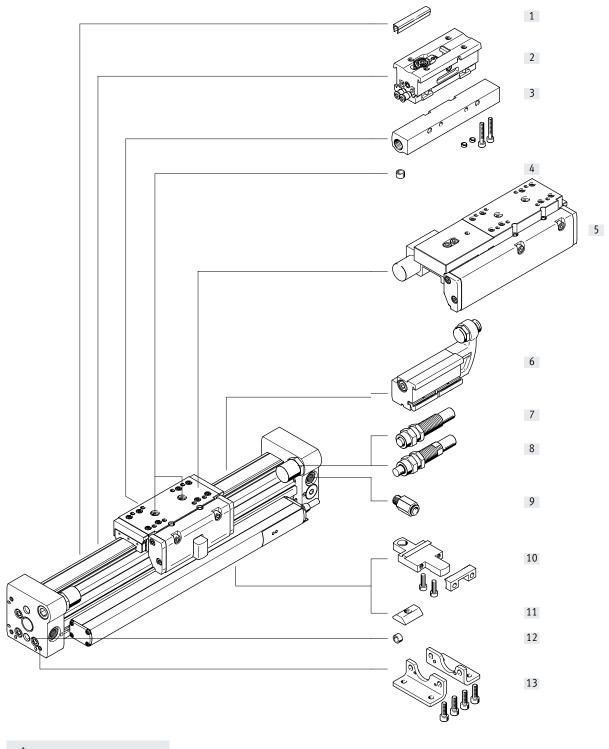
Additional information: www.festo.com/sp

→ Certificates

Not approved for use in the food zone:

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

Peripherals overview





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

Peripherals overview

varia	nts and accessories	le	Description	1 5 /
	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

Linear drives DGCI, with displacement encoder

Data sheet



www.festo.com

- **D** - 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	n displacement encoder				
Mode of operation	Double-acting					
Moment compensator principle	Slotted cylinder, mecha	nically coupled				
Guide	External recirculating ba	ıll bearing guide				
Mounting position	Any					
Type of mounting	Profile mounting					
	Foot mounting					
	Direct mounting					
Cushioning	Via metal fixed stop					
→ Page 19	With self-adjusting shock absorber at both ends					
Position sensing	With attached displacer	nent 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		·			

- 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]	28			1.5 8		
Operating pressure ¹⁾	[bar]	48		,			
Operating medium ²⁾		Compressed air to ISO 8	573-1:2010 [6:4:4]				
Note on the operating/pilot medium	Operation with lubricate	ed 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 1058 Hz: 0.15 mm					
		At 58150 Hz: 2G					
Continuous shock resistance to DIN/IEC 68 Part 2-2	27	Half sine 15 g, 11 ms					
CE marking (see declaration of conformity) ³⁾		To EU EMC Directive					
Certification	RCM trademark						
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
- $2) \qquad \text{The proportional directional control valve VPWP, MPYE used requires these characteristic values} \\$
- 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.
- 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).

ATEX ¹⁾	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	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							

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	<u>, </u>	<u>, </u>		
Stroke reduction ⁵⁾	[mm]	20	25	25	35	35
Recommended proportional directional con	trol valve	•	•			•
For CPX-CMAX		→ Page 42				

- 1) Load = payload + load of all moving parts on the drive
- $2) \quad \text{At 6 bar, horizontal mounting position, DGCI-XX-1000, 800 mm positioning travel at min./max. load} \\$
- 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:

 $F = F_{setpoint} \pm F_{friction \, forces} \pm repetition \, accuracy \, of \, pressure \, control$

Positioning characteristics with Soft St	op end-position cont	roller 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 e	engineering software: → v	ww.festo.com	· · · · · · · · · · · · · · · · · · ·	·
Recommended proportional directional	control valve					
For CPX-CMPX	→ Page 43	→ 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	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



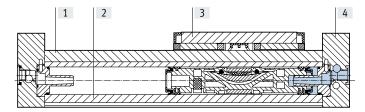
Pin	Function
1	24 V
2	n. c.
3	0 V

Pin	Function
4	CAN_H
5	CAN_L
ı	Shielding

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
DGCI1H-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	-

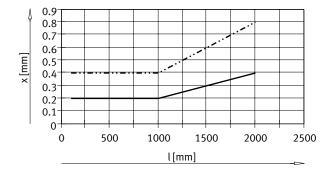
Materials

Sectional view



Linea	ar 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



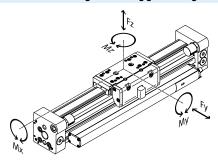
Horizontal
Vertical

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:



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

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

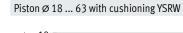
Permissible forces and t	Permissible forces and torques						
Piston Ø		18	25	32	40	63	
Fy _{max} .	[N]	1850	3050	3310	6890	15200	
Fz _{max} .	[N]	1850	3050	3310	6890	15200	
Mx _{max.}	[Nm]	16	36	54	144	529	
My _{max.}	[Nm]	51	97	150	380	1157	
Mz _{max.}	[Nm]	51	97	150	380	1157	

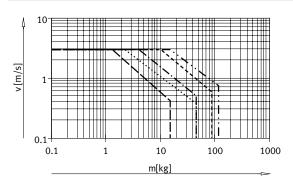
- 🏺 - Note

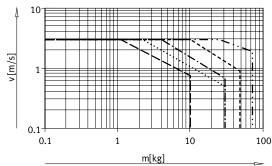
To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of 0.01 mm:

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

Piston Ø 18 ... 63 with cushioning YSR







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, comp	ressed air to release	
Static holding force	[N]	320	500	1200
Max. number of emergency braking operations ¹⁾	'	-	_	750
at reference energy	[J]			35
Number of clamping operations under rated load	[millions of	0.45	0.55	0.05
	switching cycles]			

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

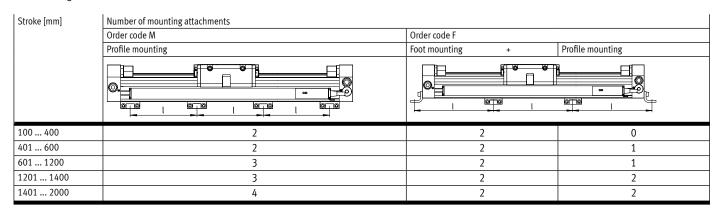
Operating and environmental conditions – Clamping unit				
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Operating pressure				
Clamping unit open	[bar]	4.5 8		
Clamping unit closed	[bar]	Unpressurised		
Ambient temperature	[°C]	-10 +60		

- Note

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

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.



Size	Stroke	Ø in [mm]	Ø 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	-	-	-		

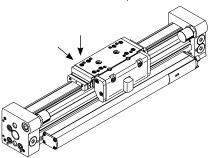
Central lubrication

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.

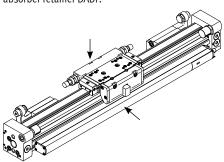
- For piston Ø 25, 32, 40, 63
- The modules are suitable for oils and greases.
- The dimensions of the linear drive DGCI are the same with and without central lubrication modules.
- · Both lubrication adapters must be connected
- · There are three connection options on each side
- Can be used in combination 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.

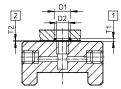


Only the connection on the front or top can be used in combination with shock absorber retainer DADP.



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 $0.6_{-0.05}\,\text{mm}$
- T2 0.1^{+0.2} mm
- O-ring Ø 6x1 mm (DIN 3771)
- [1] Slot depth for O-ring
- Required air gap

Additional dimensions → page 28

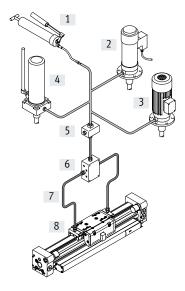
Design of a central lubrication system

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.

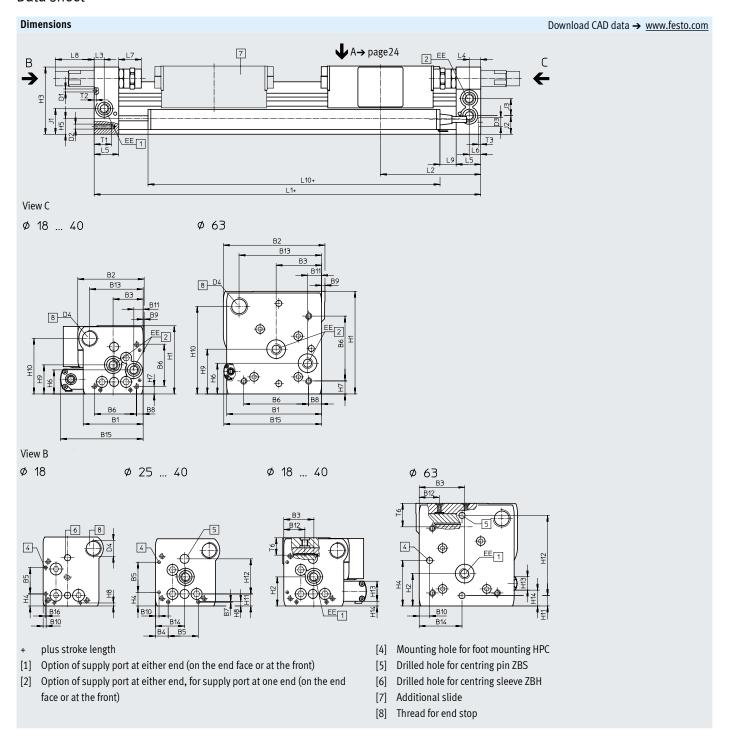
Festo does not sell these additional components; however, they can be obtained from the following companies:

- Lincoln
- Bielomatik
- · SKF (Vogel)

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



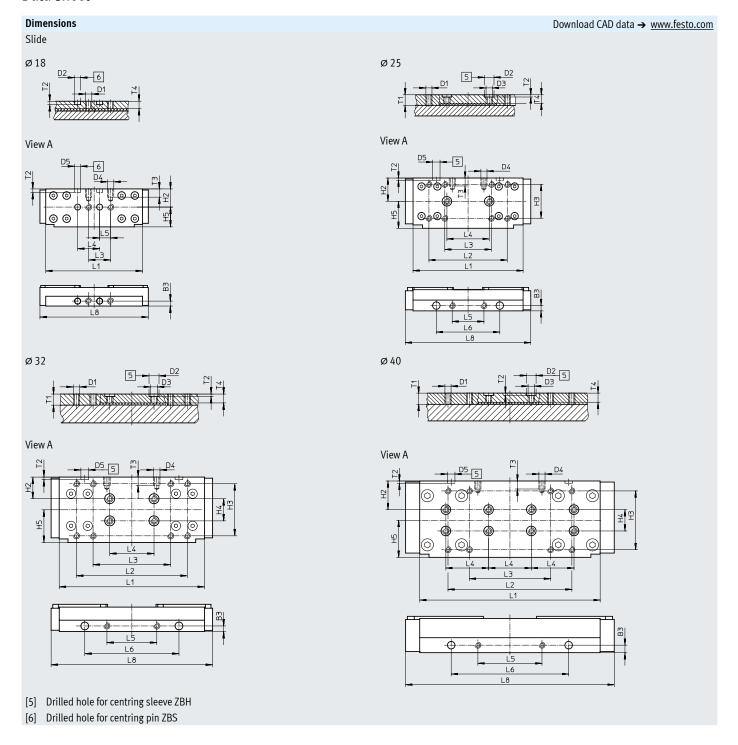
- [1] Hand pump
- Pneumatic container pump
- Electric container pump [3]
- Manually operated container pump
- Nipple block [5]
- [6] Distributor block
- Tubing or piping [7]
- [8] Fittings



Ø	B1	В	32	В3	В4		B5		B6		В7	В8	В	9	В	10	B11	ı	B12
[mm]					±0.	1	±0.05					±0.1							
18	44.5	49	9.9	19.5	8.8	В	21		31		-	3.8	:		2	2.4	5.5		15.5
25	59.8	6	66	30	12.6	5	30		42		1	6.65	:		3	3.5	9.3		21
32	73	7	'9	38.5	5.7	·	63.1		57.5		-	8.5	1	5	1	14	14.	9	18
40	91	98	3.5	45	17.	2	55		65		-	12.2	1			8	16.	5	24.8
63	142	1	49	68	-		-		97		-	19.5)	1	5.5	21		30
ø [mm]	B13		.05	B15	B16	5	D1 Ø		D2		D3 Ø H7	D4	E	E	H	H1	H2		НЗ
18	39	19	9.5	68.3	0.8	:	2±0.05		M4		5	M12x1	N	5	56	6.3	23.	1	55
25	53		29	82.4	_		3±0.05		M5		9	M16x1	G1			68	29		67
32	65	38	3.5	97.8	_		3±0.05		M6		9	M16x1		/8	78	8.5	30		77
40	80.5	4	15	110.3	_		4±0.05		M6		9	M22x1.5		/4	99	9.5	41.	5	97.5
63	123.5	6	i8	146.3	-		9 ^{H7}		M10		9	M26x1.5	G3	/8	15	3.5	48.	5	151
Ø [mm]	H4 ±0.1	H5	H6	H7		Н8	H9		H10		H11	H12 ±0.05	H13	Н	14	J1		J2	J3
18	9.6	13.4	20	4.6	+	2.4	25.	2	46	0	3.5±0.15	30	20		2.3	20		16.5	11
25	13.65	15.4	24	7.65		4.5	29.		55.5		12±0.15	35	20		7	26.1		18.6	17
32	5.7	17.8	27.7	8.5	-	14	35.		63.8		.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	_	3.9	35		26	26
63	68	34.8	46	19.5			67		131		5.5±0.2	120	20		3.7	41.5		39.5	31.5
		3,10	,,,		_		,		-5-	_	3.3=0.2	120			<i>-</i>	,1119		,,,,	52.5
Ø	I/F	L1	411 DN	I/F	L2		411 DN	L3	L4	ŀ	L5	L6		-		L7		I/E	VCD(N)
[mm]	KF	KF-GP	1H-PN	KF	KF-G	IP	1H-PN						K	F		KF-GF	7	Kr	-YSR(W)
18	150	157	_	74.5	78		-	5.7	5.8	3	15	5.5	14.5.			18 2	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 2	29		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 3	32.3		3 52.3
40	300	312	458	150	156	_	150	14.6	14.		33.5	14.6	31 .	. 36		37 4	42		1 56
63	400	-	-	200	_			20	20)	44	20	41.	. 46		-		4	1 76
ø		L8			LS)		L	.10		T1	T2		T3		т	Г6	Strok	e tolerance
	YSR		YSRW	KF		K	(F-GP	1											
[mm]				±0.2	<u> </u>	1	±0.2	m	nax.					+0.2	2				_
18	29.9		32.6	_			3.5	1	.19		9	2		3.1		1	15	() 2.5
25	35.6		38.6	16.	5		19	1	.19		17.5	2		2.1		17	7.3		
32	19.5		28	35.3	3	3	35.3	1	.19		15	2		2.1		2	20		
40	38.5		43.5	17			23	1	.19		20	2		2.1		25	5.7		
63	38.3		48.3	97			-	1	.19		27.5	2.1+0).2	2.1		36	5.1		

- 🖣 - 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.



Dimensions Slide Ø 63

L4 L4 L4 L4 L3 L2 L1 L8 L6 L7 L5 L6 L7 Drilled hole for centring sleeve ZBH

Ø	В3	D1	D2 Ø	D3	D4	D5 Ø	H2	Н3	H4	H5	L1
[mm]	±0.05		H7			H7			±0.03	±0.1	
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

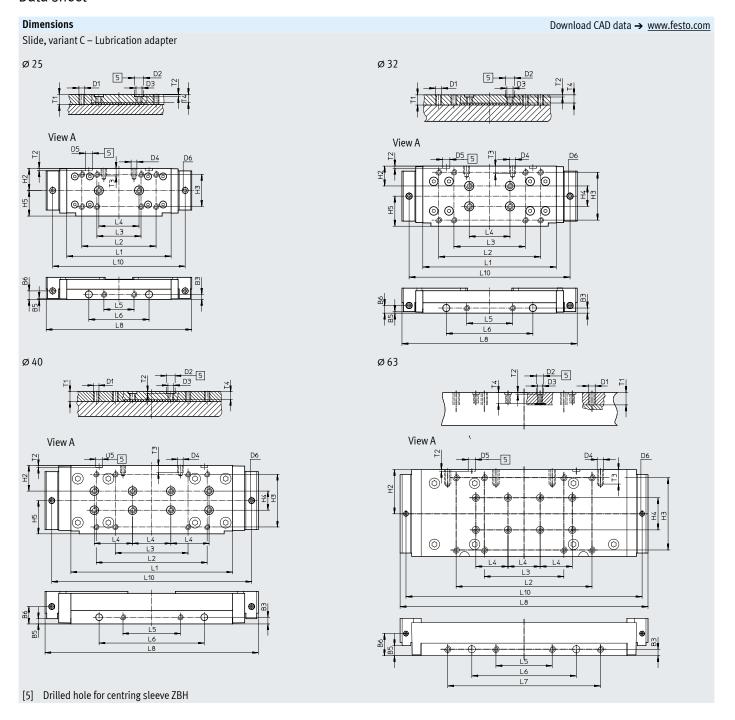
Ø	L2	L3	L4	L5	L6	L7	L8	T1	T2	T3	T4
[mm]	±0.2		±0.03	±0.1	±0.05	±0.1					
18	-	20±0.1	20	10	-	-	99	-	3.1±0.1	7.5	6.7
25	74	44±0.2	40	30	60	-	118.5	10	2.1±0.2	7.5	8
32	100	70±0.2	40	45	85	_	145.7	10	2.1±0.2	7.5	8
40	116	76±0.2	40	60	110	-	195.4	10.5	2.1±0.2	7.5	8.5
63	169	99±0.2	40	70	130	190	280	15.5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

Dimensions

Slide, variant GP – Protected recirculating ball bearing guide Ø 18 Ø 25 View A View A Ø 32 Ø 40 View A View A Ф L8 [5] Drilled hole for centring sleeve ZBH [6] Drilled hole for centring pin ZBS

Download CAD data → www.festo.com

ø [mm]	B3 ±0.05	D1	D2 Ø H7	D3	D4	D5 Ø H7	H2	Н3
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	H4	H5	L1	L2	L3	L4	L5	L6
[mm]	±0.03	±0.1		±0.2		±0.03	±0.1	±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	L8	L9	T1	Т	2	T3	T4	
[mm]								
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	



ø	В3	B5	В6	D1	D2	D3	D4	D5	D6	H2	Н3	H4	H5
					Ø			Ø					
[mm]	±0.05	±0.05			H7			H7				±0.03	±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	L1	L2	L3	L4	L5	L6	L7	L8	L10	T1	T2	T3	T4
[mm]		±0.2	±0.2	±0.03	±0.1	±0.05	±0.1				+0.2		
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

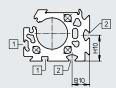
Ø 25

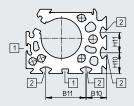
ø 32

ø 40

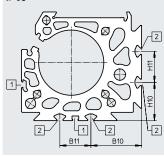








Ø 63

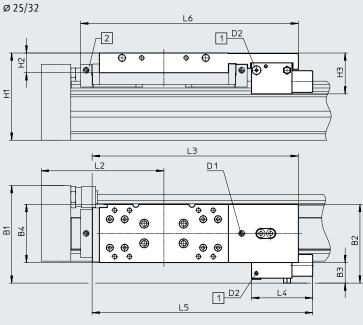


- [1] Sensor slot for proximity switch
- [2] Mounting slot for slot nut

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

Dimensions

1H - With clamping unit



Note

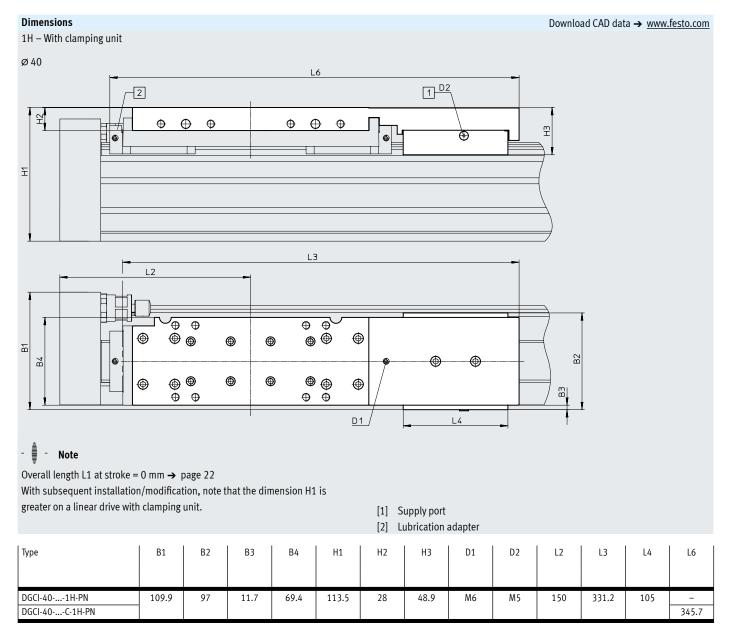
Overall length L1 at stroke = 0 mm → page 22

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

- [1] Supply port
- [2] Lubrication adapter

Туре	B1	B2	В3	B4	H1	H2	Н3	D1	D2	L2	L3	L4	L5	L6
DGCI-251H-PN	83.6	64.9	17.6	47.5	79	21	39.5	M6	M5	100	182.3	63	198	-
DGCI-25C-1H-PN	1													193.8
DGCI-321H-PN	99.9	79.9	20.9	59	88.5	20	41.5	M6	M5	124.8	209.4	62	223.9	-
DGCI-32C-1H-PN														221

Download CAD data → www.festo.com

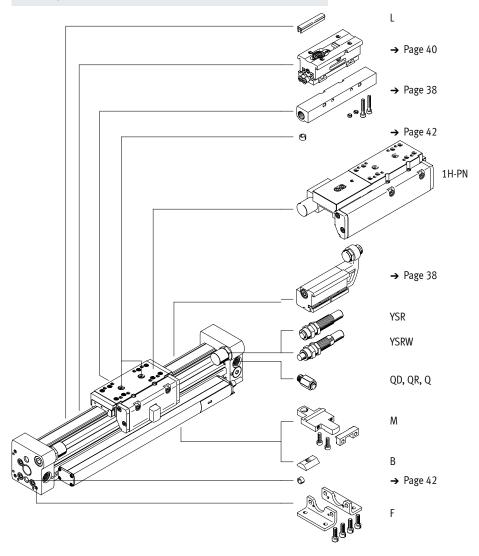


Ordering data - Modular product system

Order code

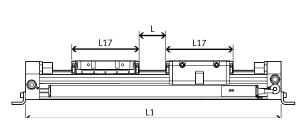


1) End stops or shock absorbers must not be removed.



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	L17	
[mm]	DGCIKF	DGCIKFGP
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

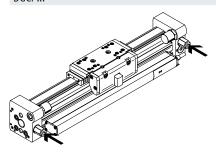
Ordering data - Modular product system

Order code - Alternative supply port

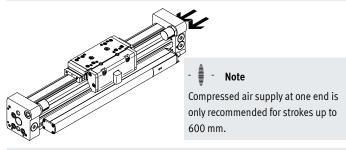
Four different supply port options (see below) can be selected when ordering the linear drive.

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-...



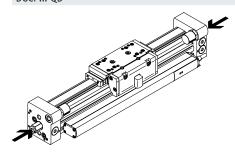
Push-in fitting at one end, end face DGCI-...-QR



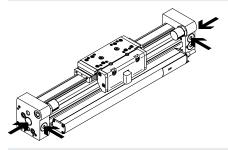
Direction of movement of the slide:

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

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



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

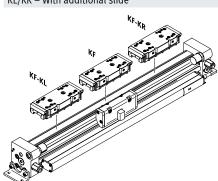


Alternative port option

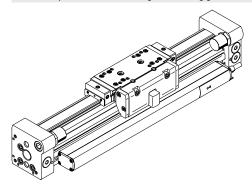
- K Supply ports open
- A Supply ports closed

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.

Linear drives DGCI, with displacement encoder

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 o	lisplacement encod	er				DGCI	DGCI
Piston Ø	[mm]	18	25	32	40	63			
Stroke	[mm]	100, 160, 225, 30	00, 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 b	ooth ends, front (sta	ndard)					
		Push-in fitting at b	oth ends, front side	9				-QD	
		Push-in fitting at o	ne end, front, right				[1]	-QR	
		Threaded connect	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	Condi- tions	Code	Enter code
Slide	Protected red	irculating ball bea	ring guide	<u>:</u>	-	[2]	-GP	
Lubrication	Standard							
	Food-safe lul	orication				[3]	-H1	
Lubrication function	Standard				,			
	-	Lubrication	adapter		,		-C	
Additional slide on left	Additional sl	ide, standard, left				[4]	-KL	
Additional slide on right	Additional sl	ide, standard, righ	it			[4]	-KR	
Clamping unit	-	None	·		-			
	-	1-channel			-	[5]	-1H	
Actuation type	-	None			-			
	-	Pneumatica	ally actuated		-	[5]	-PN	
Cushioning	Adjustable m	echanical stop wi	thout cushioning (s	tandard)				
	Shock absor	oer, self-adjusting					-YSR	
	Shock absor	oer, self-adjusting	, progressive		,		-YSRW	
EU certification	II 3GD					[7]	-EX2	
Accessories							ZUB-	ZUB-
Type of mounting	Foot mounting	ıg (includes 0 2	profile mountings o	depending on the s	troke)	[8]	F	
	Profile moun	ting (2 4 depend	ding on the stroke)	[8]	M			
Slot cover, sensor slot	1 9						L	
Slot nut, mounting slot	-	1 9					В	
User documentation	Express waiv	er - no operating i	nstructions to be in	cluded as already a	available (operating		0	
	instructions	in PDF format are a	.com)					

 $[\]begin{tabular}{ll} [2] & GP & Not with shock absorber YSR, YSRW and lubrication adapter C \\ \end{tabular}$

^[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 \Rightarrow page 32 plus the installation distance between the two slides.

^{[5] 1}H, 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 \rightarrow page 20

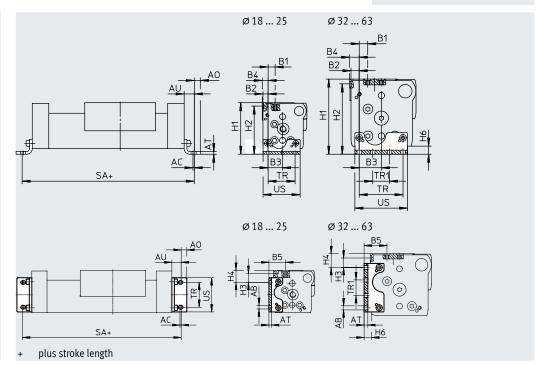
Foot mounting HPC (order code: F)

Material: Galvanised steel



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





Dimensions and ordering data											
For Ø	AB	AC	AO	AT	AU	B1	B2	В3			
	Ø										
[mm]											
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			

Forø	B4	B5	H1	H2	Н3	H4
[mm]						
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

Forø	H6	SA	TR	TR1	US	Weight	Part no.	Type ¹⁾
[mm]		-0.2	±0.1	±0.1		[g]		
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

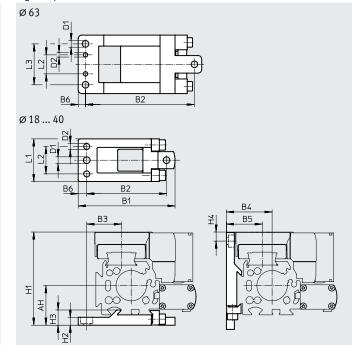
¹⁾ Suitable for ATEX

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	Dimensions and ordering data											
For Ø	AH	B1	B2	В3	B4	B5	B6	D1	D2			
								ø	Ø			
[mm]			±0.2					H13	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	H1	H2	Н3	H4	L1	L2	L3	Weight	Part no.	Type ¹⁾
[mm]						±0.05	±0.2	[g]		
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

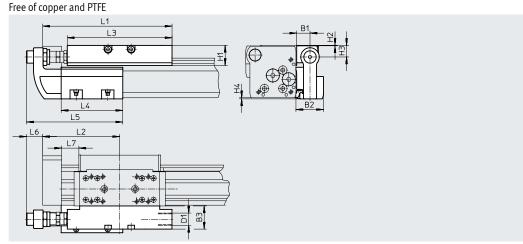
Shock absorber retainer DADP-DGC Stop KYC

Materials: Stop Housing: Anodised aluminium Stop bracket: Stainless steel casting

Clamp: High-alloy steel

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.

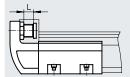
Dimension	ıs								
Forø	B1	B2	В3	D1	H1	H2	Н3	H4	L1
[mm]									
18	16	34.5	29	M12x1	20.7	0.2	12.5	0.7	128
25	16.5	35	30	M16x1	25.5	0.5	15	1.4	168
32	16.5	35	30	M16x1	25.5	0.5	15	1.7	206.8
40	16	35.7	35	M22x1.5	37	0.5	21.5	2	255
63	25	50	40	M26x1.5	51.5	1.5	33	0	328
									:
For Ø	L2	L3	L4	L5	L6		L	.7	
[mm]						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	≥2	7.3	≥27.3
40	150	210	156	220.5	31	≥31	≥	37	≥31
63	200	256	200	268	24	≥41		_	≥41

- 🖣 - Note

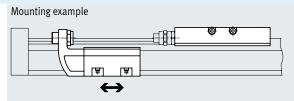
For reasons of functional safety of the displacement encoder and stability of the linear drive DGCI, the distance L7 must not fall below the values in the table.

Technical data and ordering data

Precision adjustment



The stop KYC can be used in both directions.



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 ab	sorber 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

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.

Suitable for ATEX



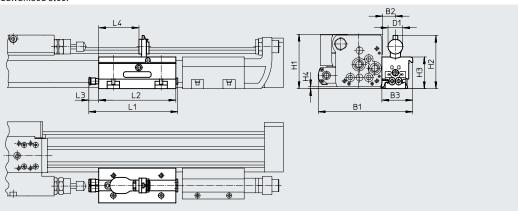
Permissible impact energy

→ page 15

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	В3	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]	НЗ	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

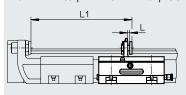


Permissible impact energy

→ page 15

Minimum distance

Between end stop and intermediate position



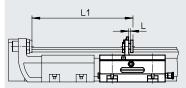
ø	L1
25	145.3
32	185.3

Between two intermediate positions L2 L3 L4

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

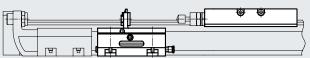
Technical data and ordering data

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.





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

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

For Ø	Ambient temperature	CRC ¹⁾	Mounting position	Position sensing	Weight	Part no.	Туре
[mm]	[°C]				[g]		
25	-10 +60	2	Any	For proximity switch	430	541700	DADM-DGC-25-A
2 3	10 +00		Ally	TOT PROXITITES SWILLET	450	341700	DADINI-DGC-25-A
32	10 +00	2	Ally	SME/SMT-10	530		DADM-DGC-23-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.

Linear drives DGCI, with displacement encoder

Accessories

Ordering data						
	For Ø	Comment	Order code	Part no.	Туре	PU ¹⁾
Slot nut HMBN ²⁾						Internet: hmbn
	25 40	For mounting slot	В	547264	HMBN-5-1M5	10
	63			186566	HMBN-5-2M5	
Centring pin/sleeve ZBS, ZBH ²⁾					Data sheets → In	ternet: zbs, zbh
	18	For slide	-	150928	ZBS-5	10
	25 63			8137184	ZBH-9-B	
	18	For cap	-	150928	ZBS-5	
	25 63			8137184	ZBH-9-B	
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	

- Packaging unit
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Ordering data – Proportional directional control valves and push-in fittings								
	Forø	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.	Туре	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	Ī İ	
		750 2000	550171	VPWP-6-L-5-Q8-10-E	186098	QS-G1/8-8	1	
	32	100 400	550170	VPWP-4-L-5-Q8-10-E	186098	QS-G1/8-8	1	
		450 2000	550171	VPWP-6-L-5-Q8-10-E	186098	QS-G1/8-8	Ī İ	
	40	100 300	550170	VPWP-4-L-5-Q8-10-E	186099	QS-G1/4-8	Ī	
		360 750	550171	VPWP-6-L-5-Q8-10-E	186099	QS-G1/4-8	Ī İ	
		850 2000	550172	VPWP-8-L-5-Q10-10-E	186101	QS-G1/4-10	i l	
	63	100 300	550171	VPWP-6-L-5-Q8-10-E	186100	QS-G3/8-8	Ī I	
		360 750	550172	VPWP-8-L-5-Q10-10-E	186102	QS-G3/8-10	1 i	
		850 2000	1552544	VPWP-10-L-5-Q-10-E-G-EX1	186103	QS-G3/8-12		

- Packaging unit
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	For Ø	Stroke	Proportional directional control valve Data sheets → Internet: vpwp		Push-in fitting for DGCI Data sheets → Internet: qs					
	,	, ,					ام ا			
	[mm]	[mm]	Part no.	Type ²⁾	Part no.	Туре	Pl			
	For applicat	For applications with Soft Stop end-position controller CPX-CMPX, horizontal								
33	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				
1 10 10 10 10 10 10 10 10 10 10 10 10 10		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 applicat	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			
	10	2000	550171	VPWP-6-L-5-Q-10-E	153306	QSM-M5-6	1,			
	25	100 160	550171	VPWP-4-L-5-Q6-10-E	186096	QS-G1/8-6				
	23	225 750	550170	VPWP-4-L-5-Q8-10-E	186098	QS-G1/8-8				
		850 2000	550170	VPWP-6-L-5-Q8-10-E	186098	QS-G1/8-8				
	32	100	550171	VPWP-4-L-5-Q6-10-E	186096	QS-G1/8-6				
	32	160 300	550170	VPWP-4-L-5-Q8-10-E	186098	QS-G1/8-8				
		360 1750	550170	VPWP-4-L-5-Q8-10-E	186098	QS-G1/8-8				
		2000	550171	<u>'</u>	186098	QS-G1/8-8 QS-G1/8-8				
	40	100 225	550172	VPWP-8-L-5-Q-10-E	186099	QS-G1/8-8 QS-G1/4-8				
	40	300 750		VPWP-4-L-5-Q8-10-E						
			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				
	(2)	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				

Packaging unit
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	Forø	Stroke	Proportional directional control valve			Push-in fitting for DGCI				
			1	s → Internet: mpye		s → Internet: qs	1			
	[mm]	[mm]	Part no.	Type	Part no.	Туре	PU			
	For applications with Soft Stop end-position controller SPC11-MTS-AIF-2, horizontal									
9	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 applicati	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				
	1 32	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				
	40	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				
	(0)	225 300	151692	MPYE-5-1/8-LF-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