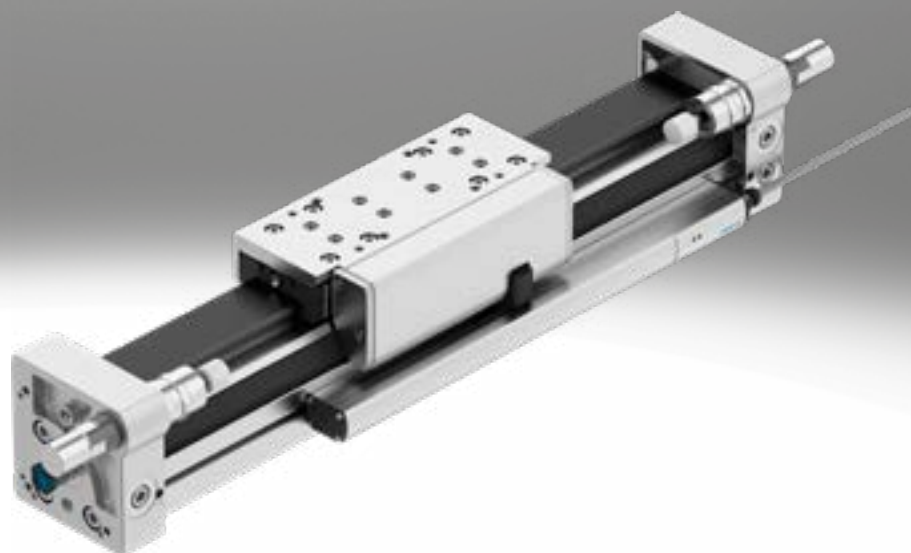











## Linear drives DGCI, with displacement encoder

**FESTO**



Product range overview

Function	Type	Description
Drives	<b>Rodless</b>	
	DDLI	<ul style="list-style-type: none"> <li>• Without guide</li> <li>• With displacement encoder for contactless measurement</li> <li>• Based on linear drive DGC-K</li> <li>• Supply ports on end face</li> <li>• System product for handling and assembly technology</li> </ul>
		
	DGCI	<ul style="list-style-type: none"> <li>• With guide</li> <li>• With displacement encoder for contactless measurement</li> <li>• Based on linear drive DGC</li> <li>• Supply ports optionally on end face or front</li> <li>• System product for handling and assembly technology</li> </ul>
		
	<b>With piston rod</b>	
	DNCI	<ul style="list-style-type: none"> <li>• With displacement encoder for contactless measurement</li> <li>• Various piston rod variants</li> <li>• Standards-based cylinder to ISO 15552</li> </ul> 
		
DDPC	<ul style="list-style-type: none"> <li>• With displacement encoder for contactless measurement</li> <li>• Various piston rod variants</li> <li>• Standards-based cylinder to ISO 15552</li> </ul> 	
		
DNC/DSBC	<ul style="list-style-type: none"> <li>• With attached potentiometer MLO-LWG</li> <li>• Various piston rod variants</li> <li>• Standards-based cylinder to ISO 15552</li> </ul> 	
		
Semi-rotary drive	<b>Semi-rotary drive</b>	
		<ul style="list-style-type: none"> <li>• Based on semi-rotary drive DSM</li> <li>• Integrated rotary potentiometer</li> <li>• Compact design</li> <li>• Wide range of mounting options</li> </ul>

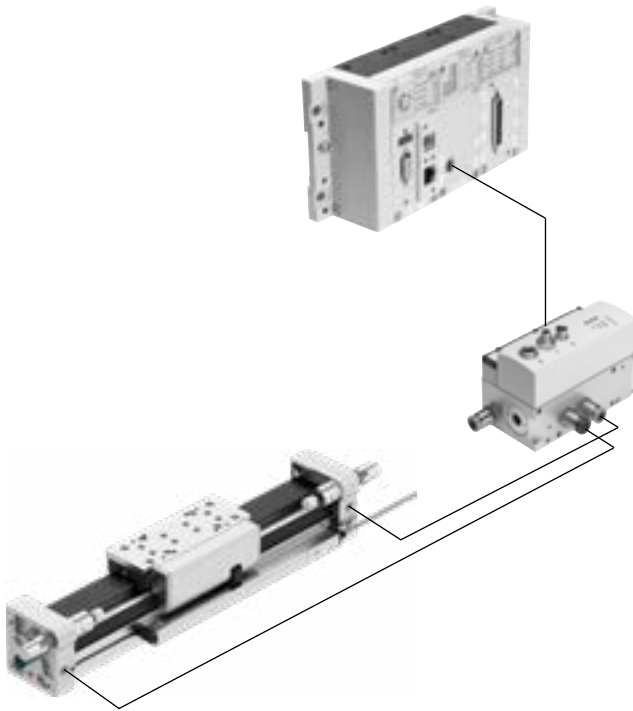
## Product range overview

Piston $\varnothing$	Stroke/swivel angle [mm/°]	Suitable			
		For positioning with	For end-position controller		For use as a measuring cylinder
		CPX-CMAX	CPX-CMPX	SPC11	
<b>Rodless</b>					
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	■	■	■	■
<b>With piston rod</b>					
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	■	■	■	■
<b>Semi-rotary drive</b>					
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](http://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.

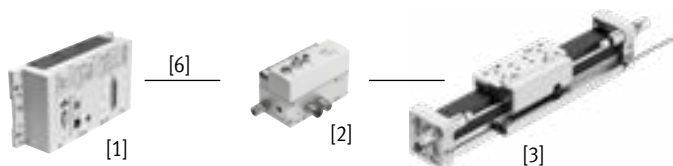
Suitable for the linear drive DGCI with displacement encoder for measuring absolute values, for the piston rod drive DNCI/DDPC with incremental displacement encoder or even for a potentiometer type MLO.

- 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 [dgc](#)



- [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-...

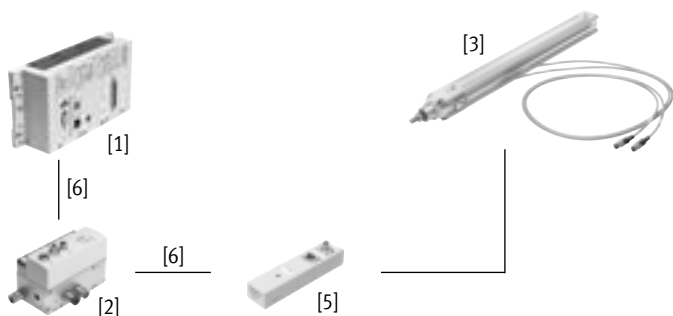
- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- Diameter:
  - With DGCI: 18 ... 63 mm
  - With DDLI: 25 ... 63 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Application areas: 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

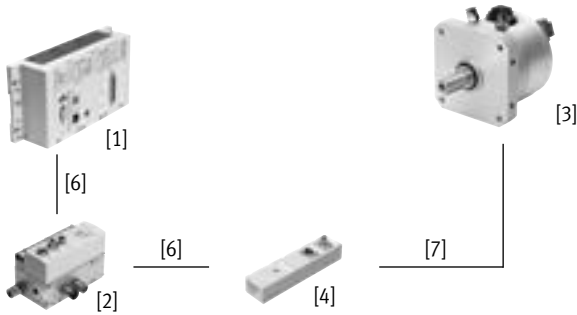
#### Benefits:

- 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

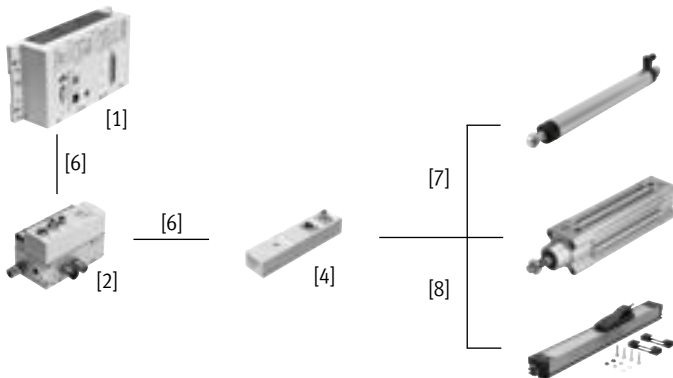
- Semi-rotary drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Application areas: Soft Stop and pneumatic positioning
- Mass moments of inertia of 15 ... 6000 kgcm<sup>2</sup> 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-...	(■) <sup>1)</sup>	■	■	■	(■)	kvi
Connecting cable NEBC-P1W4-...	–	–	■	■ / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / ■	–	nebc
Connecting cable NEBP-M16W6-...	–	–	–	–	■	vpwp

1) As an extension



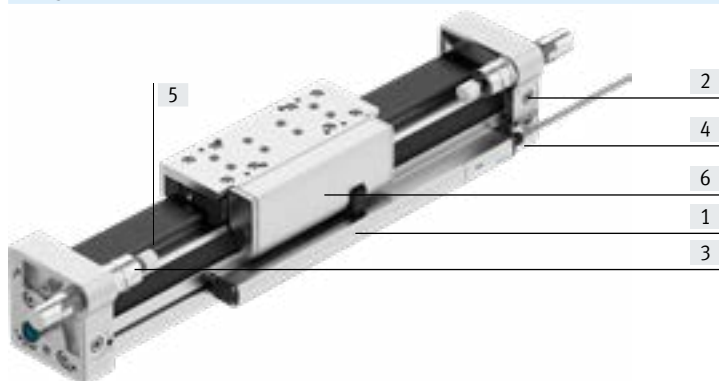
## Type codes

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  $\varnothing$  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  $\varnothing$  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  $\varnothing$  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  $\varnothing$  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  $\varnothing$  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  $\varnothing$  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  $\varnothing$  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.

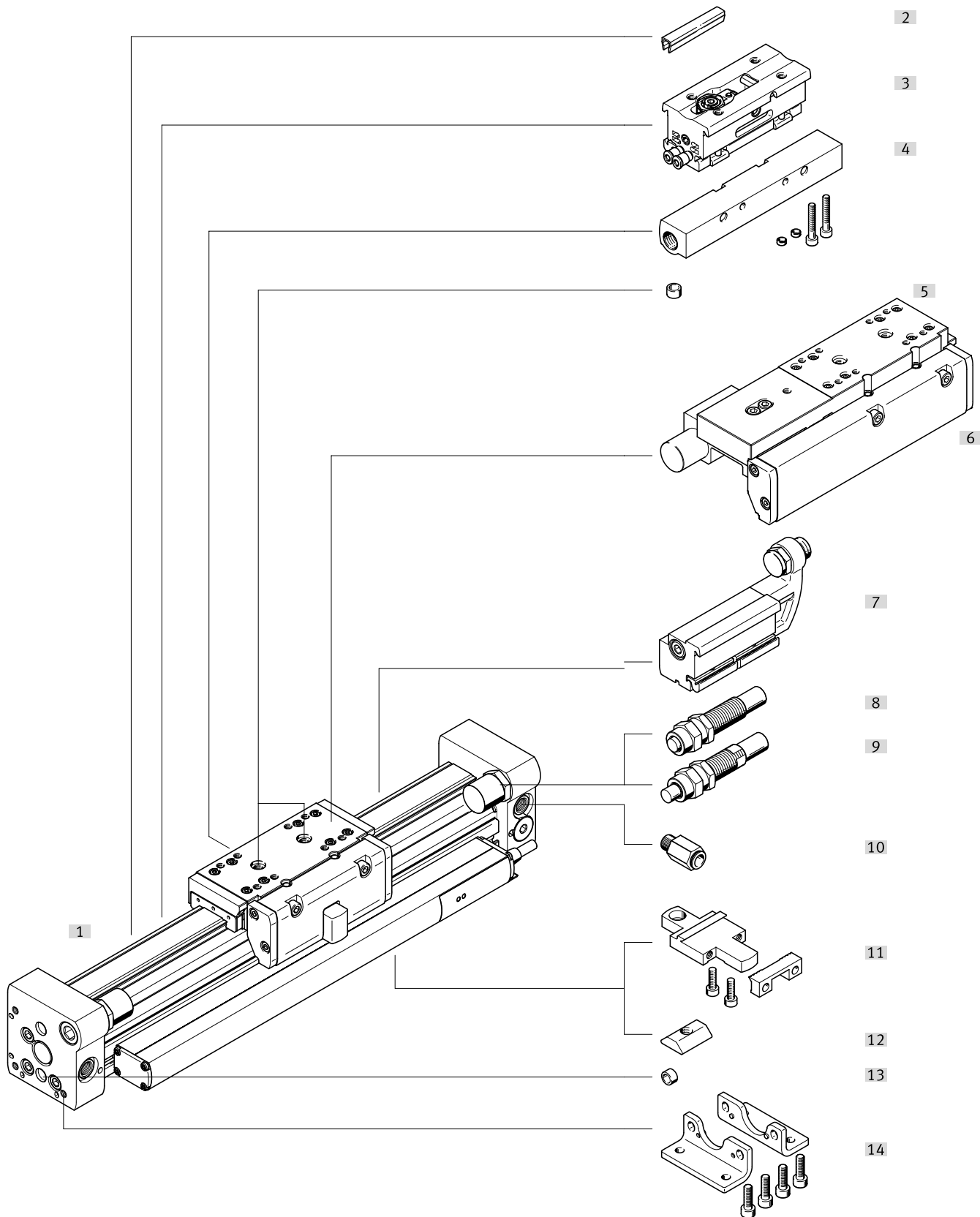
Additional information: [www.festo.com/sp](http://www.festo.com/sp)


→ 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 $\varnothing$	Description	→ Page/Internet
[1] Linear drive DGCI		With displacement encoder	14
[2] Slot cover ABP-S	18 ... 63	For protecting against contamination and securing the proximity switch cable	42
[3] Intermediate-position DADM-DGC	25, 32	Facilitates intermediate positions with metal fixed stop. The module can be attached	40
[4] Shock absorber retainer DADP-DGC	18 ... 63	For variable end-position adjustment in combination with the stop KYC	38
[5] Centring pin/sleeve <sup>1)</sup> ZBS/ZBH	18 ... 63	For centring loads and attachments on the slide	42
[6] Clamping unit 1H-PN	25, 32, 40	For holding loads	30
[7] Stop KYC	18 ... 63	For variable end-position adjustment in combination with the shock absorber retainer DADP-DGC	38
[8] Shock absorber YSR	18 ... 63	Self-adjusting, hydraulic shock absorber with spring return and linear cushioning characteristics.	42
[9] Shock absorber YSRW	18 ... 63	Self-adjusting, hydraulic shock absorber with spring return and progressive cushioning characteristics	42
[10] Push-in fitting QS	18 ... 63	For connecting tubing with standard O.D.	33
[11] Profile mounting MUC	18 ... 63	Simple and precise mounting option via dovetail connection.	37
[12] Slot nut HMBM	25 ... 63	For mounting attachments	42
[13] Centring pin/sleeve <sup>1)</sup> ZBS/ZBH	18 ... 63	For centring the drive without foot mountings (user-specific)	42
[14] 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

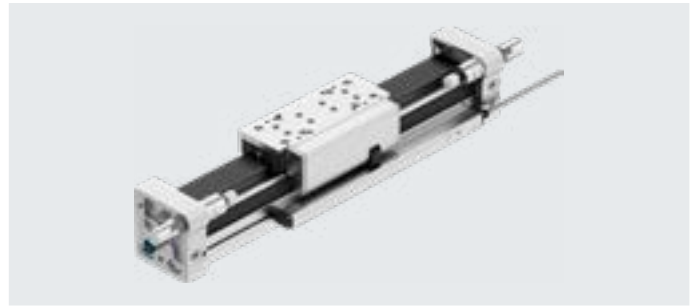


#### Note

Allocation table of drives and associated proportional directional control valves

→ page 42

Data sheet



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

General technical data		18	25	32	40	63
Piston $\varnothing$		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 <sup>1)</sup>	M5	G1/8		G1/4	G3/8	
Stroke <sup>2)</sup>	[mm]	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000				
Protected version		Optional				-
Max. velocity <sup>3)</sup>	[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		18	25	32	40	63
Operating pressure	[MPa]	0.2 ... 0.8			0.15 ... 0.8	
	[bar]	2 ... 8			1.5 ... 8	
	[psi]	29 ... 116			21.75 ... 116	
Operating pressure <sup>1)</sup>	[MPa]	0.4 ... 0.8				
	[bar]	4 ... 8				
	[psi]	58 ... 116				
Operating medium <sup>2)</sup>		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				

- 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

## Data sheet

Operating and environmental conditions					
Piston $\varnothing$	18	25	32	40	63
CE marking (see declaration of conformity) <sup>3)</sup>	To EU EMC Directive				
UKCA marking (see declaration of conformity)	To UK instructions for EMC				
Certification	RCM trademark				
Food-safe <sup>4)</sup>	→ Supplementary material information				
Corrosion resistance class CRC <sup>5)</sup>	1				

3) For information about the area of use, see the EC declaration of conformity: [www.festo.com/sp](http://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](http://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 <sup>1)</sup>	
Explosion-proof ambient temperature	0°C ≤ Ta ≤ +50°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)
UKCA marking (see declaration of conformity)	To UK EX instructions
Explosion protection certification outside the EU	EPL Gc (GB)
	EPL Dc (GB)
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 $\varnothing$	18	25	32	40	63
Theoretical force at 0.6 MPa (6 bar, 87 psi)	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 $\varnothing$	18	25	32	40	63
Mounting position	Any				
Resolution [mm]	0.01				
Repetition accuracy [mm]	→ Page 17				
Minimum load, horizontal <sup>1)</sup> [kg]	1	2	3	5	12
Maximum load, horizontal <sup>1)</sup> [kg]	15	30	50	75	180
Minimum load, vertical <sup>1)</sup> [kg]	1	2	3	5	12
Maximum load, vertical <sup>1)</sup> [kg]	5	10	15	25	60
Minimum travel speed [m/s]	0.05				
Max. travel speed [m/s]					3
Typical positioning time, long stroke <sup>2)</sup> [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 <sup>3)</sup> [s]	0.38/0.65	0.38/0.60	0.38/0.60	0.38/0.60	0.65/0.65
Minimum positioning stroke <sup>4)</sup> [%]	≤ 3				
Stroke reduction <sup>5)</sup> [mm]	20	25	25	35	35
<b>Recommended proportional directional control valve</b>					
For CPX-CMAX	→ Page 42				

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

2) At 0.6 MPa (6 bar, 87 psi), horizontal mounting position, DGCI-XX-1000, 800 mm positioning travel at min./max. load

3) At 0.6 MPa (6 bar, 87 psi), 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

## Data sheet

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

1) Advancing/retracting at 0.6 MPa (6 bar, 87 psi)

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:

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

Positioning characteristics with Soft Stop end-position controller CPX-CMPX, SPC11						
Piston Ø		18	25	32	40	63
Mounting position		Any				
Repetition accuracy <sup>1)</sup>	[mm]	±2				
Minimum load, horizontal <sup>2)</sup>	[kg]	1	2	3	5	12
Maximum load, horizontal <sup>2)</sup>	[kg]	15	30	50	75	180
Minimum load, vertical <sup>2)</sup>	[kg]	1	2	3	5	12
Maximum load, vertical <sup>2)</sup>	[kg]	5	10	15	25	60
Travel time	[s]	→ SoftStop engineering software: → <a href="http://www.festo.com">www.festo.com</a>				
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

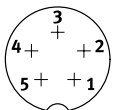
Electrical data – Displacement encoder	
Output signal	Digital
Linearity error <sup>1)</sup>	[%] < ±0.02, min. ±50 µm
Max. travel speed	[m/s] 5
Degree of protection	IP67
CE marking (see declaration of conformity)	To EU EMC Directive <sup>2)</sup>
Power supply	[V DC] 24 (±25%)
Current consumption	[mA] 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](http://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

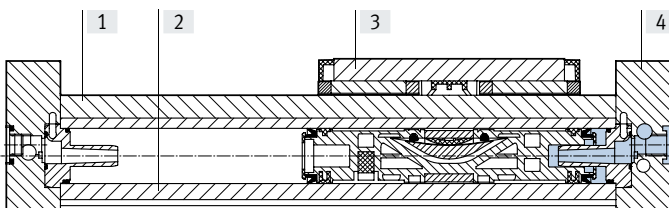


Data sheet

<b>Weight [g]</b>					
Piston $\varnothing$	18	25	32	40	63
<b>DGCI-...</b>					
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
<b>DGCI-...-1H-PN – with clamping unit</b>					
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**

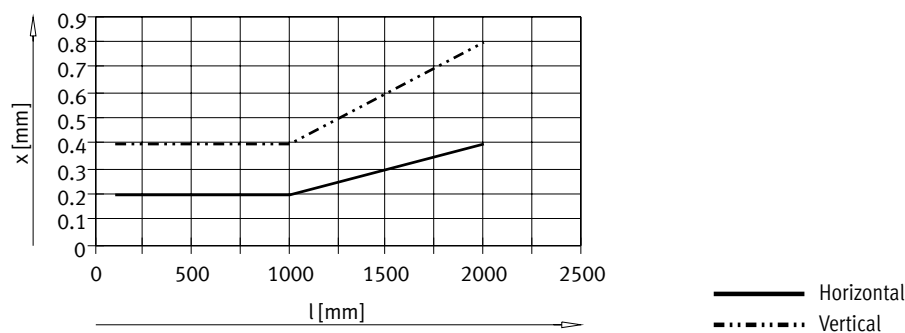
Sectional view



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
– PWIS conformity	VDMA24364-B1/B2-L

**Repetition accuracy x as a function of stroke l**

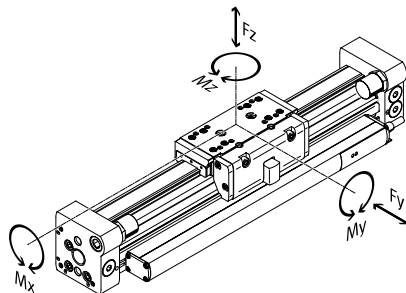


## Data sheet

### 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 $\varnothing$		18	25	32	40	63
$F_{y_{max}}$	[N]	1850	3050	3310	6890	15200
$F_{z_{max}}$	[N]	1850	3050	3310	6890	15200
$M_{x_{max}}$	[Nm]	16	36	54	144	529
$M_{y_{max}}$	[Nm]	51	97	150	380	1157
$M_{z_{max}}$	[Nm]	51	97	150	380	1157

 **Note**

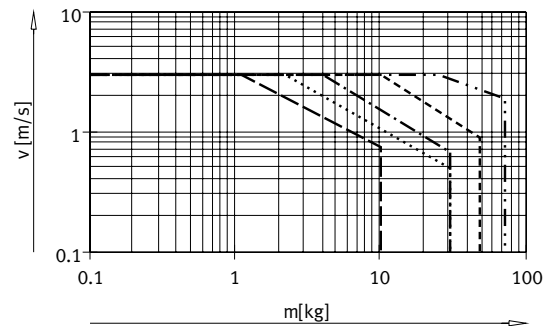
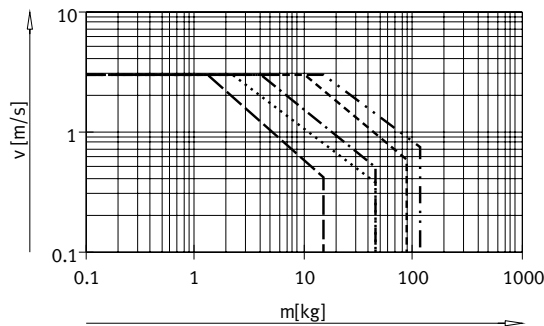
To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a flatness of 0.01 mm:

Data sheet

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

Piston  $\varnothing$  18 ... 63 with cushioning YSR

Piston  $\varnothing$  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 <sup>1)</sup> 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	[MPa]	0.45 ... 0.8	
	[bar]	4.5 ... 8	
	[psi]	65 ... 116	
Clamping unit closed	Unpressurised		
Ambient temperature [°C]	–10 ... +60		

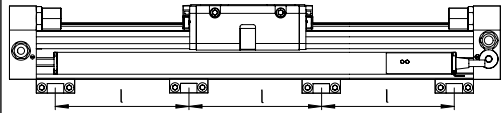
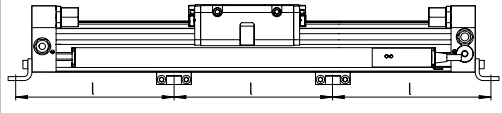
**Note**

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

### Tube diameter with pre-assembled push-in fittings

Size	Stroke [mm]	Ø in [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

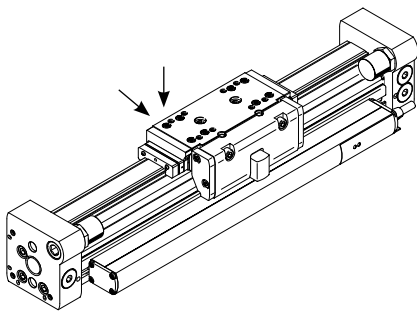
### Central lubrication

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.

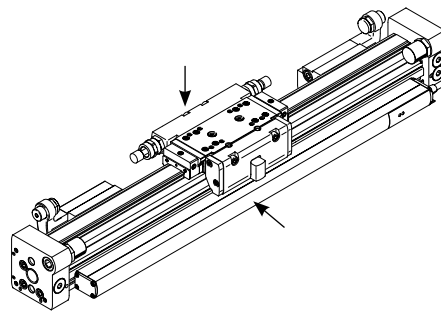
- For piston  $\varnothing$  25, 32, 40, 63
- The modules are suitable for oils and greases.
- The dimensions of the linear drive DGCI are the same with and without central lubrication modules.
- Both lubrication adapters must be connected
- There are three connection options on each side
- Can be used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

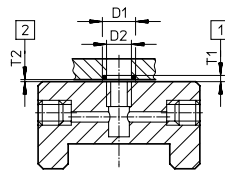


Only the connection on the front or top can be used in combination with shock absorber retainer DADP.



### Connection option for customer design

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



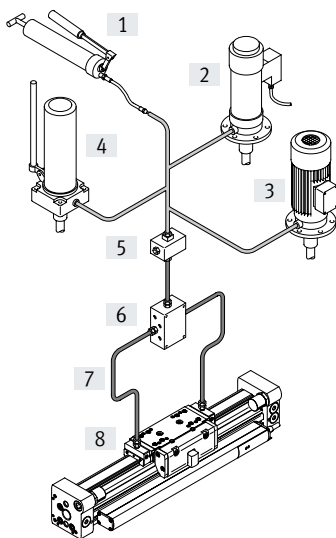
- D1  $8^{+0.2}$  mm
- D2 6 mm
- T1  $0.6_{-0.05}$  mm
- T2  $0.1^{+0.2}$  mm
- O-ring  $\varnothing$  6x1 mm (DIN 3771)

- [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)

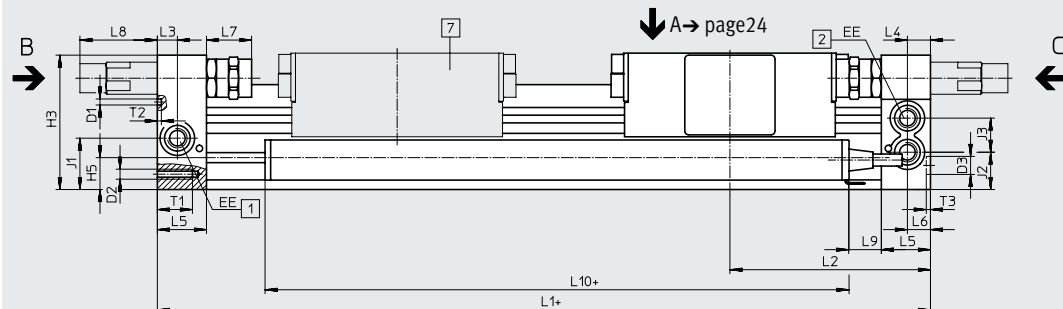
Festo recommends these companies because they can supply all the necessary components.

- [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

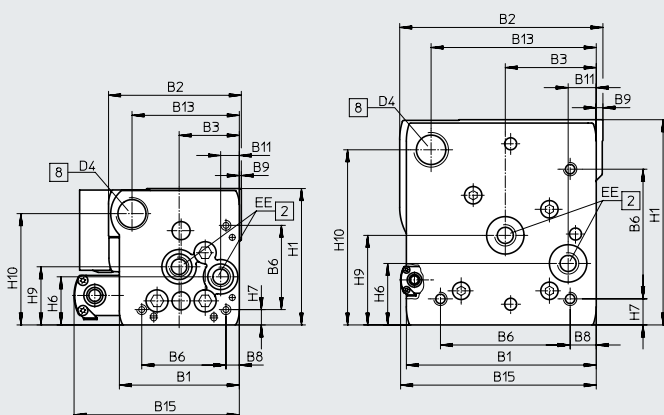
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View C

∅ 18 ... 40

∅ 63



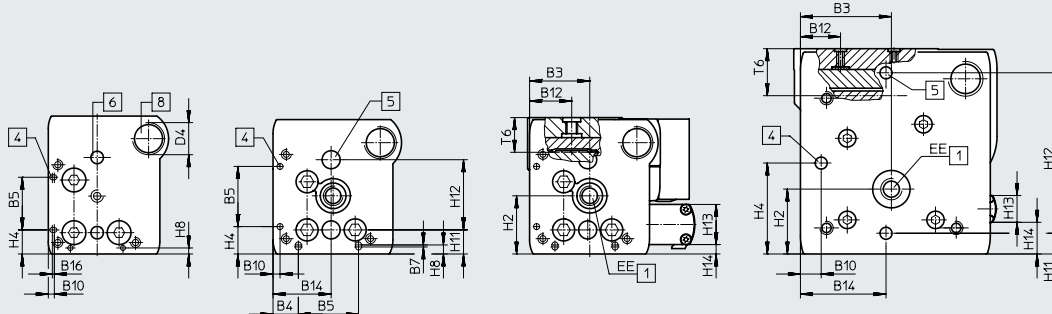
View B

∅ 18

∅ 25 ... 40

∅ 18 ... 40

∅ 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

∅	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
[mm]				±0.1	±0.05			±0.1				
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

∅	B13	B14	B15	B16	D1	D2	D3	D4	EE	H1	H2	H3
[mm]		±0.05			∅		∅					
					H7		H7					
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 <sup>H7</sup>	M10	9	M26x1.5	G3/8	153.5	48.5	151

∅	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	J1	J2	J3
[mm]	±0.1								±0.05					
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

∅	L1			L2			L3	L4	L5	L6	L7			
	KF	KF-GP	1H-PN	KF	KF-GP	1H-PN					KF	KF-GP	KF-YSR(W)	
[mm]														
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	

∅	L8		L9		L10	T1	T2	T3	T6	Stroke tolerance
	YSR	YSRW	KF	KF-GP						
[mm]			±0.2	±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 <sup>+0.2</sup>	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.

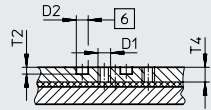
Data sheet

Dimensions

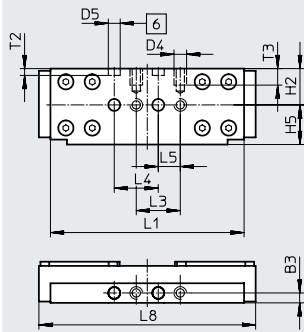
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Slide

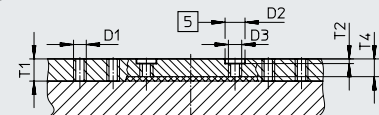
Ø 18



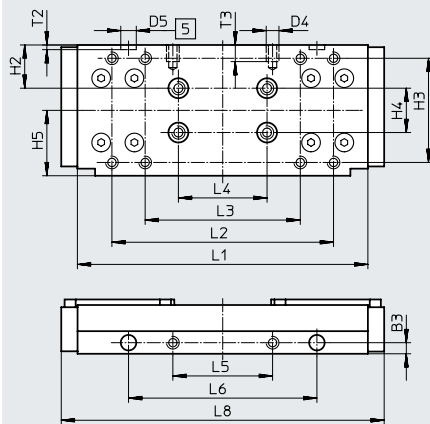
View A



Ø 32



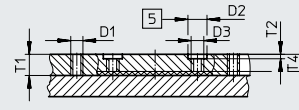
View A



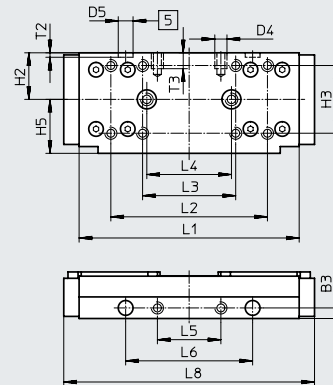
[5] Drilled hole for centring sleeve ZBH

[6] Drilled hole for centring pin ZBS

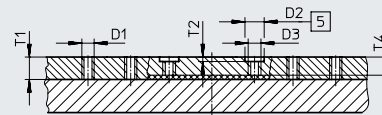
Ø 25



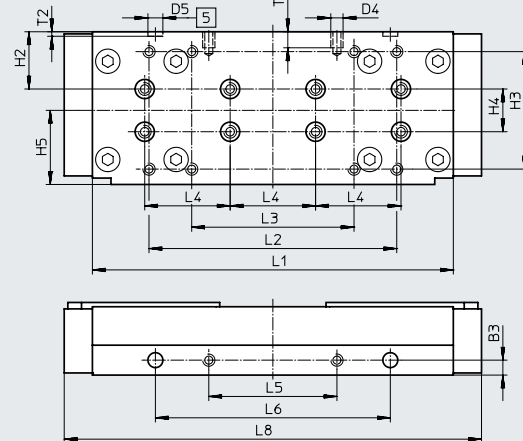
View A



Ø 40



View A





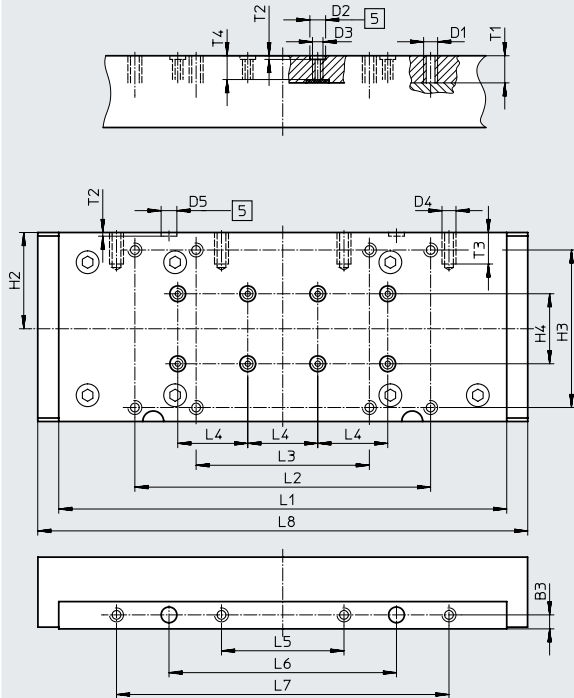
Data sheet

Dimensions

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Slide

∅ 63



[5] Drilled hole for centring sleeve ZBH

∅	B3	D1	D2 ∅ H7	D3	D4	D5 ∅ H7	H2	H3	H4	H5	L1
[mm]	±0.05								±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

∅	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

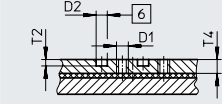
## Data sheet

### Dimensions

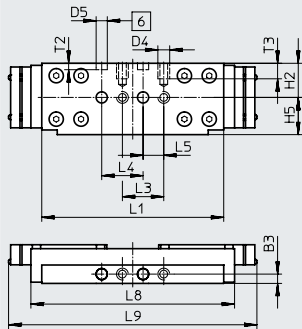
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Slide, variant GP – Protected recirculating ball bearing guide

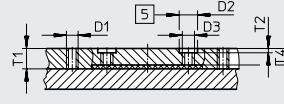
Ø 18



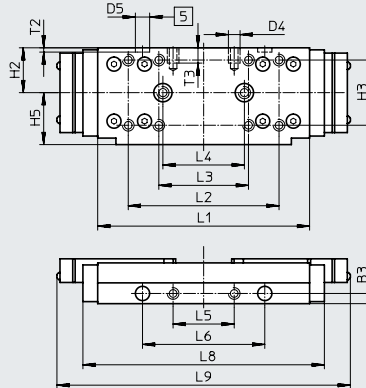
View A



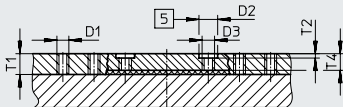
Ø 25



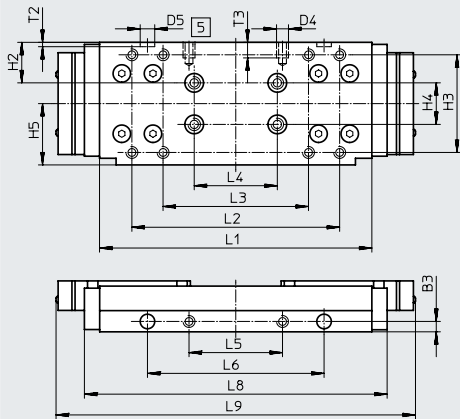
View A



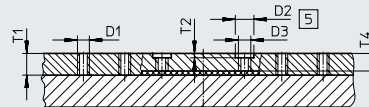
Ø 32



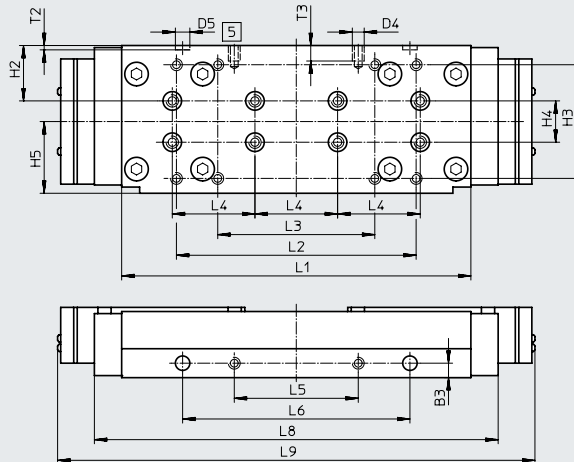
View A



Ø 40



View A



[5] Drilled hole for centring sleeve ZBH

[6] Drilled hole for centring pin ZBS

Data sheet

∅ [mm]	B3 ±0.05	D1	D2 ∅ H7	D3	D4	D5 ∅ 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

∅ [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

∅ [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

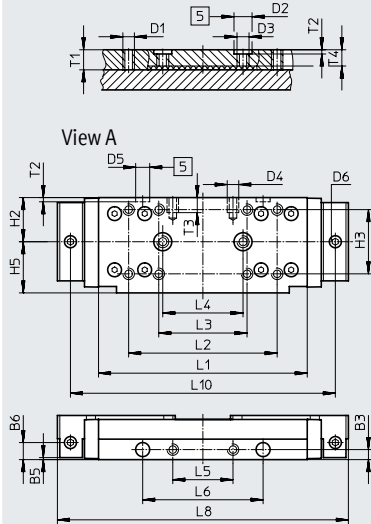
Data sheet

Dimensions

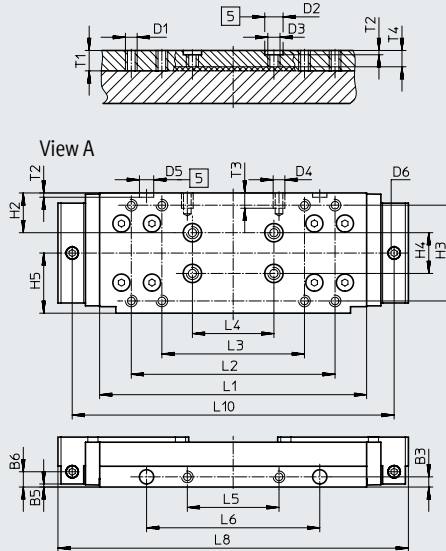
Download CAD data → [www.festo.com](http://www.festo.com)

Slide, variant C – Lubrication adapter

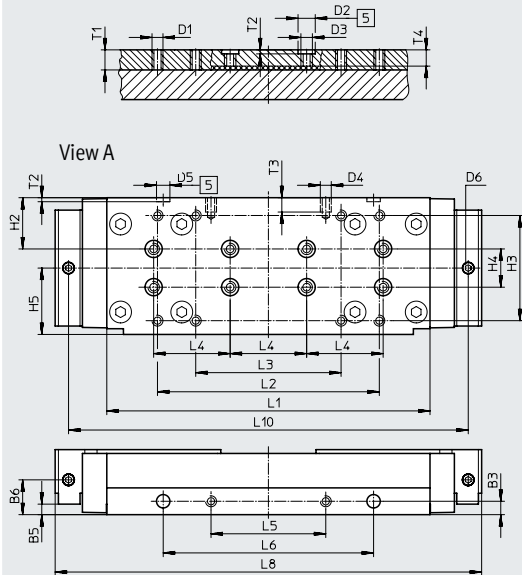
Ø 25



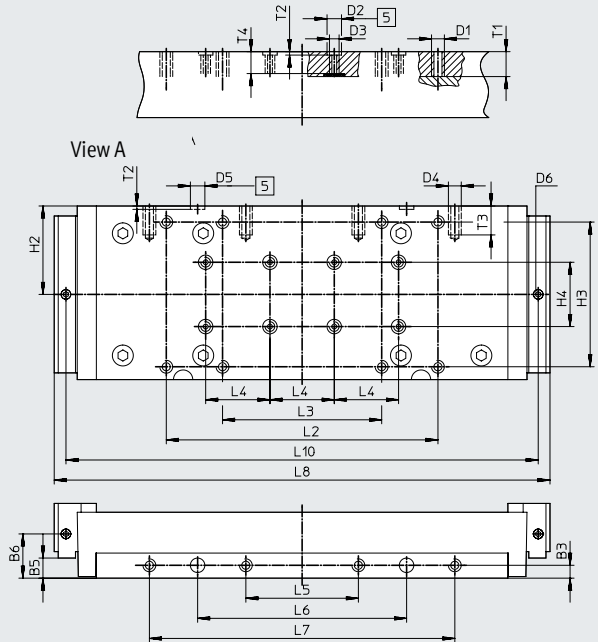
Ø 32



Ø 40



Ø 63



[5] Drilled hole for centring sleeve ZBH

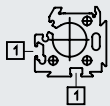
Data sheet

∅	B3	B5	B6	D1	D2 ∅ H7	D3	D4	D5 ∅ H7	D6	H2	H3	H4	H5
[mm]	±0.05	±0.05										±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	–

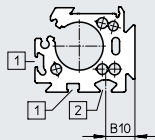
∅	L1	L2	L3	L4	L5	L6	L7	L8	L10	T1	T2	T3	T4
[mm]		±0.2	±0.2	±0.03	±0.1	±0.05	±0.1				+0.2		
25	104±0.2	74	44	40	30	60	–	145	132	10	2.1	7.5	8
32	131±0.2	100	70	40	45	85	–	172	158	10	2.1	7.5	8
40	169±0.2	116	76	40	60	110	–	224.4	210.4	10.5	2.1	7.5	8.5
63	256±0.1	169	99	40	70	130	190	308.4	293.8	15.5	2.1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

Profile barrel

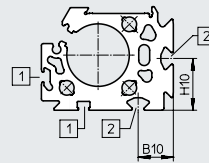
∅ 18



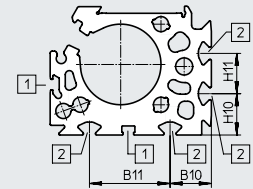
∅ 25



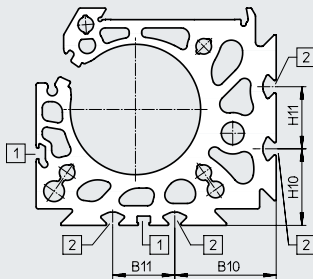
∅ 32



∅ 40



∅ 63



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

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

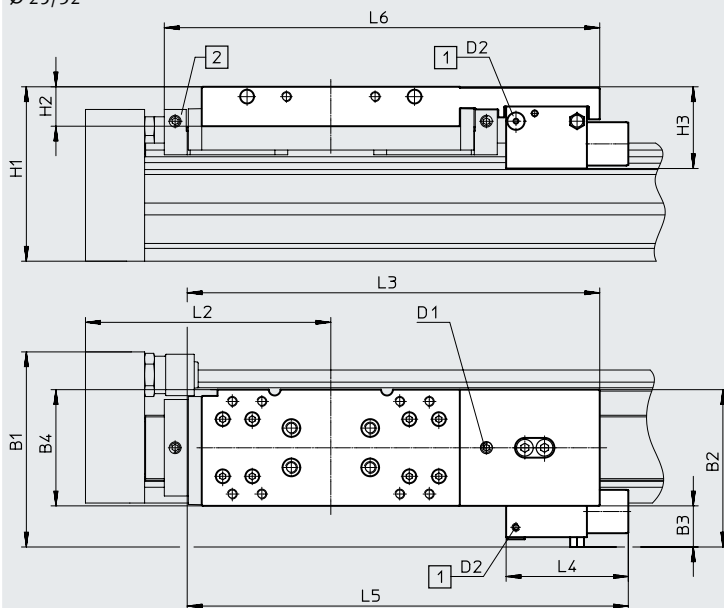
## Data sheet

### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

1H – With clamping unit

∅ 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

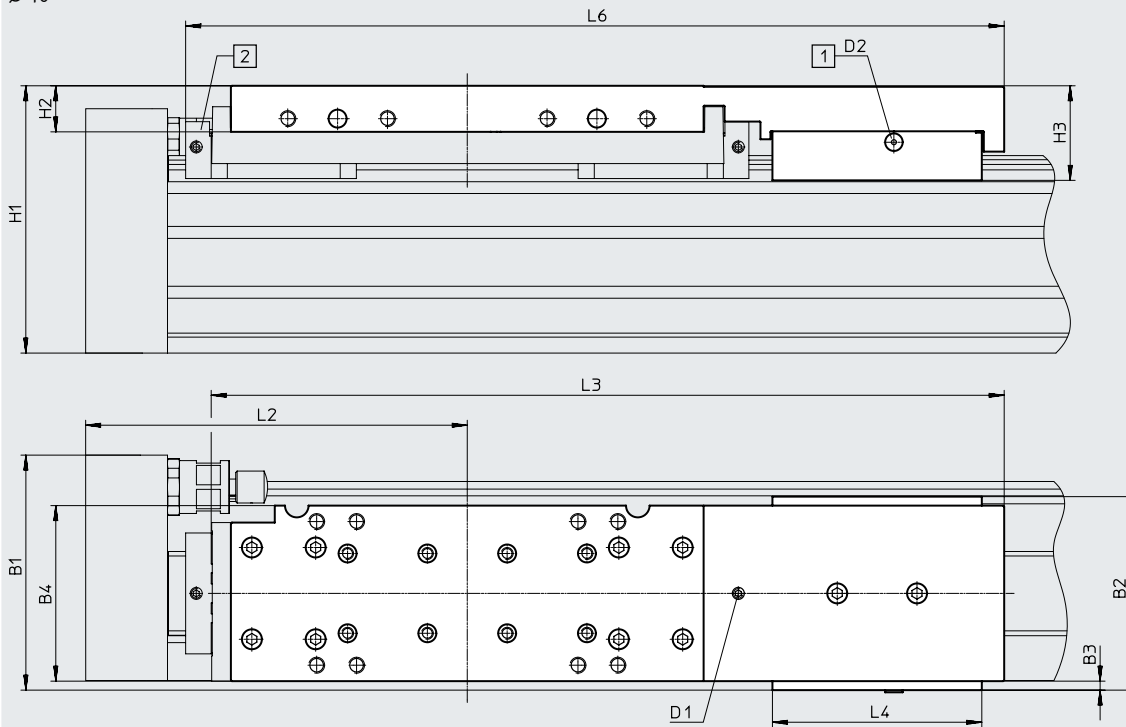
Data sheet

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

1H – With clamping unit

∅ 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.

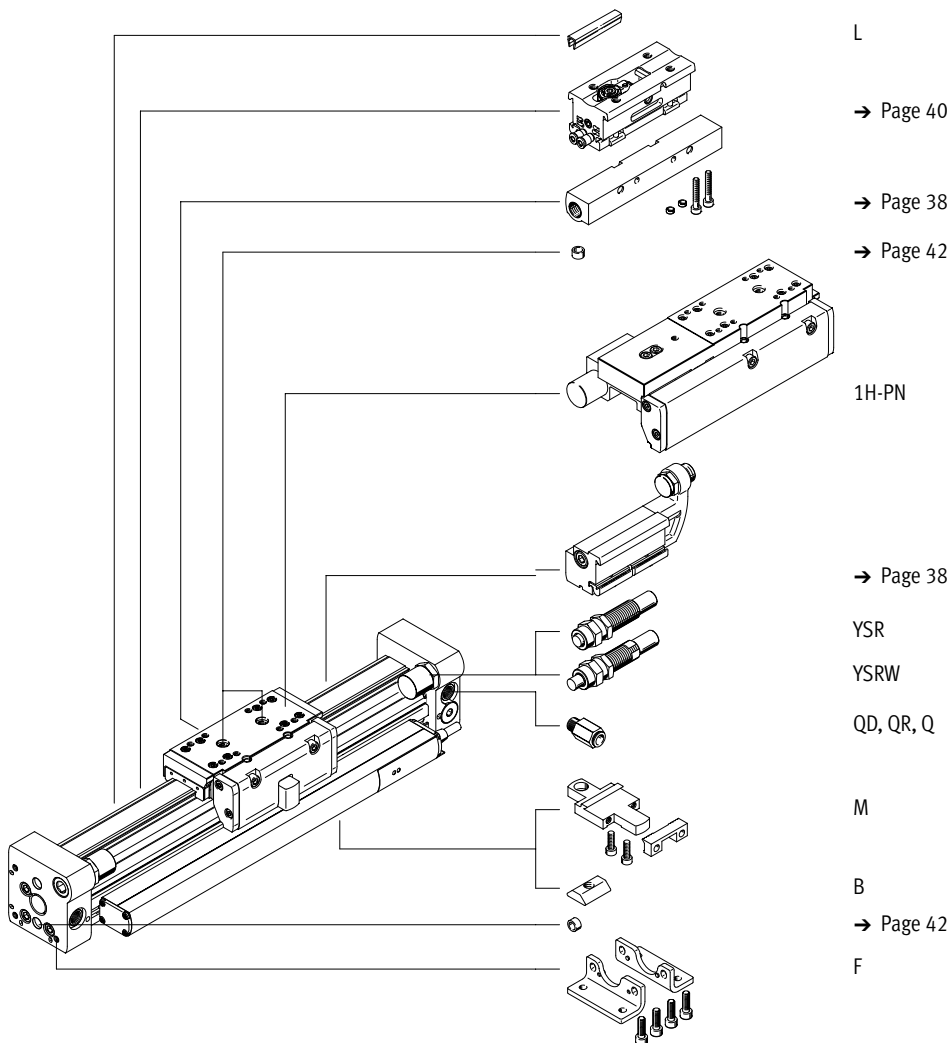
- [1] Supply port
- [2] Lubrication adapter

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

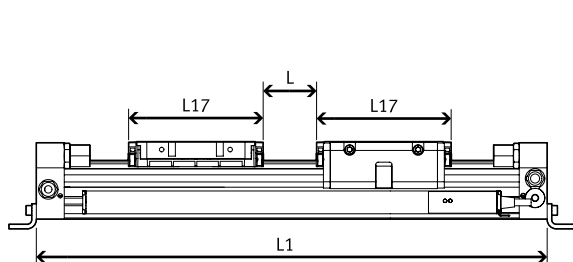
### Order code

 **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.



∅ [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  
 $381 \text{ mm} = 500 \text{ mm} - 20 \text{ mm} - 99 \text{ mm}$



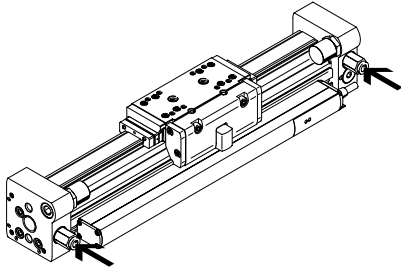
## Ordering data – Modular product system

### Order code – Alternative supply port

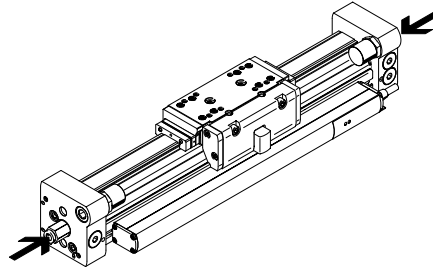
Four different supply port options (see below) can be selected when ordering the linear drive.

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.

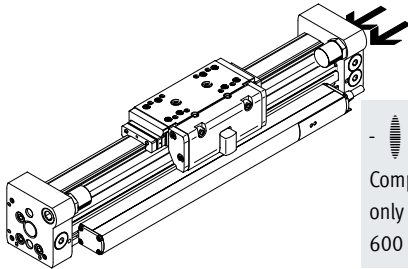
Push-in fitting at both ends, front (standard)  
DGCI-...




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

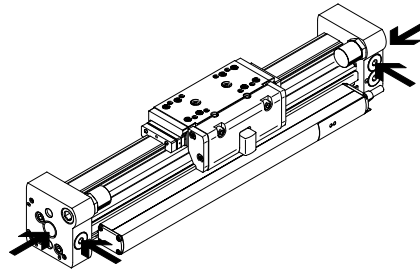


Push-in fitting at one end, end face  
DGCI-...-QR



 **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:

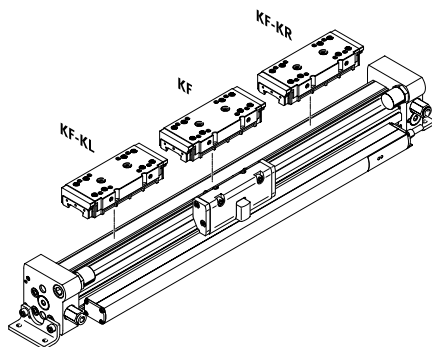
- S To the right:  
Fitting with black releasing ring
- B To the left:  
Fitting with blue releasing ring

Alternative port option

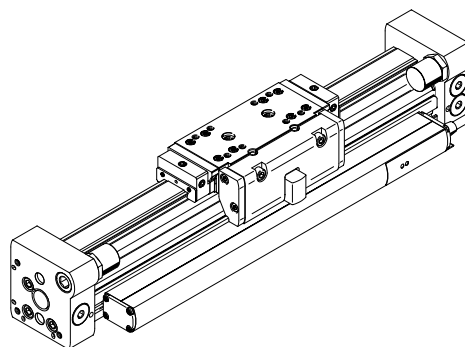
- K Supply ports open
- A Supply ports closed


### 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.	<b>544425</b>	<b>544426</b>	<b>544427</b>	<b>544428</b>	<b>544429</b>			
Function	Linear drive with displacement encoder						<b>DGCI</b>	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						<b>-KF</b>	-KF
Alternative supply port	Push-in fitting at both ends, front (standard)							
	Push-in fitting at both ends, front side						<b>-QD</b>	
	Push-in fitting at one end, front, right					[1]	<b>-QR</b>	
	Threaded connection (end face open, front face sealed)						<b>-Q</b>	
	M5	G1/8	G1/8	G1/4	G3/8			

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

## Ordering data – Modular product system

Ordering table		18	25	32	40	63	Condi- tions	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 <a href="http://www.festo.com">http://www.festo.com</a> )							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

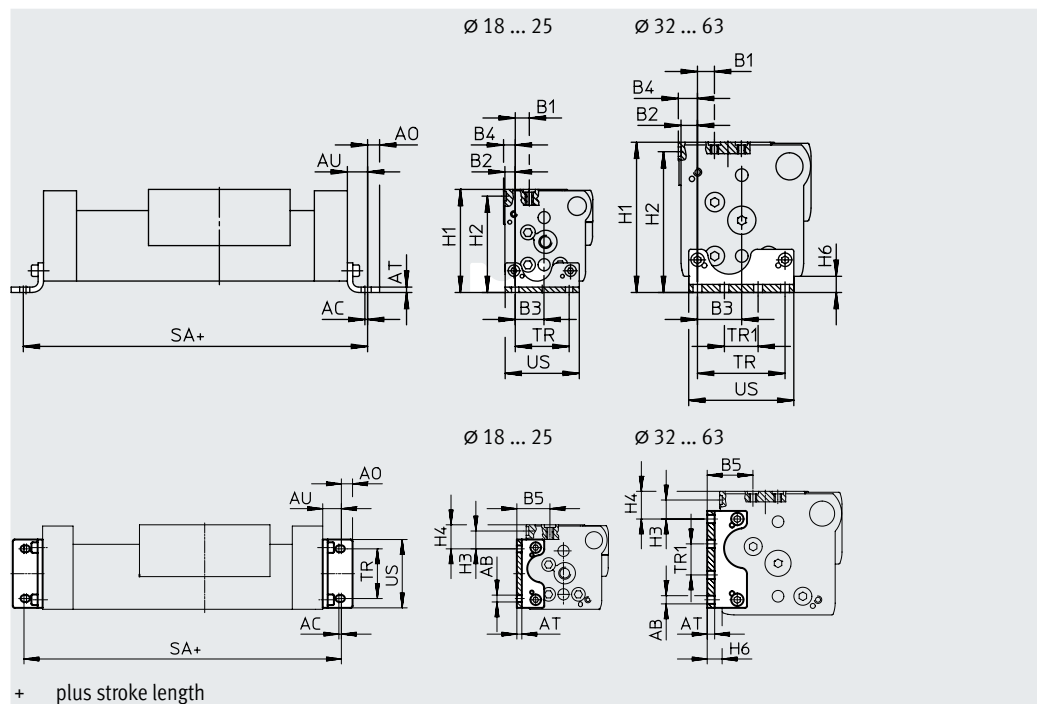
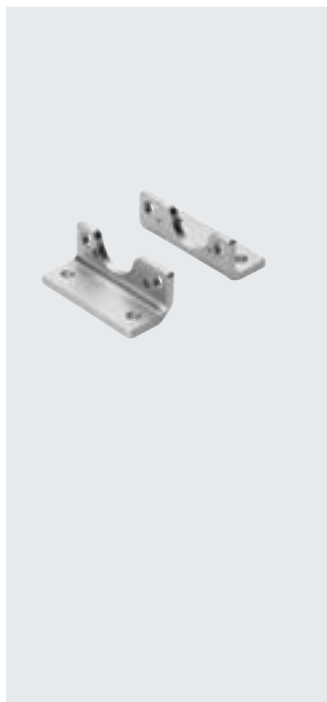
[8] F, M Allocation table → page 20

## 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 $\varnothing$	AB $\varnothing$	AC	AO	AT	AU	B1	B2	B3
[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

For $\varnothing$	B4	B5	H1	H2	H3	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

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

1) Suitable for ATEX

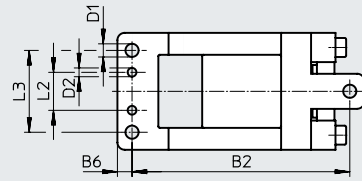
## Accessories

### Profile mounting MUC (order code: M)

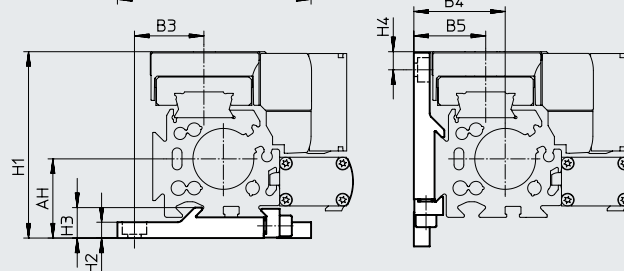
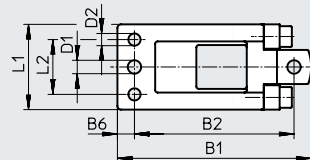


Material:  
High-alloy steel

Ø 63



Ø 18 ... 40



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	AH	B1	B2	B3	B4	B5	B6	D1	D2
[mm]			±0.2					Ø	Ø
								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	H3	H4	L1	L2	L3	Weight	Part no.	Type <sup>1)</sup>
[mm]						±0.05	±0.2	[g]		
18	64	5.7 <sub>-0.2</sub>	9.9±0.1	6.4	33±0.1	20.5	–	78	531752	MUC-18
25	76.5	6.5 <sub>-0.2</sub>	12.5±0.1	7.43	35±0.1	22.5	–	113	531753	MUC-25
32	87.5	6.5 <sub>-0.2</sub>	13±0.1	4	45±0.1	30	–	174	531754	MUC-32
40	111.5	8.5 <sub>-0.2</sub>	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

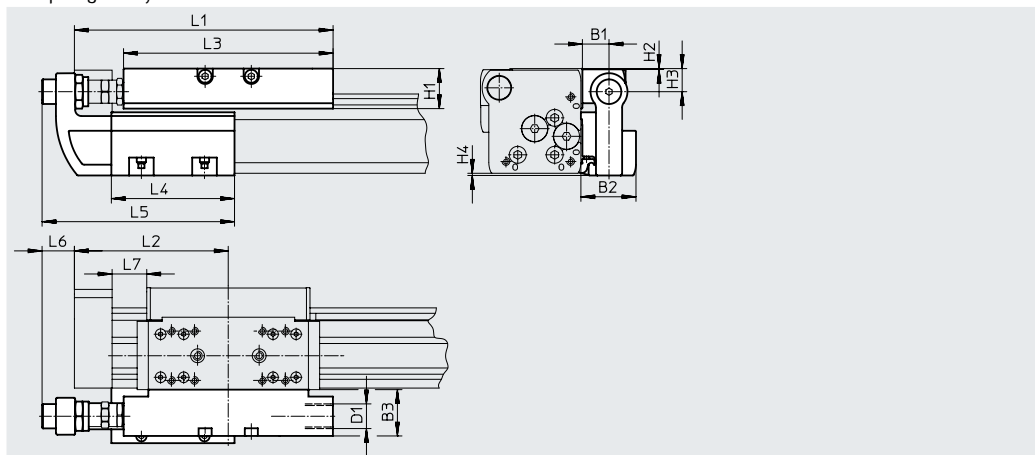
1) Suitable for ATEX


## Accessories

### Shock absorber retainer DADP-DGC Stop KYC

Materials: Stop  
Housing: Anodised aluminium  
Stop bracket: Stainless steel casting  
Clamp: High-alloy steel

Materials: Shock absorber retainer  
Housing: Anodised aluminium




 **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 $\varnothing$	B1	B2	B3	D1	H1	H2	H3	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 $\varnothing$	L2	L3	L4	L5	L6	L7		
						KF	KF-GP	KF-YSR(W)
[mm]								
18	74.5	107	80	118.5	23.5	$\geq 14.5$	$\geq 18$	$\geq 14.5$
25	100	136	80	125	20.5	$\geq 22.5$	$\geq 25$	$\geq 22.5$
32	124.8	164	120	165	14.5	$\geq 27.3$	$\geq 27.3$	$\geq 27.3$
40	150	210	156	220.5	31	$\geq 31$	$\geq 37$	$\geq 31$
63	200	256	200	268	24	$\geq 41$	–	$\geq 41$

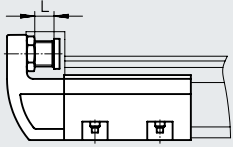
 **Note**

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

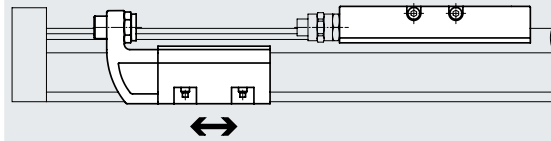
### Technical data and ordering data

#### 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 $\varnothing$ [mm]	Max. impact force [N]	Ambient temperature [°C]	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
<b>Shock absorber retainer DADP-DGC</b>						
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 $\varnothing$ [mm]	Precision adjustment L [mm]	Ambient temperature [°C]	CRC <sup>1)</sup>	Weight [g]	Part no.	Type <sup>2)</sup>
<b>Stop KYC</b>						
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

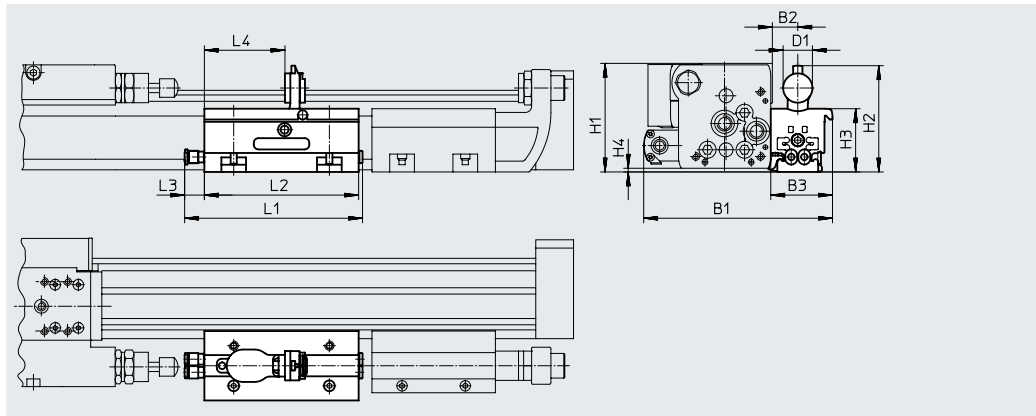
#### Note

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



- 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 $\varnothing$ [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 $\varnothing$ [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

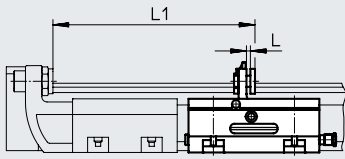
Permissible impact energy  
→ page 15



## Accessories

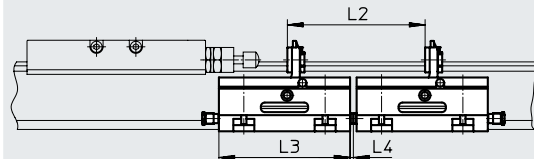
### Minimum distance

Between end stop and intermediate position



∅	L1
25	145.3
32	185.3

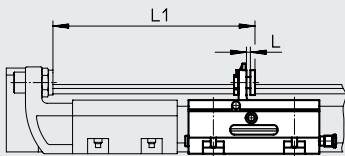
Between two intermediate positions



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

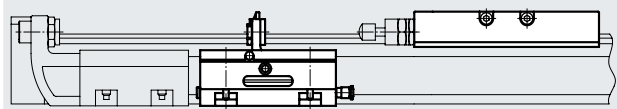
### Technical data and ordering data

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.


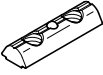


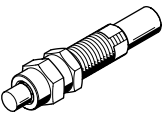
For ∅ [mm]	Operating pressure [bar]	Impact velocity [m/s]	Swivel time [ms]	Repetition accuracy [mm]	Pneumatic connection	Precision adjustment L [mm]
25	2.5 ... 8	→ Page 19	.100	0.02	QS-4	2
32						

For ∅ [mm]	Ambient temperature [°C]	CRC <sup>1)</sup>	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

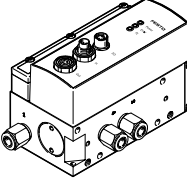
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

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 <sup>1)</sup>
Slot nut HMBN <sup>2)</sup> <span style="float: right;">Data sheets → Internet: hmbn</span>							
	25 ... 40	For mounting slot	B	547264	HMBN-5-1M5		10
	63						
Centring pin/sleeve ZBS, ZBH <sup>2)</sup> <span style="float: right;">Data sheets → Internet: zbs, zbh</span>							
	18	For slide	-	150928	ZBS-5		10
	25 ... 63						
	18	For cap	-	150928	ZBS-5		
	25 ... 63						
Slot cover ABP-S <span style="float: right;">Data sheets → Internet: abp</span>							
	18 ... 63	For sensor slot Each 0.5 m	L	151680	ABP-5-S		2
Shock absorber YSRW <sup>2)</sup> <span style="float: right;">Data sheets → Internet: ysrw</span>							
	18		YSRW	540347	YSRW-DGC-18-KF		1
	25						
	32						
	40						
	63						

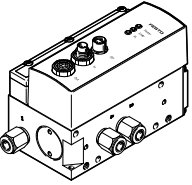
- 1) Packaging unit  
2) Suitable for ATEX

Ordering data – Proportional directional control valves and push-in fittings							
	For ø	Stroke	Proportional directional control valve Data sheets → Internet: vpw		Push-in fitting for DGCI Data sheets → Internet: qs		PU <sup>1)</sup>
	[mm]	[mm]	Part no.	Type <sup>2)</sup>	Part no.	Type	
	<b>For applications with axis controller CPX-CMAX</b>						
	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

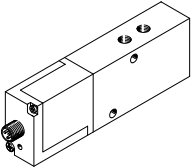
Ordering data – Proportional directional control valves and push-in fittings

	For ø	Stroke	Proportional directional control valve		Push-in fitting for DGCI		PU <sup>1)</sup>
	[mm]	[mm]	Part no.	Type <sup>2)</sup>	Part no.	Type	
	<b>For applications with Soft Stop end-position controller CPX-CMPX, horizontal</b>						
	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	
	<b>For applications with Soft Stop end-position controller CPX-CMPX, vertical</b>						
	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

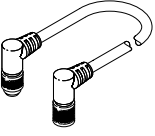
Accessories

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

	For ø	Stroke	Proportional directional control valve		Push-in fitting for DGCI		PU <sup>1)</sup>
	[mm]	[mm]	Part no.	Type	Part no.	Type	
	<b>For applications with Soft Stop end-position controller SPC11-MTS-AIF-2, horizontal</b>						
	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	
	<b>For applications with Soft Stop end-position controller SPC11-MTS-AIF-2, vertical</b>						
	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 <sup>2)</sup>
<b>Connection between axis controller CPX-CMAX/end-position controller CPX-CMPX and proportional directional control valve VPWP</b>				
	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
	Straight plug and straight socket	8	540331	KVI-CP-3-WS-WD-8
		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