








## Linear drives DGPL, with external displacement encoder

**FESTO**



Product range overview

Function	Type	Description
Drives	Rodless	
	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 the 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 the end face or at the front</li> <li>• System product for handling and assembly technology</li> </ul>
	DGPL 	<ul style="list-style-type: none"> <li>• Available with or without guide</li> <li>• With potentiometer or contactless measuring displacement encoder, attached</li> <li>• With clamping unit</li> <li>• Wide range of options for mounting on drives</li> </ul>
	With piston rod	
	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	Semi-rotary drive
DSMI 		<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 ø	Stroke/swivel angle [mm/°]	Suitable			As a measuring cylinder
		For positioning with	For end-position controller		
		CPX-CMAX	CPX-CMPX	SPC11	
<b>Rodless</b>					
25, 32, 40	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	■	■	■	■
25, 32, 40, 50, 63	225, 300, 360, 450, 500, 600, 750, 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

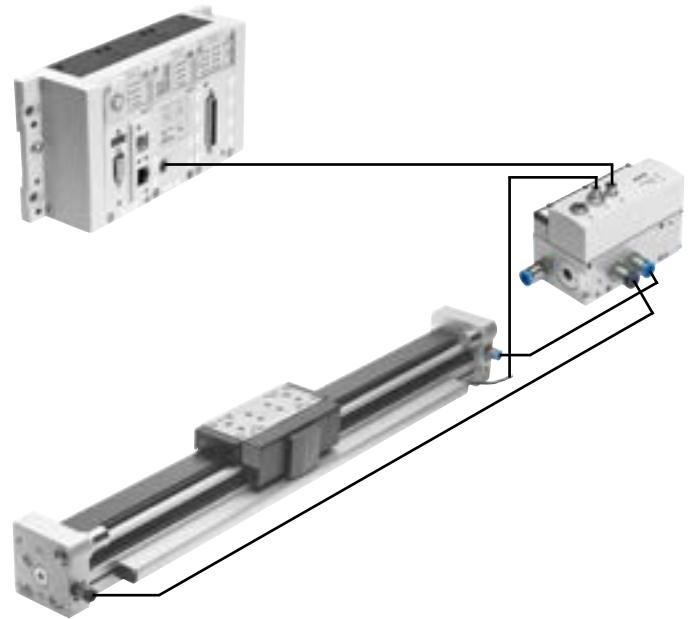
### Servo-pneumatic drive technology

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.

Advantages:

- 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 alert 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 64 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.

Advantages:

- 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 only 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](#)

## Advantages:

- 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 faultless and fast connection with the controllers CPX-CMPX and CPX-CMAX.

Data sheets → Internet: [vpwp](#)

## Advantages:

- 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](#)

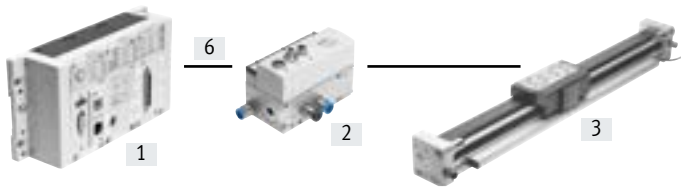
## Advantages:

- 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](#)



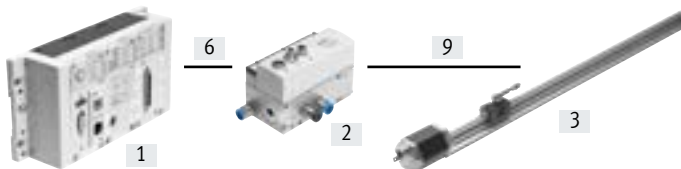
- [1] Controller module CPX-CMPX or CPX-CMAX
- [2] Proportional directional control valve VPWP
- [3] Linear drive DDLI, DGCI with displacement encoder
- [6] Connecting cable KVI-CP-3-...

- 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 ... 40 mm
- Stroke: 100 ... 2000 mm in fixed lengths
- Application areas: Soft Stop and pneumatic positioning
- Loads from 1 ... 180 kg
- No sensor interface required

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

### System with displacement encoder MME-MTS

Data sheets → Internet: [mme](#)



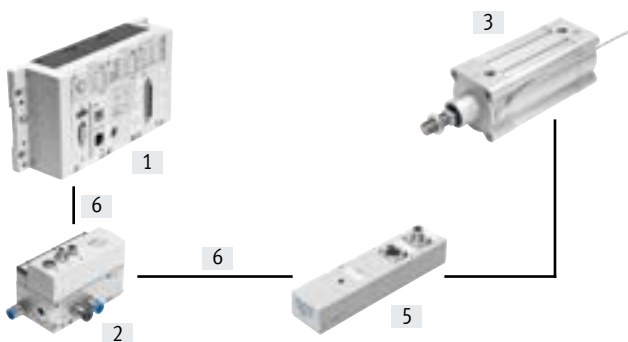
- [1] Controller module CPX-CMPX or CPX-CMAX
- [2] Proportional directional control valve VPWP
- [3] Displacement encoder MME-MTS
- [6] Connecting cable KVI-CP-3-...
- [9] NEBP-M16W6-K-2-M9W5

- Displacement encoder with absolute and contactless measurement
- Diameter: 25 ... 63 mm
- Stroke: 225 ... 2000 mm in fixed lengths
- Application areas: Soft Stop and pneumatic positioning
- No sensor interface required

- Advantages:
- Excellent running characteristics
  - For fast and accurate positioning up to  $\pm 0.2$  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-...

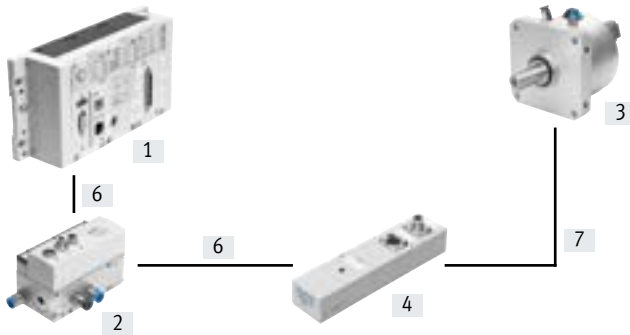
- Standards-based cylinder with integrated displacement encoder, conforms to DIN ISO 6432, VDMA 24 562, NFE 49 003.1 and Uni 10 290
- Displacement encoder with contactless and incremental measurement
- Diameter: 32 ... 100 mm
- Stroke: 100 ... 750 mm
- Application areas: Soft Stop and pneumatic positioning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

- Advantages:
- Compact drive unit
  - Can be used universally
  - Also with guide unit
  - For fast and accurate positioning up to  $\pm 0.5$  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] Semi-rotary drive 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

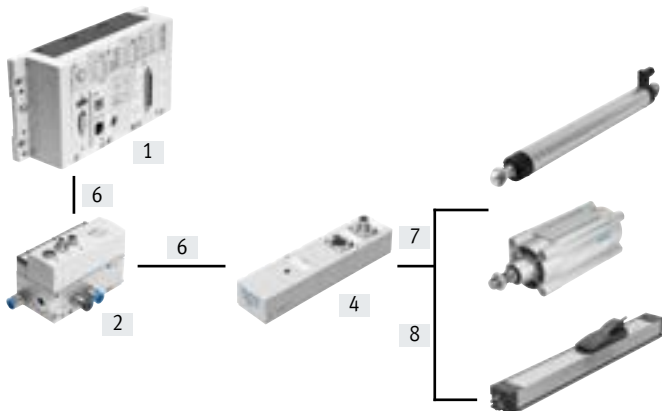
- Semi-rotary drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Application areas: Soft Stop and pneumatic positioning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

## Advantages:

- 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, e.g. DNC or DSBC
- Loads from 1 ... 300 kg

## Advantages:

- 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
	DDL/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-...	-	-	-	-	■	nebp

System components for pneumatic positioning systems with axis controller CPX-CMAX						
	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encoder		→ Page/ Internet
	DDL/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-...	-	-	-	-	■	nebp

System components for measuring cylinders with measuring module CPX-CMIX						
	Linear drive	Standards-based cylinder	Semi-rotary drive	Displacement encoder		→ Page/ Internet
	DDL/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-...	-	-	-	-	■	nebp

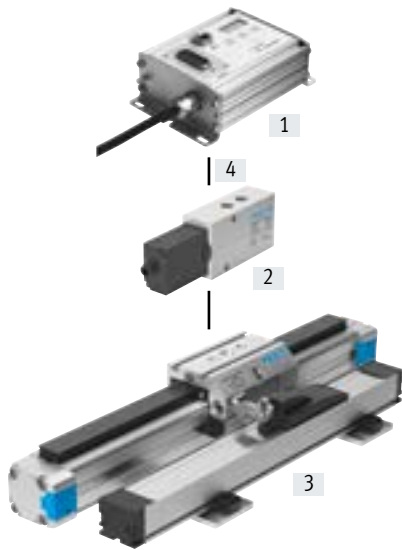
1) As an extension



## Overview

### Individual components for positioning with end-position controller SPC11

→ Internet: [spc11](#)



- [1] End-position controller SPC11-POT-TLF
- [2] Proportional directional control valve MPYE
- [3] Linear drive DGPL
- [4] Connecting cable KMPYE-AIF-...

### DGPL, with recirculating ball bearing guide

- Piston  $\varnothing$  25 ... 63 mm
- Stroke 225 ... 2000 mm
- Standard slide or extended slide
- High characteristic load values
- Supply ports on both ends

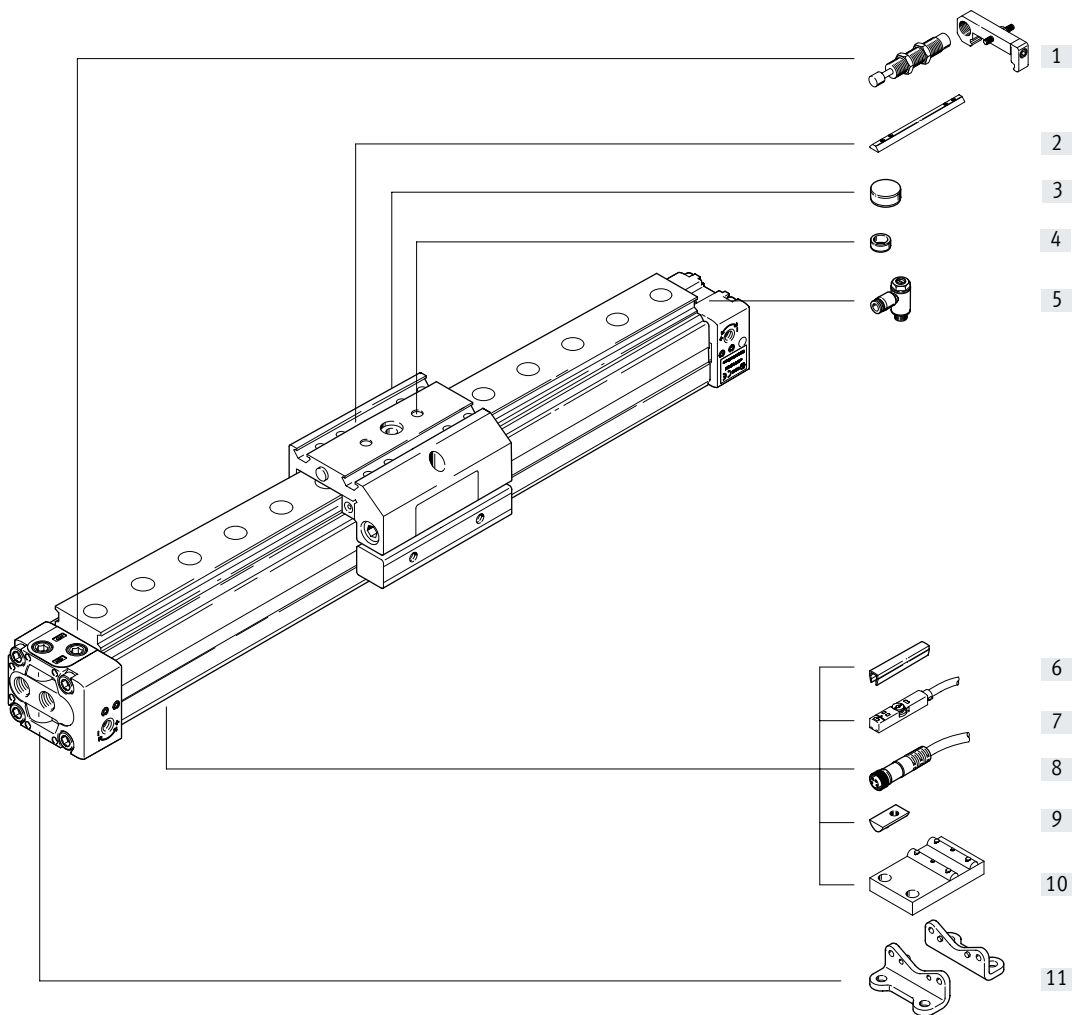


### DGPL, with recirculating ball bearing guide and clamping unit

- Piston  $\varnothing$  25 ... 40 mm
- Stroke 225 ... 2000 mm
- Standard slide or extended slide
- In the event of a loss of pressure, the slide can be fixed in vertical operation using the clamping unit.
- High characteristic load values
- Supply ports on both ends

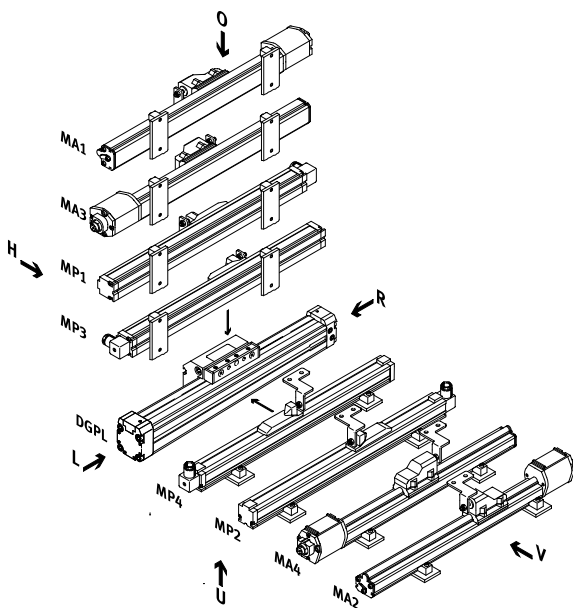


Peripherals overview

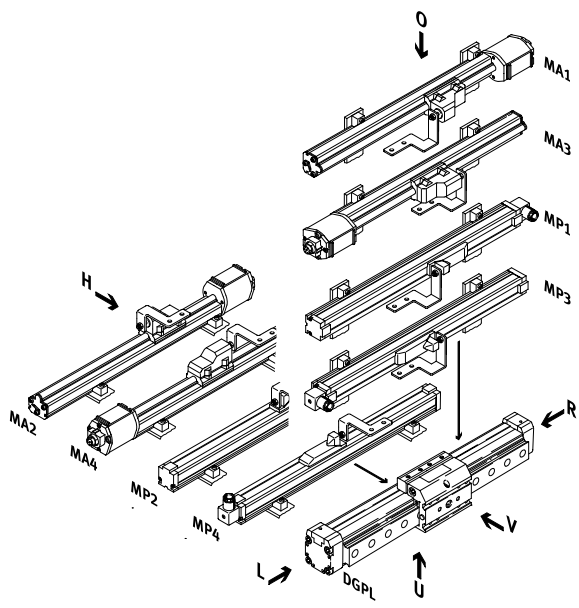


Displacement encoder attachment position [12]

Slide at the rear (SH)



Slide at the front (SV)



## Peripherals overview

Variants and accessories		
Type	Description	→ Page/Internet
[1] Shock absorber kit YSR/KYP	For avoiding damage at the end stop in the event of malfunction	27
[2] Slot nut for slide NSTL	For mounting loads and attachments on the slide	28
[3] Central mounting SLZZ	For centring loads and attachments on the slide	28
[4] Centring sleeves ZBH	For centring loads and attachments on the slide	
[5] One-way flow control valve GRLA	For regulating speed	28
[6] Slot cover ABP/ABP-S	For protection against contamination	28
[7] Proximity switch SME/SMT	For additional sensing of the piston position, can be ordered optionally, only in conjunction with the order code A in the drive's modular product system	30
[8] Connecting cable NEBU	For proximity switch	30
[9] Slot nut for mounting slot NST	For mounting attachments	28
[10] Central support MUP	For mounting the axis	26
[11] Foot mounting HP	For mounting the axis	26
[12] Displacement encoder attachment position MA1 ... MA4/MP1 ... MP4	For drive position measurement	22
- Adapters	For drive/gripper connections	gripper

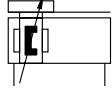
## Type codes

<b>001</b>	<b>Series</b>	
<b>DGPL</b>	Linear drive with slide	
<b>002</b>	<b>Piston diameter</b>	
<b>25</b>	25	
<b>32</b>	32	
<b>40</b>	40	
<b>50</b>	50	
<b>63</b>	63	
<b>003</b>	<b>Stroke</b>	
<b>...</b>	225 ... 2000	
<b>004</b>	<b>Cushioning</b>	
<b>PPV</b>	Pneumatic cushioning, adjustable at both ends	
<b>005</b>	<b>Position sensing</b>	
<b>A</b>	For proximity sensor	
<b>006</b>	<b>Generation</b>	
<b>B</b>	Function-optimised	
<b>007</b>	<b>Guide</b>	
<b>KF</b>	Recirculating ball bearing guide	
<b>008</b>	<b>Basic version</b>	
	Basic version	
<b>GK</b>	Piston/slide standard	
<b>GV</b>	Extended piston/slide	
<b>009</b>	<b>Slide attachment position</b>	
<b>SH</b>	Slide at the rear	
<b>SV</b>	Slide at the front	
<b>010</b>	<b>Compressed air connection</b>	
<b>D2</b>	Both sides	
<b>011</b>	<b>Linear potentiometer</b>	
<b>MP1</b>	Potentiometer, position 1, mounted	
<b>MP2</b>	Potentiometer, position 2, mounted	
<b>MP3</b>	Potentiometer, position 3, mounted	
<b>MP4</b>	Potentiometer, position 4, mounted	
<b>MA1</b>	Temposonic with CAN axis interface, position 1, mounted	
<b>MA2</b>	Temposonic with CAN axis interface, position 2, mounted	
<b>MA3</b>	Temposonic with CAN axis interface, position 3, mounted	
<b>MA4</b>	Temposonic with CAN axis interface, position 4, mounted	
<b>MPO</b>	Potentiometer, enclosed separately	
<b>MA0</b>	Temposonic with CAN axis interface, enclosed separately	

<b>012</b>	<b>Accessories</b>	
<b>ZUB-</b>	Accessories supplied loose	
<b>013</b>	<b>Slot cover, sensor slot</b>	
<b>...S</b>	1 ... 10 pieces	
<b>014</b>	<b>Slot cover for mounting slot</b>	
<b>...B</b>	1...10 pieces	
<b>015</b>	<b>Slot nut for slide</b>	
<b>... X</b>	1 ... 10 pieces	
<b>016</b>	<b>Slot nut, mounting slot</b>	
<b>...Y</b>	1 ... 10 pieces	
<b>017</b>	<b>Centring sleeves</b>	
<b>... Z</b>	10 ... 90 pieces	
<b>018</b>	<b>Central support</b>	
<b>...M</b>	1 ... 10 pieces	
<b>019</b>	<b>Central mounting</b>	
<b>... Q</b>	1 ... 10 pieces	
<b>020</b>	<b>Foot mounting [unit]</b>	
<b>... F</b>	1 - 10 units	
<b>021</b>	<b>Proximity sensor, cable 2.5 m</b>	
<b>...G</b>	1 ... 10 pieces	
<b>022</b>	<b>Proximity sensor, plug M8</b>	
<b>...H</b>	1 ... 10 pieces	
<b>023</b>	<b>Proximity sensor, contactless, cable 2.5 m</b>	
<b>...I</b>	1 ... 10 pieces	
<b>024</b>	<b>Proximity sensor, contactless, plug M8</b>	
<b>...J</b>	1 ... 10 pieces	
<b>025</b>	<b>Proximity sensor, N/C contact, cable 2.5 m</b>	
<b>...N</b>	1 ... 10 pieces	
<b>026</b>	<b>Connecting cable 2.5 m, plug M8</b>	
<b>...V</b>	1 ... 10 pieces	
<b>027</b>	<b>Shock absorber, self-adjusting, with retaining bracket</b>	
<b>... C</b>	1 ... 10 pieces	

Data sheet

Function



- - Diameter  
25 ... 63 mm
- - Stroke  
225 ... 2000 mm



General technical data		25	32	40	50	63
Piston Ø		25	32	40	50	63
Design	Piston					
	Moment compensator					
	Profile barrel					
Mode of operation	Double-acting					
Operating medium <sup>1)</sup>	Compressed air to ISO 8573-1:2010 [6:4:4]					
Note on the operating/pilot medium	Lubricated operation not possible Pressure dew point 10°C below ambient temperature/temperature of medium					
Cushioning	Adjustable at both ends					
Cushioning length [mm]		18	20	30		
Position sensing	Displacement encoder, attached externally					
	Proximity switch					
Measuring principle (displacement encoder)	→ Internet: displacement encoder					
Type of mounting	Foot mounting					
Stroke <sup>2)</sup> [mm]	225, 300, 360, 450, 500, 600, 750, 1000, 1250, 1500, 1750, 2000					
Protection against rotation/guide	Guide rail with slide					
	Ball bearing					
Clamping unit	→ Internet: dgpl					
Pneumatic connection		G1/8		G1/4		G3/8
Electrical connection	→ Internet: displacement encoder					

- 1) The proportional directional control valve MPYE used requires the characteristic values.
- 2) Supply of compressed air at both ends of the cylinder (feature D2) is absolutely essential for Soft Stop SPC11 for lengths of 500 mm and over.

Forces [N] and impact energy [Nm]		25	32	40	50	63
Piston Ø		25	32	40	50	63
Theoretical force at 6 bar		295	483	754	1178	1870
Max. impact energy in the end positions <sup>1)</sup>		0.1	0.2	0.4	0.8	0.8

- 1) Cushioning PPV must be completely open for applications with Soft Stop SPC11.

Maximum permissible mass:

$$v = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

Permissible impact velocity:

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

- v Permissible impact velocity
- E Max. impact energy
- m<sub>1</sub> Moving mass (drive)
- m<sub>2</sub> Moving payload

**Note**  
These specifications represent the maximum values that can be achieved. The maximum permissible impact energy must be observed.

## Data sheet

<b>Positioning characteristics with end-position controller SPC11</b>						
Piston $\varnothing$		25	32	40	50	63
Repetition accuracy of an intermediate position <sup>1)</sup>	[mm]	±2				
Mounting position		Any				
Minimum load, horizontal <sup>2)</sup>	[kg]	2	3	5	8	12
Maximum load, horizontal <sup>2)</sup>	[kg]	30	45	75	120	180
Minimum load, vertical <sup>2)</sup>	[kg]	2	3	5	8	12
Maximum load, vertical <sup>2)</sup>	[kg]	10	15	25	40	60
Travel time	[s]	→ SoftStop engineering software: → <a href="http://www.festo.com">www.festo.com</a>				
Recommended proportional directional control valve		→ Page 29				

- 1) In the stroke range from 225 ... 2000 mm  
 2) Load = payload + mass of all moving parts on the drive

<b>Operating and environmental conditions</b>						
Piston $\varnothing$		25	32	40	50	63
Operating pressure <sup>1)</sup>	[bar]	4 ... 8				
Ambient temperature <sup>2)</sup>	[°C]	-10 ... +60				
Vibration resistance		To DIN/IEC 68 Parts 2 – 6, severity level 2				
Continuous shock resistance		To DIN/IEC 68 Parts 2 – 27, severity level 2				
CE marking (see declaration of conformity)		To EU EMC Directive				
Degree of protection (displacement encoder)		→ Internet: displacement encoder				

- 1) Only applies to applications with Soft Stop SPC11.  
 2) Note operating range of proximity switches.

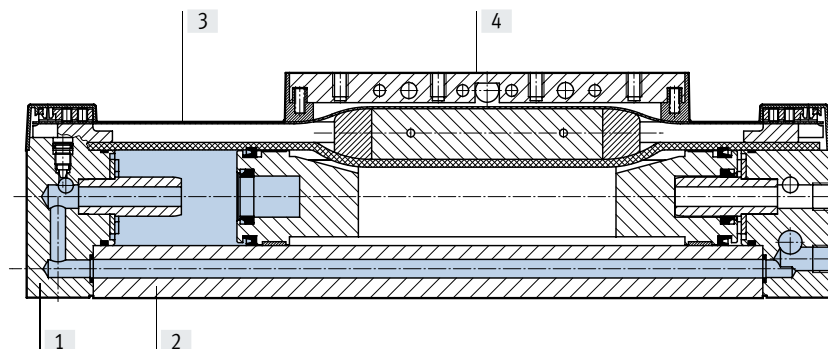
<b>Weights [g] without displacement encoder</b>						
Piston $\varnothing$		25	32	40	50	63
Basic weight		1520	2720	4480	9600	15370
Additional weight per 10 mm stroke		53	69	97	167	236
Clamping unit		714	1100	1694	–	–
Additional weight of clamping unit per 10 mm stroke		27	34	42	–	–
Moving load	Standard slide GK	605	895	1700	3000	4990
	Extended slide GV	950	1375	2603	4700	7860
	Clamping unit	185	250	461	–	–

Electrical data, displacement encoder:	<b>Note</b>	
	Analogue measurement system (order code MP) → Internet: displacement encoder	Digital displacement encoder (order code MA) → Internet: displacement encoder

## Data sheet

### Materials

Sectional view

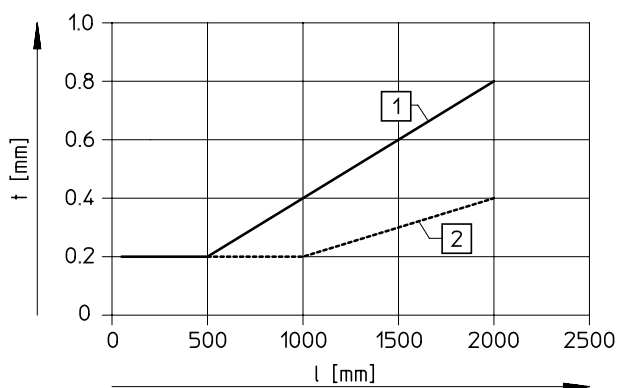


Drive	
[1] End cap	Anodised aluminium
[2] Profile	Anodised aluminium
[3] Cover strip	Corrosion-resistant steel
[4] Moment compensator	Anodised aluminium
- Slide	Anodised aluminium
- Guide rail	Corrosion-resistant steel
- Seals	NBR, polyurethane

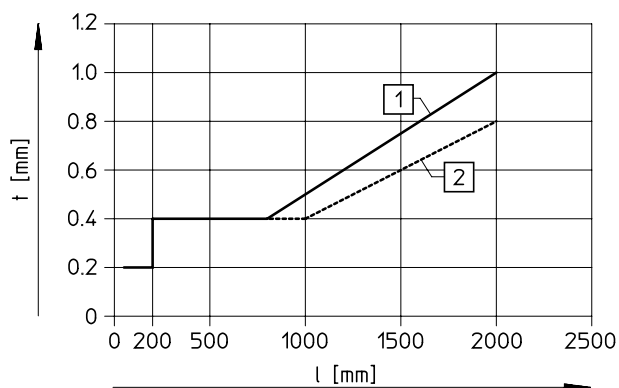
### Repetition accuracy

Tolerance  $t$  [mm] as a function of stroke  $l$  [mm]

Horizontal



Vertical



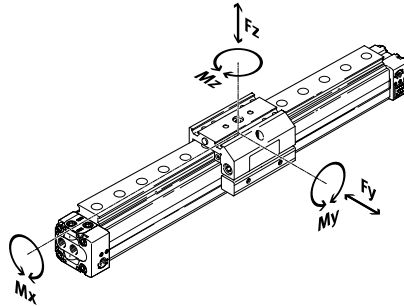
[1] With analogue displacement encoder

[2] With digital displacement encoder

## Data sheet

### Characteristic load values

The indicated forces and torques refer to the centre line of the internal diameter of the profile barrel. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



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

$$0,4 \times \frac{Fz}{Fz_{max.}} + \frac{Mx}{Mx_{max.}} + \frac{My}{My_{max.}} + 0,2 \times \frac{Mz}{Mz_{max.}} \leq 1$$

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

### Permissible forces and torques

Piston ø	25		32		40		50		63		
	GK	GV	GK	GV	GK	GV	GK	GV	GK	GV	
Fy <sub>max.</sub>	[N]	3080	3080	3080	3080	7300	7300	7300	7300	14050	14050
Fz <sub>max.</sub>	[N]	3080	3080	3080	3080	7300	7300	7300	7300	14050	14050
Mx <sub>max.</sub>	[Nm]	45	45	63	63	170	170	240	240	580	580
My <sub>max.</sub>	[Nm]	85	170	127	250	330	660	460	920	910	1 820
Mz <sub>max.</sub>	[Nm]	85	170	127	250	330	660	460	920	910	1 820

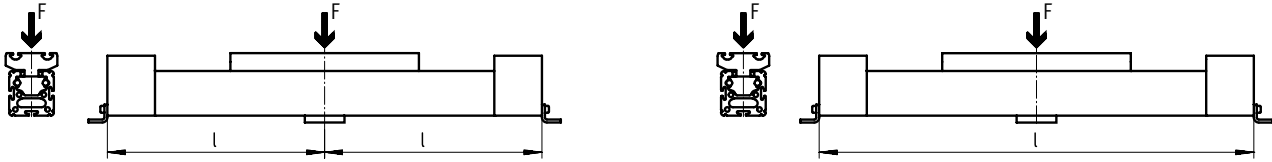


## Data sheet

### Maximum permissible support span $l$ as a function of force $F$

The axis may need to be supported with central supports MUP in order to limit deflection in the case of long strokes. The following graphs can be used to determine the maximum permissible support span  $l$  as a function of force  $F$  acting on the axis.

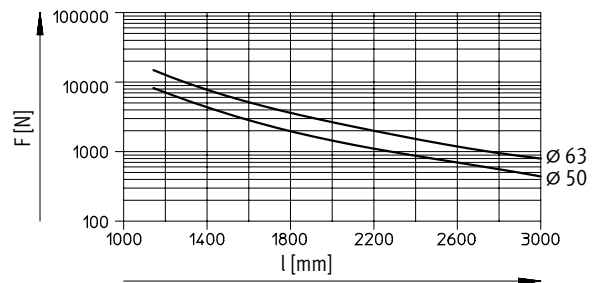
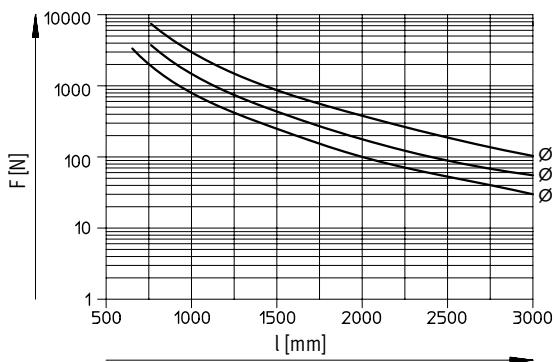
#### Force on the surface of the slide



#### Maximum support span $l$ (without central support) as a function of force $F$

Piston  $\varnothing$  25 ... 40

Piston  $\varnothing$  50/63



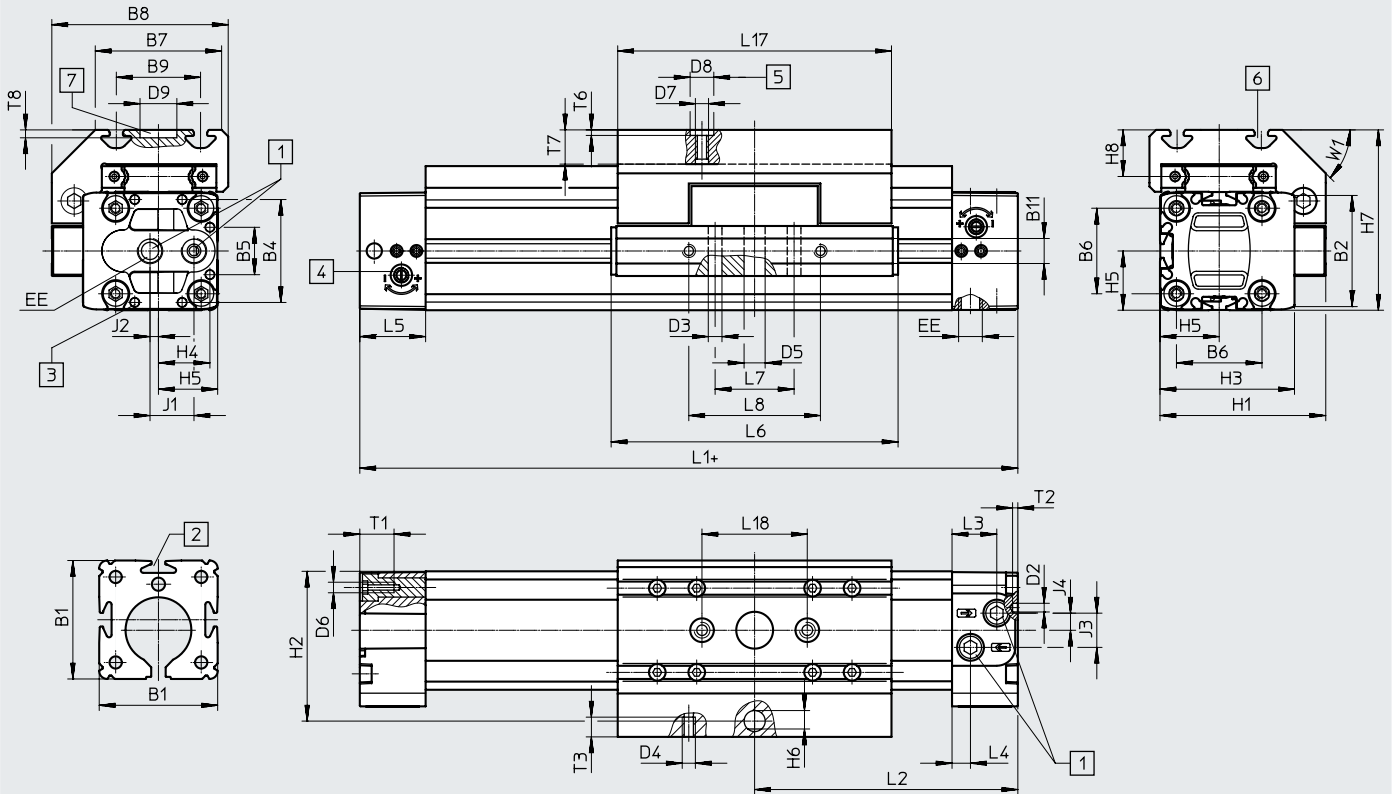
Data sheet

Dimensions

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

Standard slide GK

Piston  $\varnothing$  25



- [1] Both supply ports on one end cap  
(D2: Supply ports on both ends for strokes of 600 mm or over)
  - [2] Sensor slot for proximity switch
  - [3] Mounting hole for foot mounting HP
  - [4] Adjusting screw for adjustable end-position cushioning
  - [5] Drilled hole for centring sleeve ZBH-9
  - [6] Mounting slot for slot nut NSTL
  - [7] Drilled hole for central mounting SLZZ
- + = plus stroke length

$\varnothing$	B1	B2	B3	B4	B5	B6	B7	B8	B9	B11	D2	D3	D4	D5	D6	D7
[mm]			$\pm 0.2$								$\varnothing$	$\varnothing$	M5	$\varnothing$ H10		
25	45	42.2	19	39.1	18	32.5	48	67	32	9.5	3.3	5.2		8	M4	M6

$\varnothing$	D8	D9	EE	H1	H2	H3	H4	H5	H6	H7	H8	J1	J2	J3	J4	L1
[mm]	$\varnothing$ H7	$\varnothing$ G7														$+0.9/-0.2$
25	9	14	G1/8	63	57	51	19.6	22.5	5.8	68.5	18.5	16.7	3.2	13	6.5	200

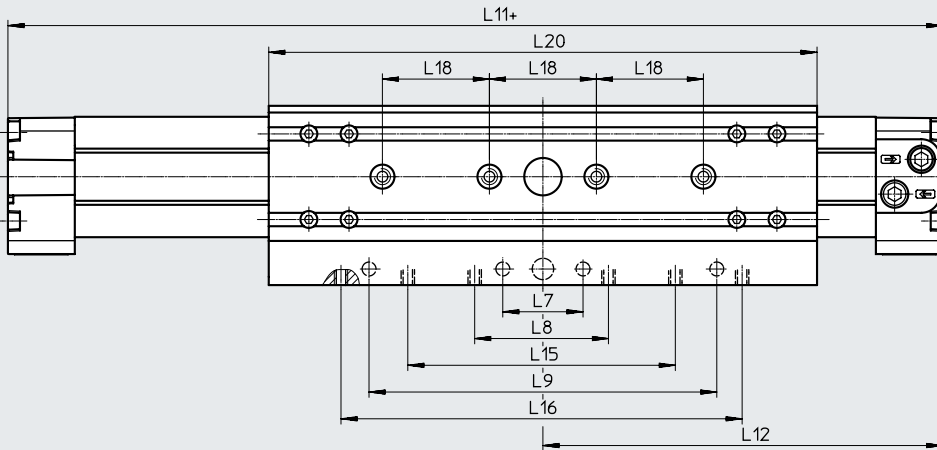
  

$\varnothing$	L2	L3	L4	L5	L6	L7	L8	L17	L18	T1	T2	T3	T6	T7	T8	W1
[mm]						$\pm 0.1$	$\pm 0.1$	+2	$\pm 0.03$				+0.6			
25	100	17	7	25	109	30	50	105	40	13	2	7.5	2.1	12.5	3	45°

## Data sheet

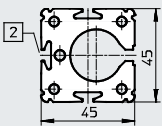
Extended slide GV

Piston  $\varnothing$  25




+ = plus stroke length

Profile barrel



[2] Sensor slot for proximity switch

$\varnothing$	L7	L8	L9	L11	L12	L15	L16	L18	L20
[mm]	$\pm 0.1$	$\pm 0.1$	$\pm 0.1$	$+0.9/-0.2$	$+0.3/-0.6$	$\pm 0.1$	$\pm 0.1$	$\pm 0.03$	$\pm 0.1$
25	30	50	130	300	150	100	150	40	205

-  - **Note**

Accessories  $\rightarrow$  page 26

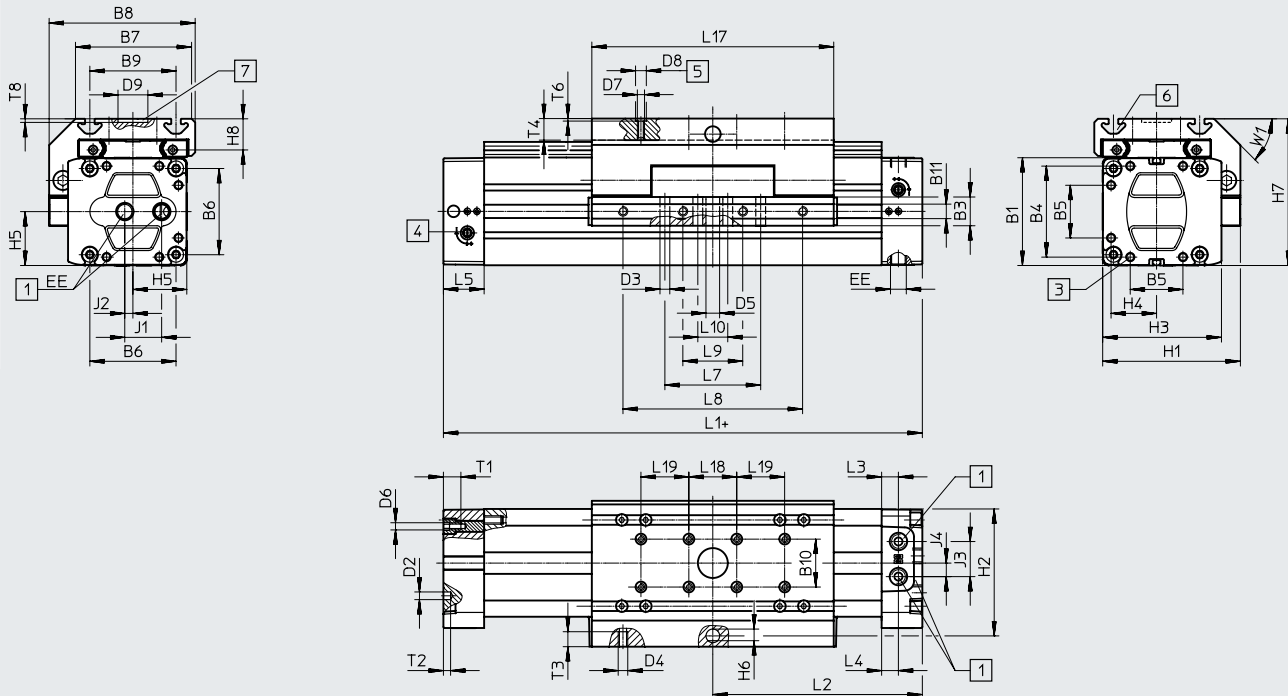
Data sheet

Dimensions

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

Standard slide GK

Piston Ø 32 ... 63



- [1] Both supply ports on one end cap  
(D2: Supply ports on both ends for strokes of 600 mm or over)
  - [2] Supply ports on both ends for strokes of 600 mm or over
  - [3] Mounting hole for foot mounting HP
  - [4] Adjusting screw for adjustable end-position cushioning
  - [5] Drilled hole for centring sleeve ZBH-9
  - [6] Mounting slot for slot nut NSTL
  - [7] Drilled hole for central mounting SLZZ
- + = plus stroke length

∅	B1	B3	B4	B5	B6	B7	B8	B9	B10	B11	D2	D3	D4	D5	D6	D7
[mm]	+0.4	+0.2							±0.03		∅	∅ +0.2		∅ H10		
32	54	19	46	21	40	63	79	47 ±0.15	20	9.5	4.3	5.2	M5	8	M5	M6
40	64	21	53	28	49	78.5	96.5	55 ±0.2				6.5	M6	10		
50	90		76		72	97	122	72 ±0.2	40	12	6.3	8.5	M8	12	M6	
63	106	24	89	44	83	121	142	90 ±0.25						12	M8	

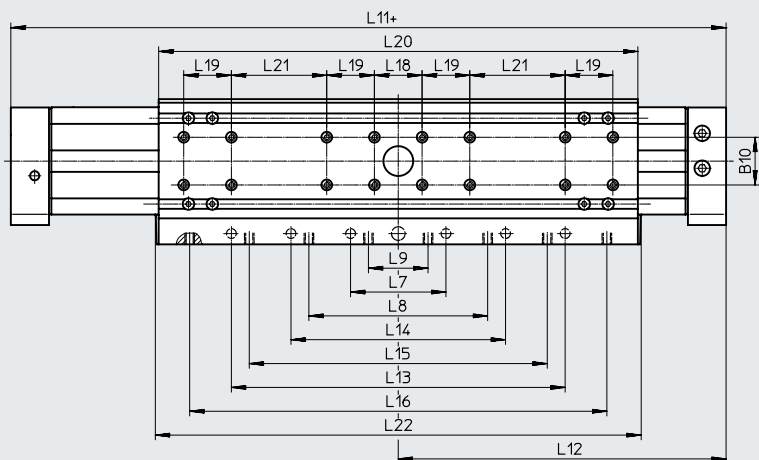
∅	D8	D9	EE	H1	H2	H3	H4	H5	H6	H7	H8	J1	J2	J3	J4	L1	
[mm]	∅ H7	∅ G7														+0.9/ -0.2	
32	9	25	G1/8	72	66	61.8	23	27	5.8	77.5	18.5	19	4.2	14	4.7	250	
40			G1/4	86	78	71.8	26.5	32	7.7	90.5	20	22	5	21	8.5	300	
50					115	106	99	36	45	9.7	122.5	26	30.8	6.8	29.3	11.3	350
63			G3/8	131	122	115	44.5	53			144.5	30	36	8	31	12	400

∅	L2	L3	L4	L5	L6	L7	L8	L9	L17	L18	L19	T1	T2	T3	T4	T6	T8	W1		
[mm]						±0.1	±0.1	±0.1	+0.2	±0.03	±0.03				max.	+0.1				
32	125	18.5	8.5	31	135	50	100	30	131	40	40	13.2	3	7.5	12.5	2.1	3	45°		
40	150	11.5	11.5		171	70	130	40	167				4	10.5						
50	175	14	14	34	206	80	150	50	202				15.2	6					12.5	18.5
63	200	13.5	13.5		234	110	190	70	230				21.2	20.5						

## Data sheet

Extended slide GV

Piston  $\varnothing$  32 ... 63



+ = plus stroke length

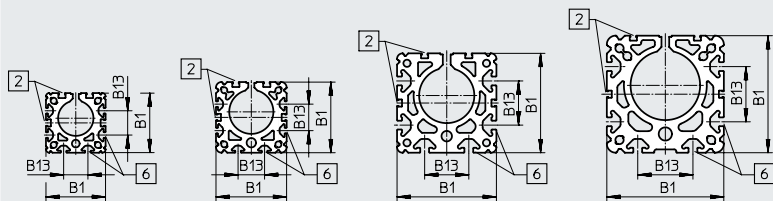
Profile barrel

Piston  $\varnothing$  32

Piston  $\varnothing$  40

Piston  $\varnothing$  50

Piston  $\varnothing$  63




[2] Sensor slot for proximity switch

[6] Mounting slot for slot nut NST

$\varnothing$	B1	B10	B13	L7	L8	L9	L11	L12
[mm]				$\pm 0.1$	$\pm 0.1$	$\pm 0.1$	$+0.9/-0.2$	$+0.9/-0.2$
32	54	20	22	50	100	30	380	190
40	64	20	24	70	130	40	470	235
50	90	40	40	80	150	50	550	275
63	106	40	50	110	190	70	650	325

$\varnothing$	L13	L14	L15	L16	L18	L19	L20	L21	L22
[mm]	$\pm 0.1$	$\pm 0.1$	$\pm 0.1$	$\pm 0.1$	$\pm 0.3$	$\pm 0.3$		$\pm 0.1$	
32	180	–	160	230	40	–	261	40	265
40	160	250	220	–	40	40	337	40	341
50	280	–	250	350	40	40	402	80	406
63	380	–	310	430	40	40	480	120	484

-  - Note

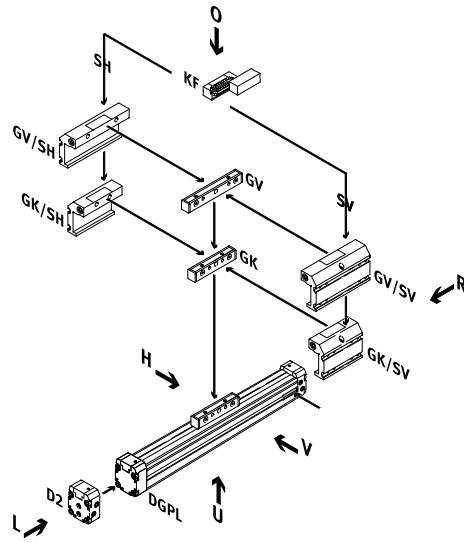
Accessories → page 26

## Ordering data – Modular product system

### Order code

#### Mandatory data/options

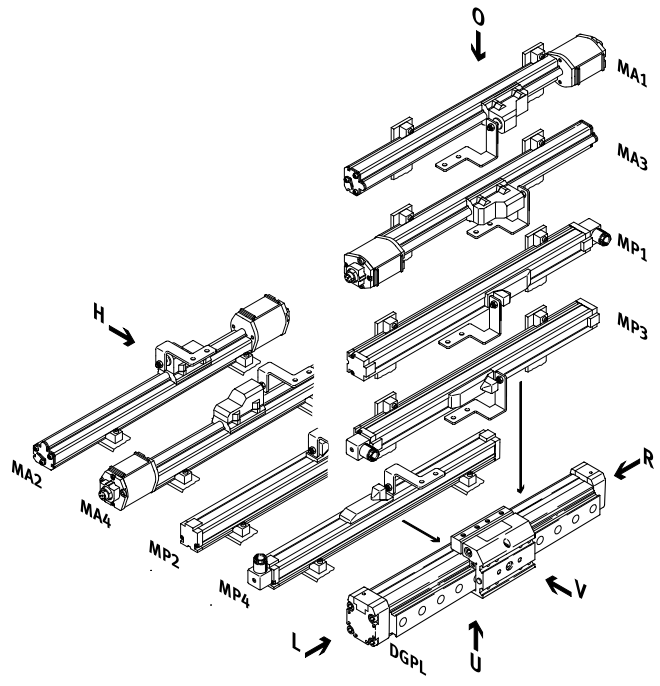
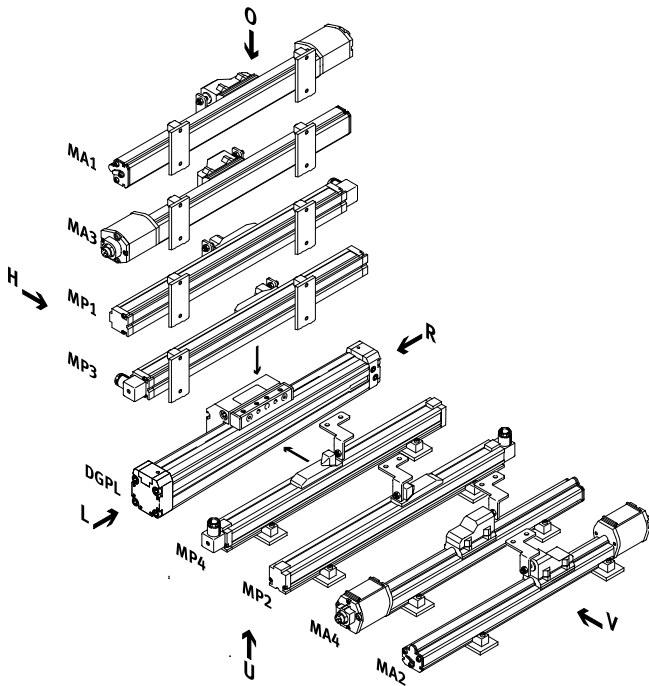
- KF Recirculating ball bearing guide
- GK Standard slide
- GV Extended slide
- SV Slide at the front
- SH Slide at the rear
- D2 Supply port at both ends



Attachment position for slide at the rear (SH)

Attachment position for slide at the front (SV)

- MP Analogue displacement encoder
- MA Digital displacement encoder



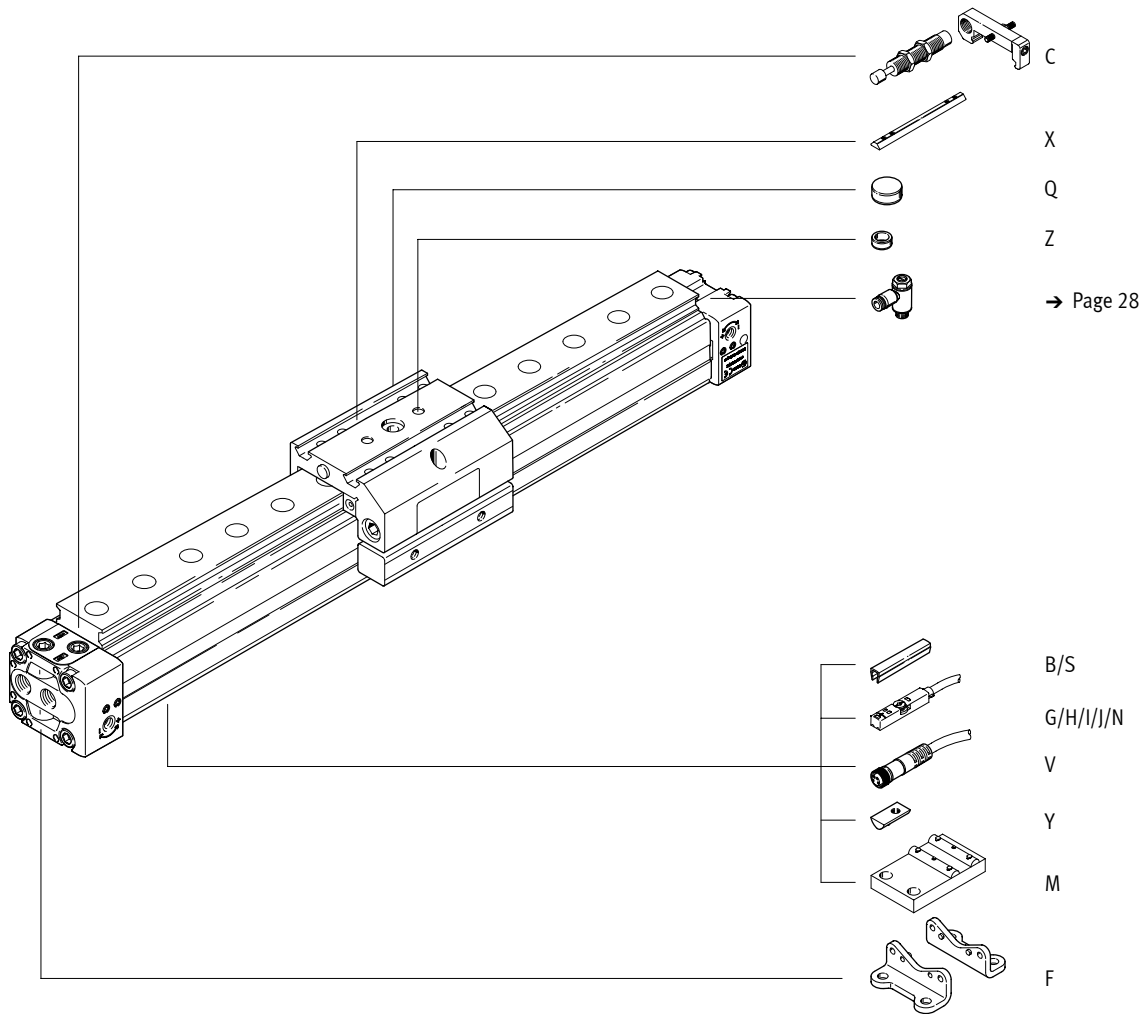
**Note**

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

## Ordering data – Modular product system

**Order code**

Options



Ordering data – Modular product system

Ordering table								
Size	25	32	40	50	63	Condi- tions	Code	Enter code
Module no.	<b>175134</b>	<b>175135</b>	<b>175136</b>	<b>175137</b>	<b>175138</b>			
Function	Pneumatic linear drive with slide						<b>DGPL</b>	DGPL
Size	25	32	40	50	63		-...	
Stroke [mm]	225, 300, 360, 450, 500, 600, 750, 1000, 1250, 1500, 1750, 2000						-...	
Cushioning	Pneumatic cushioning, adjustable at both ends						<b>-PPV</b>	-PPV
Position sensing	For proximity switch						<b>-A</b>	-A
Generation	B series						<b>-B</b>	-B
Guide	Recirculating ball bearing guide						<b>-KF</b>	-KF
Basic design	Piston/slide standard						<b>-GK</b>	
	Extended piston/slide						<b>-GV</b>	
Slide attachment position	Slide at the front					[1]	<b>-SV</b>	
	At the rear					[1]	<b>-SH</b>	
Supply port	At both ends						<b>-D2</b>	
Displacement encoder	Potentiometer, position 1, mounted						<b>-MP1</b>	
	Potentiometer, position 2, mounted						<b>-MP2</b>	
	Potentiometer, position 3, mounted						<b>-MP3</b>	
	Potentiometer, position 4, mounted						<b>-MP4</b>	
	Temposonic with CAN axis interface, position 1, mounted						<b>-MA1</b>	
	Temposonic with CAN axis interface, position 2, mounted						<b>-MA2</b>	
	Temposonic with CAN axis interface, position 3, mounted						<b>-MA3</b>	
	Temposonic with CAN axis interface, position 4, mounted						<b>-MA4</b>	
	Potentiometer, enclosed separately						<b>-MP0</b>	
	Temposonic with CAN axis interface, enclosed separately						<b>-MA0</b>	

[1] SV or SH Must be selected.



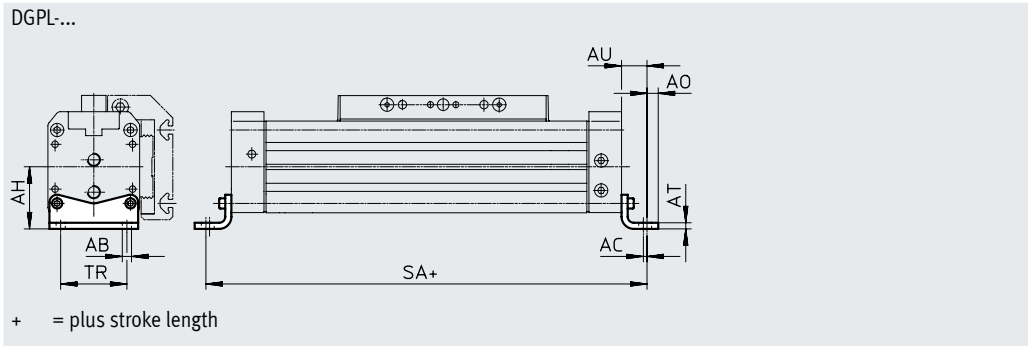
## Ordering data – Modular product system

Ordering table		25	32	40	50	63	Condi- tions	Code	Enter code
Accessories		Supplied loose						:ZUB-	:ZUB-
Slot cover, 2 pcs., 0.5 m	Sensor slot	1 ... 10						...S	
	Mounting slot	–	1 ... 10					...B	
Slot nut	Slide	1 ... 10						...X	
	Mounting slot	–	1 ... 10					...Y	
Centring sleeve (pack of 10)		10, 20, 30, 40, 50, 60, 70, 80, 90						...Z	
Central support		1 ... 10						...M	
Central mounting		1 ... 10						...Q	
Foot mounting		1 ... 10						...F	
Proximity switch, magnetic	With cable, 2.5 m	1 ... 10						...G	
	With plug	1 ... 10						...H	
Proximity switch, magnetic, non-contacting	With cable, 2.5 m	1 ... 10						...I	
	With plug	1 ... 10						...J	
Proximity switch, magnetic	N/C contact, With cable, 2.5 m	1 ... 10						...N	
Connecting cable	2.5 m	1 ... 10						...V	
Shock absorber kit		1 ... 10						...C	

## Accessories

### Foot mounting HP (order code: F)

Material:  
Galvanised steel  
Free of copper and PTFE

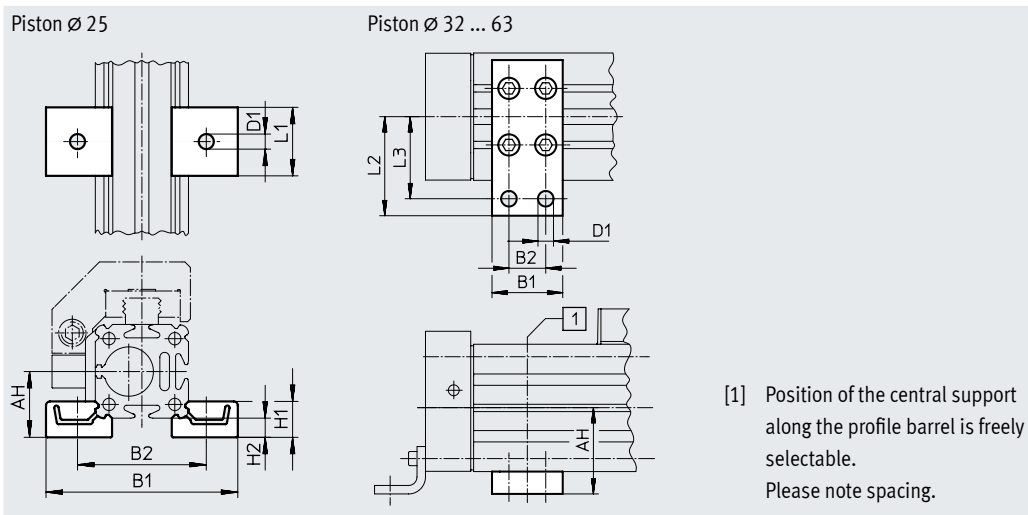


#### Dimensions and ordering data

For $\varnothing$	AB $\varnothing$	AH	AO	AT	AU	SA	TR	Weight [g]	Part no.	Type
25	5.5	29.5	6	3	13	226	32.5	61	150731	HP-25
32	6.6	37	7	4	17	284	38	117	150732	HP-32
40	6.6	46	8.5	5	17.5	335	45	188	150733	HP-40
50	9	61	11	6	25	400	65	243	150734	HP-50
63	11	69	13.5	6	28	456	75	305	150735	HP-63

### Central support MUP (order code: M)

Material:  
Anodised aluminium  
Free of copper and PTFE



#### Dimensions and ordering data

For $\varnothing$	AH	B1	B2	D1 $\varnothing$	H1	H2	L1	L2	L3	Weight [g]	Part no.	Type
25	29.5	81	58	5.5	13	7	25	-	-	33	150736	MUP-18/25
32	37	35	22	6.6	-	-	-	41.5	35	89	150737	MUP-32
40	46	35	22	6.6	-	-	-	47	40	126	150738	MUP-40
50	61	50	26	11	-	-	-	70	58	241	150739	MUP-50
63	69	50	26	11	-	-	-	77	65	340	150800	MUP-63


## Accessories

### Shock absorber YSR-...-C

for DGPL  
(order code: C)

Material:  
Housing: Galvanised steel, piston rod:  
High-alloy steel  
Seals: NBR, PUR  
Free of copper and PTFE



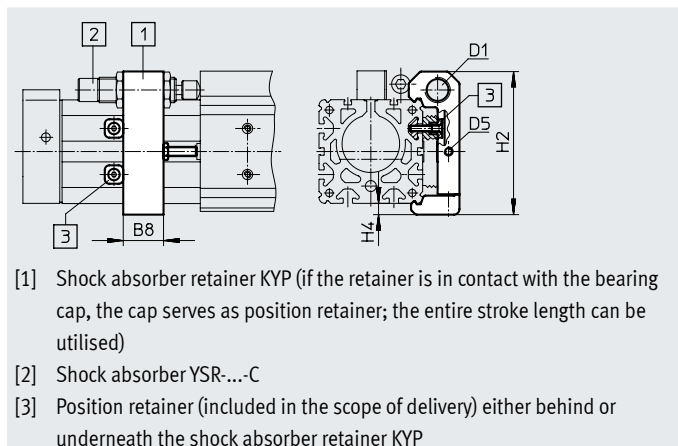
 **Note**  
Shock absorber YSRW with progressive characteristics → Internet: ysrw

Ordering data		Part no.	Type
For $\varnothing$ [mm]	Weight [g]		
25	70	34572	YSR-12-12-C
32	70	34572	YSR-12-12-C
40	140	34573	YSR-16-20-C
50	140	34573	YSR-16-20-C
63	240	34574	YSR-20-25-C

### Shock absorber retainer KYP


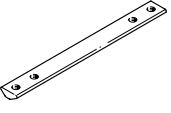




for DGPL  
(order code: C)

Material:  
Retainer: Aluminium  
Sleeve: Corrosion-resistant steel




Dimensions and ordering data								
For $\varnothing$ [mm]	B8	D1	D5	H2	H4	Weight [g]	Part no.	Type
25	19	M16x1	M5	69.5	6	95	158908	KYP-25
32	25	M16x1	M5	80	8	130	158909	KYP-32
40	32	M22x1.5	M5	102	8	209	158910	KYP-40
50	35	M22x1.5	M8	124	10	415	158911	KYP-50
63	44	M26x1.5	M10	152.5	11.5	609	158912	KYP-63


## Accessories

Ordering data		Data sheets → Internet: mounting attachment				
	For ø [mm]	Comment	Order code	Part no.	Type	PU <sup>1)</sup>
<b>Slot nut NST</b>						
	25	For mounting slot	Y	<b>526091</b>	<b>NST-HMV-M4</b>	1
	32, 40			<b>150914</b>	<b>NST-5-M5</b>	1
	50, 63			<b>150915</b>	<b>NST-8-M6</b>	1
<b>Slot nut NSTL</b>						
	25	For slide	X	<b>158410</b>	<b>NSTL-25</b>	1
	32			<b>158411</b>	<b>NSTL-32</b>	1
	40			<b>158412</b>	<b>NSTL-40</b>	1
	50			<b>158413</b>	<b>NSTL-50</b>	1
	63			<b>158414</b>	<b>NSTL-63</b>	1
<b>Centring sleeve ZBH</b>						
	25 ... 63	For slide	Z	<b>8137184</b>	<b>ZBH-9-B</b>	10
<b>Central mounting SLZZ</b>						
	25	For slide	Q	<b>150900</b>	<b>SLZZ-16/10</b>	1
	32, 40			<b>150901</b>	<b>SLZZ-25/16</b>	
	50, 63			<b>150904</b>	<b>SLZZ-50/40</b>	1
<b>Slot cover ABP</b>						
	32, 40	For mounting slot Each 0.5 m	B	<b>151681</b>	<b>ABP-5</b>	2
	50, 63			<b>151682</b>	<b>ABP-8</b>	
<b>Slot cover ABP-S</b>						
	25 ... 63	For sensor slot Each 0.5 m	S	<b>563360</b>	<b>ABP-5-S1</b>	2

1) Packaging unit

Ordering data – Push-in fittings		Data sheets → Internet: qs				
	For ø [mm]	Comment	Part no.	Type		
	25, 32	For connecting tubing with standard O.D.	<b>186098</b>	<b>QS-G1/8-8</b>		
	40, 50		<b>186099</b>	<b>QS-G1/4-8</b>		
	63		<b>186101</b>	<b>QS-G1/4-10</b>		
			<b>186100</b>	<b>QS-G3/8-8</b>		
			<b>186102</b>	<b>QS-G3/8-10</b>		
		<b>186103</b>	<b>QS-G3/8-12</b>			

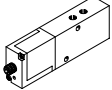
1) Packaging unit

Ordering data – One-way flow control valves		Data sheets → Internet: grla				
	Connection	For tubing O.D.	Material	Part no.	Type	
	Thread					
	G1/8	4	Metal design	<b>193143</b>	<b>GRLA-1/8-QS-4-D</b>	
		6		<b>193144</b>	<b>GRLA-1/8-QS-6-D</b>	
	G1/4	6		<b>193146</b>	<b>GRLA-1/4-QS-6-D</b>	
		8		<b>193147</b>	<b>GRLA-1/4-QS-8-D</b>	
	G3/8	8		<b>193150</b>	<b>GRLA-3/8-QS-8-D</b>	
		10		<b>193151</b>	<b>GRLA-3/8-QS-10-D</b>	

## Accessories

### Ordering data – Proportional directional control valves

Data sheets → Internet: mpye

Selection aid													
Application	For ø [mm]	Stroke [mm]											
		225	300	360	450	500	600	750	1000	1250	1500	1750	2000
Horizontal/vertical	For applications with Soft Stop end-position controller SPC11												
	25	1 <sup>1)</sup>	1/1	2/1	2/1	2/1	2/2	2/2	2/3	2/3	2/3	2/3	2/3
	32	1 <sup>1)</sup>	2/1	2/1	2/1	2/1	2/1	3/2	3/3	3/3	3/3	3/3	3/3
	40	2/1	2/1	2/1	2/1	2/2	3/3	3/4	3/4	3/4	3/4	3/4	3/4
	50	1/1	2/1	2/2	3/2	3/3	4/3	4/4	4/4	4/4	4/4	4/4	4/4
	63	2/1	2/2	3/3	3/3	4/4	4/4	4/4	4/4	4/4	4/4	4/4	
Valve	Selection number							Part no.		Type			
	1							151692		MPYE-5-1/8-LF-010-B			
	2							151693		MPYE-5-1/8-HF-010-B			
	3							151694		MPYE-5-1/4-010-B			
	4							151695		MPYE-5-3/8-010-B			

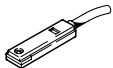
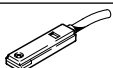
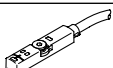
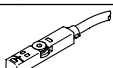
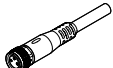

1) On request

#### Note

The representation e.g. 2/1 in the columns means:

Selection number 2	Selection number 1
for horizontal application	for vertical application
151693 MPYE-5-1/8-HF-010-B	151692 MPYE-5-1/8-LF-010-B

## Accessories

Ordering data – Proximity switch for T-slot, magnetic reed						Data sheets → Internet: sme
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150855	SME-8-K-LED-24
			Plug M8x1, 3-pin	0.3	150857	SME-8-S-LED-24
<b>N/C contact</b>						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160251	SME-8-O-K-LED-24
Ordering data – Proximity switch for T-slot, magneto-resistive						Data sheets → Internet: smt
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	S7 SMT-8M-A-PS-24V-E-2.5-OE
<b>N/C contact</b>						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7.5-OE
Ordering data – Connecting cables						Data sheets → Internet: nebu
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3	
			5	541334	NEBU-M8G3-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541338	NEBU-M8W3-K-2.5-LE3	
			5	541341	NEBU-M8W3-K-5-LE3	