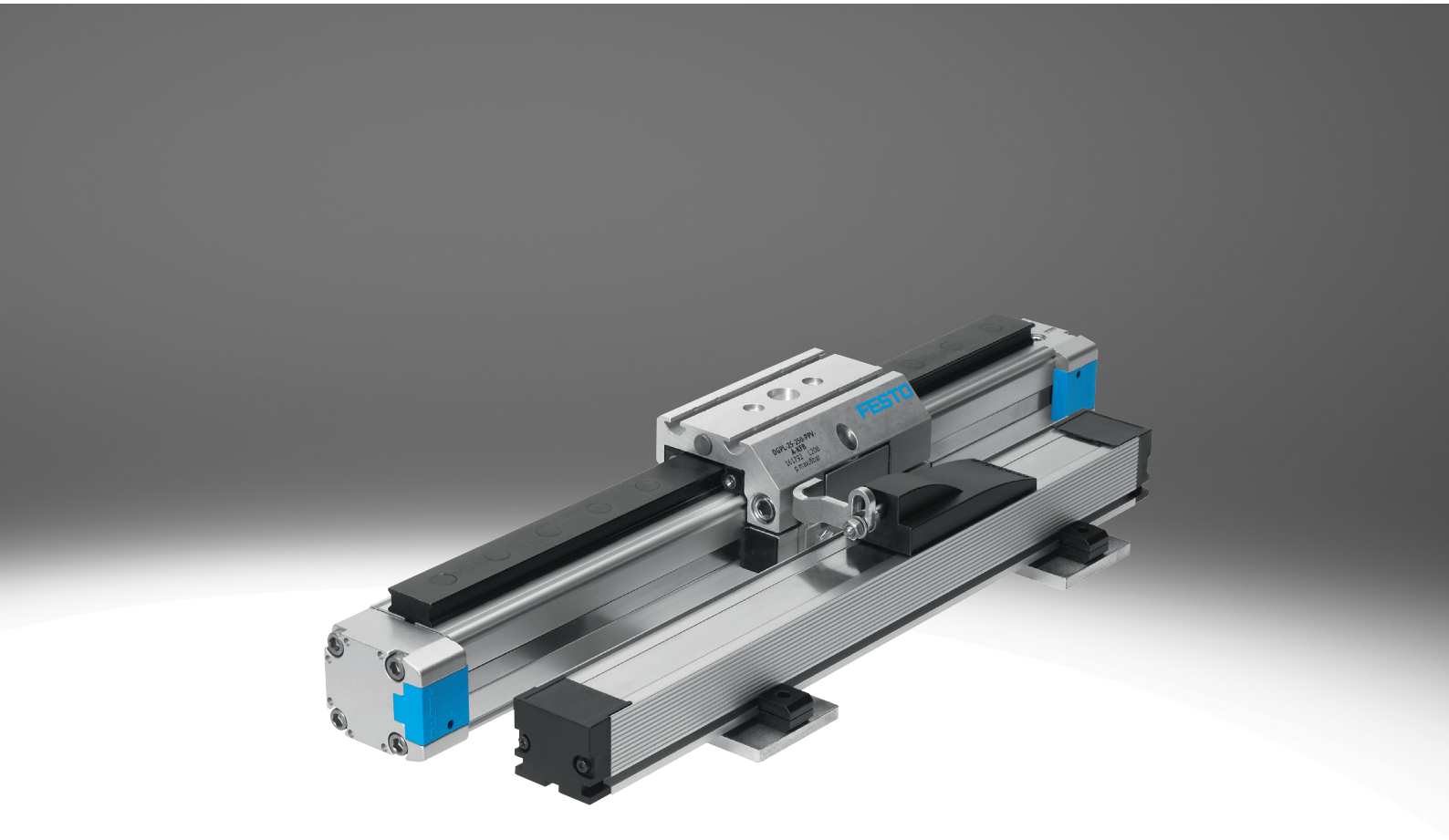
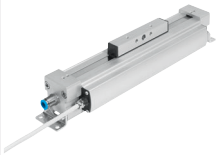
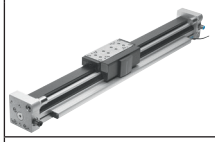
Linear drives DGPL, with external displacement encoder

FESTO



Product range overview

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

Product range overview

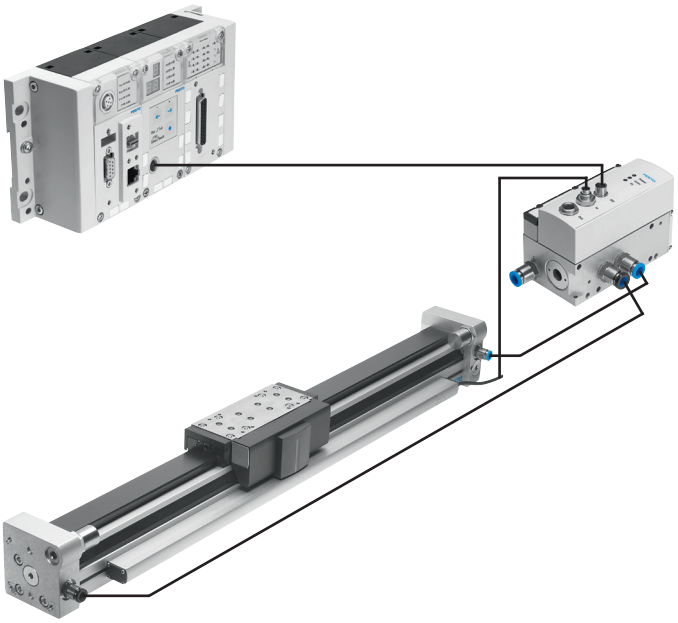
Piston ⌀	Stroke/swivel angle	Suitable			
		For positioning with	For end-position controller		As a measuring cylinder
	[mm/°]	CPX-CMAX	CPX-CMPX	SPC11	
Rodless					
25, 32, 40	100, 160, 225, 300, 360, 450, 500, 600, 750, 850, 1000, 1250, 1500, 1750, 2000	■	■	■	■
18, 25, 32, 40, 63	100, 160, 225, 300, 360,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

Key features

Servo-pneumatic drive technology

Positioning and Soft Stop applications as an integral component of the valve terminal CPX – the modular peripheral system for decentralised automation tasks.
The modular design means that valves, digital inputs and outputs, positioning modules and end-position controllers, as appropriate for 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

Datasheets a Internet: cpx-cmax

Free choice:
Position and force control, directly actuated or selected from one of 64 configurable position sets.
If more is needed:
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 controllers CPX-CMPX

Datasheets a 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 control of standstills.
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.

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

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

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

Datasheets a 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.

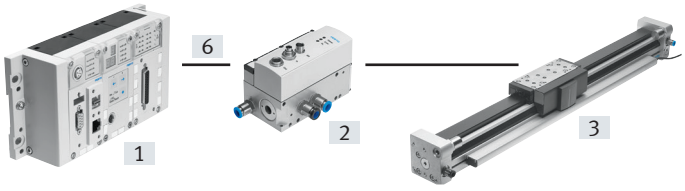
Suitable for the linear drive DGCI with displacement encoder for measuring absolute values, for the piston rod drive DNCI/DDPC with incremental displacement encoder or even for a potentiometer type MLO.

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

Datasheets a Internet: ddli or dgci



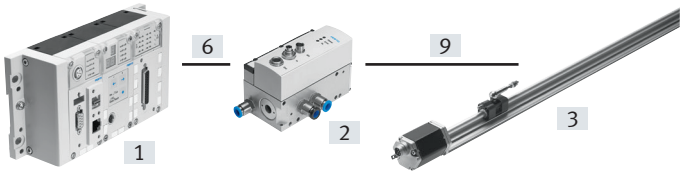
[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Linear drive DDLI, DGCI with displacement encoder
[6] Connecting cable KVI-CP-3-...

- Pneumatic rodless linear drive with displacement encoder, with or without recirculating ball bearing guide
- Displacement encoder with absolute and contactless measurement
- Diameter:
  – With DGCI: 18 ... 63 mm
  – With DDLI: 25 ... 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 ±0.2 mm (only with axis controller CPX-CMAX)

System with displacement encoder MME-MTS

Datasheets a Internet: mme



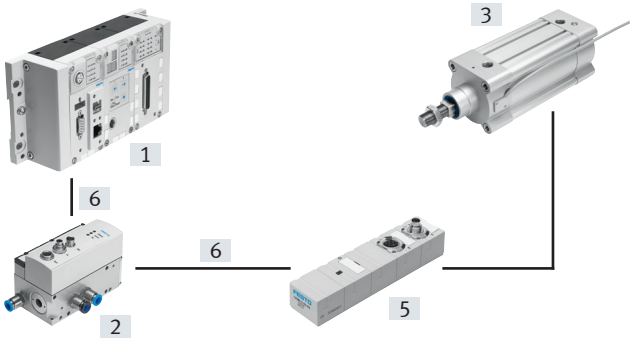
[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Displacement encoder MME-MTS
[6] Connecting cable KVI-CP-3-...
[9] NEBP-M16W6-K-2-M9W5

- 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 ±0.2 mm (only with axis controller CPX-CMAX)

System with standards-based cylinder DNCI, DDPC

Datasheets a 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-...

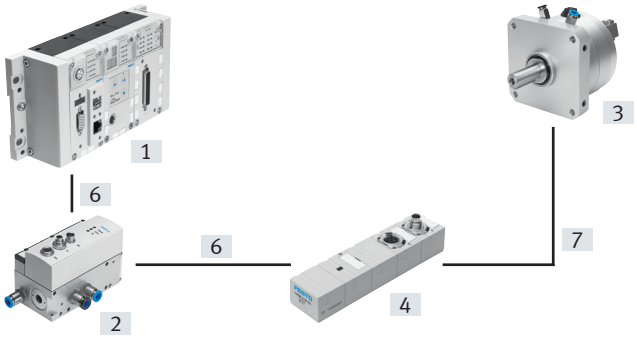
- Standards-based cylinder with integrated displacement encoder, conforms to DIN ISO 6432, VDMA 24 562, NF E 49 003.1 and Uni 10 290
- Displacement encoder with contactless and incremental measurement
- Diameter: 32 ... 100 mm
- Stroke: 100 ... 750 mm
- Application areas: Soft Stop and pneumatic positioning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

Advantages:
- 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

Datasheets a Internet: dsmi



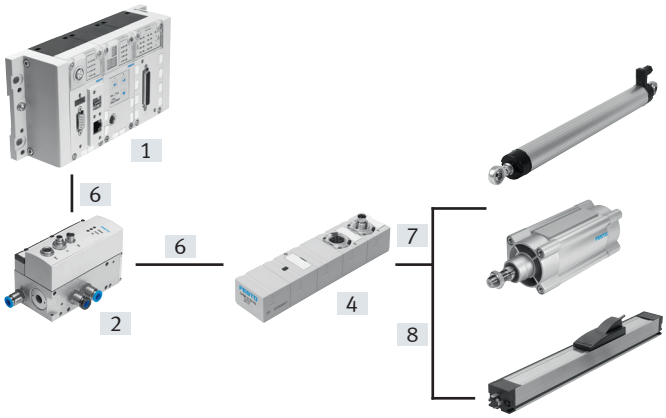
[1] Controller module CPX-CMPX or CPX-CMAX
[2] Proportional directional control valve VPWP
[3] Semi-rotary drive DSMI with displacement encoder
[4] Sensor interface CASM-S-D2-R3
[6] Connecting cable KVI-CP-3-...
[7] Connecting cable NEBC-P1W4-K-0.3-N-M12G5

- Swivel drive DSMI with integrated displacement encoder
- Identical design to pneumatic semi-rotary drive DSM
- Absolute displacement encoder based on a potentiometer
- Swivel range from 0 ... 270°
- Size: 25, 40, 63
- Max. torque: 5 ... 40 Nm
- Application areas: Soft Stop and pneumatic positioning
- Mass moments of inertia of 15 ... 6000 kgcm2 and the corresponding sensor interface CASM-S-D2-R3
- Pre-assembled cables guarantee error-free and fast connection to the proportional directional control valve VPWP

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

Datasheets a 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 to 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 operating 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		a 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-...	–	–	■	h / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / h	–	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		a 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-...	–	–	■	h / –	–	nebc
Connecting cable NEBC-A1W3-...	–	–	–	– / h	–	nebc
Connecting cable NEBP-M16W6-...	–	–	–	–	■	nebp

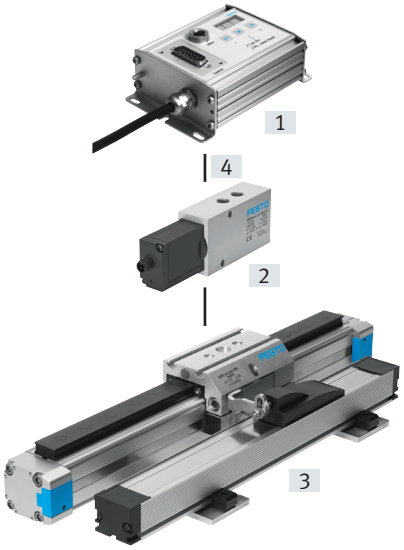
System components for measuring cylinders with measuring module CPX-CMIX

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

1) As an extension

Overview

Individual components for positioning with end-position controller SPC11 a Internet: spc11



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

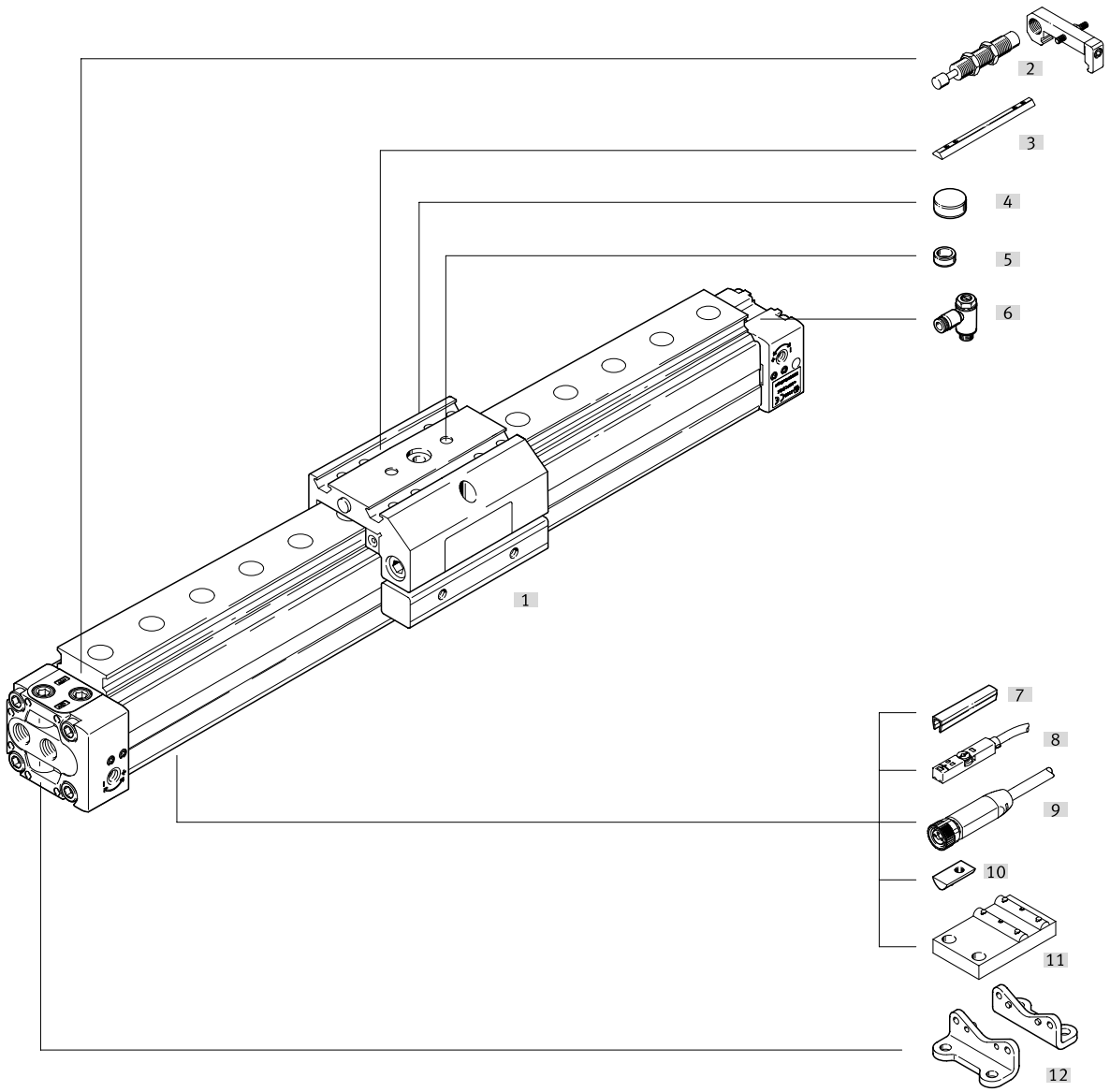
DGPL, with recirculating ball bearing guide

- Piston ø 25 ... 63 mm
- Stroke 225 ... 2000 mm
- Standard slide or extended slide
- High characteristic load values
- Air connections on both sides

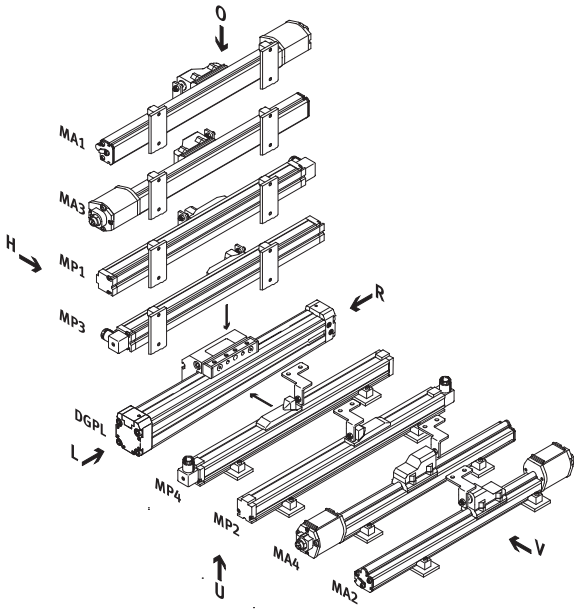
DGPL, with recirculating ball bearing guide and clamping unit

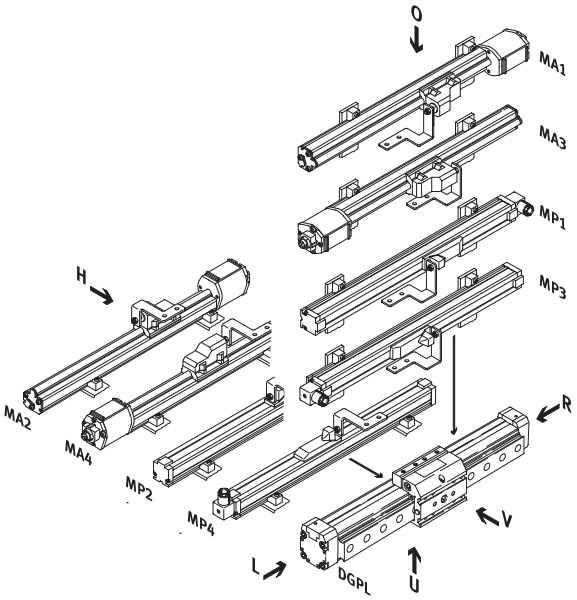
- Piston ø 25 ... 40 mm
- Stroke 225 ... 2000 mm
- Standard slide or extended slide
- In the event of a loss of pressure, the slide can be fixed in vertical operation using the clamping unit.
- High characteristic load values
- Air connections on both sides

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]	Linear drives DGPL	Pneumatic linear actuator with slide and external position displacement encoder	13
[2]	Shock absorber kits YSR/KYP	For avoiding damage at the end stop in the event of malfunction	27
[3]	Slot nut for slide NSTL	For mounting loads and attachments on the slide	28
[4]	Central mounting SLZZ	For centring loads and attachments on the slide	28
[5]	Centring sleeves ZBH	For centring loads and attachments on the slide	
[6]	One-way flow control valve GRLA	For regulating speed	28
[7]	Slot cover ABP/ABP-S	For protection against contamination	28
[8]	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
[9]	Connecting cable NEBA	Via proximity switch	30
[10]	Slot nut for mounting slot NST	For mounting attachments	28
[11]	Central support MUP	For mounting the axis	26
[12]	Foot mounting HP	For mounting the axis	26
[13]	Displacement encoder attachment position MA1 ... MA4/MP1 ... MP4	For measuring the position of the drive	22
–	Adapter	For drive/gripper connections	gripper

Type codes

001	Series	
DGPL	Linear drive with slide	

002	Piston diameter	
25	25	
32	32	
40	40	
50	50	
63	63	

003	Stroke	
...	225 ... 2000	

004	Cushioning	
PPV	Pneumatic cushioning, adjustable at both ends	

005	Position sensing	
A	For proximity sensor	

006	Generation	
B	Function-optimised	

007	Guide	
KF	Recirculating ball bearing guide	

008	Basic version	
	Basic version	
GK	Piston/slide standard	
GV	Extended piston/slide	

009	Slide attachment position	
SH	Slide at rear	
SV	Slide at front	

010	Compressed air connection	
D2	Both sides	

011	Displacement encoder	
MP1	Potentiometer, position 1, mounted	
MP2	Potentiometer, position 2, mounted	
MP3	Potentiometer, position 3, mounted	
MP4	Potentiometer, position 4, mounted	
MA1	Temposonic with CAN axis interface, position 1, mounted	
MA2	Temposonic with CAN axis interface, position 2, mounted	
MA3	Temposonic with CAN axis interface, position 3, mounted	
MA4	Temposonic with CAN axis interface, position 4, mounted	
MP0	Potentiometer, enclosed separately	
MA0	Temposonic with CAN axis interface, enclosed separately	

012	Accessories	
ZUB-	Accessories supplied loose	

013	Slot cover, sensor slot	
...S	1 ... 10 pieces	

014	Slot cover for mounting slot	
...B	1...10 pieces	

015	Slot nut for slides	
... X	1 ... 10 units	

016	Slot nut, mounting slot	
...Y	1 ... 10 pieces	

017	Centring sleeves	
... Z	10 ... 90 units	

018	Central support	
...M	1 ... 10 pieces	

019	Central mounting	
... Q	1 ... 10 units	

020	Foot mounting [unit]	
... F	1 - 10 units	

021	Proximity sensor, cable 2.5 m	
...G	1 ... 10 pieces	

022	Proximity sensor, plug M8	
...H	1 ... 10 pieces	

023	Proximity sensor, contactless, cable 2.5 m	
...I	1 ... 10 pieces	

024	Proximity sensor, contactless, plug M8	
...J	1 ... 10 pieces	

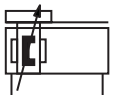
025	Proximity sensor, N/C contact, cable 2.5 m	
...N	1 ... 10 pieces	

026	Connecting cable 2.5 m, plug M8	
...V	1 ... 10 pieces	

027	Shock absorber, self-adjusting, with retaining bracket	
... C	1 ... 10 units	

Datasheet

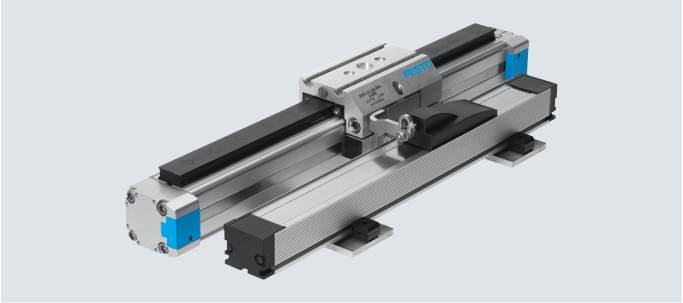
Function



Repair service

Diameter
25 ... 63 mm

Stroke
225 ... 2000 mm



General technical data						
Piston ø		25	32	40	50	63
Design		Piston				
		Moment compensator				
		Profile barrel				
Operating mode		Double-acting				
Operating medium1)		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)		a Internet: displacement encoder				
Type of mounting		Foot mounting				
Stroke2)	[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		a Internet: dgpl				
Pneumatic connection		G1/8		G1/4		G3/8
Electrical connection		a Internet: displacement encoder				

1) The MPYE proportional directional control valve 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]						
Piston ø		25	32	40	50	63
Theoretical force at 6 bar		295	483	754	1178	1870
Max. impact energy in the end positions1)		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 speed
E	Max. impact energy
m1	Moving mass (drive)
m2	Moving payload

Note

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

Datasheet

Positioning characteristics with end-position controller SPC11						
Piston Ø		25	32	40	50	63
Repetition accuracy of an intermediate position1)	[mm]	±2				
Mounting position		Any				
Minimum load, horizontal2)	[kg]	2	3	5	8	12
Maximum load, horizontal2)	[kg]	30	45	75	120	180
Minimum load, vertical2)	[kg]	2	3	5	8	12
Maximum load, vertical2)	[kg]	10	15	25	40	60
Travel time	[s]	a SoftStop engineering software: a www.festo.com				
Recommended proportional directional control valve		a Page 29				

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

Operating and environmental conditions						
Piston Ø		25	32	40	50	63
Operating pressure[1]	[bar]	4 ... 8				
Ambient temperature[2]	[°C]	–10 ... +60				
Vibration resistant		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)		a Internet: displacement encoder				

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

Weights [g] without displacement encoder						
Piston Ø		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	–	–
Weight surcharge for clamping unit per 10 mm stroke		27	34	42	–	–
Moving mass	Standard slide GK	605	895	1700	3000	4990
	Extended slide GV	950	1375	2603	4700	7860
	Clamping unit	185	250	461	–	–

Note

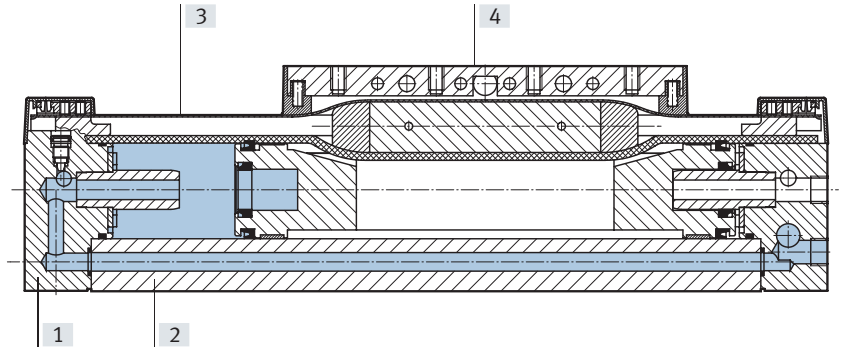
Electrical data, displacement encoder:

Analogue measurement system (order code MP)	Digital displacement encoder (order code MA)
a Internet: displacement encoder	a Internet: displacement encoder

Datasheet

Materials

Sectional view

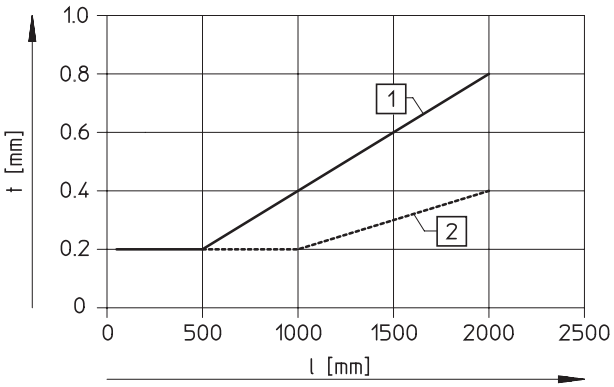


Drive		
[1]	End cap	Anodised aluminium
[2]	Profile	Anodised aluminium
[3]	Cover strip	Steel, stainless
[4]	Moment compensator	Anodised aluminium
–	Slide	Anodised aluminium
–	Guide rail	Corrosion-resistant steel
–	Seals	NBR, polyurethane

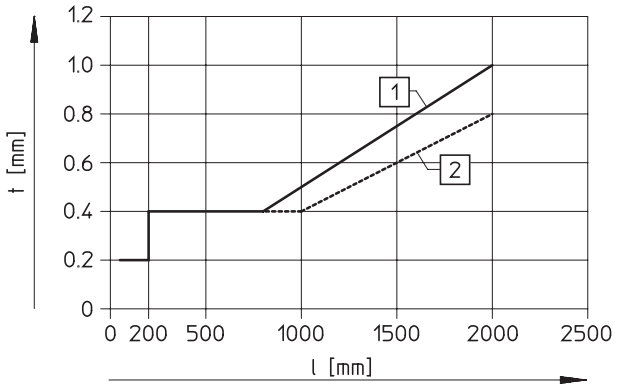
Repetition accuracy

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

Horizontal



Vertical



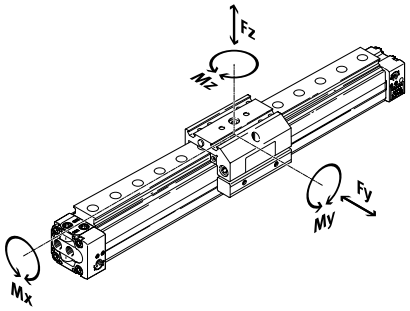
[1] With analogue displacement encoder

[2] With digital displacement encoder

Datasheet

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:

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

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

Permissible forces and torques

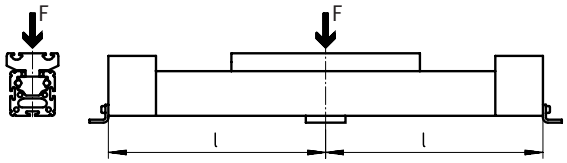
Piston ø		25		32		40		50		63	
Variant		GK	GV	GK	GV	GK	GV	GK	GV	GK	GV
$Fy_{max.}$	[N]	3080	3080	3080	3080	7300	7300	7300	7300	14050	14050
$Fz_{max.}$	[N]	3080	3080	3080	3080	7300	7300	7300	7300	14050	14050
$Mx_{max.}$	[Nm]	45	45	63	63	170	170	240	240	580	580
$My_{max.}$	[Nm]	85	170	127	250	330	660	460	920	910	1 820
$Mz_{max.}$	[Nm]	85	170	127	250	330	660	460	920	910	1 820

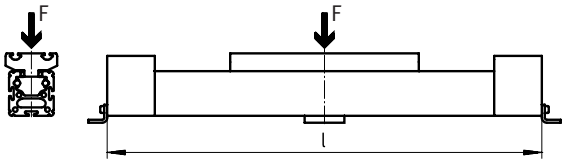
Datasheet

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 spacing l as a function of force F acting on the axis.

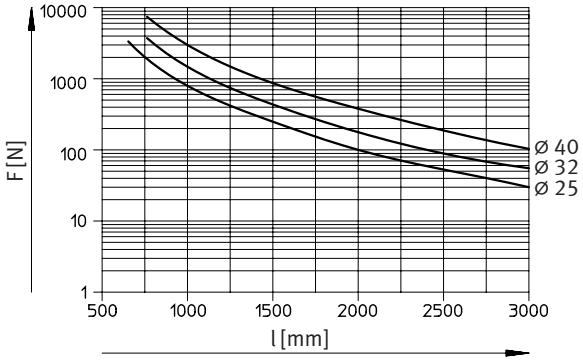
Force on the surface of the slide



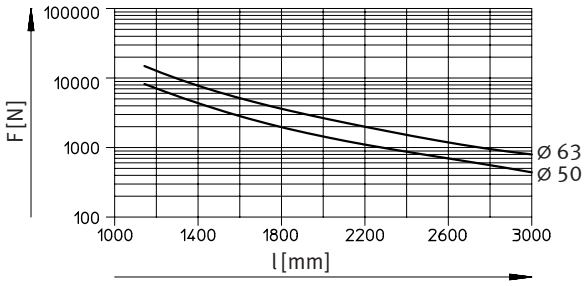


Maximum support span l (without central support) as a function of force F

Piston ø 25 ... 40



Piston ø 50/63

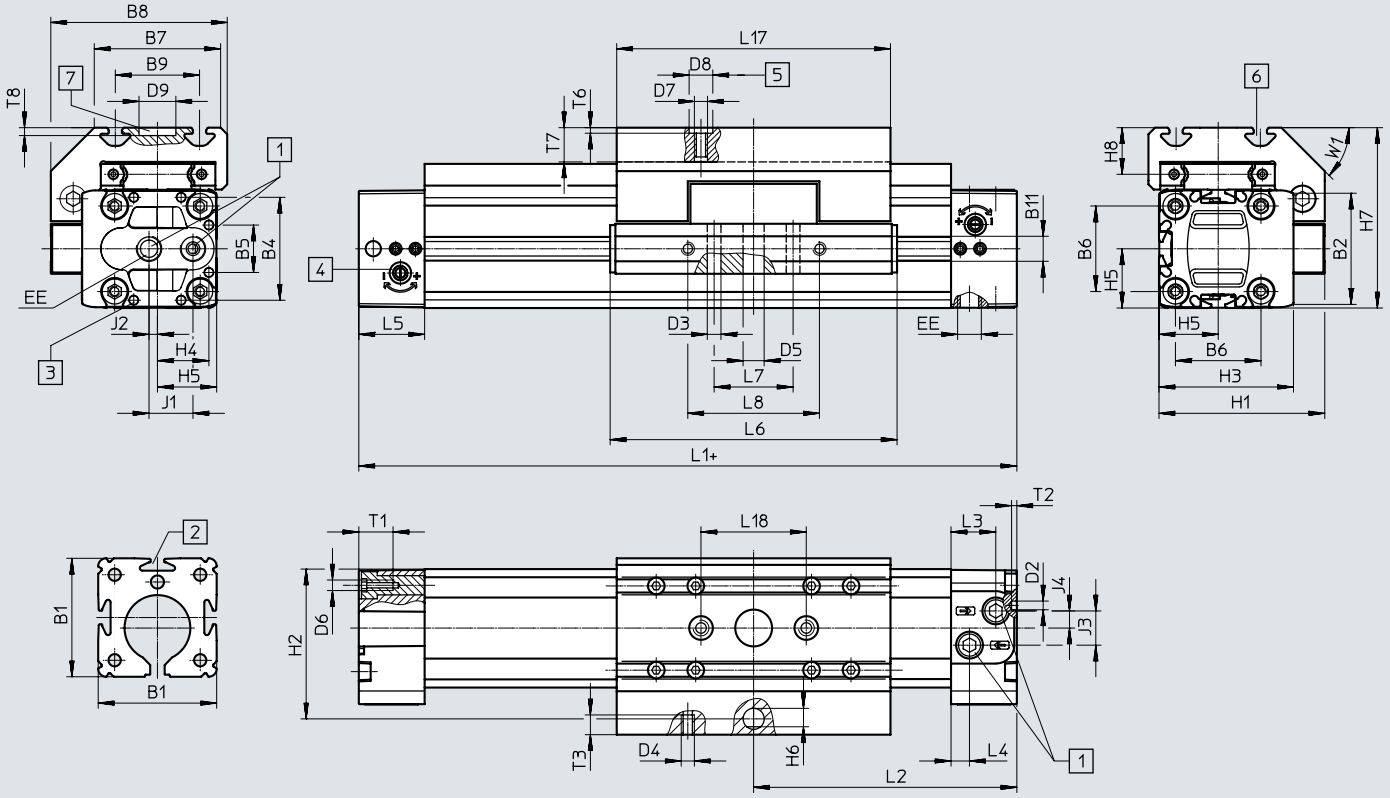


Datasheet

Dimensions Download CAD data ➔ www.festo.com

Standard slide GK

Piston ø 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

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

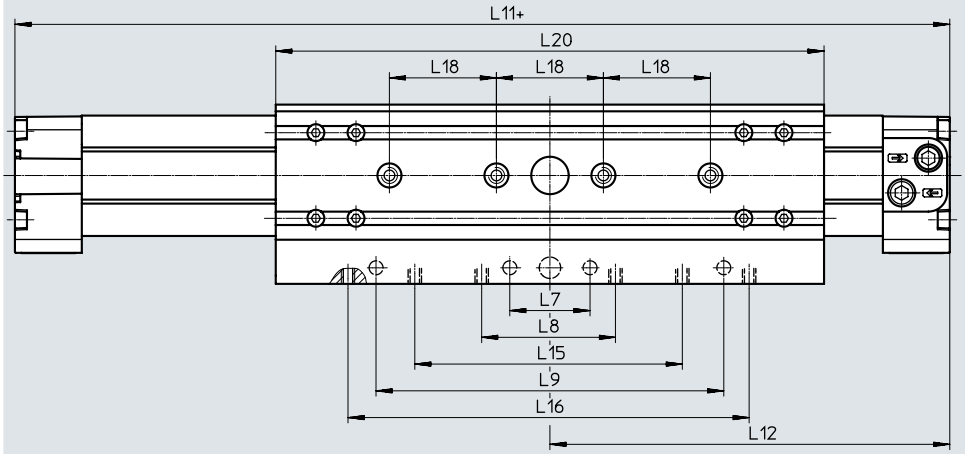
ø [mm]	D8 ø H7	D9 ø G7	EE	H1	H2	H3	H4	H5	H6	H7	H8	J1	J2	J3	J4	L1 +0.9/ -0.2
25	9	14	G1/8	63	57	51	19.6	22.5	5.8	68.5	18.5	16.7	3.2	13	6.5	200

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

Datasheet

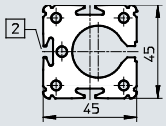
Extended slide GV

Piston ø 25



\+ = plus stroke length

Profile barrel



[2] Sensor slot for proximity switch

ø	L7	L8	L9	L11	L12	L15	L16	L18	L20
[mm]	±0.1	±0.1	±0.1	+0.9/–0.2	+0.3/–0.6	±0.1	±0.1	±0.03	±0.1
25	30	50	130	300	150	100	150	40	205

Note

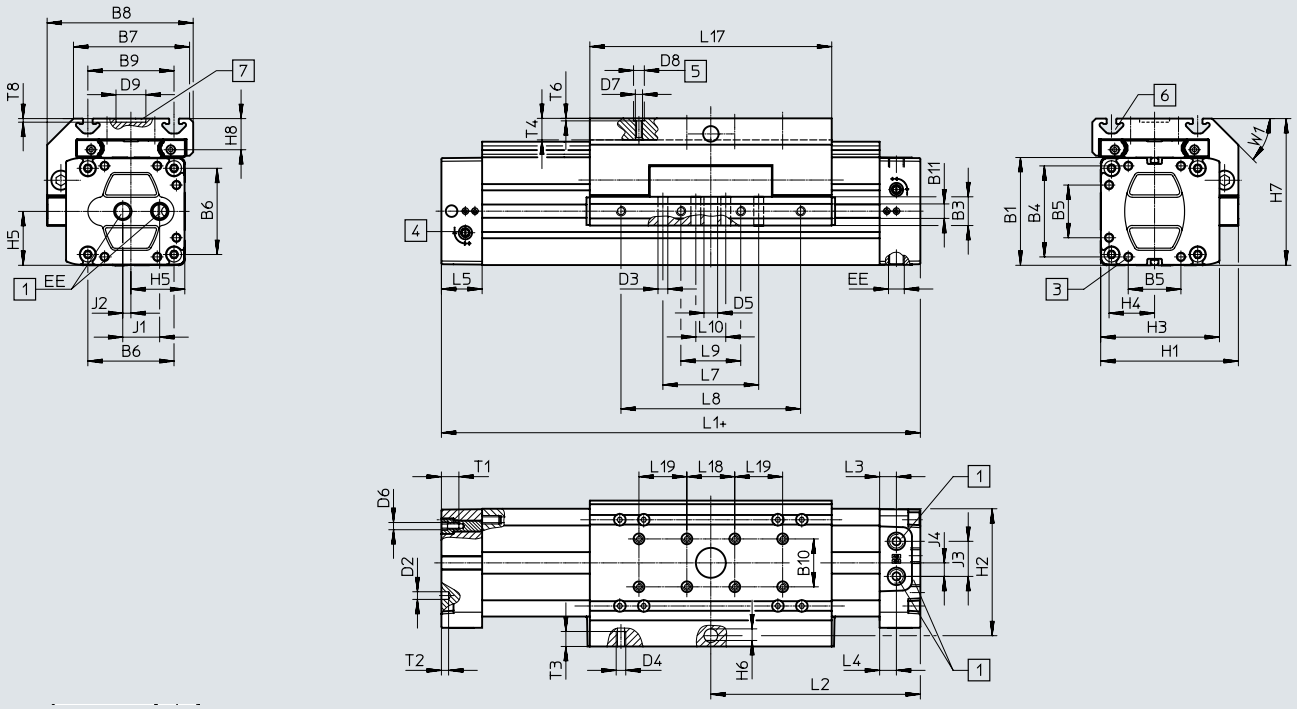
Accessories ➔ page 26

Datasheet

Dimensions Download CAD data ➔ 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)

[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

ø [mm]	B1 +0.4	B3 +0.2	B4	B5	B6	B7	B8	B9	B10 ±0.03	B11	D2 ø	D3 ø +0.2	D4	D5 ø H10	D6	D7
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	24	76	44	72	97	122	72 ±0.2	40	12	6.3	8.5	M8	12	M6	
63	106		89		83	121	142	90 ±0.25						12	M8	

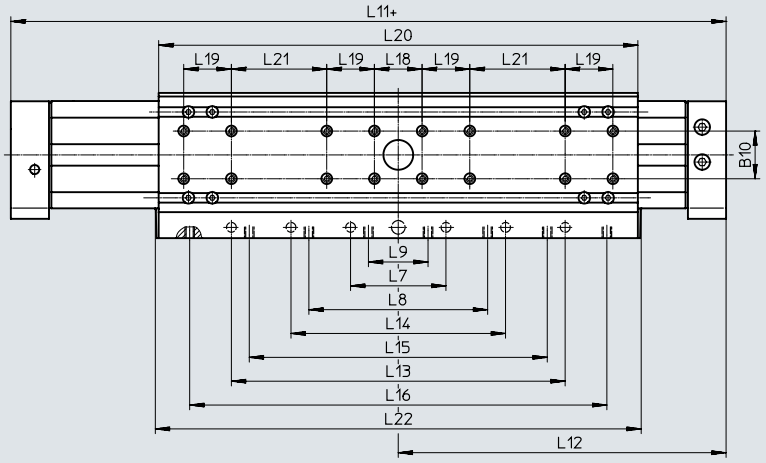
ø [mm]	D8 ø H7	D9 ø G7	EE	H1	H2	H3	H4	H5	H6	H7	H8	J1	J2	J3	J4	L1 +0.9/ -0.2
32	9	25	G1/8	72	66	61.8	23	27	5.8	77.5	18.5	19	4.2	14	4.7	250
40			G1/4	86	78	71.8	26.5	32	7.7	90.5	20	22	5	21	8.5	300
50				115	106	99	36	45	9.7	122.5	26	30.8	6.8	29.3	11.3	350
63			G3/8	131	122	115	44.5	53		144.5	30	36	8	31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

ø [mm]	L2	L3	L4	L5	L6	L7 ±0.1	L8 ±0.1	L9 ±0.1	L17 +0.2	L18 ±0.03	L19 ±0.03	T1	T2	T3	T4 max.	T6 +0.1	T8	W1
32	125	18.5	8.5	31	135	50	100	30	131	40	–	13.2	3	7.5	12.5	2.1	3	45°
40	150	11.5	11.5		171	70	130	40	167		40		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			

Datasheet

Extended slide GV

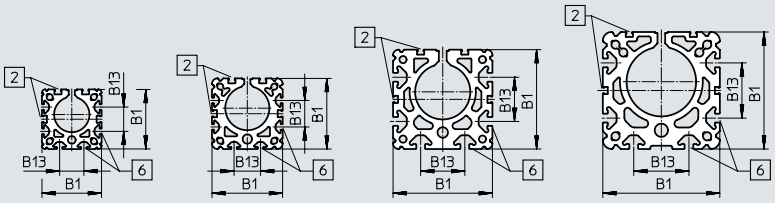
Piston ø 32 ... 63



\+ = plus stroke length

Profile barrel

Piston ø 32 Piston ø 40 Piston ø 50 Piston ø 63



[2] Sensor slot for proximity switch
[6] Mounting slot for slot nut NST

ø [mm]	B1	B10	B13	L7 ±0.1	L8 ±0.1	L9 ±0.1	L11 +0.9/-0.2	L12 +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

ø [mm]	L13 ±0.1	L14 ±0.1	L15 ±0.1	L16 ±0.1	L18 ±0.3	L19 ±0.3	L20	L21 ±0.1	L22
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

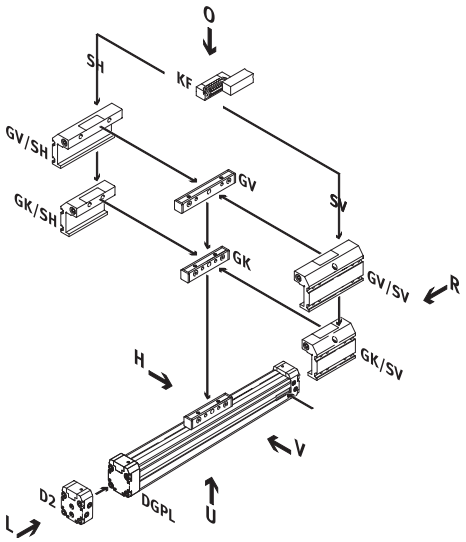
Note

Accessories → page 26

Ordering data – Modular product system

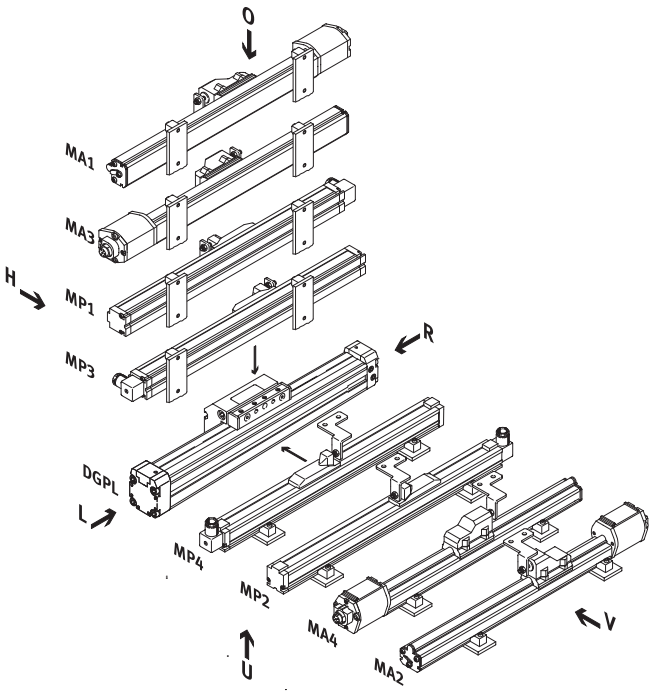
Order code
Mandatory data/options

KF Recirculating ball bearing guide
GK Standard slide
GV Extended slide
SV Slide at the front
SH Slide at the rear
D2 Air connection on both sides

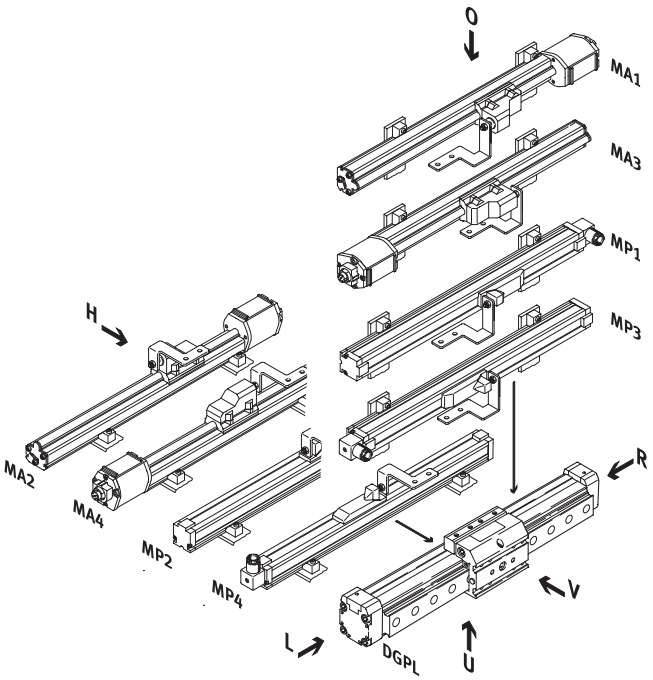


Mounting position for rear carriage (SH)

MP Analogue displacement encoder
MA Digital displacement encoder



Mounting position for front carriage (SV)



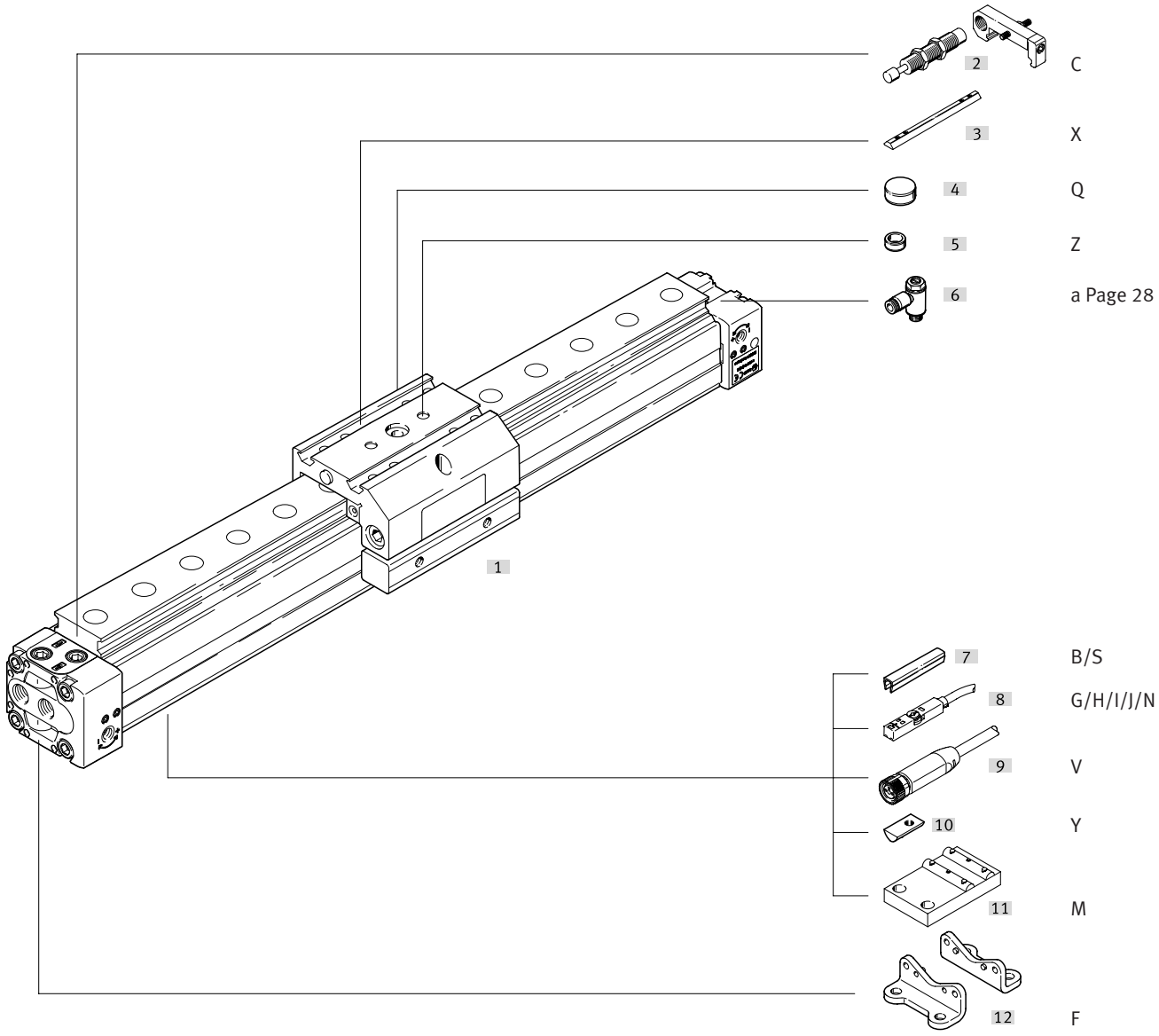
Note

O Top
U Bottom
R Right
L Left
V Front
H Rear

Ordering data – Modular product system

Order code
Options

-H- Note: The item numbers refer to the peripherals overview a Page 10



Ordering data – Modular product system

Ordering table

Size	25	32	40	50	63	Conditions	Code	Enter code
Module no.	**175134**	**175135**	**175136**	**175137**	**175138**			
Function	Pneumatic linear drive with slide						**DGPL**	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						**-PPV**	-PPV
Position sensing	Via proximity switch						**-A**	-A
Generation	B-series						**-B**	-B
Guide	Recirculating ball bearing guide						**-KF**	-KF
Basic design	Standard piston/slide						**-GK**	
	Extended piston/slide						**-GV**	
Slide attachment position	Slide at the front					[1]	**-SV**	
	At the rear					[1]	**-SH**	
Compressed air supply port	At both ends						**-D2**	
Displacement encoder	Potentiometer, position 1, mounted						**-MP1**	
	Potentiometer, position 2, mounted						**-MP2**	
	Potentiometer, position 3, mounted						**-MP3**	
	Potentiometer, position 4, mounted						**-MP4**	
	Temposonic with CAN axis interface, position 1, mounted						**-MA1**	
	Temposonic with CAN axis interface, position 2, mounted						**-MA2**	
	Temposonic with CAN axis interface, position 3, mounted						**-MA3**	
	Temposonic with CAN axis interface, position 4, mounted						**-MA4**	
	Potentiometer, enclosed separately						**-MP0**	
	Temposonic with CAN axis interface, enclosed separately						**-MA0**	

[1] SV or SH Must be selected.

Ordering data – Modular product system

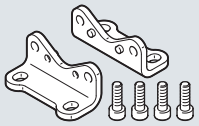
Ordering table

Size		25	32	40	50	63	Conditions	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**		

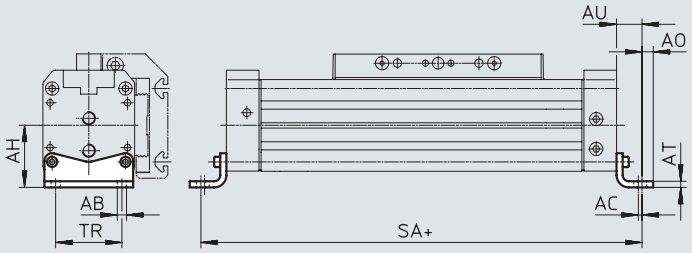
Accessories

Foot mounting HP
(order code: F)

Material:
Galvanised steel



DGPL-...



\+ = plus stroke length

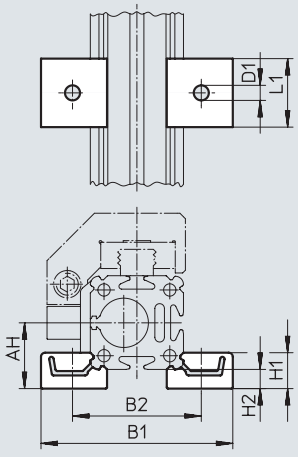
Dimensions and ordering data

For ø [mm]	AB ø	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**

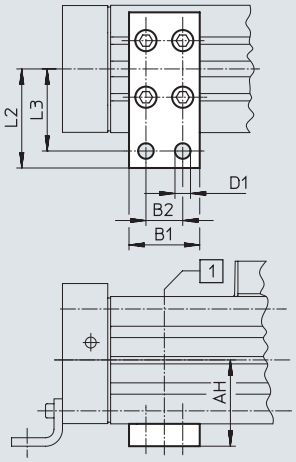
Central support MUP
(order code: M)

Material:
Anodised aluminium

Piston ø 25



Piston ø 32 ... 63



[1] Position of the central support along the profile barrel is freely selectable. Please note spacing.

Dimensions and ordering data

For ø [mm]	AH	B1	B2	D1 ø	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

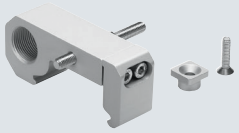
Note
Shock absorber YSRW with progressive characteristics a
Internet: ysrw

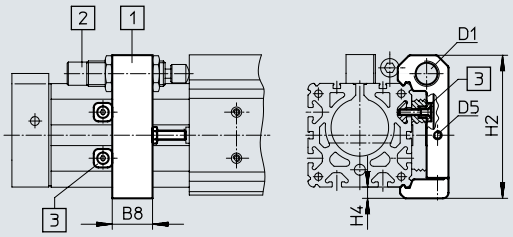
Ordering data

For ø [mm]	Weight [g]	Part no.	Type
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:
Bracket: Aluminium
Sleeve: Corrosion-resistant steel





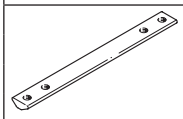
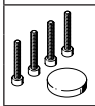
[1] Shock absorber retainer KYP (if the retainer is in contact with the bearing cap, the cap serves as position retainer; the entire stroke length can be utilised)
[2] Shock absorber YSR-...-C
[3] Position retainer (included in the scope of delivery) either behind or underneath the shock absorber retainer KYP

Dimensions and ordering data

For ø [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 — Datasheets → Internet: fastening element

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

1) Packaging unit

Ordering data – Push-in fittings — Datasheets a Internet: qs

	For ø [mm]	Comment	Part no.	Type
	25, 32	For connecting tubing with standard O.D.	**186098**	**QS-G1/8-8**
	40, 50		**186099**	**QS-G1/4-8**
			186101	**QS-G1/4-10**
	63		**186100**	**QS-G3/8-8**
			186102	**QS-G3/8-10**
			186103	**QS-G3/8-12**

1) Packaging unit

Ordering data – One-way flow control valves — Datasheets a Internet: grla

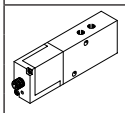
	Connection Thread	For tubing O.D.	Material	Part no.	Type
	G1/8	4	Metal design	**193143**	**GRLA-1/8-QS-4-D**
		6		**193144**	**GRLA-1/8-QS-6-D**
	G1/4	6		**193146**	**GRLA-1/4-QS-6-D**
		8		**193147**	**GRLA-1/4-QS-8-D**
	G3/8	8		**193150**	**GRLA-3/8-QS-8-D**
		10		**193151**	**GRLA-3/8-QS-10-D**

Accessories

Ordering data – Proportional directional control valves Datasheets a Internet: mpye

Selection aid

Application	For Ø	Stroke [mm]											
	[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/[1)]	1/1	2/1	2/1	2/1	2/2	2/2	2/3	2/3	2/3	2/3	2/3
	32	1/[1)]	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	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

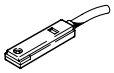
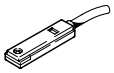
The figures e.g. 2/1 in the columns mean:

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

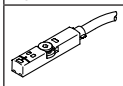
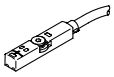
Ordering data – Proximity switches for T-slot, magnetic reed

Datasheets a Internet: sme

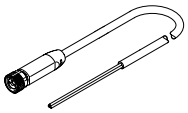
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-core	2.5	**150855**	**SME-8-K-LED-24**
			Plug M8x1, 3-pin	0.3	**150857**	**SME-8-S-LED-24**
N/C						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-core	7.5	**160251**	**SME-8-O-K-LED-24**

Ordering data – Proximity switch for T-slot, magneto-resistive

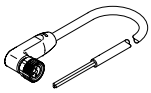
Datasheets a Internet: smt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-core	2.5	**574335**	**SMT-8M-A-PS-24V-E-2.5-OE**
N/C						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-core	7.5	**574340**	**SMT-8M-A-PO-24V-E-7.5-OE**

Connecting cables NEBA, straight

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/ cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	**8078223**	**NEBA-M8G3-U-2.5-N-LE3**
				5 m	**8078224**	**NEBA-M8G3-U-5-N-LE3**

Connecting cables NEBA, angled

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/ cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	**8078230**	**NEBA-M8W3-U-2.5-N-LE3**
				5 m	**8078231**	**NEBA-M8W3-U-5-N-LE3**