

Standard cylinders DDPC, with measured-value transducer DADE



Standard cylinders DDPG, with measured-value transducer DADE

Features



Components for positioning and measuring using the standard cylinder DDPG



Measuring
with measured-value transducer DADE

Measured-value transducer
DADE-...



Controller
e.g. CECC-...



Operator unit
e.g. CDPX-...



Positioning
with end-position controller SPC11 or controller module CPX-CMAX/-CMPX

Proportional directional
control valve
MPYE-...



Proportional directional
control valve
VPWP-...



End-position controller
SPC11-INC



Sensor interface
CASM-S-D3-R7

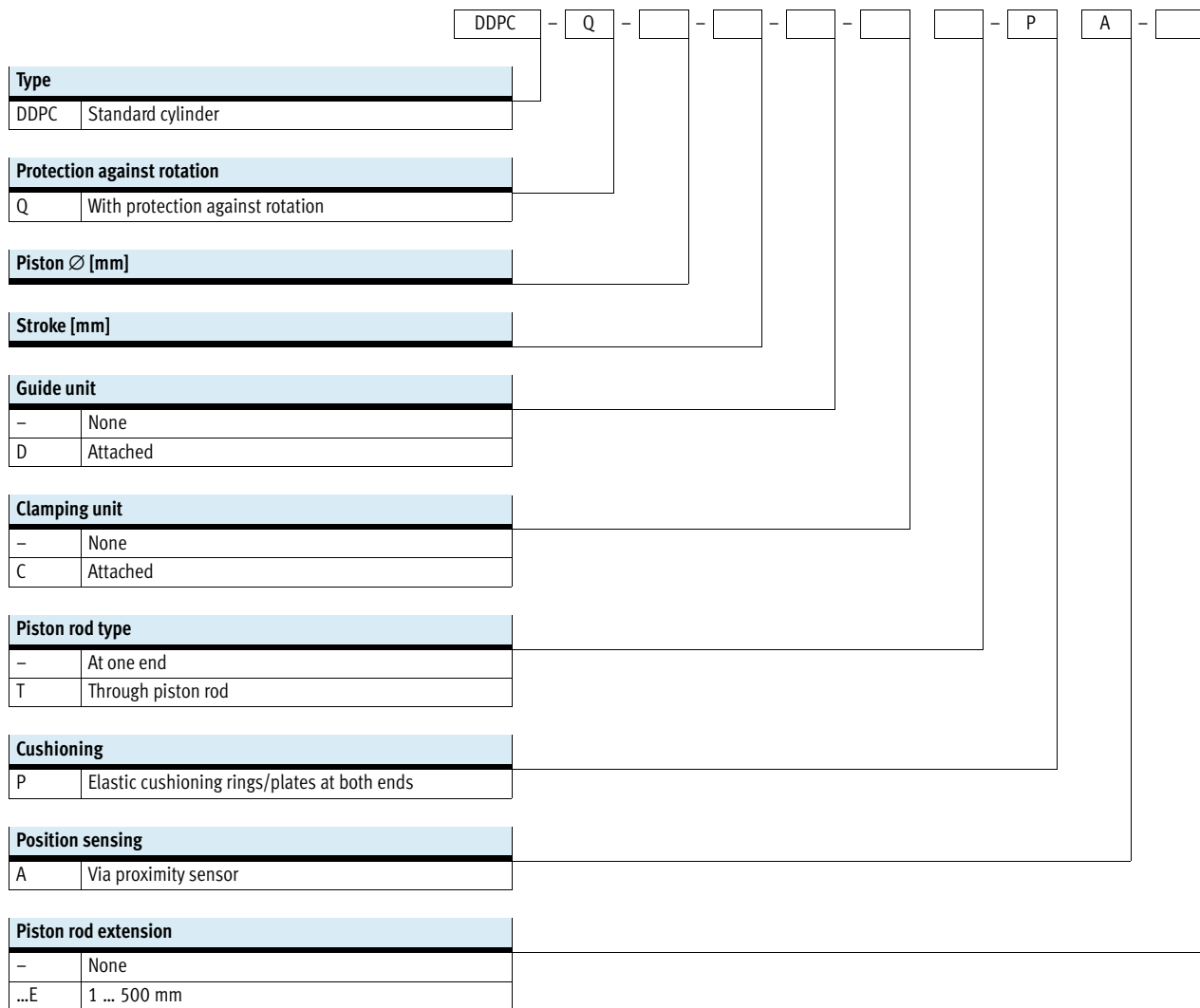


Controller module
CPX-CMAX, CPX-CMPX



Standard cylinders DDP, with measured-value transducer DADE

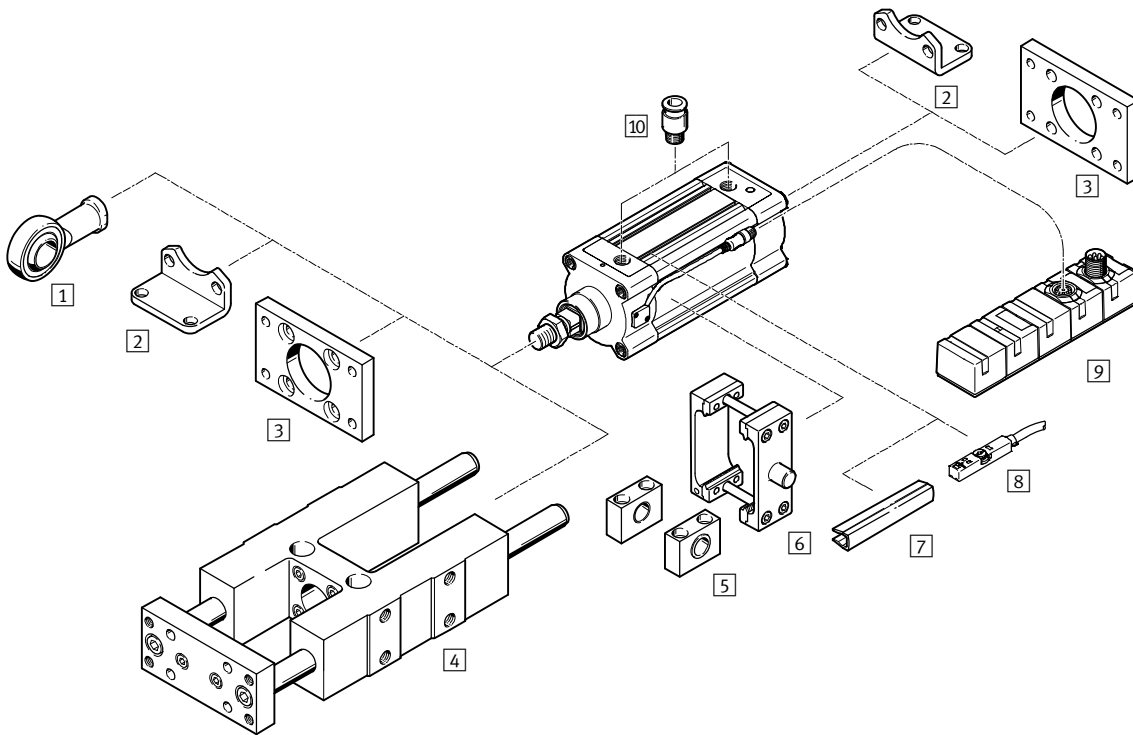
Type codes



Standard cylinders DDPG, with measured-value transducer DADE

Peripherals overview

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-  - Note

If the drive DDPG is used without an end-position controller CPX-CMPX, SPC11 or axis controller CPX-CMAX, e.g. as a measuring cylinder, then the standard accessories for the drive DNC can be used.

Standard cylinders DDPC, with measured-value transducer DADE

Peripherals overview

Accessories		
Type	Description	→ Page/Internet
1 Rod eye SGS	With spherical bearing	ddpc
2 Foot mounting HNC	For mounting the drive on the bearing and end caps	ddpc
3 Flange mounting FNC	For mounting the drive on the bearing and end caps	ddpc
4 Guide unit ¹⁾ FENG-KF	For protecting against rotation at high torque loads	12
5 Trunnion support LNZG	For securing the trunnion mounting kit DAMT	ddpc
6 Trunnion mounting kit DAMT	For swivelling movements of the drive	ddpc
7 Slot cover ABP-5-S	For protecting against contamination	ddpc
8 Proximity sensor SME/SMT-8	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 section	ddpc
9 Measured-value transducer DADE	Converts the sensor signal of the cylinder in to a voltage signal of 0 ... 10 V and/or a current signal of 4 ... 20 mA	14
10 Push-in fitting QS	For connecting outer toleranced compressed air tubing	qs

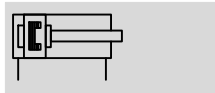
1) Guide unit FENG-KF must be attached to the piston rod in a way that eliminates backlash

Standard cylinders DDPc, with measured-value transducer DADE

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Technical data

Function



- \varnothing - Diameter
80 and 100 mm
- | - Stroke length
10 ... 1250 mm



General technical data		
Piston \varnothing	80	100
Based on standard	ISO 15552	
Design	Piston	
	Piston rod	
	Profile barrel	
Mode of operation	Double-acting	
Guide ¹⁾	Guide rod with yoke, with ball bearing guide	
Protection against rotation	Square piston rod	
Mounting position	Any	
Type of mounting	Via accessories	
Cushioning	Elastic cushioning rings/plates at both ends	
Position sensing	Integrated displacement encoder	
	Via proximity sensor ²⁾	
Measuring principle (displacement encoder)	Encoder, contactless and relative measurement	
Pneumatic port	G $\frac{3}{8}$	G $\frac{1}{2}$
Stroke		
DDPC-...	[mm]	10 ... 1250
DDPC-...-D	[mm]	100 ... 500
Extended piston rod	[mm]	1 ... 500

- 1) Guide unit FENG-KF can be ordered via the modular product system (feature D) and is supplied attached. The maximum stroke is restricted.
- 2) Not included in the scope of delivery, can be ordered as an option

Operating and environmental conditions		
Operating pressure	[bar]	4 ... 12
Operating pressure ¹⁾	[bar]	4 ... 8
Operating medium ²⁾	Compressed air to ISO 8573-1:2010 [6:4:4]	
Note on operating/pilot medium	Lubricated operation not possible Pressure dew point 10°C below ambient/medium temperature	
Ambient temperature ³⁾	[°C]	-20 ... +80
Vibration resistance to DIN/IEC 68, Part 2 - 6	Severity level 2	
Continuous shock resistance to DIN/IEC 68, Part 2 - 82	Severity level 2	
CE marking (see declaration of conformity ⁴⁾)	To EU EMC Directive	
Corrosion resistance class CRC ⁵⁾	1	

- 1) Only applies to applications with end-position controller CPX-CMPX, SPC11 and axis controller CPX-CMAX
- 2) The proportional directional control valve VPWP, MPYE requires these characteristic values
- 3) Note operating range of proximity sensors
- 4) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → Certificates.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
- 5) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Standard cylinders DDPc, with measured-value transducer DADE

Technical data

Forces [N] and impact energy [Nm]		
Piston \varnothing	80	100
Theoretical force at 6 bar, advancing	3016	4712
Theoretical force at 6 bar, retracting	2721	4418
Impact energy at the end positions	1.8	2.5

Permissible impact velocity

$$v_{perm.} = \sqrt{\frac{2 \times E_{perm.}}{m_{intrinsic} + m_{Load}}}$$

$v_{perm.}$ Permissible impact velocity
 $E_{perm.}$ Maximum impact energy
 $m_{intrinsic}$ Moving mass (drive)
 m_{Load} Moving payload

-  - Note

These specifications represent the maximum values that can be achieved. Note the maximum permissible impact energy.

Maximum permissible load:

$$m_{Load} = \frac{2 \times E_{perm.}}{v^2} - m_{intrinsic}$$

Electrical data – Displacement encoder		
Output signal	Analogue	
Linearity error		
Strokes up to 500 mm	[mm]	< ±0.08
Strokes up to 1000 mm	[mm]	< ±0.09
Strokes over 1000 mm	[mm]	< ±0.11
Resolution ¹⁾	[%]	≤ 0.025
Repetition accuracy		
≤ 400	[mm]	±0.1
≤ 500	[mm]	±0.13
≤ 750	[mm]	±0.19
≤ 1200	[mm]	±0.3
≤ 1250	[mm]	±0.4
Max. travel speed	[m/s]	1.5
Degree of protection	IP65	
CE marking (see declaration of conformity)	To EU EMC Directive ²⁾	
Maximum permitted magnetic interference field ³⁾	[kA/m]	10
Electrical connection	Cable with 8-pin plug, round design, M12	
Cable length	[m]	1.5

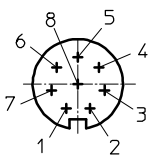
1) Always refers to max. stroke

2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → Certificates.

If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

3) At a distance of 100 mm

Pin allocation for plug



Pin	Function	Colour
1	5V	Black
2	GND	Brown
3	sin+	Red
4	sin-	Orange
5	cos-	Green
6	cos+	Yellow
7	Screening	Screening
8	n.c.	-

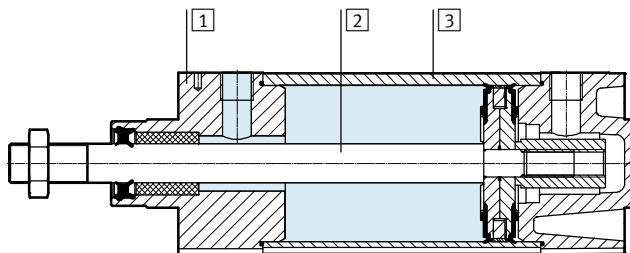
Standard cylinders DDPG, with measured-value transducer DADE

Technical data

Weight [g]		
Piston Ø	80	100
DDPG-...		
Basic weight with 0 mm stroke	3053	4330
Additional weight per 10 mm stroke	87	95
Moving mass with 0 mm stroke	804	994
Additional weight per 10 mm stroke	31	31
DDPG-...-T – through piston rod		
Basic weight with 0 mm stroke	3537	5019
Additional weight per 10 mm stroke	127	134
Moving mass with 0 mm stroke	1247	1467
Additional weight per 10 mm stroke	70	70
DDPG-...-E – additional weight with piston rod extension		
Additional weight per 10 mm extension	31	31
DDPG-...-C – additional weight with clamping unit		
Additional weight	2046	2829
DDPG-...-D – additional weight with guide unit		
Basic weight with 0 mm stroke	10430	12990
Additional weight per 10 mm stroke	80	80

Materials

Sectional view



Standard cylinder	
1	Cover Wrought aluminum alloy
2	Piston rod High-alloy steel
3	Cylinder barrel Wrought aluminum alloy
-	Seals NBR, polyurethane
Note on materials Free of copper and PTFE RoHS-compliant	

Standard cylinders DDPC, with measured-value transducer DADE

Technical data

Torques and lateral forces

Max. torque for protection against rotation:

Dynamic $\leq 3 \text{ Nm}$

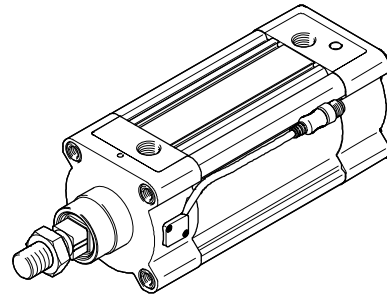
Static $\leq 5 \text{ Nm}$

An external guide unit FENG-KF is recommended with higher torque loads.

The guide unit is supplied attached.

The permissible static and dynamic characteristic load values with and without attached guide

→ Internet: feng



Mounting conditions

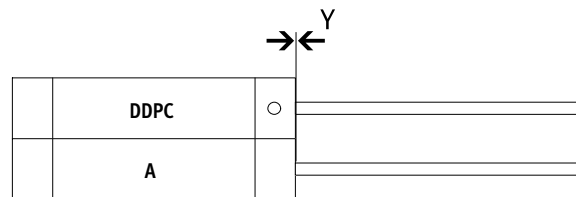
When mounting a drive A with magnet (for position sensing) next to a standard cylinder DDPC, the following conditions must be observed:

X Minimum distance between the drives

Y Offset between the drives on the bearing cap

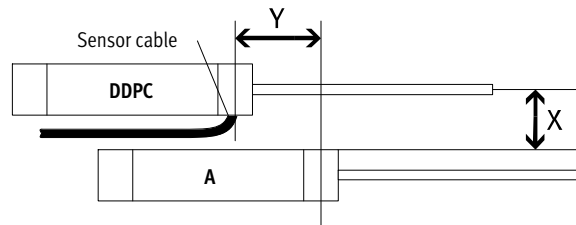
Parallel assembly

If the offset $Y = 0 \text{ mm}$, the drives can be assembled directly next to one another.



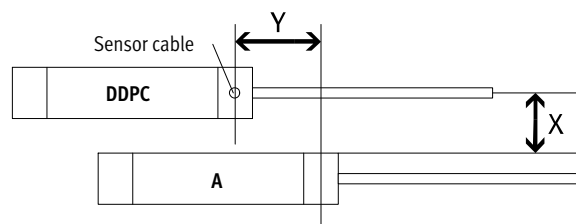
Off-set assembly, cable outlet between the drives

If the offset is $Y > 0 \text{ mm}$ and the cable outlet is between the drives, a distance of $X > 70 \text{ mm}$ must be observed.



Off-set assembly, cable outlet upwards or downwards

If the offset is $Y > 0 \text{ mm}$ and the cable outlet is up or down, a distance of $X > 60 \text{ mm}$ must be observed.



Standard cylinders DDPG, with measured-value transducer DADE

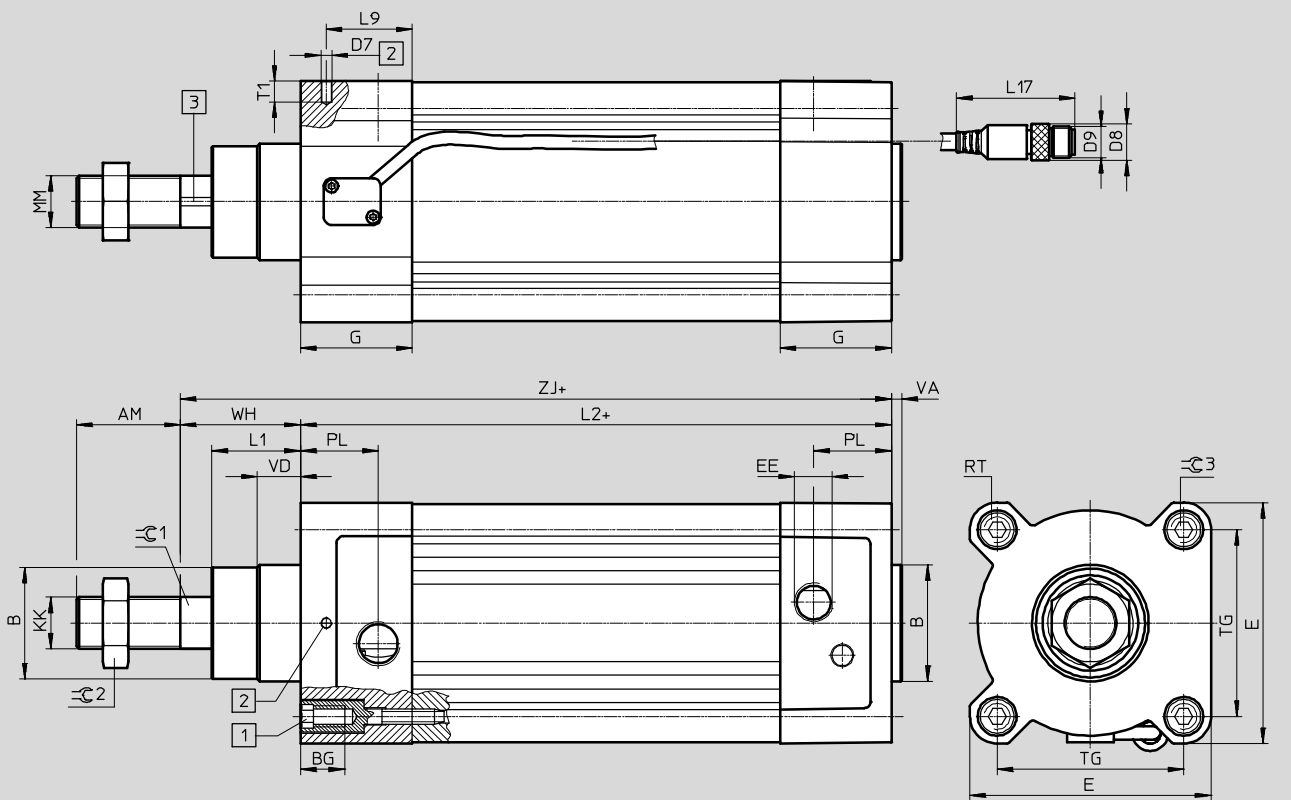
Technical data

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Dimensions

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DDPG-...



- 1** Socket head screw with female thread for mounting attachments
 - 2** Hole for securing the earthing for self-tapping M4 screw according to DIN 7500
 - 3** Magnetic measuring band
- + = plus stroke length
++ = plus 2x stroke length

∅	AM	B	BG	D7	D8	D9	E	EE	G
[mm]		∅ d11		∅	∅				
80	40	45	17	3.7	14	M12	93	G ³ / ₈	43
100	40	55	17	3.7	14	M12	110	G ¹ / ₂	48

∅	KK	L1	L2	L9	L17	MM	PL	RT	T1
[mm]						∅			
80	M20x1.5	34.2	128	20	45.7	20	30	M10	8
100	M20x1.5	38	138	21.5	45.7	20	31.5	M10	8

∅	TG	VA	VD	WH	ZJ	∅ 1	∅ 2	∅ 3
[mm]								
80	72	4	16.7	46	174	22	30	6
100	89	4	20.5	51	189	22	30	6

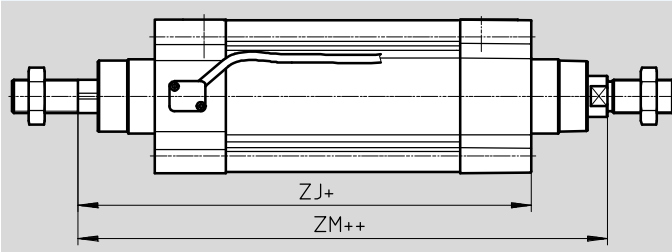
Standard cylinders DDP, with measured-value transducer DADE

Technical data

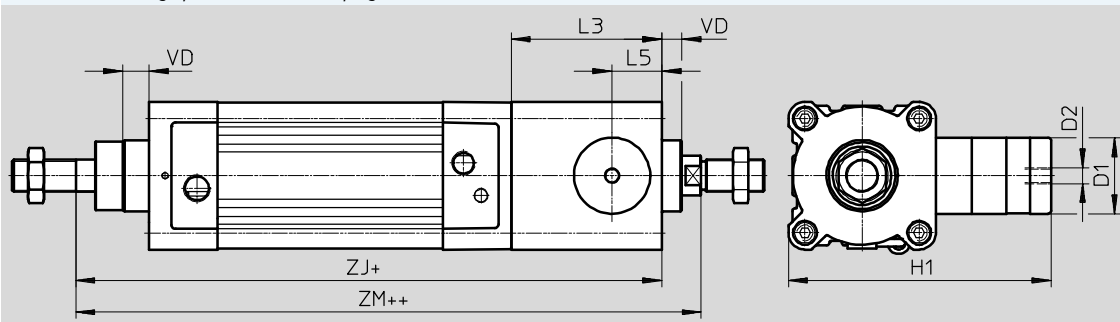
Dimensions

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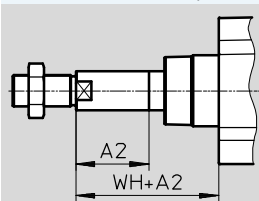
DDPC-...-T – through piston rod



DDPC-...-CT – through piston rod with clamping unit



DDPC-...-E – extended piston rod



∅	A2	D1	D2	H1	L3	L5
[mm]	max.	∅ f9				
80	500	48	G1/8	165.5	95	31.5
100	500	48	G1/8	174	98	31

∅	VD	WH	ZJ		ZM	
			DDPC-...-T	DDPC-...-CT	DDPC-...-T	DDPC-...-CT
[mm]						
80	16.7	46	174	269	222	317
100	20.5	51	189	287	240	338

Standard cylinders DDPG, with measured-value transducer DADE

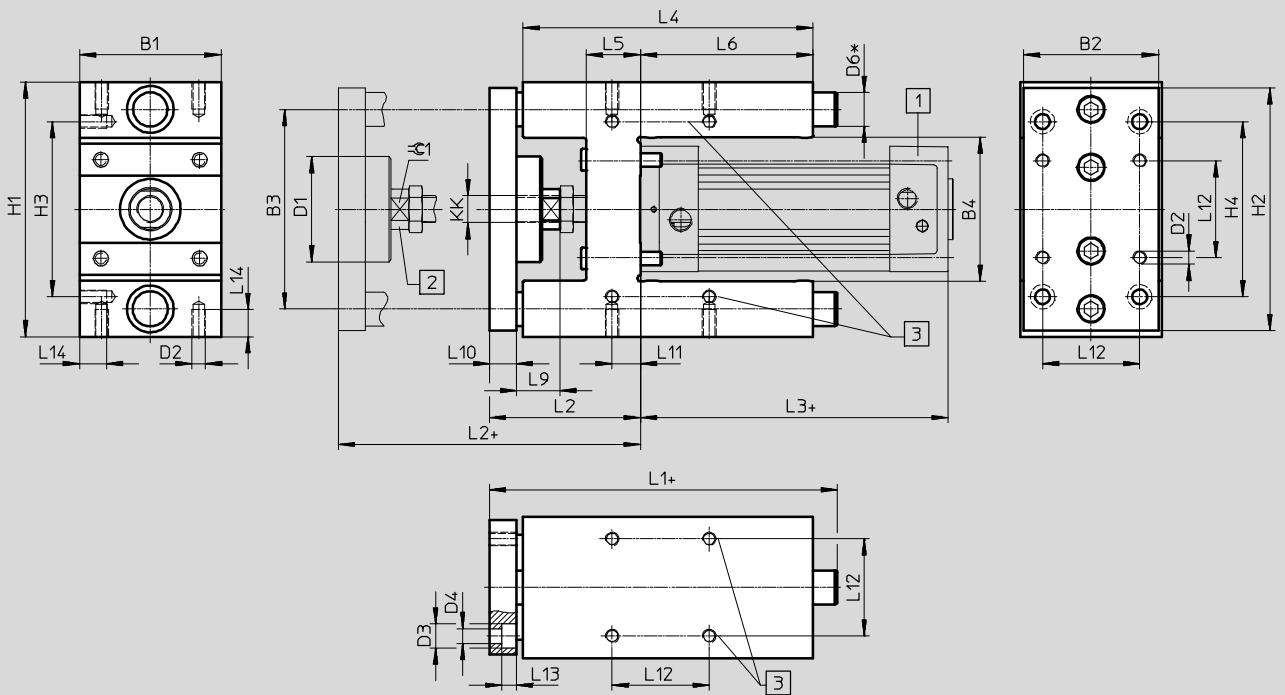
Technical data



Dimensions

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DDPG-...-D



- 1 Standard cylinder DDPG
- 2 Compensating coupling
- 3 Users can drill additional mounting holes as required
- + = plus stroke length

∅	B1	B2	B3	B4	D1	D2	D3	D4	D6
[mm]	-0.3		±0.2	±0.6	∅		∅	∅	∅
80	105	100	148	106	78	M10	18	11	25
100	130	120	172	131	78	M10	18	11	25

∅	H1	H2	H3	H4	KK	L1	L2	L3	L4
[mm]	-0.5		±0.2	±0.2			+10		
80	189	180	130	130	M20x1.5	258	111	194	215
100	213	200	150	150	M20x1.5	263	116	138	220

∅	L5	L6	L9	L10	L11	L12	L13	L14	∅ 1
[mm]						±0.2			
80	40	128	32	20	21	72	11	20	27
100	40	128	32	20	24.5	89	11	20	27

Standard cylinders DDP, with measured-value transducer DADE

Ordering data – Modular products

Ordering table					
Piston Ø	80	100	Condi- tions	Code	Enter code
M Module No.	1677705	1691433			
Function	Standard cylinder with integrated displacement encoder			DDPC	DDPC
Protection against rotation	With protection against rotation			-Q	-Q
Piston Ø [mm]	80	100		-...	
Stroke [mm]	10 ... 1250			-...	
O Guide unit	None				
	Attached			-D	
Clamping unit	None				
	Attached		1	-C	
Piston rod type	At one end				
	Through piston rod			T	
M Cushioning	Elastic cushioning rings/plates at both ends			-P	-P
Position sensing	For proximity sensor			A	A
O Piston rod extension	None				
	[mm]	1 ... 500		-...E	

1 C Only available with T

Transfer order code

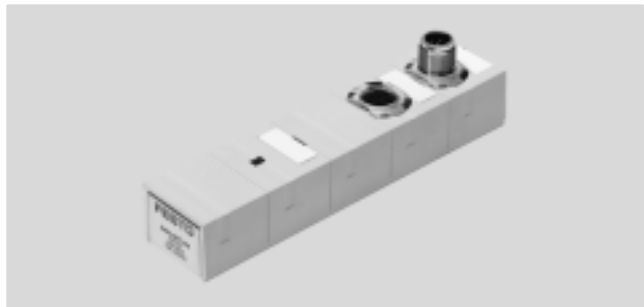
Standard cylinders DDPC, with measured-value transducer DADE

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Technical data

Measured-value transducer
DADE-MVC-010
DADE-MVC-420

The measured-value transducer converts sensor signals from the standard cylinder DDPC into a voltage signal of 0 ... 10 V or a current signal of 4 ... 20 mA. These signals can be evaluated by a PLC with an appropriate signal input.



General technical data	
Type of mounting	With through-hole
Mounting position	Any
Protection against short circuit	Yes
Protection against incorrect polarity	Yes
Diagnostic function	Indication via LED

General electrical data		
Analogue output	[V]	0 ... 10 (according to EN 61131-2)
	[mA]	4 ... 20 (according to EN 61131-2)
Nominal operating voltage	[DC V]	24 ±25%
Residual ripple	[%]	4 (at 50 Hz)
Current consumption at nominal operating voltage	[mA]	20 ... 30
Switching logic at outputs		PNP
Switching logic at inputs		PNP
Debounce time at inputs	[ms]	3
Linearity error FS		0.2%

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... 55
Protection class		IP65
Relative air humidity		95% non-condensing
CE marking (see declaration of conformity)		To EU EMC Directive
Corrosion resistance class CRC ¹⁾		1
Product weight	[g]	128
Note on material for housing		Polybutylene terephthalate

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
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Standard cylinders DDPC, with measured-value transducer DADE

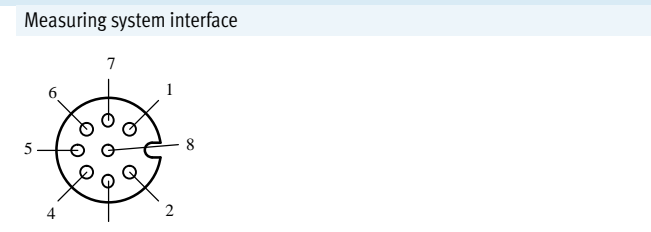
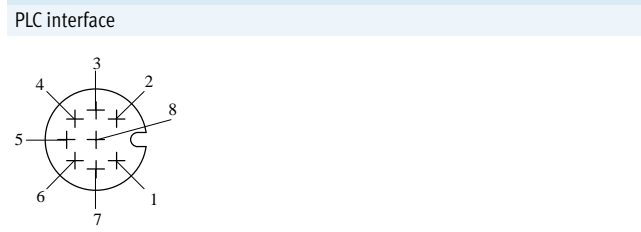
Technical data

Dimensions Download CAD data → www.festo.com

1 PLC interface:
8-pin M12, male

2 Measuring system interface:
8-pin M12, female

Pin allocation



Pin	Function	Cable colour
1	24V	White
2	Analogue measurement signal	Brown
3	Reference output	Green
4	0 V measurement signal	Yellow
5	Reference input	Grey
6	Calibration input	Pink
7	Ready output	Blue
8	0 V power supply and inputs/ outputs	Red

Pin	Function
1	Ub
2	0 V
3	Signal sine +
4	Signal sine -
5	Signal cosine -
6	Signal cosine +
7	Screening / earth
8	-

Ordering data		Description	Part no.	Type
Measured-value transducer				
	With voltage signal	0 ... 10 V	542117	DADE-MVC-010
	With current signal	4 ... 20 mA	542118	DADE-MVC-420
Accessories Technical data → Internet: sim				
	Connecting cable	PLC connecting cable (length 2 m)	525616	SIM-M12-8GD-2-PU
		PLC connecting cable (length 5 m)	525618	SIM-M12-8GD-5-PU