

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

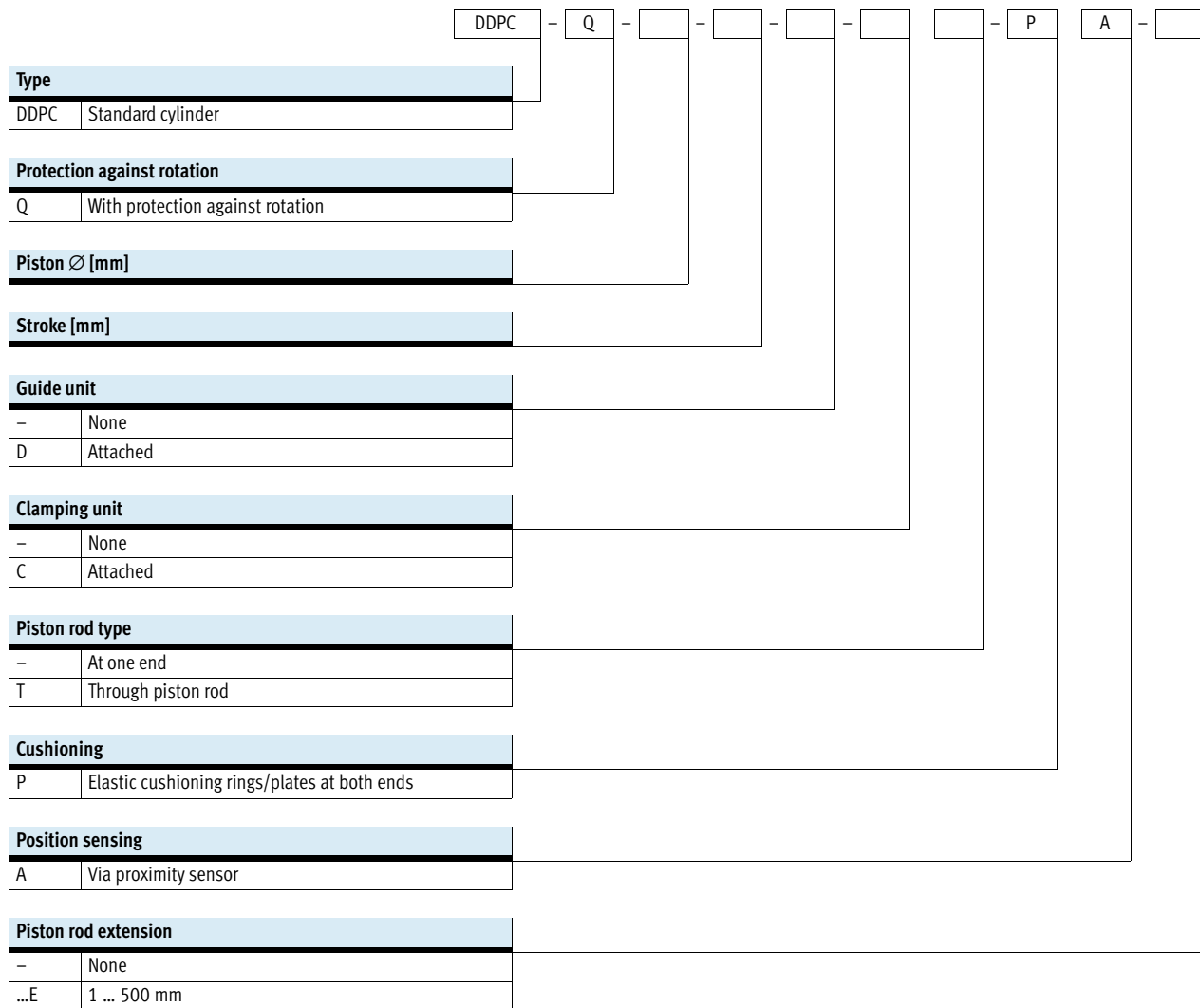


Controller module  
CPX-CMAX, CPX-CMPX



# Standard cylinders DDPG, with measured-value transducer DADE

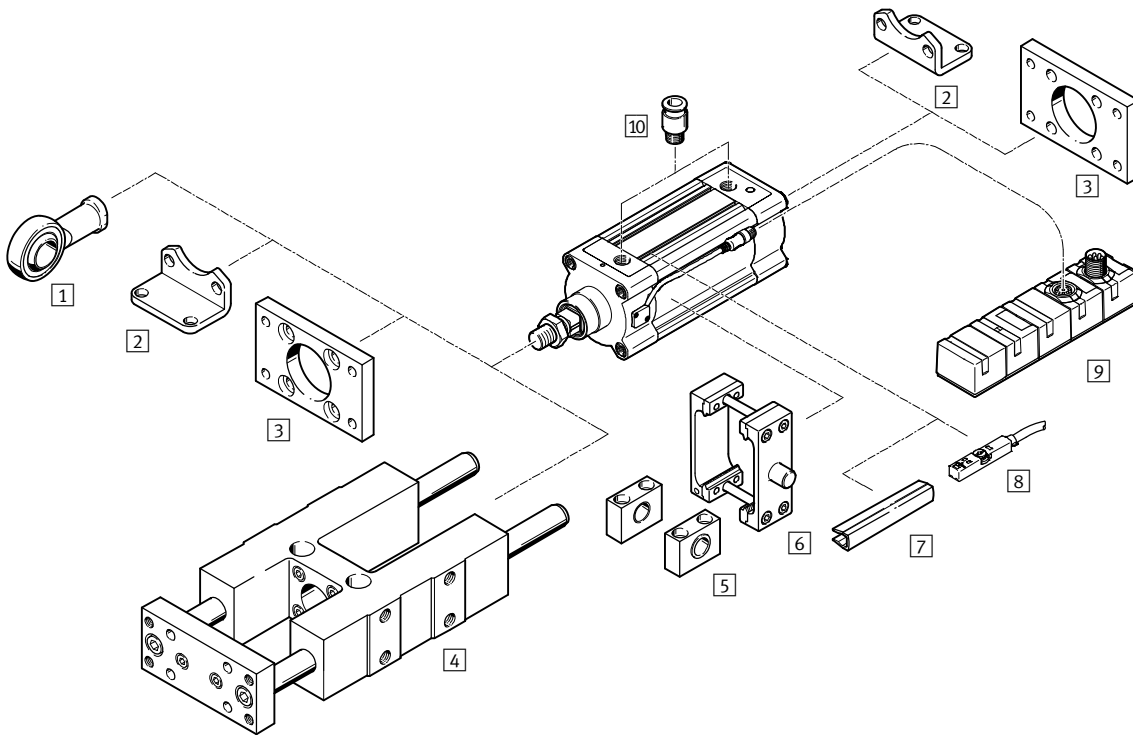
Type codes



# 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 <sup>1)</sup> 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

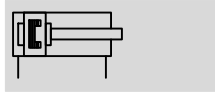
1) Guide unit FENG-KF must be attached to the piston rod in a way that eliminates backlash

# Standard cylinders DDPc, with measured-value transducer DADE

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Technical data

Function



Ø - Diameter  
80 and 100 mm

l - Stroke length  
10 ... 1250 mm



General technical data		
Piston Ø	80	100
Based on standard	ISO 15552	
Design	Piston	
	Piston rod	
	Profile barrel	
Mode of operation	Double-acting	
Guide <sup>1)</sup>	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 <sup>2)</sup>	
Measuring principle (displacement encoder)	Encoder, contactless and relative measurement	
Pneumatic port	G3/8	G1/2
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 <sup>1)</sup>	[bar]	4 ... 8
Operating medium <sup>2)</sup>	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 <sup>3)</sup>	[°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 <sup>4)</sup> )	To EU EMC Directive	
Corrosion resistance class CRC <sup>5)</sup>	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](http://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 DDP, 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.

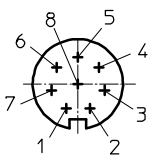
Maximum permissible load:

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

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 <sup>1)</sup>	[%]	≤ 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 <sup>2)</sup>	
Maximum permitted magnetic interference field <sup>3)</sup>	[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](http://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.	-

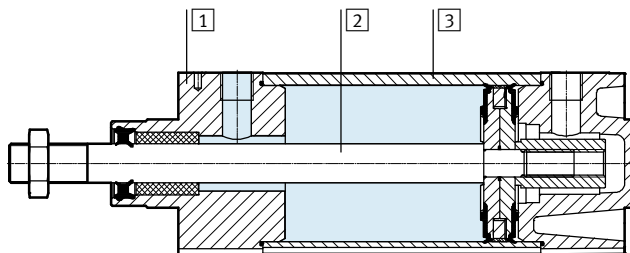
# Standard cylinders DDPG, with measured-value transducer DADE

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  $\leq 3 \text{ Nm}$

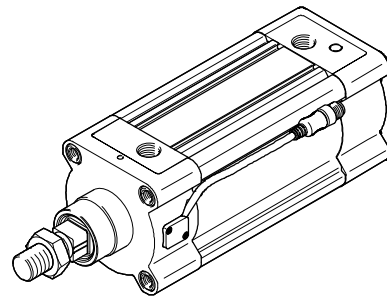
Static  $\leq 5 \text{ Nm}$

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

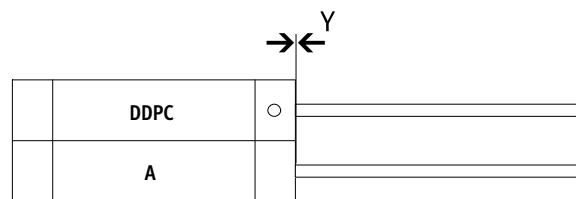
When mounting a drive A with magnet (for position sensing) next to a standard cylinder DDPC, the following conditions must be observed:

X Minimum distance between the drives

Y Offset between the drives on the bearing cap

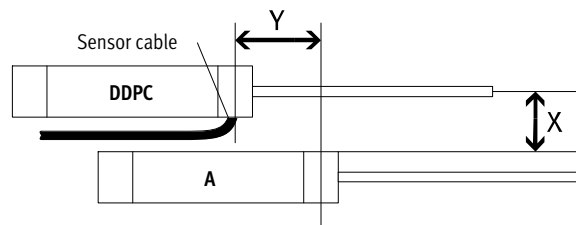
### Parallel assembly

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



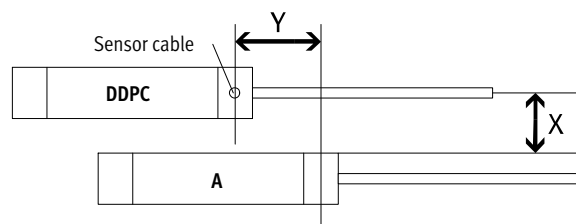
### Off-set assembly, cable outlet between the drives

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

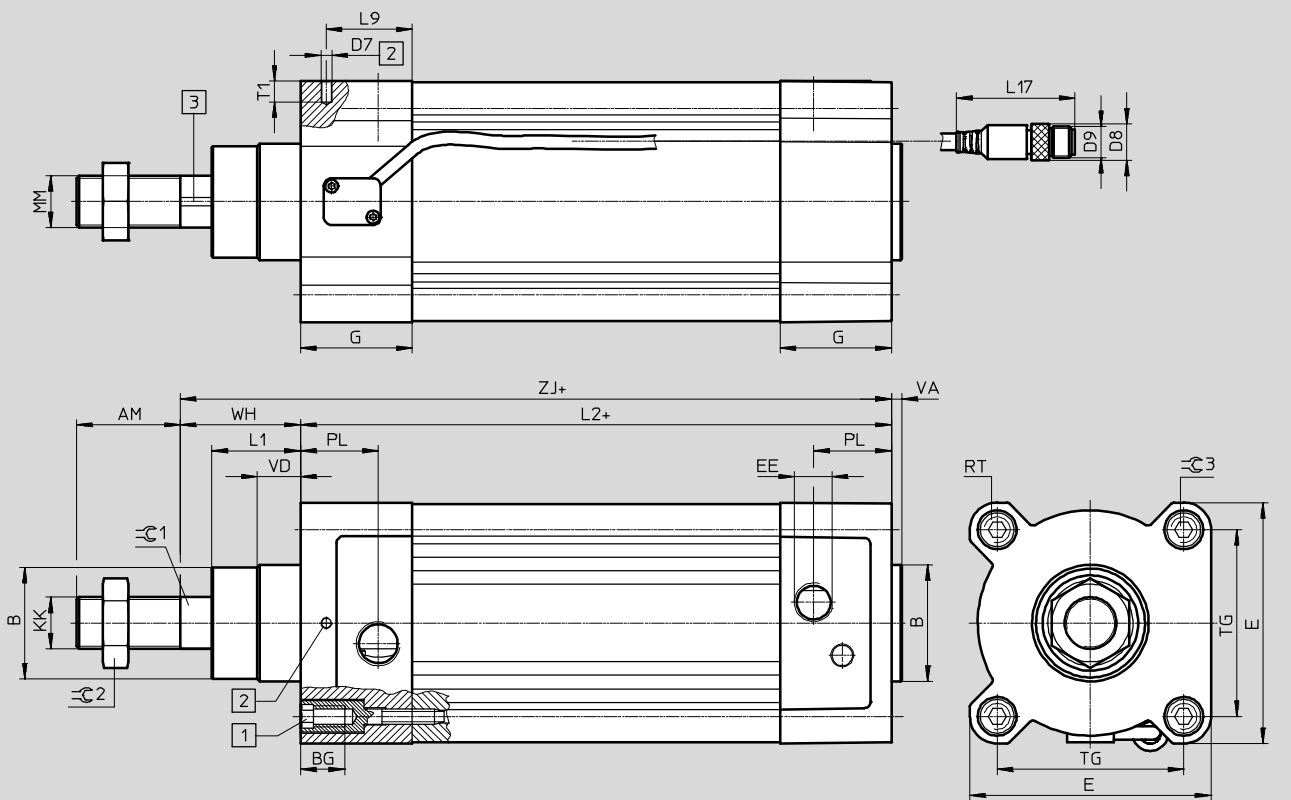
Technical data

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## Dimensions

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

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	G3/8	43
100	40	55	17	3.7	14	M12	110	G1/2	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

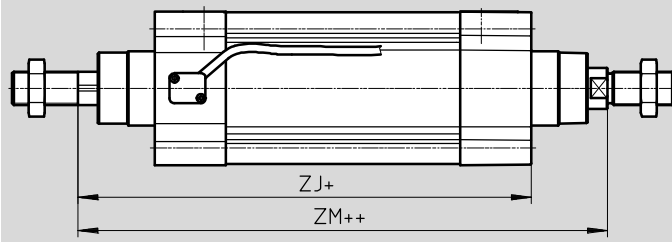
# Standard cylinders DDP, with measured-value transducer DADE

Technical data

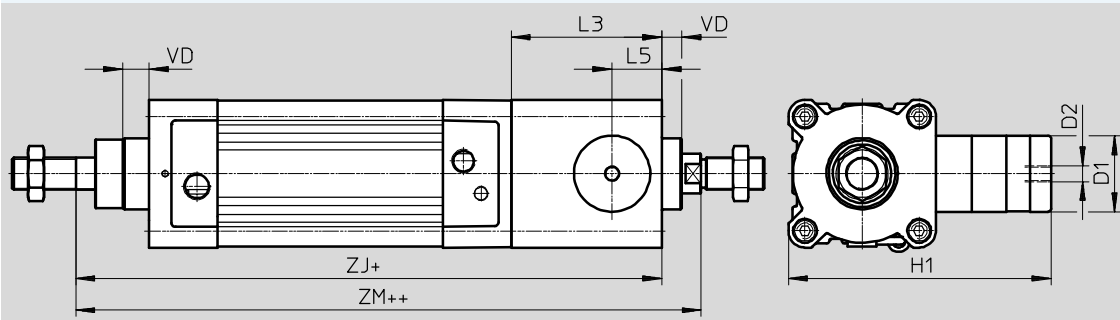
## Dimensions

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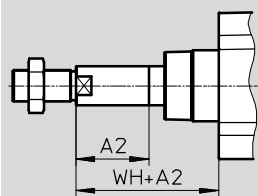
DDPC-...-T – through piston rod



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

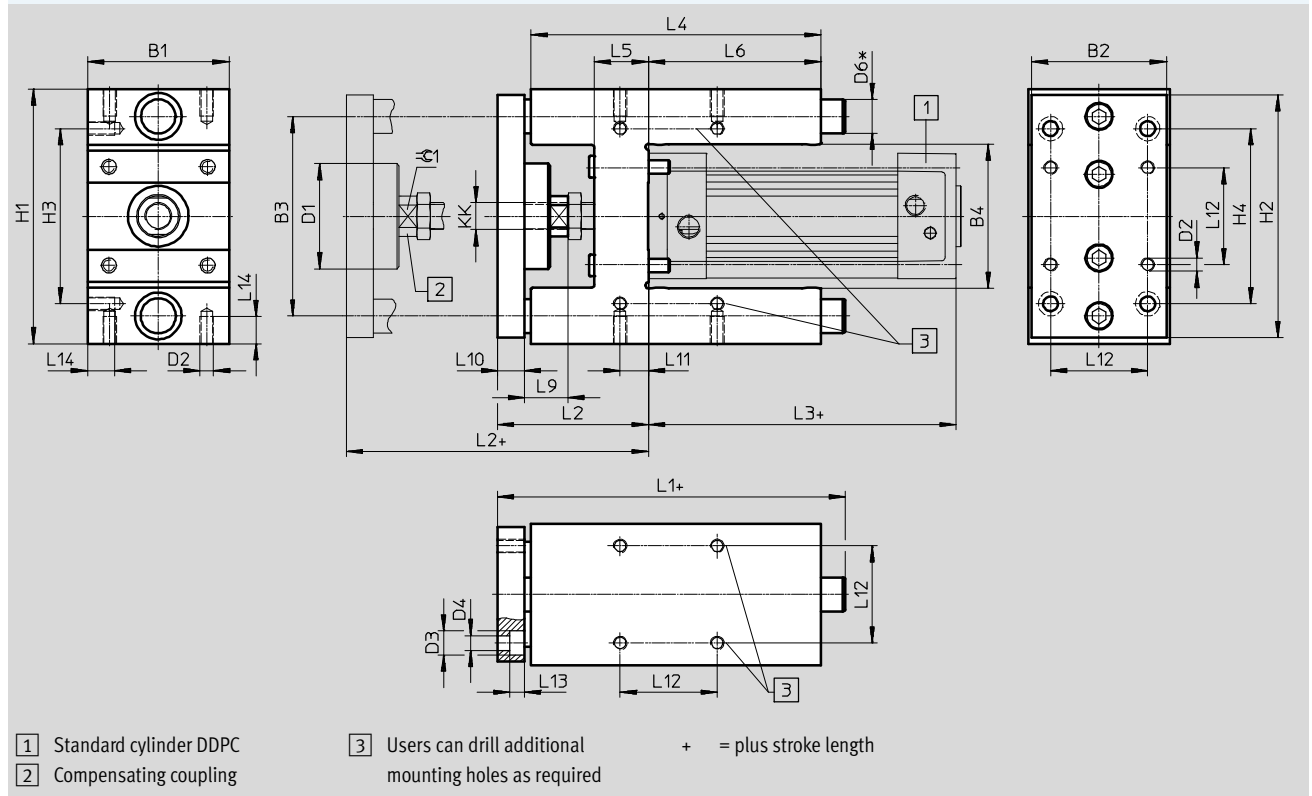
# Standard cylinders DDPG, with measured-value transducer DADE

Technical data

**Dimensions**

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DDPG-...-D



∅	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 DDPG, with measured-value transducer DADE

Ordering data – Modular products

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

**1** C Only available with T

**M** Mandatory data

**O** Options

Transfer order code

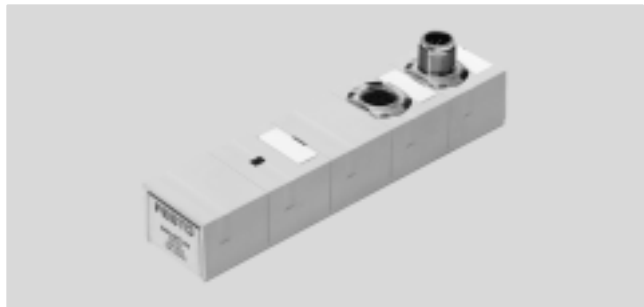
**DDPG** -  **Q** -  -  -  -  -  -  -  **P**  **A** -

# Standard cylinders DDPC, with measured-value transducer DADE

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 <sup>1)</sup>		1
Product weight	[g]	128
Note on material for housing		Polybutylene terephthalate

1) 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

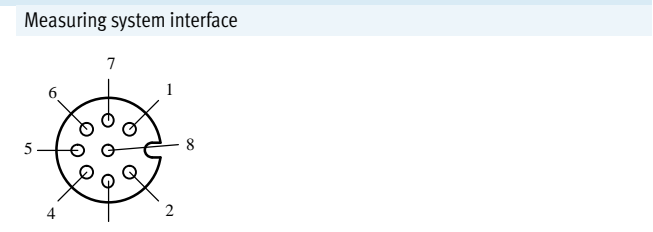
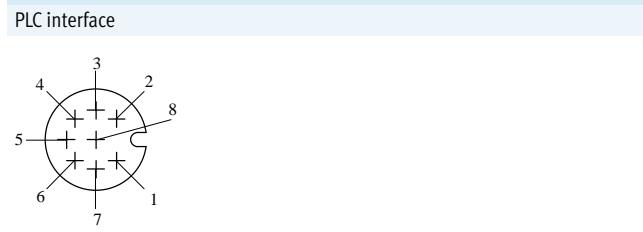
Technical data

**Dimensions** Download CAD data → [www.festo.com](http://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
<b>Measured-value transducer</b>				
	With voltage signal	0 ... 10 V	542117	DADE-MVC-010
	With current signal	4 ... 20 mA	542118	DADE-MVC-420
<b>Accessories</b> <span style="float: right;">Technical data → Internet: sim</span>				
	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