

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-...



PLC control, e.g. FEC-...



Operator unit e.g. FED-...



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

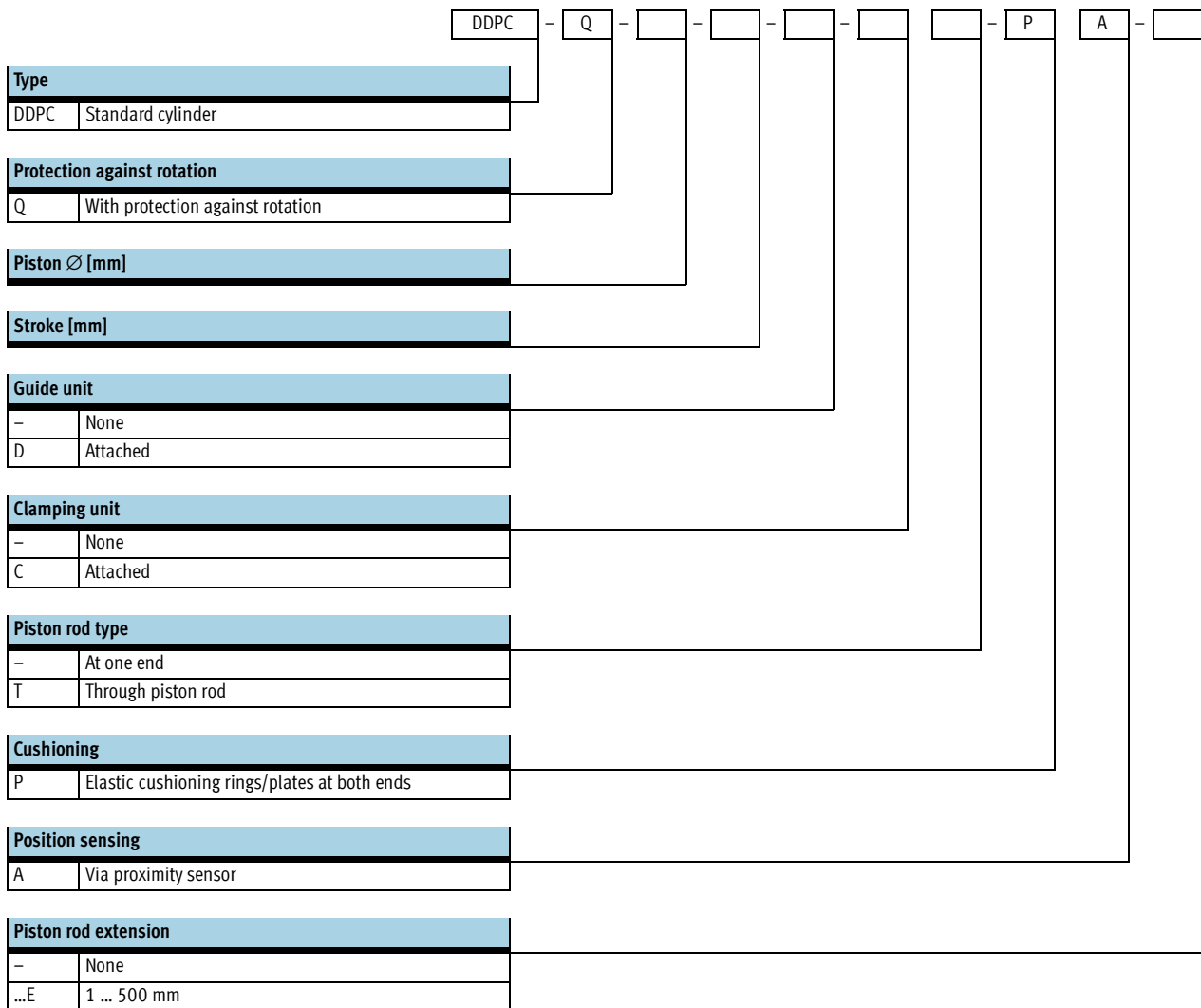


Controller module CPX-CMAX, CPX-CMPX



Standard cylinders DDP, with measured-value transducer DADE

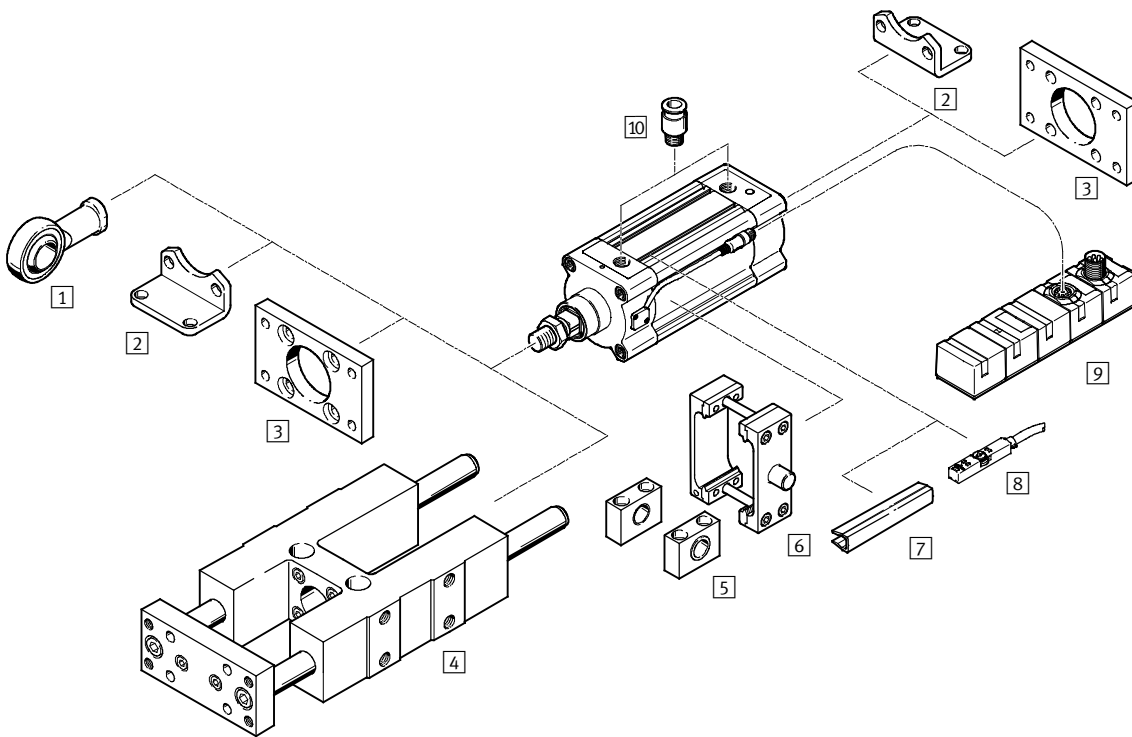
Type codes



Standard cylinders DDPC, with measured-value transducer DADE

Peripherals overview

FESTO



-  - Note

If the drive DDPC is used without an end-position controller CPX-CMPX, SPC11 or axis controller CPX-CMAX, SPC200, 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 | Brief 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 | quick star |

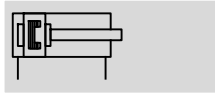
1) Guide unit FENG-KF must be attached to the piston rod in a way that eliminates backlash

Standard cylinders DDPc, with measured-value transducer DADE

FESTO

Technical data

Function



Ø - Diameter
80 and 100 mm

█ - Stroke length
10 ... 2,000 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 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 ³ / ₈ | G ¹ / ₂ |
| Stroke | | |
| DDPC-... | [mm] | 10 ... 2,000 |
| 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, SPC200

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 → Support → User documentation.

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 1 according to Festo standard 940 070

Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

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 | 3,016 | 4,712 |
| Theoretical force at 6 bar, retracting | 2,721 | 4,418 |
| Impact energy at the end positions | 1.8 | 2.5 |

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

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

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

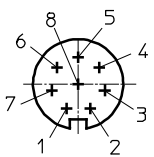
 Note
 These specifications represent the maximum values that can be achieved. Note the maximum permissible impact energy.

| Electrical data – Displacement encoder | | |
|---|--|---------|
| Output signal | Analogue | |
| Linearity error | | |
| Strokes up to 500 mm | [mm] | < ±0.08 |
| Strokes up to 1,000 mm | [mm] | < ±0.09 |
| Strokes above 1,000 mm | [mm] | < ±0.11 |
| Maximum travel speed | [m/s] | 1.5 |
| Protection class | IP65 | |
| CE marking (see declaration of conformity) | To EU EMC Directive ¹⁾ | |
| Maximum permitted magnetic interference field ²⁾ | [kA/m] | 10 |
| Electrical connection | Cable with 8-pin plug, round design, M12 | |
| Cable length | [m] | 1.5 |

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com → Support → User documentation.
 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.

2) 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. | - |

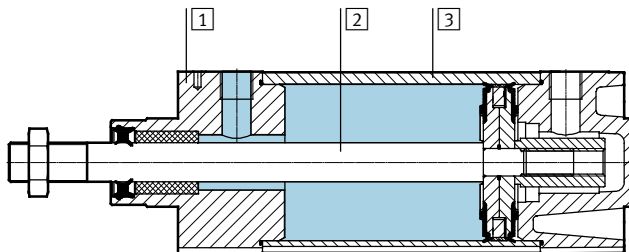
Standard cylinders DDPG, with measured-value transducer DADE

Technical data

| Weight [g] | | |
|--|--------|--------|
| Piston Ø | 80 | 100 |
| DDPG-... | | |
| Basic weight with 0 mm stroke | 3,053 | 4,330 |
| 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 | 3,537 | 5,019 |
| Additional weight per 10 mm stroke | 127 | 134 |
| Moving mass with 0 mm stroke | 1,247 | 1,467 |
| 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 | 2,046 | 2,829 |
| DDPG-...-D – additional weight with guide unit | | |
| Basic weight with 0 mm stroke | 10,430 | 12,990 |
| 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 | Nitrile rubber, 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:

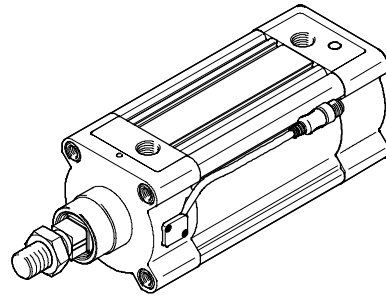
Dynamic $\leq 3 \text{ Nm}$

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

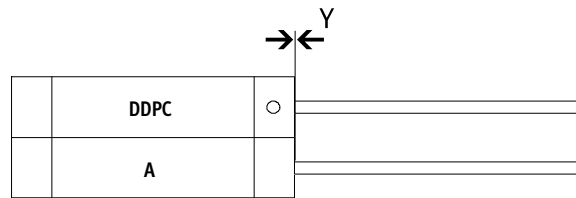
When mounting a drive A with magnet (for position sensing) next to a standard cylinder DDPC, the following conditions must be observed:

X Minimum distance between the drives

Y Offset between the drives on the bearing cap

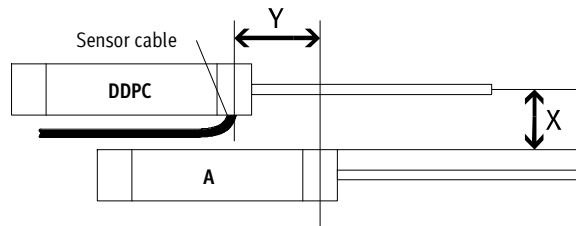
Parallel assembly

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



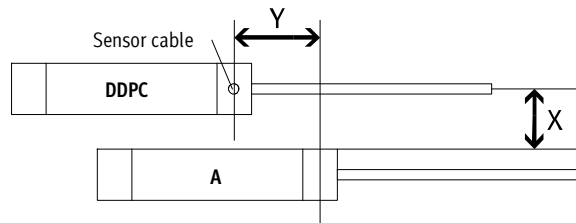
Off-set assembly, cable outlet between the drives

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

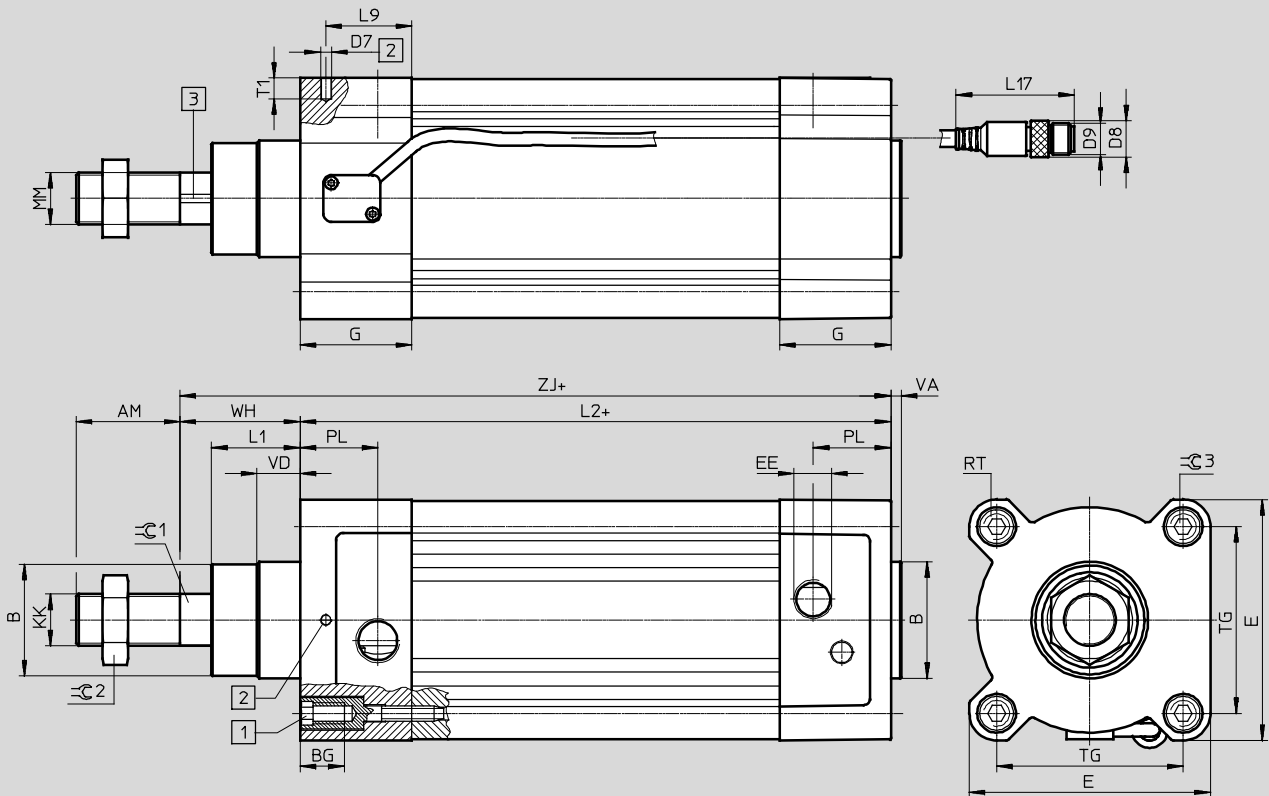
Technical data

FESTO

Dimensions

Download CAD data → 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 | G $\frac{3}{8}$ | 43 |
| 100 | 40 | 55 | 17 | 3.7 | 14 | M12 | 110 | G $\frac{1}{2}$ | 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 |

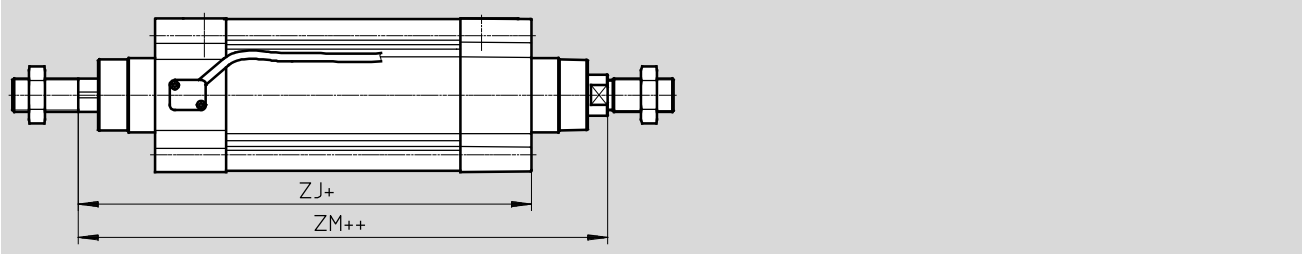
Standard cylinders DDP, with measured-value transducer DADE

Technical data

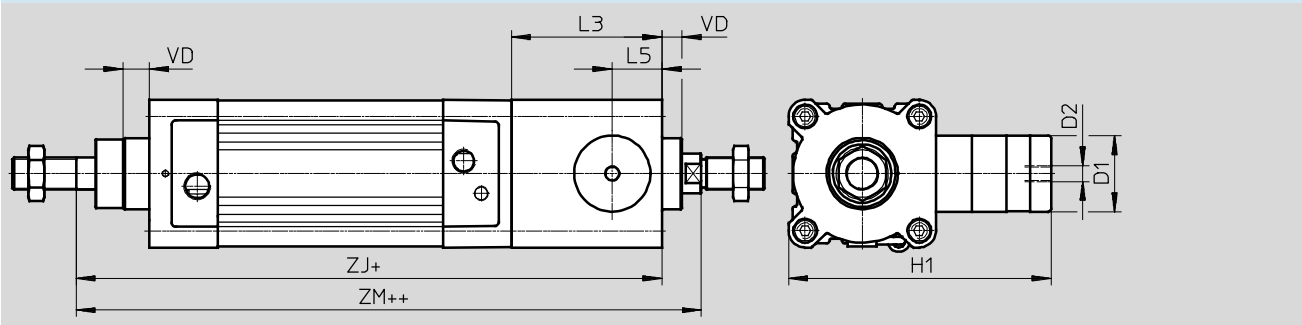
Dimensions

Download CAD data → www.festo.com

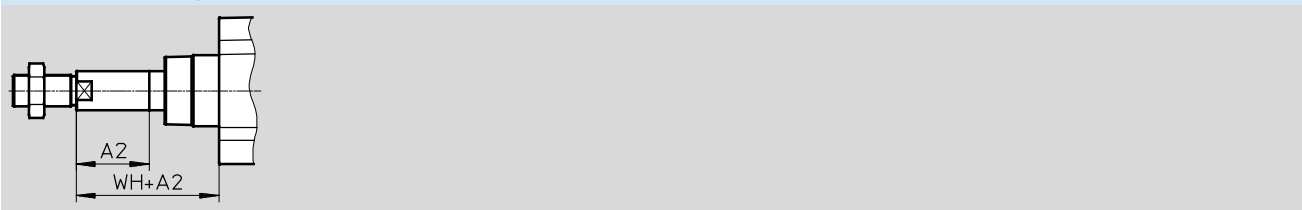
DDPC-...-T – through piston rod



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



DDPC-...-E – extended piston rod



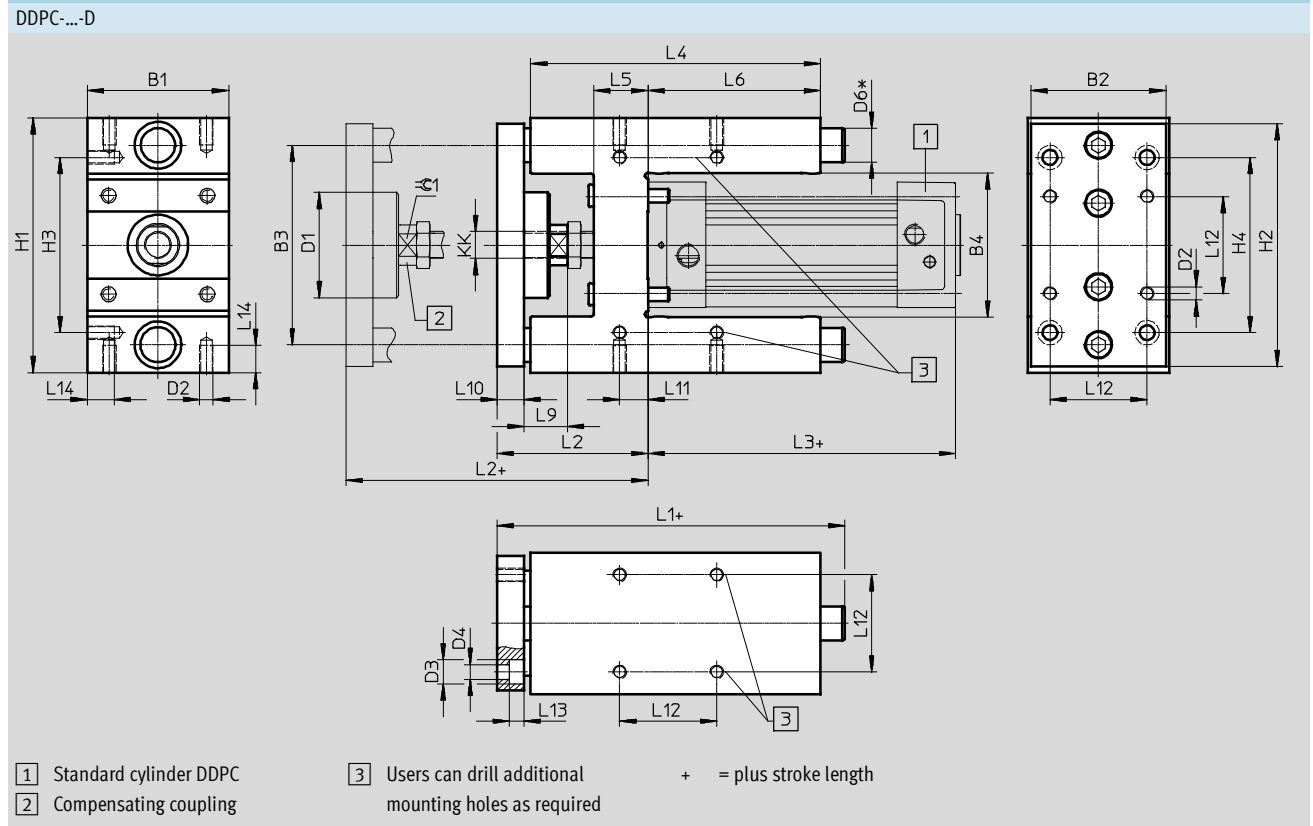
| ∅ | A2 | D1 | D2 | H1 | L3 | L5 |
|------|------|------|------|-------|----|------|
| [mm] | max. | ∅ f9 | | | | |
| 80 | 500 | 48 | G1/8 | 165.5 | 95 | 31.5 |
| 100 | 500 | 48 | G1/8 | 174 | 98 | 31 |

| ∅ | 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 Download CAD data → www.festo.com



| ∅ | 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 ... 2,000 | | | -... | |
| 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

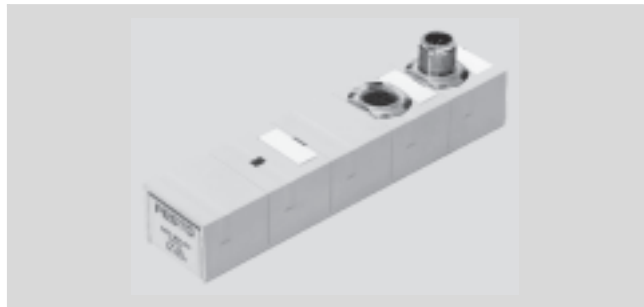
Transfer order code

Standard cylinders DDPG, 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 DDPG 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 | | Via through-hole |
| Mounting position | | Any |
| Repetition accuracy in relation to effective stroke | ≤ 400 | ±0.1 mm |
| | ≤ 750 | ±0.2 mm |
| | ≤ 1200 | ±0.3 mm |
| | ≤ 1600 | ±0.4 mm |
| | ≤ 2000 | ±0.5 mm |
| Protection against short circuit | | Yes |
| Protection against incorrect polarity | | Yes |
| Diagnostic function | | Display 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 1 according to Festo standard 940 070
 Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Standard cylinders DDPC, with measured-value transducer DADE

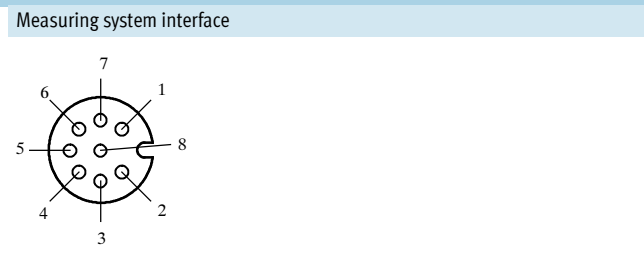
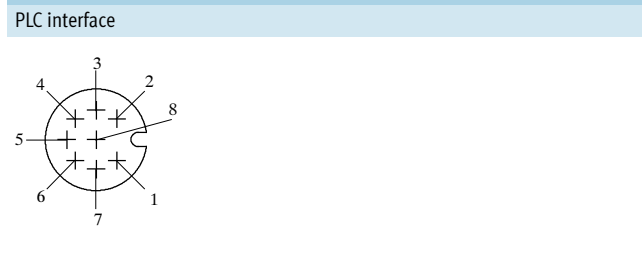
Technical data

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 | 542 117 | DADE-MVC-010 |
| | With current signal | 4 ... 20 mA | 542 118 | DADE-MVC-420 |
| Accessories Technical data → Internet: sim | | | | |
| | Connecting cable | PLC connecting cable (length 2 m) | 525 616 | SIM-M12-8GD-2-PU |
| | | PLC connecting cable (length 5 m) | 525 618 | SIM-M12-8GD-5-PU |