

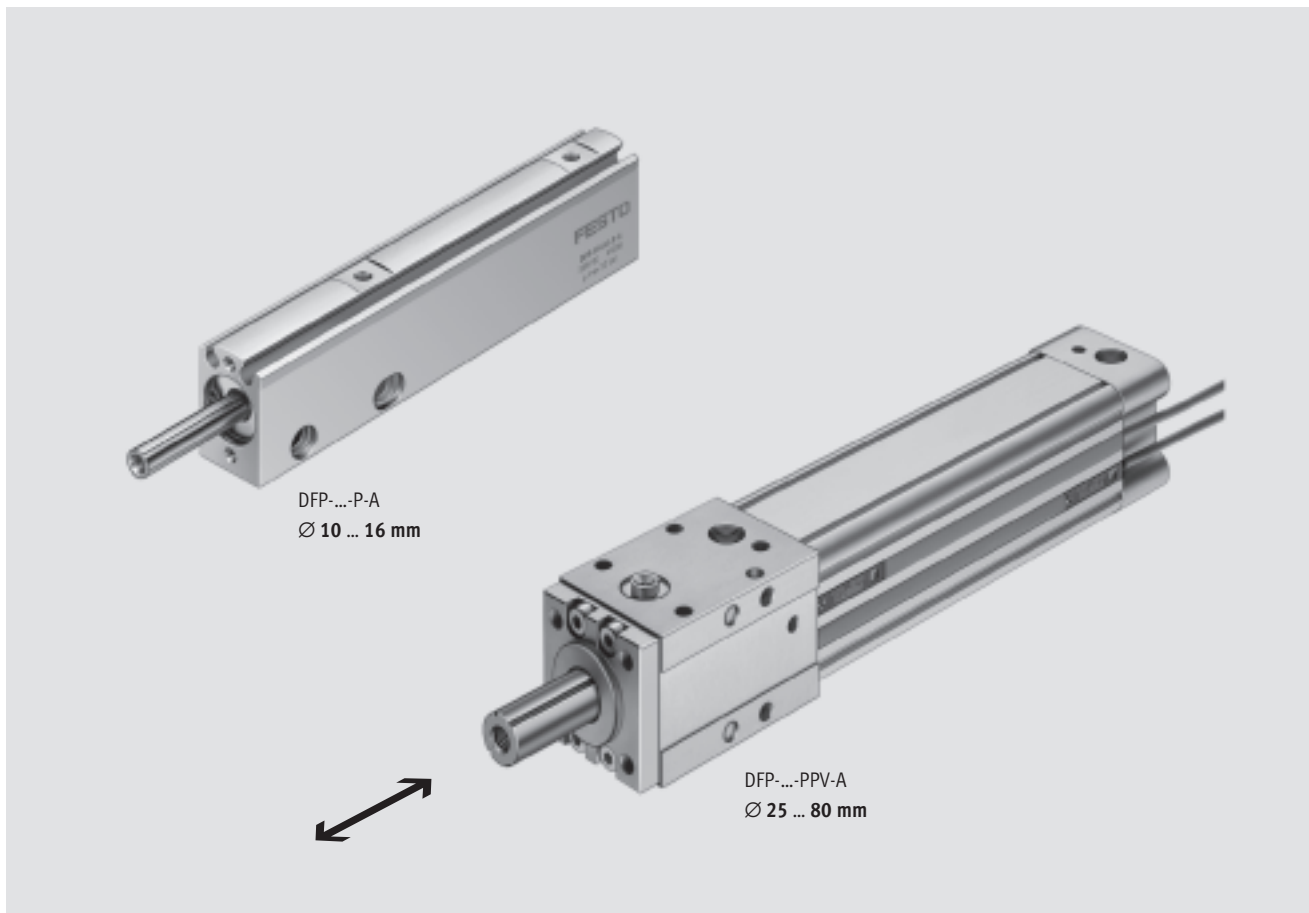


- High-precision guidance
- Able to absorb high torques
- Saves space in comparison with standard cylinders
- For contactless position sensing

## Guided cylinders DFP

Features

FESTO



### Brief description

- Double-acting
- High-precision guidance thanks to recirculating ball bearing guide
- Able to absorb high torques
- Saves space in comparison with standard cylinders with external guide unit
- Flexible cushioning rings/plates at both ends for Ø 10 ... 16 mm
- Pneumatic cushioning adjustable at both ends for Ø 25 ... 80 mm
- For contactless position sensing

# Guided cylinders DFP

Features

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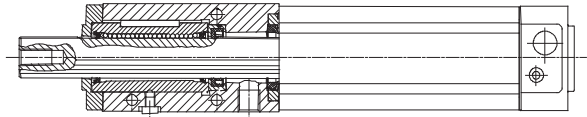
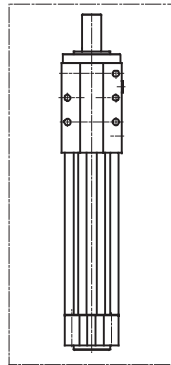
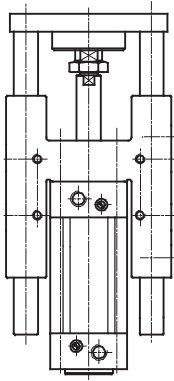
## Less installation space required

Standard cylinder with guide unit

Guided cylinder  
DFP

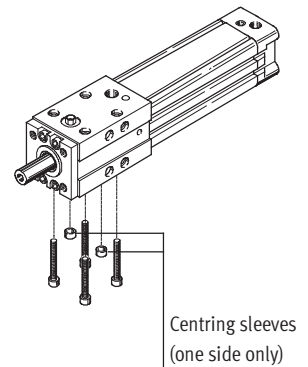
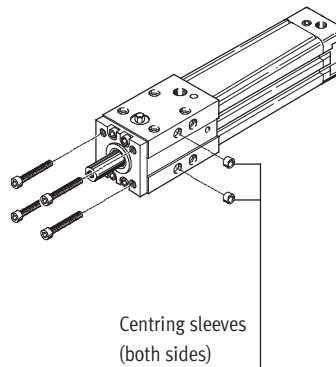
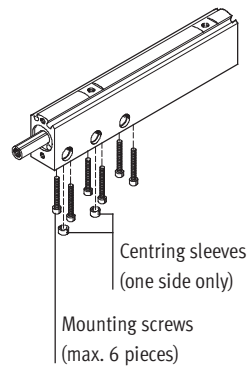
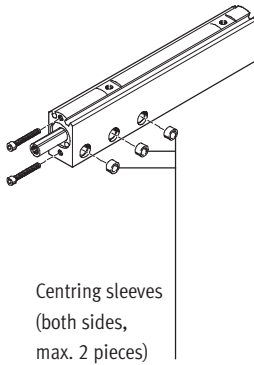
## High precision

Grooved piston rod with recirculating ball bearing guide

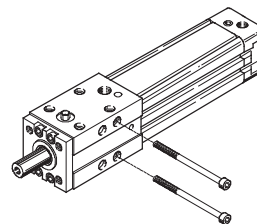
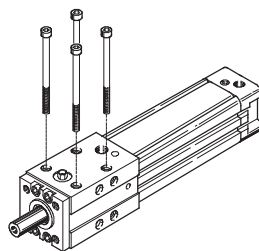
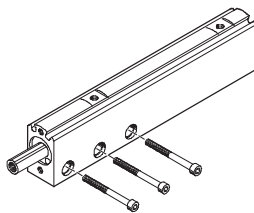


## Mounting options

Via female thread



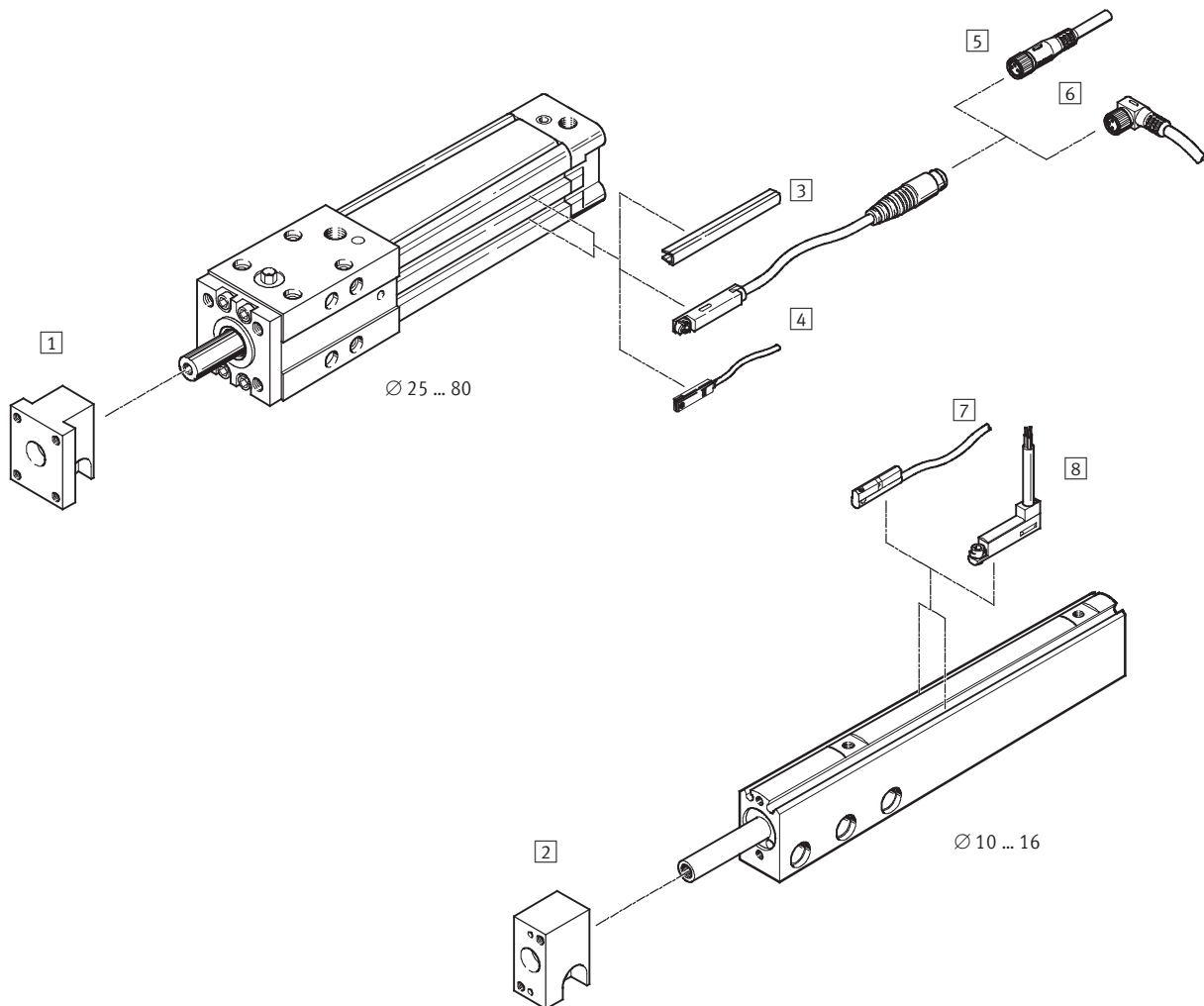
Via through-holes



# Guided cylinders DFP

Peripherals overview

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| Accessories |                                 |                                                                   |           |                 |
|-------------|---------------------------------|-------------------------------------------------------------------|-----------|-----------------|
|             | Brief description               | Piston Ø [mm]                                                     |           | → Page/Internet |
|             |                                 | 10 ... 16                                                         | 25 ... 32 |                 |
| 1           | Push-on flange FFP              | For piston Ø 25 ... 32 mm                                         | –         | 16              |
| 2           | Push-on flange FFP              | For piston Ø 10 ... 16 mm                                         | –         | 16              |
| 3           | Slot cover ABP-5-S              | To protect the sensor cable and keep dirt out of the sensor slots | –         | 18              |
| 4           | Proximity sensors SME/SMT-8     | Can be integrated in the cylinder profile barrel                  | –         | 18              |
| 5           | Connecting cable, straight NEBU | –                                                                 | –         | 18              |
| 6           | Connecting cable, angled NEBU   | –                                                                 | –         | 18              |
| 7           | Proximity sensors SME/SMT-10    | Can be integrated in the cylinder profile barrel                  | –         | 17              |
| 8           | Proximity sensors SME/SMT-10F   | Can be integrated in the cylinder profile barrel                  | –         | 17              |
| –           | Centring pins/sleeves ZBH       | –                                                                 | –         | 17              |

# Guided cylinders DFP

Type codes

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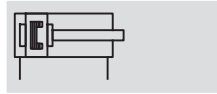
|                      |                                               |     |   |    |   |    |   |     |   |   |  |    |
|----------------------|-----------------------------------------------|-----|---|----|---|----|---|-----|---|---|--|----|
|                      |                                               | DFP | – | 50 | – | 80 | – | PPV | – | A |  | S2 |
| <b>Type</b>          |                                               |     |   |    |   |    |   |     |   |   |  |    |
| Double-acting        |                                               |     |   |    |   |    |   |     |   |   |  |    |
| DFP                  | Guided cylinder                               |     |   |    |   |    |   |     |   |   |  |    |
| <b>Piston Ø [mm]</b> |                                               |     |   |    |   |    |   |     |   |   |  |    |
| <b>Stroke [mm]</b>   |                                               |     |   |    |   |    |   |     |   |   |  |    |
| <b>Cushioning</b>    |                                               |     |   |    |   |    |   |     |   |   |  |    |
| P                    | Flexible cushioning rings/plates at both ends |     |   |    |   |    |   |     |   |   |  |    |
| PPV                  | Pneumatic cushioning adjustable at both ends  |     |   |    |   |    |   |     |   |   |  |    |
| <b>Sensing</b>       |                                               |     |   |    |   |    |   |     |   |   |  |    |
| A                    | For proximity sensing                         |     |   |    |   |    |   |     |   |   |  |    |
| <b>Variant</b>       |                                               |     |   |    |   |    |   |     |   |   |  |    |
| S2                   | Through piston rod                            |     |   |    |   |    |   |     |   |   |  |    |

# Guided cylinders DFP

Technical data

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## Function



- Ø - Diameter  
10 ... 16 mm
- I - Stroke length  
25 ... 100 mm

- T - [www.festo.com](http://www.festo.com)

## Variant

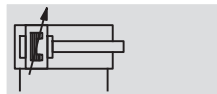


S2



DFP-...-P-A

## Function



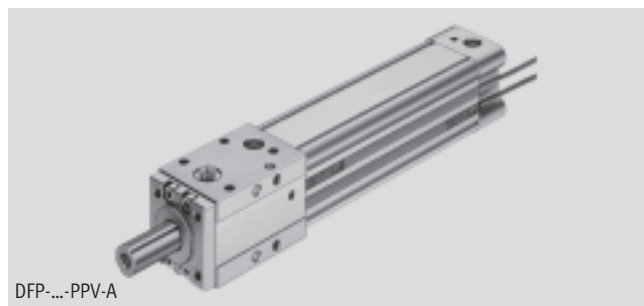
- Ø - Diameter  
25 ... 80 mm
- I - Stroke length  
25 ... 500 mm

- T - [www.festo.com](http://www.festo.com)

## Variant



S2



DFP-...-PPV-A

| General technical data |                                                     |    |                         |      |      |      |
|------------------------|-----------------------------------------------------|----|-------------------------|------|------|------|
| Piston Ø               | 10                                                  | 16 | 25                      | 32   | 50   | 80   |
| Pneumatic connection   | M3                                                  | M5 | G1/8                    | G1/8 | G1/4 | G3/8 |
| Operating medium       | Filtered compressed air, lubricated or unlubricated |    |                         |      |      |      |
| Guide                  | Via ball bearings                                   |    |                         |      |      |      |
| Cushioning             | Flexible cushioning rings/plates at both ends       |    | Adjustable at both ends |      |      |      |
| Cushioning length [mm] | –                                                   | –  | 17                      | 20   | 22   | 32   |
| Position sensing       | For proximity sensing                               |    |                         |      |      |      |
| Type of mounting       | Via female threads                                  |    |                         |      |      |      |
|                        | Using through holes                                 |    |                         |      |      |      |
| Mounting position      | Any                                                 |    |                         |      |      |      |

| Operating and environmental conditions |             |
|----------------------------------------|-------------|
| Operating pressure [bar]               | 0.5 ... 10  |
| Ambient temperature <sup>1)</sup> [°C] | –10 ... +60 |

1) Note operating range of proximity sensors

| Forces [N] and impact energy [Nm]                   |      |      |     |      |       |       |
|-----------------------------------------------------|------|------|-----|------|-------|-------|
| Piston Ø                                            | 10   | 16   | 25  | 32   | 50    | 80    |
| Theoretical force at 6 bar, advancing <sup>1)</sup> | 47   | 121  | 295 | 483  | 1,178 | 3,016 |
| Theoretical force at 6 bar, retracting              | 31   | 91   | 217 | 364  | 884   | 2,262 |
| Max. impact energy at the end positions             | 0.05 | 0.07 | 0.2 | 0.35 | 0.6   | 1.6   |

1) The force in the advance stroke is the same as the force in the return stroke with the variant S2.

# Guided cylinders DFP

Technical data

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| Speed [m/s]                           |     |     |     |     |    |     |  |
|---------------------------------------|-----|-----|-----|-----|----|-----|--|
| Piston Ø                              | 10  | 16  | 25  | 32  | 50 | 80  |  |
| Maximum speed advancing $v_{\max A}$  | 0.8 | 0.8 | 1.5 | 1.5 | 1  | 0.9 |  |
| Maximum speed retracting $v_{\max L}$ | 0.8 | 0.8 | 1.5 | 1.5 | 1  | 0.7 |  |

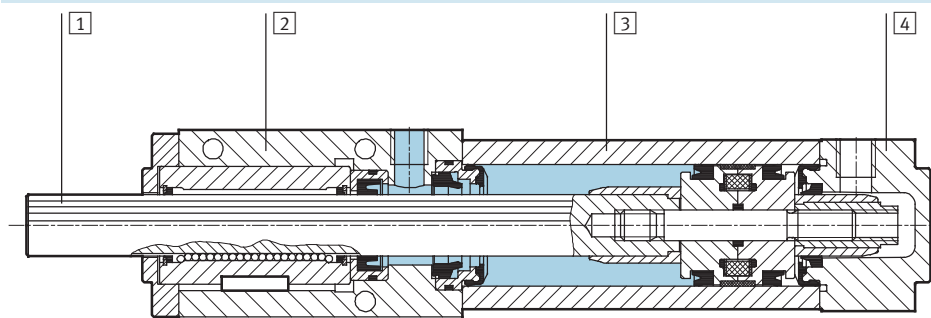
| Max. torque <sup>1)</sup> [Nm]                                                    |         |     |     |     |     |    |     |
|-----------------------------------------------------------------------------------|---------|-----|-----|-----|-----|----|-----|
| Piston Ø                                                                          | 10      | 16  | 25  | 32  | 50  | 80 |     |
|  | dynamic | 0.2 | 0.4 | 1.1 | 5.8 | 19 | 75  |
|                                                                                   | static  | 0.4 | 0.6 | 2.7 | 8.5 | 25 | 100 |

1) Torque at piston rod

| Weights [g] |               |     |               |     |               |       |               |       |               |       |               |        |   |
|-------------|---------------|-----|---------------|-----|---------------|-------|---------------|-------|---------------|-------|---------------|--------|---|
| Stroke [mm] | Piston Ø      |     |               |     |               |       |               |       |               |       |               |        |   |
|             | 10            |     | 16            |     | 25            |       | 32            |       | 50            |       | 80            |        |   |
|             | Basic version | S2  | Basic version | S2  | Basic version | S2    | Basic version | S2    | Basic version | S2    | Basic version | S2     |   |
| 25          | 118           | 124 | 180           | 195 | 590           | 652   | –             | –     | –             | –     | –             | –      | – |
| 50          | 147           | 156 | 218           | 238 | 660           | 737   | 1,180         | 1,297 | 2,960         | 3,351 | 8,077         | 8,814  |   |
| 80          | 173           | 185 | 263           | 290 | 740           | 836   | 1,295         | 1,439 | 3,150         | 3,570 | 8,561         | 9,414  |   |
| 100         | 198           | 212 | 293           | 325 | 794           | 902   | 1,357         | 1,519 | 3,340         | 3,855 | 8,856         | 9,787  |   |
| 160         | –             | –   | –             | –   | 957           | 1,102 | 1,590         | 1,805 | 3,804         | 4,468 | 9,786         | 10,949 |   |
| 200         |               |     |               |     | –             | –     | 1,732         | 1,983 | 4,100         | 4,863 | 10,460        | 11,778 |   |
| 250         |               |     |               |     |               |       | 1,914         | 2,210 | 4,490         | 5,377 | 11,289        | 12,801 |   |
| 320         |               |     |               |     |               |       | –             | –     | 5,030         | 6,091 | 12,436        | 14,220 |   |
| 400         |               |     |               |     |               |       |               |       | 5,610         | 6,869 | 13,750        | 15,844 |   |
| 500         |               |     |               |     |               |       |               |       | –             | –     | 15,442        | 17,924 |   |

## Materials

Sectional view



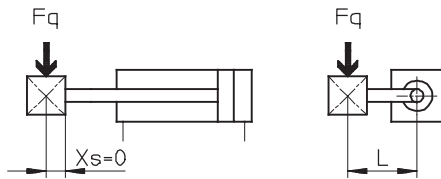
| Guided cylinder                          |                 |
|------------------------------------------|-----------------|
| 1                                        | Piston rod      |
| 2                                        | Bearing end cap |
| 3                                        | Cylinder barrel |
| 4                                        | End cap         |
| –                                        | Seals           |
| Note on material                         |                 |
| Tempered steel                           |                 |
| Aluminium                                |                 |
| Anodised aluminium                       |                 |
| Aluminium                                |                 |
| Polyurethane, polyacetal, nitrile rubber |                 |
| Free of copper, PTFE and silicone        |                 |

# Guided cylinders DFP

Technical data

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## Max. permissible dynamic lateral force $F_q$ at the piston rod



## Calculation of the max. permissible dynamic lateral force $F_q$

$$F_q = \frac{A}{(B + X_s + H) \times K + 1 + C \times L}$$

$F_q$  = Permissible lateral force [N]  
 $A$  = Equivalent bearing load [N]  
 $B$  = Constant [mm]  
 $C$  = Constant [1/mm]  
 $H$  = Stroke [mm]  
 $L$  = Lever arm [mm]  
 $K$  = Constant [1/mm]  
 $X_s$  = Distance from centre of mass [mm]

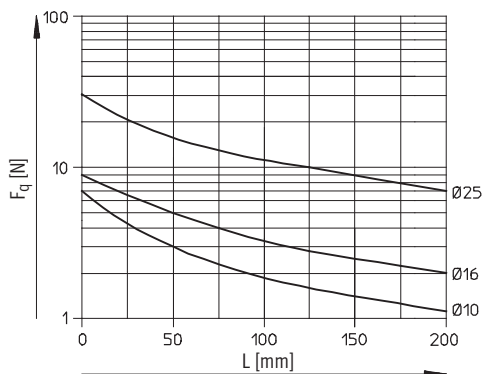
## Calculation parameters

|   | Piston Ø [mm] |      |     |       |       |       |
|---|---------------|------|-----|-------|-------|-------|
|   | 10            | 16   | 25  | 32    | 50    | 80    |
| A | 220           | 274  | 725 | 1,460 | 2,430 | 5,620 |
| B | 37.5          | 37.5 | 48  | 57    | 75.5  | 96    |
| C | 0.84          | 0.51 | 0.4 | 0.22  | 0.14  | 0.09  |
| K | 0.47          | 0.47 | 0.3 | 0.19  | 0.13  | 0.088 |

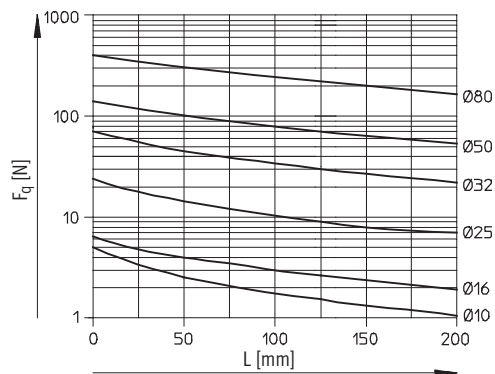
## Max. permissible dynamic lateral force $F_q$ at the piston rod as a function of the lever arm $L$

Distance from the centre of mass  $X_s = 0$  mm

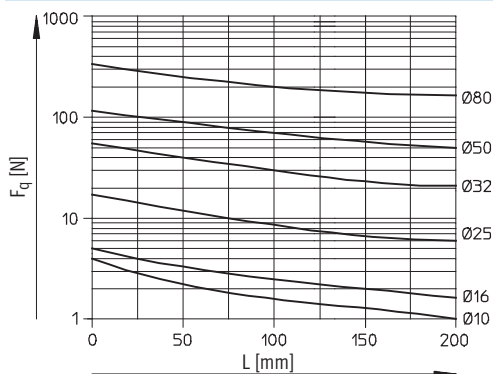
### $F_q$ with 25 mm stroke



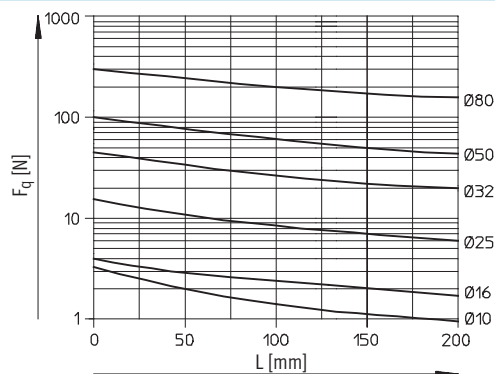
### $F_q$ with 50 mm stroke



### $F_q$ with 80 mm stroke



### $F_q$ with 100 mm stroke



# Guided cylinders DFP

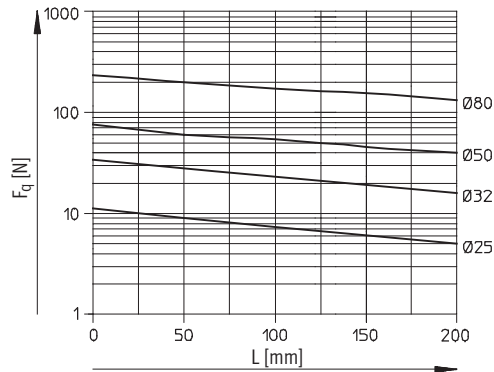
Technical data

FESTO

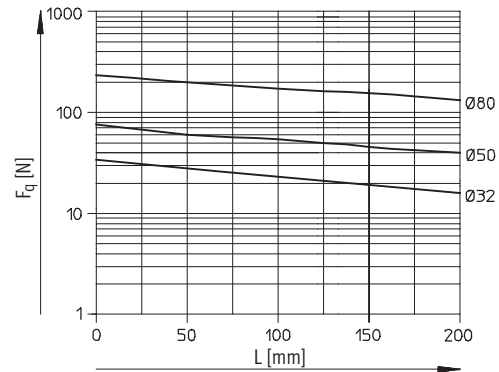
## Max. permissible dynamic lateral force $F_q$ at the piston rod as a function of the lever arm $L$

Distance from the centre of mass  $X_s = 0$  mm

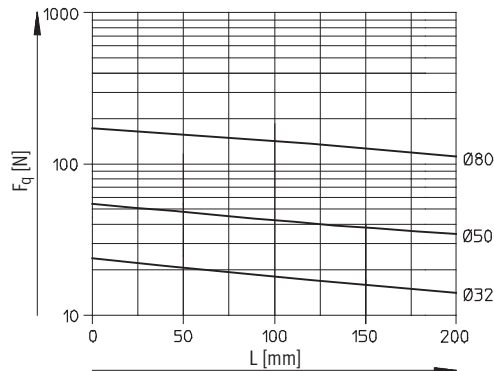
$F_q$  with 160 mm stroke



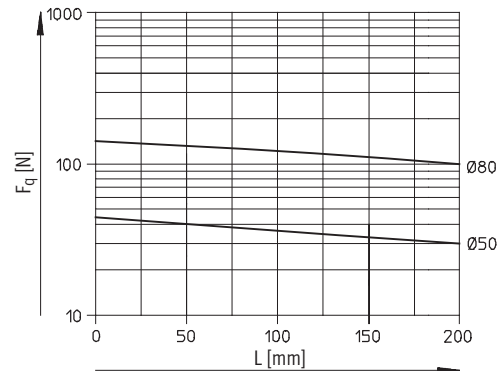
$F_q$  with 200 mm stroke



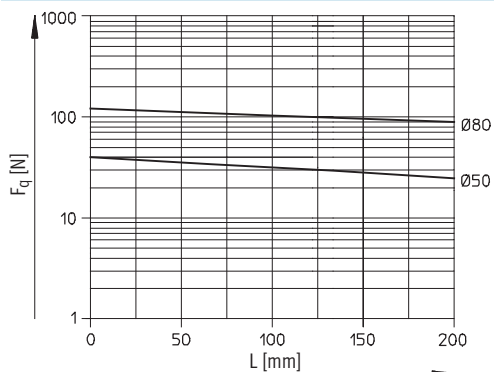
$F_q$  with 250 mm stroke



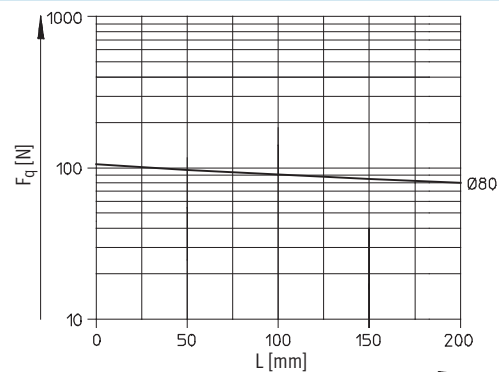
$F_q$  with 320 mm stroke



$F_q$  with 400 mm stroke



$F_q$  with 500 mm stroke

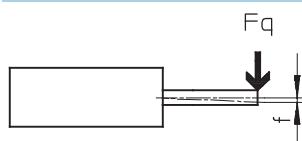


# Guided cylinders DFP

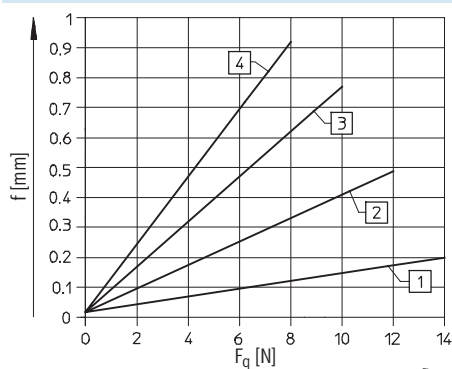
Technical data

FESTO

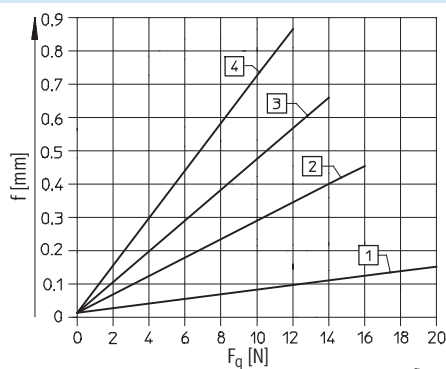
Deflection  $f$  at the piston rod as a function of the lateral force  $F_q$



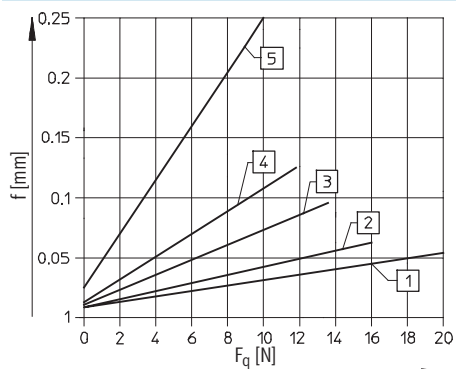
DFP-10



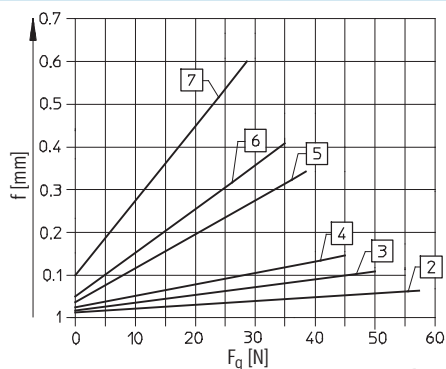
DFP-16



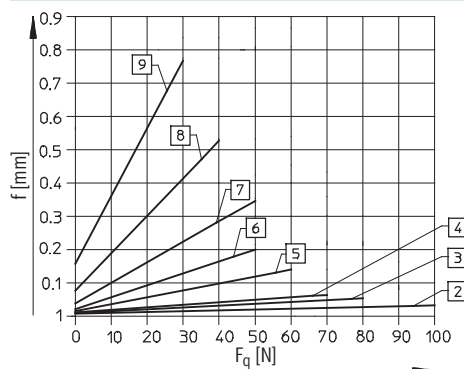
DFP-25



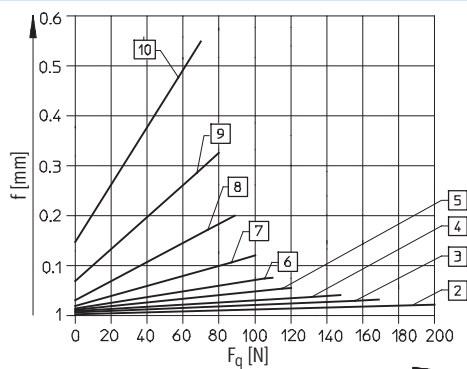
DFP-32



DFP-50



DFP-80



- 1 25 mm stroke
- 2 50 mm stroke
- 3 80 mm stroke

- 4 100 mm stroke
- 5 160 mm stroke
- 6 200 mm stroke

- 7 250 mm stroke
- 8 320 mm stroke

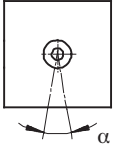
- 9 400 mm stroke
- 10 500 mm stroke

# Guided cylinders DFP

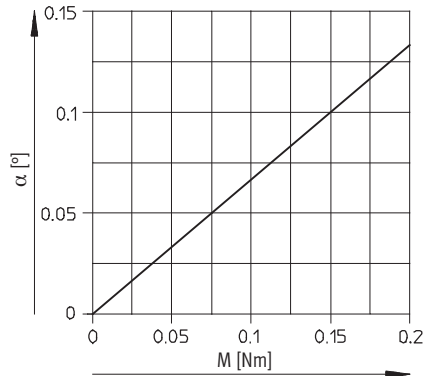
Technical data

FESTO

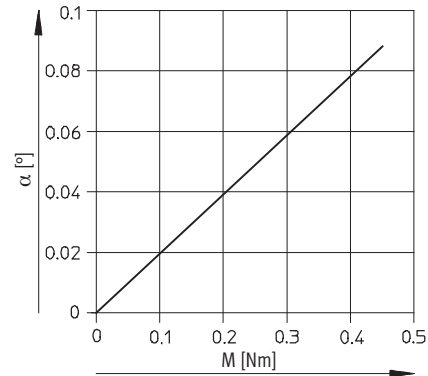
Torsion angle  $\alpha$  of the piston rod as a function of the torque M



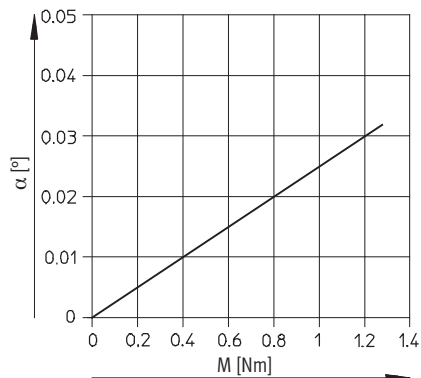
DFP-10



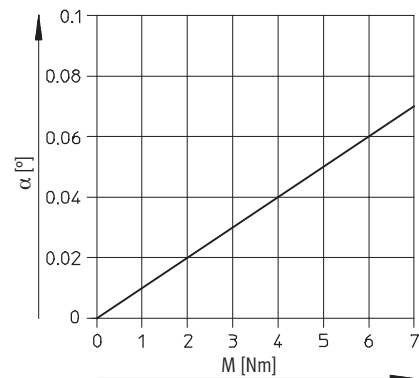
DFP-16



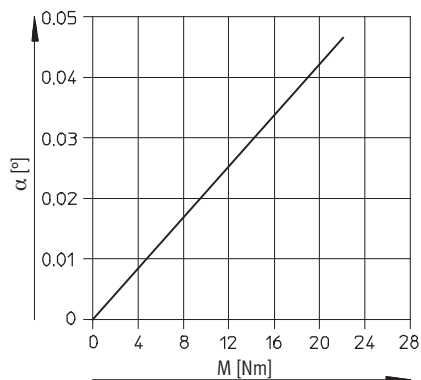
DFP-25



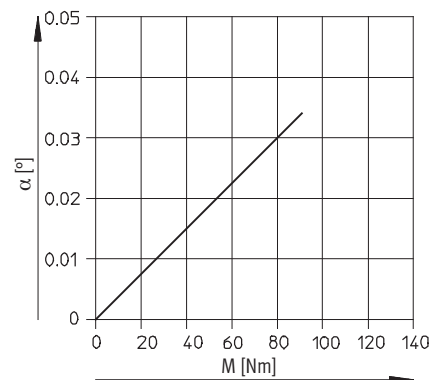
DFP-32



DFP-50



DFP-80



# Guided cylinders DFP

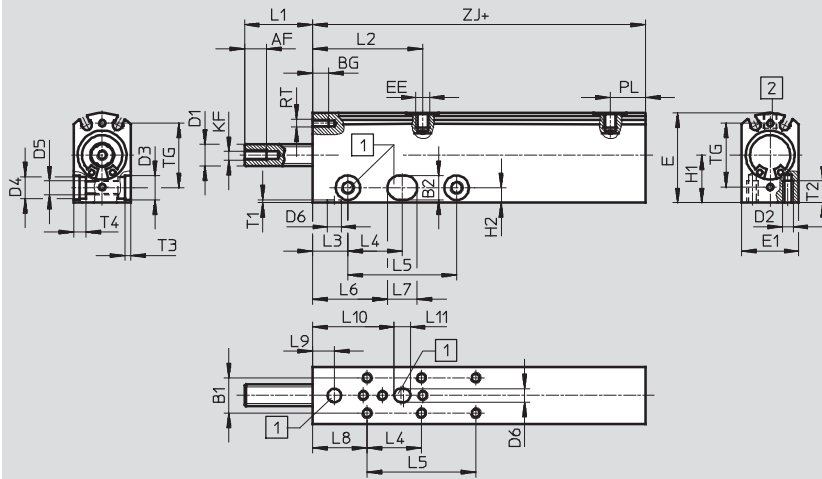
Technical data

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## Dimensions

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

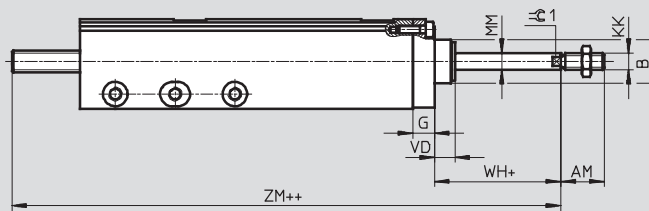
Piston Ø 10...16 mm



- 1 Centring hole for centring sleeves ZBH (accessory)
- 2 Mounting hole pattern (not for S2 variant)

+ = plus stroke length

## Variant S2



+ = plus stroke length

++ = plus 2x stroke length

| Ø    | AF | AM | B<br>Ø | B1 | B2<br>Ø<br>H7 | BG | D1<br>Ø<br>h7 | D2 | D3<br>Ø<br>H7 | D4 | D5 | D6<br>Ø<br>H7 | E  | E1 | EE |
|------|----|----|--------|----|---------------|----|---------------|----|---------------|----|----|---------------|----|----|----|
| [mm] |    |    |        |    |               |    |               |    |               |    |    |               |    |    |    |
| 10   | 8  | 12 | —      | 11 | 7             | 6  | 6             | M3 | 7             | 6  | M4 | 5             | 28 | 17 | M3 |
| 16   | 8  | 16 | 15.9   | 13 | 9             | 6  | 8             | M4 | 9             | 8  | M5 | 5             | 33 | 21 | M5 |

| Ø    | G | H1   | H2  | KF | KK | L1   | L2   | L3   | L4 | L5 <sup>1)</sup> | L6   | L7 | L8  | L9  | L10  |
|------|---|------|-----|----|----|------|------|------|----|------------------|------|----|-----|-----|------|
| [mm] |   |      |     |    |    | min. |      |      |    |                  |      |    |     |     |      |
| 10   | 6 | 14.3 | 4.5 | M4 | M4 | 25   | 38.5 | 12.5 | 25 | 50               | 33   | 9  | 5.5 | 5.5 | 28.5 |
| 16   | 8 | 17.5 | 5.5 | M4 | M6 | 25   | 40.5 | 13   | 20 | 44               | 27.5 | 11 | 20  | 8   | 30   |

| Ø    | L11 | MM<br>Ø | PL | RT   | T1 | T2 | T3  | T4  | TG   | VD  | WH   | ZJ   | ZM    | ≈ 1 |
|------|-----|---------|----|------|----|----|-----|-----|------|-----|------|------|-------|-----|
| [mm] |     |         |    |      |    |    |     |     |      |     |      |      |       |     |
| 10   | 6   | 4       | 12 | M2.5 | 1  | 6  | 1.6 | 3.2 | 21   | —   | 4.8  | 65   | 100.8 | —   |
| 16   | 6   | 6       | 13 | M3   | 1  | 8  | 2.1 | 4.6 | 23.5 | 7.5 | 12.5 | 72.5 | 118   | 5   |

1) With stroke > 80 mm

# Guided cylinders DFP

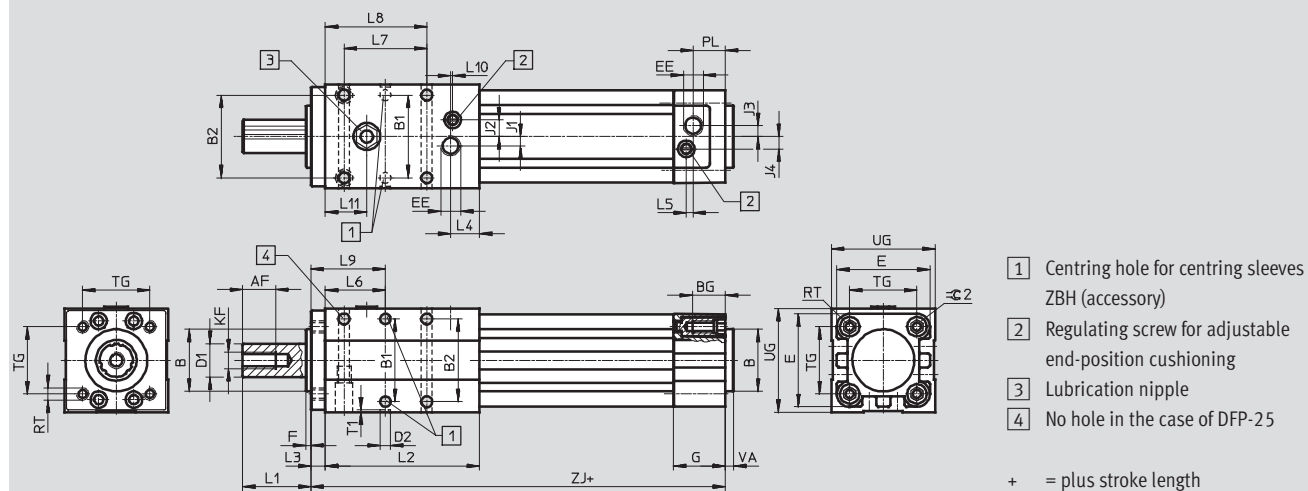
Technical data

**FESTO**

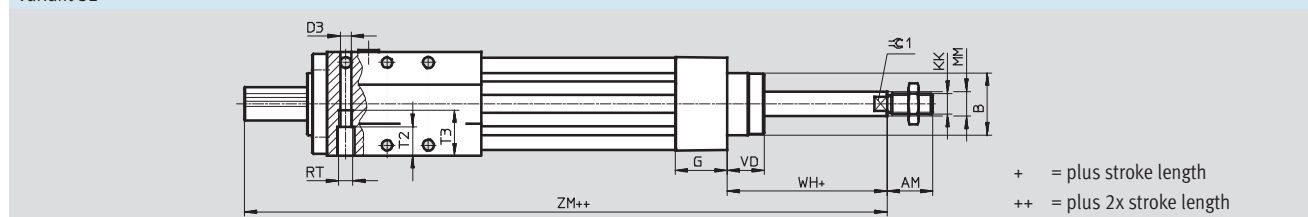
## Dimensions

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

Piston Ø 25 ... 80 mm



## Variant S2



| Ø    | AF   | AM | B        | B1    | B2 | BG | D1      | D2      | D3  | I  | EE              | F   | G    | J1  | J2 |
|------|------|----|----------|-------|----|----|---------|---------|-----|----|-----------------|-----|------|-----|----|
| [mm] |      |    | Ø<br>d11 | ±0.02 |    |    | Ø<br>h7 | Ø<br>H7 | Ø   |    |                 |     |      |     |    |
| 25   | 12.5 | 22 | 25       | 31    | 31 | 14 | 13      | 5       | 4.5 | 38 | G $\frac{1}{8}$ | 2.5 | 22   | 3.6 | 7  |
| 32   | 16   | 22 | 30       | 40    | 40 | 16 | 16      | 5       | 5.3 | 45 | G $\frac{1}{8}$ | 2.5 | 25.1 | 4.5 | 8  |
| 50   | 20   | 32 | 40       | 52    | 52 | 17 | 25      | 9       | 6.6 | 64 | G $\frac{1}{4}$ | 2.5 | 29.6 | 7.5 | 14 |
| 80   | 24   | 40 | 45       | 75    | 75 | 17 | 40      | 9       | 8.4 | 93 | G $\frac{3}{8}$ | 2.5 | 35.9 | 7   | 20 |

| Ø    | J3  | J4   | KF  | KK       | L1 | L2    | L3  | L4   | L5   | L6   | L7 | L8 | L9   | L10 | L11  |
|------|-----|------|-----|----------|----|-------|-----|------|------|------|----|----|------|-----|------|
| [mm] |     |      |     |          |    |       |     |      |      |      |    |    |      |     |      |
| 25   | 3.1 | 6    | M6  | M10x1.25 | 30 | 58    | 6.5 | 11.8 | 4.1  | 22.5 | 31 | 38 | 29   | 2.3 | 12.8 |
| 32   | 5.2 | 6    | M8  | M10x1.25 | 32 | 74.5  | 7   | 14   | 3.3  | 29   | 40 | 49 | 36   | 1   | 20   |
| 50   | 8.5 | 10.4 | M10 | M16x1.5  | 40 | 107.5 | 10  | 18   | 5.1  | 44   | 52 | 70 | 54   | 4.2 | 29   |
| 80   | 8   | 12.5 | M12 | M20x1.5  | 41 | 143   | 14  | 23   | 10.5 | 58.5 | 75 | 96 | 72.5 | 5   | 39.5 |

| Ø    | MM      | PL   | RT  | T1  | T2 | T3 | TG   | UG | VA | VD   | WH   | ZJ    | ZM  | ≈C1 | ≈C2 |
|------|---------|------|-----|-----|----|----|------|----|----|------|------|-------|-----|-----|-----|
| [mm] | Ø<br>f8 |      |     |     |    |    |      |    |    |      |      |       |     |     |     |
| 25   | 10      | 8.5  | M5  | 1   | 11 | 21 | 27   | 40 | 2  | 17.5 | 29.4 | 119.5 | 179 | 9   | 5   |
| 32   | 12      | 15.6 | M6  | 1   | 14 | 22 | 32.5 | 50 | 4  | 18   | 26   | 150.4 | 210 | 10  | 6   |
| 50   | 20      | 14   | M8  | 2.1 | 16 | 32 | 46.5 | 66 | 4  | 28   | 37   | 194   | 273 | 17  | 8   |
| 80   | 25      | 16.4 | M10 | 2.1 | 20 | 40 | 72   | 96 | 4  | 34.7 | 46   | 249   | 338 | 22  | 6   |

# Guided cylinders DFP

Technical data

**FESTO**

| Ordering data – Basic version                                                     |                |          |                    |                |                             |
|-----------------------------------------------------------------------------------|----------------|----------|--------------------|----------------|-----------------------------|
| Design                                                                            | Stroke<br>[mm] | Part No. | Type <sup>1)</sup> | Stroke<br>[mm] | Part No. Type <sup>1)</sup> |
|  | Piston Ø 10 mm |          |                    | Piston Ø 16 mm |                             |
|                                                                                   | 25             | 186 729  | DFP-10-25-P-A      | 25             | 186 733 DFP-16-25-P-A       |
|                                                                                   | 50             | 186 730  | DFP-10-50-P-A      | 50             | 186 734 DFP-16-50-P-A       |
|                                                                                   | 80             | 186 731  | DFP-10-80-P-A      | 80             | 186 735 DFP-16-80-P-A       |
|                                                                                   | 100            | 186 732  | DFP-10-100-P-A     | 100            | 186 736 DFP-16-100-P-A      |
|                                                                                   | Piston Ø 25 mm |          |                    | Piston Ø 32 mm |                             |
|                                                                                   | 25             | 186 737  | DFP-25-25-PPV-A    | 25             | – –                         |
|                                                                                   | 50             | 186 738  | DFP-25-50-PPV-A    | 50             | 186 742 DFP-32-50-PPV-A     |
|                                                                                   | 80             | 186 739  | DFP-25-80-PPV-A    | 80             | 186 743 DFP-32-80-PPV-A     |
|                                                                                   | 100            | 186 740  | DFP-25-100-PPV-A   | 100            | 186 744 DFP-32-100-PPV-A    |
|                                                                                   | 160            | 186 741  | DFP-25-160-PPV-A   | 160            | 186 745 DFP-32-160-PPV-A    |
|                                                                                   | 200            | –        | –                  | 200            | 186 746 DFP-32-200-PPV-A    |
|                                                                                   | 250            |          |                    | 250            | 186 747 DFP-32-250-PPV-A    |
|                                                                                   | Piston Ø 50 mm |          |                    | Piston Ø 80 mm |                             |
|                                                                                   | 50             | 186 748  | DFP-50-50-PPV-A    | 50             | 186 756 DFP-80-50-PPV-A     |
|                                                                                   | 80             | 186 749  | DFP-50-80-PPV-A    | 80             | 186 757 DFP-80-80-PPV-A     |
|                                                                                   | 100            | 186 750  | DFP-50-100-PPV-A   | 100            | 186 758 DFP-80-100-PPV-A    |
|                                                                                   | 160            | 186 751  | DFP-50-160-PPV-A   | 160            | 186 759 DFP-80-160-PPV-A    |
|                                                                                   | 200            | 186 752  | DFP-50-200-PPV-A   | 200            | 186 760 DFP-80-200-PPV-A    |
|                                                                                   | 250            | 186 753  | DFP-50-250-PPV-A   | 250            | 186 761 DFP-80-250-PPV-A    |
|                                                                                   | 320            | 186 754  | DFP-50-320-PPV-A   | 320            | 186 762 DFP-80-320-PPV-A    |
|                                                                                   | 400            | 186 755  | DFP-50-400-PPV-A   | 400            | 186 763 DFP-80-400-PPV-A    |
|                                                                                   | 500            | –        | –                  | 500            | 186 764 DFP-80-500-PPV-A    |

1) In each case the scope of delivery includes 2 of the centring sleeves listed as accessories. Centring sleeves are supplied to repeat order in packs of 10. Proximity sensors and mounting screws are not included in the scope of delivery for guided cylinders.

# Guided cylinders DFP

Technical data

**FESTO**

| Ordering data – Variants                                                          |                |          |                      |                |                               |
|-----------------------------------------------------------------------------------|----------------|----------|----------------------|----------------|-------------------------------|
| Design                                                                            | Stroke<br>[mm] | Part No. | Type <sup>1)2)</sup> | Stroke<br>[mm] | Part No. Type <sup>1)2)</sup> |
| S2 – Through piston rod                                                           |                |          |                      |                |                               |
|  | Piston Ø 10 mm |          |                      | Piston Ø 16 mm |                               |
|                                                                                   | 25             | 186 765  | DFP-10-25-P-A-S2     | 25             | 186 769 DFP-16-25-P-A-S2      |
|                                                                                   | 50             | 186 766  | DFP-10-50-P-A-S2     | 50             | 186 770 DFP-16-50-P-A-S2      |
|                                                                                   | 80             | 186 767  | DFP-10-80-P-A-S2     | 80             | 186 771 DFP-16-80-P-A-S2      |
|                                                                                   | 100            | 186 768  | DFP-10-100-P-A-S2    | 100            | 186 772 DFP-16-100-P-A-S2     |
|                                                                                   | Piston Ø 25 mm |          |                      | Piston Ø 32 mm |                               |
|                                                                                   | 25             | 186 773  | DFP-25-25-PPV-A-S2   | 25             | – –                           |
|                                                                                   | 50             | 186 774  | DFP-25-50-PPV-A-S2   | 50             | 186 778 DFP-32-50-PPV-A-S2    |
|                                                                                   | 80             | 186 775  | DFP-25-80-PPV-A-S2   | 80             | 186 779 DFP-32-80-PPV-A-S2    |
|                                                                                   | 100            | 186 776  | DFP-25-100-PPV-A-S2  | 100            | 186 780 DFP-32-100-PPV-A-S2   |
|                                                                                   | 160            | 186 777  | DFP-25-160-PPV-A-S2  | 160            | 186 781 DFP-32-160-PPV-A-S2   |
|                                                                                   | 200            | –        | –                    | 200            | 186 782 DFP-32-200-PPV-A-S2   |
|                                                                                   | 250            | –        | –                    | 250            | 186 783 DFP-32-250-PPV-A-S2   |
|                                                                                   | Piston Ø 50 mm |          |                      | Piston Ø 80 mm |                               |
|                                                                                   | 50             | 186 784  | DFP-50-50-PPV-A-S2   | 50             | 186 792 DFP-80-50-PPV-A-S2    |
|                                                                                   | 80             | 186 785  | DFP-50-80-PPV-A-S2   | 80             | 186 793 DFP-80-80-PPV-A-S2    |
|                                                                                   | 100            | 186 786  | DFP-50-100-PPV-A-S2  | 100            | 186 794 DFP-80-100-PPV-A-S2   |
|                                                                                   | 160            | 186 787  | DFP-50-160-PPV-A-S2  | 160            | 186 795 DFP-80-160-PPV-A-S2   |
|                                                                                   | 200            | 186 788  | DFP-50-200-PPV-A-S2  | 200            | 186 796 DFP-80-200-PPV-A-S2   |
|                                                                                   | 250            | 186 789  | DFP-50-250-PPV-A-S2  | 250            | 186 797 DFP-80-250-PPV-A-S2   |
|                                                                                   | 320            | 186 790  | DFP-50-320-PPV-A-S2  | 320            | 186 798 DFP-80-320-PPV-A-S2   |
|                                                                                   | 400            | 186 791  | DFP-50-400-PPV-A-S2  | 400            | 186 799 DFP-80-400-PPV-A-S2   |
|                                                                                   | 500            | –        | –                    | 500            | 186 800 DFP-80-500-PPV-A-S2   |

- 1) In each case the scope of delivery includes 2 of the centring sleeves listed as accessories. Centring sleeves are supplied to repeat order in packs of 10. Proximity sensors and mounting screws are not included in the scope of delivery for guided cylinders.
- 2) The scope of delivery also includes a hex nut for the piston rod thread.

# Guided cylinders DFP

Accessories

FESTO

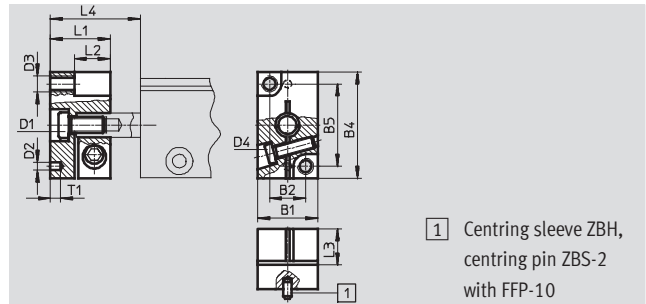
## Push-on flange FFP

for piston  $\varnothing$  10 ... 16 mm

Material:

Wrought aluminium alloy

Free of copper, PTFE and silicone



### Dimensions and ordering data

| For $\varnothing$ | B1 | B2         | B4 | B5 | D1 | D2<br>$\varnothing$<br>H7 | D3 | D4 | L1 | L2   | L3 | L4   | T1     | CRC <sup>1)</sup> | Part No. | Type   |
|-------------------|----|------------|----|----|----|---------------------------|----|----|----|------|----|------|--------|-------------------|----------|--------|
| [mm]              |    | $\pm 0.02$ |    |    |    |                           |    |    |    |      |    |      | $+0.2$ |                   |          |        |
| 10                | 15 | 9          | 26 | 20 | M4 | 2                         | M4 | M3 | 15 | 8.5  | 9  | 31.5 | 2.5    | 2                 | 186 801  | FFP-10 |
| 16                | 19 | 12         | 33 | 26 | M4 | 5                         | M4 | M4 | 17 | 10.5 | 11 | 31.5 | 1      | 2                 | 186 802  | FFP-16 |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents

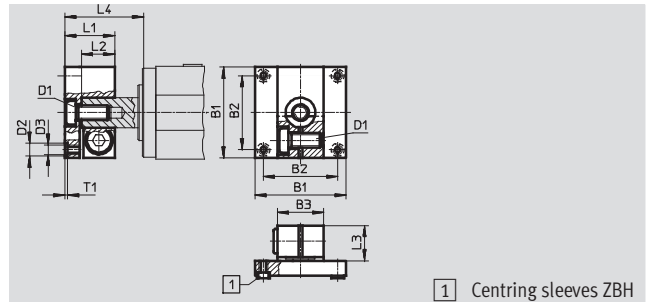
## Push-on flange FFP

for piston  $\varnothing$  25 ... 80 mm

Material:

Wrought aluminium alloy

Free of copper, PTFE and silicone



### Dimensions and ordering data

| For $\varnothing$ | B1 | B2         | B3 | D1  | D2<br>$\varnothing$<br>H7 | D3 | L1 | L2 | L3 | L4 | T1     | CRC <sup>1)</sup> | Part No. | Type   |
|-------------------|----|------------|----|-----|---------------------------|----|----|----|----|----|--------|-------------------|----------|--------|
| [mm]              |    | $\pm 0.02$ |    |     |                           |    |    |    |    |    | $+0.2$ |                   |          |        |
| 25                | 38 | 30         | 22 | M6  | 7                         | M5 | 27 | 18 | 19 | 39 | 1.6    | 2                 | 186 803  | FFP-25 |
| 32                | 49 | 40         | 25 | M8  | 7                         | M5 | 27 | 18 | 19 | 41 | 1.6    | 2                 | 186 804  | FFP-32 |
| 50                | 64 | 50         | 36 | M10 | 9                         | M6 | 35 | 23 | 25 | 52 | 2.1    | 2                 | 186 805  | FFP-50 |
| 80                | 94 | 70         | 54 | M12 | 12                        | M8 | 40 | 25 | 27 | 56 | 2.6    | 2                 | 186 806  | FFP-80 |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents

# Guided cylinders DFP

Accessories

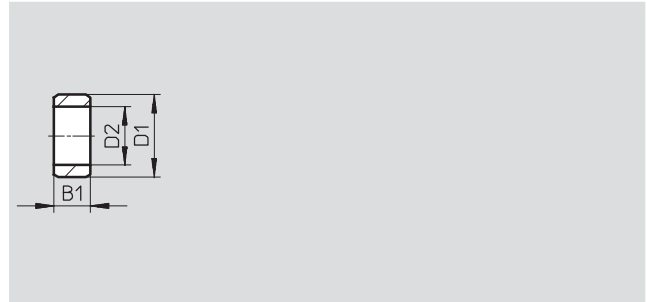
**FESTO**

## Centring sleeves ZBH

Material:

Steel, corrosion resistant

Free of copper, PTFE and silicone



| Dimensions and ordering data |      |     |                   |        |                |              |                  |
|------------------------------|------|-----|-------------------|--------|----------------|--------------|------------------|
| D1                           | B1   | D2  | CRC <sup>1)</sup> | Weight | Part No.       | Type         | PU <sup>2)</sup> |
| Ø                            |      | Ø   |                   | [g]    |                |              |                  |
| h7                           | -0.2 |     |                   |        |                |              |                  |
| 5                            | 2.4  | 3.2 | 2                 | 1      | <b>189 652</b> | <b>ZBH-5</b> | 10               |
| 7                            | 3    | 5.3 | 2                 | 1      | <b>186 717</b> | <b>ZBH-7</b> | 10               |
| 9                            | 4    | 6.4 | 2                 | 1      | <b>150 927</b> | <b>ZBH-9</b> | 10               |

1) Corrosion resistance class 2 according to Festo standard 940 070

Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents

2) Packaging unit quantity

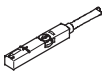
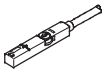
| Ordering data – Proximity sensors for C-slot, magneto-resistive |                                                                |               |                                             |                  |                | Technical data → Internet: smt  |  |
|-----------------------------------------------------------------|----------------------------------------------------------------|---------------|---------------------------------------------|------------------|----------------|---------------------------------|--|
|                                                                 | Type of mounting                                               | Switch output | Electrical connection, connection direction | Cable length [m] | Part No.       | Type                            |  |
| N/O contact                                                     |                                                                |               |                                             |                  |                |                                 |  |
|                                                                 | Insertable in the slot from above, flush with cylinder profile | PNP           | Cable, 3-wire, in-line                      | 2.5              | <b>525 915</b> | <b>SMT-10F-PS-24V-K2,5L-OE</b>  |  |
|                                                                 |                                                                |               | Plug M8x1, 3-pin, in-line                   | 0.3              | <b>525 916</b> | <b>SMT-10F-PS-24V-K0,3L-M8D</b> |  |
|                                                                 |                                                                |               | Plug M8x1, 3-pin, lateral                   | 0.3              | <b>526 675</b> | <b>SMT-10F-PS-24V-K0,3Q-M8D</b> |  |
|                                                                 | Insertable in the slot lengthwise                              | PNP           | Plug M8x1, 3-pin, in-line                   | 0.3              | <b>173 220</b> | <b>SMT-10-PS-SL-LED-24</b>      |  |
|                                                                 |                                                                |               | Cable, 3-wire, in-line                      | 2.5              | <b>173 218</b> | <b>SMT-10-PS-KL-LED-24</b>      |  |

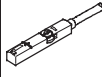
| Ordering data – Proximity sensors for C-slot, magnetic reed |                                                                |               |                                             |                  |                | Technical data → Internet: sme  |  |
|-------------------------------------------------------------|----------------------------------------------------------------|---------------|---------------------------------------------|------------------|----------------|---------------------------------|--|
|                                                             | Type of mounting                                               | Switch output | Electrical connection, connection direction | Cable length [m] | Part No.       | Type                            |  |
| N/O contact                                                 |                                                                |               |                                             |                  |                |                                 |  |
|                                                             | Insertable in the slot from above, flush with cylinder profile | Contacting    | Plug M8x1, 3-pin, in-line                   | 0.3              | <b>525 914</b> | <b>SME-10F-DS-24V-K0,3L-M8D</b> |  |
|                                                             |                                                                |               | Cable, 3-wire, in-line                      | 2.5              | <b>525 913</b> | <b>SME-10F-DS-24V-K2,5L-OE</b>  |  |
|                                                             |                                                                |               | Cable, 2-wire, in-line                      | 2.5              | <b>526 672</b> | <b>SME-10F-ZS-24V-K2,5L-OE</b>  |  |
|                                                             | Insertable in the slot lengthwise                              | Contacting    | Plug M8x1, 3-pin, in-line                   | 0.3              | <b>173 212</b> | <b>SME-10-SL-LED-24</b>         |  |
|                                                             |                                                                |               | Cable, 3-wire, in-line                      | 2.5              | <b>173 210</b> | <b>SME-10-KL-LED-24</b>         |  |

## Guided cylinders DFP

Accessories

**FESTO**

| Ordering data – Proximity sensors for T-slot, magneto-resistive                   |                                                                    |               |                       |                  | Technical data → Internet: smt |                         |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------|-----------------------|------------------|--------------------------------|-------------------------|
|                                                                                   | Type of mounting                                                   | Switch output | Electrical connection | Cable length [m] | Part No.                       | Type                    |
| N/O contact                                                                       |                                                                    |               |                       |                  |                                |                         |
|  | Insertable in the slot from above, flush with cylinder profile     | PNP           | Cable, 3-wire         | 2.5              | 543 867                        | SMT-8M-PS-24V-K-2,5-OE  |
|                                                                                   |                                                                    |               | Plug M8x1, 3-pin      | 0.3              | 543 866                        | SMT-8M-PS-24V-K-0,3-M8D |
|                                                                                   |                                                                    |               | Plug M12x1, 3-pin     | 0.3              | 543 869                        | SMT-8M-PS-24V-K-0,3-M12 |
|  | Insertable in the slot lengthwise, flush with the cylinder profile | PNP           | Cable, 3-wire         | 2.5              | 543 870                        | SMT-8M-NS-24V-K-2,5-OE  |
|                                                                                   |                                                                    |               | Plug M8x1, 3-pin      | 0.3              | 543 871                        | SMT-8M-NS-24V-K-0,3-M8D |
|                                                                                   |                                                                    |               | Cable, 3-wire         | 2.5              | 175 436                        | SMT-8-PS-K-LED-24-B     |
|                                                                                   |                                                                    |               | Plug M8x1, 3-pin      | 0.3              | 175 484                        | SMT-8-PS-S-LED-24-B     |
| N/C contact                                                                       |                                                                    |               |                       |                  |                                |                         |
|  | Insertable in the slot from above, flush with cylinder profile     | PNP           | Cable, 3-wire         | 7.5              | 543 873                        | SMT-8M-PO-24V-K7,5-OE   |

| Ordering data – Proximity sensors for T-slot, magnetic reed                         |                                                                    |               |                       |                  | Technical data → Internet: sme |                         |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------|-----------------------|------------------|--------------------------------|-------------------------|
|                                                                                     | Type of mounting                                                   | Switch output | Electrical connection | Cable length [m] | Part No.                       | Type                    |
| N/O contact                                                                         |                                                                    |               |                       |                  |                                |                         |
|  | Insertable in the slot from above, flush with cylinder profile     | Contacting    | Cable, 3-wire         | 2.5              | 543 862                        | SME-8M-DS-24V-K-2,5-OE  |
|                                                                                     |                                                                    |               |                       | 5.0              | 543 863                        | SME-8M-DS-24V-K-5,0-OE  |
|                                                                                     |                                                                    |               | Cable, 3-wire         | 2.5              | 543 872                        | SME-8M-ZS-24V-K-2,5-OE  |
|                                                                                     |                                                                    |               | Plug M8x1, 3-pin      | 0.3              | 543 861                        | SME-8M-DS-24V-K-0,3-M8D |
|  | Insertable in the slot lengthwise, flush with the cylinder profile | Contacting    | Cable, 3-wire         | 2.5              | 150 855                        | SME-8-K-LED-24          |
|                                                                                     |                                                                    |               | Plug M8x1, 3-pin      | 0.3              | 150 857                        | SME-8-S-LED-24          |
|                                                                                     |                                                                    |               |                       |                  |                                |                         |
| N/C contact                                                                         |                                                                    |               |                       |                  |                                |                         |
|  | Insertable in the slot lengthwise, flush with the cylinder profile | Contacting    | Cable, 3-wire         | 7.5              | 160 251                        | SME-8-O-K-LED-24        |

| Ordering data – Connecting cables                                                   |                               |                              |                  | Technical data → Internet: nebu |                      |
|-------------------------------------------------------------------------------------|-------------------------------|------------------------------|------------------|---------------------------------|----------------------|
|                                                                                     | Electrical connection, left   | Electrical connection, right | Cable length [m] | Part No.                        | Type                 |
|  | Straight socket, M8x1, 3-pin  | Cable, open end, 3-wire      | 2,5              | 541 333                         | NEBU-M8G3-K-2,5-LE3  |
|                                                                                     |                               |                              | 5                | 541 334                         | NEBU-M8G3-K-5-LE3    |
|                                                                                     | Straight socket, M12x1, 5-pin | Cable, open end, 3-wire      | 2,5              | 541 363                         | NEBU-M12G5-K-2,5-LE3 |
|                                                                                     |                               |                              | 5                | 541 364                         | NEBU-M12G5-K-5-LE3   |
|  | Angled socket, M8x1, 3-pin    | Cable, open end, 3-wire      | 2,5              | 541 338                         | NEBU-M8W3-K-2,5-LE3  |
|                                                                                     |                               |                              | 5                | 541 341                         | NEBU-M8W3-K-5-LE3    |
|                                                                                     | Angled socket, M12x1, 5-pin   | Cable, open end, 3-wire      | 2,5              | 541 367                         | NEBU-M12W5-K-2,5-LE3 |
|                                                                                     |                               |                              | 5                | 541 370                         | NEBU-M12W5-K-5-LE3   |

| Ordering data – Slot cover for T-slot                                               |                       |          |  |          |         |
|-------------------------------------------------------------------------------------|-----------------------|----------|--|----------|---------|
|                                                                                     | Mounting              | Length   |  | Part No. | Type    |
|  | Insertable from above | 2x 0.5 m |  | 151 680  | ABP-5-S |

## Product Range and Company Overview

### A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



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Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



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