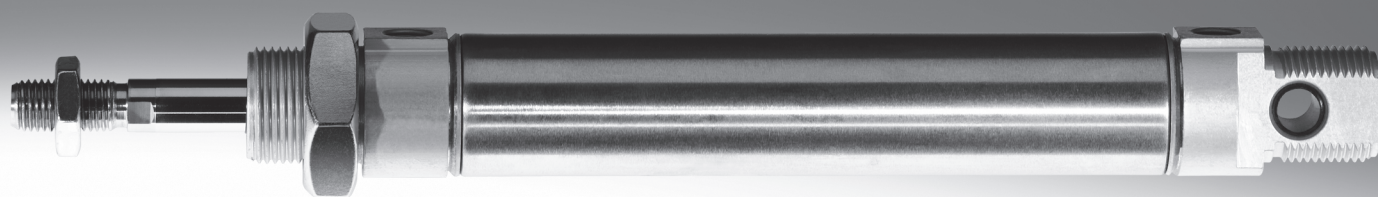


Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

**FESTO**



# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Key features

## At a glance



ISO 6432  
DIN ISO 6432



- Round cylinders with piston diameters from 8 to 25 mm conform to ISO 6432, DIN ISO 6432. Variants are based on these standards
- The series is not repairable
- Stainless steel piston rod
- The cap is roller burnished onto the barrel

## Wide choice of variants

### DSNU-...

- Cylinder barrel made of stainless steel
- Bearing and end caps made of wrought aluminium alloy



### DSNUP-...

- Cylinder barrel made of wrought aluminium alloy
- Bearing and end caps made of polyamide
- Cost optimised



### DSNU/ESNU-...MA

- Threaded bearing cap
- Short end cap with axial supply port



### DSNU-...MQ

- Threaded bearing cap
- Short end cap with lateral supply port



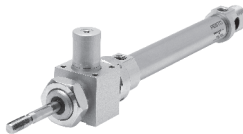
### DSNU-...MH

- Direct mounting on bearing cap
- Short end cap with lateral supply port



### DSNU-...KP

- With clamping unit



### DSNU-...Q

- With square piston rod



## Cushioning types

### Cushioning P

#### Mode of operation

- The drive is fitted with flexible polymer end position cushioning

#### Application

- Small loads
- Low speeds
- Low impact energy

#### Advantages

- No adjustment required
- Time-saving

### Cushioning PPS

- The drive is fitted with self-adjusting end position cushioning

- Small to medium loads
- Low to medium speeds
- Medium impact energy

- No adjustment required
- Time-saving
- Powerful

### Cushioning PPV

- The drive is fitted with adjustable end position cushioning

- Medium to large loads
- High speeds
- High impact energy

- Very powerful

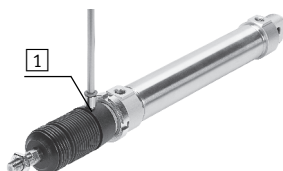
## Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Key features

| Additional variants                                                                 |                                                          |                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Symbol                                                                              | Key features                                             | Description                                                                                                                                                                                       |
|    | S2 Through piston rod                                    | For working at both ends with the same force in the advance and return stroke, for attaching external stops                                                                                       |
|    | S6 Heat resistant seals                                  | Temperature resistance up to max. 120 °C                                                                                                                                                          |
|    | S10 Constant (slow speed) operation at low piston speeds | Suitable for slow stroke movements at a constant, stick-slip-free speed over the full stroke of the cylinder.<br>Seal contains silicone grease (not free of paint-wetting impairment substances)  |
|    | S11 Low friction                                         | The special seals considerably reduce system wear. This corresponds to a considerably lower response pressure.<br>Seal contains silicone grease (not free of paint-wetting impairment substances) |
|    | K2 Extended male piston rod thread                       | –                                                                                                                                                                                                 |
|    | K3 Female piston rod thread                              | –                                                                                                                                                                                                 |
|    | K5 Special thread on piston rod                          | Metric standard thread to ISO                                                                                                                                                                     |
|    | K6 Shortened male piston rod thread                      | –                                                                                                                                                                                                 |
|   | K8 Extended piston rod                                   | –                                                                                                                                                                                                 |
|  | R3 High corrosion protection                             | All external cylinder surfaces comply with corrosion resistance class 3 to Festo standard 940 070. The piston rod is made from corrosion and acid resistant steel                                 |

### Longer service life with bellows kit DADB



The bellows kit is a leak-free system. To prevent unwanted media from being drawn in, the supply and exhaust air of the kit must be ducted via a venting hole in the connection section **1**.

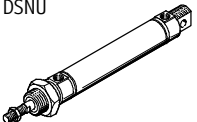
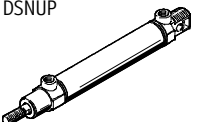
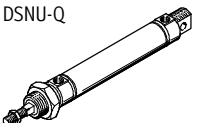
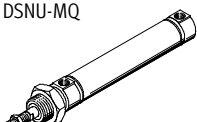
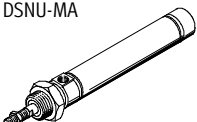
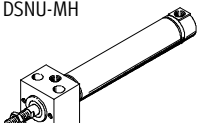
The kit protects the piston rod, seal and bearing against a wide variety of media, for example:

- dust
- chippings
- oil
- grease
- fuel

# Standard cylinders DSNU/DSNUP/DSN, ISO 6432

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Product range overview

| Function                                                                            | Version                                                                             | Piston Ø | Stroke                                      | Variable stroke <sup>1)</sup> | Piston rod |          |             |           |                | Female thread |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|---------------------------------------------|-------------------------------|------------|----------|-------------|-----------|----------------|---------------|
|                                                                                     |                                                                                     |          |                                             |                               | Through    | Extended | Male thread |           |                |               |
|                                                                                     |                                                                                     |          |                                             |                               |            |          | Extended    | Shortened | Special thread |               |
|                                                                                     |                                                                                     | [mm]     | [mm]                                        | [mm]                          | S2         | K8       | K2          | K6        | K5             | K3            |
| Double-acting                                                                       | Basic version with position sensing (cylinder barrel made of stainless steel)       |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     |    | 8, 10    | 10, 15, 20, 25,                             | 1 ... 100                     | ■          | ■        | ■           | ■         | ■              | ■             |
|                                                                                     |                                                                                     | 12, 16   | 30, 35, 40, 50,                             | 1 ... 200                     |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 20       | 60, 70, 80, 100,                            | 1 ... 320                     |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 25       | 125, 150, 160, 200, 250, 300, 320, 400, 500 | 1 ... 500                     |            |          |             |           |                |               |
|                                                                                     | DSNU – Round cylinder with piston Ø 32 ... 63                                       |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     | Basic version with or without position sensing (cylinder barrel made of aluminium)  |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     |    | 16       | 25, 50, 100                                 | 2)                            | –          | –        | –           | –         | –              | –             |
|                                                                                     |                                                                                     | 20       |                                             |                               |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 25       |                                             |                               |            |          |             |           |                |               |
|                                                                                     | Protected against rotation                                                          |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     |  | 12, 16   | –                                           | 5 ... 160                     | ■          | ■        | ■           | ■         | ■              | ■             |
|                                                                                     |                                                                                     | 20       | –                                           | 5 ... 200                     |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 25       | –                                           | 5 ... 250                     |            |          |             |           |                |               |
|                                                                                     | DSNU-Q – Round cylinder with piston Ø 32 ... 63                                     |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     | Lateral air connection                                                              |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     |  | 8, 10    | –                                           | 1 ... 100                     | –          | ■        | ■           | ■         | ■              | ■             |
|                                                                                     |                                                                                     | 12, 16   | –                                           | 1 ... 200                     |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 20       | –                                           | 1 ... 320                     |            |          |             |           |                |               |
|                                                                                     |                                                                                     | 25       | –                                           | 1 ... 500                     |            |          |             |           |                |               |
|                                                                                     | DSNU-MQ – Round cylinder with piston Ø 32 ... 63                                    |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     | Axial air connection                                                                |          |                                             |                               |            |          |             |           |                |               |
|                                                                                     |  | 8, 10    | –                                           | 1 ... 100                     | –          | ■        | ■           | ■         | ■              | ■             |
| 12, 16                                                                              |                                                                                     | –        | 1 ... 200                                   |                               |            |          |             |           |                |               |
| 20                                                                                  |                                                                                     | –        | 1 ... 320                                   |                               |            |          |             |           |                |               |
| 25                                                                                  |                                                                                     | –        | 1 ... 500                                   |                               |            |          |             |           |                |               |
| DSNU-MA – Round cylinder with piston Ø 32 ... 63                                    |                                                                                     |          |                                             |                               |            |          |             |           |                |               |
| Direct mounting                                                                     |                                                                                     |          |                                             |                               |            |          |             |           |                |               |
|  | 8, 10                                                                               | –        | 1 ... 100                                   | –                             | ■          | ■        | ■           | ■         | ■              |               |
|                                                                                     | 12, 16                                                                              | –        | 1 ... 200                                   |                               |            |          |             |           |                |               |
|                                                                                     | 20                                                                                  | –        | 1 ... 320                                   |                               |            |          |             |           |                |               |
|                                                                                     | 25                                                                                  | –        | 1 ... 500                                   |                               |            |          |             |           |                |               |
| DSNU-MH – Round cylinder with piston Ø 32 ... 63                                    |                                                                                     |          |                                             |                               |            |          |             |           |                |               |

1) Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing

2) Variable stroke on request

# Standard cylinders DSNU/DSNUP/DSN, ISO 6432

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Product range overview

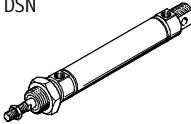
| Version                                                                                   | Cushioning |                                                   |                                         | Position sensing | Clamping unit | Heat-resistant seal | Slow speed (constant motion operation) | Low friction | Corrosion protection | → Page/ Internet |
|-------------------------------------------------------------------------------------------|------------|---------------------------------------------------|-----------------------------------------|------------------|---------------|---------------------|----------------------------------------|--------------|----------------------|------------------|
|                                                                                           | Fixed      | Adjustable<br>Ø 16 and above<br>PPV <sup>3)</sup> | Self-adjusting<br>Ø 16 and above<br>PPS |                  |               |                     |                                        |              |                      |                  |
|                                                                                           | P          |                                                   |                                         | A                | KP            | S6                  | S10                                    | S11          | R3                   |                  |
| <b>Basic version with position sensing (cylinder barrel made of stainless steel)</b>      |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNU                                                                                      | ■          | ■                                                 | ■                                       | ■                | ■             | ■                   | ■                                      | ■            | ■                    | 12               |
| DSNU – Round cylinder with piston Ø 32 ... 63                                             |            |                                                   |                                         |                  |               |                     |                                        |              |                      | dsnu             |
| <b>Basic version with or without position sensing (cylinder barrel made of aluminium)</b> |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNUP                                                                                     | ■          | –                                                 | –                                       | ■                | –             | –                   | –                                      | –            | –                    | 23               |
| <b>Protected against rotation</b>                                                         |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNU-Q                                                                                    | ■<br>Ø 12  | ■<br>Ø 16 ... 25                                  | –                                       | ■                | ■             | –                   | –                                      | –            | ■<br>Ø 12 ... 25     | 26               |
| DSNU-Q – Round cylinder with piston Ø 32 ... 63                                           |            |                                                   |                                         |                  |               |                     |                                        |              |                      | dsnu             |
| <b>Lateral air connection</b>                                                             |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNU-MQ                                                                                   | ■          | ■                                                 | ■                                       | ■                | ■             | ■                   | –                                      | –            | ■                    | 12               |
| DSNU-MQ – Round cylinder with piston Ø 32 ... 63                                          |            |                                                   |                                         |                  |               |                     |                                        |              |                      | dsnu             |
| <b>Axial air connection</b>                                                               |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNU-MA                                                                                   | ■          | –                                                 | –                                       | ■                | ■             | ■                   | –                                      | –            | ■                    | 12               |
| DSNU-MA – Round cylinder with piston Ø 32 ... 63                                          |            |                                                   |                                         |                  |               |                     |                                        |              |                      | dsnu             |
| <b>Direct mounting</b>                                                                    |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                  |
| DSNU-MH                                                                                   | ■          | ■                                                 | –                                       | ■                | –             | ■                   | –                                      | –            | ■                    | 12               |
| DSNU-MH – Round cylinder with piston Ø 32 ... 63                                          |            |                                                   |                                         |                  |               |                     |                                        |              |                      | dsnu             |

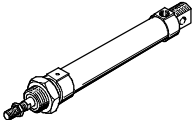
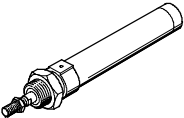
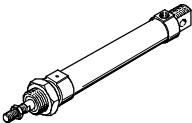
3) In the modular product system from Ø 12 mm

# Standard cylinders ESNU/ESN, ISO 6432

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Product range overview

| Function      | Version                                                                               | Piston Ø | Stroke             | Variable stroke <sup>1)</sup> | Piston rod |          |             |           |                |               |
|---------------|---------------------------------------------------------------------------------------|----------|--------------------|-------------------------------|------------|----------|-------------|-----------|----------------|---------------|
|               |                                                                                       |          |                    |                               | Through    | Extended | Male thread |           |                | Female thread |
|               |                                                                                       |          |                    |                               |            |          | Extended    | Shortened | Special thread |               |
|               |                                                                                       | [mm]     | [mm]               | [mm]                          | S2         | K8       | K2          | K6        | K5             | K3            |
| Double-acting | Basic version without position sensing                                                |          |                    |                               |            |          |             |           |                |               |
|               |  DSN | 8, 10    | 10, 25, 40, 50,    | 1 ... 100                     | –          | –        | –           | –         | –              | –             |
|               |                                                                                       | 12, 16   | 80, 100, 125,      | 1 ... 200                     |            |          |             |           |                |               |
|               |                                                                                       | 20       | 160, 200, 250,     | 1 ... 320                     |            |          |             |           |                |               |
|               |                                                                                       | 25       | 300, 320, 400, 500 | 1 ... 500                     |            |          |             |           |                |               |

| Function          | Version                                                                                        | PistonØ               | Stroke     | Variable stroke <sup>1)</sup> | Cushioning<br>Fixed | Position<br>sensing |
|-------------------|------------------------------------------------------------------------------------------------|-----------------------|------------|-------------------------------|---------------------|---------------------|
|                   |                                                                                                | [mm]                  | [mm]       | [mm]                          | P                   | A                   |
| Single-<br>acting | Basic version with position sensing                                                            |                       |            |                               |                     |                     |
|                   | ESNU<br>     | 8, 10, 12, 16, 20, 25 | 10, 25, 50 | 1 ... 50                      | ■                   | ■                   |
|                   | ESNU – Round cylinder with piston Ø 32 ... 63                                                  |                       |            |                               |                     |                     |
|                   |                                                                                                |                       |            |                               |                     |                     |
|                   | Axial air connection                                                                           |                       |            |                               |                     |                     |
|                   | ESNU-MA<br> | 8, 10, 12, 16, 20, 25 | –          | 1 ... 50                      | ■                   | ■                   |
|                   | ESNU-MA – Round cylinder with piston Ø 32 ... 63                                               |                       |            |                               |                     |                     |
|                   |                                                                                                |                       |            |                               |                     |                     |
|                   | Basic version without position sensing                                                         |                       |            |                               |                     |                     |
|                   | ESN<br>     | 8, 10, 12, 16, 20, 25 | 10, 25, 50 | 1 ... 50                      | ■                   | –                   |

1) Cylinders with position sensing require a minimum stroke of 10 mm to ensure reliable sensing

# Standard cylinders ESN/ESN, ISO 6432

Product range overview

| Version                                       | Cushioning |                                                   |                                         | Position sensing | Clamping unit | Heat-resistant seal | Slow speed (constant motion operation) | Low friction | Corrosion protection | → Page/Internet |
|-----------------------------------------------|------------|---------------------------------------------------|-----------------------------------------|------------------|---------------|---------------------|----------------------------------------|--------------|----------------------|-----------------|
|                                               | Fixed      | Adjustable<br>Ø 16 and above<br>PPV <sup>2)</sup> | Self-adjusting<br>Ø 16 and above<br>PPS |                  |               |                     |                                        |              |                      |                 |
|                                               | P          |                                                   |                                         | A                | KP            | S6                  | S10                                    | S11          | R3                   |                 |
| <b>Basic version without position sensing</b> |            |                                                   |                                         |                  |               |                     |                                        |              |                      |                 |
| DSN                                           | ■          | ■                                                 | –                                       | –                | –             | –                   | –                                      | –            | –                    | 46              |

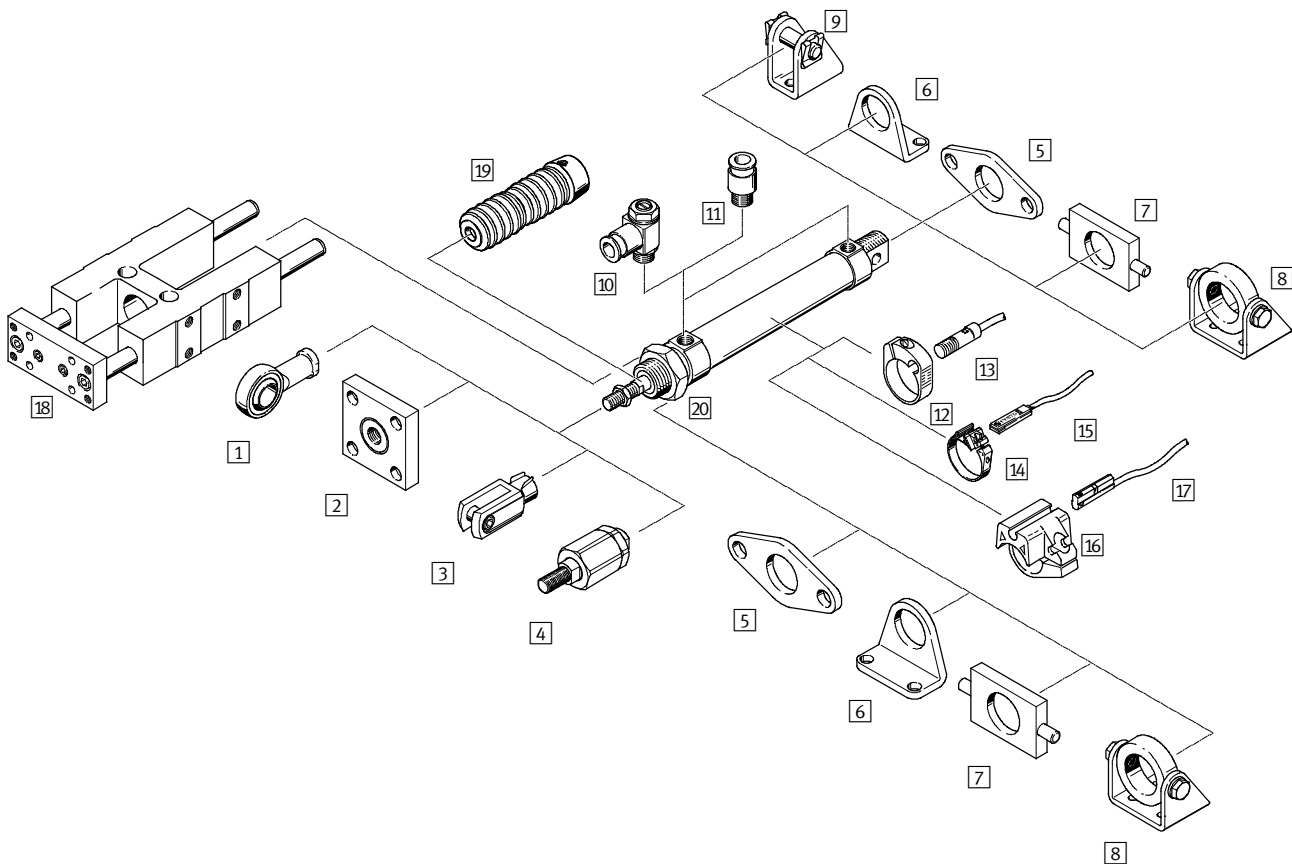
| Version                                          | Piston rod     |                |                 |                      |                     | → Page/Internet |
|--------------------------------------------------|----------------|----------------|-----------------|----------------------|---------------------|-----------------|
|                                                  | Extended<br>K8 | Male thread    |                 |                      | Female thread<br>K3 |                 |
|                                                  |                | Extended<br>K2 | Shortened<br>K6 | Special thread<br>K5 |                     |                 |
| Basic version with position sensing              |                |                |                 |                      |                     |                 |
| ESNU                                             | ■              | ■              | ■               | ■                    | ■                   | 38              |
| ESNU – Round cylinder with piston Ø 32 ... 63    |                |                |                 |                      |                     | esnu            |
| Axial air connection                             |                |                |                 |                      |                     |                 |
| ESNU-MA                                          | ■              | ■              | ■               | ■                    | ■                   | 38              |
| ESNU-MA – Round cylinder with piston Ø 32 ... 63 |                |                |                 |                      |                     | esnu            |
| Basic version without position sensing           |                |                |                 |                      |                     |                 |
| ESN                                              | –              | –              | –               | –                    | –                   | 52              |

2) In the modular product system from Ø 12 mm

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Peripherals overview

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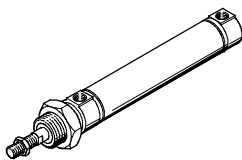


## Variants

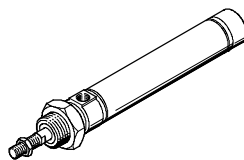
DSNU-MQ

DSNU-MA

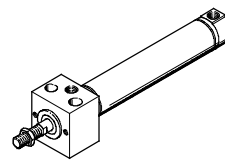
DSNU-MH



DSNU-Q



DSNU-KP

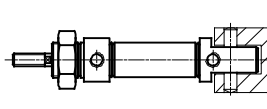
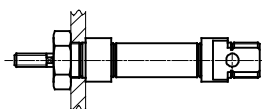
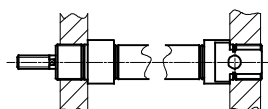


## Mounting options

Mounting front and rear

Mounting with hex nut

Swivel mounting



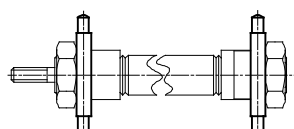
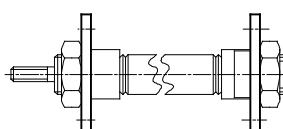
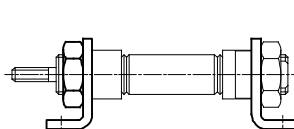
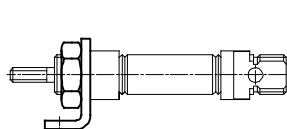
## Installation variants with mounting attachments

Foot mounting (for short strokes)

Foot mounting

Flange mounting

Swivel mounting



# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

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Peripherals overview

| Mounting attachments and accessories                            |               |       |               |      |    |    |        |         |                 |
|-----------------------------------------------------------------|---------------|-------|---------------|------|----|----|--------|---------|-----------------|
|                                                                 | DSNU/<br>ESNU | DSNUP | DSNU/<br>ESNU | DSNU |    |    | DSNU-Q | DSN/ESN | → Page/Internet |
|                                                                 |               |       | MA            | MQ   | MH | KP |        |         |                 |
| 1 Rod eye<br>SGS/CRSGS                                          | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | 59              |
| 2 Coupling piece<br>KSG/KSZ                                     | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | 59              |
| 3 Rod clevis<br>SG/CRSG                                         | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | 59              |
| 4 Self-aligning rod coupler<br>FK                               | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | 59              |
| 5 Flange mounting<br>FBN/CRFBN                                  | ■             | ■     | ■             | ■    | –  | ■  | ■      | ■       | 57              |
| 6 Foot mounting<br>HBN/CRHBN                                    | ■             | ■     | ■             | ■    | –  | ■  | ■      | ■       | 56              |
| 7 Swivel mounting <sup>1)</sup><br>WBN                          | ■             | ■     | ■             | ■    | –  | ■  | ■      | ■       | 58              |
| 8 Swivel mounting <sup>1)</sup><br>SBN                          | ■             | –     | ■             | ■    | –  | ■  | ■      | ■       | 57              |
| 9 Clevis foot<br>LBN/CRLBN                                      | ■             | ■     | –             | –    | –  | ■  | ■      | ■       | 58              |
| 10 One-way flow control valve <sup>2)</sup><br>GRLA/GRLZ/CRGRLA | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | 67              |
| 11 Push-in fitting <sup>2)</sup><br>QS                          | ■             | ■     | ■             | ■    | ■  | ■  | ■      | ■       | quick star      |
| 12 Mounting kit<br>SMBR/CRSMBR                                  | ■             | –     | ■             | ■    | ■  | ■  | ■      | –       | 64              |
| 13 Proximity sensor<br>SMEO/SMT0/CRSMEO-4                       | ■             | –     | ■             | ■    | ■  | ■  | ■      | –       | 64              |
| 14 Mounting kit<br>SMBR-8                                       | ■             | ■     | ■             | ■    | ■  | ■  | ■      | –       | 65              |
| 15 Proximity sensor<br>SME/SMT-8                                | ■             | ■     | ■             | ■    | ■  | ■  | ■      | –       | 65              |
| 16 Mounting kit<br>SMBR-10                                      | ■             | –     | ■             | ■    | ■  | ■  | ■      | –       | 66              |
| 17 Proximity sensor<br>SME/SMT-10                               | ■             | –     | ■             | ■    | ■  | ■  | ■      | –       | 66              |
| 18 Guide unit<br>FEN                                            | ■             | –     | ■             | ■    | –  | –  | –      | ■       | 59              |
| 19 Bellows kit <sup>3)</sup><br>DADB                            | ■             | –     | ■             | ■    | –  | –  | –      | –       | 60              |
| 20 Hex nut<br>MSK                                               | ■             | –     | ■             | ■    | ■  | ■  | ■      | ■       | 59              |

 Note

- 1) Cannot be used on the bearing cap in combination with bellows kit DADB.
  - 2) Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used for the compressed air ports in conjunction with the DSNUP.
  - 3) The bellows kit protects the cylinder (piston rod, seal and bearings) against a wide range of media and thus prevents premature wear.
- It can only be used in combination with an extended piston rod (K8).

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Type codes

|                         |                                                   |      |   |    |   |    |   |     |   |   |   |    |
|-------------------------|---------------------------------------------------|------|---|----|---|----|---|-----|---|---|---|----|
|                         |                                                   | DSNU | – | 25 | – | 80 | – | PPV | – | A | – | MQ |
| <b>Type</b>             |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| Double-acting           |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| DSNU/DSN                | Standard cylinder                                 |      |   |    |   |    |   |     |   |   |   |    |
| Single-acting           |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| ESNU/ESN                | Standard cylinder                                 |      |   |    |   |    |   |     |   |   |   |    |
| <b>Piston Ø [mm]</b>    |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| <b>Stroke [mm]</b>      |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| <b>Cushioning</b>       |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| P                       | Flexible cushioning rings/pads at both ends       |      |   |    |   |    |   |     |   |   |   |    |
| PPV                     | Pneumatic cushioning, adjustable at both ends     |      |   |    |   |    |   |     |   |   |   |    |
| PPS                     | Pneumatic cushioning, self-adjusting at both ends |      |   |    |   |    |   |     |   |   |   |    |
| <b>Position sensing</b> |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| A                       | Via proximity sensor                              |      |   |    |   |    |   |     |   |   |   |    |
| <b>Variant</b>          |                                                   |      |   |    |   |    |   |     |   |   |   |    |
| MQ                      | Lateral air connection                            |      |   |    |   |    |   |     |   |   |   |    |
| MA                      | Axial air connection                              |      |   |    |   |    |   |     |   |   |   |    |
| MH                      | With mounting flange on bearing cap               |      |   |    |   |    |   |     |   |   |   |    |

## Modular product system

Individually configurable

DSNU → 34

ESNU → 44

- Square piston rod (protection against rotation)
- Through piston rod (piston rod type)
- Extended male piston rod thread
- Male piston rod thread, shortened at one end
- Female piston rod thread (female thread)
- Special piston rod thread (special thread)
- Extended piston rod at front
- Clamping unit on the piston rod
- Heat-resistant seals for temperatures up to 120 °C (temperature resistance)
- Slow speed (constant motion at low piston rod speeds)
- Low friction
- All external cylinder surfaces conform to corrosion resistance class CRC 3 (corrosion protection)

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432



Type codes

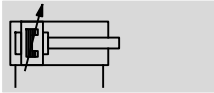
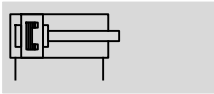
|                  |                                             |       |   |    |   |    |   |   |   |   |
|------------------|---------------------------------------------|-------|---|----|---|----|---|---|---|---|
|                  |                                             | DSNUP | – | 20 | – | 50 | – | P | – | A |
| Type             |                                             |       |   |    |   |    |   |   |   |   |
| Double-acting    |                                             |       |   |    |   |    |   |   |   |   |
| DSNUP            | Standard cylinder                           |       |   |    |   |    |   |   |   |   |
| Piston Ø [mm]    |                                             |       |   |    |   |    |   |   |   |   |
| Stroke [mm]      |                                             |       |   |    |   |    |   |   |   |   |
| Cushioning       |                                             |       |   |    |   |    |   |   |   |   |
| P                | Flexible cushioning rings/pads at both ends |       |   |    |   |    |   |   |   |   |
| Position sensing |                                             |       |   |    |   |    |   |   |   |   |
| A                | Via proximity sensor                        |       |   |    |   |    |   |   |   |   |

# Standard cylinders DSNU, ISO 6432

Technical data

FESTO

Function

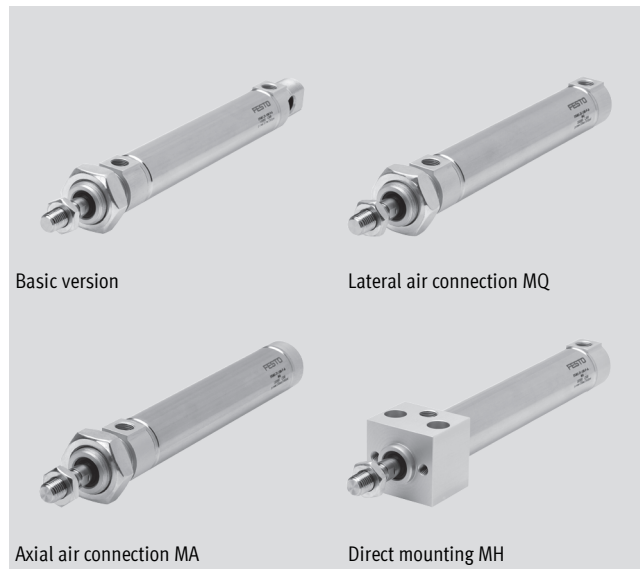


Ø - Diameter  
8 ... 25 mm

— Stroke length  
1 ... 500 mm

Variants

→ 17



| General technical data |                                   |                                             |    |    |      |          |
|------------------------|-----------------------------------|---------------------------------------------|----|----|------|----------|
| Piston Ø               | 8                                 | 10                                          | 12 | 16 | 20   | 25       |
| Pneumatic connection   | M5                                | M5                                          | M5 | M5 | G1/8 | G1/8     |
| Piston rod thread      | M4                                | M4                                          | M6 | M6 | M8   | M10x1.25 |
| Constructional design  | Piston                            |                                             |    |    |      |          |
|                        | Piston rod                        |                                             |    |    |      |          |
|                        | Cylinder barrel                   |                                             |    |    |      |          |
| Cushioning             | P                                 | Flexible cushioning rings/pads at both ends |    |    |      |          |
|                        | PPV                               | Adjustable cushioning at both ends          |    |    |      |          |
|                        | PPS                               | Self-adjusting cushioning at both ends      |    |    |      |          |
| Cushioning length      | PPV                               | [mm]                                        | 9  | 12 | 15   | 17       |
|                        | PPS                               | [mm]                                        | 12 | 15 | 17   |          |
| Position sensing       | Via proximity sensor              |                                             |    |    |      |          |
| Type of mounting       | Direct mounting (MH variant only) |                                             |    |    |      |          |
|                        | Via accessories                   |                                             |    |    |      |          |
| Mounting position      | Any                               |                                             |    |    |      |          |

— Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |       |                          |            |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|-------|--------------------------|------------|----|----|
| Piston Ø                       | 8                                                                                                      | 10    | 12                       | 16         | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |       |                          |            |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |       |                          |            |    |    |
| Operating pressure             | Basic version                                                                                          | [bar] | 1.5 ... 10 <sup>1)</sup> | 1 ... 10   |    |    |
|                                | S10                                                                                                    |       | 1.5 ... 10               | 1 ... 10   |    |    |
|                                | S11                                                                                                    |       | 0.45 ... 10              | 0.3 ... 10 |    |    |

1) With DSNU-12- ... -PPV (pneumatic cushioning adjustable at both ends): 2 ... 10 bar

| Ambient conditions                           |                                                                    |             |            |            |             |
|----------------------------------------------|--------------------------------------------------------------------|-------------|------------|------------|-------------|
| Standard cylinder                            | Basic version                                                      | S6          | S10        | S11        | R3          |
| Ambient temperature <sup>1)</sup>            | [°C]                                                               | −20 ... +80 | 0 ... +120 | +5 ... +80 | −20 ... +80 |
| Corrosion resistance class CRC <sup>2)</sup> |                                                                    | 2           | 2          | 2          | 3           |
| ATEX                                         | Specified types → <a href="http://www.festo.com">www.festo.com</a> |             |            |            |             |

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 3 as per Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

# Standard cylinders DSNU, ISO 6432

FESTO

Technical data

| Speed [mm/s]                                                             |            |     |                  |
|--------------------------------------------------------------------------|------------|-----|------------------|
| Piston Ø                                                                 | 16         | 20  | 25               |
| Speed with stick-slip-free operation, horizontal, without load, at 6 bar | 10 ... 100 |     |                  |
| Minimum speed, advancing S10                                             | 2.7        | 5.3 | <1 <sup>1)</sup> |
| Minimum speed, retracting S11                                            | 3.2        | 4.7 | <1 <sup>1)</sup> |

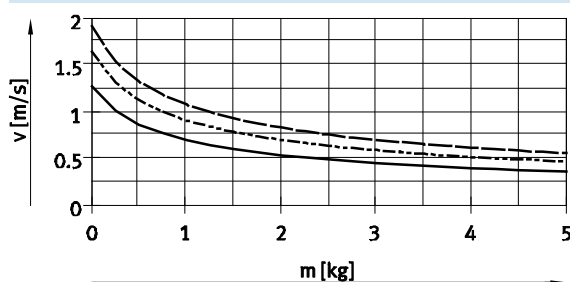
1) Measurements of less than 1 mm/s were not conducted

| Force [N] and impact energy [J]                                                        |      |      |      |      |      |      |
|----------------------------------------------------------------------------------------|------|------|------|------|------|------|
| Piston Ø                                                                               | 8    | 10   | 12   | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing                                                  | 30   | 47   | 68   | 121  | 189  | 295  |
| Theoretical force at 6 bar, retracting                                                 | 23   | 40   | 51   | 104  | 158  | 247  |
| Max. impact energy at the end positions for flexible cushioning elements <sup>1)</sup> | 0.03 | 0.05 | 0.07 | 0.15 | 0.20 | 0.30 |

1) The values are reduced by approx. 50% at an ambient temperature of 80 °C

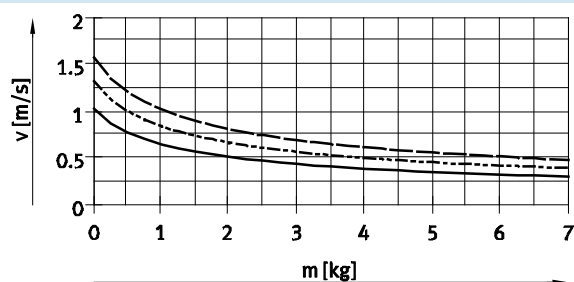
## Average piston speed $v$ as a function of applied load $m$ in combination with PPS cushionings

Piston Ø 16



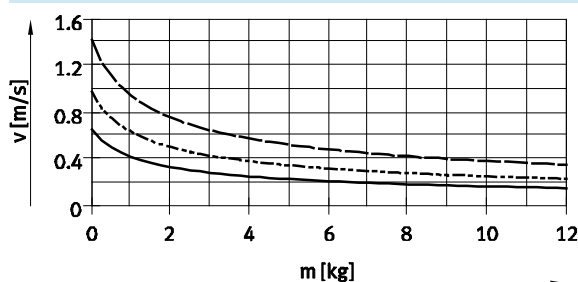
— DSNU-16-50  
 - - - DSNU-16-100  
 - · - DSNU-16-200

Piston Ø 20



— DSNU-20-50  
 - - - DSNU-20-100  
 - · - DSNU-20-200

Piston Ø 25



— DSNU-25-50  
 - - - DSNU-25-100  
 - · - DSNU-25-200

Note  
 Average piston speed  
 = stroke/movement time

Note

Design software  
 for flexible cushioning elements  
 → ProDrive

Additional graphs  
 for PPS cushioning  
 → [www.festo.com](http://www.festo.com)

Design software  
 for PPV cushioning  
 → ProDrive

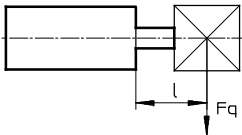
# Standard cylinders DSNU, ISO 6432

Technical data

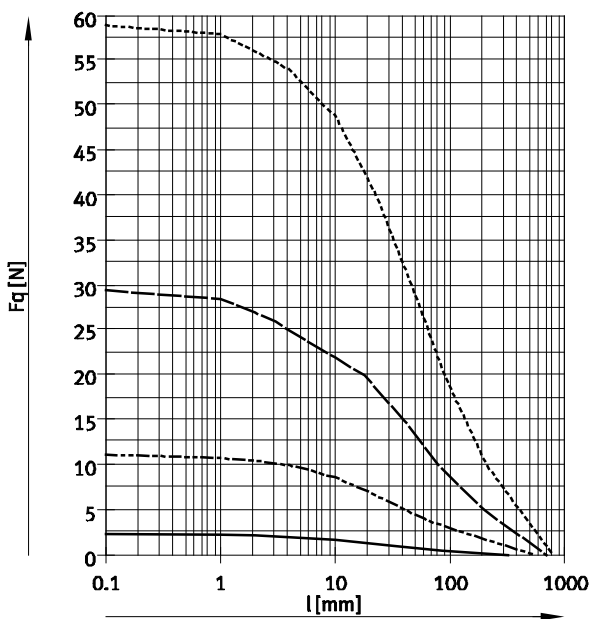
FESTO

| Weight [g]                         |      |      |    |      |       |     |
|------------------------------------|------|------|----|------|-------|-----|
| Piston Ø                           | 8    | 10   | 12 | 16   | 20    | 25  |
| Product weight with 0 mm stroke    | 34.6 | 37.3 | 75 | 89.9 | 186.8 | 238 |
| Additional weight per 10 mm stroke | 2.4  | 2.7  | 4  | 4.6  | 7.2   | 11  |

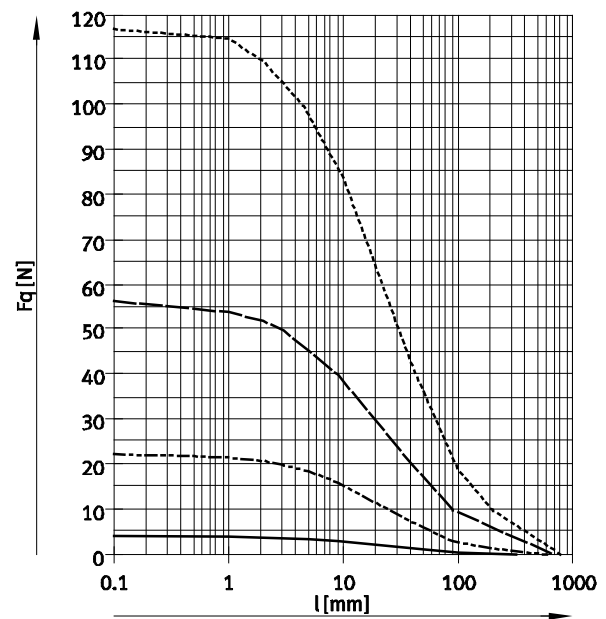
## Max. lateral force $F_q$ as a function of stroke length $l$



### Basic version



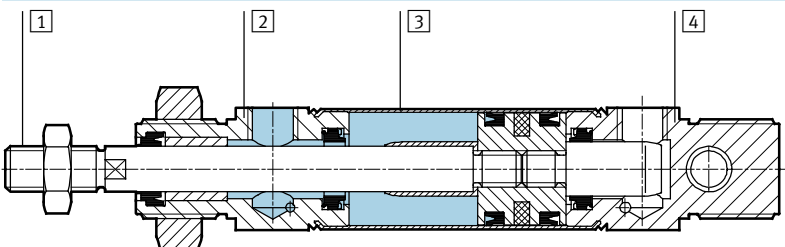
### S2 – Through piston rod



- Ø 8/10
- - - Ø 12/16
- · - Ø 20
- Ø 25

## Materials

### Sectional view



| Standard cylinder | Basic version                | R3 | S6               | S10 | S11 |
|-------------------|------------------------------|----|------------------|-----|-----|
| 1 Piston rod      | High-alloy stainless steel   |    |                  |     |     |
| 2 Bearing cap     | Anodised aluminium           |    |                  |     |     |
| 3 Cylinder barrel | High-alloy stainless steel   |    |                  |     |     |
| 4 End cap         | Anodised aluminium           |    |                  |     |     |
| – Seals           | Polyurethane, nitrile rubber |    | Fluoro elastomer |     |     |
| Note on materials | RoHS compliant               |    |                  |     |     |

# Standard cylinders DSNU, ISO 6432

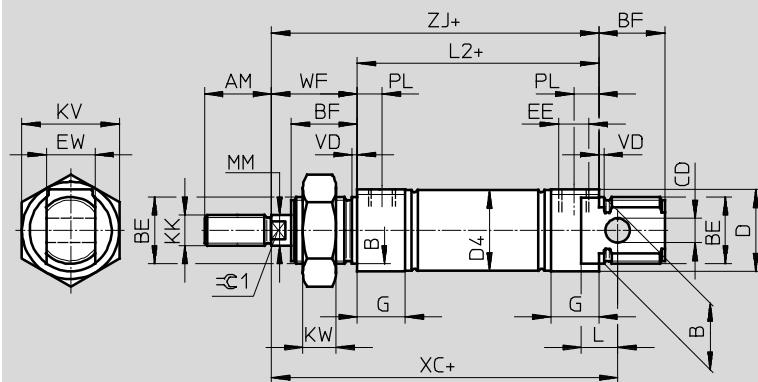
Technical data

**FESTO**

## Dimensions

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

### Basic version



Note  
Piston rod nut is not included in scope of delivery for Ø 8 ... 20.  
+ = plus stroke length

| Ø<br>[mm] | AM | B<br>Ø<br>h9 | BE       | BF | CD<br>Ø<br>H9 | D<br>Ø | D4<br>Ø | EE   | EW | G  | KK       | KV |
|-----------|----|--------------|----------|----|---------------|--------|---------|------|----|----|----------|----|
| 8         | 12 | 12           | M12x1.25 | 12 | 4             | 15     | 9.3     | M5   | 8  | 10 | M4       | 19 |
| 10        |    |              |          |    |               |        | 11.3    |      |    |    |          |    |
| 12        | 16 | 16           | M16x1.5  | 17 | 6             | 20     | 13.3    |      | 12 |    | M6       | 24 |
| 16        |    |              |          |    |               |        | 17.3    |      |    |    |          |    |
| 20        | 20 | 22           | M22x1.5  | 20 | 8             | 27     | 21.3    | G1/8 | 16 | 16 | M8       | 32 |
| 25        | 22 |              |          | 22 |               |        | 26.5    |      |    |    | M10x1.25 |    |

| Ø<br>[mm] | KW | L  | L2   | MM<br>Ø | PL  | TO | VD | WF  | XC<br>±1 | ZJ | ⌀1 |
|-----------|----|----|------|---------|-----|----|----|-----|----------|----|----|
| 8         | 6  | 6  | 46   | 4       | 6   | 18 | 2  | 16  | 64       | 62 | –  |
| 10        |    |    |      |         |     |    |    |     |          |    |    |
| 12        | 8  | 9  | 50   | 6       |     | 23 |    | 22  | 75       | 72 | 5  |
| 16        |    |    | 56   |         |     |    |    | 82  | 78       |    |    |
| 20        | 11 | 12 | 68   | 8       | 8.2 | 31 |    | 24  | 95       | 92 | 7  |
| 25        |    |    | 69.5 | 10      |     |    | 28 | 104 | 97.5     | 9  |    |

Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders DSNU, ISO 6432

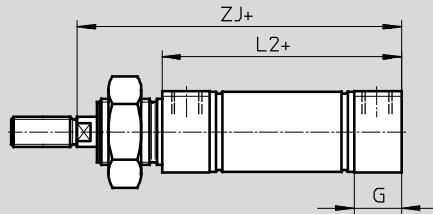
Technical data

**FESTO**

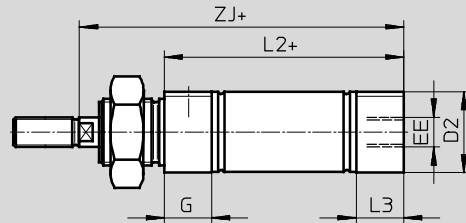
## Dimensions

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

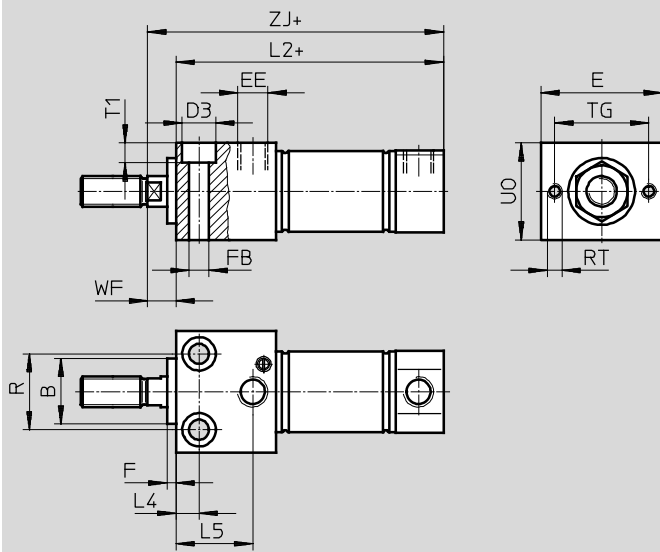
### MQ – Lateral air connection



### MA – Axial air connection



### MH – With direct mounting



+ = plus stroke length

| Ø<br>[mm] | B<br>Ø<br>h9 | D2<br>Ø | D3<br>Ø | E  | EE   | F | FB<br>Ø | G  | L2   |      |      |
|-----------|--------------|---------|---------|----|------|---|---------|----|------|------|------|
|           |              |         |         |    |      |   |         |    | -MQ  | -MA  | -MH  |
| 8         | 12           | 10.5    | 6       | 24 | M5   | 3 | 3.4     | 10 | 46   | 43.6 | 53.5 |
| 10        |              | 12.5    |         |    |      |   |         |    |      | 43.1 | 53.8 |
| 12        | 16           | 14.5    | 8       | 30 |      |   | 4.5     |    | 50   | 47.7 | 62   |
| 16        |              | 17.5    |         |    |      |   |         |    |      | 56   | 53.7 |
| 20        | 22           | 21.7    | 10      | 40 | G1/8 |   | 5.5     | 16 | 68   | 66.5 | 81.5 |
| 25        |              | 26.7    | 11      |    |      |   | 6.6     |    | 69.5 | 68.5 | 86.2 |

| Ø<br>[mm] | L3   | L4  | L5   | R  | RT | TG | T1  | UO | WF | ZJ   |      |      |
|-----------|------|-----|------|----|----|----|-----|----|----|------|------|------|
|           |      |     |      |    |    |    |     |    |    | -MQ  | -MA  | -MH  |
| 8         | 7.6  | 5   | 14   | 12 | M3 | 18 | 3.4 | 16 | 8  | 62   | 59.6 | 61.5 |
| 10        | 7.1  |     |      |    |    |    |     |    |    |      | 59.1 | 61.8 |
| 12        | 7.7  | 6   | 18.1 | 16 | M4 | 23 | 4.5 | 22 | 10 | 72   | 69.7 | 72   |
| 16        |      |     |      |    |    |    |     |    |    | 78   | 75.7 | 77.8 |
| 20        | 14.5 | 7.5 | 22.4 | 22 | M5 | 31 | 5.5 | 28 |    | 92   | 90.5 | 91.5 |
| 25        | 14   |     | 25.2 | 25 |    |    | 6.6 | 32 | 11 | 97.5 | 96.5 | 97.2 |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders DSNU, ISO 6432

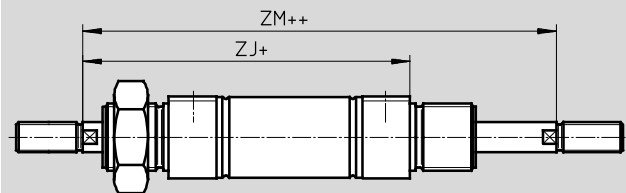
Technical data

**FESTO**

## Dimensions

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

### S2 – Through piston rod

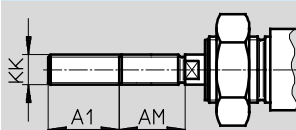


- - Note

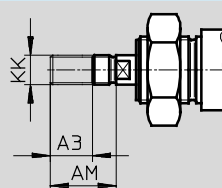
The thread types at both piston rod ends are identical. In combination with variant Q, the left-hand piston rod end is square, the right-hand piston rod end round.

+ = plus stroke length  
++ = plus 2x stroke length

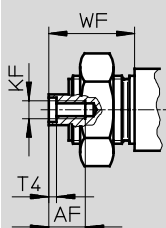
### K2 – Extended male piston rod thread



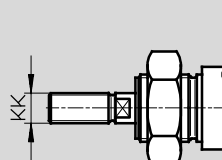
### K6 – Shortened male piston rod thread



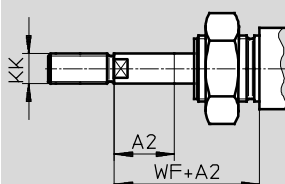
### K3 – Female piston rod thread



### K5 – Special thread on piston rod



### K8 – Extended piston rod



- - Note

If variant K8 is required in combination with S2, the piston rod will only be extended on one side.

| Ø<br>[mm] | A1<br>max. | A2<br>max. | A3<br>max. | AM | AF | KF | KK              |                                 | T4  | WF | ZJ   |      |      | ZM    |
|-----------|------------|------------|------------|----|----|----|-----------------|---------------------------------|-----|----|------|------|------|-------|
|           |            |            |            |    |    |    | Basic<br>thread | Special<br>thread <sup>1)</sup> |     |    | -MQ  | -MA  | -MH  |       |
| 8         | 15         | 50         | 4          | 12 | —  | —  | M4              | —                               | —   | 16 | 62   | 59.6 | 61.5 | 78.4  |
| 10        |            |            |            |    | —  | —  |                 | —                               | —   |    |      | 59.1 | 61.8 |       |
| 12        | 20         | 100        |            | 16 | —  | —  | M6              | —                               | —   | 22 | 72   | 69.7 | 72   | 94    |
| 16        |            |            |            |    | —  | —  |                 | —                               | —   |    | 78   | 75.7 | 77.8 | 100   |
| 20        | 25         | 110        | 8          | 20 | 12 | M4 | M8              | —                               | 2   | 24 | 92   | 90.5 | 91.5 | 116   |
| 25        | 35         | 150        |            | 22 |    | M6 | M10x1.25        | M10                             | 2.6 | 28 | 97.5 | 96.5 | 97.2 | 125.5 |

1) The special threads are only available as male threads. The scope of delivery does not include a hex nut for the piston rod thread.

# Standard cylinders DSNU, ISO 6432

Technical data

**FESTO**

| Ordering data |        |                                                                              |                 |                                                                                  |                   |
|---------------|--------|------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------|-------------------|
| Piston Ø      | Stroke | P – Flexible cushioning rings/pads at both ends<br>A – With position sensing |                 | PPV – Pneumatic cushioning, adjustable at both ends<br>A – With position sensing |                   |
| [mm]          | [mm]   | Part No.                                                                     | Type            | Part No.                                                                         | Type              |
| Basic version |        |                                                                              |                 |                                                                                  |                   |
| 8             | 10     | 19177                                                                        | DSNU-8-10-P-A   |                                                                                  | –                 |
|               | 15     | 1908247                                                                      | DSNU-8-15-P-A   |                                                                                  |                   |
|               | 20     | 1908248                                                                      | DSNU-8-20-P-A   |                                                                                  |                   |
|               | 25     | 19178                                                                        | DSNU-8-25-P-A   |                                                                                  |                   |
|               | 30     | 1908249                                                                      | DSNU-8-30-P-A   |                                                                                  |                   |
|               | 40     | 19179                                                                        | DSNU-8-40-P-A   |                                                                                  |                   |
|               | 50     | 19180                                                                        | DSNU-8-50-P-A   |                                                                                  |                   |
|               | 60     | 1908250                                                                      | DSNU-8-60-P-A   |                                                                                  |                   |
|               | 80     | 19181                                                                        | DSNU-8-80-P-A   |                                                                                  |                   |
|               | 100    | 19182                                                                        | DSNU-8-100-P-A  |                                                                                  |                   |
| 10            | 10     | 19183                                                                        | DSNU-10-10-P-A  |                                                                                  | –                 |
|               | 15     | 1908251                                                                      | DSNU-10-15-P-A  |                                                                                  |                   |
|               | 20     | 1908252                                                                      | DSNU-10-20-P-A  |                                                                                  |                   |
|               | 25     | 19184                                                                        | DSNU-10-25-P-A  |                                                                                  |                   |
|               | 30     | 1908253                                                                      | DSNU-10-30-P-A  |                                                                                  |                   |
|               | 40     | 19185                                                                        | DSNU-10-40-P-A  |                                                                                  |                   |
|               | 50     | 19186                                                                        | DSNU-10-50-P-A  |                                                                                  |                   |
|               | 60     | 1908254                                                                      | DSNU-10-60-P-A  |                                                                                  |                   |
|               | 80     | 19187                                                                        | DSNU-10-80-P-A  |                                                                                  |                   |
|               | 100    | 19188                                                                        | DSNU-10-100-P-A |                                                                                  |                   |
| 12            | 10     | 19189                                                                        | DSNU-12-10-P-A  |                                                                                  | –                 |
|               | 15     | 1908255                                                                      | DSNU-12-15-P-A  |                                                                                  |                   |
|               | 20     | 1908256                                                                      | DSNU-12-20-P-A  |                                                                                  |                   |
|               | 25     | 19190                                                                        | DSNU-12-25-P-A  |                                                                                  |                   |
|               | 30     | 1908257                                                                      | DSNU-12-30-P-A  |                                                                                  |                   |
|               | 40     | 19191                                                                        | DSNU-12-40-P-A  |                                                                                  |                   |
|               | 50     | 19192                                                                        | DSNU-12-50-P-A  |                                                                                  |                   |
|               | 60     | 1908258                                                                      | DSNU-12-60-P-A  |                                                                                  |                   |
|               | 80     | 19193                                                                        | DSNU-12-80-P-A  |                                                                                  |                   |
|               | 100    | 19194                                                                        | DSNU-12-100-P-A |                                                                                  |                   |
|               | 125    | 19195                                                                        | DSNU-12-125-P-A |                                                                                  |                   |
|               | 160    | 19196                                                                        | DSNU-12-160-P-A |                                                                                  |                   |
|               | 200    | 19197                                                                        | DSNU-12-200-P-A |                                                                                  |                   |
| 16            | 10     | 19198                                                                        | DSNU-16-10-P-A  | 1908266                                                                          | DSNU-16-10-PPV-A  |
|               | 15     | 1908259                                                                      | DSNU-16-15-P-A  | 1908267                                                                          | DSNU-16-15-PPV-A  |
|               | 20     | 1908260                                                                      | DSNU-16-20-P-A  | 1908268                                                                          | DSNU-16-20-PPV-A  |
|               | 25     | 19199                                                                        | DSNU-16-25-P-A  | 33973                                                                            | DSNU-16-25-PPV-A  |
|               | 30     | 1908261                                                                      | DSNU-16-30-P-A  | 1908269                                                                          | DSNU-16-30-PPV-A  |
|               | 35     | 1908262                                                                      | DSNU-16-35-P-A  | 1908270                                                                          | DSNU-16-35-PPV-A  |
|               | 40     | 19200                                                                        | DSNU-16-40-P-A  | 19229                                                                            | DSNU-16-40-PPV-A  |
|               | 50     | 19201                                                                        | DSNU-16-50-P-A  | 19230                                                                            | DSNU-16-50-PPV-A  |
|               | 60     | 1908263                                                                      | DSNU-16-60-P-A  | 1908271                                                                          | DSNU-16-60-PPV-A  |
|               | 70     | 1908264                                                                      | DSNU-16-70-P-A  | 1908272                                                                          | DSNU-16-70-PPV-A  |
|               | 80     | 19202                                                                        | DSNU-16-80-P-A  | 19231                                                                            | DSNU-16-80-PPV-A  |
|               | 100    | 19203                                                                        | DSNU-16-100-P-A | 19232                                                                            | DSNU-16-100-PPV-A |
|               | 125    | 19204                                                                        | DSNU-16-125-P-A | 19233                                                                            | DSNU-16-125-PPV-A |
|               | 150    | 1908265                                                                      | DSNU-16-150-P-A | 1908273                                                                          | DSNU-16-150-PPV-A |
|               | 160    | 19205                                                                        | DSNU-16-160-P-A | 19234                                                                            | DSNU-16-160-PPV-A |
|               | 200    | 19206                                                                        | DSNU-16-200-P-A | 19235                                                                            | DSNU-16-200-PPV-A |

# Standard cylinders DSNU, ISO 6432



Technical data

| Ordering data |        |                                                                              |                 |                                                                                  |                   |
|---------------|--------|------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------|-------------------|
| Piston Ø      | Stroke | P – Flexible cushioning rings/pads at both ends<br>A – With position sensing |                 | PPV – Pneumatic cushioning, adjustable at both ends<br>A – With position sensing |                   |
| [mm]          | [mm]   | Part No.                                                                     | Type            | Part No.                                                                         | Type              |
| Basic version |        |                                                                              |                 |                                                                                  |                   |
| 20            | 10     | 19207                                                                        | DSNU-20-10-P-A  | 1908289                                                                          | DSNU-20-10-PPV-A  |
|               | 15     | 1908282                                                                      | DSNU-20-15-P-A  | 1908290                                                                          | DSNU-20-15-PPV-A  |
|               | 20     | 1908283                                                                      | DSNU-20-20-P-A  | 1908291                                                                          | DSNU-20-20-PPV-A  |
|               | 25     | 19208                                                                        | DSNU-20-25-P-A  | 33974                                                                            | DSNU-20-25-PPV-A  |
|               | 30     | 1908284                                                                      | DSNU-20-30-P-A  | 1908292                                                                          | DSNU-20-30-PPV-A  |
|               | 35     | 1908285                                                                      | DSNU-20-35-P-A  | 1908293                                                                          | DSNU-20-35-PPV-A  |
|               | 40     | 19209                                                                        | DSNU-20-40-P-A  | 19236                                                                            | DSNU-20-40-PPV-A  |
|               | 50     | 19210                                                                        | DSNU-20-50-P-A  | 19237                                                                            | DSNU-20-50-PPV-A  |
|               | 60     | 1908286                                                                      | DSNU-20-60-P-A  | 1908294                                                                          | DSNU-20-60-PPV-A  |
|               | 70     | 1908287                                                                      | DSNU-20-70-P-A  | 1908295                                                                          | DSNU-20-70-PPV-A  |
|               | 80     | 19211                                                                        | DSNU-20-80-P-A  | 19238                                                                            | DSNU-20-80-PPV-A  |
|               | 100    | 19212                                                                        | DSNU-20-100-P-A | 19239                                                                            | DSNU-20-100-PPV-A |
|               | 125    | 19213                                                                        | DSNU-20-125-P-A | 19240                                                                            | DSNU-20-125-PPV-A |
|               | 150    | 1908288                                                                      | DSNU-20-150-P-A | 1908296                                                                          | DSNU-20-150-PPV-A |
|               | 160    | 19214                                                                        | DSNU-20-160-P-A | 19241                                                                            | DSNU-20-160-PPV-A |
|               | 200    | 19215                                                                        | DSNU-20-200-P-A | 19242                                                                            | DSNU-20-200-PPV-A |
|               | 250    | 19216                                                                        | DSNU-20-250-P-A | 19243                                                                            | DSNU-20-250-PPV-A |
|               | 300    | 19217                                                                        | DSNU-20-300-P-A | 19244                                                                            | DSNU-20-300-PPV-A |
|               | 320    | 34718                                                                        | DSNU-20-320-P-A | 34720                                                                            | DSNU-20-320-PPV-A |
| 25            | 10     | 19218                                                                        | DSNU-25-10-P-A  | 1908312                                                                          | DSNU-25-10-PPV-A  |
|               | 15     | 1908305                                                                      | DSNU-25-15-P-A  | 1908313                                                                          | DSNU-25-15-PPV-A  |
|               | 20     | 1908306                                                                      | DSNU-25-20-P-A  | 1908314                                                                          | DSNU-25-20-PPV-A  |
|               | 25     | 19219                                                                        | DSNU-25-25-P-A  | 33975                                                                            | DSNU-25-25-PPV-A  |
|               | 30     | 1908307                                                                      | DSNU-25-30-P-A  | 1908315                                                                          | DSNU-25-30-PPV-A  |
|               | 35     | 1908308                                                                      | DSNU-25-35-P-A  | 1908316                                                                          | DSNU-25-35-PPV-A  |
|               | 40     | 19220                                                                        | DSNU-25-40-P-A  | 19245                                                                            | DSNU-25-40-PPV-A  |
|               | 50     | 19221                                                                        | DSNU-25-50-P-A  | 19246                                                                            | DSNU-25-50-PPV-A  |
|               | 60     | 1908309                                                                      | DSNU-25-60-P-A  | 1908317                                                                          | DSNU-25-60-PPV-A  |
|               | 70     | 1908310                                                                      | DSNU-25-70-P-A  | 1908318                                                                          | DSNU-25-70-PPV-A  |
|               | 80     | 19222                                                                        | DSNU-25-80-P-A  | 19247                                                                            | DSNU-25-80-PPV-A  |
|               | 100    | 19223                                                                        | DSNU-25-100-P-A | 19248                                                                            | DSNU-25-100-PPV-A |
|               | 125    | 19224                                                                        | DSNU-25-125-P-A | 19249                                                                            | DSNU-25-125-PPV-A |
|               | 150    | 1908311                                                                      | DSNU-25-150-P-A | 1908319                                                                          | DSNU-25-150-PPV-A |
|               | 160    | 19225                                                                        | DSNU-25-160-P-A | 19250                                                                            | DSNU-25-160-PPV-A |
|               | 200    | 19226                                                                        | DSNU-25-200-P-A | 19251                                                                            | DSNU-25-200-PPV-A |
|               | 250    | 19227                                                                        | DSNU-25-250-P-A | 19252                                                                            | DSNU-25-250-PPV-A |
|               | 300    | 19228                                                                        | DSNU-25-300-P-A | 19253                                                                            | DSNU-25-300-PPV-A |
|               | 320    | 34719                                                                        | DSNU-25-320-P-A | 34721                                                                            | DSNU-25-320-PPV-A |
|               | 400    | 35191                                                                        | DSNU-25-400-P-A | 35193                                                                            | DSNU-25-400-PPV-A |
|               | 500    | 35192                                                                        | DSNU-25-500-P-A | 35194                                                                            | DSNU-25-500-PPV-A |

# Standard cylinders DSNU, ISO 6432



Technical data

| Ordering data |        |                                                                                      |                 |
|---------------|--------|--------------------------------------------------------------------------------------|-----------------|
| Piston Ø      | Stroke | PPS – Pneumatic cushioning, self-adjustable at both ends<br>Without position sensing |                 |
| [mm]          | [mm]   | Part No.                                                                             | Type            |
| Basic version |        |                                                                                      |                 |
| 16            | 40     | 559234                                                                               | DSNU-16-40-PPS  |
|               | 50     | 559235                                                                               | DSNU-16-50-PPS  |
|               | 80     | 559236                                                                               | DSNU-16-80-PPS  |
|               | 100    | 559237                                                                               | DSNU-16-100-PPS |
|               | 125    | 559238                                                                               | DSNU-16-125-PPS |
|               | 160    | 559239                                                                               | DSNU-16-160-PPS |
|               | 200    | 559240                                                                               | DSNU-16-200-PPS |
| 20            | 40     | 559241                                                                               | DSNU-20-40-PPS  |
|               | 50     | 559242                                                                               | DSNU-20-50-PPS  |
|               | 80     | 559243                                                                               | DSNU-20-80-PPS  |
|               | 100    | 559244                                                                               | DSNU-20-100-PPS |
|               | 125    | 559245                                                                               | DSNU-20-125-PPS |
|               | 160    | 559246                                                                               | DSNU-20-160-PPS |
|               | 200    | 559247                                                                               | DSNU-20-200-PPS |
|               | 250    | 559248                                                                               | DSNU-20-250-PPS |
|               | 300    | 559249                                                                               | DSNU-20-300-PPS |
|               | 320    | 559250                                                                               | DSNU-20-320-PPS |
| 25            | 40     | 559251                                                                               | DSNU-25-40-PPS  |
|               | 50     | 559252                                                                               | DSNU-25-50-PPS  |
|               | 80     | 559253                                                                               | DSNU-25-80-PPS  |
|               | 100    | 559254                                                                               | DSNU-25-100-PPS |
|               | 125    | 559255                                                                               | DSNU-25-125-PPS |
|               | 160    | 559256                                                                               | DSNU-25-160-PPS |
|               | 200    | 559257                                                                               | DSNU-25-200-PPS |
|               | 250    | 559258                                                                               | DSNU-25-250-PPS |
|               | 300    | 559259                                                                               | DSNU-25-300-PPS |
|               | 320    | 559260                                                                               | DSNU-25-320-PPS |
|               | 400    | 559261                                                                               | DSNU-25-400-PPS |
|               | 500    | 559262                                                                               | DSNU-25-500-PPS |

# Standard cylinders DSNU, ISO 6432

Technical data

| Ordering data |        |                                                          |                   |
|---------------|--------|----------------------------------------------------------|-------------------|
| Piston Ø      | Stroke | PPS – Pneumatic cushioning, self-adjustable at both ends |                   |
| [mm]          | [mm]   | A – With position sensing                                |                   |
|               |        | Part No.                                                 | Type              |
| Basic version |        |                                                          |                   |
| 16            | 10     | 1908274                                                  | DSNU-16-10-PPS-A  |
|               | 15     | 1908275                                                  | DSNU-16-15-PPS-A  |
|               | 20     | 1908276                                                  | DSNU-16-20-PPS-A  |
|               | 25     | 559263                                                   | DSNU-16-25-PPS-A  |
|               | 30     | 1908277                                                  | DSNU-16-30-PPS-A  |
|               | 35     | 1908278                                                  | DSNU-16-35-PPS-A  |
|               | 40     | 559264                                                   | DSNU-16-40-PPS-A  |
|               | 50     | 559265                                                   | DSNU-16-50-PPS-A  |
|               | 60     | 1908279                                                  | DSNU-16-60-PPS-A  |
|               | 70     | 1908280                                                  | DSNU-16-70-PPS-A  |
|               | 80     | 559266                                                   | DSNU-16-80-PPS-A  |
|               | 100    | 559267                                                   | DSNU-16-100-PPS-A |
|               | 125    | 559268                                                   | DSNU-16-125-PPS-A |
|               | 150    | 1908281                                                  | DSNU-16-150-PPS-A |
|               | 160    | 559269                                                   | DSNU-16-160-PPS-A |
|               | 200    | 559270                                                   | DSNU-16-200-PPS-A |
| 20            | 10     | 1908297                                                  | DSNU-20-10-PPS-A  |
|               | 15     | 1908298                                                  | DSNU-20-15-PPS-A  |
|               | 20     | 1908299                                                  | DSNU-20-20-PPS-A  |
|               | 25     | 559271                                                   | DSNU-20-25-PPS-A  |
|               | 30     | 1908300                                                  | DSNU-20-30-PPS-A  |
|               | 35     | 1908301                                                  | DSNU-20-35-PPS-A  |
|               | 40     | 559272                                                   | DSNU-20-40-PPS-A  |
|               | 50     | 559273                                                   | DSNU-20-50-PPS-A  |
|               | 60     | 1908302                                                  | DSNU-20-60-PPS-A  |
|               | 70     | 1908303                                                  | DSNU-20-70-PPS-A  |
|               | 80     | 559274                                                   | DSNU-20-80-PPS-A  |
|               | 100    | 559275                                                   | DSNU-20-100-PPS-A |
|               | 125    | 559276                                                   | DSNU-20-125-PPS-A |
|               | 150    | 1908304                                                  | DSNU-20-150-PPS-A |
|               | 160    | 559277                                                   | DSNU-20-160-PPS-A |
|               | 200    | 559278                                                   | DSNU-20-200-PPS-A |
|               | 250    | 559279                                                   | DSNU-20-250-PPS-A |
|               | 300    | 559280                                                   | DSNU-20-300-PPS-A |
|               | 320    | 559281                                                   | DSNU-20-320-PPS-A |

# Standard cylinders DSNU, ISO 6432

Technical data

**FESTO**

| Ordering data |        |                                                          |                   |
|---------------|--------|----------------------------------------------------------|-------------------|
| Piston Ø      | Stroke | PPS – Pneumatic cushioning, self-adjustable at both ends |                   |
| [mm]          | [mm]   | A – With position sensing                                |                   |
|               |        | Part No.                                                 | Type              |
| Basic version |        |                                                          |                   |
| 25            | 10     | 1908320                                                  | DSNU-25-10-PPS-A  |
|               | 15     | 1908321                                                  | DSNU-25-15-PPS-A  |
|               | 20     | 1908322                                                  | DSNU-25-20-PPS-A  |
|               | 25     | 559282                                                   | DSNU-25-25-PPS-A  |
|               | 30     | 1908323                                                  | DSNU-25-30-PPS-A  |
|               | 35     | 1908324                                                  | DSNU-25-35-PPS-A  |
|               | 40     | 559283                                                   | DSNU-25-40-PPS-A  |
|               | 50     | 559284                                                   | DSNU-25-50-PPS-A  |
|               | 60     | 1908325                                                  | DSNU-25-60-PPS-A  |
|               | 70     | 1908326                                                  | DSNU-25-70-PPS-A  |
|               | 80     | 559285                                                   | DSNU-25-80-PPS-A  |
|               | 100    | 559286                                                   | DSNU-25-100-PPS-A |
|               | 125    | 559287                                                   | DSNU-25-125-PPS-A |
|               | 150    | 1908327                                                  | DSNU-25-150-PPS-A |
|               | 160    | 559288                                                   | DSNU-25-160-PPS-A |
|               | 200    | 559289                                                   | DSNU-25-200-PPS-A |
|               | 250    | 559290                                                   | DSNU-25-250-PPS-A |
|               | 300    | 559291                                                   | DSNU-25-300-PPS-A |
|               | 320    | 559292                                                   | DSNU-25-320-PPS-A |
|               | 400    | 559293                                                   | DSNU-25-400-PPS-A |
|               | 500    | 559294                                                   | DSNU-25-500-PPS-A |

| Ordering data           |            |                                                 |                                                     |
|-------------------------|------------|-------------------------------------------------|-----------------------------------------------------|
| Piston Ø                | Stroke     | P – Flexible cushioning rings/pads at both ends | PPV – Pneumatic cushioning, adjustable at both ends |
| [mm]                    | [mm]       | A – With position sensing                       | A – With position sensing                           |
|                         |            | Part No.                                        | Type                                                |
| Variable stroke lengths |            |                                                 |                                                     |
| 8                       | 10 ... 100 | 14326                                           | DSNU-8-...-P-A                                      |
| 10                      | 10 ... 100 | 14325                                           | DSNU-10-...-P-A                                     |
| 12                      | 10 ... 200 | 14324                                           | DSNU-12-...-P-A                                     |
| 16                      | 10 ... 200 | 14323                                           | DSNU-16-...-P-A                                     |
| 20                      | 10 ... 320 | 14328                                           | DSNU-20-...-P-A                                     |
| 25                      | 10 ... 500 | 14327                                           | DSNU-25-...-P-A                                     |
|                         |            |                                                 | –                                                   |
|                         |            | 14320                                           | DSNU-16-...-PPV-A                                   |
|                         |            | 14321                                           | DSNU-20-...-PPV-A                                   |
|                         |            | 14322                                           | DSNU-25-...-PPV-A                                   |

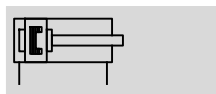
 Note  
 Additional variants can be configured and ordered via the DSNU product modules → 34.

# Standard cylinders DSNUP, ISO 6432

FESTO

## Technical data

### Function



-  - Diameter  
16 ... 25 mm
-  - Stroke length  
25 ... 100 mm



| General technical data |                                             |      |      |
|------------------------|---------------------------------------------|------|------|
| Piston Ø               | 16                                          | 20   | 25   |
| Pneumatic connection   | M5                                          | G1/8 | G1/8 |
| Constructional design  | Piston                                      |      |      |
|                        | Piston rod                                  |      |      |
|                        | Cylinder barrel                             |      |      |
| Mode of operation      | Double-acting                               |      |      |
| Cushioning             | Flexible cushioning rings/pads at both ends |      |      |
| Position sensing       | Via proximity sensor                        |      |      |
| Type of mounting       | Via accessories                             |      |      |
| Mounting position      | Any                                         |      |      |

| Operating and environmental conditions       |                                                                                                        |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |
| Operating pressure <sup>1)</sup> [bar]       | 1 ... 8                                                                                                |
| Ambient temperature [°C]                     | -10 ... +60                                                                                            |
| Corrosion resistance class CRC <sup>2)</sup> | 2                                                                                                      |

1) Note operating range of proximity sensors

2) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

| Force [N] and impact energy [J]        |      |      |      |
|----------------------------------------|------|------|------|
| Piston Ø                               | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing  | 121  | 189  | 295  |
| Theoretical force at 6 bar, retracting | 104  | 158  | 247  |
| Impact energy at end positions         | 0.15 | 0.20 | 0.30 |

| Weight [g]                         |    |    |     |
|------------------------------------|----|----|-----|
| Piston Ø                           | 16 | 20 | 25  |
| Product weight with 0 mm stroke    | 47 | 83 | 111 |
| Additional weight per 10 mm stroke | 4  | 6  | 8   |
| Moving load at 0 mm stroke         | 23 | 44 | 71  |
| Additional load per 10 mm stroke   | 2  | 4  | 6   |

# Standard cylinders DSNUP, ISO 6432

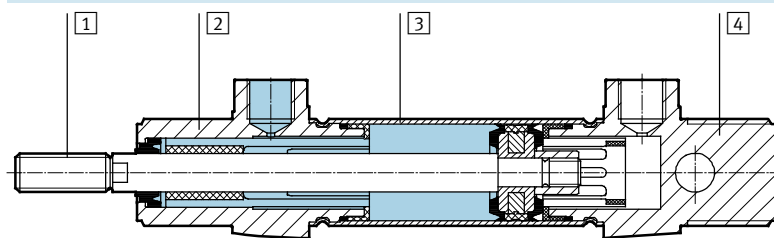
Technical data

FESTO

| Speed without applied load [m/s] |       |      |       |
|----------------------------------|-------|------|-------|
| Piston $\varnothing$             | 16    | 20   | 25    |
| Advancing                        |       |      |       |
| Minimum                          | 0.015 | 0.02 | 0.015 |
| Maximum                          | 2.3   | 2.3  | 2.3   |
| Retracting                       |       |      |       |
| Minimum                          | 0.015 | 0.02 | 0.015 |
| Maximum                          | 1.9   | 1.7  | 2.0   |

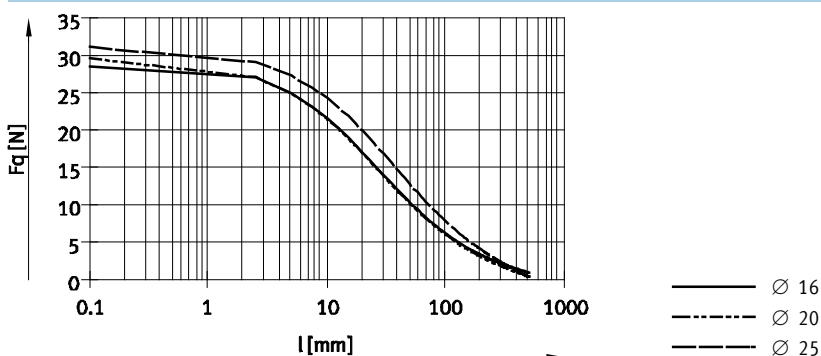
## Materials

Sectional view

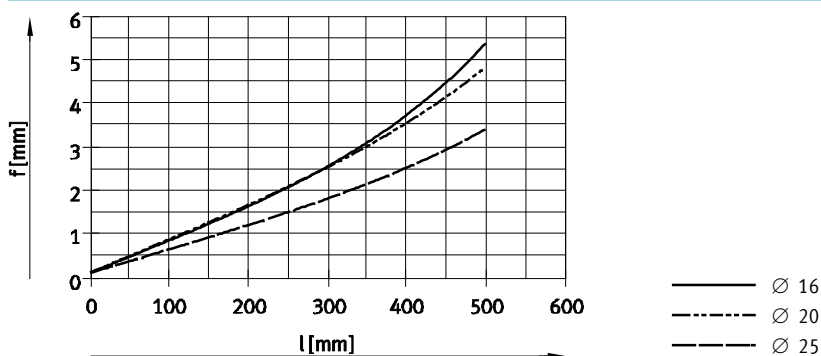


| Standard cylinder |                 |                              |
|-------------------|-----------------|------------------------------|
| 1                 | Piston rod      | High-alloy stainless steel   |
| 2                 | Bearing cap     | Polyamide                    |
| 3                 | Cylinder barrel | Wrought aluminium alloy      |
| 4                 | End cap         | Polyamide                    |
| -                 | Seals           | Polyurethane, nitrile rubber |
| Note on materials |                 | RoHS compliant               |

## Permissible lateral force $F_q$ as a function of stroke length $l$



## Permissible piston rod displacement $f$ as a function of stroke length $l$



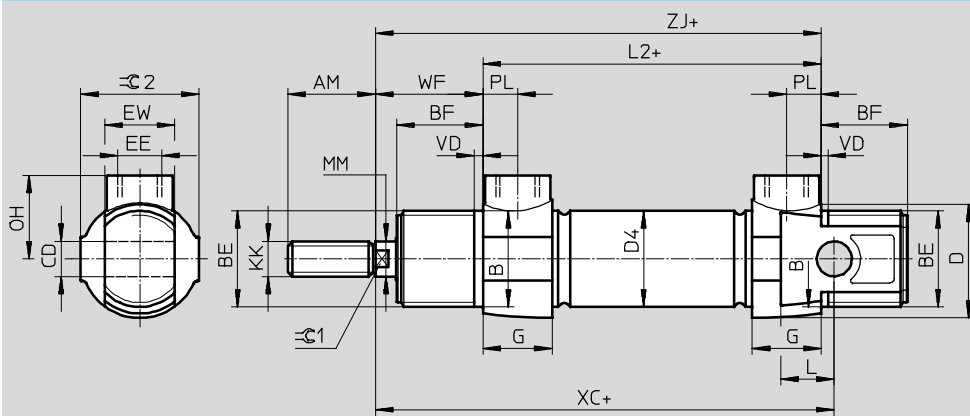
# Standard cylinders DSNUP, ISO 6432

Technical data

**FESTO**

## Dimensions

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



Note

For the compressed air ports only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used. Piston rod nut is not included in scope of delivery for Ø 16/20.

+ = plus stroke length

| Ø    | AM | B<br>Ø<br>h9 | BE      | BF | CD<br>Ø<br>H9 | D<br>Ø | D4<br>Ø | EE              |
|------|----|--------------|---------|----|---------------|--------|---------|-----------------|
| [mm] |    |              |         |    |               |        |         |                 |
| 16   | 16 | 16           | M16x1.5 | 17 | 6             | 20     | 18      | M5              |
| 20   | 20 | 22           | M22x1.5 | 20 | 8             | 27     | 22      | G $\frac{1}{8}$ |
| 25   | 22 | 22           | M22x1.5 | 22 | 8             | 27     | 27      | G $\frac{1}{8}$ |

| Ø    | EW | G  | KK       | L  | L2 | MM<br>Ø | OH | PL  | VD |
|------|----|----|----------|----|----|---------|----|-----|----|
| [mm] |    |    |          |    |    |         |    |     |    |
| 16   | 12 | 10 | M6       | 8  | 56 | 6       | 14 | 4.9 | 2  |
| 20   | 16 | 16 | M8       | 12 | 68 | 8       | 19 | 7.9 | 2  |
| 25   | 16 | 16 | M10x1.25 | 12 | 70 | 10      | 19 | 7.9 | 2  |

| Ø    | WF | XC<br>±1 | ZJ | ≈ 1 | ≈ 2 | Max. tightening torque of thread [Nm] |     |
|------|----|----------|----|-----|-----|---------------------------------------|-----|
| [mm] |    |          |    |     |     | BE <sup>1)</sup>                      | EE  |
| 16   | 22 | 82       | 78 | 5   | 19  | 12/8                                  | 1.3 |
| 20   | 24 | 95       | 92 | 7   | 27  | 22/15                                 | 6   |
| 25   | 28 | 104      | 98 | 9   | 27  | 22/15                                 | 6   |

1) Bearing cap/end cap



Note

Variable strokes on request.

## Ordering data

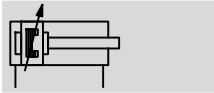
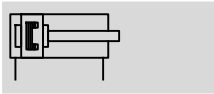
| Piston Ø<br>[mm] | Stroke<br>[mm] | Part No. | Type             |
|------------------|----------------|----------|------------------|
| 16               | 25             | 551 668  | DSNUP-16-25-P-A  |
|                  | 50             | 551 669  | DSNUP-16-50-P-A  |
|                  | 100            | 551 670  | DSNUP-16-100-P-A |
| 20               | 25             | 551 671  | DSNUP-20-25-P-A  |
|                  | 50             | 551 672  | DSNUP-20-50-P-A  |
|                  | 100            | 551 673  | DSNUP-20-100-P-A |
| 25               | 25             | 551 674  | DSNUP-25-25-P-A  |
|                  | 50             | 551 675  | DSNUP-25-50-P-A  |
|                  | 100            | 551 676  | DSNUP-25-100-P-A |

# Standard cylinders DSNU-Q, protected against rotation

FESTO

Technical data

Function



Ø - Diameter  
12 ... 25 mm

l - Stroke length  
1 ... 250 mm



| General technical data             |                                                   |      |                 |                 |
|------------------------------------|---------------------------------------------------|------|-----------------|-----------------|
| Piston Ø                           | 12                                                | 16   | 20              | 25              |
| Pneumatic connection               | M5                                                | M5   | G $\frac{1}{8}$ | G $\frac{1}{8}$ |
| Piston rod thread                  | M6                                                | M6   | M8              | M10x1.25        |
| Constructional design              | Piston                                            |      |                 |                 |
|                                    | Protected against rotation with square piston rod |      |                 |                 |
| Max. torque at the piston rod [Nm] | 0.10                                              | 0.10 | 0.20            | 0.45            |
| Cushioning                         | Flexible cushioning rings/pads at both ends       |      |                 |                 |
|                                    | Adjustable cushioning at both ends                |      |                 |                 |
| Cushioning length (PPV) [mm]       | –                                                 | 12   | 15              | 17              |
| Position sensing                   | Via proximity sensor                              |      |                 |                 |
| Type of mounting                   | Via accessories                                   |      |                 |                 |
| Mounting position                  | Any                                               |      |                 |                 |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |          |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|----------|----|----|
| Piston Ø                       | 12                                                                                                     | 16       | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |          |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |          |    |    |
| Operating pressure [bar]       | 1.5 ... 10 <sup>1)</sup>                                                                               | 1 ... 10 |    |    |

1) With DSNU-12- ... -Q- PPV (pneumatic cushioning adjustable at both ends): 2 ... 10 bar

| Ambient conditions                           |               |    |
|----------------------------------------------|---------------|----|
| Standard cylinder                            | Basic version | R3 |
| Ambient temperature <sup>1)</sup> [°C]       | –20 ... +80   |    |
| Corrosion resistance class CRC <sup>2)</sup> | 2             | 3  |

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 3 as per Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

## Standard cylinders DSNU-Q, protected against rotation

FESTO

Technical data

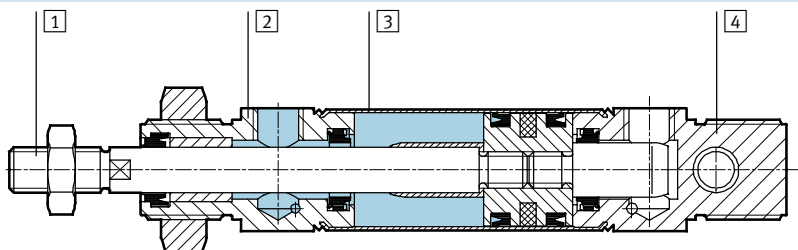
| Forces [N] and impact energy [J]                                                       |      |      |      |      |
|----------------------------------------------------------------------------------------|------|------|------|------|
| Piston Ø                                                                               | 12   | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing                                                  | 68   | 121  | 189  | 295  |
| Theoretical force at 6 bar, retracting                                                 | 51   | 104  | 158  | 247  |
| Max. impact energy at the end positions for flexible cushioning elements <sup>1)</sup> | 0.07 | 0.15 | 0.20 | 0.30 |

1) The values are reduced by approx. 50% at an ambient temperature of 80 °C

| Weight [g]                         |     |     |     |      |
|------------------------------------|-----|-----|-----|------|
| Piston Ø                           | 12  | 16  | 20  | 25   |
| Product weight with 0 mm stroke    | 80  | 110 | 215 | 275  |
| Additional weight per 10 mm stroke | 4.1 | 4.7 | 7.1 | 10.9 |

### Materials

Sectional view



| Standard cylinder |                 |                              |
|-------------------|-----------------|------------------------------|
| 1                 | Piston rod      | High-alloy stainless steel   |
| 2                 | Bearing cap     | Anodised aluminium           |
| 3                 | Cylinder barrel | High-alloy stainless steel   |
| 4                 | End cap         | Anodised aluminium           |
| –                 | Seals           | Polyurethane, nitrile rubber |

# Standard cylinders DSNU-Q, protected against rotation

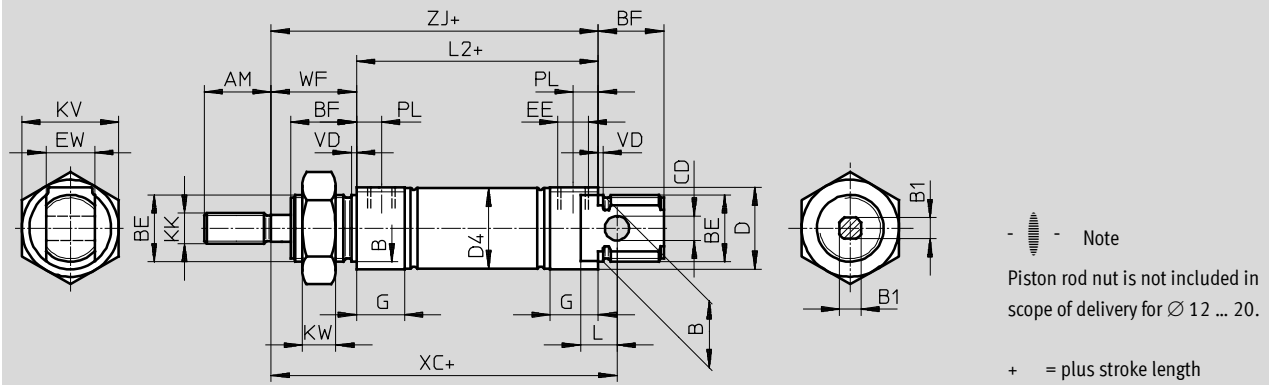
Technical data

FESTO

## Dimensions

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

### Basic version



| Ø    | AM | B<br>Ø<br>h9 | B1<br>□ | BE      | BF | CD<br>Ø<br>H9 | D<br>Ø | D4<br>Ø | EE   | EW |
|------|----|--------------|---------|---------|----|---------------|--------|---------|------|----|
| [mm] |    |              |         |         |    |               |        |         |      |    |
| 12   | 16 | 16           | 5.5     | M16x1.5 | 17 | 6             | 20     | 13.3    | M5   | 12 |
| 16   |    |              |         |         |    |               |        | 17.3    |      |    |
| 20   | 22 | 22           | 7       | M22x1.5 | 20 | 8             | 27     | 21.3    | G1/8 | 16 |
| 25   |    |              |         |         |    |               |        | 26.5    |      |    |

| Ø    | G  | KK       | KV | KW | L  | L2   | PL  | VD | WF | XC  | ZJ   |
|------|----|----------|----|----|----|------|-----|----|----|-----|------|
| [mm] |    |          |    |    |    |      |     |    |    | ±1  |      |
| 12   | 10 | M6       | 24 | 8  | 9  | 50   | 6   | 2  | 22 | 75  | 72   |
| 16   |    |          |    |    |    | 56   |     |    |    | 82  | 78   |
| 20   | 16 | M8       | 32 | 11 | 12 | 68   | 8.2 |    | 24 | 95  | 92   |
| 25   |    | M10x1.25 |    |    |    | 69.5 |     |    | 28 | 104 | 97.5 |

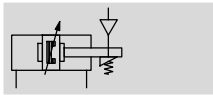
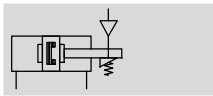
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders DSNU-KP, with clamping unit

FESTO

Technical data

## Function

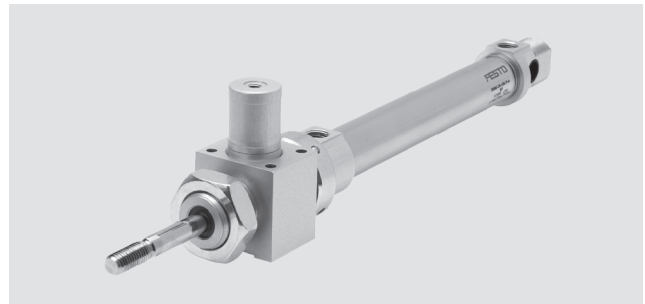


⌀ - Diameter  
8 ... 25 mm

┆ - Stroke length  
1 ... 500 mm

-  - Note

Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable for use in safety-related sections of control systems.



| General technical data                                   |                      |                                               |     |     |      |          |
|----------------------------------------------------------|----------------------|-----------------------------------------------|-----|-----|------|----------|
| Piston Ø                                                 | 8                    | 10                                            | 12  | 16  | 20   | 25       |
| Pneumatic connection                                     | M5                   | M5                                            | M5  | M5  | G1/8 | G1/8     |
| Piston rod thread                                        | M4                   | M4                                            | M6  | M6  | M8   | M10x1.25 |
| Constructional design                                    | Piston               |                                               |     |     |      |          |
|                                                          | Piston rod           |                                               |     |     |      |          |
|                                                          | Cylinder barrel      |                                               |     |     |      |          |
| Cushioning                                               | P                    | Flexible cushioning rings/pads at both ends   |     |     |      |          |
|                                                          | PPV                  | Pneumatic cushioning, adjustable at both ends |     |     |      |          |
|                                                          | PPS                  | Self-adjusting cushioning at both ends        |     |     |      |          |
| Cushioning length                                        | PPV                  | [mm]                                          | 9   | 12  | 15   | 17       |
|                                                          | PPS                  | [mm]                                          | 12  | 15  | 17   |          |
| Position sensing                                         | Via proximity sensor |                                               |     |     |      |          |
| Type of mounting                                         | Via through-holes    |                                               |     |     |      |          |
|                                                          | Via accessories      |                                               |     |     |      |          |
| Mounting position                                        | Any                  |                                               |     |     |      |          |
| Holding force of the clamping unit                       | [N]                  | 80                                            | 80  | 180 | 180  | 350      |
| Max. axial backlash with clamped piston rod without load | [mm]                 | 0.2                                           | 0.3 |     |      | 0.5      |
| Pneumatic connection of the clamping unit                | M5                   |                                               |     |     |      |          |

-  - Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |          |    |    |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|----------|----|----|----|----|
| Piston Ø                       | 8                                                                                                      | 10       | 12 | 16 | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |          |    |    |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |          |    |    |    |    |
| Operating pressure             | [bar]                                                                                                  | 3 ... 10 |    |    |    |    |

| Ambient conditions                           |               |             |
|----------------------------------------------|---------------|-------------|
| Standard cylinder                            | Basic version | R3          |
| Ambient temperature <sup>1)</sup>            | [°C]          | -10 ... +80 |
| Corrosion resistance class CRC <sup>2)</sup> | 2             | 3           |

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 3 as per Festo standard 940 070

Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

# Standard cylinders DSNU-KP, with clamping unit

FESTO

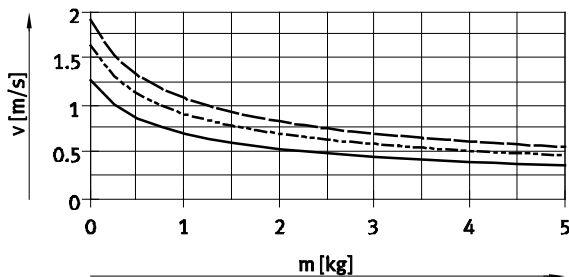
Technical data

| Force [N] and impact energy [J]                                                        |      |      |      |      |      |      |
|----------------------------------------------------------------------------------------|------|------|------|------|------|------|
| Piston Ø                                                                               | 8    | 10   | 12   | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing                                                  | 30   | 47   | 68   | 121  | 189  | 295  |
| Theoretical force at 6 bar, retracting                                                 | 23   | 40   | 51   | 104  | 158  | 247  |
| Max. impact energy at the end positions for flexible cushioning elements <sup>1)</sup> | 0.03 | 0.05 | 0.07 | 0.15 | 0.20 | 0.30 |

1) The values are reduced by approx. 50% at an ambient temperature of 80 °C

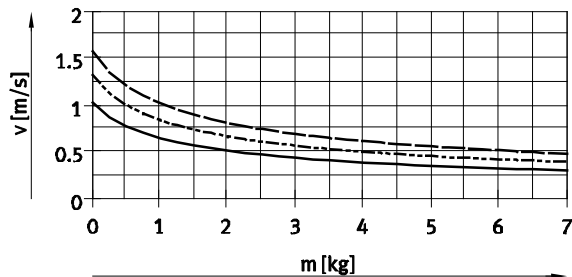
## Average piston speed $v$ as a function of applied load $m$ in combination with cushioning PPS

Piston Ø 16



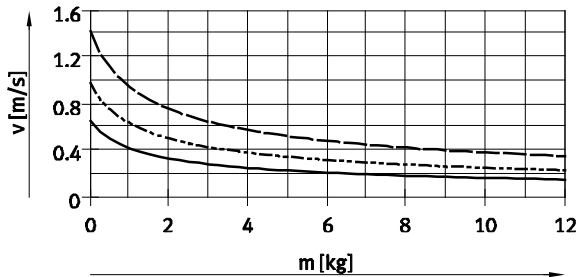
— DSNU-16-50  
 - - - DSNU-16-100  
 - · - DSNU-16-200

Piston Ø 20



— DSNU-20-50  
 - - - DSNU-20-100  
 - · - DSNU-20-200

Piston Ø 25



— DSNU-25-50  
 - - - DSNU-25-100  
 - · - DSNU-25-200

- · - Note

Average piston speed  
 = stroke/movement time

- · - Note

Design software  
 for flexible cushioning elements  
 → ProDrive

Additional graphs  
 for PPS cushioning  
 → [www.festo.com](http://www.festo.com)

Design software  
 for PPV cushioning  
 → ProDrive

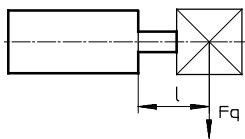
| Weight [g]                         |      |       |     |       |       |     |
|------------------------------------|------|-------|-----|-------|-------|-----|
| Piston Ø                           | 8    | 10    | 12  | 16    | 20    | 25  |
| Product weight with 0 mm stroke    | 97.6 | 100.3 | 193 | 207.9 | 393.8 | 456 |
| Additional weight per 10 mm stroke | 2.4  | 2.7   | 4   | 4.6   | 7.2   | 11  |

# Standard cylinders DSNU-KP, with clamping unit

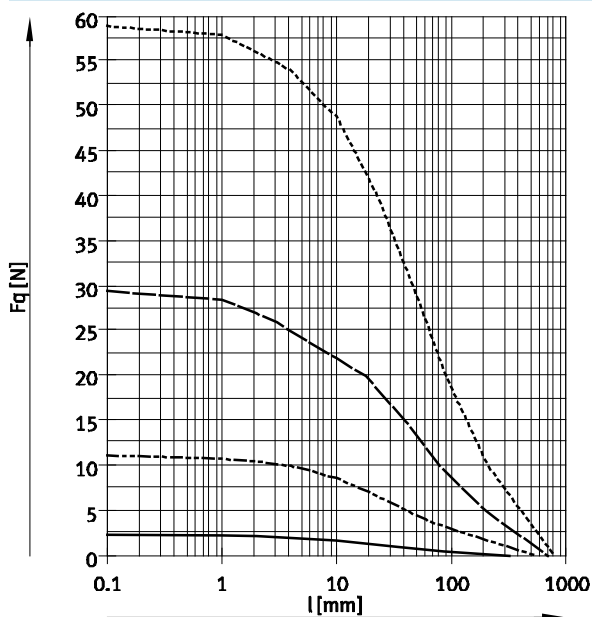
FESTO

Technical data

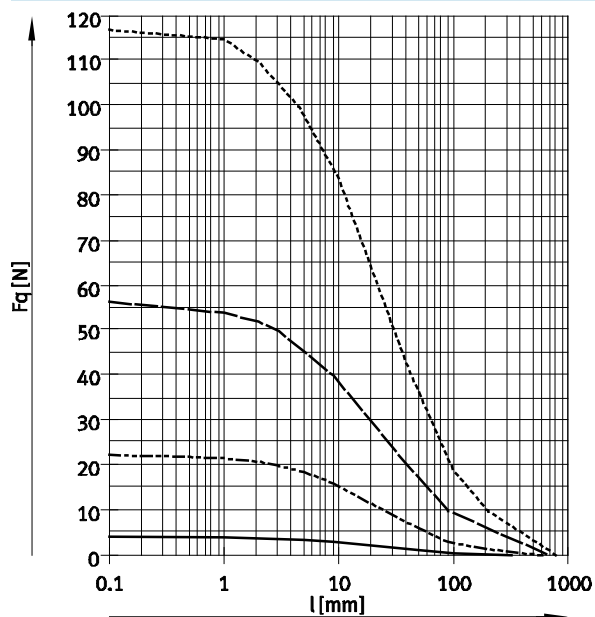
## Max. lateral force $F_q$ as a function of the projection $l$



### Basic version



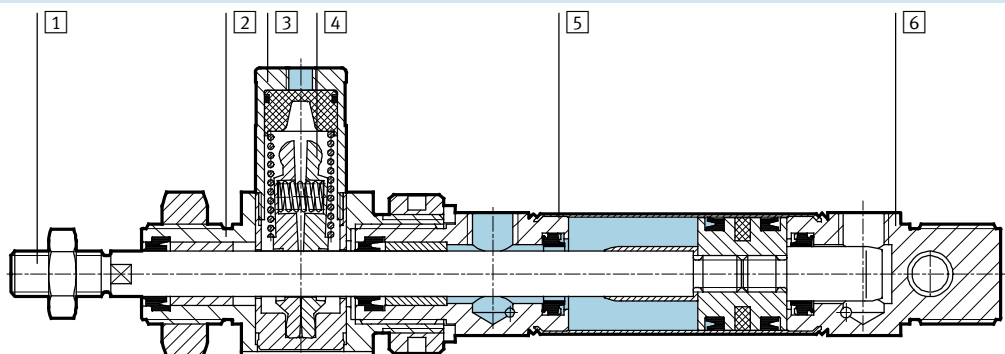
### S2 – Through piston rod



- $\varnothing 8/10$
- - -  $\varnothing 12/16$
- · -  $\varnothing 20$
- · ·  $\varnothing 25$

## Materials

### Sectional view



### Standard cylinder

|   |                        |                              |
|---|------------------------|------------------------------|
| 1 | Piston rod             | High-alloy stainless steel   |
| 2 | Bearing cap            | Anodised aluminium           |
| 3 | Housing, clamping unit | Wrought aluminium alloy      |
| 4 | Clamping jaws          | Brass                        |
| 5 | Cylinder barrel        | High-alloy stainless steel   |
| 6 | End cap                | Anodised aluminium           |
| - | Piston, clamping unit  | Polyacetate                  |
| - | Spring                 | Spring steel                 |
| - | Seals                  | Polyurethane, nitrile rubber |

# Standard cylinders DSNU-KP, with clamping unit

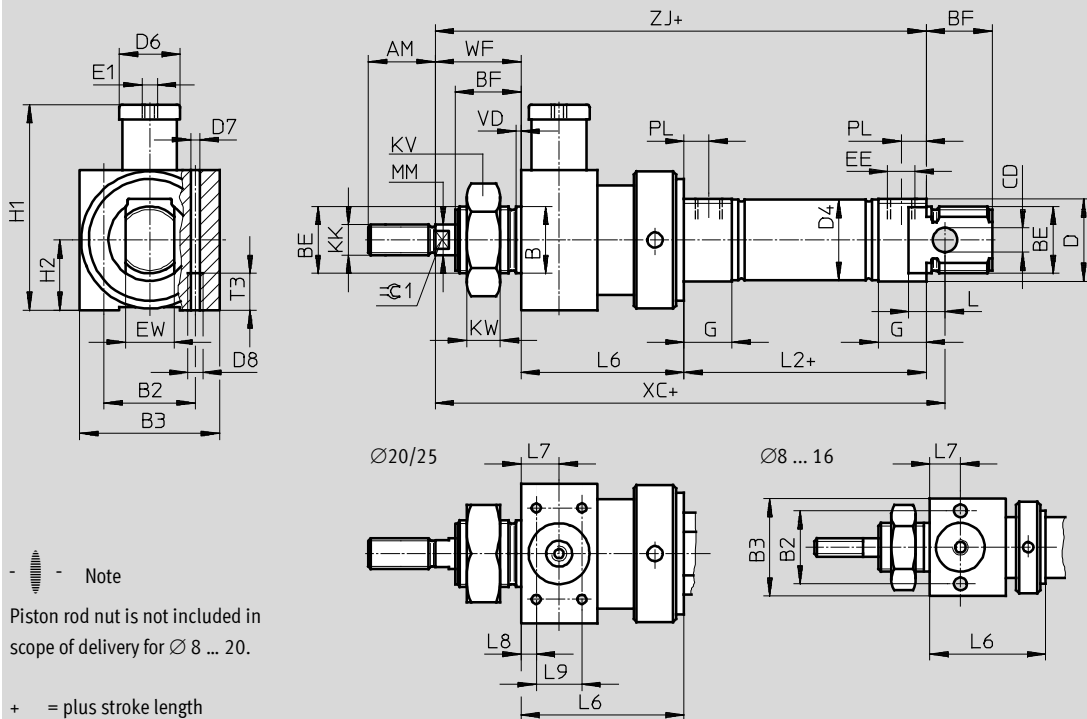
Technical data

FESTO

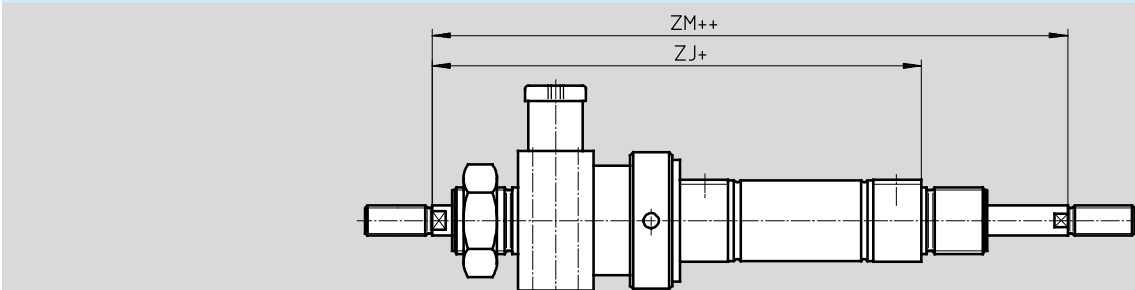
## Dimensions

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

### Basic version



### S2 – Through piston rod



Note

The thread types at both piston rod ends are identical. The clamping unit is mounted on only one side. In

combination with variant Q, the right-hand piston rod is square, the left-hand piston rod round. The clamping

unit is mounted on the left-hand, round piston rod.

+ = plus stroke length

++ = plus 2x stroke length

# Standard cylinders DSNU-KP, with clamping unit

FESTO

Technical data

| Ø<br>[mm] | AM | B<br>Ø<br>h9 | B2   | B3 | BE       | BF | CD<br>Ø<br>H9 | D<br>Ø | D4<br>Ø | D6<br>Ø | D7<br>Ø | D8 |
|-----------|----|--------------|------|----|----------|----|---------------|--------|---------|---------|---------|----|
| 8         | 12 | 12           | 19.5 | 27 | M12x1.25 | 12 | 4             | 15     | 9.3     | 12      | 4.2     | M5 |
| 10        |    |              |      |    |          |    |               |        | 11.3    |         |         |    |
| 12        | 16 | 16           | 24   | 32 | M16x1.5  | 17 | 6             | 20     | 13.3    |         |         |    |
| 16        |    |              |      |    |          |    |               |        | 17.3    |         |         |    |
| 20        | 20 | 22           | 27   | 36 | M22x1.5  | 20 | 8             | 27     | 21.3    |         |         |    |
| 25        | 22 |              |      |    |          | 22 |               |        | 26.5    |         |         |    |

| Ø    | E1 | EE   | EW | G  | H1   | H2   | KK       | KV | KW | MM<br>Ø | L  | L2   |
|------|----|------|----|----|------|------|----------|----|----|---------|----|------|
| [mm] |    |      |    |    |      |      |          |    |    |         |    |      |
| 8    | M5 | M5   | 8  | 10 | 34.5 | 13.5 | M4       | 19 | 6  | 4       | 6  | 46   |
| 10   |    |      | 12 |    | 41   | 16   | M6       | 24 | 8  | 6       | 9  | 50   |
| 12   |    |      |    |    |      |      |          |    |    |         |    | 56   |
| 16   |    | G1/8 | 16 | 16 | 62.5 | 18   | M8       | 32 | 11 | 8       | 12 | 68   |
| 20   |    |      |    |    |      |      | M10x1.25 |    |    | 10      |    | 69.5 |
| 25   |    |      |    |    |      |      |          |    |    |         |    |      |

| Ø    | L6       | L7 | L8  | L9 | T3 | PL  | VD | WF | XC  | ZJ    | ZM    | ≈C1 |
|------|----------|----|-----|----|----|-----|----|----|-----|-------|-------|-----|
| [mm] |          |    |     |    |    |     |    |    | ±1  |       |       |     |
| 8    | 29 ±0.65 | 8  | –   | –  | 11 | 6   | 2  | 16 | 93  | 91    | 107   | –   |
| 10   |          |    | –   | –  |    |     |    |    |     |       |       | –   |
| 12   | 38 ±0.75 | 10 | –   | –  |    |     |    | 22 | 113 | 110   | 132   | 5   |
| 16   |          |    | –   | –  |    |     |    |    | 120 | 116   | 138   |     |
| 20   | 47 ±0.75 | 13 | 4.5 | 20 |    | 8.2 |    | 24 | 142 | 139   | 163   | 7   |
| 25   | 48 ±0.75 |    |     |    |    |     |    | 28 | 152 | 145.5 | 173.5 | 9   |

· † · Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders DSNU, ISO 6432

Ordering data – Modular products

FESTO

| M Mandatory data     |          |          |           |                 | O Options        |                  |                    | → |
|----------------------|----------|----------|-----------|-----------------|------------------|------------------|--------------------|---|
| Module No.           | Function | Piston Ø | Stroke    | Cushioning      | Position sensing | Cylinder end cap | Type of piston rod |   |
| 193 986              | DSNU     | 8        | 1 ... 500 | P<br>PPV<br>PPS | A                | MQ<br>MA<br>MH   | S2                 |   |
| 193 987              |          | 10       |           |                 |                  |                  |                    |   |
| 193 988              |          | 12       |           |                 |                  |                  |                    |   |
| 193 989              |          | 16       |           |                 |                  |                  |                    |   |
| 193 990              |          | 20       |           |                 |                  |                  |                    |   |
| 193 991              |          | 25       |           |                 |                  |                  |                    |   |
| <b>Order example</b> |          |          |           |                 |                  |                  |                    |   |
| 193 991              | DSNU     | - 25     | - 350     | - PPV           | - A              | - MH             | - S2               |   |

| Ordering table |                  |                                                              |                    |                                               |                                                   |           |           |                 |      |               |
|----------------|------------------|--------------------------------------------------------------|--------------------|-----------------------------------------------|---------------------------------------------------|-----------|-----------|-----------------|------|---------------|
| Size           |                  | 8                                                            | 10                 | 12                                            | 16                                                | 20        | 25        | Condi-<br>tions | Code | Enter<br>code |
| M              | Module No.       | 193 986                                                      | 193 987            | 193 988                                       | 193 989                                           | 193 990   | 193 991   |                 |      |               |
|                | Function         | Standard cylinder, double-acting, based on ISO 6432          |                    |                                               |                                                   |           |           |                 | DSNU |               |
|                | Piston Ø [mm]    | 8                                                            | 10                 | 12                                            | 16                                                | 20        | 25        |                 | -... |               |
|                | Stroke [mm]      | 1 ... 100                                                    |                    | 1 ... 200                                     |                                                   | 1 ... 320 | 1 ... 500 |                 | -... |               |
|                | Cushioning       | Flexible cushioning rings/pads at both ends                  |                    |                                               |                                                   |           |           |                 | -P   |               |
|                |                  | –                                                            | –                  | Pneumatic cushioning, adjustable at both ends |                                                   |           |           | 1               | -PPV |               |
|                |                  | –                                                            | –                  | –                                             | Pneumatic cushioning, self-adjusting at both ends |           |           | 13              | -PPS |               |
| O              | Position sensing | Via proximity sensor                                         |                    |                                               |                                                   |           |           | 2               | -A   |               |
|                | Cylinder end cap | Lateral supply port, end cap                                 |                    |                                               |                                                   |           |           | 3               | -MQ  |               |
|                |                  | Axial supply port, end cap                                   |                    |                                               |                                                   |           |           | 3               | -MA  |               |
|                |                  | With mounting flange at front (direct mounting), bearing cap |                    |                                               |                                                   |           |           | 4               | -MH  |               |
|                | ↓                | Type of piston rod                                           | Through piston rod |                                               |                                                   |           |           |                 | 5    | -S2           |

- 1 PPV Not with MA.  
In combination with S6, S10, S11 not with piston Ø 12 mm
- 2 A Minimum stroke: 10 mm
- 3 MQ, MA Not with S2, S10, S11

- 4 MH Not with combination S6-R3.  
Not with KP, S10, S11
- 5 S2 Not with S10, S11
- 13 PPS Not with MA, MH, S6, S10, S11  
and not with combination MQ-R3

 Note

The bellows kit DADB must not be used in combination with the variant MH.

The running characteristics change slightly when the bellows kit DADB is combined with the variant S10 or S11.

## Transfer order code

DSNU -  -  -  -  -  -

# Standard cylinders DSNU, ISO 6432

FESTO

Ordering data – Modular products

| → 0 Options          |                       |               |                |                     |               |                        |                              |              |                      |
|----------------------|-----------------------|---------------|----------------|---------------------|---------------|------------------------|------------------------------|--------------|----------------------|
| Extended male thread | Shortened male thread | Female thread | Special thread | Extended piston rod | Clamping unit | Temperature resistance | Slow speed (constant motion) | Low friction | Corrosion protection |
| ...K2                | ...K6                 | K3            | “...”K5        | ...K8               | KP            | S6                     | S10                          | S11          | R3                   |
| -                    | - 7K6                 | -             | - “M10”K5      | -                   | -             | -                      | -                            | -            | - R3                 |

| Ordering table |                                |          |    |          |                                                   |          |                                                    |           |               |
|----------------|--------------------------------|----------|----|----------|---------------------------------------------------|----------|----------------------------------------------------|-----------|---------------|
| Size           | 8                              | 10       | 12 | 16       | 20                                                | 25       | Condi-<br>tions                                    | Code      | Enter<br>code |
| ↓              | Extended male thread           |          |    |          |                                                   |          | Extended male piston rod thread                    |           |               |
| 0              | [mm]                           | 1 ... 15 |    | 1 ... 20 |                                                   | 1 ... 25 | 1 ... 35                                           | 6         | -...K2        |
|                | Shortened male thread          |          |    |          |                                                   |          | Shortened male piston rod thread                   |           |               |
|                | [mm]                           | 1 ... 4  |    |          |                                                   | 1 ... 8  | 1 ... 10                                           | 7         | -...K6        |
|                | Female thread                  |          |    |          |                                                   |          | Female piston rod thread                           |           |               |
|                |                                | —        | —  | —        | —                                                 | (M4)     | (M6)                                               | 8         | -K3           |
|                | Special thread                 |          |    |          |                                                   |          | Piston rod with special thread                     |           |               |
|                |                                | —        | —  | —        | —                                                 | —        | M10                                                | -“...”    | K5            |
|                | Piston rod extended at one end |          |    |          |                                                   |          | Extended piston rod at one end                     |           |               |
|                | [mm]                           | 1 ... 50 |    |          | 1 ... 100                                         |          | 1 ... 110                                          | 1 ... 150 | ...K8         |
|                | Clamping unit                  |          |    |          |                                                   |          | Attached                                           | 9         | -KP           |
|                | Temperature resistance         |          |    |          |                                                   |          | Heat-resistant seals for temperatures up to 120 °C | 10        | -S6           |
|                | Slow speed (constant motion)   |          | —  | —        | Slow speed (constant motion at low piston speeds) |          |                                                    | 11        | -S10          |
|                | Low friction                   |          | —  | —        | Low friction                                      |          |                                                    | 12        | -S11          |
|                | Corrosion protection           |          | —  | —        | High corrosion protection                         |          |                                                    |           | -R3           |

- 6 K2 Not with K3, K6  
 7 K6 Not with K3  
 8 K3 Not with K5  
 9 KP Not with S6, S10, S11, R3

- 10 S6 Not with S10, S11  
 11 S10 Not with S11, R3  
 12 S11 Not with R3

Transfer order code

- [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

# Standard cylinders DSNU-Q, protected against rotation

FESTO

Ordering data – Modular products

| M Mandatory data     |          |          |           |            | O Options →      |                  |                             |                    |
|----------------------|----------|----------|-----------|------------|------------------|------------------|-----------------------------|--------------------|
| Module No.           | Function | Piston Ø | Stroke    | Cushioning | Position sensing | Cylinder end cap | Protection against rotation | Type of piston rod |
| 193 988              | DSNU     | 12       | 1 ... 500 | P<br>PPV   | A                | MQ<br>MA<br>MH   | Q                           | S2                 |
| 193 989              |          | 16       |           |            |                  |                  |                             |                    |
| 193 990              |          | 20       |           |            |                  |                  |                             |                    |
| 193 991              |          | 25       |           |            |                  |                  |                             |                    |
| <b>Order example</b> |          |          |           |            |                  |                  |                             |                    |
| 193 990              | DSNU     | - 20     | - 150     | - PPV      | - A              | - MQ             | - Q                         | -                  |

| Ordering table              |               |                                                     |                                                                 |           |           |                 |      |               |
|-----------------------------|---------------|-----------------------------------------------------|-----------------------------------------------------------------|-----------|-----------|-----------------|------|---------------|
| Size                        |               | 12                                                  | 16                                                              | 20        | 25        | Condi-<br>tions | Code | Enter<br>code |
| [M]                         | Module No.    | 193 988                                             | 193 989                                                         | 193 990   | 193 991   |                 |      |               |
|                             | Function      | Standard cylinder, double-acting, based on ISO 6432 |                                                                 |           |           |                 | DSNU |               |
|                             | Piston Ø [mm] | 12                                                  | 16                                                              | 20        | 25        |                 | -... |               |
|                             | Stroke [mm]   | 5 ... 160                                           |                                                                 | 5 ... 200 | 5 ... 250 |                 | -... |               |
|                             | Cushioning    | Flexible cushion-<br>ing rings/pads at<br>both ends | –                                                               | –         | –         |                 | -P   |               |
|                             |               | –                                                   | Pneumatic cushioning, adjustable at both ends                   |           |           |                 | -PPV |               |
|                             | [O]           | Position sensing                                    | Via proximity sensor                                            |           |           |                 | 1    |               |
| Cylinder end cap            |               | Lateral supply port, end cap                        |                                                                 |           |           | 2               | -MQ  |               |
|                             |               | Axial supply<br>port, end cap                       | –                                                               | –         | –         | 2               | -MA  |               |
|                             |               | –                                                   | With mounting flange at front (direct mounting),<br>bearing cap |           |           | 3               | -MH  |               |
| Protection against rotation |               | Square piston rod                                   |                                                                 |           |           |                 | -Q   |               |
| ↓ Type of piston rod        |               | Through piston rod                                  |                                                                 |           |           |                 | -S2  |               |

- 1 A Minimum stroke: 10 mm  
2 MQ, MA Not with S2

- 3 MH Not with combination Q-R3

 Note  
The bellows kit DADB must not be used in combination with the variant Q.

Transfer order code

|  |      |   |  |   |  |   |  |   |  |   |   |   |  |
|--|------|---|--|---|--|---|--|---|--|---|---|---|--|
|  | DSNU | - |  | - |  | - |  | - |  | - | Q | - |  |
|--|------|---|--|---|--|---|--|---|--|---|---|---|--|

# Standard cylinders DSNU-Q, protected against rotation

FESTO

Ordering data – Modular products

| → 0 Options          |                       |               |                |                     |               |                      |
|----------------------|-----------------------|---------------|----------------|---------------------|---------------|----------------------|
| Extended male thread | Shortened male thread | Female thread | Special thread | Extended piston rod | Clamping unit | Corrosion protection |
| ...K2                | ...K6                 | K3            | "..."K5        | ...K8               | KP            | R3                   |
| - 20K2               | -                     | -             | -              | - 60K8              | - KP          | -                    |

| Ordering table                      |                                             |    |    |                           |                 |      |               |
|-------------------------------------|---------------------------------------------|----|----|---------------------------|-----------------|------|---------------|
| Size                                | 12                                          | 16 | 20 | 25                        | Condi-<br>tions | Code | Enter<br>code |
| ↓                                   |                                             |    |    |                           |                 |      |               |
| 0 Extended male thread [mm]         | Extended male piston rod thread<br>1 ... 20 |    |    | 1 ... 25                  | 1 ... 35        | 4    | -...K2        |
| Shortened male thread [mm]          | Shortened male piston rod thread<br>1 ... 4 |    |    | 1 ... 8                   | 1 ... 10        | 5    | -...K6        |
| Female thread                       | Female piston rod thread<br>-               |    |    | (M4)                      | (M6)            | 6    | -K3           |
| Special thread                      | Piston rod with special thread<br>-         |    |    | -                         | M10             |      | -..."K5       |
| Piston rod extended at one end [mm] | Extended piston rod at one end<br>1 ... 100 |    |    | 1 ... 110                 | 1 ... 150       |      | ...K8         |
| Clamping unit                       | Attached                                    |    |    |                           |                 | 7    | -KP           |
| Corrosion protection                | -                                           |    |    | High corrosion protection |                 |      | -R3           |

- 4 K2 Not with K3, K6  
 5 K6 Not with K3  
 6 K3 Not with K5

- 7 KP Only with S2.  
 Not with R3

Transfer order code

-  -  -  -  -  -  -

# Standard cylinders ESNU, ISO 6432

Technical data

**FESTO**

Function



Variants

→ 41

- Ø - Diameter  
8 ... 25 mm

- I - Stroke length  
1 ... 50 mm



Basic version



Axial air connection MA

| General technical data |                                             |    |    |    |      |          |
|------------------------|---------------------------------------------|----|----|----|------|----------|
| Piston Ø               | 8                                           | 10 | 12 | 16 | 20   | 25       |
| Pneumatic connection   | M5                                          | M5 | M5 | M5 | G1/8 | G1/8     |
| Piston rod thread      | M4                                          | M4 | M6 | M6 | M8   | M10x1.25 |
| Constructional design  | Piston                                      |    |    |    |      |          |
|                        | Piston rod                                  |    |    |    |      |          |
|                        | Cylinder barrel                             |    |    |    |      |          |
| Cushioning             | Flexible cushioning rings/pads at both ends |    |    |    |      |          |
| Position sensing       | Via proximity sensor                        |    |    |    |      |          |
| Type of mounting       | Via accessories                             |    |    |    |      |          |
| Mounting position      | Any                                         |    |    |    |      |          |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |    |    |            |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|----|----|------------|----|----|
| Piston Ø                       | 8                                                                                                      | 10 | 12 | 16         | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |    |    |            |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |    |    |            |    |    |
| Operating pressure [bar]       | 1.5 ... 10                                                                                             |    |    | 1.2 ... 10 |    |    |

| Ambient conditions                           |             |  |
|----------------------------------------------|-------------|--|
| Standard cylinder                            |             |  |
| Ambient temperature <sup>1)</sup> [°C]       | -20 ... +80 |  |
| Corrosion resistance class CRC <sup>2)</sup> | 2           |  |

1) Note operating range of proximity sensors.

2) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

# Standard cylinders ESNU, ISO 6432

FESTO

Technical data

| Force [N] and impact energy [J]                       |      |      |      |      |      |      |
|-------------------------------------------------------|------|------|------|------|------|------|
| Piston Ø                                              | 8    | 10   | 12   | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing                 | 24   | 41   | 61   | 107  | 169  | 270  |
| Spring return force                                   |      |      |      |      |      |      |
| 10 mm stroke                                          | 4.9  | 4.9  | 6.3  | 13.2 | 18.3 | 22.9 |
| 25 mm stroke                                          | 4.1  | 4.1  | 5.4  | 11.9 | 16.5 | 21.2 |
| 50 mm stroke                                          | 2.8  | 4.8  | 3.9  | 9.8  | 13.6 | 18.5 |
| Max. impact energy at the end positions <sup>1)</sup> | 0.03 | 0.05 | 0.07 | 0.15 | 0.20 | 0.30 |

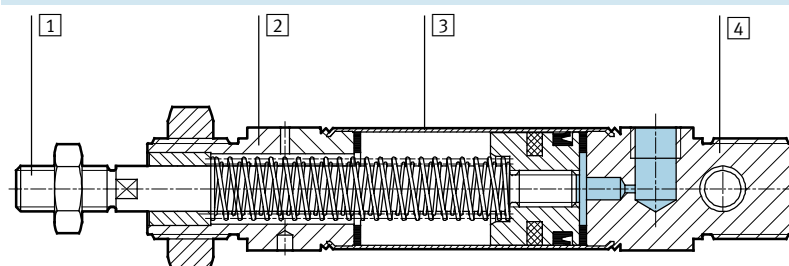
1) The values are reduced by approx. 50% at ambient temperatures of 80 °C

| Weight ESNU-... [g]                |     |      |    |      |       |     |
|------------------------------------|-----|------|----|------|-------|-----|
| Piston Ø                           | 8   | 10   | 12 | 16   | 20    | 25  |
| Product weight with 0 mm stroke    | 35  | 37.3 | 75 | 89.9 | 186.8 | 238 |
| Additional weight per 10 mm stroke | 2.4 | 2.7  | 4  | 4.6  | 7.2   | 11  |

| Weight ESNU-...-MA [g]             |     |     |    |     |     |     |
|------------------------------------|-----|-----|----|-----|-----|-----|
| Piston Ø                           | 8   | 10  | 12 | 16  | 20  | 25  |
| Product weight with 0 mm stroke    | 30  | 33  | 65 | 81  | 167 | 222 |
| Additional weight per 10 mm stroke | 2.4 | 2.7 | 4  | 4.6 | 7.2 | 11  |

## Materials

Sectional view



| Standard cylinder |                 |                              |
|-------------------|-----------------|------------------------------|
| 1                 | Piston rod      | High-alloy stainless steel   |
| 2                 | Bearing cap     | Anodised aluminium           |
| 3                 | Cylinder barrel | High-alloy stainless steel   |
| 4                 | End cap         | Anodised aluminium           |
| -                 | Seals           | Polyurethane, nitrile rubber |
| -                 | Spring          | Spring steel                 |

# Standard cylinders ESNU, ISO 6432

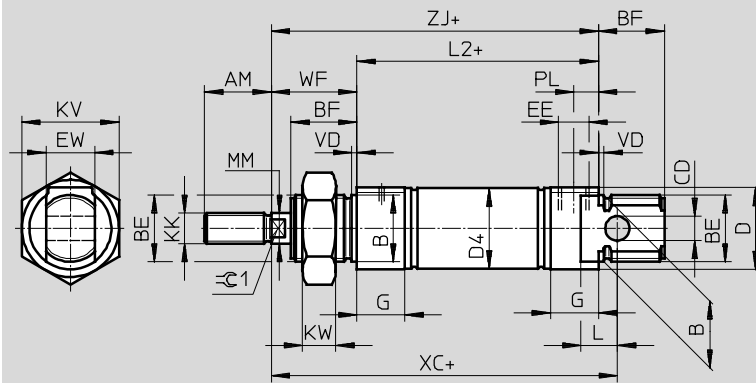
Technical data

**FESTO**

## Dimensions

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

### Basic version

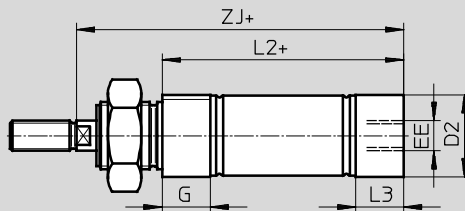


Note

Piston rod nut is not included in scope of delivery for Ø 8 ... 20.

+ = plus stroke length

### MA – Axial air connection



+ = plus stroke length

| Ø<br>[mm] | AM | B<br>Ø<br>h9 | BE       | BF | CD<br>Ø<br>H9 | D<br>Ø | D2<br>Ø | D4<br>Ø | EE                            | EW | G  | KK       | KV |
|-----------|----|--------------|----------|----|---------------|--------|---------|---------|-------------------------------|----|----|----------|----|
| 8         | 12 | 12           | M12x1.25 | 12 | 4             | 15     | 10.5    | 9.3     | M5                            | 8  | 10 | M4       | 19 |
| 10        |    |              |          |    |               |        | 12.5    | 11.3    |                               |    |    |          |    |
| 12        | 16 | 16           | M16x1.5  | 17 | 6             | 20     | 14.5    | 13.3    |                               | 12 |    | M6       | 24 |
| 16        |    |              |          |    |               |        | 17.5    | 17.3    |                               |    |    |          |    |
| 20        | 20 | 22           | M22x1.5  | 20 | 8             | 27     | 21.7    | 21.3    | G <sup>1</sup> / <sub>8</sub> | 16 | 16 | M8       | 32 |
| 25        | 22 |              |          | 22 |               |        | 26.7    | 26.5    |                               |    |    | M10x1.25 |    |

| Ø    | KW | L  | L2 |      | L3   | MM<br>Ø | PL  | VD | WF | XC<br>±1 | ZJ |      | ±C1  |      |
|------|----|----|----|------|------|---------|-----|----|----|----------|----|------|------|------|
| [mm] |    |    |    | -MA  |      |         |     |    |    |          |    | -MA  |      |      |
| 8    | 6  | 6  | 46 | 43.6 | 7.6  | 4       | 6   | 2  | 16 | 64       | 62 | 59.6 | -    |      |
| 10   |    |    |    | 43.1 | 7.1  |         |     |    |    |          |    | 59.1 |      |      |
| 12   | 8  | 9  | 50 | 47.7 | 7.7  | 6       | 8.2 |    | 22 | 75       | 72 | 69.7 | 5    |      |
| 16   |    |    |    | 53.7 |      |         |     |    |    |          |    | 78   |      | 75.7 |
| 20   | 11 | 12 | 68 | 66.5 | 14.5 | 8       |     |    | 24 | 95       | 92 | 90.5 | 7    |      |
| 25   |    |    |    | 69.5 |      |         |     |    |    |          |    |      | 68.5 | 14   |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders ESNU, ISO 6432

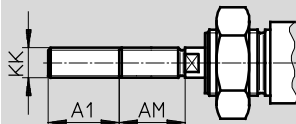
Technical data

**FESTO**

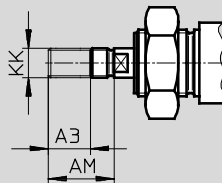
## Dimensions

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

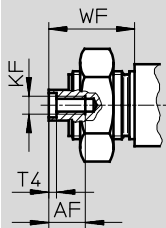
K2 – Extended male piston rod thread



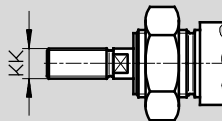
K6 – Shortened male piston rod thread



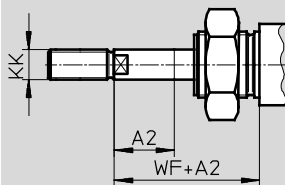
K3 – Female piston rod thread



K5 – Special piston rod thread



K8 – Extended piston rod



| Ø<br>[mm] | A1<br>max. | A2<br>max. | A3<br>max. | AF | AM | KF | KK              |                                 | T4  | WF |
|-----------|------------|------------|------------|----|----|----|-----------------|---------------------------------|-----|----|
|           |            |            |            |    |    |    | Basic<br>thread | Special<br>thread <sup>1)</sup> |     |    |
| 8         | 15         | 50         | 4          | –  | 12 | –  | M4              | –                               | –   | 16 |
| 10        |            |            |            | –  |    | –  |                 | –                               | –   |    |
| 12        | 20         |            |            | –  | 16 | –  | M6              | –                               | –   | 22 |
| 16        |            |            |            | –  |    | –  |                 | –                               | –   |    |
| 20        | 25         |            | 8          | 12 | 20 | M4 | M8              | –                               | 2   | 24 |
| 25        | 35         |            |            |    | 22 | M6 | M10x1.25        | M10                             | 2.6 | 28 |

1) The special threads are only available as male threads. The scope of delivery does not include a hex nut for the piston rod thread.

# Standard cylinders ESNU, ISO 6432

Technical data

**FESTO**

| Ordering data                                                                     |                |          |                |
|-----------------------------------------------------------------------------------|----------------|----------|----------------|
| Type                                                                              | Stroke<br>[mm] | Part No. | Type           |
| Basic version                                                                     |                |          |                |
|  | Ø 8 mm         |          |                |
|                                                                                   | 10             | 19 254   | ESNU-8-10-P-A  |
|                                                                                   | 25             | 19 255   | ESNU-8-25-P-A  |
|                                                                                   | 50             | 19 256   | ESNU-8-50-P-A  |
|                                                                                   | Ø 10 mm        |          |                |
|                                                                                   | 10             | 19 257   | ESNU-10-10-P-A |
|                                                                                   | 25             | 19 258   | ESNU-10-25-P-A |
|                                                                                   | 50             | 19 259   | ESNU-10-50-P-A |
|                                                                                   | Ø 12 mm        |          |                |
|                                                                                   | 10             | 19 260   | ESNU-12-10-P-A |
|                                                                                   | 25             | 19 261   | ESNU-12-25-P-A |
|                                                                                   | 50             | 19 262   | ESNU-12-50-P-A |
|                                                                                   | Ø 16 mm        |          |                |
|                                                                                   | 10             | 19 263   | ESNU-16-10-P-A |
|                                                                                   | 25             | 19 264   | ESNU-16-25-P-A |
|                                                                                   | 50             | 19 265   | ESNU-16-50-P-A |
|                                                                                   | Ø 20 mm        |          |                |
|                                                                                   | 10             | 19 266   | ESNU-20-10-P-A |
|                                                                                   | 25             | 19 267   | ESNU-20-25-P-A |
|                                                                                   | 50             | 19 268   | ESNU-20-50-P-A |
|                                                                                   | Ø 25 mm        |          |                |
|                                                                                   | 10             | 19 269   | ESNU-25-10-P-A |
|                                                                                   | 25             | 19 270   | ESNU-25-25-P-A |
|                                                                                   | 50             | 19 271   | ESNU-25-50-P-A |

## Standard cylinders ESNU, ISO 6432

**FESTO**

Technical data

| Ordering data                                                                     |           |                |          |                 |
|-----------------------------------------------------------------------------------|-----------|----------------|----------|-----------------|
| Type                                                                              | ∅<br>[mm] | Stroke<br>[mm] | Part No. | Type            |
| Variable stroke lengths                                                           |           |                |          |                 |
|  | 8         | 1 ... 50       | 14 119   | ESNU-8-...-P-A  |
|                                                                                   | 10        | 1 ... 50       | 14 118   | ESNU-10-...-P-A |
|                                                                                   | 12        | 1 ... 50       | 14 317   | ESNU-12-...-P-A |
|                                                                                   | 16        | 1 ... 50       | 14 316   | ESNU-16-...-P-A |
|                                                                                   | 20        | 1 ... 50       | 14 319   | ESNU-20-...-P-A |
|                                                                                   | 25        | 1 ... 50       | 14 318   | ESNU-25-...-P-A |

# Standard cylinders ESNU, ISO 6432

Ordering data – Modular products

FESTO

| M Mandatory data |          |          |          | O Options → |                  |         |
|------------------|----------|----------|----------|-------------|------------------|---------|
| Module No.       | Function | Piston Ø | Stroke   | Cushioning  | Position sensing | End cap |
| 193 996          | ESNU     | 8        | 1 ... 50 | P           | A                | MA      |
| 193 997          |          | 10       |          |             |                  |         |
| 193 998          |          | 12       |          |             |                  |         |
| 193 999          |          | 16       |          |             |                  |         |
| 194 000          |          | 20       |          |             |                  |         |
| 194 001          |          | 25       |          |             |                  |         |
| Order example    |          |          |          |             |                  |         |
| 194 002          | ESNU     | - 25     | - 45     | - P         | - A              | - MA    |

| Ordering table     |                                                             |         |         |         |         |         |                 |      |               |
|--------------------|-------------------------------------------------------------|---------|---------|---------|---------|---------|-----------------|------|---------------|
| Size               | 8                                                           | 10      | 12      | 16      | 20      | 25      | Condi-<br>tions | Code | Enter<br>code |
| M Module No.       | 193 996                                                     | 193 997 | 193 998 | 193 999 | 194 000 | 194 001 |                 |      |               |
| Function           | Standard cylinder, single-acting pushing, based on ISO 6432 |         |         |         |         |         |                 | ESNU | ESNU          |
| Piston Ø [mm]      | 8                                                           | 10      | 12      | 16      | 20      | 25      |                 | -... |               |
| Stroke [mm]        | 1 ... 50                                                    |         |         |         |         |         |                 | -... |               |
| Cushioning         | Flexible cushioning rings/pads at both ends                 |         |         |         |         |         |                 | -P   | -P            |
| O Position sensing | Via proximity sensor                                        |         |         |         |         |         | 1               | -A   |               |
| ↓ End cap          | Axial air connection                                        |         |         |         |         |         |                 | -MA  |               |

1 A Minimum stroke: 10 mm

Transfer order code

|  |      |   |  |   |  |   |   |   |  |   |  |
|--|------|---|--|---|--|---|---|---|--|---|--|
|  | ESNU | - |  | - |  | - | P | - |  | - |  |
|--|------|---|--|---|--|---|---|---|--|---|--|

# Standard cylinders ESNÜ, ISO 6432

Ordering data – Modular products

FESTO

## Options

| Extended male thread | Shortened male thread | Female thread | Special thread | Extended piston rod |
|----------------------|-----------------------|---------------|----------------|---------------------|
| ...K2                | ...K6                 | K3            | "..."K5        | ...K8               |
| - 30K2               | -                     | -             | - "M10"K5      | - 30K8              |

| Ordering table |                       |          |    |          |    |          |                                  |      |               |  |  |
|----------------|-----------------------|----------|----|----------|----|----------|----------------------------------|------|---------------|--|--|
| Size           | 8                     | 10       | 12 | 16       | 20 | 25       | Condi-<br>tions                  | Code | Enter<br>code |  |  |
| ↓              | Extended male thread  |          |    |          |    |          | Extended male piston rod thread  |      |               |  |  |
| 0              | [mm]                  | 1 ... 15 |    | 1 ... 20 |    | 1 ... 25 | 1 ... 35                         | 2    | -...K2        |  |  |
|                | Shortened male thread |          |    |          |    |          | Shortened male piston rod thread |      |               |  |  |
|                | [mm]                  | 1 ... 4  |    |          |    | 1 ... 8  |                                  |      | -...K6        |  |  |
|                | Female thread         |          |    |          |    |          | Female piston rod thread         |      |               |  |  |
|                |                       | -        | -  | -        | -  | (M4)     | (M6)                             | 3    | -K3           |  |  |
|                | Special thread        |          |    |          |    |          | Piston rod with special thread   |      |               |  |  |
|                |                       | -        | -  | -        | -  | -        | M10                              |      | - " ... "K5   |  |  |
|                | Extended piston rod   |          |    |          |    |          | Extended piston rod              |      |               |  |  |
|                | [mm]                  | 1 ... 50 |    |          |    |          |                                  |      | ...K8         |  |  |

[2] K2 Not with female thread K3, shortened male thread K6

[3] K3 Not with special thread K5, shortened male thread K6

Transfer order code

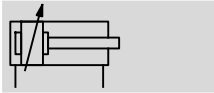
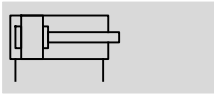
-  -  -  -  -

# Standard cylinders DSN, ISO 6432

FESTO

Technical data

## Function



Ø - Diameter  
8 ... 25 mm

— - Stroke length  
1 ... 500 mm



| General technical data       |                                             |    |    |                                               |      |          |
|------------------------------|---------------------------------------------|----|----|-----------------------------------------------|------|----------|
| Piston Ø                     | 8                                           | 10 | 12 | 16                                            | 20   | 25       |
| Pneumatic connection         | M5                                          | M5 | M5 | M5                                            | G1/8 | G1/8     |
| Piston rod thread            | M4                                          | M4 | M6 | M6                                            | M8   | M10x1.25 |
| Constructional design        | Piston                                      |    |    |                                               |      |          |
|                              | Piston rod                                  |    |    |                                               |      |          |
|                              | Cylinder barrel                             |    |    |                                               |      |          |
| Cushioning                   | Flexible cushioning rings/pads at both ends |    |    |                                               |      |          |
|                              | —                                           |    |    | Pneumatic cushioning, adjustable at both ends |      |          |
| Cushioning length (PPV) [mm] | —                                           |    |    | 14                                            | 17   |          |
| Type of mounting             | Via accessories                             |    |    |                                               |      |          |
| Mounting position            | Any                                         |    |    |                                               |      |          |

— Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |    |    |          |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|----|----|----------|----|----|
| Piston Ø                       | 8                                                                                                      | 10 | 12 | 16       | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |    |    |          |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |    |    |          |    |    |
| Operating pressure [bar]       | 1.5 ... 10                                                                                             |    |    | 1 ... 10 |    |    |

| Ambient conditions                           |             |
|----------------------------------------------|-------------|
| Standard cylinder                            |             |
| Ambient temperature [°C]                     | −20 ... +80 |
| Corrosion resistance class CRC <sup>1)</sup> | 2           |

- 1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

## Standard cylinders DSN, ISO 6432

FESTO

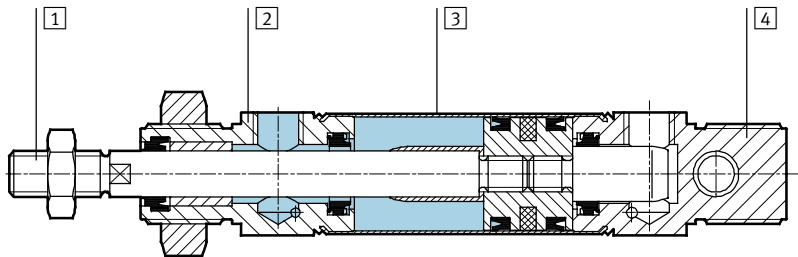
Technical data

| Forces [N]                             |    |    |    |     |     |     |
|----------------------------------------|----|----|----|-----|-----|-----|
| Piston Ø                               | 8  | 10 | 12 | 16  | 20  | 25  |
| Theoretical force at 6 bar, advancing  | 30 | 47 | 68 | 121 | 189 | 295 |
| Theoretical force at 6 bar, retracting | 23 | 40 | 51 | 104 | 158 | 247 |

| Weights [g]                        |     |     |     |     |     |      |
|------------------------------------|-----|-----|-----|-----|-----|------|
| Piston Ø                           | 8   | 10  | 12  | 16  | 20  | 25   |
| Product weight with 0 mm stroke    | 40  | 43  | 80  | 96  | 200 | 260  |
| Additional weight per 10 mm stroke | 2.3 | 2.5 | 4.1 | 4.7 | 7.1 | 10.9 |

### Materials

Sectional view



| Standard cylinder |                 |                              |
|-------------------|-----------------|------------------------------|
| 1                 | Piston rod      | High-alloy stainless steel   |
| 2                 | Bearing cap     | Anodised aluminium           |
| 3                 | Cylinder barrel | High-alloy stainless steel   |
| 4                 | End cap         | Anodised aluminium           |
| –                 | Seals           | Polyurethane, nitrile rubber |

# Standard cylinders DSN, ISO 6432

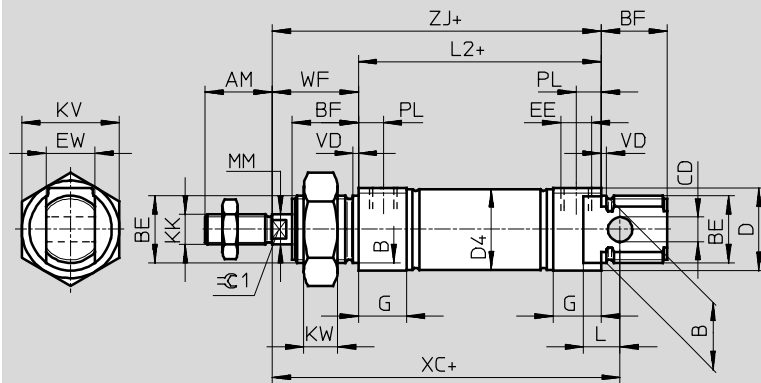
Technical data

**FESTO**

## Dimensions

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

### Basic version



Note

Piston rod nut is not included in scope of delivery for Ø 8 ... 20.

+ = plus stroke length

| Ø<br>[mm] | AM | B<br>Ø<br>h9 | BE       | BF | CD<br>Ø<br>H9 | D<br>Ø | D4<br>Ø | EE   | EW | G  | KK       |
|-----------|----|--------------|----------|----|---------------|--------|---------|------|----|----|----------|
| 8         | 12 | 12           | M12x1.25 | 12 | 4             | 15     | 9.3     | M5   | 8  | 10 | M4       |
| 10        |    |              |          |    |               |        | 11.3    |      |    |    |          |
| 12        | 16 | 16           | M16x1.5  | 17 | 6             | 20     | 13.3    |      | 12 |    | M6       |
| 16        |    |              |          |    |               |        | 17.3    |      |    |    |          |
| 20        | 20 | 22           | M22x1.5  | 20 | 8             | 27     | 21.3    | G1/8 | 16 | 16 | M8       |
| 25        | 22 |              |          | 22 |               |        | 26.5    |      |    |    | M10x1.25 |

| Ø<br>[mm] | KV | KW | L  | L2   | MM<br>Ø | PL  | VD | WF | XC<br>±1 | ZJ   | ≡1 |
|-----------|----|----|----|------|---------|-----|----|----|----------|------|----|
| 8         | 19 | 6  | 6  | 46   | 4       | 6   | 2  | 16 | 64       | 62   | –  |
| 10        |    |    |    |      |         |     |    |    |          |      |    |
| 12        | 24 | 8  | 9  | 50   | 6       |     |    | 22 | 75       | 72   | 5  |
| 16        |    |    |    | 56   |         |     |    |    | 82       | 78   |    |
| 20        | 32 | 11 | 12 | 68   | 8       | 8.2 |    | 24 | 95       | 92   | 7  |
| 25        |    |    |    | 69.5 | 10      |     |    | 28 | 104      | 97.5 | 9  |

– Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders DSN, ISO 6432

FESTO

Technical data

| Ordering data                                                                     |                  |                |                                             |              |
|-----------------------------------------------------------------------------------|------------------|----------------|---------------------------------------------|--------------|
| Type                                                                              | Piston Ø<br>[mm] | Stroke<br>[mm] | Flexible cushioning rings/pads at both ends |              |
|                                                                                   |                  |                | Part No.                                    | Type         |
| Basic version                                                                     |                  |                |                                             |              |
|  | 8                | 10             | 5 033                                       | DSN-8-10-P   |
|                                                                                   |                  | 25             | 5 034                                       | DSN-8-25-P   |
|                                                                                   |                  | 40             | 5 035                                       | DSN-8-40-P   |
|                                                                                   |                  | 50             | 5 036                                       | DSN-8-50-P   |
|                                                                                   |                  | 80             | 5 037                                       | DSN-8-80-P   |
|                                                                                   |                  | 100            | 5 038                                       | DSN-8-100-P  |
|                                                                                   | 10               | 10             | 5 040                                       | DSN-10-10-P  |
|                                                                                   |                  | 25             | 5 041                                       | DSN-10-25-P  |
|                                                                                   |                  | 40             | 5 042                                       | DSN-10-40-P  |
|                                                                                   |                  | 50             | 5 043                                       | DSN-10-50-P  |
|                                                                                   |                  | 80             | 5 044                                       | DSN-10-80-P  |
|                                                                                   |                  | 100            | 5 045                                       | DSN-10-100-P |
|                                                                                   | 12               | 10             | 5 047                                       | DSN-12-10-P  |
|                                                                                   |                  | 25             | 5 048                                       | DSN-12-25-P  |
|                                                                                   |                  | 40             | 5 049                                       | DSN-12-40-P  |
|                                                                                   |                  | 50             | 5 050                                       | DSN-12-50-P  |
|                                                                                   |                  | 80             | 5 051                                       | DSN-12-80-P  |
|                                                                                   |                  | 100            | 5 052                                       | DSN-12-100-P |
|                                                                                   |                  | 125            | 8 519                                       | DSN-12-125-P |
|                                                                                   |                  | 160            | 5 053                                       | DSN-12-160-P |
|                                                                                   |                  | 200            | 5 054                                       | DSN-12-200-P |

# Standard cylinders DSN, ISO 6432

Technical data

**FESTO**

| Ordering data                                                                     |                  |                |                                             |              |                                               |                |
|-----------------------------------------------------------------------------------|------------------|----------------|---------------------------------------------|--------------|-----------------------------------------------|----------------|
| Type                                                                              | Piston Ø<br>[mm] | Stroke<br>[mm] | Flexible cushioning rings/pads at both ends |              | Pneumatic cushioning, adjustable at both ends |                |
|                                                                                   |                  |                | Part No.                                    | Type         | Part No.                                      | Type           |
| Basic version                                                                     |                  |                |                                             |              |                                               |                |
|  | 16               | 10             | 5 056                                       | DSN-16-10-P  | –                                             |                |
|                                                                                   |                  | 25             | 5 057                                       | DSN-16-25-P  |                                               |                |
|                                                                                   |                  | 40             | 5 058                                       | DSN-16-40-P  | 14 534                                        | DSN-16-40-PPV  |
|                                                                                   |                  | 50             | 5 059                                       | DSN-16-50-P  | 14 535                                        | DSN-16-50-PPV  |
|                                                                                   |                  | 80             | 5 060                                       | DSN-16-80-P  | 14 536                                        | DSN-16-80-PPV  |
|                                                                                   |                  | 100            | 5 061                                       | DSN-16-100-P | 14 537                                        | DSN-16-100-PPV |
|                                                                                   |                  | 125            | 8 520                                       | DSN-16-125-P | 14 538                                        | DSN-16-125-PPV |
|                                                                                   |                  | 160            | 5 062                                       | DSN-16-160-P | 14 539                                        | DSN-16-160-PPV |
|                                                                                   |                  | 200            | 5 063                                       | DSN-16-200-P | 14 540                                        | DSN-16-200-PPV |
|                                                                                   |                  |                |                                             |              |                                               |                |
|                                                                                   | 20               | 10             | 5 065                                       | DSN-20-10-P  | –                                             |                |
|                                                                                   |                  | 25             | 5 066                                       | DSN-20-25-P  |                                               |                |
|                                                                                   |                  | 40             | 5 067                                       | DSN-20-40-P  | 8 743                                         | DSN-20-40-PPV  |
|                                                                                   |                  | 50             | 5 068                                       | DSN-20-50-P  | 8 744                                         | DSN-20-50-PPV  |
|                                                                                   |                  | 80             | 5 069                                       | DSN-20-80-P  | 8 745                                         | DSN-20-80-PPV  |
|                                                                                   |                  | 100            | 5 070                                       | DSN-20-100-P | 8 746                                         | DSN-20-100-PPV |
|                                                                                   |                  | 125            | 8 521                                       | DSN-20-125-P | 8 747                                         | DSN-20-125-PPV |
|                                                                                   |                  | 160            | 5 071                                       | DSN-20-160-P | 8 748                                         | DSN-20-160-PPV |
|                                                                                   |                  | 200            | 5 072                                       | DSN-20-200-P | 8 749                                         | DSN-20-200-PPV |
|                                                                                   |                  | 250            | 8 522                                       | DSN-20-250-P | 8 750                                         | DSN-20-250-PPV |
|                                                                                   |                  | 300            | 5 073                                       | DSN-20-300-P | 8 751                                         | DSN-20-300-PPV |
|                                                                                   |                  | 320            | 34 710                                      | DSN-20-320-P | 34 712                                        | DSN-20-320-PPV |
|                                                                                   |                  |                |                                             |              |                                               |                |
|                                                                                   | 25               | 10             | 5 075                                       | DSN-25-10-P  | –                                             |                |
|                                                                                   |                  | 25             | 5 076                                       | DSN-25-25-P  |                                               |                |
|                                                                                   |                  | 40             | 5 077                                       | DSN-25-40-P  | 9 666                                         | DSN-25-40-PPV  |
|                                                                                   |                  | 50             | 5 078                                       | DSN-25-50-P  | 9 667                                         | DSN-25-50-PPV  |
|                                                                                   |                  | 80             | 5 079                                       | DSN-25-80-P  | 9 668                                         | DSN-25-80-PPV  |
|                                                                                   |                  | 100            | 5 080                                       | DSN-25-100-P | 9 669                                         | DSN-25-100-PPV |
|                                                                                   |                  | 125            | 8 523                                       | DSN-25-125-P | 8 531                                         | DSN-25-125-PPV |
|                                                                                   |                  | 160            | 5 081                                       | DSN-25-160-P | 9 670                                         | DSN-25-160-PPV |
|                                                                                   |                  | 200            | 5 082                                       | DSN-25-200-P | 9 671                                         | DSN-25-200-PPV |
|                                                                                   |                  | 250            | 8 524                                       | DSN-25-250-P | 8 532                                         | DSN-25-250-PPV |
|                                                                                   |                  | 300            | 5 083                                       | DSN-25-300-P | 9 672                                         | DSN-25-300-PPV |
|                                                                                   |                  | 320            | 34 711                                      | DSN-25-320-P | 34 713                                        | DSN-25-320-PPV |
| 400                                                                               |                  | 32 298         | DSN-25-400-P                                | 32 300       | DSN-25-400-PPV                                |                |
| 500                                                                               |                  | 32 299         | DSN-25-500-P                                | 32 301       | DSN-25-500-PPV                                |                |

## Standard cylinders DSN, ISO 6432

Technical data

**FESTO**

| Ordering data                                                                     |                  |                |                                             |              |                                               |                |
|-----------------------------------------------------------------------------------|------------------|----------------|---------------------------------------------|--------------|-----------------------------------------------|----------------|
| Type                                                                              | Piston Ø<br>[mm] | Stroke<br>[mm] | Flexible cushioning rings/pads at both ends |              | Pneumatic cushioning, adjustable at both ends |                |
|                                                                                   |                  |                | Part No.                                    | Type         | Part No.                                      | Type           |
| Variable stroke lengths                                                           |                  |                |                                             |              |                                               |                |
|  | 8                | 1 ... 100      | 5 032                                       | DSN-8-...-P  | -                                             |                |
|                                                                                   | 10               | 1 ... 100      | 5 039                                       | DSN-10-...-P |                                               |                |
|                                                                                   | 12               | 1 ... 200      | 5 046                                       | DSN-12-...-P |                                               |                |
|                                                                                   | 16               | 1 ... 200      | 5 055                                       | DSN-16-...-P |                                               |                |
|                                                                                   | 20               | 1 ... 320      | 5 064                                       | DSN-20-...-P |                                               |                |
|                                                                                   | 25               | 1 ... 500      | 5 074                                       | DSN-25-...-P |                                               |                |
| Variable stroke lengths                                                           |                  |                |                                             |              |                                               |                |
|  | 16               | 1 ... 200      | -                                           |              | 14 533                                        | DSN-16-...-PPV |
|                                                                                   | 20               | 1 ... 320      |                                             |              | 8 742                                         | DSN-20-...-PPV |
|                                                                                   | 25               | 1 ... 500      |                                             |              | 9 665                                         | DSN-25-...-PPV |

# Standard cylinders ESN, ISO 6432

Technical data

**FESTO**

## Function



- $\varnothing$  - Diameter  
8 ... 25 mm
- | - Stroke length  
1 ... 50 mm



| General technical data |                                             |    |    |    |                 |                 |
|------------------------|---------------------------------------------|----|----|----|-----------------|-----------------|
| Piston $\varnothing$   | 8                                           | 10 | 12 | 16 | 20              | 25              |
| Pneumatic connection   | M5                                          | M5 | M5 | M5 | G $\frac{1}{8}$ | G $\frac{1}{8}$ |
| Piston rod thread      | M4                                          | M4 | M6 | M6 | M8              | M10x1.25        |
| Constructional design  | Piston                                      |    |    |    |                 |                 |
|                        | Piston rod                                  |    |    |    |                 |                 |
|                        | Cylinder barrel                             |    |    |    |                 |                 |
| Cushioning             | Flexible cushioning rings/pads at both ends |    |    |    |                 |                 |
| Type of mounting       | Via accessories                             |    |    |    |                 |                 |
| Mounting position      | Any                                         |    |    |    |                 |                 |

-  $\parallel$  - Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Operating conditions           |                                                                                                        |    |    |            |    |    |
|--------------------------------|--------------------------------------------------------------------------------------------------------|----|----|------------|----|----|
| Piston $\varnothing$           | 8                                                                                                      | 10 | 12 | 16         | 20 | 25 |
| Operating medium               | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |    |    |            |    |    |
| Note on operating/pilot medium | Operation with lubricated medium possible (in which case lubricated operation will always be required) |    |    |            |    |    |
| Operating pressure [bar]       | 1.5 ... 10                                                                                             |    |    | 1.2 ... 10 |    |    |

| Ambient conditions                           |             |
|----------------------------------------------|-------------|
| Standard cylinder                            |             |
| Ambient temperature [°C]                     | -20 ... +80 |
| Corrosion resistance class CRC <sup>1)</sup> | 2           |

- 1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

## Standard cylinders ESN, ISO 6432

Technical data

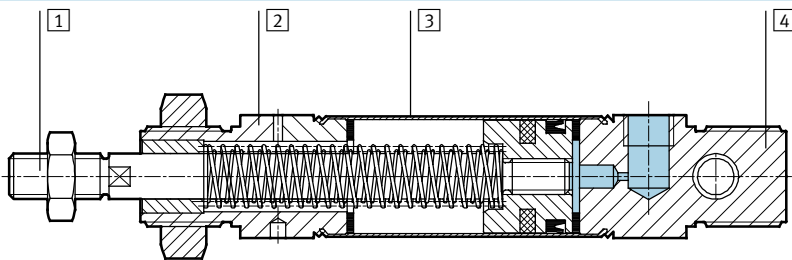
**FESTO**

| Force [N] and impact energy [J]       |      |      |      |      |      |      |
|---------------------------------------|------|------|------|------|------|------|
| Piston Ø                              | 8    | 10   | 12   | 16   | 20   | 25   |
| Theoretical force at 6 bar, advancing | 24   | 41   | 61   | 107  | 169  | 270  |
| Spring return force<br>10 mm stroke   | 4.9  | 4.9  | 6.3  | 13.2 | 18.3 | 22.9 |
| Spring return force<br>25 mm stroke   | 4.1  | 4.1  | 5.4  | 11.9 | 16.5 | 21.2 |
| Spring return force<br>50 mm stroke   | 2.8  | 4.8  | 3.9  | 9.8  | 13.6 | 18.5 |
| Impact energy at end positions        | 0.03 | 0.05 | 0.07 | 0.15 | 0.20 | 0.30 |

| Weight [g]                         |     |     |     |     |     |      |
|------------------------------------|-----|-----|-----|-----|-----|------|
| Piston Ø                           | 8   | 10  | 12  | 16  | 20  | 25   |
| Product weight with 0 mm stroke    | 40  | 43  | 80  | 96  | 200 | 260  |
| Additional weight per 10 mm stroke | 2.3 | 2.5 | 4.1 | 4.7 | 7.1 | 10.9 |

### Materials

Sectional view

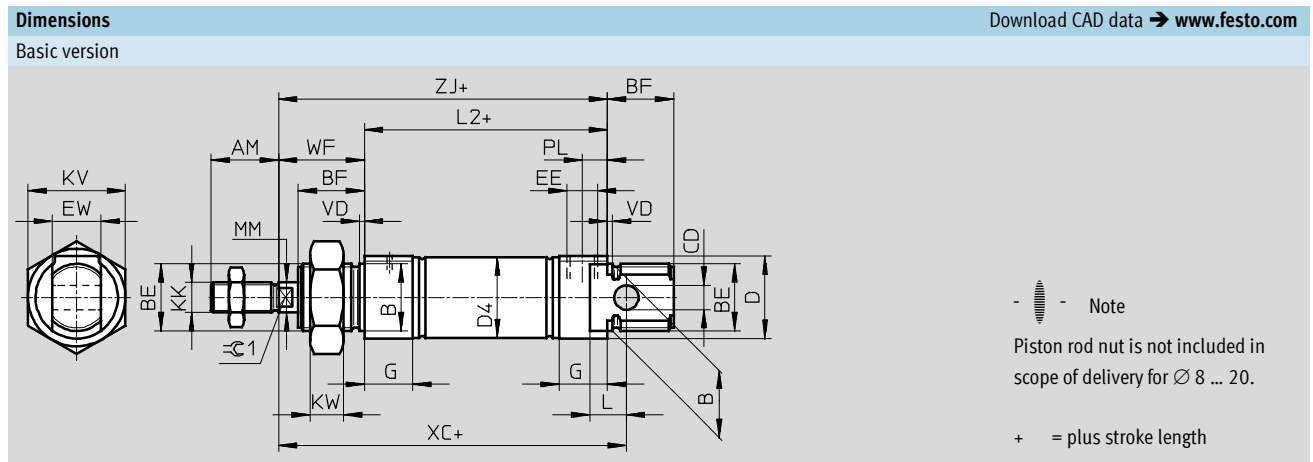


| Standard cylinder |                 |                              |
|-------------------|-----------------|------------------------------|
| 1                 | Piston rod      | High-alloy stainless steel   |
| 2                 | Bearing cap     | Anodised aluminium           |
| 3                 | Cylinder barrel | High-alloy stainless steel   |
| 4                 | End cap         | Anodised aluminium           |
| –                 | Seals           | Polyurethane, nitrile rubber |
| –                 | Spring          | Spring steel                 |

# Standard cylinders ESN, ISO 6432

Technical data

**FESTO**



| $\varnothing$ | AM | B<br>$\varnothing$<br>h9 | BE       | BF | CD<br>$\varnothing$<br>H9 | D<br>$\varnothing$ | D4<br>$\varnothing$ | EE              | EW | G  | KK       |
|---------------|----|--------------------------|----------|----|---------------------------|--------------------|---------------------|-----------------|----|----|----------|
| [mm]          |    |                          |          |    |                           |                    |                     |                 |    |    |          |
| 8             | 12 | 12                       | M12x1.25 | 12 | 4                         | 15                 | 9.3                 | M5              | 8  | 10 | M4       |
| 10            |    |                          |          |    |                           |                    | 11.3                |                 |    |    |          |
| 12            | 16 | 16                       | M16x1.5  | 17 | 6                         | 20                 | 13.3                |                 | 12 |    | M6       |
| 16            |    |                          |          |    |                           |                    | 17.3                |                 |    |    |          |
| 20            | 20 | 22                       | M22x1.5  | 20 | 8                         | 27                 | 21.3                | G $\frac{1}{8}$ | 16 | 16 | M8       |
| 25            | 22 |                          |          | 22 |                           |                    | 26.5                |                 |    |    | M10x1.25 |

| Ø    | KV | KW | L  | L2   | MM<br>Ø | PL  | VD | WF | XC  | ZJ   | ≈1 |
|------|----|----|----|------|---------|-----|----|----|-----|------|----|
| [mm] |    |    |    |      |         |     |    |    | ±1  |      |    |
| 8    | 19 | 6  | 6  | 46   | 4       | 6   | 2  | 16 | 64  | 62   | –  |
| 10   |    |    |    |      |         |     |    |    |     |      |    |
| 12   | 24 | 8  | 9  | 50   | 6       |     |    | 22 | 75  | 72   | 5  |
| 16   |    |    |    | 56   |         |     |    | 82 | 78  |      |    |
| 20   | 32 | 11 | 12 | 68   | 8       | 8.2 |    | 24 | 95  | 92   | 7  |
| 25   |    |    |    | 69.5 | 10      |     |    | 28 | 104 | 97.5 | 9  |

–  $\parallel$  – Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Standard cylinders ESN, ISO 6432

**FESTO**

Technical data

| Ordering data                                                                     |                |          |             |
|-----------------------------------------------------------------------------------|----------------|----------|-------------|
| Type                                                                              | Stroke<br>[mm] | Part No. | Type        |
| Basic version                                                                     |                |          |             |
|  | Ø 8 mm         |          |             |
|                                                                                   | 10             | 5 086    | ESN-8-10-P  |
|                                                                                   | 25             | 5 087    | ESN-8-25-P  |
|                                                                                   | 50             | 5 088    | ESN-8-50-P  |
|                                                                                   | Ø 10 mm        |          |             |
|                                                                                   | 10             | 5 089    | ESN-10-10-P |
|                                                                                   | 25             | 5 090    | ESN-10-25-P |
|                                                                                   | 50             | 5 091    | ESN-10-50-P |
|                                                                                   | Ø 12 mm        |          |             |
|                                                                                   | 10             | 5 092    | ESN-12-10-P |
|                                                                                   | 25             | 5 093    | ESN-12-25-P |
|                                                                                   | 50             | 5 094    | ESN-12-50-P |
|                                                                                   | Ø 16 mm        |          |             |
|                                                                                   | 10             | 5 095    | ESN-16-10-P |
|                                                                                   | 25             | 5 096    | ESN-16-25-P |
|                                                                                   | 50             | 5 097    | ESN-16-50-P |
|                                                                                   | Ø 20 mm        |          |             |
|                                                                                   | 10             | 5 098    | ESN-20-10-P |
|                                                                                   | 25             | 5 099    | ESN-20-25-P |
|                                                                                   | 50             | 5 100    | ESN-20-50-P |
|                                                                                   | Ø 25 mm        |          |             |
|                                                                                   | 10             | 5 101    | ESN-25-10-P |
|                                                                                   | 25             | 5 102    | ESN-25-25-P |
|                                                                                   | 50             | 5 103    | ESN-25-50-P |

| Ordering data                                                                       |           |                |          |              |
|-------------------------------------------------------------------------------------|-----------|----------------|----------|--------------|
| Type                                                                                | Ø<br>[mm] | Stroke<br>[mm] | Part No. | Type         |
| Variable stroke lengths                                                             |           |                |          |              |
|  | 8         | 1 ... 50       | 11 651   | ESN-8-...-P  |
|                                                                                     | 10        | 1 ... 50       | 11 652   | ESN-10-...-P |
|                                                                                     | 12        | 1 ... 50       | 11 653   | ESN-12-...-P |
|                                                                                     | 16        | 1 ... 50       | 11 654   | ESN-16-...-P |
|                                                                                     | 20        | 1 ... 50       | 11 655   | ESN-20-...-P |
|                                                                                     | 25        | 1 ... 50       | 11 656   | ESN-25-...-P |

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

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Accessories

## Foot mounting HBN/CRHBN

Scope of delivery:

HBN/CRHBN-...x1: 1 foot

HBN/CRHBN-...x2: 2 feet and 1 nut

Material:

HBN: Galvanised steel

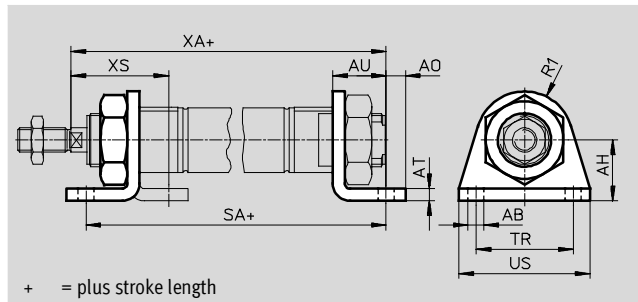
CRHBN: High-alloy stainless steel

Free of copper and PTFE

RoHS-compliant



HBN/CRHBN-...x2



| Dimensions and ordering data |     |    |    |    |    |    |       |       |    |    |       |       |    |     |
|------------------------------|-----|----|----|----|----|----|-------|-------|----|----|-------|-------|----|-----|
| For Ø                        | AB  | AH | AO | AT | AU | R1 | SA    |       | TR | US | XA    |       | XS |     |
| [mm]                         | Ø   |    |    |    |    |    |       | -KP   |    |    |       | -KP   |    | -KP |
| 8, 10                        | 4.5 | 16 | 5  | 3  | 11 | 10 | 68    | 97    | 25 | 35 | 73    | 102   | 24 | –   |
| 12                           | 5.5 | 20 | 6  | 4  | 14 | 13 | 78    | 116   | 32 | 42 | 86    | 124   | 32 | –   |
| 16                           | 5.5 | 20 | 6  | 4  | 14 | 13 | 84    | 122   | 32 | 42 | 92    | 130   | 32 | –   |
| 20                           | 6.6 | 25 | 8  | 5  | 17 | 20 | 102   | 149   | 40 | 54 | 109   | 156   | 36 | –   |
| 25                           | 6.6 | 25 | 8  | 5  | 17 | 20 | 103.5 | 151.5 | 40 | 54 | 114.5 | 162.5 | 40 | –   |

| For Ø  | Basic version     |            |          |             | High corrosion protection |            |          |               |
|--------|-------------------|------------|----------|-------------|---------------------------|------------|----------|---------------|
|        | CRC <sup>1)</sup> | Weight [g] | Part No. | Type        | CRC <sup>1)</sup>         | Weight [g] | Part No. | Type          |
| 8, 10  | 2                 | 20         | 5 123    | HBN-8/10x1  | –                         | –          | –        | –             |
|        | 2                 | 55         | 5 124    | HBN-8/10x2  | –                         | –          | –        | –             |
| 12, 16 | 2                 | 40         | 5 125    | HBN-12/16x1 | 4                         | 40         | 161 866  | CRHBN-12/16x1 |
|        | 2                 | 105        | 5 126    | HBN-12/16x2 | 4                         | 97         | 162 999  | CRHBN-12/16x2 |
| 20, 25 | 2                 | 90         | 5 127    | HBN-20/25x1 | 4                         | 55         | 161 867  | CRHBN-20/25x1 |
|        | 2                 | 220        | 5 128    | HBN-20/25x2 | 4                         | 100        | 162 998  | CRHBN-20/25x2 |

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 4 as per Festo standard 940 070

Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Accessories

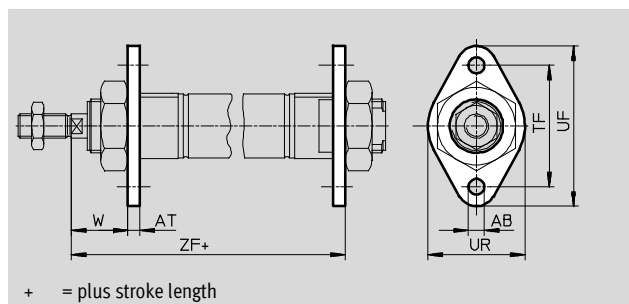
## Flange mounting FBN/CRFBN

Material:

FBN: Galvanised steel

CRFBN: High-alloy stainless steel

Free of copper and PTFE



| Dimensions and ordering data |         |    |    |    |    |    |       |       |
|------------------------------|---------|----|----|----|----|----|-------|-------|
| For Ø                        | AB<br>Ø | AT | TF | UF | UR | W  | ZF    |       |
| [mm]                         |         |    |    |    |    |    |       | -KP   |
| 8, 10                        | 4.5     | 3  | 30 | 40 | 25 | 13 | 65    | 94    |
| 12                           | 5.5     | 4  | 40 | 53 | 30 | 18 | 76    | 114   |
| 16                           | 5.5     | 4  | 40 | 53 | 30 | 18 | 82    | 120   |
| 20                           | 6.6     | 5  | 50 | 66 | 40 | 19 | 97    | 144   |
| 25                           | 6.6     | 5  | 50 | 66 | 40 | 23 | 102.5 | 150.5 |

| For Ø<br>[mm] | Basic version     |            |          |           | High corrosion protection |            |          |             |
|---------------|-------------------|------------|----------|-----------|---------------------------|------------|----------|-------------|
|               | CRC <sup>1)</sup> | Weight [g] | Part No. | Type      | CRC <sup>1)</sup>         | Weight [g] | Part No. | Type        |
| 8, 10         | 2                 | 12         | 5 129    | FBN-8/10  | –                         | –          | –        | –           |
| 12, 16        | 2                 | 26         | 5 130    | FBN-12/16 | 4                         | 26         | 161 864  | CRFBN-12/16 |
| 20, 25        | 2                 | 52         | 5 131    | FBN-20/25 | 4                         | 52         | 161 865  | CRFBN-20/25 |

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 4 as per Festo standard 940 070

Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

## Swivel mounting SBN

Material:

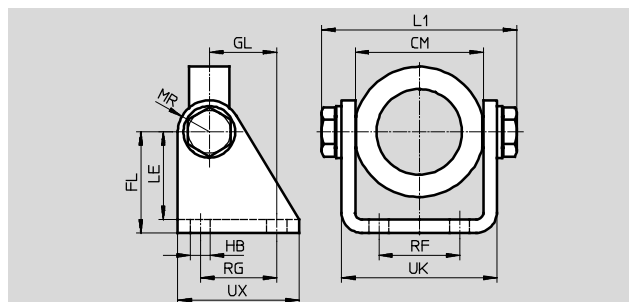
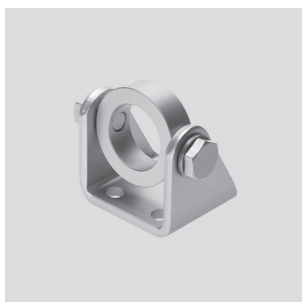
Mounting ring: Wrought aluminium alloy, anodised

Bearing: Bronze

Screws: Galvanised steel

Bracket: Steel

Cannot be used on the bearing cap in combination with bellows kit DADB.



| Dimensions and ordering data |          |    |    |    |      |    |    |    |    |      |    |                   |        |                   |
|------------------------------|----------|----|----|----|------|----|----|----|----|------|----|-------------------|--------|-------------------|
| For Ø                        | CM       | FL | GL | HB | L1   | LE | MR | RF | RG | UK   | UX | CRC <sup>1)</sup> | Weight | Part No. Type     |
| [mm]                         |          |    |    |    | max. |    |    |    |    |      |    |                   | [g]    |                   |
| 20/25                        | 38.1±0.4 | 35 | 20 | 7  | 60.2 | 31 | 12 | 20 | 24 | 46.1 | 40 | 2                 | 200    | 539 927 SBN-20/25 |

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. 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.

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Accessories

## Swivel mounting WBN

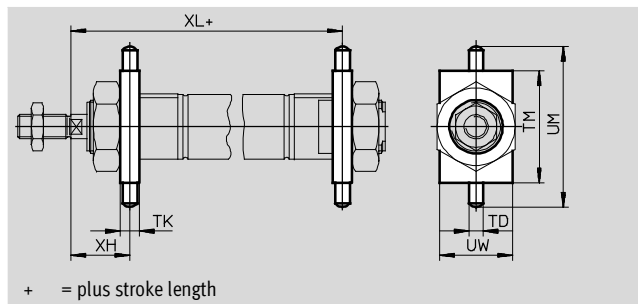
Material:

Galvanised steel

Free of copper and PTFE

RoHS-compliant

Cannot be used on the bearing cap in combination with bellows kit DADB.



| Dimensions and ordering data |      |    |    |    |    |    |       |       |                   |        |              |                  |
|------------------------------|------|----|----|----|----|----|-------|-------|-------------------|--------|--------------|------------------|
| For Ø                        | TD   | TK | TM | UM | UW | XH | XL    |       | CRC <sup>1)</sup> | Weight | Part No.     | Type             |
| [mm]                         | Ø f8 |    |    |    |    |    |       | -KP   |                   | [g]    |              |                  |
| 8, 10                        | 4    | 6  | 26 | 38 | 20 | 13 | 65    | 94    | 2                 | 20     | <b>8 608</b> | <b>WBN-8/10</b>  |
| 12                           | 6    | 8  | 38 | 58 | 25 | 18 | 76    | 114   | 2                 | 50     | <b>8 609</b> | <b>WBN-12/16</b> |
| 16                           | 6    | 8  | 38 | 58 | 25 | 18 | 82    | 120   | 2                 | 50     | <b>8 609</b> | <b>WBN-12/16</b> |
| 20                           | 6    | 8  | 46 | 66 | 30 | 20 | 96    | 143   | 2                 | 70     | <b>8 610</b> | <b>WBN-20/25</b> |
| 25                           | 6    | 8  | 46 | 66 | 30 | 24 | 101.5 | 149.5 | 2                 | 70     | <b>8 610</b> | <b>WBN-20/25</b> |

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. 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.

## Clevis foot LBN/CRLBN

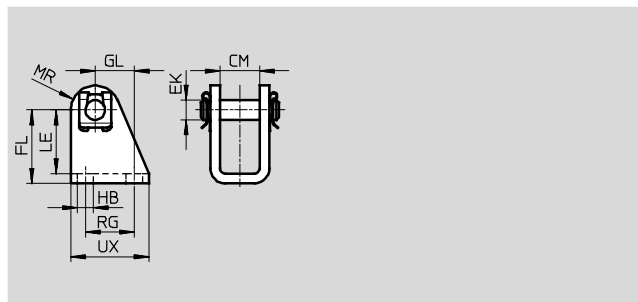
Material:

LBN: Galvanised steel

CRLBN: High-alloy stainless steel

Free of copper and PTFE

RoHS-compliant



| Dimensions and ordering data |      |    |              |      |     |      |    |      |    |  |
|------------------------------|------|----|--------------|------|-----|------|----|------|----|--|
| For Ø                        | CM   | EK | FL           | GL   | HB  | LE   | MR | RG   | UX |  |
| [mm]                         |      | Ø  |              |      |     |      |    |      |    |  |
| 8, 10                        | 8.1  | 4  | 24 +0.3/-0.2 | 13.8 | 4.5 | 21.5 | 5  | 12.5 | 20 |  |
| 12, 16                       | 12.1 | 6  | 27 +0.3/-0.2 | 13   | 5.5 | 24   | 7  | 15   | 25 |  |
| 20, 25                       | 16.1 | 8  | 30 +0.4/-0.2 | 16   | 6.6 | 26   | 10 | 20   | 32 |  |

| For Ø  | Basic version     |            |              |                  | High corrosion protection |            |                |                    |
|--------|-------------------|------------|--------------|------------------|---------------------------|------------|----------------|--------------------|
|        | CRC <sup>1)</sup> | Weight [g] | Part No.     | Type             | CRC <sup>1)</sup>         | Weight [g] | Part No.       | Type               |
| 8, 10  | 2                 | 22         | <b>6 057</b> | <b>LBN-8/10</b>  | —                         | —          | —              |                    |
| 12, 16 | 2                 | 40         | <b>6 058</b> | <b>LBN-12/16</b> | 4                         | 55         | <b>161 862</b> | <b>CRLBN-12/16</b> |
| 20, 25 | 2                 | 81         | <b>6 059</b> | <b>LBN-20/25</b> | 4                         | 62         | <b>161 863</b> | <b>CRLBN-20/25</b> |

1) Corrosion resistance class 2 as per Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Corrosion resistance class 4 as per Festo standard 940 070

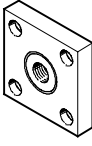
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

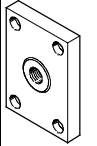
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Accessories

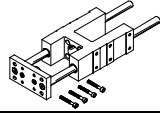
Ordering data – Piston rod attachments

| Designation                                                                        | For Ø | Part No. | Type   |
|------------------------------------------------------------------------------------|-------|----------|--------|
| Rod eye SGS                                                                        |       |          |        |
|   | 8     | 9 253    | SGS-M4 |
|                                                                                    | 10    |          |        |
|                                                                                    | 12    | 9 254    | SGS-M6 |
|                                                                                    | 16    |          |        |
|                                                                                    | 20    | 9 255    | SGS-M8 |
|                                                                                    | 25    |          |        |
| Coupling piece KSG                                                                 |       |          |        |
|   | 8     | –        |        |
|                                                                                    | 10    |          |        |
|                                                                                    | 12    |          |        |
|                                                                                    | 16    |          |        |
|                                                                                    | 20    |          |        |
|                                                                                    | 25    |          |        |
|                                                                                    |       |          |        |
| Self-aligning rod coupler FK                                                       |       |          |        |
|  | 8     | 6 528    | FK-M4  |
|                                                                                    | 10    |          |        |
|                                                                                    | 12    | 2 061    | FK-M6  |
|                                                                                    | 16    |          |        |
|                                                                                    | 20    | 2 062    | FK-M8  |
|                                                                                    | 25    |          |        |
|                                                                                    |       |          |        |

Technical data → Internet: piston rod attachments

| Designation                                                                        | For Ø  | Part No. | Type        |
|------------------------------------------------------------------------------------|--------|----------|-------------|
| Rod clevis SG                                                                      |        |          |             |
|   | 8      | 6 532    | SG-M4       |
|                                                                                    | 10     |          |             |
|                                                                                    | 12     | 3 110    | SG-M6       |
|                                                                                    | 16     |          |             |
|                                                                                    | 20     | 3 111    | SG-M8       |
|                                                                                    | 25     |          |             |
| Coupling piece KSZ                                                                 |        |          |             |
|   | 12     | 36 123   | KSZ-M6      |
|                                                                                    | 16     |          |             |
|                                                                                    | 20     | 36 124   | KSZ-M8      |
|                                                                                    | 25     |          |             |
|                                                                                    |        |          |             |
|                                                                                    |        |          |             |
| Hex nut MSK                                                                        |        |          |             |
|  | 16     | 189 007  | MSK-M16X1,5 |
|                                                                                    | 20, 25 |          |             |
|                                                                                    |        |          |             |

| Ordering data – Piston rod attachments, corrosion resistant                         |       |          |                | Technical data → Internet: crsg                                                     |       |          |               |
|-------------------------------------------------------------------------------------|-------|----------|----------------|-------------------------------------------------------------------------------------|-------|----------|---------------|
| Designation                                                                         | For Ø | Part No. | Type           | Designation                                                                         | For Ø | Part No. | Type          |
| Rod eye CRSGS                                                                       |       |          |                | Rod clevis CRSG                                                                     |       |          |               |
|  | 12    | 195 580  | CRSGS-M6       |  | 12    | 13 567   | CRSG-M6       |
|                                                                                     | 16    |          |                |                                                                                     | 16    |          |               |
|                                                                                     | 20    | 195 581  | CRSGS-M8       |                                                                                     | 20    | 13 568   | CRSG-M8       |
|                                                                                     | 25    |          |                |                                                                                     | 25    |          |               |
|                                                                                     |       | 195 582  | CRSGS-M10x1,25 |                                                                                     |       | 13 569   | CRSG-M10x1,25 |

| Ordering data – Guide units                                                         |        |             |                                       |                  | Technical data → Internet: feng |               |  |
|-------------------------------------------------------------------------------------|--------|-------------|---------------------------------------|------------------|---------------------------------|---------------|--|
|                                                                                     | For Ø  | Stroke [mm] | With recirculating ball bearing guide |                  | With plain-bearing guide        |               |  |
|                                                                                     |        |             | Part No.                              | Type             | Part No.                        | Type          |  |
|  | 8, 10  | 1 ... 200   | 35 197                                | FEN-8/10-...-KF  | 35 196                          | FEN-8/10-...  |  |
|                                                                                     | 12, 16 | 1 ... 200   | 33 481                                | FEN-12/16-...-KF | 19 168                          | FEN-12/16-... |  |
|                                                                                     | 20     | 2 ... 250   | 33 482                                | FEN-20-...-KF    | 19 169                          | FEN-20-...    |  |
|                                                                                     | 25     | 2 ... 250   | 33 483                                | FEN-25-...-KF    | 19 170                          | FEN-25-...    |  |

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Accessories

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## Bellows kit DADB



| General technical data                       |                         |                                                                      |            |            |            |
|----------------------------------------------|-------------------------|----------------------------------------------------------------------|------------|------------|------------|
| Type DADB-S1-                                |                         | 12                                                                   | 16         | 20         | 25         |
| Max. stroke range of cylinder <sup>1)</sup>  | DSNU [mm]               | 10 ... 200                                                           | 10 ... 200 | 10 ... 320 | 10 ... 500 |
|                                              | ESNU <sup>2)</sup> [mm] | –                                                                    | –          | 10 ... 50  | 10 ... 50  |
| Type of mounting                             |                         | With threaded pin                                                    |            |            |            |
| Mounting position                            |                         | Any                                                                  |            |            |            |
| Resistance to media                          |                         | Dust, chippings, oil, grease, fuel (→ Internet: Resistance to media) |            |            |            |
| Ambient temperature <sup>3)</sup>            |                         | [°C] –10 ... +80                                                     |            |            |            |
| Corrosion resistance class CRC <sup>4)</sup> |                         | 3                                                                    |            |            |            |

1) In combination with the bellows kit DADB

2) Slight change in spring return force

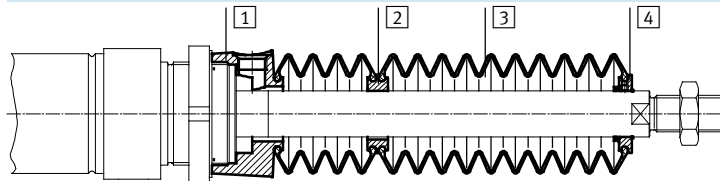
3) Note operating range of proximity sensors and cylinder

4) Corrosion resistance class 3 as per Festo standard 940 070

Components with heavy corrosion exposure. Externally visible components in direct contact with normal industrial atmosphere or media such as solvents and cleaning agents, where the surface requirement is predominantly functional.

## Materials

### Sectional view



| Bellows           |                    |                         |
|-------------------|--------------------|-------------------------|
| 1                 | Connection         | Polyamide               |
| 2                 | Intermediate piece | Polyamide               |
| 3                 | Bellows            | Nitrile rubber          |
| 4                 | End piece          | Polyamide               |
| –                 | O-ring             | Nitrile rubber          |
| Note on materials |                    | Free of copper and PTFE |
|                   |                    | RoHS compliant          |

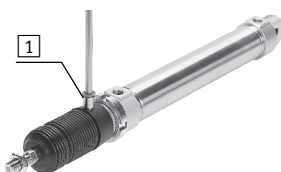
| Weight [g]    |    |    |     |     |
|---------------|----|----|-----|-----|
| Type DADB-S1- | 12 | 16 | 20  | 25  |
| Stroke [mm]   |    |    |     |     |
| 10 ... 50     | 7  | 7  | 20  | 19  |
| 51 ... 100    | 9  | 9  | 32  | 31  |
| 101 ... 150   | 13 | 13 | 45  | 44  |
| 151 ... 200   | 16 | 16 | 58  | 57  |
| 201 ... 250   | –  | –  | 73  | 72  |
| 251 ... 300   | –  | –  | 85  | 84  |
| 301 ... 350   | –  | –  | 100 | 98  |
| 351 ... 400   | –  | –  | –   | 109 |
| 401 ... 450   | –  | –  | –   | 124 |
| 451 ... 500   | –  | –  | –   | 136 |

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Accessories

## Speed of travel $v$ as a function of tube length $l$

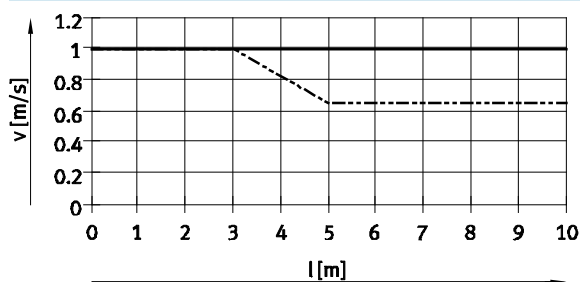


The bellows kit is a leak-free system. To prevent unwanted media from being drawn in, the supply and exhaust air must be ducted via a venting

hole in the connection part **1**. The pressure generated in the bellows kit by the positioning motion is primarily defined by speed of travel

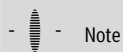
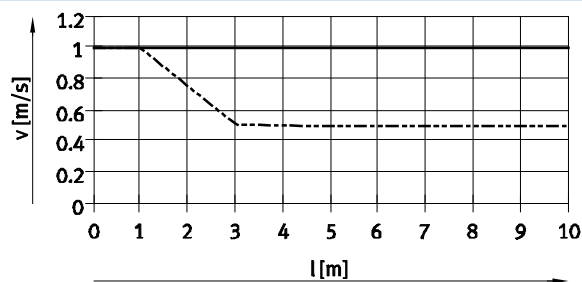
and tubing length. The recommended tubing length based on the travel speed of the drive can be read from the graph.

### Advancing



— Ø 12/16  
- - - Ø 20/25

### Retracting



Note

The push-in fittings opposite must be used for the venting hole. Silencers can be used as an alternative. This reduces the travel speed slightly.

### Tubing length and push-in fitting for venting hole

| Ø<br>[mm]      | Tubing O.D.<br>[mm] | Push-in fitting |             |
|----------------|---------------------|-----------------|-------------|
|                |                     | Part No.        | Type        |
| 12, 16, 20, 25 | 6                   | 153 317         | QSM-M5-6-I  |
|                |                     | 537 014         | QS-F-M5-6-I |
|                |                     | 533 845         | QS-F-M5-6H  |
|                |                     | 533 875         | QS-F-M5-6   |

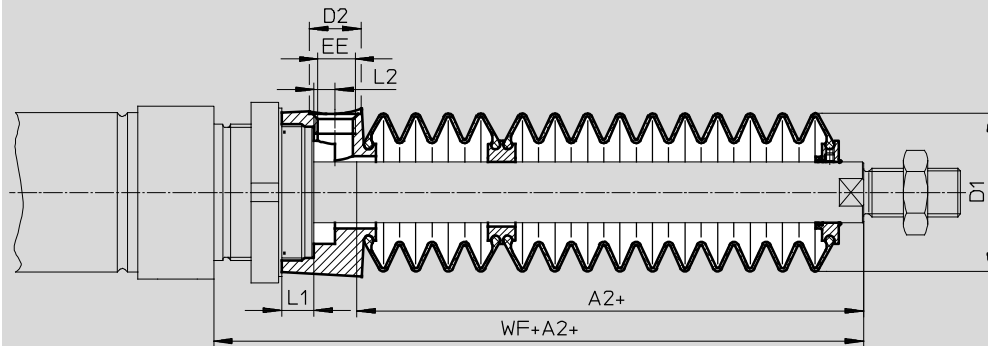
# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

Accessories

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## Dimensions

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



+ = plus stroke length

| Ø<br>Stroke<br>[mm] | 12/16            |            |     |    |    |     |       | 20               |            |     |    |     |     |       |
|---------------------|------------------|------------|-----|----|----|-----|-------|------------------|------------|-----|----|-----|-----|-------|
|                     | A2 <sup>1)</sup> | D1<br>max. | D2  | EE | L1 | L2  | WF+A2 | A2 <sup>1)</sup> | D1<br>max. | D2  | EE | L1  | L2  | WF+A2 |
| 10 ... 50           | 23               | 22         | 8.5 | M5 | 5  | 3.2 | 45    | 22               | 29         | 8.5 | M5 | 4.2 | 2.7 | 46    |
| 51 ... 100          | 34               |            |     |    |    |     | 56    | 34               |            |     |    |     |     | 58    |
| 101 ... 150         | 48               |            |     |    |    |     | 70    | 47               |            |     |    |     |     | 71    |
| 151 ... 200         | 59               |            |     |    |    |     | 81    | 60               |            |     |    |     |     | 84    |
| 201 ... 250         | –                |            |     |    |    |     | –     | 75               |            |     |    |     |     | 99    |
| 251 ... 300         | –                |            |     |    |    |     | –     | 86               |            |     |    |     |     | 110   |
| 301 ... 350         | –                |            |     |    |    |     | –     | 101              |            |     |    |     |     | 125   |
| 351 ... 400         | –                |            |     |    |    |     | –     | –                |            |     |    |     |     | –     |
| 401 ... 450         | –                |            |     |    |    |     | –     | –                |            |     |    |     |     | –     |
| 451 ... 500         | –                |            |     |    |    |     | –     | –                |            |     |    |     |     | –     |

| Ø<br>Stroke<br>[mm] | 25               |            |     |    |     |     |       |
|---------------------|------------------|------------|-----|----|-----|-----|-------|
|                     | A2 <sup>1)</sup> | D1<br>max. | D2  | EE | L1  | L2  | WF+A2 |
| 10 ... 50           | 22               | 29         | 8.5 | M5 | 4.2 | 2.7 | 50    |
| 51 ... 100          | 34               |            |     |    |     |     | 62    |
| 101 ... 150         | 47               |            |     |    |     |     | 75    |
| 151 ... 200         | 60               |            |     |    |     |     | 88    |
| 201 ... 250         | 75               |            |     |    |     |     | 103   |
| 251 ... 300         | 86               |            |     |    |     |     | 114   |
| 301 ... 350         | 101              |            |     |    |     |     | 129   |
| 351 ... 400         | 112              |            |     |    |     |     | 140   |
| 401 ... 450         | 127              |            |     |    |     |     | 155   |
| 451 ... 500         | 138              |            |     |    |     |     | 166   |

1) The dimension corresponds to the K8 value (extended piston rod) of the drive

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Accessories

## Ordering data – Bellows kit

An extended piston rod (order code K8) is required when using a bellows kit  
→ Ordering data – Modular products.

The necessary dimensions for K8 as a function of piston diameter and cylinder stroke as well as the corresponding bellows kit are indicated in the table below:

### Order example:

Selected standard cylinder:

DSNU-25-320-PPV-A-MQ-...

The dimension for the corresponding K8 value (see table):  
101 mm

Complete type code for standard cylinder:

DSNU-25-320-PPV-A-MQ-...-101K8

The corresponding bellows kit:

DADB-S1-25-S301-350

| Cylinder data |             |                  | Bellows kit |                     |
|---------------|-------------|------------------|-------------|---------------------|
| Ø             | Stroke      | Dimension for K8 | Part No.    | Type                |
| [mm]          | [mm]        | [mm]             |             |                     |
| 12            | 10 ... 50   | 23               | 553 391     | DADB-S1-12-S10-50   |
|               | 51 ... 100  | 34               | 553 393     | DADB-S1-12-S51-100  |
|               | 101 ... 150 | 48               | 553 395     | DADB-S1-12-S101-150 |
|               | 151 ... 200 | 59               | 553 397     | DADB-S1-12-S151-200 |
| 20            | 10 ... 50   | 22               | 553 407     | DADB-S1-20-S10-50   |
|               | 51 ... 100  | 34               | 553 409     | DADB-S1-20-S51-100  |
|               | 101 ... 150 | 47               | 553 411     | DADB-S1-20-S101-150 |
|               | 151 ... 200 | 60               | 553 413     | DADB-S1-20-S151-200 |
|               | 201 ... 250 | 75               | 553 415     | DADB-S1-20-S201-250 |
|               | 251 ... 300 | 86               | 553 417     | DADB-S1-20-S251-300 |
|               | 301 ... 320 | 101              | 553 419     | DADB-S1-20-S301-350 |
|               |             |                  |             |                     |
| 25            | 10 ... 50   | 22               | 553 421     | DADB-S1-25-S10-50   |
|               | 51 ... 100  | 34               | 553 423     | DADB-S1-25-S51-100  |
|               | 101 ... 150 | 47               | 553 425     | DADB-S1-25-S101-150 |
|               | 151 ... 200 | 60               | 553 427     | DADB-S1-25-S151-200 |
|               | 201 ... 250 | 75               | 553 429     | DADB-S1-25-S201-250 |
|               | 251 ... 300 | 86               | 553 431     | DADB-S1-25-S251-300 |
|               | 301 ... 350 | 101              | 553 433     | DADB-S1-25-S301-350 |
|               | 351 ... 400 | 112              | 553 435     | DADB-S1-25-S351-400 |
|               | 401 ... 450 | 127              | 553 437     | DADB-S1-25-S401-450 |
|               | 451 ... 500 | 138              | 553 439     | DADB-S1-25-S451-500 |



Note

Can only be used with piston Ø 20 and 25 of the single-acting standard cylinder ESNU.

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

**FESTO**

Accessories

| Ordering data – Proximity sensors, round design, magneto-resistive                |                 |                  |                       |         |                  |                      | Technical data → Internet: smto |                     |
|-----------------------------------------------------------------------------------|-----------------|------------------|-----------------------|---------|------------------|----------------------|---------------------------------|---------------------|
|                                                                                   | Assembly        | Switching output | Electrical connection |         | Cable length [m] | Connection direction | Part No.                        | Type                |
|                                                                                   |                 |                  | Cable                 | Plug M8 |                  |                      |                                 |                     |
| N/O contact                                                                       |                 |                  |                       |         |                  |                      |                                 |                     |
|  | Via accessories | PNP              | 3-wire                | –       | 2.5              | In-line              | 152 836                         | SMT0-4U-PS-K-LED-24 |
|                                                                                   |                 |                  | –                     | 3-pin   | –                | In-line              | 152 742                         | SMT0-4U-PS-S-LED-24 |
|                                                                                   |                 | NPN              | 3-wire                | –       | 2.5              | In-line              | 152 837                         | SMT0-4U-NS-K-LED-24 |
|                                                                                   |                 |                  | –                     | 3-pin   | –                | In-line              | 152 743                         | SMT0-4U-NS-S-LED-24 |

| Ordering data – Proximity sensors, round design, magnetic reed                    |                 |                       |         |                     |                         |          | Technical data → Internet: smeo |  |
|-----------------------------------------------------------------------------------|-----------------|-----------------------|---------|---------------------|-------------------------|----------|---------------------------------|--|
|                                                                                   | Assembly        | Electrical connection |         | Cable length<br>[m] | Connection<br>direction | Part No. | Type                            |  |
|                                                                                   |                 | Cable                 | Plug M8 |                     |                         |          |                                 |  |
| N/O contact                                                                       |                 |                       |         |                     |                         |          |                                 |  |
|  | Via accessories | 3-wire                | –       | 2.5                 | In-line                 | 36 198   | SME0-4U-K-LED-24                |  |
|                                                                                   |                 |                       |         | 5                   | In-line                 | 175 401  | SME0-4U-K5-LED-24               |  |
|                                                                                   |                 | –                     | 3-pin   | –                   | In-line                 | 151 526  | SME0-4U-S-LED-24-B              |  |

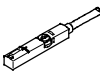
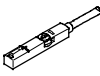
| Ordering data – Proximity sensors, round design, magnetic reed, corrosion resistant |                 |                       |         |                     |                         |          | Technical data → Internet: crsmeo |  |
|-------------------------------------------------------------------------------------|-----------------|-----------------------|---------|---------------------|-------------------------|----------|-----------------------------------|--|
|                                                                                     | Assembly        | Electrical connection |         | Cable length<br>[m] | Connection<br>direction | Part No. | Type                              |  |
|                                                                                     |                 | Cable                 | Plug M8 |                     |                         |          |                                   |  |
| N/O contact                                                                         |                 |                       |         |                     |                         |          |                                   |  |
|  | Via accessories | 3-wire                | –       | 2.5                 | In-line                 | 161 775  | CRSME0-4-K-LED-24                 |  |

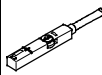
| Ordering data – Mounting kits for proximity sensors SMEO/SMT0/CRSME0                |       |          |         | Technical data → Internet: smbr                                                     |       |          |           |
|-------------------------------------------------------------------------------------|-------|----------|---------|-------------------------------------------------------------------------------------|-------|----------|-----------|
| Designation                                                                         | For Ø | Part No. | Type    | Designation                                                                         | For Ø | Part No. | Type      |
| Mounting kit SMBR                                                                   |       |          |         | Mounting kit CRSMBR, corrosion resistant                                            |       |          |           |
|  | 8     | 19 272   | SMBR-8  |  | 8     | –        | –         |
|                                                                                     | 10    | 19 273   | SMBR-10 |                                                                                     | 10    | –        | –         |
|                                                                                     | 12    | 19 274   | SMBR-12 |                                                                                     | 12    | 164 581  | CRSMBR-12 |
|                                                                                     | 16    | 19 275   | SMBR-16 |                                                                                     | 16    | 164 582  | CRSMBR-16 |
|                                                                                     | 20    | 19 276   | SMBR-20 |                                                                                     | 20    | 164 583  | CRSMBR-20 |
|                                                                                     | 25    | 19 277   | SMBR-25 |                                                                                     | 25    | 164 584  | CRSMBR-25 |

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

**FESTO**

Accessories

| Ordering data – Proximity sensors for T-slot, magneto-resistive                   |                                                                    |                  |                       |                  | Technical data → Internet: smt |                         |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------|-----------------------|------------------|--------------------------------|-------------------------|
|                                                                                   | Type of mounting                                                   | Switching output | Electrical connection | Cable length [m] | Part No.                       | Type                    |
| <b>N/O contact</b>                                                                |                                                                    |                  |                       |                  |                                |                         |
|  | Insertable in the slot from above, flush with the 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     |
| <b>N/C contact</b>                                                                |                                                                    |                  |                       |                  |                                |                         |
|  | Insertable in the slot from above, flush with the 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                                                   | Switching output | Electrical connection | Cable length [m] | Part No.                       | Type                    |
| N/O contact                                                                         |                                                                    |                  |                       |                  |                                |                         |
|   | Insertable in the slot from above, flush with the 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  |
|                                                                                     |                                                                    |                  | Plug M8x1, 3-pin      | 2.5              | 543 872                        | SME-8M-ZS-24V-K-2,5-OE  |
|                                                                                     |                                                                    |                  |                       | 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 – Mounting kits for proximity sensors SME/SMT-8                       |       |  | Technical data → Internet: smbr |           |
|-------------------------------------------------------------------------------------|-------|--|---------------------------------|-----------|
| Designation                                                                         | For Ø |  | Part No.                        | Type      |
| Mounting kit SMBR-8                                                                 |       |  |                                 |           |
|  | 8     |  | 175 091                         | SMBR-8-8  |
|                                                                                     | 10    |  | 175 092                         | SMBR-8-10 |
|                                                                                     | 12    |  | 175 093                         | SMBR-8-12 |
|                                                                                     | 16    |  | 175 094                         | SMBR-8-16 |
|                                                                                     | 20    |  | 175 095                         | SMBR-8-20 |
|                                                                                     | 25    |  | 175 096                         | SMBR-8-25 |

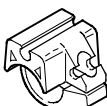
# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

FESTO

Accessories

| Ordering data – Proximity sensors for slot type 10 (C-slot), magneto-resistive    |                                   |                  |                                             |                  | Technical data → Internet: smt |                            |
|-----------------------------------------------------------------------------------|-----------------------------------|------------------|---------------------------------------------|------------------|--------------------------------|----------------------------|
|                                                                                   | Type of mounting                  | Switching output | Electrical connection, connection direction | Cable length [m] | Part No.                       | Type                       |
| N/O contact                                                                       |                                   |                  |                                             |                  |                                |                            |
|  | Insertable in the slot from above | PNP              | Cable, 3-wire, in-line                      | 2.5              | 551 373                        | SMT-10M-PS-24V-E-2,5-L-OE  |
|                                                                                   |                                   |                  | Plug M8x1, 3-pin, in-line                   | 0.3              | 551 375                        | SMT-10M-PS-24V-E-0,3-L-M8D |
|                                                                                   |                                   |                  | Plug M8x1, 3-pin, angled                    | 0.3              | 551 376                        | SMT-10M-PS-24V-E-0,3-Q-M8D |

| Ordering data – Proximity sensors for C-slot, magnetic reed                       |                                   |                  |                                             |                  | Technical data → Internet: sme |                            |
|-----------------------------------------------------------------------------------|-----------------------------------|------------------|---------------------------------------------|------------------|--------------------------------|----------------------------|
|                                                                                   | Type of mounting                  | Switching output | Electrical connection, connection direction | Cable length [m] | Part No.                       | Type                       |
| N/O contact                                                                       |                                   |                  |                                             |                  |                                |                            |
|  | Insertable in the slot from above | Contacting       | Plug M8x1, 3-pin, in-line                   | 0.3              | 551 367                        | SME-10M-DS-24V-E-0,3-L-M8D |
|                                                                                   |                                   |                  | Cable, 3-wire, in-line                      | 2.5              | 551 365                        | SME-10M-DS-24V-E-2,5-L-OE  |
|                                                                                   |                                   |                  | Cable, 2-wire, in-line                      | 2.5              | 551 369                        | SME-10M-ZS-24V-E-2,5-L-OE  |
|  | Insertable in slot lengthwise     | Contacting       | Plug M8x1, 3-pin, in-line                   | 0.3              | 173 212                        | SME-10-SL-LED-24           |
|                                                                                   |                                   |                  | Cable, 3-wire, in-line                      | 2.5              | 173 210                        | SME-10-KL-LED-24           |

| Ordering data – Mounting kits for proximity sensors SME/SMT-10                      |       |  |  | Technical data → Internet: smbr |            |
|-------------------------------------------------------------------------------------|-------|--|--|---------------------------------|------------|
| Designation                                                                         | For Ø |  |  | Part No.                        | Type       |
| Mounting kit SMBR-10                                                                |       |  |  |                                 |            |
|  | 8     |  |  | 175 101                         | SMBR-10-8  |
|                                                                                     | 10    |  |  | 173 227                         | SMBR-10-10 |
|                                                                                     | 12    |  |  | 175 102                         | SMBR-10-12 |
|                                                                                     | 16    |  |  | 173 228                         | SMBR-10-16 |
|                                                                                     | 20    |  |  | 175 103                         | SMBR-10-20 |
|                                                                                     | 25    |  |  | 175 104                         | SMBR-10-25 |

| 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   |

# Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, ISO 6432

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Accessories

| Ordering data – One-way flow control valves                                       |        |                 |              | Technical data → Internet: grl |                 |
|-----------------------------------------------------------------------------------|--------|-----------------|--------------|--------------------------------|-----------------|
|                                                                                   | Port   |                 | Material     | Part No.                       | Type            |
|                                                                                   | Thread | For tubing O.D. |              |                                |                 |
| For exhaust air                                                                   |        |                 |              |                                |                 |
|  | M5     | 3               | Metal design | 193 137                        | GRLA-M5-QS-3-D  |
|                                                                                   |        | 4               |              | 193 138                        | GRLA-M5-QS-4-D  |
|                                                                                   |        | 6               |              | 193 139                        | GRLA-M5-QS-6-D  |
|                                                                                   | G1/8   | 3               |              | 193 142                        | GRLA-1/8-QS-3-D |
|                                                                                   |        | 4               |              | 193 143                        | GRLA-1/8-QS-4-D |
|                                                                                   |        | 6               |              | 193 144                        | GRLA-1/8-QS-6-D |
|                                                                                   |        | 8               |              | 193 145                        | GRLA-1/8-QS-8-D |
|                                                                                   |        |                 |              |                                |                 |
| For supply air                                                                    |        |                 |              |                                |                 |
|  | M5     | 3               | Metal design | 193 153                        | GRLZ-M5-QS-3-D  |
|                                                                                   |        | 4               |              | 193 154                        | GRLZ-M5-QS-4-D  |
|                                                                                   |        | 6               |              | 193 155                        | GRLZ-M5-QS-6-D  |
|                                                                                   | G1/8   | 3               |              | 193 156                        | GRLZ-1/8-QS-3-D |
|                                                                                   |        | 4               |              | 193 157                        | GRLZ-1/8-QS-4-D |
|                                                                                   |        | 6               |              | 193 158                        | GRLZ-1/8-QS-6-D |
|                                                                                   |        | 8               |              | 193 159                        | GRLZ-1/8-QS-8-D |
|                                                                                   |        |                 |              |                                |                 |

| Ordering data – One-way flow control valves, corrosion resistant                    |        |                     |                           |          | Technical data ➔ Internet: <a href="#">crgla</a> |  |
|-------------------------------------------------------------------------------------|--------|---------------------|---------------------------|----------|--------------------------------------------------|--|
|                                                                                     | Port   |                     | Material                  | Part No. | Type                                             |  |
|                                                                                     | Thread | For push-in fitting |                           |          |                                                  |  |
| For exhaust air                                                                     |        |                     |                           |          |                                                  |  |
|  | M5     | CRQS/CRQSL/CRQST    | Electrolytically polished | 161 403  | CRGRLA-M5-B                                      |  |
|                                                                                     | G1/8   |                     | stainless steel casting   | 161 404  | CRGRLA-1/8-B                                     |  |
|                                                                                     |        |                     |                           |          |                                                  |  |

-  - Note

Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) may be used for the compressed air ports in conjunction with the DSNUP.