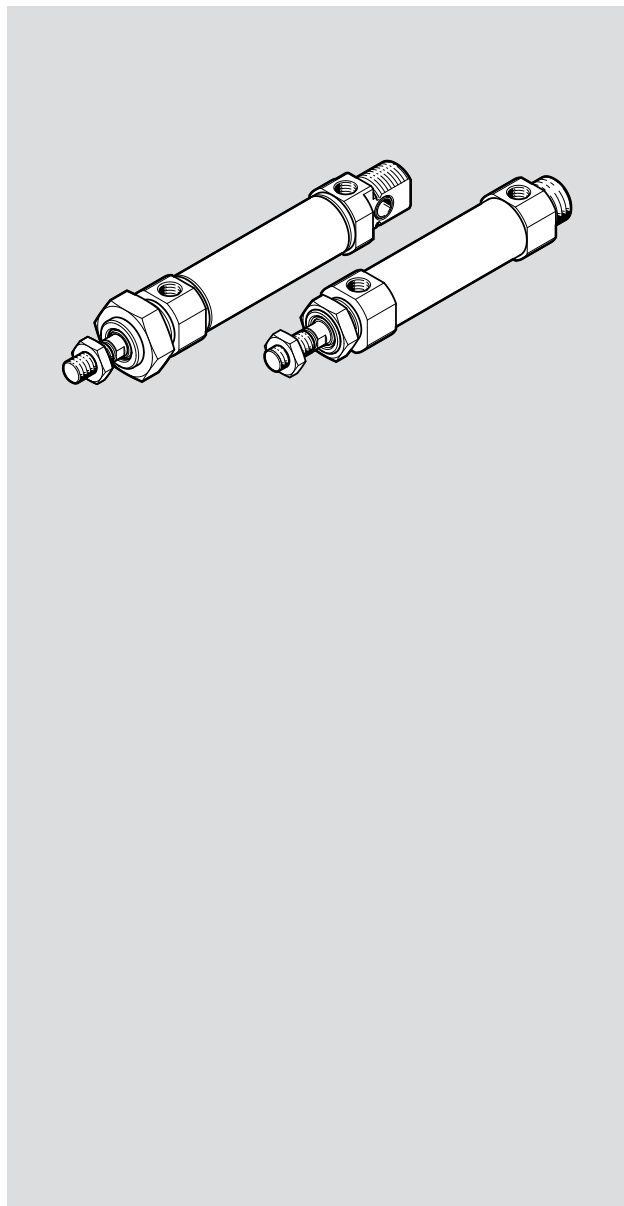


DSNU(-S)

Round cylinder



FESTO

Operating instruc-
tion



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Translation of the original instructions

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1 Applicable documents



All available documents for the product → www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Observe the identifications on the product.
- Take into account the ambient conditions at the location of use.
- Store the product in a cool, dry environment protected from UV and corrosion. Keep storage times short.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.

2.2 Intended use

The round cylinder moves masses and transmits forces. The product is intended for use in industrial environments.

2.3 Training of qualified personnel

Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers. The qualified personnel have knowledge and experience in pneumatics.

3 Additional information

- Contact the regional Festo contact if you have technical problems → www.festo.com.
- Accessories and spare parts → www.festo.com/catalogue.

4 Product overview

4.1 Product design

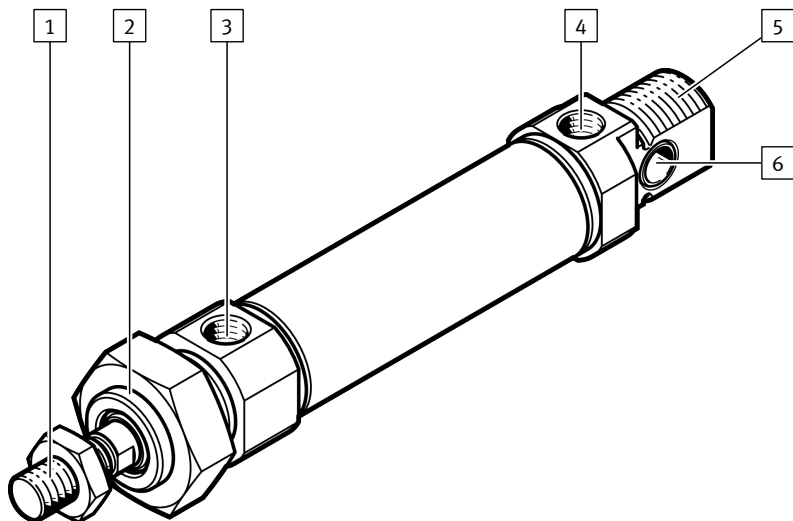


Fig. 1: Round cylinder DSNU

- | | | | |
|---|----------------------------------|---|------------------------------|
| 1 | Thread for mounting the payload | 4 | Pneumatic port 2 |
| 2 | Thread for mounting, bearing cap | 5 | Thread for mounting, end cap |
| 3 | Pneumatic port 1 | 6 | Cross hole for mounting |

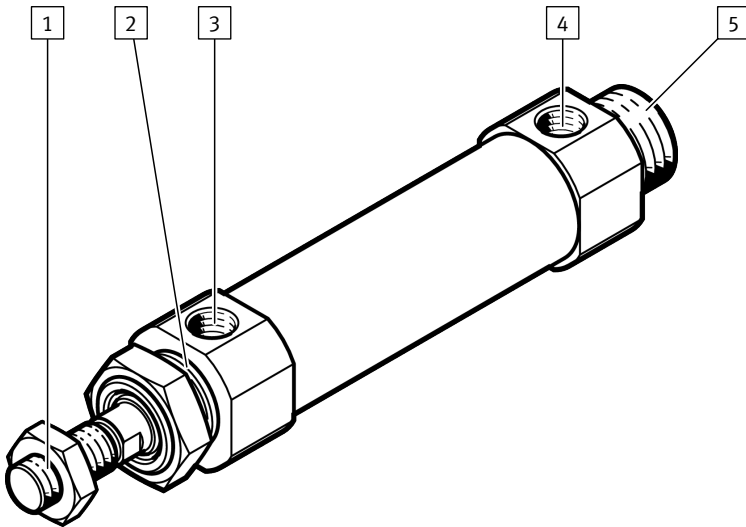


Fig. 2: Round cylinder DSNU-S

- | | |
|---|---------------------------------------|
| 1 Thread for mounting the payload | 4 Pneumatic port 2 |
| 2 Thread for mounting, bearing cap | 5 Thread for mounting, end cap |
| 3 Pneumatic port 1 | |

4.2 Function

When the cylinder chamber is pressurised at pneumatic port 1 or 2, the piston rod moves outwards or inwards.

The cylinder force varies during advance and retraction.

The position of the piston can be queried by proximity switches.

5 Assembly

5.1 Mounting round cylinder

Requirement:

- The product is installed without tension.
- Avoid mechanical misalignment between the piston rod and an external guide with one of the following measures:
 - precise alignment
 - use of a self-aligning rod coupler FK
 - use of a guide unit FEN with compensating coupling

A rigid coupling will reduce the service life and adversely affect the function of the cylinder.

- Mount the cylinder. Do not exceed the maximum tightening torque.

| DSNU | -8 | -10 | -12 | -16 | -20 | -25 |
|--|-----|-----|------|-----|------|-----|
| Maximum tightening torque [Nm] on the bearing cap | 10 | | 20 | | 40 | |
| Max. tightening torque on [Nm] the end cap | 4.6 | | 10.8 | | 20.7 | |

| DSNU | -32 | -40 | -50 | -63 |
|--|------|------|------|-----|
| Maximum tightening torque [Nm] on the bearing cap | 60 | 80 | 100 | |
| Max. tightening torque on [Nm] the end cap | 21.5 | 25.1 | 30.9 | |

| DSNU-S | -8 | -12 | -16 | -20 | -25 |
|--|----|-----|-----|-----|-----|
| Maximum tightening torque [Nm] on the bearing cap | 5 | 7 | | 30 | |
| Max. tightening torque on [Nm] the end cap | 5 | 7 | | 30 | |

5.2 Mounting accessories

- Use one-way flow control valves to adjust the speed.
 - GRLA, exhaust air flow control
- Use proximity switches with mounting kit. Avoid external influence caused by magnetic or ferritic parts in the vicinity of the proximity switches. Distance ≥ 10 mm.
- In the case of a large payload, high piston speed or when using quick exhaust valves:
 - Use suitable shock absorbers or external stops.
- To prevent the payload from sliding down suddenly in the event of pressure failure in a horizontal or inclined mounting position:
 - Use piloted check valves.

6 Installation

Requirement:

- Piloted check valves are fitted for vertical or inclined mounting position.
- Connect tubing to the pneumatic ports.

7 Commissioning

For use with reduced particle emission:

- Remove soil from the product.
1. Pressurise the complete system. A soft start valve is used for the gradual start-up pressurisation.

Fault clearance

2. With medium or large payloads or at high speeds:
 - Use a sufficiently sized arrester fixture.
3. Screw the one-way flow control valves all the way in on both sides, then back one revolution.
4. Pressurise the cylinder simultaneously on both port sides.
 - ↪ The piston rod moves slightly to a point of balance.
5. Exhaust the cylinder on one side.
 - ↪ The piston rod moves to an end position.
6. Start the test run.
7. If needed: correct the velocity at the one-way flow control valves. The piston rod should reach the end stop without hard impact or rebounding.

8 Cleaning

- Clean the product with a clean, soft cloth and non-abrasive cleaning agents.

For use with reduced particle emission:

- Remove abraded particles and soil from the product:
 - Prior to initial commissioning
 - Regularly during operation

9 Fault clearance

| Malfunction | Cause | Remedy |
|---|--|--|
| Irregular movement of the piston rod, cylinder jolts. | Lack of lubricant. | – Lubricate the cylinder as specified by the wearing parts sheet → 3 Additional information. |
| | The one-way flow control valves restrict the supply air. | – Restrict the exhaust air flow if possible, not the supply air. |
| | The piston rod is dirty. | – Clean the cylinder. |
| | | – Install a covering. |
| | | – Lubricate again after intensive cleaning. |
| | The supply air is insufficient. | – Keep the hoses short and select suitable cross-sections. |
| | | – Select the correct operating pressure. |
| – Maintain constant operating pressure. | | |
| The pressure is too low. | – Connect a volume upstream. | |

| Malfunction | Cause | Remedy |
|---|---|---|
| The piston does not move to the end position. | The cylinder is damaged. | – Replace the cylinder. |
| | Foreign matter in the cylinder. | – Filter the compressed air. |
| | The cylinder travels to an external end stop. | – Readjust the end stop. |
| False triggering during position sensing. | The temperatures are too high or too low. | – Maintain the permissible temperature range. |
| | The proximity switches are defective. | – Replace the proximity switches. |

Tab. 1: Fault clearance

10 Technical data

10.1 Technical data, general

| DSNU | -8 | -10 | -12 | -16 | -20 | -25 |
|-------------------------------------|---|-------------|--|--|-------|--------------|
| Mounting position | Any | | | | | |
| Pneumatic port | M5 | | | | G 1/8 | |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | | | |
| Information on the operating medium | Lubricated operation possible, in which case lubricated operation will always be required | | | | | |
| Thread for mounting the payload | M4 | | M6 | | M8 | M10 x1.25 |
| Cushioning | | | | | | |
| DSNU-...-P | Elastic cushioning rings/plates at both ends | | | | | |
| DSNU-...-PPS | – | | | Pneumatically acting, self-adjusting end-position cushioning, at both ends | | |
| DSNU-...-PPV | – | | Pneumatically acting, adjustable end-position cushioning, at both ends | | | |
| Ambient temperature | | | | | | |
| DSNU | [°C] | –20 ... +80 | | | | |
| DSNU-...-A1 | [°C] | 0 ... +80 | | | | |
| DSNU-...-S6 | [°C] | 0 ... +120 | | | | |
| DSNU-...-S10/-L | [°C] | +5 ... +80 | | | | |

Technical data

| DSNU | -8 | -10 | -12 | -16 | -20 | -25 | |
|--|-----------|------------|------------|------------|------------|------------|-----|
| Theoretical force | | | | | | | |
| At 0.6 MPa (6 bar, 87 psi), advance | [N] | 30 | 47 | 68 | 121 | 189 | 295 |
| At 0.6 MPa (6 bar, 87 psi), return | [N] | 23 | 40 | 51 | 104 | 158 | 247 |
| Weight | | | | | | | |
| Basic weight at 0 mm stroke | [g] | 34.6 | 37.3 | 75 | 89.9 | 186.8 | 238 |
| Added weight per 10 mm stroke | [g] | 2.4 | 2.7 | 4 | 4.6 | 7.2 | 11 |

Tab. 2: Technical data, general DSNU-8 ... -25

| DSNU | -32 | -40 | -50 | -63 |
|--|--|-------------|------------|------------|
| Installation position | Any | | | |
| Pneumatic port | G 1/8 | G 1/4 | | G 3/8 |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | |
| Information on the operating medium | Lubricated operation possible, in which case lubricated operation will always be required | | | |
| Thread for mounting the pay- load | M10x1.25 | M12x1.25 | M16x1.5 | |
| Cushioning | | | | |
| DSNU-...-P | Elastic cushioning rings/plates at both ends | | | |
| DSNU-...-PPS | Pneumatically acting, self-adjusting end-position cush- ioning, at both ends | | | |
| DSNU-...-PPV | Pneumatically acting, adjustable end-position cushioning, at both ends | | | |
| Ambient temperature | | | | |
| DSNU | [°C] | -20 ... +80 | | |
| DSNU-...-A1 | [°C] | 0 ... +80 | | |
| DSNU-...-S6 | [°C] | 0 ... +120 | | |
| DSNU-...-S10/-L | [°C] | +5 ... +80 | | |

Technical data

| DSNU | -32 | -40 | -50 | -63 |
|--|------------|------------|------------|------------|
| Theoretical force | | | | |
| At 0.6 MPa (6 bar, 87 psi), [N] advance | 483 | 753 | 1178 | 1870 |
| At 0.6 MPa (6 bar, 87 psi), [N] return | 415 | 633 | 990 | 1682 |
| Weight | | | | |
| Basic weight at 0 mm stroke [g] | 370.5 | 661 | 1087 | 1445 |
| Added weight per 10 mm stroke [g] | 15.5 | 24 | 40 | 44 |

Tab. 3: Technical data, general, DSNU-32 ... -63

| DSNU-S | -8 | -12 | -16 | -20 | -25 |
|--|---|------------|--|------------|------------|
| Mounting position | Any | | | | |
| Pneumatic port | M5 | | | G 1/8 | |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | | |
| Information on the operating medium | Lubricated operation possible, in which case lubricated operation will always be required | | | | |
| Thread for mounting the payload | M4 | M6 | | M8 | M10x1.25 |
| Ambient temperature [°C] | -20 ... +80 | | | | |
| Cushioning | | | | | |
| DSNU-S-...-P | Elastic cushioning rings/plates at both ends | | | | |
| DSNU-S-...-PPS | - | | Pneumatically acting, self-adjusting end-position cushioning, at both ends | | |
| Theoretical force | | | | | |
| At 0.6 MPa (6 bar, 87 psi), [N] advance | 30 | 68 | 121 | 189 | 295 |
| At 0.6 MPa (6 bar, 87 psi), [N] return | 23 | 51 | 104 | 158 | 247 |

| DSNU-S | -8 | -12 | -16 | -20 | -25 |
|-----------------------------------|-----------|------------|------------|------------|------------|
| Weight | | | | | |
| Basic weight at 0 mm stroke [g] | 20 | 35.9 | 48.9 | 126 | 180.2 |
| Added weight per 10 mm stroke [g] | 2.4 | 4.2 | 4.8 | 7.2 | 11 |

Tab. 4: Technical data, general DSNU-S-8 ... -25

10.2 Technical data, pneumatic

| DSNU | | -8 | -10 | -12 | -16 | -20 | -25 |
|--------------------|-------|--------------|------------|--------------|--------------|------------|-------------|
| Operating pressure | | | | | | | |
| DSNU | [MPa] | 0.15 ... 1 | | | 0.1 ... 1 | | |
| | [bar] | 1.5 ... 10 | | | 1 ... 10 | | |
| | [psi] | 21.8 ... 145 | | | 14.5 ... 145 | | |
| DSNU-...-L | [MPa] | 0.06 ... 1 | | | 0.05 ... 1 | | 0.04 ... 1 |
| | [bar] | 0.6 ... 10 | | | 0.5 ... 10 | | 0.4 ... 10 |
| | [psi] | 8.7 ... 145 | | | 7.25 ... 145 | | 5.8 ... 145 |
| DSNU-...-S10 | [MPa] | – | | 0.05 ... 1 | 0.03 ... 1 | | |
| | [bar] | – | | 0.5 ... 10 | 0.3 ... 10 | | |
| | [psi] | – | | 7.25 ... 145 | 4.35 ... 145 | | |

Tab. 5: Technical data, pneumatic DSNU-8 ... -25

| DSNU | | -32 | -40 | -50 | -63 |
|--------------------|-------|--------------|------------|-------------|------------|
| Operating pressure | | | | | |
| DSNU | [MPa] | 0.1 ... 1 | | | |
| | [bar] | 1 ... 10 | | | |
| | [psi] | 14.5 ... 145 | | | |
| DSNU-...-A6 | [MPa] | 0.2 ... 1 | | | |
| | [bar] | 2 ... 10 | | | |
| | [psi] | 29 ... 145 | | | |
| DSNU-...-L | [MPa] | 0.04 ... 1 | | 0.02 ... 1 | |
| | [bar] | 0.4 ... 10 | | 0.2 ... 10 | |
| | [psi] | 5.8 ... 145 | | 2.9 ... 145 | |

Technical data

| DSNU | | -32 | -40 | -50 | -63 |
|----------------|-------|--------------|------------|------------|------------|
| DSNU-...-Q/-S6 | [MPa] | 0.1 ... 0.8 | | | |
| | [bar] | 1 ... 8 | | | |
| | [psi] | 14.5 ... 116 | | | |
| DSNU-...-S10 | [MPa] | 0.02 ... 1 | | | |
| | [bar] | 0.2 ... 10 | | | |
| | [psi] | 2.9 ... 145 | | | |

Tab. 6: Technical data, pneumatic DSNU-32 ... -63

| DSNU-S | | -8 | -12 | -16 | -20 | -25 |
|--------------------|-------|--------------|------------|--------------|------------|------------|
| Operating pressure | [MPa] | 0.15 ... 1 | | 0.1 ... 1 | | |
| | [bar] | 1.5 ... 10 | | 1 ... 10 | | |
| | [psi] | 21.8 ... 145 | | 14.5 ... 145 | | |

Tab. 7: Technical data, pneumatic DSNU-S-8 ... -25

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