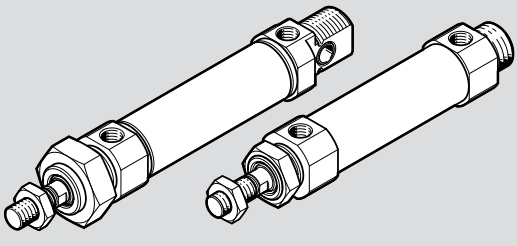
DSNU(-S)
Round cylinder



FESTO

Operating instruction

8187071

8187071
2023-08c
[8187073]

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

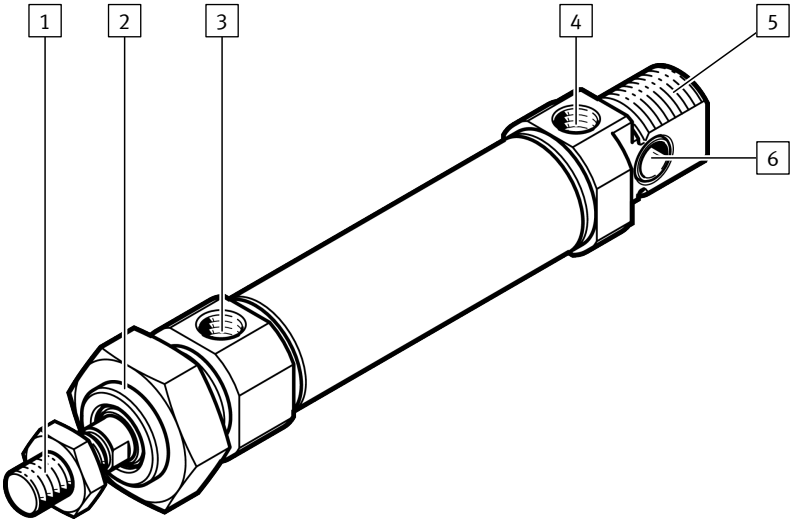

Fig. 1: Round cylinder DSNU

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

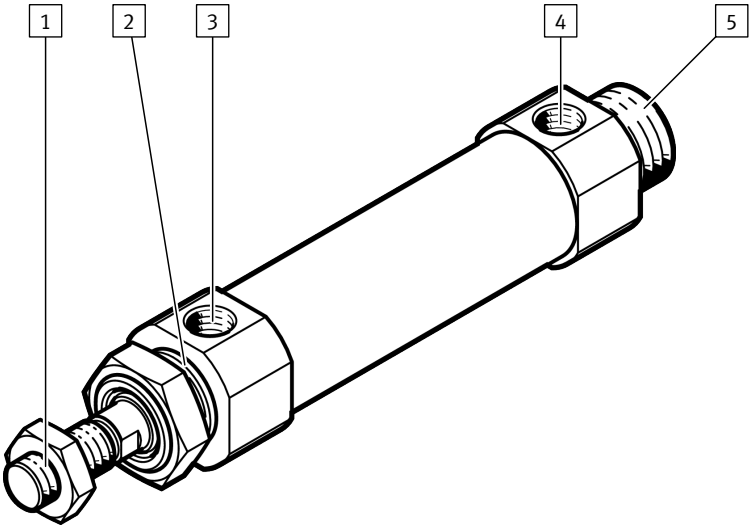

Fig. 2: Round cylinder DSNU-S

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

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 on the bearing cap	[Nm]	10		20		40	
Max. tightening torque on the end cap	[Nm]	4.6		10.8		20.7	

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

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

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					

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 payload	M10x1.25	M12x1.25	M16x1.5	
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			

DSNU		-32	-40	-50	-63
Theoretical force					
At 0.6 MPa (6 bar, 87 psi), advance	[N]	483	753	1178	1870
At 0.6 MPa (6 bar, 87 psi), return	[N]	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), advance	[N]	30	68	121	189	295
At 0.6 MPa (6 bar, 87 psi), return	[N]	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		

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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