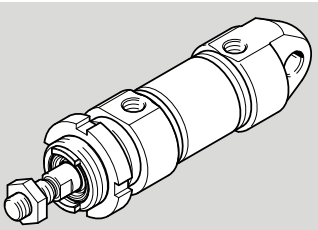
CRDSNU
Round cylinder



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Operating instructions

8143197
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[8143199]

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

– Take into consideration the ambient conditions at the location of use.
– Only use the product in original status without unauthorised modifications.
– Observe labelling on the product.
– Store the product in a cool, dry, UV-protected and corrosion-protected environment. Ensure that storage times are kept to a minimum.
– Prior to mounting, installation and maintenance work: Switch off compressed air supply and secure it from being switched back on.
– Observe tightening torques. Unless otherwise specified, the tolerance is ± 20 %.

2.2 Intended use

The product is intended for the transport of loads.

2.3 Training of skilled personnel

Installation, commissioning, maintenance and disassembly should only be conducted by qualified personnel.

3 Further information

– Accessories ➔ www.festo.com/catalogue.
– Spare parts ➔ www.festo.com/spareparts.

4 Service

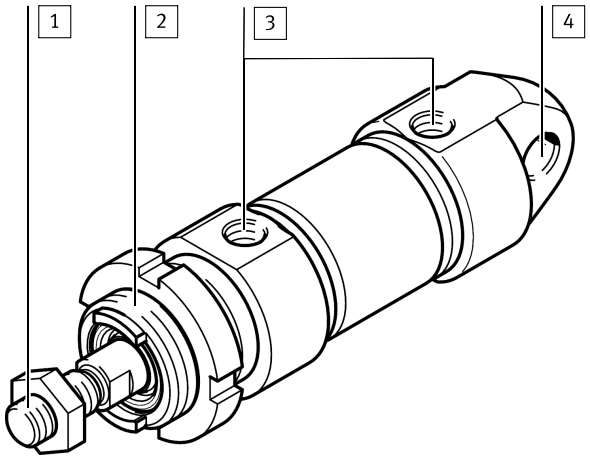
Contact your regional Festo contact person if you have technical questions ➔ www.festo.com.

5 Product overview

5.1 Function

The piston rod moves outwards when the cylinder chamber is pressurised. The advanced piston rod is retracted as follows:
– For double-acting cylinders, by pressurising the other cylinder chamber.
The cylinder force during advance and return is:
– different with piston rod at one end.
– identical with through piston rod.
The position of the piston can be detected by proximity switches.

5.2 Design



1 Male thread on the piston rod for mounting the payload
2 Male thread on the bearing cap for mounting
3 Supply ports in the bearing/end cap
4 Cross hole for mounting

Fig. 1 Sample illustration CRDSNU

5.3 Mounting

- Handle the cylinder so as to avoid any damage to the cylinder barrel and piston rod.
- Observe the following points:
  – parallel mounting when using external guides
  – installation without distortion
  – Compliance with the permissible loads ➔ www.festo.com/catalogue
- Observe tightening torque of lock nuts on the male thread 2.

Size	12	16	20	25	32	40	50	63	80	100
Tightening torque [Nm] on the bearing cap	15	15	40	40	60	80	100	100	550	550

Tab. 1 Tightening torques on the bearing cap

- Avoid mechanical alignment inaccuracies between the piston rod and an external guide using one of the following measures:
  – absolutely precise alignment (general)
  – use of a self-aligning rod coupler FK
  – use of a guide unit FEN with compensating coupling
  A rigid coupling impairs the service life and function of the cylinder.

5.4 Mounting Accessories

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 an air supply failure in a horizontal or sloping mounting position:
- Use piloted check valves.

To set the speed:
- Use one-way flow control valves in the following supply ports:
  – For single-acting cylinders: GRLZ (supply air)
  – For double-acting cylinders: GRLA (exhaust air)

The one-way flow control valves are screwed directly into the supply ports. Use of other accessories with a screw-in depth that is too long will damage the cushioning piston.
For position sensing with proximity sensors:
- Use proximity sensors with mounting kit.
  Avoid external influence caused by magnetic or ferritic parts in the vicinity of the proximity sensors (spacing ≥ 10 mm).

6 Installation

6.1 Pneumatic Installation

- Connect tubing to supply ports.

7 Commissioning

7.1 Preparation

- Pressurise the system slowly. A soft start valve is used for gradual start-up pressurisation ➔ www.festo.com/catalogue.

With medium or large payloads or at high speeds:
- Use sufficiently large arrester fixtures. The product will tolerate the maximum velocities and payloads without external arrester fixtures ➔ www.festo.com/catalogue

7.2 Processing

NOTICE!

Risk of collision due to payloads that project into the setup region of the product.

- Only turn adjusting screws while the product is stationary.

1. First of all, close the one-way flow control valves on both sides completely, then unscrew them one complete turn.
2. Pressurise the cylinder simultaneously at both ends.
   ↳ The piston rod moves slightly to a point of balance.
3. Exhaust the cylinder at one end.
   ↳ The piston rod moves to an end position.
4. Start the test run.
5. If the piston rod strikes hard against the end positions or rebounds, correct the speed using the one-way flow control valve.

8 Maintenance

8.1 Cleaning

NOTICE!

- Do not use aggressive cleaning agents.
- Do not clean the guide elements. Regularly removing the lubricant from the surface of the piston rod reduces the service life.

- Clean the product with a soft cloth.

The cylinder is furthermore maintenance-free owing to the lifetime lubrication.

9 Malfunctions

9.1 Fault clearance

Fault description	Cause	Remedy
Irregular movement of the piston rod (cylinder jolts).	Lack of lubricant.	Apply lubricant in accordance with wearing parts sheet ➔ www.festo.com/spareparts.
	One-way flow control valves restrict the flow of supply air.	Control the exhaust air flow if possible (not the supply air).
	Piston rod is dirty.	– Clean the cylinder. – Provide covering (relubricate after thorough cleaning).
	Insufficient supply air (stick slip)	– Keep the tubing lines short and select suitable cross-sections. – Select correct pressure. – Keep pressure constant.
	Pressure is too low.	Connect volume upstream.
	Guide is not parallel to direction of stroke.	Use self-aligning rod coupler as in accessories ➔ www.festo.com/catalogue.
Piston does not travel to end position.	Cylinder barrel is damaged.	Replace cylinder.
	Setting screw for end-position cushioning is completely closed.	Loosen setting screw.
	Foreign matter in the cylinder.	Filter the compressed air.
	Cylinder travels to an external end stop.	Readjust the end stop.
False triggering during position sensing.	Temperatures too high or too low.	Comply with permissible temperature range of the proximity sensors.
	Fault at proximity sensor	➔ Instruction manual for proximity sensor

Tab. 2 Fault clearance

10 Disposal

ENVIRONMENT!

Send the packaging and product for environmentally sound recycling in accordance with the current regulations ➔ www.festo.com/sp.

11 Technical data

Size		12	16	20	25	32
Pneumatic port		M5		G1/8		
Piston rod thread		M6		M8	M10x1.25	
End-position cushioning	P	elastic cushioning rings/plates, at both ends				
	PPS	–	pneumatic cushioning, both ends, self-adjusting			
	PPV	–		pneumatic cushioning, both ends, adjustable		
Mounting position		any				
Operating medium		Compressed air according to ISO 8573-1:2010 [7:4:4]				
Notes on the operating/pilot medium		lubricated operation possible (in which case lubricated operation will always be required)				
Operating pressure	[MPa]	0.1 … 1				
	[psi]	14.5 … 145				
	[bar]	1 … 10				
Ambient temperature						
CRDSNU-...	[°C]	–20 … +80				
CRDSNU-...-A1	[°C]	0 … +80				
CRDSNU-...-S6	[°C]	0 … +120				
CRDSNU-...-TT	[°C]	–40 … +80				
Theoretical force						
Theoretical force at 0.6 MPa (87 psi, 6 bar), advance	[N]	68	121	188	295	483
Theoretical force at 0.6 MPa (87 psi, 6 bar), return	[N]	51	104	158	247	415
Weight						
Basic weight	[g]	101	130	310	410	670
Additional weight per 10 mm stroke	[g]	4	5	7	11	15

Tab. 3 Technical data CRDSNU

Size		40	50	63	80	100
Pneumatic port		G1/4		G3/8		G1/2
Piston rod thread		M12x1.25	M16x1.5		M20x1.5	
End-position cushioning	P	elastic cushioning rings/plates, at both ends				
	PPS	pneumatic cushioning, both ends, self-adjusting				
	PPV	pneumatic cushioning, both ends, adjustable				
Mounting position		any				
Operating medium		Compressed air according to ISO 8573-1:2010 [7:4:4]				
Notes on the operating/pilot medium		lubricated operation possible (in which case lubricated operation will always be required)				
Operating pressure	[MPa]	0.1 … 1				
	[psi]	14.5 … 145				
	[bar]	1 … 10				
Ambient temperature						
CRDSNU-...	[°C]	–20 … +80				
CRDSNU-...-A1	[°C]	0 … +80				
CRDSNU-...-S6	[°C]	0 … +120				
CRDSNU-...-TT	[°C]	–40 … +80				
Theoretical force						
Theoretical force at 0.6 MPa (87 psi, 6 bar), advance	[N]	754	1178	1870	3016	4712
Theoretical force at 0.6 MPa (87 psi, 6 bar), return	[N]	633	990	1682	2721	4418
Weight						
Basic weight	[g]	1327	2020	2943	5891.2	8527.1
Additional weight per 10 mm stroke	[g]	24	40	44	68	75

Tab. 4 Technical data CRDSNU