

FESTO DNC-100-320-PPV-A

FESTO DNC-100-320-PPV-A ISO Cylinder Instruction Manual

Model: DNC-100-320-PPV-A | Part Number: 163474

1. INTRODUCTION

This instruction manual provides essential information for the safe and efficient installation, operation, and maintenance of the FESTO DNC-100-320-PPV-A ISO Cylinder. Please read this manual thoroughly before using the product to ensure proper function and to prevent damage or injury.

The FESTO DNC-100-320-PPV-A is a double-acting pneumatic cylinder conforming to ISO 15552 standards, designed for various industrial automation applications. It features pneumatic cushioning adjustable at both ends for smooth operation.

2. SAFETY INSTRUCTIONS

Always observe general safety regulations for pneumatic systems and the specific instructions provided in this manual. Failure to do so may result in serious injury or equipment damage.

- **Qualified Personnel:** Installation, commissioning, and maintenance must only be performed by qualified and authorized personnel.
- **Pressure Release:** Before any installation, maintenance, or troubleshooting, ensure that the pneumatic system is depressurized and secured against accidental re-pressurization.
- **Moving Parts:** Keep hands and other body parts clear of moving components during operation.
- **Proper Use:** Use the cylinder only for its intended purpose as a pneumatic actuator. Do not exceed specified operating pressures or temperatures.
- **Environmental Conditions:** Ensure the operating environment is within the specified temperature and corrosion resistance limits.
- **Secure Mounting:** Ensure the cylinder is securely mounted to prevent unintended movement or detachment.

3. PRODUCT OVERVIEW

The FESTO DNC-100-320-PPV-A is an ISO standard cylinder, characterized by its robust construction and reliable performance. It is a double-acting cylinder, meaning compressed air can be applied to both sides of the piston to extend and retract the piston rod.

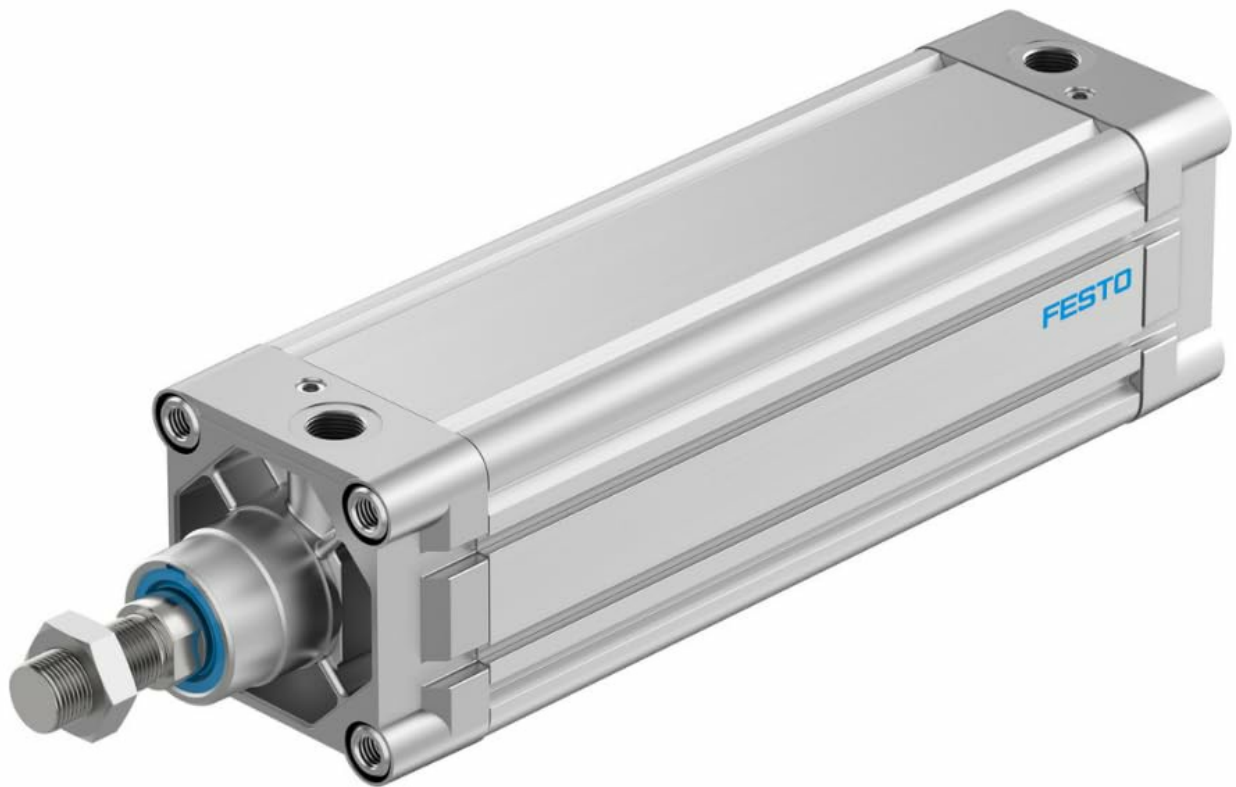


Figure 1: FESTO DNC-100-320-PPV-A ISO Cylinder. This image shows the complete pneumatic cylinder assembly, highlighting its profile barrel design, piston rod with external thread, and the integrated pneumatic cushioning at the end caps. The FESTO branding is visible on the side.

Key features include:

- **Type Code:** DNC
- **Piston Diameter:** 100 mm
- **Stroke:** 320 mm
- **Cushioning:** Pneumatic cushioning, adjustable at both ends (PPV-A)
- **Piston Rod End:** External thread (M20x1.5)
- **Conforms to Standard:** ISO 15552

4. SETUP AND INSTALLATION

Careful installation is crucial for the cylinder's performance and longevity.

1. **Mounting:** The cylinder can be mounted in any position. Ensure the mounting surface is flat and rigid enough to support the cylinder's forces. Use appropriate accessories for secure mounting. The cylinder supports mounting with accessories and internal thread.
2. **Pneumatic Connection:** Connect the compressed air lines to the G1/2 pneumatic ports. Ensure all connections are clean, free of debris, and properly sealed to prevent leaks.
3. **Piston Rod Connection:** Connect the load to the M20x1.5 external thread of the piston rod. Ensure the connection is aligned to prevent side loads on the piston rod, which can lead to premature wear.
4. **Proximity Sensor (Optional):** If position sensing is required, install proximity sensors according to their specific instructions. The cylinder is designed for proximity sensor integration.
5. **Initial Check:** After installation, slowly pressurize the system and check for any leaks or obstructions to

movement.

5. OPERATING INSTRUCTIONS

The DNC-100-320-PPV-A cylinder operates as a double-acting unit, controlled by directing compressed air to either side of the piston.

- **Operating Medium:** Use compressed air conforming to ISO 8573-1:2010 [7:4:4].
- **Operating Pressure:** Maintain operating pressure within the range of 0.6 bar to 12 bar.
- **Cushioning Adjustment:** The pneumatic cushioning at both ends is adjustable. Adjust the cushioning screws to achieve smooth deceleration at the end of the stroke, preventing hard impacts and reducing noise. Turn the adjustment screw clockwise to increase cushioning effect and counter-clockwise to decrease it.
- **Oil Lubrication:** Operation with oil lubrication is possible. If oil lubrication is introduced, it must be maintained continuously for the cylinder's lifespan.

6. MAINTENANCE

Regular maintenance ensures optimal performance and extends the service life of the cylinder.

- **Visual Inspection:** Periodically inspect the cylinder for any signs of wear, damage, or leaks. Check the piston rod for scratches or corrosion.
- **Leak Checks:** Regularly check pneumatic connections for leaks. Tighten connections as necessary.
- **Cushioning Adjustment:** Re-adjust cushioning if the cylinder's end-of-stroke behavior changes or becomes erratic.
- **Lubrication:** If operating with oil lubrication, ensure the lubricator in the air preparation unit is adequately supplied. If the cylinder is designed for non-lubricated operation and oil is introduced, it must be maintained.
- **Cleaning:** Keep the cylinder and its surroundings clean to prevent dust and debris from entering the system.
- **Material Information:** The cylinder features a wrought aluminum alloy barrel with smooth anodization, high-alloy steel piston rod, TPE-U(PU) seals, and coated die-cast aluminum cover material. These materials contribute to its corrosion resistance class 2 (moderate corrosion stress).

7. TROUBLESHOOTING

This section provides solutions for common issues encountered during operation.

Problem	Possible Cause	Solution
Cylinder does not move or moves slowly	Insufficient air pressure; blocked air lines; faulty control valve; excessive load; internal friction.	Check air supply pressure; inspect air lines for kinks or blockages; verify control valve operation; reduce load; check for proper alignment.
Air leakage	Loose connections; damaged seals; damaged air lines.	Tighten all pneumatic fittings; inspect and replace damaged seals; replace damaged air lines.
Erratic or jerky movement	Inconsistent air supply; improper cushioning adjustment; side loading on piston rod.	Ensure stable air pressure; re-adjust cushioning; check for proper alignment of load.
Loud impact at end of stroke	Insufficient cushioning.	Increase cushioning effect by adjusting the cushioning screws.

If the problem persists after attempting these solutions, contact qualified service personnel or FESTO support.

8. SPECIFICATIONS

Detailed technical specifications for the FESTO DNC-100-320-PPV-A ISO Cylinder.

Maritime classification	See certificate
Stroke	320 mm
Piston diameter	100 mm
Piston rod thread	M20x1.5
Type code	DNC
Cushioning	Pneumatic cushioning, adjustable at both ends
Mounting position	Any
Conforms to standard	ISO 15552
Piston rod end	External thread
Design	Profile barrel Piston rod Piston
Position sensing	For proximity sensor
Symbol	00991235
Variants	Piston rod at one end
Operating pressure	0.6 bar ... 12 bar
Mode of operation	Double-acting
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)
Corrosion resistance class (CRC)	2 - Moderate corrosion stress

Figure 2: Technical Specifications (Part 1). This image displays the first part of the detailed technical data for the DNC-100-320-PPV-A cylinder, including stroke, piston diameter, piston rod thread, type code, cushioning type, mounting position, and conformity to ISO standard.

Corrosion resistance class (CRC)	2 - Moderate corrosion stress
Ambient temperature	-20 °C ... 80 °C
Impact energy in the end positions	1.2 J
Cushioning length	32 mm
Theoretical force at 6 bar, retracting	4418 N
Theoretical force at 6 bar, advancing	4712 N
Moving mass at 0 mm stroke	1544 g
Additional weight per 10 mm stroke	115 g
Basic weight with 0 mm stroke	4653 g
Additional moving mass per 10 mm stroke	38 g
Type of mounting	With accessories With internal thread
Pneumatic connection	G1/2
Note on materials	RoHS-compliant
Cover material	Coated Die-cast aluminum
Seals material	TPE-U(PU)
Piston rod material	High-alloy steel
Material of cylinder barrel	Wrought aluminum alloy Smooth anodized

Figure 3: Technical Specifications (Part 2). This image displays the second part of the detailed technical data, covering ambient temperature, impact energy, cushioning length, theoretical forces, moving masses, type of mounting, pneumatic connection, and material specifications.

Parameter	Value
Model Number	DNC-100-320-PPV-A
Part Number	163474
Stroke	320 mm
Piston Diameter	100 mm
Piston Rod Thread	M20x1.5
Type Code	DNC
Cushioning	Pneumatic cushioning, adjustable at both ends
Mounting Position	Any
Conforms to Standard	ISO 15552
Piston Rod End	External thread
Design	Profile barrel, Piston rod, Piston
Position Sensing	For proximity sensor
Variants	Piston rod at one end

Parameter	Value
Operating Pressure	0.6 bar ... 12 bar
Mode of Operation	Double-acting
Operating Medium	Compressed air as per ISO 8573-1:2010 [7:4:4]
Oil Lubrication	Operation with oil lubrication possible (required for further use)
Corrosion Resistance Class (CRC)	2 - Moderate corrosion stress
Ambient Temperature	-20 °C ... 80 °C
Impact Energy in End Positions	1.2 J
Cushioning Length	32 mm
Theoretical Force at 6 bar, Retracting	4418 N
Theoretical Force at 6 bar, Advancing	4712 N
Moving Mass at 0 mm Stroke	1544 g
Additional Weight per 10 mm Stroke	115 g
Basic Weight with 0 mm Stroke	4653 g
Additional Moving Mass per 10 mm Stroke	38 g
Type of Mounting	With accessories, With internal thread
Pneumatic Connection	G1/2
Note on Materials	RoHS-compliant
Cover Material	Coated, Die-cast aluminum
Seals Material	TPE-U(PU)
Piston Rod Material	High-alloy steel
Material of Cylinder Barrel	Wrought aluminum alloy, Smooth anodized

9. WARRANTY AND SUPPORT

For warranty information, please refer to the terms and conditions provided by the original manufacturer, FESTO, or your authorized distributor at the time of purchase. For technical support, spare parts, or further assistance, please contact your FESTO representative or the seller from whom the product was acquired.