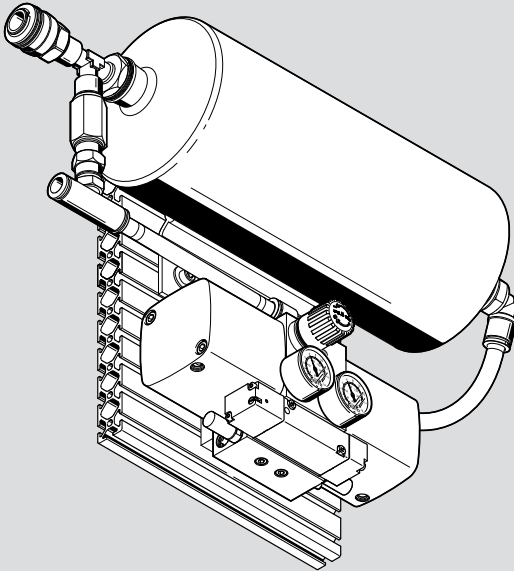


DPA-...-CRVZS

Pressure booster

FESTO

Operating instruc-
tion



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[8176133]

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.
- Only use the product if it is in perfect technical condition.
- Observe the identifications on the product.
- Take into account the ambient conditions at the location of use.
- Before working on the product, switch off the compressed air supply and lock it to prevent it from being switched on again.
- An increase in the operating pressure above the maximum permissible values may lead to rupture of the housing. Install a suitable safety device to prevent excess pressure.

2.2 Intended use

The pressure booster increases the pressure in compressed air lines up to the maximum permissible outlet pressure. The air reservoir stores group 2 fluids. The pressure booster can be used for the following applications:

- For compensation of pressure fluctuations.
- To provide greater volumes of compressed air to supply of fast clocking drives.
- To increase the pressure up to double the inlet pressure .
- For occasional extraction of compressed air.

2.3 Foreseeable misuse

The pressure booster is not used for the permanent removal of compressed air.

- Avoid operation without pauses between cycles.
- Do not use the pressure booster as a substitute for compressors.

2.4 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 design

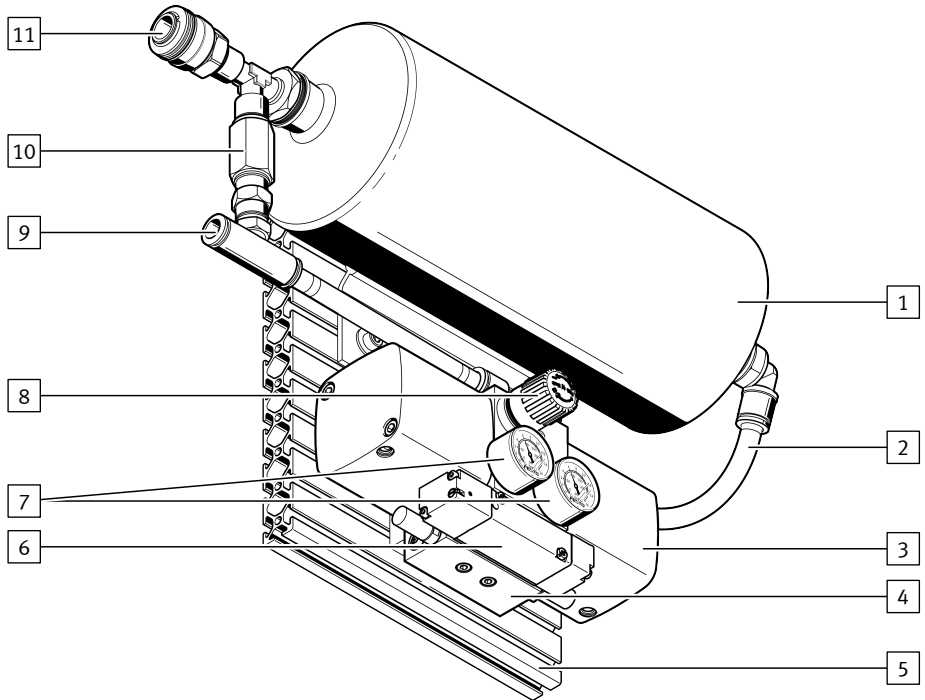


Fig. 1: Pressure booster DPA-...-CRVZS

- | | |
|---|--|
| <p>1 Air reservoir CRVZS</p> <p>2 Connecting line between air reservoir and pressure booster</p> <p>3 Pressure booster DPA</p> <p>4 Adapter plate with silencers</p> <p>5 Profile plate</p> <p>6 Pneumatic valve with manual override</p> | <p>7 Pressure gauge for ports P1 and P2</p> <p>8 Pressure booster knob for port P2</p> <p>9 Pneumatic port P1, inlet</p> <p>10 Bypass</p> <p>11 Pneumatic port P2, Outlet with coupling socket KD4</p> |
|---|--|

5 Function

The product is a combination of a DPA pressure booster and a CRVZS air reservoir. The air reservoir is filled to network pressure continuously via a bypass with check valve. A pneumatic valve directs the inlet pressure alternately into two compression chambers. The compression chambers generate a

maximum outlet pressure of twice the inlet pressure. The increased outlet pressure is stored in the air reservoir and is available for compressed air applications. Two pressure gauges are used to monitor the inlet and outlet pressure.

5.1 Switching function

As soon as the inlet pressure is switched on at port P1, the pressure booster starts up automatically. When the set outlet pressure is reached, the pressure booster stops operating. If the outlet pressure drops due to user operation, the pressure booster starts up again automatically.

5.2 Functional principle

The air pressure is increased in the pressure booster via a double piston.

6 Assembly

WARNING

Mechanical vibrations.

Vibration can cause material fatigue and reduce the fatigue strength of the air reservoir and fasteners.

- Protect the air reservoir from mechanical vibrations.

Due to the manufacturing process, an oxide layer remains on the inside of the air reservoir.

- Use suitable filters between the air reservoir and other pneumatic products for sensitive applications.

Carry out the following work before installing the pressure booster:

1. Remove the rubber buffers from the bottom of the profile plate.
2. Depressurise the complete system.

Alignment

- The screwing points for the profile plate must be at one level.

With DPA-...-CRVZS5/10/20:

- Align the pressure booster so that the condensate outlet points downwards.

Mounting

- Attach the pressure booster to the application using the grooves in the profile plate.

7 Installation

A high pressure differential between ports P1 and P2 causes high internal air consumption by the pressure booster.

- Restrict the network pressure at port P1 to 0.8 MPa (8 bar; 116 psi) without additional pressure regulator valves.
 - Use short hose assemblies at port P1.
-

Installation

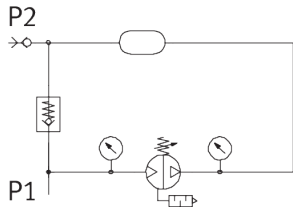


Fig. 2: Pneumatic circuit diagram installation

1. Connect the hose assemblies and push-in fittings to ports P1 and P2.
2. Use the quick coupling plug KS4 for port P2. The system is exhausted via the pressure regulator.

Use of a soft-start valve in the system

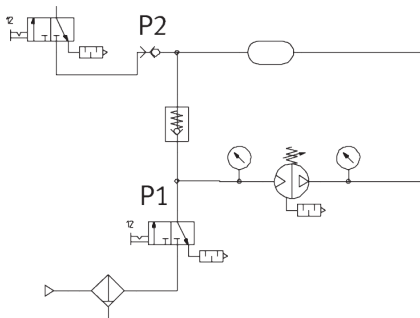


Fig. 3: Pneumatic circuit diagram installation with soft-start valve

1. Connect a 3-way on/off valve before port P1 between the soft-start valve and the pressure booster.
2. Connect a 3-way on/off valve after port P2. The system is exhausted via the pressure regulator.

Pressure booster DPA-...-CRVZS10/20

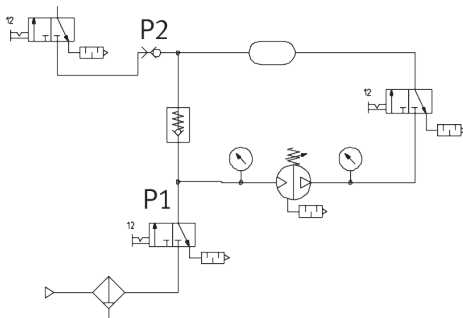


Fig. 4: Pneumatic circuit diagram installation with several soft-start valves

1. Connect a 3-way on/off valve before port P1.
2. Connect a 3-way on/off valve after port P2.

3. Connect a 3-way on-off valve between the pressure booster and the air reservoir. This allows large storage volumes to be exhausted faster.

8 Commissioning

Coupling and uncoupling compressed air outlet

1. Connect the hose assembly to the quick coupling plug KS4 at port P2.
2. Set the outlet pressure to a maximum of 1 MPa (10 bar; 145 psi) to reduce the force required.

8.1 Switching on

Use of the pressure booster without a 3-way on-off valve

- Pressurise port P1 → Fig. 2.

Application of the pressure booster with 3-way on-off valves

1. To fill the air reservoir, open the 3-way on-off valve between the pressure booster and the air reservoir → Fig. 4. Leave the 3-way on-off valve open during operation.
2. Open the 3-way on/off valve before port 1.
3. Open the 3-way on/off valve before port 2.

8.2 Setting the outlet pressure

The outlet pressure is set with the rotary knob on the pressure booster [8].

1. For DPA-63-10-...-CRVZS and DPA-100-10-...-CRVZS: pull the rotary knob of the pressure booster [8] to unlock it.
2. Turn the rotary knob of the pressure booster [8] anticlockwise to the stop.
3. Pressurise port P1 [9].
4. Turn the rotary knob of the pressure booster [8] clockwise until the desired inlet pressure is reached.
 - Pressure indicator for port P1: inlet pressure
 - Pressure indicator for port P2: outlet pressure
5. For DPA-63-10-...-CRVZS and DPA-100-10-...-CRVZS: press the rotary knob of the pressure booster [8] to lock it.

DPA-...	-10-...-CRVZS	-16-...-CRVZS
The outlet pressure setting is less than the inlet pressure.	The pressure regulator at the pressure booster exhausts pressure until pressure levels are balanced. The air reservoir is emptied.	
The min. outlet pressure is 0.2 MPa (2 bar; 29 psi) greater than the inlet pressure	Normal operating status. The outlet pressure is reached. The pressure booster is switched even if the air consumption is low.	
Increased the outlet pressure	Increased air consumption.	
Max. outlet pressure P2 [MPa]	1 ¹⁾	1.6

DPA-...		-10-...-CRVZS	-16-...-CRVZS
Max. outlet pressure P2	[bar]	10 ¹⁾	16
	[psi]	145 ¹⁾	232.1

1) The maximum outlet pressure can be exceeded by 40%: 1.4 MPa (14 bar; 203 psi)

Tab. 1: Settings at the pressure regulator

8.3 Switching off

Use of the pressure booster without 3-way on/off valves

1. Depressurise the pneumatic system.
2. Turn the rotary knob of the pressure booster [8] anticlockwise to the stop. The system is exhausted via the integrated pressure regulator.

Use of the pressure booster with 3-way on/off valves

1. Close the 3-way on/off valve at port P1, inlet.
2. Close the 3-way on/off valve at port P2, outlet. The system is exhausted via the two 3-way on-off valves. The air reservoir is exhausted by the rotary knob on the pressure booster [8].

Reducing outlet noise

1. Use a silencer to reduce the outlet noise at the 3-way on-off valves.
2. Close the on/off valve between the pressure booster and the air reservoir. This will trap the air in the high pressure chamber of the pressure booster. The rotary knob of the pressure booster [8] remains in the set position.

9 Maintenance

9.1 Visual inspection and auditory inspection

- Carry out a visual and audio inspection of the air reservoir once a year. The regulations of the country of use must be taken into account. If damage or leakage is found, replace the pressure booster.

9.2 Functional test

1. Fill the air reservoir to the maximum pressure. The pressure booster must switch off automatically.
2. Exhaust the air reservoir. The pressure booster must restart automatically until the set outlet pressure is reached.

The pressure booster runs continuously with a closed port P2 outlet:

1. Measure the leakage.
2. If necessary: re-adjust loose screw connections.

In case of internal leakage:

- Replace the pressure booster.

9.3 Draining condensate

- If required: drain the condensate from the air reservoir.

With DPA-...-CRVZS2:

1. Switch off the pressure booster.
2. Uncouple the hose assembly at port P2.
3. Attach a KS4 quick coupling plug to the coupling socket KD4 at port P2.
4. Set the pressure booster in an angle.

With DPA-...-CRVZS5/10/20:

1. Switch off the pressure booster → 8.3 Switching off.
2. Open the condensate drain on the air reservoir.

10 Fault clearance

Malfunction	Cause	Remedy
The desired outlet pressure is not reached.	The inlet pressure is too low.	– Increase the inlet pressure to max. 0.8 MPa (8 bar; 116 psi).
	Too many consumers at the outlet.	– Reduce the number of consumers.
The flow rate is too low.	The volumetric flow rate at the compressed air inlet is too low.	– Use short tube lengths. – Use a larger compressor.
The pressure booster does not start.	Commissioning errors	– Repeat commissioning → 8 Commissioning.
	The pneumatic valve is in mid-position.	– Actuate the manual override on the pneumatic valve.
	The exhaust outlets are closed.	– Keep the exhaust outlets clear.
	The sinter filters are closed.	– Keep the sinter filters clear.
External damage after visual inspection.	Material defect at the pressure booster.	– Replace the pressure booster.
	Improper handling of the pressure booster.	
Audible leakage	The connecting parts are defective or damaged.	– Replace the faulty connecting part.
	The pressure booster is damaged.	– Replace the pressure booster.
Corrosion	Improper handling of the pressure booster.	– Replace the pressure booster.
	Incorrect storage of the pressure booster.	

Tab. 2: Fault clearance

11 Dismantling

With DPA-...-CRVZS10/20:

1. Close the on/off valve at port P2, outlet.
2. Close the on/off valve at port P1, inlet.
3. Close the on/off valve between the pressure booster and the air reservoir .
4. Turn the rotary knob of the pressure booster anticlockwise to the stop.
5. Depressurise the pneumatic application. Observe the pressure gauges for connections P1 and P2 during this process.
6. Disconnect all pneumatic connections.

12 Technical data, general

DPA	-40-10-...-CRVZS2	-40-16-...-CRVZS2
Certificates, declaration of conformity	→ www.festo.com/sp	
Classification	Sound engineering practice	
Mounting position	Any	
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]	
Information on operating medium	Lubricated operation not possible	
Ambient temperature [°C]	5 ... 60	
Volume V [l]	2	
Weight [g]	4400	
Material of air reservoir	High-alloy stainless steel	

Tab. 3: Technical data, general, DPA-40-10-...-CRVZS2, DPA-40-16-...-CRVZS2

DPA	-40-10-...-CRVZS5	-40-16-...-CRVZS5
Certificates, declaration of conformity	→ www.festo.com/sp	
Classification	Category I	
Mounting position	Condensate drain underneath	
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]	
Information on operating medium	Lubricated operation not possible	
Ambient temperature [°C]	5 ... 60	
Volume V [l]	5	
Weight [g]	7300	
Material of air reservoir	High-alloy stainless steel	

Technical data, general

DPA	-40-10-...-CRVZS5	-40-16-...-CRVZS5
Condensate drain	G 3/8	
Max. tightening torque [Nm]	27	

Tab. 4: Technical data, general, DPA-40-10-...-CRVZS5, DPA-40-16-...-CRVZS5

DPA	-63-10-...-CRVZS10	-63-16-...-CRVZS10
Certificates, declaration of conformity	→ www.festo.com/sp	
Classification	Category I	
Mounting position	Condensate drain underneath	
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]	
Information on operating medium	Lubricated operation not possible	
Ambient temperature [°C]	5 ... 60	
Volume V [l]	10	
Weight [g]	16000	
Material of air reservoir	High-alloy stainless steel	
Condensate drain	G 3/8	
Max. tightening torque [Nm]	27	

Tab. 5: Technical data, general, DPA-63-10-...-CRVZS10, DPA-63-16-...-CRVZS10

DPA	-63-10-...-CRVZS20	-63-16-...-CRVZS20
Certificates, declaration of conformity	→ www.festo.com/sp	
Classification	Category II	
Mounting position	Condensate drain underneath	
Operating medium	Compressed air to ISO 8573-1:2010 [7:3:4]	
Information on operating medium	Lubricated operation not possible	
Ambient temperature [°C]	5 ... 60	
Volume V [l]	20	
Weight [g]	21500	
Material of air reservoir	High-alloy stainless steel	
Condensate drain	G 3/8	
Max. tightening torque [Nm]	27	

Tab. 6: Technical data, general, DPA-63-10-...-CRVZS20, DPA-63-16-...-CRVZS20

DPA		-100-10-...-CRVZS20	-100-16-...-CRVZS20
Certificates, declaration of conformity		→ www.festo.com/sp	
Classification		Category II	
Mounting position		Condensate drain underneath	
Operating medium		Compressed air to ISO 8573-1:2010 [7:3:4]	
Information on operating medium		Lubricated operation not possible	
Ambient temperature	[°C]	5 ... 60	
Volume V	[l]	20	
Weight	[g]	30000	
Material of air reservoir		High-alloy stainless steel	
Condensate drain		G 3/8	
Max. tightening torque	[Nm]	27	

Tab. 7: Technical data, general, DPA-100-10-...-CRVZS20, DPA-100-16-...-CRVZS20

13 Technical data, pneumatic

DPA		-40-10-...-CRVZS2	-40-16-...-CRVZS2
Inlet pressure, port P1	[MPa]	0.25 ... 0.8	
	[bar]	2.5 ... 8	
	[psi]	36.3 ... 116	
Outlet pressure, port P2	[MPa]	0.45 ... 1	0.45 ... 1.6 ¹⁾
	[bar]	4.5 ... 10	4.5 ... 16 ¹⁾
	[psi]	65.3 ... 145	65.3 ... 232.1 ¹⁾

1) The maximum air consumption is reached at 1.55 MPa (15.5 bar; 224.8 psi).

Tab. 8: Technical data, pneumatic, DPA-40-10-...-CRVZS2, DPA-40-16-...-CRVZS2

DPA		-40-10-...-CRVZS5	-40-16-...-CRVZS5
Inlet pressure, port P1	[MPa]	0.25 ... 0.8	
	[bar]	2.5 ... 8	
	[psi]	36.6 ... 116	
Outlet pressure, port P2	[MPa]	0.45 ... 1	0.45 ... 1.6 ¹⁾

Technical data, pneumatic

DPA		-40-10-...-CRVZS5	-40-16-...-CRVZS5
Outlet pressure, port P2	[bar]	4.5 ... 10	4.5 ... 16 ¹⁾
	[psi]	65.3 ... 145	65.3 ... 232.1 ¹⁾

1) The maximum air consumption is reached at 1.55 MPa (15.5 bar; 224.8 psi).

Tab. 9: Technical data, pneumatic, DPA-40-10-...-CRVZS5, DPA-40-16-...-CRVZS5

DPA		-63-10-...-CRVZS10	-63-16-...-CRVZS10
Inlet pressure, port P1	[MPa]	0.2 ... 0.8	
	[bar]	2 ... 8	
	[psi]	29 ... 116	
Outlet pressure, port P2	[MPa]	0.4 ... 1	0.4 ... 1.6 ¹⁾
	[bar]	4 ... 10	4 ... 16 ¹⁾
	[psi]	58 ... 145	58 ... 232.1 ¹⁾

1) The maximum air consumption is reached at 1.55 MPa (15.5 bar; 224.8 psi).

Tab. 10: Technical data, pneumatic, DPA-63-10-...-CRVZS10, DPA-63-16-...-CRVZS10

DPA		-63-10-...-CRVZS20	-63-16-...-CRVZS20
Inlet pressure, port P1	[MPa]	0.2 ... 0.8	
	[bar]	2 ... 8	
	[psi]	29 ... 116	
Outlet pressure, port P2	[MPa]	0.4 ... 1	0.4 ... 1.6 ¹⁾
	[bar]	4 ... 10	4 ... 16 ¹⁾
	[psi]	58 ... 145	58 ... 232.1 ¹⁾

1) The maximum air consumption is reached at 1.55 MPa (15.5 bar; 224.8 psi).

Tab. 11: Technical data, pneumatic, DPA-63-10-...-CRVZS20, DPA-63-16-...-CRVZS20

DPA		-100-10-...-CRVZS20	-100-16-...-CRVZS20
Inlet pressure, port P1	[MPa]	0.2 ... 0.8	
	[bar]	2 ... 8	
	[psi]	29 ... 116	
Outlet pressure, port P2	[MPa]	0.4 ... 1	0.4 ... 1.6 ¹⁾
	[bar]	4 ... 10	4 ... 16 ¹⁾
	[psi]	58 ... 145	58 ... 232.1 ¹⁾

1) The maximum air consumption is reached at 1.55 MPa (15.5 bar; 224.8 psi).

Tab. 12: Technical data, pneumatic, DPA-100-10-...-CRVZS20, DPA-100-16-...-CRVZS20

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