

Pressure maintenance valve SDV-P / SDV-P-E

Assembly and Operating Manual



Imprint

Copyright:

This manual remains the copyrighted property of SCHUNK GmbH & Co. KG. It is solely supplied to our customers and operators of our products and forms part of the product. This documentation may not be duplicated or made accessible to third parties, in particular competitive companies, without our prior permission.

Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

Document number: 0389561

Edition: 03.01 |04/04/2017|en

© SCHUNK GmbH & Co. KG

All rights reserved.

Dear customer,

congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

Yours SCHUNK GmbH & Co. KG

Spann- und Greiftechnik

Bahnhofstr. 106 – 134

D-74348 Lauffen/Neckar

Tel. +49-7133-103-0

Fax +49-7133-103-2399

info@de.schunk.com

www.schunk.com



Reg. No. 003496 QM08



Reg. No. 003496 QM08

Table of contents

1	General	4
1.1	About this manual	4
1.1.1	Presentation of Warning Labels.....	4
1.1.2	Applicable documents.....	5
1.1.3	Variants	5
1.2	Warranty.....	5
1.3	Scope of delivery	5
2	Basic safety notes	6
2.1	Intended use	6
2.2	Ambient conditions and operating conditions.....	6
2.3	Product safety.....	6
2.3.1	Protective equipment	7
2.3.2	Constructional changes, attachments, or modifications.....	7
2.4	Personnel qualification.....	7
2.5	Notes on particular risks.....	7
3	Technical data	8
4	Description	9
5	Assembly	10
5.1	Mechanical connection	10
5.2	Air connection	11
6	Operation	14
6.1	Manual air vent (SDV-P-E, SDV-P-E-P).....	14
7	Troubleshooting	15
8	Maintenance and care	16

1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.




Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

Illustrations in this manual are provided for basic understanding and may differ from the actual product design.

In addition to these instructions, the documents listed under [\(☞ 1.1.2, Page 5\)](#) are applicable.

1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.

	<p>⚠ DANGER</p> <p>Danger for persons! Non-observance will inevitably cause irreversible injury or death.</p>
	<p>⚠ WARNING</p> <p>Dangers for persons! Non-observance can lead to irreversible injury and even death.</p>
	<p>⚠ CAUTION</p> <p>Dangers for persons! Non-observance can cause minor injuries.</p>
	<p>NOTICE</p> <p>Material damage! Information about avoiding material damage.</p>

1.1.2 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *

The documents marked with an asterisk (*) can be downloaded on our homepage **schunk.com**

1.1.3 Variants

This operating manual applies to the following variations:

- Pressure maintenance valve SDV-P
- Pressure maintenance valve SDV-P-E
- Pressure maintenance valve SDV-P-E-P

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the applicable documents ([👉 1.1.2, Page 5](#))
- Observe the ambient conditions and operating conditions ([👉 2.2, Page 6](#))

Parts touching the workpiece and wear parts are not included in the warranty.

1.3 Scope of delivery

The scope of delivery includes

- Pressure maintenance valve SDV-P / SDV-P-E / SDV-P-E-P in the version ordered

2 Basic safety notes

2.1 Intended use

The pressure maintenance valve was designed for installation in a machine to temporarily prevent the venting of the pneumatic consumer through the valve at a pressure failure of the supply line. Thus, a temporary force- or position maintenance can be realized at different actuators. Especially suited for grippers, which can not be equipped with a mechanical gripping force maintenance.

The product is intended for installation in a machine/system. The requirements of the applicable guidelines must be observed and complied with.

The product may be used only in the context of its defined application parameters ([👉 3, Page 8](#)).

The product is designed for industrial use.

To use this unit as intended, it is also essential to observe the technical data and installation and operation notes in this manual and to comply with the maintenance intervals.

2.2 Ambient conditions and operating conditions

- Make sure that the product has a sufficient size for the application.
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

2.3 Product safety

Dangers arise from the product, if:

- the product is not used in accordance with its intended purpose.
- the product is not installed or maintained properly.
- the safety and installation notes are not observed.

Avoid any manner of working that may interfere with the function and operational safety of the product.

Wear protective equipment.

NOTE

More information is contained in the relevant chapters.

2.3.1 Protective equipment

Provide protective equipment per EC Machinery Directive.

2.3.2 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission from SCHUNK.

2.4 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the product may be performed only by trained personnel. Each person called upon by the operator to work on the product must have read and understood the complete assembly and operating manual, especially the chapter "Basic safety notes" ([👉 2, Page 6](#)). This applies particularly to personnel only used occasionally, such as maintenance personnel.

2.5 Notes on particular risks

Generally valid

- In failure of the supply line, the pressure maintenance valve prevents temporarily the venting of the pneumatic consumers through the valve. Therefore it must always be assumed that there is residual energy stored in the system.
- Before installation, modification, maintenance and adjustment, the module must be vented. Here it is necessary to determine which consumers and which function is triggered so -> It must be ensured that no person can be injured.
- For all work, secure the unit against accidental operation.
- Dangers emanating from the downstream consumers, must be separately registered and safeguarded by the operator.
- Only specially trained staff should disassemble the module.
- Perform maintenance, modifications, and additions outside the danger zone.

3 Technical data

Size	SDV-P				
	04	04-E	07	07-E	10-E
Max. flow [l/min]	200	200	300	300	600
Ambient temperature [°C]					
Min.	-10	-10	-10	-10	-10
Max.	80	80	80	80	80
Weight [kg]	0.1	0.1	0.2	0.2	0.4
Flow rate hose-Ø 6mm [l/min]	200	200	350	350	400
Flow rate hose-Ø 8mm [l/min]	250	250	500	500	1000
Flow rate hose-Ø 10mm [l/min]	340	340	600	600	1400
Min. pressure [bar]	2	2	2	2	2
Max. pressure [bar]	10	10	10	10	10
Pressure drop / h [bar] *	0.1	0.1	0.1	0.1	0.1
Referenzvolumen [cm ³]	30	30	100	100	500
Switching time [s]	0.01	0.015	0.010	0.010	0.010
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4				
Noise emission [dB(A)]	≤ 70				

Size	SDV-P			
	64-E-P	80-E-P	100-E-P	125-E-P
Max. flow [l/min]	150	150	180	200
Ambient temperature [°C]				
Min.	-10	-10	-10	-10
Max.	80	80	80	80
Weight [kg]	0.12	0.16	0.23	0.33
Min. pressure [bar]	2	2	2	2
Max. pressure [bar]	9	9	9	9
Pressure drop / h [bar] *	0.1	0.1	0.1	0.1
Switching time [s]	0.01	0.02	0.02	0.03
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4			
Noise emission [dB(A)]	≤ 70			

* at defined reference volume and constant temperature [20° C]

More technical data is included in the catalog data sheet. Which-ever is the latest version.


4 Description

The SDV-P consists of two check valves connected in parallel, which open when pressure is applied and reciprocal vent the return direction.

At a pressure failure of the supply line, the check valves close and prevent a pressure drop.

5 Assembly

5.1 Mechanical connection

	! WARNING
	Risk of injury during assembly! <ul style="list-style-type: none"> • Switch off the energy supply.

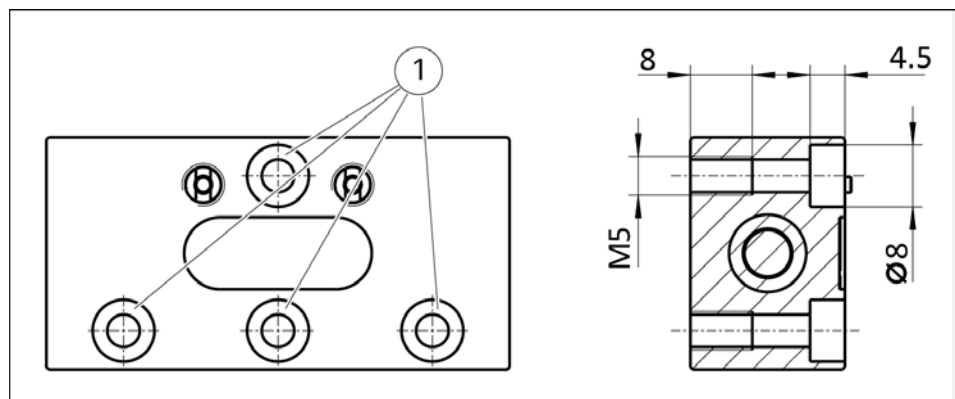
Levelness of the mounting surface The values apply to the whole mounting surface to which the product is mounted.

Requirements for levelness of the mounting surface (Dimensions in mm)

Diameter	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

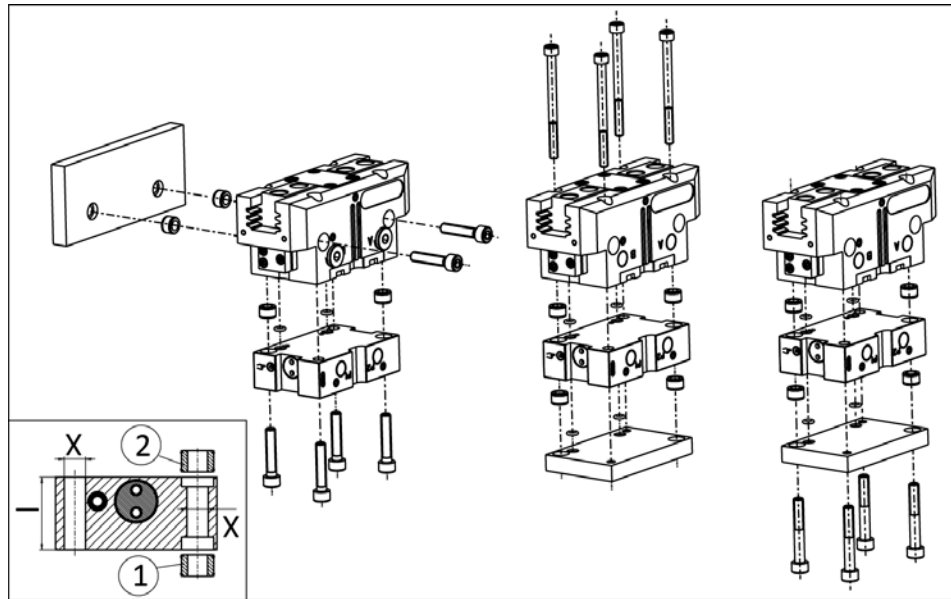
Mounting

SDV-P
SDV-P-E



1	Optional mounting: <ul style="list-style-type: none"> • Screw M5 into the thread • Screw M4 for screw through 2 screws are sufficient for fastening
---	---

SDV-P-E-P



Size	64	80	100	125
l [mm]	23.5	22	22.5	23
x [mm]	∅ 5.2	∅ 5.2	∅ 6.6	∅ 8.5
1	Centering sleeve SDV-P-E-P			
2	Centering sleeve Gripper			

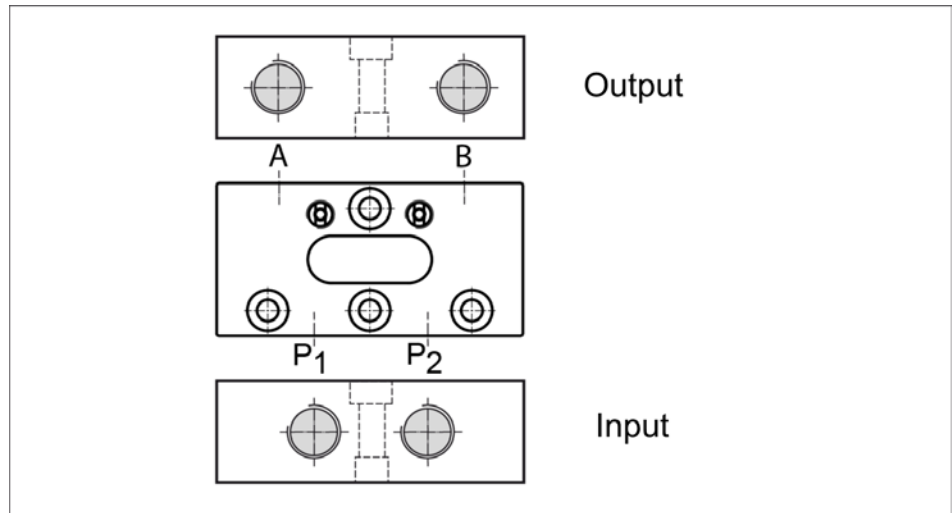
The centering sleeves are included in the respective accessory kit (SDV-P / Gripper).

5.2 Air connection

	<p>NOTICE</p> <p>Observe the requirements for the air supply (see 3, Page 8).</p>
	<p>WARNING</p> <p>Risk of injury during connection!</p> <ul style="list-style-type: none"> Switch off the energy supply.
	<p>WARNING</p> <p>Risk of injury when removing the air hoses!</p> <ul style="list-style-type: none"> The air hoses at the outputs must be removed carefully because even after switching off the power supply they are still under pressure.

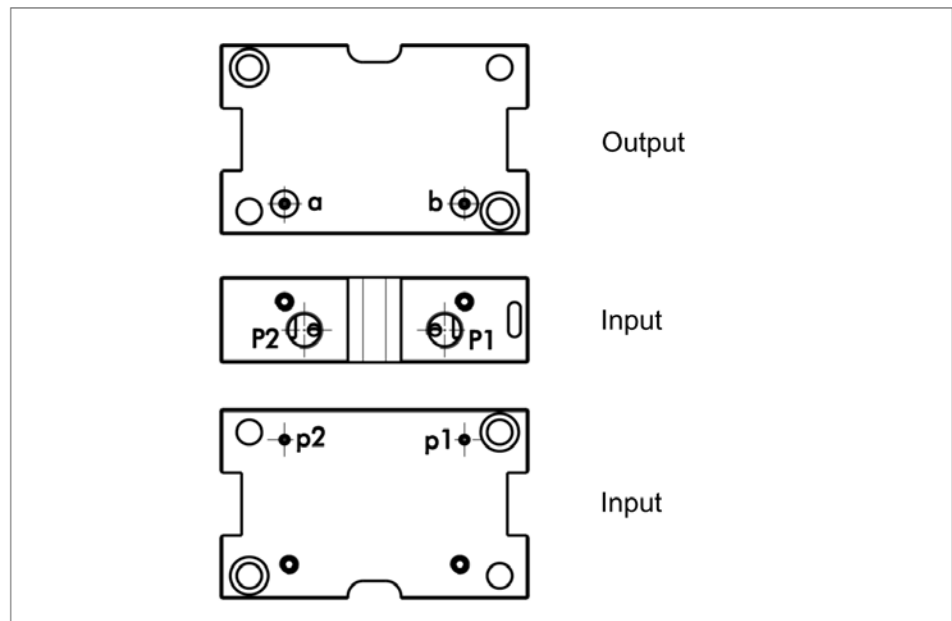
Connections

**SDV-P
SDV-P-E**



Size	04	07	10
Thread diameter of the air connections	G 1/8"	G 1/4"	G 3/8"

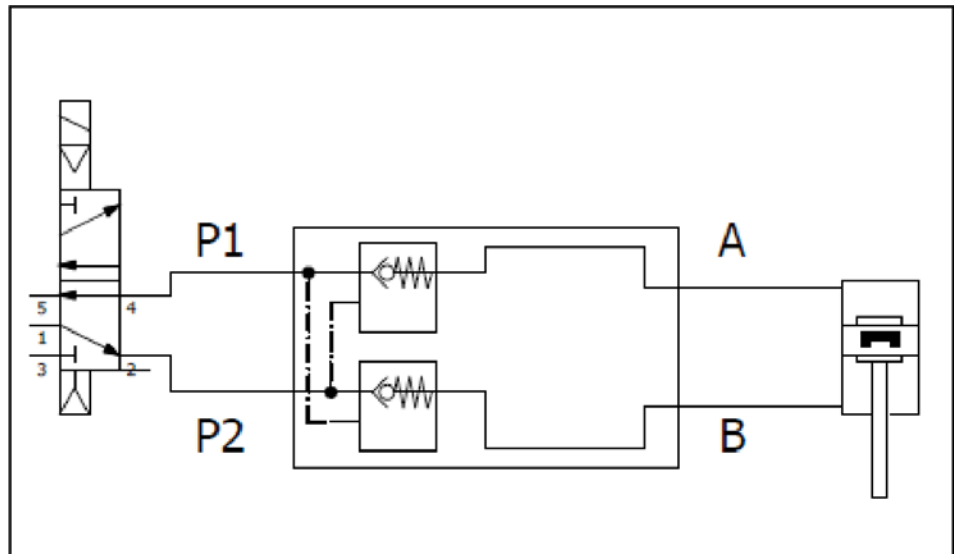
SDV-P-E-P



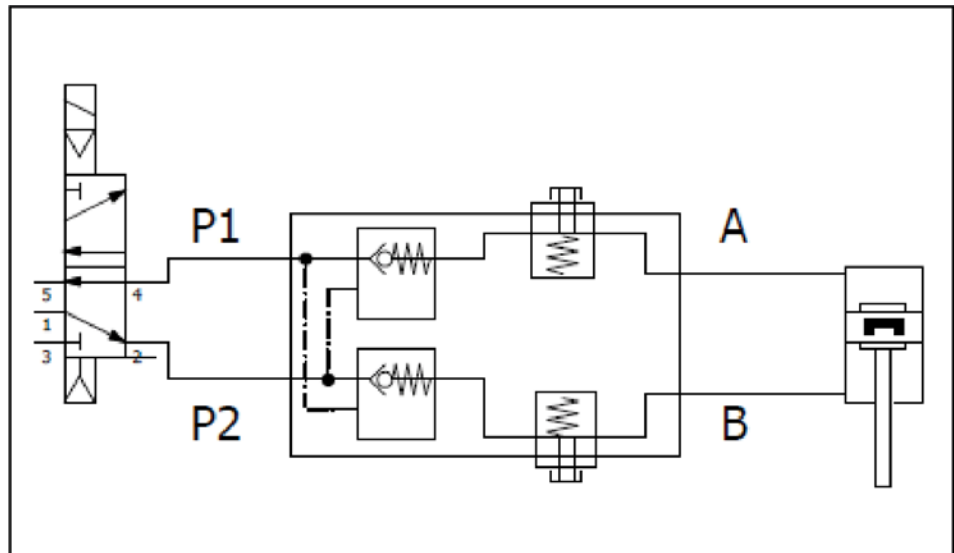
Size	64	80	100	125
P1 / P2 Main connections (Hose connection)	M5	M5	G 1/8"	G 1/8"
p1 / p2 Hose-free direct connection at the base	M3	M3	M3	M5
a / b Hose-free direct connection Gripper	M3	M3	M3	M5

Connection diagram

SDV-P



SDV-P-E
SDV-P-E-P





6 Operation

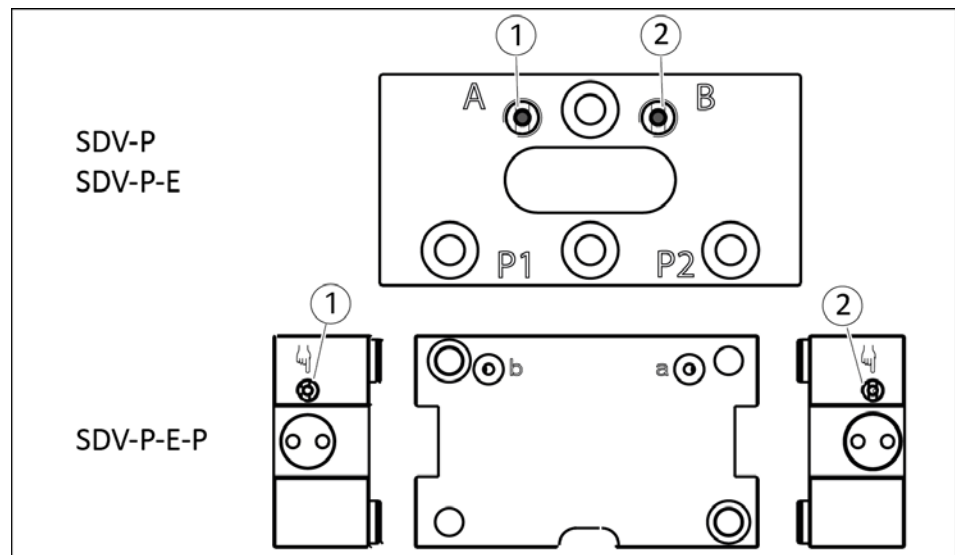
6.1 Manual air vent (SDV-P-E, SDV-P-E-P)

The pressure maintenance valve in the SDV-P-E and SDV-P-E-P variant is equipped with two buttons to vent the module when required (e.g. in case of service).

The connections A, a and B, b can be vented separately.

	<p>⚠ CAUTION</p>
	<p>Dust may get into the eyes. When compressed air is escaping, dust particles may come out of the pressure maintenance valve and irritate the eyes.</p> <ul style="list-style-type: none"> • Wear safety goggles when manually venting the module.

	<p>⚠ WARNING</p>
	<p>Risk of injury due to falling workpieces Due to the manual air vent of the pressure maintenance valve, the gripper fingers can open and workpieces may fall out.</p> <ul style="list-style-type: none"> • Before pushing the air vent button, ensure no dangers arise from the venting.



1 Press button (1) to vent connection A, a.

2 Press button (2) to vent connection B, b.

⇒ The compressed air is escaping through the pushed in button.

7 Troubleshooting

Possible cause	Corrective action
Performance loss (pressure loss):	Check seal tightness of the vent
	Check line pressure

8 Maintenance and care

The Pressure maintenance valve SDV-P / SDV-P-E / SDV-P-E-P is maintenance-free.

If there is leakage or a defect of the mechanical part, send the valve with a repair order to SCHUNK.

Repair work may only be carried out by SCHUNK.