Assembly and Operating Manual

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

Pressure maintenance valve

Superior Clamping and Gripping

SCHUNK®

Imprint

Technical changes:

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

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Dear Customer,

thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

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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 Applicable documents [▶ 4] are applicable.

1.1.1 Presentation of Warning Labels

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

⚠ DANGER

Danger for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

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, Applicable documents [▶ 4]
- Observe the ambient conditions and operating conditions, Ambient conditions and operating conditions [▶ 6]

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 fo 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 Technical data [▶ 9].

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

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, Technical data [▶ 9].
- Make sure that the product is 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

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- Structural changes should only be made with the written approval of SCHUNK.

2.4 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.

Qualified personnel Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.

Instructed person Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.

Service personnel of the manufacturer Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.5 Notes on particular risks

The general rule is:

- The pressure maintenance valve temporarily prevents the venting of the pneumatic module if there is a loss of air pressure in the supply line. For this reason it is always assumed that residual energy is stored in the system.
- Therefore the product must be ventilated before carrying out any assembly, conversion, maintenance or adjustment work. Here, it must be checked which module and which function is triggered by this -> It is necessary to ensure that no person can be harmed.
- For all work, secure the product against accidental operation.
- Any hazards that arise for downstream consumers must be identified separately and protected against by the operator
- Only qualified personnel may disassemble the product.
- Perform maintenance, modifications, and additions outside the danger zone.

3 Technical data

Size	SDV-P				
	04	04-E	07	07-E	10-E
Ambient temperature [°C] Min. Max.	 -10 80	 -10 80	 -10 80	 -10 80	 -10 80
Weight [kg]	0.1	0.1	0.2	0.2	0.4
Flow rate for hose Ø 6mm [l/min]	200	200	350	350	400
Flow rate for hose Ø 8mm [l/min]	250	250	500	500	1000
Flow rate for 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 loss /hrs [bar]*	0.1	0.1	0.1	0.1	0.1
Reference volume [cm³]	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 rate [l/min]	150	150	180	200
Ambient temperature [°C] Min. Max.	 -10 80	 -10 80	 -10 80	 -10 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 loss /hrs [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 a defined reference volume and constant temperature [20° C]

More technical data is included in the catalog data sheet.
Whichever 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!

- Switch off the energy supply.

Evenness of the mounting surface

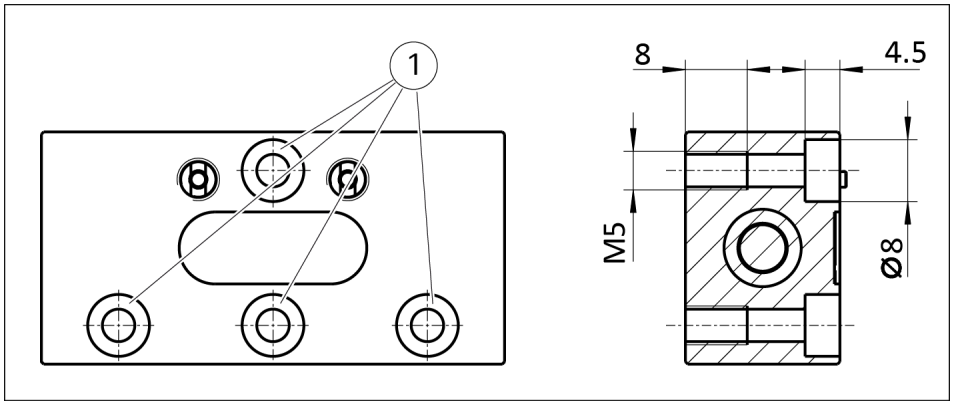
The values apply to the whole mounting surface to which the product is mounted.

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

Edge length	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

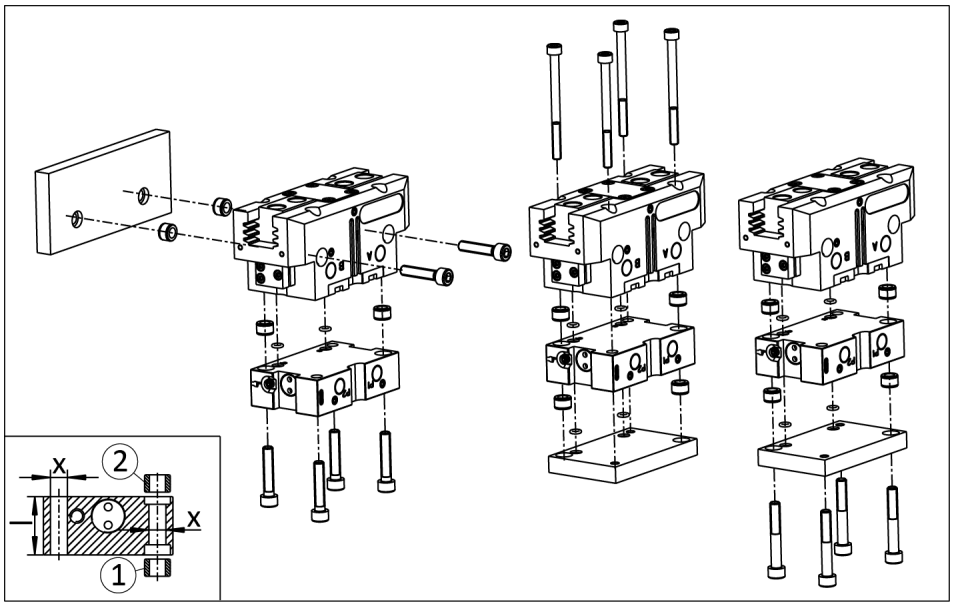
Mounting

SDV-P
SDV-P-E



1	Optional mounting: • 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]	Ø 5.2	Ø 5.2	Ø 6.6	Ø 8.5
1	Centering sleeve SDV-P-E-P			
2	Centering sleeveGripper			

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

5.2 Air connection

NOTICE

Observe the requirements for the air supply
Technical data [▶ 9].

⚠ WARNING

Risk of injury during connection!

- Switch off the energy supply.

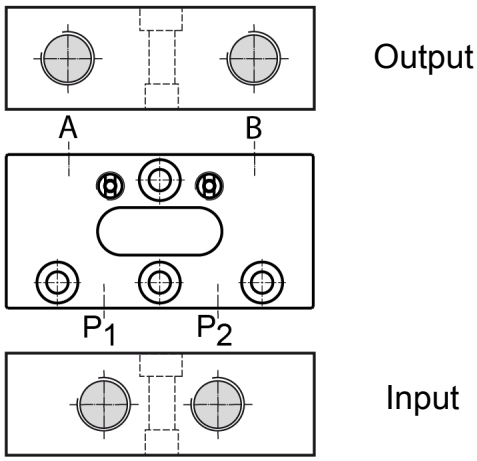
⚠ WARNING

Risk of injury when removing the air hoses!

- The air hoses at the outputs must be removed carefully because even after switching off the power supply they are still under pressure.

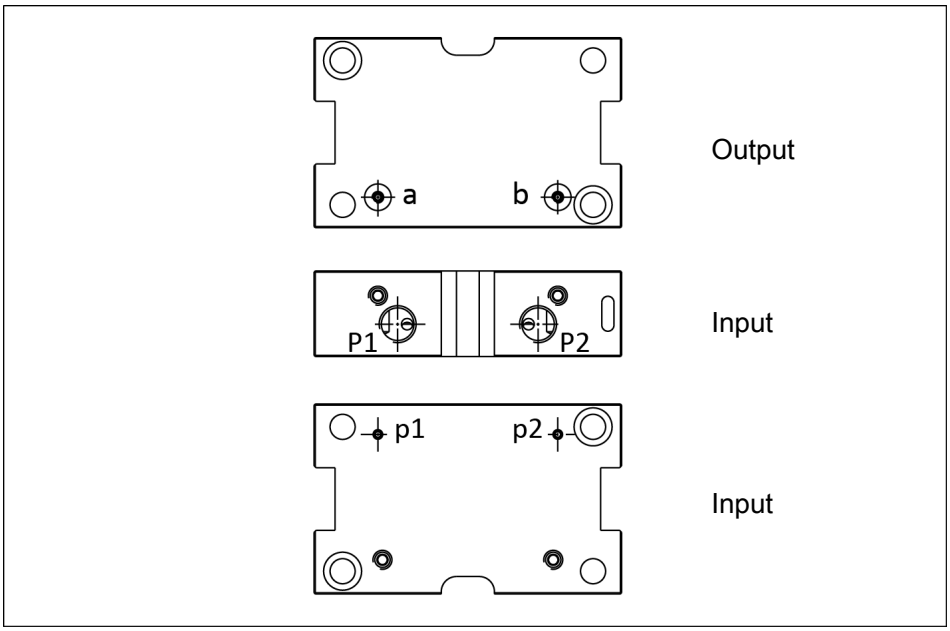
Connections

SDV-P
SDV-P-E



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

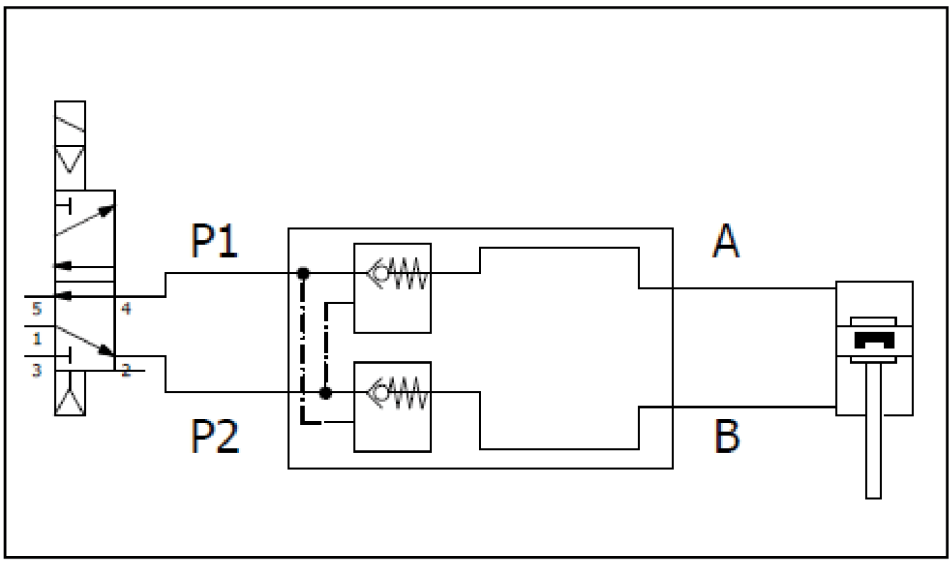
SDV-P-E-P



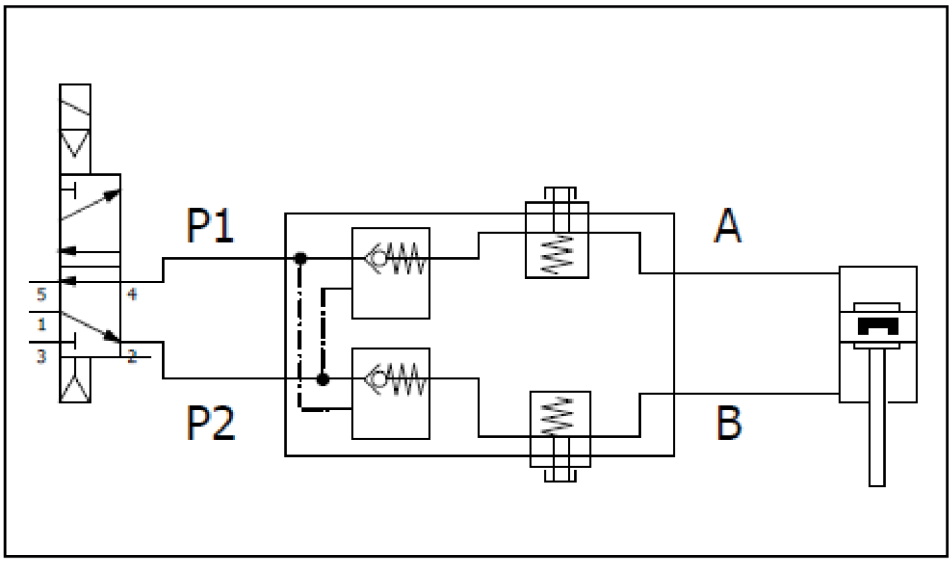
Size	64	80	100	125
P1 / P2 Main connections (Hose connection)	M5	M5	G 1/8"	G 1/8"
p1 /p2 Hose-free direct connection at the base	M3	M3	M3	M5
a / b Hose-free direct connection Gripper	M3	M3	M3	M5

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 I in the SDV-P-E and SDV-P-E-P version is equipped with two buttons to ventilate the product if necessary (e.g. during servicing).

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

⚠ CAUTION

Dust may get into your eyes.

If the compressed air escapes, dust particles can escape the pressure maintenance valve and irritate your eyes.

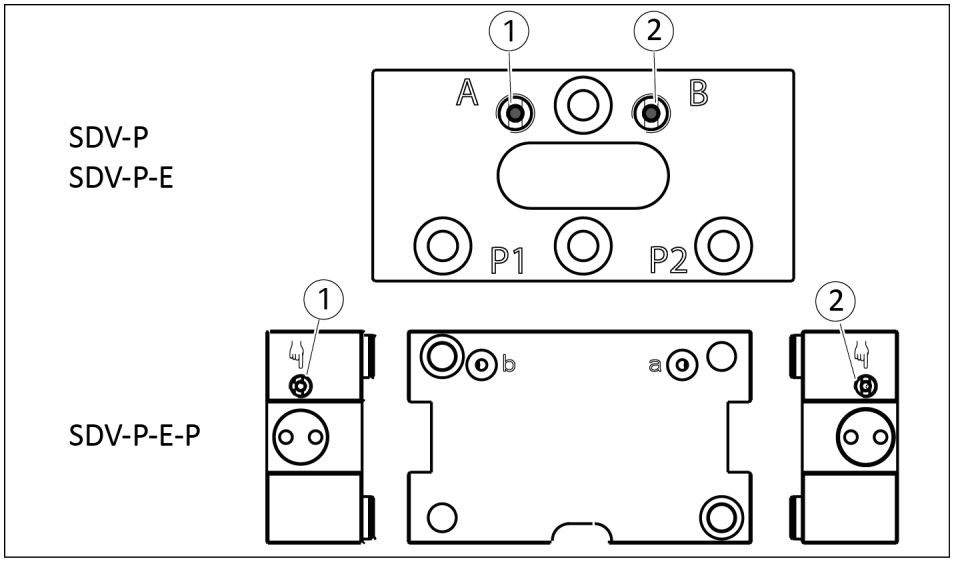
- Wear protective goggles when carrying out manual ventilation.

⚠ WARNING

Risk of injury from falling workpieces

The gripper fingers can open up and clamped workpieces can fall out when the pressure maintenance valve is being ventilated manually.

- Ensure that no danger may arise from the ventilation before pressing the button.



➢ Press button (1) to ventilate connection A, a.

➢ Press button (2) to ventilate connection B, b.

✓ The sealed compressed air escapes while the button is being pressed.

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, sent the valve with a repair order to SCHUNK.

Repair work may only be carried out by SCHUNK.

Notes