



Assembly and Operating Manual

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

Pressure maintenance valve

Translation of the original manual

Hand in hand for tomorrow

Imprint

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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

Customer Management

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Please read the operating manual in full and keep it close to the product.

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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.

In addition to these instructions, the documents listed under ▶ 1.1.2 [📄 5] are applicable.

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

1.1.1 Presentation of Warning Labels

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



⚠ DANGER

Dangers 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.

CAUTION

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 labeled with an asterisk (*) can be downloaded from [schunk.com](https://www.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 (with manual air bleed screw)
- Pressure maintenance valve SDV-P-E-P (for direct mounting with manual air bleed screw)

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](#) [5]
- Observe the ambient conditions and operating conditions, ▶ [2.3](#) [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 has been designed for installation in a machine in order to temporarily prevent the pneumatic consumer from venting through the valve if there is a loss of air pressure in the supply line. Therefore a temporary force or position maintenance can be implemented via different actuators. This is especially useful for grippers where a mechanical grip force maintenance solution is not possible.

- The product is intended for installation in a machine/ automated system. The applicable guidelines for the machine/ automated system must be observed and complied with.
- The product is intended for industrial use.
- The product may only be used and operated within the scope of the technical data and the specifications in this manual ▶ 3 [9].
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 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.

2.3 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, ▶ 3 [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.

2.4 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 safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.

- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.6 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.	-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 for hose Ø 6 mm [l/min]	200	200	350	350	400
Flow rate for hose Ø 8 mm [l/min]	250	250	500	500	1000
Flow rate for hose Ø 10 mm [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 [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 8573-1:2010 [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.	-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 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 8573-1:2010 [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

Evenness of the mounting surface

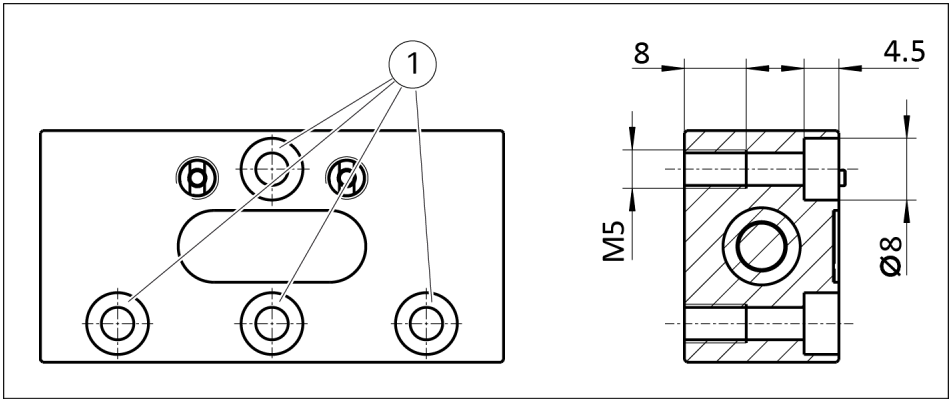
The values apply to the whole mounting surface to which the product is mounted.

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

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

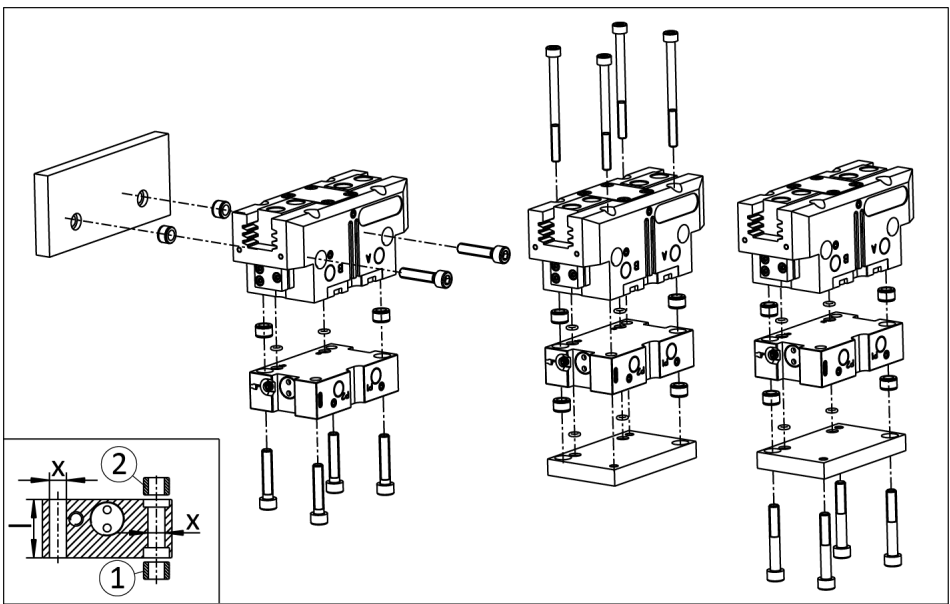
Mounting

SDV-P
SDV-P-E



- 1 Mounting optional:
- M5 screw into thread
 - M4 screw for screwing through thread.
- 2 screws are sufficient for mounting

SDV-P-E-P



Size	64	80	100	125
l [mm]	23.5	22	22.5	23

Size	64	80	100	125
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).



⚠ WARNING

Risk of injury during connection!

- Switch off the energy supply.

5.2 Air connection

CAUTION

Observe the requirements for the air supply
 ▶ 3 [9].



⚠ WARNING

Risk of injury during connection!

- Switch off the energy supply.



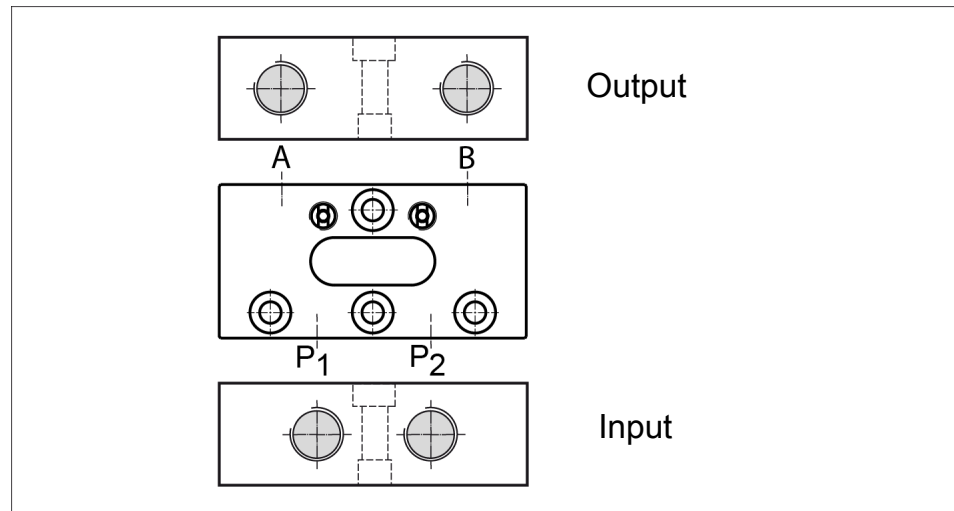
⚠ WARNING

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.

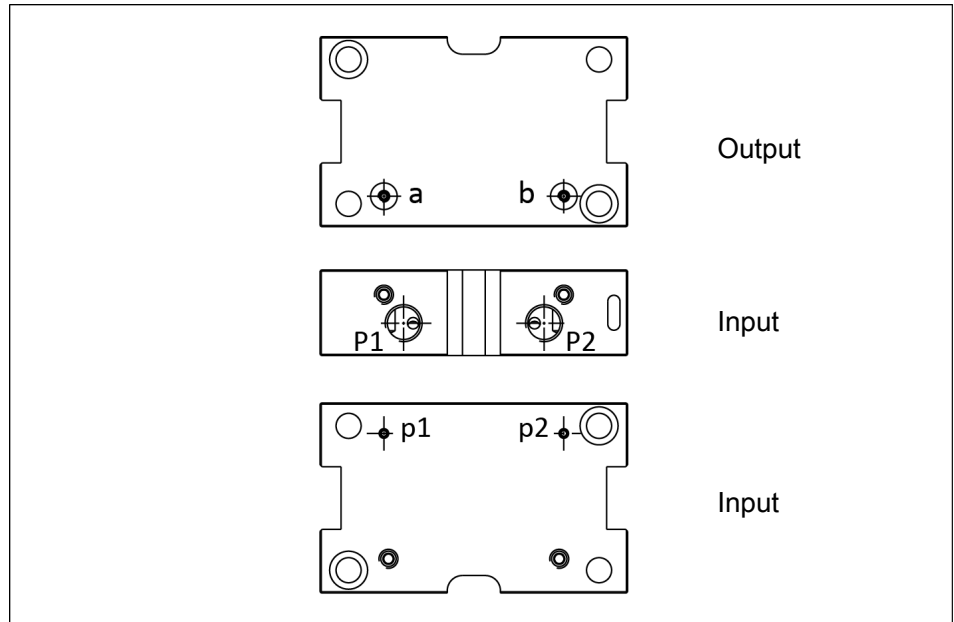
Connections

SDV-P
 SDV-P-E



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

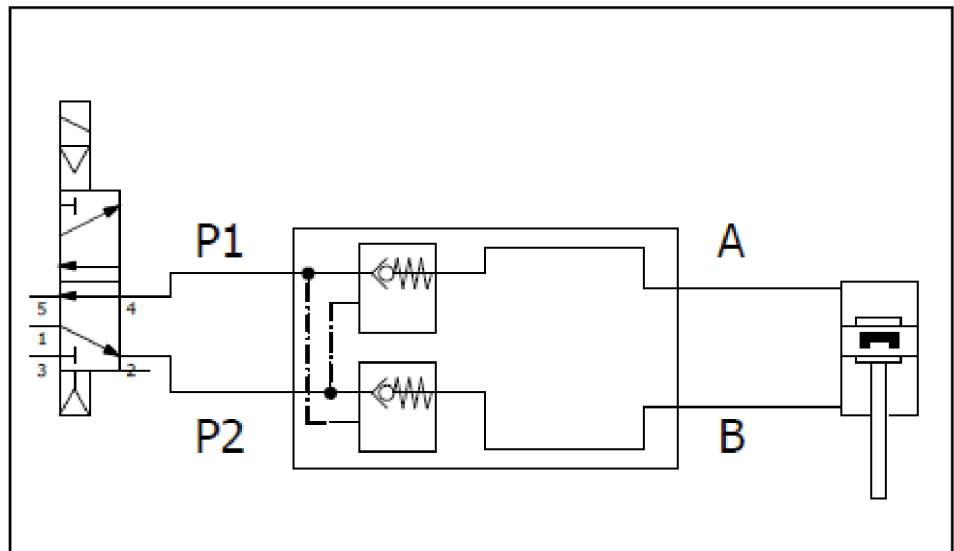
SDV-P-E-P



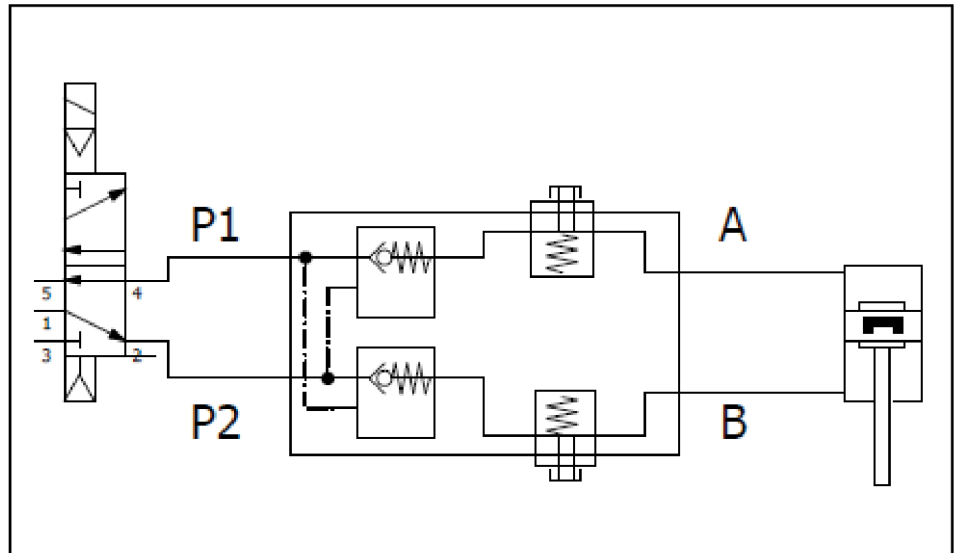
Size	64	80	100	125
P1 / P2 Main connections (Hose connection)	M5	M5	G 1/8"	G 1/8"
p1 / p2 Hose-free direct connection at the base	M3	M3	M3	M5
a / b Hose-free direct connection Gripper	M3	M3	M3	M5

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.

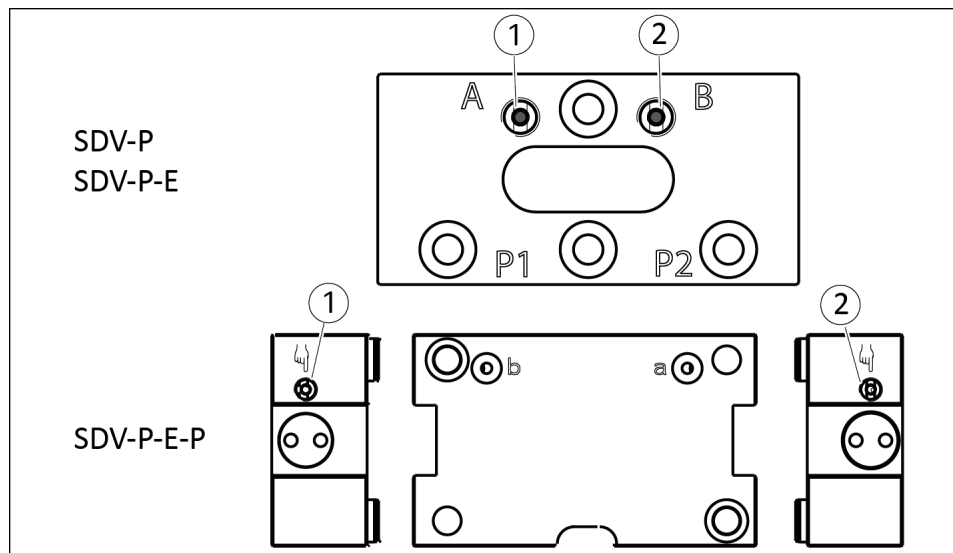


⚠ WARNING

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.



1. Press button (1) to ventilate connection A, a.
 2. 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, send the valve with a repair order to SCHUNK.

Repair work may only be carried out by SCHUNK.

9 Translation of the original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/
Distributor SCHUNK SE & Co. KG
Toolholding and workholding | Gripping technology | Automation
technology
Bahnhofstr. 106 – 134
D-74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation: Pressure maintenance valve / SDV-P / SDV-P-E / SDV-P-E-P /
pneumatic

ID number

meets the following basic occupational health and safety of the Machinery Directive 2006/42/EC:

No. 1.1.1, No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.5.3, No. 1.5.4, No. 1.5.6, No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

EN ISO 12100:2010 Safety of machinery – General principles for design –
Risk assessment and risk reduction

The special technical documentation according to Annex VII, Part B, belonging to the partly completed machine, has been created.

Person authorized to compile the technical documentation:
Stefanie Walter, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, August 2023

Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

11 Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)

RoHS Directive

SCHUNK products are classified as "large-scale stationary installations" or as "large-scale stationary industrial tools" within the meaning of Directive 2011/65/EU and its extension 2015/863/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)", or fulfill their intended function only as part of one. Therefore products from SCHUNK do not fall within the scope of the directive at this time.

REACH Regulation

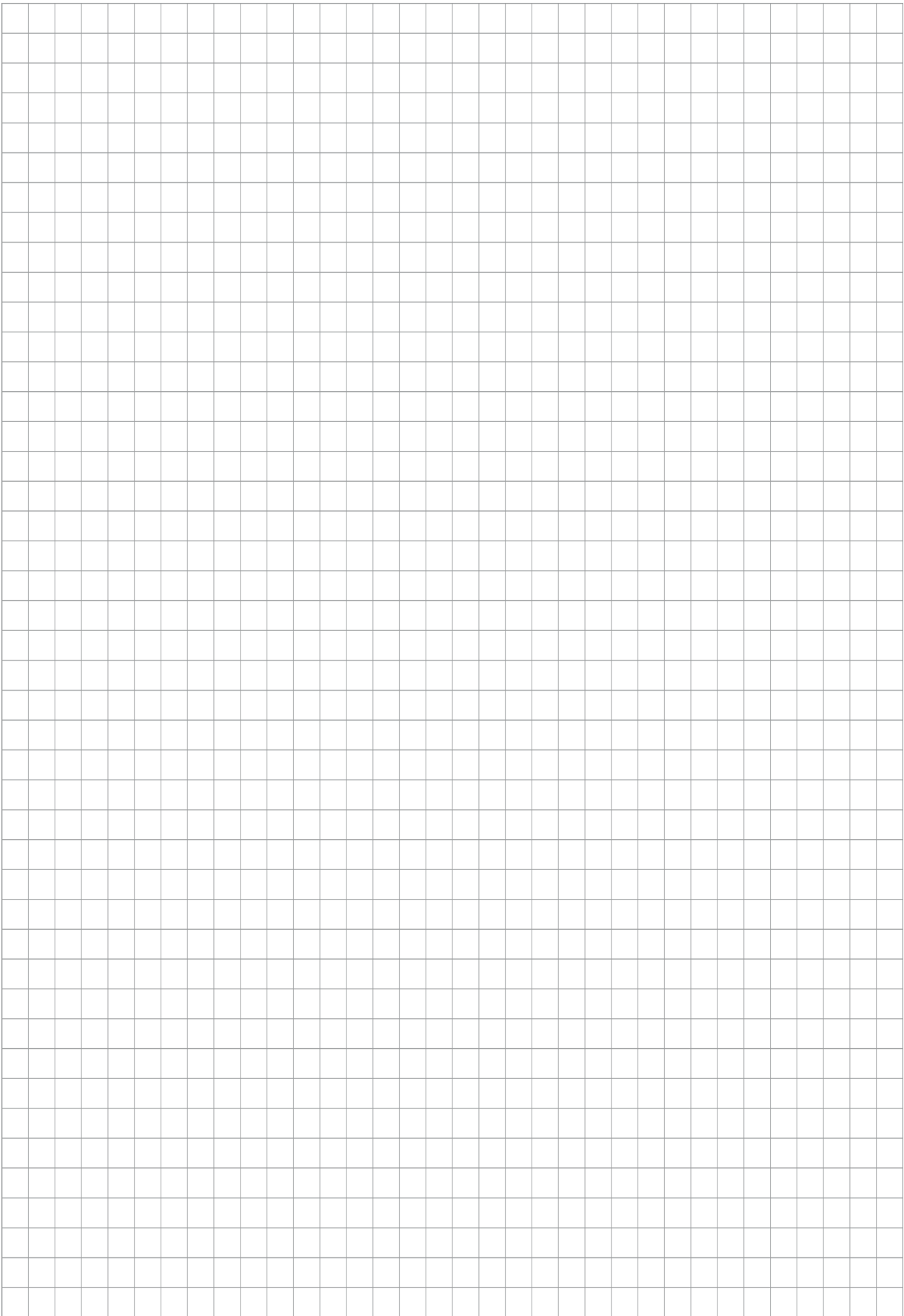
Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and the environment wherever possible.

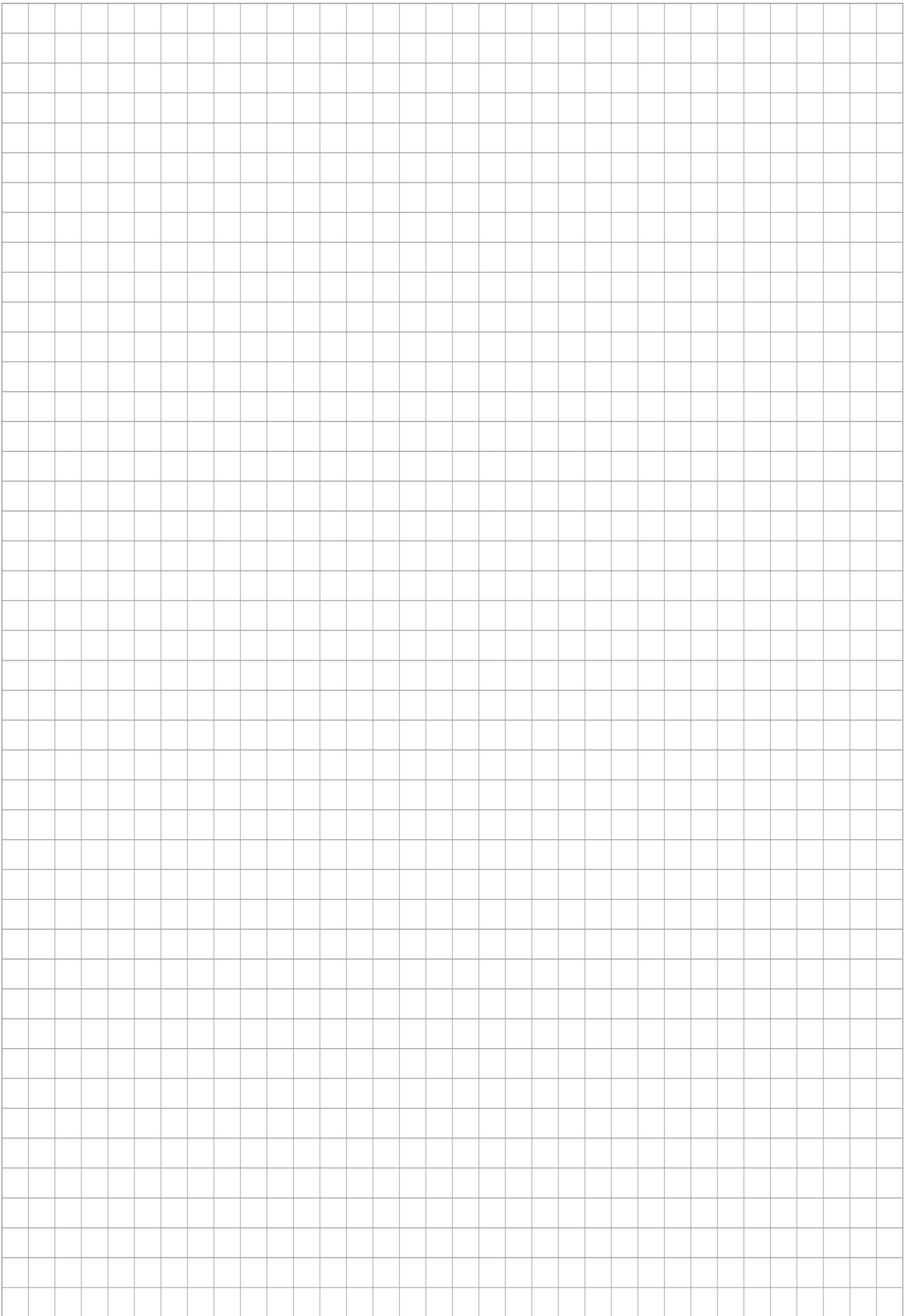
Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article. 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components concerned and the substances used in an overview that can be viewed at [schunk.com/SVHC](https://www.schunk.com/SVHC).

Signature: see original declaration

Lauffen/Neckar, August 2023

Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation







SCHUNK SE & Co. KG
Toolholding and workholding | Gripping technology |
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