

Operating instructions

Vacuum Block VCBL-S6-HD

Note

The Operating instructions were originally written in German. Store in a safe place for future reference. Subject to technical changes without notice. No responsibility is taken for printing or other types of errors.

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J. Schmalz GmbH · Johannes-Schmalz-Str. 1 · 72293 Glatten, Germany · T: +49 7443 2403-0

schmalz@schmalz.de

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1 Important Information

1.1 Note on Using this Document

J. Schmalz GmbH is generally referred to as Schmalz in this document.

The document contains important notes and information about the different operating phases of the product:

- Transport, storage, start of operations and decommissioning
- Safe operation, required maintenance, rectification of any faults

The document describes the product at the time of delivery by Schmalz and is aimed at:

- Installers who are trained in handling the product and can operate and install it
- Technically trained service personnel performing the maintenance work
- Technically trained persons who work on electrical equipment

1.2 The technical documentation is part of the product

1. For problem-free and safe operation, follow the instructions in the documents.
2. Keep the technical documentation in close proximity to the product. The documentation must be accessible to personnel at all times.
3. Pass on the technical documentation to subsequent users.
 - ⇒ Failure to follow the instructions in these Operating instructions may result in injuries!
 - ⇒ Schmalz is not liable for damage or malfunctions that result from failure to heed these instructions.

If you still have questions after reading the technical documentation, contact Schmalz Service at:
www.schmalz.com/services

1.3 Type Plate

The type plate is permanently attached to the product and must always be clearly legible. It contains product identification data and important technical information.

- ▶ For spare parts orders, warranty claims or other inquiries, have the information on the type plate to hand.

1.4 Symbols



This symbol indicates useful and important information.

- ✓ This symbol represents a prerequisite that must be met before an action is performed.
- ▶ This symbol represents an action to be performed.
- ⇒ This symbol represents the result of an action.

Actions that consist of more than one step are numbered:

1. First action to be performed.
2. Second action to be performed.

2 Fundamental Safety Instructions

2.1 Intended Use

The series of vacuum blocks VCBL-S6-HD is used for clamping workpieces (optimized for solid wood) as well as other demanding applications such as solid surface materials. It is also suitable for clamping delicate workpieces with a matt or gloss surface on the machining center and is placed on the machine table with specially designed consoles. The vacuum blocks can be used on the machine tables of SCM machining centers from the TV series (Start/Pilot/Flex/Flexmatic/Matic).

The product is built in accordance with the latest standards of technology and is delivered in a safe operating condition; however, hazards may arise during use.

The product is intended for industrial and commercial applications.

Intended use includes observing the technical data and the installation and operating instructions in this manual.

2.2 Non-Intended Use

Schmalz accepts no liability for damages resulting from use other than as intended. In particular, the following are considered non-intended use:

- Operation of the vacuum block with worn or damaged suction plate or sealing gasket
- Suction of human or animal body parts
- Machining forces that lead to the vacuum block and/or workpiece being displaced or torn off are not permitted.
- Use of the vacuum block as a base, support or comparable aid
- Evacuation of highly inflammable or explosive media
- Contact with liquids, media or surfaces that lead to a reduction in the static friction or vacuum force of the suction cup
- Operation with a workpiece that does not cover the entire suction plate
- Attach the vacuum block
 - when the vacuum is switched on
 - at an angle on the console
 - with the top facing the console.

2.3 Personnel Qualifications

Unqualified personnel cannot recognize dangers and are therefore exposed to higher risks!

1. Task only qualified personnel to perform the tasks described in these Operating instructions.
2. The product must be operated only by persons who have undergone appropriate training.

These Operating instructions are intended for fitters who are trained in handling the product and who can operate and install it.



2.4 Workplace Requirements

The following requirements must be fulfilled to ensure a safe workplace:

- The components must not be used outdoors.
- The type plate and warning signs must be legible.
- The surroundings of the components must be dry.
- The operator must have a clear view of the whole working area, the workplace must be adequately lit and free of glare and the area around the workplace must be clean and clear.

2.5 Warnings in This Document

Warnings warn against hazards that may occur when handling the product. The signal word indicates the level of danger.

Signal word	Meaning
 WARNING	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
 CAUTION	Indicates a low-risk hazard that could result in minor or moderate injury if not avoided.

2.6 Residual Risks



CAUTION

Noise pollution from leakage

Hearing damage

- ▶ Correct position.
- ▶ Wear ear protectors.



CAUTION

Falling product

Risk of injury

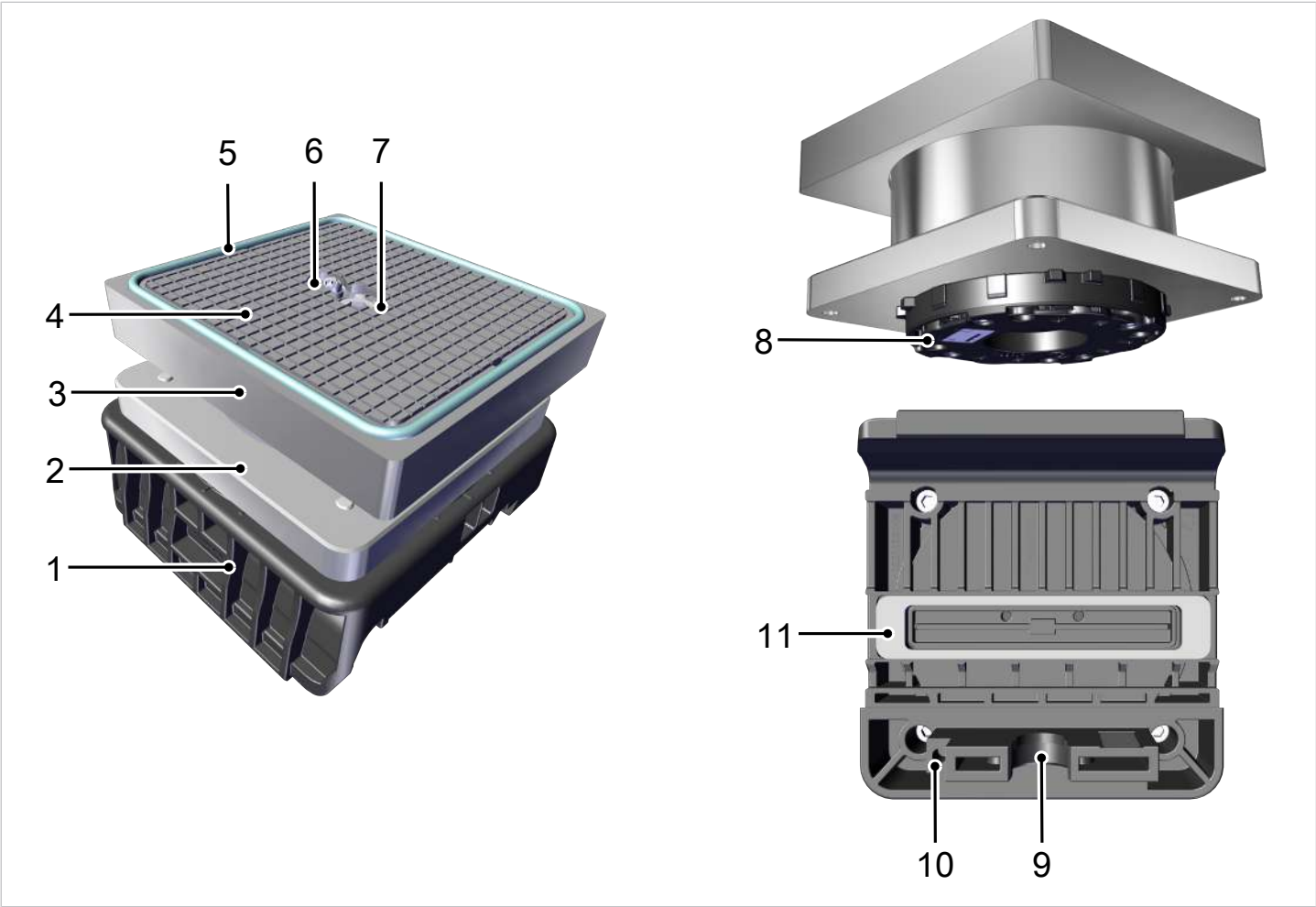
- ▶ Fasten or store the product securely at the location of use.
- ▶ Wear protective work shoes (S1).

2.7 Modifications to the Product

Schmalz assumes no liability for consequences of modifications over which it has no control:

1. The product must be operated only in its original condition as delivered.
2. Use only original spare parts from Schmalz.
3. The product must be operated only in perfect condition.

3 Design of the Vacuum Block



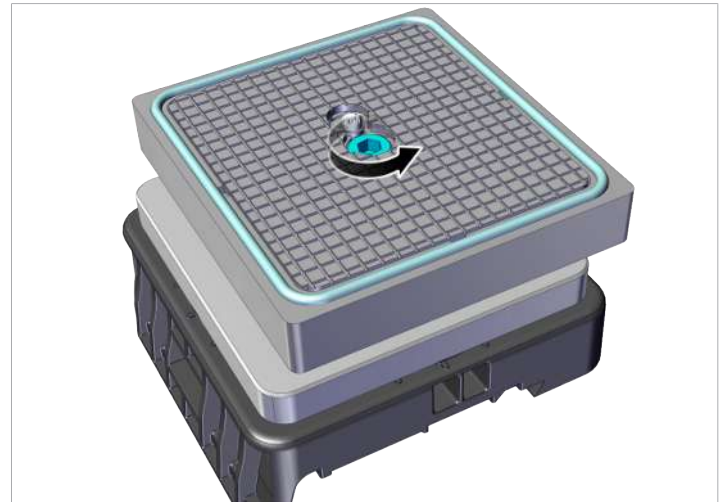
1	Base	7	Adjusting screw (suction plate adjustment)
2	Aluminum body	8	Adapter ring
3	Suction plate	9	Optional: magnet
4	Friction pad	10	Optional: switch cam
5	Sealing gasket	11	Sealing frame
6	Touch valve		

The suction plate is rotatable and interchangeable, with integrated NFC tag for reading product data via smartphone.

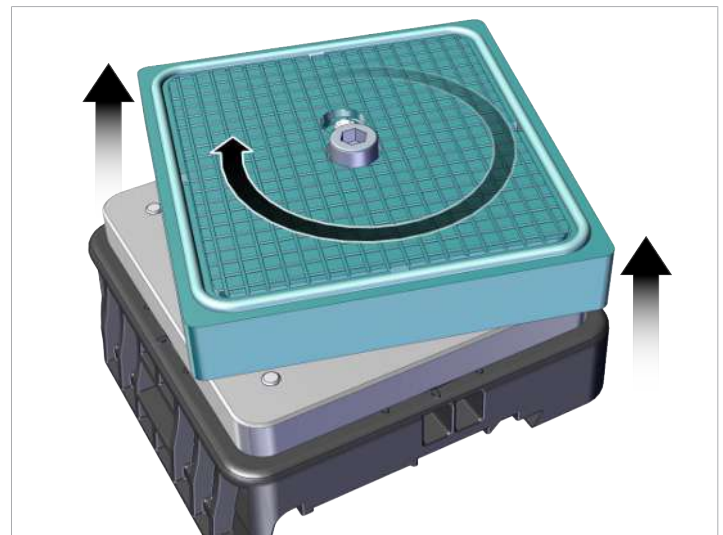
4 Rotating the Suction Plate

The central screw is used to mount the suction plate.

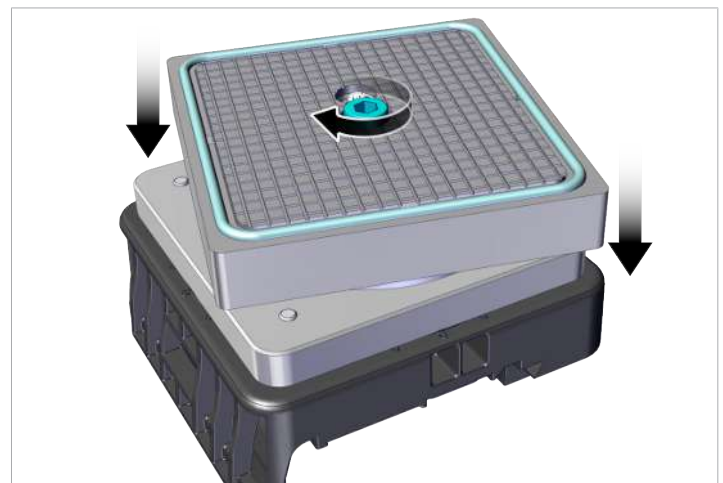
1. Using a size 8 Allen key, loosen the screw and unscrew it approx. 1 cm.



2. Raise the suction plate and rotate it in 15° increments.



3. Retighten the screw with a torque of 30 Nm.



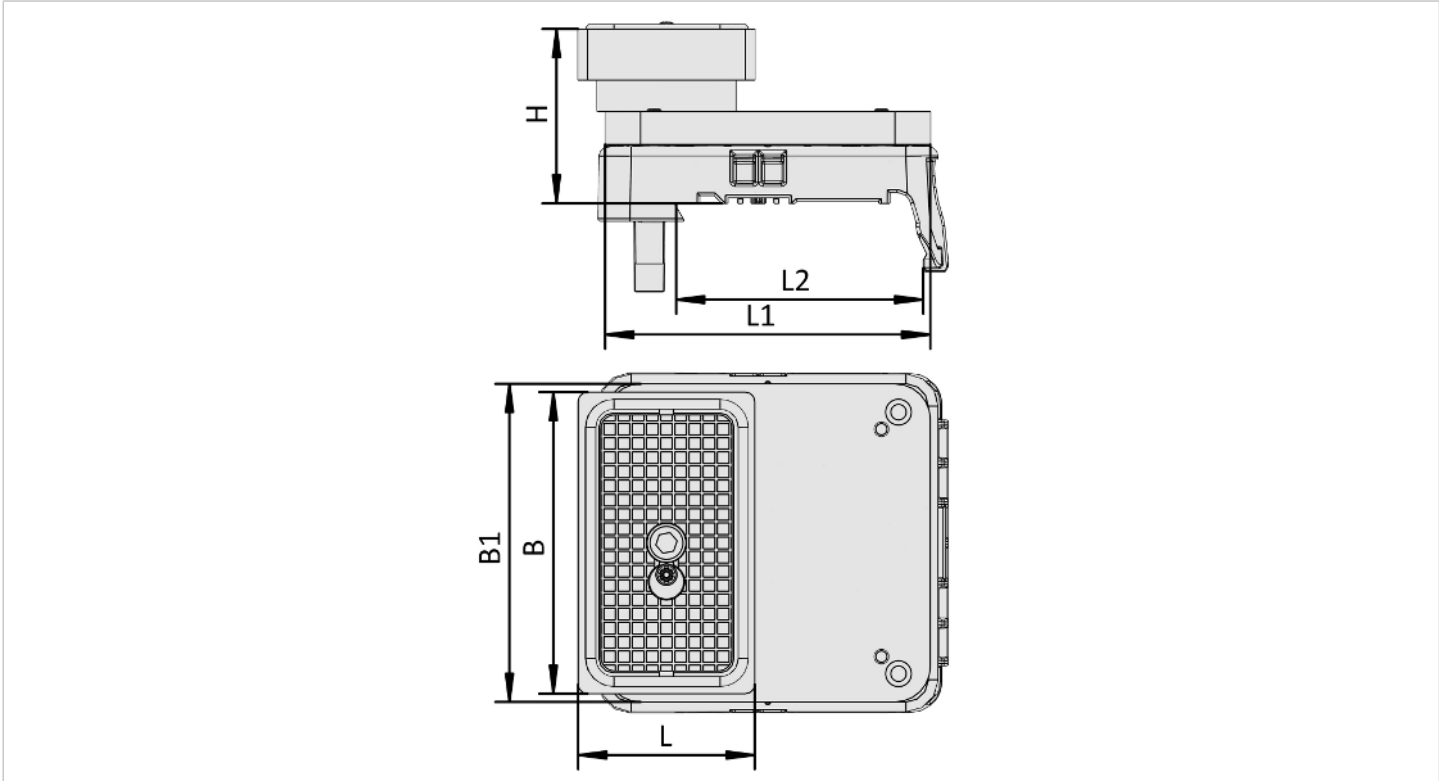
5 Technical Data

5.1 General Parameters

Permissible ambient temperature | 5 to 45 °C

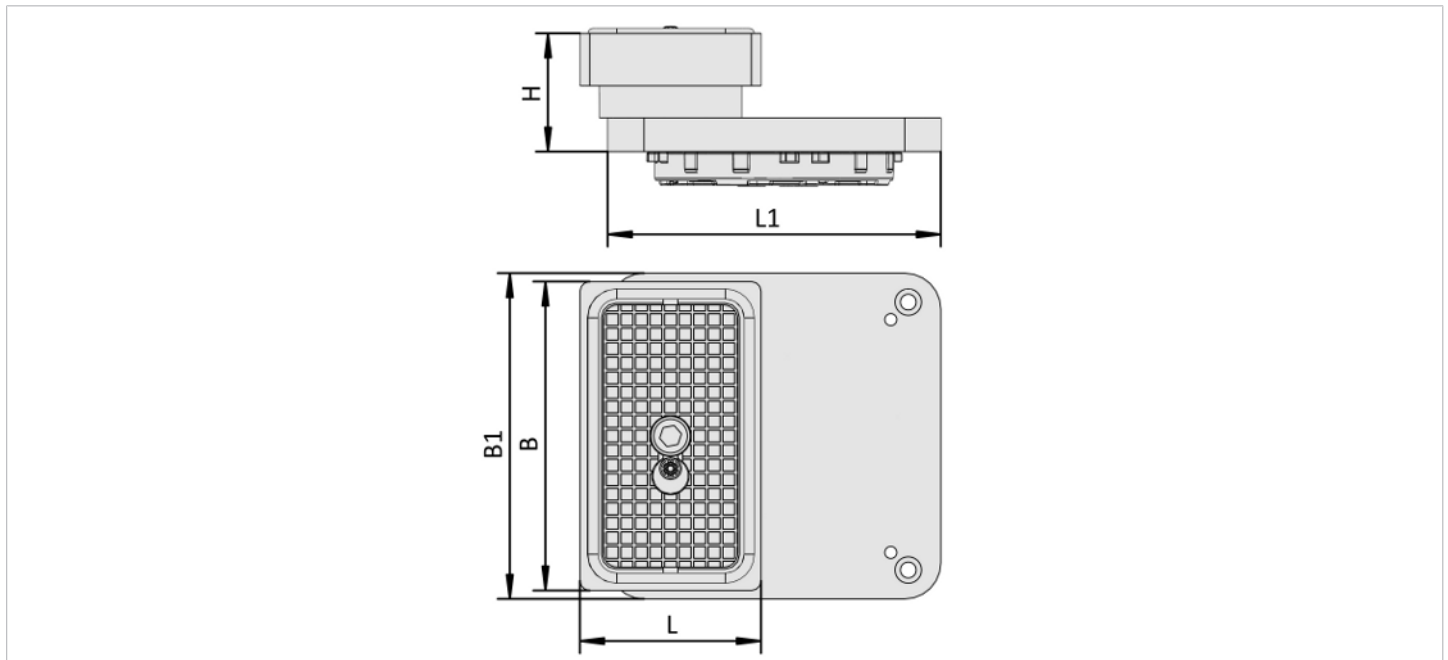
5.2 Dimensions

Variants: VCBL-S6-HD, Cup plus Base



Part no.	H	L	B	B1	L1	L2
10.01.12.05500	75	140	130	130	130	104
10.01.12.05502		128	75	135	138	
10.01.12.05503		128	60	135	138	
10.01.12.05504	110	140	130	130	130	
10.01.12.05505		128	75	135	138	
10.01.12.05506		128	60	135	138	

Variants: VCBL-S6-HD, Cup



Part no.	H	L	B	B1	L1
10.01.12.05386	50	140	130	130	130
10.01.12.05387		128	75	135	138
10.01.12.05388		128	60	135	138
10.01.12.05389	85	140	130	130	130
10.01.12.05390		128	75	135	138
10.01.12.05391		128	60	135	138

All specifications are in mm.

5.3 Mass

Part no.	Description	Mass
10.01.12.05386	VCBL-S6-HD-CUP 140x130x50 TV	2,765 g
10.01.12.05387	VCBL-S6-HD-CUP 128x75x50 TV	1,545 g
10.01.12.05388	VCBL-S6-HD-CUP 128x60x50 TV	1,345 g
10.01.12.05389	VCBL-S6-HD-CUP 140x130x85 TV	4,430 g
10.01.12.05390	VCBL-S6-HD-CUP 128x75x85 TV	2,112 g
10.01.12.05391	VCBL-S6-HD-CUP 128x60x85 TV	1,998 g
10.01.12.05500	VCBL-S6-HD 140x130x75 TV	3,205 g
10.01.12.05502	VCBL-S6-HD 128x75x75 TV	1,985 g
10.01.12.05503	VCBL-S6-HD 128x60x75 TV	1,785 g
10.01.12.05504	VCBL-S6-HD 140x130x110 TV	4,870 g
10.01.12.05505	VCBL-S6-HD 128x75x110 TV	2,552 g
10.01.12.05506	VCBL-S6-HD 128x60x110 TV	2,438 g

6 Checking the Delivery

The scope of delivery can be found in the order confirmation. The weights and dimensions are listed in the delivery notes.

1. Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
2. Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

7 Installation

7.1 Installation Instructions



⚠ CAUTION

Vacuum close to the eye

Severe eye injury!

- ▶ Wear eye protection.
- ▶ Do not look into vacuum openings, e.g. suction cups.

For safe installation, the following instructions must be observed:

- Dirt particles or foreign bodies in the suction plate connections, hoses or pipelines can lead to malfunctions or failure.
- Mounting and removal may be performed only when the device is unpressurized and disconnected from the mains.

7.2 Placing the Vacuum Block on the Console

Vacuum block with base

- ▶ Place the vacuum block on the vacuum console aslant as shown in the picture **1**. Ensure that the guide strip reaches underneath the level of the vacuum console. Lower the vacuum block onto the vacuum console **2**.



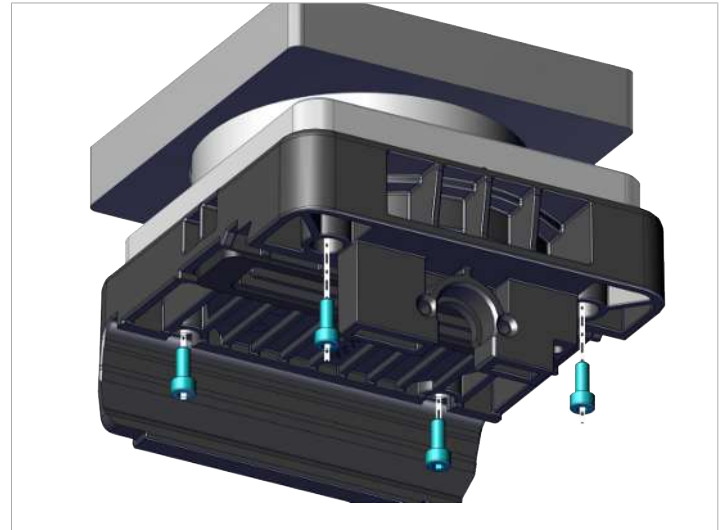
The vacuum block is not fixed in place. It can be positioned on the console by moving it. The vacuum block is only fixed to the console when the console's compressed air circuit is activated.

7.3 Inserting the Cup into the Base and Securing

1. Insert the vacuum block cup into the base in the correct position (90° mounting holes).



2. Secure the vacuum block cup on the base using the four screws supplied with a torque of 2.5 Nm.



3. Place the vacuum block on the console (> [See ch. 7.2 Placing the Vacuum Block on the Console, p. 10](#)).

8 Specifications for Use



⚠ CAUTION

During machining, dust is released into the environment and can enter the respiratory tract.

Danger to health

- ▶ Use suction equipment or cover the machining area to ensure that no dust is released into the environment.
- ▶ If necessary, wear a breathing mask in accordance with class FFP1 or higher.

1. Monitor the vacuum value that is reached as close as possible to the vacuum block (e.g. with a gauge).
2. Ensure that the operating vacuum is ≥ 600 mbar before machining the workpiece.
3. Before each machining process, clean chips and dust from the console and vacuum block to achieve the required accuracy and adhesion as well as to prevent leakage.
4. Check the sealing gasket and sealing frame for wear and replace if necessary.

9 Machining Limitations



! WARNING

The workpiece comes loose during machining and is flung away by the machine.

Risk of injury from flying parts.

- ▶ Ascertain the maximum machining parameters and observe them.

The holding force is limited, meaning that it can withstand machining forces only up to a certain point. Accordingly, the operator of the vacuum block is obligated to establish for themselves (by experiment, slowly and carefully increasing the machining forces) the optimal settings and number of vacuum blocks necessary to ensure that the workpiece does not slip or even come loose during the machining process.

This procedure should be performed in particular for new workpieces that have never been machined before or for uncertain cases with regard to the holding force.

Schmalz assumes no liability for damages resulting from slippage or release of workpieces due to faulty adjustment of machining parameters.

10 Using the Vacuum Blocks

1. Once the vacuum blocks are placed on the base Inserting the Vacuum Block Cup into the Base of the Console and Securing, they must be moved to the specified position on the console (depending on the workpiece).
2. The vacuum blocks are fixed by releasing them via the machine (activation of the compressed air circuit on the console). The stop cylinders move to the stop positions.
3. Place the workpiece on top and place it against the stops.
 - ⇒ The vacuum blocks are equipped with a touch valve. When the workpiece is applied, the vacuum channel is opened.
4. Activate the vacuum using the machine control unit. The workpiece is clamped.
5. Retract the stops.
6. Before starting the machining process, visually and manually check that the vacuum block(s) and workpiece are securely fastened.
 - ⇒ The setup process is complete and machining of the workpiece can begin.

11 Troubleshooting

Malfunction	Cause	Troubleshooting
No vacuum on the clamping equipment or vacuum is too low	Vacuum generator does not start	▶ Switching on the vacuum generator
	Vacuum for clamping system not released	▶ Release "Clamp workpiece" vacuum for clamping device
	Leakage	1. Check the clamping device for leakage. 2. Ensure that the clamping equipment is complete (sealing) 3. Remove dirt
	Closed vacuum system	▶ Remove dirt

12 Warranty

Schmalz guarantees this system pursuant to our General Terms and Conditions of Sale and Delivery. The same applies to spare parts, provided that these are original parts supplied by us.

Wearing parts are not covered by the warranty.

13 Cleaning the Vacuum Blocks

1. For cleaning, do not use aggressive cleaning agents such as industrial alcohol, white spirit or thinners.
2. Remove dirt on the exterior of the device with a soft cloth and soap suds.

14 Spare and wearing parts

Part no.	Type	Description	Category
10.07.08.00073	O-ring	O-RING 50x2.5 NBR-70	Wearing part
10.01.12.02514	Touch valve	TV D9 4.3 (with plastic spring plunger)	Wearing part
20.01.02.02003	Machine screw	SCHR 4762 M10x30 ST-8.8 VZ	Wearing part
10.01.12.04741	switch cam	SCHA-NOCK 12x7.6x20 VCBL-S6	Wearing part
10.01.12.04841	Accessories, clamping systems, magnet	ZUB VCBL-S6	Wearing part
10.01.12.03080	Mounting adapter (round)	ADP-A 15.5-VCBL-B BIESSE	Spare part
10.01.12.05401	Sealing profile for 140x130	DI-PROF 4x6x476 MOS	Wearing part
10.01.12.05227	Sealing profile for 128x75	DI-PROF 4x6x348 MOS	Wearing part
10.01.12.05307	Sealing profile for 128x60	DI-PROF 4x6x318 MOS	Wearing part
10.01.12.05404	Suction plate (top) for 140x130	VCSP-O 140x130x19.5 RB AL	Wearing part
10.01.12.05232	Suction plate (top) for 128x75	VCSP-O 128x75x19.5 RB AL	Wearing part
10.01.12.05310	Suction plate (top) for 128x60	VCSP-O 128x60x19.5 RB AL	Wearing part

15 Disposing of the product

- ▶ Sort and dispose of all components according to the country-specific regulations.



For proper disposal, please contact a company specializing in the disposal of technical goods and instruct the company to observe the applicable disposal and environmental regulations. Schmalz is happy to assist you in finding a suitable company.