

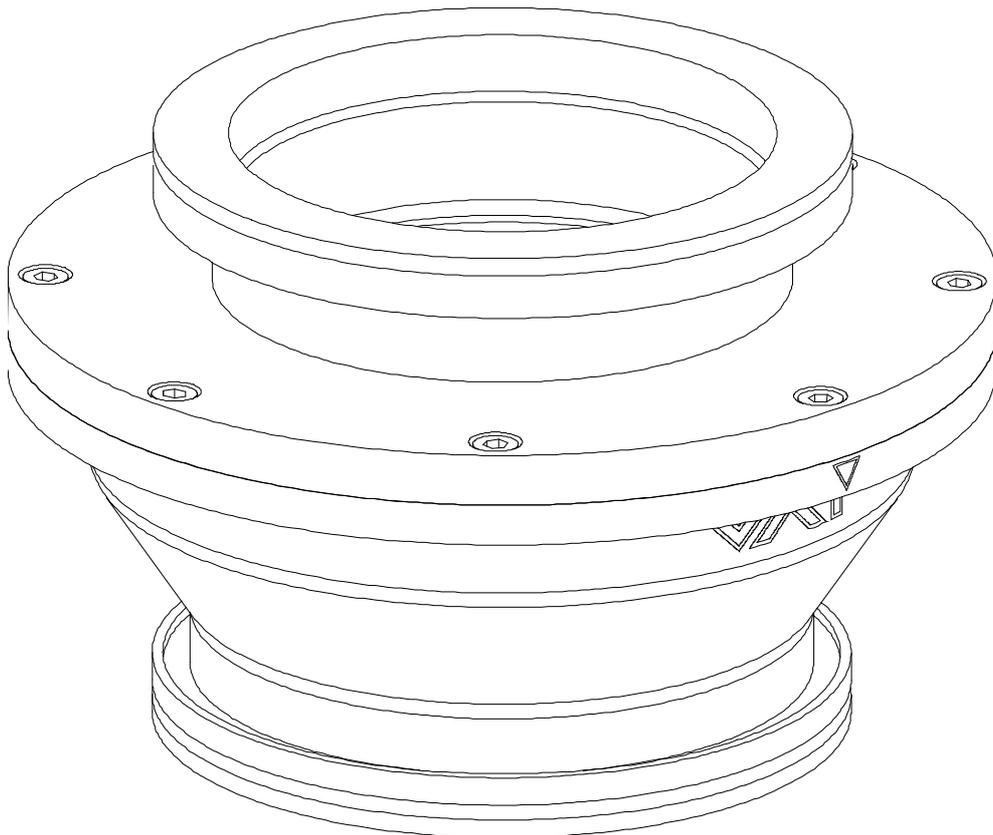
# Translation of Installation- Operating- and Mounting Instruction

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## Quick Shut-off Valve

DN 160 mm / I.D. 6"



## Publication details

### Manufacturer

VAT Vakuumventile AG, CH-9469 Haag, Switzerland

Website: [www.vatvalve.com](http://www.vatvalve.com)

Phone: +41 81 771 61 61

Fax: +41 81 771 48 30

E-mail: [CH@vatvalve.com](mailto:CH@vatvalve.com)

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# 1 General information

This document contains the original Assembly and Operating Instructions (AOI).

## 1.1 Scope of delivery

The scope of delivery corresponds to your order with VAT Vakuumventile AG. When you receive your order, check it against your order list. If you find discrepancies between what was ordered and delivered, contact VAT Vakuumventile AG. Publication details [▶ 2]

The scope of delivery of your order always includes the ordered product, the assembly and operating instructions and the safety data sheet.

## 1.2 Other applicable documents

The following documents belong to the product and must be observed:

- Product data sheet
- Product drawings

## 1.3 Typographical conventions

### 1.3.1 Important information

 This icon indicates important and useful information.

### 1.3.2 Danger levels

To avoid injury and equipment damage, you must observe the warning and safety information in the instructions. The warnings describe the following danger levels:

	<p style="text-align: center;"><b>⚠ DANGER</b></p> <p>Situations which, if not avoided, will lead directly to death or serious injury.</p>
	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Situations which, if not avoided, could lead to death or serious injury.</p>
	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>Situations which, if not avoided, could lead to moderately serious or slight injury.</p>
	<p style="text-align: center;"><b>NOTICE</b></p> <p>Situations which, if not avoided, could lead to equipment damage.</p>

## 1.4 Forwarding

This document is part of the product and if the product is forwarded, the document must also be forwarded to the product recipient.

If the product becomes part of a machine as a result of installation on or combination with other parts, or by another method, this document must also be forwarded when the machine is sold. The only circumstance in which forwarding is not required is if all relevant parts of this document are included in the documentation accompanying the new machine. In the two latter cases, the machine manufacturer, not the manufacturer of this product, is legally responsible for the safety and for the content and scope of the instructions accompanying the machine.

## 2 Safety

### 2.1 Standards and directives

This product meets the requirements of the following standards and directives.

- Commissioning or proper operation of a machine containing the product is forbidden until it can be demonstrated that the machine meets the requirements of EC Directive 2006/42/EC: Machinery Directive; note EN 60204–1.
- The product meets the requirements of Directive 2011/65/EU RoHS 3: Restriction of Hazardous Substances.

### 2.2 Intended use and purpose

This quick shut-off valve is a plate-sealed shut-off valve that reacts to pressure differences in the vacuum system. It is meant to prevent contamination of the process chamber by media backflow. The valve's home position, the Open position, is maintained through gravitational pull. The valve is shifted into the Close position by increasing pressure on the pump side and the resulting media backflow.

- The product is intended solely as a component for further use in a commercial context.
- The product may only be operated under the technical conditions described in this documentation.
- The product may only be operated under the environmental conditions described in this documentation. Technical data [▶ 10]
- Examine the product prior to use and never operate if visibly damaged.
- Never technically modify the product.
- Never operate the product if it has not been completely installed.
- Only connect and disconnect plug-in connections when not under voltage.
- Only connect and disconnect compressed air connections in an unpressurized state.

### 2.3 Predictable misuse and improper use

Any use of the product that does not comply with the intended use, be this intentional or negligent, is forbidden by the manufacturer.

### 2.4 Operator's obligations

The operator of the plant is responsible for observing the safety regulations. Unqualified staff working on the product or located in danger zones can cause risks that could lead to serious injury.

- Have all activities carried out by qualified staff.
  - Qualified staff are those people authorized to operate devices, systems and electrical circuits in accordance with safety standards.
- Keep unqualified staff away from danger zones.
- Make sure that everybody who works on or with the product has read and understood the document.
- Make sure that safety information is observed.
- File this document together with the documentation of the entire plant and ensure that it can be accessed at all times.
- This document is part of the product and must be forwarded together with the product.
- Note the relevant accident protection regulations and the recognized local safety rules.
- Provide the necessary personal protective equipment.

- Provide possibilities for ESD measures.

## 2.5 Staff obligations

To avoid equipment damage and injury when handling the product, staff are obliged to:

- ▶ Read the operating instructions and in particular follow the safety information.
- ▶ Note the relevant accident protection regulations and the other generally recognized safety rules.
- ▶ Wear the necessary personal protective equipment.

## 2.6 Personal protective equipment

 Personal protective equipment is not included in the scope of delivery.

To ensure the product is not contaminated or damaged, VAT recommends that the operator provides at least the following personal protective equipment for work with and on the product. If further protective clothing is required as a result of a special use of the product, the operator is responsible for making this known.

	Wear antistatic shoes
	Wear protective clothing
	Use gloves
	Use a hairnet

Table 1: Personal protective equipment

## 2.7 Valve damage

### 2.7.1 Valve contamination

To ensure correct operation of the valve, we recommend implementing appropriate measures in the vacuum system as needed to avoid process sediment as much as possible.

 Personal protective equipment is not included in the scope of delivery.

- ▶ When working on and with the valve, wear clean-room gloves.

## 2.8 Product handling

### 2.8.1 Unsuitable packaging

Unsuitable packaging material can cause product contamination.

- ▶ Keep the original packaging material.

- ▶ Use the original packaging material during transport and storage.
- ▶ Handle the product with care.

### 3 Technical data

#### 3.1 Valve

Flange type	ISO-K
Nominal diameter (DN)	160
Valve body leak rate [20 °C]	< 1 x 10E-9 mbar ls-1
Valve seat leak rate [20 °C]	< 1 x 10E-6 mbar ls-1
Pressure range (abs.)	Vacuum to 1.2 bar (abs)
Differential pressure on the plate in closing direction	≤ 1 bar
Conductance (laminar flow)	TBD ls-1
Plate movement closing time, [ms]	≤ 15 ms
Triggering pressure (ΔP on plate)	≥ 5 mbar
Operating temperature of housing	≤ 200 °C
Heating and cooling rate	≤ 50 °C h-1
Weight	6.3 kg / 13.9 lbs
Cycles until maintenance interval	recommended after each backflow event with regular maintenance cycles

#### Materials

Valve housing	AISI 304 (1.4301)
Plate	AISI 304 (1.4301)
Housing seal	FKM
Seat seal	FKM

#### Assembly position

Assembly position	Fore line installation vertical only plate facing chamber
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## 4 Design and function

### 4.1 Type label

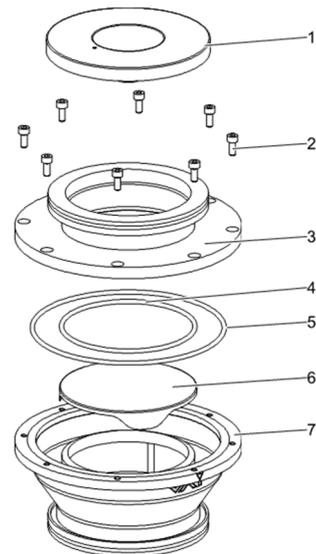
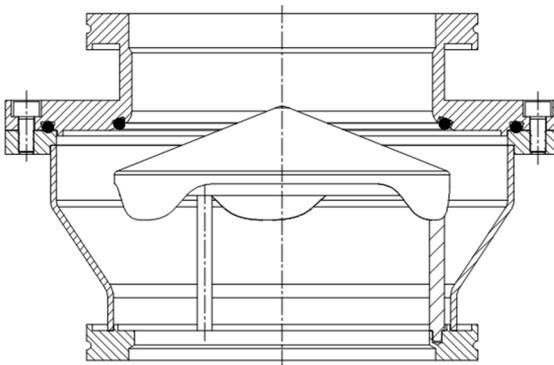
The article and serial number and the order number are indicated on the product or on a type label.



Illustration 1: Type label

- 1 Article and serial number
- 2 Order number

### 4.2 Valve structure

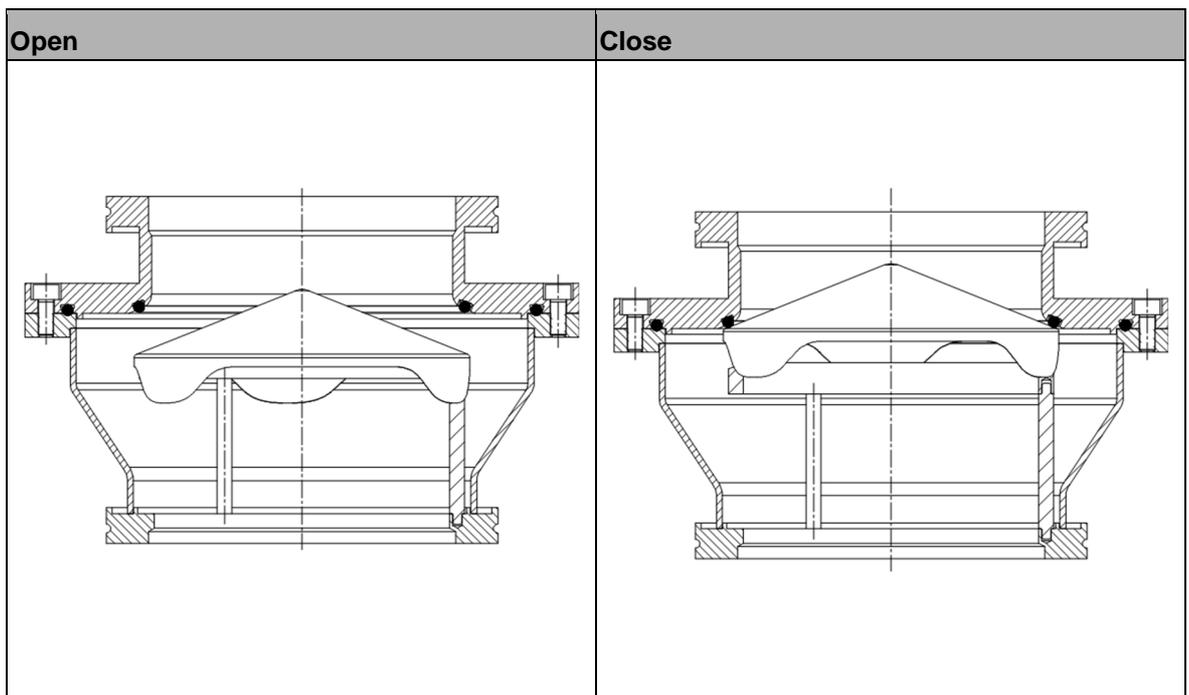


- 1 Transport fixation device
- 2 Screws (8x)
- 3 Flange
- 4 Seat seal
- 5 Body seal
- 6 Plate
- 7 Body

### 4.3 Function of the quick shut-off valve

The quick shut-off valve is a passively acting non-return valve without a drive unit. The moving part of the valve is the valve plate. It blocks backstreaming of the pump volume in case of pressure deviations caused by leaks or a drop in pump capacity.

	<b>⚠ WARNING</b>
	<b>Danger of burns from hot valve surface!</b> Serious burns on the skin. ▶ Let the system cool down before you perform work on it.



## 5 Start valve operation

### 5.1 Unpacking

**i** If the product or packaging shows damage, then photograph the damage and the type plate and report the damage to the VAT Service Center.

**i** Use a blunt object to open the protective sleeves.

1. Check whether the packaging is damaged. If it is, report this to VAT.
2. Make sure that the protective sleeves are not damaged.
3. Remove the packaging material.
4. Check whether the delivered product and its components match the purchase order.
5. Check whether the product is damaged. If it is, report this to VAT.
6. Lift the product out of the packaging.

### 5.2 Valve installation

- ✓ The valve is unpacked.
- ✓ Sealing surfaces on the connection flange are not scratched.

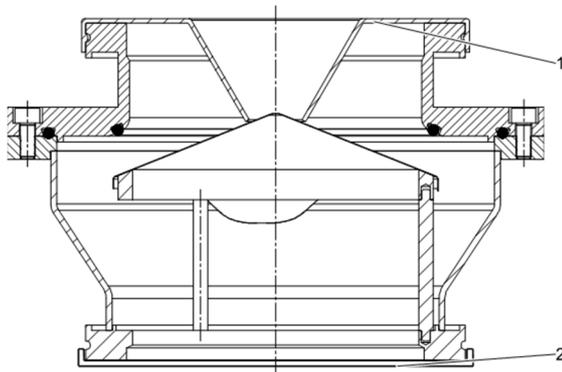
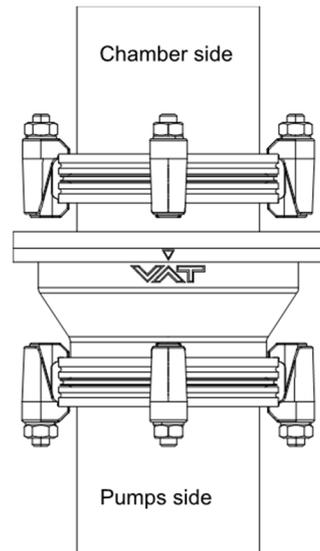


Illustration 2: Sectional view of valve transport fixation device

1. Dismount the transport fixation device [1].
  2. Remove the protective cap [2].
- ⇒ The transport fixation device is removed.
  - ⇒ The valve can now be installed in your system.

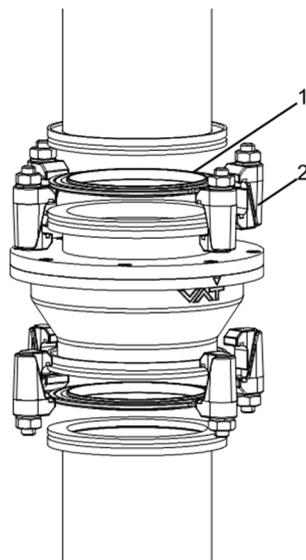
### 5.3 Installation position

It must be ensured that the quick shut-off valve is installed vertically with the plate seat side facing upward and in the direction of the process chamber.



#### 5.4 Installation in the pump line

The valve can now be installed in the pump line as illustrated in the diagram below. Use appropriate centering rings [1] and clamping claw grips [2] during installation.



## 6 Troubleshooting

### 6.1 Shut-off valve without drive unit

Disruption factors usually occur due to incorrect commissioning and operation.

Error	Error source	Troubleshooting
Valve does not close	Installation	Pay attention to the mounting position
Valve does not seal	Seat seal is contaminated	Pay attention to maintenance interval Cleaning seals [▶ 20]
	Valve plate is contaminated	Pay attention to maintenance interval Clean/replace valve plate

Table 2: Error table

## 7 Maintenance

The maintenance intervals should be observed to ensure that the product works reliably throughout its lifetime. The type of application may make it necessary to shorten the maintenance intervals. In this case, the maintenance schedule must be adjusted accordingly.

In addition to the maintenance interval, the VAT Service Center also offers other services.

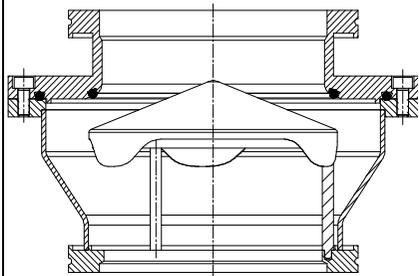
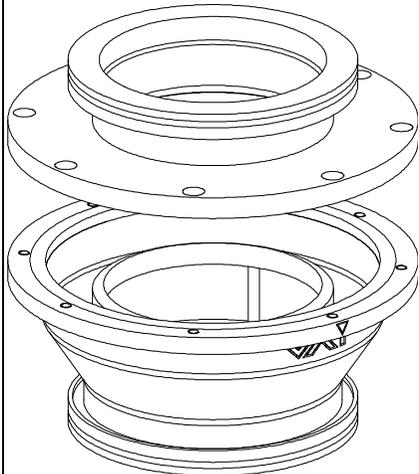
If you require further information about the maintenance intervals or services, please contact VAT.

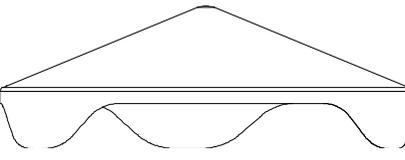
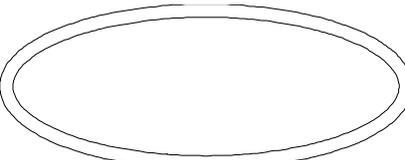
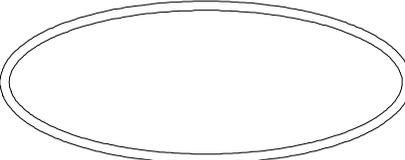
## 7.1 Maintenance schedule

For any deviating maintenance work or additional maintenance work that may be necessary, contact VAT. The VAT customer service will need the product serial number for this. Type label [▶ 11].

**i** The frequency of the maintenance intervals depends on the process conditions.

Required inspections and preventative maintenance for the service programs.

Maintenance interval	Maintenance section	Responsibility	Maintenance work	Maintenance description
<p><b>Regular inspections:</b></p> <ul style="list-style-type: none"> <li>- At least every 12 months (strong correlations to processes)</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>- together according to pump maintenance schedule</li> </ul> <p><b>Recommended inspections:</b></p> <ul style="list-style-type: none"> <li>- after every pump back-flow incident.</li> </ul>		Kunde oder VAT via FPR	<p>Optical check for contamination.</p> <ul style="list-style-type: none"> <li>- perform cleaning if necessary.</li> </ul>	Change seal [▶ 19]
		Kunde oder VAT via FPR	<p>Optical check on disassembled valve</p> <ul style="list-style-type: none"> <li>- if disassembled, carry out cleaning of the body parts</li> </ul>	

Maintenance interval	Maintenance section	Responsibility	Maintenance work	Maintenance description
		Kunde oder VAT via FPR	. Change valve plate. - if disassembled, carry out cleaning of the parts	
		Kunde oder VAT via FPR	Change seat seal. - if disassembled, carry out replacement	
		Kunde oder VAT via FPR	Change body seal. - if disassembled, carry out replacement	

## 7.2 Change seal

	NOTICE
	<p><b>Incorrect handling of the sealing surfaces!</b>          Improper handling may lead to damage to the sealing surfaces.</p> <p>▶ Get qualified staff to install the product in the vacuum system.</p>

	NOTICE
	<p><b>Non-original spare parts and wear-sensitive parts!</b>          If you use non-original spare parts and wear-sensitive parts, you may damage the product.</p> <p>▶ Only use original spare parts and wear-sensitive parts from VAT.</p>

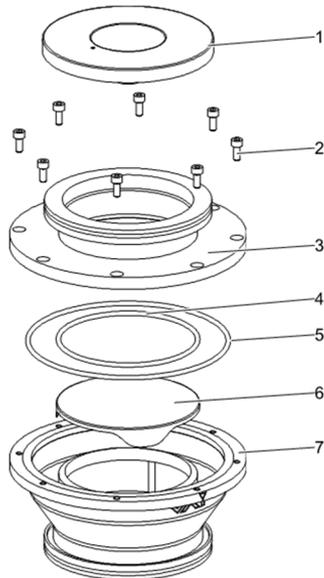


Illustration 3: Exploded view of quick shut-off valve

- |                      |               |
|----------------------|---------------|
| 1 Transport fixation | 2 Screws      |
| 3 Flange             | 4 Seat seal   |
| 5 Body seal          | 6 Valve plate |
| 7 Body               |               |

✓ Interface to vacuum system is disconnected.

1. Remove the screws [2]
2. Remove the flange [3].
3. Remove the valve disc [6].

- Clean the valve plate.

	<b>NOTICE</b>
	<p><b>Damage to the plate due to abrasive cleaning methods!</b></p> <p>Leakage at the plate.</p> <ul style="list-style-type: none"><li>▶ Use dust- and lint-free cleaning cloths.</li><li>▶ Use an ultrasonic bath.</li></ul>

- Check the valve plate for damages.
  - Replace the valve plate if it is damaged.
  - Pull the sealing O-ring [5] off the flange [3], out of the groove.
  - To dismantle the O-ring, use the recommended tool VAT–O-ring [▶ 21] assembly tool.
  - Clean the O-ring [5]. Replace the O-ring [5] if obvious damage is evident.
  - Reinstall the O-ring [5] into the groove of the flange [3].
  - Pull the seat seal [pos. 4] out of the groove of the body [7].
  - Clean the O-ring [4]. Replace the O-ring [4] if obvious damage is evident.
  - Reinstall the O-ring [4] of the valve seat into the groove of the body [7].
  - Reinstall the valve plate [6].
  - Mount the flange [3] and the body [7] together.
  - Mount the flange [3] with the screws [2].
  - Tighten the screws [2] with torque 3.4Nm / 2.5ft lb.
  - Reinstall the valve in your system.
- ⇒ The gasket set has been replaced.

### 7.3 Cleaning seals

- Clean the sealing surfaces using a lint-free and dust-free cloth and a little isopropanol.
- Clean the O-ring using a lint-free and dust-free cloth.

## 8 Consumable and spare parts

If you wish to order spare or consumable parts, have the article and serial numbers of the product on hand. This ensures you receive the right spare parts. The article and serial number are found on the Type label [▶ 11].

NOTICE	
	<p><b>Non-original spare parts and wear-sensitive parts!</b></p> <p>If you use non-original spare parts and wear-sensitive parts, you may damage the product.</p> <p>▶ Only use original spare parts and wear-sensitive parts from VAT.</p>

### 8.1 Overview of spare parts

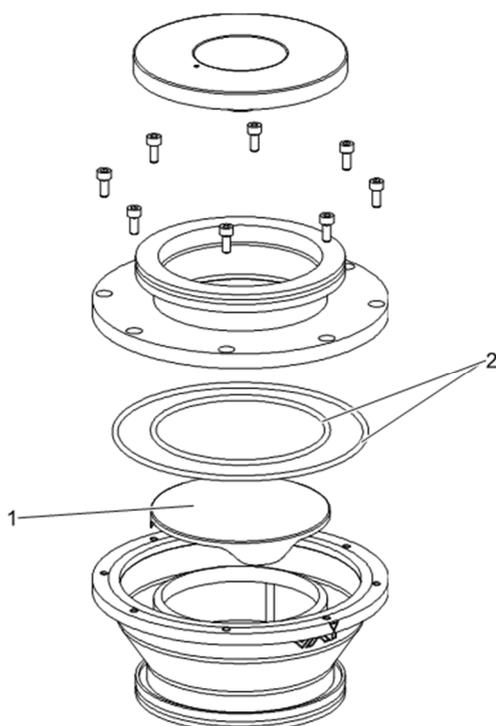


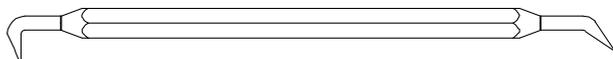
Illustration 4: Spare parts

Position	Description	Part number
1	Inner plate compl.	1050369
2	Service kit, vacuum O-ring set	On request

#### See also

Type label [▶ 11]

### 8.2 Overview of auxiliary devices



Description	Part number
O-ring removal tool	234859

## 9 Repair & Service

1. Have repairs carried out by VAT service personnel.
2. Only carry out repairs yourself if you have first consulted VAT.
3. Contact a VAT service center, see [www.vatvalve.com](http://www.vatvalve.com).

### 9.1 Fixed Price Refurbishment

During the Fixed Price Refurbishment (FPR), the VAT customer service can refurbish the product or individual components for you. Consumable parts are replaced, and the guarantee on the replaced parts is extended.

1. Select the desired service from our comprehensive FPR-service program for the refurbishment.
2. Contact your assigned sales person or the nearest VAT service center to learn about the options for the product in question. [VAT Service Center](#).

## **10 Dismantling and storage**

### **10.1 Store valve**

1. Clean and decontaminate the valve.
2. Cover all valve openings with a protective cap.
3. Pack the valve in the original packaging material.
4. Store the valve at the permitted environmental conditions, see section Technical data [[▶ 10](#)].

## 11 Transport packaging and shipping

### 11.1 Pack and transport the valve

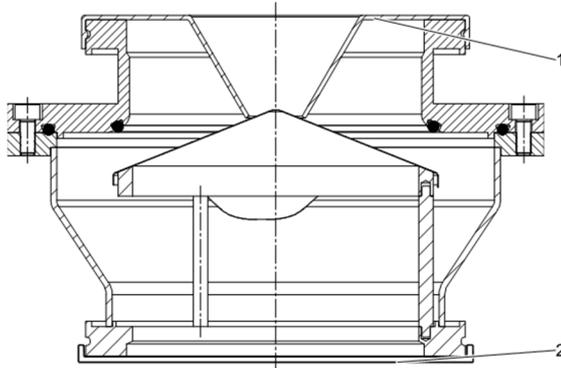


Illustration 5: Sectional view of valve transport fixation device

1. It must be ensured that the valve plate rests evenly on the centering cage.
2. Press the transport fixation device [1] into the valve flange.
  - ⇒ The transport fixation device is applied.
3. Cover the other valve openings with a protective cap [2].
4. Pack the valve in the original packaging material.
5. Transport the valve in the original packaging only.
  - ⇒ The valve is packed and ready for shipping.

### 11.2 Sending returns

The operator is responsible for decontaminating the products and may only send decontaminated products back to VAT. When products are sent back to VAT, the declaration regarding chemical contamination must be completed and sent to VAT beforehand.

If contaminated products are sent to VAT, VAT will perform a decontamination process at the cost of the customer. The party sending the products is responsible for ensuring that the valve is sent in corresponding packaging.

- You can download the declaration form regarding chemical contamination of vacuum valves and valve components from the following website: <http://www.vatvalve.com>.
- Fill out the form and send it in advance to VAT or the relevant sales company.
- If the product is radioactively contaminated, ask VAT for the following form: Notification of contamination and radiation.

If you have any questions regarding the issue of decontamination and shipping, consult your VAT service center or the relevant sales company.

## 12 Disposal

### 12.1 Disposal

The product and its components are made of various materials, which must be disposed of correctly.

1. Note the regulations on waste disposal.
2. Dispose of the product and its components in accordance with local regulations.
3. Hire an authorized contractor to dispose of your waste in the proper manner and in accordance with environmental requirements.

### 12.2 Hazardous materials

You can use the list below to identify the materials and dispose of them correctly:

- Non-ferrous metals
- Stainless steel
- Aluminum
- Plastic
- Lubricating agents
- Electronic waste
- Batteries
- Cables and lines
- Motors
- Seals and rubber parts

### 12.3 Returning the product

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Find out more and connect to your  
local VAT contact on

[WWW.VATVALVE.COM](http://WWW.VATVALVE.COM)

VAT Vakuumentile AG  
(Headquarters)  
Seelistrasse 1  
9469 Haag

