

Translation of installation, operating and mounting instruction

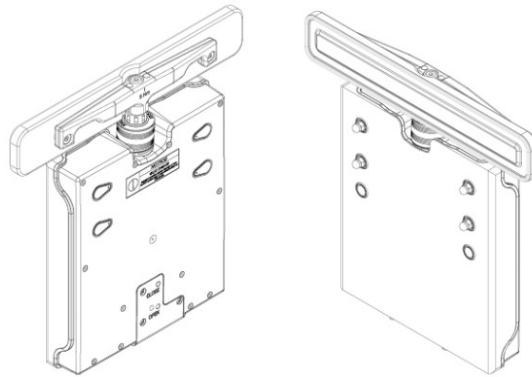


ATM Door LINVAT

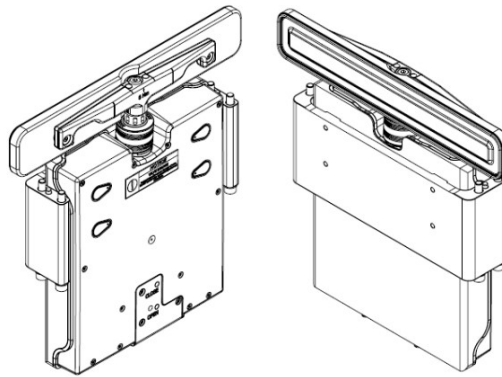
This manual is valid for the following product ordering numbers:

070__-UA24

070__-VA24



U-type



V-type

List of contents

1	General information	5
1.1	Scope of delivery	5
1.2	Other applicable documents	5
1.3	Typographical conventions	5
1.3.1	Important information	5
1.3.2	Danger levels	5
1.4	Forwarding	6
1.5	Document number and index	6
2	Safety	7
2.1	Intended use and purpose	7
2.2	Predictable misuse and improper use	7
2.3	Personal protective equipment	7
2.4	End user's obligations	8
2.5	Staff obligations	8
2.6	Standards and directives	8
2.7	Moving parts	8
2.8	Damage to the product	8
2.8.1	Electrostatic discharge	8
2.8.2	Connections	9
2.8.3	Sparks	9
2.8.4	Product contamination	9
2.8.5	Hazardous materials	9
2.8.6	Sealant sticking	9
2.9	Product handling	9
2.9.1	Unsuitable packaging	9
2.9.2	Moving parts	10
3	Technical data	11
4	Design and function	12
4.1	Type label	12
4.2	Principle of operation	12
4.3	Door design	13
5	Electrical installation and assembly	14
5.1	Unpacking	14
5.2	Mounting the door	14
5.3	Electrical installation	15
5.4	Connecting the compressed air supply	16
6	Operation	17
6.1	Before first commissioning	17
6.2	Behavior in operation	17
6.3	Response in the event of loss of compressed air	17
6.4	Response in the event of loss of voltage	17

7 Troubleshooting	18
7.1 Error table	18
8 Maintenance	19
8.1 Cleaning seals	19
8.2 Changing the gate	19
8.3 Change seal	20
8.4 Changing the bellows	21
8.5 Changing the position indicator	22
9 Consumable and spare parts	23
9.1 Overview of spare parts	23
9.2 Overview of auxiliary devices	24
10 Repair & Service	25
10.1 Fixed Price Refurbishment	25
11 Transport packaging and shipping	26
11.1 Packing and transporting product	26
11.2 Sending returns	26
12 Disposal	27
12.1 Disposal	27
12.2 Hazardous materials	27

Publication details

Manufacturer

VAT Vakuumventile AG, CH-9469 Haag, Switzerland

Website: www.vatvalve.com

Phone: +41 81 771 61 61

Fax: +41 81 771 48 30

E-mail: 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 purchase order with VAT Vakuumventile AG. When you receive your purchase order, check it against your order list. If you find discrepancies between what was ordered and delivered, contact VAT Vakuumventile AG. Publication details [▶ 4]

The scope of delivery of your purchase 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:

	⚠ DANGER
	Situations which, if not avoided, will lead directly to death or serious injury.

	⚠ WARNING
	Situations which, if not avoided, could lead to death or serious injury.

	⚠ CAUTION
	Situations which, if not avoided, could lead to moderately serious or slight injury.

	NOTICE
	Situations which, if not avoided, could lead to equipment damage.

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.

1.5 Document number and index

The cover sheet includes the document number and indexing as well as the product definition and document type. The document number consists of at least 6 and at most 7 numbers. The index consists of 2 letters.

Example:

1234567DA

The document number allows the documentation to be assigned to the product. The index indicates the language and version.

Version Language	A	B	C	D	E	F	G	...
German	DA	DB	DC	DD	DE	DF	DG	D...
English	EA	EB	EC	ED	EE	EF	EG	E...

2 Safety

2.1 Intended use and purpose

This door is a gate-sealed, pneumatically operated door. It seals the system from the atmosphere. The door's travel path consists of 2 steps. When the end positions of the travel paths are reached, the position indicators output signals.


To ensure that the maximum lifetime of the door can be reached, the door should only be used for clean and dry vacuum applications in a commercial environment.

- 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.
- 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 mounted.
- Only connect and disconnect plug-in connections when not under voltage.
- Only connect and disconnect compressed air connections in an unpressurized state.
- If any change is made to the product that has not been agreed with VAT Vakuumventile AG, the guidelines applied and the corresponding declarations will become invalid.





2.2 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.

2.3 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 end user 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 end user is responsible for making this known.

	Wear antistatic shoes
	Wear protective clothing
	Use gloves
	Use a hairnet

2.4 End user's obligations

The end user of the system 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 system 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 Standards and directives

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

- The product meets the protection requirements of 2014/35/EU: Low-Voltage Directive.
- 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.

2.7 Moving parts

Moving parts of the product can cause serious injury.

- ▶ Make sure that moving parts cannot be touched.
- ▶ Make sure that the opening is free as soon as the product is connected to a supply line.
- ▶ Do not connect the product to the supply line until it has been completely installed.

2.8 Damage to the product

2.8.1 Electrostatic discharge

Electrostatic discharge can cause injury and can damage electronic parts of the product.

- ▶ Provide a suitable possibility for electrostatic discharge.
- ▶ Carry out all work on the control and actuation unit under ESD-protected conditions.

2.8.2 Connections

Incorrectly connected cables can cause damage to the product and disrupt the voltage supply.

- ▶ Follow the instructions in the document when connecting the cables.
- ▶ Note the wiring diagrams.

2.8.3 Sparks

If plug connectors are connected and disconnected when the power is on, connector pins and electronic parts can be damaged by sparks.

- ▶ Do not plug in or remove plug connectors when the power is on.

2.8.4 Product contamination

To ensure correct operation of the product, the product must be protected from contamination.



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

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

2.8.5 Hazardous materials

Improper handling of hazardous materials can cause injury and harm the environment.

- ▶ Remove, for example, any toxic, corrosive or microbiological hazardous materials before you send the product to VAT.
- ▶ Dispose of the product correctly; see section Disposal [▶ 27].

2.8.6 Sealant sticking

Raised temperatures in the range from room temperature to the maximum permissible temperature may cause the gate seal to stick on the seat. This may cause damage to the seal or it may cause the valve to fail. It is advisable to bake out in an open position or to open the valve after it has heated up, even when hot.

If FFKM seals are used, the valve must be opened after heating up, even when hot.

2.9 Product handling



The default value can differ depending on the customer specification and firmware.

2.9.1 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.

2.9.2 **Moving parts**

Moving parts of the product can cause serious injury.

- ▶ Make sure that moving parts cannot be touched.
- ▶ Make sure that the opening is free as soon as the product is connected to a supply line.
- ▶ Do not connect the product to the supply line until it has been completely installed.

3 Technical data

 See supporting documentation, product data sheet.

4 Design and function

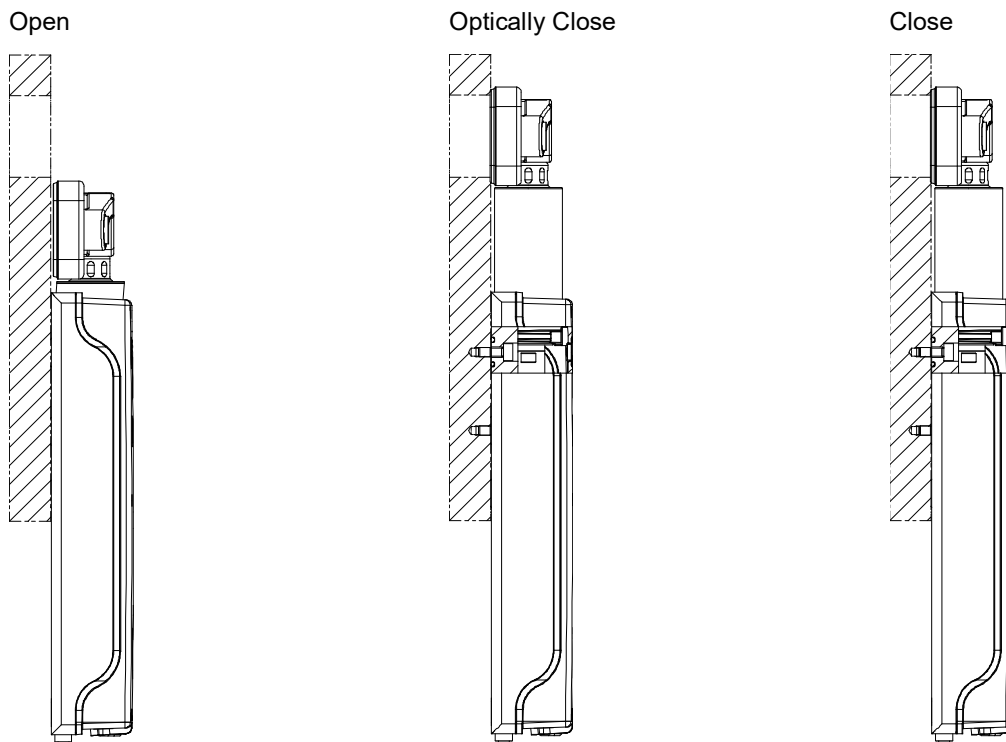
4.1 Type label

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

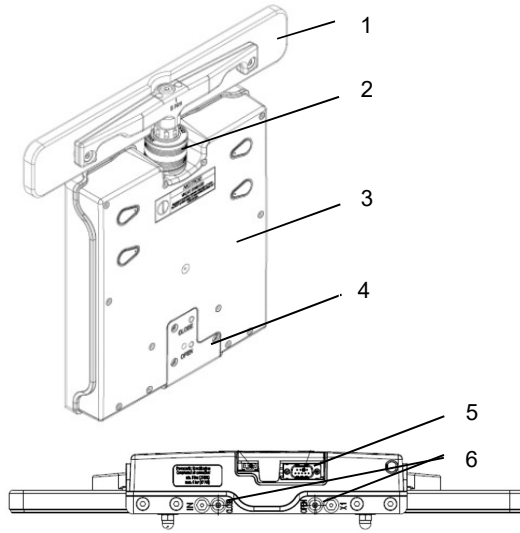


4.2 Principle of operation

The pneumatic drive moves the gate into the Open, Optically Close or Close position. The end positions are displayed by the position indicators.



4.3 Door design



- 1. Gate
- 2. Bellows
- 3. Actuator

- 4. Position indicator
- 5. Position indicator connection
- 6. Compress air connection

5 Electrical installation and assembly

5.1 Unpacking

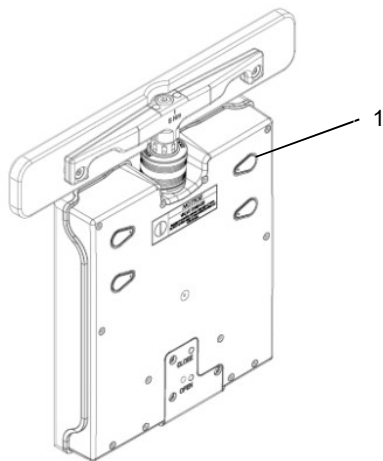
i If the product or the packaging is damaged in any way, take a photograph of the damage and the type label and report the damage to the VAT service center.

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. Fasten the lifting device to the anchor points. See dimensional drawing.
7. Lift the product out of the packaging.
8. Make sure the door is in open position during mounting.

5.2 Mounting the door

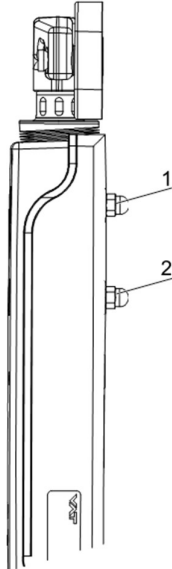
Remove plugs



The 4 plugs [1] serve as sealing caps for the drive and enable access to the fixing screws of the drive.

1. Open the plugs.
⇒ The fixing screws can be reached through the drive body.

Removing the transport fixation device



1 Cap nut

2 Cap nut

The 4 cap nuts [1...2] are for fixation during transport.

1. Remove the cap nuts.
 2. Fasten the drive on the customer chamber. Tightening torque 8 Nm.
 3. Close the plugs.
- ⇒ The door is mounted.

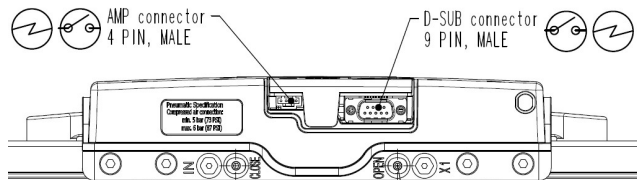
5.3 Electrical installation

NOTICE	
	<p>Damage to electronic components as a result of insufficient ESD measures!</p> <p>The electronic components no longer work.</p> <ul style="list-style-type: none"> ▶ Ensure potential equalization before working on the product.


NOTICE	
	<p>Damage as a result of incorrectly connected cables!</p> <p>Damaged control unit and interrupted power supply.</p> <ul style="list-style-type: none"> ▶ Follow the instructions in the assembly and operating instructions when connecting the cables. ▶ Note the wiring diagrams.

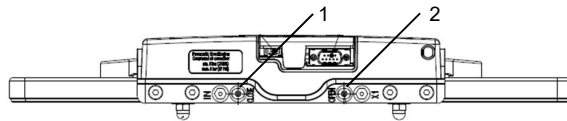
The product has a position indicator to display the Open and Close positions.

1. Connect the cable to the position indicator.
2. Use a 9-pin D-sub connector or the 4-pin AMP connector.



5.4 Connecting the compressed air supply

	⚠ WARNING
	<p>Moving parts Body parts can be trapped or severely injured.</p> <ul style="list-style-type: none"> ▶ Only connect electrical current and compressed air once the product is completely installed in the system.



1 Close

2 Open

1. Connect the compressed air lines to the compressed air connections.

6 Operation

6.1 Before first commissioning

The compressed air system must be charged before you operate the door.

1. Move the door to the Open position.
 - ⇒ The compressed air system is charged.
2. Move the door to the Close position.
 - ⇒ The compressed air system is charged and the door is ready to use.

6.2 Behavior in operation

During operation the door is opened and closed by actuating the drive.

6.3 Response in the event of loss of compressed air

The response in the event of compressed air loss cannot be defined.

It depends on the evacuation speed of the compressed air. A slow loss of compressed air will not trigger the non-return valve. A sudden loss of compressed air will trigger the non-return valve.

Door in <i>Close</i> position	Remains in <i>Close</i> position for at least 3 hours
Door in <i>Open</i> position	Undefined or check valve optionally
Door moving	Undefined

6.4 Response in the event of loss of voltage

The position indicators no longer output any signals.

7 Troubleshooting

7.1 Error table

Error	Error source	Remedy	Section
Leakage	Contamination of the sealing surfaces	Clean seal	Cleaning seals [▶ 19]
Leakage	Seal damaged	Replace seal	Changing the seal
Leakage	Door does not compress seal	Check compressed air supply	Technical data
Leak at gate	Compressed air supply does not correspond to the valve requirements	Check compressed air supply	Technical data [▶ 11]
Leak at gate	Gate damaged	Change the gate	Changing the gate [▶ 19]
Door does not move	Compressed air supply interrupted	Check compressed air supply	Connecting the compressed air supply [▶ 16]
Door does not move	Voltage supply interrupted	Check voltage supply	Electrical installation [▶ 15]
Position indicator outputs incorrect signals or no signals	Position indicator damaged or connected incorrectly	Check installation of position indicator or replace position indicator	Changing the position indicator [▶ 22]

See also

- 📖 Electrical installation [▶ 15]
- 📖 Connecting the compressed air supply [▶ 16]

8 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.

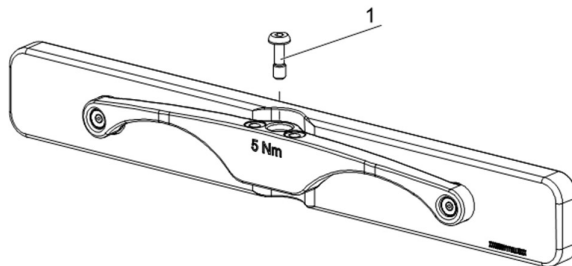
If you require further information about the maintenance intervals or services, please contact VAT.

8.1 Cleaning seals

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

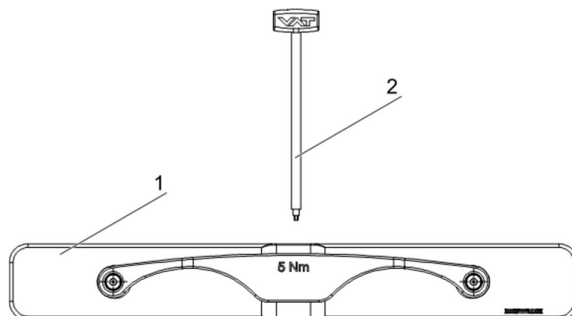
8.2 Changing the gate

Dismounting gate



1 Screw

1. Vent the chamber.
2. Move the door to the Open position.
3. Disconnect the voltage supply.
4. Disconnect the compressed air supply.
5. Loosen the screw [1].
 - ⇒ The door is released and the mounting tool can be mounted.



1 Gate

2 Mounting tool

6. Mount the mounting tool [2] on the gate [1].
7. Lift the gate from the rod.
 - ⇒ The gate is dismantled.

Mounting gate

1. Mount the mounting tool [1] on the new gate.
2. Place the gate on the rod.
3. Tighten the screw [1]. Tightening torque 5 Nm.
4. Connect the voltage supply.
5. Connect the compressed air supply.
 - ⇒ The gate is changed.
6. Move the door to the Open position.
 - ⇒ The compressed air system is charged.
 - ⇒ The door is ready for operation.

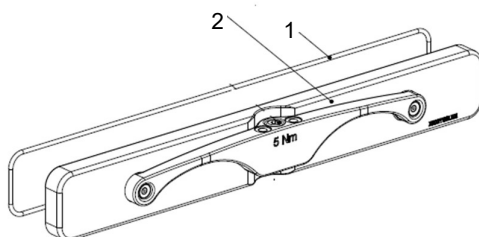
8.3

Change seal

	CAUTION
	<p>Risk of injury caused by heavy load! Lifting heavy loads may lead to injury.</p> <ul style="list-style-type: none"> ▶ Use suitable lifting equipment and the specified lifting points.

	NOTICE
	<p>Leak due to incorrect handling of the sealing surfaces! Leakage at the sealing surfaces.</p> <ul style="list-style-type: none"> ▶ Get qualified staff to install the product in the vacuum system.

i The mounting aid is not included in the scope of delivery.

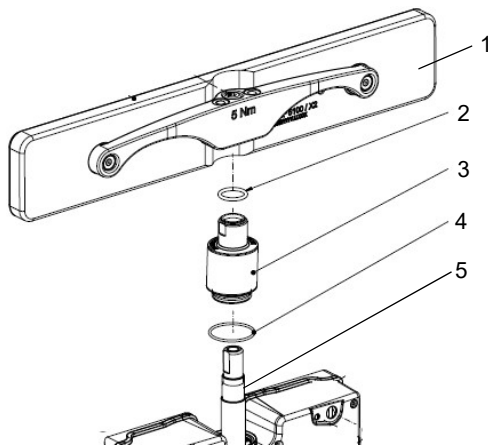


1 O-ring

2 Gate

- ✓ Gate is dismantled.
1. Remove the seal [1].
 2. Clean the sealing surfaces on the gate [2] and on the customer chamber.
 3. Press the new seal evenly into the groove of the gate [2].
 4. Mount the gate.
- ⇒ The seal is changed.

8.4 Changing the bellows



1 Gate

3 Bellows

5 Rod

2 O-ring

4 O-ring

Dismounting the bellows

✓ Gate [1] is dismantled.

1. Loosen the screwed bellows [3].

2. Pull the bellows [3] over the rod [5].

⇒ The bellows is dismantled.

3. Replace the seals [2 and 4].

⇒ The seals have been changed and the bellows dismantled.

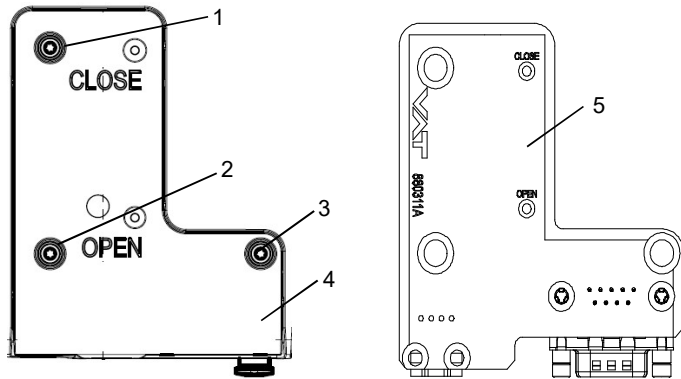
Mounting the bellows

1. Put the bellows [3] over the rod [5].

2. Screw on the bellows [3].

⇒ The bellows is changed.

8.5 Changing the position indicator



1 Screw

3 Screw

5 Position indicator

2 Screw

4 Lid

Dismounting the position indicator

1. Disconnect the connector on the underside of the position indicator.
 2. Disconnect the compressed air connections on the underside of the position indicator.
 3. Loosen the screws [1...3]
 4. Remove the position indicator lid. Take out the position indicator
- ⇒ The position indicator is dismantled.

Mounting the position indicator

1. Replace position indicator and put lid. Tighten the screws [1...3].
 2. Connect the compressed air connections on the underside of the position indicator.
 3. Connect the connector on the underside of the position indicator.
- ⇒ The position indicator is mounted.

9 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 [▶ 12].

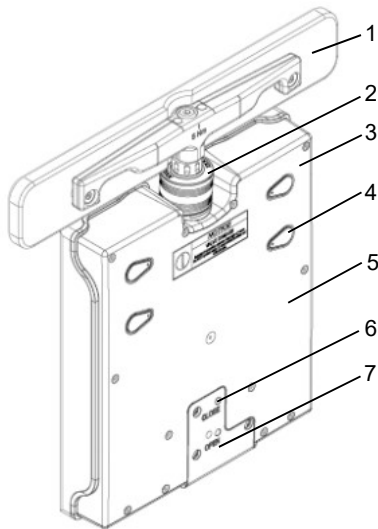


VAT offers a wide range of spare parts and consumable parts.

Contact your assigned sales person or the nearest service center to learn about the options for the product in question.

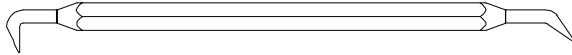
NOTICE	
	<p>Non-original spare parts and consumable parts!</p> <p>If you use non-original spare parts and consumable parts, you may damage the product.</p> <p>▶ Only use original spare parts and consumable parts from VAT.</p>

9.1 Overview of spare parts

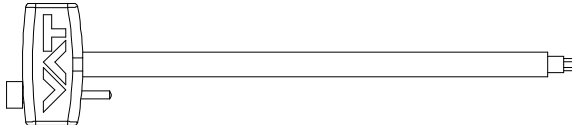


Position	Description
1	Assembly kit, gate
2	Protective bellows
3	Assembly kit, actuator
4	Plug
5	Cover, complete
6	Assembly kit, position indicator
7	Lid
Without	Assembly kit, mounting parts

9.2 Overview of auxiliary devices



Description	Part number
O-ring removal tool	234859



Description	Part number
Mounting tool	781669

10 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.

10.1 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](#).

11 Transport packaging and shipping

11.1 Packing and transporting product

1. Make sure that all the parts of the product are complete.
2. Pack the components in the original packaging material.
3. Only use the original packaging for transporting the components.

11.2 Sending returns

The end user 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 appropriate 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. Dispose of the product and its components in accordance with local regulations.
2. 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 part

Find out more and connect to your
local VAT contact on

WWW.VATVALVE.COM

VAT Vakuumentile AG

(Headquarters)

Seelistrasse 1

9469 Haag

