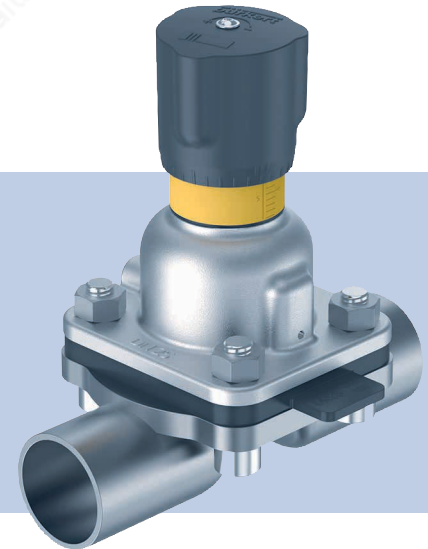


Type 2933, 2934, 2935, 2973, 2974, 2975

2/2-way-diaphragm valve with manually operated actuator

2/2-Wege-Membranventil mit handbetätigtem Antrieb

Vanne à membrane 2/2 avec actionneur manuel



Operating Instructions

Bedienungsanleitung

Manuel d'utilisation

1	OPERATING INSTRUCTIONS.....	29			
1.1	Symbols.....	29	7.5	Set stroke limit.....	44
1.2	Definition of terms	29	7.6	Lock handwheel	45
			7.7	Install inductive proximity switch.....	46
2	INTENDED USE	30	8	MAINTENANCE.....	47
3	BASIC SAFETY INSTRUCTIONS.....	30	8.1	Cleaning	47
4	GENERAL NOTES	32	8.2	Maintenance work	47
4.1	Contact addresses	32	8.3	Changing the diaphragm.....	48
4.2	Warranty	32	9	SPARE PARTS.....	50
4.3	Information online.....	32	9.1	Ordering spare parts	51
5	PRODUCT DESCRIPTION	32	10	TRANSPORTATION, STORAGE, DISPOSAL	53
5.1	Structure and description.....	32			
5.2	Variants.....	32			
5.3	Function.....	34			
5.4	Product identification	35			
6	TECHNICAL DATA.....	37			
6.1	Standards and directives.....	37			
6.2	Mechanical data	37			
6.3	Port connections valve body.....	37			
6.4	Operating conditions	37			
7	INSTALLATION	39			
7.1	Information for the correct installation position.....	40			
7.2	Preparatory work	41			
7.3	Welding tank bottom body	41			
7.4	Install device.....	42			

1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions ready to hand at the operating site.

Important safety information.

- ▶ Read these instructions carefully.
- ▶ Above all, observe the safety instructions, intended use and usage conditions.
- ▶ Persons who work on the device must read and understand these instructions.

1.1 Symbols



DANGER

Warning of an immediate danger.

- ▶ Failure to comply will result in death or serious injury.



WARNING

Warns of a potential danger.

- ▶ Failure to observe these warnings may result in serious injuries or death.



CAUTION

Warns of a potential hazard.

- ▶ Failure to comply with these instructions may result in moderate or minor injury.

NOTE

Warns of damage.



Important tips and recommendations.



Refers to information in these operating instructions or in other documentation.

- ▶ Highlights instructions to avoid a danger.

→ Highlights a procedure which you must carry out.

1.2 Definition of terms

Term	Definition for these instructions
Device	Diaphragm valve Type 2933, 2934, 2935, 2973, 2974 and 2975
Ex area	Potentially explosive atmosphere
Explosion protection approval	Approval in potentially explosive atmosphere

2 INTENDED USE

The diaphragm valve Type 2933, 2934, 2935, 2973, 2974 and 2975 is designed to control the flow of media. The authorised media are listed in chapter “Technical data”.

- ▶ Use the device only as intended. Non-intended use of the device may be dangerous to people, nearby equipment and the environment.
- ▶ Prerequisites for safe and trouble-free operation are correct transportation, correct storage, installation, start-up, operation and maintenance.
- ▶ To use the device, observe the permitted data, operating conditions and usage conditions. These specifications can be found in the contract documents, the operating instructions and on the type label.
- ▶ Use the device only in conjunction with third-party devices and components recommended or approved by Bürkert.
- ▶ Only use equipment that is approved for this type of potentially explosive area. These devices are identified by a separate Ex type label. Before use, note the information on the separate Ex type label and the Ex additional instructions or the separate Ex operating Instructions.
- ▶ Protect device from environmental influences (e.g. radiation, air humidity, fumes). If you have any questions, contact your Bürkert sales department.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take into account any unforeseen circumstances or events that occur during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to personnel.



Risk of injury due to high pressure and escaping medium.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.

Electric shock due to installed electrical component.

- ▶ Before working on the device or system, switch off the power supply. Secure against reactivation.
- ▶ Observe any applicable accident prevention regulations and safety regulations for electrical devices.

Danger of bursting in case of overpressure.

If the device bursts, the medium may cause injuries, burns or scalds.

- ▶ Do not exceed the maximum medium pressure. Observe specifications on the type label.
- ▶ Observe allowable temperatures.

Danger of burns and risk of fire.

Quickly switching actuators or hot medium may cause the surface of the device to become hot.

- ▶ Only touch the device when wearing protective gloves.
- ▶ Keep the device away from highly flammable substances and media.

Medium may leak out if the diaphragm is worn.

- ▶ Inspect relief bore for any medium leakages.
- ▶ Change the diaphragm if there is escaping medium.
- ▶ If the medium is hazardous, secure the area around the leakage to prevent risks.

Risk of crushing by mechanically powered parts.

The upwards and downwards movement of the device means there is a risk of crushing.

- ▶ Do not reach into the openings of the valve body.

Danger due to loud noises.

Depending on the usage conditions, the device may generate loud noises. More detailed information on the likelihood of loud noises is available from the relevant sales department.

- ▶ Wear hearing protection when in the vicinity of the device.

To avoid injury, observe the following:

- ▶ Do not make any changes to the device and do not subject it to mechanical stress.
- ▶ Only trained technicians may perform installation and maintenance work.
- ▶ Perform installation and maintenance work using suitable tools only.
- ▶ Heavy equipment must only be transported, assembled and disassembled with the help of a second person whilst using suitable apparatus.
- ▶ Only tighten the device by hand when closing it, and do not use any tools or aids. Too much tightening may damage the device.

- ▶ The process must be restarted in a defined or controlled manner after an interruption in the power supply or pneumatic supply.
- ▶ Operate the device only when it is in perfect condition and in accordance with the operating instructions.
- ▶ For applications planning and operation of the device, observe the plant-specific safety regulations.
- ▶ Only the media listed in chapter “Technical data” should be fed into the port connections.
- ▶ Observe the general rules of technical equipment.
- ▶ The plant owner is responsible for the safe operation and handling of the plant.

4 GENERAL NOTES

4.1 Contact addresses

Germany

Bürkert Fluid Control Systems
Sales Centre
Christian-Bürkert-Str. 13–17
D-74653 Ingelfingen
Tel. +49 (0) 7940-10 91 111
Fax +49 (0) 7940-10 91 448
Email: info@burkert.com

International

The contact addresses can be found on the back pages of the printed operating instructions.

They are also available online at: country.burkert.com

4.2 Warranty

A precondition for the warranty is that the device is used as intended in consideration of the specified usage conditions.

4.3 Information online

Operating instructions and data sheets for Type 2933, 2934, 2935, 2973, 2974, 2975 can be found online at:
country.burkert.com

5 PRODUCT DESCRIPTION

5.1 Structure and description

The device is a manually operated valve, consisting of an actuator, a diaphragm and a valve body.

The manual actuator is available in the following sizes:

Diaphragm size (nominal diameter DN)	Handwheel size	Designation	Handwheel diameter [mm]	Slope per rotation [mm]
8	T	Tiny	35	1.5
15 to 25	S	Small	45	1.75
32 to 50	M	Medium	110	2.0

Tab. 1: Handwheel sizes

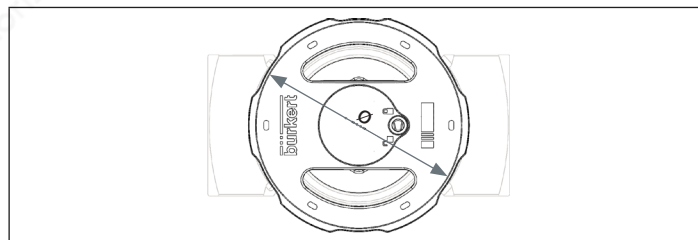


Fig. 1: Handwheel diameter

5.2 Variants

Types 293x and 297x are differentiated by the actuator. The valve body makes the x different.

5.2.1 Type 2933 with 2-way body

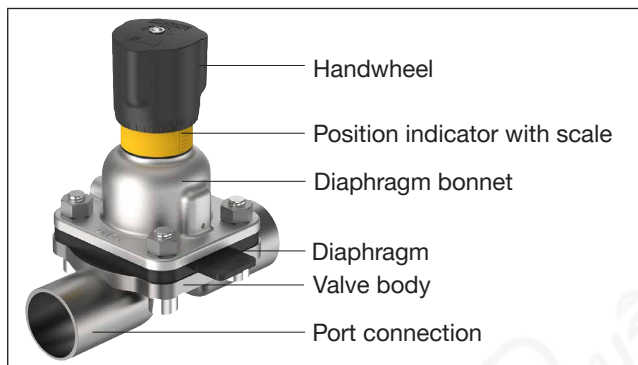


Fig. 2: Example of 2/2-way valve, Type 2933

5.2.2 Type 2934 with T-body

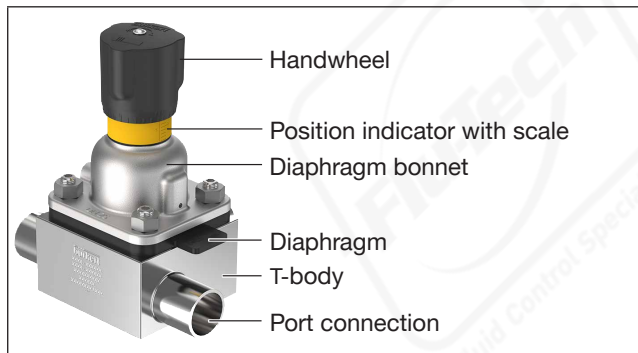


Fig. 3: Example of the diaphragm valve with T-body, Type 2934

5.2.3 Type 2935 with tank bottom body

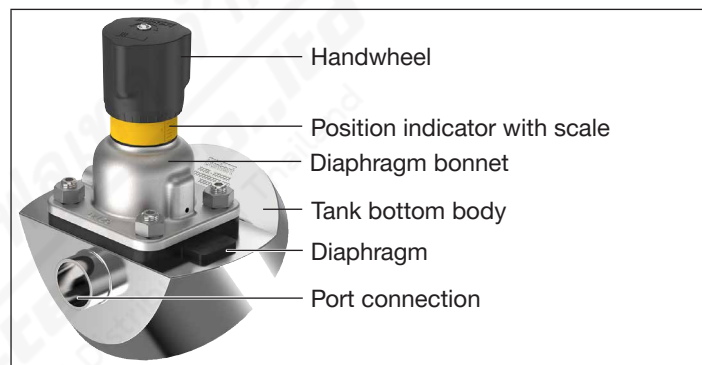


Fig. 4: Example of valve with tank bottom body, Type 2935

5.2.4 Type 2973, 2974 or 2975

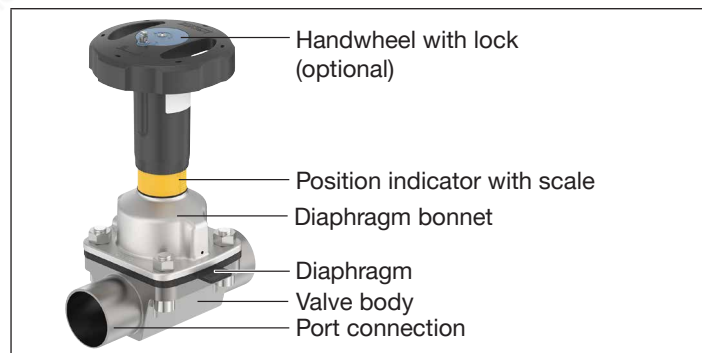


Fig. 5: Example of 2/2-way valve, Type 2973

5.3 Function

By manually overriding the handwheel, the force is transmitted via a spindle and the valve is opened or closed. The medium in the valve body is either approved or blocked off. Turning the handwheel anticlockwise opens the valve, turning it clockwise closes it.

To protect the actuator, we recommend not closing the actuator with more force than is required to close the valve tightly.

5.3.1 Position indicator

5.3.1.1 Actuator DN8

When turning the handwheel anticlockwise, a yellow mark becomes visible between the diaphragm bonnet and the handwheel.



The visibility of the yellow mark is not directly correlated with the closed position of the valve. Depending on the structure of the valve, the marking may:

- not be visible when the valve is open, or
- be visible when the valve is closed.

5.3.1.2 Actuator DN15 to DN50

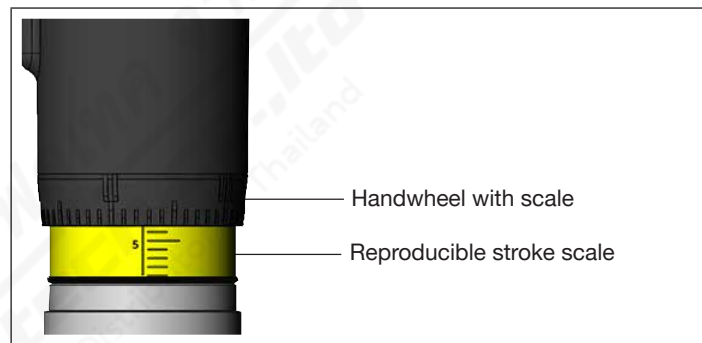


Fig. 6: Position indicator

When turning the handwheel anticlockwise, the reproducible stroke scale becomes visible between the diaphragm bonnet and the handwheel.



The visibility of the stroke scale is not directly correlated with the closed position of the valve. Depending on the design of the valve, the reproducible stroke scale:

- may not be visible when the valve is open, or
- may be visible when the valve is closed.

The scale on the handwheel determines the rotation position of the handwheel (Type 293x: 30 positions, Type 297x: 50 positions).

The stroke scale shows the relative position of the valve and serves as a fixation point for determining the rotation position.

5.4 Product identification

5.4.1 Type label

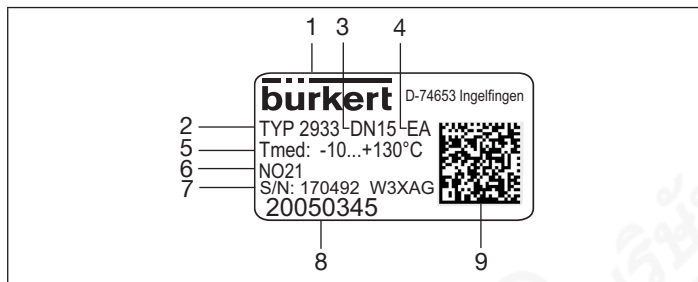


Fig. 7: Description of the type label (example)

Item	Description
1	Manufacturer
2	Type
3	Diaphragm size (nominal diameter DN)
4	Seal material
5	Medium temperature

Item	Description
6	Valve body surface roughness
7	Serial number
8	Article number
9	Data matrix code for product identification

5.4.2 Labelling on forged steel valve body

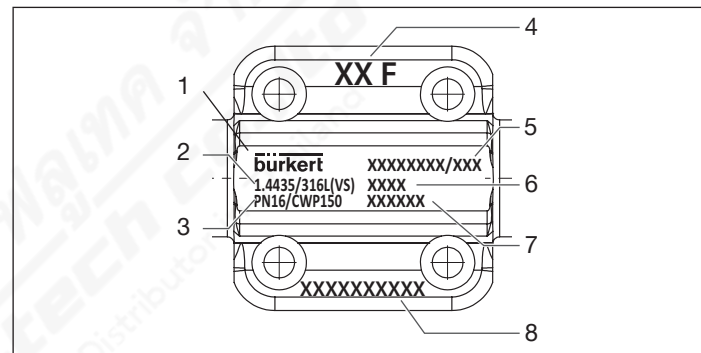


Fig. 8: Labelling on forged steel valve body

Item	Description
1	Company logo
2	Material
3	Nominal pressure
4	Batch number

Item	Description
5	Production number/ serial number
6	Self-draining angle
7	Customer-specific text (optional)
8	Nominal diameter and pipe dimensions

5.4.3 Labelling on the cast valve body

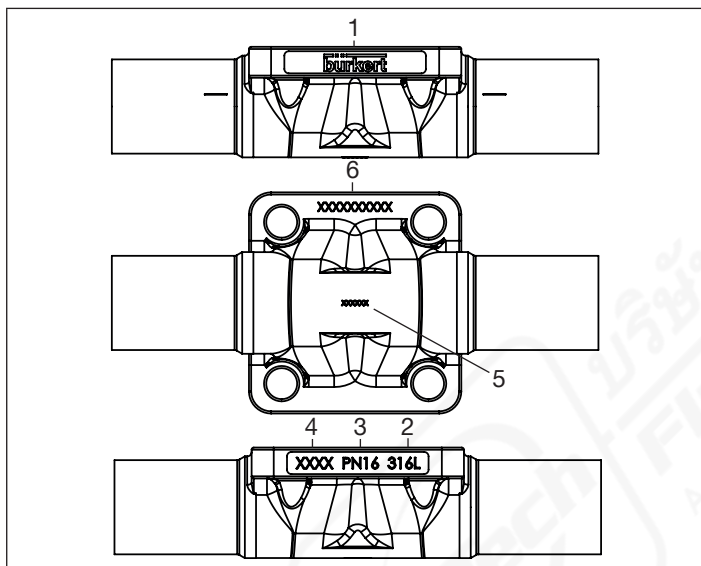


Fig. 9: Labelling on the cast valve body

Item	Description	Item	Description
1	Company logo	4	Diaphragm size (nominal diameter DN)
2	Material	5	Batch number
3	Nominal pressure	6	Nominal diameter and pipe dimensions

5.4.4 Labelling on tube valve body

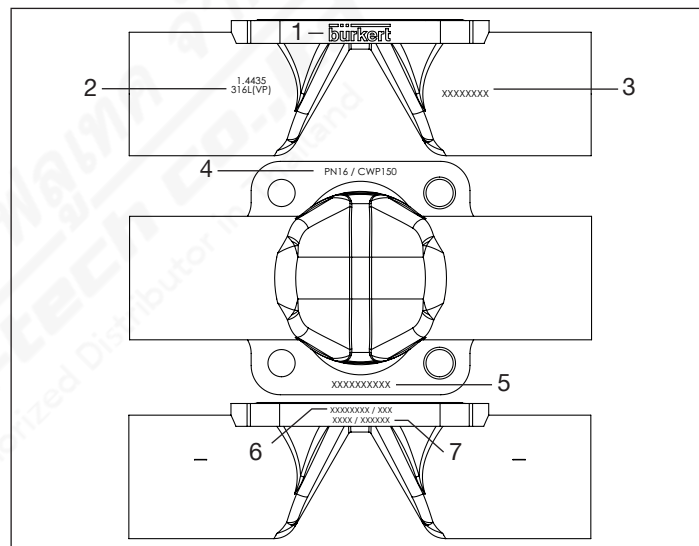


Fig. 10: Labelling on tube valve body

Item	Description	Item	Description
1	Company logo	5	Nominal diameter and pipe dimensions
2	Material	6	Serial number
3	Heat	7	Self-draining angle
4	Nominal pressure		

6 TECHNICAL DATA

6.1 Standards and directives

The device complies with the valid EU harmonisation legislation. In addition, the device also complies with the requirements of the laws of the United Kingdom.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity/ UK Declaration of Conformity.

6.2 Mechanical data

Materials

Valve body Type 2933, 2973	PVC-C, PVC-U, PP, PVDF Precision-cast stainless steel (VG), Forged steel (VS), Stainless steel tube valve body (VP)
Valve body Type 2934, 2935, 2974, 2975	Stainless steel block material
Actuator	Handwheel and diaphragm bonnet PPS, handwheel PPS and diaphragm bonnet stainless steel
Diaphragm	EPDM, PTFE/EPDM, advanced PTFE/EPDM, laminate made from GYLON® and EPDM, FKM

6.3 Port connections valve body

Stainless steel valve body	Welded connection Clamp connection Threaded connection Flange connection
Plastic valve body	Adhesive and welded connection Adhesive and weld socket connection

6.4 Operating conditions

Media	dirty, aggressive, ultrapure, sterile media with higher viscosity
-------	----------------------------------------------------------------------

6.4.1 Allowable temperatures

Ambient temperature for actuators	-10...+130 °C ¹⁾ (up to +150 °C for short periods), autoclavable
--------------------------------------	-----------------------------------------------------------------------------------

Medium temperature for valve body

Stainless steel	-10...+150 °C
PVC-U (see "Fig. 11")	10...+60 °C
PVC-C (see "Fig. 11")	10...+80 °C
PVDF (see "Fig. 11")	-20...+120 °C
PP (see "Fig. 11")	10...+90 °C

¹⁾ When using plastic cover caps for hexagon nuts and hexagon bolts, the maximum ambient temperature is limited to 60 °C (temporarily 80 °C).

Medium temperature for diaphragms

EPDM (AD)	−10...+143 °C steam sterilisation up to +150 °C for 60 min
FKM (FF)	0...+130 °C no steam, dry heat up to +150 °C for 60 min
PTFE (EA)	−10...+130 °C steam sterilisation up to +140 °C for 60 min
Advanced PTFE (EU)	−5...+143 °C steam sterilisation up to +150 °C for 60 min
GYLON® (ER)	−5...+130 °C steam sterilisation up to +140 °C for 60 min

6.4.2 Permitted medium pressure

Permitted medium pressure plastic valve body depending on medium temperature:

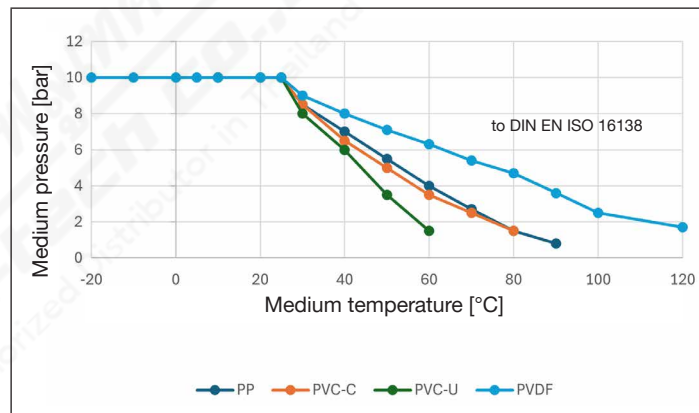


Fig. 11: Pressure temperature diagram for plastic valve body as per DIN EN ISO 16138



This information is important for the selection of the material. Observe the permitted operating pressure, depending on the medium temperature.

Maximum permitted medium pressure

The values are valid for valve bodies made from:

- Plastic,
- Stainless steel: block material, forged or casted and tube valve body.

Diaphragm size (nominal diameter DN)	Maximum permitted medium pressure [bar]	
	EPDM/FKM	PTFE/advanced PTFE/ GYLON®
8	10	10
15	10	10
20	10	10
25	10	10
32	10	10
40	10	10
50	7 ²⁾ /10	7 ²⁾ /10

Tab. 2: Maximum permitted medium pressure

²⁾ for handwheel and diaphragm bonnet made from PPS

7 INSTALLATION



DANGER

Risk of injury due to high pressure and escaping medium.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.



WARNING

Risk of injury due to improper installation.

- ▶ Installation may be carried out by authorised technicians only and with the appropriate tools.
- ▶ Observe tightening torques.

Risk of injury from unintentional activation of the system and uncontrolled restart.

- ▶ Secure the system against unintentional activation.
- ▶ Following installation, ensure a controlled restart.



CAUTION

Risk of injury due to heavy device.

During transportation or installation work, a heavy device may fall down and cause injuries.

- ▶ Transport, install and remove heavy device with the aid of a second person only.
- ▶ Use suitable tools.

7.1 Information for the correct installation position

Depending on the valve body, the installation position of the diaphragm valve is different.

Installation for leakage detection:



One of the relief bores in the diaphragm bonnet for monitoring leakages must be at the lowest position.

7.1.1 Installation position of 2/2-way body

Installation position: any, preferably actuator facing up.

Ensuring self-draining:



It is the responsibility of the installer and the operator to ensure self-draining.

Observe the rules for self-draining during installation:

1. Inclination angle of the pipe:

- The angle of inclination should correspond to the angle of inclination of the pipe. For the pipe, we recommend the inclination angles according to the valid ASME BPE.

2. Self-draining angle for valve body:

- The self-draining angle (α) depends on the valve body size and the inner diameter of the port connection (DN).
- The self-draining angle is specified as a value on forged steel valve bodies (VS) and tube valve bodies (VP) (see “Fig. 8” and “Fig. 10”).

- The marking on the port connection of the valve body serves as an orientation aid. The marking must point upwards.
- The actual self-draining angle must be set with a suitable measuring tool.
- For valve bodies without angle information, you can find the self-draining angle on the internet: [country.burkert.com/Type/Manuals/Supplementary information “Angle information for self-drainage of diaphragm valves”](http://country.burkert.com/Type/Manuals/Supplementary%20information/\).

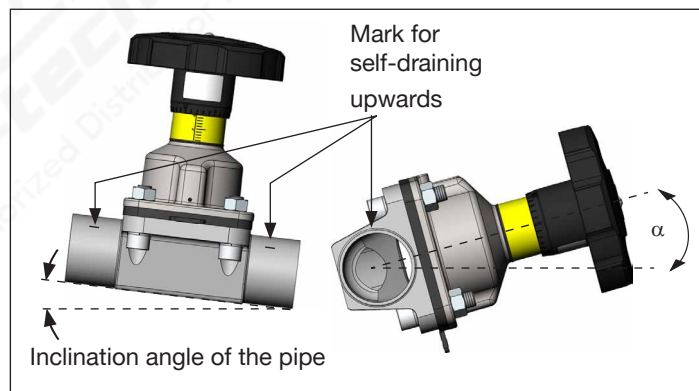


Fig. 12: Installation position for self-draining of the valve body

7.1.2 Installation position of T-body

The following installation positions are recommended for the installation of the T-valve in circular pipes:

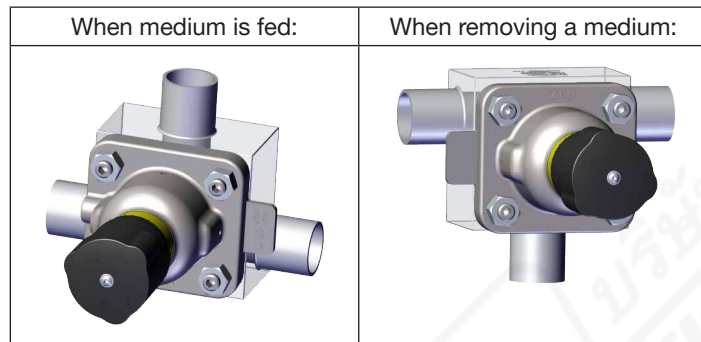


Fig. 13: Installation position of Type 2934/2974

7.2 Preparatory work

- Clear impurities from pipes (seal material, metal chips, etc.).
- Support and align pipes.

Device with adhesive or welded connection:



The actuator and diaphragm must be dismantled before welding or bonding the valve body.

7.3 Welding tank bottom body



DANGER

Risk of injury due to high pressure and escaping medium.

- Switch off the pressure before working on the device or system. Vent or empty the lines.



Recommendations

Observe sequence:

1. Weld the tank bottom body to the container base before the container is assembled. It is possible to weld onto a ready-assembled container but it is more difficult. Note: weld the tank bottom body in the middle of the container base so that the container can be optimally drained.
2. Weld the tank bottom body into the pipe.

- Ensure that pipes are in alignment.
- Support and align pipes. To ensure that the pipe is self-draining, we recommend the inclination angles according to the valid ASME BPE.



For information on containers and instructions for welding, refer to the ASME VIII Division I standard. Check the batch number indicated on the manufacturer's certificate 3.1 supplied before starting welding work.



Observe the applicable laws of the country with regard to the qualification of welders and the execution of welding work.

→ Welding the tank bottom body to the container.

NOTE

Before welding, note the following:

- ▶ Only use welding materials which are suitable for the tank bottom body.
- ▶ The tank bottom valve must not collide with any other installation part. The actuator must be easy to install and remove.

→ Weld the tank bottom body into the pipe.

Ensure installation is de-energized and low-vibration.

→ Install diaphragm and actuator after welding.

7.4 Install device

NOTE

The following must be heeded when installing the device in the system:

- ▶ The device and relief bore must be accessible for inspections and maintenance work.

7.4.1 Devices with welded or adhesive connection

NOTE

To prevent damage:

- ▶ Dismantle the actuator and diaphragm before welding or bonding the valve body.

→ Rotate the handwheel anticlockwise until it comes to a stop (OPEN position).

→ Loosen the fastening screws crosswise and remove the actuator with diaphragm from the valve body.

→ Weld or bond the valve body into the pipe.

→ After welding or bonding the valve body, smooth the body surface (if necessary) by sanding.

→ Clean the valve body thoroughly.

→ Place the actuator together with diaphragm on the valve body. For PP variants (DN15, DN20, DN25) the intended body reinforcement is mandatory (see "Fig. 14").

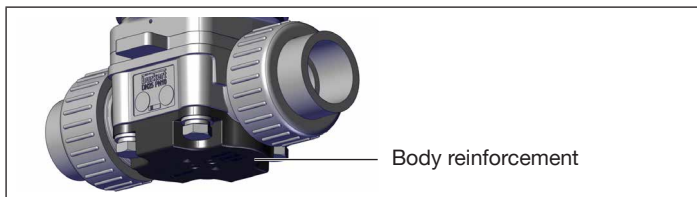


Fig. 14: Body reinforcement for PP variants (DN15, DN20, DN25)

- Slightly tighten the fastening screws crosswise until the diaphragm rests between the valve body and the actuator.
- Close and open the diaphragm valve twice to position the diaphragm correctly.
- Close the diaphragm valve again and open by about 20%.

NOTE

Damage to the device when failing to observe tightening torque.

- Observe tightening torques.

- Tighten each fastening screw in 3 stages (approx. 1/3, approx. 2/3, 3/3 of the tightening torque in accordance with "Tab. 3") crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

7.4.2 Tightening torques

Diaphragm size (nominal diameter DN)	Tightening torques [Nm] ³⁾			
	VS, VG, PP, PVC-C, PVC-U, PVDF		VA, VP	
	EPDM/FKM	PTFE	EPDM/FKM	PTFE
8	2	2.5	2	2.5
15	3.5	4	3.5	4
20	4	4.5	4	4.5
25	5	6	7	8
32	6	8	8	10
40	8	10	12	15
50	12	15	15	20

Tab. 3: Tightening torque depends on the diaphragm

- ³⁾ A tolerance of +10% of the respective tightening torque applies to all values

7.5 Set stroke limit

The stroke limit can be set optionally.

7.5.1 Set minimum stroke limit, Type 293x

A minimum stroke limit can be set for Types 2933, 2934 and 2935. This setting also serves as a closing limiter to protect the diaphragm. A hexagon nut is used to do this.

- By turning the handwheel clockwise, the valve is moved to the closed position.
- Loosen the screw on the handwheel (hexagon socket, width across flats 2) and remove handwheel.

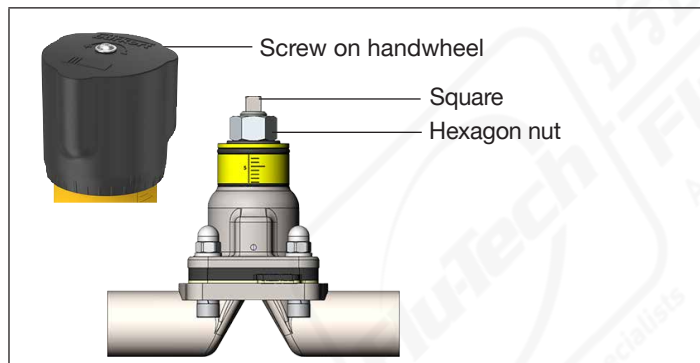


Fig. 15: Set stroke limit, Type 293x

- Screw the hexagon nut as far as it will go.
Minimum stroke is set.

- Mount handwheel on actuator. The square on the spindle and the hexagon head of the nut must be correctly aligned to the geometry of the handwheel so that they fit into each other.

NOTE

Damage to the device by incorrectly positioning the hexagon nut.

- ▶ Do not screw the hexagon nut in the area of the square.
- ▶ Only use minimum stroke limit in the 0–25% opening stroke range.

- Tighten the screw on the handwheel with 0.9 Nm.
If necessary, bond the screw to ensure a permanent hold.

7.5.2 Set minimum and maximum stroke limit, Type 297x

A minimum and maximum stroke limit can be set for Types 2973, 2974 and 2975 (diaphragm sizes DN15 to DN50). The stroke limit for these types is available as an option and is not integrated as standard. An adjusting sleeve is used for this purpose.

- By turning the handwheel clockwise, the valve is moved to the closed position.
- Loosen the screw on the handwheel (hexagon socket, width across flats 2) and remove handwheel.
- Screw adjusting sleeve clockwise until it comes to a stop.
Minimum stroke is set.
- Mount handwheel on actuator. The square on the spindle and the hexagon head of the adjusting sleeve must be correctly aligned to the geometry of the handwheel so that they fit into each other.

- Move the valve to the desired maximally open position.
- Loosen the screw on the handwheel and remove the handwheel.
- Pull adjusting sleeve upwards and at the same time, screw anticlockwise until it comes to a stop.
Maximum stroke is set.

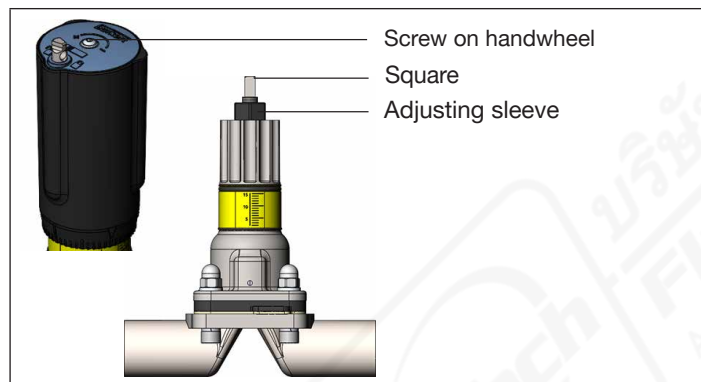


Fig. 16: Set stroke limit, Type 297x

- Mount handwheel on actuator. The square on the spindle and the hexagon head of the adjusting sleeve must be correctly aligned to the geometry of the handwheel so that they fit into each other.
- Tighten the screw on the handwheel with 0.9 Nm.
If necessary, bond the screw to ensure a permanent hold.

7.6 Lock handwheel

The handwheel lock option is available for Type 2973, 2974 and 2975 to provide protection against accidental or unauthorised operation of the valve (from diaphragm size DN15 to DN50). The handwheel lock for these types is optionally available and not integrated as standard.

- Handwheel DN15-DN25 can be locked in 12 locking positions per revolution (every 30° corresponds to 0.15 mm of stroke).
- Handwheel DN32-DN50 can be locked in 13 locking positions per revolution (every 27° corresponds to 0.15 mm of stroke).

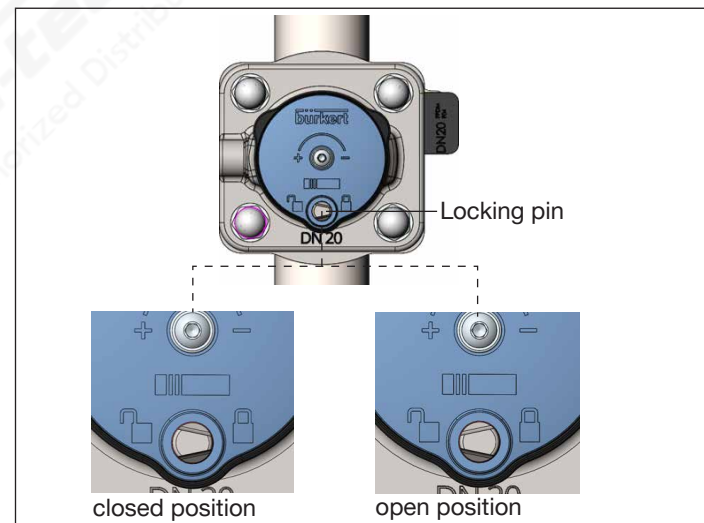


Fig. 17: Lock handwheel

! The locking pin has a bore (Ø 3.8) and can be secured against unauthorised use with a padlock (not included in scope of delivery).

- Push locking pin down and rotate by 180° (either clockwise or anticlockwise). It may be necessary to turn the handwheel slightly so that the locking pin reaches its end position. The locking pin must lock into its end position so that the drill hole is fully visible once again.
- Insert padlock through the bore in the locking pin and secure.

7.7 Install inductive proximity switch

The inductive proximity switch is an element that indicates or reports the position of a valve. In a variant with two M5x0.5 threaded holes in the diaphragm bonnet, the inductive proximity switch can be installed as an option. Depending on the variant, the open and/or closed position can be detected.

! The inductive proximity switch detects the position of the compressor and not the sealing position.

When installing the inductive proximity switch, the actuator with diaphragm must be mounted on the valve body.

Signal position closed:

- With the valve closed, screw in the inductive proximity switch until it gives a signal by detecting the compressor. Fix the proximity switch in this position.

Signal position open:

- With the valve open, screw in the inductive proximity switch until it gives a signal by detecting the compressor. Fix the proximity switch in this position.

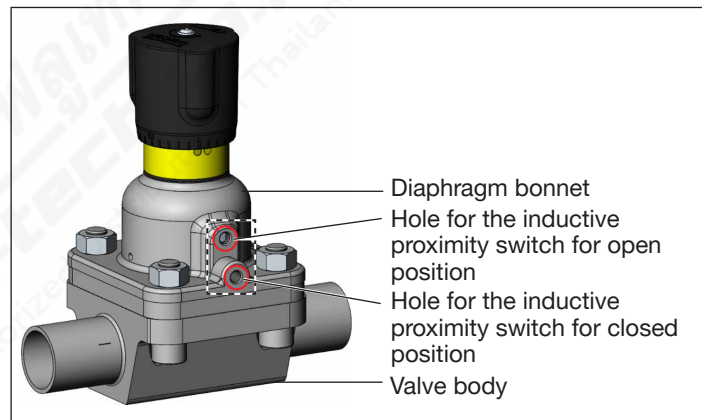


Fig. 18: Position of the holes for detecting the position of the compressor

8 MAINTENANCE



DANGER

Risk of injury due to improper maintenance.

- ▶ Switch off the pressure before working on the device or system. Vent or empty the lines.
- ▶ Maintenance may only be performed by authorised technicians and with the appropriate tools.

Medium may leak out if the diaphragm is worn.

- ▶ Inspect relief bore for any medium leakages.
- ▶ Change the diaphragm if there is escaping medium.
- ▶ If the medium is hazardous, secure the area around the leakage to prevent risks.

8.1 Cleaning

Use commercially available cleaning agents for external cleaning.

NOTE

Avoid causing damage with cleaning agents.

- ▶ Before cleaning, check that the cleaning agents are compatible with body materials and seals.

8.2 Maintenance work

8.2.1 Actuator

When used in accordance with these operating instructions, the actuator of the diaphragm valve is maintenance-free provided it is used according to these operating instructions.

8.2.2 Inspection intervals

- After the first steam sterilisation, or when required, retighten fastening screws crosswise.
- After a maximum of 10^5 switching cycles check the diaphragm for wear.



Muddy and abrasive media require correspondingly shorter inspection intervals.

8.2.3 Diaphragm

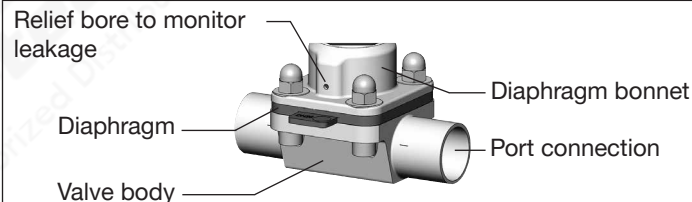


Fig. 19: Relief bore to monitor leakage

The following factors influence the service life of the diaphragm:

- diaphragm material, medium, medium pressure, medium temperature and closing force

- Replace the diaphragm if there are leaks.
- Conduct regular inspections of the relief bore.



A bulging PTFE diaphragm may reduce the flow rate.

8.3 Changing the diaphragm

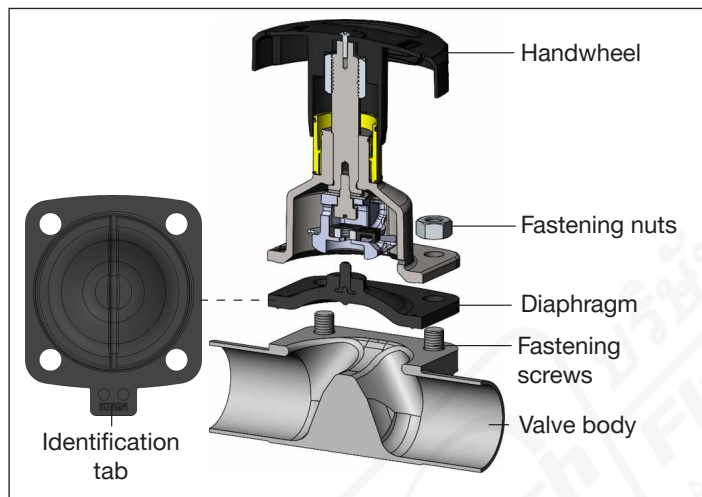


Fig. 20: Replacing the diaphragm

The diaphragm is attached in different ways:

Diaphragm size (nominal diameter DN)	Fastening types for diaphragm	
	PTFE/advanced PTFE	EPDM/FKM/GYLON®
8	Buttoned	
15	Bayonet catch	
20		
25	Bayonet catch	Threaded connection
40		
50		

Tab. 4: Fastening types for diaphragm

- Clamp valve body in a collet (only for valves which have not yet been installed).
- Rotate the handwheel anticlockwise until it comes to a stop (OPEN position).
- Loosen the fastening screws crosswise and remove the actuator with diaphragm from the valve body.
- Rotate the handwheel clockwise until it comes to a stop (CLOSED position).
- Unbutton or unscrew the old diaphragm. When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°. For DN25-DN50, see chapter [“8.3.1”](#).

NOTE

Damage to the diaphragm with threaded connection due to energised pin.

- First screw on the diaphragm hand-tight, then loosen it by one-half turn anticlockwise.

- Install new diaphragm in the actuator (see “Tab. 4”).
- Rotate the handwheel anticlockwise until it comes to a stop (OPEN position).
- Align diaphragm.
Identification tab at a 90-degree angle to the direction of flow.
- Place the actuator together with diaphragm on the valve body.
For PP variants (DN15, DN20, DN25) the intended body reinforcement is mandatory.
- Slightly tighten fastening screws crosswise.
- Close and open the diaphragm valve twice to position the diaphragm correctly.
- Close the diaphragm valve again and open by about 20 %.

NOTE

Damage to the device when failing to observe tightening torque.

- Observe tightening torques.

- Tighten each fastening screw in three stages (approx. 1/3, approx. 2/3, 3/3 of the tightening torque) crosswise. The diaphragm should be positioned and pressed evenly around the actuator and valve body.



Observe tightening torques in accordance with the tables in chapter “7.4.2”.

8.3.1 Switch between PTFE and EPDM diaphragm

1. Changing the diaphragm for diaphragm size 8

- Unbutton PTFE diaphragm and button on new EPDM diaphragm (or vice versa).

2. Changing the diaphragm for diaphragm size 15 and 20

- Loosen PTFE diaphragm bayonet and insert new EPDM diaphragm (or vice versa).

3. Changing the diaphragm for diaphragm size 25 and 50

Changing the PTFE diaphragm to an EPDM diaphragm:

- Loosen the PTFE diaphragm by turning it 90°.
- Place the insert into the compressor.

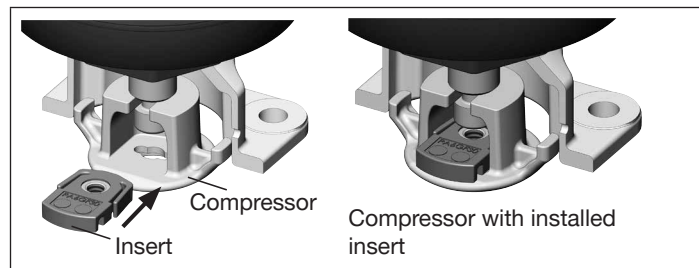


Fig. 21: Place insert into compressor

- Insert and screw in the EPDM diaphragm.

NOTE

Damage to the diaphragm with threaded connection due to energised pin.

- First screw on the diaphragm hand-tight, then loosen it by rotating it anticlockwise with one half-turn.

Changing the EPDM diaphragm to a PTFE diaphragm:

- Unscrew the EPDM diaphragm.
- Remove the insert from the compressor.

NOTE

For diaphragm with bayonet catch:

If the insert is not removed, a diaphragm with bayonet catch can still be fitted. This can severely damage the diaphragm and valve body.

- Insert the PTFE diaphragm and fix it by turning it 90°.

9 SPARE PARTS



CAUTION

Risk of injury and/or damage due to incorrect parts.

Incorrect accessories and unsuitable spare parts may cause injuries and damage the device and the surrounding area.

- Use only original accessories and original spare parts from Bürkert.

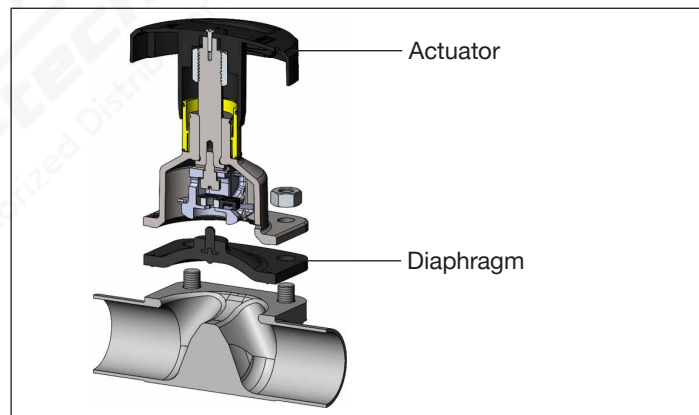


Fig. 22: Spare parts

The following are available as spare parts for manually activated diaphragm valves:

- Complete actuator
- Diaphragm

9.1 Ordering spare parts

9.1.1 Ordering actuator

- Open country.burkert.com.
- Enter the article number from the type label in the search bar.
- Select the required spare part and add it to the shopping basket.
- Conclude order.

9.1.2 Ordering diaphragm

The diaphragm can be ordered according to the table below. It is labelled with a material code that specifies it. The material code is located on the identification tab or, in the case of two-part diaphragms, on the tab of the backing diaphragm and the diaphragm shield (see “Fig. 20”). The material code may differ for older materials. Diaphragm mountings see “Tab. 4”.



Diaphragm size	EPDM (AD*)		FKM (FF*)		PTFE/EPDM (EA*)		Advanced PTFE/EPDM (EU*)		Laminate made from GYLON® and EPDM (ER*)	
	Article number	Material code	Article number	Material code	Article number	Material code	Article number	Material code	Article number	Material code
8	688 421	EPDM E04	677 684	FKM F01	677 674	PTFE L10	679 540	PTFE L09	693 175	PTFE L08
15	693 163	EPDM E04	693 164	FKM F01	677 675	EPDM E04/PTFE P01	679 541	EPDM E04/PTFE P02 or hole	693 176	PTFE L08
20	693 166	EPDM E04	693 167	FKM F01	677 676	EPDM E04/PTFE P01	679 542	EPDM E04/PTFE P02 or hole	693 177	PTFE L08
25	688 424	EPDM E04	677 687	FKM F01	677 677	EPDM E04/PTFE P01	679 543	EPDM E04/PTFE P02 or hole	693 178	PTFE L08
32	688 425	EPDM E04	677 688	FKM F01	677 678	EPDM E04/PTFE P01	679 544	EPDM E04/PTFE P02 or hole	693 179	PTFE L08
40	688 426	EPDM E04	677 689	FKM F01	584 378	EPDM E04/PTFE P01	584 379	EPDM E04/PTFE P02 or hole	693 180	PTFE L08
50	688 427	EPDM E04	677 690	FKM F01	584 386	EPDM E04/PTFE P01	584 387	EPDM E04/PTFE P02 or hole	693 181	PTFE L08

Tab. 5: Order table for diaphragms

* Bürkert SAP code



You can find further information on replacement parts on the data sheets for the diaphragm valves. You can find the data sheets on the internet at: country.burkert.com

9.1.3 Order spare parts in eShop

- Open Bürkert [eShop](#) on the internet.
- Log in or register.
- Find spare parts via the article number. This can be seen on the type label on the device.

Spare parts, quick ordering and related documents

Quickorder	Spare parts	Document Search						
<p>Already know what you want?</p> <table border="1"> <tr> <td>Article Number</td> <td>Qty.</td> </tr> <tr> <td>Article Number</td> <td>Qty.</td> </tr> <tr> <td>Article Number</td> <td>Qty.</td> </tr> </table> <p>Add to cart</p>	Article Number	Qty.	Article Number	Qty.	Article Number	Qty.	<p>Find related spare & wear parts:</p> <p>Enter article number <input type="text"/> <input type="button" value="🔍"/></p>	<p>Find related documents:</p> <p>Type number <input type="text"/> <input type="button" value="🔍"/></p>
Article Number	Qty.							
Article Number	Qty.							
Article Number	Qty.							

- Put spare parts in the basket and complete order.



If you cannot find spare parts, contact your Bürkert service employee.

10 TRANSPORTATION, STORAGE, DISPOSAL



CAUTION

Risk of injury due to heavy device.

During transportation or installation work, a heavy device may fall down and cause injuries.

- ▶ Heavy equipment must only be transported, assembled and disassembled with the help of a second person.
- ▶ Use suitable tools.

NOTE

Damage in transit due to inadequately protected devices.

- ▶ Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- ▶ Observe permitted storage temperature.

Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature: -40 °C...+55 °C.

Environmentally friendly disposal



- ▶ Follow national regulations regarding disposal and the environment.
- ▶ Collect electrical and electronic devices separately and dispose of them as special waste.



บริษัท ฟลูเทค จำกัด
Flu-tech co.,ltd
Authorized Distributor in Thailand

bürkert
FLUID CONTROL SYSTEMS

FLU-TECH CO. LTD.

Email: sales@flutech.co.th Website: <https://flutech.co.th>

Tel: 02-384-6060, 086-369-5871-3 Fax: 02-384-5701 LINE OA: @flutech.co.th



Address (HQ): 845/3-4, Moo 3, Theparak Rd., T. Theparak, A. Mueang Samut Prakan, Samut Prakan, 10270,Thailand