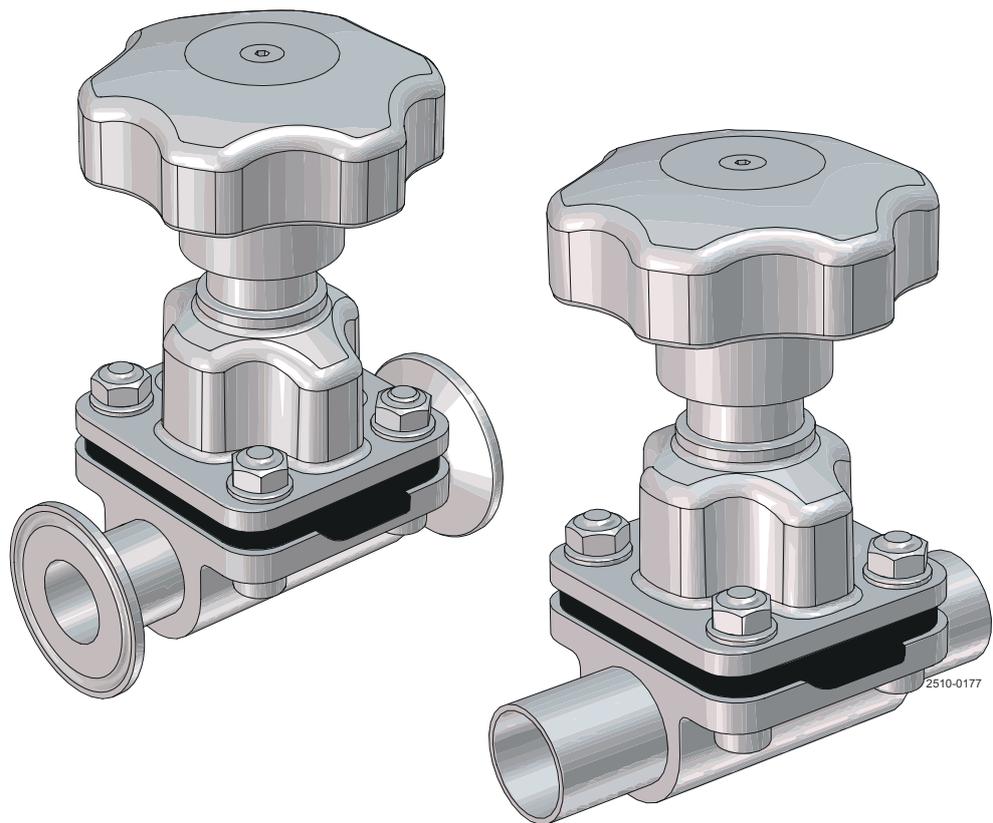


# Alfa Laval Unique DV-ST UltraPure - manual, valve sizes DN8-DN100 (1/4" to 4")

Diaphragm valves

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Lit. Code

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Instruction Manual

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# 1 Safety

## Read this first

 	<p>This Instruction Manual is designed for operators and service engineers working with the supplied Alfa Laval product.</p> <p>Operators must read and understand the <b>Safety, Installation and Operating</b> instructions of the supplied Alfa Laval product before carrying out any work or before you put the supplied Alfa Laval product into service!</p> <p>Not following the instructions can result in serious accidents.</p> <p>This documentation describes the authorized way to use the supplied Alfa Laval product. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.</p> <p>This Instruction Manual is designed to provide the user with the information to perform tasks safely for all phases in the lifetime of the supplied Alfa Laval product.</p> <p>The operator shall always read the chapter <b>Safety</b> first. Hereafter the operator can skip to the relevant section for the task to be carried out or for the information needed.</p> <p><b>Always</b> read the chapter <b>Technical Data</b> thoroughly.</p> <p>This is the complete Instruction Manual for the supplied Alfa Laval product.</p>
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### NOTE

The illustrations and specifications in this Instruction Manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify the Instruction Manual without prior notice or any obligation.

The English version of the Instruction Manual is the original manual. Alfa Laval cannot be held responsible for incorrect translations. In case of doubt, the English version applies.

## 1.1 Safety Signs

### Mandatory Action Signs

	General mandatory action sign.
	Refer to instruction manual.
	Use eye protection - safety glasses.
	Use protective hand wear - safety gloves.
	Wear protective equipment - safety helmet.
	Use ear protection in noisy environments - noise protector.
	Wear protective equipment - safety shoes.

### Warning Signs

	General warning.
	Transportation with forklift truck or other industrial vehicles if heavy.
	Hot surface and burning danger.
	Cutting danger.

	Corrosive substance.
	Crushing of hands.

## 1.2 Safety Precautions

All warnings in the Instruction Manual are summarised on these pages. Pay special attention to the instructions below so that severe personal injury and/or damage to the supplied Alfa Laval product is avoided.

### General

	<p>To prevent unexpected start and contact with electrical live and moving parts.</p> <p><b>Always</b> disconnect the power supply safely:</p> <ul style="list-style-type: none"> <li>• The power supply disconnecting device must be disconnected (in off position) and locked.</li> </ul>
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### Transportation and Lifting

  	<p><b>Never</b> lift or elevate in any way other than described in this manual.</p> <p><b>Always</b> use the original packaging or similar during transportation.</p> <p><b>Always</b> ensure that personnel must have experience with lifting operations.</p> <p><b>Always</b> ensure that all connections are disconnected before attempting to remove the valve from the installation.</p> <p><b>Always</b> ensure that no leakage of lubricants can occur.</p> <p><b>Always</b> drain liquid out of the valves before transportation.</p> <p><b>Always</b> ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available, it must be used.</p> <p><b>Always</b> ensure that compressed air is released.</p>
 	<p><b>Always</b> use designated lifting points if defined. Ensure that the lifting equipment is suitable for the supplied Alfa Laval product.</p> <p><b>Always</b> ensure that the unit is securely fixed during transportation.</p> <p><b>Always</b> ensure the lifting point to be in line with center of gravity. Adjust lifting point if necessary.</p> <p><b>Always</b> use suitable transport device ie. forklift or pallet lifter.</p> <p><b>Always</b> use appropriate lifting equipment for heavy parts when relevant. Use lifting logs when available.</p> <p><b>Always</b> keep an eye on the load and stay clear during the lifting operation.</p>

## Installation

	<p>If the local safety regulations prescribe that the installation has to be inspected and approved by responsible authorities before the valve is put into service, consult with such authorities before installing the equipment and have the projected installation approved by them.</p> <p><b>Always</b> release compressed air after use.</p> <p><b>Always</b> assemble the valve completely before startup and make sure everything is in place and correctly tightened.</p>
	<p><b>Always</b> ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before installation, inspection, assembly, or dismantling of the valve.</p> <p><b>Never</b> touch the valve or the pipelines when processing hot liquids or when sterilising.</p>

## Operation

	<p><b>Never</b> operate the valve unless a correct installation has been verified.</p>
	<p><b>Never</b> touch the valve or pipelines when hot.</p> <p><b>Never</b> touch the valve or the pipelines when processing hot liquids or when sterilising.</p>
	<p><b>Always</b> rinse well with clean water after cleaning.</p> <p><b>Always</b> handle lye and acid with great care.</p> <p><b>Always</b> follow the instructions in the safety data sheets from the suppliers of cleaning agents, detergents, oils etc.</p>
	<p><b>Never</b> touch moving parts of the valve during operation.</p> <p><b>Never</b> dismantle the valve during operation or when pressurized.</p> <p><b>Always</b> release compressed air after use.</p>

## Maintenance

	<p>In order to optimise the operation of the supplied Alfa Laval product and to minimize the down time due repair activities, the maintenance includes:</p> <ul style="list-style-type: none"> <li>• Inspection and maintenance of the supplied Alfa Laval product: strictly follow the technical documentation</li> <li>• <b>Preventive maintenance:</b> visual inspection of the supplied Alfa Laval product followed by necessary adjustments and planned periodic replacement of wear and tear parts</li> <li>• <b>Repairs:</b> unscheduled break down of a component, often causing the system to stop. Damaged components must be replaced</li> <li>• <b>Stock of Alfa Laval genuine spare parts:</b> Alfa Laval recommend keeping a stock of genuine spare parts facilitating preventive maintenance and reducing downtime in case of unplanned break downs</li> </ul>
 	<p><b>Always</b> release compressed air after use.</p> <p><b>Always</b> ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before dismantling the valve.</p> <p><b>Never</b> stick your fingers through the valve ports if the actuator is supplied with compressed air.</p>
	<p><b>Never</b> work on the valve or touch moving parts if the actuator is supplied with compressed air.</p>

## Storage

	<p><b>Alfa Laval recommend:</b></p> <ul style="list-style-type: none"> <li>• Store the supplied Alfa Laval product as supplied in original packaging</li> <li>• Port opening(s) should be protected against any ingress</li> <li>• Store in a clean, dry place without direct sunlight or UV light</li> <li>• Temperature range -5 °C to +40 °C (23 °F - 104 °F)</li> <li>• Relative humidity less than 60%</li> <li>• No exposure to corrosive substances (including contained air)</li> </ul>
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## Noise

	<p>Under certain operating conditions, the supplied Alfa Laval product and/or the systems in which they are installed can produce high sound pressure levels. Appropriate noise protection measures should be taken when necessary and in accordance with local legislation.</p>
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## Hazards

	<p><b>Burn Hazard</b></p> <ul style="list-style-type: none"><li>• Lubrication oil, machine parts and various machine surfaces can be hot and cause burns. Wear protective gloves</li></ul>
	<p><b>Corrosive Hazard</b></p> <ul style="list-style-type: none"><li>• Always handle cleaning liquids, lye and acid with great care and in accordance with separate instructions for those fluids</li><li>• When using chemical cleaning agents and lubricants, make sure you follow the general rules and suppliers recommendation regarding ventilation, personnel protection etc.</li></ul>
	<p><b>Cut Hazard</b></p> <ul style="list-style-type: none"><li>• Sharp edges, especially on bowl discs and threads, can cause cuts. Wear protective gloves</li></ul>
	<p><b>Crushing Hazard</b></p> <ul style="list-style-type: none"><li>• Avoid placing hands into valve orifice pinch points</li></ul>

## Safety check



A visual inspection of any protective device (shield, guard, cover or other) on the supplied Alfa Laval product shall be carried out at least every 12 months. If the protective device is lost or damaged, especially when this leads to deterioration of safety performance, it shall be replaced. The fixing of the protective device should only be replaced with fixings of the same or an equivalent type.

**Inspection acceptance criteria:**

- It should not be possible to reach moving parts originally protected by a protective device
- The protective device must be securely mounted
- Ensure that screws for the protective device are securely tightened

**Procedure in case of non-acceptance:**

- Fix and/or replace the protective device

### 1.3 Warning Signs in Text

Pay attention to the safety instructions in this Instruction Manual.

Below are definitions of the four grades of warning signs used in the text where there is a risk for injury to personnel or damage to the supplied Alfa Laval product.

 **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate damage to the supplied Alfa Laval product.

 **NOTE**

Indicates important information to simplify or clarify procedures.

## 1.4 Requirements of Personnel

### **Operators**

The operators shall read and understand this Instruction Manual.

### **Maintenance personnel**

The maintenance personnel shall read and understand this Instruction Manual. The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

### **Trainees**

Trainees can perform tasks under the supervision of an experienced employee.

### **People in general**

The public shall not have access to the supplied Alfa Laval product.

In some cases, specially skilled personnel may need to be hired (i.e. electricians, welders). In some cases the personnel has to be certified according to local regulations with experience of similar types of work.

## 1.5 Recycling Information

### Unpacking

Packing material may consist of wood, plastics, cardboard boxes and in some cases metal straps.



- Wood and cardboard boxes can be reused, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant
- Metal straps should be sent for material recycling

### Maintenance

During maintenance, oil (if used) and wear parts in the supplied Alfa Laval product should be replaced.

- Oil and all non-metal wear parts must be disposed of in accordance with local regulations
- Rubber and plastics should be burnt at a licensed waste incineration plant. If not available they should be disposed of in accordance with local regulations
- Bearings and other metal parts should be sent to a licensed handler for material recycling
- Seal rings and friction linings should be disposed of to a licensed land fill site. Check your local regulations
- All metal parts should be sent for material recycling
- Worn out or defected electronic parts should be sent to a licensed handler for material recycling

### Scrapping

At end of use, the equipment must be recycled in accordance with the relevant local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company.

### How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information directly.

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## 2 Introduction

The Alfa Laval Unique DV-ST UltraPure Diaphragm Valve is an aseptic diaphragm valve used to shut off, divert and/or regulate the flow of fluids through hygienic, high-purity and aseptic processing lines.

### 2.1 General Information

Selection of the diaphragm with regard to the medium and temperature is the responsibility of the customer.

We highly recommend additional test(s) for any known special operating conditions. The customer is responsible for carrying out these tests.

The hazards caused by chemical reactions between parts of the valve and the chemical mediums used must be clarified between the manufacturer and customer.

These valves are intended to close the medium (on/off or control) after installation into a pipeline.

Where defects appear on the product during the warranty period, Alfa Laval will take back the product and correct the problem. Should the equipment be modified or not kept in the manner prescribed within this manual, the warranty will become null and void.

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## 3 Installation

### 3.1 Unpacking/delivery

**NOTE**

The instruction manual is part of the delivery. Study the instructions carefully.

The valve is supplied as separate parts as standard (for welding).

If it is supplied with fittings, the valve is assembled before delivery.

Alfa Laval cannot be held responsible for incorrect unpacking.

**Check the delivery for:**

1. Complete valve.
2. Delivery note.

- 1
  - a) Remove any packing materials from the valve/valve parts.
  - b) Inspect the valve/valve parts for visible transportation damage.
  - c) Avoid damaging the valve/valve parts.

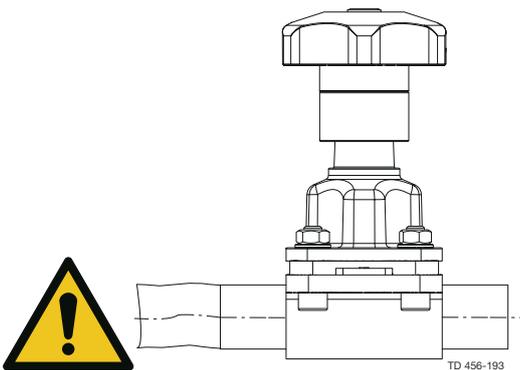
## 3.2 General installation

### NOTE

Study the instructions carefully and pay special attention to the warnings!  
The valve has welding ends as standard but can also be supplied with fittings.

### CAUTION Risk of damage!

**Always** read the technical data thoroughly.  
Alfa Laval cannot be held responsible for incorrect installation.  
Avoid stressing the valve.



- When draining the diaphragm valve and pipeline, ensure that there is a suitable installation position
- Variable installation position. For self-draining, see the data on the installation angle
- For diaphragm valves with weld ends, remove the bonnet and diaphragm from the valve body before welding

Pay special attention to:

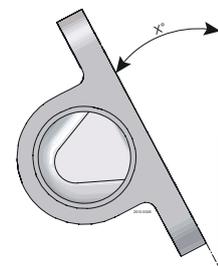
- Vibrations
- Thermal expansion of the pipelines
- Excessive welding
- Overloading of the pipelines

### 3.3 Drainability

Proper drainability in horizontally installed pipes requires mounting of the valve at the correct angle, see table below.

To ensure proper drainability, the valve must be mounted at the correct angle. Proper installation is the responsibility of the system installer and/or user.

### 3.4 Installation angle on self-draining position



#### Forged, Cast ST and Block

DN	inch	ASME	ISO 2037	DIN 11850	ISO 1127
DN8	1/4"	37.0°	23.0°	28.5°	22.0°
DN10	3/8"	29.0°	21.5°	23.0°	27.5°
DN15	1/2"	35.2°	25.0°	23.0°	19.0°
DN20	3/4"	30.0°	26.0°	25.0°	20.0°
DN25	1"	29.0°	28.0°	25.0°	20.0°
DN32	1 1/4"	-	-	21.0°	-
DN40	1 1/2"	26.0°	25.5°	24.0°	19.0°
DN50	2"	24.0°	23.0°	22.0°	18.0°
DN65	2 1/2"	21.0°	21.0°	19.0°	15.0°
DN80	3"	25.5°	25.0°	22.0°	21.0°
DN100 <sup>1</sup>	4"	14.0°	14.0°	13.0°	8.0°

<sup>1</sup> Only block

#### Cast OP

DN	inch	ASME	ISO 2037	DIN 11850
DN8	1/4"	-	-	-
DN10	3/8"	-	-	-
DN15	1/2"	25.5°	7.0°	4.5°
DN20	3/4"	20.0°	14.0°	13.0°
DN25	1"	22.0°	22.0°	16.4°
DN32	1 1/4"	-	-	7.0°
DN40	1 1/2"	13.0°	12.0°	9.0°
DN50	2"	15.5°	15.0°	14.0°
DN65	2 1/2"	14.0°	14.0°	10.6°
DN80	3"	14.5°	14.5°	9.4°
DN100	4"	14.0°	14.0°	13.0°

#### Forged mini

DN	inch	ASME
DN8	1/4"	38.0°
DN10	3/8"	29.9°
DN15	1/2"	26.0°

## 3.5 Welding

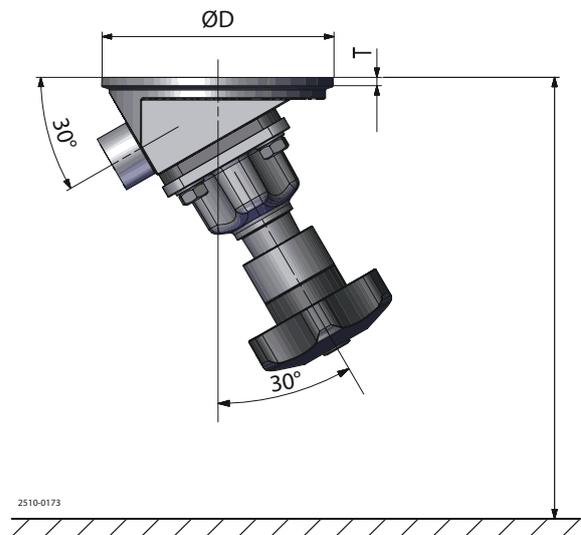
### NOTE

- Study the instructions thoroughly.
- All welding should be done by qualified personnel.
- The valve is supplied as separate parts to facilitate the welding.
- Check the valve for smooth operation after welding.

### Before welding the flange into the tank please note:

Please ensure enough space for disassembly and operating the handle. See H measurement in [Size](#) on page 39 and consider operators freedom to operate valve manually.

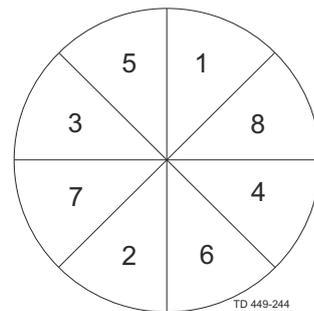
	D	T
<b>DN15</b>	90	5.5
<b>DN20</b>	100	5.5
<b>DN25</b>	120	5.5
<b>DN40</b>	150	5.5
<b>DN50</b>	180	5.5
<b>DN65</b>	200	5.5
<b>DN80</b>	250	5.5
<b>DN100</b>	250	5.5



Only use pulsed arc welding and remember no gap between flange and tank plate.

Tack weld **always** on the opposite side (8 segments with filler metal). Weld root if possible without filler metal.

Welding of the final run must be carried out in 8 segments to avoid cracking.



- 1 Disassemble the bonnet and the diaphragm from the valve body. See [Replacing the diaphragm](#) on page 28 for details.
- 2 Perform the welding procedure on the body according to standard industrial practices.
- 3 Reassemble the bonnet and the diaphragm to the valve body.
- 4 Test the valve for proper operation before installing.

### 3.6 Mounting of the bonnet

For T-valves, Tandem valves, Tank outlet valves and Block valves, please note that the bonnet is mounted using studs and nuts instead of bolts and nuts.

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## 4 Operation

### 4.1 Operation

#### NOTE

Study the instructions carefully and pay special attention to the warnings!

Pay attention to possible faults.

**Always** read *Technical Data* on page 37 thoroughly.

#### CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

#### WARNING

**Never** touch the valve or the pipelines when processing hot liquids or when sterilising.



## 4.2 Recommended Cleaning

**NOTE**

The supplied product is designed for cleaning in place (CIP).

NaOH = Caustic soda.

HNO<sub>3</sub> = Nitric acid.

The cleaning agents must be stored/disposed of in accordance with current regulations/directives.

**CAUTION**

**Never** touch the supplied product or the pipelines when sterilizing.

**Always** handle lye and acid with great care.

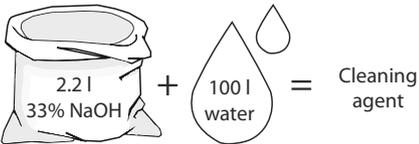
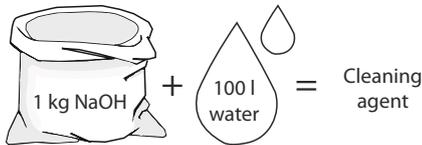


### Examples of cleaning agents

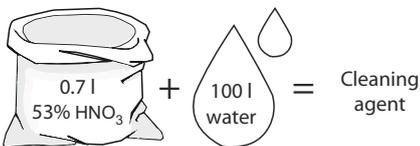
Use clean water free from chlorides

#### Metric System

1. 1% by weight NaOH at 70°C

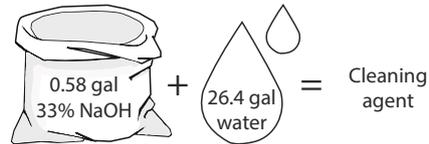
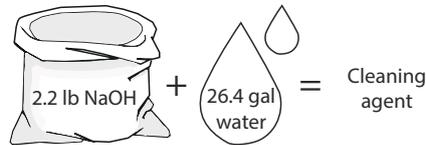


2. 0.5% by weight HNO<sub>3</sub> at 70°C

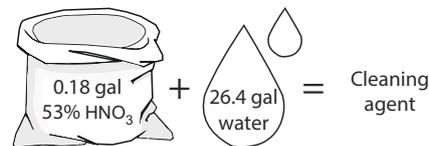


#### Imperial System

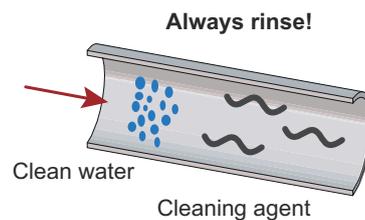
1. 1% by weight NaOH at 158°F



2. 0.5% by weight HNO<sub>3</sub> at 158°F



1. Avoid excessive concentration of the cleaning agent ⇒ **Dose gradually!**
2. Adjust the cleaning flow to the process  
**Milk sterilization/viscous liquids ⇒ Increase the cleaning flow!**



**CAUTION**

**Always** rinse well with clean water after the cleaning.

## 5 Maintenance

### 5.1 General maintenance

Apply Alfa Laval Silicone based Food-grade Lubricant or an equivalent medium to the spindle during service in order to prevent galling and/or excessive wear.

Remember to insert "thrust washer" (9) during installation of the diaphragm holder onto the spindle.

### 5.2 Replacing the Diaphragms and Seals

Generally, the only routine maintenance required is the replacement of the diaphragm.

#### **Diaphragm replacement routine**

Depending on the medium, the pressure, temperature and cycle (duration and temperature) of steam sterilisation between process runs, determines the optimum change cycle of the diaphragm.

As with all diaphragm valves, the diaphragm itself is the component most exposed to wear. In addition to mechanical stress and temperature range, the diaphragm is subject to wear resulting from the media. Alfa Laval recommend that the diaphragm is replaced once a year or more frequently depending on operating conditions and media. See [Replacing the diaphragm](#) on page 28.

## 5.3 Replacing the diaphragm

### Before servicing any installed valve you must:

- depressurise the system
- open the valve
- purge the valve

#### NOTE

The diaphragm can be replaced without removing the valve body.

- 1 Only use Alfa Laval diaphragms.
- 2 Actuate the valve to the "open" position by rotating the handwheel counter-clockwise until the valve is fully opened.
- 3 Remove the body fasteners by using a crosswise sequence. Remove the bonnet.
- 4 Actuate the valve to the "closed" position by rotating the handwheel clockwise.
- 5 Remove the diaphragm from the bonnet.

#### **Button-style compressor:**

Remove the diaphragm by pulling it out slightly.

#### **Threaded-style compressor:**

Unthread the diaphragm in a counter-clockwise direction.

#### **Bayonet-style compressor:**

Rotate the diaphragm 90° and remove.

#### NOTE

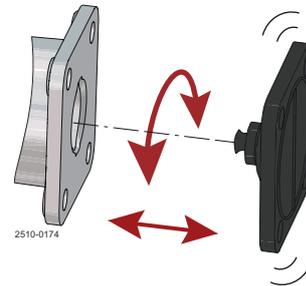
see fig. 1-3, reverse action of step 9.

- 6 Check and clean thread and bayonet of the compressor.
- 7 Ensure, that the new diaphragm and the contact area on the valve body are clean and dry.
- 8 Ensure that the bonnet compressor matches the connection of the diaphragm. Should this not be the case, replace the compressor.

- 9 With the bonnet in the "closed" position, install the diaphragm as follows:

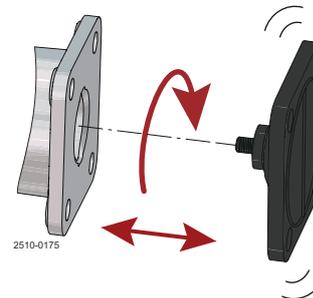
#### Button-style compressor:

- Insert diaphragm with a push and a slight rotation
- Rotate the diaphragm until the holes match



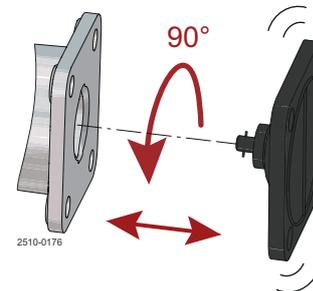
#### Threaded-style compressor:

- Thread the diaphragm into the compressor in a clockwise direction. Do not overtighten
- Then, if necessary, turn the diaphragm in a counter-clockwise direction until the holes match



#### Bayonet-style compressor:

- Insert diaphragm with bayonet into the compressor recess
- Rotate diaphragm 90°. Holes must match
- Ensure diaphragm holder slot is aligned with compressor guides



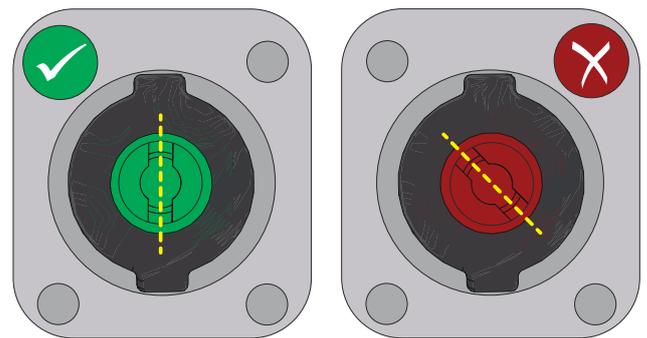
#### Important!

Prior mounting a bayonet-type diaphragm – Ensure the two ends of the bayonet slot in the diaphragm holder are pointing towards the two protrusions on the compressor.

#### WARNING

Do **not** overtighten!

Risk of pinching fingers during mounting of diaphragm.



10 Actuate the valve to the "open" position, see [Step 2](#).

---

11 Align the bonnet to the valve body using bonnet fasteners. Assemble the nuts and, if necessary, use washers. To secure the bonnet and body, tighten the fasteners by hand.

Ensure all four bolts (9) are used. Lubricating the threads with an anti-seizing grease is required prior to mounting!

12

Actuate the valve to an almost closed position. Fully closing the valve can damage the diaphragm position, so that the diaphragm does not properly fit to the weir, see [Step 4](#). Tighten the body fasteners cross-wise using a wrench.

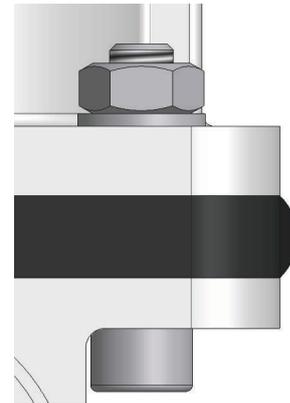
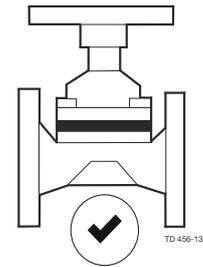
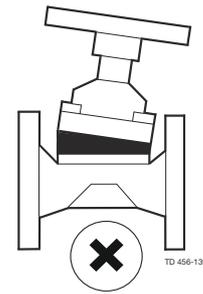
**NOTE**

Proper assembly extends the life of the diaphragm. Correctly assembled diaphragms have a Crescent-shaped bulge in the diaphragm edge which can be observed from the side (See Fig. 6).

**Recommended torque values for assembly**

DN	inch	Nm
DN8/DN10	¼"/⅜"	2.5 Nm
DN15	½"	2.5 Nm
DN20	¾"	2.5 Nm
DN25	1"	5 Nm
DN40	1½"	14 Nm
DN50	2"	14 Nm
DN65	2½"	16 Nm
DN80/ DN100	3"/ 4"	36 Nm

Torque values should be followed in order to achieve a prolonged lifetime of the diaphragms. Make sure to tighten with an even distribution and in a cross-wise pattern until the listed torque values are obtained on each fastener.



Primarily refers to assembly of EPDM diaphragms.

- 13 Actuate the valve to the "open" position, see [Step 2](#). Lightly re-tighten the body fasteners cross-wise using a wrench.

**NOTE**

Proper assembly extends the life of the diaphragm. Correctly assembled diaphragms have a crescent-shaped bulge in the diaphragm edge which can be observed from the side.



- 14 Test the valve for proper function.

**NOTE**

Check the fasteners 24 hours after operation of the valves. In case of leakage at the body, depressurise the system and, if necessary, tighten the fasteners again as described. If leakage continues, replace the diaphragm. Check the travel stop and adjust, if necessary.

## 5.4 Travel Stop Adjustment for Manual Handle

### NOTE

*Replacing the diaphragm* on page 28 is **not** valid for sizes DN8 and DN10 (1/8" and 3/8").

### CAUTION

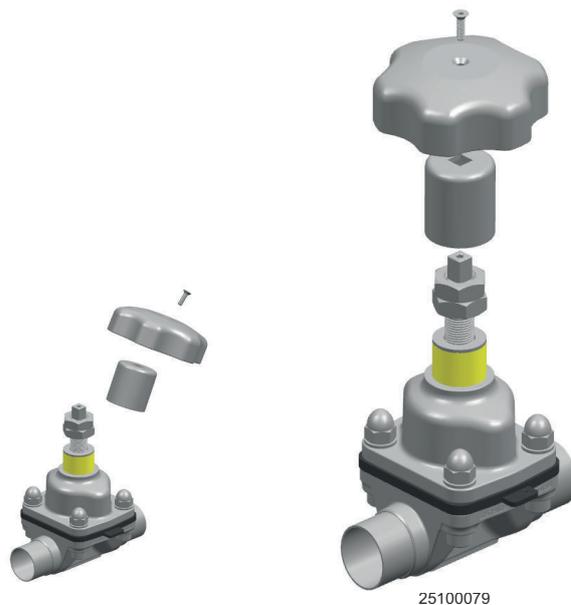


#### Before servicing any installed valve, you must:

- depressurise the system
  - open the valve
  - purge the valve
- 1 Make sure that the bonnet and diaphragm are properly installed. See also *Replacing the diaphragm* on page 28.
  - 2 Rotate the handwheel in a clockwise position until the valve is fully closed.
  - 3 Remove the plug from the top of the handwheel, for composite version only.
  - 4 Unscrew countersink screw by Allen key.



- 5 Remove screw, handwheel and coupling.



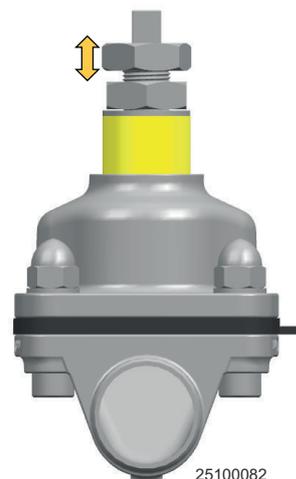
- 6 Screw down spindle by wrench, until valve is closed.



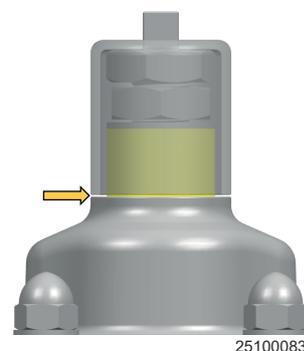
- 7 Use two wrenches to loosen the position nut and lock nut.



- 8 Adjust the position of position nut.



- 9 Put coupling on, and see the gap between Yoke and coupling is adequate (~0.5 mm).



- 10 Hold position nut in place and counter screw lock nut.



- 11 Remount coupling, handwheel and top screw. Tighten screw.

- 12 Test the valve for proper function.

**! NOTE**

If the completely closed valve does not achieve a leaktight seal, repeat steps 1 to 11, with slightly more tightening of the stem as described in [Step 7](#).

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## 6 Technical Data

### NOTE

Technical data must be observed during installation, operation and maintenance.  
All personnel should be informed about the technical data.

### 6.1 Technical Data

Actuator	
Temperature range	-10 °C to 80 °C / 14 °F to 176 °F
Air quality	ISO 8573-1, Class 0.2.4
Control air pressure	Max. 7 bar (102 PSI)

### Product wetted area

Table 1: Diaphragm properties

Description	Temperature recommendations		Steam Max.
	Min.	Liquid Max.	
EPDM	-40 °C / -40 °F	130 °C / 266 °F	150 °C / 302 °F <sup>1</sup>
PTFE/EPDM	-5 °C / 23 °F	175 °C / 347 °F	150 °C / 302 °F <sup>2</sup>
TFM/EPDM	-5 °C / 23 °F	175 °C / 347 °F	150 °C / 302 °F <sup>2</sup>

<sup>1</sup> Continuous temperature

<sup>2</sup> 40 min. steam sterilisation

Chemical compatibility:

Please contact Alfa Laval for information.

### Diaphragm service lifetime

Diaphragm material	Code	Max. recommended service life- time in years
	(marked on diaphragm)	(stock and operation)
EPDM	S2, S3, S4	8
PTFE/EPDM	93	8
TFM/EPDM	LC	8

**Note!** Correct storage (e.g. in accordance with ISO 2230) is a prerequisite for achieving the specified storage time.

## 6.2 Physical Data

Table 2: Materials

Body types	Cast CF3M (316L)	Forged 1.4435 (316L)	Block <sup>1</sup> 1.4404 (316L)
2-way	✓	✓	✓
T			✓
Tank outlet			✓
Tandem / IAV solutions	✓	✓	✓
Multi-port			✓

<sup>1</sup> Other alloys on request.

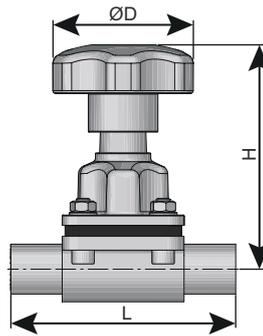
	Cast	Forged	Block
Material	CF3M (316L)	1.4435 (316L)	1.4404 (316L)
Delta ferrite	< 5.0%	< 0.5%	< 0.5%
Sulphur content	0.005%-0.017%	0.005-0.017%	0.005-0.017%
Internal surface finish	SF1 Ra < 0.51 µm / Ra < 20 µin	Ra < 0.51 µm / Ra < 20 µin	Ra < 0.51 µm / Ra < 20 µin
	SF4 Ra < 0.38 µm / Ra < 15 µin EP <sup>1</sup>	Ra < 0.38 µm / Ra < 15 µin EP <sup>1</sup>	Ra < 0.38 µm / Ra < 15 µin EP <sup>1</sup>
External surface finish	Blasted	Blasted	Machined

<sup>1</sup> Electro Polished

0.51 µm / 20 µin = SF1

0.38 µm / 15 µin = SF4

## 6.3 Size



DN	Size	$\varnothing D$ mm (in)	H mm (in)	L (weld ends)	L (clamp end)
	inch			mm (in)	mm (in)
08-10	1/4" - 3/8"	40 (1.575)	65 (2.559)	89 (3.504)	89 (3.504)
15	1/2"	62 (2.441)	101 (3.976)	110 (4.331)	108 (4.252)
20	3/4"	62 (2.441)	116 (4.567)	119 (4.685)	118 (4.646)
25	1"	87 (3.425)	128 (5.039)	129 (5.079)	127 (5.000)
40	1 1/2"	108 (4.252)	165 (6.496)	161 (6.338)	159 (6.260)
50	2"	108 (4.252)	195 (7.677)	192 (7.559)	191 (7.520)
65	2 1/2"	172 (6.772)	255 (10.039)	218 (8.583)	216 (8.504)
80	3"	220 (8.661)	274 (10.787)	256 (10.079)	254 (10.000)
100	4"	220 (8.661)	280 (11.024)	250 (9.843)	250 (9.843)

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## 7 Spare Parts

For every delivered Alfa Laval Product, a spare part list is available.

This spare part list contains a range of the most common wear parts for the machinery. If any component not mentioned is required, please contact your local Alfa Laval representative for availability.

You can find our spare part catalogue at <https://hygienicfluidhandling-catalogue.alfalaval.com>.

**Always** use Alfa Laval genuine spare parts. The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.

### 7.1 Ordering Spare Parts

When ordering spare parts, please always state:

1. Serial number (if available)
2. Item number/spare part number (if available)
3. Capacity or other relevant identification

### 7.2 Alfa Laval Service

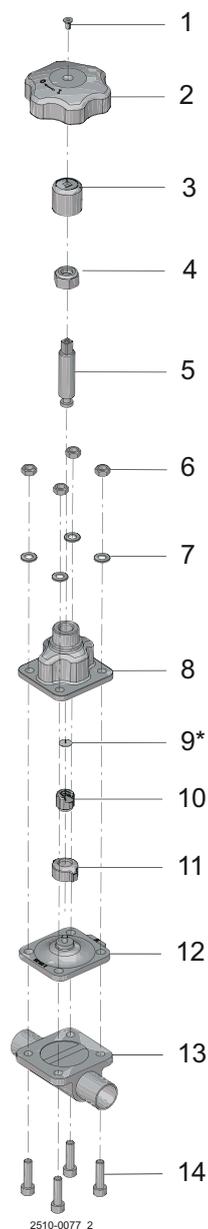
Alfa Laval is represented in all larger countries of the world.

Do not hesitate to contact your local Alfa Laval representative, with any questions or requirement of spare parts for Alfa Laval equipment.

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## 8 Parts Lists and Exploded Views

### 8.1 Unique DV-ST UltraPure - Manuel



Pos.	Qty.	Denomination
1		Countersink screw
2		Handwheel
3		Coupling
4		Position nut
5		Spindle
6		Nuts
7		Washers

Pos.	Qty.	Denomination
8		Yoke
9		Thrust washer <sup>1</sup>
10		Diaphragm holder
11		Compressor
12		Diaphragm
13		Valve body
14		Fasteners

<sup>1</sup> Remember to insert "thrust washer" during installation of the diaphragm holder onto the spindle

<sup>1</sup> Remember to insert "thrust washer" during installation of the diaphragm holder onto the spindle