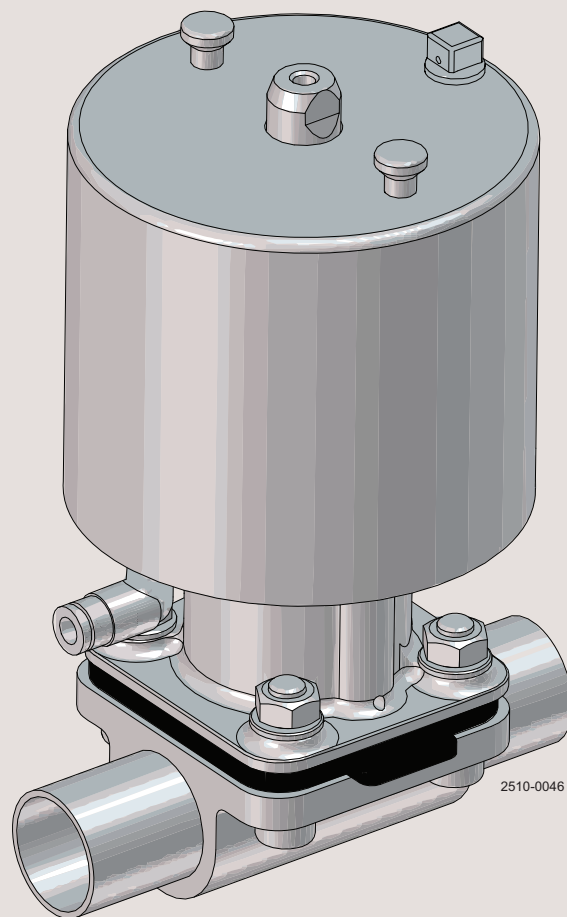




Instruction Manual

Unique DV-ST UltraPure - pneumatic, valve sizes DN8-DN100 (1/4" to 4")



ESE03511-EN3 2018-09

Original manual

The information herein is correct at the time of issue but may be subject to change without prior notice

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1 EC Declaration of Conformity

Revision of Declaration of Conformity: 2015-09-11

The Designated Company

Alfa Laval Kolding A/S

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Valve

Designation

Unique DV-ST UltraPure

Type

From serial number Q 000001- 999999

From serial number for actuator KS1827400000 to KS9936524595

is in conformity with the following directive with amendments:

- Machinery Directive 2006/42/EC

- 2014/34/EU Equipment Explosive Atmospheres (ATEX)



II 2G
II 3D

Ex h IIB T4 Gb
Ex h IIIB T100°C Dc

(-10°C ≤ tamb ≤ 80°C)
(-10°C ≤ tamb ≤ 80°C)

For ATEX directive 2014/34/EU the following harmonized standards EN 80079-36:2016 and EN 80079-37:2016 for none electrical equipment have been applied.

The valve technical file is stored with: Danish Technological Institute, Kongsvang Allé 29, 8000 Aarhus C, Denmark
Notified Body no.: 0396 Certificate. no.: DTI 17ATEX0067X

The person authorised to compile the technical file is the signer of this document

Global Product Quality Manager
Pumps, Valves, Fittings and Tank Equipment


Title

Lars Kruse Andersen

Name

Kolding
Place

2018-10-01
Date


Signature



1.1 ATEX Directive 2014/34/EU

ATEX Directive 2014/34/EU

The ATEX Directive 2014/34/EU covers equipment and protective systems that will be used in areas endangered by potentially explosive atmospheres created by the presence of flammable gases, vapours and dusts. Pneumatic diaphragm valves supplied with an ATEX symbol are classified for use in potentially explosive atmospheres under ATEX Directive 2014/34/EU Group II, Categories 2 and 3.

Technical File Ref Unique DV-ST UltraPure - Document reference no. 9612960801.
 Equipment Group and Category Group II (Zone 1), category 2 G and 3 D
 Standards used EN 80079-36:2016, EN 80079-37:2016

WARNING

For utilization in ATEX Environment:

Liquid flow might produce an electrostatic charge. Liquids with high conductivity (< 1000 pS/m) can be used. User should make measures according to IEC TS 60079-32-1.

1.2 ATEX Marking

The laser marking is found on the external surface of the actuators.

Example of marking:

The diagram shows a rectangular marking plate for an Alfa Laval valve. At the top is the Alfa Laval logo. Below it is a table of marking information:

Manufacturer	
Alfa Laval Kolding A/S, Albuen 31, DK-6000	
Valve type: Unique DV-ST UltraPure	
Serial No. xxxxxxxxxx	Year YYYY-MM
Cert. nr.: DTI 17ATEX0067X	
	II 2G EX h IIB T4 Gb
	II 3D EX h IIB T100°C Dc
Specification: DNXX	ZZZZZZ PN10
Recommended air pressure: min. X,X bar	
Service enquiries www.alfalaval.com	

Callouts 1-4 point to: 1. DNXX, 2. Year and month, 3. II 2G EX h IIB T4 Gb, 4. Recommended air pressure.

1. Actuator size stated e.g. DN25.
2. Year and month stated e.g. 2017-05.
3. Actuator type: NC, NO or air/air.
4. See table for recommended air pressure.

2 General information

2.1 General information

The compact diaphragm valve requires low maintenance, has a non-maintainable pneumatic actuator and is available in normally closed, normally open and air/air modes of operation.

The pneumatic actuator is only available in stainless steel. The actuator has been reduced in size, without compromising on strength or endurance, making it especially suited to applications where space is limited.

A wide range of accessories such as an electrical feedback unit, positioner, BUS systems, allow optimal adaption to all types of control tasks.

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

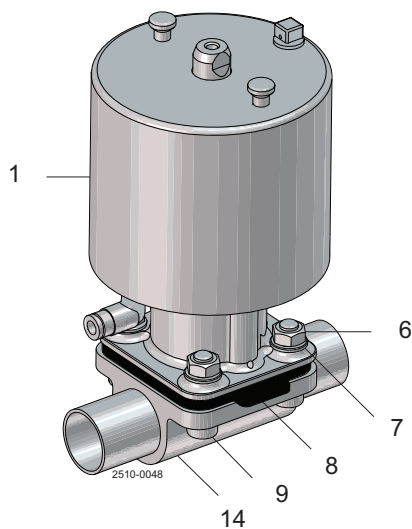
We highly recommend additional test(s) for any known special operating conditions. The customer is responsible for carrying out these tests.

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.

2.2 Valve design



- 1. Actuator
- 6. Nut
- 7. Washer
- 8. Diaphragm
- 9. Screw
- 14. Valve body

*Unsafe practices and other important information are indicated in this manual.
Warnings are emphasised by means of special signs.*

3.1 Important information

Always read this manual before using the valve!

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the valve.

NOTE

Indicates important information to simplify or clarify procedures.

3.2 Warning signs

General warning:



Caustic agents:



Hot surfaces:



Risk of pinching:



Preloaded spring:



3 Safety

All warnings in the manual are summarised on this page.

Pay special attention to the instructions below so that serious personal injury and/or damage to the valve are avoided.

3.3 Safety precautions

Installation:

Always read the technical data thoroughly (see chapter 7 Technical data)

Always release compressed air after use

Never touch the moving parts if the actuator is supplied with compressed air



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



Never dismantle the valve with valve and pipelines under pressure

Never dismantle the valve when it is hot

Connect air supply hose to push-in fitting. Make sure that air supply hose is fitted properly.

Do **not** pressurise spring side of actuator.

Operation:

For utilization in ATEX Environment:

Liquid flow might produce an electrostatic charge. Liquids with high conductivity (< 1000 pS/m) can be used. User should make measures according to IEC TS 60079-32-1.

Never dismantle the valve with valve and pipelines under pressure

Never dismantle the valve when it is hot

Always read the technical data thoroughly (See chapter 7 Technical data)

Always release compressed air after use



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



Never touch the moving parts if the actuator is supplied with compressed air

Always rinse well with clean water after the cleaning

Connect air supply hose to push-in fitting. Make sure that air supply hose is fitted properly.

Do **not** pressurise spring side of actuator.



Always handle lye and acid with great care



Maintenance:

Always read the technical data thoroughly (See chapter 7 Technical data)

Always release compressed air after use

Never service the valve when it is hot

Never service the valve with valve and pipelines under pressure

Never put your fingers through the valve ports if the actuator is supplied with compressed air

Never touch moving parts if the actuator is supplied with compressed air



NON-MAINTAINABLE actuator: **Never** disassemble the actuator



Connect air supply hose to push-in fitting. Make sure that air supply hose is fitted properly.

Do **not** pressurise spring side of actuator.

Transportation:

Always secure that compressed air is released

Always check that all connections are disconnected before attempting to remove the valve from the installation

Always drain liquid from valves before transportation

Always ensure that the valve is adequately secured during transportation - if specially designed packaging material is available, it must be used



The instruction manual is part of the delivery. Study the instructions carefully.
The items refer to the parts list and service kits section.
The valve is supplied as separate parts as standard (for welding).
If it is supplied with fittings, the valve is assembled before delivery.

4.1 Unpacking/delivery

Step 1

CAUTION

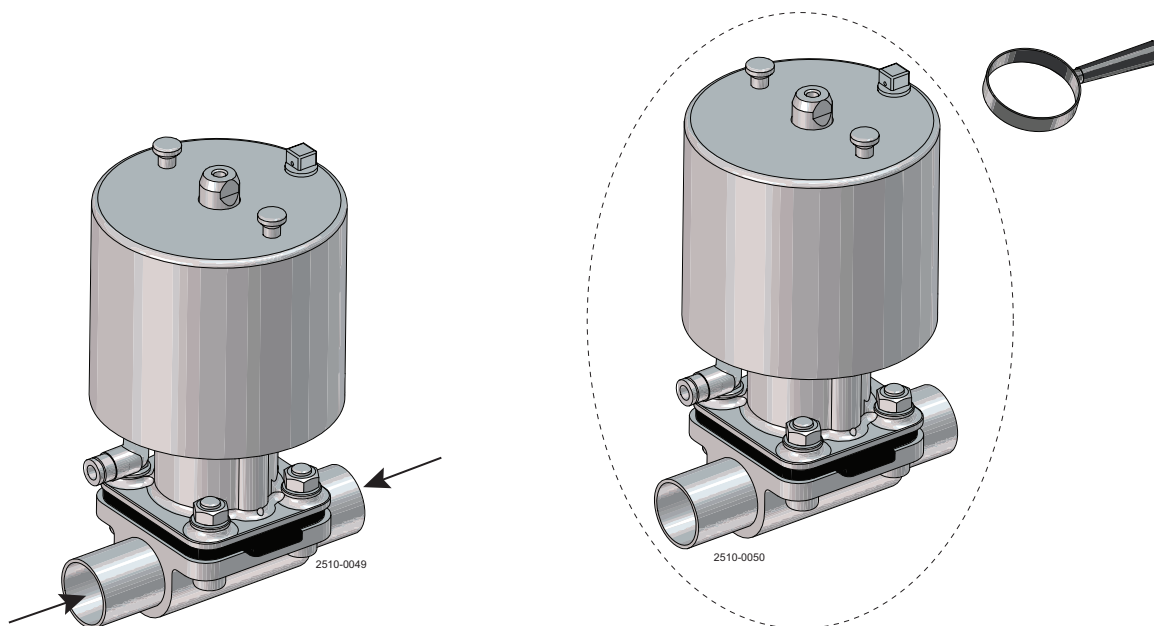
Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

1. Complete valve.
2. Delivery note.

Step 2

1. Remove any packing materials from the valve/valve parts.
2. Inspect the valve/valve parts for visible transportation damage.
3. Avoid damaging the valve/valve parts.



4.2 Unpacking/intermediate storage

Step 1

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

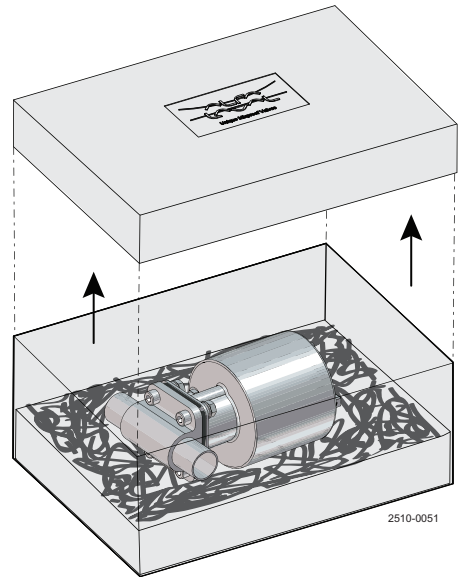
1. Complete valve
2. Delivery note
3. Warning label

4 Installation

The instruction manual is part of the delivery. Study the instructions carefully.
The items refer to the parts list and service kits section.
The valve is supplied as separate parts as standard (for welding).
If it is supplied with fittings, the valve is assembled before delivery.

Step 2

Remove upper support.

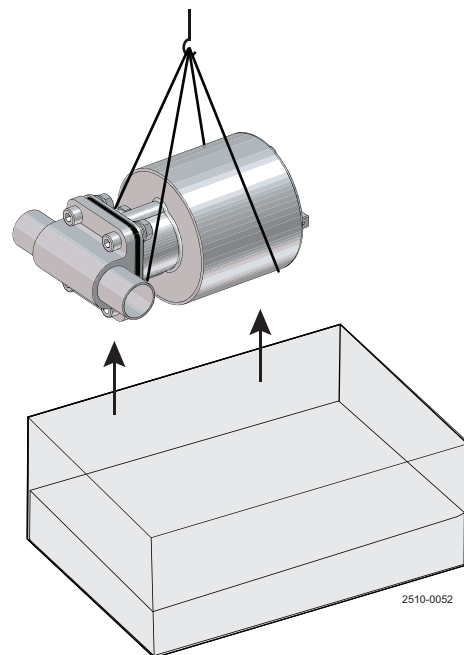


Step 3

Lift out the valve.

NOTE

Please note weight of valve as printed on box.



Step 4

Remove any packing materials from the valve ports.

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.

Weight - kg (lbs)

	8 (¼")	10 (⅜")	15 (½")	20 (¾")	25 (1")	40 (1½")	50 (2")	65 (2½")	80 (3")	100 (4")
2-way forged	0.9 (2.0)	0.9 (2.0)	1.0 (2.2)	3.5 (7.5)	3.9 (8.6)	10.3 (22.7)	12.7 (28.0)	31.5 (69.4)	38.7 (85.3)	-
2-way cast	0.9 (2.0)	0.9 (2.0)	1.0 (2.2)	3.3 (7.3)	3.8 (8.4)	10.0 (22.0)	11.7 (25.8)	29.9 (65.9)	36.2 (79.8)	-
2-way block	-	-	-	-	-	-	-	-	-	37 (82.2)
T-block equal port sizes	0.9 (2.0)	0.9 (2.0)	1.1 (2.4)	3.5 (7.5)	4.2 (9.3)	11.3 (24.9)	14.4 (31.7)	34.0 (75.0)	45.0 (99.2)	-
Tank outlet block	-	-	1.2 (2.6)	3.6 (7.9)	4.2 (9.3)	11.3 (24.9)	13.0 (28.7)	32.5 (71.7)	42.1 (92.8)	-

4.3 General installation

Step 1



Always read the technical data thoroughly.

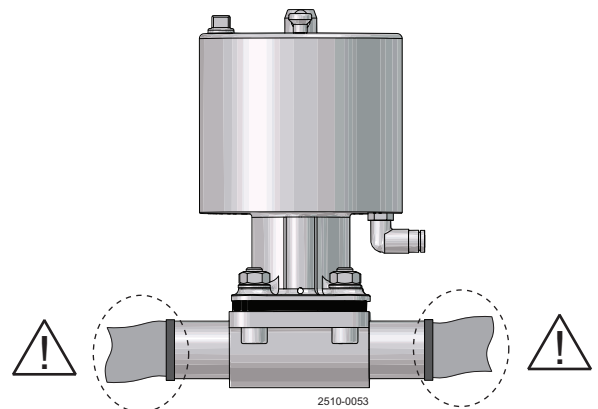
CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

Avoid stressing the valve.

Pay special attention to:

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



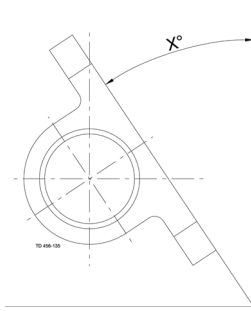
Risk of damage!

- When draining the diaphragm valve and pipeline, ensure that there is a suitable installation position.
- Variable installation position for self-draining, see data on the installation angle.
- For diaphragm valves with weld ends, remove the actuator and diaphragm from the valve body before welding.
- For applications in ex-proof areas, the composite actuator should only be wiped with a moist cloth.

4 Installation

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.

4.4 Installation angle on self-draining position



Port size		ASME BPE	ISO 2037	DIN 11866 (Series A)	ISO 1127 (Series B)
DN	Inch				
8	¼"	37°	27°	27°	22°
10	¾"	33°	28°	28°	31°
15	½"	32°	23°	23°	18°
20	¾"	26°	23°	23°	15°
25	1"	22°	25°	21°	20°
40	1½"	24°	24°	22°	18°
50	2"	24°	24°	23°	20°
65	2½"	20°	22°	19°	15°
80	3"	22°	25°	22°	15°
100	4"	14°	13°	8°	8°

4.5 Drainability

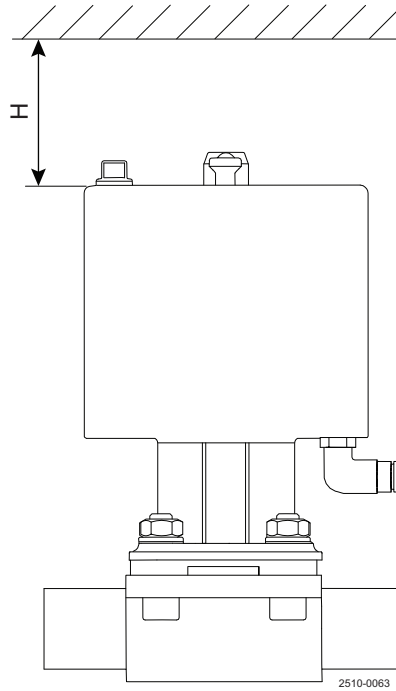
Proper drainability in horizontally installed pipes requires mounting of the valve at the correct angle, see section 4.4 Installation angle on self-draining position

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.

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.

4.6 Minimum free space above actuator

When installing an actuator without indication unit (for example a Thinktop unit), a minimum distance above the actuator is required to ensure no pinching of a hand placed on top of the actuator.



Size		H ¹⁾
		mm (in)
DN8-10	¼"	119 (4.685)
DN15	½"	122 (4.803)
DN20	¾"	128 (5.039)
DN25	1"	131 (5.167)
DN40	1½"	149 (5.866)
DN50	2"	149 (5.866)
DN65	2½"	168 (6.614)
DN80	3"	174 (6.850)
DN100	4"	174 (6.850)

¹⁾ Clearance according to ISO13854

4 Installation

*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.*

4.7 Welding

Step 1

All welding should be done by qualified personnel.

Disassemble the actuator from the valve body. See Replacing the Diaphragm for details.

Step 2

Perform the welding procedure on the body according to standard industrial practices.

Step 3

Reassemble the actuator to the valve body.

Step 4

Test the valve for correct operation before installing.

4.8 Mounting of the actuator

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.

4.9 Recycling information

Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps
- Wood and cardboard boxes can be re-used, 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 and wear parts in the machine are replaced
- All metal parts should be sent for material recycling
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling
- Oil and all non-metal wear parts must be disposed of in accordance with local regulations

Scrapping

- At end of use, the equipment must be recycled according to relevant local regulations. Besides the equipment, any hazardous residues from the process liquid must be taken into consideration 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
 - Recycling must be undertaken with caution, due to the pre-compressed spring inside the actuator. With disposal, the actuator can be returned to Alfa Laval for scrapping in a safe and secure manner.
-

Study the instructions carefully and pay special attention to the warnings!
 Ensure that the valve operates smoothly.
 The items refer to the parts list and service kits section.

5.1 Operation



Always read the technical data carefully.
 See chapter 7 Technical data



Always release compressed air after use.

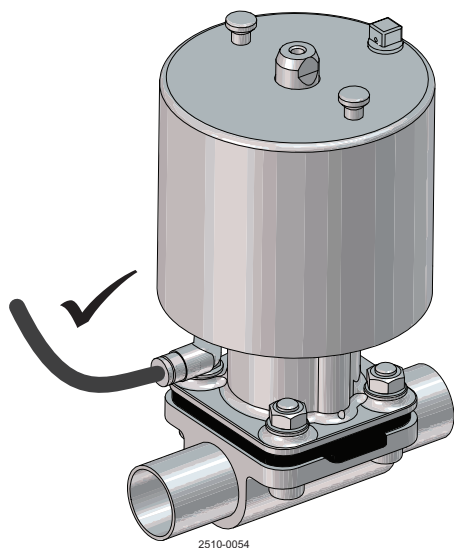
WARNING

For utilization in ATEX Environment:

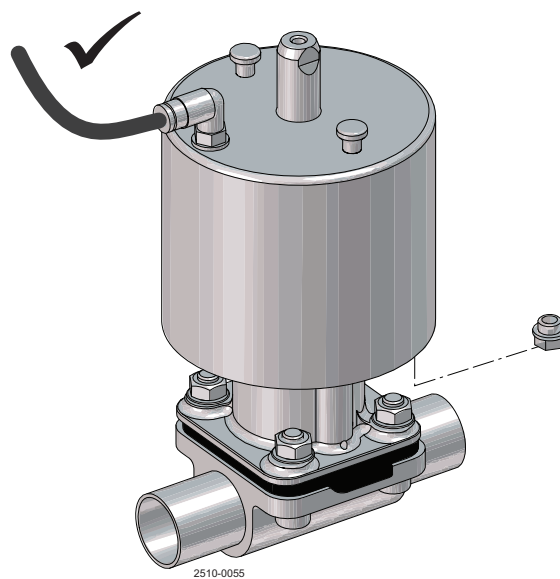
Liquid flow might produce an electrostatic charge. Liquids with high conductivity ($< 1000 \text{ pS/m}$) can be used. User should make measures according to IEC TS 60079-32-1.

Connect air supply hose to push-in fitting
 Make sure that the air supply hose is fitted properly.
 Do **not** pressurise the spring side of actuator.

Normally closed (NC)



Normally open (NO)



CAUTION

Connect air supply hose to push-in fitting. Make sure that the air supply hose is fitted properly. Do not pressurise the spring side of the actuator.

Alfa Laval cannot be held responsible for incorrect operation.

5 Operation

*Study the instructions carefully and pay special attention to the warnings!
Ensure that the valve operates smoothly.
The items refer to the parts list and service kits section.*

Fig. 1 - Function NC: Normally Closed

In de-energised status, the valve is closed by spring force. When the control medium is admitted to the actuator (connection below), the valve opens; when the control medium escapes, the valve is closed via spring force.

Fig. 2 - Function NO: Normally open

In de-energised status, the valve is opened by spring force. When the control medium is admitted to the actuator (connection above), the valve closes; when the control medium escapes, the valve is opened via spring force.

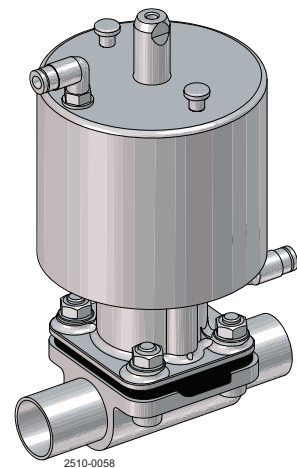
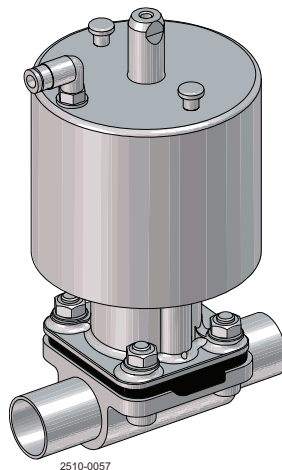
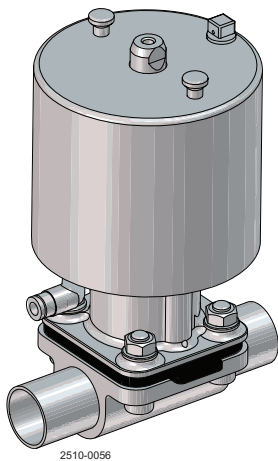
Fig. 3 - Function AA: Air/Air (double acting)

The valve has no defined basic position. The valve is opened and closed by applying control pressure to the corresponding control connection. Connection below: open, connection above: close.

Fig. 1 - Function NC: Normally closed

Fig. 2 - Function NO: Normally open

Fig. 3 - Function AA: Air/Air (double acting)



Study the instructions carefully and pay special attention to the warnings!
Pay attention to possible faults.
The items refer to the parts list and service kits section.

5.2 Operation

Step 1



- **Always** read the technical data thoroughly (see section).
- **Always** release compressed air after use.

WARNING

For utilization in ATEX Environment:

Liquid flow might produce an electrostatic charge. Liquids with high conductivity ($< 1000 \text{ pS/m}$) can be used. User should make measures according to IEC TS 60079-32-1.

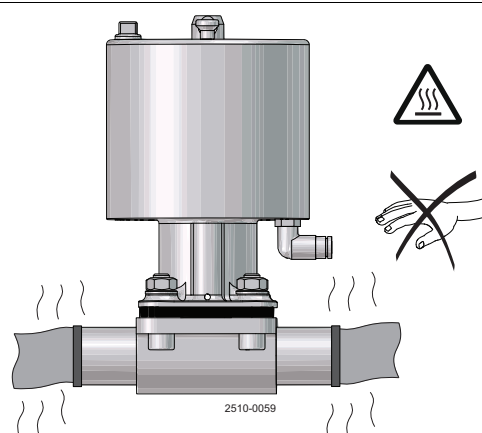
CAUTION!

Alfa Laval cannot be held responsible for incorrect operation.

Step 2



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



5.3 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use rubber gloves!

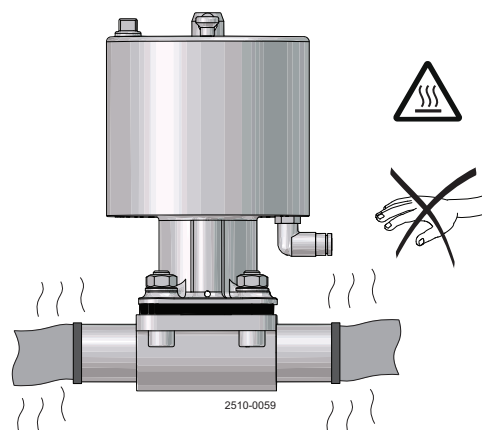


Always use protective goggles!

Step 2



Never touch the valve or the pipelines when sterilising.



6 Maintenance

6.1 Replacing the diaphragms and seals

Generally, the only routine maintenance required is the replacement of the diaphragm. The diaphragm replacement routine, depending on the medium, 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 section 6.2 Replacing the diaphragm.



NOTE

The actuator is non-serviceable. With malfunction the complete actuator must be replaced.
DO NOT DISASSEMBLE THE ACTUATOR DUE TO PRE-COMPRESSED SPRINGS.

6.2 Replacing the diaphragm

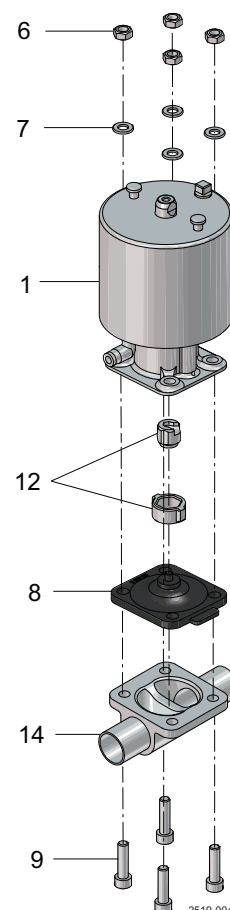
Before servicing any installed valve, you must:

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

Note: The diaphragm can be replaced without removing the valve body.



Risk of pinching fingers during mounting of diaphragm



Step 1

Only use Alfa Laval diaphragms

Step 2

Actuate the valve to the "open" position for:

- Normally closed and air/air actuators, apply air pressure of the lower actuator port
- Normally open actuator, disconnect control air supply

Step 3

Remove the body fasteners (6, 7 & 9) using a cross-wise sequence.

Step 4

Actuate the valve in the “closed” position for:

- Normally closed actuators, disconnect air supply
 - Normally open and air/air actuators, apply control pressure to the lower actuator port
-

Step 5

Remove the diaphragm from the actuator

Button-style compressor:

- Remove the diaphragm (8) by pulling it out slightly (see fig. 1).

Threaded-style compressor:

- Rotate the diaphragm (8) 90° and remove (see fig. 2).

Bayonet-style compressor:

- Rotate the diaphragm 90° and remove (see fig. 3).

NOTE! see figs. 1-3, reverse action of step 9.

Step 6

Check and clean threads and bayonets (12) of the compressor.

Step 7

Make sure that the new diaphragm (8) and the contact area on the valve body (14) are clean and dry.

Step 8

Make sure the actuator compressor (12) matches the connection on the diaphragm (8). Should this not be the case, replace the compressor.

6 Maintenance

Step 9

With the actuators in “closed” position, install diaphragm as follows:

- For button-style compressors, insert the diaphragm with a push and slight rotation. Rotate the diaphragm until the screw holes match (fig 1).
- For threaded-style compressors, thread the diaphragm into the compressor in a clockwise direction (fig. 2). Do **not** overtighten! Then, if necessary, turn the diaphragm in a counter-clockwise direction until the screw holes match.
- For bayonet-style compressor insert the diaphragm with bayonet into the deepening of the compressor. Rotate the diaphragm 90° (fig. 3). Screw holes must match.

Fig.1

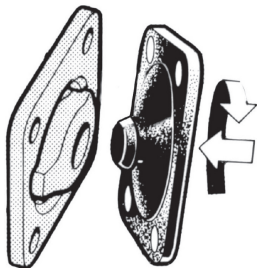


Fig.2

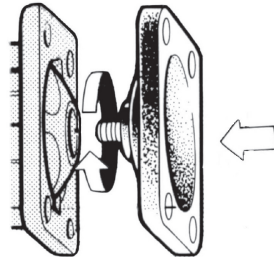
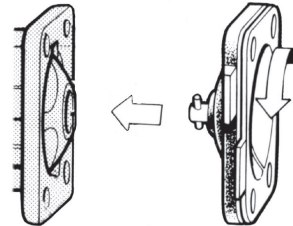


Fig.3



WARNING
Do **not** overtighten!



Risk of pinching fingers during mounting of diaphragm.

Step 10

Actuate the valve to the “open” position - see step 2

Make sure the compressor (12) is positioned and aligned with the guide slots in the yoke (1).

Step 11

Align the to the valve body (14) using fasteners (9). Assemble the nuts and washers (6 & 7). To secure the actuator and body, tighten the fasteners (6) by hand.

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

Step 12

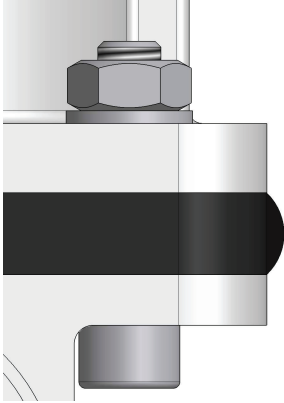
Actuate the valve to the “closed” position, so that the diaphragm can properly fit to the weir - see step 4. Tighten the body fasteners (6) cross-wise using a wrench.

Step 13

Actuate the valve to the "open" position - see step 2. Slightly re-tighten the body fasteners (6) cross-wise with 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 (fig. 4).

Fig 4



Step 14

Test the valve for proper function

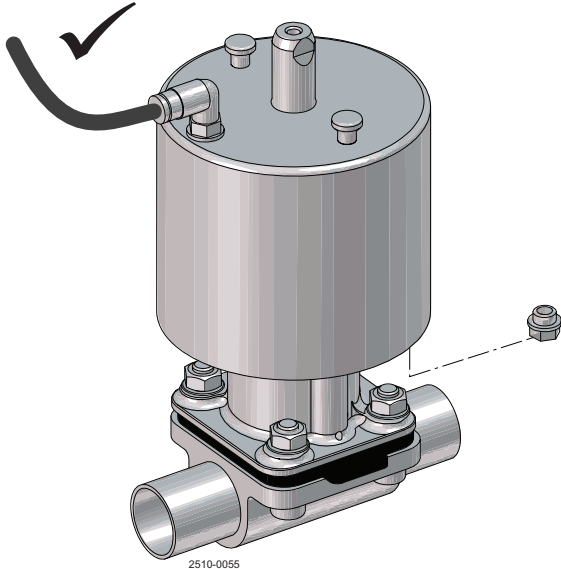
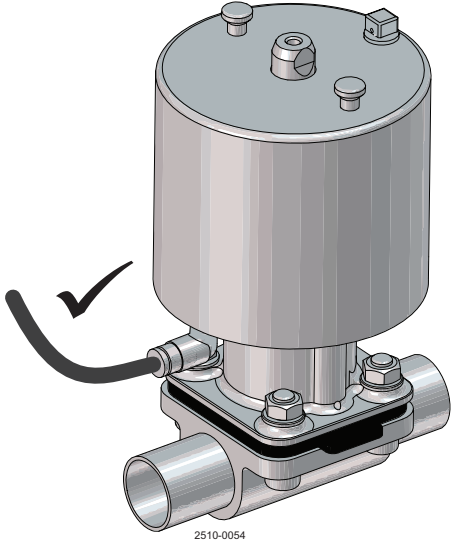
NOTE!: Check the fasteners (6) 24 hours after operation of the valves. In case of leakage from the body, depressurise the system and, if necessary, tighten the fasteners (6) again as described. If leakage continues, replace the diaphragm.

Step 15

Connect air supply hose to push-in fitting. Make sure that the air supply hose is fitted properly. Do not pressurise the spring side of the actuator.

Normally closed (NC)

Normally open (NO)



6 Maintenance

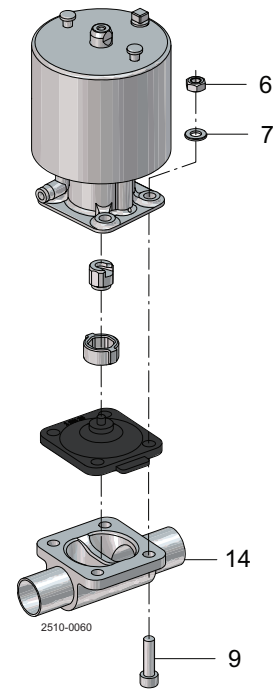
6.3 Fasteners for assembly - actuator with intermediate part in stainless steel

- Pos. 6 4 nuts
- Pos. 7 4 washer
- Pos. 9 4 cylindrical hexagon fasteners
- Pos. 14 2-way body

DN	Inch	EPDM	PTFE
8	¼	M4 x 14	M4 x 14
15	½	M6 x 30	M6 x 30
20	¾	M6 x 25	M6 x 25
25	1	M8 x 30	M8 x 30
40	1½	M10 x 35	M10 x 35
50	2"	M10 x 35	M10 x 35
65	2½	M12 x 45	M12 x 45
80	3"	M16 x 55	M16 x 55

- Pos. 14 Tank outlet, T-Valve and block bodies

DN	Inch	EPDM	PTFE
8	¼	M4 x 12	M4 x 12
15	½	M6 x 25	M6 x 25
20	¾	M6 x 20	M6 x 20
25	1	M8 x 25	M8 x 25
40	1½	M10 x 30	M10 x 30
50	2"	M10 x 30	M10 x 30
65	2½	M12 x 40	M12 x 40
80	3"	M16 x 50	M16 x 50
100	4"	M16 x 50	M16 x 50



NOTE

Tighten the 4 fasteners cross-wise according to section 6 steps 11 to 14

7.1 Technical data

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

¹⁾ Maximum control air pressure for actuator. For maximum control air pressure in regards to diaphragm endurance, please refer to tables 2 to 4

Product wetted area

Table 1. Diaphragm properties

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

¹⁾ Continuous temperature

²⁾ 40 min. steam sterilisation

Chemical compatibility:

Please contact Alfa Laval for information.

7 Technical data

Maximum working pressure

Table 2. Actuator NC (Normally closed):
Product pressures and recommended control air pressures

Size		Control Air pressure ¹⁾	EPDM		PTFE/EPDM		TFM/EPDM	
			$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$
DN	Inch	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)
8-10	1/4"-3/8"	Min. 3.1 (45)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
15	1/2"	Min. 5.5 (80)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
20	3/4"	Min. 3.2 (47)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
25	1"	Min. 5.7 (83)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
40	1 1/2"	Min. 3.1 (45)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
50	2"	Min. 5.1 (74)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
65	2 1/2"	Min. 4.1 (60)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
80	3"	Min. 5.1 (60)	10 (145)	10 (145)	10 (145)	10(145)	6 (87)	6 (87)
100	4"	Min. 5.1 (60)	10 (145)	10 (145)	10 (145)	10(145)	6 (87)	6 (87)

¹⁾ Minimum air pressure at product pressure 0 bar. See chapter 7.6 for further information.

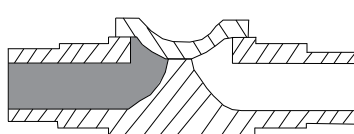
²⁾ See diagram below for further information.

Table 3. Actuator NO (Normally open):
Product pressures and recommended control air pressures

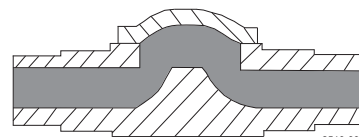
Size		Control Air pressure ¹⁾	EPDM		PTFE/EPDM		TFM/EPDM	
			$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$
DN	Inch	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)
8-10	1/4"-3/8"	Max. 5.7 (83)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
15	1/2"	Max. 5.5 (80)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
20	3/4"	Max. 5.5 (80)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
25	1"	Max. 5.2 (76)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
40	1 1/2"	Max. 5.2 (76)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
50	2"	Max. 5.2 (76)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
65	2 1/2"	Max. 4.5 (65)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
80	3"	Max. 4.4 (64)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
100	4"	Max. 4.4 (64)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)

¹⁾ Maximum air pressure at product pressure 10 bar. See chapter 7.6 for further information.

²⁾ See diagram below for further information.



$\Delta p = 100\%$



$\Delta p = 0\%$

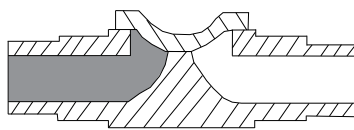
2510-0064

Table 4. Actuator AA (Air/Air):
Product pressures and recommended control air pressures

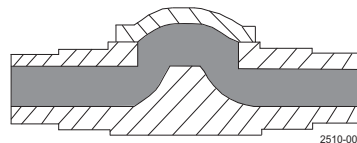
Size		Control Air pressure ¹⁾	EPDM		PTFE/EPDM		TFM/EPDM	
			$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$	$\Delta p = 100\%^2)$	$\Delta p = 0\%^2)$
DN	Inch	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)	Bar (psi)
8-10	1/4"-3/8"	Max. 3.2 (46)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
15	1/2"	Max. 4,0 (59)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
20	3/4"	Max. 2.1 (31)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
25	1"	Max. 2.9 (42)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
40	1 1/2"	Max. 2.1 (31)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
50	2"	Max. 3.1 (45)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
65	2 1/2"	Max. 2.1 (31)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
80	3"	Max. 3.3 (48)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)
100	4"	Max. 3.3 (48)	10 (145)	10 (145)	10 (145)	10 (145)	6 (87)	6 (87)

¹⁾ Maximum air pressure at product pressure 10 bar. See chapter 7.6 for further information.

²⁾ See diagram below for further information.



$\Delta p = 100\%$



$\Delta p = 0\%$

2510-0064

7 Technical data

Weight - kg (lbs)

	8 (¼")	10 (⅜")	15 (½")	20 (¾")	25 (1")	40 (1½")	50 (2")	65 (2½")	80 (3")	100 (4")
2-way forged	0.9 (2.0)	0.9 (2.0)	1.0 (2.2)	3.5 (7.5)	3.9 (8.6)	10.3 (22.7)	12.7 (28.0)	31.5 (69.4)	38.7 (85.3)	-
2-way cast	0.9 (2.0)	0.9 (2.0)	1.0 (2.2)	3.3 (7.3)	3.8 (8.4)	10.0 (22.0)	11.7 (25.8)	29.9 (65.9)	36.2 (79.8)	-
2-way block	-	-	-	-	-	-	-	-	-	37 (82.2)
T-block equal port sizes	0.9 (2.0)	0.9 (2.0)	1.1 (2.4)	3.5 (7.5)	4.2 (9.3)	11.3 (24.9)	14.4 (31.7)	34.0 (75.0)	45.0 (99.2)	-
Tank outlet block	-	-	1.2 (2.6)	3.6 (7.9)	4.2 (9.3)	11.3 (24.9)	13.0 (28.7)	32.5 (71.7)	42.1 (92.8)	-

7.2 Automatic operation

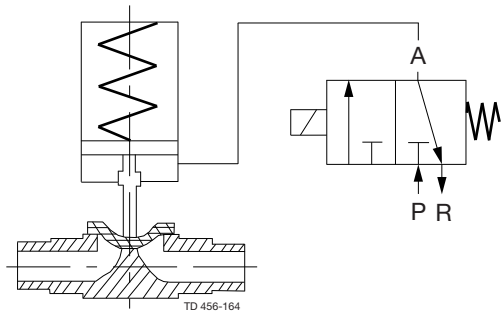
The actuator controls the axial movement of a piston, thereby opening or closing the valve depending on the actuator function. Closing the valve will push the compressor downwards on the diaphragm, pressing the diaphragm against the weir of the valve body thereby closing the valve.

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

7.3 Control diagram/modes

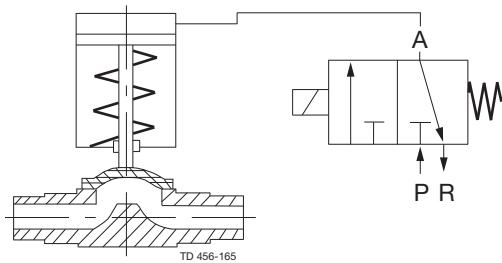
- a) **Function NC: normally closed** with a solenoid valve 3/2 way for connection below

Fig. a



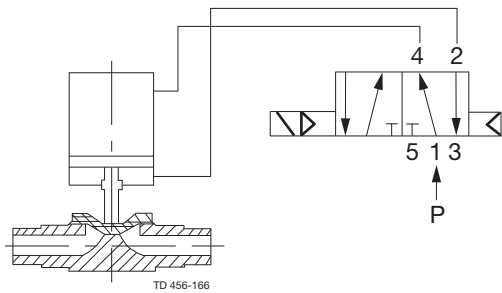
- b) **Function NO: normally open** with a solenoid valve 3/2 way for connection above

Fig. b



- c) **Function AA: air/air** with a solenoid valve 4/2 and 5/2 way for connection below and above

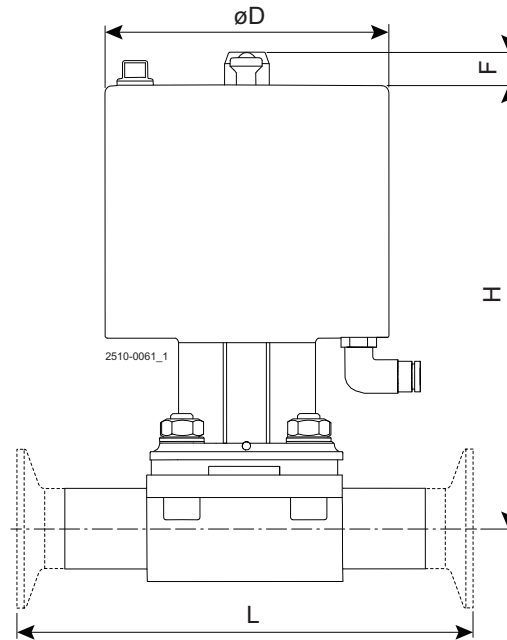
Fig. c



7 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

7.4 Size



Size		øD	H	Max. F	L (weld end)	L (clamp end)
DN	Inch	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
8-10	1/4"-3/8"	54 (2.125)	105 (4.134)	19 (0.748)	89 (3.504)	89 (3.504)
15	1/2"	54 (2.125)	118 (4.646)	22 (0.866)	110 (4.331)	108 (4.252)
20	3/4"	102 (4.000)	151 (5.937)	28 (1.102)	119 (4.685)	118 (4.646)
25	1"	102 (4.000)	159 (6.260)	31 (1.220)	129 (5.079)	127 (5.000)
40	1 1/2"	156 (6.142)	231 (9.091)	49 (1.929)	161 (6.339)	159 (6.260)
50	2"	156 (6.142)	236 (9.291)	49 (1.929)	192 (7.559)	191 (7.520)
65	2 1/2"	222 (8.740)	360 (14.173)	68 (2.677)	218 (8.583)	216 (8.504)
80	3"	222 (8.740)	368 (14.488)	74 (2.913)	256 (10.079)	254 (10.000)
100	4"	222 (8.740)	374 (14.724)	74 (2.913)	218 (8.583)	305 (11.961)

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

7.5 Product pressure versus control pressure

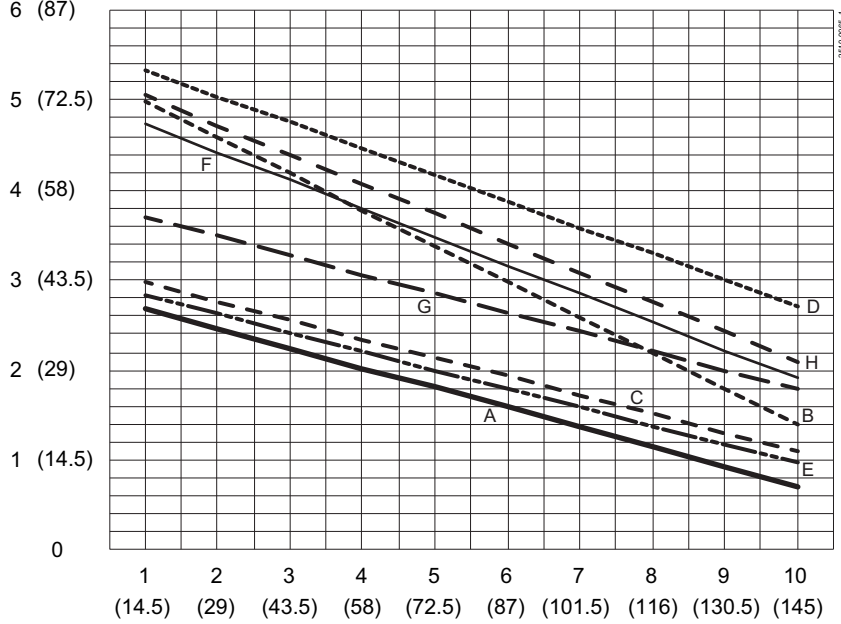
Description:

The diagrams state the required control pressure on the actuator at a given product pressure in the system.

NC (Normally Closed):

Control pressure is used for opening the valve. Here the required control pressure is reduced when the product pressure is increased. At interruption of air supply the actuator will close the valve.

Control pressure bar (psi)
6 (87)



- A = DN8/10 - (1/4" / 3/8")
- B = DN15 - (1/2")
- C = DN20 - (3/4")
- D = DN25 - (1")
- E = DN40 - (1 1/2")
- F = DN50 - (2")
- G = DN65 - (2 1/2")
- H = DN80/DN100 - (3 3/4")

Product pressure in bar (psi)

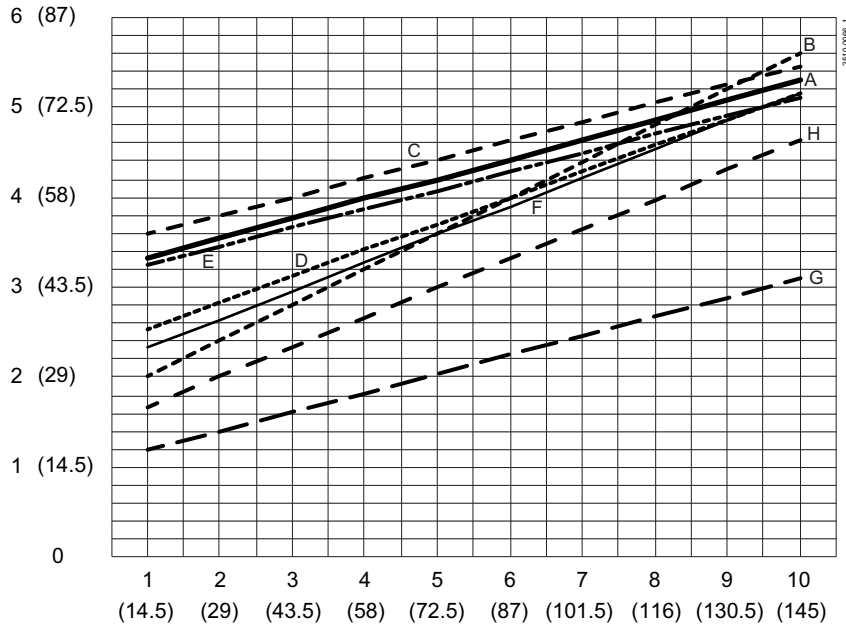
7 Technical data

It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.

NO (Normally Open):

Control pressure is used for closing the valve. Here the required control pressure is increased when the product pressure is increased. With interruption of air supply, the actuator will open the valve.

Control pressure bar (psi)



- A = DN8/10 - (1/4" / 3/8")
- B = DN15 - (1/2")
- C = DN20 - (3/4")
- D = DN25 - (1")
- E = DN40 - (1 1/2")
- F = DN50 - (2")
- G = DN65 - (2 1/2")
- H = DN80/DN100 - (3 3/4")

Product pressure in bar (psi)

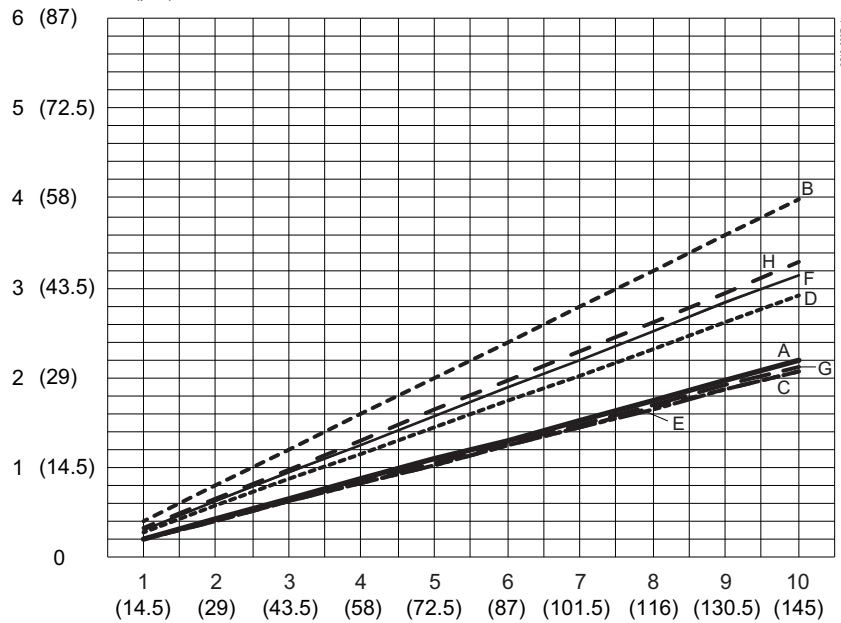
It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.

A/A (Air/Air):

Control pressure is used for both opening and closing of the valve. Here the required control pressure is increased when the product pressure is increased.

With interruption of air supply, the valve will open at positive product pressure and close at negative product pressure.

Control pressure bar (psi)



A = DN8/10 - (1/4" / 3/8")

B = DN15 - (1/2")

C = DN20 - (3/4")

D = DN25 - (1")

E = DN40 - (1 1/2")

F = DN50 - (2")

G = DN65 - (2 1/2")

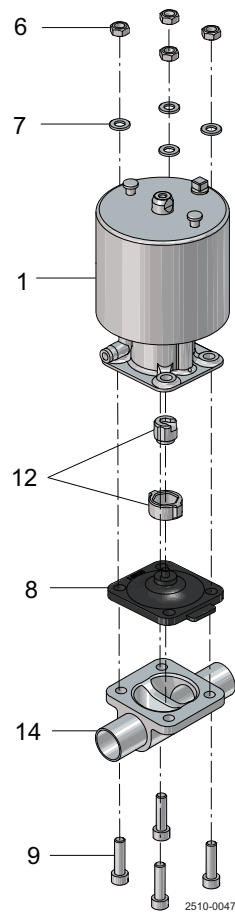
H = DN80/DN100 - (3 3/4")

Product pressure in bar (psi)

8 Parts list and service kits

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

8.1 Actuator DN8-DN100



8 Parts list and service kits

*It is important to observe the technical data during installation, operation and maintenance.
Inform personnel about the technical data.*

Parts list

Pos.	Qty	Denomination
1	1	Actuator
8	1	Diaphragm
9+6+7	1	Nut, washer, screw set
12	1	Compressor kit
14	1	Valve body

How to contact Alfa Laval

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