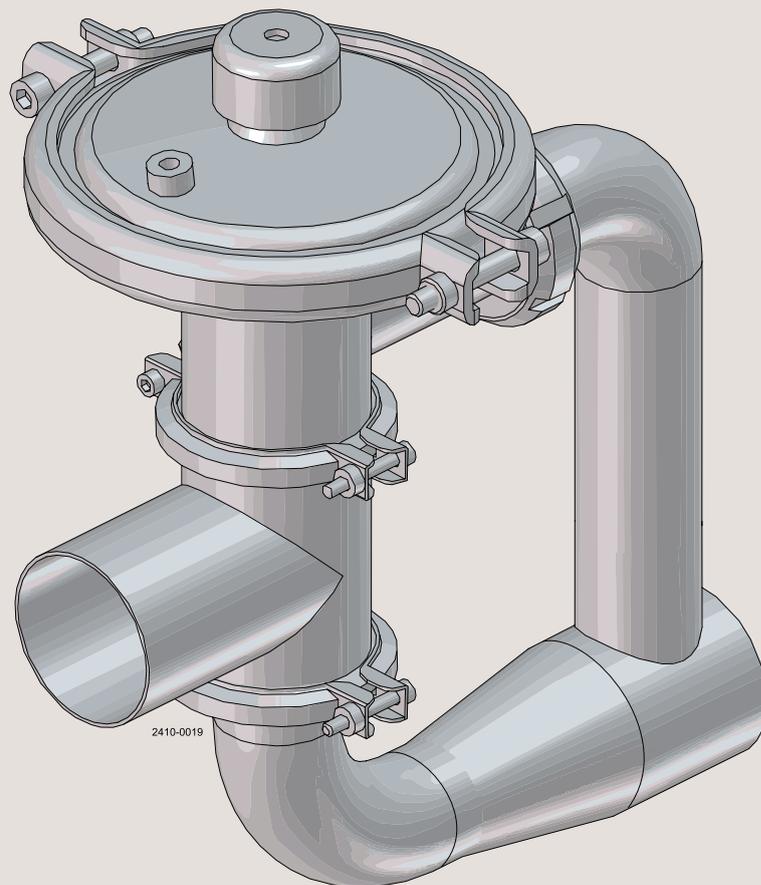




# Instruction Manual

## CPM-I-D60 Constant-Pressure Modulating Inlet Valve



ESE01834-EN5

2022-11

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 Declarations of Conformity

## EU Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00  
Company name, address and phone number

---

Hereby declare that

Valve  
Designation

---

CPM-I-D60  
Type

---

is in conformity with the following directives with amendments:  
- Machinery Directive 2006/42/EC

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

Global Product Quality Manager Title	Lars Kruse Andersen Name
Kolding, Denmark Place	2022-11-18 Date (YYYY-MM-DD)
	 Signature

This Declaration of Conformity replaces Declaration of Conformity dated 2016-06-06

---



# 1 Declarations of Conformity

## UK Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve

Designation

CPM-I-D60

Type

is in conformity with the following directives with amendments:

- The Supply of Machinery (Safety) Regulations 2008

Signed on behalf of: Alfa Laval Kolding A/S

Global Product Quality Manager

Title

Lars Kruse Andersen

Name

Kolding, Denmark

Place

2022-11-18

Date (YYYY-MM-DD)

Signature

DoC Revison\_01\_112022

**UK  
CA**



## 2 Safety

---

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

---

### 2.1 Important information

---

**Always read the manual before using the valve!**

**WARNING**

Indicates that special procedures must be followed to avoid severe 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.

---

### 2.2 Warning signs

---

General warning:



Caustic agents:



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

### 2.3 Safety precautions

#### Installation

**Always** read the technical data thoroughly (See chapter 6 Technical data)

**Always** release compressed air after use.

**Never** touch the valve top if compressed air is supplied to the valve.



The valve and the pipelines **must** never be pressurised when dismantling the valve.

#### Operation

**Always** read the technical data thoroughly (See chapter 6 Technical data).

**Always** release compressed air after use.

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

**Never** touch the valve top if compressed air is supplied to the valve.



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

#### Maintenance

**Always** observe the technical data thoroughly (See chapter 6 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.



#### Transportation

**Always** secure that compressed air is released .

**Always** secure that all connections is disconnected before attempt to remove the valve from the installation.

**Always** drain liquid out of valves before transportation.

**Always** used predesigned lifting points if defined.

**Always** secure sufficient fixing of the valve during transportation - if special designed packaging material is available it must be used.

### 3 Installation

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

#### 3.1 Unpacking/delivery

##### Step 1 CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

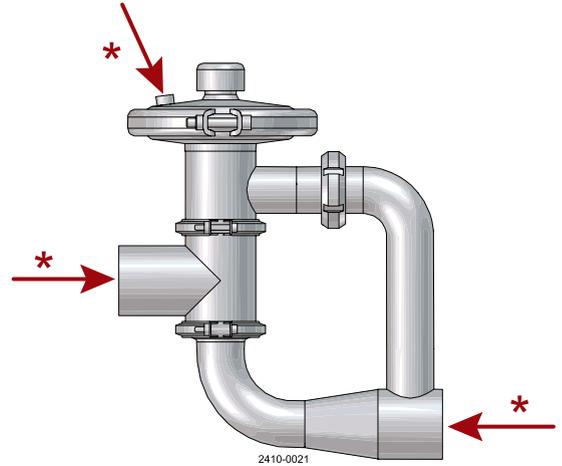
##### Check the delivery:

1. Complete valve.
2. Delivery note.
3. Instruction manual.

##### Step 2

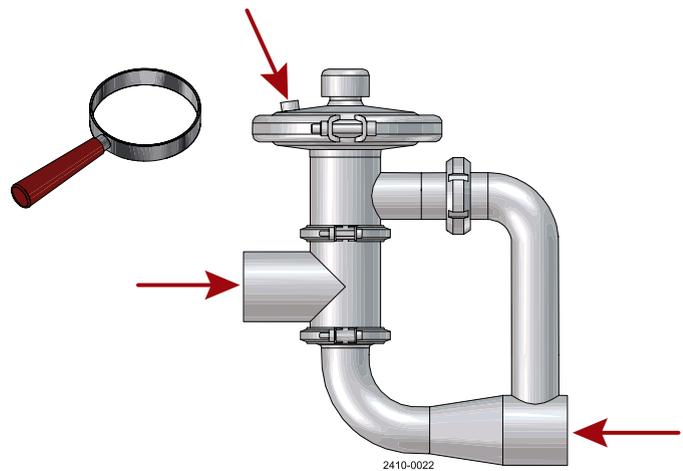
Remove possible packing materials from the valve ports.

\* = Remove packing materials!



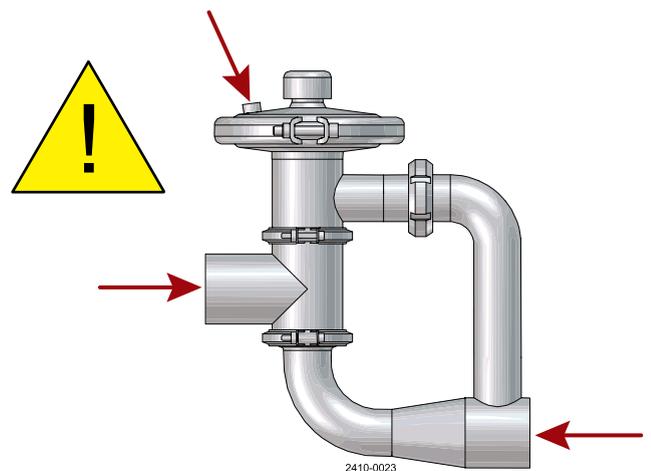
##### Step 3

1. Inspect the valve for visible transport damage.



##### Step 4

Avoid damaging the air connection and 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.  
The required product pressure is preset by means of an air pressure regulating valve (optional extra).

### 3.2 General installation

#### Step 1



**Always** read the technical data thoroughly.



**Always** release compressed air after use. **Never** touch the valve top if compressed air is supplied to the valve.

**Never** touch the valve top if compressed air is supplied to the valve.

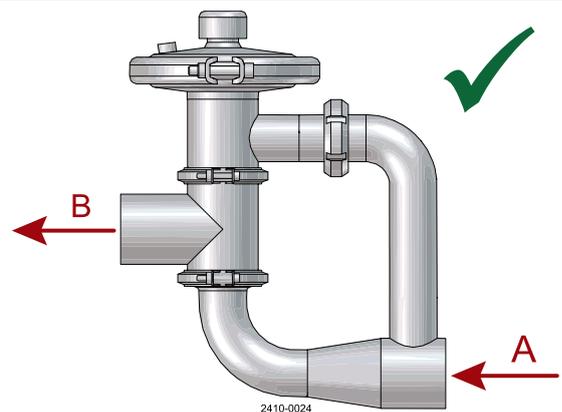
#### CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

#### Step 2

Ensure that the flow direction is correct.

A = Inlet  
B = Outlet

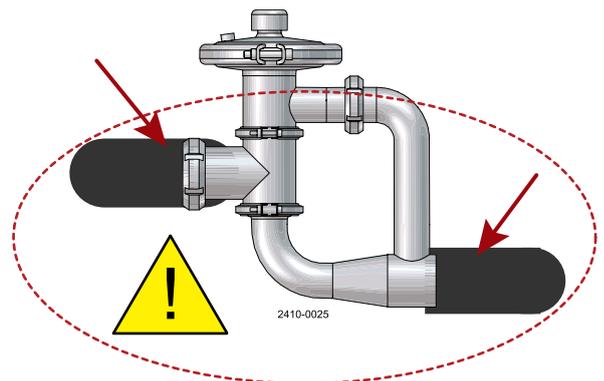


#### Step 3

Avoid stressing the valve.

Pay special attention to:

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



### 3 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.

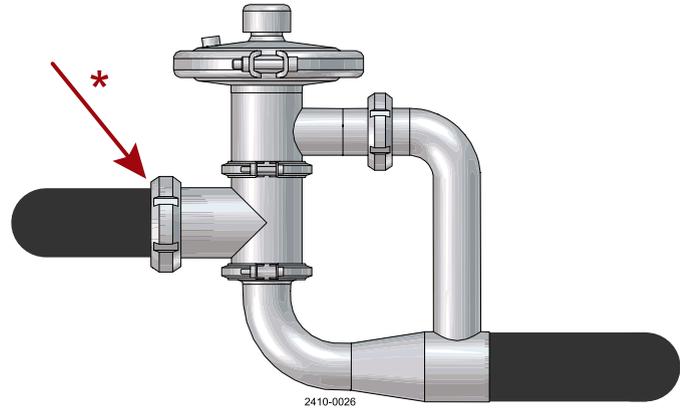
The required product pressure is preset by means of an air pressure regulating valve (optional extra).

#### Step 4

##### Fittings:

Ensure that the connections are tight.

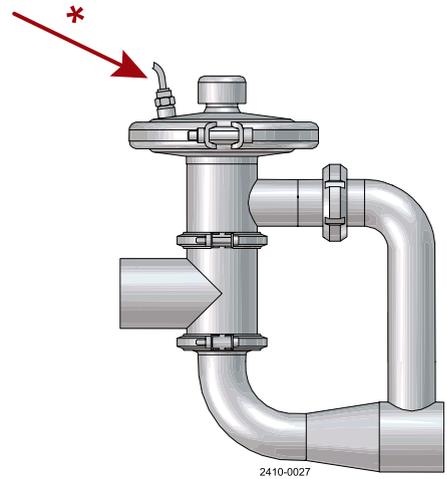
\* = Remember seal rings!



#### Step 5

##### Air connection:

\* = R1/4 " (BSP)

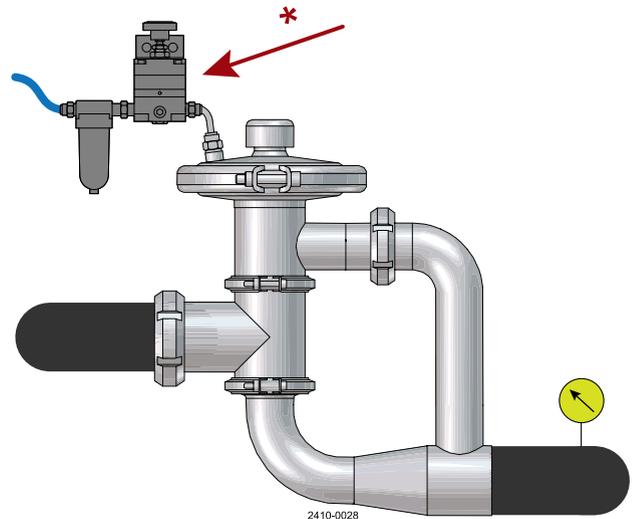


#### Step 6

##### Air pressure regulating valve (optional extra):

It is recommended to install the air pressure regulating valve as close as possible to the valve.

\* = Pressure regulating valve. Install as close as possible.



Study the instructions carefully.  
The valve has welding ends as standard. Weld carefully.

### 3.3 Welding

#### Step 1

##### NOTE!

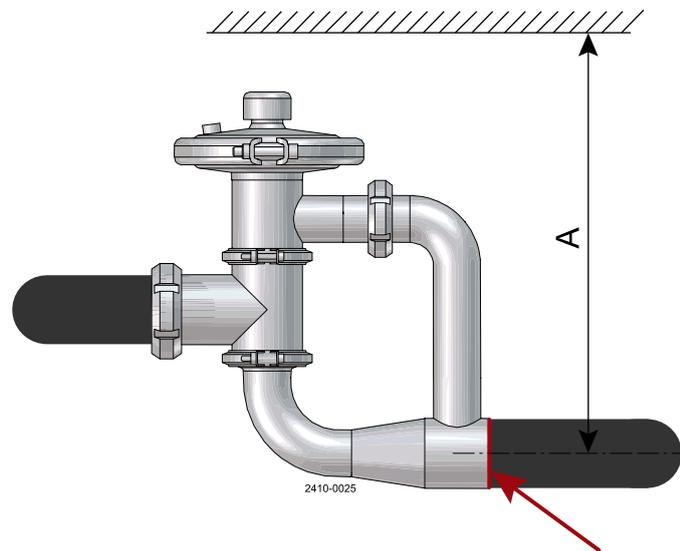
**Never** weld both the inlet and outlet connections. If so, it will be impossible to service the lower valve body seal ring (16)

#### Step 2

##### Welding the inlet connection

1. Weld the valve body into the pipelines.
2. Maintain the minimum clearance so that the internal valve parts can be removed.

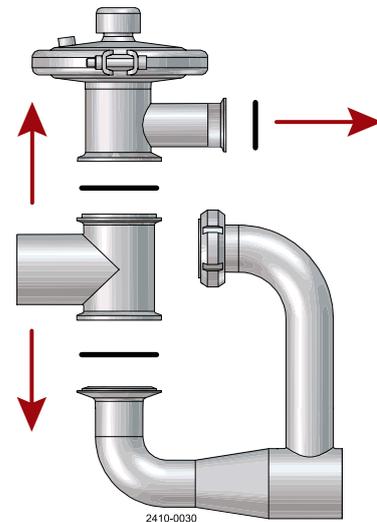
A= 440 mm (without booster) / 540 mm (with booster)



#### Step 3

##### Welding the outlet connection

Dismantle the valve in accordance with section 5.2 Dismantling, Step 1 and Step 2.



### 3 Installation

Study the instructions carefully.

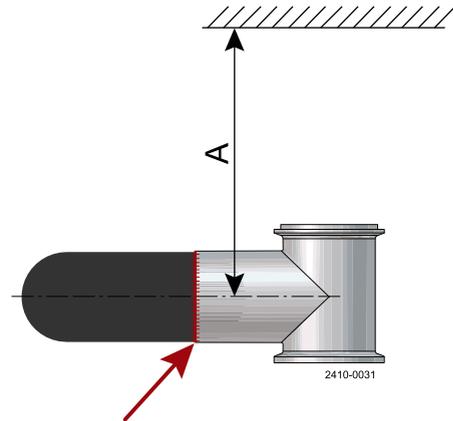
The valve has welding ends as standard. Weld carefully.

#### Step 4

##### Welding the outlet connection :

1. Weld the lower body (10) into the pipelines.
2. Maintain the minimum clearance so that the internal valve parts can be removed.

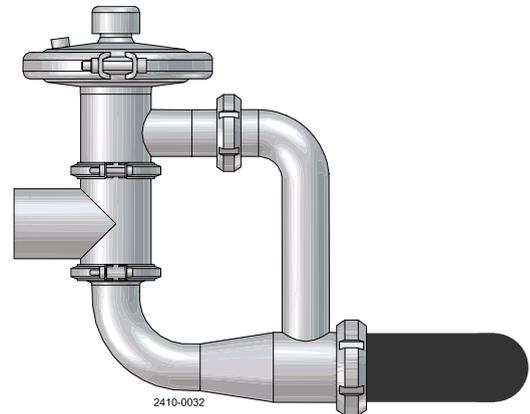
**A = 284 mm (without booster) / 384 mm (with booster)**



#### Step 5

##### Welding the outlet connection :

Assemble the valve in accordance with section 5.3 Assembly, Step 11 and Step 12.



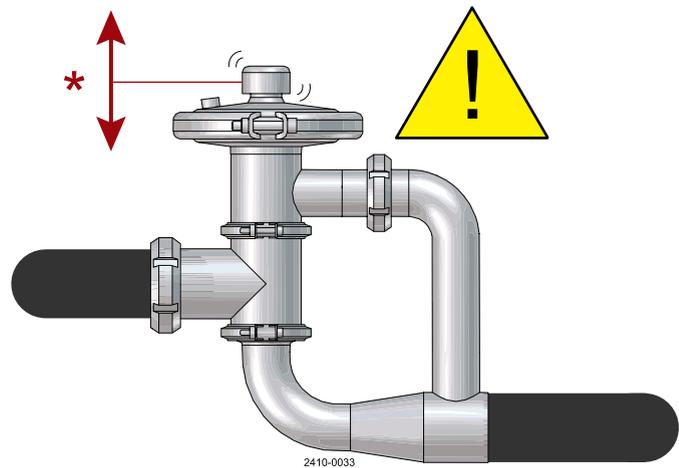
#### Step 6

##### Pre-use check:

Lift and lower the valve top several times to ensure that the valve operates smoothly.

**Pay special attention to the warning!**

\* = Lift and lower by hand!



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

The items refer to the parts list and service kits section.

The valve can be fitted with a Booster to increase the permitted product pressure.

### 3.4 Fitting of Booster (optional extra)

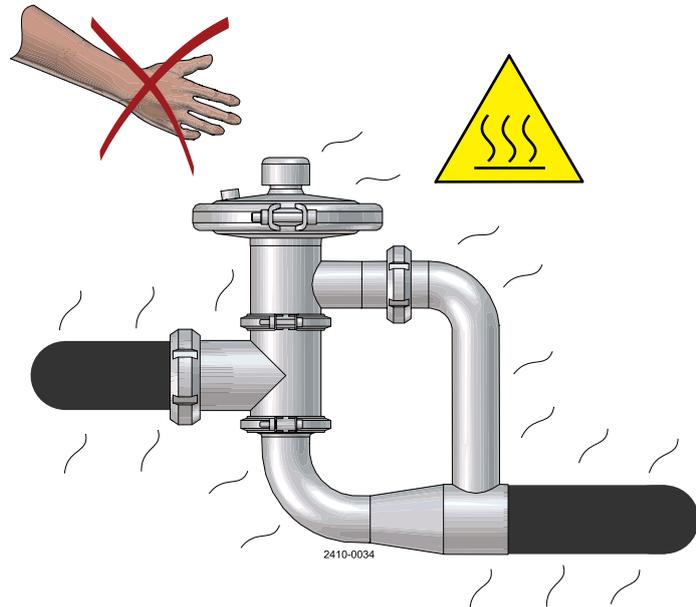
#### Step 1



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

**The valve and the pipelines must never be pressurised when dismantling the valve.**

Atmospheric pressure required.

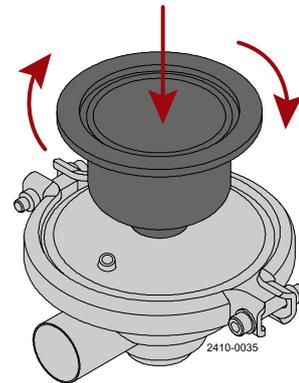


#### Step 2

1. Remove the valve top in accordance with section 5.2 Dismantling, Step 5.

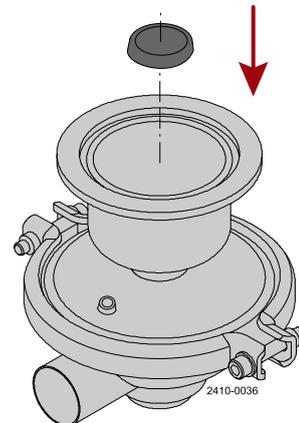
**Pay special attention to the warnings!**

2. Fit Booster housing (1) on the cover.
3. Fit and tighten lock nut (2).



#### Step 3

1. Fit washer (3).
2. Refit the washer and the top nut on the valve plug.



### 3 Installation

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

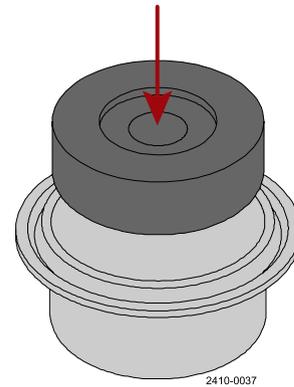
The items refer to the parts list and service kits section.

The valve can be fitted with a Booster to increase the permitted product pressure.

---

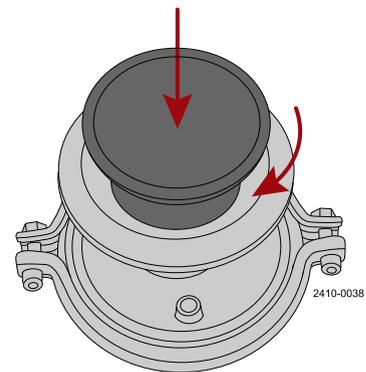
#### Step 4

1. Turn diaphragm (7) inside out.
2. Place piston (6) in the diaphragm so that the hole is visible.



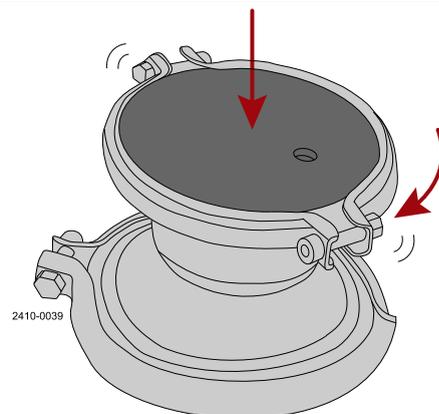
#### Step 5

1. Roll diaphragm (7) down half its length.
2. Fit the diaphragm with piston (6) in Booster housing (1).



#### Step 6

1. Fit cover (8) on Booster housing (1).
2. Fit and tighten clamp (9).
3. The valve and the Booster are now ready for operation.



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

*The items refer to the parts list and service kits section.*

*The valve can be fitted with a Booster to increase the permitted product pressure.*

---

### 3.5 Recycling information

---

- **Unpacking**

- Packing material consists 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 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 taken care of in agreement with local regulations

- **Scrapping**

- At end of use, the equipment shall be recycled according to relevant, local regulations. Beside 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 the local Alfa Laval sales company
-

## 4 Operation

The valve is lubricated, adjusted and tested before delivery.  
Study the instructions carefully and pay special attention to the warnings!

### 4.1 Operation

#### Step 1



**Always** read the technical data thoroughly.  
**Always** release compressed air after use.

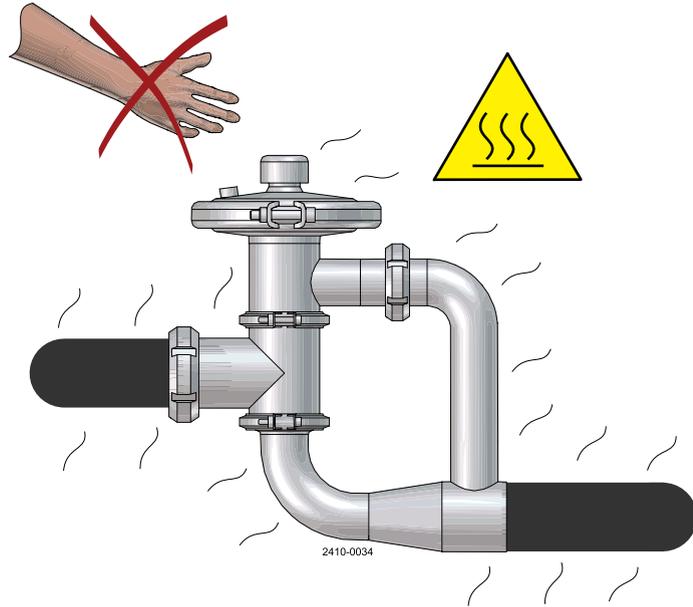
#### CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

#### Step 2



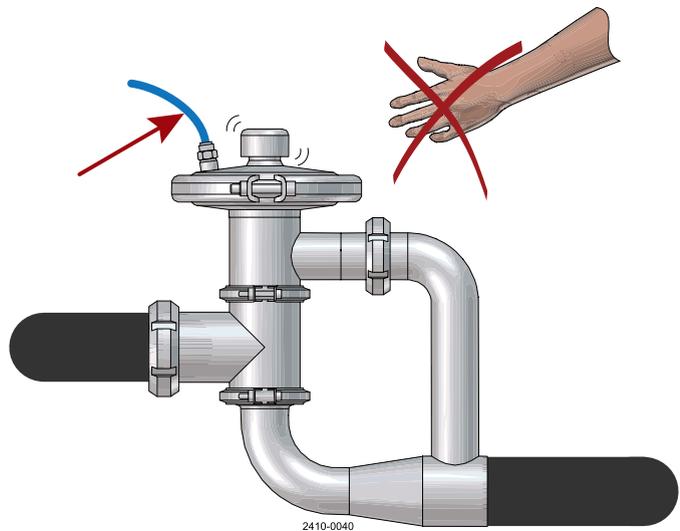
**Never** touch the valve or the pipelines when processing hot liquids or when sterilizing.



#### Step 3



**Never** touch the valve top if compressed air is supplied to the valve.



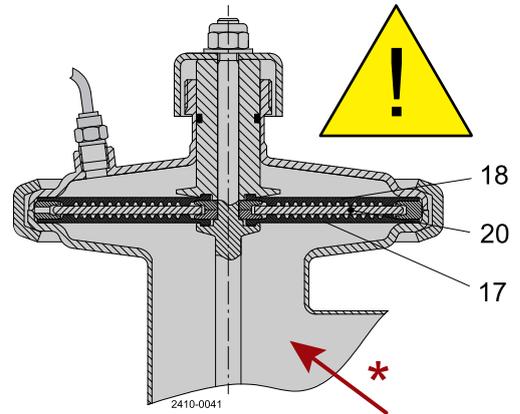
The valve is lubricated, adjusted and tested before delivery.  
Study the instructions carefully and pay special attention to the warnings!

### Step 4

#### CAUTION!

There must not be vacuum in the valve as air can be drawn into the product and diaphragms (17) can then be pulled out from support sectors (20).

\* = No vacuum!

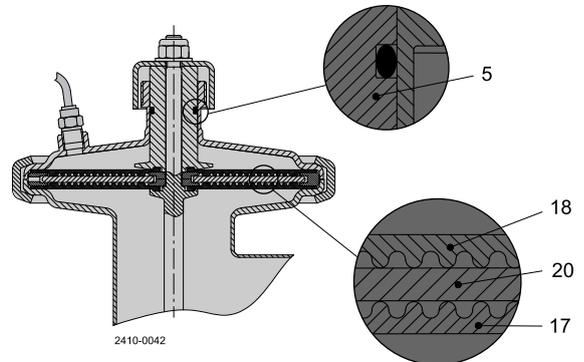


### Step 5

#### Lubrication:

1. Ensure smooth movement between diaphragms (17,18) and support sectors (20).
2. Ensure smooth movement of guide (5).

Lubricate if necessary!  
(See 5.1 General maintenance).



## 4 Operation

*Pay attention to possible break-down.*

*Study the instructions carefully.*

*The items refer to the parts list and service kits section.*

### 4.2 Fault finding

**NOTE!**

Study the maintenance instructions carefully before replacing worn parts - see chapter 5.1 General maintenance

Problem	Cause/result	Repair
The valve does not maintain the preset pressure	Faulty diaphragm	Replace the diaphragm
	Guide (9) seizes	Lubricate the guide (see 4.1 Operation, Step 5)
	Incorrect operating range	Check the pressure drop over the valve and check the flow rate (see chapter 6.2 Selection / Pressure drop - capacity diagram)
	The available air pressure is lower than the product pressure	Increase the air pressure eg. by using a Booster (see chapter 3.4 Fitting of Booster (optional extra)).
	The air pressure is not correctly adjusted	Readjust the air pressure
	Faulty air pressure regulating valve or incorrect type	Repair the valve or check that it is pressure compensating
Product leakage	Worn diaphragm Product affected diaphragm	Replace the diaphragm
Air leakage	Worn O-ring	Replace the O-ring
	Worn diaphragm (10)	Replace the diaphragm
	Worn and hard diaphragm (10)	Replace by a diaphragm of a different grade for higher temperature (see chapter 6.1 Technical data)
Valve plug moving too fast up and down (unstable)	Pressure pulsations because of fast changes in process conditions	Use an air throttling valve (optional extra between the air pressure regulating valve and the CPM-I-D 60 valve.

The valve is designed for cleaning in place (CIP).  
 CIP = Cleaning In Place.  
 Study the instructions carefully and pay special attention to the warnings!  
 NaOH = Caustic Soda. HNO<sub>3</sub> = Nitric acid.

4.3 Recommended cleaning

Step 1



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

Caustic danger!



**Always** use rubber gloves!

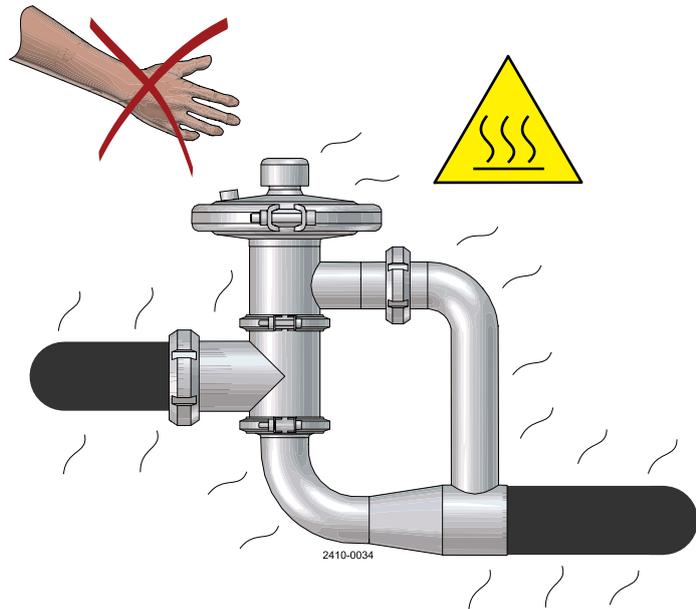


**Always** use protective goggles!

Step 2



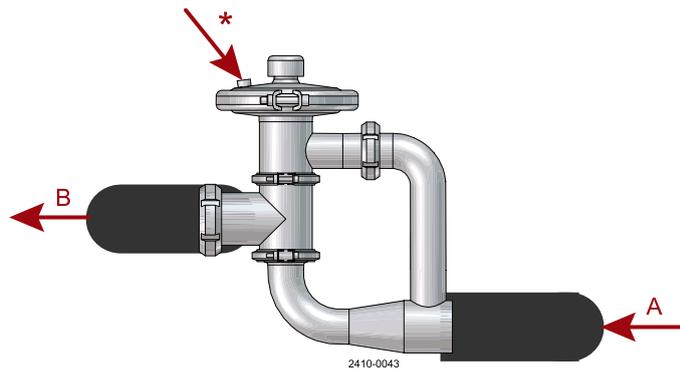
**Never** touch the valve or the pipelines when sterilizing.



Step 3  
 CPMI-2

Ensure that the valve is fully open to allow for maximum CIP flow.

- \* = No pressure
- A = CIP in
- B = CIP out



## 4 Operation

---

The valve is designed for cleaning in place (CIP).

CIP = Cleaning In Place.

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

NaOH = Caustic Soda. HNO<sub>3</sub> = Nitric acid.

---

### Step 4

#### Examples of cleaning agents:

Use clean water, free from chlorides.

1. 1% by weight NaOH at 70° C (158° F)

$$\begin{array}{|c|} \hline 1 \text{ kg (2.2 lbs)} \\ \hline \text{NaOH} \\ \hline \end{array} + \begin{array}{|c|} \hline 100 \text{ l} \\ \hline (26.4 \text{ gal}) \text{ water} \\ \hline \end{array} = \text{Cleaning agent.}$$

2. 0.5% by weight HNO<sub>3</sub> at 70° C (158° F)

$$\begin{array}{|c|} \hline 0.7 \text{ l (0.2 gal)} \\ \hline 53\% \text{ HNO}_3 \\ \hline \end{array} + \begin{array}{|c|} \hline 100 \text{ l} \\ \hline (26.4 \text{ gal}) \text{ water} \\ \hline \end{array} = \text{Cleaning agent.}$$

$$\begin{array}{|c|} \hline 2.2 \text{ l (0.6 gal)} \\ \hline 33\% \text{ NaOH} \\ \hline \end{array} + \begin{array}{|c|} \hline 100 \text{ l} \\ \hline (26.4 \text{ gal}) \text{ water} \\ \hline \end{array} = \text{Cleaning agent.}$$

---

### Step 5

1. Avoid excessive concentration of the cleaning agent.
    - Dose gradually.
  2. Adjust the cleaning flow to the process.
    - Sterilization of milk/viscous liquids.
    - Increase the cleaning flow.
  3. **Always** rinse well with clean water after the cleaning.
- 

### Step 6

#### NOTE

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

---

Maintain the valve carefully.  
Study the instructions carefully and pay special attention to the warnings!  
Always keep spare diaphragms and o-rings in stock.

### 5.1 General maintenance

#### Step 1



**Always** read the technical data thoroughly.  
See chapter 6.1 Technical data  
**Always** disconnect the compressed air before service.

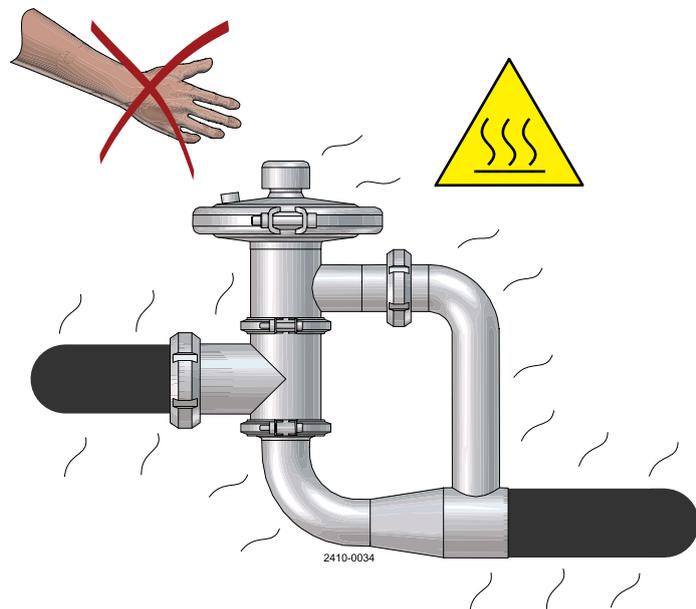
#### NOTE

All scrap must be stored/discharged in accordance with current rules/directives.

#### Step 2



**Never** service the valve when it is hot.  
**Never** service the valve with valve and pipelines under pressure.  
\* = Atmospheric pressure required!



## 5 Maintenance

---

*Maintain the valve carefully.*

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

*Always keep spare diaphragms and o-rings in stock.*

---

### **Recommended spare parts: Service kits**

Order service kits from the service kits list.

### **Ordering spare parts**

Contact the Sales department.

	<b>Diaphragms</b>	<b>O-ring</b>
Preventive maintenance	<b>Replace after 12 months</b>	Replace when replacing the diaphragms
Maintenance after leakage (leakage normally starts slowly)	<b>Replace by the end of the day</b>	Replace when replacing the diaphragms
Planned maintenance	<ul style="list-style-type: none"><li>- Regular inspection for leakage and smooth operation</li><li>- Keep a record of the valve</li><li>- Use the statistics for planning of inspections</li></ul> <b>Replace after leakage</b>	Replace when replacing diaphragms

### **Lubrication (before assembly)**

Guide: Molycote longtherm 2 Plus

Sectors: Molycote 111.

Threads: Molycote TP42.

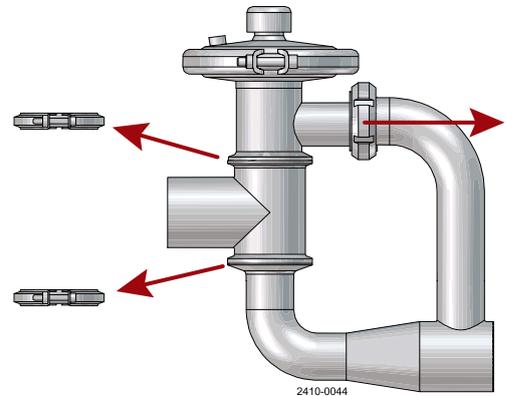
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Study the instructions carefully.  
The items refer to the parts list and service kits section.  
Handle scrap correctly.

### 5.2 Dismantling

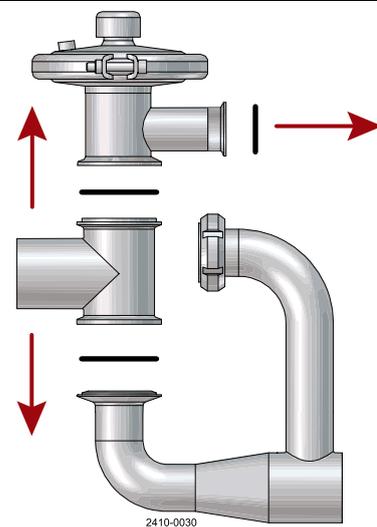
#### Step 1

1. Remove clamps (14,15).
2. Loosen the connection between valve body (12) and inlet tube (9).



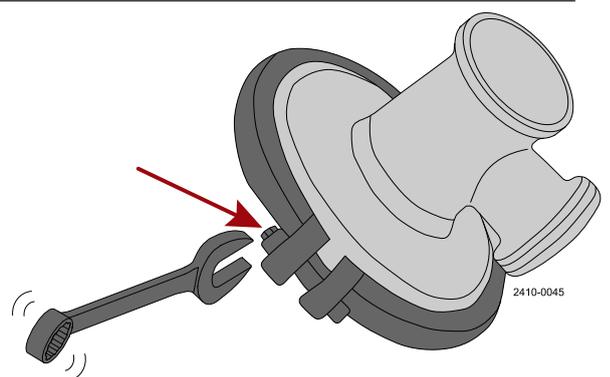
#### Step 2

1. Remove inlet tube (9) and lower valve body (10).
2. Remove seal rings (8, 16).



#### Step 3

Remove clamp (22)



## 5 Maintenance

---

Study the instructions carefully.

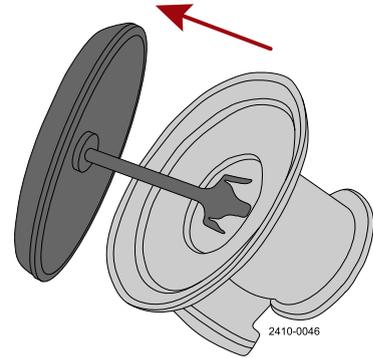
The items refer to the parts list and service kits section.

Handle scrap correctly.

---

### Step 4

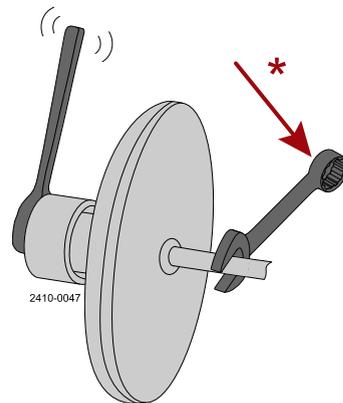
Remove cover (19) together with the internal parts of the valve.



### Step 5

Remove top nut (1), washer (2) and top (3).

\* =Counterhold!

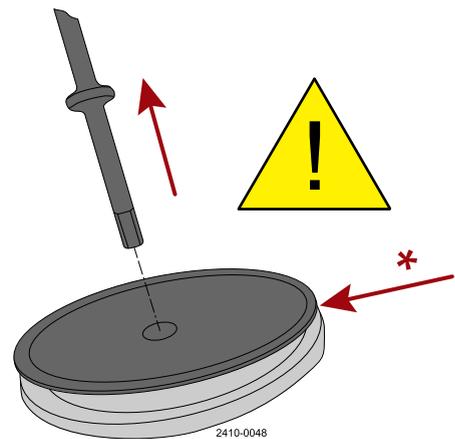


### Step 6

Remove plug (7) from the diaphragm unit and guide (5).

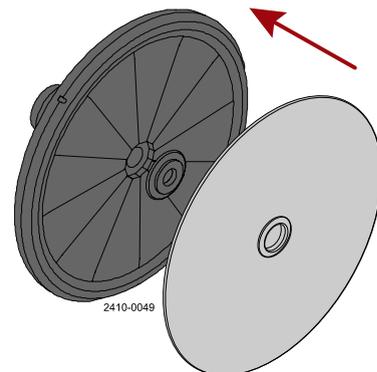
#### CAUTION!

\* = Ensure that cover (19) is turned downwards and plug (7) is pulled upwards so that sectors (20) are not separated from diaphragms (17, 18).



### Step 7

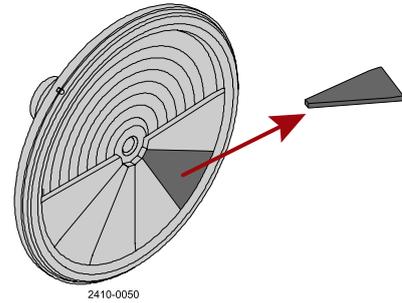
Remove lower inner ring (13) and lower diaphragm (17).



Study the instructions carefully.  
The items refer to the parts list and service kits section.  
Handle scrap correctly.

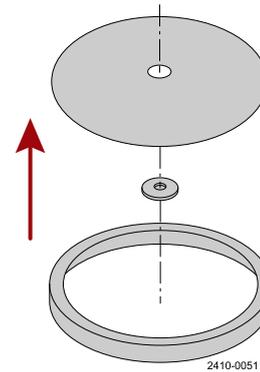
### Step 8

Remove sectors (20).



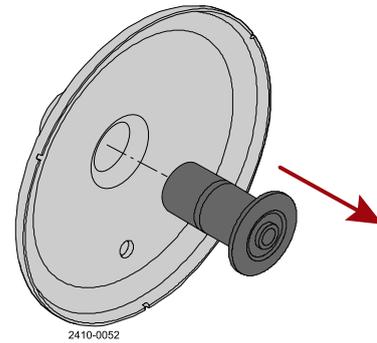
### Step 9

Remove outer ring (21), upper inner ring (13) and upper diaphragm (18)



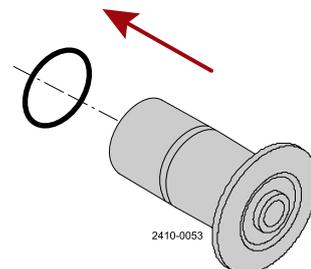
### Step 10

Remove guide (5)



### Step 11

Remove o-ring (6)



## 5 Maintenance

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Study the instructions carefully.

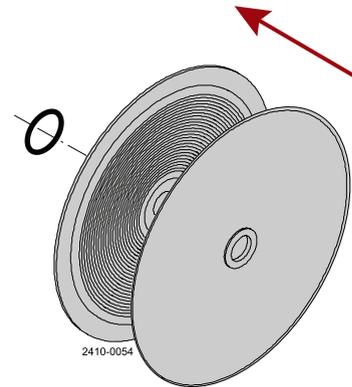
Lubricate the guide, the sectors and the threads before assembly.

The items refer to the parts list and service kits section.

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### Step 12

Replace the o-ring, the seal rings and the diaphragms.

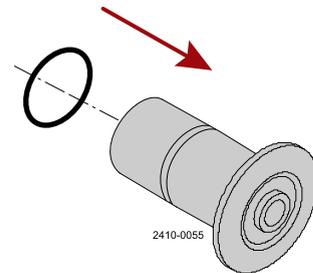


## 5.3 Assembly

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### Step 1

Fit O-ring (6)

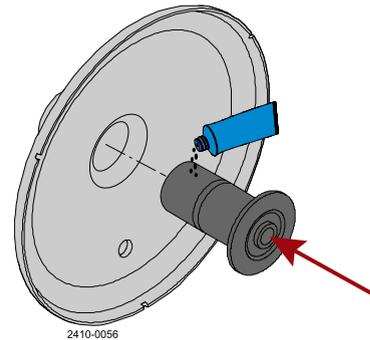


### Step 2

Lubricate guide (5), and fit it.

**NOTE!**

Turn cover (19) downwards before continuing.

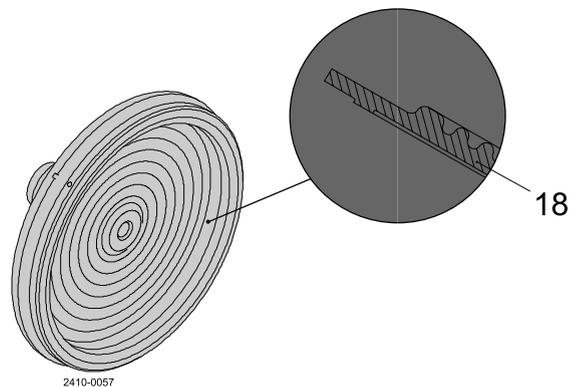


### Step 3

Fit upper diaphragm (18), upper inner ring (13) and outer ring (21) on guide (5) and cover (19).

**Note!**

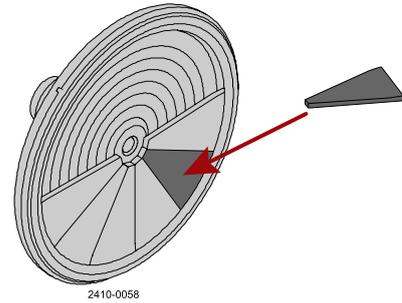
The outer ring must be turned so that the indication hole is fixed to the indication hole in the cover.



*Study the instructions carefully.  
Lubricate the guide, the sectors and the threads before assembly.  
The items refer to the parts list and service kits section.*

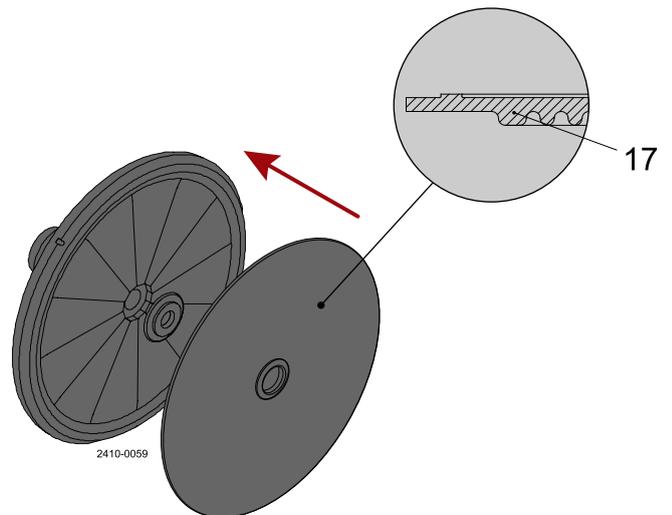
### Step 4

Fit sectors (20) between upper inner ring (13) and outer ring (21).



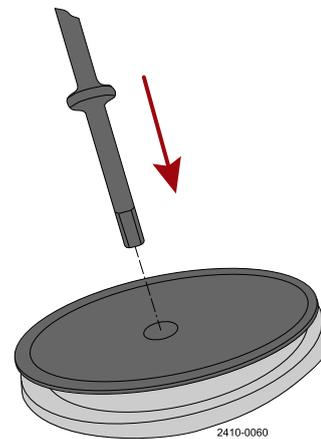
### Step 5

Fit lower inner ring (13) and lower diaphragm (17).



### Step 6

Fit plug (7) in the diaphragm unit and guide (5) until the flange of the plug contacts lower diaphragm (17).



## 5 Maintenance

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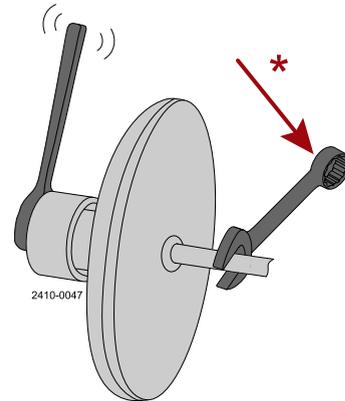
Study the instructions carefully.  
Lubricate the guide, the sectors and the threads before assembly.  
The items refer to the parts list and service kits section.

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### Step 7

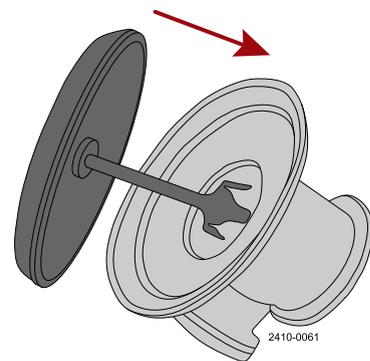
Fit top (3), washer (2) and top nut (1).

\* Counterhold!



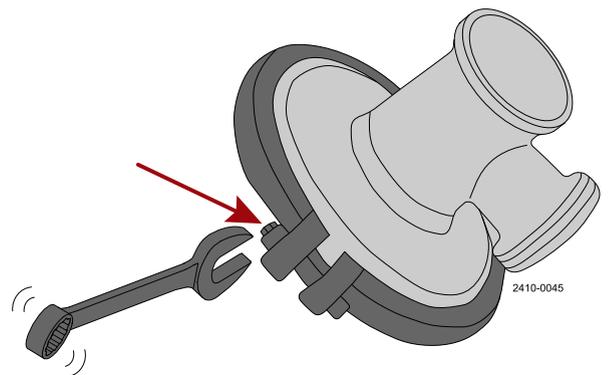
### Step 8

Fit cover (19) together with the internal parts of the valve.



### Step 9

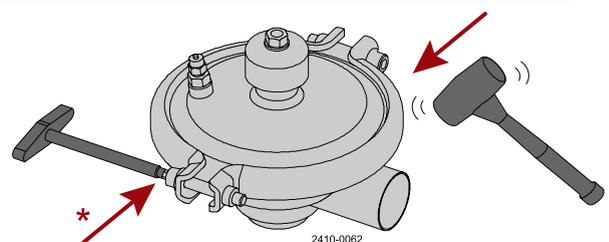
Fit and tighten clamp (22).



### Step 10

Assemble the valve in accordance with step 6 - step 10 in chapter 5.3 assembly.

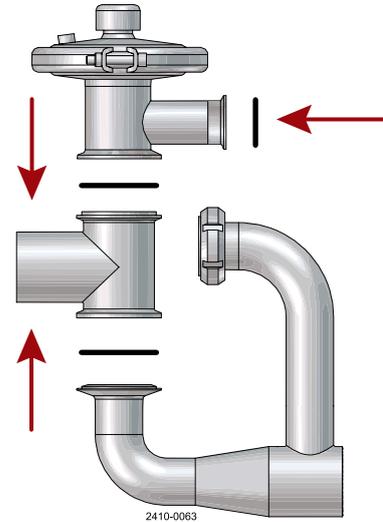
\* = tighten clamp 10-15 Nm (7.5-11 lbf-ft)



Study the instructions carefully.  
Lubricate the guide, the sectors and the threads before assembly.  
The items refer to the parts list and service kits section.

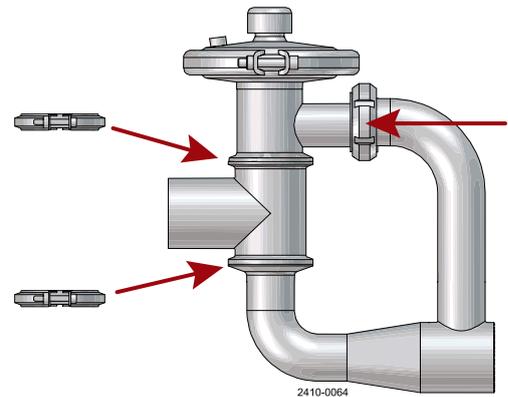
### Step 11

1. Fit seal rings (8, 16).
2. Fit lower valve body (10) and inlet tube (9)



### Step 12

1. Tighten the connection between valve body (12) and inlet tube (9).
2. Fit and tighten clamps (14,15).

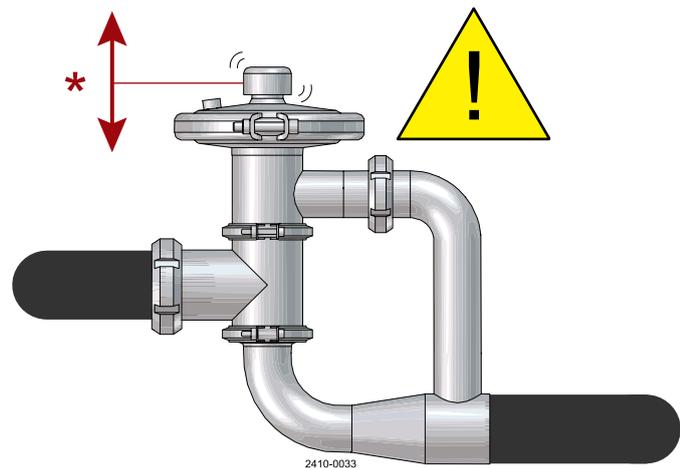


### Step 13

#### Pre-use check:

Lift and lower the valve top a few times to ensure that the valve operates smoothly.  
Pay special attention to the warning!

\* = Lift and lower by hand!



## 6 Technical data

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

### 6.1 Technical data

The valves are remote-controlled by means of compressed air. A diaphragm/valve plug system reacts immediately to any alteration of the product pressure and changes position so that the preset pressure is maintained.

Standard design The CPMI-2 and CPMO-2 consist of a valve body with valve seat, cover, a valve plug with a diaphragm unit and a clamp.

The cover and the valve body are clamped together.

The valve body and the seat are welded together. The CPM-I-D60 consists of upper and lower valve bodies, an inlet tube, a cover, a valve plug with diaphragm unit and clamps. The cover and the valve bodies are clamped together.

Valve - data	
Max. product pressure	1000 kPa (10 bar) (145 psi)
Min. product pressure	0 kPa (0 bar = Atmospheric)
Temperature range	-10 °C to +95 °C (14 °F to 203 °F)
Temperature range (with upper diaphragm in PTFE/EPDM)	-10 °C to +140 °C (14 °F to 284 °F)
Air pressure	0 to 600 kPa (0 to 6 bar) (0 to 87 psi)
Flow range Kv (Lv), fully open ( $\Delta p = 1 \text{ bar} / 14.5 \text{ psi}$ )	Approx. 60 m <sup>3</sup> /h ( 264 gal/m)
Valve - materials	
Product wetted steel parts	AISI 316L/1.4404
Other steel parts	AISI 304
Upper diaphragm	Nitrile (NBR), (standard)
Lower diaphragm	PTFE covered EPDM rubber, (standard)
Alternative upper diaphragm	EPDM/PTFE, (for temperatures 95-140 °C) (203°F to 284 °F)
O-ring	Nitrile (NBR), (standard)
Alternative lower diaphragm	Solid Teflon (PTFE), (for temperatures above 140 °C) (284 °F) O-ring Nitrile (NBR), (standard)
Alternative O-ring	Flourinated rubber (FPM), (for temperatures above 95 °C) (203 °F)
Finish	Semi bright

#### Weight (kg)

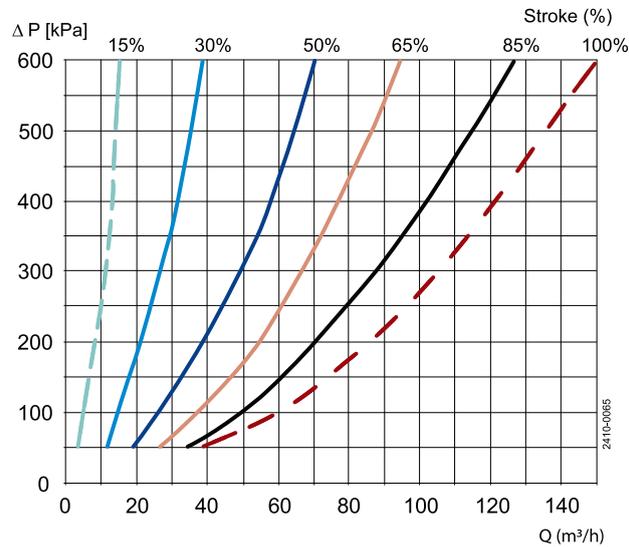
Size	CPMI - 2			CPMO - 2			CPM-I-D60
	Kv 23	Kv 7	Kv 2/15	Kv 23	Kv 9	Kv 2/15	76 mm
Weight (kg)	5.5	5.5	5.5	5.5	5.5	5.5	10

#### Noise

One meter away from - and 1.6 meter above the exhaust the noise level of a valve actuator will be approximately 77dB(A) without noise damper and approximately 72 dB(A) with noise damper - Measured at 7 bars air-pressure.

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

## 6.2 Selection / Pressure drop – capacity diagram



### NOTE!

For the diagrams the following applies:

Medium: Water (20°C) (68°F).

Measurement: In accordance with VDI 2173.

### Example of using the diagram :

Pressure drop  $\Delta p = 300$  kPa.

Flow = 50 m<sup>3</sup>/h.

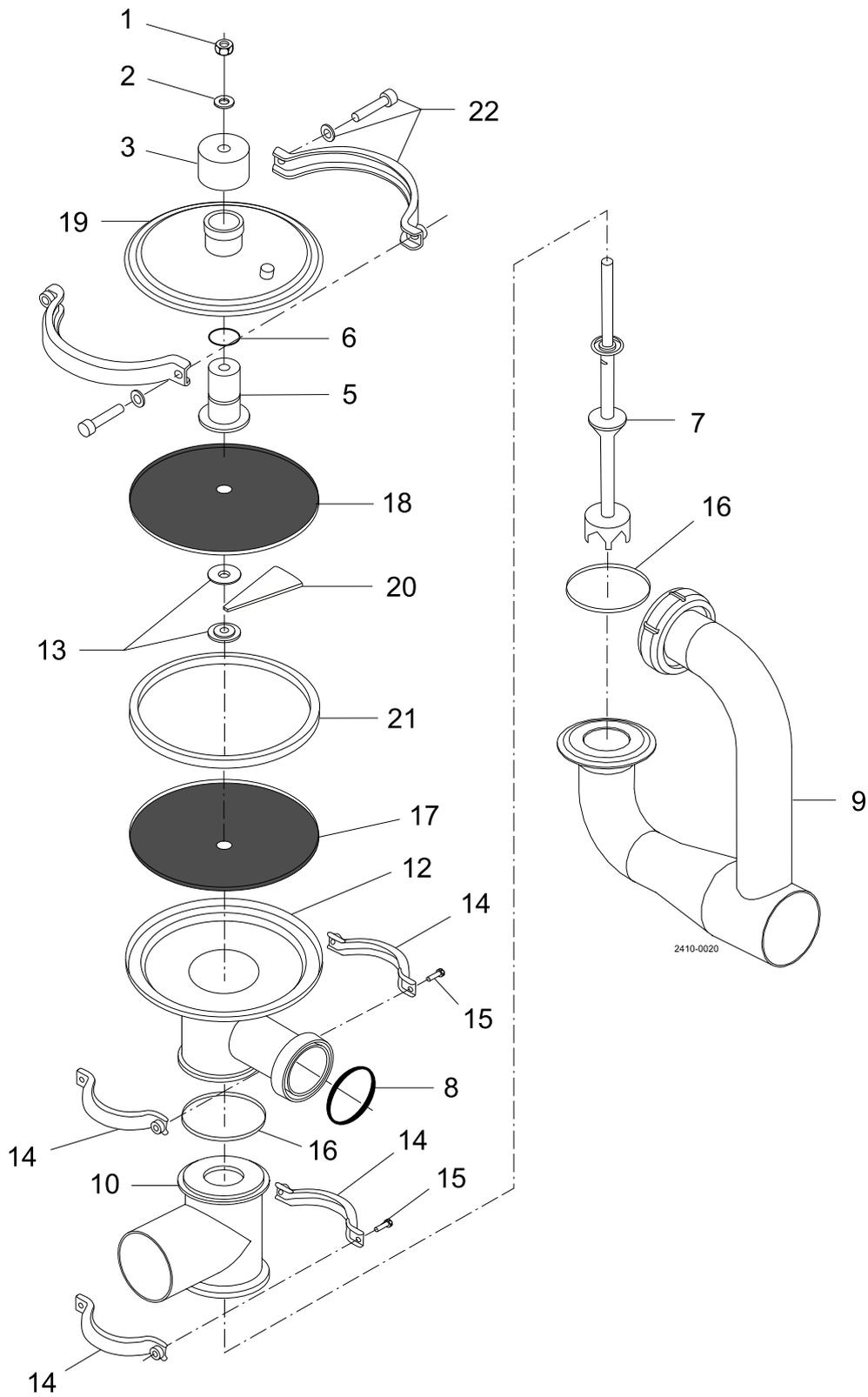
The intersection is on the 50% curve





## 7 Parts lists and service kit

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



## 7 Parts lists and service kit

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

### Parts list

Pos.	Qty	Denomination
1	1	Nut
2	1	Washer
3	1	Top
5	1	Guide
6 □	1	O-ring
7	1	Plug
8 □	1	Seal ring
9	1	Inlet tube
10	1	Valve body, lower
12	1	Valve body
13	2	Inner ring
14+15	2	Clamps and screws (Period 9209-)
14	4	Clamp half (Period -9209)
15	4	Screw (Period -9209)
16 □	2	Valve body seal ring
17 □	1	Diaphragm, PTFE covered EPDM (std.) (product side)
18 □	1	Diaphragm
19	1	Cover
20	12	Support sector
21	1	Outer ring
22	1	Clamp set (Period 9310- )

### Service kits

#### Denomination

#### Product wetted parts

□ **Service kit (std.)** ..... **9611920119**

Parts marked with □ are included in Service kit.

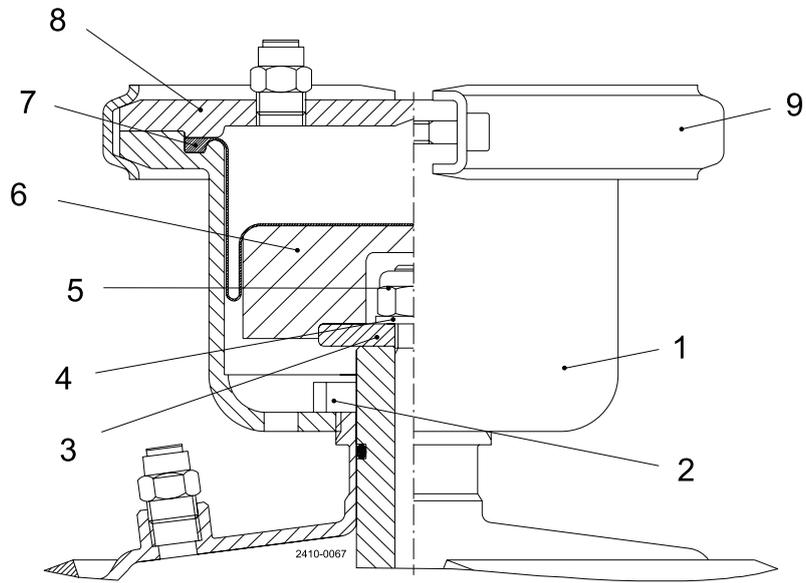
Recommended spare parts: Service kit.

900-126/1



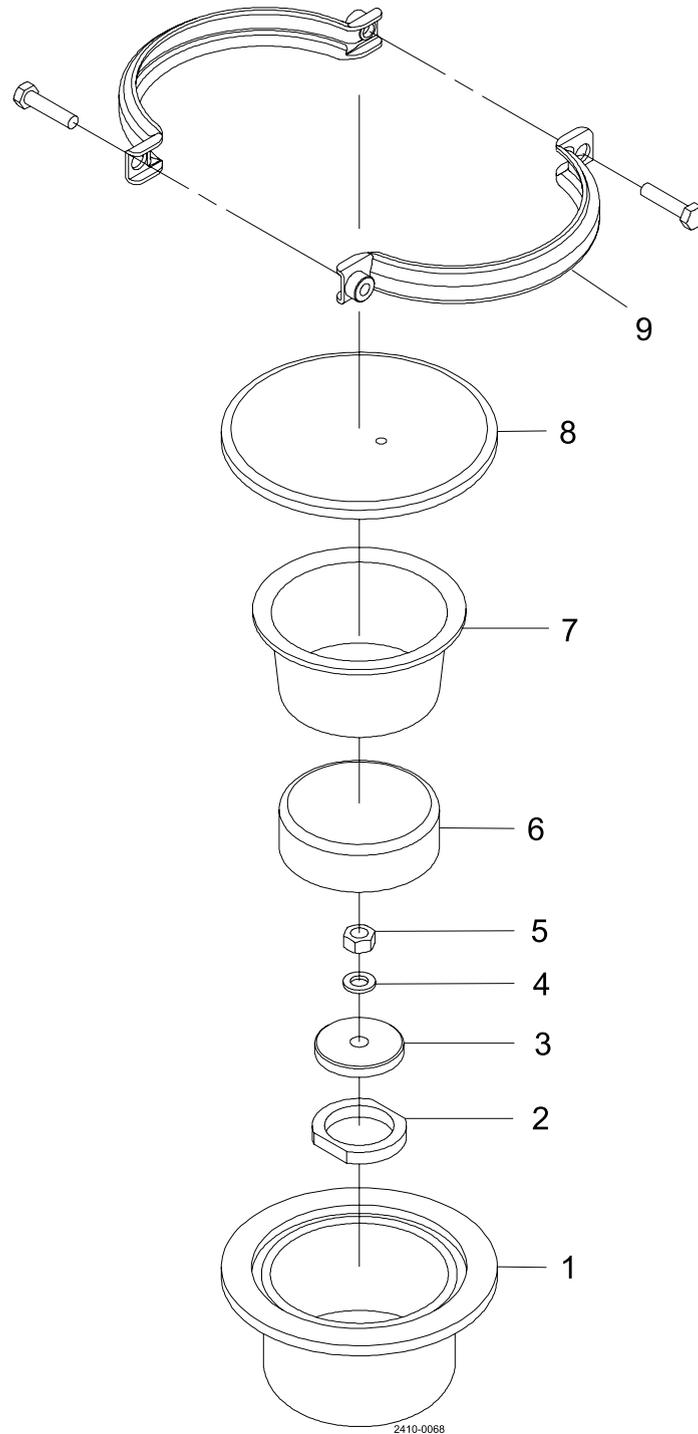
*It is important to observe the technical data during installation, operation and maintenance.  
Inform the personnel about the technical data.*

### 7.2 Booster



## 7 Parts lists and service kit

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



## 7 Parts lists and service kit

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

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### Parts list

Pos.	Qty	Denomination
1	1	Booster housing
2	1	Lock nut
3	1	Washer
4	1	Spring washer
5	1	Nut
6	1	Booster piston
7	1	Diaphragm
8	1	Booster cover
9	1	Clamps and screws

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