



Instruction manual

SCANDI BREW® Tank pressure regulator, Type 1 and 2



To the owner

Dear owner,

This Instruction Manual is your instant guide when dealing with your Alfa Laval equipment. Alfa Laval advises you to study it carefully, and to ensure its availability to those who install, maintain and operate the equipment on a daily basis.

Furthermore, it is important that you:

- keep this documentation for the life of the equipment.
- incorporate any amendments in the text.
- pass on the documentation to any subsequent holder or user of the equipment.

The equipment described in this manual is only intended for use in non-hazardous applications within the food or pharmaceutical industries.

Alfa Laval will not be responsible for any breakdown of the equipment caused by the owner's failure to follow the instructions given in this document.

This Instruction Manual describes the authorized way to use the equipment. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.

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

1. General description

The SCANDI BREW® Tank pressure regulator, Type 1 and Type 2 is used to maintain and regulate top pressure on pressure tanks during filling, processing and emptying. It has a modular design to suit different requirements.

1.1 Tank pressure regulator, Type 1

Construction:

The pressure regulator comprises of a single valve unit including pressure relief valve, pressure supply valve, and connection for pressure guage. On top is a ventport with outlet connection.

Materials:

Valve block and vent port:	1.4307 (AISI 304L).
Valve bodies (as standard):	PP and stainless steel with EPDM gaskets.
All other parts:	Non-toxic food grade materials.

The correct sizing depends on gas volume to pass during filling, fermenting, or emptying. The table below can be used as a guideline for standard fermentation:

Dimensions	Max. filling/emptying/ CO2 formation rate	Max. Working capacity of fermenter*
1" / DN 25	250 hl/h	1000 hl
1½" / DN 40	500 hl/h	2000 hl

* At max. fermentation rate 2.4 deg. Plato / 24 hrs.

Standard operating pressure ranges up to 3,0 bar/ 43,5 psi/ 300 kPa.

The pressure regulator is available with spring regulation in following versions:

- Fixed setting (one pressure only)
- Variable setting
- Pneumatic actuator
- Force opener

The pressure regulator is produced with weld type ends, but can be delivered with threaded connections to suit customer specifications, i.e. BSP, NW, RJT, IDF, DS, SMS or Tri-Clamp.

Refer chapter 6, for technical data of SCANDI BREW® Pressure regulator.

(For order code refer section - 7, page 24)



Fig. 1

1.2 Tank pressure regulator, Type 2

Construction:

The pressure regulator comprises of a single valve unit including pressure relief valve, pressure supply valve, and connection for pressure gauge. On top is a ventport with outlet connection.

Materials:

Valve block and vent port:	1.4307 (AISI 304L).
Valve bodies (as standard):	PP and stainless steel with EPDM gaskets.
All other parts:	Non-toxic food grade materials.

The correct sizing depends on gas volume to pass during filling, fermenting, or emptying. The table below can be used as a guideline for standard fermentation:

Dimensions	Max. Filling/emptying/ CO ₂ formation rate	Max. Working capacity of fermenter*
2" / DN 50	1000 hl/h	4000 hl
3" / DN 80	2000 hl/h	8000 hl
4" / DN 100	3000 hl/h	12000 hl

* At max. fermentation rate 2.4 deg. Plato / 24 hrs.

Standard operating pressure ranges up to 3,0 bar/ 43,5 psi/ 300 kPa.

The pressure regulator is available with spring regulation in following versions:

- Fixed setting (one pressure only)
- Variable setting
- Pneumatic actuator
- Force opener

The pressure regulator is produced with weld type ends, but can be delivered with threaded connections to suit customer specifications, i.e. BSP, NW, RJT, IDF, DS, SMS or Tri-Clamp.

Refer chapter 6, for technical data of SCANDI BREW® Pressure regulator.

(For order code refer section - 7, page 25)



Fig. 2

Tank pressure regulator, Type 1 and Type 2 are available in following executions:

1. Constant pressure regulator with fixed spring loading, pressure gauge and vacuum valve. (See fig. 2)
2. Constant pressure regulator with fixed spring loading, pressure gauge with safety valve, and vacuum valve. (See fig. 3)
3. Constant pressure regulator (adjust. spring loading) with safety valve for pressure gauge and CIP adapter. (See fig. 4)

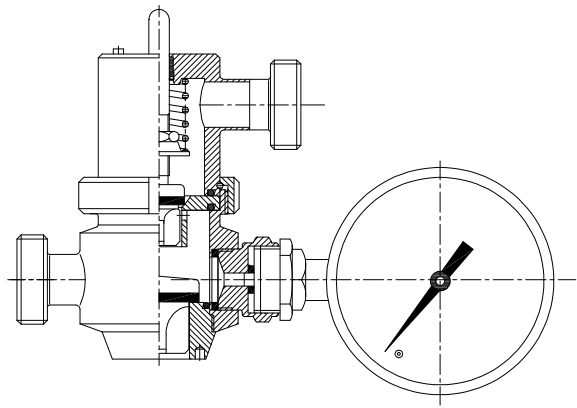


Fig. 2

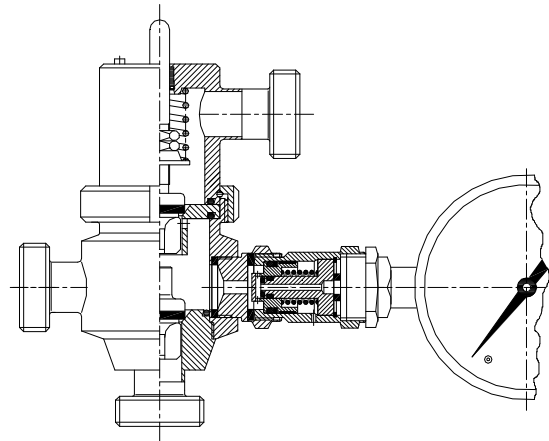


Fig. 3

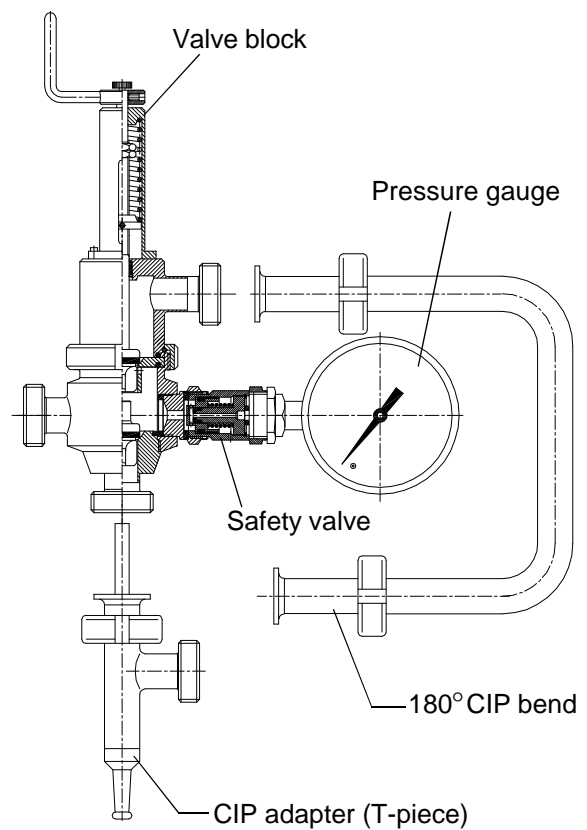


Fig. 4

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 regulator.
NOTE!	:	Indicates important information to simplify practices or to make them clearer.

2.2 Warning signs:



: General warning



: Caustic agents



: Spring under load

2.3 Safety precautions:

Installation



- : Always read the technical data thoroughly (see chapter 6).

Operation



- : Always read the technical data thoroughly. (see chapter 6).

- : Never touch the regulator or the pipelines when processing hot fluids or when sterilizing.



- : Always handle acid and lye with great care.

Maintenance



- : Always read the technical data thoroughly. (see chapter 6).

- : Never service the regulator when it is hot.

- : Never service the regulator with regulator and tank / pipelines under pressure or with product.



- : Spring under load.

3. Installation

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

3.1 Unpacking/Delivery:

Step 1:

CAUTION!

We cannot be held responsible for incorrect unpacking.

Check the delivery for:

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

NOTE!

Inspect the regulator for visible transport damages.

Step 2:

- Remove possible packing materials from the inlet and outlet connections.
- Avoid damaging the inlet and the outlet connections.
- Avoid damaging the pressure gauge and safety valve (if provided).

3.2 General installation:

Step 1:



- Always read the technical data thoroughly (see chapter 6).

CAUTION!

Alfa Laval cannot be held responsible for incorrect installation.

Step 2:

Tank connection at side branch is normally connected to the pipe leading to the tank top. Optionally it is connected with extra support by means of bracket fixed on reverse side of valve block.

It is also possible to incorporate the pressure regulator in a flow panel.

Step 3:

Ensure that the connections are tight.

4. Operation

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

WARNING!



- Always read the technical data thoroughly. (see chapter 6).
- Never touch the regulator or the pipelines when processing hot fluids or when sterilizing.

4.1 General operation:

The valve unit can be supplied with or without variable setting. When the unit is supplied with variable setting the relieving pressure is adjusted to the required working pressure in the tank.

When the tank top pressure exceeds preset pressure (e.g. during filling or fermentation) gas leaves the pressure regulator through the vent port either for atmospheric discharge or for collection.

If the tank pressure decreases (e.g. during emptying) gas is supplied through the gas supply connection at the bottom.

CAUTION!

We cannot be held responsible for incorrect operation.

4.2 Cleaning:

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

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

WARNING!



- Always handle lye and acid with great care.
- Avoid excessive concentration of the cleaning agent. Dose gradually.
- Always rinse well with water after the cleaning.



- Never touch the valve or the pipelines when processing hot fluids or when sterilizing.

The pressure regulator is easily incorporated in the tank CIP procedure by means of the CIP adaptor.

Before cleaning the CIP adaptor is mounted on the pressure regulator whereby gas supply valve and pressure relief valve are forced open and fully cleaned in bypass.

NOTE!

During the CIP procedure all functions are blocked.

Can be HOT!



Burning Danger

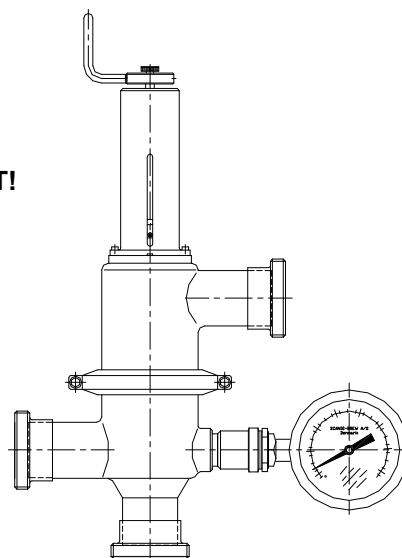


Fig. 5



Always use
rubber gloves



Always use
protective glasses

Fig. 6

Examples of cleaning agents:

NaOH - Caustic soda

HNO₃ - Nitric acid.

Use clean water, free from chlorides.

NOTE!

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

5. Maintenance

Maintain the valve carefully.

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

WARNING!



- Always read the technical data thoroughly (see chapter 6).
- Never service the regulator when it is hot.
- Never service the regulator with regulator and tank/pipelines under pressure or with product.

5.1 Introduction:

A disciplined maintenance programme is essential to minimize breakdowns, and maximize equipment life.

It is important that the regulator is inspected regularly.

When included in CIP procedure - periodic disassembling to check the internal appearance and the condition of valve bodies and joints is necessary. Gaskets and O-rings to be replaced approx. every 2-3 years.

NOTE!

Make sure that any work carried out is safe for personnel and property before the equipment is put back into operation.

If you need assistance or have questions - please contact Alfa Laval SCANDI BREW.

Can be HOT!

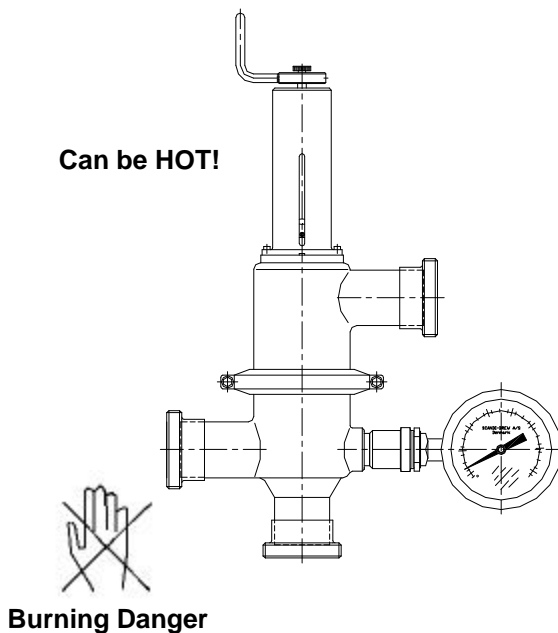


Fig. 7

5.2 Demounting the regulator, Type 1

5.2.1 Constant Pr. regulator, 1", with pressure gauge:

Tools for demounting:

1. Special key for Nut (pos. 10), size 60-90mm
(Order code: 10-07020001)

Step 1:

Sectional view of the regulator is seen in fig. 8.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.

WARNING!



- Spring is under load.

2. Unscrew the nut (pos. 10) using the special key, size 60-90 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace O-rings (pos. 9), if required.
4. Replace gasket (pos. 5 and 52), if required.

Step 3:

1. To replace Shamban with O-ring (pos. 16), pull out the valve stem assembly from the CO2 housing (pos. 15).
2. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

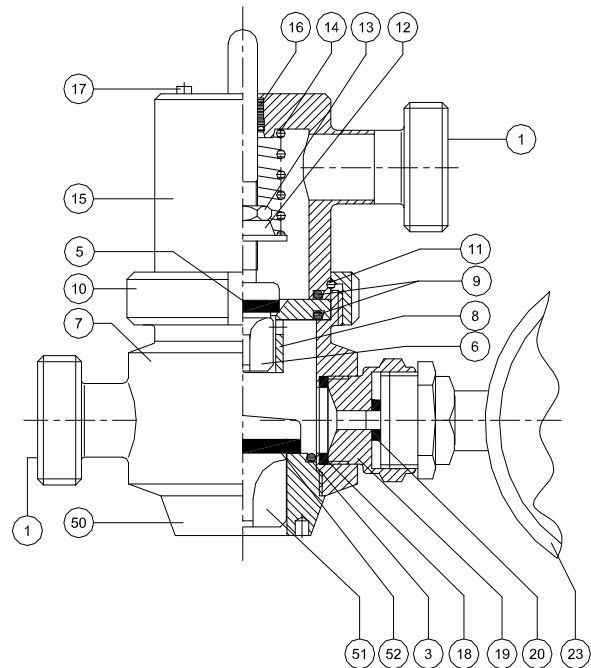


Fig. 8

5.2.2 Constant Pr. regulator, 1", w. adjust. spring loading:

Tools for demounting:

1. Special key for Nut (pos. 10), size 60-90mm (Order code: 10-07020001)
2. Allen key, size 3 mm for screw (pos. 17).
3. Allen key, size 2.5 mm for screw (pos. 46).
4. Allen key, size 2 mm for screw (pos. 42).

Step 1:

Sectional view of the regulator is seen in fig. 9.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.
2. Unscrew the nut (pos. 10) using the special key, size 60-90 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace O-rings (pos. 9 and 52), if required.
4. Replace gasket (pos. 5), if required.

Step 3:

1. Unscrew the screw (pos. 46) using Allen key, size 2.5 mm.
2. Unscrew the screw (pos. 47) and remove the regulation handle (pos. 45).
3. Unscrew the screws (pos. 17) using Allen key, size 3 mm. Pull out the spring housing (pos. 40).
4. Pull out the spring (pos. 44).
5. Unscrew the counter nut (pos. 13).
6. Unscrew the screw (pos. 42) using Allen key, size 2 mm. Pull out the spring seat (pos. 41). The valve stem (pos. 43) can now be pulled out of the CO2 housing (pos. 15).
7. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

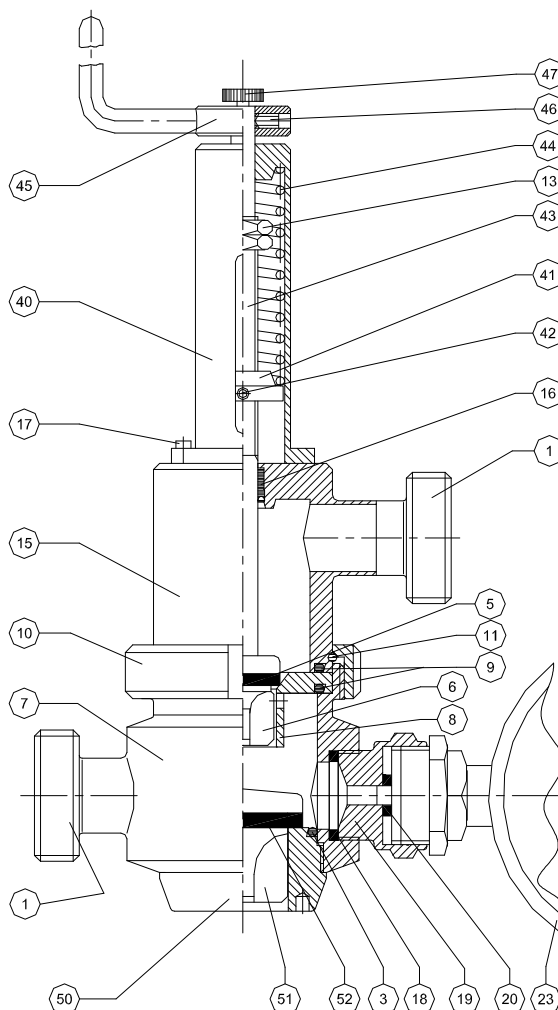


Fig. 9

5.2.3 Constant Pr. regulator, 1 1/2", with pressure gauge:

Tools for demounting:

1. Special key for Nut (pos. 10), size 90-155mm
(Order code: 10-07020002)

Step 1:

Sectional view of the regulator is seen in fig. 10.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.

WARNING!



- Spring is under load.

2. Unscrew the nut (pos. 10) using the special key, size 90-155 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace O-rings (pos. 9), if required.
4. Replace gasket (pos. 5 and 52), if required.

Step 3:

1. To replace Shamban with O-ring (pos. 16), pull out the valve stem assembly from the CO2 housing (pos. 15).
2. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

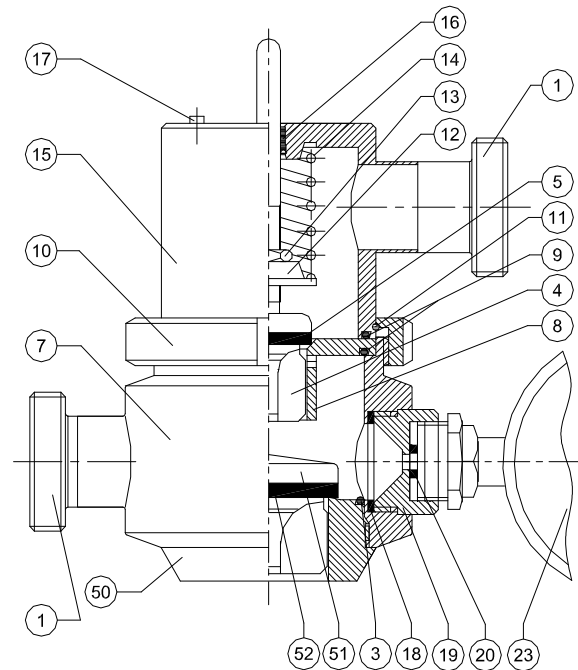


Fig. 10

5.2.4 Const. Pr. regulator, 1 1/2" w. adjust. spring loading:

Tools for demounting:

1. Special key for Nut (pos. 10), size 90-155mm (Order code: 10-07020002)
2. Allen key, size 3 mm for screw (pos. 17).
3. Allen key, size 2.5 mm for screw (pos. 46).
4. Allen key, size 2 mm for screw (pos. 42).

Step 1:

Sectional view of the regulator is seen in fig. 11.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve
2. Unscrew the nut (pos. 10) using a special key, size 90-155 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace O-rings (pos. 9), if required.
4. Replace gasket (pos. 5 and 52), if required.

Step 3:

1. Unscrew the screw (pos. 46) using Allen key, size 2.5 mm.
2. Unscrew the screw (pos. 47) and remove the regulation handle (pos. 45).
3. Unscrew the screws (pos. 17) using Allen key, size 3 mm. Pull out the spring housing (pos. 40).
4. Pull out the spring (pos. 44).
5. Unscrew the counter nut (pos. 13).
6. Unscrew the screw (pos. 42) using Allen key, size 2 mm. Pull out the spring seat (pos. 41). The valve stem (pos. 43) can now be pulled out of the CO2 housing (pos. 15).
7. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

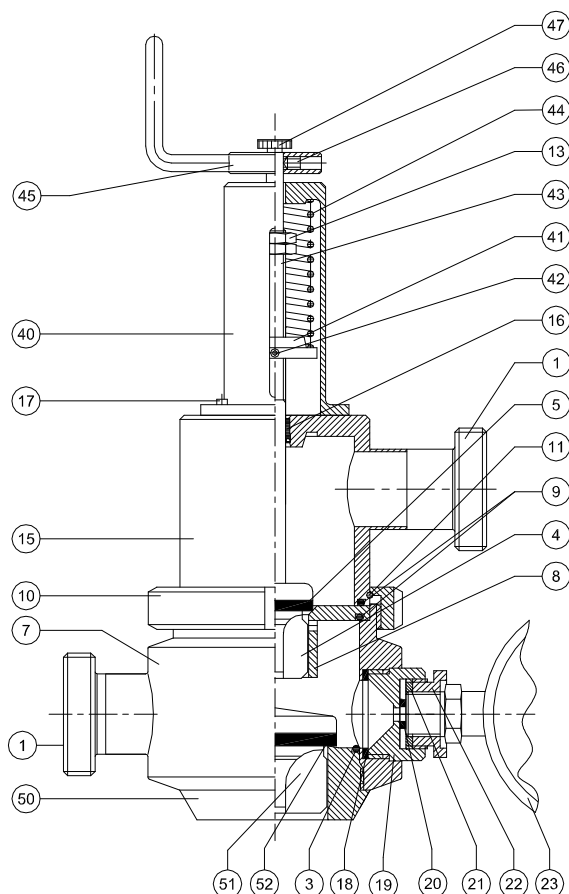


Fig. 11

5.3 Demounting the regulator, Type 2

5.3.1 Constant Pr. regulator, 2", with pressure gauge:

Tools for demounting:

1. Allen key, size 5 mm for clamp ring (pos. 10).

Step 1:

Sectional view of the regulator is seen in fig. 12.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.

WARNING!



- Spring is under load.

2. Unscrew the clamp ring (pos. 10) using Allen key, size 5 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace the gaskets (pos. 9), if required.
4. Replace gasket (pos. 5), if required.

Step 3:

1. To replace Shamban with O-ring (pos. 16), pull out the valve stem assembly from the CO2 housing (pos. 15).
2. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

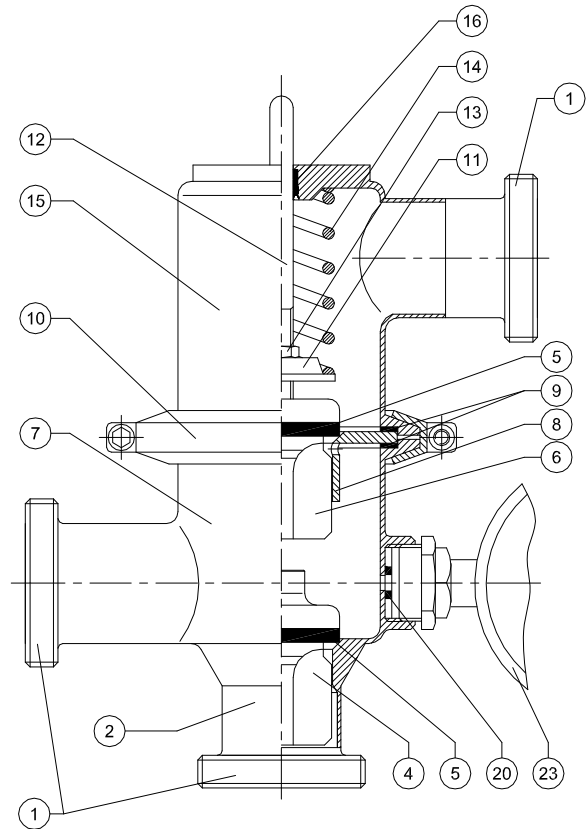


Fig. 12

5.3.2 Constant Pr. regulator 2” w. adjust. spring loading:

Tools for demounting:

1. Allen key, size 5 mm for clamp ring (pos. 10).
2. Allen key, size 3 mm for screw (pos. 17).
3. Allen key, size 2.5 mm for screw (pos. 46).
4. Allen key, size 2 mm for screw (pos. 42).

Step 1:

Sectional view of the regulator is seen in fig. 13.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.
2. Unscrew the clamp ring (pos. 10) using Allen key, size 5 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace gaskets (pos. 9), if required.
4. Replace gasket (pos. 5), if required.

Step 3:

1. Unscrew the screw (pos. 46) using Allen key, size 2.5 mm.
2. Unscrew the screw (pos. 47) and remove the regulation handle (pos. 45).
3. Unscrew the screws (pos. 17) using Allen key, size 3 mm. Pull out the spring housing (pos. 40).
4. Pull out the spring (pos. 44).
5. Unscrew the counter nut (pos. 13).
6. Unscrew the screw (pos. 42) using Allen key, size 2 mm. Pull out the spring seat (pos. 41). The valve stem (pos. 43) can now be pulled out of the CO2 housing (pos. 15).
7. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

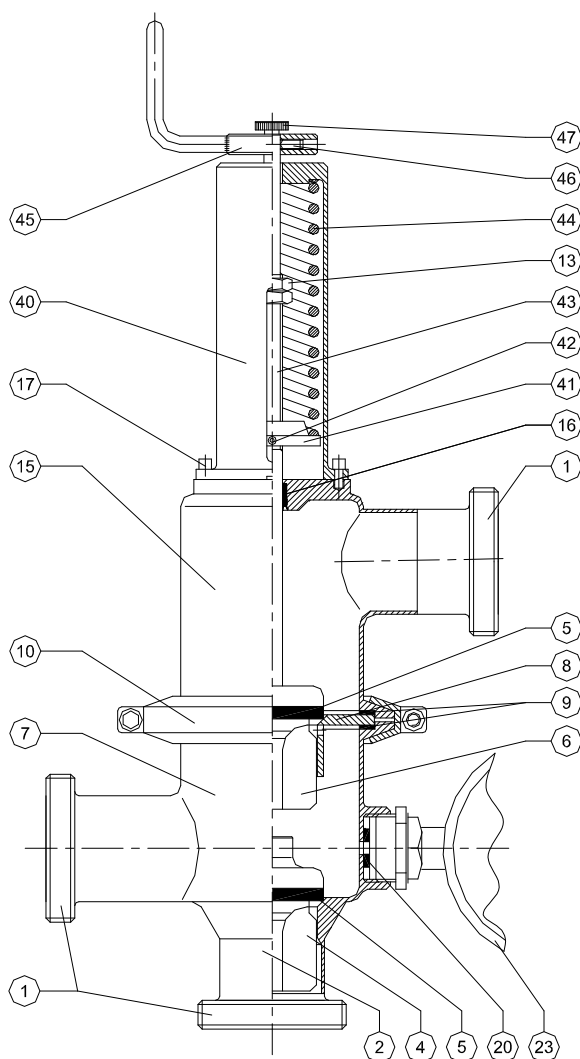


Fig. 13

5.3.3 Constant Pr. regulator, 3", with pressure gauge:

Tools for demounting:

1. Allen key, size 5 mm for clamp (pos. 10).

Step 1:

Sectional view of the regulator is seen in fig. 14.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.

WARNING!



- Spring is under load.

2. Unscrew the clamp (pos. 10) using the Allen key, size 5 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace the gaskets (pos. 9), if required.
4. Replace gasket (pos. 60), if required.

Step 3:

1. To replace Shamban with O-ring (pos. 16), pull out the valve stem assembly from the CO2 housing (pos. 15).
2. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

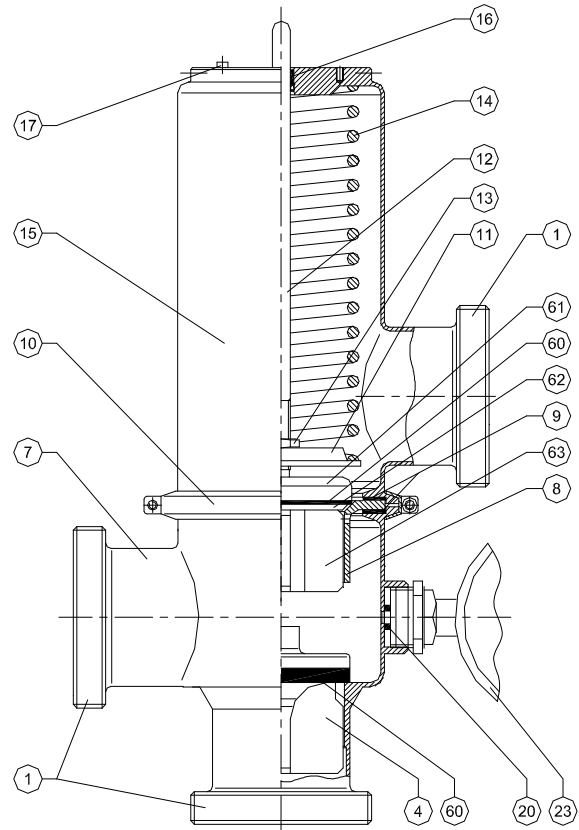


Fig. 14

5.3.4 Constant Pr. regulator 3” w. adjust. spring loading:

Tools for demounting:

1. Allen key, size 5 mm for clamp ring (pos. 10).
2. Allen key, size 3 mm for screw (pos. 17).
3. Allen key, size 2.5 mm for screw (pos. 45).
4. Allen key, size 4 mm for screw (pos. 42).

Step 1:

Sectional view of the regulator is seen in fig. 15.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.
2. Unscrew the clamp (pos. 10) using the Allen key, size 5 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace gaskets (pos. 9), if required.
4. Replace gasket (pos. 60), if required.

Step 3:

1. Unscrew the screw (pos. 45) using Allen key, size 2.5 mm.
2. Unscrew the screw (pos. 47) and remove the regulation handle (pos. 46).
3. Unscrew the screws (pos. 17) using Allen key, size 3 mm. Pull out the spring housing (pos. 40).
4. Pull out the spring (pos. 44).
5. Unscrew the counter nut (pos. 13).
6. Unscrew the screw (pos. 42) using Allen key, size 4 mm. Pull out the spring seat (pos. 41). The valve stem (pos. 43) can now be pulled out of the CO2 housing (pos. 15).
7. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

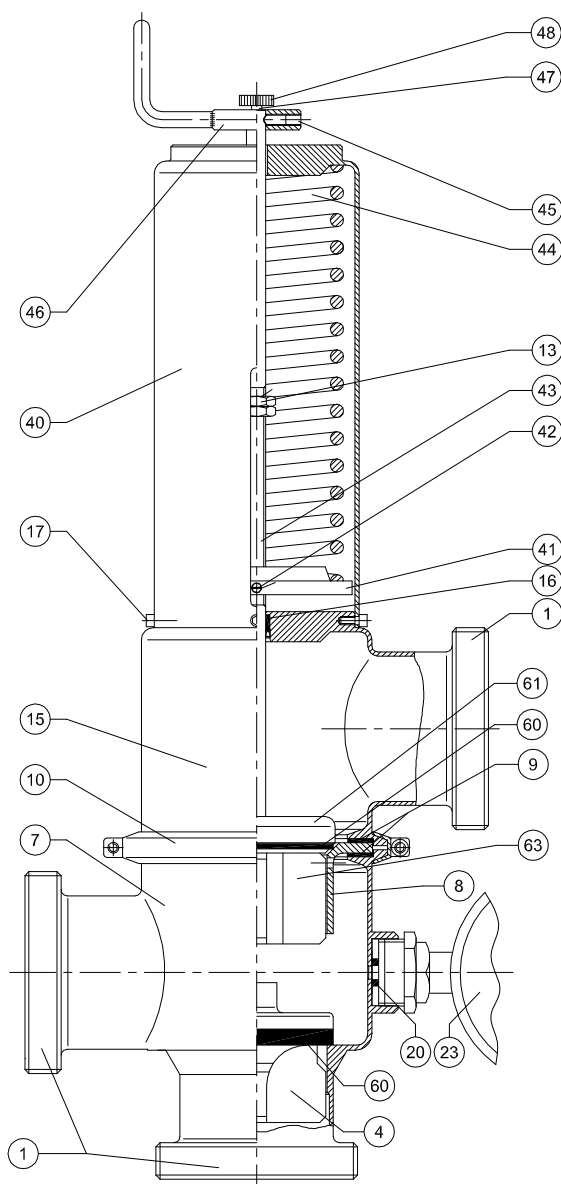


Fig. 15

5.3.5 Constant Pr. regulator, 4", with pressure gauge:

Tools for demounting:

1. Allen key, size 6 mm for clamp ring (pos. 10).

Step 1:

Sectional view of the regulator is seen in fig. 16.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.

WARNING!



- Spring is under load.

1. Take the pressure off the valve.
2. Unscrew the clamp ring (pos. 10) using the Allen key, size 6 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace gaskets (pos. 9), if required.
4. Replace gasket (pos. 60), if required.

Step 3:

1. To replace Shamban with O-ring (pos. 16), pull out the valve stem assembly from the CO2 housing (pos. 15).
2. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

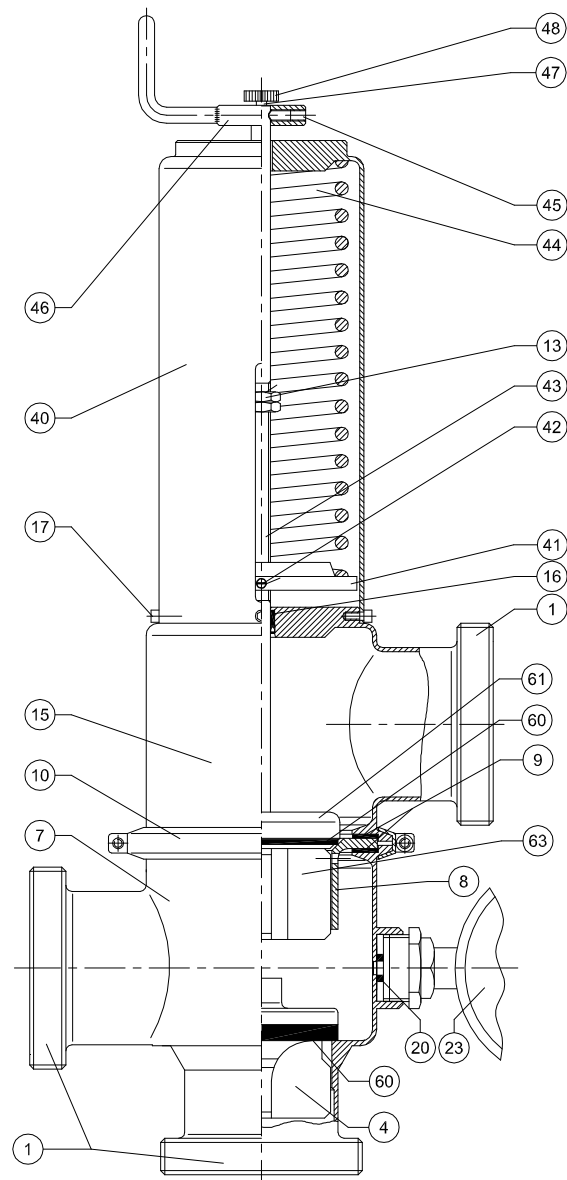


Fig. 16

5.3.6 Constant Pr. regulator 4” w. adjust. spring loading:

Tools for demounting:

1. Allen key, size 6 mm for clamp ring (pos. 10).
2. Allen key, size 3 mm for screw (pos. 17).
3. Allen key, size 2.5 mm for screw (pos. 45).
4. Allen key, size 4 mm for screw (pos. 42).

Step 1:

Sectional view of the regulator is seen in fig. 17.

Detach the valve from the piping system. Replace gasket (pos. 1), if required.

Step 2:

1. Take the pressure off the valve.
2. Unscrew the clamp ring (pos. 10) using the Allen key, size 6 mm. The CO2 housing (pos. 15) will be detached from the valve housing (pos. 7).
3. Remove the seat for pressure valve (pos. 8) and replace gaskets (pos. 9), if required.
4. Replace gasket (pos. 60), if required.

Step 3:

1. Unscrew the screw (pos. 45) using Allen key, size 2.5 mm.
2. Unscrew the screw (pos. 47) and remove the regulation handle (pos. 46).
3. Unscrew the screws (pos. 17) using Allen key, size 3 mm. Pull out the spring housing (pos. 40).
4. Pull out the spring (pos. 44).
5. Unscrew the counter nut (pos. 13).
6. Unscrew the screw (pos. 42) using Allen key, size 4 mm. Pull out the spring seat (pos. 41). The valve stem (pos. 43) can now be pulled out of the CO2 housing (pos. 15).
7. Replace the Shamban with O-ring (pos. 16), if required.

Assembly:

Assembly is carried out in opposite order of demounting.

CAUTION!

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

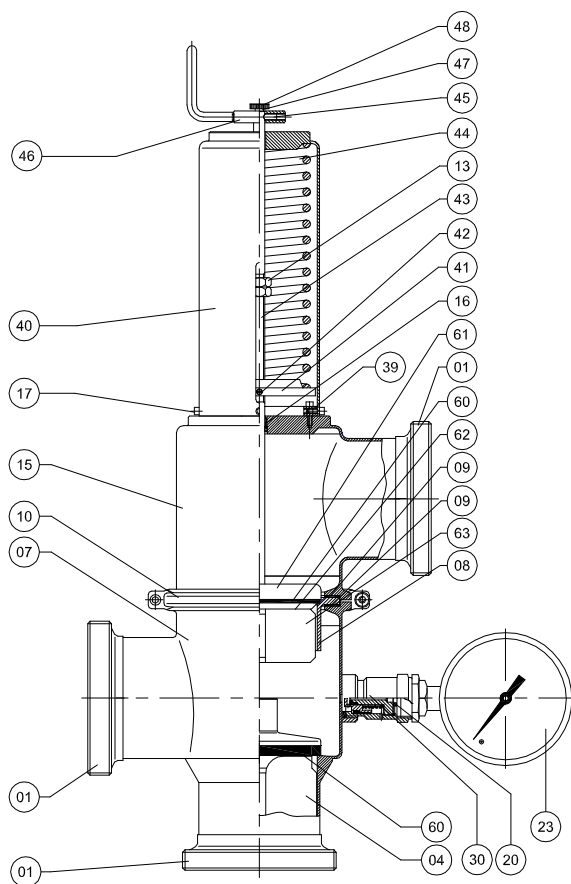


Fig. 17

5.4 General maintenance:

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

Always keep spare O-rings, gaskets and diaphragms in stock.

Recommended spare parts: Service kits.

Order service kits from the service kits list (see chapter 7).

Ordering spare parts:

Contact: www.alfalaval.com

Activity	Valve O-rings	Valve gaskets
Preventive maintenance	Replace after 24-36 months	Replace after 24-36 months
Maintenance after leakage (leakage normally starts slowly)	Replace by the end of the day	Replace when replacing the valve O-rings
Planned maintenance	<ul style="list-style-type: none">- Regular inspection for leakage and smooth operation- Keep a record of the valve- Use the statistics for planning of inspections Replace after leakage	Replace when replacing the valve O-rings
Lubrication	<i>Before fitting:</i> (use USDA-H1 approved) <ul style="list-style-type: none">- Unisilicon L641(*)- Paraliq (*) GTE 703- Molycote 111 (D)	None

6. Technical data

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

6.1 Technical data:

Materials:

Valve block and vent port:	1.4307 (AISI 304L).
Valve bodies (as standard):	PP and stainless steel with EPDM gaskets.
All other parts:	Non-toxic food grade materials.

The correct sizing depends on gas volume to pass during filling, fermenting, or emptying. The table below can be used as a guideline for standard fermentation:

Dimensions	Max. Filling/emptying/ CO ₂ formation rate	Max. Working capacity of fermenter*
1" / DN 25	250 hl/h	1000 hl
1½" / DN 40	500 hl/h	2000 hl
2" / DN50	1000 hl/h	4000 hl
3" / DN80	2000 hl/h	8000 hl
4" / DN 100	3000 hl/h	12000 hl

* At max. fermentation rate 2.4 deg. Plato / 24 hrs.

Standard operating pressure ranges up to 3,0 bar.

The pressure regulator is available with spring regulation in following versions:

- Fixed setting (one pressure only)
- Variable setting
- Pneumatic actuator

The pressure regulator is produced with weld type ends, but can be delivered with threaded connections to suit customer specifications, i.e. BSP, NW, RJT, IDF, DS, SMS or Tri-Clamp.

Extra equipment:

- CIP adaptor (T-piece and 180 deg. bend).
- Pressure gauge (1.6 - 2.5 or 4 bar).
- Protection valve for pressure gauge (Order code: 10-25382000) when CIP pressure exceeds range for pressure gauge.
- Mounting brackets (Order code: 30-2525014S).
- Force opener.
- Pneumatic actuator.

7. Order code

For ordering of spare parts, see your contact on
'www.alfalaval.com'

7.1 Pressure regulator, Type 1

7.1.1 Pressure regulator, 1”:

Thread after purpose	Vacuum valve in bottom	Pressure valve in bottom	Pressure valve in bottom + CIP bend + T-piece
With pressure gauge + fixed spring	20-2501000S	20-2511000S	20-2511100S
With pressure gauge + protection valve + fixed spring	20-2502000S	20-2512000S	20-2512100S
With pressure gauge + variable spring	20-2503000S	20-2513000S	20-2513100S
With pressure gauge + protection valve + variable spring	20-2504000S	20-2514000S	20-2514100S

7.1.2 Pressure regulator, 1 1/2”:

Thread after purpose	Vacuum valve in bottom	Pressure valve in bottom	Pressure valve in bottom + CIP bend + T-piece
With pressure gauge + fixed spring	20-2531000S	20-2541000S	20-2541100S
With pressure gauge + protection valve + fixed spring	20-2532000S	20-2542000S	20-2542100S
With pressure gauge + variable spring	20-2533000S	20-2543000S	20-2543100S
With pressure gauge + protection valve + variable spring	20-2534000S	20-2544000S	20-2544100S

7.2 Pressure regulator, Type 2

7.2.1 Pressure regulator, 2”:

Thread after purpose	Pressure valve in bottom	Pressure valve in bottom + CIP bend + T-piece
With pressure gauge + fixed spring	20-2561000S	20-2561100S
With pressure gauge + protection valve + fixed spring	20-2562000S	20-2562100S
With pressure gauge + variable spring	20-2563000S	20-2563100S
With pressure gauge + protection valve + variable spring	20-2564000S	20-2564100S

7.2.2 Pressure regulator, 3”:

Thread after purpose	Pressure valve in bottom	Pressure valve in bottom + CIP bend + T-piece
With pressure gauge + fixed spring	20-2586000S	20-2586100S
With pressure gauge + protection valve + fixed spring	20-2587000S	20-2587100S
With pressure gauge + variable spring	20-2588000S	20-2588100S
With pressure gauge + protection valve + variable spring	20-2589000S	20-2589100S

7.2.3 Pressure regulator, 4”:

Thread after purpose	Pressure valve in bottom	Pressure valve in bottom + CIP bend + T-piece
With pressure gauge + fixed spring	20-2595000S	20-2595100S
With pressure gauge + protection valve + fixed spring	20-2596000S	20-2596100S
With pressure gauge + variable spring	20-2597000S	20-2597100S
With pressure gauge + protection valve + variable spring	20-2598000S	20-2598100S

7.3 Spare Parts - Tank pressure regulator, Type 1

7.3.1 Tank pressure regulator, 1”:

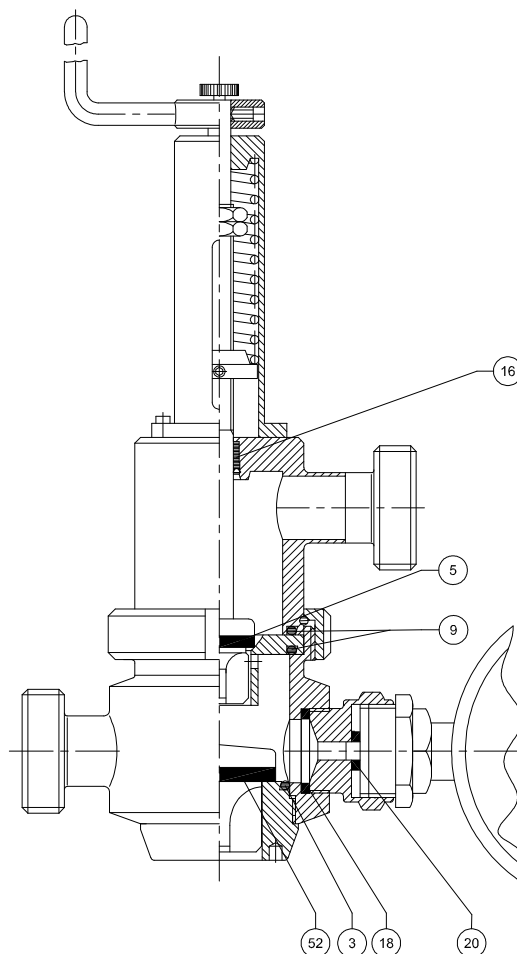


Fig. 18

*Service kit for 1” Pressure regulator

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-251A7	74-04286353	O-ring Ø42.86 x 3.53mm, EPDM	1	03
	72-02201504	Gasket Ø22/15 x 4mm 60° shore, NBR	2	05
	74-04604353	O-ring Ø46.04 x 3.53mm, EPDM	2	09
	10-01990131	Shamban Ø10 mm with O-ring, PTFE/EPDM	1	16
	10-01980300	Gasket Ø30/22 x 2mm, PTFE	2	18
	10-01950140	Gasket Ø19/5.5 x 3mm, EU	1	20
	72-03702795	Gasket Ø37/27 x 5mm, EPDM	1	52

* Applicable for all versions of 1” Pressure regulator.

7.3.2 Tank pressure regulator, 1 1/2”:

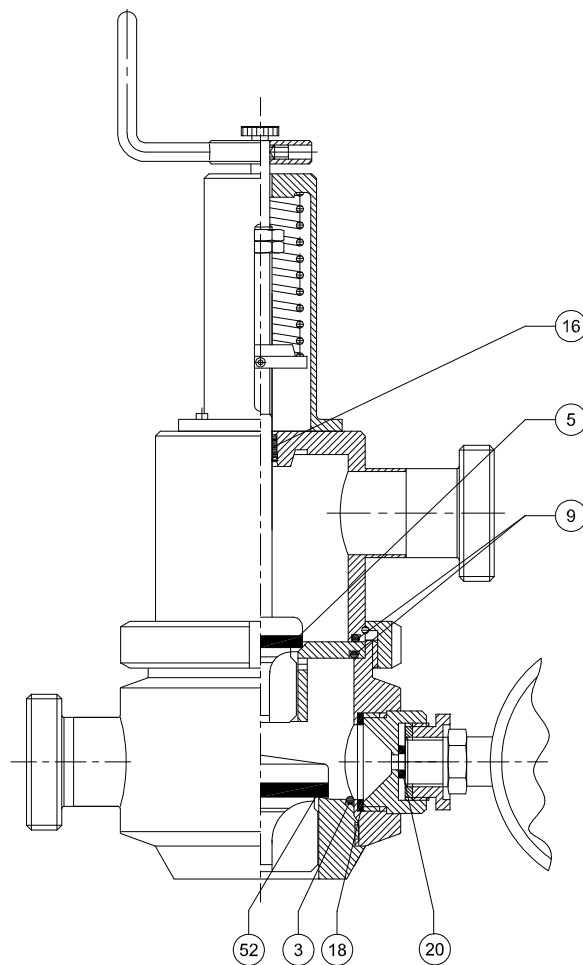


Fig. 19

***Service kit for 1 1/2” Pressure regulator**

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-254A7	74-07303353	O-ring Ø73.03 x 3.53mm, EPDM	3	03
	72-03302395	Gasket Ø33/23 x 5mm, EPDM	2	05
	10-01990131	Shamban Ø10 mm with O-ring, PTFE/EPDM	1	16
	10-01980420	Gasket Ø42/32 x 2mm, PTFE	2	18
	10-01950140	Gasket Ø19/5.5 x 3mm, EU	1	20
	72-05704594	Gasket Ø57/45 x 6mm, EPDM	1	52

* Applicable for all versions of 1 1/2” Pressure regulator.

7.4 Spare Parts - Tank pressure regulator, Type 2

7.4.1 Tank pressure regulator, 2”:

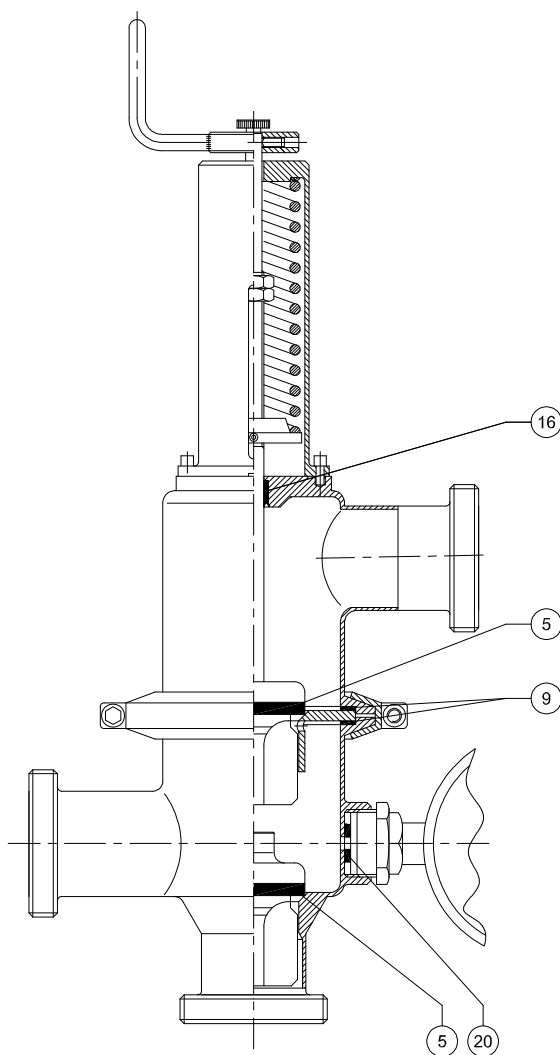


Fig. 20

*Service kit for 2” Pressure regulator

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-256A7	72-04803497	Gasket Ø48/34 x 7mm, EPDM	2	05
	72-10008402	Gasket Ø100/84 x 2mm, NBR	2	09
	10-01990131	Shamban Ø10mm with O-ring, PTFE/EPDM	1	16
	10-01950140	Gasket Ø19/5.5 x 3mm, EU	1	20

* Applicable for all versions of 2” Pressure regulator.

7.4.2 Tank pressure regulator, 3”:

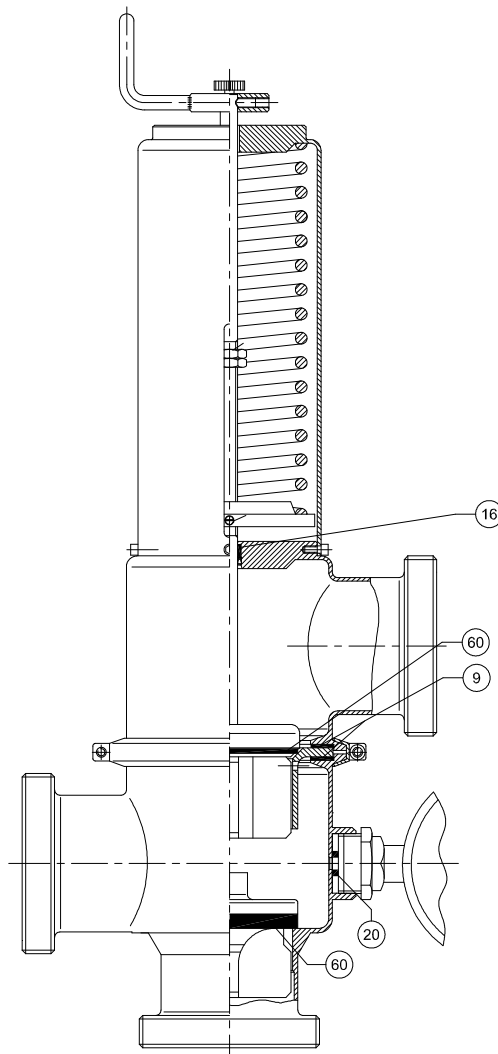


Fig. 21

*Service kit for 3” Pressure regulator

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-258A7	72-11509002	Gasket Ø115/90 x 2mm, NBR	2	09
	10-01990131	Shamban Ø10mm with O-ring, PTFE/EPDM	1	16
	10-01950140	Gasket Ø19/5.5 x 3mm, EU	1	20
	72-07405898	Gasket Ø74/58 x 8mm, EPDM	2	60

* Applicable for all versions of 3” Pressure regulator.

7.4.3 Tank pressure regulator, 4”:

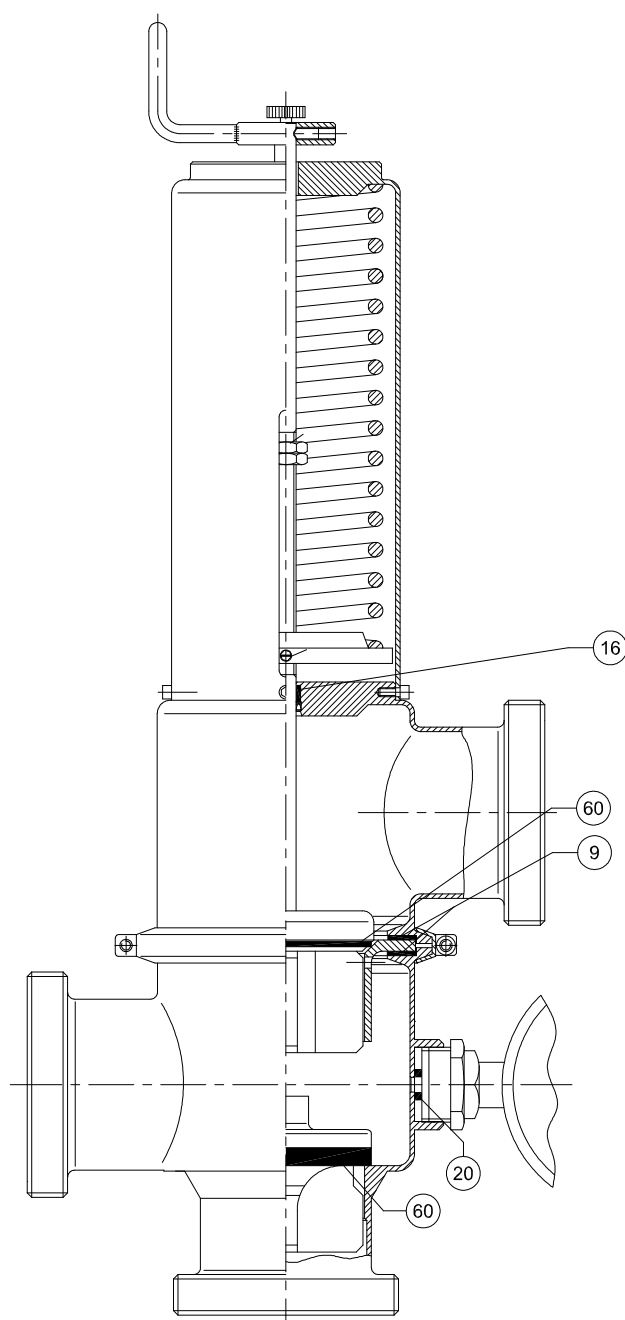


Fig. 22

*Service kit for 4” Pressure regulator

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-259A7	72-13611015	Gasket Ø136/110 x 1.5mm, NBR	2	09
	10-01990131	Shamban Ø10mm with O-ring, PTFE/EPDM	1	16
	10-01950140	Gasket Ø19/5.5 x 3mm, EU	1	20
	72-10208698	Gasket Ø102/86 x 8mm, EPDM	2	60

* Applicable for all versions of 4” Pressure regulator.

7.5 Spare parts - Protection valve:

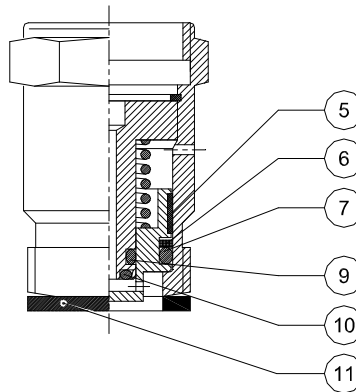


Fig. 23

*Service kit for Safety valve

Order code (Service kit)	Order code (Spare parts)	Description	Qty.	Position no.
S10-25382A7	10-01990010	Tape bushing 1 x 8.1, Ø26, PTFE	1	05
	10-01990050	Back-up ring Ø19.2 x 3mm, PTFE	1	06
	71-01920003	O-ring Ø19.2 x 3mm, NBR	1	07
	71-00630024	O-ring Ø6.3 x 2.4mm, NBR	1	09
	71-00430024	O-ring Ø4.3 x 2.4mm, NBR	1	10
	72-03302304	Gasket Ø33/23 x 4mm, 1" BSP, EPDM	1	11

- *Applicable for all sizes and versions of Pressure regulators.
- Spring is according to pressure gauge.



How to contact Alfa Laval

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

Please visit www.alfalaval.com to access the information direct.

Bourdon Tube Pressure Gauges Stainless Steel Series Model 232.50/233.50, without/with Liquid Filling

WIKA Data Sheet PM 02.02



Applications

- With liquid-filled case for applications with high dynamic pressure pulsations or vibrations
- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive ambience
- Process industries: chemical/petro-chemical, power stations, mining, on- and offshore, environmental technology, machine building and plant construction

Special Features

- Excellent load-cycle stability and shock resistance
- All stainless steel construction
- German Lloyd and Gosstandart approval
- Scale ranges up to 0 ... 1600 bar

Description

Design

EN 837-1

Nominal size in mm

63, 100, 160

Accuracy class

NS 63: 1.6

NS 100, 160: 1.0

Scale ranges

NS 63: 0 ... 1 to 0 ... 1000 bar

NS 100: 0 ... 0.6 to 0 ... 1000 bar

NS 160: 0 ... 0.6 to 0 ... 1600 bar

or all other equivalent vacuum or combined pressure and vacuum ranges



Bourdon Tube Pressure Gauge Model 232.50

Pressure limitation

NS 63:	Steady:	3/4 x full scale value
	Fluctuating:	2/3 x full scale value
	Short time:	full scale value
NS 100, 160:	Steady:	full scale value
	Fluctuating:	0.9 x full scale value
	Short time:	1.3 x full scale value

Operating temperature

Ambient:	-40 ... +60 °C without liquid filling
	-20 ... +60 °C gauges with glycerine filling
Medium:	+200 °C maximum without liquid filling
	+100 °C maximum with liquid filling

Temperature effect

When temperature of the measuring system deviates from reference temperature (+20 °C):
max. ±0.4 %/10 K of true scale value

Ingress protection

IP 65 per EN 60 529 / IEC 529

Standard version

Process connection

Stainless steel 316L,
lower mount (LM) or lower back mount (LBM)
NS 63: G ¼ B (male), 14 mm flats
NS 100, 160: G ½ B (male), 22 mm flats

Pressure element

Stainless steel 316L,
< 100 bar: C-type
≥ 100 bar: helical type

Movement

Stainless steel

Dial

Aluminium, white, black lettering,
NS 63 with pointer stop pin

Pointer

Aluminium, black

Case

Stainless steel, with pressure relief in case top (NS 63) or in case back (NS 100 and 160),
ranges ≤ 16 bar with compensating valve to vent case

Window: Laminated safety glass

Bezel ring: Cam ring (bayonet type), stainless steel

Liquid filling (for Model 233.50): Glycerine 99.7 %

Special versions

Ammonia gauges (NS 100 and 160)

Scale in °C for refrigerant R 717 (NH₃),
scale ranges: -1 ... 0 ... 15 bar or -1 ... 0 ... 26 bar

Dimensions in mm

NS	Dimensions in mm										Weight in kg		
	a	b	b ₁	b ₂	D ₁	D ₂	e	f	G	h ± 1	SW	Mod. 232.50	Mod. 233.50
63	9.5	33	33	57	63	62	11.5	- 1)	G ¼ B	54	14	0.16	0.20
100	15.5	49.5	49.5	83	101	99	17.5	30	G ½ B	87	22	0.60	0.90
160	15.5	49.5 3)	49.5 2)	83 2)	161	159	17.5	50	G ½ B	118	22	1.10	2.00

Process connection per EN 837-1 / 7.3

1) NS 63: Centre back pressure entry (CBM)

2) Plus 16 mm with pressure ranges ≥ 100 bar

3) Plus 16 mm with pressure range 1600 bar

Ordering information

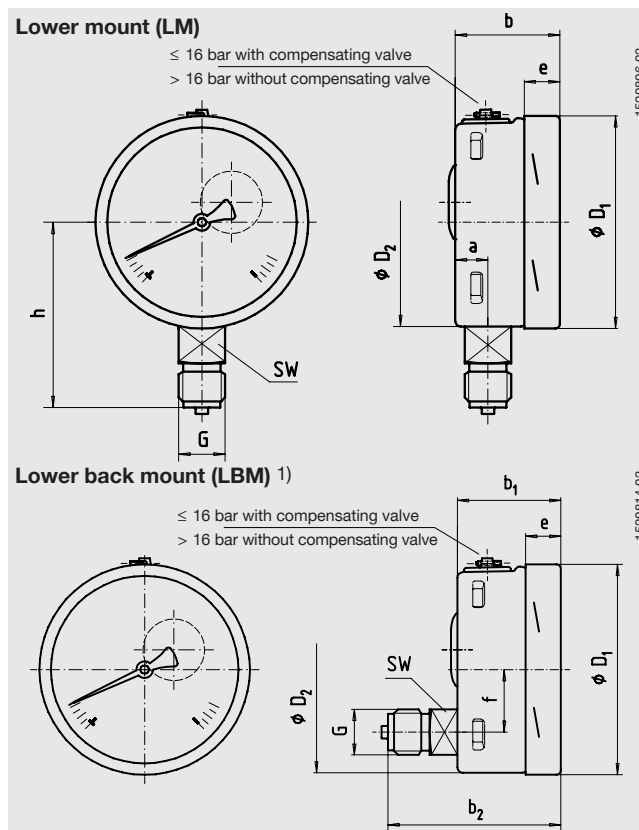
Model / Nominal size / Scale range / Connection size / Connection location / Options

Modifications may take place and materials specified may be replaced by others without prior notice.
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.

Options

- Other process connection
- Assembly on diaphragm seals see product review DS
- Monel pressure system (model 26X.50, not with NS 160 back connection)
- Pressure system stainless steel 1.4571
- Surface or panel mounting flange, stainless steel
- Panel mounting flange, stainless steel, polished
- Triangular bezel, stainless steel, polished, with clamp
- Ambient temperature -40 °C: silicon oil filling
- Alarm contacts (see data sheet AC 08.01)
- Pressure gauge with electrical output signal, see Model PGT23.100/160, data sheet PV 12.04
- Version per ATEX Ex II 2 GD c

Standard version



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