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1 General information for assembling the POSV accessories

2 Purpose

The documentation describes the assembly of POSV accessories. The description contains every single working step, supplies, tools and appliances.

3 Competences

The generation, maintenance and distribution of the documentation takes place in the organisation department. The defaults will be generated by the technical department in consultation with the final assembly department and production planning department.

4 Scope

This document must be applied to the assembling of a Pilot Operated Safety Valve with accessories in agencies and subsidiaries of LESER GmbH & Co. KG, customers and independent service center.

5 Disclaimer

LESER puts in a great deal of effort into making up-to-date and correct documentation available. Nevertheless, LESER GmbH & Co. KG gives no guarantee that the recommended actions presented here are entirely correct and error free. This document is to be applied exclusively to the specified type. LESER GmbH & Co. KG declines any liability or responsibility for the correctness and completeness of the content.

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6 Qualified fitting personnel

LESER safety valves may only be dismantled by trained or qualified fitters. The qualifications must be obtained through the appropriate training measures.

7 Remarks



- Gloves must be worn during the entire dismantling process.

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8 Basic safety guidelines

Dangerous media

Poisoning, caustic burns, burns, injuries

- Use suitable protective devices
- Use suitable collecting tanks.
- Wear suitable protective equipment.

Foreign bodies in the safety valve

Danger from failure of safety valve or leaks

- Flush the system before installation of a safety valve.
- Check the safety valve for foreign objects.
- Remove foreign objects

Bug screen is damaged or missing (B or option)

Dirt, objects or insects get into the safety valve. Danger from malfunction of the safety valve.

- Install the bug screen correctly.
- Check the bug screen regularly.

Ambient temperature is too high

Material expansion. Danger from malfunction of the safety valve.

Ambient temperature is too low

Icing, freezing vapours, reduced flow rate due to congealing media. Danger from functional disruption of the safety valve.

Abrasive or corrosive media

Moving parts jam or become stuck. Danger from functional disruption of the safety valve.

- Service the safety valve after each time it opens.

Media with high proportion of particles (only B)

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Deposits and clogging. Danger from malfunction of the safety valve.

- Use a filter with the correct mesh size.
- Use additional filters to increase the filter capacity.

Residual media in the safety valve

Poisoning, caustic burns, burns, injuries

- Wear suitable protective equipment.
- Remove residual media

WARNING

Leaky safety valve

Danger from leaking media due to damaged gaskets and sealing surfaces.

- Protect the safety valve against vibrations and blows especially during transport and installation.
- Check safety valve regularly for leaks.

Open bonnet or spindle guides

Danger from leaking media

- Make sure that no danger can arise from leaking media.
- Keep a safe distance.
- Wear suitable protective equipment.

CAUTION

Hot medium

Burns or scalding.

- Wear suitable protective equipment.

Hot surfaces

Burns.

- Wear suitable protective equipment.

Aggressive medium

Caustic burns.

- Wear suitable protective equipment.

Open bonnet or spindle guides

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Pinching danger from moving parts.

- Install suitable safeguards.

Sharp edges and burrs

Danger of injury.

- Wear safety gloves.
- Handle the safety valve carefully

High noise emission

Hearing damage.

Wear ear protection.

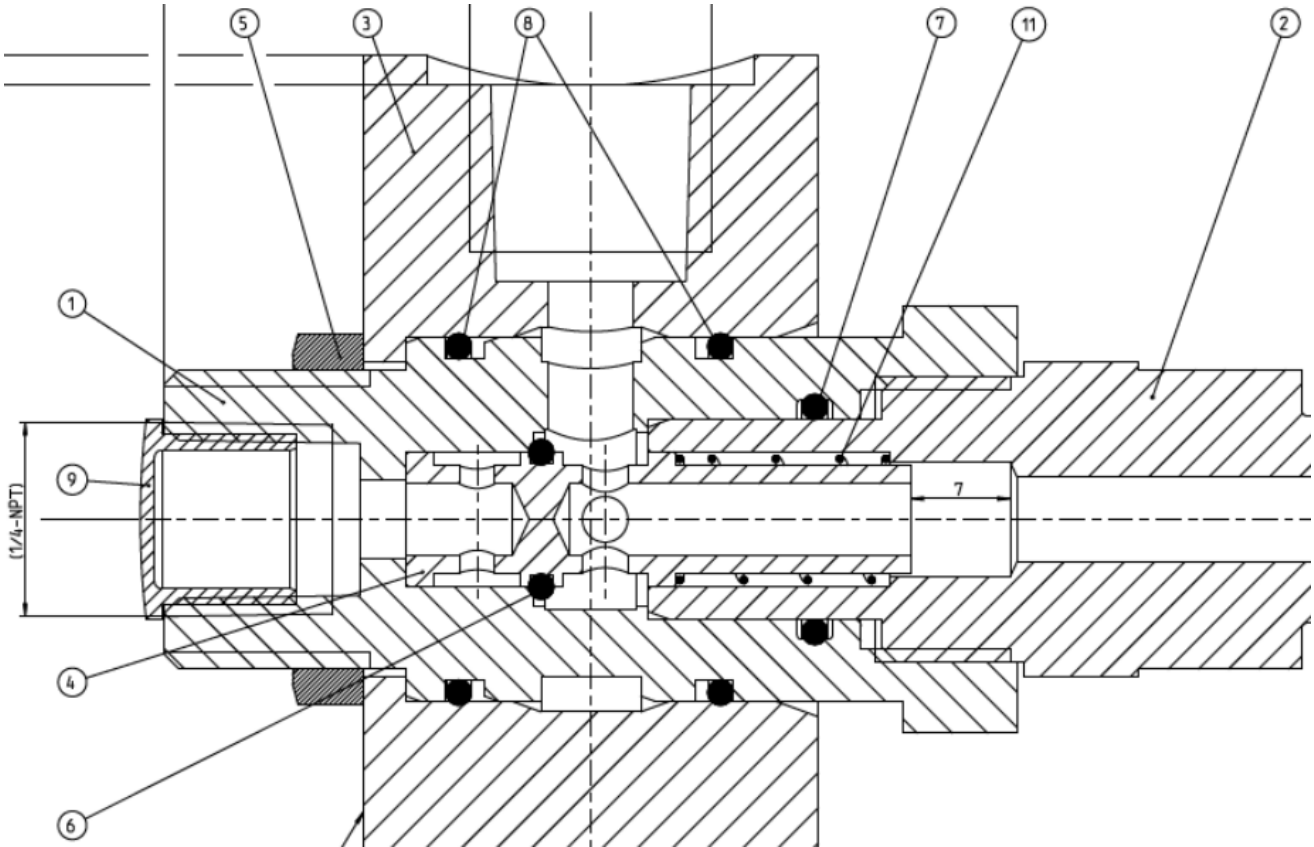
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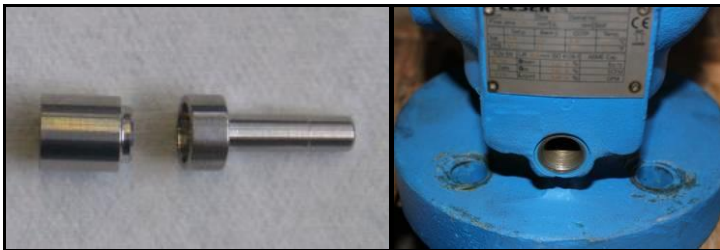
9 Assembly instructions

9.1 Assembly of the FTC (Field Test Connector)

9.1.1 Semi Nozzle Design



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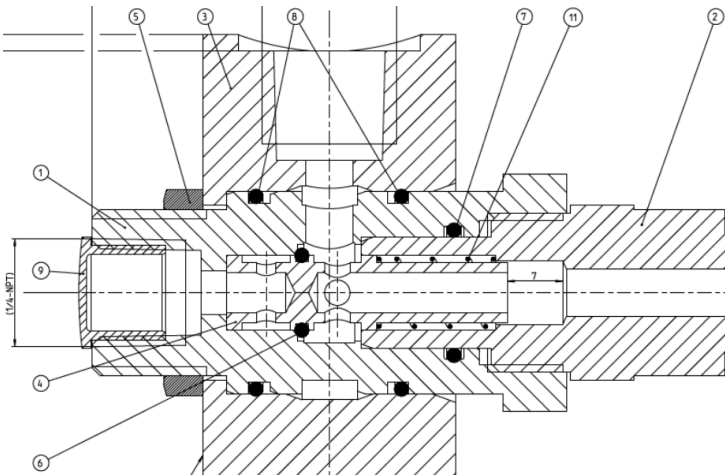


1. Steps – Descriptions

Option A: Assembly FTC inclusive pitot tube

- Insert pitot tube into body
- Complete with tube (depending on nominal size)

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- Complete fastener (FTC.2) with O-ring [63] and O-ring (FTC.7).
Cover O-ring with soapy water

Make sure that O-rings are free of twists

- Complete piston (FTC.4) with O-ring (FTC.6) and return spring (FTC.11)

Consider correct alignment of piston

Make sure that O-rings are free of twists

- complete body (FTC.1) with O-rings (FTC.8), cover O-rings with soapy water

Make sure that O-rings are free of twists

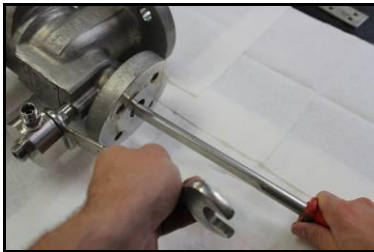
- complete body (FTC.1) with O-rings (FTC.8), cover O-rings with soapy water

Make sure that O-rings are free of twists

- Insert piston (FTC.4) into fastener (FTC.2)
- Screw together body (FTC.1) and fastener (FTC.2)
- Cover O-rings (FTC.8) with soapy water, mount pressure ring (FTC.3), align pressure ring and screw on „handwarm" lock nut.

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Steps – Descriptions

- Wrap thread of compression fitting $1 \frac{1}{2}$ turn with PTFE tape and screw it into pressure ring (FTC.3).
- Screw in fastener (FTC2) with complete FTC into body, while tightening fastener, **align pitot tube [2] in direction of inlet with pitot tube assembly tool**
- While mounting tube align the pressure ring (FTC.3) (possibly with pilot supply filter) exactly in direction of pilot valve and tighten lock nut (FTC.5)
Orientate pressure ring (FTC.2) so that compression fitting faces horizontally to right (viewing direction to outlet)

After assembly of tube (possibly with pilot supply filter) pressure ring then lock nut (FTC.3) has to be tightened

2. Supplies

PTFE tape
Soapy water
Molycote D paste
Lubricate components acc. to LID

3. Tools

Drift pin
Open-end wrench acc. to LID
Pitot tube assembly tool
Torque wrench (Tightening torques acc. to LID)

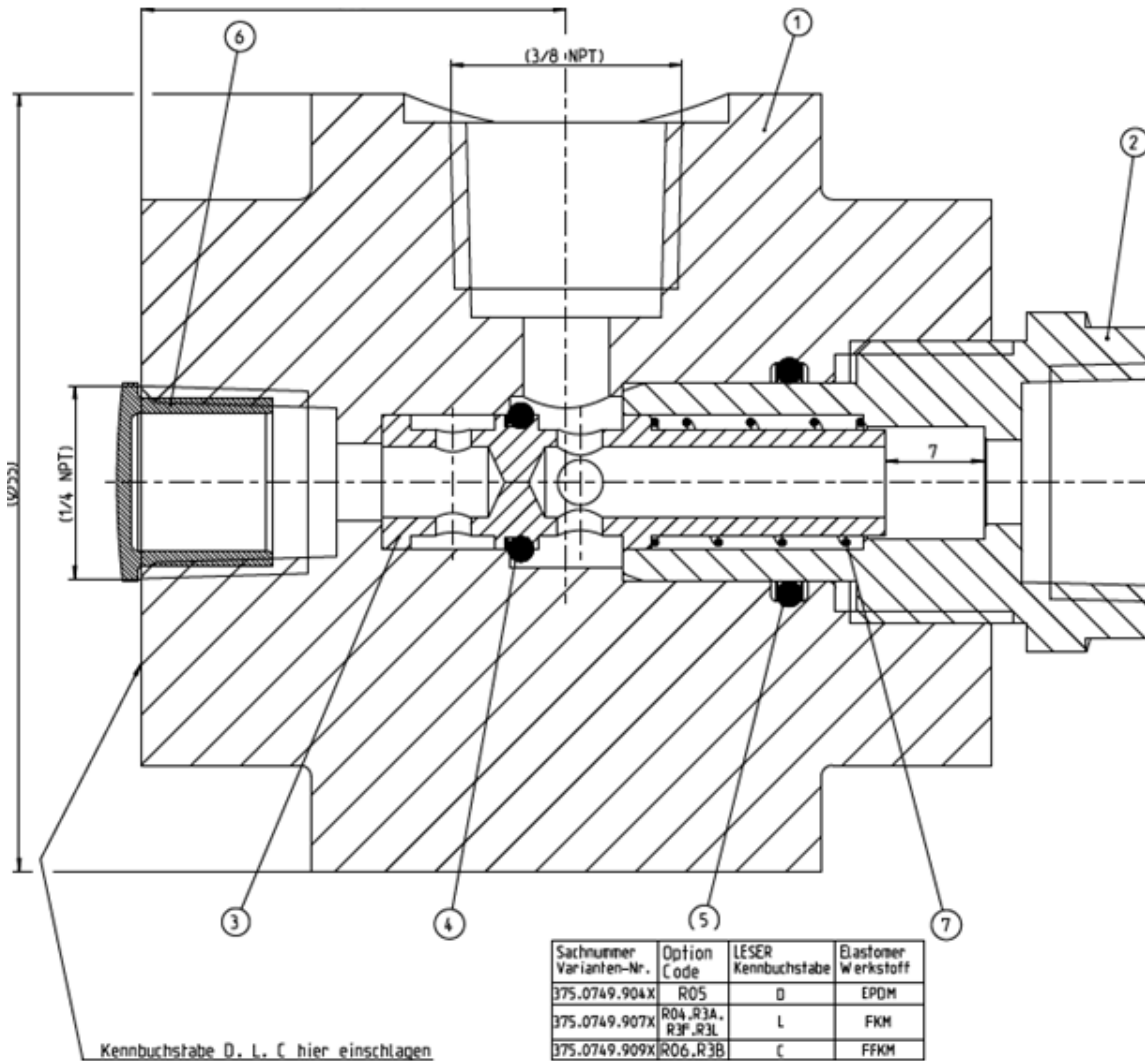
4. Appliance

Test bench

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9.1.2 Full Nozzle Design



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1. Steps – Descriptions

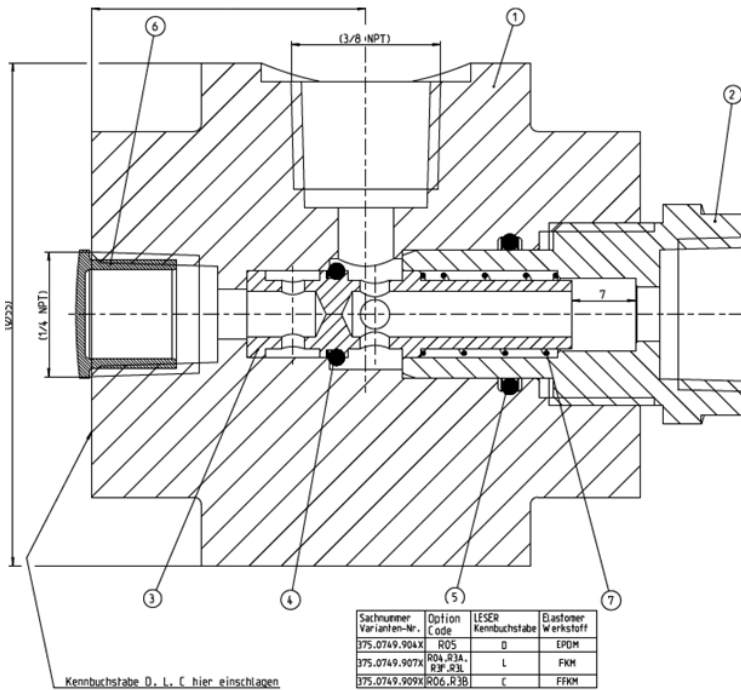
- Complete piston (FTC.3) with O-ring (FTC.4) and return spring (FTC.7)

Consider correct alignment of piston

Make sure that O-rings are free of twists

- complete body (FTC.1) with O-ring (FTC.5), cover O-rings with soapy water

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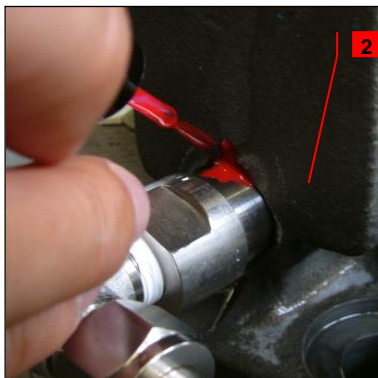
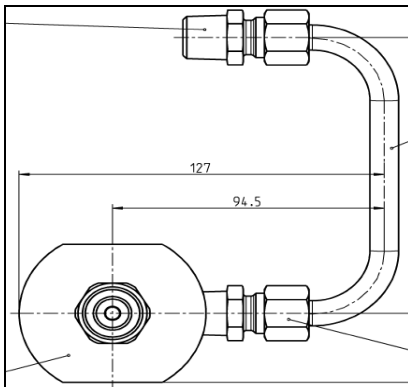
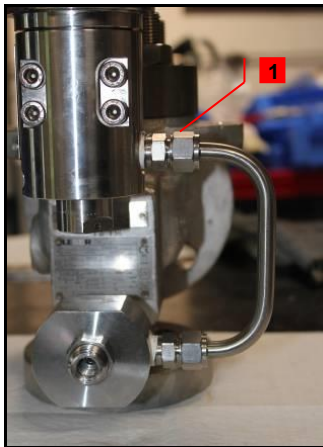
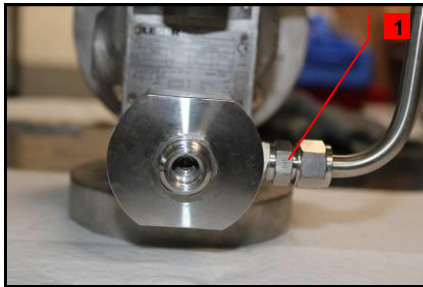
Make sure that O-rings are free of twists

- Cover O-ring (FTC.5) with soapy water
- Insert piston (FTC.4) into fastener (FTC.2)
- Screw together body (FTC.1) and fastener (FTC.2)

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9.2 Assembly of the FTC tubework



1. Steps – Descriptions

Wrap thread of compression fitting 1 ½ turn with PTFE tape and screw it into pilot valve

1 Connect tube

Tighten compression fittings – use gap gage

Consider assembly instructions of manufacturer for compression fittings.

Accomplish a visual check, after assembly, whether pitot tube is twisted or not

2 Apply sealing wax on fitting, after finishing assembly of tubework

2. Supplies

Sealing wax

PTFE tape

Lubricate components acc. to LID

3. Tools

Open-end wrench acc. to LID

Gap gage for compression fitting

Torque wrench (Tightening torques acc. to LID)

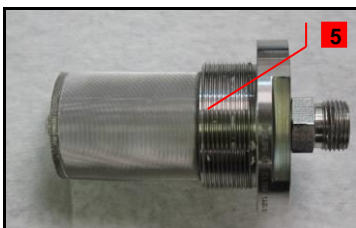
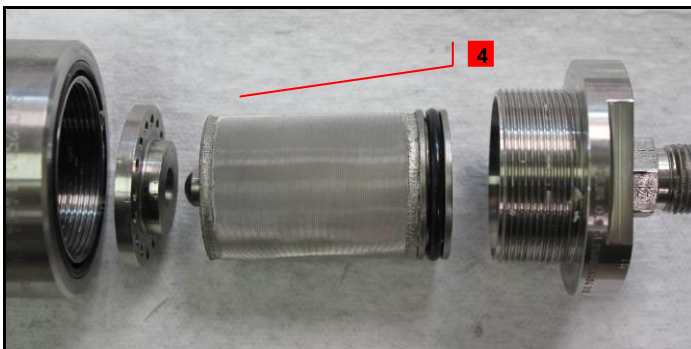
4. Appliance

None

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9.3 Assembly of the pilot supply filter



1. Steps – Descriptions

- 1** Put O-ring into groove of (lower part) housing
 - 2 3** Pull O-ring into groove of cartridge filter
 - 4** Put perforated disc into (lower part) housing
 - 5** Insert cartridge filter into (upper part) housing
- Screw (upper part) housing including cartridge filter into body

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2. Supplies

Lubricate components acc. to LID

3. Tools

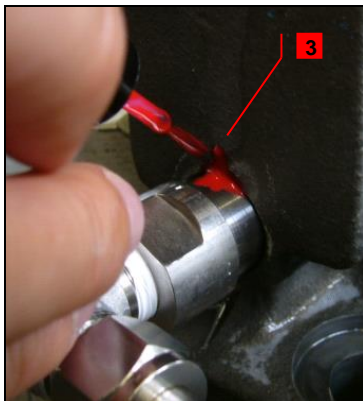
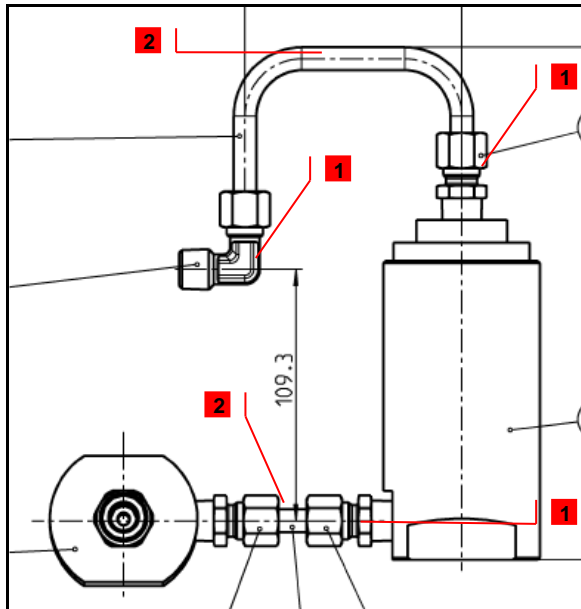
Open-end wrench acc. to LID
Hook tool for O-rings
Torque wrench (Tightening torques acc. to LID)

4. Appliance

Parallel vice with aluminium jaws

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9.4 Assembly of the pilot supply filter tubework (with FTC)



1. Steps – Descriptions

- 1** Wrap thread of compression fittings 1 ½ turn with PTFE tape and screw them into pilot valve and pilot supply filter
- 2** Connect tube between FTC and pilot supply filter and between pilot supply filter and pilot valve

Tighten compression fittings - use gap gage

Consider assembly instructions of manufacturer for compression fittings.

Accomplish a visual check, after assembly, whether tube is twisted or not

Make sure that pitot tube is aligned after assembly

- 3** Apply sealing wax on fitting, after assembly of tubework

2. Supplies

Sealing wax
PTFE tape

3. Tools

Open-end wrench acc. to LID
Gap gage for compression fittings
Torque wrench (Tightening torques acc. to LID)

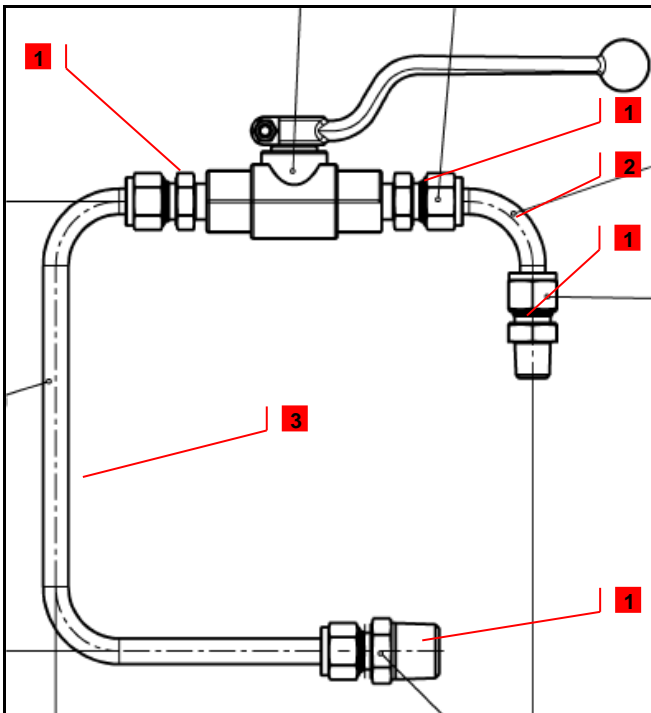
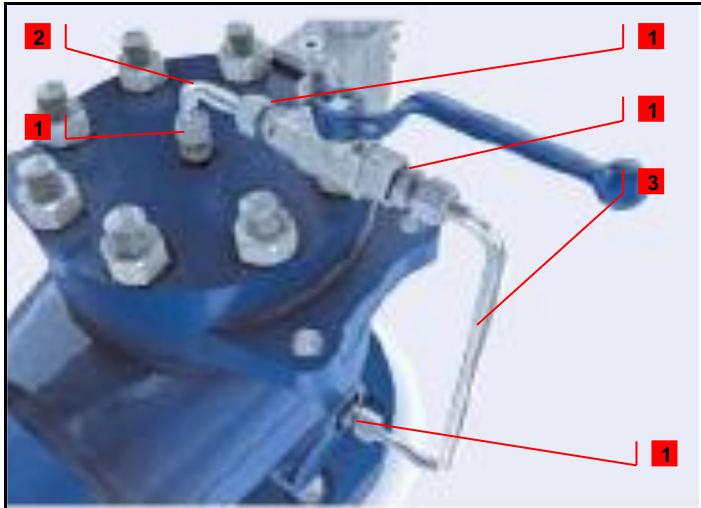
4. Appliance

None

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9.5 Assembly of the manual blowdown



1. Steps – Descriptions

1 Wrap threads of compression fittings $1\frac{1}{2}$ turn with PTFE tape and screw them into ball valve and main valve

Option A: Manual blowdown into main valve outlet

2 Mount L-tube (MBI.2) between top plate [9] and ball valve

3 Mount U-tube (MBI.3) between ball valve and body [1]

Tighten compression fittings – use gap gage

Consider assembly instructions of manufacturer for compression fittings.

Accomplish a visual check, after assembly, whether tube is twisted or not

Close ball valve (MBI.1), screw off lever, tightening screw, fix lever sideways on ball valve with a strap

Option B: Manual blowdown into atmosphere

3 Mount L-tube (MBI.2) between top plate and ball valve, align ball valve in direction of outlet

Tighten compression fittings- use the gap gage

Close ball valve (MBI.1), screw off lever, screw on screw, fix lever sideways on ball valve with a strap

2. Supplies

None

3. Tools

Gap gage for compression fittings
Open-end wrench acc. to LID
Torque wrench (Tightening torques acc. to LID)

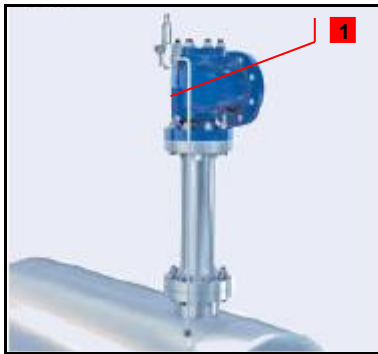
4. Appliance

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9.6 Assembly of the remote sensing



1. Steps – Descriptions

1 Wrap threads of compression fittings $1\frac{1}{2}$ turn with PTFE tape and screw them into pilot valve and pressure taking hole
Connect tube

Tighten compression fittings – use gap gage

Consider assembly instructions of manufacturer for compression fittings.

Accomplish a visual check, after assembly, whether tube is twisted or not

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2. Supplies

None

3. Tools

Open-end wrench acc. to LID
Torque wrench (Tightening torques acc. to LID)
Gap gage for compression fitting

4. Appliance

None

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