Supplementary instructions

Mounting accessories, pressure measurement technology

Document ID: 43478

Contents

Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions and come with the Ex-approved instruments.

Editing status: 2022-06-02

43478-EN-220610

1 About this document

1.1 Function

This supplementary instructions manual is valid in conjunction with the operating instructions of the instrument. It gives you all necessary information for a quick setup and safe operation of the instrument with accessory. Therefore read both instructions manuals before you start setup.

1.2 Target group

This operating instructions manual is directed to trained personnel. The contents of this manual must be made available to the qualified personnel and implemented.

1.3 Symbols used

Document ID
This symbol on the front page of this instruction refers to the Document ID. By entering the Document ID on www.vega.com you will reach the document download.

Information, note, tip: This symbol indicates helpful additional information and tips for successful work.

Note: This symbol indicates notes to prevent failures, malfunctions, damage to devices or plants.

Caution: Non-observance of the information marked with this symbol may result in personal injury.

Warning: Non-observance of the information marked with this symbol may result in serious or fatal personal injury.

Danger: Non-observance of the information marked with this symbol results in serious or fatal personal injury.

Ex applications
This symbol indicates special instructions for Ex applications.

• **List**
The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence of actions**
Numbers set in front indicate successive steps in a procedure.

Disposal
This symbol indicates special instructions for disposal.

2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained qualified personnel authorised by the plant operator.

During work on and with the device, the required personal protective equipment must always be worn.

2.2 Appropriate use

The mounting accessory, pressure measurement technology is used for connection of pressure and differential pressure transmitters to a process.

You can find detailed information on the application range with the respective accessory part.

2.3 Warning about incorrect use

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

The safety information in the operating instructions manual of the respective device must be noted.

2.5 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Storage and transport*"
- Chapter "*Disposal*"

3 Siphons

3.1 Principle of operation

Application/Function

Siphons according to DIN 16282 are a cooling zone for protection of pressure transmitters against too hot process media. Through condensation in the elbow pipe, a protective water accumulation is formed. Even in applications with hot steam, a medium temperature < 100 °C on the transmitter is ensured.

A distinction is made between two types of siphon:

- U-form for horizontal pressure extraction
- Circular form for vertical pressure extraction

Process conditions

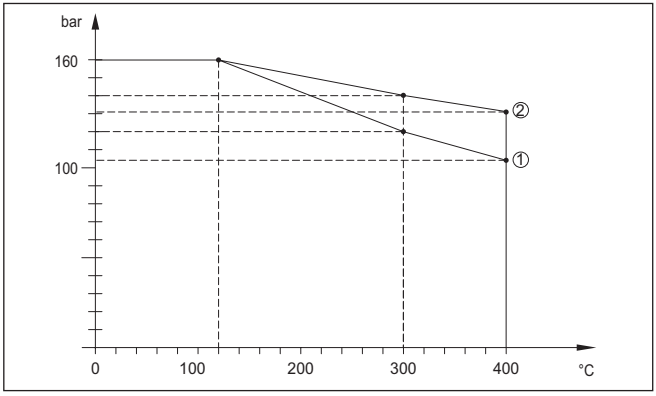


Fig. 1: Temperature derating siphons – max. permissible pressure depending on the process temperature

1 Steel
2 Stainless steel

Mounting/operation

With steam applications, the siphon must be filled with water before setup. Hence, you can avoid that until condensation, hot steam penetrates directly into the pressure transmitter.

Note:
The siphon must not be isolated.

Configuration

Move under www.vega.com to " *Products*" and " *Siphon*".

3.2 Types

U-form, form A

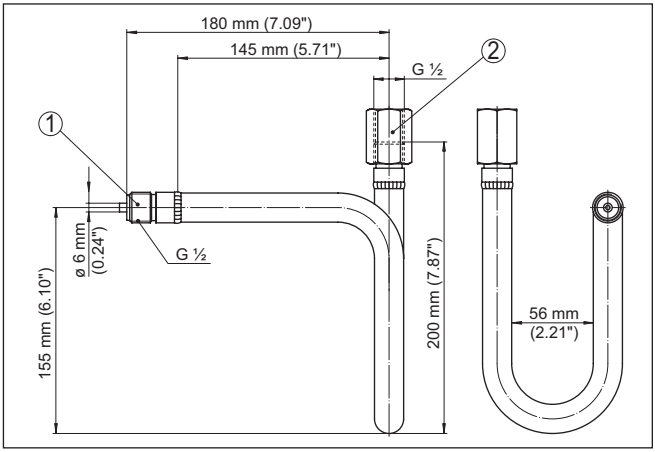


Fig. 2: Siphon according to DIN 16282, U-form for horizontal pressure extraction, form A

1 Input – Process side
2 Output – Sensor side

U-form, form B

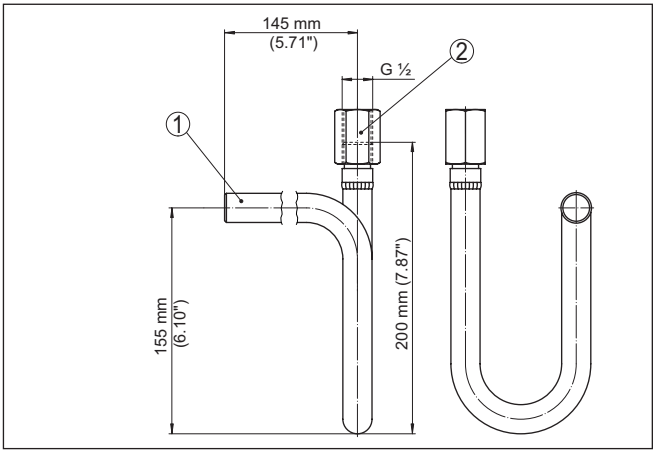


Fig. 3: Siphon according to DIN 16282, U-form for horizontal pressure extraction, form B

1 Input – Process side
2 Output – Sensor side

Circular form, form C

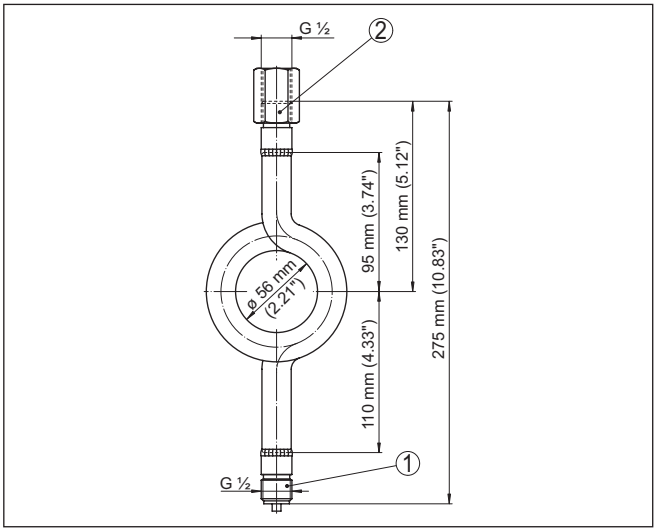


Fig. 4: Siphon according to DIN 16282, circular form for vertical pressure extraction, form C

1 Input – Process side
2 Output – Sensor side

Circular form, form D

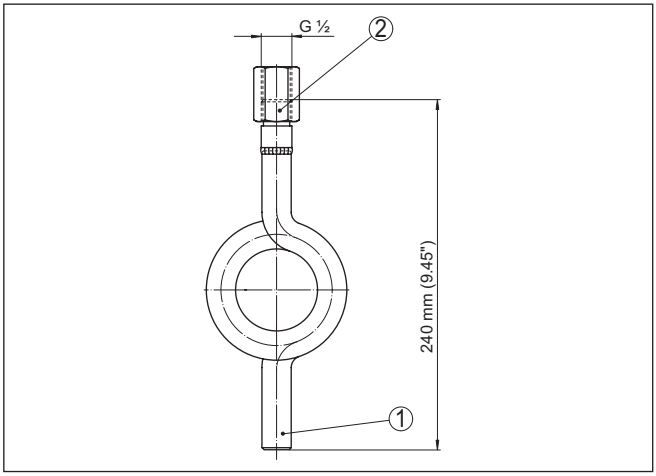


Fig. 5: Siphon according to DIN 16282, circular form for vertical pressure extraction, form D

1 Input – Process side
2 Output – Sensor side

Technical data

Feature	Characteristic
Material	Steel (1.0345), 316Ti
Standard	DIN 16282
Input – Process side Form A, form D	G½ manometer connection outside
Input – Process side Form B, form C	Weld-on end 20 x 2.6
Output – Sensor side	G½ inner rotatable
Weight	approx. 0.8 kg

4 Blocking valves

4.1 Principle of operation

Application

Blocking valves according to DIN 16270 enable simple mounting, setup and dismounting of a pressure transmitter with process fitting G½ or ½ NPT.

The ventilation screw with single valves enables the removal of residual air as well as a relieve of the residual pressure between valve and pressure transmitter.

The ventilation/test valve with double blocking valves enables two functions with closed process valve:

- Ventilation of the pressure transmitter
- Checking the pressure transmitter via a connected pressure calibrator.

Function

The valve is opened by turning it anticlockwise or closed by turning it clockwise. The seal to the process and to the pressure transmitter is made via a flat seal or metallic, depending on the thread. The valve spindle is sealed by means of a sealing packing.

Ventilate

To vent the blocking valve, proceed as follows (see diagram in the following chapter):

1. Open valve (2)
2. Open ventilation screw (3) carefully until air escapes
3. Close the ventilation screw (3) as soon as medium penetrates

The ventilation is hence finished.

Danger:
Hot or aggressive process media can escape when venting. This means danger to persons or the environment. Avoid this by taking appropriate protective measures.

Setup instructions

Rust, sand or similar impurities in the medium can deposit in the area of the valve position. This is especially true when flushing the system before initial setup.

Note:
Deposits can lead to leaks in the valve position. Therefore, open the valve completely so that possible deposits are flushed out.

If the valve is stored for a longer period of time, the pre-pressed packing may settle and weaken in its tightness. Correct this during setup according to chapter " *Resealing*".

Configuration

Move under www.vega.com to " *Products*" and " *Valve*".

4.2 Blocking valve 1-fold G½

Configuration

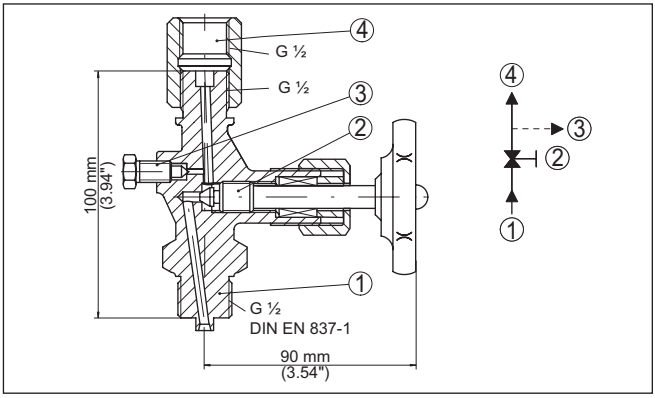


Fig. 6: Configuration blocking valve 1-fold

1 Input - Process side
2 Valve for blocking (process)
3 Ventilation screw
4 Output - Sensor side

Technical data

Feature	Characteristic
Housing material	316Ti
Material seal packing	PTFE
Input - Process side	G½ manometer connection outside
Output - Sensor side	G½ inner rotatable
Ventilation screw	Yes
Ventilation/Test connection	No
Pressure stage/Max. permissible pressure	PN 400/400 bar
Process temperature max.	120 °C
Weight	approx. 0.6 kg
Product code/Art. no.	BARVALVE.EVX

4.3 Blocking valve 1-fold ½ NPT

Configuration

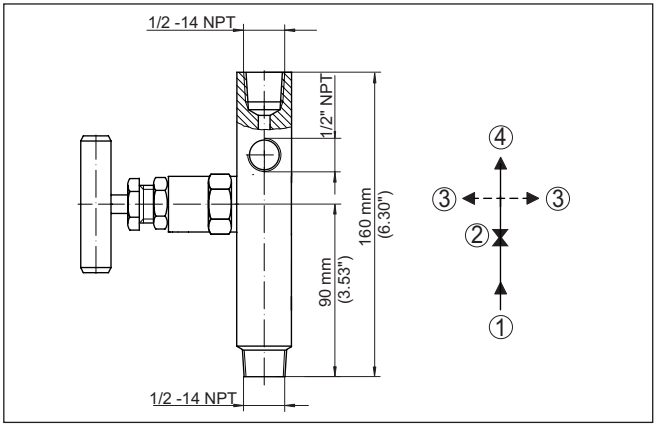


Fig. 7: Configuration blocking valve 1-fold ½ NPT

1 Input - Process side
2 Valve for blocking (process)
3 Ventilation screw
4 Output - Sensor side

Technical data

Feature	Characteristic
Housing material	316L
Material valve seal packing	PTFE
Input - Process side	½ NPT outer
Output - Sensor side	½ NPT inner
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 420/420 bar
Operating pressure at 80 °C	400 bar
Operating pressure at 260 °C	270 bar
Operating temperature/Brief temperature	260 °C/300 °C
Weight	approx. 0.9 kg
Product code/Art. no.	BARVALVE.GVX

4.4 Blocking valve 2-fold G½

Configuration

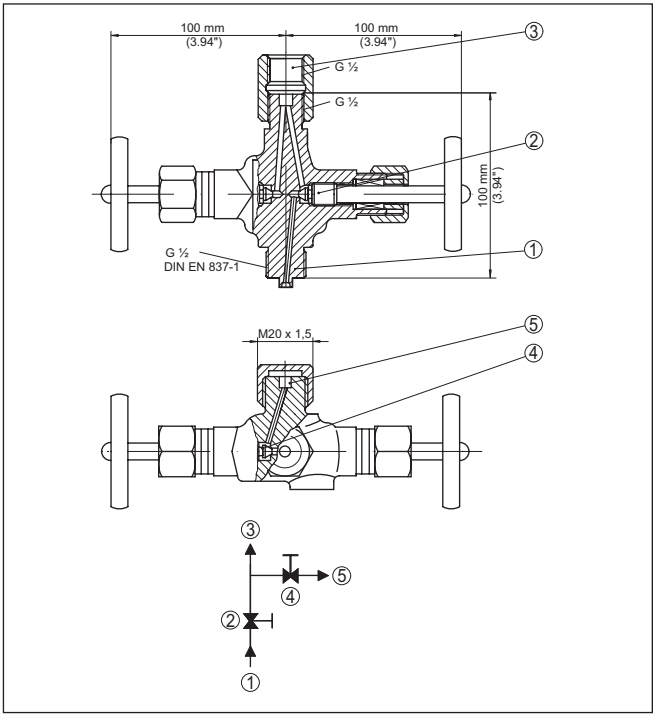


Fig. 8: Configuration blocking valve 2-fold G½ with connection for ventilation/ test

1 Input - Process side
2 Valve for blocking (process)
3 Output - Sensor side
4 Valve for ventilation/test
5 Ventilation/Test

Technical data

Feature	Characteristic
Housing material	316Ti
Material valve seal packing	PTFE
Input - Process side	G½ manometer connection outside
Output - Sensor side	G½ inner rotatable
Ventilation/Test connection	M20 x 1.5 with protective cap
Pressure stage/Max. permissible pressure	PN 420/420 bar
Temperature	max. 120 °C
Weight	approx. 0.9 kg

Feature	Characteristic
Product code/Art. no.	BARVALVE.DVX

4.5 Blocking valve 2-fold ½ NPT

Configuration

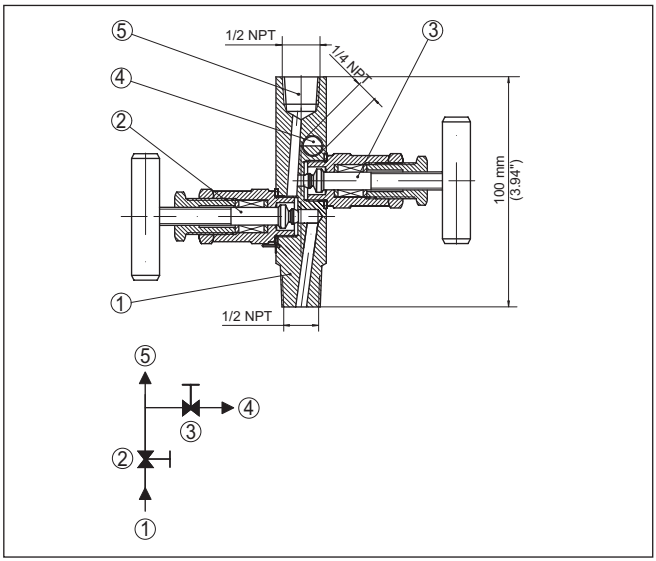


Fig. 9: Configuration blocking valve 2-fold ½ NPT with connection for ventilation/test

1 Input - Process side
2 Valve for blocking (process)
3 Valve for ventilation/test
4 Ventilation/Test
5 Output - Sensor side

Technical data

Feature	Characteristic
Housing material	316L
Material valve seal packing	PTFE
Input - Process side	½ NPT outer
Output - Sensor side	½ NPT inner
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 420/420 bar
Operating pressure at 80 °C	400 bar
Operating pressure at 260 °C	270 bar
Operating temperature/Brief temperature	260 °C/300 °C

Feature	Characteristic
Weight	approx. 0.9 kg
Product code/Art. no.	BARVALVE.XXX

5 Valve blocks

5.1 Principle of operation

Application/Function

Valve blocks enable simple installation and setup of a differential pressure transmitter.

Process valves are used to block the transmitter to the process. When the process valves are closed, the equalization valve enables a pressure compensation for the measuring chambers. This allows the zero point of the pressure transmitter to be adjusted.

The 5-fold valve block has two additional outlet valves for blowing out the process lines or checking the differential pressure transmitter.

The valves are opened (turning anticlockwise) or closed (turning clockwise) with hand wheels. The seal to the medium is metallic, the seal of the valve spindle is a gland packing.

The valves blocks are available in the following versions:

- 3-fold valve block
- 3-fold valve block, flanging on both sides
- 5-fold valve block

Mounting

The mounting is carried out via integrated threaded connections and a bracket existing on site.

The mounting with 3-fold valve block for mounting on both sides is made vial integrated flanges with threaded connection to the orifice.

Setup instructions

Rust, sand or similar impurities in the medium can deposit in the area of the valve position. This is especially true when flushing the system before initial setup.

Note:
This can lead to leaks in the valve position. Therefore, open the valve completely to flush out possible deposits.

If the valve is stored for a longer period of time, the pre-pressed packing may settle and weaken in its tightness. Correct this during setup according to chapter " *Resealing*".

Configuration

Move under www.vega.com to " *Products*" and " *Valve block*".

5.2 3-fold valve block

Configuration

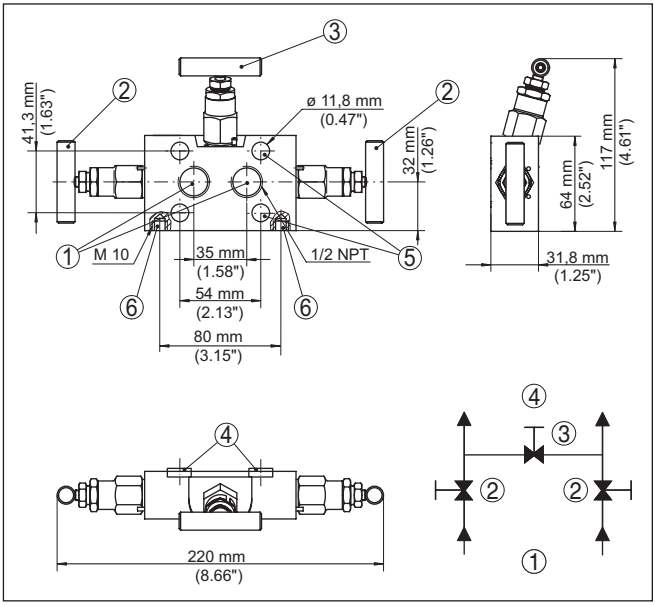


Fig. 10: Configuration of 3-fold valve block according to EN 61518

1 *Input (process)*
2 *Valves for blocking (process)*
3 *Breather valve*
4 *Output (differential pressure transmitter)*
5 *Through-holes for mounting screws*
6 *Holes for mounting bracket*

Technical data

Feature	Characteristic
Material valve block	316L
Material valve seal packing	PTFE
Material mounting screws	galvanized steel
Material seal washers	PTFE
Material threaded fitting for process cable	1.4571
Series	3-fold valve block, flange mounting possible
Mounting thread for bracket provided on site	M 10
Input (process)	½ NPT
Output (differential pressure transmitter)	Flange according to EN 61518

Feature	Characteristic
Pressure stage/Max. permissible pressure	PN 420/420 bar
Operating pressure at 80 °C/260 °C	400 bar/270 bar
Operating temperature max./Brief temperature	260 °C/300 °C
Weight	approx. 1.7 kg
Product code/Art. no.	DIFVALVE.XVXXXX

5.3 3-fold valve block, flanging on both sides

Configuration

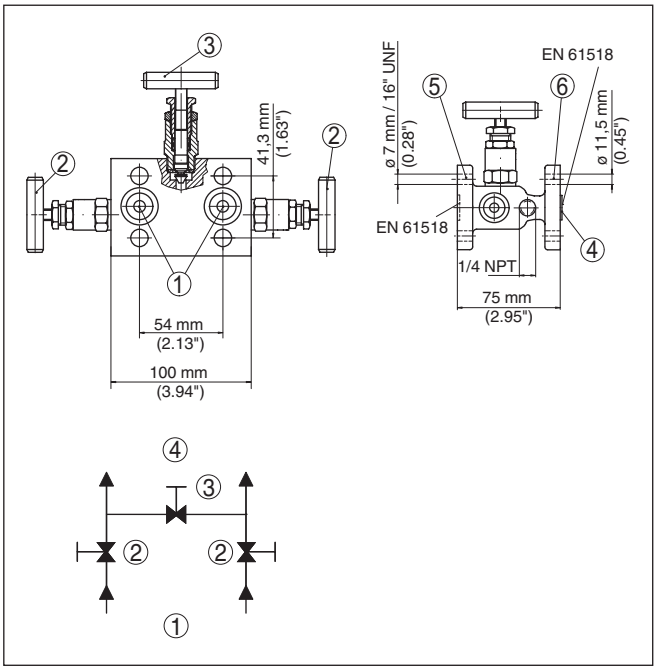


Fig. 11: Configuration of 3-fold valve block according to EN 61518

1 *Input (process)*
2 *Valves for blocking (process)*
3 *Breather valve*
4 *Output (differential pressure transmitter)*
5 *Threaded holes for the process*
6 *Through-holes for differential pressure transmitter*

Technical data

Feature	Characteristic
Material valve block	316L
Material valve seal packing	PTFE

Feature	Characteristic
Material mounting screws	galvanized steel
Material seal washers	PTFE
Series	3-fold valve block, flange mounting possible
Input (process)	Flange according to EN 61518
Output (differential pressure transmitter)	Flange according to EN 61518
Ventilation openings	¼ NPT (with plug)
Pressure stage/Max. permissible pressure	PN 420/420 bar
Max. permissible pressure at 80 °C/250 °C	420 bar/300 bar
Operating temperature max.	250 °C
Weight	approx. 2.5 kg
Product code/Art. no.	DIFVALVE.XVXXXX

5.4 5-fold valve block

Configuration

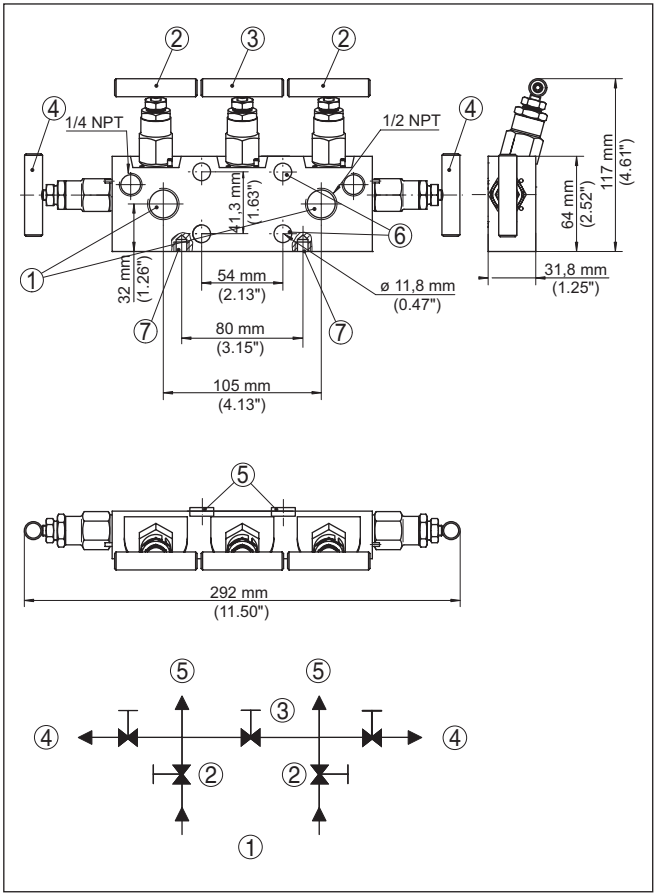


Fig. 12: Configuration of 5-fold valve block according to EN 61518

1 *Input (process)*
2 *Valves for blocking (process)*
3 *Breather valve*
4 *Blow-off valves*
5 *Output (differential pressure transmitter)*
6 *Through-holes for mounting screws*
7 *Holes for mounting bracket*

Technical data

Feature	Characteristic
Material valve block	316L
Material valve seal packing	PTFE
Material mounting screws	galvanized steel

Feature	Characteristic
Material seal washers	PTFE
Material threaded fitting for process cable	1.4571
Series	5-fold valve block, flange mounting possible
Mounting thread for bracket provided on site	M10 (DIN EN 24014)
Input (process)	½ NPT
Output (differential pressure transmitter)	Flange according to EN 61518
Blowing out/Test connection	¼ NPT
Pressure stage/Max. permissible pressure	PN 420/420 bar
Operating pressure at 80 °C	400 bar
Operating pressure at 260 °C	270 bar
Operating temperature max./Brief temperature	260 °C/300 °C
Weight	approx. 3.5 kg
Product code/Art. no.	DIFVALVE.XVXXXX

6 Adapter

6.1 Oval flange adapter

Application/Function

Oval flange adapters allow the connection of effective pressure lines with ½ NPT thread to a differential pressure transmitter or to a valve block.

Configuration

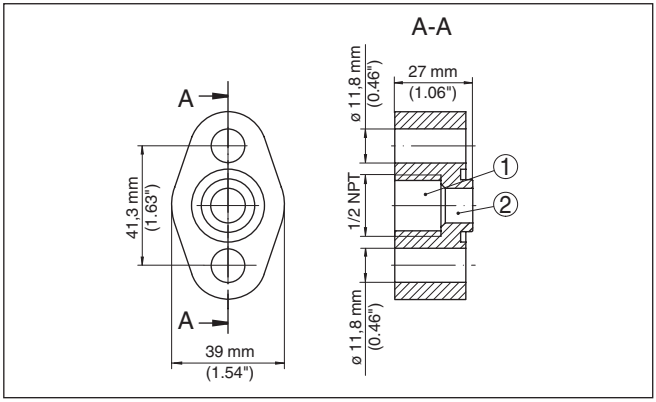


Fig. 13: Oval flange adapter

1 Input (process)
2 Output (differential pressure transmitter/valve block)

Technical data

Feature	Characteristic
Material adapter	1.0460, 316L, Alloy C276 (2.4819)
Material process seal	FKM, EPDM, PTFE, FFKM
Material: screws	304/Steel 8.8 galvanized
Screw size	M10 (DIN EN 24014), 7/16 UNF
Input (process)	½ NPT
Output (differential pressure transmitter)	Flange according to EN 61518
Max. temperature range, depending on process seal	-15 … +275 °C
Weight	approx. 0.3 kg
Product code/Art. no.	DIFOVAL.XXX

Configuration

Move under www.vega.com to " *Products*" and " *Oval flange adapter*".

7 Holder and mounting bracket

7.1 Measuring instrument holder

Application/Function

The measuring instrument holder is used for mounting process pressure and suspension pressure transmitters. Adaptation to different instrument diameters is accomplished by means of supplied reduction pieces for the diameters 22, 32, 33, 40 and 44 mm.

Mounting

The measuring instrument holder is mounted on tubes of diameter 1½" … 2½" via the mounting strap. Without mounting strap, it is used as a console for wall mounting.

Configuration

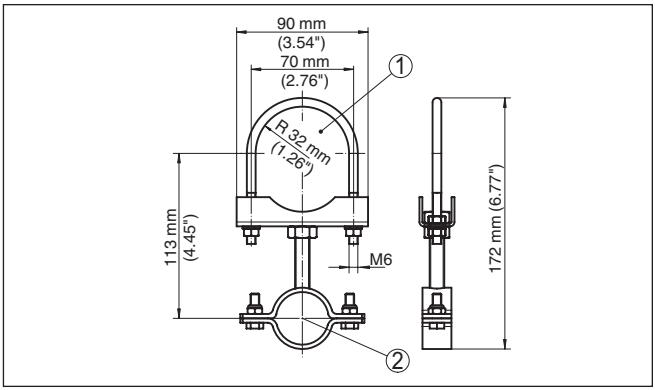


Fig. 14: Configuration of measuring instrument holder

1 Mounting tube/Pressure transmitter with 44 mm
2 Pressure transmitter

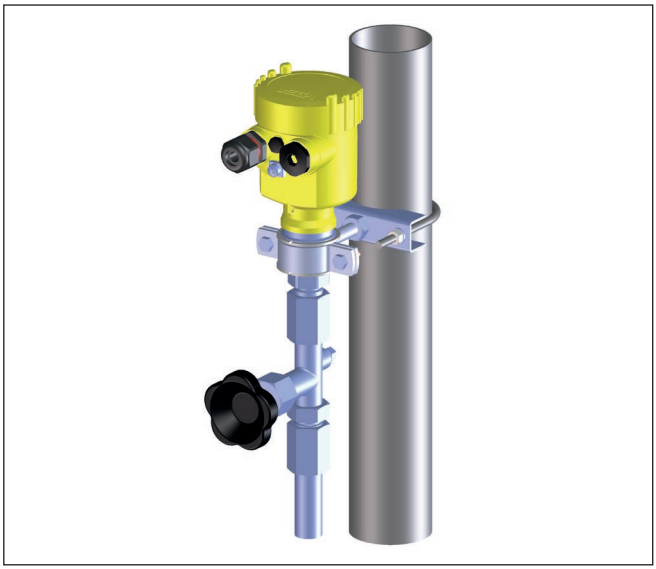


Fig. 15: Mounting example measuring instrument holder

Technical data

Feature	Characteristic
Material	316L, 304
Material: reduction piece	PP
Weight	approx. 0.3 kg
Product code/Art. no.	BARMONT.X

Configuration

Move under www.vega.com to " *Products*" and " *Meas. instrument holder*".

7.2 Universal holder for valve blocks

Application/Function

The universal holder is used for wall, protective box or tube mounting of valve blocks. It is mounted on pipes using the brackets supplied, and on wall or protective boxes using material provided by the customer. The valve block is mounted on the bracket using the hexagon socket screws supplied.

Configuration

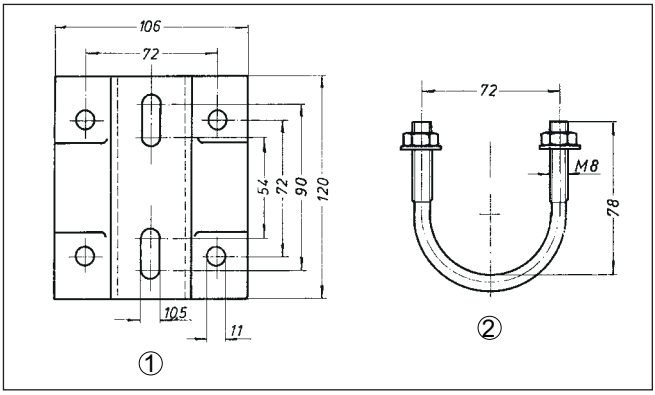


Fig. 16: Configuration universal holder

1 Universal holder
2 Strap

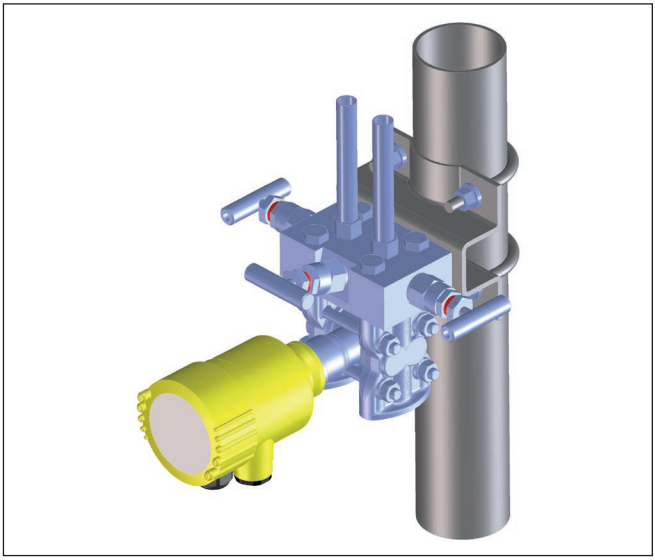


Fig. 17: Mounting example universal holder for valve blocks

Technical data

Feature	Characteristic
Material: universal holder	1.4301
Material: strap	
Material: screws	
Weight	approx. 0.9 kg

Feature	Characteristic
Product code/Art. no.	2.43024

Configuration

Move under www.vega.com to " *Products*" and " *Universal holder*".

7.3 Mounting bracket

Application/Function

The mounting bracket is used for wall or tube mounting of differential pressure transmitters. The angle is mounted on pipes up to 2" using a bracket supplied. The differential pressure transmitter is mounted to the angle using four M10 or 7/16 UNF screws supplied.

Configuration

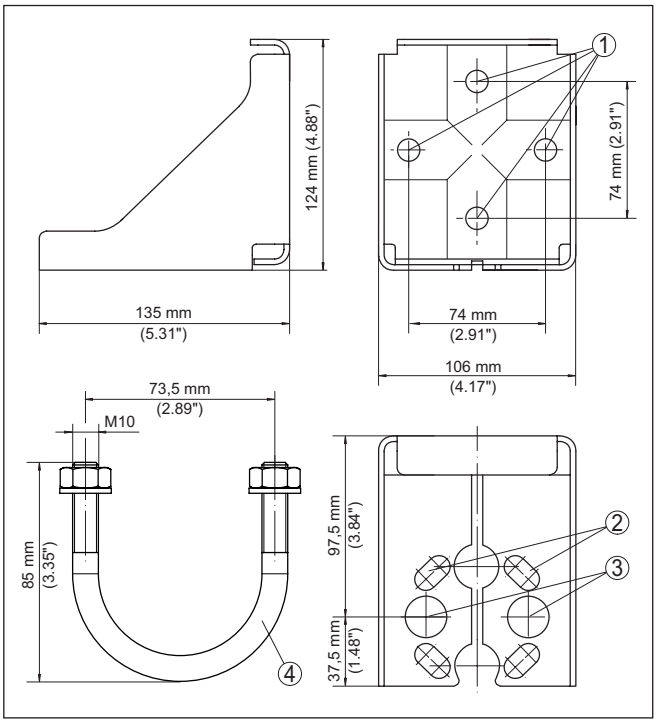


Fig. 18: Configuration of mounting bracket

1 *Holes 12 mm for bracket or wall mounting*
2 *Openings for mounting differential pressure transmitters according to IEC 61518*
3 *Opening for connection of process lines*
4 *Strap*

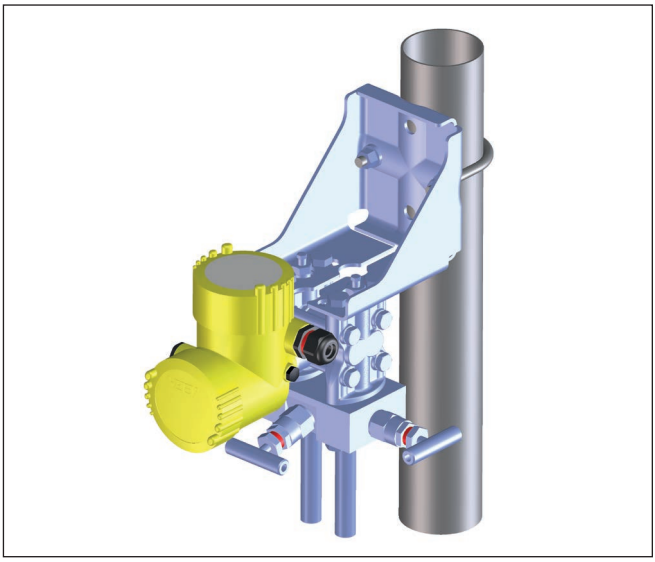


Fig. 19: Mounting example mounting bracket

Technical data

Feature	Characteristic
Material: mounting bracket	304
Material: strap	1.4571
Material: screws	1.4571
Weight	approx. 0.9 kg
Product code/Art. no.	DIFMW.A

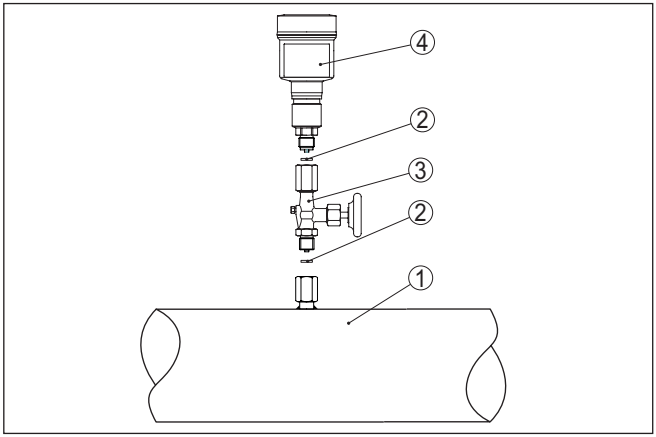
Configuration

Move under www.vega.com to " *Products*" and " *Mounting bracket*".

8 Mounting and measurement setups (Hook Ups)

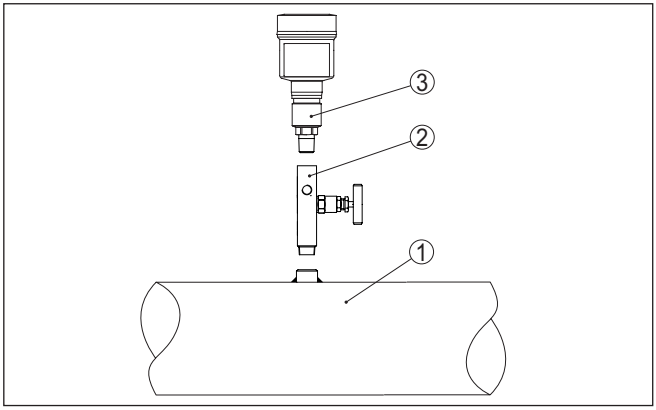
8.1 Pressure measurement

Gaseous (blocking valve G½)



Position	Piece	Designation
1	1	Pipeline with discharge socket and rotatable connection for pressure transmitter
2	1	Seal washer
3	2	Blocking valve
4	1	Pressure transmitter

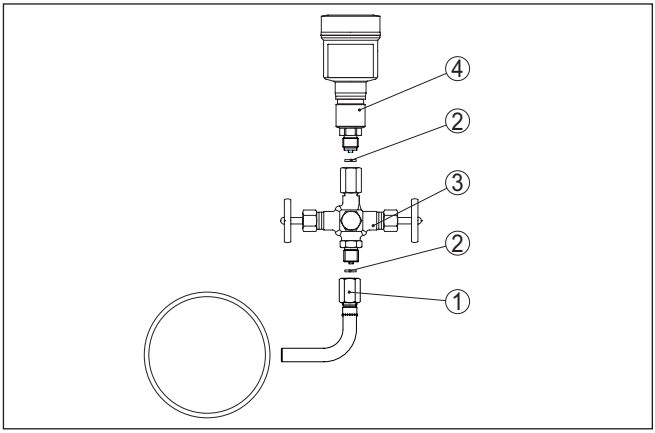
Gaseous (valve ½ NPT)



Position	Piece	Designation
1	1	Pipeline with discharge socket
2	1	Valve

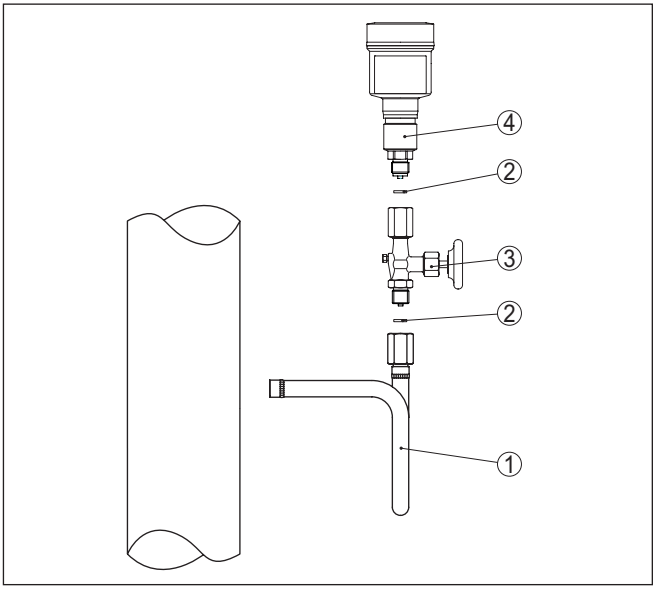
Position	Piece	Designation
3	1	Pressure transmitter

Gaseous/liquid (double valve G½)



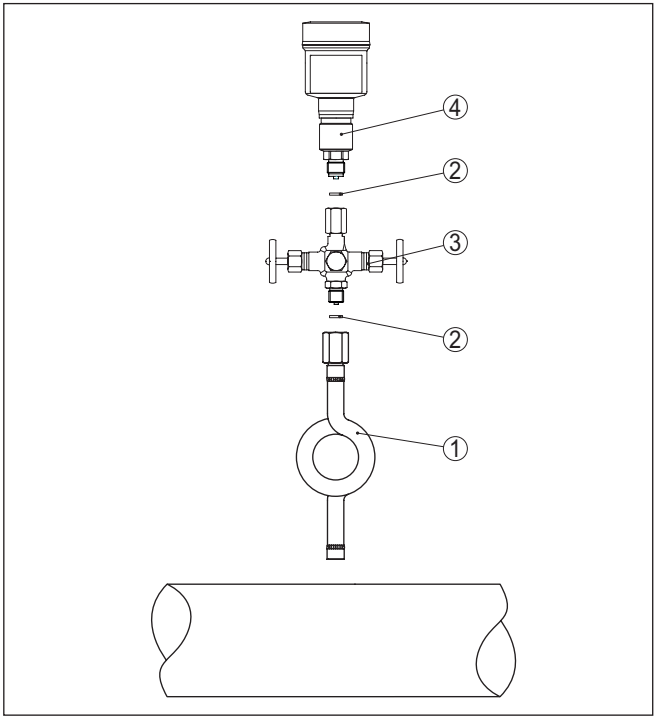
Position	Piece	Designation
1	1	Quadrant pipe with welding end and rotatable connection for pressure transmitter
2	1	Seal washer
3	2	Double blocking valve
4	1	Pressure transmitter

Vaporous/liquid (blocking valve G½)



Position	Piece	Designation
1	1	Siphon U-shape with welding end and rotatable connection for pressure transmitter
2	1	Seal washer
3	1	Blocking valve
4	1	Pressure transmitter

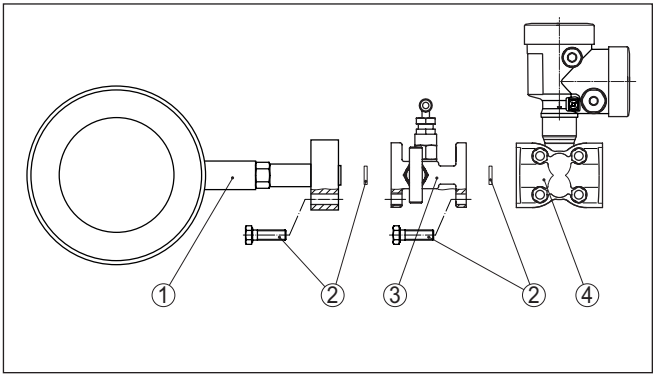
Vaporous (blocking valve G½)



Position	Piece	Designation
1	1	Siphon circular form with welding end and rotatable connection for pressure transmitter
2	1	Seal washer
3	1	Double blocking valve
4	1	Pressure transmitter

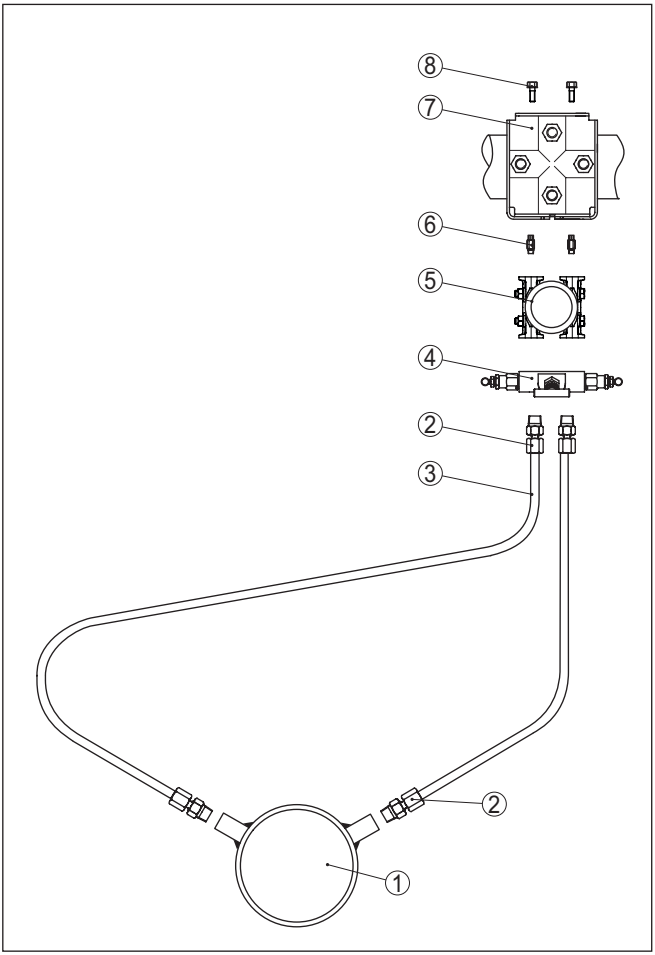
8.2 Differential pressure measurement

Gaseous (3-fold valve block, flanging on both sides)



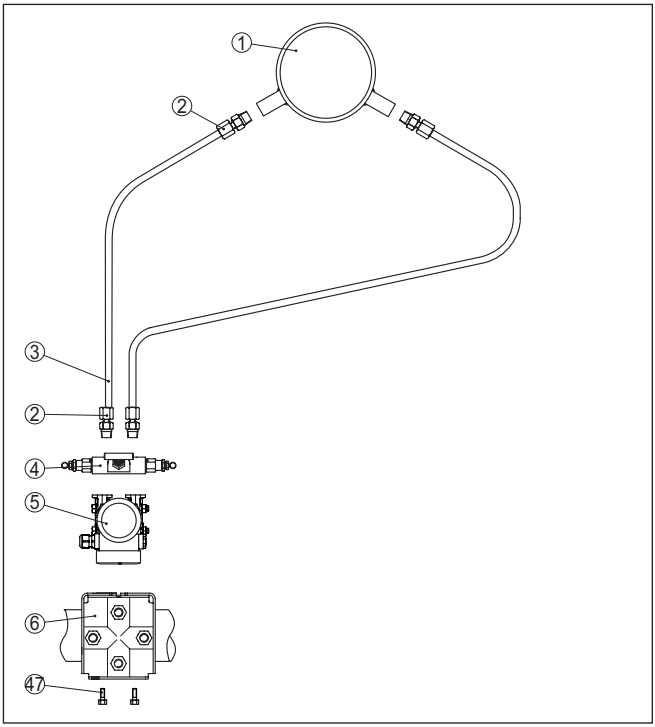
Position	Piece	Designation
1	1	Orifice with oval flange connection
2		Screws and seals
3	1	3-fold valve block, flanging on both sides
4	1	Differential pressure transmitter

Gaseous (3-fold valve block)



Position	Piece	Designation
1	1	Pipeline with discharge socket
2	2	Threaded fitting ½-14 NPT/SRV 12S Threaded fitting ½-14 NPT/Compression fitting ø 12 mm
3	2	Effective pressure line ø 12 mm
4	1	3-fold valve block
5	1	Differential pressure transmitter
6	2	Ventilation valves
7	1	Mounting bracket
8	4	Mounting screws

Liquid (3-fold valve block)



Position	Piece	Designation
1	1	Pipeline with discharge socket
2	2	Threaded fitting ½-14 NPT/SRV 12S Threaded fitting ½-14 NPT/Compression fitting ø 12 mm
3	2	Effective pressure line ø 12 mm
4	1	3-fold valve block
5	1	Differential pressure transmitter
6	1	Mounting bracket
7	4	Mounting screws

9 Maintenance and fault rectification

9.1 Maintenance

If the device is used properly, no special maintenance is required in normal operation.

9.2 Resealing

If a valve in the packing leaks, it can be resealed during operation.

To reseal it, proceed as follows:

1. Open the valve completely with the T-handle

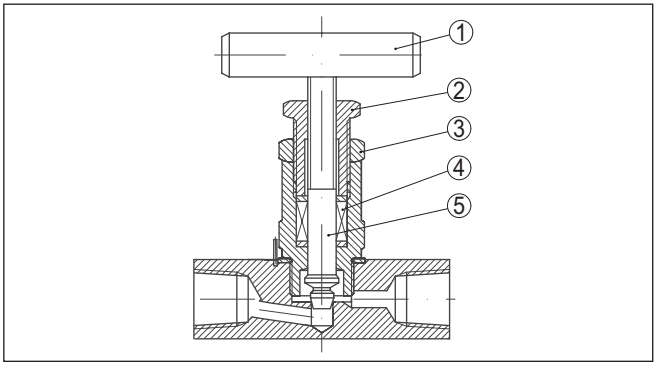


Fig. 20: General configuration of a valve

1 T-handle
2 Gland nut
3 Counter nut
4 Gland packing
5 Valve spindle

2. Loosen counter nut
3. Slightly tighten the gland nut by turning clockwise
4. Move spindle several times in both directions
5. Tighten counter nut
6. Test for tightness

The resealing procedure is finished.

9.3 How to proceed if a repair is necessary

You can find an instrument return form as well as detailed information about the procedure in the download area of our homepage. By doing this you help us carry out the repair quickly and without having to call back for needed information.

In case of repair, proceed as follows:

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging

- Ask the agency serving you to get the address for the return shipment. You can find the agency on our homepage.

43478-EN-220610

Printing date:

43478-EN-220610

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
E-mail: info.de@vega.com
www.vega.com