Supplementary instructions

Valves and valve blocks

Document ID: 1145338

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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 instruction 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 documentation must be carried out only by trained and authorized personnel.

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

2.2 Intended use

Valves and valve blocks serve to connect pressure and differential pressure transmitters to the 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 this product can give rise to application-specific hazards, e.g. vessel overfill through incorrect mounting or adjustment. Thus damage to property, to persons or environmental contamination can be caused. Also the protective characteristics of the instrument can be influenced.

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 "*Packaging, transport and storage*"
- Chapter "*Disposal*"

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3 Blocking valves

3.1 Principle of operation

Application

Blocking valves enable simple mounting, setup and dismounting of a pressure transmitter by means of a threaded fitting.

The ventilation valve, if available (recognisable from the red protective cap), enables the following functions with closed fitting:

- 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 between the shut-off valve and the pressure transmitter is made either directly via the thread or by means of a sealing ring. The valve spindle is sealed using either a PTFE or graphite packing.

Ventilate

For ventilation of the the blocking valve, proceed as follows:

1. Open ventilation valve
2. Open the ventilation screw carefully until air escapes
3. Close the ventilation screw again 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*".

Anti-tamper (manipulation protection)

The blocking valves can be equipped with removable rotary handles to increase the tamper security. This prevents unauthorized opening or closing.

Configuration

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

Below, you can see an overview of the most common blocking valves.

3.2 Blocking valve 1-fold G½

Configuration

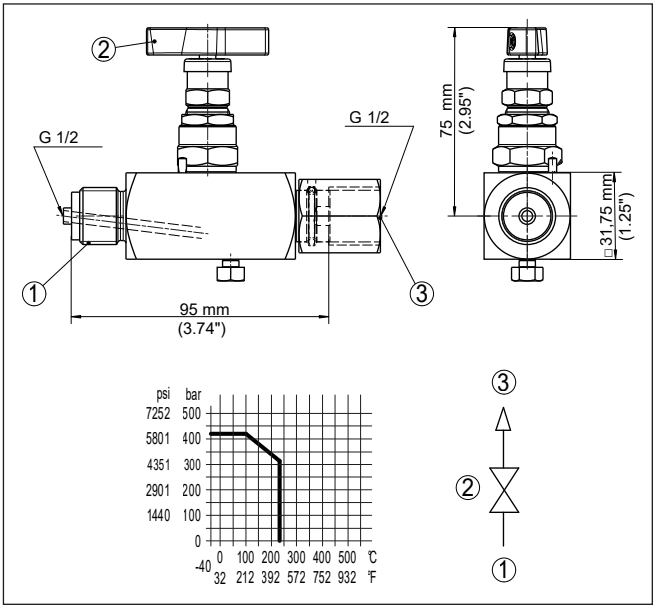

Fig. 1: Configuration

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

Technical data

Feature	Characteristic
Housing material	316L (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Seal packing material	PTFE, graphite
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 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.FxED

3.3 Blocking valve 1-fold ½ NPT

Configuration

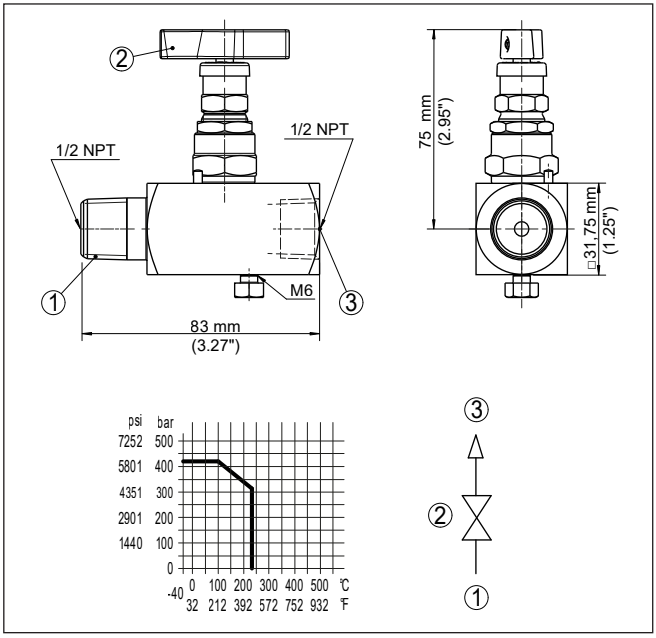

Fig. 2: Structure NPT

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

Technical data

Feature	Characteristic
Housing material	316L (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Seal packing material	PTFE, graphite
Input - Process side	½ NPT outer
Output - Sensor side	½ NPT inner
Ventilation screw	Yes
Ventilation/Test connection	No
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.FxFG

3.4 Blocking valve 2-fold G½

Configuration

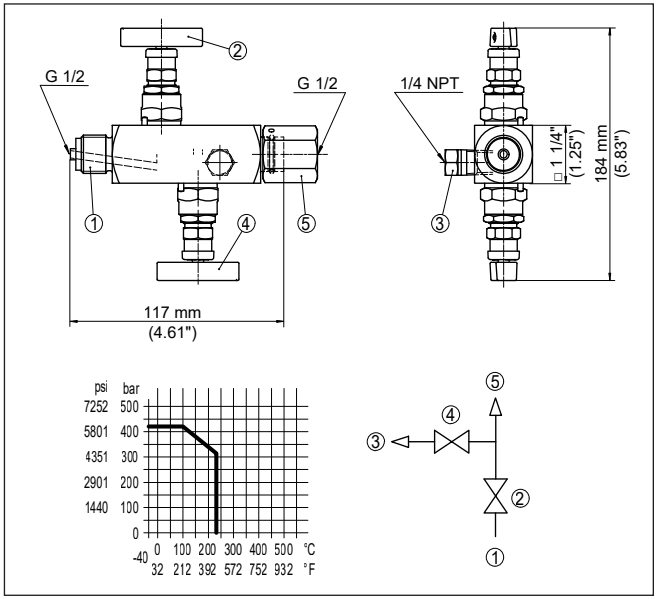

Fig. 3: Configuration

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

Technical data

Feature	Characteristic
Housing material	316L (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Input - Process side	G½ threaded pin
Output - Sensor side	G½ threaded sleeve, rotatable
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.ExEE

3.5 Double blocking valve ½ NPT (outer thread-inner thread)

Configuration

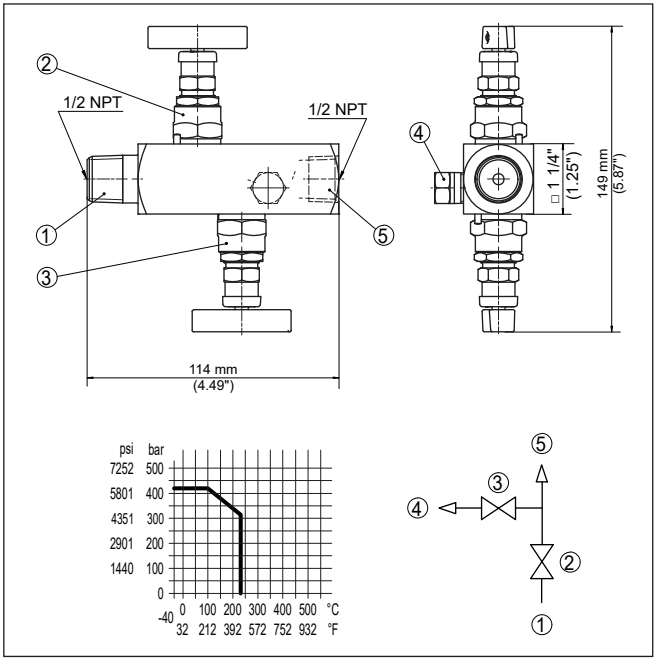

Fig. 4: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
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 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.ExFG

3.6 Double blocking valve ½ NPT (outer thread-inner thread) 10000 psi

Configuration

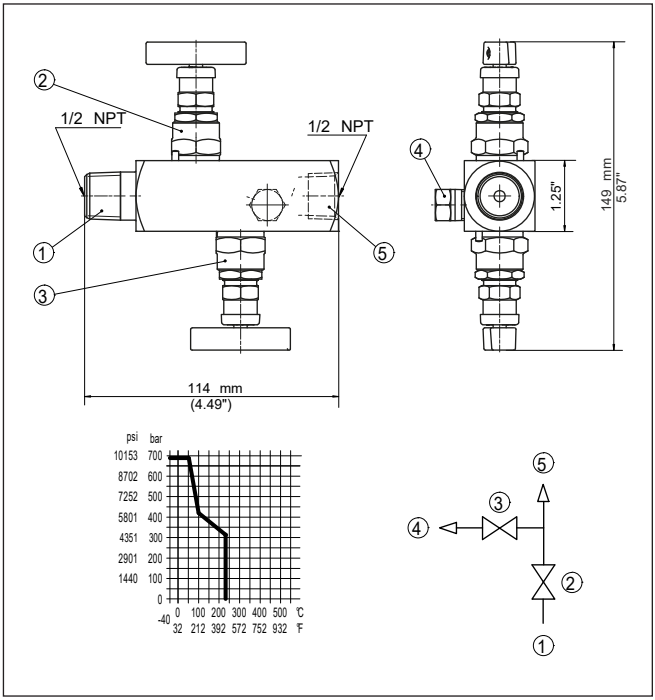

Fig. 5: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite (up to max. 500 bar)
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 689 bar at 38 °C (PTFE) 500 bar (graphite)
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.JxFG

3.7 Double blocking valve ½ NPT (outer thread-inner thread) 15000 psi

Configuration

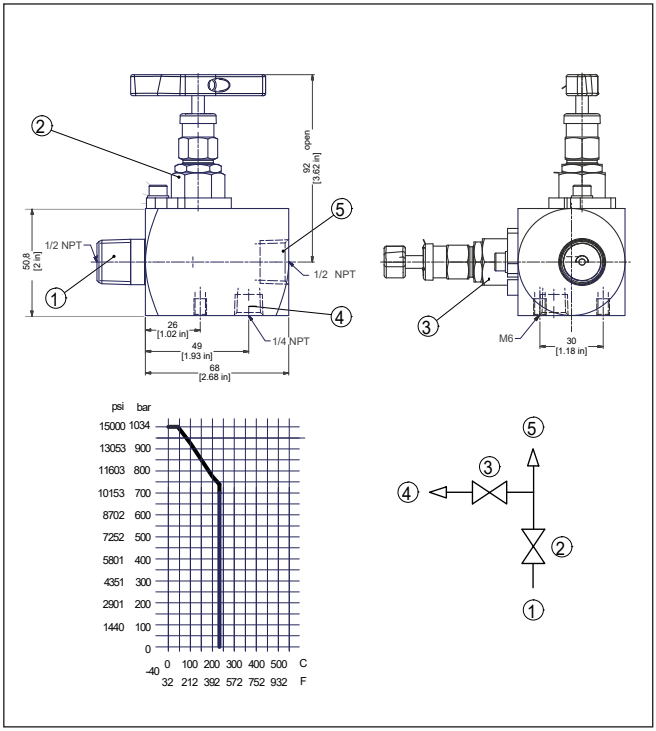

Fig. 6: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE
Input - Process side	½ NPT outer
Output - Sensor side	½ NPT inner
Ventilation/Test connection	¼ NPT
Pressure stage/Max. permissible pressure	PN 1034 bar at 38 °C
Max. process temperature	232 °C
Product code/Art. no.	BARVALVE.KxFG

3.8 Double blocking valve ½ NPT (outer thread-inner thread)

Configuration

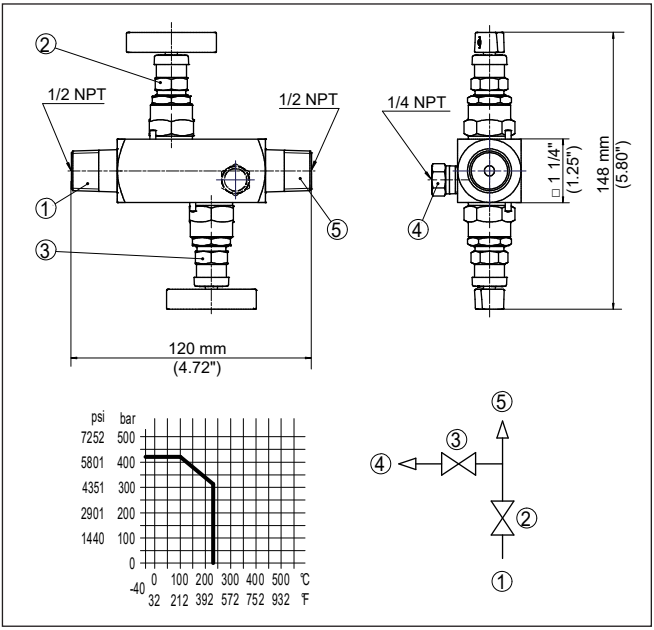

Fig. 7: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Input - Process side	½ NPT outer
Output - Sensor side	½ NPT outer
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.ExFF

3.9 Double blocking valve ½ NPT (inner thread-inner thread)

Configuration

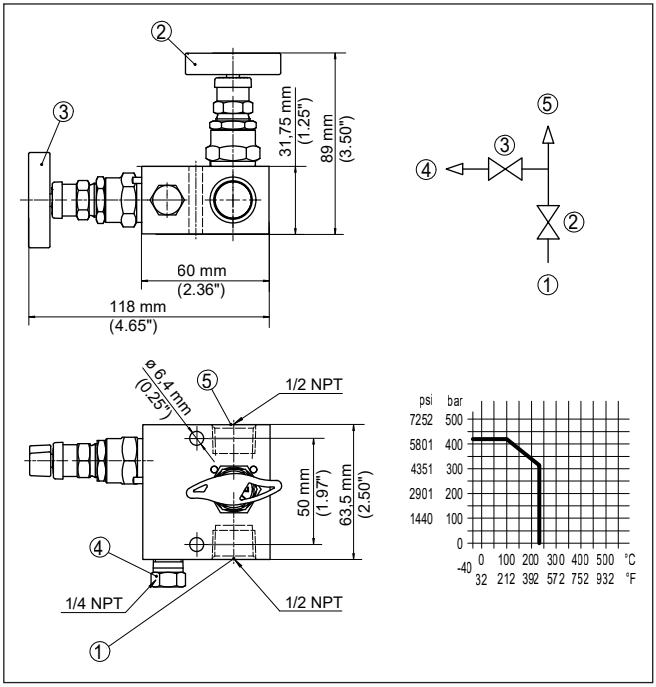

Fig. 8: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Input - Process side	½ NPT inner
Output - Sensor side	½ NPT inner
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.ExGG

3.10 Double blocking valve ½ NPT (inner thread-outer thread)

Configuration

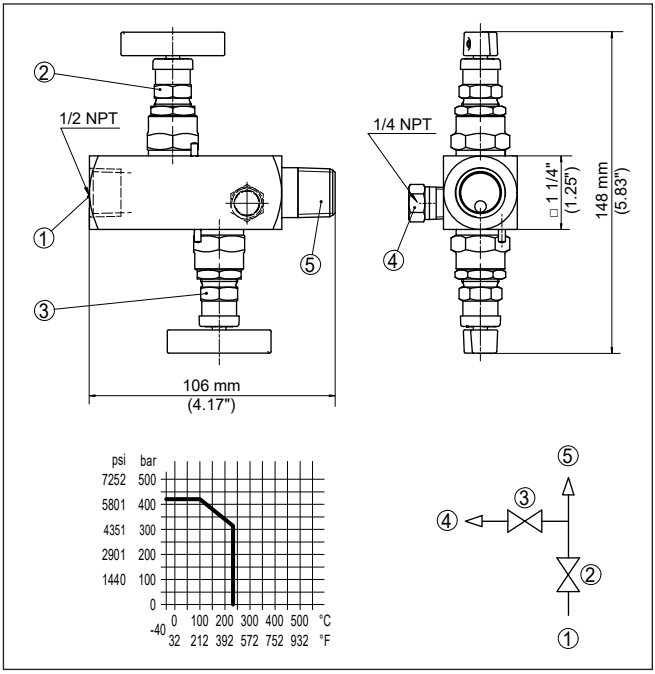

Fig. 9: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Input - Process side	½ NPT inner
Output - Sensor side	½ NPT outer
Ventilation/Test connection	¼ NPT, with closing screw
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	BARVALVE.ExGF

4 Valve blocks

4.1 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 triple-valve block can be flanged onto the orifice plate at both ends by integrated flanges.

Setup instructions

Warning:
In accordance with DIN EN 61518, the connections between the valve block and the measuring instrument are suitable for use with liquids, gases or vapours up to a maximum permissible pressure of 413 bar (6,000 psi) and a maximum permissible temperature of 120 °C (248 °F) The maximum permissible temperature considers that valve blocks and measuring instruments must be protected from heat caused by hot media. This can be achieved by using siphons or sufficiently long impulse lines.

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*".

Anti-tamper (manipulation protection)

The valve blocks can be equipped with removable rotary handles for increased tamper security. This prevents unauthorized opening or closing.

Configuration

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

Below you can see an overview of the most common valve blocks.

4.2 Triple-valve block

Configuration

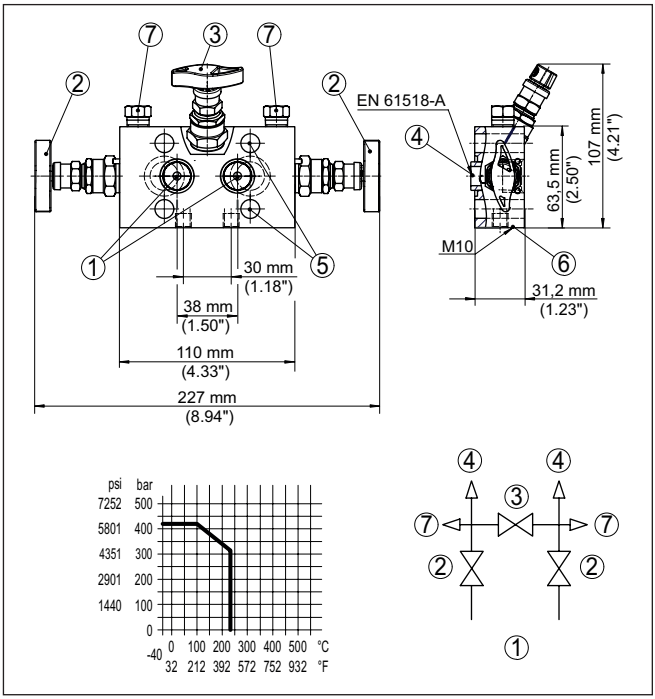

Fig. 10: Configuration

1 Input - Process side
2 Valve for blocking (process)
3 Breather valve
4 Output (differential pressure transmitter)
5 Through-holes for mounting screws
6 Holes for mounting bracket
7 Ventilation

Technical data

Feature	Characteristic
Material valve block	316L (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Material mounting screws	Stainless steel, galvanized steel
Mounting thread for bracket provided on site	M10
Input (process)	½ NPT
Output (differential pressure transmitter)	Form A, IEC61518

Feature	Characteristic
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	DIFVALVE.Lxxxxx

4.3 Triple-valve block (flangeable on both sides)

Configuration

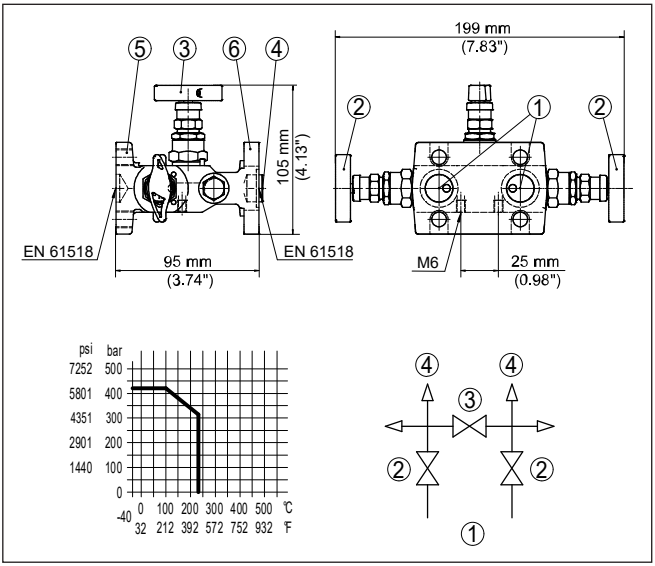

Fig. 11: Configuration

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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Material mounting screws	Stainless steel, galvanized steel
Material seal washers	PTFE, graphite
Mounting thread for bracket provided on site	M6
Input (process)	Flange connection according to EN 61518

Feature	Characteristic
Output (differential pressure transmitter)	Form A, IEC 61518
Blowing out/Test connection	¼ NPT
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	DIFVALVE.Nxxxxx

4.4 4-fold valve block

Configuration

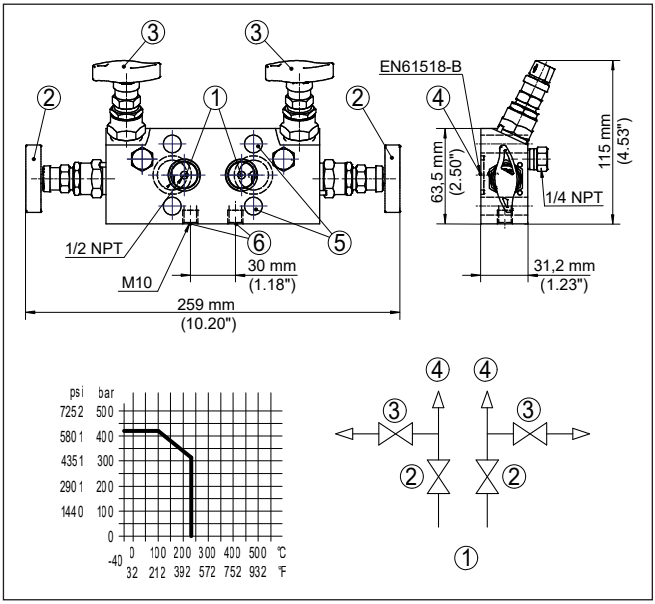

Fig. 12: Configuration

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

Technical data

Feature	Characteristic
Material valve block	316L (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Material mounting screws	Stainless steel, galvanized steel

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Feature	Characteristic
Material seal washers	PTFE, graphite
Mounting thread for bracket provided on site	M10
Input (process)	½ NPT
Output (differential pressure transmitter)	Form B
Blowing out/Test connection	¼ NPT
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	DIFVALVE.Oxxxxx

4.5 5-fold valve block

Configuration

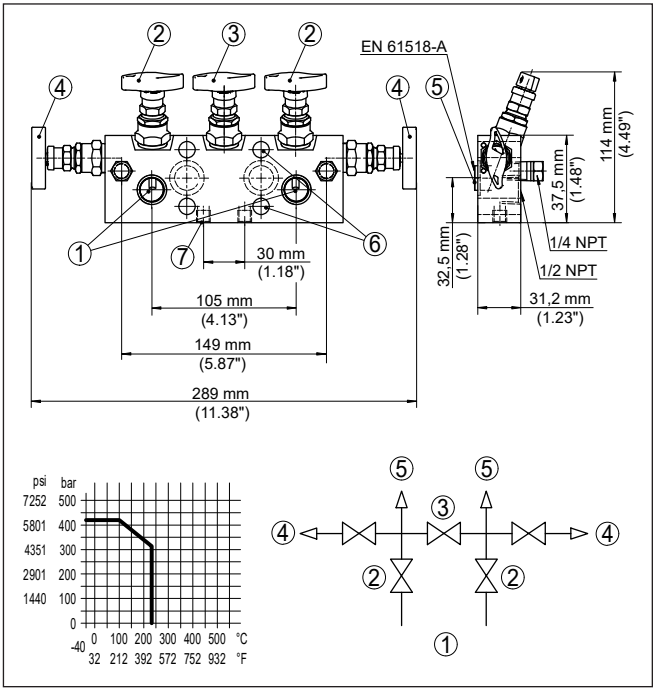

Fig. 13: Configuration

1 *Input (process)*
2 *Valves for blocking (process)*
3 *Breather valve*
4 *Ventilation 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 (1.4404), Alloy C276 (2.4819), Alloy 400 (2.4360), Duplex (1.4462)
Material valve seal packing	PTFE, graphite
Material mounting screws	Stainless steel, galvanized steel
Material seal washers	PTFE, graphite
Mounting thread for bracket provided on site	M10
Input (process)	½ NPT
Output (differential pressure transmitter)	Form A, IEC 61518
Blowing out/Test connection	¼ NPT

Feature	Characteristic
Pressure stage/Max. permissible pressure	PN 400/420 bar
Max. process temperature	232 °C (PTFE) 400 °C (graphite)
Product code/Art. no.	DIFVALVE.Mxxxxx

5 Mounting strap

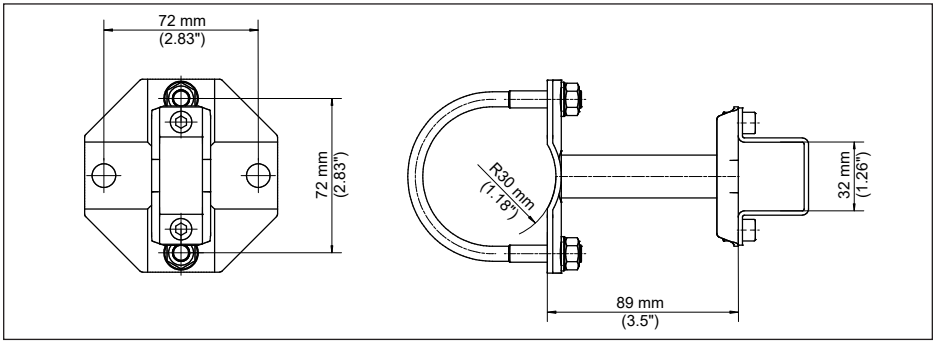

Fig. 14: Blocking valve mounting bracket

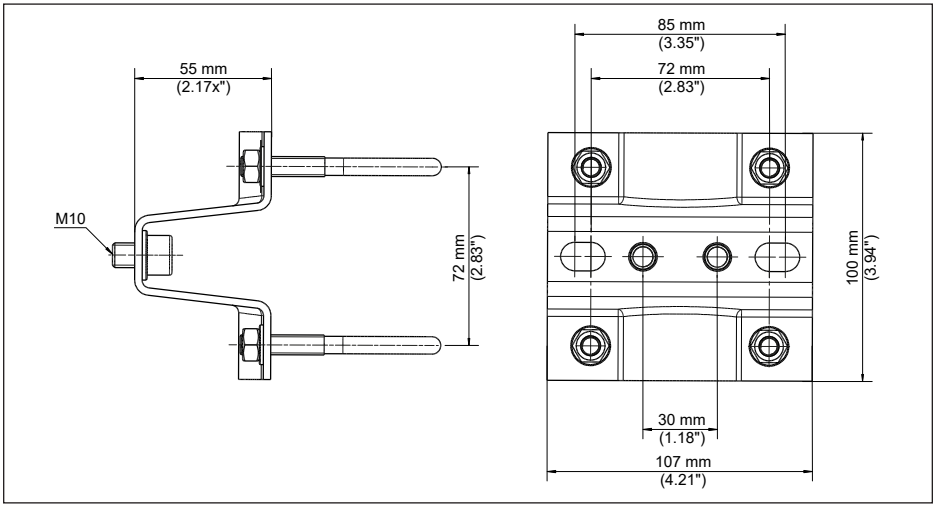

Fig. 15: Valve block mounting bracket

6 Maintenance and fault rectification

6.1 Resealing

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

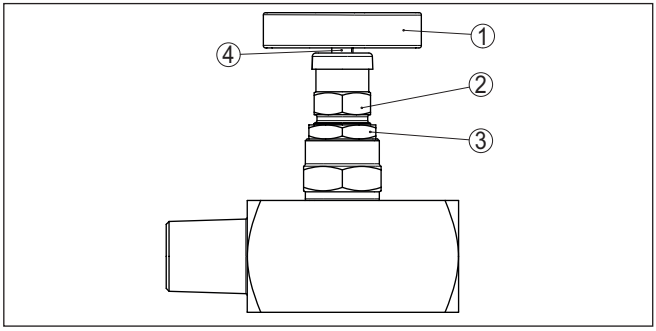

Fig. 16: General configuration of a valve

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

To reseal it, proceed as follows:

- Open the valve completely with the T-handle
- Loosen counter nut
- Retighten the gland nut. A ¼ to ½ turn will suffice
- Move spindle several times in both directions
- Tighten counter nut
- Test for tightness

The resealing procedure is finished.

6.2 How to proceed if a repair is necessary

On our homepage you will find detailed information on how to proceed in the event of a repair.

So that we can carry out the repair quickly and without queries, generate a instrument return form there with the data of your device.

The following is required:

- The serial number of the instrument
- A short description of the fault
- Where applicable, details of the medium and process conditions

Print the generated instrument return form.

Clean the instrument and pack it damage-proof.

Send the printed instrument return form and possibly a safety data sheet together with the device.

You will find the address for the return on the generated instrument return form.

Printing date:

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
Subject to change without prior notice

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