



## Differential pressure

228 Overview Differential pressure

230 VEGADIF 65

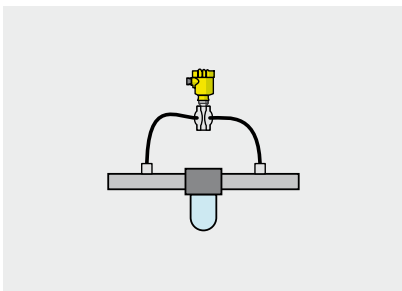
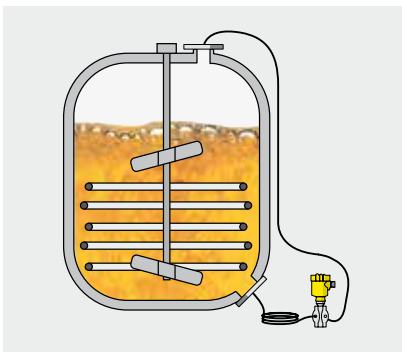
232 Chemical seal

236 Oval flange adapter, mounting bracket, cutting ring screwing

238 Valve block



## Overview Differential pressure



### Area of application




The differential pressure gauge VEGADIF was specially developed for level measurement of liquids and gases in pressurized vessels. It is also suitable for pressure monitoring on filters and pumps as well as for flow measurement of gases, vapours and liquids in conjunction with a differential pressure generator (e.g. orifice plate). When used in conjunction with a CSB or CSS chemical seal assembly, VEGADIF can also be deployed for density and interface measurement.

### Measuring principle

Different pressures act on the two sides of an oil-filled differential pressure measuring cell. This converts the pressure differential into an electronic signal. A piezo measuring cell is used as the pressure measuring cell.

### Advantages

The differential pressure transmitter VEGADIF is characterized by its especially wide application spectrum. Even differential pressures of only a few mbar can be accurately measured. Media at extreme temperatures can be measured by adding a chemical seal assembly.

	VEGADIF 65	Chemical seal CSB	Chemical seal CSS
			
Application	Liquids and gases	Liquids and gases	Liquids and gases
Deviation	0.15 %; 0.075 %	–	–
Process fitting	¼-18 NPT, RC ¼, optional with chemical seal assembly, metallic of 316L, Alloy	Flanges from DN 40, 2" cells from DN 50, 2" of 316L, Alloy, Tantalum	Flanges from DN 50, 2" cells from DN 50, 2" of 316L, Alloy, Tantalum
Process temperature	-40 ... +120 °C	-40 ... +400 °C	-40 ... +400 °C
Measuring range	from -10 ... +10 mbar (-1 ... +1 kPa) up to -40 ... +40 bar (-4000 ... +4000 kPa)	from -100 ... +100 mbar (-10 ... +10 kPa) up to -40 ... +40 bar (-4000 ... +4000 kPa)	from -100 ... +100 mbar (-10 ... +10 kPa) up to -40 ... +40 bar (-4000 ... +4000 kPa)
Overload resistance	up to 420 bar	up to 420 bar	up to 420 bar
Signal output	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	–	–
Display/Adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	–	–
Approvals	ATEX, IEC, CSA, GOST, Overfill protection	In combination with VEGADIF 65	In combination with VEGADIF 65

## VEGADIF 65

### Differential pressure transmitter with metal measuring diaphragm

#### Application area

The differential pressure transmitter VEGADIF 65 can be used universally for the measurement of liquids, gases and vapours. Typical applications are level measurements in pressurized vessels as well as flow measurements in combination with DP flow elements. Further applications are pressure monitorings on filters as well as density and interface measurements.

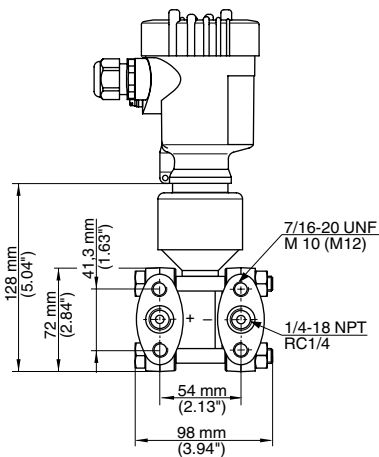
#### Your benefit

- Measurement of very low differential pressures through high precision measured value detection
- High reliability through integrated overload diaphragm
- Versatile use through a variety of measuring ranges and process fittings

#### Technical data

Measuring cell:	metallic
Measuring range:	from -10 ... +10 mbar (-1 ... +1 kPa) to -40 ... +40 bar (-4000 ... +4000 kPa)
Process fitting:	¼ - 18 NPT, RC ¼
Process temperature:	-40 ... +120 °C with chemical seal assembly -40 ... +400 °C
Deviation in characteristics:	0.15 %; 0.075 %

Delivery time:  **SPEED**



The options shown represent only a limited selection. Additional instrument options and possible restrictions.

[www.vega.com/configurator](http://www.vega.com/configurator)

Instrument documentation and drawings:

[www.vega.com/downloads](http://www.vega.com/downloads)

Mounting accessories, welded sockets and housing overview:

**Chapter Accessory**

**Approval**

- XX without .....
- AX ATEX II 3G Ex nA .....
- CX ATEX II 1G, 1/2G, 2G Ex ia IIC T6 .....
- CK ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + 1D, 1/2D, 2D Ex tD IP66 T\* .....
- DX ATEX II 1/2G, 2G Ex d ia IIC T6 .....
- GX ATEX II 1D, 1/2D, 2D Ex tD IP66 T\* .....
- CX IEC Ex ia IIC T6 .....
- DX IEC Ex d ia IIC T6 .....
- GX IEC Ex tD A20, A20/A21, A21 IP66 T\* .....
- CX CSA (IS) CL I, II, III, DIV1, GP ABCDEFG .....
- DX CSA (XP-IS) CL I, II, III, DIV1, GP ABCDEFG .....

**Process fitting / Material / Lateral ventilation**

- B NPT1/4-18, IEC61518, UNF7/16-20 / Steel C22.8 (1.0460) / without .....
- C NPT1/4-18, IEC61518, UNF7/16-20 / Steel C22.8 (1.0460) / with .....
- D NPT1/4-18, IEC61518, UNF7/16-20 / 316L / without .....
- E NPT1/4-18, IEC61518, UNF7/16-20 / 316L / with .....
- F NPT1/4-18, IEC61518, UNF7/16-20 / Alloy C276 (2.4819) / without .....
- 1 NPT1/4-18, PN160=M10, PN420=M12 / Steel C22.8 (1.0460) / without .....
- 2 NPT1/4-18, PN160=M10, PN420=M12 / 316L / without .....
- W Prepared for chemical seal assembly / 316L .....

**Material diaphragm**

- 1 316L .....
- 2 Alloy C276 (2.4819) .....
- 3 Alloy 400 (2.4360) .....
- 5 Tantalum .....

**Seal**

- A FKM .....
- C PTFE .....
- F NBR .....
- K Copper seal ring, oxygen application .....
- H Copper seal ring .....

**Measuring range / PN:**

- 7B 10mbar (1kPa) / 160bar (16000kPa) .....
- 7C 30mbar (3kPa) / 160bar (16000kPa) .....
- 7D 100mbar (10kPa) / 160bar (16000kPa) .....
- 7F 500mbar (50kPa) / 160bar (16000kPa) .....
- 7H 3bar (300kPa) / 160bar (16000kPa) .....
- 7L 16bar (1600kPa) / 160bar (16000kPa) .....
- 7M 40bar (4000kPa) / 160bar (16000kPa) .....
- 8F 500mbar (50kPa) / 420bar (42000kPa) .....
- 8H 3bar (300kPa) / 420bar (42000kPa) .....
- 8L ~16bar (1600kPa) / 42 .....
- 8M 40bar (4000kPa) / 420bar(42000kPa) .....

**Electronics**

- Z Two-wire 4 ... 20mA .....
- H Two-wire 4...20mA/HART® .....
- P Two-wire Profibus PA .....
- F Two-wire Foundation Fieldbus .....

**Housing / Protection**

- K Plastic single chamber / IP66/IP67 .....
- R Plastic double chamber / IP66/IP67 .....
- A Aluminium single chamber / IP66/IP67 .....
- D Aluminium double chamber / IP66/IP67 .....
- 8 Stainless steel single chamber (electropolished) / IP66/IP67 .....
- W Stainless steel double chamber / IP66/IP67 .....
- P Axial cable outlet IP 68 (PUR) with external plastic single chamber housing / IP65 .....

**Cable entry / Cable gland / Plug connection**

- M M20x1.5 / with / without .....
- N ½ NPT / without / without .....

**Display/adjustment module PLICSCOM**

- X without .....
- A Mounted .....

**Additional equipment**

- X without .....

**Accuracy class**

- 7 0.075 % .....
- F 0.150 % .....

DF65.													
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Cable length

per 100 mm cable of PUR

## Chemical seal CSB

### Chemical seal both side assembly for VEGADIF 65

#### Application area

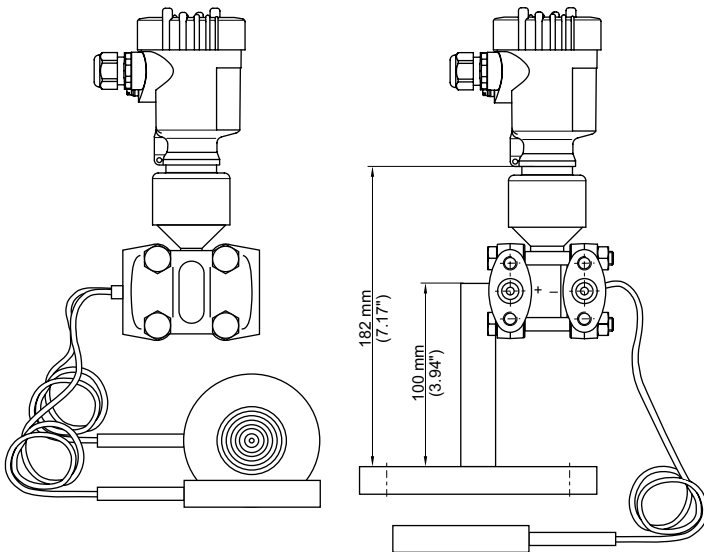
The VEGADIF 65 with chemical seal CSB (both side assembly) is suitable for level, interface, density, differential pressure and flow measurement. Through the assembly of the chemical seal CSB, applications in corrosive, high viscosity and hot products can be realized.

#### Your benefit

- High chemical resistance through adapted diaphragm materials
- Versatile solutions through individual configuration

#### Technical data

Measuring range:	from -100 ... +100 mbar (-10 ... +10 kPa) to -40 ... +40 bar (-4000 ... +4000 kPa)
Process fitting:	flanges from DN 50, 2"
Process temperature:	-40 ... +400 °C



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**Connection high pressure side**

- B** Rigid horizontal (100 mm) .....
- E** Capillaries 1m .....
- F** Capillaries special lengths .....

**Process fitting / Material high pressure side**

- AA** Cell DN50 PN16-400 / 316L .....
- AK** Cell DN80 PN16-400 / 316L .....
- AR** Cell DN100 PN16-400 / 316L .....
- CA** Cell 2" 150-2500 / 316L .....
- CK** Cell 3" 150-2500 / 316L .....
- FC** Flange DN50 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FD** Flange DN50 PN40; with extension (ø48.5x50mm) / 316/316L; 1.4404/1.4401 .....
- FH** Flange DN80 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FJ** Flange DN80 PN40; with extension (ø76x50mm) / 316/316L; 1.4404/1.4401 .....
- F5** Flange 2" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- F7** Flange 2" 150lb RF, ASME; with extension (ø1.9x2") / 316/316L; 1.4404/1.4401 .....
- FS** Flange 3" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- FQ** Flange 3" 150lb RF, ASME; with extension (ø2.9x6") / 316/316L; 1.4404/1.4401 .....
- FT** Flange 3" 300lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- HN** Flange 3" 600lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- RW** Slotted nut, nut DN50 PN25, DIN11851 / 316L .....
- RX** Slotted nut, nut DN80 PN25, DIN11851 / 316L .....

**Diaphragm material**

- 1** 316L .....
- B** 316L coated with 0.1 µm rhodium on 4 µm gold .....
- 2** Alloy C276 (2.4819) .....
- 3** Tantalum .....

**Isolating liquid / Temperature**

- C** Silicone oil KN2.2 / -40...+200°C (Pabs<1bar -40...+150°C) .....
- G** High temperature oil KN32 / -10...+300°C (Pabs<1bar -10...+200°C) .....
- H** High temperature oil KN32 / -10...+400°C (Pabs<1bar -10...+200°C) .....
- I** Halocarbon oil KN21 / -40...+150°C (Pabs<1bar -40...+80°C) .....
- R** Medical white oil KN92 (FDA) / -10...+250°C (Pabs<1bar -10...+160°C) .....

**Connection low pressure side**

- F** Capillaries special lengths .....

**Process fitting / Material low pressure side**

- AA** Cell DN50 PN16-400 / 316L .....
- AK** Cell DN80 PN16-400 / 316L .....
- AR** Cell DN100 PN16-400 / 316L .....
- CA** Cell 2" 150-2500 / 316L .....
- CK** Cell 3" 150-2500 / 316L .....
- FC** Flange DN50 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FD** Flange DN50 PN40; with extension (ø48.5x50mm) / 316/316L; 1.4404/1.4401 .....
- FH** Flange DN80 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FJ** Flange DN80 PN40; with extension (ø76x50mm) / 316/316L; 1.4404/1.4401 .....
- F5** Flange 2" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- F7** Flange 2" 150lb RF, ASME; with extension (ø1.9x2") / 316/316L; 1.4404/1.4401 .....
- FS** Flange 3" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- FQ** Flange 3" 150lb RF, ASME; with extension (ø2.9x6") / 316/316L; 1.4404/1.4401 .....
- FT** Flange 3" 300lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- HN** Flange 3" 600lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- RW** Slotted nut, nut DN50 PN25, DIN11851 / 316L .....
- RX** Slotted nut, nut DN80 PN25, DIN11851 / 316L .....

**Vacuum service**

- J** yes (with measuring ranges < 0.5bar abs) .....
- N** No .....

**Material certificate**

- X** without .....
- D** Inspection certif. EN10204-3.1B, NACE MR0175(wetted) .....

<b>CSB.</b>									
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**Capillaries high pressure side in m**  
(500-12000 mm) per 100 mm

**Capillaries low pressure side in m**  
(500-12000 mm) per 100 mm

## Chemical seal CSS

### Chemical seal single side assembly for VEGADIF 65

#### Application area

The VEGADIF 65 with chemical seal CSS (single side assembly) is suitable for level and differential pressure measurement. Through the assembly of the chemical seal CSS, applications in corrosive, high viscosity and hot products can be realized.

#### Your benefit

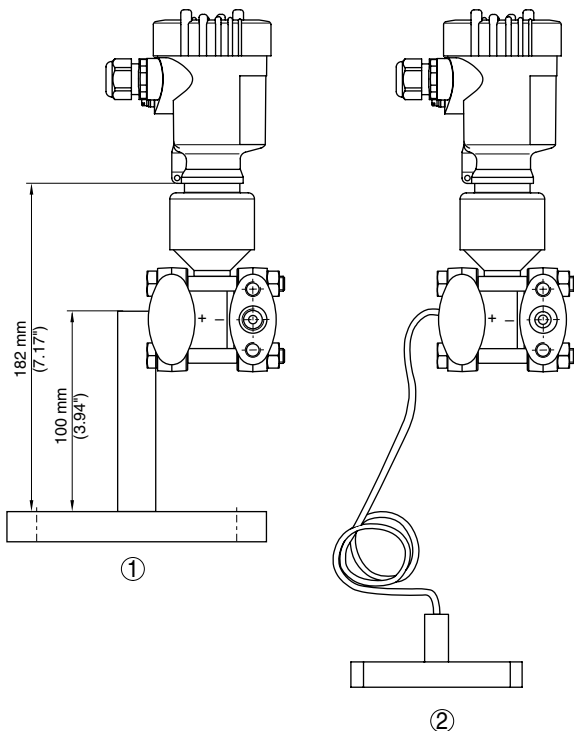
- High chemical resistance through adapted diaphragm materials
- Versatile solutions through individual configuration

#### Technical data

Measuring range: from -100 ... +100 mbar (-10 ... +10 kPa)  
to -40 ... +40 bar (-4000 ... +4000 kPa)

Process fitting: flanges from DN 50, 2"

Process temperature: -40 ... +400 °C



- ① Version: rigid vertically (100 mm)  
② Version: with capillaries (100 mm)

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**Chapter Accessory**



**Connection high pressure side**

- A Rigid vertical (100 mm) .....
- B Rigid horizontal (100 mm) .....
- C Rigid with cooling distance vertical (150 mm) .....
- D Rigid with cooling distance horizontal (150 mm) .....
- E Capillaries 1m .....
- F Capillaries special lengths .....

**Process fitting / Material**

- FC Flange DN50 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FD Flange DN50 PN40; with extension (ø48.5x50mm) / 316/316L; 1.4404/1.4401 .....
- FH Flange DN80 PN40 Form D, DIN2501 / 316/316L; 1.4404/1.4401 .....
- FJ Flange DN80 PN40; with extension (ø76x50mm) / 316/316L; 1.4404/1.4401 .....
- DF Flange DN100 PN40; with extension (ø94x50mm) / 316/316L; 1.4404/1.4401 .....
- F5 Flange 2" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- F7 Flange 2" 150lb RF, ASME; with extension (ø1.9x2") / 316/316L; 1.4404/1.4401 .....
- HW Flange 2" 150lb SG, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- FS Flange 3" 150lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- FQ Flange 3" 150lb RF, ASME; with extension (ø2.9x6") / 316/316L; 1.4404/1.4401 .....
- HP Flange 3" 150lb FF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- DI Flange 2" 900lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....
- FT Flange 3" 300lb RF, ASME B16.5 / 316/316L; 1.4404/1.4401 .....

**Diaphragm material**

- 1 316L .....
- 2 Alloy C276 (2.4819) .....
- 3 Tantalum .....

**Isolating liquid / Temperature**

- C Silicone oil KN2.2 / -40...+200°C (Pabs<1bar -40...+150°C) .....
- G High temperature oil KN3.2 / -10...+300°C (Pabs<1bar -10...+200°C) .....
- H High temperature oil KN3.2 / -10...+400°C (Pabs<1bar -10...+200°C) .....
- I Halocarbon oil / -40...+150°C (Pabs<1bar -40...+80°C) .....
- R Medical white oil KN92 / -10...+250°C (Pabs<1bar -10...+160°C) .....

**Connection low pressure side**

- 1 7/16-20 UNF .....

**Material**

- 1 316L .....

**Seal**

- Y Kalrez 6375 .....

**Vacuum service**

- J yes (with measuring ranges <0.5bar abs) .....
- N no .....

**Material certificate**

- X without .....
- D Inspection certif. EN10204-3.1B, NACE MR0175(wetted) .....

CSS.																				
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Capillaries high pressure side in m  
(500-8000 mm) per 100 mm

## Oval flange adapter

### Oval flange adapter for VEGADIF

The oval flange adapter enables the connection of a ½ NPT tube to a VEGADIF 65 or a valve block. Through the selection of the suitable material, the oval flange adapter can be adapted to all processes.



#### Version / Material

- A Basic version / 316L .....
- Screws / Material / Nominal pressure**
- H 7/16 UNF / steel 8.8 galvanized / PN420 .....
- I 7/16 UNF / 304 / PN160 .....
- Seal / Temperature range**
- 1 FKM (Vi 399) / -15...+200°C .....
- 2 EPDM / -40...+150°C .....
- 3 PTFE / -200...+260°C .....

DIFOVAL.

## Ventilation valve

### Ventilation valve for VEGADIF

2 pcs.



#### Version / Material

- 17724 ¼ NPT / 316L .....

2.

## Closing screw

### Closing screw for VEGADIF

2 pcs.



#### Version / Material

- 17725 ¼ NPT / 316L .....

2.

## Mounting angle for VEGADIF

### Mounting angle for VEGADIF

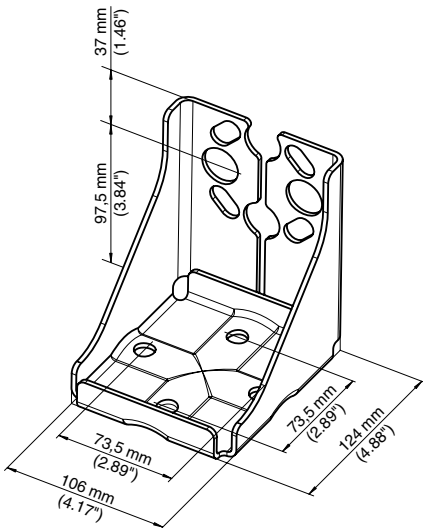
for wall or tube mounting  
with strap for tube mounting  
with fixing screws 7/16 UNF, M10



#### Version / Material

A Universal angle / 304 .....

DIFMW.



## Compression type mechanical joint VEGADIF

### Compression type mechanical joint

for VEGADIF and oval flange adapter



#### Version

41594 1/4 NPT compression type fitting for tube diameter 12mm / 316L .....

40439 1/2 NPT compression type fitting for tube diameter 12mm / 316L .....

2.

## Valve block

For direct connection to the differential pressure transmitter VEGADIF 65

### Application area

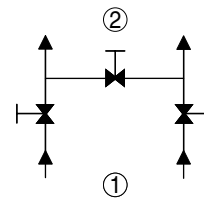
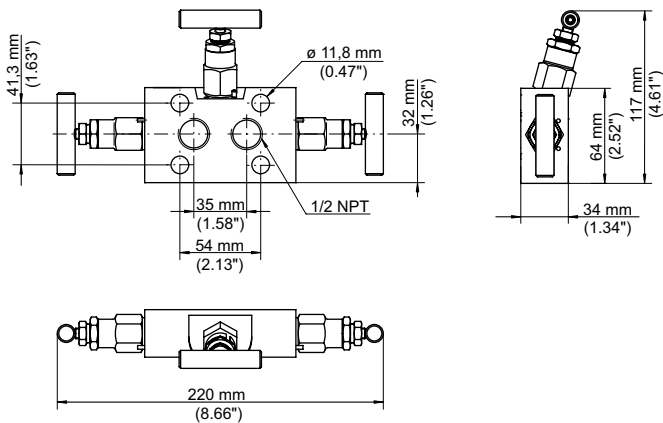
The use of the valve block with inlet and outlet valves ensures the simple installation and setup of the differential pressure transmitter.

### Your benefit

- Proven technology because suitable for connections according to IEC 61518
- Simple mounting and dismantling of the differential pressure transmitter
- Individual adaptation to the respective process

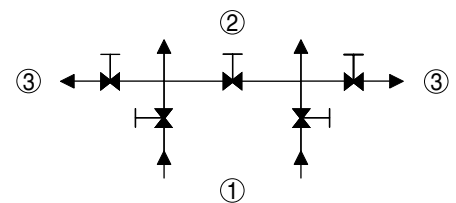
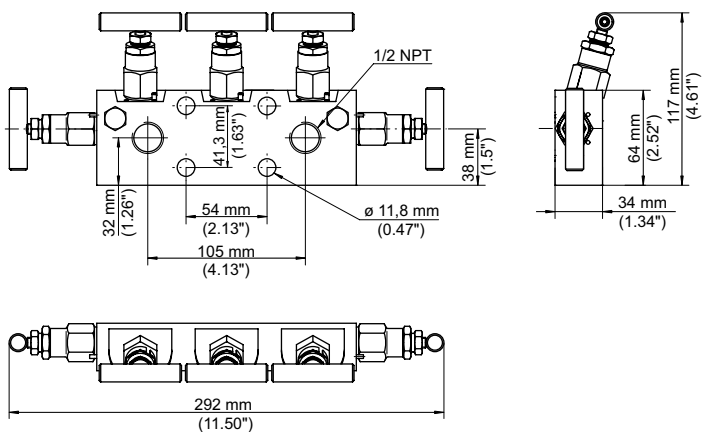


## Three-fold valve block acc. to DIN 19213



- ① to the process  
② to the measuring instrument

## Five-fold valve block acc. to DIN 19213



- ① to the process  
② to the measuring instrument  
③ check/ventilate

**Version**

- C 3-fold DN5 PN420 .....
- D 5-fold DN5 PN420 .....
- E 3-fold DN5 PN420 flanging on both sides .....
- L 3-fold DN5 PN160 .....
- M 5-fold DN5 PN160 .....
- N 3-fold DN5 PN160 flanging on both sides .....

**Material block / Material valve seal**

- V 316L (1.4404) / PTFE .....

**Input**

- N Threaded socket 1/2NPT .....
- M Cutting ring connection for 12 mm (DIN2353) .....
- I according to IEC 61518 .....
- J Oval flange adapter IEC 61518 - Thread 1/2NPT .....

**Output**

- A Form A, IEC61518 .....

**Fixing screws / Material process seal**

- X without .....
- 1 7/16 UNF 304, length: 1 3/4" / PTFE .....
- 4 7/16 UNF galvanized steel, length: 1 3/4" / PTFE .....
- 5 7/16 UNF 304, length: 7/8" / PTFE .....
- 6 7/16 UNF galvanized steel, length: 7/8" / PTFE .....
- T M10 304, length: 45mm / PTFE .....
- U M10 galvanize steel, length: 45mm / PTFE .....

**Certificate / Standard**

- X without .....
- B (C) 3.1-Inspection certificate for material (EN 10204) .....

DIFVALVE.									
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