

# Pressure Measurement

## Fittings

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### Technical description

#### Overview

All shut-off fittings can be secured onto walls, racks (72 mm grid) and vertical and horizontal pipes.

This offers the advantage when assembling a plant that the shut-off fittings can be secured first and the lines for the medium and differential pressure connected to them. It is then possible to check all connections for leaks and to blow out or flush the pipes in order to remove dirt (welding residues, shavings etc.).





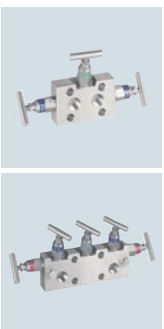
The measuring instruments can be screwed onto the shut-off fittings right at the end when all piping has been completed.

If an instrument has to be removed for maintenance, the fittings and pipes remain as they are. It is only necessary to close the valves – the instrument can then be removed, and refitted following maintenance.

#### Material acceptance test certificate to EN 10204-3.1

If a material acceptance test certificate to EN 10204-3.1 is required when ordering valve manifolds or shut-off fittings, please note that a single certificate is sufficient for each ordered item type. This means that you will only be charged for one certificate in the cost calculations.

#### Selection of available shut-off valves

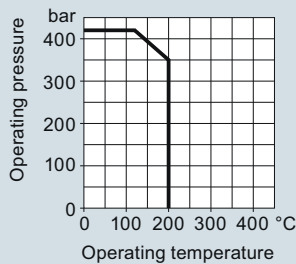
Transmitters	Shut-off valves for general applications	Page		Shut-off valves for special applications	Page	
<b>Relative and absolute pressure transmitters with process connection G½" male thread</b> e.g. <ul style="list-style-type: none"> <li>• SITRANS P200 7MF1565-...</li> <li>• SITRANS P210 7MF1566-...</li> <li>• SITRANS P220 7MF1567-...</li> <li>• SITRANS P300 7MF802-...0-...</li> <li>• SITRANS P DS III series 7MF403-...0-... and 7MF423-...0-...</li> </ul>				Double shut-off valve DN 5 for crossover ½-NPT-F to G½ nipple connection 7MF9011-4EA	1/309	
<b>Relative and absolute pressure transmitter with G½"-14 NPT female thread</b> e.g. <ul style="list-style-type: none"> <li>• SITRANS P200 7MF1565-...</li> <li>• SITRANS P210 7MF1566-...</li> <li>• SITRANS P220 7MF1567-...</li> <li>• SITRANS P300 7MF802-...1-...</li> <li>• SITRANS P DS III series 7MF403-...1-... and 7MF423-...1-...</li> </ul>	Double shut-off valve DN 5 7MF9011-4FA and 7MF9011-4GA	1/309		Double shut-off valve DN 5 for process connection ½-NPT 7MF9011-4DA	1/309	
<b>Absolute pressure transmitter with process connection to IEC 61518</b> e.g. <ul style="list-style-type: none"> <li>• SITRANS P DS III series 7MF433-...</li> </ul>	2-spindle valve manifold DN 5 7MF9411-5A.	1/311				
<b>Differential pressure transmitter with process connection to IEC 61518</b> e.g. <ul style="list-style-type: none"> <li>• SITRANS P DS III series 7MF443-... and 7MF453-...</li> <li>• SITRANS P500 7MF54-...</li> </ul>	For 3-/5-spindle valve manifold DN 5 7MF9411-5B. and 7MF9411-5C.	1/311				

### Overview

The double shut-off valves DN 5 are suitable for pressure gauges and pressure transmitters and available in 5 versions:

- Sleeve-nipple
- Sleeve-sleeve
- Sleeve-collar
- Collar-collar
- Collar-sleeve

### Characteristic curves



420 bar (6092 psi) at 120 °C  
(248 °F)  
350 bar (5076 psi) at 200 °C  
(392 °F)

Permissible operating pressure as a function of the permissible operating temperature

### Selection and Ordering data

#### Double shut-off valves DN 5

Material: X 6 CrNiMoTi 17 13 2 (mat. No. 1.4404/316L), max. permissible working pressure 420 bar (6092 psi)

- Sleeve-nipple connection
- Sleeve-sleeve
- Sleeve-collar
- Collar-collar
- Collar-sleeve

Article No.

**7MF9011-4EA**

**7MF9011-4HA**

**7MF9011-4FA**

**7MF9011-4GA**

**7MF9011-4KA**

Double shut-off valve acc. ASME B31.1, max. permissible working pressure class 2500

- Sleeve-collar

**7MF9011-4FB**

#### Accessories

Factory test certificate EN 10204-2.2

**7MF9000-8AB**

Material acceptance test certificate EN 10204-3.1

**7MF9000-8AD**

#### Further designs

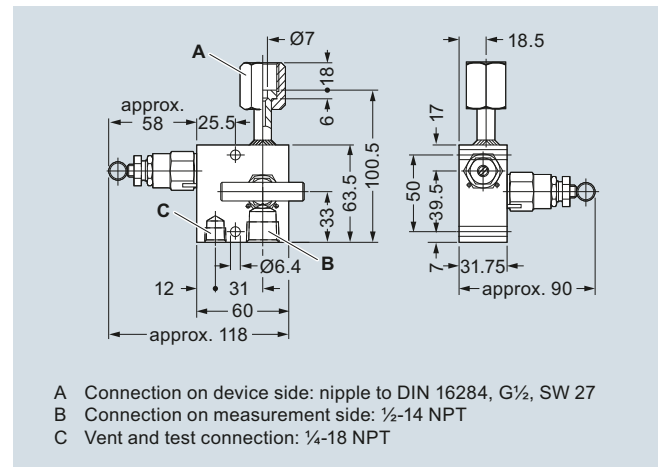
Order code

Add "-Z" to Article No. and specify Order Code.

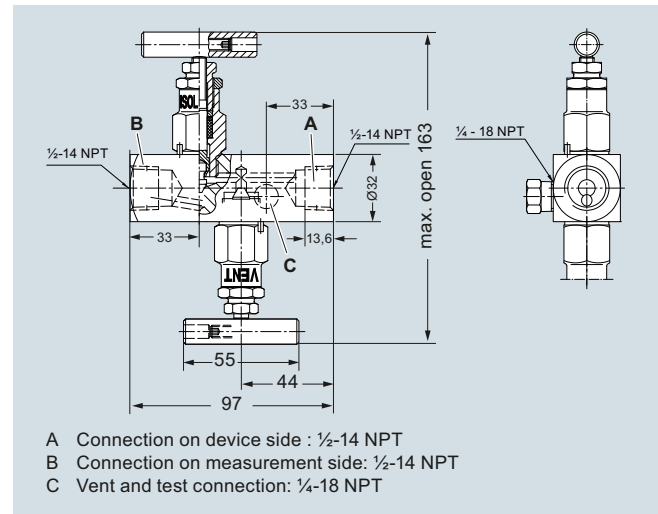
Oil- and grease-free cleaning for oxygen cleaning applications, max. pressure PN 100 (1450 psi) and max. temperature 60 °C (140 °F)

**S12**

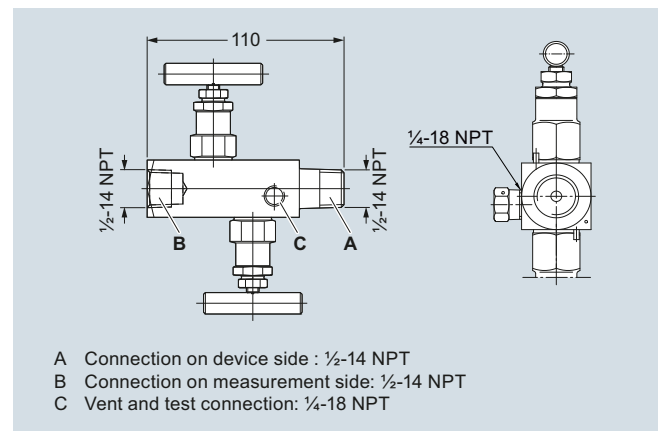
### Dimensional drawings



Double shut-off valve DN 5 (sleeve-nipple) 7MF9011-4EA, dimensions in mm



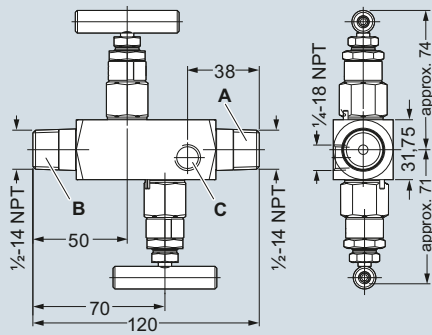
Double shut-off valve DN 5 (sleeve-sleeve) 7MF9011-4HA, dimensions in mm



Double shut-off valve DN 5 (sleeve-collar) 7MF9011-4FA, dimensions in mm

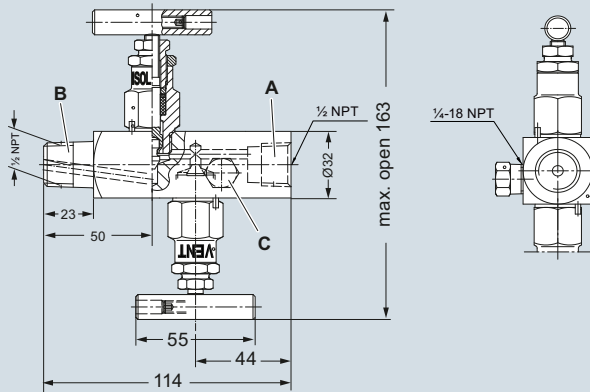
## Pressure Measurement Fittings

### Double shut-off valves



- A Connection on device side : 1/2-14 NPT
- B Connection on measurement side: 1/2-14 NPT
- C Vent and test connection: 1/4-18 NPT

Double shut-off valve DN 5 (collar-collar) 7MF9011-4GA, dimensions in mm



- A Connection on device side : 1/2-14 NPT
- B Connection on measurement side: 1/2-14 NPT
- C Vent and test connection: 1/4-18 NPT

Double shut-off valve DN 5 (collar-sleeve) 7MF9011-4KA, dimensions in mm

# Pressure Measurement

## Fittings - Shut-off valves for differential pressure transmitters

### 2-, 3- and 5-spindle valve manifolds DN 5

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#### Overview



The 2-spindle, 3-spindle and 5-spindle valve manifolds 7MF9411-5.. are for pressure transmitters for absolute pressure or differential pressure.

The valve manifolds are used to shut off the differential pressure lines and to check the pressure transmitter zero.

The 2-spindle and the 5-spindle valve manifold enable in addition venting on the transmitter side and checking of the pressure transmitter characteristic.

#### Benefits

- Max. working pressure 420 bar (6092 psi)
- Each available in version for oxygen

#### Application

The spindle valve manifolds DN 5 are designed for liquids and gases.

Each is available in a version for oxygen on request.

#### Design

All versions of the valve manifolds have a process connection 1/2-14 NPT. The connection for the pressure transmitter is always designed as a flange connection to EN 61518, form B. The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection 1/4-18 NPT.

The valves have an external spindle thread.

#### Materials used

Component	Material	Mat. No.
Housing	X 2 CrNiMo 17 13 2	1.4404/316L
Cones	X 6 CrNiMoTi 17 12 2	1.4571/316Ti
Spindles	X 2 CrNiMo 18 10	1.4404/316L
Head parts	X 5 CrNiMo 18 10	1.4401/316
Packings	PTFE	-

#### Function

Functions of all valve manifolds:

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:

- Venting on the transmitter side
- Checking the pressure transmitter characteristic

#### Selection and Ordering data

##### Valve manifolds DN 5

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

for liquids and gases, for flanging to pressure transmitters for absolute and differential pressure, max. working pressure 420 bar (6092 psi) (order accessory set with Order code), without certificate

- 2-spindle valve manifold
- 3-spindle valve manifold
- 5-spindle valve manifold

Valve manifold acc. ASME B31.1, max. permissible working pressure class 2500

- 3-spindle valve manifold
- 5-spindle valve manifold

##### Accessories

Factory test certificate EN 10204-2.2

Material acceptance test certificate EN 10204-3.1

Article No.

7 M F 9 4 1 1 - A

A

5 A

5 B

5 C

8 B

8 C

7MF9000-8AB

7MF9000-8AD

#### Selection and Ordering data

Order code

Article No.

##### Further designs<sup>1)</sup>

Please add "-Z" to Article No. and specify Order code.

##### Accessory set to EN

(connection between valve manifold and pressure transmitter)  
for valve manifold 7MF9411-5A.

2x screws 7/16-20 UNF x 1 3/4 inch to ASME B18.2.1; chromized steel

K35

7MF9411-7DB

1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)

2x screws 7/16-20 UNF x 1 3/4 inch to ASME B18.2.1; stainless steel

K45

7MF9411-7DC

1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)

for valve manifold 7MF9411-5B. and -5C.

4x screws 7/16-20 UNF x 1 3/4 inch to ASME B18.2.1; chromized steel

K36

7MF9411-5DB

2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)

4x screws 7/16-20 UNF x 1 3/4 inch to ASME B18.2.1; stainless steel

K46

7MF9411-5DC

2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)

##### Bolt kit for ASME B31.1 manifolds

4x screws 7/16-20 UNF x 1 3/4 inch to ASME B18.2.1; chromized steel

K34

7MF9411-5DB

2x flat gaskets made of graphite

## Pressure Measurement

### Fittings - Shut-off valves for differential pressure transmitters

#### 2-, 3- and 5-spindle valve manifolds DN 5

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Selection and Ordering data	Order code	Article No.	Selection and Ordering data	Order code	Article No.
<b>Further designs<sup>1)</sup></b> Please add <b>"-Z"</b> to Article No. and specify Order code.			<b>Further designs<sup>1)</sup></b> Please add <b>"-Z"</b> to Article No. and specify Order code.		
<b>Accessory set to DIN<sup>2)</sup></b> (connection between valve manifold and pressure transmitter) <u>for valve manifold 7MF9411-5A.</u>  2x screws M10x45 to DIN EN 24014; chromized steel, 2x washers Ø 10.5 mm to DIN 125; 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)  2x screws M10x45 to DIN EN 24014; <b>stainless steel</b> 2x washers Ø 10.5 mm to DIN 125, <b>stainless steel</b> ; 1x gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) <u>for valve manifolds 7MF9411-5B. and -5C.</u>  4x screws M10x45 to DIN EN 24014; chromized steel, 4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) Flange connection with M10 screws only permissible up to PN 160.  4x screws M10x45 to DIN EN 24014; <b>stainless steel</b> 4x washers Ø 10.5 mm to DIN 125, <b>stainless steel</b> ; 2x flat gaskets made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F) Flange connection with M10 screws only permissible up to PN 160.	<b>K15</b>	<b>7MF9411-7BB</b>	<b>NACE MR-0175-certified</b> incl. acceptance test certificate 3.1 to EN 10204	<b>D07</b>	
	<b>K25</b>	<b>7MF9411-7BC</b>			
	<b>K16</b>	<b>7MF9411-6BB</b>			
	<b>K26</b>	<b>7MF9411-6BC</b>			
<b>Mounting plate</b> • for valve manifold, made of electrogalvanized sheet-steel - <b>for wall mounting</b> or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold - <b>for pipe mounting</b> , weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm) and fastening screws for mounting on valve manifold • for valve manifold, made of <b>stainless steel</b> - <b>for wall mounting</b> or for securing on rack (72 mm grid), weight 0.5 kg Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold - <b>for pipe mounting</b> , weight 0.7 kg Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)	<b>M11</b>	<b>7MF9006-6EA</b>			
	<b>M12</b>	<b>7MF9006-6GA</b>			
	<b>M21</b>	<b>7MF9006-6EC</b>			
	<b>M22</b>	<b>7MF9006-6GC</b>			
<b>Valve manifold 100 bar</b> Oil- and grease-free cleaning for oxygen applications, max. pressure PN 100 (1450 psi) and max. temperature 60 °C (140 °F) • for 7MF9411-5A. • for 7MF9411-5B. • for 7MF9411-5C.	<b>S12</b> <b>S13</b> <b>S14</b>				

- <sup>1)</sup> When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Article No.  
<sup>2)</sup> Flange connections to DIN 19213 only permissible up to 160!

**Accessories****Accessory set for 2-, 3- and 5-spindle valve manifolds****2-spindle valve manifold DN 5**

- K35: 2 screws  $\frac{7}{16}$ -20 UNF x  $1\frac{3}{4}$  inch to ASME B18.2.1, 1 flat gasket
- K15: 2 screws M10x45 to DIN EN 24014, 2 washers, 1 flat gasket

**3-spindle and 5-way valve manifold DN 5**

- K36: 4 screws  $\frac{7}{16}$ -20 UNF x  $1\frac{3}{4}$  inch to ASME B18.2.1, 2 flat gaskets
- K16: 4 screws M10x45 to DIN EN 24014, 4 washers, 2 flat gaskets

Washers  $\varnothing$  10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 °C (176 °F)

**Note:** Flange connection with M10 screws only permissible up to PN 160!

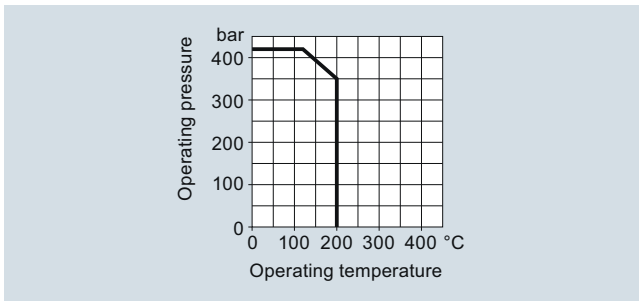
**Mounting plate**

Made of electrogalvanized sheet-steel

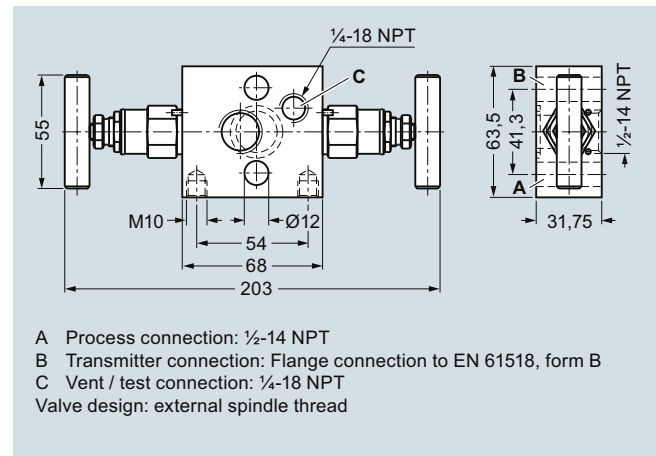
- M11: For wall mounting or for securing on rack (72 mm grid)  
Scope of delivery:  
- 1 mounting plate with bolts for mounting on valve manifold
- M12: For pipe mounting  
Scope of delivery:  
- 1 mounting plate M11  
- 2 pipe brackets with nuts and washers for pipes with max.  $\varnothing$  60.3 mm

**Valve manifold 100 bar, suitable for oxygen**

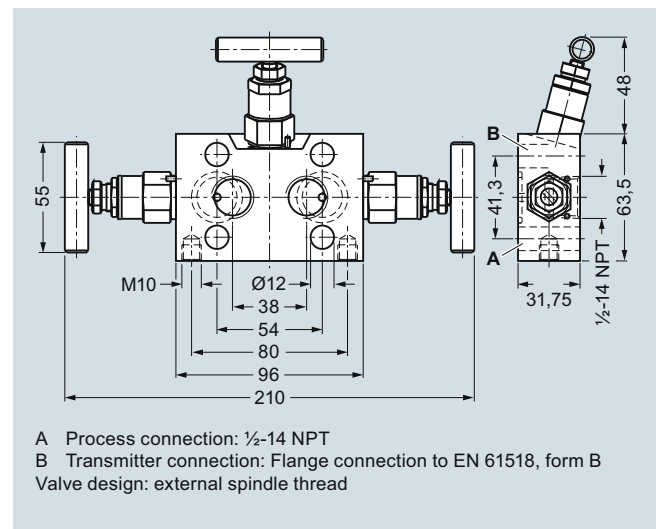
- S12: For 2-way valve manifold
- S13: For 3-way valve manifold
- S14: For 5-way valve manifold

**Characteristic curves**

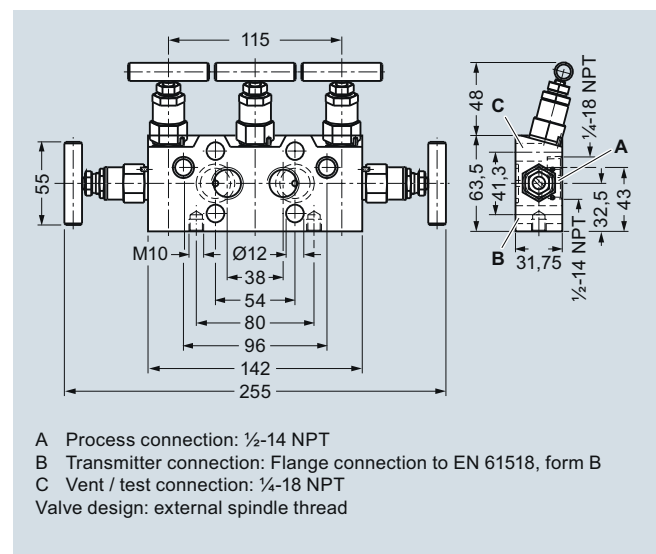
Valve manifolds PN 5 (7MF9411-5..), permissible working pressure as a function of the permissible working temperature

**Dimensional drawings**

2-spindle valve manifold DN 5 (7MF9411-5A.), dimensions in mm



3-spindle valve manifold DN 5 (7MF9411-5B.), dimensions in mm



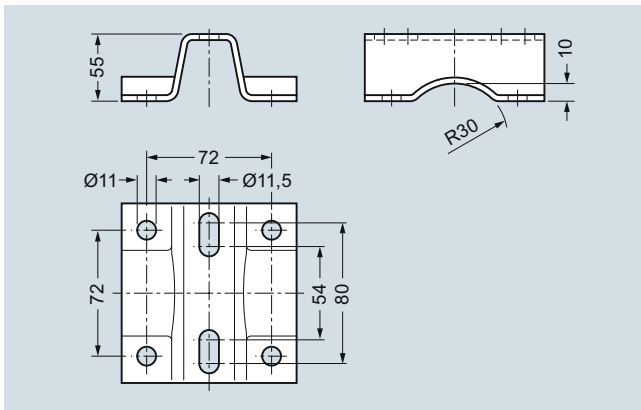
5-spindle valve manifold DN 5 (7MF9411-5C.), dimensions in mm

## Pressure Measurement

### Fittings - Shut-off valves for differential pressure transmitters

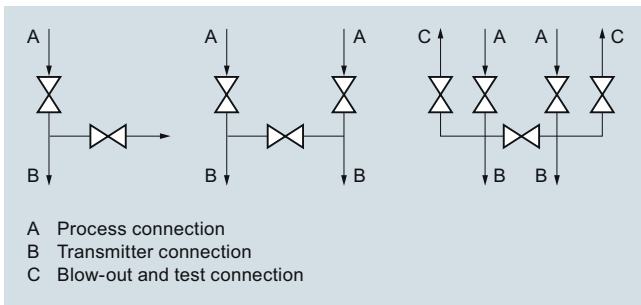
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#### 2-, 3- and 5-spindle valve manifolds DN 5



Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

#### Schematics



2-spindle, 3-spindle and 5-spindle valve manifold DN 5, connections

## Overview



The oval flange 7MF9408-2C. for pressure transmitters for absolute pressure and differential pressure has a ½-14 NPT female thread and is designed for max. operating pressure 400 bar.

## Accessories

**Accessory set for oval flange**

- E36: 2 screws  $7/16$ -20 UNF x 1½ inch to ASME B18.2.1, 1 flat gasket
- E34: 2 screws  $7/16$ -20 UNF x 1½ inch to ASME B18.3, 1 O-ring (FPM 90)
- E13: 2 screws M10x40 to DIN EN 4762, 2 washers, 1 O-ring (FPM 90)
- E16: 2 screws M10x40 to DIN EN ISO 4762, 2 washers, 1 flat gasket

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar (6092 psi), 80 °C (176 °F)

O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar, 120 °C

**Note:** M10 screws only permissible up to PN 160!

## Selection and Ordering data

Article No.

**Oval flange**

with female thread ½-14 NPT, max. working pressure 420 bar (6092 psi) flange connection to DIN EN 61518, form A

**Material**

P250GH, mat. No.: 1.0460

X 2 CrNiMo 17 13 2, mat. No. 1.4404/316L

**7MF9408-2CE****7MF9408-2CL**

## Selection and Ordering data

Order code

Article No.

**Further designs<sup>1)</sup>**

Please add **"-Z"** to Article No. and specify Order code.

**Accessory set to EN**

2x screws  $7/16$ -20 UNF x 1½ inch to ASME B 18.2.3; chromized steel  
1x flat gasket made of PTFE, max. permissible 420 bar (6092 psi), 80 °C (176 °F)

**E36****7MF9408-5DA**

2x screws  $7/16$ -20 UNF x 1½ inch to ASME B 18.2.3; chromized steel  
1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar (6092 psi), 120 °C (248 °F)

**E34****7MF9408-5CA****Accessory set to DIN**

2x screws M10x40 to DIN EN ISO 4762; chromized steel  
2x washers Ø 10.5 mm to DIN 125;  
1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar (6092 psi), 120 °C (248 °F)<sup>2)</sup>

**E13****7MF9408-6AA**

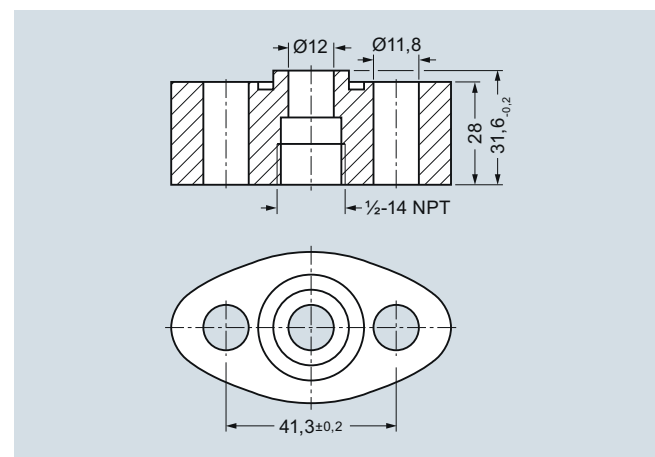
2x screws M10x40 to DIN EN ISO 4762; chromized steel  
2x washers Ø 10.5 mm to DIN 125;  
1x flat gasket made of PTFE, max. permissible 80 °C (176 °F)<sup>2)</sup>

**E16****7MF9408-6BA**

<sup>1)</sup> When ordering accessory set together with the oval flange, please use Order code; otherwise use Article No.

<sup>2)</sup> Flange connections with M10 screws only permissible up to PN 160

## Dimensional drawings



Oval flange 7MF9408-2C., dimensions in mm