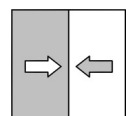


## Data sheet

### DA10 ... 0A (ATEX)

Differential pressure measuring device  
for potentially explosive areas

Gas explosion protection Zone 1 and 2, gases and vapours  
Dust explosion protection Zone 21 and 22, Dry dusts



# 1 Product and functional description

## 1.1 Performance features

### Areas of application

- Chemical, petrochemical industry
- Process technology
- Marine and offshore technology
- Power plant technology
- Mechanical and plant engineering

### Important features

- Highly corrosion resistant
- CrNi-steel model
- Use with aggressive media
- Highly durable
- Variable connection technology
- With fluid filling as an option
- Optional additional equipment such as contact element or rotation angle encoder

## 1.2 Equipment versions

The appearance of the available models differs in terms of the mounting method. Wall mounting version is shown as an example. The measuring system differs because it uses CrNi steel and/or Hastelloy. For more information, please see the technical data.

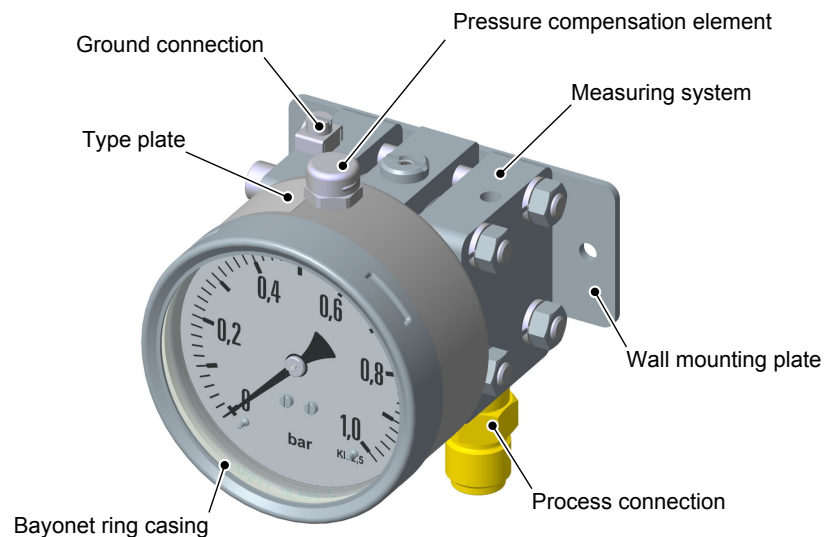


Fig. 1: Device overview

### 1.2.1 Special functions

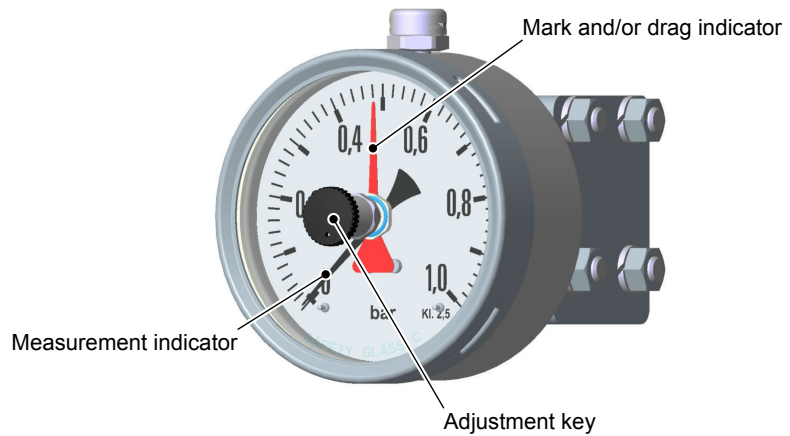
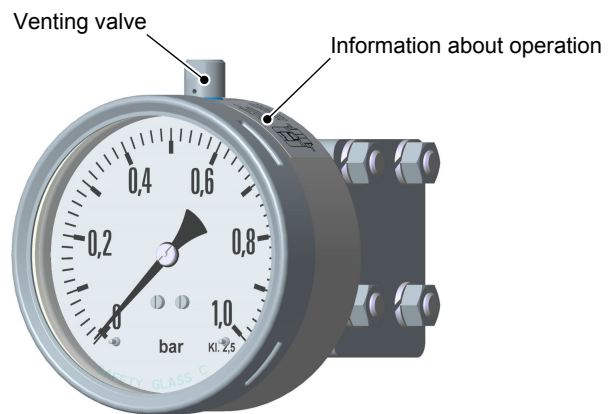


Fig. 2: Needle



<b>Fluid fillings</b>
• Glycerine, silicon oil

Fig. 3: Fluid charging

**NOTICE! Fluid cannot be filled into models with a marker or drag indicator.**

### 1.2.2 Process connection

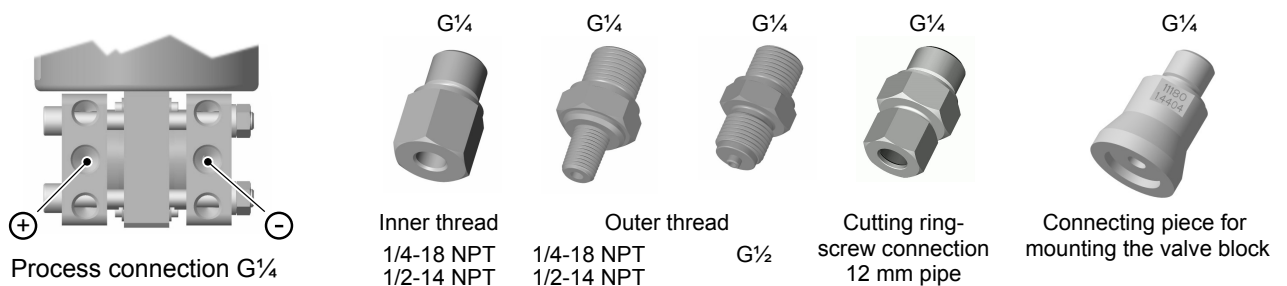
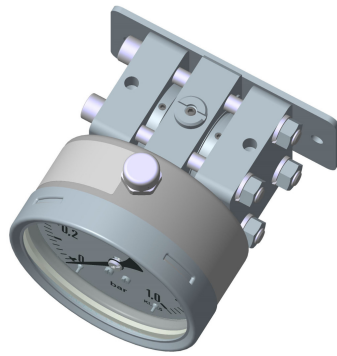
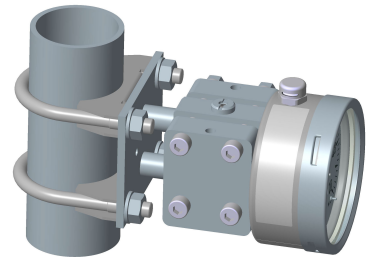


Fig. 4: Options for the process connection

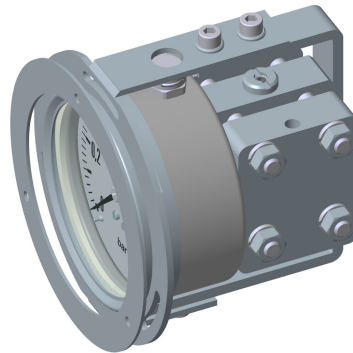
### 1.2.3 Assembly types



Wall mounting



Tube assembly



Panel mounting set  
with panel mounting set

Fig. 5: Assembly types

### 1.3 Function diagram

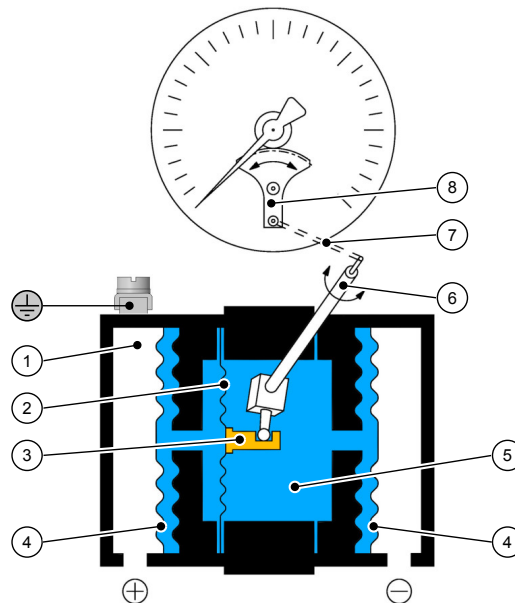


Fig. 6: Function diagram

1	Measuring chamber	2	Measuring diaphragm
3	Tie rod	4	Separating membrane
5	Pressure transfer fluid	6	Torsion tube
7	Transfer lever	8	Motion train

#### **1.4 Design and mode of operation**

The differential pressure that is to be measured acts on the separating diaphragms and is transferred hydraulically onto the measuring diaphragm. When the pressure is equalised, this is in its idle state. In case of pressure difference, the force acting on the measuring membrane causes it to be moved towards the side of the lower pressure. The deflection is transferred to the display mechanism as a rotary movement via a torsion tube.

If the measuring system is loaded above the measuring range, the separating diaphragms are supported on parts of the system casing with the same contours. In this way, the measuring system is protected against overload.

## 2 Technical Data

### 2.1 General

General information	
Type designation	DA10
Pressure type	Differential pressure
Measuring principle	Diaphragm measuring cell
Pressure transfer agent in the measuring cell	Silicon oil
Measuring medium	Neutral gaseous and fluid media; aggressive media according to the medium compatibility of the fitted materials.

### 2.2 Operating conditions

Ambient temperature range	-20 °C ... +60 °C
Storage temperature range	-40 °C ... +80 °C
Medium temperature range	Max. 85°C
Protection class IP	IP65 acc. to DIN EN 60529

### 2.3 Input variables

Rated pressure of the measuring system	PN100
Maximum static system pressure	100 bar
Durability	Over-pressure-proof on one side up to rated pressure of the measuring system, (+) and (-) sides, under-pressure-proof
Measurement accuracy	±2.5 % of the measuring range (±1.6 % FS on request)
Temperature sensor	0.3 % / 10 °C
Zero-point adjustment	±25 % of the measuring range

### Measuring ranges

[bar]	[kPa]	[psi]
0 ... 1.0	0 ... 100	0 ... 15
0 ... 1.6	0 ... 160	0 ... 30
0 ... 2.5	0 ... 250	0 ... 60
0 ... 4.0	0 ... 400	0 ... 100
0 ... 6.0	0 ... 600	0 ... 160
0 ... 10.0	0 ... 1000	0 ... 200
0 ... 16.0	0 ... 1600	

## 2.4 Construction design

### Materials

Measured value display	Material	Material no.	
		EU	AISI
Bayonet ring housing NG100	CrNi steel	1.4404	316L
Process connection (all models)	CrNi steel	1.4404	316L
Intermediate plate	AlMgSiPb	HARD-COAT®	
Motion train	CrNi steel		
Dial face and needle	Aluminium, painted, printed		
Inspection disk	Safety laminated glass		

**MB = Measurement range**

### Materials (media-contacting)

Design of the measuring system (H)	Material	Material no.	
		EU	AISI
Pressure caps	Hastelloy	C276	
Separating membrane	Hastelloy	C276	
Seal	FKM O-rings		

Design of the measuring system (R)	Material	Material no.	
		EU	AISI
Pressure caps	CrNi steel	1.4404	316L
Separating membrane	Hastelloy	C276	
Seal	FKM O-rings		

Design of the measuring system (P)	Material	Material no.	
		EU	AISI
Pressure caps	Hastelloy	C276	
Separating membrane	Hastelloy	C276	
Seal	FEP sheathed FKM O-rings		

Design of the measuring system (V)	Material	Material no.	
		EU	AISI
Pressure caps	CrNi steel	1.4404	316L
Separating membrane	Hastelloy	C274	
Seal	FEP sheathed FKM O-rings		

### Assembly

Wall mounting	Flanged assembly plate
Pipe mounting	Flanged assembly plate and attachment bracket
Panel mounting set	Front panel fitting set

### 2.4.1 Dimensional drawings

All dimensions in mm unless otherwise stated

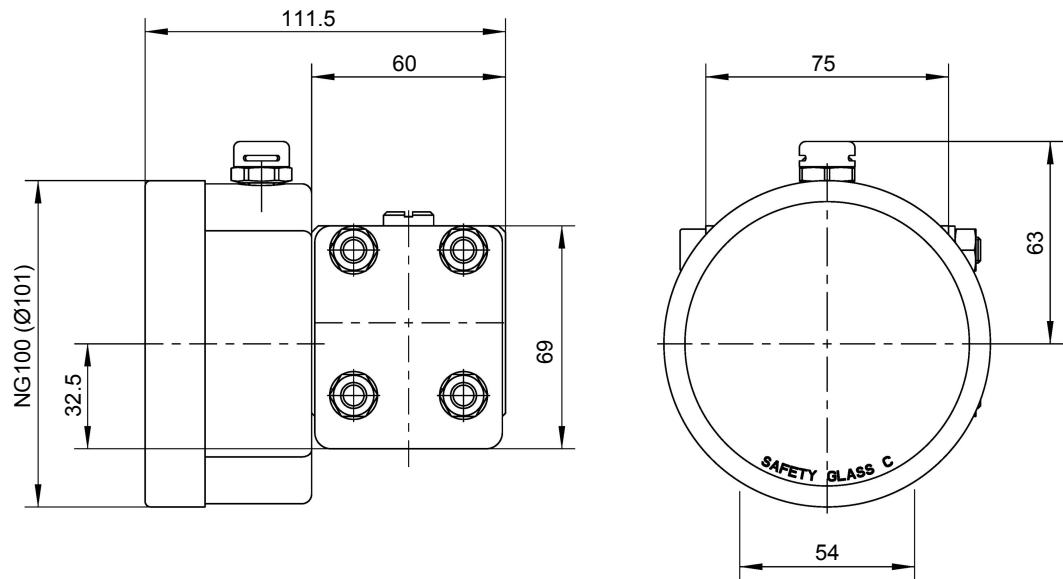


Fig. 7: Dimension drawing

#### 2.4.1.1 Wall mounting

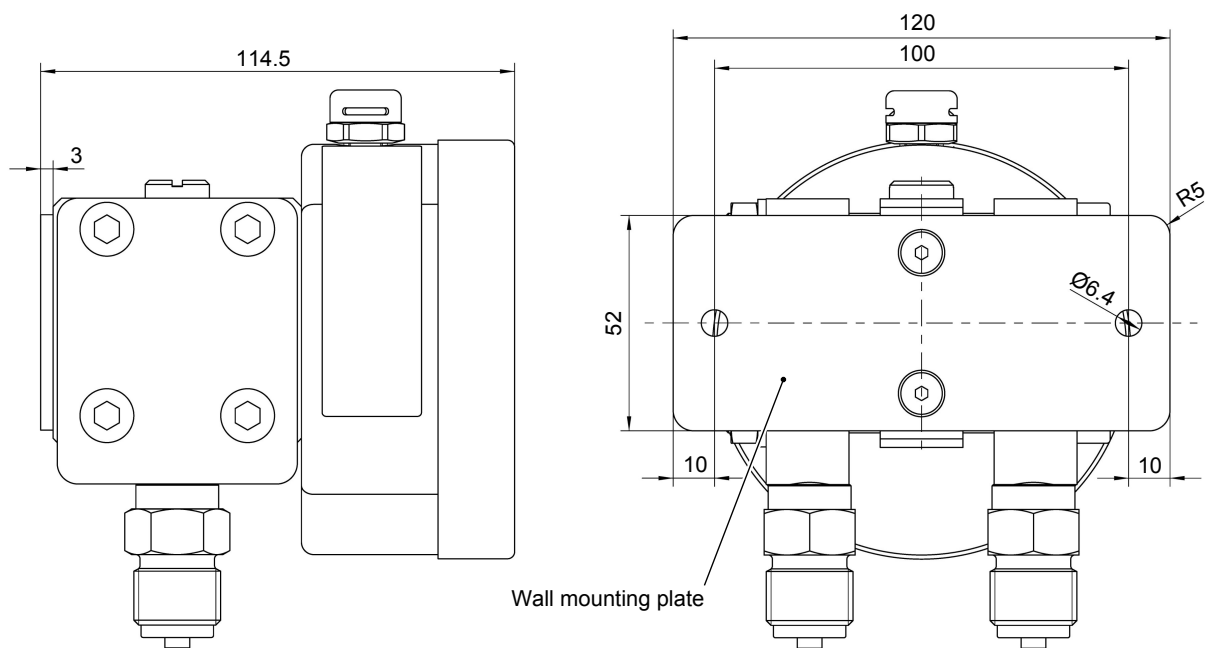


Fig. 8: Wall mounting



### 2.4.1.2 Pipe mounting

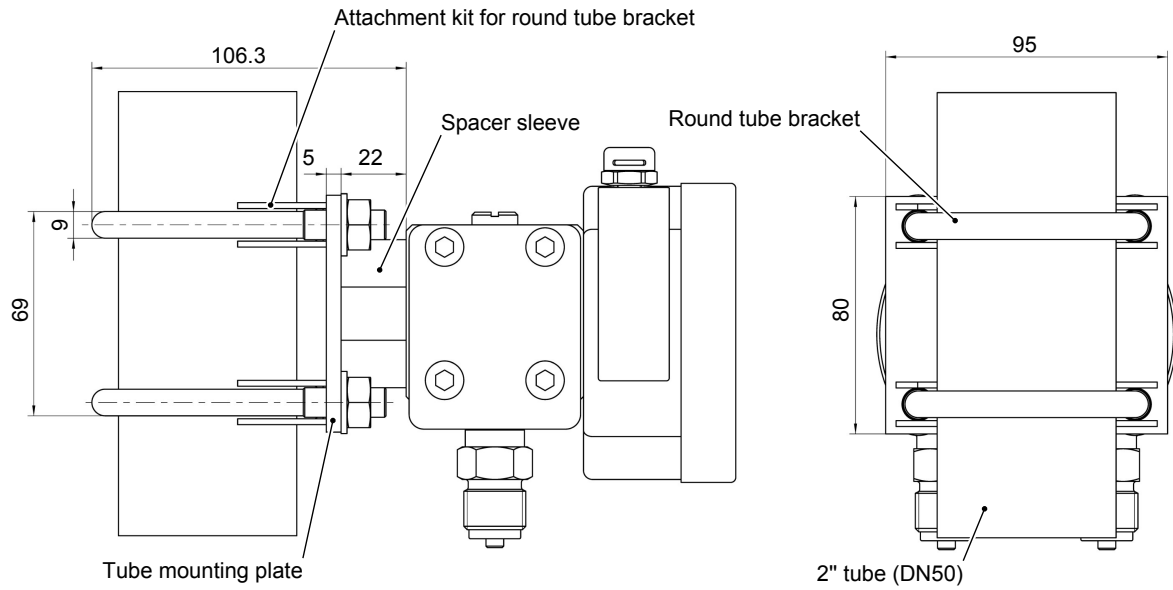
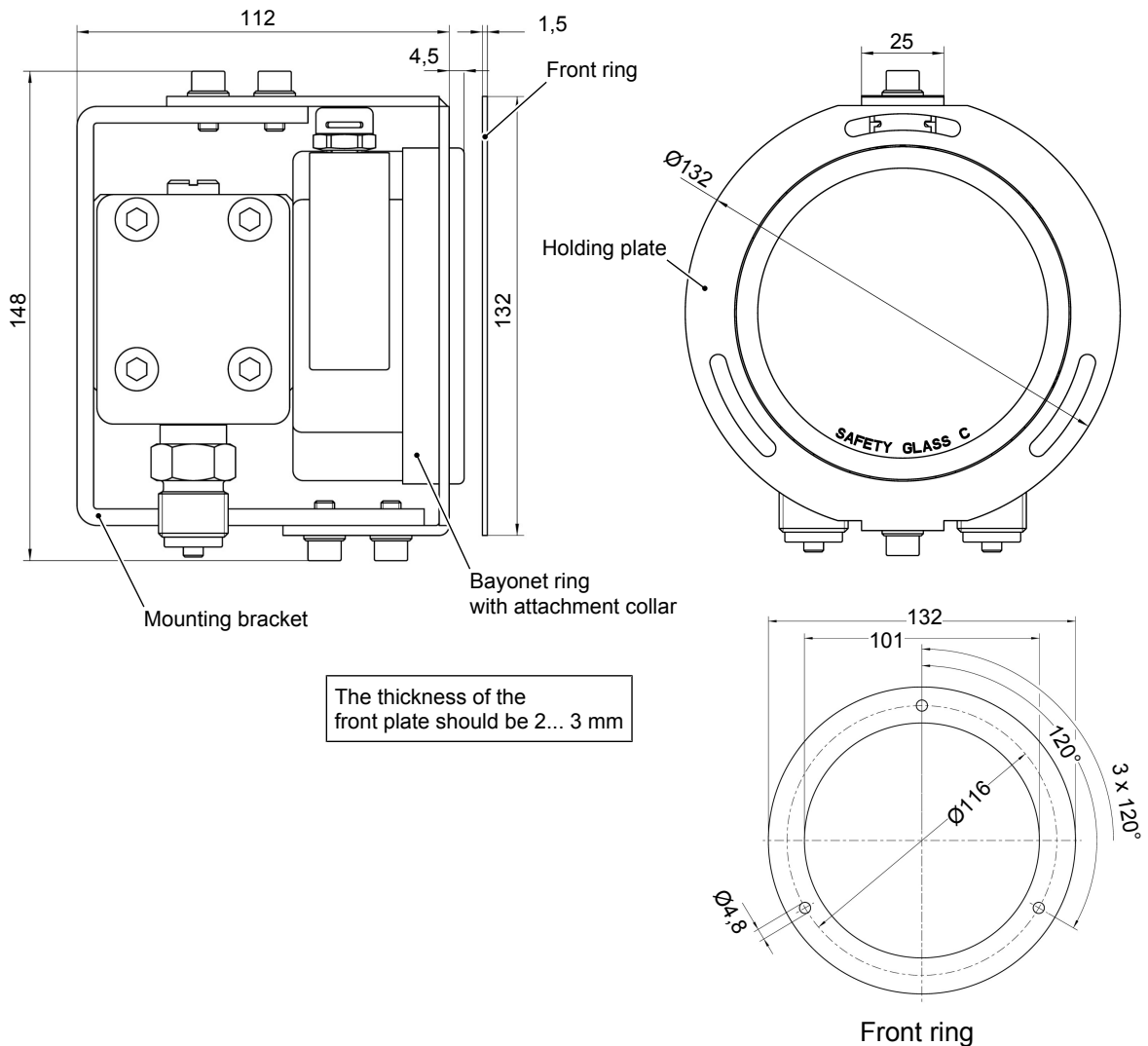


Fig. 9: Pipe mounting

### 2.4.1.3 Installation of front panel



The thickness of the front plate should be 2... 3 mm

Fig. 10: Installation of front panel

### 2.4.1.4 Process connection

#### 2.4.1.4.1 Connection port with cylindrical external thread

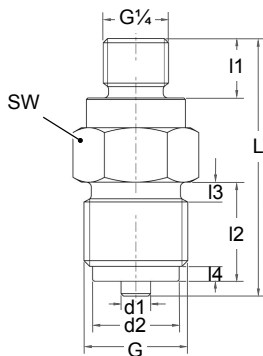


Fig. 11: Connecting port G

G	d1	d2	L	I1	I2	I3	I4	SW
<b>Tol.</b>	$\pm 0.1$	$\pm 0.2$	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	$\pm 0.1$	$\pm 0.1$	
<b>G<math>\frac{1}{2}</math></b>	6	17.5	52	12	23	4	3	22
<b>G<math>\frac{1}{4}</math></b>	5	9.5	39	12	15	3	2	19

SW:= Key width

#### 2.4.1.4.2 Connection shanks with tapered external thread

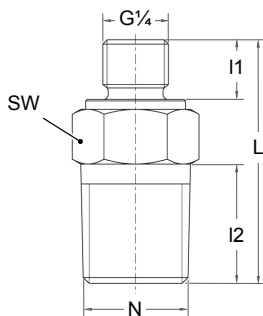


Fig. 12: Connecting port NPT

N	L	I1	I2	SW
<b>Tol.</b>	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	
<b><math>\frac{1}{2}</math>-14 NPT</b>	49	12	24	22
<b><math>\frac{1}{4}</math>-18 NPT</b>	42	12	18	19

SW:= Key width

#### 2.4.1.4.3 Connecting port with inner thread

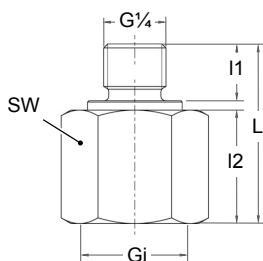


Fig. 13: Connecting port Gi

Gi	L	I1	I2	SW
<b>Tol.</b>	$\pm 0.3$	$\pm 0.2$	$\pm 0.2$	
<b>G<math>\frac{1}{2}</math></b>	38	12	24	27
<b><math>\frac{1}{2}</math>-14 NPT</b>	38	12	24	27
<b><math>\frac{1}{4}</math>-18 NPT</b>	32	12	18	19

SW:= Key width

#### 2.4.1.4.4 Screw-in connection

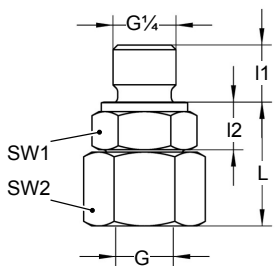


Fig. 14: Screw-in connection

g	L	I1	I2	SW1	SW2
<b>Tol.</b>		$\pm 0.2$	$\pm 0.2$		
12	26	12	12	19	22

SW:= Key width

2.4.1.4.5 Shut-off fitting (accessories)

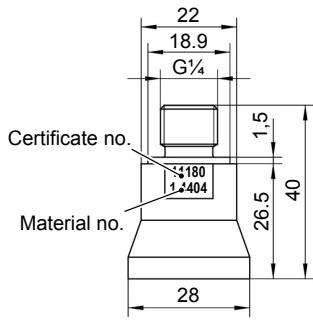


Fig. 15: Connecting piece

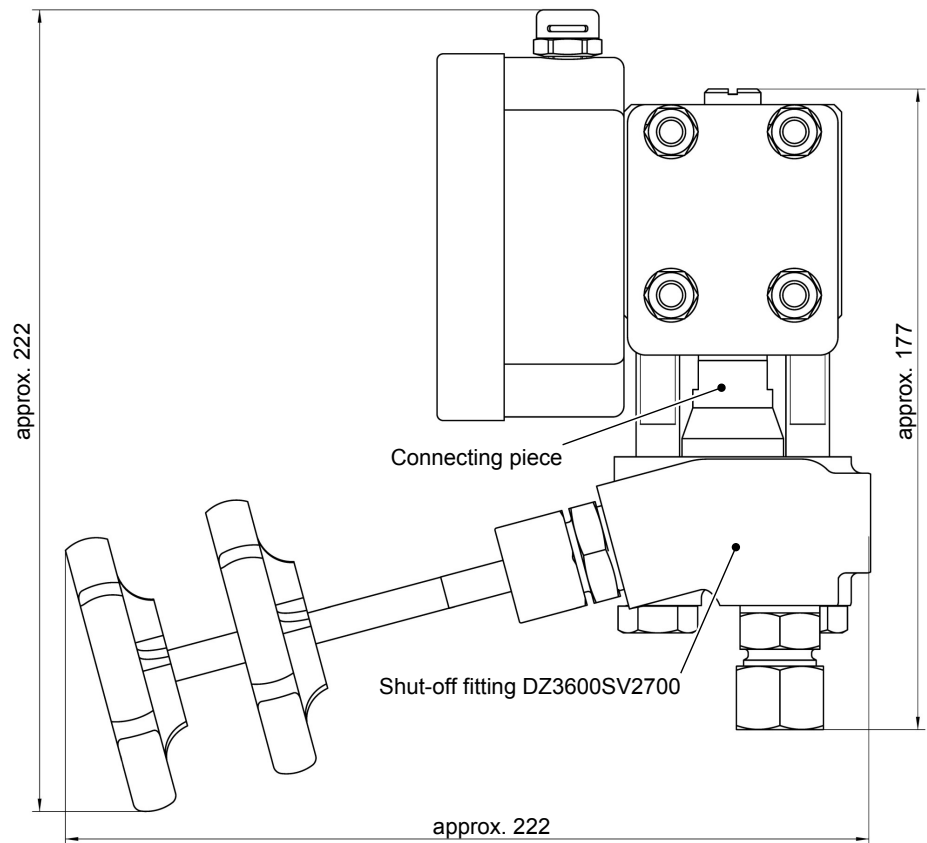


Fig. 16: DA10 with shut-off fitting

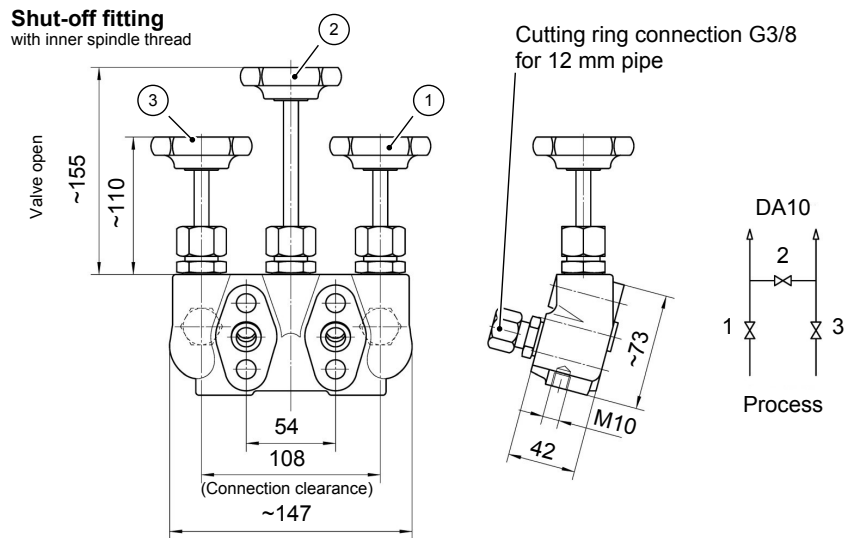
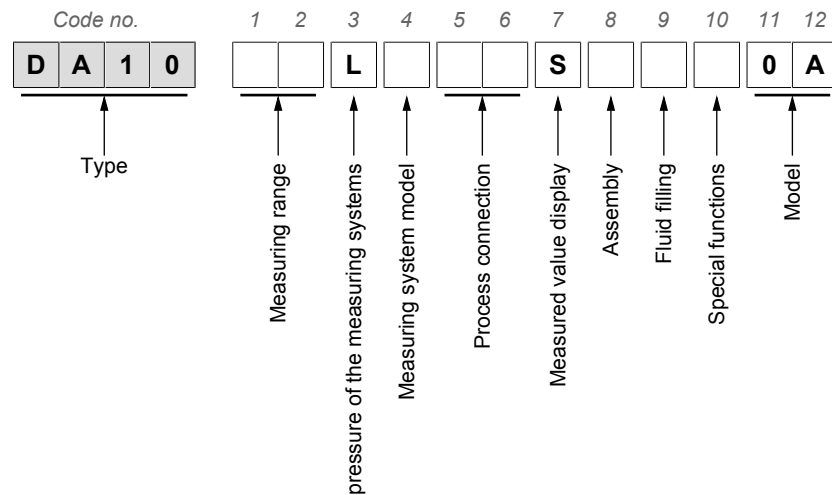


Fig. 17: Shut-off fitting DZ3600SV2700

### 3 Order Codes



#### Measuring range:

[1.2]	(Code no.)
02	0 ... 1.0 bar
03	0 ... 1.6 bar
04	0 ... 2.5 bar
05	0 ... 4.0 bar
06	0 ... 6.0 bar
07	0 ... 10.0 bar
09	0 ... 16.0 bar
F2	0 ... 100 kPa
F3	0 ... 160 kPa
F4	0 ... 250 kPa
F5	0 ... 400 kPa
F6	0 ... 600 kPa
F7	0 ... 1000 kPa
F8	0 ... 1600 kPa
H4	0 ... 15 psi
H5	0 ... 30 psi
H6	0 ... 60 psi
H7	0 ... 100 psi
H8	0 ... 200 psi
H9	0 ... 160 psi

#### Rated pressure of the measuring system

[3]	(Code no.)
L	PN100

**Design of the measuring system:**

[4]	(Code no.)	Material
<b>H</b>	Pressure caps	Hastelloy C276
	Separating membrane	Hastelloy C276
	Seal	FKM O-rings
<b>R</b>	Pressure caps	Stainless steel 1.4404
	Separating membrane	Hastelloy C276
	Seal	FKM O-rings
<b>P</b>	Pressure caps	Hastelloy C276
	Separating membrane	Hastelloy C276
	Seal	FKM O-rings
<b>V</b>	Pressure caps	Stainless steel 1.4404
	Separating membrane	Hastelloy C276
	Seal	FKM O-rings

**Process connection:**

[5.6]	(Code no.)
<b>01</b>	Inner thread G 1/4
<b>04</b>	Connecting piece G $\frac{1}{4}$ with inside thread 1/4 -18 NPT
<b>05</b>	Connecting piece G $\frac{1}{4}$ with inside thread 1/2 -14 NPT
<b>13</b>	Connection shanks G $\frac{1}{4}$ with external thread G $\frac{1}{2}$
<b>14</b>	Connecting port G $\frac{1}{4}$ with outer thread 1/4-18 NPT
<b>15</b>	Connecting port G $\frac{1}{4}$ with outer thread 1/2-14 NPT
<b>27</b>	Cutting ring connection in brass for 12 mm pipe
<b>VM</b>	Connecting piece for mounting the valve block

**Measured value display:**

[7]	(Code no.)
<b>S</b>	Bayonet ring housing NG100

**Assembly:**

[8]	(Code no.)
<b>W</b>	Wall mounting
<b>R</b>	Pipe mounting
<b>D</b>	Panel mounting set

**Fluid filling:**

[9]	(Code no.)
<b>0</b>	Without fluid filling
<b>1</b>	Glycerine
<b>5</b>	Silicon oil

Fluid cannot be filled into models with a marker or drag indicator.

**Special function:**

[10] (Code no.)	
0	Without special function
1	Adjustable marker needle
2	Resettable drag needle

**Design:**

[11.12] (Code no.)	
0A	Non-electrical unit (without switch contacts)
	⊕ II 2G Ex h T4 Gb
	⊕ II 2D Ex IIIC T95°C Db

**3.1 accessories**

Order no.	Planned measures	Material
DZ3600SV2700	Triple valve block DN5 PN420	1.4571
	<ul style="list-style-type: none"> <li>• Flange connection acc. to DIN EN 61518</li> <li>• Cutting ring screw connections 12 mm pipe</li> <li>• Including assembly set</li> </ul>	

**3.2 Information about the document**

This document contains all technical data about the device. Great care was taken when compiling the texts and illustrations; Nevertheless, errors cannot be ruled out.

Subject to technical amendments.

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