

# Differential Pressure Gauges

Bayonet Ring Case Stainless Steel

Standard (DiP2Ch) or with Case Filling (DiP2ChG)

Accuracy class 2.5

NCS 100 (4")

160 (6")

Models

**DiP2Ch**  
**DiP2ChG**

This data sheet contains all important information on the available models DiP2Ch resp. DiP2ChG with ordering information.

## Application

Differential pressure gauges models DiP2Ch respectively DiP2ChG are used for direct reading of low differential pressure from 0/25 mbar (0/10 "WC) and above at static pressures of PN 10 or from 400 mbar to 25 bar (160 "WC to 300 psi) at static pressures of PN 25.

Differential pressure gauges of accuracy class 1.6 for static pressures PN 40 or PN 100 (unilaterally overloadable) can be found in data sheet 5200, our models DiP1Ch or DiP1ChG.

Differential pressure gauges models DiP2Ch resp. DiP2ChG can be used for measuring gaseous and fluid media which are compatible with 316 stainless steel (1.4571, 1.4404), resp. Duratherm (NiCroCo-alloy) and Viton. In case of highly viscous media that tend to pollute or crystallize we recommend models DiP1Ch or DiP1ChG (compare data sheet 5200).

Several electrical accessories such as limit switch contact assemblies or potentiometers may be installed.

The gauges can optionally be supplied with safety case according to EN 837-1 ©. This case complies to all accident prevention regulations and offers an increased level of safety due to the break-proof separating wall between the measuring system and the dial and due to the full blow-out safety back. Upon pressurisation in the case the entire case back separates allowing full relief.



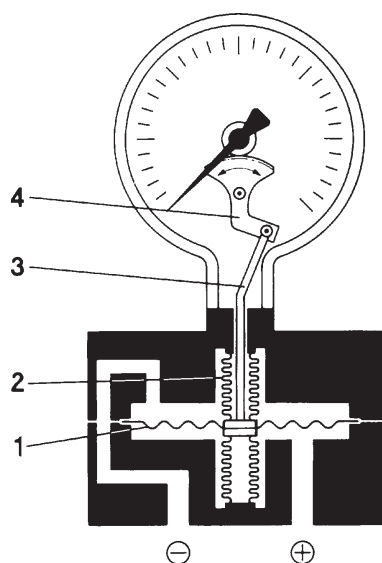
## Construction and Function

The measuring system consists of two pressure chambers separated by a diaphragm. A pressure difference occurring in these pressure chambers leads to an axial deviation of the diaphragm. The connecting rod transfers this diaphragm deviation to the movement which transmits it into an analogous pointer move.

For a frictionless and non-wearing sealing, the connecting rod and the pressure chambers are separated by metallic bellows.

### Functional Diagram

1. Measuring diaphragm
2. Bellow
3. Connecting rod
4. Movement



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**5210**  
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## DiP2Ch / DiP2ChG

Pressure gauges with 2 measuring chambers for measurement of differential pressure

### Nominal Case Sizes

100 (4"), 160 (6")

### Accuracy (EN 837)

Accuracy class 2.5 (i.e. accuracy error max.  $\pm 2.5\%$  of full scale value)

### Pressure Ranges (EN 837)

from 0/25 mbar (10 "WC) up to 0/25 bar (400 psi)

### Pressure Limitations

Max. static pressure:

PN 10 (ranges  $\leq 250$  mbar [100 "WC])

PN 25 (ranges  $\geq 0.4$  bar [160 "WC]);

overrange protected up to 10-times full scale pressure, but for one sided overpressure max. up to permissible PN (10 or 25 bar resp. 150 or 400 psi); 10-times low pressure protected

### Temperature Resistance

Ambient temperature  $-20$  to  $+80$  °C ( $-4$  to  $+176$  °F)

Medium temperature max.  $+100$  °C ( $+212$  °F)

### Temperature Caused Error

In accordance with EN 837-3 the additional error per each  $+10$  °C ( $+18$  °F) difference from the reference temperature  $+20$  °C ( $+68$  °F) can be up to 0.6%

### Protection Type (EN 60529 / IEC 529)

IP 54 = dry versions / IP 65 = filled versions

## Standard Configuration

**DiP2Ch** = without case filling (not fillable)

**DiP2ChG** = filled version, filling fluid Glycerine

### Process Connections

bottom connections,

2 x  $\frac{1}{4}$ " BSP female, connections marked with "+" and "-";

direct mounting on pressure service lines \*

### Pressure Chambers

316 stainless steel (1.4404)

### Diaphragm

Measuring ranges  $\leq 400$  mbar ( $\leq 160$ " WC): 316 stainl. steel (1.4571)

Measuring ranges  $\geq .6$  bar ( $\geq 10$  psi): Duratherm

### Bellows

316 stainless steel (1.4571)

### O-Rings

Viton

### Movement

Stainless steel

### Dial

Aluminum alloy, black figures, white background

### Case and Bayonet Ring

304 stainless steel (1.4301)

### Case Screws

Stainless steel

### Window

Laminated safety glass

### Pointer

Aluminum alloy black, pointer adjustable  $\pm 25\%$  of the full span through an opening at the case top

### \* Installation

The standard version is mounted directly on the pipes by screwing the fitting into the  $\frac{1}{4}$ " BSP female connection by using appropriate sealing material (ordering code – L).

At extra charge the gauge can be supplied with a mounting bracket (ordering code – W) for wall mounting or accessories for 2" tube mounting (ordering code – R). Please specify when ordering.

## Special Configurations

- Mounting bracket (ordering code – W) for wall mounting or accessories for 2" tube mounting (ordering code – R)
- Other connection threads upon request
- Special scales (dual scale or flow scale)
- Special scale with Zero not at the beginning (similar to compound ranges)
- Stationary red pointer, internal or external adjustment
- Max. indicating pointer, external adjustment, acrylic glass window (ranges 0/60 mbar [0/25 "WC] and up)
- Safety case EN 837-1 (S)
- version free of grease and oil for oxygen [only available with safety case EN 837-1 (S)]
- Installation of electrical accessories like magnetic or inductive limit-switch contact assemblies or potentiometers
- Accessories: 3- or 4- spindle valve manifold model 13, stainless steel, see page 4 of this data sheet. (Please order as a separate item.)

## Ordering Information (model construction)

Please specify:

Basic model: **DiP2Ch** =dry version, IP 54  
**DiP2ChG** =with filling fluid glycerine, IP 65

Nominal case size: **100** or **160**

Ordering code for material of wetted parts: **-3** (standard) = stainless steel/Viton, resp. for  $\geq 0.6$  bar: stainless steel/Duratherm/Viton

Code letters for mounting type: **L** for direct mounting (standard)  
**R** for 2" tube mounting  
**W** for wall mounting

Pressure range: according to EN 837, **e.g. 0–4 bar**

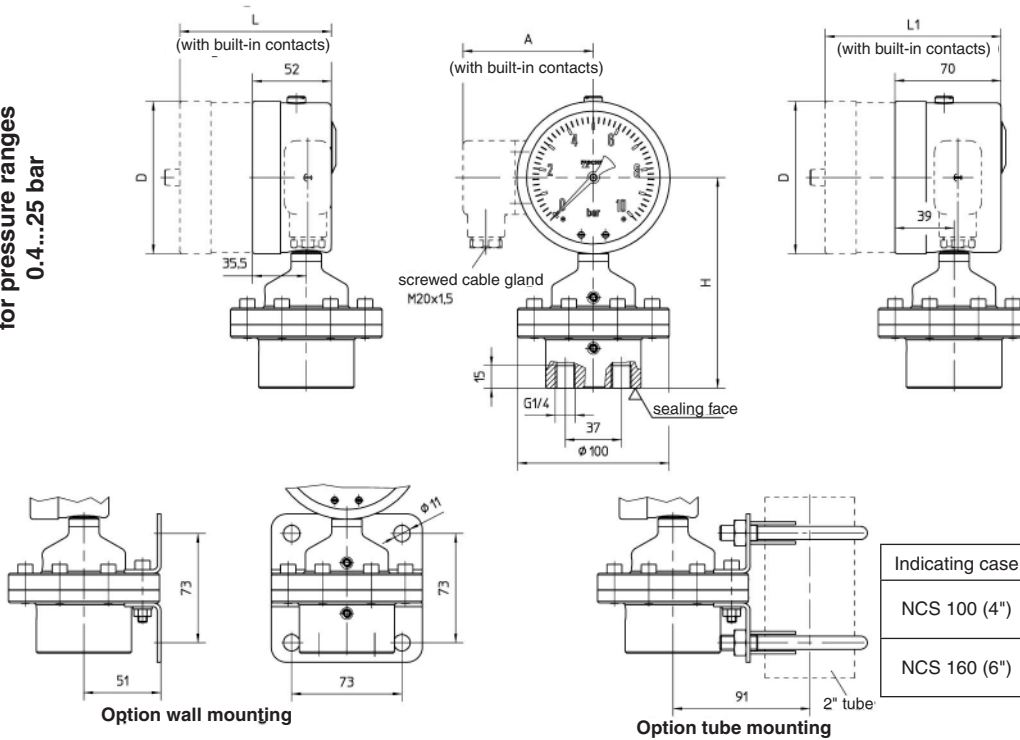
Special configurations: (see above)

### Examples for Ordering Information:

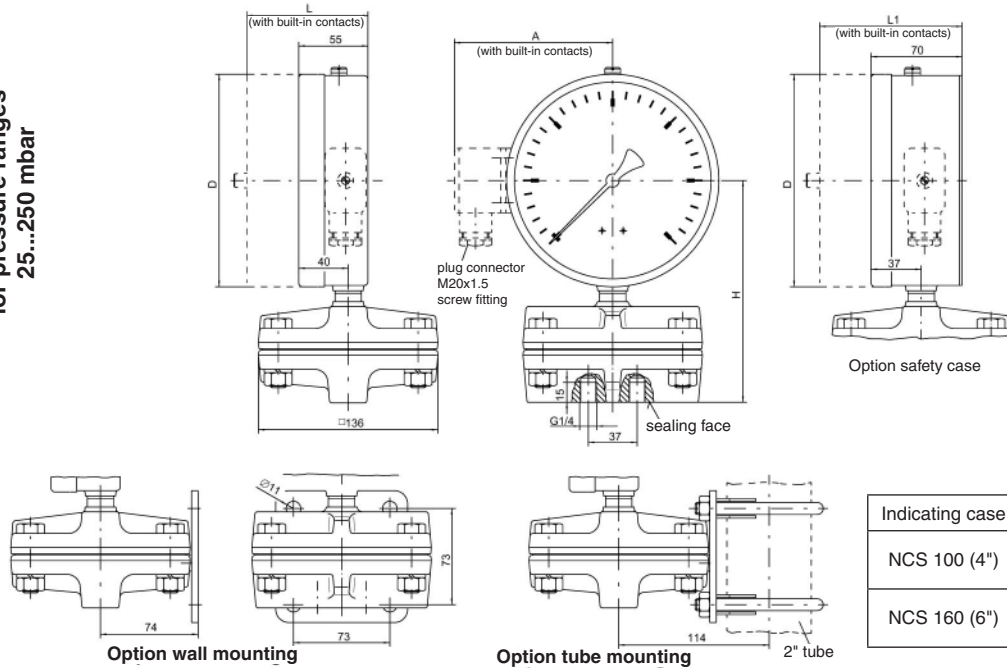
- DiP2Ch 100–3, L, 6 bar
- DiP2ChG 160–3, W, 100 mbar

# Case Configuration, Dimensional Data and Weight

for pressure ranges  
0.4...25 bar



for pressure ranges  
25...250 mbar

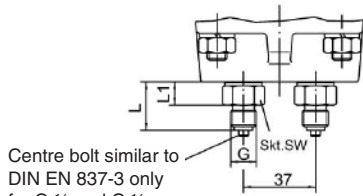


Basic weights (kg / lb)	Nominal case size 100 (4")		Nominal case size 160 (6")	
	0/0.4 ... 0/25 bar 0/160" WC ... 0/400 psi	0/25 ... 0/250 mbar 0/10 ... 0/100 "WC	0/0.4 ... 0/25 bar 0/160" WC ... 0/400 psi	0/25 ... 0/250 mbar 0/10 ... 0/100 "WC
Basic weight approx.	4.2 9.26	6.55 14.44	4.8 10.58	7.15 15.76
Additional weights	Nominal case size 100 (4")		Nominal case size 160 (6")	
Limit switch contact assembly (dry case)	0.20 0.44		0.35 0.77	
Case filling (without limit switch contact assembly)	0.27 0.60		0.70 1.54	
Limit switch contact assembly with case filling	0.55 1.21		1.48 3.26	
Safety case, case filling	0.12 0.26		0.33 0.73	

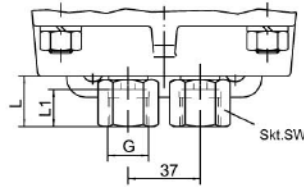
# Connections

for Differential Pressure Gauges DiP2Ch / DiP2ChG

## Connections



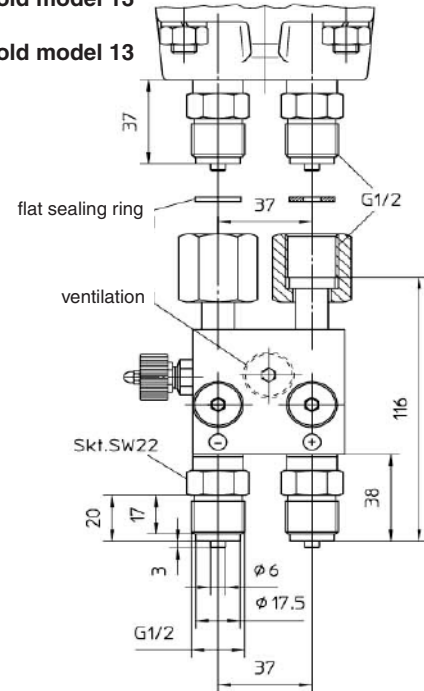
Centre bolt similar to DIN EN 837-3 only for G 1/4 and G 1/2



Option with  
3-valve manifold model 13  
or  
4-valve manifold model 13

Male thread G	L	L1	SW
G 1/4 1/4" BSP	25 .98	12 .47	19 .75
G 1/2 1/2" BSP	34 1.34	17 .67	22 .87
1/4-18 NPT	30 1.18	12 .47	19 .75
1/2-14 NPT	37 1.46	13 .51	22 .87

Female thread G	L	L1	SW
G 1/2 1/2" BSP	26 1.02	19 .75	27 1.06
1/4-18 NPT	20 .79	-	19 .75
1/2-14 NPT	26 1.02	-	27 1.06



## Function:

- Valve I = connection of + and - chamber (pressure balance)
- Valve II = 1 shut-off valve per + and + pressure pipe

Ex works all valves are closed.

## User Instructions:

1. Open valve I first and then connect it to the pressure pipe.
2. Both valves II have now to be opened and then to be connected to the pressure pipes.
3. Now mount the differential pressure gauge and admit the pressure.
4. Close valve I. The differential pressure will be indicated.  
Both valves II remain opened.

## Dismounting of the Differential Pressure Gauge:

1. Open valve I.
2. Close both valves II.
3. Unscrew the pressure gauge connections.  
The differential pressure gauge can be removed.

## 4-Valve Manifold:

The shut-off and compensating valve is available with a ventilation valve upon request. But this model is only suitable under restrictions and does not fit for example when wall mounting is required.

## How to Order:

Please specify valve model:  
3-Valve Manifold model 13 or  
4-Valve Manifold model 13