

Differential Pressure Gauges

Capsule Type for Low Pressure Bayonet Ring Case Stainless Steel

Accuracy
Class 1.6

NCS 100 (4")
160 (6")

Model **DiKPCh**

Application

Differential pressure gauges with diaphragm capsules are suitable for measuring very low differential pressures of gaseous, dry and clean, not crystallizing media.

Construction and Function

A diaphragm capsule measuring unit is built into a pressure sealed case. The process connections are marked with "+" and "-". The medium under higher pressure "+" enters the diaphragm capsule while the lower pressure medium "-" is led into the pressure sealed case. This way the diaphragm capsule is held under pressure from both sides, from the inside as well as from the outside. The difference between both pressures acting on the diaphragm capsule directly causes the pointer move, indicating the differential pressure. It has to be considered that the materials of the case and all internal parts as wetted parts have to be compatible to the medium with the lower pressure ("- marked process connection).

These pressure gauges are suitable for static pressure up to max. 400 mbar [NCS 100 (4")] resp. 250 mbar [NCS 160 (6")] at simultaneous pressurization. A special configuration with max. allowed static pressure 600 mbar is available. At one-sided pressurization the max. allowed static pressure is limited to the full scale value. The instruments can be manufactured overrange protected for one-sided overstressing.

Nominal Case Sizes (NCS)

100 (4"), 160 (6")

Accuracy Class (EN 837-3)

1.6 (i.e. max. $\pm 1.6\%$ of full scale value)

Pressure Ranges (EN 837-3)

NCS 160: 0-2.5 to 0-250 mbar, 0-1" to 0-100" WC

NCS 100: Version -1: 0-2.5¹⁾ to 0-400 mbar, 0-1" to 0-160" WC

Version -3: 0-16 to 0-400 mbar, 0-6" to 0-160" WC

Pressure Limitations

Differential pressure: max. full scale value (f.s.)

Static pressure: max. 400 mbar NCS 100 (4"),
max. 250 mbar NCS 160 (6")

Temperature Limitations

Reference temperature: +20 °C (+68 °F)

Ambient temperature max.: -20 °C to +60 °C (-4 °F to +140 °F)

Medium temperature: max.: +70 °C (+158 °F)

Temperature Caused Error

The error caused by temperatures differering from +20 °C (+68 °F) is significant. In correspondence with EN 837-1 it can be up to 0.6 % of the span per each 10 K (18 °F).

Protection Type (EN 60 529/IEC 529)

IP 66

Standard Configuration

Connections

2 x G 1/2 B (1/2" BSP) Version **ph**: bottom connections
parallel one behind the other

Version **r**: back connections
one above the other

2 x 8/6-tube Version **w**: bottom connections in 30° angle

Case and Ring

304 stainless steel (1.4301), bayonet ring

Lens

Acrylic glass

Scale

Black figures, white background

¹⁾ Model 100-1 pressure range 0-2.5 mbar or 0-1" WC: Scale over 180°



Wetted Parts:

Version -1: Socket	brass
Diaphragm capsule	copper/beryllium alloy
Gaskets	NBR
Movement	brass/German silver
Pointer	aluminum alloy black
Zero adjustment	aluminum alloy, frontside
Dial	aluminum alloy
Version -3: Socket	316 Ti stainless steel (1.4571)
Diaphragm capsule	316 Ti stainless steel (1.4571)
Gaskets	FPM
Movement	stainless steel
Pointer	alu. alloy black, protection lacquer
Zero adjustment	stainless steel, frontside
Dial	aluminum alloy, protection lacquer

Optional Special Configurations

- Connection threads 1/2" NPT or M20x1.5, tube connections 8/6 for versions phFr or rFr; others upon request
- Inlet port restrictor screw brass or stainless steel
- Special scales
- Pressure range 0-600 mbar with static pressure up to 600 mbar, window polycarbonate
- Overrange protection for one-sided overload: Pressure ranges
0-2.5 to 0-25 mbar: "+" and "-" sides 3-times f.s.
≥ 40 mbar: "+" side 10-times f.s., "-" side 3-times f.s.,
both sides max. 400 mbar for NCS 100 (4"),
max. 250 mbar for NCS 160 (6")

How to Order:

Model code/NCS: **DiKPCh 100** or **DiKPCh 160**

Ordering code
wetted parts: **- 1** or **- 3**, compare above

Code letters for
case configuration:
(compare overleaf)
ph, phRh, phFr,
r, rRh, rFr
w, wRh, wFr

Pressure range: e.g. 0-25 mbar or 0-250 mbar (EN 837-3)

Process connection: **G 1/2 B (1/2" BSP)** for versions ph.. and r..,
8/6 tube connection for versions w..,
others see above

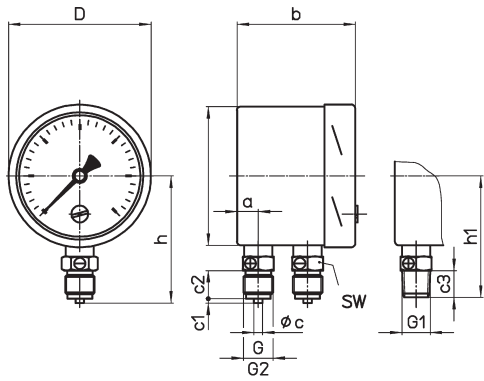
Special configurations: (see above)

Examples for Ordering Information:

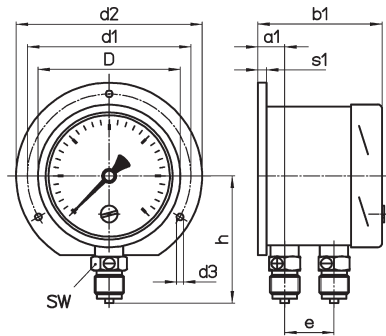
- DiKPCh 100-1, rFr, 0-250mbar, G 1/2 B
- DiKPCh 160-3, ph, 0-40 mbar, 1/2" NPT

Case Configurations, Code Letters, Dimensional Data and Weight

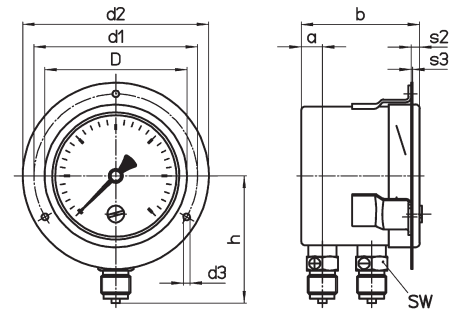
Bottom connections parallel one behind the other, code letters: **ph**



Bottom connections parallel one behind the other, rear mounting flange, code letters: **phRh**

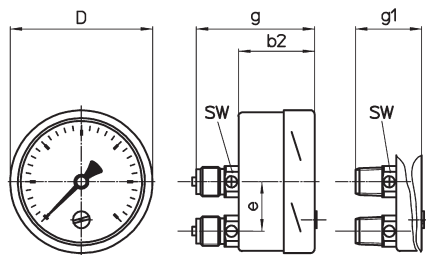


Bottom connections parallel one behind the other, front mounting flange, code letters: **phFr**

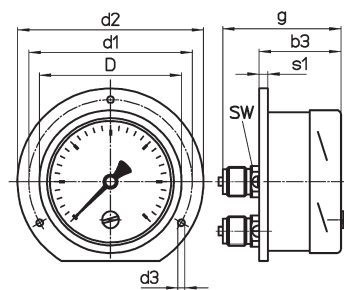


NCS

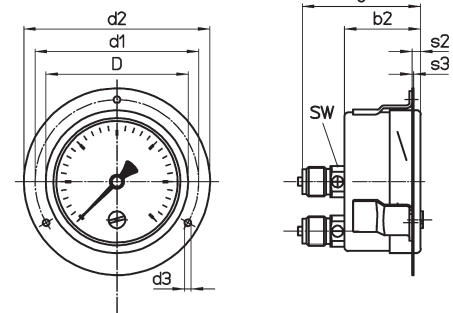
Back connections one above the other, code letter: **r**



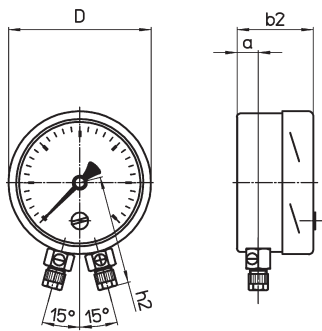
Back connections one above the other, rear mounting flange, code letters: **rRh**



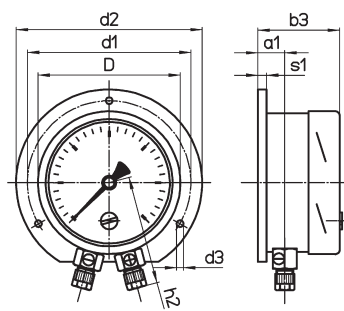
Back connections one above the other, front mounting flange, code letters: **rFr**



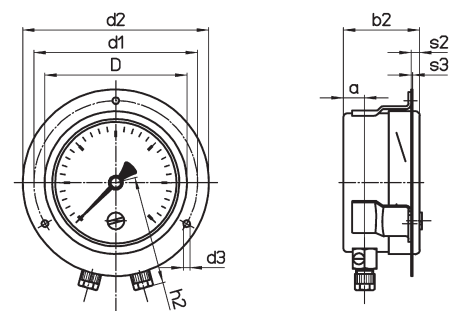
Bottom connections in 30° angle, 8/6 tube connections, code letter: **w**



Bottom connections in 30° angle, 8/6 tube connections, rear mounting flange, code letters: **wRh**



Bottom connections in 30° angle, 8/6 tube connections, front mounting flange, code letters: **wFr**



Case configurations **ph Fr**, **rFr** and **wFr** = mounting brackets welded to the case and a separate cover front flange

NCS	a	a1	b	b1	b2	b3	c	c1	c2	c3	D	d1	d2	d3	e
100 4"	15	19	84	88	54	58	6	3	20	19	101	116	132	4.8	35
160 6"	.59	.75	3.31	3.46	2.13	2.28	.24	.12	.79	.75	161	178	196		

NCS	g	g1	G	G1	G2	h	h1	h2	s1	s2	s3	SW	Weight (approx.)
100 4"	84	83	G ½ B	½" NPT	M 20 x 1.5	90	86	86	6	6	1	22	.74
160 6"	3.31	3.27	½" BSP			3.54	3.39	3.39					1.63
						120	116	107	.24	.24	.04	.87	1.30
						4.72	4.57	4.21					2.87