

# Differential Pressure Gauges

Bayonet ring case stainless steel  
with 2 bourdon tubes and a pointer

DiRZCh  
DiRZChG

## Selection

Differential pressure gauges with two bourdon tubes are competitive instruments for measurement of two different pressures with direct indication of the differential pressure. The static pressure should not be higher than the next higher pressure range according to DIN EN 837-1.

Pressure gauges model DiRZCh/DiRZChG are applied in heating systems (flow and return flow) or in filter systems.

## Construction

The instrument is provided with two independently working bourdon tube measuring units. Each system has an own pressure connection. The connections are marked with + (for the higher pressure and the first that has to be connected) and - (for the lower pressure). Both measuring units are connected with a pointer via a subtracting movement, so that the differential pressure can be read immediately.

## Application Fields

at steady load: full scale value  
at dynamic load: 0.9 x full scale value  
max. static pressure: one range higher than the full scale value

## Temperature Resistance

Storage temperature: -40 to +60 °C (-40 °F to 140 °F)  
-20 to +70 °C model DiRZChG  
(-4 °F to 158 °F)  
Ambient temperature: -40 to +60 °C (-40 °F to 140 °F)  
-20 to +60 °C model DiRZChG  
(-4 °F to 140 °F)  
Medium temperature: type -3: + 100 °C (212 °F)  
type -1: + 60 °C (140 °F) soft soldered  
+ 100 °C (212 °F) silver brazed

## Reference Temperature

+ 20 °C (68 °F)

## Temperature Caused Error

If the operating temperatures of the measuring system (resilient element and movement) deviate from the reference temperature, additional deviations of the indication could occur. According to EN 837-1 these can be up to 0.4 % of the span per 10 K.

## Standard Versions

### Accuracy (EN 837-1)

Class 1.6

### Case

with bayonet ring stainless steel 1.4301 (304 stainless steel)

### Case Protection Type (EN 60 529 / IEC 529)

IP 54

IP 65 for model DiRZChG

### Blow-out Device

Model DiRZCh Blow-out plug in the back of the case 1" (Ø 25 mm)

Model DiRZChG Blow-out device at the top of the case coverage

### Case Filling

for model DiRZChG: glycerine



## Nominal Case Sizes

100, 160 (mm) (4", 6")

illustration with special scales

## Wetted Parts

Type -3: connections: 1.4404/ 1.4571 (316 stainless steel),  
bourdon tubes: 1.4404/ 1.4571 (316 stainless steel)  
argon arc welding,  
≤ 40 bar c-form,  
≥ 60 bar helical  
O-ring sealing: Viton  
Type -1: connections: brass  
bourdon tubes: ≤ 40 bar bronze, c-form, soft soldered  
≥ 60 bar 1.4404 (316 stainless steel),  
helical, silver brazed  
O-ring sealing: NBR

## Case Configuration

Connection: screwed  
Position of the connection: bottom connection,  
parallelly one behind the other  
without, optionally back flange (Rh)/  
front flange (Fr), see page 2  
Mounting device:

## Pressure Ranges (EN 837-1)

0-1 bar to 0-600 bar (0-15 psi to 0-10000 psi)  
static pressure = one range higher than the full scale value  
dial inscription "static pressure ...bar"

## Process connections

2 x G 1/2 B (2 x 1/2" BSP)  
marking with + (higher pressure) and - (lower pressure)

## Window

Laminated safety glass for type -3  
Instrument glass for type -1

## Movement

Brass/German silver

## Dial

Aluminum, black figures, white background

## Pointer

Aluminum black

## Safety Category according to EN 837-1

NCS 100 (4"): S1 pressure measuring instruments with  
blow-out device

# Special Versions and Ordering Information

## Special Versions and further Options among others

- Other process connections upon request
- Special scales, e.g. double scale bar/psi, coloured fields or areas, dial inscriptions
- Other case fillings upon request
- Other static pressures upon request
- GOST-version for Russia, Ukraine, Kazakhstan

## Ordering Information, Standard Pressure Ranges, Options

See page 3

## Accessory

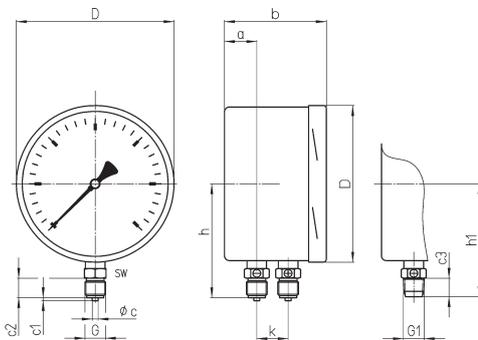
Electrical: limit switch contact assembly data sheet 5119 and catalogue heading 9.1  
 Other accessory: see catalogue heading 11

# Case Configurations, Code Letters, Dimensional Data, Weights

## Bottom process connections, parallelly one behind the other

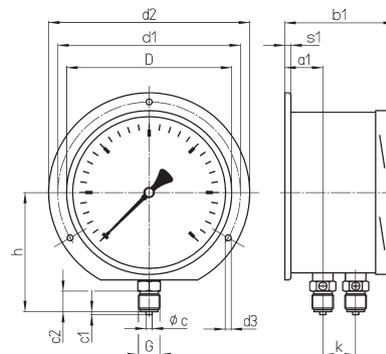
### Without mounting device

(without additional code letters)



### Back flange

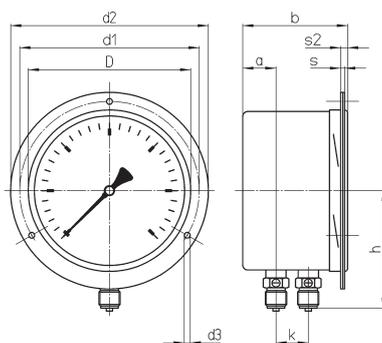
code letters: **Rh**



### Front flange

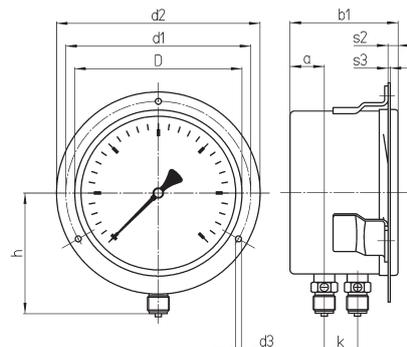
Code letters: **Fr**

unfilled (dry) version, model DiRZCh



fixed front flange with slotted holes and loose cover ring

filled version, model DiRZChG



welded brackets and loose front flange

## Dimensional Data (mm / inches) and Weights (kg / lb)

NCS	a	a1	b	b1	c	c1	c2	c3	D	d1	d2	d3	G	G1	h ±1	h1 ±1	k	SW	s	s1	s2	s3
100 (4")	15 0.59	19 0.75	83 3.27	86 3.39	6 0.24	3 0.12	20 0.79	19 0.75	101 3.98	116 4.57	132 5.2	4.8 0.19	G 1/2 B M 20 x 1.5	1/2" NPT	87 3.43	86 3.39	32 1.26	22 0.87	2 0.08	6 0.24	6 0.24	1.5 0.06
160 (6")	33 1.30	37 1.46	104 4.09	106.5 4.19	6 0.24	3 0.12	20 0.79	19 0.75	161 6.34	178 7.01	196 7.72	5.8 0.23	G 1/2 B M 20 x 1.5	1/2" NPT	117 4.61	116 4.57	32 1.26	22 0.87	2 0.08	6 0.24	6 0.24	1.5 0.06

NCS	approx. weight <sup>1)</sup>	
	DiRZCh	DiRZChG
100 (4")	0.90 1.98	1.50 3.30
160 (6")	1.50 3.30	3.50 7.72

<sup>1)</sup> Information for versions without mounting device

## Ordering Information with Standard Pressure Ranges, Options

Pressure gauge with two pressure connections Differential pressure measurement			
<b>Basic model:</b>	direct indication of the differential pressure	<b>DiRZ</b>	
<b>Bayonet ring case:</b>	stainless steel	<b>Ch</b>	
<b>Case filling:</b>	without	without code letters	
	glycerine	<b>G</b>	
	fillable version	<b>(G)</b>	
<b>Nominal case size:</b>	case-Ø 100, 160 (mm) (4", 6")	<b>100, 160</b>	
<b>Wetted material:</b>	copper alloy	<b>-1</b>	
	stainless steel	<b>-3</b>	
<b>Case configuration/ kind of mounting:</b>	bottom connections, parallelly one behind the other	without code letters	
	mounting device: without	without code letters	
	back flange	<b>Rh</b>	
	front flange	<b>Fr</b>	
<b>Pressure ranges</b>	-1 – 0.6 bar		
	-1 – 1.5 bar		
	-1 – 3 bar		
	-1 – 5 bar		
	-1 – 9 bar		
	-1 – 15 bar		
	0 – 1 bar		
	0 – 1.6 bar		
	0 – 2.5 bar		
	0 – 4 bar		
	0 – 6 bar	e. g. <b>0-6 bar</b>	
	0 – 10 bar		
	0 – 16 bar		
	0 – 25 bar		
	0 – 40 bar		
	0 – 60 bar		
	0 – 100 bar		
	0 – 160 bar		
	0 – 250 bar		
	0 – 400 bar		
	0 – 600 bar		
<b>Process connections:</b>	standard thread G ½ B (½" BSP)	<b>G ½ B</b>	
	options: ½" NPT	<b>½" NPT</b>	
	M 20 x 1.5	<b>M 20 x 1,5</b>	
<b>Further options:</b>	red mark on the dial	<i>(order at the moment still as clear text)</i>	
	plastic clip red or green		
	laminated safety glass for type -1		
	case ventilation no. 22 for outdoor installation		
	restrictor screw in the inlet ports of the connections, for type -1 made of brass,		orifice Ø 0.8 mm (0.03")
	for type -3 made of stainless steel		orifice Ø 0.6 mm (0.02")
			orifice Ø 0.3 mm (0.01")
	measuring point marking		stainless steel-plate 12 mm x 55 mm (0.47" x 2.17"), wire mounting or sticker on case coverage

**Example:**

**DiRZCh 100-3 Fr, 0-6 bar, G ½ B**

Technical changes, replacement of materials and errors excepted.