

# Bourdon Tube Pressure Gauge

## Crimped-on Ring Case Stainless Steel

RChg  
RChgG

### Standard Versions

Information on general and metrological features (load limits / temperature limitations) and standard pressure ranges / scale divisions can be found in model overview 1000.

#### Accuracy (EN 837-1)

Class 1.0

#### Case

Polished crimped-on ring, 1.4301 (304 stainless steel)

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

IP 54,  
IP 65 for model RChG 100 and  
model RChG 160 (pressure ranges  $\geq 2.5$  bar and above)

#### Blow-out Device

Model RChg	Blow-out plug in the back of the case, 1" ( $\varnothing$ 25mm)
Model RChgG 100	Blow-out plug in the back of the case, 1½" ( $\varnothing$ 40mm)
Model RChgG 160	Blow-out device at the top of the case coverage

#### Case Ventilation

Model RChgG 100 without ventilation, but with internal pressure compensation by pressure equalizing membrane.  
Model RChgG 160 by blow-out device.

#### Case Filling

for model RChgG: glycerine

#### Nominal Case Size

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

#### Wetted Parts

Type -3: Connection:	1.4571 (316 stainless steel)
Bourdon tube:	1.4571 (316 stainless steel), argon arc welding,
	$\leq 40$ bar (600 psi) c-form
	$\geq 60$ bar (800 psi) helical
	1,600 bar (20,000 psi) NiFe-alloy, helical

Type -1: Connection:	brass
Bourdon tube: $\leq 40$ bar (600 psi)	bronze, c-form soft-soldered
$\geq 60$ bar (800 psi)	1.4571 (316 stainless steel), helical silver brazed

#### Case Configuration

Connection:	screwed
Position of the connection:	bottom connection, optional lower back connection (r) without, optional back flange for surface mounting (Rh) / front flange for panel mounting (Fr)* or u-clamp for panel mounting (BFr), see page 2
Mounting device:	

#### Pressure Ranges (EN 837-1)

0-0.6 bar (0-10 psi) to 0-1,600 bar (0-20,000 psi) for type -3  
0-0.6 bar (0-10 psi) to 0-1,000 bar (0-15,000 psi) for type -1

#### Process Connection

G ½ B (½" BSP)

#### Window

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

#### Movement

Stainless steel	for type -3
Brass / German silver	for type -1

\* NCS 160 (6") upon request



#### Dial

Aluminum, black figures, white background

#### Pointer

Aluminum, black

#### Safety Category according to EN 837-1

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

### Ordering Information, Standard Pressure Ranges, Options:

see pages 3 and 4

### Special Versions and further Options among others

- Other process connections upon request, e.g. high pressure connection with external male thread (0-60 bar / 0-800 psi and above)
- Other pressure ranges and / or special scales, e.g. double scale bar/psi, coloured fields or areas, dial inscriptions, negative scale etc.
- Version as refrigeration gauge with temperature scale (NCS 100)
- Case parts 1.4404 (316 L stainless steel) upon request
- Increased case protection type, e. g. IP 65 without case filling, upon request
- Other case fillings upon request
- Models RChgG 100-3 and 160-3 for ambient temperatures down to -40 °C (-40 °F); Models RChg 100-3 and 160-3 for ambient temperatures down to -60 °C (-76 °F)
- Position of connection radial at 3 o'clock, 9 o'clock or 12 o'clock (others upon request) or other than vertical installation (90°):
  - for models without case filling and for filled models with pressure equalizing membrane;
  - for filled models without pressure equalizing membrane upon request
- GOST-version for Russia, Ukraine, Kazakhstan
- Sour gas-resistant version according to NACE

### Accessory:

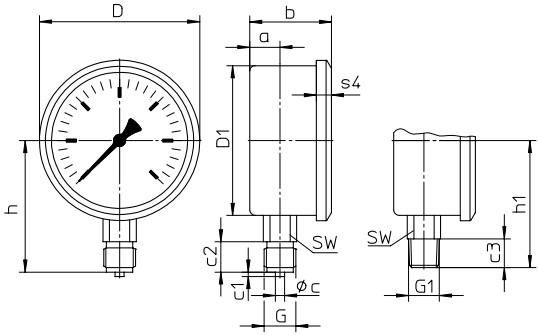
Chemical seals: mounting upon request  
Other accessory: see catalogue-heading 11

# Case Configurations, Code Letters, Dimensional Data and Weights, Blow-out Device

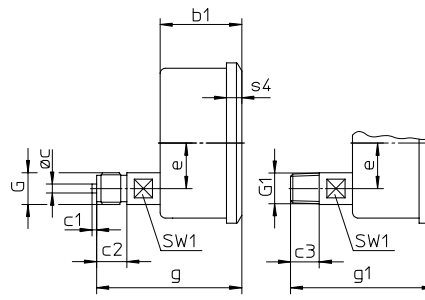
## Bottom connection      Lower back connection

### No mounting device

(no additional code letter)

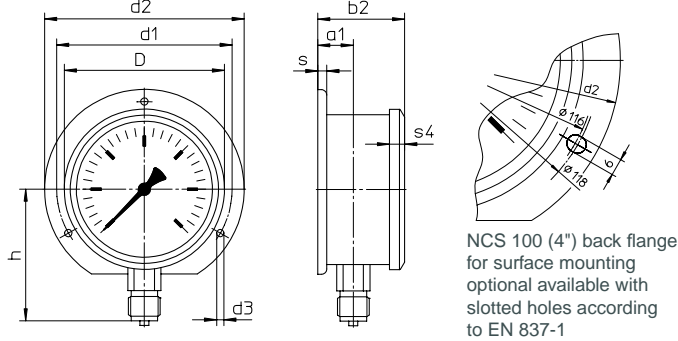


code letter: r

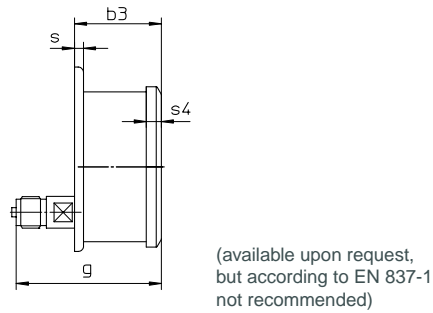


### Back flange for surface mounting

code letters: Rh

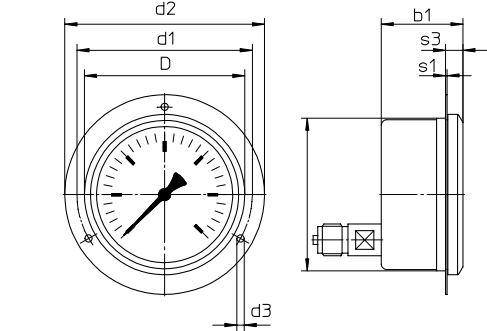


code letters: rRh



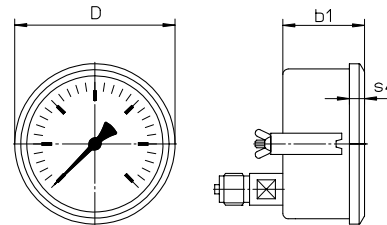
### Front flange for panel mounting      U-clamp for panel mounting

code letters: rFr (NCS 160 (6") upon request)



recommended panel cut out for NCS 100 (4")  $\varnothing 102 \pm 0.5 \text{ mm (0.02")}$

code letters: rBFr



recommended panel cut out for NCS 100 (4")  $\varnothing 102 \pm 0.5 \text{ mm (0.02")}$   
NCS 160 (6")  $\varnothing 162 \pm 0.5 \text{ mm (0.02")}$

### Dimensional data (mm / inches) and weights (kg / lb)

NCS	a	a1	b	b1	b2	b3	c	c1	c2	c3	D	D1	D2	d1	d2	d3	e	G	G1	g	g1	h <sup>-1</sup>
100 4"	20 .79	23.5 .93	54 2.13	54 2.13	57.5 2.26	57.5 2.26	6 .24	3 .12	20 .79	19 .75	106 4.17	99 3.9	101 3.98	116 4.57	132 5.2	4.8 .19	30 1.18	G 1/2 B 1/2" BSP M 20 x 1.5	1/2" NPT	96 3.78	95 3.74	87 3.43
160 6"	15 .59	18 .71	50 1.97	55 2.17	53 2.09	58 2.28	6 .24	3 .12	20 .79	19 .75	167 6.57	159 6.26	-	178 7.01	196 7.72	5.8 .23	30 1.18	G 1/2 B 1/2" BSP M 20 x 1.5	1/2" NPT	97 3.82	96 3.78	115 4.53

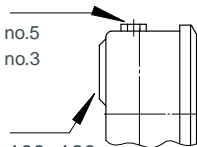
### Blow-out device

Blow-out device for model RChgG 160

Pressure range  $\leq 1.6 \text{ bar (23.20 psi)}$  blow-out device no.5  
 $\geq 2.5 \text{ bar (30 psi)}$  blow-out device no.3

Blow-out plug

$\varnothing 1"$  (25 mm) for models RChg 100, 160  
 $\varnothing 1\frac{1}{2}"$  (40 mm) for model RChgG 100  
with pressure equalizing membrane



NCS	h1 <sup>±1</sup>	s	s1	s3	s4	SW	SW1	approx. weight <sup>(1)</sup> RChg	RChgG
100 4"	84 3.31	6 .24	1 .04	11.5 .45	10 .4	22 .87	17 .67	0.60 1.33	0.90 1.98
160 6"	114 4.49	6 .24	-	-	11 .43	22 .87	17 .67	1.10 2.43	1.70 3.75

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

## Ordering Information with Standard Pressure Ranges, Options

Basic Model:		Bourdon Tube Pressure Gauge, Crimped-on Ring	RChg	
Case Filling:	without		without code letters	
	glycerine		<b>G</b>	
	fillable version		<b>(G)</b>	
Nominal Case Size:	case-Ø 100, 160 (mm) (4", 6")		<b>100, 160</b>	
Wetted Material:	copper alloy		<b>-1</b>	
	stainless steel		<b>-3</b>	
	Monel, 0-0.6 bar (10 psi) to 0-1,000 bar (15,000 psi), movement stainless steel, laminated safety glass, bourdon tube Monel argon arc welding, ≤ 40 bar (0-600 psi) c-form, ≥ 60 bar (1,000 psi) helical, bottom connection, optional r		<b>-6</b>	
Case Configuration:	case connection	screwed	without code letters	
		welded (only type -3)	<b>v</b>	
	position of the connection:	bottom connection	without code letters	
	lower back connection	<b>r</b>		
mounting device:	without		without code letters	
	back flange for surface mounting		<b>Rh</b>	
	front flange for panel mounting		<b>Fr</b> (NCS 160 upon request)	
	u-clamp for panel mounting		<b>BFr</b>	
Pressure Ranges:	-1,200 – 0 mbar	30" Hg vac. – 0 psi		
	-0.6 – 0 bar			
	-1 – 0 bar			
	-1 – 0.6 bar	30" Hg vac. – 15 psi		
	-1 – 1.5 bar	30" Hg vac. – 30 psi		
	-1 – 3 bar	30" Hg vac. – 60 psi		
	-1 – 5 bar	30" Hg vac. – 100 psi		
	-1 – 9 bar	30" Hg vac. – 160 psi		
	-1 – 15 bar	30" Hg vac. – 200 psi		
	0 – 0.6 bar	0 – 10 psi		
	0 – 1 bar	0 – 15 psi		
	0 – 1.6 bar			
	0 – 2.5 bar	0 – 30 psi		
	0 – 4 bar	0 – 60 psi		
	0 – 6 bar	0 – 100 psi	e. g. <b>0-6 bar</b>	
	0 – 10 bar	0 – 160 psi		
	0 – 16 bar	0 – 200 psi		
	0 – 25 bar	0 – 300 psi		
	0 – 40 bar	0 – 600 psi		
	0 – 60 bar	0 – 800 psi		
	0 – 100 bar	0 – 1,500 psi		
	0 – 160 bar	0 – 2,000 psi		
	0 – 250 bar	0 – 3,000 psi		
0 – 400 bar	0 – 5,000 psi			
0 – 600 bar	0 – 10,000 psi			
0 – 1,000 bar	0 – 15,000 psi			
0 – 1,600 bar for type -3	0 – 20,000 psi			
Process Connection:	standard thread:	G ½ B (½" BSP)	<b>G ½ B</b>	
	options:	½" NPT	-1 and -6 max. 0-1,000 bar; -3 max. 0-1,600 bar	<b>½" NPT</b>
		M 20 x 1.5		<b>M 20 x 1,5</b>
		G ¼ B (¼" BSP)	-1 max. 0- 600 bar; -3 and -6 max. 0-1,000 bar	<b>G ¼ B</b>
		¼" NPT		<b>¼" NPT</b>
		M 20 x 1.5		
	high pressure connection female thread (0-60 bar and above) for ¼" tube, with 60° cone			
		M 16 x 1.5	<b>HD-Anschluss M 16 x 1,5</b>	
		9/16" - 18 UNF	<b>HD-Anschluss 9/16"-18 UNF</b>	
Options:	see page 4			

Example:

RChg 100-3 rBFr, 0-6 bar, G ½ B

## Further Options regarding Ordering Information

Basic Model:	Bourdon Tube Pressure Gauge, Crimped-on Ring	RChg
Model Code:		see page 3
Options:	<p>red mark on the dial</p> <p>plastic clip red or green external at the crimped-on ring</p> <p>receiver gauge 0.2-1 bar, scale 0-100%</p> <p style="text-align: right;">linear square</p> <p>indication accuracy grade 2A (<math>\pm 0.5\%</math>) according to ASME B 40.1<sup>1)</sup></p> <p>special adjustment (reference points = odd values, e. g. 100 KN = 8.735 bar)</p> <p>window laminated safety glass for type -1</p> <p style="text-align: right;">acrylic glass (PMMA) polycarbonate (PC)</p> <p>movement stainless steel for type -1 (for -3 and -6 standard)</p> <p style="text-align: right;">movement silicone damped brass / polyacetal</p> <p>case ventilation no. 22 for outdoor installation</p> <p>case polished</p> <p>density examination of the measuring unit with helium leak detection up to <math>10^{-9}</math> mbar l/s for types -3 and -6</p> <p>wetted parts, free of grease and oil, up to 0-600bar (0-10,000 psi) adjustment <math>\leq 250</math> bar (3,000 psi) with dry air, <math>\geq 400</math> bar (5,000 psi) with distilled water, dial marking: symbol cancelled oil can</p> <p>oxygen version, up to 0-600 bar<sup>2)</sup> (0-10,000 psi) free of grease and oil, additional restrictor screw in the inlet port, orifice <math>\varnothing 0.3</math> mm (0.01"), dial inscription: oxygen no version according to EN 837-1<sup>3)</sup></p> <p>silicone-free version version: German Lloyd or Russian Sea Register <b>NCS 100</b> dial marking: GL-symbol copy of the certificate upon request</p> <p>restrictor screw in pressure inlet port orifice <math>\varnothing 0.8</math> mm (0.03") material: as process orifice <math>\varnothing 0.6</math> mm (0.02") (not Monel) connection brass, stainless steel or Monel orifice <math>\varnothing 0.3</math> mm (0.01") (not Monel)</p> <p>measuring point marking stainless steel-plate 12 mm x 55 mm (0.47" x 2.17"), wire mounting or sticker on case coverage</p> <p>deflagration volume-protection Adapt FS version 5 according to DS 11001</p>	(order at the moment still as cleartext)

### Special Versions: Please describe your requirements clearly

<sup>1)</sup> for pressure ranges  $\leq 10,000$  psi    <sup>3)</sup> EN 837-1 in connection with oxygen version requires safety category S<sub>3</sub>

<sup>2)</sup> for instruments without case filling