

Bourdon Tube Pressure Gauges

Bayonet Ring Case Stainless Steel

RCh
RChG

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

Bayonet 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 ≥ 2.5 bar and above)

Blow-out Device

Model RCh Blow-out plug in the back of the case, 1" (\varnothing 25mm)

Model RChG 100 Blow-out plug in the back of the case, 1½" (\varnothing 40mm)

Model RChG 160 Blow-out device at the top of the case coverage

Case Ventilation

Model RChG 100 without ventilation, but with internal pressure compensation by pressure equalizing membrane.

Model RChG 160 by blow-out device.

Case Filling

for model RChG: glycerine

Nominal Case Size

Model RCh: 100, 160, 250 (mm) (4", 6", 10")

Model RChG: 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,
 ≤ 40 bar (600 psi) c-form
 ≥ 60 bar (800 psi) helical
1,600 bar (20,000 psi) NiFe-alloy, helical

Type -1: Connection: brass

Bourdon tube: ≤ 40 bar (600 psi) bronze, c-form
soft-soldered
 ≥ 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)

Mounting device: without, optional back flange for
surface mounting (Rh) / front flange
for panel mounting (Fr), see page 2

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



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)
- Stationary pointer or drag indicator with window made of polycarbonate or laminated safety glass upon request (not for NCS 250)
- 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
- Model RChG 100-3 and 160-3 for ambient temperatures down to -40 °C (-40 °F). Our recommendation for ambient temperatures below -20 °C (-4 °F); pressure gauges with crimped-on ring case models RChg resp. RChG
- Versions for medium temperatures up to 300 °C (572 °F), but without case filling upon request (not NCS 250)
- 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: see catalogue-heading 7

Electrical: limit switch contact assembly DS 1291 and catalogue-heading 9.1

Other accessory: see catalogue-heading 11



INSTRUMENTS TO INDUSTRY LTD

Euro Works - Hawksley Industrial Estate - Hawksley Street
Oldham - OL8 4PQ - United Kingdom

Instruments To
Industry Ltd

T: +44 (0)161 652 7741

F: +44 (0)161 621 0389

E: sales@itiuk.com

W: www.itiuk.com

1201

11/09

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

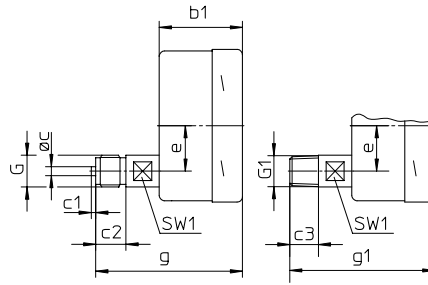
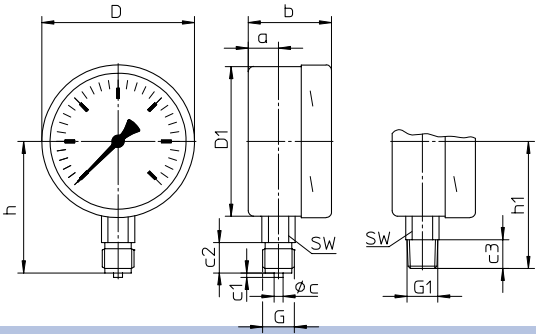
Bottom connection

Lower back connection

No mounting device

(no additional code letter)

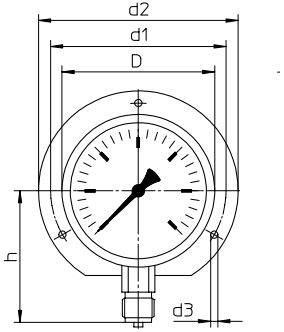
code letter: **r**



Back flange for surface mounting

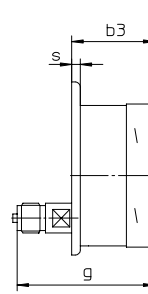
code letters: **Rh**

code letters: **rRh**



for NCS 250 (10") with 3 brackets

NCS 100 (4") back flange for surface mounting optional available with slotted holes according to EN 837-1



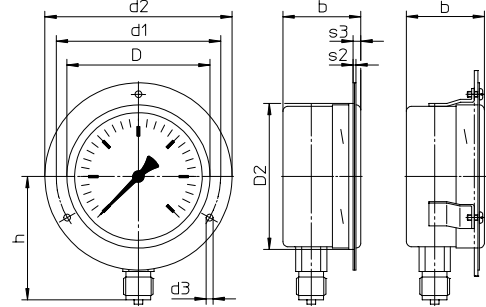
(available upon request, but according to EN 837-1 not recommended)

for NCS 250 (10") with 3 brackets

Front flange for panel mounting

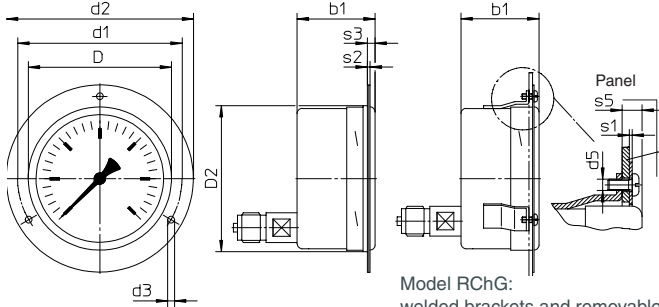
code letters: **Fr**

code letters: **rFr**



(available upon request, but according to EN 837-1 not recommended)

Model RChG: welded brackets and removable front flange for panel mounting



Model RChG: welded brackets and removable front flange for panel mounting

recommended panel cut out for NCS 100 (4") Ø 104 ± 0.5 mm (0.02")
NCS 160 (6") Ø 164 ± 0.5 mm (0.02")
NCS 250 (10") Ø 254 ± 0.5 mm (0.02")

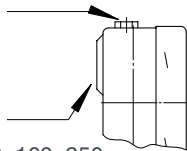
Dimensional data (mm / inches) and weights (kg / lb)

NCS	a	a1	b	b1	b2	b3	c	c1	c2	c3	D	D1	D2	d1	d2	d3	d5	e	G	G1	g	g1	h ^{±1}	h1 ^{±1}
100 4"	20 .79	23.5 .93	55 2.17	55 2.17	58.5 2.3	58.5 2.3	6 .24	3 .12	20 .79	19 .75	101 3.98	99 3.9	103 4.06	116 4.57	132 5.2	4.8 .19	M4	30 1.18	G 1/2 B 1/2" BSP M 20 x 1.5	1/2" NPT	97 3.82	96 3.78	87 3.43	84 3.31
160 6"	15.5 .61	19 .75	51 2.01	51 2.01	54 2.13	54 2.13	6 .24	3 .12	20 .79	19 .75	161 6.34	159 6.26	163 6.42	178 7.01	196 7.72	5.8 .23	M5	30 1.18	G 1/2 B 1/2" BSP M 20 x 1.5	1/2" NPT	92.5 3.64	91.5 3.6	115 4.53	114 4.49
250 10"	15.5 .61	17.5 .69	58 2.28	58 2.28	60 2.36	60 2.36	6 .24	3 .12	20 .79	19 .75	251 9.88	249 9.8	-	270 10.63	285 11.22	5.8 .23	-	52 2.05	G 1/2 B 1/2" BSP M 20 x 1.5	1/2" NPT	97 3.82	96 3.78	165 6.5	164 6.46

Blow-out device

Blow-out device for model RChG 160

Pressure range ≤ 1.6 bar (23.20 psi) blow-out device no.5
≥ 2.5 bar (30 psi) blow-out device no.3



Blow-out plug

Ø 1" (25 mm) for models RCh 100, 160, 250
Ø 1 1/2" (40 mm) for model RChG 100

with pressure equalizing membrane

s	s1	s2	s3	s5	SW	SW1	approx. weight ¹⁾	
							RCh	RChG
6	1	2	5.5	7	22	17	0.60	0.95
.24	.04	.08	.22	.28	.87	.67	1.33	2.1
6	1.5	2.5	6	8	22	17	1.10	1.95
.24	.06	.1	.24	.31	.87	.67	2.43	4.3
.08	-	2	8.5	-	22	17	2.10	-
.08	-	.08	.33	-	.87	.67	4.63	-

¹⁾ Information for version without mounting device

Ordering Information with Standard Pressure Ranges, Options

Basic Model:	Bourdon Tube Pressure Gauge, Bayonet Ring Case		RCh
Case Filling:	without glycerine fillable version		without code letters G (G)
Nominal Case Size:	case- Ø 100,160, 250 (mm) (4", 6", 10")		100, 160, 250
Wetted Material:	copper alloy stainless steel 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		-1 -3 -6
Case Configuration:	case / connection	screwed welded (only type -3, not NCS 250)	without code letters v
	position of the connection:	bottom connection lower back connection	without code letters r
	mounting device:	without back flange for surface mounting front flange for panel mounting	without code letters Rh Fr
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. 0-6 bar
	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)	G ½ B
	options:	½" NPT	½" NPT
		M 20 x 1.5	M 20 x 1,5
		G ¼ B (¼"BSP) ¹⁾	G ¼ B
		¼" NPT ¹⁾	¼" NPT
		M 12 x 1.5 ¹⁾	
		high pressure connection female thread (0-60 bar and above) for ¼" tube, with 60° cone	
		M 16 x 1.5	HD-Anschluss M 16x1,5
		9/16" - 18 UNF	HD-Anschluss 9/16" - 18 UNF
Options:	see page 4		
Example:			RCh 100-3 rFr, 0-6 bar, G ½ B

¹⁾ not NCS 250

Further Options regarding Ordering Information

Basic Model:	Bourdon Tube Pressure Gauge, Bayonet Ring Case	RCh
Model Code:		see page 3
Options:	<p>adjustable pointer, aluminum mechanism</p> <p>red mark on the dial</p> <p>plastic clip red or green external at the bayonet ring (not NCS 250)</p> <p>stationary red pointer on the dial</p> <p>adjustable when removable ring</p> <p>stationary red pointer adjusting mechanism brass, nickelplated</p> <p>screwed with window made of acrylic glass</p> <p>adjustable externally removable key</p> <p>non-removable key</p> <p>adjusting mechanism stainless steel</p> <p>screwed with window made of acrylic glass</p> <p>adjustable externally removable key</p> <p>non-removable key</p> <p>min. - or max. - drag indicator adjusting mechanism brass, nickelplated</p> <p>screwed with window made of acrylic glass</p> <p>2.5 bar (30 psi) and above adjustable externally removable key</p> <p>non-removable key</p> <p>adjusting mechanism stainless steel</p> <p>screwed with window made of acrylic glass</p> <p>adjustable externally removable key</p> <p>non-removable key</p> <p>receiver gauge 0.2-1 bar, scale 0-100%</p> <p>linear</p> <p>square</p> <p>indication accuracy grade 2A ($\pm 0.5\%$) according to ASME B 40.1¹⁾</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>acrylic glass (PMMA)</p> <p>polycarbonate (PC)</p> <p>movement stainless steel for type -1 (for -3 and -6 standard)</p> <p>silicone damped brass / polyacetal</p> <p>case ventilation no. 22 for outdoor installation</p> <p>case polished</p> <p>bayonet ring polished</p> <p>density examination of the measuring unit with helium leak detection up to 10^{-9} 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 ≤ 250 bar (3,000 psi) with dry air, ≥ 400 bar (5,000 psi) with distilled water, dial marking: symbol cancelled oil can</p> <p>oxygen version, up to 0-600 bar²⁾ (0-10,000 psi) free of grease and oil, additional restrictor screw in the inlet port, orifice $\varnothing 0.3$ mm (0.01"), dial inscription: oxygen</p> <p>no version according to EN 837-1³⁾</p> <p>silicone-free version</p> <p>version: German Lloyd or Russian Sea Register NCS 100 / 160 dial marking: symbol</p> <p>copy of the certificate upon request</p> <p>restrictor screw in pressure inlet port orifice $\varnothing 0.8$ mm (0.03")</p> <p>orifice $\varnothing 0.6$ mm (0.02") (not Monel)</p> <p>material: as process connection brass, stainless steel or Monel orifice $\varnothing 0.3$ 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

¹⁾ for pressure ranges $\leq 10,000$ psi
²⁾ for instruments without case filling

³⁾ EN 837-1 in connection with oxygen version requires safety category S3