

# Bourdon Tube Pressure Gauges

Bayonet ring case stainless steel

RCh  
RChG

## Standard Versions

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

**Accuracy** (DIN EN 837-1)  
Class 1.0

**Case**  
With bayonet ring, stainless steel 304 (1.4301)

**Degree of Protection** (DIN EN 60 529/IEC 529)  
IP54  
IP65 for model RChG 100 and  
model RChG 160 (measuring spans  $\geq 2.5$  bar onwards)

**Blow-out Device**  
Model RCh blow-out plug at the back of the case,  $\varnothing 1"$   
Model RChG 100 blow-out plug at the back of the case,  $\varnothing 40$  mm (1 1/2")  
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 via pressure equalizing membrane  
Model RChG 160 via blow-out device

**Case Filling**  
For model RChG: glycerin

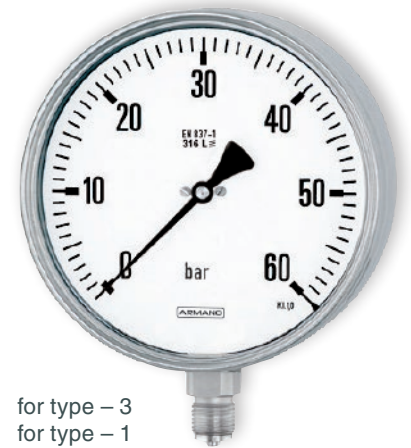
**Nominal Case Size**  
Model RCh: 100, 160, 250 mm (4, 6, 10")  
Model RChG: 100, 160 mm (4, 6")

**Wetted Parts**  
Type – 3: connection: stainless steel 316L (1.4404)  
Bourdon tube: stainless steel 316L (1.4404)  
gas-shielded arc welding  
 $\leq 40$  bar (600 psi) c-form  
 $\geq 60$  bar (800 psi) helical form  
1600 bar (20,000 psi) NiFe-alloy  
helical form

Type – 1: connection: brass  
Bourdon tube:  $\leq 40$  bar (600 psi) bronze, c-form  
soft-soldered  
 $\geq 60$  bar (800 psi) stainless steel  
316L (1.4404)  
helical form  
silver brazed

**Case Configuration**  
Connection: screwed  
Position of the connection:  
- bottom connection  
- lower back connection (r)  
Mounting device:  
- without  
- back flange for surface mounting (Rh)  
- front flange for panel mounting (Fr)

**Pressure Ranges** (DIN EN 837-1)  
0 – 0.6 bar to 0 – 1600 bar (0 – 10 psi to 0 – 20,000 psi) for type – 3  
0 – 0.6 bar to 0 – 1000 bar (0 – 10 psi to 0 – 15,000 psi) for type – 1



**Process Connection**  
G 1/2 B (1/2" 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 white, scale black

**Pointer**  
Aluminum black

**Safety Category According to DIN EN 837-1**  
S1 pressure gauges with blow-out device NCS 100 (4")

## Ordering Information, Standard Pressure Ranges, Options

See pages 3 and 4

## Special Versions and Further Options

- Other process connections upon request, e.g. high pressure connection with male thread (from 0 – 60 bar onwards)
- Other pressure ranges and/or special scales, e.g. dual scale bar/psi, coloured fields or ranges, dial inscriptions, negative scale
- 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 316L (1.4404) upon request
- Increased degree of protection, e.g. IP65 without case filling, upon request
- Other case fillings upon request
- Models RChG 100 – 3v and 160 – 3v for ambient temperatures to  $-40$  °C ( $-40$  °F)  
For ambient temperatures below  $-20$  °C ( $-4$  °F) we recommend: pressure gauges with crimped-on ring case models RChg or RChG
- Versions for medium temperatures up to  $+300$  °C ( $+572$  °F) but without case filling upon request (not for NCS 250)
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock (others upon request) or other than vertical installation ( $90^\circ$ ):  
- for models without case filling and filled models with pressure equalizing membrane  
- for filled models without pressure equalizing membrane upon request
- GOST version for Russia, Ukraine, Kazakhstan, Belarus
- Sour gas resistant version according to NACE

## Accessories

Chemical seals: see catalogue heading 7  
Electrical: see catalogue heading 9.1  
Other accessory: see catalogue heading 11

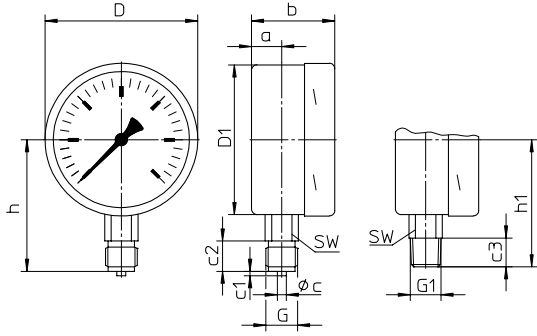


# Case Configurations, Code Letters, Dimensional Data and Weights, Blow-out Device

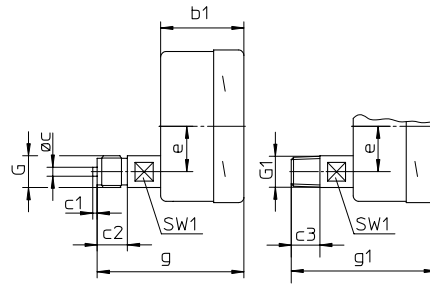
## Bottom Connection Lower Back Connection

without mounting device

(without code letters)

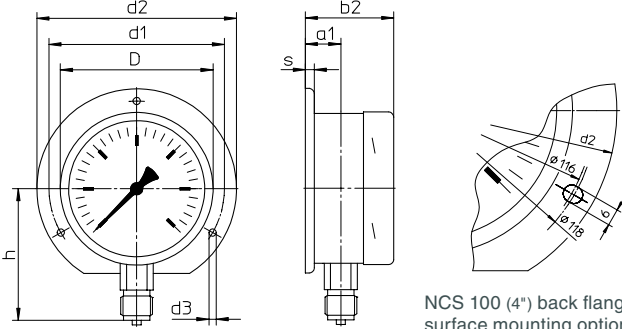


code letter: r



## with back flange for surface mounting

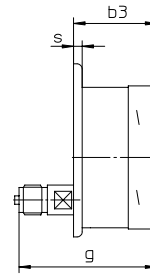
code letters: Rh



for NCS 250 (10") with 3 brackets

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

code letters: rRh

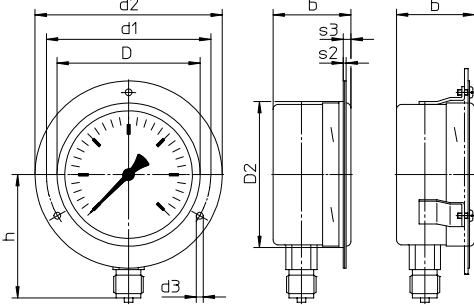


(available upon request, however not recommended according to DIN EN 837-1)

for NCS 250 (10") with 3 brackets

## with front flange for panel mounting

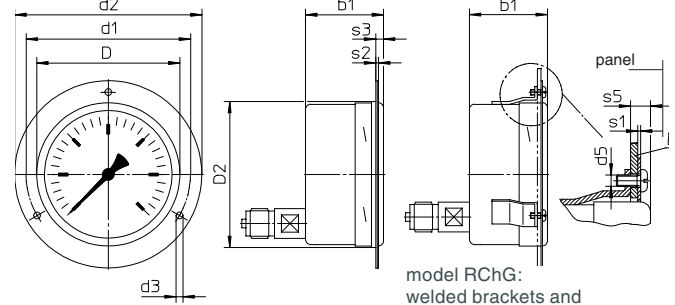
code letters: Fr



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

model RChG: welded brackets and removable front flange

code letters: rFr



recommended panel cut out for NCS 100 (4") Ø 104 ± 0.5 mm (4.09 ± 0.02")  
NCS 160 (6") Ø 164 ± 0.5 mm (6.46 ± 0.02")  
NCS 250 (10") Ø 254 ± 0.5 mm (10 ± 0.02")

model RChG: welded brackets and removable front flange

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

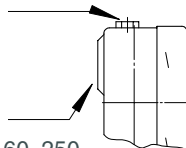
NCS	a	a1	b	b1	b2	b3	c	c1	c2	c3	D	D1	D2	d1	d2	d3	d5	e	G	G1	g	g1	h <sup>±1</sup>	h1 <sup>±1</sup>
100 4"	20 0.79	23.5 0.93	55 2.17	55 2.17	58 2.28	58 2.28	6 0.24	3 0.12	20 0.79	19 0.75	101 3.98	99 3.9	103 4.06	116 4.57	132 5.2	4.8 0.19	M4	30 1.18	G ½B M20x1.5	½" NPT	97 3.82	96 3.78	87 3.43	84 3.31
160 6"	15 0.59	18 0.71	50 1.97	55 2.17	53 2.09	58 2.28	6 0.24	3 0.12	20 0.79	19 0.75	161 6.34	159 6.26	163 6.42	178 7.01	196 7.72	5.8 0.23	M5	30 1.18	G ½B M20x1.5	½" NPT	92.5 3.64	91.5 3.6	115 4.53	114 4.49
250 10"	15.5 0.61	17.5 0.69	58 2.28	58 2.28	60 2.36	60 2.36	6 0.24	3 0.12	20 0.79	19 0.75	251 9.88	249 9.8	-	270 10.63	285 11.22	5.8 0.23	-	52 2.05	G ½B M20x1.5	½" NPT	99 3.9	98 3.86	165 6.5	164 6.46

## Blow-out Device

Blow-out device for model RChG 160  
pressure range ≤ 1.6 bar blow-out device no. 5  
≥ 2.5 bar blow-out device no. 3

Blow-out plug  
Ø 1"  
Ø 40 mm (1 ½")

for models RCh 100, 160, 250  
for model RChG 100  
with pressure equalizing membrane



s	s1	s2	s3	s5	SW	SW1	approx. weight <sup>1)</sup>	
							RCh	RChG
6	1	2	6	7	22	17	0.60	0.95
0.24	0.04	0.08	0.24	0.28	0.87	0.67	1.32	2.09
6	1.5	2.5	6	8	22	17	1.10	1.95
0.24	0.06	0.1	0.24	0.31	0.87	0.67	2.43	4.3
2	-	2	8.5	-	22	17	2.10	-
0.08	-	0.08	0.33	-	0.87	0.67	4.63	-

<sup>1)</sup> data for version without mounting device



## Ordering Information

Basic Model:		Bourdon Tube Pressure Gauge with Bayonet Ring Case		RCh
<b>Case filling:</b>	without glycerin fillable version			without code letters <b>G</b> <b>(G)</b>
<b>Nominal case size:</b>	case Ø 100, 160, 250 mm (4, 6, 10")			<b>100, 160, 250</b>
<b>Wetted material:</b>	copper alloy stainless steel Monel, 0 – 0.6 bar to 0 – 1000 bar, movement stainless steel, laminated safety glass, Bourdon tube Monel gas-shielded arc welding, ≤40 bar c-form, ≥60 bar helical form, bottom connection, optionally r			– 1 – 3 – 6
<b>Case configuration:</b>	case/connection	screwed welded (only type – 3, not for NCS 250)		without code letters <b>v</b>
	position of the connection	bottom connection lower back connection		without code letters <b>r</b>
	mounting device	without back flange for surface mounting front flange for panel mounting		without code letters <b>Rh</b> <b>Fr</b>
<b>Pressure ranges:</b>	–1200 / 0 mbar –0.6 / 0 bar –1 / 0 bar –1 / +0.6 bar –1 / +1.5 bar –1 / +3 bar –1 / +5 bar –1 / +9 bar –1 / +15 bar 30" hg vac. – 0 psi			
	0 – 0.6 bar 0 – 1 bar 0 – 1.6 bar 0 – 2.5 bar 0 – 4 bar 0 – 6 bar 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 0 – 1000 bar 0 – 1600 bar			
		30" hg vac. – 15 psi 30" hg vac. – 30 psi 30" hg vac. – 60 psi 30" hg vac. – 100 psi 30" hg vac. – 160 psi 30" hg vac. – 200 psi 30" hg vac. – 300 psi 0 – 10 psi 0 – 15 psi 0 – 30 psi 0 – 60 psi 0 – 100 psi 0 – 160 psi 0 – 200 psi 0 – 300 psi 0 – 400 psi 0 – 600 psi 0 – 800 psi 0 – 1,000 psi 0 – 1,500 psi 0 – 2,000 psi 0 – 3,000 psi 0 – 4,000 psi 0 – 5,000 psi 0 – 6,000 psi 0 – 10,000 psi 0 – 15,000 psi 0 – 20,000 psi		
				<b>e.g. 0 – 6 bar</b>
<b>Process connection:</b>	standard thread options	G ½B – 1 and – 6 max. 0 – 1000 bar ½" NPT – 3 max. 0 – 1600 bar M20x1.5 G ¼B <sup>1)</sup> – 1 max. 0 – 600 bar ¼" NPT <sup>1)</sup> – 3 and – 6 max. 0 – 1000 bar M12x1.5 <sup>1)</sup> high pressure connection M16x1.5 female thread (0 – 60 bar onwards) ¼" tube, with 60° cone		G ½B ½" NPT M20x1.5 G ¼B ¼" NPT M12x1.5 HP connection M16x1.5 HP connection ¼" – 18 UNF
<b>Options:</b>	see page 4			

**Example:** RCh 100 – 3 rFr, 0 – 6 bar, G ½B

<sup>1)</sup> not for NCS 250 (10")



## Ordering Information, Further Options

Basic Model:	Bourdon Tube Pressure Gauge with Bayonet Ring Case	RCh
<b>Model code:</b>		see page 3
<b>Options:</b>	adjustable pointer with aluminum mechanism	
	red mark on the dial	
	plastic clip red or green, external at the bayonet ring (not for NCS 250)	
	stationary red pointer on the dial	
	adjustable with removable ring	
	stationary red pointer adjusting mechanism brass, nickelplated with window made of acrylic glass, screwed	
	adjustable externally removable key	
		non-removable key
	adjusting mechanism stainless steel with window made of acrylic glass, screwed	
	adjustable externally removable key	
		non-removable key
	min. / max. drag indicator adjusting mechanism brass, nickelplated with window made of acrylic glass, screwed	
	measuring spans 2.5 bar onwards adjustable externally removable key	
		non-removable key
	adjusting mechanism stainless steel with window made of acrylic glass, screwed	
	adjustable externally removable key	
		non-removable key
	receiver gauge 0.2 – 1 bar (3 – 15 psi), linear	
	scale 0 – 100 % square	
	indication accuracy grade 2A ( $\pm 0.5\%$ ) according to ASME B 40.1 <sup>1)</sup>	
	special adjustment (reference points = odd values, e.g. 100 KN = 8.735 bar)	
	window laminated safety glass for type – 1	
	acrylic glass (PMMA)	
	polycarbonate (PC)	
	movement stainless steel for type – 1 (for – 3 and – 6 standard)	
	silicone damped brass/polyacetal	
	case ventilation no. 22 for outdoor installation	
	case polished	
	bayonet ring polished	
	leak test of the measuring unit with helium leak detection up to $10^{-9}$ mbar l/s for types – 3 and – 6	
	wetted parts free of grease and oil adjustment $\leq 250$ bar (3,000 psi) with dry air, up to 0 – 600 bar (0 – 10,000 psi) $\geq 400$ bar (5,000 psi) with distilled water, dial marking: symbol crossed out oil can	
	oxygen version free of grease and oil as above, additional restrictor screw in the inlet port, orifice $\varnothing 0.3$ mm (0.01"), dial inscription: up to 0 – 600 bar (0 – 10,000 psi) <sup>2)</sup> oxygen, no version according to DIN EN 837-1 <sup>3)</sup>	
	silicone-free version	
	version: dial marking: symbol	
	DNV GL or Russian Sea Register copy of the certificate upon request	
	<b>NCS 100, 160</b>	
	restrictor screw in the pressure inlet orifice $\varnothing 0.8$ mm (0.03")	
	port, material: like process connection orifice $\varnothing 0.6$ mm (0.02") (not for Monel)	
	brass, stainless steel or Monel orifice $\varnothing 0.3$ mm (0.01") (not for Monel)	
	instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17"), wire mounting sticker on the case coverage	
	flame arrester Adapt FS variant 5 according to data sheet 11001	

**Special Versions:** Please describe your requirements in cleartext!

<sup>1)</sup> for pressure ranges  $\leq 10\,000$  psi

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

<sup>3)</sup> DIN EN 837-1 in connection with oxygen version requires safety category S3

