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 ≥2.5 bar)

Blow-out Device

Model RCh	blow-out plug in the back of the case, Ø 1" (25 mm)
Model RChG 100	blow-out plug in the back of the case, Ø 40 mm (1½")
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 equalising membrane
Model RChG 160	via blow-out device

Case Filling
Model RCh**G**: glycerin

Nominal Case Size

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

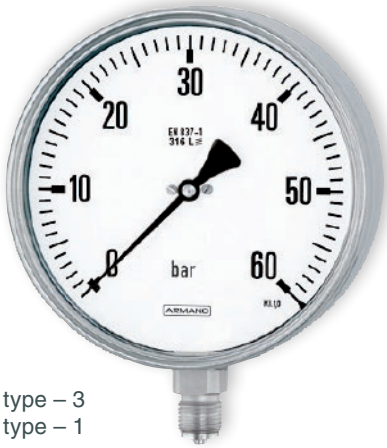
Wetted Parts

Type – 3:	connection:	stainless steel 316L (1.4404)
	Bourdon tube:	stainless steel 316L (1.4404) gas-shielded arc welding
		≤40 bar (600 psi) c-form
		≥60 bar (800 psi) helical form
		1600 bar (20 000 psi) NiFe-alloy helical form
Type – 1:	connection:	brass
	Bourdon tube:	≤40 bar (600 psi) bronze, c-form soft-soldered
		≥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
G½B (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 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

Further Options

- Version as refrigeration gauge with temperature scale (NCS 100) (see technical information sheet T01-000-015)
- Models RChG 100 – 3v and 160 – 3v
  for ambient temperatures down 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 RChgG
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock or other than vertical installation (90°) for unfilled models
- GOST version for Russia and Kazakhstan
- Sour gas resistant version according to NACE

Special Versions Upon Request

- Other process connections, 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
- Stationary pointer or drag indicator with window made of polycarbonate or laminated safety glass (not for NCS 250)
- Case parts 316L (1.4404)
- Increased degree of protection, e.g. IP65 without case filling
- Other case fillings
- Versions for medium temperatures up to +300 °C (+572 °F), without case filling only (not for NCS 250)
- Other position of connection

Accessory

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

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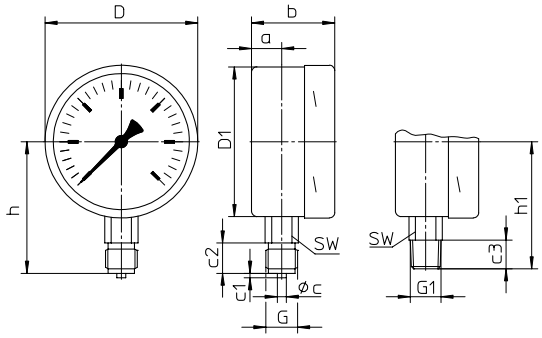
Case Configurations, Code Letters, Dimensional Data and Weight, Blow-out Device

Bottom Connection

without mounting device

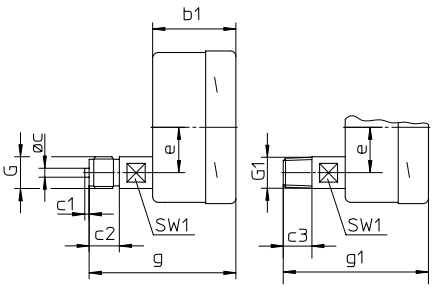
without code letters



Lower Back Connection

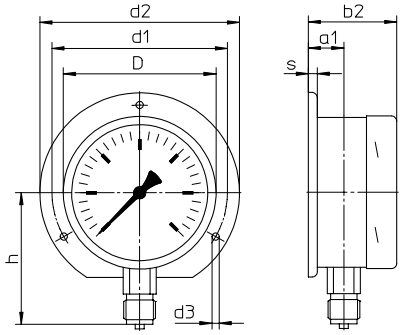
without mounting device

code letter **r**

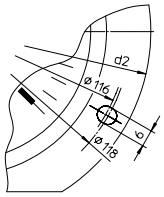


with back flange for surface mounting

code letters **Rh**

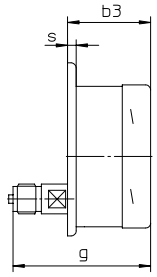


for NCS 250 (10") with 3 brackets



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

code letters **rRh**

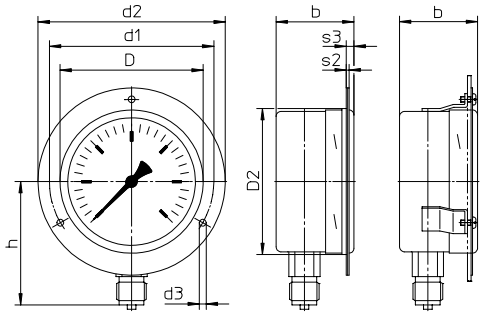


(available upon request, however not recommended according to DIN EN 837-1)

for NCS 250 (10") with 3 brackets

with front flange for panel mounting

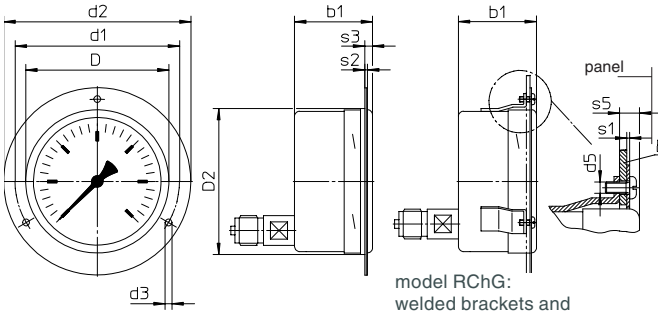
code letters **Fr**



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

model RChG: welded brackets and removable front flange

code letters **rFr**



model RChG: welded brackets and removable front flange

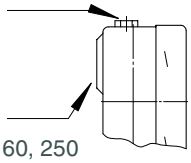
recommended panel cut out for NCS 100 (4") Ø 104 ±0.5 mm (4.09 ±0.02")
NCS 160 (6") Ø 164 ±0.5 mm (6.46 ±0.02")
NCS 250 (10") Ø 254 ±0.5 mm (10 ±0.02")

Dimensional Data (mm/inch) and Weight (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	20	23.5	55	55	58	58	6	3	20	19	101	99	103	116	132	4.8	M4	30	G ½B	½" NPT	97	96	87	84
4"	**0.79**	**0.93**	**2.17**	**2.17**	**2.28**	**2.28**	**0.24**	**0.12**	**0.79**	**0.75**	**3.98**	**3.9**	**4.06**	**4.57**	**5.2**	**0.19**		**1.18**	M20x1.5		**3.82**	**3.78**	**3.43**	**3.31**
160	15	18	50	55	53	58	6	3	20	19	161	159	163	178	196	5.8	M5	30	G ½B	½" NPT	92.5	91.5	115	114
6"	**0.59**	**0.71**	**1.97**	**2.17**	**2.09**	**2.28**	**0.24**	**0.12**	**0.79**	**0.75**	**6.34**	**6.26**	**6.42**	**7.01**	**7.72**	**0.23**		**1.18**	M20x1.5		**3.64**	**3.6**	**4.53**	**4.49**
250	15.5	17.5	58	58	60	60	6	3	20	19	251	249	–	270	285	5.8	–	52	G ½B	½" NPT	99	98	165	164
10"	**0.61**	**0.69**	**2.28**	**2.28**	**2.36**	**2.36**	**0.24**	**0.12**	**0.79**	**0.75**	**9.88**	**9.8**		**10.63**	**11.22**	**0.23**		**2.05**	M20x1.5		**3.9**	**3.86**	**6.5**	**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" (25 mm) for models RCh 100, 160, 250
Ø 40 mm (1 ½") for model RChG 100
with pressure equalising membrane

s	s1	s2	s3	s5	SW	SW1	approx. weight[1] 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**	

[1] data for version without mounting device

Ordering Information

Basic Model:	Bourdon Tube Pressure Gauge with Bayonet Ring Case										RCh
Case filling:	without										without code letters
	glycerin										**G**
	fillable version										**(G)**
Nominal case size:	case Ø 100, 160, 250 mm (4, 6, 10")										**100, 160, 250**
Wetted material:	copper alloy										**– 1**
	stainless steel										**– 3**
	Monel, 0 – 0.6 bar to 0 – 1 000 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 (not for NCS 250)										**– 6**
Case configuration:	case / connection					screwed					without code letters
						welded (type – 3 only, not for NCS 250)					**v**
	position of the connection					bottom connection					without code letters
						lower back connection					**r**
	mounting device					without					without code letters
						back flange for surface mounting					**Rh**
						front flange for panel mounting					**Fr**
Pressure ranges:	–1 200	/	0	mbar		–30" Hg	–	0 psi			
	–0.6	/	0	bar							
	–1	/	0	bar							
	–1	/	+0.6	bar		–30" Hg	–	15 psi			
	–1	/	+1.5	bar		–30" Hg	–	30 psi			
	–1	/	+3	bar		–30" Hg	–	60 psi			
	–1	/	+5	bar		–30" Hg	–	100 psi			
	–1	/	+9	bar		–30" Hg	–	160 psi			
	–1	/	+15	bar		–30" Hg	–	200 psi			
						–30" Hg	–	300 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	–	300 psi			
	0	–	25	bar		0	–	400 psi			
	0	–	40	bar		0	–	600 psi			
	0	–	60	bar		0	–	800 psi			
						0	–	1 000 psi			
	0	–	100	bar		0	–	1 500 psi			
	0	–	160	bar		0	–	2 000 psi			
						0	–	3 000 psi			
	0	–	250	bar		0	–	4 000 psi			
						0	–	5 000 psi			
	0	–	400	bar		0	–	6 000 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	– 1 and – 6	max. 0 – 1 000 bar				**G ½ B**
	options				½" NPT	– 3	max. 0 – 1 600 bar				**½" NPT**
					M 20x1.5						**M 20x1.5**
					G ¼ B[1]	– 1	max. 0 – 600 bar				**G ¼ B**
					¼" NPT[1]	– 3 and – 6	max. 0 – 1 000 bar				**¼" NPT**
					M 12x1.5[1]						**M 12x1.5**
					high pressure connection female thread (0 – 60 bar onwards) for ¼" tube, with 60° cone				M 16x1.5		**HP connection M 16x1.5**
									9/16" – 18 UNF		**HP connection 9/16" – 18 UNF**
Options:	see page 4										
Example:											**RCh 100 – 3 rFr, 0 – 6 bar, G ½ B**

[1] not for NCS 250 (10")

Ordering Information, Further Options

Basic Model:	Bourdon Tube Pressure Gauge with Bayonet Ring Case		RCh
Model code:			see page 3
Options:	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 stainless steel with window made of polycarbonate, screwed	
		adjustable externally — removable key	
		adjustable externally — non-removable key	
	min./max. drag indicator measuring spans 2.5 bar onwards	adjusting mechanism stainless steel with window made of polycarbonate, screwed	
		adjustable externally — removable key	
		adjustable externally — non-removable key	
	receiver gauge 0.2 – 1 bar (3 – 15 psi), scale 0 – 100 %	linear	
		square	
	indication accuracy grade 2A (±0.5 %)	according to ASME B 40.1[1]	
	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 (standard for – 3 and – 6)	
		silicone damped axle 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 up to 0 – 600 bar (0 – 10 000 psi)	adjustment ≤ 250 bar (3 000 psi) with dry air, ≥ 400 bar (5 000 psi) with distilled water, dial marking: symbol crossed out oil can	
	oxygen version up to 0 – 600 bar (0 – 10 000 psi)[2]	free of grease and oil as above, additional restrictor screw in the inlet port, orifice Ø 0.3 mm (0.01"), dial inscription: oxygen, no version according to DIN EN 837-1[3]	
	silicone-free version		
	version: DNV GL or Russian Sea Register **NCS 100, 160**	dial marking: symbol	
		copy of the certificate upon request	
	restrictor screw in the pressure inlet port, material: like process connection brass, stainless steel or Monel	orifice Ø 0.8 mm (0.03")	
		orifice Ø 0.6 mm (0.02") (not for Monel)	
		orifice Ø 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!

[1] for pressure ranges ≤ 10 000 psi
[2] for instruments without case filling
[3] DIN EN 837-1 in connection with oxygen version requires safety category S3