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 (ASME B40.100)
Grade 2A (±0.5 % of span)
Grade 1A (±1 % of span) for pressure ranges ≥ 0 – 15,000 psi

Case
With bayonet ring, 304 stainless steel

Degree of Protection (ANSI/IEC 60529-2020)
IP54
IP65 for model RChG 100 and
model RChG 160 (measuring spans ≥ 2.5 bar (30 psi))

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 1 ½" (40 mm)
Model RChG 160	blow-out device at the top of the case

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 (NCS)

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

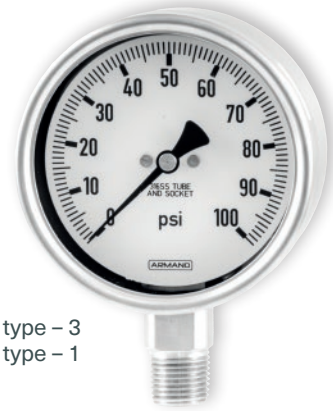
Wetted Parts

Type – 3	connection	304 stainless steel		
	Bourdon tube	304 stainless steel gas-shielded arc welding		
		≤ 40 bar	(600 psi)	c-form
		≥ 60 bar	(800 psi)	helical form
		1 600 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)	316L stainless steel 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 Range (ASME B40.100)
0 – 0.6 bar to 0 – 1,600 bar (0 – 10 psi to 0 – 35,000 psi) for type – 3
0 – 0.6 bar to 0 – 1,000 bar (0 – 10 psi to 0 – 15,000 psi) for type – 1



Process Connection
½" MNPT

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")
(Euro standard only)

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
- Sour gas resistant version according to NACE, MR0175

Special Versions Upon Request

- Other process connections
- Other pressure ranges and / or special scales, e.g. dual scale bar / psi, color 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 stainless steel
- 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
- Certificates and approvals, e.g. DNV (see also website)

Accessories

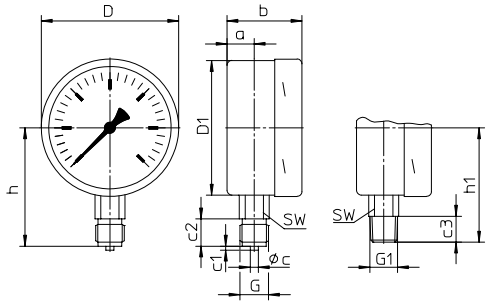
Chemical seals	see catalogue heading 7
Electrical	see catalogue heading 9.1
Other accessory	see catalogue heading 11

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

Bottom Connection

without mounting device

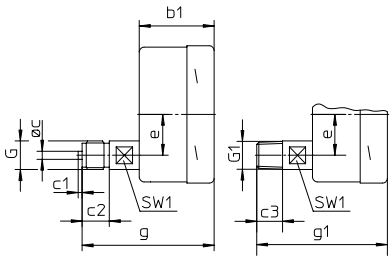
without code letters



Lower Back Connection

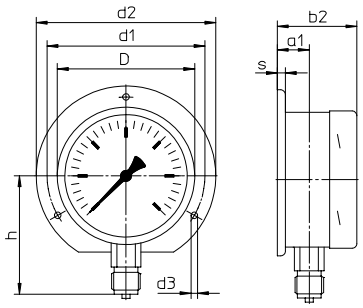
without mounting device

code letter **r**

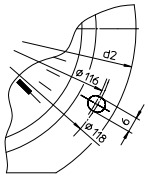


with back flange for surface mounting

code letters **Rh**

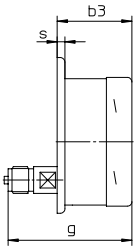


for NCS 250 (10") with 3 brackets



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

code letters **rRh**

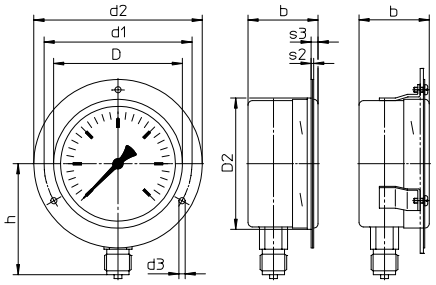


available upon request, however not recommended according to DIN EN 837-1

for NCS 250 (10") with 3 brackets

with front flange for panel mounting

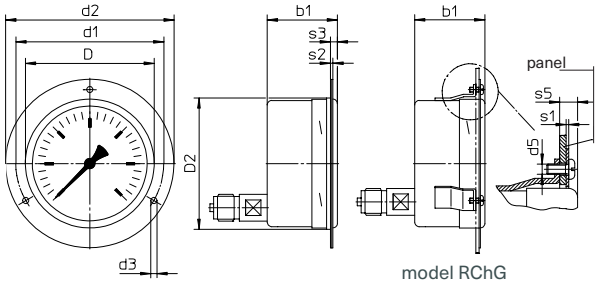
code letters **Fr**



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

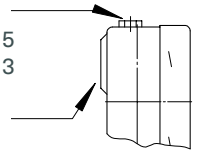
recommended panel cut out for NCS 100 (4") Ø 104 ±0.5 mm (4.09 ±0.02")
NCS 160 (6") Ø 164 ±0.5 mm (6.46 ±0.02")
NCS 250 (10") Ø 254 ±0.5 mm (10 ±0.02")

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 ½ B	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**	M 20x1.5		**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 ½ B	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**	M 20x1.5		**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 ½ B	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**	M 20x1.5		**3.9**	**3.86**	**6.5**	**6.46**

Blow-out Device

Blow-out device for model RChG 160
pressure range ≤ 1.6 bar (15 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 ½" (40 mm) for model RChG 100
with pressure equalising membrane

s	s1	s2	s3	s5	SW	SW1	approx. weight[1] RCh	approx. weight[1] 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**
	316L stainless steel									**– 3**
	Monel, 0 – 0.6 bar to 0 – 1,000 bar (0 – 10 psi to 0 – 15,000 psi), movement stainless steel, laminated safety glass, Bourdon tube Monel gas-shielded arc welding, ≤ 40 bar (≤ 600 psi) c-form, ≥ 60 bar (≤ 800 psi) helical form, bottom connection, optional r (not for NCS 250)									**– 6**
Case configuration	case / connection					screwed				without code letters
						welded (for type – 3, 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		
						0	–	25,000 psi		
						0	–	30,000 psi		
						0	–	35,000 psi		
Process connection	standard thread				½" MNPT					**½" MNPT**
	options				G ¼ B[1)3)]					**G ¼ B**
					¼" MNPT[2)3)]					**¼" MNPT**
					G ½ B					**G ½ B**
					M 20x1.5					**M 20x1.5**
					high pressure connection, female thread (≥ 0 – 60 bar (≥ 0 – 800 psi)) 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)] NCS 100 (4")
[2)] NCS 100, 160 (4", 6")

[3)] type – 1 max. 0 – 600 bar (0 – 10,000 psi), types – 3 and – 6 max. 0 – 1,000 bar (0 – 15,000 psi)

Ordering Information, Further Options

These options are to be ordered in written form. Please contact us to ensure compatibility when combining 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	
	adjusting mechanism **stainless steel** with window made of polycarbonate, screwed	
	adjustable externally	removable key
		non-removable key
Min. / max. drag indicator measuring spans ≥ 2.5 bar (30 psi)	adjusting mechanism **stainless steel** with window made of polycarbonate, screwed	
	adjustable externally	removable key
		non-removable key
Receiver gauge 0.2 – 1 bar (3 – 15 psi) scale 0 – 100 %	linear or square	
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, > 250 bar (3,000 psi) with distilled water dial marking: symbol crossed out oil can	
Oxygen version up to 0 – 600 bar (0 – 10,000 psi)[1)]	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[2)] (Euro standard only)	
Silicone-free version		
Restrictor screw in the pressure inlet port material: 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 instruments without case filling
[2)] DIN EN 837-1 in connection with oxygen version requires safety category S2 or S3