

# Bourdon Tube Test Gauges

Bayonet ring case stainless steel

**RFCh**  
**RFChG**

## 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 2000.

**Accuracy** (DIN EN 837-1)  
Class 0.6

### Case

With bayonet ring, stainless steel 304 (1.4301)

**Degree of Protection** (DIN EN 60529 / IEC 60529)  
IP54

IP65 for model RFChG 100 and  
model RFChG 160 (measuring spans  $\geq 2.5$  bar (30 psi))

### Blow-out Device

Model RFCh	blow-out plug in the back of the case, $\varnothing 1''$ (25 mm)
Model RFChG 100	blow-out plug in the back of the case, $\varnothing 40$ mm (1 1/2")
Model RFChG 160	blow-out device at the top of the case coverage

### Case Ventilation

Model RFChG via blow-out device

### Case Filling

Model RFChG glycerin

### Nominal Case Size

Model RFCh 100, 160, 250 mm (4, 6, 10")  
Model RFChG 100, 160 mm (4, 6")

### Wetted Parts

Type - 1 connection Bourdon tube	brass		
	$\leq 40$ bar (600 psi)	bronze, c-form soft-soldered	
	60 bar (800 psi)	CuBe, c-form silver brazed	
	$\geq 100$ bar (1 500 psi)	stainless steel 316L (1.4404)	helical form silver brazed
600 bar (10 000 psi)		NiFe-alloy	helical form silver brazed

Type - 3 connection Bourdon tube	stainless steel 316L (1.4404)		
	stainless steel 316L (1.4404)	gas-shielded arc welding	
	$\leq 40$ bar (600 psi)	c-form	
	$\geq 60$ bar (800 psi)	helical form	
$\geq 600$ bar (10 000 psi)	NiFe-alloy	helical form	

### 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) - u-clamp for panel mounting (BFr)



### Pressure Range

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

RFChG 0 - 2.5 to 0 - 600 bar (0 - 30 to 0 - 10 000 psi) for type - 1  
0 - 2.5 to 0 - 1 600 bar (0 - 30 to 0 - 20 000 psi) for type - 3

### Process Connection

G 1/2 B, 1/2" NPT or M20x1.5

### Window

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

### Movement

Brass / German silver, low friction

### Dial

Aluminum white, scale black

### Pointer

Knife edge pointer, aluminum black

### Safety Category According to DIN EN 837-1

S1 pressure gauges with blow-out device

## Ordering Information, Standard Pressure Ranges, Options

See pages 3 and 4

## Further Options

- Bleeding port at the Bourdon tube tip (unfilled instruments only)
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock or other than vertical installation (90°) for unfilled models

## Special Versions Upon Request

- Other process connections
- Other pressure ranges and/or special scales, e.g. dual scale bar / psi, coloured fields or ranges, dial inscriptions, negative scale
- Case parts 316L (1.4404)
- Increased degree of protection, e.g. IP65 without case filling
- Other case fillings
- Other position of connection
- Certificates and approvals, e.g. GOST (see also website)
- Sealable

## Accessories

Upon request

[www.armano-messtechnik.com](http://www.armano-messtechnik.com)

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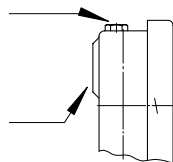
# Case Configurations, Code Letters, Dimensional Data and Weight, Blow-out Device

Bottom Connection										Lower Back Connection									
without mounting device																			
without code letters										code letter r									
with back flange for surface mounting																			
code letters Rh										code letters rRh									
<p>for NCS 250 (10") with 3 brackets</p> <p>NCS 100 (4") back flange for surface mounting optionally available with slotted holes according to DIN EN 837-1</p>										<p>for NCS 250 (10") with 3 brackets</p> <p>available upon request, however not recommended according to DIN EN 837-1</p>									
with front flange for panel mounting																			
code letters Fr										code letters rFr									
<p>model RFChG welded brackets and removable front flange</p>										<p>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")</p> <p>model RFChG welded brackets and removable front flange</p>									
available upon request, however not recommended according to DIN EN 837-1																			
with u-clamp for panel mounting																			
										code letters rBFr									
										<p>RFCh 160 (not available with case filling)</p>									

Dimensional Data (mm / inch) and Weight (kg / lb)																				
NCS	a	a1	b	b1	c	c1	c2	c3	D	D1	d1	d2	d3	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	6 0.24	3 0.12	20 0.79	19 0.75	101 3.98	99 3.9	116 4.57	132 5.2	4.8 0.19	30 1.18	97 3.82	96 3.78	G½B M20x1.5	½" NPT	87 3.43	84 3.31
160 6"	15.5 0.61	19 0.75	51 2.01	54 2.13	6 0.24	3 0.12	20 0.79	19 0.75	161 6.34	167 6.57	178 7.01	196 7.72	5.8 0.23	52 2.05	92.5 3.64	91.5 3.6	G½B M20x1.5	½" NPT	115 4.53	114 4.49
250 10"	15.5 0.61	17.5 0.69	58 2.28	60 2.36	6 0.24	3 0.12	20 0.79	19 0.75	251 9.88	-	270 10.63	285 11.22	5.8 0.23	52 2.05	97 3.82	96 3.78	G½B M20x1.5	½" NPT	165 6.5	164 6.46

## Blow-out Device

Blow-out device for model RFChG 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 RFCh 100, 160, 250  
 Ø 40 mm (1 ½") for model RFChG 100  
 with pressure equalising membrane

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

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

## Ordering Information

Basic Model		Bourdon Tube Test Gauge with Bayonet Ring Case		RFCh
Case filling	without			without code letters
	glycerin			<b>G</b>
	fillable version			<b>(G)</b>
Nominal case size	case Ø 100, 160, 250 mm (4, 6, 10")		<b>100, 160, 250</b>	
Wetted material	copper alloy			- 1
	stainless steel			- 3
Case configuration	case / connection	screwed	without code letters	
	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>		
	u-clamp for panel mounting	<b>BFr</b>		
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	<b>e.g. 0 - 6 bar</b>
	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 for type - 3	0	15 000 psi		
0 - 1 600 bar for type - 3	0	20 000 psi		
Process connection	standard thread	G ½ B	<b>G ½ B</b>	
		½" NPT	<b>½" NPT</b>	
		M 20x1.5	<b>M 20x1.5</b>	
	options	G ¼ B <sup>1)3)</sup>	<b>G ¼ B</b>	
		¼" NPT <sup>2)3)</sup>	<b>¼" NPT</b>	
Options	see page 4			
<b>Example</b>				<b>RFCh 100 - 1, 0 - 6 bar, G ½ B</b>

<sup>1)</sup> NCS 100 (4")

<sup>2)</sup> NCS 100, 160 (4, 6")

<sup>3)</sup> type - 1 max. 0 - 600 bar (0 - 10 000 psi), type - 3 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.

<b>Red mark</b>	on the dial
<b>Plastic clip</b>	red or green, external at the bayonet ring (NCS 100, 160)
<b>Stationary red pointer</b>	on the dial adjustable with removable ring adjusting mechanism <b>stainless steel</b> (NCS 160) with window made of polycarbonate, screwed adjustable externally removable key non-removable key
<b>Min. / max. drag indicator</b> measuring spans $\geq 2.5$ bar (30 psi) (NCS 160)	adjusting mechanism <b>stainless steel</b> with window made of polycarbonate, screwed adjustable externally removable key non-removable key
<b>Mirror scale</b>	for parallax-free reading
<b>Test gauge</b>	<b>Grade 3A</b> (indication accuracy $\pm 0.25$ %), mirror scale
<b>Indication accuracy</b>	cl. 0.25 according to DIN EN 837-1 mirror scale for model RFCh 250 – 1
<b>Zero adjustment</b>	via turnable dial $\pm 5$ scale graduation marks adjusting mechanism on the front side for model RFCh (NCS 160, 250)
<b>Special adjustment</b>	for liquid media (pressure ranges up to 0 – 25 bar (0 – 400 psi)) for gaseous media (pressure ranges from 0 – 40 to 0 – 400 bar (0 – 600 to 0 – 6000 psi))
<b>Movement</b>	stainless steel with jewel bearing
<b>Case ventilation no. 22</b>	for outdoor installation (NCS 100, 160)
<b>Case polished</b>	
<b>Bayonet ring polished</b>	
<b>Leak test of the measuring unit</b>	with helium leak detection up to $10^{-9}$ mbar l/s for type – 3
<b>Wetted parts free of grease and oil</b> up to 0 – 400 bar (0 – 6000 psi)	adjustment $\leq 40$ bar (600 psi) with dry air, $\geq 60$ bar (800 psi) with distilled water dial marking: symbol crossed out oil can
<b>Oxygen version</b> up to 0 – 400 bar (0 – 6000 psi) <sup>1)</sup>	free of grease and oil as above, additional restrictor screw in the inlet port, orifice $\varnothing 0.3$ mm (0.01"), dial inscription: oxygen no version according to DIN EN 837-1 <sup>2)</sup>
<b>Silicone-free version</b>	
<b>Restrictor screw</b> in the pressure inlet port material: brass or stainless steel	orifice $\varnothing 0.8$ mm (0.03") orifice $\varnothing 0.6$ mm (0.02") orifice $\varnothing 0.3$ mm (0.01")
<b>Instrument tag</b>	stainless steel plate 12 x 55 mm (0.47 x 2.17"), wire mounting sticker on the case coverage
<b>Flame arrester Adapt FS</b>	variant 5 according to data sheet 11001

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

<sup>1)</sup> for instruments without case filling

<sup>2)</sup> DIN EN 837-1 in connection with oxygen version requires safety category S2 or S3