Test Gauges Bourdon Tube Type
Bayonet Ring Case Stainless Steel
Standard (RFCh) or Liquid Filled (RFChG)

160 (6") Accuracy Class
NG: 250 (10") 0.6 EN 837-1

R F C h
RFChG

Application
Testing and comparing process instruments, and measuring services where high accuracy is required. Pressure ranges up to 0-25 bar (400 psi) for gaseous media, dial marked with "G", 0-40 bar (600 psi) and up for liquid media (dial marked with "F"). Stainless steel case with high chemical resistance.

Nominal Case Size (NG)
Model RFCh: 160 mm (6"), 250 mm (10"), model RFChG: 160 (6")

Accuracy
Class 0.6 according to EN 837-1

Pressure Ranges (EN 837-1)
Version –1 * = 0-0.6 ... 0- 600 bar or 0-10 psi ... 0-10,000 psi
Version –3* = 0-0.6 ... 0-1,600 bar or 0-10 psi ... 0-30,000 psi
Model RFCh**G** 0-2.5 bar resp. 0-30 psi and up for all versions
also vacuum and compound ranges (*see below)

Pressure Limitations

Steady pressure:	full scale value
Cyclic pressure:	90% of full scale value
Overpressure:	130% of full scale value

Protection Type (EN 60529 / IEC 529)
Model RFCh: IP 54 / Model RFChG 160: IP 65
Further information about advantages, specifications, temperature limitations and pressure ranges of test gauges can be found in our **model overview 2000.**

Standard Configuration

Connection
G ½ B (½" BSP), optionally ½" NPT, bottom connection (standard) or lower back connection (code letter **r)**

Wetted Parts

Ordering Code **–1**:Socket:		= brass
Bourdon tube:		
< 40 bar	(<600 psi)	= bronze, C-form, soft soldered
60 bar	(>800 psi)	=copper/beryllium, C-form, silver brazed
> 100 bar	(>1,500 psi)	=316 stainless steel (1.4571), helical, silver brazed
Ordering Code **–3:** Socket:		= 316 stainless steel (1.4571) Bourdon tube:
< 40 bar	(<600 psi)	=316 stainless steel (1.4571), C-form, argon arc welded
> 60 bar	(>800 psi)	=316 stainless steel (1.4571), helical, argon arc welded
> 1000 bar	(>15,000 psi)	= NiFe alloy, helical, argon arc welded

Movement
Brass/German silver, low friction

Dial
Aluminum alloy, black figures, white background

Pointer
Knife edge pointer aluminum alloy black

Case and Bayonet Ring
304 stainless steel (1.4301)

Case Filling
Model RFChG 160 only: Glycerine

Lens
Version –3: laminated safety glass, version –1 single strength glass

Safety Features
Model RFCh: 1" blow-out in the back of the case
Model RFChG: top blow-out assembly

Optional Special Configurations

Test gauge Grade 3A ASM E (± 0.25%), parallax-free mirror scale
Accuracy class 0.25 EN 837-1, with parallax-free mirror scale, for RFCh 250–1; for –3 and NCS 160 upon request
Zero adjustment by a turnable dial (± 5 scale graduations), knurled adjustment screw at the right side, for models RFCh 160, 250
Parallax-free mirror scale
Case size 100 (4") upon request
Process connection ¼" NPT or M 20 x 1,5, others upon request
Inlet port restrictor screw brass or stainless steel
Movement stainless steel with jewel bearing
Maximum indicating pointer, external adjustment, acrylic glass lens (pressure ranges > 2.5 bar or 30 psi)
Acrylic glass lens, or for version –1 laminated safety glass lens
Special scales, such as dual scales, e.g. bar/psi
Receiver gauge 0.2-1 bar or 3-15 psi
Top or side connection or installation not vertical, e.g. 90° to the right side (right side from a viewer's perspective)
Bleeding port at the tip of the Bourdon tube for models RFCh
Version –1, pressure ranges > 100 bar with Bourdon tube made of hardened, tempered alloy steel, C-form, screwed together
Wetted parts monel (ordering code **–6)** up to range 0-400 bar (6,000 psi)
Electrical accessories upon request

How to Order:

Model code/nom. size: **RFCh 160 or 250** (dry version)
RFChG 160 (glycerine filled)
RFCh(G) 160 (fillable version)

Wetted parts: ordering code **–1** or **–3**
(compare left)

Case configuration: code letters: **r, Rh, rRh, rFr**
(see reverse side) RFCh 160 also: **rBFr**
(standard case = bottom connection = without code letter)

Pressure range: acc. to EN or ASME, e.g. **0-6 bar**

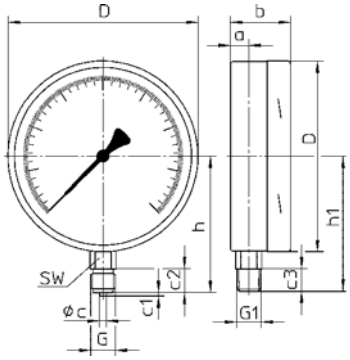
Process connection: **G ½ B** (½" BSP) (= standard) or ½" NPT (others see above)

Special configurations: see above)

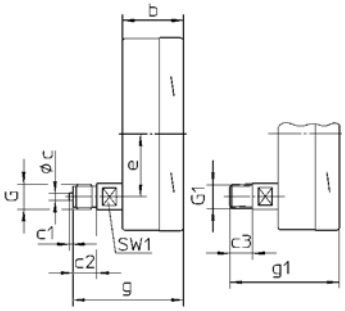
Examples for Ordering Information:
RFChG 160–3, rFr, 0-6 bar, ½" BSP
RFCh 250–1, -1/+9 bar, ½" NPT

Case Configurations, Code Letters, Dimensional Data, and Weight

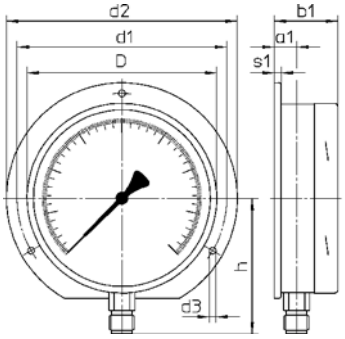
Bottom connection,
without code letter



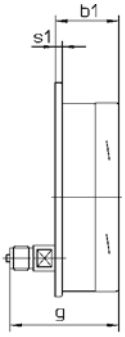
Lower back connection,
code letter: **r**



Bottom connection,
rear flange[1)],
code letters: **Rh**

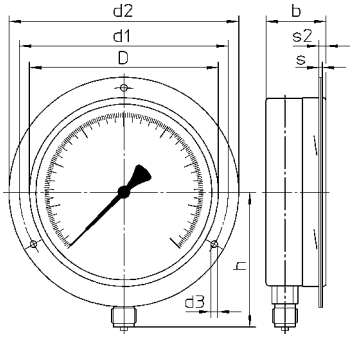


Lower back connect.,
rear flange[1)],
code letters: **rRh**



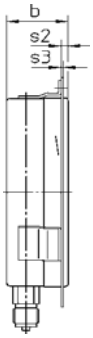
Bottom connection,
front flange,
code letters: **Fr**

Models RFCh 160, RFCh 250:



Front flange, NCS 160 with longholes, attached to the case, and a separate cover front flange

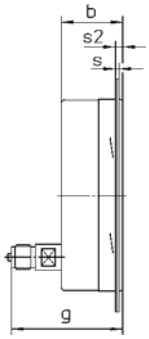
Model RFCh**G** 160:



Mounting brackets welded to the case, and a separate front flange

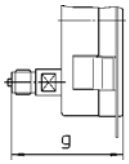
Lower back connection,
front flange,
code letters: **rFr**

Models RFCh 160, RFCh 250:



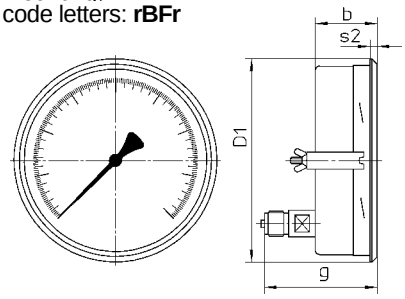
Front flange, NCS 160 with longholes, attached to the case, and a separate cover front flange

Model RFCh**G** 160:



Mtg. brackets welded to the case, and a separate front flange

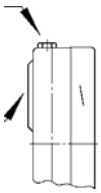
Model RFCh 160 only (liquid filled case not available):
Lower back connection, U-clamp for panel mounting,
code letters: **rBFr**



Safety Blow-Outs

Top blow-out assembly
RFChG 160

Optionally:
1" Blow-out (25,4 mm)
RFCh 160 , RFCh 250



Dimensional Data (mm **/ inches) and Weight (** kg **/ lb)**

Nominal Case Size	a	a1	b	b1	c	c1	c2	c3	D	D1	d1	d2	d3	e	g	g1
160		19	51	54					161	167	178	196			92.5	91.5
6"	15.5	**.75**	**2.01**	**2.13**	6	3	20	19	**6.34**	**6.57**	**7.08**	**7.72**	5.8	52	**3.64**	**3.60**
250	**.61**	17.5	58	60	**.24**	**.12**	**.79**	**.75**	251		270	285	**.23**	**2.05**	97	96
10"		**.69**	**2.28**	**2.36**					**9.88**	**—**	**10.63**	**11.22**			**3.82**	**3.78**

Nominal Case Size	G	G1	G2	h	h1	s	s1	s2	s3	SW	SW1	RFCh Weight (approx.)	RFChG Weight (approx.)
160				115	114	2.5	6	6	1.5			1.100	1.950
6"	G ½ B			**4.53**	**4.49**	**.10**	**.24**	**.24**	**.06**	22	17	**2.43**	**4.30**
250	**½" BSP**	½" NPT	M 20 x 1,5	165	164	2	2	7	2	**.87**	**.67**	0	
10"				**6.50**	**6.46**	**.08**	**.08**	**.27**	**.08**			**4.63**	

[1)] NG 250 with mounting brackets welded to the case

The information in this leaflet is given in good faith, but we reserve the right to make changes without notice.

Test Gauges, Bourdon Tube Type
Bayonet Ring Case Carbon Steel
Standard (RFB) or Liquid Filled (RFBG)

NG: 160 (6")
250 (10")

Accuracy Class 0.6 EN 837-1

Models **RFB**
RFBG

Applications
Testing and comparing process instruments, and measuring services where high accuracy is required (indoor use only). Pressure ranges up to 0-25 bar (400 psi) for gaseous media, dial marked with "G", 0-40 bar (600 psi) and up for liquid media (dial marked with "F").

Nominal Case Sizes (NG)
Model RFB: 160 mm (6"), 250 mm (10"), model RFBG: 160 (6")

Accuracy
Class 0.6 according to EN 837-1

Pressure Ranges (EN 837-1)
Version –1 * = 0-0.6 ... 0- 600 bar or 0-10 psi ... 0-10,000 psi
Version –3* = 0-0.6 ... 0-1,600 bar or 0-10 psi ... 0-30,000 psi
Model RFB**G** 0-2.5 bar resp. 0-30 psi and up for all versions
also vacuum and compound ranges (*see below)

Pressure Limitations
Steady pressure: full scale value
Cyclic pressure: 90% of full scale value
Overpressure: 130% of full scale value (temporary)

Protection Type (EN 60529 / IEC 529)
Model RFB: IP 54, model RFBG: IP 65

Further information about advantages, specifications, temperature limitations and pressure ranges of test gauges can be found in our **model overview 2000.**

Standard Configuration

Connection
G ½ B (½" BSP), optionally ½" NPT, bottom connection (standard) or lower back connection (code letter **r)**

Wetted Parts

Ordering Code **–1**:Socket:		= brass
	Bourdon tube:	
	< 40 bar (< 600 psi)	= bronze, C-form, soft soldered
	60 bar (>800 psi)	=copper/beryllium, C-form, silver brazed
	> 100 bar (>1,500 psi)	=316 stainless steel (1.4571), helical, silver brazed
Ordering Code **–3:** Socket:		= 316 stainless steel (1.4571)
	Bourdon tube:	
	< 40 bar (< 600 psi)	=316 stainless steel (1.4571), C-form, argon arc welded
	> 60 bar (>800 psi)	=316 stainless steel (1.4571), helical, argon arc welded
	> 1000 bar (>15,000 psi)	=NiFe alloy, helical, argon arc welded

Movement
Brass/German silver, low friction

Dial
Aluminium alloy, black figures, white background

Pointer
Knife edge pointer aluminium alloy black

Case and Bayonet Ring
Carbon steel black

Case Filling
Model RFBG 160 only: Glycerine

Lens
Single strength glass, 0-1600 bar (> 0-20,000 psi) laminated safety glass

Safety Features:
RFBG: Top blow-out assembly
RFB with 0-1600 bar (> 0-20,000 psi) : 1" Blow-out in the case back

Optional Special Configurations

Test gauge Grade 3A ASM E (± 0.25%), parallax-free mirror scale
Accuracy class 0.25 EN 837-1, with parallax-free mirror scale, for RFB 250–1; for –3 and NCS 160 upon request
Zero adjustment by a turnable dial (± 5 scale graduations), knurled adjustment screw at the right side, for models RFB 160, 250
Parallax-free mirror scale
Case size 100 (4") upon request
Process connection ¼" NPT or M 20 x 1,5, others upon request
Inlet port restrictor screw brass or stainless steel
Movement stainless steel with jewel bearing
Maximum indicating pointer, external adjustment, acrylic glass lens (pressure ranges > 2.5 bar or 30 psi)
Acrylic glass or laminated safety glass lens
1" blow-out relief on the back of the case for model RFB
Special scales, such as dual scales, e.g. bar/psi
Receiver gauge 0.2-1 bar or 3-15 psi
Top or side connection or installation not vertical, e.g. 90° to the right side (right side from a viewer's perspective)
Bleeding port at the tip of the Bourdon tube for models RFB 160, 250
Version –1, pressure ranges > 100 bar with Bourdon tube made of hardened, tempered alloy steel, C-form, screwed together
Wetted parts monel (ordering code **–6)** up to range 0-400 bar (6,000 psi)
Electrical accessories upon request

How to Order:

Model code/case size: **RFB 160 (6")** or **RFB 250 (10")**
RFBG 160 (6")

Wetted parts: **–1** or **–3** (compare left) or **–6** (see above)

Case configuration: **r, Rh, rRh, Fr, rFr**
(see reverse side) **rBFr** (model RFB 160 only)
(Standard case = bottom connection = without code letter)

Pressure range: according to EN 837-1, e.g. **0-6 bar**
(compare general info. leaflet 2000)

Process connection: **½" BSP** (= standard) or **½" NPT**
(others see above)

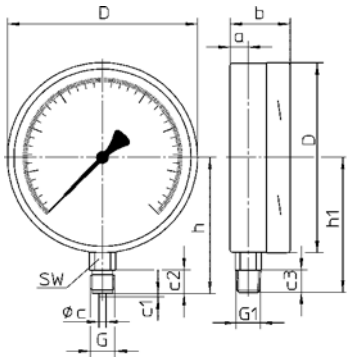
Special configurations: (see above)

Examples for Ordering Information:
RFBG 160–3, rFr, 0-6 bar, G ½ B RFB
250–1, -1/+9 bar, ½" NPT

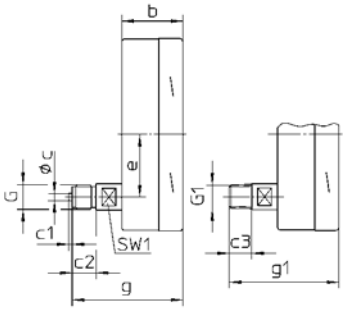
Subsidiary Company and Sales East Germany and Eastern Europe

Case Configurations, Code Letters, Dimensional Data and Weight

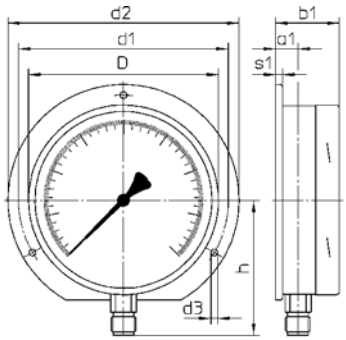
Bottom connection,
without code letter



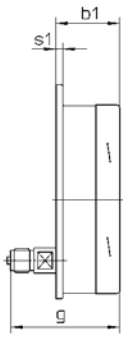
Lower back connection,
code letter: **r**



Bottom connection,
rear flange,
code letters: **Rh**

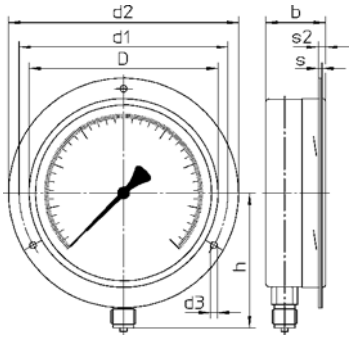


Lower back connection,
rear flange,
code letters: **rRh**



Bottom connection,
front flange,
code letters: **Fr**

Models RFB 160, RFB 250:



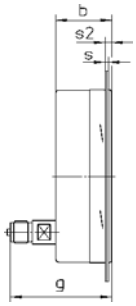
Front flange, NCS 160 with long holes, attached to the case, and a separate cover front flange

Model RFB**G** 160:

Mounting brackets welded to the case, and a separate front flange

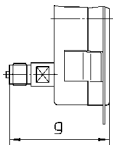
Lower back connection,
front flange,
code letters: **rFr**

Models RFB 160, RFB 250:



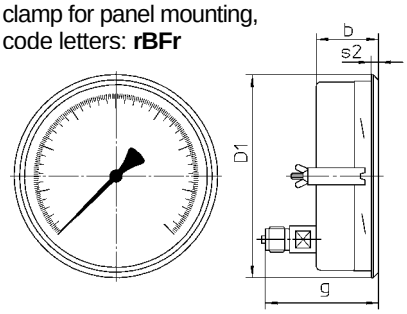
Front flange, NCS 160 with long holes, attached to the case, and a separate cover front flange

Model RFB**G** 160:



Mounting brackets welded to the case, and a separate front flange

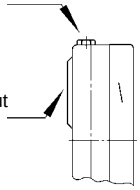
Model RFB 160 onlv (liquid filled case not available):
Lower back connection, U-clamp for panel mounting,
code letters: **rBFr**



Safety Blow-Outs

Top blow-out assembly
RFBG 160

Optionally: 1" Blow-out
Ø 25.4 mm RFB 160,
RFB 250



Dimensions (mm / inches) and Weight (kg / lb)

NCS	a	a1	b	b1	c	c1	c2	c3	D	D1	d1	d2	d3	e	g	g1
160 **6"**	15.5 **.61**	19 **.75**	51 **2.01**	54 **2.13**	6 **.24**	3 **.12**	20 **.79**	19 **.75**	161 **6.34**	167 **6.57**	178 **7.08**	196 **7.72**	5 .8 **.23**	52 **2.05**	92.5 **3.64**	91.5 **3.60**
250 **10"**		17.5 **.69**	58 **2.28**	60 **2.36**					251 **9.88**	**—**	270 **10.63**	285 **11.22**			97 **3.82**	96 **3.78**

	G	G1	h	h1	s	s1	s2	s3	SW	SW1	Weight (approx.) RFB	Weight (approx.) RFBG
160 **6"**	G½ B **½" BSP** optionall y M 20x1.5	½" NPT	115 **4.53**	114 **4.49**	2.5 **.10**	6 **.24**	6 **.24**	1.5 **.06**	22 **.87**	17 **.67**	1.10 **2.50**	1.95 **4.50**
250 **10"**			165 **6.50**	164 **6.46**	2 **.08**	2 **.08**	7 **.28**	2 **.08**			2.10 **4.90**	—

1) NCS 250 with welded mounting brackets