Bourdon tube vacuum gauge, stainless steel

For the process industry, standard version

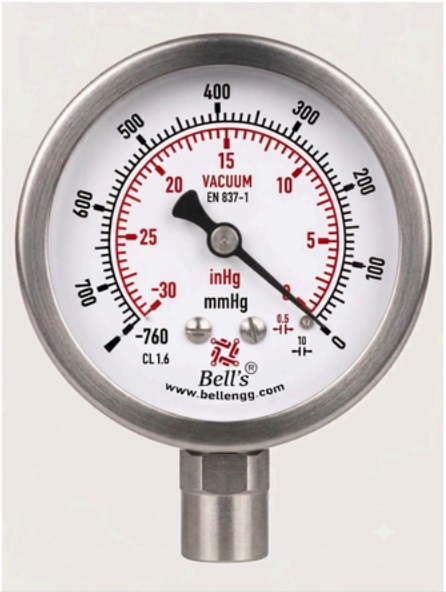
Models BEN22GVG/WVG 63 [2 ½"], 100 [4"] and 160 [6"]

Applications

- For gaseous and liquid media that will not obstruct the pressure system
- Pumps, compressors and refrigerating plants
- Chemical and petrochemical industries
- Food & beverage and pharmaceutical
- Hydro-cleaning machines and process plants

Special features

- Stainless steel case & measuring system
- Dry and liquid-filled versions
- Vacuum range -1 to 0 bar / -30 to 0 inHg
- EN 837-1 standard
- Available in 63 mm, 100 mm and 160 mm sizes



Bourdon tube vacuum gauge, model BEN22GVG/WVG

Description

This high-quality Bourdon tube vacuum gauge has been designed especially for the process industry.

The use of high-quality stainless steel materials and the robust design make the instrument suitable for process applications and gaseous or liquid media that will not obstruct the pressure system.

Vacuum range: -1 to 0 bar [0 to -760 mmHg].

Bell Engineering manufactures vacuum gauges for industrial applications in accordance with EN 837-1.

The instrument is available with dry or liquid-filled case options for applications involving vibration, pulsation and dynamic operating conditions.

Standard nominal sizes: 63 mm, 100 mm and 160 mm.

Specifications

Basic information	
Standard	■ EN 837-1 ■ ASME B40.100
Further version	■ Oil- and grease-free for oxygen ■ For use in H_2S-containing environments ■ Pre-volume deflagration flame arrestor
Nominal size (NS)	■ Ø 63 mm [2 ½"] ■ Ø 100 mm [4"] ■ Ø 160 mm [6"]
Connection location	■ Lower mount (radial) ■ Lower back mount ■ Centre back mount (NS 63 [2 ½"])
Window	Laminated safety glass (NS 63 [2 ½"]: Polycarbonate)
Case	
Design	Safety level “S1” per EN 837-1 Blow-out device at circumference / back Vacuum range up to -1 bar
Material	■ Stainless steel 1.4301 (304) ■ Stainless steel 1.4571 (316Ti)
Ring	Bayonet ring, stainless steel
Mounting	■ Without ■ Panel mounting flange, stainless steel ■ Polished stainless steel flange ■ Triangular profile ring with mounting bracket ■ Surface mounting flange, stainless steel
Case filling (model 233.50)	■ Without ■ Glycerine ■ Glycerine-water mixture
Movement	■ Stainless steel ■ Stainless steel 1.4404 (316L)
Measuring element	
Type of measuring element	Bourdon tube, C-type or helical type
Material	Stainless steel 1.4404 (316L)
Leak tightness	■ Helium tested: < $5 \cdot 10^{-3}$ mbar l/s ■ Helium tested: < $1 \cdot 10^{-6}$ mbar l/s
Movement	■ Stainless steel ■ Stainless steel 1.4404 (316L)

Accuracy specifications		
Accuracy class		
NS 63 [2 ½"]	■ EN 837-1	Class 1.6
	■ ASME B40.100	±2 % | ±1 % | ±2 % of measuring span (grade A)
NS 100 [4"], 160 [6"]	■ EN 837-1	Class 1.0
	■ ASME B40.100	±1 % of measuring span (grade 1A)
Temperature error	On deviation from the reference conditions at the measuring system: ≤ ±0.4 % per 10 °C [≤ ±0.4 % per 18 °F] of full scale value	
Reference conditions		
Ambient temperature	+20 °C [+68 °F]	

Vacuum scale ranges

bar	
-1 ... 0	Vacuum

kg/cm²	
-1 ... 0	Vacuum

kPa	
-100 ... 0	Vacuum

MPa	
-0.1 ... 0	Vacuum

psi	
-30 inHg ... 0	Vacuum

mmHg	
-760 ... 0	Vacuum

Typical vacuum scale: -1 to 0 bar / -100 to 0 kPa / -30 to 0 inHg / -760 to 0 mmHg

Other vacuum or compound scale ranges available on request.

Vacuum scale ranges

bar	
-1 ... 0	Vacuum

kPa	
-100 ... 0	Vacuum

psi / inHg	
-30 inHg ... 0	Vacuum

mmHg	
-760 ... 0	Vacuum

Further details on scale ranges	
Special scale ranges	Other scale ranges on request
Unit	■ bar ■ kPa ■ MPa ■ psi ■ inHg ■ mmHg
Vacuum resistance	■ Without ■ Vacuum-resistant to -1 bar
Dial	Scale colour: Black Material: Aluminium Special scale: Without / refrigerant temperature scale on request
Pointer	Instrument pointer: Aluminium, black Mark pointer/drag pointer: Without or adjustable options
Pointer stop pin	■ Without ■ At zero point (only for NS 63 [2 ½"]) ■ At 6 o'clock (only for NS 100 [4"], 160 [6"])

Process connection	
Standard	■ EN 837-1 ■ ISO 7 ■ ANSI/B1.20.1
Size	
EN 837-1	■ G ⅛ B, male thread ■ G ¼ B, male thread ■ G ½ B, male thread ■ M12 x 1.5, male thread ■ M20 x 1.5, male thread
ISO 7	■ R ¼, male thread ■ R ½, male thread
ANSI/B1.20.1	■ ¼ NPT, male thread ■ ½ NPT, male thread
Restrictor	■ Without ■ Ø 0.6 mm [0.024"], stainless steel ■ Ø 0.3 mm [0.012"], stainless steel
Material (wetted)	
Process connection	Stainless steel 1.4404 (316L)
Bourdon tube	Stainless steel 1.4404 (316L)

→ Other process connections on request

Operating conditions	
Medium temperature	
Unfilled instruments	-40 ... +200 °C [-40 ... +392 °F]
Instruments with glycerine filling	-20 ... +100 °C [-4 ... +212 °F]
Instruments with silicone oil filling	-40 ... +100 °C [-40 ... +212 °F]
Ambient temperature	
Unfilled instruments or with silicone oil filling	-40 ... +60 °C [-40 ... +140 °F]

Vacuum measurement range

Vacuum range	
Standard range	-1 ... 0 bar | -100 ... 0 kPa
Reference vacuum scale	-30 inHg ... 0 | -760 mmHg ... 0

Ingress protection per IEC/EN 60529 ■ IP65 ■ IP68