

## Absolute pressure gauge with diaphragm per EN 837-3, chemical design NS 100/160, Type series BB2...



### Application area

- Machinery construction
- Chemical and petrochemical industry
- General process technology
- Shipping

### Features

- Absolute pressure gauge with diaphragm
- Nominal ranges 0...60 to 0...2500 mbar abs
- With integrated differential pressure chamber, therefore the measurement is independent from atmospheric pressure
- High quality case with bajonet ring NS 100/160 per EN 837-1 S1
- Case and measuring element of stainless steel, diaphragm of Duratherm
- Accuracy class 1.6 as per EN 837-3
- Highly overload protected
- Degree of protection IP 65

### Options

- Approvals/Certificates
  - Explosion protection (ATEX) for mechanical devices
  - Certificate of measuring equipment for Russian Federation
  - Material certificate per EN 10204
  - Calibration certificate per EN 10204
- Electrical contact device, see data sheet D3-031
- Electronical angle-of-rotation sensor, Type series PL1100, see data sheet D6-020
- Extended temperature range
- Connection to Zone 0
- Open measuring flange per DIN/ASME
- Safety case per EN 837-1 S3
- Case with liquid filling and degree of protection IP 66
- EAC declaration (upon request)

### Application

Suitable for measuring liquids and gases. With open measuring flange designed for viscous media and media containing solids, too. The device is fitted with a vacuum chamber, which is sealed off from the process by a diaphragm. Thus, enabling absolute pressures to be measured.

## Technical data

### Constructional design / case

Design:	High quality case with bayonet ring per EN 837-1 S1, material: stainless steel mat.-no.-1.4301 (304) ; with blow-out device, material: PUR, ventilation valve, material: PUR  Alternative: Safety design with blow-out back and solid baffle wall per EN 837-1 S3, Material: Stainless steel 1.4301 (304)
Nominal size:	NS 100 or NS 160
Degree of protection per EN 60529:	<ul style="list-style-type: none"> <li>■ Without filling: IP 65</li> <li>■ With filling, S3 case: IP 66</li> </ul>
Case filling:	Option: Glycerine-water Further liquid fillings upon request.
Case seal:	Material gasket: NBR
Pressure chamber seal:	Material gasket: NBR
Vacuum-reference:	The device is fitted with a vacuum chamber which is sealed off from the process by a diaphragm. Thus, enabling absolute pressure to be measured.
Window:	Non-splintering laminated glass. Option: Non-splintering plastic (Macrolon)
Measuring element:	Diaphragm
Movement:	Stainless steel segment
Scale:	Pure aluminium, white with black inscription  Optional with red marking or with fixed reference pointer. Special scale upon request
Pointer:	Pure aluminium, black, with micro adjustment for zero point correction
Mounting:	Via process connection
Weights:	NS 100:  Flange Ø 100 without filling: approx. 2.2 kg  Flange Ø 160 without filling: approx. 3.8 kg  Flange Ø 100 with filling: approx. 2.5 kg  Flange Ø 160 with filling: approx. 4.1 kg

Weights:	NS 160:
	Flange Ø 100 without filling: approx. 2.6 kg
	Flange Ø 160 without filling: approx. 4.2 kg
	Flange Ø 100 with filling: approx. 3.3 kg
	Flange Ø 160 with filling: approx. 4.9 kg

### Process connection

Design:	Per EN 837-3, G1/2 B, 1/2" NPT or open measuring flange. Further process connections upon request.
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### Material wetted parts

Measuring element:	Diaphragm: Duratherm (similar resistance as mat.-no. 1.4571 (316Ti)) Measuring flange: stainless steel mat.-no. 1.4571 (316Ti)
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### Nominal range

See order details, further ranges upon request

Overload protection:	Nominal ranges up to 250 mbar abs: overload protected up to 5 bar Nominal ranges $\geq$ 250 mbar abs: overload protected up to 10 bar
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### Accuracy

Accuracy class:	1.6 per EN 837-3
Temperature influence:	Max. $\pm$ 0.8% / 10K of measuring span per EN 837-3.

### Temperature ranges

	without filling	with filling
Ambient:	-20...70 °C	-20...70 °C (60 °C) <sup>1</sup>
Media: <sup>2</sup>	-20...110 °C	-20...70 °C (60 °C) <sup>1</sup>
Storage:	-40...70 °C	-40...70 °C (-20...60 °C) <sup>1</sup>

Extended temperature range (optional):

	without filling	with filling
Ambient:	-40...100 °C	-40...80 °C (60 °C) <sup>1</sup>
Media: <sup>2</sup>	-40...150 °C	-40...150 °C

<sup>1</sup> Safety case S3

<sup>2</sup> Nominal range  $\leq$  1 bar up to 110 °C

## Tests and certificates

Explosion protection: Ex-protection (ATEX) for mechanical devices

II 2G Ex h IIC T1...T6 Gb X

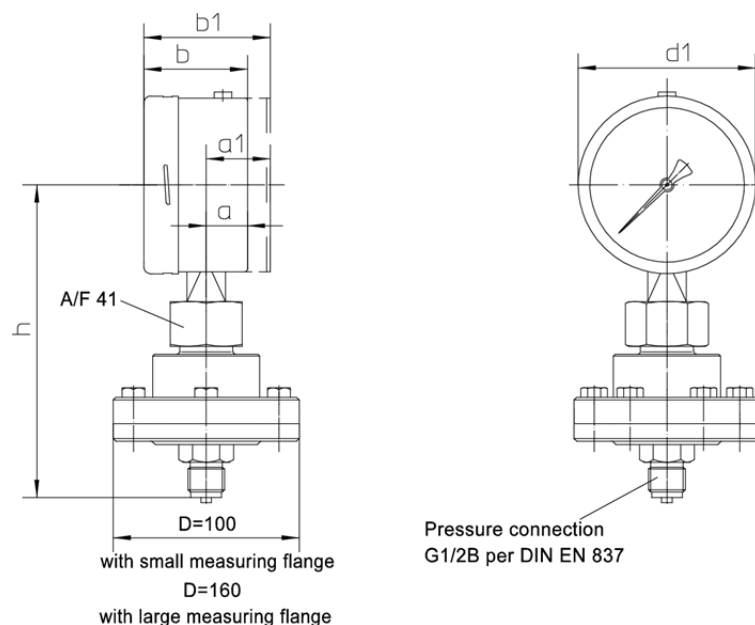
II 2D Ex h IIC Txx°C Db X

Further details see Ex Instructions XA\_005.

- EAC declaration (upon request)
- Certificate of measuring equipment for Russian Federation

**Information on other models see order details or upon request.**

## Dimensions



dimensions (mm)						
case	d1	a	b	a1	b1	h
NS 100	100	21	59	37	72	176
NS 160	160	21	59	47	82	208

### Remark:

Open measuring flanges with small measuring flange and DN 50 are supplied with through holes. All other models are produced with loose flange (see drawing). The connection threads are provided as recommended by the relevant DIN or ASA tables. Studbolts with washer and nut are also supplied upon request.

## Order details

### Absolute pressure gauge with diaphragm chemical design NS 100/160, Type series BB2...

Order details BB2..			
BB2200	case	NS 100	IP 65 accord. to EN 873-1 S1
BB2540			IP 66 with case filling, NS 100 safety design per EN 873-1 S3,
BB2300		NS 160	IP 65 accord. to EN 873-1 S1
BB2640			IP 66 with case filling, NS 160 safety design per EN 873-1 S3
A70	nominal range	measuring flange Ø 160 mm	0...60 mbar abs
A80			0...100 mbar abs
A90			0...160 mbar abs
A100			0...250 mbar abs
A110		measuring flange Ø 100 mm	0...400 mbar abs
A120			0...600 mbar abs
A130			0...1000 mbar abs
A140			0...1600 mbar abs
A150			0...2500 mbar abs
D....	overload protection	10 bar	for measuring flange Ø 100 mm
E....		5 bar	for measuring flange Ø 160 mm
1001	process connection	screwed connection	G1/2 B, material 1.4571 (316Ti)
1011			1/2" NPT, material 1.4571 (316Ti)
1041		Open meas. flange PN10...40, mat. 1.4571 (316Ti) raised face EN 1092-1 model B1 (DIN 2526 model C)	DN 25 for studbolts
1081			DN 50 for studbolts
1061			DN 50 for drilled holes

Additional features (to be indicated if required)		
S30	Ex-protection (ATEX) for mechanical devices	II 2G Ex h IIC T1...T6 Gb X
		II 2D Ex h IIIC Txx°C Db X
R2	window	non-splintering glass with maximum pointer
R3		non-splintering glass with adjustable reference pointer
R12		Macrolon with maximum pointer <sup>2</sup>
R13		Macrolon with adjustable reference pointer <sup>2</sup>
T2	marking	on scale (please specify)
T3		fixed reference pointer (please specify)
W1020	material certificate	per EN 10204-3.1, wetted parts
W1204	calibration certificate	per EN 10204-3.1, 3 measuring points
W1201		per EN 10204-3.1, 5 measuring points
W2673	certificate of measuring equipment for Russian Federation	
W4090	extended temperature range	
PL1100	output signal	4...20 mA (20...4 mA) with electronic angle-of-rotation sensor (see data sheet D6-020)
Z1	connection to Zone 0 <sup>3</sup>	with Zone 0 adapter (coupling element KF6)

Order code (example): BB2200 – A70 – E1001 - ...

<sup>1</sup> for devices with non-splintering glass only

<sup>2</sup> not for devices with Ex-protection

<sup>3</sup> for devices with Ex-protection only