

Diaphragm pressure gauge per EN 837-3, chemical design, NS 100/160 Type series BA2...



Application area

- Machinery construction
- Chemical and petrochemical industry
- General process technology
- Water / wastewater

Features

- Diaphragm pressure gauge
- Nominal ranges -400 mbar to -1...24 bar, 0...25 mbar to 0...25 bar
- High quality case with bajonet ring NS 100/160 per EN 837-1 S1
- Case and measuring flange of stainless steel, diaphragm of Duratherm
- Accuracy class 1.6 as per EN 837-3
- High overload protection up to 5 times (option: up to 20 times)
- Degree of protection IP 65

Options

- Accuracy class 1.0 per EN 837-1
- Approvals/Certificates
 - Explosion protection (ATEX/UKEX) for mechanical devices
 - Material certificate per EN 10204
 - Calibration certificate per EN 10204
- As per UKCA regulations
- Electrical contact device, see data sheet D3-028
- Electronical angle-of-rotation sensor, Type series PL1100, see data sheet D6-020
- Extended temperature range
- Wetted parts of special materials, e.g. PTFE, PFA, Monel, Hastelloy or Tantal.
- Connection to Zone 0 by using the flame arrester MF21xx, see data sheet D6-025
- Open measuring flange per DIN/ASME
- Safety case per EN 837-1 S3
- Case with liquid filling and degree of protection IP 66

Application

Suitable for measuring liquids and gases; with open measuring flange also designed for viscous media and media containing solids. Because of its robust design, the device is suitable for use in tough environments.

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:	■ Without filling: IP 65 ■ With filling S1 case: IP 65 ■ With filling S3 case: IP 66
Case filling:	Option: Glycerine-water In combination with electronical angle-of-rotation sensor PL11: Labofin Further liquid fillings upon request
Atmosph. pressure compensation:	Via ventilation valve. Safety case: internal pressure compensation diaphragm
Case seal:	Material gasket: NBR
Pressure chamber seal:	Material: NBR, optional PTFE. Further materials upon request.
Window:	Non-splintering laminated glass. Option: Non-splintering plastic (Polycarbonate)
Measuring element:	Diaphragm
Movement:	Stainless steel
Scale:	Pure aluminium, white with black inscription Option: with red marking, special scale upon request.
Pointer:	Pure aluminium, black. Option: with micro adjustment for zero point correction.
Mounting:	Via process connection
Weights:	NS 100: Flange Ø 100 without filling: approx. 1.9 kg Flange Ø 160 without filling: approx. 3.4 kg Flange Ø 100 with filling: approx. 2.2 kg Flange Ø 160 with filling: approx. 3.6 kg

NS 160:

Flange Ø 100 without filling:	approx. 2.2 kg
Flange Ø 160 without filling:	approx. 3.7 kg
Flange Ø 100 with filling:	approx. 2.8 kg
Flange Ø 160 with filling:	approx. 4.3 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), alternatively with: ■ PTFE foil ■ PFA coating ■ Monel foil ■ Hastelloy C 276 foil ■ Tantal foil ■ Stainless steel foil
Measuring flange:	Stainless steel mat.-no. 1.4571, alternatively with: ■ PTFE lining ■ PFA coating ■ PVDF Further materials upon request.

Nominal range

See order details, further ranges upon request

Overload protection	<u>Flange Ø 100:</u> standard: for a short time 5 times, max. 100 bar optional: 20 times, max. 100 bar * <u>Flange Ø 160:</u> Standard: 50 times* * negative measuring ranges upon request.
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For information on definitions of terms regarding the Pressure Equipment Directive, see Technical Instruction TA_068.

Accuracy

Accuracy class:	1.6 per EN 837-3 Optional: 1.0 per EN 837-3 for ≥ 60 mbar
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) ¹
Media: ²	-20...110 °C	-20...70 °C (60 °C) ¹
Storage:	-40...70 °C	-40...70 °C (-20...60 °C) ¹

Extended temperature range (optional):

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

¹ Safety case S3

² Nominal range ≤ 1 bar up to 110 °C

Tests and certificates

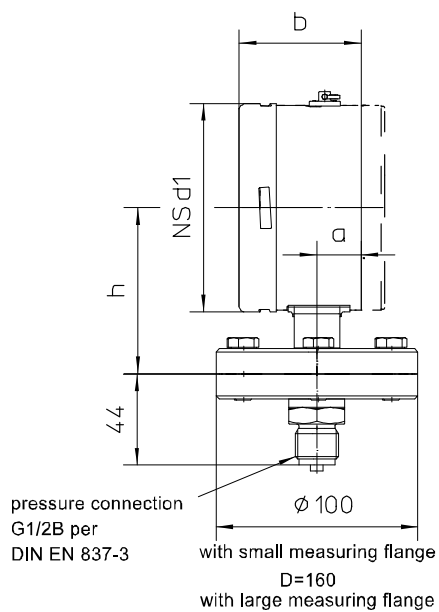
Explosion protection:	Ex-protection (ATEX/UKEX) for mechanical devices
	⊕ II 2G Ex h IIC T1...T6 Gb X
	⊕ II 2D Ex h IIIC Txx°C Db X

Further details see Ex Instructions XA_005.

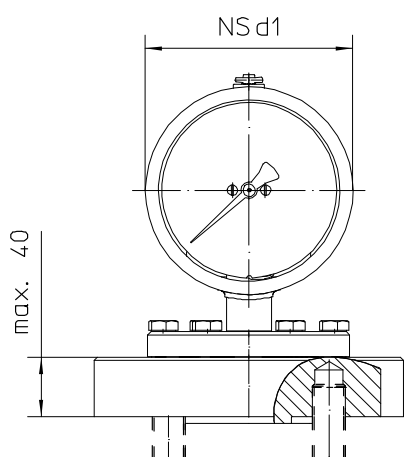
Information on other models see order details or upon request.

Dimensions

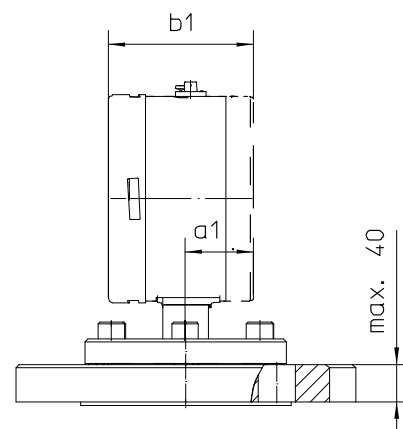
Standard design



Open measuring flange
Dimensions per DIN EN or ASME



model with studbolts for DN <50.
Studbolts with plain washer and
nut are supplied upon request



model with drilled holes DN >50

dimensions (mm)						
case	d1	a	b	a1	b1	h
NS 100	100	21	59	37	72	83
NS 160	160	21	59	47	82	113

Order details

Diaphragm pressure gauge per EN 837-3, chemical design NS 100/160			
BA2200	case	NS 100	IP 65
BA2220			IP 65 with case filling
BA2300		NS 160	IP 65
BA2320			IP 65 with case filling ¹
BA2500		NS 100 safety case	IP 65
BA2540			IP 66 with case filling
BA2600		NS 160 safety case	IP 65
BA2640			IP 66 with case filling
A2...	nominal range	accuracy class per EN 837-3	1.0 for ≥ 60 mbar
A1...			1.6
010		measuring flange Ø 100 mm	0...250 mbar
011			0...400 mbar
051			0...0.4 bar
052			0...0.6 bar
053			0...1 bar
054			0...1.6 bar
055			0...2.5 bar
056			0...4 bar
057			0...6 bar
058			0...10 bar
059			0...16 bar
060			0...25 bar
027			-250...0 mbar
028			-400...0 mbar
085			-0.6...0 bar
086			-1...0 bar
087			-1...0.6 bar
088			-1...1.5 bar
089			-1...3 bar
090			-1...5 bar
091			-1...9 bar
092			-1...15 bar
093			-1...24 bar
005		measuring flange Ø 160 mm	0...25 mbar
006			0...40 mbar
007			0...60 mbar
008			0...100 mbar
009			0...160 mbar
022			-25...0 mbar
023			-40...0 mbar
024			-60...0 mbar
025			-100...0 mbar
026			-160...0 mbar
D10011	process connection	threaded connection	G1/2 B, material no. 1.4571 (316Ti)
D10021			G1/2 B, material no. 1.4571 (316Ti), with 12 mm bore hole
D10015			G1/2 B, material no. 1.4571 (316Ti), PFA coated
D10012			G1/2 B, material no. 1.4571 (316Ti), PTFE coated ²
D10017			G1/2 B, PVDF (PN max. up to 16 bar)
D10201			1/2" NPT, material no. 1.4571 (316Ti)
D10301			M20 x 1,5 material no. 1.4571 (316Ti)
D20101		open measuring flange PN10...40, mat.-no. 1.4571 (316Ti) sealing surface EN 1092-1 model B1 (DIN 2526 Form C)	DN 25, for studbolts
D20102			DN 25, for studbolts, with PTFE lining ³
D20131			DN 50, for nominal ranges ≥ 250 mbar with through holes
D20131			DN 50, for nominal ranges ≤ 160 mbar for studbolts
D20132			DN 50, DN 50, with PTFE lining ³

Additional features (to be indicated if required)		
S30	Ex-protection (ATEX/UKEX) for mechanical devices ³	II 2G Ex h IIC T1...T6 Gb X
		II 2D Ex h IIC Txx°C Db X
H102	gasket	pressure chamber seal, gasket PTFE ⁴
H112	diaphragm respectively protective foil	PFA red lining
H132		Monel protective foil ⁴
H142		Hastelloy C276 protective foil ⁴
H162		Tantal protective foil ⁴
I2	pointer	with micro adjustment
R2	window	non-splintering glass with maximum pointer
R3		non-splintering glass with adjustable reference pointer
R12		Polycarbonate with maximum pointer ⁵
R13		Polycarbonate with adjustable reference pointer ⁵
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
W2660	as per UKCA regulations	
W4010	overload protection	20 times (max. to 100 bar), short term, for measuring flange 100 mm
W4090	extended temperature range ⁶	
PL1100-...	output signal	4...20 mA (20...4 mA) with electronic angle-of-rotation sensor (see data sheet D6-020)

Order code (example): **BA2320 – A1090 – D20102** - ...

¹ with rubber filling plug for pressure compensation: nom. range ≤ 10 bar: IP54

² PN up to max. 25 bar

³ for devices with non-splintering glass only

⁴ no PTFE gasket for use in vacuum

⁵ not for devices with Ex-protection

⁶ gasket of EPDM required