

## Bourdon tube pressure gauge for diaphragm seal operation, NS 100 Type series BH42..



### Application area

- Machinery construction
- Chemical and petrochemical industry
- General process technology
- Food industry
- Pharmaceutical industry

### Features

- Bourdon tube pressure gauge for diaphragm seals
- Nominal ranges 0...4 to 0...400 bar, -1...3 bar to -1...15 bar
- High quality case with bajonet ring NS 100
- Case and measuring element of stainless steel
- Degree of protection IP 65
- Accuracy class 1.0 as per EN 837-1
- Small temperature error by means of reduced-volume measuring element
- Operating temperature up to 140 °C
- Process connection via diaphragm seal product group D5
- Instrument connection welded with diaphragm seal

### Options

- Labom REconnect quick coupling device for easy and safe separation and connection of diaphragm seal systems; Type series MK1000, see data sheet D6-022
- Approvals/Certificates
  - Explosion protection (ATEX/UKEX) for mechanical devices
  - Material certificate per EN 10204
  - Calibration certificate per EN 10204
- As per UKCA regulations
- Damping of movement
- Electrical contact device, see data sheet D3-025 (depending on design)
- Electronical angle-of-rotation sensor, Type series PL1100, see data sheet D6-020
- Connection to Zone 0 by using the flame arrester MF21xx, see data sheet D6-025
- Case with liquid filling and degree of protection IP 66
- Extended neck tube

### Application

The pressure gauge type series BH42.. has been especially constructed for the operation with diaphragm seals. A custom bourdon tube that is reduced in volume produces a very slight temperature error only. Diaphragm seals with reduced diaphragm surface areas may also be used. A large selection of diaphragm seals – D5 product category – is available for a large variety of applications.

## Technical data

### Constructional design / case

Design:	High quality case with bayonet ring, material: st. steel mat.-no. 1.4301 (304) ventilation valve, material: PUR  Alternative: High quality case with bajonet ring per EN 837-1 S1, with case filling, blow-out device (material: PUR) and internal pressure compensation diaphragm (material: silicone)
Nominal size:	NS 100
Degree of protection per EN 60529:	<ul style="list-style-type: none"> <li>■ Without case filling: IP 65</li> <li>■ With case filling: IP 65</li> <li>■ With case filling and internal pressure compensation diaphragm: IP 66</li> </ul>
Case filling:	Option: Glycerine-water  In combination with electrical angle-of-rotation sensor PL11: Labofin  Further liquid fillings upon request
Atmosph. pressure compensation:	<u>degree of protection IP 65:</u> Via ventilation valve. <u>degree of protection IP 66:</u> To atmosphere via internal pressure compensation diaphragm
Case seal:	Material gasket: NBR
Window:	Non-splintering laminated glass. Option: Non-splintering plastic (Macro-lon)
Measuring element:	Bourdon tube  < 60 bar: c-type ≥ 60 bar: spiral
Movement:	Stainless steel segment Optional: movement with integrated damping system
Scale:	Pure aluminium, white with black inscription. Option: with red marking, special scale upon request.
Pointer:	Pure aluminium, black. With micro adjustment for zero point correction.
Weights:	NS 100 without filling: approx. 0.7 kg NS 100 with filling: approx. 0.9 kg

### Process connection

Design:	Via diaphragm seal technology, see order details and product group D5
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### Nominal range

See order details, further ranges upon request

Overload-protection:	standard: 1.3 times higher overload protection see order details
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### Accuracy

Accuracy class:	1.0 per EN 837-1
Temperature influence:	Max. $\pm 0.4\%$ / 10K of measuring span per EN 837-1
Temperature influence media:	Temperature error due to diaphragm seal system. dM 22...24 mm $\leq 30$ mbar / 10 K dM 27...30 mm $\leq 20$ mbar / 10 K dM 34...36 mm $\leq 8$ mbar / 10 K dM 40...46 mm $\leq 5$ mbar / 10 K dM 51...58 mm $\leq 2$ mbar / 10 K  A detailed calculation of accuracy can be submitted upon request. Deviations in case of special materials.

### Temperature ranges

Temperature ranges for the design of the diaphragm seal system (in combination with the pressure transmission fluid FD1):

Ambient:	-10...50°C
Media:	-10...140°C

Adjusted design temperature ranges within the following maximum values are possible on request:

	without filling	with filling
Ambient:	-20...60°C	-20...50°C
Media:	-40...230°C	-40...190°C

Temperature ranges for storage:

	without filling	with filling
Storage:	-40...70 °C	-40...70 °C

### Tests and certificates

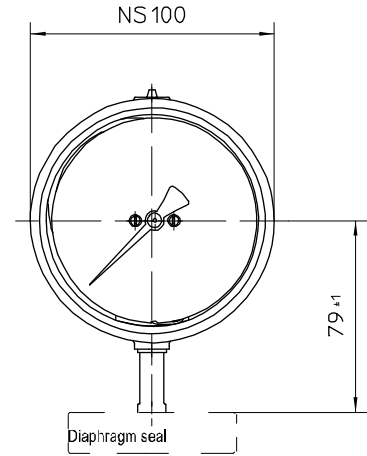
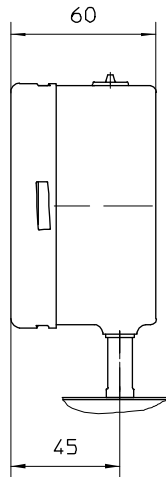
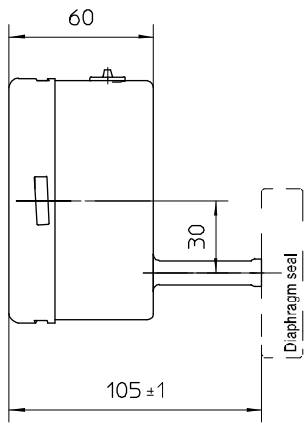
Explosion protection:	Ex-protection (ATEX/UKEX) for mechanical devices <ul style="list-style-type: none"> <li>⊕ II 2G Ex h IIC T1...T6 Gb X</li> <li>⊕ II 2D Ex h IIIC Txx°C Db X</li> </ul>
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Further details see Ex Instructions XA\_005.

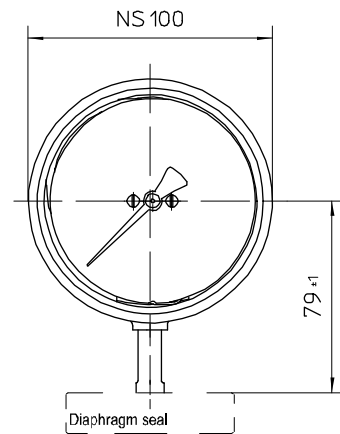
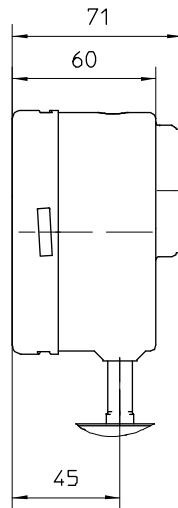
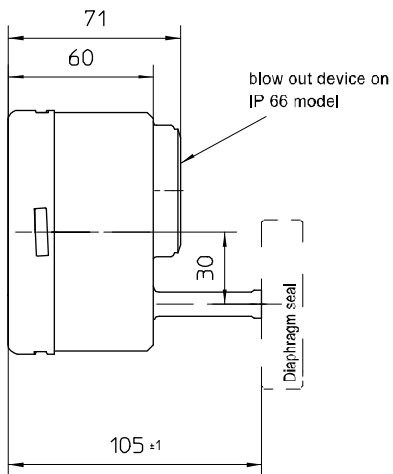
**Information on other models see order details or upon request.**

## Dimensions

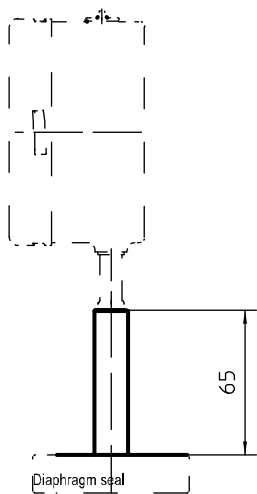
degree of protection IP65



degree of protection IP66





Design with extended neck tube



## Order details

### Bourdon tube pressure gauge with threaded connection NS 100 Type series BH42..

Order details BH42..			
BH4200	case design	IP 65 without case filling	process connection bottom
BH4210			process connection at back
BH4220		IP 65 with case filling	process connection bottom
BH4230			process connection at back
BH4240		IP 66 with case filling	process connection bottom
BH4250			process connection at back
A56	nominal range [bar]	0...4	
A57		0...6	
A58		0...10	
A59		0...16	
A60		0...25	
A61		0...40	
A62		0...60	
A63		0...100	
A64		0...160	
A558		0...200	
A65		0...250	
A66		0...400	
A89		-1...3	
A90		-1...5	
A91		-1...9	
A92	-1...15		
D....	process connection via diaphragm seal technology (see product group D5)		

Additional features (to be indicated if required)			
S30	Ex-protection (ATEX/UKEX) for mechanical devices <sup>1</sup>	 II 2G Ex h IIC T1...T6 Gb X  II 2D Ex h IIIC Txx°C Db X	
H2	overload protection	2 times. Measuring ranges $\geq 25$ bar	
H3		2.5 times, measuring ranges $\leq 16$ bar	
K2	neck tube	with extended neck tube (65 mm)	
R2	window	non-splintering glass with maximum pointer	
R3		non-splintering glass with adjustable reference pointer	
R12		Makrolon with maximum pointer <sup>2</sup>	
R13		Makrolon 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, 3 measuring points	
W2660	as per UKCA regulations <sup>3</sup>		
W4102	damping of movement	with integrated damping system	
PL110.	output signal	4...20 mA (20...4 mA) with electronic angle-of-rotation sensor (see data sheet D6-020) <sup>4</sup>	

Order code (example): BH4200 – A56 - ...

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

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

<sup>3</sup> not possible with Inline diaphragm seal or connection to Inline unit ASEPconnect with pipe inner diameter > 25 mm

<sup>4</sup> not possible with damping of movement