

## Bourdon tube pressure gauge per EN 837-1 S3

Safety pattern gauge

Type series BA45../BA46..



### Application area

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

### Features

- High quality case with bajonet ring NS 100/160 per EN 837-1 S3
- Nominal ranges -0.6...0 bar to -1...24 bar, 0...0.6 to 0...1000 bar
- Case and measuring element of stainless steel
- Degree of protection IP 65
- Accuracy class 1.0 or 1.6 per EN 837-1

### Options

- 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
- Mounting: front flange for flush mounting
- Extended temperature range
- 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
- Oxygen free of oil and grease

### Application

The safety pattern gauge has been designed for universal use in areas with extended requirements. This high quality stainless steel version is suitable for service in the chemical, petrochemical and foodstuff industry for measuring gaseous, liquid and aggressive media. The safety case offers increased operator protection.

## Technical data

### Constructional design / case

Design: High quality safety case with blow-out back and solid baffle wall per EN 837-1 S3, material: stainless steel mat.-no. 1.4301 (304), pressure compensation diaphragm: silicone, filling plug, material: PUR

Nominal size: NS 100 or NS 160

Degree of protection per EN 60529:
 

- Without case filling: IP 65
- With case filling: IP 66

Case filling: Option:  
Glycerine-water  
  
In combination with electrical angle-of-rotation sensor PL11:  
Labofin  
  
Further liquid fillings upon request

Pressure compensation: 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.  
Option: with micro adjustment for zero point correction.

Mounting: Stand-alone, upon request for flush mounting with DIN mounting flange

Weights:
 

NS 100 without filling:	approx. 0.7 kg
NS 160 without filling:	approx. 1.3 kg
NS 100 with filling:	approx. 1.0 kg
NS 160 with filling:	approx. 2.5 kg

### Process connection

Design: Per EN 837-1, G1/2 B, 1/2" NPT or M20 x 1.5; bottom connection. Further process connections upon request.

### Material wetted parts

Measuring element: Bourdon tube and shanks stainless steel mat.-no. 1.4571 / 1.4404 (316Ti / 316L)

### Nominal range

See order details, further ranges upon request

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

### Accuracy

Accuracy class: 1.0 per EN 837-1 (for nominal ranges < 1000 bar)  
1.6 per EN 837-1 (for nominal range 1000 bar)

Temperature influence: Max. ± 0.4% / 10K of measuring span per EN 837-1

### Temperature ranges

	without filling	with filling
Ambient:	-20...70 °C	-20...60 °C
Media: <sup>1,2</sup>	-40...200 °C	-40...200 °C
Storage:	-20...70 °C	-20...60 °C



Extended temperature range for nominal ranges ≤ 600 bar (optional):

	without filling	with filling
Ambient:	-40...100 °C	-40...60 °C
Media: <sup>1</sup>	-40...200 °C	-40...200 °C

<sup>1</sup> Nominal range ≤ 1 bar up to 100 °C

<sup>2</sup> Nominal range > 600 bar up to 150 °C

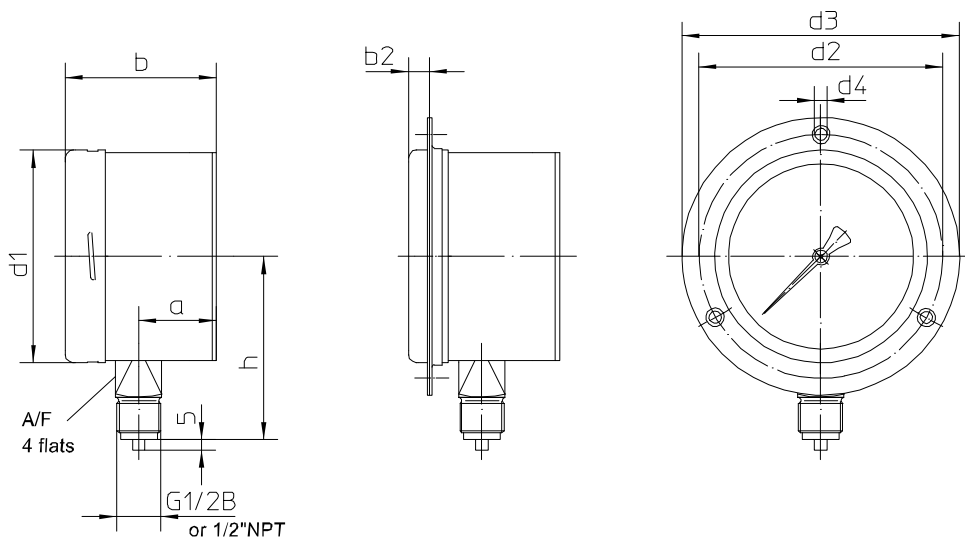
### Tests and certificates

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

for flush mounting

flush mounting view

Mounting instruction: Ensure full space requirement for operation with rear blow-out device of case!

dimensions (mm)												
case	d1	a	a1	b	b1	b2	h	d2	d3	d4	A/F	
NS 100	100	37	39	72	74	10	87	116	132	4,8	22	
NS 160	160	47	49	82	84	10	117	178	196	5,8	22	

## Order details

### Bourdon tube pressure gauge safety pattern gauge per EN 837-1 S3, Type series BA45../BA46..

Order details BA45../BA46..			
BA4500	Safety case S3	NS100	process connection bottom
BA4540			IP 66 process connection bottom with case filling
BA4600		NS 160	process connection bottom
BA4640			IP 66 process connection bottom with case filling
A2...	process connection	G1/2 B	
B2...		1/2" NPT	
C2...		M 20 x 1.5	
085	nominal range [bar]	-0.6...0	
086		-1...0	
087		-1...0.6	
088		-1...1.5	
089		-1...3	
090		-1...5	
091		-1...9	
092		-1...15	
093		-1...24	
052		0...0.6 <sup>1</sup>	
053		0...1	
054		0...1.6	
055		0...2.5	
056		0...4	
057		0...6	
058		0...10	
059		0...16	
060		0...25	
061		0...40	
062		0...60	
063	0...100		
064	0...160		
065	0...250		
066	0...400		
068	0...600		
070	0...1000 <sup>2</sup>		

Additional features (to be indicated if required)		
<b>S30</b>	Ex-protection (ATEX/UKEX) for mechanical devices gauges <sup>3</sup>	⊕ II 2G Ex h IIC T1...T6 Gb X
		⊕ II 2D Ex h IIIC Txx°C Db X
<b>H2</b>	overload protection	2 times (measuring range 1...4 bar)
<b>H3</b>		2 times (measuring range 6...40 bar)
<b>H4</b>		1.5 times (measuring range 60...160 bar)
<b>I2</b>	pointer	with micro adjustment
<b>R2</b>	window	non-splintering glass with maximum pointer
<b>R3</b>		non-splintering glass with adjustable reference pointer <sup>4</sup>
<b>R12</b>		Macrolon with maximum pointer <sup>5</sup>
<b>R13</b>		Makrolon with adjustable reference pointer <sup>5</sup>
<b>T2</b>	marking	on scale (please specify)
<b>T3</b>		fixed reference pointer (please specify)
<b>U2</b>	restrictor screw	restrictor screw 0.3 mm
<b>U3</b>		restrictor screw 0.6 mm
<b>U4</b>		restrictor screw 1.0 mm
<b>V3</b>	mounting	front flange for flush mounting
<b>W1020</b>	material certificate	per EN 10204-3.1, wetted parts
<b>W1204</b>	calibration certificate	per EN 10204-3.1, 3 measuring points
<b>W1201</b>		per EN 10204-3.1, 5 measuring points
<b>W2660</b>	as per UKCA regulations	
<b>W4001</b>	oxygen free of oil and grease	
<b>W4090</b>	extended temperature range	
<b>W4102</b>	damping of movement	with integrated damping system
<b>PL110.</b>	output signal	4...20 mA (20...4 mA) with electronic angle-of-rotation sensor (see data sheet D6-020) <sup>6</sup>

Order code (example): **BA4540 – C2087 - ...**

<sup>1</sup> NS 100 without DIN and class specification

<sup>2</sup> accuracy class 1.6 as per EN 837-1

<sup>3</sup> for devices with non-splintering glass only

<sup>4</sup> NS 100 only

<sup>5</sup> not for devices with Ex-protection

<sup>6</sup> not possible with damping of movement