

## Pressure gauge with flush mounted diaphragm for hygienic applications Type series BC4200



### Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

### Features

- Pressure gauge with flush mounted diaphragm for hygienic applications
- Dry measuring system
- Nominal range 0...1.6 up to 0...10 bar, -1...0.6 up to -1...9 bar
- All wetted parts of stainless steel 316L
- Various process connections for hygienic applications
- Suitable for CIP and SIP cleaning
- Degree of protection IP 65
- Accuracy class 1.6 per EN 837-1 resp. accuracy 2 %

### Options

- Accuracy class 1.0 per EN 837-1
- Approvals / Certificates
  - Explosion protection (ATEX/UKEX) for mechanical devices
  - Material certificate per EN 10204-3.1
  - Calibration certificate per EN 10204-3.1
  - Roughness height rating with inspection certificate per EN 10204-3.1
- Various hygienic designs per EHEDG and ASME BPE
- Electronical angle-of-rotation sensor, Type series PL1100, see data sheet D6-020
- Scale with fine division
- Free of oil and grease
- Wetted parts electropolished

### Application

The pressure gauge with flush mounted diaphragm is particularly suitable for hygienic process engineering. It is suitable for CIP and SIP cleaning and all wetted parts are made of stainless steel 1.4435 (316L) and are completely welded.

## 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
Nominal size:	NS 100
Degree of protection per EN 60529:	IP 65
Atmosph. pressure compensation:	Via ventilation valve
Case seal:	Material gasket: NBR
Window:	Non-splintering laminated glass. Option: Non-splintering plastic (polycarbonate)
Measuring element:	Diaphragm
Movement:	Stainless steel segment
Scale:	Pure aluminium, white with black inscription Option: Scale with fine division Option: with red marking or with fixed reference pointer, special scale upon request
Pointer:	Pure aluminium, black, with micro adjustment for zero point correction Option: knife edge pointer with micro adjustment for zero point correction

### Process connection

Design:	<ul style="list-style-type: none"> <li>■ Tapered coupling with groove union nut per DIN 11851</li> <li>■ Clamp connection per ISO 2852</li> <li>■ Clamp connection per DIN 32676</li> <li>■ Collar connection with groove union nut per DIN 11864-1</li> <li>■ Flange connection per DIN 11864-2</li> <li>■ Clamp connection per DIN 11864-3</li> <li>■ VARIVENT® connection</li> </ul>
---------	---

### Material wetted parts

Process connection and diaphragm:	Stainless steel mat.-no. 1.4435 (316L) Option: - Delta ferrite content $\leq 3\%$ - Delta ferrite content $\leq 1\%$
-----------------------------------	---

### Nominal range

See order details, further information upon request.

### Measuring accuracy and overload protection

Nominal range	Accuracy class per EN 837-1		Overload limit
	Standard	Optional	
0...1.6 bar	Kl. 1.6	-	1.1 times
0...2.5 bar	2 %	-	
0...4 bar	Kl. 1.6	-	
0...6 bar	Kl. 1.6	-	1.3 times
0...10 bar	Kl. 1.6	Kl. 1	
-1...0.6 bar	Kl. 1.6	-	
-1...1.5 bar	Kl. 1.6	-	
-1...3 bar	Kl. 1.6	Kl. 1	
-1...5 bar	Kl. 1.6	Kl. 1	
-1...9 bar	Kl. 1.6	Kl. 1	

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

### Hygienic design

The surface roughness of the wetted parts made of stainless steel are executed per EHEDG Doc.8 and ASME BPE SFx

In case of choosing the additional feature, we guarantee the following surface roughness values:

Wetted parts	SF3	SF1	SF4
Diaphragm	$Ra \leq 0.38 \mu\text{m}$	$Ra \leq 0.38 \mu\text{m}$	$Ra \leq 0.38 \mu\text{m}$ + e-polished
Laser welds	$Ra \leq 0.76 \mu\text{m}$	$Ra \leq 0.76 \mu\text{m}$	$Ra \leq 0.76 \mu\text{m}$ + e-polished
Turned parts	$Ra \leq 0.76 \mu\text{m}$	$Ra \leq 0.51 \mu\text{m}$	$Ra \leq 0.38 \mu\text{m}$ + e-polished

### Temperature ranges

Ambient:	-20...70 °C
Media:	-20...150 °C
Storage:	-40...70 °C

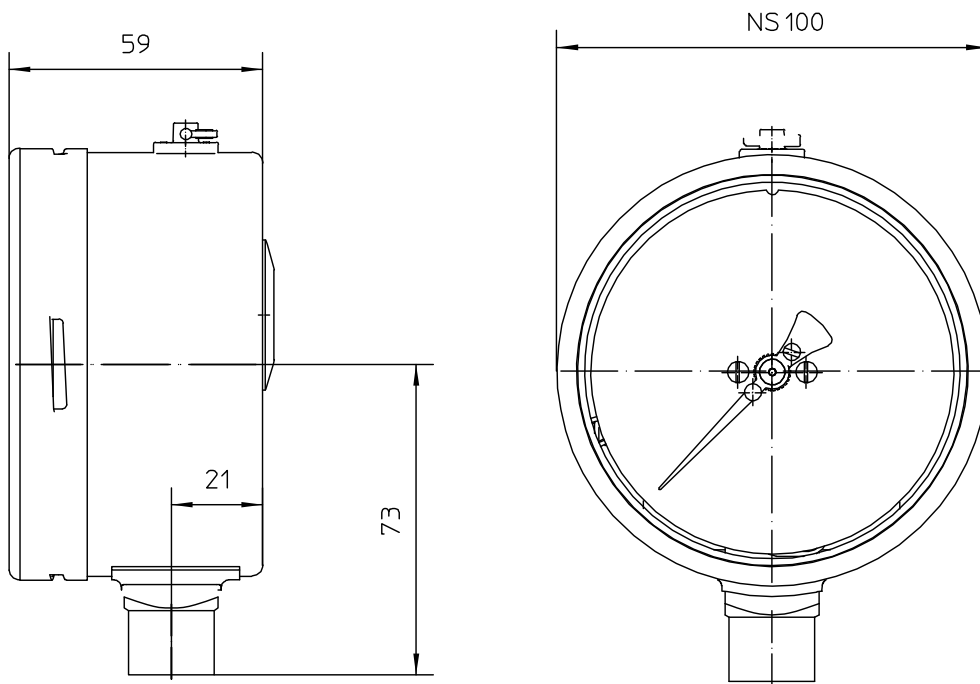
### Tests and certificates

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>
-----------------------	---

Further details see Ex Instructions XA\_005.

## Dimensions

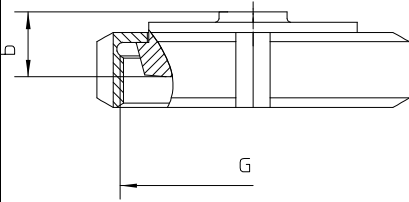
### Case



All dimensions are in mm.

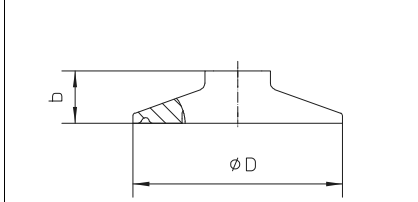
## Process connections

**Tapered coupling with groove union nut per DIN 11851 for pipes per DIN 11866**



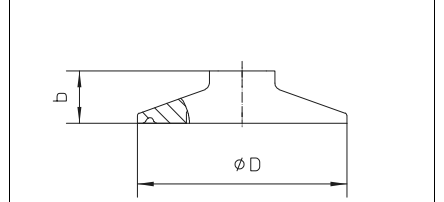
DN	G	b
40	Rd.65x1/6"	19
50	Rd.78x1/6"	19

**Clamp connection per ISO 2852 for pipes per ISO 2037**



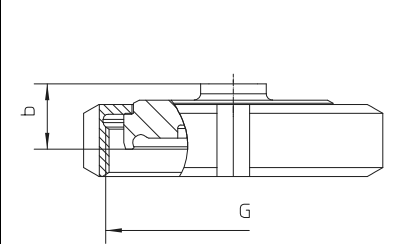
DN	ø D	b
38	50.5	13
40	64	16
51	64	16

**Clamp connection per DIN 32676 for pipes per DIN 11866**



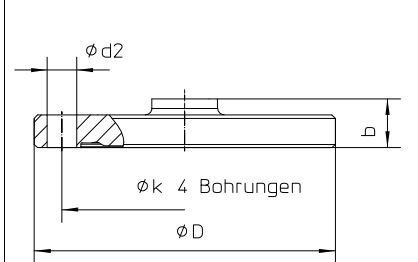
DN	ø D	b
<b>model A</b>		
40	50.5	13
50	64	16
<b>model B</b>		
42.4	64	16
48.3	64	16
<b>model C</b>		
1 1/2"	50.5	13
2"	64	16

**Collar connection with groove union nut per DIN 11864-1 for pipes per DIN 11866**



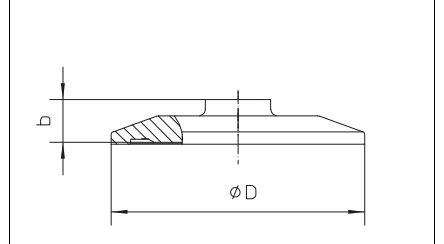
DN	G	b
<b>model A</b>		
40	Rd.65x1/6"	20
50	Rd.78x1/6"	20
<b>model B</b>		
42.4	Rd.65x1/6"	20
48.3	Rd.78x1/6"	21
<b>model C</b>		
2"	Rd.78x1/6"	21

**Flange connection per DIN11864-2 aseptic collar flange for pipes per DIN 11866**



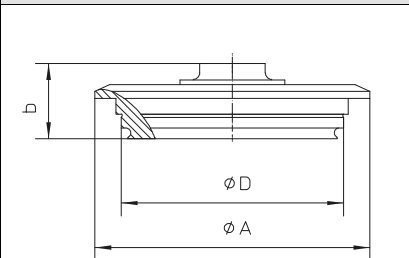
DN	ø D	ø k	ø d2	b
<b>model A</b>				
40	82	65	9	15
50	94	77	9	15
<b>model B</b>				
42.4	82	65	9	15
48.3	88	71	9	15
<b>model C</b>				
2"	92	75	9	15

**Clamp connection per DIN 11864-3 aseptic collar side for pipes per DIN 11866**



DN	ø D	b
<b>model A</b>		
DN 40	64	13
DN 50	77.5	13
<b>model B</b>		
DN 42.4	64	13
DN 48.3	64	13
<b>model C</b>		
2"	77.5	13

**VARIVENT® connection for VARINLINE® case**



connection	ø D	ø A	b
Form F	50	66	24
Form N	68	84	23

## Order details

Pressure gauge NS 100 with flush mounted diaphragm				
BC4200	case design	degree of protection IP 65, process connection bottom		
A54	nominal range	0...1.6 bar		
A55		0...2.5 bar <sup>1</sup>		
A56		0...4 bar		
A57		0...6 bar		
A58		0...10 bar		
A87		-1...0.6 bar		
A88		-1...1.5 bar <sup>1</sup>		
A89		-1...3 bar		
A90		-1...5 bar		
A91		-1...9 bar		
Q22		accuracy	class 1 <sup>2</sup>	
Q23	class 1.6			
Q24	2 % <sup>3</sup>			
D104	process connection <sup>4</sup>	Tapered coupling with groove union nut per DIN 11851 for pipes per DIN 11866, model A	DN 40	
D105			DN 50	
D126		Clamp connection per ISO 2852 for pipes per ISO 2037	DN 38	
D128			DN 40	
D127			DN 51	
D147		Clamp connection per DIN 32676 for pipes per DIN 11866, model A	DN 40	
D148			DN 50	
D215		Clamp connection per DIN 32676 for pipes per DIN 11866, model B	DN 42.4	
D216			DN 48.3	
D137		Clamp connection per DIN 32676 for pipes per DIN 11866, model C	DN 1 1/2"	
D138			DN 2"	
D165		Collar connection with groove union nut per DIN 11864-1 for pipes per DIN 11866, model A	DN 40	
D166			DN 50	
D228		Collar connection with groove union nut per DIN 11864-1 for pipes per DIN 11866, model B	DN 42.4	
D229			DN 48.3	
D234		Collar connection with groove union nut per DIN 11864-1 for pipes per DIN 11866, model C	DN 2"	
D240		Flange connection per DIN 11864-2 aseptic collar flange for pipes per DIN 11866, model A	DN 40	
D241			DN 50	
D246		Flange connection per DIN 11864-2 aseptic collar flange for pipes per DIN 11866, model B	DN 42.4	
D247			DN 48.3	
D252		Flange connection per DIN 11864-2 aseptic collar flange for pipes per DIN 11866, model C	DN 2"	
D258		Clamp connection per DIN 11864-3 aseptic collar side for pipes per DIN 11866, model A	DN 40	
D259			DN 50	
D264		Clamp connection per DIN 11864-3 aseptic collar side for pipes per DIN 11866, model B	DN 42.4	
D265			DN 48.3	
D270		Clamp connection per DIN 11864-3 aseptic collar side for pipes per DIN 11866, model C	DN 2"	
D152		VARIVENT® connection	Form F (D=50) for VARINLINE® case	
D153			Form N (D=68) for VARINLINE® case	
G7		material wetted parts	stainless steel material-no. 1.4435 (316L)	
G7.9			stainless steel material-no. 1.4435 (316L), Delta ferrite content ≤ 3 %	
G7.7	stainless steel material-no. 1.4435 (316L), Delta ferrite content ≤ 1 %			
R1	material window	non-splintering glass		
R11		polycarbonate <sup>5</sup>		

Additional features (to be indicated if required)		
<b>S30</b>	Ex-protection (ATEX/UKEX) for mechanical devices <sup>6</sup>	⊕ II 2G Ex h IIC T1...T6 Gb X
		⊕ II 2D Ex h IIC Txx°C Db X
<b>HY</b>	surface roughness wetted parts	Hygienic design per EHEDG and ASME BPE SF3 (see table under Hygienic design)
<b>HY06</b>		Hygienic design per EHEDG and ASME BPE SF1 (see table under Hygienic design)
<b>HY04</b>		Hygienic design per EHEDG and ASME BPE SF4 (see table under Hygienic design)
<b>I3</b>	pointer	knife edge pointer with micro adjustment
<b>T2</b>	marking	on scale (please specify)
<b>T3</b>		fixed reference pointer (please specify)
<b>W1020</b>	material certificate <sup>7</sup>	per EN 10204-3.1, wetted parts
<b>W1223</b>	Inspection certificate	per EN 10204-3.1, Roughness height rating Ra
<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>W1202</b>		per EN 10204-3.1, 10 measuring points
<b>W4002</b>	free of oil and grease	
<b>W4035</b>	wetted parts electropolished	
<b>W4127</b>	scale with fine division	
<b>PL110.</b>	output signal 4...20 mA (20...4 mA) with electronic angle-of-rotation sensor (see data sheet DB_D6-020)	

**Order code (example): BC4200 – A56 – D126 - G7 - R1...**

<sup>1</sup> Material certificate (order code W1020) not possible.

<sup>2</sup> Optionally only possible for the nominal ranges -1...3 bar, -1...5 bar, -1...9 bar and 0...10 bar.

<sup>3</sup> For nominal range 0...2.5 bar only.

<sup>4</sup> EHEDG certified only in connection with hygienic design (order code option HY / HY06 / HY04). EHEDG certificate valid only if gaskets are used that are listed in the "EHEDG Position Paper".

<sup>5</sup> Not for devices with Ex-protection.

<sup>6</sup> For devices with non-splintering glass only.

<sup>7</sup> Not possible for the nominal ranges 0...2.5 bar and -1...1.5 bar.