

BDT9 – Capsule pressure gauge 63, 100 & 160mm

Product description

Badotherm capsule pressure gauge model BDT9 is available in standard ranges from 16mbar up to 600 mbar. The gauges are suitable for corrosive environments and gaseous media that will attack copper alloys. This pressure gauge is typically used for applications in the chemical, petro-chemical, oil & gas, power and utilities, machine building and general process industries medium.

Design standard

EN837-3

Dial sizes, ranges & accuracy

Possibilities in ranges and accuracies are led by the dial size. Accuracy class is based on dry gauges.

Dial size	Ranges	Accuracy
63mm	0...16 mbar – 0...600 mbar	1.6%
100mm		
160mm		

Equivalent vacuum and pressure ranges are available.

Mounting variation

Not all gauges are suitable for some mounting variations. For the BDT9 series the mounting variations are below.

- **type A** (10) bottom connection, direct mounting
- **type B** (33) Lower-back connection U-bracket
- **type C** (11) bottom connection, surface mounting (back)
- **type D** (30) Lower back connection, direct mounting
- **type E** (32) lower back connection, panel mounting (front)

More specifically per dial size:

Dial size	A	B	C	D	E
63mm	•	• ^{*1}	•	• ^{*1}	•
100mm	•	•	•	•	•
160mm	•	•	•	•	•

Note 1: 63mm case has centre-back connection (type B (23) & type D (20))



Process connection

Dial size	Standard thread	optionally	SW size
63mm	G ¼ A or ¼" NPT		14mm
100mm	G ½ A or ½" NPT	1/4" , 3/8"	22mm
160mm			

Other thread standards such as ISO 7-1 R (BSPT), or DIN 13-1 (M20x1.5) can be selected as well.

-> See datasheet "thread information" for specific thread details

Materials of construction

	BDT9
Case	AISI 304 (optionally 316)
Bezel	
Connection ¹	AISI 316
Sensing element ¹	FKM
Sealing ¹	Brass nickel plated
Movement	Aluminium
Pointer	
Dial	
Window gasket	NBR
Blow out	
Fill plug	NBR (HNBR for filled gauges)
Mounting flanges	AISI 304
Window	Acrylic

^{*1} wetted materials

Pressure limitations

The gauge are built to withstand harsh environments however the EN 837 limits the use of a pressure gauge according below table.

Dial size	Steady	Fluctuating	Short time
63mm	FSV	0.9 x FSV	1.3 x FSV
100mm			
160mm			

FSV: full scale value

Temperature limitations

The gauges can withstand ambient and process temperature up to a certain limit. The limitations on temperature are:

	Ambient	Medium
Dry	-40°C ... +60°C	-40°C...+200°C

The variation of indication caused by the effect of temperature shall not exceed: $\pm 0.6\% / 10K$ FSV

Window

Standard BDT9 gauges have an acrylic window. Depending on the case size options such as glass, or safety glass are available. With safety glass the zero adjustment option is not available.

Pointer

Standard pointer is a fixed black painted aluminum pointer. Optionally the gauges can be equipped with an adjustable pointer.

Zero adjustment

The zero of the gauge can be adjusted by means of a set screw in the dial face.

Dial facing

The dial plate is made from aluminum and coated with UV resistant white coating. The black dial markings, scale, numbering, and interval is according the EN 837. Options like colored dial, customer logo, or colored segments are possible as well. Scale interval and numbering is following the EN837.

Limit stop

To prevent permanent damage the gauge is protected by an internal vacuum limit stop on the movement. These gauges also have a free zero.

Degree of protection

The BDT9 has a standard degree of protection of IP54. The values are determined according the IEC/EN 60529.

Restrictor Screw

All gauges can be executed with a restrictor of 0.8 or 0.3 orifice in AISI316.

Certification & Declaration

Calibration

Gauges are full range calibrated as a factory standard. Optionally you can select a 5 points calibration certificate.

ATEX 114 - 2014/68/EU

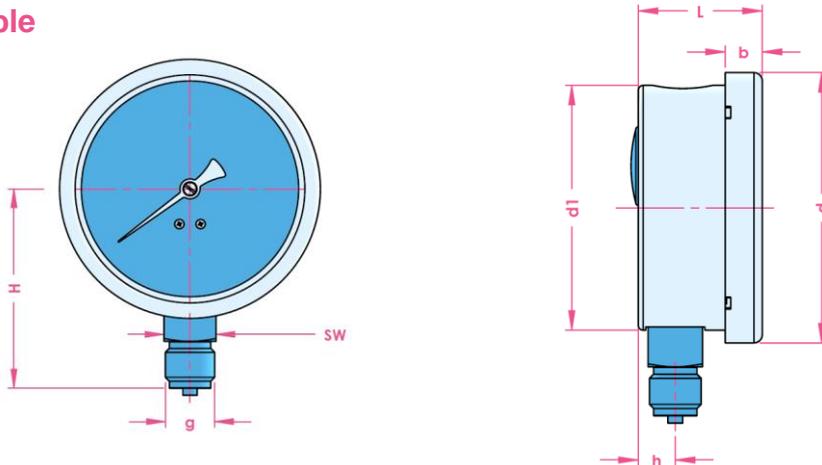
ATEX restrictions are explained in the IOM and in the ATEX background datasheet.

EN 10204 material certificate

A material 3.1 certificate on the wetted parts can be supplied.

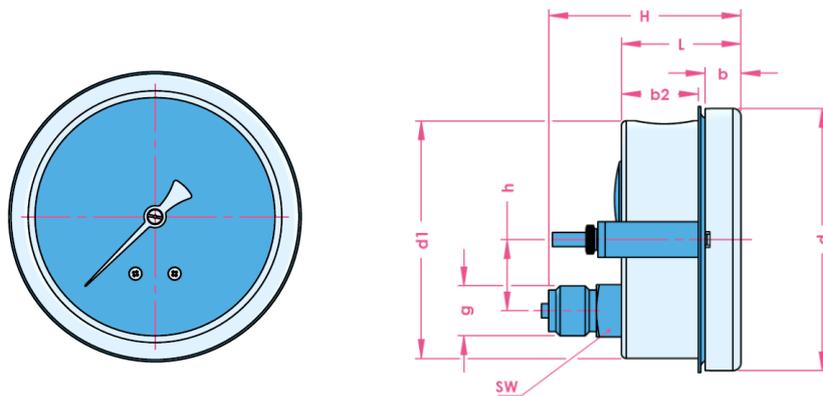
Dimensions table

Type A (10)



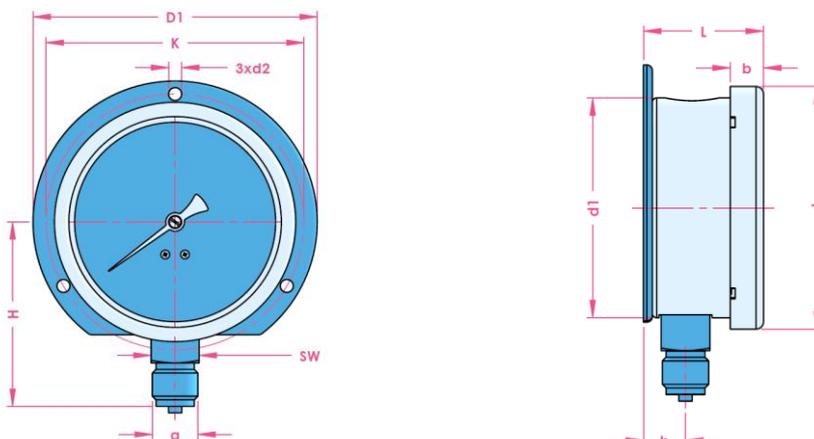
Dial size	d	d1	b	L	h	g	SW	H	weight
63	68.0	63.0	10.0	30.0		G ¼ A	14	56.5	0.3 kg
100	110.0	100.0	15.0	50.0	15.8	G ½ A	22	85.0	0.5 kg
160	160.0	150.0	16.0	52.0	16.0	G ½ A	22	117.0	0.8 kg

Type B (33)



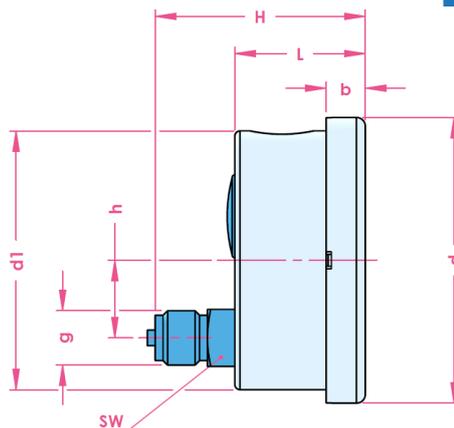
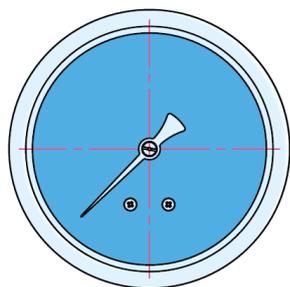
Dial size	d	d1	b	b2	L	h	g	SW	H	weight
63	68.0	63.0	10.0		30.0		G ¼ A	14	56.5	0.3 kg
100	110.0	100.0	15.0	30.0	50.0	15.8	G ½ A	22	85.0	0.5 kg
160	160.0	150.0	16.0	29.5	52.0	16.0	G ½ A	22	117.0	0.8 kg

Type C (11)



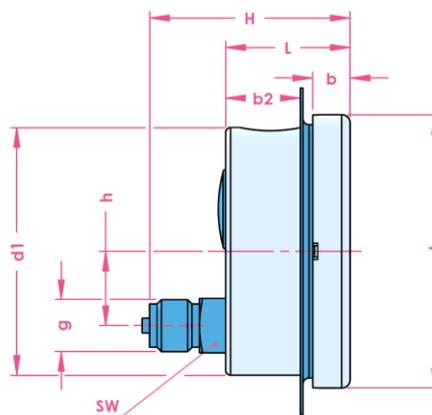
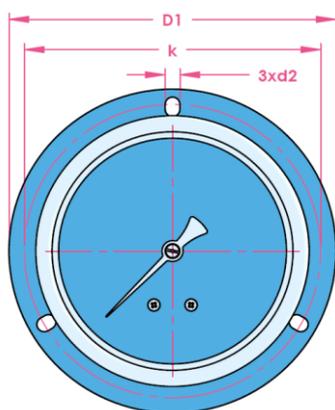
Type D (30)

Dial size	d	d1	b	L	h	K	d1	d2	g	SW	H	weight
63	68.0	63.0	10.0						G ¼ A	14	56.5	0.3 kg
100	110.0	100.0	15.0	54.0	19.8	118.0	130.0	6.0	G ½ A	22	85.0	0.5 kg
160	160.0	150.0	16.0	56.0	20.0	178.0	196.0	6.0	G ½ A	22	117.0	0.8 kg



Dial size	d	d1	b	L	h	g	SW	H	weight
63	68.0	63.0	10.0	30.0		G ¼ A	14		0.3 kg
100	110.0	100.0	15.0	50.0	30.0	G ½ A	22	85.0	0.5 kg
160	160.0	150.0	16.0	52.0	48.5			117.0	0.8 kg

Type E (32)



Dial size	d	d1	b	b2	L	h	K	d1	d2	g	SW	H	weight
63	68.0	63.0	10.0		50.0	30	118.0	132.0		G ¼ A	14	56.5	0.3 kg
100	110.0	100.0	15.0	30.0	50.0	30	118.0	132.0	6.0	G ½ A	22	85.0	0.5 kg
160	160.0	150.0	16.0	29.5	52.0	48.5	178.0	190.0				117.0	0.8 kg

Product code 63, 100, 160mm

		Code									
Example code:		BDT9	100	A	G14M	S363	S304	F	A	M24	16
TYPE											
63 mm	63										
100 mm ◀	100										
160 mm	160										
MOUNTING											
Bottom connection - direct mounting (10) ◀	A										
Lower back connection - flush U-bracket clamp fix. (33) ^{*1}	B										
Bottom connection - surface mounting (11)	C										
Lower back connection. - direct mounting (30) ^{*1}	D										
Lower back connection.- panel mount (32)	E										
CONNECTION											
G 1/4 A	G14M										
1/4" NPT	N14M										
G 3/8" A	G38M										
G1/2 A ◀	G12M										
1/2" NPT	N12M										
R 1/2	R12M										
M20x1.5	M20M										
CAPSULE & SOCKET MATERIAL											
AISI 316 ◀	S363										
CASE/BEZEL MATERIAL											
AISI 304 ◀	S304										
AISI 316	S363										
POINTER											
Fixed pointer ◀	F										
Adjustable pointer	A										
WINDOW											
Acrylic (SAN)	A										
Laminated glass (S1)	L										
Glass ◀	G										
RANGE											
See page table 1 and table 2										
ACCURACY											
1,6 ◀	16										

◀: is the sign for the standard pressure gauge

Note 1: 63mm case has centre-back connection (type B (23) & type D (20))

Tabel 1: Pressure Range code

bar		mbar		psi		kPa	
Code	Range	Code	Range	Code	Range	Code	Range
B04	-0,6...0	C20B	-10...15	P26	0...3	L04	-60...0
B31	0...0,6	C21A	-10...30	P28	0...5	L07	-40...0
		C22A	-10...50	P32	0..10	L08	-25...0
		C21C	-20...20			L10	-16...0
		C22B	-20...40			L11	-10...0
		C22C	-30...30			L13	-6...0
		C24C	-40...60			L22	0...6
		C24D	-50...50			L25	0...10
		C27B	-100...150			L26	0...16
		M19	0...16			L27	0...25
		M20	0...25			L29	0...40
		M21	0...40			L31	0...60
		M22	0...60				
		M24	0...100				
		M25	0...160				
		M27	0...250				
		M29	0...400				
		M31	0...600				

Table 2: Secondary scale

Dual scale option	code
PSI red	#PR
PSI black	#PB
PSI blue	#PBL
bar red	#BR
bar black	#BB
bar blue	#BBL

Add the code behind the pressure code
(eg B45#PR for 0...10 bar//psi with red scale)

Table 3: General option code

Option (start options with X_)	code
Index pointer	_IP
Restrictor screw 0.3mm	_RS3
Calibrated at 0°	_C0
Calibrated at 180°	_C180
ATEX II2GDc-IM2c	_ATEX
3.1 material certificate	_IC31
Calibration certificate 5 points	_CC5

Change log

Date	Change
18-5-2020	Removed the option "dragpointer" from table 3

Holland – Romania – India – Thailand – Dubai – USA

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