BDT20 – Safety process pressure gauge 63mm

Product description

Badotherm pressure gauge model BDT20 63mm is the solid front, safety pattern gauge according the highest class of the EN 837-1 / 9.7.2 and ANSI B 40.1. The BDT20 stainless steel safety gauge has a solid front baffle wall and a pressure relieve back. This pressure gauge is typically used for applications in the chemical, petro-chemical, and oil & gas industry or anywhere where safety comes first. These gauges are designed to withstand the severest of operating conditions created by the ambient environment and the process medium

Design standard

EN837-1

Dial sizes, ranges & accuracy

Possibilities in ranges and accuracies are led by the dial size Accuracy class is based on dry gauges. Liquid filling can affect the accuracy.

Dial size	Ranges	Accuracy
63mm	0…1 to 0...1000 bar	1.6%

Mounting variation

Not all gauges are suitable for some mounting variations. For the BDT18 series the mounting variations are below.

- **type A** (10) bottom connection, direct mounting
- **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	F
63mm	•			•	•	

Process connection

Dial size	Standard thread	optionally	SW size
63mm	G ¼ B or ¼ " NPT	M12x1.5	14mm

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

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

Materials of construction

	BDT20	BDT20…M
Case	AISI 304 (optionally 316)	
Bezel		
Connection[1]	AISI 316	Alloy 400
Sensing element[1]	AISI 316	Alloy 400
Movement	Stainless steel	
Pointer	Aluminium	
Dial		
Window gasket	NBR	
Blow out		
Fill plug	NBR (HNBR for filled gauges)	
Mounting flanges	AISI 304	
Window	Laminated safety glass	

*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	0.75 x FSV	0.67 x FSV	FSV

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
Filled	-20°C …+60°C	-20°C…+90°C

The variation of indication caused by the effect of temperature shall not exceed: *± 0.4% / 10K FSV*

Window

Standard BDT20 63mm gauge has a laminated safety window.

Pointer

Standard pointer is a fixed black painted aluminum pointer.
The optional pointer is an adjustable slotted pointer

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 after overpressure, or sudden vacuum the gauge is protected by a stop pin on the dial.

Degree of protection

The BDT20 has a standard degree of protection of IP65. The values are determined according the IEC/EN 60529.

Case filling

The gauges can be filled with different kind of fill fluids. The fill fluids available are:

- BPF01 – Glycerine 86%
- BPF02 – Silicon
- BPF04 - Foaming service
- BPF05 - ECTFE inert fluid for oxygen service
- BPF06 – Glycerine 99.5%

Restrictor Screw

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

Special service

The gauges can be supplied cleaned for oxygen use. This means the gauge is assembled and tested in a special area free of oil. The gauges are individually packed in a plastic bag with marking. The symbol:

Certification & Declaration

Calibration

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

Pressure Equipment Directive - 2014_68_EU

PED approval is given according article 3.3 and is valid for ranges >200 bar. All gauges will be marked accordingly. A declaration of conformity can be supplied.

ATEX 114 - 2014/68/EU

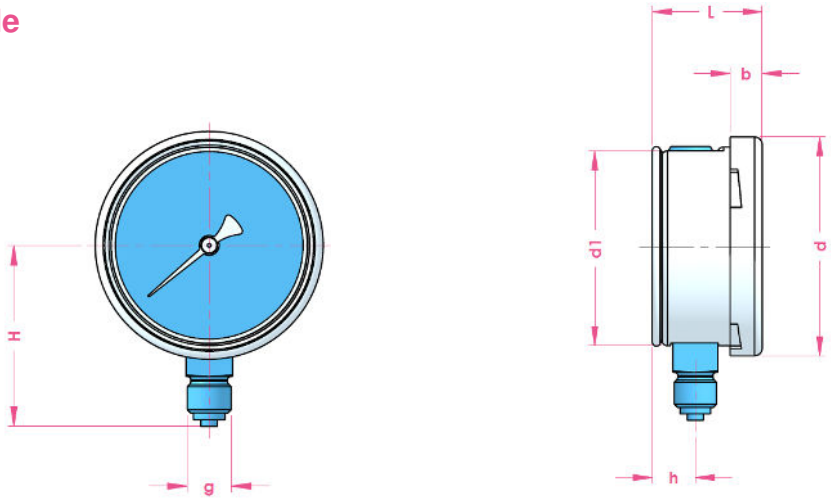
ATEX restrictions are explained in the IOM and in the ATEX background datasheet.

EN 10204 material certificate

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

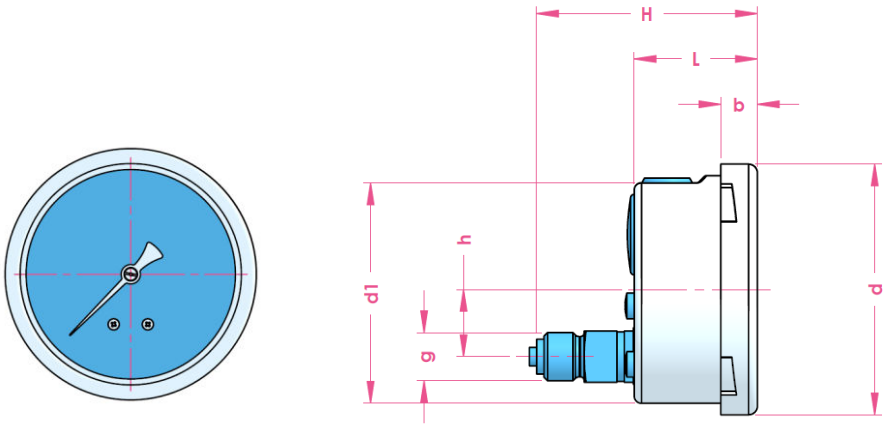
Dimensions table

Type A (10)



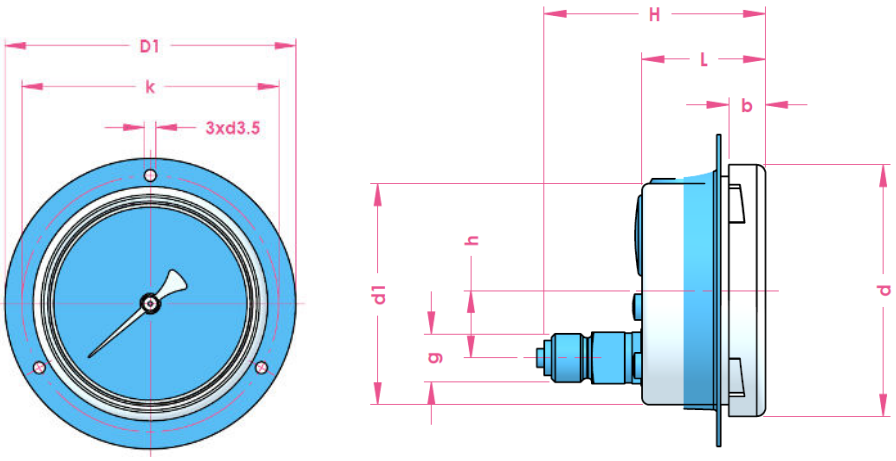
Dial size	d	d1	b	L	h	g	SW	H	weight
63	68.0	63.0	10.0	35.0	13.5	G 1/4"	14	54.0	0.2 / 0.3

Type D (30)



Dial size	d	d1	b	L	h	g	SW	H	weight
63	68.0	63.0	10.0	35.0	18.5	G 1/4	14	58.0	0.2 / 0.3

Type E (32)



Dial size	d	d1	b	b2	L	h	K	D1	g	SW	H	weight
63	68.0	63.0	10.0	13.7	35.0	18.5	75.0	85.0	G 1/4	14	56.5	0.2 / 0.3

Product code 63 mm

Code											
Example code:	**BDT20**	63	A	G14M	S363	S304	F	0	L	B50	16
TYPE											
63 mm ◄	63										
MOUNTING*1											
Bottom connection - direct mounting (10) ◄	A										
Lower back connection. - direct mounting (30)	D										
Lower back connection.- panel mount (32)	E										
CONNECTION											
M12x1.5	M12M										
G1/4◄	G14M										
1/4" NPT	G18M										
TUBE & SOCKET MATERIAL											
AISI 316◄	S363										
Alloy 400	A400										
CASE/BEZEL MATERIAL											
AISI 304◄	S304										
AISI 316	S300										
POINTER											
Fixed pointer◄	F										
Adjustable slotted pointer	A										
LIQUID FILLING											
Dry◄	0										
BPF 01 - Glycerine filled 1,23 (86%)	1										
BPF 06 - Glycerine filled 1,26 (99,5%)	6										
BPF 02 - Silicone filled	2										
BPF 04 - Foaming service	4										
BPF 05 - Oxygen service	5										
WINDOW*2											
Laminated glass (S1) ◄	L										
RANGE											
See page table 1 and table 2	….										
ACCURACY											
1,6 ◄	16										

◄: is the sign for the standard pressure gauge

Tabel 1: Pressure Range code

bar		psi		MPa		kPa		kgf/cm2	
Code	Range	Code	Range	Code	Range	Code	Range	Code	Range
C36	-1…0,6	C37	30Hg/15psi	N50	0…1,6	D36	-100…60	E36	-1…0,6
C38	-1…1,5	C39	30Hg/30psi	N54	0…2,5	D38	-100…150	E38	-1…1,5
C40	-1…3	C41	30Hg/60psi	N57	0…4	D40	-100…300	E40	-1…3
C42	-1…5	C44	30Hg/100psi	N58	0…6	D42	-100…500	E42	-1…5
C45	-1…9	C46	30Hg/150psi	N60	0…10	D45	-100…900	E45	-1…9
C50	-1…15	C50	30Hg/220psi	N62	0…16	D50	-100…1500	E50	-1…15
C54	-1…24	C53	30Hg/300psi	N65	0…25	D54	-100…2400	E54	-1…24
B01	-1…0	P32	0…10	N69	0…40	L01	-100…0	K01	-1…0
B04	-0,6…0	P35	0…15	N71	0…60	L04	-60…0	K04	-0,6…0
B31	0…0,6	P37	0…30	N73	0…100	L31	0…60	K31	0…0,6
B35	0…1	P40	0…60			L35	0…100	K35	0…1
B36	0…1,6	P43	0…100			L36	0…160	K36	0…1,6
B38	0…2,5	P46	0…160			L38	0…250	K38	0…2,5
B40	0…4	P48	0…200			L40	0…400	K40	0…4
B42	0…6	P51	0…300			L42	0…600	K42	0…6
B45	0…10	P55	0…400			L45	0…1000	K45	0…10
B50	0…16	P56	0…500					K50	0…16
B54	0…25	P57	0…600					K54	0…25
B57	0…40	P58	0…800					K57	0…40
B58	0…60	P59	0…1000					K58	0…60
B60	0…100	P60	0…1500					K60	0…100
B62	0…160	P61	0…2000					K62	0…160
B65	0…250	P64	0…3000					K65	0…250
B69	0…400	P66	0…4000					K69	0…400
B71	0…600	P68	0…5000					K71	0…600
B73	0…1000	P69	0…6000					K73	0…1000
		P72	0…10000						
		P73	0…15000						

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
Restrictor screw 0.8mm	_RS8
Calibrated at 0°	C0
Calibrated at 180°	_C180
Cleaned for Oxygen use	_CFO
NACE ISO 15156 (MR 01 75) (alloy 400)	_N75
ATEX II2GDc-IM2c	_ATEX
3.1 material certificate	_IC31
Calibration certificate 5 points	_CC5

Change log

Date	Change
25-8-2020	Added text “Optionally 316” in MOC table
	Clarified tube material in coding table
9-2-2023	Removed option G 1/8 A and 1/8” NPT-m
	Added M12x1.5 thread option