

GAS FILLED THERMOMETER

MODEL
M3.02



PRODUCT DESCRIPTION

The thermometer measures temperature either by a rigid tube or flexible capillary inserting into a Thermowell. The temperature is accurately measured by the gas inside the thermometer expanding and contracting in relation to the temperature. This thermometers has been designed for applications where strong shocks and vibrations occur. The thermometers are completely made of stainless steel. Various insertion lengths and process connections are available to optimally match the requirements of each process.



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KEY FEATURES

- Case filled versions
- Inert gas (N₂ /Air) filled system
- Rigid stem & capillary remote mounting
- Stainless steel Case & Stem
- Connection type adjustable
- Standard Followed : EN 13190

SPECIFICATIONS

Design Standard	: According to EN 13190
Sensing Element	: Inert gas filled bulb
Accuracy	: Class 1 as per EN 13190
Dial Size	: 100mm (4"), 150mm (6")
Process Conn. Location:	Bottom connection
Process Conn. Size	: ½" NPT (M) , ½" BSP (M) (Other sizes on request)
Mounting	: Bottom
Ambient temperature	: -25°C to 65 °C
Operating pressure	: 15 kg/cm ²
Over temp. range	: 1.3 x FS value ≥ 250 °C 1.1 x FS value ≥ 250 °C up to 500 °C
Range	: -100 up to 650 °C
Ingress Protection	: IP68
Approvals	: Atex

MATERIAL OF CONSTRUCTION

Case & Bezel Ring	: SS 304 (Bayonet type)
Stem & Process Connection	: SS 316
Pointer	: Micrometer zero adjustable, Aluminum black powder coated
Dial background	: Aluminum, Black graduation on white
Window	: Toughened Safety glass
Gasket	: Neoprene
Weld joints	: TIG argon arc welding

APPLICATION

- Oil & Gas Industries
- Liquid & Gaseous mediums
- Chemical & Petrochemical
- Food & Beverages
- Pulp and Paper
- Nuclear Power plants
- Fertilizer, Cement, Sugar

STANDARD RANGE

Positive range single scale

0/60 °C	0/160 °C	0/400 °C
0/80 °C	0/200 °C	0/500 °C
0/100 °C	0/250 °C	0/600 °C
0/120 °C	0/300 °C	50/650 °C

Compound range single scale

-60/60 °C	-20/80 °C	-20/180 °C
-60/40 °C	-40/60 °C	-20/100 °C
-20/60 °C	-30/50 °C	

CASE FILLING (OPTIONAL)

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

- Glycerin fluid (99.7%)
- Silicon fluid

CERTIFICATION & APPROVALS

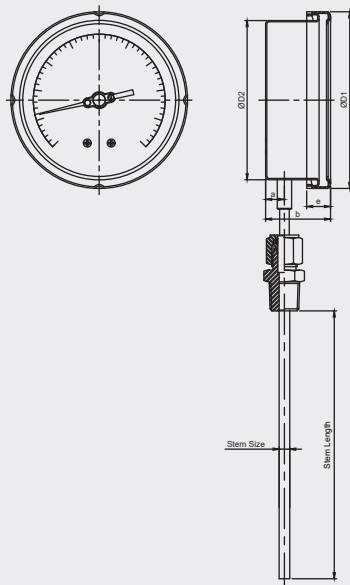
Calibration Certificate	: Gauges are factory calibrated to full range by default 5-Point Calibration Cert.
Material Certification	: Only For Wetted parts With Chemical Composition
NACE Compliance	: Available as per MR 01 75/ MR 01 03 (ISO 15156) for wetted parts (Optional)
Approvals	: ATEX: Conformity acc. to RL 2014/34/EU II 2 GD Ex h T6 (Optional)

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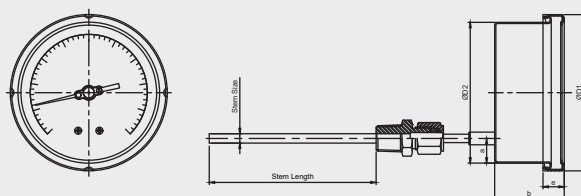
DIMENSIONAL DRAWINGS

Direct Bottom connection



NS	Dimensions are in mm					Weight in gram	
	a	b	ØD1	ØD2	e	Dry Version	Glycerin Version
100	12	50	111	100	15	495	550
150	12	50	166	148	17	988	1075

Direct Lower back connection



NS	Dimensions are in mm					Weight in gram	
	a	b	ØD1	ØD2	e	Dry Version	Glycerin Version
100	20	50	111	100	15	460	510
150	20	50	166	148	17	938	1075

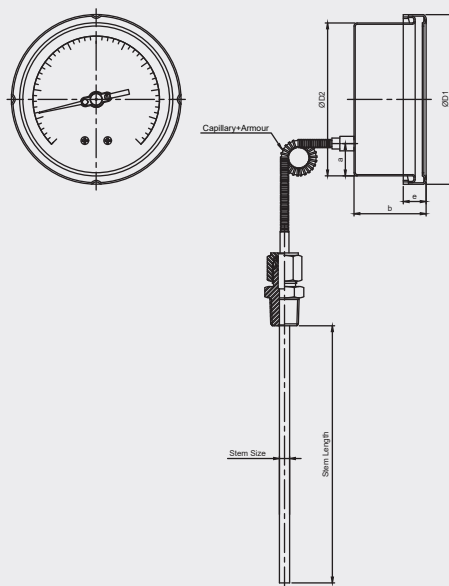
Important Notes: Above drawings are not to scale.

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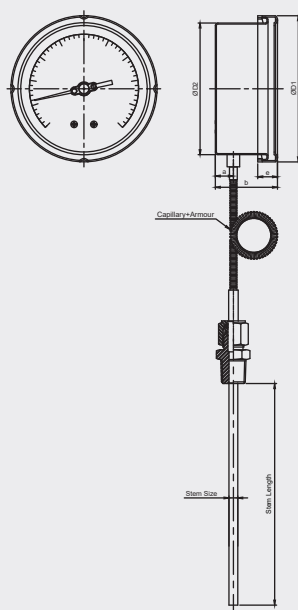
DIMENSIONAL DRAWINGS

Direct Lower back with capillary connection



NS	Dimensions are in mm					Weight in gram	
	a	b	ØD1	ØD2	e	Dry Version	Glycerin Version
100	12	50	111	100	15	495	550
150	12	50	166	148	17	988	1075

Direct Bottom with capillary Connection



NS	Dimensions are in mm					Weight in gram	
	a	b	ØD1	ØD2	e	Dry Version	Glycerin Version
100	12	50	111	100	15	495	550
150	12	50	166	148	17	988	1075

Important Notes: Above drawings are not to scale.

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MODEL CODING & ORDERING INFORMATION

DESCRIPTION	CODE	M3.02	4	SM	1	B	14BM	B06	XXX	XXX	S4	S6	XX	X16
Model														
Gas Filled Thermometer	M3.02	M3.02												
Dial Size														
100 mm (4")	4		4											
150 mm (6")	6													
Version														
Stem / Rigid	SM			SM										
Capillary / Remote	CP													
Dampening														
None/Dry (but fillable)	1				1									
Glycerin filled	2													
Silicon Oil filled	3													
Type of Mounting/Connection Orientation														
Direct Bottom connection	B					B								
Direct Lower back connection	L													
Process Connection (Size & Type)														
¼" BSP (M) (*)	14BM						14BM							
¼" NPT (M) (*)	14NM													
½" BSP (M)	12BM													
½" NPT (M)	12NM													
1/8" BSP (M) (*)	18BM													
1/8" NPT (M) (*)	18NM													
3/8" BSP (M) (**)	38NM													
M20 × 1.5 (M)	M20M													
1 ½" Tri-clover (Stem Dia Max.12mm)	12TC													
Note - * Stem Dia. Max 6.35 mm ** Stem Dia. Max. 10 mm														
Stem Diameter														
Ø 6 mm	B06							B06						
Ø 6.35 mm	B63													
Ø 8 mm	B08													
Ø 10 mm	B10													
Ø 12 mm	B12													
Stem Length														
As per requirement in mm	XXX								XXX					
Range														
To be selected from Table 1 (Other on request)	XXX									XXX				
Capillary														
SS 304	S4										S4			
SS 316	S6											S6		
Armour														
SS 304	S4													
SS 316	S6													
PVC (Amb. Temp. 60 °C)	PV													
Capillary Length														
1 Mtr. up to 10 Mtr.	XX												XX	
Other Options														
Tag number marking on Dial	XTM													
Back flange for bottom mounting	XBF													
2" Pipe mounting bracket for bottom mounting	XB4													
Front flange for lower back mounting	XFF													
"U" Clamp mounting for lower back mounting	XUB													
Calibration Certificate	X16													X16
Material test certificate	X17													
SS Tag plate	X26													
Custom Dial Design / Private labeling	X29													
Case & bezel SS 316*	X31													
Dampening liquid silicon oil (up to 200 °C)*	X98													
Dampening liquid silicon oil (up to 300 °C)*	X99													

Note: Dampening Temp. Range: Glycerin – up to 65 °C, Silicon Oil - up to 200 °C, Silicon Oil - up to 300 °C

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SAMPLE ORDERING CODE:

M3.02-4.SM.1.B.14BM.B06.XXX.XXX.S4.S6.XX.X16

Note: Specifications and dimensions given in this product catalogue represents the state of engineering at the time of printing. Modifications may take place and material specified may be replaced by others without prior notice.