

## Bimetal thermometer

### Chemical version With or without damping

Nominal size 63, 100, 160

Accuracy class 1



### Description

These thermometers are suitable for raw ambient conditions. Case, ring and stem are made of stainless steel. With a liquid filling, the thermometers can be used at measuring points with high vibrations. The liquid damped thermometers can be used for temperatures up to 250°C. If the measured temperature is higher than 250°C, filled gas-actuated thermometers can be used

The measuring element of the bimetal thermometer is a quick reacting bimetal coil. It is manufactured from two cold-welded metal strips with different thermal expansion coefficients and rotates in proportion to temperature. The rotary movement is conveyed to the pointer with low friction.

A version with rotateable (360°) and turnable case (90°) allow the thermometer to be aligned as desired under all installation conditions.

In conjunction with a corresponding thermowell, these thermometers can also be used with aggressive media or high process-pressures.

### Features

- Short response time
- Nominal sizes acc. to DIN
- Large selection of standard versions
- Customized versions available
- For aggressive media

### Options

- Filled versions for measuring points with high vibrations
- Models with turnable and rotateable connection

### Measuring ranges

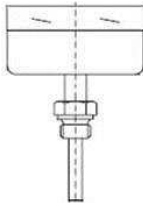
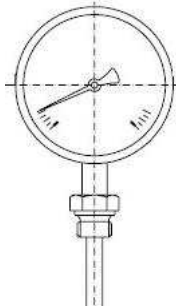
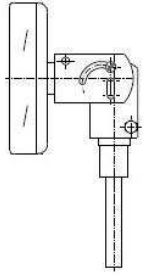
-70 ... 30 °C up to 0 ... 600°C

### Applications

Chemical and petrochemical industry  
Process engineering  
Food industry

**Models: TM310, TM320, TM330**

## Technical data

Model	TM310	TM320	TM330	
				
<b>Process connection</b>	Back mount	Lower mount	Turnable / rotateable	
<b>Nominal size (mm)</b>	63 100 160	63 100 160	100 160	
<b>Accuracy</b>	Class 1 acc.to EN13190			
<b>Scale range</b>	<b>Scale range [°C]<sup>1)</sup></b>	<b>Measuring range [°C]</b>	<b>Limits of error [°C]</b>	
<b>Measuring range</b>	-70 ... 30	-60 ... 20	± 1	
<b>Limits of error</b>	-30 ... 50	-20 ... 40	± 1	
	-20 ... 60	-10 ... 50	± 1	
	0 ... 60	10 ... 50	± 1	
	0 ... 120	10 ... 110	± 2	
	0 ... 160	20 ... 140	± 2	
	0 ... 200	20 ... 180	± 2	
	0 ... 250	30 ... 220	± 2,5	
	0 ... 300	30 ... 270	± 5	
	0 ... 400	50 ... 350	± 5	
	0 ... 500	50 ... 450	± 5	
	0 ... 600	100 ... 500	± 10	
<b>Range of use</b>	Constant load (1 year): Measuring range Short time (≤ 1h): Scale range			
<b>Design of connection</b>	Plain stem (without thread) Standard, male thread Male nut Union nut Compression fitting, sliding on stem			
<b>Material case / ring / stem</b>	Stainless steel			
<b>Window</b>	Instrument glass			
<b>Dial</b>	White aluminium, black marking and scale			
<b>Measuring element</b>	Bimetal coil			
<b>Pointer</b>	Aluminium black, adjustable pointer			
<b>Ingress protection</b>	IP65 acc.to EN 60529			
<b>Max pressure at stem</b>	Max. 25 bar statical			
<b>Weight (kg)</b>	<b>NG 63</b>	0,250	0,250	-
	<b>NG100</b>	0,800	0,800	0,500
	<b>NG160</b>	1,100	1,100	0,700

1)  $T_{max} = 250^{\circ}\text{C}$  for thermometers with damping

Thermowells: see data sheet DE 1060, DE 1061, DE1062

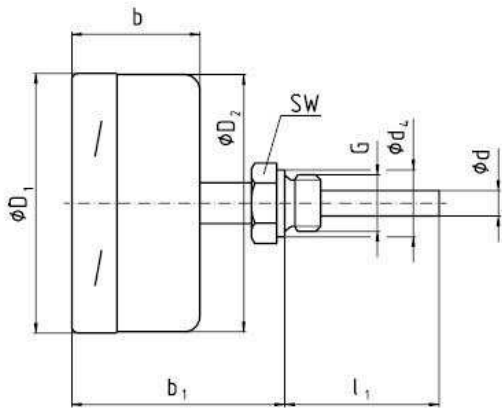
Thermometer with contact: see data sheet DE 1050

## Design of connection

	Male thread	Plain stem	Male nut	Union nut	Compression fitting, sliding on stem										
Stem-length $l_1$	63 mm 100 mm 160 mm 200 mm 250 mm	140 mm 200 mm 240 mm 290 mm	80 mm 140 mm 180 mm 230 mm	89 mm 126 mm 186 mm 226 mm 276 mm	variable minimum insertion length $l_{\min} = 60$ mm  Length $l \geq l_1 + 35$ mm										
Dimensions															
Stem diameter $\varnothing d$	Standard 8 mm Option: 6, 10, 12mm														
Thread and dimensions [mm]		SW	d4	i			SW	i		SW	d4	i			
	G 1/2	27	26	14		G 1/2	27	20	G 1/2	27	26	14			
	G 3/4	32	32	16					G 3/4	32	32	16			
	1/2 NPT	22	-	19					M24x1,5	32	13,5	M18x1,5	24	23	12
	3/4 NPT	30	-	20								1/2 NPT	22	-	19
													3/4 NPT	30	-
	Not possible with connection turnable/rotateable														

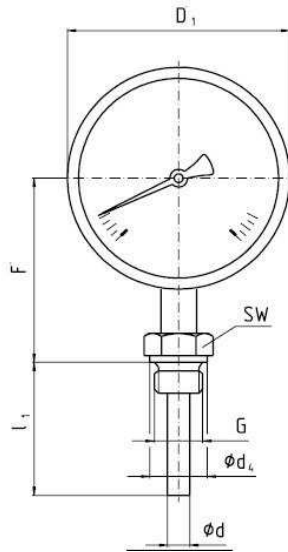
## Dimensions (mm)

Back mount



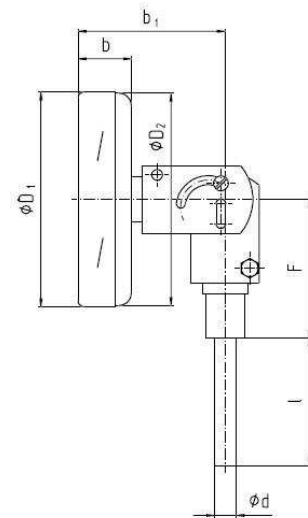
Model TM310

Lower mount



Model TM320

Turnable/rotateable



Model TM330

Model	Dimensions (mm)					
	D (NG)	$D_1$	$D_2$	F	b	$b_1$
TM310	63	64	62	57	35	60
TM320	100	101	99	83	50	83
	160	161	159	113		
TM330	100	101	99	68	25	68
	160	161	159			

Other dimensions see page 3 "Design of connection"

- Dimensions will be increased by 40mm, by display ranges:  $\geq 0 \dots 300^\circ\text{C}$
- Option: stem –  $\phi 6, 10, 12$  mm

Subject to technical modifications