

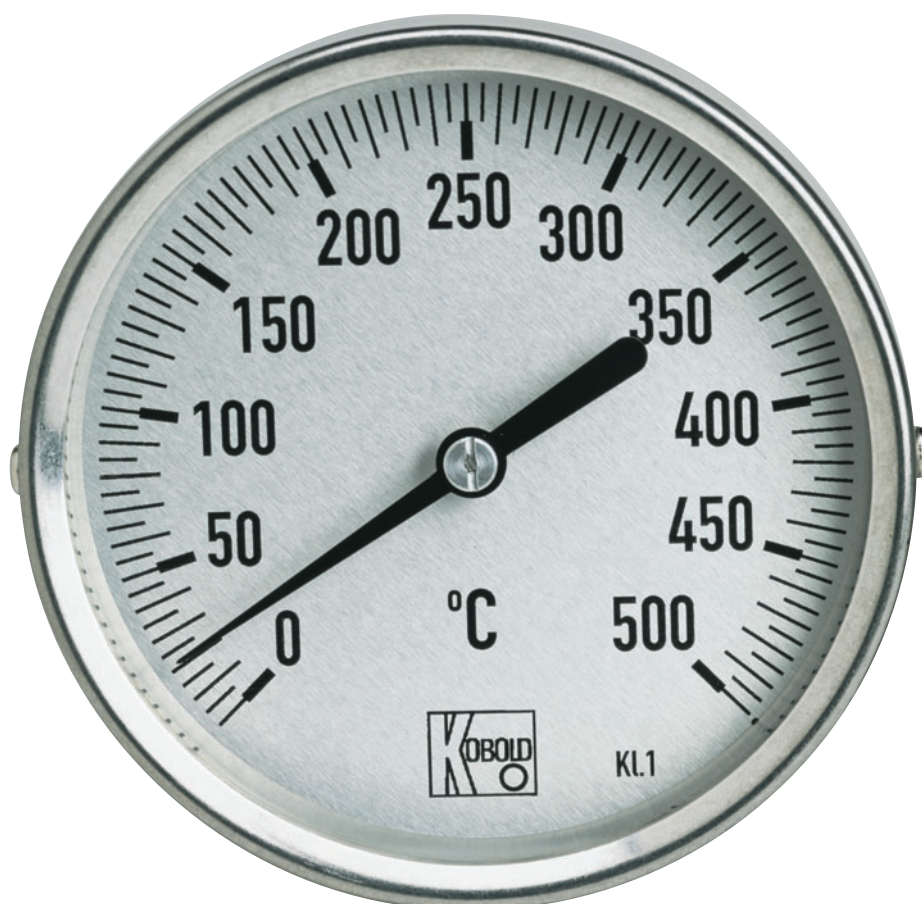


## Bimetallic Thermometers

for Industrial Applications,  
Accuracy Class 1



measuring  
•  
monitoring  
•  
analysing



- Fast response times
- Large selection of standard versions
- Special versions at customer request
- Nominal sizes: 63, 80 and 100 mm
- Temperatures:  
-30 ... +50 °C to 0 ... +500 °C



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**Model:**  
TBI-I...  
TBI-S...

**Application and Description**

The bimetallic thermometers are used on site for direct temperature measurement. A wide range of standard versions allows a variety of applications. Furthermore special versions are manufactured to customer specification.

Special areas of application heavy industrial plants, piping and vessels, machines etc.

The devices are installed into a thermowell with adjusting screw. Simply screw in the thermowell, plug in the thermometer and clamp with the adjusting screw.

**Method of Operation**

The measuring element of the bimetallic thermometer is a fast-response bimetallic helix. It is manufactured from two cold-welded strips of metal with different thermal coefficients of expansion and it becomes twisted as a function of temperature. The rotary motion is transferred with low friction to the pointer.

**Features**

- High-quality, low-friction, particularly stable bimetallic system in accuracy class 1
- Short temperature damping time with optimized adaptation of the protective tube to the special light-metal bulb
- Reduced vibration effects with ruggedized and overtemperature protected bimetallic element
- Extremely solid and torsionally strong case
- Fast and perfect measuring-point sealing with specially roughened protective tube thread



**Technical Details**

- Permissible operating pressure of thermowell: 6 bar with copper alloy, 25 bar with steel St35 or st.st. 1.4571
- Measuring element: bimetallic helix
- Dial angle: approximately 270°
- Range of application: continuous: measuring range short-time (< 1 h): 1.1 meas. range category 1 (according to DIN 16203)
- Accuracy: adjusting pointer
- Display correction: stainless steel 1.4301
- Casing: bottom or centre back
- Protective tube: copper alloy, St35, st. steel 1.4571

**Connection construction: smooth, D=8 mm with collar for protective tube**

- Window: instrument glass
- Dial face: aluminium matt finish with fine graduation, dial and inscription black
- Pointer: aluminium black, trimming pointer
- Option: dual scale °C/°F scaling °F

**Order Details** (Example: TBI-SRD 35 045 1 R)

Model	Nominal size	Connection	Measuring range	with Thermowell		
				Length (L1)	Material	Connection
TBI-SRD..	63 mm	centre back	..35..=-30... +50°C, division 0.5°C	..045..= 45 mm	..00.. =without thermowell st. steel 1.4571	..R= G 1/2 AG
TBI-SRE..	80 mm		..26..=-20... +60°C, division 0.5°C	..063..= 63 mm	..1.. =copper alloy ..2.. =St 35 ..3.. =st. steel 1.4571	
TBI-SRF..	100 mm		..10..= 0...+100°C, division 1°C <sup>1)</sup>	..100..=100 mm		
			..12..= 0...+120°C, division 1°C	..160..=160 mm		
			..16..= 0...+160°C, division 2°C	..200..=200 mm		
		bottom	..20..= 0...+200°C, division 2°C	Length (L2)		
TBI-SUF..	100 mm		..25..= 0...+250°C, division 2°C	..043..= 43 mm	..00.. =without thermowell st. steel 1.4571	..S= welded
				..080..= 80 mm	..2.. =St 35	
			..140..=140 mm	..3.. =st. steel 1.4571		
				..180..=180 mm		

Please specify options in writing

<sup>1)</sup> not with bottom connection

**Application and Description**

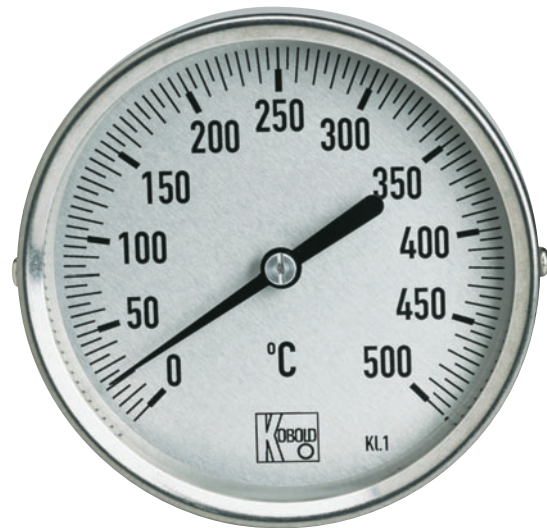
The bimetallic thermometers are used on site for direct temperature measurement. A wide range of standard versions allows a variety of applications. Furthermore special versions are manufactured to customer specification. The device is installed directly or by screwing into a thermowell according to DIN.

**Method of Operation**

The measuring element of the bimetallic thermometer is a fast-response bimetallic helix. It is manufactured from two cold-welded strips of metal with different thermal coefficients of expansion and it becomes twisted as a function of temperature. The rotary motion is transferred with low friction to the pointer.

**Features**

- High-quality, low-friction, particularly stable bimetallic system in accuracy class 1
- Short temperature damping time with optimized adaptation of the thermowell to the special light-metal bulb
- Reduced vibration effects with ruggedized and overtemperature protected bimetallic element
- Extremely solid and torsionally strong case
- Fast and perfect measuring-point sealing with specially roughened thread



**Technical Details**

Permissible operating pressure of thermowell: max. 25 bar  
 Measuring element: bimetallic helix  
 Dial angle: approximately 270 °  
 Range of application: continuous: measuring range  
 short-time (< 1 h): 1.1 meas. range category 1 (acc. to DIN 16203)  
 Accuracy: adjusting pointer  
 Display correction: stainless steel 1.4301  
 Casing: st. st. 1.4571  
 Immersion tube: bottom or centre back  
**Connection construction: G 1/2 male thread**  
 Immersion probe: D= 8 mm  
 Window: instrument glass  
 Dial face: aluminium matt finish with fine graduation, dial and inscription black  
 Pointer: aluminium black, trimming pointer  
 Option: dual scale °C/°F  
 scaling °F  
 gliding mark pointer  
 max. pointer

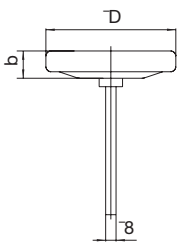
**Order Details** (Example: TBI-IRD350453G)

Model	Nominal size	Connection	Measuring range	Bulb		
				Length (L1)	Material	Connection
TBI-IRD..	63 mm	centre back	..35..=-30... +50 °C, division 0.5 °C ..26..=-20... +60 °C, division 0.5 °C ..06..= 0... +60 °C, division 0.5 °C	..063..= 63 mm ..100..=100 mm ..160..=160 mm ..200..=200 mm ..250..=250 mm	..3..= st. steel 1.4571	..G=G 1/2 AG
TBI-IRE..	80 mm		..08..= 0... +80 °C, division 0.5 °C ..10..= 0...+100 °C, division 1 °C ..12..= 0...+120 °C, division 1 °C			
TBI-IRF..	100 mm		..16..= 0...+160 °C, division 2 °C ..20..= 0...+200 °C, division 2 °C ..25..= 0...+250 °C, division 2 °C			
TBI-IUF..	100 mm	bottom	..30..= 0...+300 °C, division 2 °C ..40..= 0...+400 °C, division 2 °C ..50..= 0...+500 °C, division 2 °C			

**Dimensions**

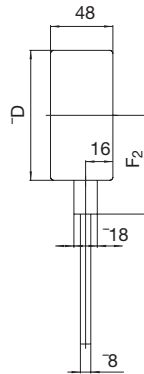
with smooth immersion probe and thermowells

**Model  
TBI-SR...**



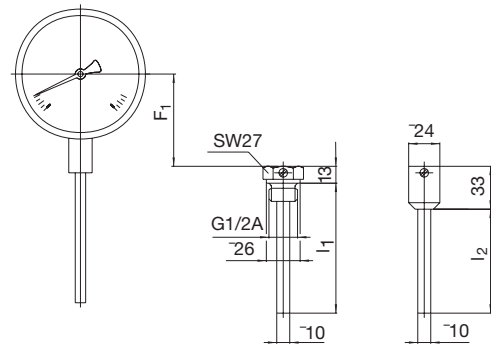
Dimensions (mm)	
D (NG)	b
63	16
80	17
100	21

**Model  
TBI-SU...**



Dimensions (mm)		
D (NG)	F <sub>1</sub>	F <sub>2</sub>
100	70	78

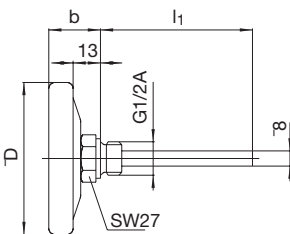
**Thermowell  
for screwing in      for welding in**



Dimensions see Order Details

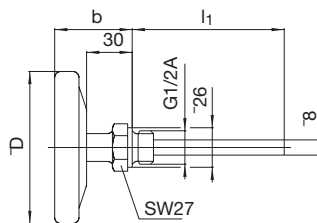
with thread connection for thermowells according to DIN

**Model  
TBI-IR... (up to 250 °C)**



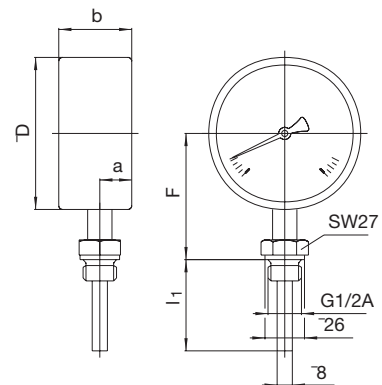
Dimensions (mm)	
D (NG)	b
63	29
80	30
100	35

**Model  
TBI-IR... (from 300 °C)**



Dimensions (mm)	
D (NG)	b
63	46
80	47
100	52

**Model  
TBI-IU...**



Dimensions (mm)			
D (NG)	a	b	F
100	17	44	83