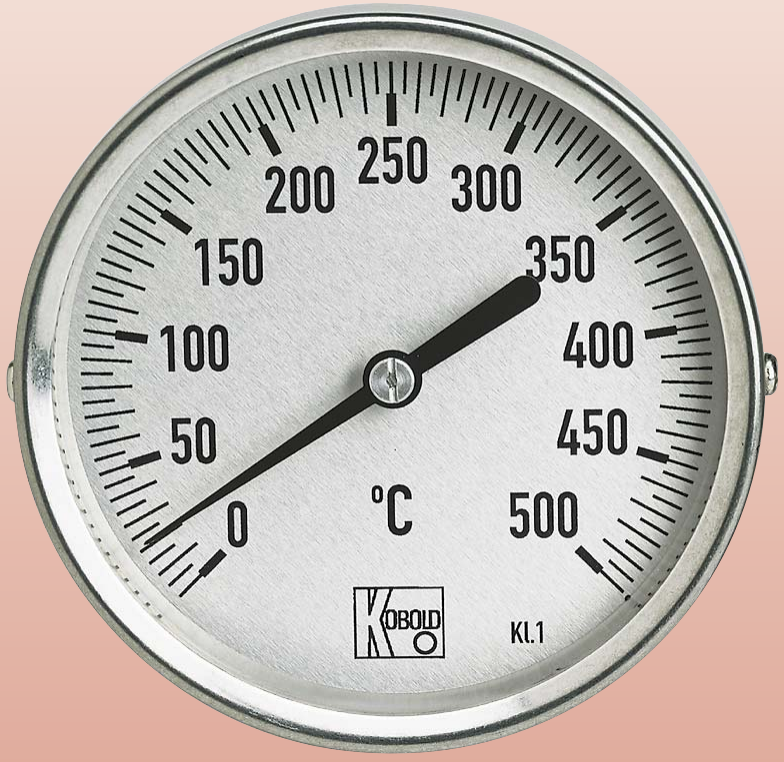
Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Bimetallic Thermometers

for Industrial Applications,
Accuracy Class 1

measuring
•
monitoring
•
analysing

TBI-I.../-S...



- 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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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

Permissable operating pressure of thermowell:	6 bar with copper alloy 25 bar with steel St 35 or stainless steel 1.4571
Measuring element:	bimetallic helix
Dial angle:	approximately 270°
Range of application:	continuous measuring range short-time (< 1 h): 1.1 meas. range
Accuracy:	category 1 (according to DIN 16203)
Display correction:	adjusting pointer
Casing:	stainless steel 1.4301
Connection:	bottom or centre back
Protective tube:	copper alloy, St 35, 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

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 1 °C ..**26**.. = -20 ... +60 °C, division 1 °C ..**06**.. = 0 ... +60 °C, division 1 °C ..**08**.. = 0 ... +80 °C, division 1 °C ..**10**.. = 0 ... +100 °C, division 2 °C[1] ..**12**.. = 0 ... +120 °C, division 2 °C/ ..**16**.. = 0 ... +160 °C, division 2 °C ..**20**.. = 0 ... +200 °C, division 5 °C ..**25**.. = 0 ... +250 °C, division 5 °C	..**045**..= 45 mm[2] ..**063**..= 63 mm ..**100**..= 100 mm ..**160**..= 160 mm ..**200**..= 200 mm	..**00**.. = without thermowell st. steel 1.4571	
TBI-SRE..	80 mm				..**1**.. = copper alloy ..**2**.. = St 35 ..**3**.. = st. steel 1.4571	..**R** = G ½ male
TBI-SRF..	100 mm					
TBI-SUF..	100 mm	bottom		**Length (L2)**		
				..**043**..= 43 mm ..**080**..= 80 mm ..**140**..= 140 mm ..**180**..= 180 mm	..**00**.. = without thermowell st. steel 1.4571	..**S** = welded
					..**2**.. = St 35 ..**3**.. = st. steel 1.4571	

Please specify options in writing

[1] not with bottom connection

[2] length 45 mm for TBI-SUF on request

1/12-2012

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

Permissable 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
Accuracy:	category 1 (acc. to DIN 16203)
Display correction:	adjusting pointer
Casing:	stainless steel 1.4301
Immersion tube:	stainless steel1.4571
Connection:	bottom or centre back
Connection construction:	**G ½ 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

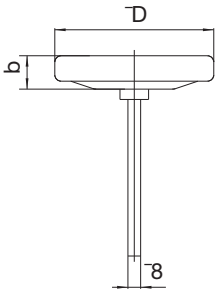
Order Details (Example: **TBI-IRD 35 045 3 G**)

Model	Nominal size	Connection	Measuring range	Probe		
				Length (L1)	Material	Connection
TBI-IRD..	63 mm	centre back	..**35**.. = -30 ... +50 °C, division 1 °C ..**26**.. = -20 ... +60 °C, division 1 °C ..**06**.. = 0 ... +60 °C, division 1 °C ..**08**.. = 0 ... +80 °C, division 1 °C ..**10**.. = 0 ... +100 °C, division 2 °C ..**12**.. = 0 ... +120 °C, division 2 °C ..**20**.. = 0 ... +160 °C, division 5 °C ..**25**.. = 0 ... +250 °C, division 5 °C ..**30**.. = 0 ... +300 °C, division 5 °C ..**40**.. = 0 ... +400 °C, division 5 °C ..**50**.. = 0 ... +500 °C, division 5 °C	..**063**..= 63 mm ..**100**..= 100 mm ..**160**..= 160 mm ..**200**..= 200 mm ..**250**..= 250 mm	..**3**.. = st. st. 1.4571	..**G** = G ½ male
TBI-IRE..	80 mm					
TBI-IRF..	100 mm					
TBI-IUF..	100 mm	bottom				

Dimensions

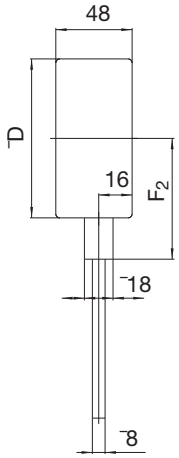
with smooth immersion probe and thermowells

Model TBI-SR...



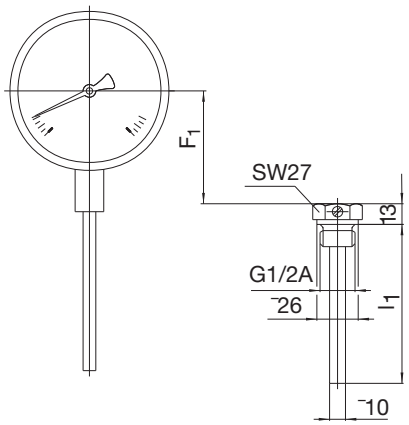
Dimensions in [mm]	
D (NG)	b
63	16
80	17
100	21

Model TBI-SU...

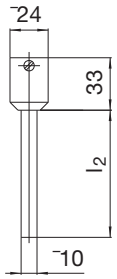


Dimensions in [mm]		
D (NG)	F_1	F_2
100	70	78

Thermowell for screwing in



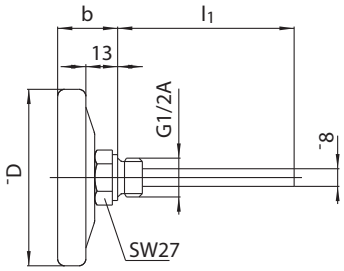
Thermowell for welding in



Dimensions see Order Details

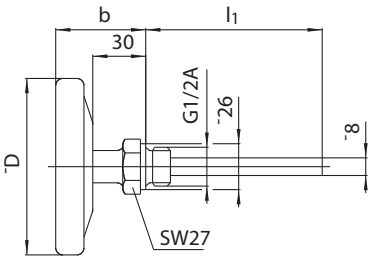
with thread connection for thermowells according to DIN

Model TBI-IR... (up to 250 °C)



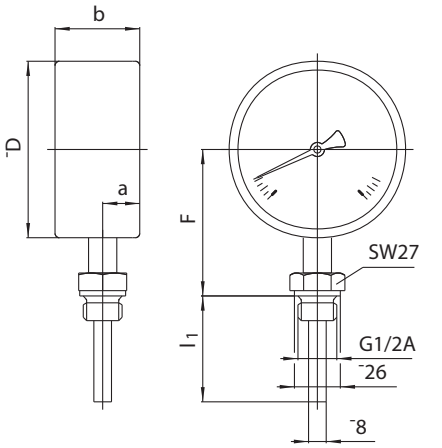
Dimensions in [mm]	
D (NG)	b
63	29
80	30
100	35

Model TBI-IR... (from 300 °C)



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

Model TBI-IU...



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

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