Bimetallic Thermometers
for Industrial Applications, Accuracy Class 1

- Fast response times
- Large selection of standard versions
- Special versions at customer request
- Nominal sizes: 63, 80, 100 and 160 mm
- Temperatures: -30 to +50°C to 0 to +500°C
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 (<1h): 1.1 measuring range
Accuracy: category 1 (according to DIN 16203)
Indication adjustment: trimming pointer
Casing: stainless steel 1.4301
Connection: bottom or centre back
Protective tube: copper alloy, St35, st. steel 1.5471
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

Connection Details

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal size</th>
<th>Connection</th>
<th>Measuring range</th>
<th>Length (L1/L2)</th>
<th>Material with Thermowell</th>
<th>Material Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI-SRD..</td>
<td>63 mm</td>
<td>centre back</td>
<td>..35..=30...+ 50°C, division 0.5°C</td>
<td>..045..= 45 mm</td>
<td>..00..= without thermowell</td>
<td>..R= G 1/2 AG</td>
</tr>
<tr>
<td>TBI-SRE..</td>
<td>80 mm</td>
<td></td>
<td>..26..=20...+ 60°C, division 0.5°C</td>
<td>..063..= 63 mm</td>
<td>..1..= copper alloy</td>
<td></td>
</tr>
<tr>
<td>TBI-SRF..</td>
<td>100 mm</td>
<td></td>
<td>..06..= 0...+ 60°C, division 0.5°C</td>
<td>..100..=100 mm</td>
<td>..1..= copper alloy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>..08..= 0...+ 80°C, division 0.5°C</td>
<td>..160..=160 mm</td>
<td>..2..= St 35</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>..10..= 0...+100°C, division 1°C</td>
<td>..200..=200 mm</td>
<td>..3..= st. steel 1.4571</td>
<td></td>
</tr>
<tr>
<td>TBI-SUF..</td>
<td>100 mm</td>
<td>bottom</td>
<td>..12..= 0...+120°C, division 1°C</td>
<td>..20..= 20°C</td>
<td>..0..= without thermowell</td>
<td>..S= welded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>..16..= 0...+160°C, division 1°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>..18..= 0...+200°C, division 2°C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please specify options in writing
Bimetallic Thermometers with Threaded Connection
Suitable for Thermowells According to DIN

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 (< 1h): 1.1 measuring range
- Accuracy: category 1 (according to DIN 16203)
- Indication adjustment: trimming pointer
- Casing: stainless steel 1.4301
- Connection: 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

Dial Angle: approximately 270°

Order Details (Example: TBI-IRD350453G)

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal size</th>
<th>Connection</th>
<th>Measuring range</th>
<th>Length (L1/L2)</th>
<th>Bulb Material</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBI-IRD..</td>
<td>63 mm</td>
<td>centre back</td>
<td>..35..=-30...+ 50°C, division 0.5°C</td>
<td>..045..= 45 mm</td>
<td>..3..=st. steel 1.4571</td>
<td>..G= G 1/2 AG</td>
</tr>
<tr>
<td>TBI-IRE..</td>
<td>80 mm</td>
<td>centre back</td>
<td>..26..=-20...+ 60°C, division 0.5°C</td>
<td>..063..= 63 mm</td>
<td>..100..=100 mm</td>
<td></td>
</tr>
<tr>
<td>TBI-IRF..</td>
<td>100 mm</td>
<td>centre back</td>
<td>..06..= 0...+ 60°C, division 0.5°C</td>
<td>..100..=100 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBI-IUF..</td>
<td>100 mm</td>
<td>bottom</td>
<td>..08..= 0...+ 80°C, division 0.5°C</td>
<td>..160..=160 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) with rear connection only

Connection

www.kobold.com

No responsibility taken for errors;
subject to change without prior notice.
Bimetallic Thermometers

Dimensions

with smooth immersion probe and thermowells

Model TBI-SR...

Model TBI-SU...

Thermowell for screwing in for welding in

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Dimensions (mm)</th>
<th>Dimensions see Order Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>D (NG)</td>
<td>b</td>
<td>F1</td>
</tr>
<tr>
<td>63</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>80</td>
<td>17</td>
<td>160</td>
</tr>
</tbody>
</table>

Dimensions (mm)

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>D (NG)</td>
<td>b</td>
<td>a</td>
</tr>
<tr>
<td>100</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>160</td>
<td>19</td>
<td>46</td>
</tr>
</tbody>
</table>

with threaded connection for thermowells according to DIN

Model TBI-IR... (up to 250°C)

Model TBI-IR... (from 300°C)

Model TBI-IU...

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