

### Application

An accurate temperature measurement starts with the selection of the appropriate probe. Consequently a vast range of probes is available to be used together with the TMDT series.

### Thermocouple

SKF digital thermometers are designed to be used together with a thermocouple type K, meaning that the material used is an alloy of nickel-chromium joined to an alloy of nickel-aluminium.



All probes can be used with the SKF Digital Thermometers TMDT series without re-calibration.

### Technical data probes, general

<b>Probe type</b>	K-type thermocouple (NiCr/NiAl) acc. DIN IEC 584 - class 1)
<b>Accuracy</b>	± 1,5 °C below 375 °C (707 °F) ± 0,4% of reading above 375 °C (707 °F)
<b>Handle</b>	110 mm (4 in) long
<b>Cable</b>	1000 mm (40 in) spiral cable (excl. TMDT 2-31, -38, -39, -41)
<b>Plug</b>	K-type miniplug (1260-K)

### Response time

The response is defined as the time it takes to run up to 63% of the final measurement value under standardised conditions, and should mainly be used as a reference value when comparing different probes. In reality this time also depends on the heat resistance of the object and the surface conditions.

### How to use surface probes

#### Angle

The surface probes should be pressed perpendicular to the surface. Maximum deviation should be below 5°.

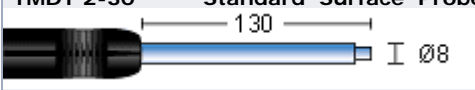


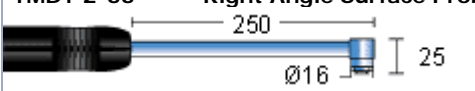
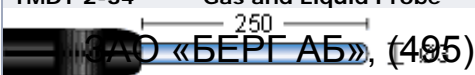
#### Surface conditions


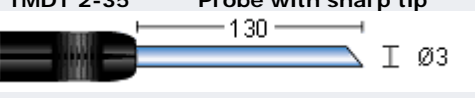
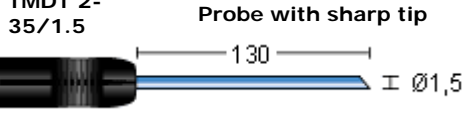


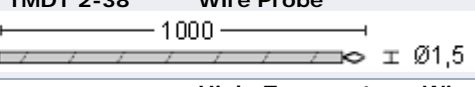
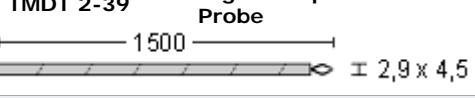
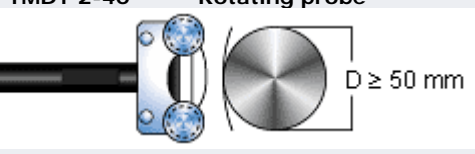
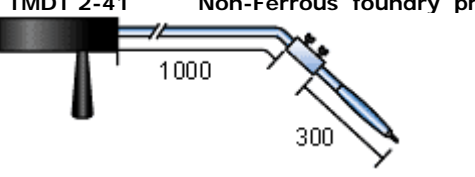
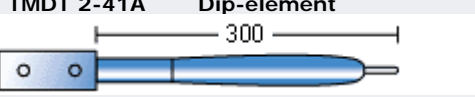
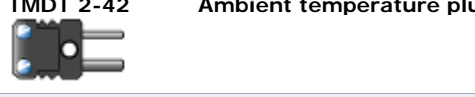
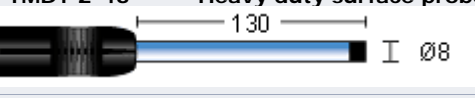
- The surface should be clean, since oil, dust and other heat resistant material prevent optimal thermal contact
- Surface should be flat and smooth. If not, apply heat conducting paste. Rough surfaces might damage the thermocouple
- The area to be measured should be larger than the area of the probe head diameter

#### Note

- Never attempt to cool down a surface probe by dipping it into water. Such fast temperature drops will speed up the ageing process of the probe tip
- Do not move a probe over the surface since this might destroy the probe

### Technical specifications

Designation	Description	Max. temp.	Response time
<b>TMDT 2-30</b> <b>Standard Surface Probe</b> 	For hard surfaces such as bearings, bearing housings, engine blocks, oven shields, etc.	900 °C (1650 °F)	2,3 s
<b>TMDT 2-31</b> <b>Magnetic Surface Probe</b> 	For hard metal surfaces. The integral heat sink design and the low mass minimizes thermal inertia and provides an accurate temperature measurement	240 °C (460 °F)	7,0 s
<b>TMDT 2-32</b> <b>Insulated Surface Probe</b> 	For hard surfaces where electrical wiring might cause short circuiting, e.g. electrical motors, transformers, etc	200 °C (390 °F)	2,3 s
<b>TMDT 2-33</b> <b>Right Angle Surface Probe</b> 	For hard surfaces in heavy duty applications, e.g. machine components, engines, etc.	450 °C (840 °F)	8,0 s
<b>TMDT 2-34</b> <b>Gas and Liquid Probe</b> 	Flexible shank made of stainless steel. For fluids such as oils, acids, etc. and at high temperature (e.g. open fire (not molten metals))	1100 °C	12,0 s

<p><b>TMDT 34/1.5</b> Gas and Liquid Probe</p> 	<p>Same as TMDT 2-34, but with thin shank and faster response. Very flexible, specially suitable for measuring temperature of gases</p>	<p>900 °C (1650 °F)</p>	<p>6,0 s</p>
<p><b>TMDT 2-35</b> Probe with sharp tip</p> 	<p>Can be easily inserted into semi-solid materials like foodstuff, meat, plastic, asphalt, deep-frozen products, etc.</p>	<p>600 °C (1110 °F)</p>	<p>12,0 s</p>
<p><b>TMDT 2-35/1.5</b> Probe with sharp tip</p> 	<p>Same as TMDT 2-35, but with thinner shank for faster response and for insertion into soft solids.</p>	<p>600 °C (1110 °F)</p>	<p>6,0 s</p>
<p><b>TMDT 2-36</b> Pipe Clamp Probe</p> 	<p>For temperature measurements of pipes, cables, etc. with a diameter up to 35 mm (1,4 in).</p>	<p>200 °C (390 °F)</p>	<p>8,0 s</p>
<p><b>TMDT 2-37</b> Extension Cable</p> 	<p>For use with all K-type probes. Special lengths available upon request.</p>	<p>-</p>	<p>-</p>
<p><b>TMDT 2-38</b> Wire Probe</p> 	<p>Thin, light weight probe with very fast response and fibreglass insulation.</p>	<p>300 °C (570 °F)</p>	<p>5,0 s</p>
<p><b>TMDT 2-39</b> High Temperature Wire Probe</p> 	<p>Same as TMDT 2-38 with ceramic insulation.</p>	<p>1350 °C (2460 °F)</p>	<p>6,0 s</p>
<p><b>TMDT 2-40</b> Rotating probe</p> 	<p>For moving or rotating smooth surfaces. Four roller bearings provide suitable contact with the surface. Max. velocity 500 m/min. Shaft 50 mm (2 in).</p>	<p>200 °C (390 °F)</p>	<p>0,6 s</p>
<p><b>TMDT 2-41</b> Non-Ferrous foundry probe</p> 	<p>Holder incl. one dip-element for molten, non-ferrous metals. Highly resistant to corrosion and oxidization at high temperatures.</p>	<p>1260 °C (2300 °F)</p>	<p>30,0 s</p>
<p><b>TMDT 2-41A</b> Dip-element</p> 	<p>Replacement element for TMDT 2-41.</p>	<p>1260 °C (2300 °F)</p>	<p>30,0 s</p>
<p><b>TMDT 2-42</b> Ambient temperature plug</p> 	<p>Gives the ambient temperature when measuring temperature differential.</p>	<p>-</p>	<p>-</p>
<p><b>TMDT 2-43</b> Heavy duty surface probe</p> 	<p>Same as TMDT 2-30 but with silicon encapsulated tip for heavy duty applications</p>	<p>300 °C 570 °F</p>	<p>3,0 s</p>

Special probes available on request.

