

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

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

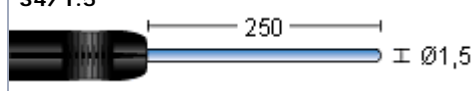

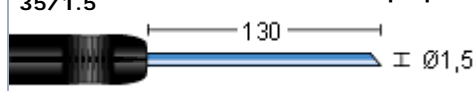


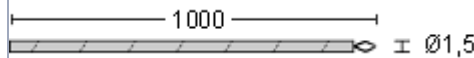
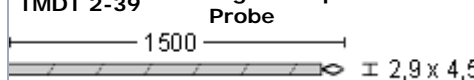
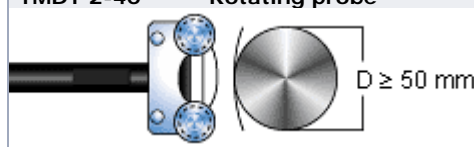
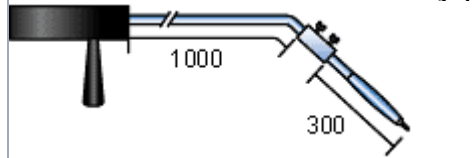

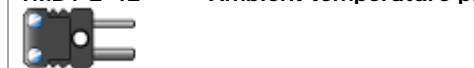
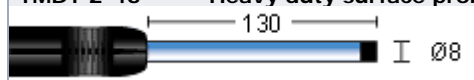
- The surface should be clean, since oil, dust and other heat resistant material prevent optimal thermal contact
- Surface should be flat and smooth. If not, apply heat conducting paste. Rough surfaces might damage the thermocouple
- The area to be measured should be larger than the area of the probe 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
TMDT 2-30 Standard Surface Probe 	For hard surfaces such as bearings, bearing housings, engine blocks, oven shields, etc.	900 °C (1650 °F)	2,3 s
TMDT 2-31 Magnetic Surface Probe 	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
TMDT 2-32 Insulated Surface Probe 	For hard surfaces where electrical wiring might cause short circuiting, e.g. electrical motors, transformers, etc	200 °C (390 °F)	2,3 s
TMDT 2-33 Right Angle Surface Probe 	For hard surfaces in heavy duty applications, e.g. machine components, engines, etc.	450 °C (840 °F)	8,0 s
TMDT 2-34 Gas and Liquid Probe 	Flexible shank made of stainless steel. For liquids such as oils, acids, etc., and at high temperature e.g. open fire (not molten metals).	1100 °C (2010 °F)	12,0 s

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

Special probes available on request.

