

TEMPERATURE PROBES



The NK-TP6100 series temperature probes are designed for use with thermometers and oven thermographs in paint and powder coating curing processes. They enable the precise measurement of the temperature of the workpiece and the air inside the oven, verifying that the necessary thermal profiles are achieved to ensure correct curing, prevent defects and guarantee the durability of the coating.

Manufactured from materials with high thermal resistance, they can be adapted to different types of workpiece, furnace and operating conditions using two mounting systems (magnet and clamp), two types of cable (Teflon up to 250 °C and fibreglass up to 400 °C) and two measurement methods (contact and air).

As they feature a DIN-type connector, they are compatible with most thermometers and thermographs on the market.

APPLICATION

- **Powder coating curing:**

verification of the time-temperature profile (PMT) in convection and infrared radiation ovens.

- **Aluminium lacquering:**

monitoring of workpiece temperature in curing ovens for profiles and sheet metal, in accordance with Qualicoat specifications.

- **Industrial liquid paint:**

recording the curing cycle in drying ovens for vehicle bodies and metal components.

- **Anti-corrosion coatings:**

monitoring the polymerisation process in curing ovens for epoxy and polyester paints.

- **Oven validation and qualification:**

thermal mapping of the oven interior to verify temperature uniformity.

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GENERAL CHARACTERISTICS

- Two types of cable: Teflon (up to 250 °C, flexible) and fibreglass (up to 400 °C, greater rigidity for high-temperature applications).
- Two mounting systems: magnet for magnetic materials (steel) and clamp for non-magnetic materials (aluminium, polymers).
- Two modes: contact probe (workpiece temperature) and air probe (ambient temperature inside the oven).
- Standard DIN connector compatible with most thermographs on the market.
- Cable length can be customised on request; standard length 3 metres.
- High thermal resistance materials for continuous use in industrial furnaces.

PART NUMBER CODING

The NK-TP6100 part numbers follow a structured naming convention that describes all the probe's characteristics:

- **Connector:**
D = DIN (standard compatible with most thermographs).
- **Cable length:**
03 = 3 metres (standard length). Can be customised to the required length.
- **Cable type:**
T = Teflon (temperature resistance up to 250 °C, greater flexibility).
F = Glass fibre (temperature resistance up to 400 °C, greater rigidity).
Al = Stainless steel (temperature resistance up to 800 °C)
- **Termination:**
I = Magnet (recommended for steel and magnetic materials).
P = Clamp (recommended for aluminium, polymers and non-magnetic materials).
- **Type of measurement:**
C = Contact (measures the surface temperature of the item).
A = Air (measures the ambient temperature inside the oven).

INSTRUCTIONS FOR USE

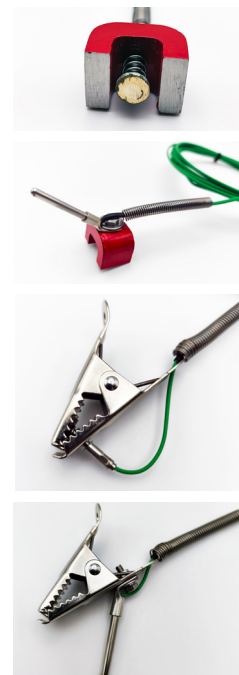
- Select the probe suitable for the material and the parameter to be measured before placing the thermograph in the oven.
- Ensure firm and uniform thermal contact between the probe and the surface of the workpiece.
- Position the contact probes at the most representative points on the workpiece (areas of greatest mass, corners, areas furthest from the heat source).
- Do not exceed the maximum temperature specified for the selected cable type.
- Check the cables and connectors regularly for signs of deterioration or excessive stiffness due to exposure to extreme temperatures.
- Clean the probe tips regularly to ensure accurate readings and prolong their service life.
- Store in a dry place, protected from impact and away from heat sources when not in use.

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MODELS

Temperature probes

Part number	Mounting	Connector	Cable	Max. temp.	Terminal type	Application
NK-TP6100-D03TIC	Magnet	DIN	Teflon	250 °C	Contact	Contact, magnetic component (steel)
NK-TP6100-D03TIA	Magnet	DIN	Teflon	250 °C	Air	Air, fitted to magnetic component
NK-TP6100-D03TPC	Clamp	DIN	Teflon	250 °C	Contact	Contact, non-magnetic part (aluminium)
NK-TP6100-D03TPA	Clamp	DIN	Teflon	250 °C	Air	Air, fitted to a non-magnetic part
NK-TP6100-D03FIC	Magnet	DIN	Glass fibre	400 °C	Contact	Contact, magnetic component — high temperature
NK-TP6100-D03FIA	Magnet	DIN	Glass fibre	400 °C	Air	Air — high temperature
NK-TP6100-D03FPC	Clamp	DIN	Glass fibre	400 °C	Contact	Contact, non-magnetic component — high temperature
NK-TP6100-D03FPA	Clamp	DIN	Glass fibre	400 °C	Air	Air, non-magnetic component — high temperature



Standard length: 3 m. Any other length can be requested by specifying the desired value in the code (replace '03' with the required length in metres).

SELECTION CRITERIA

The correct choice of probe depends on two main factors: the material of the part and the parameter to be measured.

Criterion	Magnet	Clamp
Workpiece material	Steel and magnetic materials — attaches easily and securely	Aluminium, polymers and non-magnetic materials — attaches to the end of the part
Oven temperature ≤ 250 °C	Teflon cable (T) — greater flexibility and manoeuvrability	Teflon cable (T) — greater flexibility and ease of handling
Furnace temperature > 250 °C	Glass fibre cable (F) — temperature resistance up to 400 °C	Glass fibre cable (F) — resistance up to 400 °C
Key parameter	Contact probe (C) to confirm the actual temperature of the workpiece (curing)	Air probe (A) to record the ambient temperature inside the oven

Recommendation: combine 1–2 air probes with 3–5 contact probes per workpiece, depending on its dimensions. Contact probes provide the key data for confirming curing; air probes provide the thermal context of the oven.