

Insertion thermometer With plastic moulded measuring element Model TF43

WIKA data sheet TE 67.13

Applications

- Refrigeration technology
- Cooling systems
- Air-conditioning equipment

Special features

- Measuring ranges from -50 ... +105 °C
(short time up to +120 °C)
- Measuring element NTC, Pt100, Pt1000
- Plastic moulded measuring element
- Waterproof
- Customer-specific designs



Insertion thermometer model TF43

Description

Measuring element, tolerance

WIKA standardly uses the following measuring elements for the model TF43 insertion thermometer:

- NTC, $R_{25} = 10 \text{ k}\Omega \pm 1 \%$, $B(25/85) = 3977$
- NTC, $R_{25} = 10 \text{ k}\Omega \pm 1 \%$, $B(25/85) = 3435$
- Pt100, class B per DIN EN 60751
- Pt1000, class B per DIN EN 60751

Others on request

Platinum elements offer the advantage of meeting international standards (IEC 751 / DIN EN 60751).

Due to material- and production-specific criteria, a standardisation of semiconductor elements, e.g. NTC's, is not possible. For this reason their interchange ability is limited.

Further advantages of platinum elements are: better long-term stability and better behaviour over temperature cycles, a wider temperature range as well as a high accuracy and linearity.

High measuring accuracy and linearity are also possible with NTC's, but only in a limited temperature range.

Strengths and weaknesses of the different measuring elements:

	NTC	Pt100	Pt1000
Temperature range	-	++	++
Accuracy	-	++	++
Linearity	-	++	++
Long-term stability	+	++	++
International standards	-	++	++
Temperature sensitivity [dR/dT]	++	-	+
Impact of the connection lead	++	-	+

Connection method

The resistance of the connection lead affects the measurement value of 2-wire connections and must be taken into consideration.

For copper cable with cross section 0.22 mm² the following value applies: 0.162 Ω/m → 0.42 °C/m for Pt100

Alternatively, a version with Pt1000 can be chosen, with which the influence of the connection lead (at 0.04 °C/m) is smaller by a factor of 10.

The resistance of the connection lead becomes still less significant in relation to the basic resistance R₂₅ with an NTC element.

For all versions WIKA offers a 2-wire connection as standard.

For Pt100 measuring elements, on request, a 4-wire connection, together with accuracy class A, can also be delivered.

Temperature ranges

- Medium temperature (measuring range)
-50 ... +105 °C, short time up to +120 °C
- Ambient temperature
-50 ... +105 °C

Thermowell

The measuring element and connection lead are hot-coated. As a result, the model TF43 insertion thermometer is water-proof (IP 68), even without a thermowell.

For mechanical stabilisation and mounting, the model TF43 insertion thermometer can be delivered with an additional stainless steel thermowell.

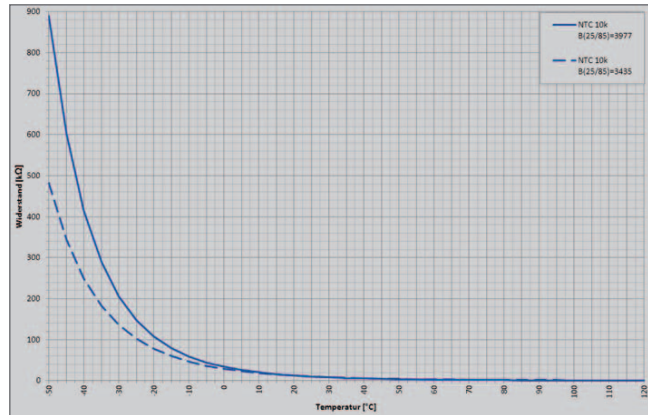
- Thermowell diameter 6 mm
- Thermowell length 50 or 100 mm

Characteristic curves

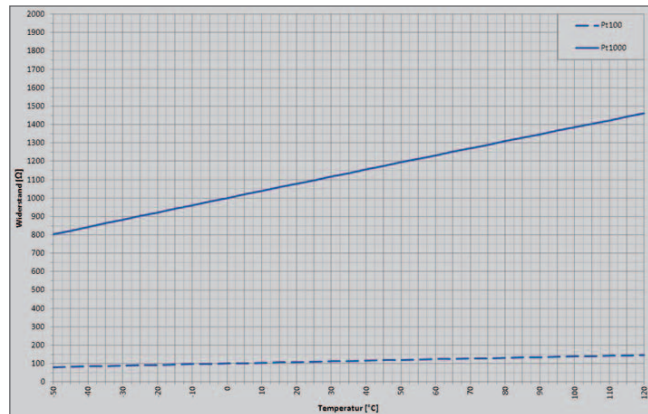
The following characteristic curves show the typical curve shapes for the standard WIKA measuring elements, depending on the temperature and the typical tolerance curves.

Typical characteristic curves

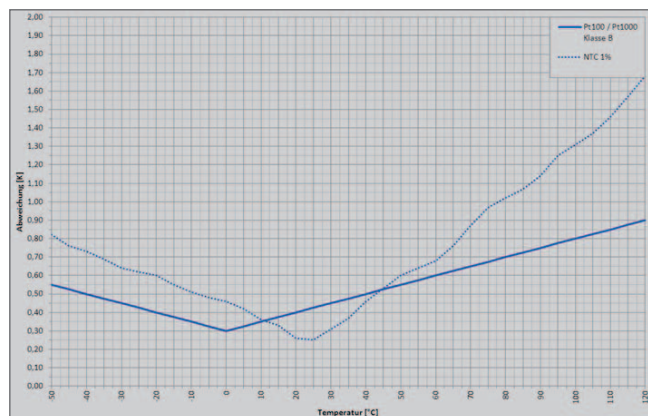
■ Measuring element NTC



■ Measuring element Pt



Typical tolerance curves



Connection lead

The connection lead and the measuring element are moulded together as one single unit. The connection lead is halogen-free and can be designed as either a single-insulated ribbon cable or as a double-insulated round cable.

An additional thermowell is only available with double-insulated cable.

Probe length L

- 1000 mm
 - 3000 mm
 - 5000 mm
- Other lengths on request (in 500 mm steps)

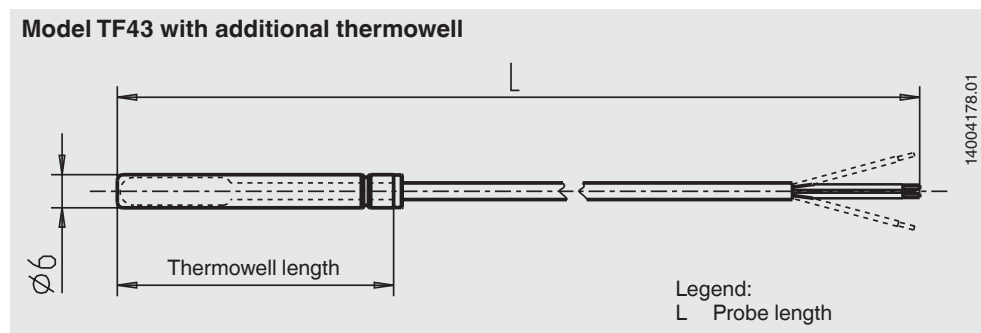
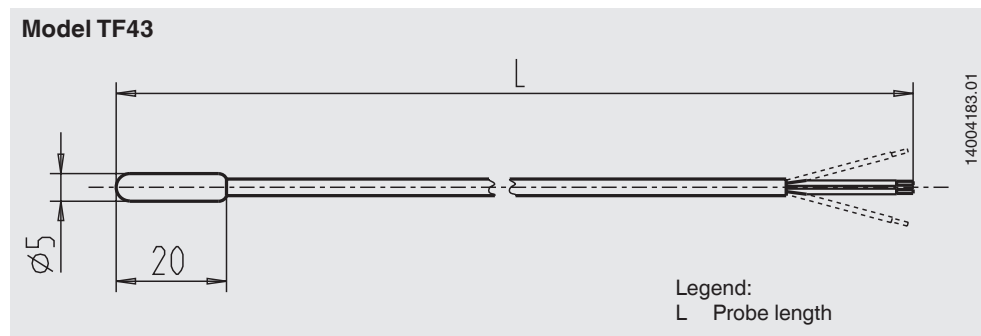
Ingress protection

IP 68

Electrical connection

The model TF43 insertion thermometer is delivered with bare-end wires as standard. If required, fitting with customer-specific plug connectors is possible.

Dimensions in mm



Ordering information

As a result of its hot-moulded measuring tip, the model TF43 insertion thermometer is waterproof to IP 68, even without a thermowell. It is used in applications where an outstanding insulation resistance must be ensured during a constant cycling between freezing and thawing.



When ordering choose one criterion from each category.

Probe design

- Single-insulated ribbon cable, black
- Double-insulated round cable, black
- Double-insulated round cable, black, tip with 50 mm thermowell
- Double-insulated round cable, black, tip with 100 mm thermowell
- Others on request



Measuring element

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Ordering information

Model / Probe design / Measuring element / Probe length L

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