ISOIL INDUSTRIA

DATA SHEET

TEMPERATURE PROBES

Sommario

This manual contains information that must be observed in the interest of your own safety and to avoid material damage. This information is supported by symbols which are used in this manual as indicated. Please read this manual before starting up the device. Store this manual in a place that is accessible to all users at all times.
If difficulties occur during startup, please do not intervene in any way that could jeopardize your warranty rights!

The following standards and directives apply to the use of pairs of temperature probes for measuring the inflow and outflow temperature in a heat exchanger system:

- Product standard DIN EN 1434
- Product standard DIN EN 60751
- Directive 2014/32/EU, Annex I and MI-004
- German Weights and Measures Act (MessEG)
- German Weights and Measures Directive (MessEV)

Specifications for electrical installations must be observed.
All installation and maintenance work must be performed by specialist staff trained for this task.
All notes listed in the installation instructions must be observed.
Identification markings and metrology-relevant safety markings/main stamps must not be damaged or removed – otherwise the temperature probe is no longer admissible for use!
Route the measurement signal lines so that they are at least 50 mm away from other lines, such as grid supply lines and data transmission lines. We recommend installing lines and computer units 300 mm away from strong electromagnetic fields, e.g. from frequency-controlled pumps and high-voltage power lines.
To protect against damage and pollutants, the temperature probes must not be removed from their packaging until immediately before installation.
Do not wind, bend, extend, or shorten the temperature probe lines.
When connecting to a computer unit, always connect the temperature probe first before connecting the volume measuring unit.

Warning symbols

CAUTION!

Risk of burns!

The installation process must be carried out by trained personnel.

When using water additives (corrosion protection, etc.), the operator must make sure there is sufficient corrosion resistance before installing the temperature probe.
With direct mounting, the temperature probe is immersed in the pipeline without any additional immersion sleeve. During dismounting, always make sure that hot medium does not escape from the pipeline.

Drain the pipeline system or seal off the temperature probe's installation location to relieve pressure.

DT/DS PROBES

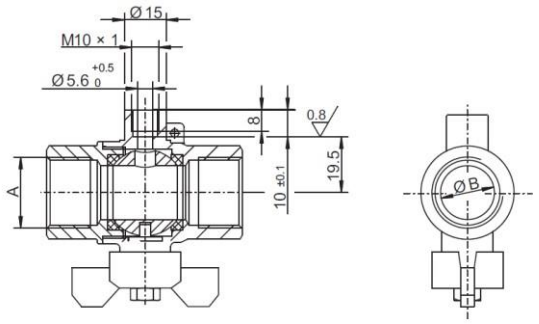
Technical Data

Temperature range
902428/50 0 to 150 °C
The maximum operating temperature of the immersion sleeves must be observed.
Immersion sleeve according to 90.279-F05, sheet 3: T_{max} = 105 °C
Temperature difference
Minimum 3 K
Maximum 150 K
Maximum pressure
902428/50 PN25 with water flow velocity of 2 m/s
902438/50 With immersion sleeves according to 90.279-F05, sheet 3, 4, 5 and 6
PN25 with water flow velocity of 2 m/s **Electrical connection.**
2-wire circuit
Maximum measuring current.
The maximum measuring current is calculated using the maximum admissible power loss of 5 mW.
Depending on the nominal values, this results in the following effective currents: Pt100: 1783 µA
Pt500: 797 µA
Pt1000: 564 µA
Response times
Temperature probe, direct measurement 902428/50
Diameter 5.0 mm $t_{05} \leq 3.5$ s; $t_{09} \leq 10.5$ s
Diameter 6.0 mm $t_{05} \leq 5.0$ s; $t_{09} \leq 11.5$ s
Measurement stability 10 years (see also maintenance)

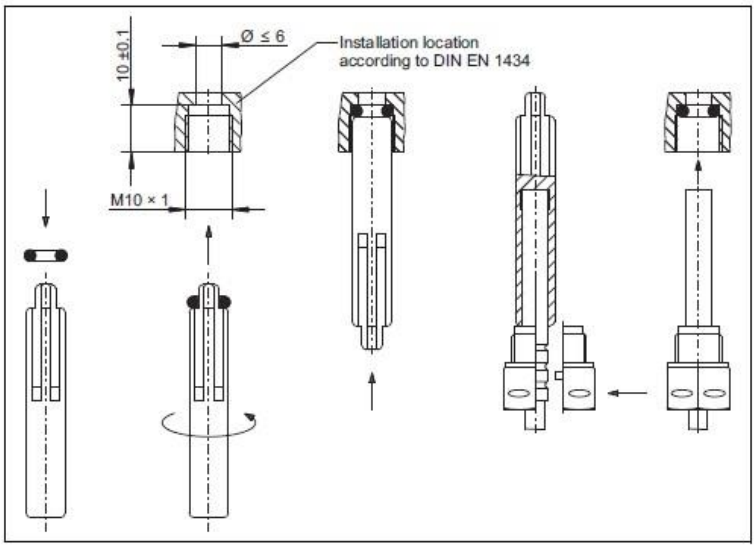
Installation
If the pair of temperature probes is connected to a computer unit, make sure that the probe's nominal value matches that of the processing computer unit.
Furthermore, make sure that the installation location is deep enough to prevent damage to the tip of the probe or immersion sleeve when screwing in.
The temperature probe must be installed in the pipeline so that a sufficient immersion depth is guaranteed and is always larger than the minimum immersion depth.
During installation, the connection cable must not be extended or shortened as this would impair compliance with the tolerances (for two-wire technology).
The connecting cable must not be laid alongside or wrapped around hot pipes because the line resistance and its temperature dependence are incorporated into the measurement result for thermometers using two-wire technology.
Following successful mounting, the temperature probes must be secured against manipulation with a seal. The sealing hole in the attachment screw or nameplate is intended for this purpose.

Direct Probe Mounting (902428/50)

If the temperature probe is installed directly, the installation locations must be designed according to the standard DIN EN 1434-2, picture A.8 (installation type B, C or D). The adapter's installation must be designed according to the assembly specifications. Make sure that the seal and sealing surface in the installation location is undamaged, clean, and dry.



Thread size A	Inner diameter B
G 1/2 B	18.5 mm
G 3/4 B	24 mm
G 1 B	30.5 mm
G 1 1/4 B	39 mm
G 1 1/2 B	45 mm



1. Remove the plug and seal or the old probe and O-ring so that no residue is left behind.
2. Place the O-ring from the supplied assembly set onto the assembly aid.
3. Place the O-ring with the assembly aid into the installation location using a rotating motion according to DIN EN 1434.
4. Place the O-ring into the final installation location using the other end of the assembly aid.
5. Pull the assembly aid with the end over the temperature probe sleeve – up to the limit stop in the assembly aid (to determine the probe installation length).

Grasp the two halves of the black plastic quick-release screw directly above the assembly aid and press into the recesses (beads) on the temperature probe sleeve. Press both halves of the screw connection firmly together.

Remove the assembly aid from the temperature probe.

Push both halves of the screws firmly together.

6. Press the temperature probe with the black plastic quick-release screw into the installation location and screw it into the limit stop so that it is hand-tight (tightening torque of 3 to 5 Nm).

7. Check that there is no leakage and seal the temperature probe. **NOTE!**
The minimum immersion depth for the temperature probe is 15 mm.

NOTE!
A new O-ring must be used after each dismounting process.

Our standard codes are:

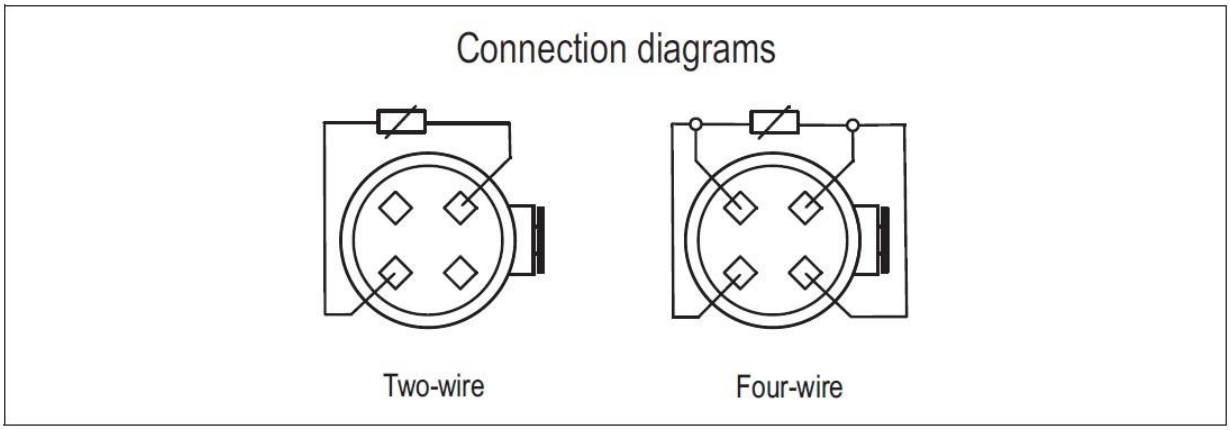
- 26DT0001 DT-2-2-1-PM45B-PO0-0 Cable length 1,5 meters
- 26DT0002 DT-2-2-5-PM45B-PO0-0 Cable length 5 meters

INSTALLATION RECOMMENDATIONS

If the pair of temperature probes is connected to a computer unit, make sure that the probe's nominal value matches that of the processing computer unit.
Furthermore, make sure that the installation location is deep enough to prevent damage to the tip of the probe or immersion sleeve when screwing in.
The temperature probe must be installed in the pipeline so that a enough immersion depth is guaranteed that is greater than the minimum immersion depth in all cases.
During installation, the connection cable must not be shortened or extended as this would impair compliance with the tolerances (for two-wire technology).
To avoid an inductive effect, the connecting cable should not be wound.
The connecting cable must not be laid alongside or wrapped around hot pipes because the line resistance and its temperature dependence are considered in the measurement result for temperature probes using two-wire technology.
Following successful mounting, the temperature probes must be secured against manipulation with a seal. For this, the seal holes in the fastening screw at the terminal head, or special sealing eyelets, are provided. The sealing set is available as part no. 00650727.
The maximum length for connecting cables in two-wire technology depends on the conductor cross section and the nominal value according to DIN EN 1434-2. If the maximum permissible length, which may be connected to the calculator, has a lower value, this value applies (to be taken from the type examination certificate).

Conductor cross section in mm^2	Maximum length for Pt100 in m	Maximum length for Pt500 in m	Maximum length for Pt1000 in m
0.22	2.5	12.5	25.0
0.50	5.0	25.0	50.0
0.75	7.5	37.5	78.0
1.50	15.0	75.0	150.0

When choosing a connecting cable, make sure that the sheath material is sufficiently age resistant. The connecting cable's outer diameter should be chosen so that there can be a secure seal for the cable entry to the terminal head (terminal head shape J: outer diameter 4 to 9 mm; terminal head shape B: outer diameter 5 to 12.5 mm).



In order to reduce additional installation-related measurement errors to a minimum, the temperature probes in the flow and return must be installed the same. This applies to the pipe diameters and installation fittings used, and the choice of the same immersion depth, which must be greater than the minimum immersion depth, and the external thermal insulation. This is intended to ensure that the possible measurement deviations depending on the installation location are cancelled out in the first approximation when determining the difference.

IN THREADED PIPE FITTING.

DN:15,20,25,32 and 40
USE BALL VALVE, PROBE AXIS PERPENDICULAR TO AXIS OF FITTING AND IN THE SAME PLANE.

IN BEND.

DN≤50
INSTALL IN BEND WITH 70mm TEMPERATURE BOSS, AGAINST FLOW, PROBE AXIS COINCIDENT WITH PIPE AXE

ANGLED PROBES.

DN≤50
INSTALL WITH 45° TEMPERATURE BOSS, AGAINST FLOW

PERPENDICULAR PROBE

Dn65≤DN≤DN250
INSTALL WITH 70mm TEMPERATURE BOSS, PROBE AXIS PERPENDICULAR TO AXIS AND IN THE SAME PLANE.

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