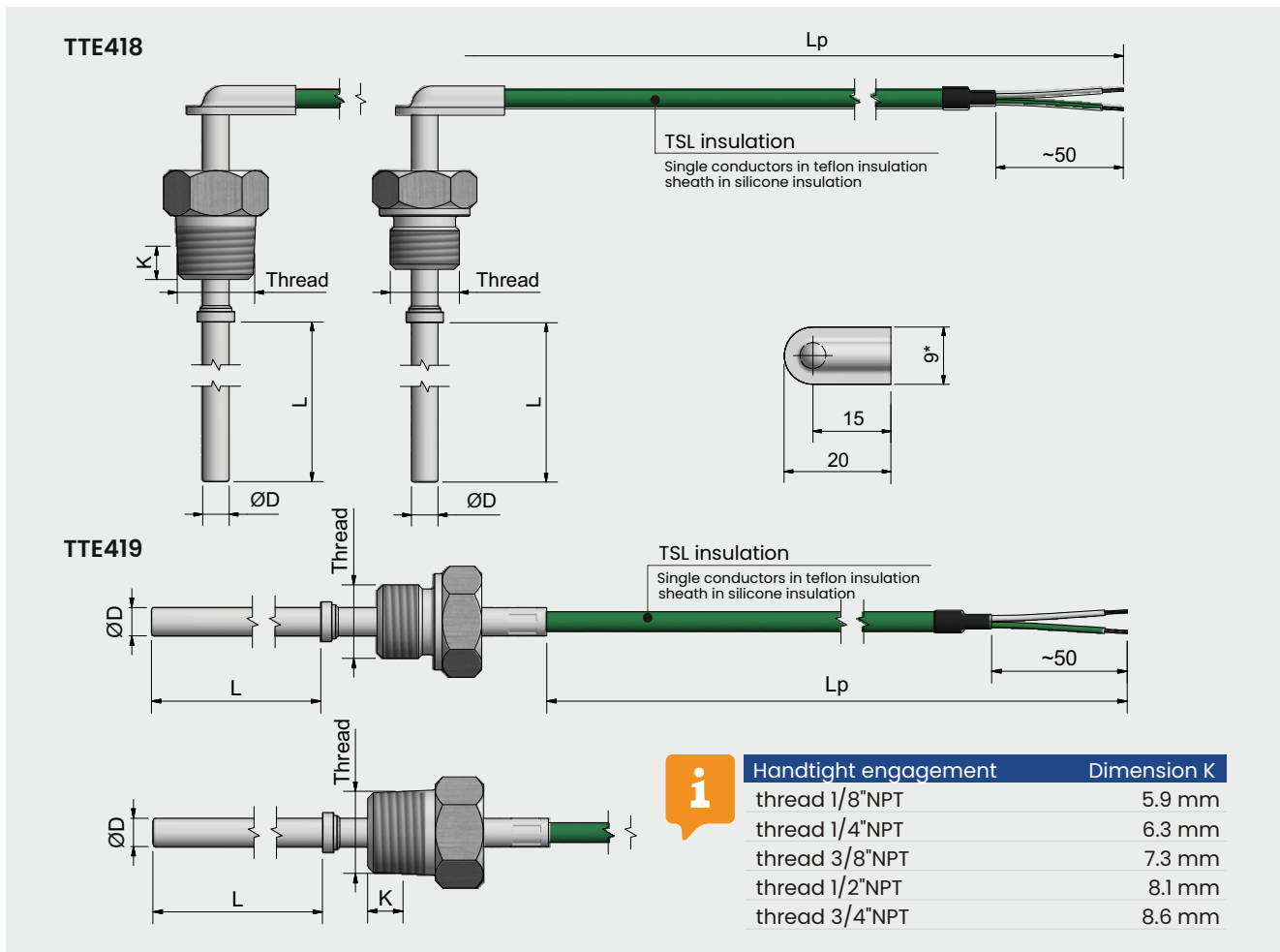


Designs



Basic values of Thermocouples type J, K, N according to PN-EN 60584 / IEC 584

| Temperature | | °C | 100 | 200 | 300 | 400 |
|-------------|---------|----|------|-------|-------|-------|
| Basic value | Type J | mV | 5.27 | 10.78 | 16.33 | 21.85 |
| | Type K | mV | 4.10 | 8.14 | 12.21 | 16.40 |
| | Type N | mV | 2.77 | 5.91 | 9.34 | 12.97 |
| Tolerance | Class 1 | °C | ±1.5 | ±1.5 | ±1.5 | ±1.6 |
| | Class 2 | °C | ±2.5 | ±2.5 | ±2.5 | ±3.0 |

Tolerance

The PN-EN 60584 Standard defines the formulas for calculating acceptable measure tolerance. More information available in the general thermoelectric thermometer sheet.

Type J (Fe-CuNi)

| Class | Temperature range | Tolerance |
|-------|--------------------|----------------|
| 1 | -40 °C .. +375 °C | ± 1.5 °C |
| | +375 °C .. +750 °C | ± 0.0040 x t |
| 2 | -40 °C .. +333 °C | ± 2.5 °C |
| | +333 °C .. +750 °C | ± 0.0075 x t |

Electrical parameters

Isolation resistance > 10 GΩ (test 500 VDC)

Housing material

Stainless steel 1H18N9T (1.4541 / AISI321)

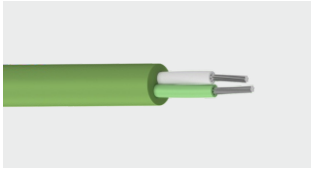
Type K (NiCr-Ni), Type N (NiCrSi-NiSi)

| Class | Temperature range | Tolerance |
|-------|---------------------|----------------|
| 1 | -40 °C .. +375 °C | ± 1.5 °C |
| | +375 °C .. +1000 °C | ± 0.0040 x t |
| 2 | -40 °C .. +333 °C | ± 2.5 °C |
| | +333 °C .. +1200 °C | ± 0.0075 x t |

Insulation types of connection cable

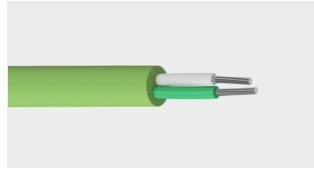
JJ insulation

Conductor: PVC
Sheath: PVC



TSL insulation

Conductor: Teflon® FEP
Sheath: Silicone



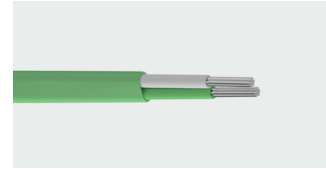
TCuT insulation

Conductor: Teflon® FEP
Screen: Copper braid
Sheath: Teflon® FEP



TT insulation

Conductor: Teflon® PFA
Sheath: Teflon® PFA



GLP insulation

Conductor: Fiberglass
Sheath: Stainless steel braid



GLGLP insulation

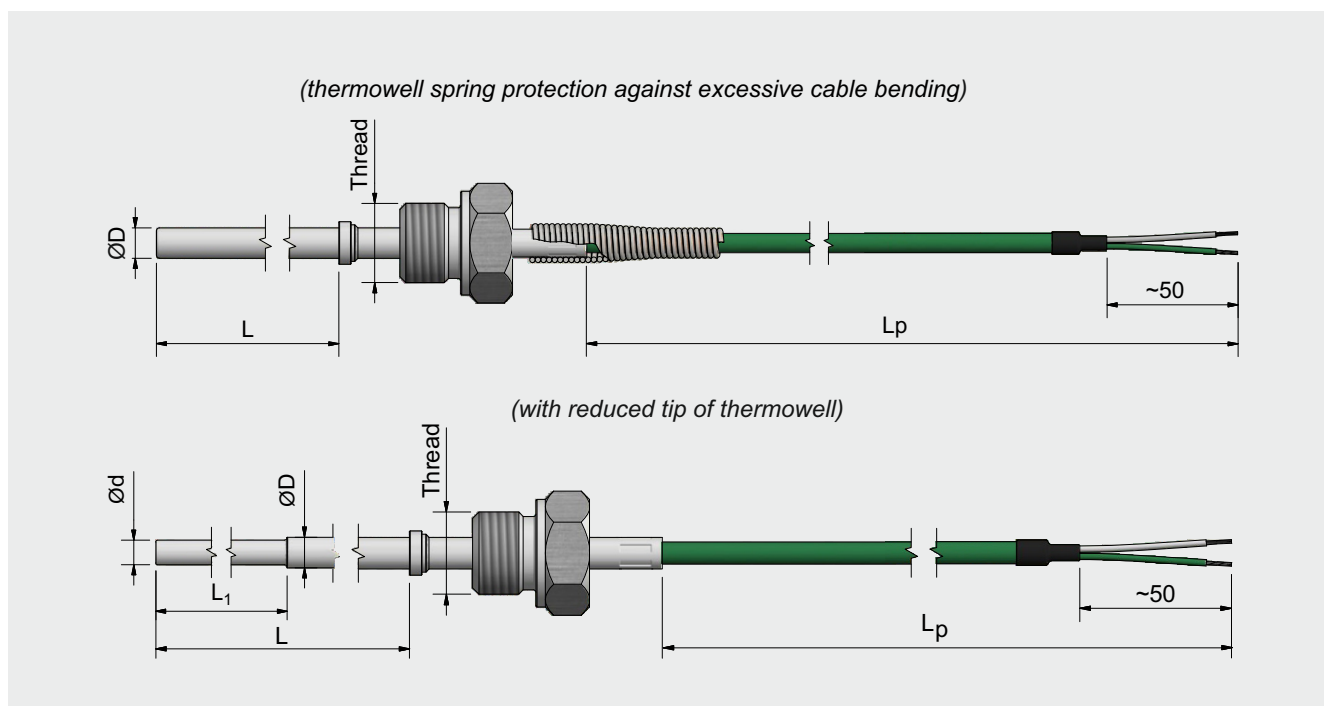
Conductor: Fiberglass
Sheath: Fiberglass
Braid: Stainless steel braid



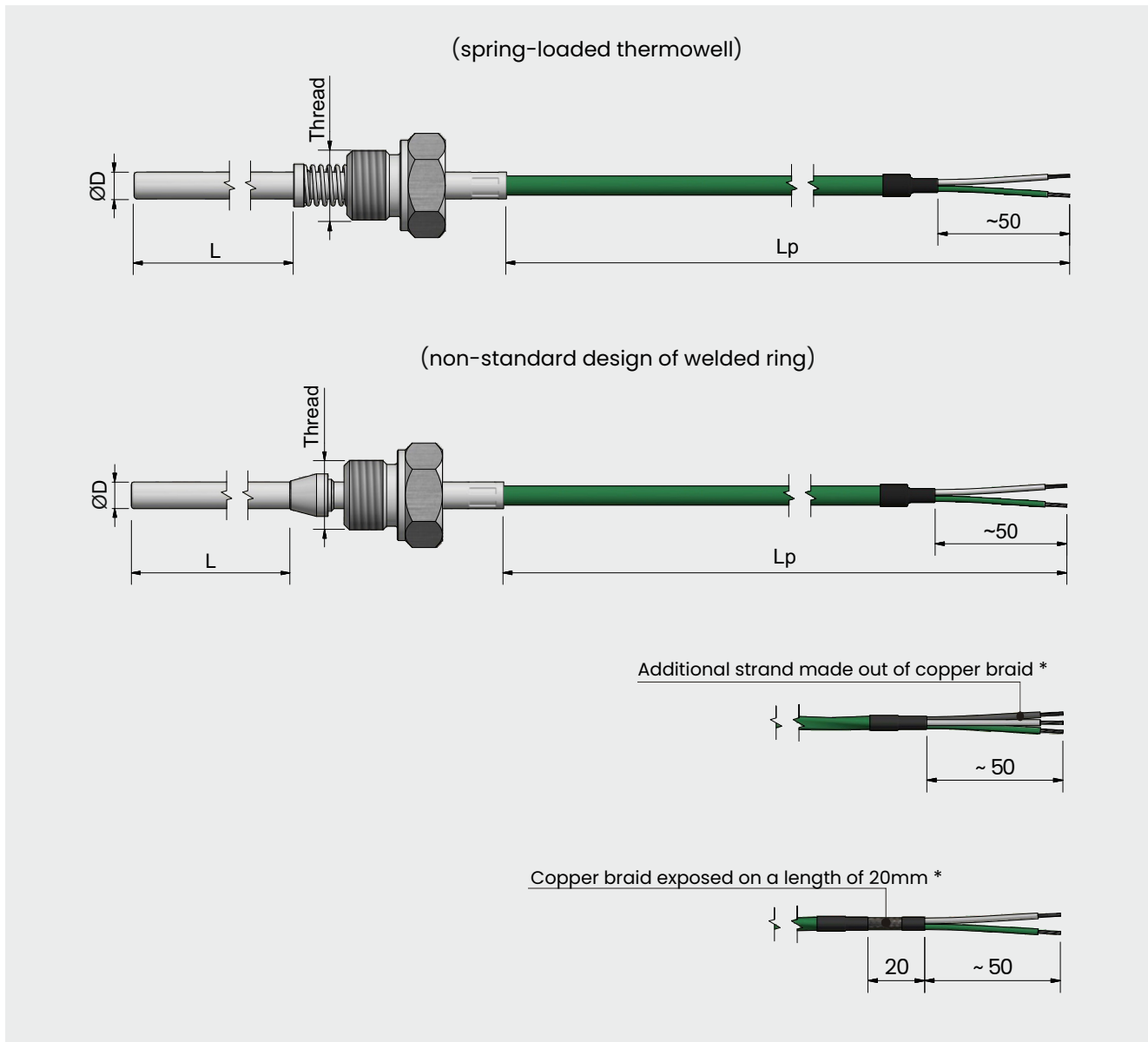
Available measuring range and thermowell diameter

| Measuring range | Thermowell dia. D [mm] | Insulation type | |
|-----------------|------------------------|-----------------|-------------|
| -10 .. +105°C | Ø5, Ø6, Ø8 | JJ | PVC |
| -50 .. +180°C | Ø4, Ø5, Ø6, Ø8 | TSL | silicone |
| -50 .. +205°C | Ø3, Ø4, Ø5, Ø6, Ø8 | TCuT | teflon® FEP |
| -50 .. +260°C | Ø3, Ø4, Ø5, Ø6, Ø8 | TT | teflon® PFA |
| -50 .. +400°C | Ø5, Ø6, Ø8 | GLP, GLGLP | fiberglass |

Non-standard sensor versions



Non-standard sensor versions



* Available only for TCuT cable insulation

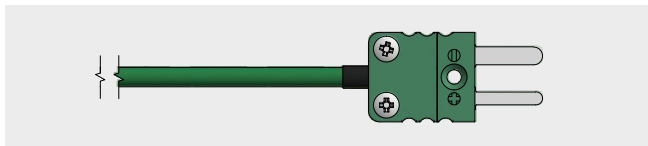
Connectors (optional)

Sensors with connection cable can be equipped with connector.

Available options:

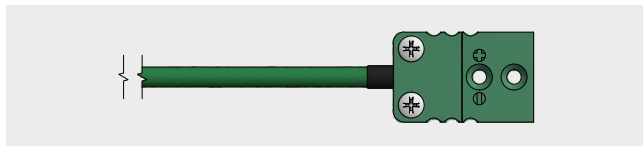
Connector S-010-(thermocouple type)-W

Miniature plug, 2-pin.



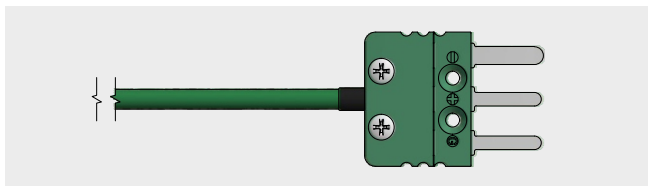
Connector S-010-(thermocouple type)-G

Miniature socket, 2-pin.



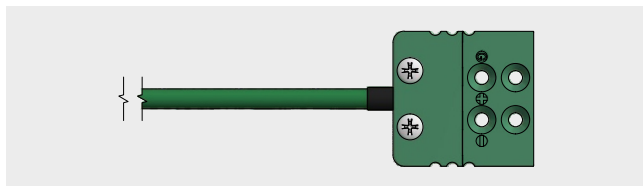
Connector S-013-(thermocouple type)-W

Miniature plug, 3-pin.



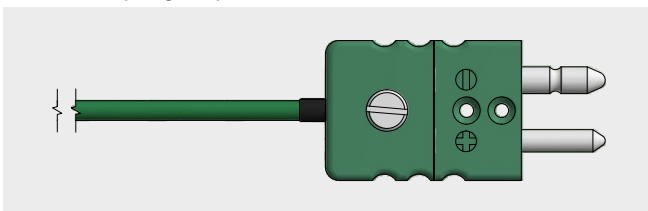
Connector S-013-(thermocouple type)-G

Miniature socket, 3-pin.



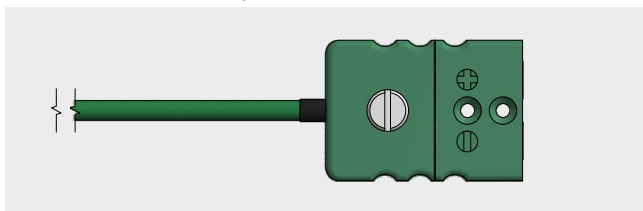
Connector S-020-(thermocouple type)-W

Standard plug, 2-pin.



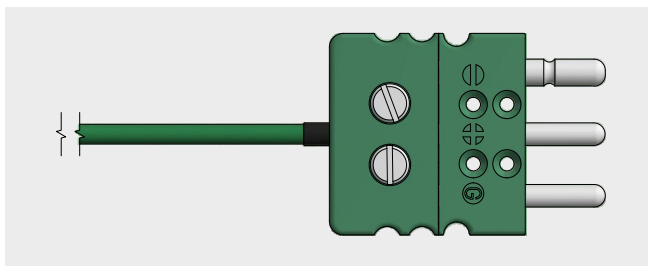
Connector S-020-(thermocouple type)-G

Standard socket, 2-pin.



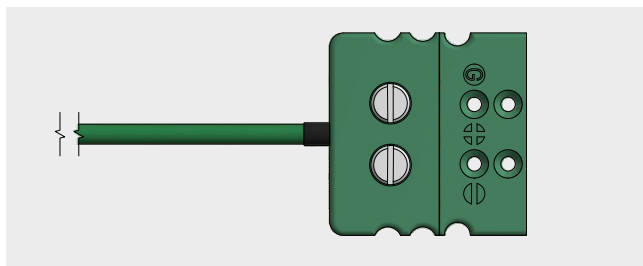
Connector S-023-(thermocouple type)-W

Standard plug, 3-pin.



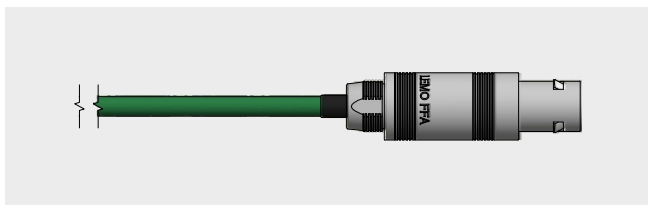
Connector S-023-(thermocouple type)-G

Standard socket, 3-pin.



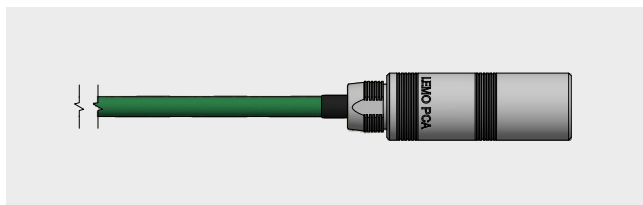
Connector LEMO® FFA

Plug size from 0S to 3S. 2-, 3-, 4-, 6-pin.



Connector LEMO® PCA

Plug size from 0S to 3S. 2-, 3-, 4-, 6-pin.



Ordering code

TTE4 1 2 3 4 5 6 7 8 9

| | | | | | |
|---|----------------------|-----------------------------------|--|-----------------------------|--|
| 1 | <input type="text"/> | Model type | | | |
| | | 18 | angle version | | |
| | | 19 | straight version | | |
| 2 | <input type="text"/> | Thermocouple type | | | |
| | | J | Type J (Fe-CuNi) | | |
| | | K | Type K (NiCr-Ni) | | |
| | | xxx | other, please specify | | |
| 3 | <input type="text"/> | Thermowell diameter ØD | | | |
| | | 5 | Ø5 mm | | |
| | | 6 | Ø6 mm | | |
| | | 8 | Ø8 mm | | |
| | | xxx | other, please specify | | |
| 4 | <input type="text"/> | Thermowell length L | | | |
| | | 50 | 50 mm | | |
| | | 100 | 100 mm | | |
| | | 150 | 150 mm | | |
| | | xxx | other, please specify | | |
| 5 | <input type="text"/> | Connecting cable length Lp | | | |
| | | 1000 | 1000 mm | | |
| | | 2500 | 2500 mm | | |
| | | xxx | other, please specify | | |
| 6 | <input type="text"/> | Tolerance class | | | |
| | | 1 | Class 1 according to PN-EN 60584-2 | | |
| | | 2 | Class 2 according to PN-EN 60584-2 | | |
| 7 | <input type="text"/> | Process connection thread | | | |
| | | M10x1 | M10x1 | | |
| | | M12x1 | M12x1 | | |
| | | G1/4" | G1/4" | | |
| | | G1/2" | G1/2" | | |
| | | 1/2"NPT | 1/2"NPT | | |
| | | xxx | other, please specify | | |
| 8 | <input type="text"/> | Connecting cable type | | Temperature range of sensor | |
| | | JJ | PVC / PVC | -10 .. +105°C | |
| | | TSL | Teflon® FEP / Silicone | -50 .. +180°C | |
| | | TCuT | Teflon® FEP / Cu braid / Teflon® FEP | -50 .. +205°C | |
| | | TT | Teflon® PFA / Teflon® PFA | -50 .. +260°C | |
| | | GLP | Fiberglass / Stainless steel | -50 .. +400°C | |
| | | GLGLP | Fiberglass / Fiberglass / Stainless steel | -50 .. +400°C | |
| 9 | <input type="text"/> | Connector (optional) | | | |
| | | | without connector, free end conductors of connection cable | | |
| | | S-010-K-W | Miniature plug, 2-pin, type K | | |
| | | FFA.IS | Connector LEMO® FFA size IS | | |
| | | xxx | other, please specify | | |

Example

TTE418-K-8-150-2000-1-G1/4"-TSL

Angle version type, TC sensor type K, thermowell diameter Ø8 mm, thermowell length L=150 mm, connection cable length Lp=2000 mm, tolerance class 1, threaded thermowell connection G1/4", single conductors in teflon insulation, sheath in silicone insulation.

TTE419-J-6-100-2500-2-M10x1-TT-FFA.IS

Straight version type, TC sensor type J, thermowell diameter Ø6 mm, thermowell length L=100 mm, connection cable length Lp=2500 mm, tolerance class 2, threaded thermowell connection M10x1, single conductors in teflon insulation, sheath in teflon insulation, connection cable equipped with LEMO® FFA plug size IS.