

**THERMOCOUPLE REFERENCE:**

| Max (°C)    | Sheath   | Conductor  | Typical Use   |
|-------------|--|--|---|
| <b>1250</b> | Pyrosil (Nickel, Chromium, Silicon Alloy)                            | Nicrosil/NiSil, Type N   | Heat treatment furnaces, glass industry, ceramic industry manufacture, aluminium production.  |
| <b>1100</b> | Stainless Steel, 25/20 Chromium Nickel Steel                         | Nickel Chromium, Nickel Aluminium, Type K                        | Blast furnace gases, reheat & annealing furnaces, brick kilns, flame failure devices, glass manufacture, power station boilers, flues, kilns, open hearth furnaces. |
| <b>1100</b> | Alloy 600 76/16/7, Nickel Chromium, Iron                             | Nickel Chromium/ Nickel Aluminium Type K, Nicrosil/ NiSil Type K | Heat treatment processes, chemical reactors, annealing furnaces, soaking pits, man-made fibre production, glass tank flues.   |
| <b>800</b>  | Stainless Steel, 18/10/1 Chromium, Nickel Titanium, Stabilised Steel | Nickel Chromium/ Nickel Aluminium Type K                         | Nuclear energy instrumentation, annealing furnaces, acetic and nitric acid production, heat exchangers, boiler steam and feed water.                                |
| <b>750</b>  | Stainless Steel, 18/10/1 Chromium, Nickel Titanium, Stabilised Steel | Iron/Constantan, Type J  | Reheat and annealing furnaces, aluminium heat treatment, chemical reactors. Coal briquetting plants, paper & pulp mills, polythene manufacture, tar stills.         |
| <b>750</b>  | Alloy 600 76/16/7, Nickel Chromium                                   | Iron/Constantan, Type J  | Reheat and annealing furnaces, aluminium heat treatment, chemical reactors. Coal briquetting plants, paper & pulp mills, polythene manufacture, tar stills.         |
| <b>400</b>  | Cupro Nickel   | Copper/Constantan, Type T  | Boiler flue gas at stack, food processing - bread ovens etc. Gearbox bearing, plastic moulding, sub-zero temperatures, turbo alternator condensers.                 |
| <b>400</b>  | Stainless Steel, 18/10/1 Chromium, Nickel Titanium, Stabilised Steel | Copper/Constantan, Type T  | Boiler flue gas at stack, food processing - bread ovens etc. Gearbox bearing, plastic moulding, sub-zero temperatures, turbo alternator condensers.                 |

**Cable Diameters Available (mm)**

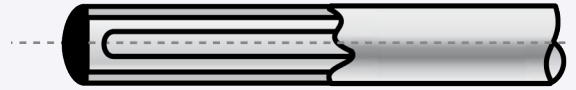
1.0, 1.5, 1.6 ,2.0, 3.0, 3.2, 4.5, 4.8, 6.0, 6.4, 8.0

Supplied in Simplex & Duplex

## TYPES OF HOT END JUNCTIONS

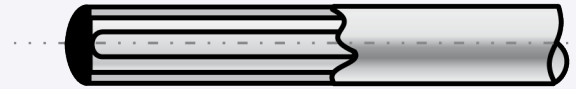
### Insulated Junction

Insulated hot end junctions are suitable for most temperature applications, especially where low EMF pick up is essential.



### Bonded Junction

Bonded or grounded junctions offer a slightly faster temperature response time than the insulated junction type. Not recommended for multi point instrumentation.



| Junction Type | Advantages  | Disadvantages  |
|---------------|---|--|
| IJ            | <p>Resistance can be checked before and after installation, to test the integrity of the sheath.</p> <p>The junction is electrically isolated from the sheath reducing the potential of stray voltages inducing errors.</p> <p>More shock resistant than the bonded type and will survive better under rapid temperature changes.</p> <p>Long term drift under cycling conditions is minimised.</p> | <p>Slower response rate than that of bonded or exposed junctions (typically 2 - 3 times longer than bonded)</p>  |
| BJ            | <p>Quicker response rate than insulated type junctions.</p> <p>The junction is at the very tip of the probe, intimate contact is achieved for accurate surface measurement</p> <p>Is recommended for high pressure applications</p>   | <p>More susceptible to electrical noise and associated error.</p> <p>The thermal expansion of the sheath material may differ from the element to cause mechanical stress and work hardening of the materials.</p> <p>Faults in the insulation material are more difficult to detect.</p> |
| ICJ           | <p>Advantage as per IJ but more thermocouples can be manufactured in order to verify readings, i.e. for a 4 core cable with a ICJ 4 thermocouple pairs can be used to verify readings as opposed to the 2 of a standard 4 core unit with IJ hot junction.</p>   | <p>Slower response rate than that of bonded or exposed junctions (typically 2 - 3 times longer than bonded)</p>  |

## THERMOCOUPLE TEST REQUIREMENTS

| Description                   |
|-------------------------------|
| Overall dimensions            |
| Hot junction outside diameter |
| Insulation resistance         |
| Electrical Continuity Check   |
| Polarity Check                |

## END TERMINATIONS AVAILABLE

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### Primary Temporary Seal:

Epoxy resin seal

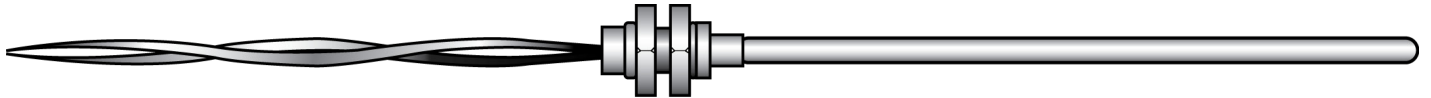
Maximum temperature 105°C



### Pot Seals:

**Plain:** Various diameter plain bodied pot seals to house the transition joints of the sensor to the appropriate extension tails.

**Threaded:** 8mm ISO x 1mm pitch threaded potting seals to house the transition joints of sensor to the appropriate extension tails. Maximum temperature up to 105°C



### Connectors:

Low cost high quality connectors which are colour coded to ANSI or IEC T/C types.

Available in two ranges - Standard and miniature

Glass polyamide body which give connectors a 220°C maximum temperature rating and high impact resistance.



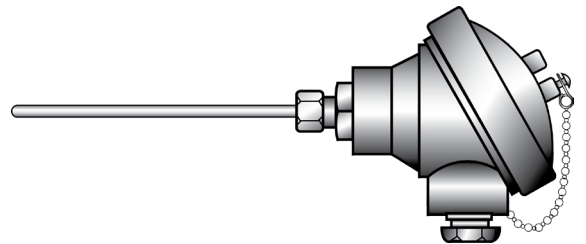
### DIN Transmitter Plate / Ceramic Blocks:

A wide range of DIN Spring loaded terminal blocks and plates are available to suit particular customer applications.



### Terminal Heads:

A wide range of Aluminium, Stainless Steel and Plastic terminal heads are available with a Rating of up to IP 68



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