

High Temperature Thermocouples & Exotic Thermocouples

High Temperature Sheath Materials

SHEATH TYPE	SYMBOL	RECOMMENDED MAX. TEMP	MELTING TEMP.	ALLOWABLE ENVIRONMENT	STD SHEATH DIAMETERS (inches)	MIN. BEND RADIUS
Inconel 600	B	1175°C.	1345°C.	Inert, Vacuum, Oxidizing	0.040, 0.062, 0.125, 0.188, 0.250	5 X Sheath Diameter
Platinum 10% Rhodium	AH	1550°C.	1850°C.	Inert, Oxidizing	0.040, 0.062, 0.125	5 X Sheath Diameter
Tantalum	N	2200°C.	2995°C.	Inert, Vacuum	0.040, 0.062, 0.125	10 X Sheath Diameter
Niobium 1% Zirconium	AV	2200°C.	2495°C.	Inert, Vacuum	0.062, 0.125	10 X Sheath Diameter
Molybdenum	O	2000°C.	2620°C.	Inert, Vacuum, Reducing	0.062, 0.125, 0.188, 0.250	Do Not Bend
Coated Molybdenum	OCR	1600°C.	2000°C.	Inert, Oxidizing	0.125, 0.250	Do Not Bend

High Temperature Wire Types

THERMOCOUPLE COMBINATIONS	Calibration Type	SYMBOL	STANDARD LIMITS OF ERROR	RECOMMENDED TEMPERATURE RANGE
Platinum 30% Rhodium (+) Vs. Platinum 6% Rhodium (-)	B	B	±0.5%	870-1700°C
Tungsten 5% Rhenium (+) Vs Tungsten 26% Rhenium (-)	C	AE	±4.4°C (0-426°C) ±1% (426-2315°C) Per ASTM E-988	0-2200°C
Tungsten 3% Rhenium (+) Vs. Tungsten 25% Rhenium (-)	D	AO	±4.4°C (0-426°C) ±1% (426-2315°C) Per ASTM E-988	0-2200°C
Platinum 13% Rhodium (+) Vs. Platinum (-)	R	R	±1.5°C or .25% Per ASTM E-230	0-1450°C
Platinum 10% Rhodium (+) Vs. Platinum (-)	S	S	±1.5°C or .25% Per ASTM E-230	0-1450°C

High Temperature Insulators

INSULATION TYPE	SYMBOL	RECOMMENDED MAX. OPERATING TEMPERATURE	APPROXIMATE MELTING TEMP.	COMMENTS
Magnesia (MgO)	N	1700°C.	2800°C.	Very hygroscopic. Used mostly in compacted sheaths.
Alumina Oxide (Al ₂ O ₃)	A	1550°C.	2040°C.	Excellent with Platinum alloys.
Hafnia Oxide (HfO ₂)	H	2200°C.	2790°C.	Comparable to Beryllia Oxide and safe to handle
Beryllia Oxide* (BeO)	B	2200°C.	2650°C.	Excellent High Temperature thermal conductivity and resistivity.
*Beryllia is considered a toxic material and can cause health problems if particles are inhaled.				