

Thermocouple Applications

Type	Temp. Range °C	Temp. Range °F	Limits of Error (whichever is greater)		Applications
			Standard	Special	
J	-210 to 1200	-346 to 2192	± 2.2°C or ± 0.75%	± 1.1°C or ± 0.4%	Reducing, Vacuum, Inert. Limited use in Oxidizing at high temperature. Not recommended for low temperatures.
K	-194 to 1371	-390 to 2500	± 2.2°C or ± 0.75%	± 1.1°C or ± 0.4%	Clean Oxidizing and Inert. Limited use in Vacuum or Reducing. Wide temperature range. Most popular calibration.
T	-207 to 400	-340 to 752	± 1°C or ± 0.75%	± 0.5°C or ± 0.4%	Mild Oxidizing, Reducing, Vacuum or Inert. Good where moisture is present. Low temperature and cryogenic applications.
E	-196 to 1000	-320 to 1832	± 1.7°C or ± 0.5%	± 1°C or ± 0.4%	Oxidizing or Inert. Limited use in Vacuum or Reducing. Highest EMF change per degree.
N	0 to 1300	32 to 2372	± 2.2°C or ± 0.75%	± 1.1°C or ± 0.4%	Alternative to Type K. More stable at high temps. Oxidizing or Inert. Do not insert in metal tubes. Beware of contamination. High temperature.
W3/W25	0 to 2200	32 to 4100	4.5°C or ± 1%	–	Vacuum, Inert, Hydrogen. Beware of embrittlement. Not practical below 750°F. Not for Oxidizing atmosphere.
W5/W26	0 to 2315	32 to 4200	4.5°C or ± 1%	–	Vacuum, Inert, Hydrogen. Beware of embrittlement. Not practical below 750°F. Not for Oxidizing atmosphere.
R or S	-17 to 1760	32 to 3200	± 1.5°C or ± 0.25%	± 0.6°C or ± 0.1%	Alternative to Type K. More stable at high temps. Oxidizing or Inert. Do not insert in metal tubes. Beware of contamination. High temperature.
B	538 to 1815	1000 to 3300	± 0.5%	–	Oxidizing or Inert. Do not insert in metal tubes. Beware of contamination. High temperature. Common use in glass industry.

Thermocouple Extension Wires

Extension Wire Type	Temperature Range °C	Temperature Range °F	Limits of Error	
			Standard	Special
KX	0 to 200	32 to 400	± 2.2°C	–
JX	0 to 200	32 to 400	± 2.2°C	± 1.1°C
EX	0 to 200	32 to 400	± 1.7°C	–
TX	-60 to 100	-75 to 200	± 1.0°C	± 0.5°C
NX	0 to 200	32 to 400	± 2.2°C	–

Thermocouple Compensating Extension Wires

Thermocouple Type	Compensating Wire Type	Temp. Range °C	Temp. Range °F	Limits of Error
R or S	SX	25 to 200	75 to 400	± 0.57mv (± 5°C)
B	BX	0 to 100	32 to 200	+0, -.033mv (-3.7°C)
W	WX	0 to 260	32 to 500	± 0.14mv (± 12.9°C)
W3	W3X	0 to 260	32 to 500	± 0.11mv (± 6.8°C)
W5	W5X	0 to 870	32 to 1600	± 0.11mv (± 6.1°C)

Extension Wire Identification Chart

Insulation Code	Insulation Type		Insulation Temp. Range		Abrasion Resistance	Flexibility	Water Submersion
	Overall	Conductors	°F	°C			
PP	Polyvinyl Chloride	Polyvinyl Chloride	-40 to 221	-40 to 105	Good	Excellent	Good
FF	Teflon (FEP)	Teflon (FEP)	-328 to 392	-200 to 200	Excellent	Good	Excellent
GG	Glass Braid	Glass Braid	-100 to 900	-73 to 482	Poor	Good	Poor
HH	Hi-Temp Glass Braid	Hi-Temp Glass Braid	-100 to 1300	-73 to 704	Poor	Good	Poor
RR	Refrasil Braid	Refrasil Braid	-100 to 1600	-73 to 871	Poor	Good	Poor