

THERMOCOUPLE WIRE

Ceramic Fiber Insulated 2200°F (1204°C)

APPLICATIONS

- Heat Treatment
- Component Testing
- Steel and Aluminum Industry
- Metals Production
- Furnace Surveys
- Beaded Thermocouple Replacement

AVAILABLE OPTIONS

- Colored Tracers for Polarity Identification
- Impregnated Insulation and Jackets
- MICA/Glass Barrier Tape
- Stabilized Type K & Type E Conductors
- Twisted Pair
- Metal Coverings
- Tighter Than Special Limit Accuracy Tolerances

PRODUCT FEATURES

- Continuous use up to 2200°F (1204°C)
- Single Exposure up to 2400°F (1316°C)
- **Light Build** Version of CEFIRSFTM
- Good Abrasion Resistance



PRODUCT SPECIFICATIONS

CONDUCTORS: Solid or stranded thermocouple wire per ASTM E230 & ANSI MC96.1

INSULATIONS: Braided ceramic fiber

CONSTRUCTION: Parallel conductors

JACKET: Braided ceramic fiber

OPERATING TEMPERATURE: +2200°F (+1204°C) continuous
+2400°F (+1316°C) single exposure

LIMITS OF ERROR: Conforms to ASTM E230, IEC 584 and ANSI MC 96.1

COLOR CODE: Supplied white without saturants or colored tracers

ORDERING CODE

CEFIRSF 90 () – () () - ()

Optimal Metal Coverings

S	=Stainless steel Braid
CU	=Tinned Copper Braid
I	=Inconel Braid
X	=Half-Oval Galvanized Steel

Wire Size
AWG or
Metric

Add (F)
for
Stranded
Wire

Calibration
Grade
Designation
Per Table 1

Conductor Size		Insulation Thickness		Jacket Thickness		Outer Diameter		Net Weight	
AWG	(MM)	inches	(MM)	inches	(MM)	inches	(MM)	LB/MF	(KG/KM)
14	(1.63)	.014	(.36)	.018	(.46)	.128 x .220	(3.3 x 5.6)	33	(49)
16	(1.29)	.014	(.36)	.018	(.46)	.115 x .194	(2.9 x 4.9)	24	(36)
16F*	(1.47)	.014	(.36)	.018	(.46)	.122 x .208	(3.1 x 5.3)	26	(39)
18	(1.02)	.014	(.36)	.018	(.46)	.104 x .172	(2.6 x 4.4)	18	(27)
18F*	(1.22)	.014	(.36)	.018	(.46)	.112 x .188	(2.8 x 4.8)	19	(28)
20	(0.81)	.014	(.36)	.018	(.46)	.096 x .156	(2.4 x 4.0)	14	(21)
20°F*	(0.97)	.014	(.36)	.018	(.46)	.100 x .164	(2.5 x 4.2)	15	(22)
22	(0.64)	.014	(.36)	.018	(.46)	.089 x .142	(2.3 x 2.6)	12	(18)
22°F*	(0.76)	.014	(.36)	.018	(.46)	.094 x .152	(2.4 x 3.9)	13	(19)
24	(0.51)	.014	(.36)	.018	(.46)	.084 x .132	(2.1 x 3.4)	9.3	(14)
24F*	(0.61)	.014	(.36)	.018	(.46)	.088 x .140	(2.2 x 3.6)	9.7	(15)

MANY ITEMS AVAILABLE FROM STOCK WITHIN 24 HOURS

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact factory for additional information.

Table 1

Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

Thermocouple Type	Temperature Range F (C)	Grade Designation	Tolerance-Reference Junction 32°F (0°C)		
			Standard Grade Limits F (C) whichever is greater	Grade Designation	Special Grade Limits F (C) whichever is greater
Thermocouple Wire					
T	32 (0) to 700 (370)	T	±1.8 (1) or ±0.75%	TT	±0.9 (0.5) or 0.4%
J	32 (0) to 1400 (760)	J	±4 (2.2) or ±0.75%	JJ	±2 (1.1) or 0.4%
E	32 (0) to 1600 (870)	E	±3.1 (1.7) or ±0.50%	EE	±1.8 (1) or 0.4%
K or N	32 (0) to 2300 (1260)	K or N	±4 (2.2) or ±0.75%	KK or NN	±2 (1.1) or 0.4%
T*	-328 (-200) to 32 (0)	T	±1.8 (1) or ±1.5%	TT	±0.9 (0.5) or 0.8%**
E*	-328 (-200) to 32 (0)	E	±3.1 (1.7) or ±1%	EE	±1.8 (1) or 0.5%**
K*	-328 (-200) to 32 (0)	K	±4 (2.2) or ±2%	KK	**
Extension Wire					
TX	32 (0) to 212 (100)	TX	±1.8 (1)	TTX	±0.9 (0.5)
JX	32 (0) to 400 (200)	JX	±4 (2.2)	JJX	±2 (1.1)
EX	32 (0) to 400 (200)	EX	±3.1 (1.7)	EEX	±1.8 (1)
KX or NX	32 (0) to 400 (200)	KX or NX	±4 (2.2)	KKX or NNX	±2 (1.1)
RX or SX	32 (0) to 400 (200)	RX or SX	±9 (5)		
BX	32 (0) to 212 (100)	BX***	±7.6 (4.2)		
BX	32 (0) to 400 (200)	BX ALLOY***	±6.7 (3.7)		

* Thermocouple material is normally supplied to meet tolerances above 0°C (32°F). If material is required to meet tolerances below 0°C (32°F), the purchase order must so state. Special selection of material is required.

** Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.

*** Copper vs. copper can be used as an extension for Type B thermocouples if the transition is below 100°C (212°F). Above 100°C (212°F), PCLW30-6 alloy should be used as the positive extension wire.