

## **NOTICE:**

**Prices and availability are subject to change without notice.**

**Please contact Marlin Manufacturing before ordering for updated pricing.**

# THERMOCOUPLE WIRE GENERAL

## Accuracy of Marlin Wire

Marlin insulated and bare thermocouple wire is matched to meet standard initial calibration tolerances for temperatures above 0°C as given in ANSI MC96.1 and shown in the table below without regard for wire size (see page E-0 for wire size upper temperature limits).

Wire conforming to special initial calibration tolerances, wire for use at sub-zero temperatures, and wire with certified traceable calibration is available on request. Designate special limit grade wire using a double ANSI symbol (e.g. KK,JJ). Sub-zero and calibration requirements should be spelled out on the Purchase Order.

INITIAL CALIBRATION TOLERANCES FOR THERMOCOUPLE WIRE							
THERMOCOUPLE TYPE		°C.			°F.		
WIRE ALLOYS	ANSI TYPE SYMBOL	TEMPERATURE RANGE	STANDARD LIMITS	SPECIAL LIMITS	TEMPERATURE RANGE	STANDARD LIMITS	SPECIAL LIMITS
Copper (+) vs. Constantan (-)	T	-200° to -65° -65° to +130° +130° to +350°	±1.5% ±1° ±0.75%	±0.8% ±0.5% ±0.4%	-330° to -85° -85° to +270° +270° to +660°	±1.5% ±1.8% ±0.75%	±0.8% ±0.9% ±0.4%
*Iron (+) vs. Constantan (-)	J	0° to +285° +285° to +750°	±2.2° ±0.75%	±1.1° ±0.4%	+32° to +545° +545° to +1400°	±4° ±0.75%	±2° ±0.4%
Chromel™ (+) vs. Constantan (-)	E	-200° to -170° -170° to +250° +250° to +340° +340° to +900°	±1% ±1.7° ±1.7° ±0.5%	±1° ±1° ±0.4% ±0.4%	-330° to -270° -270° to +480° +480° to +640° +640° to +1600°	±1% ±3° ±3° ±0.5%	±1.8° ±1.8° ±0.4% ±0.4%
Chromel™ (+) vs. *Alumel™ (-)	K	-200° to -110° -110° to 0° 0° to +285° +285° to +1250°	±2% ±2.2° ±2.2° ±0.75%	±1.1° ±0.4%	-330° to -165° -165° to +32° +32° to +545° +545° to +2300°	±2% ±4° ±4° ±0.75%	±2° ±0.4% ±0.4%
Nicrosil (+) vs. Nilil (-)	N	0° to +285° +285° to +1250°	±2.2° ±0.75%	±1.1° ±0.4%	+32° to +545° +545° to 2300°	±4° ±0.75%	±2° ±0.4%
Platinum -10% Rhodium (+) vs. Platinum (-)	S	0° to +600° +600° to +1450°	±1.5° ±0.25%	±0.6° ±0.1%	+32° to +1110° +1110° to 2650°	±2.7° ±0.25%	±1.1° ±0.1%
Platinum -13% Rhodium (+) vs. Platinum (-)	R	0° to +600° +600° to +1450°	±1.5° ±0.25%	±0.6° ±0.1%	+32° to +1110° +1110° to +2650°	±2.7° ±0.25%	±1.1° ±0.1%
Platinum -30% Rhodium (+) vs. Platinum -6% Rhodium (-)	B	+870° to +1700°	±0.5%	±0.25%	+1600° to +3100°	±0.5%	±0.25%
Tungsten -5% Rhenium (+) vs. Tungsten -26% Rhenium (-)	C†	+400° to +2300°	±1%		+800° to +4200°	±1%	

\*Magnetic

™TradeMark, Hoskins Mfg. Co.

†NOT ANSI Type Symbol

NOTE — Per cent limits apply directly to temperatures in °C units, but for °F equivalents are applied to the number of °F above or below the ice point (+32°F.).

[i.e., Limit (°F) = (Temp. °F - 32°F) × Percentage]

## Thermocouple Extension Wire

Thermocouple extension wire has approximately the same thermoelectric characteristic as thermocouple wire but its accuracy is guaranteed over a more limited range of temperatures. Thermocouple extension wire can offer advantages in cost or mechanical properties when used for connections between thermocouples and instruments. For base metal types of thermocouples, extension wire is of substantially the same composition as the corresponding thermocouple type. For noble metal types, however, an entirely different alloy is formulated to match the noble metal characteristics over a specified temperature range. This is necessary due to the high cost of the noble metals which could otherwise be necessary for the interconnection. The "X" in the ANSI code denotes extension grade wire.

INITIAL CALIBRATION TOLERANCES FOR THERMOCOUPLE EXTENSION WIRE							
THERMOCOUPLE TYPE		°C.			°F.		
EXTENSION WIRE ALLOY	ANSI TYPE SYMBOL	TEMPERATURE RANGE	STANDARD LIMITS	SPECIAL LIMITS	TEMPERATURE RANGE	STANDARD LIMITS	SPECIAL LIMITS
Copper vs. Constantan	TX	-60° to +100°	±1°	±5°	-75° to +210°	±2°	±1°
*Iron vs. Constantan	JX	0° to +200°	±2.2°	±1.1°	+32° to +400°	±4°	±2°
Chromel™ vs. Constantan	EX	0° to +200°	±1.7°	±1.1°	+32° to +400°	±3°	±2°
Chromel™ vs. *Alumel™	KX	0° to +200°	±2.2°	±1.1°	+32° to +400°	±4°	±2°
Nicrosil vs. Nilil	NX	0° to +200°	±2.2°	±1.1°	+32° to +400°	±4°	±2°
Copper vs. Copper Alloy	SX RX	+25° to +200°	±7°		+75° to +400°	±12°	
PCLW630 vs. Copper	BX	0° to +200°	±2.2°		+32° to +400°	±4°	
Copper vs. Copper	BX	0° to 65°	±1°		+32° to +150°	±2°	
Alloy 405 vs Alloy 426	CX†	0° to 870°	±7°		+32° to +1600°	±12°	

\*Magnetic

™Trade Mark Hoskins Mfg. Co.

†NOT ANSI Symbol

