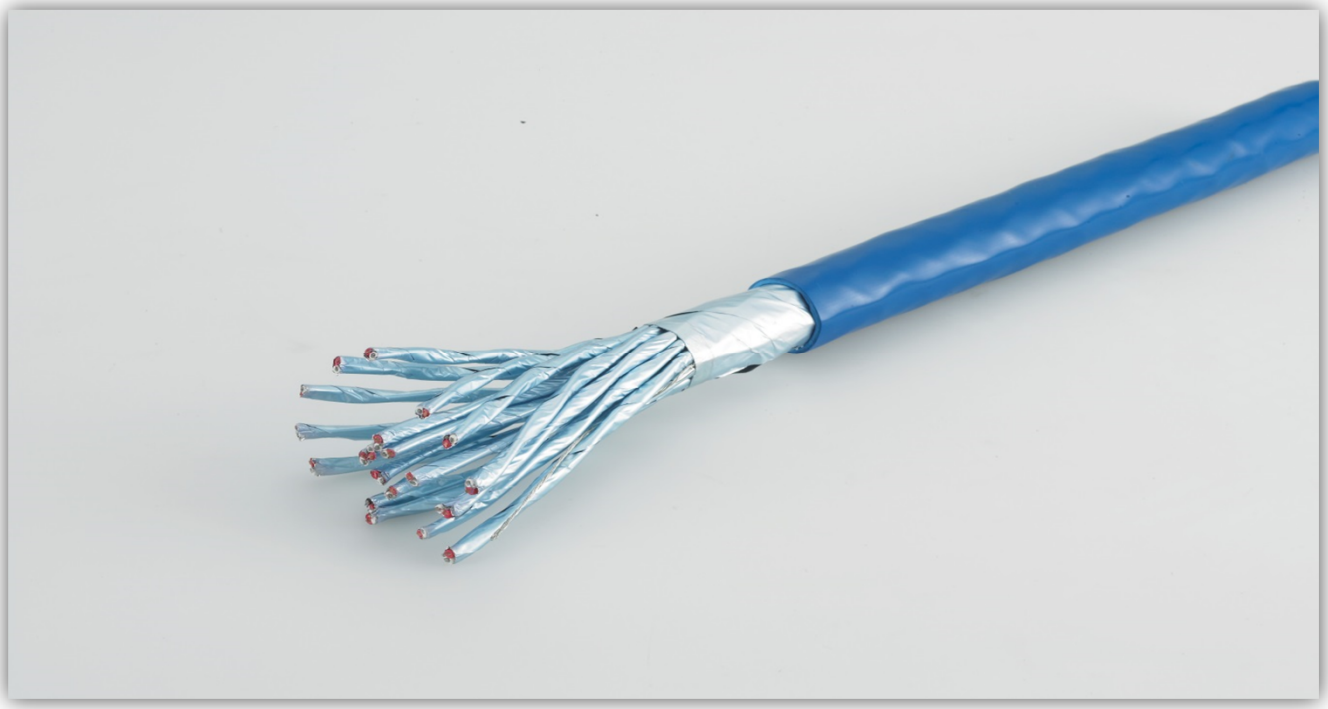
Thermocouple Extension Cables

The most accurate in accordance with Class I

PVC / SILICONE / FEP / PFA / GLASS FIBER types



Application

Description
Thermocouple Extension cable and wire which are used in temperature measuring method by Thermocouple, that consists of two dissimilar metals that are joined together at the sensing end. Extension wire uses same materials with thermocouple to extend from thermocouple to measuring equipment.

The insulation on thermocouple extension cable and wire is color coded for identification. For information on usable temperature ranges for the insulation, please find the "Wire Insulation Identification" table. Other tables at this link are also available for information on the metals used in the thermocouple extension cable and wire, insulation color codes, and more.

Operating Temperature Range
-65°C ~ 200°C

UL approved :
E314954(PLTC)- FEP, PVC Type

YOUNG CHANG SILICONE CO., LTD Since 1986
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Thermocouple Extension Cables

Properties

Extension Cable Type	Thermoelement Combination	Initial Calibration Tolerances for Thermocouple Extension Wires		
		Temperatiure Range	Class 1	Class 2
RX(RCA)	Copper /	0°C to 100°C	-	±2.5℃
RX(RCB)	Copper /	0°C to 200°C	-	±5.0℃
SX(SCA)	Copper /	0°C to 100°C	-	±2.5℃
SX(SCB)	Copper /	0°C to 200°C	-	±5.0℃
NX	Nicrosil / Nisil	-25°C to 200°C	±1.5℃	±2.5℃
KX	Chromel / Alumel	-25°C to 200°C	±1.5℃	±2.5℃
WX(KCA)	Iron / W-Constantan	0°C to 150°C	-	±2.5℃
VX(KCB)	Copper / Constantan	0°C to 100°C	-	±2.5℃
EX	Chromel / Constantan	-25°C to 200°C	±1.5℃	±2.5℃
JX	Iron / Constantan	-25°C to 200°C	±1.5℃	±2.5℃
TX	Copper / Constantan	-25°C to 100°C	±0.5℃	±1.0℃

Product Dimensions

(Nominal)	No. of pairs & mm² / single	Product Design	Outer dimensions in mm approx.
Common class (general)	1P-1.5	PVC-Shield-PVC	7.7
	6P-1.5		16.7
	8P-1.5		18.6
	12P-1.5		22.4
	16P-1.5		25.2
Precision class (heat resistance)	1P-1.5	Fluoropolymer-Shield Fluoropolymer	5.9
	6P-1.5		13.8
	8P-1.5		15.2
	12P-1.5		18.3
	16P-1.5		20.7

The Sepcification not shown on the table can be welocme to inquriy

Special Cables

Thermocouple Extension Cables are also avaiable in solid-conductor and seven-stranded conductor configurations. They come in a variety of thermoelement combinations, gauges, insulations, and multiple-pair designs, and they are avaiable for outer space applications. Please feel free to contract YOUNG CHANG SILICONE for details.

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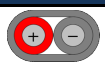
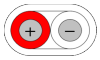
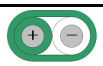
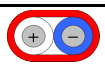
Color-cording

Symbol	CODE	CONDUCTORS +leg/-leg	TOLERANCE To JIS C1610-1981 ANSI MC96.1		INSULATION COLOR CODE IEC / JIS Standard NF C42-323	American Standard ANSIISA MC96.1	German Standard DIN 43714	British Standard BS 1843.1952
B	***BX**	Copper/Copper Lead Wire	0 to 90 0 to 150					
S & R	***SX (*RX)**	Copper/Copper Nickel Compensating for Type S & R	0 to 150 0 to 150	3 -7 ±0.057mV				
K	**KX**	Nickel/Nickel Chomium.Aluminium Extension for Type K	-20 to 150 0 to150 	±2.5 ±1.5 ±2.2 ±1.1				
	***WX**	Iron/Copper Nichkel Compensating for Type K	-20 to 150 -	±3				
	***VX**	Copper/Constantan Compensating for Type K	-20 to 150 -	±2.5 ±				
E	**EX**	Nickel/Constantan Chromium Extension for Type E	-20 to 50 0 to 200 	±2.5 ±1.7 ±0.8				
J	**JX**	Iron/Constantan Extension for Type J	-20 to150 0 to 00 	±2.5 ±2.2 ±1.1				
T	**TX**	Copper/Constantan Extension for Type T	-20 to 50 -60 to 00 	±2.0 ±1.1 ±2.0 ±1.1				

Types of Thermocouple

BX	The Type E thermocouple is suitable for use at temperatures up to 900°C (1650°F) in a vacuum, inert, mildly oxidizing or reducing atmosphere. At cryogenic temperatures, the thermocouple is not subject to corrosion. This thermocouple has the highest EMF output per degree of all the commonly used thermocouples.
SX & RX	Maximum recommended operating temperature for Type S or R is 1450°C (2640°F); Type B is recommended for use at as high as 1700°C (3100°F). These thermocouples are easily contaminated. Reducing atmospheres are particularly damaging to the calibration. Noble metal thermocouples should always be protected with a gas-tight ceramic tube, a secondary tube of alumina and a silicon carbide or metal outer tube as conditions require.
KX	Due to its reliability and accuracy, Type K is used extensively at temperatures up to 1260°C (2300°F). It's good practice to protect this type of thermocouple with a suitable metal or ceramic protecting tube, especially in reducing atmospheres. In oxidizing atmospheres, such as electric furnaces, tube protection is not always necessary when other conditions are suitable; however, it is recommended for cleanliness and general mechanical protection. Type K will generally outlast Type J because the JP (iron) wire rapidly oxidizes, especially at higher temperatures.
EX	The Type E thermocouple is suitable for use at temperatures up to 900°C (1650°F) in a vacuum, inert, mildly oxidizing or reducing atmosphere. At cryogenic temperatures, the thermocouple is not subject to corrosion. This thermocouple has the highest EMF output per degree of all the commonly used thermocouples.
JX	The Type J may be used, exposed or unexposed, where there is a deficiency of free oxygen. For cleanliness and longer life, a protecting tube is recommended. Since JP (iron) wire will oxidize rapidly at temperatures over 540°C (1000°F), it is recommended that larger gauge wires be used to compensate. Maximum recommended operating temperature is 760°C
TX	This thermocouple can be used in either oxidizing or reducing atmospheres, though for longer life a protecting tube is recommended. Because of its stability at lower temperatures, this is a superior thermocouple for a wide variety of applications in low and cryogenic temperatures. It's recommended operating range is— -200° to 350°C (-330° to 660°F), but it can be used to -269°C (-452°F) (boiling helium).

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Code information

EX) ANSI - KX -FF - 0.32 - 1P
a b c d e

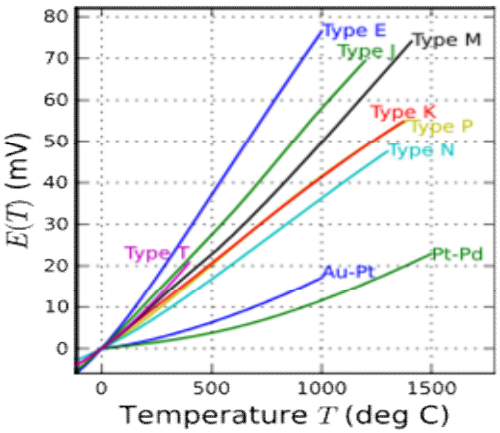
a. International Standard

b. Type of Thermocouple wire

c. Insulation & Sheath Material
G : Glass Fiber
F : FEP / PFA
K : Silicone
V : PVC

d. Conductor Size
0.32 : 0.32Ø
0.32SQ : 0.32mm²

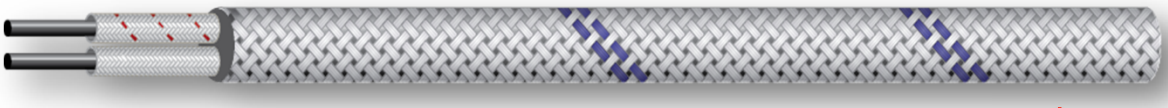
e. Number of Core
C : Twist
P : Parallel



Material Property

Glass Fiber

Glass fiber is known as a traditional high temperature insulation material due to it's excellent imcombustibity, heat resistance, electric insulation, and chemical stabiltiy. Although single glass fiber is not hygroscopic, bundled cover are somewhat hygroscopic. So, silicone or other resin is impregnated and baked over them to prevent moistrue absorption.



Operatig Temperature : -20°C ~ 400°C

FEP

FEP is the most suitable insulation material for heat resistance, chemical resistance, electrical insulating, weather resistance and so on. FEP has high mechanical strength and high pressure resistance over wide range of working temperature.

Overating Temperature : -80°C~ +200°C

Silicone

Silicone Rubber has been widely used as an excellent insulation material with less deterioration physical properties even under hosilte conditions. It has almost same electric properties as natural rubber and no series change in voltage withstanding value occure over recommended temperature range. It has also good resistance to chemicals (except for concentrated alkalis), oils and grease, outdoor and ozone environments.

Operating Tempreatrue : -60°C ~ +200°C

PVC

PVC insulation sheath has been widely used as a good subsititute for rubber insulator. This materil is commercial and shock-resistant and used as an insulating material of standard compensating cables for general purpose.

Operating Temperature : -40°C ~ +100°C

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