

Thermocouple wire

Our high quality thermocouple wire are used for thermocouple, temperature sensors, extension or compensating wire and cable

In order to ensure the quality of our thermocouple wire, we have the product undergo smelting in a vacuum furnace, hydrogen annealing and continuous wire drawing, among other processes. In addition to utilizing professional polishing machines and straighteners, special inspection equipment is utilized to ensure the tensile strength, resistance and electromotive force of the thermocouple wire are up to par

Form of Delivery

Type K, E, J, T, N, L.

(Chromel, Alumel, Copel, Constantan, SNC wire)

Bare round wire : 0.05-10.0 mm, bright or oxidized

Enamelled round wire : 0.05-1.50mm

Flat wire/Strip : according to customer request.

Stranded wire : (0.05-0.5mm)x(3-1000strands)



Name and code of alloy wires				Diameter of wires (mm)	Maximum temperature °C	
Positive		Negative			Long-time	Short-time
Name	Code	Name	Code			
NiCr10 (Chromel)	KP	NiSi3 (Alumel)	KN	Φ 0.3	700	800
				Φ 0.5	800	900
				Φ 0.8 Φ 1.0	900	1000
				Φ 1.2 Φ 1.6	1000	1100
				Φ 2.0 Φ 2.5	1100	1200
NiCr14.2Si	NP	NiSi4	NN	Φ 3.2	1200	1300
NiCr10 (Chromel)	EP	CuNi45 (Copel)	EN	Φ 0.3 Φ 0.5	350	450
				Φ 0.8 Φ 1.0 Φ 1.2	450	550
				Φ 1.6 Φ 2.0	550	650
				Φ 2.5	650	750
				Φ 3.2	750	900
Fe	JP	CuNi45 (Copel)	JN	Φ 0.3 Φ 0.5	300	400
				Φ 0.8 Φ 1.0 Φ 1.2	400	500
				Φ 1.6 Φ 2.0	500	600
				Φ 2.5 Φ 3.2	600	750
Cu	TP	CuNi45 (Copel)	TN	Φ 0.2 Φ 0.3	150	200
				Φ 0.5 Φ 0.8	200	250
				Φ 1.0 Φ 1.2	250	300
				Φ 1.6 Φ 2.0	300	350

Thermocouple wire

Bare thermocouple wire EMF values

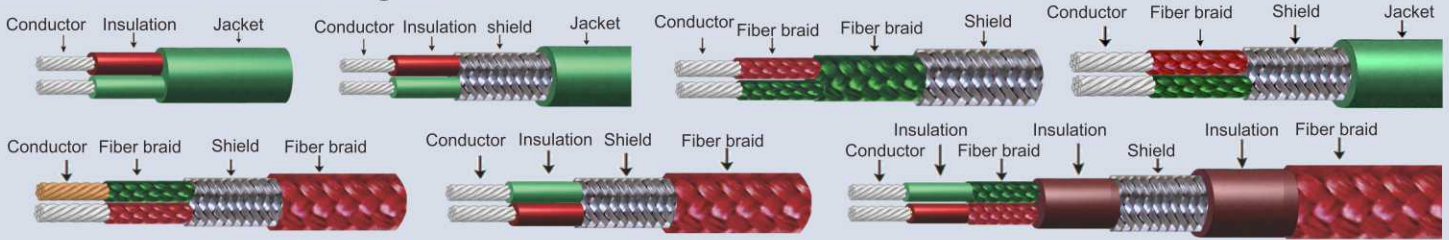
Temperature °C	for thermocouple and thermocouple cable					only for Thermocouple cable					
	Type K ITS 90 DIN EN 60584	Type N ITS 90 DIN EN 60584	Type E ITS 90 DIN EN 60584	Type J ITS 90 DIN EN 60584	Type T ITS 90 DIN EN 60584	Type S ITS 90 DIN EN 60584	Type R ITS 90 DIN EN 60584	Type B ITS 90 DIN EN 60584	Type U IPTS 68 DIN 43710	Type L IPTS 68 DIN 43710	Type L GOST 492
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	4,096	2,774	6,319	5,269	4,279	646	647	33	4,250	5,370	6,950
200	8,138	5,913	13,421	10,779	9,288	1,441	1,469	178	9,200	10,950	14,660
300	12,209	9,341	21,036	16,327	14,862	2,323	2,401	431	14,900	16,590	22,990
400	16,397	12,974	28,946	21,848	20,872						
500	20,644	16,748	37,005	27,393							
600	24,905	20,613	45,093	33,102							
700	29,129	24,527	53,112	39,132							
800	33,275	28,455	61,017	45,494							
900	37,326	32,371	68,787								
1000	41,276	36,256	76,373								
1100	45,119	49,987									
1200	48,838	43,846									
1300	52,410	47,513									

Thermocouple Type	Grade	Temperature range °C	EMF Tolerance	
			IEC (EN)60584	ASTM E230
Type K & Type N	I	-40 ~ 1100	±1.5°C or ±0.4%t	±1.1°C or ±0.4%
	II	-40 ~ 1300	±2.5°C or ±0.75%t	±2.2°C or ±0.75%
Type E	I	-40 ~ 1100	±1.5°C or ±0.4%t	±1.0°C or ±0.4%
	II	-40 ~ 1300	±2.5°C or ±0.75%t	±1.7°C or ±0.5%
Type J	I	-40 ~ 750	±1.5°C or ±0.4%t	±1.1°C or ±0.4%
	II	-40 ~ 750	±2.5°C or ±0.75%t	±2.2°C or ±0.75%
Type T	I	-40 ~ 350	±0.5°C or ±0.4%t	±0.5°C or ±0.4%
	II	-40 ~ 350	±1.0°C or ±0.75%t	±1.0°C or ±0.75%



Thermocouple extension and compensating cable

Basic insulation structure diagram

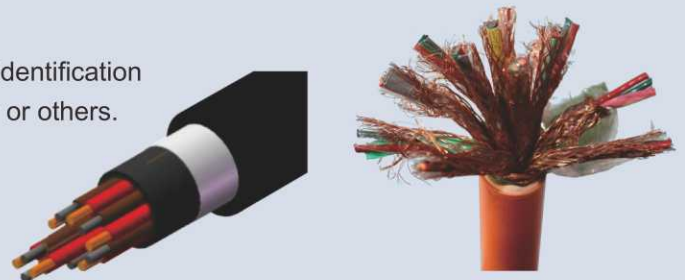


Customers select table

Type	core	Cross-section (mm ²)	No.Strands x Dia (mm)	Insulation	Shield	Jacket
		<input type="checkbox"/> 0.07	1x0.30			
		<input type="checkbox"/> 0.22	24 7x0.20			
		<input type="checkbox"/> 0.35	22 5x0.30			
<input type="checkbox"/> SC	<input type="checkbox"/> single pair	<input type="checkbox"/> 0.40	21 13x0.20	<input type="checkbox"/> Silica (-60,+850°C)		<input type="checkbox"/> Silica (-60,+850°C)
<input type="checkbox"/> RC		<input type="checkbox"/> 0.50	20 7x0.30	<input type="checkbox"/> High Temp. glass (-60,+600°C)		<input type="checkbox"/> High Temp. glass (-60,+600°C)
<input type="checkbox"/> BC	<input type="checkbox"/> multi-pair	<input type="checkbox"/> 0.60	20 19x0.20	<input type="checkbox"/> Fibreglass (-60,+450°C)	<input type="checkbox"/> stainless steel braid	<input type="checkbox"/> Fibreglass (-60,+450°C)
<input type="checkbox"/> KCA		<input type="checkbox"/> 0.75	19 7x0.37	<input type="checkbox"/> Polyimide tape/Kapton (-60,+260°C)	<input type="checkbox"/> tin-coated copper braid	<input type="checkbox"/> Polyimide tape/Kapton (-60,+260°C)
<input type="checkbox"/> KCB	<input type="checkbox"/> multi-core, no pairs	<input type="checkbox"/> 0.75	19 24x0.20	<input type="checkbox"/> PFA(-60,+275°C)	<input type="checkbox"/> Al-plastic tape wrap	<input type="checkbox"/> PFA(-60,+275°C)
<input type="checkbox"/> KX		<input type="checkbox"/> 1.00	18 7x0.43	<input type="checkbox"/> FEP(-60,+205°C)	<input type="checkbox"/> Cu tape wrap	<input type="checkbox"/> FEP(-60,+205°C)
<input type="checkbox"/> NC		<input type="checkbox"/> 1.00	18 14x0.30	<input type="checkbox"/> Silicone Rubber (-60,+180°C)	<input type="checkbox"/> Al foil wrap	<input type="checkbox"/> Silicone Rubber (-60,+180°C)
<input type="checkbox"/> NX		<input type="checkbox"/> 1.34	16 7x0.49	<input type="checkbox"/> PVC (-25,+105°C)		<input type="checkbox"/> PVC (-25,+105°C)
<input type="checkbox"/> EX		<input type="checkbox"/> 1.34	16 19x0.30	<input type="checkbox"/> PVC(-25,+70°C)		<input type="checkbox"/> PVC(-25,+70 °C)
<input type="checkbox"/> JX		<input type="checkbox"/> 1.50	16 7x0.52			
<input type="checkbox"/> TX		<input type="checkbox"/> 1.50	16 21x0.30			
<input type="checkbox"/> LX		<input type="checkbox"/> 2.00	14 7x0.60			
		<input type="checkbox"/> 2.00	14 19x0.366			
		<input type="checkbox"/> 2.00	14 28x0.30			
		<input type="checkbox"/> 2.50	13 7x0.65			
		<input type="checkbox"/> 2.50	13 19x0.41			

Multi-conductor cable

- multi-pair: 2-39 pairs multi-conductor, but not pair.
- Each pair with an deferent color tape or different Number for identification
- Insulation /Jacket material: PVC, FEP, PFA, Silicone rubber or others.
- shield will accoding to customer request.



other high temperature cable

- conductor: resistance wire, copper wire, tin-coated copper wire, Nickel-coated copper wire or Silver-coated copper wire
- Insulation and Jacket: According to customers request.

Thermocouple extension and compensating cable

Basic technical data

Type	conductor material		100°C EMF (μV) Standard	200°C EMF (μV) Standard	EMF (μV) Value tolerance			
					ITS 90 DIN EN 60584		ASTM E230	
	Positive	Negative			Grade I	Grade II	Special I	Standard 2
SC	SPC (Cu)	SNC(CuNi0.6)	645	1440	±30(±2.5°C)	±60(±5.0°C)	±30(±2.5°C)	±60(±5.0°C)
RC	RPC (Cu)	RNC(CuNi0.6)	645	1440	±30(±2.5°C)	±60(±5.0°C)	±30(±2.5°C)	±60(±5.0°C)
KCA	KPCA (Cu)	KNCA(CuNi42)	4095	8137	±60(±1.5°C)	±100(±2.5°C)	±45(±1.1°C)	±90(±2.2°C)
KCB	KPCB (Fe)	KNCB(CuNi40)	4095	8137	±60(±1.5°C)	±100(±2.5°C)	±45(±1.1°C)	±90(±2.2°C)
KX	KPX(Chomel)	KNX(Alumel)	4095	8137	±60(±1.5°C)	±100(±2.5°C)	±45(±1.1°C)	±90(±2.2°C)
NC	NPC (Fe)	NNC(CuNi18)	2774	5912	±60(±1.5°C)	±100(±2.5°C)	±45(±1.1°C)	±90(±2.2°C)
NX	NPX(NiCrSi)	NNX(NiSi)	2774	5912	±60(±1.5°C)	±100(±2.5°C)	±45(±1.1°C)	±90(±2.2°C)
EX	EPX(NiCr10)	ENX(CuNi45)	6317	13419	±120(±1.5°C)	±200(±2.5°C)	±65(±1.0°C)	±115(±1.7°C)
JX	JPX (Fe)	JNX(CuNi45)	5268	10777	±85(±1.5°C)	±140(±2.5°C)	±65(±1.1°C)	±120(±2.2°C)
TX	TPX(Cu)	TNX(CuNi18)	4277	9285	±30(±0.5°C)	±60(±1.0°C)	±30(±0.5°C)	±60(±1.0°C)
LX	LPX (Fe)	LNX(CuNi)	5370	10950	IPTS 68 DIN 43710 ±85(±1.5°C) ±140(±2.5°C)			
LX	LPX(NiCr10)	LNX(CuNi)	6950	14660	GOST 492 @100°C ±140 ±250		GOST 492 @200°C ±180 ±300	

Insulation color

Thermocouple cable type					
KX					
KCX					
JX					
TX					
EX					
NX					
RCX/SCX					

Packing:


Rolls



spools



drums

Silica Fiber Insulated Thermocouple Cable

Continuous use: **850 °C**
 Instant temperature (4minuts/time): **1000 °C**

Applications:

Heat Treatment
 Component Testing
 Thermocouple
 Metals Production

Standarded:

IEC 584 or
 ASTM E230 & ANSIMC96.1



Specifications:

Type: K, N, E, J
 Conductor: Solid thermocouple wire
 Insulation: Silica Fiber braided
 Construction: Parallel conductors
 Jacket: Silica Fiber braided
 Color Code: White or with colored tape identification

Conductor Size			Insulation Thickness (mm)	Jacket Thickness (mm)	Outer Size (mm)	Net Weight (kg/km)
AWG	(mm)	(mm ²)				
14	1.63	2.00	0.36	0.46	3.3x5.6	49
16	1.29	1.34	0.36	0.46	2.9x4.9	36
18	1.02	1.00	0.36	0.46	2.6x4.4	27
20	0.81	0.50	0.36	0.46	2.4x4.0	21

High Temperature Fiber Insulated Thermocouple Cable

Continuous use: **600 °C**
 Instant temperature (4minuts/time): **700 °C**

Applications:

Heat Treatment
 Component Testing
 Thermocouple
 Metals Production

Standarded:

IEC 584 or
 ASTM E230 & ANSIMC96.1



Specifications:

Type: K, N, E, J
 Conductor: Solid or stranded thermocouple wire
 Insulation: High Temperature Fiber braided
 Construction: Parallel conductors
 Jacket: High Temperature Fiber braided
 Color Code: White or with colored tape identification



Conductor Size			Insulation Thickness (mm)	Jacket Thickness (mm)	Outer Size (mm)	Net Weight (kg/km)
AWG	(mm)	(mm ²)				
14	1.63	2.00	0.36	0.46	3.3x5.6	49
16	1.29	1.34	0.36	0.46	2.9x4.9	36
18	1.02	1.00	0.36	0.46	2.6x4.4	27
20	0.81	0.50	0.36	0.46	2.4x4.0	21
24	0.51	0.22	0.36	0.46	2.4x4.0	14