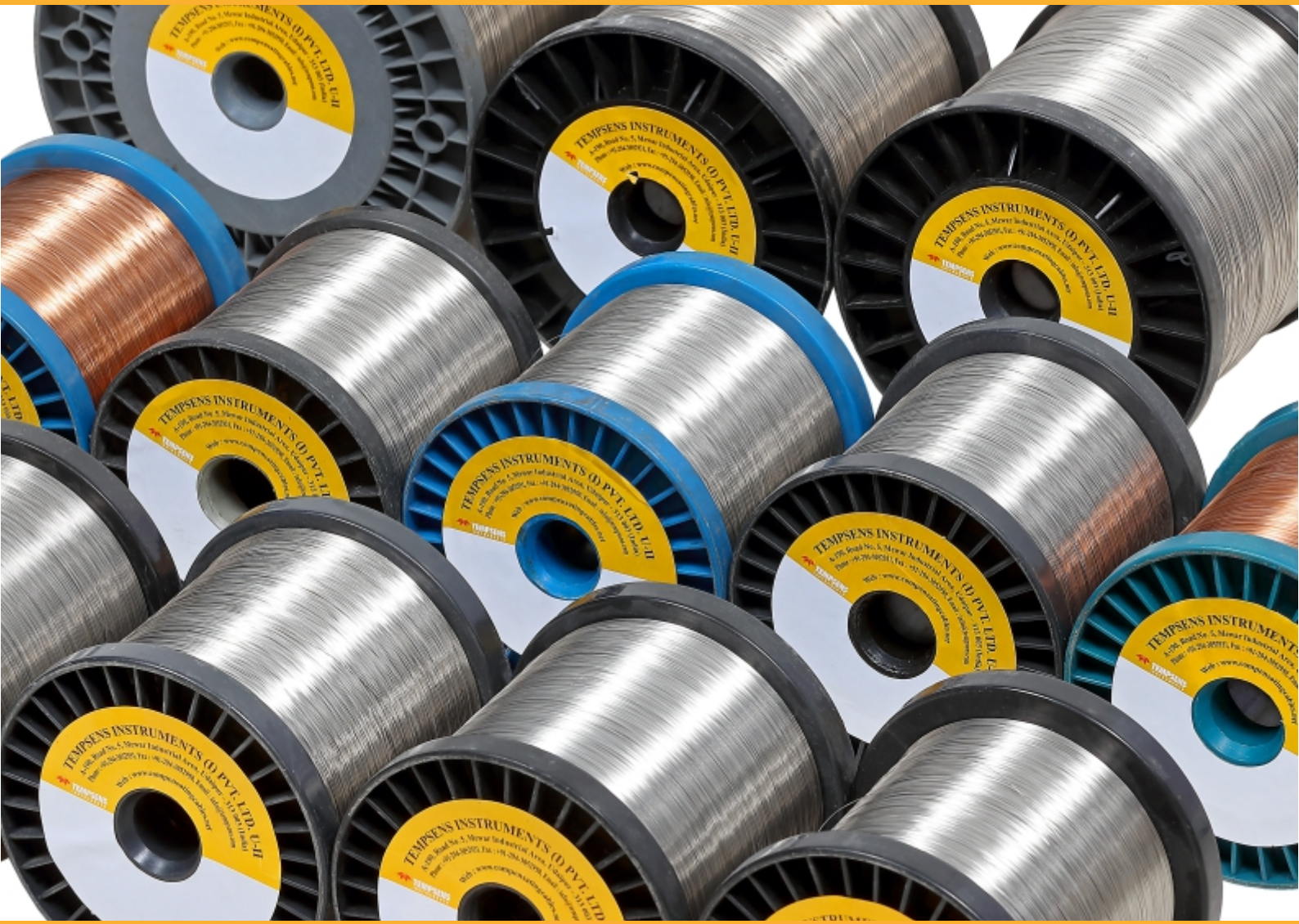


Nickel & Thermocouple Alloy



- Thermocouple Conductor
- Extension Conductor
- Compensating Conductor
- Nickel Conductor

ABOUT US

Tempsens is one of the largest players in the field of thermal and cable solutions. Tempsens has now used this vast knowledge in the domain of temperature measurement to be recognized as a superior vendor of thermocouple alloys which are now available in various configurations.

Tempsens has a completely integrated alloy manufacturing capability right from melting, drawing, annealing, bunching and packing. Our growth in thermocouple alloys is attributable to our ability to provide stable material and to provide special limit requirements.

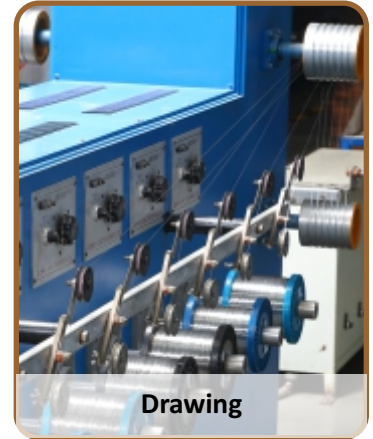
PROCESSING OF CONDUCTOR WIRE



Raw Material



Melting



Drawing



Annealing



Inspection & Packing

Testing and Calibration

Thermocouple, extension and compensating grades are calibrated over the temperature range according to international specifications. All our grades are individually calibrated versus Pt 67. Each coil/spool is tested for EMF and value of deviation from the standard EMF at different temperatures is shown on the labels attached to each coil/spool. Alternatively, calibration can also be performed as per ASTM E220 comparison technique.

- ✓ Calibration Test
- ✓ Positive Material Identification (PMI) Test
- ✓ Tensile Strength Test
- ✓ Proof Stress Test
- ✓ Bend Test
- ✓ Elongation
- ✓ Torsion Test
- ✓ Hardness Test
- ✓ Electrical Resistivity (Loop Resistance)

THERMOCOUPLE CONDUCTOR

All base metal thermocouples are offered according to ANSI/ASTM standards.

- Type** : K, T, J, N, E.
- Dia** : 0.16mm to 8 mm Dia
- Standard** : ANSI MC 96.1, ASTM E 230, other standard as per customer requirement.



Type	Conductor (*) Chemical Composition %					Conductor (-) Chemical Composition			Temp Range	American Standard ASTM E230/ANSI MC95.2			European Standard IEC 584		
	Ni	Cr	Fe	Cu	Others	Cu	Ni	Others		T/c Range	Class 1 (0.4%)	Class 2 (0.75%)	T/c Range	Class 1 (0.4%)	Class 2 (0.75%)
K	90	10	-	-	-	-	94	Mn+ Si+ Others	-200°C to +1260°C	0°C to 1260°C	±1.1°C	±2.2°C	-40°C to 1260°C	±1.5°C	±2.5°C
N	84.4	14.2	-	-	Si 1.4	-	95.6	Si 4.4	-200°C to +1260°C	0°C to 1260°C	±1.1°C	±2.2°C	-40°C to 1260°C	±1.5°C	±2.5°C
J	-	-	100	-	-	Bal	44	Mn+	-40°C to +760°C	0°C to 760°C	±1.1°C	±2.2°C	-40°C to 1260°C	±1.5°C	±2.5°C
T	-	-	-	100	-	Bal	44	Mn+	-200°C to +370°C	0°C to 370°C	±0.5°C	±1°C	-40°C to 1260°C	±0.5°C	±1°C
E	90	10	-	-	-	Bal	44	Mn+	-200°C to +870°C	0°C to 870°C	±1.1°C	±1.7°C	-40°C to 1260°C	±1.5°C	±2.5°C

- ✓ Available with high linearity, sensitivity, stability & homogeneity and with antioxidizing properties.
- ✓ Available in bright and oxidized form.
- ✓ Special alloy and special curves can be provided for MI cable application.
- ✓ Stranded conductors also available.

PURE NICKEL CONDUCTOR ALLOY

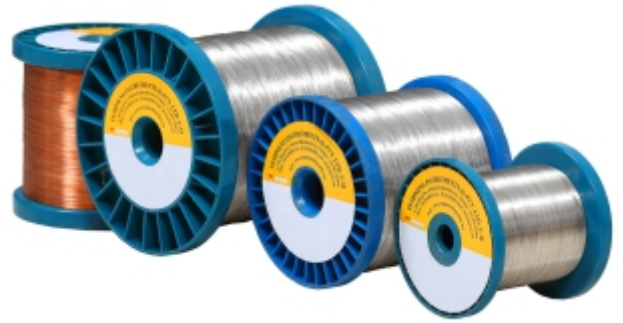
Nickel as a material has very high corrosion resistivity & high conductivity as well as high melting point. It has proper resistance, good radiation coefficient and provides great heat transfer coefficient.

Dia : 0.16 to 3.0 mm



EXTENSION/COMPENSATION GRADE ALLOY

When connecting thermocouples to instruments, the cable should have the same emf output as the thermocouple; otherwise spurious emf is generated at these junctions. The best solution is to use the same material as the thermocouple (extension cable). A cheaper alternative is to use compensating cables, the alloys of which are different from those of the thermocouple but have the same output over a limited temperature range.



Compensating and extension grades of wire are supplied in the bright-annealed condition. Extension and compensating cable provide convenient, economic solution-each with its pros and cons.

- Type** : KX, TX, JX, NX, EX, KCA, KCB, RCB/SCB.
- Dia** : 0.16mm to 3.0 mm Dia
- Standard** : ANSI MC 96.1, other standard as per customer requirement.

Type	Conductor (*) Chemical Composition %					Conductor (-) Chemical Composition %			American Standard ASTM E230/ANSI MC95.2			European Standard IEC 584		
	Ni	Cr	Fe	Cu	Others	Cu	Ni	Others	T/c Range	Class 1	Class 2	T/c Range	Class 1	Class 2
KX	90	10	-	-	Si+	-	94	Si+ Mn+ Others	0°C to 200°C	±1.1°C	±2.2°C	-25°C to 200°C	±1.5°C	±2.5°C
KCA (WX)	-	-	100	-	-	Bal	43	Mn 2 - Fe 2	-	-	-	0°C to 150°C	-	±2.5°C
KCB (VX)	-	-	-	100	-	Bal	44	-	-	-	-	0°C to 100°C	-	±2.5°C
NX	84.4	14.2	-	-	Si 1.4	-	95.6	Si 4.4	0°C to 200°C	±1.1°C	±2.2°C	-25°C to 200°C	±1.5°C	±2.5°C
JX	-	-	100	-	-	Bal	44	Mn+	0°C to 200°C	±1.1°C	±2.2°C	-25°C to 200°C	±1.5°C	±2.5°C
TX	-	-	-	100	-	Bal	44	Mn+	0°C to 100°C	±0.5°C	±1°C	-25°C to 100°C	±0.5°C	±1°C
EX	90	10	-	-	-	Bal	44	Mn+	0°C to 200°C	±1°C	±1.7°C	-25°C to 200°C	±1.5°C	±2.5°C
RCB/SCB	-	100	-	-	-	2	95	Mn+	0°C to 100°C	-	-	-25°C to 200°C	-	±2.5°C

THERMAL & CABLE SOLUTIONS



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