Thermocouple Sensors

Thermocouple Output Tolerances

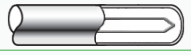
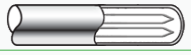
Thermocouple Types IEC 60584.1 (BS EN 60584.1)			Temperature Range (continuous)	IEC 60584.2 (BS EN 60584.2)	
				Class 1	Class 2
K	+	Nickel Chromium	0°C to +1100°C	-40°C to +375°C ±1.5°C +375°C to +1000°C ±0.004 x t	-40°C to +333°C ±2.5°C +333°C to +1200°C ±0.0075 x t
	-	Nickel Aluminium			
J	+	Iron	-50°C to +750°C	-40°C to +375°C ±1.5°C +375°C to +750°C ±0.004 x t	-40°C to +333°C ±2.5°C +333°C to +750°C ±0.0075 x t
	-	Constantan			
T	+	Copper	-200°C to +350°C	-40°C to +125°C ±0.5°C +125°C to +350°C ±0.004 x t	-40°C to +133°C ±1.0°C +133°C to +350°C ±0.0075 x t
	-	Constantan			
N	+	Nicrosil	0°C to +1200°C	-40°C to +375°C ±1.5°C +375°C to +1000°C ±0.004 x t	-40°C to +333°C ±2.5°C +333°C to +1200°C ±0.0075 x t
	-	Nisil			
E	+	Nickel Chromium	-200°C to +900°C	-40°C to +375°C ±1.5°C +375°C to +800°C ±0.004 x t	-40°C to +333°C ±2.5°C +333°C to +900°C ±0.0075 x t
	-	Constantan			
R	+	Platinum 13% Rhodium	0°C to +1600°C	0 to +1100°C ±1.0°C +1100°C to +1600°C ±(1+0.003(t-1100)) °C	0°C to +600°C ±1.5°C +600°C to +1600°C ±0.0025 x t
	-	Platinum			
S	+	Platinum 10% Rhodium	0°C to +1550°C	0 to +1100°C ±1.0°C +1100°C to +1600°C ±(1+0.003(t-1100)) °C	0°C to +600°C ±1.5°C +600°C to +1600°C ±0.0025 x t
	-	Platinum			
B	+	Platinum 30% Rhodium	+100°C to +1600°C	-	+600°C to +1700°C ±0.0025 x t
	-	Platinum 6% Rhodium			
G[1] (W)	+	Tungsten	+20°C to +2320°C	-	0°C to +425°C ±4.5°C +426°C to +2320°C ±1.0%
	-	Tungsten 26% Rhenium			
C[1] (W5)	+	Tungsten 5% Rhenium	+20°C to +2320°C	-	0°C to +425°C ±4.4°C +426°C to +2320°C ±1.0%
	-	Tungsten 26% Rhenium			
D[1] (W3)	+	Tungsten 3% Rhenium	+20°C to +2320°C	-	0°C to +400°C ±4.5°C +401°C to +2320°C ±1.0%
	-	Tungsten 25% Rhenium			

[1] Not to IEC 60584 (no official recognised standard)

Metal Sheath Materials

Metal Sheath Materials	Max Temperature	Application / Suitability Notes
316 / 321 Stainless Steel	+800°C	✓ Very good corrosion resistance ✓ High Ductility
310 Stainless Steel	+1100°C	✓ Very good high temperature corrosion resistance ✓ Can be used in Sulphur bearing atmospheres
Inconel 600	+1100°C	✓ Very good high temperature corrosion resistance ✓ Good oxidisation resistance × Do not use in Sulphur bearing atmospheres above +500°C
Incoloy 800	+1100°C	✓ Suitable in corrosive atmospheres at elevated temperatures ✓ Good resistance to oxidisation and carburisation ✓ Fair resistance to Sulphur bearing atmospheres
Nicrosil D	+1300°C	✓ Very good high temperature strength ✓ Can be used in Oxidising, Carburising, Reducing & Vacuum applications × Do not use in Sulphur bearing atmospheres
253MA (commonly used in incinerator, furnace & sand bed applications)	+1150°C	✓ Very good resistance to oxidisation and carburisation ✓ Good structural stability at high temperatures ✓ Good resistance to sulphur bearing atmospheres
Chrome Iron (446)	+1150°C	✓ Good resistance to corrosive atmospheres and oxidisation ✓ Good resistance to sulphur bearing atmospheres
Alloy C276	+1100°C	✓ One of the most corrosion resistant alloys currently available ✓ Widely used in chemical applications ✓ Good resistance to ferric & cupric chlorides, solvents, chlorides, solvents, chlorine, formic acids, acetic acids, brine, wet chlorine gas & hypochlorite

Sensing Junctions

Sensing Junction	Number of Channels (examples)	
Insulated (isolated, ungrounded)	Simplex/insulated: 	Duplex/insulated: 
Grounded (non-isolated)	Simplex/grounded: 	Duplex/grounded: