

MAXIMUM RECOMMENDED CONTINUOUS OPERATING TEMPERATURES FOR BASE METAL THERMOCOUPLES

Thermocouple Type	Diameter						
	3.3mm	1.6mm	1.0mm	0.8mm	0.5mm	0.3mm	0.25mm
	°C	°C	°C	°C	°C	°C	°C
N: bare	1100	1010	960	930	890	840	800
protected	1250	1180	1110	1040	1000	950	910
K: bare	1050	930	900	860	800	750	710
protected	1150	1080	1050	970	910	860	820
E: bare	890	800	750	700	660	620	580
protected	1000	910	860	810	770	730	690
J: bare	760	760	720	680	650	600	560
protected	760	760	760	760	760	710	670
T: bare	-	400	360	320	280	250	220
protected	-	450	410	370	330	300	270

Recommended maximum operating temperatures for bare and protected base metal thermocouple wires operating continuously in air without temperature cycling.

RESISTANCE – OHMS/METRE OF COMMON THERMOCOUPLE EXTENSION AND COMPENSATING CABLE COMBINATIONS

	Conductor dia.	K	T	J	N	E	R	S
Solid Conductors	1/0.2mm	31.8	16.2	19.1	43.6	38.5	10.5	10.2
	1/0.3mm	14.1	7.2	8.5	19.4	17.1	4.7	4.5
	1/0.5mm	5.1	2.6	3.1	7.0	6.2	1.7	1.6
	1/0.8mm	2.0	1.0	1.2	2.7	2.4	-	-
	1/1.29mm	0.8	0.4	0.5	1.0	0.9	-	-
Stranded Conductors	7/0.2mm	4.5	2.3	2.7	6.2	5.5	-	-
	14/0.2mm	2.3	1.2	1.4	3.1	2.8	-	-
	16/0.2mm	2.0	1.0	1.2	2.7	2.4	-	-
	24/0.2mm	1.3	0.7	0.8	1.8	1.6	-	-
	32/0.2mm	1.0	0.5	0.6	1.4	1.2	-	-
	40/0.2mm	0.8	0.4	0.5	1.1	1.0	-	-
	7/0.3mm	2.0	1.0	1.2	2.7	2.4	-	-
	3/0.91mm	0.5	0.3	0.3	0.7	0.6	-	-

To obtain loop resistance for twin runs per metre take the constants given below for the required combination and divide the constant by the cross sectional area in mm² of the conductor size you intend to use.

K = 1.00, T = 0.51, J = 0.60, E = 1.21, N = 1.37, R = 0.33, S = 0.32.