

Alloys : CM44 (Electrical Manganin)

Characteristic

Manganin alloy provides excellent stability, low temperature Coefficient of resistance.

It suitable for electrical products such as resistor and Resistive products.

Alloys	Grade	Resistivity [$\mu\Omega\text{m}$]	Average TCR [$\times 10^{-6}/^{\circ}\text{C}$] 23 \pm 2 $^{\circ}\text{C}$ 53 \pm 2 $^{\circ}\text{C}$
CM44	Standard	0.440	$\pm 50^*$

	Thermal expansion coefficient $\times 10^{-6}/^{\circ}\text{C}$	Specific heat J/g · K (20 $^{\circ}\text{C}$)	Thermal conductivity w/m · K	Density g/cm ³ (20 $^{\circ}\text{C}$)	Melting point $^{\circ}\text{C}$	Max Operating temperature $^{\circ}\text{C}$
	18	0.41	22	8.44	1020	150

Chemical composition	Mn	Ni	Cu+Ni+Mn
(%)	10~13	1~4	≥ 98

Alloys	Type	Diameter (mm)	
CM44W	Wire	$\phi 6.00 \sim 0.04$	
CM44R	Ribbon	t=2.90~0.05	w=40~0.4
CM44P	Plate	(Standard)	1.0t \times 180w \times 1200L
CM44	Foil	t=0.40~0.02	w=120~5

Copper-Nickel Mangan Wire [Resistance • Length • Weight

Alloys CM44W	Resitivity (23°CμΩm) 0.440±0.03
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Diameter (mm)	Tolerance (mm)	Cross section (mm ²)	Resistance Tolerance (%)	DC Resistance (Ω/m)	Length (m/Kg)	Weight (g/m)
6.00	±0.080	28.27	±5	0.0156	4.21	238
5.50	±0.063	23.76	±5	0.0185	5.01	200
5.00	±0.063	19.64	±5	0.0224	6.06	165
4.50	±0.063	15.90	±5	0.0277	7.49	134
4.00	±0.063	12.57	±5	0.0350	9.47	106
3.50	±0.050	9.621	±5	0.0457	12.4	80.8
3.20	±0.050	8.042	±5	0.0547	14.8	67.6
2.90	±0.050	6.605	±5	0.0666	18.0	55.5
2.60	±0.040	5.309	±5	0.0829	22.4	44.6
2.30	±0.040	4.155	±5	0.106	28.7	34.9
2.00	±0.040	3.142	±5	0.140	37.9	26.4
1.80	±0.040	2.545	±5	0.173	46.8	21.4
1.60	±0.032	2.011	±5	0.219	59.2	16.9
1.50	±0.032	1.767	±5	0.249	67.4	14.8
1.40	±0.032	1.539	±5	0.286	77.3	12.9
1.30	±0.032	1.327	±5	0.331	89.7	11.1
1.20	±0.025	1.131	±5	0.389	105.3	9.50
1.10	±0.025	0.9503	±6	0.463	125	7.98
1.00	±0.025	0.7854	±6	0.560	152	6.60
0.90	±0.025	0.6362	±6	0.692	187	5.34
0.85	±0.025	0.5675	±6	0.775	210	4.77
0.80	±0.020	0.5027	±6	0.875	237	4.22
0.75	±0.020	0.4418	±6	0.996	269	3.71
0.70	±0.020	0.3848	±6	1.14	309	3.23
0.65	±0.020	0.3318	±6	1.33	359	2.79
0.60	±0.020	0.2827	±6	1.56	421	2.38
0.55	±0.016	0.2376	±7	1.85	501	2.00
0.50	±0.016	0.1964	±7	2.24	606	1.65
0.45	±0.016	0.1590	±7	2.77	749	1.34
0.40	±0.016	0.1257	±7	3.50	947	1.06

