

## NICHROME

Having a nominal composition of 60 per cent nickel, 15 per cent chromium, balance iron, this alloy has won universal acceptance among users of metallic resistance materials - and has, indeed, set the standard by which others are judged.

It is an excellent choice for heating elements operating at temperatures up to 1100°C, which includes most types of domestic appliances and other heating units operating in the medium temperature range.

The resistance of Nichrome to corrosion makes it a very useful material for a variety of non-electrical applications. Typical uses are for acid-dipping baskets, cyanide-hardening containers, wire-mesh filters and structural parts of furnaces.

### RESISTANCE DATA

Specific resistance 675 ohms per circular mil-foot at 20°C.

WG	Diameter		Superficial	Resistance per unit length		Weight		Length		Resistance per unit wgt	
	mm	in	area cm <sup>2</sup> /m	ohms/m	ohms/ft	g/m	lb/1000ft	m/kg	ft/lb	ohms/kg	ohms/lb
18	1.219	0.048	38.30	0.9596	0.2925	9.629	6.470	103.9	154.6	99.70	45.22
20	0.914	0.036	28.71	1.707	0.5203	5.413	3.637	184.7	274.9	315.3	143.0
22	0.711	0.028	22.34	2.821	0.8598	3.276	2.201	305.3	454.3	861.3	390.7
24	0.559	0.022	17.56	4.563	1.391	2.025	1.361	493.8	734.9	2,253.0	1,022.0
26	0.457	0.018	14.36	6.828	2.081	1.353	0.9092	739.1	1,100.0	5,047.0	2,289.0
28	0.376	0.0148	11.81	10.09	3.075	0.9161	0.6156	1,092.0	1,625.0	11,020.0	4,999.0
30	0.315	0.0124	9.896	14.37	4.380	0.6429	0.4320	1,555.0	2,314.0	22,350.0	10,140.0
32	0.274	0.0108	8.608	18.99	5.788	0.4865	0.3269	2,055.0	3,058.0	39,020.0	17,700.0

# Factors for Determining Resistance at Temperature

Temperature Degrees C	Resistance in ohms
20	1.000
100	1.012
200	1.028
300	1.046
400	1.064
500	1.082
600	1.092
700	1.100
800	1.107
900	1.114
1000	1.123
1100	1.132

<b>Nominal Composition</b>	Nickel Chromium Manganese Silicon Iron Aluminium	60.0% 15.0% 1.5% 1.5% Balance —
<b>Maximum Operating Temperature</b>	Degrees C	1100
<b>Specific Resistance at 20°C</b>	Microhm-cm Ohms/circular mil-foot Ohms/square mil-foot	112 675 530
<b>Temperature Coefficient of Resistance, Mean Value 20—1000°C</b>	Per degree C	0.00013
<b>Specific Heat</b>	J/kg/°C	450
<b>Thermal Conductivity at 100°C</b>	W/m/°C	13.3
<b>Melting point (approx.)</b>	Degrees C	1390
<b>Coefficient of Linear Expansion, Mean Value 20—1000°C</b>	Per degree C	0.000017
<b>Tensile Strength, Annealed</b>	mN/m <sup>2</sup>	750
<b>Density</b>	g/cm <sup>3</sup>	8.25

