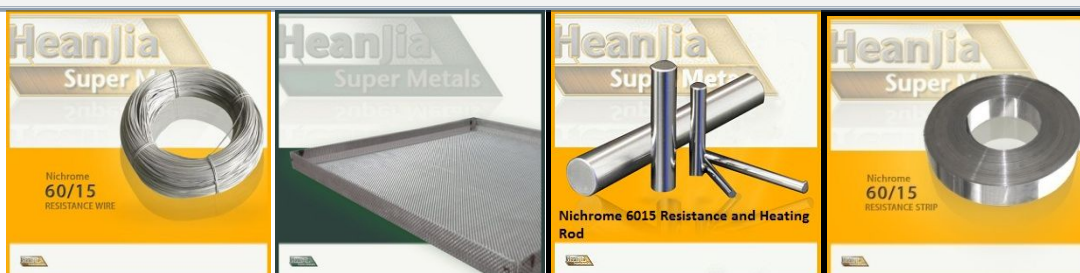


Electric Resistance Heating Nichrome 60 (UNS N06004)



Nichrome 60 has superior coefficient of electric resistivity than Nichrome 80. It offers great oxidation resistance and prolong service life. It is an ideal resistance heating material. Nichrome 60 or 60/15 can operate up to 1150oC. It is used in industrial furnaces and domestic heating appliances.

Alloy 60 has higher tensile strength and higher melting point than Ni80Cr20 nichrome alloy. Nichrome Ni60Cr15 is more easily available and less expensive. Practically, there is no significant difference between the functionality of these two alloys.

Chemical Composition

Nickel (Ni)	57 to 58 %
Chromium (Cr)	16 %
Silicon (Si)	1.5 %
Iron (Fe)	Rem %

Physical Properties

Melting point	1350oC or 2462oF
Highest service temperature	1150oC or 2100oF
Density	0.2979 lbs/cubic in
Specific heat capacity	0.11 Btu/lboF at 68oF
Thermal expansion	14 x 10(-6)/oC

Nichrome 60 Electric Resistivity Data

AWG	Diameter, inch	Resistance (ohm/ft)	Lb per ft	Ft per lb
8	0.129 inch	0.041 ohm/ft	46.3 Lb per ft	22 Ft per lb
9	0.114 inch	0.052 ohm/ft	36.7 Lb per ft	27 Ft per lb
10	0.102 inch	0.065 ohm/ft	29.12 Lb per ft	35 Ft per lb
11	0.091 inch	0.082 ohm/ft	23.07 Lb per ft	44 Ft per lb
12	0.081 inch	0.104 ohm/ft	18.31 Lb per ft	56 Ft per lb
13	0.072 inch	0.131 ohm/ft	14.54 Lb per ft	70 Ft per lb
14	0.064 inch	0.165 ohm/ft	11.53 Lb per ft	87 Ft per lb

15	0.057 inch	0.21 ohm/ft	9.15 Lb per ft	110 Ft per lb
16	0.051 inch	0.262 ohm/ft	7.24 Lb per ft	139 Ft per lb
17	0.045 inch	0.33 ohm/ft	5.7 Lb per ft	175 Ft per lb
18	0.040 inch	0.416 ohm/ft	4.56 Lb per ft	221 Ft per lb
19	0.036 inch	0.524 ohm/ft	3.62 Lb per ft	278 Ft per lb
20	0.032 inch	0.66 ohm/ft	2.9 Lb per ft	349 Ft per lb
21	0.029 inch	0.83 ohm/ft	2.3 Lb per ft	440 Ft per lb
22	0.025 inch	1.055 ohm/ft	1.8 Lb per ft	558 Ft per lb
23	0.023 inch	1.322 ohm/ft	1.44 Lb per ft	697 Ft per lb
24	0.020 inch	1.671 ohm/ft	1.14 Lb per ft	884 Ft per lb
25	0.018 inch	2.11 ohm/ft	0.9 Lb per ft	1114 Ft per lb
26	0.016 inch	2.7 ohm/ft	0.71 Lb per ft	1412 Ft per lb
27	0.014 inch	3.35 ohm/ft	0.57 Lb per ft	1768 Ft per lb
28	0.013 inch	4.252 ohm/ft	0.45 Lb per ft	2245 Ft per lb
29	0.011 inch	5.3 ohm/ft	0.34 Lb per ft	2794 Ft per lb
30	0.010 inch	6.8 ohm/ft	0.29 Lb per ft	3567 Ft per lb
31	0.009 inch	8.522 ohm/ft	0.222 Lb per ft	4503 Ft per lb
32	0.008 inch	10.55 ohm/ft	0.18 Lb per ft	5573 Ft per lb
33	0.007 inch	13.4 ohm/ft	0.142 Lb per ft	7076 Ft per lb
34	0.006 inch	17.01 ohm/ft	0.112 Lb per ft	8987 Ft per lb
35	0.0056 inch	21.52 ohm/ft	0.09 Lb per ft	11373 Ft per lb
36	0.0050 inch	27 ohm/ft	0.1 Lb per ft	14266 Ft per lb
37	0.0045 inch	33.34 ohm/ft	0.06 Lb per ft	17613 Ft per lb
38	0.0040 inch	42.9 ohm/ft	0.05 Lb per ft	22300 Ft per lb
39	0.0035 inch	55.11 ohm/ft	0.034 Lb per ft	29114 Ft per lb
40	0.0031 inch	70.24 ohm/ft	0.03 Lb per ft	37112 Ft per lb
41	0.0028 inch	86.1 ohm/ft	0.022 Lb per ft	45490 Ft per lb
42	0.0025 inch	108 ohm/ft	0.02 Lb per ft	57063 Ft per lb

Ni60Cr15 has sufficient balance of tensile strength and energy requirement that make it fit for cutting and power supplies. When it is used for long term, higher rigidity is preferred to avoid bowing during cutting. For lengthy wire, it needs extensive amount of heat that means costlier power supply.

Estimated current required to heat Nichrome 60 or Nichrome 80 wire to the given temperature

Temperature		400 of	600 of	800 of	1000 of	1200 of	1400 of	1600 of	1800 of	2000 of
		205 oC	315 oC	427 oC	538 oC	649 oC	760 oC	871 oC	982 oC	1093 oC
AWG	Dia (in)	Current, Amperes (A)								
8	.1286 in	22.4 A	32 A	41 A	52 A	65 A	79 A	95 A	111 A	128 A
9	.1145 in	18.8 A	26.8 A	34.5 A	44 A	55 A	67 A	80 A	94 A	108 A
10	.1018 in	16.2 A	23.3 A	29.7 A	37.5 A	46 A	56 A	68 A	80 A	92 A

11	.0908 in	13.8 A	19.2 A	24.8 A	31.5 A	39 A	48 A	57 A	67 A	78 A
12	.0809 in	11.6 A	16.1 A	20.8 A	26.5 A	33.5 A	40.8 A	48 A	56 A	65 A
13	.0721 in	9.8 A	13.6 A	17.6 A	22.5 A	28.2 A	34.2 A	41 A	48 A	55 A
14	.0642 in	8.4 A	11.6 A	15 A	18.8 A	23.5 A	29 A	34.6 A	40.5 A	46 A
15	.0572 in	7.2 A	10.0 A	12.8 A	16.1 A	20.0 A	24.5 A	29.4 A	34.3 A	39.2 A
16	.05109 in	6.4 A	8.7 A	10.9 A	13.7 A	17.0 A	20.9 A	25.1 A	29.4 A	33.6 A
17	.0452 in	5.5 A	7.5 A	9.5 A	11.7 A	14.5 A	17.6 A	21.1 A	24.6 A	28.1 A
18	.0404 in	4.8 A	6.5 A	8.2 A	10.1 A	12.2 A	14.8 A	17.7 A	20.7 A	23.7 A
19	.0358 in	4.3 A	5.8 A	7.2 A	8.7 A	10.6 A	12.7 A	15.2 A	17.8 A	20.5 A
20	.0321 in	3.8 A	5.1 A	6.3 A	7.6 A	9.1 A	11 A	13 A	15.2 A	17.5 A
21	.0286 in	3.3 A	4.3 A	5.3 A	6.5 A	7.8 A	9.4 A	11 A	12.9 A	14.8 A
22	.0254 in	2.9 A	3.7 A	4.5 A	5.6 A	6.8 A	8.2 A	9.6 A	11.0 A	12.5 A
23	.0227 in	2.58 A	3.3 A	4.0 A	4.9 A	5.9 A	7.0 A	8.3 A	9.6 A	11 A
24	.0202 in	2.21 A	2.9 A	3.4 A	4.2 A	5.1 A	6.0 A	7.1 A	8.2 A	9.4 A
25	.0158 in	1.92 A	2.52 A	3.0 A	3.6 A	4.3 A	5.2 A	6.1 A	7.1 A	8 A
26	.0158 in	1.67 A	2.14 A	2.6 A	3.2 A	3.8 A	4.5 A	5.3 A	6.1 A	6.9 A
27	.0143 in	1.44 A	1.84 A	2.25 A	2.73 A	3.3 A	3.9 A	4.6 A	5.3 A	6.0 A
28	.0127 in	1.24 A	1.61 A	1.95 A	2.38 A	2.85 A	3.4 A	3.9 A	4.5 A	5.1 A
29	0.114 in	1.08 A	1.41 A	1.73 A	2.10 A	2.51 A	2.95 A	3.4 A	3.9 A	4.4 A
30	.011 in	.92 A	1.19 A	1.47 A	1.78 A	2.14 A	2.52 A	2.9 A	3.3 A	3.7 A
31	.0088 in	.77 A	1.03 A	1.28 A	1.54 A	1.84 A	2.17 A	2.52 A	2.85 A	3.2 A
32	.0081 in	.68 A	.90 A	1.1 A	1.4 A	1.6 A	1.9 A	2.2 A	2.5 A	2.8 A
33	.0072 in	.59 A	.79 A	.97 A	1.17 A	1.40 A	1.62 A	1.86 A	2.12 A	2.35 A
34	.0064 in	.50 A	.68 A	.83 A	1.0 A	1.2 A	1.4 A	1.6 A	1.8 A	2.0 A
35	.0057 in	.43 A	.57 A	.72 A	.87 A	1.03 A	1.21 A	1.38 A	1.54 A	1.71 A
36	.0051 in	.38 A	.52 A	.63 A	.77 A	.89 A	1.0 A	1.2 A	1.3 A	1.5 A
37	.0046 in	.35 A	.46 A	.57 A	.68 A	.78 A	.90 A	1.03 A	1.16 A	1.29 A
38	.0041 in	.30 A	.41 A	.50 A	.59 A	.68 A	.78 A	.88 A	.98 A	1.1 A
39	.0036 in	.27 A	.36 A	.42 A	.49 A	.58 A	.66 A	.75 A	.84 A	.92 A
40	.0032 in	.24 A	.31 A	.36 A	.43 A	.50 A	.57 A	.64 A	.72 A	.79 A

Available Forms

Wire, Mesh, Rod, Strip, Foil, Bars