

Nikrothal® 80, Nikrothal TE and Nikrothal 70

Wire dimensions and properties

Nikrothal 80: Resistivity 1.09 $\Omega\text{mm}^2/\text{m}$ (655 Ω/cmf). Density 8.30 g/cm^3 (0.300 lb/in^3).

Nikrothal TE: Resistivity 1.19 $\Omega\text{mm}^2/\text{m}$ (716 Ω/cmf). Density 8.10 g/cm^3 (0.293 lb/in^3).

Nikrothal 70: Resistivity 1.18 $\Omega\text{mm}^2/\text{m}$ (709 Ω/cmf). Density 8.10 g/cm^3 (0.293 lb/in^3).

To obtain resistance at working temperature, multiply by the factor C_t in the following table.

°C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200
Nikrothal® 80 C_t	1.00	1.01	1.02	1.03	1.04	1.05	1.04	1.04	1.04	1.04	1.05	1.06	1.07
Nikrothal TE C_t	1.00	1.02	1.03	1.04	1.05	1.06	1.06	1.06	1.06	1.06	1.07	1.07	1.08
Nikrothal 70 C_t	1.00	1.01	1.02	1.03	1.04	1.05	1.05	1.04	1.04	1.04	1.05	1.06	1.06

Diameter	Resistance at 20°C	Resistivity at 20°C	Weight	Surface area	Cross sectional area
mm	Ω/m	cm^2/Ω^*	g/m	cm^2/m	mm^2
10	0.0139	22637	652	314	78.5
9.5	0.0154	19408	588	298	70.9
9.0	0.0171	16502	528	283	63.6
8.25	0.0204	12711	444	259	53.5
8.0	0.0217	11590	417	251	50.3
7.5	0.0247	9550	367	236	44.2
7.0	0.0283	7764	319	220	38.5
6.5	0.0328	6217	275	204	33.2
6.0	0.0386	4890	235	188	28.3
5.83	0.0408	4486	222	183	26.7
5.5	0.0459	3766	197	173	23.8
5.0	0.0555	2830	163	157	19.6
4.75	0.0615	2426	147	149	17.7
4.5	0.0685	2063	132	141	15.9
4.25	0.0768	1738	118	134	14.2
4.0	0.0867	1449	104	126	12.6
3.75	0.0987	1194	91.7	118	11.0
3.65	0.104	1101	86.8	115	10.5
3.5	0.113	971	79.9	110	9.62
3.25	0.131	777	68.9	102	8.30
3.0	0.154	611	58.7	94.2	7.07
2.8	0.177	497	51.1	88.0	6.16
2.6	0.205	398	44.1	81.7	5.31
2.5	0.222	354	40.7	78.5	4.91
2.3	0.262	275	34.5	72.3	4.15
2.0	0.347	181	26.1	62.8	3.14
1.8	0.428	132	21.1	56.5	2.54
1.6	0.542	92.7	16.7	50.3	2.01
1.5	0.617	76.4	14.7	47.1	1.77
1.4	0.708	62.1	12.8	44.0	1.54

* $\text{cm}^2/\Omega = I^2 \times C_t / p$ (I = Current, C_t = temperature factor, p = surface load W/cm^2)

(cont.)

For different alloys, multiply the figures in the table with:

Alloy	Resistance at 20°C, Ω/m	Resistivity at 20°C, cm ² /Ω	Weight, g/m
Nikrothal® TE	1.092	0.916	0.976
Nikrothal 70	1.083	0.924	0.976

(cont.)

Diameter	Resistance at 20°C	Resistivity at 20°C	Weight	Surface area	Cross sectional area
mm	Ω/m	cm ² /Ω*	g/m	cm ² /m	mm ²
1.3	0.821	49.7	11.0	40.8	1.33
1.2	0.964	39.1	9.39	37.7	1.13
1.0	1.39	22.6	6.52	31.4	0.785
0.95	1.54	19.4	5.88	29.8	0.709
0.90	1.71	16.5	5.28	28.3	0.636
0.85	1.92	13.9	4.71	26.7	0.567
0.80	2.17	11.6	4.17	25.1	0.503
0.75	2.47	9.55	3.67	23.6	0.442
0.70	2.83	7.76	3.19	22.0	0.385
0.65	3.28	6.22	2.75	20.4	0.332
0.60	3.86	4.89	2.35	18.8	0.283
0.55	4.59	3.77	1.97	17.3	0.238
0.50	5.55	2.83	1.63	15.7	0.196
0.45	6.85	2.06	1.32	14.1	0.159
0.40	8.67	1.45	1.04	12.6	0.126
0.35	11.3	0.971	0.799	11.0	0.0962
0.32	13.6	0.742	0.668	10.1	0.0804
0.30	15.4	0.611	0.587	9.42	0.0707
0.28	17.7	0.497	0.511	8.80	0.0616
0.25	22.2	0.354	0.407	7.85	0.0491
0.22	28.7	0.241	0.316	6.91	0.0380
0.20	34.7	0.181	0.261	6.28	0.0314
0.19	38.4	0.155	0.235	5.97	0.0284
0.18	42.8	0.132	0.211	5.65	0.0254
0.17	48.0	0.111	0.188	5.34	0.0227
0.16	54.2	0.0927	0.167	5.03	0.0201
0.15	61.7	0.0764	0.147	4.71	0.0177
0.14	70.8	0.0621	0.128	4.40	0.0154
0.13	82.1	0.0497	0.110	4.08	0.0133

* $\text{cm}^2/\Omega = I^2 \times C_t / p$ (I = Current, C_t = temperature factor, p = surface load W/cm^2)