
Kanthal AF

Fe-Chrome

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Alloys : Kanthal AF (Fe-Chrome)

It is a high-temperature alloy that can be used at heat generation temperatures up to 1,400°C. It has improved shape stability, especially at high temperatures.

Electrical Resistivity [μΩm]

1.39

Thermal Expansion Coefficient ×10-6/	Density g/cm3 (20°C)	Melting Point °C	Max Operating Temperature °C
15.0	7.15	1500	1300

Chemical Composition	Cr	Al	Fe
(%)	22	5.3	BAL

Resistance increase by temperature

°C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Coefficient	1.000	1.000	1.010	1.010	1.020	1.030	1.040	1.040	1.050	1.050	1.050	1.060	1.060	1.060

Alloys	Type	Diameter (mm)	
AF	Wire	φ10.00~0.30	
AF	Ribbon	t=1.0、1.2、1.5、2.0、2.5、3.0	w=10、15、20、25、30

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Kanthal AF (Fe-Chrome)

Resistance·Length·Weight

Wire

Electrical Resistivity (20°CμΩm) 1.39

Diameter (mm)	Tolerance (mm)	Cross section (mm ²)	Resistance Tolerance (%)	DC Resistance (Ω/m)	Length (m/Kg)	Weight (g/m)
10.00	±0.06	78.50	±5	0.01771	1.782	561.3
8.00	±0.05	50.24	±5	0.02767	2.784	359.2
7.50	±0.05	44.16	±5	0.03148	3.167	315.7
6.50	±0.05	33.17	±5	0.04191	4.217	237.1
6.00	±0.04	28.26	±5	0.04919	4.949	202.1
5.50	±0.04	23.75	±5	0.05854	5.890	169.8
5.00	±0.04	19.63	±5	0.07083	7.127	140.3
4.50	±0.03	15.90	±5	0.08744	8.798	113.7
4.00	±0.03	12.56	±5	0.1107	11.14	89.80
3.50	±0.03	9.616	±5	0.1445	14.54	68.76
3.20	±0.03	8.038	±5	0.1729	17.40	57.47
3.00	±0.03	7.065	±5	0.1967	19.80	50.51
2.90	±0.03	6.602	±5	0.2105	21.18	47.20
2.70	±0.03	5.723	±5	0.2429	24.44	40.92
2.60	±0.02	5.307	±5	0.2619	26.36	37.94
2.50	±0.02	4.906	±5	0.2833	28.51	35.08
2.30	±0.02	4.153	±5	0.3347	33.68	29.69
2.00	±0.02	3.140	±5	0.4427	44.54	22.45
1.80	±0.02	2.543	±5	0.5465	54.99	18.19
1.60	±0.02	2.010	±5	0.6917	69.60	14.37
1.50	±0.02	1.766	±5	0.7870	79.18	12.63
1.40	±0.02	1.539	±5	0.9034	90.90	11.00
1.30	±0.02	1.327	±5	1.048	105.4	9.486
1.20	±0.02	1.130	±5	1.230	123.7	8.082
1.10	±0.02	0.9499	±5	1.463	147.2	6.791
1.00	±0.02	0.7850	±5	1.771	178.2	5.613
0.90	±0.014	0.6359	±5	2.186	220.0	4.546
0.85	±0.014	0.5672	±5	2.451	246.6	4.055
0.80	±0.014	0.5024	±5	2.767	278.4	3.592
0.75	±0.014	0.4416	±5	3.148	316.7	3.157
0.70	±0.014	0.3847	±5	3.614	363.6	2.750
0.65	±0.014	0.3317	±5	4.191	421.7	2.371
0.60	±0.014	0.2826	±5	4.919	494.9	2.021
0.55	±0.012	0.2375	±5	5.854	589.0	1.698
0.50	±0.012	0.1963	±5	7.083	712.7	1.403
0.45	±0.012	0.1590	±5	8.744	879.8	1.137
0.40	±0.012	0.1256	±5	11.07	1114	0.8980
0.35	±0.012	0.09616	±5	14.45	1454	0.6876
0.30	±0.010	0.07065	±5	19.67	1980	0.5051

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Temperature Current Characteristics · Diameter · Temperature · Current

Wire Electrical Resistivity (20°CμΩm) 1.39 [Unit: Ampere]

Diameter (mm)	200 (°C)	300 (°C)	400 (°C)	500 (°C)	600 (°C)	700 (°C)	800 (°C)	900 (°C)	1000 (°C)	1100 (°C)
8.00	67.1	93.6	117	143	176	211	254	296	343	390
6.50	49.1	68.6	87.4	105	129	154	189	220	254	285
6.00	43.7	60.8	76.4	92.8	115	137	164	195	226	254
5.50	38.2	53.8	75.7	81.9	101	121	148	172	199	226
5.00	33.5	46.0	58.5	70.2	87.4	105	128	148	172	195
4.50	28.1	39.0	49.9	60.1	73.3	89.7	109	125	148	168
4.00	24.2	32.8	42.1	50.7	62.4	73.3	88.1	104	124	140
3.50	19.5	26.5	34.3	41.3	51.5	60.8	74.9	88.1	101	117
3.20	17.2	23.4	30.4	35.9	44.5	53.0	64.7	76.4	88.9	101
2.90	14.7	20.3	26.5	31.2	38.2	46.0	56.2	65.5	76.4	86.6
2.60	12.1	17.2	21.8	26.5	32.8	39.0	48.4	56.2	64.7	72.5
2.30	10.3	14.1	18.7	22.6	27.3	32.8	40.6	46.8	53.8	61.6
2.00	8.58	11.7	15.6	18.7	22.6	27.3	32.0	38.2	43.7	49.9
1.80	7.57	10.3	13.5	16.4	19.5	23.4	25.7	32.8	37.4	42.9
1.60	6.40	8.81	11.7	13.7	16.4	20.3	24.2	27.3	32.0	35.9
1.50	5.93	8.11	10.6	12.5	15.2	17.9	21.8	25.0	28.9	32.8
1.40	5.46	7.41	9.75	11.4	14.0	16.4	20.3	22.6	26.5	30.4
1.30	4.99	6.79	8.81	10.4	12.6	14.8	17.9	20.3	23.4	27.3
1.20	4.60	6.08	8.19	9.20	10.9	12.6	15.6	17.9	21.1	24.2
1.10	4.06	5.46	7.02	8.42	10.1	12.0	14.2	16.4	18.7	21.1
1.00	3.67	4.76	6.24	7.33	8.97	10.5	12.1	13.7	15.6	17.9
0.90	3.20	4.29	5.54	6.40	7.80	9.20	10.9	12.5	14.2	16.4
0.85	3.04	3.98	5.15	6.01	7.25	8.42	10.0	11.5	13.3	15.1
0.80	2.73	3.67	4.76	5.46	6.63	7.80	9.20	10.5	12.1	13.7
0.75	2.57	3.35	4.37	5.07	6.08	7.02	8.35	9.67	10.9	12.5
0.70	2.34	3.04	3.98	4.60	5.54	6.47	7.57	8.58	10.1	11.5
0.65	2.18	2.81	3.67	4.21	5.07	5.85	6.79	7.80	9.05	10.3
0.60	1.95	2.50	3.28	3.74	4.52	5.30	6.08	7.02	8.03	9.36
0.55	1.79	2.26	2.96	3.35	4.06	4.68	5.46	6.24	7.18	8.19
0.50	1.56	2.03	2.65	2.96	3.59	4.13	4.91	5.54	6.40	7.18
0.45	1.40	1.79	2.26	2.57	3.12	3.59	4.06	4.60	5.23	5.93
0.40	1.17	1.48	1.95	2.26	2.65	3.04	3.51	4.06	4.60	5.23
0.35	0.983	1.25	1.64	1.95	2.26	2.57	2.89	3.35	3.74	4.29

(*) Reference value

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Conductor resistance · Length · Weight

Ribbon

Electrical Resistivity (20°CμΩm) 1.39

[Unit: Ω/m]

Diameter (mm)	Cross section (mm ²)	Resistance Tolerance (%)	DC Resistance (Ω/m)	Length (m/Kg)	Weight (g/m)
3.0×30	88.20	±5	0.01544	1.554	643.5
3.0×25	73.50	±5	0.01853	1.865	536.3
3.0×20	58.80	±5	0.02317	2.331	429.0
2.5×25	61.25	±5	0.02224	2.238	446.9
2.5×20	49.00	±5	0.02780	2.797	357.5
2.0×25	49.00	±5	0.02780	2.797	357.5
2.0×20	39.20	±5	0.03475	3.497	286.0
2.0×15	29.40	±5	0.04633	4.662	214.5
1.5×20	29.40	±5	0.04633	4.662	214.5
1.5×15	22.05	±5	0.06178	6.216	160.9
1.2×15	17.64	±5	0.07722	7.770	128.7
1.2×12	14.11	±5	0.09653	9.713	103.0
1.0×10	9.80	±5	0.13900	13.99	71.5

Conductor Resistance Tolerance of Ribbon

Thickness [mm]	Width [mm]	Resistance Tolerance [%]
0.08above 3.15below	10below	±8
	10above	±7

*We can manufacture products other than the standard (size and tolerance), so please contact us.

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