

CrAl 25/5

CrAl 25/5 (Fe-Cr-Al Alloy) is a high temperature ferritic alloy which is recommended for element temperatures up to 1250°C. It is especially recommended where excellent oxidation and life properties in combination with good form stability properties are required.

Chemical Composition

Grade	Cr%	Al%	Fe%	Re%
CrAl 25/5	23.0-26.0	4.5-6.5	Bal.	Adequacy

Applications

Used in electrical heating elements in industrial furnaces and in appliance industry

Physical Properties

Properties	CrAl 25/5
Highest application temperature	1250
Resistivity at 20°C (micro ohm · meter)	1.42
Density (gram/cm ³)	7.25
Specific heat (J/g · °C)	0.46
Thermal conductivity (KJ/m · h · °C)	60.2
Coefficient of lines expansion ($\times 10^{-6}/^{\circ}\text{C}$)	15.0
Melting temperature (°C)	1500
Magnetic	Yes

Temperature factor of resistivity

Temperature °C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200
Ct	1	1	1	1	1.01	1.02	1.03	1.038	1.040	1.042	1.044	1.046	1.047

Resistance and Weight Table

Diameter (mm)	Cross Sectional Area (mm ²)	Surface Area per Meter cm ² /m	Weight per Meter kg/m	Resistance per Meter Ω/m, 20°C
0.10	0.007854	3.142	0.00005576	180.8
0.12	0.01131	3.770	0.00008030	125.6
0.15	0.01767	4.712	0.0001255	80.36
0.17	0.02270	5.341	0.0001612	62.56
0.19	0.02835	5.969	0.0002013	50.08
0.21	0.03464	6.597	0.0002459	41.00
0.25	0.04909	7.854	0.0003485	28.93

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Diameter (mm)	Cross Sectional Area (mm ²)	Surface Area per Meter cm ² /m	Weight per Meter kg/m	Resistance per Meter Ω/m,20°C
0.27	0.05726	8.482	0.0004065	24.80
0.29	0.06605	9.111	0.0004690	21.50
0.31	0.07548	9.739	0.0005359	18.81
0.35	0.09621	11.00	0.0006830	14.76
0.40	0.1257	12.57	0.0008922	11.30
0.45	0.1590	14.14	0.001129	8.928
0.50	0.1963	15.71	0.001394	7.232
0.60	0.2827	18.85	0.002007	5.022
0.70	0.3848	21.99	0.002732	3.690
0.80	0.5027	25.13	0.003569	2.825
0.90	0.6362	28.28	0.004517	2.232
1.00	0.7854	31.42	0.005576	1.808
1.20	1.131	37.70	0.008030	1.256
1.40	1.539	43.98	0.01093	0.9224
1.60	2.011	50.27	0.01428	0.7063
1.80	2.545	56.55	0.01807	0.5580
2.00	3.142	62.83	0.02231	0.4520
2.20	3.801	69.12	0.02699	0.3736
2.50	4.909	78.54	0.03485	0.2893
2.80	6.158	87.96	0.04372	0.2306
3.00	7.069	94.25	0.05019	0.2009
3.50	9.621	110.0	0.06831	0.1476
4.00	12.57	125.7	0.08922	0.1130
4.50	15.90	141.1	0.1129	0.08928
5.00	19.63	157.1	0.1394	0.07232
5.50	23.76	172.8	0.1687	0.05977
6.00	28.27	188.5	0.2007	0.05022
6.50	33.18	204.2	0.2356	0.04279
7.00	38.48	219.9	0.2732	0.03690