PRODUCT DATASHEET / 2026

IRON–CHROMIUM–ALUMINIUM RESISTANCE & HEATING ALLOY · 铁铬铝高电阻电热合金

0Cr25Al5

DIN W.Nr. 1.4765 · Resistohm 142 · CrAl 25/5

The benchmark Fe–Cr–Al grade: 1300 °C, 1.42 μΩ·m and a fraction of the cost of nickel-chromium.

铁铬铝基准牌号——1300 °C、1.42 μΩ·m，成本仅为镍铬合金的一小部分。

0Cr25Al5 is the reference Fe–Cr–Al heating alloy: 1300 °C maximum, 1.42 μΩ·m at 20 °C and a dense Al_2O_3 scale that is more stable at high temperature than the Cr_2O_3 layer of nickel-chromium. Material cost runs 50–70 % below NiCr grades.

Density of about 7.1 g/cm³ is roughly 15 % below Cr20Ni80, reducing equipment weight at equal volume. The low temperature coefficient keeps heating power steady, and the alumina layer also resists sulphur attack better than chromia in chemical and metallurgical service.

SPECIFICATION 规格

ALLOY TYPE 合金类型
Ferritic Fe–Cr–Al

STRUCTURE 晶体结构
Ferrite

MAGNETIC 磁性
Magnetic

STANDARDS 标准
GB/T 1234-2012 · DIN 1.4765

01 CHEMICAL COMPOSITION 化学成份

WT. % · GB/T 1234-2012

C	P	S	Mn	Si	Cr	Ni	Al	Fe
≤0.06	≤0.025	≤0.02	≤0.5	≤0.6	23.0–26.0	≤0.6	4.5–6.5	Remainder

02 PHYSICAL PROPERTIES 物理性能

TYPICAL VALUES

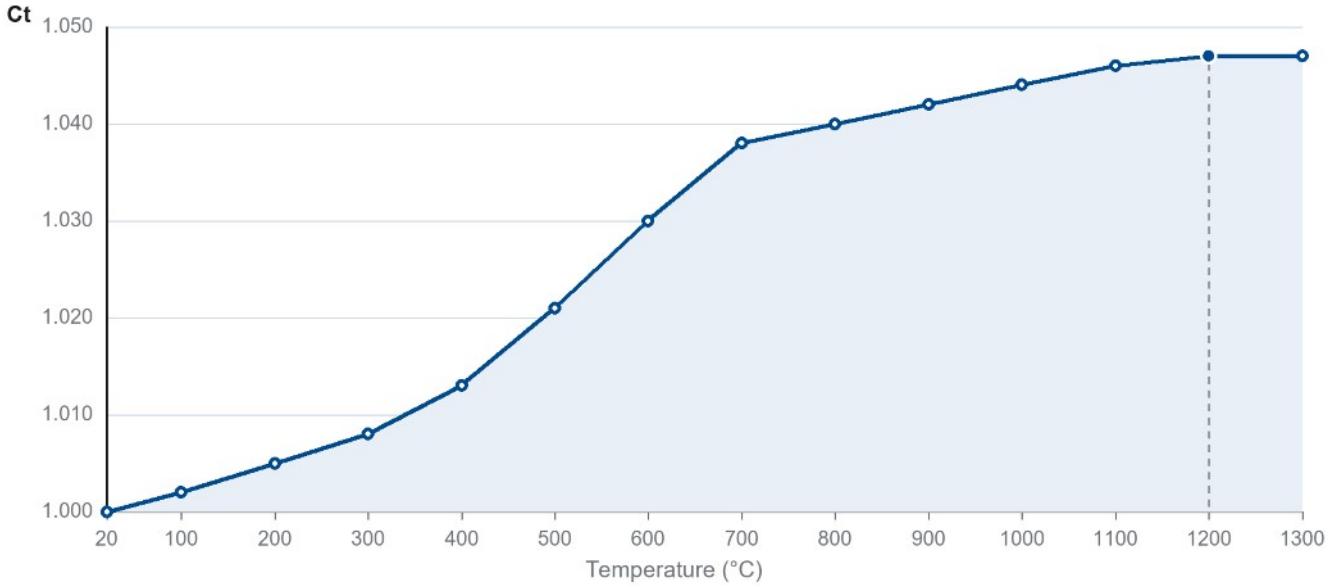
Max. Working Temp.	**1300 °C**	Resistivity at 20 °C (μΩ·m)	**1.42±0.07**
Density	**7.1 g/cm³**	Thermal conductivity (20 °C)	**13 W/(m·K)**
Average linear expansion coefficient (20-1000 °C)	**15.0×10⁻⁶/K**	Specific heat capacity	**0.46 J/(g·K)**
Approx. melting point	**1500 °C**	Elongation after Fracture (A/%)	**Ø≤3.0 mm: ≥12% Ø>3.0 mm: ≥15%**
Tensile strength (Rm /MPa)	**≥600**	Accelerated life test	**≥80 h/1300 °C**
Micrographic structure	**Ferrite**	Magnetic properties	**Magnetic**

03 TEMPERATURE BEHAVIOUR 温度特性

CT · GB/T 1234-2012

Resistance rises predictably with temperature

Ct is the factor by which the 20 °C resistance is multiplied at a given temperature. Standards publish it as a table; plotted here, intermediate values can be read at a glance.



Where the curve is used: $R(T) = R_{20} \times Ct$. From 100 to 1300 °C the factor ranges from 1.002 to 1.047 (+0.2 % to +4.7 %); at constant voltage the power at temperature is P_{20} / Ct.

04 CT BY TEMPERATURE 温度系数表

°C · FACTOR

°C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Ct	1.000	1.002	1.005	1.008	1.013	1.021	1.030	1.038	1.040	1.042	1.044	1.046	1.047	1.047

05 PERFORMANCE 性能要点

VERIFIED DATA

Temperature
1300 °C maximum — strongest above 1200 °C.

Resistivity
1.42 µΩ·m at 20 °C for short, efficient elements.

Cost
50–70 % cheaper than nickel-chromium.

Weight
7.1 g/cm³ — about 15 % lighter than Cr20Ni80.

06 APPLICATIONS 应用领域

SERVICE-PROVEN SECTORS

Industrial electric furnaces
heating zones above 1200 °C

Heat-treatment equipment
retorts, muffles and fixtures

Household heating appliances
elements and radiant heaters

High-temperature elements
coil, strip and ribbon

Metallurgical and chemical plant
sulphur-bearing service

TRADE NAMES · 商品牌号

Resistohm 142 · FCHW-1 / FCHR-1 · FeCrAl Ⅱ B · CrAl 25/5 · FRCA33 · GFC142 · X27Ю5T

Several names above are registered trademarks of their respective owners; they are given for cross-reference only.

07 TECHNICAL PARAMETERS 技术参数

GB/T 1234-2012

Metric wire table: resistance, length and mass

Diameter (mm)	Ω/m at 20 °C	m per kg	g per m	Diameter (mm)	Ω/m at 20 °C	m per kg	g per m
0.05	723.201	71731.87	0.01394	**1.1**	1.4942	148.21	6.74735
0.06	502.223	49813.80	0.02007	**1.2**	1.2556	124.53	8.02990
0.07	368.980	36597.89	0.02732	**1.3**	1.0698	106.11	9.42398
0.08	282.500	28020.26	0.03569	**1.4**	0.9224	91.49	10.92959
0.09	223.210	22139.46	0.04517	**1.5**	0.8036	79.70	12.54673
0.1	180.800	17932.97	0.05576	**1.6**	0.7063	70.05	14.27538
0.11	149.422	14820.63	0.06747	**1.7**	0.6256	62.05	16.11557
0.12	125.556	12453.45	0.08030	**1.8**	0.5580	55.35	18.06728
0.13	106.982	10611.22	0.09424	**1.9**	0.5008	49.68	20.13052
0.15	80.356	7970.21	0.12547	**2.0**	0.4520	44.83	22.30529
0.17	62.561	6205.18	0.16116	**2.2**	0.3736	37.05	26.98940
0.19	50.083	4967.58	0.20131	**2.4**	0.3139	31.13	32.11962
0.21	40.998	4066.43	0.24592	**2.6**	0.2675	26.53	37.69594
0.25	28.928	2869.27	0.34852	**2.8**	0.2306	22.87	43.71837
0.27	24.801	2459.94	0.40651	**3.0**	0.2009	19.93	50.18690
0.29	21.498	2132.34	0.46897	**3.2**	0.1766	17.51	57.10154
0.31	18.814	1866.07	0.53588	**3.4**	0.1564	15.51	64.46229
0.35	14.759	1463.92	0.68310	**3.6**	0.1395	13.84	72.26914
0.40	11.300	1120.81	0.89221	**3.8**	0.1252	12.42	80.52209
0.45	8.928	885.58	1.12921	**4.0**	0.1130	11.21	89.22116
0.50	7.232	717.32	1.39408	**4.5**	0.0893	8.86	112.92053
0.55	5.977	592.83	1.68684	**5.0**	0.0723	7.17	139.40806
0.60	5.022	498.14	2.00748	**5.5**	0.0598	5.93	168.68375
0.65	4.279	424.45	2.35600	**6.0**	0.0502	4.98	200.74760
0.70	3.690	365.98	2.73240	**6.5**	0.0428	4.24	235.59962
0.80	2.825	280.20	3.56885	**7.0**	0.0369	3.66	273.23979
0.85	2.502	248.21	4.02889	**7.5**	0.0321	3.19	313.66813
0.90	2.232	221.39	4.51682	**8.0**	0.0283	2.80	356.88462
0.95	2.003	198.70	5.03263	**8.5**	0.0250	2.48	402.88928
1.00	1.808	179.33	5.57632	**9.0**	0.0223	2.21	451.68210

Resistance tolerance 0.03–0.06 mm ±10 % · 0.07–0.12 mm ±8 % · 0.13–0.17 mm ±7 % · 0.18–0.32 mm ±6 % · above 0.32 mm ±5 %.

08 SUPPLY FORMS 供货规格

OTHER SIZES ON REQUEST

WIRE
0.05–1.6 mm
Bright, soft annealed

WIRE
1.0–12.0 mm
Pickled · golden 1.2–3.9 · blue 4.0–10.0

ROD
6.0–150.0 mm
Drawn and annealed

FLAT WIRE
0.2–6.0 × 0.08–1.0 mm
Width × thickness

RIBBON
5.0–300 × 0.05–4.0 mm
Width × thickness

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Founded 1990 · formerly Danyang Resistance Wire Factory · ISO 9001:2015 · 1,500 t per year · about half exported