PRODUCT DATASHEET / 2026

IRON–CHROMIUM–ALUMINIUM RESISTANCE & HEATING ALLOY · 低铝易焊铁铬铝合金

1Cr13Al4

DIN W.Nr. 1.4725 · Alkrothal 14 · Aluchrom W

Lower aluminium, real ductility: the Fe–Cr–Al grade for welded frames, structural elements and 900 °C service.

低铝易焊铁铬铝——可 TIG 焊、可冷弯，适合 900 °C 承力与焊接结构件。

1Cr13Al4 trades ultimate temperature for mechanical honesty. With aluminium held below the critical threshold and only 12–15 % chromium, room-temperature brittleness drops and elongation rises, so the alloy takes cold bending, stamping and welding.

That makes it the Fe–Cr–Al grade for welded assemblies — furnace linings, heating frames, large welded structures — where high-aluminium alloys crack. Up to 900 °C the Al_2O_3 film still gives good oxidation and carburisation resistance at a fraction of nickel-chromium cost.

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 1.4725

01 CHEMICAL COMPOSITION 化学成份

WT. % · GB/T 1234-2012

C	P	S	Mn	Si	Cr	Ni	Al	Fe
≤0.12	≤0.025	≤0.02	≤0.5	≤0.7	12.0–15.0	≤0.6	4.0–6.0	Remainder

02 PHYSICAL PROPERTIES 物理性能

TYPICAL VALUES

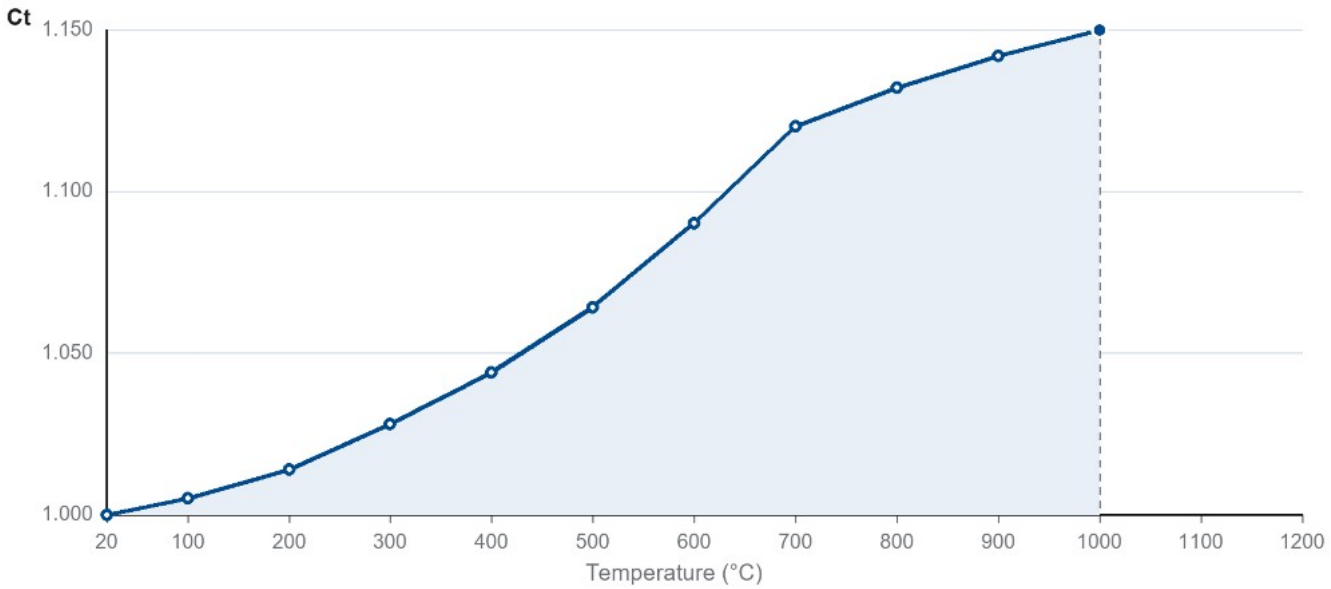
Max. Working Temp.	**950 °C**	Resistivity at 20 °C (μΩ·m)	**1.25±0.08**
Density	**7.4 g/cm³**	Thermal conductivity (20 °C)	**15 W/(m·K)**
Average linear expansion coefficient (20-1000 °C)	**15.4×10⁻⁶/K**	Specific heat capacity	**0.49 J/(g·K)**
Approx. melting point	**1450 °C**	Elongation after Fracture (A/%)	**Ø≤3.0 mm: ≥12% Ø>3.0 mm: ≥15%**
Tensile strength (Rm /MPa)	**≥580**	Accelerated life test	**≥80 h/950 °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 1000 °C the factor ranges from 1.005 to 1.150 (+0.5 % to +15.0 %); 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
Ct	1.000	1.005	1.014	1.028	1.044	1.064	1.090	1.120	1.132	1.142	1.150	—	—

05 PERFORMANCE 性能要点

VERIFIED DATA

Weldability
TIG and resistance welding with a wide process window.

Ductility
Lower aluminium cuts room-temperature brittleness.

Oxidation and carburisation
Al_2O_3 film protects to 900 °C.

Cost
Nickel-free, far below NiCr heat-resistant steels.

06 APPLICATIONS 应用领域

SERVICE-PROVEN SECTORS

Welded heating frames
furnace linings and structures

Heat-treatment fixtures
trays, baskets and supports

Carburising duty
cement and case-hardening plant

Domestic appliances
structural heating parts

Conductive heating parts
combined structural and heating duty

TRADE NAMES · 商品牌号

Resistohm 125 · CrAl 14/4 · Alkrothal 14 · 15Ю5 · Alloy 750 · Ohmalloy 40 · Alferon 902 · Alchrome 750 · Aluchrom W · Stablohm 750

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	636.620	68823.82	0.01453	**1.1**	1.3153	142.20	7.03245
0.06	442.097	47794.32	0.02092	**1.2**	1.1052	119.49	8.36920
0.07	324.806	35114.19	0.02848	**1.3**	0.9417	101.81	9.82218
0.08	248.680	26884.30	0.03720	**1.4**	0.8120	87.79	11.39141
0.09	196.488	21241.92	0.04708	**1.5**	0.7074	76.47	13.07687
0.1	159.155	17205.95	0.05812	**1.6**	0.6217	67.21	14.87857
0.11	131.533	14219.80	0.07032	**1.7**	0.5507	59.54	16.79651
0.12	110.524	11948.58	0.08369	**1.8**	0.4912	53.10	18.83069
0.13	94.175	10181.04	0.09822	**1.9**	0.4409	47.66	20.98111
0.15	70.736	7647.09	0.13077	**2.0**	0.3979	43.01	23.24777
0.17	55.071	5953.62	0.16797	**2.2**	0.3288	35.55	28.12980
0.19	44.087	4766.19	0.20981	**2.4**	0.2763	29.87	33.47678
0.21	36.090	3901.58	0.25631	**2.6**	0.2354	25.45	39.28872
0.25	25.465	2752.95	0.36325	**2.8**	0.2030	21.95	45.56562
0.27	21.832	2360.21	0.42369	**3.0**	0.1768	19.12	52.30747
0.29	18.925	2045.89	0.48878	**3.2**	0.1554	16.80	59.51428
0.31	16.561	1790.42	0.55853	**3.4**	0.1377	14.88	67.18604
0.35	12.992	1404.57	0.71196	**3.6**	0.1228	13.28	75.32276
0.40	9.947	1075.37	0.92991	**3.8**	0.1102	11.92	83.92444
0.45	7.860	849.68	1.17692	**4.0**	0.0995	10.75	92.99106
0.50	6.366	688.24	1.45299	**4.5**	0.0786	8.50	117.69182
0.55	5.261	568.79	1.75811	**5.0**	0.0637	6.88	145.29854
0.60	4.421	477.94	2.09230	**5.5**	0.0526	5.69	175.81123
0.65	3.767	407.24	2.45555	**6.0**	0.0442	4.78	209.22989
0.70	3.248	351.14	2.84785	**6.5**	0.0377	4.07	245.55453
0.80	2.487	268.84	3.71964	**7.0**	0.0325	3.51	284.78513
0.85	2.203	238.14	4.19913	**7.5**	0.0283	3.06	326.92171
0.90	1.965	212.42	4.70767	**8.0**	0.0249	2.69	371.96426
0.95	1.763	190.65	5.24528	**8.5**	0.0220	2.38	419.91277
1.00	1.592	172.06	5.81194	**9.0**	0.0196	2.12	470.76726

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
Acid-pickled finish

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