PRODUCT DATASHEET / 2026

IRON–CHROMIUM–ALUMINIUM RESISTANCE & HEATING ALLOY · 铌稳定化铁铬铝合金

0Cr21Al6Nb

Kanthal A-1 · Aluchrom O · Alloy 875

Niobium-stabilised Fe–Cr–Al: holds its shape above 1000 °C and resists green rot in controlled atmospheres.

铌稳定化铁铬铝合金——1000 °C 以上抗蠕变、抗下垂，控制气氛下抵抗“绿腐”。

Roughly 0.5–1.5 % niobium forms fine Fe_2Nb-type Laves phases with aluminium and iron. That precipitation hardening gives markedly better creep and sag resistance above 1000 °C than niobium-free Fe–Cr–Al grades, so elements keep their pitch and position.

Niobium also stabilises the alloy in reducing or low-oxygen atmospheres, where standard Fe–Cr–Al suffers green rot from selective chromium oxidation. With finer grains, it delivers 1.5–2 times the usual service life at a price still far below nickel-chromium.

SPECIFICATION 规格

ALLOY TYPE 合金类型
Ferritic Fe–Cr–Al–Nb

STRUCTURE 晶体结构
Ferrite

MAGNETIC 磁性
Magnetic

STANDARDS 标准
GB/T 1234-2012

01 CHEMICAL COMPOSITION 化学成份

WT. % · GB/T 1234-2012

C	P	S	Mn	Si	Cr	Ni	Al	Fe	Nb
≤0.05	≤0.025	≤0.02	≤0.5	≤0.6	21.0–23.0	≤0.6	5.0–7.0	Remainder	0.5

02 PHYSICAL PROPERTIES 物理性能

TYPICAL VALUES

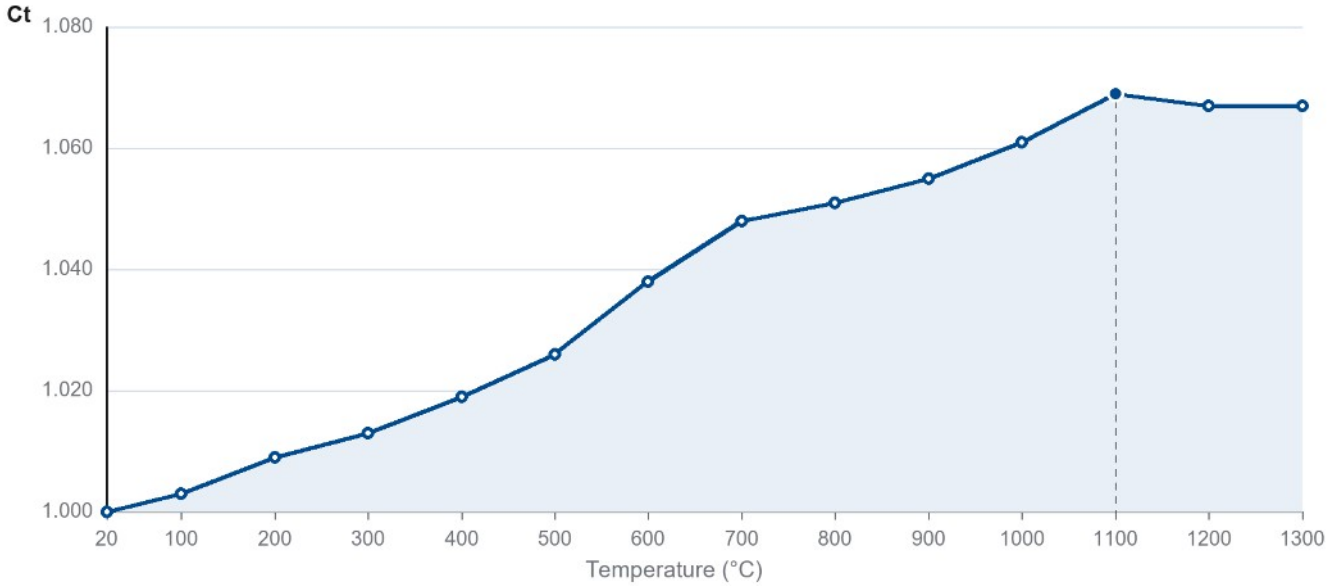
Max. Working Temp.	**1350 °C**	Resistivity at 20 °C (μΩ·m)	**1.45±0.07**
Density	**7.10 g/cm³**	Thermal conductivity (20 °C)	**13 W/(m·K)**
Average linear expansion coefficient (20-1000 °C)	**16.0×10⁻⁶/°C**	Specific heat capacity	**0.49 J/(g·K)**
Approx. melting point	**1510 °C**	Elongation after Fracture (A/%)	**Ø≤3.0 mm: ≥10% Ø>3.0 mm: ≥12%**
Tensile strength (Rm /MPa)	**≥650**	Accelerated life test	**≥50 h/1350 °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 1.003 to 1.069 (+0.3 % to +6.9 %); 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	1.003	1.009	1.013	1.019	1.026	1.038	1.048	1.051	1.055	1.061	1.069	1.067	1.067

05 PERFORMANCE 性能要点

VERIFIED DATA

Creep and sag
Laves-phase hardening holds elements above 1000 °C.

Grain control
Niobium refines grains; toughness survives long service.

Green rot
Stable in dissociated ammonia and endothermic gas.

Service life
1.5–2× standard Fe–Cr–Al; ≥50 h at 1350 °C.

06 APPLICATIONS 应用领域

SERVICE-PROVEN SECTORS

Atmosphere furnaces
bright annealing and controlled gas

Sintering furnaces
powder-metallurgy duty

Horizontal elements
long unsupported spans above 1000 °C

Industrial kilns
1300 °C class elements

Heat-treatment fixtures
muffles, retorts and trays

TRADE NAMES · 商品牌号

Kanthal A-1 · Aluchrom O · Alchrome 875 · Alloy 875 · Icralloy 25 · Resistohm 145 · Alferon 25 · MWS-875 · Stablohm 875

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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	738.480	71731.87	0.01394	**1.1**	1.5258	148.21	6.74735
0.06	512.833	49813.80	0.02007	**1.2**	1.2821	124.53	8.02990
0.07	376.775	36597.89	0.02732	**1.3**	1.0924	106.11	9.42398
0.08	288.469	28020.26	0.03569	**1.4**	0.9419	91.49	10.92959
0.09	227.926	22139.46	0.04517	**1.5**	0.8205	79.70	12.54673
0.1	184.620	17932.97	0.05576	**1.6**	0.7212	70.05	14.27538
0.11	152.578	14820.63	0.06747	**1.7**	0.6388	62.05	16.11557
0.12	128.208	12453.45	0.08030	**1.8**	0.5698	55.35	18.06728
0.13	109.243	10611.22	0.09424	**1.9**	0.5114	49.68	20.13052
0.15	82.053	7970.21	0.12547	**2.0**	0.4615	44.83	22.30529
0.17	63.882	6205.18	0.16116	**2.2**	0.3814	37.05	26.98940
0.19	51.141	4967.58	0.20131	**2.4**	0.3205	31.13	32.11962
0.21	41.864	4066.43	0.24592	**2.6**	0.2731	26.53	37.69594
0.25	29.539	2869.27	0.34852	**2.8**	0.2355	22.87	43.71837
0.27	25.325	2459.94	0.40651	**3.0**	0.2051	19.93	50.18690
0.29	21.952	2132.34	0.46897	**3.2**	0.1803	17.51	57.10154
0.31	19.211	1866.07	0.53588	**3.4**	0.1597	15.51	64.46229
0.35	15.071	1463.92	0.68310	**3.6**	0.1425	13.84	72.26914
0.40	11.539	1120.81	0.89221	**3.8**	0.1279	12.42	80.52209
0.45	9.117	885.58	1.12921	**4.0**	0.1154	11.21	89.22116
0.50	7.385	717.32	1.39408	**4.5**	0.0912	8.86	112.92053
0.55	6.103	592.83	1.68684	**5.0**	0.0738	7.17	139.40806
0.60	5.128	498.14	2.00748	**5.5**	0.0610	5.93	168.68375
0.65	4.370	424.45	2.35600	**6.0**	0.0513	4.98	200.74760
0.70	3.768	365.98	2.73240	**6.5**	0.0437	4.24	235.59962
0.80	2.885	280.20	3.56885	**7.0**	0.0377	3.66	273.23979
0.85	2.555	248.21	4.02889	**7.5**	0.0328	3.19	313.66813
0.90	2.279	221.39	4.51682	**8.0**	0.0288	2.80	356.88462
0.95	2.046	198.70	5.03263	**8.5**	0.0256	2.48	402.88928
1.00	1.846	179.33	5.57632	**9.0**	0.0228	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