PRODUCT DATASHEET / 2026

NICKEL–CHROMIUM–IRON RESISTANCE & HEATING ALLOY · 镍铬铁电热合金

Cr15Ni60

DIN W.Nr. 2.4867 · Chromel C · Nikrothal 60 · NiCr 60/15

60 % nickel instead of 80 %: the cost-effective Ni–Cr–Fe option for stable service below 1150 °C.

60% 镍的镍铬铁合金——1150 °C 以下稳定可靠，成本低于 Cr20Ni80。

Cr15Ni60 keeps enough nickel and chromium to stay austenitic and oxidation-resistant to 1150 °C, but uses less of both than Cr20Ni80. For mass-produced medium-temperature elements that difference decides whether a part is viable or marginal.

Resistivity of 1.12–1.15 μΩ·m is stable with temperature, elongation stays above 20 % for easy drawing and stamping, and weldability is excellent with little cracking risk. Its expansion matches common ceramics and insulators, keeping thermal stress low in cyclic service.

SPECIFICATION 规格

ALLOY TYPE 合金类型
Austenitic Ni–Cr–Fe

STRUCTURE 晶体结构
Austenite

MAGNETIC 磁性
Weakly magnetic

STANDARDS 标准
GB/T 1234-2012 · DIN 2.4867

01 CHEMICAL COMPOSITION 化学成份

WT. % · GB/T 1234-2012

C	P	S	Mn	Si	Cr	Ni	Al	Fe
≤0.08	≤0.02	≤0.015	≤0.6	0.75–1.6	15.0–18.0	55.0–61.0	≤0.5	Remainder

02 PHYSICAL PROPERTIES 物理性能

TYPICAL VALUES

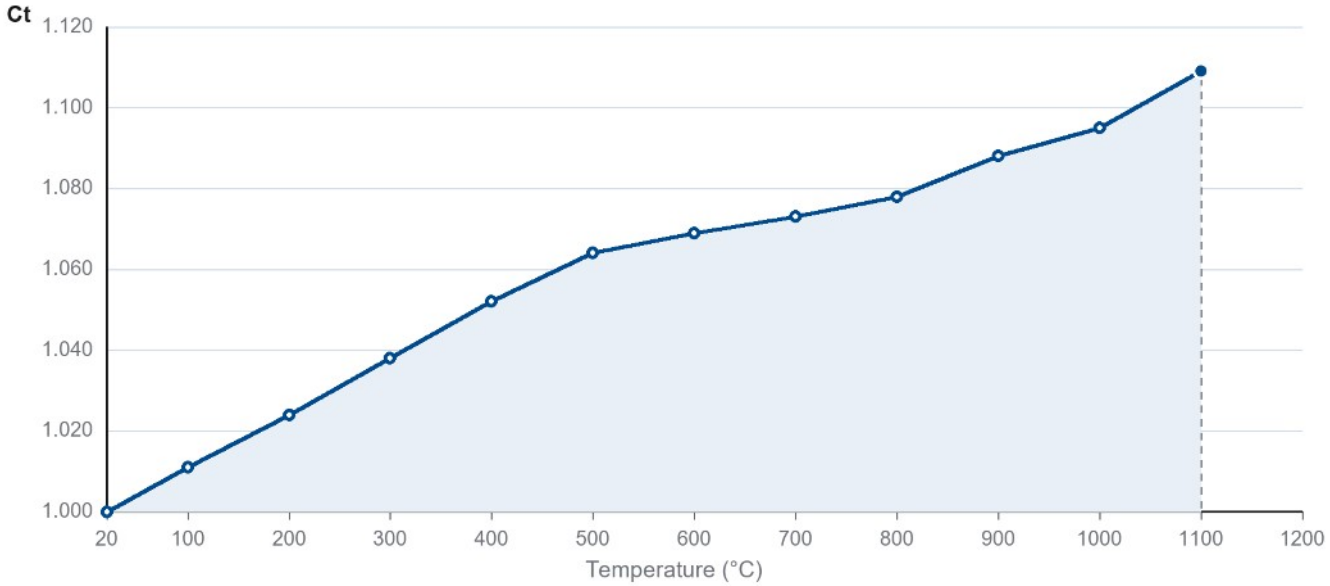
Max. Working Temp.	**1150 °C**	Resistivity at 20 °C (μΩ·m)	**<0.50 mm: 1.12±0.05** **≥0.50 mm: 1.15±0.05**
Density	**8.20 g/cm³**	Thermal conductivity (20 °C)	**13 W/(m·K)**
Average linear expansion coefficient (20-1000 °C)	**17.0×10⁻⁶/K**	Specific heat capacity	**0.46 J/(g·K)**
Approx. melting point	**1390 °C**	Elongation after Fracture (A/%)	**Ø≤3.0 mm: ≥20%** **Ø>3.0 mm: ≥25%**
Tensile strength (Rm /MPa)	**≥600**	Accelerated life test	**≥80 h/1150 °C**
Micrographic structure	**Austenite**	Magnetic properties	**Weak 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 1100 °C the factor ranges from 1.011 to 1.109 (+1.1 % to +10.9 %); 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
Ct	1.000	1.011	1.024	1.038	1.052	1.064	1.069	1.073	1.078	1.088	1.095	1.109	—

05 PERFORMANCE 性能要点

VERIFIED DATA

Resistivity
1.12–1.15 μΩ·m, stable across the service range.

Formability
Elongation ≥20 %; fine wire and complex shapes.

Weldability
Low cracking risk in resistance and TIG welding.

Expansion match
CTE close to ceramics and insulators, easing thermal stress.

06 APPLICATIONS 应用领域

SERVICE-PROVEN SECTORS

Household appliances
heaters, ovens and dryers

Industrial heating below 900 °C
process air and liquid heating

Precision instruments
stable resistive components

Electrical resistors
power and control resistors

Heating elements
coil and ribbon elements

TRADE NAMES · 商品牌号

Chromel C · Nikrothal 60 · N6 · HAI-NiCr 60 · Tophet C · Resistohm 60 · Cronifer II · Electroloy · Nichrome · Alloy C · Nikrothal 6 · MWS-675 · Stablohm 675 · NiCr 60/15

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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	570.412	62109.30	0.01610	**1.1**	1.2101	128.32	7.79271
0.06	396.119	43131.46	0.02318	**1.2**	1.0168	107.83	9.27397
0.07	291.026	31688.42	0.03156	**1.3**	0.8664	91.88	10.88404
0.08	222.817	24261.44	0.04122	**1.4**	0.7471	79.22	12.62291
0.09	176.053	19169.54	0.05217	**1.5**	0.6508	69.01	14.49058
0.1	142.603	15527.32	0.06440	**1.6**	0.5720	60.65	16.48706
0.11	117.854	12832.50	0.07793	**1.7**	0.5067	53.73	18.61235
0.12	99.030	10782.86	0.09274	**1.8**	0.4519	47.92	20.86644
0.13	84.380	9187.77	0.10884	**1.9**	0.4056	43.01	23.24934
0.15	63.379	6901.03	0.14491	**2.0**	0.3661	38.82	25.76104
0.17	49.344	5372.78	0.18612	**2.2**	0.3025	32.08	31.17086
0.19	39.502	4301.20	0.23249	**2.4**	0.2542	26.96	37.09589
0.21	32.336	3520.94	0.28402	**2.6**	0.2166	22.97	43.53615
0.25	22.816	2484.37	0.40252	**2.8**	0.1868	19.81	50.49163
0.27	19.561	2129.95	0.46949	**3.0**	0.1627	17.25	57.96234
0.29	16.956	1846.29	0.54163	**3.2**	0.1430	15.16	65.94826
0.31	14.839	1615.75	0.61891	**3.4**	0.1267	13.43	74.44940
0.35	11.641	1267.54	0.78893	**3.6**	0.1130	11.98	83.46576
0.40	8.913	970.46	1.03044	**3.8**	0.1014	10.75	92.99735
0.45	7.042	766.78	1.30415	**4.0**	0.0915	9.70	103.04415
0.50	5.857	621.09	1.61006	**4.5**	0.0723	7.67	130.41525
0.55	4.840	513.30	1.94818	**5.0**	0.0586	6.21	161.00649
0.60	4.067	431.31	2.31849	**5.5**	0.0484	5.13	194.81785
0.65	3.466	367.51	2.72101	**6.0**	0.0407	4.31	231.84934
0.70	2.988	316.88	3.15573	**6.5**	0.0347	3.68	272.10096
0.80	2.288	242.61	4.12177	**7.0**	0.0299	3.17	315.57272
0.85	2.027	214.91	4.65309	**7.5**	0.0260	2.76	362.26460
0.90	1.808	191.70	5.21661	**8.0**	0.0229	2.43	412.17661
0.95	1.622	172.05	5.81233	**8.5**	0.0203	2.15	465.30875
1.00	1.464	155.27	6.44026	**9.0**	0.0181	1.92	521.66102

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
0.025–1.6 mm
Bright, soft annealed

WIRE
1.0–12.0 mm
Acid-pickled / primary colour

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