Cr15Ni60

DIN W.Nr. 2.4867

The economical nickel-chromium grade: stable resistance, low precious-metal content, sized for service below 1150 °C.

1150 °C	1.12–1.15 μΩ·m	8.20 g/cm³	≥80 h
MAX. WORKING TEMPERATURE	RESISTIVITY AT 20 °C	DENSITY	ACCELERATED LIFE AT 1150 °C

PRODUCT OVERVIEW

Cr15Ni60 (DIN W.Nr. 2.4867) is the value option of the nickel-chromium family. It holds adequate performance below 1150 °C with a lower precious-metal content than the 80/20 grades, which makes it cost-effective in volume production. Resistivity at 20 °C is about 1.12–1.15 μΩ·m and varies little with temperature, giving consistent output in medium-temperature work.

The 15 % chromium forms a Cr_2O_3 film that protects adequately up to 1150 °C with a low oxidation rate below that. At room temperature the alloy is highly plastic: it cold stamps and draws well, so it runs into fine wire, ribbon and complex element shapes, and it welds with little risk of cracking.

Its coefficient of thermal expansion is about 14.5–16.8 × 10^{-6} /K between 25 and 800 °C, close enough to common ceramic and insulating materials to limit thermal stress during cycling, and the room-temperature elastic modulus is about 205 GPa, so elements hold their shape over long runs. The microstructure stays stable through repeated heating and cooling, which extends life wherever the temperature swings often.

ALSO KNOWN AS

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

CHEMICAL COMPOSITION

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	Bal.

Values in weight %. Balance (Bal.) is iron. Composition based on GB/T 1234-2012.

TYPICAL APPLICATIONS

- Household appliances
- Industrial heating equipment below 900 °C
- Precision instruments
- Electrical resistors
- Cost-sensitive heating elements

PHYSICAL & MECHANICAL PROPERTIES

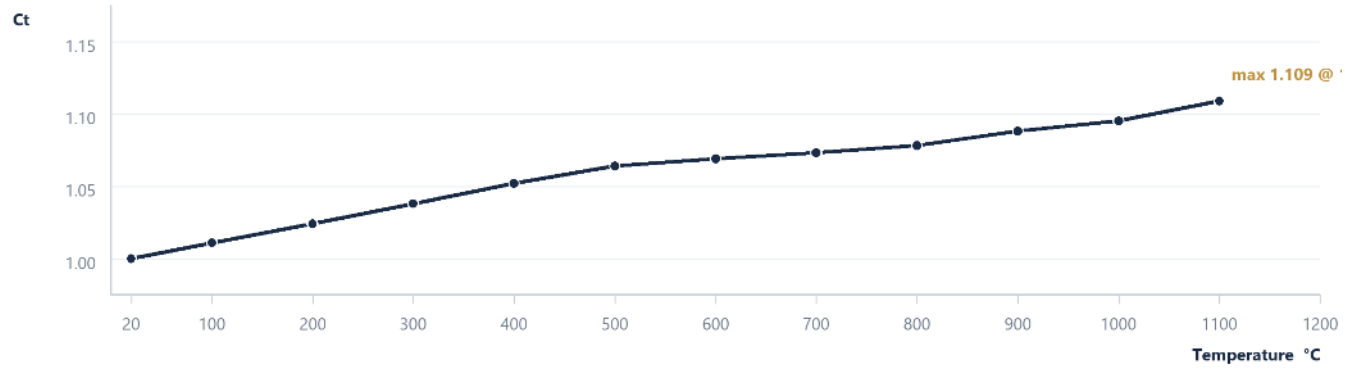
Property	Value	Property	Value
Max. working temperature	1150 °C	Resistivity at 20 °C (μΩ·m)	<0.50 mm 1.12 ± 0.05 ≥0.50 mm 1.15 ± 0.05
Density	8.20 g/cm³	Thermal conductivity (20 °C)	13 W/(m·K)
Mean linear expansion 20–1000 °C	17.0 × 10^{-6} /K	Specific heat capacity	0.46 J/(g·K)
Approx. melting point	1390 °C	Elongation after fracture A/%	≤3.0 mm: ≥20 % >3.0 mm: ≥25 %
Tensile strength Rm	≥600 MPa	Accelerated life test	≥80 h at 1150 °C
Micrographic structure	Austenite	Magnetic properties	Weak magnetic

TEMPERATURE FACTOR OF RESISTIVITY

Ct is applied to the 20 °C resistivity to obtain the value at working temperature:

R (T) = R (20 °C) × Ct

Temp. °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	



AVAILABLE FORMS & SUPPLY RANGE

Form	Surface / finish	Size range
Wire	Bright, soft annealed	0.025 – 1.6 mm
Wire	Acid-pickled or primary colour	1.0 – 12.0 mm
Rod	Oxidized, acid-pickled or bright finish	6.0 – 150.0 mm
Flat wire	Bright & soft annealed	width 0.2 – 6.0 mm · thickness 0.08 – 1.0 mm
Heating ribbon	Oxidized, acid-pickled or bright finish	width 5.0 – 300 mm · thickness 0.05 – 4.0 mm

TECHNICAL PARAMETERS

Standard diameters 0.05 – 9.0 mm: resistance, yield length and weight per metre. Calculated to GB/T 1234-2012.

Ø mm	Ω/m at 20 °C	m/kg	g/m	Ø mm	Ω/m at 20 °C	m/kg	g/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

TOLERANCE OF RESISTANCE PER METRE

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 %

Applies to the resistance values listed in the technical parameter table above.

NOTICE

Recommendations are given for guidance only. Suitability of the material can only be confirmed once the actual service conditions are known. Continuous technical development may lead to changes in these data without notice. Some of the common names listed are registered trademarks of their respective owners. Issued October 2026.