FLYU®

0Cr24Al6RE FeCrAl RESISTANCE WIRE

DATASHEET

CHANGSHU IPACE INTERNATIONAL CORP

0Cr24Al6RE is a high-performance Iron-Chromium-Aluminum (FeCrAl) resistance heating alloy, distinguished by the addition of Rare Earth (RE) elements (such as Yttrium, Cerium, etc., typically totaling 0.04-1.0%). According to the GB/T 1234-2012 standard, this grade represents an upgraded version of standard FeCrAl alloys (like 0Cr25Al5), specifically engineered to overcome the limitations of traditional iron-based heating materials. The nominal resistivity of 0Cr24Al6RE at 20°C is 1.48 μΩ·m. Higher resistivity means that for the same power and voltage, shorter alloy wire can be used, reducing material consumption and improving the mechanical strength of the element. The addition of rare earth elements improves the resistance to "Green Rot" and corrosion resistance of 0Cr24Al6RE, making its performance in sulfur-containing or mildly reducing atmospheres superior to ordinary FeCrAl, and in some conditions can even rival nickel-chromium alloys. At the same time, rare earth elements refine the grain structure and "peg" the interface between the oxide scale and the substrate. The oxide scale of this alloy does not easily flake off after repeated heating and cooling, significantly extending service life. Rare earth elements improve the stability and growth rate control of the alumina layer, preventing burnout or deformation under extreme high temperatures. Rare earth elements inhibit excessive grain growth at high temperatures. Although still more brittle than NiCr alloys after use, 0Cr24Al6RE has better room temperature ductility compared to standard FeCrAl, making it less prone to cracking during installation and maintenance.

CHEMICAL COMPOSITION

C	P	S	Mn	Si	Cr	Ni	Al	Fe	RE
⩽									
0.04	0.025	0.02	0.5	⩽0.4	22.0~26.0	⩽0.6	5.0~7.0	Remainder	0.04~1.0

PHYSICAL PROPERTIES

Max. Working Temp.	1400ºC	Resistivity at 20ºC (μΩ·m)	1.48±0.07
Density	7.1 g/cm^3	Thermal conductivity (20ºC)	13 W/(m·K)
Average linear expansion coefficient(20-1000ºC)	16.0×10^{-6}/K	Specific heat capacity	0.49 J/(g·K)
Approx. melting point	1520ºC	Elongation after Fracture (A/%)	Diameter≤3.0mm: ≥10% Diameter>3.0mm: ≥12%
Tensile strength(R_m /MPa)	≥680	Accelerated life test	≥80h/1350ºC
Micrographic structure	Ferrite	Magnetic properties	Magnetic

0Cr24Al6RE FeCrAl RESISTANCE WIRE

DATASHEET

CHANGSHU IPACE INTERNATIONAL CORP

TEMPERATURE FACTOR OF RESISTIVITY

Temp(° C)	100	200	300	400	500	600	700	800	900	1000	1100	1200
Ct	0.995	0.993	0.990	0.988	0.986	0.984	0.982	0.98	0.978	0.976	0.976	0.975

TECHNICAL PARAMETERS

Diameter (mm)	Ohm per meter (20ºC Ω/m)	Length per kg (m/kg)	Weight per meter (g/m)	Diameter (mm)	Ohm per meter (20ºC Ω/m)	Length per kg (m/kg)	Weight per meter (g/m)
0.05	753.758	71731.87	0.01394	1.1	1.5574	148.21	6.74735
0.06	523.443	49813.80	0.02007	1.2	1.3086	124.53	8.02990
0.07	384.571	36597.89	0.02732	1.3	1.1150	106.11	9.42398
0.08	294.437	28020.26	0.03569	1.4	0.9614	91.49	10.92959
0.09	232.641	22139.46	0.04517	1.5	0.8375	79.70	12.54673
0.1	188.440	17932.97	0.05576	1.6	0.7361	70.05	14.27538
0.11	155.735	14820.63	0.06747	1.7	0.6520	62.05	16.11557
0.12	130.861	12453.45	0.08030	1.8	0.5816	55.35	18.06728
0.13	111.503	10611.22	0.09424	1.9	0.5220	49.68	20.13052
0.15	83.751	7970.21	0.12547	2.0	0.4711	44.83	22.30529
0.17	65.204	6205.18	0.16116	2.2	0.3893	37.05	26.98940
0.19	52.199	4967.58	0.20131	2.4	0.3272	31.13	32.11962
0.21	42.730	4066.43	0.24592	2.6	0.2788	26.53	37.69594
0.25	30.150	2869.27	0.34852	2.8	0.2404	22.87	43.71837
0.27	25.849	2459.94	0.40651	3.0	0.2094	19.93	50.18690
0.29	22.407	2132.34	0.46897	3.2	0.1840	17.51	57.10154
0.31	19.609	1866.07	0.53588	3.4	0.16301	15.51	64.46229
0.35	15.383	1463.92	0.68310	3.6	0.14540	13.84	72.26914
0.40	11.777	1120.81	0.89221	3.8	0.13050	12.42	80.52209
0.45	9.306	885.58	1.12921	4.0	0.11777	11.21	89.22116
0.50	7.538	717.32	1.39408	4.5	0.09306	8.86	112.92053
0.55	6.229	592.83	1.68684	5.0	0.07538	7.17	139.40806

0Cr24Al6RE FeCrAl RESISTANCE WIRE

DATASHEET

CHANGSHU IPACE INTERNATIONAL CORP

Diameter (mm)	Ohm per meter (20ºC Ω/m)	Length per kg (m/kg)	Weight per meter (g/m)	Diameter (mm)	Ohm per meter (20ºC Ω/m)	Length per kg (m/kg)	Weight per meter (g/m)
0.60	5.234	498.14	2.00748	5.5	0.06229	5.93	168.68375
0.65	4.460	424.45	2.35600	6.0	0.05234	4.98	200.74760
0.70	3.846	365.98	2.73240	6.5	0.04460	4.24	235.59962
0.80	2.944	280.20	3.56885	7.0	0.03846	3.66	273.23979
0.85	2.608	248.21	4.02889	7.5	0.03350	3.19	313.66813
0.90	2.326	221.39	4.51682	8.0	0.02944	2.80	356.88462
0.95	2.088	198.70	5.03263	8.5	0.02608	2.48	402.88928
1.00	1.884	179.33	5.57632	9.0	0.02326	2.21	451.68210

Above parameters are based on Chinese National Standard GB/T1234-2012. The tolerance of resistance per meter: 0.03-0.06mm is ±10%; 0.07-0.12mm is ±8%; 0.13-0.17mm is ±7%; 0.18-0.32mm is ±6%; A wire diameter above 0.32mm is ±5%. **We provide various shapes of Iron-Chromium-Aluminum alloy products, such as wires, ribbons and rods in the following sizes**:
Bright and soft annealed finish: 0.05 - 1.6mm; Acid-pickled finish: 1.0 -12.0mm; Rods: 6.0-150.0mm; Flat wire: width from 0.2 - 6.0mm and thickness from 0.08 - 1.0mm; Heating ribbon: width from 5.0 - 300mm and thickness from 0.05 - 4.0mm