

FeCrAl 145

Iron-Chromium-Aluminium Alloy

RESISTANCE ALLOYS

W.N: 1.4765

DIN: CrAl 21 6 (Nb)

UNS: K92500

FeCrAl 145

FeCrAl 145 is a ferritic iron-chromium-aluminium alloy with high resistivity and good oxidation resistance suitable for temperature applications up to 1350°C.

It is alloyed with more than 5% of aluminium, with an addition of about 0.50% niobium, that results in formation of dense, well-adhering, stable layer of aluminium oxide providing excellent resistance to oxidation. Niobium improves high temperature resistance and prevents from

too rapid grain growth thereby significantly prolongs the time of utilization, making the material less fragile. As well, FeCrAl 145 is characterized by good creep resistance properties. It is used in home appliances and industrial furnaces. Typical applications are: ceramic hotplates, tube elements for dishwashers, radiant (quartz tube) heaters, fans, toasters, irons, burner heads and covers, heating cables and rope heaters, etc.

1. Chemical composition

Nom. composition, %	C	Si	Mn	Fe	Cr	Ni	Al	Nb
min	-	-	-	Bal.	21.00	-	5.00	-
max	0.05	0.60	0.50		23.00	0.60	7.00	0.50

2. Mechanical properties

Wire size, mm	Yield Strength, $R_{p0.2}$ (MPa)	Tensile Strength, R_m (MPa)	Hardness, HV	Elongation, A (%)
1.00	660	790	220	≥ 12

3. Physical properties

Density, g/cm ³	7.10
Electrical resistivity at 20°C, Ω mm ² /m	1.45
Thermal conductivity at 20°C, W/mk	13.00
Melting point, °C	1500
Max operating temperature, °C	1350

Creep strength, MPa R_p 1.0/10 ³ h	600°C	34.00
	800°C	4.00
	1000°C	1.00
Magnetic properties		magnetic

4. Temperature factor of resistivity

Temperature, °C	20	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Kt	1.00	0.997	0.996	0.994	0.991	0.990	0.990	0.989	0.989	0.989	0.988	0.988	0.988	0.988

5. Coefficient of liner thermal expansion

Temperature, °C	20	200	400	500	600	800	1000
$\alpha \times 10^{-6}/K$	-	11.90	12.30	12.60	13.00	13.80	14.80

Note: All information enclosed in this datasheet is based on our best knowledge and is given as indicative. Other special requirements are subject to prior discussion and approval of Vojay. Please contact us for any additional information or request.