Iron-chromium-aluminium (FeCrAl) alloys

FeCrAl alloys are characterized by excellent oxidation resistance and very good form stability resulting in long element life. They are typically used in electrical heating elements in industrial furnaces and home appliances.

FeCrAl alloys have higher service temperature then NiCr Alloys and much lower prices. But they have lower stability and flexibility, easily to be fragile after a time circle.

Main grades and properties

Grades / Properties		1Cr13A14	0Cr25A15	0Cr21A16	0Cr23A15	0Cr21A14	0Cr21A16Nb	0Cr27A17Mo2
Chemical composition %	Cr	12.0-15.0	23.0-26.0	19.0-22.0	22.5-24.5	18.0-21.0	21.0-23.0	26.5-27.8
	Al	4.0-6.0	4.5-6.5	5.0-7.0	4.2-5.0	3.0-4.2	5.0-7.0	6.0-7.0
	Fe	Balance	Balance	Balance	Balance	Balance	Balance	Balance
	Other						Nb 0.5	Mo1.8-2.2
Highest service temperature ℃		950	1250	1250	1250	1100	1350	1400
ResistivityμΩ.m,20℃		1.25	1.42	1.42	1.35	1.23	1.45	1.53
Density (g/cm3)		7.4	7.10	7.16	7.25	7.35	7.10	7.10
Thermal conductivity KJ/m.h.℃		52.7	46.1	63.2	60.2	46.9	46.1	45.2
Coefficient of linear extensibility α×10-6/℃		15.4	16.0	14.7	15.0	13.5	16.0	16.0
Melting point ℃		1450	1500	1500	1500	1500	1510	1520
Tensile Mpa		580-680	630-780	630-780	630-780	600-700	650-800	680-830
Elongation %		>16	>12	>12	>12	>12	>12	>10
Reduction %		65-75	60-75	65-75	65-75	65-75	65-75	65-75
Hardness H.B.		200-260	200-260	200-260	200-260	200-260	200-260	200-260
Microstructure		Ferrite	Ferrite	Ferrite	Ferrite	Ferrite	Ferrite	Ferrite
Magnetic property		magnetic	magnetic	magnetic	magnetic	magnetic	magnetic	magnetic