

HM Wire International, Inc.

Ph: 330-244-8501 Fax: 330-244-8561

www.litz-wire.com info@litz-wire.com www.hmwire.com



Alloy 815 - FeCrAl Alloy

Description:	Alloy 815 is a ferritic iron-chromium-aluminum alloy (FeCrAl Alloy) suitable for use at temps up to 1300°C (2370°F). The Alloy is used in home appliances as well as in industrial applications.
Applications:	Home appliances; dishwashers, panel heaters, heating cables, dryers and furnaces for industrial.

Chemical Composition

Nominal Composition	C%	Si %	Mn %	Cr%	Al%	Fe %
	0.08%	0.7%	0.5%	20.50%	4.80%	Balance
				23.50%	-	

Mechanical Properties

Wire Size Ø mm	Yeild Strength Rp0.2 Mpa	Tensile Strength Rm Mpa	Elongation A %	Hardness Hv
1.0	485	670	23	230
4.0	450	650	18	230

Mechanical Properties at elevated Temperature

Temperature °C Mpa		900	
		34	
Ultimate tensile strength - deformation rate 6.2 x 10 ⁻² min ⁻¹			
Creep Strength - 1% elongation in 1000 h			
Temperature °C Mpa		800	900
		1.2	0.5

*To be used as a guideline only.

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Physical Properties

Density g / cm ³	7.25								
Electrical Resistivity at 20°C Ω mm ² / m	1.35								
Poisson's ratio	0.30								
Young's Modulus									
Temperature °C		20	100	200	400	600	800	1000	
GPa		220	210	205	190	170	150	130	
Temperature Factor of resistivity									
Temperature °C	100	200	300	400	500	600	700	800	1000
Ct	1.00	1.01	1.01	1.02	1.03	1.04	1.05	1.06	1.07
Coefficient of thermal expansion									
Temperature °C	Thermal Expansion x 10 / K								
20-250	11								
20-500	12								
20-750	14								
20-1000	15								
Thermal Conductivity									
Temperature °C	50	600	800	1000	1200				
W m ⁻¹ K ⁻¹	11	20	22	26	27				
Specific Heat Capacity									
Temperature °C	20	200	400	600	800	1000	1200		
kJ kg ⁻¹ K ⁻¹	0.46	0.56	0.63	0.75	0.71	0.72	0.74		
Melting Point C°									1500
Max continuous operating temp in air C°									1300
Magnetic Properties	The Material is magnetic up to approx. 600°C (Curie point).								
Emissivity - fully oxidated material									0.70

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