NICKEL ALLOY

ALLOYS 800/800H/800HT

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TUBING APPLICATIONS

Alloys 800 / 800H / 800HT (UNS N08800 / N08810 / N08811)

Alloy 800, 800H, and 800HT are nickel-iron-chromium alloys with good strength and excellent resistance to oxidation and carburization in high-temperature exposure. These nickel steel alloys are identical except for the higher level of carbon in alloy 800H/HT and the addition of up to 1.20 percent aluminium and titanium in alloy 800HT. 800 was the first of these alloys and it was slightly modified into 800H. This modification was to control carbon (.05-.10%) and grain size to optimize stress rupture properties.

In heat treatment applications 800HT has further modifications to the combined titanium and aluminium levels (.85 - 1.20%) to ensure optimum high temperature properties. Alloy 800H/HT was intended for high temperature structural applications. The nickel content makes the alloys highly resistant to both carborisation and to embrittlement from precipitation of sigma phase.

AVAILABLE TUBE PRODUCT FORMS
STRAIGHT
SEAMLESS

TYPICAL MANUFACTURING SPECIFICATIONS
ASTM B163
ASTM B407
ASTM B515
Also individual customer specifications.

TYPICAL APPLICATIONS
CHEMICAL & PETROCHEMICAL PROCESSING EQUIPMENT
POWER GENERATION
THERMAL PROCESSING FIXTURES

INDUSTRIES PREDOMINANTLY USING THIS GRADE
OIL AND GAS
CHEMICAL PROCESSES
NUCLEAR AND POWER

Technical Data

MECHANICAL PROPERTIES				
Temper	800		800H/HT	
Tensile Rm	77.8	ksi (min)	65	ksi (min)
Tensile Rm	536	MPa (min)	448	MPa (min)
R.p. 0.2% Yield	22	ksi (min)	25	ksi(min)
R.p. 0.2% Yield	150	MPa (min)	172	MPa (min)
Elongation (2" or 4D gl)	20	% (min)	20	% (min)

PHYSICAL PROPERTIES (Room Temperature)		
Specific Heat (0-100°C)	460	J.kg-1.°K-1
Thermal Conductivity	11.5	W.m -1.°K-1
Thermal Expansion	14.4	mm/m/°C
Modulus Elasticity	208	GPa
Electrical Resistivity	9.89	µohm/cm
Density	7.94	g/cm3

CHEMICAL COMPOSITION (% by weight)				
	800		800H/HT	
Element	Min	Max	Min	Max
Ni	30	35	30	35
Fe	-	39.5	-	39.5
Cr	19	23	19	23
Cu	-	0.75	-	0.75
Ti	0.15	0.6	0.25	0.6
Al	0.15	0.6	0.25	0.6
C	-	0.1	0.06	0.1
Mn	-	1.5	-	1.5
S	-	0.015	-	0.015
Si	-	1.0	-	1.0

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SPECIALTY METAL PRODUCTS