Incoloy 800 Pipe & Tube (WNR 1.4876/UNS N08800)

Incoloy 800is also known as Alloy 800. It is an iron-nickel-chromium alloy with good strength and excellent resistance to oxidation and carburization in high-temperature atmospheres. It also has excellent resistance to corrosion by many aqueous environments and chloride stress-corrosion cracking resistance. Inconel 800 alloy maintains a stable austenitic structure during prolonged exposure to high temperatures since it doesn't form the embrittling sigma phase after long time exposure at 1200°F.

It is primarily used in applications with temperatures up to 1100° F where resistance to creep and rupture is required. The chemical balance helps the nickel steel alloy to provide excellent resistance to oxidation, carburization, and nitriding atmospheres.

Incoloy 800 Characteristics

It provides high temperature strength
It is oxidation and carburization resistantin high temperature environments
It provides high creep rupture strength
It provides good corrosion resistance in many acidic environments
It provides good resistance to many sulfur-containing atmospheres

Incoloy 800 Applications

Pressure vessels
Heat exchangers
Industrial furnaces
Hydrocarbon cracking
Heat-treating equipment
Ethylene furnace quench boilers
Chemical and petrochemical processing
Super-heater and re-heaters in power plants
Valves, fittings and other elements exposed to corrosive attack from 1100-1800° F

It is used in a variety of applications which involves exposure to corrosive environments and high temperatures such as chemical and petrochemical processing, heat treating equipment, paper pulp industry, nuclear power plants, etc. It is used for heat-treating equipment such as trays, fixtures, and baskets. Chemical and petrochemical processing industries use it for heat exchangers and other piping systems in nitric acid media particularly where resistance to chloride stress-corrosion cracking is required. It is also used for power plants for super-heater and re-heater tubing.

Incoloy 800 Chemical Composition

Element	%
Carbon	0.10 max
Titanium	0.15-0.60
Chromium	19.0-23.0
Aluminium	0.15-0.60
Nickel	30.0-35.0
Iron	39.5 min
Al+Ti	0.30-1.20

Incoloy 800 Mechanical Properties

Properties	Metric	Imperial
Tensile strength(annealed)	600 Mpa	87 ksi
Yield strength(annealed)	275 Mpa	39.9 ksi
Elongation at Break	45%	45%

Incoloy 800 Machinability

It has similar machinability to that of iron-based alloys. It tends to work-harden during machining.

Incoloy 800 Welding

Incoloy 800 can be welded by common welding techniques, using a matching filler metal.

Incoloy 800 Forming

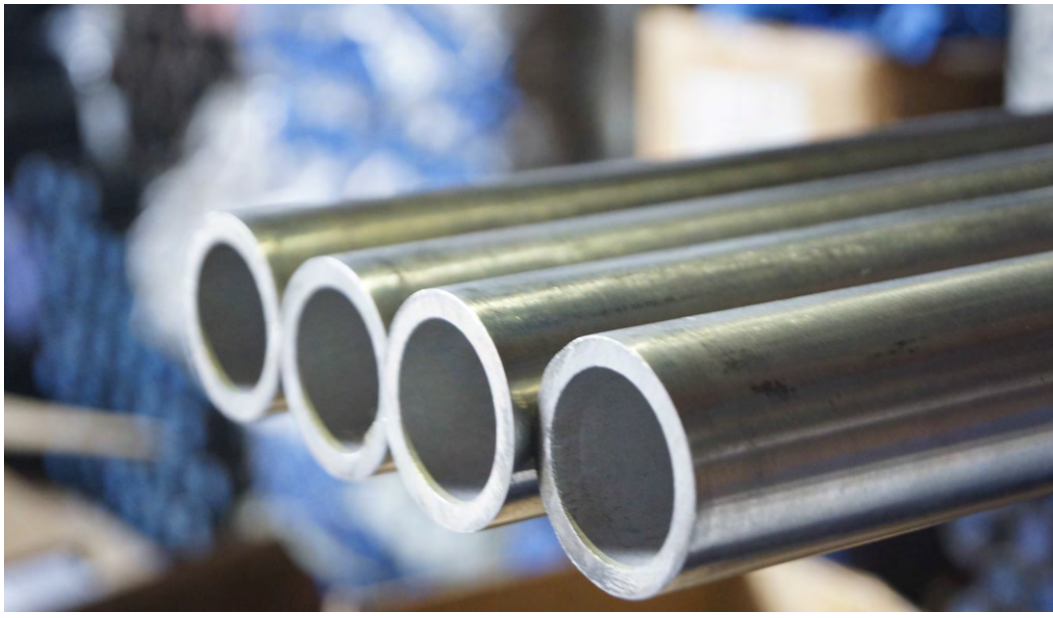
It exhibits good ductility and hence can be formed using standard methods.

Incoloy 800 Hot & Cold Working

It can be hot worked at temperature ranges of 871-1232°C and can be cold worked by using standard tooling.

Incoloy 800 Annealing

It can be annealed after cold working. Its annealing should be done at 982°C for 15 min and then it should be air cooled.



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