Inconel 706 Pipe & Tube - UNS N09706

Inconel 706 is a nickel-iron-chromium alloy is a precipitation-hardenable alloy which offers high mechanical strength in combination with good fabricability. Its characteristics are similar to those of Inconel718alloy except that it can be more readily fabricated and especially by machining. The substantial nickel and chromium contents provide good oxidation and corrosion resistance. The main precipitation-hardening component of the alloy is titanium and niobium. The aluminum element also provides to the hardening response. The precipitation-hardening system in it offers the useful characteristic of delayed hardening response during precipitation temperatures exposure. And that characteristic provides the alloy excellent postweld strain-age cracking resistance. The high-strength of precipitation-hardened is maintained at temperatures up to 1300°F. Outstanding mechanical properties for the intended service temperature can be received by the use of one of two heat treatments.

Inconel 706 Applications

INCONEL alloy 706 is used for the applications that need high strength combined with ease of fabrication. In the aerospace field, it is used for turbine discs, shafts, and cases; diffuser cases; engine mounts; compressor discs and shafts; and fasteners. In addition to aerospace application it is used for turbine discs in large industrial gas turbines.

Inconel 706 Corrosion Resistance

INCONEL alloy 706 composition enables it to resist corrosion in various environments. The alloy's chromium content offers resistance to oxidizing media, and its nickel content provides resistance to reducing environments. Other tests have shown that it has poor resistance to boiling 50% sulfuric acid and to boiling 38% and concentrated hydrochloric acid.

Inconel 706 Chemical Composition

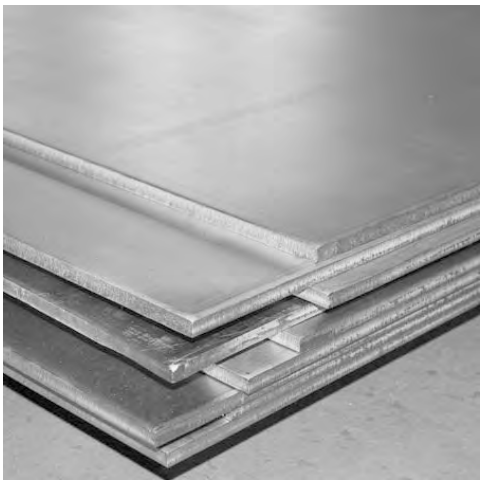
Element	Content (%)
Carbon	0.30max
Manganese	0.35max
Silicon	0.35max
Phosphorous	0.020max
Sulfur	0.015max
Chromium	14.5-17.5
Copper	0.35max
Aluminum	0.060max
Boron	0.0060max
Titanium	0.40max
Niobium	2.50-3.30
Cobalt	1.00mx
Nickel	39-44
Iron	Bal

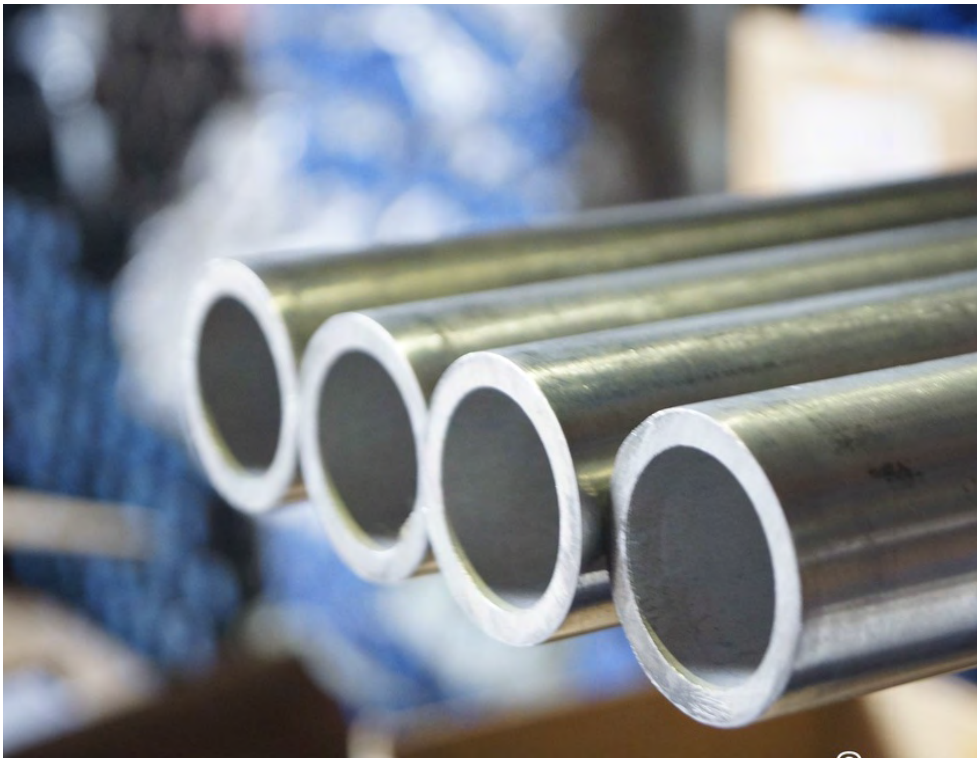
Inconel 706 Physical Properties

Properties	Metric	Imperial
Density	8.05 g/cm³	0.291lb/in³
Melting point	1360°C	2480°F

Inconel 706 Mechanical Properties

Properties	Metric	Imperial
Tensile strength	757 Mpa	109800 psi
0.2% Yield strength	383 Mpa	55500 psi
Poisson's ratio	0.382	0.382
Modulus of elasticity	210 Gpa	30500 ksi
Elongation at break	47%	47%





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