

Type X750 is a nickel-chromium precipitation-hardening alloy suited for high strength at temperatures to 1300°F and useful strength up to 1800°F. This alloy also has excellent ductility at cryogenic temperatures.

## Specifications

**AMS:** 5598, 5542 Strip and Plate  
**UNS:** N07750  
**NACE:** MR-01-75  
**AMD:** 5667-5671, 5647 Rod, Bar and Forging Stock

## Chemical Composition, %

	Ni(+Co)	Cr	Fe	Ti	Al	No(+Ta)
Min	70.00	14.0	5.0	2.25	0.40	0.70
Max	--	17.0	9.0	2.75	1.00	1.20

	Si	S	Cu	C	Co
Min	--	---	--	--	--
Max	0.50	0.01	0.50	0.08	1.00

## Features

- Excellent properties down to cryogenic temperatures
- Good corrosion and oxidation resistance up to 1300°F

## Applications

- Gas turbine rotor blades, wheels and bolts
- Airframe thrust reversers and hot-air ducting systems
- Rocket engine thrust chambers
- Heat treat fixtures and cryogenic vessels, springs and fasteners

## Physical Properties

Physical Properties	
Density	0.298 lb/in <sup>3</sup> , 8.26 g/cm <sup>3</sup>
Melting Range	2540-2600°F, 1395-1425°C
Curie Temperature	-225°F as hot-rolled -193 triple-heat-treated (2100°F/2 hr, A.C., +1500°F/24 hr, A.C. + 1300°F/20 hr, A.C.)
Magnetic Permeability	70°F, 200H, as hot rolled 1.0020 1.0035 triple-heat-treated (2100°F/2 hr, A.C., +1500°F/24 hr, A.C., +1300°F/20 hr, A.C.)
Emissivity Oxidized Surface	600°F 0.895, 2000°F 0.925
Linear Contraction During Precipitation Treatment	1300°F/20 hr), in/in Hot-rolled 0.00044, 20% Cold-rolled 0.00052, Annealed 0.00026

## Mechanical Properties

Minimum Specified Properties	
Ultimate Tensile Strength, ksi	120
.02% Yield Strength, ksi	60
Elongation, %	30



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# Nickel Alloy X750