

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.

### Nominal Composition %

<b>Ni</b> <b>Co</b>	Nickel + Cobalt – 70.00% min
<b>Cr</b>	Chromium - 14.0 -17.0%
<b>Fe</b>	Iron - 5 – 9%
<b>Ti</b>	Titanium - 2.25 – 2.75%
<b>Al</b>	Aluminum - .40 – 1.00%
<b>Mo</b> <b>Ta</b>	Nobelium & Tantalum - .70 – 1.20%
<b>Si</b>	Silicon - .50% max
<b>S</b>	Sulfur - .50% max
<b>Cu</b>	Copper - .50% max
<b>C</b>	Carbon - .08% max
<b>Co</b>	Cobalt – 1.00% max

Percent by weight, maximum unless a range is listed.

### Standard Inventory Specifications

- AMS: 5598, 5542 Strip and Plate
- UNS: NO7750
- W.Nr 2.4669

### Forms & Thicknesses Stocked

- Sheet & Coil - 0.023” – 0.075”
- Thin Gauge Strip – 0.008” – 0.015”

### 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



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### Features

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

### Physical Properties

Properties	Value
Density	0.299 lb/in <sup>3</sup> (8.28 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	Value
Ultimate Tensile Strength, ksi	120
0.2% Yield Strength, ksi	60
Elongation, %	30

## Heat Treatment

AMS Spec	Heat Treatment
AMS 5541	1300°F/20 hr., AC (Constant-temperature precipitation treatment).
AMS 5598	1350°F/8 hr., FC to 1150°F, Hold at 1150°F for total precipitation-treating time of 18 hr., AC (Furnace-cool precipitation treatment).