

Inconel 945X

DESCRIPTION

INCONEL 945X, also known as UNS N099456MS or AMS 5780, is a high-performance nickel-chromium-based superalloy designed for superior high-temperature strength and exceptional oxidation resistance. It is recognized under ASTM B637, DIN 2.4665, and NC20M13, ensuring its compliance with rigorous international standards.

TYPICAL PHYSICAL PROPERTIES

Density	lb/in ³	0.296
Melting point	°F	2317-2510
Thermal Conductivity	BTU-in/hr/ft ² /°F	75.9

Chemical Composition (% by weight)

Elements	Min	Max
C	0.005	0.04
Mn	-	1
Si	-	0.5
P	-	0.03
S	-	0.03
Ni	45	55
Cr	19.5	23
Mo	3	4
Nb	2.5	4.5
Cu	1.5	3
Ti	0.5	2.5
Al	0.01	0.7
Fe	Balance	

APPLICATIONS

INCONEL 945X is used extensively in aerospace for turbine blades, engine components, and exhaust systems where high temperature and stress resistance is crucial.

TYPICAL MECHANICAL PROPERTIES

Tensile Strength	Mpa	1194
Yield Strength	Mpa	920
Elongation	%	27.80
Hardness Rockwell	HB	45.8
Reduction of Area	C	39.0

AVERAGE LINEAR COEFFICIENT OF THERMAL EXPANSION $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$

Coefficient of Thermal Expansion	14.19 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ (at 20°C)
Thermal Conductivity	10.9 W/m·K (at 23°C)
Melting Point	1270-1377°C
Electrical Resistivity	682 $\mu\Omega\cdot\text{cm}$ (at 20°C)

CORROSION RESISTANCE

Concentrations of Nickel, Chromium, Molybdenum, and Copper are optimized to provide excellent corrosion resistance in oil and gas environments for Galvanically - Induced Hydrogen Stress Cracking (GHSC), Sulfide Stress Cracking (SSC), and Stress Corrosion Cracking (SCC). Corrosion resistance of INCOLOY alloy 945X® under these types of corrosion mechanisms is illustrated by the tests below.

Special Purpose Alloys & Metals From Stock

Controlled Expansion | Glass Sealing

Kovar ASTM F 15 Alloy

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

Alloy 32/42/48/49

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

VIM VAR CORE IRON

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

SUPRA 510 (Ni50FeCr10)

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

TITANIUM ALLOYS

TITANIUM TI-6AL-4V GRADE 5

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

TITANIUM GRADE 2

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

TITANIUM 6-2-4-6

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

TITANIUM BT20

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

PH ALLOYS

17-7PH

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

15-5PH

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

17-4PH

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

ALUMINIUM HARD ALLOYS

7475 AA7475/7449 AA7449

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

7075 UNS A97075

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

7050 AMS 4050

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

7175 UNS A97075

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

2014 AMS 4121

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

2024 UNS A92024

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

2618 UNS A92618

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

2017 AMS 4037

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

2011 UNS A92011

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

NICKEL BASED ALLOYS

WASPALLOY

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL X750

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL 945

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL 945X

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

NIMONIC C263

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

NIMONIC 75

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL 909

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL 718

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

INCONEL 660

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

HIGH TEMP ALLOYS

HAYNES 188

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

L605

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

MP35N

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

MP159

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

RENE41

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

HAYNES 230

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

ELGILOY

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

HAYNES 242

- Forms: Plate, sheets, Round Bar, Rod, Strips, Coil

JUST-IN-TIME DELIVERY: All of our standard stock items can be delivery as per commitment. All materials are certified with shipment. For special orders and non-stock materials, contact our sales team for our competitive pricing and delivery.