

# Inconel 945

## DESCRIPTION

INCONEL 945, also known as UNS N09945 or W.NR.2.4652, is a nickel-chromium-based superalloy designed for superior high-temperature strength and oxidation resistance. Recognized under API 6ACRA and ASTM B805, INCONEL 945 is well-suited for applications requiring both high mechanical strength and resistance to harsh environmental conditions.

### TYPICAL PHYSICAL PROPERTIES

Density	lb/in <sup>3</sup>	0.296
Melting point	°F	2317-2510

### 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 945 is extensively used in the oil and gas industry for components that are exposed to high pressure and corrosive environments, such as wellhead equipment and pressure vessels.

### TYPICAL MECHANICAL PROPERTIES

Tensile Strength	Mpa	1194
Yield Strength	Mpa	920
Elongation	%	27.80
Hardness	Rc	40
Reduction of Area	%	48.0
Density	g/cm <sup>3</sup>	8.2
Impact Strength	ft•lb	76

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

Coefficient of Thermal Expansion	7.88 (at 93°C)
Thermal Conductivity	10.9 W/m·K (at 23°C)
Specific Heat Capacity	445 J/kg·K (at 23°C)
Melting Point	1270-1377°C
Electrical Resistivity	663 $\mu\Omega\cdot\text{cm}$

## Fabrication and Heat Treatment

INCOLOY 945 exhibits good machinability under solution annealed or aged conditions. Rigid tools with positive rake angles must be used in order to minimize work hardening of the material. It can be an be readily welded by the gas-tungsten-arc welding and pulsed gas-metal-arc welding processes.

## 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.