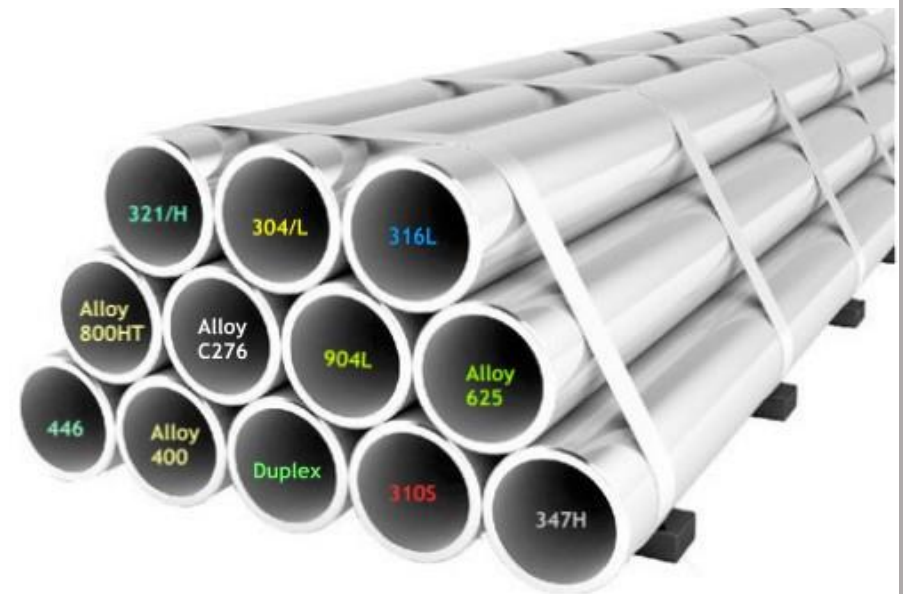


## INCOLOY 825

### Datasheet for Incoloy 825

- Pipes & Tubes
- Sheets & Plates
- Bars & Rods, Forgings
- Fittings & Flanges
- Nuts & Bolts
- Valves



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# Datasheet for Incoloy 825

## UNS N08825, 2.4858

What is Incoloy 825?

- Incoloy 825, also known as Alloy 825 or identified as UNS N08825 or DIN W.Nr. 2.4858, is an iron-nickel-chromium alloy with additions of molybdenum, copper and titanium. The molybdenum addition improves its resistance to pitting corrosion in aqueous corrosion application while copper content bestows resistance to sulfuric acid. Titanium is added for stabilization. The Alloy 825 has excellent resistance to both reducing and oxidizing acids, to stress-corrosion cracking, and to localized attack such as pitting and crevice corrosion. It is especially resistant to sulfuric and phosphoric acids. Incoloy 825 alloy is mainly used for chemical processing, petrochemical piping, pollution-control equipment, oil and gas well piping, nuclear fuel reprocessing, acid production, and pickling equipment.

### Incoloy 825 Product Specification

Product	Incoloy 825
Equivalents	Alloy 825, UNS N08825, W.Nr. 2.4858
Items	Pipe, Tubes, Tubing, Fittings, Flanges, Valves, Fasteners, Sheet, Square Bar, Threaded Bar, Plate, Hexagon Bar, Fasteners and Fixings, Round Bar, Flat Bar, Rebar, Angle, Tube & Pipe, Wire
Size	1/4" - 60"
Pipe Type	Seamless, Welded, ERW, Fabricated, Custom Size Pipes
Specifications	ASTM, ASME, DIN, GOST, JIS
Certification	EN 10204 3.1
Fittings Type	Butt Weld, Screwed & Socket Weld, Flanges, Instrumentation
Other Fittings	Elbows, Tees, Reducers, Caps, Stub Ends, Flanges (ANSI, Table E, D and H), Nuts, Bolts, Screws, Threaded Bars

### Incoloy 825 Alloy (UNS N08825, W.Nr. 2.4858) Product Forms & Standards

Product Form	Standard
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Incoloy Alloy 825 Rods and Bars	ASTM B425, DIN17752
Incoloy Alloy 825 Plates, Sheet and Strips	ASTM B906, B424
Incoloy Alloy 825 Seamless Pipes and Tubes	ASTM B423, B829
Incoloy Alloy 825 Welded Pipes	ASTM B705, B775
Incoloy Alloy 825 Welded Tubes	ASTM B704, B751
Incoloy Alloy 825 Buttweld Pipe Fittings	ASTM B366
Incoloy Alloy 825 Forging (Fittings & Flange)	ASTM B564, DIN17754

### Chemical, Mechanical & Physical Properties of Alloy 825

#### Chemical Composition of Incoloy Alloy 825

Element	Value %
Nickel	38.0-46.0
Iron	≥22.0
Chromium	19.5-23.5
Molybdenum	2.5-3.5
Copper	1.5-3.0
Titanium	0.6-1.2
Carbon	≤0.05
Manganese	≤1.00

Sulfur	≤0.030
Silicon	≤0.50
Aluminum	≤0.20

### Physical Properties of Incoloy Alloy 825

Density	8.1 g/cm <sup>3</sup>
Melting point	1370-1400°C

### Mechanical Properties of Incoloy Alloy 825

	Tensile Strength (Mpa)	Yield Strength (Mpa)	Elongation	Brinell hardness
	Rm N/mm <sup>2</sup>	R PO. 2N/mm <sup>2</sup>	A 5 %	HB
Alloy 825	550	220	30	≤200

- Minimum mechanical properties in the room temperature

### Characteristics of Incoloy 825 Alloy

- Good stress corrosion cracking resistance performance
- Good resistance for pitting and crevice corrosion performance
- Good anti-oxidation and non-oxidizing heat acid performance
- Good mechanical performance in both room temperature and up to 550°C
- Have the pressure vessel authenticate when manufacture temperature up to 450°C

### Incoloy Alloy 825 Metallurgical Structure

825 is the face-centered cubic lattice structure.

## Incoloy 825 Corrosion resistance

825 is an all-purpose project alloy, have good corrosion resistance of the acid and alkali metal property in both oxidation and reduction environments. High nickel content made it with effective stress corrosion cracking resistance performance. 825 have excellent corrosion resistance in different kinds of media, such as sulfuric acid, phosphoric acid, nitric acid and organic acid, alkali metal such as sodium hydroxide, potassium hydroxide, and hydrochloric acid. A variety of media corrosion of nuclear-burning dissolver show 825 high integrated property, like sulfuric acid, nitric acid and potassium hydroxide are all dealing in a same device.

## Applications of Incoloy Alloy 825

825 widely used in many kinds of industry field that the working temperature no more than 550°C. Some of the typical applications are as follows:

- Sulfuric acid factory usage for heating pipe, container, basket, chain and so on
- Cooling heat exchanger, marine product pipeline system and gas pipeline of acidic environment
- Heat exchanger, steam machine, washing, impregnation pipe, etc. for phosphoric acid produce
- Oil refining in the air heat exchanger
- Food project
- Chemical process
- Application of high pressure oxygen flam-retardant alloy

## Types of Nickel Alloys

ASTM/AISI	UNS No	EN	DIN	JIS
Incoloy 800	N08800	1.4558	X2NiCrAlTi3220	NCF2B
Incoloy 800H	N08810			
Incoloy 825	N08825	2.4858	NiCr21Mo	NCF825
Inconel 600	N06600	2.4816	LC-NiCr12Fe	NCF1B
Hastelloy B	N10001			N12MV
Hastelloy B2	N10665	2.4617	NiMo28	

Hastelloy C				
Hastelloy C276	N10276	2.4819	NiMo16Cr15W	NW 0276
Hastelloy C4	N06455	2.461		
Hastelloy C22	N06022	2.4602		
Inconel 625	N06625	2.4856	NiCr22Mo9Nb	
Inconel 718	N07718	2.4668		
Monel 400	N04400	2.4360		NW 4400
Nickel 200	N02200	2.4060		

- **Trademark Notice:** Some names are trade names and/or trademarks of specific manufacturers. We are not affiliated with any manufacturer(s). Orders will be filled to meet specifications from any available source(s). Names are listed solely for reference to help identify products consistent with listed specifications.

Incoloy 800	Incoloy 800H	Incoloy 800 HT
Alloy 800	Alloy 800H	Alloy 800 HT
UNS N08800	UNS N08810	UNS N08811
DIN W.Nr. 1.4876	DIN W.Nr. 1.4958	DIN W.Nr. 1.4959

### Manufacturing Incoloy 825 Products

<a href="#">Incoloy Alloy 825 Sheet</a>	<a href="#">Incoloy Alloy 825 Plate Cuttings/Profiles</a>	<a href="#">Incoloy Alloy 825 Nuts, Bolts and Fasteners</a>
<a href="#">Incoloy Alloy 825 Plate</a>	<a href="#">Incoloy Alloy 825 Foil, Coil</a>	<a href="#">Incoloy Alloy 825 Wire</a>

<a href="#">Incoloy Alloy 825 Blocks/Slabs</a>	<a href="#">Incoloy Alloy 825 Strip</a>	<a href="#">Incoloy Alloy 825 Ingot</a>
<a href="#">Incoloy Alloy 825 Rod/Bar</a>	<a href="#">Incoloy Alloy 825 Pipes and Tubes</a>	<a href="#">Incoloy Alloy 825 Forgings and Castings</a>
<a href="#">Incoloy Alloy 825 Flanges</a>	<a href="#">Incoloy Alloy 825 Forged Fittings</a>	<a href="#">Incoloy Alloy 825 Buttweld Fittings</a>

## About Metallica Metals – The Steel Pipes Factory

- Established in 1975, the Metallica Metals Group (The Steel Pipes Factory) has its operations spread across major cities in India. We are a pioneer in the stainless steel pipes, nickel alloy products, titanium products, carbon steel pipes and alloy steel pipes manufacturing and processing industry. Our products including pipe fittings, flanges, pipes, sheet plates and valves are exported to over 70 countries across the world, while in India we have supplied to even the remote areas. With over 250 tons of sale in stainless steel and carbon steel pipes every day, Metallica has emerged as a prominent vendor for many buyers in India and Overseas
- More than 3000 tons ready from stock and new production ready in just a few weeks.
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## Our Key Products

### STAINLESS STEEL & NICKEL ALLOYS

[Pure Nickel Alloys](#)  
[Monel Alloys \(Ni-Cu Alloys\)](#)  
[Inconel \(Ni-Cr-Mo\) Alloys](#)  
[Incoloy Alloys \(Ni-Cr-Fe\)](#)  
[Hastelloy Alloys](#)  
[Stainless Steel 304/304L](#)  
[Stainless Steel 309S/309H](#)  
[Stainless Steel 310/310S](#)  
[Stainless Steel 316/316L](#)  
[Stainless Steel 316Ti](#)  
[Stainless Steel 317/317L](#)  
[Stainless Steel 321/321H](#)  
[Stainless Steel 347/347H](#)  
[Stainless Steel 904L](#)

### INSTRUMENTATION TUBES & FITTINGS

[Instrumentation Tube](#)  
[Hydraulic Tubing](#)  
[Seamless Tubing](#)  
[Instrumentation Tube Fittings](#)  
[Double Compression Tube Fittings](#)  
[Precision Pipe Fittings](#)  
[Needle & Gauge Valves](#)  
[Manifold Valves](#)

### PRODUCTS

[Steel Sheet & Plate](#)  
[Steel Coil & Strip](#)  
[Steel Pipes](#)  
[Steel Tubes](#)  
[Electropolish Tube](#)  
[Heat Exchanger Tubes](#)  
[Steel Bars/Rods & Wire](#)  
[Fasteners \(Nut, Bolt, Washer\)](#)  
[Steel Angle Bars](#)  
[Hex Steel Bars](#)  
[Round Steel Bars & Rod](#)  
[Flat Steel Bars](#)  
[Forgings, Rings & Forged Blocks](#)  
[Stainless Steel Pipe](#)

Duplex Steels (UNS S32205, UNS S31803)

Super Duplex Steels (UNS S32760 / UNS  
S32750)

Stainless Steel 254 SMO (UNS S31254 / 1.4547)

Stainless Steel Seamless Pipe

Stainless Steel Welded Pipe

Stainless Steel Tubes

Stainless Steel Furnace Tubes

Stainless Steel Seamless Tubing

Stainless Steel Heat Exchanger Tubes

Large Diameter Pipe

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