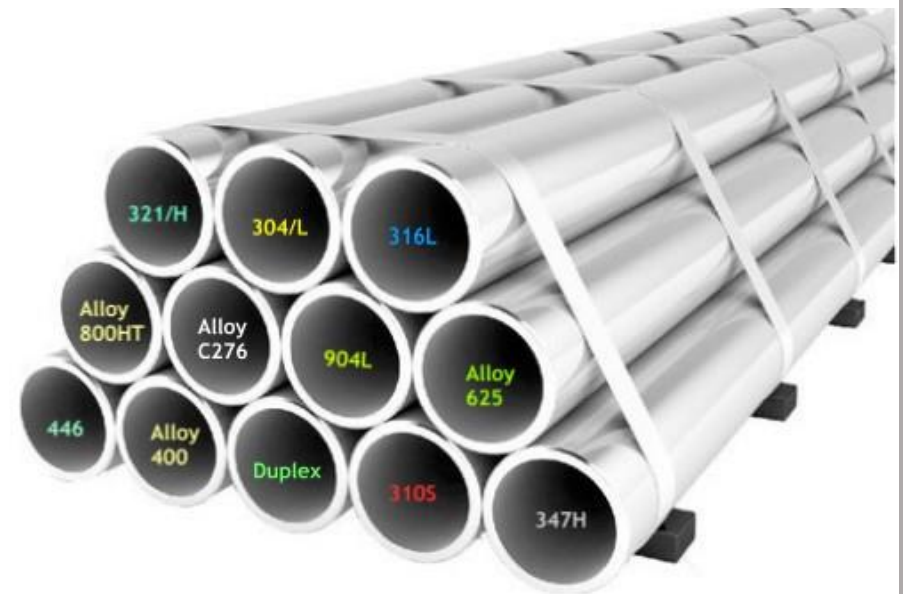


HASTELLOY ALLOY C22

Datasheet for Hastelloy Alloy C22

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



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Datasheet for Hastelloy Alloy C22

UNS N06022 / 2.4602

What is Hastelloy Alloy C22?

- Hastelloy C22 (UNS N06022 or DIN W.Nr. 2.4602), also known as Alloy C-22, is a nickel-chromium-molybdenum alloy with outstanding resistance to pitting, crevice corrosion, and stress-corrosion cracking. Alloy C22 displays excellent resistance to pitting and corrosion and excellent resistance to oxidizing atmospheres up to 1040°C. It exhibits high resistance to oxidizing media, including wet chlorine and mixtures containing nitric and oxidizing acids.
- Hastelloy C-22 is a versatile Ni-Cr-Mo-W alloy with better comprehensive corrosion resistance performance than other Ni-Cr-Mo alloys, including Hastelloy C276, Hastelloy C4 and Inconel 625. The high chromium content provides good resistance to oxidizing media while the molybdenum and tungsten content gives good resistance to reducing media. Alloy C-22 is proven for manufacturing pressure vessels and components following ASME boiler and Pressure Vessel Code Section VIII, Division 1 for application temperatures up to 1250°F/677°C. The service temperature for this alloy should be kept below 1250°F.
- C-22 is widely used in the biotech and pharmaceutical, personal care, and home care industries. In addition, the alloy also finds application in a wide range of industries, including chemical processing, oil and gas, pharmaceutical, food processing, pulp and paper, waste water treatment, pollution control, and nuclear. Metallica mainly stocks and produces Hastelloy C22 plate, Hastelloy C22 sheet, Hastelloy C22 bar and other forms in various size and specifications. Other commonly used Hastelloy grades are: Hastelloy alloy B3, Hastelloy C276, Hastelloy C4 and Hastelloy C2000.

Hastelloy Alloy C22 Product Specification

Product	Hastelloy C22 or Alloy C-22
Equivalents	UNS N06022, DIN 2.4602
Items	Pipe, Tubes, Tubing, Fittings, Flanges, Valves, Sheet, Square Bar, Threaded Bar, Plate, Hexagon Bar, Fasteners and Fixings, Round Bar, Flat Bar, Rod, Forgings, 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

Hastelloy Alloy C22 (UNS N06022 /2.4602) Product Forms & Standards

- **Hastelloy C22 Common Tradenames:** Werkstoff Nr. 2.4602, Hastelloy Alloy C22, Inconel C22, NiCrofer 5621, UNS N06022

Products Form	Standard
Hastelloy Alloy C22 Sheet, Plate & Strip	ASTM B575
Hastelloy Alloy C22 Billet, Rod & Bar	ASTM B574, B472
Hastelloy Alloy C22 Coated Electrodes	DIN 2.4638
Hastelloy Alloy C22 Bare Welding Rods& Wire	DIN 2.4635
Hastelloy Alloy C22 Seamless Pipe & Tube	ASTM B622
Hastelloy Alloy C22 Welded Pipe & Tube	ASTM B619, B626
Hastelloy Alloy C22 Buttweld Fittings	ASTM B366, B462
Hastelloy Alloy C22 Forgings (Flange and Fittings)	ASTM B564, B462

Chemical Composition, Mechanical & Physical Properties of Alloy C22

Chemical Composition of Hastelloy Alloy C22

Alloy	C		C22	
	Min.	Max.	Min.	Max.
%				
Ni	balance		balance	
Cr	14.5	16.5	20	22.5

Mo	15	17	12.5	14.5
Fe	4	7	2	6
W	3	4.5	2.5	3.5
Co		2.5		2.5
C		0.08		0.015
Mn		1		0.5
Si		1		0.08
V		0.35		0.35
P		0.04		0.02
S		0.03		0.02

Physical Properties of Hastelloy Alloy C22

Density	8.9 g/cm ³
Melting point	1325-1370 °C

Mechanical Properties of Hastelloy Alloy C22

Alloy state	Tensile strength, min, Mpa	Yield strength, 0.2% offset, min, Mpa	Elongation % min
Hastelloy C22	690	310	40

- The mechanical properties of Hastelloy C-22 vary in different forms and heat treatment conditions.

What are the Properties of Alloy C22 or Hastelloy C22?

- Alloy C22 can be easily fabricated by the same techniques as used for alloy C276. It can be welded, forged, hot-upset and impact extruded.
- Alloy C22 is easily formable and it attains better welding conditions. It suitably prevents the development of grain boundary precipitates in the weld heated region and is easily weldable by gas tungsten arc, gas metal arc or shielded metal welding methods.
- Alloy C22 is a completely austenitic corrosion resistant alloy that offers excellent resistance to aqueous and high temperature corrosion. It prevents general corrosion, pitting and crevice, intergranular attack and stress corrosion cracking. Chromium content in this alloy prevents attack in the oxidizing conditions and molybdenum and tungsten resist wet reducing attack. Hastelloy C22 prevents carburization and sulfidation at the elevated temperatures.
- The alloy is resistant to halides attack at the high temperatures such as sulfur that is usually found in the coal based power production plants. It is also resistant to severe corrosion caused by metal chlorides in the boilers containing municipal solid waste.

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.
- *Hastelloy® is a registered trademark of Haynes International, Inc.

Manufacturing Hastelloy Alloy C22 Products

Hastelloy Alloy C22 Sheet	Hastelloy Alloy C22 Plate Cuttings/Profiles	Hastelloy Alloy C22 Nuts, Bolts and Fasteners
Hastelloy Alloy C22 Plate	Hastelloy Alloy C22 Foil, Coil	Hastelloy Alloy C22 Wire
Hastelloy Alloy C22 Blocks/Slabs	Hastelloy Alloy C22 Strip	Hastelloy Alloy C22 Ingot
Hastelloy Alloy C22 Rod/Bar	Hastelloy Alloy C22 Pipes and Tubes	Hastelloy Alloy C22 Forgings and Castings
Hastelloy Alloy C22 Flanges	Hastelloy Alloy C22 Forged Fittings	Hastelloy Alloy C22 Buttweld Fittings

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
Duplex Steels (UNS S32205, UNS S31803)
Super Duplex Steels (UNS S32760 / UNS S32750)
Stainless Steel 254 SMO (UNS S31254 / 1.4547)

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
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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