High Nickel Alloy Round Bar

Alloy C276

Hastelloy C276

Specification

ASTM B574 UNS N10276
ASME SB574 UNS N10276

Density ▶ 8.89

Is a Ni-Cr-Mo alloy having outstanding durability under reductive and oxidative environment. Has good corrosion resistance at weld heated area, and also shows outstanding resistance to pitting and stress corrosion.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
55.0	16.0	16.0	-

Fe	etc
6.0	W 4.0

Typical Mechanical Property (RT)

	An		
Tensile Strength (kg/mm²)	81		
0.2% Yield Strength (kg/mm²)	41		
Elongation (%)	60		
Hardness (HB)	195		

Alloy 22

Hastelloy C22

Specification

ASTM B574 UNS N06022
ASME SB574 UNS N06022

Density ▶ 8.69

Ni-Cr-Mo alloy containing W(tungsten), and has outstanding resistance to a wide range of corrosion in both reductive and oxidative environments.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
57.0	20.5	14.2	-

Fe	etc
2.3	W3.2 V0.25 C0.01

Typical Mechanical Property (RT)

	An		
Tensile Strength (kg/mm²)	81		
0.2% Yield Strength (kg/mm²)	41		
Elongation (%)	57		
Hardness (HB)	197		

Alloy B2

Hastelloy B2

Specification

ASTM B335 UNS N10665
ASME SB335 UNS N10665

Density ▶ 9.24

Has outstanding corrosion resistance to non-oxidative acids, especially to hydrochloric acid because of it being a Ni-Mo alloy containing large amount of Mo.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
69.0	-	28.0	-

Fe	etc
1.0	C0.01 Si 0.05

Typical Mechanical Property (RT)

	An		
Tensile Strength (kg/mm²)	91		
0.2% Yield Strength (kg/mm²)	42		
Elongation (%)	60		
Hardness (HB)	185		

Alloy 20

Carpenter 20Cb3

Specification

ASTM B473 UNS N08020
ASME SB473 UNS N08020

Density ▶ 8.08

Shows outstanding corrosion resistance to reductive acids, especially to sulfuric acid and outstanding mechanical properties, and is easily processable.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
35.0	20.0	2.5	3.5

Fe	etc
37.0	Nb+Ta1.0

Typical Mechanical Property (RT)

	An		
Tensile Strength (kg/mm²)	63		
0.2% Yield Strength (kg/mm²)	28		
Elongation (%)	50		
Hardness (HB)	184		

Alloy 201

Nickel 201

Specification

ASTM B160 UNS N02201
ASME SB160 UNS N02201

Density ▶ 8.89

Unalloyed wrought Ni having good mechanical properties, outstanding corrosion resistance, and useful thermal and electrical conductivities. Suitable for use at temperature of 315°C or higher, compared to Alloy 200.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
99.5	-	-	-

Fe	etc
-	C0.01

Typical Mechanical Property (RT)

	HW	CW	An
Tensile Strength (kg/mm²)	38	55	40
0.2% Yield Strength (kg/mm²)	12	45	12
Elongation (%)	50	20	50
Hardness (HB)	90	160	90

Alloy 400

Monel 400

Specification

ASTM B164 UNS N04400
ASME SB164 UNS N04400

Density ▶ 8.83

Ni-Cu Alloy with good weldability and good workability, and outstanding corrosion resistance in a wide range of marine and chemical environments.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
66.5	-	-	31.5

Fe	etc
1.2	-

Typical Mechanical Property (RT)

	HW	CW/DC	An
Tensile Strength (kg/mm²)	65	70	57
0.2% Yield Strength (kg/mm²)	50	55	26
Elongation (%)	45	30	48
Hardness (HB)	190	110	135

Alloy 600

Inconel 600

Specification

ASTM B166 UNS N06600
ASME SB166 UNS N06600

Density ▶ 8.42

High-Ni and high Cr content alloy with outstanding oxidation resistance and corrosion resistance at high temperatures up to 1180°C.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
76.0	15.5	-	-

Fe	etc
8.0	-

Typical Mechanical Property (RT)

	HW	CW	An
Tensile Strength (kg/mm²)	72	90	62
0.2% Yield Strength (kg/mm²)	44	72	29
Elongation (%)	38	20	45
Hardness (HB)	180	235	145

Alloy 601

Inconel 601

Specification

ASTM B166 UNS N06601
ASME SB166 UNS N06601

Density ▶ 8.11

Has carburization resistance and sulfurization resistance; and shows outstanding properties of oxidation resistance and scale peeling resistance at high temperatures up to 1260°C.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
60.5	23.0	-	-

Fe	etc
14.1	Al1.4

Typical Mechanical Property (RT)

	HW	An	
Tensile Strength (kg/mm²)	72	70	
0.2% Yield Strength (kg/mm²)		30	
Elongation (%)		55	
Hardness (HB)		130	

Alloy 625

Inconel 625

Specification

ASTM B446 UNS N06625
ASME SB446 UNS N06625

Density ▶ 8.44

Shows outstanding corrosion resistance, high strength, tenacity, oxidation resistance and fatigue strength at temperatures from extremely low to as high as 980°C.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
61.0	21.5	9.0	-

Fe	etc
2.5	Nb+Ta3.7

Typical Mechanical Property (RT)

	HW	An	
Tensile Strength (kg/mm²)	100	95	
0.2% Yield Strength (kg/mm²)	60	55	
Elongation (%)	45	45	
Hardness (HB)	210	180	

Alloy 718

Inconel 718

Specification

ASTM B637 UNS N07718
ASME SB637 UNS N07718
AMS 5662

Density ▶ 8.19

Is an age-hardening alloy having outstanding strength against temperatures from as low as -250°C to as high as 700 °C, and can be welded at aged condition. Has outstanding oxidation resistance up to 980 °C.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
52.5	19.0	3.0	-

Fe	etc
18.5	Ti0.9 Nb+Ta5.1

Typical Mechanical Property (RT)

	HW/AG	ST/AG	
Tensile Strength (kg/mm²)	140	137	
0.2% Yield Strength (kg/mm²)	125	120	
Elongation (%)	16	17	
Hardness (HB)	393	382	

Alloy 800H(T)

Incoloy 800H(T)

Specification

ASTM B408 UNS N08811 (N08810)
ASME SB408 UNS N08811 (N08810)

Density ▶ 7.95

Has oxidation resistance and carburization resistance at high temperatures and outstanding corrosion resistance, and is resistant to internal oxidation. Has higher thermal strength against high temperature of 621°C or higher.

Major Chemical Composition (%)

Ni	Cr	Mo	Cu
32.5	21.0	-	-

Fe	etc
46.0	C0.08(Al+Ti1.0)

Typical Mechanical Property (RT)

	ST		
Tensile Strength (kg/mm²)	57		
0.2% Yield Strength (kg/mm²)	25		
Elongation (%)	40		
Hardness (HB)	140		

An - Annealed
H.W - Hot Worked
C.W - Cold Worked
AG - Aged
DC - Distortion Correction
ST - Solution Annealed
RT - Room Temperature

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