

Nickel Alloys

Alloy 500 Bar & Forgings

Datasheet Updated
05 August 2021

RANGE

Product Form

Round Bar NA18 2.43375 UNS
N05500

Size Range

3/4" - 4"

SPECIFICATIONS

Commercial

Alloy 500

A precipitation hardening nickel-copper-aluminium alloy with outstanding corrosion resistance.

CHEMICAL COMPOSITION

ASTM B865-04 (2015)

Bar, Rod, Forgings

Element	% Present
Iron (Fe)	0.00 - 2.00
Carbon (C)	0.00 - 0.18
Manganese (Mn)	0.00 - 1.50
Silicon (Si)	0.00 - 0.50
Sulphur (S)	0.00 - 0.01
Nickel (Ni)	63.00 - 0.00
Aluminium (Al)	2.30 - 3.15
Copper (Cu)	27.00 - 33.00
Titanium (Ti)	0.35 - 0.85

ALLOY DESIGNATIONS

- ASTM B865-04 (2015)/UNS N05500
- BS 3076 NA18
- NACE MR0175/0103

SUPPLIED FORMS

- Bar
- Forgings
- Rod

APPLICATIONS

- Pump and valve components
- Drill collars
- Propellers
- Shafts
- Fasteners and springs
- Sensors and electronic components
- Heat exchanger components

CHARACTERISTICS

- Excellent corrosion resistance
- High strength and hardness
- Low magnetic permeability
- Excellent low temperature properties
- High fatigue strength
- Easily processed and machined
- Resistance to chloride stress corrosion
- Good resistance to impingement attack

MECHANICAL PROPERTIES

ASTM B865-04 (2015)

Round Bar - Cold Worked/Age Hardened 6.4mm to 25.4mm

Property	Value
Proof Stress	760 Min MPa
Tensile Strength	1000 Min MPa
Elongation A50 mm	15 Min %
Hardness Brinell	300 Min HB
Hardness Rockwell C	32 Min HRC

ASTM B865-04 (2015)

Round Bar - Cold Worked/Age Hardened 25.5mm to 76.2mm

Property	Value
Proof Stress	690 Min MPa
Tensile Strength	965 Min MPa
Elongation A50 mm	17 Min %
Hardness Brinell	280 Min HB
Hardness Rockwell C	29 Min HRC

ASTM B865-04 (2015)

Round Bar - Cold Worked/Age Hardened 76.3mm to 101.6mm

Property	Value
Proof Stress	655 Min MPa
Tensile Strength	930 Min MPa
Elongation A50 mm	20 Min %
Hardness Brinell	255 Min HB
Hardness Rockwell C	25 Min HRC

ASTM B865-04 (2015)

Round Bar - Hot worked & Annealed

Property	Value
Elongation A50 mm	20 Min %
Hardness Rockwell C	27 Min HRC
Proof Stress	690 Min MPa
Tensile Strength	965 Min MPa
Hardness Brinell	265 Min HB

DISCLAIMER

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