Alloy 201 Pipe & Tube – UNS N02201/ WNR 2.4068

Alloy 201 are solid solution strengthened, commercially pure wrought materials with good mechanical properties over a wide range of temperature and excellent corrosion resistance, in particular hydroxides. It is a modification of Nickel 200 to control carbon which keeps it from being embrittled by intergranular precipitate at temperature of 600°F -1400°F.

Nickel 201 offer corrosion resistances in reducing and neutral media as well as in oxidizing atmospheres provided that the oxidizing media allows the formation of a passive oxide film. This oxide film accounts for the materials excellent resistance in caustic conditions. It has low corrosion rates in both marine and rural atmospheres. Its resistance to corrosion by distilled and natural waters is excellent. It also provides excellent service in flowing sea water even at high velocity, but in stagnant or very low-velocity seawater severe local attack may occur under fouling organisms or other deposits. In hot water systems where the steam contains carbon dioxide and air in certain proportions, corrosion rates will be initially high but will decrease with time if conditions favor the formation of a protective film.

WNR 2.4068 Alloy is a nickel base superalloy with excellent carburization, oxidation and hot corrosion resistance. It has high creep-rupture strength with outstanding ability to resists repeated thermal shock.

Alloy 201 Characteristics

- Highly resistant to various reducing chemicals
- Excellent resistance to caustic alkalies
- High electrical conductivity
- Widely used to handle caustic soda
- Excellent corrosion resistance to distilled and natural waters
- Resistance to neutral and alkaline salt solutions
- Excellent resistance todry fluorine
- Good thermal, electrical and magnetostrictive properties
- Offers some resistance to hydrochloric acids and sulfuric acids at modest temperatures and concentrations

Nickel 201 Chemical Composition

Ni	Fe	Cu	C	Mn	S	Si
99.0 min	0.40 max	0.25 max	0.02 max	0.35 max	0.01 max	0.35 max

Application :

- Food processing equipment
- Marine and offshore engineering
- Salt production
- Caustic handling equipment
- Manufacture and handling of sodium hydroxide, particularly at temperatures above 300°F
- Reactors and vessels in which fluorine is generated and reacted with hydrocarbons

Applications where **UNS N02201 Alloy** can be used include chemical processing and storage, synthetic fiber production, and processes where sodium hydroxide and fluorine is used. Other applications are defense, aerospace as well as food processing indusstries. Nickel 200/201 has exceptional resistance to caustic alkalies at various temperatures and concentrations.

Nickel 201 Fabrication

All hot working and cold working practices can be utilized when shaping Nickel 200/201. Hot working temperature should be between 1200°F and 2250°F with heavy forming to be performed at temperature above 1600°F. Annealing should be performed at a temperature between 1300°F and 1600°F. Care should be taken when choosing the annealing temperature and time at temperature for this can greatly influence the mechanical properties and structure of the material.

Nickel 201 UNS N02201 can be easily welded by standard welding, brazing, and soldering method with the exception of the oxyacetylene process.

Nickel 200/201 ASTM Specifications

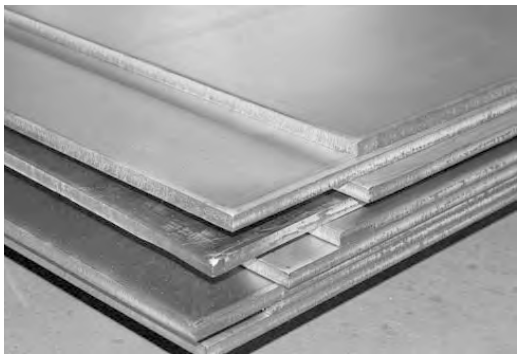
Pipe Smls	Welded Pipe	Tube Smls	Tube Welded	Sheet/Plate	Bar	Fitting
B161	B622	B161	B622	B162	B160	B163

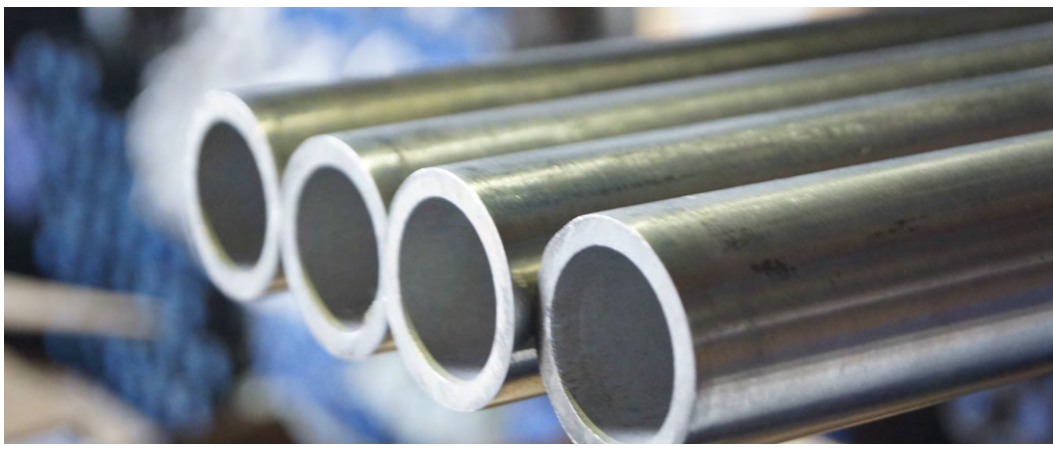
Nickel 201 Mechanical Properties

Product Form	Condition	Tensile Strength (ksi)	2% Yield Strength (ksi)	Elongation (%)	Hardness (HRB)
Tube & Pipe	Seamless Annealed	50 Min	12 Min	35 Min	70 max

Nickel 201Grade Chart

Material No.	DIN 17744 17750 17751 17752 17753 2.4068
EN symbol (short)	LC-Ni 99
UNS	ASTM B160 B161 B162 B163 B366 B564 B704 B705 B725 N02201
B.S.	BS 3072 3073 3074 3075 3076 Na12
Alloy	Nickel Alloy 201
Standards	VdTÜV 345





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