DATA SHEET

NICKEL 200

UNS NO - N02200

Alloy 200 is a wrought economically pure Nickel with a maximum carbon level of 0.15%. This alloy gives exceedingly ductile mechanical properties over a wide temperature range. It gives corrosion resistance in neutral to moderately decreasing situations. Nickel 200 is ferromagnetic. It gives high thermal as well as electrical conductivity in contrast with nickel-base alloys, low alloy and stainless steels. Nickel 200 is not recommended for processes above 600°F (316°C) due to its long-term exposures in the 800°F to 1200°F range result in precipitation of a carbon containing phase and loss of ductility.

Applications

- Electrical industries
- Chemical industries
- Heat exchangers
- Synthetic fiber processing
- Food processing

Characteristics

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

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shaping exotic metals

NICKEL 200

Machining
Economically pure nickel is delicate and “sticky” to machine. In any case it can be machined with standard tooling. High speed steel tools work superior to anything carbide tooling and it is very important to keep up a high positive rake angle on cutting tools.

Forming
Nickel is promptly shaped by the majority of the standard means. It carries on in a comparable manner to plain carbon steel, with the exception of that more power is required to form nickel.

Welding
The majority of the standard welding and joining strategies are working with nickel. Specifically the shielded metal-arc, gas tungsten-arc and gas metal-arc welding strategies are recommended. Use nickel filler wire or electrodes.

Heat Treatment
Anneal at 1500 F to 1300 F and air cool.

Forging
Forging might be done at 2250 F to 1700 F.

Hot Working
Hot working might be done within the scope of 2200 F to 1200 F.

Cold Working
Cold working might be expert utilizing standard tooling with respect to plain carbon steels. More power is required as the nickel material has a higher elastic limit than steel and thus resists deformation.

Annealing
Annealing1500 F at a normal temperature. Annealing might be done within the scope of 1700 F to 1300 F relying on the level of cool working and time at temperature.

Hardening
Hardens is due to cold working only.

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Chemical Properties

C	Si	S	Cu	Mn	Fe	Ni
0.15 max	0.35 max	0.01 max	0.25 max	0.35 max	0.4 max	99.0 min

Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
55	15	35

Physical Properties

Properties	Units	Temperature in °C
Density	8.89 g/cm^3	Room
Specific Heat	0.108 Kcal/kg.C	Room
Melting Range	1435-1446 °C	-
Modulus of Elasticity	205 KN/mm^2	Room
Electrical Resistivity	9.6 µΩ.cm	20°
Coefficient of Expansion	13.3 µm/m °C	20 - 100°
Thermal Conductivity	70.3 W/m -°K	20°

ASTM Specifications

Pipe / Tube (SMLS)	Pipe Welded	Tube Welded	Sheet / Plate	Bar	Fitting
B 161	B 622	B 622	B 162	B 160	B 163

Availability

MANUFACTURING	RAW MATERIALS
Fasteners	Pipes
Custom Machining	Tubes
Custom Fabrication	Bars
Piping / Spools	Sheets
Stamped Parts	Plates
B/W Fittings	-
S/W Fittings	-
Flanges	-
Compression Fittings	-