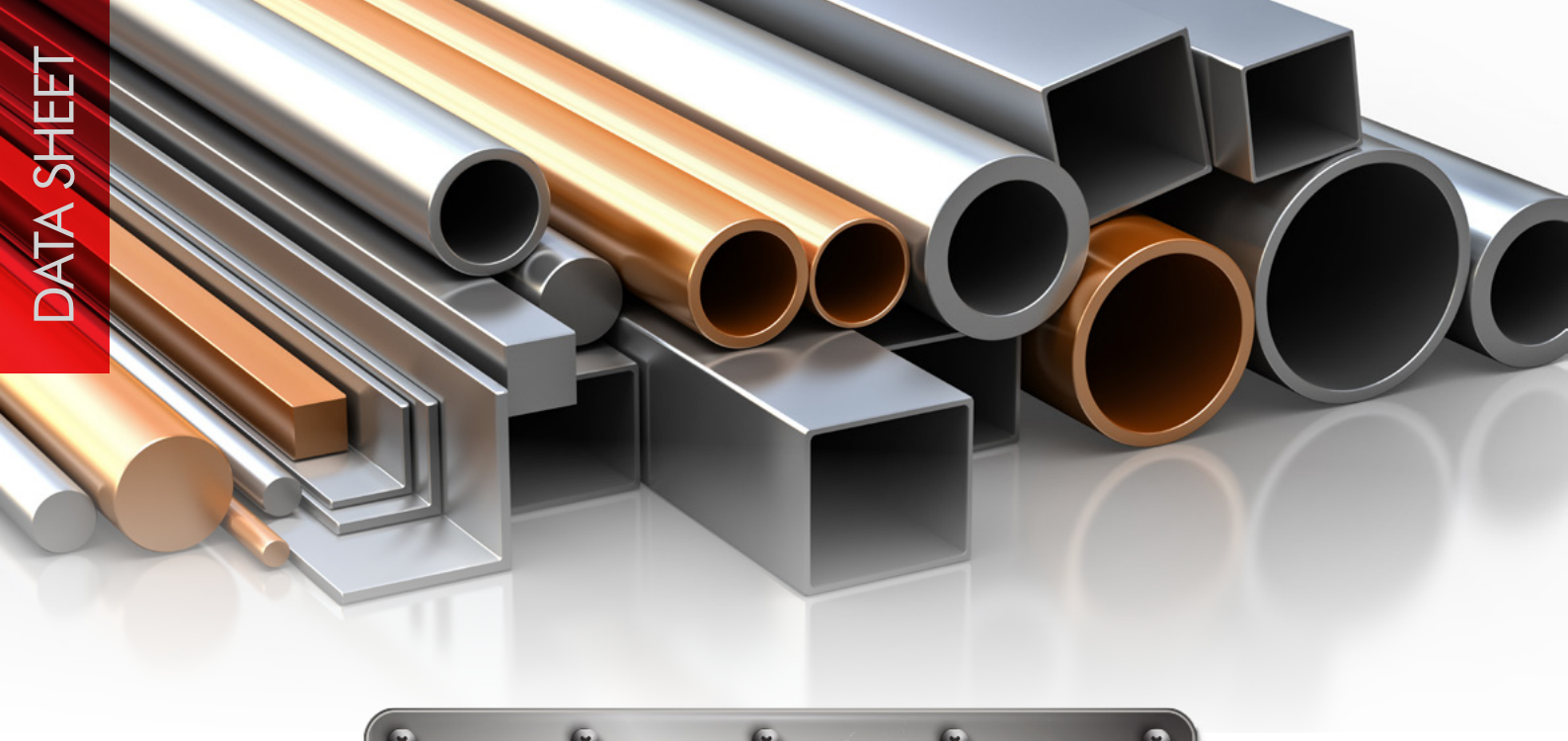
DATA SHEET



S. S. 330

UNS No - N08330

330 Stainless Steel is an austenitic heat as well as corrosion resisting alloy that offers a mixture of strength and resistance to oxidation, carburization and thermal shock. This alloy was intended for applications in high temperature industrial situations where good resistance to the combined effects of carburization and thermal cycling are required, for example the heat treat industry. Carburization along with oxidation resistance to around 2100°F is upgraded by the silicon content of the alloy. The alloy's strength with oxidation resistance at high temperatures makes it a helpful material for industrial heating furnaces. 330 Stainless Steels remain completely austenitic at all temperatures and are not subject to embrittlement from sigma formation. It has a strong solution composition and is not hardenable by heat treatment.

Applications

- Furnace containers-carburizing, carbonitriding, annealing malleablizing
- Muffles, retorts
- Bar frame heat treating baskets
- Quenching fixtures
- Radiant tubes
- Salt pots
- Furnace fans and shafts
- Conveyors
- Tube hangers for crude oil heaters and steam boilers
- Heat exchangers
- Flares

Characteristics

- Oxidation resistance to 2100°F
- Resistant to carburization and nitriding
- Resistant to thermal shock
- Good strength at elevated temperature
- Chloride ion stress corrosion cracking resistance

SUNMACH™
shaping exotic metals

S. S. 330

Corrosion Resistance
330 stainless steels offer a wide variety of high level of corrosion resistance, particularly to carburization, oxidation and nitridation. In aqueous situations, the alloy's chromium content gives resistance to oxidizing conditions while its nickel content imparts resistance to reducing conditions. The high nickel also gives 330 good resistances to chloride-ion stress- corrosion cracking.

Fabrication
Stainless Steel 330 is promptly fabricated by a standard commercial process. In comparison to carbon steel, stainless steels are tougher and tend to work harden quickly. Alloy 330's rate of work hardening is similar to austenitic stainless steels.

Machining
This alloy can be satisfactorily machined with proper practices. Slow speeds, sulphurized lubricants, positive feeds and rigid mounts are generally recommended.

Welding
Can be effectively welded using GAW methods. Use either 330 or Inco 800 filler materials.

Hot Working
Any hot work should begin at 2100-2150 F and finish at 1800 F.

Cold Working
330 are more difficult to cold form than standard 18-8 stainless steels because of its relatively high strength and work hardening rate. Suppose to utilize higher forces than normal and note its' high spring back.

Annealing
Soak at 2050-2200 F, air quench.

Hardening
330 will just harden upon cold reduction and this will not respond to heat treatment.

S. S. 330

Chemical Properties

C	Si	P	S	Cr	Mn	Ni	Fe
0.08 max	0.75- 1.50	0.03 max	0.03 max	17.0-20.0	2.0 max	34.0-37.0	Remainder

Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
70	30	30

Physical Properties

Properties	Units	Temperature in °C
Density	8.0 g/cm^3	Room
Specific Heat	0.12 Kcal/kg.C	22°
Melting Range	1400-1425°C	-
Modulus of Elasticity	197 KN/mm^2	20°
Electrical Resistivity	101.7 µΩ.cm	Room
Coefficient of Expansion	14.4 µm/m °C	20-100°
Thermal Conductivity	12.5 W/m-°K	24°

ASTM Specifications

Pipe / Tube	Sheet / Plate	Bar Forging & Forging Stock
B 535, B 710	B 536	B 511, B 512

Availability

MANUFACTURING
Refractory Anchors
Fasteners
Custom Machining
Custom Fabrication
Piping / Spools
Stamped Parts
B/W Fittings
S/W Fittings
Flanges
Compression Fittings

RAW MATERIALS
Pipes
Tubes
Bars
Sheets
Plates
-
-
-
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