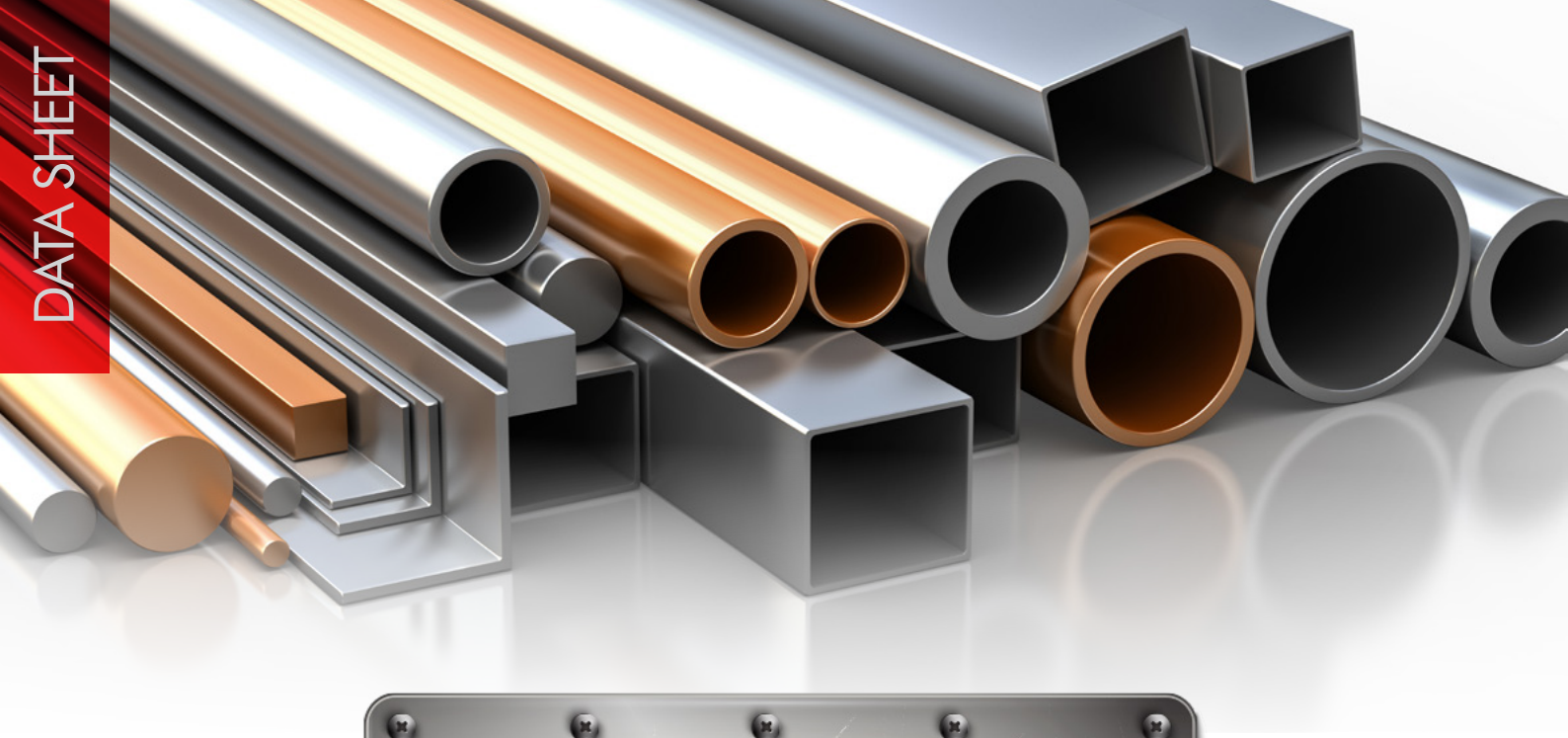
DATA SHEET



SUPER DUPLEX 2507

UNS No - S32750

Duplex 2507 is a super duplex stainless steel intended for applications which request for exceptional strength and corrosion resistance. Alloy 2507 includes 25% chromium, 4% molybdenum, and 7% nickel. This high molybdenum, chromium and nitrogen content results in magnificent resistance to chloride pitting and crevice corrosion attack and the duplex structure provides 2507 with unique resistance to chloride stress corrosion cracking. Utilization of Duplex 2507 should be limited to applications underneath 600° F (316° C). Expanded elevated temperature exposure can reduce both the toughness and corrosion resistance of alloy 2507. Duplex 2507 have magnificent mechanical properties. Frequently a light gauge of 2507 materials can be utilized to accomplish the same design strength of a thicker nickel alloy. The resulting savings in weight can dramatically cut the overall expense of fabrication.

Applications

- Desalination Equipment
- Chemical process pressure vessels, piping and heat exchangers
- Marine Applications
- Flue Gas Scrubbing Equipment
- Pulp & Paper Mill Equipment
- Offshore Oil production/technology
- Oil and gas industry equipment

Characteristics

- High resistance to chloride stress corrosion cracking
- High Strength
- Superior resistance to chloride pitting and crevice corrosion
- Good general corrosion resistance
- Suggested for applications up to 600° F
- Low rate of thermal expansion
- Combination of properties given by austenitic and Ferritic structure
- Good weldability and workability

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Corrosion Resistance

2507 Duplex is super duplex stainless steel that's highly resistant to uniform corrosion by organic acids, for example formic and acetic acid. It is additionally exceedingly resistant to inorganic acids, particularly if they include chlorides. Alloy 2507 is highly resistant to carbide-related intergranular corrosion. Because of the Ferritic part of the duplex structure of the alloy it is resistant to stress corrosion cracking in warm chloride containing situations. Through increments of chromium, molybdenum and nitrogen restricted corrosion, for example, pitting and crevice attack is enhanced. Alloy 2507 has excellent localized pitting resistance.

Machining

Low speeds and constant feeds will minimize this alloy´s propensity to work harden. Harder than 304 and 316 stainless steel with a long stringy chip, the utilization of chip breakers is recommended.

Forming

Because of its characteristically higher yield strength beginning shaping pressures must be higher than those required for standard 300 series stainless steel. Low ductility will make shaping operations difficult.

Welding

Each and every technique including GTAW, SAW and GMAW can be effectively utilized. Preheating and post weld annealing is not required. Filler metal should be an adjusted ferrite/ austenite type like 2205, 2507 or 2304.

Hot Working

This is the recommended technique of shaping. It may initiate after heating to 1750-2000 F, followed by fast cooling after working. For maximum property's material should be completely annealed after working.

Annealing

Heat to 1920-2060 F (1050-1125 C), fast quench.

Hardening

This material is not hardenable by the heat treatment.

Chemical Properties

C	N	Si	P	S	Cr	Mn	Fe	Ni	Cu	Mo
0.03 Max	0.24-0.32	0.8 Max	0.035 Max	0.02 Max	24.0- 26.0	1.2 Max	Balance	6.0- 8.0	0.5 Max	3.0- 5.0

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Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
116	80	15

Physical Properties

Properties	Units	Temperature in °C
Density	7.75 g/cm^3	Room
Specific Heat	0.12 Kcal/kg.C	20°
Melting Range	1410-1460°C	-
Modulus of Elasticity	200 KN/mm^2	20°
Electrical Resistivity	80 µΩ.cm	20°
Coefficient of Expansion	13.0 µm/m °C	20-100°
Thermal Conductivity	17.0 W/m-°K	20°

ASTM Specifications

Pipe / Tube (SMLS)	Tube Welded	Sheet / Plate	Bar	Fittings
A 790	A 789	A 240	A 276	A 182

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	-