



904L is a high-alloy austenitic stainless steel which consist low carbon content. The grade is designed for use under severe corrosive conditions. It has been application demonstrated over many years and was initially created to resist corrosion in dilute sulfuric acid. It is standardized and accepted for pressure vessel utilize in different countries. Fundamentally, 904L is completely austenitic and is less sensitive to precipitation ferrite and sigma phases than standard austenitic grades with very high molybdenum content. Distinctively, because of the combination of relatively high contents of chromium, nickel, molybdenum and copper 904L Stainless Steel has very good resistance to general corrosion, especially in sulfuric and phosphoric conditions.

Applications

- Wiring in electrostatic precipitators
- Oil refinery components
- Seawater cooling devices
- Gas scrubbing plants
- Pulp and paper processing industries
- Acetic, phosphoric and sulphuric acid processing plants

Characteristics

- Austenitic micro structure
- High resistance to pitting and crevice corrosion
- High resistance to stress corrosion and corrosion fatigue
- High resistance to uniform corrosion
- Good ductility and weldability

S. S. 904L

Machining

Positive feeds and slow speed will minimize this alloy's tendency to glaze and work hardens. Use chip breakers where feasible, to overcome issues with long draggy chips.

Welding

Most common fusion and resistance technique might be utilized. For maximum corrosion resistance, it is recommended to use filler metals of equal or higher alloy content.

Hot Working

After uniform heating to 2000-2200 F hot work should be proceed. Does not work the material at below 1800 F. Complete annealing should be follow any hot work to reattain maximum ductility and corrosion resistance.

Cold Working

Although higher forces are required, 904L will react in a comparative manner to other austenitic stainless steels like 304, 316 or 317. Most of the common operations can be successfully performed.

Annealing

Annealing within 1920-1990 F (1050-1090 C), fast cooling.

Hardening

Elevated properties might just be acquired through cold reduction. This alloy does not harden by heat treating.

S. S. 904L

Chemical Properties

C	Si	P	S	Cr	Mn	Fe	Ni	Cu	Mo
0.02 max	1.0 max	0.045 max	0.035 max	19.0 - 23.0	2.0 max	Balance	23.0 - 28.0	1.0 - 2.0	4.0 - 5.0

Mechanical Properties

Tensile Strength (ksi)	0.2% Yield Strength (ksi)	Elongation% in 2 inches
71	31	35

Physical Properties

Properties	Units	Temperature in °C
Density	8.0 g/cm ³	Room
Specific Heat	0.11 Kcal/kg.C	22°
Melting Range	1300-1390 °C	-
Modulus of Elasticity	195 KN/mm ²	20°
Electrical Resistivity	94 μΩ.cm	Room
Coefficient of Expansion	15.5 μm/m °C	20-100°
Thermal Conductivity	12.0 W/m-°K	20°

ASTM Specifications

Pipe / Tube (SMLS)	Sheet / Plate	Forging
B 676, B 366	B 622	B 366

Availability

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

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