

SS 904L Stainless Steel – Technical Data Sheet

SS 904L (UNS N08904) is a high-alloy austenitic stainless steel renowned for its excellent corrosion resistance, particularly in aggressive environments containing sulfuric acid, chlorides, and reducing acids. It significantly outperforms standard 316L stainless steel and is ideal for demanding industrial applications.

What is SS 904L Stainless Steel?

SS 904L is a superaustenitic stainless steel with high levels of nickel, chromium, molybdenum, and copper. These alloying elements deliver outstanding resistance to pitting, crevice corrosion, and stress corrosion cracking in harsh chemical and marine environments.

Key Features

- Excellent resistance to sulfuric acid and other reducing acids
- Superior pitting and crevice corrosion resistance
- High resistance to chloride stress corrosion cracking
- Good weldability and formability
- Outstanding durability in aggressive environments
- Long service life with reduced maintenance costs

Chemical Composition

Element	Percentage (%)
Carbon (C)	0.020 max
Chromium (Cr)	19.0 – 23.0
Nickel (Ni)	23.0 – 28.0
Molybdenum (Mo)	4.0 – 5.0
Copper (Cu)	1.0 – 2.0
Manganese (Mn)	2.0 max
Silicon (Si)	1.0 max
Phosphorus (P)	0.045 max
Sulfur (S)	0.035 max
Iron (Fe)	Balance

Mechanical Properties (Annealed)

Property	Value
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Tensile Strength	490 MPa min (71 ksi min)
Yield Strength (0.2%)	220 MPa min (32 ksi min)
Elongation	35% min
Hardness (Brinell)	150 HB max
Density	7.95 g/cm ³
Melting Range	1300°C – 1390°C

Typical Applications

Chemical processing equipment, pharmaceutical plants, heat exchangers, condensers, piping systems in sulfuric acid plants, seawater systems, oil & gas, pollution control, and paper industry bleaching systems.

Available Product Forms

Sheets, plates, coils, pipes, tubes, round bars, fittings, flanges, fasteners, and custom-fabricated components.

Why Choose SS 904L Stainless Steel?

SS 904L offers unmatched corrosion resistance in severe environments, leading to improved reliability, reduced downtime, and long-term cost efficiency for critical applications.

Conclusion

SS 904L Stainless Steel is a premium material trusted across industries for its exceptional performance in corrosive conditions.