

AISI 904L / UNS N08904 / DIN 1.4539

Low Carbon, High Alloy Super Austenitic Stainless Steel

Alloy 904L Data Sheet

Introduction

Alloy 904L is low carbon high alloyed austenitic Stainless Steel prominently referred to as Super Austenitic in nature. With addition of Copper, its represent increased resistance towards Sulphuric, Phosphoric & HydroChloric acids. It has excellent resistance to Stress Corrosion Cracking, Crevice Corrosion as compared to AISi 316 & AISI 317 Series Stainless Steel. 904L Alloy tenders good toughness, fabrication, weldability etc.

Chemical Composition (Typical)

Element	Limits	
	min	max
Carbon	0.000	0.020
Manganese	0.000	2.000
Phosphorus	0.000	0.045
Sulphur	0.000	0.035
Silicon	0.000	1.000
Chromium	19.000	23.000
Nickel	23.000	28.000
Molybdenum	4.000	5.000
Copper	1.000	2.000
Iron	Remainder	

Mechanical Properties (Typical)

Parameter	Value
Yield 0.2 % (Mpa/Nmm ²), Min	220
Tensile (Mpa/Nmm ²), Min	490
Hardness (in 50%), Min	36
Reduction Area, Min	40
Elongation at Yield (BHN), Min	150

Physical Properties

Parameter	Value
Density (Kg/m ³)	220
Elastic Modulus (Gpa)	490
Co-eff of Expansion ($\mu\text{m/m/}^\circ\text{C}$)	36
Thermal Condc. (W/m.K)	40
Electric Resistivity (n Ω .m) 20°C	150

*Note : @500°C

Corrosion Data

With addition of Copper, 904L tenders extended corrosion resistance towards strong reducing agents like Sulphuric, Phosphoric & Hydrochloric acids in mild & intrusive environment. High Amount of Nickel in its composition allows corrosion resistance to greater level as compared to other Austenitic Stainless Steel alloys. 904L is resistant to Chloride & Sea Water attack. However its resistance to corrosion is medially to 300 Series 316 & 310 & 6% Moly Alloys.

Equivalent Grade Designation

AISI 904L
UNS N0890·BS 904S13
BS 904S13
DIN EN 1.4539
X 1 NiCrMoCu 25 20 5
Z 2 NC DU 25 20
SS 2562
URANUS B6®

Alloy 904L Data Sheet

Available Product Forms

Round, Square, Hexagon & Flat Bars
Seamless / Welded Pipes
Seamless / Welded Tubes
Hot & Cold Rolled Plates & Sheets
Forged Bars
Buttweld Pipe Fittings
Forged Fittings
Ferrule Compression Fittings
Forged Flanges
Valves
Gauges

Common Manufacturing Specifications

ASTM A182, A213, A240, A269, A276, A312, A358, A403, A479, B366, B625, B673, B677, A1016..
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BS EN 10216 pt.5

Alternate to Alloy

Lately 904L Alloy usage has been replaced by Dual Phase Duplex Alloys primarily due to high cost chemistry. AISI 316L, 6% moly Alloys, Duplex 2205 & Super Duplex 32750 & S32760 Alloys are viable alternatives to this grade, subjective to other application factors.

Applications & Industries

Transportation & manufacturing of Sulphuric, Acetic & Phosphoric acid
Chemical & Fertilizer Industries
Heat Exchangers, & Condensers
Petroleum - Oil & Gas Platforms
Gas Washing
Control & Instrumentation applications
Sea Water Cooling & Offshore Engineering

Excellence Inherent

With 3 decade long experience inherited, we aim at providing better solutions for Industrial Piping Sector. Skilled Team, passion drives our *will* to be better with resolute for continous customer & vendor concurrence. We also perceive our duty towards planet for its unconditional support & try to minimise any harm caused due to our activity. For Instance, *We Stay Paperless*

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