HandyTube
Performance That's Seamless.™

Alloy 904

Alloy Designation: (UNS N08904)

Specifications: ASTM A269

Typical Size Ranges: OD (.02"–1.00")

Available Product Forms:
Annealed to Full Hard, in Coiled or Straight form

General Description and Applications:

This austenitic stainless steel with a high molybdenum content, specializes in corrosion resistance, especially against chlorine stress corrosion cracking. The addition of copper to this steel also allows it to be used in situations where sulfuric acid is present. 904L is commonly used in heat exchangers, seawater handling, acid and fertilizer production, chemical and pharmaceutical industries, and production and transport of sulfuric acid.

Commitment to Quality:

ISO 9001-CERTIFIED Lloyd's Register LRQA

SHIPBUILDING CERTIFICATIONS DNV Lloyd's Register Marine ABS FOUNDED 1862 BUREAU VERITAS 1828

HIGH PRESSURE APPLICATIONS TÜV SÜD AD-2000-Merkblatt-W0 PED 2014 / 68 / EU

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Chemical Properties as per Specs:

CHEMICAL COMPOSITION BY WEIGHT PERCENT															
Ni	Cr	Fe	Mo	Al	Ti	Nb	Co	Ta	Mn	Cu	N	C	S	Si	P
23.0 - 28.0	18.0 - 23.0	Bal.	4.0 - 5.0	-	-	-	-	-	2.00 Max	1.0 - 2.0	-	.02 Max	.03 Max	1.0 Max	0.040 Max

PREN CALCULATION AND NUMBER:

- PREN = Cr + 3.3(Mo +0.5W) + 16N
- MIN PREN = 18 + 3.3(4.0) = 31.2
- MAX PREN = 23 + 3.3(5.0) = 39.5
- PREN Range: 31.2 - 39.5

MECHANICAL PROPERTIES	
Ultimate Tensile Strength	71 ksi Minimum (490 MPa)
Yield Strength	31 ksi Minimum (220 MPa)
% Elongation to Failure	36% Minimum
Hardness	90 HRB Max
Young's Modulus	29.0x10^6 ksi (200 GPa)

PHYSICAL PROPERTIES	
Density	0.285 lbs/in^3 or 7.90 g/cm^3
Melting Point	2372 – 2534°F or 1300 – 1390°C
Coefficient of Thermal Expansion	8.5 (μin/in-°F)
Specific Heat	0.11 BTU/lb-°F
Thermal Conductivity	11.5 (W/m.K)
Electrical Resisitivity	95.2 μΩcm

ANNEALING SUGGESTION:

- 904L is best annealed between the temperatures of 1950-2150 degrees Fahrenheit or 1066-1177 degrees Celsius.

Disclaimer: Always consult with design engineer, the information contained in this data sheet is for guidance only.