

Stainless Steel Welding Wire



GJ-ER316L

Copper-Free Solid Wire

(18Cr-12Ni-2Mo ultra-low carbon, corrosion-resistant)

- ▶ AWS A5.9 ER316L
- ▶ EN ISO 14343-A-G 19 12 3 L

Product description

GJ-ER316L is an 18% chromium - 12% nickel - 2.5% molybdenum ultra-low carbon austenitic stainless steel solid wire strictly complying with AWS A5.9 ER316L. The molybdenum addition significantly improves resistance to pitting and crevice corrosion, especially in chloride-containing environments.

Key Advantages

- ▶ Superior Pitting Resistance: 2.0-3.0% Mo content provides excellent resistance to pitting and crevice corrosion in chloride and acidic environments.
- ▶ High-Temperature Strength: Molybdenum improves elevated-temperature strength and creep resistance for moderate high-temperature service.
- ▶ Low Carbon Advantage: $\leq 0.03\%$ C prevents sensitization, maintaining corrosion resistance after welding without post-weld heat treatment.

Application Guide

- ▶ With Ar+2%O₂ shielding: For welding 316/316L in marine equipment, desalination plants, and chemical processing vessels.
- ▶ With 98%Ar+2%CO₂: For pharmaceutical equipment, food processing, and pulp/paper industry components requiring molybdenum-alloyed corrosion resistance.
- ▶ For coastal structures: Suitable for welding stainless steel in coastal and offshore applications where saltwater exposure is a concern.

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● Main constituents

Elements	C (Carbon)	Si (Silicon)	Mn (Manganese)	Cr (Chromium)	Ni (Nickel)	Mo (Molybdenum)	S (Sulfur)	P (Phosphorus)
AWS Requirement	≤0.03	0.30 - 0.65	1.0 - 2.5	18.0 - 20.0	11.0 - 14.0	2.0 - 3.0	≤0.030	≤0.030
Typical Actual Value	0.02	0.45	1.70	19.0	12.5	2.50	0.008	0.015

● Typical Mechanical Properties of Deposited Metal

Mechanical properties tested as all-weld metal with Ar+2%O₂ shielding gas (DC+). AWS A5.9 does not specify minimum mechanical properties for austenitic stainless wires; values shown are industry typical results.

Test Item	Yield Strength	Tensile Strength	Elongation	Ferrite Number
AWS A5.9 Requirement	—	—	—	4 - 10 FN
Typical Actual Result	380 MPa	570 MPa	37%	7 FN

● Reference Welding Parameters

Wire Diameter	0.8 mm (0.030")	1.0 mm (0.040")	1.2 mm (0.045")	1.6 mm (1/16")
Amperage	60 - 150	80 - 200	100 - 280	140 - 350
Voltage	18 - 22	20 - 26	22 - 30	24 - 34