

Stainless Steel Welding Wire



GJ-ER310

Copper-Free Solid Wire

(25Cr-20Ni fully austenitic, high-temperature)

- ▶ AWS A5.9 ER310
- ▶ EN ISO 14343-A-G 25 20

Product description

GJ-ER310 is a 25% chromium - 20% nickel fully austenitic stainless steel solid wire strictly complying with AWS A5.9 ER310. The high alloy content provides excellent oxidation resistance up to 1100°C and is designed for welding 310 stainless and for high-temperature service applications.

Key Advantages

- ▶ Exceptional Oxidation Resistance: 25Cr-20Ni composition provides excellent resistance to oxidation and scaling at temperatures up to 1100°C.
- ▶ Fully Austenitic: Zero ferrite weld metal offers maximum high-temperature ductility and creep resistance for severe thermal cycling.
- ▶ Thermal Fatigue Resistance: High nickel content provides excellent resistance to thermal fatigue in cyclic high-temperature service.

Application Guide

- ▶ With Ar+2%O₂ shielding: For welding 310/310S stainless in furnace components, heat treatment fixtures, and petrochemical heater tubes.
- ▶ With 100% Ar (TIG): For welding heat-resistant cast alloys, radiant tubes, and high-temperature piping in power and process industries.
- ▶ For dissimilar high-temp joints: Suitable for welding 310 to 304/316 and for buffer layers on creep-resistant steels in elevated temperature service.

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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	0.08 - 0.15	0.30 - 0.65	1.0 - 2.5	25.0 - 28.0	20.0 - 22.5	≤0.75	≤0.030	≤0.030
Typical Actual Value	0.11	0.45	1.70	26.0	21.0	0.20	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	—	—	—	0 FN
Typical Actual Result	420 MPa	620 MPa	30%	0 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