

Stainless Steel Welding Wire



GJ-ER2209

Copper-Free Solid Wire

(22Cr-8Ni-3Mo-N duplex stainless)

- ▶ AWS A5.9 ER2209
- ▶ EN ISO 14343-A-G 22 9 3 N L

Product description

GJ-ER2209 is a 22% chromium - 8% nickel - 3% molybdenum - nitrogen duplex stainless steel solid wire strictly complying with AWS A5.9 ER2209. The balanced austenite-ferrite microstructure provides a unique combination of high strength, excellent corrosion resistance, and good toughness for welding 2205 duplex stainless steel.

Key Advantages

- ▶ High Strength & Toughness: Duplex microstructure delivers minimum 690 MPa tensile strength with excellent impact toughness down to -40°C.
- ▶ Superior Corrosion Resistance: 22Cr-3Mo-N composition provides excellent pitting resistance (PREN ≥34) for chloride-rich environments.
- ▶ Nitrogen Alloyed: 0.08-0.20% nitrogen enhances strength and pitting resistance, and promotes a balanced ferrite-austenite ratio in the weld.

Application Guide

- ▶ With 90%Ar+10%CO₂ shielding: For welding 2205 (UNS S31803/S32205) duplex stainless in chemical tankers, pressure vessels, and heat exchangers.
- ▶ With Ar+2%N₂ shielding: For welding duplex stainless in offshore platforms, desalination plants, and pulp/paper digesters.
- ▶ For high-chloride service: Suitable for components exposed to seawater, brine, and acidic chloride environments where austenitic grades would pit.

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● Main constituents

Elements	C (Carbon)	Si (Silicon)	Mn (Manganese)	Cr (Chromium)	Ni (Nickel)	Mo (Molybdenum)	N (Nitrogen)	S (Sulfur)	P (Phosphorus)
AWS Requirement	≤0.03	≤0.90	0.50 - 2.00	21.5 - 23.5	7.5 - 9.5	2.5 - 3.5	0.08 - 0.20	≤0.030	≤0.030
Typical Actual Value	0.02	0.50	1.20	22.5	8.5	3.0	0.14	0.008	0.015

● Typical Mechanical Properties of Deposited Metal

Mechanical properties tested as all-weld metal with 90%Ar+10%CO₂ shielding gas (DC+). AWS A5.9 specifies minimum properties for ER2209.

Test Item	Yield Strength	Tensile Strength	Elongation	Impact@ -40°C
AWS A5.9 Requirement	≥550 MPa	≥690 MPa	≥20%	≥27 J
Typical Actual Result	620 MPa	780 MPa	25%	80 J

● 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