

Gas Shielded Welding Wire



GJ-ER80S-Ni2

Copper-Coated Solid Wire

(2.5Ni low-temperature steel)

- ▶ AWS A5.28 ER80S-Ni2
- ▶ EN ISO 14341-A-G46 6 2Ni2

Product description

GJ-ER80S-Ni2 is a 2.5% nickel low-alloy solid wire strictly complying with AWS A5.28 ER80S-Ni2. The nickel addition significantly improves low-temperature toughness, making it ideal for welding cryogenic vessels, LNG storage tanks, and offshore structures operating at sub-zero temperatures.

Key Advantages

- ▶ Excellent Cryogenic Toughness: 2.5% Ni content provides superior Charpy impact properties at temperatures down to -60°C.
- ▶ High Strength Ductility Balance: Maintains 550MPa tensile strength with excellent elongation for critical low-temperature service.
- ▶ Stable Arc & Clean Welds: Precise chemistry control ensures stable arc transfer with clean, defect-free weld deposits.

Application Guide

- ▶ With Ar/CO₂ (80/20) Mixed Gas: For welding 2.5Ni steel cryogenic vessels, LNG tanks, and cold storage equipment.
- ▶ With 100% CO₂: For general low-temperature structural fabrication and offshore platform components.
- ▶ For low-temperature service: Suitable for components operating at temperatures as low as -60°C in energy and process industries.

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● Main constituents

Elements	C (Carbon)	Mn (Manganese)	Si (Silicon)	Ni (Nickel)	S (Sulfur)	P (Phosphorus)	Cu (Copper)
AWS Requirement	≤0.12	0.40 - 1.20	0.40 - 0.80	2.00 - 2.80	≤0.025	≤0.025	≤0.35
Typical Actual Value	0.07	0.80	0.55	2.40	0.008	0.010	0.12

● Typical Mechanical Properties of Deposited Metal

The mechanical properties of ER80S-Ni2 are tested as all-weld metal with Ar/CO2 mixed shielding gas (DC+ polarity).

Test Item	Yield Strength	Tensile Strength	Elongation	Impact Value@ -60°C
AWS A5.28 Requirement	≥470 MPa	≥550 MPa	≥20%	≥27 J
Typical Actual Result	520 MPa	610 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	50 - 150	60 - 220	80 - 350	120 - 450
Voltage	16 - 22	18 - 26	20 - 30	22 - 34