

Gas Shielded Welding Wire



GJ-ER90S-B3

Copper-Coated Solid Wire

(2.25Cr-1Mo heat-resistant steel)

- ▶ AWS A5.28 ER90S-B3
- ▶ EN ISO 14171-A-CrMo2

Product description

GJ-ER90S-B3 is a 2.25% chromium - 1% molybdenum heat-resistant solid wire strictly complying with AWS A5.28 ER90S-B3. Designed for elevated temperature service up to 600°C, it provides excellent creep resistance for welding boiler tubes, piping, and pressure vessels in power generation and petrochemical industries.

Key Advantages

- ▶ Superior Creep Resistance: 2.25Cr-1Mo composition delivers excellent long-term high-temperature strength and oxidation resistance.
- ▶ Precise Alloy Control: Tight compositional tolerances ensure consistent mechanical properties after PWHT.
- ▶ Low Spatter & Stable Arc: Advanced manufacturing process ensures smooth arc transfer with minimal spatter in GMAW.

Application Guide

- ▶ With 100% CO₂: For welding 2.25Cr-1Mo steel boiler tubes, headers, and piping in fossil fuel power plants.
- ▶ With Ar/CO₂ (80/20) Mixed Gas: For precision welding of reactor vessels and heat exchangers in refinery service.
- ▶ For elevated temperature service: Suitable for components operating continuously up to 600°C, requiring PWHT at 690°C.

Gas Shielded Welding Wire

● Main constituents

Elements	C (Carbon)	Mn (Manganese)	Si (Silicon)	Cr (Chromium)	Mo (Molybdenum)	S (Sulfur)	P (Phosphorus)	Cu (Copper)
AWS Requirement	0.07 - 0.12	0.40 - 0.70	0.40 - 0.70	2.30 - 2.70	0.90 - 1.20	≤0.025	≤0.025	≤0.35
Typical Actual Value	0.10	0.55	0.55	2.50	1.05	0.008	0.010	0.12

● Typical Mechanical Properties of Deposited Metal

The mechanical properties of ER90S-B3 are tested after PWHT (690°C x 1h) with 100% CO₂ shielding gas (DC+ polarity).

Test Item	Yield Strength	Tensile Strength	Elongation	Impact Value@ Room Temp
AWS A5.28 Requirement	≥540 MPa	≥620 MPa	≥17%	≥27 J
Typical Actual Result	580 MPa	670 MPa	21%	75 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