

Flux-Cored Welding Wire



GJ-E81T1-Ni1C

CO2 Gas-Shielded Flux-Cored Wire

(1Ni low-temperature low-alloy steel)

- ▶ AWS A5.29 E81T1-Ni1C
- ▶ EN ISO 17632-A-T52 2 P C1 1Ni1

Product description

GJ-E81T1-Ni1C is a 1% nickel alloyed flux-cored wire strictly complying with AWS A5.29 E81T1-Ni1C. The nickel addition improves low-temperature toughness, making it suitable for welding high-strength structural steels, offshore platforms, and cryogenic storage tanks operating at sub-zero temperatures.

Key Advantages

- ▶ Excellent -40°C Toughness: 1% Ni content delivers superior Charpy impact properties at -40°C for critical low-temperature service.
- ▶ High Strength Level: Produces 550-690MPa tensile strength weld metal with good ductility and crack resistance.
- ▶ All-Position Capability: Rutile-based flux system enables smooth all-position welding with good bead appearance and slag release.

Application Guide

- ▶ With 100% CO2: For welding high-strength structural steels, offshore platforms, and shipbuilding hull structures.
- ▶ For low-temperature storage: Suitable for LPG tanks, refrigerated vessels, and cold-climate infrastructure.
- ▶ For pipeline construction: Ideal for cross-country pipeline welding requiring high toughness and field portability.

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● Main constituents

Elements	C (Carbon)	Mn (Manganese)	Si (Silicon)	Ni (Nickel)	S (Sulfur)	P (Phosphorus)
AWS Requirement	≤0.12	≤1.75	≤0.80	0.80 - 1.10	≤0.030	≤0.030
Typical Actual Value	0.06	1.25	0.35	0.95	0.008	0.010

● Typical Mechanical Properties of Deposited Metal

The mechanical properties of E81T1-Ni1C are tested as all-weld metal with 100% CO₂ shielding gas (DC+ polarity).

Test Item	Yield Strength	Tensile Strength	Elongation	Impact Value@ -40°C
AWS A5.29 Requirement	≥470 MPa	550 - 690 MPa	≥19%	≥27 J
Typical Actual Result	530 MPa	610 MPa	24%	100 J

● Reference Welding Parameters

Wire Diameter	1.0 mm (0.040")	1.2 mm (0.045")	1.4 mm (0.055")	1.6 mm (1/16")
Amperage	80 - 180	140 - 300	180 - 340	200 - 400
Voltage	18 - 24	22 - 32	24 - 34	26 - 36