

Flux-Cored Welding Wire



GJ-E81T1-K2C

CO2 Gas-Shielded Flux-Cored Wire

(2.5Ni cryogenic low-alloy steel)

- ▶ AWS A5.29 E81T1-K2C
- ▶ EN ISO 17632-A-T52 2 P C1 2Ni2

Product description

GJ-E81T1-K2C is a 2.5% nickel alloyed flux-cored wire strictly complying with AWS A5.29 E81T1-K2C. The high nickel content provides exceptional cryogenic toughness down to -60°C, making it ideal for welding LNG storage tanks, cryogenic vessels, and arctic offshore structures.

Key Advantages

- ▶ Outstanding Cryogenic Toughness: 2.5% Ni composition delivers excellent Charpy impact values at temperatures as low as -60°C.
- ▶ High Strength & Ductility: Maintains 550MPa tensile strength with superior elongation for critical cryogenic service.
- ▶ Low Hydrogen Design: Basic-rutile flux system ensures low diffusible hydrogen for maximum crack resistance.

Application Guide

- ▶ With 100% CO2: For welding 2.5Ni and 3.5Ni steel cryogenic vessels, LNG storage tanks, and liquefied gas equipment.
- ▶ For arctic offshore structures: Suitable for platforms and pipelines operating in extreme cold climate conditions.
- ▶ For cold storage infrastructure: Ideal for refrigerated warehouses, cold boxes, and cryogenic process piping.

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● Main constituents

Elements	C (Carbon)	Mn (Manganese)	Si (Silicon)	Ni (Nickel)	S (Sulfur)	P (Phosphorus)
AWS Requirement	≤0.12	≤1.50	≤0.70	2.00 - 2.80	≤0.025	≤0.025
Typical Actual Value	0.06	1.00	0.40	2.40	0.007	0.009

● Typical Mechanical Properties of Deposited Metal

The mechanical properties of E81T1-K2C are tested as all-weld metal with 100% CO₂ shielding gas (DC+ polarity).

Test Item	Yield Strength	Tensile Strength	Elongation	Impact Value@ -60°C
AWS A5.29 Requirement	≥470 MPa	550 - 690 MPa	≥19%	≥27 J
Typical Actual Result	520 MPa	600 MPa	23%	85 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