

Submerged Arc Welding Flux



GJ-EH12K

Copper-Coated Solid Wire

(High-manganese, medium-silicon killed steel)

- ▶ AWS A5.17 EH12K
- ▶ EN ISO 14171-A-S3Si

Product description

GJ-EH12K is a high-manganese, medium-silicon solid wire strictly complying with AWS A5.17 EH12K. Designed for multi-run welding with neutral fluxes, it delivers consistent mechanical properties across multiple passes with excellent crack resistance in thick-section applications.

Key Advantages

- ▶ Multi-Run Consistency: Stable chemistry ensures uniform mechanical properties through multiple weld passes in heavy sections.
- ▶ High Crack Resistance: High manganese content provides excellent resistance to solidification cracking in restrained joints.
- ▶ Tough Deposits: Produces high-strength weld metal with good low-temperature impact toughness for critical structures.

Application Guide

- ▶ With GJ-101G (Basic Flux): For heavy machinery, offshore structures, and pressure vessels requiring high integrity.
- ▶ With GJ-301 (Neutral Flux): For multi-pass welding of thick structural steel where consistent properties are critical.
- ▶ With GJ-501H (Active Flux): For high-speed welding of high-strength structural steel with good bead contour.

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● Main constituents

Elements	C (Carbon)	Mn (Manganese)	Si (Silicon)	S (Sulfur)	P (Phosphorus)	Cu (Copper)
AWS Requirement	0.06 - 0.15	1.50 - 2.00	0.20 - 0.65	≤0.025	≤0.025	≤0.35
Typical Actual Value	0.07	1.85	0.49	0.008	0.012	0.09

● Typical Mechanical Properties of Deposited Metal

The mechanical properties of EH12K must be evaluated in combination with a specific flux. The following data is based on testing combined with an AWS F7A4 neutral agglomerated flux (e.g., SJ301).

Test Item	Yield Strength	Tensile Strength	Elongation	Impact Value@ -20°C
AWS F7A4 Requirement	≥400 MPa	480 - 660 MPa	≥22%	≥27 J
Typical Actual Result	450 MPa	560 MPa	26%	90 J

● Reference Welding Parameters

Wire Diameter	1.6 mm (1/16")	2.5 mm (3/32")	3.2 mm (1/8")	4.0 mm (5/32")	5.0 mm (3/16")
Amperage	250 - 420	350 - 500	400 - 550	470 - 600	550 - 650
Voltage	26 - 30	27 - 30	28 - 31	28 - 32	30 - 34