

Stainless Steel Welding Wire



GJ-ER410

Copper-Free Solid Wire

(13Cr martensitic stainless)

- ▶ AWS A5.9 ER410
- ▶ EN ISO 14343-A-G 13

Product description

GJ-ER410 is a 13% chromium martensitic stainless steel solid wire strictly complying with AWS A5.9 ER410. It produces a martensitic weld metal with high hardness and wear resistance, designed for welding 410 stainless steel and for surfacing applications requiring abrasion resistance.

Key Advantages

- ▶ High Hardness & Wear Resistance: 13Cr martensitic weld metal achieves 35-40 HRC in the as-welded condition, providing excellent abrasion resistance.
- ▶ Tunable Properties: Hardness can be adjusted via post-weld heat treatment (22-28 HRC after tempering at 650-750°C) for improved toughness.
- ▶ Good Corrosion Resistance: 11.5-13.5% chromium provides moderate corrosion resistance for mild atmospheric and aqueous environments.

Application Guide

- ▶ With Ar+2%O₂ shielding: For welding 410/420 stainless steel in turbine blades, valve seats, pump components, and cutlery.
- ▶ With 100% Ar (TIG): For repair welding of martensitic stainless castings and for hardfacing of carbon steel components requiring wear resistance.
- ▶ For surfacing: Suitable for single-layer surfacing of carbon steel to provide corrosion and abrasion-resistant surfaces in mild environments.

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● Main constituents

Elements	C (Carbon)	Si (Silicon)	Mn (Manganese)	Cr (Chromium)	Ni (Nickel)	Mo (Molybdenum)	S (Sulfur)	P (Phosphorus)
AWS Requirement	≤0.12	≤0.50	≤0.60	11.5 - 13.5	≤0.60	≤0.75	≤0.030	≤0.030
Typical Actual Value	0.10	0.40	0.45	12.5	0.30	0.30	0.008	0.015

● Typical Mechanical Properties of Deposited Metal

Mechanical properties tested as all-weld metal after PWHT (730°C × 2h, furnace cool) with Ar+2%O₂ shielding gas (DC+).
As-welded hardness is typically 35-40 HRC.

Test Item	Yield Strength	Tensile Strength	Elongation	Hardness (PWHT)
AWS A5.9 Requirement	—	≥520 MPa	≥20%	22 - 28 HRC
Typical Actual Result	450 MPa	600 MPa	25%	25 HRC

● 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	60 - 150	80 - 200	100 - 280	140 - 350
Voltage	18 - 22	20 - 26	22 - 30	24 - 34