

Dual Shield II 70-Ni1 H4

Dual Shield II 70-Ni1 H4 is an all-position, flux-cored wire designed to be used under 75% Ar/25% CO₂ gas protection. It provides excellent low temperature toughness in both as-welded or stress-relieved conditions. Dual Shield II 70-Ni1 H4 produces low diffusible Hydrogen levels – lower than 4ml/100g – over a wide range of welding parameters. The smooth arc, fast-freezing slag, low spatter levels and easy slag release make this an ideal wire for the welding of steel plate in all positions. Nickel content below 1% and Brinell hardness less than 200 meet the requirements for applications where resistance to stress-corrosion cracking is required. Dual Shield II 70-Ni1 H4 is used in the fabrication of storage vessels that need to be stress relieved to minimize the occurrence of stress corrosion cracking (SCC). Typical Diffusible Hydrogen: 2 ml/100g of deposited metal

Specifications

Classifications

ASME SFA 5.36
 ASME SFA 5.29
 AWS A5.36 : E71T1-M21P5-Ni1-H4
 AWS A5.29 : E71T-1GMJ-H4
 AWS A5.36 : E71T1-M21A5-Ni1-H4

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
Vertical Position			
Stress Relieved 8 hour(s) 621 °C (1150 °F)	427 MPa (62 ksi)	510 MPa (74 ksi)	35 %
Flat Position			
Stress Relieved 1 hour(s) 621 °C (1150 °F)	427 MPa (62 ksi)	510 MPa (74 ksi)	33 %
As Welded	469 MPa (68 ksi)	531 MPa (77 ksi)	31 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
Stress Relieved	-29 °C (-20 °F)	233 J (172 ft-lb)
Stress Relieved	-46 °C (-50 °F)	205 J (151 ft-lb)
Stress Relieved	-29 °C (-20 °F)	237 J (175 ft-lb)
Stress Relieved	-46 °C (-50 °F)	164 J (121 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Cu
0.02	1.13	0.25	0.008	0.010	0.90	0.06	0.01	0.005	0.03

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	TTW Dist.	Deposition Rate
1.2 mm (.045 in.)	130 A	22 V	381 cm/min (150 in./min)	87 %	12.7 mm (1/2 in.)	1.8 kg/h (3.9 lbs/h)
1.2 mm (.045 in.)	190 A	26 V	660 cm/min (260 in./min)	87 %	12.7 mm (1/2 in.)	2.4 kg/h (5.2 lbs/h)
1.2 mm (.045 in.)	220 A	27 V	965 cm/min (380 in./min)	88 %	19 mm (3/4 in.)	3.6 kg/h (7.9 lbs/h)
1.2 mm (.045 in.)	245 A	29 V	1321 cm/min (520 in./min)	88 %	19 mm (3/4 in.)	4.9 kg/h (10.8 lbs/h)

Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage
130-200 A	1.2 mm (.045 in.)	9.5-12.7 mm (3/8-1/2 in.)	22-26 V

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Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage
200-225 A	1.2 mm (.045 in.)	12.7-19 mm (1/2-3/4 in.)	24-27 V
225-265 A	1.2 mm (.045 in.)	19-25.4 mm (3/4-1 in.)	26-29 V