

Dual Shield II 80-Ni1 H4

Dual Shield II 80-Ni1H4 produces diffusible Hydrogen levels of <4mL/100g over a wide range of welding parameters. Applications include petrochemical equipment, bridge fabrication, offshore oil construction, ship fabrication railcar, and heavy machinery.

Specifications

Classifications	AWS A5.36 : E81T1-M21A6-Ni1-H4 AWS A5.29 : E81T1-Ni1MJDH4
Approvals	ABS : 3YSA(H5) BV CWB : AWS A5.29 DNV : IV YMS(H5) LR : 4Y40S(H10) MIL-E-24403/1 : MIL-81T1-Ni1M VdTUV
Industry	Railcars Mobile Equipment Industrial and General Fabrication Civil Construction Bridge Construction Ship/Barge Building

Approvals are based on factory location. Please contact ESAB for more information.

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
75% Ar - 25% CO₂				
Stress Relieved 2 hour(s) 621 °C	505 MPa	570 MPa	28 %	71 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
Stress Relieved	-40 °C	68 J
Stress Relieved	-29 °C	122 J

Typical Weld Metal Analysis %

S	P
75% Ar - 25% CO₂	
0.009	0.014

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Efficiency (%)	Deposition Rate
75% Ar - 25% CO₂					
1.6 mm	300 A	30 V	635 cm/min	87 %	4.63 kg/h
1.6 mm	410 A	33 V	889 cm/min	88 %	6.35 kg/h
1.6 mm	365 A	33 V	762 cm/min	86 %	5.58 kg/h
1.2 mm	290 A	33 V	1270 cm/min	87 %	4.85 kg/h
1.4 mm	155 A	25 V	381 cm/min	87 %	2 kg/h
1.2 mm	150 A	28 V	508 cm/min	86 %	1.91 kg/h
1.2 mm	250 A	30 V	1016 cm/min	87 %	3.86 kg/h
1.4 mm	360 A	36 V	1143 cm/min	85 %	6.03 kg/h
2.0 mm	450 A	31 V	655 cm/min	85 %	6.71 kg/h
2.0 mm	250 A	26 V	284 cm/min	85 %	2.9 kg/h

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Efficiency (%)	Deposition Rate
1.2 mm	210 A	29 V	762 cm/min	86 %	2.86 kg/h
2.0 mm	350 A	28 V	447 cm/min	85 %	4.76 kg/h
1.4 mm	245 A	28 V	635 cm/min	86 %	3.31 kg/h
1.4 mm	310 A	33 V	889 cm/min	85 %	4.63 kg/h
1.6 mm	190 A	27 V	381 cm/min	87 %	2.77 kg/h

Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
220-280 A	1.4 mm	15.9-19 mm	25-29 V	508-762 mm/min
225-265 A	1.2 mm	19-25.4 mm	27-29 V	965-1321 mm/min
130-200 A	1.2 mm	9.5-12.7 mm	22-26 V	381-660 mm/min
340-470 A	1.4 mm	19-25.4 mm	27-31 V	864-1194 mm/min
290-350 A	1.6 mm	19-25.4 mm	26-30 V	559-838 mm/min
200-225 A	1.2 mm	12.7-19 mm	24-27 V	660-965 mm/min
185-285 A	1.6 mm	15.9-19 mm	24-28 V	279-508 mm/min
285-340 A	1.6 mm	19-25.4 mm	27-30 V	508-762 mm/min
280-320 A	1.4 mm	19-25.4 mm	26-31 V	762-1016 mm/min
340-400 A	1.6 mm	25.4-31.75 mm	28-32 V	762-1067 mm/min
230-340 A	1.4 mm	15.9-19 mm	25-29 V	584-864 mm/min
130-220 A	1.4 mm	12.7-15.9 mm	22-26 V	279-508 mm/min
110-230 A	1.4 mm	12.7-15.9 mm	22-26 V	279-584 mm/min
185-290 A	1.6 mm	15.9-25.4 mm	24-28 V	279-559 mm/min