

Dual Shield II 81-Ni1 H4

Dual Shield II 81-Ni1 H4 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.

Classifications	AWS A5.29 : E81T1-Ni1CJ-H4 AWS A5.36 : E81T1-C1A4Ni1-H4
Approvals	MIL-81T1-Ni1-HYC MIL-DTL-24403/1F MIL-E-24403/1D

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

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Reduction in Area	Elongation
100% CO₂				
As Welded	560 MPa (81 ksi)	615 MPa (89 ksi)	71 %	28 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
100% CO₂		
As Welded	-29 °C (-20 °F)	101 J (75 ft-lb)
As Welded	-40 °C (-40 °F)	92 J (68 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni
0.03	1.12	0.37	0.008	0.006	0.95

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	TTW Dist.	Deposition Efficiency %
100% CO₂						
1.6 mm (1/16 in.)	290-350 A	26-30 V	559-838 cm/min (220-330 in./min)	-	19-25.4 mm (3/4-1 in.)	-
1.6 mm (1/16 in.)	185-290 A	24-28 V	279-559 cm/min (110-220 in./min)	-	15.9-25.4 mm (5/8-1 in.)	-
1.4 mm (.052 in.)	280-320 A	26-31 V	762-1016 cm/min (300-400 in./min)	-	19-25.4 mm (3/4-1 in.)	-
1.4 mm (.052 in.)	220-280 A	25-29 V	508-762 cm/min (200-300 in./min)	-	15.9-19 mm (5/8-3/4 in.)	-
1.4 mm (.052 in.)	130-220 A	22-26 V	279-508 cm/min (110-200 in./min)	-	12.7-15.9 mm (1/2-5/8 in.)	-
1.2 mm (.045 in.)	225-265 A	26-29 V	965-1321 mm/min (380-520 in./min)	-	19-25.4 mm (3/4-1 in.)	-
1.2 mm (.045 in.)	200-225 A	24-27 V	660-965 cm/min (260-380 in./min)	-	12.7-19 mm (1/2-3/4 in.)	-
1.2 mm (.045 in.)	130-200 A	22-26 V	381-660 cm/min (150-260 in./min)	-	9.5-12.7 mm (3/8-1/2 in.)	-
1.2 mm (.045 in.)	150 A	28 V	508 cm/min (200 in./min)	1.91 kg/h (4.2 lb/h)	-	86 %
1.2 mm (.045 in.)	210 A	29 V	762 cm/min (300 in./min)	2.86 kg/h (6.3 lb/h)	-	86 %
1.2 mm (.045 in.)	250 A	30 V	1016 cm/min (400 in./min)	3.86 kg/h (8.5 lb/h)	-	87 %
1.2 mm (.045 in.)	290 A	33 V	1270 cm/min (500 in./min)	4.85 kg/h (10.7 lb/h)	-	87 %
1.4 mm (.052 in.)	155 A	25 V	381 cm/min (150 in./min)	2 kg/h (4.4 lb/h)	-	87 %
1.4 mm (.052 in.)	245 A	28 V	635 cm/min (250 in./min)	3.31 kg/h (7.3 lb/h)	-	86 %
1.4 mm (.052 in.)	310 A	33 V	889 cm/min (350 in./min)	4.63 kg/h (10.2 lb/h)	-	85 %
1.4 mm (.052 in.)	360 A	36 V	1143 cm/min (450 in./min)	6.03 kg/h (13.3 lb/h)	-	85 %



Dual Shield II 81-Ni1 H4

Deposition Data						
Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	TTW Dist.	Deposition Efficiency %
1.6 mm (1/16 in.)	190 A	27 V	381 cm/min (150 in./min)	2.77 kg/h (6.1 lb/h)	-	87 %
1.6 mm (1/16 in.)	300 A	30 V	635 cm/min (250 in./min)	4.63 kg/h (10.2 lb/h)	-	87 %
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	5.58 kg/h (12.3 lb/h)	-	86 %
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	6.35 kg/h (14 lb/h)	-	88 %