

Dual Shield II 100-D1

Dual Shield II 100-D1 is an all-position flux cored electrode specially formulated to weld quenched and tempered steels that require a postweld heat treatment using 75% Ar / 25% CO₂ shielding gas. Dual Shield II 100-D1 was designed to weld oil field components made of 4130, 8630, API X-80 and similar steels.

Specifications

Classifications	ASME SFA 5.36 ASME SFA 5.29 AWS A5.36 : E101T1-M21A4-D1 AWS A5.29 : E101T1-GM
Industry	Mobile Equipment Civil Construction Industrial and General Fabrication

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
75% Ar - 25% CO₂				
As Welded	650 MPa (94 ksi)	705 MPa (102 ksi)	23 %	58 %
Stress Relieved 8 hour(s) 635 °C (1175 °F)	585 MPa (85 ksi)	650 MPa (94 ksi)	26 %	58 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
Stress Relieved 8 hour(s) 635 °C (1175 °F)	-32 °C (-25 °F)	27 J (20 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Mo
75% Ar - 25% CO₂						
0.06	1.60	0.40	0.01	0.009	0.82	0.33

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
75% Ar - 25% CO₂					
1.6 mm (1/16 in.)	300 A	30 V	35 cm/min (250 in./min)	87 %	4.6 kg/h (10.2 lbs/h)
1.2 mm (.045 in.)	290 A	33 V	1270 cm/min (500 in./min)	87 %	4.8 kg/h (10.7 lbs/h)
1.2 mm (.045 in.)	210 A	29 V	762 cm/min (300 in./min)	86 %	2.8 kg/h (6.3 lbs/h)
1.6 mm (1/16 in.)	190 A	27 V	38 cm/min (150 in./min)	87 %	2.8 kg/h (6.1 lbs/h)
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	86 %	5.5 kg/h (12.3 lbs/h)
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	88 %	6.3 kg/h (14.0 lbs/h)
1.4 mm (.052 in.)	430 A	37 V	1524 cm/min (600 in./min)	87 %	8.0 kg/h (17.6 lbs/h)
1.2 mm (.045 in.)	150 A	28 V	508 cm/min (200 in./min)	86 %	1.9 kg/h (4.2 lbs/h)
1.4 mm (.052 in.)	360 A	36 V	1143 cm/min (450 in./min)	85 %	6.0 kg/h (13.3 lbs/h)

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
1.4 mm (.052 in.)	310 A	33 V	889 cm/min (350 in./min)	85 %	4.6 kg/h (10.2 lbs/h)
1.4 mm (.052 in.)	155 A	25 V	381 cm/min (150 in./min)	87 %	2.0 kg/h (4.4 lbs/h)
1.2 mm (.045 in.)	250 A	30 V	1016 cm/min (400 in./min)	87 %	3.9 kg/h (8.5 lbs/h)
1.4 mm (.052 in.)	245 A	28 V	635 cm/min (250 in./min)	86 %	3.3 kg/h (7.3 lbs/h)

Recommended Welding Parameters

Wire Diameter	Current	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
1.2 mm (.045 in.)	130-200 A	9.5-12.7 mm (3/8-1/2 in.)	22-26 V	381-660 cm/min (150-260 in./min)
1.2 mm (.045 in.)	200-225 A	12.7-19 mm (1/2-3/4 in.)	24-27 V	660-965 cm/min (260-380 in./min)
1.2 mm (.045 in.)	225-265 A	19-25.4 mm (3/4-1 in.)	27-29 V	965-1321 cm/min (380-520 in./min)
1.4 mm (.052 in.)	135-250 A	12.7-16 mm (1/2-5/8 in.)	22-26 V	279-584 cm/min (110-230 in./min)
1.4 mm (.052 in.)	250-295 A	16-19 mm (5/8-3/4 in.)	25-29 V	584-864 cm/min (230-340 in./min)
1.4 mm (.052 in.)	295-355 A	19-25.4 mm (3/4-1 in.)	27-31 V	864-1194 cm/min (340-470 in./min)
1.6 mm (1/16 in.)	185-285 A	16-19 mm (5/8-3/4 in.)	24-28 V	279-508 cm/min (110-200 in./min)
1.6 mm (1/16 in.)	285-340 A	19-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)
1.6 mm (1/16 in.)	340-400 A	25.4-31.75 mm (1-1.25 in.)	28-32 V	762-1067 cm/min (300-420 in./min)