

Dual Shield II 100

Dual Shield II 100 is an all-position flux cored electrode that combines a high strength deposit with excellent impact toughness and low diffusible hydrogen levels. The rutile basic slag system produces a smooth spray-like transfer with reduced spatter and low post weld cleanup. Dual Shield II 100 is designed to join high strength steels such as HY-80 and T-1 the as welded or stress relieved condition using a 75% Ar / 25% CO₂ shielding gas. It is especially well suited for high tensile steels that are used in sub-zero temperatures. The weld metal analysis is similar to an E10018-M low hydrogen electrode.

Classifications:	AWS A5.29:E101T1-K3MH4, AWS A5.36:E101T1-M21A2-K3H4, ASME SFA 5.29, ASME SFA 5.36
Industry or Segmentation:	Mobile Equipment, Industrial and General Fabrication

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Reduction in Area	Elongation
75% Ar - 25% CO₂				
As Welded	700 MPa (101 ksi)	755 MPa (109 ksi)	60 %	21 %
Stress Relieved 1 hr 566 °C (1050 °F)	685 MPa (99 ksi)	760 MPa (110 ksi)	60 %	22 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
As Welded	-18 °C (0 °F)	65 J (48 ft-lb)
As Welded	-29 °C (-20 °F)	54 J (40 ft-lb)
As Welded	-40 °C (-40 °F)	43 J (32 ft-lb)
As Welded	-51 °C (-60 °F)	38 J (28 ft-lb)
Stress Relieved 1 hr 566 °C (1050 °F)	-18 °C (0 °F)	45 J (33 ft-lb)
Stress Relieved 1 hr 566 °C (1050 °F)	-29 °C (-20 °F)	41 J (30 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Mo
75% Ar - 25% CO₂						
0.05	1.45	0.44	0.01	0.012	1.70	0.40

Deposition Data

Diameter	Amps	Volts	Wire Feed Speed	Deposition Rate	Efficiency
75% Ar - 25% CO₂					
1.2 mm (.045 in.)	150 A	28 V	508 cm/min (200 in./min)	1.9 kg/h (4.2 lb/h)	86 %
1.2 mm (.045 in.)	210 A	29 V	762 cm/min (300 in./min)	2.8 kg/h (6.3 lb/h)	86 %
1.2 mm (.045 in.)	250 A	30 V	1016 cm/min (400 in./min)	3.9 kg/h (8.5 lb/h)	87 %
1.2 mm (.045 in.)	290 A	33 V	1270 cm/min (500 in./min)	4.8 kg/h (10.7 lb/h)	87 %

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Deposition Data

Diameter	Amps	Volts	Wire Feed Speed	Deposition Rate	Efficiency
1.4 mm (.052 in.)	155 A	25 V	381 cm/min (150 in./min)	2.0 kg/h (4.4 lb/h)	87 %
1.4 mm (.052 in.)	245 A	28 V	635 cm/min (250 in./min)	3.3 kg/h (7.3 lb/h)	86 %
1.4 mm (.052 in.)	310 A	33 V	889 cm/min (350 in./min)	4.6 kg/h (10.2 lb/h)	85 %
1.4 mm (.052 in.)	360 A	36 V	1143 cm/min (450 in./min)	6.0 kg/h (13.3 lb/h)	85 %
1.4 mm (.052 in.)	430 A	37 V	1524 cm/min (600 in./min)	8.0 kg/h (17.6 lb/h)	87 %
1.6 mm (1/16 in.)	190 A	27 V	38 cm/min (150 in./min)	2.8 kg/h (6.1 lb/h)	87 %
1.6 mm (1/16 in.)	300 A	30 V	35 cm/min (250 in./min)	4.6 kg/h (10.2 lb/h)	87 %
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	5.5 kg/h (12.3 lb/h)	86 %
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	6.3 kg/h (14.0 lb/h)	88 %

Recommended Welding Parameters

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