

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.

Specifications

Classifications	SFA/AWS A5.29 : E101T1-K3MH4
Industry	Mobile Equipment Industrial and General Fabrication

Alloy Type	Low Alloy 2.0% Ni
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Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
M21			
Stress Relieved 1 hour(s) 566 °C (1051 °F)	685 MPa (99 ksi)	760 MPa (110 ksi)	22 %
As Welded	700 MPa (102 ksi)	755 MPa (110 ksi)	21 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
M21		
Stress Relieved	-18 °C (0 °F)	45 J (33 ft-lb)
As Welded	-18 °C (0 °F)	65 J (48 ft-lb)
Stress Relieved	-29 °C (-20 °F)	41 J (30 ft-lb)
As Welded	-40 °C (-40 °F)	43 J (32 ft-lb)
As Welded	-51 °C (-60 °F)	38 J (28 ft-lb)
As Welded	-29 °C (-20 °F)	54 J (40 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Mo
0.05	1.45	0.44	0.01	0.012	1.70	0.40

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
1.2 mm (0.045 in.)	120-310 A	23-28 V	3.8-13.2 m/min (150-520 in./min)	1.2-4.8 kg/h (2.6-10. lbs/h)
1.6 mm (1/16 in.)	160-435 A	24-29 V	2.8-10.67 m/min (110-420 in./min)	1.6-7.1 kg/h (3.5-15. lbs/h)

Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
130-200 A	1.2 mm (.045 in.)	9.5-12.7 mm (3/8-1/2 in.)	22-26 V	381-660 cm/min (150-260 in./min)
285-340 A	1.6 mm (1/16 in.)	19-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)
340-400 A	1.6 mm (1/16 in.)	25.4-31.75 mm (1-1.25 in.)	28-32 V	762-1067 cm/min (300-420 in./min)
225-265 A	1.2 mm (.045 in.)	19-25.4 mm (3/4-1 in.)	27-29 V	965-1321 cm/min (380-520 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
250-295 A	1.4 mm (.052 in.)	16-19 mm (5/8-3/4 in.)	25-29 V	584-864 cm/min (230-340 in./min)
295-355 A	1.4 mm (.052 in.)	19-25.4 mm (3/4-1 in.)	27-31 V	864-1194 cm/min (340-470 in./min)
200-225 A	1.2 mm (.045 in.)	12.7-19 mm (1/2-3/4 in.)	24-27 V	660-965 cm/min (260-380 in./min)
135-250 A	1.4 mm (.052 in.)	12.7-16 mm (1/2-5/8 in.)	22-26 V	279-584 cm/min (110-230 in./min)
185-285 A	1.6 mm (1/16 in.)	16-19 mm (5/8-3/4 in.)	24-28 V	279-508 cm/min (110-200 in./min)