

Dual Shield II 90-K2

Dual Shield II 90-K2 is an all-position, high performance flux cored electrode with low diffusible hydrogen levels. This wire provides a smooth stable arc, low spatter, and easy slag removal similar to other Dual Shield II products. Dual Shield II 90-K2 was developed for use on commercial grades of HY-80, ASTM A710, A514 and A517 and other similar HSLA low alloy steels.

Specifications

Classifications	ASME SFA 5.36 ASME SFA 5.29 AWS A5.36 : E91T1-M21P4-K2-DH8 AWS A5.36 : E91T1-M21A6-K2-DH8 AWS A5.29 : E91T1-K2M-DH8
Industry	Mobile Equipment Ship/Barge Building Industrial and General Fabrication

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
75% Ar - 25% CO₂			
As Welded	605 MPa (88 ksi)	650 MPa (94 ksi)	23 %
Stress Relieved 1 hour(s) 621 °C (1150 °F)	600 MPa (87 ksi)	660 MPa (96 ksi)	26 %
Stress Relieved 10 hour(s) 579 °C (1075 °F)	520 MPa (76 ksi)	600 MPa (87 ksi)	26 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
Stress Relieved	-40 °C (-40 °F)	54 J (40 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni
75% Ar - 25% CO₂					
0.06	1.42	0.33	0.01	0.014	1.50

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)
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	88 %	6.4 kg/h (14.0 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)
1.2 mm (.045 in.)	290 A	33 V	1270 cm/min (500 in./min)	87 %	4.9 kg/h (10.7 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)

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
1.6 mm (1/16 in.)	450 A	33 V	1016 cm/min (400 in./min)	87 %	7.3 kg/h (16.0 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)
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)
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	86 %	5.6 kg/h (12.3 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)
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)
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.)	16-25.4 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)
285-340 A	1.6 mm (1/16 in.)	16-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)