

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.

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

Typical Tensile Properties

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

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
Stress Relieved 1hr 621°C (1150°F)	-40 °C (-40 °F)	54 J (40 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni
0.06	1.42	0.33	0.01	0.014	1.50

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	Deposition 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)	4.9 kg/h (10.7 lb/h)	87 %
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)	5.6 kg/h (12.3 lb/h)	86 %
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	6.4 kg/h (14.0 lb/h)	88 %
1.6 mm (1/16 in.)	450 A	33 V	1016 cm/min (400 in./min)	7.3 kg/h (16.0 lb/h)	87 %

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Recommended Welding Parameters

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