

Dual Shield II 81-K2

The wire produces a smooth stable arc and low spatter levels using a 100% CO₂ shielding gas. Dual Shield II 81-K2 was developed for higher tensile steels such as ASTM A302, A533 Class I and A537. Applications include ship fabrication, offshore oil rigs, and heavy equipment construction. This wire is an excellent choice for welding ASTM steels A302, A533 Class I and A537. Dual Shield II 81-K2 produces a smooth stable arc and low spatter levels using 100% CO₂ shielding gas. Applications include ship building, offshore oilrigs, and heavy equipment construction.

Classifications	AWS A5.29 : E81T1-K2C-H8 AWS A5.36 : E81T1-C1A6-K2-H8 ASME SFA 5.36 ASME SFA 5.29
Industry	Civil Construction Industrial and General Fabrication Mobile Equipment Railcars Ship/Barge Building

Welding Current	DC+
Diffusible Hydrogen	< 4 ml/100g
Alloy Type	C Mn Ni
Shielding Gas	C1 (EN ISO 14175)

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Reduction in Area	Elongation
100% CO₂				
As Welded	515 MPa (74 ksi)	570 MPa (82 ksi)	73 %	27 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
100% CO₂		

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni
.025	1.18	0.49	0.009	0.013	1.44

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	Deposition Efficiency %
100% CO₂					
1.2 mm (.045 in.)	150 A	28 V	508 cm/min (200 in./min)	1.91 kg/h (4.2 lb/h)	86 %
1.2 mm (.045 in.)	210 A	29 V	762 cm/min (300 in./min)	2.86 kg/h (6.3 lb/h)	86 %
1.2 mm (.045 in.)	250 A	30 V	1016 cm/min (400 in./min)	3.86 kg/h (8.5 lb/h)	87 %
1.4 mm (.052 in.)	155 A	25 V	381 cm/min (150 in./min)	2.00 kg/h (4.4 lb/h)	87 %
1.4 mm (.052 in.)	245 A	28 V	635 cm/min (250 in./min)	3.31 kg/h (7.3 lb/h)	86 %
1.4 mm (.052 in.)	310 A	33 V	889 cm/min (350 in./min)	4.63 kg/h (10.2 lb/h)	85 %
1.4 mm (.052 in.)	360 A	36 V	1143 cm/min (450 in./min)	6.03 kg/h (13.3 lb/h)	85 %
1.6 mm (1/16 in.)	190 A	27 V	38 cm/min (150 in./min)	2.77 kg/h (6.1 lb/h)	87 %
1.6 mm (1/16 in.)	300 A	30 V	635 cm/min (250 in./min)	4.63 kg/h (10.2 lb/h)	87 %
1.6 mm (1/16 in.)	365 A	33 V	762 cm/min (300 in./min)	5.58 kg/h (12.3 lb/h)	86 %
1.6 mm (1/16 in.)	410 A	33 V	889 cm/min (350 in./min)	6.35 kg/h (14 lb/h)	88 %

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Recommended Welding Parameters

Wire Diameter	Current	Voltage	TTW Dist.	Wire Feed Speed
100% CO₂				
1.2 mm (.045 in.)	135-205 A	23-26 V	9.5-12.7 mm (3/8-1/2 in.)	381-660 cm/min (150-260 in./min)
1.2 mm (.045 in.)	205-230 A	25-27 V	12.7-19 mm (1/2-3/4 in.)	660-965 cm/min (260-380 in./min)
1.2 mm (.045 in.)	230-265 A	26-30 V	19-25.4 mm (3/4-1 in.)	965-1321 cm/min (380-520 in./min)
1.4 mm (.052 in.)	125-235 A	23-26 V	12.7-16 mm (1/2-5/8 in.)	279-584 cm/min (110-230 in./min)
1.4 mm (.052 in.)	235-290 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.)	290-350 A	29-31 V	19-25.4 mm (3/4-1 in.)	864-1194 cm/min (340-470 in./min)
1.6 mm (1/16 in.)	165-270 A	25-28 V	16-19 mm (5/8-3/4 in.)	279-508 cm/min (110-200 in./min)
1.6 mm (1/16 in.)	270-345 A	27-30 V	19-25.4 mm (3/4-1 in.)	508-762 cm/min (200-300 in./min)
1.6 mm (1/16 in.)	345-415 A	28-32 V	25.4-31.75 mm (1-1.25 in.)	762-1067 cm/min (300-420 in./min)