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.

Specifications	
Classifications	ASME SFA 5.36 ASME SFA 5.29 AWS A5.36 : E81T1-C1A6-K2-H8 AWS A5.29 : E81T1-K2C-H8
Approvals	ABS : 5Y400SA H5 BV : SA5Y50, H5/SA5Y40, H5 CCS : 5Y42SH5 CE : EN 13479 ClassNK : KSWL3G(C)H5, KSW54Y40G(C)H5 (C1) CWB : E551T1-C1A6-K2-H4 DNV-GL : V Y40MS(H5) (C1) KR : L3SG(C) H5 & 5Y40SG(C) H5 LR : 5Y40S H5 (C1) RINA : 5YS H10 (C1) RS : 5Y40S H5, 5Y50S H5 (C1) UKCA : EN 13479
Industry	Civil Construction Ship/Barge Building Mobile Equipment Railcars Industrial and General Fabrication

Approvals are based on factory location. Please contact ESAB for more information.

Welding Current	DC+
Alloy Type	C Mn Ni
Shielding Gas	C1 (EN ISO 14175)

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

Typical Charpy V-Notch Properties		
Condition	**Testing Temperature**	**Impact Value**
100% CO2		
As Welded	-18 °C (0 °F)	136 J (100 ft-lb)
As Welded	-51 °C (-60 °F)	81 J (60 ft-lb)
As Welded	-29 °C (-20 °F)	121 J (89 ft-lb)

Typical Weld Metal Analysis %					
C	**Mn**	**Si**	**S**	**P**	**Ni**
100% CO2					
.025	1.18	0.49	0.009	0.013	1.44

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

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