

Dual Shield 70 ULTRA PLUS

Dual Shield 70 Ultra Plus is an all-position wire that is uniquely designed to provide high deposition, outstanding all position performance and a fume emission rate approaching that of solid wires. It is optimized for use with 90% Ar/10% CO₂ shielding but works well with mixes ranging from 75% Ar/25% CO₂ to 95% Ar/5% CO₂. Among the outstanding features of Dual Shield 70 Ultra Plus are a very wide operating window, very high out of position deposition rates (vertical up and overhead at over 12 lb/hr), and welds that are virtually spatter free. Dual Shield 70 Ultra Plus may be used in a variety of applications including railcar, automotive, heavy equipment, and general structural steel fabrication. It is especially recommended in applications where reduction of welding fume is a priority.

Specifications

Classifications	ISO : 173632-B T493T1-1MA- U ASME SFA 5.36 ASME SFA 5.20 AWS A5.36 : E71T1-M20A2-CS1 AWS A5.36 : E71T1-M21A4-CS1 AWS A5.20 : E71T-1M/T-9M
Approvals	CWB CSA W48 : E491T-1M-H16 ABS
Industry	Mobile Equipment Railcars Steel Industry Automotive Ship/Barge Building Bridge Construction Civil Construction Industrial and General Fabrication Process

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

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
100% CO₂				
As Welded	550 MPa (80 ksi)	605 MPa (88 ksi)	27 %	-
75% Ar - 25% CO₂				
As Welded	525 MPa (76 ksi)	595 MPa (86 ksi)	29 %	-
As Welded	570 MPa (83 ksi)	605 MPa (88 ksi)	25 %	56 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar / 25% CO₂		
As Welded	-18 °C (0 °F)	72 J (53 ft-lb)
As Welded	-29 °C (-20 °F)	54 J (40 ft-lb)
90% Ar / 10% CO₂		
As Welded	-18 °C (0 °F)	92 J (68 ft-lb)
As Welded	-29 °C (-20 °F)	58 J (43 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P
100% CO₂				
0.04	1.2	0.7	0.012	0.015
75% Ar - 25% CO₂				
0.04	1.2	0.6	0.012	0.016

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
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92% Ar - 8% CO₂

1.2 mm (.045 in.)	245 A	27.5 V	1016 cm/min (400 in./min)	86 %	3.7 kg/h (8.1 lbs/h)
1.4 mm (.052 in.)	265 A	26 V	762 cm/min (300 in./min)	86 %	3.7 kg/h (8.2 lbs/h)
1.6 mm (1/16 in.)	545 A	30 V	1270 cm/min (500 in./min)	87 %	8.3 kg/h (18.3 lbs/h)
1.2 mm (.045 in.)	200 A	26.5 V	762 cm/min (300 in./min)	86 %	2.7 kg/h (6.0 lbs/h)
1.4 mm (.052 in.)	365 A	29 V	1270 cm/min (500 in./min)	87 %	6.3 kg/h (13.8 lbs/h)
1.2 mm (.045 in.)	335 A	30.5 V	1524 cm/min (600 in./min)	87 %	5.5 kg/h (12.2 lbs/h)
1.6 mm (1/16 in.)	315 A	25.5 V	635 cm/min (250 in./min)	86 %	4.2 kg/h (9.2 lbs/h)
1.2 mm (.045 in.)	150 A	25.5 V	508 cm/min (200 in./min)	84 %	1.8 kg/h (3.9 lbs/h)
1.4 mm (.052 in.)	205 A	24.5 V	508 cm/min (200 in./min)	86 %	2.5 kg/h (5.5 lbs/h)
1.6 mm (1/16 in.)	432 A	28.5 V	1016 cm/min (400 in./min)	87 %	6.7 kg/h (14.7 lbs/h)
1.2 mm (.045 in.)	293 A	29 V	1270 cm/min (500 in./min)	87 %	4.6 kg/h (10.1 lbs/h)
1.4 mm (.052 in.)	335 A	27.5 V	1016 cm/min (400 in./min)	87 %	5.0 kg/h (11.1 lbs/h)
1.6 mm (1/16 in.)	410 A	27.5 V	889 cm/min (350 in./min)	86 %	5.7 kg/h (12.7 lbs/h)
1.6 mm (1/16 in.)	210 A	24.5 V	381 cm/min (150 in./min)	86 %	2.5 kg/h (5.5 lbs/h)
1.4 mm (.052 in.)	465 A	31.5 V	1524 cm/min (600 in./min)	87 %	7.5 kg/h (16.6 lbs/h)
1.6 mm (1/16 in.)	360 A	26.5 V	762 cm/min (300 in./min)	86 %	4.9 kg/h (10.9 lbs/h)
1.4 mm (.052 in.)	157 A	24 V	381 cm/min (150 in./min)	86 %	1.8 kg/h (3.9 lbs/h)

Recommended Welding Parameters

Wire Diameter	Current	Voltage	Wire Feed Speed
75% Ar - 25% CO₂			
1.2 mm (.045 in.)	150-200 A	25.5-26.5 V	508-762 cm/min (200-300 in./min)
1.2 mm (.045 in.)	245-293 A	27.5-29 V	1016-1270 cm/min (400-500 in./min)
1.2 mm (.045 in.)	335 A	30.5 V	1524 cm/min (600 in./min)
1.4 mm (.052 in.)	157-205 A	24-24.5 V	381-508 cm/min (150-200 in./min)
1.4 mm (.052 in.)	265-335 A	26-27.5 V	762-1016 cm/min (300-400 in./min)

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Wire Diameter	Current	Voltage	Wire Feed Speed
1.4 mm (.052 in.)	365-465 A	29-31.5 V	1270-1524 cm/min (500-600 in./min)
1.6 mm (1/16 in.)	210-315 A	24.5-25.5 V	381-635 cm/min (150-250 in./min)
1.6 mm (1/16 in.)	360-410 A	26.5-27.5 V	762-889 cm/min (300-350 in./min)
1.6 mm (1/16 in.)	432-545 A	28.5-30 V	1016-1270 cm/min (400-500 in./min)