

Dual Shield II 70 Ultra

Dual Shield II 70 Ultra is an all-position flux cored wire that displays exceptional impact properties when used with 75% Ar/25% CO₂. The improved properties qualify this wire to the Navys "HY" classification. The "Ultra" series produces smoother arc characteristics and lower welding fumes. Dual Shield II 70 Ultra was developed to join low and medium carbon steel. The Military classification allows Dual Shield II 70 Ultra to be used for attaching steels of less than 81 ksi (560 MPa) yield to HY-80 and HY-100. Commercial applications include construction, shipbuilding, railcar, and heavy equipment industries.

Specifications

Classifications	AWS A5.20 : E71T-1M-Jh8/T-9M-JH8/T12-M-JH8 ASME SFA 5.36 ASME SFA 5.20 AWS A5.36 : E71T1-M21A4-CS2-H8
Approvals	CWB : CSA W48 491T-1M-H8 MIL : 71T-1-HYM MIL : 71T-1M DNL-GL LR DB BV CL ABS
Industry	Mobile Equipment Railcars Ship/Barge Building Bridge Construction Civil Construction Industrial and General Fabrication

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

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
75% Ar - 25% CO₂				
As Welded	490 MPa (72 ksi)	560 MPa (81 ksi)	29 %	75 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
As Welded	-18 °C (0 °F)	159 J (117 ft-lb)
As Welded	-29 °C (-20 °F)	95 J (70 ft-lb)
As Welded	-40 °C (-40 °F)	108 J (80 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P
75% Ar - 25% CO₂				
0.04	1.0	0.4	-	0.008
75% Ar- 25% CO₂				
-	-	-	0.009	-

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
75% Ar - 25% CO₂					
0.9 mm (.035 in.)	110 A	22 V	635 cm/min (250 in./min)	84.00 %	1.32 kg/h (2.9 lbs/h)

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
0.9 mm (.035 in.)	215 A	28 V	1905 cm/min (750 in./min)	87.00 %	4.08 kg/h (9.0 lbs/h)
1.4 mm (.052 in.)	150 A	21 V	381 cm/min (150 in./min)	83.25 %	1.82 kg/h (4.01 lbs/h)
0.9 mm (.035 in.)	180 A	25.5 V	1394 cm/min (550 in./min)	86.00 %	2.94 kg/h (6.5 lbs/h)
1.2 mm (.045 in.)	210 A	23 V	762 cm/min (300 in./min)	85.51 %	2.72 kg/h (5.99 lbs/h)
1.2 mm (.045 in.)	247 A	24.5 V	1016 cm/min (400 in./min)	87.55 %	3.68 kg/h (8.10 lbs/h)
0.9 mm (.035 in.)	160 A	24.5 V	1206 cm/min (475 in./min)	85.00 %	2.54 kg/h (5.6 lbs/h)
1.2 mm (.045 in.)	275 A	26 V	1270 cm/min (500 in./min)	82.08 %	4.33 kg/h (9.52 lbs/h)
0.9 mm (.035 in.)	140 A	24 V	1016 cm/min (400 in./min)	85.00 %	2.13 kg/h (4.7 lbs/h)
1.2 mm (.045 in.)	145 A	22 V	508 cm/min (200 in./min)	86.15 %	1.79 kg/h (3.94 lbs/h)
75/25					
1.4 mm (.052 in.)	262 A	23.5 V	762 cm/min (300 in./min)	85.48 %	3.69 kg/h (8.12 lbs/h)
1.4 mm (.052 in.)	308 A	25 V	1016 cm/min (400 in./min)	86.31 %	4.97 kg/h (10.92 lbs/h)
1.6 mm (1/16 in.)	298 A	24.5 V	635 cm/min (250 in./min)	87.56 %	4.25 kg/h (9.33 lbs/h)
1.4 mm (.052 in.)	192 A	22 V	508 cm/min (200 in./min)	84.71 %	2.48 kg/h (5.44 lbs/h)
1.6 mm (1/16 in.)	408 A	27.5 V	1016 cm/min (400 in./min)	85.66 %	6.59 kg/h (14.49 lbs/h)
1.6 mm (1/16 in.)	203 A	23 V	381 cm/min (150 in./min)	87.15 %	2.56 kg/h (5.63 lbs/h)
1.6 mm (1/16 in.)	340 A	25.5 V	762 cm/min (300 in./min)	87.68 %	5.05 kg/h (11.10 lbs/h)
1.6 mm (1/16 in.)	375 A	26 V	889 cm/min (350 in./min)	88.35 %	6.02 kg/h (13.24 lbs/h)

Recommended Welding Parameters

Wire Diameter	Current	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
1.6 mm (1/16 in.)	340-400 A	25.4-31.8 mm (1-1.25 in.)	28-32 V	762-1066.8 cm/min (300-420 in./min)
1.6 mm (1/16 in.)	285-340 A	19-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)
1.6 mm (1/16 in.)	185-285 A	15.8-19 mm (5/8-3/4 in.)	24-28 V	279.4-508 cm/min (110-200 in./min)
1.4 mm (.052 in.)	295-355 A	19-25.4 mm (3/4-1 in.)	27-31 V	863.6-1193.8 cm/min (340-470 in./min)
1.4 mm (.052 in.)	250-295 A	15.8-19 mm (5/8-3/4 in.)	25-29 V	584.2-863.6 cm/min (230-340 in./min)

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Recommended Welding Parameters

Wire Diameter	Current	TTW Dist.	Voltage	Wire Feed Speed
1.4 mm (.052 in.)	135-250 A	12.7-15.8 mm (1/2-5/8 in.)	22-26 V	279.4-584.2 cm/min (110-230 in./min)
1.2 mm (.045 in.)	225-265 A	19-25.4 mm (3/4-1 in.)	27-29 V	965.2-1320.8 cm/min (380-520 in./min)
1.2 mm (.045 in.)	200-225 A	12.7-19 mm (1/2-3/4 in.)	24-27 V	660.4-965.2 cm/min (260-380 in./min)
1.2 mm (.045 in.)	130-200 A	9.5-12.7 mm (3/8-1/2 in.)	22-26 V	381-660.4 cm/min (150-260 in./min)
0.9 mm (.035 in.)	160-215 A	15.8 mm (5/8 in.)	24.5-28 V	1016-1905 cm/min (400-750 in./min)
0.9 mm (.035 in.)	110-140 A	15.8 mm (5/8 in.)	22-24 V	635-1016 cm/min (250-400 in./min)