

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.

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 DNL-GL MIL : 71T-1-HYM MIL : 71T-1M LR DB BV CL ABS
Industry	Civil Construction Mobile Equipment Bridge Construction Railcars Ship/Barge Building Industrial and General Fabrication

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	-40 °C (-40 °F)	108 J (80 ft-lb)
As Welded	-18 °C (0 °F)	159 J (117 ft-lb)
As Welded	-29 °C (-20 °F)	95 J (70 ft-lb)

Typical Weld Metal Analysis %

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

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Efficiency (%)	Deposition Rate
75% Ar - 25% CO₂					

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Deposition Data					
Diameter	Current	Voltage	Wire Feed Speed	Efficiency (%)	Deposition Rate
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)
1.4 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)
1.4 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.)	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.)	375 A	26 V	889 cm/min (350 in./min)	88.35 %	6.02 kg/h (13.24 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)
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)
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)
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)
1.6 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)
1.2 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)
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)
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)
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)
1.4 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)
1.4 mm (.052 in.)	192 A	22 V	508 cm/min (200 in./min)	84.71 %	2.48 kg/h (5.44 lbs/h)

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Efficiency (%)	Deposition Rate
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.)	375 A	26 V	889 cm/min (350 in./min)	88.35 %	6.02 kg/h (13.24 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)
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)
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)
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)
1.6 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)
1.2 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)
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)
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)

Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
285-340 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)
185-285 A	1.6 mm (1/16 in.)	15.8-19 mm (5/8-3/4 in.)	24-28 V	279.4-508 cm/min (110-200 in./min)
295-355 A	1.4 mm (.052 in.)	19-25.4 mm (3/4-1 in.)	27-31 V	863.6-1193.8 cm/min (340-470 in./min)
135-250 A	1.4 mm (.052 in.)	12.7-15.8 mm (1/2-5/8 in.)	22-26 V	279.4-584.2 cm/min (110-230 in./min)
340-400 A	1.6 mm (1/16 in.)	25.4-31.8 mm (1-1.25 in.)	28-32 V	762-1066.8 cm/min (300-420 in./min)
200-225 A	1.2 mm (.045 in.)	12.7-19 mm (1/2-3/4 in.)	24-27 V	660.4-965.2 cm/min (260-380 in./min)
160-215 A	0.9 mm (.035 in.)	15.8 mm (5/8 in.)	24.5-28 V	1016-1905 cm/min (400-750 in./min)
250-295 A	1.4 mm (.052 in.)	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

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