

Coreweld 77-HS

Coreweld 77-HS is a metal-cored wire designed to run at faster travel speeds, higher deposition rates and leave very few silica islands. This metal cored wire is ideal for robotic applications. Optimal performance is achieved with 90% Argon / 10% CO₂ shielding gas. .

Specifications

Classifications	ASME SFA A5.18 ASME SFA A5.36 AWS A5.36 : E70T15-M20A4-CS1-H4 AWS A5.36 : E70T15-M21A4-CS1-H4 AWS A5.18 : E70C-6M H4
Approvals	CWB : CSA W48 E491C-6M-H4 DNV-GL
Industry	Mobile Equipment Railcars Industrial and General Fabrication Automotive

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

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
90% Ar - 10% CO₂				
As Welded	425 MPa (62 ksi)	510 MPa (74 ksi)	33 %	58 %
75% Ar - 25% CO₂				
As Welded	420 MPa (61 ksi)	515 MPa (75 ksi)	32 %	60 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
As Welded	-29 °C (-20 °F)	52 J (38 ft-lb)
As Welded	-40 °C (-40 °F)	38 J (28 ft-lb)
90% Ar - 10% CO₂		
As Welded	-40 °C (-40 °F)	54 J (40 ft-lb)
As Welded	-29 °C (-20 °F)	85 J (63 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni
90% Ar - 10% CO₂					
0.04	1.00	0.70	0.015	0.01	0.40
75% Ar - 25% CO₂					
0.04	0.90	0.70	0.015	0.01	0.40

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	TTW Dist.	Deposition Rate
90% Ar - 10% CO₂						
1.2 mm (.045 in.)	330 A	32 V	1270 cm/min (500 in./min)	99 %	16 mm (5/8 in.)	5.8 kg/h (12.7 lbs/h)
1.4 mm (.052 in.)	240 A	27 V	640 cm/min (250 in./min)	95 %	16 mm (5/8 in.)	3.5 kg/h (7.7 lbs/h)
1.6 mm (1/16 in.)	460 A	32 V	890 cm/min (350 in./min)	99 %	19 mm (3/4 in.)	7.2 kg/h (15.9 lbs/h)

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Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	TTW Dist.	Deposition Rate
1.2 mm (.045 in.)	360 A	33 V	1400 cm/min (550 in./min)	99 %	16 mm (5/8 in.)	13.9 kg/h (6.3 lbs/h)
1.4 mm (.052 in.)	410 A	36 V	1330 cm/min (530 in./min)	99 %	16 mm (5/8 in.)	7.1 kg/h (15.7 lbs/h)
1.6 mm (1/16 in.)	230 A	26 V	380 cm/min (150 in./min)	91 %	19 mm (3/4 in.)	2.81 kg/h (6.2 lbs/h)
1.2 mm (.045 in.)	230 A	25 V	760 cm/min (300 in./min)	96 %	16 mm (5/8 in.)	3.5 kg/h (7.7 lbs/h)
1.2 mm (.045 in.)	260 A	28 V	890 cm/min (350 in./min)	97 %	16 mm (5/8 in.)	4.1 kg/h (9.1 lbs/h)
1.4 mm (.052 in.)	340 A	31 V	1020 cm/min (400 in./min)	99 %	16 mm (5/8 in.)	5.1 kg/h (11.2 lbs/h)
1.4 mm (.052 in.)	190 A	26 V	440 cm/min (180 in./min)	94 %	16 mm (5/8 in.)	2.5 kg/h (5.5 lbs/h)
1.2 mm (.045 in.)	290 A	29 V	1020 cm/min (400 in./min)	98 %	16 mm (5/8 in.)	4.6 kg/h (10.2 lbs/h)
1.4 mm (.052 in.)	280 A	28 V	760 cm/min (300 in./min)	97 %	16 mm (5/8 in.)	4.2 kg/h (9.2 lbs/h)
1.6 mm (1/16 in.)	510 A	36 V	1210 cm/min (480 in./min)	99 %	19 mm (3/4 in.)	9.4 kg/h (20.7 lbs/h)
1.2 mm (.045 in.)	200 A	27 V	640 cm/min (250 in./min)	95 %	16 mm (5/8 in.)	3.0 kg/h (6.5 lbs/h)
1.6 mm (1/16 in.)	290 A	27 V	510 cm/min (200 in./min)	95 %	19 mm (3/4 in.)	4.0 kg/h (8.8 lbs/h)
1.6 mm (1/16 in.)	340 A	29 V	640 cm/min (250 in./min)	98 %	19 mm (3/4 in.)	5.6 kg/h (12.3 lbs/h)
1.2 mm (.045 in.)	170 A	24 V	510 cm/min (200 in./min)	94 %	16 mm (5/8 in.)	2.4 kg/h (5.2 lbs/h)

Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
75% Ar - 25% CO₂				
200-260 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	27-28 V	635-889 cm/min (250-350 in./min)
230-340 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	26-29 V	381-635 cm/min (150-250 in./min)
190-310 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	24-27 V	457-889 cm/min (180-350 in./min)
330-390 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	29-32 V	1270-1651 cm/min (500-650 in./min)
260-330 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	26-29 V	889-1270 cm/min (350-500 in./min)
430-510 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	30-33 V	889-1219 cm/min (350-480 in./min)
370-420 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	30-32 V	1143-1397 cm/min (450-550 in./min)
310-360 A	1.2 mm (.045 in.)		30-33 V	1143-1397 cm/min (450-550 in./min)
430-510 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	32-36 V	889-1219 cm/min (350-480 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
340-410 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	31-36 V	1016-1346 cm/min (400-530 in./min)
370-430 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	28-30 V	711-889 cm/min (280-350 in./min)
280-340 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	28-31 V	762-1016 cm/min (300-400 in./min)
260-310 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	28-30 V	889-1143 cm/min (350-450 in./min)
230-370 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	24-28 V	381-711 cm/min (150-280 in./min)
190-280 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	29-28 V	457-762 cm/min (180-300 in./min)
170-260 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	24-26 V	508-889 cm/min (200-350 in./min)
340-430 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	29-32 V	635-889 cm/min (250-350 in./min)
310-370 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	27-30 V	889-1143 cm/min (350-450 in./min)
90% Ar - 10% CO₂				
200-260 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	27-28 V	635-889 cm/min (250-350 in./min)
230-340 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	26-29 V	381-635 cm/min (150-250 in./min)
190-310 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	24-27 V	457-889 cm/min (180-350 in./min)
330-390 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	29-32 V	1270-1651 cm/min (500-650 in./min)
260-330 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	26-29 V	889-1270 cm/min (350-500 in./min)
430-510 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	30-33 V	889-1219 cm/min (350-480 in./min)
370-420 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	30-32 V	1143-1397 cm/min (450-550 in./min)
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370-430 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	28-30 V	711-889 cm/min (280-350 in./min)
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230-370 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	24-28 V	381-711 cm/min (150-280 in./min)
190-280 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	29-28 V	457-762 cm/min (180-300 in./min)
170-260 A	1.2 mm (.045 in.)	16 mm (5/8 in.)	24-26 V	508-889 cm/min (200-350 in./min)

MILD STEEL

GAS-SHIELDED FLUX-CORED WIRES (FCAW/MCAW)



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Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
340-430 A	1.6 mm (1/16 in.)	19 mm (3/4 in.)	29-32 V	635-889 cm/min (250-350 in./min)
310-370 A	1.4 mm (.052 in.)	16 mm (5/8 in.)	27-30 V	889-1143 cm/min (350-450 in./min)