

Spoolarc 95

Spoolarc 95 is Military grade high strength wire used to weld HY-80 steels. Applications for Spoolarc 95 include military tanks, ships and submarines.

Specifications	
Classifications	AWS A5.28 : ER100S-1
Approvals	MIL-E-100S-1/MIL-E-23765/2
Industry	Heavy Fabrication Military Applications Ship/Barge Building Mining

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

Typical Tensile Properties				
Condition	Yield Strength	Tensile Strength	Elongation	Reduction in Area
As Welded	664 MPa (96 ksi)	728 MPa (105.5 ksi)	22 %	63 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
98% Ar – 2% CO ₂		
As Welded	-51 °C (-60 °F)	88 J (65 ft-lb)
As Welded	-18 °C (0 °F)	126 J (93 ft-lb)

Typical Wire Composition %								
C	Mn	Si	S	P	Ni	Cr	Mo	V
0.06	1.35	0.33	0.008	0.004	1.75	0.1	0.34	0.001

Deposition Data					
Diameter	Current	Voltage	Wire Feed Speed	Deposition Type	Deposition Rate
75% Ar - 25% CO ₂					
0.9 mm (.035 in.)	137 A	18 V	660 cm/min (260 in./min)	Short Arc Transfer	1.8 kg/h (4.0 lbs/h)
0.9 mm (.035 in.)	213 A	26 V	1270 cm/min (500 in./min)	Spray Transfer	3.6 kg/h (7.9 lbs/h)
1.2 mm (.045 in.)	130 A	17 V	318 cm/min (125 in./min)	Short Arc Transfer	1.4 kg/h (3.1 lbs/h)
1.6 mm (1/16 in.)	310 A	28 V	508 cm/min (200 in./min)	Spray Transfer	4.6 kg/h (10.1 lbs/h)
1.4 mm (.052 in.)	360 A	31 V	889 cm/min (350 in./min)	Spray Transfer	5.6 kg/h (12.2 lbs/h)
1.4 mm (.052 in.)	150 A	17 V	343 cm/min (135 in./min)	Short Arc Transfer	2.1 kg/h (4.5 lbs/h)
1.2 mm (.045 in.)	280 A	26 V	889 cm/min (350 in./min)	Spray Transfer	4.2 kg/h (9.2 lbs/h)
1.2 mm (.045 in.)	300 A	28 V	1016 cm/min (400 in./min)	Spray Transfer	4.8 kg/h (10.5 lbs/h)
1.4 mm (.052 in.)	200 A	20 V	483 cm/min (190 in./min)	Short Arc Transfer	2.9 kg/h (6.4 lbs/h)
1.2 mm (.045 in.)	163 A	18 V	406 cm/min (160 in./min)	Short Arc Transfer	1.8 kg/h (4.0 lbs/h)
1.2 mm (.045 in.)	340 A	30 V	1270 cm/min (500 in./min)	Spray Transfer	6.0 kg/h (13.1 lbs/h)

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Diameter	Current	Voltage	Wire Feed Speed	Deposition Type	Deposition Rate
0.9 mm (.035 in.)	113 A	16 V	559 cm/min (220 in./min)	Short Arc Transfer	1.5 kg/h (3.3 lbs/h)
0.9 mm (.035 in.)	197 A	26 V	1143 cm/min (450 in./min)	Spray Transfer	3.2 kg/h (7.1 lbs/h)
1.2 mm (.045 in.)	200 A	19 V	508 cm/min (200 in./min)	Short Arc Transfer	2.3 kg/h (5.0 lbs/h)
0.9 mm (.035 in.)	90 A	15 V	457 cm/min (180 in./min)	Short Arc Transfer	1.2 kg/h (2.7 lbs/h)
1.6 mm (1/16 in.)	290 A	26 V	457 cm/min (180 in./min)	Spray Transfer	4.1 kg/h (9.1 lbs/h)
1.4 mm (.052 in.)	173 A	18 V	406 cm/min (160 in./min)	Short Arc Transfer	2.4 kg/h (5.4 lbs/h)
1.4 mm (.052 in.)	310 A	28 V	762 cm/min (300 in./min)	Spray Transfer	4.8 kg/h (10.5 lbs/h)
1.4 mm (.052 in.)	400 A	33 V	991 cm/min (390 in./min)	Spray Transfer	6.2 kg/h (13.6 lbs/h)
1.2 mm (.045 in.)	320 A	29 V	1143 cm/min (450 in./min)	Spray Transfer	5.4 kg/h (11.8 lbs/h)
1.6 mm (1/16 in.)	390 A	36 V	711 cm/min (280 in./min)	Spray Transfer	6.4 kg/h (14.2 lbs/h)
0.9 mm (.035 in.)	160 A	19 V	762 cm/min (300 in./min)	Short Arc Transfer	2.1 kg/h (4.6 lbs/h)
0.9 mm (.035 in.)	230 A	27 V	1397 cm/min (550 in./min)	Spray Transfer	4.0 kg/h (8.7 lbs/h)
1.4 mm (.052 in.)	275 A	26 V	673 cm/min (265 in./min)	Spray Transfer	4.2 kg/h (9.3 lbs/h)
1.6 mm (1/16 in.)	370 A	34 V	660 cm/min (260 in./min)	Spray Transfer	6.0 kg/h (13.2 lbs/h)
0.9 mm (.035 in.)	180 A	25 V	1016 cm/min (400 in./min)	Spray Transfer	2.9 kg/h (6.3 lbs/h)
1.2 mm (.045 in.)	260 A	25 V	762 cm/min (300 in./min)	Spray Transfer	3.6 kg/h (7.9 lbs/h)
1.6 mm (1/16 in.)	340 A	31 V	584 cm/min (230 in./min)	Spray Transfer	5.3 kg/h (11.6 lbs/h)
98% Ar - 2% O₂					
0.9 mm (.035 in.)	137 A	18 V	660 cm/min (260 in./min)	Short Arc Transfer	1.8 kg/h (4.0 lbs/h)
0.9 mm (.035 in.)	213 A	26 V	1270 cm/min (500 in./min)	Spray Transfer	3.6 kg/h (7.9 lbs/h)
1.2 mm (.045 in.)	130 A	17 V	318 cm/min (125 in./min)	Short Arc Transfer	1.4 kg/h (3.1 lbs/h)
1.6 mm (1/16 in.)	310 A	28 V	508 cm/min (200 in./min)	Spray Transfer	4.6 kg/h (10.1 lbs/h)
1.4 mm (.052 in.)	360 A	31 V	889 cm/min (350 in./min)	Spray Transfer	5.6 kg/h (12.2 lbs/h)
1.4 mm (.052 in.)	150 A	17 V	343 cm/min (135 in./min)	Short Arc Transfer	2.1 kg/h (4.5 lbs/h)
1.2 mm (.045 in.)	280 A	26 V	889 cm/min (350 in./min)	Spray Transfer	4.2 kg/h (9.2 lbs/h)
1.2 mm (.045 in.)	300 A	28 V	1016 cm/min (400 in./min)	Spray Transfer	4.8 kg/h (10.5 lbs/h)

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Diameter	Current	Voltage	Wire Feed Speed	Deposition Type	Deposition Rate
1.4 mm (.052 in.)	200 A	20 V	483 cm/min (190 in./min)	Short Arc Transfer	2.9 kg/h (6.4 lbs/h)
1.2 mm (.045 in.)	163 A	18 V	406 cm/min (160 in./min)	Short Arc Transfer	1.8 kg/h (4.0 lbs/h)
1.2 mm (.045 in.)	340 A	30 V	1270 cm/min (500 in./min)	Spray Transfer	6.0 kg/h (13.1 lbs/h)
0.9 mm (.035 in.)	113 A	16 V	559 cm/min (220 in./min)	Short Arc Transfer	1.5 kg/h (3.3 lbs/h)
0.9 mm (.035 in.)	197 A	26 V	1143 cm/min (450 in./min)	Spray Transfer	3.2 kg/h (7.1 lbs/h)
1.2 mm (.045 in.)	200 A	19 V	508 cm/min (200 in./min)	Short Arc Transfer	2.3 kg/h (5.0 lbs/h)
0.9 mm (.035 in.)	90 A	15 V	457 cm/min (180 in./min)	Short Arc Transfer	1.2 kg/h (2.7 lbs/h)
1.6 mm (1/16 in.)	290 A	26 V	457 cm/min (180 in./min)	Spray Transfer	4.1 kg/h (9.1 lbs/h)
1.4 mm (.052 in.)	173 A	18 V	406 cm/min (160 in./min)	Short Arc Transfer	2.4 kg/h (5.4 lbs/h)
1.4 mm (.052 in.)	310 A	28 V	762 cm/min (300 in./min)	Spray Transfer	4.8 kg/h (10.5 lbs/h)
1.4 mm (.052 in.)	400 A	33 V	991 cm/min (390 in./min)	Spray Transfer	6.2 kg/h (13.6 lbs/h)
1.2 mm (.045 in.)	320 A	29 V	1143 cm/min (450 in./min)	Spray Transfer	5.4 kg/h (11.8 lbs/h)
1.6 mm (1/16 in.)	390 A	36 V	711 cm/min (280 in./min)	Spray Transfer	6.4 kg/h (14.2 lbs/h)
0.9 mm (.035 in.)	160 A	19 V	762 cm/min (300 in./min)	Short Arc Transfer	2.1 kg/h (4.6 lbs/h)
0.9 mm (.035 in.)	230 A	27 V	1397 cm/min (550 in./min)	Spray Transfer	4.0 kg/h (8.7 lbs/h)
1.4 mm (.052 in.)	275 A	26 V	673 cm/min (265 in./min)	Spray Transfer	4.2 kg/h (9.3 lbs/h)
1.6 mm (1/16 in.)	370 A	34 V	660 cm/min (260 in./min)	Spray Transfer	6.0 kg/h (13.2 lbs/h)
0.9 mm (.035 in.)	180 A	25 V	1016 cm/min (400 in./min)	Spray Transfer	2.9 kg/h (6.3 lbs/h)
1.2 mm (.045 in.)	260 A	25 V	762 cm/min (300 in./min)	Spray Transfer	3.6 kg/h (7.9 lbs/h)
1.6 mm (1/16 in.)	340 A	31 V	584 cm/min (230 in./min)	Spray Transfer	5.3 kg/h (11.6 lbs/h)

Recommended Welding Parameters

Current	Wire Diameter	Voltage	Wire Feed Speed
Short Arc Transfer			
45-90 A	0.6 mm (.023 in.)	14-16 V	381-965 cm/min (150-380 in./min)
70 A	0.6 mm (.023 in.)	15 V	762 cm/min (300 in./min)
110 A	0.6 mm (.023 in.)	23 V	1143 cm/min (450 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	Voltage	Wire Feed Speed
100-125 A	0.6 mm (.023 in.)	23-25 V	1016-1575 cm/min (400-620 in./min)
160-200 A	0.8 mm (.030 in.)	24-26 V	1270-1651 cm/min (500-650 in./min)
60-140 A	0.8 mm (.030 in.)	14-16 V	381-889 cm/min (150-350 in./min)
100 A	0.8 mm (.030 in.)	15 V	559 cm/min (220 in./min)
180 A	0.8 mm (.030 in.)	25 V	1321 cm/min (520 in./min)
90-160 A	0.9 mm (.035 in.)	15-19 V	457-762 cm/min (180-300 in./min)
200 A	0.9 mm (.035 in.)	26 V	1219 cm/min (480 in./min)
180-230 A	0.9 mm (.035 in.)	25-27 V	1016-1397 cm/min (400-550 in./min)
130 A	0.9 mm (.035 in.)	17 V	635 cm/min (250 in./min)
260-340 A	1.2 mm (.045 in.)	25-30 V	762-1270 cm/min (300-500 in./min)
130-200 A	1.2 mm (.045 in.)	17-19 V	318-508 cm/min (125-200 in./min)
160 A	1.2 mm (.045 in.)	18 V	381 cm/min (150 in./min)
300 A	1.2 mm (.045 in.)	27 V	889 cm/min (350 in./min)
160 A	1.4 mm (.052 in.)	18 V	356 cm/min (140 in./min)
150-200 A	1.4 mm (.052 in.)	17-20 V	343-483 cm/min (135-190 in./min)
275-400 A	1.4 mm (.052 in.)	26-33 V	673-991 cm/min (265-390 in./min)
325 A	1.4 mm (.052 in.)	28 V	787 cm/min (310 in./min)
290-400 A	1.6 mm (1/16 in.)	26-36 V	457-711 cm/min (180-280 in./min)
340 A	1.6 mm (1/16 in.)	27 V	508 cm/min (200 in./min)
Spray Transfer Optimum			
45-90 A	0.6 mm (.023 in.)	14-16 V	381-965 cm/min (150-380 in./min)
70 A	0.6 mm (.023 in.)	15 V	762 cm/min (300 in./min)
110 A	0.6 mm (.023 in.)	23 V	1143 cm/min (450 in./min)
100-125 A	0.6 mm (.023 in.)	23-25 V	1016-1575 cm/min (400-620 in./min)
160-200 A	0.8 mm (.030 in.)	24-26 V	1270-1651 cm/min (500-650 in./min)
60-140 A	0.8 mm (.030 in.)	14-16 V	381-889 cm/min (150-350 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	Voltage	Wire Feed Speed
100 A	0.8 mm (.030 in.)	15 V	559 cm/min (220 in./min)
180 A	0.8 mm (.030 in.)	25 V	1321 cm/min (520 in./min)
90-160 A	0.9 mm (.035 in.)	15-19 V	457-762 cm/min (180-300 in./min)
200 A	0.9 mm (.035 in.)	26 V	1219 cm/min (480 in./min)
180-230 A	0.9 mm (.035 in.)	25-27 V	1016-1397 cm/min (400-550 in./min)
130 A	0.9 mm (.035 in.)	17 V	635 cm/min (250 in./min)
260-340 A	1.2 mm (.045 in.)	25-30 V	762-1270 cm/min (300-500 in./min)
130-200 A	1.2 mm (.045 in.)	17-19 V	318-508 cm/min (125-200 in./min)
160 A	1.2 mm (.045 in.)	18 V	381 cm/min (150 in./min)
300 A	1.2 mm (.045 in.)	27 V	889 cm/min (350 in./min)
160 A	1.4 mm (.052 in.)	18 V	356 cm/min (140 in./min)
150-200 A	1.4 mm (.052 in.)	17-20 V	343-483 cm/min (135-190 in./min)
275-400 A	1.4 mm (.052 in.)	26-33 V	673-991 cm/min (265-390 in./min)
325 A	1.4 mm (.052 in.)	28 V	787 cm/min (310 in./min)
290-400 A	1.6 mm (1/16 in.)	26-36 V	457-711 cm/min (180-280 in./min)
340 A	1.6 mm (1/16 in.)	27 V	508 cm/min (200 in./min)
Spray Transfer			
45-90 A	0.6 mm (.023 in.)	14-16 V	381-965 cm/min (150-380 in./min)
70 A	0.6 mm (.023 in.)	15 V	762 cm/min (300 in./min)
110 A	0.6 mm (.023 in.)	23 V	1143 cm/min (450 in./min)
100-125 A	0.6 mm (.023 in.)	23-25 V	1016-1575 cm/min (400-620 in./min)
160-200 A	0.8 mm (.030 in.)	24-26 V	1270-1651 cm/min (500-650 in./min)
60-140 A	0.8 mm (.030 in.)	14-16 V	381-889 cm/min (150-350 in./min)
100 A	0.8 mm (.030 in.)	15 V	559 cm/min (220 in./min)
180 A	0.8 mm (.030 in.)	25 V	1321 cm/min (520 in./min)
90-160 A	0.9 mm (.035 in.)	15-19 V	457-762 cm/min (180-300 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	Voltage	Wire Feed Speed
200 A	0.9 mm (.035 in.)	26 V	1219 cm/min (480 in./min)
180-230 A	0.9 mm (.035 in.)	25-27 V	1016-1397 cm/min (400-550 in./min)
130 A	0.9 mm (.035 in.)	17 V	635 cm/min (250 in./min)
260-340 A	1.2 mm (.045 in.)	25-30 V	762-1270 cm/min (300-500 in./min)
130-200 A	1.2 mm (.045 in.)	17-19 V	318-508 cm/min (125-200 in./min)
160 A	1.2 mm (.045 in.)	18 V	381 cm/min (150 in./min)
300 A	1.2 mm (.045 in.)	27 V	889 cm/min (350 in./min)
160 A	1.4 mm (.052 in.)	18 V	356 cm/min (140 in./min)
150-200 A	1.4 mm (.052 in.)	17-20 V	343-483 cm/min (135-190 in./min)
275-400 A	1.4 mm (.052 in.)	26-33 V	673-991 cm/min (265-390 in./min)
325 A	1.4 mm (.052 in.)	28 V	787 cm/min (310 in./min)
290-400 A	1.6 mm (1/16 in.)	26-36 V	457-711 cm/min (180-280 in./min)
340 A	1.6 mm (1/16 in.)	27 V	508 cm/min (200 in./min)

Short Arc Transfer Optimum

45-90 A	0.6 mm (.023 in.)	14-16 V	381-965 cm/min (150-380 in./min)
70 A	0.6 mm (.023 in.)	15 V	762 cm/min (300 in./min)
110 A	0.6 mm (.023 in.)	23 V	1143 cm/min (450 in./min)
100-125 A	0.6 mm (.023 in.)	23-25 V	1016-1575 cm/min (400-620 in./min)
160-200 A	0.8 mm (.030 in.)	24-26 V	1270-1651 cm/min (500-650 in./min)
60-140 A	0.8 mm (.030 in.)	14-16 V	381-889 cm/min (150-350 in./min)
100 A	0.8 mm (.030 in.)	15 V	559 cm/min (220 in./min)
180 A	0.8 mm (.030 in.)	25 V	1321 cm/min (520 in./min)
90-160 A	0.9 mm (.035 in.)	15-19 V	457-762 cm/min (180-300 in./min)
200 A	0.9 mm (.035 in.)	26 V	1219 cm/min (480 in./min)
180-230 A	0.9 mm (.035 in.)	25-27 V	1016-1397 cm/min (400-550 in./min)
130 A	0.9 mm (.035 in.)	17 V	635 cm/min (250 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	Voltage	Wire Feed Speed
260-340 A	1.2 mm (.045 in.)	25-30 V	762-1270 cm/min (300-500 in./min)
130-200 A	1.2 mm (.045 in.)	17-19 V	318-508 cm/min (125-200 in./min)
160 A	1.2 mm (.045 in.)	18 V	381 cm/min (150 in./min)
300 A	1.2 mm (.045 in.)	27 V	889 cm/min (350 in./min)
160 A	1.4 mm (.052 in.)	18 V	356 cm/min (140 in./min)
150-200 A	1.4 mm (.052 in.)	17-20 V	343-483 cm/min (135-190 in./min)
275-400 A	1.4 mm (.052 in.)	26-33 V	673-991 cm/min (265-390 in./min)
325 A	1.4 mm (.052 in.)	28 V	787 cm/min (310 in./min)
290-400 A	1.6 mm (1/16 in.)	26-36 V	457-711 cm/min (180-280 in./min)
340 A	1.6 mm (1/16 in.)	27 V	508 cm/min (200 in./min)