

# Spoolarc 83

Spoolarc 83 contains 0.5% Mo to provide higher deposit strength in both the as welded and stress relieved conditions. It contains high levels of Manganese and Silicon to provide good wetting and good rust and scale tolerance. Spoolarc 83 is also used for all-position welding of high tensile pipe and tubing commonly found in earthmoving and construction equipment. It is available in forms suitable for MIG and TIG welding.

<b>Classifications:</b>	AWS A5.28:ER80S-D2/ER90S-D2
<b>Approvals:</b>	MIL-E-23765/2 80S-3, CWB CSA W48, CWB CAN/CSA-ISO14341, B-G 55A 3 G4M31 (ER80S-D2)
<b>Industry or Segmentation:</b>	Industrial and General Fabrication, Mobile Equipment, Automotive, Ship/Barge Building

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

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
<b>100% CO<sub>2</sub></b>			
As Welded	530 MPa (77 ksi)	635 MPa (92 ksi)	23 %
<b>98% Ar - 2% O<sub>2</sub></b>			
As Welded	655 MPa (95 ksi)	750 MPa (110 ksi)	22 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
<b>100% CO<sub>2</sub></b>		
As Welded	-29 °C (-20 °F)	60 J (44 ft-lb)
<b>98% Ar - 2% O<sub>2</sub></b>		
As Welded	-29 °C (-20 °F)	118 J (87 ft-lb)

Wire Composition %							
C	Mn	Si	S	P	Ni	Mo	Cu
0.08	1.69	0.63	0.011	0.01	0.09	0.4	0.17

## SPOOLARC RECOMMENDED WELDING PARAMETERS

Recommended Welding Parameters					Optimum		
Diameter, mm (in.)	Length/Wt., m/kg (in./lb)	Amps, A	Volts, V	Wire Feed Speed, cm/min (in./min)	Amps, A	Volts, V	Wire Feed Speed, cm/min (in./min)
<b>Short Arc Transfer</b>							
0.6 (.023)	476 (8505)	45-90	14-16	381-965 (150-380)	70	15	762 (300)
0.8 (.030)	280 (5000)	60-140	14-16	381-889 (150-350)	100	15	559 (220)
0.9 (.035)	206 (3670)	90-160	15-19	457-762 (180-300)	130	17	635 (250)
1.2 (.045)	124 (2220)	130-200	17-19	318-508 (125-200)	160	18	381 (150)
1.4 (.052)	93 (1665)	150-200	17-20	343-483 (135-190)	160	18	356 (140)
<b>Spray Transfer</b>							
0.6 (.023)	476 (8505)	100-125	23-25	1016-1575 (400-620)	110	23	1143 (450)
0.8 (.030)	280 (5000)	160-200	24-26	1270-1651 (500-650)	180	25	1321 (520)
0.9 (.035)	206 (3670)	180-230	25-27	1016-1397 (400-550)	200	26	1219 (480)
1.2 (.045)	124 (2220)	260-340	25-30	762-1270 (300-500)	300	27	889 (350)
1.4 (.052)	93 (1665)	275-400	26-33	673-991 (265-390)	325	28	787 (310)
1.6 (1/16)	64 (1150)	290-400	26-36	457-711 (180-280)	340	27	508 (200)

Note: DCEP (Electrode Positive); Flow rates of 25-45 CFH is required.

## SPOOLARC DEPOSITION AND EFFICIENCY DATA

Deposition Data				
Diameter, mm (in.)	Amps, A	Deposition Rate, kg/h (lb/h)		
		98% Ar - 2% O2 *98% Efficiency	75% Ar - 25% CO2 *96% Efficiency	100% CO2 *93% Efficiency
0.8 (.030)	75	0.91 (2.0)	0.86 (1.9)	0.82 (1.8)
	100	1.18 (2.6)	1.18 (2.6)	1.13 (2.5)
	150	1.86 (4.1)	1.81 (4.0)	1.77 (3.9)
	200	3.08 (6.8)	3.04 (6.7)	2.95 (6.5)
0.9 (.035)	80	1.00 (2.2)	0.95 (2.1)	0.91 (2.0)
	100	1.22 (2.7)	1.22 (2.7)	1.18 (2.6)
	150	1.90 (4.2)	1.86 (4.1)	1.81 (4.0)
	200	2.81 (6.2)	2.72 (6.0)	2.68 (5.9)
	250	4.08 (9.0)	3.99 (8.8)	3.90 (8.6)
1.2 (.045)	100	0.95 (2.1)	0.91 (2.0)	0.86 (1.9)
	125	1.27 (2.8)	1.27 (2.8)	1.22 (2.7)
	150	1.63 (3.6)	1.59 (3.5)	1.54 (3.4)
	200	2.54 (5.6)	2.49 (5.5)	2.40 (5.3)
	250	3.58 (7.8)	3.45 (7.6)	3.36 (7.4)
	300	4.63 (10.2)	4.53 (10.0)	4.40 (9.7)
	350	5.99 (13.2)	5.85 (12.9)	5.67 (12.5)
1.6 (1/16)	250	2.92 (6.5)	2.90 (6.4)	2.81 (6.2)
	275	3.49 (7.7)	3.45 (7.6)	3.31 (7.3)
	300	4.08 (9.0)	3.99 (8.8)	3.86 (8.5)
	350	5.13 (11.3)	4.99 (11.0)	4.85 (10.7)
	400	6.35 (14.0)	6.21 (13.7)	6.03 (13.3)
	450	7.89 (17.4)	7.76 (17.1)	7.48 (16.5)

\*Use this figure as the deposition efficiency in the weld metal cost per lb. (kg) calculations.