

# SuperArc® L-56® N

Mild Steel • AWS ER70S-6

## Key Features

- ▶ Q2 Lot® - Certificates showing actual wire composition and mechanical properties available online
- ▶ Available as Batch Managed Inventory
- ▶ “N” Designator - design modified to meet properties after stress relief
- ▶ Uniquely alloyed product to obtain higher strength levels
- ▶ High levels of manganese and silicon deoxidizers tolerate medium to heavy mill scale surfaces
- ▶ Excellent toe-wetting provides optimal bead appearance
- ▶ Copper coated for long contact tip life
- ▶ Supports short-circuiting, globular, axial spray and pulsed spray transfer
- ▶ MicroGuard® Ultra provides superior feeding and arc stability
- ▶ Each spool is identified with AWS classification and LOT number

## Typical Applications

- ▶ Nuclear power plant construction and maintenance
- ▶ Medium to heavy mill scale base material
- ▶ Robotic or hard automation
- ▶ Structural steel

## ASME IX Qualification

ASME IX Qualification: QW432 F-No 6

## Conformances

AWS A5.18/A5.18M: 2005: ER70S-6

ASME SFA-A5.18: ER70S-6

## Welding Positions

All

## DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Plastic Spool
0.035 (0.9)	ED033842
0.045 (1.1)	ED033843

**WIRE COMPOSITION – As Required per AWS A5.18/A5.18M: 2005**

	%C	%Mn	%Si	%S	%P
<b>Requirements - AWS ER70S-6</b>	0.06-0.15	1.40-1.85	0.80-1.15	0.035 max.	0.025 max.
<b>Typical Results<sup>(3)</sup></b>	0.08-0.10	1.42-1.60	0.81-0.87	0.006-0.010	0.004-0.010
	%Cr	%Ni	%Mo	%V	%Cu (Total) <sup>(4)</sup>
<b>Requirements - AWS ER70S-6</b>	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
<b>Typical Results<sup>(3)</sup></b>	0.01-0.05	≤ 0.04	≤ 0.01	< 0.01	0.17-0.22

**MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.18/A5.18M: 2005**

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)	
				@ -29°C (-20°F)	@ -40°C (-40°F)
<b>Requirements - AWS ER70S-6</b> As-Welded with 100% CO <sub>2</sub>	400 (58) min.	485 (70) min.	22 min.	27 (20) min.	Not Specified
<b>Typical Results<sup>(3)</sup></b> As-Welded with 100% CO <sub>2</sub> Stress Relieved 1 hr. @ 621°C (1150°F)	440 (64) 395 (57)	560 (81) 510 (74)	29 29	71 (52) 95 (70)	61 (45) 68 (50)
As-Welded with 75% Ar/25% CO <sub>2</sub> Stress Relieved 1 hr. @ 621°C (1150°F)	460 (67) 415 (60)	565 (82) 540 (78)	27 31	82 (60) 140 (103)	72 (53) 122 (90)
As-Welded with 90% Ar/10% CO <sub>2</sub> Stress Relieved 1 hr. @ 621°C (1150°F)	470 (68) 440 (64)	580 (84) 550 (80)	28 32	119 (88) 183 (135)	78 (57) 156 (115)
As-Welded with 98% Ar/2% O <sub>2</sub> Stress Relieved 1 hr. @ 621°C (1150°F)	455 (66) 415 (60)	565 (82) 545 (79)	27 34	122 (90) 190 (140)	108 (80) 176 (130)

**TYPICAL OPERATING PROCEDURES**

Diameter, Polarity Shielding Gas	CTWD <sup>(6)</sup> mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)
<b>0.035 in (0.9 mm), DC+</b>					
Short Circuit Transfer 100% CO <sub>2</sub> <sup>(6)</sup>	9-12 (3/8-1/2)	2.5 (100)	18	80	0.7 (1.6)
		3.8 (150)	19	120	1.1 (2.4)
		6.4 (250)	22	175	1.8 (4.0)
Spray Transfer 90% Ar/10% CO <sub>2</sub>	12-19 (1/2-3/4)	9.5 (375)	23	195	2.7 (6.0)
		12.7 (500)	29	230	3.6 (8.0)
		15.2 (600)	30	275	4.4 (9.6)
<b>0.045 in (1.1 mm), DC+</b>					
Short Circuit Transfer 100% CO <sub>2</sub> <sup>(6)</sup>	12-19 (1/2-3/4)	3.2 (125)	19	145	1.5 (3.4)
		3.8 (150)	20	165	1.8 (4.0)
		5.1 (200)	21	200	2.5 (5.4)
Spray Transfer 90% Ar/10% CO <sub>2</sub>	12-19 (1/2-3/4)	8.9 (350)	27	285	4.2 (9.2)
		12.1 (475)	30	335	5.7 (12.5)
		12.7 (500)	30	340	6.0 (13.2)

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer on pg. 12. <sup>(4)</sup>Industry specific data, not required by AWS. <sup>(5)</sup>Preferred polarity is listed first.  
NOTE: Additional test data available upon request.