

The best value in the industry for general purpose carbon steel welding. Murematic S3 copper coated wire is an excellent choice for a broad spectrum of single and multiple pass welding applications. It is a low carbon wire with moderate levels of manganese and silicon that has an excellent record for feedability and trouble-free performance. Recommended for welding on base material that is clean or has light surface contaminants such as rust or mill scale.

ADVANTAGE MUREX

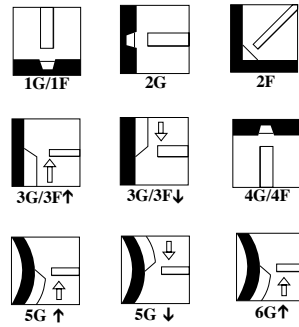
- Highly resistant to copper flaking, which can clog liners and contact tips.
- Copper coating provides superior arc-starting characteristics, for long contact tip life.
- **MicroGuard™** surface treatment is designed to provide smooth trouble-free feeding performance.

- Well suited for applications where accurate and consistent wire feed are necessary.
- Manufactured under a quality system certified to ISO 9001 requirements.
- Manufactured under a global environmental quality system certified to ISO14001 requirements.

TYPICAL APPLICATIONS

- Industrial, farming, construction, and mining equipment.
- Single pass welds on sheet metal applications.
- Multiple pass welds on thick steel sections.
- For welding on base material that is clean or has light mill scale.
- All-position welding.

WELDING POSITIONS



SHIELDING GAS

100% CO₂
 75-95% Ar/Balance CO₂
 95-98% Ar/Balance O₂
 Flow Rate: 30 - 50 CFH

CONFORMANCE

AWS A5.18/A5.18M:2001: ER70S-3
 ASME SFA 5.18: ER70S-3

MECHANICAL PROPERTIES As Required per AWS A5.18/A5.18M:2001

Test Conditions	Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ 0°F (-18°C)
Requirements AWS ER70S-3	70,000 min. (483)	58,000 min. (400)	22 min.	20 min. (27)
Actual Test Results CO ₂ Shielding Gas	81,000 (559)	64,900 (447)	24	67 (91)

DEPOSIT COMPOSITION As Required per AWS A5.18/A5.18M:2001

	%C	%Mn	%Si	%S	%P	%Ni	%Cr	%Mo	%V	Cu (total)
Requirements AWS ER70S-3	0.06 - 0.15	0.90 - 1.40	0.45 - 0.75	0.035 max.	0.025 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Test Results	0.10	1.23	0.56	0.008	0.014	0.04	0.03	0.01	—	0.17

DIAMETERS / SMALL PACKAGING

Diameter Inches (mm)	44 Lb. (20 kg) Steel Spool	44 Lb. (20 kg) Fiber Spool	60 Lb. (27 kg) Fiber Spool
.035 (0.9)	EDM23347543	EDM23346593	EDM23346713
.045 (1.1)	EDM23347545	EDM23346595	EDM23346715
.052 (1.3)			EDM23346716

DIAMETERS / BULK PACKAGING

Diameter Inches (mm)	500 Lb. (272 kg) Accu-Trak™ Drum	1000 Lb. (453 kg) Speed Feed® Reel	1000 Lb. (453 kg) Accu-Trak™ Reel	1000 Lb. (453 kg) Accu-Trak™ Drum
.035 (0.9)	EDM23346783	EDM23346513	EDM23346523	EDM23346573
.045 (1.1)	EDM23346785		EDM23346525	EDM23346575
.052 (1.3)				EDM23346576

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD ⁽¹⁾ Transfer Mode Shielding Gas	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Melt-Off Rate lbs/hr (kg/hr)
.035" (0.9mm), DC+				
3/8-1/2" (9-12mm)	100 (2.5)	18	80	1.6 (0.7)
Short Circuit Transfer	150 (3.8)	19	120	2.4 (1.1)
100% CO ₂	250 (6.4)	22	175	4.0 (1.8)
1/2-3/4" (12-19mm)	375 (9.5)	23	195	6.0 (2.7)
Spray Transfer	500 (12.7)	29	230	8.0 (3.6)
90% Ar/10% CO ₂	600 (15.2)	30	275	9.6 (4.4)
.045" (1.1mm), DC+				
3/8-1/2" (9-12mm)	125 (3.2)	19	145	3.4 (1.5)
Short Circuit Transfer	150 (3.8)	20	165	4.0 (1.8)
100% CO ₂	200 (5.0)	21	200	5.4 (2.5)
1/2-3/4" (12-19mm)	350 (8.9)	27	285	9.2 (4.2)
Spray Transfer	475 (12.0)	30	335	12.5 (5.7)
90% Ar/10% CO ₂	500 (12.7)	30	340	13.2 (6.0)
.052" (1.3mm), DC+				
3/4-1" (19-25mm)	300 (7.6)	30	300	10.6 (4.8)
Spray Transfer	320 (8.1)	30	320	11.5 (5.2)
90% Ar/10% CO ₂	485 (12.3)	32	430	17.1 (7.8)
1/16" (1.6mm), DC+				
3/4-1" (19-25mm)	210 (5.3)	25	325	10.7 (4.8)
Spray Transfer	235 (6.0)	27	350	12.0 (5.4)
90% Ar/10% CO ₂	290 (7.4)	28	430	14.8 (6.7)

NOTE: Procedures in the shaded areas are procedures for short circuiting mode using 100% CO₂. When using 75% Argon, 25% CO₂ for short circuit transfer, reduce voltage by 1 to 2 volts.

⁽¹⁾CTWD (Contact Tip to Work Distance). Subtract 1/16" for MIG short arc, 3/16" for axial spray to calculate Electrical Stickout.

Murematic S4+ is your first choice when welding on metals with a low to medium presence of surface contaminants such as rust or mill scale. Murematic S4+ MIG wire has all of the advantages of Murematic S3, with slightly higher levels of manganese and silicon. It has higher “cleaning” levels, and produces a more fluid weld puddle and flatter bead profile. Murematic S4+ has an excellent reputation for feedability and trouble-free performance.

ADVANTAGE MUREX

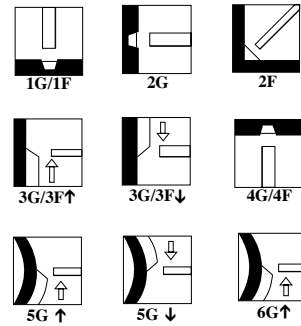
- Highly resistant to copper flaking, which can clog liners and contact tips.
- Copper coating provides superior arc-starting characteristics, for long contact tip life.
- **MicroGuard™** surface treatment is designed to provide smooth trouble-free feeding performance.

- Well suited for applications where accurate and consistent wire feed are necessary.
- Manufactured under a quality system certified to ISO 9001 requirements.
- Manufactured under a global environmental quality system certified to ISO14001 requirements.

TYPICAL APPLICATIONS

- Applications which require greater cleaning action through increased levels of silicon and manganese compared to the levels provided by a typical ER70S-3 wire.
- Industrial, farming, construction, and mining equipment.
- Single pass welds on sheet metal applications.
- Multiple pass welds on thick steel sections.
- For welding on base material with light to medium mill scale.
- All-position welding.

WELDING POSITIONS



SHIELDING GAS

100% CO₂
 75-95% Ar/Balance CO₂
 95-98% Ar/Balance O₂
 Flow Rate: 30 - 50 CFH

CONFORMANCE

AWS A5.18/A5.18M:2001: ER70S-4
 ASME SFA 5.18: ER70S-4

MECHANICAL PROPERTIES As Required per AWS A5.18/A5.18M:2001

Test Conditions	Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @-20°F (-29°C)
Requirements AWS ER70S-4	70,000 min. (483)	58,000 min. (400)	22 min.	Not Specified
Actual Test Results CO ₂ Shielding Gas	79,000 (555)	64,000 (441)	28	58 (79)

DEPOSIT COMPOSITION As Required per AWS A5.18/A5.18M:2001

	%C	%Mn	%Si	%S	%P	Cu (total)	%Cr	%Ni	%Mo	%V
Requirements AWS ER70S-4	0.06 - 0.15	1.00 - 1.50	0.65 - 0.85	0.035 max.	0.025 max.	0.50 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.
Test Results	0.09	1.28	0.73	0.010	0.018	0.26	0.05	0.06	0.02	—

DIAMETERS / SMALL PACKAGING

Diameter Inches (mm)	30 Lb. (13 kg) Spool	44 Lb. (20 kg) Steel Spool	44 Lb. (20 kg) Fiber Spool	60 Lb. (27 kg) Fiber Spool
.035 (0.9)	EDM23346353	EDM23347343	EDM23346393	EDM23346313
.045 (1.1)	EDM2334635		EDM23346395	EDM23346315
.052 (1.3)		EDM23346396		

DIAMETERS / BULK PACKAGING

Diameter Inches (mm)	500 Lb. (272 kg) Accu-Trak Drum	1000 Lb. (453 kg) Accu-Trak Drum
.035 (0.9)	EDM23346383	EDM23346173
.045 (1.1)	EDM23346385	
.052 (1.3)	EDM23346386	

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD ⁽¹⁾ Transfer Mode Shielding Gas	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Melt-Off Rate lbs/hr (kg/hr)
.035" (0.9mm), DC+				
3/8-1/2" (9-12mm) Short Circuit Transfer	100 (2.5)	18	80	1.6 (0.7)
100% CO ₂	150 (3.8)	19	120	2.4 (1.1)
	250 (6.4)	22	175	4.0 (1.8)
1/2-3/4" (12-19mm) Spray Transfer	375 (9.5)	23	195	6.0 (2.7)
90% Ar/10% CO ₂	500 (12.7)	29	230	8.0 (3.6)
	600 (15.2)	30	275	9.6 (4.4)
.045" (1.1mm), DC+				
3/8-1/2" (9-12mm) Short Circuit Transfer	125 (3.2)	19	145	3.4 (1.5)
100% CO ₂	150 (3.8)	20	165	4.0 (1.8)
	200 (5.0)	21	200	5.4 (2.5)
1/2-3/4" (12-19mm) Spray Transfer	350 (8.9)	27	285	9.2 (4.2)
90% Ar/10% CO ₂	475 (12.0)	30	335	12.5 (5.7)
	500 (12.7)	30	340	13.2 (6.0)
.052" (1.3mm), DC+				
3/4-1" (19-25mm) Spray Transfer	300 (7.6)	30	300	10.6 (4.8)
90% Ar/10% CO ₂	320 (8.1)	30	320	11.5 (5.2)
	485 (12.3)	32	430	17.1 (7.8)
1/16" (1.6mm), DC+				
3/4-1" (19-25mm) Spray Transfer	210 (5.3)	25	325	10.7 (4.8)
90% Ar/10% CO ₂	235 (6.0)	27	350	12.0 (5.4)
	290 (7.4)	28	430	14.8 (6.7)

NOTE: Procedures in the shaded areas are procedures for short circuiting mode using 100% CO₂. When using 75% Argon, 25% CO₂ for short circuit transfer, reduce voltage by 1 to 2 volts.

⁽¹⁾CTWD (Contact Tip to Work Distance). Subtract 1/16" for MIG short arc, 3/16" for axial spray to calculate Electrical Stickout.

Murex's top copper coated, mild steel MIG wire electrode, Murematic S6 is an excellent choice for welding on metals with a medium to high presence of surface contaminants such as rust or mill scale. It is a low carbon, high manganese, and very high silicon wire that exhibits very good puddle fluidity, bead profile and spatter control.

ADVANTAGE MUREX

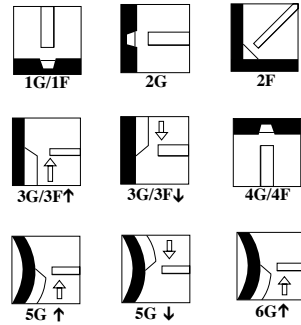
- Excellent spatter control and bead profile.
- Highly resistant to copper flaking, which can clog liners and contact tips.
- **MicroGuard™** surface treatment is designed to provide smooth trouble-free feeding performance.
- Copper coating provides superior arc-starting characteristics, for long contact tip life.

- Manufactured under a quality system certified to ISO 9001 requirements.
- Manufactured under a global environmental quality system certified to ISO 14001 requirements.

TYPICAL APPLICATIONS

- Applications which require greater cleaning action through increased levels of silicon and manganese compared to the levels provided by a typical ER70S-3 or ER70S-4 wire.
- Industrial, farming, construction, and mining equipment.
- Automotive repair.
- For welding on metals with a medium-to-high presence of mill scale.
- Single pass welds on sheet metal applications.
- Multiple pass welds on thick sections.
- All-position welding.

WELDING POSITIONS



SHIELDING GAS

100% CO₂
 75-95% Ar/Balance CO₂
 95-98% Ar/Balance O₂
 Flow Rate: 30 - 50 CFH

CONFORMANCE

AWS A5.18/A5.18M:2001: ER70S-6
 ASME SFA-5.18: ER70S-6

MECHANICAL PROPERTIES As Required per AWS A5.18/A5.18M:2001

Test Conditions	Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @-20°F (-29°C)
Requirements AWS ER70S-6	70,000 min. (483)	58,000 min. (400)	22 min.	20 (27) min.
Actual Test Results CO ₂ Shielding Gas	82,000 (565)	67,000 (462)	27	52 (71)

DEPOSIT COMPOSITION As Required per AWS A5.18/A5.18M:2001

	%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Mo	%V	%Cu (total)
Requirements AWS ER70S-6	0.06 - 0.15	1.40 - 1.85	0.80 - 1.15	0.035 max.	0.025 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Test Results	0.07	1.44	0.85	0.007	0.011	0.02	0.02	0.01	—	0.21

DIAMETERS / SMALL PACKAGING

Diameter Inches (mm)	30 Lb. (13 kg) Spool	44 Lb. (20 kg) Steel Spool	44 Lb. (20 kg) Fiber Spool	60 Lb. (27 kg) Fiber Spool	60 Lb. (27 kg) Coil
.030 (0.8)	EDM23346852				
.035 (0.9)	EDM23346853	EDM23347843	EDM23346893	EDM23347813	
.045 (1.1)	EDM23346855	EDM23347845	EDM23346895	EDM23347815	EDM23346875

DIAMETERS / BULK PACKAGING

Diameter Inches (mm)	500 Lb. (227 kg) Accu-Trak Drum	1000 Lb. (453 kg) Speed Feed Reel	1000 Lb. (453 kg) Accu-Trak Reel	1000 Lb. (453 kg) Accu-Trak Drum
.035 (0.9)	EDM23346883	EDM23346613	EDM23346623	EDM23346673
.045 (1.1)	EDM23346885		EDM23346625	EDM23346675
.052 (1.3)	EDM23346886			EDM23346676

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD ⁽¹⁾ Transfer Mode Shielding Gas	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Melt-Off Rate lbs/hr (kg/hr)
.035" (0.9mm), DC+				
3/8-1/2" (9-12mm)	100 (2.5)	18	80	1.6 (0.7)
Short Circuit Transfer	150 (3.8)	19	120	2.4 (1.1)
100% CO ₂	250 (6.4)	22	175	4.0 (1.8)
1/2-3/4" (12-19mm)	375 (9.5)	23	195	6.0 (2.7)
Spray Transfer	500 (12.7)	29	230	8.0 (3.6)
90% Ar/10% CO ₂	600 (15.2)	30	275	9.6 (4.4)
.045" (1.1mm), DC+				
3/8-1/2" (9-12mm)	125 (3.2)	19	145	3.4 (1.5)
Short Circuit Transfer	150 (3.8)	20	165	4.0 (1.8)
100% CO ₂	200 (5.0)	21	200	5.4 (2.5)
1/2-3/4" (12-19mm)	350 (8.9)	27	285	9.2 (4.2)
Spray Transfer	475 (12.0)	30	335	12.5 (5.7)
90% Ar/10% CO ₂	500 (12.7)	30	340	13.2 (6.0)
.052" (1.3mm), DC+				
3/4-1" (19-25mm)	300 (7.6)	30	300	10.6 (4.8)
Spray Transfer	320 (8.1)	30	320	11.5 (5.2)
90% Ar/10% CO ₂	485 (12.3)	32	430	17.1 (7.8)
1/16" (1.6mm), DC+				
3/4-1" (19-25mm)	210 (5.3)	25	325	10.7 (4.8)
Spray Transfer	235 (6.0)	27	350	12.0 (5.4)
90% Ar/10% CO ₂	290 (7.4)	28	430	14.8 (6.7)

NOTE: Procedures in the shaded areas are procedures for short circuiting mode using 100% CO₂. When using 75% Argon, 25% CO₂ for short circuit transfer, reduce voltage by 1 to 2 volts.

⁽¹⁾CTWD (Contact Tip to Work Distance). Subtract 1/16" for MIG short arc, 3/16" for axial spray to calculate Electrical Stickout.

SUPERARC® L-50®

Mild Steel, Copper Coated ■ AWS ER70S-3 & EM13K



KEY FEATURES

- Moderate levels of manganese and silicon for deoxidization of clean to light mill scale surfaces
- Superior feeding and arc stability
- 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

WELDING POSITIONS

All

SHIELDING GAS

100% CO₂
 75-95% Argon / Balance CO₂
 95-98% Argon / Balance O₂
 Flow Rate: 30-50 CFH

CONFORMANCES

AWS A5.18/A5.18M: 2005	ER70S-3
ASME SFA-A5.18:	ER70S-3
AWS A5.17/A5.17M: 1997	EM13K
ABS:	3YSA
Lloyd's Register:	3YS H15
DNV Grade:	III YMS
CWB/CSA W48-06:	ER49S-3
EN ISO 14341-B:	G 49A 2 C S3
MIL-E-23765/1:	MIL-70S-3

TYPICAL APPLICATIONS

- Clean to light mill scale base material
- Pipeline
- Sheet metal to 380 - 485 MPa (55 - 70 ksi) yield strength material
- Pressure vessels
- Structural steel

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15 kg) Plastic Spool	33 lb (15 kg) Steel Spool	44 lb (20 kg) Steel Spool	44 lb (20 kg) Fiber Spool	60 lb (27.2 kg) Coil
0.030 (0.8)	ED032923	ED031407			
0.035 (0.9)	ED032924	ED031408	ED031914	ED021268	
0.045 (1.1)	ED032925	ED031409	ED031915	ED021270, ED034428*	
0.052 (1.3)			ED031916		ED011317
1/16 (1.6)					
Diameter in (mm)	60 lb (27.2 kg) Fiber Spool	500 lb (227 kg) Accu-Trak® Drum	500 lb (227 kg) Accu-Pak® Box	500 lb (227 kg) Infinity-Pak®	600 lb (272 kg) Speed-Feed® Drum
0.030 (0.8)		ED029223			
0.035 (0.9)	ED021269	ED021052	ED032899		
0.040 (1.0)					
0.045 (1.1)	ED021271	ED020526	ED032901	ED034535	
0.052 (1.3)	ED021273	ED020527	ED032902		
1/16 (1.6)	ED027274		ED032903		ED011316
Diameter in (mm)	900 lb (408 kg) Accu-Pak® Box	1000 lb (454 kg) Accu-Trak® Drum	1000 lb (454 kg) Accu-Pak® Box	1000 lb (454 kg) Precise-Trak® Reel	1000 lb (454 kg) Infinity-Pak®
0.030 (0.8)					
0.035 (0.9)	ED032842	ED028825		ED032379	
0.040 (1.0)				ED032380	
0.045 (1.1)		ED028826	ED032844	ED031614	ED031930
0.052 (1.3)		ED029082	ED032845	ED031615	
1/16 (1.6)		ED029083	ED032846	ED033270	

*Buy America Product

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

	%C	%Mn	%Si	%S	%P
Requirements - AWS ER70S-3	0.006-0.15	0.90-1.40	0.45-0.75	0.035 max.	0.025 max.
Typical Results ⁽³⁾	0.08-0.11	1.14-1.23	0.53-0.59	0.003-0.009	0.003-0.013
	%Cr	%Mo	%Ni	%V	%Cu (Total) ⁽⁴⁾
Requirements - AWS ER70S-3	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Typical Results ⁽³⁾	≤ 0.04	≤ 0.02	≤ 0.03	< 0.01	0.15-0.25

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

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch - J (ft-lbf)	
				@ -18°C (0°F)	@ -29°C (-20°F)
Requirements - AWS ER70S-3 As-Welded with 100% CO ₂	400 (58) min.	485 (70) min.	22 min.	27 (20) min.	Not Specified
MIL-705-3 per MIL-E-23765/1 As-Welded with CO ₂ and 98% Ar/2% O ₂	380-485 (55-70)	485 (70) min.	22 min.	Not Specified	Not Specified
Typical Results ⁽³⁾					
As-Welded with 100% CO ₂	415 (60)	515 (75)	26	95 (70)	88 (65)
Stress Relieved 1 hr. @ 621°C (1150°F)	365 (53)	475 (69)	34	118 (87)	100 (74)
As-Welded with 75% Ar/25% CO ₂	420 (61)	525 (76)	28	106 (78)	102 (75)
Stress Relieved 1 hr. @ 621°C (1150°F)	365 (53)	490 (71)	33	165 (122)	163 (120)
As-Welded with 90% Ar/10% CO ₂	450 (65)	545 (79)	30	142 (105)	122 (90)
Stress Relieved 1 hr. @ 621°C (1150°F)	365 (53)	485 (70)	35	–	214 (158)
As-Welded with 98% Ar/2% O ₂	425 (62)	540 (78)	27	108 (80)	95 (70)
Stress Relieved 1 hr. @ 621°C (1150°F)	350 (51)	475 (69)	33	–	339 (250)

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽⁵⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)
0.030 in (0.8 mm), DC+					
Short Circuit Transfer 100% CO ₂	9-12 (3/8-1/2)	1.9 (75)	17	35	0.4 (0.9)
		3.8 (150)	18	70	0.8 (1.8)
		7.6 (300)	22	130	1.6 (3.6)
0.035 in (0.9 mm), DC+					
Short Circuit Transfer 100% CO ₂ ⁽⁶⁾	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 ₂	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)
0.045 in (1.1 mm), DC+					
Short Circuit Transfer 100% CO ₂ ⁽⁶⁾	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 ₂	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)
0.052 in (1.3 mm), DC+					
Spray Transfer 90% Ar/10% CO ₂	12-19 (1/2-3/4)	7.6 (300)	30	300	4.8 (10.6)
		8.1 (320)	30	320	5.2 (11.5)
		12.3 (485)	32	430	7.8 (17.1)
1/16 in (1.6 mm), DC+					
Spray Transfer 90% Ar/10% CO ₂	12-25 (1/2-1)	5.3 (210)	25	325	4.8 (10.7)
		6.0 (235)	27	350	5.4 (12.0)
		7.4 (290)	28	430	6.7 (14.8)

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer on pg. 18. ⁽⁴⁾Copper due to any coating on the electrode plus the copper content of the filler metal itself, shall not exceed the stated 0.50% max. ⁽⁵⁾CTWD (Contact Tip to Work Distance). Subtract 1/4 in (6.4 mm) to calculate Electrical Stickout. ⁽⁶⁾Procedures in these areas are procedures for short circuiting mode using 100% CO₂. When using 75% Argon, 25% CO₂ for short circuit transfer, reduce voltage by 1 to 2 volts.

SUPERARC® L-56®

Mild Steel, Copper Coated ■ AWS ER70S-6 & EH11K



KEY FEATURES

- 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

TYPICAL APPLICATIONS

- Medium to heavy mill scale base material
- Automotive repair
- Sheet metal to 380-485 MPa (55-70 ksi) yield strength material
- Robotic or hard automation
- Structural steel

CONFORMANCES

AWS A5.18/A5.18M: 2005	ER70S-6
ASME SFA-A5.18:	ER70S-6
AWS A5.17/A5.17M: 1997	EH11K
ABS:	3YSA
Lloyd's Register:	3YS H5
DNV Grade:	III YMS
CWB/CSA W48-06:	ER49S-6
DB:	EN 440 G3Si1
TUV:	EN 440 G3Si1
EN ISO 14341-B:	G 49A 3 C S6
MIL-E-23765/1:	MIL-70S-6

WELDING POSITIONS

All

SHIELDING GAS

100% CO ₂	95-98% Argon / Balance O ₂
75-95% Argon / Balance CO ₂	Flow Rate: 30-50 CFH

DIAMETERS / PACKAGING

Diameter in (mm)	2 lb (1 kg) Plastic Spool 10 lb (4.5 kg) Master Carton	12.5 lb (5.7 kg) Plastic Spool	33 lb (15 kg) Plastic Spool	33 lb (15 kg) Steel Spool	44 lb (20 kg) Steel Spool
0.025 (0.6)	ED030583	ED015790			
0.030 (0.8)	ED030631	ED023334	ED032926		
0.035 (0.9)	ED030632	ED028676	ED032927	ED031411	ED025945
0.045 (1.1)		ED029042	ED032928	ED031412	ED025946
Diameter in (mm)	44 lb (20 kg) Fiber Spool	60 lb (27.2 kg) Coil	60 lb (27.2 kg) Fiber Spool	250 lb (113.4 kg) Accu-Trak® Drum	500 lb (227 kg) Accu-Trak® Drum
0.030 (0.8)					ED030771
0.035 (0.9)	ED021274, ED033704*		ED021275	ED029914	ED021056
0.040 (1.0)	ED027384				ED031937
0.045 (1.1)	ED021276, ED033703*		ED021277	ED029915	ED020532
0.052 (1.3)	ED021278, ED033705*		ED021279	ED029916	ED020533
1/16 (1.6)		ED011666, ED033710*			ED029225, ED033707*
Diameter in (mm)	500 lb (227 kg) Accu-Pak® Box	500 lb (227 kg) Infinity-Pak		900 lb (408 kg) Accu-Pak® Box	
0.035 (0.9)	ED032904	ED034394		ED032847, ED034429*	
0.040 (1.0)					
0.045 (1.1)	ED032906				
0.052 (1.3)	ED032907				
1/16 (1.6)					
Diameter in (mm)	1000 lb (454 kg) Accu-Trak® Drum	1000 lb (454 kg) Accu-Pak® Box		1000 lb (454 kg) Precise-Trak® Reel	
0.035 (0.9)	ED028827			ED033271	
0.040 (1.0)	ED031032				
0.045 (1.1)	ED028828	ED032849, ED033706*		ED031616	
0.052 (1.3)	ED029084	ED032850, ED033702*		ED031617	
1/16 (1.6)	ED029085	ED032851			

*Buy America Product

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

	%C	%Mn	%Si	%S	%P
Requirements - AWS ER70S-6	0.06-0.15	1.40-1.85	0.80-1.15	0.035 max.	0.025 max.
Typical Results ⁽³⁾	0.08-0.09	1.42-1.60	0.81-0.87	0.006-0.010	0.004-0.010
	%Cr	%Ni	%Mo	%V	%Cu (Total) ⁽⁴⁾
Requirements - AWS ER70S-6	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Typical Results ⁽³⁾	0.01-0.05	≤ 0.04	≤ 0.01	< 0.01	0.17-0.22

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

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft·lbf)	
				@ -29°C (-20°F)	@ -40°C (-40°F)
Requirements - AWS ER70S-6 As-Welded with 100% CO ₂	400 (58) min.	485 (70) min.	22 min.	27 (20) min.	Not Specified
MIL-70S-6 per MIL-E-23765/1 As-Welded with CO ₂ and 98% Ar/2% O ₂	380-550 (55-80)	485 (70) min.	22 min.	Not Specified	Not Specified
MIL-70S-6 per MIL-E-23765/1 Stress Relieved 1 hr. @ 621°C (1150°F) with CO ₂ and 98% Ar/2% O ₂	360 (52) min.	485 (70) min.	26 min.	27 (20) min.	Not Specified
Typical Results ⁽³⁾					
As-Welded with 100% CO ₂	440 (64)	560 (81)	29	71 (52)	61 (45)
Stress Relieved 1 hr. @ 621°C (1150°F)	395 (57)	510 (74)	29	95 (70)	68 (50)
As-Welded with 75% Ar/25% CO ₂	460 (67)	565 (82)	27	82 (60)	72 (53)
Stress Relieved 1 hr. @ 621°C (1150°F)	415 (60)	540 (78)	31	140 (103)	122 (90)
As-Welded with 90% Ar/10% CO ₂	470 (68)	580 (84)	28	119 (88)	78 (57)
Stress Relieved 1 hr. @ 621°C (1150°F)	440 (64)	550 (80)	32	183 (135)	156 (115)
As-Welded with 98% Ar/2% O ₂	455 (66)	565 (82)	27	122 (90)	108 (80)
Stress Relieved 1 hr. @ 621°C (1150°F)	415 (60)	545 (79)	34	190 (140)	176 (130)

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD ⁽⁵⁾ mm (in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)
0.025 in (0.6 mm), DC+					
Short Circuit Transfer 100% CO ₂	9-12 (3/8-1/2)	2.5 (100) 6.4 (250)	17 19	35 80	0.4 (0.9) 0.9 (2.0)
0.030 in (0.8 mm), DC+					
Short Circuit Transfer 100% CO ₂	9-12 (3/8-1/2)	1.9 (75) 3.8 (150) 7.6 (300)	17 18 22	35 70 130	0.4 (0.9) 0.8 (1.8) 1.6 (3.6)
0.035 in (0.9 mm), DC+					
Short Circuit Transfer 100% CO ₂ ⁽⁶⁾	9-12 (3/8-1/2)	2.5 (100) 3.8 (150) 6.4 (250)	18 19 22	80 120 175	0.7 (1.6) 1.1 (2.4) 1.8 (4.0)
Spray Transfer 90% Ar/10% CO ₂	12-19 (1/2-3/4)	9.5 (375) 12.7 (500) 15.2 (600)	23 29 30	195 230 275	2.7 (6.0) 3.6 (8.0) 4.4 (9.6)
0.045 in (1.1 mm), DC+					
Short Circuit Transfer 100% CO ₂ ⁽⁶⁾	12-19 (1/2-3/4)	3.2 (125) 3.8 (150) 5.1 (200)	19 20 21	145 165 200	1.5 (3.4) 1.8 (4.0) 2.5 (5.4)
Spray Transfer 90% Ar/10% CO ₂	12-19 (1/2-3/4)	8.9 (350) 12.1 (475) 12.7 (500)	27 30 30	285 335 340	4.2 (9.2) 5.7 (12.5) 6.0 (13.2)
0.052 in (1.3 mm), DC+					
Spray Transfer 90% Ar/10% CO ₂	12-19 (1/2-3/4)	7.6 (300) 8.1 (320) 12.3 (485)	30 30 32	300 320 430	4.8 (10.7) 5.2 (11.5) 7.8 (17.1)
1/16 in (1.6 mm), DC+					
Spray Transfer 90% Ar/10% CO ₂	12-25 (1/2-1)	5.3 (210) 6.0 (235) 7.4 (290)	27 28 29	325 350 430	4.8 (10.7) 5.4 (12.0) 6.7 (14.8)

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer on pg. 18. ⁽⁴⁾Copper due to any coating on the electrode plus the copper content of the filler metal itself, shall not exceed the stated 0.50% max. ⁽⁵⁾CTWD (Contact Tip to Work Distance). Subtract 1/4 in (6.4 mm) to calculate Electrical Stickout. ⁽⁶⁾Procedures in these areas are procedures for short circuiting mode using 100% CO₂. When using 75% Argon, 25% CO₂ for short circuit transfer, reduce voltage by 1 to 2 volts.