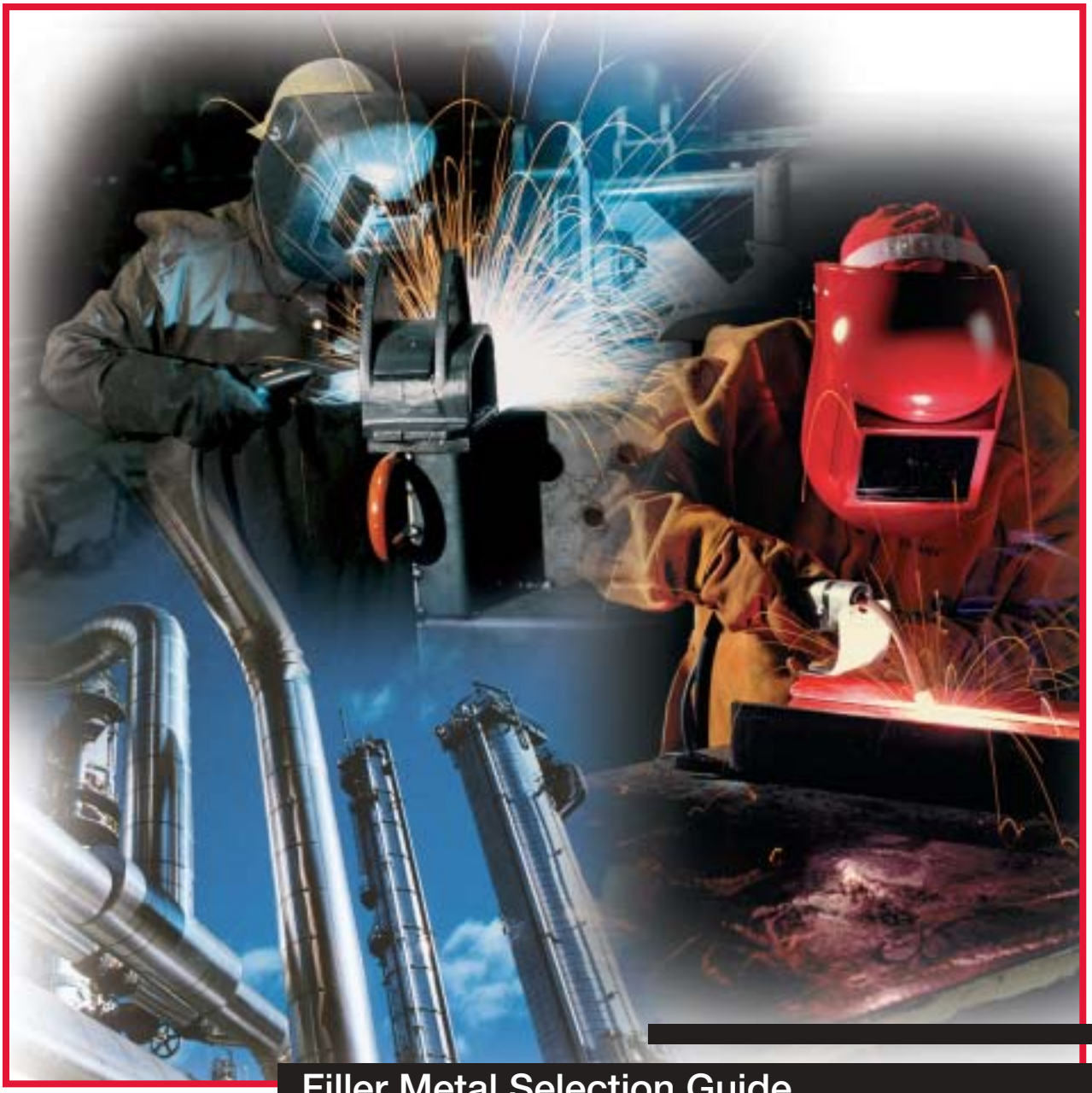
WELDING PRODUCTS
MUREX®
BY LINCOLN ELECTRIC
FILLER METAL PRODUCTS

PRODUCT CATALOG



Filler Metal Selection Guide

LINCOLN® ELECTRIC
THE WELDING EXPERTS℠

About The Lincoln Electric Company

Lincoln Electric is the world's premier manufacturer of welding equipment and consumables. No company on earth is more focused on the ever-changing needs of the welding professional. Our business is all about helping companies make their welding operations more effective, more efficient, more profitable. Lincoln is truly your "One Source" when it comes to welding. We're a company that continually rededicates itself to the equally important goals of exceptional quality, and exceptional service. Our field support team — with hundreds of field sales engineers and thousands of knowledgeable and responsive Lincoln distributors in countries all over the world — is the largest in the industry. Innovative thinking. A quality and service-first attitude. Fresh approaches to design, manufacturing, and packaging. Worldwide strength. That's Lincoln Electric.

WELDING PRODUCTS
MUREX®
BY LINCOLN ELECTRIC
FILLER METAL PRODUCTS

We started by asking the world's most demanding welders what they expected in quality consumables.

Industry Leading Consistency.
Consistency matters to you, and it matters to us. We go to incredible lengths to make sure that our Murex products are the most consistent.

- We check and re-check every bundle of incoming raw material.
- Our manufacturing processes are the most meticulously designed, diligently monitored, and technically advanced in the industry.

Product Breadth

Lincoln offers a broad range of welding consumables under the Murex brand name that includes stick electrodes, MIG (Gas Metal Arc) wire electrode, gas-shielded cored wire products and stainless Stick, MIG and TIG electrodes. You'll find that there's a Murex product for virtually every application.

Stick Electrodes

Quality Control

Murex stick electrode raw material is meticulously checked for 19 different elements before it enters our manufacturing systems. We then verify the chemistry of our finished stick electrode products at more than a dozen separate points during the manufacturing process. This level of inspection and Lincoln Electric's sophisticated ISO 9001 manufacturing and quality control systems ensure that our quality is head and shoulders above the competition. It also guarantees that we consistently meet AWS A5.1 or AWS A5.5 and ASME SFA-5.1 or SFA-5.5 stick electrode requirements.

Arc Performance

Murex stick electrodes by Lincoln Electric have consistently good arc characteristics – from great puddle control and clarity to good restrikeability and low spatter.

These are the qualities that you want in your stick electrode and that we ensure in our Murex product line.

MIG Electrodes

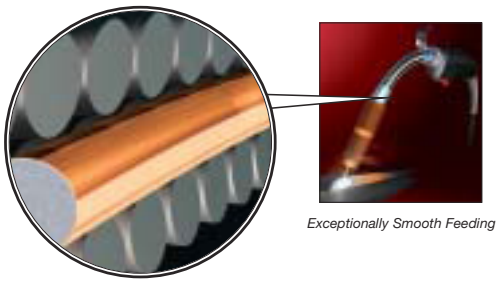
Chemistry

To assure consistent chemical composition, Murex MIG electrodes are evaluated for a number of different elements from raw materials to finished product. This thorough analysis ensures that Murex wire electrodes consistently comply to AWS and ASME requirements as well as to Lincoln Electric's more tightly controlled specifications.

Wire Diameter

Murex wire electrode by Lincoln Electric is monitored at many points throughout the manufacturing drawing process to assure consistency of the wire diameter. Consistent wire diameter results in consistent weld penetration, more reliable feedability and a consistent weld. You can be certain that Murex wires conform to AWS and ASME requirements for wire diameter as well.

MicroGuard™



Exceptionally Smooth Feeding

Feedability

Murex MIG wire electrodes are designed to deliver trouble-free feedability. Our proprietary MicroGuard™ surface treatment, applied during our MIG wire manufacturing process, guards against poor feedability by creating a low friction surface treatment that reduces feeding forces, even over long distances.

Overall Performance

These quality assured performance dimensions mean that the product is consistent, and, therefore, your welds are consistent.

Stainless Steel Consumables

Quality

Murex stainless steel consumables are of highly consistent quality and are an excellent value.

The stainless MIG wire products are precision layer-wound on 25 lb. (11 kg) plastic spools to assist in trouble-free feedability. The 500 lb. (272 kg) Accu-Trak™ drums are twist-free wound to prevent wire flip at the contact tip and to provide accurate weld joint wire placement.

Murex stainless cut length consumables are double coined for easy alloy identification.

Lot controlled certified test reports are available on all Murex stainless products.

Alloy Choices

Murex stainless stick electrodes, MIG wire electrodes and TIG cut length consumables are offered in the most popular welding alloys. Alloys include 308LSi, 309LSi and 316LSi in MIG wires and dual AWS classified TIG rods for 308/308L and 309/309L and 316/316L, as well as 308/308L, 309, 310, and 316/316L alloys in stick electrode—products that meet most customer or application needs.

CONTENTS **PAGE**

MUREX FILLER METAL SELECTION GUIDE

Product Name	AWS Number	Recommended Polarity	General Description	Page No.
Mild Steel Stick Electrodes				
Murex 6011C	E6011	AC DC+	Murex 6011C features a smooth arc that wets and spreads readily with minimum spatter. Excellent for galvanized steel and for rusty or oily steel in maintenance and repair work. Delivers a minimum 60,000 psi (410 MPa) tensile strength.	7
Murex 6013D	E6013	AC DC±	Excellent choice for general purpose welding. Murex 6013D features a smooth, steady arc with either AC or DC, even on low open circuit voltage welders. Minimal operator skill is required. Delivers a minimum 60,000 psi (410 MPa) tensile strength.	8
Murex 7014	E7014	AC DC±	For high speed all-position welding. Great choice when low penetration is desired, such as for use on sheet metal. Also great for poor fit-up joints. Murex 7014 has enhanced arc stability on low open circuit voltage welders.	9
Murex 7024	E7024	AC DC±	Murex 7024 has a heavy coating with high iron powder designed to deliver excellent deposition rates. Welding is in the flat and horizontal positions only.	10
Low Hydrogen, Mild Steel Stick Electrodes				
Murex 7016	E7016 H8	DC+ AC	Murex 7016 is a good all-position stick electrode with a relatively quiet arc and low spatter. Features a low hydrogen content and delivers a minimum 70,000 psi (483 MPa) tensile strength.	11
Murex B7018 MR	E7018 H4 E7018 H4R	DC+ AC	Murex B7018 MR is a good choice when the project involves hard-to-weld steels. Great for welding on thick sections and restrained joints when cracking is an issue.	12
Murex 7018 MR	E7018 H4 E7018 H4R	DC+ AC	A low hydrogen stick electrode designed to pass the most severe x-ray requirements in all positions. Murex 7018 MR features a soft and quiet arc with exceptionally low spatter.	13

MUREX FILLER METAL SELECTION GUIDE

Product Name	AWS Number	Recommended Polarity	General Description	Page No.
Mild Steel MIG Wire Electrodes				
Murematic S3 MicroGuard™ *Guards against poor feedability*	ER70S-3	DC+	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.	14 - 15
Murematic S4+ MicroGuard™ *Guards against poor feedability*	ER70S-4	DC+	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.	16 - 17
Murematic S6 MicroGuard™ *Guards against poor feedability*	ER70S-6	DC+	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.	18 - 19

MUREX FILLER METAL SELECTION GUIDE

Product Name	AWS Number	Recommended Polarity	General Description	Page No.
Stainless Steel MIG Wires				
Murex MIG 308LSi	ER308Si ER308LSi	DC+	This all-position, quality MIG wire is ideally suited for joining common austenitic stainless steel grades referred to as “18-8” steels. It is specially processed to provide superior feeding and arc stability.	20 - 21
Murex MIG 309LSi	ER309Si ER309LSi	DC+	All-position stainless steel wire for joining higher alloyed austenitic stainless steels. Can also be used on “18-8” steels since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 1000 to 1700°F (538 to 927°C).	22 - 23
Murex MIG 316LSi	ER316Si ER316LSi	DC+	All-position stainless steel wire. The undiluted weld metal is designed to contain considerable ferrite for high crack resistance in 316L joining and cladding. Can also be used on “18-8” stainless steels.	24 - 25
Stainless Steel Cut Length TIG Consumables				
Murex TIG 308/308L	ER308 ER308L	DC-	This cut length TIG consumable is for use on the more common austenitic stainless steel grades referred to as “18-8” steels.	26
Murex TIG 309/309L	ER309 ER309L	DC-	For use on more high alloyed austenitic stainless steels. Can also be used on “18-8” steels since it overmatches the corrosion resistance if the weldment will not be exposed to temperatures of 1000 to 1700°F (538 to 927°C).	27
Murex TIG 316/316L	ER316 ER316L	DC-	Undiluted weld metal is designed to contain considerable ferrite for maximum crack resistance. Should not be used on 316L joints in service for urea manufacture, as this environment will attack the ferrite.	28

Murex 6011C features a smooth arc that wets and spreads readily with minimum spatter. Excellent for galvanized steel and for rusty or oily steel in maintenance and repair work. Delivers a minimum 60,000 psi (410 MPa) tensile strength.

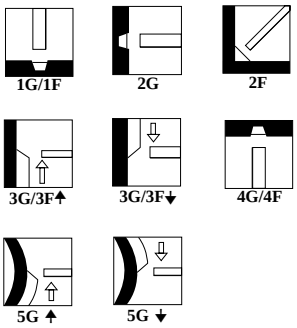
ADVANTAGE MUREX

- Deep penetration and fast freezing.
- Fast deposition and flatter contour fillets deliver faster travel speeds.
- Good slag removal.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- Excellent for galvanized steel and for rusty or oily steel in maintenance and repair work.
- All-position welding.
- Automobile frames, storage tanks and piping.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004: E6011
ASME SFA-5.1: E6011
ABS: E6011
See Note 2 on page 41

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20ºF (-29ºC)
Requirements AWS E6011	48,000 (330) min.	60,000 (410) min.	22 min.	20 (27) min.
Test Results	57,000 - 75,000 (393 - 517)	66,000 - 86,000 (455 - 593)	22 - 35	22 - 93 (30 - 126)

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
3/32 (2.4)	EDM13182343
1/8 (3.2)	EDM13182304
5/32 (4.0)	EDM13182305
3/16 (4.8)	EDM13182306

TYPICAL OPERATING PROCEDURES

Current (Amps)			
3/32" (2.4mm)	1/8" (3.2mm)	5/32" (4.0mm)	3/16 (4.8mm)
50 - 90	80 - 130	120 - 180	140 - 220

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E6011	0.20 max.	1.20 max.	1.00 max.	N.S.	N.S.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	N.S.
Test Results	0.10 - 0.16	0.44 - 0.72	0.10 - 0.31	0.01 - 0.02	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	0.48 - 0.88

[1] Typical all weld metal.

Excellent choice for general purpose welding. Murex 6013D features a smooth, steady arc with either AC or DC, even on low open circuit voltage welders. Minimal operator skill is required. Delivers a minimum 60,000 psi (410 MPa) tensile strength.

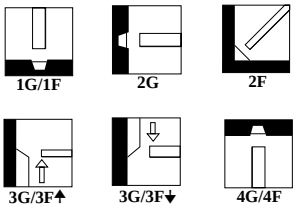
ADVANTAGE MUREX

- Excellent wetting action, yielding smooth and flat beads.
- Ideal for vertical down welding.
- Excellent appearance and ease of operation in all positions.
- Low spatter and excellent slag removal — virtually self cleaning on vertical down fillets.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- For use on all types of mild steel fabrication.
- Good choice when shallow penetration is required or fit up is poor.
- All-position welding.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004: E6013
ASME SFA-5.1: E6013
See Note 1 and Note 2 on page 41

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20ºF (-29ºC)
Requirements AWS E6013	48,000 (331) min.	60,000 (414) min.	17 min.	Not Specified
Test Results	48,000 - 70,000 (331 - 483)	60,000 - 78,000 (414 - 538)	25 - 32	—

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
3/32 (2.4)	EDM13182463
1/8 (3.2)	EDM13182454
5/32 (4.0)	EDM13182455

TYPICAL OPERATING PROCEDURES

(Current) Amps		
3/32" (2.4mm)	1/8" (3.2mm)	5/32" (4.0mm)
65 - 110	95 - 150	125 - 200

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E6013	0.20 max.	1.20 max.	1.00 max.	N.S.	N.S.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	N.S.
Test Results	0.05 - 0.09	0.32 - 0.41	0.29 - 0.45	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	0.36 - 0.57

(1) Typical all weld metal.

For high speed all-position welding. Great choice when low penetration is desired, such as for use on sheet metal. Also great for poor fit-up joints. Murex 7014 has enhanced arc stability on low open circuit voltage welders.

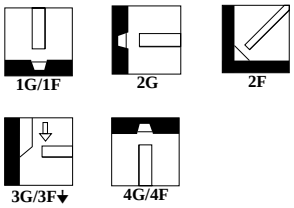
ADVANTAGE MUREX

- Smooth arc transfer and good wetting and low penetration.
- Good deposition rates.
- Good restrike characteristics.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- Specifically designed for vertical down welding of sheet metal and ornamental iron.
- Suitable for all types of mild steel fabrications in all positions.
- All-position welding where fast travel speeds are important.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004: E7014
ASME SFA-5.1: E7014
See Note 1 and Note 2 on page 41

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20ºF (-29ºC)
Required AWS E7014 As-welded	58,000 (400) min.	70,000 (482) min.	17 min.	Not Specified
Test Results				
As-welded	58,000 - 74,000 (399 - 510)	70,000 - 83,000 (482 - 572)	17 - 29	—
Stress-relieved[2] 1 hr. @ 1150°F (620°C)	55,000 - 70,000 (379 - 482)	67,000 - 77,000 (461 - 530)	24 - 30	

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
3/32 (2.4)	EDM13181403
1/8 (3.2)	EDM13181414
5/32 (4.0)	EDM13181415
3/16 (4.8)	EDM13181416

TYPICAL OPERATING PROCEDURES

Current (Amps)			
3/32" (2.4mm)	1/8" (3.2mm)	5/32" (4.0mm)	3/16 (4.8mm)
80 - 100	110 - 150	140 - 190	180 - 260

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E7014	0.15 max.	1.25 max.	0.90 max.	0.035 max.	0.035 max.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	1.50 max.
Test Results	0.04 - 0.09	0.21 - 0.70	0.45 - 0.68	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	0.25 - 0.86

(1) Typical all weld metal.

(2) Data provided for information only - not part of AWS classification.

Murex 7024 has a heavy coating with high iron powder designed to deliver excellent deposition rates. Welding is in the flat and horizontal positions only.

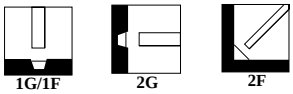
ADVANTAGE MUREX

- Deposition rate is typically 50% greater than an AWS E7014 electrode.
- Good wetting and root fusion in horizontal fillets.
- "Self-cleaning" slag.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- Recommended for flat and horizontal welding.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004: E7024
ASME SFA-5.1: E7024
ABS: E7024
See Note 1 and Note 2 on page 41

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20°F (-29°C)
Required AWS E7024 As-welded	58,000 (399) min.	70,000 (482) min.	17 min.	Not Specified
Test Results As-welded	58,000 - 74,000 (399 - 510)	70,000 - 83,000 (482 - 572)	17 - 29	—
Stress-relieved[2] 1 hr. @ 1150°F (620°C)	67,000 - 77,000 (462 - 531)	55,000 - 70,000 (379 - 483)	24 - 30	

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
1/8 (3.2)	EDM13181214
5/32 (4.0)	EDM13181215
3/16 (4.8)	EDM13181216
7/32 (5.6)	EDM13181217
1/4 (6.4)	EDM13181218

TYPICAL OPERATING PROCEDURES

Current (Amps)				
1/8" (3.2mm)	5/32" (4.0mm)	3/16" (4.8mm)	7/32" (5.6mm)	1/4" (6.4mm)
100 - 175	160 - 240	250 - 300	300 - 350	350 - 400

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E7024	0.15 max.	1.25 max.	0.90 max.	0.035 max.	0.035 max.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	1.50 max.
Test Results	0.04 - 0.09	0.75 - 1.10	0.29 - 0.57	0.010 - 0.020	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.79 - 1.26

(1) Typical all weld metal.

(2) Data provided for information only - not part of AWS classification.

Murex 7016 is a good all-position stick electrode with a relatively quiet arc and low spatter. Features a low hydrogen content and delivers a minimum 70,000 psi (483 MPa) tensile strength.

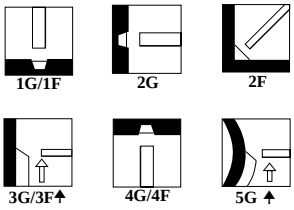
ADVANTAGE MUREX

- Delivers low spatter levels that are easy to clean.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- The best choice for hardenable steels and high sulfur steels.
- Free machining steels.
- Cold rolled steels when stress relieving is not possible.
- Enameled steels without heat treatment prior to enameling.
- All-position welding.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004: E7016 H8
ASME SFA-5.1: E7016 H8

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20°F (-29°C)
Requirements AWS E7016 H8	58,000 (400) min.	70,000 (483) min.	22 min.	20 (27) min.
Test Results	67,000 - 81,000 (462 - 558)	76,000 - 90,000 (524 - 621)	24 - 31	23 - 144 (31 - 195)

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
1/8 (3.2)	EDM13183124
5/32 (4.0)	EDM13183125

DIFFUSIBLE HYDROGEN

As Required per AWS A4.3-93

	ml/100g Weld Deposit
Requirements	8.0 max.
Typical Results	
1/8" (3.2mm)	3-5
5/32" (4.0mm)	4-7

TYPICAL OPERATING PROCEDURES

Current (Amps)	
1/8" (3.2mm)	5/32" (4.0mm)
100 - 150	140 - 190

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E7024	0.15 max.	1.60 max.	0.75 max.	0.035 max.	0.035 max.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	1.75 max.
Test Results	0.05 - 0.09	0.80 - 1.20	0.25 - 0.45	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	0.84 - 1.36

[1] Typical all weld metal.

Murex B7018 MR is a good choice when the project involves hard-to-weld steels. Great for welding on thick sections and restrained joints when cracking is an issue.

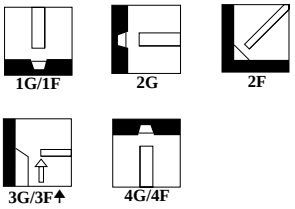
ADVANTAGE MUREX

- Easy slag removal.
- Capable of x-ray quality and excellent impact properties.
- Meets tough AWS limits for low moisture pick-up.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- Designed for welding hardenable steels.
- Cold rolled steels, or other steels containing high sulfur or selenium.
- Low alloy and mild steels when stress relieving normally would be required but cannot be done.
- All-position welding.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004:
E7018 H4 (3/32")
E7018 H4R (1/8" - 3/16")

ASME SFA-5.1: E7018 H4 (3/32")
E7018 H4R (1/8"-3/16")
ABS: E7018

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20°F (-29°C)
Requirements AWS E7018 H4 AWS E7018 H4R	58,000 (400) min.	70,000 (483) min.	22 min.	20 (27) min.
Test Results	60,000 - 69,000 (414 - 476)	74,000 - 83,000 (510 - 572)	30 - 36	20 - 221 (27 - 300)

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Carton
3/32 (2.4)	EDM13182833
1/8 (3.2)	EDM13182834
5/32 (4.0)	EDM13182835
3/16 (4.8)	EDM13182836

DIFFUSIBLE HYDROGEN

As Required per AWS A4.3-93

	ml/100g Weld Deposit
Requirements	8.0 max.
Typical Results 3/32" (2.4mm)	1-3
3/16" (4.8mm)	2-4

TYPICAL OPERATING PROCEDURES

Current (Amps)			
3/32" (2.4mm)	1/8" (3.2mm)	5/32" (4.0mm)	3/16" (4.8mm)
70 - 110	110 - 150	120 - 200	200 - 275

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E7018 H4 AWS E7018 H4R	0.15 max.	1.60 max.	0.75 max.	0.035 max.	0.035 max.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	1.75 max.
Test Results	0.04 - 0.08	1.00 - 1.30	0.35 - 0.65	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	1.04 - 1.46

[1] Typical all weld metal.

A low hydrogen stick electrode, designed to pass the most severe x-ray requirements in all positions. Murex 7018 MR features a soft and quiet arc with exceptionally low spatter.

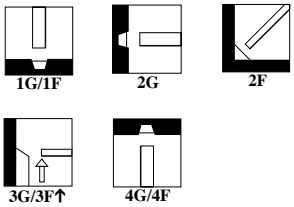
ADVANTAGE MUREX

- Capable of meeting the highest quality x-ray requirements.
- Excellent operator appeal with it's soft and quiet arc with very low spatter.
- Meets tough AWS limits for low moisture pick-up.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- Designed for the most stringent x-ray quality applications, particularly process piping.
- Ideal for welding low alloy structural steels.
- Shipyards, field erection and pipe welding fabrication.
- All-position welding.

WELDING POSITIONS



CONFORMANCE

AWS A5.1/A5.1M:2004:
E7018 H4 (3/32")
E7018 H4R (1/8"-1/4")

ASME SFA-5.1: E7018 H4 (3/32")
E7018 H4R (1/8"-1/4")
ABS: E7018

MECHANICAL PROPERTIES[1] As Required per AWS A5.1/A5.1M:2004

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Charpy V-Notch ft•lbf (Joules) @ -20°F (-29°C)
Requirements				
AWS E7018 H4	58,000 (400)	70,000 (483)	22	20 (27)
AWS E7018 H4R	min.	min.	min.	min.
Test Results	60,000 - 69,000 (414 - 476)	74,000 - 83,000 (510 - 572)	20-36	20 - 221 (27 - 300)

DIAMETERS / PACKAGING

Diameter Inches (mm)	50 Lb. (22.7 kg) Easy Open Cans	10 Lb. (4.5 kg) Easy Open Cans (60 Lb. Master)
3/32 (2.4)	EDM13187183	EDM13185243
1/8 (3.2)	EDM13187184	EDM13185244
5/32 (4.0)	EDM13187185	EDM13185245
3/16 (4.8)	EDM13187186	
1/4 (6.4)	EDM13187188	

DIFFUSIBLE HYDROGEN

As Required per AWS A4.3-93

	ml/100g Weld Deposit
Requirements	4.0 max.
Typical Results	
3/32" (2.4mm)	1-3
1/4" (6.4mm)	2-4

TYPICAL OPERATING PROCEDURES

Current (Amps)				
3/32" (2.4mm)	1/8" (3.2mm)	5/32" (4.0mm)	3/16" (4.8mm)	1/4" (6.4mm)
70-110	100-150	120-200	200-275	300-400

DEPOSIT COMPOSITION[1] As Required per AWS A5.1/A5.1M:2004

	%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%V	Mn+Ni+Cr+Mo+V
Requirements AWS E7018 H4 / H4R	0.15 max.	1.60 max.	0.75 max.	0.035 max.	0.035 max.	0.30 max.	0.20 max.	0.30 max.	0.08 max.	1.75 max.
Test Results	0.04 - 0.08	1.00 - 1.30	0.35 - 0.65	0.010 - 0.020	0.005 - 0.015	0.01 - 0.06	0.01 - 0.06	0.01 - 0.02	0.01 - 0.02	1.04 - 1.46

[1] Typical all weld metal.

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.

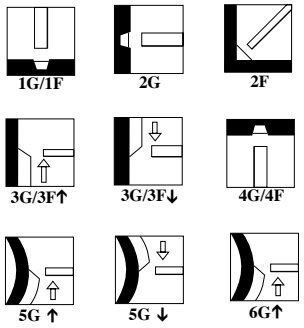
ADVANTAGE MUREX

- 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% CO_2
75-95% Ar/Balance CO_2
95-98% Ar/Balance O_2
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% CO_2. When using 75% Argon, 25% CO_2 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.

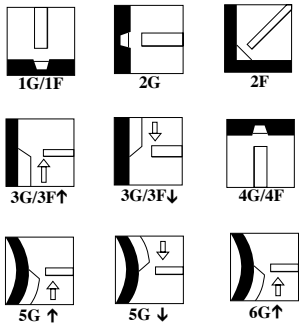
ADVANTAGE MUREX

- 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% CO_2
75-95% Ar/Balance CO_2
95-98% Ar/Balance O_2
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)	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% CO_2. When using 75% Argon, 25% CO_2 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.

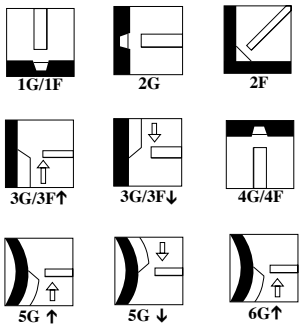
ADVANTAGE MUREX

- 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% CO_2
75-95% Ar/Balance CO_2
95-98% Ar/Balance O_2
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% CO_2. When using 75% Argon, 25% CO_2 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.

This all-position, quality MIG wire is ideally suited for joining common austenitic stainless steel grades referred to as "18-8" steels. It is specially processed to provide superior feeding and arc stability.

ADVANTAGE MUREX

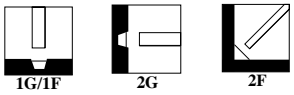
- Globular and spray transfer are recommended for downhand and horizontal only.
- Short circuiting transfer and pulsed arc can be used for out-of-position welding.
- Precision layer winding technologies ensure smooth, virtually trouble-free feeding.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

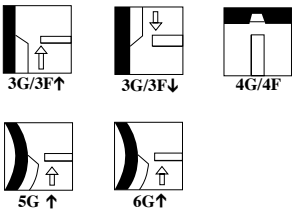
- For joining common austenitic stainless steel grades referred to as "18-8" steels.
- Intended to be used with argon/oxygen blend or helium-rich shielding gas mixtures.
- ASTM A240 Types 302, 304 & 304L.
- ASTM A743, A744 Types CF-8 & CF-3.
- All-position welding.

WELDING POSITIONS

Globular and Spray Transfer:



Short Circuiting and Pulsed Arc:



CONFORMANCE

AWS A5.9-93: ER308Si, ER308LSi
ASME SFA-5.9: ER308Si, ER308LSi

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Ferrite No.
Requirements				
AWS ER308Si		Not Specified		
AWS ER308LSi		Not Specified		
Actual Test Results	—	90,000 (622)	41	14.2

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER308Si	0.03(1) max.	19.5-22.0	9.0-11.0	0.75 max.	1.0-2.5	0.65-1.00	0.03 max.	0.03 max.	0.75 max.	(2) —	(2) —
AWS ER308LSi											
Actual Test Results	0.02	19.9	10.4	0.06	1.8	0.92	0.01	0.03	0.32	0.02	< 0.01

(1) Requirement for ER308Si is 0.08% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

DIAMETERS / PACKAGING

Diameter Inches (mm)	2 Lb. (0.9 kg) Spool 8 Lb. (3.6 kg) Master	10 Lb. (4.5 kg) Spool	25 Lb. (11 kg) Spool	500 Lb. (227 kg) Accu-Trak Drum
.030 (0.8)	EDM23447102	EDM23447112		
.035 (0.9)	EDM23447103	EDM23447113	EDM23447133	EDM23447183
.045 (1.1)	EDM23447105	EDM23447115	EDM23447135	EDM23447185
1/16 (1.6)			EDM23447134	

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD[1] Transfer Mode Shielding Gas Wire Weight	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Deposition Rate lbs/hr (kg/hr)
.030" (0.8mm), DC+				
1/2" (12mm)	180 (4.6)	21	41	2.2 (1.0)
Short Circuiting Transfer	210 (5.3)	22	49	2.5 (1.1)
90% He/7-1/2% Ar/2-12% CO_2	230 (5.8)	22	55	2.7 (1.2)
0.203 lbs/1000" (3.62 g/m)	260 (6.6)	22	64	3.0 (1.4)
	290 (7.4)	22	71	3.2 (1.5)
	310 (7.9)	22	75	3.6 (1.6)
	330 (8.4)	22	83	3.8 (1.7)
	360 (9.1)	23	90	4.3 (2.0)
	390 (9.9)	23	103	4.5 (2.0)
	410 (10.4)	23.5	105	4.8 (2.2)
	430 (10.9)	23.5	110	5.1 (2.3)
	460 (11.7)	24	115	5.5 (2.5)
.030" (0.8mm), DC+				
1/2" (12mm)	475 (12.1)	21.5	143	5.6 (2.6)
Spray Transfer	500 (12.7)	22	150	6.0 (2.7)
98% Ar/2% O_2	575 (13.3)	22	167	6.4 (2.9)
0.203 lbs/1000" (3.62 g/m)	550 (14.0)	23	170	6.5 (3.0)
.035" (0.9mm), DC+				
1/2" (12mm)	120 (3.0)	19 - 20	55	2.0 (0.9)
Short Circuiting Transfer	150 (3.8)	19 - 20	75	2.5 (1.2)
90% He/7-1/2% Ar/2-1/2% CO_2	180 (4.6)	19 - 20	85	3.0 (1.4)
0.279 lbs/1000" (4.9 g/m)	205 (5.2)	19 - 20	95	3.4 (1.6)
	230 (5.8)	20 - 21	105	3.9 (1.8)
	275 (6.9)	20 - 21	110	4.6 (2.1)
	300 (7.6)	20 - 21	125	5.0 (2.3)
	325 (8.3)	20 - 21	130	5.4 (2.5)
	350 (8.9)	21 - 22	140	5.9 (2.7)
	375 (9.5)	21 - 22	150	6.3 (2.9)
	400 (10.2)	22 - 23	160	6.7 (3.1)
	425 (10.8)	22 - 23	170	7.1 (3.3)
.035" (0.9mm), DC+				
1/2" (12mm)	400 (10.2)	22	180	6.7 (3.1)
Spray Transfer	425 (10.8)	23	190	7.1 (3.3)
98% Ar/2% O_2	450 (11.4)	23	200	7.5 (3.5)
0.279 lbs/1000" (4.9 g/m)	475 (12.1)	23	210	8.0 (3.7)
.045" (1.1mm), DC+				
1/2" (12mm)	100 (2.5)	19 - 20	100	2.8 (1.1)
Short Circuiting Transfer	125 (3.2)	19 - 20	120	3.5 (1.5)
90% He/7-1/2% Ar/2-1/2% CO_2	150 (3.8)	21	135	4.2 (1.7)
0.461 lbs/1000" (8.2 g/m)	175 (4.4)	21	140	4.8 (2.0)
	220 (5.6)	22	170	6.1 (2.6)
	250 (6.4)	22 - 23	175	6.9 (2.9)
	275 (7.0)	22 - 23	185	7.6 (3.2)
.045" (1.1mm), DC+				
3/4" (19mm)	240 (6.1)	23	195	6.6 (2.8)
Spray Transfer	260 (6.6)	24	230	7.2 (3.0)
98% Ar/2% O_2	300 (7.6)	24	240	8.3 (3.5)
0.461 lbs/1000" (8.2 g/m)	325 (8.3)	25	250	9.0 (3.8)
	360 (9.1)	25	260	10.0 (4.2)
1/16" (1.6mm), DC+				
3/4" (19mm)	175 (4.4)	25	260	2.9 (4.3)
Spray Transfer	200 (5.1)	26	310	10.5 (4.9)
98% Ar/2% O_2	250 (6.4)	26	230	13.1 (6.2)
0.876 lbs/1000" (15.6 g/m)	275 (7.0)	27	360	14.4 (6.8)
	300 (7.6)	28	390	15.8 (7.4)

[1] CTWD (Contact Tip to Work Distance). Subtract 1/4" to calculate Electrical Stickout.

All-position stainless steel wire for joining higher alloyed austenitic stainless steels. Can also be used on "18-8" steels, since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 1000 to 1700°F (538 to 927°C).

ADVANTAGE MUREX

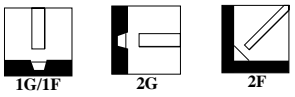
- Globular and spray transfer are recommended for downhand and horizontal only.
- Short circuiting transfer and pulsed arc can be used for out-of-position welding.
- Precision layer winding technologies ensure smooth, virtually trouble-free feeding.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

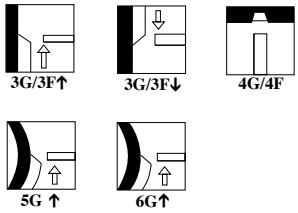
- For joining higher alloyed austenitic stainless steels.
- Intended to be used with argon/oxygen blend or helium-rich shielding gas mixtures.
- Can also be used on "18-8" steels, since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 1000 to 1700°F (538 to 927°C).
- ASTM A240 Type 309S.
- ASTM A743, A744 Type CG-12.
- All-position welding.

WELDING POSITIONS

Globular and Spray Transfer:



Short Circuiting and Pulsed Arc:



CONFORMANCE

AWS A5.9-93: ER309Si, ER309LSi
ASME SFA-5.9: ER309Si, ER309LSi

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Ferrite No.
Requirements				
AWS ER309Si		Not Specified		
AWS ER309LSi		Not Specified		
Actual Results	—	88,000 (608)	38	12.5

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER309Si	0.03 (1) max.	23.0-25.0	12.0-14.0	0.75 max.	1.0-2.5	0.65-1.00	0.03 max.	0.03 max.	0.75 max.	(2) —	(2) —
AWS ER309LSi											
Actual Test Results	0.01	23.3	14.0	0.13	2.2	0.73	< 0.01	0.02	0.34	0.06	0.02

(1) Requirement for ER309Si is 0.12% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

DIAMETERS / PACKAGING

Diameter Inches (mm)	2 Lb.(0.9 kg) Spool 8 Lb. (3.6 kg) Master	10 Lb. (4.5 kg) Spool	25 Lb. (11 kg) Spool
.030 (0.8)	EDM23447402	EDM23447412	EDM23447432
.035 (0.9)	EDM23447403	EDM23447413	EDM23447433
.045 (1.1)	EDM23447405	EDM23447415	EDM23447435
1/16 (1.6)			EDM23447434

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD[1] Transfer Mode Shielding Gas Wire Weight	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Deposition Rate lbs/hr (kg/hr)
.030" (0.8mm), DC+				
1/2" (12mm)	180 (4.6)	21	41	2.2 (1.0)
Short Circuiting Transfer	210 (5.3)	22	49	2.5 (1.1)
90% He/7-1/2% Ar/2-12% CO_2	230 (5.8)	22	55	2.7 (1.2)
0.203 lbs/1000" (3.62 g/m)	260 (6.6)	22	64	3.0 (1.4)
	290 (7.4)	22	71	3.2 (1.5)
	310 (7.9)	22	75	3.6 (1.6)
	330 (8.4)	22	83	3.8 (1.7)
	360 (9.1)	23	90	4.3 (2.0)
	390 (9.9)	23	103	4.5 (2.0)
	410 (10.4)	23.5	105	4.8 (2.2)
	430 (10.9)	23.5	110	5.1 (2.3)
	460 (11.7)	24	115	5.5 (2.5)
.030" (0.8mm), DC+				
1/2" (12mm)	475 (12.1)	21.5	143	5.6 (2.6)
Spray Transfer	500 (12.7)	22	150	6.0 (2.7)
98% Ar/2% O_2	575 (13.3)	22	167	6.4 (2.9)
0.203 lbs/1000" (3.62 g/m)	550 (14.0)	23	170	6.5 (3.0)
.035" (0.9mm), DC+				
1/2" (12mm)	120 (3.0)	19 - 20	55	2.0 (0.9)
Short Circuiting Transfer	150 (3.8)	19 - 20	75	2.5 (1.2)
90% He/7-1/2% Ar/2-1/2% CO_2	180 (4.6)	19 - 20	85	3.0 (1.4)
0.279 lbs/1000" (4.9 g/m)	205 (5.2)	19 - 20	95	3.4 (1.6)
	230 (5.8)	20 - 21	105	3.9 (1.8)
	275 (6.9)	20 - 21	110	4.6 (2.1)
	300 (7.6)	20 - 21	125	5.0 (2.3)
	325 (8.3)	20 - 21	130	5.4 (2.5)
	350 (8.9)	21 - 22	140	5.9 (2.7)
	375 (9.5)	21 - 22	150	6.3 (2.9)
	400 (10.2)	22 - 23	160	6.7 (3.1)
	425 (10.8)	22 - 23	170	7.1 (3.3)
.035" (0.9mm), DC+				
1/2" (12mm)	400 (10.2)	22	180	6.7 (3.1)
Spray Transfer	425 (10.8)	23	190	7.1 (3.3)
98% Ar/2% O_2	450 (11.4)	23	200	7.5 (3.5)
0.279 lbs/1000" (4.9 g/m)	475 (12.1)	23	210	8.0 (3.7)
.045" (1.1mm), DC+				
1/2" (12mm)	100 (2.5)	19 - 20	100	2.8 (1.1)
Short Circuiting Transfer	125 (3.2)	19 - 20	120	3.5 (1.5)
90% He/7-1/2% Ar/2-1/2% CO_2	150 (3.8)	21	135	4.2 (1.7)
0.461 lbs/1000" (8.2 g/m)	175 (4.4)	21	140	4.8 (2.0)
	220 (5.6)	22	170	6.1 (2.6)
	250 (6.4)	22 - 23	175	6.9 (2.9)
	275 (7.0)	22 - 23	185	7.6 (3.2)
.045" (1.1mm), DC+				
3/4" (19mm)	240 (6.1)	23	195	6.6 (2.8)
Spray Transfer	260 (6.6)	24	230	7.2 (3.0)
98% Ar/2% O_2	300 (7.6)	24	240	8.3 (3.5)
0.461 lbs/1000" (8.2 g/m)	325 (8.3)	25	250	9.0 (3.8)
	360 (9.1)	25	260	10.0 (4.2)
1/16" (1.6mm), DC+				
3/4" (19mm)	175 (4.4)	25	260	2.9 (4.3)
Spray Transfer	200 (5.1)	26	310	10.5 (4.9)
98% Ar/2% O_2	250 (6.4)	26	230	13.1 (6.2)
0.876 lbs/1000" (15.6 g/m)	275 (7.0)	27	360	14.4 (6.8)
	300 (7.6)	28	390	15.8 (7.4)

[1] CTWD (Contact Tip to Work Distance). Subtract 1/4" to calculate Electrical Stickout.

All-position stainless steel wire. The undiluted weld metal is designed to contain considerable ferrite for high crack resistance in 316L joining and cladding. Can also be used on "18-8" stainless steels.

ADVANTAGE MUREX

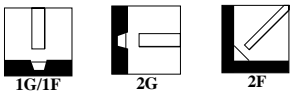
- Undiluted weld metal is designed to contain considerable ferrite for high crack resistance.
- Globular and spray transfer are recommended for downhand and horizontal only. Short circuiting transfer and pulsed arc can be used for out-of-position welding.
- Precision layer winding technologies ensure smooth, virtually trouble-free feeding.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

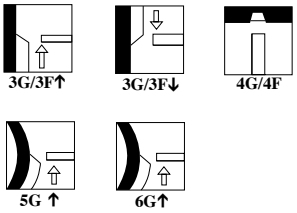
- For joining and cladding 316L joints and overlays. Can also be used on "18-8" steels.
- ASTM A240 Types 316 & 316L.
- ASTM A743, A744 Types CF-8M & CF-3M.
- All-position welding.
- Intended to be used with argon/oxygen blend or helium-rich shielding gas mixtures.
- Should not be used in urea manufacture, as this environment will attack the ferrite.

WELDING POSITIONS

Globular and Spray Transfer:



Short Circuiting and Pulsed Arc:



CONFORMANCE

AWS A5.9-93: ER316Si, ER316LSi
ASME SFA-5.9: ER316Si, ER316LSi

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Yield Strength psi (MPa)	Tensile Strength psi (MPa)	Elongation (%)	Ferrite No.
Requirements				
AWS ER316Si		Not Specified		
AWS ER316LSi		Not Specified		
Actual Test Results	—	84,000 (577)	38	14 .6

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER316Si, AWS ER316LSi	0.03 (1) max.	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5	0.65-1.00	0.03 max.	0.03 max.	0.75 max.	(2) —	(2) —
Actual Test Results	0.01	18.4	11.9	2.5	1.6	0.72	0.01	0.02	0.15	0.01	0.01

(1) Requirement for ER316Si is 0.08% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

DIAMETERS / PACKAGING

Diameter Inches	(mm)	2 Lb. (0.9 kg) Spool 8 Lb. (3.6 kg) Master	10 Lb. (4.5 kg) Spool	25 Lb. (11 kg) Spool	500 Lb. (227 kg) Accu-Trak Drum
.030	(0.8)	EDM23447702	EDM23447712		
.035	(0.9)	EDM23447703	EDM23447713	EDM23447733	EDM23447783
.045	(1.1)	EDM23447705	EDM23447715	EDM23447735	EDM23447785
1/16	(1.6)			EDM23447734	

TYPICAL OPERATING PROCEDURES

Diameter, Polarity CTWD[1] Transfer Mode Shielding Gas Wire Weight	Wire Feed Speed in/min (m/min)	Arc Voltage (volts)	Approx. Current (amps)	Deposition Rate lbs/hr (kg/hr)
.030" (0.8mm), DC+				
1/2" (12mm)	180 (4.6)	21	41	2.2 (1.0)
Short Circuiting Transfer	210 (5.3)	22	49	2.5 (1.1)
90% He/7-1/2% Ar/2-12% CO_2	230 (5.8)	22	55	2.7 (1.2)
0.203 lbs/1000" (3.62 g/m)	260 (6.6)	22	64	3.0 (1.4)
	290 (7.4)	22	71	3.2 (1.5)
	310 (7.9)	22	75	3.6 (1.6)
	330 (8.4)	22	83	3.8 (1.7)
	360 (9.1)	23	90	4.3 (2.0)
	390 (9.9)	23	103	4.5 (2.0)
	410 (10.4)	23.5	105	4.8 (2.2)
	430 (10.9)	23.5	110	5.1 (2.3)
	460 (11.7)	24	115	5.5 (2.5)
.030" (0.8mm), DC+				
1/2" (12mm)	475 (12.1)	21.5	143	5.6 (2.6)
Spray Transfer	500 (12.7)	22	150	6.0 (2.7)
98% Ar/2% O_2	575 (13.3)	22	167	6.4 (2.9)
0.203 lbs/1000" (3.62 g/m)	550 (14.0)	23	170	6.5 (3.0)
.035" (0.9mm), DC+				
1/2" (12mm)	120 (3.0)	19 - 20	55	2.0 (0.9)
Short Circuiting Transfer	150 (3.8)	19 - 20	75	2.5 (1.2)
90% He/7-1/2% Ar/2-1/2% CO_2	180 (4.6)	19 - 20	85	3.0 (1.4)
0.279 lbs/1000" (4.9 g/m)	205 (5.2)	19 - 20	95	3.4 (1.6)
	230 (5.8)	20 - 21	105	3.9 (1.8)
	275 (6.9)	20 - 21	110	4.6 (2.1)
	300 (7.6)	20 - 21	125	5.0 (2.3)
	325 (8.3)	20 - 21	130	5.4 (2.5)
	350 (8.9)	21 - 22	140	5.9 (2.7)
	375 (9.5)	21 - 22	150	6.3 (2.9)
	400 (10.2)	22 - 23	160	6.7 (3.1)
	425 (10.8)	22 - 23	170	7.1 (3.3)
.035" (0.9mm), DC+				
1/2" (12mm)	400 (10.2)	22	180	6.7 (3.1)
Spray Transfer	425 (10.8)	23	190	7.1 (3.3)
98% Ar/2% O_2	450 (11.4)	23	200	7.5 (3.5)
0.279 lbs/1000" (4.9 g/m)	475 (12.1)	23	210	8.0 (3.7)
.045" (1.1mm), DC+				
1/2" (12mm)	100 (2.5)	19 - 20	100	2.8 (1.1)
Short Circuiting Transfer	125 (3.2)	19 - 20	120	3.5 (1.5)
90% He/7-1/2% Ar/2-1/2% CO_2	150 (3.8)	21	135	4.2 (1.7)
0.461 lbs/1000" (8.2 g/m)	175 (4.4)	21	140	4.8 (2.0)
	220 (5.6)	22	170	6.1 (2.6)
	250 (6.4)	22 - 23	175	6.9 (2.9)
	275 (7.0)	22 - 23	185	7.6 (3.2)
.045" (1.1mm), DC+				
3/4" (19mm)	240 (6.1)	23	195	6.6 (2.8)
Spray Transfer	260 (6.6)	24	230	7.2 (3.0)
98% Ar/2% O_2	300 (7.6)	24	240	8.3 (3.5)
0.461 lbs/1000" (8.2 g/m)	325 (8.3)	25	250	9.0 (3.8)
	360 (9.1)	25	260	10.0 (4.2)
1/16" (1.6mm), DC+				
3/4" (19mm)	175 (4.4)	25	260	2.9 (4.3)
Spray Transfer	200 (5.1)	26	310	10.5 (4.9)
98% Ar/2% O_2	250 (6.4)	26	230	13.1 (6.2)
0.876 lbs/1000" (15.6 g/m)	275 (7.0)	27	360	14.4 (6.8)
	300 (7.6)	28	390	15.8 (7.4)

[1] CTWD (Contact Tip to Work Distance). Subtract 1/4" to calculate Electrical Stickout.

This cut length TIG consumable is for use on the more common austenitic stainless steel grades referred to as "18-8" steels.

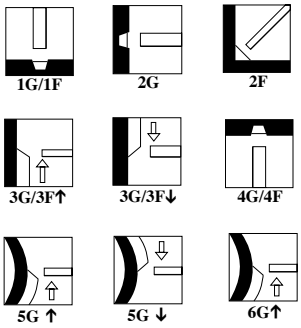
ADVANTAGE MUREX

- Chemically balanced and manufactured for use on the appropriate stainless steel base metals.
- Double-coined at rod ends for easy alloy identity.
- Available in 36" (914mm) lengths.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- For joining common austenitic stainless steel grades referred to as "18-8" steels.
- All-position TIG welding.
- ASTM A240 Types 302, 304 & 304L.
- ASTM A743, A744 Types CF-8 & CF-3.

WELDING POSITIONS



CONFORMANCE

AWS A5.9-93: ER308, ER308L
ASME SFA-5.9: ER308, ER308L

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Ferrite No.
Requirements	
AWS ER308	Not Specified
AWS ER308L	Not Specified
Actual Test Results	7.7

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

DIAMETERS / PACKAGING

Diameter Inches (mm)		10 Lb. (5 kg) Carton (40 lb. Master)
1/16	(1.6)	EDM13507122
3/32	(2.4)	EDM13507123
1/8	(3.2)	EDM13507124

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER308	0.03 (1)	19.5 - 22.0	9.0 - 11.0	0.75	1.0 - 2.5	0.30-0.65	0.03	0.03	0.75	(2)	(2)
AWS ER308L	max.			max.		max.	max.	max.	max.	—	—
Actual Test Results	0.02	19.8	10.8	0.04	1.8	0.44	0.02	0.02	0.14	0.03	0.01

(1) Requirement for ER308 is 0.08% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

For use on more high alloyed austenitic stainless steels. Can also be used on "18-8" steels, since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 1000 to 1700°F (538 to 927°C).

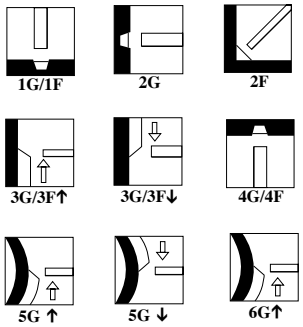
ADVANTAGE MUREX

- Chemically balanced and manufactured for use on the appropriate stainless steel base metals.
- Double-coined at rod ends for easy alloy identity.
- Available in 36" (914mm) lengths.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- For joining higher alloyed austenitic stainless steels.
- Can also be used on "18-8" steels, since it overmatches the corrosion resistance, if the weldment will not be exposed to temperatures of 1000 to 1700° F (538 to 927° C).
- All-position TIG welding.
- ASTM A240 Type 309S.
- ASTM A743, A744 Type CG-12.

WELDING POSITIONS



CONFORMANCE

AWS A5.9-93: ER309, ER309L
ASME SFA-5.9: ER309, ER309L

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Ferrite No.
Requirements	
AWS ER309	Not Specified
AWS ER309L	Not Specified
Actual Test Results	9

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

DIAMETERS / PACKAGING

Diameter Inches (mm)		10 Lb. (5 kg) Carton (40 lb. Master)
1/16	(1.6)	EDM13507422
3/32	(2.4)	EDM13507423
1/8	(3.2)	EDM13507424

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER309	0.03 (1) max.	23.0-25.0	12.0-14.0	0.75 max.	1.0-.5	0.30 - 0.65	.03 max.	.03 max.	.75 max.	(2) —	(2) —
AWS ER309L											
Actual Test Results	0.01	23.3	13.7	0.16	1.9	0.38	0.01	0.02	0.14	0.08	0.01

(1) Requirement for ER309 is 0.08% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

Undiluted weld metal is designed to contain considerable ferrite for maximum crack resistance. Should not be used on 316L joints in service for urea manufacture, as this environment will attack the ferrite.

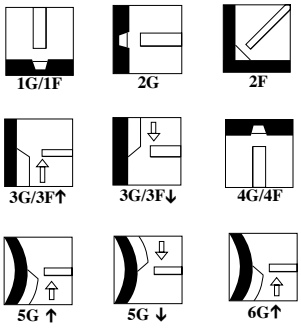
ADVANTAGE MUREX

- Chemically balanced and manufactured for use on the appropriate stainless steel base metals.
- Double-coined at rod ends for easy alloy identity.
- Available in 36" (914mm) lengths.
- Manufactured under a quality system certified to ISO 9001 requirements.

TYPICAL APPLICATIONS

- For joining and cladding 316L joints and overlays. Can also be used on "18-8 steels.
- All-position TIG welding.
- ASTM A240 Types 316 & 316L.
- ASTM A743, A744 Types CF-8M & CF-3M.

WELDING POSITIONS



CONFORMANCE

AWS A5.9-93: ER316, ER316L
ASME SFA-5.9: ER316, ER316L

MECHANICAL PROPERTIES As Required per AWS A5.9-93

	Ferrite No.
Requirements	
AWS ER316	Not Specified
AWS ER316L	Not Specified
Actual Test Results	7

NOTE: Stainless Murex Stick, MIG Wire and Cut Length Consumables are manufactured under lot control. A Certificate of Test showing ACTUAL deposit or wire chemistry, as appropriate, and Ferrite Number (FN) is available upon request from the factory, Dept. 26 (FAX 216-383-8386) for every lot of electrodes.

DIAMETERS / PACKAGING

Diameter Inches (mm)		10 Lb. (5 kg) Carton (40 lb. Master)
1/16	(1.6)	EDM13507722
3/32	(2.4)	EDM13507723
1/8	(3.2)	EDM13507724

ELECTRODE COMPOSITION As Required per AWS A5.9-93

	%C	%Cr	%Ni	%Mo	%Mn	%Si	%S	%P	%Cu	%N	%Cb (Nb)
Requirements											
AWS ER316	0.03 (1) max.	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5	0.30-0.65	0.03 max.	0.03 max.	0.75 max.	(2) —	(2) —
AWS ER316L											
Actual Test Results	0.02	18.2	11.6	2.0	1.6	0.49	0.02	0.03	0.10	0.03	0.01

(1) Requirement for ER316 is 0.08% max. carbon.
(2) Included in 0.50% maximum for other elements not specified.

ASME BOILER & PRESSURE VESSEL CODE
Section IX
F and A No.'s for Stick Electrodes

Group No.	Weld Metal Analysis No.	Product
F-1	A-1	Murex 7024
F-2	A-1	Murex 6013D
F-2	A-1	Murex 7014
F-3	A-1	Murex 6011C
F-4	A-1	Murex 7016
F-4	A-1	Murex B7018 MR
F-4	A-1	Murex 7018 AC
F-4	A-1	Murex 7018 MR
F-4	A-2	Murex 7018-A1 MR
F-4	A-12	Murex 11018 MR
F-5	A-8	Murex 308/308L-16
F-5	A-8	Murex 309-16
F-5	A-9	Murex 310-16
F-5	A-8	Murex 316/316L-16

STICK ELECTRODES

Murex stick electrodes are packaged in either cartons or hermetically sealed easy-open cans. Unopened cans of electrode will retain their proper moisture content indefinitely when stored in good condition.

Cartons are available in the 50 lb. (23 kg) size and easy open cans come in several weight sizes from 8 to 50 lbs. (4 to 23 kg).

CUT LENGTH TIG CONSUMABLES

- Available in 36" (914mm) lengths.
- 10 lb. cardboard carton.
- Double coined for ease of identification.

SMALL WIRE PACKAGING

No matter what your need, Murex has a package option for almost any project. For example, small packages include coils or plastic, fiber and steel spools in weights from 2 to 60 lbs. (0.9 to 27 kg).

PLASTIC SPOOL

FIBER SPOOL

STEEL SPOOL

COIL

BULK WIRE PACKAGING

Accu-Trak™ Drum

The Accu-Trak Drum wire system is a bulk wire package designed specifically for MIG wire. Built to deliver consistent performance in conventional automation and robotics, Accu-Trak Drums also perform well in semiautomatic applications.
The Accu-Trak Drum wire system accurately places the wire in the weld joint throughout the welding process.

- The Accu-Trak Drum requires a K884-5 (500 lb.) or K884-6 (1000 lb.) Accu-Trak Drum Payoff Kit to ensure accurate feeding.

Improved wire feedability and reduced tangling will propel your productivity to the next level with Murex Accu-Trak bulk products. Field-tested and approved, many customers have experienced improved performance and accurate wire placement. Check it out and see the difference for yourself!

ACCU-TRAK™ DRUM

Accu-Trak™ Reel

Like the Accu-Trak Drum, the Accu-Trak Reel delivers twist-free wire and accurately places it in the weld joint.

- The K895-2 Rotary Wire Dispenser is necessary to payoff the Accu-Trak Reel.

Speed Feed® Reel

The Speed Feed Reel is designed to provide maximum flexibility. The reels are specially wound to ease feeding for steady, easy dispensing. They are used with a dereeler which rotates the reel and provides accurate wire placement in the weld joint.

ACCU-TRAK™ REEL
(shown with K895-2 Rotary Wire Dispenser)

SPEED FEED® REEL

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our web site at www.lincolnelectric.com.

NOTE 1: JOINING ELECTRODES, NON-CHARPY V-NOTCH RATED

These electrodes and others of the same AWS classification, are not required to deposit weld metal capable of delivering any minimum specified Charpy V-Notch (CVN) properties. It should not be used in applications where minimum specified CVN properties are required. Typical applications where minimum specified CVN properties are required include, but are not restricted to, bridges, pressure vessels, and buildings in seismic zones. The user of this product is responsible for determining whether minimum CVN properties are required for the specific application.

NOTE 2: JOINING ELECTRODES, NON-LOW HYDROGEN

These electrodes and others of the same AWS classification, are not required to deposit weld metal that is low in diffusible hydrogen. Therefore, these electrodes should not be used in applicationns where the hydrogen content of the weld metal is required to be controlled.

TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual Test Results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.

LINCOLN NORTH AMERICA

DISTRICT SALES OFFICES

U.S.A.

ALABAMA
BIRMINGHAM 35124-1156
(205) 988-8232
MOBILE 36582-5209
(251) 443-6524

ALASKA
Contact VANCOUVER, WA
(360) 693-4712

ARIZONA
PHOENIX 85260-1745
(480) 348-2004

ARKANSAS
LITTLE ROCK 72032-4371
(501) 764-0480

CALIFORNIA
FRESNO 93722-3949
(559) 276-0110
LOS ANGELES 90670-2936
(562) 906-7700
SACRAMENTO 95819-3111
(916) 452-1425
SAN DIEGO 92065-4165
(760) 787-1970
SAN FRANCISCO 94551-4847
(925) 443-9353

COLORADO
DENVER 80112-5115
(303) 792-2418

CONNECTICUT
NORTH HAVEN 06238-1090
(860) 742-8887

FLORIDA
JACKSONVILLE 32216-4634
(904) 642-3177
MIAMI 33178-1175
(305) 888-3203
ORLANDO 32714-1974
(407) 788-8557
TAMPA 33594
(813) 477-5817

GEORGIA
ATLANTA 30076-4914
(770) 475-0955
SAVANNAH 31324-5180
(912) 727-4286

HAWAII
Contact LOS ANGELES, CA
(562) 906-7700

IDAHO
BOISE 83616-6646
(208) 938-2302

ILLINOIS
CHICAGO 60527-5629
(630) 920-1500
PEORIA 60527-5629
(630) 920-1500

INDIANA
EVANSVILLE 47630
(812) 454-3428
FT. WAYNE 46825-5547
(260) 484-4422
SOUTH BEND 46561-9160
(219) 674-5523
INDIANAPOLIS 46250-5536
(317) 845-8445

IOWA
CEDAR RAPIDS 52402-3160
(319) 362-6804
DAVENPORT 52806-1344
(563) 386-6522
DES MOINES 50265-6218
(515) 963-1778

KANSAS
KANSAS CITY 66214-1625
(913) 894-0888
WICHITA 67037-9614
(316) 788-7367

KENTUCKY
LOUISVILLE 47112-7025
(502) 727-7335

LOUISIANA
BATON ROUGE 70808-3150
(225) 922-5151
LAFAYETTE 70507-3126
(337) 886-1090
SHREVEPORT 75692-9313
(318) 518-4099

MARYLAND
BALTIMORE 21050-3067
(443) 831-0416

MASSACHUSETTS
BOSTON 01701-7726
(508) 788-9353

MICHIGAN
DETROIT 48034-4005
(248) 353-9680
FLINT 48439-8728
(810) 695-2627
GRAND RAPIDS 49512-3924
(616) 942-8780

MINNESOTA
MINNEAPOLIS 55447-4743
(763) 551-1990

MISSISSIPPI
JACKSON 39212-9635
(601) 372-7679

MISSOURI
KANSAS CITY (KS) 66214-1625
(913) 894-0888
ST. LOUIS 63045
(314) 291-5877
SPRINGFIELD 65804
(417) 841-2779

MONTANA
Contact VANCOUVER, WA
(360) 693-4712

NEBRASKA
OMAHA 68046-2826
(402) 339-1809

NEW JERSEY
EDISON 08837-3939
(732) 225-2000

NEW MEXICO
ALBUQUERQUE 87008
(505) 890-6347

NEW YORK
ALBANY 12304-4320
(518) 469-8222
BUFFALO 14075-2520
(716) 646-8414
NEW YORK CITY
(888) 269-6755
SYRACUSE 13057-9313
(315) 432-0281

NORTH CAROLINA
CHARLOTTE 28273-6200
(704) 588-3251
RALEIGH 27604-8456
(919) 303-1972

OHIO
AKRON 44236-4680
(330) 342-8009
CINCINNATI 45242-3706
(513) 554-4440
CLEVELAND 44117-2525
(216) 383-2662
COLUMBUS 43221-4073
(614) 488-7913
DAYTON 45458
(937) 885-6964
TOLEDO 43528-9483
(419) 867-7284

OKLAHOMA
OKLAHOMA CITY 73139-2432
(405) 616-1751
TULSA 74146-1622
(918) 622-9353

PENNSYLVANIA
PHILADELPHIA 19008-4310
(610) 543-9462
PITTSBURGH 15001-4800
(724) 857-2750
HARRISBURG
17104-1422
(717) 213-9163

SOUTH CAROLINA
GREENVILLE 29681-4724
(864) 967-4157
COLUMBIA 29209
(803) 783-2851

SOUTH DAKOTA
SIOUX FALLS 57108-2609
(605) 339-6522

TENNESSEE
KNOXVILLE 37922-1736
(423) 612-1204
MEMPHIS 38115-5946
(901) 683-6260
NASHVILLE 37027
(615) 236-1144
TRI-CITIES 37659-5693
(423) 612-1204

TEXAS
DALLAS 76051-7602
(817) 329-9353
HOUSTON 77060-3143
(281) 847-9444
SAN ANTONIO 78133-3502
(830) 964-2421

UTAH
MIDVALE 84047-3759
(801) 233-9353

VIRGINIA
LEESBURG, VA 20175-3911
Washington, D.C.
(703) 904-7735
DANVILLE
(434) 489-3222
HAMPTON ROADS 23693-4171
(757) 870-5508

WASHINGTON
VANCOUVER 98661-8023
(360) 693-4712
SPOKANE 99005-9637
(509) 468-2770

WASHINGTON DC
LEESBURG, VA 20175-3911
(703) 904-7735

WEST VIRGINIA
CHARLESTON 25526-8864
(304) 757-9862

WISCONSIN
GREEN BAY 54302-1829
(920) 435-1012
MILWAUKEE 53186-0403
(262) 650-9364

CANADA

ALBERTA
CALGARY
(403) 253-9600/(877) 600-WELD
EDMONTON
(780) 436-7385
WINNIPEG
(204) 488-6398

BRITISH COLUMBIA
VANCOUVER
(604) 945-7524

MARITIMES
NEW BRUNSWICK
(506) 849-4474

MANITOBA
WINNIPEG
(204) 488-6398

ONTARIO
MISSISSAUGA
(905) 565-5600
TORONTO
(416) 421-2600/(800) 268-0812

QUEBEC
MONTREAL
(450) 654-3121

LINCOLN INTERNATIONAL HEADQUARTERS

LATIN AMERICA
Miami, Florida U.S.A.
Phone: (305) 888-3203

EUROPE
Barcelona, Spain
Phone: 34 91 816 4266

RUSSIA, AFRICA & MIDDLE EAST
Cleveland, Ohio U.S.A.
Phone: (216) 481-8100

ASIA PACIFIC
Singapore
Phone: 65 6773 6689
Australia
Phone: 61 2 9772 7222

HARRIS CALORIFIC DIVISION

2345 Murphy Blvd., Gainesville, Georgia 30504 U.S.A.
Phone: 1-800-241-0804 • Fax: (770) 535-0544 • Web Site: www.harriscal.com

LINCOLN® ELECTRIC
THE WELDING EXPERTS℠
THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Ave.
Cleveland, Ohio 44117-1199
TEL: 216.481.8100 • FAX: 216.486.1751
lincolnelectric.com
Murex Product Catalog
ADCM23C 3/05
Web Update 6/09