

Stick Electrodes



PIPELINER™

Electrode Name & AWS Class	General Description	Recm'd Polarity	Diameter & Current Ranges (Amps)			
			3/32"	1/8"	5/32"	3/16"
Cellulosic All Position						
Pipeliner 6P+ E6010	Pipeliner 6P+ is an all-position cellulosic pipe electrode designed especially for vertical down root pass welding. This electrode is based on a long-time favorite among cross-country pipeline welders.	DC+	—	65-130	90-175	140-225
Pipeliner 8P+ E8010-P1	Here's an electrode that makes short work of even the most challenging high silicon pipe applications! Pipeliner 8P+ is an outstanding choice for API 5L-X56 through X70 grade pipe. This electrode features high stacking efficiency – formulated to carry and deposit weld metal in difficult vertical down out-of-position applications.	DC+	2.5 mm	3.2 mm	4.0 mm	4.5 mm
Low Hydrogen						
Pipeliner 16P E7016 H4	We designed this quality electrode for optimum performance for vertical up welding of pipe up to API 5L-X65 – especially where a low hydrogen deposit is desired. Obtain Charpy V-Notch impact values down to temperatures of -20°F (-29°C).	DC+ AC	55-80 60-80	75-120 80-120	120-160 120-160	— —
Pipeliner 18P E8018-G H4	A real workhorse for vertical up welding jobs up to X80 pipe! Lincoln 18P offers low temperature impact properties down to -50°F (-46°C).	DC+ AC	— —	90-140 100-140	130-170 140-180	— —
Pipeliner Lincoln LH-D80 E8018-G	Choose Pipeliner Lincoln LH-D80 electrode when you need a dependable stick (SMAW) electrode for vertical down low hydrogen welding on pipe up to X70. Operators appreciate the unique slag system that facilitates easy puddle control with virtually no slag interference.	DC+ AC	80-110 90-120	125-155 135-165	170-215 180-225	200-260 210-220
Pipeliner Lincoln LH-D90 E9018-G	The product of choice for vertical down, low hydrogen pipe welding for fill and cap passes of high strength pipe up to X80. Operators will appreciate this electrode's unique "hot start" tip with outstanding puddle control.	DC+ AC	80-110 90-120	125-155 135-165	170-215 180-225	200-260 210-220

STEEL – CARBON & LOW ALLOY

Electrode Name & AWS Class	General Description	Recm'd Polarity	Diameter & Current Ranges (Amps)						
			3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	
Fast Freeze, Out-Of-Position, Mild Steel									
Fleetweld® 35 E6011	Operators consistently give this electrode high marks. This quality Lincoln product is a proven performer for sheet metal welding applications and AC pipe welding. Fleetweld 35 is a great electrode to use on jobs where the steel isn't clean.	AC DC±	50-85 40-75	75-120 70-110	90-160 80-145	120-200 110-180	150-260 135-235	190-300 170-270	
Fleetweld 35LS E6011	Great for making tack welds under Innershield® deposits. Use Fleetweld 35LS with confidence on plated, dirty, painted, or greasy steel. It's an outstanding stick choice for AC pipe welding, for applications that require deep penetration, and in jobs where x-ray quality welds are required.	AC DC±	— —	80-130 70-120	120-160 110-150	— —	— —	— —	
Fleetweld 180 E6011	Got a small AC welder? Here's your electrode! Fleetweld 180 offers excellent arc stability for excellent performance with power sources as low as 50V open-circuit voltage (OCV). A great stick electrode with the ability to start easily on low open circuit voltage welders.	AC DC±	40-90 40-80	60-120 55-110	115-150 105-135	— —	— —	— —	
Fleetweld 22 E6022	Developed specifically for floor decking and other applications where burnthrough spot welding on sheet metal is required. Fleetweld 22 is great for galvanized or plated sheet steel, as well as on steel that is painted or dirty.	DC- AC	— —	110-150	150-180	— —	— —	— —	
Fast-Fill, High Deposition, Mild Steel									
Jetweld® 1 E7024-1	When the project involves large welds, you can't pick a more user-friendly electrode! Operators appreciate Jetweld 1's smooth bead and high deposition rates. A great general purpose electrode for single or multi-pass applications.	AC DC±	65-120 60-110	115-175 100-160	180-240 160-215	240-300 220-280	300-380 270-340	340-440 320-400	
Jetweld 2 E6027	When the job demands x-ray quality welds, high deposition rates, and excellent wash-in, reach for Jetweld 2. We've designed the Jetweld 2 for peak performance on multipass plate welds, and fast-fill single pass welds.	AC DC±	— —	190-240 175-215	250-300 230-270	— —	350-450 315-405		
Jetweld 3 E7024	Jetweld 3's high deposition rates, and smooth bead make it a great choice for welding on mild steel. It is especially effective for multipass welds and fast-fill single pass welds.	AC DC±	65-120 60-110	115-175 100-160	180-240 160-215	240-315 215-288	300-380 270-340	350-450 315-405	
Fill Freeze, High Speed, Mild Steel									
Fleetweld® 7 E6012	Got a variety of jobs that a single all-position electrode has to handle? Choose Lincoln Electric's Fleetweld 7. This versatile, high-speed electrode is a real workhorse on sheet metal lap joints and fillet welds. It's also a great choice for poor fit-up welding jobs.	DC- AC	— —	80-135 90-150	110-180 120-200	155-250 170-275	225-295 250-325	245-325 275-360	
Fleetweld 37 E6013	Here's a terrific all-position electrode for low amperage welding on sheet metal – especially in applications where appearance is important. We've designed Fleetweld 37 for excellent performance with smaller AC welders with low open-circuit voltages. It's an excellent choice for jobs involving irregular or short welds that require a change in position.	AC DC±	75-105 70-95	110-150 100-135	160-200 145-180	205-260 190-235	— —	— —	
Fleetweld 47 E7014	Fleetweld 47 features high deposition rates for fast performance. Operators love this easy-to-use, all-position electrode! Choose Fleetweld 47 for sheet metal lap joints and fillet welds, general purpose plate welding and maintenance jobs.	AC DC-	80-100 75-95	110-160 100-145	150-225 135-200	200-280 185-235	260-340 235-305	— —	
Low Hydrogen, Mild Steel									
Excalibur® 7018 MR E7018 H4R	There's a long list of reasons why operators are so loyal to Excalibur 7018 MR. They tell us they love the clean puddle, the square coating burnoff, the easy all-position handling and the excellent wash-in characteristics. It's a terrific choice for jobs that involve steels with poor weldability.	DC± AC	70-110 80-120	85-150 100-160	125-200 140-210	200-300 200-300	250-330 270-370	300-400 320-420	
Excalibur 7018-1 MR E7018-1 H4R	When the job involves critical, out-of-position welding, reach for Lincoln Electric's Excalibur 7018-1 MR. It offers a beautifully clean weld puddle, uniform slag follow, and superior wash-in with no undercutting. Also great for welding on steels with marginal weldability.	DC± AC	70-110 80-120	90-160 100-160	130-210 140-210	180-300 200-300	250-330 270-370	300-400 325-420	
Excalibur 7018-A1 MR E7018-1 H4R	Excalibur 7018-A1 MR low hydrogen electrode is an outstanding choice for all position welding of 0.50% molybdenum low alloy steels of 50 KSI (345 MPa) minimum yield strength.	DC± AC	70-110 80-120	90-160 100-160	130-210 140-210	— —	— —	— —	
Lincoln 7018AC E7018 HB	AC? DC? This electrode performs beautifully either way! Lincoln 7018AC is a great choice for low open circuit voltage AC power sources. Cold strikes are no problem with this versatile, all-position electrode.	AC DC+	75-120 70-115	105-150 100-140	130-200 120-185	— —	— —	— —	
Jetweld LH-70 E7018 H4R	A top-choice electrode for welding on thick sections and restrained joints when cracking is an issue. It's also a good call when the project involves hard-to-weld steels. Jetweld LH-70 also offers high deposition rates.	DC+ AC	70-100 80-120	90-150 110-170	120-190 135-225	170-280 200-300	210-330 260-380	290-430 325-440	
Jet-LH-78 MR E7018 H4R	Great for jobs on mild steel and some high-strength low-alloy steels. It also tolerates high sulfur and high silicon steels. Jet-LH 78 MR features higher tensile strength for stress-relieved properties.	DC+ AC	85-110 —	110-160 120-170	130-200 210-290	180-270 270-370	250-330 325-420	300-400 —	
Jetweld LH-73 E7018 H8	Jetweld LH-73 delivers easy restriking for jobs that involve skip and tack welding. This dependable electrode is a favorite of operators who weld on AC. It's designed for optimum performance on machines that use low open circuit AC voltage.	AC DC+	70-100 65-95	95-135 90-130	140-200 130-190	— —	— —	— —	
Jetweld LH-3800 E7028 H8	If high production and low hydrogen deposits matter, count on Jetweld LH-3800. This electrode's fast, easy restriking characteristics make it great for skip and tack welding. Good notch toughness down to 0°F (-18°C).	AC DC+	— —	— —	180-270 170-240	240-330 210-300	275-410 260-380	— —	
Low Hydrogen, Low Alloy Steel									
Excalibur 8018-C1 MR E8018-C1 H4R	Excalibur 8018-C1 MR is the ideal moisture resistant electrode for welding on equipment and pipe that transport liquid ammonia, propane and other gases. An excellent all-position electrode for applications requiring a nominal 2-1/4% nickel deposit.	DC± AC	70-110 80-120	90-160 100-160	130-210 140-210	180-300 200-300	250-330 270-370	300-400 325-430	
Excalibur 8018-C3 MR E8018-C3 H4R	Excalibur 8018-C3 MR is a 1% nickel all position electrode for fabrication or repair of 1% nickel steels, as well as a wider variety of other low alloy and carbon steels.	DC± AC	70-110 80-120	90-160 100-160	130-210 140-210	180-300 200-300	250-330 270-370	300-400 325-420	
Excalibur 9018-M MR E9018-M H4R	Excalibur 9018-M MR is intended for welding high strength steels of 90,000 psi (620 MPa) tensile strength and higher.	DC+ AC	70-110	90-160	130-210	180-300	—	—	
Jetweld LH-90 MR E8018-B2 H4R E9018-G H4R	LH-90 MR was designed to meet the rigorous demands of high temperature, high pressure piping assignments. This electrode offers a nominal 1-1/4% chromium, 1/2% molybdenum deposit and meets the requirements of high tensile (90,000 psi) steels.	DC+ AC	— —	110-150 120-170	130-190 140-225	180-270 210-290	— —	— —	
Jet-LH 8018-B2 MR E8018-B2 H4R	If your welding involves 1-1/4% chromium and 1/2% moly, tubes, boilers or castings, you'll want Jet-LH 8018-B2 MR as your welding electrode. It offers a 1-1/4% chromium and 1/2% molybdenum deposit. Reach for this electrode when operating temperatures exceed 850°F (450°C).	DC+ AC	70-110 85-120	100-140 110-150	120-190 135-200	— —	— —	— —	
Jet-LH 8018-C1 MR E8018-C1 H4R	Jet-LH 8018-C1 MR has outstanding impact properties. This is the ideal electrode for welding on equipment and pipe that will transport liquid ammonia, propane and other gases. An excellent all-position electrode for applications requiring a nominal 2-1/4% nickel deposit.	DC+ AC	— —	90-150 110-160	120-180 140-200	180-270 200-300	— —	250-350 300-400	
Jet-LH 8018-C3 MR E8018-C3 H4R	An excellent stick electrode with excellent impact properties. Jet-LH 8018-C3 MR produces a nominal 1% nickel deposit that is a great fit for a wide range of welding applications. A good choice for welding on weathering type steels.	DC+ AC	— —	110-150 120-170	130-190 140-225	180-270 210-290	250-330 270-370	300-400 325-420	
Jet-LH 9018-B3 MR E9018-B3 H4R	Great low hydrogen stick electrode. For welding 2-1/4% chromium and 1% molybdenum steels when heat treating is required. Good mechanical properties in the as-welded and stress relieved condition. A great choice when temperatures exceed 850°F (450°C).	DC+ AC	70-100 85-120	100-140 110-150	120-190 135-200	— —	— —	— —	
Jetweld LH-110M MR E11018-M H4R	You'll especially like this all-position electrode for jobs that call for welding high tensile steels such as T-1 steel and HY-80. Jetweld LH-110M MR is also a great match for any general fabrication or repair where the weld deposit must meet AWS E11018-M.	DC+ AC	70-100 80-110	90-155 100-170	120-190 135-225	160-280 200-310	190-310 240-350	230-360 290-410	
Fill Freeze, Out-Of-Position Pipe Welding, Mild Steel & Low Alloy									
Fleetweld 5P E6010	Fleetweld 5P is a great choice for welding on dirty, rusty, greasy or painted steel – especially in vertical or overhead applications.	DC+ AC	40-70	75-130	90-175	140-225	200-275	220-325	
Fleetweld 5P+ E6010	Lincoln's Fleetweld 5P+ is ideal for steel that's less than clean. It's a first choice for pipe welding, and vertical-up and overhead plate welding. This electrode is a long-time favorite among operators who handle cross-country and in-plant pipe welding.	DC+ AC	40-70	65-130	90-175	140-225	—	—	
Shield-Arc® 85 E7010-A1	Need a reliable, all-position stick electrode for high tensile steel pipe? Here's your electrode! Shield-Arc 85 produces a 70,000 psi, 1/2% molybdenum weld deposit over use on 1/2% molybdenum pipe steels and API 5LX-42 through X-56 line pipe.	DC+ AC	50-90	75-130	90-175	140-225	—	—	
Shield-Arc HYP+ E7010-P1	Tendency for "fingering" and electrode sticking have been virtually eliminated! Designed for all passes of API 5LX-52 through X-65 high strength pipe. Provides the welder with a clean, visible weld puddle and superior puddle control. A true E7010-P1 electrode.	DC+ AC	—	75-130	90-185	140-225	—	—	
Shield-Arc 70+ E8010-G	Here's an electrode that makes short work of even the most challenging high silicon pipe applications! Shield Arc 70+ is an outstanding choice for API 5LX-56 through X-70 grade pipe, as well as for a wide range of sheet metal welding assignments.	DC+ AC	—	75-130	90-185	140-225	—	—	
Shield-Arc 80 E8010-G	When your job involves vertical down welding on high strength pipe, reach for Lincoln's Shield-Arc 80 electrode. This dependable stick electrode offers the perfect combination of low temperature impact properties and deep penetration. It handles all passes on API 5LX-56 through X-70 pipe. Excellent "stacking" ability is a feature of Shield-Arc 80, that maximizes productivity on the job site. Also meets AWS E8010-P1 requirements.	DC+ AC	—	75-130	90-185	140-225	—	—	
Shield-Arc 90	An all-position pipe electrode that's a great choice when the task is vertical down welding on API 5LX-70 through X-80 pipe. SA-90 also performs well in situations where low hydrogen processes are not practical, and when welding on dirty steels.	DC+ AC	—	3/32" 75-130	1/8" 80-185	5/32" 140-225	3/16" —	7/32" —	1/4" —

HARDFACING

Electrode Name	General Description	Hardness Rockwell C (as deposited)	Recm'd Polarity	Diameter & Current Ranges (Amps)					
				3/32"	1/8"	5/32"	3/16"	1/4"	
Build-Up									
Wearshield® BU	For carbon and low alloy steels. Builds up worn steel parts to produce tough, forgeable, machinable surfaces of moderate hardness.	23-28	DC+ AC	— —	— —	145-210 155-225	180-280 200-290	230-360 255-375	
Wearshield BU-30	Moderate hardness to resist shock. Used as final overlay on parts which must be machine or forged. For mild, medium carbon, low alloy and high tensile steels.	31-38	DC+ AC	— —	90-130 100-140	140-180 150-200	170-220 190-240	— —	
Metal-To-Metal Wear									
Wearshield MM	Martensitic deposit. Heat treatable weld metal. Can be tempered, annealed. Can be used on carbon and low alloy steels.	52-58	DC+ AC	— —	90-130 90-130	140-180 140-180	170-220 170-220	— —	
Wearshield T&D	Deposit similar to Type M-1 tool steel. Air hardening. Resists metal-to-metal wear up to 1000°F (538°C).	58-65	DC+ AC	80-100 80-100	110-130 110-130	130-160 130-160	— —	— —	
Wearshield MI	Provides wear-resistant surface of martensite, with substantial retained austenite. Resists metal-to-metal wear, impact, mild abrasion. Can be used on carbon and low alloy steels.	50-58	DC+ AC	— —	70-120 70-120	110-150 110-150	150-200 150-200	225-275 225-275	
Wearshield Mangjet®	For building up austenitic manganese steel and cladding carbon steel. Pounding in service work hardens the deposit to develop maximum hardness and abrasion resistance (40-50 Rc).	17-20	DC± AC	— —	— —	120-180 125-210	160-260 175-275	200-350 225-375	
Severe Impact									
Wearshield 15CrMn	For austenitic manganese steel to resist severe impact or gouging even in single layer over carbon steel, with excellent crack resistance. Joining of manganese steel to itself or carbon or low alloy steel. Work hardens to 40-50 Rc.	18-24	DC+ AC	— —	140-160 140-160	190-210 190-210	220-250 220-250	— —	
Wearshield Frogmang®	Provides high alloy austenitic manganese steel buildup to resist severe impact. Specifically designed for rebuilding rail frogs and crossings. Work hardens to 44-55 Rc.	20-30	DC+ AC	— —	110-140 120-150	140-175 150-180	125-225 185-213	235-280 235-270	
Wearshield ABR	Versatile electrode producing good resistance to abrasion and moderate impact. Good hot-forging properties. Hardness will vary depending on cooling rate.	24-55	DC+ AC	— —	40-150 50-165	75-200 80-220	110-250 120-275	150-375 165-410	
Abrasion Plus Impact									
Wearshield 44	Moderate hardness to resist abrasion under impact at temperatures up to 1100°F (593°C). Good spalling resistance on two or more layers.	42-48	DC+ AC	— —	120-160 130-160	150-220 180-220	190-270 220-260	— —	
Metal-To-Earth Wear									
Wearshield ME	Use on carbon and low alloy steels, cast iron, austenitic manganese and austenitic stainless steels. Use BU or 15CrMn for preliminary layer(s).	49-59	DC± AC	— —	125-175 130-170	175-250 180-220	220-300 230-270	— —	
Severe Abrasion									
Wearshield 60	Excellent abrasion resistance. Fuses to carbon, low alloy, stainless, manganese steel. Limit 2 layers. Use BU, Mangjet or 15CrMn for preliminary layer(s).	60-65	DC+ AC	— —	100-140 110-150	130-180 140-200	210-250 230-270	— —	
Wearshield 70	Resists very severe abrasion at temperatures up to 1400°F (760°C). Use with mild, low alloy, stainless and austenitic manganese steels. Limit 2 layers.	69	DC+ AC	— —	125-165 120-160	160-230 160-210	220-300 230-300	— —	
Wearshield SM80	Designed specifically for surfacing and resurfacing crushing rolls in the sugar cane industry.	45-60	DC± AC	— —	— —	150-240 160-250	210-270 220-280	— —	
High Temperature Non-Ferrous (Cobalt)									
Wearshield C1 & C1 Bare	Highest abrasion resistance of the cobalt alloys. Resists								