Drew Marine Selector Guide for Maintenance & Repair Welding

HIGHLIGHTED ELECTRODES ARE MOST COMMONLY USED FOR REPAIRS

WELDING	TYPE	WT. (kg/PK)	(mm X mm)	PCN	AMPERAGE	
	ER PLUS	1.5 3.7	2.0 X 300 2.5 X 350	0628034	40 - 80 50 - 110	AMERARC ER PLUS is a heavily coated rutile electrode used in all positions on AC or DC with positive or negative polarity. Arc action is particularly stable even when welding with low onen given traditional trademonent period experiment.
	GENERAL PURPOSE RUTH F	4.9	3.25 X 450	0630039	80 - 150	slag removal is easy. AMERARC ER PLUS electrodes have excellent wetting action and produce shallow penetration making it suitable for thin metal welding as well as but fillet
	NUTILE	3.8	2.5 X 350	0631037	AC/DC (+/-) 45 - 80	and outside corner welds. Tensile Strength: 490-600 N/mm ² AMERARC EO PLUS is a general purpose mild steel electrode that can be used in
	EO PLUS	4.6	3.25 X 350	0632035	75 - 110	all positions. When used at lower current levels (shallow penetrations), it is superior for welding thin sections, joints with poor fit-up or for bridging gaps. The weld bead is
	GENERAL PURPOSE OBGANIC	4.5	4.0 X 350	0633033	105 - 150	 EO PLUS is especially easy to use for vertical down welding. Striking and restriking is easy, even on low voltage transformers. AMERARC EO PLUS is used for general mild
	OneANIC				AC/DC (+/-)	steel tabrication in all positions, for tack welding most rusty or galvanized plates and for ordinary ship's plates of A-, D- and E-Quality. Tensile Strength: 480-580 N/mm ²
	PIPE	4.3 4.6	2.5 X 350 3.25 X 350	0993015 0993023	45 - 80 75 - 110	AMERARC PIPE is an all-position cellulosic electrode producing an exceptionally smooth, evenly rippled weld bead with light slag and a high quality weld deposit. The arc is stable over a wide range of current and is forceful and it
MILD STEEL	DEEP PENETRATION	4.5	4.0 X 350	0993031	105 - 150	positions including vertical down applications. Penetration is deep, producing highly ductile, sound root welds free of defects. AMERARC PIPE electrodes are recommended
NORMAL CONDITIONS	ALL POSITION				DC (+)	tor weiding pipe, pressure vessels, tanks with plain or galvanized surfaces and general shipboard maintenance. Tensile Strength: 520 - 535 N/mm ²
		4.5 4.5	2.5 X 350 3.25 X 350	0994013 0994021	25 - 75 35 - 125	AMERARC ECEL is an all-position cellulosic electrode, producing an exceptionally smooth, excellent quality weld deposit with very light slag. The forceful arc is easy to control has good stability even at law events and force in the forceful arc is easy to be even as the event of the event
	ECEL	4.5	4.0 X 350	0994039	50 - 160	deep, producing highly ductile, sound root welds, free from porosity and lack of fusion. The coating generates a large volume of shielding gas to eliminate porosity and non-
	ALL PUSITION				AC/DC (+)	rems associated with dirt and oil contamination. AMERARC ECEL electrodes are used for welding mild steels such as ASTM A-36,-283,-284,-285,-515,-516, and ABS Hull and Boiler steel. Typical applications include pressure vessels fobriated structures and
		6.3	4.0 X 450	0995128	140 - 190	tanks and general shipboard maintenance. Tensile Strength: 520 - 535 N/mm ² AMERARC EOHP PLUS is a heavily coated iron powder electrodo providing high
	EOHP	5.8	5.0 X 450	0995136	180 - 230	deposition rates for flat (downhand) and horizontal welding with good weldability and superior mechanical properties. The electrode easily produces equal leg fillets with
	PLUS HIGH	5.7	6.3 X 450	0995144	220 - 280	- with minimal root porosity in the recommended welding positions. The electrode is easy to control. AMERARC EOHP PLUS is ideal for making high speed horizontal fillet but
	PERFORMANCE				AC/DC (+)	and lap welds on mild plate and structural steels such as decking, hatch covers, etc. Tensile Strength: 480 - 570 N/mm ²
		3.4	2.5 X 350	0634031	65 - 110 100 - 140	AMERARC LH PLUS is a basic coated general purpose electrode with controlled low hydrogen well-suited for a broad range of general welding and repair applications. The
	LH PLUS	4.8	4.0 X 450	0636037	140 - 200	choice for applications with higher stress levels due to base metal chemistry or joint con- figuration. The coating produces a good weld bead appearance with a stable are. The
MILD STEE	HYDROGEN Electrode				AC/DC (+/-)	iron powder content of the coating produces a high deposition rate and metal recovery rate of 120%. Superior welding performance in the vertical up position. AMERARC LH PLUS is well-suited for welding ordinary and high attractive to the second s
UNDER HIGH STRESS					(Vortical D	E-Quality and also for galvanized plates. Tensile Strength ship's plates of A-, D- and AMERARC LV PLUS is a basis time law buttered.
	LV PLUS	5.1	3.25 X 450	0637035	्रहात्या Down) 130	operating characteristics in the vertical down position. AMERARC LV PLUS can be used at relatively higher amperages providing high welding speeds with low heat input
	LUW HYDROGEN VERTICAU	5.0	4.0 X 450	0638033	190	- the result – enhanced productivity and low residual stress and deformation. Excellent - mechanical properties make AMERARC LV PLUS well suited for welding structures subjected to high stress conditions and/or low tomoschure insert load.
	DOWN				AC/DC (+)	LV PLUS is recommended for welding ordinary and high strength ship plates of A-D quality, including high strength, low alloy steels. Tensile Strength: 500-640 N/mm ²
		4.3	3.25 X 350	0817025	90 - 110	AMERARC HF38 is an intermediate range hard-facing electrode with mechanical work-hardening properties well suited to applications combining high compression
	HF38 MID-RANCE					loading and abrasion with excellent resistance to impact loading. The hardness of the weld deposit is R 33-41/HBN 310-380. The weld deposit is machinable and can be flame cut. AMERARC HE38 is well suited to coordinate batch
						winches and components of bulk carrier unloading gear. It is also an excellent choice for build up of severely worn areas prior to the application of AMERARC HF60
HAKU FACING	UFOO	4.5	3.25 X 350	0996019	110 - 140	AMERARC HF60 is a high hardness range hard facing electrode based on a high chromium carbide composite with a rutile coating. It is ideally suited for rebuilding
	HIGH	4.5	4.U X 350	J990U27	100 - 200	surfaces that have been worn due to moderate impact and/or severe abrasion. The very high chrome content produces a dense, smooth, easily polished, wear resistant surface. The as-welded surface has a minimum of ripple for this purpose. AMERADO
	HARDNESS				AC/DC (+)	HF60 is an excellent choice for resurfacing worn machine parts, hatch coamings, grates, conveyor screws, shackles, buckets, rails and cat's pawls.
		1.5	2.5 X 300	0639023	50 - 80	AMERARC ST is a basic rutile type stainless steel electrode providing an 18 Cr, 12 Ni, 2 Mo weld deposit. It is suitable for welding austenitic steels of types AISI 316/316L
	ST STAINLESS STEEL	1.7	J.20 A JOU	JUHUUZU	, u - 12U	and DC positive polarity and has excellent out-of-position characteristics. Arc striking and restriking with AMERARC ST is easy and the electrode is free from short circuiting
					AC/DC (+)	during welding. Slag removal is good and fillet welds have outstanding appearance. It is an extra low carbon type for highest corrosion resistance. Tensile Strength: S0 Mircon (A)
		2.2	2.5 X 300	0997017	60 - 80	AMERARC STV is a specially formulated low carbon stainless steel electrode for joining
AUSTENITIC	STV	2.2	3.25 X 300	0997025	90 - 110	utanium and niobium-stabilized 18/8 stainless steels. It is excellent for all positions of welding but excels in vertical down applications. The electrode produces a very smooth bead with good wetting resulting in a high quality weld deposit with a minimum of eact the
STEEL	DOWN				AC/DC (+)	and easily removable slag. AMERARC STV provides a smooth running arc, produces excellent welds in thin walled stainless steel piping and tanks in the vertical position.
		1.7	1.6 X 300	0816043	25 - 45	AMERARC SSMO is a highly alloyed rutile coated molybdenum stainless steel electrode
	SSMO MOLYBDENUM	2.2	2.5 X 300	0816019	40 - 80 65 - 120	a weld bead of exceptionally smooth contour without undercut or cold lap. The higher chromium and nickel content in combination with the molvbdenum provides exceptional
	STAINLESS	2.2	4.0 X 350	0816035	90 - 150	 corrosion resistance of the weld deposit. AMERARC SSMO is especially well suited for welding or repairing stainless clad steel plates where corrosion resistance of the weld metal is critical. It is ideal for inining or repairing other that is a start of the weld
		4	9 E V 00-	001001	AC/DC (+)	fittings in stainless steel cargo tanks. Tensile Strength: 650 N/mm ² (Avg) AMERARC DP is a dunley stainless electrode for working and lot dimensional statements are an and lot dimensional statements and lot dimensional statements are an an an and lot dimensional statements are an
STAINLESS	DP DUPLFX	1. <i>1</i>	2.0 X 300 3.25 X 350	0919029	50 - 80 70 - 100	 ferritic stainless steels. The nitrogen-based weld metal is resistant to chloride-containing medias. Also, the AMERARC DP has high strength and good overall welding character- inter to explore any time.
STEEL	STAINLESS STEEL				(+/-)	esult in this same structure. Tensile Strength: 800 N/mm ²
	CRMO CHROME-	4.5	2.5 X 350	0815011	65 - 95	AMERARC CRMO is a basic coated, extra low hydrogen electrode with major alloying
ALLOY		4.5	3.25 X 350	0815029	90 - 140	of cracking when welding the alloy steels for which this electrode is intended. These steels include 1/2% Cr - 1/2% Mo, 1% Cr - 1% Mo, 11/4% Cr - 1/2% Mo, which are
STEELS	MOLY LOW HYDROGEN	_		[(+/-)	typically used in high pressure boilers and power piping with a maximum service temperature of 550°C. AMERARC CRMO is ideally suited for welding creep and hydrogen resistant CrMo steels. The electrode provides high welding speed and
		17	3 25 V 050	06/1000	65 100	deposition rate and easily removed slag. Tensile Strength: 550 - 520 N/mm ² AMERARC TE is recommended for welding medium and high carbon bordenable
	TF	1./	J.∠J A 350	0041028	AC/DC (+/-)	 steels, machine components, tools, springs and other steels of unknown composition. It is highly tolerant of base metal dilution and is generally free of hot cracking tendencies.
RAKUENABLE	HIGH CHROME-				/	high temperature scaling resistance is important. The electrode operates well on both AC and DC positive polarity, has good slag removal and the finished weld head may be
	NICKEL					polished to a hard high gloss surface with excellent wear characteristics. AMERARC TE is not recommended for welding cast irons or for repairing engine valves. Tensile Strength: R30 N/mm ² (Avg)
COBALT	COCR	2.2	3.25 X 350	0814013	80 - 110	AMERARC COCR is a cobalt, chromium, tungsten alloy electrode with superior resis-
CHROMIUM	COBALT CHROMIUM	2.2	4.0 X 350	0814021	100 - 150	assuring specified deposit composition if coating is chipped. AMERARC COCR is well suited for repairing/refacing engine valves and valve seats, pump rotors and corrosive
HIGH IMPACT		1 7	25 V 000	0640000	AC/DC (+)	AMERARC NI99 is a low slagging high nickel electrode econorially designed for set
	N199	1. <i>1</i> 2.1	2.0 X 300 3.25 X 350	0042026 0643024	აυ - 70 55 - 110	 welding of cast irons to produce crack-free, machinable welds in all positions. The unique coating produces a pulsed arc providing good penetration through surface skin and continger to the surface skin and
CAST IRON	High Nickel				AC/DC (-)	Preheating is not usually required. AMERARC NI99 can also be used for welding cast irons to other metals such as steel, stainless steel, clad steel and conner-based motel
and CAST IRON		10	3 25 V 250	0644000	70 - 110	alloys. Tensile Strength: 350 N/mm ² (Avg) AMERARC NI60 is a lower nickel alloy than the AMERARC NI60 companion cleated a
TO OTHER STEELS	_	1.9 1.9	J.∠J X 350 4.0 X 350	0645020	90 - 130	It has excellent operating characteristics with very low slagging and will operate on either DC positive or AC welding power. AMERARC NI60 is recommended for welding cast iron where other methics is interested.
	NIGO NICKEL IRON					the lowest possible amperage and weld for short time periods intermittently in order to reduce heat-induced stresses and the possibility of cracking. For heavy sections, pro-
					AC/DC (+)	heating to 300°C is advisable. Peening between passes to reduce residual stresses is recommended and the work should be covered or blanketed in order to produce a slow cooling rate. The electrode must also be used to the the stress of the s
	[iron to steel. The deposit is machinable. Tensile Strength: 520 N/mm ² (Avg)
	NON-Fe	rrous	Electro	ues T		AMERARC SN is a tin-bronze electrode recommended for joining coppor base allows
ALLOYS	SN TIM	1.9	3.25 X 350	0648024	100 - 150	to themselves or to steel or cast iron. It may also be used for welding cast iron without preheat where machining after welding is not required and for cladding of steels and other material and for filling spitting. Attractional and the steel and the s
and	BRONZE			- 15024	DC (+)	only. Avoid working temperature range of 400-600°C due to risk of hot shortness. Tensile Strength: 420 N/mm ²
DISSIMILAR						AMERARC AB is an aluminum-bronze electrode intended for building up or joining copper base alloys or for welding copper base alloys to steel. May also be used for
METALS	AB ALUMINUM	1.8	3.25 X 350	0646028	90 - 125 DC (+)	buildup of cast iron using normal precautions for this crack-sensitive material. AMERARC AB deposits exhibit high strength and are highly resistant to abrasion and wear. As on
SEE HANDBOOK	BRONZE		L			an copper weiging, preneating is advisable. Best results obtained in flat or horizontal position with DC positive. Tensile Strength: 690 N/mm ²
ALUMINUM	AL ALUMINUM					AMERARC AL is an aluminum-silicon electrode suitable for welding cast or extruded aluminum alloys of relatively heavy thickness. Typical applications are repair of
		0.8	3.25 X 350	0647026	80 - 130 DC (+)	auminum castings or architectural or decorative components. AMERARC AL is used with DC positive polarity only. The electrode exhibits high burn-off rates and high welding speeds and therefore for starts and on beaus sections probablish manufactures.
					- 147	required. The residual slag is corrosive and should be completely removed following welding. Tensile Strength: 235 N/mm ²
						AMERARC CH is specifically designed for gouging out cracks, or back gouging of welds and for joint preparation. Its thick, specially-developed coating produces a strong plasma
GOUGING	СН				160	anu gas jet which removes the material melted by the arc. AMERARC CH may be used for gouging most engineering materials such as steel, stainless cast iron and many non-ferrous metals. The resulting grooves are smooth and even and welding may follow
ELECTRODE	CHAMFERING GOUGING	2.8	3.25 X 350	0649022	AC/DC (-)	immediately after gouging except on stainless steel, which should be thoroughly cleaned prior to welding. Either AC or DC negative polarity may be used. The electrode should be struck perpendicular to the work and then polarity in the distribution.
WELDING						approximately 20 degrees to the perpendicular. Travel speed of I00-150 CM/Min should be maintained. AMERARC CH can also be used for cutting and piercing holes. Good upptibilities in closed cross is recommended.
	I I	1	1	1 I		ventilation in closed areas is recommended.

UNALLOYED AND ALLOYED STEEL Most common type of repairs



PROBLEM STEEL



COPPER ALLOYS



HARDFACING AND OVERLAYING



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broken parts

19906

Replace parts with

steel plate

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broken parts

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excess material

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cracks, small cuts in

conductive materials