



**TECHALLOY<sup>®</sup> NICKEL ALLOYS**  
COMPLETE APPLICATION SOLUTIONS

**LINCOLN<sup>®</sup>**  
**ELECTRIC**



Lincoln Electric  
**QUALITY**  
+  
Techalloy  
**EXPERTISE**  
  
Your  
**EXPECTATIONS**  
EXCEEDED

## One More Variable We've Solved For You...

In 2011, Lincoln Electric® acquired Techalloy®, a company with industry expertise in alloy welding consumables. The integration of Techalloy was a perfect fit for Lincoln Electric's high quality consumable portfolio. Lincoln Electric, a company which has sustained over 120 years in the welding industry, and Techalloy's established reputation in the nickel segment, has fortified our position in alloy.

Our commitment to perfecting consumable manufacturing has allowed Lincoln Electric to build a complete portfolio of nickel welding alloys for your industry. Our nickel alloys perform exceptionally well over a broad operating range in any welding process.

Using Power Wave® technology and engineered waveforms, our nickel alloys provide an unparalleled welding experience for almost any application. Our comprehensive consumable portfolio offers a solution in any industry segment and application whether it is: high temperature service, cryogenic service, high strength or highly corrosive environments.

From beginning to end, our nickel consumables are just one more variable we've solved for you.

# Quality in Manufacturing

Draw, heat treat, clean, repeat; this is how we ensure your nickel alloy wire is exactly right, every time. Not only does our process ensure quality and consistency, but all finished products are also coated in a proprietary surface treatment that promotes better feeding and arc stabilization.

In order to supply customers with the highest quality nickel product, we are selective and conscientious of the suppliers we select to provide our raw material. Only the best suppliers will do. All nickel products are Q2 Lot® Quality certified, ensuring our promise of consistency and quality. Each Q2 certificate provides actual wire, or deposit composition and typical mechanical properties for every lot of material.

Each of these routines is a part of our promise of product consistency, allowing for superior product performance and reliability.





# Complete Solutions

## TECHNOLOGY

Lincoln Electric is your total solutions provider. Whether your choice of welding process is semiautomatic, mechanized, or orbital, Lincoln Electric has equipment and consumable solutions for your nickel application. With Power Wave technology, customized waveforms, and world-class consumable quality, we can provide repeatable, sound and the highest quality welds.

### Power Wave Nickel Pulsed Waveforms:

Weld Mode Description	Alloy Wire Type
NiCr	625, 622, 276, 606, 617, 718, 825
NiCu	413, 418
ERNi	208
ERNi-CI	99
ErNiFe-CI	55

Contact your local Sales Representative for additional information.

## INDUSTRY

Whether you're faced with a burner tube, boiler tube, or annealing oven project, our nickel alloys are the reliable consumable backed by the quality and consistency of all Lincoln Electric products.



# The Performance You Need. The Quality You Expect.™

KNOWLEDGE + PRODUCTS + SUPPORT = CUSTOMER SUCCESS

Our solutions do not end at the sale. In fact, that's where it begins. We are dedicated to ensuring your success in all your nickel welding applications.

## KNOWLEDGE

In order to deliver consistent quality, Lincoln Electric continues to develop industry specific test data to support our customers and their applications.

## PRODUCTS

With the expanded nickel consumable portfolio, the Power Wave® platform, and our engineers working to produce new pulse MIG waveforms; all efforts to supply you with a complete solution offering.

## SUPPORT

Our application expertise, along with our trained technical support personnel are readily available for on-site assistance in all your welding needs.

We've fully balanced the equation to serve you and your welding needs, integrating the expertise you deserve to provide "the performance you need" and "the quality you expect."

## NICKEL ALLOYS CONSUMABLES

Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
SMAW	<b>Tech-Rod® 55</b> AWS ENiFe-CI	EL55093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	400 (58 min)*	296 (43 min)*	6% min*
		EL55125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL55156634	5/32 [4.0]				
	<b>Tech-Rod 99</b> AWS ENi-CI	EL99093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	276 (40 min)*	262 (38 min)*	3% min*
		EL99125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL99156634	5/32 [4.0]				
	<b>Tech-Rod 112</b> AWS ENiCrMo-3	EL112093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	786 (114)	Not Required	42%
		EL112125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL112156634	5/32 [4.0]				
		EL112187634	3/16 [4.8]				
	<b>Tech-Rod 112LFE</b> AWS ENiCrMo-3	EL112LFE125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can	765 (111)	Not Required	42%
		EL112LFE156634	5/32 [4.0]				
		EL112LFE187634	3/16 [4.8]				
	<b>Tech-Rod 117</b> AWS ENiCrCoMo-1	EL117093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	758 (110)	Not Required	40%
		EL117125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL117156634	5/32 [4.0]				
EL117187634		3/16 [4.8]					
<b>Tech-Rod 122</b> AWS ENiCrMo-10	EL122093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	724 (105)	Not Required	39%	
	EL122125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can				
	EL122156634	5/32 [4.0]					
<b>Tech-Rod 141</b> AWS ENi-1	EL141093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	434 (63)	Not Required	21%	
	EL141125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can				
	EL14156634	5/32 [4.0]					
	EL14118734	3/16 [4.8]					

<sup>†</sup>SMAW data from 1/8 in [3.2 mm] stick electrode tested on AWS A5.11 test plate \*Data reported according to typical AWS specifications

Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
SMAW	Tech-Rod 182 AWS ENiCrFe-3	EL182093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	600 [87]	Not Required	34%
		EL182125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL182156634	5/32 [4.0]				
		EL182187634	3/16 [4.8]				
	Tech-Rod 187 AWS ECuNi	EL187093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	359 [52]	Not Required	24%
		EL187125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
	Tech-Rod 190 AWS ENiCu-7	EL190093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	496 [72]	Not Required	44%
		EL190125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL190156634	5/32 [4.0]				
		EL190187634	3/16 [4.8]				
	Tech-Rod 276 AWS ENiCrMo-4	EL27609632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	745 [108]	Not Required	46%
		EL27625634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
		EL27656634	5/32 [4.0]				
		EL276187634	3/16 [4.8]				
	Tech-Rod Weld A AWS ENiCrFe-2	ELWLDA093632	3/32 [2.4]	8 lb (3.6 kg) Can/24 lb (10.9 kg) Master Carton	648 [94]	Not Required	42%
		ELWLDA125634	1/8 [3.2]	10 lb (4.5 kg) Can/30 lb (13.6 kg) Master Can			
ELWDLA156634		5/32 [4.0]					
ELWLDA187634		3/16 [4.8]					
MIG	Techalloy <sup>®</sup> 55	MG55035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	Not Required	Not Required	Not Required
		MG55045667	0.045 [1.1]				
	Techalloy 99 AWS ERNi-CI	MG99035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	Not Required	Not Required	Not Required
		MG99045667	0.045 [1.1]				
		MG99045684	0.045 [1.1]	250 lb (133.4 kg) Accu-Trak <sup>®</sup> Drum			
	Techalloy 208 AWS ERNi-1	MG208035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	496 [72]	324 [46]	34%
		MG208045667	0.045 [1.1]				
		MG208062667	1/16 [1.6]				

<sup>†</sup>SMAW data from 1/8 in [3.2 mm] stick electrode; GMAW data from 0.045 in [1.1 mm] wire with 75% Ar/25% He shielding gas; both tested on AWS A5.11 test plate.



Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
MIG	<b>Techalloy 276</b> AWS ERNiCrMo-4	MG276035684	0.035 [0.9]	33 lb (15 kg) Steel Spool	738 [107]	476 [69]	46%
		MG276045667	0.045 [1.1]				
		MG276062667	1/16 [1.6]				
		MG276035684	0.035 [0.9]	250 lb (113.4 kg) Accu-Trak <sup>®</sup> Drum			
	<b>Techalloy 413</b> AWS ERCuNi	MG413035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	379 [55]	269 [39]	40%
		MG413045667	0.045 [1.1]				
		MG413062667	1/16 [1.6]				
	<b>Techalloy 418</b> AWS ERNiCu-7	MG418035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	531 [77]	303 [44]	43%
		MG418045667	0.045 [1.1]				
		MG418062667	1/16 [1.6]				
	<b>Techalloy 606</b> AWS ERNiCr-3	MG606035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	676 [98]	393 [57]	47%
		MG606045667	0.045 [1.1]				
		MG606062667	1/16 [1.6]				
	<b>Techalloy 617</b> AWS ERNiCrCoMo-1	MG617035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	772 [112]	482 [70]	39%
		MG617045667	0.045 [1.1]				
		MG617062667	1/16 [1.6]				
	<b>Techalloy 622</b> AWS ERNiCrMo-10	MG622035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	765 [111]	503 [73]	46%
		MG622045667	0.045 [1.1]				
		MG622062667	1/16 [1.6]				
	<b>Techalloy 625</b> AWS ERNiCrMo-3	MG625035667	0.035 [0.9]	33 lb (15 kg) Steel Spool	745 [108]	469 [68]	50%
		MG625045667	0.045 [1.1]				
MG625062667		1/16 [1.6]					
MG625045679		0.045 [1.1]	60 lb (27 kg) Steel Spool				
MG625045684		0.045 [1.1]	250 lb (113.4 kg) Accu-Trak <sup>®</sup> Drum				
MG625062693		1/16 [1.6]	300 lb (136 kg) Speed-Feed <sup>®</sup> Reel				

<sup>†</sup>GMAW data from 0.045 in (1.1 mm) wire with 75% Ar/25% He shielding gas tested on AWS A5.11 test plate.

Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
MIG	<b>Techalloy 718</b> AWS ERNiFeCr-2 <i>Plate was age-hardened per AWS A5.14, Table A.2</i>	MG718035667	0.035 (0.9)	33 lb (15 kg) Steel Spool	1207 (175)	1041 (151)	8%
		MG718045667	0.045 (1.1)				
		MG718062667	1/16 (1.6)				
	<b>Techalloy 825</b> AWS ERNiFeCr-1	MG825035667	0.035 (0.9)	33 lb (15 kg) Steel Spool	565 (82)	352 (51)	41%
		MG825045667	0.045 (1.1)				
		MG825062667	1/16 (1.6)				
	<b>Techalloy X</b> AWS ERNiCrMo-2	MGX035667	0.035 (0.9)	33 lb (15 kg) Steel Spool	731 (106)	469 (68)	35%
		MGX045667	0.045 (1.1)				
	TIG	<b>Techalloy 55</b>	TG55125638	1/8 (3.2)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	Not Required	Not Required
<b>Techalloy 99</b> AWS ERNi-CI		TG99093638	3/32 (2.4)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	Not Required	Not Required	Not Required
<b>Techalloy 208</b> AWS ERNi-1		TG208062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	531 (77)	359 (52)	38%
		TG208093638	3/32 (2.4)				
		TG208125638	1/8 (3.2)				
<b>Techalloy 276</b> AWS ERNiCrMo-4		TG276062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	772 (112)	531 (77)	43%
		TG276093638	3/32 (2.4)				
		TG276125638	1/8 (3.2)				
<b>Techalloy 413</b> AWS ERCuNi		TG413062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	372 (54)	262 (38)	40%
		TG413093638	3/32 (2.4)				
		TG413125638	1/8 (3.2)				
<b>Techalloy 418</b> AWS ERNiCu-7		TG418062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	565 (82)	359 (52)	41%
	TG418093638	3/32 (2.4)					
	TG418125638	1/8 (3.2)					

<sup>†</sup>GMAW data from 0.045 in (1.1 mm) wire with 75% Ar/25% He shielding gas; GTAW data from 3/32 in (2.4 mm) wire with 100% Ar shielding gas; both tested on AWS A5.11 test plate.

Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
TIG	<b>Techalloy 606</b> AWS ERNiCr-3	TG606062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	683 (99)	448 (65)	43%
		TG606093638	3/32 (2.4)				
		TG606125638	1/8 (3.2)				
	<b>Techalloy 617</b> AWS ERNiCrCoMo-1	TG617062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	814 (118)	552 (80)	40%
		TG617093638	3/32 (2.4)				
		TG617125638	1/8 (3.2)				
	<b>Techalloy 622</b> AWS ERNiCrMo-10	TG622062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	786 (114)	552 (80)	43%
		TG622093638	3/32 (2.4)				
		TG622125638	1/8 (3.2)				
	<b>Techalloy 625</b> AWS ERNiCrMo-3	TG625062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	800 (116)	565 (82)	41%
		TG625093638	3/32 (2.4)				
		TG625125638	1/8 (3.2)				
		TG625156638	5/32 (4.0)				
	<b>Techalloy 718</b> AWS ERNiFeCr-2 <i>Plate was age-hardened per AWS A5.14, Table A.2</i>	TG718093638	3/32 (2.4)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	1220 (177)	1055 (153)	14%
		TG718125638	1/8 (3.2)				
	<b>Techalloy 825</b> AWS ERNiFeCr-1	TG825062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	634 (92)	455 (66)	40%
		TG825093638	3/32 (2.4)				
		TG825125638	1/8 (3.2)				
<b>Techalloy X</b> AWS ERNiCrMo-2	TGX062638	1/16 (1.6)	10 lb (4.5 kg) Tube/30 lb (13.6 kg) Master Carton	Not Required	Not Required	Not Required	
	TGX093638	3/32 (2.4)					
	TGX125638	1/8 (3.2)					

<sup>†</sup>GTAW data from 3/32 in [2.4 mm] wire with 100% Ar shielding gas tested on AWS A5.11 test plate.

Process	Product Name	Product Number	Diameter in (mm)	Packaging	Tensile Strength <sup>†</sup> MPa (ksi)	Yield Strength <sup>†</sup> MPa (ksi)	% Elongation <sup>†</sup>
SAW	<b>Techalloy 276</b> AWS ERNiCrMo-4	SA276093726	3/32 [2.4]	55 lb (25 kg) Basket Rim	717 [104]	434 [63]	34%
		SA276125726	1/8 [3.2]				
	<b>Techalloy 418</b> AWS ERNiCu-7 <small>*SAW data from 3/32" wire with P2007 flux tested on AWS A5.11 test plate</small>	SA418093726	3/32 [2.4]	55 lb (25 kg) Basket Rim	510 [74]	290 [42]	40%
		SA418125726	1/8 [3.2]				
	<b>Techalloy 606</b> AWS ERNiCr-3	SA606093726	3/32 [2.4]	55 lb (25 kg) Basket Rim	621 [90]	359 [52]	46%
		SA606125726	1/8 [3.2]				
	<b>Techalloy 617</b> AWS ERNiCrCoMo-1	SA617125726	1/8 [3.2]	55 lb (25 kg) Basket Rim	696 [101]	434 [63]	41%
	<b>Techalloy 622</b> AWS ERNiCrMo-10	SA622093726	3/32 [2.4]	55 lb (25 kg) Basket Rim	689 [100]	469 [68]	27%
<b>Techalloy 625</b> AWS ERNiCrMo-3	SA625093726	3/32 [2.4]	55 lb (25 kg) Basket Rim	731 [106]	455 [66]	45%	
	SA625125726	1/8 [3.2]					
FCAW	<b>Supercore® 625P</b> AWS ENiCrMo3T1-4	ED034130 SC625P-12*	0.047 [1.2]	33 lb (15 kg) Plastic Spool	770 [112]	500 [73]	46%

<sup>†</sup>SAW data from 3/32 in [2.4 mm] wire with P2000 flux tested on AWS A5.11 test plate.

\* The Metrode part number will be replacing the current ED0 numbers after the inventory has been depleted.

#### CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company<sup>®</sup> 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 information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

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