TECH-ROD® 190

Nickel ▪ AWS ENiCu-7

KEY FEATURES

- Dissimilar applications include nickel alloys to copper-nickel alloys
- Q2 Lot® - certificates showing actual deposit composition available online

CONFORMANCES

AWS A5.11/A5.11M: 2010	ENiCu-7
ASME SFA-A5.11	ENiCu-7
UNS	W84190

TYPICAL APPLICATIONS

- Welding nickel-copper alloys to themselves and to steel
- Used for overlay welding as well as for welding clad steels nickel-copper surfacing is required
- Welding nickel-copper alloys to themselves and stainless

DIAMETERS / PACKAGING

Diameter in (mm)	Length in (mm)	8 lb (3.6 kg) Can 24 lb (10.9 kg) Master Carton	10 lb (4.5 kg) Can 30 lb (13.6 kg) Master Can
3/32 (2.4)	12 (305)	EL190093632	
1/8 (3.2)	14 (355)		EL190125634
5/32 (4.0)	14 (355)		EL190156634
3/16 (4.8)	14 (355)		EL190187634

MECHANICAL PROPERTIES *- As Required per AWS A5.11/A5.11M:2010*

	Tensile Strength Mpa (ksi)	Elongation %
Requirements AWS A5.11/A5.11M:2010	480 (70 min)	30 min
Typcial Performance Tech-Rod® 190	500 (72)	44

DEPOSIT COMPOSITION[1] *- As Required per AWS A5.11/A5.11M: 2010*

	%C	%Mn	%Fe	%P	%S	%Si
Requirements AWS ENiCu-7	0.15	4.0 max	2.5 max	0.02 max	0.015 max	1.5 max
Typcial Performance[2] Tech-Rod® 190	0.02	2.8	0.9	0.01	0.004	0.60
	%Cu	**%Ni**	**%Al**	**%Ti**	**%Other**	
Requirements AWS ENiCu-7	Remainder	62 - 69	0.75 max.	1.0 max	0.5 max	
Typcial Performance[2] Tech-Rod® 190	30	64.5	0.03	0.30	<0.5 max	

TYPICAL OPERATING PROCEDURES

Diameter in (mm)	Length in (mm)	Amperage	
		Flat	Vertical & Overhead
3/32 (2.4)	12 (305)	70-85	65-75
1/8 (3.2)	14 (355)	85-110	80-90
5/32 (4.0)	14 (355)	110-140	100-120
3/16 (4.8)	14 (355)	120-160	110-130

[1]Typical all wire chemistry. [2]See test results disclaimer on pg. 13.
Safety Data Sheets (SDS) are available on our website at www.lincolnelectric.com

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

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 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 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 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.

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.

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