DURAMAX NICKEL ALLOY ELECTRODE DMNA190

Classification: **ENiCu-7** **AWS A5.11 / ASME SFA 5.11**

Description, Characteristics & Applications:

DURAMAX NA190 (ENiCu-7) has a nominal composition (wt.-%) of 66 Ni, 30 Cu, 3 Mn, 1 Fe. Electrodes of this classification are used for welding nickel-copper alloys to themselves and to steel, for welding the clad side of joints in steel clad with a nickel-copper alloy, and for surfacing steel with nickel-copper alloy weld metal. Typical specifications for the nickel-copper base metal are ASTM B 127, B 163, B 164, and B 165, all of which have a UNS Number N04400. The weld metal is suitable for service both in the as-welded condition and after an appropriate post weld heat treatment. Qualification tests should be conducted beforehand to make certain the necessary properties can be obtained after the particular heat treatment is employed.
DMNA190 is well suited for welding in salt, seawater, and reducing acid environments.

Typical Chemical Composition (%)

AWS Spec.	C	Mn	Fe	P	S	Si	Cu	Ni	Al	Ti
A5.11	0.15 max	4.0 max	2.5 max	0.02 max	0.015 max	1.5 max	REM	62.0-69.0	0.75 max	1.0 max
Typical	0.084	3.53	0.73	0.005	0.002	0.84	27.46	66.82	0.02	0.41

AWS Spec.	TOE									
A5.11	0.50 max									
Typical	<0.50									

Typical Mechanical Properties as Welded

Tensile Strength (n/mm²)	Yield Strength (n/mm²)	Elongation (%)	Typical CVN Impacts @ °C
480 Min	------	30% Min	------

Typical Welding Parameters DCEP

Diameter	Type of Current	Amperage Range		Voltage Range
		Flat	Out of Position	
3/32"	DCEP	70 - 80	65 - 80	20 - 23
1/8"	DCEP	80 - 110	75 - 95	21 - 24
5/32"	DCEP	120 - 160	Not recommended	22 - 25
3/16"	DCEP	170 - 190	Not recommended	23 - 25

NOTE: Maintaining a proper welding procedure, including pre-heat and interpass temperatures, may be critical depending on the type and thickness of material being welded.

POLARITY: DCEP
DCEP: DC, Electrode Positive (reverse polarity) has the most weld penetration
USE LESS AMPS ON THIN METAL; MORE AMPS ON THICK METALS