DURAMAX NICKEL ALLOY ELECTRODE DMNA112

Classification: **ENiCrMo-3 AWS A5.11 / ASME SFA 5.11**

Description, Characteristics & Applications:

DURAMAX NA112 (ENiCrMo-3) has a nominal composition (wt.-%) of 60 Ni, 22 Cr, 9 Mo, 5 Fe, 3.5 Nb + Ta. Electrodes of this classification are used for welding nickel-chromium-molybdenum alloys to themselves and to steel, and for surfacing steel with nickel-chromium-molybdenum weld metal. These electrodes also can be used for welding nickel-base alloys to steel. The electrodes are used in applications where the temperature ranges from cryogenic to 1000°F. Typical specifications for the nickel-chromium-molybdenum base metals are ASTM B 443, B 444, and B 446, all of which have UNS Number N06625.

DMNA112 has moderate strength and exceptional corrosion resistance. This versatile electrode is utilized for welding piping systems and reactor components in the power generation industry and for high temperature service in an array of other engineering applications, including petrochemical plants and furnace equipment. DMNA112 is excellent for overlaying on steel where exceptional corrosion resistance is required, such as chloride contaminated cooling water in heat exchangers, as well as offshore and marine environments.

Typical Chemical Composition (%)

AWS Spec.	C	Mn	Fe	P	S	Si	Cu	Ni	Co*	Cr
A5.11	0.10 max	1.0 max	7.0 max	0.03 max	0.02 max	0.75 max	0.50 max	55 MIN	0.12 max	20.0-23.0
Typical	0.022	0.58	0.62	0.019	0.005	0.31	0.059	65.57	0.01	20.87

AWS Spec.	Nb + Ta	Mo	TOE
A5.11	3.15 - 4.15	8.0 - 10.0	0.50 max
Typical	3.34	8.35	<0.50

*Co may apply as an additional requirement upon request

Typical Mechanical Properties as Welded

Tensile Strength (n/mm²)	Yield Strength (n/mm²)	Elongation (%)	Typical CVN Impacts @ °C
772	------	30.4	------

Typical Welding Parameters DCEP

Diameter	Type of Current	Amperage Range		Voltage Range
		Flat	Out of Position	
3/32"	DCEP	70 - 90	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 - 26

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