# DURAMAX NICKEL ALLOY ELECTRODE DMNA182

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

## *Description, Characteristics & Applications:*

DURAMAX NA182 (ENiCrFe-3) has a nominal composition (wt.-%) of 65 Ni, 15 Cr, 8 Fe, 7.5 Mn, 2 Nb + Ta. Electrodes of this classification are used for welding nickel-chromium-iron alloys, for welding the clad side of joints on steel clad with nickel-chromium- iron alloy and for surfacing steel with nickel-chromium-iron weld metal, when comparatively high manganese contents are not detrimental. The electrodes may be used for applications at temperatures ranging from cryogenic to around 900°F. These electrodes can also be used for welding steel to other nickel-base alloys. DMNA182 is designed for welding in harsh, corrosive environments, such as desalination plants, petrochemical facilities and power generation plants, and in temperature critical conditions, such as furnace equipment and pipe work.

## *Typical Chemical Composition (%)*

| AWS Spec. | C | Mn | Fe | P | S | Si | Cu | Ni | Ti | Cr |
|---|---|---|---|---|---|---|---|---|---|---|
| A5.11 | 0.10 max | 5.0 - 9.5 | 10.0 max | 0.03 max | 0.015 max | 1.0 max | 0.50 max | 59.0 MIN | 1.0 max | 13.0-17.0 |
| Typical | 0.038 | 6.09 | 8.52 | 0.018 | 0.004 | 0.480 | 0.001 | 68.20 | 0.08 | 14.99 |

| AWS Spec. | Nb + Ta | TOE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| A5.11 | 1.0 - 2.5 | 0.50 max | | | | | | | | |
| Typical | 1.44 | <0.50 | | | | | | | | |

## *Typical Mechanical Properties as Welded*

| Tensile Strength (n/mm²) | Yield Strength (n/mm²) | Elongation (%) | Typical CVN Impacts @ -196°C |
|---|---|---|---|
| 550 Min | 370 Typical | 30% Min | 60 - 90 J |

## *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