

## DURAMAX STAINLESS ELECTRODE DM312T-1

**Classification:** E312T-1 AWS A5.22 ASME SFA 5.22

### Description, Characteristics & Applications:

These electrodes most often are used to weld dissimilar metal compositions of which one component is higher in nickel. This alloy gives a two phase weld deposit with substantial amounts of ferrite in an austenite matrix.

For best results, set the wire feed speed and adjust the voltage for smoothest operation. Electrode extension range is from 1/2" to 1," with an optimum range of 5/8" to 3/4." Weld using reverse polarity DC(+).

#### Shielding Gas

75% argon / 25% CO<sub>2</sub> (or nearest equivalent) shielding gas; however, straight CO<sub>2</sub> may also be used. The 75/25 mixture will produce a smoother arc with virtually no spatter and slightly higher yield and tensile strengths than CO<sub>2</sub>. The mechanical properties and deposit analyses will meet AWS A5.22 specifications with either gas

### Typical Chemical Composition (%)

| C        | Cr        | Ni       | Mo       | Mn        | Si       | P        | S        | Cu       |
|----------|-----------|----------|----------|-----------|----------|----------|----------|----------|
| 0.15 max | 28.0-32.0 | 8.0-10.5 | 0.75 max | 0.5 - 2.5 | 1.00 max | 0.04 max | 0.03 max | 0.75 max |

### Deposited Chemical Composition (%) (Typical)

| C    | Cr   | Ni  | Mo   | Mn  | Si   | P    | S    |
|------|------|-----|------|-----|------|------|------|
| 0.11 | 29.0 | 9.0 | 0.28 | 1.2 | 0.60 | 0.01 | 0.01 |

### Typical Mechanical Properties as Welded

| Tensile Strength | Yield Strength | Elongation (%) | Hardness | Ferrite WRC (FN) | CVN Impacts (J) |
|------------------|----------------|----------------|----------|------------------|-----------------|
|                  |                |                |          |                  | @ °C            |
| 100,000psi       | 77,000psi      | 24%            | -----    | 50 FN            | -----           |

| Diameter | Position    | WFS       | Opt Amps | Opt Volts | Range Amps | Range Volts |
|----------|-------------|-----------|----------|-----------|------------|-------------|
| .035     | Flat        | 365 / min | 130-140  | 24-25     | 100-170    | 21-26       |
|          | Horizontal  | 365 / min | 130-140  | 24-25     | 100-170    | 21-26       |
|          | Vertical-Up | 310 / min | 110-120  | 22-23     | 110-120    | 21-23       |
|          | Overhead    | 320 / min | 120-130  | 23-24     | 120-130    | 22-24       |
| .045     | Flat        | 450 / min | 180-200  | 25-27     | 135-250    | 24-32       |
|          | Horizontal  | 450 / min | 180-200  | 25-27     | 135-250    | 24-32       |
|          | Vertical-Up | 325 / min | 150-170  | 24-26     | 135-200    | 24-26       |
|          | Overhead    | 425 / min | 175-195  | 25-27     | 155-200    | 25-28       |
| 1/16     | Flat        | 264 / min | 220-240  | 25-27     | 170-300    | 24-31       |
|          | Horizontal  | 235 / min | 200-220  | 25-27     | 170-270    | 24-29       |
|          | Vertical-Up | 220 / min | 190-210  | 25-26     | 170-230    | 24-27       |
|          | Overhead    | 235 / min | 200-220  | 25-26     | 170-270    | 24-29       |

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