

## MIDALLOY ER80S-Ni3 WELDING WIRE

### CLASSIFICATION

- AWS A5.28 Class ER80S-Ni3 / ASME SFA 5.28 Class ER80S-Ni3 (UNS K31240), EN10204 and EN 636-B WN71

### DESCRIPTION

- MIDALLOY ER80S-Ni3 is a copper free bare wire used for GMAW & GTAW welding. It can be also used for Sub-merged arc welding (AWS 5.23 ENI3)
- ASME Section IX F#6 A#10

### APPLICATION

- MIDALLOY ER80S-Ni3 welding wire is used for Tig root passes or GTAW, GMAW and SAW joining for low-temperature, fine-grained steels that contain 3.5% Nickel. These alloys have higher strength and require good toughness at temperatures as low as -60°C. Some grades are ASME/ASTM A203 Grade D & E, HYL A-80 and HYL A-100. UNS K22103, K21703 AND J42015.

### TYPICAL CHEMISTRY

| C   | Mn   | Si  | P    | S    | Ni  | Cr  | Mo  | V    | Cu  |
|-----|------|-----|------|------|-----|-----|-----|------|-----|
| .08 | 1.02 | .58 | .012 | .010 | 3.5 | .04 | .01 | .002 | .14 |

### TYPICAL MECHANICAL PROPERTIES

#### AS WELDED

#### PWHT@1150F

|                       |                      |                    |
|-----------------------|----------------------|--------------------|
| TENSILE STRENGTH      | 88,000 PSI (620 KPA) | 91,350 PSI         |
| YIELD STRENGTH        | 71,950 PSI (510 KPA) | 79,750 PSI         |
| ELONGATION IN 2"      | 28%                  | 25%                |
| CHARGE IMPACT @ -60°C | 38 ft-lbs. Average   | 36 ft-lbs. Average |

### RECOMMENDED WELDING PARAMETERS

| PROCESS                         | DIA. OF WIRE | AMPERAGE | VOLTAGE | GAS/FLUX                                    |
|---------------------------------|--------------|----------|---------|---|
| GTAW                            | 1/16"        | 50-120   | 7-13    | Ar  |
|                                 | 3/32"        | 120-200  | 10-16   | Ar  |
|                                 | 1/8"         | 150-220  | 12-18   | Ar  |
| GMAW (MIG)<br>SHORT ARC         | .035"        | 90-160   | 14-20   | CO <sub>2</sub>                             |
|                                 | .045"        | 120-200  | 16-20   | CO <sub>2</sub> or 75 Ar/25 CO <sub>2</sub> |
|                                 | 1/16"        | -        | -       | CO <sub>2</sub> or 75 Ar/25 CO <sub>2</sub> |
| GMAW (MIG)<br>SPRAY<br>TRANSFER | .035"        | 180-230  | 25-28   | 98 Ar/2 O <sub>2</sub> or                   |
|                                 | .045"        | 250-350  | 25-30   | 75 Ar/25 CO <sub>2</sub> or                 |
|                                 | 1/16"        | 280-400  | 26-36   | 90 Ar/10 CO <sub>2</sub>                    |

### STANDARD PACKAGING

- MIG 33 lb. Spool
- TIG 10 lb. Tube / 60 lb. Carton

6/24/19

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