

# ULTRACORE® 70M

Mild Steel, Flat & Horizontal ▪ AWS E70T-9M-H8, E70T1-M21A2-CS1-H8

## KEY FEATURES

- High deposition in the flat and horizontal positions
- Designed for welding with 75-80% Argon / Balance CO<sub>2</sub> shielding gas
- Low fume generation rates
- Excellent operator appeal and slag detachability
- ProTech® foil bag packaging
- Flat bead profile for excellent bead stacking

## WELDING POSITIONS

Flat & Horizontal

## CONFORMANCES

**AWS A5.20/A5.20M:**

E70T-1M-H8, E70T-9M-H8

**AWS A5.36/A5.36M:**

E70T1-M21A2-CS1-H8

## TYPICAL APPLICATIONS

- Structural fabrication
- Heavy equipment
- Shipbuilding

## SHIELDING GAS

75-80% Argon / Balance CO<sub>2</sub>  
Flow Rate: 45-55 CFH

## DIAMETERS / PACKAGING

| Diameter in (mm) | 50 lb ( 22.7kg) Coil | 500 lb (227 kg) Accu-Trak® Drum | 500 lb (227 kg) Speed-Feed® Drum |
|------------------|----------------------|---------------------------------|----------------------------------|
| 1/16 (1.6)       | ED035847             | ED036638                        | ED036637<br>ED036636             |
| 5/64 (2.0)       | ED035848             |                                 |                                  |
| 3/32 (2.4)       | ED035849             |                                 |                                  |

## MECHANICAL PROPERTIES<sup>(1)</sup>

|  | Yield Strength <sup>(2)</sup><br>MPa (ksi) | Tensile Strength<br>MPa (ksi) | Elongation % | Charpy V-Notch J (ft•lbf)<br>@ -29°C (-20°F) |
|--|--|-------------------------------|--------------|--|
| <b>Requirements<sup>(4)</sup></b><br>AWS A5.20 E70T-1M-H8, E70T-9M-H8              | 400 (58) min                               | 480-655 (70-95)               | 22 min       | 27 (20) min                                  |
| AWS A5.36 E70T1-M21A2-CS1-H8   |  |                               |              |  |
| <b>Typical Results<sup>(3)</sup></b><br>As-Welded with 75% Ar/ 25% CO <sub>2</sub> | 575-580 (83-84)                            | 635-660 (92-95)               | 25-27        | 39-121 (29-89)                               |

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer. <sup>(4)</sup>As-Welded with 75%-80% Ar/ Balance% CO<sub>2</sub>

**DEPOSIT COMPOSITION<sup>(1)</sup>**

|  | %C        | %Mn       | %Si       | %S        | %P  |
|--|-----------|-----------|-----------|-----------|---|
| <b>Requirements<sup>(4)</sup></b><br>AWS A5.20 E70T-1M-H8, E70T-9M-H8              | 0.12 max  | 1.75 max  | 0.90 max  | 0.03 max  | 0.03 max                                      |
| AWS A5.36 E70T1-M21A2-CS1-H8   |           |           |           | 0.030 max | 0.030 max                                     |
| <b>Typical Results<sup>(3)</sup></b><br>As-Welded with 75% Ar/ 25% CO <sub>2</sub> | 0.06-0.07 | 1.53-1.56 | 0.58-0.60 | 0.009     | 0.013   |
|  | %Ni       | %Mo       | %Cr       | %V        | Diffusible Hydrogen<br>(mL/100g weld deposit) |
| <b>Requirements<sup>(4)</sup></b><br>AWS A5.20 E70T-1M-H8, E70T-9M-H8              | 0.50 max  | 0.30 max  | 0.20 max  | 0.08 max  | 8.0 max                                       |
| AWS A5.36 E70T1-M21A2-CS1-H8   |           |           |           |           | 8 max   |
| <b>Typical Results<sup>(3)</sup></b><br>As-Welded with 75% Ar/ 25% CO <sub>2</sub> | 0.03      | 0.01      | 0.07      | 0.03      | 4-7   |

**TYPICAL OPERATING PROCEDURES – Flat & Horizontal**

| Diameter, Polarity<br>Shielding Gas                             | CTWD <sup>(5)</sup><br>mm (in)                                  | Wire Feed Speed<br>m/min (ipm) | Voltage<br>(volts) | Approx. Current<br>(amps) | Melt-Off Rate<br>kg/hr (lb/hr) | Deposition Rate<br>kg/hr (lb/hr) |
|---|---|--------------------------------|--------------------|---------------------------|--------------------------------|----------------------------------|
| 1/16 in (1.6 mm), DC+<br>75-80% Argon / Balance CO <sub>2</sub> | 25 (1)  | 3.2 (125)                      | 22-26              | 160                       | 2.2 (4.8)                      | 2.0 (4.4)                        |
|   |   | 6.4 (250)                      | 24-28              | 260                       | 4.5 (9.9)                      | 4.0 (8.8)                        |
|   |   | 9.5 (375)                      | 27-31              | 345                       | 6.8 (14.9)                     | 6.0 (13.2)                       |
| 5/64 in (2.0 mm), DC+<br>75-80% Argon / Balance CO <sub>2</sub> | 25 (1)  | 3.2 (125)                      | 22-26              | 255                       | 3.7 (8.1)                      | 3.2 (7.1)                        |
|   |   | 5.7 (225)                      | 24-28              | 380                       | 6.6 (14.6)                     | 5.6 (12.4)                       |
|   | 31 (1 1/4)  | 8.3 (325)                      | 26-31              | 415                       | 8.9 (19.5)                     | 7.5 (16.4)                       |
|   | 3/32 in (2.4 mm), DC+<br>75-80% Argon / Balance CO <sub>2</sub> | 25 (1)                         | 3.2 (125)          | 26-30                     | 340                            | 5.1 (11.3)                       |
| 31 (1 1/4)  |   |                                | 5.1 (200)          | 27-32                     | 450                            | 8.3 (18.3)                       |
|   |   | 6.4 (250)                      | 30-36              | 615                       | 12.5 (27.5)                    | 10.7 (23.6)                      |

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer <sup>(4)</sup>As-Welded with 75%-80% Ar/ Balance% CO<sub>2</sub>. <sup>(5)</sup>To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://www.lincolnelectric.com)

**TEST RESULTS**

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

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