

Excalibur® 10018-D2 MR®

Low Alloy, Low Hydrogen • AWS E10018-D2 H4R

Key Features

- ▶ Capable of exceeding 550 MPa (80 ksi) yield strength after 12 hours at 635°C (1175°F) on 4130 AISI steel
- ▶ Premium arc performance
- ▶ Q2 Lot® - Certificate showing actual deposit chemistry available online
- ▶ Easy strike and re-strike
- ▶ Effortless slag removal

Welding Positions

All, except vertical down

Typical Applications

- ▶ Chromium-molybdenum and other low alloy steels, including AISI 4130, 4140, 8630 and ASTM A182 and A336 Grades F22
- ▶ Carbon-manganese and other low alloy steels
- ▶ Offshore and subsea components
- ▶ Process piping
- ▶ Meets NACE MR0175/ISO15156-2

Conformances

| | |
|----------------------|---------------|
| AWS A5.5/A5.5M: 2006 | E10018-D2 H4R |
| ASME SFA-A5.5: | E10018-D2 H4R |
| ABS: | 3YQ620 H5 |
| Lloyd's Register: | 3Y62 H5 |
| DNV Grade: | 3Y62 H5 |
| CWB/CSA W48-06: | E6918-D2 |

DIAMETERS / PACKAGING

| Diameter in (mm) | Length in (mm) | 25 lb (11.3 kg) Easy Open Can | 50 lb (22.7 kg) Easy Open Can |
|---------------------|-------------------|----------------------------------|----------------------------------|
| 3/32 (2.4) | 12 (300) | ED033162 | ED033163 ED033164 |
| 1/8 (3.2) | 14 (350) | | |
| 5/32 (4.0) | 14 (350) | | |

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.5/A5.5M: 2006

| | Yield Strength ⁽²⁾ MPa (ksi) | Tensile Strength MPa (ksi) | Elongation % | Charpy V-Notch J (ft•lbf) @ -51°C (-60°F) | Hardness ⁽⁴⁾ HV ₁₀ |
|--|--|-------------------------------|-----------------|---|---|
| Requirements - AWS E10018-D2 H4R | 600 (87) min. | 690 (100) min. | 16 min. | 27 (20) min. | Not Specified |
| Typical Results⁽³⁾ - Stress-Relieved 1 hr @ 620°C (1150°F) | 650-715 (94-104) | 725-780 (105-113) | 22-25 | 56-69 (41-51) | 219-242 |
| Welded on AISI 4130 Steel | | | | | |
| Typical Results⁽³⁾ - Stress-Relieved 12 hrs @ 620°C (1150°F) ⁽⁴⁾ | 560-580 (81-84) | 650-675 (94-98) | 24-25 | 47-68 (35-50) | 210-214 |

DEPOSIT COMPOSITION⁽¹⁾

| | %C | %Mn | %Si | %P |
|---|-----------|-----------|-----------|---|
| Requirements - AWS E10018-D2 H4R | 0.15 max. | 1.65-2.00 | 0.80 max. | 0.03 max. |
| Typical Results⁽³⁾ | 0.08-0.12 | 1.69-1.91 | 0.35-0.49 | 0.01-0.02 |
| | %S | %Ni | %Mo | Diffusible Hydrogen (mL/100g weld deposit) |
| Requirements - AWS E10018-D2 H4R | 0.03 max. | 0.90 max. | 0.25-0.45 | 4.0 max. |
| Typical Results⁽³⁾ | ≤0.01 | 0.68-0.77 | 0.34-0.39 | 2-3 |

TYPICAL OPERATING PROCEDURES

| Polarity | Current (Amps) | | |
|----------|------------------|-----------------|------------------|
| | 3/32 in (2.4 mm) | 1/8 in (3.2 mm) | 5/32 in (4.0 mm) |
| DC+ | 60-110 | 85-160 | 110-210 |
| AC | 65-120 | 90-170 | 115-220 |

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer on pg. 16. ⁽⁴⁾Industry specific data, not required by AWS. ⁽⁵⁾Preferred polarity is listed first.
NOTE: Additional test data available upon request.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at 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.

CUSTOMER ASSISTANCE POLICY

The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

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