

Excalibur® 7018-A1 MR®

Low Alloy, Low Hydrogen • AWS E7018-A1 H4R

Key Features

- ▶ Designed for welding 0.50% molybdenum steel
- ▶ Premium arc performance
- ▶ Square coating burn-off
- ▶ Easy strike, re-strike and slag removal
- ▶ Capable of exceeding AWS minimum requirement of 490 MPa (70 ksi) tensile strength after 8 hours of stress-relieving at 620°C (1150°F)

Typical Applications

- ▶ Fabrication and maintenance welding
- ▶ Pressure vessels and pressure piping

Conformances

AWS A5.5/A5.5M: 2006	E7018-A1 H4R
ASME SFA-A5.5:	E7018-A1 H4R
ABS:	E7018-A1 H4R
CWB/CSA W48-06:	E4918-A1

Welding Positions

All, except vertical down

DIAMETERS / PACKAGING

Diameter in (mm)	Length in (mm)	8 lb (3.6 kg) Easy Open Can 24 lb (10.9 kg) Master Carton	10 lb (4.5 kg) Easy Open Can 30 lb (13.6 kg) Master Carton	25 lb (11.3 kg) Easy Open Can	50 lb (22.7 kg) Easy Open Can
3/32 (2.4)	12 (300)	ED032893	ED032873	ED032875	ED032876 ED032877
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) @ -29°C (-20°F)
Requirements - AWS E7018-A1 H4R	390 (57) min.	490 (70) min.	22 min.	Not Specified
Typical Results⁽³⁾ - As-Welded				
Stress-Relieved 1 hr @ 620°C (1150°F)	470-500 (68-72)	565-585 (82-85)	25-32	60-130 (46-96)
Stress-Relieved 8 hrs @ 620°C (1150°F) ⁽⁴⁾	450-485 (65-70)	545-570 (79-83)	27-32	50-107 (38-79)

DEPOSIT COMPOSITION⁽¹⁾ – As Required per AWS A5.5/A5.5M: 2006

	%C	%Mn	%Si	%P
Requirements - AWS E7018-A1 H4R	0.12 max.	0.90 max.	0.80 max.	0.03 max.
Typical Results⁽³⁾	0.04-0.06	0.55-0.80	0.35-0.55	≤ 0.01
	%S	%Mo	Diffusible Hydrogen (mL/100g weld metal)	
Requirements - AWS E7018-A1 H4R	0.03 max.	0.40-0.65	4.0 max.	
Typical Results⁽³⁾	≤ 0.01	0.45-0.65	2-4	

TYPICAL OPERATING PROCEDURES

Polarity ⁽⁵⁾	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 below. ⁽⁴⁾Industry Specific Data (Not AWS Requirement). ⁽⁵⁾Preferred polarity is listed first.

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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Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.