

# EXCALIBUR® 7018-1 MR®

Mild Steel, Low Hydrogen ■ AWS E7018-1 H4R



## KEY FEATURES

- Exceeds AWS toughness requirements at -50°F
- Extreme bend ability
- 60% less moisture pickup vs. competition
- Clear puddle and a smooth arc
- Meets Chemical Composition Recommendations of API 751
- Q2 Lot® - Certificate showing actual deposit chemistry and mechanical properties available online

## TYPICAL APPLICATIONS

- Power generation
- Petrochemical
- Pressure vessels
- Pressure piping
- Fill and cap pass welding of up to X65 grade pipe

## 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	50 lb (22.7kg) Easy Open Can
3/32 (2.4)	12 (300)	ED033179	ED032591 ED032592	ED028700, ED034308* ED028702, ED034309* ED028704 ED028706 ED028919 ED028920
3/32 (2.4)	14 (350)			
1/8 (3.2)	14 (350)			
5/32 (4.0)	14 (350)			
3/16 (4.8)	14 (350)			
7/32 (5.6)	18 (450)			
1/4 (6.4)	18 (450)			

\*Buy America Product

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.1/A5.1M

	Yield Strength <sup>(2)</sup> MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft·lbf) @ -46°C (-50°F)
<b>Requirements</b> - AWS E7018-1 H4R	400 (58) min	490 (70) min	22 min	27 (20) min
<b>Typical Results</b> <sup>(3)</sup> - As-Welded	405-515 (59-75)	530-605 (77-88)	24-36	56-178 (42-131)

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.1/A5.1M

	%C	%Mn	%Si	%P	%S	%Ni
<b>Requirements</b> - AWS E7018-1 H4R	0.15 max	1.60 max	0.75 max	0.035 max	0.035 max	0.30 max
<b>Typical Results</b> <sup>(3)</sup>	0.04-0.07	0.80-1.44	0.28-0.51	0.006-0.019	0.003-0.013	0.01-0.07
	%Cr	%Mo	%V	%Mn + Ni + Cr + Mo + V	Diffusible Hydrogen (mL/100g weld metal)	
<b>Requirements</b> - AWS E7018-1 H4R	0.20 max	0.30 max	0.08 max	1.75 max	4.0 max	
<b>Typical Results</b> <sup>(3)</sup>	0.01-0.07	0.11-0.28	≤ 0.01	0.93-1.65	2-3	

## TYPICAL OPERATING PROCEDURES

Polarity <sup>(4)</sup>	Current (Amps)					
	3/32 in (2.4 mm)	1/8 in (3.2 mm)	5/32 in (4.0 mm)	3/16 in (4.8 mm)	7/32 in (5.6 mm)	1/4 in (6.4 mm)
DC+	70-110	90-160	130-210	180-300	250-330	300-400
AC	80-120	100-160	140-210	200-300	270-370	325-420

<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>Preferred polarity is listed first.

## CONFORMANCES

<b>AWS A5.1/A5.1M:</b>	E7018-1 H4R
<b>ASME SFA-A5.1:</b>	E7018-1 H4R
<b>ABS:</b>	3Y H5
<b>Lloyd's Register:</b>	3YM H5
<b>DNV Grade:</b>	3 YH5
<b>GL:</b>	3YH5
<b>BV Grade:</b>	3YHHH
<b>CWB/CSA W48-06:</b>	E4918-1-H4
<b>EN ISO 2560-B:</b>	E4918-1 A U H5

## WELDING POSITIONS

All, except vertical down

*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.

#### 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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