

EXCALIBUR[®]

STICK (SMAW) WELDING CONSUMABLE





Excalibur 7018-A1 MR 8 lb. can

Built For the Way You Weld

We improved our Excalibur® 7018 MR® based on the way you use the product. Our research showed that welders do some pretty extreme things with electrodes. Our improved product has a new flexible coating that stays intact in the container and in use. The product produces a low hydrogen deposit even when exposed to high humidity. Starting is improved to eliminate porosity. Give the product a try and we think you'll be pleasantly surprised to immediately see the benefits we've built in, because we built them for you.

7018 MR

The Excalibur line offers higher quality starts, with reduce starting porosity across amperage range. Excalibur 7018 MR offers 60% less moisture pickup when analyzed after nine hours of exposure, which ensures low hydrogen weld deposits. This will meet your diffusible hydrogen needs.

7018-1 MR

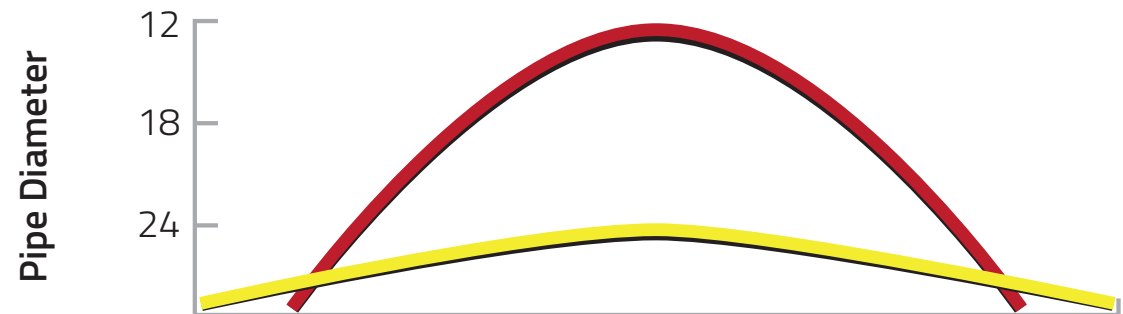
The 7018-1 MR delivers the same level of quality as the 7018 MR, but it's designed for lower temperature impact properties. Q2 lot tested with actual deposit composition and mechanical properties at -50°F (-46°C). Meets Chemical Composition Recommendations of API 751 (Recommended Practice for Safe Operation of Hydrofluoric Acid Alkylation Units). Excalibur 7018-1 delivers toughness you can count on.





The Coating is the Key

The chemistry and composition of Excalibur's coating allows for extreme 'bendability' without crumbling or breaking off – up to 100% better than competitive brands. That flexibility translates to more productive welding – in the way that's most comfortable for you.



Bendability Until Coating Fracture

*Bend radius is dependent upon the diameter of the electrode. This graph displays bend radius not actual bend of electrode.

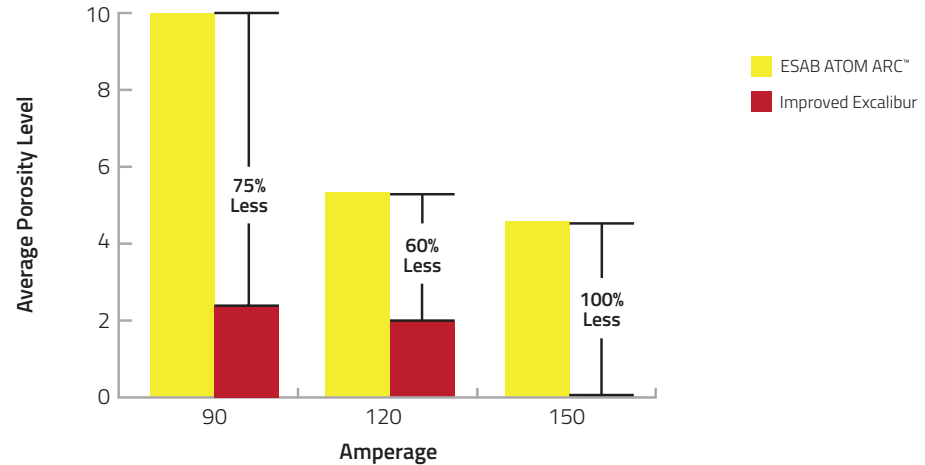
 ESAB ATOM ARC™

 Improved Excalibur



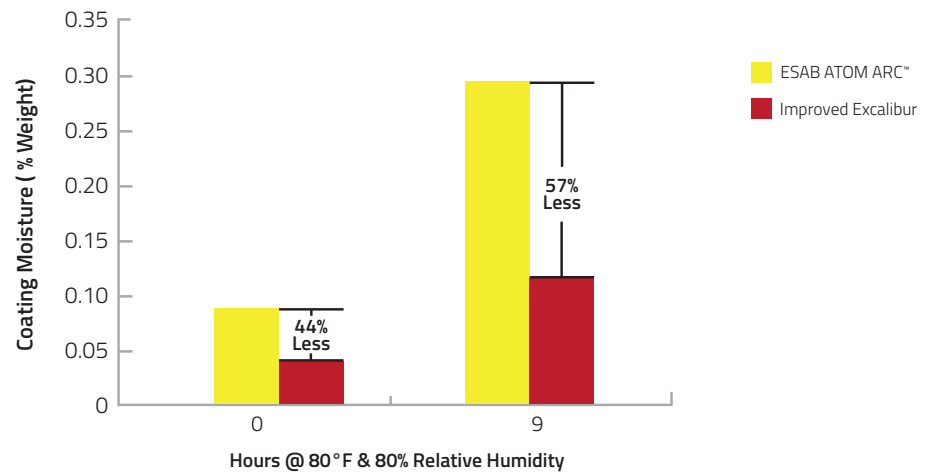
A Clean Start, A Quality Finish

Excalibur offers higher quality starts, with reduced starting porosity across the amperage range.



*All data produced using 1/8 in. diameter electrode welded at the listed amperages under controlled conditions

Excalibur 7018 MR also offers 60% less moisture pickup when analyzed after nine hours of exposure, which ensures low hydrogen weld deposits. This will meet your diffusible hydrogen needs.



EXCALIBUR 7018 MR

DIAMETERS/PACKAGING

Diameter* in (mm)	Length in (mm)	1 lb (0.5 kg) Tube 6 lb (3.6 kg) Carton	10 lb (4.5 kg) Easy Open Can 30 lb (13.6 kg) Carton	50 lb (22.7 kg) Easy Open Can
3/32 (2.4)	14 (350)	ED032086	ED032588	ED028280
1/8 (3.2)	14 (350)	ED031468	ED032589	ED028281
5/32 (4.0)	14 (350)		ED032590	ED028282
3/16 (4.8)	14 (350)			ED028283
7/32 (5.6)	18 (450)			ED028917
1/4 (6.4)	18 (450)			ED028918

* Extreme bendability apply to 3/32, 1/8 and 5/32 in. diameters.

MECHANICAL PROPERTIES⁽¹⁾

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft-lbf) @-29°C (-20°F)
Requirements AWS E7018 H4R	400 (58) min	490 (70) min	22 min	27 (20) min
Test Results⁽³⁾ As-Welded	430-510 (62-74)	510-605 (74-88)	25-37	121-332 (89-246)

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%P	%S	%Ni
Requirements AWS E7018 H4R	0.15 max	1.60 max	0.75 max	0.035 max	0.035 max	0.030 max
Test Results⁽³⁾	0.03-0.08	1.01-1.55	0.34-0.68	0.01-0.02	≤0.01	0.01-0.06

	%Cr	%Mo	%V	%Mn + Ni + Cr + Mo + V	Diffusible Hydrogen (mL/100g weld deposit)
Requirements AWS E7018 H4R	0.20 max	0.30 max	0.08 max	1.75 max	4.0 max
Test Results⁽³⁾	0.02-0.07	≤0.05	≤0.02	1.04-1.75	2-3

TYPICAL OPERATING PROCEDURES

Polarity ⁽⁴⁾	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

⁽¹⁾ Typical all weld metal. ⁽²⁾ Measured with 0.2% offset. ⁽³⁾ See test results disclaimer on back page. ⁽⁴⁾ Preferred polarity is listed first.

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EXCALIBUR 7018-1 MR

DIAMETERS/PACKAGING

Diameter* in (mm)	Length in (mm)	8 lb (3.6 kg) Easy Open Can 24 lb (10.9) Master Carton	8 lb (3.6 kg) Easy Open Can 24 lb (10.9) 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⁽¹⁾

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

DEPOSIT COMPOSITION⁽¹⁾

	%C	%Mn	%Si	%P	%S	%Ni
Requirements AWSE701B-1 H4R	0.15 max	1.60 max	0.75	0.035 ma	0.035 max	0.30 max
Test Results⁽³⁾	0.04-0.07	0.11-0.28	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 deposit)	
Requirements AWSE701B-1 H4R	0.20 max	0.30 max	0.08 max	1.75 max	4.0 max	
Test Results⁽³⁾	0.01-0.07	0.11-0.28	≤0.01	0.93-1.65	2.3	

TYPICAL OPERATING PROCEDURES

Polarity ⁽⁴⁾	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

⁽¹⁾ Typical all weld metal. ⁽²⁾ Measured with 0.2% offset. ⁽³⁾ See test results disclaimer on back page. ⁽⁴⁾ Preferred polarity is listed first.

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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 business of 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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