

# 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

## CONFORMANCES

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

## WELDING POSITIONS

All, except vertical down

## DIAMETERS / PACKAGING

Diameter in (mm)	Length in (mm)	6 lb (2.7 kg) Easy Open Can 36 lb (16.3 kg) Master Carton	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)	9 (270)	ED036518			
3/32 (2.4)	12 (300)		ED033179		
3/32 (2.4)	14 (350)			ED032591	ED028700, ED034308*
1/8 (3.2)	9 (270)	ED036517			
1/8 (3.2)	14 (350)			ED032592	ED028702, ED034309*
5/32 (4.0)	14 (350)				ED028704
3/16 (4.8)	14 (350)				ED028706
7/32 (5.6)	18 (450)				ED028919
1/4 (6.4)	18 (450)				ED028920

\*Buy America Product

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

	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

	%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.