

Excalibur® 7018 MR® N

Mild Steel • AWS E7018

Key Features

- ▶ Q2 Lot® - Certificate showing actual deposit composition and actual mechanical properties available online
- ▶ Available as Batch Managed Inventory
- ▶ “N” Designator - design modified to meet properties after 48 hours stress relief
- ▶ Premium arc performance
- ▶ Square coating burn-off
- ▶ Easy strike and re-strike
- ▶ Effortless slag removal
- ▶ Minimal spatter for enhanced operability and clean weld surface
- ▶ Impact toughness tested to -46°C (-50°F)
- ▶ Capable of exceeding AWS minimum requirement of 480 MPa (70 ksi) tensile and 400 MPa (58 ksi) yield strength after 48 hours of stress relieving at 590-620°C (1100-1150°F)
- ▶ Capable of meeting drop weight testing requirements as commonly required for nuclear applications
- ▶ Prior to using this material for ASME Boiler and Pressure Vessel Code Section III applications, please contact the Lincoln Electric Specials Department to receive a Certified Material Test Report (CMTR) which meets all requirements of NCA-3860.
- ▶ Each rod is marked with AWS classification and LOT number

Typical Applications

- ▶ Nuclear power plant construction and maintenance
- ▶ Power generation
- ▶ Petrochemical
- ▶ Pressure vessels
- ▶ Pressure piping
- ▶ Fill and cap pass welding of up to X65 grade pipe

ASME IX Qualification

ASME IX Qualification: QW432 F-No 4,
QW442 A-No 1

Conformances

AWS A5.1/A5.1M: 2004: E7018 H4R, E7018-1 H4R
ASME SFA-A5.1: E7018 H4R, E7018-1 H4R

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
3/32 (2.4)	12 (300)	ED033940	
1/8 (3.2)	14 (350)		ED033838
5/32 (4.0)	14 (350)		ED033839

Excalibur® 7018 MR® N

(AWS E7018)

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.1/A5.1M: 2004

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Charpy V-Notch J (ft•lbf)		
				@ -29°C (-20°F)	@ -46°C (-50°F)	@ -50°C (-60°F)
Requirements AWS E7018-1 H4R	400 (58) min.	490 (70) min.	22 min.	27 (20) min.	27 (20) min.	Not Specified
Typical Results⁽³⁾ As-Welded	440-530 (64-77)	540-630 (79-91)	27-29	90-135 (67-233)	28-177 (21-131)	32-210 (24-155)
Stress Relieved 48 hrs @ 620°C (1150°F)	410-470 (59-68)	500-560 (72-81)	29-31	172-352 (127-260)	–	23-284 (17-210)

DEPOSIT COMPOSITION⁽¹⁾ – As Required per AWS A5.1/A5.1M: 2004

	%C	%Mn	%Si	%P	%S
Requirements AWS E7018-1 H4R	0.15 max.	1.60 max.	0.75 max.	0.035 max.	0.35 max.
Typical Results⁽³⁾	0.06 - 0.08	0.78 - 1.16	0.16 - 0.38	≤0.01	≤0.01
	%Ni	%Cr	%Mo	Diffusible Hydrogen (mL/100g weld deposit)	
Requirements AWS E7018-1 H4R	0.30 max.	0.20 max.	0.30 max.	4.0 max.	
Typical Results⁽³⁾	≤0.02	≤0.03	0.20 - 0.25	1 - 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)
DC+	70-110	90-160	130-210
AC	80-120	100-160	140-210

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer on pg. 12.