



**Certificate of Conformance  
to Requirements for Welding Electrode**

Product Type: **HOBALLOY 9018M**  
 Classification: **E9018M H4R**  
 Specifications: **AWS A5.5/A5.5M; ASME SFA 5.5**  
 Diameter Tested:  
 Date Tested: **12/10/2021**  
 Date Generated: **12/21/2021**

This is to certify that the product named above and supplied on the referenced order number is of the same classification, manufacturing process, and material requirements as the material which was used for the test that was concluded on the date shown, the results of which are shown below. All tests required by the specifications shown for classification were performed at that time and the material tested met all requirements. It was manufactured and supplied by the Quality System Program of Hobart Brothers, which meets the requirements of ISO 9001, ANSI/AWS A5.01, and other specification and Military requirements, as applicable. This document supplies actual test results of non-specific inspection in conformance with the requirements of EN 10204, type 2.2 certification.

**MADE IN THE U.S. OF U.S. AND IMPORTED MATERIALS.**

**Test Settings**

Size	Polarity	Amps	Volts	Preheat F(C)	Interpass F(C)
5/32X14 in	DCEP	170	22-23	225 F ( )	225 F ( )
1/4X18 in	DCEP	340	27 - 26	250 (121)	250 (121)

**Mechanical Properties - Tensile**

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elong.% in 2"
5/32X14 in / DCEP	PE3255	Aged 48 Hrs 220F	97,000 ( 667 )	87,000 ( 598 )	<b>24</b>
1/4X18 in / DCEP	PE3338	Aged 48 Hrs 220F	92,000 ( 637 )	84,000 ( 582 )	<b>24</b>

**Mechanical Properties - Impact**

Size / Polarity	Ref. No.	Testing Conditions	Test Temp. F(C)	Individuals ft.lb.(J)	Average ft.lb.(J)	Type
5/32X14 in / DCEP	PE3255	As Welded	-60 F (-51 C)	98,95,91 (133,129,123)	95 ( 128 )	Charpy-V-Notch
1/4X18 in / DCEP	PE3338	As Welded	-60 F (-51 C)	36,39,27 (49,53,37)	34 ( 46 )	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
5/32X14 in / DCEP	PE3255	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
1/4X18 in / DCEP	PE3338	Conforms	Horizontal :	Overhead :	Vertical :	Conforms

**Chemical Analysis**

Size / Polarity / Ref. No.	C	Mn	P	S	Si	Cu	Cr	V	Ni	Mo	Al	Ti	Nb	Co	B	W	Sn	Fe	Sb	N	Mg	Zn	Be	Sb	As
5/32X14 in / DCEP / CD79639	0.05	0.90	0.011	0.007	0.17		0.02	<.01	1.56	0.32															
1/4X18 in / DCEP / CD80176	0.05	0.95	0.016	0.014	0.26		0.05	<.01	1.48	0.30															
5/32X14 in / DCEP / PE3255	0.05	1.20	0.010	0.007	0.28		0.04	0.01	1.48	0.33															
1/4X18 in / DCEP / PE3338	0.05	0.96	0.017	0.014	0.24		0.08	0.01	1.53	0.30															

5/32X14 in / CD79639	Total H2O Method : Train - As Received	Total Coating Moisture : 0.057
1/4X18 in / CD80176	Total H2O Method : Train - As Received	Total Coating Moisture : 0.048
5/32X14 in / PE3255	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.228
1/4X18 in / PE3338	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.185

**Diffusible Hydrogen Collected per AWS A4.3**

**2.5 ml/100g of weld metal for 5/32X14 in diameter 18% relative humidity**  
**2.7 ml/100g of weld metal for 1/4X18 in diameter 18% relative humidity**

Dave Thomas, Quality Assurance Rep.

Certification and Limited Warranty - Data for the above supplied product are those obtained when welded and tested in accordance with the above specification. All tests for the above classification were satisfied. Other tests and procedures may produce different results.