



## Certificate of Conformance to Requirements for Welding Electrode

**Product Type:** HOBALLOY 9018B3  
**Classification:** E9018-B3 H4R  
**Specifications:** AWS A5.5/A5.5M; ASME SFA 5.5:  
**Diameter Tested:**  
**Date Tested:** 12/11/2020  
**Date Generated:** 1/26/2021

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	AC	200	26 - 24	325 (163)	375 (191)
5/32X14 in	DCEP	185	26 - 24	325 (163)	375 (191)
3/16X14 in	AC	225	26	325 (163)	375 (191)
3/16X14 in	DCEP	225	26	325 (163)	375 (191)
1/4X18 in	AC	340	27 - 26	325 (163)	375 (191)
1/4X18 in	DCEP	330	27 - 26	325 (163)	375 (191)

### Mechanical Properties - Tensile

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elong.% in 2"
1/4X18 in / AC	PE1611	SR 1 Hr @ 1275F	113,000 ( 779 )	97,000 ( 672 )	21
1/4X18 in / DCEP	PE1612	SR 1 Hr @ 1275F	110,000 ( 758 )	95,000 ( 652 )	20
3/16X14 in / AC	PE1609	SR 1 Hr @ 1275F	120,000 ( 827 )	106,000 ( 731 )	19
3/16X14 in / DCEP	PE1610	SR 1 Hr @ 1275F	106,000 ( 731 )	90,000 ( 623 )	21
5/32X14 in / AC	PE1607	SR 1 Hr @ 1275F	112,000 ( 772 )	96,000 ( 663 )	21
5/32X14 in / DCEP	PE1608	SR 1 Hr @ 1275F	107,000 ( 738 )	91,000 ( 628 )	19

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
1/4X18 in / AC	PE1611	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
1/4X18 in / DCEP	PE1612	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
3/16X14 in / AC	PE1609	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
3/16X14 in / DCEP	PE1610	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
5/32X14 in / AC	PE1607	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
5/32X14 in / DCEP	PE1608	Conforms	Horizontal :	Conforms	Overhead :	Vertical :

### 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
1/4X18 in / DCEP / CD63051	0.10	0.85	0.01	0.01	0.57		2.17			0.95															
5/32X14 in / DCEP / CD65571	0.06	0.65	0.02	0.01	0.56		2.39			1.05															
5/32X14 in / AC / PE1607	0.11	0.66	0.01	0.01	0.54		2.34			1.06															
5/32X14 in / DCEP / PE1608	0.09	0.68	0.01	0.01	0.51		2.38			1.09															
1/4X18 in / AC / PE1611	0.11	0.77	0.01	0.01	0.60		2.33			1.00															
1/4X18 in / DCEP / PE1612	0.10	0.76	0.01	0.01	0.55		2.35			1.04															

1/4X18 in / CD63051	Total H2O Method : Train - As Received	Total Coating Moisture : 0.075
5/32X14 in / CD65571	Total H2O Method : Train - As Received	Total Coating Moisture : 0.087
5/32X14 in / PE1608	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.37
1/4X18 in / PE1612	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.138

### Diffusible Hydrogen Collected per AWS A4.3

3.1 ml/100g of weld metal for 1/4X18 in diameter 23% relative humidity
2.5 ml/100g of weld metal for 3/16X14 in diameter 19% relative humidity
2.5 ml/100g of weld metal for 5/32X14 in diameter 22% relative humidity

A handwritten signature in black ink that reads "David A. Thomas". The signature is written in a cursive style with a large initial 'D' and 'T'.

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.