



## Certificate of Conformance to Requirements for Welding Electrode

Hobart

Product Type: Hoballoy Boilermaker B3  
 Classification: E9018-B3 H4R  
 Specifications: AWS A5.5-81/ASME SFA 5.5  
 Diameter Tested:  
 Date Tested: 07/20/09  
 Date Generated: 7/31/2013

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 ISO9000, ANSI/AWS A5.01, and other specification and Military requirements, as applicable.

### Test Settings

Amps	Volts	Size	Polarity	Preheat	Interpass	Travel Speed
100	26-24	3/32X14 in	AC	350 F (177 C)	350 F (177 C)	+/- 1 in/min
90	26-24	3/32X14 in	DCEP	350 F (177 C)	350 F (177 C)	+/- 1 in/min
150	26	1/8X14 in	AC	350 F (177 C)	350 F (177 C)	+/- 1 in/min
135	26	1/8X14 in	DCEP	325 F (163 C)	325 F (163 C)	+/- 1 in/min

### Mechanical Properties - Tensile

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength	Yield Strength	Elong.% in 2"
1/8X14 in / AC	PB0751	SR 1 Hr @ 1275F	113,000 psi ( 781 Mpa)	100,000 psi ( 688 Mpa)	19
1/8X14 in / DCEP	PB0946	SR 1 Hr @ 1275F	111,000 psi ( 768 Mpa)	96,000 psi ( 663 Mpa)	21
3/32X14 in / AC	PB0749	SR 1 Hr @ 1275F	109,000 psi ( 750 Mpa)	95,000 psi ( 657 Mpa)	20
3/32X14 in / DCEP	PB0750	SR 1 Hr @ 1275F	107,000 psi ( 738 Mpa)	93,000 psi ( 642 Mpa)	20

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
1/8X14 in / AC	PB0751	Conforms	Horizontal :	Overhead :	Conforms	Vertical : Conforms
1/8X14 in / DCEP	PB0946	Conforms	Horizontal :	Overhead :	Conforms	Vertical : Conforms
3/32X14 in / AC	PB0749	Conforms	Horizontal :	Overhead :	Conforms	Vertical : Conforms
3/32X14 in / DCEP	PB0750	Conforms	Horizontal :	Overhead :	Conforms	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
3/32X14 in / DCEP / CA87455	0.06	0.52	0.01	0.02	0.17		2.11			0.93													
1/8X14 in / DCEP / CA90320	0.05	0.65	0.01	0.01	0.33		2.24			1.09													

Size: 3/32X14 in	Total H2O Method: RC412 - As Received	Total Coating Moisture: 0.08	Ref. No.: CA87455
Size: 1/8X14 in	Total H2O Method: RC412 - As Received	Total Coating Moisture: 0.02	Ref. No.: CA90320

### Diffusible Hydrogen Collected per AWS A4.3 - ml/100 g weld metal

	2.6	ml/100g	For	1/8X14 in	dia
	1.7	ml/100g	For	3/32X14 in	dia

*Steve Knostman*

Steve Knostman , Quality Engineer

The information 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. Hobart Brothers produces welding consumables under continuing quality assurance programs audited and approved by the American Bureau of Shipping ("ABS").