



Certificate of Conformance to Requirements for Welding Electrode

Product Type: **HOBALLOY 11018M**
 Classification: **E11018M H4R**
 Specifications: **AWS A5.5/A5.5M:2014**
 Diameter Tested:
 Date Tested: **12/02/2019**
 Date Generated: **12/9/2019**

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	185	26 - 24	250 (121)	250 (121)
3/16X14 in	DCEP	230	25	225 (107)	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	PD8865	Aged 48 Hrs 220F	115,000 (793)	107,000 (738)	20
3/16X14 in / DCEP	PD8833	Aged 48 Hrs 220F	114,000 (786)	109,000 (752)	20

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	PD8802	As Welded	-60 F (-51 C)	60,64,65 (81,87,88)	63 (85)	Charpy-V-Notch
3/16X14 in / DCEP	PD8833	As Welded	-60 F (-51 C)	59,65,68 (80,88,92)	64 (87)	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
5/32X14 in / DCEP	PD8802	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
3/16X14 in / DCEP	PD8833	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 / CD51954	0.06	1.56	0.015	0.013	0.33		0.15	< .01	1.89	0.29															
3/16X14 in / DCEP / CD58383	0.03	1.62	0.011	0.013	0.34		0.17	< .01	2.09	0.40															
5/32X14 in / DCEP / PD8802	0.04	1.62	0.012	0.012	0.38		0.14	< .01	2.03	0.31															
3/16X14 in / DCEP / PD8833	0.04	1.79	0.011	0.013	0.44		0.17	< .01	2.14	0.41															

5/32X14 in / CD51954	Total H2O Method : Train - As Received	Total Coating Moisture : 0.025
3/16X14 in / CD58383	Total H2O Method : Train - As Received	Total Coating Moisture : 0.077
5/32X14 in / PD8802	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.102
3/16X14 in / PD8833	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.137

Diffusible Hydrogen Collected per AWS A4.3

3.7 ml/100g of weld metal for 5/32X14 in diameter 53% relative humidity
3.4 ml/100g of weld metal for 3/16X14 in diameter 50% 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.