



Certificate of Conformance to Requirements for Welding Electrode

Product Type: HOBALLOY 11018M
Classification: E11018M H4R
Specifications: AWS A5.5/A5.5M; ASME SFA 5.5
Diameter Tested: 5/32" 3/16"
Date Tested: 11/22/2024
Date Generated: 12/10/2024

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)
3/16X14 in	DCEP	230	25	225 (107)	250 (121)
5/32X14 in	DCEP	170	24 - 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	PE9171	Aged 48 Hrs 220F	113,000 (779)	106,000 (731)	23
3/16X14 in / DCEP	PE9166	Aged 48 Hrs 220F	112,000 (772)	104,000 (717)	22

Mechanical Properties - Impact

Size / Polarity	Ref. No.	Testing Conditions	Test Temp. F(C)	Individuals ft.lb.(J)	Average ft.lb.(J)	Type
3/16X14 in / DCEP	PE9166	As Welded	-60 F (-51 C)	52,53,52 (70,72,70)	52 (71)	Charpy-V-Notch
5/32X14 in / DCEP	PE9171	As Welded	-60 F (-51 C)	50,60,50 (68,81,68)	53 (72)	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
5/32X14 in / DCEP	PE9171	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
3/16X14 in / DCEP	PE9166	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 / CF04443	0.04	1.40	0.014	0.008	0.27		0.16	< .01	1.96	0.27															
3/16X14 in / DCEP / CF10231	0.04	1.30	0.012	0.009	0.42		0.19	0.01	1.80	0.34															
3/16X14 in / DCEP / PE9166	0.04	1.54	0.013	0.009	0.53		0.20	0.01	1.73	0.34															
5/32X14 in / DCEP / PE9171	0.04	1.66	0.014	0.010	0.39		0.18	0.01	1.78	0.28															

5/32X14 in / CF04443	Total H2O Method : Train - As Received	Total Coating Moisture : 0.085
3/16X14 in / CF10231	Total H2O Method : Train - As Received	Total Coating Moisture : 0.135
3/16X14 in / PE9166	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.072
5/32X14 in / PE9171	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.083

Diffusible Hydrogen Collected per AWS A4.3

3.2 ml/100g of weld metal for 5/32X14 in diameter 14% relative humidity
2.0 ml/100g of weld metal for 3/16X14 in diameter 18% relative humidity

James A. Owens, Q.A. Specialist

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.