



Certificate of Conformance to Requirements for Welding Electrode

Product Type: HOBALLOY 8018C3
Classification: E8018-C3 H4R
Specifications: AWS A5.5/A5.5M; ASME SFA 5.5
Diameter Tested: 5/32" - 1/4"
Date Tested: 10/09/2023
Date Generated: 10/10/2023

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)
1/4X18 in	DCEP	330	27 - 26	225F ()	250F ()
1/4X18 in	AC	335	27 - 26	225F ()	250F ()
5/32X14 in	AC	200	24-26	225F ()	250F ()
3/16X14 in	DCEP	225	26 1/2 - 25	225F ()	250F ()
3/16X14 in	AC	225	23-24	225F ()	250F ()
5/32X14 in	DCEP	188	24-26	225F ()	225F ()

Mechanical Properties - Tensile

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elong.% in 2"
1/4X18 in / DCEP	PE6662	Aged 48 Hrs 220F	85,000 (589)	74,000 (510)	27
1/4X18 in / AC	PE6663	Aged 48 Hrs 220F	87,000 (601)	76,000 (521)	25
3/16X14 in / DCEP	PE6747	Aged 48 Hrs 220F	86,000 (594)	70,000 (481)	31
3/16X14 in / AC	PE6861	Aged 48 Hrs 220F	87,000 (598)	74,000 (507)	29
5/32X14 in / AC	PE6677	Aged 48 Hrs 220F	80,000 (554)	68,000 (471)	28
5/32X14 in / DCEP	PE6978	Aged 48 Hrs 220F	80,000 (554)	69,000 (476)	30

Mechanical Properties - Impact

Size / Polarity	Ref. No.	Testing Conditions	Test Temp. F(C)	Individuals ft.lb.(J)	Average ft.lb.(J)	Type
1/4X18 in / DCEP	PE6662	As Welded	-40 F (-40 C)	108,76,92 (146,103,125)	92 (125)	Charpy-V-Notch
1/4X18 in / AC	PE6663	As Welded	-40 F (-40 C)	90,88,63 (122,119,85)	80 (109)	Charpy-V-Notch
5/32X14 in / AC	PE6677	As Welded	-40 F (-40 C)	106,102,107 (144,138,145)	105 (142)	Charpy-V-Notch
3/16X14 in / DCEP	PE6747	As Welded	-40 F (-40 C)	96,118,128 (130,160,174)	114 (155)	Charpy-V-Notch
3/16X14 in / AC	PE6861	As Welded	-40 F (-40 C)	96,90,87 (130,122,118)	91 (123)	Charpy-V-Notch
5/32X14 in / DCEP	PE6978	As Welded	-40 F (-40 C)	131,140,130 (178,190,176)	134 (181)	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
1/4X18 in / DCEP	PE6662	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
1/4X18 in / AC	PE6663	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
3/16X14 in / DCEP	PE6747	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
3/16X14 in / AC	PE6861	Conforms	Horizontal :	Conforms	Overhead :	Vertical :
5/32X14 in / AC	PE6677	Conforms	Horizontal :	Conforms	Overhead :	Vertical : Conforms
5/32X14 in / DCEP	PE6978	Conforms	Horizontal :	Conforms	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 / AC / CD99087	0.03	0.97	0.01	0.01	0.23		0.02	< .01	0.86	0.10															
5/32X14 in / DCEP / CD99900	0.04	0.99	0.01	0.01	0.29		0.02	0.01	0.88	0.10															
1/4X18 in / DCEP / PE6662	0.06	1.19	0.01	0.01	0.31		0.07	< .01	0.94	0.18															
1/4X18 in / AC / PE6663	0.07	1.15	0.01	0.01	0.28		0.07	< .01	0.93	0.17															

5/32X14 in / CD99087	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.148
5/32X14 in / CD99900	Total H2O Method : Train - As Received	Total Coating Moisture : 0.045
1/4X18 in / PE6662	Total H2O Method : Train - As Received	Total Coating Moisture : 0.04
1/4X18 in / PE6663	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.15

Diffusible Hydrogen Collected per AWS A4.3

2.5 ml/100g of weld metal for 3/16X14 in diameter 50% relative humidity
2.5 ml/100g of weld metal for 3/16X14 in diameter 47% relative humidity
2.6 ml/100g of weld metal for 5/32X14 in diameter 49% relative humidity
2.3 ml/100g of weld metal for 5/32X14 in diameter 45% relative humidity
3.2 ml/100g of weld metal for 1/4X18 in diameter 46% relative humidity
2.7 ml/100g of weld metal for 1/4X18 in diameter 47% 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.