



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: 9/9/2021
Date Generated: 10/5/2021

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	24-26	225 (107)	225 (107)
5/32X14 in	DCEP	180	24	225 (107)	225 (107)
3/16X14 in	AC	240	26	225 (107)	250 (121)
3/16X14 in	DCEP	225	26	225 (107)	250 (121)
1/4X18 in	AC	330	27 - 26	225°F ()	250°F ()
1/4X18 in	DCEP	320	27 - 26	225°F ()	250°F ()

Mechanical Properties - Tensile

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elong.% in 2"
5/32X14 in / AC	PE2086	Aged 48 Hrs 220F	84,000 (583)	74,000 (508)	29
5/32X14 in / DCEP	PE2087	Aged 48 Hrs 220F	80,000 (549)	68,000 (468)	30
1/4X18 in / AC	PE2090	Aged 48 Hrs 220F	87,000 (602)	76,000 (525)	25
1/4X18 in / DCEP	PE2091	Aged 48 Hrs 220F	88,000 (605)	77,000 (532)	25
3/16X14 in / AC	PE2088	Aged 48 Hrs 220F	92,000 (635)	79,000 (543)	26
3/16X14 in / DCEP	PE2089	Aged 48 Hrs 220F	90,000 (621)	78,000 (536)	28

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 / AC	PE2086	As Welded	-40 F (-40 C)	108,95,111 (146,129,150)	105 (142)	Charpy-V-Notch
5/32X14 in / DCEP	PE2087	As Welded	-40 F (-40 C)	124,120,115 (168,163,156)	120 (162)	Charpy-V-Notch
3/16X14 in / AC	PE2088	As Welded	-40 F (-40 C)	74,51,74 (100,69,100)	66 (90)	Charpy-V-Notch
3/16X14 in / DCEP	PE2089	As Welded	-40 F (-40 C)	85,91,100 (115,123,136)	92 (125)	Charpy-V-Notch
1/4X18 in / AC	PE2090	As Welded	-40 F (-40 C)	62,81,82 (84,110,111)	75 (102)	Charpy-V-Notch
1/4X18 in / DCEP	PE2091	As Welded	-40 F (-40 C)	67,81,66 (91,110,89)	71 (97)	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
5/32X14 in / AC	PE2086	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
5/32X14 in / DCEP	PE2087	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
1/4X18 in / AC	PE2090	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
1/4X18 in / DCEP	PE2091	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
3/16X14 in / AC	PE2088	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
3/16X14 in / DCEP	PE2089	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
1/4X18 in / DCEP / CD72773	0.06	1.16	0.01	0.02	0.24		0.04	< .01	0.99	0.14															
5/32X14 in / AC / PE2086	0.05	1.10	0.01	0.01	0.29		0.04	< .01	0.80	0.10															
5/32X14 in / DCEP / PE2087	0.04	1.09	0.01	0.01	0.30		0.04	< .01	0.80	0.10															
1/4X18 in / AC / PE2090	0.07	1.16	0.01	0.02	0.29		0.05	< .01	0.98	0.17															

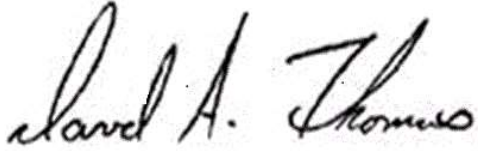
1/4X18 in / CD72773	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.372
5/32X14 in / PE2086	Total H2O Method : Train - 9 Hour	Total Coating Moisture : 0.208
5/32X14 in / PE2087	Total H2O Method : Train - As Received	Total Coating Moisture : 0.11
1/4X18 in / PE2090	Total H2O Method : Train - As Received	Total Coating Moisture : 0.13

Diffusible Hydrogen Collected per AWS A4.3

2.0 ml/100g of weld metal for 3/16X14 in diameter 12% relative humidity

3.1 ml/100g of weld metal for 5/32X14 in diameter 12% relative humidity

2.1 ml/100g of weld metal for 1/4X18 in diameter 12% 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.