Certificate of Conformance to Requirements for Welding Electrode

Product Type:	**FabCOR Edge Ni1**
Classification:	**E80C-Ni1 H4**
Specifications:	**AWS A5.28/A5.28M; ASME SFA 5.28**
Diameter Tested:	**1/16"**
Date Tested:	**11/30/2023**
Date Generated:	**12/13/2023**

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.

THE STEEL USED IN THIS LOT OF MATERIAL WAS MELTED AND MANUFACTURED IN THE U.S.A.

Test Settings

Shielding Medium	Amps / Polarity	Volts	WFS in/min(m/min)	ESO in(mm)	Preheat F(C)	Interpass F(C)	Travel Speed in/min(cm/min)
M20-ArC-10	350 / DCEP	28	270 (6.9)	3/4 (19)	300(149)	300(149)	12 (30.5)
M13-ArO-2	350 / DCEP	27	270 (6.9)	3/4 (19)	300(149)	300(149)	12 (30.5)
M22-ArO-5	350 / DCEP	27	270 (6.9)	3/4 (19)	300(149)	300(149)	12 (30.5)
M12-ArC-5	350 / DCEP	27	270 (6.9)	3/4 (19)	300(149)	300(149)	12 (30.5)

Mechanical Properties - Tensile

Shielding Medium	Ref. No.	Testing Conditions	Ult. Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elong.% in 2"
M20-ArC-10	PE6214	Aged 48 Hrs 220F	88,000 (605)	79,000 (545)	26
M13-ArO-2	PE6215	Aged 48 Hrs 220F	92,000 (634)	84,000 (576)	26
M22-ArO-5	PE6216	Aged 48 Hrs 220F	86,000 (593)	77,000 (530)	29
M12-ArC-5	PE6217	Aged 48 Hrs 220F	92,000 (638)	83,000 (570)	27

Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
M20-ArC-10	PE6214	As Welded	-50 (-46)	65,76,65 (88,103,88)	69 (93)	Charpy-V-Notch
M13-ArO-2	PE6215	As Welded	-50 (-46)	68,60,73 (92,81,99)	67 (91)	Charpy-V-Notch
M22-ArO-5	PE6216	As Welded	-50 (-46)	71,78,60 (96,106,81)	70 (94)	Charpy-V-Notch
M12-ArC-5	PE6217	As Welded	-50 (-46)	60,57,65 (81,77,88)	61 (82)	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test					
PE6214	Conforms	Horizontal :		Overhead :		Vertical :	
PE6215	Conforms	Horizontal :		Overhead :		Vertical :	
PE6216	Conforms	Horizontal :		Overhead :		Vertical :	
PE6217	Conforms	Horizontal :		Overhead :		Vertical :	

Chemical Analysis

Shielding Medium / 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
M20-ArC-10 / CD95484	0.04	1.43	0.005	0.012	0.62	0.04	0.03	< .01	0.95	0.01					0.0029										
M13-ArO-2 / CD95485	0.04	1.48	0.005	0.012	0.65	0.03	0.03	< .01	0.97	0.01					0.0030										
M22-ArO-5 / CD95486	0.04	1.31	0.005	0.011	0.55	0.03	0.03	< .01	0.97	0.01					0.0026										
M12-ArC-5 / CD95487	0.04	1.56	0.005	0.013	0.69	0.03	0.03	< .01	0.95	0.02					0.0037										

Diffusible Hydrogen Collected per AWS A4.3

M12-ArC-5	4.0 ml/100g of weld metal for 1/16 in diameter 41% relative humidity
M22-ArO-5	3.8 ml/100g of weld metal for 1/16 in diameter 53% relative humidity
M20-ArC-10	2.7 ml/100g of weld metal for 1/16 in diameter 49% relative humidity
M13-ArO-2	4.0 ml/100g of weld metal for 1/16 in diameter 15% 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.