HOBART FILLER METALS

Certificate of Conformance to Requirements for Welding Electrode

Product Type:	**SubCOR 120-S**
Classification:	**ECM4**
Specifications:	**AWS A5.23; ASME SFA5.23**
Diameter Tested:	**1/8"**
Date Tested:	**3/24/2022**
Date Generated:	**12/22/2022**

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)
HN-590	475 / DCEP	29	92 (2.3)	1.25 (32)	300(149)	300(149)	16 (40.6)
HN-590	475 / DCEP	29	92 (2.3)	1.25 (32)	300(149)	300(149)	16 (40.6)
SWX 150	475 / DCEP	29	92 (2.3)	1.25 (32)	300(149)	300(149)	16 (40.6)
SWX 150	475 / DCEP	29	92 (2.3)	1.25 (32)	300(149)	300(149)	16 (40.6)

Mechanical Properties - Tensile

Shielding Medium	Ref. No.	Testing Conditions	Ult. Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elong.% in 2"
HN-590	PE3620	Aged 48 Hrs 220F	121,000 (834)	116,000 (800)	20
HN-590	PE3626	SR 1 Hr @ 1125F	119,000 (821)	103,000 (710)	21
SWX 150	PE3631	Aged 48 Hrs 220F	112,000 (772)	103,000 (710)	20
SWX 150	PE3632	SR 1 Hr @ 1125F	113,000 (779)	100,000 (688)	22

Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
HN-590	PE3620	As Welded	-60 (-51)	37,36,38 (50,49,52)	37 (50)	Charpy-V-Notch
HN-590	PE3620	As Welded	-80 (-62)	38,39,38 (52,53,52)	38 (52)	Charpy-V-Notch
HN-590	PE3626	SR 1 Hr @ 1125F	-80 (-62)	19,33,30 (26,45,41)	27 (37)	Charpy-V-Notch
SWX 150	pe3631	As Welded	-100 (-73)	59,52,52 (80,70,70)	54 (74)	Charpy-V-Notch
SWX 150	pe3631	As Welded	-80 (-62)	65,64,66 (88,87,89)	65 (88)	Charpy-V-Notch
SWX 150	PE3632	SR 1 Hr @ 1125F	-80 (-62)	46,47,47 (62,64,64)	47 (63)	Charpy-V-Notch
SWX 150	PE3632	SR 1 Hr @ 1125F	-100 (-73)	36,20,27 (49,27,37)	28 (38)	Charpy-V-Notch
HN-590	PE3679	SR 1 Hr @ 1125F	-60 (-51)	27,25,29 (37,34,39)	27 (37)	Charpy-V-Notch
HN-590	PE3679	SR 1 Hr @ 1125F	-60 (-51)	27,28,28 (37,38,38)	28 (38)	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test					
PE3620	Conforms	Horizontal :		Overhead :		Vertical :	
PE3626	Conforms	Horizontal :		Overhead :		Vertical :	
PE3631	Conforms	Horizontal :		Overhead :		Vertical :	
PE3632	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
SWX 150 / CD75198	0.06	1.64	0.011	0.007	0.45	0.06	0.26	0.008	2.34	0.45		0.006													
HN-590 / PE3602	0.09	2.12	0.017	0.011	0.44	0.05	0.26	0.008	2.23	0.49		0.004													

Diffusible Hydrogen Collected per AWS A4.3

HN-590	5.8 ml/100g of weld metal for 1/8 in diameter 34% relative humidity
SWX 150	7.5 ml/100g of weld metal for 1/8 in diameter 34% 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.