



## Certificate of Conformance to Requirements for Welding Electrode

**Product Type:** SUBCOR 100F3-S  
**Classification:** ECF3  
**Specifications:** AWS A5.23; ASME SFA5.23  
**Diameter Tested:** 3/32"  
**Date Tested:** 12/19/2022  
**Date Generated:** 1/11/2023

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)
HN-590	350 / DCEP	29	119 (3)	1.25 (32)	300(149)	300(149)	12 (30.5)
SWX 120	350 / DCEP	28	114 (2.9)	1.25 (32)	()	()	12 (30.5)
SWX 150	350 / DCEP	30	111 (2.8)	1.25 (32)	300(149)	300(149)	12 (30.5)
SWX 150	350 / DCEP	30	110 (2.8)	1.25 (32)	300(149)	300(149)	12 (30.5)
HN-590	350 / DCEP	30	105 (2.7)	1.25 (32)	300(149)	300(149)	12 (30.5)
SWX 120	350 / DCEP	30	107 (2.7)	1.25 (32)	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"
HN-590	PE5185	SR 1 Hr @ 1125F	113,000 ( 779 )	101,000 ( 696 )	24
SWX 120	PE5195	SR 1 Hr @ 1125F	117,000 ( 807 )	102,000 ( 703 )	23
SWX 150	PE5208	Aged 48 Hrs 220F	112,000 ( 772 )	101,000 ( 696 )	22
SWX 150	PE5209	SR 1 Hr @ 1125F	111,000 ( 765 )	99,000 ( 681 )	24
HN-590	PE5279	Aged 48 Hrs 220F	122,000 ( 841 )	108,000 ( 745 )	22
SWX 120	PE5289	Aged 48 Hrs 220F	115,000 ( 793 )	99,000 ( 680 )	23

### Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
HN-590	PE5185	SR 1 Hr @ 1125F	-60 (-51)	20,18,27 (27,24,37)	22 ( 29 )	Charpy-V-Notch
SWX 120	PE5195	SR 1 Hr @ 1125F	-60 (-51)	19,22,20 (26,30,27)	20 ( 28 )	Charpy-V-Notch
SWX 150	pe5208	As Welded	-60 (-51)	57,63,62 (77,85,84)	61 ( 82 )	Charpy-V-Notch
SWX 150	pe5209	SR 1 Hr @ 1125F	-60 (-51)	35,27,25 (47,37,34)	29 ( 39 )	Charpy-V-Notch
HN-590	PE5279	As Welded	-60 (-51)	27,28,28 (37,38,38)	28 ( 38 )	Charpy-V-Notch
SWX 120	PE5289	As Welded	-60 (-51)	24,25,21 (33,34,28)	23 ( 32 )	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test					
PE5185	Conforms	Horizontal :	Overhead :	Vertical :			
PE5195	Conforms	Horizontal :	Overhead :	Vertical :			
PE5208	Conforms	Horizontal :	Overhead :	Vertical :			
PE5209	Conforms	Horizontal :	Overhead :	Vertical :			
PE5279	Conforms	Horizontal :	Overhead :	Vertical :			
PE5289	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 / CD83721	0.10	1.70	0.015	0.005	0.50	0.06	0.06		0.84	0.55					0.0001										
HN-590 / PE5185	0.12	2.05	0.024	0.015	0.45	0.05	0.06		0.85	0.57					0.0020										
SWX 120 / PE5289	0.08	2.18	0.025	0.009	0.41	0.05	0.07		0.80	0.51					0.0009										

### Diffusible Hydrogen Collected per AWS A4.3

SWX 120	7.7 ml/100g of weld metal for 3/32 in diameter 25% relative humidity
SWX 150	6.2 ml/100g of weld metal for 3/32 in diameter 25% relative humidity
HN-590	3.2 ml/100g of weld metal for 3/32 in diameter 25% 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.