



## Certificate of Conformance to Requirements for Welding Electrode

**Product Type:** SubCOR 92-S  
**Classification:** ECM1; ECNi4  
**Specifications:** AWS A5.23/A5.23M; ASME SFA 5.23  
**Diameter Tested:** 5/32"  
**Date Tested:** 4/14/2022  
**Date Generated:** 4/27/2022

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)
SWX-120 (F8A10-ECM1-M1 H8)	525 / DCEP	28	62 (1.6)	1-1/4 (0)	Room Temp	300(149)	16 (40.6)
SWX-120 (F8P8-ECM1-M1 H8)	525 / DCEP	28	62 (1.6)	1-1/4 (0)	Room Temp	300(149)	16 (40.6)
HA-495 (F8TA4-ECG H8)	625/675 / DCEP	34/37	72 (1.8)	1-1/4 (0)	Room Temp	300(149)	20 (50.8)
HN-590 (F8A8-ECM1/Ni4-M1/Ni4 H8)	525 / DCEP	29	60 (1.5)	1-1/4 (0)	300(149)	300(149)	16 (40.6)
HN-590 (F8P8-ECM1/Ni4-M1/Ni4 H8)	525 / DCEP	29	60 (1.5)	1-1/4 (0)	300(149)	300(149)	16 (40.6)
SWX 150 (F8A10-ECM1-M1 H8)	525 / DCEP	28	60 (1.5)	1-1/4 (0)	Room Temp	300(149)	16 (40.6)
SWX 150 (F8P8-ECM1-M1 H8)	525 / DCEP	28	60 (1.5)	1-1/4 (0)	Room Temp	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"
SWX-120 (F8A10-ECM1-M1 H8)	PE1307	Aged 48 Hrs 220F	92,000 ( 635 )	82,000 ( 565 )	26
SWX-120 (F8P8-ECM1-M1 H8)	PE1315	SR 1 Hr @ 1125F	90,000 ( 618 )	78,000 ( 534 )	28
HA-495 (F8TA4-ECG H8)	PE1342	Aged 48 Hrs 220F	79,000 ( 542 )	NA	NA
HN-590 (F8A8-ECM1/Ni4-M1/Ni4 H8)	PE2789	Aged 48 Hrs 220F	91,000 ( 627 )	80,000 ( 550 )	25
HN-590 (F8P8-ECM1/Ni4-M1/Ni4 H8)	PE2790	SR 1 Hr @ 1150F	88,000 ( 610 )	75,000 ( 516 )	27
SWX 150 (F8A10-ECM1-M1 H8)	PE3577	Aged 48 Hrs 220F	90,000 ( 620 )	79,000 ( 546 )	25
SWX 150 (F8P8-ECM1-M1 H8)	PE3579	SR 1 Hr @ 1125F	88,000 ( 609 )	77,000 ( 530 )	26

### Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
SWX-120 (F8A10-ECM1-M1 H8)	PE1307	As Welded	-100 (-73)	48,43,44 (65,58,60)	45 ( 61 )	Charpy-V-Notch
SWX-120 (F8P8-ECM1-M1 H8)	PE1315	SR 1 Hr @ 1125F	-80 (-62)	41,34,36 (56,46,49)	37 ( 50 )	Charpy-V-Notch
HA-495 (F8TA4-ECG H8)	PE1342	As Welded	-40 (-40)	25,21,22 (34,28,30)	23 ( 31 )	Charpy-V-Notch
HN-590 (F8A8-ECM1/Ni4-M1/Ni4 H8)	PE2789	As Welded	-80 (-62)	43,43,53 (58,58,72)	46 ( 63 )	Charpy-V-Notch
HN-590 (F8P8-ECM1/Ni4-M1/Ni4 H8)	PE2790	SR 1 Hr @ 1150F	-80 (-62)	38,28,36 (52,38,49)	34 ( 46 )	Charpy-V-Notch
SWX 150 (F8A10-ECM1-M1 H8)	PE3577	As Welded	-100 (-73)	54,59,57 (73,80,77)	57 ( 77 )	Charpy-V-Notch
SWX 150 (F8P8-ECM1-M1 H8)	PE3579	SR 1 Hr @ 1125F	-80 (-62)	91,96,98 (123,130,133)	95 ( 129 )	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test		
PE1307	Conforms	Horizontal :	Overhead :	Vertical :
PE1315	Conforms	Horizontal :	Overhead :	Vertical :
PE1342	Conforms	Horizontal :	Overhead :	Vertical :
PE2789	Conforms	Horizontal :	Overhead :	Vertical :
PE2790	Conforms	Horizontal :	Overhead :	Vertical :
PE3577	Conforms	Horizontal :	Overhead :	Vertical :
PE3579	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-120 (F8A10-ECM1-M1 H8) / PE1307	0.06	1.34	0.016	0.009	0.33	0.07	0.06	0.008	1.63	0.20		0.002			0.0008										
HN-590 (F8A8-ECM1/Ni4-M1/Ni4 H8) / PE2789	0.05	1.51	0.021	0.011	0.39	0.06	0.04	0.006	1.70	0.24		0.003			0.0009										
SWX 150 (F8A10-ECM1-M1 H8) / PE3577	0.06	0.90	0.011	0.005	0.37	0.06	0.07	0.008	1.70	0.24		0.001			0.0014										

**Diffusible Hydrogen Collected per AWS A4.3**

HA-495	4.3 ml/100g of weld metal for 5/32 in diameter 46% relative humidity
SWX-120	8.0 ml/100g of weld metal for 5/32 in diameter 42% relative humidity
HN-590	4.0 ml/100g of weld metal for 5/32 in diameter 44% relative humidity
SWX 150	7.6 ml/100g of weld metal for 5/32 in diameter 27% relative humidity

*Dave Thomas*

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.