

# SubCOR™ 92-S



**AWS A5.23: ECM1**

**FEATURES:**

- Metal-cored wire can offer improved deposition rates compared to solid wires at comparable amperages
- Metal-cored wires offer broader penetration profiles compared to solid wires at comparable welding parameters
- Provides very good low-temperature impact toughness in both the as-welded and stress-relieved conditions
- Weld deposit chemical composition requirements are identical to those of EM1 solid wires
- Suitable for use with a wide variety of Hobart fluxes

**BENEFITS:**

- Provides potential to increase travel speed for improved productivity
- Helps to prevent burn-through when welding at high currents on root passes and relatively thin materials.
- Helps minimize the risk of cracking in critical applications or harsh service environments
- Suitable as a higher productivity alternative in many applications currently using EM1 (or similar 80 ksi) solid wire
- Provides versatility in procedure development and optimizing the performance of the welding application

**APPLICATIONS:**

- Structural & bridge fabrication
- Heavy equipment
- Weathering Steel
- Wind tower
- Shipbuilding
- Power transmission poles
- ~80 KSI (550 MPa) HSLA steels

**WIRE TYPE:** Metal-powder, Metal-cored Wire

**RECOMMENDED FLUXES:** HA-495, HN-590, SWX 120, SWX 150

**CURRENT:** Direct Current Electrode Positive (DCEP), Direct Current Electrode Negative (DCEN), Alternating Current (AC)

**STANDARD DIAMETERS:** 5/64" (2.0 mm), 3/32" (2.4 mm), 1/8" (3.2 mm), 5/32" (4.0 mm)

**STORAGE:** Product should be stored in a dry, enclosed environment, and in its original intact packaging

**RE-DRYING:** Not recommended

**AWS CLASSIFICATIONS:**

With Flux	Condition	Specifications	Classification (US Customary Units)	Classification (SI Units)
HA-495	Two-Run As-Welded	A5.23/A5.23M	F8TA4-ECG	F55TA4-ECG
HN-590	As-Welded	A5.23/A5.23M	F8A8-ECM1/Ni4-M1/Ni4 H8	F55A6-ECM1/Ni4-M1/Ni4 H8
	PWHT*	A5.23/A5.23M	F8P8-ECM1/Ni4-M1/Ni4 H8	F55P6-ECM1/Ni4-M1/Ni4 H8
SWX 120	As-Welded	A5.23/A5.23M	F8A10-ECM1-M1	F55A7-ECM1-M1
	PWHT*	A5.23/A5.23M	F8P8-ECM1-M1	F55P6-ECM1-M1
SWX 150	As-Welded	A5.23/A5.23M	F8A10-ECM1-M1	F55A7-ECM1-M1
	PWHT*	A5.23/A5.23M	F8P8-ECM1-M1	F55P6-ECM1-M1

**Note:** Stress-Relieved 1 Hr. @ 1150°F (620°C)

**TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION\*:**

With Flux	% C	% Mn	% Si	% P	% S	% Cu	% Cr	% Ni	% Mo
HA-495*	—	—	—	—	—	—	—	—	—
HN-590	0.04	1.51	0.36	0.017	0.011	0.05	0.05	1.70	0.23
SWX 120	0.08	1.25	0.21	0.012	0.007	0.04	0.07	1.60	0.22
SWX 150	0.07	1.09	0.31	0.012	0.007	0.05	0.12	1.5	0.23

**Note:** Due to the high dilution of the two-run test assembly, weld metal chemical composition is not specified or reported.

\*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers LLC expressly disclaims any liability incurred from any reliance thereon. Typical data are those obtained when welded and tested in accordance with the AWS A5.23 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Hobart Brothers LLC.

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## TYPICAL DIFFUSIBLE HYDROGEN\* (Gas Chromatography per AWS A4.3):

With Flux	Diffusible Hydrogen
HN-590	5.0 ml/100g
SWX 150	7.4 ml/100g

## TYPICAL MECHANICAL PROPERTIES\*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HA-495	Two-Run As-Welded	94 ksi (648 MPa)	71 ksi (490 MPa)	27%
HN-590	As-Welded	95 ksi (655 MPa)	86 ksi (593 MPa)	25%
	PWHT*	94 ksi (648 MPa)	82 ksi (565 MPa)	26%
SWX 120	As-Welded	93 ksi (641 MPa)	79 ksi (545 MPa)	26%
	PWHT*	84 ksi (579 MPa)	71 ksi (490 MPa)	27%
SWX 150	As-Welded	92 ksi (634 MPa)	83 ksi (572 MPa)	25%
	PWHT*	90 ksi (621 MPa)	79 ksi (545 MPa)	28%

Note: Stress-Relieved 1 Hr. @ 1150°F (620°C)

## TYPICAL CHARPY V-NOTCH IMPACT VALUES\*:

With Flux	Condition	Avg. at -40°F (-40°C)	Avg. at -60°F (-50°C)	Avg. at -80°F (-60°C)	Avg. at -100°F (-70°C)
HA-495	As-Welded	50 ft-lbs (68 J)	—	—	—
HN-590	As-Welded	—	—	40 ft-lbs (54 J)	—
	PWHT*	—	—	35 ft-lbs (47 J)	—
SWX 120	As-Welded	—	—	85 ft-lbs (115 J)	50 ft-lbs (68 J)
	PWHT*	—	100 ft-lbs (136 J)	75 ft-lbs (102 J)	—
SWX 150	As-Welded	—	—	90 ft-lbs (122 J)	80 ft-lbs (108 J)
	PWHT*	—	120 ft-lbs (163 J)	100 ft-lbs (136 J)	—

Note: Stress-Relieved 1 Hr. @ 1150°F (620°C)

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## TYPICAL OPERATING PARAMETERS\*:

Diameter		Amps	Volts	Wire Feed Speed		Deposition Rate		Contact Tip to Work Distance	
Inches	(mm)			Inches	(m/min)	lbs/hr	(kg/hr)	Inches	(mm)
5/64	(2.0)	200	27	70	(1.8)	4.9	(2.2)	1.25	(32)
5/64	(2.0)	300	28	115	(2.9)	8.4	(3.8)	1.25	(32)
5/64	(2.0)	400	30	190	(4.8)	13.7	(6.2)	1.25	(32)
5/64	(2.0)	500	32	285	(7.2)	20.5	(9.3)	1.25	(32)
3/32	(2.4)	300	28	85	(2.2)	8.7	(3.9)	1.25	(32)
3/32	(2.4)	400	29	125	(3.2)	12.8	(5.8)	1.25	(32)
3/32	(2.4)	500	31	175	(4.4)	17.8	(8.1)	1.25	(32)
3/32	(2.4)	600	33	240	(6.1)	24.3	(11.0)	1.25	(32)
3/32	(2.4)	650	34	270	(6.9)	27.7	(12.6)	1.25	(32)
1/8	(3.2)	400	28	65	(1.7)	10.4	(4.7)	1.25	(32)
1/8	(3.2)	500	30	87	(2.2)	14.7	(6.7)	1.25	(32)
1/8	(3.2)	600	32	115	(2.9)	20.0	(9.1)	1.25	(32)
1/8	(3.2)	700	34	155	(3.9)	25.7	(11.7)	1.25	(32)
1/8	(3.2)	800	36	200	(5.1)	35.0	(15.0)	1.25	(32)
5/32	(4.0)	400	28	45	(1.1)	12.2	(5.5)	1.5	(38)
5/32	(4.0)	500	30	58	(1.5)	14.5	(6.6)	1.5	(38)
5/32	(4.0)	600	32	69	(1.8)	18.5	(8.4)	1.5	(38)
5/32	(4.0)	700	34	90	(2.3)	23.8	(10.8)	1.5	(38)
5/32	(4.0)	800	36	115	(2.9)	29.8	(13.5)	1.5	(38)
5/32	(4.0)	900	38	143	(3.6)	38.7	(17.6)	1.5	(38)

**Maintaining a proper welding procedure - including pre-heat and interpass temperatures - may be critical depending on the type and thickness of steel being welded.**

Parameters are provided for informational purposes only. All values are approximate. The optimal voltage may vary (typically  $\pm 2$  volts) depending on the choice of flux, material thickness, joint design, and other variables specific to the application. Likewise, actual deposition rate may vary depending on choice of flux and contact tip to work distance.

**STANDARD PACKAGING:** For a complete list of diameters and packaging, please contact Hobart Brothers at (800) 424-1543 or (937) 332-5188 for International Customer Service.

Diameter	60-lb. (27.2 kg) Coil	600 lb. (272 kg) Drum
Net Pallet Weight	1920-lb. (871kg)	1200 (544kg)
5/64" (2.0 mm)	S651325-002	—
3/32" (2.4 mm)	S651329-002	S651329-008
1/8" (3.2 mm)	S651343-002	S651343-008
5/32" (4.0 mm)	S651350-002	S651350-008

## CONFORMANCES AND APPROVALS:

With Flux	ABS	CWB	DNV-GL
HA-495	—	F55TA4-ECG-H8 F8TA4-ECG-H8	—
SWX 150	4Y400M H10 3YT H10 (Single, Tandem)	—	V Y46M H10

Limitations (diameter, position, etc.) may exist. Please refer to product approval certificates for more information.

**TECHNICAL QUESTIONS?** For technical support of Hobart Filler Metals products, contact the Applications Engineering department by phone toll-free at 1-800-532-2618 or by e-mail at [Applications.Engineering@hobartbrothers.com](mailto:Applications.Engineering@hobartbrothers.com)

### CAUTION:

Consumers should be thoroughly familiar with the safety precautions on the warning label posted in each shipment and in the American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 8669 NW 36th St., Miami, FL 33166 (can also be downloaded online at [www.aws.org](http://www.aws.org)); OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210

Safety Data Sheets on any Hobart Brothers LLC product may be obtained from Hobart Customer Service or at [www.hobartbrothers.com](http://www.hobartbrothers.com).

Because Hobart Brothers LLC is constantly improving products, Hobart reserves the right to change design and/or specifications without notice.

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