

SubCOR™ EM13K-S



AWS A5.17: EC1

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
- Weld deposit chemical composition is specially formulated to be similar to EM13K solid wire
- Improved tolerance to rust and mill-scale than EM12K solid wire and SubCOR EM12K-S cored wire

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.
- Suitable as a higher-productivity alternative in many applications currently using EM12K and EM13K solid wires
- Helps reduce material preparation requirements and potential for porosity and part rework

APPLICATIONS:

- Single and multi-pass welding
- Storage tanks
- General fabrication
- Pressure vessels
- Structural and bridge fabrication
- Heavy equipment

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	As-Welded	A5.17/A5.17M	F7A4-EC1 H8	F48A4-EC1 H8
HN-590	As-Welded	A5.17/A5.17M	F7A8-EC1 H8	F48A6-EC1 H8
	PWHT*	A5.17/A5.17M	F7P8-EC1 H8	F48P6-EC1 H8
SWX 120	As-Welded	A5.17/A5.17M	F7A8-EC1 H8	F48A6-EC1 H8
	PWHT*	A5.17/A5.17M	F7P8-EC1 H8	F48P6-EC1 H8
SWX 150	As-Welded	A5.17/A5.17M	F7A8-EC1	F48A6-EC1
	PWHT*	A5.17/A5.17M	F6P8-EC1	F43P6-EC1

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

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
HA-495	0.06	1.44	0.57	0.020	0.013	0.07
HN-590	0.06	1.39	0.30	0.018	0.015	0.07
SWX 120	0.08	1.36	0.32	0.014	0.012	0.08
SWX 150	0.06	1.00	0.24	0.012	0.005	0.05

*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 A5.17 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
HA-495	2.9 ml/100g
HN-590	2.8 ml/100g
SWX 120	3.2 ml/100g

TYPICAL MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HA-495	As-Welded	84 ksi (579 MPa)	72 ksi (496 MPa)	28 %
HN-590	As-Welded	72 ksi (496 MPa)	59 ksi (407 MPa)	31%
	PWHT*	75 ksi (517 MPa)	65 ksi (448 MPa)	30%
SWX 120	As-Welded	76 ksi (524 MPa)	65 ksi (448 MPa)	30%
	PWHT*	73 ksi (503 MPa)	60 ksi (414 MPa)	32%
SWX 150	As-Welded	73 ksi (503 MPa)	64 ksi (441 MPa)	30%
	PWHT*	67 ksi (462 MPa)	52 ksi (359 MPa)	35%

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	60 ft-lbs (81 J)	—	—	—
HN-590	As-Welded	—	60 ft-lbs (81 J)	—	—
	PWHT*	—	60 ft-lbs (81 J)	—	—
SWX 120	As-Welded	—	—	80 ft-lbs (108 J)	65 ft-lbs (88 J)
	PWHT*	—	—	140 ft-lbs (190 J)	65 ft-lbs (88 J)
SWX 150	As-Welded	—	—	160 ft-lbs (217 J)	35 ft-lbs (47 J)
	PWHT*	—	—	285 ft-lbs (386 J)	150 ft-lbs (203 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 ± 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-lb. (544kg)
5/64" (2.0 mm)	S280425-002	—
3/32" (2.4 mm)	S280429-002	S280429-008
1/8" (3.2 mm)	S280443-002	S280443-008
5/32" (4.0 mm)	S280450-002	S280450-008

CONFORMANCES AND APPROVALS:

With Flux	ABS	CWB	DNV-GL
HA-495	—	F49A4-EC1-H8	—
HN-590	F7A8-EC1 H8	F49A5-EC1-H8 F43P6-EC1-H8	—
SWX 150	—	—	IV Y40M 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

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); 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.

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

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