SubCOR™ EM13K-S MOD

AWS A5.17: EC1

WELDING POSITIONS:

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
- Specially formulated to maintain good mechanical properties when welding at high heat inputs (>80 kJ/in)

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
- Allows the use of high-productivity welding parameters without sacrificing weld strength or toughness

APPLICATIONS:

- Single and multi-pass welding
- Welding at high heat inputs
- Structural and bridge fabrication
- Pressure vessels
- Heavy equipment
- Offshore fabrication
- High Deposition SubArc Hercules Process

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)

RE-DRYING: Not recommended

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

AWS CLASSIFICATIONS:

With Flux	Condition	Specifications	Classifications (US Customary Units)	Classifications (SI Units)
HA-495	As-Welded	A5.17/A5.17M	F7A2-EC1	F48A3-EC1
HN-590	As-Welded	A5.17/A5.17M	F7A6-EC1 H8	F49A5-EC1 H8
	PWHT*	A5.17/A5.17M	F7P6-EC1 H8	F49P5-EC1 H8
SWX 120	As-Welded	A5.17/A5.17M	F7A8-EC1	F48A6-EC1
	PWHT*	A5.17/A5.17M	F7P8-EC1	F48P6-EC1
SWX 150	As-Welded	A5.17/A5.17M	F7A8-EC1	F48A6-EC1
	PWHT*	A5.17/A5.17M	F7P8-EC1	F48P6-EC1

Note: Stress-Relieved for 1 hour at 1150°F (620°C)

TYPICAL WELD METAL CHEMISTRY* (CHEM PAD):

Weld Metal Analysis (%)	% C	% Mn	% Si	% P	% S	% Cu	% Mo
HA-495	0.07	1.63	0.74	0.028	0.010	0.06	0.09
HN-590	0.06	1.75	0.45	0.019	0.012	0.08	0.09
SWX 120	0.08	1.15	0.27	0.014	0.008	0.06	0.09
SWX 150	0.09	1.12	0.55	0.014	0.007	0.08	0.09

*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 Mechanical Properties*:

Mechanical Tests	Condition	Tensile Strength	Yield Strength	Elongation % in 2” (50 mm)
HA-495	As-Welded	92,000 psi (634 MPa)	83,000 psi (572 MPa)	25%
HN-590	As-Welded	85,000 psi (586 MPa)	73,000 psi (503 MPa)	27%
	PWHT*	81,000 psi (558 MPa)	65,000 psi (448 MPa)	29%
SWX 120	As-Welded	82,000 psi (565 MPa)	72,000 psi (496 MPa)	29%
	PWHT*	80,000 psi (552 MPa)	67,000 psi (462 MPa)	29%
SWX 150	As-Welded	81,000 psi (558 MPa)	68,000 psi (469 MPa)	28%
	PWHT*	78,000 psi (538 MPa)	60,000 psi (414 MPa)	29%

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

Typical Charpy V-Notch Impact Values*:

With Flux	Condition	Avg. at -20°F (-29°C)	Avg. at -40°F (-40°C)	Avg. at -60°F (-51°C)	Avg. at -80°F (-60°C)
HA-495	As-Welded	38 ft •lbs (52 J)	—	—	—
HN-590	As-Welded	—	—	25 ft •lbs (34 J)	—
	PWHT*	—	85 ft •lbs (115 J)	40 ft •lbs (54 J)	—
SWX 120	As-Welded	—	—	160 ft •lbs (217 J)	105 ft •lbs (142 J)
	PWHT*	—	220 ft •lbs (298 J)	130 ft •lbs (176 J)	—
SWX 150	As-Welded	—	—	50 ft •lbs (68 J)	95 ft •lbs (129 J)
	PWHT*	—	—	35 ft •lbs (47 J)	100 ft •lbs (136 J)

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

Typical Diffusible Hydrogen*:

Hydrogen Equipment	Gas Chromatography
HN-590	4.3 ml/100g
SWX 150	6.4 ml/100g

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Typical Operating Parameters:

Diameter Inches	Diameter (mm)	Amperage	Voltage	Wire Feed Speed in/min	Wire Feed Speed (m/min)	Deposition Rate lbs/hr	Deposition Rate (kg/hr)	Contact Tip to Work Distance Inches	Contact Tip to Work Distance (mm)
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	(15.9)	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

Available Diameters and Packages: 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 Inches	Diameter (mm)	50-lb. (22.6kg) Wire Basket	600-lb. (272kg) Drum
Net Pallet Weight		**1600-lb. (725kg)**	**1200-lb. (545kg)**
3/32	(2.4)	S289329-007	S289329-008
1/8	(3.2)	S289343-007	S289343-008
5/32	(4.0)	S289350-007	S289350-008

Conformances and Approvals:

With Flux	ABS	CWB	DNV-GL
HN-590	3YTM H10	—	—
SWX 120	—	F49A6-EC1-H8	—
SWX 150	4TM H10	—	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

Material 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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Revision Date: 260817 (Replaces 230206)

HOBART FILLER METALS