

SDX EM13K



AWS A5.17: EM13K

FEATURES:

- Copper-coated wire
- Increased silicon levels compared to EM12K wire
- Moderate manganese and silicon levels overall

BENEFITS:

- Offers optimal consistency in electrode feeding and electrical transfer
- Provides improved deoxidation and porosity resistance when welding over light rust and mill scale
- Provides improved travel speeds, porosity resistance, and mechanical properties

APPLICATIONS:

- General fabrication
- Storage vessels
- Structural and bridge fabrication
- Pressure vessels
- Heavy equipment
- Welding over light rust and scale

WIRE TYPE: Copper-coated solid wire

RECOMMENDED FLUXES: HN-590, SWX 120, SWX 150

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

STANDARD DIAMETERS: 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)
HN-590	As-Welded	A5.17/A5.17M	F7A4-EM13K	F48A4-EM13K
	PWHT*	A5.17/A5.17M	F7P4-EM13K	F48P4-EM13K
SWX 120	As-Welded	A5.17/A5.17M	F7A4-EM13K	F48A4-EM13K
	PWHT*	A5.17/A5.17M	F7P8-EM13K	F48P6-EM13K
SWX 150	As-Welded	A5.17/A5.17M	F7A4-EM13K	F48A4-EM13K
	PWHT*	A5.17/A5.17M	F7P8-EM13K	F48P6-EM13K

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

TYPICAL WIRE CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
None (Wire Melt Button)	0.08	1.23	0.58	0.010	0.007	0.05

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
HN-590	0.07	1.88	0.64	0.026	0.015	0.14
SWX 120	0.07	1.63	0.53	0.017	0.014	0.14
SWX 150	0.06	1.21	0.68	0.018	0.008	0.13

*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*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HN-590	As-Welded	94 ksi (648 MPa)	82 ksi (565 MPa)	26%
	PWHT*	88 ksi (607 MPa)	74 ksi (510 MPa)	26%
SWX 120	As-Welded	87 ksi (600 MPa)	77 ksi (531 MPa)	29%
	PWHT*	83 ksi (572 MPa)	68 ksi (469 MPa)	28%
SWX 150	As-Welded	74 ksi (510 MPa)	68 ksi (469 MPa)	31%
	PWHT*	79 ksi (544 MPa)	62 ksi (427 MPa)	30%

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)
HN-590	As-Welded	—	20 ft-lbs (27 j)	—
	PWHT*	—	24 ft-lbs (33 J)	—
SWX 120	As-Welded	—	22 ft-lbs (30 J)	15 ft-lbs (20 J)
	PWHT*	42 ft-lbs (57 J)	27 ft-lbs (37 j)	—
SWX 150	As-Welded	—	42 ft-lbs (57 J)	28 ft-lbs (38 J)
	PWHT*	—	67 ft-lbs (91 J)	54 ft-lbs (73 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)
3/32	(2.4)	300	29	70	(1.78)	8.1	(3.7)	1.25	(32)
3/32	(2.4)	400	30	90	(2.29)	10.6	(4.8)	1.25	(32)
3/32	(2.4)	500	37	120	(3.05)	14.8	(6.7)	1.25	(32)
3/32	(2.4)	600	38	155	(3.94)	18.9	(8.6)	1.25	(32)
1/8	(3.2)	400	31	54	(1.37)	11.4	(5.2)	1.25	(32)
1/8	(3.2)	500	32	68	(1.73)	13.1	(5.9)	1.25	(32)
1/8	(3.2)	600	35	80	(2.03)	15.6	(7.1)	1.25	(32)
1/8	(3.2)	700	37	90	(2.41)	19.3	(8.8)	1.25	(32)
5/32	(4.0)	400	30	38	(0.97)	10.3	(4.9)	1.5	(38)
5/32	(4.0)	500	33	48	(1.22)	14.0	(6.4)	1.5	(38)
5/32	(4.0)	600	35	55	(1.40)	17.2	(7.8)	1.5	(38)
5/32	(4.0)	700	38	65	(1.65)	19.6	(8.9)	1.5	(38)
5/32	(4.0)	800	40	75	(1.91)	23.5	(10.7)	1.5	(38)
5/32	(4.0)	900	42	88	(2.24)	28.2	(12.8)	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	55-lb. (25 kg) Wire Basket	1000 lb. (454 kg) Drum
Net Pallet Weight	2310-lb. (1050kg)	2000-lb. (907kg)
3/32" (2.4 mm)	712241025H	—
1/8" (3.2 mm)	712321025H	71232414FH
5/32" (4.0 mm)	712401025H	71240414FH

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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