

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

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SDX EM13K

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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SDX EM13K

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
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.

Revision Date: 190909 (Replaces 190118)





SDX S2Si-EM12K

AWS A5.17: EM12K
EN ISO 14171: S2Si

FEATURES:

- Copper-coated wire
- Moderate manganese and silicon levels
- Suitable for use with a wide variety of Hobart fluxes

BENEFITS:

- Offers optimal consistency of electrode feeding and electrical transfer
- Provide improved resistance to porosity, improved mechanical properties, and increased travel speeds
- Provides versatility in application and procedure development

APPLICATIONS:

- General fabrication
- Storage vessels
- Structural and bridge fabrication
- Pressure vessels
- Heavy equipment

WIRE TYPE: Copper-coated solid 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	F7A2-EM12K	F48A3-EM12K
HN-590	As-Welded	A5.17/A5.17M	F7A4-EM12K	F48A4-EM12K
	PWHT*	A5.17/A5.17M	F7P5-EM12K	F48P4-EM12K
SWX 120	As-Welded	A5.17/A5.17M	F7A6-EM12K	F48A5-EM12K
	PWHT*	A5.17/A5.17M	F7P8-EM12K	F48P6-EM12K
SWX 150	As-Welded	A5.17/A5.17M	F7A6-EM12K	F48A5-EM12K
	PWHT*	A5.17/A5.17M	F7P8-EM12K	F48P6-EM12K

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

EN ISO CLASSIFICATIONS:

With Wire	Condition	Specification	Classification
SWX 120	As-Welded	EN ISO 14171-A	S 38 5 AB S2Si
SWX 150	As-Welded	EN ISO 14171-A	S 38 5 FB S2Si

TYPICAL WIRE CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
None (Wire Melt Button)	0.09	1.18	0.18	0.014	0.009	0.15
AWS A5.17 EM12K Requirements*	0.05-0.15	0.80-1.25	0.10-0.35	0.030	0.030	0.35

Note: AWS Specification single values are maximums

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SDX S2Si-EM12K

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
HA-495	0.09	1.50	0.59	0.023	0.018	0.05
HN-590	0.07	1.47	0.27	0.026	0.017	0.22
SWX 120	0.06	1.31	0.17	0.014	0.010	0.18
SWX 150	0.07	0.93	0.18	0.013	0.007	0.17

TYPICAL MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HA-495	As-Welded	94 ksi (648 MPa)	84 ksi (579 MPa)	22%
HN-590	As-Welded	82 ksi (565 MPa)	69 ksi (476 MPa)	28%
	PWHT*	79 ksi (547 MPa)	64 ksi (444 MPa)	28%
SWX 120	As-Welded	78 ksi (538 MPa)	66 ksi (455 MPa)	27%
	PWHT*	78 ksi (538 MPa)	64 ksi (441 MPa)	28%
SWX 150	As-Welded	77 ksi (531 MPa)	68 ksi (469 MPa)	31%
	PWHT*	74 ksi (510 MPa)	61 ksi (421 MPa)	32%

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

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

With Flux	Condition	Avg. at 0°F (-20°C)	Avg. at -20°F (-30°C)	Avg. at -40°F (-40°C)	Avg. at -50°F (-46°C)	Avg. at -60°F (-50°C)	Avg. at -80°F (-60°C)
HA-495	As-Welded	30 ft-lbs (41 J)	30 ft-lbs (41 J)	—	—	—	—
HN-590	As-Welded	—	45 ft-lbs (61 J)	30 ft-lbs (41 J)	—	—	—
	PWHT*	—	—	—	43 ft-lbs (59 J)	—	—
SWX 120	As-Welded	—	—	—	—	75 ft-lbs (102 J)	65 ft-lbs (88 J)
	PWHT*	—	—	—	—	60 ft-lbs (81 J)	45 ft-lbs (61 J)
SWX 150	As-Welded	—	—	—	—	90 ft-lbs (122 J)	25 ft-lbs (34 J)
	PWHT*	—	—	—	—	55 ft-lbs (75 J)	55 ft-lbs (75 J)

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

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SDX S2Si-EM12K

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	29	63	(1.60)	4.8	(2.2)	1.25	(32)
5/64	(2.0)	300	31	95	(2.41)	8.1	(3.7)	1.25	(32)
5/64	(2.0)	400	33	135	(3.43)	11.3	(5.1)	1.25	(32)
5/64	(2.0)	500	36	200	(5.08)	16.0	(7.3)	1.25	(32)
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
5/64" (2.0 mm)	722201025H	72220414FH
3/32" (2.4 mm)	722241025H	72224414FH
1/8" (3.2 mm)	722321025H	72232414FH
5/32" (4.0 mm)	722401025H	72240414FH

CONFORMANCES AND APPROVALS:

With Flux	ABS	CE	CWB	DNV-GL
HA-495	—	X	F49A3-EM12K-H8	—
SWX 110	4YM H5	X	F49A4-EM12K-H8	IV YM
SWX 120	—	X	F49A5-EM12-H8	—

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

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Revision Date: 200918 (Replaces 200917)





SDX S3Si-EH12K

AWS A5.17: EH12K
EN ISO 14171: S3Si

FEATURES:

- Copper-coated wire
- High manganese content
- High toughness carbon -steel wire

BENEFITS:

- Offers optimal consistency in electrode feeding and electrical transfer
- Provides improved weld metal toughness compared to EM12K or EM13K solid wires
- Suitable for welding a wide range of moderate tensile strength non-alloyed steels in critical applications

APPLICATIONS:

- Structural and bridge fabrication
- Pressure vessels
- Offshore fabrication
- Wind tower
- Heavy equipment

WIRE TYPE: Wire Type

RECOMMENDED FLUXES: SWX 120, SWX 150

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

STANDARD DIAMETERS: 5/16" (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)
SWX 120	As-Welded	A5.17/A5.17M	F7A6-EH12K	F48A5-EH12K
SWX 150	As-Welded	A5.17/A5.17M	F7A8-EH12K	F48A6-EH12K
	PWHT*	A5.17/A5.17M	F7P8-EH12K	F48P6-EH12K

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

EN ISO CLASSIFICATIONS:

With Wire	Condition	Specification	Classification
SDX S3Si-EH12K	As-Welded	EN ISO 14171-A	S 46 4 AB S3Si
	Two-Run	EN ISO 14171-A	S 3T 2 AB S3Si
SDX S3Si-EH12K	As-Welded	EN ISO 14171-A	S 46 6 FB S3Si

TYPICAL WIRE CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
None (Wire Melt Button)	0.10	1.68	0.32	0.008	0.003	0.04

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SDX S3Si-EH12K

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu
SWX 120	0.07	1.72	0.27	0.014	0.004	0.07
SWX 150	0.08	1.45	0.35	0.011	0.002	0.07

TYPICAL MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
SWX 120	As-Welded	84 ksi (579 MPa)	73 ksi (503 MPa)	30%
	PWHT*	83 ksi (572 MPa)	67 ksi (462 MPa)	28%
SWX 150	As-Welded	83 ksi (572 MPa)	74 ksi (510 MPa)	31%
	PWHT*	80 ksi (552 MPa)	65 ksi (448 MPa)	31%

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

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

With Flux	Condition	Avg. at -60°F (-50°C)	Avg. at -80°F (-60°C)	Avg. at -100°F (-70°C)
SWX 120	As-Welded	50 ft-lbs (68 J)	35 ft-lbs (47 J)	—
	PWHT*	—	82 ft-lbs (111 J)	80 ft-lbs (108 J)
SWX 150	As-Welded	—	140 ft-lbs (190 J)	120 ft-lbs (163 J)
	PWHT*	—	215 ft-lbs (291 J)	125 ft-lbs (169 J)

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

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SDX S3Si-EH12K

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
5/64" (2.0 mm)	732201025H	—
3/32" (2.4 mm)	732241025H	—
1/8" (3.2 mm)	732321025H	732321025H
5/32" (4.0 mm)	732401025H	—

CONFORMANCES AND APPROVALS:

With Flux	With Wire	ABS	CE	CWB	DNV-GL
SWX 150	(2X) SDX S3Si-EH12K	—	—	—	VI Y46MH5
SWX 150	SDX S3Si-EH12K	5YQ460M H5	X	F55A6-EH12K-G-H8 (F8A8-EH12K-G-H8)	V Y46(H5)

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

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SubCOR™ EM12K-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
- Suitable for use with a wide variety of Hobart fluxes
- Nominal weld deposit composition specially formulated to be similar to EM12K solid 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.
- Provides versatility in procedure development and optimization of the welding application
- Suitable as a higher-productivity alternative in many applications currently using EM12K and EM13K solid wires

APPLICATIONS:

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

WIRE TYPE: Wire Type

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	F7A2-EC1	F48A3-EC1
HN-590	As-Welded	A5.17/A5.17M	F7A6-EC1	F48A5-EC1
SWX 120	As-Welded	A5.17/A5.17M	F7A6-EC1	F48A5-EC1
SWX 150	As-Welded	A5.17/A5.17M	F7A4-EC1	F48A4-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	0.05	1.20	0.56	0.020	0.010	0.06
HN-590	0.07	1.39	0.33	0.020	0.010	0.07
SWX 120	0.05	1.21	0.24	0.015	0.009	0.06
SWX 150	0.05	0.91	0.24	0.012	0.005	0.05

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SubCOR™ EM12K-S

TYPICAL MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HA-495	As-Welded	85 ksi (586 MPa)	76 ksi (524 MPa)	26%
HN-590	As-Welded	79 ksi (545 MPa)	68 ksi (469 MPa)	28%
SWX 120	As-Welded	70 ksi (483 MPa)	60 ksi (414 MPa)	32%
	PWHT*	67 ksi (462 MPa)	53 ksi (365 MPa)	33%
SWX 150	As-Welded	71 ksi (490 MPa)	60 ksi (414 MPa)	32%

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

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

With Flux	Condition	Avg. at -20°F (-30°C)	Avg. at -40°F (-40°C)	Avg. at -60°F (-50°C)	Avg. at -80°F (-60°C)
HA-495	As-Welded	20 ft-lbs (27 J)	—	—	—
	PWHT*	—	—	—	—
HN-590	As-Welded	—	—	50 ft-lbs (68 J)	—
	PWHT*	—	—	—	—
SWX 120	As-Welded	—	—	110 ft-lbs (149 J)	90 ft-lbs (122 J)
	PWHT*	—	—	95 ft-lbs (129 J)	90 ft-lbs (122 J)
SWX 150	As-Welded	—	95 ft-lbs (129 J)	20 ft-lbs (27 J)	—

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

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SubCOR™ EM12K-S

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	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
3/32" (2.4 mm)	S282029-002	S282029-008
1/8" (3.2 mm)	S282043-002	S282043-008
5/32" (4.0 mm)	S282050-002	—

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:

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Safety Data Sheets on any Hobart Brothers LLC product may be obtained from Hobart Customer Service or at www.hobartbrothers.com.

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SubCOR is a trademark of Hobart Brothers LLC, Troy, Ohio.

Revision Date: 190909 (Replaces 190118)



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

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SubCOR™ EM13K-S

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)

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)

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SubCOR™ EM13K-S

TYPICAL OPERATING PARAMETERS* CONTINUED:

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
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:

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Revision Date: 190909 (Replaces 190118)



SubCOR™ EM13K-S MOD



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
- 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
- Heavy equipment
- Welding at high heat inputs
- Offshore fabrication
- Pressure vessels
- Structural and bridge fabrication

WIRE TYPE: Metal-powder, metal-cored 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	F7A8-EC1 H8	F48A6-EC1 H8
	PWHT*	A5.17/A5.17M	F7P4-EC1 H8	F48P4-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 1 Hr. @ 1150°F (620°C)

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu	% Mo
HN-590	0.08	1.42	0.44	0.017	0.008	0.08	0.09
SWX 120	0.08	1.15	0.27	0.014	0.008	0.06	0.09
SWX 150	0.010	0.89	0.47	0.017	0.011	0.09	0.10

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SubCOR™ EM13K-S MOD

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

With Flux	Diffusible Hydrogen
HN-590	2.5 ml/100g
SWX 150	6.4 ml/100g

TYPICAL MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HN-590	As-Welded	87 ksi (600 MPa)	78 ksi (538 MPa)	25%
	PWHT*	83 ksi (572 MPa)	69 ksi (476 MPa)	28%
SWX 120	As-Welded	82 ksi (565 MPa)	72 ksi (496 MPa)	29%
	PWHT*	80 ksi (552 MPa)	67 ksi (462 MPa)	29%
SWX 150	As-Welded	81 ksi (558 MPa)	69 ksi (476 MPa)	28%
	PWHT*	78 ksi (538 MPa)	65 ksi (448 MPa)	32%

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)
HN-590	As-Welded	—	—	55 ft-lbs (75 J)	—
	PWHT*	85 ft-lbs (115 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)	15 ft-lbs (20 J)

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

*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.

SubCOR™ EM13K-S MOD

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	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
3/32" (2.4 mm)	S289329-002	S289329-008
1/8" (3.2 mm)	S289343-002	S289343-008
5/32" (4.0 mm)	S289350-002	—

CONFORMANCES AND APPROVALS:

With Flux	With Wire	ABS	CWB	DNV-GL
HN-590	SubCOR EM13K-S MOD	3YTM H10	F49A6-EC1-H8	—
SWX 150	SubCOR EM13K-S MOD	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

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.

SubCOR is a trademark of Hobart Brothers LLC, Troy, Ohio.

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Features

- Specially formulated to offer enhanced impact toughness than can be achieved by carbon steel solid wires such as SDX S2, SDX EM13K, SDX S2Si-EM12K or SDX 3Si-EH12K
- Seamless wire design virtually eliminates risk of moisture absorption and produces low hydrogen weld deposits
- Unique manufacturing process provides unmatched product consistency
- Composite (cored) wire can offer improved deposition rates compared to solid wires at comparable welding parameters
- Composite (cored) wires offer broader penetration profiles compared to solid wire at comparable welding parameters

Benefits

- Helps to minimize the risk of cracking in demanding service conditions and the risk of cracking caused by improper depth-to-width ratio
- Assists in maintaining a low hydrogen process to minimize the risk of hydrogen-induced cracking
- Provides excellent uniformity of chemical properties, mechanical properties and arc characteristics
- 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

Applications

- Shipbuilding
- Structural and bridge fabrication
- Heavy equipment
- Cranes
- Pressure vessel fabrication
- Industrial machinery

Common Base Metal Types, Specifications & Grades

Types	Non-alloyed, fine-grained, carbon steels up to 490 MPa (70 ksi) tensile strength
ASTM	A258, A516, A662, A738, A612, A299
EN	S185-S355, P235GH-P355GH, P235T1/T2-P460NL2, L210-L445MB, S255-S460QL1
ABS	A, B, D, AH32-EH36
API	X42-X60

For reference only. Not inclusive of all compatible applications or base metals. **Always** consider all design requirements when selecting an electrode/flux combination.

Wire Characteristics

Wire type	Seamless composite (cored) submerged arc welding wire
Recommended fluxes	SWX 110, SWX 120, SWX 150
Type of current	DC+/AC
Standard diameters	2.4 mm (3/32"), 4.0 mm (5/32")
Re-drying	Not recommended
Storage	Product should be stored in a dry, enclosed environment and in its original intact packaging

Wire/Flux - Combination Classifications

With flux	EN ISO 14171-A	AWS A5.17	AWS A5.23
SWX 110	AW S 46 4 AB T3	F7A4-ECG	F8A4-ECG
SWX 120	AW S 46 4 AB T3	F7A4-ECG	F8A4-ECG
SWX 150	AW S 46 6 FB T3	F7A4-EC1	F8A8-ECG

AW: as welded, all weld metal.

Chemical Composition All Weld Metal - Typical Values

With flux	%C	%Si	%Mn	%P	%S
SWX 110	0.05	0.30	2.10	0.025	0.025
SWX 120	0.06	0.50	2.10	0.025	0.025
SWX 150	0.08	0.60	1.60	0.025	0.025

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Mechanical Properties - Typical values

With flux		Re/Rp0.2 MPa	Rm Mpa	A %	CVN J		
-20°C -40°C -60°C							
SWX 110	AW	520	620	25	110	90	50
	SR	510	610	25	110	90	50
SWX 120	AW	520	620	26	115	95	55
	SR	500	600	26	110	90	50
SWX 150	AW	500	600	27	160	130	100
	SR	470	570	28	130	110	80

AW: as welded, all weld metal. SR: stress relieved, all weld metal, 620±15°C (1150±25°F)/1h.

Mechanical Properties - Typical values

With flux		YS ksi	TS ksi	E %	CVN ft-lbf		
-4°F -40°F -76°F							
SWX 110	AW	75	90	25	81	66	37
	SR	74	88	25	81	66	37
SWX 120	AW	75	90	26	85	70	41
	SR	73	87	26	81	66	37
SWX 150	AW	73	87	27	118	96	74
	SR	68	83	28	96	81	59

AW: as welded, all weld metal. SR: stress relieved, all weld metal, 1150±25°F (620±15°C)/1h.

Recommended Fluxes - Standard Packaging and Item numbers

Package	SWX 110	SWX 120	SWX 150
22.7 kg (50 lbs) EAE Bag			150022300H
25 kg (55 lbs) EAE Bag	110022500H	120022500H	
1000 kg (2200 lbs) Double Bag	110071T00H	120071T00H	

Standard Diameters, Packages and Item numbers - North America

Package	2.4 mm (3/32")	4.0 mm (5/32")
25 kg (55 lbs) Wire basket K-415	503241025H	503401025H
250 kg (550 lbs) Pay off drum		50340442FH

Customers Located In North America:

Refer to the table above for standard part numbers exclusive to North America.

For a complete list of diameters and packaging, please contact Hobart Brothers at +1 (800) 424-1543 for US customer service or e-mail subarc@itw-welding.com

Standard Diameters, Packages and Item numbers - Outside North America

Package	2.4 mm (3/32")	4.0 mm (5/32")
25 kg (55 lbs) Wire basket K-415	5032410250	5034010250
250 kg (550 lbs) Pay off drum		50340442F0

Customers Located Outside North America:

Refer to the table above for standard part numbers exclusive to locations outside North America.

For a complete list of diameters and packaging, please contact the ITW Welding GmbH sales office at +49 (0) 6356 966 119 or e-mail subarc@itw-welding.com

Approvals

With flux	ABS	BV	DNV	GL	LR	CE	DB	TÜV
SWX 150	3YMH5	A3YM	III YM	3YM	5Y46H5	√	√	√

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



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

TECHNICAL QUESTIONS? For technical support of Hobart Filler Metals products please visit www.hobartbrothers.com/where-to-buy to find your closest Hobart representative or send an e-mail to subarc@itw-welding.com for further assistance.

DISCLAIMER:

The information contained or otherwise referenced herein is for reference purposes only and is presented only as "typical." Typical data are those obtained when welding and testing are performed in accordance with applicable AWS and/or EN ISO specification(s). Other tests and procedures may produce difference results and typical data should not be assumed to yield similar results in a particular application or weldment. No data is to be construed as a recommendation for any welding condition or technique not controlled by ITW Welding. ITW Welding does not assume responsibility for any results obtained by persons over whose methods it has no control. It is the user's responsibility to determine the suitability of any products or methods mentioned herein for a particular purpose. In light of the foregoing, ITW Welding specifically disclaims any liability incurred from reliance on such information, and disclaims all guarantees and warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, and further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

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 36 St, # 130, Miami, FL 33166-6672 (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 Company product may be obtained from Hobart Customer Service or at www.hobartbrothers.com.

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