

SubCOR™ N1-S



AWS A5.23: ECNi1

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
- Nominal 1% nickel weld deposit
- Weld deposit chemical composition requirements are identical to those for an ENi1-Ni1 solid wire/flux combination
- Provides excellent low-temperature toughness without excessive tensile strength

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 atmospheric corrosion resistance to welds made on bare, unpainted weathering steels
- A higher-productivity alternative in virtually all applications currently using ENi1 solid wire
- Suitable for welding a range of non-alloyed steels in low-temperature of critical service requirements

APPLICATIONS:

- Structural and bridge fabrication
- Shipbuilding
- Offshore fabrication
- Storage tanks
- Heavy equipment

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: 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	A5.23/A5.23M	F7A8-ECNi1-Ni1	F49A6-ECNi1-Ni1
	PWHT*	A5.23/A5.23M	F6P10-ECNi1-Ni1	F43P7-ECNi1-Ni1
SWX 120	As-Welded	A5.23/A5.23M	F7A10-ECNi1-Ni1	F49A7-ECNi1-Ni1
	As-Welded	A5.23/A5.23M	F7A8-ECNi1-Ni1	F49A6-ECNi1-Ni1
SWX 150	As-Welded	A5.23/A5.23M	F7A8-ECNi1-Ni1	F49A6-ECNi1-Ni1
	PWHT*	A5.23/A5.23M	F7P10-ECNi1-Ni1	F49P7-ECNi1-Ni1

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

TYPICAL WELD DEPOSIT CHEMICAL COMPOSITION*:

With Flux	% C	% Mn	% Si	% P	% S	% Cu	% Ni
HN-590	0.06	1.45	0.34	0.019	0.014	0.06	0.95
SWX 120	0.04	1.04	0.18	0.013	0.009	0.04	0.91
SWX 150	0.07	0.82	0.20	0.010	0.006	0.05	0.88

*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 MECHANICAL PROPERTIES*:

With Flux	Condition	Tensile Strength	Yield Strength	Elongation % in 2" (50 mm)
HN-590	As-Welded	79 ksi (545 MPa)	65 ksi (448 MPa)	31%
	PWHT*	77 ksi (531 MPa)	63 ksi (434 MPa)	31%
SWX 120	As-Welded	73 ksi (503 MPa)	62 ksi (427 MPa)	28%
SWX 150	As-Welded	72 ksi (496 MPa)	62 ksi (427 MPa)	30%
	PWHT*	70 ksi (483 MPa)	57 ksi (393 MPa)	31%

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

TYPICAL CHARPY V-NOTCH IMPACT VALUES*:

With Flux	Condition	Avg. at -80°F (-60°C)	Avg. at -100°F (-70°C)
HN-590	As-Welded	45 ft-lbs (61 J)	—
	PWHT*	—	40 ft-lbs (54 J)
SWX 120	As-Welded	105 ft-lbs (142 J)	90 ft-lbs (122 J)
SWX 150	As-Welded	95 ft-lbs (129 J)	15 ft-lbs (20 J)
	PWHT*	125 ft-lbs (169 J)	155 ft-lbs (210 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)
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
Net Pallet Weight	1920-lb. (871kg)
1/8" (3.2 mm)	S282243-002
5/32" (4.0 mm)	S282250-002

CONFORMANCES AND APPROVALS:

With Flux	CWB
HN-590	F49A6-ECNi1-Ni1-H8 F7A8-ECNi1-Ni1-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

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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