



# METALLOY B2-S

**LOW ALLOY METAL-CORED SUBMERGED ARC ELECTRODE**  
 AWS A5.23/A5.23M  
 ASME SFA 5.23/SFA 5.23M  
 Class ECB2

100721 (Replaces 100224)

## CHARACTERISTICS:

**Metalloy B2-S** is designed to deposit 1-1/4% chromium, 1/2% molybdenum weld metal when used with appropriate submerged arc welding fluxes. This weld deposit can withstand elevated service temperature applications such as heat exchangers, boiler and power piping, valves, etc. The weld metal maintains reasonable tensile strength at these temperatures or following stress relief and offers corrosion resistance. The use of fluxes other than those listed may be used once testing verifies compatibility.

## ADVANTAGES OVER SOLID ELECTRODES:

Metalloy submerged arc electrodes provide higher deposition rates using the same flux when compared to the solid wire counterparts at the same amperage and electrical stickout. They are available in large as well as small lots with no minimum quantities, and since a carbon steel sheath is used with alloying powders, you enjoy our industry leading delivery times. Penetration patterns tend to be broader in width than similar solid electrodes. Adjustments in parameters allow composite electrodes to bridge moderate gaps more easily than the deep, narrow penetration of solid wire.

The properties listed below are using DC electrode positive (reverse polarity), but applications using DC electrode negative and AC are also being used. The extensive list of available submerged arc electrodes in the carbon and low alloy steel ranges may allow fabricators to reduce the number of fluxes and still satisfy their subarc needs. Metalloy products are noticeably less stiff than solid wires and can help to minimize torch liner and tip wear. Softer wires require substantially less feed roll pressure. High pressure can deform the electrode or impart a cast that may cause tracking difficulties.

### Metalloy B2-S Electrode/Flux AWS A5.23 Deposit Chemical Analysis

Flux	Flux/Electrode Classification	C	Mn	Si	S	P	Cr	Mo	Cu
AWS A5.23	ECB2	0.05-0.15	1.20	0.80	0.030	0.030	1.00-1.50	0.40-0.65	0.35
Hobart HN-511	ECB2	0.085	0.49	0.44	0.005	0.019	1.27	0.55	0.046

### Metalloy B2-S Electrode/Flux Mechanical Properties

Flux	Flux/Electrode Classification	Tensile Strength KSI (MPa)	Yield Strength KSI (MPa)	Elong. In 2" %	CVN @ 0°F (-18°C) ft•lbs (J)	CVN @ -20°F (-29°C) ft•lbs (J)
Hobart HN-511	F8P2-ECB2-B2	98.4 (678)	85.3 (588)	24.2	132 (178)	85 (115)

**AVAILABLE DIAMETERS:** 5/64", 3/32", 1/8", 5/32"

\*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers Company expressly disclaims any liability incurred from any reliance thereon. Typical data is obtained when welded and tested in accordance with 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 Company.



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AWS A5.23

## 5/64" Diameter, 1-1/4" Electrical Stickout, DCEP with Hobart HN-511

AMPERAGE	VOLTAGE	APPROXIMATE WIRE FEED SPEED, IPM	DEPOSITION RATE Lbs/hr
200	29	71	4.9
250	30	89	6.5
300	31	115	8.4
350	32	154	11.0
400	33	190	13.7
450	34	233	16.6
500	36	284	20.5

## 3/32" Diameter, 1-1/4" Electrical Stickout, DCEP with Hobart HN-511

AMPERAGE	VOLTAGE	APPROXIMATE WIRE FEED SPEED, IPM	DEPOSITION RATE Lbs/hr
200	28	65	5.9
250	28	75	7.1
300	29	85	8.7
350	30	105	10.7
400	30	125	12.8
450	32	150	15.4
500	37	175	17.8
550	37	210	21.1
600	38	240	24.3
650	39	270	27.7

## 1/8" Diameter, 1-1/4" Electrical Stickout, DCEP with Hobart HN-511

AMPERAGE	VOLTAGE	APPROXIMATE WIRE FEED SPEED, IPM	DEPOSITION RATE Lbs/hr
250	28	40	6.0
300	29	46	7.2
350	30	54	8.6
400	31	64	10.4
450	31	76	12.1
500	32	87	14.7
550	32	100	17.3
600	35	116	20.0
650	36	135	23.0
700	37	153	25.7
750	38	175	29.6
800	40	199	33.0

## 5/32" Diameter, 1-1/2" Electrical Stickout, DCEP with Hobart HN-511

AMPERAGE	VOLTAGE	APPROXIMATE WIRE FEED SPEED, IPM	DEPOSITION RATE Lbs/hr
400	30	45	12.2
500	33	58	14.5
600	35	69	18.5
700	38	90	23.8
800	40	113	29.8
900	42	143	38.7
1000	48	172	42.8

\*Voltage listed was used for these particular tests. Typically, the voltage can be varied +2 volts depending on flux, material thickness, and application. The deposition rate may vary with the flux used.

**Notice:**

Actual use of the product may produce varying results due to conditions and welding techniques over which Tri-Mark has no control, including, but not limited to, plate chemistry, weldment design, fabrication methods, electrode size, welding procedure, service requirements, and environment. The purchaser is solely responsible for determining the suitability of Tri-Mark products for the purchaser's own use. Any prior representations shall not be binding. Tri-Mark disclaims any warranty of merchantability or fitness for any particular purpose with respect to its products.

**Caution:**

Consumers should be thoroughly familiar with the safety precautions shown on the Warning Label posted on each shipment and in American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 550 NW LeJeune Road, Miami, FL, 33126, and OSHA Safety and Health Standards 29 CFR 1910, available from the U.S. Department of Labor, Washington, D.C. 20210.