



# 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<br>KSI (MPa) | Yield Strength<br>KSI (MPa) | Elong. In<br>2" % | CVN @<br>0°F (-18°C)<br>ft•lbs (J) | CVN @<br>-20°F (-29°C)<br>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.