



# Tube-Alloy<sup>®</sup> 861-S

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## Features:

- Chrome-molybdenum steel composition
- Provides high deposition rates with crack and porosity-free deposits

## Benefits:

- Offers superior resistance to softening in service compared to carbon steel deposits (such as those made by EM12K, EM13K, etc.). Provides adequate abrasion resistance and toughness for use on both a build-up and overlay product in many steel mill roll applications
- Allows for productive component build-up with a minimized risk for costly rework

## Applications:

- Continuous caster rolls
- Table rolls
- Straightener rolls

## Wire Characteristics:

**WIRE TYPE:** Composite (cored) submerged arc hardfacing wire

**RECOMMENDED FLUXES:** HF-N

**TYPE OF CURRENT:** Direct Current Electrode Positive (DCEP)

**STANDARD DIAMETERS:** 3.2 mm (1/8")

**RE-DRYING:** Not recommended

**STORAGE:** Product should be stored in a dry, enclosed environment and in its original intact packaging.

## Typical Deposit Chemistry\* (Undiluted):

W/ Flux	% C	% Mn	% Si	% Cr	% Mo	% Fe
HF-N	0.15	0.90	0.50	1.70	0.60	Bal.

## Relative Wear Resistance\*:

**ABRASION:** Fair

**IMPACT:** Very Good

**HEAT:** Fair

## Typical Deposit Hardness\* (As Deposited):

W/ Flux	Layer	Hardness As Deposited On AISI 1020 Steel
HF-N	1	21 Rc
HF-N	2	28 Rc
HF-N	3	30 Rc

## Typical Deposit Hardness\* (Tempered):

W/ Flux	Hardness As Deposited	Time @ Temperature	Hardness After Tempering @		
			510°C (950°F)	565°C (1050°F)	620°C (1150°F)
HF-N	32 Rc	6 Hrs.	34 Rc	34 Rc	30 Rc
HF-N	32 Rc	10 Hrs.	35 Rc	33 Rc	27 Rc
HF-N	32 Rc	20 Hrs.	35 Rc	32 Rc	25 Rc

## Deposit Characteristics:

**DEPOSIT MICROSTRUCTURE:** Martensitic

**MAXIMUM DEPOSIT THICKNESS:** Unlimited

**MACHINABILITY:** Very good

**CUTTING:** Can be oxy-fuel cut

**MAGNETIC**



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For a complete list of diameters and packaging, please contact Hobart Brothers at +1 (800) 424-1543 for US customer service, or +1 (937) 332-5188 for international customer service.

### Standard Diameters & Packaging:

Package	3.2 mm (1/8")
227 kg (500 lb.) Auto-Pak	S616543-466

### Recommended Fluxes:

Package	HF-N
25 kg (55 lb.) Bag	S669810-Z55

### Typical Operating Parameters\*:

Diameter mm (Inches)	Optimum Amps	Volts	Nominal Travel Speed		Approximate Deposition Rate		CTWD	
			cm/min	(in/min)	kg/hr	(lbs/hr)	mm	(Inches)
3.2 (1/8)	400-450	26-28	36-46	(14-18)	7.3	(16.0)	32-38	(1 1/4 - 1 1/2)
3.2 (1/8)	450-500	27-30	36-46	(14-18)	9.1	(20.0)	32-38	(1 1/4 - 1 1/2)
3.2 (1/8)	500-550	29-32	36-46	(14-18)	10.9	(24.0)	32-38	(1 1/4 - 1 1/2)

- **Maintaining a proper welding procedure - including pre-heat and interpass temperatures - may be critical depending on the type and thickness of steel being welded.**
- **See Above:** Parameters are provided for informational purposes only. All values are approximate. The optimal amperage, voltage, and travel speed may vary depending on the material thickness, joint design, and other variables specific to the application. Likewise, actual deposition rate may vary depending on contact tip to work distance used.

**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](mailto:Applications.Engineering@hobartbrothers.com)

**\* 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 AWS specification(s) and/or standard industry practices. 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 constructed as a recommendation for any welding condition or technique not controlled by Hobart Brothers Company. Hobart Brothers Company 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, Hobart Brothers Company 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](http://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](http://www.hobartbrothers.com). Because Hobart Brothers Company is constantly improving products, Hobart reserves the right to change design and/or specifications without notice. Hobart and Tube-Alloy are registered trademarks of Hobart Brothers Company, Troy, Ohio.

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