

# FabCO<sup>®</sup> 81N1



AWS A5.29: E80T1-Ni1CJ H8, E80T1-Ni1MJ H8

**WELDING POSITIONS:**



**FEATURES:**

- Tubular wire deposit chemistry comparable to that of E8018-C3 stick electrodes
- Performance optimized for flat and horizontal welding
- Excellent low-temperature impact toughness
- “H8” low-hydrogen weld deposit
- Provides premium arc characteristics AND mechanical properties

**BENEFITS:**

- Suitable for similar applications to E8018-C3 electrodes, and capable of a large productivity improvement
- Improved operator appeal in flat and horizontal positions compared to all-position wires/electrodes
- Helps minimize risk of cracking in critical applications
- Helps minimize risk of hydrogen-induced cracking
- Assists maintaining high production without sacrificing weld integrity

**APPLICATIONS:**

- Single or multi-pass welding
- Heavy equipment
- High-Strength Low-Alloy steels
- Weathering steels
- Structural and bridge fabrication
- Storage and pressure vessels

**SLAG SYSTEM:** Slow-freezing, rutile type, flux-cored wire

**SHIELDING GAS:** 100% Carbon Dioxide (CO<sub>2</sub>), 75-80% Argon (Ar)/Balance Carbon Dioxide (CO<sub>2</sub>) 35-50 cfh, (17-24 l/min)

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

**STANDARD DIAMETERS:** 3/32” (2.4 mm)

**RE-DRYING:** Not recommended

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

**TYPICAL WELD METAL CHEMISTRY\* (Chem Pad):**

Weld Metal Analysis (%)	100% CO <sub>2</sub>	75% Ar/25% CO <sub>2</sub>	AWS Spec
Carbon (C)	0.05	0.06	0.012
Manganese (Mn)	1.08	1.40	1.50
Silicon (Si)	0.45	0.69	0.80
Phosphorus (P)	0.011	0.011	0.030
Sulphur (S)	0.009	0.009	0.030
Nickel (Ni)	1.03	1.03	0.80-1.10
Vanadium (V)	0.01	0.02	0.05

**Note:** AWS specification single values are maximums.

**TYPICAL DIFFUSIBLE HYDROGEN\*:**

Hydrogen Equipment	100% CO <sub>2</sub>	75% Ar/25% CO <sub>2</sub>	AWS Spec
(GAS CHROMATOGRAPHY)	4.7 ml/100g	5.0 ml/100g	8.0 ml/100g Maximum

**TYPICAL MECHANICAL PROPERTIES\* (As Welded):**

Mechanical Tests	100% CO <sub>2</sub>	75% Ar/25% CO <sub>2</sub>	AWS Spec
Tensile Strength	91,000 psi (627 MPa)	98,000 psi (676 MPa)	80,000-100,000 psi (550-690 MPa)
Yield Strength	81,000 psi (558 MPa)	87,000 psi (600 MPa)	68,000 psi (470 MPa) Minimum
Elongation % in 2” (50 mm)	26%	25%	19% Minimum

CVN Temperatures	100% CO <sub>2</sub>	75% Ar/25% CO <sub>2</sub>	AWS Spec
CVN @-20°F (-30°C)	38 ft•lbs (51 Joules)	38 ft•lbs (52 Joules)	20 ft•lbs (27 Joules) Minimum
CVN @-40°F (-40°C)	29 ft•lbs (39 Joules)	33 ft•lbs (45 Joules)	20 ft•lbs (27 Joules) Minimum “J” Requirement

\*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 A5.29 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.

# FabCO<sup>®</sup> 81N1

Diameter		Weld Position	Amps	Volts	Wire-Feed Speed		Deposition Rate		Contact Tip to Work Distance	
Inches	(mm)				in/min	(m/min)	lbs/hr	(kg/hr)	Inches	(mm)
3/32	(2.4)	Flat & Horizontal	400	27	130	(3.3)	10.8	(4.9)	1	(25)
3/32	(2.4)	Flat & Horizontal	425	28	150	(3.8)	12.6	(5.7)	1	(25)
3/32	(2.4)	Flat & Horizontal	465	29	175	(4.4)	14.4	(6.5)	1	(25)
3/32	(2.4)	Flat & Horizontal	525	30	225	(5.7)	19.7	(8.9)	1	(25)
3/32	(2.4)	Flat & Horizontal	650	33	300	(7.6)	25.9	(11.7)	1	(25)

- **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:** This information was determined by welding using 100% CO<sub>2</sub> shielding gas with a flow rate between 35-50 cfh (17-24 l/min). When using 75-80% Argon (Ar)/ Balance CO<sub>2</sub> shielding gases, reduce voltage by approximately 1 volt.

**STANDARD DIAMETERS AND PACKAGES:** 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. (27.2kg) Coil	600-lb. (272.2kg) Drum
Inches	(mm)		
3/32	(2.4)	S284229-002	S284229-018

#### CONFORMANCES AND APPROVALS:

- **AWS A5.20**, E80T1-Ni1CJ H8, E80T1-Ni1MJ H8
- **AWS A5.20M**, E550T1-Ni1CJ H8, E550T1-Ni1MJ H8
- **ASME SFA 5.20**, E80T1-Ni1CJ H8, E80T1-Ni1MJ H8
- **ABS**, 100% CO<sub>2</sub>, E80T1-Ni1CJ H8, (3/32" diameter electrodes)
- **CWB**, 100% CO<sub>2</sub>, E550T1-Ni1C-H8 (E80T1-NiC H8)

**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)

#### 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](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 LLC product may be obtained from Hobart Customer Service or at [www.hobartbrothers.com](http://www.hobartbrothers.com).

Because Hobart Brothers LLC is constantly improving products, Hobart reserves the right to change design and/or specifications without notice.

Hobart and FabCO are registered trademarks of Hobart Brothers LLC, Troy, Ohio.

**Revision Date: 221011** (Replaces 190823)

