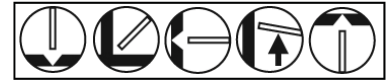


Formula XL[®] -8Ni1



AWS A5.29: E81T1-Ni1MJ H8

WELDING POSITIONS:



FEATURES:

- Excellent wetting characteristics
- Easy slag and spatter removal
- Low diffusible hydrogen
- High impact strengths at low temperatures
- Better deposition rates than E8018-C3 electrode

BENEFITS:

- Smooth weld beads with uniform fusion
- Reduces clean-up time, increases productivity
- Provides increased resistance to underbead cracking
- Resists cracking in severe applications
- Increases productivity, more parts per hour

APPLICATIONS:

- Ship and barge construction
- Earthmoving equipment
- Non-alloyed and fine grain steels
- High-strength low-alloy steels
- Pressure vessels
- Structural applications
- Piping
- Offshore

SLAG SYSTEM: Fast freezing, rutile type, flux-cored wire

SHIELDING GAS: 75-80% Argon (Ar)/Balance Carbon Dioxide (CO₂), 35-50 cfh (14-24 l/min)

TYPE OF CURRENT: Direct Current Electrode Positive (DCEP)

STANDARD DIAMETERS: 0.045" (1.2 mm), 1/16" (1.6 mm)

RE-DRYING: Not recommended

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

TYPICAL WELD METAL PROPERTIES* (Chem Pad):

Weld Metal Analysis	75% Ar/25% CO ₂	AWS Spec
Carbon (C)	0.08	0.12
Manganese (Mn)	1.35	1.50
Silicon (Si)	0.40	0.80
Phosphorus (P)	0.014	0.030
Sulphur (S)	0.011	0.030
Nickel (Ni)	1.06	0.80-1.10

Note: AWS specification single values are maximums.

TYPICAL DIFFUSIBLE HYDROGEN*:

Hydrogen Equipment	75% Ar/25% CO ₂	AWS Spec
(GAS CHROMATOGRAPHY)	4.4 ml/100g	8.0 ml/100g Maximum

TYPICAL MECHANICAL PROPERTIES* [Aged 48 hrs@200°F (93°C)]:

Mechanical Tests	75% Ar/25% CO ₂	AWS Spec
Tensile Strength	96,000 psi (662 MPa)	80,000 - 100,000 psi (550-690 MPa)
Yield Strength	86,000 psi (593 MPa)	68,000 psi (470 MPa) Minimum
Elongation % in 2" (50 mm)	24%	20% Minimum

TYPICAL CHARPY V-NOTCH IMPACT VALUES* (AS WELDED):

CVN Temperatures	75% Ar/25% CO ₂	AWS Spec
Avg. at -20°F (-30°C)	93 ft•lbs (126 Joules)	20 ft•lbs (27 Joules) Minimum
Avg. at -40°F (-40°C)	85 ft•lbs (115 Joules)	20 ft•lbs (27 Joules) Minimum "J" Requirement
Avg. at -60°F (-50°C)	63 ft•lbs (85 Joules)	Not specified

*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 are those obtained when welded and tested in accordance with 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 Company.

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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)
0.045	(1.2)	All Position	100	23	140	(3.6)	2.8	(1.3)	5/8	(16)
0.045	(1.2)	All Position	150	25	200	(5.1)	4.5	(2.0)	3/4	(19)
0.045	(1.2)	All Position	175	25	220	(5.6)	4.7	(2.1)	3/4	(19)
0.045	(1.2)	All Position	200	26	255	(6.5)	5.4	(2.5)	3/4	(19)
0.045	(1.2)	All Position	225	26	305	(7.7)	6.5	(2.9)	3/4	(19)
0.045	(1.2)	Flat & Horizontal	250	27	395	(10.0)	8.4	(3.8)	7/8	(22)
0.045	(1.2)	Flat & Horizontal	300	28	550	(14.0)	12.4	(5.6)	7/8	(22)
1/16	(1.6)	All Position	250	25	180	(4.6)	6.6	(3.0)	7/8	(22)
1/16	(1.6)	All Position	300	26	275	(7.0)	10.2	(4.6)	1	(25)
1/16	(1.6)	Flat & Horizontal	350	27	365	(9.3)	14.0	(6.4)	1	(25)
1/16	(1.6)	Flat & Horizontal	400	29	445	(11.3)	17.3	(7.9)	1	(25)
1/16	(1.6)	Flat & Horizontal	450	31	515	(13.3)	20.1	(9.1)	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 with 75% Ar/25% CO₂ shielding gas with a flow rate between 35-50 cfh (14-24 l/min).
- **All positions include:** Flat, Horizontal, Vertical Up, and Overhead.

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		15-lb. (6.8kg) Bulk Vacuum-Packed Spool	33-lb. (15kg) Spool	400-lb. (181.4kg) X-Pak
Inches	(mm)			
0.045	(1.2)	S245312-021	S245312-029	S245312-064
1/16	(1.6)	—	S245319-029	—

CONFORMANCES AND APPROVALS:

- AWS A5.29, E81T1-Ni1MJ H8
- AWS A5.29M, E551T1-Ni1MJ H8
- ASME SFA 5.29, E81T1-Ni1MJ H8
- ABS, 75% Ar/25% CO₂, 3YSA H10
- DNV, 75% Ar/25% CO₂, IV YMS

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, 550 NW LeJune Road, Miami, FL 33126; OSHA Safety and Health Standards 29 CFR 1910 is available from the U.S. Department of Labor, Washington, D.C. 20210

Material Safety Data Sheets on any Hobart Brothers Company product may be obtained from Hobart Customer Service or at www.hobartbrothers.com.

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

Formula XL is a registered trademark of Hobart Brothers Company, Troy, Ohio.

Revision Date: 111025 (Replaces 110616)
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