



TM-811N2

GAS-SHIELDED FLUX-CORED WIRE
AWS E81T1-Ni2CJ H8, E81T1-Ni2MJ H8

100629 (Replaces 100105)

TM-811N2 offers excellent arc stability and low spatter using CO₂ or Ar/CO₂ mixtures with up to 80% argon. These weldability features, combined with low diffusible hydrogen levels and good impact values, make the TM-811N2 a superior choice for shipbuilding, offshore drilling rigs, HSLA steels, and weathering steels where color match is not required. The wire is recommended for single-and multiple-pass welding in all positions using either CO₂ or Ar/CO₂ mixtures with up to 80% Ar.

PRODUCT CHARACTERISTICS:

- Superior welding characteristics in all positions.
- 2% nickel weld metal promotes good CVN impact properties.
- Can be used with either 100% CO₂ or 75-80% Ar/bal CO₂ shielding gas.
- Capable of being used to weld several HSLA steels.

SPECIFICATIONS:

E81T1-Ni2CJ H8, E81T1-Ni2MJ H8 per AWS A5.29, ASME SFA 5.29
 ABS Grade 3YSA
 Lloyd's Register of Shipping Grade 3S, 3YS H15
 DNV Grade III Y40MS
 CWB E81T1-Ni2C H8, E81T1-Ni2M H8

SHIELDING GAS:

100% CO₂, 75-80% Ar/bal CO₂, 35-50 cfh

WELDING POSITIONS:

All positions

STANDARD DIAMETERS:

.045", .052", 1/16"

WELD TEST PARAMETERS:

TM-811N2 1/16" diameter electrode was welded using a gas flow rate of 40 cfh, 275 amps (254 ipm), DCEP, and 26 volts with 3/4" electrical stickout and 300°± 25°F interpass temperature. A total of six layers were welded, two passes each for Layers 1 through 6. The direction of travel was reversed for each layer.

TYPICAL UNDILUTED WELD METAL CHEMISTRY*:

Shielding Gas	C	Mn	Si	P	S	Ni
100% CO ₂	0.04	1.02	0.29	0.010	0.007	2.09
75% Ar/25% CO ₂	0.05	1.26	0.44	0.010	0.007	2.07

TYPICAL MECHANICAL PROPERTIES*:

	100% CO ₂	75% Ar/25% CO ₂
Tensile Strength	87,100 psi (600 MPa)	96,000 psi (662 MPa)
Yield Strength	77,600 psi (535 MPa)	84,000 psi (579 MPa)
Elongation	27.5%	26%
CVN @ -40°F (-40°C)	93 ft•lbs (126 J)	77 ft•lbs (104 J)
CVN @ -60°F (-51°C)	70 ft•lbs (95 J)	52 ft•lbs (71 J)

*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 A5.29 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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RECOMMENDED OPERATING PARAMETERS:

The information below was determined by welding performed with 100% CO₂ shielding gas at a flow rate of 35 cfh.

Diameter, Electrical Stickout (ES) Position	Arc Voltage (volts)	Current DCEP (+) (amps)	Approx. Wire Feed Speed (in/min)	Deposition Rate (lbs/hr)
.045" 1/2" ± 3/4" Flat and Horizontal	22	100	130	2.7
	29	250	445	to
	30	300	590	12.2
Vertical and Overhead	22	100	130	2.7
	26	200	315	to
	29	250	445	9.3
.052" 1/2" to 3/4" Flat and Horizontal	22	100	95	2.4
	29	300	420	to
	31	350	520	15.3
Vertical and Overhead	24	100	95	2.4
	25	200	240	to
	27	250	310	7.8
1/16" 1/2" to 3/4" Flat and Horizontal	23	150	110	3.9
	29	350	355	to
	29	400	440	15.3
Vertical and Overhead	23	150	110	3.9
	25	225	180	to
	26	250	210	7.5

BOLD—Optimum parameters for welder appeal.

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.