Premium Welding Wire Technical Bulletin

TRU-CORE™ MC 80C-Ni1

AWS E80C-Ni1 H4

NATIONAL STANDARD

PRODUCT DESCRIPTION:

Tru-Core MC 80C-Ni1 is a low alloy steel, composite metal cored electrode for gas shielded arc welding low alloy, and certain carbon, steels requiring tensile strengths in excess of 80 ksi and good CVN values at temperatures as low as -50°F. This electrode is intended to be used with a shielding gas blend of 95-99% Argon/Balance Oxygen, but performs well with 75-95% Argon/Balance Carbon Dioxide as well. The MC 80C-Ni1 can be used in single and multiple pass applications, both in fillets and groove welds.

Metal Cored, Gas Shielded, Carbon Steel Electrode

PRODUCT FEATURES	
Excellent mechanical properties	Nearly slag free welds
Flat bead geometry	Smooth arc transfer
Easy clean-up	Excellent feedability
Good low-temperature CVN properties	Better sidewall fusion than solid electrodes

TYPICAL APPLICATIONS :

Tru-Core MC 80C-Ni1 is a good choice to weld steels from ¼" thickness up to heavy plates sections. Typical grades: ASTM A203 Grade A, ASTM A352 Grades LC1 and LC2, and Weathering steel such as ASTM A588. Some examples are:

- Power transmission poles
- Mining machinery
- Construction equipment
- Shipbuilding

MANUFACTURING ADVANTAGES:

- Patented, state of the art forming, powder feeding, and drawing equipment
- Laser sensors measure strip and powder feed parameters for precise fill percentage
- Extremely low diffusible hydrogen levels

TYPICAL APPLICATION SHIELDING GAS BLENDS:

- 95-99% Argon/Balance O_2
- 75-95% Argon/Balance CO_2
- Flow Rate: 35-45 CFH

WIRE DIAMETERS (in):

.045	.052	.062

CLASSIFICATIONS & APPROVALS:

- AWS A5.28: E80C-Ni1 H4
- ASME SFA 5.28: E80C-Ni1 H4

WELDING POSITIONS:

All position welding is possible when using the correct shielding gas blends, welding process and parameters.

	AWS/ASME REQ.	95% Ar / 5% O_2	75% Ar / 25% CO_2
TYPICAL WELD METAL COMPOSITION (WEIGHT %)			
CARBON (C)	0.12 (max.)	0.04	0.04
MANGANESE (Mn)	1.50 (max.)	1.48	1.41
SILICON (Si)	0.90 (max.)	0.43	0.40
SULPHUR (S)	0.030 (max.)	0.009	0.009
PHOSPHORUS (P)	0.025 (max.)	0.008	0.008
NICKEL (Ni)	0.80-1.10	0.90	0.94
MOLYBDENUM (Mo)	0.30 (max.)	0.14	0.14
VANADIUM (V)	0.03 (max.)	0.000	0.000
COPPER (Cu)	0.35 (max.)	0.05	0.05
TYPICAL MECHANICAL COMPOSITION			
TENSILE STRENGTH (ksi)	80 (min.)	86	83.2
YIELD STRENGTH (ksi)	68 (min.)	73.8	70.7
ELONGATION (% IN 2")	24 (min.)	29	32
CVN @ -50°F (-45°C)	20 (min.)	38.3 ft-lbf	35.7 ft-lbf
TYPICAL DIFFUSIBLE HYDROGEN – AWS A4.3 REQUIREMENTS			
ml /100g	4.0 (max.)	1.6	1.1

National Standard Customer Service | 1-800-777-1618
405-372-7954 (fax)

Premium Welding Wire Technical Bulletin

METAL CORED WELDING PARAMETERS

NS NATIONAL STANDARD

APPROXIMATE WELDING PARAMETERS: METAL CORED WIRE-FLAT AND HORIZONTAL POSITIONS

DIAMETER (in)	POLARITY	AMPERAGE		VOLTAGE		WIRE FEED SPEED (in/min)		CTWD (in)	SHIELDING GAS
		Min.	Max.	Min.	Max.	Min.	Max.		
.045	DCEP	120	340	17	30	190	520	5/8	75-90% Argon/Balance CO_2
.052	DCEP	145	360	17	30	175	475	5/8	75-90% Argon/Balance CO_2
1/16 (.062)	DCEP	190	485	17	30	150	450	3/4 - 1	75-90% Argon/Balance CO_2
1/16 (.062)	DCEP	345	550	21	31	150	250	1	75-90% Argon/Balance CO_2

PACKAGES
33-lb. Fiber Spool
50-lb. Fiber Spool
60-lb. Coil
500-lb. Drum Pack
500-lb. Smart Pak™ NS
600-lb. Drum Pack
600-lb. Smart Pak™ NS
600-lb. Wood Reel
600-lb. Tru-Trac® NS

Note: See "Premium Packaging Options" for full description of packages. For additional packages, please contact NS Customer Service at 1-800-777-1618.

NS *Exclusive to NS customers.*

DISCLAIMER:

The information contained or otherwise referenced herein is presented only in "typical" without guarantee or warranty, and National Standard expressly disclaims any liability incurred from any reliance thereon. Typical data are obtained when welded and tested in accordance with AWS specifications. 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 National Standard LLC.

For Material Safety Data Sheets (MSDS) and Certificates of Compliance, visit our website at www.nationalstandard.com

National Standard Customer Service | 1-800-777-1618
405-372-7954 (fax)