

# Certificate of Conformance

National Standard, LLC  
 1631 Lake Street  
 Niles, Michigan 49120

Product: **Tru-Core FC 71-TM**  
 Classification: **E71T-1C H4 , E71T-9C H4, E71T-12C H4**  
 Specification: **AWS A5.20, ASME SFA5.20**  
 Test completion date: **January 5, 2011**

This is to certify that the product named above and referenced on the sales invoice number is of the same classification, manufacturing process, and raw material requirements as the electrode (cored wire) which was used for the tests conducted on the date shown, the results of which are displayed below. All tests required by the specifications required for classification were performed at that time and the product tested met all requirements. The electrode (cored wire) was manufactured and supplied in accordance with the Quality System Program of RevWires, LLC, located in Troy, Ohio, U.S.A. This Quality System Program meets the requirements of ISO 9001 and ANSI/AWS 5.01.

Operating Parameters	AWS/ASME Requirements	Data and Test Results
Electrode Size (in.)	1/16	1/16
Polarity	DCEP	DCEP
Shielding Gas (per AWS A5.32)	CO <sub>2</sub>	CO <sub>2</sub>
Voltage (volts)		28
Wire Feed Speed (in/min)		272
Current (amps)	25-55	282
Average heat input (kJ/in)		38
Contact tip to work distance (in.)		¾
Passes/Layers		14/7
Preheat Temp. °F	RT	RT
Interpass Temp. °F	275-325	275-325

Test Assembly Material: ASTM A36  
 Radiographic Test: Conforms  
 Fillet Weld Test: Conforms  
 Tensile Condition: As Welded

### Mechanical Properties of the Weld Deposit (As-welded condition)

Tensile Strength (ksi)	70-90	84.3
Yield Strength, 0.2% offset (ksi)	58	75.8
% Elongation	22	30
Average CVN impact properties ft·lbf @0°F		
Average CVN impact properties ft·lbf @-20°F	20 avg	103,97,100,108,94 100 avg

### Chemical Composition of the Weld Deposit (Weight %)

Element	C	Mn	Si	P	S	Cr	Ni	Mo	V	Al	Cu
AWS/ASME Requirements	0.12 Max	1.60 Max	0.90 Max	0.03 Max	0.03 Max	0.20 Max	0.50 Max	0.30 Max	0.08 Max	N/A	0.35 Max
Results	0.04	1.36	0.36	0.007	0.009	0.04	0.42	0.001	0.02	N/A	0.06

### Diffusible Hydrogen Data:

AWS A4.3 Requirements (mL/100g) for Diffusible Hydrogen	4.0
Results (mL/100g)	3.4

*Michael T. Merlo*

Michael T. Merlo, Vice President, R&D

*1/6/11*

Date