



**NATIONAL STANDARD**

National Standard, LLC  
 3602 N. Perkins Road  
 Stillwater, OK 74075

**Certificate of Conformance**

Product: **Tru-Core FC 71T-12MJ**  
 Classification: **E71T-12MJ H8**  
 Specification: **AWS A5.20, ASME SFA 5.20, E491T-12M-H8**  
 Test completion date: **May 4, 2017**  
 MO Number: **555-1WB**

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 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 the product tested met all requirements. The Electrode was manufactured and supplied in accordance with the Quality System Program of National Standard Company, located in Stillwater, Oklahoma, U.S.A. This Quality System Program meets the requirements of ISO 9001:2008, ANSI/AWS 5.01, AWS A5.20, and ASME SFA 5.20.

Operating Parameters	AWS/ASME Requirements	Data and Test Results
Electrode Size (in.)	.045"	.045"
Polarity	DCEP	DCEP
Shielding Gas (per AWS A5.32)	75-80% Ar/ Balance CO <sub>2</sub>	75% Ar/ Balance CO <sub>2</sub>
Voltage (volts)	--	28.6
Wire Feed Speed (in/min)	--	484.9
Current (amps)	--	235.2
Average heat input (kJ/in)	--	42.0
Contact tip to work distance (in.)	--	.625"
Passes/Layers	--	12/6
Preheat Temp. °F	RT	70
Interpass Temp. °F	275-325	275-325

Test Assembly Material:	ASTM A36
Radiographic Test:	Conforms
Fillet Weld Test:	Conforms
Tensile Condition:	Aged 48 hr at 210°F
Radiograph:	Pass

**General Note:**  
 Mechanical and/or Chemical testing were conducted in accordance with the following standard test procedure: ASTM A370/E23, ASTM E8. The attached results should not be assumed to be the expected results in a particular application. Results will differ depending on many factors, such as temperature, weld procedure, plate chemistry, welding method, and fabrication. It is advised to users to confirm by qualification testing the suitability of any welding before use in their applications.

Mechanical Properties of the Weld Deposit (As-welded condition)		
Tensile Strength (ksi)	70-90	92.3
Yield Strength, 0.2% offset (ksi)	58 min	82.6
% Elongation	22 min	28
Average CVN impact properties ft·lbf @ -20°F	20	47.0 ft·lbf average @ -40°F

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	0.030 Max	0.030 Max	0.20 Max	0.5	0.30 Max	0.08 Max	-----	0.35 Max
Results	.057	1.53	.40	.006	.011	.057	.439	.009	.022	.003	.053

**Diffusible Hydrogen Data:**

AWS A4.3 Requirements (mL/100g) for Diffusible Hydrogen	8
Average Diffusible Hydrogen Result (mL/100g)	6.8

*Sarang Muley*

Sarang Muley, Process Engineer

Date 5/26/17