



NATIONAL STANDARD

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

Product: **Tru-Core MC 70C**
Classification: **E70C-6M H4, E492C-6M-H4**
Specification: **AWS A5.18, ASME SFA 5.18, CSA W48-2014**
Test completion date: **August 17, 2016**
MO Number: **495-1 MS**

Certificate of Conformance

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 the 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, AWS A5.18/ASME SFA5.18 and CWB. The steel was melted and manufactured in the U.S.A.

Operating Parameters	AWS/ASME Requirements	Data and Test Results
Electrode Size (in.)	.045"	.062"
Polarity	DCEP	DCEP
Shielding Gas	-	95% Argon/5% CO ₂
Voltage (volts)	N/A	28.6
Wire Feed Speed (in/min)	N/A	215.8
Travel Speed (in/min)	N/A	12.2
Current (amps)	N/A	292.9
Average heat input (kJ/in)	N/A	41.3 Average
Contact tip to work distance (in.)	N/A	0.625"
Passes/Layers	N/A	12/6
Preheat Temp. °F	60°F Min.	70°F
Interpass Temp. °F	300+/-25	300+/-25

Test Assembly Material:	ASTM A36
Radiographic Test:	Acceptable
Fillet Weld Test:	N/A
Tensile Condition:	OD .499", Aged at 482°F up to 16 hr

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

Tensile Strength (ksi)	70 min	90.5
Yield Strength, 0.2% offset (ksi)	58 min	79.5
% Elongation in 2 inches	22 min	31
%ROA	N/A	67
Average CVN impact properties (ft.lbf @ -20°F)	20 min	118.1

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.	1.75 Max.	0.90 Max.	0.03 Max.	0.03 Max.	0.20 Max.	0.50 Max.	0.30 Max.	0.08 Max.	N/A	0.50 Max.
Results	.038	1.515	.727	.007	.012	.054	.021	.011	.000	.011	0.061

Diffusible Hydrogen Data:

AWS A4.3 Requirements (mL/100g) for Diffusible Hydrogen	4
Average Diffusible Hydrogen Result (mL/100g)	3.97

Sarang Muley

Sarang Muley, Process Engineer

Date 8/17/16