

INTERMODAL MATERIÉL  
AND  
NAUTICAL/NUCLEAR ANALYSIS  
**IMANNA**  
LABORATORY INC.

# CERTIFICATION TEST REPORT

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TEST REPORT  
20937-1  
MECHANICAL STRENGTH TESTS  
OF  
6" COMBO - CLEAT / ROD HOLDER  
FOR  
ACCON MARINE, INC.

**CUSTOMER:**

ACCON MARINE, INC.  
13665 AUTOMOBILE BLVD.  
CLEARWATER, FL 33762

**MANUFACTURER  
OF TEST ARTICLE:** ACCON MARINE, INC.  
CLEARWATER, FL

**REPORT NO.:** 20937-1  
**IMANNA JOB NO.:** 20937  
**CUSTOMER P.O. NO.:** 1397-17  
**CONTRACT:** N/A  
**PAGES IN REPORT:** 10

**DATE:** Dec. 1, 2017

STATE OF FLORIDA  
COUNTY OF BREVARD

Chris Storm, being duly sworn, deposes and says: The information contained in this report is the result of complete and carefully conducted tests and is to the best of his knowledge true and correct in all respects.

Debbie Lou Kiss  
SUBSCRIBED and sworn to before me this 1st day of December, 2017

Chris Storm



Debbie Lou Kiss  
State of Florida  
My Commission Expires 08/30/2018  
Commission No. FF 08471

IMANNA shall have no liability for damages of any kind to person or property, including special or consequential damages resulting from IMANNA's providing the service covered by the report.

IMANNA LABORATORY, Inc.  
TEST BY Robert White  
MANAGER

1. TEST ARTICLE

Three sample of three stainless (316) steel combo cleat - rod holders were received for test from Accon Marine. The samples differed one from another in the degrees of angle associated with the rod holder portion of the assembly. The samples received had 0°, 15°, and 30° rod holder angles.

2. MODEL / DESCRIPTION

Combo - Cleat / Rod Holder 6"

3. REQUIREMENTS

The requirements for this effort are to perform mechanical strength tests on the received samples. The test is to be continued until the breaking strength of the cleats has been determined. Testing was conducted perpendicular to the cleat mounting surface as the cleat is mounted to a boat deck.

4. PROCEDURES

Each cleat was mounted to a 1/4" thick steel channel in the manner it would be mounted on a boat. The cleats were subjected to an increasing side load (perpendicular to mount) to determine the point of ultimate load capability in the direction of pull.

5. RESULTS

The following table contains the values obtained during the tests. In both tests conducted on the assemblies with the 30° and 15° rod holder angles the fasteners broke. The tests conducted on the assembly 0° rod holder angle the cleat horn was pulled away from the assembly leaving the cleat body attached to the test fixture.

<b>6" cleats / perpendicular loading</b>		
<b>SAMPLE #</b>	<b>MAX LOAD (lbs)</b>	<b>FAILURE MODE</b>
1 (30°)	9,915	fasteners
2 (30°)	10,105	fasteners
3 (30°)	9,795	fasteners
4 (15°)	12,745	fasteners
5 (15°)	13,350	fasteners
6 (15°)	10,345	fasteners
7 (0°)	12,130	horn pulled from cleat body
8 (0°)	12,260	horn pulled from cleat body
9 (0°)	11,735	horn pulled from cleat body



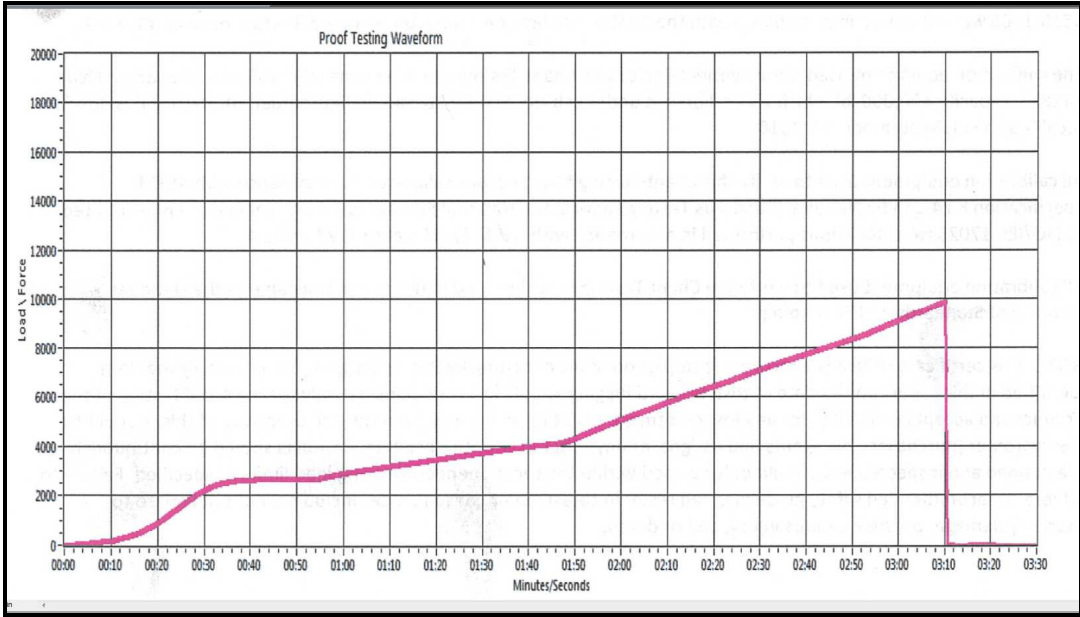
**Views of the typical cleat samples following the tests.**

6. OBSERVATIONS AND COMMENTS

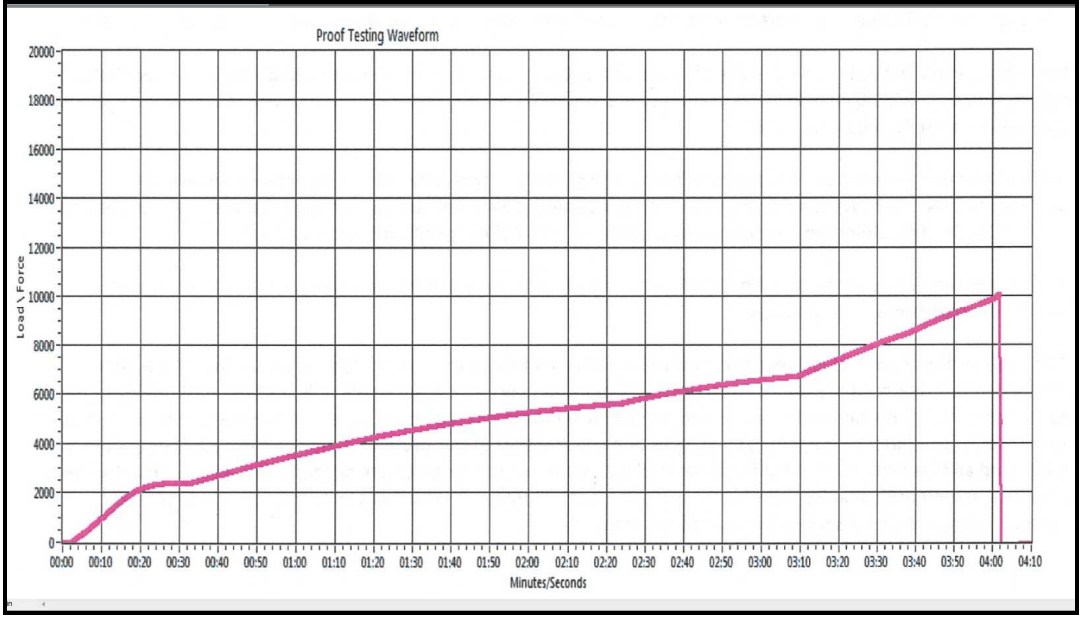
The results presented herein apply only to the test specimen as prepared and as tested on the date reported. All equipment used in the performance of these tests was calibrated to standards traceable to the N.I.S.T and/or verified at the time of the test using internationally recognized methods to validate the accuracy and repeatability of the values recorded or collected during the tests. A photo of the cleats following the tests and plots of each test are appended.

# **Appendix**

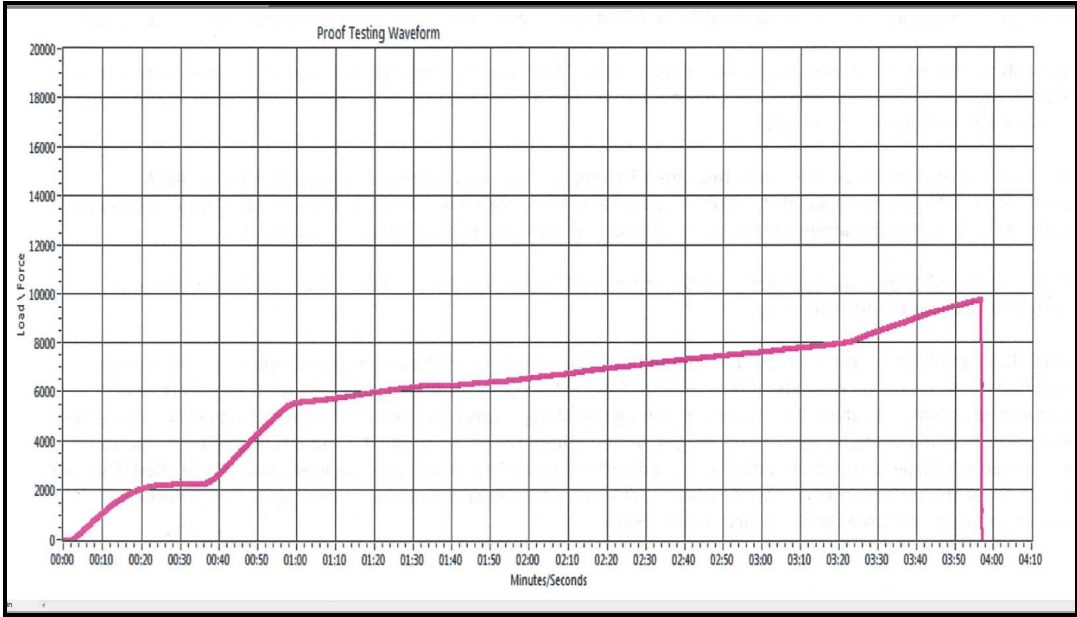
# **Supporting Data**



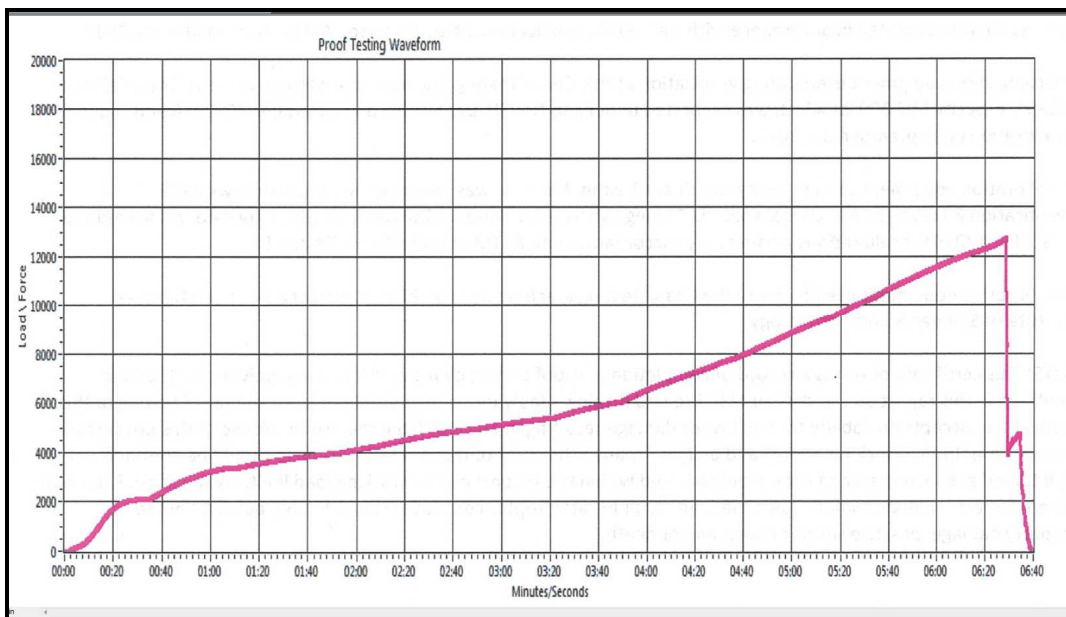
Sample #1 - Accon 30°



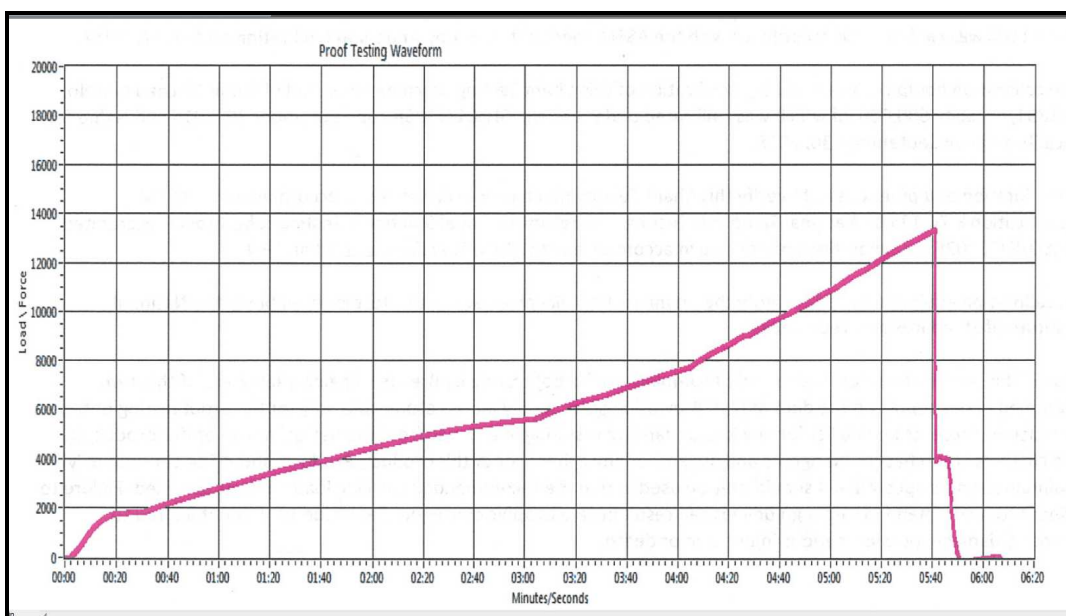
Sample #2 Accon 30°



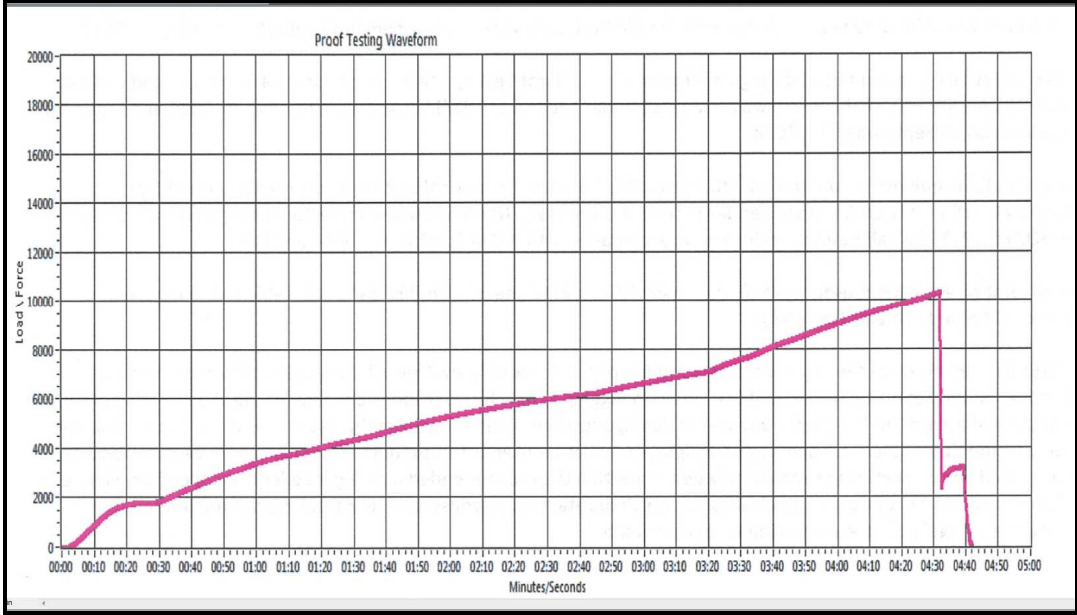
Sample #3 Accon 30°



Sample #4 Accon 15°

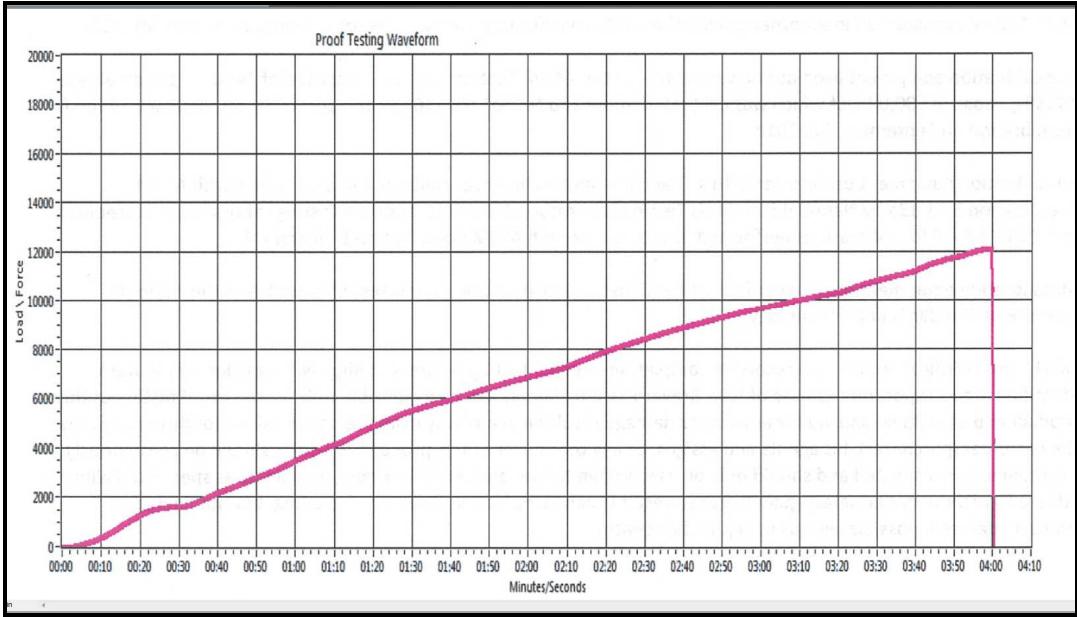


Sample #5 Accon 15°

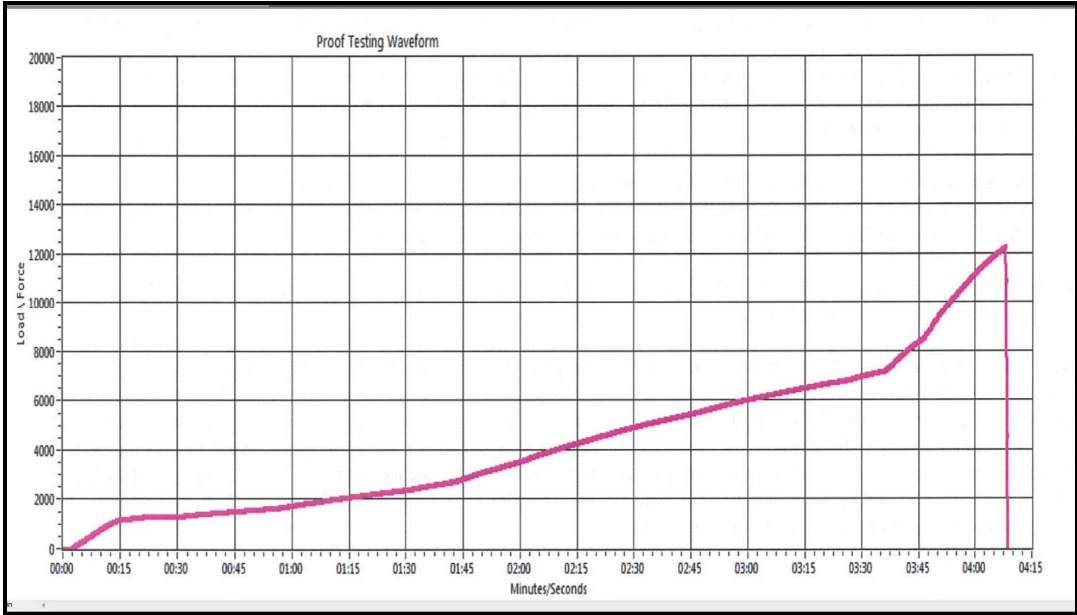


Sample #6 Accon 15°

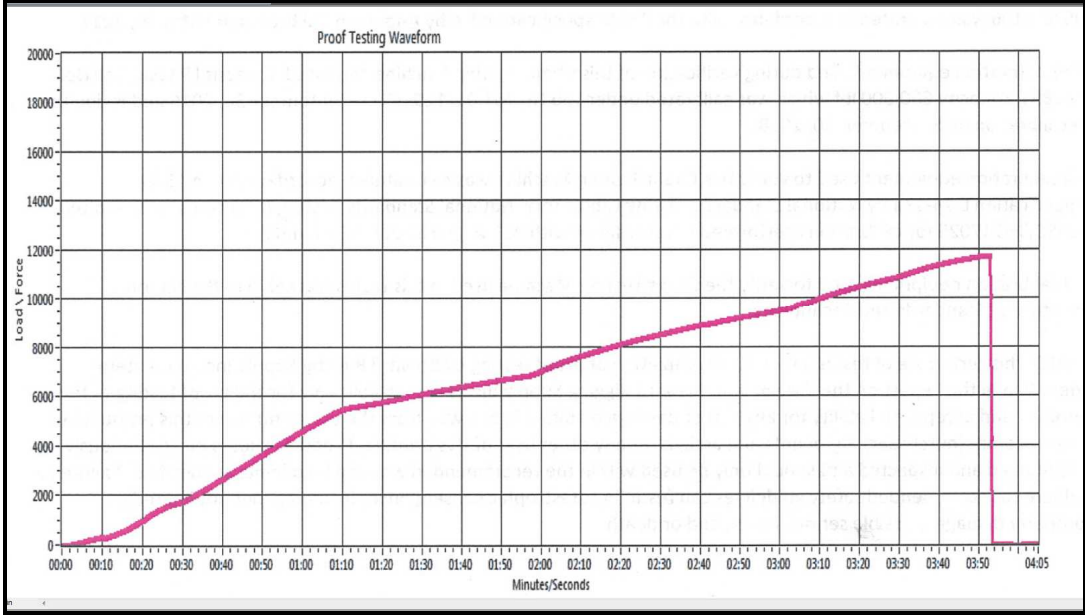




Sample #7 Accon 0°



Sample #8 Accon 0°



Sample #9 Accon 0°