



INTERMODAL MATERIÉL
AND
NAUTICAL/NUCLEAR ANALYSIS
IMANNA
LABORATORY INC.

CERTIFICATION TEST REPORT

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TEST REPORT
16634-1
MECHANICAL STRENGTH TESTS
ON
SURFACE MOUNT FOLDING CLEATS
WITH VISIBLE SCREW HOLES
FOR
ACCON MARINE, INC.

CUSTOMER:

ACCON MARINE, INC.
13665 AUTOMOBILE BLVD.
CLEARWATER, FL 34622

MANUFACTURER
OF TEST ARTICLE: ACCON MARINE, INC.
CLEARWATER, FL 34622

REPORT NO.: 16634-1
IMANNA JOB NO.: 16634
CUSTOMER P.O. NO.: N/A
CONTRACT: N/A
PAGES IN REPORT: 3

DATE: Oct. 11, 2004

STATE OF FLORIDA

ROBERT L. WHITE, 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.

Robert L. White

SUBSCRIBED and sworn to before me this 11th day of October, 2004

David H. Hudgins



David H. Hudgins
Commission # DD 010632
Expires May 3, 2008
Bonded Thru
Atlantic Bonding Co., Inc.

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
Mark A. Evans
PROJ. ENGINEER

1. TEST ARTICLE

Three samples of two of Accon Marine's stainless steel Surface Mount Folding Cleats were received for test.

2. MODEL NUMBER / DESCRIPTION

333 – 4 4 ½" Folding Cleat with visible screw holes
333 – 6 6" Folding Cleat with visible screw holes

3. REQUIREMENTS

The requirements for this effort are to perform side pull tests on the received samples. The test is to be continued until the breaking strength of the cleats has been determined.

4. PROCEDURES

Each cleat was mounted to a ¼" thick steel plate in the manner it would be mounted on a boat. The cleats were then subjected to an increasing side load to determine the point of significant bending and/or ultimate load capability (whichever occurs first) in the direction of pull. No mounting hardware is supplied with the cleats. IMANNA purchased .25/20 stainless bolts for the 4 ½" sized cleats and .375/16 stainless bolts for the 6" sized cleats for the purpose of the tests. These size bolts represented the largest bolts that could be accommodated by the existing holes in the cleats.

5. RESULTS

The following table contains the values obtained during the tests. In addition to the failures each of the tested samples also experienced some deformation as a result of the tests.

4 ½" Cleats		
SAMPLE #	MAX LOAD (lbs)	FAILURE MODE
1	4,000	MOUNTING BOLTS BROKE
2	3,700	MOUNTING BOLTS BROKE
3	3,600	MOUNTING BOLTS BROKE
AVERAGE	3,766	
6" Cleats		
SAMPLE #	MAX LOAD (lbs)	FAILURE MODE
1	9,450	MOUNTING BOLTS BROKE
2	9,150	MOUNTING BOLTS BROKE
3	9,250	MOUNTING BOLTS BROKE
AVERAGE	9,283	



Figure 1. 4 1/2" Folding Cleat; typical failure mode (mounting bolt failure).



Figure 2. 6" Folding Cleat; typical failure mode (mounting bolt failure).



Figure 3. typical deformation experienced during tests

6. OBSERVATIONS AND COMMENTS

The results presented herein apply only to the test article as prepared and as tested. All equipment used in the performance of these tests was calibrated to standards traceable to the N.I.S.T.