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QUALITY ASSURANCE SPECIFICATIONS™

SFI SPECIFICATION 37.1

EFFECTIVE: OCTOBER 11, 2006*

PRODUCT: Roll Cage Nets

1.0 GENERAL INFORMATION

- 1.1 This SFI Specification establishes uniform test procedures and minimum standards for evaluating and determining performance capabilities for Roll Cage Nets used by individuals engaged in competitive motorsports.
- 1.2 The procedures, test evaluations and standards contained herein, are intended only as minimum guidelines for construction and evaluation of products. Certification that products meet such minimum standards is made by the product manufacturer and products are not certified, endorsed or approved by SFI under this program.
- 1.3 Use of the "This Manufacturer Certifies That This Product Meets SFI Specification 37.1" logo/designation, the authorized artwork style, or conventional lettering by a manufacturer, on a subject product, is intended only to indicate that the manufacturer of the product has represented that they have submitted the product to the recommended tests, with positive results, in compliance with the standards established herein.
- 1.4 This SFI Specification requires a demonstration that the product of a manufacturer meets or exceeds the requirements when the manufacturer enters the program; and on a periodic basis thereafter. Any manufacturer may participate in the program by providing Roll Cage Nets that meet or exceed the SFI Specification 37.1 test standards, by complying with the requirements of the SFI Specification 37.1 program, and by signing a licensing agreement with the SFI Foundation, Inc.

- 1.5 Compliance with this specification is entirely voluntary. However, when a manufacturer provides Roll Cage Nets in compliance with all requirements of the SFI Specification 37.1 and enters into the licensing agreement with the SFI Foundation, Inc., they may certify that compliance with such standards is in accordance with the guidelines established herein.
- 1.6 Manufacturers wishing to participate in the program, in addition to the other requirements of this specification, must label each of their products with the manufacturer's name, trademark or symbol as well as the date of manufacture of the product.
- 1.7 No manufacturer may display the SFI logo/designation on their product unless the manufacturer has signed a licensing agreement with SFI and has successfully complied with all the requirements of this specification and the self-certification program.

2.0 DEFINITIONS

- 2.1 Roll Cage Nets are triangular in configuration and are used to assist in the containment of the occupant's head within an open roll cage vehicle during unusual attitude conditions. They may be required in motorsports applications on one or both sides of the driver.
- 2.2 Roll Cage Nets shall be attached at the narrow point of the triangle by a quick-release mechanism capable of completely opening under load. Each of the wide ends of the triangle shall be capable of mounting in both the vertical and horizontal plane. The top and bottom vertical straps if used are to determine location only. All attachment points must be fixed and prevent any movement.
- 2.3 The webbing is the inner portion of the Roll Cage Net that is connected to the outer borders.
- 2.4 The useful life of the Roll Cage Net shall not exceed two years and must be replaced at or before that time.
- 2.5 Any Roll Cage Net pertaining to this specification shall remain as constructed by the original manufacturer and not modified.

3.0 CONSTRUCTION

The Roll Cage Net can be made of various materials. The requirements, beside passing the tests herein, are those of functionality. Adequate driver visibility, ease of mounting and removal are all desirable features.

4.0 MODEL CLASSIFICATION

Roll Cage Net models are primarily based on materials, method of manufacture and webbing pattern dimensions. Any change of these factors constitutes a model change.

5.0 TESTING

Test samples shall be fully processed new nets which are representative of nets currently produced or to be produced. If mounting hardware and/or mounting instructions are included with the net, they shall also be supplied.

5.1 RAPID IMPACT RESISTANCE

5.1.1 SAMPLES

Three samples shall be tested. If one sample fails, a fourth one shall be tested.

5.1.2 APPARATUS

A. FIXTURE

The fixture shall simulate the open portion of the roll cage that the roll cage net is to cover except that the net shall be mounted in the horizontal plane. The mounting shall also simulate that of an actual vehicle. The net shall be secured at each of the three corners or by the five attachment points if locator straps are used. Manufacturer supplied mounting hardware or mounting instructions shall be used to mount the net to the fixture.

B. IMPACT BAG

The impact bag shall be made of leather and/or any other heavy weight material. If the bag penetrates the net, the material shall not rip (heavy cotton canvas has proven unsuitable for this purpose). The bag shall be 10.00 \pm 0.25 inches (254 \pm 6 mm) in diameter at the bottom impact side, and shall be long enough to allow 175 lb (778.4 N) of "OO" or smaller lead shot pellets to be placed inside the bag. The opening shall be capable of being closed off tightly to prevent spillage of the shot during testing.

5.1.3 PROCEDURE

Drop the impact bag from a height of 33.5 -0/+0.5 inches (851 -0/+13 mm) directly over the geometric center of the webbing openings. The bag shall be allowed to fall freely without interference.

5.1.4 INSPECTION

Inspect the net for failure of the inner cross-section joints and separation of the webbing from the net border.

5.2 QUICK RELEASE OPERATION STRENGTH

5.2.1 SAMPLES

One sample of each roll cage net quick release attachment method shall be tested.

5.2.2 APPARATUS

A standard tensile test machine or equivalent shall be used. The mounting of each end of the roll cage net shall be as similar as possible to that which is actually used for the configuration being tested. The entire assembly shall be in axial alignment with the heads of the testing machine.

5.2.3 PROCEDURE

The roll cage net shall be mounted in a standard test machine. The head of the test machine shall separate at the maximum rate of four ipm (10 cmpm) under no load. The test load shall be 200 lb.

5.3 QUICK RELEASE BREAKING STRENGTH

5.3.1 SAMPLES

One sample of each roll cage net quick release attachment method shall be tested.

5.3.2 APPARATUS

A standard tensile test machine or equivalent shall be used. The quick release attachment device shall be tested (not the entire roll cage net), with webbing straps used to mount the device in the test machine. The assembly shall be in axial alignment with the heads of the testing machine.

5.3.3 PROCEDURE

The quick release attachment device and straps shall be mounted in a standard tensile test machine. The head of the test machine shall separate at the maximum rate of four ipm (10 cmpm) under no load. Continue load application until failure occurs and record the load at break as well as mode of failure.

6.0 PROOF OF COMPLIANCE

Roll Cage Net manufacturers are required to provide the following information to enroll in this program:

6.1 TEST RESULTS

Test results shall be documented in a test report.

6.1.1 RAPID IMPACT RESISTANCE

Three out of four nets shall be required to pass this test. Failure of a net constitutes any of the following conditions:

- A. The impact bag passes through the net.
- B. More than 50 percent of the inner cross-section webbing joints pull apart.
- C. 50 percent or more of the webbing ends separate from the border of the net.

6.1.2 QUICK RELEASE OPERATION STRENGTH

Each assembly shall endure the test load without breakage or failure. The components shall have no permanent deformation which will result in malfunctioning of the quick release assembly. The assembly must demonstrate the capability to release with a maximum 75 pound force while sustaining the test load outlined in paragraph 5.2.3.

6.1.3 QUICK RELEASE BREAKING STRENGTH

The breaking strength of the quick release attachment device sample tested per paragraph 5.3.3 shall be greater than or equal to 1,000 lbs. Test results shall be considered acceptable if webbing failure occurs at 1,000 lbs. or more and the quick release attachment device is still intact.

7.0 TEST REPORTS

A separate test report, or set of test reports if required, shall be submitted for each product model. If more than one test facility is required to complete all necessary tests, then a separate test report shall be submitted from each one. A test report shall be submitted for each component, if tested separately. The test facility shall assign a unique number to each test report. This number along with the report date and page number shall appear on each page. Each test report shall include:

7.1 RELEVANT INFORMATION

- 7.1.1 Manufacturer's name, contact name, address and telephone number.
- 7.1.2 Name, address and telephone number of the test facility.
- 7.1.3 Name and signature of the responsible test supervisor.
- 7.1.4 Actual date of the test.
- 7.1.5 Specification number and effective date.
- 7.1.6 Product name, description and model designation.
- 7.1.7 Component name and description.
- 7.1.8 Photograph of the submitted net.

7.2 TESTS

Each test conducted shall be listed showing the test name, apparatus used, procedure used and test results obtained along with any other appropriate information.

7.3 AUTHENTICATION

Test reports shall be authenticated and stamped by a Professional Engineer who is registered in the state in which the testing is conducted. If necessary, SFI may allow an equivalent entity to provide authentication.

8.0 INITIAL DESIGN VALIDATION

To receive initial recognition from SFI as a participant in the SFI Specification 37.1 Program, the manufacturer must submit to SFI all information delineated in the Proof of Compliance section. This information shall be provided for each Roll Cage Net model offered by the applicant that is to be included in the program. Any change in design,

materials and/or methods of manufacturing not specifically excluded is considered a model change and, therefore, requires initial design validation.

9.0 PERIODIC REVALIDATION

Test reports with successful test results must be submitted to SFI at least once every 24 month period following the date of the initial design validation test for each model of Roll Cage Net manufactured by the participant. If multiple test reports are required to obtain all test results, then the earliest test date shall be used to determine when the periodic revalidation reports are due. Also, SFI shall retain the option to conduct random audit reviews. SFI shall purchase the product on a commercial basis and test for compliance to the specification. The submitting manufacturer shall reimburse SFI for all audit costs.

10.0 CERTIFICATION OF COMPLIANCE

Upon demonstration of successful compliance with all the requirements of the specification and the self-certification program and upon entering the licensing agreement with SFI, the manufacturer may advertise, present and offer the Roll Cage Nets for sale with the representation that their product meets the SFI Specification 37.1. Continuing certification is contingent upon the following additional considerations: (1) the product shall be resubmitted for testing following any change in design, materials and/or methods of manufacturing not specifically excluded, and (2) periodic revalidation test reports are submitted when due to SFI.

11.0 CONFORMANCE LABELS

The conformance label is a patch which shall be sewed to the outer surface of the net (the surface facing the exterior of the vehicle). The patch issued by SFI is preprinted to indicate the month and year of certification expiration per Paragraph 2.4 of this specification.

12.0 DECERTIFICATION

Participating manufacturers are subject to decertification when not in compliance with the requirements of this program or when their products are not in compliance with the requirements of this specification. Decertification will provide SFI the right to effect any and all remedies which are available to SFI in the licensing agreement.

13.0 APPEAL PROCEDURE

In the event of decertification, the manufacturer is entitled to an appeal of the decision of SFI. Requests for appeal must be received by SFI no later than thirty days following receipt of the notice of decertification. Appeals of such decisions will be heard at the next meeting of the Board of Directors of SFI.

14.0 STATEMENT OF LIMITATIONS

Testing procedures and/or standards contained in this specification are intended for use only as a guide in determining compliance with the minimum performance requirements as defined herein. The granting and assignment of the "This Manufacturer Certifies That This Product Meets SFI Specification 37.1" logo/designation is in no way an endorsement or certification of product performance or reliability by SFI. SFI, its officers, directors and/or members assume no responsibility, legal or otherwise, for failure or malfunctions of a product under this program.

15.0 COSTS

All costs involved in this program will be absorbed by the submitting manufacturer.

16.0 COMPLIANCE PERIOD

As this specification is revised to reflect changes in technology and/or field conditions, to remain current, participating manufacturers in the SFI Specification 37.1, Roll Cage Net, Program, must demonstrate full compliance with the requirements of this specification within ninety (90) days of the latest effective date.

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