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FRONTLINE FALL PROTECTION INC

TEST REPORT

SCOPE OF WORKs
ANSI Z359.18 – 2017 Safety Requirements for Anchorage Connectors for Active Fall Protection Systems

REPORT NUMBER
106000679CRT-002

ORIGINAL REPORT NUMBER
105220244CRT-001

ISSUE DATE
October 31, 2024

PAGES
10

DOCUMENT CONTROL NUMBER
GFT-OP-10a (6-March-2017)

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TEST REPORT FOR FRONTLINE FALL PROTECTION INC
Report No.: 106000679CRT-002
Date: October 31, 2024

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Frontline Fall Protection Inc
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Report Number..... : 106000679CRT-002

Signed Quote Number..... : Qu-01489705

PO Number..... N/A

Name of Testing Laboratory
Preparing the Report ..... : Intertek Testing Services NA Inc.

Test Specification:

Standard..... : ANSI/ASSP Z359.18-2017

Date(s) of Testing..... : 10/09/2022-10/12/2022

Product Description:

Product Type: ..... : Roof Anchor

Brand Name: ..... : Frontline Fall Protection

Model Number(s): ..... : ROCH01

Model Sharing .....: N/A

Date(s) Samples Received ..... : 9/30/2022

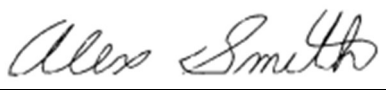
SECTION 1

SUMMARY OF TESTING

TESTS COMPLETED	ANSI/ASSP Z359.18-2017 CLAUSE	STATUS
Design Requirements	3	PASS
Static Strength Test (Per loading direction)	4.2.1.1	PASS
Conditioning (pre dynamic strength)-Non Textile Abrasion	4.2.2.1.2	PASS
Dynamic Strength Test-Type A	4.2.2.1.4	PASS
Residual Dynamic Strength- Type A	4.2.3.1	PASS
Marking And Instructions	5	PASS

SECTION 2

This test report concludes the work anticipated in the testing phase of your project. If there are any questions regarding this report please contact the undersigned at 607-753-6711.

COMPLETED BY:	Alex Smith	**REVIEWED BY:**	Matthew Stevens
TITLE:	Technician	**TITLE:**	Team Leader
SIGNATURE:		**SIGNATURE**	
DATE	10/31/2024	**DATE:**	10/31/2024

Please see attached test data for details.

SECTION 3
TESTING EQUIPMENT CALIBRATION INFORMATION

USED FOR TEST	DESCRIPTION	MANUFACTURER	CONTROL NO.	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE
X	Load Cell	Interface	L099	-	-	11/11/21	11/11/22
X	Load Cell	Interface	G119	-	-	5/25/22	5/25/23
X	Tape Measure	Stanley	N1407	-	-	2/16/22	2/16/23

SECTION 3
SUPPLEMENTAL TEST DATA

SECTION (TEST)	REQUIREMENT	RESULTS	COMPLIANCE
3	Design Requirements		**PASS**
3.1.1	Connection points shall meet the following requirements: A) A connection point shall support only one user or system at a time.		**PASS**
	B) A connection point eye on a type T anchorage connector shall be closed eye with a minimum 1" inside radius.		**NA**
	C) Except for cinching anchorage connectors, anchorage connectors shall not have closed loops that are not intended for, or could be mistaken for, a connection point.		**PASS**
	D) Anchorage connectors that include an operable gate, rings, buckle, adjuster or other hardware covered by ANSI Z359.12 shall use hardware that compiles with the requirements of that standard.		**PASS**
	E) Multiple connection points shall only be permitted on tripod and davit style anchorage connectors.		**PASS**
3.1.2	Anchorage connector surfaces that can come in contact with other components shall be free of burrs, pits, sharp corners and roughness that could accelerate cutting or abrading of the components.		**PASS**
3.1.3.1	Corrosion Resistance: all hot-dip galvanized steel shall conform with ASTM A123/A123M, standard specification for Zinc (hot-dip galvanized) Coatings on iron and steel products.		**PASS**
3.1.3.2.1	Type A and Type T: load bearing metallic materials used in the anchorage connectors shall maintain adequate toughness at temperatures between -30 degrees F (-34C) and +130 degrees F (+54C) or be engineered to account for the reduced toughness at low temperatures. Metallic components that have been tested and certified as meeting ANSI Z359.12 are deemed to comply with this section.		**PASS**
3.1.3.2.2	Type D anchorage connectors shall be clearly labeled with a minimum service temperature of -10 degrees F (-23 C) if load bearing parts are made of materials specified in sections 3.1.3.2.2		**NA**
3.1.3.2.3	Where a type D anchorage connector is allowed to be used in temperatures below -10 degrees F (-23 C), a qualified person shall verify the anchorage connector will perform as specified per the manufacturers instructions.		**NA**
3.1.3.3	Finishes: hardware finishes shall be clean and free of scale, rust and deposits of foreign material other than applied protective coatings.		**PASS**
3.1.3.4	Welded Assembly: When components are welded, the welding shall meet ANSI/AWS D1.1 for steel, ANSI/AWS D1.2 for aluminum and ANSI/AWS D1.6 for stainless steel.		**PASS**

SECTION (TEST)	REQUIREMENT	RESULTS	COMPLIANCE
3.1.3.5	Fasteners: Manufacturer shall provide or specify fasteners for connecting an anchorage connector to an anchorage in its intended application. Information must be included in the user instructions.		**PASS**
3.1.4.1	Textiles shall not contain natural fibers, and shall be made of pure non-recycled synthetic material, having strength, aging, abrasion and heat resistance characteristics equivalent or superior to polyamide or polyester and shall be marked with any restrictions.		**PASS**
3.1.4.2	Stitching/Cutting: If a subsystem uses stitching for connection of load bearing components it shall meet the following requirements: A) Use lock stitching B) Secure the end of threads by backstitching, overlapping stitching or other methods. C) Threads used for sewing shall be physically compatible with the webbing and of a quality comparable to that of the webbing. D) Hot-cut or fuse thermoplastic materials, cord, tape and webbing to prevent fraying. E) The tread color or shade shall contrast with that of the webbing to facilitate visual inspection.		**PASS**
3.1.5.1	Other load bearing materials used in anchorage connectors shall meet the performance requirements of ANSI Z359.18-2017.		**PASS**
3.1.5.2	Integrally connected components to which another standard in the ANSI Z359 series exists shall meet the requirements of ANSI Z359.18-2017.		**PASS**

<table>
<tr><th>SECTION (TEST)</th><th>REQUIREMENT</th><th>RESULTS</th><th>COMPLIANCE</th></tr>
<tr><td>3.2.2.2/4.2.2.1.4</td><td colspan="2"><u>Dynamic Strength (Type A)</u> :
A) Install anchorage connector, conditioned according to the applicable requirements of 4.2.2.1.2 or 4.2.2.1.3 on the test anchorage in accordance with 4.1.2
B) Connect one end of the test lanyard to the connection point of the anchorage connector to be loaded or to the arrest force measuring instrumentation.
C) Connect the other end of the test lanyard to the test weight specified in 4.1.3
D) Raise the test weight to achieve a free-fall distance of 3’ (+0.1/-0).
E) Release the test weight by means of quick release mechanism.
F) Evaluate the test results per 3.2.2.1</td><td>PASS</td></tr>
</table>

Dynamic Strength Test	SAMPLE: 1	SAMPLE: 2	SAMPLE: 3
Anchorage connector successfully arrest the test weight?	YES	YES	YES
If deformation occurred did it create more than 1/8” (3mm) between gate and body?	NO	NO	NO
MAF (Ref Only) Lbs.	3322	3596	3047

<table>
<tr><th>SECTION (TEST)</th><th>REQUIREMENT</th><th>RESULTS</th><th>COMPLIANCE</th></tr>
<tr><td>3.2.3.1/4.2.3.1</td><td colspan="2"><u>Residual Dynamic Strength Test:</u>
1. <u>Repetition of the test specified in 4.2.2.1 using same anchorage connector without further conditioning and the same test lanyard used in first test.</u>
2. <u>Must support the test weight an additional minute after the residual dynamic drop.</u>
3. <u>Evaluate the test results per 3.2.3.1</u>

<table>
<tr><th>Residual Dynamic Strength</th><th>SAMPLE: 1</th><th>SAMPLE: 2</th><th>SAMPLE: 3</th></tr>
<tr><td>Anchorage connector successfully arrest the test weight?</td><td>YES</td><td>YES</td><td>YES</td></tr>
<tr><td>Maintain the test weight for a period of at least 1 minute?</td><td>YES</td><td>YES</td><td>YES</td></tr>
<tr><td>If deformation occurred did it create more than 1/8” (3mm) between gate and body?</td><td>NO</td><td>NO</td><td>NO</td></tr>
<tr><td>MAF (Ref Only) Lbs.</td><td>3265</td><td>3438</td><td>3517</td></tr>
</table></td><td>PASS</td></tr>
</table>

<table>
<tr><th>SECTION (TEST)</th><th>REQUIREMENT</th><th>RESULTS</th><th>COMPLIANCE</th></tr>
<tr><td>3.2.1.1/4.2.1.1</td><td colspan="2"><u>Static Strength Test for Type A Anchorage Connectors:</u>
A) <u>A new anchorage connector may be used for each test.</u>
B) <u>Test force shall be 5,000 pounds (+50/-0)</u>
C) <u>Install anchorage connector on the test anchorage in accordance with requirements of 4.1.2.</u>
D) <u>Apply load to the anchorage connector in the direction(s) of loading specified in 4.1.2.5.</u>
E) <u>Apply load at no greater than 2”/min and maintain 5,000 pound test load for at least 3 minutes.</u>
F) <u>Release load</u>
G) <u>Evaluate the test results per 3.2.1.1</u>

<table><tr><th>Static Strength Requirements</th><th>SAMPLE 3</th><th>SAMPLE 4</th><th>SAMPLE 5</th></tr><tr><td>Anchorage resist the test load?</td><td>YES</td><td>YES</td><td>YES</td></tr><tr><td>If deformation occurred did it create more than 1/8” (3mm) between gate and body?</td><td>NO</td><td>NO</td><td>NO</td></tr></table></td><td>PASS</td></tr>
</table>

SECTION (TEST)	REQUIREMENT	RESULTS	COMPLIANCE
5	Marking and Instruction Requirements		PASS
5.1.1	The following marking shall appear in English on the label, marking or tag that is designed to last for the lifetime of the anchorage connector and is permanently affixed to the anchorage connector: A) The manufacture's name or mark		PASS
	B) The year of manufacture		PASS
	C) Model number		PASS
	D) "ANSI Z359.18 and the type		PASS
	E) Marking to indicate restrictions on directions of loading, if applicable		PASS
	F) Where specified by the manufacturer, the working load.		PASS
	G) An individual serial number or a lot or batch number that provides traceability		PASS
	H) Minimum breaking strength followed by "MBS"		PASS
5.1.2	As required for the specific anchorage connector, the following marking shall appear in English on a label, marking or tag that is designed to last for the lifetime of the anchorage connector and is permanently affixed to the anchorage connector.		PASS
5.1.2.1	Anchorage connector that incorporates a closed loop not intended for connection, but may be mistake for a connection point shall be permanently labeled with a warning not to connect a fall protection system or suspended component to the closed loop when used in a cinching application.		PASS
5.1.2.3	The minimum service temperature the anchorage connector according to 3.1.3.2		PASS
5.1.2.4	For tripods and davit systems, the maximum number of users permitted on the system.		PASS
5.2	Instruction Requirements		PASS
5.2.1	Instruction and information shall be provided in English with each anchorage connector.		PASS
5.2.1.1	A) A statement that the anchorage connector has been tested in compliance with the requirements of ANSI/ASSE Z359.7, and caution that the ANSI compliance and testing covers only the hardware and does not extend to the anchorage and substrate w=to which the anchorage connector is attached. B) Specifications for appropriate anchorage(s) to which the anchorage connector can be attached, including instructions on how to proceed when the user is unable to determine whether the anchorage meets the manufactures specification and instructions that the anchorage connector shall only be connected to anchorages that: i) Can withstand 5,000 pounds without failure, except that lower strengths are acceptable when permitted by applicable legislation ii) Are certified by a professional engineer as having the required strength for fall arrest or travel restraint, as applicable iii) The manufacturer may provide specifications of allowable materials including the minim shapes, sizes and geometry of structural elements to which the anchors connector may be fastened C) The manufacturer shall clearly label the minimum service temperature for the anchorage connector according to 3.1.3.2. D) The manufacturer shall supply complete specifications for fasteners E) The anchorage connector type		PASS

SECTION 5
REVISION HISTORY

REPORT NUMBER	DATE OF REVISION	DESCRIPTION OF CHANGE:	PROJECT OWNER	REVIEWED BY
105220244CRT-001a	10/14/2022	Original Report	Steve Morey	Matthew Stevens
105220244CRT-001	10/18/2022	Evaluated Markings/Instructions	Steve Morey	Matthew Stevens
105220244CRT-001	10/24/2022	Revised Model Name	Steve Morey	Matthew Stevens
106000679CRT-002	10/31/2024	Report Extension	Alex Smith	Mattew Stevens