

Test Report

ANSI Z359.15-2014

Single Anchor Lifelines and Fall Arresters

Report no: 2.25.03.05

Customer: Frontline Fall Protection Inc.
6 Lee Blvd
Malvern
PA 19355
U.S.A


Manufacturer: Frontline Fall Protection Inc.
as advised by the Customer

Customer orders: T/1090 and T/1410

Orders received: 29 Nov. 2022 and 11 Oct. 2024 respectively

Model: VLP(25R3L-AM to 200R3L-AM)

Dates of tests: 5 Sept. 2023 to 15 Jan. 2024 and
9 Nov. 2024 to 11 March 2025

Signed: 
Steven Sum, Laboratory Manager

Issued: 11 March 2025

Page 1 of 17

Conditions

This report may be reproduced and distributed to your customers, provided that it is reproduced and distributed in full.

Specimens will be disposed of four weeks from the date of this report, unless otherwise instructed.

Opinions, comments and interpretations expressed in this report are shown in italics.

Copies of INSPEC interpretations referenced in this report are available upon request.

Tests marked ☒ are not included in our ANAB Scope of Accreditation.

This report has been provided in accordance with our standard Terms of Business, which can be viewed at, and printed from:

<http://inspec-international.com/ToB.pdf>

If you have difficulty accessing the Terms of Business, you may contact us for a copy.

Summary of assessment *

Clause	Requirement	Assessment (See Key)	
3.1	Single Anchor Lifeline Components	Ltd	
3.1.7	Breaking strength - lifeline supplied with factory termination	Pass	
3.1.9	Breaking strength - lifeline supplied without factory termination		
3.1.11	Residual static strength (Lifeline)	Pass	
3.1.12.1	Wire Rope Lifeline Breaking strength		
3.2	Fall arrester Components	Ltd	
3.2.2	Non-integral energy absorber and energy absorbing lanyards	NAP	
3.2.3	Lanyards integral to fall arresters	Ltd	
3.2.5	Dynamic performance (Manual override)	Pass	
3.2.9	Static strength	Pass	
3.2.10	Dynamic performance	Ambient condition	Pass
		Hot condition	Pass
		Cold condition	Pass
		Wet condition	Pass
3.2.11	Function test	Pass	
3.2.12	Residual static strength (fall arrester)	Pass	
3.2.13	Corrosion resistance	Pass	
5.1 / 5.2	Marking requirements	Ltd	
5.3 / 5.4	Instruction requirements	Ltd	

Key

	Shading shows the clauses requested. Any other clauses were not requested.
Pass	Requirement satisfied.
Ltd	Testing requested was insufficient completely to verify compliance with the clause. Refer to the "Result details" section for more information.
Fail	Requirement not satisfied. Refer to the "Result details" section for more information.
NAs	Assessment not carried out.
NAP	Requirement not applicable.
NT	Requested but not tested due to early termination following failure.

* Assessment relates only to those specimens which were tested and are the subject of this report.

Submission details

Product	Quantity	Date received	INSPEC specimen no. (2L277+)
Single Anchor Lifelines and Fall Arresters, model VLP(25R3L-AM to 200R3L-AM)	9 sets	29 Aug. 2023	01 to 09
User Instructions	e-copy	24 Feb. 2025	-

Procedures

The specimens detailed within the submission above were used for the tests covered by this report.

Testing was performed in accordance with ANSI Z359.15-2014 unless otherwise specified below. Reference should be made to the standard when reading this report.

Unless stated otherwise, specimens were tested in the condition as received by INSPEC.

Testing was performed at INSPEC's laboratory in Kunshan, China.

The manufacturer made the following declarations:

Single anchor lifelines, models VLP(25R3L-AM to 200R3L-AM) are available in 25 ft, 30 ft, 50 ft, 75 ft, 100 ft, 125 ft, 150 ft and 200 ft lengths. The lifelines have the same designs, have the construction and use the same materials. Only the lengths are different.

The longest length (200 ft) lifeline was provided for performance testing.

Result details**3 Design requirements****3.1 Single Anchor Lifeline Components****3.1.1 Connectors**

Specimen 2L27701 was assessed.

Testing of integral connectors was not requested.

NAs**3.1.2 Rope to meet clause 7.2.1**

This clause was not assessed. Manufacturer to certify these characteristics.

NAs**3.1.4 Rope minimum nominal diameter**

Specimen 2L27708 was assessed.

The minimum nominal diameter of the rope was 0.629 inch (16mm). This value is more than minimum nominal diameter of 0.433 inch (11mm) permitted.

Pass**3.1.5 Rope fabrication**

This clause was not assessed. Manufacturer to certify these characteristics

NAs**3.1.6 Material characteristics**

This clause was not assessed. Manufacturer to certify these characteristics

NAs**3.1.7 Lifeline with factory termination – Breaking strength**

Specimen 2L27709 was assessed.

It withstood the tensile load of 5,000 pounds applied for 1-minute without breaking.

Pass**3.1.8 Single anchor lifelines supplied with a factory termination**

Specimen 2L27701 was assessed.

The specimen incorporated a stitched eye termination. The stitched eye termination satisfied 3.1.8.2, as appropriate (see below).

Pass

3.1.8.2 Stitched terminations

Specimen 2L27701 was assessed.

- a) Lock stitches sewn on all stitched eye termination rope was not assessed. Manufacturer to certify. **NAs**
- b) The material and characteristics of thread used was not assessed. Manufacturer to certify. **NAs**
- c) Threads used for sewing the rope were grey colour. This contrasted with the white colour of the rope. **Pass**
- d) A properly sized thimble was incorporated within the eye termination. **Pass**
- e) The ends of the rope were hot-cut finished so as to prevent unravelling. **Pass**

3.1.10 Dual purposes/descent control application

Not claimed. **NAp**

3.1.11 Residual static strength

Specimen 2L27702 was assessed.

Following the dynamic performance test, the specimen withstood the tensile load of 1,800 pounds applied for 1-minute without breaking. **Pass**

3.2 Fall Arrester Components

Specimen 2L27701 was assessed.

3.2.1 Connectors

The fall arrester incorporated a snaphook. Testing of the snaphook was not requested. **NAs**

3.2.2 Non-integral energy absorber and energy absorbing lanyards

The specimen did not incorporate non-integral energy absorber or energy absorbing lanyard. **NAp**

3.2.3 Lanyards integral to fall arresters

3.2.3.1 Characteristics

This clause was not assessed. Manufacturer to certify these characteristics **NAp**

3.2.3.2 Lanyards supplied with a factory termination

The specimen was terminated with stitched loop terminations. The end terminations satisfied 3.1.8.2, as appropriate (see below). **Ltd**

3.1.8.2 Stitched terminations

- a) Lock stitches sewn on all stitched eye termination strap was not assessed. Manufacturer to certify. **NAs**
- b) The material and characteristics of thread used was not assessed. Manufacturer to certify. **NAs**
- c) Threads used for sewing the lanyard were grey colour. This contrasted with the black colour of the lanyard. **Pass**
- d) This clause is not applicable to the type of lanyard tested. **NAp**
- e) The ends of the lanyard were hot-cut so as to prevent unravelling. **Pass**

3.2.3.3 Static strength

Specimen 2L27709 withstood the tensile load of 3,600 pounds applied for 1-minute without breaking. **Pass**

3.2.3.4 Connectors

Specimen 2L27702 was assessed.

The specimen included a snaphook. Testing of the snaphook was not requested. **NAs**

3.2.3.5 Deployment indicator or warning flag

Subsequent to the testing of specimen 2L27702 against 3.2.10, it became obvious that the lanyard had been activated. **Pass**

3.2.4 Locking

Specimen 2L27706 was assessed.

During the dynamic performance test in 3.2.5, the locking features of the fall arrester activated without any intervention. **Pass**

3.2.5 Dynamic performance (Manual override)

Specimen 2L27706 was assessed.

During the dynamic performance test, the maximum arrest force was 1072 pounds. This value is less than the maximum 1,800 pounds (8kN) permitted. **Pass**

During the dynamic performance test, the average arrest force was 791 pounds. This value is less than the maximum 900 pounds (4kN) permitted. **Pass**

See Annex 1 for the plot of force versus time.

During the dynamic performance test, the fall arrester arrested the fall and holds the load for a minimum of 1-minute without moving further down the lifeline. **Pass**

During the dynamic performance test, the total fall distance was 10.6 feet (3.23 m). This value is less than the maximum 11 feet (3.35 m) permitted. **Pass**

3.2.6 Specimen 2L27701 was assessed.

It required two consecutive and deliberate actions to open the fall arrester. **Pass**

3.2.7 Specimen 2L27701 was assessed.

The fall arrester did not include a knot or hitch. **Pass**

3.2.8 Integral rings and openings

Specimen 2L27701 was assessed.

No mating connectors were provided by the manufacturer. **NAs**

3.2.9 Static strength

Specimen 2L27709 was assessed.

It withstood the tensile load of 3,600 pounds applied for 1-minute. It did not release the load. **Pass**

3.2.10 Dynamic performance – Ambient condition

Specimen 2L27702 was assessed.

During the dynamic performance test, the fall arrester locked on the lifeline. **Pass**

The fall arrester remain locked, holding the test weight for 1-minute, until it was released. **Pass**

During the dynamic performance test, the maximum arrest force was 1030 pounds. This value is less than the maximum 1,800 pounds (8kN) permitted. **Pass**

During the dynamic performance test, the average arrest force was 770 pounds. This value is less than the maximum 900 pounds (4kN) permitted. **Pass**

See Annex 1 for the plot of force versus time.

During the dynamic performance test, the total fall distance was 10.1 feet (3.08 m). This value is less than the maximum 11 feet (3.35 m) permitted. **Pass**

3.2.10 Dynamic performance – Hot condition

Specimen 2L27703 was assessed.

During the dynamic performance test, the fall arrester locked on the lifeline. **Pass**

The fall arrester remain locked, holding the test weight for 1-minute, until it was released. **Pass**

During the dynamic performance test, the maximum arrest force was 931 pounds. This value is less than the maximum 1,800 pounds (8kN) permitted. **Pass**

During the dynamic performance test, the average arrest force was 739 pounds. This value is less than the maximum 900 pounds (4kN) permitted. **Pass**

See Annex 1 for the plot of force versus time.

During the dynamic performance test, the total fall distance was 10.7 feet (3.26 m). This value is less than the maximum 11 feet (3.35 m) permitted. **Pass**

3.2.10 Dynamic performance – Cold condition

Specimen 2L27704 was assessed.

During the dynamic performance test, the fall arrester locked on the lifeline. **Pass**

The fall arrester remain locked, holding the test weight for 1-minute, until it was released. **Pass**

During the dynamic performance test, the maximum arrest force was 1122 pounds. This value is less than the maximum 1,800 pounds (8kN) permitted. **Pass**

During the dynamic performance test, the average arrest force was 821 pounds. This value is less than the maximum 900 pounds (4kN) permitted. **Pass**

See Annex 1 for the plot of force versus time.

During the dynamic performance test, the total fall distance was 9.9 feet (3.02 m). This value is less than the maximum 11 feet (3.35 m) permitted. **Pass**

3.2.10 Dynamic performance – Wet condition

Specimen 2L27705 was assessed.

During the dynamic performance test, the fall arrester locked on the lifeline. **Pass**

The fall arrester remain locked, holding the test weight for 1-minute, until it was released. **Pass**

During the dynamic performance test, the maximum arrest force was 1076 pounds. This value is less than the maximum 1,800 pounds (8kN) permitted. **Pass**

During the dynamic performance test, the average arrest force was 778 pounds. This value is less than the maximum 900 pounds (4kN) permitted. **Pass**

See Annex 1 for the plot of force versus time.

During the dynamic performance test, the total fall distance was 10.2 feet (3.11 m). This value is less than the maximum 11 feet (3.35 m) permitted. **Pass**

3.2.11 Function test

Specimen 2L27707 was assessed.

The specimen travelled up and down the lifeline without assistance. **Pass**

3.2.12 Residual static strength

Specimen 2L27702 was assessed.

Following the dynamic performance test, the fall arrester did not move down the lifeline when a tensile load of 660 pounds was applied for 1-minute. **Pass**

3.2.13 Corrosion resistance

Specimen 2L27708 was assessed.

Following the salt spray test, the specimen still functioned as intended. **Pass**

There were no evidence of corrosion of base metal. **Pass**

5 Markings and Instructions

5.1 General Marking Requirements

5.1.1 Markings shall be in English. **Pass**

5.1.2 The legibility and attachment of required markings shall endure for the life of the fall arrester or single anchor lifeline being marked was not assessed. **NAs**

Marking labels were provided electronically and used for assessment.

When pressure sensitive labels are used, they shall comply with the applicable provision of reference UL 969-89, Marking and Labelling Systems. This requirement was not assessed. Manufacturer to certify. **NAs**

5.2 Specific Marking Requirements

- 5.2.1 Fall arresters shall be marked with the following:
- Part number or model designation; [RGSS58ES] **Pass**
 - Year of manufacture; **Pass**
 - Capacity rating; [130 – 310 lbs] **Pass**
 - Serial number; **Pass**
 - Standard number “Z359.15”; [ANSI Z359.15-2014] **Pass**
 - Warning to follow the manufacturer’s instructions included with the equipment at time of shipment from the manufacturer; **Pass**
 - The direction of use of the fall arrester on its single anchor lifeline; **Pass**
 - The proper size(s) and type(s) of single anchor lifeline with which the fall arrester is intended to be used; [5/8 inch] **Pass**
 - Warning to use only manufacturer approved lanyards according to instructions. **Pass**

- 5.2.2** Single anchor lifelines shall be marked to identify:
- The fibre used in the material of construction; [Polyester] **Pass**
 - The diameter of lifeline; [16 mm] **Pass**
 - The length of the lifeline; [25 feet to 200 feet] **Pass**
 - The model of fall arrester(s) acceptable for use with the lifeline; [RGSS58ES] **Pass**
 - The need to avoid contact with sharp edges and abrasive surfaces; **Pass**
 - Standard number “Z359.15”; **Pass**
 - Serial number; [12345] **Pass**
 - Part number or model designation; [VLP25 – VLP200] **Pass**
 - Year of manufacture; **Pass**
 - Manufacturer’s name or logo. [FRONTLINE] **Pass**
- 5.2.3** Integral lanyards shall be marked to identify:
- The material used in lanyard construction; [Polyester] **Pass**
 - The length of the lanyard; [3.0 feet] **Pass**
 - The need to avoid contact with sharp edges and abrasive surfaces; **Pass**
 - The need to make only compatible connections; **Pass**
 - The average arrest force, maximum free fall distance, maximum deployment distance and capacity; **Pass**
 - Standard number “Z359.15”; **Pass**
 - Serial number; [000009] **Pass**
 - Part number or model designation; [RGSS58] **Pass**
 - Year of manufacture; **Pass**
 - Manufacturer’s name or logo. [FRONTLINE] **Pass**

5.3 General Instruction Requirements

User Instructions were provided electronically by the manufacturer and used for assessment.

The User Instructions have been assessed as detail below, with reference only to the relevant requirements of the Standard.

INSPEC has not assessed these instructions with respect to claims made by the manufacturer outside of these requirements and therefore accepts no responsibility for the legitimacy of any such claims.

5.3.1	Instructions shall be provided to the user, printed in English and affixed to the equipment at the time of shipment from the manufacturer.	Ltd
5.3.2	Instructions shall contain the following information:	
	· A statement that the manufacturer's instructions shall be provided to users;	Pass
	· Manufacturer's name, address and telephone number;	Pass
	· Manufacturer's part number or model designation for the equipment;	Pass
	· Intended use and purpose of the equipment;	Pass
	· Proper method of use and limitations on use of the equipment;	Pass
	· Illustrations showing locations of markings on the equipment;	Pass
	· Reproduction of printed information on all markings;	Pass
	· Inspection procedures required to assure the equipment is in serviceable condition and operating correctly;	Pass
	· Anchorage requirements;	Pass
	· Criteria for discarding and retiring equipment which fails inspection;	Pass
	· Procedures for cleaning, maintenance and storage;	Pass
	· A reference chart that indicates the clearance requirements of the system according to the fall arrester, energy absorbing lanyard and elongation characteristics of the lifeline.	Pass
5.3.3	Instructions shall require that only the equipment manufacturer, or persons or entities authorized in writing by the manufacturer, shall make repairs to equipment.	Pass
5.3.4	Instructions shall require the user to remove equipment from field service if it has been subjected to the forces of arresting a fall.	Pass
5.3.5	Instructions shall require the user to have a rescue plan and the means at hand to implement it when using the equipment.	Pass

- 5.3.6** Instructions shall provide warnings regarding:
- Altering the equipment; **Pass**
 - Misusing the equipment; **Pass**
 - Using combinations of fall arresters, lanyards, lifelines, which may affect or interfere with the safe function of each other; **Pass**
 - Exposing the equipment to chemicals which may produce a harmful effect and to consult the manufacturer in cases of doubt; **Pass**
 - Using the equipment around moving machinery and electrical hazards; **Pass**
 - Using the equipment near sharp edges and abrasive surfaces, as well as the need for abrasion protection; **Pass**
 - Other warnings deemed necessary by the manufacturer. **Pass**

5.4 Specific Instruction Requirements

- 5.4.1 Fall Arresters.** In addition to the requirements in 5.3, instructions for fall arresters shall include:
- Acceptable lanyards, by make and model, for use with the fall arrester; **Pass**
 - How to attach the lanyard to the fall arrester; **NAp**
 - The maximum allowable free fall distance; **Pass**
 - Proper method of connection to the full body harness (frontal and/or dorsal connection); **Pass**
 - Warnings that the fall arrester shall be attached to no more than one lifeline; **Pass**
 - Warnings that the fall arrester shall be attached to no more than one user; **Pass**
 - Warnings to avoid exposure to physical and chemical hazards which the fall arrester is not designed to withstand; **Pass**
 - Instructions to not manipulate or hold the fall arrester body or lever, but to move the fall arrester up/down by the lanyard; **Pass**
 - The maximum arrest distance and clearance requirement when dynamically tested in accordance with the requirements of this standard; **Pass**
 - The proper size, construction and type of single anchor lifelines with which the fall arrester is intended to be used; **Pass**
 - Warnings to emphasize that anchoring be above the user to prevent pendulum fall; **Pass**
 - Warnings to emphasize use is not suitable when the user is positioned on an unstable surface, fine grain material or particulate solids such as sand or coal; **Pass**
 - Information for determining total fall distance including lifeline elongation; **Pass**
 - Capacity range of 130 to 310 pounds; **Pass**
 - Standard number "Z359.15". **Pass**

5.4.2 Single Anchor Lifelines. In addition to the requirements in 5.3, instructions for single anchor lifelines shall include:

- The material used in the single anchor lifeline construction; **Pass**
- Proper method of coupling the single anchor lifeline to anchorage connectors and anchorages with which it is intended to be used and to adjacent components of the system; **Pass**
- The minimum static strength; **Pass**
- Warnings that only one fall arrester be attached to the single anchor lifeline; **Pass**
- Warnings that only one user can be attached to the single anchor lifeline; **Pass**
- Warnings to avoid exposure to physical and chemical hazards which the single anchor lifeline is not designed to withstand; **Pass**
- Warnings using the equipment near sharp edges and abrasive surfaces and the need for abrasion protection; **Pass**
- Warnings to avoid swing fall hazards encountered when the anchorage is not directly overhead; **Pass**
- The proper fall arrester, by make and model, with which the single anchor lifeline is intended to be used; **Pass**
- The percentage of stretch of the lifeline when loaded to 900 pounds (4 kN); **Pass**
- Capacity range of 130 to 310 pounds; **Pass**
- Lifeline melting point; **Pass**
- Standard number "Z359.15"; **Pass**
- If permissible by the manufacturer, specific directions how to cut damaged sections from the lifelines and how to re-label non-terminated lifelines according to 5.2.2; **Pass**
- Direction how to stabilize the lower end of the lifeline with a weight or alternative method directed by the manufacturer; **Pass**
- Direction(s) regarding placement of a rope stop to prevent the fall arrester inadvertently traveling off the end of the lifeline. **Pass**

Estimates of the uncertainty of measurement

Clause	Test		Uncertainty
3.1	Single Anchor Lifeline component	Design	Not applicable
3.1.1	Connectors		See test report(s)
3.1.3	Elastic elongation		±0.5%
3.1.4	Rope minimum nominal diameter		±0.001 inches
3.1.7	Breaking strength - lifeline supplied with factory termination		See Note 1
3.1.9	Breaking strength – lifeline supplied without factory termination		See Note 1
3.1.11	Residual static strength		See Note 1
3.1.12.1	Wire rope lifeline	Breaking strength	See Note 1
3.1.12.2		Diameter	±0.001 inches
3.1.12.3		Factory terminations	Not applicable
3.2	Fall arresters	Design	Not applicable
3.2.1	Connectors		See test report(s)
3.2.2	Non-integral energy absorber and energy absorbing lanyards		See test report
3.2.3	Lanyards integral to fall arresters	Static strength	See Note 1
3.2.5	Dynamic performance (Manual override)	Force	±3.0%
		Fall distance	±0.04 inches
3.2.9	Static strength		See Note 1
3.2.10	Dynamic performance (all conditions)	Force	± 3.0%
		Fall distance	±0.04 inches
3.2.11	Function test		See Note 1
3.2.12	Residual static strength	Distance	±1.7%
3.2.13	Corrosion resistance		See Note 1
5	Markings and instructions		Not applicable

Note 1 The acceptance criterion for this test is a straightforward “Pass/Fail”, rather than a numerical value. Consequently, as there is no value to be reported, uncertainty has not been reported either.

Note 2 The uncertainty value is based on a standard uncertainty multiplied by a coverage factor $k = 2$, which provides for a confidence level of approximately 95%. Values expressed as a percentage (%) are relative.

Note 3 It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria.

ANNEX

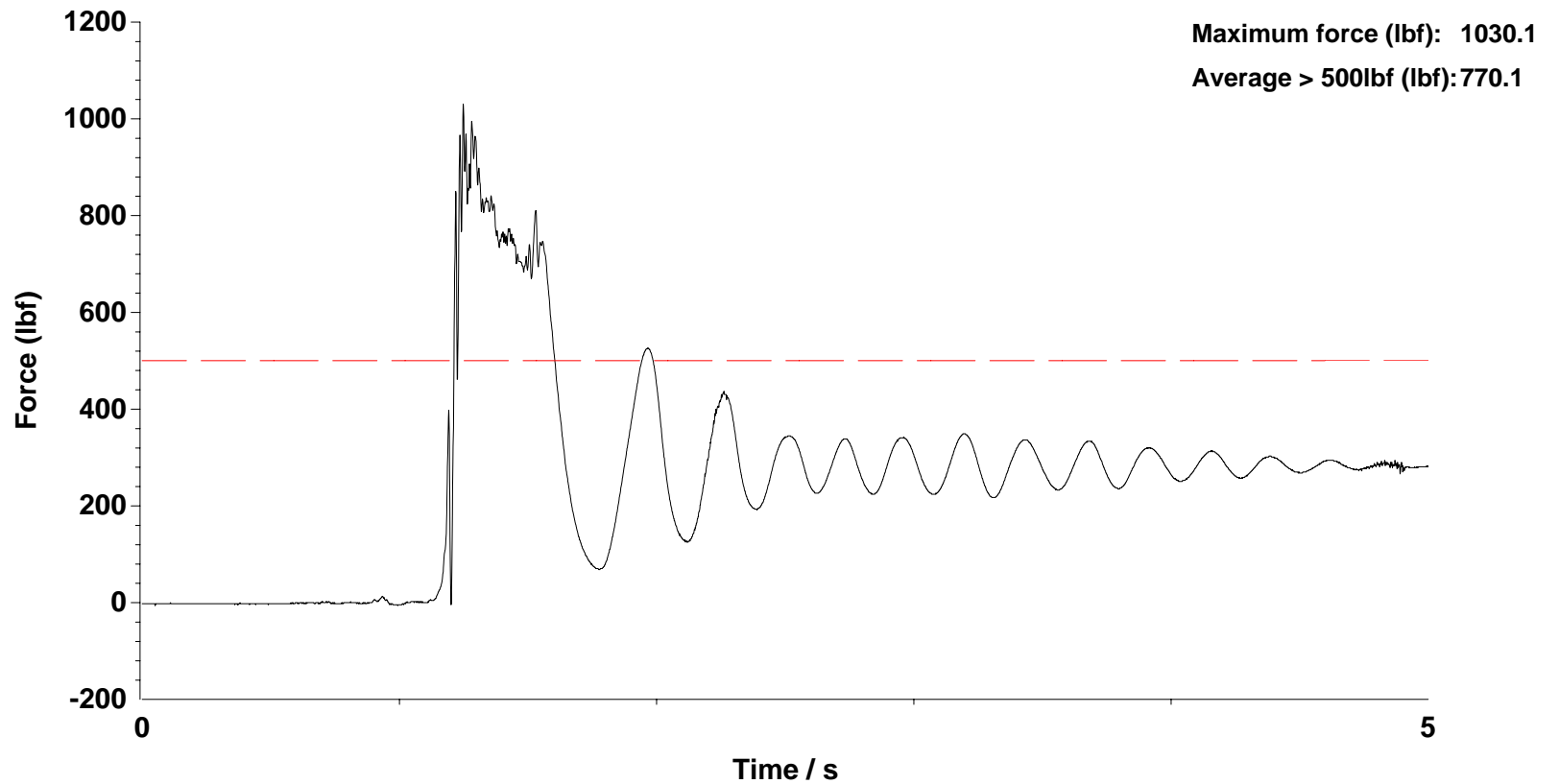
This Annex comprises two sections.

1. Plots of arrest force versus time. (5 pages)
2. Photograph of the product tested. (1 page)

END OF REPORT

INSPEC Technical Services

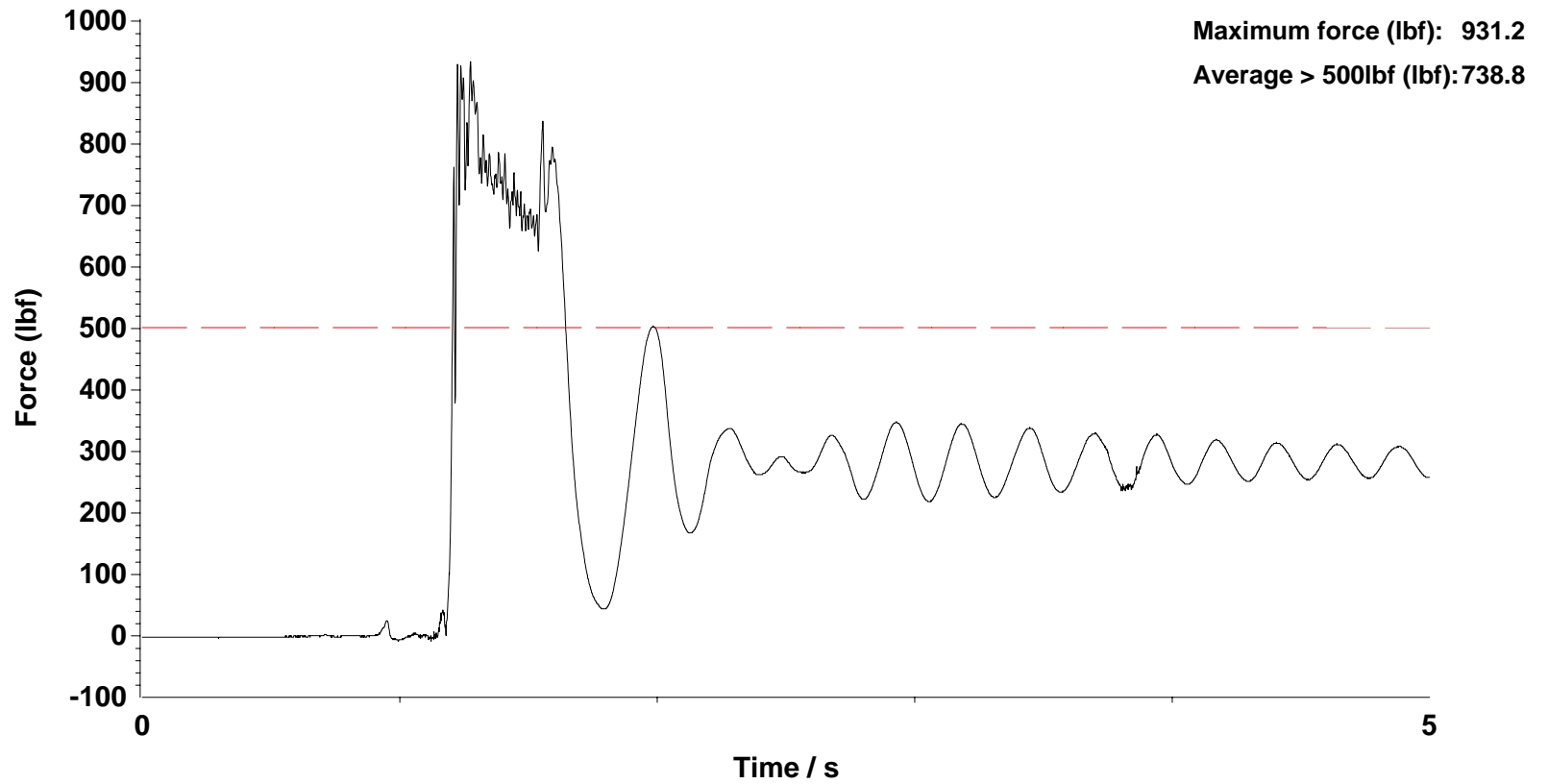
Technician: LJ
Standard: ANSI Z359.15-2014 Single anchor lifelines and fall arresters
Sample / File name: 2L27702
Drop item: Drop mass, 128 kg
Orientation/Attachment Point: Centre eyebolt
Time and Date of Test: 16:32 22/09/23



Results do not achieve full ANAB status until a formal test report has been issued.

INSPEC Technical Services

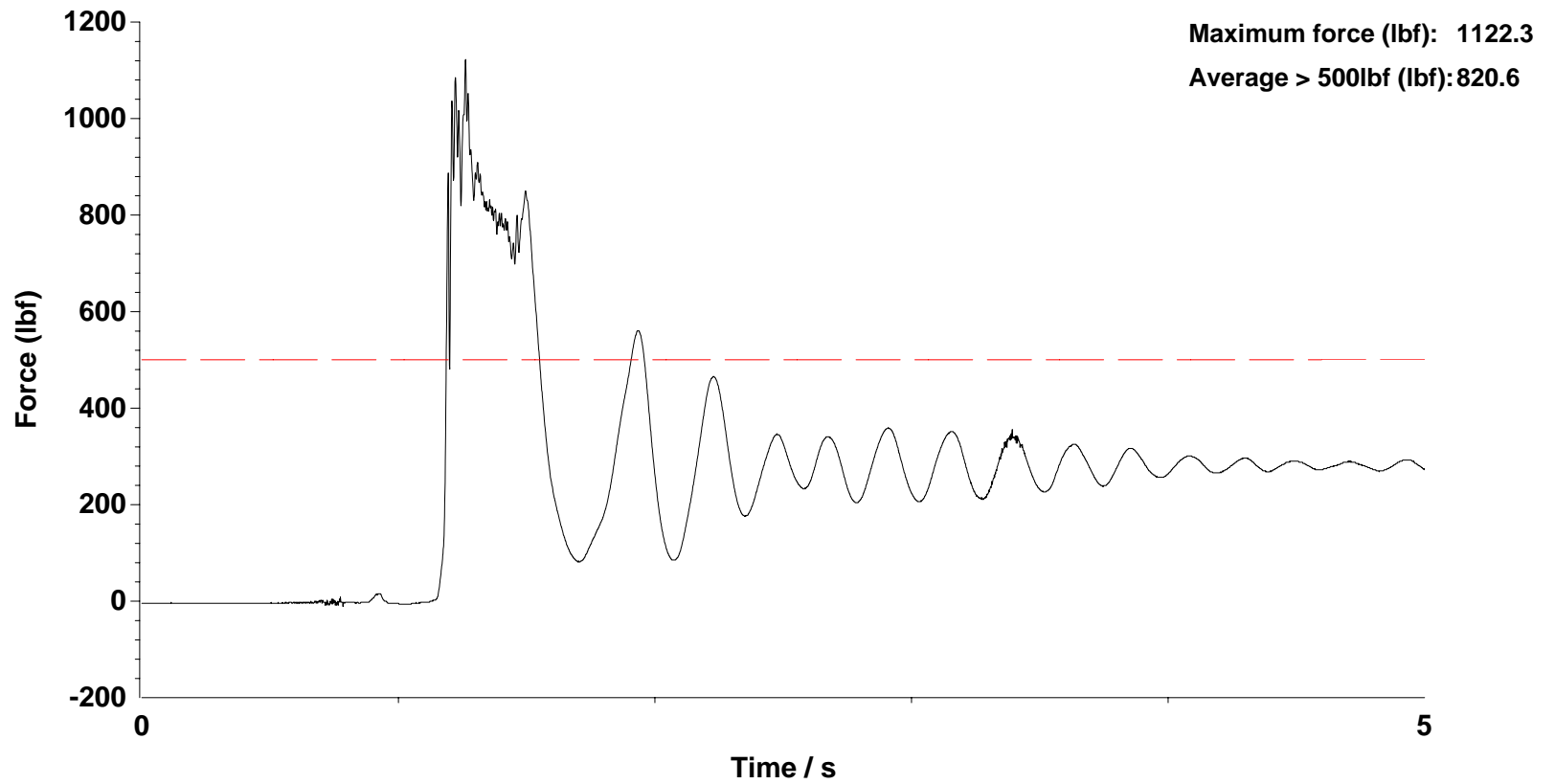
Technician: LJ
Standard: ANSI Z359.15-2014 Single anchor lifelines and fall arresters
Sample / File name: 2L27703
Drop item: Drop mass, 128 kg
Orientation/Attachment Point: Centre eyebolt
Time and Date of Test: 16:45 22/09/23



Results do not achieve full ANAB status until a formal test report has been issued.

INSPEC Technical Services

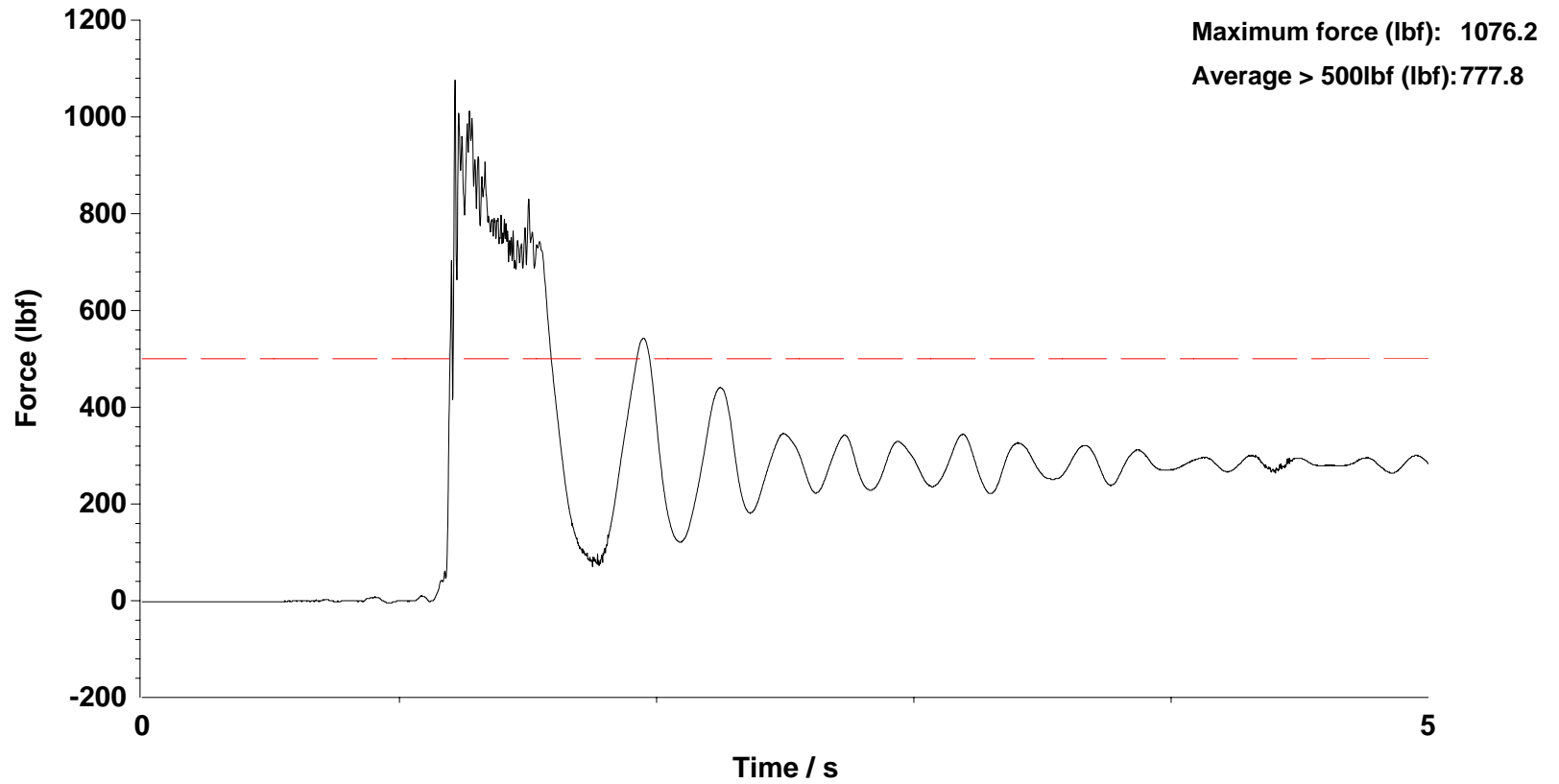
Technician: LJ
Standard: ANSI Z359.15-2014 Single anchor lifelines and fall arresters
Sample / File name: 2L27704
Drop item: Drop mass, 128 kg
Orientation/Attachment Point: Centre eyebolt
Time and Date of Test: 16:57 22/09/23



Results do not achieve full ANAB status until a formal test report has been issued.

INSPEC Technical Services

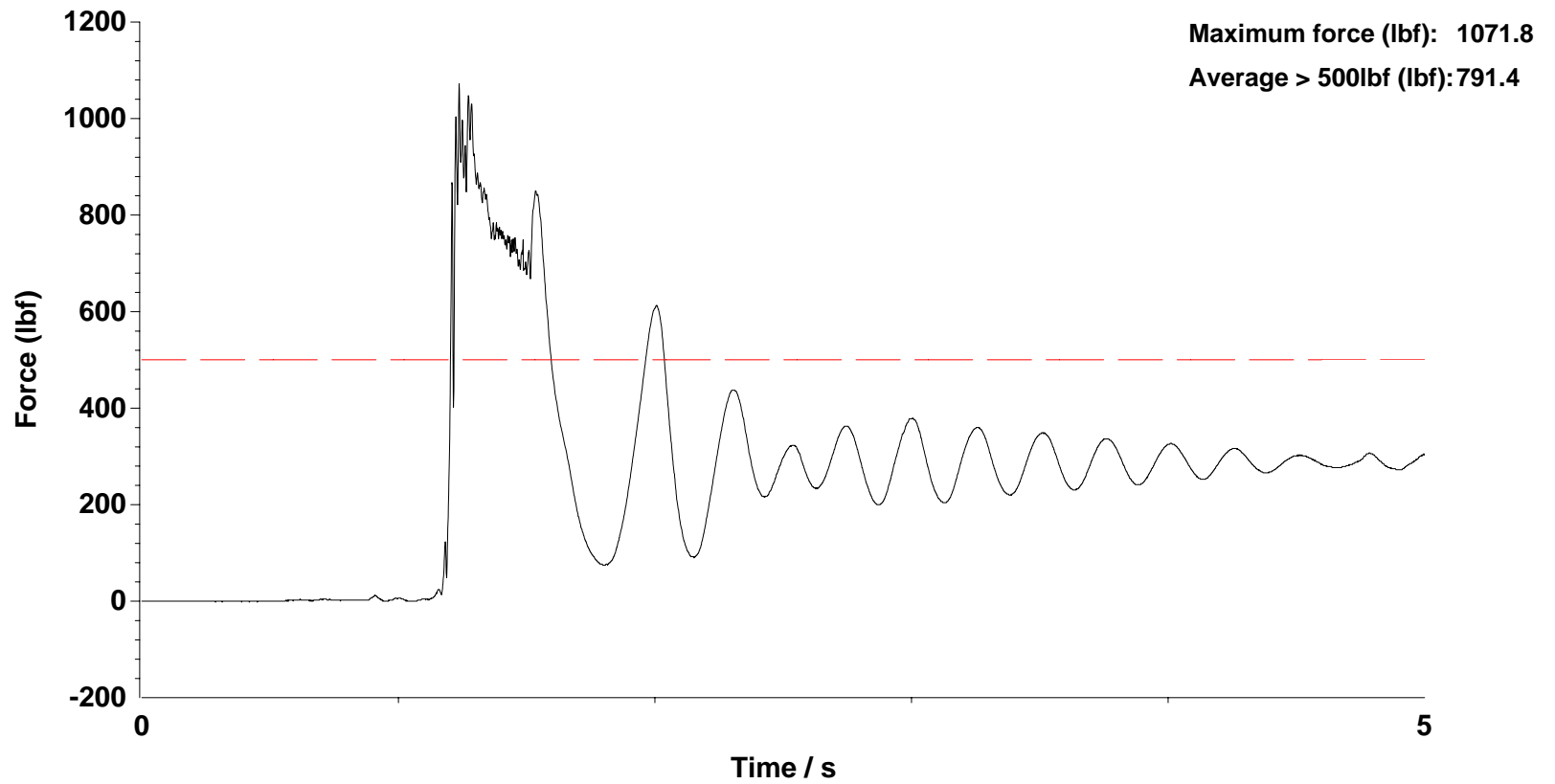
Technician: LJ
Standard: ANSI Z359.15-2014 Single anchor lifelines and fall arresters
Sample / File name: 2L27705
Drop item: Drop mass, 128 kg
Orientation/Attachment Point: Centre eyebolt
Time and Date of Test: 17:11 22/09/23



Results do not achieve full ANAB status until a formal test report has been issued.

INSPEC Technical Services

Technician: LJ
Standard: ANSI Z359.15-2014 Single anchor lifelines and fall arrester
Sample / File name: 2L27706
Drop item: Drop mass, 128 kg
Orientation/Attachment Point: Centre eyebolt
Time and Date of Test: 17:14 13/11/23



Results do not achieve full ANAB status until a formal test report has been issued.

Frontline Fall Protection Inc. –
Single Anchor Lifeline and Fall Arrester,
model VLP(25R3L-AM to 200R3L-AM)

