

Test Report Number: 2021112442009
Job Number: 129863
Product SKU#: 42009
Product Type: Self-Retracting Lanyard
Product Description: 33ft Diablo Cable SRL, Galv. Steel
Testing Standard: ANSI/ASSE Z359.14 Safety Requirements for Self-Retracting Devices
Date(s) of Testing: 2/27/2018, 2/28/2018,

REQUIREMENT VERIFICATION

| <u>Requirement Description</u> | <u>Clause/Section</u> | <u>Result</u> |
|--------------------------------|------------------------------|------------------|
| General Requirements | 3.1 General Requirements | Meets or Exceeds |
| Markings and Instructions | 5. Markings and Instructions | Meets or Exceeds |

QUALIFICATION TESTING

| <u>Test Description</u> | <u>Test Date</u> | <u>Clause/Section</u> | <u>Result</u> |
|-------------------------------|------------------|---|---------------|
| Dynamic Performance (Ambient) | 2/27/2018 | 4.2.1 Dynamic Performance Testing of SRDs | Pass |
| Dynamic Performance (Hot) | 2/28/2018 | 4.2.8.1 Dynamic Performance Testing Hot | Pass |
| Dynamic Performance (Cold) | 2/27/2018 | 4.2.8.2 Dyanmic Performance Testing Cold | Pass |
| Dynamic Performance (Wet) | 2/27/2018 | 4.2.8.3 Dynamic Performance Testing Wet | Pass |
| Dynamic Strength (Ambient) | 2/27/2018 | 4.2.3 Dynamic Strength Testing of SRDs | Pass |
| Residual Dynamic Strength | 2/27/2021 | 4.2.3 Dynamic Strength Testing of SRDs | Pass |
| Static Strength | 2/27/2018 | 4.2.5 Static Stength Testing of SRDs | Pass |

This test report covers these additional products:

42009CSA, 42011

Please contact quality@guardianfall.com for signed report.

| Test Equipment | | |
|----------------|---------------|---------|
| Equipment | Model | Serial |
| Load Cell | 1220ACK-25K-B | 367976A |
| Load Cell | 1210AF-10K-B | 916507A |
| Test Weight | 282 lb | GFP007 |

| 3.1 | General Requirements | |
|-------|--|------------------|
| 3.1.1 | Integral Connectors. Snaphooks or carabiners which are integral to self-retracting devices shall meet the requirements of ANSI/ASSE Z359.12. Integral rings or similar openings intended to accept a snaphook or carabiner shall be designed to minimize the possibility of rollout of a mating snaphook or carabiner. | Meets or Exceeds |
| 3.1.2 | Locking Function. Self-retracting devices shall be automatic in their locking (fall stopping) function. It shall not be possible to override the self-locking feature of the device when in use. The design of working parts, their location and the protection afforded to them shall be such as to prevent the possibility of performance being impaired by casual interference. | Meets or Exceeds |
| 3.1.3 | Energy Absorbtion. Self-retracting devices which perform an energy absorbtion function shall be designed such that the energy absorbtion function is available throughout the usable working range of the device. The working range or length is defined as the amount of travel allowed by the device starting from full retraction to full extension under normal working tension. | Meets or Exceeds |
| 3.1.4 | Visual Indicator. Self-retracting devices shall include a visual indicator that will activate in accordance with the requirements of Section 3.1.9. | Meets or Exceeds |
| 3.1.5 | Corrosion Protection. Corrosion protection shall be afforded to all elements (parts) of self-retracting devices. Protection shall, at a minimum, allow the device to operate as intended and show no signs of corrosion which, if left unchecked, could result in corrosion-related failure of the device afer being salt spray (for) tested for 96 hours in accordance with 7.4. | Meets or Exceeds |

Notes

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|--------------|--|------------------|
| 5 | Instruction Requirements | |
| 5.1 | Marking Requirements | |
| 5.1.1 | Markings shall be in English | Meets or Exceeds |
| 5.1.2 | Markings shall remain legible and ensure for the life of the component, subsystem, or system being marked. Pressure-sensitive labels must conform to UL 969-2001, Marking and Labeling Systems | Meets or Exceeds |
| 5.1.3 | Self-Retracting Devices shall be marked with: | |
| | a) part number and model designation | Meets or Exceeds |
| | b) year of manufacture | Meets or Exceeds |
| | c) manufacturer's name or logo | Meets or Exceeds |
| | d) capacity range | Meets or Exceeds |
| | e) unique ID number | Meets or Exceeds |
| | f) standard number (Z359.14) | Meets or Exceeds |
| | g) how to inspect visual indicator | Meets or Exceeds |
| | h) warning to follow the manufacturer's instructions included with the equipment at the time of shipment from manufacturer | Meets or Exceeds |
| | i) warning of the need for inspection in accordance with the manufacturer's instructions | Meets or Exceeds |
| | j) the fiber or other materials used in the lanyard construction | Meets or Exceeds |
| | k) the lanyards working length | Meets or Exceeds |
| | l) average arresting force for the SRD class | Meets or Exceeds |
| | m) proper installation means | Meets or Exceeds |
| | n) warning of the need to avoid lanyard contact with sharp edges and abrasive surfaces | Meets or Exceeds |
| | o) SRD class and arrest distance | Meets or Exceeds |
| | p) warning of the need to avoid lanyard contact with sharp edges and abrasive surfaces | Meets or Exceeds |
| | q) free fall limit | Meets or Exceeds |
| | r) suitability for use with horizontal lifelines | Meets or Exceeds |
| | s) suitability for horizontal use | Meets or Exceeds |

| | | |
|--------------|--|------------------|
| 5.2 | Instruction Requirements | |
| 5.2.1 | Instructions shall be provided to the user in English, and affixed to the equipment at the time of shipment from the manufacturer | Meets or Exceeds |
| 5.2.2 | Instructions shall contain the following information: | |
| | a) a statement that the manufacturer's instructions shall be provided to users | Meets or Exceeds |
| | b) manufacturer's name, address, and telephone number | Meets or Exceeds |
| | c) manufacturer's part number or model designation for the equipment | Meets or Exceeds |
| | d) intended use and purpose of the equipment | Meets or Exceeds |
| | e) proper method of use and limitations on use of the equipment | Meets or Exceeds |
| | f) illustrations showing locations of markings on the equipment | Meets or Exceeds |
| | g) reproduction of printed information on all markings | Meets or Exceeds |
| | h) inspection procedures required to assure the equipment is in serviceable condition and operating correctly | Meets or Exceeds |
| | i) anchorage requirements | Meets or Exceeds |
| | j) criteria for discarding equipment which fails inspection | Meets or Exceeds |
| | k) procedures for cleaning, maintenance, and storage | Meets or Exceeds |
| | l) reference to the Z359 standards and applicable regulations governing occupational safety | Meets or Exceeds |
| | m) proper installation means and limitations on the type of anchorage connectors used, if any | Meets or Exceeds |
| | n) the diameter of rope or wire rope, and width and thickness of webbing used in the lanyard | Meets or Exceeds |
| | o) the fiber or other materials used in the lanyard construction | Meets or Exceeds |
| | p) SRD class and arrest distance when dynamically tested in accordance with the requirements of this standard | Meets or Exceeds |
| | q) how to determine fall clearance | Meets or Exceeds |
| | r) testing of the device for locking before each use | Meets or Exceeds |
| 5.2.3 | Instructions shall require that only the equipment manufacturer, or persons or entities authorized in writing by the manufacturer shall make repairs to the equipment | Meets or Exceeds |
| 5.2.4 | Instructions shall require the user to remove equipment manufacturer, or persons or entities authorized in writing by the manufacturer shall make repairs to the equipment | Meets or Exceeds |
| 5.2.5 | Instructions shall require the user to have a written rescue plan and the means at hand to implement it when using the equipment | Meets or Exceeds |

| 5.2.6 | Instructions shall provide warnings regarding: | |
|-------|--|------------------|
| | a) altering the equipment | Meets or Exceeds |
| | b) misusing the equipment | Meets or Exceeds |
| | c) using combinations of components or subsystems, or both, which may affect or interfere with the safe function of each other | Meets or Exceeds |
| | d) exposing the equipment to chemicals, high heat, severe cold or other harsh environments which may prouce a harmful effect and to consult the manufacturer in cases of doubt | Meets or Exceeds |
| | e) using the equipment around moving machinery and electrical hazards | Meets or Exceeds |
| | f) using the equipment near sharp edges and abrasive surfaces | Meets or Exceeds |
| | g) risk of striking an object or obstruction during a swing fall | Meets or Exceeds |
| | h) that the consequences or improperly using the device, not following instructions or markings may cause serious injury or death | Meets or Exceeds |

Notes

4.2.1 Dynamic Performance Testing of Self-Retracting Devices

Requirements per 3.1.9

- a) Attach load cell to the drop test structure with the test anchorage connector used to qualify the drop test structure
- b) Connect 282lb (128kg) test weight to lanyard of the device. Attach quick release mechanism to the test weight and attach the hoisting means to the quick release mechanism
- c) Hoist test weight so that 36±1in. (914±25mm) of device line is extended from the orifice. The horizontal distance between the quick release mechanism and the device shall not exceed 12in. (305mm)
- d) Do not lock device and do not inhibit retraction of the lanyard
- e) Release test weight by activating the quick release mechanism
- f) Record the average arresting force, arrest distance, and retraction tension
- g) Check for visual indicator activation

4.2.1 Dynamic Performance Testing of Self-Retracting Devices

Requirements per 3.1.9

| Samples | Sample # 01 | Sample # 02 | Sample # 03 |
|---|-------------|-------------|-------------|
| SRL Locks per 3.1.2 | Yes | Yes | Yes |
| Visual Indicator Activities | Yes | Yes | Yes |
| Max Arrest Force <1,800lb | 1334.73 | 1410.81 | 1344.61 |
| Average Arrest Force Class A <1,350lb / Class B <900lb | 963.87 | 945.64 | 973.93 |
| Arrest Distance: Class A <= 24" / Class B <= 54" | 15.25 | 15.25 | 13.25 |
| Payout/Retraction Test per 3.1.6 (data below) | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

4.2.6 Retraction Tension Testing of Self-Retracting Device Line - requirements per 3.1.6

| Retraction Tension (lb) | Sample# 01 (lb) | Sample# 02 (lb) | Sample# 03 (lb) |
|---------------------------------|-----------------|-----------------|-----------------|
| Force @ 1' | 2.2 | 2 | 2.2 |
| Force @ 20% | 2.6 | 2.6 | 3.2 |
| Force @ 40% | 3.3 | 3.3 | 3.6 |
| Force @ 60% | 3.8 | 4.5 | 3.8 |
| Force @ 80% | 4.6 | 3.7 | 4 |
| Force @ 100% | 7.2 | 6.4 | 7.3 |
| Retracted length less than 60"? | Yes | Yes | Yes |

Notes

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - hot**
Requirements per 3.1.9

- a) Attach load cell to the drop test structure with the test anchorage connector used to qualify the drop test structure
- b) Connect 282lb (128kg) test weight to lanyard of the device. Attach quick release mechanism to the test weight and attach the hoisting means to the quick release mechanism
- c) Hoist test weight so that 36±1in. (914±25mm) of device line is extended from the orifice. The horizontal distance between the quick release mechanism and the device shall not exceed 12in. (305mm)
- d) Do not lock device and do not inhibit retraction of the lanyard
- e) Release test weight by activating the quick release mechanism
- f) Record the average arresting force, arrest distance, and retraction tension
- g) Check for visual indicator activation

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - hot**
Requirements per 3.1.9

| Samples | Sample # 04 | Sample # 05 | Sample # 06 |
|---|-------------|-------------|-------------|
| SRL Locks per 3.1.2 | Yes | Yes | Yes |
| Visual Indicator Activities | Yes | Yes | Yes |
| Max Arrest Force <1,800lb | 1406.95 | 1266.86 | 1527.15 |
| Average Arrest Force Class A <1,350lb / Class B <900lb | 875.08 | 859.51 | 1024.22 |
| Arrest Distance: Class A <= 24" / Class B <= 54" | 16 | 17.5 | 16.25 |
| Payout/Retraction Test per 3.1.6 (data below) | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

4.2.6 Retraction Tension Testing of Self-Retracting Device Line - requirements per 3.1.6

| Retraction Tension (lb) | Sample# 04 (lb) | Sample# 05 (lb) | Sample# 06 (lb) |
|---------------------------------|-----------------|-----------------|-----------------|
| Force @ 1' | 1.5 | 1.4 | 2.3 |
| Force @ 20% | 2.5 | 1.7 | 2.4 |
| Force @ 40% | 2.5 | 2.2 | 3.3 |
| Force @ 60% | 2.9 | 2.7 | 3.6 |
| Force @ 80% | 3.7 | 2.6 | 3.8 |
| Force @ 100% | 4.6 | 3.6 | 4.0 |
| Retracted length less than 60"? | Yes | Yes | Yes |

Notes

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - Cold**
Requirements per 3.1.9

- a) Attach load cell to the drop test structure with the test anchorage connector used to qualify the drop test structure
- b) Connect 282lb (128kg) test weight to lanyard of the device. Attach quick release mechanism to the test weight and attach the hoisting means to the quick release mechanism
- c) Hoist test weight so that 36±1in. (914±25mm) of device line is extended from the orifice. The horizontal distance between the quick release mechanism and the device shall not exceed 12in. (305mm)
- d) Do not lock device and do not inhibit retraction of the lanyard
- e) Release test weight by activating the quick release mechanism
- f) Record the average arresting force, arrest distance, and retraction tension
- g) Check for visual indicator activation

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - Cold**
Requirements per 3.1.9

| Samples | Sample # 07 | Sample # 08 | Sample # 09 |
|---|-------------|-------------|-------------|
| SRL Locks per 3.1.2 | Yes | Yes | Yes |
| Visual Indicator Activities | Yes | Yes | Yes |
| Max Arrest Force <1,800lb | 1185.69 | 1401.34 | 1479.21 |
| Average Arrest Force Class A <1,350lb / Class B <900lb | 870.67 | 922.07 | 982.25 |
| Arrest Distance: Class A <= 24" / Class B <= 54" | 15 | 18 | 29 |
| Payout/Retraction Test per 3.1.6 (data below) | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

4.2.6 Retraction Tension Testing of Self-Retracting Device Line - requirements per 3.1.6

| Retraction Tension (lb) | Sample# 07 (lb) | Sample# 08 (lb) | Sample# 09 (lb) |
|---------------------------------|-----------------|-----------------|-----------------|
| Force @ 1' | 2.3 | 2.3 | 2.4 |
| Force @ 20% | 3.1 | 2.5 | 2.8 |
| Force @ 40% | 3.8 | 3.3 | 3.4 |
| Force @ 60% | 4.2 | 3.2 | 2.8 |
| Force @ 80% | 4.3 | 3.5 | 4.4 |
| Force @ 100% | 7.7 | 7.2 | 7.3 |
| Retracted length less than 60"? | Yes | Yes | Yes |

Notes

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - wet**
Requirements per 3.1.9

- a) Attach load cell to the drop test structure with the test anchorage connector used to qualify the drop test structure
- b) Connect 282lb (128kg) test weight to lanyard of the device. Attach quick release mechanism to the test weight and attach the hoisting means to the quick release mechanism
- c) Hoist test weight so that 36±1in. (914±25mm) of device line is extended from the orifice. The horizontal distance between the quick release mechanism and the device shall not exceed 12in. (305mm)
- d) Do not lock device and do not inhibit retraction of the lanyard
- e) Release test weight by activating the quick release mechanism
- f) Record the average arresting force, arrest distance, and retraction tension
- g) Check for visual indicator activation

**4.2.1 Dynamic Performance Testing of
Self-Retracting Devices - wet**
Requirements per 3.1.9

| Samples | Sample # 10 | Sample # 11 | Sample # 12 |
|---|-------------|-------------|-------------|
| SRL Locks per 3.1.2 | Yes | Yes | Yes |
| Visual Indicator Activities | Yes | Yes | Yes |
| Max Arrest Force <1,800lb | 1409.01 | 1251.96 | 1463.25 |
| Average Arrest Force Class A <1,350lb / Class B <900lb | 857.27 | 855.40 | 889.96 |
| Arrest Distance: Class A <= 24" / Class B <= 54" | 17.5 | 19.5 | 19 |
| Payout/Retraction Test per 3.1.6 (data below) | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

4.2.6 Retraction Tension Testing of Self-Retracting Device Line - requirements per 3.1.6

| Retraction Tension (lb) | Sample# 10 (lb) | Sample# 11 (lb) | Sample# 12 (lb) |
|---------------------------------|-----------------|-----------------|-----------------|
| Force @ 1' | 1.8 | 2.7 | 2.7 |
| Force @ 20% | 2.5 | 3.6 | 3.05 |
| Force @ 40% | 3.4 | 3.0 | 4.4 |
| Force @ 60% | 3.9 | 4.65 | 4.6 |
| Force @ 80% | 4.0 | 5.20 | 5.1 |
| Force @ 100% | 4.25 | 5.75 | 6.1 |
| Retracted length less than 60"? | Yes | Yes | Yes |

Notes

4.2.3 Dynamic Strength Testing of Self-Retracting Devices

Requirements per 3.1.8

- a) Attach device directly to drop test structure
- b) Connect 300lb (136kg) test weight to SRL lifeline
- c) Extract line from the device and prevent retraction by means of a clamp on the line just outside the device orifice. Extract enough line to allow a 4ft (1.2m) fall. Do not lock the device
- d) Attach quick release mechanism to the test weight and attach the hoisting means to the quick release mechanism.
- e) Hoist test weight to permit 4ft (1.2m) free fall. The horizontal distance between the quick release mechanism and the orifice of the device shall not exceed 12in. (305mm)
- f) Release test weight using the quick release mechanism and evaluate in accordance with 3.1.8

4.2.3 Dynamic Strength Testing of Self-Retracting Devices

Requirements per 3.1.8

| Samples | Sample # 13 | Sample # 14 | Sample # 15 |
|-------------------------------------|-------------|-------------|-------------|
| SRL locks | Yes | Yes | Yes |
| SRL remains locked until released | Yes | Yes | Yes |
| Test weight shall not strike ground | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

4.2.3 Residual Dynamic Strength Testing of Self-Retracting Devices

Requirements per 3.1.8

- a) In accordance with the manufacturer's anchoring instructions, attach the device directly to the drop test structure specified in 4.1.1.
- b) Connect the 300 pound (136kg) test weight specified in 4.1.2 to the line constituent of the device.
- c) Extract line from the device and prevent it from retracting by means of a clamp on the line just outside the device orifice. Extract enough line to allow a 4 foot (1.2m) fall of the test weight before the line begins to pay out as evidenced by movement of the clamp. Do not lock the device.
- d) Attach the quick release mechanism specified in 4.1.4 to the test weight and attach the hoisting means to the quick release mechanism. Hoist the test weight to the elevation permitting a 4 foot (1.2m) fall of the test weight excluding activation distance. the horizontal distance between the quick release mechanism and the orifice of the device shall not exceed 12 inches (305mm). See figure 6.
- e) Release the test weight using the quick release mechanism. Evaluate the line constituent strength over the affected section in accordance with 7.1, 7.2, 7.3 or 7.5 whichever is applicable.
- f) Compare the test results with the requirements set forth in 3.1.8.

4.2.3 Residual Dynamic Strength Testing of Self-Retracting Devices

Requirements per 3.1.8

| Samples | Sample # 13 | Sample # 14 | Sample # 15 |
|-------------------------------------|-------------|-------------|-------------|
| Actual weight applied <1,000lb | 1034.24 | 1022.03 | 1021.85 |
| SRL locks | Yes | Yes | Yes |
| SRL remains locked until released | Yes | Yes | Yes |
| Test weight shall not strike ground | Yes | Yes | Yes |
| Result/Assessment | Pass | Pass | Pass |

**4.2.5 Static Strength Testing of
Self-Retracting Devices**
Requirements per 3.1.7

- a) Shorten the lanyard constituent from the free end to allow installation in the static tensile test equipment specified in 4.1.5. See Figure 7.
- b) With the lanyard constituent fully extracted, install the device in the tensile test equipment and apply a load of 3,000 +60/-0 pounds (13.3 +.26/-0kn) across the device. maintain the load for a period of one minute.
- c) Compare the test results with the requirements set forth in 3.1.7.

**4.2.5 Static Strength Testing of
Self-Retracting Devices**
Requirements per 3.1.7

| Samples | Sample # 19 | Sample # 20 | Sample # 21 |
|------------------------------|----------------|----------------|----------------|
| SRL Withstands tensile load | Yes | Yes | Yes |
| Actual load applied <3,000lb | 3013.02 | 3013.06 | 3001.82 |
| Result/Assessment | Pass | Pass | Pass |

Notes