



Regulations: (PFAS's) Personal Fall Arrest Systems (Part #2 Connector Devices)

An anchorage connector, is the component used to join the connecting device (shock absorbing lanyard or self-retracting lifeline) to the anchorage.

General Codes: OSHA Standard Subpart M - Fall Protection - 1926.501(b)(1) "Unprotected sides and edges." Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems..

Anchorage: OSHA Standard Subpart M – Fall Protection - 1926.502(d)(15) Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows: 1926.502(d)(15)(i) as part of a complete personal fall arrest system which maintains a safety factor of at least two; and 1926.502(d)(15)(ii) under the supervision of a qualified person.

Connections: OSHA Standard Subpart M – Fall Protection - 1926.502(d) - (1) Lifelines, lanyards and deceleration devices should be attached to an anchorage and connected to the body-belt or body harness in the same manner as they would be when used to protect employees. (2) The anchorage should be rigid and should not have a deflection greater than 0.04 inches (1 mm) when a force of 2,250 pounds (10 kN) is applied. (3) The frequency response of the load measuring instrumentation should be 500 Hz. (4) The test weight used in the strength and force tests should be a rigid, metal, cylindrical or torso-shaped object with a girth of 38 inches plus or minus 4 inches (96 cm plus or minus 10 cm). (5) The lanyard or lifeline used to create the free fall distance should be supplied with the system, or in its absence, the least elastic lanyard or

quandel.com

lifeline available to be used with the system. (6) The test weight for each test should be hoisted to the required level and should be quickly released without having any appreciable motion imparted to it. (7) The system's performance should be evaluated taking into account the range of environmental conditions for which it is designed to be used. (8) Following the test, the system need not be capable of further operation.

OSHA Standard Subpart M – Snap-Hooks - 1926.502(d)(6), the following connections must be avoided (unless professionally designed locking snaphooks are used) because they are conditions which can result in roll-out when a non-locking snaphook is used: (i) Direct connection of a snaphook to a horizontal lifeline. (ii) Two (or more) snaphooks connected to one D-ring. (iii) Two snaphooks connected to each other. (iv) A snaphook connected back on its integral lanyard. (v) A snaphook connected to a webbing loop or webbing lanyard. (vi) Improper dimensions of the D-ring, rebar, or other connection point in relation to the snaphook dimensions which would allow the snaphook keeper to be depressed by a turning motion of the snaphook.

Training: OSHA Standard Subpart M – Fall Protection - 1926.502(d)(16) Personal fall arrest systems, when stopping a fall, shall: OSHA Standard Subpart M – Fall Protection - The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards. 1926.503(a)(1)

CONNECTING DEVICE OPTIONS

Energy-absorbing lanyards, self-retracting lifelines, rope grabs, or retrieval systems:

1. Lanyard is literally defined as a flexible line securing



a full-body harness to an anchorage point. Energy absorbing lanyards reduce the energy transmitted to the user's body in the event of a fall. Shock absorbing lanyards also provide deceleration distance during a fall.

2. Self-retracting lifelines reduce the free-fall distance and energy loads from a fall. SRL's also enable greater horizontal and vertical mobility than standard six-foot shock absorbing lanyards. There are great benefits to using SRL's, including shorter activation and arresting distances, which reduce the risk of worker's impacting the ground or lower level below.
3. Rope Grab type deceleration systems, the length of the lifeline above the centerline of the grabbing mechanism to the lifeline's anchorage point should not exceed 2 feet (0.61 m).

CONSIDERATIONS

When selecting the right type of connecting device for your specific personal fall arrest needs:

1. Application and Environmental Conditions—this includes the presence of moisture, dirt, grease, oil, acids, hazards and obstructions, and ambient temperature.
2. Potential Fall Distance—your potential fall distance is usually greater than anticipated. It's important to consider the length of your connecting device, along with the length of elongation during deceleration, worker height, and an added safety factor.
3. System Component Compatibility—It's crucial to design and test your PFAS as a complete system because components from multiple manufacturers may not be compatible with one another. Incompatible or non-interchangeable components can easily cause roll-out.
4. Product Quality and Regulations—Don't skimp on your PFAS components. The better the quality, the safer the worker. Furthermore, although OSHA regulations are enforced by a federal agency, ANSI standards are suggestive and self-enforced. Even so, ANSI standards should not be taken for granted. Use ANSI standards alongside OSHA regulations as part of a stated performance indicator. ANSI standards are written to save lives and prevent worker injury and should not be taken lightly.

INSPECTIONS:

General Inspection Criteria

1. Application and Environmental Conditions—this includes the presence of moisture, dirt, grease, oil, acids, hazards and obstructions, and ambient temperature.
2. Corrosion: Look for excessive corrosion that could compromise operation or strength.
3. Markings: Ensure all markings are clear and legible.

Hardware: (Includes snap hooks, carabiners, adjusters, keepers, thimbles, and D-rings). Inspect for any damage, distortion, sharp edges, burns, cracks, corrosion, or improper functioning.

SPECIFIC COMPONENTS TO INSPECT:

When selecting the right type of connecting device for your specific personal fall arrest needs:

General Inspection Criteria

1. Webbing: Look for cuts, burns, tears, abrasions, frays, stains, or discoloration.
2. Stitching: Check for pulled or damaged stitches.
3. Synthetic Rope: Inspect for pulled or cut fibers, burns, abrasions, knots, stains, or discoloration. Hooks: Examine for corrosion, kinks, or strand separation.
4. Energy Absorbing Component: Check for signs of elongation, tears, or stains.
5. Locking Mechanisms: Verify that springs are intact and free from corrosion, damage, or wear.
6. Terminations: Inspect splices, stitches, or swages for integrity.
7. Labels: Ensure all labels are securely attached and clearly legible.

GENERAL GUIDELINES – ALL RETRACTABLE DEVICES MUST BE RE-CERTIFIED EVERY 5 YEARS:

1. Physical Damage: Check for cracks, sharp edges, burns, deformities, and proper locking functionality.
2. Corrosion: Look for excessive corrosion that could compromise the device's strength or operation.
3. Markings: Ensure markings are visible and legible.
 - Hardware: (Including snap hooks, carabiners, adjusters, keepers, thimbles, and D-rings) should be inspected for damage, distortion, sharp edges, burns, cracks, corrosion, and proper functioning.

SPECIFIC COMPONENTS TO INSPECT:

General Inspection Criteria

1. Webbing: Look for cuts, burns, tears, abrasions, frays, stains, or discoloration.
2. Stitching: Check for stitches that are pulled, cut, or damaged.
3. Synthetic Rope: Inspect for pulled or cut fibers, burns, abrasions, knots, stains, or discoloration.
4. Hooks: Examine for corrosion, kinks, or separation of strands.
5. Energy Absorbing Component: Check for elongation, tears, or soiling that could affect performance.
6. Locking Mechanisms: Verify that springs, locking components, and mechanisms are free from corrosion, damage, or wear.

7. Terminations: Ensure splices, stitches, or swages are intact and secure.
8. Labels: Confirm that all labels are securely attached and clearly legible.
9. Leading Edge Retractable: Must be used in areas where synthetic webbing or cables are at risk of being cut by sharp edges on work surfaces or roof edges.

WHAT YOU NEED TO KNOW ABOUT CONNECTIONS FOR PFAS'S

1. SOP – If you are not sure that you meet or understand all the requirements listed below STOP WORK IMMEDIATELY and contact us at (717) 925-“RISK” – (717) 925-7475 or Josh or Denny directly – (717) 514-9560 or (717) 648-9999.
2. Design & Compatibility – It is permitted to use different brand equipment with other manufactures, but it is “BEST” to use equipment designed to work together.
3. Safety Factor - Everything related to a PFAS needs a safety factor of 2. Good question to ask yourself. Would you put your son or daughter in a PFAS that had a questionable connection piece of equipment or point?
4. Qualified Supervision - Utilization of a PFAS must be overseen by a “Qualified Person.” OSHA 1926.32(m) Qualified means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.
5. Connection – Connectors need to be made and utilized as required by OSHA and the manufacturer of any piece of equipment.
6. Manufacturers Requirements – Considering all the options available it is essential that all the manufacturers use requirements are followed.
7. All Employees Must Be Trained – Nobody is permitted to utilize a connector without being specifically train for its proper use, inspection and limitations.
8. Never Use – Connectors are designed for specific systems and may work in conjunction with different manufacturers but never use 2 different systems in combination with each other.
9. Under ASNSI - ANSI Z359.18; specifically, “ANSI Z359.18-2017” refers to the latest version which outlines manufacturing and performance requirements for fall protection a connector, including detailed testing procedures for strength and serviceability.
10. Under ASNSI - ANSI Z359.14-2021
This standard covers the performance, design, and testing requirements for self-retracting devices

(SRDs). It includes new requirements such as:

- A maximum deceleration distance of 42 in
 - A user weight capacity of 130–310 lbs.
 - A testing mass of 310 lbs.
 - A warning card for Class 2 SRDs
 - The re-designation of Class A and Class B devices as Class 1 or Class 2
11. Why Does ASNSI Apply - If OSHA believes a workplace hazard is “recognized” based on an applicable ANSI standard, they can use the “General Duty Clause Section 5(a)(1)”of the Occupational Safety and Health Act of 1970, to cite an employer for not taking necessary precautions to mitigate that hazard.
 12. What Really Matters? – That nobody on any of our job sites or any associate gets injured or dies because we did not provide the correct equipment or training, or because you did not practice or question the SOP for any task. WHEN IN DOUBT- “STOP WORK” and validate correct utilization.

OSHA. “1926.501 - Duty to Have Fall Protection. | Occupational Safety and Health Administration.” Osha.gov, 2019, www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.501.

OSHA. “1926.502 - Fall Protection Systems Criteria and Practices. | Occupational Safety and Health Administration.” Osha.gov, 2019, www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.502.

Fall, Ladder. “Vertical Lifeline Systems | Ladder Fall Protection.” Engineeredfallprotection.com, 2024, www.engineeredfallprotection.com/vertical-lifeline-systems?gad_source=5&gclid=EAlalQobChMIk-yU2b3SigMV8qBaBR2HYxt2EAYASAAEgJ8YVD_BwE. Accessed 31 Dec. 2024.

“Harness Inspection Guide.” Osha.gov, www.osha.gov/sites/default/files/2018-12/fy15_sh-27664-sh5_Lifeline_Harness_Inspection_Guide.pdf.

“1926.32 - Definitions. | Occupational Safety and Health Administration.” Osha.gov, 2019, www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.32.

“Z359 - Fall Protection & Arrest Standards.” Ansi.org, 2018, webstore.ansi.org/industry/safety/z359-fall-protection. Accessed 31 Dec. 2024.

Alexander, Jill. “ANSI Z359.18-2017: The New Anchorage Connector Stan - HySafe.” HySafe, 15 Oct. 2018, hysafe.com/ansi-z359-18-2017-the-new-anchorage-connector-standard/. Accessed 31 Dec. 2024.