

FALLTECH MANC36 Removable Concrete Anchor Instruction Manual

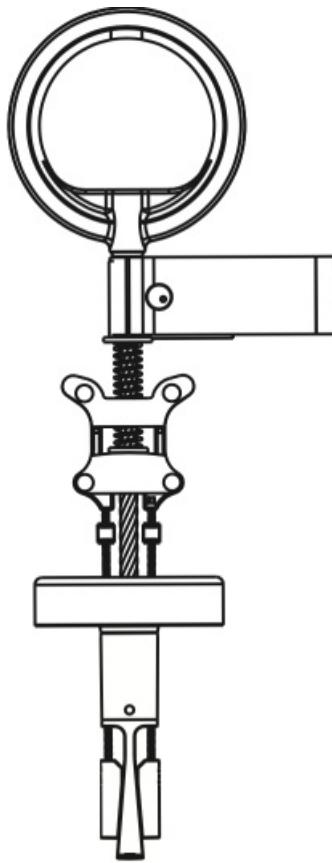
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FALLTECH MANC36 Removable Concrete Anchor



This manual is intended to meet the Manufacturer's Instructions as required by the American National Standards Institute (ANSI) Z359 and should be used as part of an employee training program as required by the Occupational Safety and Health Administration (OSHA).

For purposes of this manual, the FallTech® Removable Concrete Anchor, in all iterations may be referred to collectively as the Concrete Anchor, the Anchor, the anchorage connector, the equipment, the device, the product, or the unit.

Warnings and Important Information

WARNING

- Avoid moving machinery, thermal, electrical, and/or chemical hazards as contact may cause serious injury or death.
- Avoid swing falls.
- Follow the weight restrictions and recommendations in this manual.
- Remove from service any equipment subjected to fall arrest forces.
- Remove from service any equipment that fails inspection.
- Do not alter or intentionally misuse this equipment.
- Consult FallTech when using this equipment in combination with components or subsystems other than those described in this manual.
- Do not connect rebar hooks, large carabiners, or large snap hooks to the FBH dorsal D-rings as this may cause a roll-out condition and/or unintentional disengagement.
- Avoid sharp and/or abrasive surfaces and edges.
- Use caution when performing arc welding. Arc flash from arc welding operations, including accidental arcs from electrical equipment, can damage equipment and are potentially fatal.

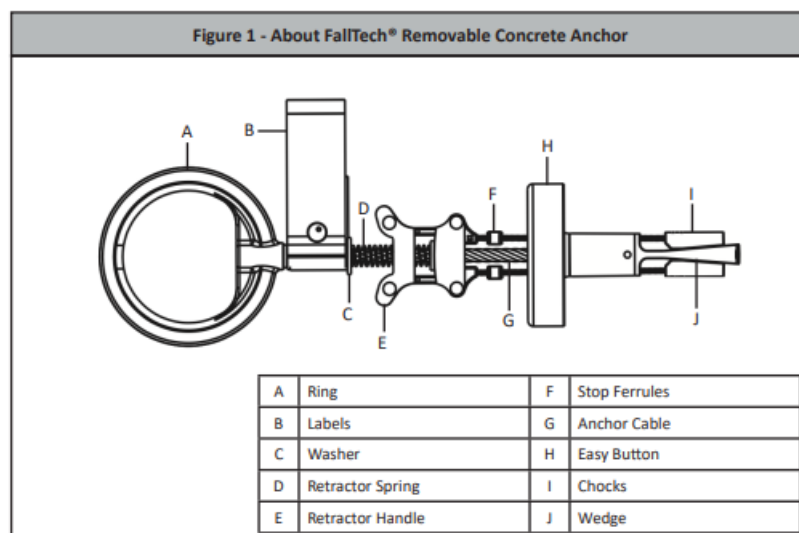
- Examine the work area. Be aware of the surroundings and workplace hazards that may impact safety, security, and the functioning of fall arrest systems and components.
- Hazards may include but not be limited to cable or debris tripping hazards, equipment failures, personnel mistakes, moving equipment such as carts, barrows, fork lifts, cranes, or dollies. Do not allow materials, tools or equipment in transit to contact any part of the fall arrest system.
- Do not work under suspended loads.

IMPORTANT

- This product is part of a personal fall arrest, restraint, work positioning, suspension, or rescue system. A Personal Fall Arrest System (PFAS) is typically composed of an anchorage and a Full Body Harness (FBH), with a connecting device, i.e., an Energy Absorbing Lanyard (EAL), or a Self-Retracting Device (SRD), attached to the dorsal D-ring of the FBH.
- These instructions must be provided to the worker using this equipment. The worker must read and understand the manufacturer's instructions for each component or part of the complete system. Manufacturer's instructions must be followed for proper use, care, and maintenance of this product. These instructions must be retained and be kept available for the worker's reference at all times. Alterations or misuse of this product, or failure to follow instructions, may result in serious injury or death.
- A Fall Protection Plan must be on file and available for review by all workers. It is the responsibility of the worker and the purchaser of this equipment to assure that users of this equipment are properly trained in its use, maintenance, and storage. Training must be repeated at regular intervals. Training must not subject the trainee to fall hazards.
- Consult a doctor if there is reason to doubt your fitness to safely absorb the shock of a fall event. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women or minors must not use this equipment.
- Heavy users experience more risk of serious injury or death due to falls because of increased fall arrest forces placed on the user's body. In addition, the onset of suspension trauma after a fall even may be accelerated for heavy users.
- The user of the equipment discussed in this manual must read and understand the entire manual before beginning work.

Description

The FallTech® Removable Concrete Anchor described in this manual is designed to provide a temporary anchorage for personal fall arrest, work positioning, and restraint systems. All of the anchors in this manual are configured to fit into a pre-drilled hole in concrete in such a manner that they become wedged in place during installation and capable of supporting the intended loads of the aforementioned systems. Upon job completion the anchors are mechanically designed to be removed for reuse.



WARNING

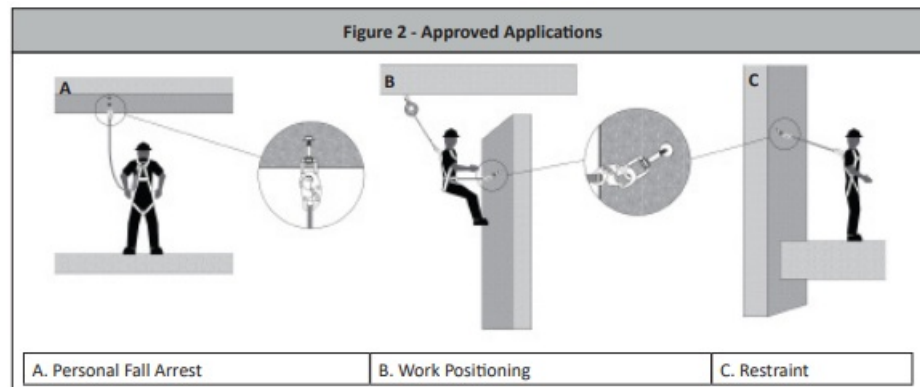
Be sure to read, understand, and follow all instructions and warnings in this manual. Any misuse could result in serious injury or death.

Application

- Purpose:** The FallTech® Removable Concrete Anchor is designed to be placed into a pre-drilled hole in minimum 3,000 psi fully cured concrete. The anchors described in this manual have specific installation requirements relative to concrete thickness and edge distance. The overall structure to which the anchor is attached must be capable of supporting 3,600 lbs. The anchors may be installed overhead, vertically, or horizontally. Installation of the anchor below the full body harness (FBH) dorsal D-ring requires the use of a PFAS designed for extended free fall scenarios. When properly installed, the anchors may be used as part of a PFAS, restraint or work positioning system. See Section 5.6 for specific installation requirements.
- Personal Fall Arrest System:** A PFAS is typically composed of an anchorage and a FBH, with an energy absorbing connecting device, i.e., a EAL, an SRD, or a Fall Arrester Connecting Subsystem (FACSS), attached to the dorsal D-ring of properly fitted and adjusted FBH. All uses and applications of a FBH with this equipment requires the FBH to be properly fitted and adjusted to the user. Failure to properly fit the FBH to the user could result in serious injury or death.
- Application Limits:** When using the anchor discussed in this manual care should be taken to ensure that the units have been installed using the correct tools, that the hole depth and diameter conform with the installation instructions, and that the substrate is of strength enough to support the intended loads. In addition, care should be taken when reusing the anchor in a previously drilled hole and/or if the anchor becomes lodged in place and becomes difficult to remove. IN ALL CASES, A COMPETENT PERSON SHALL INSPECT FOR PROPER INSTALLATION AND REMOVAL OF THE REMOVABLE CONCRETE ANCHOR.
- Approved Applications:** Below are applications for which the Removeable Concrete Anchor are specifically suited. This list is not all-inclusive, but is intended to anticipate the most common applications in which this product may be used. See Figure 2.
 - Personal Fall Arrest:** The 7443 is designed to be used as single person anchor point with a maximum tensile strength of 3,600 lbs. Use for the attachment of Horizontal Lifeline systems is prohibited. Use for the purpose of suspension is prohibited.
 - Work Positioning:** The FallTech® Removable Concrete Anchor may be used as a component of a work

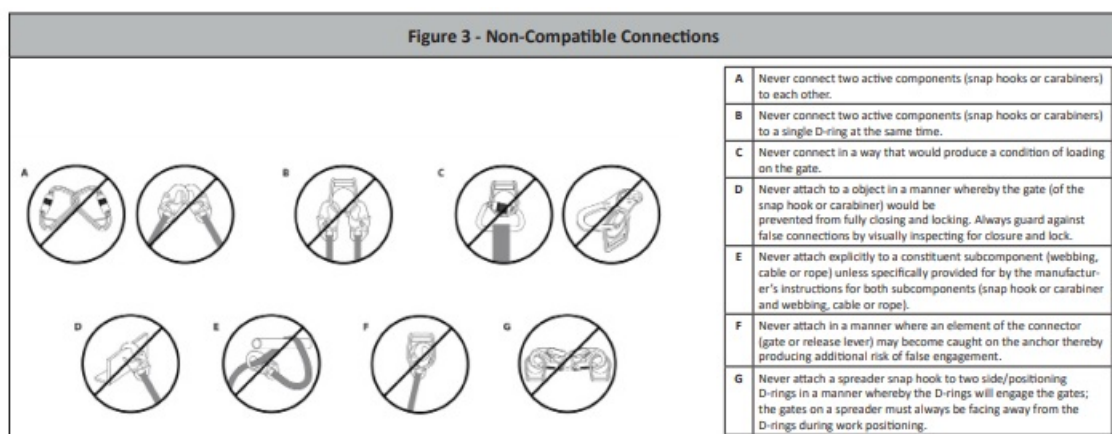
positioning system to support the user at a work position. Work positioning systems typically include an FBH with integrated side D-rings, a body belt, and a positioning lanyard. A back up PFAS is required when the user is exposed to a free fall of 2 ft (1.8 m) or more.

- **Restraint:** The FallTech® Removable Concrete Anchor may be used as a component of a restraint system to prevent the user from reaching a fall hazard. Restraint systems typically include a full body harness containing a body belt and a lanyard or restraint line.



System Requirements

- **Capacity:** The FallTech® Removable Concrete Anchor discussed in this manual is rated for a maximum total combined (clothing, tools, etc.) user weight of 425 lbs (192.8 kg). Heavyweight users must wear an appropriately rated connecting device or self-retracting lifeline. After a fall event, suspension trauma may rapidly develop. Users are advised to deploy suspension trauma relief equipment as soon as possible after a fall event.
- **Compatibility of Connectors:** Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to open inadvertently regardless of how they become oriented. Contact FallTech® if you have any questions about compatibility. Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Non-compatible connectors may unintentionally disengage. Connectors must be compatible in size, shape, and strength. Substitutions or replacements made with non-OSHA 1926 compliant components or subsystems may jeopardize compatibility of equipment and may affect the safety and reliability of the complete system.
- **Making Connections:** Only use self-locking connectors with this equipment. Only use connectors that are suitable to each application. Ensure all connections are compatible in size, shape, and strength. Do not use equipment that is not compatible. Visually ensure all connectors are fully closed and locked. Connectors (snap hooks, rebar hooks, and carabiners) are designed for use only as specified in this manual.



- **Personal Fall Arrest System:** PFAS used with this equipment must meet OSHA requirements. A full body harness must be worn when this equipment is used as a component of a PFAS. As required by OSHA, the personal fall arrest system must be able to arrest the user's fall with a maximum arresting force (MAF) of 1,800 lbs (8 kN), and limit the free fall to 6 ft (1.8 m).
- **Personal Fall Arrest System Anchorage Strength:** PFAS Anchorage Strength: An anchorage selected for PFAS must have a strength able to sustain a static load applied in the direction permitted by the PFAS of at least:
 - Two times the maximum arrest force permitted when certification exists, or
 - 5,000 lbs. (22.2 kN) in the absence of certification.

Select an anchorage location carefully. Consider structural strength, obstructions in the fall path, and swing fall hazards. In certain situations, the qualified person can determine that a given structure is able to withstand the applied MAF of the PFAS with a safety factor of at least two.

Installation and Use

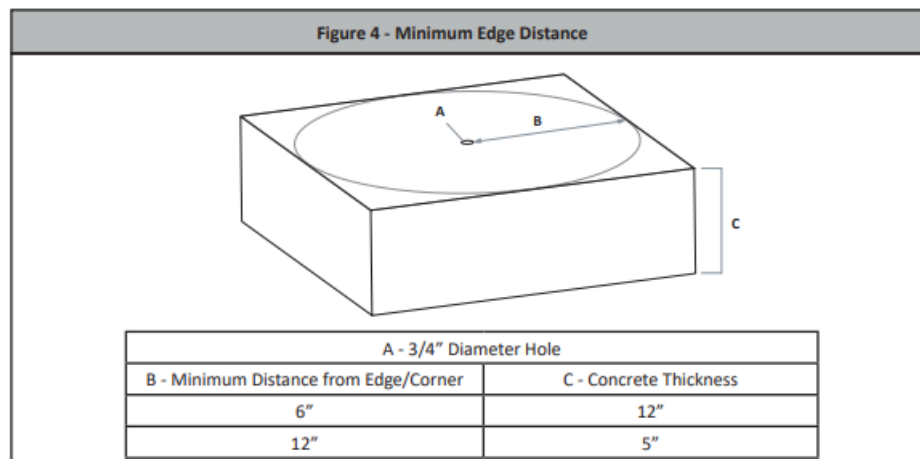
WARNING

Do not alter or intentionally misuse this equipment. Consult FallTech® when using this equipment in combination with components or subsystems other than those described in this manual. All components or subsystems used with the anchors discussed in this manual must be in compliance with OSHA. Take action to avoid sharp and/or abrasive surfaces and edges when possible.

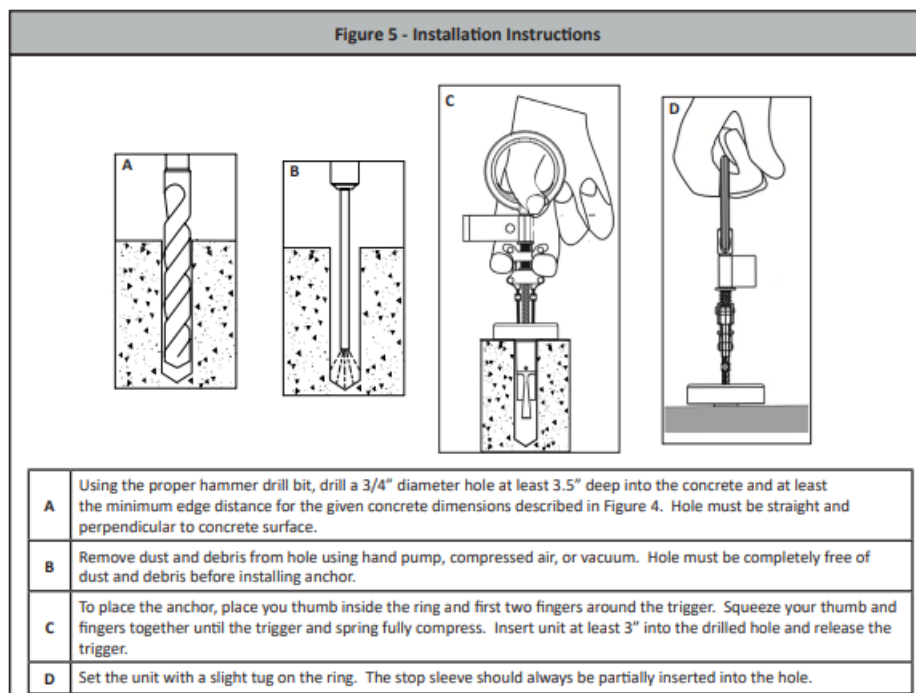
- **Plan the Personal Fall Arrest System (PFAS):** Examine the work area and take action to address hazards. Falls are a serious hazard when working at height. Training and equipment are the tools of fall hazard management. There are several closely related facets of fall hazard management with a PFAS;
 - Anchorage
 - Minimum Required Fall Clearance (MRFC)
 - Swing Fall and Expanded Work Zone
 - Overhead (above the FBH D-ring) Anchorage
 - Non-overhead (below the FBH D-ring) Anchorage
 - Rescue Plan
- **Pre-Use Inspection:** Inspect the FallTech® Removable Concrete Anchor thoroughly before each use. Ensure the label is affixed to the anchor, the cable is not kinked or frayed, the metal chocks, and tapered end fittings operate smoothly and no metal burrs exist. If any of these conditions exist, remove from service. When reusing a previously drilled hole, always inspect the hole for damage or wear.
- **Anchorage:** Select a suitable anchor point. See Section 4.5. To avoid an unintended disengagement of connectors, use only compatible connectors when connecting to the anchorage. Ensure all connectors close and lock securely.
- **Minimum Required Fall Clearance:** The MRFC is the minimum distance a user needs between himself and the nearest obstruction (or ground) below the walking/working surface to avoid serious injury or death in case of a fall event. The user of this equipment must determine the MRFC for units discussed in this manual to ensure adequate clearance exists in the fall path. Variables discussed in this manual include the height of the anchor point relative to the user's FBH D-ring, i.e., overhead, see the user manual of your specific connecting device.
- **Hole Drilling Requirements:** When boring the anchor insertion hole, a Rotary Hammer Drill and industrial grade drill bit shall be used to bore only into a concrete surface with a minimum 3,000 psi compressive

strength. The hole should be straight, free of peaks and valleys, uniform in diameter, and have the minimum required depth called for in the installation instructions detailed in Section 5.6 of this manual. The anchors described in this manual are for concrete only. Attempting to install the anchors in wood, hollow block, steel, or other substrates could cause anchor failure and result in serious injury or death.

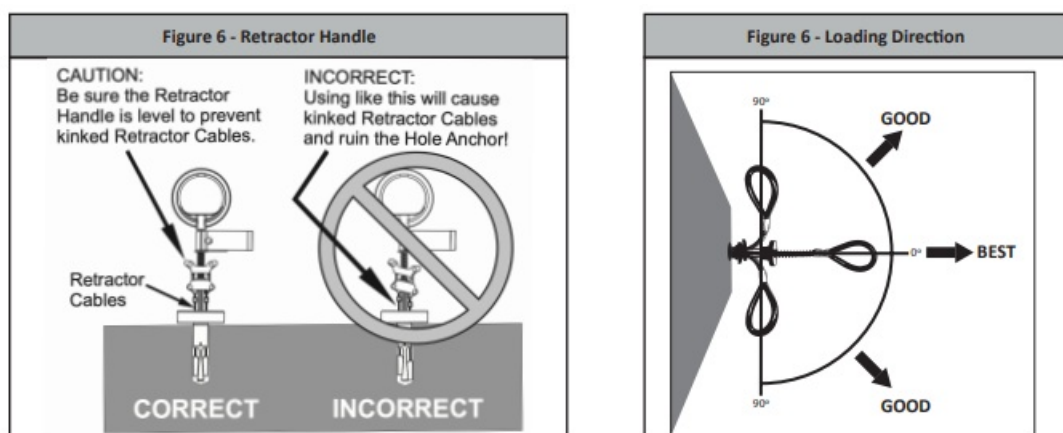
- Installation Instructions:
 - Using the proper hammer drill and 3/4" bit, drill a 3/4" diameter hole at least 3.5" deep into the concrete and at least the minimum edge distance for the given concrete dimensions described in Figure 4. Hole must be straight and perpendicular to concrete surface.
 - Remove dust and debris from hole using hand pump, compressed air, or vacuum. Hole must be completely free of dust and debris before installing anchor.
 - Place a thumb inside the Ring and first two fingers around the Retractor Handle. Pull up on the Retractor Handle to retract the chocks; see Figure 5.
 - Insert the anchor into the hole until the Easy Button seats against the hole face. Hold the Retractor Handle fully retracted while inserting the anchor into the hole. Keep the Retractor Handle level while slowly releasing; see Figure 6.
 - Set the anchor with a slight tug on the Ring.



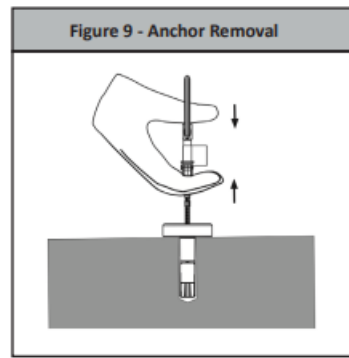
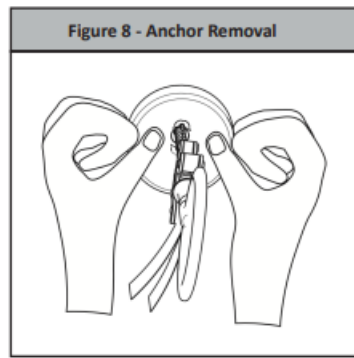
- **Cracked Concrete Installation:** The anchors described in this manual are designed for installation in uncracked concrete conditions. Use of these anchors in cracked concrete conditions is not allowed. For concerns over the suitability of substrate in a cracked concrete environment, a qualified engineer shall be consulted.
- **Re-installing the Anchor in a Previously Used Hole:** The anchors discussed in this manual may be re-inserted in a previously used anchor insertion hole that passes pre-use inspection. The previously used hole must still retain the same depth, diameter, and functional properties as described in the original installation requirements. Any anomalies such as cracking of the concrete, widening of the hole, or wearing of the hole from overuse will require the drilling of a new anchor insertion hole. If there is any doubt about the integrity of the anchor insertion hole, then a new hole must be drilled.



- **Retractor Handle:** The wedge chocks that bite into the concrete to secure the anchor may be positioned either vertically or horizontally. Best practice during installation of the anchor is to ensure the retractor handle is level with the surface. If the retractor handle is not level with the surface the cables will kink and the damage to the anchor will occur. See Figure 6.
- **Installation Orientation:** All Removable Concrete Anchors discussed in this manual, when deployed as single person anchors may self-orient or bend up to 90 degrees towards the user's work area and/or PFAS. Do not bend or pull the anchor beyond 90 degrees. See Figure 7.



- **Removal of the Anchor:**
 - To remove the anchor, push down on the Easy Button with both thumbs or palms to release the chocks; see Figure 8.
 - Pull the retractor handle to retract the chocks, pull the unit out of the hole; see Figure 9.
 - If the anchor is stuck, tap the Easy Button with any handy object until the anchor is dislodged .
 - If step 3 was required, immediately inspect the unit thoroughly. If damaged, remove from service immediately.



Maintenance, Service, and Storage

- **Maintenance:** Clean the FallTech® Removable Concrete Anchor with water and mild detergent. Do not allow excessive build-up of dirt, paint or other agents that may cause binding of the mechanism. Avoid water or other corrosion causing elements to enter the anchor.
- **Proper Care:**
 - Keep the Removable Concrete Anchor clean and free of contaminants, this will greatly increase the service life.
 - Use a damp rag and a mild soap and water solution to clean the hardware. Wipe the hardware dry with a clean soft cloth.
 - DO NOT use heat to dry.
 - DO NOT use any solvents or petroleum products to clean this anchor.
 - DO NOT attempt to repair or modify this Concrete Anchor or any of its components. Such attempts will void the warranty and may result in serious injury or death.
- **Storage:** Store in a clean, dry, and chemical free environment and kept out of direct sunlight.

Inspection

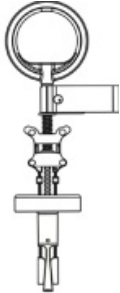
- **Pre-Use Inspection:** Please review the Pre-Use Inspection guidelines in Section 5.2 for inspection requirements.
- **Inspection Frequency:** Inspection by a competent person at regular intervals is required. The competent person will use the information in Table 1: Inspection Frequency, to determine the inspection frequency.

Table 1: Inspection Frequency			
Type of Use	Application Examples	Example Conditions of Use	Competent Person Inspection Frequency
Infrequent to Light Use	Rescue and confined space, factory maintenance	Good storage conditions, indoor or infrequent outdoor use, room temperature, clean environments	Annually
Moderate to Heavy Use	Transportation, residential construction utilities, warehouse	Fair storage conditions, indoor and extended outdoor use, all temperatures, clean or dusty environments	Semi-annually to annually
Severe to Continuous Use	Commercial construction, oil and gas, mining, foundry	Harsh storage conditions prolonged or continuous outdoor use, all temperatures, dirty environments	Quarterly to semi-annually

- **Inspection Results:** If an inspection reveals defects in or damage to the equipment, inadequate maintenance or activated fall indicators, remove the equipment from service.
- **Inspection Document:** Record inspection results on the Inspection Record provided below or on a similar

Specifications

Table 2: Specifications for FallTech® Removable Concrete Anchor

Model #	Application	Dimensions	Minimum Tensile Strength and Material	Maximum User Capacity	Image
7443 Expansion Wedge Anchor with Swaged Loop	Cured Concrete 3,000 psi Min	11½” ¾” Drilled Hole 3½” Min Hole Depth	3,600 lbs Stainless Steel and Plated Steel	425 lbs to comply with OSHA only	

Documents / Resources

	FALLTECH MANC36 Removable Concrete Anchor [pdf] Instruction Manual MANC36 Removable Concrete Anchor
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