



Instructions for the following series products:

Anchorage D-Bolt

Model Numbers: AN112A, 9504766

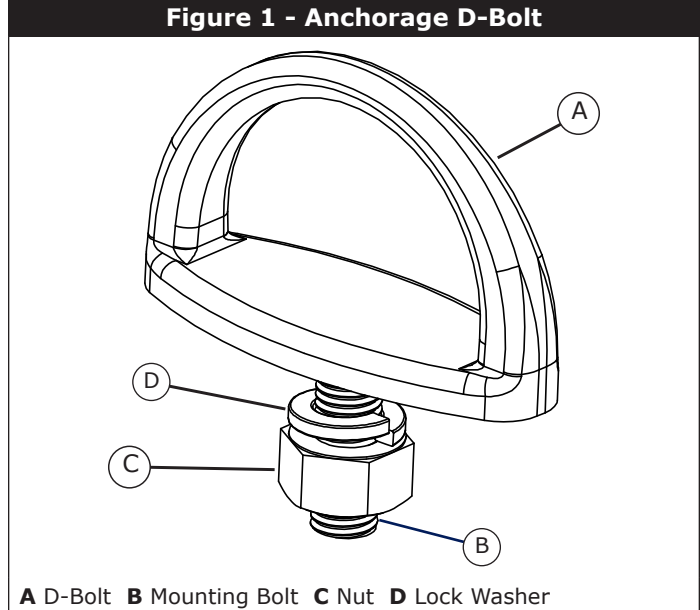
**USER INSTRUCTION MANUAL
ANCHORAGE D-BOLT**

This manual is intended to meet the Manufacturer's Instructions and should be used as part of an employee training program.

WARNING: This product is part of a personal fall arrest or restraint system. The user must read and understand the manufacturer's instructions for each component or part of the complete system. These instructions must be provided to the user of this equipment. The user must read and understand these instructions or have them explained to them before using this equipment. Manufacturer's instructions must be followed for proper use, care, and maintenance of this product. Alterations or misuse of this product or failure to follow instructions may result in serious injury or death.

IMPORTANT: If you have questions on the use, care, or suitability of this equipment for your application, contact Capital Safety.

IMPORTANT: Record the product identification information from the label in the inspection and maintenance log in Section 7 of this manual.



DESCRIPTION:

AN112A, 9504766: The Anchorage D-Bolt (Figure 1) is a Forged Steel, Zinc Coated D-Bolt (A) with 1/2" x 1-3/8" Mounting Bolt (B), Nut (C) and Lock Washer (D) for mounting to vertical or horizontal surfaces.

1.0 APPLICATIONS

1.1 PURPOSE: The Anchorage D-Bolt provides a permanent or semi-permanent anchorage point for personal fall arrest systems where anchorage on a surface is required. The Anchorage D-Bolt's vertical anchor area will accommodate all of Protecta's snaphooks and carabiners.

1.2 COMPLIANCE: The Anchorage D-Bolt, when installed with manufacturers recommendations, complies with OSHA 1926 and ANSI Z359.1-2007 requirements for anchorage devices.

1.3 USAGE: The Anchorage D-Bolt is designed to be fixed to vertical structures which are designed to take the forces generated in the event of a fall or usage of a fall arrest or restraint system.

2.0 LIMITATIONS:

A. CAPACITY: The Anchorage D-Bolt is designed for use by persons with a combined weight (clothing, tools, etc.) of no more than 310 lbs (140.61 kg). No more than one personal protective system may be connected at one time.

NOTE: For emergency rescues it may be acceptable to connect more than one system if the anchorage will support the anticipated loads.

B. ANCHORAGE STRENGTH: The anchorage strength required is dependent on the application. ANSI Z359.1 strength requirements for fall arrest and restraint are defined in Table 1:

Table 1 - Anchorage Strength Requirements

<p>Fall Arrest: Anchorages selected for fall arrest systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:</p> <ol style="list-style-type: none">1. 5,000 lbs. (22.2 kN) for non-certified anchorages;2. Two times the maximum arresting force for certified anchorages <p>When more than one fall arrest system is attached to an anchorage, the strengths set forth in (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.</p>	<p>Restraint: Anchorages selected for restraint systems shall have a strength capable of sustaining static loads applied in the directions permitted by the system of at least:</p> <ol style="list-style-type: none">3. 1,000 lbs. (4.5 kN) for non-certified anchorages;4. Two times the foreseeable force for certified anchorages <p>When more than one restraint system is attached to an anchorage, the strengths set forth in (1) and (2) above shall be multiplied by the number of systems attached to the anchorage.</p>
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C. FREE FALL: Per ANSI Z359.1, personal fall arrest systems used with this equipment must be rigged to limit the free fall to 6 feet (1.83 m). See the personal fall arrest system manufacturer’s instructions for more information. Restraint systems must be rigged so that no vertical free fall is possible.

D. FALL CLEARANCE: There must be sufficient clearance below the user to arrest a fall before the user strikes the ground or other obstruction. The clearance required is dependent on the following factors:

- Deceleration Distance
- Free Fall Distance
- Worker Height
- Movement of Harness Attachment Element
- Elevation of Anchorage D-Bolt
- Connecting Subsystem Length

See the personal fall arrest system manufacturer’s instructions for more information.

E. SWING FALLS: Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The force of striking an object in a swing fall may cause serious injury or death. Minimize swing falls by working as close to the anchorage point as possible. Do not permit a swing fall if injury could occur. Swing falls will significantly increase the clearance required when a self retracting lifeline or other variable length connecting subsystem is used.

F. ENVIRONMENTAL HAZARDS: Use of this equipment in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to: heat, chemicals, corrosive environments, high voltage power lines, gases, moving machinery, and sharp edges. Contact Capital Safety if you have questions about using this equipment where environmental hazards exist.

G. TRAINING: This equipment must be installed and used by persons trained in its correct application and use. It is the responsibility of the user to assure they are familiar with these instructions and are trained in the correct care and use of this equipment. Users must be aware of the operating characteristics, application limits, and consequences of improper use of this equipment.

IMPORTANT: Training must be conducted without exposing the trainee to a fall hazard. Training should be repeated on a periodic basis.

2.1 COMPATIBILITY OF COMPONENTS: Unless otherwise noted, this equipment is designed for use with Capital Safety approved components and subsystems only. Substitutions or replacements made with non approved components or subsystems may jeopardize compatibility of equipment and may affect safety and reliability of the complete system.

2.2 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 inadvertently open regardless of how they become oriented. Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22 kN). 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 (see Figure 2). Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required by ANSI Z359.1 and OSHA.

2.3 MAKING CONNECTIONS: Use only self-locking snap hooks and carabiners 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. Ensure all connectors are fully closed and locked.

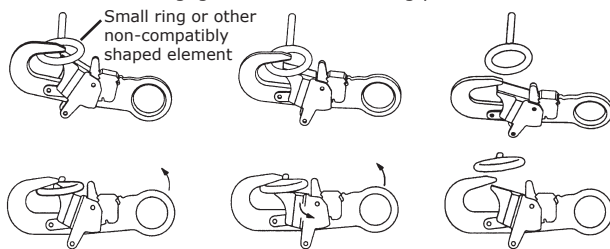
Protecta connectors (snap hooks and carabiners) are designed to be used only as specified in each product's user's instructions. See Figure 3 for illustration of the inappropriate connections stated below. Protecta snap hooks and carabiners should not be connected:

- A. To a D-ring to which another connector is attached.
- B. In a manner that would result in a load on the gate.
- C. In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point.
- D. To each other.
- E. Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allow such a connection).
- F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur.

NOTE: Other than 3,600 lb. (16 kN) gated hooks, large throat opening snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates. Large throat snap hooks are designed for use on fixed structural elements such as rebar or cross members that are not shaped in a way that can capture the gate of the hook.

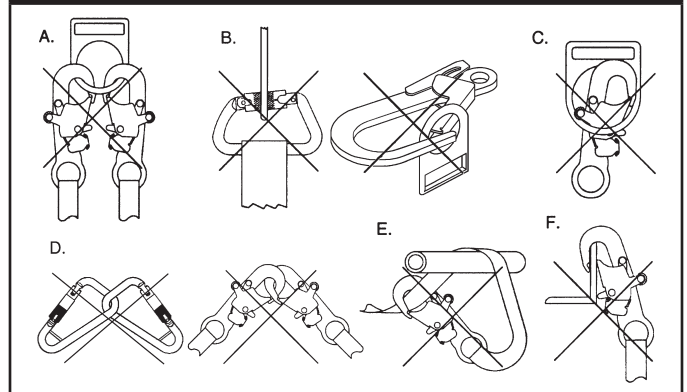
Figure 2 - Unintentional Disengagement (Rollout)

If the connecting element to which a snap hook (shown) or carabiner attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.



1. Force is applied to the Snap Hook.
2. The Gate presses against the Connecting Ring.
3. The Gate opens allowing the Snap Hook to slip off.

Figure 3 - Inappropriate Connections



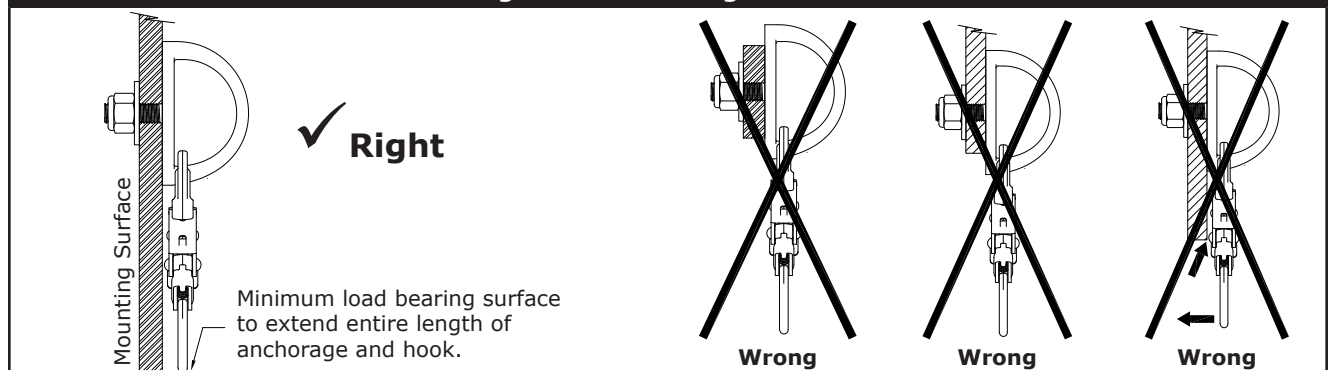
3.0 INSTALLATION:

The Anchorage D-Bolt may be installed in surfaces meeting the strength requirements set out by the forces that will be applied during usage. The Anchorage D-Bolt may be installed both vertically or horizontally, in overhead, wall, or foot level positions.

3.1 MOUNTING LOCATION: The Anchorage D-Bolt should be positioned on the mounting surface so that the attached connector will never be subjected to dynamic loading on the keeper system (see Figure 4):

- The entire base of the Anchorage D-Bolt must be flush with the mounting surface.
- The area of the mounting surface for the Anchorage D-Bolt must be such that no dynamic forces get applied to the attached connector's keeper system.

Figure 4 - Mounting Location



3.2 INSTALLATION STEP: Install the Anchorage D-Bolt at the correct mounting locations (see Section 3.1) in the following manner:

- STEP 1:** Pre-drill a 1/2" (13 mm) hole into the desired structure, using a suitable drill bit for penetration. Remove any burred edges from the structure to ensure that the fixed anchorage point sits flush against the mounting surface. The location of the drilled hole must be suitable to take the forces defined in Table 1.
- STEP 2:** Insert the D-Bolt through the pre-drilled hole. Ensure that the bolt is pushed through completely, and the back surface of the D-ring is flush against the structure.
- STEP 3:** Slide the Lock Washer over the threads of the D-Bolt until the washer is flush against the surface of the structure.
- STEP 4:** Thread the Nut onto the D-Bolt until it meets the washer. Ensure the D-ring is oriented correctly and then torque the Nut tight. Recommended torque range is 45-55 ft-lbs (61-75 Nm). Once tightened, at least one full thread must extend beyond the Nut.
- STEP 5:** Inspect the Anchorage D-Bolt to ensure that it is not loose and sits flush against the structure.

4.0 INSPECTION:

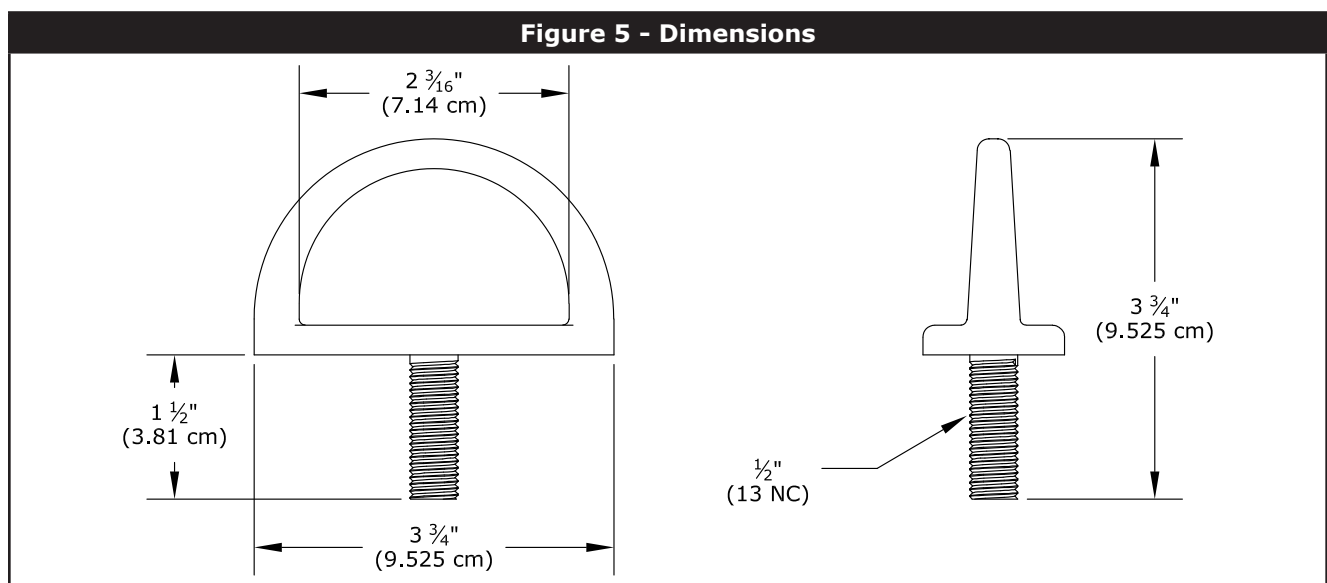
4.1 FREQUENCY: Anchorage points must be inspected before each use and on an annual basis by a competent person¹.

4.2 INSPECTION STEPS:

- STEP 1:** Ensure that the Anchorage D-Bolt is free from rust, corrosion and any damage. Clean with warm soapy solution to prevent damaging the Anchorage D-Bolt or structure.
- STEP 2:** Ensure that the nut is securely tightened and the Lock Washer remains engaged. If the Nut and Lock Washer become loose, re-tighten the nut to 45-55 ft-lbs (61-75 Nm).
- STEP 3:** Inspect the Anchorage D-Bolt to ensure there are no cracks, dents or marks on the anchorage.
- STEP 4:** Make sure labels (Section 6) are attached to the Anchorage D-Bolt and are legible.
- STEP 5:** Record the inspection date and results in the Inspection and Maintenance Log (Section 7).

5.0 SPECIFICATIONS:

- Material:** Forged Steel with Zinc Coating
- Strength:** 100% proof loaded to 3,600 lbs/16kN.
- Minimum breaking load:** 5,000 lbs./22.2kN
- Net weight:** 11 oz (312 g)
- Dimensions:** See Figure 5 for physical dimensions.



1 Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees; and who has authorization to take prompt corrective measures to eliminate them.

6.0 LABELING:

The following labels should be present on the Anchorage D-Bolt and should be fully legible.



Front



Back

7.0 INSPECTION AND MAINTENANCE LOG:

SERIAL NUMBER:			
MODEL NUMBER:			
DATE PURCHASED:		DATE OF FIRST USE:	

INSPECTION DATE	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	MAINTENANCE PERFORMED
Approved By: _____			
Approved By: _____			
Approved By: _____			
Approved By: _____			
Approved By: _____			
Approved By: _____			
Approved By: _____			
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