USER INSTRUCTION MANUAL

DESCRIPTION: KEVLAR D-RING EXTENDER FOR LEADING EDGE WORK AND HOT WORK WITH ULTRA-SAFE RETRACTABLES

MODEL: 965018"KHD, 965018"KLD, 965018"KLL

www.UltraSafeUSA.com

MEET OSHA 1926.502, 1910.66 & ANSI Z359.11-2014

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PHOENIX, AZ USA

The Ultra-Safe D-Ring Extender consists of a length of kevlar webbing with one or two D-rings on the anchorage end, and a snap hook or a web loop at the attachment end.

The Ultra-Safe Cable D-Ring Extender consists of a swaged length of 1/4" diameter galvanized steel cable with a D-Ring on the anchorage end and a snap hook at the harness attachment end.

Type 1: D-Ring Extender is a length of nylon webbing equipped with a single D-ring on the anchorage end, and a self-closing self-locking snap hook on the harness attachment end.

Type2: D-Ring Extender is an 18" length of nylon webbing equipped with a nylon loop each end.

Type 3: D-Ring Extender is an 18" length of nylon webbing equipped with a single D-ring on the anchorage end and a web loop at the harness attachment end.

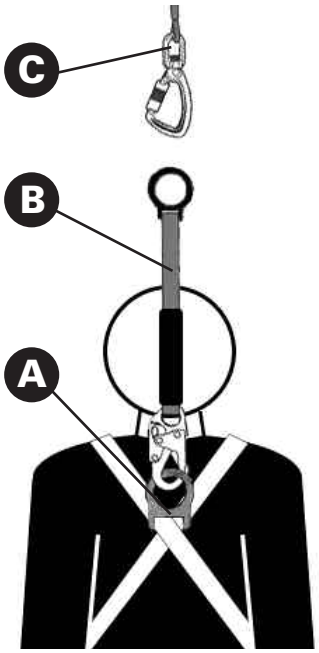
APPLICATION

D-Ring Extenders are designed to facilitate connecting to the dorsal D-Ring of the Full Body Harness (FBH). When used in conjunction with an FBH, the D-Ring Extender may be used as part of a Personal Fall Arrest System (PFAS) only if it is used in combination with other suitable fall arrest components.

A
Dorsal D-Ring on
Full Body Harness (FBH)

B
D-Ring Extender with
Snap Hook (Type A)

C
User Option with Self-Retracting
Lifeline (SRL)



SYSTEM REQUIREMENTS

Capacity: The capacity of the equipment in OSHA Specifications is listed as 400 lbs. (181 kg). To maintain ANSI Z359 compliance, limit total user weight (including tools, clothing, etc.) to no more than 310 lbs. (140.6 kg).

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. Contact Ultra-Safe 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. Self-closing, self-locking connectors are required by ANSI and OSHA.

Compatibility of Components: Equipment is designed for use with approved components and subsystems only. Substitutions or replacements made with non-approved 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 are designed to be used only as specified in each product's user's instructions.

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.

Restraint System: Restraint systems utilizing a D-ring extender must be designed by a Competent Person.

INCORRECT CONNECTIONS

- Never connect two active components (snap hooks or carabiners) to each other.
- Never connect two active components (snap hooks or carabiners) to a single D-ring at the same time.
- Never connect in a way that would produce a condition of loading on the gate.
- Never attach to a object in a manner whereby the gate (of the snap hook or carabiner) would be prevented from fully closing and locking. Always guard against false connections by visually inspecting for closure and lock.
- Never attach explicitly to a constituent subcomponent (webbing, cable or rope) unless specifically provided for by the manufacturer's instructions for both subcomponents (snap hook or carabiner and webbing, cable or rope).
- Never attach in a manner where an element of the connector (gate or release lever) may become caught on the anchor thereby producing additional risk of false engagement.

INSTALLATION AND USE

Installation of D-Ring Extenders must be under the supervision of a Competent Person trained in their design and use.

NOTE: Approved fall protection may be required during installation of all extender units discussed in this manual.

DO NOT use any extender discussed in this manual until the system has been completely installed, inspected, and approved for use by a Competent Person.

Anchorage Location: Select a suitable anchorage point that will support the strength requirement and minimize free fall and swing hazards. See PSFAS Anchor Strength (above) for anchorage strength requirements.

Fall Clearance Distance: Take action to reduce the danger of falls. Ensure sufficient clearance in the fall area to arrest the fall before contact with the ground or other obstructions. The actual clearance required is dependent upon the type of connecting subsystem used (SRL). See Figure A.

NOTE: Use of an extender will increase the users potential fall distance. The user must be sure the increased total length of a lanyard is accounted for in calculating fall clearance distances, including swing fall. Be aware that when using an SRL, there may be additional fall clearance required depending on anchor point location. If unsure, consult a Competent Person.

Swing Fall: Swing falls occur when the anchorage point is not directly above the point where a fall occurs. The total fall distance may be greatly increased during a swing fall. The force of striking an object in a swing fall may cause serious injury. Minimize swing falls by installing anchors at least six feet from exposed edges and by working as directly below the anchorage point as possible. Consult the equipment manufacturer's user instructions. See Figure B

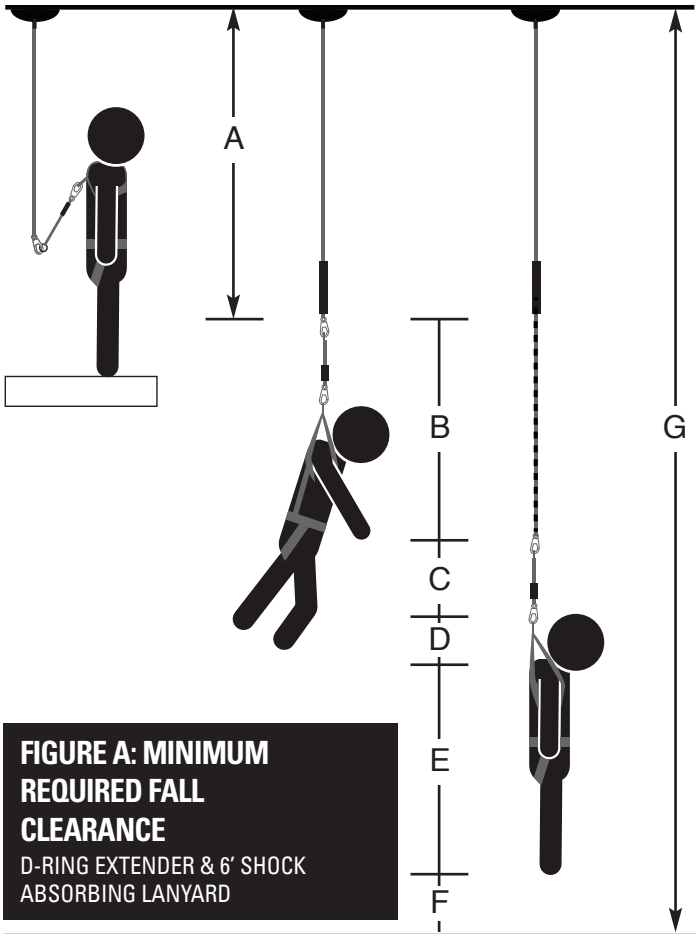


FIGURE A: MINIMUM REQUIRED FALL CLEARANCE
D-RING EXTENDER & 6' SHOCK ABSORBING LANYARD

NOTE: WHEN USING 965018" KLD, IF CALCULATING LOWER-LEVEL CONTACT ADD 18" TO THE FORMULA.

A	6 ft	**Length of Shock Absorbing Lanyard** Original working length before a fall event occurs/before activation of energy absorber
B	3.5 ft	**Elongation/Deceleration Distance** Maximum allowable amount of elongation that may payout from the energy absorber upon activation during a fall event
C	1.5 ft	**Length of D-Ring Extender (18")**
D	1 ft	**Harness Stretch and Dorsal D-Ring Shift** Combined amount of harness webbing elongation and dorsal back D-ring up-shift during entire fall event
E	5 ft	**Height of Dorsal D-ring** Typical average height of the dorsal D-Ring on a user's full body harness measured from the walking/working surface up
F	1.0 ft	**Safety Factor** Added length to account for other factors such as an improperly adjusted harness, actual worker height or worker weight
G	18.0 ft	**Total Minimum Clear Fall Distance Required**

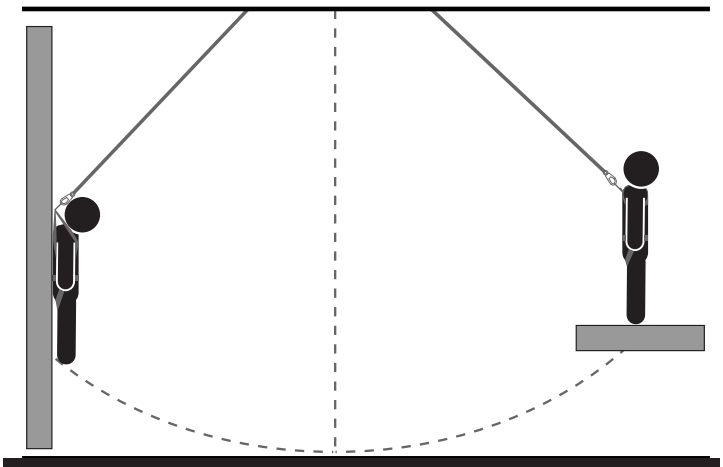


FIGURE B: SWING FALL HAZZARD OVERHEAD

General Installation Requirements: The Type 1, 2 and 3 D-Ring Extenders are designed to enable easier connection to the FBH, or for attaching a SRL to an anchorage structure.

NOTE: The requirement for approved fall protection during installation of this extender applies to all extender models covered in this manual.

Use the Type 1, 2, and 3 D-Ring Extenders as Extensions:

965018"KHD: Attach the snap hook on the D-Ring extender to the dorsal D-Ring of the FBH only. Ensure the snap hook closes and locks completely. At the work location, attach the extender to the SRL by connecting the attachment end connector to the D-Ring at the end of the extender. Consult the SRL manufacturer's instructions for proper use.

965018"KLD: To attach to the FBH, pass the web loop through the dorsal D-Ring on the FBH, then pass the D-Ring on the extender through the web loop. Choke the extender down on the dorsal D-Ring. Attach a SRL by connecting the attachment end connector to the Loop at the end of the extender. Consult the SRL manufacturer's instructions for proper use.

965018"KLL: Attach the snap hook on the D-Ring extender to the dorsal D-Ring of the FBH only. Ensure the snap hook closes and lockscompletely. The twin D-Rings at the other end of the extender provide multiple connector attachment options. The user may connect a deceleration device to one D-Ring, leaving the other D-Ring free for attachment of another deceleration device during transitions, to maintain 100% tie-off. Consult the SRL manufacturer's instructions for proper use.

DO NOT

- Connect more than one connector (i.e. snap hook or carabiner) to the back D-Ring of an FBH.
- Connect more than one device to the D-Ring of the extender.

After a Fall: Any equipment subjected to fall arrest forces or exhibiting damage consistent with the effect of a fall event must be removed from service immediately.

MAINTENANCE, SERVICE AND STORAGE

Keep the unit clean and free of a build-up of contaminants and corrosion.

Storage: When not installed, store in a clean, dry area. Avoid direct sunlight and exposure to environmental elements. Do not place other equipment or objects on top of the extender. Do not store in a manner that would allow other equipment to bend, crack, contaminate or otherwise damage the extender.

Remove From Service: Remove the extender from service if it has been subjected to fall arrest forces or fails inspection.

INSPECTION

Prior to each use, the user must inspect the extender for any physical damage, wear, corrosion or missing parts. If the extender has been subjected to fall arrest forces it must be removed from service.

1. Inspect the D-ring extension hardware (D-rings, snap hooks). These items must not be damaged, broken, distorted, or have any sharp edges, burrs, cracks, worn parts, or corrosion.
2. Inspect the webbing (Type 1 through 3 Extenders). The material must be free of frayed, cut, or broken fibers. Check for tears, abrasions, mold, burns, or discoloration. Inspect the stitching. Check for pulled or cut stitches. The webbing must be free of knots, excessive soiling, heavy paint buildup, and rust staining. Check for chemical or heat damage, indicated by brown, discolored, or brittle areas. Check for ultraviolet damage, indicated by discoloration and the presence of splinters or slivers on the webbing surface. All of these above factors are known to reduce the webbing strength. Damaged or questionable webbing should be removed from service.
3. Inspect the labels. All labels must be present and fully legible.
4. Inspect each system component or subsystem according to the associated manufacturer's instructions.
5. The D-ring extension must be inspected by a Competent Person before each use.
6. Record inspection results on the Inspection Record provided below or on a similar document at least 1 time per year minimum.

Inspection Date	Inspection Items Noted	Corrective Action	Maintenance Performed
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			
Approved By:			

EXAMPLE OF TAGS