



BRUTE™
BACKER™ LE
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BRUTE™
MICRON™

USER INSTRUCTION MANUAL SELF-RETRACTING DEVICES

THESE INSTRUCTIONS APPLY TO THE FOLLOWING MODELS:

UFS310010, UFS310020, UFS310030, UFS310050, UFS310100, UFS310130, UFS310150,
UFS350011, UFS350025, UFS310060R, UFS310100R, UFS480020, UFS480030, UFS480050,
UFS310018L, UFS310025L, UFS310050L, UFS310080L, UFS316106L, UFS314006L, UFS310206L, UFS319006L,
UFS310206LD, UFS316106LD, UFS314006LD, UFS319006LD, UFS359002, UFS359002D, UFS351102, UFS351102D,
UFS350002, UFS350002D, UFS354002, UFS354002D, UFS356002, UFS356002D, UFS359506, UFS359506D,
UFS389006D, UFC409151 (Twin SRL Connector)



This is the manufacturer's instruction manual drafted with an intention to meet the requirements of ANSI Z359.14 and OSHA 1926. As per OSHA this manual should be used as a part of an employee training program.

WARNING

The products enumerated in this Instruction Manual are a part of a personal protective, work support or rescue system. It is important that the user reads and follows the manufacturer's instructions for each component of the system. This manual contains information which is important to your safety and should be kept in a safe place for future reference as needed. The instructions provided in this manual are meant for the use of this equipment and should be read thoroughly and understood by the user before the equipment is used. Manufacturer's instructions must be properly followed for the correct use and maintenance of this equipment. Please contact KStrong for any questions regarding use of this equipment.

1. TRAINING

In order to ensure that the user is familiar with the instructions provided in this manual, it becomes the responsibility of the user to undergo proper training for this, and also for correct care and use of this equipment. It is also the employer's responsibility to ensure that all users are trained in proper use, inspection and maintenance of Fall Protection Equipment.

2. TECHNICAL SPECIFICATIONS: (All-Regular, LE, Retrieval and Micron™)

S. No.	KStrong Model	SRL Series	Lifeline Material and Size	Lifeline Length	Weight (lbs.)	Minimum Breaking Strength	Conformity
1	UFS310010	BRUTE™ - SRL (Cable)	Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	10 ft.	11.22 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
2	UFS310020		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	20 ft.	6.93 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
3	UFS310030		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	30 ft.	10.20 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
4	UFS310050		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	50 ft.	12.45 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
5	UFS310100		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	100 ft.	31.36 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
6	UFS310130		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Swivel Locking Carabiner	30 ft.	10.20 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
7	UFS310150		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Swivel Locking Carabiner	50 ft.	12.45 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
8	UFS350011	BRUTE™ - SRL (Web)	Casing: Robust and durable plastic Textile: Polyester webbing (1 inch) Metal: Steel Snap Hook	11 ft.	4.14 lbs. ±0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
9	UFS350025		Casing: Robust and durable plastic Textile: Polyester webbing (1 inch) Metal: Steel Snap Hook	25 ft.	7.42 lbs. ±0.11 lbs.	4500 lbs.	ANSI Z359.14-2014

S. No.	KStrong Model	SRL Series	Lifeline Material and Size	Lifeline Length	Weight (lbs.)	Minimum Breaking Strength	Conformity
10	UFS310060R	BRUTE™ SRL-R	Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	60 ft.	17.28 lbs. ±0.22 lbs.	3400 lbs.	ANSI Z359.14-2014
11	UFS310100R		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	100 ft.	33.41 lbs. ±0.22 lbs.	3400 lbs.	ANSI Z359.14-2014
12	UFS310018L	BRUTE™ SRL-LE SERIES	Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 7/32 inch) Metal: Steel Snap Hook	18 ft.	7.6 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
13	UFS310025L		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 7/32 inch) Metal: Steel Snap Hook	25 ft.	9.22 lbs. ± 0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
14	UFS310050L		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 7/32 inch) Metal: Steel Snap Hook	50 ft.	12.45 lbs. ± 0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
15	UFS310080L		Casing: Robust and durable plastic Cable: Galvanized steel wire rope (Ø 7/32 inch) Metal: Steel Snap Hook	80 ft.	31.86 lbs. ± 0.22 lbs.	3400 lbs.	ANSI Z359.14-2014
16	UFS480020L		Casing: Robust Aluminum Alloy Cable: Galvanised steel wire rope (Ø7/32 inch) Metal: Steel hook	20 ft.	10.94 lbs ± 0.02 lbs	3800 lbs.	ANSI Z359.14-2014
17	UFS480025L		Casing: Robust Aluminum Alloy Cable: Galvanised steel wire rope (Ø7/32 inch) Metal: Steel hook	25 ft.	11.51 lbs ± 0.02 lbs	3400 lbs.	ANSI Z359.14-2014
18	UFS480050L		Casing: Robust Aluminum Alloy Cable: Galvanised steel wire rope (Ø7/32 inch) Metal: Steel hook	50 ft.	16.36 lbs ± 0.02 lbs	3400 lbs.	ANSI Z359.14-2014
19	UFS310206L		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hook	8 ft.	3.65 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
20	UFS314006L	BRUTE™ BACKER- LE SERIES	Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Swivel Rebar Hook	8 ft.	4.17 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
21	UFS316106L		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Aluminum Swivel Rebar Hook	8 ft.	3.77 lbs. ± 0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
22	UFS319006L		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Tie-Back Hook	8 ft.	4.08 lbs. ±0.02 lbs.	3600 lbs.	ANSI Z359.14-2014
23	UFS310206LD		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Snap Hooks	Dual 8 ft.	8.25 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
24	UFS314006LD		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Swivel Rebar Hooks	Dual 8 ft.	8.77 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014

S. No.	KStrong Model	SRL Series	Lifeline Material and Size	Lifeline Length	Weight (lbs.)	Minimum Breaking Strength	Conformity
25	UFS316106LD	BRUTE™ BACKER- LE SERIES	Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Aluminum Swivel Rebar Hooks	Dual 8 ft.	8.37 lbs. ±0.02 lbs.	3400 lbs.	ANSI Z359.14-2014
26	UFS319006LD		Casing: Polymer Casing Cable: Galvanized steel wire rope (Ø 3/16 inch) Metal: Steel Tie-Back Hooks	Dual 8 ft.	7.80 lbs. ±0.02 lbs.	3600 lbs.	ANSI Z359.14-2014
27	UFS359002	Micron™ SRL	Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Tie-Back Hook	9 ft. (max)	3.93 lbs. ±0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
28	UFS351102		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Aluminum Quarter Turn Locking Hook	6 ft. (max)	3.43 lbs. ±0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
29	UFS350002		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Snap Hook	6 ft. (max)	2.08 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
30	UFS354002		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Rebar Hook	6 ft. (max)	2.94 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
31	UFS356002		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Aluminum Rebar Hook	6 ft. (max)	2.87 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
32	UFS359002D		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Tie-Back Hooks	Dual 9 ft. (max)	8.1 lbs. ±0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
33	UFS351102D		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Aluminum Quarter Turn Locking Hooks	Dual 6 ft. (max)	5.4 lbs. ±0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
34	UFS350002D		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Snap Hooks	Dual 6 ft. (max)	5.95 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
35	UFS354002D		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Steel Rebar Hooks	Dual 6 ft. (max)	8.7 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
36	UFS356002D		Casing: Robust and durable plastic Textile: Dyneema webbing 13/16" Metal: Aluminum Rebar Hooks	Dual 6 ft. (max)	6.31 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
37	UFS359506	BRUTE™ TIE-BACK SRL	Casing: Robust and durable plastic Textile: Dyneema webbing (1 inch) Metal: Steel hook	9 ft. (max)	2.76 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
38	UFS359506D		Casing: Robust and durable plastic Textile: Dyneema webbing (1 inch) Metal: Steel hook	Dual 9 ft. (max)	5.84 lbs. ± 0.02 lbs.	4500 lbs.	ANSI Z359.14-2014
39	UFS389006D		Casing: Robust Aluminum Alloy Textile: Polyester webbing (1 inch) Metal: Steel hook	Dual 9 ft. (max)	6.88 lbs ± 0.02 lbs	4500 lbs.	ANSI Z359.14-2014
40	UFS570030	BRUTE™ SEALED SERIAL	Casing: Robust and durable plastic Cable: Stainless steel wire rope (Ø3/16 inch) Metal: Steel hook	30 ft.	16.53 lbs ± 0.02 lbs	3800 lbs.	ANSI Z359.14-2014
41	UFS570060		Casing: Robust and durable plastic Cable: Stainless steel wire rope (Ø3/16 inch) Metal: Steel hook	60 ft.	26.01 lbs ± 0.02 lbs	3800 lbs.	ANSI Z359.14-2014
42	UFS570100		Casing: Robust and durable plastic Cable: Stainless steel wire rope (Ø3/16 inch) Metal: Steel hook	100 ft.	44.48 lbs ± 0.02 lbs	3800 lbs.	ANSI Z359.14-2014

* Micron™ SRL is also available as Twin SRL with connector UFC409151

3. IMPORTANT INFORMATION

- It is important to inspect the equipment according to the manufacturer's instructions before each use.
- Inspection of equipment should be done on a regular basis by a qualified person, and the results must be recorded in the inspection log.
- DO NOT REMOVE product labels which include important warnings and information for the authorized person. "Authorized Person" is a person who is exposed to fall hazards during the course of their work. This individual requires formal training in the use of personal fall protection equipment and systems. The term "Authorized Person" may be used interchangeably with "User" and "End-User".
- DO NOT ALTER the equipment in any way.
- Always send the equipment back to the manufacturer or to the persons or entities authorized in writing by the manufacturer for any repairs if required.
- Never use any natural material like Manila, cotton, etc. as part of a Fall Protection System.
- Fall protection equipment should only be used for the purpose for which it has been designed.
- This equipment should never be used for towing and hoisting or for any other purpose than its intended use.
- A competent person must ensure compatibility of the system to minimize any potential of accidental disengagement.
- Authorized persons or users shall be trained on all warnings and instructions provided in this manual.
- It is important for all authorized persons and users to refer to the applicable ANSI Standards and to the regulations governing occupational safety.
- Take proper precautions to remove any debris, material, obstructions, etc., from the work area which could cause injury, or otherwise interfere with the functioning of the system.
- Always check for obstructions below the work area to make sure that the potential fall path is clear.
- Keep the equipment away from anything that could damage it such as sharp edges, rough or abrasive surfaces, high temperature surfaces, heat and welding sources, moving machinery, electrical hazards, etc.
- It is important to keep in mind environmental hazards when selecting fall protection equipment.
- Do not expose the equipment to chemicals, highly corrosive or caustic environments, or to direct sunlight and UV radiation, which may cause UV degradation.
- Such harmful environments require a more frequent inspection and servicing program of the fall protection equipment to maintain the integrity and safety of the equipment. Contact KStrong if in doubt.
- All the synthetic material of fall protection equipment must be protected from slag, hot sparks, open flames or other heat sources.
- It is recommended that heat resistant materials are used in such applications.
- It is important to allow adequate fall clearance below the work surface.
- Always have a Rescue Plan ready and at hand when using this equipment.

** WARNING !!**

If a fall were to occur, then the forces of impact could affect the user. Hence it is important to consider the age, fitness level and the health condition of the user before the equipment is put to use. Consult a physician in case the user is not feeling physically fit and has doubts about their ability to safely absorb the fall arrest forces. This equipment is not meant for use by pregnant women and minors.

** WARNING !!**

- **Immediately discard any product which is exhibiting unusual wear, deformity or deterioration.**
- **Immediately remove from service any equipment that has been subjected to a fall.**

4. COMPONENT COMPATIBILITY

Component compatibility with KStrong manufactured fall protection equipment is ensured by strictly following the instructions for each type of equipment used. However, if the user utilizes combinations of components or sub systems that are manufactured by others, then only a "qualified" or "competent" person (as defined in OSHA) can ensure the compatibility. If substitutions or replacements are made with non-approved components or sub systems then this may severely affect the compatibility of the equipment, making the complete system unsafe for use.

5. 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 5000 lbs. (23 kN).

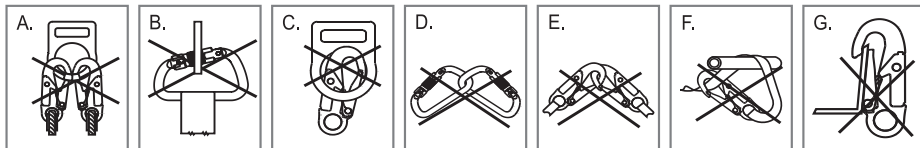
All connectors must be compatible with all system components like anchorages, etc. Never use equipment which is not compatible as this may cause the connectors to disengage unintentionally. All connectors must be compatible in shape and size. As per ANSI Z359.12 and OSHA, only self-locking snap hooks and carabiners may be used.

6. CONNECTIONS USING CONNECTORS

Ensure that only self-locking snap hooks and carabiners are used with this equipment. All connections should be compatible in size, shape and strength. The connectors used should be suitable to each application. Ensure that they are fully closed and locked while in use.

7. NEVER USE INAPPROPRIATE CONNECTIONS

- While using KStrong snap hooks and carabiners, they should not be connected as below:
- Two or more connectors should never be attached to a single D-ring.
- Never attach a connector that could result in a load on its gate.
- Connectors should not be connected in a false engagement. It should be visually confirmed that the connector is fully engaged to the anchor point. Avoid conditions when features that protrude from the connectors catch on to the anchor, giving a false sense of being connected.
- Connectors should not be connected to each other.
- Connectors should not be connected directly to the webbing or to the rope lanyard or tie back, unless specifically allowed by the manufacturer.
- Connectors should not be connected to any object which does not allow the connector gate to close or lock. Anchor shapes that allow roll out to occur should never be used for connection. If the anchor to which the snap hook or carabiner is attached is undersized or irregular in shape, then this may allow for the gate of the connector to come in contact with the anchor, thereby causing the connector to open up and possibly disengage from the anchor. This is known as roll out of the connector.



- Do not use connectors on an anchorage object as shown in figure G.

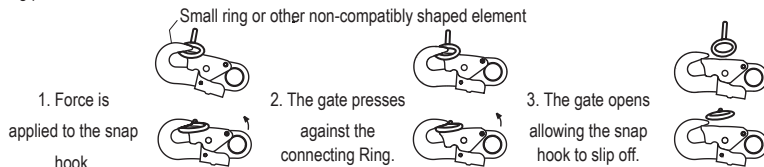
⚠ WARNING

Large throat opening snap hooks should not be connected to standard size D-rings or similar objects. The reason for this is if the hook or D-ring twists or rotates, then this may result in a load on the gate of the connector. Large throat snap hooks are specifically designed for use on fixed structure elements such as rebar or cross members. These are shaped in such a way that they cannot capture the gate of the hook.

8. IMPORTANT RESTRICTIONS WHILE MAKING CONNECTIONS

- A snap hook should not be connected into a loop or thimble of a wire rope, or attached to it in any way that may slack the wire rope.
- Do not make connections where the connector locking mechanism can come into contact with a structural member or other such equipment as it may potentially unlock the connector and release the connection.
- To connect to a single or a pair of soft loops on a harness, a carabiner that can fully close and lock should only be used. Snap hooks are not allowed for such connections.
- A carabiner may be connected to a loop or ring connector that is already occupied by a choker style connector. Snap hooks are not allowed for such connections.

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.



9. CONNECTING SUBSYSTEMS

Use only those subsystems (full body harnesses, lanyard, rope grab and lifeline, cable sleeves) that are suitable for your application. See subsystems manufacturer's instructions for more information. A full body harness must be worn when using the equipment mentioned in this manual. As per OSHA, the free fall distance should be limited to less than 6 ft., when the personal fall arrest system is used. Additionally, the fall arrest force also should be less than 1800 lbs.(8 kN). Ensure the carabiner cannot cross-gate load (load against the gate rather than along the backbone of the carabiner).

10. RESCUE PLAN

A rescue plan should be well documented and in place before performing work at height. The rescue operation must be performed by trained and competent personnel only. The rescue expert team should supervise the rescue operation performed. It is also advised to work in pairs while working on the site.

WARNING

If the equipment has been subjected to forces of fall arrest, in the event of a fall, then the equipment should be immediately removed from service. Contact KStrong regarding any questions related to this.

11. ENVIRONMENTAL HAZARDS

It is important to take additional precautions while using this equipment in the presence of any environmental hazard so as to prevent injury to the user or damage to the equipment.

- Environmental Hazards may include the following, but are not limited to:
- Chemicals
- Extreme Temperatures
- Corrosive Environments
- Gases
- High Voltage Power Lines - There is a possibility of an electric current to flow through the lifeline of the SRL's. Moisture absorbed by the lifeline may also cause the electric current to flow through the lifeline. Use extreme caution when working near such lines.
- Sharp Edges
- Moving Machinery and Vehicles

Please contact Kstrong with any questions regarding the use of this equipment in the presence of any environmental hazard.

WARNING

This equipment is not designed to be used in high temperature environments. It is important to protect this equipment when using near activities like welding or metal cutting. Hot sparks may cause damage to this equipment or burn it. Contact KStrong for details on use of this equipment in high temperature environments.

12. ANCHORAGE STRENGTH

The application type determines the anchorage strength requirement. As per ANSI Z359.1 the necessary anchorage strength for the following applications is listed below:

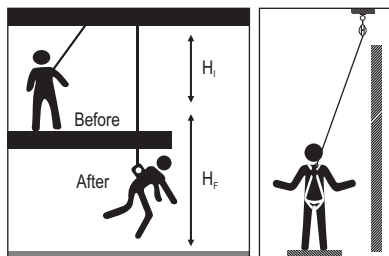
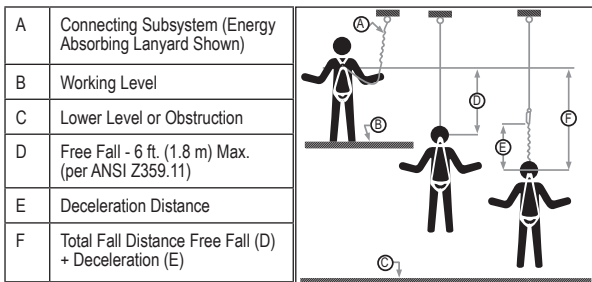
Fall Arrest: For this choose an anchorage that has strength capable of sustaining static loads of at least 5000 lbs. (23 kN), applied in directions permitted by the system. However, if more than one fall arrest system is attached to the anchorage, then the strength required has to be 5000 lbs. (23 kN) multiplied by the systems attached to the anchorage.

As per OSHA 1926.500 and 1910.66: Anchorages that are used for attachment of Personal Fall Arrest Systems (PFAS) shall be independent of any anchorage being used to support or suspend platforms. They should be capable of withstanding a minimum load of 5000 lbs. (23 kN) per user attached. They should be designed, installed and used as part of a complete Personal Fall Arrest Systems which maintains a safety factor of at least two. Rating of the anchorage should always be done under the supervision of a qualified person.

13. GENERAL LIMITATIONS OF FALL ARREST SYSTEM AND REQUIREMENTS

It is important to consider the below mentioned limitations before using or installing this equipment.

- KStrong SRL's are meant for use by ONE person only. The capacity of KStrong SRL's is from a minimum of 90 lbs. to a maximum of 310 lbs. (140 kg) hence, the combined weight (clothes, tools, shoes etc.) of a person using this equipment should not be less than 90 lbs. or more than 310 lbs. It is important to ensure that all the components in the system are rated to a capacity which is appropriate to the application. ((**Capacity as per ANSI 130-310 lbs. & as per OSHA 420 lbs.**)
- Corrosion:** The SRL should not be left in any environment for a long period of time, if it causes corrosion of its metal parts. It is important to be cautious while working around corrosive substances like sea water, ammonium compounds, sewage, fertilizers, and other such environments. Corrosive damage impacts the performance of the SRL, hence the inspection of the SRL should be performed more frequently so as to check its functioning and performance.
- Locking Speed:** The SRL requires an initial speed of retraction of the line to cause it to lock. However, this speed may not be achieved if there is an obstructed fall, or while working in confined spaces. Working in such conditions may limit the speed at which the locking of the SRL is achieved. Special care is required where the SRL is used while working on low-pitched roofs. Here the user may slide on the roof slope, rather than have a direct fall. This could also hamper the SRL locking mechanism. A clear path is required to ensure that the SRL's locking mechanism is activated.
- Free Fall:** As per ANSI Z359.1, the personal fall arrest systems used with this equipment must be rigged in such a way that the free fall does not exceed 6 ft. (1.8 m). Ensure that there is no slack in the lifeline, while using the SRL. Also, never extend the length of the lifeline by connecting a lanyard to it. Do not anchor the SRL at or below your foot level as this will increase your free fall distance beyond the permissible levels as specified by OSHA. Additionally, this could also cause excessive load impact on the SRL, thereby exceeding its capabilities to safely arrest a fall. Contact KStrong for any further information required.
- Fall Clearance:** There should be sufficient clearance below the user to allow the system to arrest a fall so as to prevent the user from striking the ground or any other obstruction. The clearance required is dependent upon the following factors:
 - Anchorage location
 - Type of connecting subsystem used (energy absorbing lanyard, SRL, etc.).
 - The minimum fall clearance required when a SRL is used is six feet from the working level, subject to the condition that the SRL is attached directly over the head of the worker.
- Swing Falls:** Swing fall occurs when the position of the anchorage point is not directly above the point where a fall occurs. In such a case if a fall were to occur, it will result in pendulum swing of the fall victim and may also cause them to strike nearby objects with a force. This may cause serious injury or even death. Such swing falls may be minimized by ensuring that the anchorage is directly overhead, and by



working as close to the anchorage point as possible. Swing falls will substantially increase the fall clearance required when a SRL or other variable length connecting subsystems are used.

- **Sharp edges:** The lifeline of the SRL may be damaged by unprotected and sharp edges, hence they should be protected from all edges. The KStrong Leading Edge tested SRL-LE's are designed in such a way that they provide additional protection from falls occurring over edges. However, protection to these SRL-LE's should be provided from sharp edges such as sheared, cold rolled or flame cut steel.
- **Horizontal systems and Tripods:** It is extremely important to ensure that the tripod or the Horizontal line system is compatible with the SRL. Horizontal systems must be designed and installed under the supervision of a qualified engineer only.

14. PERIODIC EXAMINATION

Always keep the instructions provided with the product. Take the information from the markings on the product and enter this information in the identification sheet. It is essential to check the condition of the equipment and ensure safety of the user through periodic examination of the product. This equipment must be examined by a qualified person at least once every six months, strictly complying with the instructions of the manufacturer. Also, record the previous check on the attached sheet. If the equipment is in heavy usage or is used in a harsh environment, then the frequency of inspection should be increased in accordance with the regulations. Check also that the markings on the product are legible.

15. PURPOSE AND APPLICATION

KStrong SRL's are used to safely expand the working area, where a harness with a 6 foot lanyard is inadequate. Hence the lanyard line extends to the required length, as per use. When the length is shortened, the line retracts into its casing, ensuring that there is no slack in the line. More importantly, the SRL is designed to immediately arrest the fall of the user, and also to limit the shock loading on to the body of the user. The SRL is a part of the personal fall arrest system, along with other components like full body harness and anchorage connector.

16. LIMITATION OF USE OF KSTRONG SRL'S

KStrong SRL's are to be used as part of personal fall arrest, restraint, rescue or work positioning systems.

Full Body harnesses, connectors, hooks, lanyards, etc. are designed in such a way that they work in sync with other elements of a personal fall arrest system. While the SRL's are designed to arrest a fall from height they also minimize the impact load on the wearer. KStrong recommends that only those components or sub systems of the personal fall arrest system which are manufactured by KStrong be used in combination. If other manufacturer's equipment are used, then they should be ensured for compatibility by a qualified person only. If substitutions or replacements are made with non-approved components of sub systems then this may severely affect the compatibility of the equipment, making the complete system unsafe for use.

17. INSPECTION OF COMPONENTS OF PERSONAL FALL ARREST SYSTEM

It is mandatory to have a detailed visual inspection of all the harnesses, lanyards, connectors etc. prior to each use. This ensures that the equipment is in good condition and is operating correctly. If there are any doubts regarding the safe state of product or if the product has been used to arrest a fall, then immediately withdraw the equipment and send it back to the manufacturer or to the qualified authorized repair center. Check on the back-shoulder straps of the harness for the fall indicators, which should be intact. If it is found to be deployed, then the harness should be removed from use immediately. Never attempt to repair or modify a Personal Protective Equipment (PPE).

18. FORMAL INSPECTION

It is mandatory that a competent person other than the user must perform a formal inspection of Personal Fall Arrest Systems (PFAS) and its components once at least every six months. This frequency should be altered on the basis of conditions for use or exposure. The inspection results should be recorded in the inspection and maintenance log at the end of this manual.

19. PRE-USE INSPECTION CHECK OF THE SRL'S

Impact Indicator: Look for the Impact Indicator on the swivel hook of the SRL, at the attachment end of the line. If the band shows green color, then proceed with further steps for inspection. If however the indicator shows a red color, then this means that the device has arrested a fall. Remove the SRL from any further use immediately, and return the device to KStrong, or to a KStrong authorized repair center only. If the SRL has an additional webbing shock pack, then inspect the shock pack; it should not be opened, torn or deployed. If inspection reveals an unsafe condition, then the SRL should be immediately removed from service and destroyed, or sent to KStrong authorized service center for repair. Follow below steps for inspecting the SRL:

- Step 1:** Check the housing of the SRL for the presence of distortion, cracks or any damage.
- Step 2:** Inspect the swivel eye for any distortion. It should turn freely.
- Step 3:** Check the screws on the housing; they should not be loose or bent or damaged.
- Step 4:** The labels on the SRL should be intact, and should have the complete inspection log information.
- Step 5:** Check the functionality of the SRL. The lifeline should fully extend and retract smoothly, and should not cause any slack in the line. The device should also lock up properly when the lifeline is jerked sharply.
- Step 6:** Look for signs of corrosion on the entire unit.
- Step 7:** Extend the full length of the wire rope from the casing. Hold small lengths of the wire rope between both hands, and bend the rope in an inverted U shape. Look out for the presence of kinks, broken wires, bird caging, corrosion, welding splatter, chemical damage, or excessively abraded areas. Check the thimble and the swaging on the end of the line; it should not be torn or broken. Crushed or bent cable, or kinks on the cable may cause the SRL to malfunction, and make it potentially unsafe for use. Welding damage could result in fused wires, and may alter the strength of the wire.
- Step 8:** For the webbing lifeline, extend the entire length of the lifeline from the casing of the SRL, and inspect the full length of the webbing for the presence of any cuts, broken webbing, burns, cuts, abrasions, chemical or heat damage, excessive soiling, etc.
- Step 9:** Inspect the connecting hooks and carabiners for signs of damage, corrosion, or excessive wear. Also check that they are functioning properly.

Record the results of the inspection in the Inspection and Maintenance Log found in this manual. Also tick off clearly on the Label sticker where specified. If the equipment is found to be unsuitable for use, it should be immediately removed from service and destroyed, or sent to KStrong or to a KStrong authorized service center for repair.

Do not attempt to repair the equipment on your own.



WARNING

Inspect all the other components of the Fall Arrest, Work Positioning, Rescue systems that are to be used, as per the manufacturer's instructions.

Remove from use immediately if the equipment shows evidence of having arrested a fall, or if it is unfit for further use.

It is important to ensure that the connecting elements of the connectors are compatible in size and shape, while making a connection with the hooks and carabiners.

Never connect a hook to a hook, or a carabiner to a carabiner, or a carabiner to a hook.

Also make sure not to connect a connector to any element that may cause the hook or carabiner material to distort, abrade or wear out.

20. CHOOSE THE RIGHT ANCHORAGE POINT FOR THE SRL

Select the anchorage which should be strong enough to take the load of application. The anchorage should be able to sustain a static load of a minimum 5000 lbs. in the direction applied by the personal fall arrest system. The anchor point should always lie directly above the user. Do not work above the anchorage point. The anchor point should also be located in such a place that the swing fall is minimized.

Also, while using the SRL, make sure that there is constant tension in the lifeline, and that there is no slack. If the cable is not taught, then this could increase the fall distance. Also, move normally because sudden jerky movements may cause the locking mechanism of the SRL to activate.

21. INSTALLATION OF SRL ON OVERHEAD ANCHOR POINT

As a stationary device, the SRL has to be mounted on an approved fixed anchorage point which is directly overhead the user. Connect the swivel eye of the SRL with a self-locking carabiner to the overhead anchorage. Connect the snap hook at the end of the lifeline to the Dorsal attachment D-ring of the Full body harness. The SRL would extend as the user moves away from the anchor point, and retracts as the user moves back towards the anchor point.

If the anchorage is mobile, over a steel cable or a fixed rail, then the swivel eye of the SRL is connected to the anchor point with the help of a self - locking carabiner. The snap hook at the end of the SRL is connected to the dorsal D-ring of the Full body harness of the user. Here, since the anchor moves along with the user, the SRL travels along with the anchor from one point to the other.

22. TAGLINE**Description, Installation and Usage**

A tag line is a separate line that is used exclusively for allowing the SRL's line to retract back into the housing during non-use. The tag line is attached to the SRL's connecting hook and is long enough to allow the SRL line to retract fully.

It is recommended that a tag line should be used to let the line on a SRL to fully retract back into the housing during extended periods (any time span that is greater than 24 hours) of non-use. When a retracting line is left out for extended periods of time, it may weaken the SRL's retraction spring quite prematurely hence affecting the operation of the SRL. These taglines are made of nylon string, connected to a simple snap hook at one end.

Kstrong SRL's (UFS350025, UFS310060R and UFS310100R) are provided with taglines of appropriate length. When disconnecting the self-locking snap hook of the SRL from the dorsal D-ring of the full body harness, and while the SRL casing is anchored at a height, then use the tagline to retract the extended line back to the casing.

- Connect the tagline snap hook to the snap hook of the SRL at its eye.
- Now slowly release the taught extended lifeline while guiding it with the nylon tagline.
- When the entire lifeline of the SRL is retracted into its casing, then hold the tagline in place by tying it securely around a post.
- When you have to pull down the lifeline, just open up the tagline, and pull it down to bring down the lifeline along with it.
- Always use the tagline to retract the lifeline or to extend it slowly.
- Always fold the tagline and keep it in a secure area when not in use.

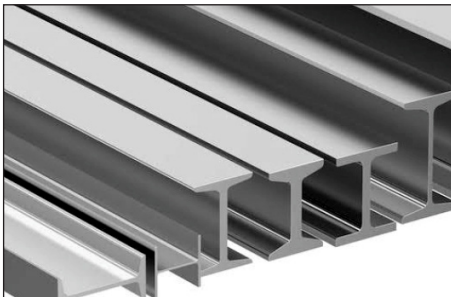
**WARNING**

Never use the tagline as a safety line. The tagline is NOT a part of fall arrest system. It is only an accessory to the SRL, and it should NEVER be used as an extension to the lifeline.

23. ABOUT LEADING EDGE AND USAGE OF SRL ON IT

Almost all Self Retractable Lifelines are designed only to be mounted above the user. In few exceptional cases where this is not easy to use the regular SRL, KStrong provides specially designed Leading Edge - Self Retractable Lifelines. These LE SRL's are specially designed factors to absorb the extra energy associated with foot-level tie off. These SRL's have robust ropes/cables that prevent breaking when rubbed against a leading edge.

Few examples of leading edge:



Structural steel I-Beams and purlins.



Steel deck and metal roofing

LE range of SRL's

The KStrong SRL-LE (UFS310018L, UFS310025L and UFS310050L) are engineered such that in the event of a fall from the edge of a roof or a terrace, if subjected to contact with a sharp edge, the retracted lanyard remains intact, while arresting the fall immediately. This range of SRL-LE are suitable for use on edges having radii not greater than 0.005 inch. For this range of SRL-LE the position of the anchorage point can be at the foot level.

24. SEALED RETRACTABLE FALL ARRESTER LIFELINE -

- Introduction: KARAM introduces Armor range of SRL's specially meant for the toughest & harsh environments. The heavy duty sealed design, corrosion resistant material used in the SRL keeps the critical working components free of dirt, grease, water & chemicals. Best suited for OIL & GAS Industries & offshore. Sealed Design meets IP68 level of IEC 60529 for ingress protection against Dust and water.
- **Installation:**

Step 1: Connect the anchorage eye at the top of the Retractable Fall Arrester to a suitable anchorage point situated above the user's head using karabiners as per ANSI Z359.12-2009 & ensure the Karabiner is locked.

Step 2: Now connect the swivel hook of the equipment to the attachment element of your full body harness and ensure that it is locked. You are now safe to move up & down in normal speed. In the event of a fall, the Sealed Retractable Fall Arrester Block locks & also minimizes the impact forces on the body of user.

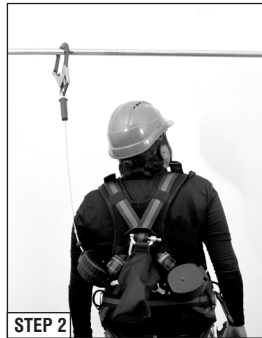
25. INSTALLATION OF SRL-LE-

Connect the swivel eye of the SRL-LE to the anchor point with the help of a self-locking carabiner. The snap hook at the end of the SRL-LE adjacent to the webbing shock pack, is connected to the dorsal D-ring of the full body harness of the user.

- **How to use this equipment for lateral movement-** KStrong SRL-LE can now also be used for lateral movement with 100% tie-off assurance.



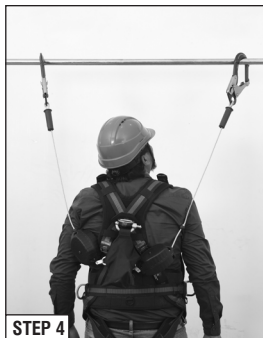
STEP 1
Connect one leg of the SRL to a pre-checked anchorage point and secure lock with the help of the hook.



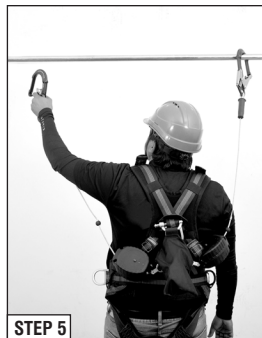
STEP 2
Work on single lanyard
Park the unused, the second leg on to the harness's lanyard keeper. So that it does not gets entangled while working.



STEP 3
For lateral movement
connect the second leg of the lanyard successive anchorage point.



STEP 4
Ensure that both legs are connected to successive anchorage points for lateral movement.



STEP 5
Completing Lateral Movement
Now for further lateral movement along the line, disconnect the one leg from the first anchorage point and connect it to the successive anchorage point.



STEP 6
After Lateral Movement
Change the SRL's leg for making lateral movement between the anchor points & this can be done with 100% tie-off assurance.

⚠ WARNING! Ensure that the user is always connected to the anchorage point.

26. INSTALLATION OF RETRIEVAL TYPE SRL

KSTRONG Retrieval SRL-R's (UFS310060R and UFS310100R) are coupled with a hoisting winch to enable easy retrieval of a victim of a fall. This SRL-R allows the fall to arrest, and also allows easy hoisting of the victim with the help of the hoist handle. The locking pin on the side of the casing at the base of the handle allows the SRL-R to work in independent of Fall Arrest and Winch modes.

27. OVERHEAD ANCHORAGE OF RETRIEVAL SRL-R

Connect the SRL-R by its swivel anchorage eye with the help of a self-locking carabiner to an overhead anchor.

FOR INSTALLATION OF RETRIEVAL SRL-R ON A TRIPOD

Follow the given steps to install the SRL-R on a KStrong Tripod:

- Install the base of the Mounting Bracket on the Tripod Leg which has the pulley on top of the head, and lock the same with two (2) Lynch Pins.



- Now fix the Upper Mounting Bracket on the base plate with respective pin, and lock it with the Cotter Pin.



- Install the SRL-R on the mounting bracket by inserting the guided pulley of the SRL-R into the recess provided in the bracket.



- Now insert the locking pin into the bush of the bracket and tighten it to the fullest.



- Now reel out the SRL-R lifeline and pass it over the pulley placed at the head of the tripod, and hold the wire in place with the holding pin.



- Attach the hook of the SRL-R to the dorsal D-ring of the user's full body harness. The SRL-R is in the fall arrest mode.
- In the event of a fall in a confined space, the fall will be arrested by the SRL-R.
- Now immediately shift the SRL-R to Winch Mode by pulling out the pin located at the bottom of the handle side of the block.
- Now rotate the SRL-R handle in a clockwise direction for retrieving / lifting the victim out from the confined area.

WARNING

KStrong Retrieval SRL-R's are designed to be used only on the KStrong Tripod and the designated mounting brackets only. Substitutions or replacements made with unauthorized components or subsystems may adversely affect compatibility of equipment and may make the complete system unreliable and unsafe for use.

NOTE

KStrong retrieval SRL-R's are provided with a unique HYDRO-Seepage (HS) system. This system ensures that the component parts inside the SRL-R casing are always kept dry. In the unlikely event of water seeping through the cable opening into the SRL casing, the rubber knob, which is present on the opposite end, should be rotated & opened up to drain out this water.



Water clogging through cable opening of block casing



Rotate the Rubber Knob and pull it



Push the Rubber Knob back to its place to seal the opening

28. INSTALLATION AND USE OF KSTRONG Micron™

- KStrong Micron™ can be used in both mobile and stationary applications.
- For stationary application as a normal SRL application, connect the anchorage eye of the Micron™ (UFS351102 and UFS350002) with a connector conforming to ANSI Z359.12-2009, to an overhead anchorage, and the snap hook of the Micron™ to the dorsal D-ring of the full body harness of the user. The distance of the anchor point should not be more than 2 ft. above the dorsal D-ring of the harness.
- For mobile application, connect the eye of the Micron™ (UFS354002) to the dorsal attachment D-ring of the full body harness with the help of a connector/ carabiner conforming to ANSI Z359.12-2009, which is compatible with the SRL subsystem, and ensure that the connector is locked. Now connect the rebar hook at the termination end of the Micron™ to the anchorage structure.

How to use Micron™ as a single or twin lanyard with twin SRL Connector (UFC409151)

Technical Specification

Model	Material of Construction	Minimum Breaking Strength
UFC409151	Alloy Steel	5000 lbs.



How to use



Open connector by pushing the locking lever and push button at the end simultaneously.



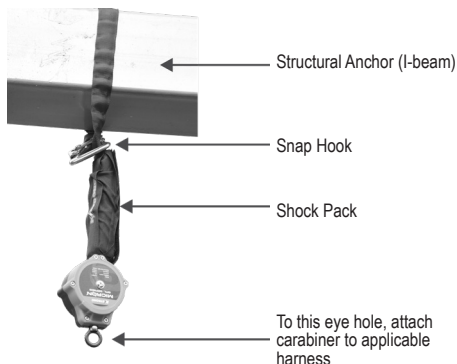
Slide Connector through loosened web straps placed below the Dorsal D-ring, then pull straps tight.



Push the pin inside the grooves of the connector to ensure locking.

29. INSTALLATION OF KSTRONG Micron™ WITH TIE-BACK HOOK

Kstrong Micron™ with tie-back hook (UFS359002) should be used with the SRL casing attached to the Dorsal D-ring of the full body harness, and the extended webbing (with a sheath) wrapped around the anchorage structure, and the tie-back hook secured around the webbing.



⚠ WARNING

- ALWAYS avoid lifeline contact with sharp or abrasive edges and surfaces.
- If the Micron™ with rebar hook configuration is used, then the rebar hook should always be connected to the anchorage structure, and NEVER to the dorsal D-ring of the full body harness. And the Micron™ casing should always be worn at the harness end. A competent person must always ensure compatibility of the anchorage structure with the Micron™.
- **For using the Micron™ as a twin-leg option**, assemble two KStrong Micron™s (UFS354002) to connect to the dorsal D-ring of the harness with the help of a special connector (e.g. UFC409151).
- When using the Micron™ as a twin-leg lanyard, then ensure 100% tie off at all times. Make sure to disengage one rebar hook from the anchorage structure only if the other hook is firmly connected to the anchorage structure.
- The SRL should never be lubricated, and should always be kept away from oil.

30. TRAINING

It is essential that the users of this type of equipment receive proper training and instruction, including detailed procedures for the safe use of such equipment in their work application. ANSI/ASSE Z359.2, Minimum Requirements for a Comprehensive Managed Fall Protection Program, establishes guidelines and requirements for an employer's managed fall protection program, including policies, duties and training, fall protection procedures, eliminating and controlling fall hazards, rescue procedures, incident investigations, and evaluating program effectiveness.

31. ADDITIONAL INFORMATION FOR SELF-RETRACTING LIFELINES

Always tag as "Unsuitable" those SRL's which have been found to be unsuitable for further use. Never attempt to repair the equipment on your own. Send the equipment so tagged to an authorized service center (where the authorization has been received from the manufacturer in writing), or back to the manufacturer for replacement of components and repair.

32. MAINTENANCE

- Cleaning the equipment after use is extremely important, as this maintains the life and safety of the equipment. If soiled, the SRL's may be wiped off clean with a dry clean cloth. The equipment may also be cleaned using mild soap and water. Rinse, wipe and then hang to dry naturally. Contact KStrong for any further questions.
- Additional maintenance and servicing procedure must be completed by authorized service center only.
- Store the SRL in a cool dry clean environment away from direct sunlight. Avoid areas where there may be the presence of chemical vapors, heat, excessive moisture, oil or other degrading elements. Soiled, wet or contaminated SRL's should first be thoroughly cleaned and dried, before placing them in storage.

- It is extremely important to thoroughly inspect the equipment after extended storage. This inspection should be performed by a competent person only.

NOTE

Do not attempt to disassemble the unit or make repairs to the equipment. Send the equipment back to the manufacturer, or persons or entities authorized in writing by the manufacturer to make repairs to the equipment.

LIFESPAN: The estimated product Lifespan is 10 years from the date of first use. The following factors can reduce the Lifespan of the product: intense use, contact with chemical substances, specially aggressive environments, extreme temperature exposure, UV exposure, abrasions, cuts, violent impacts, bad use or maintenance.

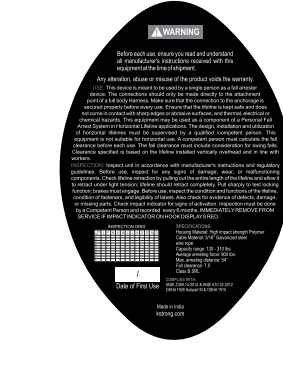
DISCLAIMER: Prior to use, the end user must read and understand the manufacturer's instructions supplied with this product at the time of shipment and seek training from their employer's trained personnel on the proper usage of the product. Manufacturer is not liable or responsible for any loss, damage or injury caused or incurred by any person on grounds of improper usage or installation of this product.

LABELS

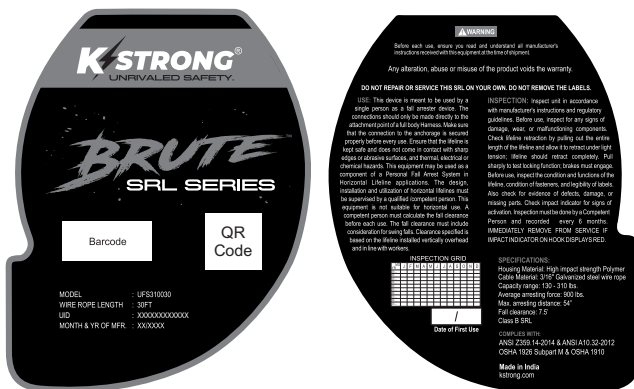
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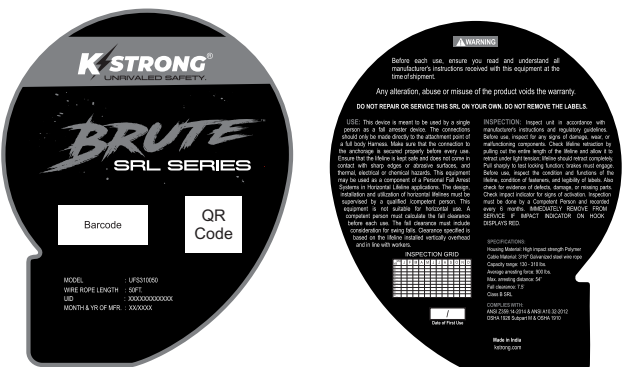
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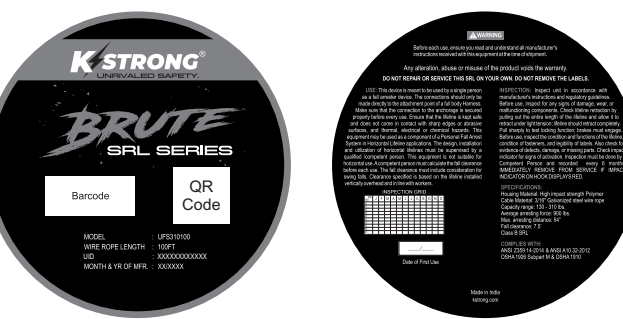
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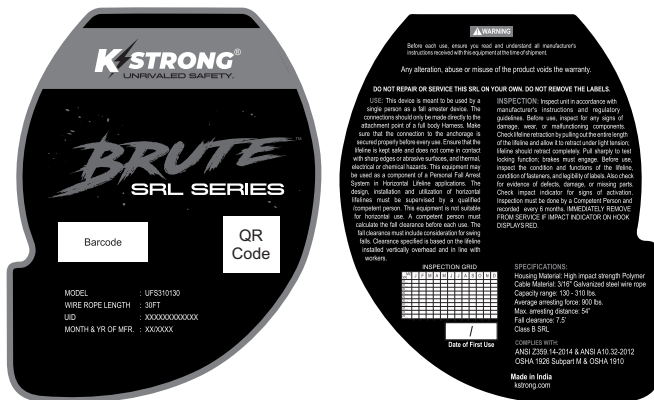
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Model- UFS310100



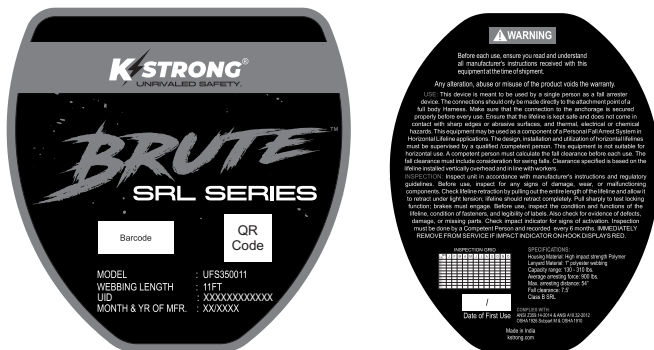
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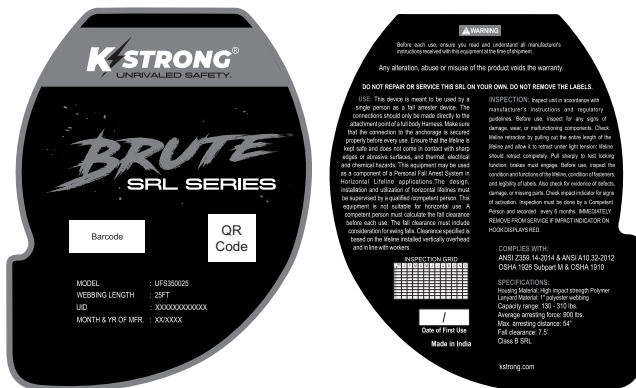
Model- UFS310150



Model- UFS350011



Model- UFS350025



Model- UFS310060R



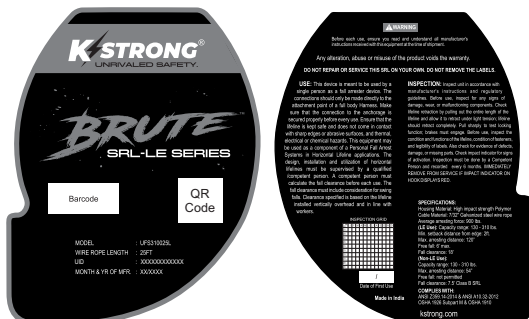
Model- UFS310100R



Model- UFS310018L



Model- UFS310025L



Model- UFS310050L



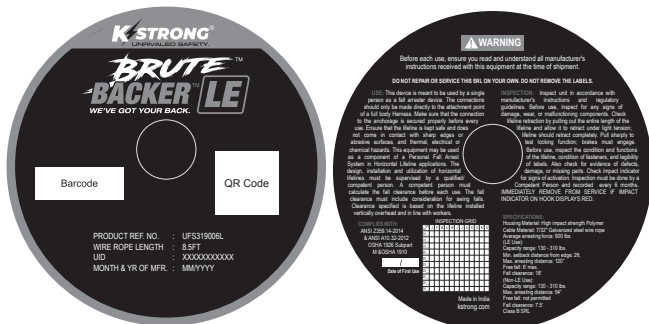
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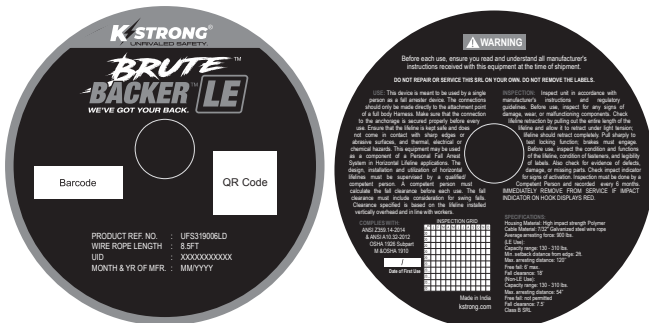
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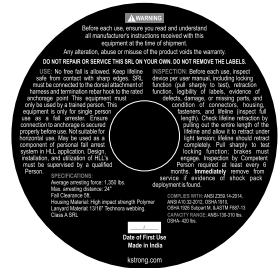
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Model- UFS319006LD



Model- UFS359002



Model- UFS350002



Model- UFS351102



Model- UFS354002



Model- UFS356002



Model- UFS359506



Model- UFS359506D



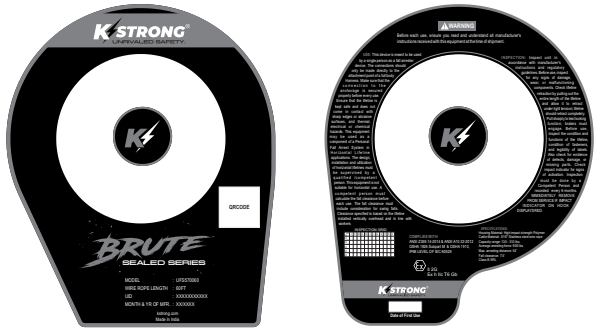
Model- UFS389006D



Model- UFS570030



Model- UFS570060



Model- UFS570100



EQUIPMENT RECORD				
Product:				
Model and type/identification	Trade name		Identification number	
Manufacturer	Address		Tel, fax, email	
Year of manufacture	Purchase date		Date first put into use	
Other relevant information (e.g. Document number)				
PERIODIC EXAMINATION AND REPAIR HISTORY				
Date	Reason for entry (periodic examination or repair)	Defects noted, repair carried out and other relevant information	Name and signature of competent user	Periodic examination next due date



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www.kstrong.com

USA	South America	Asia
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