

FRONTLINE®

FALL PROTECTION

USER INSTRUCTION MANUAL

WARNING TO USER!

You are required to read and fully understand the user instruction manual BEFORE using this product.

Improper use and installation can result in serious injury or death.

User manuals occasionally may be updated so for the latest user manual

please visit www.frontlinefall.com/uim



SHOCK ABSORBING LANYARD

**THIS INSTRUCTION MANUAL APPLIES TO
THE FOLLOWING MODELS:**

⇒ LIS62RA, LIS61S, LIS62R, LIS62RDL, LIS61SDL



ANSI Z 359.13-2013

Please 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 user's reference at all times. Alterations or misuse of this product, or failure to follow instructions, may result in serious injury or death.

NOTE: The user is advised to keep this user instructions document for the life of the product.

MANUFACTURER : **www.frontlinefall.com**

- 1. INTRODUCTION:** This manual must be read and understood in its entirety and used as part of fall protection training program as required by OSHA or any state regularity agency. These instructions are intended to meet the manufacturer instructions as required by ANSI/ASSE Z359.13:2013. The user must fully understand the proper equipment use and limitations.

This user instructions manual applies to the following models:

1 . Oil And Dust Repellant Lanyards	Model	Free Fall
Oil And Dust Repellant Double Leg Lanyard	LIS62RDL	For 6 Ft Free Fall
Oil And Dust Repellant Single Leg Lanyard	LIS61SDL	For 6 Ft Free Fall
2 . Internal Shock Absorbing Lanyards		
Internal Shock Absorbing Double Leg Lanyard	LIS62R	For 6 Ft Free Fall
Internal Shock Absorbing Single Leg Lanyard	LIS61S	For 6 Ft Free Fall
3 . Elasticated Internal Shock Absorbing Lanyard		
Elasticated Internal Shock Absorbing Double Leg Lanyard	LIS62RA	For 6 Ft Free Fall



Figure 1 - Product

Warning: These products are part of a personal restraint, work positioning, suspension, or rescue system. The user must read and follow 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 and maintenance of this product. Alterations or misuse of this product or failure to follow instructions may result in serious injury or death.

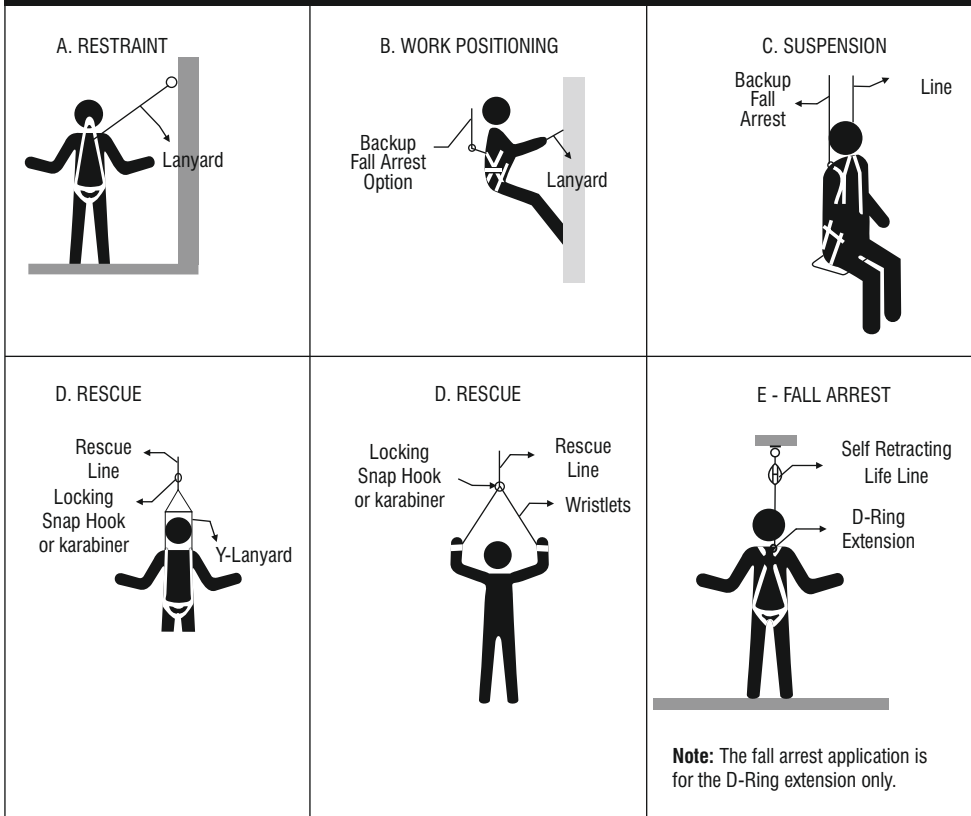
1. APPLICATIONS:

- The Shock Absorbing Lanyards which have been tested for 6 foot free fall have different colour tracer for identification.
- As against the above, the lanyards which are tested for 12 foot free fall have different colour tracer for easy distinction.

Note: Refer fig. 2 for applications as mentioned below:

- A. Restraint:** The lanyard is used to prevent the user from reaching a hazard, such as leading edge work. No vertical free fall possible.
- B. Work Positioning:** The lanyard is used to position or support (with a harness or body belt) the user at the work position, such as window washing or steel workers. Two feet maximum free fall.
- C. Suspension:** The lanyard (generally a Y-type) is used with a chair or other support system to suspend or transport the user vertically, such as in a Easy Seat. No vertical free fall possible.
- D. Rescue:** The lanyard (generally a Y-type) is used to retrieve a victim in a rescue, such as confined space rescue and retrieval. No vertical free fall possible.
- E. Fall Arrest:** The D-ring extension is used in-line with a personal fall arrest system to assist in attachment to the system.

Figure 2 - Applications



2. INSPECTION :

- **Frequency:** Before each use visually inspect the equipment.
- The lanyard must be inspected by a competent person other than the user preferably every six month or at least annually. Record the results of each inspection in the inspection log under point no. 13.

Inspection Steps:

- Inspection criteria for the equipment shall be set by the user's organization and the inspection criteria shall equal or exceed the criteria established by the standard ANSI/ASSE Z359.13 or the manufacturer's instructions.
- Inspection criteria shall included.
- Absence or illegibility of markings.
- Absence of any elements affecting the equipment form, fit or function.
- Inspect the lanyard hardware (snap hooks, adjusters, thimbles, spreader bar, etc.). These items must not be damaged, broken, distorted, or have any sharp edges, burrs, cracks, worn parts, or corrosion. Ensure the connecting hooks work properly. The hook gates must move freely and lock upon closing. Ensure the adjusters, if present, work properly.
- Inspect the webbing. 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 replaced.

- Inspect the labels. All labels must be present and fully legible.
- Record the inspection date and results on the inspection log.
- If inspection reveals a defective condition, remove the unit from service immediately and destroy, or contact a factory authorized service center for repair.

Note: If this equipment has been subjected to forces resulting from the arrest of a fall, it must be immediately removed from service and destroyed or returned to Frontline for possible repair. See section 10 for inspecting the equipment. Extreme working conditions (harsh environment, prolonged use, etc.) may require increasing the frequency of inspections. Only Frontline or parties authorized in writing may make repairs to this equipment. User must ensure that unused Leg of the Y lanyard is safely stored and it does not cause obstruction.

3. PRECAUTIONS:

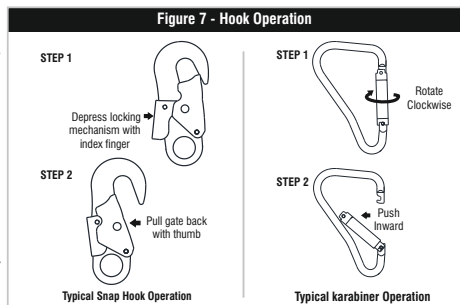
- Consult a doctor if there is any reason to doubt a user's ability to withstand and safely absorb fall arrest forces. Age, fitness, health conditions can seriously affect the worker a fall occur. Pregnant Women and minors should not use this equipment.
- Proper precautions should always be taken to remove any obstructions, debris, material, or other recognized hazards from the work area that could cause injuries or interfere with the operation of the system. All equipment must be inspected before each use according to the manufacturer's instructions. All equipment should be inspected by a qualified person on a regular basis.
- To minimize the potential for accidental disengagement, a competent person must ensure system compatibility.
- Any product exhibiting deformities, unusual wear, or deterioration must be immediately discarded. Any equipment subject to a fall must be removed from service. The authorized person/ user shall have a rescue plan and the means at hand to implement it when using this equipment.
- All synthetic material must be protected from slag, hot sparks, open flames, or other heat sources. The use of heat resistant materials is recommended in these applications.
- Never use natural materials (manila, cotton, etc.) as part of a fall protection system.
- Do not expose this equipment to chemicals which may have a harmful effect on the materials used to construct it. Be especially aware of caustic environment, or those that contain high levels of organic acids or bases. If you are uncertain about the safe operation of this equipment in any environment, contact Frontline for further instructions.
- Rescue operation must be performed by the trained and competent personal. The rescue operation must be performed under the supervision of the rescue expert team or personal. It is advised that while working on site work in pairs. Before going for the work the user must have the rescue plan according to the work.

4. OPERATION AND USAGE:

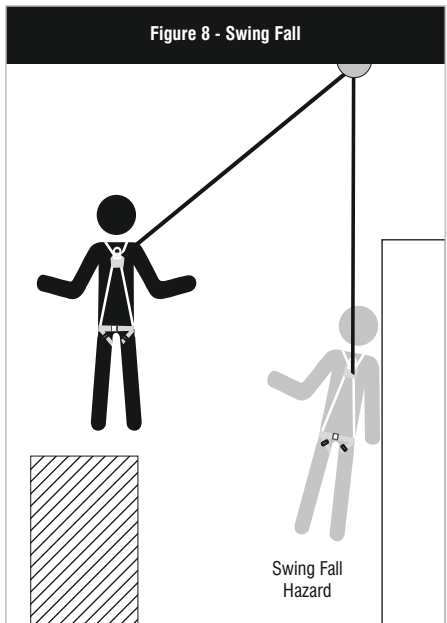
Warning: Do not alter or intentionally misuse this equipment. Consult Frontline when using this equipment in combination with components or subsystems other than those described in this manual. Some subsystem and component combinations may interfere with the operation of this equipment. Use caution when using this equipment around moving machinery, electrical hazards, chemical hazards, and sharp edges.

- **Before Each Use** of this equipment, carefully inspect it to assure that it is in serviceable condition. Check for worn or damaged parts. Ensure that all hardware is present and secure. Inspect for sharp edges, burrs, cracks, or corrosion. Ensure self-locking snap hooks or karabiners work properly. **See Figure 7.** Inspect the rope or webbing for wear, cuts, burns, frayed edges, breaks, or other damage. Do not use if inspection reveals an unsafe condition.

- Plan your restraint, working positioning, suspension, or rescue system before starting your work. Consider all factors that affect your safety at any time during use. The following list gives some important points to consider when planning your system.



- For work positioning systems, the anchorage location must be selected to limit the free fall to two feet, to reduce swing fall hazards, and to avoid striking an object during a fall. **See Fig. 8.**
- Free Fall:** Depending on the lanyard type and the application, the allowable free fall for 6ft Lanyard, maximum free fall allowed is 6ft and for 12ft Lanyard, maximum 12ft free fall is allowed.
- Fall Clearance:** Should a fall occur, there must be sufficient clearance in the fall area to arrest the fall before striking the ground or other objects. **See Fig.3. on Page 8.**
- Backup Fall Arrest:** Some suspension and work positioning applications of this equipment may require a backup fall arrest system and independent fall arrest anchorage. See OSHA guidelines when designing the system. Information regarding designing the fall protection systems are available with Frontline.
- Sharp Edges:** Avoid working where the lanyard, subsystem, or other system components will be in contact with, or abrade against unprotected sharp edges. Do not loop the lanyard around small diameter structural members. If working with this equipment near sharp edges is unavoidable, protection against cutting must be provided by using a heavy pad or other means over the exposed sharp edge.
- Rescue:** Should a fall occur, the user (employer) must have a rescue plan and the means at hand to implement it.
- After A Fall:** Any equipment which has been subjected to the forces of arresting a fall must be removed from service immediately and destroyed or contact a factory authorized service center for repair.

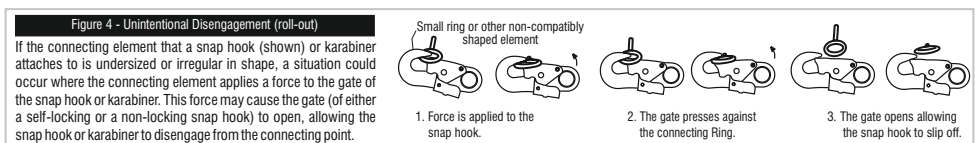


WARNING: Follow the manufacturer's instructions for associated equipment (full body harness, work seat, etc.) used in your restraint, work positioning, suspension, or rescue system.

Training must be conducted without exposing the trainee to a fall hazard. Training should be repeated periodically.

5. SYSTEM REQUIREMENTS :

- Compatibility of Components:** Frontline equipment is designed for use with Frontline 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.
- 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 Frontline if you have any questions about compatibility. Connectors (hooks, karabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 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 4.** Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and karabiners are required by ANSI/ASSE Z359.12 and OSHA.



6. MAKING CONNECTIONS:

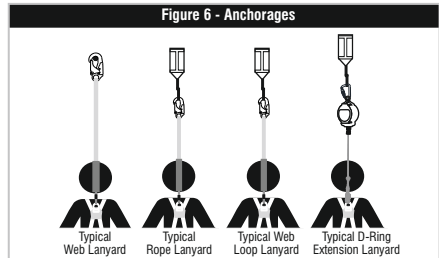
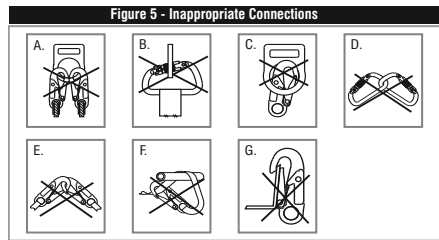
- Only use self-locking snap hooks and karabiners with this equipment.
- Only use connectors that are suitable to each application.
- Ensure all connections are compatible in size, shape and strength.
- Do not use equipment that is not compatible.
- Ensure all connectors are fully closed and locked.

Frontline connectors (snap hooks and karabiners) are designed to be used only as specified in each product's user's instructions.

See Fig. 5 for inappropriate connections.

Frontline snap hooks and karabiners should not be connected:

- To a D-ring to which another connector is attached.
- In a manner that would result in a load on the gate.
- In a false engagement, where features that protrude from the snap hook or karabiner catch on the anchor and without visual confirmation seems to be fully engaged to the anchor point to each other.



Note: 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.

WARNING: Anchorages used for restraint, rescue, or suspension may only be used where there is no possible vertical free fall. These anchorages do not have sufficient strength for work positioning or fall arrest. Do not connect work positioning or fall arrest systems to these anchorages. Anchorages intended for work positioning may not be suitable for use for fall arrest systems (fall greater than two feet) and should not be used for fall arrest unless specifically designed to do so. See Figure 6

WARNING: Consult your doctor if there is reason to doubt your fitness to safely absorb the shock from a fall arrest. Age and fitness seriously affect a worker's ability to withstand falls. Pregnant women and minors must not use this equipment.

- Directly to webbing or rope lanyard or tie-back (lanyards equipped with tie back hook PN 148 are permitted to use this way).
- To any object which is shaped or dimensioned such that the snap hook or karabiner will not close and lock, or that roll-out could occur.
- To any object which is shaped or dimensioned such that the snap hook or karabiner will not close and lock, or that roll-out could occur.
- Do not use connector on an anchorage object in the manner depicted in picture-G.
- If using personal shock pack then always attach a connecting lanyard which will make the entire system length not more than 6ft. Also the connecting lanyard should be ANSI & OSHA compliant & has capacity of 5000lbs at least.
- **Max. Arrest Force:** Maximum arrest force for Y shaped lanyard should be limited to 8kN (1800 lbs).
- **Anchorage Strength:** The anchorage strength required is dependent on the application type. The following are guidelines for some application types:
 - **Restraint:** Anchorages must support a minimum of 3,000 lbs. per person attached.
 - **Working Positioning:** Anchorages must support at least 3,000 lbs. per person attached; or be designed, installed, and used under the supervision of a qualified person as part of a complete system, maintaining a safety factor of at least two.

- **Fall Arrest:** Anchorage must support a minimum of 5,000 lbs. for one person.
- **Suspension:** Anchorages must support a minimum of 2,500 lbs. per person attached.
- **Rescue:** Anchorages must support a minimum of 2,500 lbs. per person attached.

7. SPECIFIC INSTRUCTIONS :

- (i) **Purpose:** Frontline lanyards are to be used as part of a personal restraint, work positioning, suspension, or rescue system. The D-ring extension assembly may also be used as part of a personal fall arrest system only if it is attached to a self-retracting lifeline or an energy absorbing lanyard. Applications include: inspection work, construction, demolition, maintenance, oil production, and confined space rescue.
- (ii) Maximum Arrest force and Maximum Elongation/Maximum Deployment distance of personal energy absorber when dynamically tested in accordance with the requirements of ANSI Z359.13 are as follows-

Conditioning:	Ambient Dry	Ambient Wet	Cold Dry	Hot Dry
Personal Energy Absorbers				
6 ft Free Fall				
Max Arrest Force	<=1800 lbs-f	<=1800 lbs-f	<=1800 lbs-f	<=1800 lbs-f
Average Arrest Force	<=900 lbs-f	<=1125 lbs-f	<=1125 lbs-f	<=1125 lbs-f
Max Elongation	48 inches	48 inches	48 inches	48 inches
12 ft Free Fall				
Max Arrest Force	<=1800 lbs-f	<=1800 lbs-f	<=1800 lbs-f	<=1800 lbs-f
Average Arrest Force	<=1350 lbs-f	<=1575 lbs-f	<=1575 lbs-f	<=1575 lbs-f
Max Elongation	60 inches	60 inches	60 inches	60 inches

8. TRAINING : It is the responsibility of all users of this equipment to understand these instructions, and to be trained in the correct installation, use, and maintenance of this equipment. These individuals must be aware of the consequences of improper installation or use of this equipment. This user manual is not a substitute for a comprehensive training program. Training must be provided on a periodic basis to ensure proficiency of the users.

9. MATERIAL OF CONSTRUCTION OF ENERGY ABSORBING LANYARD:

- Energy absorber attached to the lanyard is made of Polyamide webbing with Polyester/Aramid back up strap.
- Lanyard is made of high tenacity Polyester yarn/Nylon/Steel/Aramid.

10. LIMITATIONS: The following application limitations must be recognized & considered before using this product:

- **Capacity:** This equipment is for use by persons with a combined weight (person, clothing, tools, etc.) within the range of 130 lbs - 310 lbs.
- **Free Fall:** Lanyards used for work positioning applications must be rigged to minimize any potential vertical free fall. In no case should the potential free fall be greater than two feet. For situations where the free fall may exceed two feet, a backup fall arrest system should be used.
- If the D-ring extension assemblies are used in conjunction with a self-retracting lifeline or an energy absorbing lanyard in a fall arrest application, the length of the D-ring extension assembly must be taken into account when calculating the free fall distance and the fall clearance requirements.

- Fall Clearance:** Always ensure fall clearance distance before using lanyards equipped with the Frontline SHOCK Pack. If there is a risk of fall or if the only anchorage is below the attachment points on the harness, it is essential to use a lanyard provided with an energy absorber. Before using a shock-absorbing lanyard, check that there is sufficient fall clearance below the user to prevent any collision with the structure or the ground. **See Figure 3.**

- Backup Fall Arrest System:** Some applications of this equipment may require the use of a backup fall arrest system; such as when using a Y-lanyard to suspend a person in a Easy Seat.

- Physical and Environmental Hazards:** Use of this equipment in areas with physical or environmental hazards may require additional precautions to reduce the possibility of 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 Frontline if you have any questions about using this equipment where any physical or environmental hazards exist.

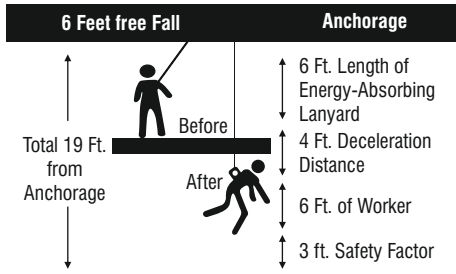
Training: This equipment must be used by persons who have been properly trained in its correct application and use.

Refer to applicable local, state, and federal (OSHA) requirements governing this equipment for more information on lanyards and associated system components.

Calculating Total Fall Distances:

Total Fall Clearance below worker is calculated from Anchorage Connection. Free Fall Distance + Energy Absorber Deceleration Distance + Worker height + Safety Factor. Care must be taken to ensure that the total fall distance is clear of obstructions, such as equipment, to avoid contact with a lower level.

$$\text{Free Fall Distance} + \text{Energy Absorber Deceleration Distance} + \text{Worker height} + \text{Safety Factor} = 19 \text{ Ft. (5.8M)}$$



$$\text{Free Fall Distance} + \text{Energy-Absorber Deceleration Distance} + \text{Worker height} + \text{Safety Factor} = 20 \text{ Ft. (6.1M)}$$

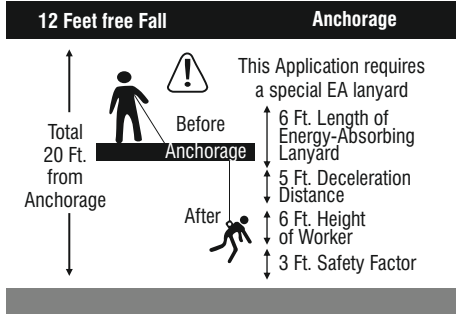
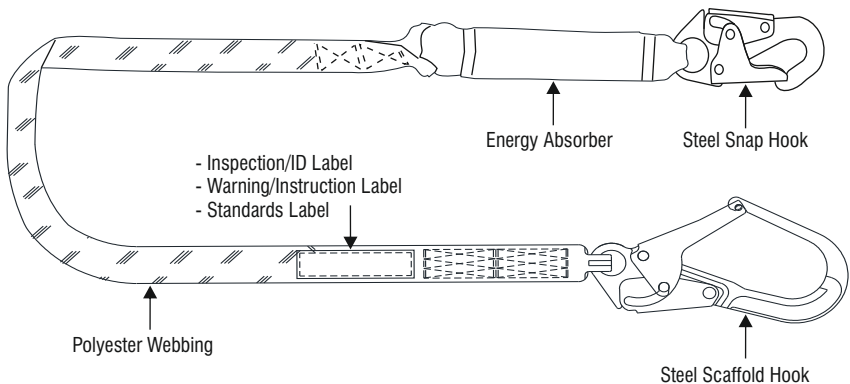


Figure 3

ILLUSTRATION OF LANYARD



WARRANTY: All Frontline products bear 1- year warranty against manufacturing defects, applicable to unused Frontline products, from the date of purchase. However, Frontline shall not be liable for any accident or damage while the product is in use.

LIFESPAN: The estimated product Lifespan of this product is 10- years from the date of manufacturing. The following factors can reduce the Lifespan of the product : intense use, contact with chemical substances, especially aggressive environment, extreme temperature exposure, UV exposure, abrasion, cuts, violent impacts, bad use, or maintenance.

DISCLAIMER: This information on the product is based upon technical data that Frontline obtained under laboratory conditions and believes to be reliable. Frontline does not guarantee results and takes no liability or obligation in connection with this information. As conditions of end-use are beyond our control, it is the user's responsibility to determine the hazard levels and the use of proper personal protective equipment. Persons having technical expertise should undertake evaluation under their own specific end-use conditions, at their own discretion and risk. Please ensure that this information is only to check that the product selected is suitable for the intended use. Any product that is damaged, torn, worn, or punctured should be immediately discontinued from usage.

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