

Lifein

System

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Horizontal Lifelines Overhead Lifelines Wall Mounted Lifelines

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Introduction

SFS lifeline systems are designed to act as a fall prevention method, or a means of minimising the consequences of a fall should it occur - reducing the risk of injury or death to operatives working at height.

It is therefore vital that it is installed, maintained, and used correctly as laid out in this guide.

Horizontal Lifelines

The SOTER II system is a series of load-limiting modules attached to the outer roof skin, joined through a series of components to create a system using a 7x7x8mm stainless steel wire rope.

Overhead & Wall Mounted Lifelines

The SFS overhead & wall mounted lifeline systems are a series of stainless steel components that can be installed to walls, beams and other structures, to create a system. Depending upon the application either a 7x7x8mm or 1x19x8mm stainless steel wire rope would be used.

Guidelines

All lifeline systems covered by this document conform to the following European standards; EN 795:2012 Single User Class A & C CEN/TS 16415:2013 Multi-User Class A & C

Safety

All users of these systems should understand the requirements of working at height, system pre-use checks, limitations, precautions, system operation. They should be competent in the use of lifeline systems, having read and fully understood this guide, and trained by a skilled/competent person.

SFS recommend that systems should not be used by lone operatives due to safety and rescue considerations.





System Design

SFS lifeline systems can be installed for both fall arrest or restraint as defined in the standards listed on page 3. A recognised SFS installer will have considered many factors before choosing the safest system design relevant to the access needs and factoring in risks on site. A system designer should always aim to keep workers at height in restraint, with fall arrest being considered as the last option.

Restraint

A restraint system is considered the safest method of working at height. Keeping the user in restraint removes the possibility of a fall. The users path, and what they have access to can be dictated and controlled.

The main advantages of restraint systems:

- No possibility of a fall with correct PPE use
- No need for a rescue plan

• Adjacent buildings/lower level roofs and fall clearances do not need to be factored in.

Prior to use of a lifeline system, it is imperative that all users are familiar with the system type installed and check the following things:

• Understand how to access, traverse and manipulate the system type installed

• Use of correct PPE for the specific system designed, ensuring that the PPE has not passed it's expiration date, has no signs of damage or wear, and is fit for use

Fall Arrest

Fall arrest systems are designed to dimit the consequences of a fall should it occur). The SFS lifeline system can be setup to arrest a user)s fall but the clearance distances must be considered. It is integral there is sufficient enough space for the system to bring users to a controlled rest.

The purpose of a fall arrest system is typically to give a user wider access to an area at height but they come with some major disadvantages:

• They do not stop a fall occurring as the user is responsible for correct use of PPE

• They can only be used on buildings with the required free fall clearance from all hazards including objects below roof lights

• A full rescue plan must be in place to return the user to safety within 3 minutes of a fall occurring



If a fall arrest system is installed, a rescue plan must be in place in the event of a fall occurring, not solely relying on emergency services alone. It is imperative that anyone who experiences a fall to arrest, is rescued within 3 minutes of the fall occurring to prevent further medical complications of from being suspended in the air for extended period of time.



Installation

Only recognised installers trained by SFS are certified to carry out design, installation, and recertification of SFS lifeline systems. If this is not followed, use of the system could put lives at risk.

Re-certification

Under European legislation EN 795:2012, it is a requirement that all lifeline systems are re-certified over time spans no greater than 12 months to allow continued use. This is caveatted with the requirement for inspections over shorter time spans if the system is setup in an area with an increased risk of corrosion and/or the system is deemed to be in high use. These increased requirements will be clarified by SFS and laid out in documentation supplied by the installer. If you are unsure of the re-certification periods for your system, you can contact SFS customer support for this information.

Re-certification should be carried out by a recognised SFS installer to ensure they are familiar with the fundamentals of the SFS lifeline system.

Unless you are a recognised SFS lifeline installer or have sufficient training with SFS lifeline systems, never attempt to repair, modify, dismantle, or adjust any section of a lifeline system, as this will invalidate the installation and may put lives at risk.

Pre-use Checks

It is recommended that a detailed log of use is kept and referred to prior to the system being used. This should contain information such as:

- System use dates
- User(s) name and competence
- Reasons for use and areas accessed
- Visual inspection comments
- PPE condition/ inspection records

This information should be kept in a safe place, alongside the system PPE and user equipment. Ideally, these should be signed out prior to each use and signed back into storage after, to ensure accurate logging of any wear and tear on the system, PPE and user equipment.



Contract Specific User Information, on page 15, details the minimum information which should be provided to support and maintain safe use of the system.

General Maintenance

SFS lifeline systems are designed to last the test of time. Being made entirely from high grade stainless steel, a properly maintained system should perform for the life of the structure.

Although considered maintenance free, factors such as corrosive environments and aggressive conditions can have a detrimental effect on its appearance. In these areas we would recommend the system is cleaned regularly with a mild detergent and warm water and rinsed thoroughly.

Warranty

SFS lifeline products can be supported with a warranty of up to 25 years, from date of original purchase *subject to normal use, correct installation, and meeting regular re-certification requirements. Each warranty must be applied for upon installation of system. This is a product warranty and does not cover the installation of the system. All SFS warranties are subject to our standard terms and conditions (available on request).

Traveller Inspection

The SFS Traveller device is manufactured from stainless steel and should be stored in its case away from the roof, together with the required PPE/user equipment. This will help ensure the Traveller remains in good condition and away from possible contaminants. Before use, the user should check the Traveller for the following:

- Check the Traveller device for any obvious damage
- The device should open and close freely
- The device is 'locked' when a karabiner is attached
- Only SFS should carry out maintenance on the device

The SFS Traveller device is the only tested traversal device for use with the SFS lifeline systems. This ensures the system is fully traversable without the need to clip on or off as the user negotiates intermediate and corner modules.

Please see page 12 for more information on the SFS Traveller devices and the correct use for your application.



System Tag/Label

A system tag or label should be clearly visible at the access point to the system, or at the system start point. This should be inspected prior to use and correlate with system specific documentation supplied by the installer, ensuring that:

- The system is in date and certification is valid
- The system type is detailed, and the risks are understood
- If the system is specified arrest, aspects such as free fall distances have not changed
- Correct PPE/user equipment is being used
- The maximum number of users is not exceeded
- Supplier contact details are available in case of queries about the system

If tag/label is missing, or the recertification period has been exceeded, the system should not be used until the system has been re-certified and re-tagged as safe for use.

Documentation & Certificate

Contract/system specific information should be referred to prior to system use to ensure the user(s) fully understand the following:

- Access point(s)
- System layout
- System purpose what areas it will allow users to access.
- System type and risks associated
- Valid system certification
- Maximum users permitted to use the system

These documents will be supplied by the recognised installer.

System Inspection

If possible, before attaching to the system/accessing the roof area, carry out a visual inspection of the system. Check that there are no obvious signs of damage such as:

- Deployed shock absorbing modules
- Excessive sag in the wire (where it is touching the surfaces around the lifeline)
- Kinks or breaks in the wire

• Services or goods impeding the users route or resting on the line or shock absorbing modules themselves

If you have any concerns about the product appearance, general condition of the system, or installation, please contact your installer and remove the system from service until remedied.





Personal Protective Equipment (PPE)

It is imperative that any user of a lifeline system uses the correct PPE and they are aware of the correct use said equipment. It is also recommended that PPE should be issued to one user for their own use, wherever possible. Details on the required PPE for a given lifeline system will be detailed on the system tag, as well as on the system specific documentation.

Harness, Lanyard and Arrester block Inspection

All PPE should be examined prior to use and an examination record filled out. It is the responsibility of the user to carry out a visual inspection of their equipment. If there is any doubt, withdraw the equipment from service immediately. The withdrawn equipment should be inspected by a person with sufficient training/understanding of safety inspections (other than the user) before being returned to service. A comprehensive inspection of all PPE should be undertaken in line with the manufacturers recommendations and a records kept accordingly.

Cleaning, Storage and Lifespan

Cleaning:

Harness and lanyards should be cleaned in warm water using a mild detergent, rinsed thoroughly, and allowed to dry naturally away from open fire or other sources of direct heat.

Storage:

The equipment should be properly stored and transported in the bag supplied to prevent any contact with sharp objects and harmful substances and stored in an area which is dry and free from direct sunlight.

Lifespan:

The lifespan of PPE is generally 10 years from date of manufacture in unopened bags, 5–7 years from first use (individual manufacturers may differ slightly). The working life will be reduced through age, general wear and tear, and frequency of use.

Inspection Checklist

- Information label should be present.
- Check all webbing and stitching. There should be no evidence of cuts, fraying or burns, the webbing should not be discoloured, and each stitch pattern should be examined. There must be no broken stitches or cuts, the stitch pattern should be intact.
- All metal fittings should be free from excess wear, rust, and deformation. Ensure all moving parts are clean and if necessary, lubricated.
 Avoid all contact with chemicals. Generally speaking, if it harms the skin, it will harm the equipment. Evidence of chemical contami-
- nation is shown by discolouration or powdering of the webbing.
- All markings on the product should be clear and legible.

Correct Harness Wear

It is recommended that the user should carry out a suspension test in a safe place before using the harness for the first time, in order to ensure that it is the correct size, has sufficient adjustment and an acceptable level of comfort.

The harness has been designed and manufactured in accordance with BS EN361:2002: Personal protective equipment against falls from height. Full body harnesses.

The full body harness can be used as follows:

- As part of an assembly to protect the user in a fall from height
- Used with a restraint lanyard to prevent the user from falling
- Used as part of a work positioning assembly
- Used as part of a rescue system

Correct Harness Wear (continued)

SFS accepts no liability for the incorrect use, maintenance and servicing of any PPE used with our systems.

The information provided on this page is to act as a guide, in all instances the manufacturers documentation should be referred to for specific requirements.



In the event of the user falling from height, the intended purpose of the harness is to hold the user in a safe and upright position whilst dissipating the resulting pressure on the body evenly.

When used to protect the user in the event of a fall, the harness must be used in conjunction with an energy absorber (manufactured to BS EN355) a lanyard (manufactured to BS EN354) and an anchorage point (to BS EN795). The user should be aware that, usually, when a 2 metre lanyard fitted with an energy absorber is deployed, the length of the lanyard can increase to 3.75 metres. The user should always read the manufacturers instructions, which accompany the lanyard and energy absorber, to verify the exact measurements.

Before using any shock absorbing lanyard or arrest block, check there is sufficient free fall space, clear of hazards below the users' feet to prevent collision with any structures or the ground. This information should also be detailed in contract specific documentation provided by the installer – proving the free fall clearance is adequate.

Meaning of Marks



Book Symbol: Read the instructions for use before using equipment



CE Symbol: This equipment conforms with EU



Letter 'A': 'A' is laser marked on each fall arrest attachment point

Fitting the Harness

Ref 1:

Hold the harness by the dorsal attachment point stitched on the back of the harness.

Ref 2:

Fit the shoulder straps ensuring that the rear D link is on the outside of the harness and there aren't any twists in the webbing.







Ref 3:

Fit the chest strap and adjust to fit.



Ref 4:

Fit the thigh straps making sure that the straps are fitted to the correct buckle again ensuring webbing isn't twisted.



Ref 5:

Adjust straps so that the rear lower straps fit under the buttocks.

Ref 6:

Adjust the harness to achieve a comfortable tension. Slide the nearest elastic tidy up to the metal fittings in place and use the second elastic tidy to retain any surplus webbing.







Buckle fittings





Lanyard Connection

Whether a shock absorbing lanyard or fixed restraint lanyard is specified, both should be connected to the user at the dorsal attachment of the harness. It is imperative that the correct lanyard used correlates to both the detailed specific system information supplied by the installer and the tag/ label on the system itself.

When using a shock absorbing lanyard, the shock absorbing end should be connected to the dorsal attachment. Orientation is not detrimental when using a fixed restraint lanyard.

Always ensure that the locking mechanism on each karabiner is fully locked.



Horizontal Lifelines Designed for Fall Arrest Applications

Rope and Grab Use

The use of rope and grab equipment should only be carried out by persons competent and trained in their safe use, due to the greater potential of a fall occurring with an arrest system. We recommend that user(s) should go through site-specific equipment training in relation to the system and layout installed.

In general:

- Connection to the Traveller device on the system should be made using the karabiner at the end of the rope itself.
- The grab device should be attached to the rope with the up arrow facing towards the line system.
- The free karabiner of the shock absorbing lanyard connected to the user should then be secured through the ring of the grab
- The user can then, while holding the grab in one hand, lower themselves to the area they wish to work taking into consideration the lanyard length.
- The user needs to ensure the grab is set so that they are using the full extent of the lanyard and neither the lanyard or rope is slack.
- It is recommended the user should keep the rope at the shortest length possible at all times returning back to the system before moving to another area of the roof, shortening the rope as they go, to prevent a trip hazard.

If an arrest system has been installed with anti-pendulum posts, the user must clip their rope through the karabiner attached to the post prior to nearing any roof edge. This will limit the possible swing of a user's fall from an exposed gable end.





Inertia Reels/Blocks

Only inertia blocks tested and approved by SFS can be used in conjunction with the SOTER II horizontal lifeline system.





Using the System

Before any lifeline system is ready for use, the user(s) must ensure:

- All documentation is read in its entirety and understood
- All pre-use checks have been completed
- System certificate is valid

Lone use of a horizontal lifeline system is not recommended due to safety and recovery considerations. Ensuring two users are present during operation allows operatives to check each others PPE before use and in the event of an accident, effect help and rescue.

Accessing the System

The unique design of the SFS Traveller devices allow for attachment/detachment from the system as required.

A system should be accessed from the designated point, allowing the user to check the information tag and date of last inspection before use.

Where access is being gained by use of MEWP or external ladder, care should be taken to ensure the user is attached to an anchor point during access and egress of the system at all times. This can be achieved by using a second/split leg lanyard or loose strap from the system.

Traveller Device

• The Traveller device is a mobile anchor, designed for use with the SFS lifeline system as a one person fall arrest or restraint device.

• The device must be used with the following PPE equipment; full body safety harness, lanyard/arrester block for overhead or wall mounted systems.

• The lanyard/arrester block must be connected to the device.

Warnings

- It is not advisable to the use a fall protection system if pregnant or on any medication that may cause drowsiness or make the user unsteady.
- A system and its components should only be used by trained or competent persons.
- A Traveller device is for one person only and should not be used for any other purpose. The rating of the system may be for multiple users, but this does not include the Traveller device.
- It is not permitted to alter or repair a Traveller device in anyway, without the written permission of the manufacturer.
- A Traveller device must only be used on certified system and be connected to the system as instructed.
- A Traveller device must be withdrawn from use should a fall occur. If any doubt arises about the state and condition of a device, it should be returned to SFS or be confirmed in writing by a competent person that the Traveller device is still fit for purpose.
- Once a Traveller device is locked onto a system it should be checked that the device cannot come away from the stainless steel wire rope without the removal of the karabiner. This check ensures that a device has not been subjected to a fall and that the gap is still within tolerance.
- SFS Traveller devices are manufactured from high grade stainless steel, they require no maintenance, but should be checked for any damage prior to use.
- A Traveller device should be transported and stored in suitable packaging to prevent damage and kept away from corrosive materials.



After a Fall

If a fall arrest system is installed, a rescue plan must be in place in the event of a fall occurring, without relying on emergency services alone.

It is imperative that in the event of a fall, the building owner has the means to recover affected user within 3 minutes from the fall occurring, otherwise an arrest system is not a safe means of fall protection and a restraint system should be offered instead.

Rescue and Emergency Procedure

It is strongly recommended that a written emergency and rescue plan is devised by the building owner. Those responsible for rescue should be trained to the required level. This should include the understanding and treatment of presyncope symptoms (light headedness; nausea; flushing sensations; tingling or numbness of the arms or legs; anxiety; visual disturbance; or a feeling they are about to faint) or syncope (unconsciousness) in the fallen person.

More information of dealing with the above can be found on the HSE's website www.hse.gov.uk \rightarrow

As noted previously, the best practice for roof access is not to do it alone. Having two workers at all times allows one to aid the rescue of the other, or raise the alarm quickly and summon help in the event of an accident or fall.

System Re-commissioning

Should a fall occur on the system it should be immediately taken out of use, removing the system tag/label, to show the 'do not use' symbol.

The system then needs to be serviced and re-certified by a recognised SFS installer before it is used again.





Contract Specific User Information

It is important that the system installer provides specific user information to support this user guide, also known as an O&M manual which should lay out the following in detail to allow safe use of the system:

- Client, location, project name, address
- System layouts types, reason and area system gives access to, access point(s)
- Valid test certificate including installation completion date
- PPE & system use record
- Risk assessment





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