



Instructions for Shock-Absorbing Lanyards (SAL's)



Warning!

THE USER OF THIS EQUIPMENT, AND THE USER'S EMPLOYER MUST READ AND COMPLY WITH THESE INSTRUCTIONS. FURTHERMORE, THE USER AND THE USER'S EMPLOYER MUST READ AND COMPLY WITH ALL INSTRUCTIONS, LABELS WARNINGS AND MARKINGS INCLUDED WITH EACH COMPONENT OF THE FALL ARREST SYSTEM OF WHICH THIS PRODUCT IS A PART. FAILURE TO UNDERSTAND AND COMPLY WITH THESE INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.

IF THESE INSTRUCTIONS ARE UNCLEAR TO YOU, PLEASE CONSULT A COMPETENT PERSON. SHOULD THESE INSTRUCTIONS BECOME LOST OR DAMAGED, OR SHOULD ANY LABELS, INSTRUCTIONS OR MARKINGS BECOME ILLEGIBLE, PLEASE CONTACT FALLTECH FOR REPLACEMENTS. SHOULD YOU NEED FURTHER ASSISTANCE WITH UNDERSTANDING THE PROPER EMPLOYMENT OF THIS PRODUCT, PLEASE CONTACT FALLTECH FOR ASSISTANCE:

FallTech Shock-Absorbing Lanyards by Model

This instruction manual should be referenced for the proper use of the FallTech products listed below. Please read and understand the entire manual before utilizing your FallTech SAL.

All FallTech Shock-Absorbing Lanyards use connectors which meet the minimum requirements for gate strength as outlined in Title 29 CFR (OSHA 1910.66, App. C / 1926, Subpart M) and ANSI A10.32-2004. Products with model numbers starting with an "8" meet the more stringent requirement of 3,600 lb. connector gates as recommended in ANSI Z359-1-2007, ANSI Z359.12-2009 and ANSI Z359.13-2009.

ClearPack Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard	Model #	Standard
7103	A10 / 1926	72603	A10 / 1926	8106	Z359 / 1926
7104	A10 / 1926	726034	A10 / 1926	8253	Z359 / 1926
7106	A10 / 1926	726043	A10 / 1926	8254	Z359 / 1926
7253	A10 / 1926	726073	A10 / 1926	8256	Z359 / 1926
7253C	A10 / 1926	7260733	A10 / 1926	8257	Z359 / 1926
7253CARA	A10 / 1926	7260734	A10 / 1926	8260	Z359 / 1926
72533	A10 / 1926	726073C	A10 / 1926	8356	Z359 / 1926
7253PC	A10 / 1926	726073ADJ	A10 / 1926	8357	Z359 / 1926
7256PC	A10 / 1926	72608	A10 / 1926	8364	Z359 / 1926
72563PC	A10 / 1926	726084	A10 / 1926	82543	Z359 / 1926
7253YCARA	A10 / 1926	726083FT	A10 / 1926	82562	Z359 / 1926
7254	A10 / 1926	72608C	A10 / 1926	82563	Z359 / 1926
72542C	A10 / 1926	726082D	A10 / 1926	82573	Z359 / 1926
72543	A10 / 1926	726082D4	A10 / 1926	8357Y	Z359 / 1926
7256	A10 / 1926	726082DPC	A10 / 1926	8357Y3	Z359 / 1926
72562	A10 / 1926	726082DCARA	A10 / 1926	8256EL	Z359 / 1926
72563	A10 / 1926	7356	A10 / 1926	8256EL3	Z359 / 1926
7256C	A10 / 1926	73563	A10 / 1926	8256ELY	Z359 / 1926
72563C	A10 / 1926	73564Y3	A10 / 1926	8256ELY3	Z359 / 1926
7256EL	A10 / 1926	7357	A10 / 1926	82608	Z359 / 1926
7256EL3	A10 / 1926	73573	A10 / 1926	826073	Z359 / 1926
7256ELY	A10 / 1926	735736	A10 / 1926	8260733FT	Z359 / 1926
7256ELY3	A10 / 1926	7257KVY	A10 / 1926	8260734	Z359 / 1926
7256ELYL	A10 / 1926	7360	A10 / 1926	8260732D	Z359 / 1926
7257	A10 / 1926	7362	A10 / 1926	826073ADJ	Z359 / 1926
7257TB	A10 / 1926	7364	A10 / 1926	826082D	Z359 / 1926
7260	A10 / 1926	7364L	A10 / 1926	826084	Z359 / 1926
72601	A10 / 1926	7365H	A10 / 1926	8365H	Z359 / 1926
726013	A10 / 1926	8103	Z359/1926	BV726081P	A10 / 1926
72602	A10 / 1926	8104	Z359/1926		

SoftPack Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard	Model #	Standard
7254LTY	A10 / 1926	7256LTC	A10 / 1926	7256LTYPC	A10 / 1926
7254LT	A10 / 1926	7256LTD	A10 / 1926	8256LT	Z359 / 1926
7254LTL	A10 / 1926	7256LTY	A10 / 1926	8256LT3	Z359 / 1926

7254LTY3	A10 / 1926	7256LTC8	A10 / 1926	8256LTY	Z359 / 1926
7256LT	A10 / 1926	7256LTY3	A10 / 1926	8256LTY3	Z359 / 1926
7256LT3	A10 / 1926	7256LTY2D	A10 / 1926	8256LT3FT	Z359 / 1926
8254LT	Z359 / 1926	8256LTY2D	Z359 / 1926	8256LT33FT	Z359 / 1926
8256LTC8	Z359 / 1926	8256LTL	Z359 / 1926		

Internal Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard	Model #	Standard
7259	A10 / 1926	7259AS	A10 / 1926	8259Y	Z359 / 1926
72593	A10 / 1926	7259Y3	A10 / 1926	8259Y3	Z359 / 1926
72594	A10 / 1926	7259Y3A	A10 / 1926	8259Y3L	Z359 / 1926
725943	A10 / 1926	7259Y3C	A10 / 1926	8259Y43	Z359 / 1926
725943A	A10 / 1926	7259Y3L	A10 / 1926	8259YL	Z359 / 1926
725943L	A10 / 1926	7259Y4	A10 / 1926	DS7259	A10 / 1926
7259A	A10 / 1926	7259Y43	A10 / 1926	DS72593	A10 / 1926
7259C	A10 / 1926	7259YAC	A10 / 1926	DS7259Y	A10 / 1926
7259Y	A10 / 1926	7259YACARA	A10 / 1926	DS7259Y3	A10 / 1926
72593A	A10 / 1926	7259YC	A10 / 1926	HS7259	A10 / 1926
72593C	A10 / 1926	8259	Z359 / 1926	HS72593	A10 / 1926
72594Y	A10 / 1926	82593	Z359 / 1926	HS7259Y3	A10 / 1926
7259AL	A10 / 1926	825943	Z359 / 1926	8259L	Z359 / 1926
82593L	Z359/1926				

ElasTech Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard	Model #	Standard
7240	A10 / 1926	7240Y32D	A10 / 1926	8240Y2O2D	Z359 / 1926
72403	A10 / 1926	7240Y3LA	A10 / 1926	8240Y3	Z359 / 1926
7240L	A10 / 1926	7240YS	A10 / 1926	8240Y3L	Z359 / 1926
7240Y	A10 / 1926	8240	A10 / 1926	8240Y32D	Z359 / 1926
7240YCARA	A10 / 1926	8240L	Z359 / 1926	8240Y32D2R	Z359 / 1926
72403LA	A10 / 1926	82403	Z359 / 1926	AR7240Y	A10 / 1926
7240Y3	A10 / 1926	8240Y	Z359 / 1926	AS8240Y	Z359 / 1926
7240Y3A	A10 / 1926	8240Y2O	Z359 / 1926	SC7240	A10 / 1926
7240Y3L	A10 / 1926	82403L	Z359 / 1926	SC8240Y3	Z359 / 1926
7240Y3S	A10 / 1926	8240Y2D	Z359 / 1926	SC8240Y32D	Z359 / 1926

Heavyweight Shock-Absorbing Lanyards - (425 lb. Max. Capacity)

Model #	Standard	Model #	Standard	Model #	Standard
7246	A10 / 1926	7246Y3	A10 / 1926	8246Y	Z359 / 1926
72463	A10 / 1926	8246	Z359 / 1926	8246Y3	Z359 / 1926
7246Y	A10 / 1926	82463	Z359 / 1926		

Ironman Shock-Absorbing Lanyards – (Extended Free Fall)

Model #	Standard	Model #	Standard	Model #	Standard
7247	A10 / 1926	8247	Z359 / 1926	8247Y3R	Z359 / 1926
7247Y	A10 / 1926	82473	Z359 / 1926	8248	Z359 / 1926
7248	A10 / 1926	8247Y	Z359 / 1926	8248Y	Z359 / 1926
7248Y	A10 / 1926	8247Y3	Z359 / 1926		

WeldTech Shock-Absorbing Lanyards – (Kevlar®/Nomex®)

Model #	Standard	Model #	Standard	Model #	Standard
7242	A10 / 1926	7242Y3	A10 / 1926	7243Y3	A10 / 1926
72423	A10 / 1926	7243	A10 / 1926	8243	Z359 / 1926
724234FT	A10 / 1926	72433	A10 / 1926	82433	Z359 / 1926
72424CARA	A10 / 1926	7243L	A10 / 1926	8243Y	Z359 / 1926
7242Y	A10 / 1926	7243Y	A10 / 1926	8243Y3	Z359 / 1926
8242	Z359 / 1926	8242Y	Z359 / 1926		
82423	Z359 / 1926	8242Y3	Z359 / 1926		

WrapTech Shock-Absorbing Lanyards – (Tie-back Applications)

Model #	Standard	Model #	Standard	Model #	Standard
7241	A10 / 1926	8241	Z359 / 1926	82418	Z359 / 1926
7241Y	A10 / 1926	8241Y	Z359 / 1926	82418Y	Z359 / 1926

Dielectric Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard
8242L	Z359 / 1926	8242YL	Z359 / 1926
82423L	Z359 / 1926	8242Y3L	Z359 / 1926

Titanium Coated Shock-Absorbing Lanyards

Model #	Standard	Model #	Standard
8256T	Z359 / 1926	826082DT	Z359 / 1926
82563T	Z359 / 1926	826073T	Z359 / 1926
82608T	Z359 / 1926		

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Section 1: Warnings and Advisories

This product is to be used as a part of a personal fall arrest system, and should be used only with compatible components. Please see Advisory #3 in this section for further details. Failure to use compatible components can result in a failure of the system to perform as intended, which may result in serious injury or death.

Throughout the OSHA regulations for safety and health, there are references to Competent Persons and Qualified Persons. ANSI Z359.0-2007 goes on to further define the roles and qualifications of these individuals; as well as Authorized Persons, and their importance in the workplace. These terms are also used in these instructions. Below is a brief description of the part these individuals play in the employment of fall protection equipment:

Authorized Person - 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.

Competent Person – a trained and experienced person who is designated to supervise, implement and monitor an employer's managed fall protection program. This individual is capable of identifying and addressing fall hazards and is authorized to make decisions and take corrective action in the workplace.

Qualified Person – a person possessing a degree or professional certificate and having extensive training, knowledge and experience with fall protection and who is capable of designing and specifying fall protection equipment and systems to address fall hazards.

Please read these instructions and be sure that you understand them prior to utilizing this equipment. Also be sure to read the instructions included with other components which are being utilized in your Personal Fall Arrest System (Harnesses, connectors, anchorage connectors, etc.). Failure to understand and comply with manufacturer's instructions may result in serious injury or death. **IF YOU DO NOT UNDERSTAND ANY PART OF THESE INSTRUCTIONS, PLEASE HAVE THEM EXPLAINED TO YOU BY A COMPETENT PERSON.**

This product is to be used as part of a complete fall arrest system in accordance with industry-recognized best-practices and your employer's fall protection plan, as required by the Occupational Safety and Health Administration. Be aware of your employer's fall protection plan and rescue plan. Be aware of the specific fall

hazards on your jobsite and work deliberately to avoid these hazards in the course of your work. Also be aware of hazards and obstructions in your fall path, and work with your employer to eliminate these hazards where possible. Failure to be aware of and to address these hazards may result in serious injury or death.

Do's and Don'ts

- **Do** use this device only with compatible components of a comprehensive fall arrest system.
 - **Do** use this device only in a system which limits free fall distance to 6 ft or less (except for *Ironman* series SAL's, which are rated for free falls up to 12 feet).
 - **Do** use extreme caution when rigging this device.
 - **Do** rig this device to avoid the hazards of "swing fall" (see Section 2.9)
 - **Do** inspect the entire SAL for cuts, abrasions, kinks, wear, or other damage.
 - **Do** wear gloves when handling wire rope.
 - **Do** inspect the shock absorber for signs of activation.
 - **Do** use this device only when your clearance distance is a minimum of 2 ft AFTER you have calculated the total fall distance (see section 2.10 for details on clear fall distances).
 - **Do** make compatible connections (see Advisory #3 at the end of this Section).
-
- **Don't** use this component to hoist materials or equipment.
 - **Don't** use this device if it shows evidence of corrosion or exposure to chemicals, excessive heat, flames and electrical charge or shows signs of any physical damage or deformation.
 - **Don't** allow the lanyard to wrap around your body. Severe injury or death could result.
 - **Don't** loop the lanyard under an arm or leg. If a fall should occur while the lanyard is under an arm or leg, severe injury may result.
 - **Don't** move too quickly when using this device - You may engage the lanyard resulting in the loss of footing or a fall.
 - **Don't** use oil on the carabiner or snap hook. If needed, use only 100% silicone lubricant for the gate and keeper.
 - **Don't** knot any component of your PFAS – knotting reduces strength by up to 50%.
 - **Don't** use this device if you are pregnant, a minor, or have a reduced tolerance to fall forces by reason of age, physical medical condition, or other pre-existing disorders.

- **Don't** use this device if you weigh less than 75 lbs.
- **Don't** use this device if your total combined weight (body, clothes, tools, etc) exceeds 310 lbs (except for 7246 and 8246 series lanyards which are rated for up to 425 lbs).
- **Don't** attempt to modify, repair or alter this device in any way.
- **Don't** knot, clamp, or rig this SAL in any fashion as it may reduce the strength of the lanyard.
- **Don't** use this component near moving machinery which may entangle any part of your PFAS.
- **Don't** use this SAL if there are any signs of excessive wear, or any signs of structural deterioration.
- **Don't** use this SAL if shock absorber shows any signs of deployment, elongation or activation.

Advisory #1: Further Reading

If you have access to the internet, please go to osha. This website is an exceptional resource, and has a great deal of information which is easy to access. Use the search field to find information on fall arrest, including standards, news, interpretations and other valuable tools. The more you know about how this product works and how it is supposed to be used, the safer you will be during the course of your work.

Advisory #2: Proper product selection

Product selection is an important element of fall protection. Fall Arrest products are like any other tools that you may use in the course of your work – there is a proper tool for every application. You may find that while this product is suitable for some applications, it may not be suitable for others. Please be sure to pay close attention to sections 2, 3, and 4, for greater detail on this point.

Advisory #3: Connector Compatibility

Making compatible connections may mean the difference between life and death. Connectors (snap hooks, rebar hooks and carabiners), must be of the locking type and require two distinct actions to open the gate. Your connectors must be sized and shaped so that the rings or structural members to which they are attached will not pose a risk of forcing the gate open, and must fully

capture the connector so that it cannot become disengaged, slide or shift during use or in the event of a fall.

Certain connections are forbidden and should never be attempted with this product or any other unless there is a specific allowance in the manufacturer's instructions. Forbidden connections include, but are not limited to:

- **Two or more connectors to one d-ring are a forbidden connection.**
- **A connection that rests on or loads the gate is a forbidden connection.**
- **A connection that does not allow the gate to close and lock is a forbidden connection.**
- **Two or more connectors attached to one another are a forbidden connection.**
- **Connecting directly to webbing, rope, cable (wire rope) is a forbidden connection.**
- **Connecting directly to a horizontal lifeline is a forbidden connection.**
- **Tie-back with your *FallTech* SAL is a forbidden connection except for model # 7241, 7241Y, 8241, 8241Y, 82418 and 82418Y in the *WrapTech* series.**
- **Connecting to any ring or structure that does not fully capture and completely restrict the movement your connector is a forbidden connection.**

Section 2: ABCD's

Every Personal Fall Arrest System consists of four basic elements – Anchorage, Body-wear, Connectors/Connecting Devices and Deceleration Devices. Each of these four elements is discussed in greater detail below. If, after reading through this section, you do not fully understand these items and how they work together to form a compatible fall arrest system, please be sure to have this explained to you by a Competent Person.

It is absolutely critical that you be familiar with the proper wear and/or use of each component of your Personal Fall Arrest System (PFAS). Failure to read, understand and adhere to instructional materials and warnings provided with each of these components could lead to a catastrophic failure of your PFAS, resulting in serious injury or death.

2.1: Anchorage

The selection of an anchor point and anchorage connector is critical to the successful function of any Personal Fall Arrest System (PFAS). OSHA 1926.502 (d) (15) states that:

“Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or shall be designed, installed, and used as follows: as part of a complete personal fall arrest system which maintains a safety factor of at least two; and under the supervision of a qualified person.”

Ensure that the structure to which you are attaching your anchorage connector is capable of meeting the above requirements and that your anchorage connector is installed in accordance with the manufacturer's instructions. Also be sure to check that the anchorage connector is compatible with your *FallTech* SAL and that it securely retains the SAL without inhibiting its function. If you are unable to determine whether your SAL and your anchorage are compatible, please immediately consult with a competent person or your immediate supervisor. For more details on anchorages, please see section 5 of this instruction manual.

2.2: Body-wear

Body wear for any application where this SAL is to be used will be defined as a full body harness specifically manufactured for fall arrest. The snap hook or carabiner on the attachment end of this SAL should only be attached to the back d-ring of your full body harness for fall arrest applications. Under no circumstances should the SAL ever be attached to a front, side or hip d-ring on your full body harness: Such a connection could cause serious injury or death. Be sure to read and follow the manufacturer's instructions included with your full body harness at the time of purchase.

2.3: Connectors/Connecting Devices

Connectors and Connecting Devices are terms that are sometimes used interchangeably. It is important to note the differences between these two terms in order to help distinguish the parts that these components play in the rigging of your PFAS. In both cases, these products/components are required to have a minimum static strength of 5,000 lbs. For additional details on requirements for connectors and

connecting devices, see OSHA 1926.502.

A **connector** is any metallic, mechanical element such as a carabiner, snap hook or rebar hook that physically links one or more elements of a your PFAS together in a manner such that they will remain engaged to one another unless they are intentionally disengaged.

A **connecting device** is an element that connects your full body harness to the anchorage in an effort to ensure that you remain attached or tethered to the structure upon which you are working. In other words, the connecting device is that element which secures you to your anchorage.

2.4: Deceleration Devices

A **deceleration device** is the element of a Personal Fall Arrest System (PFAS) which is activated during a fall event and reduces the forces exerted on the user's body and on the anchorage during the arrest of the fall. In the case of your *FallTech* Shock-Absorbing Lanyard, this product is both a connecting device and a deceleration device as it will keep you attached to your anchorage and will reduce the forces on your body in the event of a fall. For more details on the capabilities and specifications of your *FallTech* SAL, please see section 10 of this instruction manual.

2.5: Fall Arrest

Fall Arrest is an area of Fall Protection which focuses on stopping a fall once it has occurred. Personal Fall Arrest Systems typically consist of an anchorage, a full body harness and a self-retracting lifeline, shock-absorbing lanyard or other deceleration device designed to bring a falling user to a stop in the shortest possible distance while limiting the force imparted to the user's body.

2.6: Fall Restraint

Fall Restraint is an area of Fall Protection devoted to restraining the user of the system in a manner which restricts his or her access to the fall hazard in a manner such that they cannot be subjected to a fall. A typical Fall Restraint System consists of an anchorage, a full body harness or a restraint belt and a restraint lanyard. **An SAL should never be utilized in a restraint application as it is not capable of restricting a user's access to fall hazards, as it may expand or elongate under load.**

2.7: Work Positioning

Work Positioning is an area of Fall Protection devoted to allowing a user to work on a vertical surface by means of a positioning assembly, and restricting the user's exposure to a fall of no more than two feet. Typical positioning assemblies consist of a large rebar hook and a length of chain, rope, wire rope or webbing with a double locking snap hook on either end. These snap hooks are attached to d-rings on the hips or on the waist of the user's full body harness, with the rebar hook attached to the structure upon which the user is working. **An SAL should never be used for work positioning, nor should it ever be attached to a side or hip d-ring on a full body harness.** **However, while rigged for work positioning, the user should always have an SAL attached to the back d-ring of their full body harness and tied-off to the structure on which they are positioning, as a back up device.**

2.8: Free-Fall

Free-Fall is the distance that a worker will fall before the connecting device or deceleration device elements of the PFAS will begin to engage during a fall event. OSHA allows a maximum Free-Fall Distance of 6' (6 feet) when rigging a Personal Fall Arrest System (PFAS). In some cases, exceptions may be allowed when there is no practical way to limit the Free-Fall Distance to 6', such as a job-site where no overhead anchor-point is available. **Tying off in a manner that would create a Free-Fall greater than 6' should always be a last resort. If you are rigging a system that allows more than 6' of Free-Fall, make sure your Connecting Device/Deceleration Device is rated for this application.**

2.9: Clear-Fall

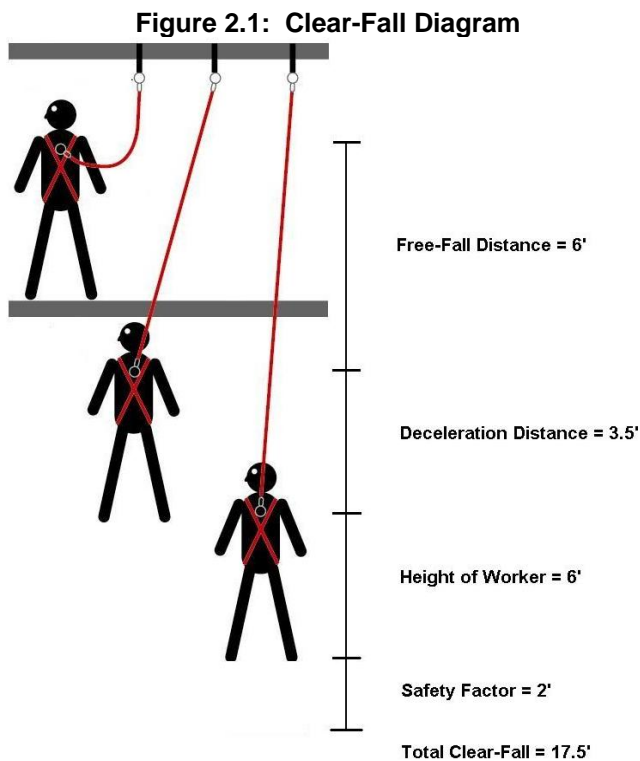
Clear-Fall or Clear-Fall Distance is the distance that is required to safely arrest the fall of a user. When working at heights and using a PFAS, it is important to consider the distance between the walking/working level and the next lower level to ensure that the components selected are capable of arresting the user's fall before they hit the next lower level. The required Clear-Fall Distance can easily be calculated by adding together the Free-Fall Distance, the Deceleration Distance, the height of the user plus a safety factor of 2 feet. The formula for calculating Clear-Fall Distance is shown below:

Free-Fall Distance + Deceleration Distance + Height of Worker + Safety Factor = Clear-Fall Distance

The matrix on the next page can be used as a guide for calculating Clear-Fall Distance on your job-site:

	Example Values	Actual Values
Free-Fall Distance (OSHA allows up to 6')	6'	
Deceleration Distance (Typically 3.5' or less)	3.5'	
Height of Worker	6'	
Safety Factor (Minimum of 2')	2'	
Total (Sum of all values)	17.5'	

See figure 2.1 below for a graphic illustration of Clear-Fall Distance and the method for calculating.

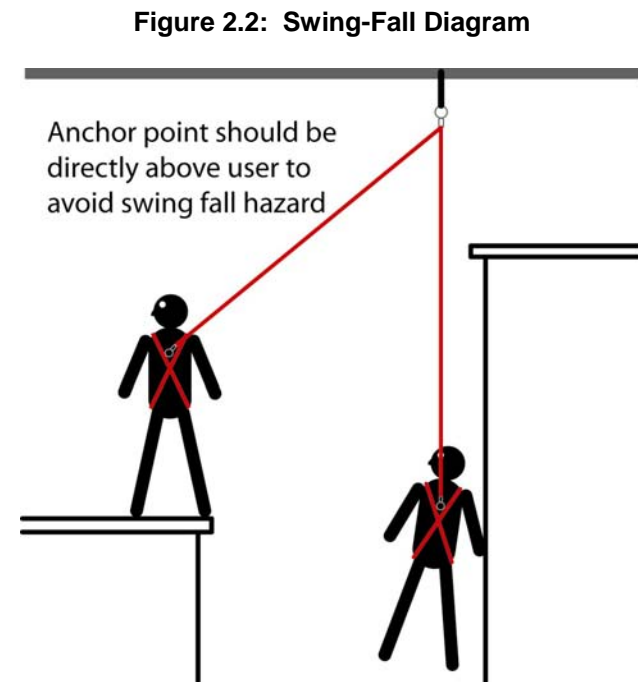


It is also necessary to consider the fall path when determining the Clear-Fall limitations in your application. Ensure the fall path is clear of obstructions, protrusions, equipment or materials that may be a hazard in the event of a fall. Pay special attention to those items which may

present an impalement hazard. Obstructions in the fall path may be just as hazardous as the fall itself, and your PFAS may not be able to protect you from these hazards. Failure to clear the fall path may result in serious injury or death. Rig your PFAS with extreme caution, and be aware of all of the factors that may come into play in the event of a fall.

2.10: Swing-Fall

Swing-Fall is the phenomenon that occurs when the user falls from a location that is not directly adjacent to, or directly below the anchorage connector. This is also referred to as the “pendulum effect”, and can result in a situation where the user is not only falling vertically, but is also swinging on the horizontal as well. This can bring additional hazards into play, as you may swing into an obstruction or structural element, causing serious injuries (see figure 2.2). A significant Swing-Fall may also require increased Clear-Fall distance, and may also prevent the shock-absorber from functioning properly. As a rule of thumb, you should ensure work in an area that does not exceed an angle greater than 15 degrees in any direction from your anchorage.



Be sure to consider Swing-Fall when calculating your Clear-Fall requirements and checking the fall path for hazards and instructions. Failure to do so may result in serious injury or death. Should you have any questions regarding Free-Fall, Clear-Fall, Swing-Fall or other hazards in the fall path, be sure to contact *FallTech* or consult with a competent person or your direct supervisor on your job-site.

Section 3: Use and Limitations

This section deals with the general use and limitations of the *FallTech* Shock-Absorbing Lanyards. Please read this section and all sections of the manual thoroughly. If your application is not addressed, or if you have questions regarding your specific needs, please contact *FallTech* immediately for additional guidance.

3.1: General Guidelines

When properly installed and utilized, this *FallTech* SAL will provide safety and mobility for a single user. As the user is working while tied-off with an SAL, they will be tethered to their anchorage connector. In the event of a fall, the lanyard will engage the shock-absorber - greatly reducing the forces associated with the arrest.

Before using this product, the user should be trained in the use of fall arrest products and should have completed a minimum course of instruction (4-8 hours) for *Authorized Person* Training as outlined in ANSI Z359.2-2007. The user must also read and be familiar with all of the material contained in this instruction manual as well as all labels and warnings affixed to the *FallTech* SAL. If you have any questions regarding the use or operation of this product, please contact *FallTech*, a competent person, or your immediate supervisor before using.

This product must be inspected before each use. For details on proper inspection procedures, please refer to section 8 of this manual. Should this product fail to pass inspection, it must be immediately removed from service and replaced.

This *FallTech* SAL is intended to be used as part of a Personal Fall Arrest System and will comprise the Connecting Device/Deceleration Device elements of your PFAS (see section 2.3 and 2.4 of this manual for clarification of these terms). This product should be attached to your anchorage connector using the integral anchorage-end connector on the end of the lanyard opposite the shock-absorber.

Your anchorage should be overhead, or rigged in a manner such that Free-Fall is restricted to no more than 6' (6 feet). In circumstances where there is no way to limit free fall to 6', *FallTech* Ironman series lanyards (7247, 7247Y, 8247 and 8247Y) are rated for free falls of up to 12' (12 feet). Be sure to review the Clear-Fall diagram and worksheet in section 2.9 of this manual.

This product meets the requirements of OSHA 1926.502 as well as ANSI Z359.1-2007 and/or ANSI A10.32-2004.

3.2: Approved Applications

Below are applications for which all *FallTech* Shock-Absorbing Lanyards are specifically suited. This list is not all-inclusive, but is intended to anticipate the most common applications in which this product may be used. If you have questions about whether this product is suitable for your particular application, please consult a competent person or contact *FallTech* for further advice.

Be sure to consult Section 5 of this instruction manual for details on anchorage considerations, as the anchorage and its relationship to the walking/working surface will be an important factor in determining suitability and could contribute to the outcome of a fall event. Use of an anchor point that is not properly rated could lead to a catastrophic failure of your personal fall arrest system, which may result in serious injury or death.

Direct Overhead Applications: All *FallTech* SAL's are suitable for use in any application where the properly rated anchorage is directly above the walking/working surface, and allows for a maximum Free-Fall Distance of 6 feet.

Horizontal Lifelines: All *FallTech* SAL's are suitable for use in any application where a horizontal lifeline has been installed under the guidance of a qualified person, and where the Free-Fall Distance does not exceed 6 feet.

Residential Construction: All *FallTech* SAL's are suitable for use in residential construction applications provided the anchorage meets the basic requirements outlined in Section 5 of this instruction manual.

General Construction: This product is suitable for use in general construction applications provided the anchorage meets the basic

requirements outlined in Section 5 of this instruction manual, Free-Fall does not exceed 6 feet, and there is no exposure to a sharp leading edge.

General Industrial Use: This product is suitable for use in general industrial applications provided the anchorage meets the basic requirements of Section 5 of this manual and provided that it is not exposed to sharp edges, electrical hazards or prolonged exposure to highly corrosive environments or substances.

If you have any questions regarding the suitability of this product for your specific application, please consult with a competent person or contact *FallTech* before using. Misuse of this product may result in serious injury or death.

3.3: Restricted Applications

Harsh Chemical Environments: Acids and other caustic chemicals can cause damage to this SAL and its components. Damage from chemical exposure can be difficult to detect and *FallTech* recommends frequent replacement.

Arborist Applications: This product should never be used in arborist applications or tree-trimming applications.

Aerial Lifts: This product is not approved for use in aerial lifts, bucket trucks or scissor lifts.

Residential Roofing: This product is not suitable for use in residential roofing applications. *FallTech* recommends the use of a vertical lifeline/rope grab system or a self-retracting lifeline for this application.

Welding: For areas where your SAL may come in contact with high heat or welding slag, *FallTech* recommends the use of Aramid webbing SAL's (Kevlar®, Nomex® or Dyneema®). Products in our model series 7242 and 7243 are specifically manufactured for this purpose.

Climbing/Fixed Ladders: This product is not suitable for use on fixed ladders or in conjunction with fixed ladder equipment, unless it is being used as back-up fall arrest for a work positioning application. SAL's should only be attached to the back d-ring of your full body harness.

Heavyweight: Most *FallTech* SAL's are rated for a maximum capacity of 310 lbs (user, clothing, tools and equipment). Products are available for users requiring a higher capacity. Be sure to check the product label for

the capacity of your specific product. Refer to section 3.4 for additional details on Heavyweight SAL's.

Extended Free Falls: Most *FallTech* SAL's are rated for a maximum free fall of 6 feet. In applications where free falls cannot be limited to 6 feet, special products are required. See section 3.4 and 3.5 for additional information on extended free fall.

Power Transmission: Most *FallTech* SAL's are manufactured using polyester webbings which are not well-suited for withstanding the punishment of high heat and/or electrical arc hazards. *FallTech* does offer a series of Dielectric SAL's (7242L, 72423L, 7242YL and 7242Y3L) which are designed to deal with these hazards; see sections 3.4 and 3.5 for additional information.

3.4: Specialty Applications

100% Tie-Off: SAL's made for 100% Tie-Off are generally referred to as "Y"-lanyards or dual-leg lanyards. These products have two legs joined to a single connector on the attachment-end (the end that attaches to your full body harness) with a single connector on the opposite end of each leg for tying off to the anchorage connector(s). The second leg gives you the ability to safely transition from one anchor point to another without having to disconnect from the structure entirely during the transition process. All *FallTech* dual-leg SAL's are approved for 100% Tie-Off applications. These products are denoted by the presence of a Y in the model number.

Heavyweight: *FallTech Heavyweight* SAL's have a maximum capacity of 425 lbs, and are manufactured to accommodate users weighing between 310 and 425 lbs (with clothing, tools and equipment). Heavyweight SAL's are black in color and are denoted by model numbers beginning with 7246 or 8246.

Extended Free Falls: For applications where free fall cannot be limited to 6 feet or less, *FallTech* offers its Ironman series of lanyards (model series 7247, 7248, 8247 and 8248), which are rated for free falls of up to 12 feet, with a maximum capacity of 310 lbs.

Welding/Power Transmission: *FallTech* manufactures lanyards in the *WeldTech* line of SAL's in the model number series of 7242, 7243, 7242 and 8243 for welding applications and for use in environments where high heat may pose a hazard. Part numbers in the same series containing an L have a web loop for attachment to the back d-ring of your full body harness and are intended to be used in Power Transmission or

in applications where the user may be exposed to an electrical arc hazard.

Tie-Back: *FallTech's WrapTech* line of SAL's is designed to be used in applications where there may not be an anchorage connector available. *WrapTech* SAL's utilize an anchorage-end carabiner with a 5,000 lb gate, and may be wrapped around a properly rated structural member with the carabiner fastened to the leg webbing to create the connection. *WrapTech* SAL's are denoted by model numbers beginning with 7241 or 8241. *FallTech* SAL's which have a sliding D-ring on the lanyard leg or legs may also be used for tie-back applications (these are denoted by the presence of a "D" in the model number).

3.5: Instructions for use by type

Before using any Shock-Absorbing Lanyard, read and understand instructions, warnings and labels for each component of your PFAS and inspect each component, including this SAL, prior to use and in accordance with manufacturer's instructions. Don and properly adjust your Full Body Harness.

Select the appropriate Shock Absorbing Lanyard for your application, based on the conditions on your job-site and the specific fall hazards that you will encounter. If you are unsure as to which SAL or SAL's may be correct for your application or applications, seek the assistance of a competent person or contact FallTech for assistance.

Warning: Shock Absorbing Lanyards should only be attached to the back D-ring of your Full Body Harness. Never attach an SAL to side or hip D-rings, shoulder D-rings or to front or chest D-rings. This may result in serious injury or death.

ClearPack, SoftPack and Internal/ElasTech SAL's:

ClearPack and *SoftPack* SAL's feature the traditional style "pack-style" shock-absorber on one end of the SAL. This is the Attachment End of the SAL and should be connected to the back D-ring of your Full Body Harness using the double-locking snap hook directly adjacent to the shock absorber. The snap hook, rebar hook or carabiner located at the opposite end or ends of the SAL are your Anchorage-End Connectors which are to be attached to the anchorage element of your PFAS. See Figure 3.1 below.

Internal and *ElasTech* SAL's feature an "Internal-style" shock-absorber. These SAL's use a tubular webbing containing a full-length shock absorber which elongates in the event of a fall. The Attachment-

End Connector is adjacent to the "scrunched" end of the tubular webbing, which can also be identified by the presence of the labels and label cover. This end attaches to the back D-ring of your Full Body harness, while the snap hook, rebar hook or carabiner at the opposite end or ends is your Anchorage-End Connector. See Figure 3.2 Below.

All *ClearPack, SoftPack* and *Internal/ElasTech* SAL's are rated for a maximum free fall of 6' (six feet) and have a maximum capacity of 310 lbs. (user, clothing, tools and equipment). *FallTech HeavyWeight* SAL's (model series 7246 and 8246) are rated for a maximum capacity of 425 lbs (user, clothing, tools and equipment).

1. Attach the SAL to the back D-ring of your Full Body Harness by depressing the keeper and opening the gate on the double-locking snap hook at the attachment end. Connect the hook to the D-ring and release the gate and keeper. Ensure the gate closes and locks and that the D-ring is fully engaged by the snap hook.
2. Attach the Anchorage-End Connector of your SAL to one of the lanyard keepers on either end of the chest strap of your Full Body Harness. Never attach the Anchorage-End Connector to any other point on your Full Body Harness: Serious injury or death could result.
3. Proceed to your work location. If you are working in the vicinity of a fall hazard, calculate possible swing fall hazards, total fall distance, and required clearance distance. If you have a swing-fall hazard or do not have the required clearance distance, STOP and reevaluate your application and system. Your work location should never exceed an angle of 15 degrees in any direction in relation to your SAL's anchorage location.
4. Inspect your anchorage connector and ensure it is installed in accordance with the manufacturer's instructions, and so as to allow no more than six feet of free fall (the anchorage connector should be at or above the level of your back D-ring on your Full Body Harness. See Section 5 for additional anchorage considerations.
5. Attach your SAL's Anchorage-End Connector to your anchorage. Ensure that the gate on the anchorage-end connector closes and latches automatically and securely.
6. SAL's with rebar hooks may be attached to properly-rated structural members such as pipes and scaffolding, provided they are horizontal relative to the walking/working surface and that the rebar hook will be unable to slide off the end of the member. Never attach to a diagonal or vertical structural member or any anchor point where the rebar hook may slide off in the event of a

fall. See Section 5 for additional information on proper anchor-points.

7. You are now tied-off and protected by your SAL. Proceed with your work, moving carefully and deliberately while being aware of slipping, tripping and snagging hazards. Be aware that the SAL is only six feet long, and any of these may cause you to lose your footing, resulting in a possible fall.
8. When proceeding to another work location, and not tied off to an anchor point, the anchorage end or ends of your SAL should be attached to the lanyard keepers on or adjacent to the chest strap of your full body harness. Never attach the anchorage end or ends to any other point on your harness, as this could result in serious injury or death.

Fig. 3.1 ClearPack Shock-Absorbing Lanyard

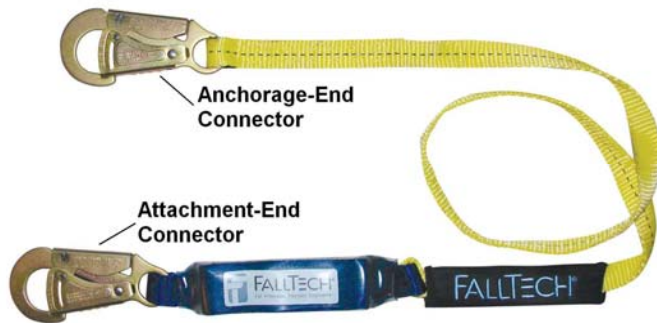


Fig. 3.2 Internal Shock-Absorbing Lanyard



Dual-Leg or “Y”-Leg Lanyards and 100% Tie-Off

FallTech manufactures a wide variety of Dual-Leg or “Y”-Leg Shock-Absorbing Lanyards. These are intended to be used for 100% Tie-Off, allowing the user to transition from one anchorage to another while being

continuously tied-off. They are also exceptionally useful in Tower and Positioning applications as a back-up fall arrest connecting device, allowing the user to ascend and descend between work positions while always remaining tied-off.

1. Attach your “Y”-Leg SAL to the back D-ring of your Full Body Harness by depressing the keeper and opening the gate on the double-locking snap hook at the attachment end. Connect the hook to the D-ring and release the gate and keeper. Ensure the gate closes and locks and that the D-ring is fully engaged by the snap hook. The Attachment-End Connector is always adjacent to the shock-absorber element, and joins the two legs of the lanyards together. **Never attempt to attach either Anchorage-End Connector to the back D-ring of your FBH. Never attempt to attach multiple users to a “Y”-Leg SAL. Never attempt to extend your reach by using a “Y”-Leg SAL as a “12-foot lanyard”:** Any of these arrangements could result in serious injury or death. See Figures 3.3, 3.4 and 3.5 below.
2. Attach the Anchorage-End Connectors of your “Y-Leg SAL to the lanyard keepers on either end of the chest strap of your Full Body Harness. Never attach the Anchorage-End Connectors to any other point on your Full Body Harness: Serious injury or death could result.
3. Proceed to your work location. If you are working in the vicinity of a fall hazard, calculate possible swing fall hazards, total fall distance, and required clearance distance. If you have a swing-fall hazard or do not have the required clearance distance, STOP and reevaluate your application and system. Your work location should never exceed an angle of 15 degrees in any direction in relation to your SAL’s anchorage location or locations.
4. Inspect your anchorage connector(s) and ensure installation is in accordance with the manufacturer’s instructions, and so as to allow no more than six feet of free fall (the anchorage connector should be at or above the level of your back D-ring on your Full Body Harness. See Section 5 for additional anchorage considerations.
5. Attach the Anchorage-End Connector from one leg of your SAL to your anchorage, leaving the other leg attached to the lanyard keeper on your FBH. Ensure that the gate on the anchorage-end connector closes and latches automatically and securely.
6. “Y”-Leg SAL’s with rebar hooks may be attached to properly-rated structural members such as pipes and scaffolding, provided they are horizontal relative to the walking/working surface and that the rebar hook will be unable to slide off the end of the member. Never attach to a diagonal or vertical structural

member or any anchor point where the rebar hook may slide off in the event of a fall. See Section 5 for additional information on proper anchor-points.

7. You are now tied-off and protected by your SAL. Proceed with your work, moving carefully and deliberately while being aware of slipping, tripping and snagging hazards. Be aware that the SAL is only six feet long, and any of these may cause you to lose your footing, resulting in a possible fall.
8. When transitioning from one anchorage to another, remain tied-off to the first anchorage. Attach the Anchorage-End Connector from the free leg of your “Y”-Leg SAL to the next anchorage. Once tied-off to your second anchorage, disconnect from the first and attach the free leg of your “Y”-Leg SAL to the lanyard keeper on your FBH and proceed with your work.

**Figure 3.3
Incorrect Attachment**



**Figure 3.5
Correct Attachment**



**Figure 3.4
Incorrect Attachment**



Figures 3.3 and 3.4 show improper use of a “Y”-Leg SAL. Figure 3.5 shows the correct method of attachment.

WrapTech and Sliding-D SAL’s for Tie-Back

Tie-Back is the act of wrapping the anchorage-end of a Shock-Absorbing Lanyard around a properly rated structural (member such as a beam, pipe or scaffolding) and then connecting the Anchorage-End Connector to the leg of the SAL, forming a closed loop. This is a useful application for those situations where a traditional anchorage connector may not be available.

FallTech’s *WrapTech* (model series 7241 and 8241) and “Sliding-D” SAL’s (denoted by the presence of a “D” in the model number) are suitable for this application. **No other FallTech SAL should be used for tie-back as there is a risk of accidental disengagement, which may result in serious injury or death.**

1. Attach your *WrapTech* or Sliding D-ring SAL to the back D-ring of your Full Body Harness by depressing the keeper and opening the gate on the double-locking snap hook at the attachment end. Connect the hook to the D-ring and release the gate and keeper. Ensure the gate closes and locks and that the D-ring is fully engaged by the snap hook.
2. Attach the Anchorage-End Connector of your *WrapTech* or Sliding D-ring SAL to one of the lanyard keepers on either end of the chest strap of your Full Body Harness. Never attach the Anchorage-End Connector to any other point on your Full Body Harness: Serious injury or death could result.
3. Proceed to your work location. If you are working in the vicinity of a fall hazard, calculate possible swing fall hazards, total fall distance, and required clearance distance. If you have a swing-fall hazard or do not have the required clearance distance, STOP and reevaluate your application and system. Your work location should never exceed an angle of 15 degrees in any direction in relation to your SAL’s anchorage location.
4. Inspect your anchorage connector and ensure it is installed in accordance with the manufacturer’s instructions, and so as to allow no more than six feet of free fall (the anchorage connector should be at or above the level of your back D-ring on your Full Body Harness. See Section 5 for additional anchorage considerations.
5. Attach your SAL’s Anchorage-End Connector to your anchorage. Ensure that the gate on the anchorage-end connector closes and latches automatically and securely.
6. If no anchorage connector is present and you need to tie-back to a beam or other structural member, make sure it is capable of supporting a 5,000 lb. static load.

7. Wrap the anchorage end of the *WrapTech* SAL around the structural member, rotate the barrel on the Anchorage-End Carabiner and open the gate. Pass the leg webbing of your SAL through the gate and release the gate so that it is closed and locked. Make sure the carabiner is positioned so that no edge or corner of the structural member is able to force the gate open in the event of a fall. See Figures 3.6 and 3.7 below.
8. For Sliding-D Tie-Back SAL's, wrap the anchorage end of the lanyard leg around the structural member. Depress the keeper on the snap hook and open the gate. Attach the snap hook to the sliding D-ring on the leg webbing of your SAL and release the gate so that it is closed and locked. Make sure the snap hook is positioned so that no edge or corner of the structural member is able to force the gate open in the event of a fall.
9. Check to ensure that your tie-back SAL is not able to slide off of either end of the structural member to which you are anchored. If tied-back to a vertical or diagonal member, ensure that lanyard is tied back directly above another horizontal member or a structural element that will prevent the SAL from sliding in the event of a fall.
10. You are now tied-off and protected by your *WrapTech* or Sliding-D SAL. Proceed with your work, moving carefully and deliberately while being aware of slipping, tripping and snagging hazards. Be aware that the SAL is only six feet long, and any of these may cause you to lose your footing, resulting in a possible fall.

Ironman Shock-Absorbing Lanyards for Extended Free Fall

FallTech Ironman SAL's (model series 7248, 7248, 8247 and 8248) are designed to allow up to twelve feet of free fall for those circumstances where an overhead anchorage may not be available, leaving the walking/working surface as the only viable option for an anchor point. ***Tying off below the level of the back D-ring on your FBH or at the foot level should always be a last resort as additional fall clearance is required, and there is a greater risk of swing fall injuries.***

Never use any Shock-Absorbing Lanyards in a system that allows more than 6 feet of free fall, unless this application is specifically allowed on the product label. Use of an SAL that is not rated for this application may result in serious injury or death.

1. Attach the *Ironman* SAL to the back D-ring of your Full Body Harness by depressing the keeper and opening the gate on the double-locking snap hook at the attachment end. Connect the hook to the D-ring and release the gate and keeper. Ensure the gate closes and locks and that the D-ring is fully engaged by the snap hook.
2. Attach the Anchorage-End Connector of your SAL to one of the lanyard keepers on either end of the chest strap of your Full Body Harness. Never attach the Anchorage-End Connector to any other point on your Full Body Harness: Serious injury or death could result.
3. Proceed to your work location. If you are working in the vicinity of a fall hazard, calculate possible swing fall hazards, total fall distance, and required clearance distance. If you have a swing-fall hazard or do not have the required clearance distance, STOP and reevaluate your application and system. Your work location should never exceed an angle of 15 degrees in any direction in relation to your SAL's anchorage location or locations.
4. Inspect your anchorage connector(s) and ensure installation is in accordance with the manufacturer's instructions, and so as to allow no more than twelve feet of free fall (the anchorage connector should be at or above the level of your back D-ring on your Full Body Harness. See Section 5 for additional anchorage considerations.
5. Attach your SAL's Anchorage-End Connector to your anchorage. Ensure that the gate on the anchorage-end connector closes and latches automatically and securely.
6. Ironman SAL's with rebar hooks may be attached to properly-rated structural members such as pipes and scaffolding, provided they are horizontal relative to the walking/working

Fig 3.6

Correct Tie-Back Connection



Fig 3.7

Incorrect Tie-Back Connection



surface and that the rebar hook will be unable to slide off the end of the member. Never attach to a diagonal or vertical structural member or any anchor point where the rebar hook may slide off in the event of a fall. See Section 5 for additional information on proper anchor-points.

7. If using an Ironman SAL on a Beam Anchor or Beam Clamp, check to ensure that the gate on your anchorage end connector does not engage the edge of the beam flange. If the flange is able to load the gate in the event of a fall, this could create a forced disengagement resulting in serious injury or death. In these circumstances, consider using a FallTech #7214 choker attached to the beam anchor as a “D-ring extender”, particularly if your Ironman SAL is equipped with an Anchorage- End rebar hook.
8. You are now tied-off and protected by your SAL. Proceed with your work, moving carefully and deliberately while being aware of slipping, tripping and snagging hazards. Be aware that the SAL is only six feet long, and any of these may cause you to lose your footing, resulting in a possible fall.
9. When proceeding to another work location, and not tied off to an anchor point, the anchorage end or ends of your SAL should be attached to the lanyard keepers on or adjacent to the chest strap of your full body harness. Never attach the anchorage end or ends to any other point on your harness, as this could result in serious injury or death.

Section 4: Product Selection

Product selection is as important as the proper use of the product itself. Poor judgment in product selection can have catastrophic results – therefore be sure to consult a competent person to ensure that the product that is issued is appropriate for the application and the specific location for which it is intended.

ANSI Z359.1-2007, Section 7 describes in detail the steps that should be taken with regard to the selection of fall arrest equipment. FallTech strongly encourages the use of this guide by those who employ users of fall arrest products. The ANSI standard recommends the following steps be taken:

- A workplace assessment by a competent person taking into account the presence of sources of extreme heat, chemicals, electrical hazards, environmental contaminants, sharp objects, abrasive surfaces; moving equipment and materials, unstable, uneven and slippery walking/working surfaces; unguarded openings; climatic/weather factors and foreseeable changes to

these conditions. Care must be taken to ensure that the equipment that is selected is suitable for use where any of these conditions may exist.

- The workplace assessment must identify all paths of movement and the fall hazards along these paths. Care must be taken to ensure that there are proper anchorages at appropriate intervals along these paths to protect the users from these hazards without exposure to swing-fall conditions. The PFAS selected must limit the fall distance in order to avoid contact with the next lower level in the event of a fall.
- Anchorage connectors should be selected on the basis of their suitability for attachment to the anchor point to ensure a compatible and secure connection.
- The exposure of the anchorage connector to sharp edges, abrasive surfaces and other physical/structural hazards should be considered when evaluating compatibility.
- The competent person shall calculate the weight of all authorized persons when fully equipped to ensure that they are within the maximum capacity of the PFAS.
- A full body harness meeting the requirements of Z359 shall be selected, and it shall be sized to fit the user as per the manufacturer's instructions.
- Connectors that are selected shall be suitably sized and shaped so as to be compatible with the devices to which they will be attached.
- The competent person shall select the method of protecting the equipment from damage by workplace conditions, in accordance with the manufacturer's instructions.
- The competent person shall check the equipment instructions and markings to ensure compliance with the appropriate standards and will ensure that manufacturer's instructions; markings and warnings are read and followed.
- If the PFAS that is selected is made up of components from different manufacturers, the competent person will ensure that these components are compatible.

FallTech strongly encourages that the following points also be considered in the course of product selection, in addition to the points above:

- Select the anchorage connector that is most appropriate for your application and for the anchor point to which it will be attached. While sling-style anchors are popular because of their versatility,

they are not always the best choice where sharp or angular edges are present on the structure to which they are attached.

- Select a full body harness of appropriate durability for your workplace which contains all of the attachment elements that you will require. Never attach any SAL to anything other than the back/dorsal d-ring of your full body harness.
- Depending on workplace conditions and hazards, you may need to employ multiple systems or different combinations of components. Do not try and force the system to fit the application. Use of the correct equipment is the best policy.

Section 5: Anchorage Considerations

OSHA 1910.66 and 1926.502 state that anchorages used for attachment of a PFAS must be independent of any anchorage being used to support or suspend platforms, and must support at least 5,000 lbs. per user attached, or be designed, installed and used as part of a complete PFAS which maintains a safety factor of at least two, and is supervised by a qualified person (architect, structural engineer, etc.).

The anchorage to which this SAL is attached must be capable of sustaining static loads in directions applied by the personal fall arrest system of at least 3,600 lbs (or at least twice the expected dynamic load) with certification of a qualified person (architect, structural engineer, etc.), or 5,000 lbs in the absence of certification. If multiple personal fall arrest systems are being attached to the same anchorage, the minimum values stated above must be multiplied by the number of users.

Ensure that the anchorage connector that you are using is compatible with the anchor point to which you are attaching it. If you are using this SAL with a Horizontal Lifeline, tripod or davit, ensure that it is compatible with these systems by checking the manufacturer's instructions for these systems for the minimum performance requirements of deceleration devices.

Be sure that your anchorage is mounted overhead or above the level of the back d-ring of your full body harness. Be sure to calculate your clear-fall (as discussed in section 2.9) and to avoid swing fall hazards. Ensure the fall path is clear of obstructions and impalement hazards.

Section 6: Employer and User Training

6.1: Special notes for the Employer

As an employer, you may be obliged to provide Personal Protective Equipment (to include Personal Fall Arrest and Fall Protection Equipment) along with an appropriate amount of training to your employees so that they will be adequately prepared to use this equipment in the course of their work. Another important resource for employers is the Consensus standard on Managed Fall Protection: ANSI Z359.2-2007.

Equally important is the subject of product/equipment selection. If you are obliged to provide fall protection equipment for your employees, be sure to consult with or appoint a competent or qualified person to select and prescribe equipment that is suitable to address the specific hazards which may be present on your job-site or in your facility. There are different products for different applications, and under many circumstances these products are not interchangeable. If you have questions as to whether this product is suitable for your application, please contact FallTech for assistance.

It is important to note that improper use of fall arrest equipment can be just as dangerous as not using it at all. Failure to adequately train and supervise your employees may result in serious injury or death. It is critical to have a training program supported by documentation, refresher/remedial training and to establish best practices where the employment of all PPE is concerned.

6.2: User Training

It is the responsibility of the user of this equipment to read and fully understand these instructions before employing this product as part of a Personal Fall Arrest System (PFAS). Every user of fall protection should be provided a four to eight hour course of instruction for the Authorized User. Training must also be provided in the use of each component of the user's PFAS and in the recognition of fall hazards. During the course of this training, the user may not be exposed to a fall hazard.

In the absence of a formal training program, FallTech has designed these instructional materials to act as an abbreviated course of instruction in an effort to give the user an over-view of fall arrest. This manual does not constitute a comprehensive training program, and it is not all-inclusive. *FallTech* has additional services available to

assist with end-user training – contact a *FallTech* sales professional for additional details.

As a minimum, training should address the following points:

- ABCD's of Fall Arrest (as discussed in Section 2).
- Recognition of fall hazards.
- Fall hazard elimination and control methods.
- Applicable fall protection regulations and standards.
- The responsibilities of designated persons (Authorized, Competent, Qualified).
- How to use written fall protection procedures.
- Inspection of equipment components and systems before use.
- Fall protection rescue procedures.
- Installation and use of products common to your duties, job-site or facility.

It is important to note that improper use of this equipment can be just as dangerous as not using it at all. Failure to read, understand and follow these instructions may result in serious injury or death.

Section 7: Fall Protection Plan

Title 29 CFR, section 1926.500 – 503 requires that an employer have a written fall protection plan where fall hazards exist. The best way to address a fall hazard is to eliminate it entirely or to employ a passive system to restrict access to the hazard (i.e. guardrails, netting, covers, etc.) Fall arrest products are the last line of defense in the hierarchy of fall protection, and should be used as a last resort by employees who have been thoroughly trained. The accepted fall protection hierarchy is as follows:

- Eliminate the fall hazard.
- Passive fall protection (guardrails, safety nets, barriers, etc.).
- Fall Restraint (prevent the worker from having access to the fall hazard by using a fixed lanyard which is short enough to restrict access to the hazard).
- Fall Arrest (utilizing Personal Fall Arrest Systems).
- Administrative Controls (use of warning lines, controlled access zones or monitors).

Two exceptional resources for developing a written fall protection plan are OSHA 1926 Subpart M, Appendix E and ANSI Z359.2-2007. All

7.1: The Fall Protection Plan

As a minimum, a fall protection plan should identify and/or address the following points:

- Any and all fall hazards which may exist on your job-site or in your facility.
- Steps that have been taken to eliminate each fall hazard.
- Equipment that has been or will be employed to address each fall hazard.
- Provisions for 100% continuous fall protection in the vicinity of all fall hazards.
- Training procedures for all authorized persons.
- Identification of acceptable anchorages for positioning, restraint and fall arrest.
- Clear-fall requirements.
- Use and egress from the system.
- Limitations on use of the system (maximum Free-fall, arrest force and maximum number and permitted locations of authorized persons who may use the system).
- Procedures for installation, use and removal of the system.
- Detailed instructions for inspection of systems and system components to include rejection criteria and replacement procedures.
- A detailed plan and procedures for the rescue of a worker who may be involved in a fall event.

7.2: Rescue Plan

In the event of a fall, OSHA requires that a prompt rescue be provided. In order to facilitate a prompt and effective rescue, it is important to have a Rescue Plan as part of your overall Fall Protection Plan.

The rescue plan should include detailed procedures for summoning a professional rescue agency (such as the local fire department) and/or for performing self-rescue or in-house rescue.

For detailed assistance in formulating and maintaining an effective rescue plan, see ANSI Z359.2-2007.

7.3: Suspension Trauma

Suspension Trauma (also referred to as orthostatic intolerance) is a condition that can arise from being suspended in a full-body harness for a prolonged period of time while awaiting rescue after a fall. Under these circumstances, blood circulation can be restricted allowing a large volume of blood to accumulate or pool in the veins of the workers legs. This condition can result in a variety of symptoms, some of which include light-headedness, loss of consciousness, difficulty concentrating and palpitations.

Following a rescue, Suspension Trauma can be so acute as to cause cardiac arrest when the large volume of un-oxygenated blood overwhelms the heart. This severity of this condition can be greatly reduced by using any one of a variety of devices offered to alleviate Suspension Trauma, such as *FallTech's ReliefPak* and by providing a prompt rescue in the event of a fall.

Section 8: Product Inspection

Inspection is a critical element in the employment of any fall protection equipment. In order to protect Authorized Persons who are using this SAL, it is important that the employer establishes procedures that has layers of inspection to ensure that any mechanical or functional deficiencies are recognized before the product is put into use.

8.1: Issuing

If the SAL is to be kept in a locker or tool crib between periods of use, the person responsible should inspect the product upon issuing and receipt to ensure that it is in proper working order. If any deficiency is noted, this should be logged on the inspection record and the product should be removed from service and handled in accordance with the employer's lock-out/tag-out policy. If this SAL exhibits a deficiency, it should be immediately removed from service and replaced.

8.2: Daily/Incidental Use

OSHA 1910.66 and OSHA 1926.502 (as well as ANSI Z359.1-2007 and ANSI A10.32-2004) specifically require that the user inspect all fall protection equipment prior to each use to ensure proper

function and to ensure that the equipment is in serviceable condition. Failure to do so may result in serious injury or death.

FallTech requires that the following steps be taken during each inspection prior to use of this Shock-Absorbing Lanyard (SAL):

1. Check the shock-absorber element of the SAL. If the fall indicator warning label is visible, then the SAL has been subjected to fall arrest forces and must immediately be removed from service. See section 10.3 for illustrations.
2. Check each of the connectors (snap hooks, rebar hooks or carabiners). Check for signs of excessive corrosion, cracking, breakage, deformation, denting of the gate or keeper, sharp edges, burrs or any damage whatsoever. Make sure all rivets and rivet heads are intact with no cracking, sharp edges or burrs. Ensure the connectors are free of surface contamination from grease oil, dirt, mud or any other foreign substance that may interfere with the action of the gate or keeper.
3. Check the action of the gate and keeper on snap hooks and rebar hooks. Ensure that the gate does not open with the keeper engaged. Depress the keeper and open the gate, ensuring that the gate opens smoothly, and closes automatically when released. Check to ensure that the keeper engages automatically, locking the gate in the closed position.
4. Check the action of the gate on any carabiner that may be present. Ensure the gate does not open unless the barrel is twisted. Twist the barrel and make sure the gate opens smoothly and that it closes and locks automatically when released.
5. Check the leg or legs of your SAL for damage. For webbing or rope, look for fraying, cuts, burns, discoloration or build up of any surface contaminant such as paint, grease, oil or any other substance which may change the properties of the webbing or rope by making it thicker, stiffer, brittle and potentially weaker. Check all stitch locations and look for broken or pulled stitches. For steel cable SAL's, wear glove when handling and check the cable for corrosion, cuts, burns or broken wires and strands. Check ferrules (crimped fittings) and ensure that they are firmly compressed and do not slip and that they are free of damage due to cracking, bending, etc.
6. Ensure that all labels and warnings remain attached and that they are legible.
7. If the SAL fails to pass inspection on any of these points, or if there is any doubt as to whether it is in proper working order, immediately remove it from service and have it replaced.

8.3: Mandatory Semi-Annual Inspection

ANSI Z359.1-2007 requires that all fall protection equipment be inspected by a competent person other than the user at least once each year. FallTech strongly encourages that all fall protection equipment be inspected by a competent person other than the user at least once every six months.

This inspection should be noted in the inspection log below, along with any deficiencies. This inspection should also be used as an opportunity to counsel any authorized persons with respect to any deficiencies that they may have failed to note in their daily inspections.

Inspection Log

FallTech Shock-Absorbing Lanyard

Model #: _____

Serial #: _____

Mfg. Date: _____

Inspection Date	Inspector	Comments	Pass/Fail	Corrective Action to be Taken	Approved By

Section 9: Maintenance and Storage

The service life of your *FallTech* Shock-Absorbing Lanyard will depend on two factors: The environmental conditions of your working environment along with proper care (specifically, maintenance and storage).

Keeping the SAL clean and free of contaminants will greatly increase the service life and will ensure that the SRL will be in proper working order in the event that you need it to arrest a fall. The following steps should be taken periodically:

1. Always wear gloves when handling the cable element if this SAL is so equipped.
2. Using a damp rag and a mild soap and water solution, wipe down the SAL components to remove soil and surface contaminants. Ensure that the labels are legible at all times.
3. Use a damp rag to clean the surfaces of the connectors. There should be no build-up of any substance which may inhibit the function of the gate and/or keeper.
4. If there is an excessive build up of paint, oil, dirt tar or other contaminants that cannot be removed, remove the SAL from service and have it replaced.
5. Store in a cool, dry location away from direct sunlight and where it will not be exposed to chemical vapors.
6. This SAL should be hung on a rack or a peg or stored flat on a shelf, stacked no more than three high.
7. Do not throw the SAL into a pile or a locker or storage box, as it may become knotted, tangled, cut or frayed.

Section 10: Specifications

This section contains important information regarding the performance and construction of this product. Please read and be familiar with this and all information contained in this instruction manual.

10.1: Mandatory Disclosures

This instruction manual addresses foreseeable hazards, uses and applications. If you have questions about your application that are not addressed in this document, contact FallTech for additional guidance.

It is the responsibility of the employer/issuer of this equipment to ensure that it is used in a manner consistent with these instructions. Failure to do so could result in series injury or death.

For further reading and additional information, see Section 10.4 for a listing of relevant standards with which you should be familiar.

10.2: Performance Specifications

FallTech “7-Series” Shock Absorbing Lanyards meet or exceed the requirements of OSHA under Title 29 CFR (1910.66 app C, and 1926 Subpart M) and ANSI A10.32-2004 (Fall Protection for Construction and Demolition). These products are identified with model numbers beginning with a 7 (or two alpha characters followed by a 7).

ClearPack and SoftPack 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 7,500 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

Internal 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 6,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

Internal (AlumiTech) 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 7075 Aluminum
Complies with Standards:	A10.32 (04), 1926.502

ElasTech 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet

Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

WrapTech 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Anc. Connector Gate Strength:	5,000 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 7,500 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

Ironman 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	12 feet
Max. Arrest Force:	1,350 lbs.
Max. Deceleration Distance:	36 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

WeldTech 7-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Kevlar®/Nomex® – 7,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

Heavyweight 7-Series

Max. Capacity:	425 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	1,350 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	220 lbs/350 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	A10.32 (04), 1926.502

FallTech “8-Series” Shock Absorbing Lanyards meet or exceed the requirements of OSHA under Title 29 CFR (1910.66 app C, and 1926 Subpart M), ANSI A10.32-2004 (Fall Protection for Construction and Demolition), as well as ANSI Z359.1(07), Z359.12(09) and Z359.13(09). These products are identified with model numbers beginning with an 8 (or two alpha characters followed by an 8).

ClearPack and SoftPack 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 7,500 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

Internal 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 6,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

ElasTech 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

WrapTech 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Anc. Connector Gate Strength:	5,000 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 7,500 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

Ironman 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	12 feet
Max. Arrest Force:	1,350 lbs.
Max. Deceleration Distance:	36 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

WeldTech 8-Series

Max. Capacity:	310 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	900 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Kevlar®/Nomex® – 7,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

Heavyweight 8-Series

Max. Capacity:	425 lbs.
Max. Allowable Free-Fall:	6 feet
Max. Arrest Force:	1,350 lbs.
Max. Deceleration Distance:	40 inches
Ultimate Strength:	5,000 lbs.
Connector Gate Strength:	3,600 lbs
Shock Absorber Material:	Polyester
Lanyard Leg Material:	Polyester – 8,000 lbs
Connector Material:	SAE 4130 Alloy Steel
Complies with Standards:	Z359.1 (09), Z359.12 (09), Z35913 (09) A10.32 (04), 1926.502

10.3: Labels and Markings

Fall Indicator Labels

The fall indicator label for Internal, ElasTech, Heavyweight and Ironman SAL's are Located at the base of the "scrunched" Shock-absorber element. In the image below, the top view is of an intact label. The lower view is from an SAL that has been involved in a fall. If your indicator label looks like the one in the bottom view, remove the lanyard from service immediately. See Figure 10.1 below.

Fig 10.1 – Internal SAL Indicator Label



The fall indicator label used in "pack-style" SAL's such as ClearPack, SoftPack and WrapTech is concealed inside the shock absorber element. In the event of a fall the shock-absorber will expand beyond the protective cover, and the fall indicator label will be visible. This label is shown on the next page in Figure 10.2.

Fig. 10.2 – "Pack-Style" SAL Indicator Label



Product Labels

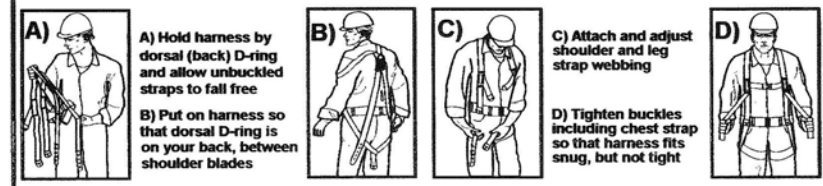
The label shown in Figure 10.3 below must be present on the product and must be legible. If it is not, remove the product from service.

Fig. 10.3 – FallTech SAL Product Label

<p>FALLTECH DO NOT REMOVE LABEL Meets or exceeds all applicable OSHA Regulations including 1926.502 and ANSI Standards including A10.32-04 Made in USA Max Arrest Force: 1800 lbs Free Fall Limit: 6ft</p>	<p>Shock Absorbing Lanyard Style (estilo)#: 7241 Size (tamaño): 6' Date of Mfg: 10/27/10 Material: Polyester Web</p>	<p>WrapTech Capacity: 130-310lb Max Arrest Force: 900lbs (4kN) Free Fall Limit: 6ft (1.8m)</p>																																																																														
	<p><small>This product is not compliant with ANSI Z359.1-2007 requirements for gate strength, and if misused in a manner wherein forces are applied to the gate of the connecting hooks it is possible for the user to become disengaged from the anchorage causing severe injury or death. This product is compliant with OSHA and ANSI A10.32-2004 standards if used as intended and in the manner demonstrated in the instruction manual. Any misuse could result in OSHA citations, fines and/or other legal penalties.</small></p>																																																																															
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<p>1) User must inspect before each use 2) Competent person to inspect at least once every six (6) months Mark or punch on date grid: A) Initial in-service date B) Date of passed inspection IF UNIT FAILS INSPECTION REMOVE FROM SERVICE AND DESTROY SERIAL NUMBER: 1234567</p>																																																																																
<p>! WARNINGS ! All manufacturer's instructions, labels and warnings must be read before use and followed at all times. Avoid contact with sharp or abrasive edges and surfaces. Use only approved connecting devices. Make only proper connections/attachments. For "Y" (2) leg lanyards with integrally connected legs, only attach snaphook at the center of the lanyard to the fall arrest attachment D-ring of the full body harness. Failure to be familiar with and to comply with the instructions and labels may result in serious injury or death.</p>																																																																																

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- 1) User must inspect before each use
- 2) Competent person to inspect at least once every six (6) months
Mark or punch on date grid:
A) Initial in-service date
B) Date of passed inspection
IF UNIT FAILS INSPECTION REMOVE FROM SERVICE AND DESTROY
SERIAL NUMBER: 1234567



- ! WARNINGS !**
- All manufacturer's instructions, labels and warnings must be read before use and followed at all times. Avoid contact with sharp or abrasive edges and surfaces. Use only approved connecting devices. Make only proper connections/attachments. For "Y" (2) leg lanyards with integrally connected legs, only attach snaphook at the center of the lanyard to the fall arrest attachment D-ring of the full body harness. Failure to be familiar with and to comply with the instructions and labels may result in serious injury or death.
- 1) Add length of shock absorbing lanyard (6ft) and max elongation of shock absorber (42") to the average height of a worker (6ft).
 - 2) Add a safety factor of 2ft to allow for improperly fitted harnesses, taller worker and/or miscalculation of fall distance
 - 3) The 17.5ft total is the suggested safe fall clearance distance. Proper anchorage must support 5000lbs while allowing for safe fall clearance.

10-D: Standards and references

Below is a listing of standards that are applicable to the construction and use of this product. *FallTech* strongly encourages that all employers acquire and utilize these documents for the creation of your own fall protection policies and your individual fall protection plans. Users of this product should also be familiar with this information as well.

OSHA Standards bear the force of law on a federal level. Some states have their own regulations which are locally enforced – check with your State Department of Labor for specific requirements which may be enforced in your area.

29 CFR 1926 (Subpart M)

1926.500: Scope, Application and Definitions
1926.501: Duty to Have Fall Protection
1926.502: Fall Protection Systems Criteria & Practices
1926.503: Training Requirements

ANSI standards are voluntary consensus standards, and are generally regarded among the best practices where fall protection is concerned. Some states have incorporated one or more of the ANSI standards by reference, meaning that they may be enforced by some state or local agencies. Check with your State Department of Labor for further details.

ANSI Z359.1-2007: Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ANSI Z359.2-2007: Minimum Requirements for a Comprehensive Managed Fall Protection Program

ANSI Z359.12-2009: Connecting Components for Personal Fall Arrest Systems

ANSI Z359.13-2009: Personal Energy Absorbers and Energy Absorbing Lanyards

ANSI A10.32-2004: Fall Protection Systems for Construction and Demolition Operations

Appendix A: Connector Types and Connections

Background

FallTech offers Shock-Absorbing Lanyards with a wide variety of connector options to help address the varied applications encountered on every jobsite. Connectors can generally be classified as one of three basic types; snap hooks, rebar hooks and carabiners. Each of these is a metal device with a mechanical gate which is spring-loaded so as to close automatically.

Snap hook and rebar hook gates are supported by a latch, which is commonly referred to as a “keeper”. The keeper is also spring-loaded and designed to lock the gate in the closed position to prevent accidental disengagements.

Carabiner gates generally consist of an inner shaft and an outer barrel. The barrel is rotated to unlock the inner shaft so that it can be opened. Both the inner shaft and the outer barrel are spring-loaded so as to allow the gate to close and lock automatically when released.

OSHA mandates on a federal level that all connectors used for fall arrest must be of the locking type and that it must take two separate actions to open the gate. All *FallTech* connectors meet this OSHA requirement.

In 2007, ANSI revised and published the Z359.1 standard for fall protection in general industry and suggested that the gate strength on all connectors be increased to 3,600 lbs. *FallTech* currently offers both the “old” style and “new” style hooks to accommodate all users, some of whom have not elected to comply with the voluntary ANSI standard. There are several important issues for users and employers to consider with regard to how these standards have an effect on the jobsite:

- **The ANSI Z359 standards apply to general industry. ANSI also publishes standards for the Construction and Demolition industry under the A10.32 designation – A10 does not presently require 3,600 lb gates on connectors.**
- **Title 29 CFR 1910.66 App. C and 1926 Subpart M also do not require 3,600 lb gates on connectors.**
- **ANSI Z359 and A10 do not bear the force of law in most states – Some states do, however, incorporate these standards by reference within their own standards language. It is the responsibility of the employer to know which standards may be enforced in their work location(s).**
- **Many government jobsites are required to use products meeting the ANSI Z359 standards, particularly those that are managed by the Army Corps of Engineers. Be aware of the requirements on your jobsite if you are a government contractor or sub-contractor.**
- **Regardless of the standard, all fall arrest products that are made to comply with any of these standards is safe when used properly – there is no substitute for doing the right thing regardless of which product or products you select.**

FallTech maintains the position that compliance with the Z359 family of standards on the jobsite is an industry best-practice and that connectors with 3,600 lb gates do provide an additional measure of protection. However, 3,600 lb gates are not impervious to destruction and connector compatibility is still an important issue for consideration. Making incompatible connections with Z359 products is a dangerous practice and can result in serious injury or death. Do not use Z359 connectors in any manner that you would not typically use “A10 or OSHA” connectors. If you have questions about connector compatibility, please consult a competent person immediately or contact *FallTech* for further assistance.

Snap Hooks:

As discussed earlier in this appendix, snap hooks are one of the most common connectors and feature a gate and keeper which close and lock automatically. All *FallTech* SAL's feature a snap hook at the attachment end for attachment to the back D-ring of your Full Body Harness. Never attach an SAL to any other D-ring on your Full Body Harness and never use an SAL with a Body Belt. See Figure A-1 below for an example

Fig. A-1 – Snap Hook

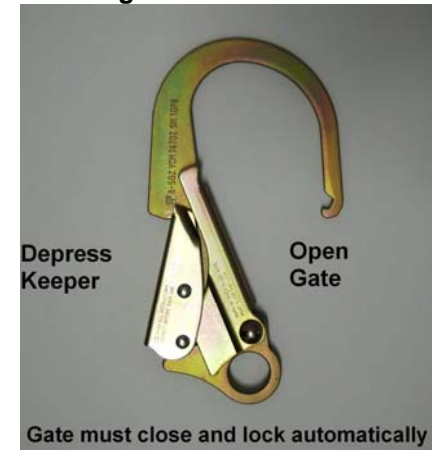


Rebar Hooks:

A rebar hook is essentially a large snap hook, generally having a gate opening of two to two and a half inches. Like the smaller snap hooks, rebar hooks feature a gate and keeper which close and lock automatically. These are often preferred for their versatility as they can easily be attached to structural members up to 2 inches in diameter when conventional anchorage connectors may be unavailable or impractical. It is important to ensure that an anchor point is able to withstand a 5,000 lb static load, and that the rebar hook is unable to slide off or shift during a fall. Never connect to a vertical or diagonal structure or member.

Rebar hooks should never be attached to any part of your Full Body Harness: Rebar hooks are only to be used as an Anchorage-End Connector. ***Make only compatible connections – any connection which loads the gate or the side of the hook body has the potential to force an accidental disengagement in the event of a fall, regardless of gate strength.***

Fig. A-2 – Rebar Hook



Carabiners:

Carabiners are connectors having gates which generally consist of an inner shaft and an outer barrel. The barrel is rotated to unlock the inner shaft so that it can be opened. Both the inner shaft and the outer barrel are spring-loaded so as to allow the gate to close and lock automatically when released. Carabiners come in many shapes and sizes and it is important to make only compatible connections. ***Any connection which loads the gate or side of the carabiner body has the potential to force an accidental disengagement in the event of a fall, regardless of gate strength.***

Fig. A-3 – Carabiner



Web Loop Connections:

Many Shock-Absorbing Lanyards feature a Web Loop at the attachment end, allowing the lanyard to be choked on to the back D-ring of your Full Body Harness. This is a versatile connection which reduces the weight of the SAL and in the case of systems utilizing an FBH having a web loop in the place of a D-ring, this type of connection eliminates metallic components which may conduct electricity when working near energized power transmission equipment. To make a connection to your Full Body Harness with a Web-Loop SAL, see Figure A-4 below:

Fig. A-4 – Making Web-Loop Connections



Step 1:
Pass web loop through back D-ring.



Step 2: Pass Anchorage-End Connector through Web Loop.



Step 3: Pull SAL through Web Loop and choke to D-ring.

Warranty

FallTech warrants to the buyer that all products are free from defect in material and workmanship at the time of shipment. Obligation under this warranty is limited to product replacement for the period of two (2) years from the date of installation or use by the owner, provided that this period shall not exceed two (2) years from the date of shipment. This warranty is not transferable. No other person or firm is authorized to assume or assign for FallTech any other warranty in connection with the sale or use of this product.

Furthermore, this warranty is void if any product is changed or altered in any way, or if the product is used in a manner other than for which it is intended. This warranty only covers defects in material and workmanship; it does not cover conditions resulting from normal wear and tear, neglect abuse or accident.



**MSAL01 ALX
Rev. 1
2/1/2012**