MALTA DYNAMICS
Fall Protection and Safety

OVERHEAD ANCHORAGE GUIDE

INTRODUCTION

The importance of providing fall protection for employees working at heights needs little introduction—falls remain one of the most significant causes of workplace injuries and fatalities. The ideal solution to providing fall protection in most environments is for workers to tie off to an overhead anchor point, connected to a full body harness using a lanyard or self-retracting lifeline (SRL) that meets the OSHA and ANSI standards for personal fall protection.

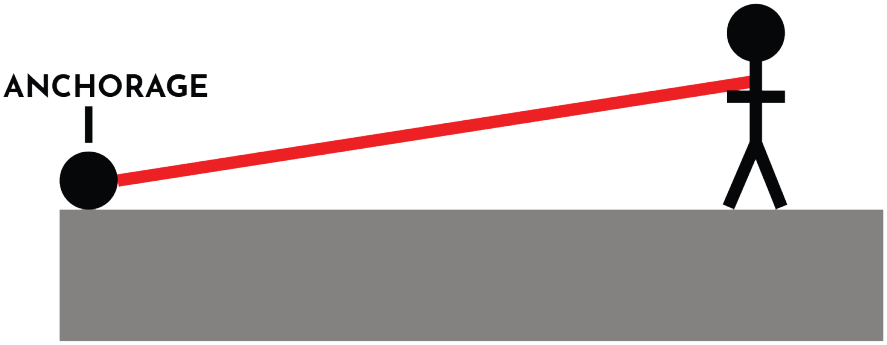
In most situations, this standard arrangement provides workers with a safe setup—but what should you do in situations where there is no overhead tie-off available? When there is no anchor point overhead at the jobsite, your crew will need an alternative way to tie off their personal fall protection system. This challenge often arises for maintenance crews and those working on very large vehicles such as airplanes and rail cars, but can occur in many situations across multiple industries.

TYING OFF AT FOOT LEVEL

Where no overhead anchor point exists, some crews resort to foot-level tie-off to an anchor point situated on the working surface. This arrangement may work, but it poses several special challenges that must be addressed and overcome in order to keep the workers safe.

For starters, in the event of a fall involving a worker tied off at foot level, the connector is likely to come into contact with the edge of the work surface. Standard SRLs and lanyards are designed for overhead tie-off, but when tied off at foot level and the SRL deploys, the arresting force placed on the cable—which may be hundreds or thousands of pounds—becomes concentrated at the point of contact with the leading edge. This is a potentially dangerous situation because the leading edge can damage or sever the cable responsible for arresting the worker's fall.

Workers can be better protected from this hazard using specialized, leading edge-rated SRL devices designed specifically for use around leading edges. These devices include cables that are built to withstand contact with an edge and additional energy absorption mechanisms tested for this scenario. Even leading edge SRLs, however, are tested only on structural steel without burrs, and are not intended for contacting sharp edges or abrasive surfaces. Using an incorrect device or working on an unapproved substrate in this way puts workers at serious risk.



If your "SRL" is at a lower (on the surface of the roof, below the D Ring) level and someone falls, the cable will contact the edge/floor. This is a leading edge application.

Another consideration when tying off at foot level around a leading edge is fall clearance. Leading edge SRLs require a different calculation for fall clearance than you may be used to making with other fall protection systems. To determine the clearance required on a leading edge:

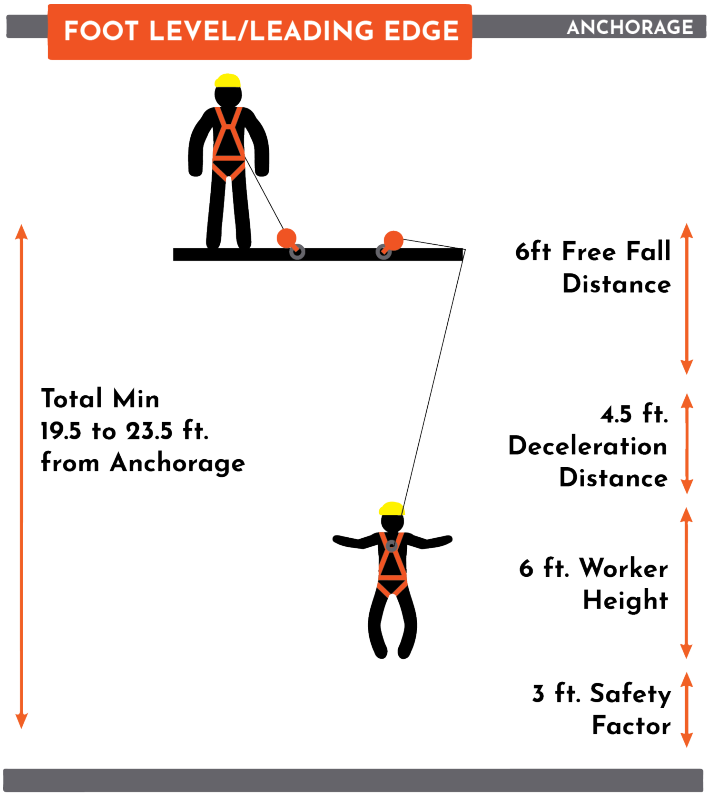
- First measure the distance from the user's harness dorsal connection (D-Ring) to the anchor point, adding together both the horizontal and vertical distances.

- Add the free fall distance, which is the fall distance before the SRL engages.

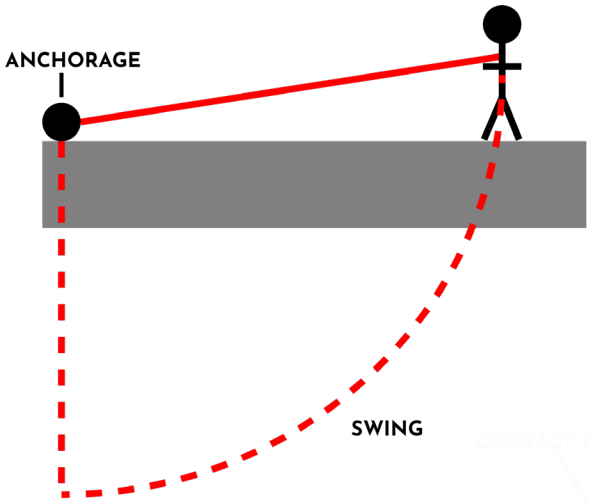
- Then add the deceleration distance, which represents the remaining distance the SRL elongates after it engages to arrest a fall.

- Add an extra foot (0.3 m) to allow for dorsal D-ring upshift and harness webbing elongation during the entire fall event.

- Then add a safety margin of 1.5 feet (about 0.5m) to account for other individual factors such as worker height and weight.



You must also account for the possibility of a swing fall, which can occur when the anchor point is not directly above the point where a fall occurs, causing a fallen worker to swing horizontally and potentially strike surrounding objects. The force of striking an object in a swing fall can cause serious injury or death. Swing falls also significantly increase the amount of clearance required. Most leading edge SRLSs on the market today require a 16-21ft fall clearance when tying off a foot level.



Because of all of these complicating factors, relying on a leading edge SRL and foot-level tie-off should be considered an option of last resort. Wherever possible, look for opportunities to use an overhead anchor point and avoid foot-level tie-off altogether.

NO OVERHEAD ANCHOR POINTS? BRING YOUR OWN.

A mobile fall arrest system such as the XSERIES Mobile Grabber provides an alternative to foot-level tie-off that allows you to provide overhead anchor points where none exist otherwise. Mobile fall protection consists of an adjustable and repositionable mobile unit that provides overhead anchorage anywhere and anytime.

The XSERIES Mobile Grabber can provide a mobile fall arrest anchor point from 2’ to 34’ (0.61 to 10.36m) and can provide overhead anchor points for up to five workers. The unit is road-towable by a standard pickup truck and can be transported on the highway. Built-in Fork pockets make the unit easy to move around and position in an indoor or outdoor job site, and it can be flown in onto various surfaces using a crane using the built-in crane pick points.

The biggest advantage to using a mobile fall protection system to provide overhead anchorage is that the system is pre-engineered, so there is no need for an engineer or qualified person to set up or approve the system. The XSERIES is operated by a remote controller that any worker can use and adjust as needed. The system runs by an electric hydraulic motor and requires minimal setup once positioned in the desired location.

With overhead anchor points provided by a mobile fall protection system, your workers are able to use your standard fall protection equipment using overhead tie-off, the way it was designed to work optimally. This eliminates the need for specialized leading edge SRLs; standard Class B SRLs that are required for use with the mobile fall protection systems provide a shorter fall distance of 54 inches (1.37 m), simplifying your fall clearance calculation considerably.

Best of all, the connector should not contact an edge in the event of a fall because the anchor point is located overhead. This overhead fall arrest anchor position also greatly reduces the risk of a swing fall as it can easily be positioned over the worker's fall hazard.

Extra care must be taken when working around a leading edge any time there is a risk of a fall, and there are several challenges related to tying off personal fall protection using foot-level anchor points. Overhead tie-off is the ideal solution for providing workers with personal fall protection. Mobile fall arrest systems such as the XSERIES Mobile Grabber can provide overhead anchor points in the sky.

X SERIES

MOBILE FALL PROTECTION