

# Are Self-Retracting Devices the Solution for Your Fall Protection?

**F**all protection equipment is an ever-changing market. New products and standards are released constantly, helping organizations keep workers safe while working at heights. To be a wise consumer of fall protection equipment, it is important to understand how new products and models fit into a fall protection program.

Until recently, most organizations have relied primarily on standard 6 ft lanyards, due to product familiarity and a perceived ease of use. However, complacency can lead organizations to overlook critical life-threatening issues, including fall clearance distances and rescue concerns. Leaving these issues unaddressed creates unsafe conditions, even if a worker is wearing PPE and is “tied off.” Today, many organizations are considering implementing self-retracting devices (SRDs) in place of fixed-length lanyards.

### SRD BASICS

An SRD allows movement, but locks up automatically when decelerating a fall. In OSHA CFR 1926 Subpart M, an SRD is defined as “a deceleration device that contains a drum wound line which may be slowly extracted from or retracted onto the drum under slight tension during normal employee movement. After onset of a fall, the device automatically locks the drum and arrests the fall.”

Throughout the last decade, variations in these devices have been developed, including the dual leg feature for 100% protection, and the tie-back feature to eliminate the need for an anchorage connector. Many of these devices include the use of a compact model and the back-

packer style, which is integrated directly into a worker’s full-body harness.

With the release of ANSI Z359.14 on SRDs in 2012, different classes and categories of equipment were defined. This family includes the standard self-retracting lifeline or SRL, the leading edge device designated as SRL-LE, and the rescue device or SRL-R. The devices are also designated as Class A or Class B, which indicates the maximum deceleration distance and average arresting force, as indicated in Table 1.

Similar to lanyards, SRDs present advantages and disadvantages that must be considered before investing in new equipment. Some of the finer features include:

- Less fall clearance required
- Less force to the body during a fall
- Ease of rescue
- Decreasing cost for units
- Increase in portability

### EVALUATING SRDS

When evaluating whether SRDs are the right solution for a fall protection program, several key factors must be considered.

### Application & Limitations

The use of an SRD must be in accordance with the requirements and testing by the manufacturer. One common misuse is anchoring below the dorsal D-ring—sometimes even at foot level—which is typically not acceptable. When a device is being used in a manner inconsistent with the design and testing of the unit, it could potentially fail.

It is important to note that SRDs attached to a dorsal D-ring (back mounted) are not specifically addressed in any standards or regulations, including the ANSI Z359.14 standard. Since the ANSI test requirements do not cover this arrangement, it is critical to understand manufacturer’s testing to ensure personnel are using the equipment correctly.

It is also critical to use the right type of equipment for a given task. If workers are performing leading edge work, they should use SRL-LE equipment, which was designed and tested for use in this type of horizontal arrangement. If the device is used in a way in which it was not tested, the results can be fatal, as the cable can snap if placed over a sharp edge.

### Anchorage

Appropriate anchorage location and strength is critical for SRDs to function properly. Manufacturers’ design



**Table 1 SRD Equipment Class**

	Class A	Class B
Maximum Deceleration Distance	24 in.	54 in.
Average Arresting Force	1,350 lb	900 lb

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and testing typically requires the equipment to have overhead anchorage. Ensuring an overhead anchorage location also minimizes the risk of swing fall issues.

Of course, anchorage strength is critical to ensure that the system has adequate capacity to arrest a fall. Authorized persons must know where they can safely connect their equipment, so designating appropriate anchorages is critical. An organization must have certified anchorages—those designated by a qualified person—or alternatively non-certified anchorages—those that a competent person judges to be capable of supporting 5,000 lb. Supporting 5,000 lb is equivalent to supporting a large pickup truck, so not just any pipe is appropriate.

### Training

Per OSHA regulations and ANSI standards, all PPE for fall protection must be inspected prior to each use. Authorized persons must be trained to properly inspect all elements of an SRD, which can be more complex than a standard 6 ft lanyard. Workers also must be trained on the proper use and limitations of equipment, so they are not applying equipment outside its intended use. It is important to teach employees to think about fall protection systems—not just components. Even if individual components are in working order, the combined system may have incompatibility that could result in failure of the overall system.

### CASE STUDY

When the safety professionals at Marathon Petroleum Company, LP considered replacing lanyards with SRDs, they knew they needed to make sure the new equipment would work for their unique circumstances. To select the most effective SRD, they coordinated an onsite evaluation of several different types of SRDs in refinery conditions.

A pilot trial with devices from three different fall protection equipment manufacturers was conducted. The goal was to select the best possible option, to limit the number of different products used at the facility. Reducing variety decreases risk of misuse and makes training more effective.

Employee feedback pointed to critical safety criteria: keeping the back D-ring available, ease of adjustment and the ability to minimize D-ring slide. Personal reactions regarding ease of use and overall comfort were also noted.

Based on worker input, leadership selected an SRD manufacturer and model. The decision affected changes to the organization's fall protection policy. The equipment and policy changes required pointed communication with employees and contractors, as well as updated training.

Upon implementation of the new equipment and procedures, safety personnel conducted proactive reviews of equipment use in the field. This proved beneficial in correcting misuse and incorrect device application. Improvements can always be made to the program, but the Marathon team was bolstered by the fact that shortly after implementation, a new SRD successfully arrested a falling worker.

### CONCLUSION

As with any fall protection equipment, there will always be residual fall risk and opportunities for a system to fail. With that in mind, equipment solutions should be a last resort and be coordinated by well-trained personnel. When evaluating SRDs, make sure to seek stakeholder feedback and consider all appropriate applications and the corresponding limitations of equipment. ☉

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**Photo 1:** In this example, the back-mounted SRD has slid down to hip level, rather than being in between the shoulder blades as required for proper use.



**Photo 2:** It is critical to plan for fall protection equipment use so that anchorages can be located overhead, rather than away from the body at foot level.



**Photo 3:** In this configuration, excess free fall would occur as a result of anchorage at foot level.