



## **Fall Protection Connectors**

Did you know that there are several different connectors that can be found on lanyards and SRL's? The products in our catalog have the connection style identified in the specifications. The Body or Body/Lanyard Connection is the end that will be connecting to the person's harness while the Base Connection is the end connecting to an anchor point.

Here are descriptions of three of the more common styles:

### **Snap Hook**

The snap hook is the most common connection found on the end of lanyards and SRL's and there can be some slight variation among manufacturers in regards to the style of the snap hook. For example, snap hooks from Capital Safety are much better when trying to operate with a single, gloved hand.

In the past non-locking snap hooks had been the rule; however, as of January 1st, 1998, OSHA required self-locking snap hooks to be used. The use of self-locking snap hooks reduces the probability of accidental roll out (disengagement of connectors); however, there is still the possibility of a forced roll out disengagement especially if the connectors are improperly used, mated, or poorly maintained.

ANSI requires that the hooks be either drop forged, stamped, or machined from high tensile steel, proof tested to 3,600 lbs. and are capable of withstanding a 5,000 lb.-impact force. A quality hook should have its rating, country of origin, and

either in writing or by symbol, a drop forged manufacture notation. ANSI updated their standards in 2007 where:

- Gate face strength requirements changed from 220 lbs. (1kN) (old standard) to 3,600 lbs. (16kN) (new standard)
- Side of gate strength requirements changed from 350 lbs. (1.55kN) (old standard) to 3,600 lbs. (16kN) (new standard)

Snap hooks come in various designs and it is crucial that the hook be user friendly in all types of environments and weather conditions. Hooks that are easy to use in mild conditions may be found to be difficult to open with a gloved hand while others may tend to jam up if not cleaned on a regular basis.

### **Rebar/Pelican Hook**

The rebar/pelican hook is basically a larger-sized snap hook that was originally designed for use on rebar for positioning or attachment to larger diameter anchor points such as pipe or angle iron. These hooks present a greater hazard when they are used improperly. Because of the increased gate length, it is possible to apply loads at the tip of the gate which can result in forced roll out. These hooks should not be attached to standard sized D-rings, standard sized anchor points, or horizontal lifelines.

### **Carabiner**

Carabiners, by definition, are connector components comprised of an oval, elliptical, or trapezoidal shaped body with a normally closed gate that may be opened to permit the body to receive an object. In the case of OSHA approved devices, the gate must be self-locking. ANSI does not recognize non-locking types. In the past, manual or screw gate carabiners were accepted; however, there were legitimate concerns on the advisability of using these devices in the workplace. Fire and rescue personnel are still allowed the use of screw gate carabiners for rescue purposes since OSHA does not specifically address rescue services or equipment.

### **Aluminum vs. Steel**

There has been a continual debate over the use of these two materials. OSHA allows for the use of aluminum by stating that the connector can be made of “materials of equivalent strength.” The controversy over aluminum stems from the question of durability and whether aluminum carabiners could sustain an impact from height without compromising their tensile or impact strength ratings. On the question of durability, steel wins out. Steel carabiners are capable of absorbing a tremendous amount of wear and tear and continue to function. Dropping them or having them tossed into tool bins is not recommended but the reality is this is the type of treatment most of the devices are subject to.

Admittedly, aluminum is not as durable as steel but on the question on their ability to absorb impact it appears that the concern is not over the body of the carabiner but rather the sleeve.

If the carabiner is dropped, any deformation or difficulty opening and closing of the gate would be the criteria for removal of the device from use. From the industrial standpoint steel, auto-locking carabiners are still the best choice.

04/15/16