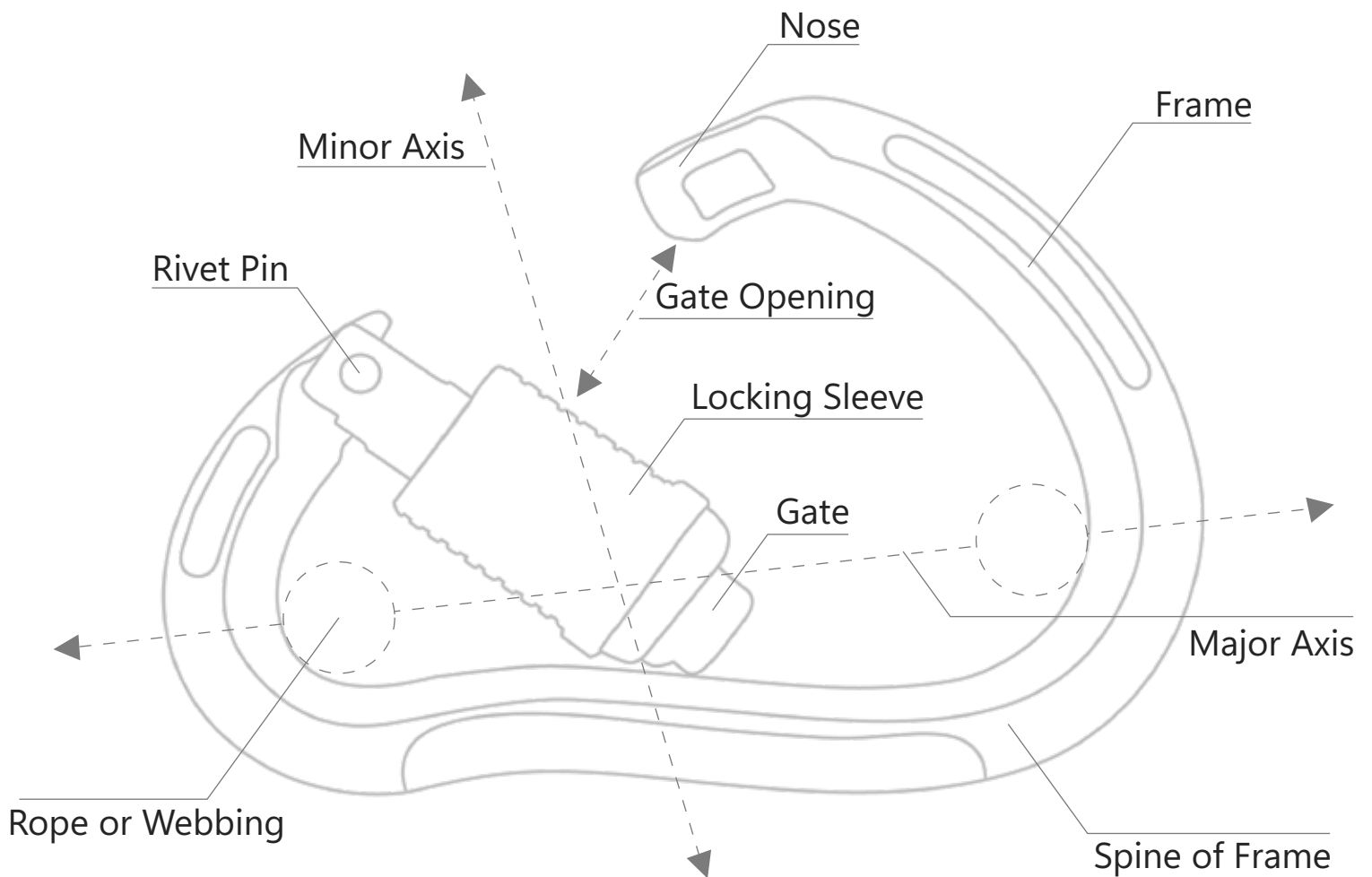


Choosing the right carabiner is extremely important; the product you choose can save your life! Carabiners are used for a variety of applications from industrial to sporting. Given the multitude of uses for carabiners, each carabiner has a specific shape, rating, and function. It is vital to familiarize yourself with the right carabiner, it's safety precautions, proper maintenance and operation.

CARABINER

SELECTION & USE





Major Axis:

The major axis is the strongest orientation of a carabiner, designed to withstand the most force, such as the weight of a climber in a fall. Carabiners are labeled with major axis strength for equipment selection.

Minor Axis:

The minor axis is the direction perpendicular to both the major axis and the gate of a carabiner. It is not as strong as the major axis and is an important factor to consider when selecting equipment.

Open Gate:

When a carabiner's gate is open, its rated strength may be significantly reduced, which can lead to failure. It is recommended to avoid loading a carabiner in this state to ensure maximum safety.

MATERIAL

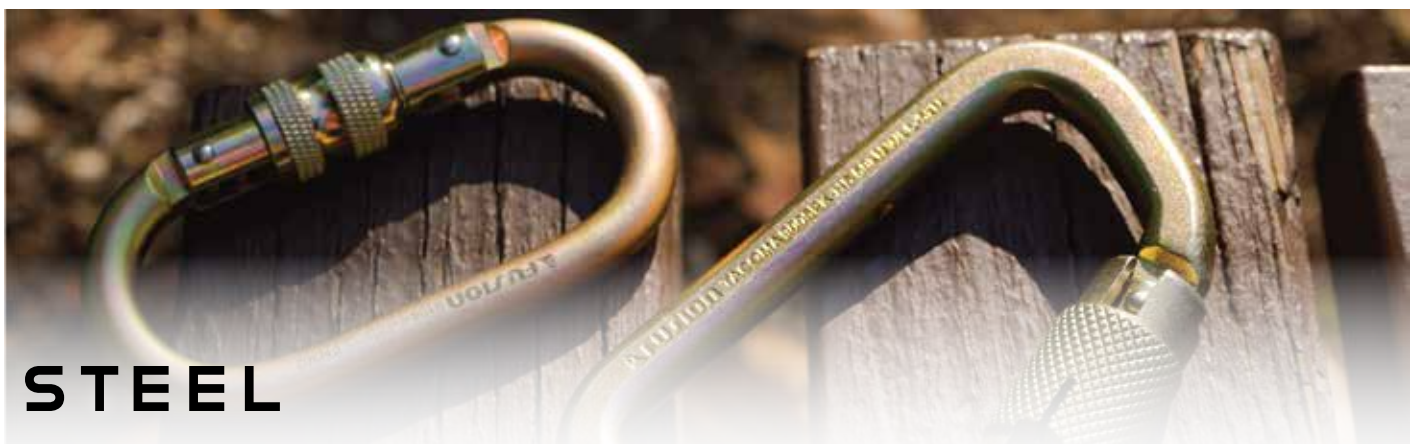
The two primary materials used are Aluminum and Steel.

Both are very strong but have very different uses primarily due to weight.



ALUMINUM

Aluminum is significantly lighter than steel, and is therefore far more popular in the outdoor and climbing industries where weight is a major factor.



STEEL

Steel is used more commonly in the industrial industries due to its extreme strength and durability.

WHEN TO USE STEEL

Steel is most often the popular choice for industrial and high-strength applications. Steel can be tempered to be stronger without increasing the overall size of the carabiner by too much. Steel can also withstand much more wear before beginning to break down. Anytime a connection directly onto a metal anchor or other object is necessary, it is important to use steel. Steel is a much stronger metal than aluminum and can hold up much longer, especially if a constant level of tension or movement is required. Steel is also much heavier than aluminum, making this ideal for industrial applications rather than climbing applications. Using an aluminum carabiner with a steel cable will destroy the carabiner very quickly; however, a steel carabiner would be able to endure the pull and last a long time, even in high use situations.

STRENGTH

Carabiner strength is commonly measured by kilonewtons (kN) or in scientific terms, mass times acceleration. The minimum strength for most applications, including rock climbing is 5,000 lbs. of force or 22.2 kN. However, other industries may require higher strengths and minimum loads ranging up to 60 kN. The overall strength rating of a carabiner is along its Major Axis, or along the spine/longest section of the 'biner. Minor Axis (the shorter distance) and Open (when the carabiner's gate is open) are the other two areas a carabiner is rated for strength.

ROCK CLIMBING

Rock climbing users prefer aluminum carabiners solely for the weight. For belaying you ALWAYS use a locking carabiner, whether screw gate, auto lock or triple lock, it is largely a personal preference factor. For anchor building, two non-locking carabiners set up with the gates facing in opposite directions or a screw gate, are most often chosen. For lead climbing, whether on traditional or sport routes, you want non-locking carabiners

MAINTENANCE

Plated finishes are now commonly used on carbon and alloy steel carabiners to protect them from surface oxidation (rusting). These finishes are expensive, particularly due to the environmental protection requirements which the plating process must comply with in the United States. However, the plating is soft and easily damaged in use. Also, it can be worn through where different parts of the carabiner rub together, such as the gate pivot area or between the threaded locking knob and the gate. Once the underlying steel is exposed, it may rust. This is most likely when exposed to corrosive environments which include such diverse things as chemicals in some industrial plants, acid rain, salt-water atmosphere, and even sweaty hands.

To protect carbon and alloy steel carabiners from rusting, clean and dry them after each use to remove dirt and moisture. Apply a generous amount of a good preservative, such as LPS1, to the entire gate surface including the cross-pins, gate pivoting area and under the locking knob. Inspect the body of the carabiner for damage to the plated finish and apply preservative there also, then wipe off the surplus from all of the carabiner's exposed surfaces. We suggest LPS1 because it will penetrate into tiny spaces and get between steel surfaces and the moisture that attacks them. In normal use, stainless steel carabiners are usually free from the corrosion problems of those made from carbon and alloy steel. However, stainless steel is often chosen for use in harsh and corrosive environments. It is advisable to test any situation in which there is the possibility of unacceptable corrosive attack, in order to reassure yourself that the carabiner may be safely used for that application. Stainless steel carabiners should also be cleaned and dried after use to remove dirt and moisture. Apply LPS1 to the gate pivot area and locking knob threads for lubrication, then wipe off the surplus.

GATE TYPE

The carabiner's gate type makes a big difference in what the carabiner is used for. The two main types of gates are locking and non-locking.

NON-LOCKING GATE

Non-locking carabiners are for general use and when clipping quickly is important. Non-locking carabiners come in straight gate, bent gate and wire gate. All non-locking carabiners are spring-loaded to ensure immediate gate closure upon release. If a gate does not close automatically it is time for a new carabiner!

STRAIGHT GATE



The straight gate is the most common gate used. The straightened gate tends to be a little bit stronger than the bent gate carabiner.

BENT GATE



A bent gate carabiner allows a faster and more ergonomic clip in, especially when you only have one hand available! It's very popular in sport climbing when needing to clip a rope into the carabiner.

WIRE GATE



A wire gate carabiner uses a loop of stainless steel wire as the gate. Although it appears as though it might not be as strong as the straight gate or bent gate, it is. The wire itself creates a "spring to close" gate, eliminating the need for an extra mechanism and making the carabiner very lightweight. In addition, there is no spring mechanism so the gate will never freeze shut.

LOCKING GATE

Locking gates come with a separate mechanism or sleeve that ensures the carabiner does not accidentally open. There are several types of locking carabiners that we manufacture.

SCREW-LOCKING



The screw gate is the most common style of locking carabiner. A sleeve must be manually loosened to unlock the carabiner then tightened to lock the carabiner.

AUTO-LOCKING



An auto-locking carabiner uses an internal spring mechanism to not only close the carabiner, but also lock the carabiner as soon as the gate is released. The user can then twist the sleeve to unlock and open the carabiner.

TRIPLE-LOCKING

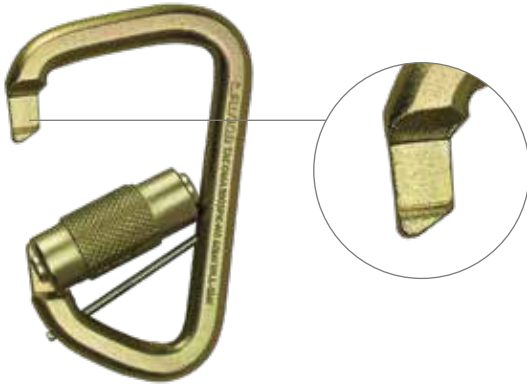


Another type of locking carabiner is the triple-locking carabiner. With this carabiner, the user must push the sleeve up or down before twisting it in order to unlock the carabiner, hence, adding another safety step. All triple locking carabiners meet ANSI Standards.

NOSE TYPE

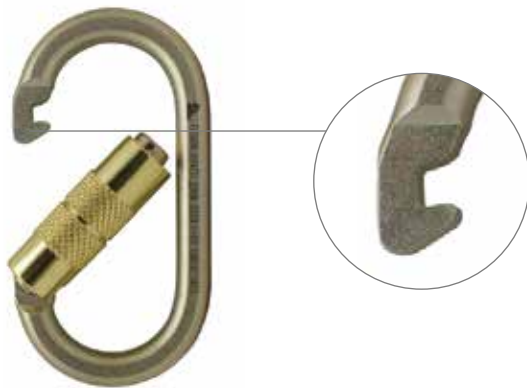
There are two types of “nose” commonly used. They are “Key” nose and “Pin” nose.

KEY NOSE



The second type is referred to as a key nose. The advantage of having a key nose carabiner is that there is no notch to snag onto anything while clipping or unclipping. Products featuring a key nose carabiner are marked with a “K” insignia.

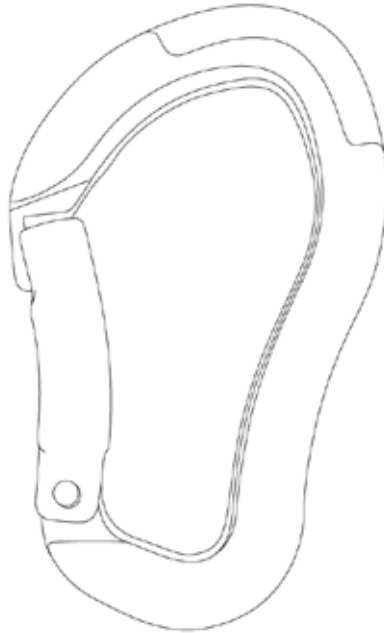
PIN NOSE



The first and older type of a “nose” is the pin nose. It utilizes a pin in the gate and a notch in the nose of the carabiner to maintain a structure and strength. This type of nose is typically stronger and more affordable.

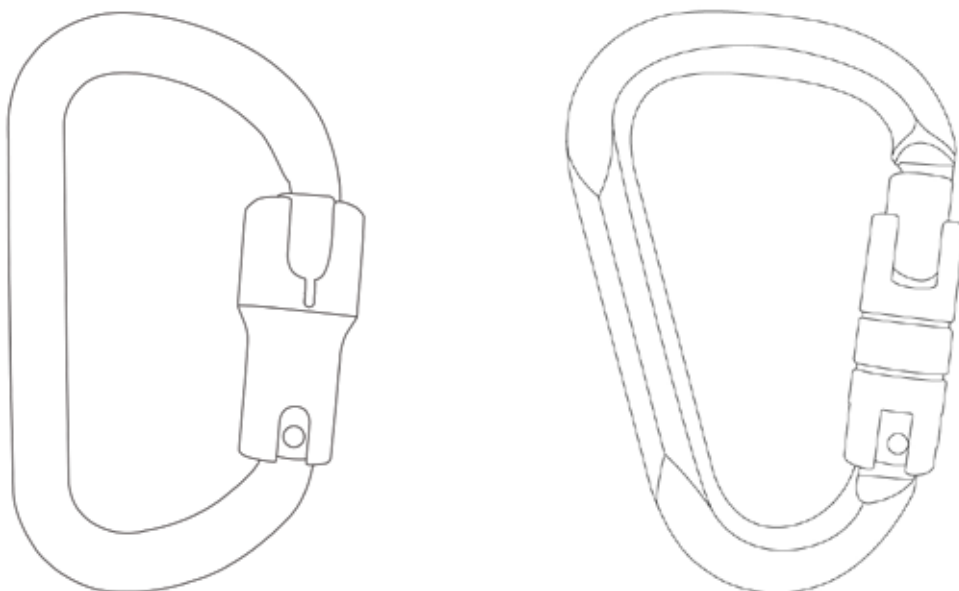
ERGONOMIC

Designed to minimize physical effort and discomfort, and hence maximize efficiency.



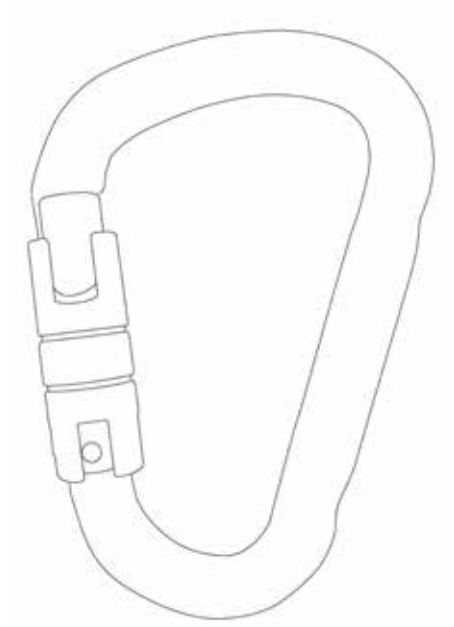
MODIFIED "D"

This shape helps to push the load to the back ("spine") of the carabiner. This allows the weight to be carried primarily by the spine and less by the gate, making the carabiner stronger yet lighter.



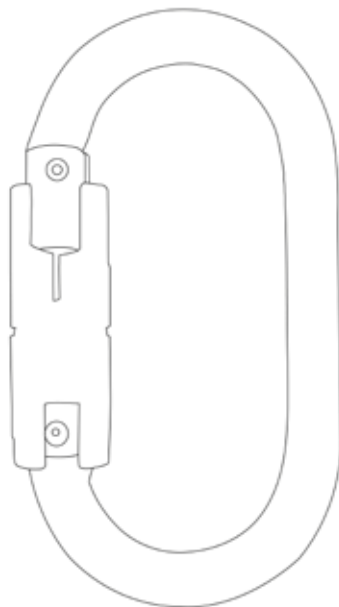
HMS

Some carabiners, such as the modified D and HMS, have one axis that is longer than the other to allow for a larger gate opening. The HMS, also known as the pear-shaped carabiner, was originally invented for use with Halbmastwurfsicherung knots,



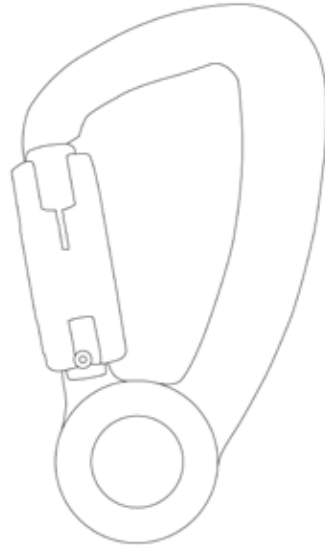
OVAL

The original shape of carabiner is the "Oval," the symmetrical shape keeps the load from shifting creating more stability, but is typically not as strong as other shapes.



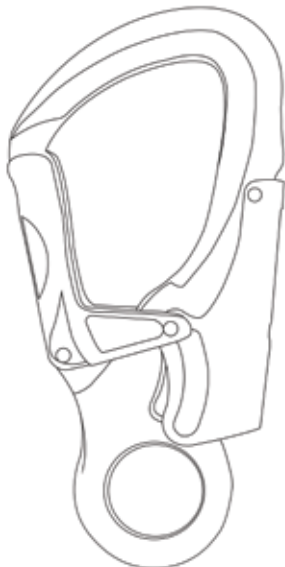
CAPTIVE EYE

A captive eye carabiner has two separate points to tie in to, which prevents cross loading of the gate. Some of our carabiners have the option of adding a captive eye pin to turn a modified “D” carabiner into a captive eye carabiner!



SNAP HOOK

In accordance with ANSI regulations, any carabiner or snap hook used in a fall arrest system must be steel, auto-locking and the gate must be strength rated at 16 kN (3,600 lb). The minimum strength of the major axis is 22.2 kN (5,000 lb). While aluminum is lighter, steel is far more durable and remains the go-to choice for high strength and heavy duty applications. Our high strength line of carabiners and snap hooks come in several different sizes, shapes and colors, that not only meet but exceed the minimum standards for a large variety of industries and applications.



OTHERS

Because of the wide variety of industries and applications for carabiners, we manufacture an endless variety of new carabiners that are frequently gaining popularity in the market place. Some people prefer certain sizes or shapes for their industry specific applications, such as our ladder hooks and rebar hooks. These high quality hooks are large enough for a fire fighter or rescue person to clip onto a pipe in an emergency, while our mini Contigua carabiner is small enough to accommodate a keychain, yet is strength rated at 5,000 lb.

