



CONFIGURATIONS

Harken Carbo and Classic ratchet blocks are available in many configurations including single, multisheave, cheek and fiddle blocks.



SIZES

When selecting a ratchet block, match the block to the size load.



SWITCHABLE RATCHETS

The Hexaratchet's ratchet function can be switched on and off. When disengaged they spin freely in both directions. Classics are available in 57 and 76 mm sizes. Carbo ratchets come in 40, 57, and 75 mm sizes.



RATCHAMATICS®

The Carbo Ratchamatic® is a load-sensing ratchet block that rolls freely in both directions under low loads, and then automatically engages the ratchet as loads increase. Ratchet engagement can be adjusted depending on strength, sailing style, and system usage.

HEAVIER LOADS



LIGHTER LOADS



Links

[Q & A Ratchet Blocks](#)
[McLube™](#)

Ideas that Click

You hear them across every racecourse, telling you your competitors are trimming sheets and adjusting controls. But ratchet blocks are more than just noisy psychological weapons. They're an indispensable piece of hardware on dinghies, one-designs, and even cruising boats. Understanding ratchets and effectively designing them into your hardware systems will allow you to trim and make adjustments with more precision.

Controlled Hold and Release

The magic of ratchet blocks is they allow you to hold loads with little effort and ease loaded sheets with good control. The effect is analogous to a winch without a winch handle. You don't have any mechanical advantage while you're pulling in the line, but the surface of the sheave acts like a winch drum to provide resistance in one direction. The resistance takes the brunt of the load so you can hold or play the sheet with ease.

Ratchet blocks use the same concept seen in socket wrenches, clocks, or bicycles. When you pull in a line, the sheave turns freely like a normal block, except that the ratchet pawl drops into the teeth as the sheave rotates (this is what gives ratchet their distinctive clicking sound). Once you stop trimming, the ratchet pawl settles against one of the teeth and, through friction between the sheave and the line, holds a portion of the load. When you ease the line, the facets on the sheave grab the line, reducing the load on your hands and allowing a controlled release.



Carbo Ratchamatics®, Harken’s unique modified ratchet block, offer a ratchet function that only engages when the loads reach a certain level, allowing fingertip control in light conditions. Using an Allen wrench, you can easily increase or decrease the load level to fit your strength and the application.

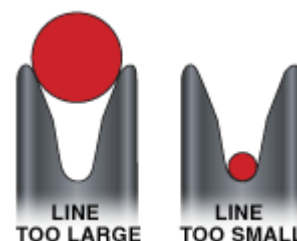
Sheave Design

Every brand of ratchet block has a signature shape for its sheave. When designing a sheave, there is a tradeoff between holding power, line chafe, and control. In heavy air a sheave with too much holding power will cause the sheet to suddenly slip and jerk through your hands. In light wind and low loads, the line gets stuck in the sheave. Also, sheaves with sharp edges are overly aggressive and destroy line quickly. We’ve tested many different designs, like sheaves with more facets or more holding power, but Harken has kept nearly the same sheave design for years. Sailors keep telling us it’s great—not only does the shape treat lines well, it offers the perfect mix of holding power and easing ability.



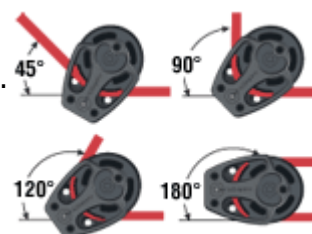
Line Diameter

The diameter and nature of your line has an impact on the effectiveness of your ratchet blocks. Be sure to use line sized to match the block. Line that is too large or too small won’t hold well due to a lack of contact with the facets. Hard, smooth lines don’t offer the holding power of soft lines.



Ratchet Selection

When selecting a ratchet block, it's important to match the block size to the load. Sizes are available to cover applications on a wide range of boats, but there's a tendency to undersize ratchets. Remember, a 180 degree turn doubles the loads. Use the [Block Loading vs Angle of Deflection](#) table when you refer to the Maximum Working Load (MWL) or Safe Working Load (SWL) specifications.



There's another practical reason for choosing a larger block—the holding power of a ratchet is partially dependent on the amount of contact between the sheave and the line. A larger diameter sheave presents more surface contact for the same amount of line wrap. Even when the load allows a smaller ratchet, a larger one provides better holding power. You'll often see pretty big ratchets on the jib sheets of dinghies to improve holding power without the use of a cleat. For the same reason, a ratchet is more effective when the line turns 180 degrees around the sheave. As a result, they are better

used as transom blocks for spinnaker sheets than as deflector blocks forward where the line wrap might only be 90 degrees.

Ratchet Applications

Once you understand the nature of ratchet blocks, applications become obvious. In simple terms, you should use ratchets whenever you want to relieve load, such as high-load release situations or when a line needs to be hand-held for quick, precise trimming. Ratchamatics®, Hexaratchets®, and Carbo ratchets are great for mainsheets on small dinghies like Optimists, Lasers, and Finns where the sheet is seldom cleated. The skipper can hand-hold the sheet, ready for instant adjustment, yet the ratchet isolates him from the full load of the sheet to minimize fatigue.



Ratchets are also at home in the multiple purchases found on the mainsheets of large one-designs and small offshore boats. During fast trimming, when the sheet is not engaged in the cam cleat, they allow more speed because you don't have to fight the full force of the sheet while shifting your grip. More importantly, they isolate you from the full load on the sheet so you can snap the line out of the cam cleat without danger of the line being ripped through your hands, then ease it with control. Heavy-air jibes don't mean rope burn when the mainsheet is rigged with a ratchet block.

The second most common use of ratchet blocks is on spinnaker sheets on larger dinghies, one-design keelboats, and even offshore boats as large as J/35s. Their ability to isolate the trimmer from the load means that spinnaker sheets can be hand-held except in the windiest conditions, and a fast response can mean the difference between the front of the fleet and the back. Spinnaker trim is so important in tight competition that boats like J/24s and Melges 24s use two ratchets in series to allow hand sheeting in all conditions. The holding power can be fine-tuned by engaging one or both of the ratchets to match conditions.

Jib and genoa sheets are other possible applications for ratchet blocks. They are often used on small catamarans and dinghies like Flying Juniors where the sheet is hand-held. More and more, larger one-designs like J/24s are putting ratchets in the genoa system to facilitate hand-holding the sheets.

While you don't see them used in this fashion as often, ratchets are perfect for releasing highly loaded lines as well. Two good examples are traveler control lines on larger boats and genoa lead adjusters. Neither is typically hand-held, but they can both get away from the trimmer as he eases the cars when it's blowing. A logical extension of this use is on spinnaker pole adjuster systems or the back line of asymmetrical spinnakers.

By allowing you to hand-hold sheets and ease highly-loaded lines, ratchet blocks facilitate quicker, more precise trimming. They make your boat faster and help your crew keep things under control.