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Why Vessel Weight Does Not Equal Strength

“Kadey-Krogen is the only builder who provides this level of hull reinforcement.”

I recently read a blog where someone posted that they bought a specific brand of trawler because it was heavier than others. It asserted that this extra weight made their vessel stronger and provided an added safety margin. Did you ever see the TV commercial for Allstate where the young lady says, “They can’t put anything on the Internet that isn’t true,” and then the camera pans to her date she met online that is supposedly a French model, and the guy is, well, shall we say, not as represented? Well the same holds true for the assumption that weight makes for a stronger vessel. The truth is that weight in a vessel only guarantees two things: a reduction in fuel economy, and assurance that if buoyancy is lost, she will go to the bottom faster!

As a start in understanding why weight does not guarantee strength, consider a common rolling pin used in baking. Some rolling pins have a wide diameter, and some have a narrow diameter. Some are made of wood and others are made of marble. No one would argue with me that given the same length and diameter, a rolling pin made of marble is heavier than one made of wood and most people would say that one made of marble looks and feels stronger. So what happens if you drop both rolling pins on the floor? Yes, the marble one is more likely to damage the floor, but it is also more likely to crack in pieces! So the heavy one is not really the stronger one, is it?

Another example is from my own personal experience. A few years ago I took up cycling. As with most things, if you take a liking to something and that liking grows into a full-blown hobby, then you tend to move into a

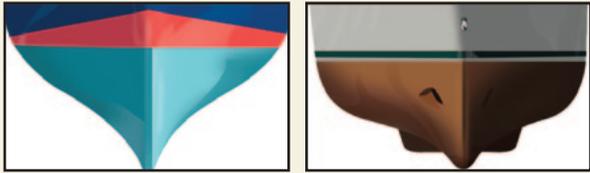
higher quality model. I recently purchased a carbon fiber frame and assembled the bike on my own. However, I did quite a bit of research prior to making the decision on the frame (following the same approach that I see in many of my Krogen customers) so not to make a blind assumption. That blind assumption would assert that weight equals strength. In the world of cycling, nothing is further from the truth. Bicycle frames get their strength from both materials and shape, and that could also be said in the world of yachting, too!

If weight does not guarantee strength, what does? Adherence to good design and construction principles is really what assures strength in a vessel. Decades ago, the naval architect James S. Krogen, one of the founders of Kadey-Krogen Yachts, said, “To produce a successful design, you must make an honest determination of how the vessel really will be used and then prioritize every design decision to favor that outcome.” In the case of a Kadey-Krogen full displacement trawler yacht, that “outcome” is a seakindly, liveaboard ocean-crossing yacht.

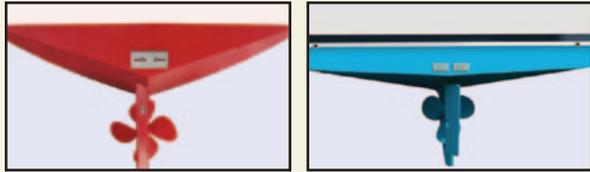
How do we do it? How do we build a boat that is lighter than many others, yet one that is stronger and more fuel efficient? How do we build a boat that is both seakindly and seaworthy, capable and liveable?

Fiberglass girders are closely spaced for distribution of hull loads.





The Kadey-Krogen is on the left. Which entry form do you think moves easiest through the water? Which form do you think has a softer ride?

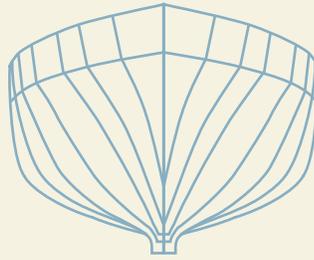


A Kadey-Krogen hull (left) is designed to deflect a large portion of wave energy and the result is truer tracking.

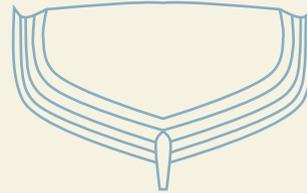
We start with our Pure Full Displacement™ (PFD) hull with masterful displacement-to-length ratios, fine entry, and characteristic end-to-end symmetry including the signature “wineglass” transom—all producing an incomparable ride. Only a PFD hull provides seakindly comfort plus ample room below the waterline for the fuel and supplies needed to cross an ocean. Other builders employ modified forms with flatter aft sections that may yield additional top end speed at the expense of directional stability and fuel economy.

Vee sections aft yield improved end-to-end symmetry for seakindly motion and excellent hull efficiency, course keeping, broach resistance and response in a seaway. Result? A more comfortable passage. A fine forward entry has superior wave cutting ability for low resistance at all speeds and more efficient movement through the water compared to blunt, stout looking forms. This means a drier, softer ride. Together, these two features help to create vessels that average 25 percent better fuel economy than other trawlers. And in one specific case, a 40 percent difference was evidenced by the Kadey-Krogen carrying 1000 gallons of fuel and another vessel carrying 1400 gallons of fuel to cover the same distance at the same speed!

To provide strength, massive stem-to-stern fiberglass girders are closely spaced for effective distribution of hull loads to the bulkheads, and encapsulated mahogany girder inserts allow equipment to be attached for maximum strength and reliability. Cast



A Kadey-Krogen yacht's fine entry slices through the water.



A Kadey-Krogen's “wineglass” transom is a key component to the symmetry of the hull and helps explain the magnificent ride.

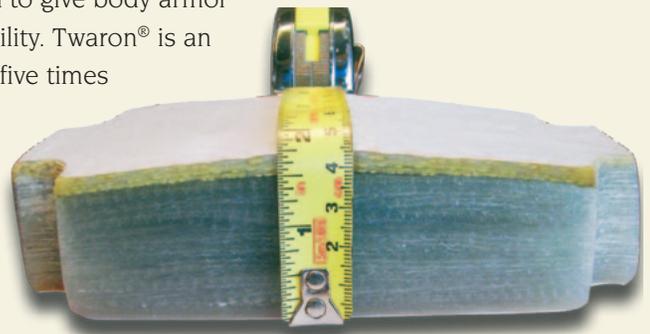
lead (as opposed to iron) ballast conforms to the keel contour and is concentrated low in the hull so less ballast material is required and weight is reduced. Deckhouse and hull topsides are of cored laminates for reduced weight, lower center of gravity, thermal insulation and strength.

To absolutely ensure hull integrity, critical areas are reinforced with a special impact-resistant fiberglass mat containing Twaron®, the same fiber used to give body armor “bullet-proof” capability. Twaron® is an aramid fiber that is five times stronger than steel and up to 60 percent lighter than ballistic steel—yet another example of weight not being related to strength.

Kadey-Krogen is the only builder who provides this level of hull reinforcement.

I hope that detailed information such as this about Kadey-Krogens will provide you with a thorough understanding of our yachts and why we do what we do. An informed customer usually makes the right choice and maybe this is why Kadey-Krogen owners keep their boats longer than others.

At Home on Any Sea—yes they are!



The yellow portion of this hull section is Twaron®, the same fiber used to give body armor “bullet-proof” capability.