

# Selecting Rope for Small Craft

Editor Josh Colvin on getting to know the ropes

**I**f you're anything like me you've probably found choosing line for your sailboat, especially running rigging, a little like selecting the best cell phone plan—which is to say it sometimes seems intentionally complicated and you're not sure if you're ending up with exactly what you need.

Truth is I've rarely had any issues with the performance of the common rope types I've used, and I can count on one finger the number of times I've had a line break in my hand. So, do I really need to spend the day researching tensile strengths? And just like my cell phone service provider, some rope manufacturers and sellers seem intent on keeping me confused or dazzling me with new products I'm supposed to have. "Forget the polyester, what you need is something made from isotropic crystal polymer!"

Recently, however, I became the owner of Duckworks Boat Builders Supply—and suddenly I was a rope retailer. Since then I've actually become a little obsessed with cordage—reading on the subject, testing ropes, and adding to our offerings. I've still got plenty to learn, but communicating with customers—racers, designers, and boat builders—I've had the chance to get feedback about what works best for different applications.

This is probably where you're expecting me to tell you I was wrong—that only a fool would consider using anything other than the latest high-tech lines on their boat. Well, not exactly. While I've grown to better appreciate the virtues of performance rope, and I understand how sailors looking for every advantage might want to upgrade, I still believe that relatively inexpensive rope can do most jobs on a sailboat quite well, and I still think many retailers and manufacturers complicate things unnecessarily.

Below I'll try to summarize the best types of rope for common applications. This overview is not particularly extensive or technical. There are plenty of Internet articles out there where your chemistry degree will come in handy if that's what you're looking for. My goal here is to keep it simple.

## SHEETS AND CONTROL LINES

When you think about the purpose of sailboat sheets, outhauls,

downhauls, vang, and most any sail-control line, you can see why you'd rather they didn't stretch much or at all. Stretching means some of the energy of the sail has been lost or that lines will need to be re-tensioned because of so-called "creep." Unless you're looking for built-in shock-absorption somewhere, low-stretch line is preferred.

Most control lines will be a double braid—which means the rope has a braided core and an independent cover over the top. This rope is sometimes referred to as "yacht braid" and

it's a good all-round choice, offering excellent strength, abrasion and UV resistance, and good handling.

Double-braids are made from a variety of materials, but the most common are nylon—which is used for certain applications precisely because it *does* stretch (see below)—and polyester, which stretches much less. Therefore the most common sheet and control line construction will be polyester double-braid or a polyester-blend double-braid.

If you want extremely low-stretch line, and/or the ability to use a smaller diameter, you'll want to look at a more exotic double-braid, like one that has a Dyneema or Spectra core. These ropes offer very

low-elongation and are ridiculously strong. The average breaking load of Marlow's Excel Racing 4mm rope, with its Dyneema core, for example, is 2193 pounds. Uncovered 12-strand Spectra, such as Samson's Amsteel, offers the same amazing strength, but without a braided cover, it's not something you want to be handling and cleating regularly. Instead it generally replaces wire on a boat.

There are also some hi-tech ropes designed especially for use as sheets, where handling is most important. These are often made from a combination of polyester or Dyneema and polypropylene—which together make the rope light, buoyant, and extremely soft-handed. Given how much time is spent holding or adjusting sheets, these are a tempting luxury.

## HALYARDS

Just as with sheets and control lines, you'd rather your halyards didn't stretch, and because you might be sweating the line pretty hard when hoisting sail, you'll want it relatively easy



ABOVE LEFT TO RIGHT—1. Raid Braid polyester double-braid from Duckworks.  
2. Typical 3-strand line. 3. Marlow's Excel Racing with Dyneema core.  
4. Samson's Amsteel Blue 12-strand Spectra.

on the hands. Once again, a polyester double-braid is the most common choice—easy to handle and relatively low-stretch.

But given the loads halyards are under and the negative performance consequences associated with them stretching (sails sagging, poor performance to weather, etc.), not to mention the additional windage of a larger-diameter halyard running the length of the mast, if there's one spot even the casual cruiser might consider a better line, it's the halyards.

You don't want to go so small that the line is hard on your hands or difficult to cleat, but typically you can downsize the halyard diameter by about a third when changing from a stock polyester double-braid to a Dyneema-cored line, and it will still stretch less and perform better.

## DOCK LINES AND ANCHOR RODES

While line stretch is generally to be avoided, there are two places where some elasticity is desirable—dock lines and anchor rode.

Dock lines, which we want to absorb stresses without trying to rip the cleats from the boat, are typically made from strong-but-stretchy nylon. Three-strand nylon offers the most stretch and is least expensive, but nylon double-braid is a little stronger and more chafe resistant. Both are popular and both will do the job.

With anchor rodes the thinking is that the sudden pull of a low-stretch rode might be more likely to rip an anchor loose from the bottom. As a result, sailors have traditionally chosen nylon rode. The most popular is 3-strand nylon, as in addition to stretching 20-40% or more, making it a natural shock absorber, it is inexpensive, and can be mended

**A note about traditional boats:** From an aesthetic standpoint, older wooden boats and other “classics” sometimes look better with three-strand, hemp or other natural fiber lines. At Duckworks we sell plenty of three-strand for halyards and sheets, and the smaller diameters look good as sail lacing, but if you're looking for the best performance while maintaining a more traditional look, consider a tan or natural-colored polyester double-braid like our Raid Braid in “Tradition” color pictured below.



or extended easily. Nylon double-braid rode is also popular. It stretches less than 3-strand, but it offers better chafe resistance and, arguably, better handling.

Ironically, there's another anchor rode trend we've noticed, particularly with larger boats, and that is using—wait for it—polyester double-braid. The thinking being that while some stretch or shock resistance is good and reduces the load on the anchor, too much stretch can be bad, as the boat is able to move more, turning abeam, rebounding more dramatically, chafing, and possibly generating internal heat that leads to failure.

There are other purpose-designed “multi-plait” lines popular for anchor rodes as well—lines made with eight or more

strands—designed for the “perfect blend” of stretch, durability and easy handling. Each of these has its proponents.

Maybe because of the potentially high stakes, the subject of anchor rodes is an especially controversial one—no matter which type of rode you choose, someone will tell you you're doing it wrong. But with our small boats, generally speaking, if you've got plenty of length of whatever rode type you choose, a boat-length or so of chain, and an adequately-sized modern anchor, you've probably got what you need to keep her off the rocks.

So maybe it's not that complicated after all. While we might recommend three-strand nylon for an anchor rode, and something with a Dyneema core for halyards—one could still make an argument for using nothing but good ol' polyester double-braid in various diameters for every purpose aboard.

Whatever you choose, you should be able to get good performance without spending a ton of money or countless hours on research. Although another advantage to small-boats like ours is that even if you do go with latest and greatest cordage, you won't need all that much of it. •SCA•

## More Rope Tech Talk

*For another point-of-view we interviewed an expert familiar with the latest developments in cordage, Marlow Rope's U.S. sales manager, Sam Vineyard.*

**Isn't it true that a good low-stretch polyester double-braid does most things (sheets, control lines, halyards) pretty well? Does the average trailersailor really need something**

**more high-tech and would they notice a difference?** Yes. Just like sails, Polyester, or Dacron (high tenacity Polyester) is still the staple of most sailors' needs. You can certainly hoist a sail, and trim a sheet with double-braid polyester. The main issue is how much stretch do you wish to have in these sheets and halyards. The more stretch, the more energy is dissipated rather than propelling the vessel forward.

**What upgrades do you think casual**

**cruisers with older running rigging would stand to benefit from most?** First is upgrading your sheets and halyards to modern rope. Although many of the fibers have not changed in 10 or 15 years, rope manufacturers have gotten better at the manufacturing process, and ropes are better today than ever. UV and salt do damage lines, and if they are stiff, they are certainly in need of replacement. If one wishes to upgrade the quality of line they're

using, they should move from 3-Strand to double-braid, or double-braid to a core-dependent line. Maybe upgrading a cover to higher tech for better clutch or winch performance. There is always a way to make your lines stronger, lower stretch and smaller in diameter.

**Are there any ways you see rope types consistently being misused?** Knots, knots, and knots. They are the demise of a high-quality line. We have done some significant research on how knots reduce break strength, and it is shocking to see break strengths reduced by as much as almost 80% by tying a commonly used knot into a high-tech line. Also diameters of lines. Especially with higher tech lines, many are oversizing their lines to be easier on the hands when significant weight and cost can be saved by properly sizing the lines to the requirements rather than the “feel.” That being said, many sailors have a difficult time holding less than an 8mm line in their hands for sheets. 10mm or 3/8” is the choice for many.

**What is the biggest development or**

**breakthrough in terms of rope materials or construction in the last few years?** Dyneema, and specifically SK 78 and SK 99 type. We have virtually removed “creep” from these fibers using our proprietary MAX process of heat-setting the cores. Elongation over longterm static loading has virtually been removed. Also, splicing 12-strand line has never been easier for the common boat owner. Many sailors are reducing weight and increasing safety using 12-strand for lashings and block attachment. Soft shackles are one of the easiest ways to use scrap line—fun to make in the winter, and simple and stronger than traditional shackles.

**What is Marlow’s best-selling product?** Probably our Dyneema 12-strand cores, whether that be SK 78, SK 78 MAX, SK 99 or SK 99 MAX. We incorporate these into our Excel Racing, and D2 Racing products, as well as many other styles. Then our Grand Prix series for more technical boats and sailing. That said, I’m always shocked how much double-braid we sell in a given year. Most sailors familiar with the Marlow brand know us for our cores and 12 strand products.

**What separates Marlow from its competitors or where do you guys excel?** Marlow is fortunate to be the largest supplier to Grand Prix yachts around the world. We work with the US Sailing Team, Team GBR, American Magic, and Ineos Team UK, and America’s Cup programs as “official suppliers.” We use these programs and experiences to develop ropes for the “every-day boater.” Whether that be properly tensioning our double-braid products so that core and cover work in conjunction for a better performing rope, or working to build a better, more durable cover to upgrade sheets and halyards.

Boats, like everything in today’s world, are being pushed harder and harder, and we need the right products to keep them safe and sailing well. At Marlow we pride ourselves on technical skill, transparency in terms of fibers and applications, and we strive to supply the best customer support in our industry. We are all sailing for the love of the sport, and I hope we can make it a little better, safer, and easier for everyone. •SCA•

Graphic courtesy Marlow

