

**Highlights:** -Putting Synthetic 12 strand on your boat.

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### Sizing Dynex Dux™ for your boat.

Considering changing your standing rigging to a new technology like Dynex Dux™ synthetic line can cause a lot of stress. After all, it holds your mast up and we all know the consequences of that mast coming down. But information is power that can help put your apprehensions to rest. Issues like chafe resistance, “Yeah its not as tough as steel but, hey, they make butchers protective cloves out of it”. Information like that can help put things in perspective. Creep and stretch can be addressed with unbiased data as shown on our web site. The data shows that synthetic line can work if you understand how it is to be used, much like sailors learned to use steel when technology produced wire rope to replace the hemp that was used at the time.

When considering synthetic line for your boat there are several things to consider:

1. Static or Constant load.
2. Dynamic or Peak load.
3. Mast connections.
4. Chainplate Connections.
5. Spreader end fittings.

#### *Constant load*

This is the pretension that is put on the line. This is the main driver for Creep. Dynamic loads are for short periods of time so they do not influence creep. For Dynex Dux this needs to be kept below at most 20% of the breaking strength of the line to keep creep manageable. Take the pretension of the line and divide by 0.2 to get the minimum breaking strength of the line that you need. Be careful not to mix units, use only lbs or use only kilograms for breaking strength and pretension.

Example: Flying tiger boats pretension their shrouds to 1200 lbs.

$$1200/0.2 = 6000 \text{ lbs}$$

7 mm Dynex Dux has a breaking strength of 15,000 lbs and would keep the creep down to a minimum. If we look at the chart on our website this size line would result in a maximum of 0.5 inches of creep per year. 9mm line would produce about 0.1 inches per year.

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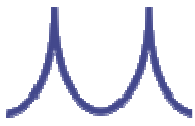
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## Sizing Dynex Dux™ for your boat (continued).

### *Dynamic Load*

The dynamic load is the peak load that the line will experience. Due to variable load conditions, this is a little harder to calculate and can be very expensive to record. If you have an existing boat an easier way to do this is to use the maximum breaking strength of your existing line and size the synthetic line to it. This assumes that the person who rigged your boat last sized the wire rope correctly which may or may not be true. However if your boat has been using that size wire rope for a long time in the conditions you are planning on sailing in then you will have a higher degree of confidence in your existing rigging sizes.

For dynamic load conditions we recommend using a SWL of 20% of the breaking strength of Dynex Dux™. This is to provide for unknowns like excess chafe, or unknown load conditions. Either calculate, measure, or match the SWL limits that you need and choose a Dynex Dux diameter that is equal to or greater than your SWL divided by 0.2.

Example: Loos ¼ inch 1 x 19 304 wire has a breaking strength of 8200 lbs. With a factor of safety of 2.5 (Brion Toss Recommended) the SWL is 3280 lbs.

$$3280 / 0.2 = 16,400 \text{ lbs}$$

Since Dynex Dux 9 mm has breaking strength of 25000 lbs it would meet the same requirements as ¼ inch 1x19. 7 mm Dynex Dux has a breaking strength of 15,000 lbs and thus would not be strong enough unless you wanted to compromise the safety factor slightly.

### *Mast Connections, Chainplate Connections, Spreader end fittings*

Mast connections can be pinnings or lashings with the various size terminators that we offer. Our titanium mast brackets offer the best value in light weight, strength and flexibility, even for rotating masts. If you are extra weight conscious you can lash the terminator to the masthead using a shackle. T toggle fittings can also be used.

Chainplate fittings can be for traditional chainplates or using our male Terminators with carbon chainplates. Turnbuckles can be used with lashings in parallel or even without lashings.

Spreader end fittings need to be considered to make sure that chafe will not be an issue. Simple solutions like PVC tubing over the line as it passes thru over the spreader ends works. In addition we have some specially designed fittings that work with several different spreader end designs.

Pin sizes and slot clearances are critical for these connections so check our website for design info or call for assistance.

### Coming newsletters:

*UV, what it means to synthetic...*

*Convenience of using braided line for standing rigging.*

*For questions or comments please call or contact us at [info@colligomarine.com](mailto:info@colligomarine.com)*

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