

Etchells Forestay Swivels

Mast rake changes made safer and simpler



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This innovative product has 3 major advantages over the existing headstay "eye/fork" join, in use by most Etchells class yachts:

1. **Safety:** Using the new swivel, the crew is on the foredeck for a fraction of the time and is performing an easier task.
2. **Performance and results:** The simplicity of the task and ability to execute a rake change quickly make it much more likely that crews will sail at their desired rake across the range of conditions. It also eliminates the need to sail a downwind course to perform the change (quite often rake changes are needed to be made just prior to a race starting - so the need to stay in close proximity to the start line is important)
3. **Less risk:** The "pin-less" system eliminates the risk of dropping the pin into the sea. Also eliminated is the risk of ripping the spinnaker on the pin's split ring.

Before we go into greater detail, here is a basic **glossary of terms**:

- **Swage**: used to press a fitting onto wire rigging. The type of swage referred to here is also known as roll-swaging, which is where the wire is inserted into the fitting and the fitting is pressed along the length of the swage either by a special roll tool, or a hydraulic press.
- **Pennant**: the term given to the short piece of wire rigging attached to the bottom of the forestay

- **Eye**: the single part swaged onto the end of rigging wire. Generally on an Etchells, the forestay has an eye swaged onto both top and bottom ends.

- **Fork**: a fitting swaged to the end of rigging wire. It has two “cheeks” that allow an Eye to be inserted between them. The fork and eye are pinned together to form a mechanical join in the rigging. The Forestay Pennant on most Etchells will have a Fork swaged onto the pennant wire above the deck. A complete fork-eye join that is used for the bottom end of the forestay on most Etchells is pictured here:



- **Turnbuckle**: Every Etchells is fitted with a turnbuckle on the bottom of the forestay pennant. This is attached to the bow chainplate (a stainless steel tang laminated into the bow of the boat below the deck. The turnbuckle is what allows the mast rake to be adjusted. This change occurs when the pennant wire allowed to spin. **This turnbuckle remains in place with the new forestay swivel system.**

Two forestay swivel products are available:

1. **Eye-only**: This version (pictured below) is quicker and easier to install. The part costs less and the overall cost - after swaging by a rigger - is less (just one swage to perform). It is used in conjunction with the Fork and pin on the existing Forestay Pennant. This is a quick, inexpensive and easy way to install the swivel. However the disadvantages are that there is a weight penalty of 54 grams (more data on weight is found further in this document). This solution is also slightly bulkier and requires taping of the pin/split ring.



2. **Complete Swivel fitting**: This version (pictured below), whilst more expensive and requiring more rigging work, is proving to be the favourite amongst Etchells sailors. The complete unit weights only 13 grams more than the existing eye-fork join. It is also more streamlined. There is no thru-pin, resulting in a very clean fitting.



Installation:

It is important to note that installation of either swivel fitting will result in a loss of length in the overall forestay length (ie: from the hounds fitting on the mast to the below-deck turnbuckle. For most boats, this is not an issue. But if your boat is near the maximum extension of the turnbuckle at your maximum raked setting, you may need to have a new pennant made. Below, the term "length lost" refers to the amount the overall dimension that the forestay will be shorter by, after changing to the swivel fitting.

It should also be noted that, in my observations of many Etchells over many years, the pennant wires do get worn out and bent around the deck aperture. This is usually due to the towing rope pressing too hard against the forestay whilst the yacht is under tow. Also, I have seen crews attaching the dock line to the forestay. So, it may not be a bad thing to replace the pennant when installing a new swivel fitting. That way the length will be perfectly tuned to your yacht as well.

OK - onto some detail regarding the installation and rigging lengths lost.

Note, in most cases the forestay will need to be taken to a rigging shop, as roll-swage machines are difficult to transport. Either take the mast down, or attach the jib halyard to the bow of the boat and send a person aloft to un-pin the forestay at the hounds.

1. **Eye-only fitting installation:** Simply cut off the eye fitting from the bottom of the forestay. Make this cut as close as possible to the swage fitting. Swage the new fitting on. The existing fork pins to the swivel fitting. Ensure the pin / split ring are taped. **Length lost:** 10mm (3/8"). One swage is performed.

2. Complete Swivel fitting installation: Cut off both the existing eye (from the forestay) and the fork (from the pennant). Make both cuts as close as possible to the swage fittings. **Length lost:** 70mm (2 and 3/4"). The "cone" part is swaged to the forestay (it ends up being on top). The "stud" part is swaged to the pennant. If the length of existing pennant allows for it to be re-used, there are 2 swages to perform. However, in most cases, a new pennant wire will be required, as 70mm of lost-length will be critical. If a new pennant is required, you will also need a new threaded terminal to join the existing turnbuckle. Most riggers carry stock of this fitting. Finally, following installation and attachment on the yacht, ensure Loctite or plumber's tape is used on the threads of both the "cone" fitting and the swage-stud fitting. Finally, it is interesting to note that most USA customers for this product are opting to replace the entire forestay. The result is the fitting being lower to the deck.

Installation tip: prior to the removal of the forestay, set the rake to the maximum raked setting (normally your light air setting). Take both the existing forestay and pennant to the rigger (pinned together). This way the rigger can ensure that the new overall length matches the existing overall length and can help determine whether it is necessary to make a new pennant. If you are very weight conscious, you could ensure that the system allows only enough rake that you need (thereby possibly reducing the forestay weight by the amount of un-used wire length). It is a game of marginal gains.....

Weight study:

The existing **fork/eye** and extra wire (as this fitting is shorter than the forestay swivel fittings) weighs 145 grams total.



...weight study...continued...

The **complete swivel fitting** weighs 158 grams. Only 13 grams heavier than the existing fork/eye. 13 grams is equivalent to three 6mm (1/4") stainless steel nuts. In summary, a negligible weight gain.



The **Eye-only** fitting weighs 141 grams. The eye and wire it replaces weighs 87 grams. The resultant weight gain is 54 grams.



FAQ's:

Q: How does the swivel work?

A: As you are aware, rake changes are currently made by disconnecting the pennant from the forestay by un-pinning the fork/eye joint. Then the pennant wire is rotated for as many turns as required. The only difference with the new swivel fitting is that it allows

the pennant wire to spin (with very low friction) without the removal of a pin.

...FAQ's...continued...

Q: How do I prevent the pennant wire from spinning when I am sailing?

A: Most Etchells store the spinnaker pole on the foredeck in lighter winds. The pole is retained with a piece of shock-cord or line tied from the forestay to the deck. We now also use this shock cord or line to add friction to the "cone" on top of the swivel fitting. This prevents it from inadvertently turning (see picture right). I have found this to be 100% fail-safe in the months I have used the swivel. Very simple and effective.



Q: How do I dis-connect the forestay from the boat when I am going to take the mast down for travelling?

A: For the **Eye-only** fitting, nothing has changed. Simply un-pin the fork/eye connection. For the **complete swivel fitting**, simply unscrew the stud from the bronze fitting below the cone (see pic below). Keep in mind that upon re-stepping the mast, this stud should be re-attached with Loctite or plumber's tape on the thread.



Cost - UK - inclusive of VAT:

Parts only:

Eye only swivel: **£162.00**

Complete swivel: **£186.00**

Supply of wire, swaging and installation services:

Replacement Pennant wire: **add £110.00**

Replacement of Forestay and Pennant wire: **add £147.26**

Supply:

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