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## TOPPER RUDDER BLADES AND DAGGERBOARDS

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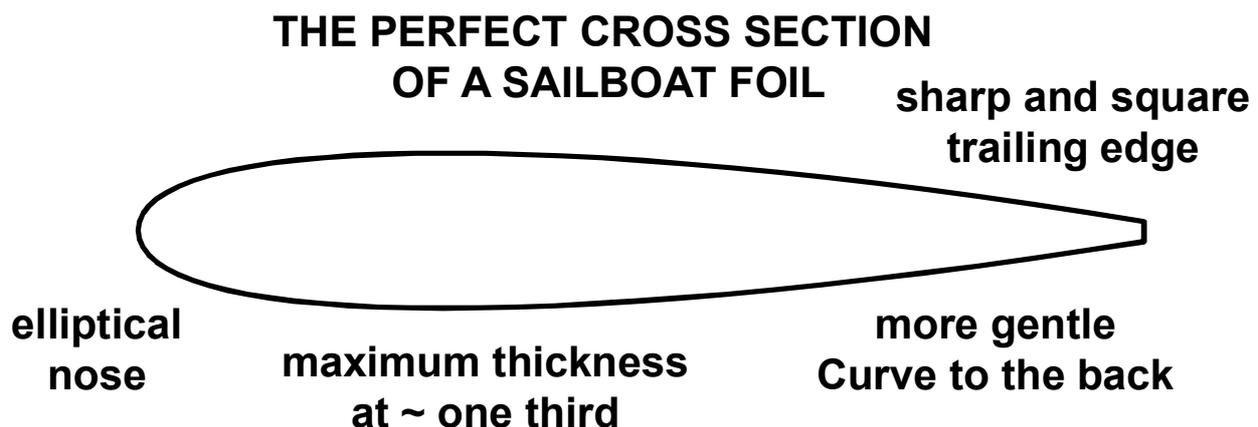
Rudder blades and daggerboards really matter. Badly prepared foils will adversely affect a boat's performance far more than the hull (although it's definitely worth making sure the lip of the transom is also as smooth as possible).

In an ideal world foils should be stiff, light and a perfect aerofoil shape with a nicely shaped elliptical front, an even curve that flattens out towards the back and finishes in a squared off trailing edge perhaps 2mm wide. Topper foils will never achieve that ideal but you can make them far better if you are prepared to put in some effort (well a lot of effort actually).

You are allowed to 'repair' foils and you should spend a lot of time on them:

- Re-produce the shape of the bottom of both foils if they have been damaged. This may include the use of a blade acting as a scrapper, file and rough glasspaper followed by ever decreasing grades of wet and dry paper until it is very smooth.
- Check the front edges are chip free and as elliptical as they were first intended.
- Smooth out any damage on the sides by using a Stanley knife blade as a scraper followed by abrasive paper wrapped around a long flat piece of wood – thick MDF is great. Finish with 1200 grade wet and dry with lots of soapy water to wash away the particles being removed.
- **On no account round off the back edge.** As supplied it is already too rounded which was not the way it was designed to be.
- Fill the dips in the mouldings on the side of each foil with gelcoat or car body filler and smooth down carefully.

This 'perfect' shape is impossible to achieve but at least you know what to aim for! An elliptical front edge getting gradually fatter until a third of the way to the back edge. A gently sloping curve until it exits a very sharp and square back edge (please see the diagram below).



**Both foils are important:**

- The rudder blade is more likely to stall out because it is asked to work through bigger angles when the boat is being steered. A perfect shape diminishes stalling.
- The daggerboard generates lift (like an aeroplane's wing) and really matters when holding your height upwind. Again a poorly prepared foil will stall out and you won't be able to point.