Is it a Finn? Measurement from start to Finn-ish

Measuring a Finn is often seen as a dark art, but like anything it is just a series of steps using predefined measurements and templates. So when the opportunity arose to document a full measurement of a D-Fantastica at the Devoti Sailing factory in Poland, we packed the cameras and headed for the middle of Europe.

In attendance were Jüri Saraskin, Andre Blasse, Roman Teply, Robert Deaves and Marcin Owczarkiewiz.

First things first. The boat needs to be level on a sturdy base. Like any foundations this is crucial to getting the correct numbers out the other end. At the factory, the boat supports are bolted into the concrete floor with various levelling devices to make sure everything starts off on the right foot.

The next stage is to position the baseline using a strongback bar. All measurements are taken from this baseline, so again it needs to be perfectly aligned and levelled. A spirit level can be used, but a laser level introduced a greater degree of accuracy and is much easier to check. The strongback is positioned in line with the transom, so that a vertical plumb line at the bow can be used to determine the exact length of the boat.

The Finn hull is measured in 'stations', which are defined cross-sections of the hull at various points. These need to match the shape of the templates, but first we need to know where they are. A clever device was created and attached to the strongback to give a perpendicular extension from the centreline to the curve of the hull. These are marked on the hull so that when the templates are applied, we can see they are in the right place.

These marks are also used to check the sheer point height. Not only does the hull shape need to match the templates, but also the deck height is measured at these points. All the tolerances are etched onto the templates, so it is easy to see if anything is wrong.

After all the measurement points have been marked on the hull, the strongback can be removed and the templates applied. The set includes bow profile, station 8, 6, 4, 2 and 0, with 0 being the transom. Wedges are used to fix the position of each template to check tolerances (gaps from template to hull) are less than the permitted 10mm. For critical measurements a ruler is also used.

On the hull in question, all tolerances were well within these limitations, only getting close to maximum on the flat bottom sections in the aft sections on the hull. At station 0 the hull shape was checked by eye. The rubbing strake cut outs are smaller than at other stations and prevented the template being placed onto the hull. Subsequently a vote to increase the cut out to the same size as other stations was approved at

Fitting the strongback to create a baseline

Bow support at station 8

Transom support for strongback

Transom support and level strongback

Marking measurement points

Levelling strongback with laser

Marking stations on hull

Marking sheer points

Marking offsets to keel with a ruler

Checking bow profile

Station 8 template

Station 8 sheer points


10mm graduated wedge used to check offsets (must be < 10 mm)


10mm graduated wedge used to check offsets (must be < 10 mm)


Checking sheer point height


Station 8 template


Station 6 template


Checking sheer point height


Station 4 template


Station 4 template


Station 2 template


Flat area on Fantastica at station 2, but still within 10mm tolerance


Station 0 template

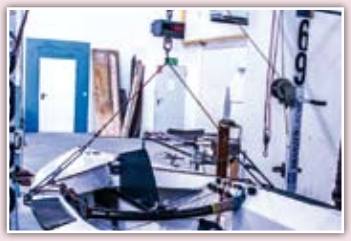

Station 0 showing tumblehome on template


Measuring depth of cockpit at Station 2


Measuring depth of cockpit


Measuring width of cockpit


Measuring position of thwart


Hull is 110.8kg before correctors are added


Swinging on upper set of hooks


Using a tablet to time oscillations


Swing test

the AGM in March 2018.

That completed the process with the boat the wrong way up. With the hull the right way up, measurements were taken for cockpit size and depth, plane of the deck from bow to transom, width and position of the thwart. All were well within tolerances.

The final stage was the Lamboley swing test. Again this is a permanent installation in the workshop and it is a very sturdy piece of kit. The consistency and quality control in the building process was now apparently obvious as on first weighiung, the boat was with a few hundred grams of optimum weight, allowing for almost maximum correctors to be attached to the hull.

Marcin's experience at this process really showed as he knew exactly where to put the correctors and then how to move them around to get optimum numbers. When he was satisfied, the numbers were logged and the corrector weights bogged into the hull.

The boat was now 100 per cent a Finn and was shortly after shipped to Cádiz for use at the European Championships, where its measurement criteria were more or less identical to the other 90 Finns sailing.

Having all the class owned measurement equipment in one place was also a good opportunity to photograph and catalogue all the many items you see used at championships around the world. And there are hundred and hundreds of parts, spares and tools. So the class now has a photographic record of its equipment, which will be available in the Technical section on finnclass.org.

It was an interesting exercise for everyone involved, and clear confirmation that the D-Fantastica really was a real Finn.

Finally, thanks to Roman, Marcin and the staff at Devoti Sailing for their hospitality and assistance.

A time lapse video was made of the measurement process. This can be seen on finnclass.org/finn-tv or use the QR code below