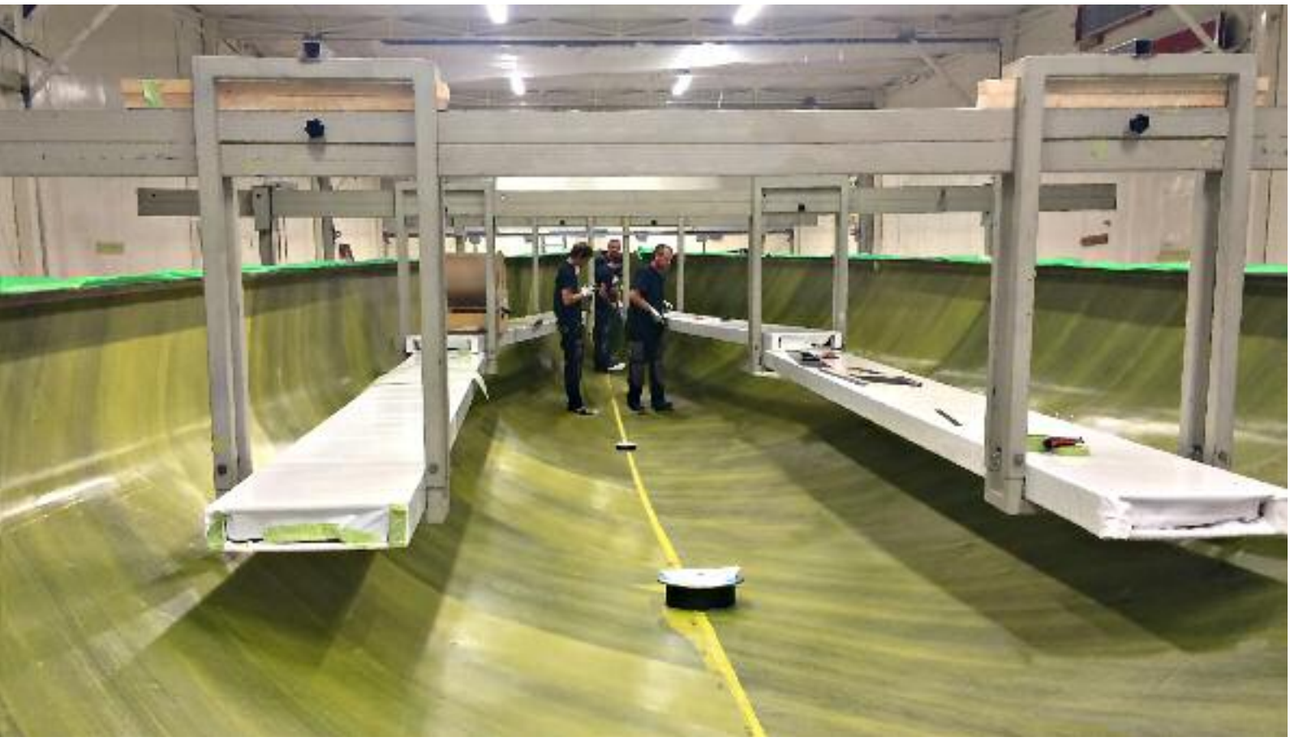

It's twins – well not quite

Two more TP52s hit the water at Persico

Persico were delighted to be commissioned to build two new TP52S for the 2015 season. Having built Rán's new Judel-Vrolijk Maxi 72 the previous year we already had an established and valued relationship with this very professional team. The second TP52, *Gladiator*, is both a testament to the strength of this exciting class as well as the ability of the owners to communicate freely for the good of the class.

While Persico has now built a string of top-level race boats we were particularly pleased to have the opportunity to add this exciting class to our fleet. The benefit of building two boats is two-fold. Firstly there are substantial savings as both teams split the primary tooling cost down the middle. The other major benefit is that the time to produce the second boat is dramatically reduced, the tooling is ready to go and the guys are very familiar with the process. We started laying the outside skin of *Rán* on 18 September, *Gladiator*'s outside skin started just nine weeks later yet she left the yard just three weeks after *Rán*.

Hull lines were delivered in September 2014 with the direct female tooling starting soon afterwards. Here at Persico we strongly believe that any boat will only be as good as the tooling she is built from, with this in mind our in-house milling machines were put to work producing perfect direct milled female tools for the hull, deck and all major components. As is now standard, all hull details are milled in with the hull surface file, including rudder bearing housings, keel socket, all through-hulls and critical reference points.

The deck tool also benefits in the same way, avoiding any secondary bond lines and ensuring perfect geometry and siting of deck gear. The hull shell was built inclusive of the sheer detail as well as the forward portion of the foredeck. This approach ensured this relatively complex geometry was captured and locked in as part of the hull. This method also ensured an extremely accurate hull to deck join. Milling the tools for all these secondary parts not only guarantees geometry but also saves considerable weight, as they are built as 'parts of' the primary structure in pre-preg avoiding messy and heavy wet taping.

We strongly believe that the biggest advances in composite race boat building have been directly associated with tooling and particularly direct milled female tools. We are fortunate in that Persico's core business has been tool and mould making for some 30-40 years. Our milling machines are among the biggest and most technically advanced in the world, but we also understand that having access to the milling machines is only part of the story.

It's easy to mill a perfect surface from the designer's 3D file, but ensuring that the tooling maintains its critical geometry and surface finish throughout the build process is a potential minefield. Having a good grip on the various tooling materials and understanding exactly how they behave at elevated temperatures is absolutely vital. Here at Persico we constantly develop and test both the tooling structures and materials.

For the TP52 tooling we produced direct female hull and deck tools using a combination of timber, glass and carbon fibre. For smaller critical components we will typically use either tooling block, aluminum tooling or a mixture of graphite with carbon sub-structure. Beach ply and or MDF can be used for non-critical components, both materials being comparatively cheap and easily available.

As already mentioned the benefits of high quality tooling are widespread. Direct milling ensures that the boat the designer has drawn is exactly the boat that the client will receive. Weight is drastically reduced as fairing is eliminated. The painter's job now becomes a case of providing a finish that the client is happy with for the minimum possible weight. The days of filling and longboarding are fortunately long gone, this leads onto another major advantage which is that labour costs are in turn significantly reduced.

Another fundamental advancement that we work hard on at Persico is what we call the 'co-design phase', which occurs at the conception of the project. In order to take full advantage of Persico Marine we believe all yachts should be looked at from both a design 'and' build perspective. This process ensures that we make the most of the automation available, be it milling machines, plotter-cutters, presses or our in-house autoclave this approach gives the project the best possible chance of success.

For the two new TP52s we worked closely in conjunction with Tobias Kohl of Judel-Vrolijk, Steve Koopman of SDK Structures, plus project co-ordinator Jason Carrington who worked directly with Mark Somerville, project engineer Edoardo Bianchi and the Persico Marine team, during the initial set-up of the project and throughout the build in the case of *Gladiator*. We also enjoy a good working relationship with Richard Clampett who once again produced all the drawings directly associated with the teams.

While *Rán* and *Gladiator* are very similar boats there are certainly differences. The primary hull and deck tool were shared, although there were some subtle changes to the deck geometry which were achieved with 'plug-ins' to the main tool. The biggest differences were without doubt associated with the onboard systems, it quickly became clear that these boats are very individual with teams having different thoughts on how to set up the myriad of purchase and control systems. Both boat captains, Jan Klingmueller of Rán and Andy Clark of Gladiator owned these areas, bringing real attention to detail.

As with all previous Persico Marine boats we also manufactured both keel fins and bulbs on site. The facility to do this is literally bang next door to the composites department. Producing the keels on site means we maintain control of one of the most critical parts, making managing the quality, schedule and weight that much more achievable. Manufacturing on site also offers the advantage of fitting the keel to the boat in the shed prior to being trucked to the commissioning venue.

We are fortunate at Persico Marine to have a dedicated and talented team, which has gained experience and gone from strength to strength in a relatively short time. Typically we run with several teams on the shop floor, a hull shell team, a deck shell team and a components team. Once the deck is fitted a further team take care of all the vital secondary bonding and fit-out phase. This approach ensures extremely high quality while respecting the always challenging schedule.

As well as taking care of all the primary composites Persico Marine produced all the smaller secondary items, In the case of *Gladiator* we also produced the pulpits/pushpits/stanchions and even the bunks. The guys on the shop floor are supported by a dedicated and enthusiastic team of in-house project engineers and draftsmen, who produce all of the drawings and 3D files associated with producing the tooling, construction drawings and computer files for cutting the materials. Each project is provided with a dedicated project manger who manages the construction from the hull lines arriving through to the boat being shrink-wrapped and loaded on the truck. Persico Marine certainly offers a very modern and efficient facility but our trump card is without doubt our dedicated and talented team.

While the TP52 build programs were undoubtedly compressed, the quality could not be compromised in anyway; both *Rán* and *Gladiator* left our yard well under the weight calc, on schedule and beautifully finished. All of us at Persico Marine are immensely proud of both boats and are looking forward to watching some exciting racing during the coming season. ❑

Technical Brief

The two sistership TP52s – *Rán* and *Gladiator* – designed by Judel-Vrolijk to the 2015 rule underway at Persico. The latest *Ran* (*below left*) was first out the shop closely followed by Tony Langley's new *Gladiator* (*opposite* and *below*). The standard of cleanliness and neatness in the Persico Marine facility reflects the company's background in high precision machine tooling

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