

NEWTech

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30 SECOND
BRIEFING:
HOC YACHTS

Step in the right direction

The new Petestep planing hull claims to improve performance, efficiency, stability and ride without the drawbacks of a conventional stepped hull – we put it to the test



Note how little spray there is and how far aft it exits from the new Petestep hull

Reinventing the deep-vee hull is a bit like trying to reinvent the wheel, but that's exactly what a small Swedish company is claiming to have done – with seemingly miraculous results. The new patented Petestep hull is the brainchild of former powerboat racer and businessman Peter Bjersten.

He realised that the spray rails used on almost every planing hull to increase lift and deflect spray away from the boat were also wasting energy by the very action of throwing the water out sideways. If he could somehow reduce or recapture some of that energy without detracting from the beneficial effects of the spray rails, it would result in a faster, more efficient boat.

His solution was to redirect and reshape the spray rails into a series of deflectors that start at the keel and fan out towards the chines in a V shape that follows the natural waterline of a planing hull and reduces the wetted surface area with a subsequent reduction in drag. These deflectors increase in depth from

almost nothing at the point of the vee to 45mm at the chines and have a slightly concave shape to help push the spray back and down rather than out to the sides. This has the added effect of not just increasing lift and reducing drag but generating forward thrust as well. Petestep estimates that each of these factors add around 5%

to the efficiency of a conventional vee hull, for a total gain of 15%.

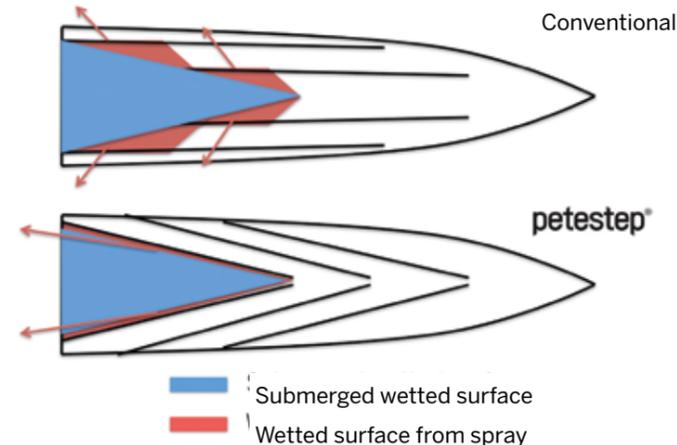
So far so good, but the real surprise is that the design achieves this while simultaneously making for a softer, more stable ride. The reason for this is threefold: first, the shape and size of the deflectors mean there are fewer flat surfaces for the sea to

slam against when compared to conventional spray rails; second, the extra lift means that only the tip of the hull's vee is in the water, leaving more of it to penetrate the wave and disperse the energy in a controlled manner; third, the spray itself is redirected under the hull to provide an additional cushioning effect. Remarkably, this doesn't come at the cost of dynamic stability – quite the opposite. It's actually more stable than a conventional hull shape during turns because of the way the deflectors dig into the water as it leans.

The upshot of all the improvements is that manufacturers can choose to design a boat with a shallower vee for even better efficiency but the same ride quality as before, or a deeper vee for the ultimate rough-weather ride but without the subsequent loss of efficiency and stability. To demonstrate how effective the design is and overcome the scepticism which greeted their initial claims, the same people behind Petestep also launched

their own brand of boat, HOC Yachts. The HOC 33, launched at the Cannes show in September, is the result of their efforts and the first production boat to feature the new Petestep hull.

In this instance, they've gone for quite a deep 23° deadrise angle at the transom. This claims to give the ride quality of a 28° hull with the stability of a 20° one. We took it for a blast at the end of an uncharacteristically breezy day, which had stirred up an even bigger swell than normal in the Baie de Cannes. The 33ft vacuum-infused hull coped superbly with the conditions, powering through the waves to a top speed of 38 knots with the aid of a single 400hp Volvo D6 sterndrive engine. At a more relaxed speed of 28 knots and 2,700rpm,



Submerged wetted surface
Wetted surface from spray



The V-shaped spray rails follow the waterline to reduce drag and deflect spray down and backwards to increase lift and thrust



A softer, more stable ride is another benefit

fuel consumption hovered around 42lph – more than 3nm per gallon.

Impressive as these figures are, it was the way the boat handled the conditions that left the biggest impression. Like a well-honed sports car, it felt taut

MY TAKE I'm as sceptical as anyone when it comes to new developments with countless claimed benefits and no drawbacks but having driven the HOC 33, the only obvious one is the price of €320,000. **Hugo**



and stable, absorbing the waves quietly and efficiently with a firmly damped motion that never slammed. Even when caught out by an unseen wake from a large semi-displacement motor yacht, the HOC 33 launched into the air and landed with a perfectly cushioned and controlled reentry.

Without an identical boat using conventional spray rails to compare it against, it's impossible to say how much of this is down to the design of the Petestep hull and how much is simply the result of a well-built, well-balanced boat, but the fact that we'd happily mention it in the same breath as other great driver's boats like the XO Cruiser and Paragon 31 says it all. In fact, even in these conditions, the HOC 33 proved 2 knots faster and around 0.4mpg more efficient at 28 knots than the Paragon 31 with a 370hp D6 that we tested back in 2010. On this basis alone, we expect to hear a lot more from HOC Yachts and its innovative Petestep hull.

Contact www.petestep.com, www.hocyachts.com



● HOC Yachts, Petestep and Yacht Defined are three separate companies but all are owned by the same group of Swedish business partners

● HOC Yachts is the yard that builds the boats, Petestep is the company behind the new hull design and Yacht Defined developed the widescreen that controls all the boat's systems

● They are separate because Petestep and Yacht Defined both offer patented technologies which they hope will appeal to a wider market than they can reach through HOC Yachts alone

● Although HOC Yachts use both the patented Petestep hull and the Yacht Defined control system, it doesn't have exclusive use of either. The plan is to license the rights to Petestep and Yacht Defined to other

builders who wish to use them

● Yacht Defined is a super-widescreen display with a linked joystick and touch panel that replaces the usual array of switches, dials and monitors with a single display that controls everything from the chartplotter, engine and entertainment system to windscreen wipers, pumps and skin fittings

● Its 4G enabled, so you can even control things like the windlass, bilge pump and heating by remote control using a smartphone or smartwatch

● The name HOC Yachts comes from the Latin phrase 'ad hoc', meaning created for a particular purpose as necessary – in this case to demonstrate the benefits of the Petestep Hull and Yacht Defined system

● HOC Yachts currently build two models – the open 33 (left) and the enclosed Explorer 33 (top)