

SuperYacht

industry

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What Makes a Yacht
'Charter-able'?

BROKERS REVEAL TIPS

Benetti's Lyana

CHIAROSCURO CHARMER

TAIBA TWO POINT OH!
PALUMBO'S TOP NOTCH REFIT

STABILISATION CROWN UP FOR GRABS

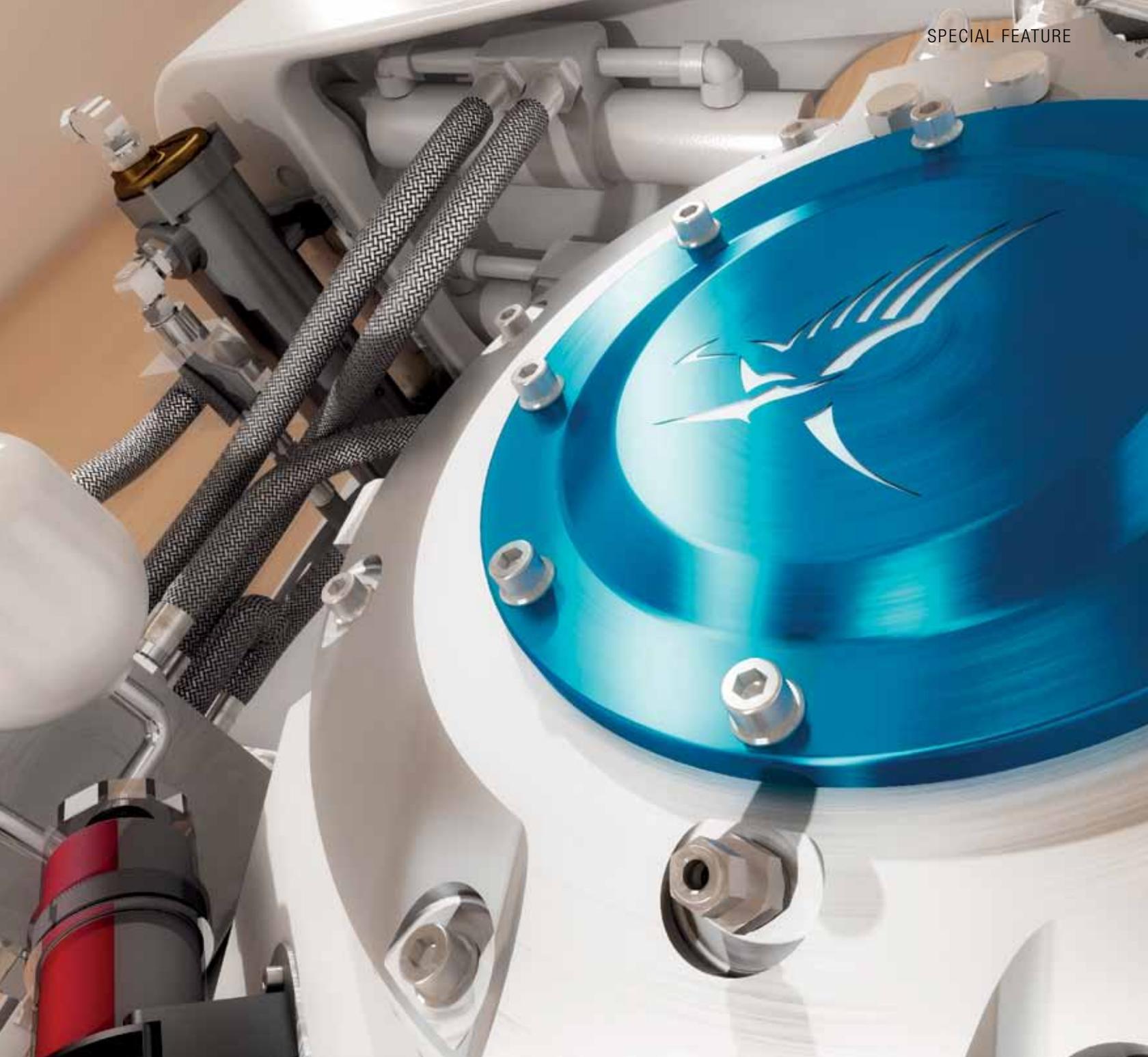
Gyros to Dethrone Fins?

***F**ew owners commission a new build without a stabilisation system in place, especially if the yacht will be up for charter. Since both fins and gyros feature excellent roll reduction Richard Broughton takes a closer look for SYI to find out if fins still represent the most effective option for superyachts or whether recent gyro technology, combined with the new players, will be enough to steal the stabilisation crown.*

Rise of the Fin

Over the last decade, fins became the most used stabilisation method in the superyacht market. Today's fin systems feature electrically or hydraulically operated active fins, able to act on a rolling motion in a fraction of a second. Fins alter their angle of attack depending upon the heel angle and roll motion of the yacht, performing in a similar way to airplane ailerons. While the typical 'active fin' stabiliser will deliver roll attenuation for superyachts on the move – several manufacturers now offer systems that reduce roll motion when the vessel is at rest, something that was previously only possible with large, heavy flume tank systems. However, to provide appropriate roll attenuation





most active fins are large, fixed hull appendages that are not retractable. Fins are also vulnerable to fouling or damage due to impact or entanglement with submerged items, such as nets, cables or passing debris. If struck with enough force, a fin may demand maintenance work and that typically means drydocking.

From the Incumbent Corner

Quantum Marine was the first stabiliser manufacturer to successfully develop a product that provides stabilisation whilst underway and at anchor. First launched in 2000, their Zero Speed stabiliser's latest iterations are amongst the most advanced on the market. During operation, the Zero Speed fins move rapidly

through a wide swing radius, using the acceleration inertia of the fluid around the fin to create the required counter-roll forces, operating in a method akin to the paddle principle. To be effective, Zero Speed fins require a larger surface area, further increasing the potential drag. To combat this, Quantum launched the XT fin system, which features a retractable section to the fin, that 'extends only when needed: at anchor.' When underway, a portion of the fin retracts into its body to reduce drag. This, claims Quantum, makes its XT systems 'well suited for vessels with high service speeds' due to reduced drag.

Fin manufacturer Naiad also addressed drag with their fin system 'Tip Fences', which >>

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Gyroscopes... move in peculiar ways and seem to defy the laws of gravity:

redistributes the strength of the trailing vortices to reduce the induced drag of the fins. Arcturus Marine's Trac system also features a 'winglet' at the tip of the fin, which provides an increase in lift while reducing drag at the same time.

From the Challenger Corner

Gyroscopes can be very perplexing objects. They move in peculiar ways and seem to defy the laws of gravity. These unique properties make them extremely important in anything from a bicycle to the advanced navigation system on the last space shuttle (they had ten on board). Installed in the engine room or in the lower confines of the hull and preferably aft of amidships, modern gyro stabilisers have a flywheel enclosed in a vacuum and can turn several thousand rpm's around its vertical or horizontal spinning axis.

Until recently, the market for gyro stabilisation products could be described as 'developing', with a limited number of players and disappointing adoption by many of the major yards – especially at the larger end of the superyacht market. Not to say gyros have not had any impact. Italy-based yacht yard Azimut boasts Seakeeper gyros in their range of yachts while Ferretti Group's yachts have Mitsubishi gyro stabilisations products. However, Seakeeper's flagship model, the M26000, only suits vessels up to 100 t, which equates roughly to a 30m vessel. Equally, Mitsubishi gyros accommodate vessels only up to 160 t. This means the larger end of the superyacht market hasn't considered gyro stabilisation as a viable option – perhaps until now.

New Player

In November 2012 Australian engineering and propulsion specialists Veem decided to join the party – they launched a range of Veem Gyros engineered specifically for large yachts. Veem's gyros are 'actively controlled vertical axis gyro stabilisers' delivering up to an impressive 95 percent roll motion attenuation while the vessel is 'at anchor, drifting, alongside, loitering, or at transit speed'. Also, Veem's gyros meet a



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crucial criteria – they suit superyachts from 23 m to 60 m and higher.

Veem claims up to a one and a half knot of speed improvement by replacing Zero Speed fins with a gyro, as well as substantial fuel savings at a given transit speed. Although gyros are traditionally considered large, heavy and demanding on power – Veem offers units that are dramatically smaller than previous generation gyros. The company also reveals that a gyro's power demand 'has shrunk significantly over the last decade'. Perhaps the most significant contrast between fin and gyros, however, is that gyros do not require drydocking for regular maintenance or repairs – the cost of which can rise significantly if the yacht is regularly chartered.

Put to the Test

While some gyro stabilisers automatically shut down or should be shut down if the weather becomes too intense, Veem's gyro system works differently. It monitors the system's loads and controls the precession angle and rate. This enables the system to continue operating, even in rough conditions.

Perhaps the biggest perceived flaw with gyros is that their ability to rectify a vessel's rolling motion does not have an impact on the longitudinal trim or healing angle in a tight, high-speed turn or due to wind loads. If a gyro is installed, an operator can limit the trim tab function to adjust only the running trim and heel angle. This leaves the rolling motion reduction to the gyro, which dramatically reduces their power thirst and solves perhaps gyro's biggest weakness.

Weighing the debate, fins will likely not disappear from the superyacht industry overnight. Fins represent a total solution, albeit, one with challenges. Gyro developments do show what is possible right now, and surely have more to come. If Veem's latest developments are anything to go by, this could well be the moment the tide begins to turn and gyros emerge as the preferred option for the next generation of superyachts.

i. www.veemgyro.com

Quantum's fins increase their size by hydraulically extending when more fin area is required to maintain vessel roll control.

