

Dynamic business growth

THE BUSINESS OF COUNTERACTING WAVE MOTION TO STABILISE CRAFT HAS GROWN VIGOROUSLY IN THE RECREATIONAL BOATING IN RECENT YEARS. ONCE THE PRESERVE OF SUPERYACHTS AND LARGER VESSELS, CRUISERS OF 40FT, AND SOMETIMES EVEN SMALLER, ARE NOW INCREASINGLY BEING FITTED WITH STABILISATION SYSTEMS

WORDS: BOB GREENWOOD



▲ Since launching in 2008, Seakeeper has led the stabilisation revolution, shifting the market's view of stability from a luxury, to a must-have item

WHETHER AT REST or planing at full throttle, or indeed anywhere between those two states, more and more boat owners are now glad to have spent money on systems that reduce the risk of motion sickness. Globally, stabilisers are now seen by many recreational boaters as just as important to overall comfort afloat as, for example, air conditioning and all the other comforts and conveniences of home.

And, whereas motion control has long been regarded as given in the superyacht and megayacht sectors, in recent years it has become a must-have in the semi-production, large-

cruiser market too. Some of the 12 companies that responded to *IBI's* request for comment and information for this article are even supplying stabilisation for boats in the 30ft-40ft boat segment.

As the market for boat stabilisers has grown, so too has the technology that supplies, and indeed generates, the growing demand for them. The fundamental principles of the two main mechanical approaches to stabilisation have been long established, but systems are

continually being refined.

Gyroscopic stabilisers have been keeping ships stable since the early 20th century. These are effective at zero speed when boats are at anchor, at moderate speeds and at higher speeds in more even sea states.

Active-fin stabilisation, where external fins below the waterline

continually work to steady the boat when moving through the water, has also been around for several decades

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and is now proving popular among owners of medium-to-large planing cruisers and can also work at low and zero speed. But because they are relatively large through-hull fittings whose fins create some drag and require machinery housings behind them, they are generally considered impractical for cruisers of around 30ft.

More recently, a third technology has been advancing in the recreational cruiser market. This uses the Magnus effect, where rotating cylinders extending from the hull below the waterline create lift as they spin. The same force is also used by skilled tennis players, for example, when they strike the ball to give it topspin to make it dip early and bounce higher.

Magnus-effect stabilisers are considered to be most effective at lower vessel speeds. However, the three technologies are by no means mutually exclusive. Sometimes boat owners will have combinations of them in order to exploit the advantages of each in varying operational and sea conditions.

Naiad Dynamics, a US company whose work in the vessel stabilisation market goes back at least to the 1970s when it was formed to combine Sperry Marine and the UK's Vosper Thornycroft stabiliser businesses, is firmly committed to active fin technology. Over the years the company has applied this expertise extensively across the commercial, naval and yachting sectors. Having sold more than 12,000 stabiliser systems, it is acknowledged as market world leader.

For the yachting market the company offers its proprietary AtRest and AtSpeed ranges of stabilisers which are aimed at craft from 50ft to over 500ft. John Venables, CEO of Naiad Dynamics, claims that his is "the world's first company to successfully supply a fin stabiliser system for active use both when making way and when at rest."

He continues: "Naiad Dynamics (ND) has been routinely supplying

active stabilisers for boats from about 40ft for decades and has successfully fitted stabilisers for boats as small as 35ft.

"While gyroscope stabilisers provide a degree of stabilisation while the boat is at rest, this advantage quickly fades when you need effective stabilisation while cruising, or when the vessel represents a large mass to stabilise," he says. "The lift force of underwater effectors such as fins increases as the square of the vessel's speed, so fins rapidly become more efficient with speed."

He points out that: "Fins are also effective at rest, typically sized to reduce roll motion by 60% or more. In some cases due to the shape of the hull there is limited space to fit fins, so the required total surface area needs to be achieved by using two pair of fins each with smaller area, or gyros. However, boats that have such limited space for fins are typically hard chine planning hulls, so the gyro will not satisfy the full range of stabiliser speeds.

"For efficient stabilisation of these boats," he maintains, "active interceptors or smaller fins sized for at-speed use (when the gyro is less effective) can be fitted in addition to the gyro."

Naiad Dynamics has also had involvement with Magnus-effect stabilisers, through its purchase of KoopNautic, which is now the Naiad Dynamics Dutch office. "This was the first company to introduce Magnus-effect stabilisers in the 1980s," John Venables says. He adds that these "are suitable in situations where stabilization is only needed at very low speeds. A sport fishing yacht that needs stabilisation while trolling could be an example. However, once vessel speed approaches typical motoryacht cruising speeds, the cylinders create far too much drag and must be shut down and retracted."

By contrast, he says, "Fins are shaped as airfoils, hydro-dynamically efficient through a wide range of speeds, and with ND's proportional

JOHN VENABLES | CEO
NAIAD DYNAMICS

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 SEAKEEPER
STABILIZATION

controls they are angled only to the extent required to neutralise the roll.”

Venables explains: “Thus with increasing speed they are self-regulated to minimise drag. The blunt cylindrical shape of Magnus-effect stabilisers and resulting objectionable drag with speed will render them primarily restricted to a slow-speed specialty solution. This is why ND discontinued its line of Magnus effect stabilisers in favour of other more efficient and effective stabilisation solutions.”

Venables observes that “For many decades fin stabilisers were routinely fitted to boats over 100ft, both during construction and, if not originally fitted, as a retrofit. Over time the benefit of active fin stabilisation was recognised for smaller vessels. In the 1980s fin stabilisers were becoming so popular and being retrofitted to so many vessels in the 40ft-80ft range that most OEMs began offering them on their new builds.

“Fin stabilisers are most easily fitted during the build process, but they can also be readily added at any time after delivery of the boat,” he points out. “In fact, years ago several builders began providing the hull foundation (reinforcement structure) for ND fin stabilisers to ease installation after delivery of the boat, because the expectation was that, if not ordered as an option with the new vessel, it would only be a matter of time before the owner decided to add the fin stabiliser. While standard equipment on any yacht of mid-large size, to this day ND continues to supply fin stabilisers for smaller vessels both to the OEM and to owners as a retrofit.”

Indeed, Naiad Dynamics operates its own service organisation in Florida where retrofit installations are routinely performed. “Also increasingly common are upgrades of older fin systems that were originally supplied as AtSpeed stabilisers to add the AtRest capability,” says Venables.

While the great majority of stabiliser systems offered by Naiad and, indeed,

most other stabiliser manufacturers, are fitted to powerboats, there’s also a minority market for them in sailing cruisers too. Bearing in mind that heeling motion is an essential part of the whole sailing experience, one wonders why this would be so. However, Venables says that his company has fitted stabilisers to many sailboats, although he explains that these are not typical active stabiliser applications, since when under sail the vessel predominately experiences static heel, not dynamic roll motion. “Although ND controls measure and integrate roll angle, roll velocity and roll acceleration, using the fins to correct static heel of a sailing vessel underway is not particularly helpful.”

Even so, motorsailers, he says, are better suited to benefit from active stabilisers while motoring, since the vessel will experience dynamic roll. “ND has fitted motor-sailing yachts on several occasions including, for example, Lurssen Yachts’ 93m MS *Eos*. In some cases, ND has provided special sailing features to utilise the fins while sailing, such as angling the fins to assist tacking and other sailing manoeuvres.” He predicts that as the demand for AtRest stabilisation continues, it is likely more sailing vessels will utilise active stabilisation systems.

A company that has adopted a dual technologies approach to boat stabilisation is DMS Holland. For displacement and semi-displacement craft from 12m (39ft) up to 30m (98ft) typically operating in the speed range from 3-12 knots, be they GRP, steel or aluminium-hulled, this Dutch company developed its MagnusMaster rotor stabiliser. In this market segment, says Marcel Vrijnsen, who handles the company’s sales and marketing, the MagnusMaster out-performs all other systems. Moreover, he adds, it is “fully electrical and can be mounted at the stern and is retractable underneath the hull.”

DMS launched MagnusMaster at METSTRADE 2015, yet in the 12 months in which it has been on the

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MARCEL VRIJSEN | MARKETING
DMS HOLLAND

We advise people to buy a gyroscope stabiliser when they are only interested in going fast and lying at anchor

market, Vrijksen says it has proved capable of taking over the existing Dutch market with rotor stabilisers. “We have seen this growth continue as DMS Holland invested in product development for smaller displacement and semi-displacement yachts, with a 2.0 version of which we have sold more than 40 just this year.” Now, he adds, “it’s growing into global exports with projects all across Europe, South America, North America and even New Zealand.”

While the MagnusMaster product has been rapidly gaining market traction, Vrijksen points out that other stabilisation technologies also have their strengths.

“Even at DMS Holland we advise people to buy a gyroscope stabiliser when they are only interested in going very fast and lying at anchor (zero-speed),” he says, “especially when customers approach us with a fast yacht that has a very quick roll period, we advise them to have a gyroscope stabiliser for zero-speed.”

Before it developed the MagnusMaster rotary stabilisation system for mid-size craft, DMS had already gained success in the super- and mega-yacht sector with its AntiRoll retractable fin stabiliser. This system, which is aimed at craft from 35m (114ft) up to 150m (495ft), is designed for zero-speed, low-speed, cruising and high-speed operation. Marcel Vrijksen says: “In offering optimal stability at the full range of speeds, AntiRoll is unique.”

He adds: “Because of its innovative character, DMS Holland has received several requests from Dutch shipyards for engineering and calculating the AntiRoll system for their new designs and refit projects. Because this system is unique it has been included in the design of the DART 65 and 80 projects at the Dutch yard Royal Huisman.

As for the new-build versus retrofit dynamic of stabiliser business, Vrijksen comments that views vary according to companies’ perspectives, but he says that in the wider recreational market

much depends on refit “because of the many yachts that have been sold the last decades without stabilisers.”

He adds: “During the past five years a lot has changed in the market, and because of this market change I do believe that strong growth will become visible in the next couple of years as we continue to talk with shipyards that build yachts from 12m (39ft) up to 30m (98ft) where the customer demands are growing for comfort, safety and ecological systems.

“When I look at the super- and mega-yacht industry, this market mainly fits stabilisers during the build of a new yacht and is currently holding on to conventional systems with zero-speed, but eventually they will see that only AntiRoll can deliver the best performance without having to make any compromises.” Vrijksen further remarks: “AntiRoll is part of the momentum gaining evolution in yacht-building history.”

Sleipner Motor, the Norwegian company which established itself as European brand leader in the mid-to-large production fast cruiser market a few decades ago with its Side Power thrusters, has over the past few years been doing the same with Vector active-fin boat stabilisation system. “Our stabiliser products have strong benefits in all areas and segments of the market, but they are especially beneficial in high-speed vessels,” says Ronny Skauen, the company’s vice president of international operations and product development. “This is the natural first segment where we have grown the most, therefore it is only natural that our initial focus has been on partnering with the larger production builders, which generally make most of the high-speed boats on the market.”

In this sector, Skauen sees his company’s products as one of the top players by sales volume, although he concedes: “It is difficult to have a complete overview of the total market because you have to decide if you want to split the fin stabiliser and gyro ➔

stabiliser market into two independent markets, which they sometimes are, and sometimes not.”

Although small numbers of craft of between 30ft and 40ft have been fitted with active-fin stabilisers, Skauen believes that 45ft is where they start to become a serious proposition for powerboats. He adds, however: “While it is clear that ever smaller boats are now getting stabilisers, we have to attribute most of this development to smaller gyros – at least if you look at the larger volume markets, not counting trawlers that do not require at-anchor stabilisation.”

The reason for this, he says, is that “gyro stabilisers are passive, so they do not need to be actively controlled to react to a roll as does an active stabilisation product.” He explains that it is far more difficult to stabilise a small boat that a larger because they have a shorter roll period times. He adds: “The peak force that you have to apply is comparably higher in smaller boats than in larger ones that have longer roll period times. This means also that the cost of the gear is relatively higher for smaller boats, so that to stabilise a smaller boat is typically quite a lot higher in percentage terms of the total boat cost.”

SMALLER END OF THE MARKET

In spite of this and the physical difficulties that need to be overcome, particularly for smaller boats, Skauen says: “I think stabilisation will continue to grow for a long time to come, not least because we all expect more and more comfort in every aspect of our lives, and stabilisation of your recreational boat is just an absolute game changer for those precious days most of us get on the water.”

Continued growth at the smaller-boat end of the market, he believes, is a matter of “how fast somebody comes up with cost-effective technologies other than gyro stabilisation for these smaller boats because customers will not be totally satisfied with the

limitation in cruising stabilisation that the gyro technology naturally has.”

Even so, Skauen is confident that the market for stabilisation in small boats will expand. He emphasises: “It will be down to approximately 30ft-35ft when new small gyros become available. You also have small and inexpensive ‘old-fashioned’ fin stabilisers that are used in slow trawler-style boats (with relatively long roll period times) down to about 40ft for cruising use only.”

Meanwhile, for planing boats of below 70ft, Skauen maintains that his company’s invention of the Vector fin has done much to expand the mid-size boat market for stabilisation. “Vector fins,” he maintains, “are really the only type offered by any major builder of boats below 70ft.” The reasons for this have to do with design of the fin, which gracefully curves outwards from the hull. As previously mentioned, “mid-size (smaller) boats (compared to the traditional fin stabiliser boats of 80ft-plus) have shorter roll periods, and need a comparatively higher peak force as you can only apply the total force over a shorter periods than on big boats. As these boats have also become lighter in recent years, with traditional fins applying an almost horizontal force, you get some negative side-effects like yaw and sway when you have to apply a high force pulse horizontally, which is then uncomfortable in the boat.”

On the other hand, because Vector fins are shaped to apply a more vertical force, “these side-effects are dramatically reduced to a point where they are not felt anymore,” Skauen states. “Also, you can have smaller fins, with less power consumption that deliver the same stabilisation force as bigger ones. And by creating lift they offset the drag factor, often actually improving fuel efficiency.” All in all, he believes, Vector fins are more designed for modern boats.

As the boating market for stabiliser continues to grow, Skauen observes that for his company: “The

“ I always tell boats owners to get stabilisers now, because they will have to when they want to resell the boat ”

majority of volume is for new boats, but the retrofit market is growing continuously, especially when quite new boats are being re-sold and there are other boats in the same age/size offered with stabilisers. I always tell boat owners to get them now, because they will have to when they want to resell the boat, so they might as well enjoy the fantastic comfort themselves also in the meantime.”

He’s more sceptical, however, about future prospects for Magnus-effect stabilisation. “These stabilisers are made for slower vessels,” Skauen says, and are not really good for fast vessels, so I do not believe they will become mainstream products anytime soon.” That’s also due, he believes, to their relative technical complexity and cost.

Like Sleipner with its Vector stabilisers, Italian company CMC Marine is also convinced that active-fins are the best technology option for the stabilisation of mid- to large yachts across the broad spread of operating conditions. CMC claims to have been the first one of its kind to develop and market a fin stabiliser with an electrical actuator. This gives its Stabilis Electra fin stabiliser performance, size, weight and reduced mechanical complexity advantages over traditional hydraulic systems.

FROM ZERO TO LOW OPERATION

Since CMC Marine obtained a European patent for its Stabilis Electra system and introduced the product in 2012, Alessandro Cappiello, CMC Marine CEO, says: “We have installed our system on board thousands of vessels, collaborating with the world’s most renown shipyards. At the moment CMC Marine retains a more than 50% share of the market in Italy, and we are also doing increasingly well abroad.”

Cappiello points out that Stabilis is designed to provide optimum motion stability in all phases of yacht operation, from zero to low, cruising and sprint speeds. “The new trend is for yachts that can be enjoyed all the time, not only when cruising,” he says.

“Stabilisation at anchor is no longer just a simple option. The idea behind the use of an electrical drive instead of a hydraulic one comes from the aim to offer a system with a higher dynamic and a more accurate response, that can give exceptional performance even when the yacht is at anchor.”

“In terms of the benefit-cost ratio,” Cappiello asserts, “it’s the best system and one which can also ensure better performances.”

Following its introduction of Stabilis Electra, CMC has gone on to develop the stabiliser and its DIA-LOG control system (also patented). These are now installed in yachts from 62ft to 60m. CMC stabilisers are now primarily installed in new-builds, with just 20% of the system being retrofitted into existing yachts, Cappiello adds.

While both Sleipner Motor, with its Vector system, and CMC, with its Stabilis Electra product, are fully committed to active-fin stabilisation for all phases of yacht operation and see limited value in the main alternatives such as gyros and rotors, US boat stabilisation specialist Quantum Marine has a more mixed approach with its product offering. It offers fixed-fin proprietary Zero Speed stabilisers both at-anchor and underway operation as well as its Maglift rotary for both stationary and low-speed ride control.

For active-fin stabilisers, Mark Armstrong, Quantum’s technical sales manager, says that the argument for them is “simply put, excellent performance for both Zero Speed and underway ride control for most applications.

Equally, he also says that there is a strong stabilisation argument for the Magnus effect: “We do see a steady growth pattern when certain requirements are needed, such as low speed where fins and/or gyro systems would not be practical and, in case of emergencies, using the fully retractable system for Zero Speed stability in exceptional circumstances.”

As for business patterns, Armstrong

comments that for Quantum, new-fit and refit are “both important areas of business. We see many retrofits taking place where the owners realize the existing stabilisers are not adequate or that stabilisers were originally installed for underway duty only.”

One company that has gone further than developing Magnus-effect stabilisation in order to extend its operational capabilities is RotorSwing Marine. This Dutch company, founded by Theo Koop, its CEO and developer of its stabiliser products, offers two main alternatives.

Together with Quantum Marine, it holds patents for its electrical RotorSwing Magnus, which was invented for roll damping while cruising at low throttle. Now it is also available with a Zero-speed option that’s designed to give exceptional roll damping at anchor and has a patented Rake function which semi-retracts the rotor cylinder and automatically engages while cruising at higher speeds in order to decrease drag.

The second RotorSwing product is the Wing yacht stabiliser. This ‘wags’ a foil to control both roll and pitch at anchor.

The company targets boats from 10m-35m which are mainly trawler-type vessels. “We think that common fin stabilisers cannot perform satisfactorily in zero-speed mode,” says Theo Koop. To do this, he adds, “our products use the Magnus effect and high aspect ratio retractable fins.”

Gyroscopes, he comments, “are great stabilisers on vessels with a short rolling period, but their precession depends on the speed of rolling. They can be, unfortunately, very uncomfortable in following and quartering seas. At-anchor roll damping is their place in the market.”

Koop predicts that Magnus effect will become more important for typical displacement vessels cruising at low speeds. “An interesting market opens in the ‘fins and pins’ where fast vessels use fins for medium- and high-speed roll damping and where the Magnus

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THEO KOOP | CEO
ROTORSWING MARINE

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pins take over for roll damping at low speed from 3 knots upwards,” he says. “RotorSwing Marine has patented the rake of the rotors where they retract at an angle under the hull, lowering the high resistance of the rotor quite a bit.”

RotorSwing’s motion control products are offered at affordable prices, which drives sales volumes. For boat owners, says Koop, “Simple technology, decreasing prices of control devices and heavy competition are making the selling price interesting.”

For gyroscope stabilisation, arguments for and against have gone on for years and doubtless will continue, but there’s little doubt that of all the systems available to boaters these are the most prolific in the market. In terms of numbers of units sold, there’s one company that is the clear market leader: Seakeeper.

“Since launching in 2008, Seakeeper has led the stabilisation revolution, shifting the market’s view of stability from a luxury item to a must-have item,” says Andrew Semprevivo, vice president of sales and marketing. “Seakeeper stabilisation changes the experience of being on a boat by virtually eliminating boat roll and the seasickness, fatigue, and anxiety that go with it. In the past five years we have seen our shipments increase by about 50% year-over-year, and we now have roughly 4,000 units in operation with over 1,000 of these units in shipping in 2016 alone.”

He continues: “With recent and upcoming product launches, Seakeeper is bringing stabilisation to the mainstream boating community (boats under 50ft) for the first time. We are very excited about our future in this market segment.”

Seakeeper targets a broad range of boating segments, from recreational to military to commercial vessels. Says Semprevivo: “The smallest Seakeeper is optimised for boats between 30ft and 39ft and we’ve stabilised boats up to 220ft by installing multiples of our largest model, which is designed for

boats over 85ft.

“Over the last five years, we have seen stabilisation grow from luxury niche to absolute ‘must-have’ for boats larger than 50ft. Virtually every brand and model built today offers some type of stabilisation as an option, and some select builders are now installing stabilisers as standard equipment.”

Semprevivo adds: “Looking forward, we expect more and more builders will offer stabilisation as part of the standard package, which will continue the high rate of growth we have seen.

“We are also seeing a growing number of consumers looking to modernise their existing boat, which has led to a sharp increase in our refit business. In 2016, refits will account for roughly 25% of our business and we expect this percentage to increase over the next several years.”

He further reveals: “In boats smaller than 50ft, our business has doubled over the past year alone, and we expect that to accelerate even more with our latest Seakeeper 3 launch. I believe that, much like the stabilisation revolution we have seen in the 50ft-70ft market, stabilisation will quickly become a ‘must-have’ item in the 30ft-50ft market as well.”

While there are limitations for gyroscopes in boat stabilisation, as there are for all systems. Andrew Semprevivo says: “We believe in 100% transparency and honesty in our approach. We’re more interested in making sure a Seakeeper is the right fit for a given boat than making a sale. Since customer satisfaction is our top priority, we consider vessel size, speed, roll period, and intended use on every project to make sure the gyro’s performance will meet and exceed a customer’s expectations.”

He adds: “We review every project against the established sizing guidelines aimed at eliminating 70%-90% of roll in the boat’s intended use. We have also developed a mobile app for obtaining sea trial reports that we then share on our website so

clients can see real-world performance on hundreds of different models in varying sea conditions.

“We firmly believe that the smaller and faster the boat, the more necessary the gyro stabilisation. The market trend we have seen is boats under 80ft are most suitable for gyro stabilisation, boats in the 80ft-170ft range can take advantage of either gyros or fins (the determination is usually based on intended use and speed of the vessel), and boats over 170ft are typically more suited to fin stabilisation. Gyro stabilisation in planing hulls is particularly desirable. As Seakeeper stabilisation requires no external appendages, it has virtually no impact on speed or efficiency, a prime consideration for builders and consumers in their decision process.”

The biggest Seakeeper sees in stabilisation, says Semprevivo, is with boats under 50ft. “Due to hull design, speed, power limitations, shorter roll period, and installation location restrictions, gyroscopic stabilisation is the ideal solution for this size range,” he maintains.

Other gyro manufacturers have also realised strong business potential in the recreational boating area. Among them is US-based Gyro Gale. “We do not have a specific target, we cater to all – trawlers, cruisers, high-speed boats, says Zeyad Metwally, vice president of engineering. “If it rolls it should be stabilised.”

Gyro Gale’s market position in the boating industry, he affirms, is “very strong. We are constantly stabilising boats here in the US and abroad.”

Drawing from its comprehensive range of gyroscopic stabilisers and associated equipment, the company is able to tailor its systems to suit the individual requirements for most customers’ boats to provide stabilisation both at rest and underway. To highlight what can be achieved, Zeyad Metwally cites a recent example of a Sunseeker 82. “With the speed of reaction that we’ve achieved with our new

electronic system and our Tab-Fins we are performing above and beyond underway and at rest.” For the Sunseeker the company was able to reduce motion, he says, by “90% underway and 80% at rest in 5ft-6ft seas. No other system can provide these benefits like Gyro Gale,” he asserts, adding: “We also reduced the vessel’s pitching motions – which, of course, is part of the reason why it gained speed.”

Metwally points out that the key to successful stability is stopping the roll before it even begins. “With Gyro Gale being the only air-operated stabiliser system worldwide, we are very well known for how fast our system responds,” he says. “Now we’ve coupled it with even more speed (with an electronic gyro) and power (Tab-Fins). This simple system responds faster than any on the market.”

Business for Gyro Gale, Metwally says, is expanding in both the new-build and retrofit markets. “Both sectors are stabilising as more and more boat owners are being familiarised with stabilisers and are either focused on purchasing new boats with them or actively searching to fit them on.”

Smart Gyro, an Italian producer of gyroscopic stabilisers for boats, has also been refining the performance of this technology. Its R&D effort has been focused on four main aspects, says Carlo Gazerro, CEO, namely control electronics, the braking system around the precession axis, the cooling system, and the flywheel bearings.

This emphasis on product development has helped Smart Gyro to increase its market presence. “The adoption of stabilisers for small boats, sometimes as small as 30ft, will be a growing market for us,” Gazerro says, “but for now we believe that the most important growth for this segment is the American market, where there is a high number of very expensive boats, such as Contender, Boston Whaler and Tiara, which may justify a stabiliser. “Our opinion is that in Europe this still

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small market will remain so for the next 18 months.”

For his company, Gazerro says that “the most interesting applications are stabilisation at rest and underway, especially at low speeds (1-5 knots) where the gyroscopic stabiliser is more effective than the stabilising fins.” These, he says, “are not very efficient with low speeds because they go into stall.”

While most attention focuses on gyro, fin and rotor stabilisation, it’s easy to overlook the fact that for planing craft, trim tabs and interceptors also provide a measure of stability. The tabs have been used probably for as long as there have been planing powerboats, but some producers have been refining them to provide better motion dampening. One of these is Zipwake, a Swedish company.

“Zipwake represents a change in technology for optimising running trim and actively dampening vessel motion at the sea,” says sales manager Göran Fredin. “The Zipwake Dynamic Trim Control Systems are aimed mainly at replacing the technology represented by old conventional and traditional trim tab systems,” he adds.

Here, the company offers its S-series of straight and v-shaped interceptors. These work by substantially raising the pressure under the boat while it’s underway and assist in lifting the boat in planing mode very quickly. At the same time, they automatically compensate for boat heel and heading.

“Increased comfort in manoeuvring, increased performance and safety as well as fuel saving are all arguments that are in focus for our products and future developments,” Göran Fredin says.

To enhance stabilisation the Zipwake system also incorporates a gyroscope. This, says Fredin, is housed in the control panel “and should not be compared with bigger gyros installed in engine rooms.”

The Zipwake interceptor system is designed for boats as small as 18ft, where there would be no space to fit

active-fin stabilisers, but going up to as large as 60ft. “We see ourselves taking the lead in developing, mass-producing and marketing this method of stabilisation at an affordable price,” states Fredin.

For US company Nauticus, which manufactures Smart Tabs that have self-regulating nitrogen gas-filled dampers, the core business is powerboats from 18ft-25ft.

“Nauticus Smart Tabs are the only product of its type that does not require hydraulic or electric controls,” says John deAgro, company president. “The nitrogen gas-filled actuator is regulated by the water pressure and sea conditions and are 100% active as the boat is underway.”

He predicts: “Improved ride, handling, and safe control will always be in demand, especially as technology improves. As manufacturers are pressured to improve fuel economy stabilising devices will become more common.”

Finally, another Swedish company Gecea Euro Trading, also pitches into stabilisation sector with ranges of conventional and technically advanced trim tabs to keep planing boat from 15ft-125ft on the straight and level. Its InstaTrim XP2-series tabs employ single hydraulic cylinders, as opposed to the conventional twin-cylinder tabs to produce the same levelling effect, allowing cost and weight savings.

Jonas Fredriksson, Gecea managing director, observes that while owners of 25-footers “sometimes install ‘at speed’ active stabilisers, it’s usually only at 35ft and above that they begin to install active stabilisation systems.”

It’s evident that, while demand for boat stabilisation continues to grow vigorously, the technical approaches to improving it differ considerably. What’s certain is that no single system perfectly suits every type and size of boat and every mode of operation. All have virtues and shortcomings. Choosing the best for individual applications requires quite a bit of research. **IBI**

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