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## Seakeeper Gyro Stabilization for Trawlers

Written by [Tom Tripp](#) on May 8, 2009 in [Boats](#), [Technology](#)



Seakeeper Gyro Model 7000 Stabilization System

Having made significant inroads to the megayacht and sportfisher markets, [Seakeeper](#) is targeting trawler owners as potential users of its new gyro stabilization system. Most trawlers are stabilized and most of those currently use some type of active fin stabilization. The Seakeeper Gyro Stabilizer uses the momentum of a heavy flywheel spinning in a near vacuum to provide powerful righting forces, without using any external appendages to the boat. A rough analogy for gyro stabilization is the spinning top of child's play — once spinning at a high speed, it resists being disturbed from its upright stance.

The current Seakeeper Gyro unit is the Model 7000, which can stabilize boats up to 60,000 pounds of displacement. For larger boats, such as one new Marlow 72 being readied for delivery, two units can be installed. The Seakeeper gyro is typically installed in an engine room or lazarette, although it can be anywhere on the boat as long as it can be bolted to the major framework of the hull. The company claims a number of advantages for the gyro system:

- Complete anti-roll stabilization at anchor and while low speed cruising
- Safety for crew and guests aboard
- No loss of speed
- No through-hull protrusions or appendages
- Less wear and tear on the hull
- Low maintenance
- Improved fuel efficiency
- Improved resale and market values

Given that most recreational-class fin stabilization systems require the boat to be moving, and water to be flowing over the fins, to be effective, the gyro has an advantage in that it can provide roll stabilization at zero hull speed. There are some fin systems capable of zero-speed stabilization, but they are considerably more expensive and require multiple pairs of fins to be most effective. You can read a more detailed article about fin stabilizers [here on OceanLines](#).



Seakeeper Gyro Installed in Sportfishing Boat

The gyro also can claim a speed advantage since it doesn't require drag-inducing fins on the outside of the hull. The typical speed advantage is about 1 knot, according to Seakeeper. One knot may not sound like much, but if you're running a boat that has a hull speed of 8 or 9 knots, one more is a relatively significant boost. That lack of external appendages also means less chance to snag a rogue line or random flotsam, although some fins employ a cutting surface on the leading edge, much like a line cutter on a helicopter.

The claim of less maintenance is intriguing — there are no thru-hulls to be maintained (other than for cooling water, which could conceivably be taken from a sea chest or other common water source) and no moving parts exposed to the saltwater environment. The flywheel is sealed inside its near-vacuum sphere, along with its bearings and mount so there are no environmental issues to be concerned with. Routine maintenance is limited to a one-year systems self-check while the unit's control software monitors normal operating parameters, such as vacuum, water and bearing temperatures, and both warns of any deviations and will shut down the unit if tolerances are exceeded.

The Seakeeper Gyro does have an electrical power requirement that varies from about 3 kW at startup (spin-up of the rotor), which can take 40 minutes to reach full speed. Stabilization capability becomes initially available after about 20 minutes. After the rotor has reached full speed, the unit will use about 1kW to 1.5kW at steady state, drawing about 9 amps. The estimated life of the unit is 8,000 – 10,000 hours and relates mostly to bearing wear. When a unit reaches that point, a refurbished sphere and bearing assembly can be simply dropped into the existing mounting at much less cost than an original unit.

Seakeeper believes the overall lifetime costs of a gyro stabilization system will equal or better that of an active fin stabilization system. Seakeeper believes the initial installation is simpler — simply bolt the unit to the stringer bed and feed it electricity and cooling water. The MSRP for the Model 7000 is \$79,000 and the unit is available from dealers around the world, many of whom have significant sales underway in the current economic climate.

Seakeeper is close to announcing the availability of a much larger unit — larger in terms of stabilization capability, but in size only about 1.4 times bigger in dimension. The new Model 21000 will, naturally, be suited for vessels up to three times the displacement of the 60,000-pound maximum displacement of the Model 7000. The new unit will stabilize yachts up to 180,000 pounds of displacement and will have an MSRP of somewhere around \$180,000 – \$190,000. The new model will weigh about twice the original, coming in at about 2,000 pounds total weight, although it will use only about 15% more power at steady state than the Model 7000.

Boaters interested in a gyro stabilization system from Seakeeper should talk to their boat builders about a Seakeeper gyro instead of fin stabilization. The units can easily be

retrofitted to existing boats and a growing number of builders are responding to customer requests for the gyro units in new builds. Several Ocean Alexander yachts have been delivered with Seakeeper units, as well as the Marlow boat mentioned above. In the meantime, talk to a local dealer and see if you can get a ride on a Seakeeper Gyro-equipped boat. You will be pleasantly surprised. The [Seakeeper website](#), recently redesigned, has a nice collection of technical documents and illustrations, all available in pdf file form.

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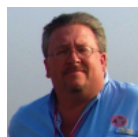
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## About the Author

About the Author: Tom Tripp is the owner of OceanLines LLC, the publisher of OceanLines and founder of Marine Science Today. He is an award-winning marine journalist, science writer and long-time public communications specialist. His PR career and much of his writing stems from the fact that he loves to explain stuff. It all began when he and his brother Mark threw all of Mom's tomatoes at the back wall of the house. . . [More from this author](#).

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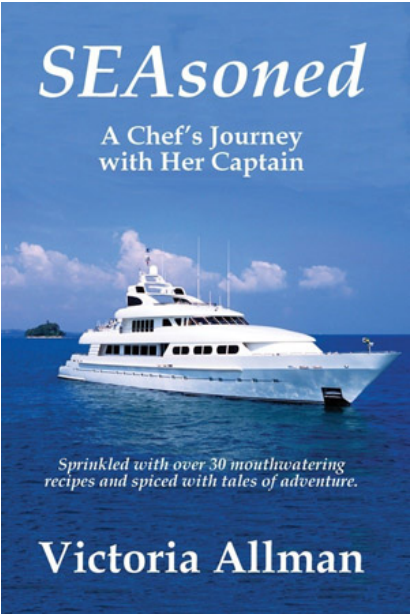
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