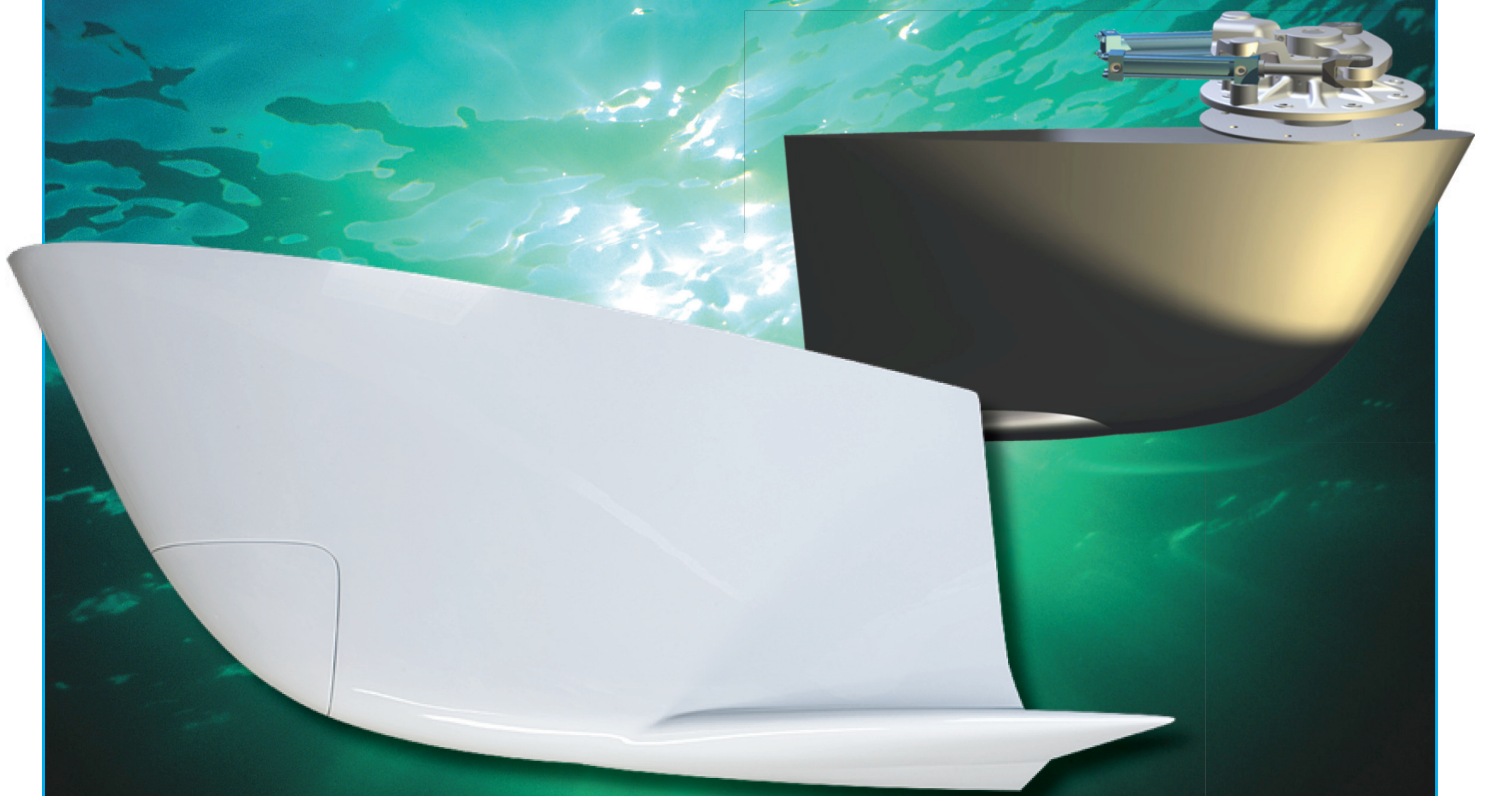




SIDE-POWER
Stabilizer Systems

*Comfort at
AnySpeed!*



Fin stabilizers
by Side-Power





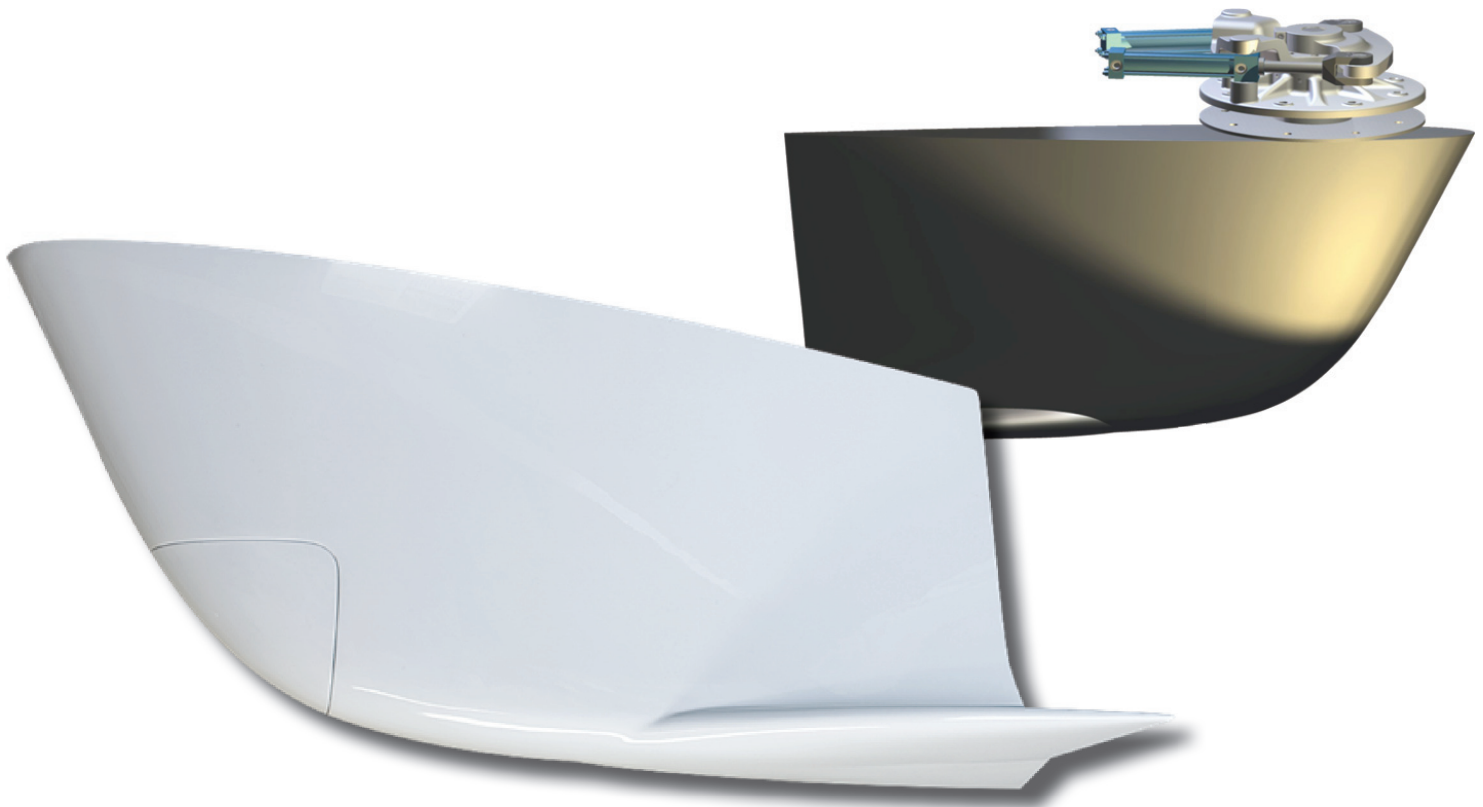
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What do stabilizers do?

Stabilizer systems have been around for a long time, but typically only used on larger passenger ships and super yachts. However, the dramatically increased comfort and usability of any boat have made owners of also smaller leisure vessels wish for this.

By reducing the uncomfortable rolling motion of the boat up to 95% you get a lot of advantages:

- *Increased comfort on board*
 - More use of the boat as you can go out in more weather conditions
 - Less wear and tear of the boat as you do not have to always head into or away from larger waves to avoid people onboard becoming seasick by the uncomfortable rolling motion
- *Less overall fuel consumption*
 - While adding fins (or other types) basically will increase the fuel consumption a little at the same speed, our claim is that the overall fuel consumption will be reduced
 - You can take the direct route to where you wish to go even in rough conditions
 - You can go at a lower speed with the waves from the side while still being comfortable (modern cruisers have less roll at higher speeds, thereby people often drive them hard to avoid the rolling)



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Research & Development

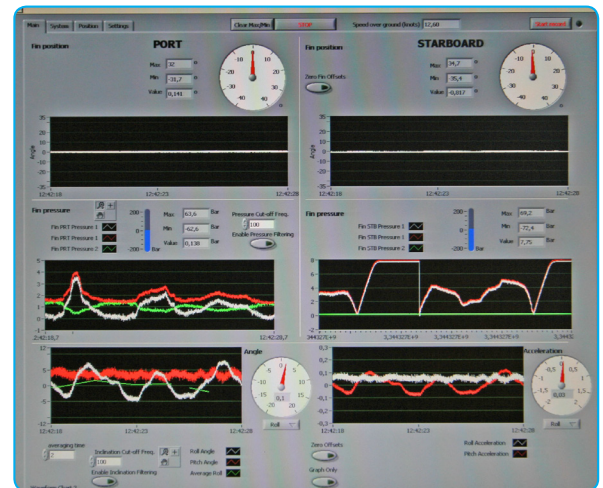
In our focus to develop the best products for the marine market, we have in 2009 made huge investments to become even better, especially in going further in integrating systems as well as making systems for larger yachts and commercial applications.

To ensure the best possible quality in product development, we have built a dedicated test boat :

- 58 ft – twin 800hp engines – top speed 37 knots.
- Full sensor package and logging computer for scientific data collection and analysis.

We have worked on the stabilizer project for more than two years, and have had working products in our test boat for 9 months.

During this period, we have taken the time to learn about existing solutions and products to have the best possible background to design a even better product.



Key design points we ended up with was:

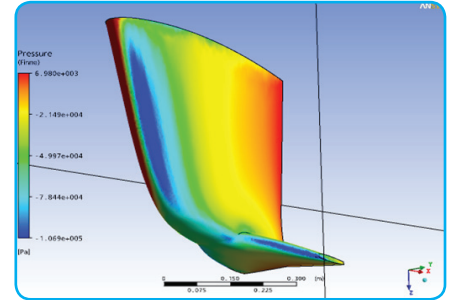
- The importance of low drag
- Compact installation measurements
- Easy installation and set up procedures for the boat
- Sturdy and reliable construction of actuator assembly
- Controller intelligence, the most important difference between brands



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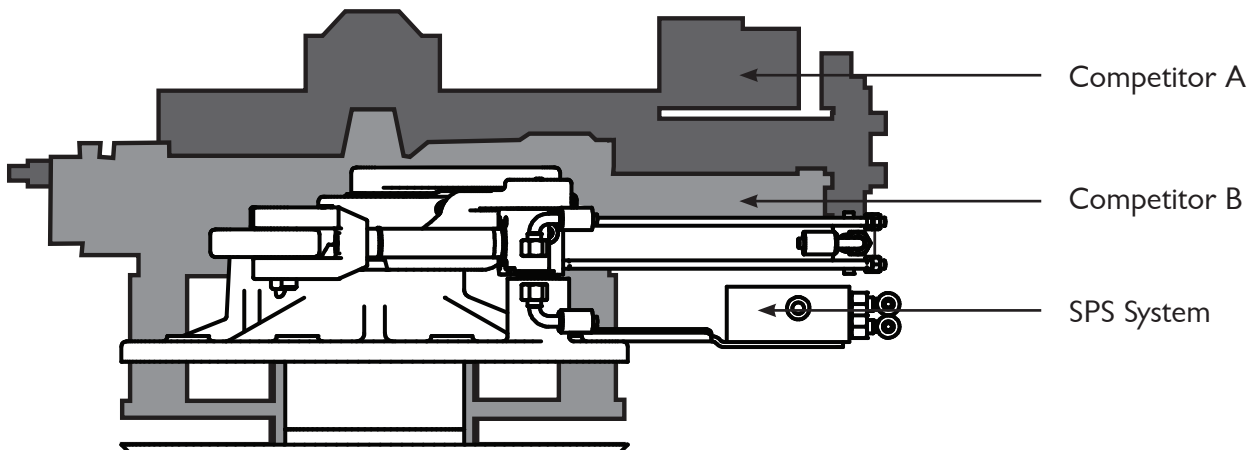
The importance of low drag

- Fin design achieved with advanced hydrodynamic software.
- 20% less resistance than others.
- All fins are prepared for “Any Speed” function – 2:1 size ratio.



Compact installation measurements

- The height inside the boat is a key factor to allow for installation in modern boats. SPS is typically 25% to 75% lower than others.
- Dual cylinders provide
 - balanced load unlike single cylinder solutions.
 - less bearing load, thereby allowing for lower shaft bearing assembly.
- Bearing and actuator design done with modern structural analysis systems ensures a safe, efficient and compact system.
- No additional centre lock, this is automatic in the standard hydraulic system – very safe due to the hydraulics having extreme safety limits – actually stronger than the shaft.
- Extensive work in structural analysis tools to make the parts as compact as possible while ensuring a very high degree of reliability.



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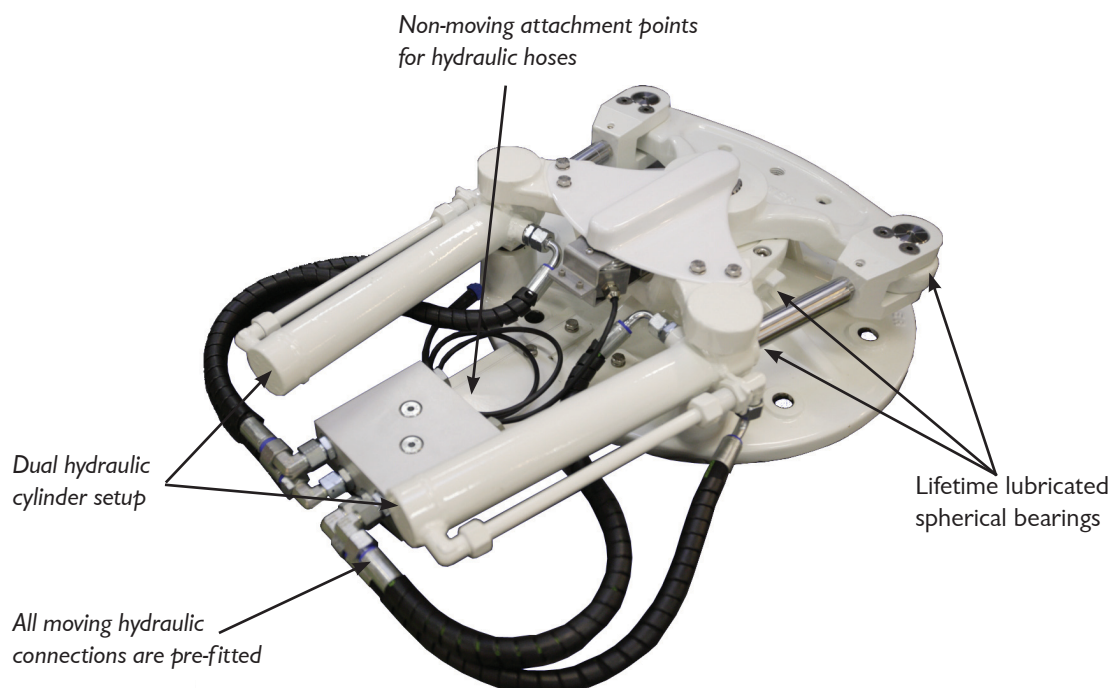
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Easy installation and set up procedures

- Tooling for easy hull preparation.
- Internal hydraulic connections on actuators are pre-fitted, the installer only fits non-moving hoses/pipes. Easier and safer.
- No complex adjustments required to set up controller with lots of factors, these are set automatically on first sea-trial of the boat.

Sturdy and reliable construction

- The dual cylinder setup ensures that fins have the same power available in both directions as well as less load on all mechanical parts.
- Bearing and actuator design done with modern structural analysis systems ensures a safe, efficient and compact system.
- No additional centre lock, this is automatic in the standard hydraulic system – very safe due to the hydraulics having extreme safety limits – actually stronger than the shaft.
- The fins are made in “one shot” in vacuum injected vinylester over pre-shaped core material with steel structure to secure shaft – with specially designed rowing and math layers. Most others are made in two halves and glued together.
- Purpose-designed dual shaft sealing - superior to standard Simmer Ring sealing.
- Lifetime lubricated SKF bearings.



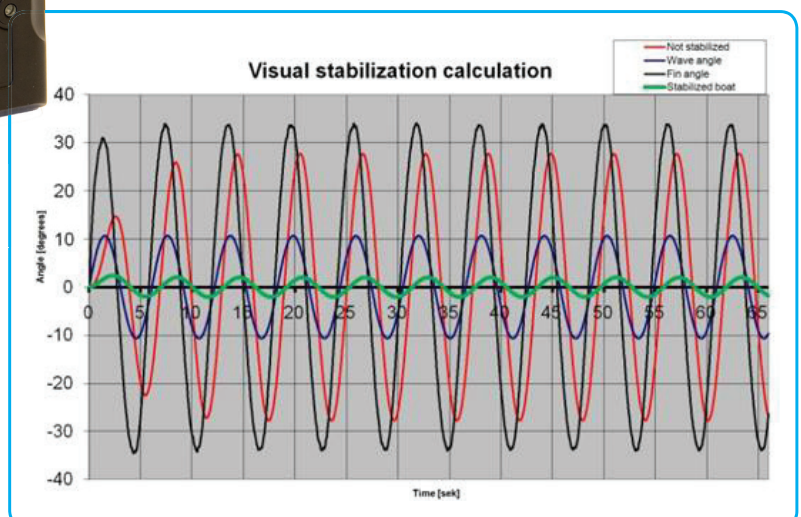
CONFIDENCE BY CONTROL



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Controller intelligence, the most important difference between brands

- Electronics designed in 2009 are obviously more advanced and effective than 10 year old controllers.
- We have invested a substantial amount in developing the best control software possible, cooperating with leading companies in control technologies.
- Self adjusting – predictive algorithms – also “Any Speed” functions for at-anchor stabilization,
- Prepared for 4 fins or fins + other stabilizing mechanics.
- Continuous monitoring of fins actual “work” by pressure sensors on fins (unique at this size level), which provides additional feedback for the control system as well as being an internal system control.
- Easy upgrade of software ensures future compatibility and improvements.
- Reverse gear position input, but also other sensors to safeguard that fins are centred and locked immediately if the boat is starting to move backwards.
- GPS speed input (no shaft sensor) helps control algorithms do the best possible job.
- Easy upgrade of software ensures future compatibility and improvements
- S-link integrated common intelligence with thruster systems on main hydraulics



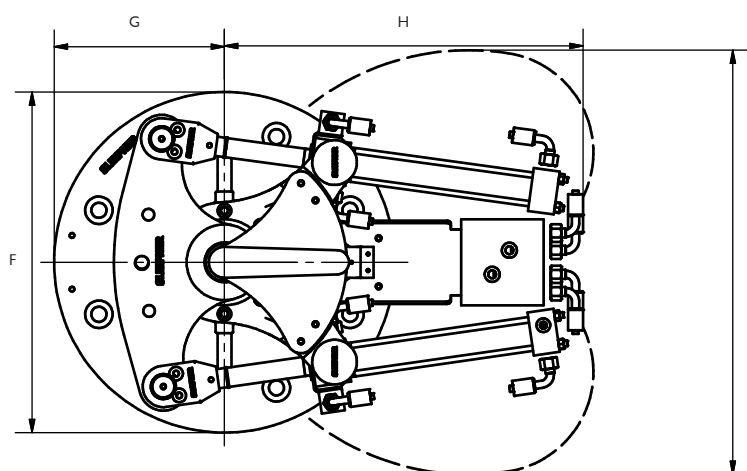
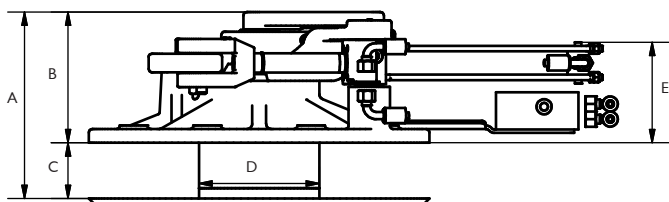
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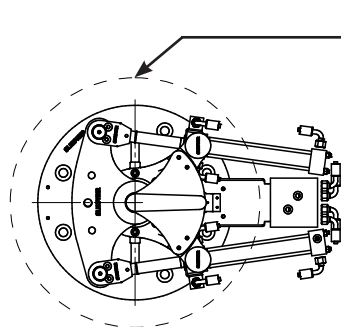
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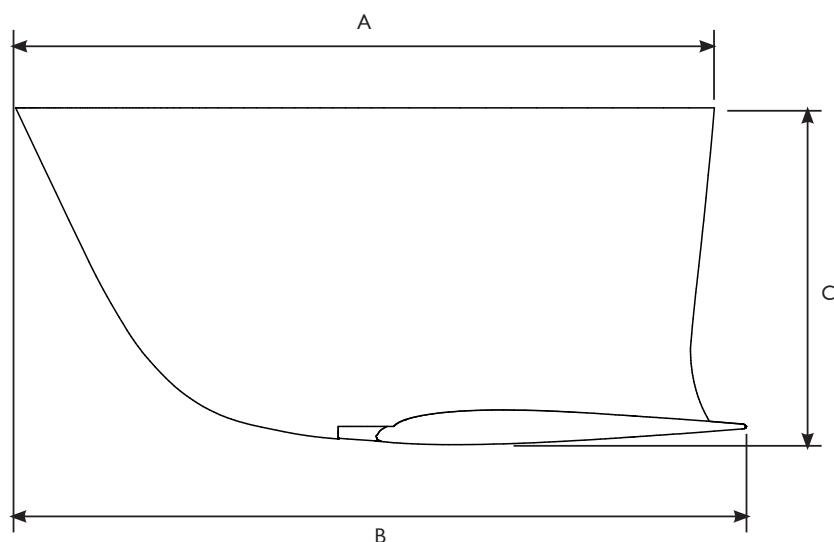
Measurements



	65mm shaft	90mm shaft
A (mm):	260	340
B (mm):	190	250
C (mm):	70	90
D (mm):	175	235
E (mm):	146	171
F (mm):	495	600
G (mm):	247,5	300
H (mm):	521	550
I (mm):	750	800



Fin actuator assembly may be installed in any convenient radial 360° position in the hull by steps of 6.9° (65mm shaft) or 4.4° (90mm shaft)



Fins for 65mm shaft diameter:

	A (mm)	B (mm)	C (mm)
0.43m²	1000	1030	480
0.70m²	1336	1397	642
1.0m²	1500	1596	725

Fins for 90mm shaft diameter:

	A (mm)	B (mm)	C (mm)
1.3m²	1725	1801	831
1.6m²	1875	1956	902
2m²	2300	2407	1111



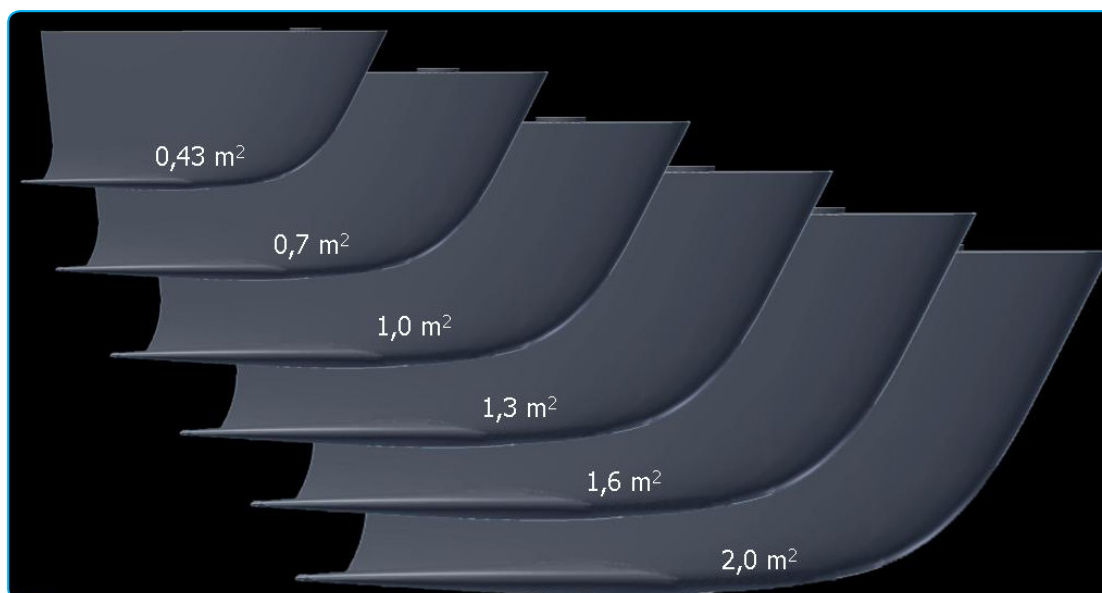
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Launch schedule

First launch will consist of two sizes of actuator/bearings; 65mm shaft and 90mm shaft.

- **0,4m², 0,7m² and 1,0m² on 65mm shaft actuator:**
available from **January 2010**
- **2,0 m² on 90mm shaft actuators**
available from **February 2010**
- **1,3m² and 1,6m² :**
available from **April 2010**



Smaller size fins will be available Autumn - late 2010.



Sleipner Motor AS

P.O. Box 519 • N-1612 Fredrikstad, Norway
Tel: +47 69 30 00 60 • Fax: +47 69 30 00 70

www.side-power.com

