

Yacht Stability Control

From ZeroSpeed to FullSpeed

“Innovation distinguishes between a leader and a follower”

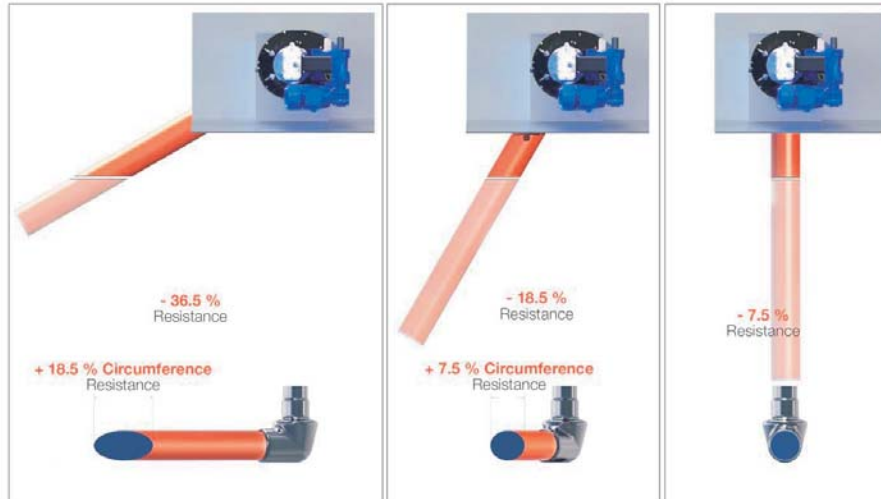
Steve Jobs



ROTORSWING
Yacht Stability Control

We can't control the seas...we can control Yacht Stability

RAKE rotates the Rotors towards the retracted position to **decrease drag**



Direction of Travel →



Magnus Rotor Stabilization

DUAL PURPOSE - up to 95% roll reduction at anchor, cruising and full speed

RETRACTABLE - minimal drag results in maximum fuel efficiency

ELECTRIC - low maintenance, quiet, lightweight & compact internal components

RotorSwing Marine BV



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AT ZEROSPEED
CRUISESPEED
FULLSPEED

THE MAGNUS ROTOR

RotorSwing proudly introduces the next generation of **Yacht Roll Damping**

At the push of a button the **Magnus Rotor** transforms an unstable Yacht into a **stable and comfortable platform** from which owners and guests can enjoy the seas regardless of conditions – either **when cruising or at anchor**.



Designed to overcome the limitations and drawbacks of conventional gyro or fin type systems – the **Magnus Rotor** ensures superior control over Yacht stability - **AtZeroSpeed**, **AtCruiseSpeed** and **AtFullSpeed**.

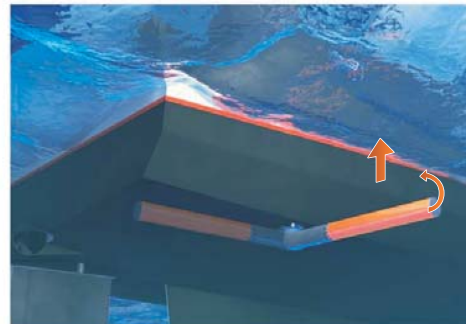
Remarkable roll reduction performance from 0 knots up to 25 knots with particular emphasis on slow speed stabilization, which is advantageous in uncomfortable sea conditions where slower cruise speeds are preferable.

The system is **retracted** when not in use **eliminating** unnecessary **drag** and **improving** fuel efficiency. The brushless **electric motors** ensure **quiet** long term **maintenance free** operation and the lightweight compact internal components mean **retrofit** or placement within a **new build** project is easily achievable.

The science behind the magic...the Magnus principle

When a **cylinder** is spun at high speed in water, it creates a **lift force** which, when applied correctly, can be used to counteract a vessel's roll motion.

The carbon fibre tube of the **Magnus Rotor** is rotated in a clockwise or counter clockwise direction depending on the direction of force required. When combined with the **large moment arm** of the tubes outside of the vessel's beam, the result is **outstanding** roll reduction **performance**.



The rotors require a much slower flow rate of water over them than fins meaning they are **highly effective** at slower cruising speeds which is where uncomfortable roll motion is typically at its worst.

Up to 95% Roll Damping From 0 to 25 Knots

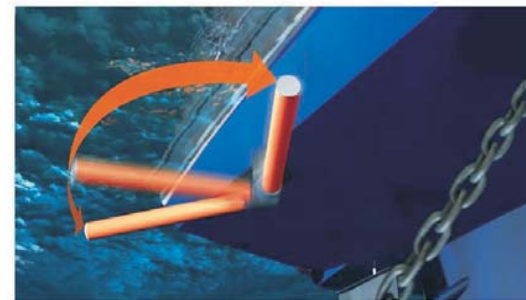
Stabilisation AtCruiseSpeed & AtFullSpeed

When activated underway, the units **deploy** to a fixed position between a 20° and 90° angle to the hull depending on vessel speed. This **Rake** positioning feature means the system can operate from **3 to 25 knots** with minimal drag and maximum roll reduction capability.



Whether a vessel is at loitering speeds of 4 knots, gently cruising between 8 to 16 knots or at higher speeds on planing hulls, the **Magnus Rotor** system ensures the highest level of roll reduction control at all times. Due to the intuitive algorithms of the control and highly sensitive **3Term+** roll sensor the performance is consistently high in **beam**, **following** or **quartering** wave patterns.

Stabilisation AtZeroSpeed



During **ZeroSpeed™** mode, the Rotors continuously spin whilst the arms are swung back and forth to create flow. As the Rotors are placed almost horizontally to the waterline, **95%** of the lift force produced by each Rotor is applied to **counter** the vessel's **roll motion**. The result is a **stable and comfortable** yacht whilst owner and guests **enjoy** drinks and lunch at their chosen anchorage without being hindered by **changeable seas** and **wash** from other vessels.

Where can the Rotors be positioned on the hull?

The unique **installation advantage** of the Rotors is that they can be placed anywhere on the hull due to the fact they do not affect steering. This means they can be placed where **internal space** is available for the lightweight **compact** hull units. This makes **retrofitting** the system to an existing yacht much more achievable than a gyro or fin type system.