SMART, COMPACT DESIGN
EASY INSTALLATION
HORIZONTAL AXIS ROTATION
LESS STRESS ON THE BEARINGS
FAST SPool UP TO RATED RPM
95% ROLL REDUCTION UP TO 95%
LOW NOISE
REDUCED MAINTENANCE
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THE STABILITY OF A BOAT DEPENDS ON DIFFERENT ELEMENTS LIKE HULL SHAPE, SIZE, MASSES’ DISTRIBUTION, DEVICE’S ARRANGEMENT AND SEA CONDITIONS.

ROLL & STABILITY

The MC² series of gyro stabilizer overturns the common idea of this anti-roll device, creating a solid, silent and safe product.

In order to understand this, let’s just take a step back.

What exactly is rolling?

Rolling motion is the oscillation that occurs around a boat’s longitudinal axis. Since boats’ length is bigger than their width, lateral oscillations are more perceived.

“Lateral rolling is actually the main cause of seasickness, especially when it happens in slight sea conditions.”

Rolling motion has been subjected to the first reduction studies because of its potential damage, which could compromise boat’s stability. In fact, it is the most dangerous oscillation.

Before talking about stability, we should learn how the thrust’s centre moves, especially during the rolling motion.

Throughout the rolling motion, the hull turns and the centre of thrust : \( C \) constantly moves. Crossing the buoyancy force’s line of action with the longitudinal plane of symmetry, we can find a new point called metacentre \( (M) \).

The distance between centre of gravity \( G \) and metacentre \( (M) \) is called metacentric height \( (GM) \), which is very important for a boat’s stability.

This is the core of a boat’s stability concept:

In order to stabilize a boat, its centre of gravity must be under the metacentre. In fact, the higher is its metacentric height, the more stable is the boat.

Some basic definitions:

CENTRE OF GRAVITY
point of application of the resultant torque of all the boat’s weight and cargo.

CENTRE OF THRUST (CENTRE OF HULL)
the midpoint where is applied the resultant of all the forces that water thrust applies on the hull.

METACENTRE the point of intersection of thrust force’s projection and the vertical line that pass through the initial centre of buoyancy and the centre of gravity.
When a boat is rolling, there is little to be done. Solution? Gyro stabilizer.

The stabilizer, in order to control rolling movement, uses the gyroscopic concept (applicable also at the spinning top): the ability of a rotating body to maintain a steady position around its axis of rotation.

Gyroscope with quick rotation goes against changes of direction, acting on the axis. Rolling movement of the boat is drastically reduced both during travelling and at anchor, thanks to the stabilizer.

Gyro stabilizer we have seen up to now have a mass that turns around a vertical axis, and they are installed in a watertight and water cooled space.

Masses have to turn at 10/12 thousand rpm, with a consequent high heating that requires forced cooling. This implies the need of keeping the devices running, even for many hours after mooring, in order to wait, once turned off, for gyroscope inertia’s depletion.

QUICK MC² GYRO STABILIZERS
OVERTURN THIS CONCEPT
First big revolution is the mass of MC², which turns vertically rather than horizontally. As you can tell, this is a huge difference. As the mass turn vertically, its weight is supported by two bearings instead of one, as in the case of horizontal models. This provides two great benefits, which lie at the very heart of innovation:

A. The efforts are reduced by half, so that the mass can be enhanced and the number of turns can be reduced, in favour of engine timing.

B. Heat generation is drastically reduced, so that water cooling and vacuum processing are not required for the system anymore.

All these benefits result in an efficient and easy product, since it’s not water cooled and it doesn’t need vacuum process.

It just needs to be anchored and powered to be ready to use: this is why the product is perfect also for refitting process.
because of the bearings that work axially with the flywheel

They are NOT under strain and NOT overheated

Weight is properly distributed

LESS number of turns
FEWER efforts
Faster stabilizing

NO WATER COOLING SYSTEM

HORIZONTAL ROTATION

EASY FITTING TROUBLE-FREE REFIT

MC2 is just tightly bolted to the boat’s body.

Free choice of placement in the available area

Specific technical data: refer to the MC² installation and use manual
REMOTE CONTROL PANEL

MC² stabilizer can be managed by the use of a new LCD control panel (even in multi position) available in 4” and 5”.

DRIVER AC CONTROL

Gyro managing and control unit

The driver contains stabilizer’s features.

It has a software that manages the specific settings for each model

- SPEED (num. of turns of the flywheel)
- POWER (motor type)
- PRECESSION CONTROL

GYRO STABILIZER

Quick presents 9 models of stabilizers MC², drawn up to boat from 7 to 40 metres of length and from 5 to 200 tons of weight.
Protective cover
Fiberglass

Hydraulic system on the upper plaque
System active control of precession

Upper rotating fifth wheel
Allows the rotational lateral movement

Motor
Empowers the principal muscle of the machine

Lateral backups
As well as for giving more stability to gyroscope, they are the casing of the nervous system: connecting cables

Rotating flywheel
our principal muscle. It fights sea waves and enables rolling reduction, reaching 6000 rpm

Lower rotating fifth wheel
Allows the rotational lateral movement

Protective cover
Simple and functional aluminium cover, with a sober and minimal design

Base plaque
Vibration damping system

Upper rotating fifth wheel
Allows the rotational lateral movement
## SERIES MC²

### MC² X7
- **Rated speed** (1): 6000 RPM
- **Angular momentum** (2): 2174 N·m·s
- **Output torque** (3): 6678 N·m

Dimensions:
- 590 x 480 x 480 mm
- (23 \( \frac{7}{32} \)) x (18 \( \frac{27}{64} \)) x (18 \( \frac{27}{64} \))
- Weight: 300 kg (661.4 lb)

### MC² X19
- **Rated speed** (1): 5300 RPM
- **Angular momentum** (2): 6090 N·m·s
- **Output torque** (3): 18700 N·m

Dimensions:
- 670 x 610 x 610 mm
- (26 \( \frac{3}{8} \)) x (24 \( \frac{1}{64} \)) x (24 \( \frac{1}{64} \))
- Weight: 553 kg (1219 lb)

### MC² X16
- **Rated speed** (1): 5000 RPM
- **Angular momentum** (2): 5325 N·m·s
- **Output torque** (3): 16350 N·m

Dimensions:
- 670 x 610 x 610 mm
- (26 \( \frac{3}{8} \)) x (24 \( \frac{1}{64} \)) x (24 \( \frac{1}{64} \))
- Weight: 500 kg (1102 lb)

### MC² X40
- **Rated speed** (1): 3500 RPM
- **Angular momentum** (2): 13132 N·m·s
- **Output torque** (3): 40324 N·m

Dimensions:
- 1020 x 950 x 950 mm
- (40 \( \frac{5}{32} \)) x (37 \( \frac{13}{32} \)) x (37 \( \frac{13}{32} \))
- Weight: 1250 kg (2755 lb)

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(1) Rated speed: flywheel speed (RPM: Revolutions per minute).
(2) Angular momentum: it quantifies the torque that is necessary to balance the system in the time unit (Newtons meter second).
(3) Output torque: torque generated by the rotor at rated speed (Newtons per meter).
ALL MODELS:
FREQUENCY 50 - 60 Hz • NOISE EMISSION >70 db • AMBIENT TEMPERATURE RANGE FROM -10°C TO +55°C

MC² X56
Rated speed 3500 RPM
Angular momentum 18000 N·m·s
Output torque 5582 N·m
Dimensions: 1020 x 950 x 950 mm
(40 \(\frac{5}{32}\)) x (37 \(\frac{13}{32}\)) x (37 \(\frac{13}{32}\))
Weight 1400 kg (3086 lb)

MC² X25
Rated speed 4000 RPM
Angular momentum 8293 N·m·s
Output torque 25464 N·m
Dimensions: 840 x 800 x 800 mm
(33 \(\frac{1}{64}\)) x (31 \(\frac{1}{2}\)) x (31 \(\frac{1}{2}\))
Weight 880 kg (1940 lb)

MC² X30
Rated speed 4500 RPM
Angular momentum 9878 N·m·s
Output torque 30333 N·m
Dimensions: 840 x 800 x 800 mm
(33 \(\frac{1}{64}\)) x (31 \(\frac{1}{2}\)) x (31 \(\frac{1}{2}\))
Weight 965 kg (2127 lb)

MC² X5
Rated speed 6000 RPM
Angular momentum 1811 N·m·s
Output torque 5560 N·m
Dimensions: 590 x 480 x 480 mm
(23 \(\frac{7}{32}\)) x (18 \(\frac{3}{8}\)) x (18 \(\frac{3}{8}\))
Weight 300 kg (661.4 lb)

MC² X13
Rated speed 4800 RPM
Angular momentum 4185 N·m·s
Output torque 12850 N·m
Dimensions 670 x 610 x 610 mm
(26 \(\frac{3}{8}\)) x (24 \(\frac{1}{64}\)) x (24 \(\frac{1}{64}\))
Weight 490 kg (1080 lb)
ROLLING REDUCTION

Algorithm that calculates wave periods with active/inactive stabilizing. Wave period can be calculated by height or width.

COMFORT IMPROVEMENT

It calculates the difference between every momentum of both conditions. In doing so, we can find the improvement percentage of on-board comfort.

EXPECTED ROLLING REDUCTION

[Diagram showing expected rolling reduction and comfort improvement]
POWER ABSORPTION

STABILIZERS ABSORPTION

<table>
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<th>MODELS</th>
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<th>X7</th>
<th>X13</th>
<th>X16</th>
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<td>12850</td>
<td>16350</td>
<td>18700</td>
<td>25464</td>
<td>30333</td>
<td>40324</td>
<td>55882</td>
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<tr>
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<td>16</td>
<td>30</td>
<td>32</td>
<td>35</td>
<td>25</td>
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</tbody>
</table>
MC² stabilizer, like any other machine, needs maintenance in order to provide a well-functioning product.

The control panel notifies the required periodic maintenance through a window (see image below).

Periodical maintenance must be performed by Quick® authorized personnel.

The window appears in the middle of the screen. To close, press OK.

The window appears in the middle of the screen. To close, press OK.

The wrench icon remains visible until maintenance is performed; despite the maintenance notice, the stabilizer will continue to operate.

These are the 3 main procedures to be carried out after 2000 hours of use.

**KIT OSP (SPARE PARTS) ARE AVAILABLE BOTH FOR COMPONENTS AND FOR TOOLS REQUIRED FOR MAINTENANCE.**

- **PRECESSION MECHANICS**
  - Check of pistons wear and of system active control of precession

- **BEARING**
  - Greasing of shoulder and fifth wheels bearings

- **INVERTER**
  - Check of inverter’s software
MAINTENANCE

ANNUAL

MECHANICAL
Check the interior mechanical to verify the presence of corrosion or wear marks.

ELECTRICAL
Check the proper fixing of connectors and the presence of oxide.

HYDRAULIC
Remove the top cover and check for oil leaks.

FIXING
Check the proper tightening of stabilizer screws.
You can record comfort improvement and see the result with Quick MC² App.

MC² OFF

MC² ON

Video recording with mc²x off and mc²x on*

*Try it with an Oculus headset

Percentage of rolling reduction and comfort improvement

Rolling reduction graph
You just have to download the app, add the boat profile and record the on-board comfort with MC² ON and MC² OFF.

Make a comparison to visualize rolling reduction’s data or to replay a record session with 3D VIEW.
**SPARE PARTS - ACCESSORIES**

**KIT OSP**

**KIT OSP COMPONENTS**

- OSP ACCUMULATOR
- OSP PISTONS
- OSP ELECTROVALVE
- OSP SENSOR PRECESSION
- OSP HYDRAULIC SYSTEM PIPES

**KIT OSP FOR MAINTENANCE**

- OSP FITTING OIL
- OSP KIT GREASE PUMP
- OSP FIFTH WHEEL GREASE
- OSP FLYWHEEL GREASE
- OSP KLUBER GREASE 15 (400GR)
- OSP MOBILGRAESE XHP 222 390g
SMART, COMPACT DESIGN

EASY INSTALLATION

HORIZONTAL AXIS ROTATION
LESS STRESS ON THE BEARINGS

FAST SPOOL UP TO RATED RPM

ROLL REDUCTION UP TO 95%

LOW NOISE

REDUCED MAINTENANCE

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