

STABILIS ELECTRA

ELECTRICAL FIN STABILIZER



CMC
MARINE
reinventing innovation

MINIMIZE QUICKLY THE ROLL EASILY EFFICIENTLY



WHAT'S NEW

Stabilis Electra is the world's unique revolutionary system offered by CMC Marine to overcome the problem of limited dynamics of a hydraulic actuator. Stabilis Electra uses a new generation of drive to move a fin stabilizer connected to an electrical brushless motor with a permanent magnet.

Thanks to its faster response and lower power absorption the Stabilis Electra is the perfect system for the stabilization at anchor of yachts starting from 18 metres.

CMC MARINE PATENT

The Stabilis Electra is a CMC Marine patent both in Europe (patent pending, n. 2172394) and in US (patent pending, n. 12/571842).

MAXIMIZE YOUR COMFORT WITHOUT EFFORT



MAXIMUM EFFICIENCY

50 % LESS ELECTRICAL POWER CONSUMPTION

MORE ELECTRICAL POWER AVAILABLE
FOR OTHER ONBOARD USERS

COMPACT UNIT DIMENSIONS

EASIER INSTALLATION

CABLES NO PIPES



KEY FEATURES

IMPROVED DYNAMIC

ACCURATE RESPONSE

LOW VOLUME

LOW WEIGHT

LOW POWER ABSORPTION

NO HYDRAULICS ON BOARD

USE OF ADVANCED INDUSTRIAL
COMPONENTS

REDUCED FIN SIZE

LOW DRAG EFFECTS



MORE ADVANCED ELECTRONIC REGULATOR

MORE COMFORT EVEN AT ANCHOR MODE



DRASTIC NOISE REDUCTION

MAINTENANCE REDUCED TO A MINIMUM

LONGER COMPONENTS LIFE TIME



WHY ELECTRICAL? EXCELLENT DYNAMIC, EXCELLENT PERFORMANCE



SANLORENZO SL72 EQUIPPED WITH STABILIS ELECTRA 16BR2060

THE BEST SOLUTION FOR THE BEST RESULT

The market's demand for new yachts generation is oriented towards faster vessels and bigger livable volumes. Those hull parameters affect directly the ship seaworthiness, even on reduced sea state. The demand for an efficient stabilization at anchor is no longer an optional but it's becoming more and more a must.

It's easy understandable that, to be efficient, the stabilizers system must react faster than the induced roll, as well as the forces generated by the fin movements have to be well phased with the ship roll angles.

The idea behind the use of an electrical drive instead of an hydraulic one, comes from the aim to offer a system with an higher dynamic and a more accurate response, so to satisfy the new market's needs.

In the electrical system, the actuation speed is higher and can reach at least 80°/sec, while for a traditional hydraulic actuator it is rarely more than 60°/sec.

When at anchor, the fin acceleration/ deceleration phases are better controlled thanks to the lower inertia of the electrical drive.

The fin position, controlled with greater accuracy and smoothness, combined with an advanced sophisticated control regulator, results in a better cruise comfort.

Thanks to its adaptability the new electrical drive can be the solution for a wider range of yachts, either planning or displacement hull.

Fin size can be reduced, since the same (comparable) amount of roll reduction can be obtained with a smaller fin area, which leads to a gain of energy due to the reduced hydrodynamic resistance of appendages.



MODREN 82ALU EQUIPPED WITH STABILIS ELECTRA 18BR2100

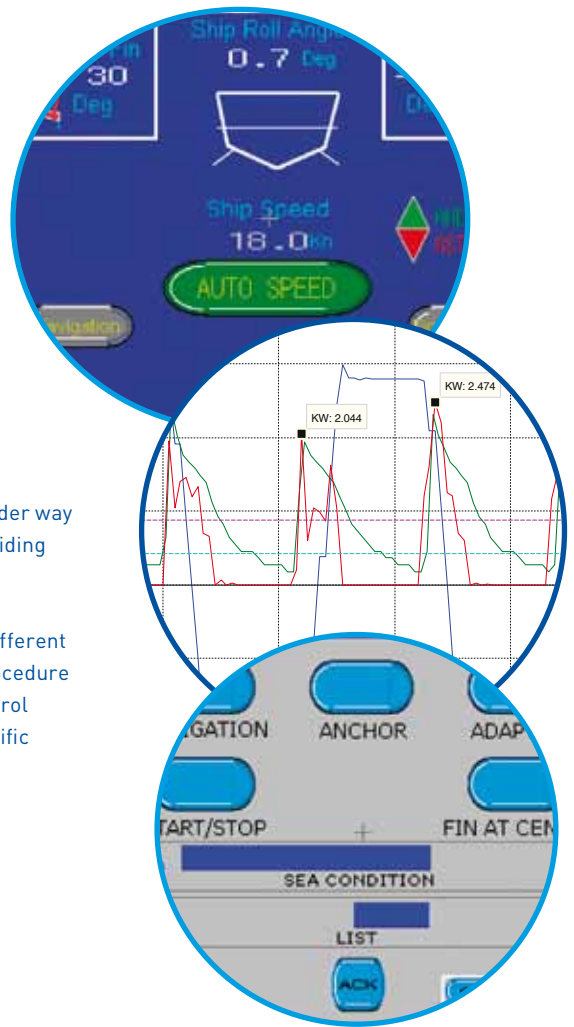
BOTH IS BETTER

DO YOU PREFER STRONG SENSATIONS OR A RELAXING CRUISE?

DIA-LOG is the very flexible electronic control system and the instrument can allow to exploit deeply all the advantages of the Stabilis Electra stabilizers system. DIA-LOG is a full digital electronic controller designed with an accurate numerical process developed by CMC Marine together with the Naval Institute of Naples University. The reliability of the CMC algorithms based on the inputs/ outputs signal assures the best possible seaworthiness behavior of the ship.

DIA-LOG works efficiently in both under way and anchored vessel conditions providing the expected comfort.

Also, the DIA-LOG adapts easily to different types of vessels and the start-up procedure will allow personalization of the control parameters to match the boat's specific characteristics.



MAXIMUM FLEXIBILITY, MAXIMUM ADAPTABILITY

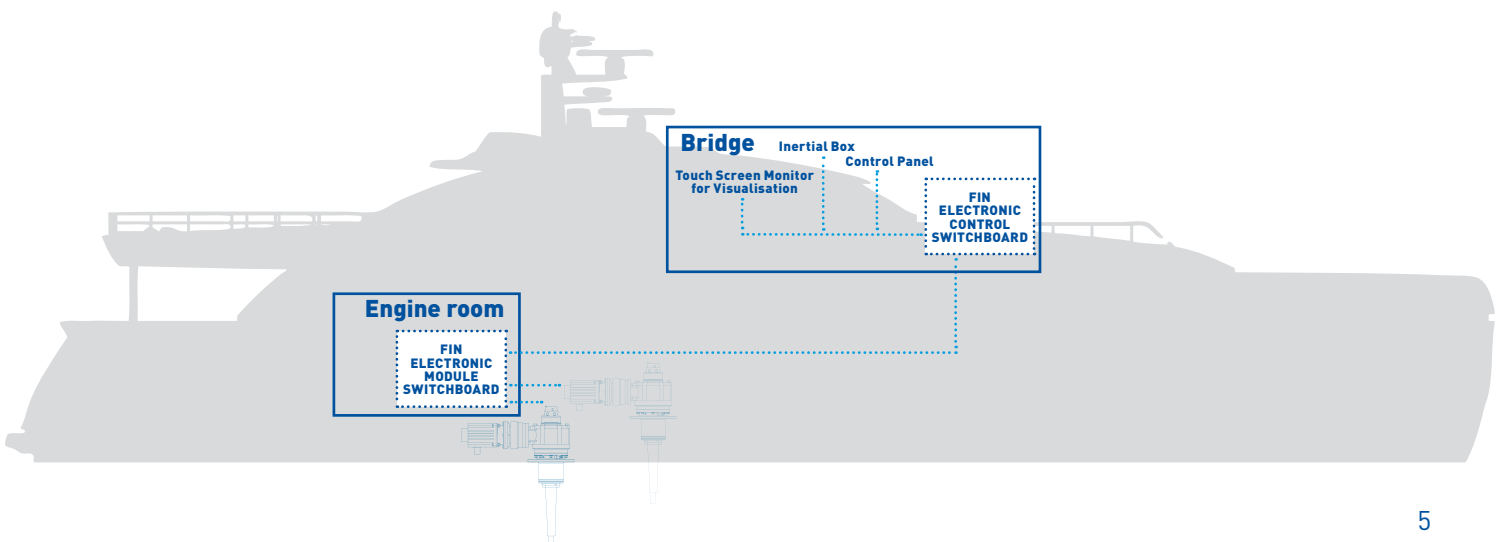
The Stabilis Electra is entirely monitorable and controllable by the user through the touch screen interface (and the backup control panel) located in wheelhouse.

Through the touchscreen, the user can totally exploit the power of the electronic regulator and its adaptability. In fact, it can control the system choosing between two different function modes:

- User mode: the operator can set and adjust the regulator parameters.
- Adaptive mode: the fins are controlled according to the sea waves conditions, the roll signals and also the encountering ship/waves frequencies and heading. In the adaptive mode the system works automatically without the operator interface.

A STRONG SELF CONTROL...

The touch screen is a very flexible device. One of the most powerful function is the autotest page, where the system gives the user a feedback on the behaviour of the system and allows the CMC Marine technicians to remotely check and verify the good functioning of the system and, eventually, to solve possible problems.



EASY, FAST, POWER SAVING

DO YOU NEED
ANYTHING MORE?

WE GIVE BACK THE POWER

Tests carried out demonstrated that the electrical brushless drive produces a power reduction at peaks level of about 50% with a drastic reduction in average power absorption of 70%. There is no need to increase generator power due to the fin system and this leads to a drastic reduction of the electric power consumption onboard.

INSTALLATION. JUST CABLES, NO MISTAKES

The new brushless electrical drive is a compact unit designed to ease the installation.

- Just cables running from the engine room to the actuators
- Time saving to have the system installed
- Mistakes! Drastically reduced to a minimum
- No interferences on other shipbuilding activities (internal furniture as an example)
- Reduced timing for the system start up and commissioning

GET IT AND THEN... FORGET IT

All the main components issue from the most advanced drive control industries are designed to the highest quality standards, and tested on heavy duty cycles.

This is a guarantee for the long terms system life time. Reason why the ordinary maintenance is reduced to periodical visual checks and nothing more.



STABILIS ELECTRA TYPICAL INSTALLATION

SANLORENZO SL 82 EQUIPPED WITH STABILIS ELECTRA 18BR2080



LET THE SILENCE SPEAK

As the electrical drive is a combination of an electrical brushless motor coupled to a gear box, even only the noise generated by the drive installed directly in the cabin was a cause of concern. The noise given at 1 meter distance from the actuator at max. speed angle and fin position (measurement taken during the stress tests) is on average **60dBA**, on a standard cruising conditions it has an average of **48dBA** while on anchor stabilization mode several registrations gave **55dBA**.

By adopting the brushless drive the airborne noise is reduced with a significant improvement for the onboard comfort and a reduction of insulation costs and weight.

CANTIERE DELLE MARCHE DARWIN 86 EQUIPPED WITH STABILIS ELECTRA 18BR2140



LOSS OF WEIGHT IS A PLUS. NOT ONLY FOR HIGH SPEED LOVERS

The Stabilis Electra is a relatively simple system from the components' point of view: it is composed by two actuators with fins, two switchboards, a roll sensor and two control panels plus few cables. Avoiding all hydraulics onboard has several advantages. One of them is given by the **dramatic reduction in terms of weight**. As an example, the total weight of a Stabilis Electra 18BR is **57% less** than the weight of a comparable size hydraulic actuator, not to mention the weight of the piping and the hydraulic oil.

BENETTI DELFINO 93 EQUIPPED WITH STABILIS ELECTRA 18BR2140



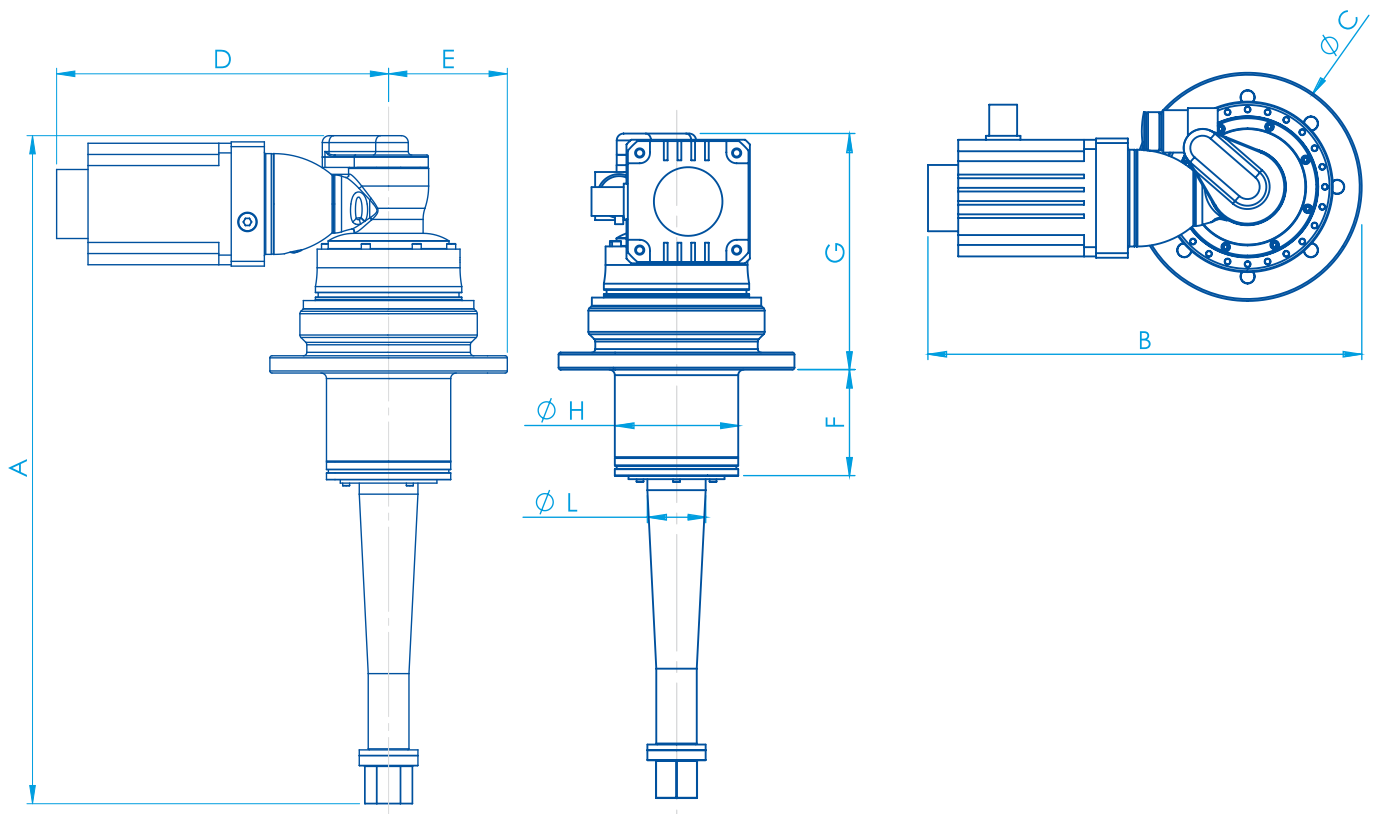
SANLORENZO SL108 EQUIPPED WITH STABILIS ELECTRA 18BR2140



WHAT'S YOUR

DIMENSIONS AND CHARACTERISTICS

STABILIS ELECTRA MODEL	A	B	C \varnothing	D	E	F	G	H \varnothing	L \varnothing	ACTUATOR WEIGHT (electr. motor included)	POWER RANGE (each actuator)	FIN SIZE RANGE
16 BR	765	593	335	421	225	104	336	180	75	102 kg	2,0/3,5 Kw	0,60-0,80 m ²
18 BR	968	653	344	481	172	155	344	180	85	145 Kg	3,5/5,0 Kw	0,80-1,00 1,20-1,40 m ²

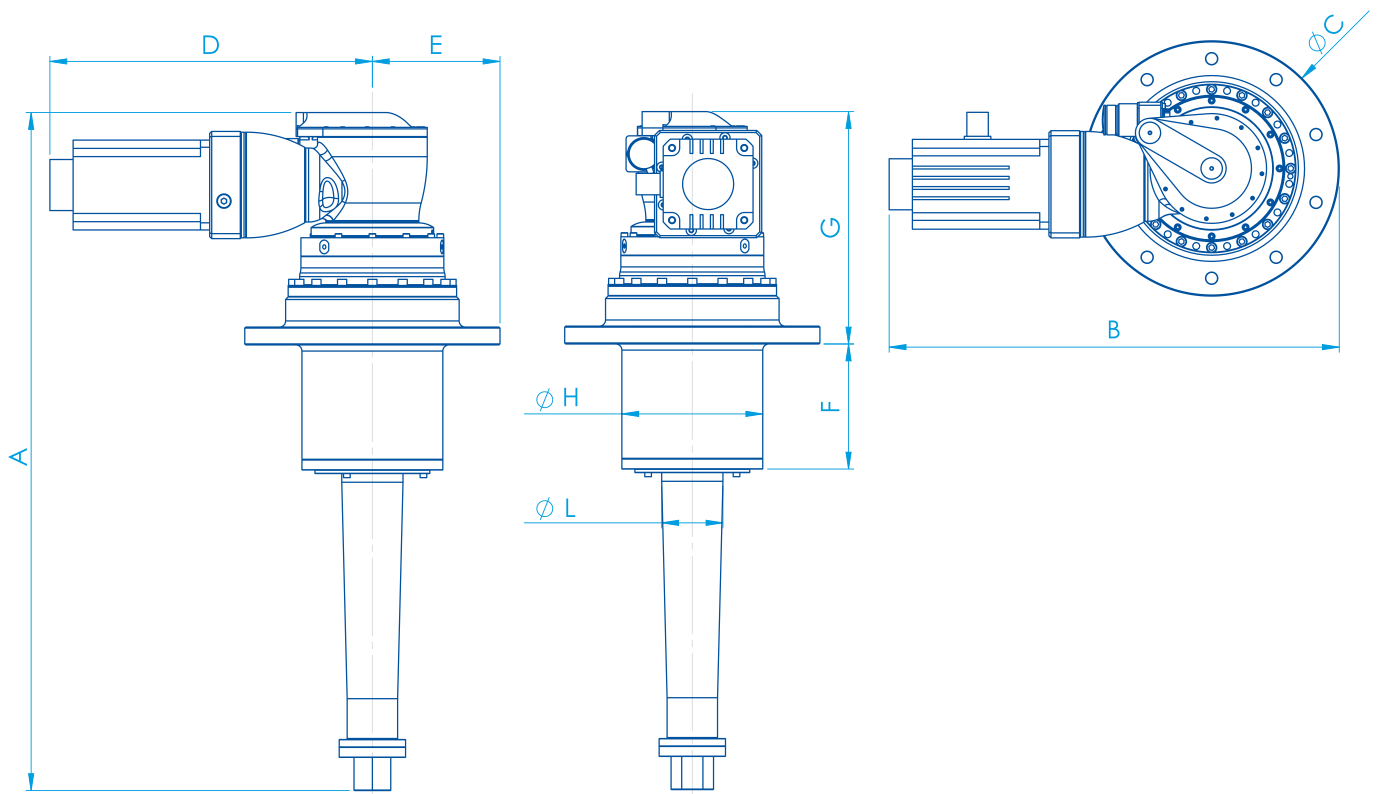


OUR SIZE?

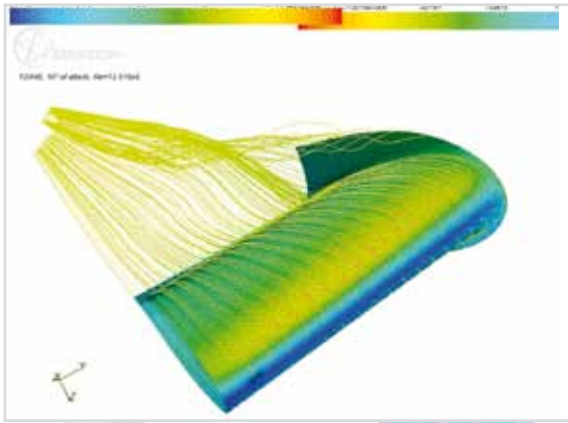
DIMENSIONS AND CHARACTERISTICS

STABILIS ELECTRA MODEL	A	B	CØ	D	E	F	G	HØ	LØ	ACTUATOR WEIGHT	POWER RANGE (each actuator)	FIN SIZE RANGE
20 BR	1110	744	456	516	228	185	451	230	100	235 kg	5,0/7,0 Kw	1,60-1,85 m ²
22 BR	1328	882	500	632	250	245	455	276	120	350	7,0/11,0 Kw	2,00-2,20 2,40 m ²

Kg



WIDE FINNS RANGE BEST QUALITY MATERIALS AND INNOVATIVE DESIGN



Fins are available for all type of vessels, fin size range starting from 0.60 sqm. The CMC marine fins blades are made from reinforced fiberglass with internal stainless steel structure.

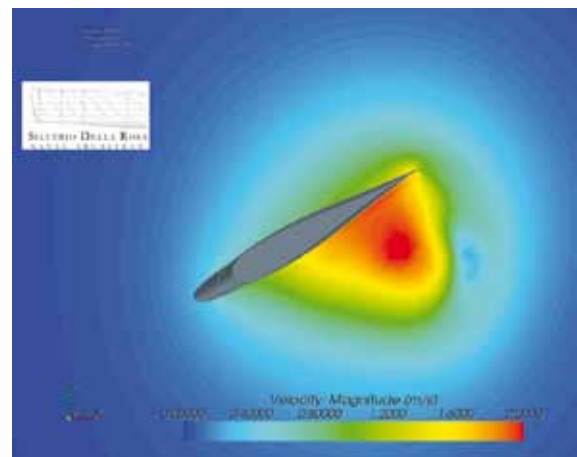
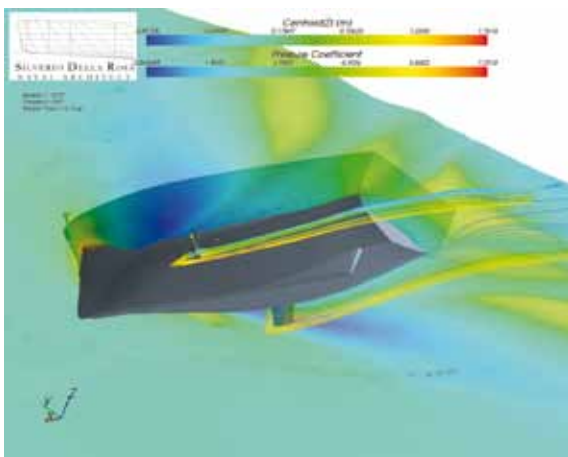
The fin geometry and wings profiles offer excellent results in terms of lift coefficient with reduced drag resistance at high speed.

The special winglet geometry assures good performances, not only for the fin wake, but also while working at anchor mode.

Special CMC Marine fin's design studies have been afterwards and successfully confirmed by extensive CFD (Computational Fluid Dynamics) analyses as well as full scale records.



WIDE FINNS RANGE.



REINVENTING INNOVATION

The CMC Marine founders extensive engineering knowledge in marine system solutions, has fostered a highly technical approach towards product development: this is why CMC Marine can be considered an engineering company. The focus is on design aspects and on the problem's solving study, with the aim to incorporate all details and to ensure that each solution is tailored to the specific function. The final objective is to provide the market with flexible state-of-the-art products, which can also be personalized and whose performance is controllable through distinct data, whilst providing high levels of reliability. This approach is continuously developed in accordance with the extensive engineering Company's background of marine system solutions.

Company's business model to the market is defined by:

- High level of engineering
- High level of investment in R&D (an average of 15% of the annual turnover being invested)
- Products seen as developing projects
- Problem solving attitude
- Capability of predetermining the future performances
- Guarantee on the future performance of the system



PREDICTION FIRST, VERIFICATION LATER

The research work conducted in full cooperation with some major Italian Marine Universities allowed CMC Marine to develop a special calculation methodology to make prediction of the behavior of its stabilization system before the installation onboard. This predictive method is particularly useful because not only it makes possible to find out the most suitable system for any specific ship but, at the same time, it allows the shipyards, or shipowners, to make a verification of the system functioning consistently with what was guaranteed at a preliminary stage.



SANLORENZO SL94 EQUIPPED WITH STABILIS ELECTRA 18BR2100

QUALITEC TECHNOLOGY AWARD



CMC Marine has been awarded with the Qualitec Technology Award at the Seatec Trade Show, the International Exhibition of technologies and subcontractors for boat and ship builders. The Qualitec Technology Award is the prize created to reward technological innovations presented by Seatec exhibitors.

PRODUCT RANGE



DUALIS BOW & STERN THRUSTERS



STABILIS MECHANICAL HYDRAULIC FIN STABILIZERS



STABILIS ELECTRA ELECTRICAL FIN STABILIZERS

CMC Marine, founded in 2005, designs, builds and markets stabilization fin systems and electrical or hydraulic thrusters. The over twenty years of experience in the industry of the founders provide the assurance that **CMC Marine** can offer a new generation of systems with the common trait being a meticulous design combined with the capability to guarantee each system at the design phase and then confirm the actual performance.

The **CMC Marine** product range is able to satisfy the needs of any shipyard and shipowner and includes the Stabilis range of stabilization systems, available with hydraulic actuator and, first and unique in the world, with an electrical actuator, and the Dualis dual propeller range of thrusters, also available with hydraulic or electrical transmission.

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