

mase
GENERATORS
Believing in change.

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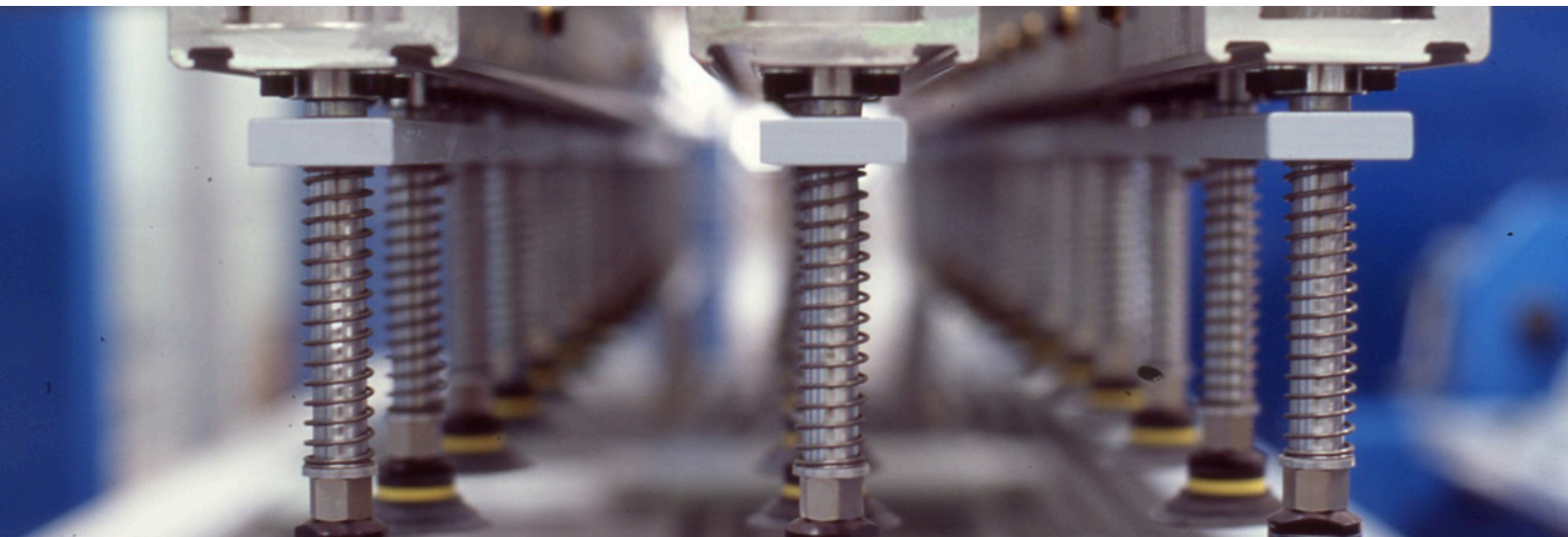
MASE GENERATORS

BELIEVING IN CHANGE.

Quality Power Generators since 1970.



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BELIEVING IN CHANGE.



For many people, Mase Generators is "just" a successful brand that has been a leader in the generator market for over 50 years, particularly in the marine sector.

However, after visiting their headquarters in Cesena and meeting the Foresti family, who have been steering the company since 1997, we have come to see Mase as a model of Italian family business. This is a company that embodies the values of ethical entrepreneurship, where the primary goal of profit goes hand in hand with the welfare of the community and the local territory to which it is deeply connected. It provides employment, often passed down from father to son, and it's made up of people who bring their experience, passion, and willingness to take bold steps forward, often ahead of the times.

According to recent data, about 85% of Italian companies are family-owned, from small businesses to large industrial groups. Collectively, they generate over 70% of jobs and contribute around 80% of the national GDP. During the recent critical period between 2019 and 2022, the pandemic years, family companies demonstrated a 7.3% growth in employment compared to 4.5% for non-family businesses, showing resilience and an ability to adapt to new social and economic challenges.

We could quote more figures, but these are enough to highlight the fact that family businesses are the "engine" of Italy, especially when they can adapt to new challenges without losing sight of the values and traditions that define them.

"Being an entrepreneur today, successfully managing a family business, giving it a future, is no easy task," said Luigi Foresti, President of Mase Generators. "Managing a company isn't just about balancing the books; it's about responsibility, attention to employees, respect for clients, constant product care, and a broad vision towards an increasingly globalized market."

Innovation and new technologies remain a priority for many companies like Mase Generators, who see the green transition as an opportunity to enhance their value and improve their reputation. Additionally, the gradual involvement of new generations and the introduction of capable managers, often external to the family, are becoming common practices, essential to maintaining competitiveness and growth.



Innovation and cultivating different ideas don't just require time and resources; they mean taking on challenges with an extra dose of courageous entrepreneurial risk that goes beyond the norm. Yet, at Mase, the motto has always been "Believing in Change".

Change isn't easy. It means questioning oneself, stepping out of the comfort zone, seeking something new, and being able to adapt to shifting environmental conditions, whether market-driven or existential. Over almost six decades, the Foresti family has succeeded in transmitting this approach to entrepreneurship throughout Mase, shaping the company with their forward-looking mindset while always maintaining a strong commitment to quality—a guiding principle deeply embedded in the Cesena-based company.

Cicero himself put it aptly: "nihil agere me delectat" (doing nothing pleases me). However, change is often not just useful; it is necessary. Survival depends on adaptability, as biology itself teaches us.

Since 1970, Mase has been producing marine and terrestrial generators, motor welders, and lighting towers. Achieving such longevity without adaptability would have been unthinkable.

The market and technology have evolved significantly over the past 55 years, yet Mase has carved out its path, growing to become a global benchmark. Today, the company collaborates with multinational partners like Volvo, Yanmar, Kubota, Perkins, and John Deere, serving leading companies such as the Sanlorenzo Group as a key partner—far more than just a supplier.

However, change doesn't necessarily mean losing one's identity or becoming something else. We are always ourselves, but few of us can still wear the clothes we wore in primary school. The same applies to Mase Generators.

Today, Mase offers power generators up to 500 kW, has invented a variable-speed generator with an inverter directly inside the motor housing, and created the Mild Hybrid system, which, by connecting the generator to lithium batteries, improves energy efficiency. The system significantly saves fuel, over 20% compared to traditional systems, while enabling onboard electric systems to operate without noise emissions. At the same time, they haven't abandoned their "Masino," an evolved descendant of the small 2 kW diesel generator that marked the company's beginnings and is still part of their lineup, updated and renewed to current standards.

→ PHILOSOPHY AND HISTORY OF MASE

LOOKING AHEAD MEANS ACTING WELL NOW.



Excellence

If you also believe that access to clean energy is a fundamental right and that companies have an important role to play in making the world a better place, then you share the core philosophy of Mase Generators. This idea has given rise to an existential, work, and product philosophy based on three pillars.

The first one? **Excellence.** It may seem obvious, as many people talk about it today, but Mase truly pursues it in every aspect of its business, from the design and production of generators to customer support. With a production capacity of over 5,000 generators per year, this commitment to excellence is statistically significant. Mase's strength lies in a team of highly qualified engineers and technicians, along with ISO 9001 certification for quality management and ISO 14001 for environmental management.

Innovation

The second one is **innovation.** Mase invests a substantial part of its revenue each year in research and development. To protect the intellectual and creative property of their products, they have filed and registered patents related to the technology used in their VS generators (with the inverter housed within the casing) in both the European Union and the United States markets.

→ PHILOSOPHY AND HISTORY OF MASE

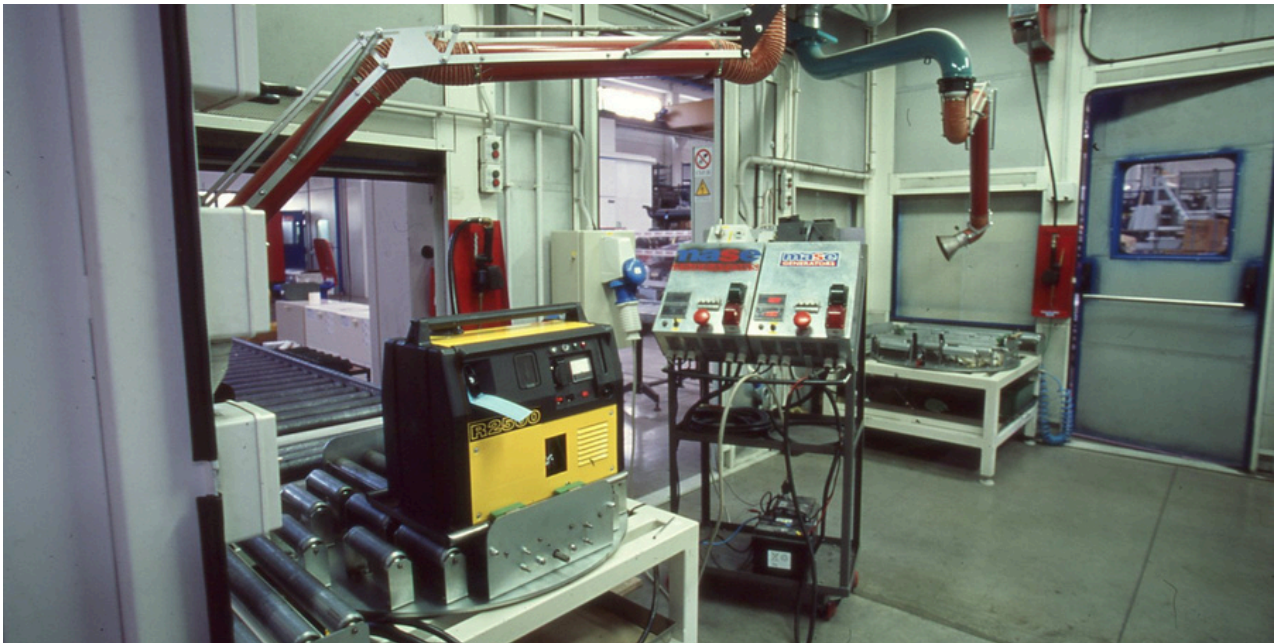
Sustainability

The third pillar, sustainability, aligns with the reasoning we started with. And it's not only reflected in their products but in the very existence of the company.

Most of the consumed energy is self-produced. The use of renewable energy sources is a priority, and a photovoltaic system installed last year has a capacity of 160 kW.

This focus extends to a commitment to circular economy practices, aimed at minimizing waste and resource use in its operations.

Additional care is taken in the careful use of all necessary resources for generator production. Mase has implemented a water recirculation system for testing high-power special groups, thereby significantly reducing the need for this resource, which is then reused and recirculated.



→ THE PHILOSOPHY AND HISTORY OF MASE

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FROM ORIGINS TO INNOVATION.



→ PHILOSOPHY AND HISTORY OF MASE



Foundation and Early Success

1970

Mase Generators is founded in Cesena, initially focused on lightweight, compact 400 W portable generators.

1974

Launch of the first Mase marine generator, positioning the company as a pioneer in the boating sector.

Late 1970s

Consistent growth and establishment of the Mase brand in Italy and internationally.

Expansion and Diversification

1980s

Expansion of the product range with the introduction of higher-power generators for industrial and commercial applications.

Innovation and Leadership

2000

Investment in research and development to introduce innovative and sustainable technologies into Mase generators.

2018

Launch of Mase's first hybrid generator, combining a diesel engine, inverter, and batteries for greater efficiency and emission reductions.

2023

Strategic alliance with Lanatec, a battery manufacturing company, to create the "Zero Emission-Mild Hybrid System," a cutting-edge system for clean energy generation.

Today

Mase Generators is a global leader in power generator manufacturing, offering a complete range of solutions for various applications.

→ PRODUCTS

MASE GENERATORS.



Reliability and Sturdiness

For over 50 years, Mase Generators has been synonymous with Italian excellence in power generator manufacturing. In the crowded marine market, where competition is fierce and widespread service is essential, Mase stands out by offering a comprehensive range of marine generators designed to meet the most diverse needs.

Mase marine generators are manufactured with the finest materials and components, ensuring maximum reliability in challenging environmental conditions. The use of advanced technologies and meticulous attention to detail result in robust and durable products, capable of withstanding the demands of open sea challenges, ensuring safety and comfort for everyone on board.

Wide Range of Models

From 2 to 500 kW. This is the range of marine generators offered by Mase Generators, designed to meet different power and size requirements. From compact, lightweight units for sailing boats and small boats to high-power models for yachts and workboats, there is always a Mase generator suited to every vessel.

→ PRODUCTS

Innovative Features

Among the exclusive features that have made Mase a reference point over the time, at least four of them stand out for their contribution to safety, functionality, comfort, and ease of use (also tailored to the needs of shipyards handling the installation):

- Automatic Start Systems: Ensures immediate generator startup in case of need, even in emergency situations.
- Advanced Regulation Systems: Provides stable and precise power supply, protecting onboard equipment.
- Low Noise and Vibration Levels: Delivers unparalleled onboard comfort.
- Compact and Modular Design: Facilitates easy and flexible installation.

Widespread Assistance

"Si vis pacem, para bellum." (If you wish for peace, prepare for war). Without going to that extreme, Mase holds firmly to the belief that to enjoy peace in daily operations, one must be prepared for the worst. That's why the company, with a 50 year experience, boasts a comprehensive global support network, staffed by highly qualified personnel with original spare parts always readily available. Mase's quick and efficient service is an added value for all yacht owners and shipyards that utilize their products. To the yacht owner about to embark on their only two weeks of vacation, it doesn't matter if the issue is with the generator, cables, or main switch — to them, it's just a "boat that isn't working!"





→ NEW FEATURES

CONTROL THE GENERATOR DIRECTLY FROM THE HELM!

NEWS NEWS NEWS
NEWS NEWS NEWS
NEWS NEWS NEWS



With just a click, you'll have access to commands such as:

- Operating Mode
- Generator Status
- Output Power
- Voltage
- RPM
- Alarm Presence

Monitoring and controlling the generator without going to the engine room, directly from your helm's chart plotter display, is now possible.

This is thanks to an application creating a new software compatible with the products of major brands on the market, developed by Mase in collaboration with Böning.

The interface is simple and intuitive, allowing you to quickly achieve optimal generator use and maximize this new control capability. The key commands and information are centralized on the main page for easy access, enabling you to navigate safely while saving time and energy.

Safety First

If an alarm is triggered, a pop-up on the helm display will provide detailed information about the detected issue, along with options to mute and reset the alert. For further diagnosis and study, all alarm-related data can be reviewed on a dedicated page.

→ PRODUCTS

Maintenance for Maximum Power Generation

As with all Mase products, the interface tools adhere to the highest quality standards. These standards are maintained over the time with proper maintenance. In this case, the software itself will notify you when maintenance is needed, specifying the type of intervention required.

By scanning a QR code in the "maintenance" page, you'll be directed to the Mase portal, which provides all the necessary instructions, procedures, and spare parts for the required interventions.

In line with the manuals, the maintenance plan for the specific unit will account for the generator's running hours, time elapsed since commissioning, and time since the last service. The dedicated screen will also indicate the time remaining until the next service.

Not Just for New Units

The kit can be paired with Mariner, IS, and VS series units equipped with the Comap Evo control panel. It includes a control unit, a current meter, and the necessary connection cables.

The control unit connects to the onboard plotter via an Ethernet cable. The application is compatible with chart plotters that support HTML 5.

For those who already have one of the previously mentioned units, a retrofit application can also be requested.



→ PRODUCTION OVERVIEW

VS SERIES GENERATORS (VARIABLE SPEED)

Mase designs and manufactures variable-speed generator sets, creating custom hybrid propulsion systems of medium and high power to meet specific user requirements. This quality has made the company the preferred choice for many systems integrators. The range of generator sets produced spans from 50 to 500 kW, with voltages exceeding 800 V DC. The flagship of their production is the Mase VS variable-speed generators.



ENGINE RPM

The engine RPM adjusts based on the load required, ranging between 2,100 and 3,150 RPM. In other words, the generator automatically calibrates to meet the demand of connected loads, ensuring exceptional voltage and frequency stability.

INVERTER

Housed within the compact case containing both the engine and the permanent magnet alternator (PMG) is the inverter. This solution eliminates the need for large, high-voltage cables running throughout the boat, as is typically required in more traditional configurations.

PARALLEL COUPLING

Two units of the same model can be coupled in parallel, providing maximum energy savings by allowing for high loads. By connecting the inverters of the two generators with a simple cable, power is doubled, the generators automatically synchronize, and they can alternate between Master and Slave functions.

→ PRODUCTION OVERVIEW

COOLING SYSTEM

To allow VS units to operate at optimal temperature and facilitate engine room installation, they feature closed-loop cooling circuits with a seawater-water exchanger and an internal air-seawater exchanger. These circuits are completely independent of engine room temperature and cooling volumes.

ANTI-VIBRATION SYSTEM

VS series models include a dual anti-vibration system. The first reduces vibrations from the engine/alternator group to the frame, while the second absorbs residual micro-vibrations between the generator frame and the boat.



VS 12.6 DV



VS 15.6 DV



VS 8.6 DV



VS 10.6 DV

→ PRODUCTION OVERVIEW

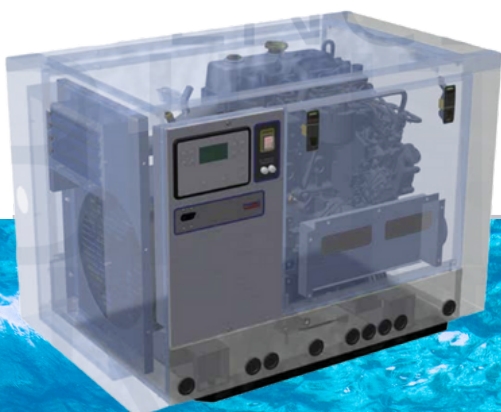
IS INTERCOOLER SYSTEM GENERATORS

The IS (Intercooler System) range is designed for both leisure and professional use.

Its unique features lie in its cooling system and the anti-vibration structure.



TECHNICAL FEATURES



The IS series generators are installed on eight anti-vibration mounts. Four mounts reduce the vibrations from the engine/alternator to the frame, while the other four absorb residual micro-vibrations between the frame and the vessel. The closed-cycle cooling system within the case uses an air-water exchanger, reducing vibrations and noise while guaranteeing ZERO derating even with seawater temperatures up to 31 C°. With no air exchange with the engine room, the units don't require specific installation volumes.

MARINER GENERATORS.

The Mariner series, primarily designed for workboats and commercial vessels, stands out for its cooling system and anti-vibration structure. These features ensure a high-quality product that enhances your vessel's performance. In the Mariner series, the generator is supported by four anti-vibration mounts, while the alternator and the interior of the case are cooled through a heat exchange with the engine room.

→ CUSTOMIZATION AND INNOVATION

THE SPECIALIZED SYSTEMS OF MASE GENERATORS.



In the complex sector of marine generators, Mase Generators stands out for its ability to innovate and customize solutions that exceed traditional market expectations.

A prime example of this innovation is the company's approach to customizing propulsion engines to adapt them as auxiliary generators on board.

This is an increasingly intriguing and challenging task, especially as the power requirements of today's megayachts grow—particularly for yachts seeking hybrid propulsion, not solely reliant on internal combustion engines.

Making easy to do what was never realized before

Luigi Foresti, the president and heart of the company based in Cesena, explains: "Creating variable-speed generators from a propulsion engine is simple: you attach an alternator, and it's done. However, a propulsion engine is certified according to fuel consumption curves with a propeller load. For Mase, we need certification as an onboard auxiliary, with a different load curve. And that requires specific work."

Moreover, a propulsion engine does not have a left or right configuration; once installed in the engine room, it's accessible from all angles. However, for Mase, as a generator supplier, things are different. Generators are often positioned on one side of the engine room, sometimes in the remaining space after the technical compartment has been filled with various other systems and accessories. Consequently, challenges can arise regarding the placement of filters, oil dipsticks, and the service side. Lastly, it requires certification for auxiliary engine emissions rather than for main propulsion.

→ CUSTOMIZATION AND INNOVATION

More Than Just an Engine

It is essential to think from an energy production perspective rather than propulsion, meaning that engine customizations are crucial. While the engine serves a different purpose, its reliability is paramount. This is why Mase has developed strong partnerships with engine manufacturers such as Yanmar, Kubota, Perkins, and Volvo.

In one case, where high power was required, the Swedish manufacturer was the ideal solution for the engine, but adjustments were needed to align with Mase's specifications. "Volvo, however, primarily focused on propulsion engines," recalls Foresti. "So they told us: propose solutions, and we'll assess them together. We presented our ideas, Volvo validated them, and this allowed us to enhance the engine's application to our needs. One such adjustment was the intake manifold leading to the intercooler. In its original configuration, it was too large to fit within the space yacht designers had allocated for these generators, as the gearbox was smaller. We therefore designed our own manifold, which Volvo approved. This way, the engine arrives from the manufacturer, we configure it, and then certify it. Volvo, on their end, listened and supported us. Our background is operating such equipment in engine rooms and handling engines that generate 5/600 HP. In essence, we were able to create what we needed autonomously, and Volvo, which already envisioned an electric IPS motor, found it already developed by us."

Timing and Direction

"The timing is right, and we're in a technological trend that works," says Foresti. "Good timing, a strong market, and solid partnerships moving in the same direction. And let's not forget that 'Made in Italy' is always a benefit." Actually, Italy is increasingly asserting itself on the international stage, not only in luxury sectors with iconic fashion brands and jewelers like Armani and Bulgari but also in the world of engines with names such as Ferrari, Lamborghini, and Ducati. It's true that in certain fields, some producers' heritage has been overwhelming, and there seemed to be no room for products designed and crafted in Italy. However, thanks to technological development and Italian expertise in anticipating and meeting technological needs, we are now gaining ground in the international sector.

We're Not Americans

When Mase first started expanding into the United States, it faced the strong heritage of American-made generators. U.S. boat owners saw American products as inherently more robust, especially when it came to high-power applications, which was an unfamiliar market to Mase at the beginning. "Today, American boat owners no longer have the same reservations about the 'Masino,' as our historical generator was called. We started with 2 kW sailboat generators, and we still intend to serve that market; I'd go mad if someone told me they're not selling," Luigi Foresti remarks with a smile.

For high-power machines, research and optimization are critical. In Cesena, Mase starts with industrial engines, which it then marinizes, handling everything from cooling to optimization and coupling, thanks to the company's extensive expertise.



Balancing Large and Small, All Made in Italy

Behind complex applications for large yachts are numerous engineers, and these projects significantly impact the brand's reputation and relationships. On the other hand, developing a small generator requires less intensive development but still demands expertise and know-how to ensure smooth performance, meeting the expectations of both users and sellers. "Seeing these small machines performing well is incredibly satisfying," says Foresti. Yet, some things are more frustrating: "More than a frustration, it's offensive when people think there's no service behind Mase," reveals Foresti. "Our service department handles requests worldwide, managed directly by the company's senior leadership. We discuss it daily, and our American branch is always active. It's our approach. While our defect rate is low, when an issue arises, it's disruptive—customers without power are quick to complain. In certain markets where we're seen as 'non-American,' dissatisfied customers voice complaints instantly. So, we spare no expense in responding. Of course, this doesn't change markets or customer perceptions overnight, but we're aware that it's the only way forward if we want things to improve."

This approach addresses both technical and commercial needs while strengthening Mase's global market position, reinforcing the brand and "Made in Italy" as a symbol of quality and innovation on the international stage.

TOGETHER
we boat.



Integrating premium components on your boat to craft a piece of art.

→ TOGETHER WE BOAT

A COLLABORATIVE EVOLUTION IN THE NAUTICAL INDUSTRY.

"Nomen omen," as the Latins said, meaning there is destiny in a name. This principle has led Mase Generators, GenSet, Besenzoni, and HP Watermakers, later joined by Feit Pompe and Mapei Marine, to create the "Together We Boat" brand. Six leaders in Italian nautical industries—six renowned names in onboard systems and accessories—have united in an unprecedented initiative to elevate customer support, whether for private boat owners or professionals selling or servicing these products, with a focus on distant markets from Italian production centers.

→ TOGETHER WE BOAT



The Heart of the Initiative

This new brand is not only a unique reference point for customers but also a symbol of shared expertise and resources. The goal is to offer a more integrated and responsive service, expanding the product and service portfolio through unprecedented synergy in the sector. This collaboration allows for a more agile, flexible, and expansive response to the needs of an evolving and increasingly global nautical market, which seeks partners and suppliers capable of operating on a worldwide scale.



Beyond Conventional Frameworks

Through this partnership, Mase Generators, GenSet, Besenconi, HP Watermakers, Feit Pompe, and Mapei Marine not only strengthen their market presence but redefine the concept of service and innovation in the nautical sector. This partnership demonstrates that "Made in Italy" is not just enduring but evolving, meeting and exceeding global expectations in the nautical field.



Leader Statements

Luigi Foresti, Giorgio Besenconi, and Gianni Zucco (HP Watermakers), key figures in this alliance, emphasize the importance of joining forces in a traditionally fragmented sector. With their shared vision, these companies aim to overcome barriers that have historically prevented Italian companies from collaborating effectively.

Luigi Foresti, highlights the strategic value of the partnership: "Together We Boat is not just an alliance of companies; it's a revolution in market management and approach. We combine our experiences to enhance customer value, elevating our shared commitment to innovation and quality." He also underscores the importance of collaboration beyond company borders: "This synergy among industry leaders shows how collaboration can positively transform our approach to the market, making us stronger and more competitive on a global scale."

Pietro Calabrò, President of Feit Pompe, adds, "We joined this group because we have complementary products, and each of us 'does our part' very well. TWB is a tangible growth opportunity for all of us."



Impact and Future Vision

"Joining this alliance is not just a growth opportunity but a transformation in the way we do business in the nautical sector," shares Giorgio Besenconi. With an emphasis on integrated marketing and technical management, "Together We Boat" aims to capture significant market shares, promoting an image of collaboration and innovation. Gianni Zucco, explains his vision for the collaboration's impact: "This initiative is a game-changer for the industry. By joining forces, we not only expand our service capabilities but also our innovative impact." For Andrea Gerardini, Marine Division Manager at Mapei, "Together We Boat symbolizes a new era of collaboration, breaking down old barriers and demonstrating that unity truly is strength in our sector."

TOGETHER
we boat.



MASE OVERSEAS.

Mase Generators North America, based in Oakland Park, Florida, represents the North American branch of Mase Generators. Founded to expand the reach of Mase's brand and its innovative power generation technology in the North American market, this branch focuses on the sale and service of a wide range of marine, land-based, and recreational vehicle generators.

This overseas branch highlights the Cesena-based company's focus on reliability and technological innovation, aiming to strengthen and expand the brand's presence across the continent. The focus is twofold: on one side, meeting the needs of shipyards, whether they are American manufacturers or U.S.-based branches of European brands, and on the other, providing even more precise and timely service to local boaters by offering advanced and sustainable energy solutions that reach clients wherever they are navigating.



Energy Efficiency and Fuel Savings

The Mild Hybrid system combines lithium batteries, a generator, and an inverter within the same compact box. This configuration enhances energy efficiency and promises significant fuel savings, exceeding 20% compared to traditional systems. In other words: greener and more cost-effective navigation. These advanced systems combine the efficiency of lithium batteries with the power of combustion engines, offering flexible operating modes: they can run purely on electric power, on the combustion engine, or in hybrid mode, optimizing energy use.

Night Mode Means Zero Emissions

A key application of these generators is the so-called zero-emission night mode, ideal for use in protected areas or for those seeking complete silence at night. This mode allows boaters to charge batteries while docked and utilize stored energy for daily onboard power needs. A significant innovation in the market, Mase's night mode is designed with superior safety and quality, simplifying installation and providing a more sustainable and comfortable solution for the nautical sector.

Quiet Performance and Navigational Comfort

Mase variable-speed marine generators are a true revolution in onboard comfort. Thanks to automatic speed adjustment based on the load demand, they minimize noise, providing a pleasantly quiet and relaxing experience at sea, which is highly appreciated by both recreational and professional users.

Sustainability and Environmental Commitment

Mase places a strong emphasis on sustainability. The use of efficient, eco-friendly permanent magnet alternators underscores the company's commitment to reducing environmental impact. While concerns exist regarding the extraction of rare earth materials, Mase mitigates this by using these resources responsibly and efficiently, reaffirming its dedication to a more sustainable marine industry and navigation approach.

Simplified Installation Equals Greater Safety

Another major advantage of Mase systems is the simplicity of installation. With pre-wired connections and a design focused on maximum accessibility, Mild Hybrid systems and variable-speed generators can be easily integrated into various types of vessels. This ease translates into increased safety and reduced risk of malfunction, making Mase an ideal solution for those seeking reliable performance without compromise.

Accessible Innovation

Innovation thus becomes accessible to a wide range of users. With its research-driven approach and development of cutting-edge solutions, Mase offers advanced technology at competitive costs, allowing sailboat and displacement vessel owners to enjoy the latest advancements without significant investment burdens.

Energy Drives Every Change

Choosing Mase means navigating toward a future with technologies that deliver unmatched efficiency, sustainability, and comfort. Mase's Mild Hybrid systems and variable-speed marine generators represent the ideal choice for navigators who seek the best in performance and environmental respect. Through this, nautical innovation becomes a journey toward more conscious and rewarding sailing.

→ INNOVATION

FLEXI SYSTEM



Flexi System

The compact Mase generator, with an integrated inverter within the same case, is paired with a modular lithium battery pack, enabling the system to operate in two modes:

- Traditional combustion mode, with the engine running.
- Zero-emission mode, where the lithium battery powers the inverter within the generator, which then powers onboard systems (hotel services such as air conditioning, etc.).

This is a highly flexible system, designed and sized to meet specific user requirements.

The Advantages of Hybrid Power (and Mase)

The hybrid generator adds an integrated function to the power system, safely providing battery-powered energy for onboard hotel services. The Flexi System can be paired with any Mase VS generator, even as a retrofit for many units already installed.

The system's ease of installation simplifies the shipyard's work, as the power connections are the same as those used for a traditional generator. Battery power flows through the Mase inverter, allowing energy to be drawn from the engine, the battery, or a combination of both.

When added to a Mase VS generator, the Flexi System is a complete package, including batteries, the Power Distribution Unit (PDU), a DC/DC interface converter with our inverter, battery chargers, and control, safety, and interfacing units.

How the Flexi System Works

PDU > DC/DC converter > Mase Generator > Onboard Hotel Systems.

The system is based on NMC battery modules (Nickel Manganese Cobalt Oxide) with a nominal 88.8V and a capacity of 10.6 kWh per module. If additional capacity is needed, batteries can be connected in series, with strings of up to three units. This results in three voltage and capacity levels: 88.8 V - 10 kWh; 177.6 V - 20 kWh; and 266.4 V - 30 kWh.

If energy demand increases further, additional strings can be added in parallel, with up to six strings per PDU (providing a total of 18 batteries, 186 kWh, and a nominal 266.4 V).

→ FLEXI SYSTEM

The Role of the PDU

The PDU is the physical connection point for the battery loads, and each system requires one. Inside the PDU is a Battery Management System (BMS), which manages a rechargeable battery (cell or battery pack), protecting the battery from operating outside safe parameters, monitoring status, calculating secondary data, reporting data, controlling the environment, authenticating, and balancing to maximize battery capacity and prevent undercharge or overcharge.

Additional fuses and electromagnetic switches are also housed in the PDU to manage the power supply to the electrical circuit, capable of handling high currents and voltages. These protections are in addition to those already included in each individual battery.

More Modules, More Energy

The DC/DC converter is the component that connects the PDU to the generator's inverter, adjusting the voltage levels of the two systems. Its configuration determines the maximum power output from the batteries. This module covers the entire voltage range and can provide up to 8 kW continuously (at 266.4 V). If additional power is required, multiple modules can be used in parallel. The system's size and capacity can be adjusted to prioritize electric autonomy over peak performance.

Battery chargers allow recharging from the generator or from shore power. The Flexi System does not replace the traditional 24V service system but is an addition. All emergency services on the vessel (bilge pumps, fire safety, lights, and Flexi System safety components) remain powered by the traditional system. The modular design allows for additional capacity after initial installation. The entire Flexi System can be monitored and controlled from the bridge plotters.

Safe Technology

Each battery includes internal fuses and safety switches. Without authorization from the control logic, the battery will not supply voltage. Consequently, no voltage is present at the poles unless enabled by the control system. All batteries feature a control logic system (BMS) with master and slave functions: each has its own management board, while the PDU coordinates the management logic for individual batteries.

The battery casing is made of sealed aluminum (IP67). There is also the option for liquid cooling (glycol) with the necessary heat exchangers and piping if needed. For safety, an emergency flooding system with sensors, safety valves, a pump, and a dedicated control logic is included as an additional layer of protection. The BMS with master and slave architecture is designed to prevent risky operational conditions that could jeopardize battery integrity.



WHO SUPPLIES MASE BATTERIES

Mase has an agreement with Lanatec, a company specializing in battery and energy management systems. Lanatec produces cutting-edge lithium-ion technology through modular systems for heavy-duty applications and offers innovative cell and module technology, an ultra-lightweight battery, and a high-safety battery management system with functional design and modular construction.



Experience your boat
from a new perspective.

Mase marine generators: innovation focused on sustainability.

A wide range of products to have a complete vision of your navigation.

VS



IS



MARINER



SPECIAL GROUPS



A new way of perceiving innovation with Mase is possible.
Because for us progress starts from the point of view of the sea.
That's why we design many solutions to satisfy all your senses.

IF SEA COULD TALK,
IT WOULD SAY MASE.

Visit our web site



mase
GENERATORS
Believing in change.