



Power and Propulsion Solutions

Hybrid AC/DC-Net Propulsion Systems

PT. Marine Propulsion Solutions: providing complete, efficient propulsion, and auxiliary power systems.

MPS Systems Hybrid Propulsion Systems for all types of Tug Boat offering two solutions in one. It not only drives the Tug

with electric power while at low speeds, but it can assist when high-end boost is required. The Hybrid Propulsion System use MPS Azimuthing Podded Permanent Magnet Propulsion Systems, variable speed gensets and well proven components to completely power the vessel with increased fuel economy and maximizing maneuvering.



Hybrid Propulsion System delivers electric power on demand for vessels at low speeds and can provide a power boost to the engine when needed for maximum bollard pull conditions.

The Hybrid Tugboat, which has a combination of variable speed diesel-gensets and using dc-ring-net technology with AC Electric Podded Drives, facilitates average fuel savings of between 15% and 30% and cuts local emissions by 20% to 60%.



**Electric Hybrid
Propulsion Systems**

MPS Propulsion Systems with Proven Hybrid Components & Electric PM Drive Systems

Electric Power Systems:

The comeback of DC power distribution can be best attributed to the efficient utilization of both AC and DC power components where each best fits in the marine power system:

Variable Speed PM Gen-Sets:

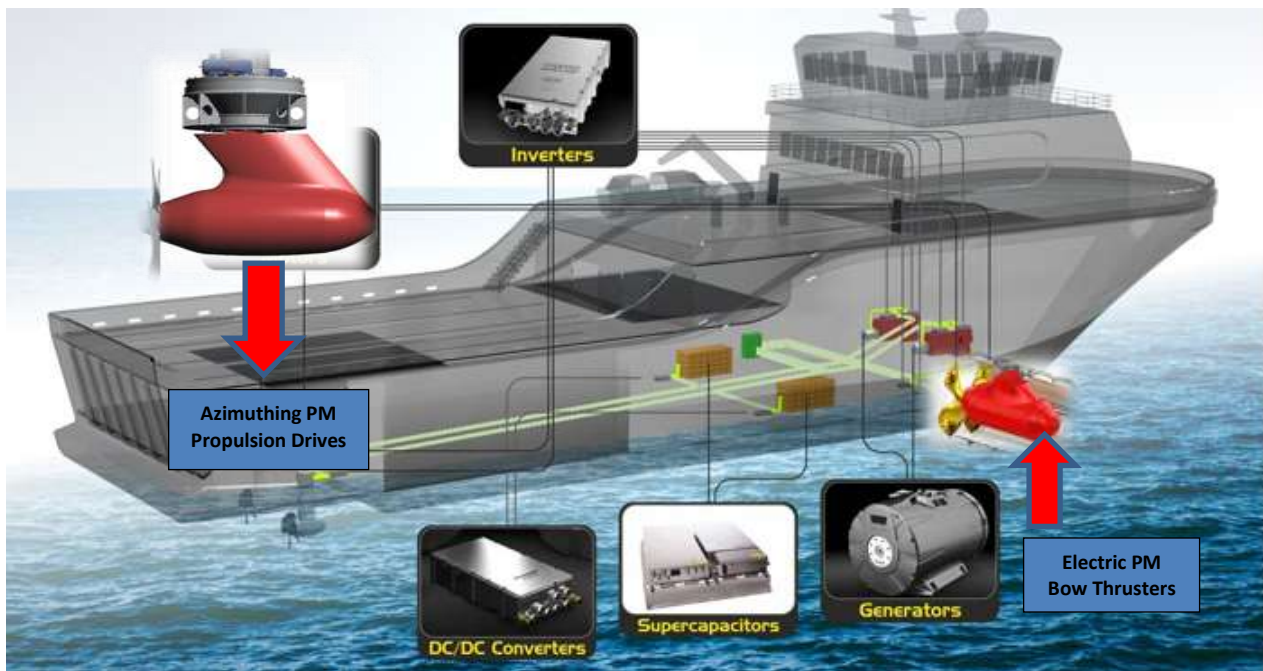
The development of variable speed power generation is becoming a game changer. By attaching an AC generator to a variable speed marine propulsion engine and converting the output of that generator into a useful form of power (in this case DC power), the best efficiency point of the diesel can be continuously matched to the load demand at any given time. Therefore the diesel engine can run at whatever speed that achieves the best specific fuel consumption (SFC) for a given load, and the power electronics converts whatever volts/hertz to DC volts for power distribution

Azimuthing Propulsion Electric Podded Drives:

Marine Propulsion Solutions Electric Podded Drives (Permanent Magnet) are engineered products of European design based on the latest marine propulsion technologies and well proven. They are of very heavy duty design and incorporate many unique features to optimize reliability, longevity and easy maintenance

Converter & Inverter Advanced Technology:

AC power had traditionally been easier to protect against large short circuits since AC power always crosses zero volts 100 or 120 times per second in its sinusoidal pattern allowing circuit breakers to more easily open. Advancements in power electronics have facilitated the development of virtual DC circuit breakers. These "circuit breakers" can, through the use of semi-conductor technology (power electronics), very quickly interrupt or limit the fault current permitted to flow..... and thereby eliminating the traditional "Switch Board".



Benefits

- Combined potential for +20% in fuel savings.
- Improved life cycle costs by reduced fuel consumption and maintenance intervals.
- Reduced capital expense of main gen-sets with boost power (battery technology).
- Less space and weight intensive packaging of the power and control systems offering more flexibility within the machinery arrangements.
- Quiet Operation, vibration free with increased maneuverability and rugged operations
- Better quality power by producing less harmful harmonics and better power factor control.
- Improved reliability and reduction of single point failures within the system.

PT. Marine Propulsion Solutions is a leading provider of hybrid propulsion and power systems and would welcome your further interest..... Please contact:

PT. Marine Propulsion Solutions

Lot 16, Citra Buana Industrial Park III
Jl. Engku Putri, Batam Center – Batam Indonesia
Office Phone: +62 778 416 8866
Mobile Phone: +62 811 77 88802
Email: Info@marinepropulsionsolutions.com
www.marinepropulsionsolutions.com

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