



WE Tech

Leading Marine Electrification

WE Tech Solutions is a leading energy solution provider with a global presence in the shipping industry. The company specialises in supplying solutions based on variable frequency drives, permanent magnet generator technology, DC power distribution and energy management system.



WE Tech develops and delivers integrated innovative hybrid power and energy solutions that enhance efficiency, reduce emissions, and create lifetime support and value for the maritime industry.

Henri Kinnunen
CEO of WE Tech Solutions

WATCH OUR VIDEO >>



Benefits

WE Tech's market leading energy solutions optimise OPEX and CAPEX while providing a turnkey path to environmental compliance, ensuring your fleet is ready for the regulations of today and tomorrow.

LOWER CAPITAL EXPENDITURE

- Less installed power
- Smaller weight and footprint
- Simplified vessel machinery design and installation

LOWER OPERATIONAL EXPENDITURE

- Savings in electric power generation with variable speed generator technology
- Savings from reduced fuel and maintenance costs with minimised Auxiliary Generator operation
- Savings from optimised machinery operations

REDUCED ENVIRONMENTAL FOOTPRINT

- Improved efficiency of propulsion machinery, power generation and energy distribution reduces emissions from operations
- Electrical power generated via a zero-emission-operated main engine

SHORE CONNECTIVITY

- Shore power connection whenever available at port
- Auxiliary Generator operations reduced to absolute minimum
- Zero emission port operations

BETTER DESIGN FLEXIBILITY

- Vessel operations profiled and solution design matched accordingly
- Variable speed power generation and DC-based energy distribution removes traditional design limitations
- Propulsion machinery, cargo handling and energy distribution always operated optimally

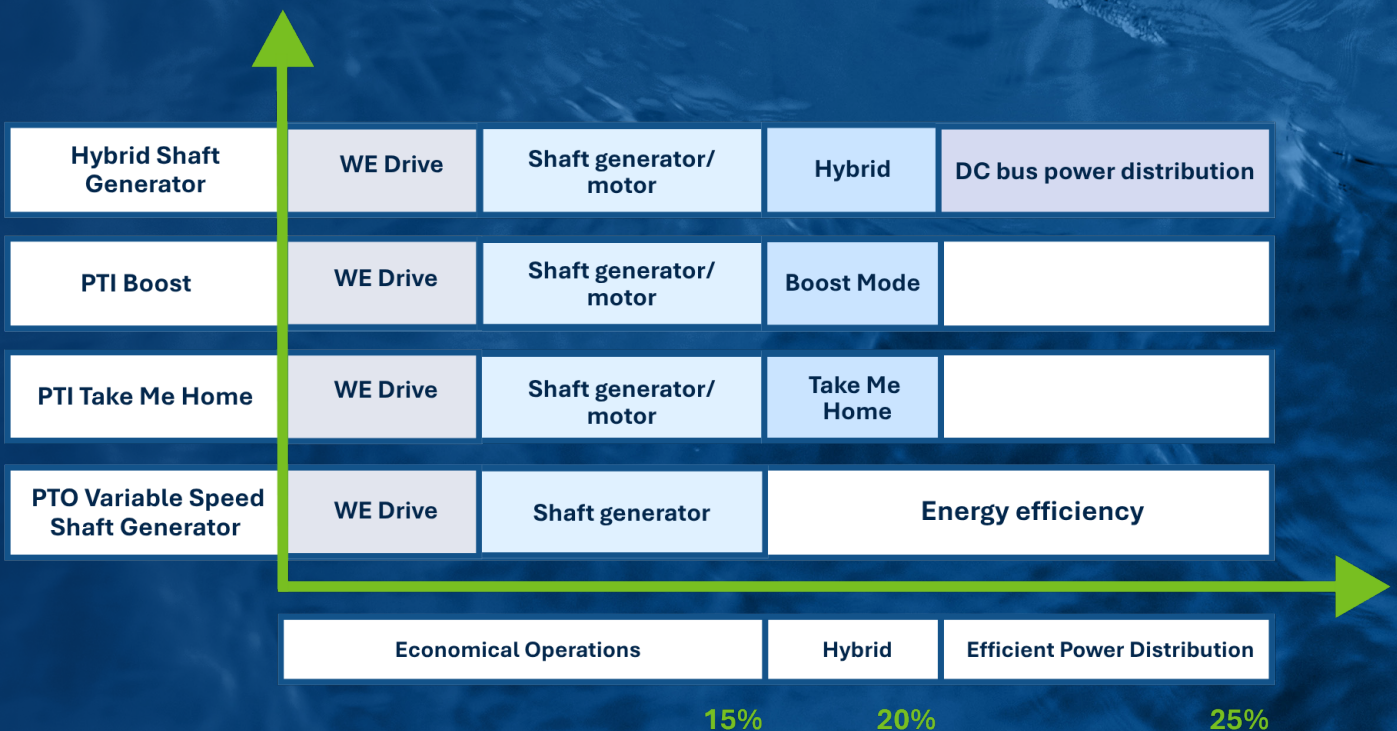
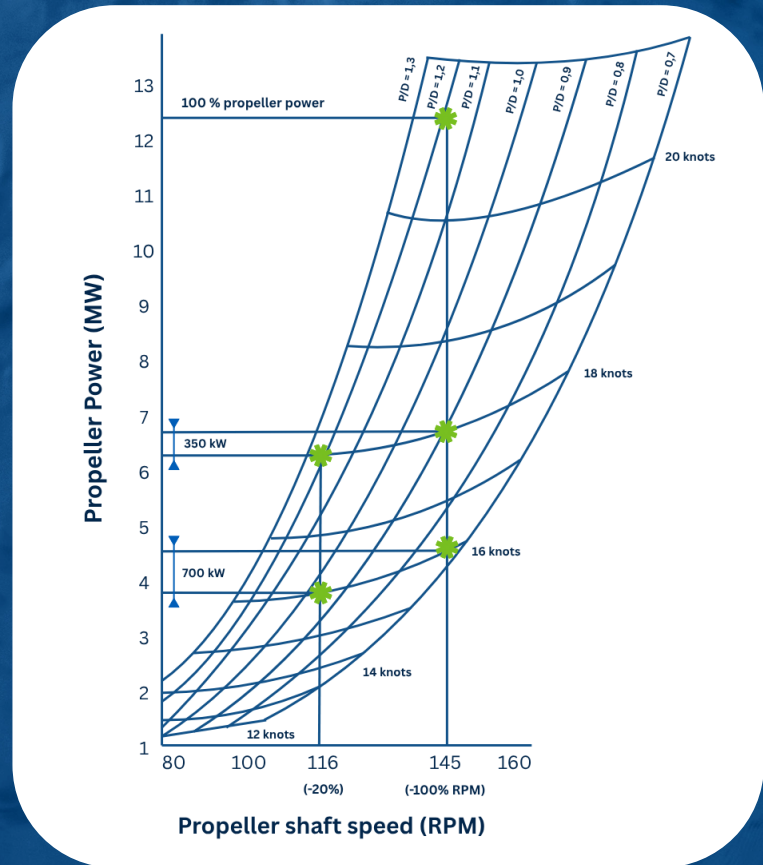
ENERGY STORAGE SOLUTIONS

- Battery based energy storage systems implemented according to operational profiling and feasibility studies
- Further reduced operational costs
- Energy back-up and redundancy of operations

Future-Proof Solutions

Leading Marine Electrification

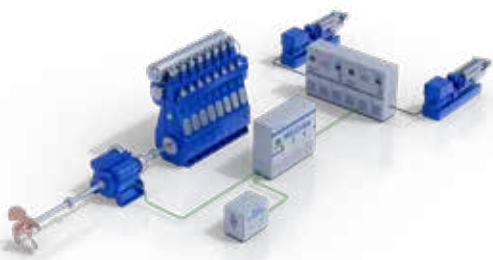
Built on widely proven technologies, our solutions offer a high Return on Investment through seamless integration across most vessel types and propulsion systems. Whether optimizing a 2-stroke Main Engine or a 4-stroke Main Engine, our solutions maximize fuel efficiency and asset value, ensuring a rapid payback period for shipowners.



Solutions

SHAFT GENERATOR SOLUTIONS

With the WE Drive and direct drive permanent magnet shaft generator, the ship's electrical power is generated by the fuel-efficient Main Engine operating at variable speed.



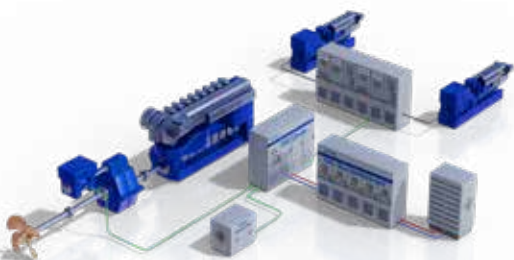
PTO Variable Speed Shaft Generator enables propulsion machinery to operate at variable speed.

PTI Take Me Home allows the shaft generator to operate as an electric motor.

PTI Boost utilises the shaft generator as an electric motor, driven by the WE Drive and provides additional torque to the propeller alongside the Main Engine. PTI Boost allows for low-load optimisation of the Main Engine in normal conditions.

Hybrid Shaft Generator

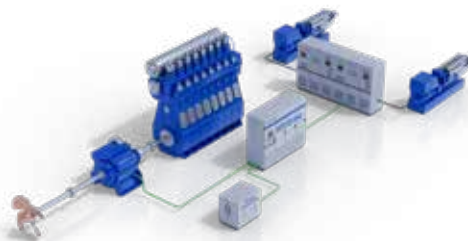
The shaft generator connects the vessel's electrical network via WE Drive. Electrical power is distributed through a combination of AC switchboards and DC power distribution. An Energy Storage System (ESS) is connected to the DC power distribution, allowing fast power response, peak shaving, and dynamic power support.



RETROFIT & CONVERSIONS

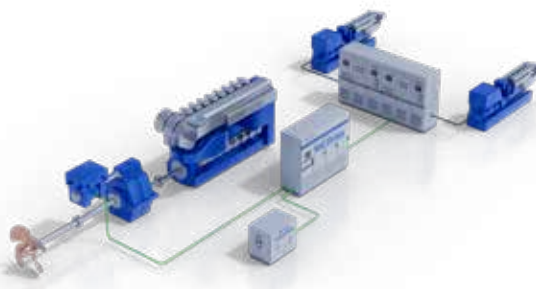
Retrofit for 2 stroke application

Retrofit solution eliminates the need for traditional auxiliary engines during sea operations, reducing energy waste and improving overall vessel efficiency. Installing an in-line shaft generator directly on the propeller shaft line enables vessels to harness the main engine's mechanical power to generate electricity. By generating electricity with the main propulsion engine instead of auxiliary generators, the retrofit system reduces total fuel consumption significantly.



Retrofit for 4 stroke application

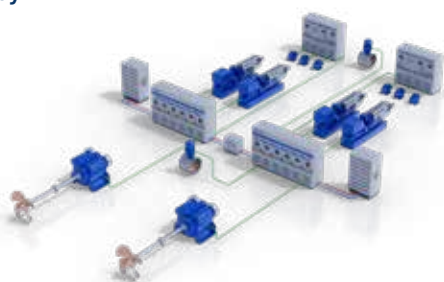
Retrofit solution eliminates the need for traditional auxiliary engines during sea operations, reducing energy waste and improving overall vessel efficiency. Installing a variable frequency drive between the shaft generator and main switchboard enables the main engine and propeller to run at its optimal operation point. By generating electricity with the main propulsion engine instead of auxiliary generators, the retrofit system reduces total fuel consumption significantly.



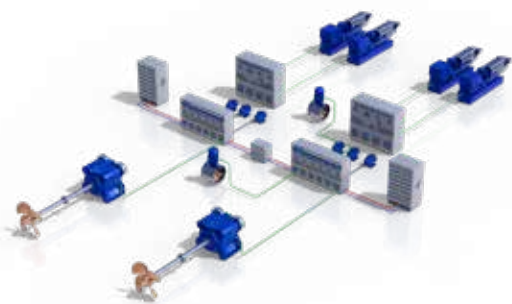
ELECTRIFICATION SOLUTIONS

Electric Propulsion

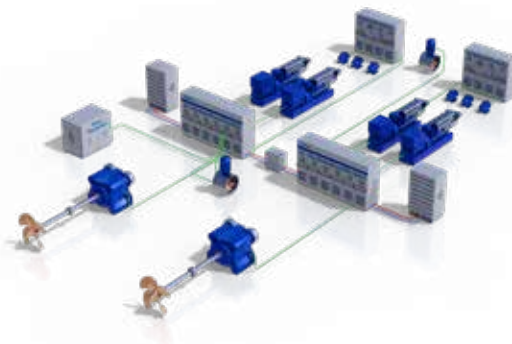
Electric Propulsion includes variable speed Auxiliary Generators, energy storage, and Permanent Magnet technology plus a ship-wide DC power distribution system. The need for large switchboards and bulky transformers is omitted which means substantial savings in space and weight as well as far better total efficiency.



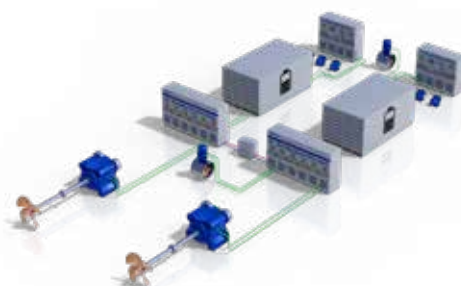
AC Electric propulsion utilizes main generator running at fixed speed with conventional AC power distribution. AC Hybrid Electric propulsion combines conventional AC power distribution with, for example, fuel cells and energy storage.



DC Electric propulsion utilizes main generator running at variable speed with efficient DC power distribution. DC Hybrid Electric propulsion combines efficient DC power distribution with, for example, fuel cells and energy storage.

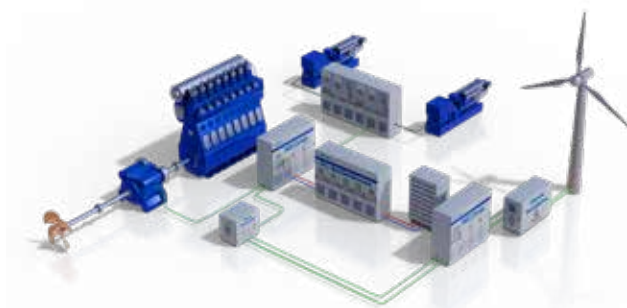


Full electric propulsion and power system delivers zero emissions from source to wake, high efficiency, and quiet operation. Optimized energy storage, advanced power electronics, and intelligent control ensure reliable performance, reduced operating costs, and compliance with the most demanding environmental requirements.



Shore power

Shore power, also known as Onshore Power Supply (OPS), or Alternative Marine Power (AMP), is increasingly standard in newbuilds and a cost-effective retrofit for existing vessels. It enables vessels to reduce fuel consumption, emissions, and noise by connecting to onshore electricity while in port. Instead of running auxiliary engines, ships can use clean shore power to supply onboard loads and charge energy storage systems. WE Tech is actively advancing the development of dedicated Onshore Power Supply (OPS) capabilities to further optimize this transition for our partners.



Technologies

WE Tech's solutions represent the evolution of decades of maritime experience. We have elevated energy management and system control to new standards, providing shipowners with the data-driven precision needed to optimize performance in real time.

WE DRIVE™

Variable frequency drive technology for generator/motor applications is a compact and robust modular design. The WE Drive™ is either air or liquid cooled. Power range is from 0.5 MW to 6 MW in low voltage applications.

VARIABLE SPEED GENERATOR

The variable speed permanent magnet generator is lightweight and compact-sized, with the highest efficiency over the full speed and power range. It is virtually maintenance-free. We also offer solutions based on synchronous and asynchronous generator technology.

ENERGY MANAGEMENT SYSTEM (EMS)

With the energy management system and dedicated power management system, we control various operation modes of the ship as well as start/stop sequences, etc. The EMS also interfaces with other control systems on board a ship.

ENERGY STORAGE SOLUTION (ESS)

We use the latest lithium-ion technology from ESS suppliers. With a DC-DC converter, we integrate the ESS into our solution.

SHORE POWER SOLUTION

Shore power is conditioned for the vessels' electrical system via the WE Drive™. Vessels become unaffected by the variations in voltages and frequencies of the national power grids worldwide – shore power is always matching.

FUEL CELL SOLUTION

Fuel Cell Integration via DC/DC conversion to the ship's energy-efficient power distribution system. Seamless operations utilising Fuel Cells and ESS combinations for zero emission power.

WWTECHNIC
trust & competence

**YOUR ENGINEERING
AND SERVICE PARTNER**
FROM COMMISSIONING TO LIFECYCLE SUPPORT



We offer project services and lifecycle support with expertise and responsibility to suit customers' individual requirements.

SERVICE OPTIONS

- General condition inspections
- Periodical maintenance
- Tailor-made service scopes
- Breaker services
- Cooling system services
- Technical assistance

AGREEMENTS & SUBSCRIPTIONS

- Frame agreements
- Storage & reforming services
- Spare parts as a service
- Inspect, analyse & support
- Remote troubleshooting

SERVICE ORGANISATION

- Field service
- Technical service
- Service sales



MAINTENANCE

- ✓ Decreased risk of downtime
- ✓ Regular follow-up and repairs



SERVICE

- ✓ Top-notch professionals
- ✓ Partner network



SPARES

- ✓ OEM spares
- ✓ Supplier network



UPDATES

- ✓ Extended rpm range
- ✓ Parameter update



TRAINING

- ✓ Based on customer needs, e.g., troubleshooting



AGREEMENTS & SUBSCRIPTIONS

- ✓ Planning ahead



UPGRADES

- ✓ Increased output
- ✓ Additional operation modes

Selected references

We have pioneered the transition to a zero-emission future by delivering cost-effective, sustainable lifetime solutions to the maritime industry. Our benchmarking technology is a proven global standard, trusted by customers worldwide to optimize performance and ensure compliance across diverse fleets and vessel types. Please visit wetech.fi/references to access our full reference list.



Ship type: 3600 ceu PCTC
Shipowner: UECC, Sweden
Ship builder: Jiangnan shipyard, China



Ship type: 155000 DWT Suezmax Tanker
Shipowner: Maran Tankers Management, Greece
Ship builder: New Times Shipbuilding, China



Ship type: 80000 DWT SUL Bulk Carrier
Shipowner: Algoma Shipping, Canada
Ship builder: Yangzi Mitsui Shipbuilding, China



Ship type: 3100 lm RoPax
Shipowner: Stena Line, Sweden
Ship builder: China Merchant Jinling Shipyard (Weihai), China



Ship type: 22000 DWT Chemical Tanker
Shipowner: Donsötank, Sweden
Ship builder: Wuhu Shipyard, China



Ship type: 27650 DWT MPV
Shipowner: Spliethoff, Netherlands
Ship builder: Wuhu Shipyard, China



Ship type: 7000 DWT LPG Carrier
Shipowner: Bore, Finland
Ship builder: Wuhu Shipyard, China



Ship type: 11700 CEU DF PCTC
Shipowner: Wallenius Wilhelmsen, Norway
Ship builder: China Merchants Jinling (Nanjing), China



Ship type: 90000 CBM LPG Carrier
Shipowner: Geogas Maritime, France
Ship builder: Hyundai Heavy Industries, Korea

MP CREATIVE METAL

CREATIVE SOLUTIONS FOR INDUSTRIAL AND MARINE APPLICATIONS

www.mpcreativemetal.fi

ISO 9001
BUREAU VERITAS
Certification



WE OFFER SPECIAL-PURPOSE INDUSTRIAL MACHINERY

Turning ideas into reality.



CUSTOMIZED
SOLUTIONS



PREMIUM-QUALITY
MACHINES



LONG-TERM
INVESTMENTS

SERVICES:

MECHANICAL DESIGN / MANUFACTURING / COMPLETE SOLUTIONS /
PROTOTYPING / PROJECT EXECUTION



ENGINEERED RELIABILITY ACROSS ALL SEAS

- Service for 2-stroke main engines
- Ship-wide service & technical support
- RCS & governor retrofits (E&A)
- Official sales agent for
- WE Tech Solutions
- Authorized distributor for Eugen Seitz marine valves



-  mtcs.eu
-  info@mtcs.eu
-  +44 1520 951 75 14



WORLD'S WIDEST RANGE FOR
SHAFT GENERATORS AND
DIRECT-DRIVE PROPULSION

BEMAC

The Switch permanent magnet marine machines



PMM1000M



PMM1200M



PMM1500M



PMM2000M

Over 550 ordered and more than 350 sailing reliably, slashing fuel costs and emissions.

Inductive solutions for better energy

AQ Trafotek transformers: Maximizing performance - Minimizing space

AQ Trafotek designs and manufactures customized transformers for demanding applications, with special expertise in frequency converter, propulsion and special-purpose use.

Selecting the correct transformer can be complex. AQ Trafotek supports customers in choosing solutions that maximize overall system performance. By optimizing winding materials, insulation technologies, and cooling methods, we achieve high electrical and mechanical efficiency with minimal size and weight.

MAIN FEATURES:

- » Prepreg, VI and cast resin technology
- » Power range up to 20 MVA
- » Voltages up to 36 kV
- » Cooling options: AN, AN/AF, AF, AFWF
- » Degree of protection up to IP 54

AQ Trafotek – high performance, engineered to fit.



AQ Trafotek produces a comprehensive range of dry-type transformers for demanding Marine and Offshore applications

AQ Trafotek has provided transformer for all the major shipyards in the world since 1983.

Over 1600 vessels around the world are equipped with AQ Trafotek transformers.

AQ Trafotek can provide propulsion, distribution, multi-pulse (6P-24P), integrated LC filter, battery charging, ESS and shore connection transformers.

Read more: www.trafotek.fi

AQ TRAFOTEK OY

Kaarinantie 700, 20660 Littoinen, Finland
Tel. +358 2 275 9200
info.trk@aqgroup.com

AQ Group is a global manufacturer of components and systems for industrial customers with high demands. AQ Group consists mainly of operating companies each of which develop their special skills and in cooperation with other companies, provides cost effective solutions in close cooperation with the customer.

WE Tech

Headquarters:
Vaasanpuistikko 19
65100 Vaasa, Finland

Office: +358 20 786 1680
solutions@wetech.fi

www.wetech.fi

