SEAPOWER

Electrical Systems

POWER OF THE SEA

SHAFT CONVERTER

www.seapower.com.tr

SHAFT CONVERTER

SEAPOWER ELECTRICAL SYSTEMS CO. Inc.

Seapower R&D and Innovation Center, providing critical solutions in the field of power electronics, operates in the shipyard area of Altınova/Yalova on a 10000m2 site.

The company offers turnkey systems that reduce fossil fuel consumption of ships due to new regulations and improve EEXI and CII Rating values. SEAPOWER is also involved in green port transformation projects for ports.

SEAPOWER, a producer of static frequency converters, static ups, transformer for the ship and yacht building industries, manufactures shore power converters for yachts and grid frequency converters for ships with Marine class products. With its innovative and solution-oriented approach, SEAPOWER is a pioneer of quality both domestically and internationally. Known for its reliable products in the maritime sector, SEAPOWER is also an approved supplier preferred in the defense industry thanks to its innovative R&D capabilities.

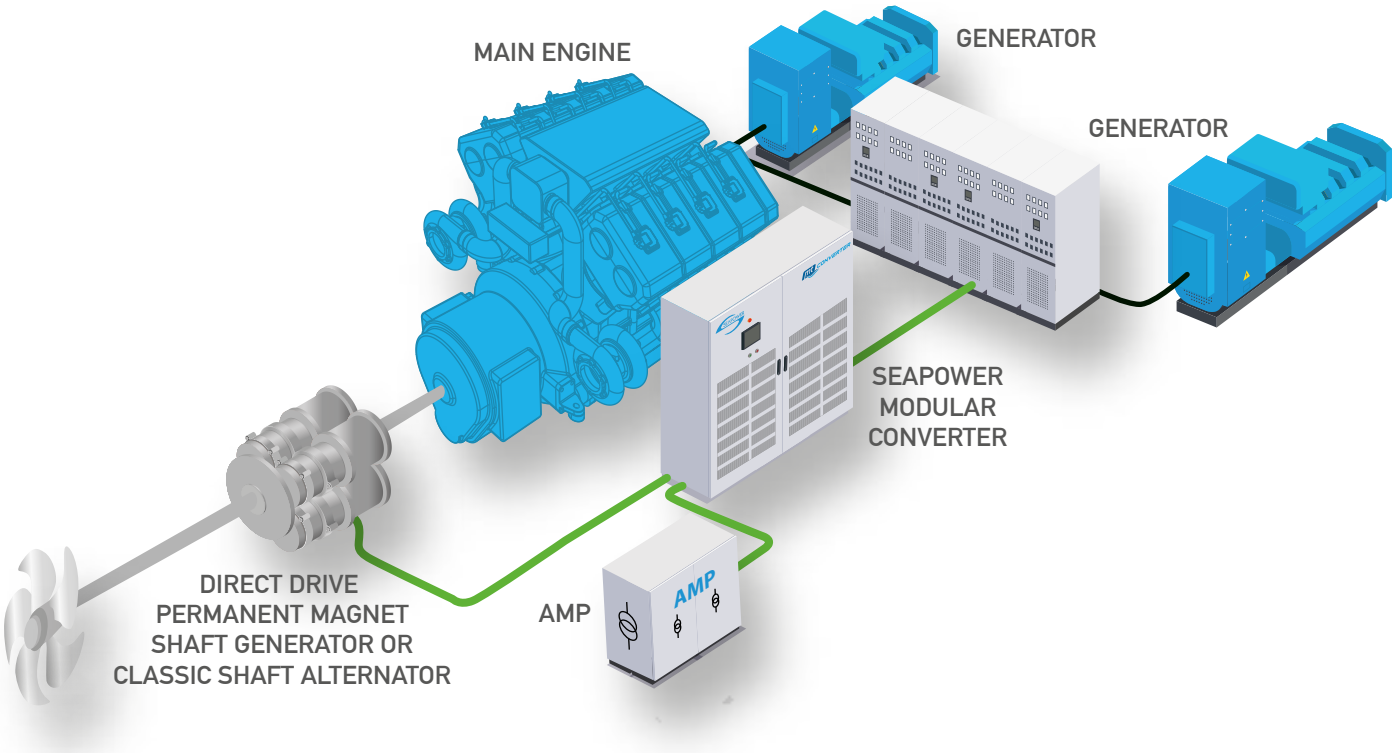
SEAPOWER, being among the leading organizations in the energy sector with its customer-focused approach and contemporary management understanding, continues its work with a 100% customer satisfaction focus. With a top-quality service approach provided by our expert team, SEAPOWER aims to offer future-oriented technologies to its customers and to provide solutions for their evolving new technology needs through long-term business partnerships.

WHY WE DO

- In December 2022, the European Institutions (i.e. Parliament, Council and Commission) reached an agreement on the review of EU Directive establishing the system for greenhouse gas (GHG) emission allowance trading (ETS) (Dir. 2003/87). The agreed text of the revised Directive has just become available and will be formally voted by all 3 EU Institutions in the upcoming months.

- The Company remains the responsible entity for surrendering allowances and for overall compliance with the Directive and the relevant national rules. However, when the ultimate responsibility for the purchase of the fuel and/or the operation of the ship is assumed by a different entity (e.g. charter), the Company is entitled to reimbursement from that entity for the costs arising from the surrender of allowances (EU member States shall regulate such issue).

- If the Company does not surrender sufficient allowances by 30 September of each year to cover the reported emissions, it shall pay a penalty equal to 100 EUR for each ton emitted and for which allowances have not been surrendered. If the Company fails to comply with the surrender requirements for two or more consecutive reporting periods, all its ships may be denied to enter in EU ports until the Company fulfils its surrender obligations.



WHAT WE DO

- We provide a wide range services in the fields of power electronics and production of Energy and efficiency since last decades.
- We offer solutions on carbon capture regulations based on EEDI/EEXI .
- Our products are not only lowering operational costs also increase the efficiency which means better compliance with environmental legislation.
- By our solutions, shaft generator shall be used on the wider speed range as well as combinator speed range.
- The operational flexibility of shaft generator is significantly improved, by retrofitting our product for controlling the shaft generator's output.
- The cooling systems of SEAPOWER Shaft Converters are designed and manufactured in either air-cooled or water-cooled configurations depending on the application requirements.

HOW IT WORKS

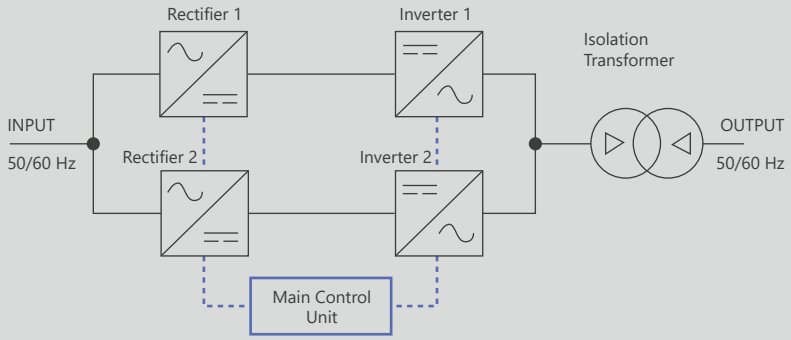
- Shaft generators on board ships are driven by the main engine to supply power to the mains. The mains have to be supplied with constant voltage and frequency by the shaft generator whilst the speed of the main engine changes, i.e. when the vessel travels at different speeds or if the propeller speed strongly varies in heavy seas.

- On ships with fixed pitch propellers, the speed is set via the propeller speed. If using controllable pitch propellers, the shaft speed and the propeller pitch are adjusted simultaneously in order to achieve optimum propeller efficiency in this so-called combinator mode. Even with this type of propeller, it is thus economical to use shaft generator systems with frequency converter for variable speed in order to permit combinator mode from pier to pier.

- The system is installed between shaft generator and main switch board to maintain the nominal voltage and frequency level of shaft generator output.

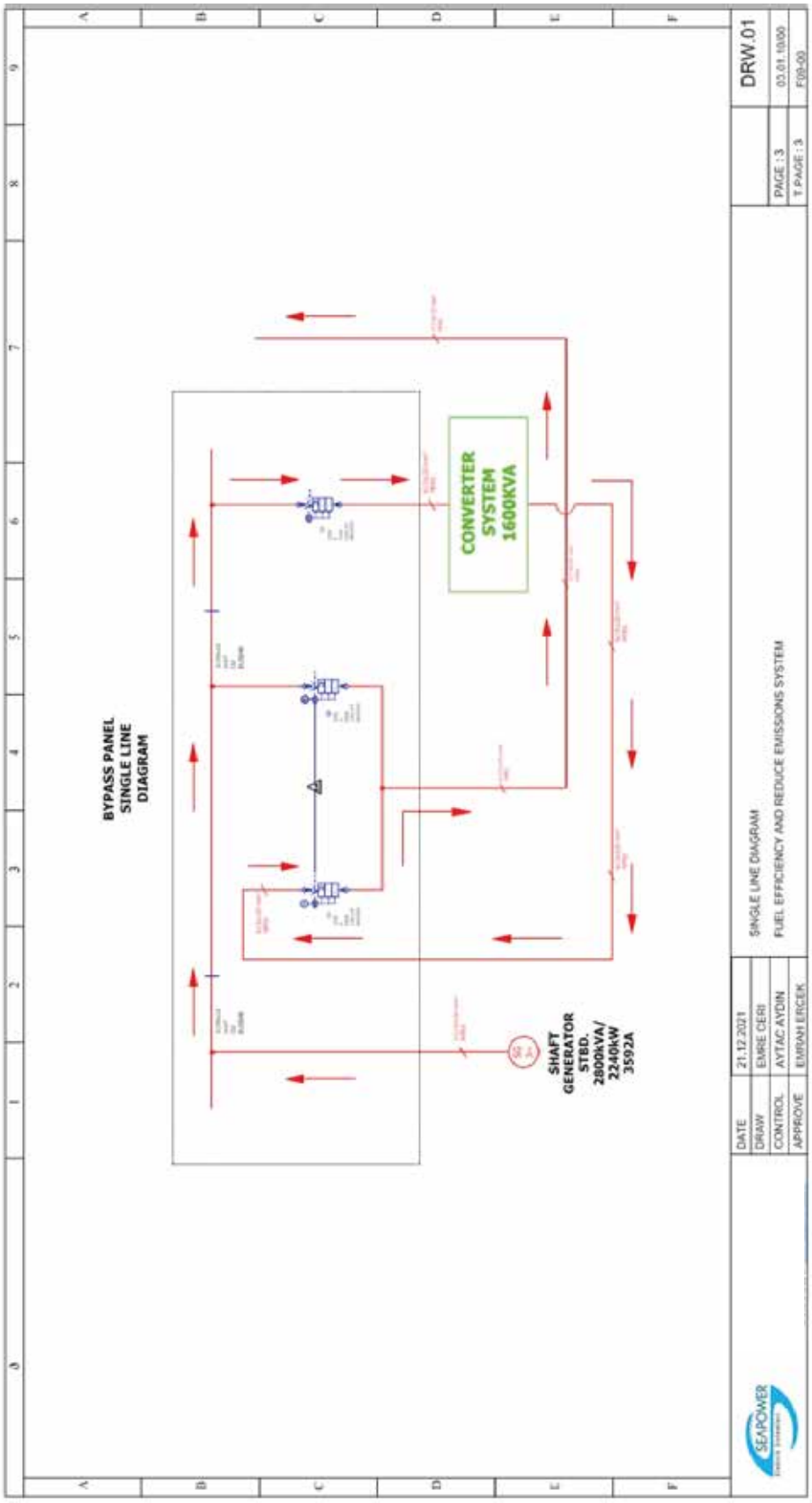
- With a SEAPOWER 1600kVA MTSFC, it is possible to utilize the shaft generator at a wide range of main engine RPMs,

SINGLE LINE DIAGRAM



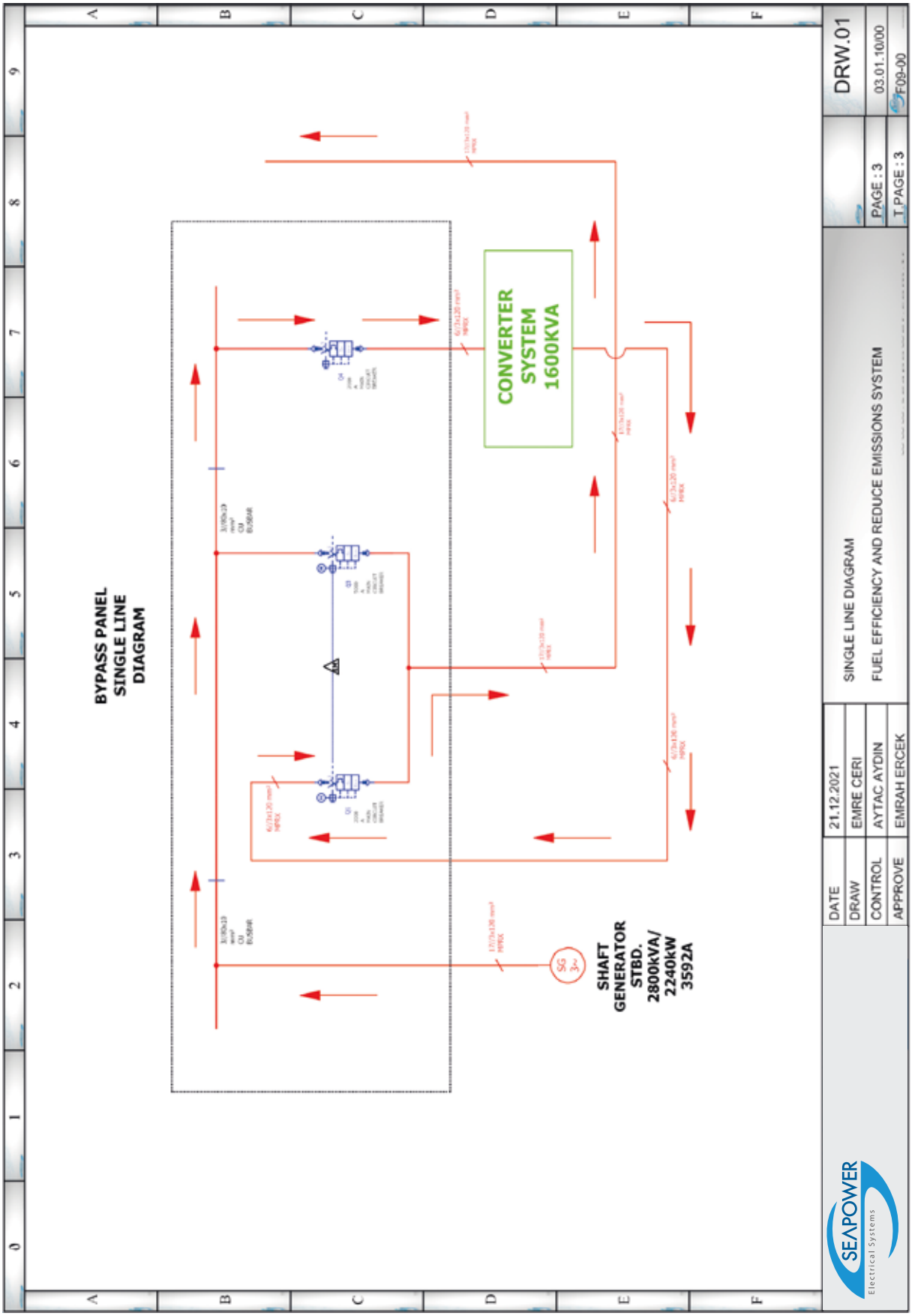
HOW IT WORKS

Single Line Diagram for the System



COMPONENTS OF THE SYSTEM

- SEAPOWER 1600kVA MTSFC Model Modular Shaft Converter.
- 1250kVA Dry Type Galnavic Isolation Transformer.
- By – Pass Cabinet.
- Entegrations to Vessel Control Automation Systems.
- All necessary Cabling and Infrastructure.
- All Equipment Certified by Loyd's Register Class Society.


BYPASS PANEL
SINGLE LINE
DIAGRAM
CONVERTER
SYSTEM
1600KVA
SHAFT
GENERATOR
STBD.
2800kVA/
2240kW
3592A
SG
3~
DRW.01
03.01.1000
F09-00
PAGE : 3
T.PAGE : 3
SINGLE LINE DIAGRAM
FUEL EFFICIENCY AND REDUCE EMISSIONS SYSTEM
DATE
DRAW
CONTROL
APPROVE
21.12.2021
EMRE CERI
AYTAC AYDIN
EMRAH ERCEK
SEAPOWER
Electrical Systems

KEY BENEFITS OF SHAFT CONVERTER

- Reduce fuel consumption (7% and 10% based on combinator mode) and costs
- Reduce maintenance costs
- Less MDO and IFO consumption
- Reduce noise levels associated with onboard power generation
- Increased CII and EEXI ratings

mt CONVERTER

mt UPS

mt RECTIFIER

mt TRANSFORMER

mt CHARGER

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SEAPOWER ELECTRICAL SYSTEMS CO. Inc.

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