



**SolarGrid Energy Solutions**

# **Shaft generator for container ship**



## Overview

---

Why do shipbuilders use shaft generators as power take-off systems?

Shipbuilders are now integrating shaft generators into their newbuilds as Power Take-Off (PTO) systems to achieve considerable savings on energy and meet the necessary fuel/energy regulations. To ensure fuel sustainability and efficacy, some new vessels have incorporated hybrid propulsion systems into their vessels.

How does a ship generator work?

Every shaft generator comprises of two bearing alternators that are connected to the ship's main engine to generate electric power. There is also a gearbox, a cooling system, a coupling device that connects the shafts to the ship's engines, a frequency converter, and a control system.

What is the THD of a shaft generator?

The THD in the mains voltage is below 5% in all operational states. Shaft generator systems are a valuable technical solution for ship owners who are looking for economical and cleaner electrical power generation during their sea voyage.

What are shaft generators used for?

For military vessels, shaft generators have helped generate power for emergency purposes; for tankers, shaft generators were used for pumping operations and onboard electrical systems, while they were mostly used to generate enough electricity to power hotels and shipboard systems in passenger and cruise vessels.

What is the future of shaft generators?

The future of shaft generators lies in their integration with hybrid power systems. By combining multiple energy sources such as shaft generators, batteries, and renewable energy systems like solar or wind, vessels can

further optimize fuel consumption, reduce emissions, and enhance power availability.

What are the applications of shaft generators in the marine industry?

There are currently two significant applications of shaft generators in the marine industry: Shipbuilders are now integrating shaft generators into their newbuilds as Power Take-Off (PTO) systems to achieve considerable savings on energy and meet the necessary fuel/energy regulations.

## Shaft generator for container ship



### AGN 039 - Marine Shaft Generators

**DEFINITION** A shaft generator is a term used by the Marine industry. It means an a.c. generator (alternator) that is to be driven by the Ships main engine. The main ship propulsion shaft from ...

### A future for container vessels that thinks outside the box

Kongsberg Maritime has been working on ways to meet the coming needs of the container shipping industry for some time. In anticipation of new environmental regulations and customer

...



### Permanent magnet shaft generator



May 20, 2022 · Did you know... ABB's permanent magnet shaft generator boosts energy efficiency of ocean-going vessels? Commonly used on large marine vessels, a shaft generator ...

### PTO Shaft Generator for Economical

## Ship Operations

Solution One, PTO. Save fuel and cut costs by using a variable speed shaft generator for economical operations.



### Variable speed shaft generator (PTO/PTI)

ABB shaft generator systems to support ten COSCO Shipping container vessels with energy efficiency. The system will yield fuel savings of up to 17 percent, and it will have up to 20 ...

## Shaft Generator System - Vessel performance

ABB has secured a contract with shipyard COSCO Shipping Heavy Industry to equip 10 China COSCO Shipping container vessels with its permanent magnet shaft generator systems. Due ...



## Basic principles of ship propulsion

Jan 14, 2021 · Future in the making This paper will explain the most elementary terms used regarding ship types, dimensions and hull forms, and clarify

some of the parameters pertaining ...



---

## Design and Energy Efficiency Analysis of a Shaft ...

Oct 18, 2024 · Optimization techniques are employed to maximize the performance and efficiency of the shaft generator system. This involves fine-tuning control algorithms, optimizing power ...



## New PM shaft generator provides higher power ...

Jan 31, 2022 · Higher power outputs for large vessels. Now our newest PM shaft generator PMM2000M offers the large container vessel market the same ...

---

## ????-CSSC Ship Electric Technology (Wuxi) ...

S-Renewable References Research vessel, engineering platform, passenger liner, wind engineering vessel, and

sightseeing boat.



### **Order for 10 new PMM2000M shaft generators**

Sep 10, 2024 · The Switch has received a new order for 10 permanent magnet direct-drive PMM2000M shaft generators for 10,300 TEU dual-fuel container vessels. Delivery is expected ...

### **Demand For Maritime Shaft Generators ...**

Feb 21, 2024 · 30 years ago shaft generators with PTI capability kept container ships sailing at top speed. That purpose gone, PTI/PTO is making a new

...



### **CII and EEXI drive shaft generator use**

Oct 9, 2023 · Permanent magnet (PM) shaft generators are quickly gaining momentum in the container ship sector due to their fuel and emissions-saving ...



---

### **ABB shaft generator systems to support ten ...**

Nov 24, 2022 · ABB's permanent magnet shaft generator system will help the COSCO vessels achieve required efficiency levels as well as CII ratings which ...



### **Shaft Generator - ECORESERVE ENGINEERING**

? Container Ships - Ensures efficient power generation during long-haul voyages. ? Bulk Carriers & Tankers - Supports fuel-saving strategies and emission reduction. ? Passenger Vessels & ...

---

### **WE Tech Solutions to Maximise Energy Efficiency ...**

Feb 13, 2023 · To help achieve the required IMO regulatory standards on efficiency levels, the Finnish shipping

company Langh Ship Oy Ab opted for ...



### **Optimum arrangement of the propulsion shafting system for a ship**

Aug 7, 2025 · In recently ships are being equipped with shaft generators to comply with stricter marine environmental regulations and reduce fuel consumption. Shaft generators utilize the ...

### **Shaft generation system for 4600 TEU container vessels ...**

This new-generation coastal container ship is designed for domestic offshore navigation and will significantly enhance the operational capacity of China Grain Logistics' fleet of 116 container ...



### **Wide range of shaft generators**

RENK shaft generators - efficient and reliable system to gain energy from the main engine. Reduce emissions and fuel

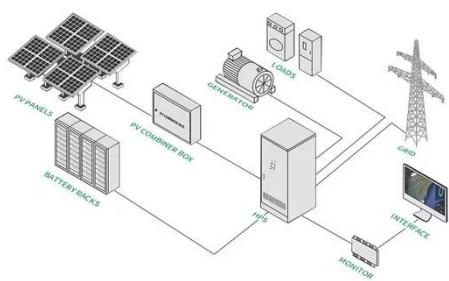
consumption.



### **(PDF) Modeling of Ship's Shaft Generator**

Abstract Shaft generators, which are inserted in the shafting between the main propulsion engine and propeller, are important source of power on ships.

...



### **Implementation and Use of Shaft Generators on Ships**

Shaft generators, also known as shaft-driven generators or propulsion generators, are integrated into a ship's propulsion system to convert mechanical energy into electrical energy. They ...

### **Energy Solutions Towards Zero Emission ...**

Jul 2, 2025 · WE Tech Solutions is a leading energy solution provider with a global presence in the shipping industry. The company specialises in ...

**LPR Series 19'**  
**Rack Mounted**



### **CII and EEXI drive shaft generator use**

Oct 9, 2023 · Permanent magnet shaft generators are quickly gaining momentum in the container ship sector due to their fuel and emissions-saving abilities

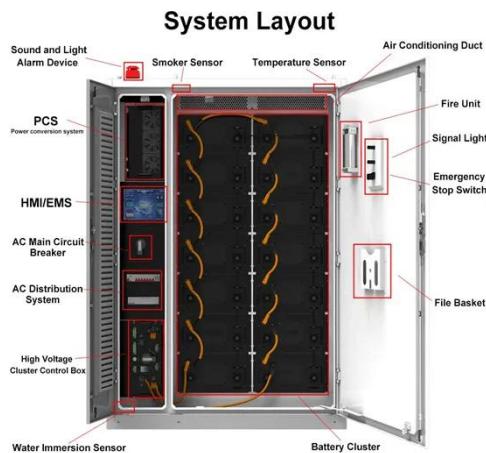
### **GreenVoyage2050**

Feb 14, 2025 · IMO GreenVoyage2050 is supporting shipping's transition towards a low carbon future. Working with selected developing countries around the ...



### **Shaft Generators & Hybrid Solutions**

Dec 16, 2024 · Adding shaft generator capability to vessels helps ship owners and operators to improve energy efficiency and reduce fuel consumption



supplementing the operation of other ...

## Implementation and Use of Shaft Generators on ...

In the pursuit of greener and more energy-efficient operations, the maritime industry has increasingly turned to innovative technologies to optimize power ...



## Four successful ways to electrify mechanical propulsion - ...

Jun 6, 2025 · Adding batteries to a shaft generator system creates a hybrid power system for your vessel. Hybrid shaft generator systems contribute to decarbonisation by greatly reducing or ...

## The ship's electrical network, engine control and ...

May 19, 2009 · Shaft generator (SG) network In addition to auxiliary generators an electrical network may also consist of shaft generators (SG)

driven by the main engine. In some ...



## Shaft generator retrofit difficult, not impossible ...

Sep 23, 2024 · Because it can use the vessel's most efficient engine - a gearless, long stroke piston engine - to generate power, a shaft generator is regarded ...

## Shaft Generators: The Next Step in Ship ...

May 21, 2025 · Shaft generators offer shipowners the unique opportunity to save on energy or fuel expenses while prolonging the longevity of their vessels'

...



## Variable speed shaft generator systems

Oct 11, 2023 · Shaft generator systems - simply defined as rotation electrical machines that take power from the main propulsion engine to produce ...



---

## New shaft generator technology boosts marine ...

Mar 31, 2022 · The latest in-line shaft generator from ABB will enable ship operators to benefit from the efficiency, performance and reliability advantages

...



## SHIP PROPELLER AND SHAFTING SYSTEM

Ship's propulsion is done by electrical power or prime movers run by diesel engines. Normally ships have single or double propeller system. Number of ...

---

## Shaft Generator System - Vessel performance

The latest in-line shaft generator from ABB will enable ship operators to benefit from the efficiency, performance and reliability advantages of permanent

magnet technology. The new generator

...



### **Solutions and products for electric propulsion / drives**

2 days ago · Energy-saving and environmentally friendly shaft generator with motor function Spiraling fuel costs and anticipated emission controls already feature strongly in the early ...

### **A decision making tool concerning retrofit of shaft generator ...**

Nov 15, 2015 · This paper considers the area of fuel saving through retrofitting shaft generator frequency converter during a vessel operational phase. This retrofit...



## **Contact Us**

For catalog requests, pricing, or partnerships, please visit:  
<https://www.wf-budownictwo.pl>