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GIHEUNG R&D CENTER

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History

2017 Founded VINSSEN Co., Ltd.

2018 Established R&D Center Acquired ISO9001:2015

2019 Acquired the Hydrogen Industry Regulation Free Zone R&D titled "33ft H2 Electric-Powered Boat-Engineering, Manufacturing, Sea Trial"

2020 Signed agreement to construct and demonstrate hydrogen vessels with Jeolla Province Municipal Council

2021 Established VINSSEN INTERNATIONAL PTE. LTD. in Singapore Presented Hydrogenia to President Moon Jae-in in Ulsan City

2022 Acquired AIP Certificate from the Korean Register for the 120kW maritime Fuel-Cell System

2023 Delivered Hydrogen Fuel Cell System for Industry Project in Shell Singapore

Acquired AIP Certificate from the Korean Register 100kW Fuel Cell Module for Marine Application

Acquired AIP Certificate from the Korean Register 100kW Fuel Cell Module for Marine Application

2024 Acquired AIP Certificate from the Korean Register 250kW
Fuel Cell Module for Marine Application
Obtained Class Approval from Bureau Veritas (BV) for the
Hydrogen Fuel Cell System for Commercial Maritime Use

2025 Acquired Type Approval from both RINA and KR for Maritime Hydrogen Fuel Cell Stack



Company Introduction

VINSSEN is a maritime technology company leading the charge in reducing greenhouse emissions through innovative and sustainable products, solutions.

VINSSEN is also positioned to support maritime electrification with battery solutions. When paired with batteries, fuel cells can benefit from increased efficiency and longer operational ranges.

With support from a dedicated team in Korea that has a deep affiliation with the shipbuilding industry. VINS-SEN is able to provide customized solutions for diversified use cases across a large spectrum of clients.

VINSSEN enables the use of hydrogen (and alternative fuels like ammonia and methanol) as cleaner and more efficient energy sources for the maritime industry.

VINSSEN offers differentiated performances via a proprietary Titanium Bipolar Plate Fuel Cell Technology, which results in bettery durability and weight profiles for maritime applications.



World Wide Network Service





DOMESTIC

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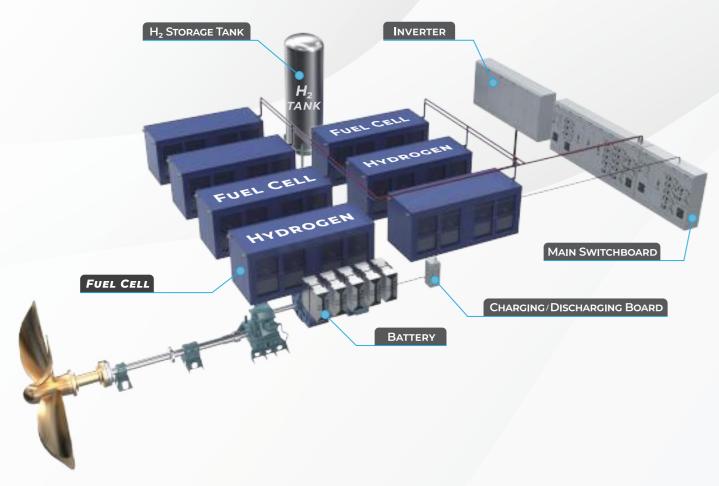




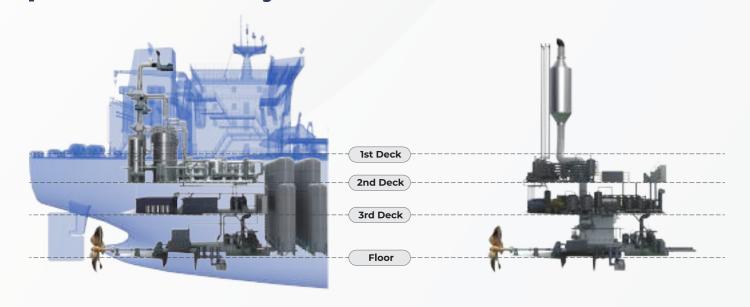
Applications

Ammonia Cracking &

Fuel Cell Power System



Comparison Between Internal Combustion Engine & Fuel Cell Power System



AMMONIA CRACKING & FUEL CELL POWER SYSTEM DIESEL **PROPULSION SYSTEM**

Flagship Product

Fuel Cell Power System

The Fuel Cell Module is a device that generates and supplies electricity, consisting of an integrated fuel cell module that includes a stack, BOP(Balance of Plant), DC-DC Converter, and monitoring panel.

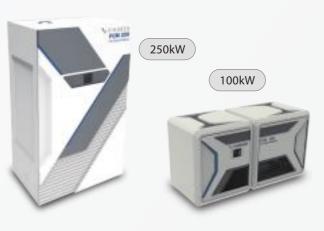
- The MEGA FC 2.0 is a container-type product designed for easy installation and control of fuel cell modules on large ships.
- · It houses eight 250kW fuel cell modules, providing a total rated output of 2.0MW.
- · Additionally, there are models available for smaller vessels with 100kW as well as medium to large vessels 250kW.

MEGA FC 2.0



Specification	
Туре	PEM Fuel Cell
Rated Power(Contionuous)	2.0 MW
Size(WxDxH)	6.0 x 2.5 x 2.5 (20ft Container)
H ₂ Inlet Pressure	6 ± 1 barg

FCM 100/250



pecification	FCM 100	FCM 250
arget Application	Boat	Vessel
stallation Type	Horizontal	Vertical
2 Inlet Pressure(barg)	6 ± 1	6 ± 1
ated Power(Continuous, kW)	100	250
mbient Temperature(°C)	5 ~ 45	5 ~ 45
mbient Humidity(%)	0 ~ 95	0 ~ 95
ooling Type	Water-Cooled	Water-Cooled
gress Protection	IP 44	IP 44
ystem Size(WxDxH, mm)	1,675x780x1,020	1,300x1,100x1,800

92kWh*

113kWh

Li-FePO4

672

113

756

567

IP 44

1,500

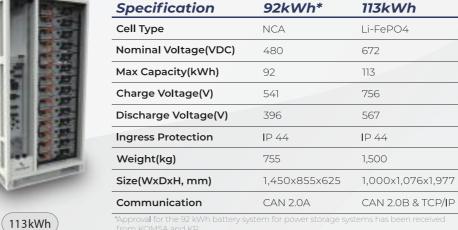
CAN 2.0B & TCP/IP

Battery System

92kWh

This is a battery for marine applications, designed to supply electric power to the propulsion system and store energy generated by the electric generation system. It includes battery cells, a Battery Management System (BMS), and a protection system.





Eco-Friendly Pleasure Craft

8.2M Government Service Boat

Electric-Battery Propulsion







8.2 m (26.9 ft)	Beam Overall	2.6 m (8.53 ft)
1.2 m (3.94 ft)	Draft	0.6 m (1.6 ft)
12 Pax	Gross Tonnage	3.2 Ton
	1.2 m (3.94 ft)	

Electric Propulsion			
Propulsion Type	Stern-drive	tern-drive Battery	
Cruising Speed	8.0 knots	Propulsion Motor	150 kW
Max Speed	20.0 knots	Hull Material	Aluminu

10M Government Service Boat

Electric-Battery Propulsion







Hull			
Length Overall	10.0 m (19.0 ft)	Beam Overall	3.0 m (9.84 ft)
Depth	1.0 m (3.0 ft)	Draft	0.5 m (1.6 ft)
Max Person	12 Pax	Gross Tonnage	4.98 Ton

Electric Propulsion			
Propulsion Type	Stern-drive	Battery	92 kWh x 2
Cruising Speed	7.0 knots	Propulsion Motor	150 kW x 1
Max Speed	12.0 knots	Hull Material	Aluminum

17M Government Service Boat

Hydrogen-Battery Propulsion







Hull			
ength Overall	17.4 m (57.0 ft)	Beam Overall	4.93 m (16.2 ft)
Depth	1.9 m (6.2 ft)	Draft	0.7 m (2.3 ft)
lax Person	10 Pax	Gross Tonnage	32.0 Ton
Iull Material	Aluminum		

Hydrogen-Electric Propulsion				
Propulsion Type	Water-Jet	Fuel-Cell	100 K	
Cruising Speed	12.0 knots	Battery	92 kW	
Max Speed	20.0 knots	Propulsion Motor	259 K	