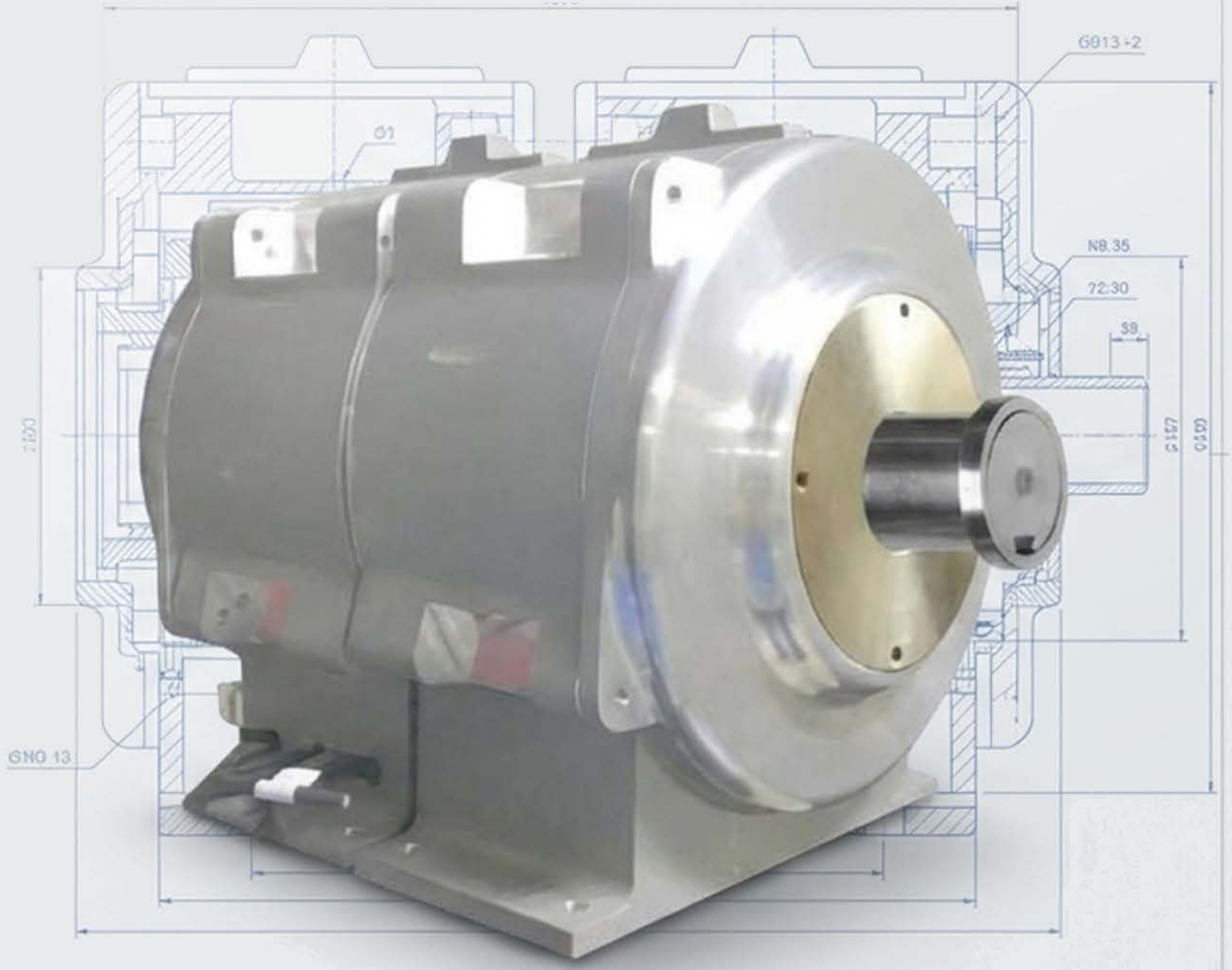
Next-Generation Electric Drive and Power Generation System

EPR Series
(Electric Power Revolution)



Unprecedented Compact Size with
Remarkably High Output

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What is EPR: “Electric Power Revolution”

EPR = Electric Power Revolution. Not merely an improvement, but a fundamental paradigm shift that will significantly transform the next-generation electrical environment.

Ultra-Compact

Achieves unprecedented miniaturization unmatched worldwide

High Output

Exceptional torque and power through non-rated variable speed operation

High Efficiency

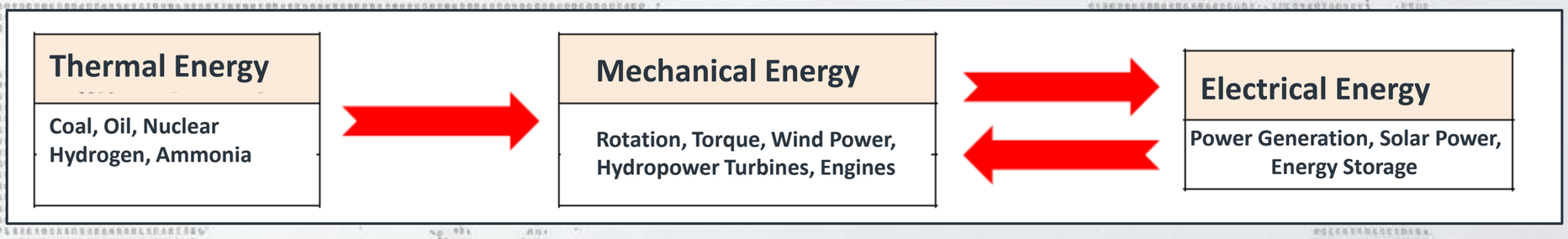
Achieves operating efficiency of 85% to a maximum of 95%

Significant Reduction in Energy Conversion Losses

Ultra electric motor and ultra electric generator that significantly reduce energy conversion losses

World's First

EPR-V (Electric Power Revolution Vehicle): Ultra Electric Motor
EPR-H (Electric Power Revolution Hybrid): Ultra Electric Generator
EPR-G (Electric Power Revolution Generator): Ultra Magnetic Generator



EPR-V is driven solely by a storage battery and an ultra electric motor (including the control circuit), and requires no inverter, reduction gear, or cooling system.
It also delivers greater torque than an internal combustion engine, with an operating efficiency of 85% or higher. When EPR-V is used in an EV, energy consumption is only 50W per kilometer traveled. Compared to 200W consumption in conventional EVs, this enables up to four times the driving range with the same battery capacity.
EPR-G provides an output of 10 kWh to 20 kWh, with cogging torque close to zero, allowing it to be rotated with three fingers, and capable of generating power even with small-scale hydropower or light wind (wind speed of 0.5 m/s). It is the world's smallest in its class, achieves a power generation efficiency of 94% or higher, and can be used in a linked configuration.
Existing power generation systems have a generation output efficiency of 40% or less (as published by Shikoku Electric Power).

EPR Series Lineup and Applications

EPR-V (Ultra Electric Motor – Vehicle)

Land, Sea, Air, Industrial, and Agricultural Power Units
Automobiles, Drones, Large Buses, Fishing Vessels, etc.

EPR-G (Ultra Magnetic Generator – Generator)

Compatible with wind power, hydropower, and biomass
Cogging torque is close to zero, enabling power generation even with light wind and small-scale hydropower

EPR-H (Ultra Electric Generator – Hybrid)

Increases power output of existing solar panels by 140%, and serves as an emergency power source Can be used immediately without selecting a storage battery

EPR Model Specifications Table

EPR-VW Ultra Electric Motor (Dual) / EPR-VS Ultra Electric Motor			
Model		EPR-VW	EPR-VS
Specifications		Non-Rated Variable Speed	
Dimensions mm	Height	389	389
	Width	500	338.4
	Depth	333	333
Weight (kg)		120	70
Input Power Supply		DC	DC
Minimum Starting Voltage (No Load) [V]		5	5
Drive Voltage Range (Maximum)		5～300 (600)	5～300 (600)
Maximum Input Current [A] (Series/Parallel)		Series 40 Parallel 80	Series 20 Parallel 40
Maximum Input Power		40kVA	20kVA
Operating Speed Range (Maximum) [RPM]		40～6,000 (10,000)	
Maximum Efficiency		86%	
Torque		Automatically Adjusts in Real Time According to Load	

EPR-H (Ultra Electric Generator)			
Model		EPR-H	
Specifications		Non-Rated Variable Speed	
Dimensions mm	Height	389	
	Width	500	
	Depth	333	
Weight (kg)		120	
Input Power Supply		DC	
Drive-Side Control Method		Automatic Control of Generated Voltage	
Drive Voltage Range (Maximum: Parallel/Series)		Varies According to Load (Parallel: 300 / Series: 600)	
Input Current Range [A] (Maximum: Parallel/Series)		Varies According to Load (Parallel: 40 / Series: 20)	
Maximum Input Power (VA)		12kVA	
Power Generation Wiring Method		Three-Phase, Four-Wire	
Generated Power Type	Electrical Type	Alternating Current (AC)	
		Single-Phase	
	Voltage	100V / 200V	
Generated Power Output	Minimum	100V Standard	1kWh
	Maximum		10kWh
Maximum Power Generation Efficiency			85%

EPR-GW (Dual Ultra Magnetic Generator) / EPR-GS (Ultra Magnetic Generator)			
Model		EPR-GW	EPR-GS
Specifications		Non-Rated Variable Speed	
Dimensions mm	Height	389	389
	Width	500	338.4
	Depth	333	333
Weight (kg)		120	70
Power Generation Wiring Method		Three-Phase, Four-Wire	
Generated Power Type	Electrical Type	Alternating Current (AC)	
		Single-Phase	
	Voltage	Varies with Rotational Speed Minimum Generated Voltage: 1 V~	
Maximum Power Generation Output		Approx. 20 kWh	Approx. 10 kWh
Maximum Power Generation Efficiency		95%	

A Patent Network Covering the Entire World

The proprietary technologies for magnetic rotary devices, electric motors, and electric generators are fully protected in countries worldwide.

Title of Invention:
Magnetic Rotary Device, Electric Motor, and Electric Generator (Patent No. 5906360)
Magnetic Rotary Device (Patent No. 6639938)
Electric Motor and Its Control Device (Patent No. 6712911)

List of Acquired Patents **As of May 2022**

Country	Filing Date	Patent Date	Patent Number
Japan	2014/8/8	2016/3/25	Patent No. 5906360
	2016/2/12	2020/1/7	Patent No. 6639938
	2016/6/23	2020/6/4	Patent No. 6712911
United States	2016/2/9	2018/12/4	US 10,148,159 B2
Germany	2014/8/8	2022/3/10	DE 60 2014 081 338.0
United Kingdom	2014/8/8	2022/3/8	EP 3 032 718 B1
France	2014/8/8	2022/3/9	3032718
China	2014/8/8	2018/6/8	CN 105453395 B
Hong Kong	2014/8/8	2019/6/6	HK1219814
Macau	2018/8/9	2018/11/13	J/003221
South Korea	2016/2/5	2017/9/18	10-1781085
India	2014/8/8	2021/11/30	383223


Japan

Japan

Japan

United States


Germany


United Kingdom

France


China


Hong Kong


Macau


South Korea

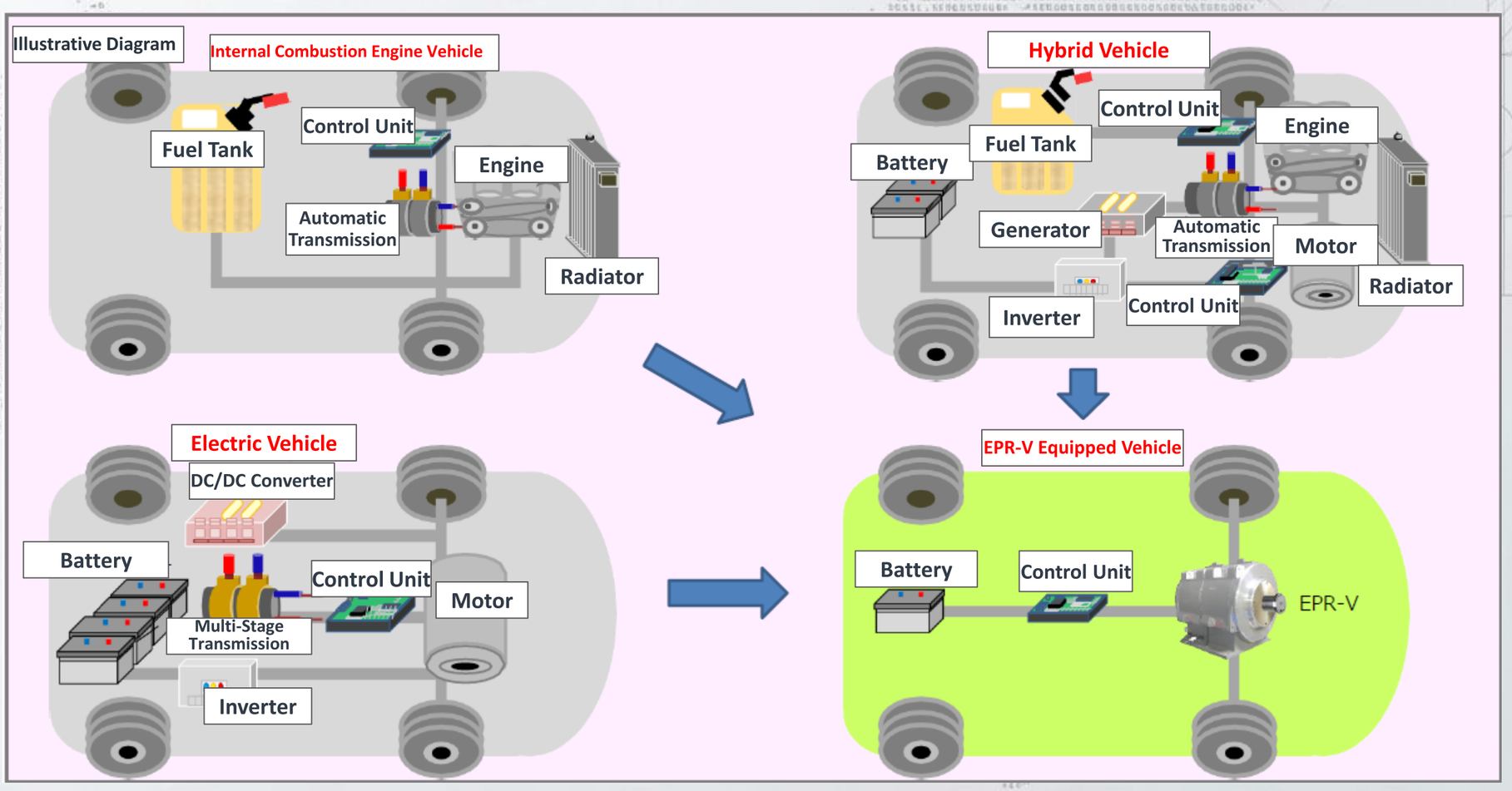

India

The Future of Automobiles Will Change

Engines will be eliminated **Radiators will be eliminated**
Motors will be eliminated **Battery capacity reduced to one-quarter**
Multi-stage transmission systems (AYM not required)
Line inverter control equipment not required

Component Name	Internal Combustion Engine Vehicle	Hybrid Vehicle	Electric Vehicle	EPR-V Vehicle
Component Name	●	●	×	×
Motor	×	●	●	×
Starter Motor	●	●	×	×
Alternator	●	●	×	×
Radiator	●	●	×	×
Fuel Tank	●	●	×	×
Injector	●	●	×	×

Component Name	Internal Combustion Engine Vehicle	Hybrid Vehicle	Electric Vehicle	EPR-V Vehicle
Muffler	●	●	×	×
Multi-Stage Transmission	●	●	●	×
EPR-V	×	×	×	●
Drive Battery	×	●Small	●Large	●Small
車載充電器	×	●	●	●
Inverter	×	●	●	×



※The structural diagram is simplified for illustrative purposes and may differ from the actual design.

Demonstrated Performance 1: Efficiency Beyond Limits (Implemented in a Formula Car)

Driving test conducted in Suzuka City in 2018 (WEST 006 chassis, total weight 822 kg).

Proof of Efficiency

1 km Travel / 50 W Consumption

Comparative Advantage

Achieves four times the driving range of conventional EVs (approximately 200 W/km).

Driving Range

Achieves a continuous driving range of 200 km with minimal battery load.

Demonstrated Performance 2: Overwhelming Torque and Low-Speed Stability (Implemented in a Large Bus)

Full electrification test conducted in 2019 in Okayama Prefecture using a 46-passenger large bus (gross vehicle weight: 9.11 tons).

The Scale

Remarkable Starting Power: 12V / 100W

(A large bus moves with power equivalent to a single light bulb)

The Implementation & Data

- **Ultra-Low-Speed Stability: Enables continuous operation at an ultra-low speed of 2 km/h without strain.**
- **No Cooling Required: Heat generation is extremely low, eliminating the need for complex water-cooling systems or radiators.**

Demonstrated Performance 3: Outstanding Versatility (Implemented in a Fishing Vessel)

Operational testing was also conducted on a fishing vessel. As demonstrated by these results, the system can be applied to all types of vehicles, ships, helicopters, heavy machinery, and agricultural equipment. By fully electrifying these applications, it eliminates the use of fuels such as gasoline and diesel, reduces CO_2 emissions, and plays a significant role in creating an environmentally friendly society.

Summary of Demonstration Results: Video

EPR Series 1.mp4
Full Electrification of a Bus

EPR Series 2.mp4
Power Supply

EPR Series 3.mp4
Full Electrification of a Fishing Vessel

EPR Series 4.mp4
Implementation in a Formula Car

Overwhelming Efficiency and Starting Performance of Next-Generation Power Generation Technology

World-Class Power Generation Efficiency: 94–95%

While the efficiency of existing power generation systems is 40% or less, EPR-G (Ultra Magnetic Generator) achieves an extremely high power generation efficiency of 94% or more while being the smallest in the world.

Ultra-Low Torque Design “Rotates with Three Fingers”

Cogging torque is close to zero, enabling rotation to begin with extremely light force. This low-torque performance allows power generation even from minute energy sources—such as light wind at just 0.5 m/s or small-scale hydropower—that were difficult to utilize with conventional technologies.

Output Capacity: 10 kWh to 20 kWh

Despite its compact size, it generates practical levels of power, and output can be further expanded by connecting multiple units in parallel.

Practicality and Reliability Across Diverse Environments

Versatile Integration with the Ultra Magnetic Generator (EPR-G)

It can be utilized as a generator in collaboration with a wide range of power sources—not only wind and hydropower, but also biomass diesel, turbines, and others.

Ultra Electric Generator (EPR-H) Surpassing Solar Power

It can provide power equivalent to 140% of existing solar power generation systems, and in emergency situations, electricity can be used immediately without dependence on the type of storage battery.

Stable Supply of AC (Single-Phase) 100V/200V

EPR-H is equipped with an automatic voltage control function, enabling stable output of power suitable for use with general household appliances.

Patent Technology Recognized Worldwide

Patents have been obtained in countries around the world, including Japan, the United States, Germany, the United Kingdom, France, China, South Korea, and India, making this a groundbreaking invention with international credibility. Live footage of the test run was broadcast to major corporations in China on the day of the demonstration, resulting in offers from 39 companies.

The Electrical Environment of the World Transformed by EPR

Maximized Efficiency

An energy revolution that overturns the concept of conventional EVs, as proven by 1 km / 50 W.

Complete Simplification

Eliminates inverters and transmissions, fundamentally redefining mobility design concepts.

Harmony with Nature

A key next-generation infrastructure enabling high-efficiency power generation even from slight wind or hydropower.

The EPR Series Is Not Merely a Component

It is the “Electric Power Revolution” that will serve as the foundation of a next-generation clean energy society that is environmentally friendly.

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Overview