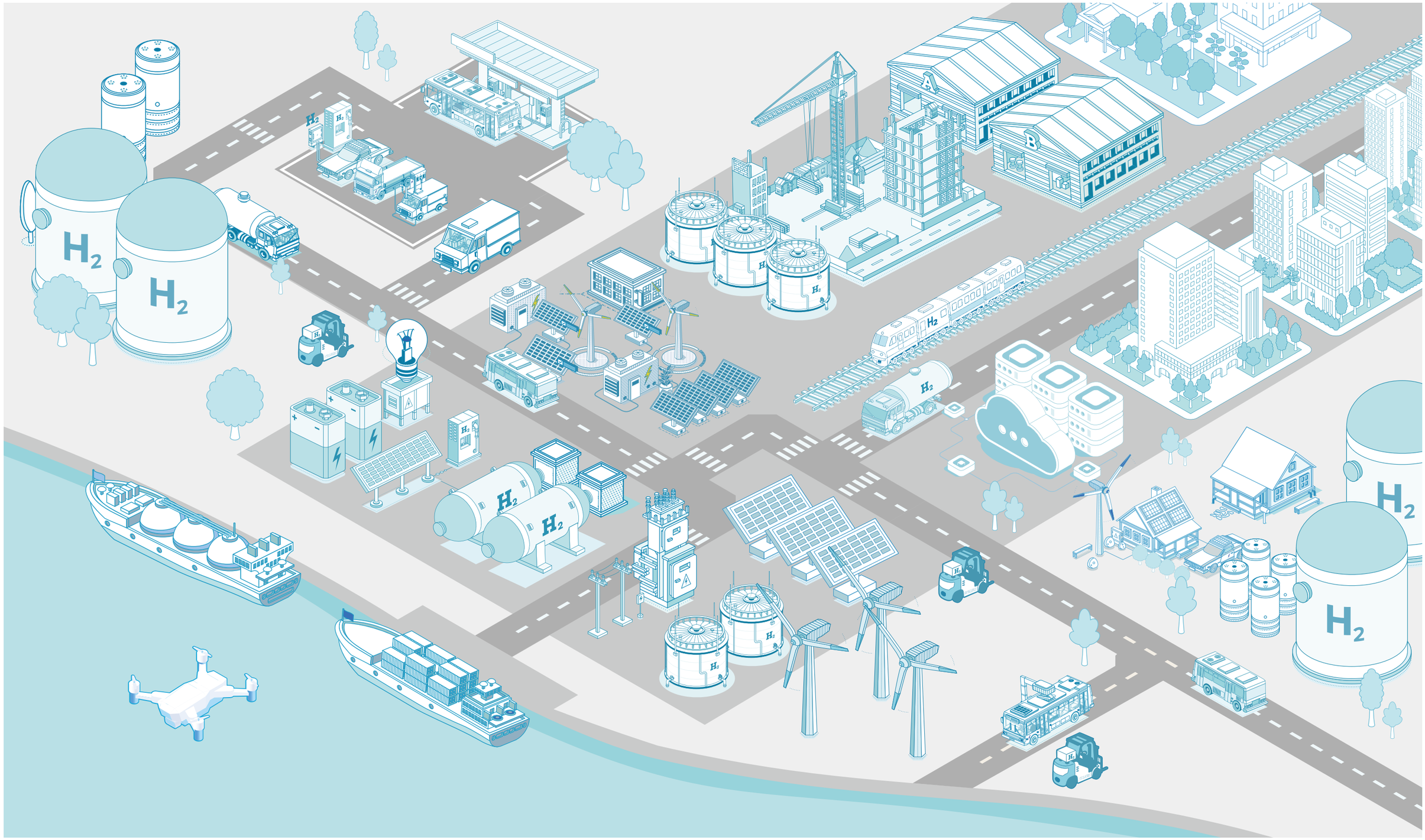
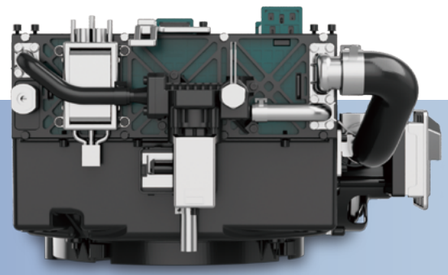
DOOSAN

Doosan Mobility Innovation

DMI, Hydrogen Powered Solution Provider

By building infrastructure across the entire hydrogen value chain including production, transportation and storage, and utilization, we support the creation of a sustainable, eco-friendly hydrogen city where hydrogen energy is used across residential, commercial, transportation, and industrial sectors.





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DOOSAN Mobility Innovation

Hydrogen Powered Solution Provider

Doosan Mobility Innovation

Doosan Mobility Innovation (DMI) provides hydrogen-based, eco-friendly power generation and mobility solutions under the brand identity of **“Hydrogen Powered Solution Provider.”**

Hydrogen is emerging as a key energy source for achieving the 2050 carbon neutrality goal while addressing the intermittency of renewable energy.

Leveraging this hydrogen energy source, DMI seeks to provide clean energy throughout everyday life **by expanding into all fields requiring eco-friendly power generation, based on both stationary and mobility fuel cell technologies.**

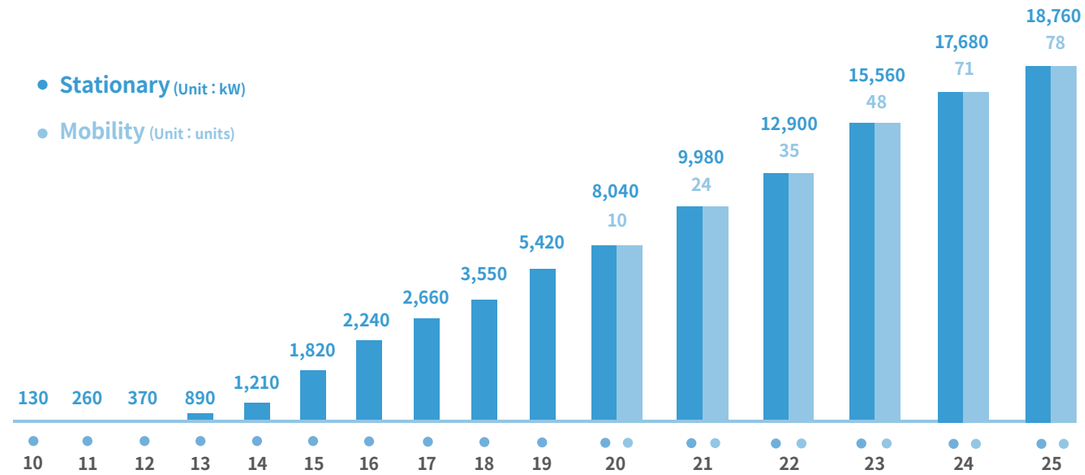
History

DMI is the only fuel cell company in Korea to possess both building-use PEMFC and SOFC technologies. Since 2019, DMI has expanded its business into hydrogen drones, delivering hydrogen power across the full spectrum of applications, from mobility to stationary applications.

2001	Establishment of the company
2003	Development and deployment of fuel cell MEAs
2006	Development and deployment of 1 kW PEMFC fuel cell systems
2011	Development and deployment of 10 kW PEMFC fuel cell systems
2014	Development and deployment of 5 kW PEMFC fuel cell systems
2019	Expansion of drone business
2020	Development and deployment of DT30X optimized for industrial sites
2021	Development and deployment of the detachable DS30W power pack
2022	Development and deployment of 10 kW SOFC fuel cell systems
2023	Development and deployment of 1–10 kW PEMFC H_2 fuel cell systems

Supply Track Record

With a cumulative supply of 18 MW of stationary fuel cells (as of 2025) and 78 units of mobility fuel cells (as of 2025), DMI's fuel cell systems demonstrate proven safety, durability, and reliability.



Business Area (Stationary Fuel Cells)

For over 20 years, DMI has developed and deployed stationary fuel cells. Building on this commercialization experience, DMI is expanding its business into high power-demand facilities, including data centers, large-scale buildings, and industrial sites, helping address power shortages in the metropolitan areas while contributing to a stable energy supply to urban environments.

Building

Data Center

- Adjustable power output and On/Off operation in response to data center power demand
- Reliable 24/7 power supply, 365 days a year
- RE100 compliance using green hydrogen-based fuel cells
- Minimized downtime through real-time monitoring with predictive fault detection

Multi-Family Housing

- Reduced operating costs by utilizing generated electricity and heat for common facilities and domestic hot water and heating
- Predictive fault detection through remote monitoring, enabling efficient long-term operation and maintenance

Office Facility

- High power output with a compact installation footprint, enabling ZEB (Zero Energy Building) compliance
- Stable power supply by compensating for the intermittency of renewable energy

Hydrogen Power Generation

Industrial Complex RE100

- RE100 recognition using green hydrogen-based fuel cells
- Reduced operating costs through internal utilization of generated electricity and heat, while maximizing profitability via external sales of surplus electricity and heat

Biogas Power Generation

- On-site power generation using biogas
- Reduced operating costs through internal utilization of generated electricity and heat, while maximizing profitability via external sales of surplus electricity and heat
- On/Off response capability according to fluctuations in biogas production

Business Area (Mobility Fuel Cells)

DMI is the only company worldwide capable of providing solutions across the full spectrum of stationary and mobility sectors. Based on building-scale fuel cell technologies, DMI is expanding into a wide range of mobility applications, including construction equipment, buses, portable power, and vessels, contributing to achievement of carbon neutrality in the mobility market.

Aviation

Hydrogen Drone

- Extended and stable flight time enabled by high energy density
- Applicable to various fields such as reconnaissance, surveillance, logistics, and agriculture

Ground

Hydrogen Construction Equipment

- Optimized for high-load industrial operations with high efficiency, high power output, and high durability
- Enhanced ride comfort and reduced operator fatigue due to low vibration and noise

Hydrogen Bus

- Zero emissions of particulate matter and pollutants, contributing to improved urban environments and air quality
- Long driving range and short refueling time, enabling long-distance operation

Hydrogen Portable Power

- Long-duration operation enabled by high energy density
- Reliable electricity generation and supply in off-grid environments, such as construction sites and leisure activities

Marine

Hydrogen Vessel

- Reduced noise and vibration by eliminating mechanical rotation mechanisms used in internal combustion propulsion systems
- Zero emissions of greenhouse gases and fine dust, supporting compliance with International Maritime Organization (IMO) environmental regulations

Products (Fuel Cell Systems)

• Power Generation

PEMFC (Hydrogen-Fueled)

100% eco-friendly
Zero CO_2 emissions through direct use of hydrogen fuel

Fast load-following operation
Real-time output variation with On/Off control

Enhanced safety
Explosion-proof design to improve protection against fire and explosion

PEMFC (Natural-Gas Reforming)

Load-following operation
Power output adjustable according to demand with On/Off control

Compact installation footprint
Easy installation in space-constrained urban buildings

Enhanced safety
Explosion-proof design to improve protection against fire and explosion

SOFC (Natural-Gas Reforming)

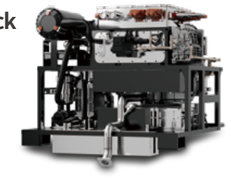
24-hour high-efficiency continuous generation
Stable, continuous power supply for base-load applications

Load adjustment when required
Output variation enabled through mid- to low-temperature technology

Compact installation footprint
Easy installation in space-constrained urban buildings

• Mobility

Fuel Cell Power Pack (Water-Cooled)

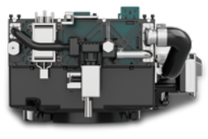


High output
Suitable for construction equipment requiring continuous high power

Long driving range
Suitable for long-distance routes, with short refueling time for user convenience

Low vibration / low noise
Enhanced ride comfort and reduced operator fatigue due to low vibration and noise

Fuel Cell Power Pack (Air-Cooled)



High output / low weight
World's first use of ultra-thin titanium bipolar plates, achieving high power density relative to weight

Wide ambient operating conditions
Stable operation in extreme environments from −20 °C to 40 °C

High durability
Enhanced durability, providing long service life and outstanding reliability

• Specification

Product		PEMFC(Hydrogen-Fueled)		
Capacity		1 kW	10 kW	10 kW
Efficiency (Electrical / Overall)	KGS	51 % / 90 %	52.23 % / 98.98 %	52.6 % / 98.57 %
Fuel		H_2	H_2	H_2
Fuel Consumption		0.65 Nm^3 / h·kW	0.65 Nm^3 / h·kW	0.65 Nm^3 / h·kW
System Size (W x D x H)		640 × 400 × 1,200 mm	730 × 1,070 × 1,550 mm	730 × 1,070 × 1,550 mm
Weight		100 kg	200 kg	200 kg
Air Intake / Exhaust Type		FF	FF	FE
Power Supply		AC 220 V / 60 Hz / (Single-phase)	AC 380 V / 60 Hz / (Three-phase, four-wire)	AC 380 V / 60 Hz / (Three-phase, four-wire)
Start-up Time		< 15 min	< 15 min	< 15 min

Product		PEMFC (Natural-Gas Reforming)					
Capacity		1 kW	6 kW	6 kW	10 kW	10 kW	50 kW
Efficiency (Electrical / Overall)	KS	36.4 % / 83.7 %	40.1 % / 97.8 %	39.2 % / 97.0 %	37.6 % / 94.6 %	37.7 % / 94.7 %	To be released
	KGS	35 % / 94 %	39.31 % / 93.86 %	38.94 % / 93.32 %	38.41 % / 96.76 %	38.14 % / 96.12 %	
Fuel		NG	NG	NG	NG	NG	
Fuel Consumption		0.26 Nm^3 / h·kW	0.26 Nm^3 / h·kW	0.26 Nm^3 / h·kW	0.26 Nm^3 / h·kW	0.26 Nm^3 / h·kW	
System Size (W x D x H)		650 × 550 × 1,580 mm	1,700 × 740 × 1,800 mm	1,700 × 740 × 1,800 mm	1,700 × 740 × 1,800 mm	1,700 × 740 × 1,800 mm	
Weight		270 kg	780 kg	780 kg	800 kg	800 kg	
Air Intake / Exhaust Type		FF	FF	FE	FF	FE	
Power Supply		AC 220 V / 60 Hz / (Single-phase)	AC 380 V / 60 Hz / (Three-phase, four-wire)	AC 380 V / 60 Hz / (Three-phase, four-wire)	AC 380 V / 60 Hz / (Three-phase, four-wire)	AC 380 V / 60 Hz / (Three-phase, four-wire)	
Start-up Time		< 88 min	< 106 min	< 105 min	< 104 min	< 99 min	

Product		SOFC (Natural-Gas Reforming)	
Capacity		10 kW	10 kW
Efficiency (Electrical / Overall)	KS	54.6 % / 94.5 %	54.1 % / 93.5 %
	KGS	56.05 % / 100 %	55.7 % / 100 %
Fuel		NG	NG
Fuel Consumption		0.17 Nm^3 / h·kW	0.17 Nm^3 / h·kW
System Size (W x D x H)		950 × 1,120 × 1,900 mm	950 × 1,120 × 1,900 mm
Weight		900 kg	900 kg
Air Intake / Exhaust Type		FF	FE
Power Supply		AC 380 V / 60 Hz / (Three-phase, four-wire)	AC 380 V / 60 Hz / (Three-phase, four-wire)
Start-up Time		< 360 min	< 360 min

Product	Fuel Cell Power Pack (Water-Cooled)	
Rated Output	14 kW	15 kW
Instantaneous Peak Output (Within 3 Seconds)	61 kW	20 kW
Output Voltage	380 V	100 V
Weight	TBD	TBD
Dimension (W × L × H)	TBD	TBD
Starting Temperature	TBD	TBD
Operating Temperature	TBD	TBD
Storage Temperature	TBD	TBD
Storage Humidity	TBD	TBD
Operating Humidity	TBD	TBD
Hybrid Battery	TBD	TBD
Warranty Period	TBD	TBD

Product	Fuel Cell Power Pack (Air-Cooled)
Rated Output	3.0 kW
Instantaneous Peak Output (Within 3 Seconds)	5.0 kW
Output Voltage	50 ± 2 V (at rated power output)
Weight	10.45 kg
Dimension (W × L × H)	375 × 335 × 270 mm
Starting Temperature	2 to 40 °C
Operating Temperature	-20 to 40 °C
Storage Temperature	-20 to 40 °C
Storage Humidity	Over 20% RH
Operating Humidity	Over 20% RH
Hybrid Battery	LiPo (2,600 mAh x 2)
Warranty Period	1,000 hours or 1 year, whichever comes first (within specified operating temperature and humidity range)

Products (Hydrogen Drones, Hydrogen Supply Systems)

• Hydrogen Drone

DS035CCD Hydrogen Drone

Long endurance
Minimized fuel consumption and stable long-endurance operation in various environments, enabling flight for up to 120 minutes

Wide operating range
Stable operation in extreme environments from −20 °C to 40 °C

Easy transportation
Foldable design for compatibility with mid-size SUV

• Hydrogen Supply System

Hydrogen Cylinder

Easy and safe replacement
Easy mounting and removal of hydrogen cylinders on the power pack

Easy transportation
Handle design enables convenient carrying of hydrogen cylinders

Dedicated case
Safe and convenient transportation and storage to industrial sites with a dedicated hydrogen cylinder case

Multipurpose Hydrogen Refueling Equipment

Enhanced safety
Ensured safety even in high ambient temperature environments through an internal cooling system

Convenient maintenance
All-in-one design integrating the controller, compressor, cooler, and dispenser for easy installation and maintenance

Intuitive GUI
Intuitive GUI design delivering a user-friendly refueling experience

• Specification

Product	DS035CCD
Rated Output	3.0 kW
Instantaneous Peak Output (Within 3 Seconds)	5.0 kW
Output Voltage	50 ± 2 V (based on rated output)
Weight (Including Hydrogen Cylinder)	21.7 kg
Dimension (W × L × H)	Folding: 660 × 665 × 685 mm / Unfolding: 2,484(Φ) x 685(H) mm
Starting Temperature	2 to 40 °C
Operating Temperature	-20 to 40 °C
Storage Temperature (for Case)	-20 to 40 °C
Storage Humidity	Over 20% RH
Operating Humidity	Over 20% RH
Hybrid Battery	LiPo (2,600 mAh x 2)
Warranty Period	1,000 hours or 1 year, whichever comes first (within specified operating temperature and humidity range)

Product	Hydrogen Cylinder	
Capacity	10.8 L	7 L
Dimension (W × D × H)	225 × 225× 435 mm	185 × 185 × 421 mm
Weight	3.95 - 4.25 kg	2.8 - 3.1 kg
Operating Pressure	350 bar	350 bar
Hydrogen Capacity	Based on 320 bar (approx. 260 g)	Based on 320 bar (approx. 170 g)
Liner Type	Type 4	Type 4

Product	Multipurpose Hydrogen Refueling Equipment		
Dimension (W × D × H)	80 × 168 × 195 cm	Hydrogen Refueling Pressure	0 - 400 bar
Monitor	13-inch dual touch monitor	Refueling Method	Air driven (electric drive optional)
Material	STS302, SCP, STS316L	Supply Gas	Air (≥ 5 bar), N_2 (≤ 1 bar)
Thickness	6 mm (explosion-proof zone), 1.5 mm (general zone)	Refueling Speed	≥ 50 Nlpm
Surface Treatment	Powder Coating	Power Supply	110 VAC or 220 VAC (50/60 Hz)
Weight	≤ 500 kg	Cooling System	Dual-tube liquid-cooled system
Safety Standard	Sensor: PSV, TPRD, position and gas detectors, fire detector, pressure gauge, temperature gauge	Others	A small amount of nitrogen is required for flushing Nitrogen supply not required when electric drive option is selected
Explosion-Proof Certification	KOSHA KCs, IECEx certifications, etc. planned	Interface	Touch-monitor-based GUI applied PC-based software provided for remote monitoring and emergency control

Stationary Fuel Cell Solutions

• Features

On/Off or Load-Following Operation
Adjusts system operation according to power demand to maximize energy efficiency

Minimum Installation Footprint
Enables efficient use of mechanical room space

Minimum Construction Period
Reduces construction time through rapid installation, saving costs

• Regulatory and Certification Compliance

Special Act on the Activation of Distributed Energy
Meets mandatory distributed energy ratios for buildings expected to consume more than 200,000 MWh annually

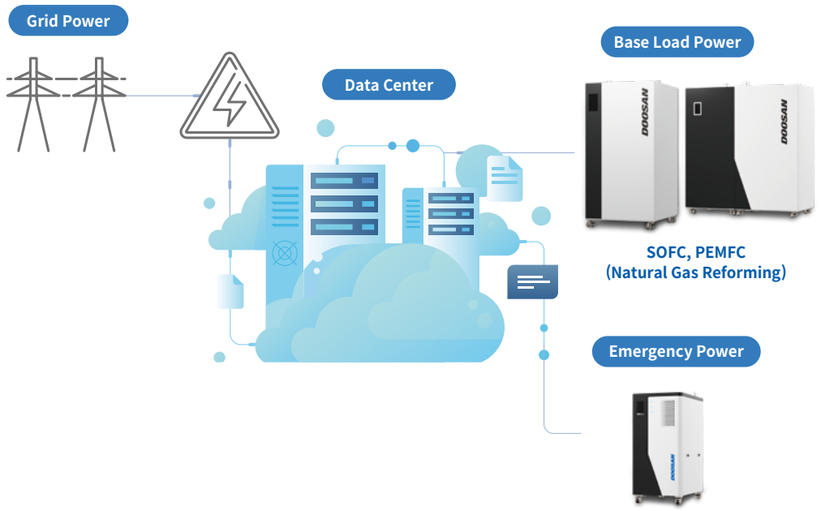
Rules on Zero Energy Building Certification
Complies with energy self-sufficiency requirements for public and private buildings

Green Building Design Standards
Satisfies mandatory renewable energy installation ratios for public and private buildings

Energy Use Rationalization Act
Meets renewable energy utilization ratios for buildings consuming more than 20 million kWh annually

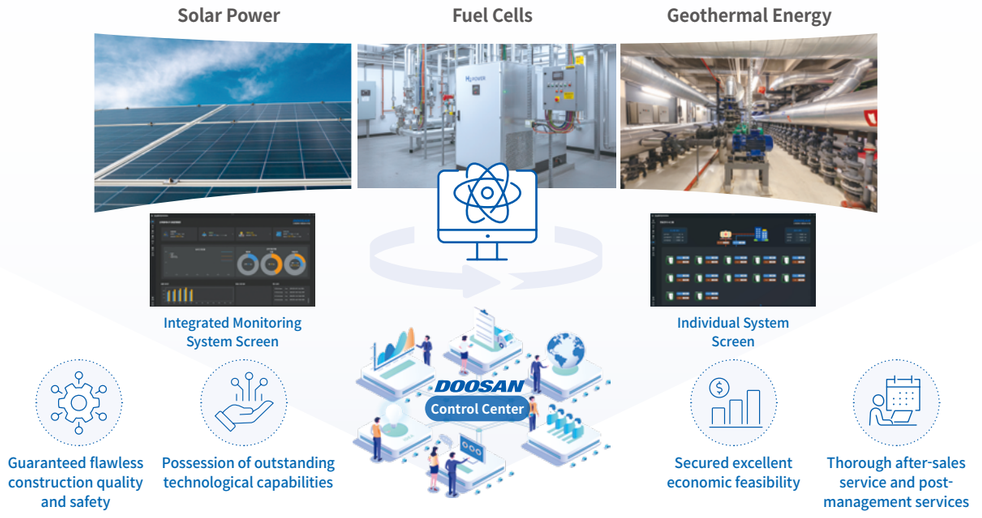
• Data Center Fuel Cell Solutions

This solution provides stable and scalable power as base-load and emergency generation for AI data centers, while hydrogen-dedicated fuel cells enable RE100 target achievement and carbon neutrality.



• Integrated Renewable Energy Solutions for Buildings

We provide real-time system operation, monitoring, and automatic control solutions through **turnkey construction capabilities covering all renewable energy sources such as solar power, fuel cells, and geothermal energy, supported by integrated monitoring system.**



Real-time monitoring and diagnostics of power generation facility status
Collection of power generation output and energy data by energy source

Mobility Fuel Cell Solutions

- **Hydrogen Supply Solutions**

Production / Transportation & Storage

On-Site Refueling Method

Multipurpose Hydrogen Refueling Equipment (BTE)

Cylinder Charging and Delivery Method

Hydrogen Cylinder

Multipurpose Charging

Supports charging of various hydrogen mobility applications such as forklifts and portable power

Convenience

Enables easy replacement with quick-coupler design without additional tools

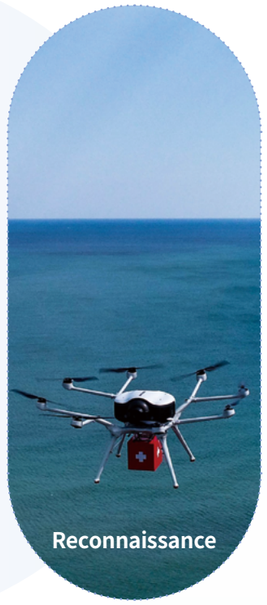
Safety

Ensures stable refueling even in high-temperature environments through internal cooling system

Safety Certification

Guarantees safety via global certifications from Korea (KGS), U.S. (DOT), Europe (TPED), and Australia (Work Safe)

Utilization



Hydrogen Drone

- Low Noise
- Low Vibration
- Long Operating Time

Hydrogen Construction Equipment

- High Efficiency
- High Output
- High Durability

Major Supply Track Record (Stationary Fuel Cells)

Data Center Project

Guro Data Center

Location
166-2 Gaebong-dong, Guro-gu, Seoul
Client
KT Cloud
Energy Source
Fuel Cells (PEMFC)
Capacity
120 kW
Installation
Planned

Hanam IGIS Data Center

Location
607-2, Pungsan-dong, Hanam-si, Gyeonggi-do
Client
Samsung C&T
Energy Source
Fuel Cells (PEMFC)
Capacity
65 kW
Installation
Oct. 2023

Incheon Dreammark1 Data Center

Location
14, Baekbeom-ro 677beon-gil, Seo-gu, Incheon
Client
Dreammark1
Energy Source
Fuel Cells (PEMFC)
Capacity
50 kW
Installation
Nov. 2023

Integrated Renewable Energy Projects

Jamsil Jinju Apartment Reconstruction

Location
20-4, Sincheon-dong, Songpa-gu, Seoul
Client
Jamsil Jinju Apartment Housing Reconstruction Renewal Project Association
Energy Source
Solar power, geothermal energy, fuel cells (PEMFC)
Capacity
3.85 MW
- Solar power: PV (1,100.58 kW), BIPV (103.6 kW)
- Geothermal (open-loop): 2,200 kW
- Fuel cells (PEMFC): 441 kW

Installation
Dec. 2025

Imun 3 District Redevelopment

Location
149-8 and 412, Imun-dong, Dongdaemun-gu, Seoul
Client
Imun 3 Housing Redevelopment Renewal Project Association
Energy Source
Solar power, fuel cells (PEMFC)
Capacity
1.4 MW
- Solar power: PV (1,030 kW)
- Fuel cells (PEMFC): 381 kW

Installation
Nov. 2025

Bukahyeon 2 District Redevelopment

Location
520, Bukahyeon-dong, Seodaemun-gu, Seoul
Client
Bukahyeon 2 Urban Renewal Acceleration Zone Housing Redevelopment Renewal Project Association
Energy Source
Solar power, geothermal energy, fuel cells (PEMFC)
Capacity
4.12 MW
- Solar power: PV (791.66 kW), BIPV (208 kW)
- Geothermal (open-loop): 2,820.72 kW
- Fuel cells (PEMFC): 300 kW

Installation
Planned

Seoul City Mandatory Projects

Gasan Publik Knowledge Industry Center

Location
60-26 Gasan-dong, Geumcheon-gu, Seoul
Client
Hyundai E&C
Energy Source
Fuel Cells
Capacity
480 kW
Installation
Dec. 2023

Gaepo 4 Complex Reconstruction (Gaepo Xi Presidency)

Location
189, Gaepo-dong, Gangnam-gu, Seoul
Client
GS E&C
Energy Source
Fuel Cells
Capacity
415 kW
Installation
Mar. 2023

Yeouido MBC Site Development (Brighten Yeouido)

Location
96, Yeouinaru-ro, Yeongdeungpo-gu, Seoul
Client
GS E&C
Energy Source
Fuel Cells
Capacity
325 kW
Installation
Oct. 2023

Guui Station Jayang 1 District Redevelopment (Lotte Castle Eastpole)

Location
680-63, Jayang-dong, Gwangjin-gu, Seoul
Client
Lotte E&C
Energy Source
Fuel Cells
Capacity
290 kW
Installation
2023.12

Cheongnyangni Dongbu Fruit and Vegetable Market Redevelopment (Hanyang Sujain Gratte-ciel)

Location
39-1, Yongdu-dong, Dongdaemun-gu, Seoul
Client
Hanyang Construction
Energy Source
Fuel Cells
Capacity
255 kW
Installation
May 2023

Public Mandatory Projects

Seongnam Cultural and Medical Facility (Seongnam Atrium)

Location
10, Sujeong-ro 171beon-gil, Sujeong-gu, Seongnam-si, Gyeonggi-do
Client
KONEPS
Energy Source
Fuel Cells
Capacity
120 kW
Installation
Nov. 2021

Yeouido Post Office

Location
60, Yeouinaru-ro, Yeongdeungpo-gu, Seoul
Client
KONEPS
Energy Source
Fuel Cells
Capacity
110 kW
Installation
Nov. 2020

Labor-Management Mutual Growth Support Center

Location
466, Samgeo-dong, Gwangsan-gu, Gwangju
Client
KONEPS
Energy Source
Fuel Cells
Capacity
50 kW
Installation
Aug. 2024

Seoul National University Hospital Underground Integrated Medical Facility (Build-Transfer-Lease (BTL) Private Investment Project)

Location
BTL new construction site within the premises of Seoul National University Hospital, Yeongeon-dong, Jongno-gu, Seoul
Client
KONEPS
Energy Source
Fuel Cells
Capacity
50 kW
Installation
Dec. 2018

Major Supply Track Record (Mobility Fuel Cells)

Defense

Battlefield Mobile Control

Client
R.O.K. Transportation Command
Period
2022 - 2024

Army Combat Experiment

Client
R.O.K. Army Training & Doctrine Command
Period
2021 - 2024

Rapid Demonstration Acquisition Project

Client
Defense Acquisition Program Administration
Period
2021

Excellent Commercial Product

Client
Ministry of National Defense
Period
2021

Maritime

Navy BDA Combat Experiment

Client
Agency for Defense Development
Period
2022 - 2024

Introduction of Ship-Mounted Unmanned Aerial Vehicles

Client
Korea Coast Guard
Period
2024 - 2025

Firefighting

Introduction of Drones for Special Rescue Operations

Client
Busan Special Rescue Service
Period
2021

Introduction of Drones for Special Rescue Operations

Client
Daegu Fire Special Rescue Team
Period
2021

Introduction of Drones for Special Rescue Operations

Client
National 119 Rescue Headquarters (Daegu)
Period
2023

Introduction of Drones for Special Rescue Operations

Client
National 119 Rescue Headquarters (Northern Gyeonggi)
Period
2023

Introduction of Drones for Firefighting Operations

Client
Seogwipo Fire Station
Period
2022

Public

Introduction of Hydrogen Drones for Gas Pipeline Inspection

Client
Korea Gas Corporation Jeju LNG Terminal
Period
2021

Introduction of Anti-Drone Systems

Client
Korea Gas Corporation Incheon Gas Terminal
Period
2021

DOOSAN Mobility Innovation

HOMEPAGE

HYDROGEN POWERED SOLUTION PROVIDER