

## Development of a Fuel-cell Portable Generator and Commencement of Demonstration Operations

Since FY2019, Denyo has been working with the Ministry of the Environment's Low Carbon Technology Research and Development Program to develop technology under the belief that fuel cells generating power from hydrogen are an effective measure for the reduction of CO<sub>2</sub> emissions causing global warming. Denyo has to date developed and verified fuel cell power supply vehicles in collaboration with Toyota Motor Corporation (hereinafter "Toyota Motor"). In another effort to develop a hydrogen society, the company will place fuel cells in to portable generators, its major product, and begin demonstrating them.

The fuel-cell portable generator that has been developed is portable in the same manner as the generators with traditional engines. They are able to supply power in any place, such as civil engineering and construction sites, houses without power after a disasters, locations where TV reporters are reporting, and event sites. The fuel cell system\* the portable power generator uses to generate power is also used in the fuel cell forklift sold by Toyota Industries Corporation. Denyo has developed a new power conditioner especially for fuel cells, and has installed it in the generators to convert the DC power output from the fuel cells to AC power.

\*The system employs the cell technology used in the first-generation MIRAI fuel cell vehicle (FCV) from Toyota Motor.

Next month, Denyo will start demonstration operations to verify the performance of fuel-cell portable generators compared with the generators with traditional engines that are widely used today, investigating their impact on various kinds of load equipment and the reduction of CO<sub>2</sub> emissions, among other matters. Through the development of the fuel-cell portable generator, Denyo also hopes to help expand the demand for hydrogen and expand the use of renewable energy.

The fuel-cell portable generator



Specifications of the fuel-cell portable generator

Power output	Power	7.0 kVA
	Voltage	100/200 V
	Current	35.0 A x 2 / 35.0 A
	Frequency	50, 60 Hz switchable
	Power factor	1.0
	Number of phases	Single-phase, three-wire
Hydrogen gas	Supply method	Supplied after depressurized from a 14.7 MPa or 19.6 MPa vessel, which is provided separately from the main body of the generator
	Supply pressure	90 kPa
	Purity	99.97%
Dimensions and weight	Outer dimensions	L:1,800 mm, W:900 mm, H:1,500 mm
	Service weight	950kg