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Mitsubishi Electric Develops EV Motor Drive System with Built-in Silicon Carbide Inverter

TOKYO, February 13, 2014 – [Mitsubishi Electric Corporation](#) (TOKYO: 6503) announced today it has developed a prototype electric vehicle (EV) motor drive system with a built-in silicon-carbide inverter. The EV motor drive system, the smallest of its kind, will enable manufacturers to develop EVs offering more passenger space and greater energy efficiency.

Mitsubishi Electric plans to commercialize its new EV motor system after finalizing technologies for motor/inverter cooling, further downsizing and additional efficiency.

Features

1) Downsized motor drive system with integrated all silicon-carbide inverter

- Achieves further system downsizing (14.1L, 60kW) with smaller motor resulting from improved thermal resistance between motor drive system and cooling system.
- Equal to existing EV motors in power and volume, enabling replacement.

2) Improved motor cooling performance

- Integrates cooling system for motor and inverter thanks to cylindrical shape of power module accommodating parallel cooling ducts for motor and inverter.
- Ensures stable cooling with even a low-power pump.



Global demand for EVs and hybrid EVs (HEVs) has been growing in recent years, reflecting increasingly strict regulations for fuel efficiency and growing public interest in saving energy resources and reducing carbon dioxide emissions. As EVs and HEVs require relatively large spaces to accommodate their robust battery systems, there is a strong need to reduce the size and weight of motor systems and other equipment to ensure sufficient passenger space.

Patents

Pending patents for the technology announced in this news release number 94 in Japan and 29 abroad.

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About Mitsubishi Electric Corporation

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 3,567.1 billion yen (US\$ 37.9 billion*) in the fiscal year ended March 31, 2013. For more information visit <http://www.MitsubishiElectric.com>

*At an exchange rate of 94 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2013