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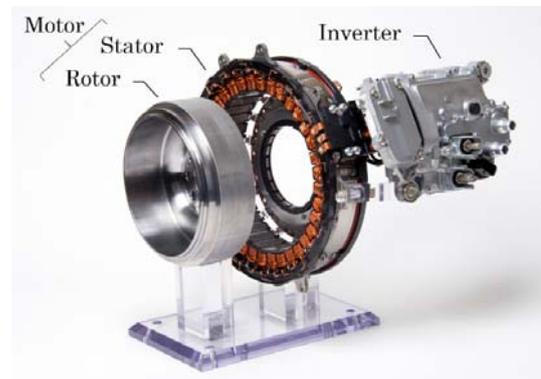
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Mitsubishi Electric Begins Mass-producing Auto Industry's First Crankshaft ISG System for 48V Hybrid Vehicles

Will be used in Mercedes-Benz vehicles

TOKYO, October 26, 2017 – [Mitsubishi Electric Corporation](http://www.MitsubishiElectric.com) (TOKYO: 6503) announced today that it has begun mass-producing the auto industry's first crankshaft-mounted integrated starter-generator (ISG) system for 48V hybrid vehicles, which will be mounted in Mercedes-Benz vehicles. The system will be exhibited during 45th Tokyo Motor Show 2017 at the Tokyo Big Sight exhibition complex from October 27 to November 5.

The demand for 48V hybrid vehicles, which offer excellent fuel efficiency at relatively affordable costs, is expected to increase, especially in Europe. Mitsubishi Electric developed its ISG system—a crankshaft direct-driven system for idling-stop-start, energy recovery and torque assist—to achieve higher output power and better fuel efficiency in 48V hybrid vehicles. Mitsubishi Electric will continue developing increasingly smaller, lighter-weight and higher-power ISG systems to increase fuel efficiency and reduce CO₂ emissions.



Crankshaft ISG system for 48V hybrid

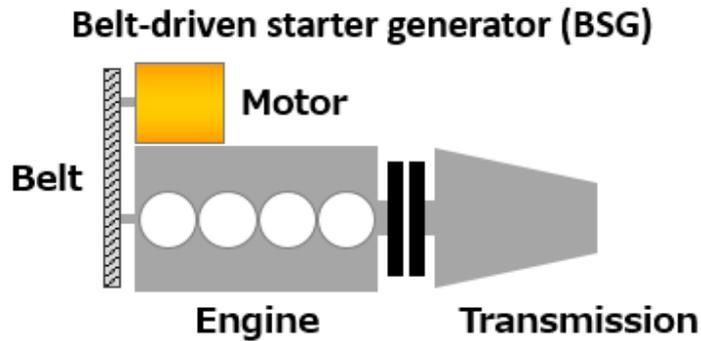
Features

- 1) Crankshaft-mounted motor realizes excellent fuel efficiency**
 - Compared to belt-driven starter-generators, the crankshaft-mounted motor produces higher output power and generates more power, which contribute to better fuel efficiency.
- 2) Thin-profile, high-power motor for more flexible installations**
 - Mitsubishi Electric's original coil winding technology realizes a high-density configuration for thick coils required in a 48V high-current motor.
 - Thin-profile, higher-power motors adapts flexibly to various vehicle layouts.
- 3) Compact, highly reliable inverter**
 - Newly developed transfer-molded power module for 48V systems reduces heat resistance and enhances durability.
 - Optimally designed cooling unit enhances cooling performance to realize a compact, highly reliable inverter.

Belt-driven and Engine Crankshaft direct-driven systems

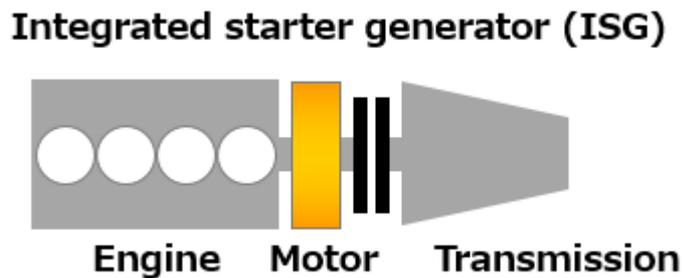
1) *Belt-driven system*

Using a belt to transfer power from the motor to the engine can limit both maximum torque with abrupt force transmission and the motor's peak power output.



2) *Engine crankshaft direct-driven system*

Connecting the motor directly to the engine crankshaft eliminates the limitations of the belt system and enhances both motor output power and power generation.



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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 4,238.6 billion yen (US\$ 37.8 billion*) in the fiscal year ended March 31, 2017. For more information visit:

www.MitsubishiElectric.com

*At an exchange rate of 112 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2017