News Release

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Hitachi and Hitachi Astemo Awarded the 68th Okochi Memorial Prize for the Development of a Compact and High Power Density Inverter for EVs and PHVs

Prize recipients

Tokyo, March 23, 2022 – Hitachi, Ltd. (TSE: 6501, "Hitachi") and Hitachi Astemo, Ltd. ("Hitachi Astemo") jointly announced that they have been awarded the 68th (FY2021) Okochi Memorial Prize. The prize was awarded by the Okochi Memorial Foundation at a ceremony held at the Industry Club of Japan Hall on March 22.

Recognized for the development of a compact and high power density inverter for electric vehicles (EVs) and plug-in hybrids (PHVs) utilizing a direct water double-sided cooled power module, the inverter contributes to the adoption of EVs and PHVs and contributes towards a decarbonized society.

The prestigious Okochi prize is awarded for outstanding contributions to understanding and industrial development in fields including production engineering, technology, and research and implementation of production systems. The Okochi Memorial Prize is the highest honor among the Okochi prizes.

Hitachi and Hitachi Astemo aim to further contribute to the realization of a decarbonized society by expanding the use of inverters into data centers and other fields requiring compact solutions.

Prize Recipients

Distinguished Researcher Center for Technology Innovation - Electrification, Research & Development Group, Hitachi, Ltd.	Kinya Nakatsu
Chief Researcher Center for Technology Innovation - Electrification, Research & Development Group, Hitachi, Ltd.	Takeshi Tokuyama
General Manager Head of xEV Production Group, xEV Business Unit, Powertrain & Safety Systems Business Division, Hitachi Astemo, Ltd.	Hideki Mukuno
Senior Manager Plastic Working Process Development Section, Elemental technology Development Department, Advanced Manufacturing Engineering Group, MONOZUKURI Management Functional Division, Hitachi Astemo, Ltd,	Masato Higuma
Senior Director 1st ICE Production Engineering Department, ICE Production Group, ICE Business Unit, Powertrain & Safety Systems Business Division, Hitachi Astemo, Ltd.	Toshifumi Sagawa

Technology Developed

For the widespread adoption of EVs, it is necessary to reduce charging related concerns and to improve performance and driving range. Achieving these aims requires compact drive systems with high-power density and high voltage, which deliver superior cooling performance and help to shorten charging times. Hitachi and Hitachi Astemo's critical component was the development of their compact and high-power density inverter technology utilizing a direct water double-sided cooled power module. In addition to leveraging the wide-ranging technologies developed by the Hitachi Group over many years, the inverter harnesses the original Hitachi concept of direct water double-sided cooling and other technologies including long-term waterproofing and pressure resistance. These technologies are highly acclaimed by our customers.

800-volt compact, high power density inverter (left)
and direct water double-sided cooled power module (right)

Effects

In addition to superior heat radiation performance, development of direct water double-sided cooling technology has enabled high-speed switch operation and achieved high levels of reliability. Inverters equipped with this technology were commercialized in 2014 and went into mass production in 2019 as 800-volt compatible units for EVs. The inverters have already been fitted to more than 300,000 EVs and PHVs promoting the adoption of advanced, eco-friendly cars through electrification.

About the Okochi Prize (Japanese only)
http://www.okochi.or.jp/hp/f02.html

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About Hitachi, Ltd.
Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, contributes to a sustainable society with a higher quality of life by driving innovation through data and technology as the Social Innovation Business. Hitachi is focused on strengthening its contribution to the Environment, the Resilience of business and social infrastructure as well as comprehensive programs to enhance Security & Safety. Hitachi resolves the issues faced by customers and society across six domains: IT, Energy, Mobility, Industry, Smart Life and Automotive Systems through its proprietary Lumada solutions. The company's consolidated revenues for fiscal year 2020 (ended March 31, 2021) totaled 8,729.1 billion yen ($78.6 billion), with 871 consolidated subsidiaries and approximately 350,000 employees worldwide. For more information on Hitachi, please visit the company's website at https://www.hitachi.com.

About Hitachi Astemo, Ltd.
Headquartered in Tokyo, Japan, Hitachi Astemo is a joint venture between Hitachi, Ltd. and Honda Motor Co., Ltd. Hitachi Astemo is a technology company that develops, manufactures, sells and services automotive and transportation components, as well as industrial machinery and systems. For more information, visit the company's website at https://www.hitachiastemo.com/en/.

For more information, use the enquiry form below to contact the Research & Development Group, Hitachi, Ltd. Please make sure to include the title of the article.
https://www8.hitachi.co.jp/inquiry/hqrd/news/en/form.jsp

Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
