

Technical Review Special Edition: Logistics, Thermal & Drive Systems

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Welcome to this special edition of our technical review featuring our logistics, thermal & drive systems.

Logistics, Thermal and Drive Systems (LT&D) is an MHI business domain specializing in mass production in the four business areas of logistics, air-conditioning and refrigeration systems, engines and energy, and turbochargers. Founded on April 1, 2020, the LT&D domain aims to strengthen the competitiveness of MHI's mass-production businesses by "developing markets by bringing about a synergistic effect by selling products and creating added value through combining multiple products."

Our products are facing a great turning point, given the circumstances in which technological innovation through advancement of electrification, automation and IoT application, energy transition toward a decarbonized society, and a new lifestyle under the COVID-19 pandemic is moving forward.

This special edition introduces new products linked with these changes in the times and the latest technologies that offer solutions to issues.

First are our products in the logistics business, which are developed with the keywords of environment, automation and safety. Specifically, these products are: the new power pallet truck, "PREMiAR[®] EM" for the European warehouse market, the realization of pallet handling in a mixed fleet environment of forklifts and automatic guided vehicles, forklifts complying with the European Stage V emission regulations, and the automatic human detection system for forklifts.

Next is the air-conditioning and refrigeration systems business, in which our products are developed with consideration for the environment and energy conservation. Featured in this special edition are: the humidity control outdoor air processing air handling system (Direct X Comfort) that has both energy-saving features and comfort, the aquifer thermal energy storage system with a low GWP turbo heat pump utilizing unused energy, the engine-driven refrigeration unit TU series using a low GWP refrigerant, and the low-vibration electric compressor for air conditioning systems of hybrid and electric vehicles.

In the engine and energy business, our products and technologies that help to realize a decarbonized society are presented. These include: the diesel engines for forklift trucks complying with the European Stage V emission regulations, the remodeling of existing gas engines for higher efficiency, the remote monitoring and remote control applications in the engine and energy business,

and the new engine products for low carbon and decarbonization.

Lastly, in the turbocharger business, our overseas production bases, globalized system for the development of technologies including collaboration with overseas universities, and production system are introduced. Specifically, these are: the turbocharger development for next-generation hybrid electric vehicles, the evaluation method for the reliability of variable geometry turbochargers for gasoline engines using digital mock-ups, the turbocharger joint research center launched with Imperial College London, and the Mitsubishi Turbocharger base in the Chinese market.

Under the new organizational structure, MHI's mass-production business continues to take on the challenge of developing new technologies/products in such a way as to meet not only the new standards set by megatrends including decarbonization, electrification and automation, but also the needs of society such as comfortableness under the COVID-19 pandemic. We will fulfill these goals together with Mitsubishi Logisnext Co., Ltd., Mitsubishi Heavy Industries Thermal Systems, Ltd. and Mitsubishi Heavy Industries Engine & Turbocharger, Ltd. We appreciate your continued support.