

## Technical Review Special Edition: New Products & Technologies

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Welcome to this special edition of the technical review featuring our new products and technologies.

"Mitsubishi Heavy Industries Technical Review" is publishing its 60th anniversary issue this year, having made its first appearance in July 1964 just after Mitsubishi Heavy Industries, Ltd. (MHI) was reborn on June 1, following the consolidation of three companies.

As a successor to the technical journals that had been issued individually by the three companies, "Mitsubishi Heavy Industries Technical Review" was launched with the aim of "presenting the results of internal experiments and research, etc. both inside and outside the company, seeking external understanding of MHI's technologies, providing our engineers with a means of research, and requesting people - whether or not connected with MHI - to give us their comments and guidance."

In those days immediately after the inauguration, Japan was at the height of its high growth period. Now, 60 years later, we are living in the era represented by the term VUCA, which is an acronym for "Volatility, Uncertainty, Complexity and Ambiguity." If we want to create new value in this VUCA era, it is essential to keep trying new approaches without sticking to conventional methods. By incorporating the latest findings into our technologies developed over a long history, MHI Group has helped to improve the quality of life of people. In order to contribute to solving social issues, we repeatedly take on the challenge of delivering new products and services and will present our achievements in this "Mitsubishi Heavy Industries Technical Review."

At present, an issue to be addressed urgently is climate change. At COP27 held in November 2022, the Glasgow Climate Pact (COP26) was reaffirmed. Other issues include the unpredictability of the post-coronavirus future, the instability of world affairs triggered by the geopolitical risks, and the consequent concern over energy supplies. Our business environment is thus changing rapidly and discontinuously.

In order to continue contributing under these circumstances toward the development of a sustainable society together with customers and local communities inside/outside Japan, we are conducting "MHI FUTURE STREAM activities". These activities enable us to view the changes in political, economic, social and technological situations surrounding our business broadly and comprehensively from a medium- to long-term perspective. Based on multiple possible future scenarios, the business direction is set for giving rise to innovation, in which we define our responsibilities as "protection of human lives," "protection of the environment" and "protection of everyday life". With "decarbonization" and "electrification and intelligence of machine systems" as the keywords, the strategies for growth are formulated from the business model shift/new

businesses. Moreover, through these activities, we aim to create/deliver new value and expand our business domains, by efficiently developing innovative key components in which electrification and machine intelligence are realized and applying them to MHI Group's growing fields of energy transition and smartification of social infrastructure.

As some of our recent achievements related to new products and technologies, this edition contains two articles on energy transition, five on the smartification of social infrastructure, and ten on the fundamental technologies enabling safe and secure products/services.

It would be our pleasure if this edition could help you have a better understanding about our activities.

We would deeply appreciate your continued support and guidance, as we are determined to continue working toward technological development.