

## **Development of YPM1250-EPQ for generative AI semiconductor manufacture**

TOWA Corporation (hereinafter referred to as "TOWA") announced that we have completed development of YPM1250-EPQ. It is optimized semiconductor molding equipment for generative AI semiconductor manufacture and already commercialized.

### 1. The Background of Development

Demand for high functionality AI semiconductor module, that have been used in servers/high-speed networks, high-performance computing (HPC) and automated driving vehicle system, to process vast amounts of data at high speed, has been increased, due to the spread of generative AI. As the chip size become smaller, according to higher functionalization and increasement of performance in semiconductors, conventional production process revealed its limitations. Specifically, with conventional technology, it has been difficult to increase productivity and quality, and also has a difficulty in cost control. This has been a stumbling block to the further evolution of semiconductors.

In response to requests from semiconductor companies to want to solve this limit of the front-end process, producing these chips, by using back-end process technology, TOWA completed development of new molding technology (resin flow control method) for chiplet (2.5D and 3D packaging methods) products that can solve the problems of the front-end process, with its persistent research and development. Additionally, YPM1250-EPQ is commercialized as molding equipment for mass production adopting resin flow control method. It is the industry's first equipment commensurate with chiplet products and can meet the growing demand for chiplet products.

### 2. Features

#### (1) To meet high performance AI packages (chiplet products) for generative AI

Through the advanced molding technology, YPM1250-EPQ allows to meet large size packages that are hard to operate with conventional technology. It is optimized for chiplet products with large chip size such as semiconductors for generative AI and high performance AI.

#### (2) Productivity increasement

YPM1250-EPQ has three times higher manufacturing efficiency, compared to our previous model, by virtue of our original high precision control technology of large-capacity resin and according to an adoption of large press.

3. About memory semiconductor for generative AI and TOWA's original compression technology

HBM (High Bandwidth Memory) always used in chiplet products such as generative AI semiconductor is multilayer chip structure. So, it requires technology to fill the very narrow multilayer space between chips evenly with resin. Cutting-edge HBM, particularly requires higher resin filling technology than ever before. TOWA compression equipment - CPM1080, that can solve such molding difficulty, has been adopted as the industry's first equipment for mass production of HBM for generative AI, that is being a topic recently. Growing expectations, that the demand for HBM to increase with wider adoption of chiplet products such as generative AI semiconductor, will help TOWA increase demand of its compression equipment.

4. Status of Inquiries

TOWA has already received inquiries of YPM1250-EPQ from leading semiconductor company and planning to get certain orders in FY 2023. Moreover, compression equipment-CPM1080 to manufacture HBM is already being used for mass production at our customer's factory. It is expected to be sold 10 to 20 equipment per year from the latter half of FY 2023.

5. Impact on business performance FY 2023

The demand for YPM1250-EPQ and CPM1080 for HBM manufacturing is expected to rise on latter half of FY 2023 at this point. Mild effect on performance of this fiscal year is predicted though, TOWA will provide prompt notification if there is anything to be disclosed.



YPM1250-EPQ