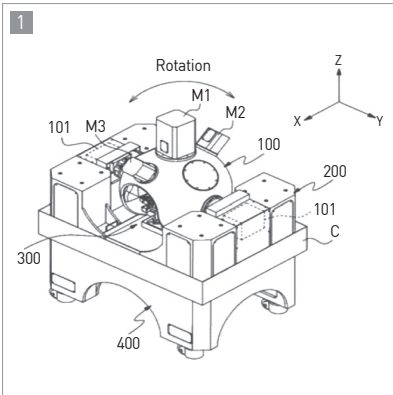


Capsule Type Reconfigurable Multifunctional Machine Tool

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⇒ Capsule type reconfigurable multifunctional machining using machine mechanism with maximized rotary motion for various machining (laser machining, milling and grinding machining, etc.)

Client / Market

- Micro electronic component manufacturer

Necessity of this Technology

- Main machines used for 3D machining include laser machine and multi-axis machining device, however, the demand for improving the product function by laser surface processing after the machining device processing is increasing; therefore, there is a need for developing multifunctional machining that could handle various processes at once (milling, laser, grinding) to produce products in complex forms.
- Multi-axis machining devices until now mostly performed the process by moving the tools with the multi-axis translational motion; due to the complex device structure containing many components, they were sold at an expensive price.
- Existing multi-axis machining devices required the tools to move more to process a product with a complex shape that the energy use increased unnecessarily.
- It is required to develop optimized movement of the tools and various converged processes.

Technical Differentiation

- Reduction in the production time as one setup can handle milling, laser, and grinding machining
- Free of initial setup error as it does not require multiple setups; improved precision
- Improved work environment with one machine handling works that were to be performed by multiple machines; only requires a small work space; eco-friendly machine processing
- Less setup errors as one setup can cover various machining leading to improved precision
- Milling machining and laser grinding machining allowing various shapes to be applied as surface pattern

DESIRED PARTNERSHIP

Technology Transfer

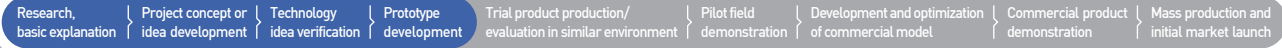
Licensing

Joint Research

Other



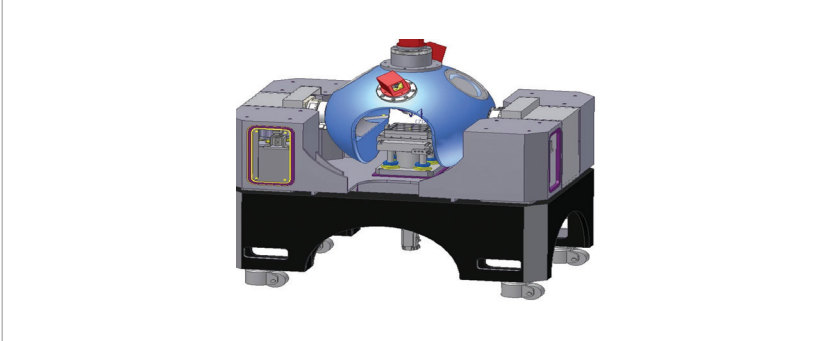
TECHNOLOGY READINESS LEVEL [TRL]



Excellence of Technology

- This invention is capsule type multifunctional machining device using machine mechanism with maximized rotary motion for various machining (laser processing, milling and grinding processing, etc.).
- 3 international patents and 34 other patents
- Received multiple awards including Award Certificate of Director of Patent and Trademark Office (No. 4778, 2009) and Order of Science and Technological Merit (Jinbo Medal) (No. 94, 2011)

Capsule Type Combined Machining Instrument



Current Intellectual Property Right Status

PATENT

- Capsule Type Reconfigurable Multifunctional Machining Apparatus (KR1423500 US13/707982 JP2013-216958 EP13178243.5)
- Stage Unit for Capsule Type Reconfigurable Multifunctional Machining Apparatus (KR1407519)
- Capsule Type Reconfigurable Multifunctional Machining Apparatus (KR1423499)
- Prevention of Vibration Body Structure for Capsule Type Reconfigurable Multifunctional Machining Apparatus (KR1449465)
- Capsule Type Reconfigurable Multifunctional Machining Apparatus Having Body Structure for Prevention of Vibration (KR1449464)