

December 25, 2023

**High-performance composite material with exceptional damping  
performance and thermal stability**  
**– The Mineral Castings will be produced in-house and the range of  
adopted machines is expanding.**

Yamazaki Mazak Corporation is going to begin in-house production of mineral castings, a material that is effective in improving the precision of machine tools through its superior vibration damping performance and other features. The use of this material in our machine tools will be expanded.

Mineral casting is a composite material made from naturally occurring minerals, rocks and epoxy resin as a binding agent. It has high vibration damping performance and thermal stability, contributing to higher efficiency and precision of machine tools.

Machine tools play a vital role in manufacturing across various industries including automobiles, aircraft, and semiconductors. They are constantly required to enhance machining accuracy and productivity.

The precision and productivity of machine tools depend on the rigidity and vibration damping performance of the machine structure, making the choice of materials for the structure crucial.

While metal castings are generally used for machine tool structures, there is a growing demand for alternative materials with superior characteristics to further enhance machine performance, and mineral casting is one such alternative.

Mineral casting not only exhibits excellent material properties but also demonstrates superior environmental performance. This includes significantly lower CO2 emissions in the manufacturing process compared to conventional castings, along with the ability to be manufactured in a safe and clean environment. Additionally, the casting can be designed with piping and tap inserts, which allows for a reduction in machining and assembly man-hours, resulting in shorter manufacturing lead times.

Despite these excellent characteristics and features, one of the challenges in actively adopting mineral castings for machine tools has been the limited number of manufacturers, especially in Japan, and the relatively high cost of procurement, including transportation costs, compared to conventional castings.

To provide our customers with high-precision, high-productivity machine tools with short delivery times, and as part of our environmental management efforts to reduce CO2 emissions, we have been conducting test studies for several years on how to increase in-house production and adoption of mineral castings.

We plan to complete technical development for mass production by the end of this fiscal year, commence mass production in fiscal 2024, and start shipping new models with in-house mineral castings.

Contact: Public Relations, YAMAZAKI MAZAK CORPORATION.  
TEL : 0587-95-9317 <https://english.mazak.jp/>

-----  
Information in this press release is current at the time of publication.  
This information is subject to change without notice.  
-----