**Industrial Machinery**

# The Road to Smart Work: Automated Machine Condition Diagnosis

## YAMAHA

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### Keeping Production Running

"Keep production running!" is the motto at our company, and all of us work as a team to make that happen. The Maintenance Engineering Division is in charge of maintenance for machines used to produce engine components, and maintenance personnel check machine vibrations and use that data to determine the status of equipment on an annual basis. In order to improve efficiency within this division, the FA Planning & Promotion Group searched for a device that could diagnose the condition of production equipment. That is how we found ourselves at a THK exhibition booth two years ago on an information-gathering mission and encountered OMNIedge, a device that can easily be installed on machinery currently in use. LM Guide and ball screw units are critical machine components that cause production lines to stop when they malfunction, so the ability to predict and prevent failures before they happen makes OMNIedge a very attractive product. We decided to try it out immediately, and we are currently running a trial on two of our machining centers.

### OMNIedge's Superiority and Future Developments

As stated above, OMNIedge is easy to install on equipment currently in use, and we believe the diagnostic results will be virtually the same as those we get from our usual periodic diagnostics. After the software update, we discovered how easy the system is to use. The periodic diagnostics we have performed in the past required a certain degree of knowledge and skill, but since the sensor collects the data and brings it right to us in a visual format, our work efficiency is improving greatly. Of course, it also allows us to work more remotely during the coronavirus pandemic, since we do not have to go to a machine to diagnose it.

In terms of future developments, we would like for THK to make OMNIedge even easier to use and to keep providing software updates. Within the scope of what information THK can disclose, we would also like to see a feature added that goes beyond a simple judgment based on the vibration level and automatically analyzes the shape of the waveform to provide insight into which waveform patterns are not an issue and which ones indicate a certain problem.

We do prioritize certain production lines at our company, but we really do not want any to stop. That is why we are considering expanding the use of OMNIedge to all the lines not included in our current trial. When we do, we believe that linking this product with other systems will support manufacturing operations throughout the entire factory. If an essential machine component fails, the costs of that lost production are great, and we need to determine the cause of the failure and a countermeasure. In the past, we would all gather around the failed component and discuss things in person, but that is difficult to do during the coronavirus pandemic, so our investigation findings and countermeasures may be delayed. To help with this analysis, we hope that THK will develop and propose ideas that will lead to a more evolved version of OMNIedge with ways to troubleshoot failures online, providing support in identifying causes and countermeasures, as well as sharing more knowledge from the seller's side.

Machining center with **OMNIedge** installed

**OMNIedge** installed in machining center