



MAKINO

M+max

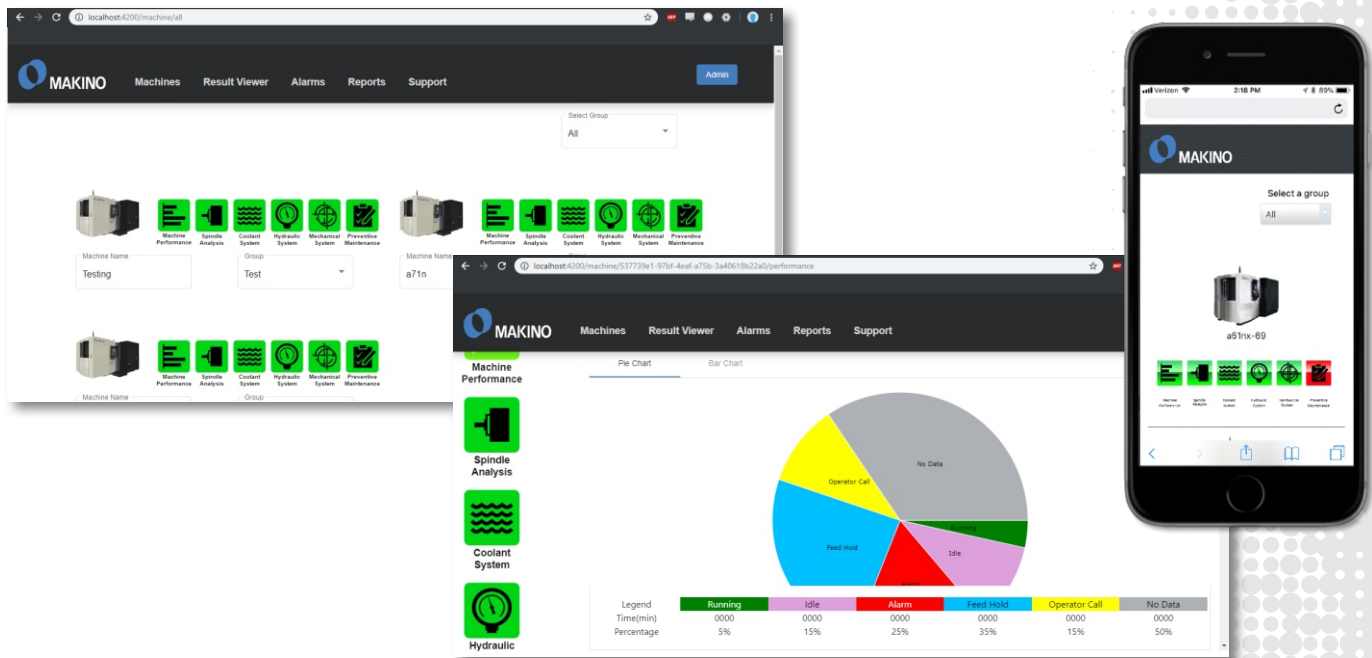
Makino Health Maximizer





IoT technologies have offered the promise to use condition monitoring to predict equipment problems before an actual failure occurs. They commonly use a mixture of sound and vibration analysis to detect when a machine may be running outside of normal conditions relative to a known set of baseline conditions, but until recently have still required a continuation of technical development to be truly effective for reliably performing this challenging set of tasks. With the introduction of the latest technologies by one industry leader, **predicting is now a real deliverable solution.**

Introducing Makino Health Maximizer (MHmax), a game-changing predictive technology specifically designed to reduce your unplanned downtime. Only MHmax offers a tailored high-value sensor package paired with Makino's proprietary machine learning software to monitor key machine functional areas that are critical to the health of the machine. This unique, self-learning capability is able to gather and analyze thousands of data points to monitor the status of the machine and predict failures before they happen, and automatically send an email or text alert for out of spec conditions.



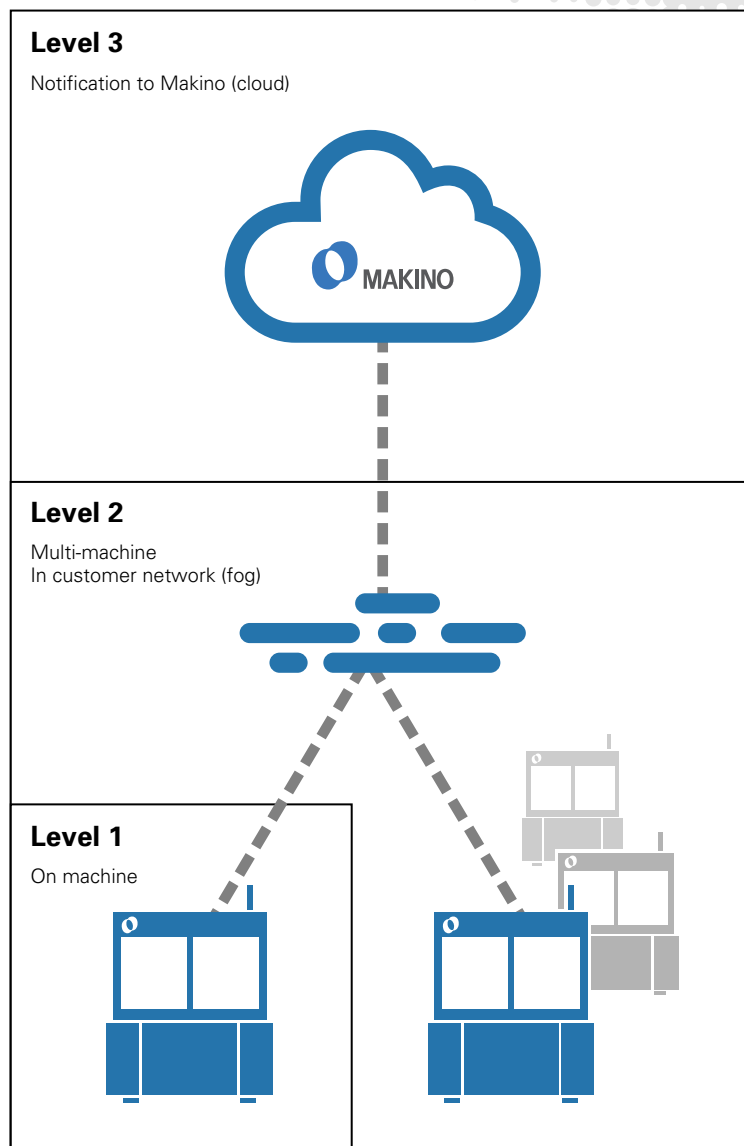
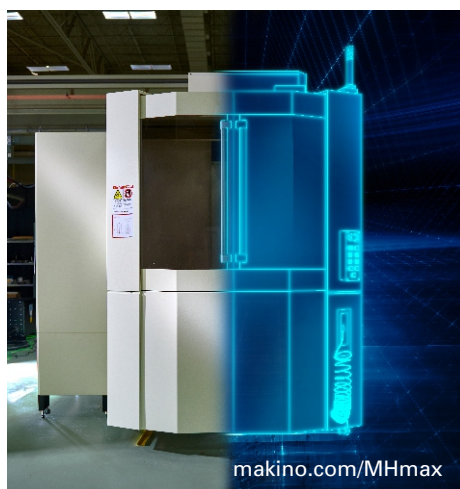
MHmax Includes:

- Spindle vibration, Automatic Tool Changer alignment, Hydraulic System output measurements, and Coolant System output measurements are all monitored in the standard MHmax package
- 24/7 "push" alert system that automatically notifies you of concerning detections via email and/or text to designated recipients (with Level 3 connectivity)
- MHmax works seamlessly with the majority of IT systems, as it offers flexible connectivity options
- MHmax monitored data can be viewed live on the Makino machining centers' Pro 6 control display, or on a local desk-top network connection. It features the ability to be expanded to cloud-connectivity to allow an automated connection to Makino's Service Management System
- Daily, weekly and monthly uptime and predictive reports are available and frequencies are selectable

Three Levels of Connectivity. Three Levels of Interaction.

- Level 1** On the Pro 6 control display
- Level 2** Internal network connection enabling desktop and mobile device interface
- Level 3** Connection and link to Makino's service management system
Proactive call from Makino Technical Support when alerts are received (predictive, preventative, and reactive)

Note: Levels 1, 2, and 3 are available on Pro 6 Control equipped machines.
Only Levels 2 and 3 are available on Pro 5 Control equipped machines.



For more information, please go to makino.com/mhmax

The current release of MHmax covers the following machines / control / spindle combinations:

a51nx	Horizontal Machining Center	Pro6 Control	14,000 RPM Spindle
a51nx	Horizontal Machining Center	Pro5 Control	14,000 RPM Spindle
a61nx	Horizontal Machining Center	Pro6 Control	14,000 RPM Spindle
a61nx	Horizontal Machining Center	Pro5 Control	14,000 RPM Spindle
a500Z	Horizontal Machining Center	Pro6 Control	14,000 RPM Spindle
a71nx	Horizontal Machining Center	Pro6 Control	10,000 RPM Spindle
a81nx	Horizontal Machining Center	Pro6 Control	10,000 RPM Spindle

Makino will continue to expand the MHmax availability list moving forward – please check back to the FAQ list for updates, as we will promote machine and/or configuration additions there.