



Automated Commissioning: 3rd Generation AMB Technology

Technology leadership is at the forefront of every Waukesha Magnetic Bearings® system. The development of Automated Commissioning reinforces Waukesha's commitment to leading the industry and meeting customer needs.

Commissioning is traditionally performed by the magnetic bearing supplier but with the launch of Automated Commissioning the OEM/end user can take control of the entire process with little or no support from the magnetic bearing supplier.

Automated Commissioning is a tool kit of automated scripts running on an external computer, communicating with the active magnetic bearing (AMB) controller via a standard Internet protocol. This process replicates the knowledge of a skilled commissioning engineer, transferring control of commissioning and maintenance to the OEM/end user. It also speeds up commissioning and creates a consistent and repeatable process for Waukesha and customer commissioning engineers. Automated Commissioning can eliminate OEM dependence on the supplier for critical service and decrease the time for initial commissioning.

The result is less downtime for maintenance or troubleshooting in the field, decreased time for training, and reduced need for dedicated, specialised support.

SCRIPTED SYSTEM CHECKS

With Automated Commissioning, software monitors the machine progress and records measurements as soon as the machine is ready in order to minimise the measurement time. It also takes multiple readings in a few seconds to get an accurate measurement.

The software automatically checks the build of the machine, with sensors and amplifiers checked for the expected functionality when the rotor position is manipulated by applying power to the magnets. Therefore, no operator intervention is required.

The use of a machine-specific configuration file means the check is repeatable and customised, thereby ensuring correct settings and targets. The software setup can proceed with minimal supervision and offer the results in an automatically generated report.

SYSTEM DYNAMICS MEASUREMENTS

Automated Commissioning script ensures that all relevant measurements are taken and archived. It sets up and collects results from the controller spectrum and transfer function facility without the user needing to save files through the browser interface. The combination of tuning script and controller capability removes the need for dynamic signal analysis equipment.

AUTOMATED COMMISSIONING IS AVAILABLE ON THE FOLLOWING WAUKESHA MAGNETIC BEARINGS CONTROLLERS:

- Elephanta®
- Chinook®
- Zephyr®

Older Waukesha NGC controllers are upgradeable on a case-by-case basis.

ADDITIONAL BENEFITS:

- Multiple calibration options are available for different machine types.
- Scripted tuning ensures the correct parameters are set to the correct values and properly reinstated when tuning is complete.
- The script can configure and automatically recover the results from the Harmonic Capture facility built into the Bearing Control Unit 3 (BCU3).



END USER BENEFITS

End users will enable automatic checks after maintenance, independent of Waukesha or the OEM – thereby reducing downtime for faster commissioning.

Aside from reduced site time and cost, Automated Commissioning records allow for rapid identification of degradation of machine performance and consistent tuning for repeat units, thus paving the way toward true machine prognostics. Automated Commissioning also simplifies the process of matching the OEM factory build.

OEM BENEFITS

Automated Commissioning is suitable for initial build (OEM), end-user installation, and maintenance work. It gives the OEM the ability to commission and maintain independently, allowing for faster commissioning on first-of-class machines.

Additional benefits include rapid and consistent commissioning for repeat units along with reduced need for an AMB specialist.

FFB vs CDEM TF to demonstrate bandwidth with ind_p = 215.6, ind_m = 280.0,

