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Media Release

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Precision at the push of a button: New Automated Machine Calibration (AMC) helps reduce downtime and ensure stable, long-term quality in Milling

Changes in ambient temperature or working environment and machining parts over long periods of time all impact a milling machine's geometry. GF Machining Solutions' new Automated Machine Calibration (AMC) helps manufacturers easily recalibrate their Milling machines and recover overall precision at the push of a button.

Over time, any assembled mechanical system becomes prone to losing its original calibration and precision due to heat and external factors—and Milling machines are no different. Although they are all calibrated at the factory after assembly and during commissioning, changes in a customer's working environment—including ambient temperature variations and heat during the machining process—cause deviations from this original calibration. This results in losses of process consistency and precision, which in turn negatively impact part quality. Recalibrating a milling machine—especially a five-axis milling machine—is a complex task requiring the necessary materials, time, and the constant availability of thoroughly trained application engineers with deep technical knowledge and data management skills. Even when all of these requirements are met, manufacturers still run the risk of human error in the data management for the machine calibration, which can lead to inaccurately calibrated machines, a continued loss of precision and final parts with a lower quality.

To simplify machine calibration, GF Machining Solutions has developed an all-in-one, ready-to-use AMC package which allows operators of both three-and five-axis machines to easily and quickly perform a machine recalibration to recover the overall long-term precision required for high-quality parts. The AMC cycle consists of both the software for the Heidenhain TNC 640 control as well as the hardware (a dedicated pallet including a calibration ball and an aluminum reference block) for pallet calibration. Its ergonomic interface is easy to use and requires little training—and the automatic data management reduces human error, minimizes downtime between cycles, and increases operator availability.

To recover the machine's geometry, operators simply start the program and are guided by the interface: AMC assesses and adjusts all key components necessary:

- The touch probe (length of the touch probe and radius of the stylus)
- The tool measuring system (the location of the laser beam in relation to the machine's zero point)
- The B and C axes (the pivot point of the B and C axes in relation to the machine's zero point)

Once deployed, AMC recalibrates any machine within 10 minutes to its original kinematic precision—and thanks to its 100% reliability, it is a fast, accurate and secure solution for manufacturers looking to maintain their machines' dimensional offsets on a regular basis and guarantee highly accurate parts.

GF Machining Solutions currently offers AMC as a standard package on its three- and five-axis Mikron MILL S and Mikron MILL X series, allowing users to achieve best-in-class standard calibration cycles. The package can be tailored according to manufacturers' individual requirements, for example by including advanced optional smart machine modules (smm) bundles for specific application requirements.

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Picture caption:
Reduce the downtime between cycles with the standard Automated Machine Calibration (AMC). Calibrating the machine to ensure the stable, long-term precision required for high-quality parts is now as easy as pushing a button.

The AMC cycle (software and hardware) has been developed internally and allows manufacturers to calibrate their Milling machine faster and more easily. Select the AMC cycle and let the program run to recalibrate the machine and recover overall precision.
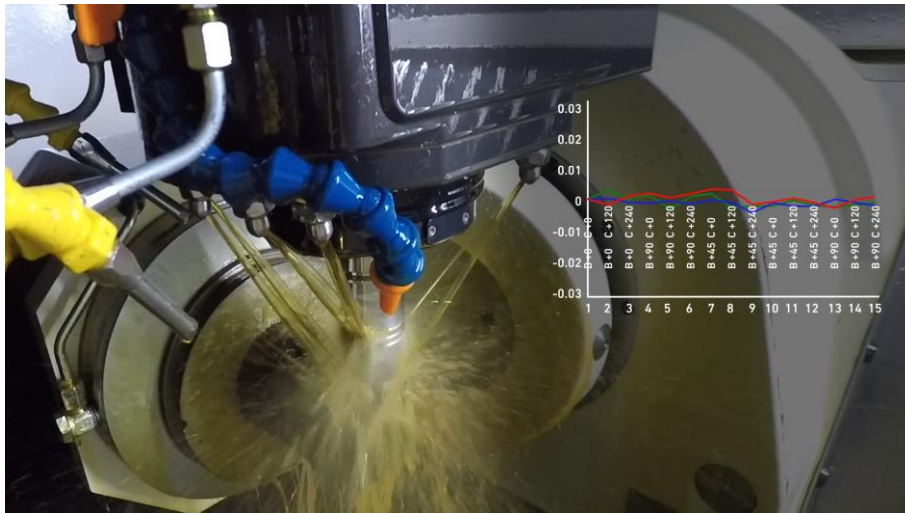
To recover the geometry of the machine and get a repeatable and consistent process, AMC works with automated steps to recover the machine's precision quickly and perfectly.

Profile of GF Machining Solutions
GF Machining Solutions is the world's leading provider of machine tools, diverse technical solutions and services to manufacturers of precision molds and tooling and of tight-tolerance, precision-machined components. The key segments we serve include the aerospace, automotive, medical, energy, information and communications technology (ICT) and electronics industries. Our extensive portfolio ranges from Electrical Discharge Machining (EDM) solutions, three- and five-axis Milling machines and Spindles, 3D Laser texturing machines, Additive Manufacturing and machines for Laser micromachining to solutions for Tooling, Automation, Software and Digitalization—all backed by unrivaled Customer Services and support. GF Machining Solutions is a globally acting Division of the Georg Fischer Group (Switzerland) and maintains a presence at 50 locations worldwide. Its 3,358 employees generated sales of CHF 972 million in 2019. More information can be found at www.gfms.com

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