Media Release

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Agility for the future: Mikron MILL P series delivers intelligent productivity to help mold and die manufacturers overcome their challenges

Rapid market developments and future-changing innovations challenge mold and die manufacturers’ ability to adapt to change. GF Machining Solutions provides these manufacturers with agility for the future with its new Mikron MILL P series of five-axis, simultaneous Milling machines.

The Mikron MILL P 500 U and the Mikron MILL P 800 U are optimized for intelligent productivity: Users can employ new tools, such as circular segment end mills to achieve up to 30 times faster 3D finishing or use trochoid Milling for roughing with increased process reliability. With the Mikron MILL P series, manufacturers can transform today’s challenges into applications for tomorrow.

These high-performance machines are designed to deliver the precision essential in mold and die production for industries such as automotive and home appliances. Beyond their ability to ensure ±2 μm precision in the XY plane, the Mikron MILL P 500 U/800 U deliver process stability to companies seeking agile productivity.

The mold making industry is under pressure today to become more efficient. On one hand, manufacturers are pushed to achieve higher mold making process productivity. On the other hand, they need to extract greater productivity from the mold itself with more cavities and shorter cycle times. These requirements challenge contemporary milling machines in terms of speed, stability, dynamics and production safety, in view for the need for consistent precision.

Thirty times faster
One solution to these requirements is to increase production speed with new milling strategies based on new tooling. One way to improve flexibility is to do roughing during unattended machining time. Additionally, process safety is increased with the use of highly dynamic cutting tools. But most time-consuming task in mold manufacturing usually is surface finishing with ball nose cutters in the mold cavity; this process is significantly shortened with circular segment cutters.

The Mikron MILL P series can deliver 30 times faster finishing times with circular segment end mills compared to common ball nose cutters because of a step over (distance from one cutting path to the other) that is up to 30 times bigger. The resulting surface finish is even better, due to the big radius of the circle segment.

To fully profit from circular segment end mills in terms of surface finish and speed, the milling machine must be both dynamic and stable, affording smooth movement in five-axis
applications. Due to their thermal and wear behavior, gear-driven rotary swivel tables are not the optimal solution for these required, continuous five-axis simultaneous movements. But the Mikron MILL P U series incorporates direct driven swivel and rotary axis, dynamics and overall stability to fulfill these very requirements.

±2 µm in the X/Y plane
Temperature fluctuations can negatively influence accuracy in simultaneous machining, another challenge resolved by GF Machining Solutions’ Mikron MILL P U range. Equipped with water-cooled direct drives in the rotary and swivel axes and a thermo-symmetric design, these machines ensure continuous precision. For example, 20 parts with 50-mm diameter ball were milled at various table angle positions over 8 hours; the result: a profile variation of less than ±2 µm.

24/7 production
Furthermore, this series’ unique Automation integration from the back through the machine gantry ensures easy integration and fast operations when linked with state-of-the-art part or pallet handling system. This concept provides optimal operator ergonomics and provides best 24/7 production conditions. For example, a reduction in manufacturing time from 10 hours to two-and-a-half hours for the same cavity provides extra Milling machine capacity. Using this capacity during the night is an obvious means of profiting from Automation.

Mold and die manufacturers can also profit from the Mikron MILL P 500 U/800 U’s unique, available Machine and Spindle Protection (MSP). It provides active protection in all directions to reduce machine downtime. In case of a collision, users can resume full production in around 10 minutes.

Customer Services: rConnect
GF Machining Solutions Customer Services’ rConnect brings smart manufacturing to mold and die manufacturers’ workshops. Innovative apps make machine intelligence always available to ensure that customers’ workshops operate to their full potential at all times. With rConnect’s Live Remote Assistance (LRA), users can rely on GF Machining Solutions’ expert engineers to rapidly respond to their service requests. That’s because LRA connects users to experts for remote assistance in real time.
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Picture caption:
GF Machining Solutions’ new Mikron MILL P 500 U and Mikron MILL P 800 U five-axis simultaneous Milling machines provide mold and die producers with agility for the future. Optimized for intelligent productivity and precision, they transform manufacturers’ current challenges into applications for tomorrow.
Application image:
This front car light application demonstrates how GF Machining Solutions’ Mikron MILL P 500 U and Mikron MILL P 800 U are optimized with intelligent productivity, allowing mold and die makers to use trochoid Milling for roughing with higher process reliability and new tools like circular segment end mills to achieve up to 30 times faster 3D finishing.

Profile of GF Machining Solutions
GF Machining Solutions is the world’s leading provider of machines, diverse technical solutions and services not only to the tool and mold making industry but also to manufacturers of precision components. The portfolio ranges from electrical discharge machines, high-speed and high-performance Milling machines—including clamping and palletization systems, 3D Laser surface texturing machines and Spindles—to solutions for Tooling and Automation, services, spare parts, expendable parts, consumables and Digitalization solutions. GF Machining Solutions is a globally acting Division of the Georg Fischer Group (Switzerland) and maintains a presence on 50 sites worldwide within its own organization. Its 3'255 employees generated sales of CHF 992 million in 2017. More information can be found at www.gfms.com.