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Innovation: DMG MORI Technology Cycles

Deep hole drilling and deburring easily programmed

Munich. Exclusive DMG MORI technology cycles in the areas of handling, measuring, machining, and monitoring have been supporting CNC manufacturing for many years because they simplify complex programming tasks and expand the range of functions of machine tools. At EMO 2025, the innovation leader will present the new gunDRILLING technology cycles for deep hole machining and gearDEBURRING for deburring gear teeth. These and other technology cycles that are already successfully in use, such as Grinding, gearSHAPING, and gearBROACHING, are making a significant contribution to DMG MORI's ability to consistently drive forward process integration.

gunDRILLING: Deep hole drilling thanks to technology cycle

The manufacturing sector is facing ever-increasing demands in terms of tolerance accuracy, throughput times, and cost-effectiveness. Deep hole drilling plays a strategic role, particularly in the key industries of die and mold making, aviation & space, and semiconductors. However, conventional processes are reaching their limits due to tool breakage, extreme tool wear, complex programming, high coolant consumption, and high pressures in the internal coolant supply (IKZ). DMG MORI understands these challenges firsthand—and offers a consistently user-oriented solution with the new gunDRILLING technology cycle. Through continuous monitoring and automatic adjustment of the coolant flow (Adaptive Coolant Flow, ACF) and feed, the system ensures exceptionally stable deep hole drilling even in difficult-to-machine materials.

Adaptive Coolant flow system: monitoring and adjustment of the coolant supply

One of the key innovations is the Adaptive Coolant Flow system, which continuously monitors and automatically adjusts the flow of the internal coolant supply. This reduces pressures to a maximum of 40 bar. This prevents overheating and significantly reduces the risk of tool breakage. In addition, automatic feed adjustment ensures that if defined limits are exceeded, the process is also permanently adjusted within the limits in accordance with the flow rate. This control is continuous, maximizing both tool life and machine availability. The technology also scores highly in terms of sustainability: results show that energy consumption is significantly reduced and there is no need for expensive special fluids. In many cases, a standard solution in combination with an 80 bar coolant system is completely sufficient. Integration into existing manufacturing processes is also particularly intuitive thanks to automated parameterization. The programming effort is significantly reduced. The same applies to potential sources of error. Last but not least, the gunDRILLING technology cycle impresses with its versatility: Whether for small or large series production, the solution is ideal for a wide range of applications, especially in industries with the highest demands on precision and process reliability.

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gearDEBURRING: Defined deburring of gear teeth

Deburring gear teeth is an important process step that DMG MORI has greatly simplified with the gearDEBURRING technology cycle. It supports the programming of the machining step for both straight and helical gear teeth—even in the case of internal gear teeth. All you have to do is define the parameters of the gear, the deburring tool, and the machining strategy in the user interface. Depending on the tool geometry, the technology cycle uses the B axis to apply chamfers flexibly. The process is carried out at high speed in up to 20 seconds. An additional benefit is the cost-efficient use of tools.

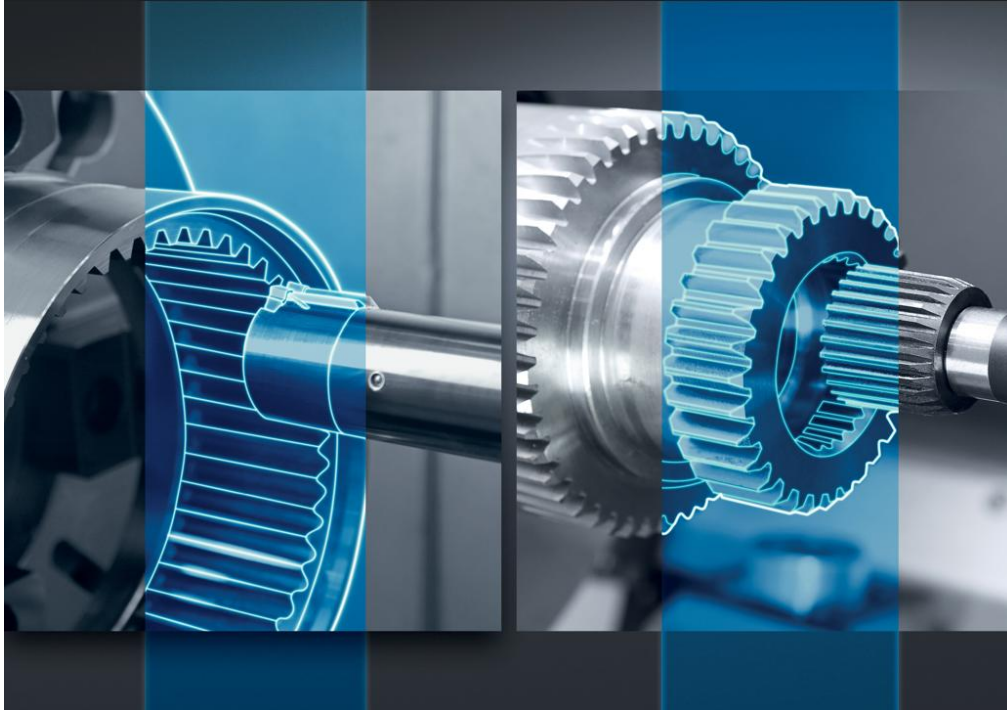
Machining Transformation (MX) through technology cycles

The use of these and other highly specialized technology cycles is an important element of Machining Transformation (MX), with which DMG MORI is paving the way for the future of manufacturing. They reduce programming times and integrate additional processes into the machine's working space, which in turn reduces overall throughput times. This approach has already proven itself in many applications. With technology cycles such as Grinding, gearSHAPING, and gearBROACHING, DMG MORI has been demonstrating for many years that this approach ensures more efficient processes. The integration of additional work steps into a single clamping is the perfect alternative to conventional machining on multiple machines and enables more economical and competitive production.

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Company Profile // DMG MORI

DMG MORI is a leading global manufacturer of high-precision machine tools and is represented in 44 countries – with 124 sales and service locations, including 17 production plants. In the "Global One Company", more than 13,500 employees are driving the development of holistic solutions in the manufacturing industry. Under the guiding principle of Machining Transformation (MX), DMG MORI combines four pillars for the efficient, sustainable production of the future: Process Integration, Automation, Digital Transformation (DX) and Green Transformation (GX).

DMG MORI stands for innovation, quality and precision. Our portfolio covers sustainable manufacturing solutions based on the technologies Turning, Milling, Grinding, Boring as well as Ultrasonic, Lasertec and Additive Manufacturing. With technology integration, end-to-end automation and digitization solutions we make it possible to increase productivity and resource efficiency at the same time.

At our production sites worldwide, we implement holistic turnkey solutions for the main sectors of aviation & space, automotive & e-mobility, die & mold, medical, and semiconductor. With the DMG MORI Qualified Products (DMQP) partner program, we offer perfectly matched peripheral products from a single source. Our customer-oriented services cover the entire life cycle of a machine tool – including training, repair, maintenance and spare parts service.

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