

Global Product Communications
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Preview GrindingHub 2026

Innovative manufacturing of ultra-hard tools

Munich. In modern production involving difficult-to-machine materials and high quality requirements, tools made from ultra-hard cutting materials such as PCD, CVD, MCD, and CBN are becoming increasingly important. Users benefit from optimal cutting speeds, longer service life, and better surfaces. Machining these cutting materials is more demanding than machining conventional carbides, which is driving the development of innovative manufacturing solutions for these advanced tools. At GrindingHub in Stuttgart from May 5 to 8, 2026, DMG MORI will present a holistic process chain in which a LASERTEC 12 SLM first builds a milling head from polycrystalline diamond (PCD) in a powder bed. The cutting edge is finished on a LASERTEC 20 PrecisionTool using a laser. In addition, the machine tool manufacturer will be showcasing a second-generation Vertical Mate 85 for conventional grinding.

LASERTEC SLM: Ultra-hard milling heads from the powder bed

Both the LASERTEC 12 SLM exhibited at GrindingHub and the larger LASERTEC 30 SLM 3. Generation serve as productive solutions for the additive manufacturing of milling heads in a powder bed. The decisive advantage over conventional manufacturing processes lies in the complex geometries that the additive process can achieve. For example, internal cooling channels can be integrated, ensuring optimal heat dissipation when machining with ultra-hard cutting materials. On the control side, LASERTEC SLM machines feature CELOS X with easyAM. This makes the powder bed machines easy to operate and maintain. rePLUG powder modules also enable quick changes between different materials.

LASERTEC 20 PrecisionTool: Cutting edge rounding in a single clamping

DMG MORI offers advanced finishing of cutting edges with the LASERTEC 20 PrecisionTool. The 5-axis laser machine rounds cutting edges without any post-processing in a single clamping at a speed of up to 5 mm/min with 1.6 mm thick PCD. It is also possible to measure the stroke profile of the round laser chamfer and to customize or adjust it on the machine. The LASERTEC 20 PrecisionTool produces cutting edges with a sharpness of less than 1 µm and a defined cutting edge rounding of 3 µm, 6 µm, 9 µm, and 15 µm. Negative chamfers are also possible. In addition, the process-reliable laser processing contributes to higher cost-effectiveness because it increases the service life of the tools by a factor of 2.5.

LASERTEC 50 PrecisionTool Femto: miniature tools

In addition to this process chain, DMG MORI serves another highly dynamic market segment with micro tool machining on the LASERTEC 50 PrecisionTool Femto. The focus here is on miniature tools with a diameter of 0.2 mm or more, which consist of soldered PCD diamonds and are manufactured with extreme precision using ultra-short pulsed femto laser ablation.

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With tools of this size in particular, classic mechanical machining processes such as grinding or electrical discharge grinding often reach their technological limits. High process forces, tool wear, and complex and fragile geometries often make reproducible machining impossible.

The femto laser technology of the LASERTEC 50 PrecisionTool, on the other hand, enables virtually force-free material removal with maximum geometric accuracy. This allows even the most demanding cutting geometries and defined cutting edge qualities to be achieved, which is a decisive advantage, especially in applications with the highest requirements for precision, service life, and process reliability. Users benefit not only from the laser processing itself, but also from DMG MORI's comprehensive machine, control, and process expertise in the field of precision tool manufacturing.

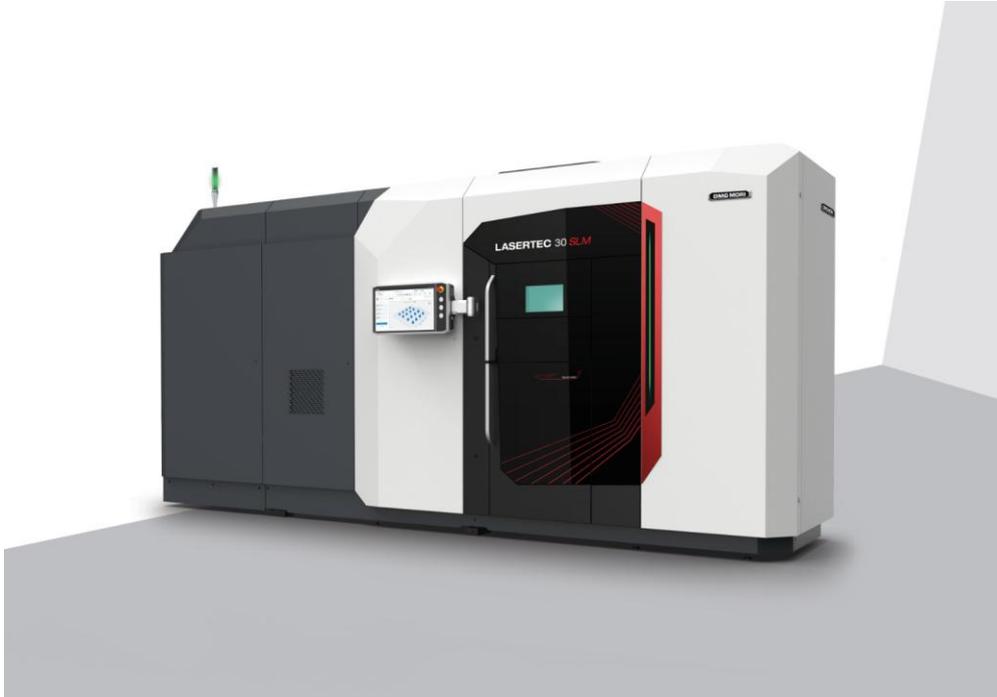
Vertical Mate 85 2. Generation: Multi-process grinding for demanding industries

With the Vertical Mate 85 2. Generation multi-process grinding machine, DMG MORI is building on the success of its predecessor model. It allows the machining of inner and outer diameters as well as flat surfaces in a single clamping. Its speedMASTER LongNose spindle achieves an output of 18.5 kW, 35.3 Nm torque, and a speed of 10,000 rpm. An optimized machine structure and high thermal stability contribute to high-precision machining, as does the linear scale in the X-axis. The Vertical Mate 85 2. Generation achieves a roundness of 1 µm, making it ideal for precision applications in challenging industries such as mobility, semiconductors, and aviation.

With its combination of additive manufacturing, laser finishing, and classic grinding technology, DMG MORI is underlining its position at GrindingHub as a technology partner for the entire value chain of modern tool manufacturers, from micro to macro machining.

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The powder bed machines in the DMG MORI LASERTEC SLM series are suitable for the additive manufacturing of milling heads with internal cooling channels.



The DMG MORI LASERTEC 20 PrecisionTool produces sharp cutting edges under 1 μm .

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The DMG MORI Vertical Mate 85 2. Generation enables multi-process grinding of inner and outer diameters as well as flat surfaces in a single clamping.

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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