

RAMPF provides solid foundation for complete machining solutions

Groundbreaking MT 733 series of milling-turning centers from STAMA are mounted on machine beds manufactured with EPUMENT[®] mineral casting using non-cutting processes

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Wangen (Göppingen), September 11, 2019. The ever-changing market demands a higher level of individuality in products. Given the high level of quality that companies are expected to deliver, maximum process reliability is a must. Providing excellent process flexibility while also boosting productivity to significantly reduce unit costs is one of the major challenges facing manufacturers. The new MT 733 series from STAMA was developed to overcome this very hurdle. Machine beds made of EPUMENT[®] mineral casting and manufactured with the utmost precision without machining provide these units with the necessary stability.

Across a wide range of industries, there are components that ideally should not be manufactured in several separate processes, each carried out on a different specialized machine. The MT 733 milling-turning centers from STAMA offer all the freedom in terms of process design and optimization necessary to completely machine all six sides of these complex, high-precision workpieces from the blank to the finished part – all in a single set-up. Groundbreaking features, such as the small number of clamping positions required, the ability to easily integrate a wide range of functions for optimum workflows, and an automated, high-precision workpiece transfer system from OP10 to OP20, set these machines apart from other models.

All four variants of the new MT 733 milling-turning centers feature a portal design. Machine beds consist of one base frame and one portal for types one and one plus, and one base frame and two portals for types two and two plus. These are made of EPUMENT[®] mineral casting from RAMPF Machine Systems, adding a great deal of static, thermal, and dynamic stability to the machining process. The epoxy resin-bonded material is an excellent basis for highly dynamic, high-precision milling/turning and drilling operations. Thanks to its integrated automation, the MT 733 provides ideal conditions for a successful “first part = good part” strategy.

EPUMENT[®] mineral casting as a low-vibration base

With its minimal deformation under maximum loads, the vibration-damping machine bed material ensures the geometric position of the individual machine elements is secure, while also absorbing static, dynamic, thermal, and acoustic forces and moments. This is particularly important when dealing with components that are complex, difficult to machine, and have long service lives, in which case the first finished workpiece must already be dimensionally stable for batch sizes of one and in series production.

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High precision and workpiece quality require excellent machine and process stability to successfully implement a “first part = good-part” strategy.

For precision machining operations that place stringent demands on component accuracy, there is an active cooling option for linear guides, the chip channel, and structural components in the machine bed. The cooling tubes are cast directly into the mineral casting. “Cold-curing reactive resins enable a wide range of functions to be easily integrated, meaning components such as sensors and heating/cooling circuits can be incorporated with little effort,” explains Thomas Altmann, CEO of RAMPF Machine Systems. “Moreover, by using the cold casting method, up to 30 percent less primary energy is consumed during manufacture compared to other materials. The casting process itself is carbon-neutral.”

Manufacturing precision surfaces with no cutting

The precision surfaces of the machine beds in the modular MT 733 series are manufactured using the newly developed replication technology from RAMPF Machine Systems – so no cutting is required. The contour of a high-precision mold is transferred to the mineral casting blank by means of special lining systems (filled resins) in climate-controlled production shops.

While molding accuracy in the hundredths of a millimeter range could previously only be reliably achieved with molding lengths up to 2.5 meters, this new development now opens up the many advantages of replication technology for lengths of up to 4 meters:

- > Excellent cost-efficiency, especially for medium to large quantities, as there is no costly use of machining equipment.
- > The entire process is completed by RAMPF in-house – molding in a climate-controlled workshop at 20°C; no external processors or transportation required.
- > High reliability due to lack of influence from machines or tools.
- > There is only a very small number of milling and grinding contractors that can reliably provide such high-precision results for these component dimensions. This molding technology eliminates any dependency on these service providers (e.g. fluctuating capacities), ensuring deliveries can be made on a just-in-time basis.

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The machine bed of the MT 733 one plus milling-turning center from STAMA comprises a base frame and portal made of EPUMENT[®] mineral casting from RAMPF Machine Systems.



MT 733 one plus ("Chuck") for machining complete chuck parts with high levels of flexibility and productivity. **Live in action at EMO 2019 in Hannover, September 16 to 21 – Hall 12, Booth C06.** © STAMA

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RAMPF Machine Systems GmbH & Co. KG, based in Wangen (near Göppingen), Germany, is the leading supplier and development partner for system solutions, trunk machines, and basic machines, as well as multi-axis positioning and moving systems based on high-precision machine beds and machine bed components made from alternative materials.

The portfolio of high-performance materials includes mineral casting, ultra-high performance concrete (UHPC), natural hard stone, metal foam, and fiber composites. These materials provide a solid basis for ultra-precise and high-performance machine beds and machine bed assemblies.

The full range of services provided by the company includes everything from engineering to production, as well as assembly, system solutions, customer-specific multi-axis positioning and moving systems, and basic machines – from single-piece to series production in customized supply chain solutions.

Using innovative casting, grinding, and lapping processes, as well as high-performance assembly and testing equipment in temperature-controlled production environments, exceptional accuracy of machine bases and basic machines is guaranteed.

RAMPF Machine Systems is a company of the international **RAMPF Group** based in Grafenberg, Germany.

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