

Press Release

May 20, 2013

Highly Reliable, Super-High-Speed, High-Precision No. 30 Taper Machining Center MAX3000 Bringing Revolution to Shop Floor

Mori Seiki will begin taking orders for the **MAX3000** machining center ideal for mass production on May 21, 2013.

The MAX3000 is a No. 30 taper vertical machining center that comes standard with a high-speed, 2-station APC and offers both superior rigidity and agility. The machine was developed aiming at high-precision, high-speed machining of small workpieces, with the first priority on enhancement of customers' productivity and efficiency. Featuring the fastest rapid traverse rate in its class and the compact, robust construction to minimize the effect of chips, the MAX3000 provides high added values for customers.

We would like to highlight detailed features of the machine with viewpoints of (1) Compact body and wide work envelop, (2) Excellent agility, (3) Capability to handle a wide variety of workpieces, (4) High precision, (5) Improved reliability, (6) MAPPS IV, (7) Energy saving, (8) A variety of peripherals (MSQP) and (9) Safety.

(1) Compact body and wide work envelop

The MAX3000 achieves a compact body with a footprint of only 4.6 m² despite employing a two-station APC as it was optimally designed based on accumulated data on No. 30 taper spindle machining centers. The table working surface of 600 x 300 mm which is suitable for machining small automotive parts allows a round table to be installed, enabling the machine to offer a broad range of machining from small part machining using high-speed feed to complex machining requiring simultaneous 4-axis control. As a result, integration of processes that used to require multiple setup changes on multiple machines is possible, contributing to reducing a floor area and machining time.

(2) Excellent agility

The MAX3000 achieves the fastest rapid traverse rate of 62 m/min. in its class on all axes. High acceleration ensured by the lighter moving parts significantly reduces machining time even during machining that requires frequent repetition of rapid traverse and cutting feed, such as machining of multiple small workpieces. The high-speed APC which achieves a pallet change time of two seconds reduces non-cutting time and improves productivity.

(3) Capability to handle a wide variety of workpieces

With a spindle speed of up to 15,000 min⁻¹ and a spindle bearing inner diameter of 55 mm, the MAX3000 offers superb rigidity that exceeds the image of conventional No. 30 taper machines. This allows the machine to handle a various types of machining and material, such as high-speed milling of aluminum, heavy-duty cutting of steel, and machining of magnesium, iron, castings and stainless steel. Up to 10 ports (option) for supplying hydraulic and air pressure to fixtures are available per pallet, which enables the machine to mount various types of fixtures. The tool storage capacity of up to 27 tools (option) ensures optimal machining for a wide variety of workpieces.

(4) High precision

In order to suppress pitching, the MAX3000 has reduced the weights of the column and other moving parts without losing its rigidity, and minimized the distance between the center of gravity of the moving parts and the guideways. Roller guides are used for the guideways to offer even better repeatability. As countermeasures against thermal displacement, the spindle employs a structure that disperses heat generated by the spindle motor and spindle rotation evenly to equalize displacement, and the machine uses a symmetric structure in the X-axis direction to control thermal displacement.

(5) Improved reliability

The MAX3000 is designed with many features to maintain high reliability for a long period of time. The simple APC, consisting of a large-diameter cross roller bearing and a servo motor, enables high-speed, high-accuracy pallet changing and minimizes the risk of mechanical malfunction as it uses neither hydraulic equipment nor switches. The simple arm-less type ATC that requires far fewer components also contributes to improving the machine's reliability. Additionally, the MAX3000 has a structure in which all linear axes are placed above the machining area, allowing the machine to be less affected by chips and coolant that often cause problems during mass-production machining.

(6) MAPPS IV

The MAX3000 uses the MAPPS IV high-performance operating system for its operation panel. Featuring the customizable main screen and easy-to-use button layout, MAPPS IV provides outstanding operating convenience. The MAPPS's conversational automatic programming function offers simple and easy programming regardless of the complexity of the workpiece. In addition to the NC memory, MAPPS has a 50 MB user memory area for program storage. The large-capacity memory enables users to perform direct operation by transferring stored programs directly to the NC unit. A USB interface is also provided for easy data transfer between the machine and the PC.

(7) Energy saving

The latest, energy-efficient CNC and LED lighting are used to reduce environmental burdens and running costs. Overall power consumption has also decreased by approximately 30% compared to the previous model, which was made possible by cutting off the power supply to the servo motors and coolant pumps during standby.

(8) A variety of peripherals (MSQP)

Mori Seiki provides a variety of peripheral equipment such as a through-spindle coolant unit and a mist collector as MSQP (Mori Seiki Qualified Products). MSQP items that were carefully selected and certified by Mori Seiki include only products that offer high levels of quality, performance and maintainability. Our MSQP system allows us not only to offer high-quality peripherals together with a machine, but also to ensure extra peace of mind through reliable after-sales support for both machines and peripherals.

We have also prepared various optional packages consisting of useful specifications to meet a wide range of machining needs. Current examples of the packages include chip disposal, high-precision machining, coolant, measuring instruments and robot systems.

(9) Safety

The MAX3000 complies with safety standards all over the world, including ISO standards, IEC standards, UL standards and JIS standards.

Mori Seiki will continue to provide products that are reliable, highly functional and worthy of investment to meet each and every customer's needs.

Type	High-productivity vertical machining center
Model name	MAX3000
Market	Automotive, agricultural machinery, hydraulic/pneumatic equipment, etc.
Order starts	May 21, 2013
Production	20 units/month

■ Main specifications

Items		MAX3000
Axis travel (X/Y/Z)	(mm)	400/270/280
Table working surface	(mm)	600×300
Table loading capacity	(kg)	150(single pallet)
Rapid traverse rate (X/Y/Z)	(m/min)	62/62/62
Max. spindle speed	(min ⁻¹)	15,000
Spindle drive motor	(kW)	5.5/3.7(15 min/cont)
Tool storage capacity	(tools)	18[27]
Floor space	(mm)	1,480×3,249

[] option



Photo 1. Exterior



Photo 2. High-speed, 2-station APC



Photo 3. Machining area



Photo 4. Simple arm-less type ATC