MORI SEIKI
THE MACHINE TOOL COMPANY

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News Release

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High-Speed Bridge-Type Machining Center for Machining Large Workpieces "VS8000" "VS10000"

Mori Seiki Co., Ltd. has started sales of two models of bridge-type, high-speed, vertical machining centers for large, high-precision parts, such as semi-conductor manufacturing units, and large dies and molds. These two models are the "VS8000," which has a column-to-column width of 1,100 mm (axis travel: X-axis 1,600 mm and Y-axis 860 mm) and the "VS10000," which has a column-to-column width of 1,250 mm (axis travel: X-axis, two types, 2,050 mm and 3,150 mm, Y-axis 1,000 mm). The Z-axis stroke is 600 mm for both models, 200 mm longer than that of conventional machines, and is capable of machining of larger workpieces. The spindle can be chosen from either the BT40 or the BT50, with a maximum spindle speed of 8,000～20,000 min^{-1}. The feedrate is 40 m per minute, which is the highest in its class.

Furthermore, the high-efficiency MAPPS II operating system was used as a control unit to dramatically improve operability. These high-speed machines for large, high-precision parts have achieved great accessibility to the spindle and table for easy setup and operation.

Mori Seiki offers the high-speed bridge-type machining centers, the VS8000 and VS10000, which bring improved operability and drastically reduced machining time to the large, high-precision parts machining and die and mold industries.

Machine	High-speed bridge-type machining center
Machine model	VS8000, VS10000
Customers and Markets	Large, high-precision parts machining industry (semi-conductor manufacturing units, aerospace parts), large die and mold industry, etc.
Sales Start	November 1, 2005
Production	15 machines/month

■ Main Features

1. All machines in the new VS Series (2 models, 3 types) are being released simultaneously.
2. Bridge-type structure suited for high-speed machining of large workpieces and ram spindle structure that offers stable rigidity.
3. Bed with a large chip-discharging area.
4. Large capacity coolant unit which contributes to stable, long-term machining.
5. High-speed ATC.
6. New high-efficiency MAPPS II operating system is installed as a standard feature.
7. Non-lubricant type linear guide is used to significantly reduce lubricant consumption.

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■ **Features**

1. All machines in the new VS Series (2 models, 3 types) are being released simultaneously.

VS8000 (X-axis x Y-axis stroke 1,600 mm x 860 mm)

VS10000/2050 (X-axis x Y-axis stroke 2,050 mm x 1,000 mm)

VS10000/3150 (X-axis x Y-axis stroke 3,150 mm x 1,000 mm)

Either the #40 or #50 taper spindle can be selected. Different spindle tapers and spindle speeds can be chosen to suit the workpiece.

2. Bridge-type structure suited for high-speed machining.

The highest feedrate in its class was achieved (X and Y axes, 40 m per minute; Z-axis, 30 m per minute). The machining time for large workpieces, which are usually slow, has been reduced.

3. Ram spindle structure that offers stable rigidity.

The symmetrical structure suppresses thermal displacement on the Y-axis to within ± 5 μm. This enables long-term machining with stable rigidity, even during environmental changes caused by temperature variation.

4. Bed with a large chip-discharging area.

Internal conveyors which are the same length as the machine were placed on the both sides of the table for superior chip disposal. Also, the bed structure itself was reviewed and changed. The oil pan structure is employed to collect all coolant and to prevent coolant leakage.

5. Large capacity coolant unit which contributes to stable, long-term machining.

A large-capacity (800 liters) coolant tank has been installed. It prevents rapid increases in the coolant temperature caused by heat generated by the pump and machining, and minimizes thermal effects on the machine and workpiece.

6. High-speed ATC

A high-speed cam ATC, which has a tool-to-tool time of 1.6 seconds for BT40 and 1.8 seconds for BT50, has been adopted.

The hydraulic unit is a standard feature. Movements of the ATC cam are detected by an encoder, so smooth ATC operation is achieved by setting the timing of the tool unclamp freely. By adopting this system, the number of parts is drastically reduced and the possibility of trouble is minimized. Maintenance items necessary for conventional machines, such as hydraulic air-bleeding of the cam pump, are also eliminated.

7. New high-efficiency MAPPS II operating system is installed as a standard feature.

The standard MAPPS II has a strengthened conversational input function that has substantially increased user-friendliness and speed. Its graphic capabilities, safety and ease of maintenance are what customers are seeking in the next generation.

Also, the 50 MB user memory is available as a standard feature, and is capable of the DNC operation of large programs needed for die and mold machining.

8. Non-lubricant type linear guide is used to significantly reduce lubricant consumption.

A maintenance-free linear guide has been adopted. It reduces both the running costs incurred by consumption of lubricating oil and the amount of oil waste.

■ **Main Specifications (VS10000/2050)**

	VS10000/40/2050	VS10000/50/2050
Table working surface	2,250 × 1,000 mm	
Maximum loading capacity	3,000 kg	
Axis travel (X, Y, Z)	2,050, 1,000, 600 mm	
Maximum spindle speed	12,000 [20,000] min^{-1}	8,000 [15,000] min^{-1}
Rapid traverse rate (X, Y, Z)	40, 40, 30 m/min	
Tool storage capacity	20, [30], [40], [60]	
Tool change time (tool-to-tool)	1.6 seconds	1.8 seconds
Tool shank type	BT40, CAT40, HSK A63	BT-50, CAT50
Spindle motor (30 min/cont.)	22/18.5 kW	30/25 kW
Machine size	Width 6,000 mm x Depth 3,650 mm x Height 3,380 mm	
Machine mass	19,000 kg	

[ ] is optional.

■ **Main Options**

Through-spindle coolant unit
Automatic centering unit
Automatic measurement system
Tool length measurement system
Tool breakage detection unit
Direct scale feedback

VS10000/40/2050