MORI SEIKI
THE MACHINE TOOL COMPANY

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# Press Release

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## Improve heavy-duty cutting ability by 40%, High-speed Large Horizontal Machining Center "NHX8000" Launched!

Mori Seiki Co., Ltd. has started taking orders for the **NHX8000** high-precision horizontal machining center from October 11, 2011. This machine is the latest model in the **NHX Series**, the X-class horizontal machining centers.

With a maximum workpiece size of Φ1,450 mm x 1,450 mm and a maximum loading capacity of 3,000 kg, the NHX8000 is an ideal solution for machining large workpieces and difficult-to-cut materials, which are in great demand in the construction machinery, aircraft, vessel and energy industries. Especially, NHX8000 is suitable for various workpieces of construction machinery, such as cylinder block or hydraulic valve. We will introduce the NHX8000 with features including: (1) Original technologies for high-speed and high-precision, (2) High machining ability, (3) High Reliability, (4) Outstanding operability, (5) MAPPS IV + ESPRIT and (6) Compliance with safety standards.

### (1) Original technologies for high-speed and high-precision

Inheriting the structural concept of previous NH Series models, the NHX8000 employs the Box-in-Box Construction that supports the saddle at both sides. The Box-in-Box Construction covers the weak point of large machine that column is likely to tilt due to the heavy weight of spindle head. Additionally, the symmetrical structure with respect to the spindle minimizes thermal displacement. Mori Seiki's **DCG (Driven at the Center of Gravity)** technology is used for the X- and Z-axis drive. DCG controls vibration, the main factor preventing high-speed, high-precision machining, by driving moving parts at their center of gravity using two ball screws. As a result, machining accuracy is improved, machining time is reduced and tool life is extended. The NHX8000 has achieved roundness of 2.08 μm, as well as 20 % faster rapid traverse rate (50 m/min.) and about two times faster acceleration than the previous model. The excellent vibration control also contributes to improved surface quality. For the B-axis drive, a full indexing table equipped with **DDM (Direct Drive Motor)** is available as an option. By transmitting the drive power directly to the rotary axis, DDM eliminates backlash and provides outstanding transmission efficiency and high-speed feed. The 90-degree indexing time is shortened to 1.8 seconds, half the speed of the previous machine.

### (2) High machining ability

Compared with the conventional machines, the NHX8000 greatly improves the machining ability. It covers a various machining from heavy-duty cutting to high-speed cutting. Heavy-duty cutting ability is improved by 40% compared with the conventional machines, due to the high output spindle of 40 kW.

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Furthermore, the high torque specifications realize the best cutting performance with difficult-to-cut materials such as titanium or stainless steel by the maximum torque of 1,309 Nm, the maximum spindle output of 55 kW and the largest inner diameter of the spindle bearing 120 mm. For high-speed cutting, the cooling oil circulating through the oil jacket around the spindle controls the heat generation during the high-speed spindle rotation, so the machine achieves high precision machining. It is suitable for a wide range of machining from heavy-duty cutting of casting parts for construction machinery and vessel to high-speed cutting of aluminum parts for aerospace and automobiles.

**(3) High Reliability**

NHX8000 is highly reliable machine and is used for long time by reflecting the know-how and the customer needs to NH series, which are sold more than 6,000 units. For the heavy use of the high-pressure coolant, the NHX8000 spindle has an advanced labyrinth structure that coolant hardly enters inside the spindle unit. Universal type chip conveyor outside machine is available on your choice. All types of chips, such as short chips and long chips, are reliably discharged outside of the machine. This is a highly reliable chip conveyor that reduces various troubles caused by chips. Additionally, the machine is equipped with two spiral conveyors to offer excellent chip disposal. These conveyors collect chips under the table, which cannot be completely eliminated by coolant. This contributes to long-term, unmanned operation.

**(4) Outstanding operability**

For loading and unloading large size workpieces using a crane, the setup station has an opening/closing ceiling. With a wide door opening of 1,480 mm, the NHX8000 has excellent operability and allows easy loading and unloading of a workpiece up to 1,450 mm in diameter and the maximum loading capacity is 3,000 kg.

**(5) MAPPS IV + ESPRIT**

The NHX8000 uses the MAPPS IV high-performance operating system for its operation panel. Since a license for ESPRIT CAM software is included as standard in addition to the automatic conversational programming function, the machine allows users to create highly complex machining programs on a PC connected to the machine through a network. Additionally, the machine is equipped with MORI-NET that provides remote maintenance and operating status monitoring, as standard.

**(6) Compliance with safety standards**

The NHX8000 complies with safety standards all over the world, including IEC Standards, UL Standards and JIS Standards.

Mori Seiki will continue to provide a wide range of products from small to large machines in order to suit each and every customer need.

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|---|---|
| Type | High-precision High-speed horizontal machining center |
| Model | NHX8000 |
| Market | The construction machinery, aircraft, vessel, industrial machinery, energy-related industries, etc |
| Order start | October 11, 2011 |
| Production | 5 units/month |

**■Major Specifications**

| | |
|---|---|
| Axis travel (X/Y/Z) (mm) | 1,400/1,200/1,350 |
| Pallet working surface (mm) | 800×800 |
| Max. pallet loading capacity (kg) | 2,200 [3,000] |
| Max. workpiece swing diameter x Max. workpiece height (mm) | ϕ1,450×1,450 |
| Max. spindle speed ($min^{-1}$) | 10,000 [15,000]*1 [8,000]*2 [6,000]*2 |
| Type of spindle taper hole | No.50 [HSK-A100] |
| Spindle drive motor (kW) | 40/30/25 (15%ED/30 min/Cont.)<br>[30/25 (30 min/Cont.)]*1<br>[37/30 (30 min/Cont.)]*3<br>[55/45/37 (25%ED/30 min/Cont.)]*4 |
| Rapid traverse rate (X/Y/Z) ($mm/min^{-1}$) | 50,000/50,000/50,000<br>[50,000/40,000/50,000]*3 |
| Max. table rotational speed ($min^{-1}$) | 35.7 [100]*5 |
| Tool storage capacity (tool) | Chain type: 60 [80] [100] [120]<br>Rack type: [180] [240] [330] |
| Floor space (width x depth) (mm) | 4,072×6,918 |

[ ] Option

*1: High-speed specifications

*2: High-torque specifications

*3: Max. spindle speed 8,000 $min^{-1}$

*4: Max. spindle speed 6,000 $min^{-1}$

*5: Full indexing table specifications

Fig. 1 Machine exterior

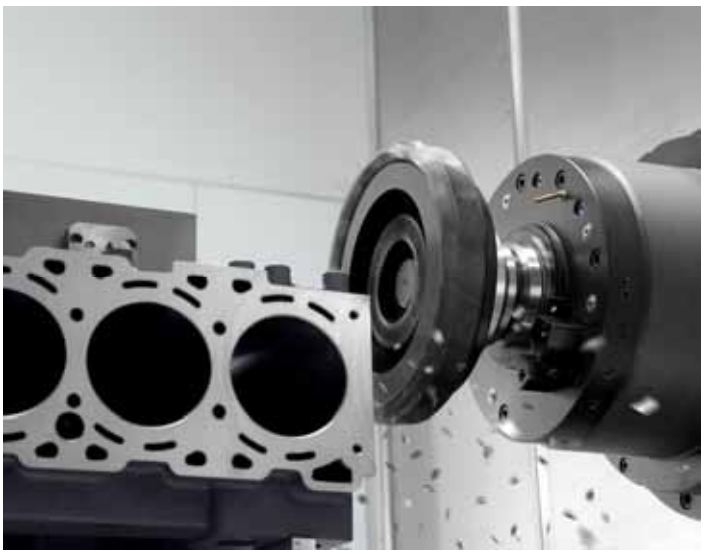

Fig. 2 The spindle with the largest inner bearing diameter of 12 mm

Fig. 3 The operation panel of MAPPS IV