News Release

Mori Seiki Co., Ltd.

28th August 2003

Title: New Generation high-precision Horizontal Machining Center NH4000 DCG

1. Model	NH4000 DCG
2. Development concepts	・ The NH4000 DCG is a horizontal machining center, utilizing the ideal motion system Driven at the Center of Gravity (DCG), and saving moving mass. Based on proven digital design methodology, this is the ultimate high-speed/high-precision machine, developed to maximize productivity and versatility. Non-cutting time is reduced because of high-speed spindle, ATC, and axes. The Best-In-Class chip disposal system. The ball screw core cooling is a standard feature for all axes to maintain consistent accuracy in high-speed machining. And since the design has been validated digitally, the reliability will prove to benefit any manufacturing facility. It is also an environmentally friendly machine, and the quantity of lubricant consumed is reduced.
3. Customers and Markets	Corresponds to large variety, small to medium volume production, such as automotive, electronic, and aerospace parts machining.
4. Features	・ The NH4000 is designed to dominate high-speed machining with the rapid traverse rate of 50,000 mm/min, which is 20% improved compared to the conventional model (option: X, Y, Z axis 1.1G) and Max. spindle speed of 14,000 min^{-1} (standard)/ 20,000 min^{-1} (option). Additionally, the ball screw core cooling is a standard feature for all axes to maintain consistent accuracy in high-speed machining. ・ The spindle acceleration time is 1.1 sec. (12000 min^{-1}), a 15% reduction compared to the conventional model, and the tool changing time (tool to tool) is 0.9 sec. ,thereby reducing tact time for parts machining. ・ The Best-In-Class chip disposal system provides maximum disposal using the center trough, without requiring additional floor space for the rear chip conveyor. The NH4000 redefines ”space saving” with a mere 8.6m^2(2300mm by 3755mm) footprint, which is 15% smaller than the conventional model. ・ Surface finishes are improved due to the optimized support created by Mori Seiki’s unique BOX-in-BOX structure. ・ The high-efficiency way system is sealed and optimally lubricated. The amount of consumed lubricant is 5cc/hour (less than 20% of the amount of conventional models), reducing the operating cost substantially. Moreover, the reduced waste oil makes it environmentally friendly. ・ The way covers typically have high failure rates on conventional high-speed machining centers. However, the NH4000 adopts a stainless steel “moving wall” cover, which is lightweight and extremely robust. ・ Reliability and serviceability are optimized with 10% less parts used compared to the conventional model. Additionally, down time is reduced by using a spindle unit that can be changed within 60 minutes, thereby maximizing machine availability.

5. Main specification *[ ] shows option.	Travel : X-axis560 mm, Y-axis560 mm, Z-axis630 mm Pallet working surface : 400 × 400 mm Max. spindle speed : 14,000 [20,000] min^{-1} Rapid traverse rate (X, Y, Z) : 50,000 mm/min Tool storage capacity : 40 [60, 120, 180] tool Tool changing time (tool to tool) : 0.9sec Tool changing time (chip to chip) : 2.8sec Type of tool shank : MAS BT-40 Max. tool mass : 8 kg/tool Spindle motor (10min/continuous) : 18.5/11 kW Machine size : W2,300 mm × L3,755 mm × H2,610 mm Machine mass : 9,600 kg
7. Options	Refer to the catalog
8. Production	50 units per a month
9. Selling start time	1st October 2003