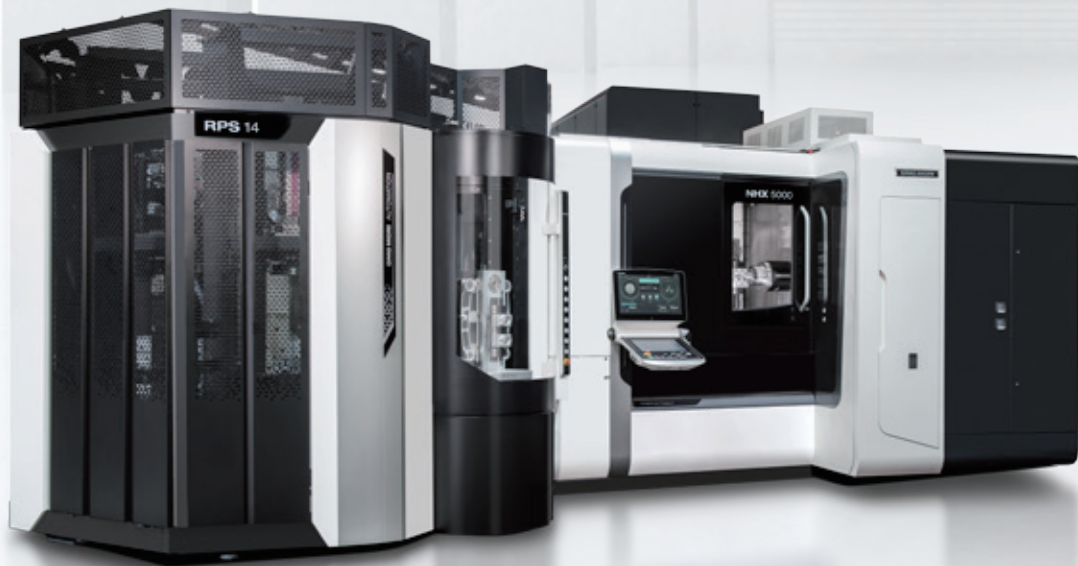
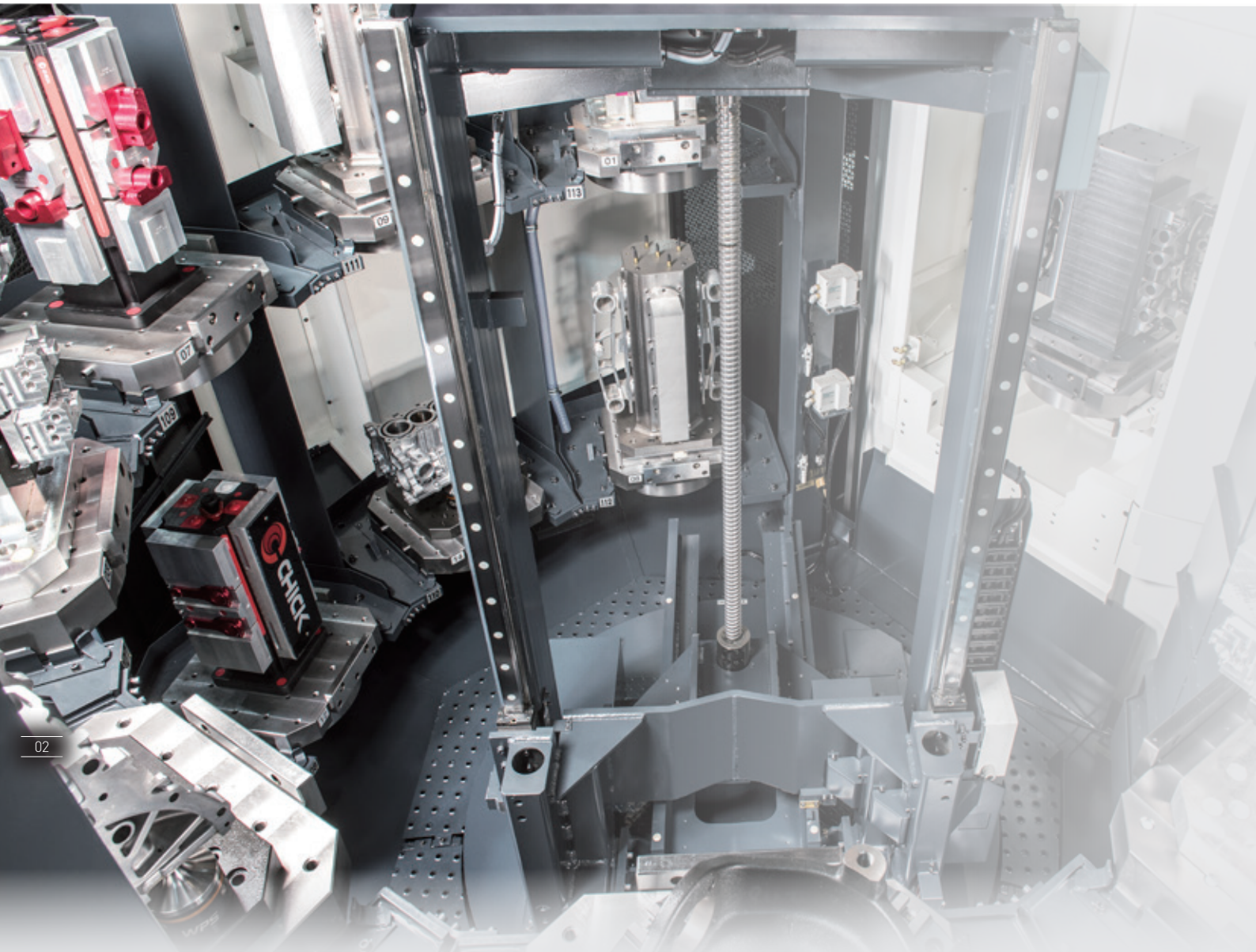


Rotary Pallet Storage System

## RPS SYSTEM

RPS SYSTEM





## RPS’s features

RPS is an ideal solution for low-cost, space-saving automation.

### RPS variations

	RPS5	RPS14*	RPS21*
Number of machines	1 unit	1 unit	1 unit
Number of workpiece setup stations	1 station	1 station	1 station
Number of pallet stations	4 stations	13 stations	20 stations
Number of pallet shelves	1 level	2 levels	3 levels

\* Not available for the 60-tool storage capacity specification

RPS: Rotary Pallet Storage

## RPS SYSTEM

# Incredibly Compact Maximize Efficient Use of Factory Space

The rotary pallet storage (RPS) system features outstanding space savings and setup capabilities, and can hold more pallets per unit area than any other pallet pool system.

Having a space-saving design and a simple structure, RPS is the best solution for customers who have never thought of automation due to space restrictions, or those hesitate to automate their productions because they think automation is complicated.

DMG MORI with extensive experience and proven capabilities in automation systems provides the optimal system for your needs.

### Space-saving: Installation area 1/6\*

It allows you to establish an efficient automation system in far less space than other automation systems.

### Long-term unmanned operation

With a capability of long-term automatic operation, the system allows you to save on labor costs, for example, by conducting unmanned operation at night or on weekends.

### Shorter installation lead time

Thanks to its integrated construction, the system can be installed in a short time.

\* When RPS21 is compared with 20LPP

03

### Comparison of operating rates and productivity

In order to help you understand the RPS's features, we have conducted a simulation comparing operating ratios and productivity under the same production conditions.

#### ■ Assumptions:

We are making the comparison under the following operating conditions.

Workpiece



<Cycle time / 1 pc.>

881 sec. × 4,000 pcs. ≈ 979 hours (3,524,000 sec.) / month

- When machining 4 kinds of workpieces at the same time.  
Material <JIS>: A5052 (Aluminum)
- Number of tools used: 9 tools

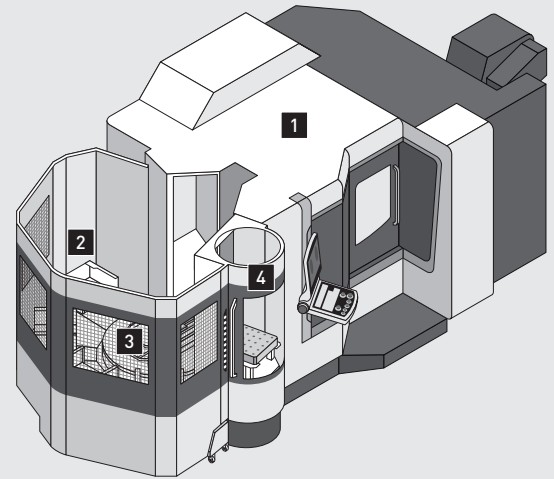
JIS: Japanese Industrial Standard

Items compared	Stand-alone machines <NHX 5500> (with 2-station APC)	RPS
Number of machine operating days / month <b>A</b>	24 days	24 days
Machine operating time (manned + unmanned) <b>B</b>	9 hours (8 hours + 1 hour)	24 hours (8 hours + 16 hours)
Machine operating rate <b>C</b>	0.85	0.85
Actual operating time / day <b>B</b> × <b>C</b> = <b>D</b>	7.65 hours	20.4 hours
Actual operating time / month <b>D</b> × <b>A</b> = <b>E</b>	183.6 hours	489.6 hours
Number of machines required to run 4,000 pcs. / month (total)	6 machines	RPS21 × 2 sets
Comparison of equipment costs	100%	58%
Number of operators required	3	2
Comparison of personnel costs	100%	67%

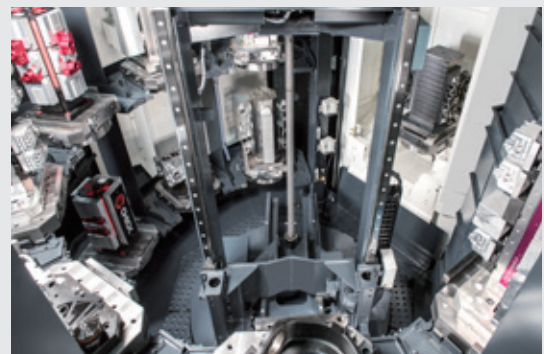
## RPS SYSTEM

# Unmatched Reliability Highly Dependable Automation System

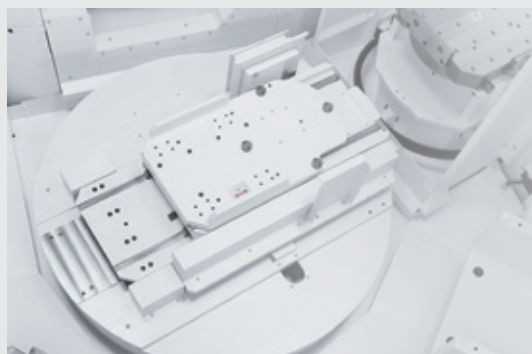
The RPS system consists of high-quality durable components. You can select the ideal specifications for your production from the packages.

**1 Machine**

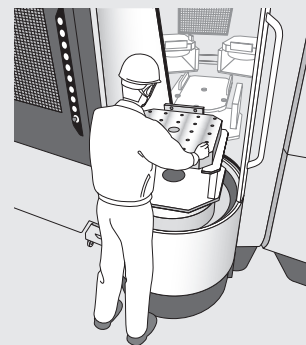
- + NHX 4000, NHX 5000 and NHX 5500 horizontal machining centers

**2 Pallet racks**

- + The pallets are transferred using the random access method (number of pallets = number of pallet stations + number of machines)
- + The open frame offers excellent visibility

**3 Transfer AGV (Automatic Guided Vehicle)**

- + The pallet direct calling function calls pallets quickly
- + The NC control achieves highly accurate positioning, high reliability and easy maintenance by ensuring smooth axis travel and transfer
- + High-speed travel is possible by using a rack & pinion and a guide rail

**4 Workpiece setup station (WSS)**

- + Manual pallet indexing is possible in 45° increments up to 360°, offering easier setup
- + Coolant gun available as standard
- + Air gun can be installed (option)
- + Hydraulic and pneumatic units for automatic fixture clamping can be installed (option) <Consultation is required>

## RPS SYSTEM

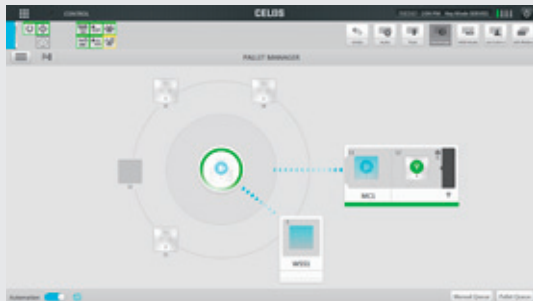
# Simple and Easy Operation with CELOS

Setup operation is now possible not only with the conventional handy controller, but with CELOS on the machine. The use of CELOS also allows operation and management of both the machine and RPS. Featuring a large touch screen, CELOS offers intuitive operation just like a smartphone. PALLET MANAGER, one of CELOS applications, ensures hassle-free operations and shorter setup times.

## PALLET MANAGER\*

\* MAPPS V function, available for NHX 4000 3<sup>rd</sup> Generation, NHX 5000 3<sup>rd</sup> Generation and NHX 5500 2<sup>nd</sup> Generation

### Easy check of pallet status on CELOS



- + Displays the entire system layout in an easy-to-see manner
- + Able to check the latest pallet status and shorten setup time
- + Able to transfer pallets by drag and drop of the pallet icon on the screen

### Tool check to prevent troubles in advance



- + Automatically identifies and displays tools that are not suitable for machining by central tool management
- + Prevents machining failure and troubles caused by tool breakage
- + Improves productivity by minimizing problem-caused rework

### High flexibility to accommodate production changes



- + Able to assign information on multiple workpieces to a single pallet
- + Easy production adjustment / rescheduling on CELOS to respond flexibly to sudden schedule changes or urgent requests

CELOS: Control Efficiency Lead Operation System  
MAPPS: Mori Advanced Programming Production System



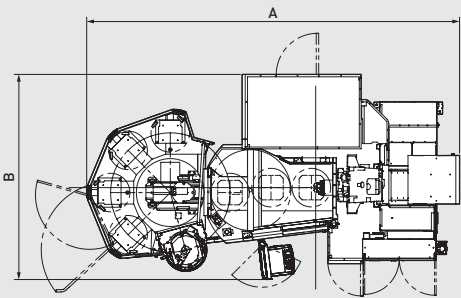
RPS SYSTEM

Machine Size

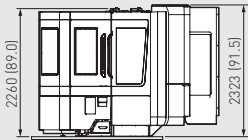
mm (in.)

RPS5 + NHX 4000 3<sup>rd</sup> Generation

Plan view

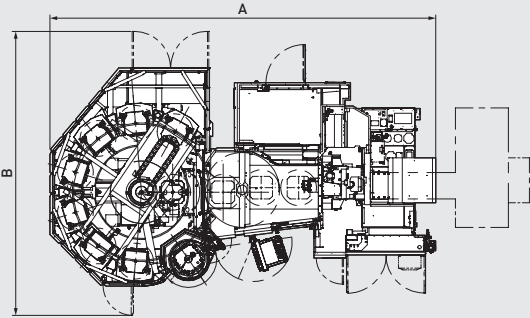


Workpiece setup station

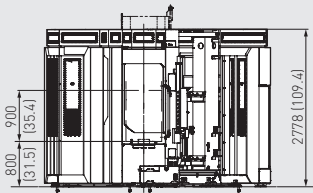


RPS14 + NHX 4000 3<sup>rd</sup> Generation

Plan view

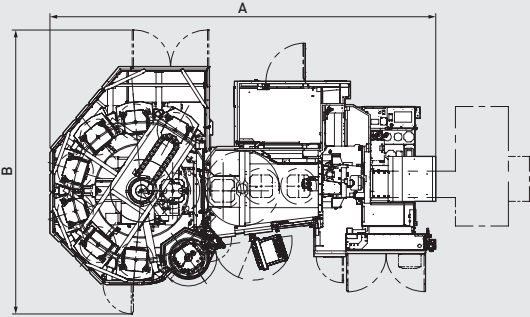


Workpiece setup station

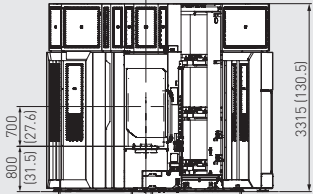


RPS21 + NHX 4000 3<sup>rd</sup> Generation

Plan view



Workpiece setup station



Machine type	Depth [A] × Width [B]		
	RPS5	RPS14	RPS21
NHX 4000 3 <sup>rd</sup> Generation <120 tools>	6,095 × 3,355 [240.0 × 132.1]	6,805 × 5,008 [267.9 × 197.2]	6,805 × 5,008 [267.9 × 197.2]
NHX 5000 3 <sup>rd</sup> Generation <120 tools>	7,130 × 3,670 [280.7 × 144.5]	7,755 × 5,806 [305.3 × 228.6]	7,755 × 5,806 [305.3 × 228.6]
NHX 5500 2 <sup>nd</sup> Generation <120 tools>	8,295 × 3,660 [326.6 × 144.1]	8,423 × 5,806 [331.6 × 228.6]	8,423 × 5,806 [331.6 × 228.6]

● Machine size differs depending on the specification. For details, please consult our sales representative.

	RPS5		RPS14, RPS21	
Machine and pallet specifications				
Applicable machining centers	NHX 4000	NHX 5000 NHX 5500	NHX 4000	NHX 5000 NHX 5500
Number of pallets controlled	5		14 (RPS14), 21 (RPS21)	
Workpiece transfer specifications				
Drive system	Hydraulic cylinder		Servo motor	
Speed m/min (fpm)	15 [49.2]		15 [49.2]	
Carrier hoist specifications				
Drive system	Hydraulic cylinder		Servo motor	
Speed m/min (fpm)	15 [49.2]		15 [49.2]	
Carrier turn specifications				
Drive system	General-purpose geared motor		Servo motor	
Turn speed min <sup>-1</sup>	5.05		12	9
Workpiece setup station specifications				
Setup system	45° indexing turn table system			

		RPS5		RPS14*1		RPS21*1	
Specifications							
Applicable machining centers		NHX 4000	NHX 5000 NHX 5500*1	NHX 4000	NHX 5000 NHX 5500	NHX 4000	NHX 5000 NHX 5500
Pallet size	mm (in.)	400 × 400 (15.7 × 15.7)	500 × 500 (19.7 × 19.7)	400 × 400 (15.7 × 15.7)	500 × 500 (19.7 × 19.7)	400 × 400 (15.7 × 15.7)	500 × 500 (19.7 × 19.7)
Pallet loading capacity	kg (lb.)	400 (880)	500 (1,100) 700 (1,540)	400 (880)	500 (1,100) 700 (1,540)	400 (880)	500 (1,100) 700 (1,540)
Max. workpiece swing diameter	mm (in.)	630 [24.8]	800 [31.4]	630 [24.8]	800 [31.4]	630 [24.8]	800 [31.4]
Max. workpiece height	mm (in.)	900 [35.4]	1,000 [39.3]	900 [35.4]	1,000 [39.3]	700 [27.5]	700 [27.5]
Number of pallet stations		4		13		20	
Number of pallets to be used*2		5		14		21	
Workpiece setup station		1 point					
RPS height	mm (in.)	2,260 (89.0)	2,550 (100.4)	2,778 (109.4)	3,060 (120.5)	3,315 (130.5)	3,430 (135.0)

\*1 Not available for the 60-tool storage capacity specification

\*2 Random access method

#### <Precautions for Machine Relocation>

##### EXPORTATION:

All contracts are subject to export permit by the Government of Japan.

Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations.

The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization.

To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation.

If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI or its distributor representative.

DMG MORI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions.

DMG MORI and its distributor representative shall have no obligation to re-enable such Equipment.

DMG MORI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

+ For any functions not featured in the MAPPS system you are currently using, software updates are required.  
For details, please consult our sales representative. (There will be a charge for the software update)

+ Some functions are not supported by some models.

+ The product names in this catalog are all trademarks or registered trademarks of the individual companies.

+ The actual screens may differ from those shown in this catalog.

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+ If you have any questions regarding the content, please consult our sales representative.

+ The information in this catalog is valid as of October 2018. Designs and specifications are subject to changes without notice.

+ The machines shown in the catalog may differ from the actual machines. The location and the size of the nameplates may also differ from the actual machines, or the nameplates may not be attached to some machines.

+ DMG MORI is not responsible for differences between the information in the catalog and the actual machine.

#### DMG MORI CO., LTD.

Nagoya Head Office ☐ 2-35-16 Meieki, Nakamura-ku, Nagoya City, Aichi 450-0002, Japan Phone: +81-52-587-1811  
Tokyo Global Headquarters ☐ 2-3-23, Shiomi, Koto-ku, Tokyo 135-0052, Japan Phone: +81-3-6758-5900

Iga Campus ☐ 201 Midai, Iga City, Mie 519-1414, Japan Phone: +81-595-45-4151  
Nara Campus ☐ 362 Idono-cho, Yamato-Koriyama City, Nara 639-1183, Japan Phone: +81-743-53-1121

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