



COMPACT HORIZONTAL MACHINING CENTER

# HC

400 II • 500 II



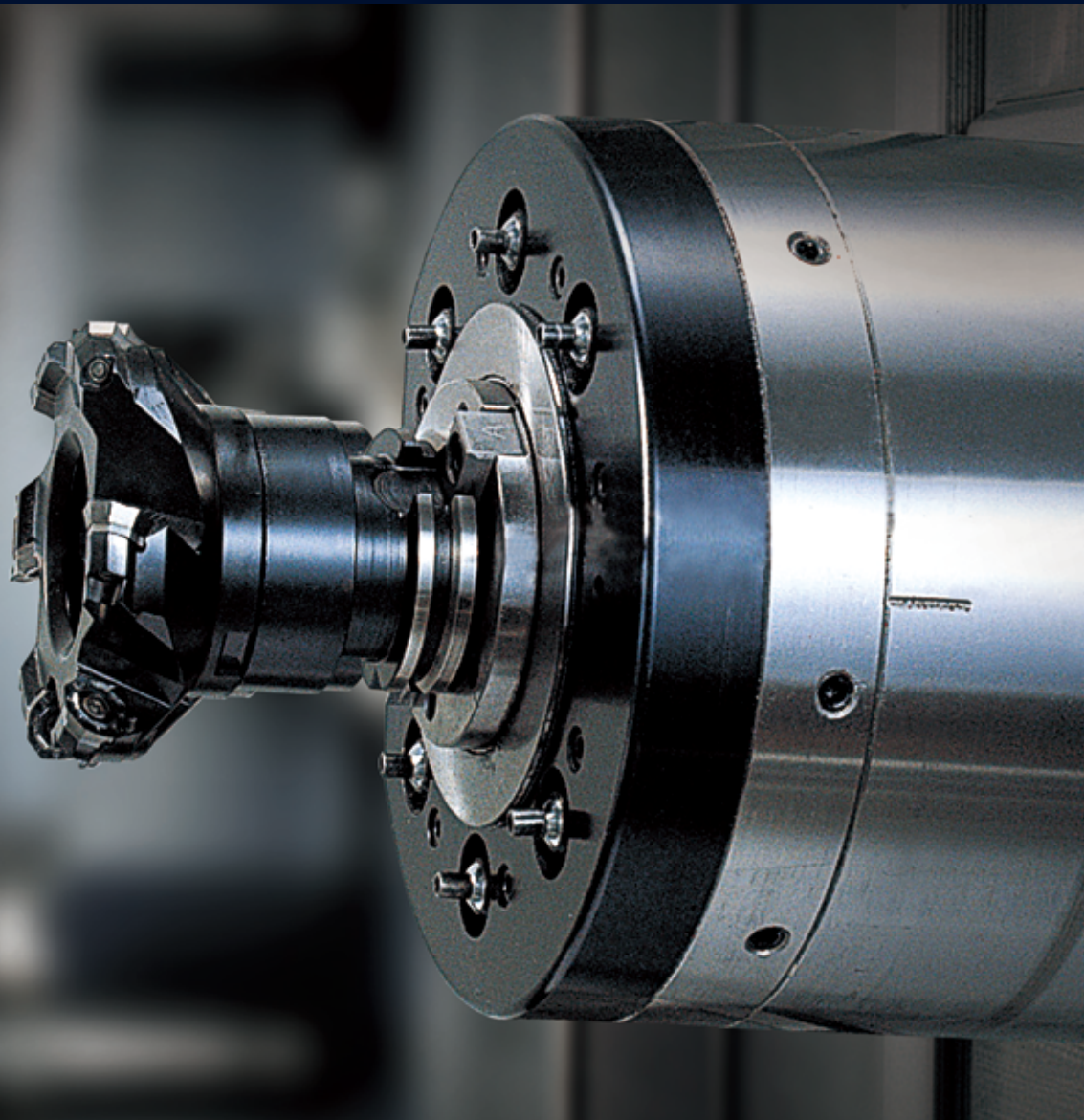
**DN** SOLUTIONS

# HC series · 400 II · 500 II

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Compact horizontal machining center HC II series is designed to provide maximum productivity, accuracy, and number of convenient features. The compact design offers flexibility to utilize limited factory space efficiently.





## ENHANCED DESIGN

- New aesthetics and simplified design eases machine operation.

## INCREASED PRODUCTIVITY

- New high speed 12,000rpm spindle, wider selection of tool magazine and automation options further enhances versatility and productivity.

## IMPROVED ERGONOMICS

- Newly designed operation panel and built-in pallet setup switch further improves ergonomics of the machine.

# BASIC STRUCTURE

Highly rigid machine structure and compact design to meet all users' needs.

## Robust machine structure

DN Solutions engineers have performed FEM analysis to design the most durable and stable structure. As a result, the machine is capable of extensive heavy cutting process.

## Travel distance (X / Y / Z axis)

HC 400 II

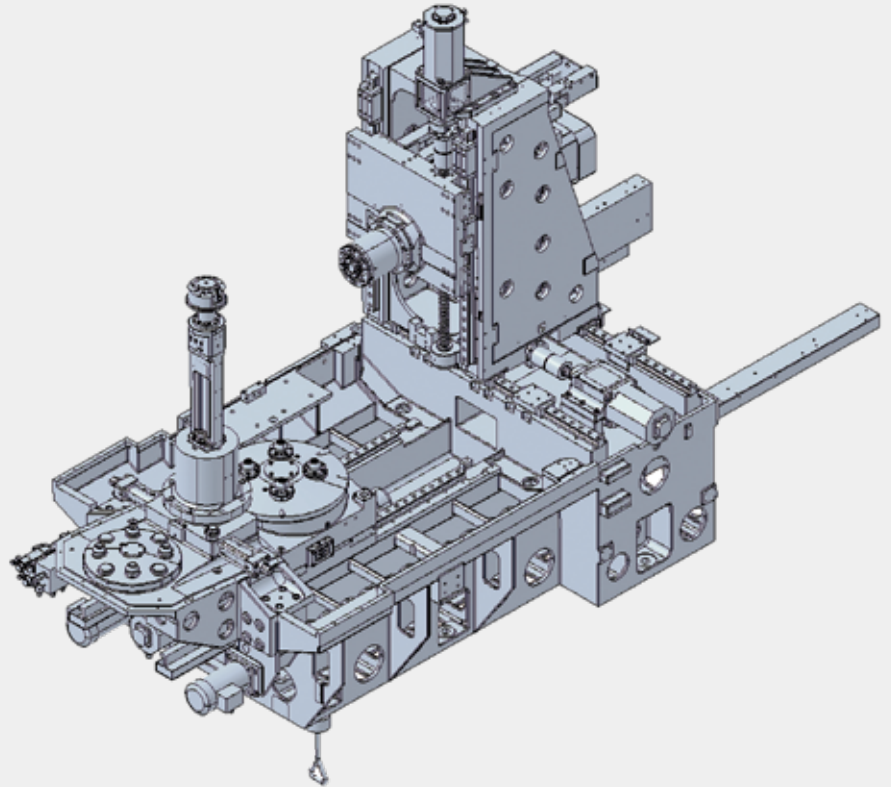
**600 / 560 / 565** mm

23.6 / 22.0 / 22.2 inch

HC 500 II

**850 / 700 / 750** mm

33.4 / 27.5 / 29.5 inch



## High speed roller guides

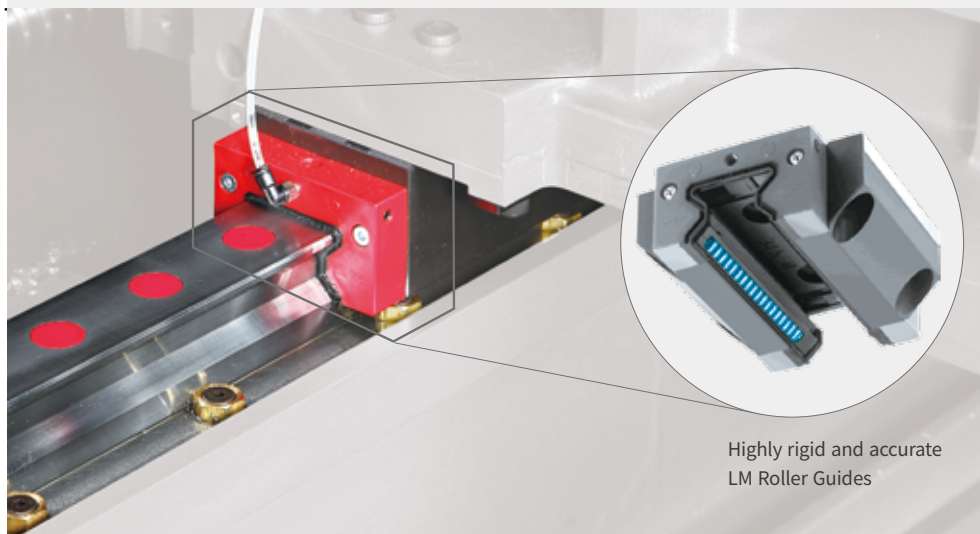
LM roller guides on all axes increases machine reliability and productivity.

## Rapid traverse (X / Y / Z axis)

HC 400 II / HC 500 II

**40 / 40 / 40** m/min

1574.8 / 1574.8 / 1574.8 ipm



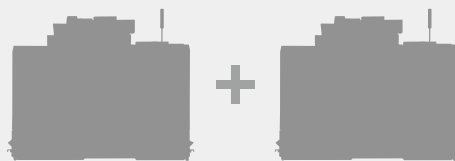
Highly rigid and accurate LM Roller Guides

## Compact design

The compact design allows users to utilize limited factory space efficiently.

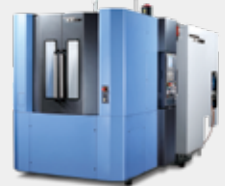
Vertical Machining Center

HC II series

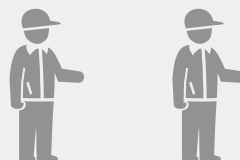


2 Machines Required

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1 Machine Required



2 Operators Required

→



1 Operator Required

# SPINDLE

12,000 rpm spindle option has been added for optimum productivity in high speed machining application.

## Max. spindle speed

**8000** r/min

**12000** r/min option

## Max. spindle power

**18.5 / 11** kW 24.8 / 14.7 Hp

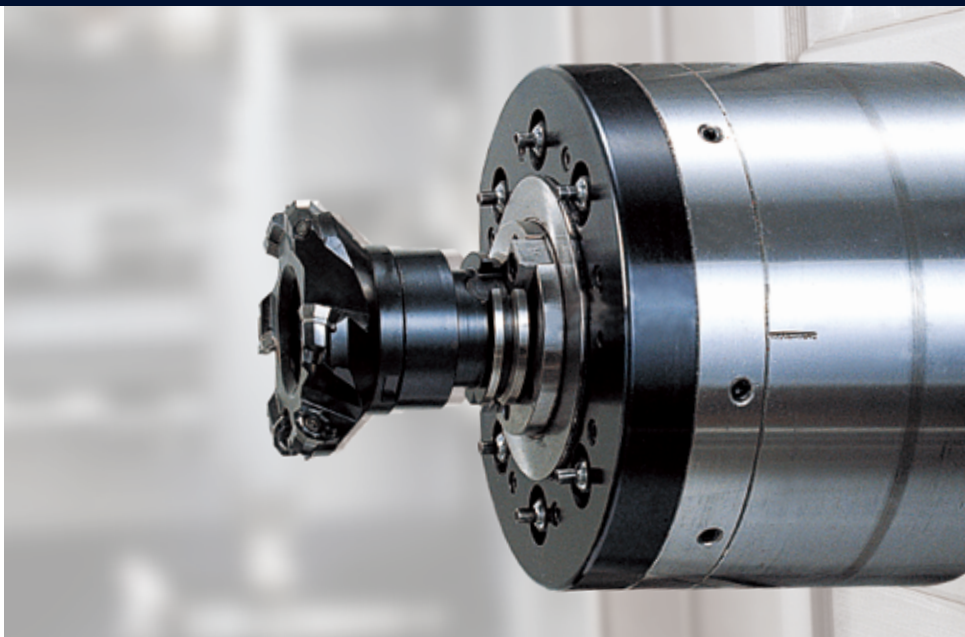
## Max. spindle torque

**353.4** N·m 260.6 ft-lbs

**117** N·m 86.3 ft-lbs option

## Type

**ISO #40**



### High speed spindle

Users can select different types of high performance spindle to meet their machining needs. Standard 8,000 rpm spindle can deliver up to 353.4 N·m of torque to perform extreme heavy cutting process, while 12,000rpm spindle option can provide maximum productivity in high speed cutting process.

# TOOL MAGAZINE

80 tool magazine has been added to offer wider range of ATC magazine options.

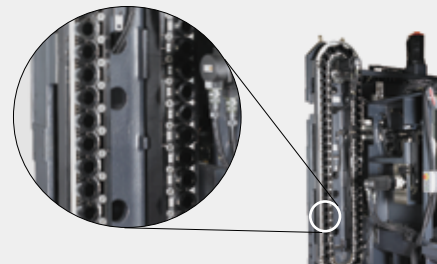
## Tool storage capacity

**40** tools

60 / 80 / 120 / 170 / 262 tools option

### Wide range of options to meet more users' needs

Wide selections of tool magazines are available per user's preference. These automatic tool magazines are operated by our newest servo motor to minimize tool change time, and the fixed address tool storage system makes it easy for users to select desired tool without confusion.



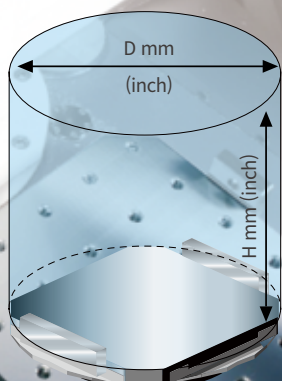
### Automatic tool changer (ATC)

Cam-type ATC provides high reliability and durability, and minimizes non-cutting time.



**Tool change time 1.5 s**

Max. workpiece size



# AUTOMATIC PALLET CHANGER (APC)

More reliable and conveniently designed high speed automatic pallet changer.

### High speed automatic pallet changer

Standard high speed rotary type APC provide extreme reliability and a large work space allows users to easily setup the pallet.

	HC 400 II	HC 500 II
Pallet Size	400 x 400 mm (15.7 x 15.7 inch)	500 x 500 mm (19.7 x 19.7 inch)
Max. Workpiece Size (DXH)	Ø600 x H800 mm (23.6 x 31.5 inch)	Ø800 x H900 mm (31.5 x 35.4 inch)
Max. Load	400 kg (881 lb)	500 kg (1102.3 lb)

# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Division	Option	HC 400 II	HC 500 II	
Tool Magazine	40 tools	●	●	
	60 tools	○	○	
	80 tools	○	○	
	120 tools	○	○	
	170 tools	○	○	
	262 tools	○	○	
Tool Specifications	BT40	●	●	
	CAT40	○	○	
	DIN40	○	○	
	HSK A-63	○	○	
Mist Collector	Mist Collector	○	○	
Spindle	8000 r/min	18.5 / 11 kW (24.8 / 14.7 Hp)	●	●
	12000 r/min	18.5 / 11 kW (24.8 / 14.7 Hp)	○	○
	Spindle air curtain		●	●
Hydraulic fixtures	Hydraulic fixture line	2 X 2	○	○
		4 X 4	○	○
		6 X 6	○	○
		8 X 8	○	○
	Hydraulic fixture unit		○	○
Automatic Workpiece Measurement Device	OMP60_RENISHAW	○	○	
	RMP60_RENISHAW	○	○	
Automatic Tool Measurement Device	BK 9	○	○	
	Limit Switch (OMRON)	○	○	
	TS27R	○	○	
Chip Handling System	Chip conveyor	Hinged type	○	○
		Scraper type	○	○
		Drum type	○	○
	Chip bucket		○	○
Coolant	FLOOD	●	●	
	FLUSHING	●	●	
	SHOWER	○	○	
	TSC	1.5 kW 2.0 MPA (2 Hp 290 psi)	○	○
		3.0 kW 2.0 MPA (4 Hp 435.1 psi)	○	○
		7.5 kW 2.0 MPA (10 Hp 1015.3 psi)	○	○
	Coolant gun		○	○
Oil skimmer		○	○	
MQL system		○	○	
Table	Index table	●	●	
	Rotary Table	○	○	
Pallet	Tapped pallet	●	●	
	T-Slot pallet	○	○	
AIR	Pallet air seat	○	○	
	AIR GUN	○	○	
MPG	Portable MPG	●	●	
Customized Special Option	Coolant level switch : Sensing level - Low / High	○	○	
	Tool ID (Internal-matrix) : Balluff Sensor	○	○	
	Tool Management (TMT1, TMT2, TMT8 DIGIT)	○	○	
	Ball screw shaft cooling(X/Y/Z axis)	○	○	
	Setup shower coolant	○	○	
	Auto door w/Safty edge	○	○	
	U-axis drive : DANDREA( TA-C125)	○	○	
	MQL(Maker : VOGEL)	○	○	
	Smart thermal control: Sensor type (Spindle & Structure)	○	○	
	TSA	○	○	
Spin window for main door (Electric type/ Maker:T2K)	○	○		

\* Please contact DN Solutions for detailed specification information.

● Standard ○ Optional X Not applicable



# PERIPHERAL EQUIPMENT

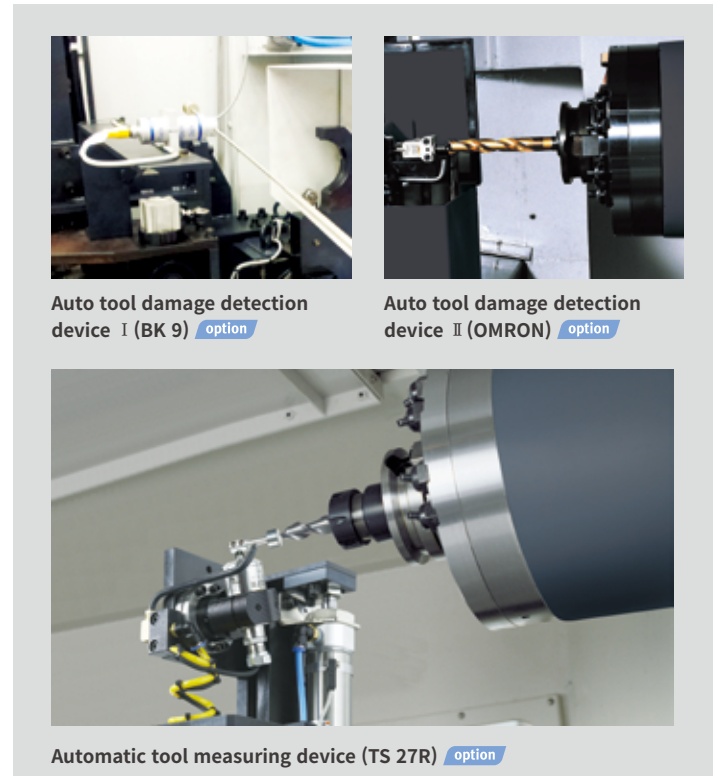
## Diverse Options

Proper chip disposal is very important for improving productivity and environment. Therefore, we recommend better chip management for users to work in a safer working environment.

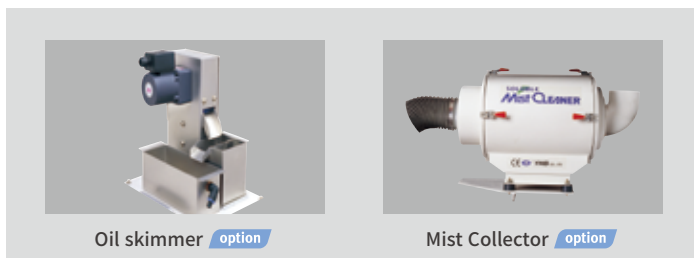
### Chip Conveyor option



### Measurement Systems



### Environment-friendly Devices



## Chip Disposal System



# PALLET EXTENSION SYSTEM

DN Solutions Pallet Extension System provides automated solution to maximize productivity. Simple installation and ease of maintenance makes it convenient for users to operate and maintain.

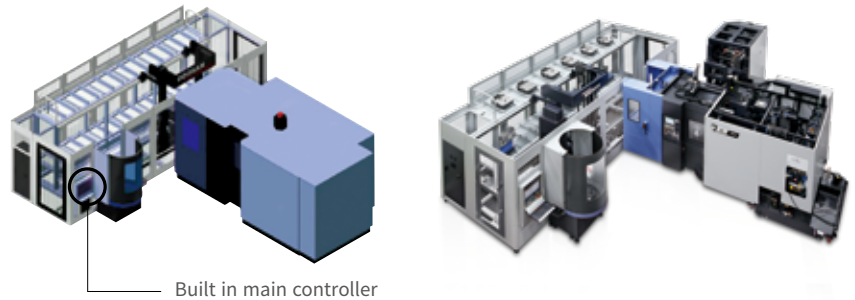
## DN Solutions Linear Pallet System [LPS II Compact] option

The LPS II Compact, a compact & economic pallet extension system, is the most affordable solution that is delivered in full assembly.

### Major Features

- Compact size
- Cost effective installation
- Fully assembled delivery
- Convenient operating system (DPMS II)

### LPS II compact



	LPS 400 II compact	LPS 500 II compact
Compatible model	HC 400 II	HC 500 II
Fork type	Single Fork type	
No. of machines	1	
No. of setup stations	1	
No. of pallets	12	
Dimensions (L x W)	7190 mm x 2225 mm (283.1 inch x 87.6 inch)	

## DN Solutions Linear Pallet System [LPS II] option

DN Solutions's representative LPS system, designed to provide the optimum automated pallet solution. LPS II is capable of multiple extension and layout change to provide flexible manufacturing solution.

### Major Features

- Expandable System
- Ideal for Managing High Efficiency Manufacturing Parts
- Stable and efficient operation system
- Faster installation and commissioning
- Compatible with all DN Solutions Horizontal Machining Centers
- Easy maintenance

### LPS II (Linear Pallet System)



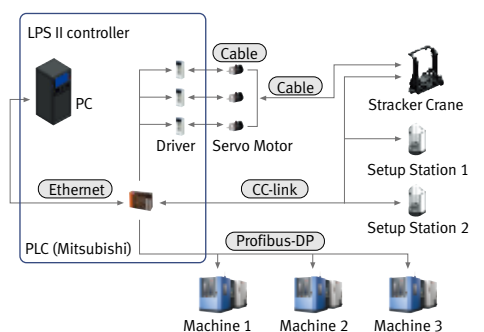
LPS II Model	LPS 400 II	LPS 500 II
Available Model	HC 400 II	HC 500 II
Fork type	Twin Fork type	
No. of machines	1 - 7	
No. of setup stations	1 - 4	
No. of pallets	12 ~ 70	
Dimensions (L x W)	7824 mm x 2400 mm (308 inch x 94.5 inch)	

### DN Solutions Production Management System [DPMS]

The DPMS is a system designed to ensure effective control and management of the LPS. The main window allows operators to quickly & flexibly manage the system in case of sudden change in output.



### System Outline



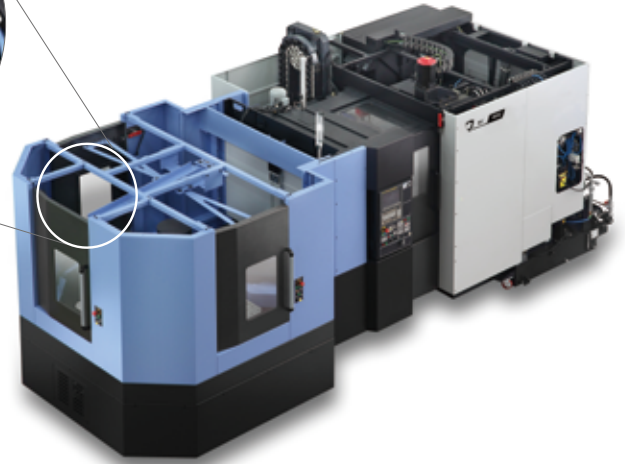
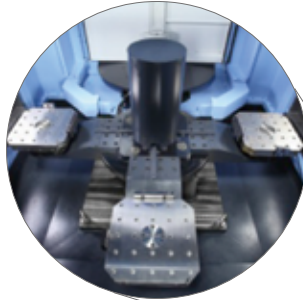
# PALLET EXTENSION SYSTEM

## DN Solutions 5 APC

Compact and simple multiple pallet system that allows users to maximize productivity and efficiency.

### Major Features

- Compact Footprint
- 3 different setup stations maximize efficiency in setup
- Easy on-site installation



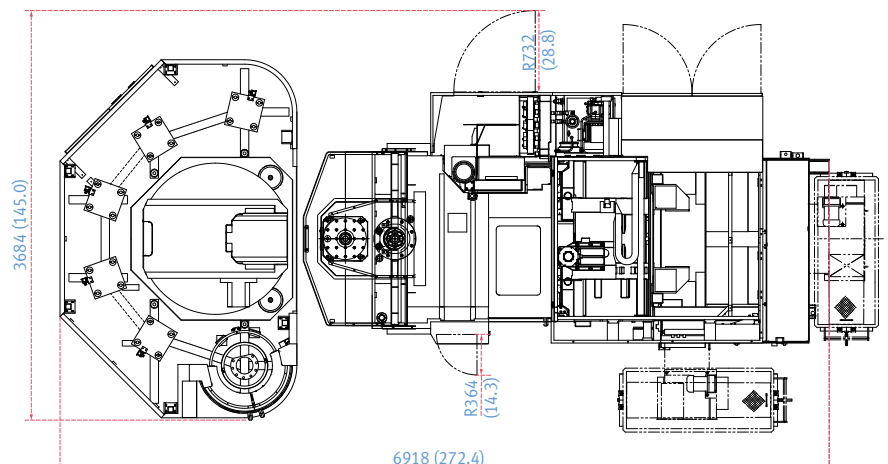
5 APC	HC 400 II / HC 500 II
No. of pallets	5
Length required for installation [L]	6274 mm (247 inch)
Width required for installation [W]	3046 mm (120 inch)

※ Please consult with DN Solutions for putting 500 mm pallet on 5 APC.

## DN Solutions Multiple Pallet System [MPS] option

DN Solutions's MPS allows users to program and automate up to 7 pallets. This system is ideal for manufacturing variety of parts in small quantity.

### 7 MPS



※ Please consult with DN Solutions for putting 500 mm pallet on 7 MPS.

7-MPS	HC 400 II / HC 500 II
No. of pallets	7
Length required for installation [L]	6918 mm (272.3 inch)
Width required for installation [W]	3684 mm (145 inch)

\* Dimensions does not include chip conveyor and MPS foot board.

# FANUC 31i/32i PLUS

Fanuc 31i/32i Plus maximizes customer productivity and convenience.

## 15" Touch screen + New OP

DN Solutions Fanuc 31iB/B5 Plus' operation panel enhances operating convenience by incorporating common-design buttons and layout. It features a Qwerty keyboard for fast and easy data input and operation.

## Fanuc 31i/32i Plus

- 15-inch color display
- Intuitive and user-friendly design

## USB and PCMCIA card QWERTY keyboard

- EZ-Guide i standard
- Ergonomic operator panel
- 4MB Memory
- Hot keys
- Enhance AICC BLOCK
- Touch pen provided as standard



## iHMI touchscreen

iHMI provides an intuitive interface that uses a touchscreen for quick and easy operation.

## Range of applications

Providing various applications related to planning, machining, improvement and utility, for customer convenience.

# NUMERIC CONTROL SPECIFICATIONS

**FANUC**

Item	Specifications	HC 400 II / HC 500 II	
		0i PLUS	F32iB PLUS
Controlled axis	Controlled axes	4 (X,Y,Z,B)	4 (X,Y,Z,B)
	Simultaneously controlled axes	4 axes	4 axes
	Additional controlled Axis	●	●
Data input/output	Fast data server	○	○
	Memory card input/output	●	●
	USB memory input/output	●	●
	Large capacity memory(2GB)*2	○	○
Interface function	Embedded Ethernet	●	●
	Fast Ethernet	○	○
	Enhanced Embedded Ethernet function	●	●
Operation	DNC operation	●	●
	DNC operation with memory card	●	●
Program input	Workpiece coordinate system	G52 - G59	●
	Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	●
	Tool number command		T4 digits
	Tilted working plane indexing command	G68.2 TWP	○
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	X
	AI contour control II	G5.1 Q_, 200 Blocks	●
	AI contour control I	G5.1 Q_, 600 Blocks	X
	AI contour control II	G5.1 Q_, 1000 Blocks *1)	X
	High smooth TCP		X
Operation guidance function	EZ Guidei (Conversational Programming Solution)	●	○
	iHMI with Machining Cycle	Only with 15" Touch LCD standard *2)	●
	EZ Operation package		●
Setting and display	CNC screen dual display function	●	●
	FANUC MTConnect	⊕	⊕
Network	FANUC OPC UA	⊕	⊕
	Others	Display unit	15" color LCD
		15" color LCD with Touch Panel	●
		640M(256KB)_500 programs	X
		1280M(512KB)_1000 programs	X
		2560M(1MB)_1000 programs	X
		5120M(2MB)_1000 programs	●
		10240M(4MB)_1000 programs	X
		20480M(8MB)_1000 programs	X
		2560M(1MB)_2000 programs	X
		5120M(2MB)_4000 programs	X
	10240M(4MB)_4000 programs	X	
	20480M(8MB)_4000 programs	X	

\*1) The number of look-ahead blocks may be changed or limited depending on the peripheral device or the configuration of the internal NC system.

\*2) Available Option only with Fanuc i plus iHMI

● Standard ○ Optional X N/A ⊕ Available  
Network: FANUC MT Connect and FANUC OPC UA available.

# EZ WORK

The software developed by DN Solutions features numerous functions designed for convenience and ease of operation.

## EZ work

The EZ work package delivers speed and efficiency. This menu-driven innovation not only helps customers reduce setup times, but also simplifies common tasks and procedures, reducing the potential for errors. EZ work reduces operating time, protects machinery, enhances quality and speeds up maintenance interventions.

## Tool support functions



### Tool management I

- Tool magazine control
  - Tool state display
  - Fastems Tool Add/Remove Function
- option**



### Tool load monitor **option**

- Detection of tool damage
- Detection of abnormalities during operation
- Detection of no-load air cutting

## Productivity improvement functions



### Adaptive Feed Control

Function to control feedrate so that the cutting can be carried out at a constant load



### APC Setting Screen

A simple automation function that supports automatic processing of the next pallet by setting the processing program for each pallet of the equipment including APC in advance

## Pallet magazine support functions



### PMC Soft Panel Switch

Manual operations that occur continuously in each stages for APC,ATC change command

## Operation support, Help desk functions



### Operation rate

- Measure various machine operating rate
- Support 3 shift operation
- calculate and save 30 days operating rate
- Show data for a specific period



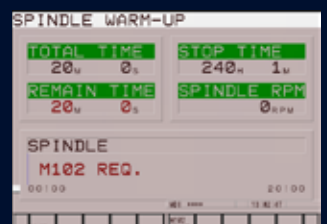
### Pattern Cycle

A function to automatically create frequently used part programs.



### Renishaw GUI

Renishaw tool length measuring and compensate function



### Spindle Warm Up

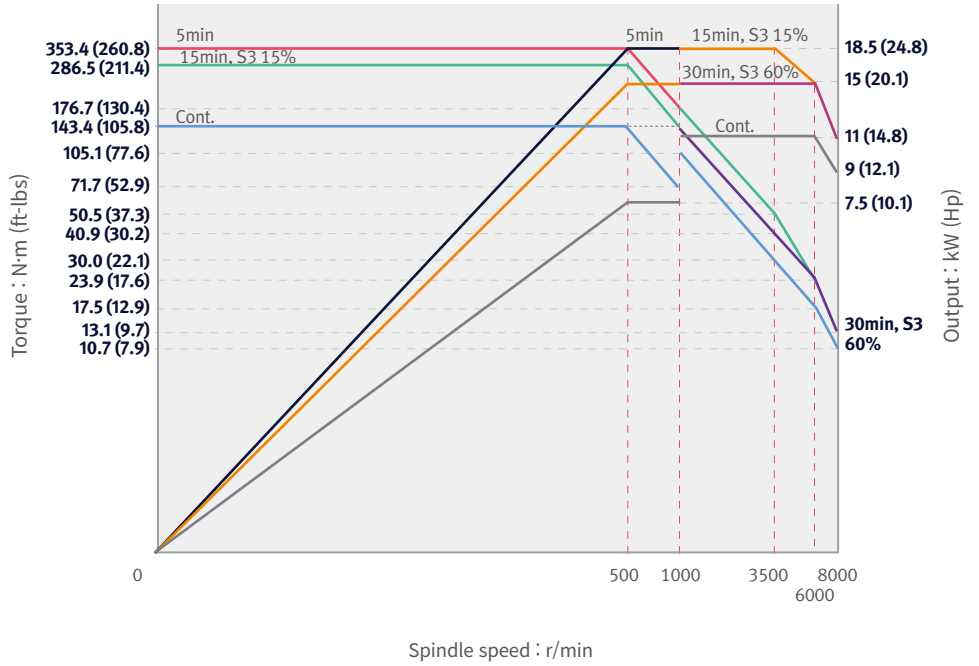
A function that assists spindle warm-up for spindle life when the spindle has not been used for a certain period of time

# POWER | TORQUE

## 8000 r/min

Spindle motor: **18.5 / 11 kW**  
24.8 / 14.7 Hp

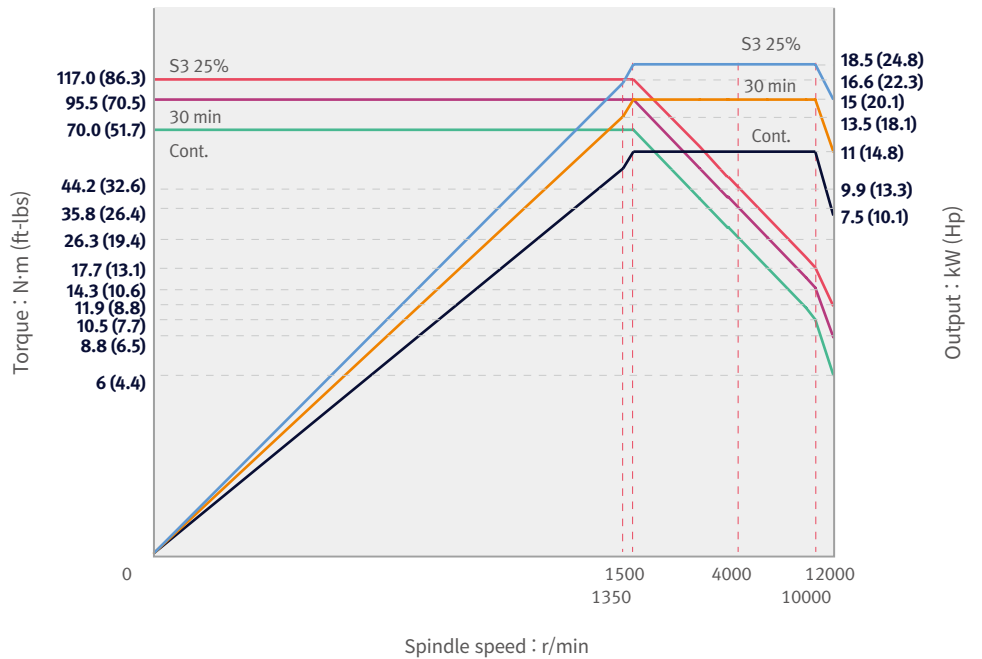
Power torque: **353.4 N·m**  
260.8 ft-lbs



## 12000 r/min

Spindle motor: **18.5 / 11 kW**  
24.8 / 14.7 Hp

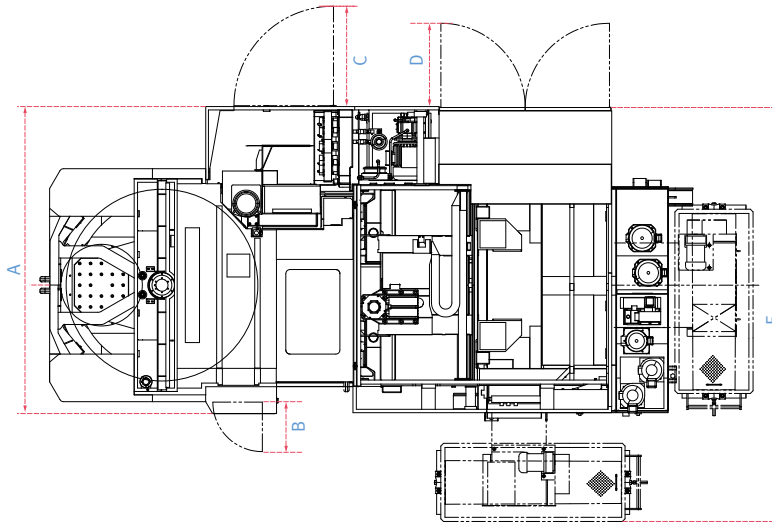
Power torque: **117.0 N·m**  
86.3 ft-lbs



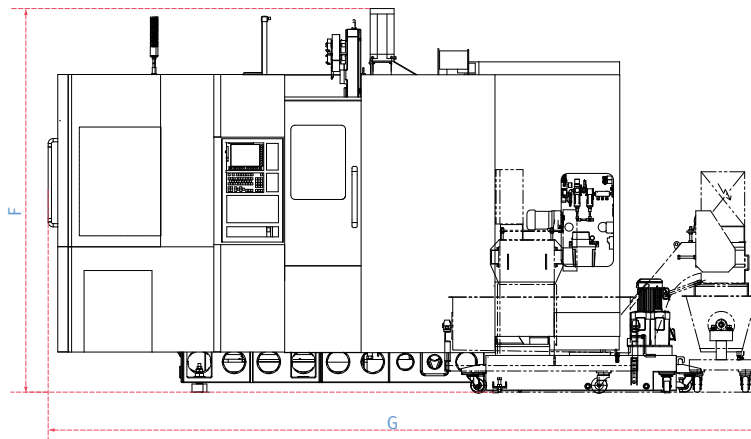
# DIMENSIONS

Units : mm (inch)

TOP



FRONT



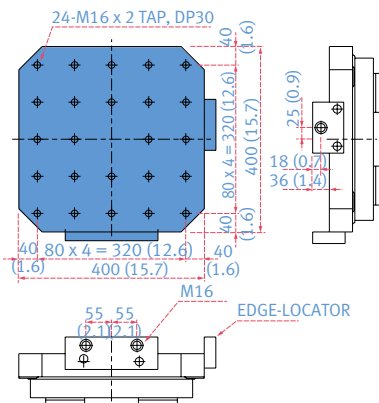
Model	A	B	C	D	E	F	G
HC 400 II	2260 (89)	R 364 (14.3)	R 732 (28.8)	620 (24.4)	3666 (144.3)	2822 (111.1)	5240 (206.3)
HC 500 II	2625 (103.3)	R 364 (14.3)	R 544 (21.4)	630 (24.8)	4093 (161.1)	2993 (117.8)	6073 (239.1)

\* Some peripheral equipment can be placed in other areas.

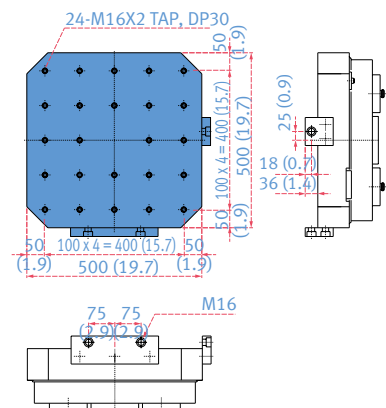
TABLE

Units : mm (inch)

HC 400 II



HC 500 II



# MACHINE SPECIFICATIONS

Description		Unit	HC 400 II	HC 500 II	
Machining Capacity	Travel distance	X-axis	mm (inch)	600 (23.6)	850 (33.5)
		Y-axis	mm (inch)	560 (22)	700 (27.6)
		Z-axis	mm (inch)	565 (22.2)	750 (29.5)
	Distance from spindle nose to table center		mm (inch)	150 ~ 715 (5.9 ~ 28.1)	150 ~ 900 (5.9 ~ 35.4)
	Distance from spindle center to table top		mm (inch)	50 ~ 610 (1.9 ~ 24)	50 ~ 750 (1.9 ~ 29.5)
Feedrate	Rapid Feedrate	X-axis	m/min (ipm)	40 (1574.8)	
		Y-axis	m/min (ipm)	40 (1574.8)	
		Z-axis	m/min (ipm)	40 (1574.8)	
	Cutting feedrate		mm/min (ipm)	20000 (787.4)	
Pallet	Pallet type		24-M16 X P2.0		
	Pallet indexing angle		deg	1 {0.001}	
	Max. loading capacity		kg (lb)	400 (881.8)	500 (1102.3)
	Max. workpiece size		mm (inch)	600 x 800 (23.6 x 31.5)	800 x 900 (31.5 x 35.4)
	Pallet size		mm (inch)	400 x 400 (15.7 x 15.7)	500 x 500 (19.7 x 19.7)
Spindle	Max. spindle speed		r/min	8000 {12000}	
	Data specification		ISO #40, 7/24 TAPER		
	Max. torque		N·m (ft·lbs)	353.4 {117} (260.6 {86.3})	
Automatic Pallet Changer (APC)	No. of pallets		ea	2	
	Pallet change time		s	8	8.5
	Indexing angle (rotation)		deg	90	
Automatic Tool Changer (ATC)	Tool shank type		BT40 {CAT40 / DIN 40 / HSK-A63}		
	Tool storage capacity		ea	40 {60 / 80 / 120}	
		Matrix Type	ea	{170 / 262}	
	Max. tool diameter	W/O adjacent tool	mm (inch)	75 (2.9)	
		With adjacent tool	mm (inch)	140 (5.5)	
	Max. tool length		mm (inch)	300 (11.8)	400 (15.7)
	Max. tool weight		kg (lb)	10 (22)	
	Max. tool moment		N·m (ft·lbs)	11.8 (8.7)	
	Tool change time (T-T-T, tool weight less than 12K)		s	1.5	
Tool change time (C-T-C, tool weight less than 12K)		s	4		
Motor	Spindle motor power		kW (Hp)	18.5 / 11 (24.8 / 14.7)	
Power Source	Power consumption		kVA	58	
	Compressed air pressure		Mpa (psi)	0.54 (78.3)	
Tank Capacity	Coolant tank capacity		L (gallon)	550 (145.3)	640 (169.1)
	Lube tank capacity		L (gallon)	1.4 (0.37)	
Machine Dimensions	Height		mm (inch)	2830 (111.4)	3000 (118.1)
	Length		mm (inch)	4630 (182.3)	5320 (209.4)
	Width		mm (inch)	2260 (88.9)	2680 (105.5)
	Weight		kg (lb)	11000 (24250.8)	12500 (27557.8)

{ } : option

# RESPONDING TO CUSTOMERS ANYTIME, ANYWHERE

## DN Solutions Global Network

DN Solutions provides systems-based professional support services, before and after the machine tool sale, by responding quickly and efficiently to customers. By supplying spare parts, product training, field service and technical support, we provide the expert care, attention and assistance our customers expect from a market leader.

Global sales and service support network		<b>51</b>	<b>Technical centers</b> Technical center, Sales support, Service support, Parts support
<b>4</b>	Corporations	<b>200</b>	<b>Service posts</b>
<b>155</b>	Dealer networks	<b>3</b>	<b>Factories</b>



## CUSTOMER SUPPORT AND SERVICES

**We're there for you whenever you need us.**

We help our customers operate at maximum efficiency by providing them with a range of tried, tested and trusted services - from pre-sales consultancy to post-sales support.



### Field services

- On-site service
- Machine installation and testing
- Scheduled preventive maintenance
- Machine repair service



### Parts supply

- Supplying a wide range of original DN Solutions spare parts
- Parts repair service



### Training

- Programming, machine setup and operation
- Electrical and mechanical maintenance
- Applications engineering



### Technical support

- Supports machining methods and technology
- Responds to technical queries
- Provides technical consultancy



[dn-solutions.com](http://dn-solutions.com)

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