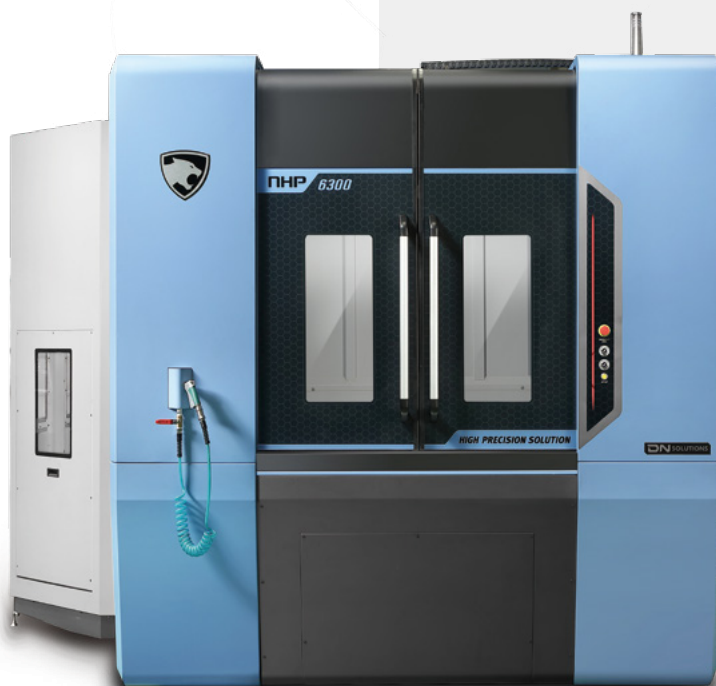
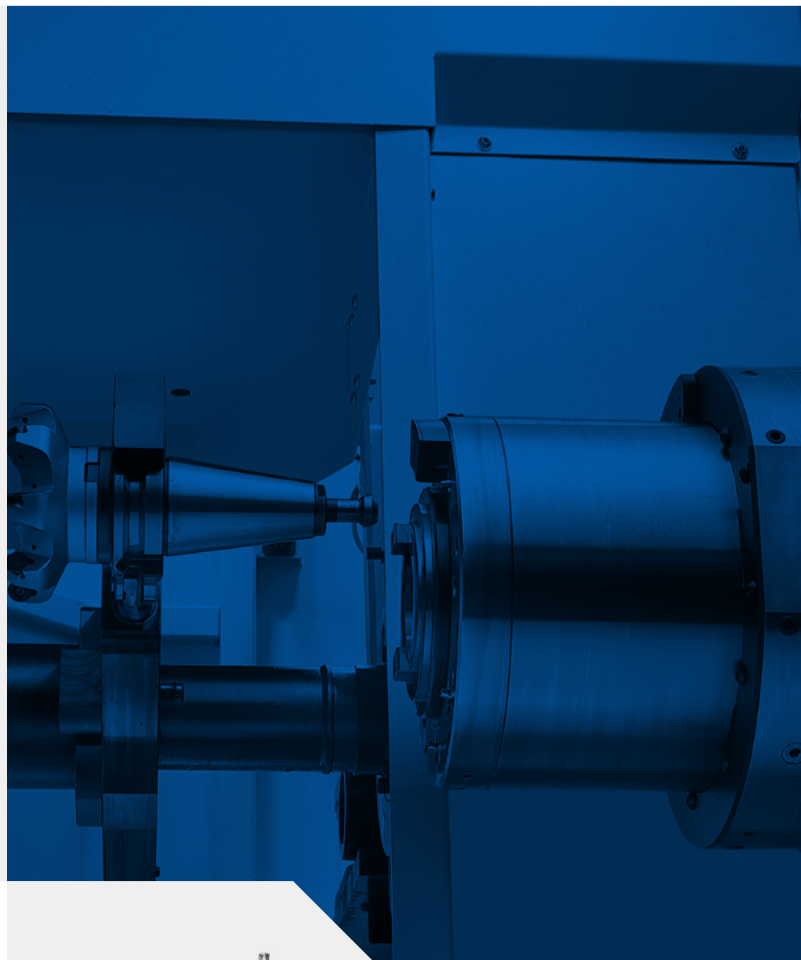


HIGH-SPEED, HIGH-PRODUCTIVITY HORIZONTAL MACHINING CENTER

# **NHP 5500·6300** 2nd Gen.

**NHP 5500** 2nd Gen.

**NHP 6300** 2nd Gen.



# NHP 5500 · 6300<sup>2nd Gen.</sup>

NHP 2<sup>nd</sup> series considerably improved the productivity with faster X/Y/Z feed acceleration/deceleration, shorter tool change time and faster table rotation time. And it secured improved machining accuracy with spindle smart thermal control, X/Y/Z all axis ball screw shaft and nut cooling and 3-point support structure equipped as standard. Also provided are various automation solutions and the chip removal function, ensuring stable continuous machining for long periods of time.

## CONTENTS

### Product Overview

### Basic Information

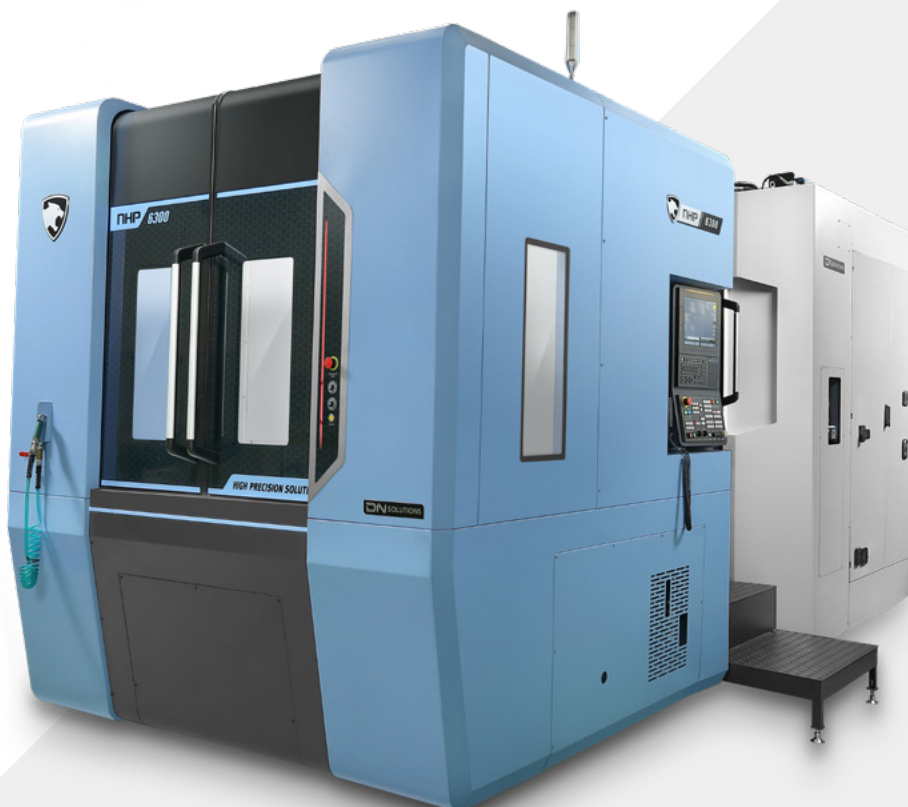
- 04 Basic Structure
- 05 Table
- 06 Spindle
- 07 Magazine
- 08 2<sup>nd</sup> Generation Sales Points
- 10 Standard | Optional Specifications
- 11 Peripheral Equipment
- 13 Peripheral Equipment | Convenient Functions
- 14 Pallet System

### Detailed Information

- 15 FANUC 31i PLUS
- 16 EZ WORK
- 17 Convenient Operation
- 18 CUFOS
- 20 Easy Set-up | Operation
- 21 Easy Maintenance, Cufos: Standard Optional Specs
- 22 Power | Torque
- 24 Dimensions
- 26 Table Dimensions
- 27 Working Area
- 28 Machine Specifications

### Customer Support Service

- 29 Why DN Solutions
- 30 Customer Support and Services
- 31 Global Network



## ENHANCED PRODUCTIVITY



- Enhanced feed axis acceleration and deceleration, rapid traverse speed of 60 m/min, and a tool change time (T-T-T) of 1.7 seconds minimize non-cutting time and improve productivity.

## LONG-LASTING HIGH PRECISION



- Equipped with a built-in spindle featuring a thermal displacement sensor, ball screw shaft and nut cooling function as standard, high-speed and high-precision X/Y/Z Roller LM guides, and a three-point support bed structure to ensure long-term stability and high-precision machining.

## VARIOUS AUTOMATION SOLUTIONS/CONVENIENCE FUNCTIONS



- LPS and RPS automatic pallet changers support up to 72 pallets and enable the integration of table-through coolant and pneumatic fixtures.



# BASIC STRUCTURE

A high level of precision can be achieved on a stable basis thanks to the 3-point support type bed structure and the X/Y/Z ball screw shaft and nut cooling function.

## Travel distance

NHP 5500/6300

X-axis **800/1050** mm  
31.5 / 41.3 inch

Y-axis **750/900** mm  
29.5 / 35.4 inch

Z-axis **900/1000** mm  
35.4 / 39.4 inch

## Feed axis acceleration/deceleration

NHP 5500/6300

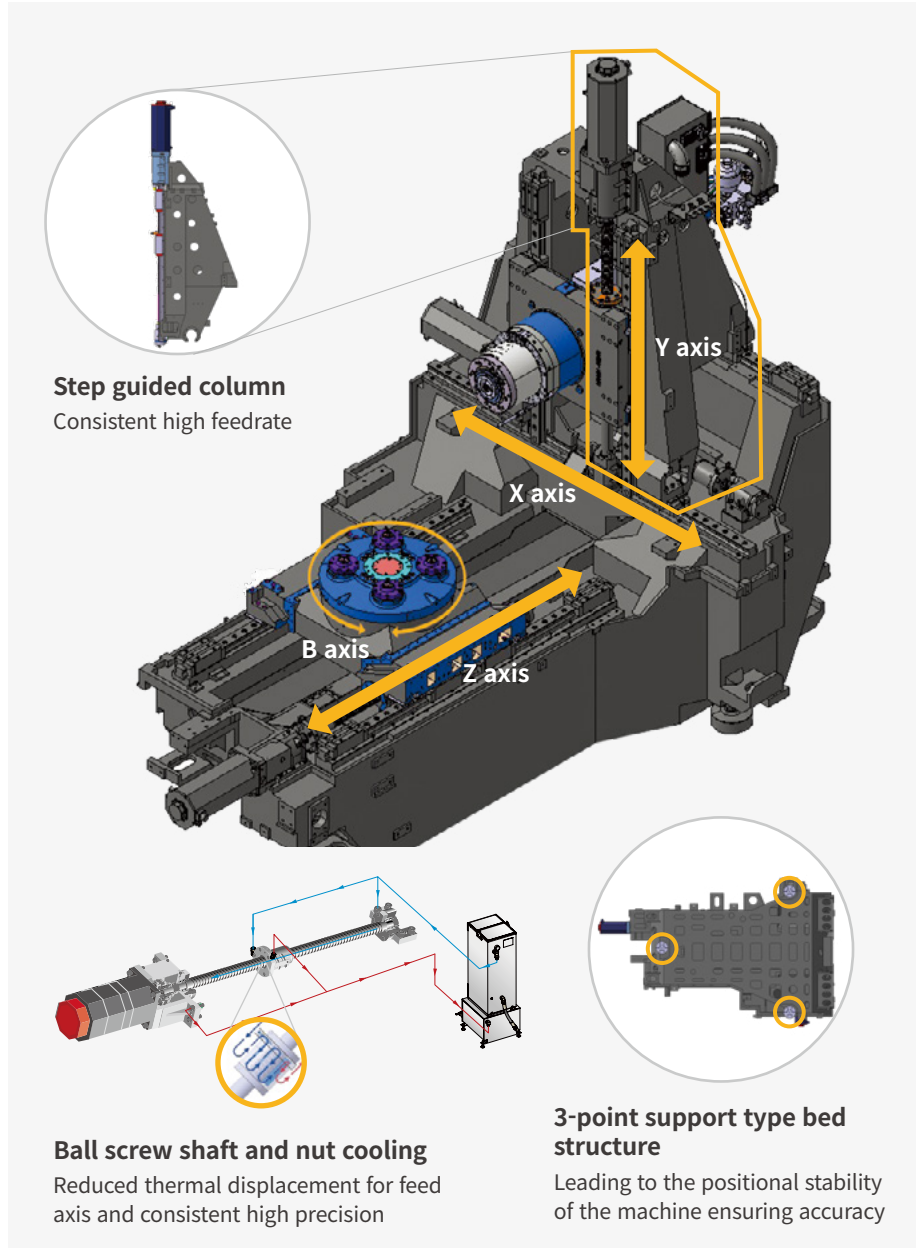
X-axis **0.91/0.74** g

Y-axis **1.02/0.87** g

Z-axis **0.85/0.85** g

## Rapid traverse rate

**60** m/min  
2362.2 ipm



**Step guided column**  
Consistent high feedrate

**Ball screw shaft and nut cooling**  
Reduced thermal displacement for feed axis and consistent high precision

**3-point support type bed structure**  
Leading to the positional stability of the machine ensuring accuracy

## Fast precision X/Y/Z/ feed structure

Productivity has been greatly increased with the high-speed, high-precision roller type LM guideway installed for X/Y/Z entire axes and even faster acceleration and deceleration performance



High-rigidity, high-precision roller type LM guideway

# TABLE

Rotary shuttle-type pallet changer can be operated on a stable and accurate basis, enhancing its reliability.

## Max. workpiece size

NHP 5500

**Ø900 x H1100** mm  
35.4 x 43.3 inch

NHP 6300

**Ø1050 x H1350** mm  
35.4 x 43.3 inch

## Max. workpiece weight (W)

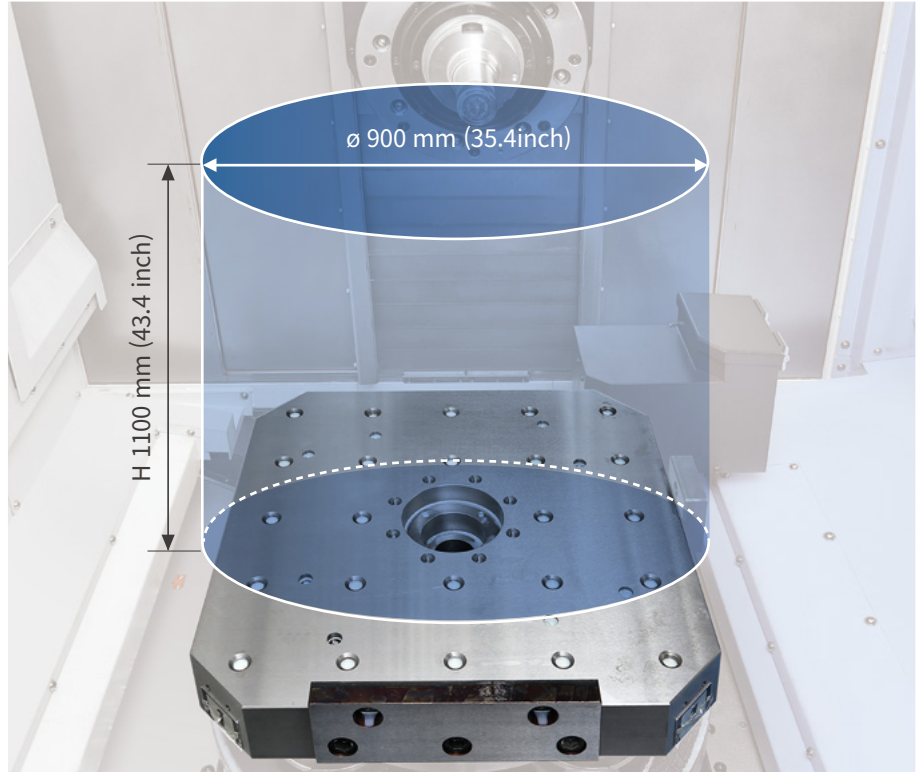
NHP 5500 / 6300

**800** {1000 OPTION} /  
**1500** kg 3306.9 lb

## Pallet change time

NHP 5500 / 6300

**12** {15 OPTION} / **16** sec



## Table rotation (B axis)

1° control index table:

NHP 5500 :

90 degrees 1.1 sec, 180 degrees 1.5 sec

NHP 6300 :

90 degrees 1.3 sec, 180 degrees 1.7 sec

0.001 degrees RGC\* type rotary table OPTION :

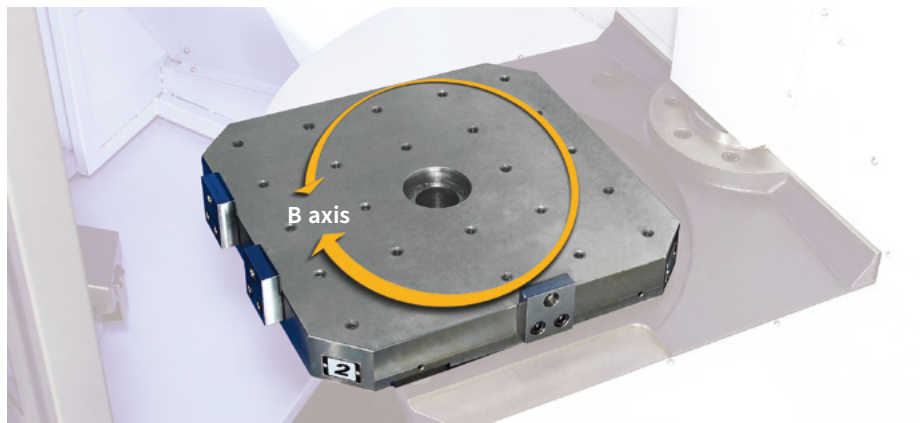
Max. allowable rotative speed

30 r/min(NHP5500), 25 r/min(NHP6300)

0.001 degrees DDM\*\* type rotary table OPTION :

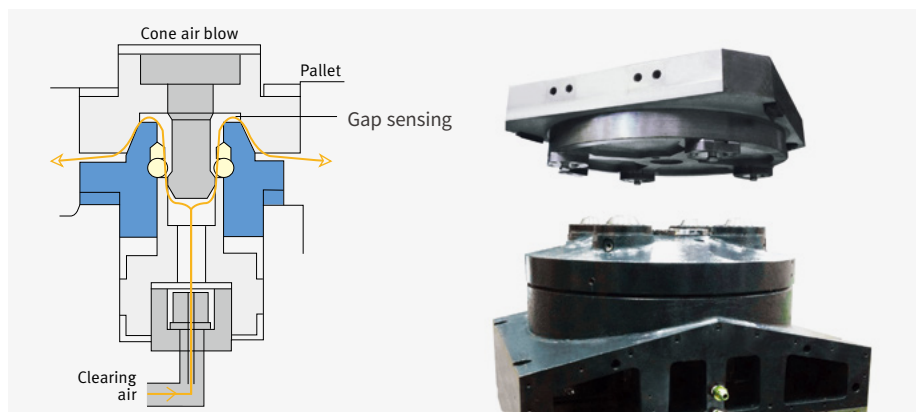
Max. allowable rotative speed 100 r/min

\*Roller Gear Cam \*\*Direct Drive Motor



## Cone Air Blower

As a mechanism designed for precise pallet position repeatability, the air blower injects high pressure air into the location cones connecting the table to the pallet. This removes chips from the locating surfaces and ensures highly accurate pallet positioning.



# SPINDLE

This built-in spindle minimizes the occurrence of vibration and heat generation. It's equipped with sensor-type spindle smart thermal error compensation, providing excellent high-speed, high-precision cutting performance.

## Spindle cooling system (oil cooler) available in the standard model

Max spindle speed

NHP 5500

**10000** {15000 OPTION} r/min

NHP 6300

**12000** {15000 OPTION} r/min

Spindle tool taper

**ISO #50**

Max. spindle motor power

NHP 5500

**37/45** kW (10K High Torque)

NHP 5500

**45** kW

Max. spindle motor torque

NHP 5500

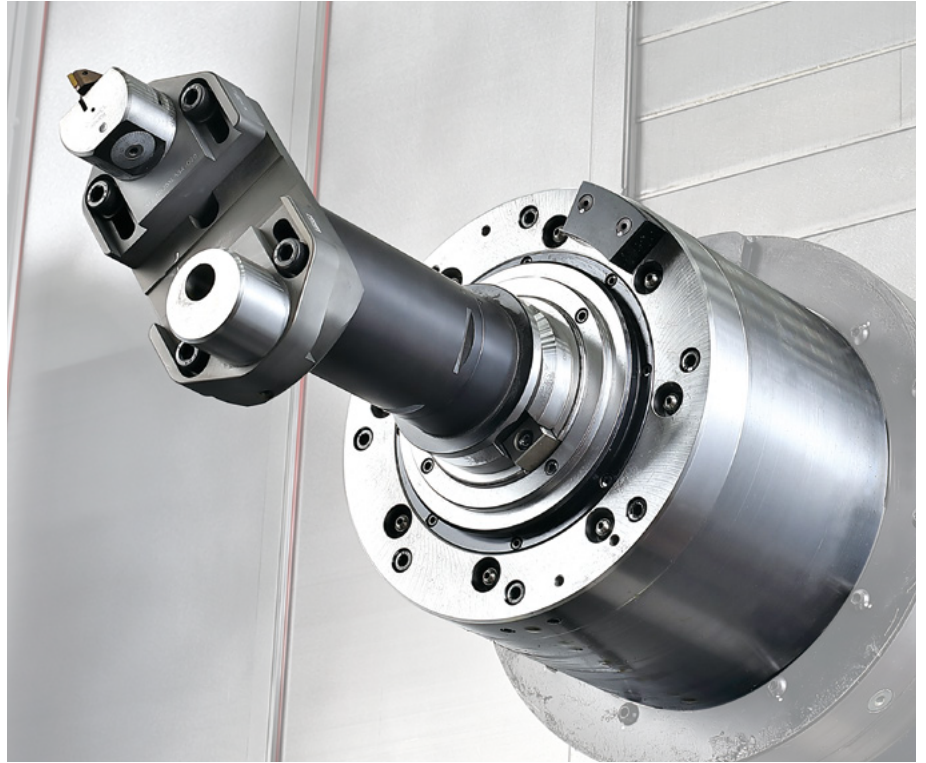
**516/644** N.m (10K High Torque)

**1009** N.m (8K High Torque)

NHP 6300

**600/809** N.m (12K High Torque)

**1202** N.m (8K High Torque)



### Spindle Cooling System

An oil cooler system is provided as a standard feature for long-term, continuous operation at high speeds. The oil is cooled down in the cooler before circulating around the spindle bearings and built-in motor to minimize thermal error and deliver high-precision cutting.

## High-Speed, high-precision spindle

Designed to minimize vibration and thermal error while offering rapid acceleration and deceleration, the spindle guarantees excellent cutting performance from steel to nonferrous metal parts. Thanks to its increased rigidity, the spindle supports various machining from high speed cutting to low speed heavy cutting.

### Spindle cooling system and spindle smart thermal control function available in the standard model

The oil cooler system as well as the spindle thermal error compensation function is provided in the standard model to keep the level of spindle heat generation and thermal error to a minimum.



# MAGAZINE

Varied types of the tool magazine are provided for enhanced customer convenience.

## Tool changer

### Tool magazine capacity

**40** ea {60, 90, 120, 150,  
196, 256, 316, 376 **OPTION**}

### Tool change time

NHP 5500/6300

Tool To Tool(T-T-T) **1.7/2.5** sec

Chip To Chip(C-T-C) **4.7/5.6** sec

### Max. tool length

NHP 5500/6300

**550/630** mm (BT/CAT/DIN)

21.7 / 24.8 inch

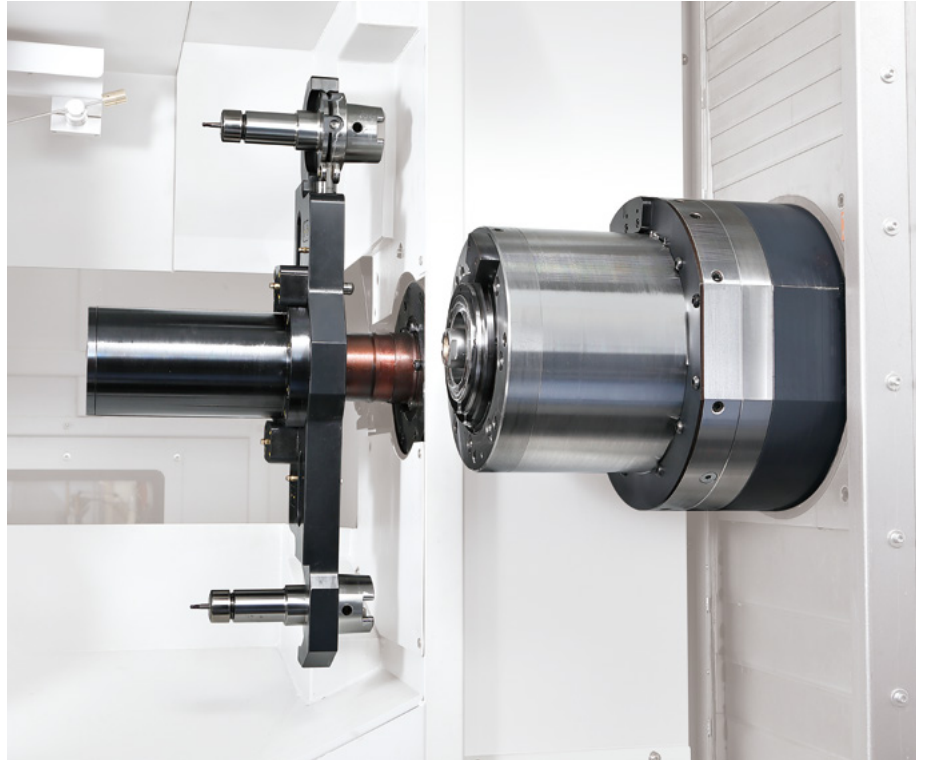
**620/700** mm (HSK)

24.4 / 27.6 inch

### Max. tool weight

**25** kg 55.1 lb (40/60T)

**30** kg 66.1 lb (More than 90T)

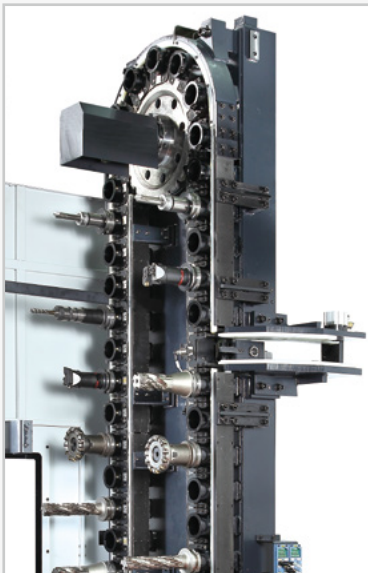


### Servo-driven ATC

The ATC is capable of handling pot-type tools weighing up to 25kg and chain-type tools weighing up to 30kg at high speeds using a servo motor and fast tool indexing and spindle positioning.

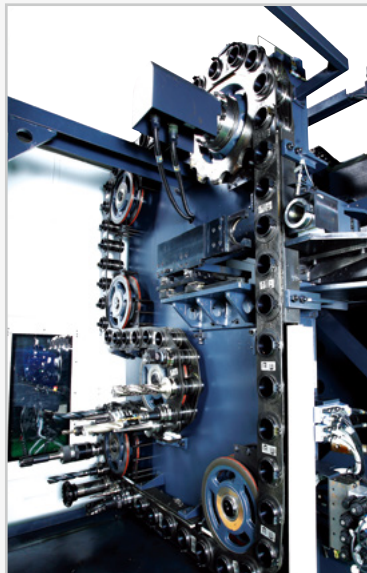
## Tool Magazine type

### Pot type magazine



40 / 60 tools **OPTION**

### Chain type magazine **OPTION**



90 / 120 / 150 tools

### Matrix type magazine **OPTION**

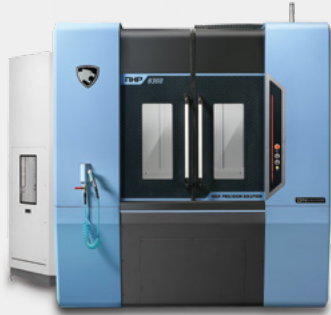


196 / 256 / 316 / 376 tools

# 2<sup>nd</sup> GENERATION SALES POINTS

## NEW Increase Productivity

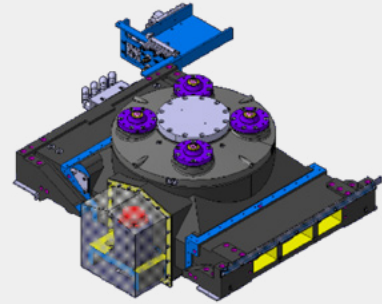
Increase acceleration deceleration by **20%**



Contents	NHP6300	NHP6300 <sup>2nd</sup>
Induction motor	0.64 / 0.73 / 0.64	0.74 / 0.87 / 0.85

## NEW Increase Productivity

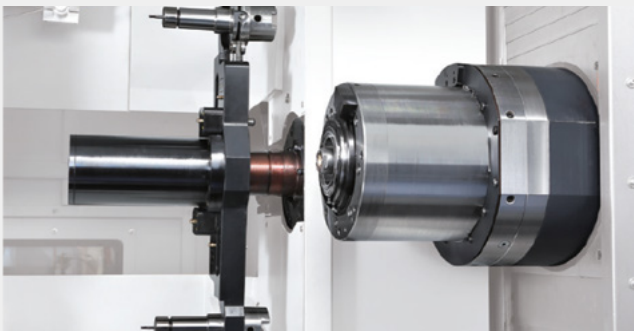
Table index time reduced by **35%**



Contents	NHP6300	NHP6300 <sup>2nd</sup>
Index Time	2.0s (90°)	1.3s (90°)
Rotate Speed	15rpm	35rpm

## NEW Increase Productivity

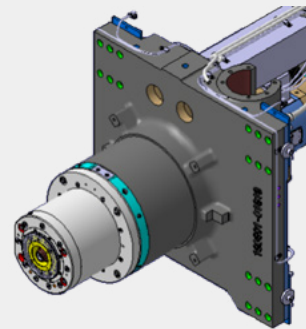
Tool change time reduced by **30%**



Contents	NHP6300	NHP6300 <sup>2nd</sup>
Tool change time(T-T-T)	2.5	1.7

## NEW Increase Productivity

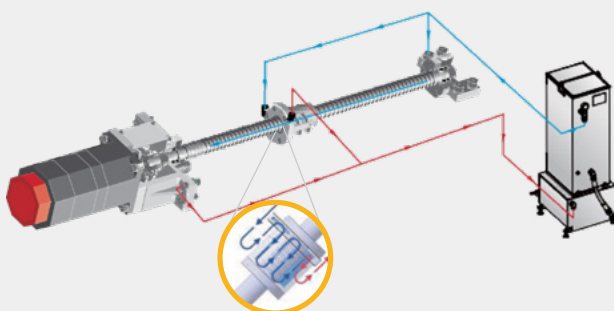
Spindle acceleration/ deceleration time reduced by **15%**



Contents	NHP6300	NHP6300 <sup>2nd</sup>
ACC/DEC	4.0 / 3.5	3.6 / 3.1

## NEW Improved Precision

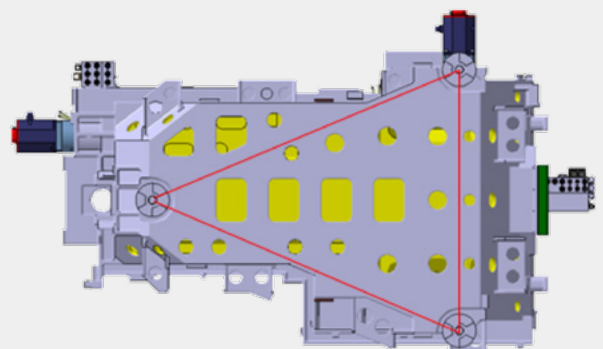
Ball screw shaft cooling and nut cooling standard



## NEW Improved Precision

3-point leveling system

- Reduce machine setup time
- Maintain machine precision and improve performance



# STANDARD | OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

Description	Features	NHP 5500 / NHP 6300 2nd Gen.	
Tool magazine	40-tool pot type	●	
	60-tool pot type	○	
	90/120/150 tools_ Chain type	○	
	196/256/316/376 tools_ Matrix type	○	
	Tool ID (Balluff sensor)	○	
	Tool management function (TMT1/2/8 digit)	○	
Tool shank type	BT50	●	
	CAT50/DIN50/HSK-A100	○	
Mist collector	Mist Collector	○	
		○	
Spindle	10000 r/min, 37/26 kW (NHP 5500)	●	
	10000 r/min, High Torque 45/26 kW (NHP 5500)	○	
	12000 r/min, 45/25 kW (NHP 6300)	●	
	High Torque 8000r/min, 1009N.m (NHP 5500)	○	
	High Torque 8000r/min, 1202N.m (NHP 6300)	○	
	High speed 15000 r/min, 37/30 kW	○	
	Spindle air curtain	●	
	U-axis drive (D'ANDREA TA-C160/200)	○	
Hydraulic fixtures	Upper hydraulic lines 2X2, 4X4, 6X6, 8X8	○	
	Lower hydraulic lines setup part max. 8 ports; table part 2 ports	○	
	Hydraulic fixture unit	○	
Automation	LPS (Linear Pallet System); 12 to 72 pallets	○	
	LPS (Linear Pallet System); 6 pallets	○	
Automatic workpiece measurement	OMP60	○	
	RMP60	○	
Automatic tool measurement device	TS27R, RMI-QE, TRS2, NC 4_Renishaw	○	
	D5A_OMRON	○	
	FEM 1CP_Far East Machine Tool	○	
	BK9_MSC	○	
Accuracy	Linear scale (X/YZ axes)	○	
	Spindle smart thermal control	●	
	Structure smart thermal control	○	
	Ball screw shaft cooling	●	
Chip Handling System	SCRAPER type; Drum chip conveyor**	○	
	2-step drum chip conveyor*	○	
	Internal chip conveyor	○	
	Chip bucket	○	
Coolant	Flood	0.7 Mpa (1.1 kW) ●	
	Flushing (50Hz: 2.5kW 0.32MPa / 60Hz: 2.5kW 0.22MPa)	●	
	TSC	2 Mpa (2.9 kW)	○
		3 Mpa (3.7 kW)	○
		7 Mpa (7.5 kW)	○
	Coolant gun	○	
	Oil skimmer	●	
	MQL system	○	
Water soluble Coolant Chiller***	○		
Coolant level switch, Sensing level; Low/High	○		
Table	Index table (1° control)	●	
	Rotary table (0.001 control, RGC type)	○	
	Rotary table (0.001 control, DDM type)	○	
Pallet	Tap Pallet	●	
	T-slot pallet	○	
AIR	Max. allowable weight increased (800kg --> 1000kg) (NHP 5500)	○	
	Pallet air clamping (Ensuring clamping)	○	
Convenient Function	AIR GUN	○	
	SPIN WINDOW(ELECTRIC TYPE)	○	
	APC-set up auto indexing	○	
	Setup shower coolant	○	

● Standard ○ Optional X N/A

\*Please contact DN Solutions to find out more about specifications and options

\*\* When using a semi-synthetic type or synthetic type, contact our sales representative or service center in advance

\*\*\* External chip conveyor must be drum type for NHP 2<sup>nd</sup> machines. \*\*\* Technical consultation is mandatory for the chilling of non-water soluble coolant



**Fire Safety  
Precautions**

There is a high risk of fire when using non-water-soluble cutting fluids, processing flammable materials, neglecting the controlled and careful use of coolants and modifying the machine without the consent of the manufacturer. Always check the SAFETY GUIDELINES carefully before using the machine.

# PERIPHERAL EQUIPMENT

## Chip Conveyor **OPTION**

Chip disposal is very important to productivity and the work environment. To meet this requirement, the NHP Series enhances chip disposal performance, thus improving the work environment.



Scraper type drum chip conveyor



## Eco-Friendly Devices



Oil skimmer



Mist collector **OPTION**

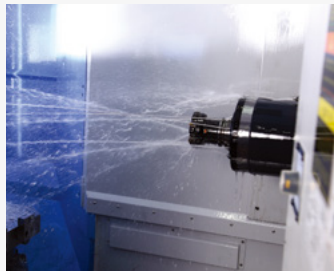
## Chip disposal solution

A solution for smooth chip disposal is provided to prevent any deterioration in accuracy and productivity caused by the chips that are stuck or piled up

## Chip Removal System



FLUSHING COOLANT



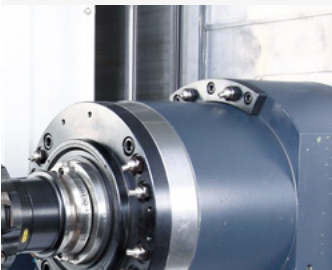
FLOOD COOLANT



SHOWER COOLANT **OPTION**



Coolant gun **OPTION**



COOLANT FLUSHING ON THE SPINDLE HEAD



SPINDLE-THROUGH COOLANT (TSC) **OPTION**



MQL SYSTEM **OPTION**: SPRAYING ECO-FRIENDLY OIL MIXED WITH AIR, INSTEAD OF CUTTING OIL

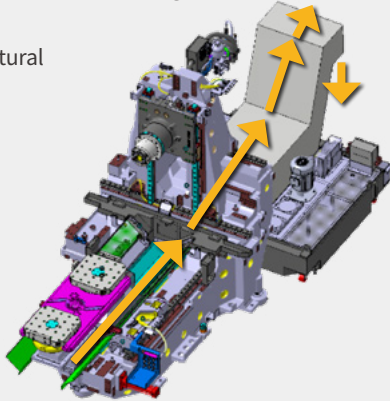


Internal Chip conveyor **OPTION** (SCRAPER/HINGED)

**NEW Increase Chip Disposal**

**Center trough type chip disposal structure**

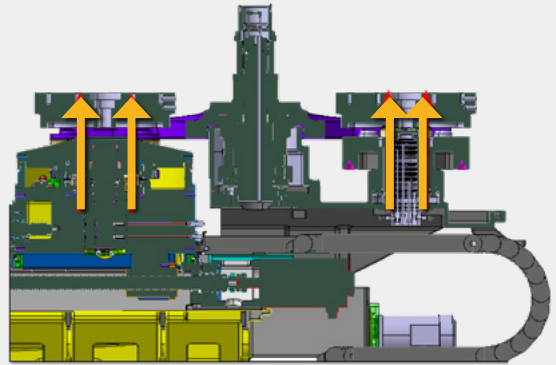
- Improving high-capacity chip processing performance
- Improvement of structural thermal deformation



**NEW Increase Convenience**

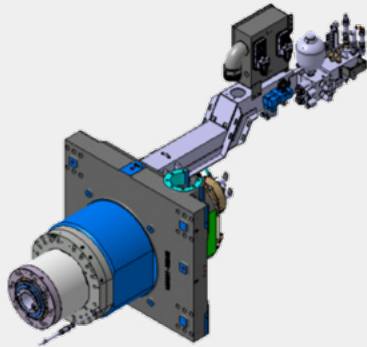
**Table center thru hydraulic fixture line**

- Improved automation response capabilities



**NEW Improve Options Performance**

**High torque spindle torque increased by 19%**



Contents	Prev	New 8k
Max Torque (N·m(ft·lbs))	1011 (746.1)	1202 (887.1)

**NEW Energy Saving**

**Apply grease lubrication**

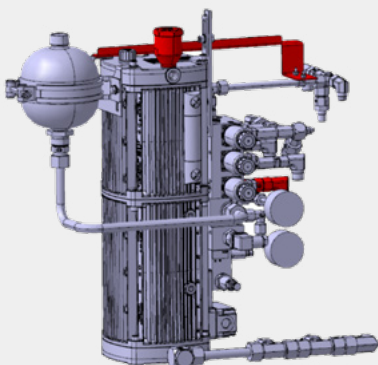
- Energy saving
- Reduce machine maintenance costs



**NEW Energy Saving**

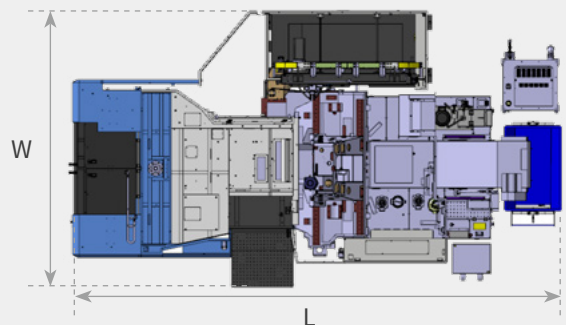
**Power pack**

- Reduced energy consumption due to intermittent operation of hydraulic motors
- Noise reduction



**NEW Increase Convenience**

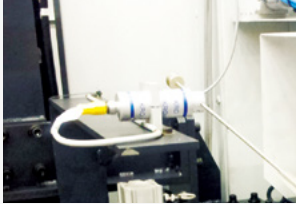
**Layout reduced by 13%**



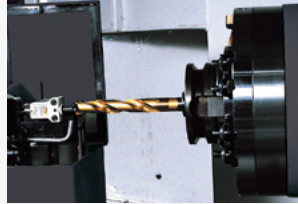
Contents	W	L	H
Previous model	3940 (155.1)	7230 (284.6)	3495 (137.6)
NHP6300 2nd	3775 (148.6)	6831 (268.9)	3430 (135.0)

# PERIPHERAL EQUIPMENT

## Measuring Devices



Auto tool damage detection device I (BK 9) **OPTION**



Auto tool damage detection device II (OMRON) **OPTION**



AUTOMATIC TOOL MEASURING DEVICE (TS 27R) **OPTION**

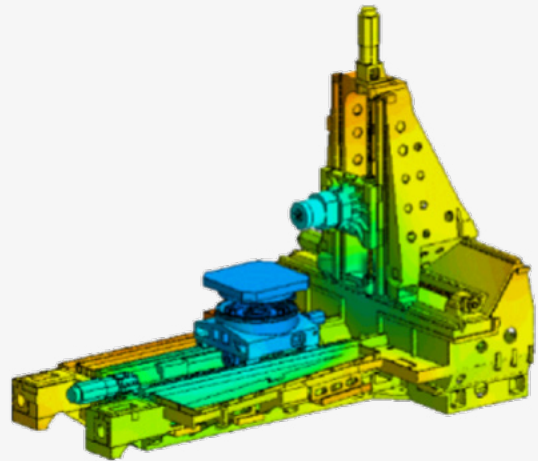
## Linear scale available in the standard model **OPTION**

- X/Y/Z all axes
- Retaining long-term positioning and repetition accuracy



## Spindle Smart Thermal Control (Std.) Structure Smart Thermal Control **OPTION**

Structure (Bed, column, X-axis base)  
thermal error stabilized



## Coolant Chiller **OPTION**

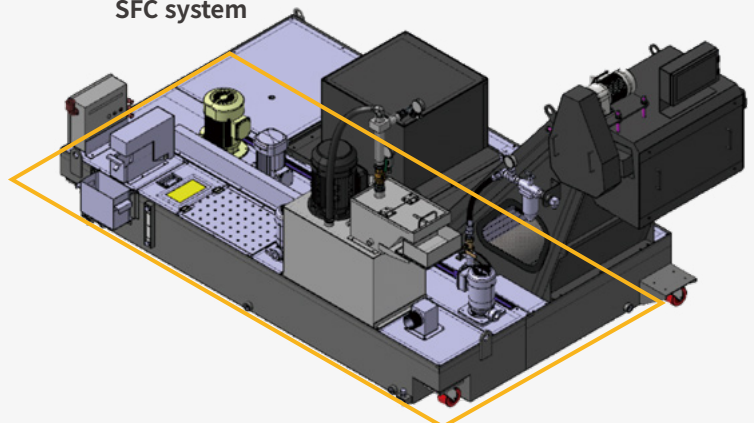


## SFC(Sludge Free Coolant tank)\* **OPTION** \* Selecting the SFC option requires a coolant chiller

This coolant tank system is intended for automatically eliminating the fine chips and sludge deposited on the bottom of the tank.

- Preventing the sludge from being deposited by causing the coolant to flow.
- Collecting and separating sludge using the cyclone filter and the additional pump
- Extending coolant life (Cost saving)
- Reducing the frequency of cleaning (Machine operating ratio and productivity increased)
- Best suited for unmanned automation solutions

SFC system



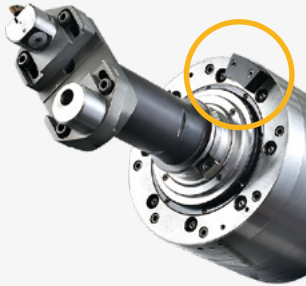
# PERIPHERAL EQUIPMENT | CONVENIENT FUNCTIONS

This operator-oriented design is intended for providing the customer with convenience and safety.

## User-oriented design

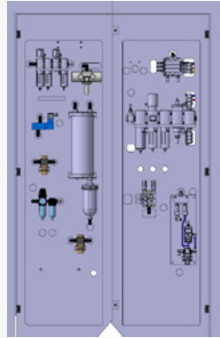
Internal footing and an anti-door-lock function are provided to prevent the operator from being locked in the machine and to guarantee the operator's safety. The installation of a centralized service unit and screen panel enhances the operator's convenience.

**Coolant flushing on the spindle head to keep clean from chips over the spindle**



**Centralized utility service unit**

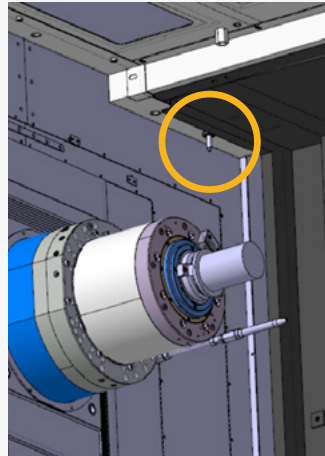
The utilities service unit is centralized for convenient maintainability.



**ATC screen panel**



**Anti-door lock device**



**Safety has been improved with machine internal footings**



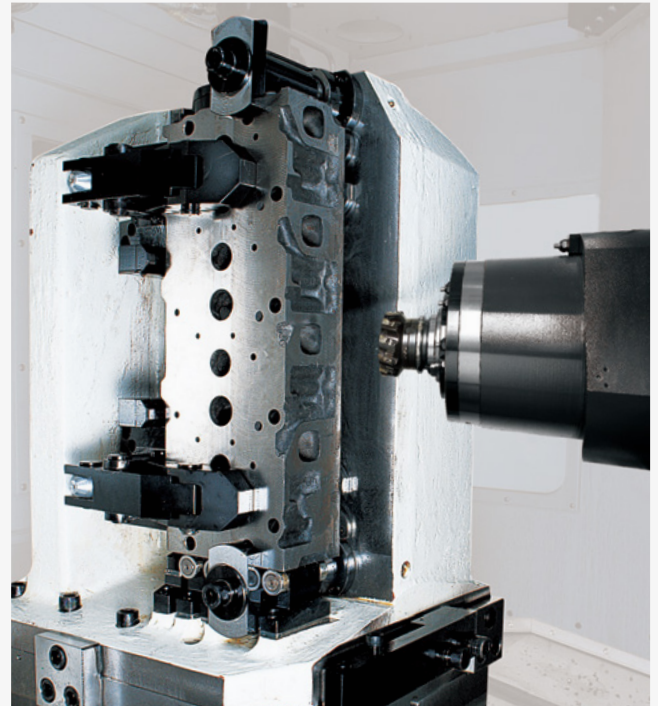
## Application

We offer a wide range of solutions that can be optimized to suit each customer's needs.

### Clamping Fixtures

The following hydraulic and pneumatic fixture options are available for setting up workpieces:

**List of workpiece clamping fixtures (hydraulic/pneumatic) OPTION**



Hydraulic/pneumatic fixture pot    Clamping fixture hydraulic motor

- A/B Line : 2, 4, 6, 8 Pairs (Including solenoid valve)
- P/T Line : 2, 4, 6, 8 Pairs (Solenoid valve not included)
- 2.2 kW / 7MPa
- 3.7 kW / 15MPa
- 5.5 kW / 21MPa

※ Please provide us with detailed specifications on the order sheet

### Hydraulic/pneumatic fixture lines on the pallet bottom

Hydraulic/pneumatic fixture lines can be built into the table of the pallet bottom to increase the efficiency of the machine interior space, creating a safer working environment.



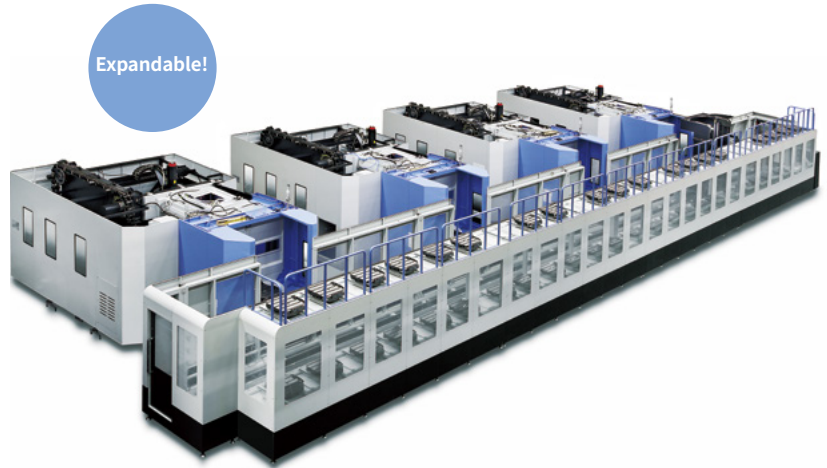
# PALLET SYSTEM

## Pallet System (Linear) 5500

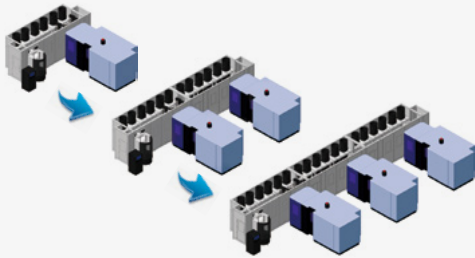
Pallet System (Linear) 5500 are wonderfully designed, allowing them to provide a high level of automation system for the customers.

### Features

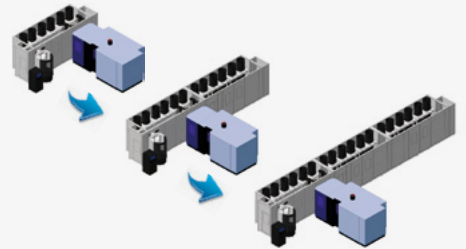
- Servo-driven system providing reliability
- Easy to install
- Simple on-site modification



### Improved Productivity



### Extended automation run-time



## DN Round Storage 5500

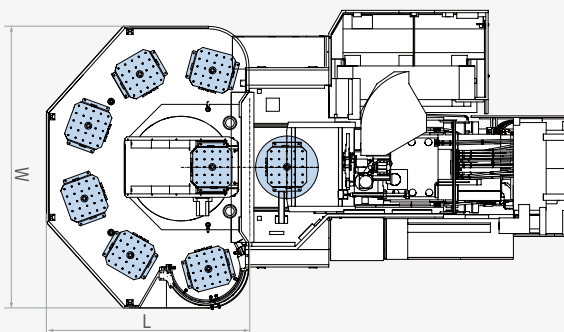
Compact automation system for BT 50 HMC machines

### Features

- Servo-driven system providing reliability
- Easy to install
- Simple on-site modification



### Dimensions



Models		Width (W)	Length (L)
NHP 5500	mm (inch)	3848 (151.5)	2674 (105.3)

# FANUC 31i PLUS

Fanuc 31i 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 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



Item	Specifications	F31i PLUS	
		NHP 5500/6300	2nd Gen.
Controlled axis	Controlled axes	4 (X,Y,Z,B)	
	Simultaneously controlled axes	4 axes	
	Additional controlled Axis	Add 1 axis (5 <sup>th</sup> Axis)	○
Data input/output	Fast data server		○
	Memory card input/output		●
	USB memory input/output		●
Interface function	Large capacity memory(2GB)*2	Note *2) Available Option only with 15" Touch LCD (iHMI Only)	○
	Embedded Ethernet		●
	Fast Ethernet		○
Operation	Enhanced Embedded Ethernet function		●
	DNC operation	Included in RS232C interface.	●
	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
Feed function	Tilted working plane indexing command	G68.2 TWP	○*
	AI contour control II	G5.1 Q <sub>1</sub> , 600 Blocks	○*
	AI contour control II	G5.1 Q <sub>1</sub> , 1000 Blocks	●
Operation Guidance Function	High smooth TCP		X
	EZ Guidei (Conversational Programming Solution)		●
	iHMI with Machining Cycle	Note *1) Only with 15" Touch LCD standard	●
Setting and display	EZ Operation package		●
	CNC screen dual display function		●
Network	FANUC MT Connect		⊕
	FANUC OPC UA		⊕
Others	Display unit	15" color LCD	X
		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	X
		10240M(4MB)_1000 programs	●
		20480M(8MB)_1000 programs	○
		2560M(1MB)_2000 programs	○
		5120M(2MB)_4000 programs	○
		10240M(4MB)_4000 programs	○
	20480M(8MB)_4000 programs	○	

Network: FANUC MTConnect and FANUC OPC UA available.

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

● Standard ○ Optional X N/A ⊕ Available

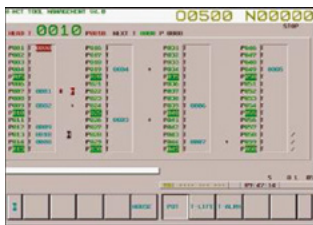
# EZ WORK

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 management II **OPTION**

- Tool magazine control
- Tool life management
- Tool life prediction
- Tool state control
- Balluff Tool ID function



### 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



### Work Load Control

Optimal machining values can be automatically entered into parameters according to the weight of the workpiece placed on the table



### PMC Soft Panel Switch

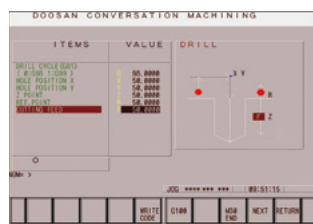
Manual operations that occur continuously in each stages of APC,ATC change command

## Operation support, Help desk functions



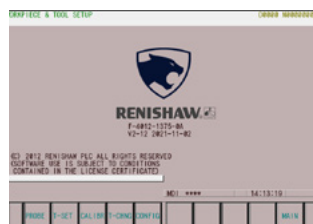
### Operation rate

- 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

# CONVENIENT OPERATION

## SIEMENS SINUMERIK ONE

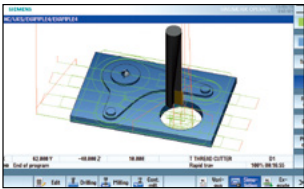
### Even Faster & Easier processing + 398mm screen

All programming, set-up, actual machining and verification process are getting easier and faster. Especially, intuitive conversational programming guidance with 3D UI(user interface) on 18.5" large touch screen is helpful for unskilled engineers.

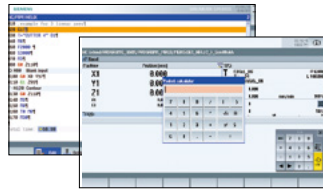
- 18.5 inch touch screen
- 50% improvement in processing speed(compared to S840D)
- Graphic programming
- PLC-based flexible automation/peripheral device expandability



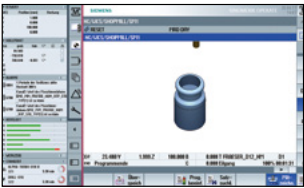
### Conversational convenient function



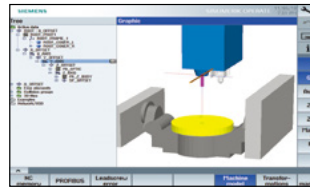
Simulation and machining contour monitoring



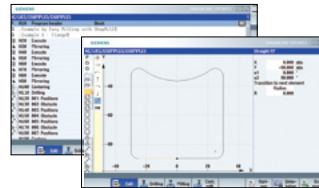
Smart function



Side screen widget



3D collision avoidance and collision avoidance ECO



Shop mill part programming

## NUMERIC CONTROL SPECIFICATIONS

SIEMENS

Item	Specifications	S-ONE
<b>Controlled axis</b>	Controlled axes	4 axes (X, Y, Z, B)
	Simultaneously controlled axes	4 axes
<b>Data input/output</b>	Memory card input/output	●
	USB memory input/output	●
<b>Interface function</b>	Ethernet	●
	Execution from External Storage(EES)	○
<b>Operation</b>	On network drive	●
	On USB storage medium, e.g. memory stick	●
	Workpiece coordinate system	●
<b>Program input</b>	Addition of workpiece coordinate system	●
		G54 - G57
<b>Interpolation &amp; Feed function</b>	Top surface	○
	Look ahead number of block	1000
	3D simulation, finished part	●
<b>Programming &amp; Editing function</b>	Simultaneous recording	●
	DXF Reader for PC integrated in SINUMERIK Operate	○
	ShopMill	●
<b>Operation Guidance Function</b>	EZ Work	●
	Setting and display	●
<b>Network</b>	Operation via a VNC viewer	●
	MTConnect	⊕
<b>Others</b>	OPCUA	○
	18.5" color display with touch screen	●
	21.5" color display with touch screen	○
	CNC user memory	10 MB
	Max. CNC user memory	28 MB
	Collision avoidance (machine, working area)	○
	Collision avoidance ECO (machine, working area)	○
	Evaluation of internal drive	○
	CNC user memory extend	○
TOOL ID	○	

# CUSTOMIZED USER-FRIENDLY FLEXIBLE OPERATION SOLUTIONS

CUFOS is a PC based control system created by DN Solutions. equipped with intuitive user-friendly functions such as a smart phone screen and easy customization, CUFOS helps to improve operational efficiency and performance for the user.

## FEATURES

### 19 INCH TOUCHSCREEN

- Program memory : 40GB
  - App-based Interface like smart phone, tablet PC

### EASY PROGRAMMING

- Sketch cycle : Gear skiving, Gear hobbing, Polygon turning (continuously being added...)
- SSD data server : Program file sharing/managing (CF card/USB/External PC)

### EASY SET-UP/OPERATION

- Tool management for PUMA SMX
- CPS(collision protection system)
- Manual viewer
- File manager & PDF viewer

### EASY MAINTENANCE

- Status monitor
- Alarm guidance
- Maintenance manager

# CUFOS



# CUFOS INTERFACE

## User-friendly screen controls

CUFOS, the PC-based control created by DN Solutions, is an integrated system solution using an intuitive 19-inch touchscreen. The system provides a convenient operator interface, a high level of customization and many useful high technology apps.



### Supports various apps in three fields—setup, machining and utility

It provides easy configuration by allowing users to add and edit functions on the home screen according to job requirements.

### Intuitive operation via touch screen

Simple customization is available for specific work environments.



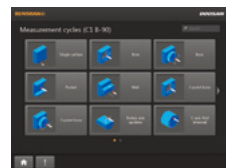
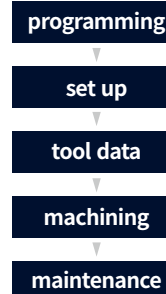
## CUFOS Open CNC

### CUFOS operation for enhanced productivity

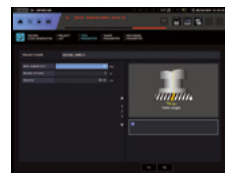
The CUFOS operating system is based upon the integration of all aspects of the manufacturing process, including setting, machining and maintenance. It consolidates up-to-date software technology created by DN Solutions, to improve overall efficiency and productivity. Using the system's modular construction, each function can be easily integrated with external PC software systems and applications, such as CAM and Tool Data systems.



CUFOS



PC software



Applications



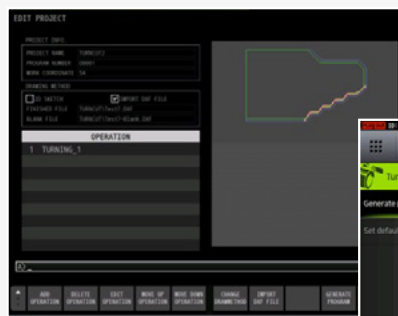
## CUFOS: TURN CUT

### Turn cut

Generate tool path for Turn-cut operation

#### Applicable models: NHP series

- Linear scales and ballscrew shaft cooling are required on the machine.
- Renishaw NC4 should be included depending on the level of precision required by the customer



Supports tool path generation for internal or external machining with a horizontal machining center.

- Reduced setup time
- Users can easily generate tool paths for programming turn-cut operations based on profile shapes such as linear, arc, chamfer, round, groove, and simple threading
- Reduced investment costs for special tooling

# EASY SET-UP | OPERATION

Tool management, collision protection between machine unit/ workpiece/tooling and various user guidance provide higher productivity and user-convenience.

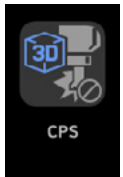


## Tool management

DN Solutions EZ work tool management

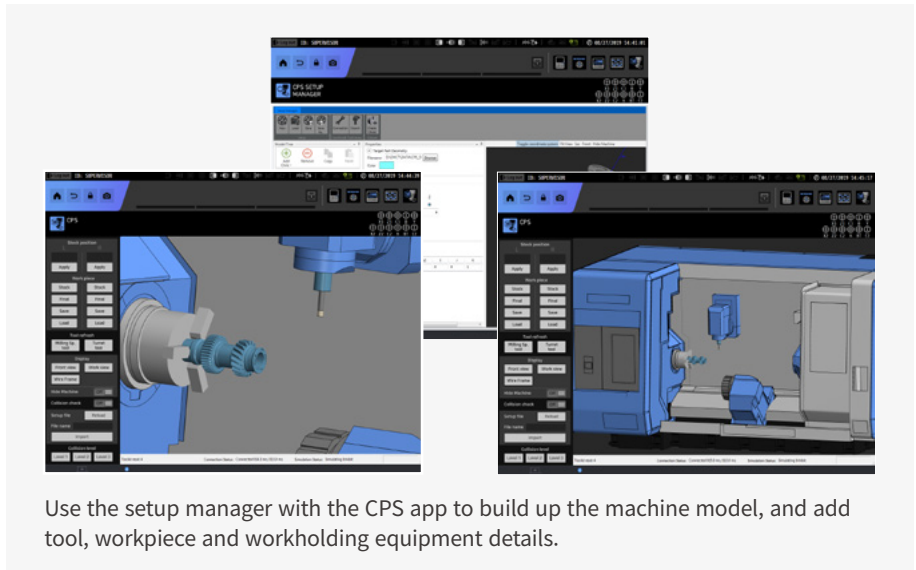
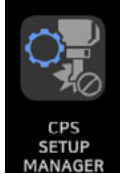


Includes a summary monitoring screen and gives the operator easy access to DN Solutions's own tool management system which provides comprehensive real time data on each tool, such as remaining tool life and status of tool groups.

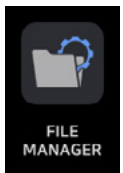


## CPS (Collision protection system)

A function to prevent real-time collision between the tool and equipment / machine elements inside the working area.



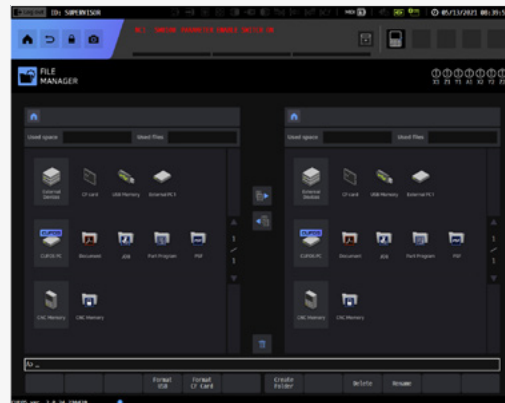
Use the setup manager with the CPS app to build up the machine model, and add tool, workpiece and workholding equipment details.



## File Manager & PDF viewer

Ability to transfer various type of files including CF cards, USB memory, external PCs and memory inside CUFOS, NC programs between NC memory.

PDF drawings can be directly open on the screen via PDF viewer



# EASY MAINTENANCE

Keeping a machine in best condition through status monitoring, alarm guidance and maintenance manager functions.



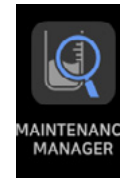
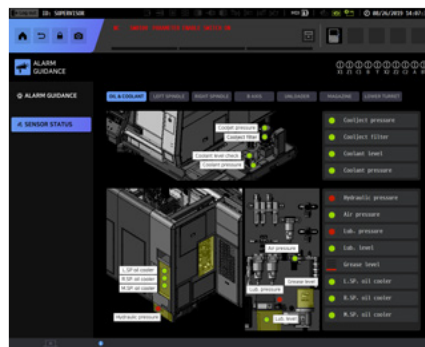
## Status monitoring

Monitoring various information such as spindle, milling spindle, feed axis, cycle time, program/tool no. on one screen.



## Alarm guidance

Presenting an operator alarm's causes and troubleshooting guides and sending an email when the alarm last for a long time.



## Maintenance manager

Monitors the status of machine and control elements, and confirms the alarm condition and maintenance schedule for preventative maintenance.



# CUFOS: STANDARD | OPTIONAL SPECS

A diverse range of functions and apps are Status monitoring available to meet your needs.

Description	Features	NHP / NHM
Hardware	19" Color LCD Screen	●
	Main RAM memory	16 GB ●
	Storage Memory	SSD 240GB ●
	2 point-touch panel port	●
	Windows Embedded standard 10 Operating System	●
Applications	DN Solutions Tool Management	○
	Collision Protection System	○
	SSD Data server Application (Note: In case of using this application, Data server (for Standard CNC) function can not be used)	●
	Turncut	○
	Set and Inspection Application (cooperated with Renishaw)	○
	File Manager	●
	FTP Server service	●
	Smart key access control application	○
	Memo Application	●
	Machine status Monitor application	●
Alarm guidance application	●	
iHMI basic application	Sketch Cycle	X
	EOP	●
	NC Control	●
	FANUC iHMI	●
	Manual viewer Application	●
	Calendar Application	●
	Browser Application	●
	Periodic Maintenance Application	●
Data Logger Application	●	
Servo viewer Application	●	

# POWER | TORQUE

NHP 5500

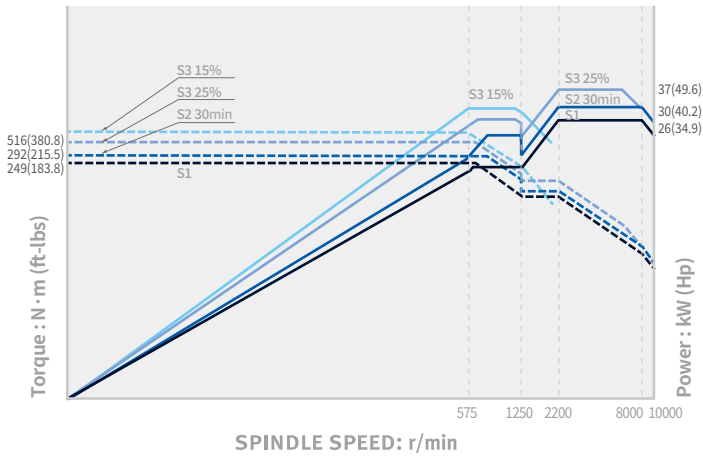
## 10000 r/min FANUC

Max. spindle power

**37/26** kW  
(49.6 / 34.9 Hp)

Max. Spindle torque

**516** N·m  
(380.8 ft-lbs)



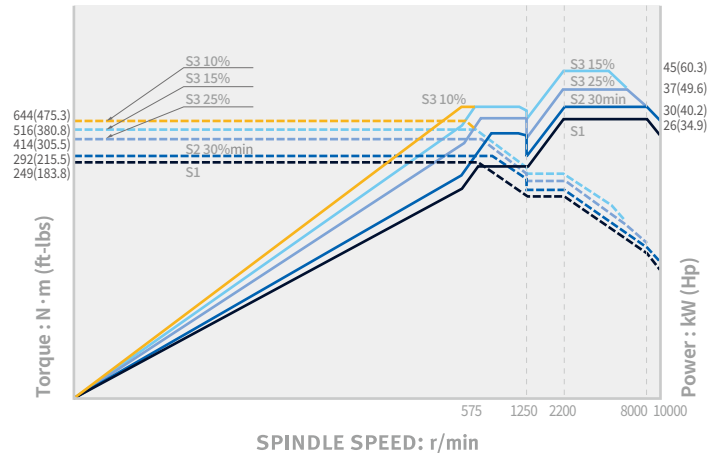
## 10000 r/min FANUC OPTION

Max. spindle power

**45/26** kW  
(60.3 / 34.9 Hp)

Max. Spindle torque

**644** N·m  
(475.3 ft-lbs)



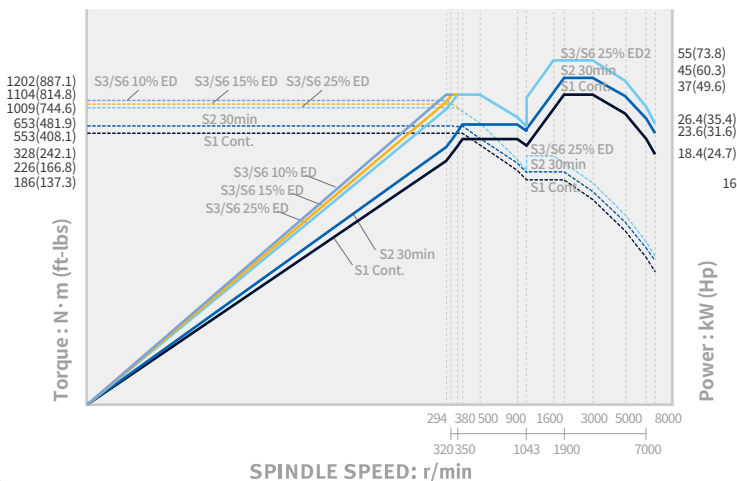
## 8000 r/min FANUC OPTION

Max. spindle power

**55/30** kW  
(73.8 / 40.2 Hp)

Max. Spindle torque

**1009** N·m  
(744.6 ft-lbs)



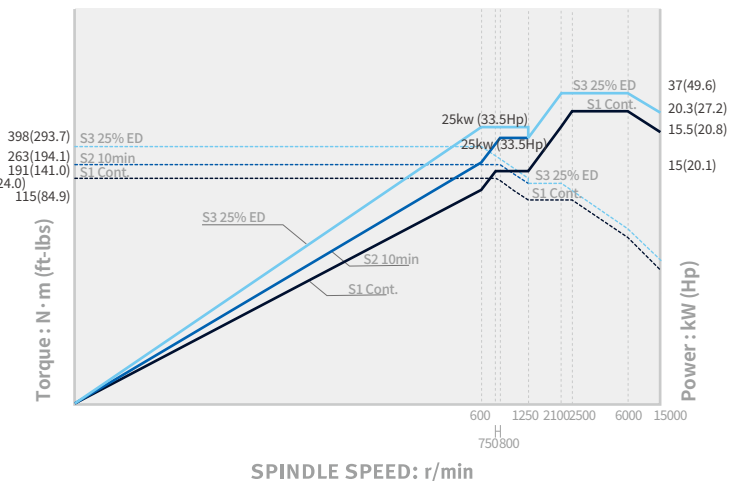
## 15000 r/min FANUC OPTION

Max. spindle power

**37/30** kW  
(49.6 / 40.2 Hp)

Max. Spindle torque

**398** N·m  
(293.7 ft-lbs)



# POWER | TORQUE

NHP 6300

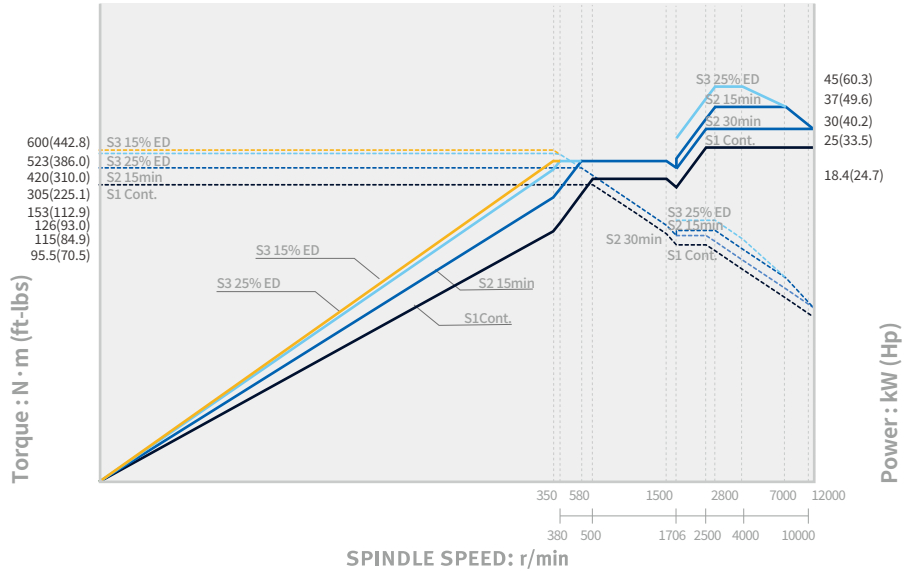
## 12000 r/min FANUC

Max. spindle power

**45/25** kW  
(60.3 / 33.5 Hp)

Max. Spindle torque

**600** N·m  
(442.8 ft-lbs)



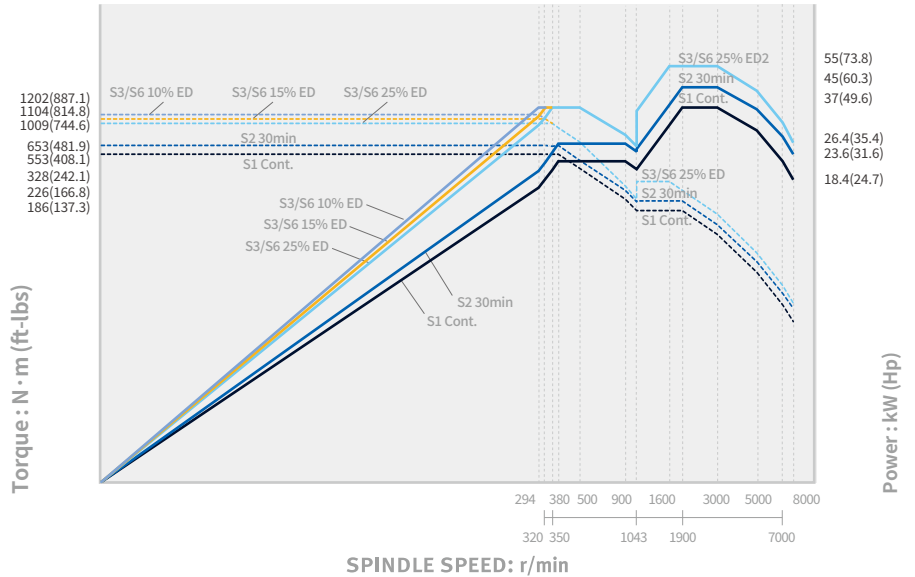
## 8000 r/min FANUC OPTION

Max. spindle power

**55/37** kW  
(73.8 / 49.6 Hp)

Max. Spindle torque

**1202** N·m  
(887.1 ft-lbs)



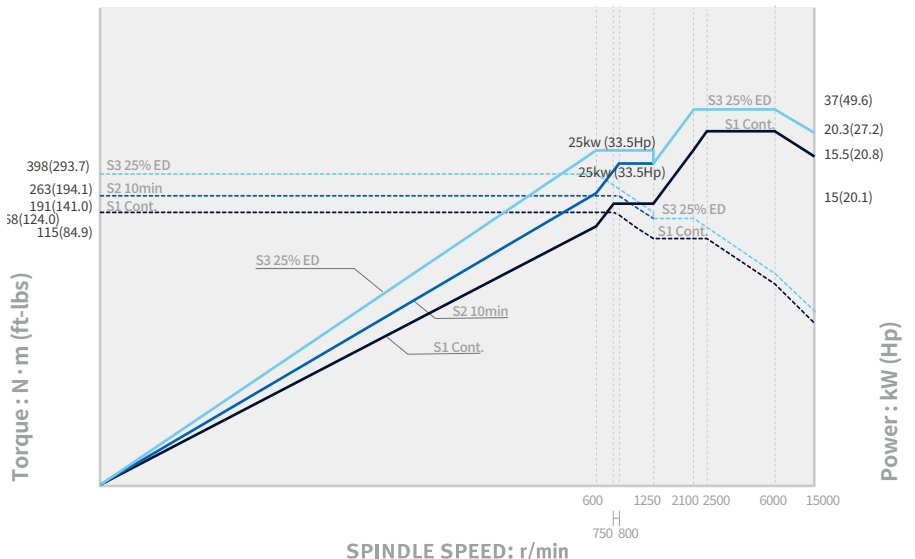
## 15000 r/min FANUC OPTION

Max. spindle power

**37/30** kW  
(49.6 / 40.2 Hp)

Max. Spindle torque

**398** N·m  
(293.7 ft-lbs)

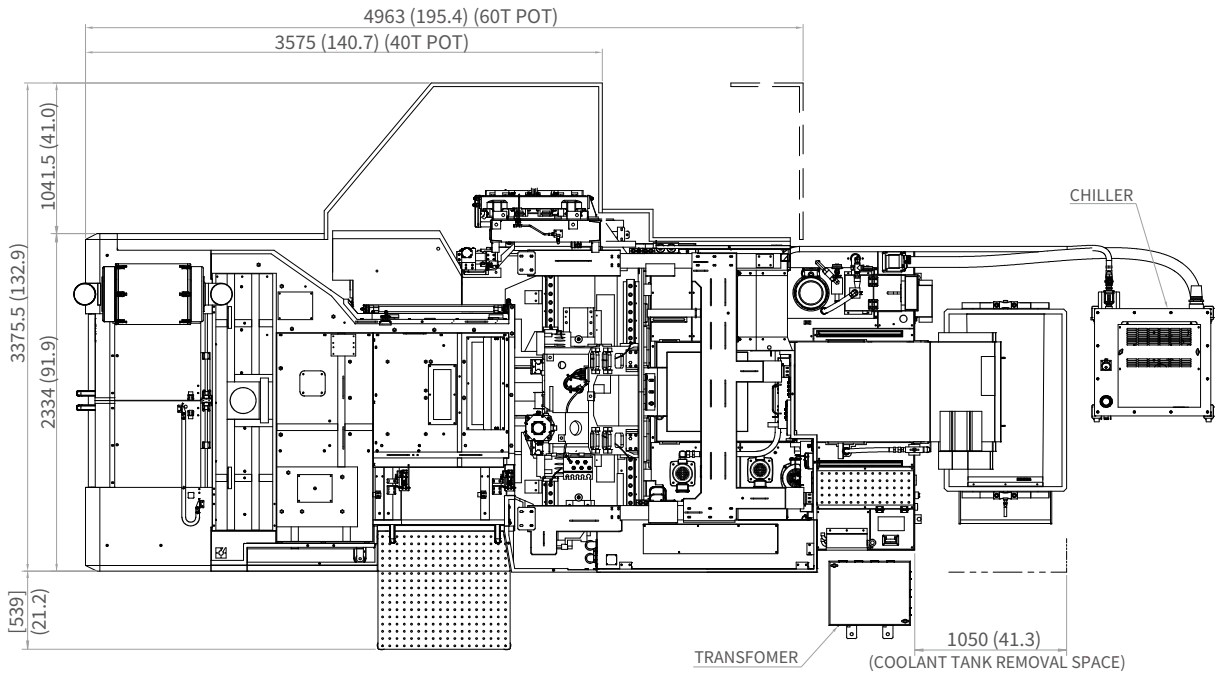


# DIMENSIONS

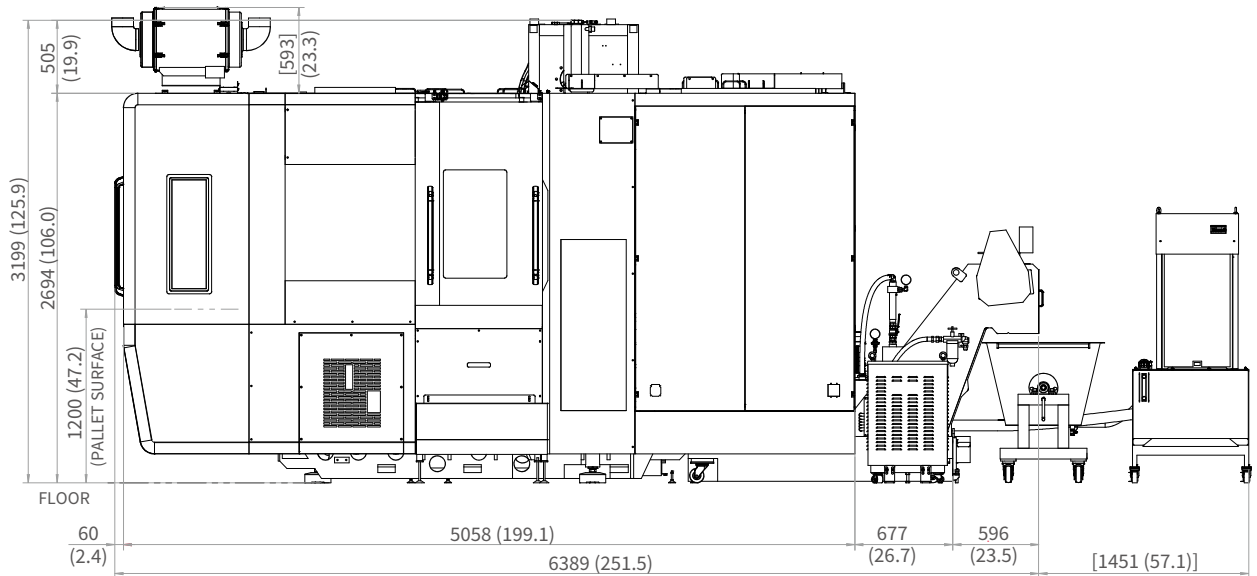
NHP 5500

Units : mm (inch)

TOP



FRONT

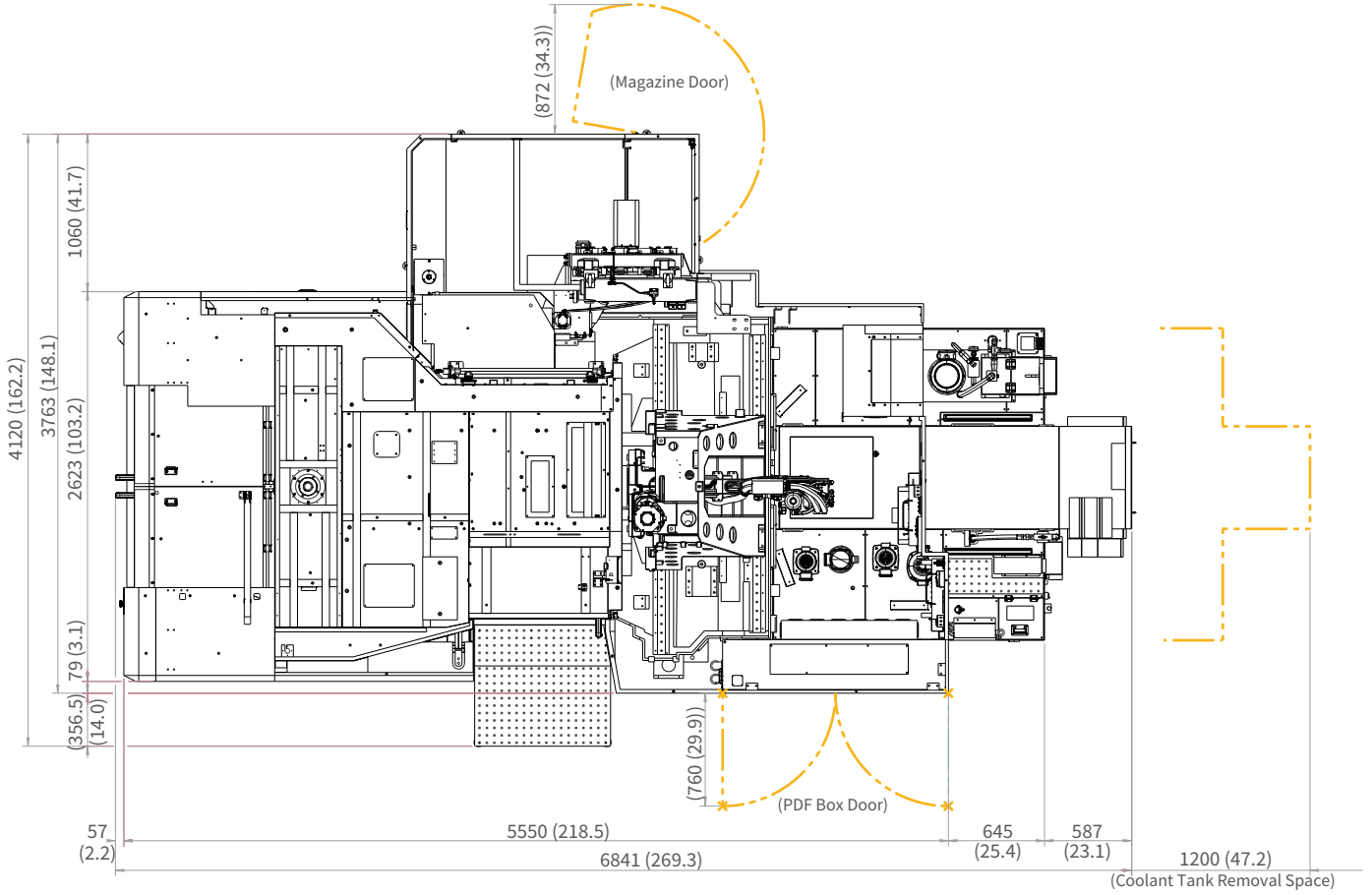


# DIMENSIONS

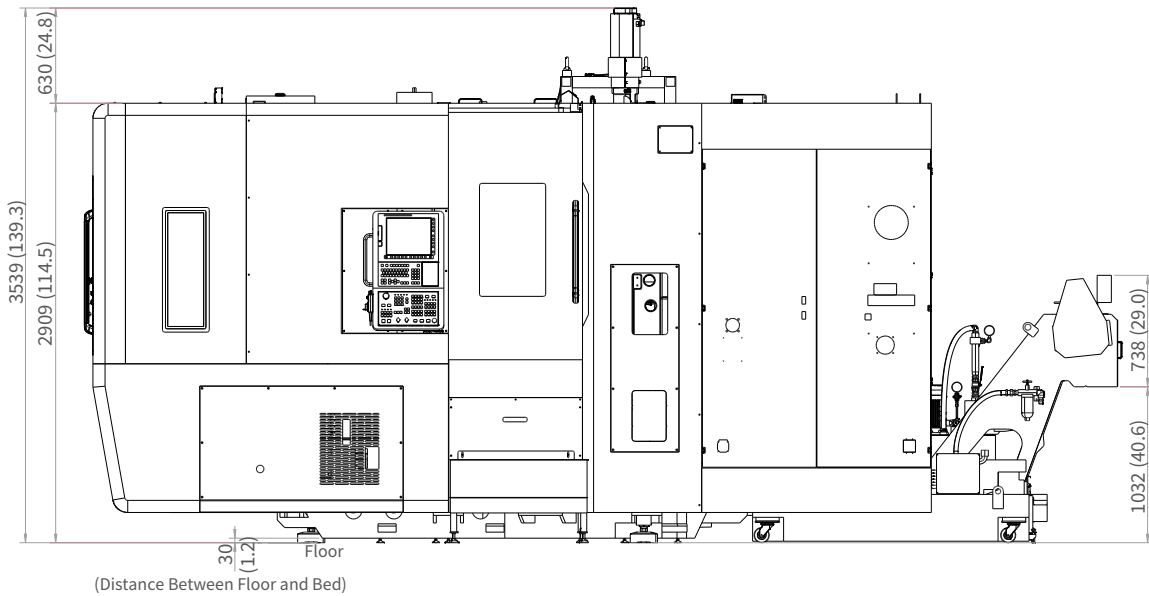
## NHP 6300

Units : mm (inch)

TOP



FRONT

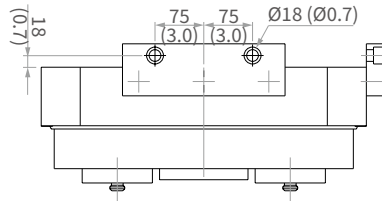
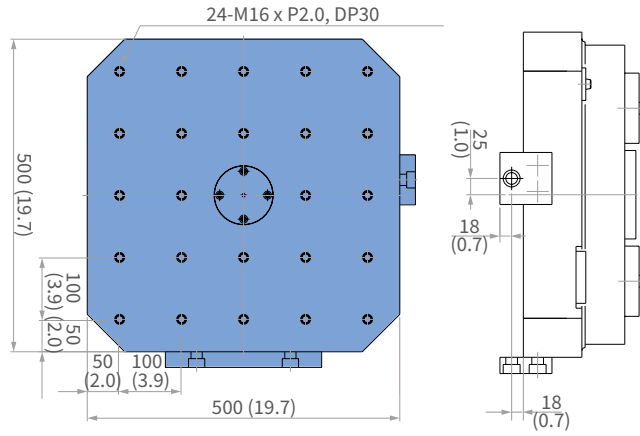


\* Some peripheral equipment can be placed in other areas.

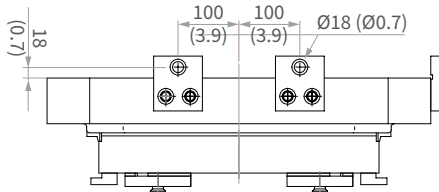
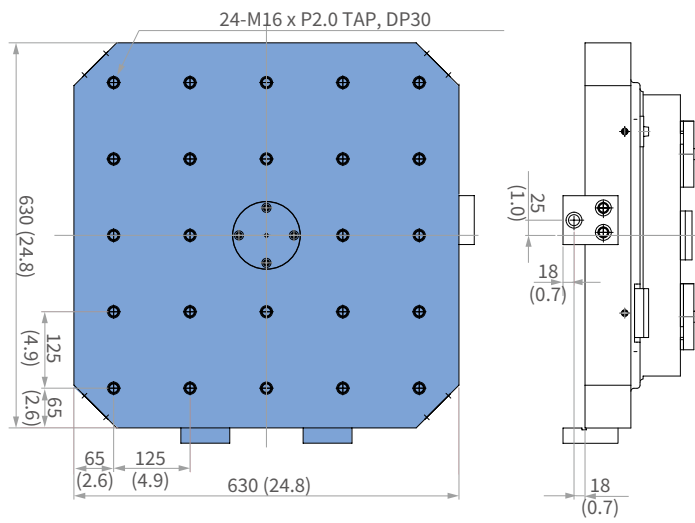
# TABLE DIMENSIONS

## NHP 5500

Units : mm (inch)



## NHP 6300



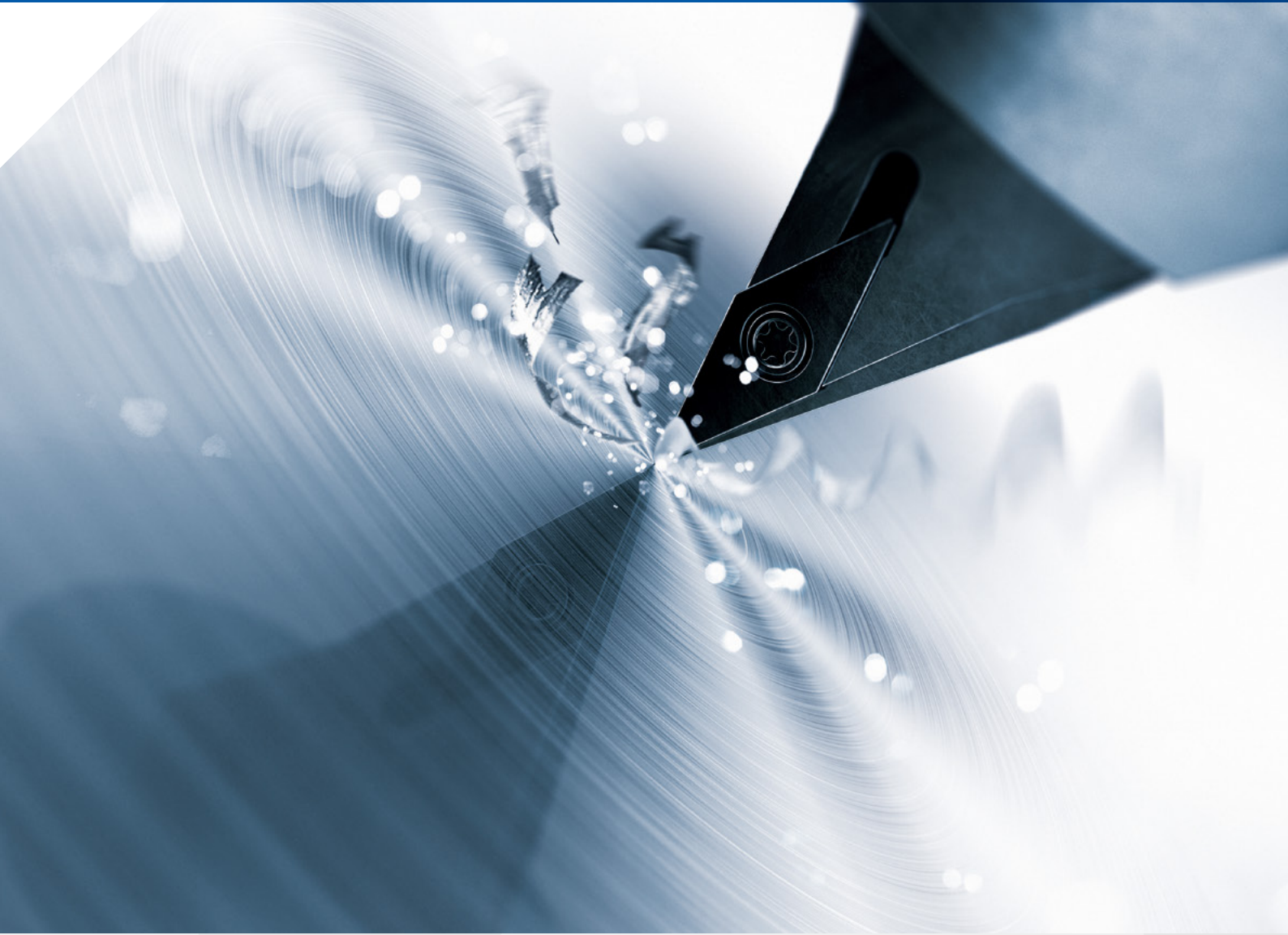


# MACHINE SPECIFICATIONS

Description		Unit	NHP 5500 <sup>2nd Gen.</sup>	NHP 6300 <sup>2nd Gen.</sup>	
Cutting capacity	Travel distance	X-axis	mm (inch)	800 (31.5)	1050 (41.3)
		Y-axis	mm (inch)	750 (29.5)	900 (35.4)
		Z-axis	mm (inch)	900 (35.4)	1000 (39.4)
	Distance from spindle nose to table center		mm (inch)	100~1000 (3.9~39.4)	100~1000 (3.9~39.4)
	Distance from spindle center to table top		mm (inch)	100~850 (3.9~33.5)	75 ~ 1075 (3.0 ~ 42.3)
Feed rate	Rapid feed rate	X-axis	m/min (ipm)	60 (2362.2)	60 (2362.2)
		Y-axis	m/min (ipm)	60 (2362.2)	60 (2362.2)
		Z-axis	m/min (ipm)	60 (2362.2)	60 (2362.2)
	Cutting feed rate		mm/min (ipm)	30000 (1181.1)	30000 (1181.1)
Pallet	Pallet type			24-M16xP2.0	24-M16xP2.0
	Pallet indexing angle		deg	1 {0.001(DD, RGC)}	1 {0.001(DD, RGC)}
	Max. loading capacity		kg (lb)	800 {1000} (1763.7 {2204.6})	1500 (3306.9)
	Max. workpiece size		mm (inch)	Ø900 x 1100 (35.4 x 43.3)	Ø1050 x 1350h (Ø41.3 x 53.1h)
	Pallet size		mm (inch)	500 x 500 (19.7 x 19.7)	630 x 630 (24.8 x 24.8)
Spindle	Max spindle speed		r/min	10000 {10000, 8000, 15000}	12000 {8000, 15000}
	Taper			ISO #50, 7/24 TAPER	ISO #50, 7/24 TAPER
	Max. torque		N·m (ft·lbs)	516 (380.6) {644, 1009, 398 (475.3, 744.6, 293.7)}	600 (442.8) {1202, 398 (887.1, 293.7)}
Auto pallet changer (APC)	No. of pallets		ea	2	2
	Pallet change time		s	12	16
	APC indexing angle (rotation)		deg	90	90
Automatic tool changer (ATC)	Type of tool shank			BT50 {CAT50,DIN50,HSK-A100}	BT50 {CAT50,DIN50,HSK-A100}
	Tool storage capacity	Pot type	ea	40 {60}	40 {60}
		Chain type	ea	{90, 120, 150}	{90, 120, 150}
		Matrix type	ea	{196, 256, 316, 376}	{196, 256, 316, 376}
	Max. tool diameter	With adjacent tool	mm (inch)	125 (4.9) (Pot type) 130 (5.1) (Chain/Matrix type)	125 (4.9) (Pot type) 130 (5.1) (Chain/Matrix type)
		W/O adjacent tool	mm (inch)	320 (12.6)	320 (12.6)
	Max. tool length		mm (inch)	550 (21.7) (BT/CAT/DIN) 620 (24.4) (HSK)	630 (24.8) (BT/CAT/DIN), 700 (27.6) (HSK)
	Max. tool weight		kg (lb)	25 {30} {55.1 {66.1}}	25 {30}
	Max. tool moment		N·m (ft·lbs)	34.3 (25.3)	34.3
	Tool change time (tool to tool, tools)		s	1.7 (Less than 12kg)	1.7(Less than 12kg)
	Tool change time (chip-to-chip)		s	4.7 (Less than 12kg)	5.1(Less than 12kg)
Motor	Spindle motor power		kW (Hp)	37/26, 45/26, 55/30, 37/30 (49.6/34.9, 60.3/34.9, 73.8/40.2, 49.6/40.2)	45/25, 55/37, 37/30 (60.3/33.5, 73.8/49.6, 49.6/40.2)
Power source	Power consumption		kVA	66.99	79.58
	Compressed air pressure		Mpa	0.54	0.54
Tank capacity	Coolant tank capacity		L	1100	1100
	Lubricant tank capacity		L	1.4	1.4
Machine dimensions	Height		mm (inch)	3199 (125.9)	3540 (139.4)
	Length		mm (inch)	6389 (251.5) (Length with rear conveyor)	6850 (269.7)
	Width		mm (inch)	3375 (132.9)	3775 (148.6)
	Weight		kg (lb)	14000 (30864.3)	18000 (39682.6)

# WHY DN SOLUTIONS

The DN Solutions promise, MACHINE GREATNESS, has two important meanings. The first is simple: DN Solutions makes great machines. The second is a challenge to our end-users. With a product line that is this comprehensive, accurate and reliable, we equip our customers to machine greatness. The big question: *Why should you choose DN Solutions over other options?* Here's why...



## UNBEATABLE MACHINES

You won't find a more comprehensive range or a better combination of value, performance and reliability anywhere else.

## READILY AVAILABLE - ANYWHERE IN THE WORLD

Machining centres (including 5-axis machines), lathes, multi-tasking turning centres and mill-turn machines, and horizontal borers with best-in-class specifications are all available...ready to install.

## ROBUST PRODUCT LINE

We offer an impressive range of machine models and hundreds of configurations. Whatever your machining needs and requirements, there's a DN Solutions for you.

## EXPERT SERVICE

Our dedicated, experienced and knowledgeable team is totally committed to improving your productivity, growth and success.

# 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



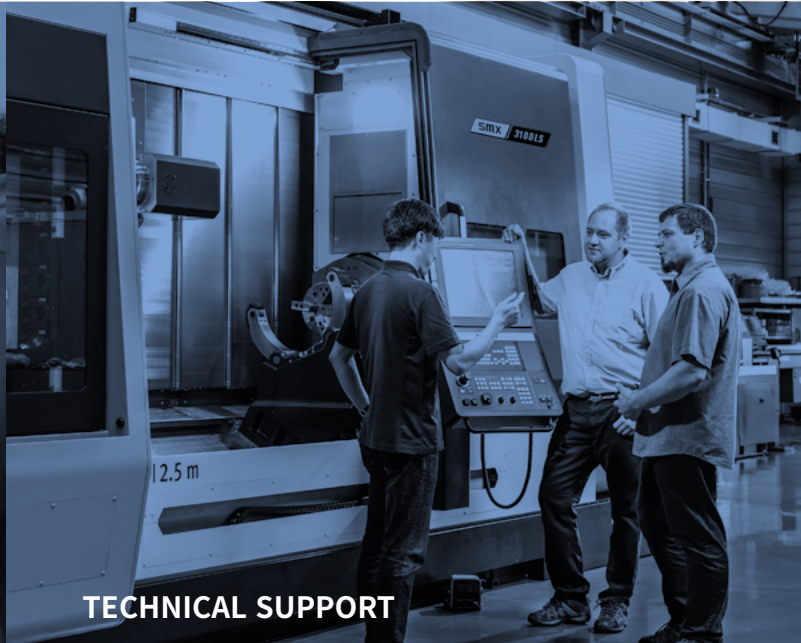
### PARTS SUPPLY

- 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

# 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.



<b>66</b>	COUNTRIES
<b>140</b>	+ SALES NETWORKS
<b>3</b>	FACTORIES
<b>6</b>	REGIONAL HQS





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