Doosan Machine Tools

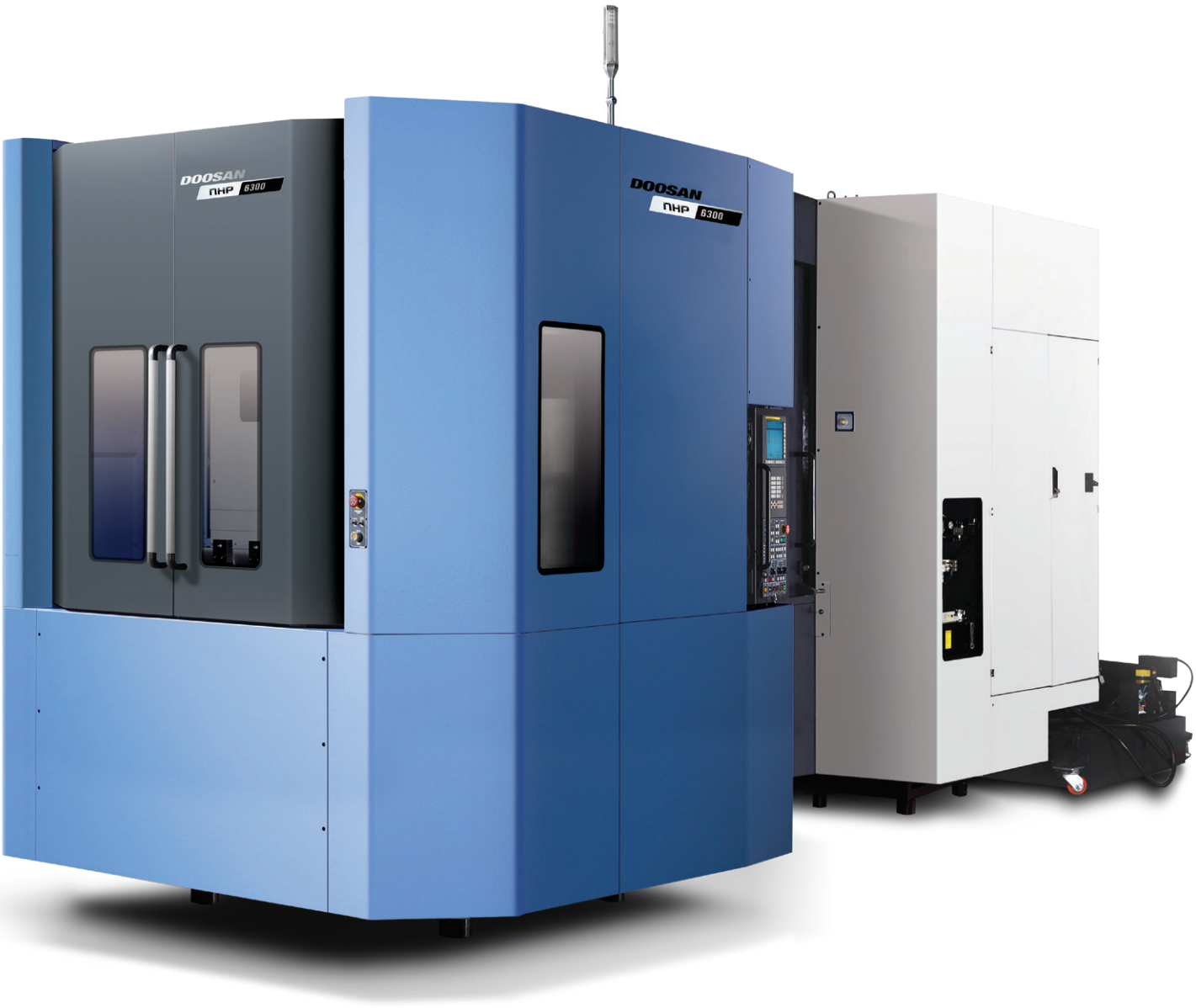
HIGH-SPEED, HIGH-PRODUCTIVITY
HORIZONTAL MACHINING CENTER

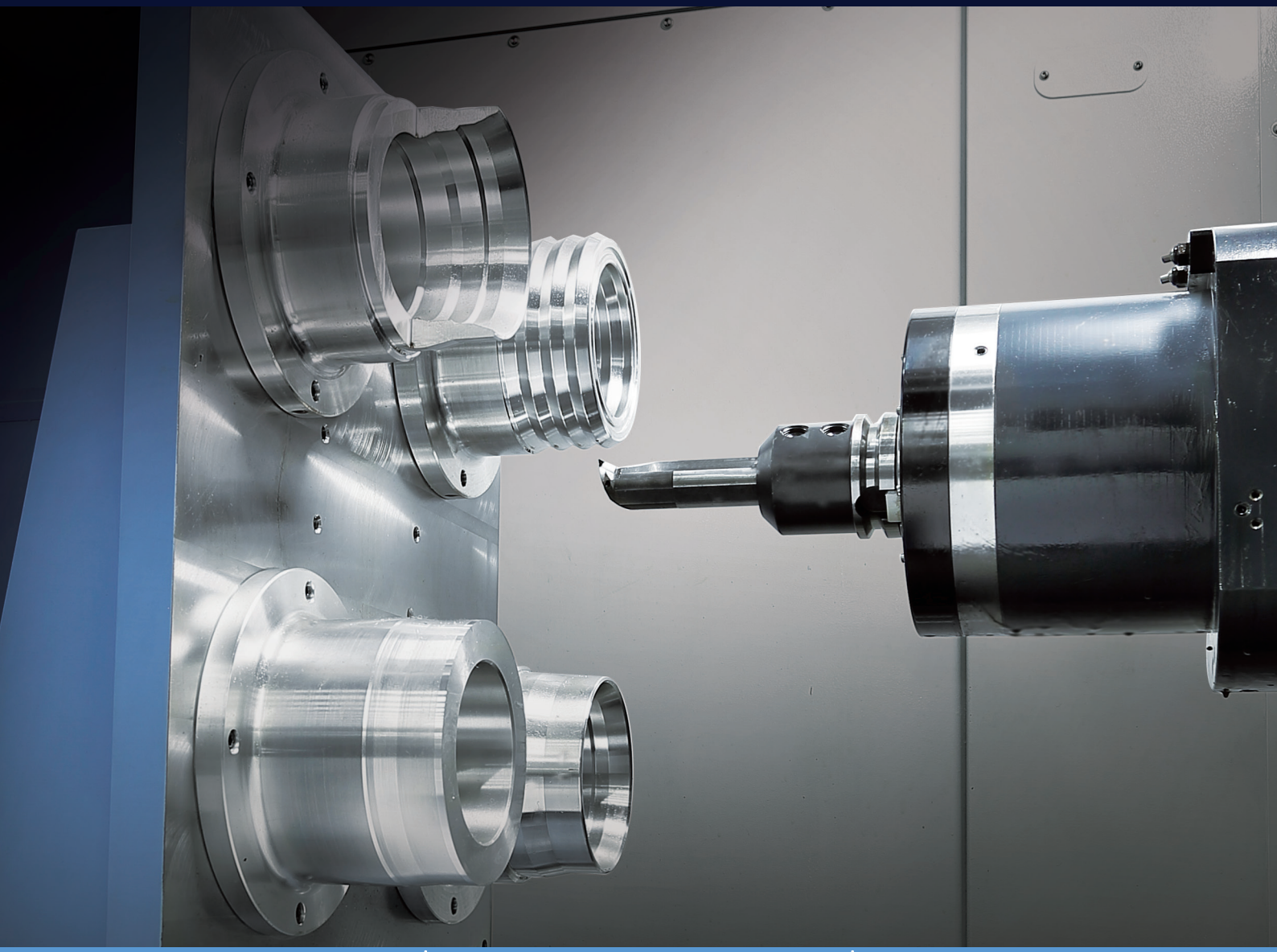
NHP

5500 • 6300 • 8000

NHP 5500 · 6300 · 8000

NHP series machines are designed to improve your productivity with their high speed, powerful cutting performance and world-class specifications. The machines' one piece bed structure, featuring step guideways, provides extra rigidity and impressive rapid rates ensure high productivity. In addition all NHP machines are equipped with a range of user-friendly functions and features.





HIGH RIGIDITY ONE-PIECE BED

The high rigidity one piece bed is ideal for heavy-duty machining.

HIGH PRODUCTIVITY AND RELIABILITY

NHP machines' rapid rates have been increased through the adoption of a high-speed axis drive system. Servo-driven automatic tool changers (ATC) and automatic pallet changers (APC) increase productivity and improve process reliability. (An increased pallet size option is available on the NHP5500 and 6300 machine models).

USER-FRIENDLY FUNCTIONS

A range of new user-friendly features and functions have been introduced to make operators' lives easier and more productive.

BASIC STRUCTURE

Step guide-type high-rigidity bed supports even-higher productivity.

Travel distances

NHP 5500 (X/Y/Z)

800/750/850 mm
31.5/29.5/33.5 inch

NHP 6300 (X/Y/Z)

1050/900/1000 mm
41.3/35.4/39.4 inch

NHP 8000 (X/Y/Z)

1400/1200/1370 mm
55.1/47.2/53.9 inch

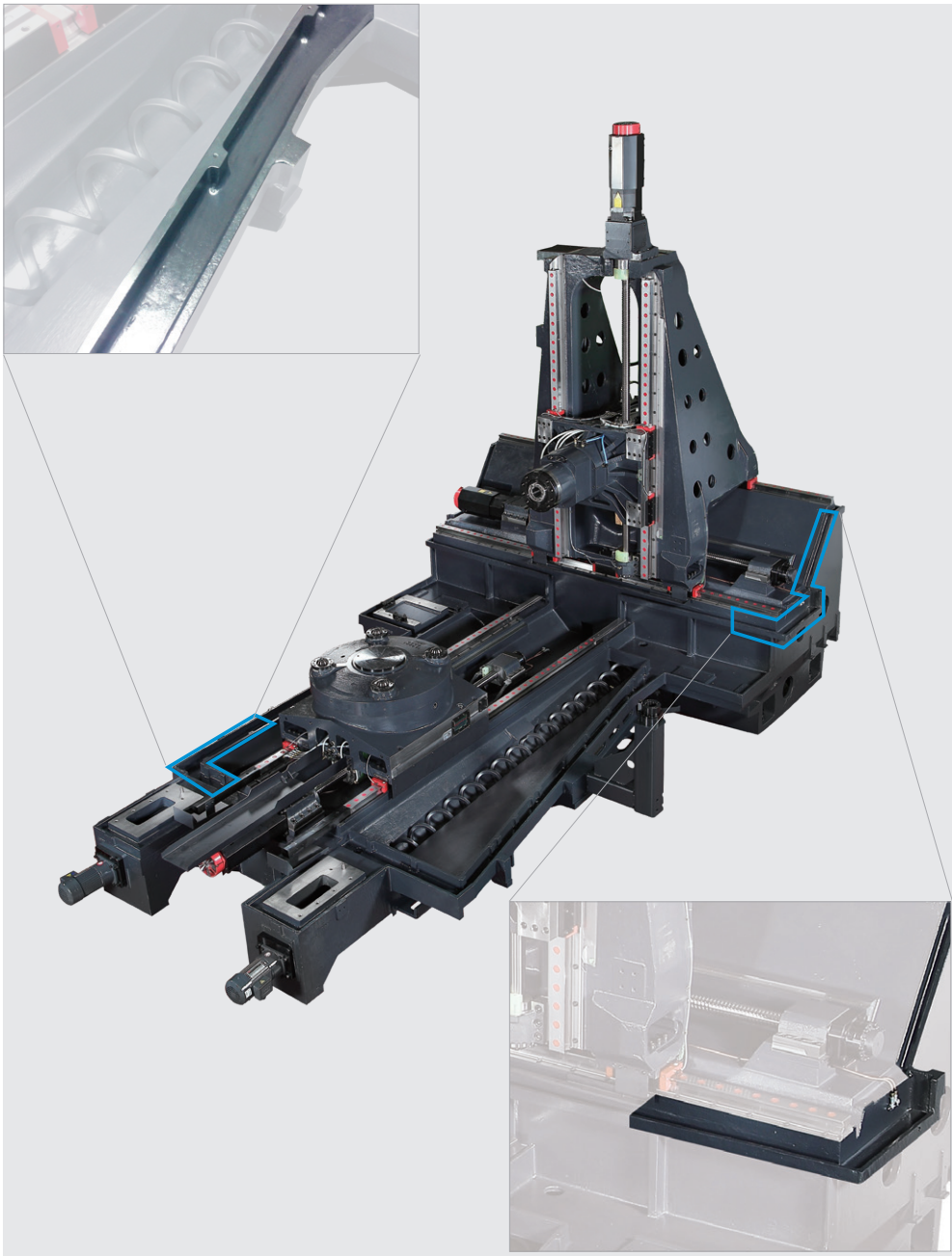
Rapid rates

NHP 5500 / 6300

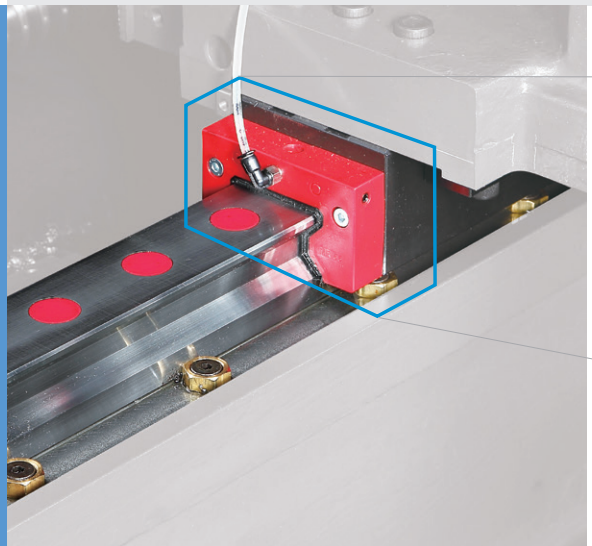
60 m/min
2362.2 ipm

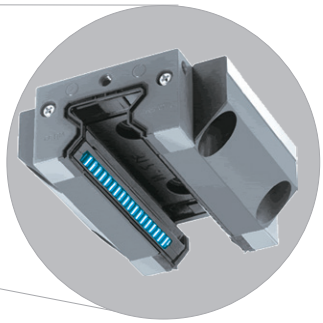
NHP 8000

50 m/min
1968.5 ipm



All axes feature roller-type LM guideways and high-precision, low-noise producing ball screws to improve performance and accuracy.





High-rigidity roller-type LM guideways ensure best-in-class accuracy

TABLE

The servo-driven APC is reliable and stable, and has been designed with your productivity in mind.

Higher Cutting Power

NHP 5500

Ø850 x H1100 mm
33.5 X 43.3 inch

NHP 6300

Ø1050 x H1350 mm
41.3 X 53.1 inch

NHP 8000

Ø1450 x H1550 mm
57.1 X 61.0 inch

Max. workpiece weight

NHP 5500

800 kg 1763.7 lb

NHP 6300

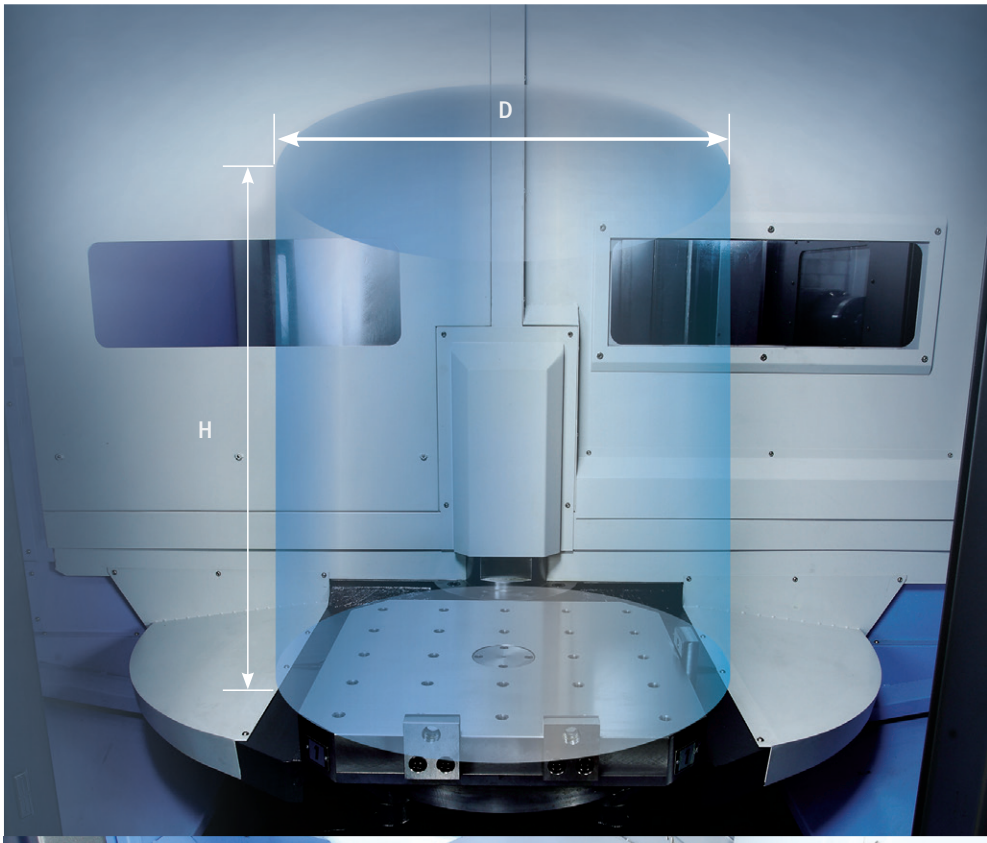
1500 kg 3306.9 lb

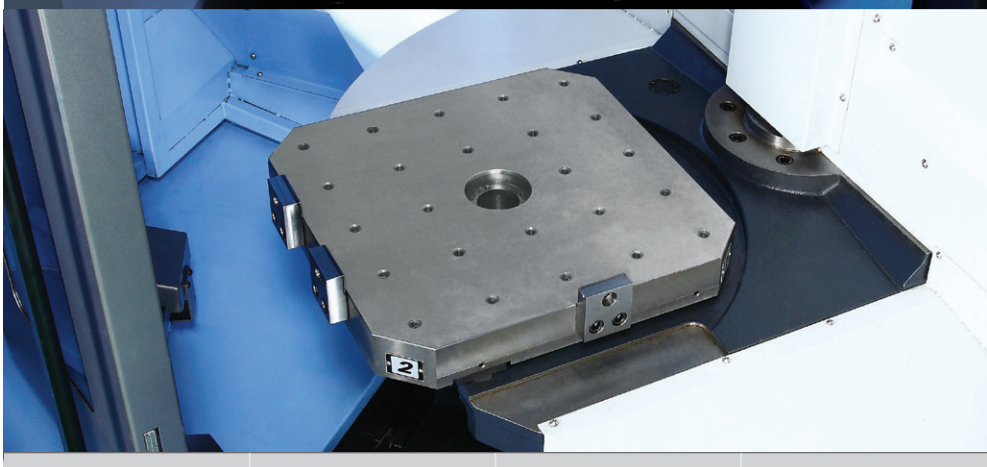
NHP 8000

2000 kg 4409.2 lb

Improved Pallet and APC System

The APC system ensures fast and accurate pallet change operations. In addition to its outstanding performance, the APC has also been designed with more space - improving accessibility and operator convenience.

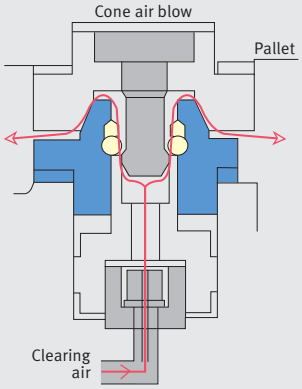


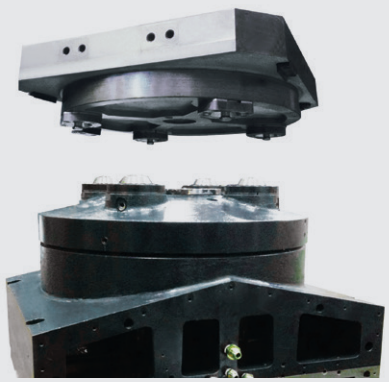


	NHP 5500	NHP 6300	NHP 8000
Pallet change time	8.5 s	12 s	16 s

Cone Air Blower

The mechanism, designed for precise and repeatable pallet positioning, 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

The high-speed spindle minimises vibration and thermal growth whilst offering the fastest acceleration and deceleration rates, guaranteeing superior cutting performance compared to the competition.

High-speed, high-performance spindle

Designed to minimize vibration and thermal error while offering rapid acceleration and deceleration, the spindle delivers excellent cutting performance irrespective of the material being machined. The spindle's increased rigidity means takes high-speed cutting and heavy-duty machining in its stride.

Max Spindle Speed

10000 r/min

6000 r/min option

15000 r/min option

Max Power

45 kW / **25** kW
60.3 hp / 33.5 hp

37 kW / **22** kW option
49.6 hp /29.5 hp

37 kW / **30** kW option
49.6 hp /40.2 hp

Max Torque

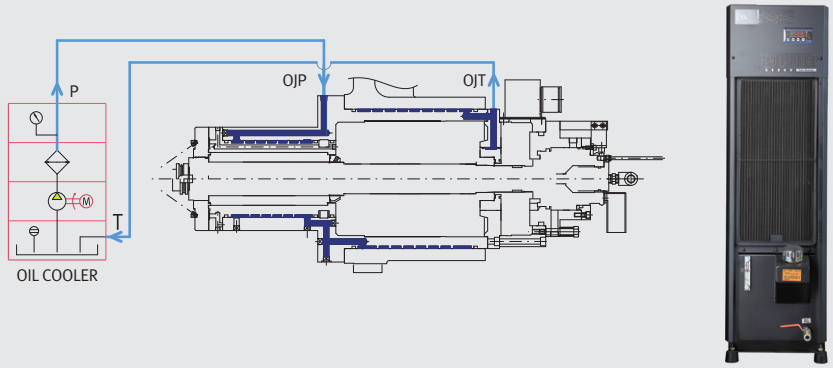
600 N·m 442.8 ft-lbs

809 N·m 597.0 ft-lbs option

398 N·m 293.7 ft-lbs option

Spindle cooling system

An oil cooler system is provided as standard to facilitate long machining runs and continuous operation. The oil is cooled in a cooler before being circulated around the spindle bearings and built-in motor to minimise thermal displacement and ensure high precision.



Dual-face tool locking system

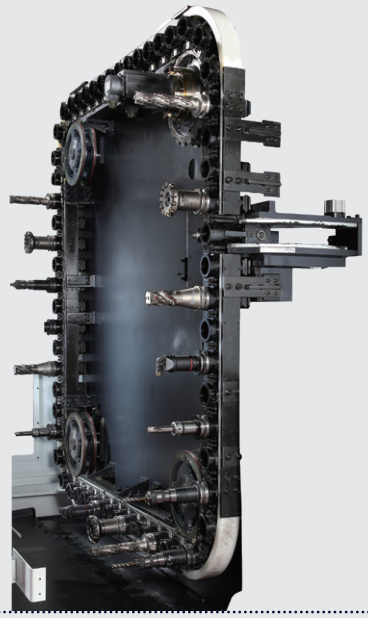
The dual contact face and taper system improves rigidity, increases tool life and, by minimising vibrations, ensures high surface finishes and surface integrity.

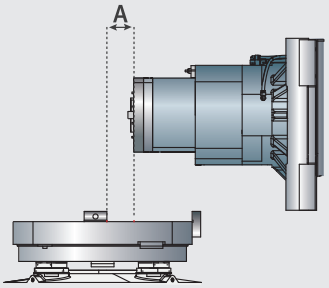
Type

ISO #50

MAGAZINE

40 tools provided as standard in addition to a range of ATC options and configurations.





Servo-driven ATC

The ATC is able to handle tools weighing up to 25kg/55.1lbs (pot-type magazine); and 30kg/66.1lbs (chain-type magazine). The servo motor ensures fast tool indexing and spindle positioning.

Specifications (Max. tool diameter x max. tool length)				
Model	Standard (mm(inch))		Optional (mm(inch))	
	BT/CT/DIN	HSK	BT/CT/DIN	HSK
NHP 5500	320 x 530(12.6 x 20.9)	320 x 600 (12.6 X 23.6)	-	
NHP 6300	320 x 630(12.6 X 24.8)	320 x 700(12.6 X 27.6)	-	
NHP 8000	320 x 630(12.6 X 24.8)	320 x 700(12.6 X 27.6)	320 x 800 (12.6 X 31.5)	320 x 800 (12.6 X 31.5)

Tool change time (tool weight of less than 12 kg)		
Model	Tool to tool	Chip to chip
NHP 5500	2 s	5.5 s
NHP 6300		5.6 s
NHP 8000		6.1 s

Machining with short tools

The distance between the spindle and the center of the pallet has been reduced to enable heavier-duty machining with shorter tools.

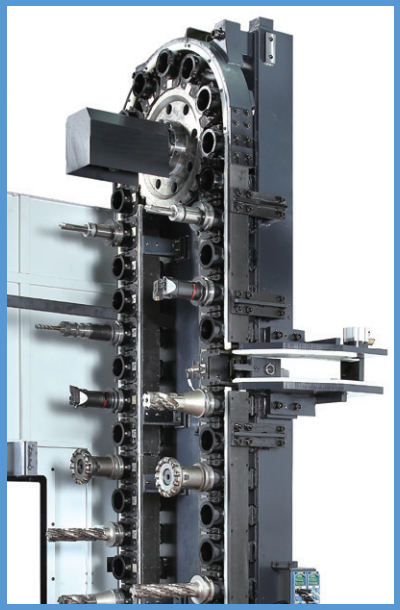
Features

- Increased tool rigidity
- Improved ATC repeatability
- Minimal Z axis displacement at high speed
- Increased tool life

Tool magazine for diverse types of tools, including pot, chain and matrix tool types

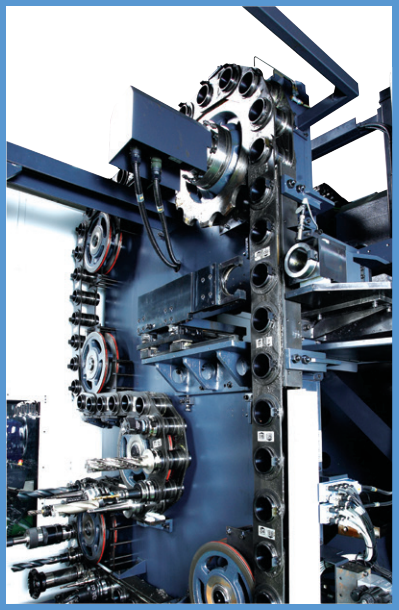
The NHP Series provides 40 tools as a standard feature, and up to 376 tools as an option.

Pot type magazine option



40 / 60 **tools**

Chain type magazine



90 / 120 / 150 **tools**

Matrix type magazine

196 / 256 / 316 / 376 tools

CUTTING PERFORMANCE

The NHP Series realizes excellent machining performance thanks to its improved structure and comprehensive tooling system.

High cutting power

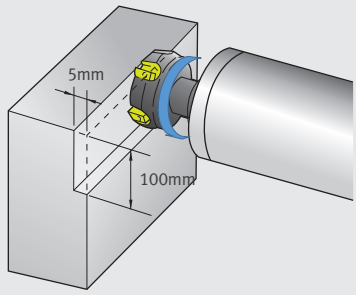
High performance machining can be undertaken quickly and accurately.

NHP series

(Motor power : 45/25 kW(60.3/33.5Hp))

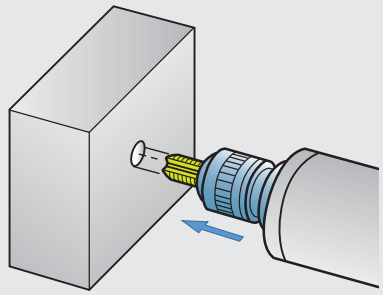
Face Mill_Carbon Steel (SM45C) [ø125mm(4.9inch) Face mill (8Z)]

	Machining rate	Spindle speed	Feed rate
Previous model	440 cm^3/min	350 r/min	550 mm/min
NHP series	700 cm^3/min	500 r/min	1400 mm/min



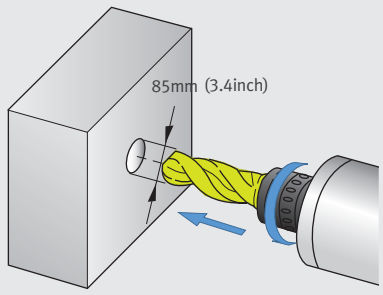
Tap_Carbon Steel (SM45C)

Machining rate	Spindle speed	Feed rate
M42×P4.5	150 r/min	675 mm/min



Drill_Carbon Steel (SM45C) [ø85mm(3.3inch) U-Drill (2Z)]

Machining rate	Spindle speed	Feed rate
567 cm^3/min	600 r/min	100 mm/min



* The results in the catalogue are provided as examples and should be used as a guide. Different cutting and environmental conditions will deliver different results.

Productivity

High Productivity

8 % Down

- Diesel engine cylinder block
- Material: Cast iron
- No. of tools used: 20

Cycle time

Previous model	977 s
NHP series	**900 s**

↵ **77 s**

STANDARD & OPTIONAL SPECIFICATIONS

A range of options is available to suit individual requirements.

● *Standard* ○ *Optional* X *Not applicable*

Description	Features		NHP5500/S	NHP 6300	NHP 8000
Tool Magazine	40 tools		●	●	●
	60 tools		○	○	○
	90 tools		○	○	○
	120 tools		○	○	○
	150 tools		○	○	○
Type of tool shank	BT50		●	●	●
	CAT50		○	○	○
	DIN50		○	○	○
	HSK		○	○	○
Mist Collector	Mist Collector		○	○	○
Spindle	6000 r/min	37 / 22 kW (49.6 / 29.5 Hp)	○	○	○
	10000 r/min	45 / 25 kW (60.3 / 33.5 Hp)	●	●	●
	15000 r/min	37 / 30 kW (49.6 / 40.2 Hp)	○	○	○
	6000 r/min High Torque	55 / 30 kW (73.8 / 40.2 Hp)	○	○	○
	Spindle air curtain		●	●	●
Spindle motor power	45 / 25 kW (60.3 / 33.5 Hp)		●	●	●
	37 / 22 kW (49.6 / 29.5 Hp)		○	○	○
	37 / 30 kW (49.6 / 40.2 Hp)		○	○	○
Hydraulic fixtures	Hydraulic fixture line	2X2	○	○	○
		4X4	○	○	○
		6X6	○	○	○
		8X8	○	○	○
	Hydraulic fixture unit		○	○	○
Automatic workpiece measurement device	OMP60_RENISHAW		○	○	○
	RMP60_RENISHAW		○	○	○
Auto tool measuring device	BK MIKRO		○	○	○
	NEEDLE SWING TYPE		○	○	○
	OMRON (Limit Switch Type)		○	○	○
	TS27R		○	○	○
	NC 4		○	○	○
Accuracy	Linear scale (X-axis)		○	○	○
	Linear scale (Y-axis)		○	○	○
	Linear scale (Z-axis)		○	○	○
Chip Handling System	Chip conveyor	HINGED type	○	○	○
		SCRAPER type	○	○	○
		DRUM type	○	○	○
	Chip bucket		○	○	○
Coolant	FLOOD		●	●	●
	FLUSHING		●	●	●
	SHOWER		○	○	○
	TSC	1.5 KW 2.0 MPA	○	○	○
		3.o KW 3.0 MPA	○	○	○
		7.5 KW 7.0 MPA	○	○	○
	Coolant gun		○	○	○
	Oil skimmer		●	●	●
	MQL System		○	○	○
Table	Index table (1° control)		●	●	●
	Rotary table (0.001° control)		○	○	○
Pallet	Tap pallet		●	●	●
	T-SLOT pallet		○	○	○
AIR	Pallet air seat		○	○	○
	AIR GUN		○	○	○
MPG	Portable MPG		●	●	●
Customized Special Option	Coolant level switch : Sensing level - Low / High		○	○	○
	Coolant tank_Level S/W		○	○	○
	APC-set up auto indexing		○	○	○
	Setup shower coolant		○	○	○

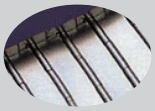
** Please contact DOOSAN to find put more about specifications and options*

*** Please contact DOOSAN for information on the NHP 5500S*

PERIPHERAL EQUIPMENT

Chip Conveyor option

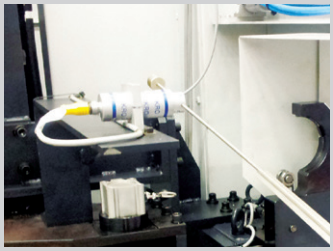
Scraper type



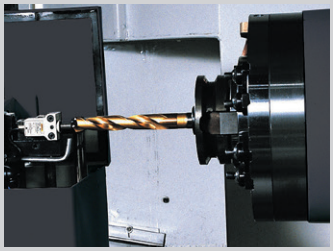
Hinge type

Drum filter type

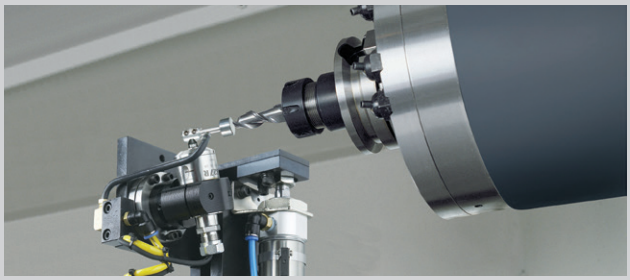
Measurement Systems



Auto tool damage detection device I (BK 9) option



Auto tool damage detection device II (OMRON) option



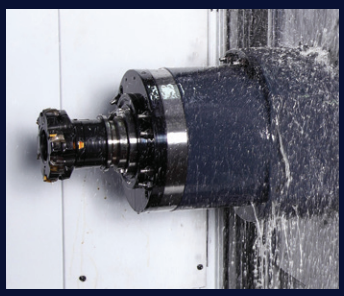
Automatic tool measuring device(TS 27R) option

Environmentally-friendly equipment

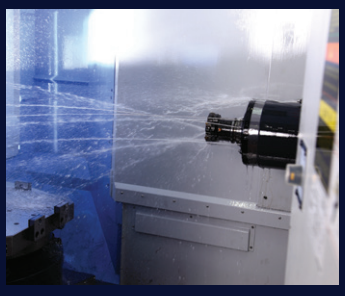
Oil skimmer

Mist collector option

Chip Disposal System



Flushing coolant

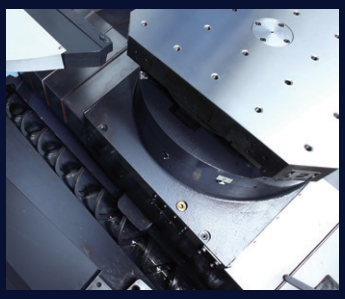


Flood coolant

Shower coolant option

Coolant gun option

Coolant spray gun on the spindle head



Screw conveyor

MQL system option Misting device

Spindle-through coolant spray device option

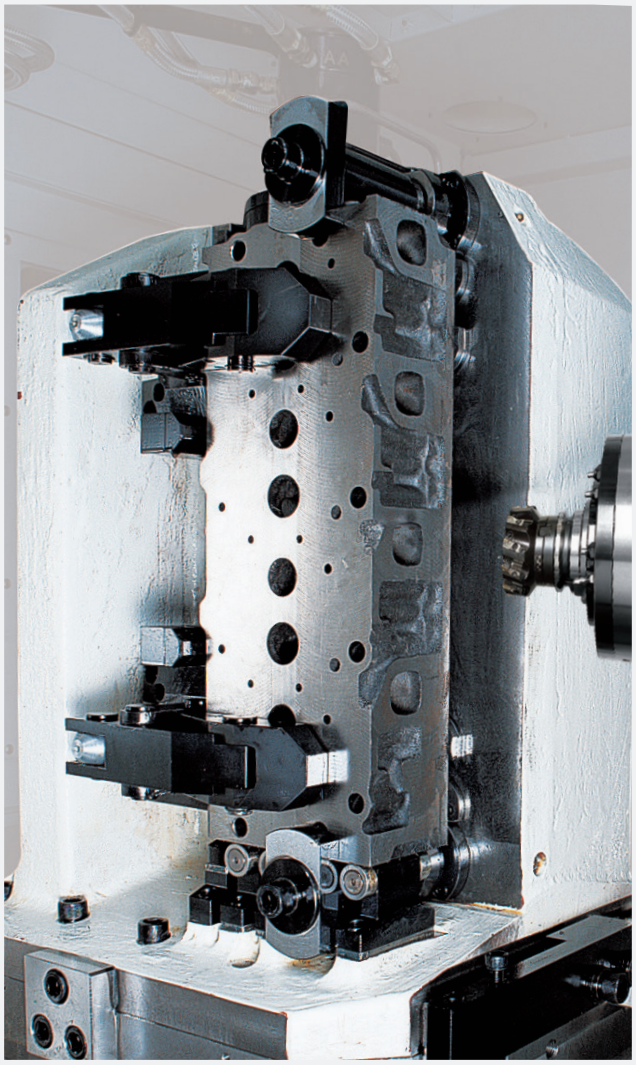
APPLICATION

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

Clamping Fixtures

The following hydraulic and pneumatic fixture options are available for workpiece set up.

A variety of preparations for workpiece clamping fixtures (hydraulic/pneumatic) option



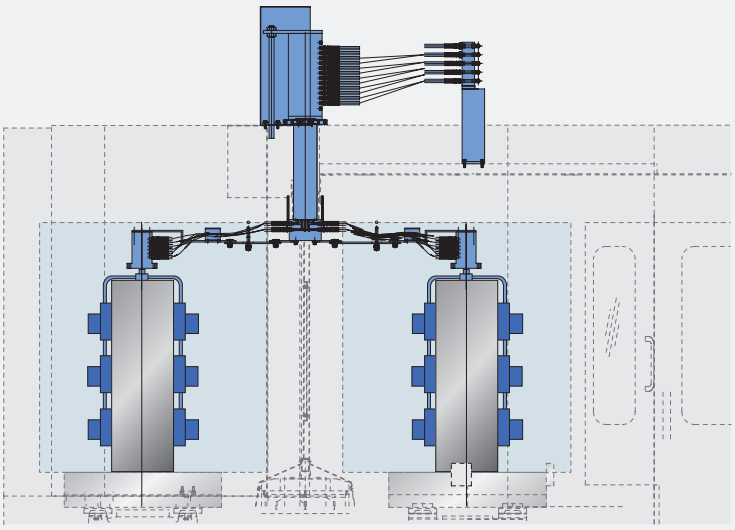
Hydraulic/pneumatic fixture pot

- A/B Line : 2, 4, 6, 8 Pairs (Including solenoid valve)
- P/T Line : 2, 4, 6, 8 Pairs (Excluding solenoid valve)

Clamping fixture hydraulic motor

- 2.2 kW(3.0 HP) / 7MPa
- 3.7 kW(5.0 HP) / 15MPa
- 5.5 kW(7.4 HP) / 21MPa
- 3.7 kW / 15MPa
- 5.5 kW / 21MPa

※ Please provide us with detailed specifications on the order sheet.

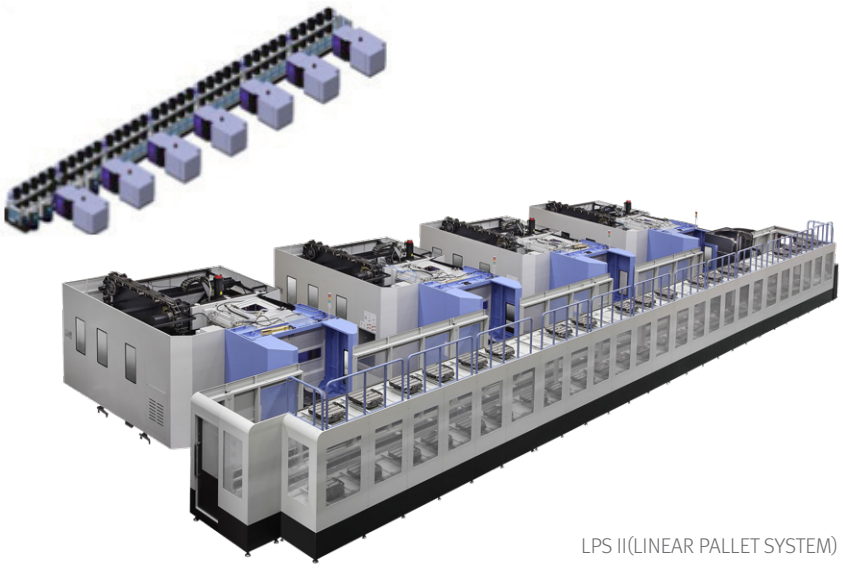


DOOSAN MULTI-PALLET SYSTEMS

Doosan's linear pallet system (LPS) and multi-pallet system (MPS) help optimise productivity. They can be installed quickly and are easily maintained.

Doosan Linear Pallet System [LPS II] option

Designed to optimized productivity and efficiency, Doosan's LPS II linear pallet system delivers outstanding flexibility: the system is scaleable and can be reconfigured to suit individual needs.



LPS II(LINEAR PALLET SYSTEM)

LPS II Model	LPS 500 II		LPS 630 II	LPS 800 II
Available Model	HP 5100 II	NHP 5500	NHP 6300	NHP 8000
Forking type	Twin Fork type			
No. of machines	1 – 7			
No. of setup stations	1 – 4			
No. of pallets	12 ~ 70		10 ~ 70	8 ~ 70
Dimensions (L x W)	7824 x 2400 mm (308.0 X 94.5 inch)		7904 x 785 mm (311.2 X 30.9 inch)	8952 x 3500 mm (352.4 X 137.8 inch)

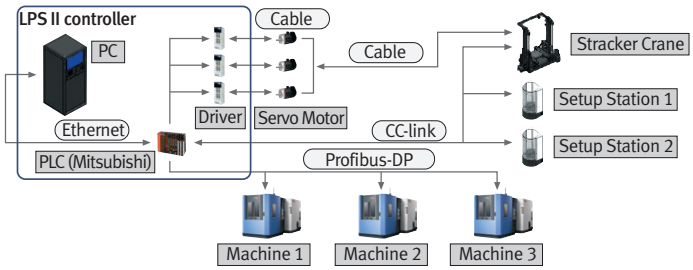
LPS Standard Control Software

- Easy-storage of basic information for flexibility.
- Platform management software for rapid production and changes in quantity.
- LPS management solution for fast and flexible production and sudden changes in quantity.

Doosan Production Management System [DPMS]

The DPMS is an operating system designed to ensure effective control and management of the LPS. The main window provides a solution that enables a flexible and rapid response to changes in output.

System Outline



Features

- Easy to expand and extend
- Spacious system improves work efficiency
- Stable and efficient system operation
- Fast installation and commissioning
- Applicable for all HMC machines
- Easily maintained

DOOSAN MULTI PALLET SYSTEM

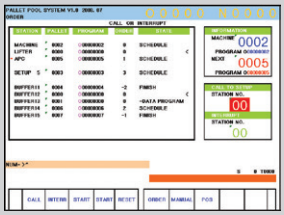
Doosan Round Pallet System [RPS] option

Compared to standard machines that use 2-pallet-type APCs, the RPS can handle 7 - 9 pallets for extended machining operations. This facilitates HMLV (High Mix - Low Volume) manufacturing.

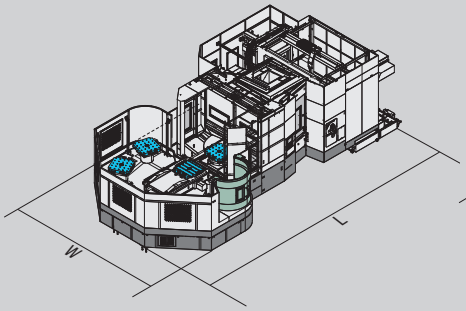
ROUND PALLET SYSTEM

Doosan Multi-pallet Station [DMPS]

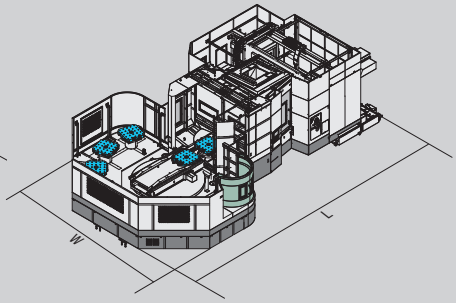
DPMS is an operating system for the control and management of the MPS. DPMS functions include: the scheduling of operations and data input and making data changes.



7 RPS



9 RPS



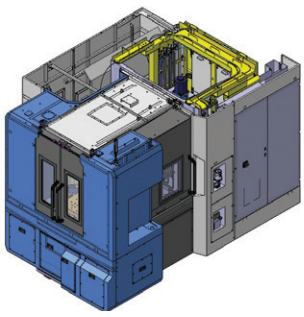
System Options

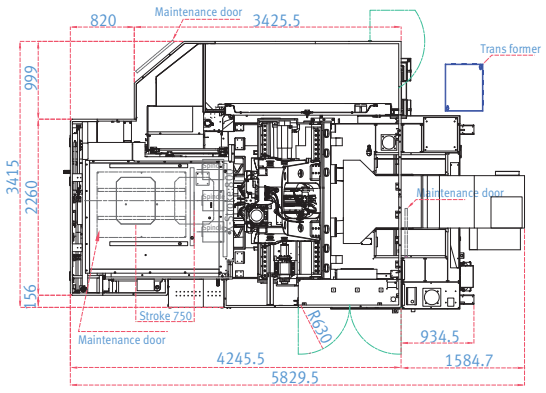
	NHP 5500		NHP 6300		NHP 8000	
	7- RPS	9 - RPS	7- RPS	9 - RPS	7- RPS	9 - RPS
No. of pallets (pcs.)	7	9	7	9	7	9
Foot print (Length) (mm(inch))	8460 (333.1)	9150 (360.2)	9720 (382.7)	10790 (424.8)	12027.5 (473.5)	12738.5 (501.5)
Foot print (Width) (mm(inch))	4230 (166.5)	4420 (174.0)	4820 (189.8)	5520 (217.3)	6462 (254.4)	6706 (264.0)

Doosan Single Pallet System (NHP 5500S)

The single table configuration on the NHP 5500S is a real space saver and makes automation incredibly straightforward.

External Dimensions *Unit : mm*



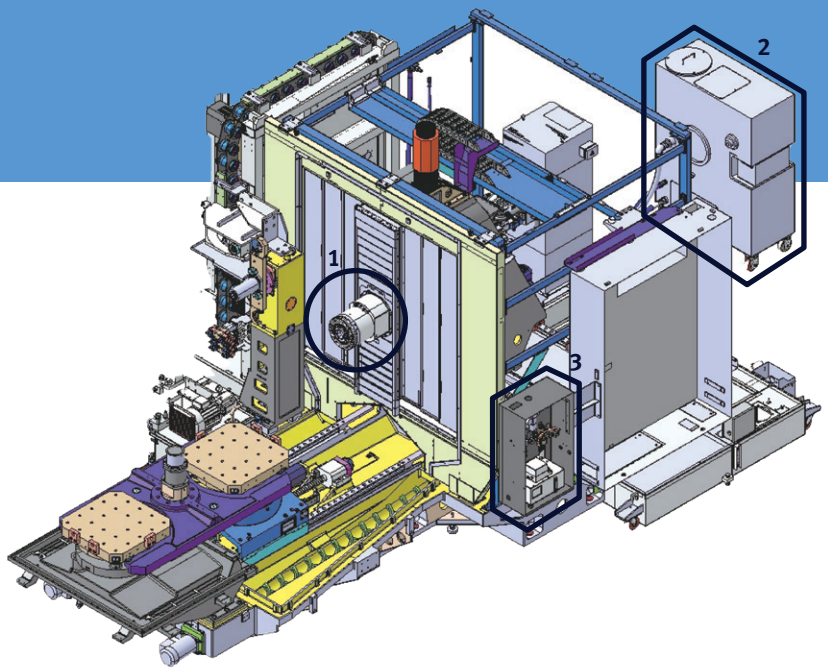


USER CONVENIENCE

Ergonomic design guarantees users' convenience and safety.

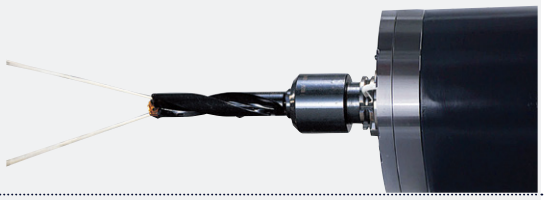
User-oriented Design

Internal footings and an anti-door-lock function prevent the operator from being locked in the machine and guarantee operator safety.
The centralized service unit and screen panel are positioned to enhance operator comfort and convenience.



1.
Flushing system to remove chips from the spindle top and slide cover.

2.
Coolant through spindle function for enhanced productivity option

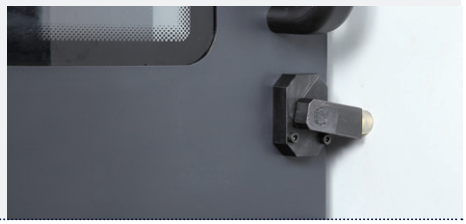


3.
Centralized utility service unit
The utilities service unit is centralized for easy maintenance.

ATC screen panel provides easy tool data entry at the tool magazine area

Safety has been improved with machine internal footings

Anti-door lock device



CONVENIENT OPERATION

Fanuc 31i5

User-Friendly Operation Panel

With the world's highest level of performance, the FANUC 31i5 is the core FANUC CNC system. Featuring an array of functions and advanced control technologies, the 31i5 is the ideal control for high-performance lathes and machining centers. Leading-edge hardware has enhanced the basic performance of the CNC, servos and the PMC to support advanced CNC functionality and operation. The end result is an intuitive, fast and vastly improved operator experience.

Design optimized for customers' needs based on our extensive know-how	
Designed for user convenience	• Convenient and intuitive UI • Optimized button size • High-visibility lamps • Long life cycle buttons • Partitioned to prevent operator error
Convenient option buttons	• Detachable buttons • Spare I/O signal ports for optional devices
Customized functionality	• Customer-specific function switches • Available for auxiliary panel design

NUMERIC CONTROL SPECIFICATIONS

FANUC

	Item	Specifications	F31iB NHP5500/6300/8000
Controlled axis	Controlled axes		○
	Simultaneously controlled axes		●
	Additional controlled axis	Add 1 Axis (5th Axis)	●
Data input/output	data server		●
	Memory card input/output		○
	USB memory input/output		●
Interface function	Embedded Ethernet		●
	Fast Ethernet		●
	Enhanced embedded ethernet function		●
Operation	DNC operation	Included in RS232C interface.	●
	DNC operation with memory card		T4 digits
Program input	Workpiece coordinate system	G52 - G59	○
	Addition of workpiece coordinate system	G54.1 P1 X 48 (48 pairs)	X
	Tool number command		●
	Tilted working plane indexing command	G68.2 TWP	○
Feed function	AI contour control I	G5.1 Q_, 40 Blocks	○
	AI contour control II	G5.1 Q_, 200 Blocks	X
	AI contour control II	G5.1 Q_, 600 Blocks	○
	AI contour control II	G5.1 Q_, 1000 Blocks	X
	High smooth TCP		●
Operation Guidance Function	EZ Guide i		●
	iHMI with machining cycle	Note *1) Only with 15" Touch LCD standard	✪
	EZ Operation package		✪
Setting and display	CNC screen dual display function		●
Network	FANUC MTConnect		○
	FANUC OPC UA		●
Others	Display unit	15" color LCD	○
		15" color LCD with Touch Panel	○
	Part program storage size & number of registerable programs	640M(256KB)_500 programs	○
		1280M(512KB)_1000 programs	○
		2560M(1MB)_1000 programs	○
		5120M(2MB)_1000 programs	X
		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

Network: FANUC MTConnect and FANUC OPC UA available.

● *Standard* ○ *Optional* X *Not Available* ✪ *Available*

FANUC EASY OPERATION PACKAGE

The software developed by Doosan's own technology provides numerous functions designed for convenient operation.

Easy Operation Package (EOP)

The EOP 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. EOP reduces operating time, protects machinery, enhances quality and speeds up maintenance interventions.

Tool Support Functions

Tool management I

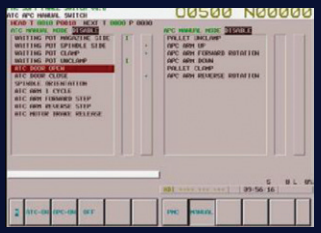
- Tool magazine control
- Tool state display
- Fastems Tool Add/Remove Function option

Tool management II option

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

Tool load monitor option

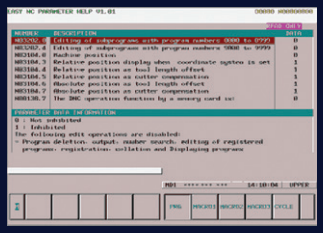
- Detection of tool damage
- Detection of abnormalities during operation
- Detection of no-load air cutting



ATC/APC panel

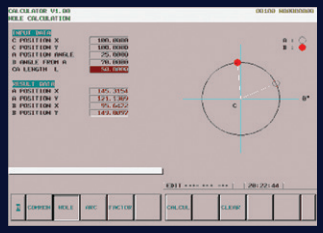
- ATC manual
- APC manual

Help Desk Functions



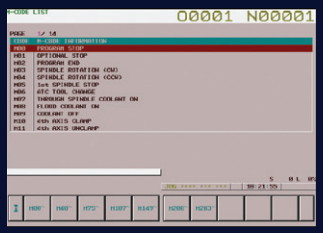
Easy NC parameter

- Help for major parameters
- Show parameter settings



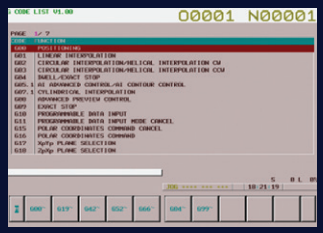
Calculator

- Calculator function
- 4 arithmetical operations
- Supports mathematical functions



M Code List

- List of major M codes



G Code List

- List of major G codes

Operation Support 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

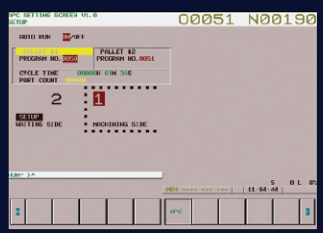
PMC switch

- Operation panel function option
- Substitutes toggle switches
- NC option software

Pallet Magazine Support Functions

Multi-pallet station option

- Control MPS operation • Auto Call function
- Display information on MPS PMG
- Set-up of machining schedule
- Manual operation and coordinate setting function



APC setting

- 2-pallet APC operation screen

CONVENIENT OPERATION

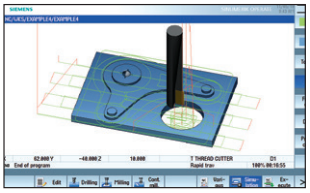
Siemens 840D

15.6” Screen + New Operation Panel

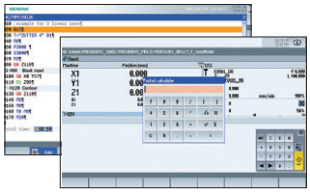
The newly-designed operation panel improves the customer convenience by incorporating and using common-design buttons and layouts, and includes the familiar QWERTY keyboard for fast and easy operation.

- 15.6" display
- 10MB high capacity user memory
- USB & ethernet (standard)
- QWERTY keyboard (standard)
- High-speed calculation and simulation can be fulfilled by improved processor functionality

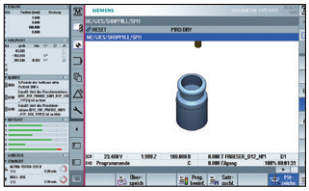
Conversational Convenient Function



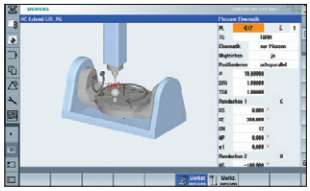
Simulation and Machining Contour Monitoring



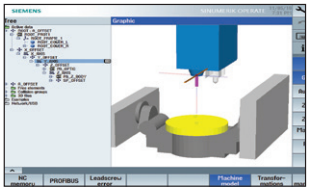
Smart Function



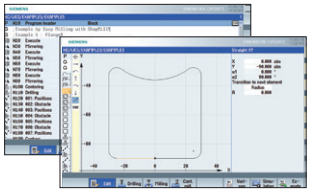
Side Screen Widget



5-axis Kinematic Measuring Cycles



3D Collision Avoidance and Collision Avoidance ECO



Shop Mill Part Programming

NUMERIC CONTROL SPECIFICATIONS

SIEMENS

	Item	Specifications	S840Dsl NHP5500/6300/8000
Controlled axis	Controlled axes	5 axes	4축
	Simultaneously controlled axes	5 axes	4축
Data input/output	Memory card input/output	(Local drive)	●
	USB memory input/output		●
Interface function	Ethernet	(X130)	●
Operation	On network drive	(without EES option, Extcall)	●
	On USB storage medium, e.g. memory stick	(without EES option, Extcall)	●
Program input	Workpiece coordinate system	G54 - G57	●
	Addition of workpiece coordinate system	G505 - G599	●
Interpolation & Feed function	Advanced surface		●
	Top surface		○
	Look ahead number of block	S/W version 4.8	1000
Programming & Editing function	3D simulation, finished part		●
	Simultaneous recording		●
	Measure kinematics		X
	DXF Reader for PC integrated in SINUMERIK Operate		○
Operation Guidance Function	ShopMill		●
	EZ Work		●
Setting and display	Operation via a VNC viewer		●
Network	MTConnect		✪
	OPCUA		○
Etc. function	15.6" color display with touch screen		●
	19" color display without touch screen		○
	21.5" color display with touch screen		○
	CNC user memory	10 MB	●
	Expansion by increments	2 ~ 12 MB	○
	Collision avoidance		○
	Collision avoidance ECO (machine, working area)		○

● *Standard* ○ *Optional* X *Not Available* ✪ *Available*

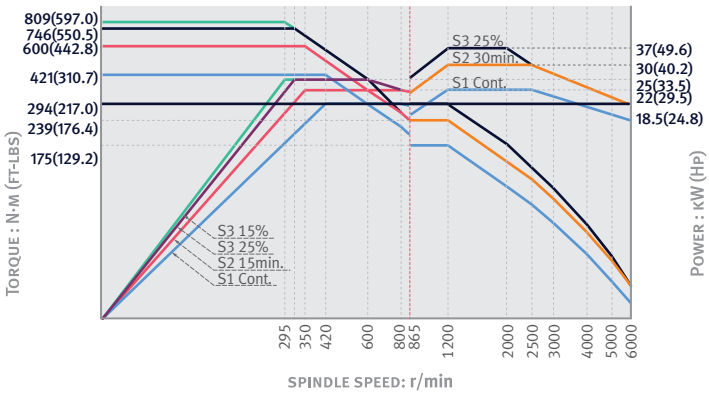
POWER & TORQUE

FANUC

6000 r/min option

Power : 37 / 22 kW (49.6 / 29.5 Hp)

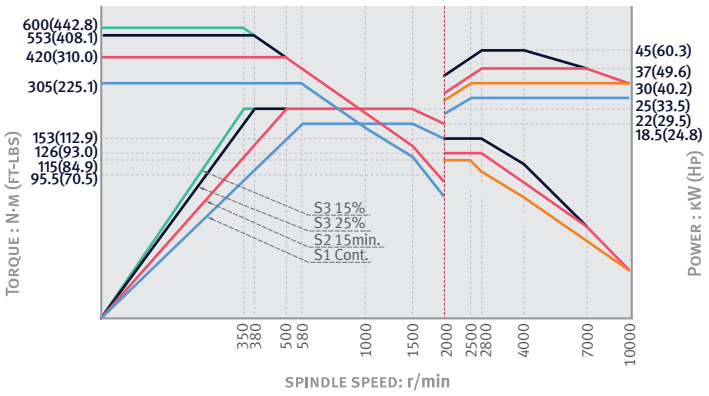
Torque : 809 N·m (597.0 ft-lbs)



10000 r/min

Power : 45 / 25 kW (60.3 / 33.5 Hp)

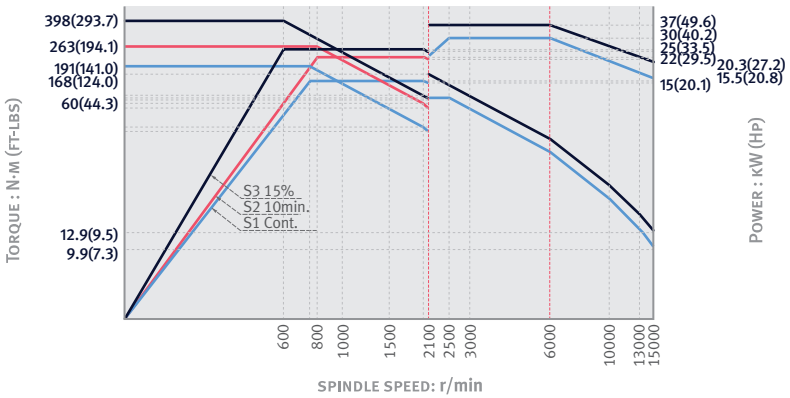
Power : 600 N·m (442.8 ft-lbs)



15000r/min option

Power : 37 / 30 kW (49.6 / 40.2 Hp)

Torque : 398 N·m (293.7 ft-lbs)

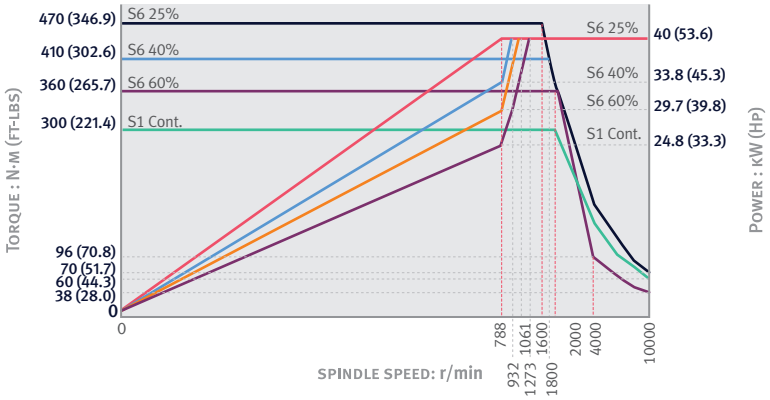


SIEMENS

10000r/min

Power : 40 / 25 kW (53.6 / 33.5 Hp)

Torque : 470 N·m (346.9 ft-lbs)

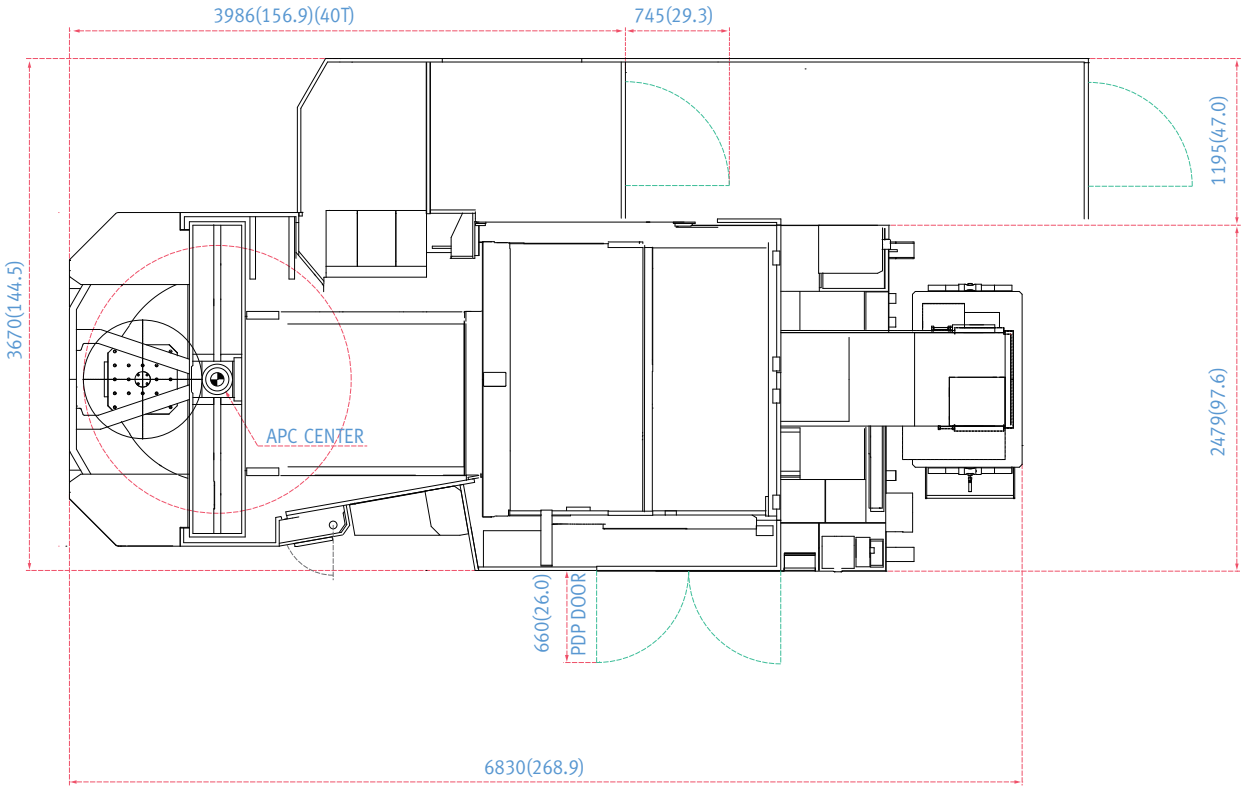


DIMENSIONS

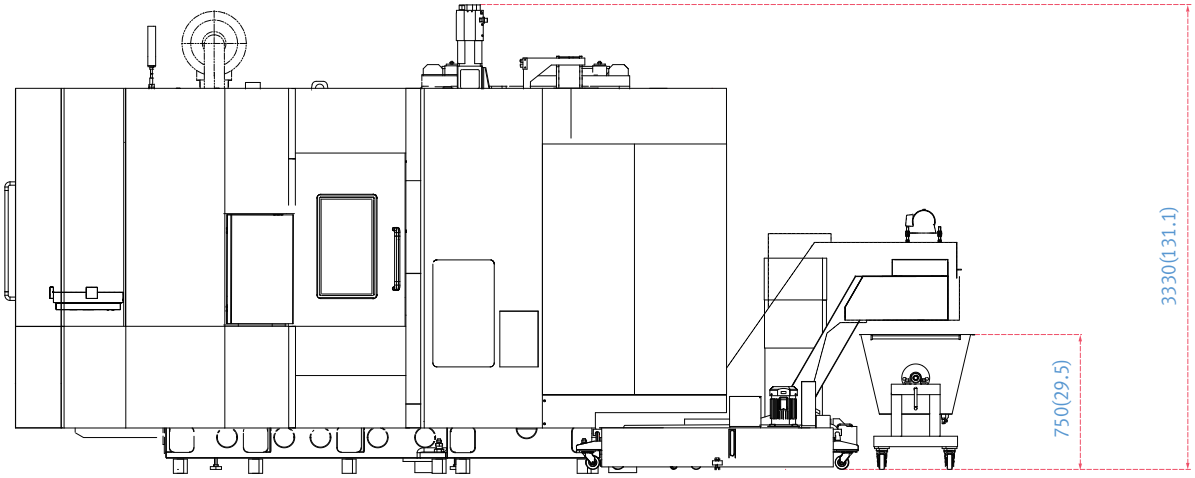
NHP 5500

Units : mm (inch)

TOP



FRONT



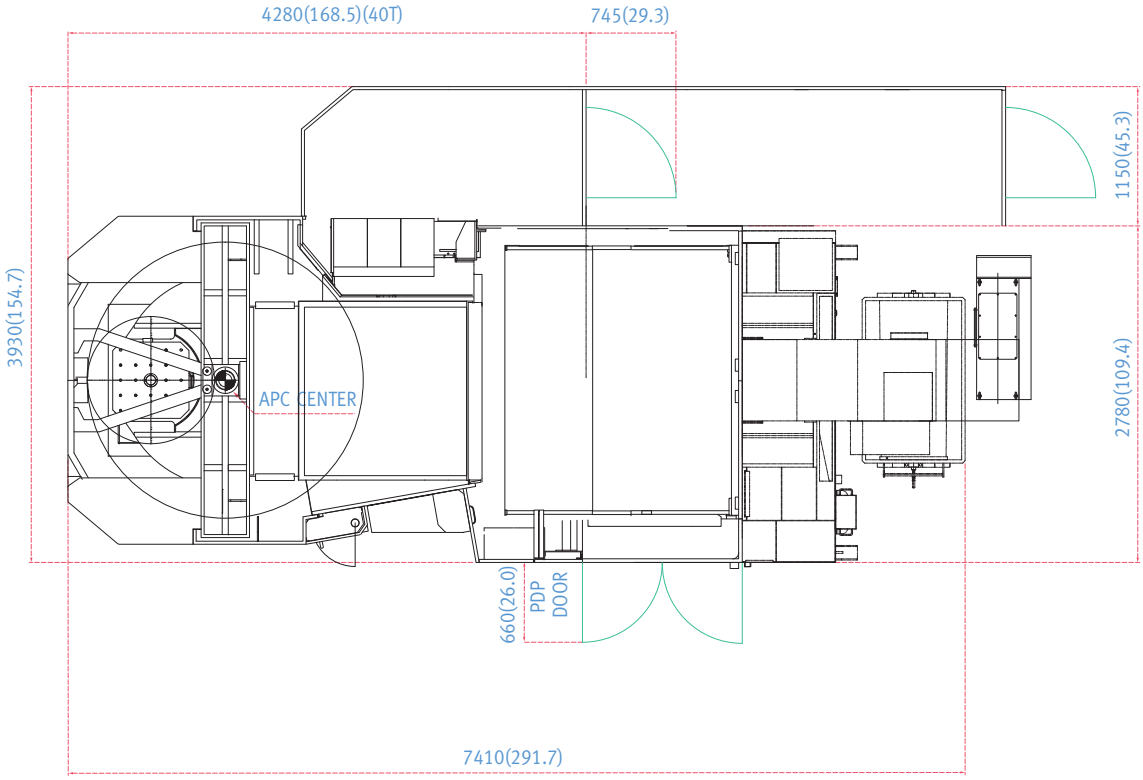
** Some peripheral equipment can be placed in other areas.*

DIMENSIONS

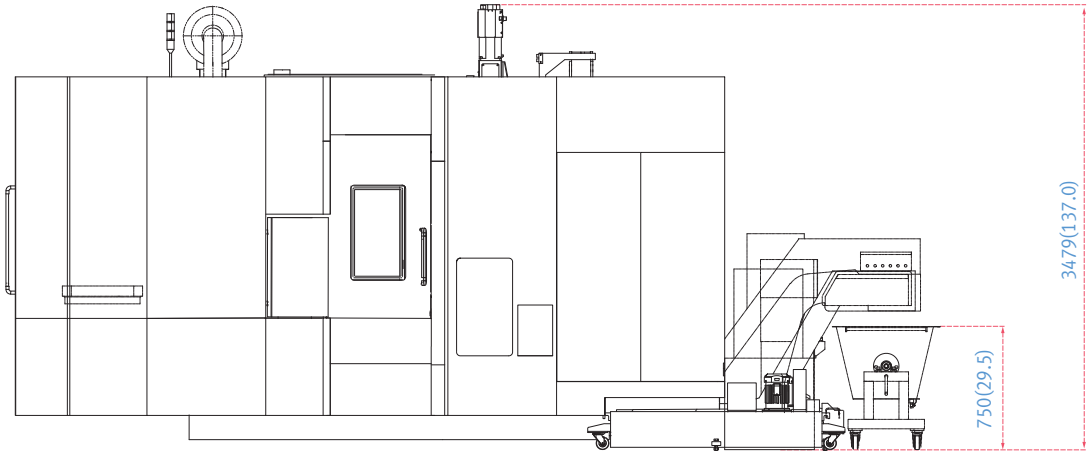
NHP 6300

Units : mm (inch)

TOP



FRONT



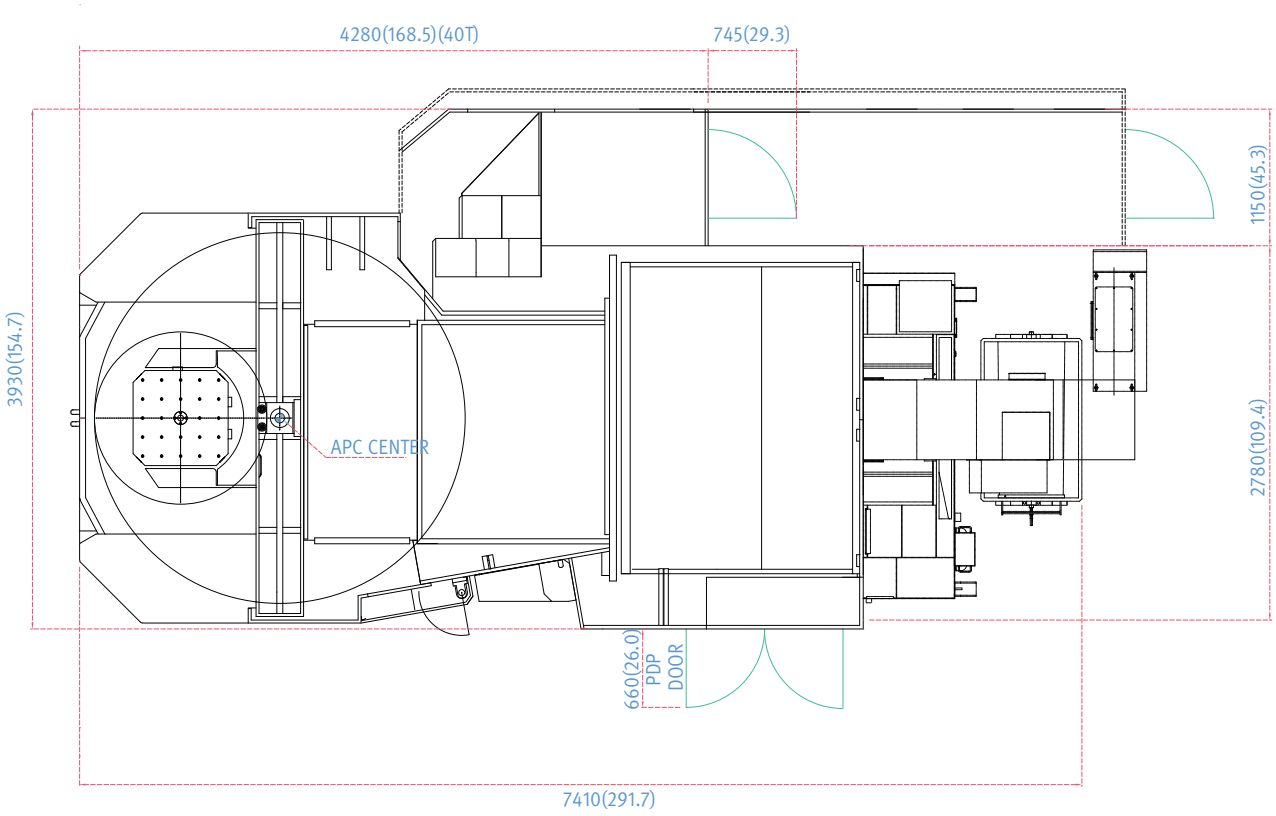
** Some peripheral equipment can be placed in other areas.*

DIMENSIONS

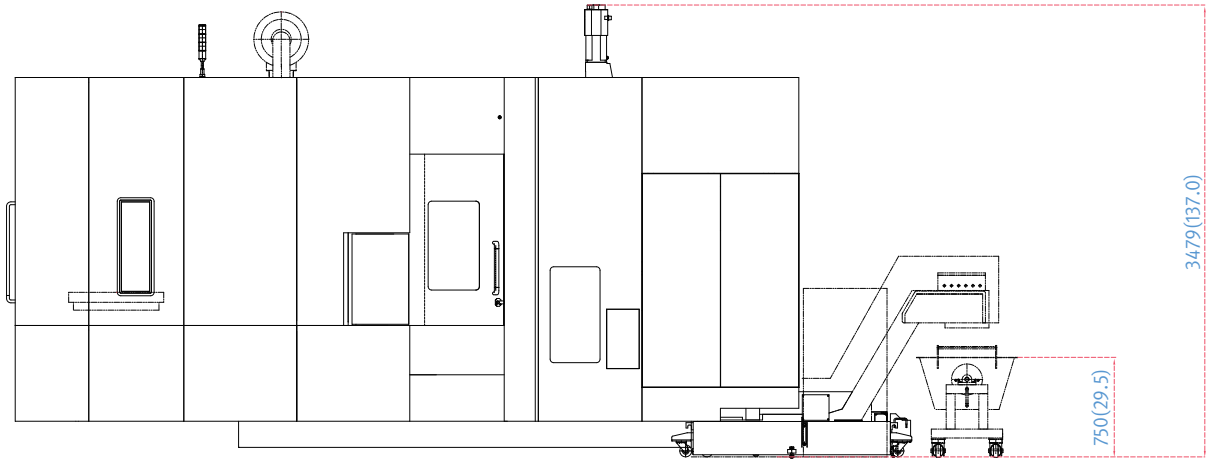
NHP 8000

Units : mm (inch)

TOP



FRONT



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

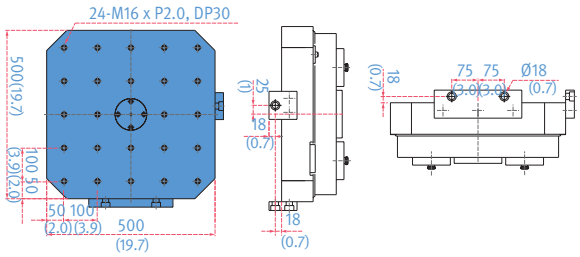
PALLET

NHP 5500/6300/8000

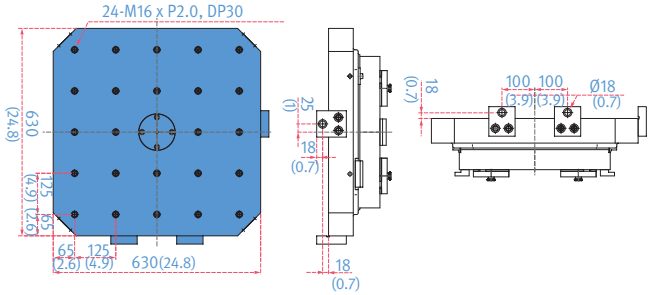
NHP 5500

Units : mm (inch)

Standard Specifications (500 × 500(19.7x19.7))

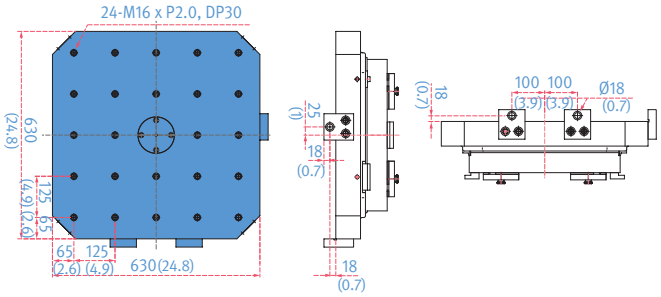


Optional Specifications (630 × 630(24.8x24.8))

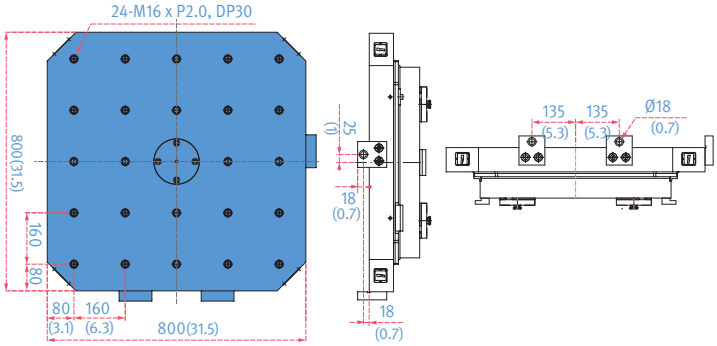


NHP 6300

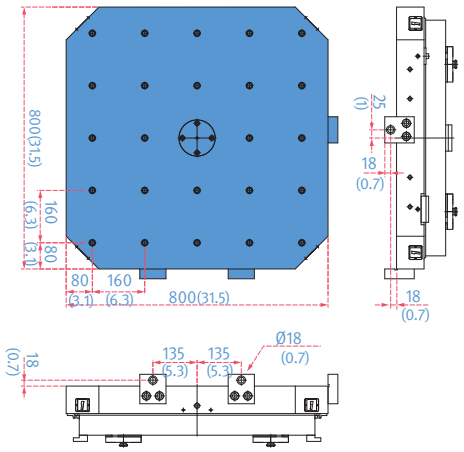
Standard Specifications (630 × 630(24.8x24.8))



Optional Specifications (800 × 800 (31.5x31.5))



NHP 8000



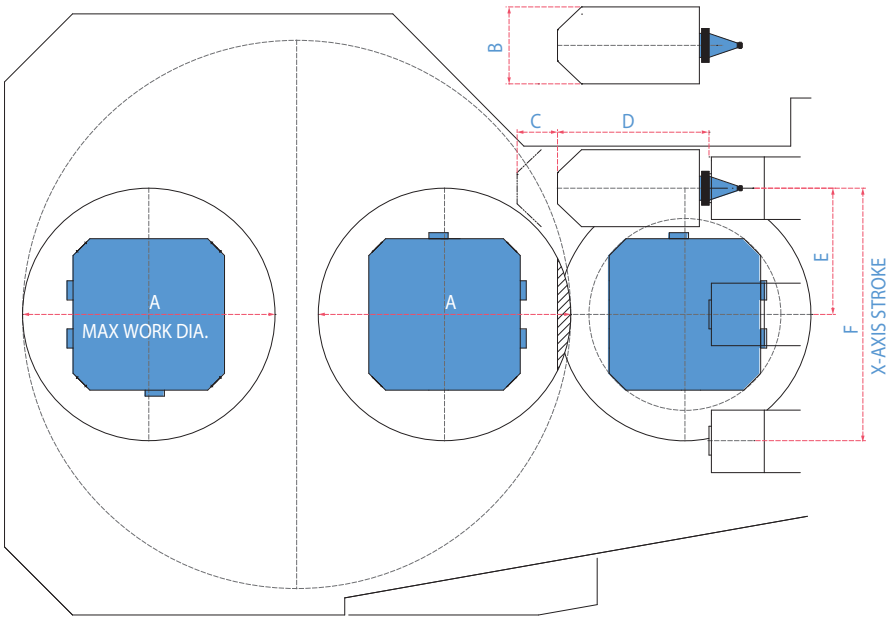
** Some peripheral equipment can be placed in other areas.*

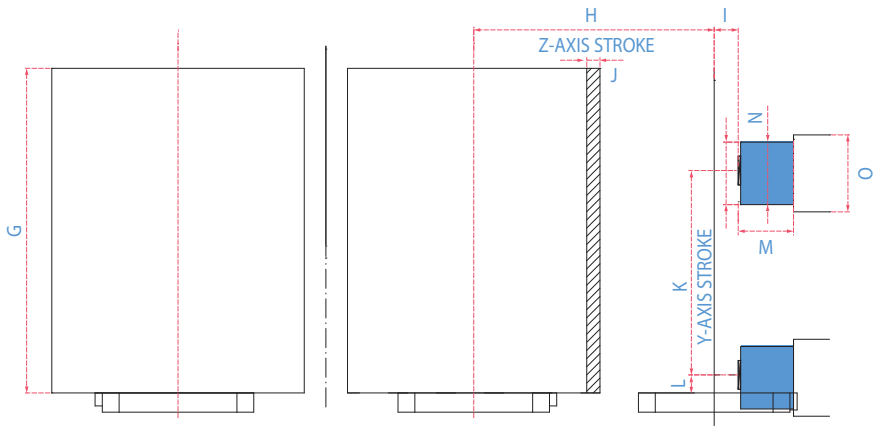
WORKING AREA

NHP 5500/6300/8000

Workpiece working area

Units : mm (inch)





Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
NHP 5500	Ø850 (33.5)	Ø320 (12.6)	168 (6.6)	530 (20.9)	400 (15.7)	800 (31.5)	1100 (43.3)	850 (33.5)	100 (3.9)	5 (0.2)	750 (29.5)	75 (3.0)	230 (9.1)	Ø260 (10.2)	Ø320 (12.6)
NHP 6300	Ø1050 (41.3)	Ø320 (12.6)	168 (6.6)	630 (24.8)	525 (20.7)	1050 (41.3)	1350 (53.1)	1000 (39.4)	100 (3.9)	55 (2.2)	900 (35.4)	75 (3.0)	230 (9.1)	Ø260 (10.2)	Ø320 (12.6)
NHP 8000	Ø1450 (57.1)	Ø320 (12.6)	168 (6.6)	630 (24.8)	700 (27.6)	1400 (55.1)	1550 (61.0)	1370 (53.9)	150 (5.9)	5 (0.2)	1200 (47.2)	75 (3.0)	230 (9.1)	Ø260 (10.2)	Ø320 (12.6)

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

MACHINE SPECIFICATIONS

Description				Unit	NHP5500/S	NHP 6300	NHP 8000
Cutting Capacity	Travel distance	X-axis		mm (inch)	800(31.5)	1050(41.3)	1400(55.1)
		Y-axis		mm (inch)	750(29.5)	900(35.4)	1200(47.2)
		Z-axis		mm (inch)	850(33.5)	1000(39.4)	1370(53.9)
	Distance from spindle nose to table center			mm (inch)	100 - 950(3.9 - 37.4)	100 - 1100(3.9 - 43.3)	150 - 1520(5.9 - 59.8)
	Distance from spindle center to table top			mm (inch)	75 - 825(3.0 - 32.5)	75 - 975 (3.0 - 38.4)	75 - 1275 (3.0 - 50.2)
Feed Rate	Rapid feed rate	X-axis		m/min	60		50
		Y-axis		m/min	60		50
		Z-axis		m/min	60		50
	Cutting feed rate			mm/min	30000		25000
Pallet	Pallet type				24-M16×P2.0		
	Pallet indexing angle			deg	1 {0.001}*		
	Max. loading capacity			kg (lb)	800(1763.7)	1500(3306.9)	2000(4409.2)
	Max. workpiece size			mm (inch)	850 x 1100 (33.5 x 43.3)	1050 × 1350 (41.3 x 53.1)	1450 x 1550 (57.1 x 61.0)
	Pallet size			mm (inch)	500 x 500 (19.7 x 19.7)	630 x 630 (24.8 x 24.8)	800 x 800 (31.5 x 31.5)
Spindle	Max spindle speed			r/min	10000 {6000, 15000}*		
	Taper				ISO #50, 7/24 TAPER		
	Max. torque			N·m (ft-lbs)	600 {809, 398}(442.8 {597.0, 293.7})*		
Auto Pallet Changer (APC)	No. of pallets			ea	2	2	
	Pallet change time			s	8.5	12	16
	APC indexing angle (rotation)			deg	90	90	
Automatic Tool Changer (ATC)	Type of tool shank	Tool shank		-	BT50 {CAT50 / DIN50 / HSK-A100}*		
		Pull stud		-	PS403 (Modified CAT,DIN 69872 #50)		
	Tool storage capacity	Pot type		ea	40 {60}*		
		Chain type		ea	{90 / 120 / 150}*		
		Matrix type		ea	{196 / 256 / 316 / 376}*		
	Max. tool diameter	40 / 60 tools	W/O adjacent tool	mm (inch)	320(12.6)		
			With adjacent tool	mm (inch)	125(4.9)		
		90 / 120 / 150 / 196 / 296 / 376 tools	W/O adjacent tool	mm (inch)	320(12.6)		
			With adjacent tool	mm (inch)	130(5.1)		
	Max. tool length			mm (inch)	530(20.9) (BT / CAT / DIN), 600(23.6) (HSK)	630(24.8) (BT / CAT / DIN), 700(27.6) (HSK)	630(24.8) (BT / CAT / DIN), 700(27.6) (HSK)
	Max. tool weight			kg (lb)	25 (55.1) (40 / 60 tools), 30(66.1) (90 - 376 tools)		
	Max. tool moment			N·m (ft-lbs)	34.3 (25.3)		
	Tool change time (tool to tool, tools weighing less than 12kg(26.5lb))			s	2.5		
	Tool change time (chip-to-chip, tools weighing less than 12kg(26.5lb))			s	5.5	5.6	6.1
Motor	Spindle motor power			kW (Hp)	45 / 25 {37/22, 37/30} (60.3 / 33.5{49.6 / 29.5, 49.6 / 40.2}*		
Power Source	Power consumption			kVA	79	76	112
	Compressed air pressure			Mpa	0.54		
Tank Capacity	Coolant tank capacity			L	825	925	
	Lubricant tank capacity			L	7.2		
Machine Dimensions	Height			mm (inch)	3330 (131.1)	3495 (137.6)	3803 (149.7)
	Length			mm (inch)	5940 (233.9)	6520 (256.7)	7878 (310.2)
	Width			mm (inch)	3670 (144.5)	3930 (154.7)	4375 (172.2)
	Weight			kg (lb)	17000 (37478.0)	18000 (39682.6)	27000 (59523.9)

*{ } : option

* Please contact DOOSAN for information on the NHP 5500S

WHY DOOSAN?

The Doosan promise, MACHINE GREATNESS, has two important meanings. The first is simple: Doosan 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 Doosan over other options?*** Here's why...

WHAT YOU MAKE AND HOW YOU MAKE IT MATTERS—SO MAKE IT GREAT WITH DOOSAN.

UNBEATABLE MACHINES

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

READY-TO-MOVE GLOBAL INVENTORY

Machining, turning and 5-axis—with generous standard performance options—are ready to install now.

ROBUST PRODUCT LINE

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

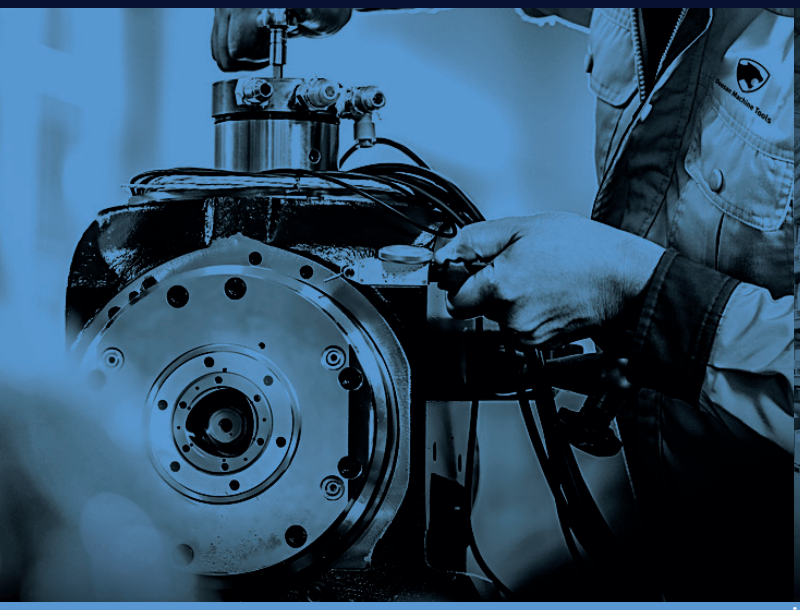
EXPERT SERVICE

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 Doosan 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

Doosan Machine Tools' Global Network

Doosan Machine Tools 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

4	**Corporations**
167	**Dealer Networks**
51	**Technical Centers** Technical Center, Sales Support, Service Support, Parts Support
200	**Service Posts**
3	**Factories**

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*Specifications and information contained within this catalogue may be changed without prior notice.

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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.

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