Mazak

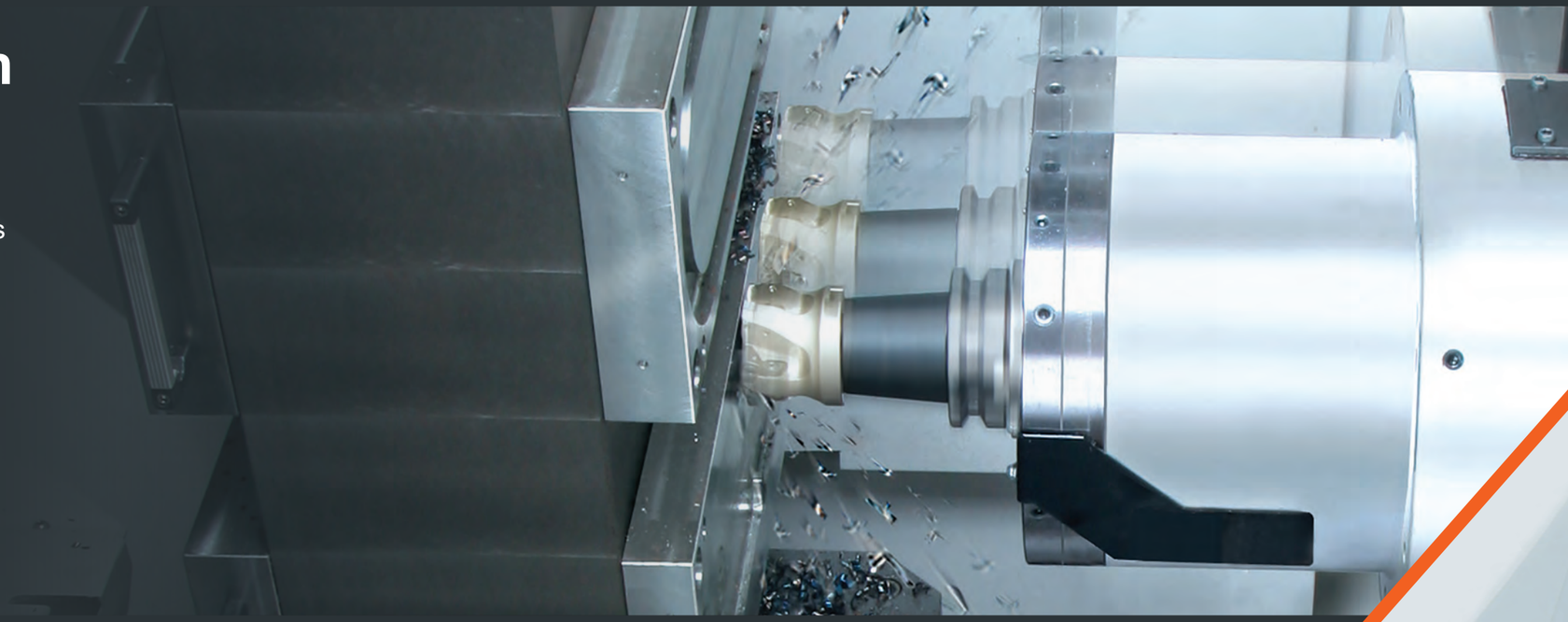
HCN-6800 NEO

[Horizontal Machining Center]

Maximize productivity with exceptional performance

Exceptional machine construction and a wide variety of options provide unsurpassed productivity

- **Reduced non-cutting time for higher productivity**
- **Spindle specifications to meet a wide variety of machining requirements**
- **High-rigidity construction minimizes machine distortion**
- **Wide variety of automation systems available for higher productivity**



Next-generation horizontal machining center

HCN-6800 NEO

NEO: Next/Excellent/Optimal

High-torque spindle for heavy-duty machining OPTION

8000 rpm, 1413 N·m (1042 ft·lbs) [10% ED]

World's fastest class DDM rotary table OPTION

Indexing time (90°) **1.2 sec.**

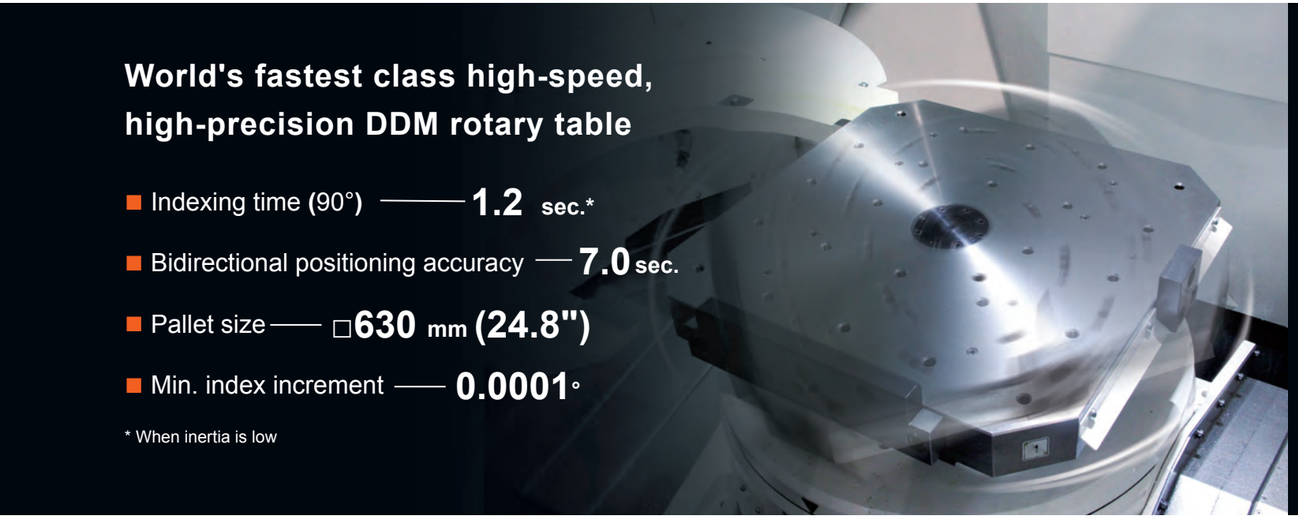
Applicable to various workpiece materials

Frame (aluminum alloy)
Aerospace component

Mount (stainless steel)
Construction machinery component
Automotive component

Cylinder block (cast iron)
Construction machinery component
Automotive component

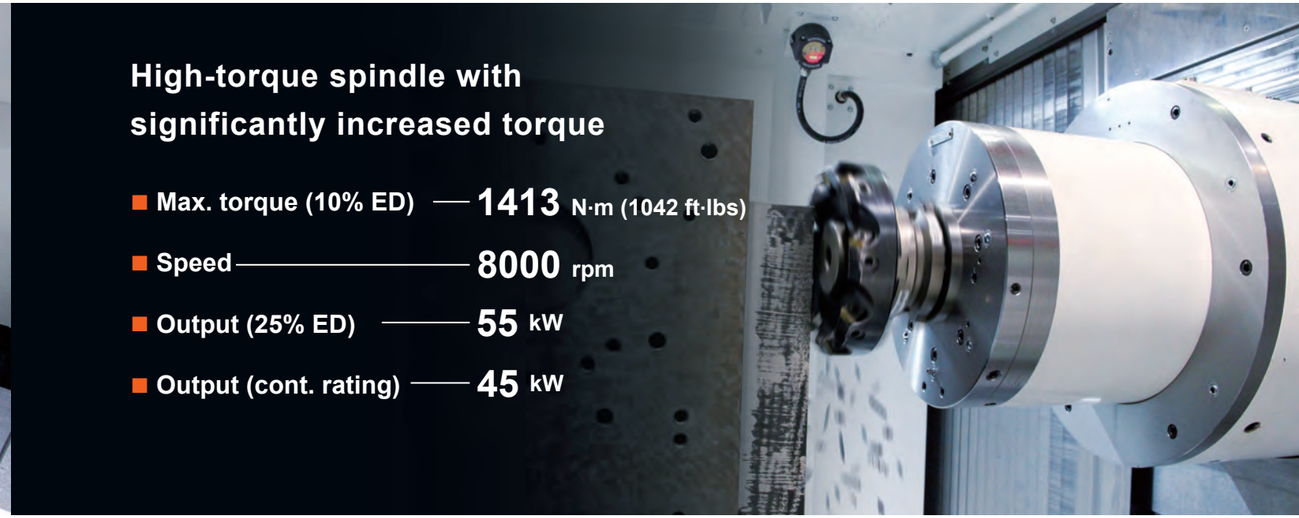
Higher Productivity



World's fastest class high-speed, high-precision DDM rotary table

- Indexing time (90°) —— **1.2** sec.*
- Bidirectional positioning accuracy — **7.0** sec.
- Pallet size —— □**630** mm **(24.8")**
- Min. index increment —— **0.0001**°

* When inertia is low



High-torque spindle with significantly increased torque

- Max. torque (10% ED) — **1413** N·m (1042 ft·lbs)
- Speed —— **8000** rpm
- Output (25% ED) —— **55** kW
- Output (cont. rating) —— **45** kW

DDM rotary table with scale OPTION

For efficient high-speed operation, direct transmission of driving power to the rotary table axis eliminates power transmission components such as the worm shaft and worm gear. Auto tuning function optimizes acceleration/deceleration of inertia on the table to reduce positioning time.

Inertia Auto Tuning

Onscreen support of inertia adjustment

Generate estimated programs
Visualize estimated results
Adjust programs

High-torque 8000 rpm spindle OPTION

Ensures powerful machining of steel and cast iron. Elimination of drive gears minimizes power loss and spindle vibration, improving machine surface quality and extending tool life. Temperature-controlled cooling oil circulates around the spindle bearings and headstock to minimize any thermal change to the spindle.

Tool shank	No. 50 BIG-PLUS No. 50 HSK-A100

Available table specifications

0.0001° × 3600000 NC rotary table

NC rotary table uses a backlash-free rotary gear cam to ensure high accuracy as well as long service life.

Index increment	0.0001° × 3600000
Clamping torque	12.25 kN·m
Table rotation speed	30 rpm
Contouring torque (cont. rating)	1.14 kN·m
Indexing time (90°)	1.5 sec.

1° × 360 index table OPTION

High-accuracy indexing in 1° increments with 360° high-index coupling.

Index increment	1° × 360
Table rotation speed	25 rpm
Indexing time (90°)	1.9 sec.

Available spindle specifications

Standard 10000 rpm spindle

Spindle power output is 45 kW [40% ED (30 min.rating)]. Designed for high-efficiency machining of a wide variety of applications, from steel to non-ferrous material

Speed	10000 rpm
Output	AC 45 kW (60 HP) [40% ED (30-min. rating)]
	AC 37 kW (50 HP) (cont. rating)
Spindle torque	350 N·m (258 ft·lbs) [40% ED (30-min. rating)]

High-speed 16000 rpm OPTION

Changeable bearing preload ensures rigidity during low-speed machining as well as high-speed machining of aluminum.

Speed	16000 rpm
Output	AC 37 kW (50 HP) [40% ED (30-min. rating)]
	AC 30 kW (40 HP) (cont. rating)
Spindle torque	221 N·m (163 ft·lbs) [40% ED (30-min. rating]

Higher Productivity

High-speed drum-type tool magazine for improved maximum tool length and moment

- Max. tool length —— 690 mm (27.17")
- Max. moment —— 49 N·m* (36 ft·lbs)
- Tool change time —— Min. 6.0 sec.

*Limitation varies based on number of tools stored

Drum-type tool magazine

Drum-type tool magazine with high-speed tool index.
Angled storage position accommodates long tools and reduces machine width.

Tool magazine capacity: 43
Tool magazine capacity: 60 OPTION

Available tool magazine specifications

80, 120 and 160-tool magazines OPTION

The tool magazine can perform high-mix, low-volume production.
Tool selection method is random, shortest path (fixed pocket assignment).

240, 348 TOOL HIVE OPTION

Store a large number of tools in a small space. Additionally, use the TOOL HIVE TERMINAL control panel for operation and tool data editing to reduce tool setup time.

206, 348 TOOLTECH OPTION

Compact rack-type tool magazine with large tool storage capacity. Includes tool cart to load large or multiple tools with ease.

Note: Available on No. 50 and BIG-PLUS No. 50

Hydraulic fixtures for higher productivity

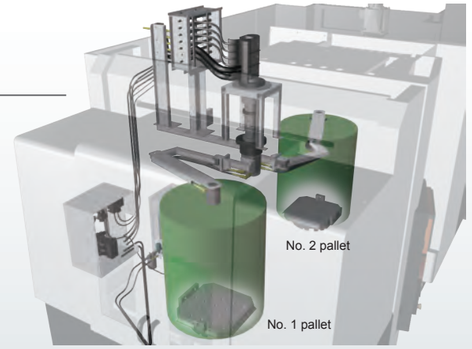
Optional multiple-port hydraulic fixtures are available with pneumatic seating detection.This not only increases workpiece loading/unloading efficiency, but also further improves productivity by connecting workpiece transfer units, including robots.

- Hydraulic power supply* —— 8 ports
- Workpiece seating detection* —— 4 ports
- Max. hydraulic power supply —— 7 MPa

* 1 pallet/hydraulic power supply (supply from machine top)

Hydraulic power supply A (supply from machine top) OPTION

Hoses supply hydraulic power from the top part of the pallet changer to fixtures mounted on each pallet. Arrange up to 12 ports.



Hydraulic power supply B (supply through pallet) OPTION

A leak-free coupling system supplies hydraulic power to the supply port on the pallet bottom, eliminating the need for a hydraulic hose and hydraulic rotary coupling. This minimizes interference for easy fixture design and workpiece machining.
In addition, automatic indexing of the loading station makes it even easier to automate workpiece loading/unloading with robots.
Both NC rotary table and DDM rotary table can be equipped.

Loading station	Inside machine
Hydraulic power supply: **8 ports**	Hydraulic power supply: **4 ports**

Higher Productivity

Optimum chip disposal for a wide range of applications

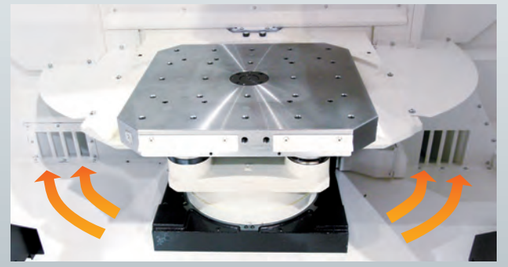
In coolant, chips can cause filter-clogging valve failures and deterioration of machining surface quality. To prevent these problems, chips are separated from the coolant and discharged. Because chip shapes and sizes differ based on workpiece material and machining method, a wide range of conveyors and filters is available.

Magnetic separator OPTION

The magnetic separator inside the coolant tank separates ferrous chips from the coolant.

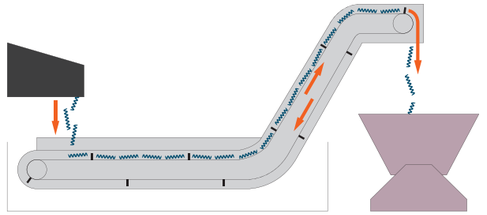
Chip disposal (setup station)

To prevent accumulation, the conveyor inside the machine smoothly removes chips on the 2-pallet changer.



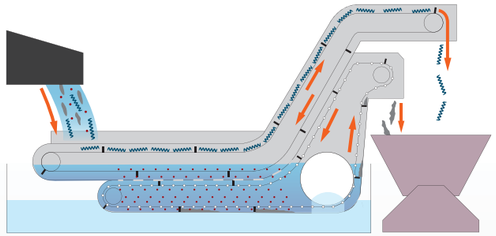
Chip conveyor (hinge) OPTION

The hinge-plate belt removes chips for discharge from the side of the machine. Very suitable for curly steel chips from 30 mm ~ 150 mm (1.18" ~ 5.91") long.



Chip conveyor (ConSep2000) OPTION

The upper conveyor discharges long and curly chips. The lower conveyor discharges fine chips and filters coolant using the drum filter.



Chip conveyor

Select chip conveyor type based on the type of machined chips that will be produced.

○: Applicable ×: Not applicable

Chip shape		Sludge-like chips [0.25 mm ~ 1 mm (0.01" ~ 0.04")]	Needle-like chips [~0.5 mm (~0.02")]	1~5mm (0.04 ~ 0.2")	5~30mm (0.2~1.18") [Max. 30mm (1.18")]	30~70mm (1.18~2.76") [Max. 70mm (2.76")]	70mm - (2.76"-)	Features
Hinge	For ferrous machining	×	×	×	×	○	○	Applicable for long steel chips
ConSep	For ferrous/ aluminum/ cast-iron machining	○	○	○	○	○	○	Applicable regardless of chip length

High-Rigidity Construction

High-rigidity construction for high-accuracy machining

High-rigidity bed

The highly rigid mounting surface of the X and Y-axis linear guides minimizes distortion on the bed during axis travel.

■ Max. workpiece dimensions

ø1050 mm (41.34") × 1300 mm (51.18")

■ Max. load on pallet (evenly distributed)

1500 kg (3307 lbs)

Linear roller guides utilized on the X, Y and Z axis

The HCN Series uses linear roller guides on the X, Y and Z axis for high accuracy and heavy-duty machining.

■ Rapid traverse rate, Cutting feedrate

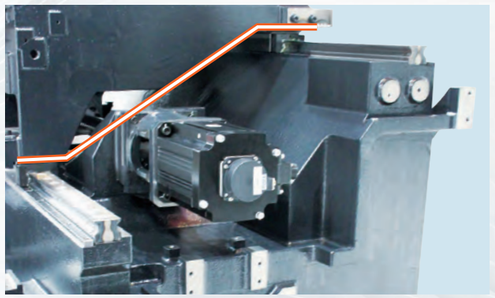
60 m/min (2362 IPM) (X, Y, Z axis)

Table clamping

The table and pallet are clamped on taper cones to ensure high rigidity and repeatable accuracy in pallet changing.

Base X-axis construction

The X-axis linear guides mount on a slanted surface on the bottom of the column. To ensure high-accuracy positioning, the ball screw is close to the column's center of gravity



Ergonomics

Design focus on ergonomics provides unsurpassed ease of operation

Large windows on the 2-pallet changer cover door

Large windows give the operator an easy view of workpiece status in the setup station.

Convenient workpiece loading/unloading

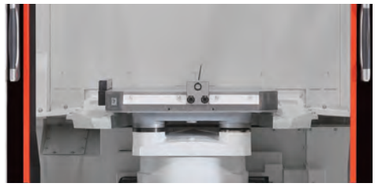
Easily use an overhead crane to load/unload heavy workpieces and fixtures.

Large operation window

Conveniently monitor machine operation through a large window.

Convenient setup

Index the loading station manually to four positions at every 90° angle for even easier loading/unloading of workpieces on multiple surface fixtures.



Convenient setup

For setup ease, 2-pallet changer operation panel is located next to the door at optimum height.

Maintenance area

Centrally located hydraulic and air pressure inlets and lubrication reservoirs make maintenance easy.

CNC System

Fastest CNC in the world

Latest hardware and software for
unprecedented speed and precision

Smooth graphical user interface

MAZATROL Smooth graphical user interface
with easy touch screen operation similar to
your smartphone/tablet

Ease of operation

Designed for unsurpassed
ease of operation

Shown with optional dual monitor

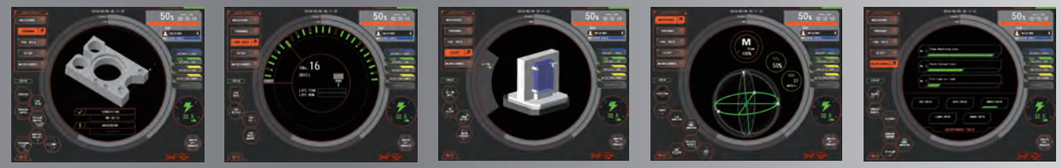
4-axis simultaneous CNC

MAZATROL SMOOTH G

Process home screens

Five different easy-to-understand home process screens each display appropriate data.
Touch icons in each process display for additional screen displays.

Programming | Tool data | Setup | Machining | Maintenance

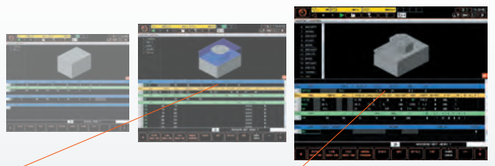


Programming screen links tool path, workpiece shape and programming to reduce programming time

QUICK MAZATROL

Reduced time for conversational programming

MAZATROL program, unit list and 3D workpiece shape are linked to each other. After defining a machining unit in a MAZATROL program, the 3D shape is displayed immediately to check for any programming error easily and quickly.



Touch a feature in the 3D model to move quickly to the corresponding section of the MAZATROL program

Real-time display of 3D model in the process list shows updated programming.

3D ASSIST

Create a program directly from 3D CAD data

To reduce input errors and program checking time, import workpiece and coordinate data from 3D CAD data to a MAZATROL program without coordinate value inputs.

CAD model importing

Shape selection

Automatic input to MAZATROL program

QUICK EIA

EIA program visualization

Program, process list and 3D tool path display are linked to each other. Reduce program-checking time with visual search on touch screen.

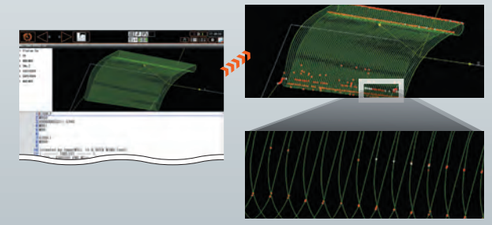
Touch the screen to select the tool path

Move to the corresponding EIA program line

VIEW SURF

Analyze EIA programs

Analyze tool path to visualize any predictable failure on the finished surface. Modify the program before machining to minimize test-cutting time.



Standard and Optional Equipment

Automation

2-pallet changer

For higher productivity, rotary-type pallet changers quickly change pallets with heavy workpieces.

Automatic loading station rotation OPTION

Index the loading station manually to four positions at every 90° angle for even easier loading/unloading of workpieces on multiple surface fixtures. Easily load/unload workpieces by robot with optional hydraulic power supply.

PALLETECH SYSTEM OPTION

Conveniently add more machines and increase pallet storage capacity after initial installation. The modular PALLETECH design responds to changing production requirements.
For large storage capacity with small floor space requirements, the pallet stocker is available with one, two and three levels.

PALLETECH MANUFACTURING CELL (1 level)

System specifications

		Minimum	Maximum
Machine (s)		1	15
Number of pallets	1 level	6	240
	2 levels	12	240
	3 levels	18	240
Loading station (s)		1	8
Loading robot		1	1

PALLETECH HIGH-RISE SYSTEM (3 levels)

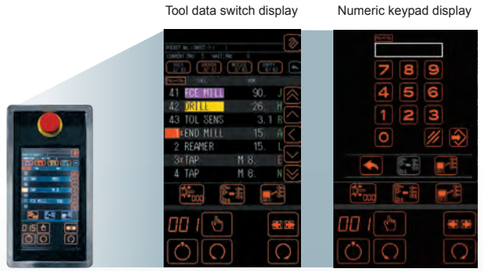
Setup

Manual pulse generator (wired)

Operate the machine away from the CNC panel with the wired remote pulse generator, which displays position and machine coordinates and can register four positions in memory.

Tool magazine operation panel (Touch panel)

To bring a specific pocket into position automatically, input pocket or tool number directly into the numeric keyboard of the tool magazine operation panel instead of simply using a forward/reverse button. Tool data display on the panel eliminates trips back to the machine CNC. Touch tool data to index the tool magazine to the selected tool. The sort key quickly shows which tool pockets are empty.



Manual pulse generator (wireless) OPTION

Wireless manual pulse generator connects to the MAZATROL SmoothG CNC through radio waves for convenient operation without the limitation of a connecting cable. (Note: Not available in some countries.)

Tool ID OPTION

Automatically input and update tool data into the CNC for networked machines. Eliminates mistakes in loading tools into the magazine and inputting tool data, additionally reducing setup time. (Requires retention bolt with tool ID and tool presetter)

Standard and Optional Equipment

Setup

Automatic tool length measurement & tool breakage detection

Tool length is measured and registered automatically in the CNC. Tool breakage can be detected during automatic operation.

SMOOTH OMM OPTION FREE TRIAL
(On-machine measurement software)

Manual operation can move the touch probe to a measurement point and create a measurement program after registering the point. Measurement results support automatic updates of work coordinates and tool compensation, along with measurements of tool compensation. A 120-day free trial period provides access to all functions, and work-coordinate measurement remains accessible even after the trial period.

Note: The user must prepare the touch probe and reference sphere for on-machine measurement. Depending on the customer environment, additional purchases may be necessary. For further details, please contact your nearest Mazak office.

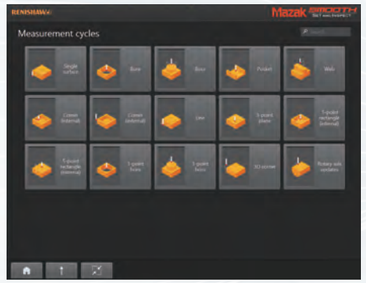
Mazak monitoring system B (OMP60) OPTION

A touch sensor mounted in the machine spindle probes the workpiece. Coordinate values shift automatically based on measurement results.

SMOOTH Set and Inspect OPTION FREE TRIAL
(On-machine measurement software)

Easily create inspection programs and update work coordinates, and use measurement results to update tool compensation automatically.

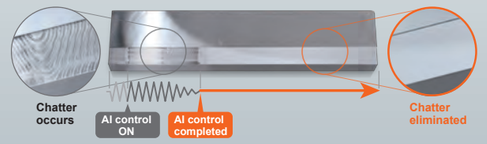
Note: The user must prepare the touch probe and reference sphere for on-machine measurement. Depending on the customer environment, additional purchases may be necessary. For further details, please contact your nearest Mazak office.



High accuracy

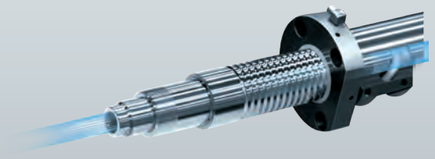
Smooth Ai Spindle OPTION

AI detects milling spindle vibration and automatically changes machining conditions to produce unsurpassed surface finishes and high productivity. Thanks to AI, adjustments are easy to make quickly without a skilled operator.



Ball screw core cooling

Temperature-controlled cooling oil circulates through the ball screw cores to ensure stable machining accuracy over extended periods of high-speed operation.



Ai Thermal Shield

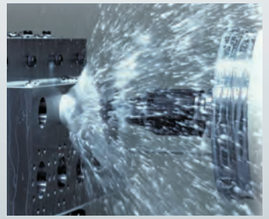
To ensure even higher machining accuracy, new algorithms automatically determine and apply compensation according to changes in temperature.

Coolant/chip disposal

SUPERFLOW coolant system OPTION

The SUPERFLOW coolant system supplies a maximum 7.0 MPa (1015 PSI) coolant pressure to lower tool tip temperatures and improves coolant lubrication and chip disposal.

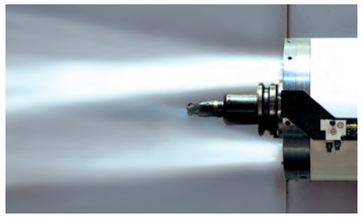
- Adjustable coolant pressure
- High-performance cyclone filter with minimum maintenance requirements reduces running cost



High-pressure pump unit

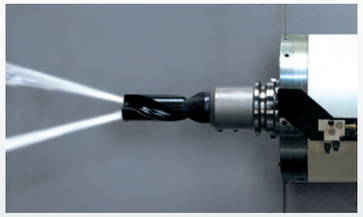
Flood coolant

Coolant is discharged from nozzles on the spindle housing to cool the workpiece and remove chips.



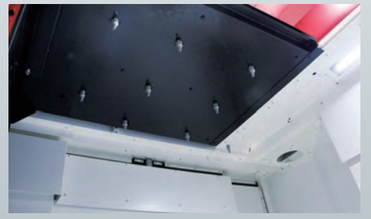
Coolant through spindle

Coolant is fed to the tool tip by passages through the tool.
Three pump pressure specifications are available: 0.8 MPa (116 PSI), 1.5 MPa (218 PSI, option) and 7 MPa (1015 PSI, option).



Niagara coolant system

Large volume of coolant discharged from nozzles mounted on the machine top cover flushes chips from the workpiece to conveyors on both sides of the table.

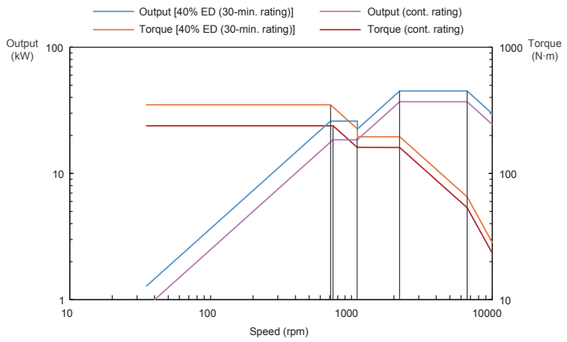


Output/Torque Diagram · Dimensions

Output/torque diagram

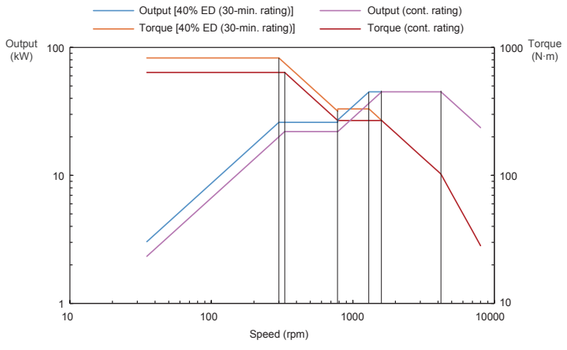
Standard spindle

No. 50, 10000 rpm, 45 kW [40% ED (30-min. rating)]



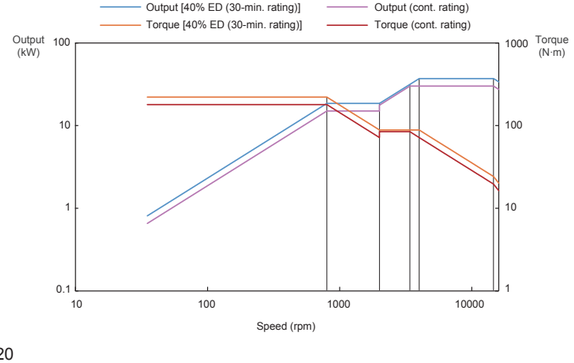
High-torque spindle OPTION

No. 50, 8000 rpm, 45 kW [40% ED (30min. rating)]



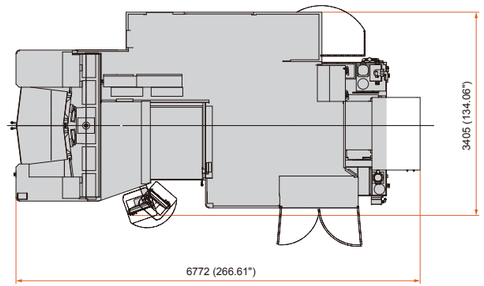
High-speed spindle OPTION

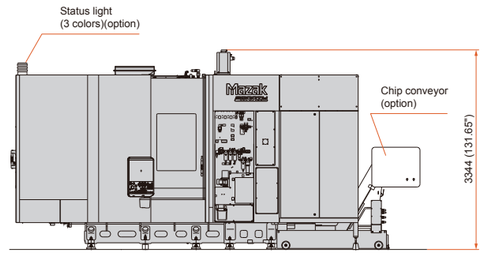
HSK-A100, 16000 rpm, 37 kW [40% ED (30min. rating)]



Machine dimensions

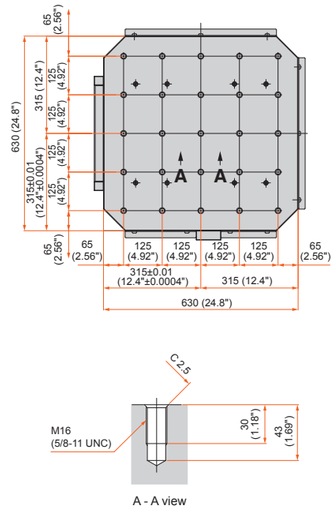
Unit: mm (inch)





Standard pallet dimensions

Unit: mm (inch)



Standard Machine Specifications

Stroke	X axis (column right/left)	1050 mm (41.34")
	Y axis (spindle up/down)	900 mm (35.43")
	Z axis (table back/forth)	980 mm (38.58")
	Distance from table center to spindle nose	100 mm ~ 1080 mm (3.94" ~ 42.52")
	Distance from pallet top to spindle center	100 mm ~ 1000 mm (3.94" ~ 39.37")
Pallet	Size	630 × 630 mm (24.8" × 24.8")
	Max. workpiece dimensions	ø 1050 mm × 1300 mm (41.34" × 51.18")
	Load capacity (evenly distributed)	1500 kg (3307 lbs)
	Top surface	M16 (5/8-11 UNC), tapped 25 places, pitch 125 mm (4.92")
Table	Minimum indexing angle increment	0.0001°
	Indexing time	1.5 sec./90°
Spindle	Max. speed	10000 rpm
	Taper	7/24 taper No.50
	Motor [40% ED (30-min.rating)/cont.rating]	45 kW/37 kW (60 HP/50 HP)
Feedrate	Rapid traverse rate (X, Y, Z axis)*1	60000 mm/min (2362 IPM)
	Cutting feedrate (X, Y, Z axis)*1	1 ~ 60000 mm/min (0 ~ 2362 IPM)
Automatic tool changer	Tool shank	No.50
	Tool magazine capacity	43
	Max. tool diameter/length (from gauge line)/weight	ø 125 mm (4.92")/690 mm*2 (27.17")/30 kg (66 lbs)
	Max. tool diameter (when adjacent pockets empty)	ø 250 mm*3 (9.84")
	Tool selection method	MAZATROL Random memory (random pocket assignment)
	Tool change time (chip to chip)	4.2 sec.
Automatic pallet changer	Number of pallets	2
	Change system	Rotary type
	Pallet change time	11.0 sec.
Machine size	Height	3344 mm (131.65")
	Floor space requirement	3405 mm × 6772 mm (134.06" × 266.61")

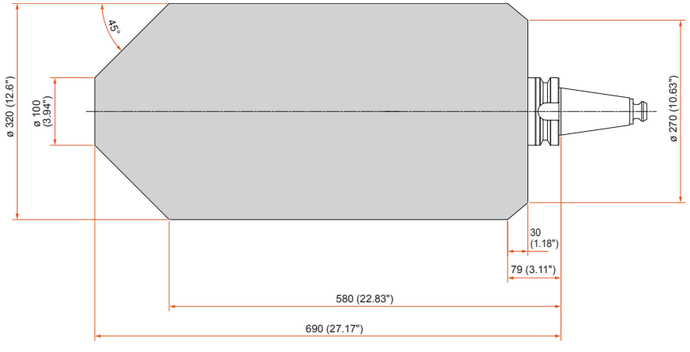
*1 Limited feedrate with continuous axis movement

*2 Ability to perform pallet change depends on tool length

*3 When adjacent pockets are empty and pockets next to them have tools smaller than ø240 mm (9.45"), maximum tool diameter is ø260 mm (10.24")

Max. tool dimensions OPTION

Unit: mm (inch)



Max. tool weight: 30 kg (66 lbs)

Max. moment: 49 N·m* (36 ft·lbs)

* Standard 43-tool magazine can store four tools.

Notes

- When adjacent pockets are empty and pockets next to them have tools smaller than ø180 mm (7.09")
- X-axis stroke limit: 10 mm (0.39") according to the tool diameter mounted on the spindle
- Ability to perform pallet change depends on tool length

Standard and Optional Equipment

●: Standard ○: Option

Spindle	10000 rpm (No. 50)	●
	10000 rpm (BIG-PLUS No. 50, HSK-A100)*1	○
	8000 rpm (No. 50, BIG-PLUS No. 50, HSK-A100) high torque*1	○
	16000 rpm (HSK-A100) high speed	○
Tool magazine	43-tool (No. 50) drum type	●
	43-tool (HSK-A100) drum type	○
	60-tool (No. 50, HSK-A100) drum type	○
	80, 120, 160-tool (No. 50, HSK-A100) chain type	○
	240, 348-tool (No. 50, HSK-A100) TOOL HIVE	○
	206, 348-tool (No. 50, BIG-PLUS No. 50) TOOLTECH	○
Table	NC rotary table	●
	DDM rotary table with scale feedback	○
	1° × 360 index table	○
Pallet	□ 630 mm (24.8") tapped pallet	●
	□ 630 mm (24.8") tapped pallet with location bore	○
	□ 630 mm (24.8") T-slot pallet with location bore	○
	630 mm (24.8") × 800 mm (31.5") tapped pallet	○
	630 mm (24.8") × 800 mm (31.5") tapped pallet with location bore	○
	630 mm (24.8") × 800 mm (31.5") T-slot pallet with location bore	○
	□ 800 mm (31.5") tapped pallet	○
	□ 800 mm (31.5") tapped pallet with location bore	○
	□ 800 mm (31.5") T-slot pallet with location bore	○
Automation	2-pallet changer	●
	6-pallet changer/pallet changer management/hand held coolant nozzle	○
	Hydraulic power supply B (supply through pallet) 2 ports × 2 pallets (1° × 360 index table not available)	○
	Tapped pallet with location bore for hydraulic power supply B (2 ports)	○
	T-slot pallet with location bore for hydraulic power supply B (2 ports)	○
	Hydraulic power supply A (supply from machine top), 2 ports × 2 pallets	○
	Workpiece seating detection, ON/OFF switch (requires hydraulic fixture)	○
	Automatic loading station rotation (90°index, 4 positions)	○
	Automatic front door	○
	Robot interface	○
	PMC application	○
	Automatic power ON/OFF + warm-up operation	●
Setup	SMOOTH Ai Spindle	○
	Dual monitor for MAZATROL SmoothG CNC	○
	Remote manual pulse generator (wired)	●
	Remote manual pulse generator (wireless)	○
	Magazine operation panel (without Tool ID)	●
	Mazak monitoring system B (optical) OMP60	○
	SMOOTH OMM (on-machine measurement software)	○
	SMOOTH Set and Inspect (on-machine measurement software)	○
	Automatic tool length measurement & tool breakage detection	●
	RENISHAW NC 4 laser tool length measurement*2	○
	Tool breakage detection (ATC areas/up to standard tool length)	○
Safety equipment	Tool runout detection (caused by chip contamination between spindle & tool holder)	○
	Operator door interlock	●
High accuracy	Scale feedback (X, Y, Z axis)	○
	Chiller unit	●
	Coolant temperature control	○
	Ball screw core cooling	●
Coolant/Chip disposal	Flood coolant	●
	Niagara coolant	●
	Oil mist coolant	○
	Coolant through spindle 0.8 MPa (116 PSI)	●
	High-pressure coolant through spindle 1.5 MPa (218 PSI)	○
	Preparation for high-pressure coolant through milling spindle 7.0 MPa (1015 PSI)	○
	SUPERFLOW coolant system	○
	Air through spindle (cannot be used with spindle rotating)	●
	Work air blast	○
	Handheld coolant nozzle (workpiece setup side)	○
	Oil skimmer (RB-200)	○
	Mist collector	○
	Chip conveyor (side disposal), not available with 6-pallet changer	○
	Chip conveyor (rear disposal)	○

*1 Requires tool magazine for HSK

*2 Not available with automatic tool length measurement

MAZATROL SmoothG Specifications

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 4 axes	
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg	
High-speed, high-precision control	Shape compensation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation	Shape compensation, Smooth corner control, Rapid traverse overlap, Rotary axis shape compensation, High-speed machining mode, High-speed smoothing control
Interpolation	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Synchronous tapping*	Positioning (interpolation), Positioning (non-interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Cylindrical interpolation*, Fine spline interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Synchronous tapping*
Feedrate	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Dwell (time/rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, Variable acceleration control, G0 slope constant*	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (time/rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate limitation, Time constant changing for G1, Variable acceleration control, G0 slope constant*
Program registration	Number of programs: 256 (Standard)/960 (Max.), Program memory: 2MB, Program memory expansion: 8MB*, Program memory expansion: 32MB*	
Control display	Display: 19" touch panel, Resolution: SXGA	
Spindle functions	S code output, Spindle speed limitation, Spindle speed override, Spindle speed reaching detection, Multiple position orient*, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Spindle speed range setting	
Tool functions	Number of tool offset: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)	Number of tool offset: 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)
Miscellaneous functions	M code output, Simultaneous output of multiple M codes	
Tool offset functions	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool wear offset	
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, Additional work coordinates (300 set)	
Machine functions	–	Tilted working plane**, Shaping function*, Dynamic compensation II*, Tool center point control*, Workpiece positioning error compensation**
Machine compensation	Backlash compensation, Pitch error compensation, Ai Thermal shield, Volumetric compensation*	
Protection functions	Emergency stop, Interlock, Pre-move stroke check, SAFETY SHIELD (manual mode), SAFETY SHIELD (automatic mode)*, VOICE ADVISER	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, EtherNet operation*
Automatic operation control	Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Machine lock	Optional block skip, Optional stop, Dry run, Manual handle interruption, MDI interruption, TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring functions	Tool length teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine	Tool length teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, Measurement on machine
Automatic measuring functions	WPC coordinate measurement, Automatic tool length measurement, Sensor calibration, Tool breakage detection, External tool breakage detection*	Automatic tool length measurement, Sensor calibration, Tool breakage detection, External tool breakage detection*
MDI measurement	Semi-automatic tool length measurement, Full-automatic tool length measurement, Coordinate measurement	
Peripheral network	PROFIBUS-DP*, EtherNet/IP*, CC-Link*, CC-Link IE Field Basic*	
Interface	SD card interface, USB	
EtherNet	10M/100M/1Gbps	

* Option

** Simultaneous 4-axis control

HCN-6800 NEO

Mazak

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