HORIZONTAL MACHINING CENTER

H300

Designed And Engineered To Dramatically
Boost Your Machining Efficiency !

CUBIC MACHINERY

H300

HORIZONTAL MACHINING CENTER

A Number of Patented Design:

Patented No. Description	Description
102137044	The simplest tool changer with reduced tool change time
102220857	Exclusive two-stage coolant tank effectively filtrating various types of chips
M433258	Self-locking rotary table
M440172	Cam actuated APC

Comparison of Feed Rates

Cubic H300 VS. Conventional HMC-500

MODEL	H300	Conventional H-500
Cutting feed rate	12 m/min. (472 ipm)	8~10 m/min. ((315-393 ipm)
Rapid traverse rate (X, Y, Z-axis)	48 m/min. (1890 ipm)	30 m/min. (1181 ipm)

Ultra-high Efficiency

- 12m/min. (472 ipm) cutting feed rate
- 48 m/min. (1890 ipm) rapid traverse rate
- 1.5 times of efficiency of conventional model HMC-500

Applicable Industries

The Cubic H300 serves a broad range of industry types, including:

- Automotive parts
- Electronic parts
- Medical parts
- Molds and dies
- Industrial products
- Pneumatic power tools

Less Space Occupation With Greater Efficiency

(Compared with Conventional HMC-500)

Space Saved by **50%**

Efficiency **1.5 X Improvement**

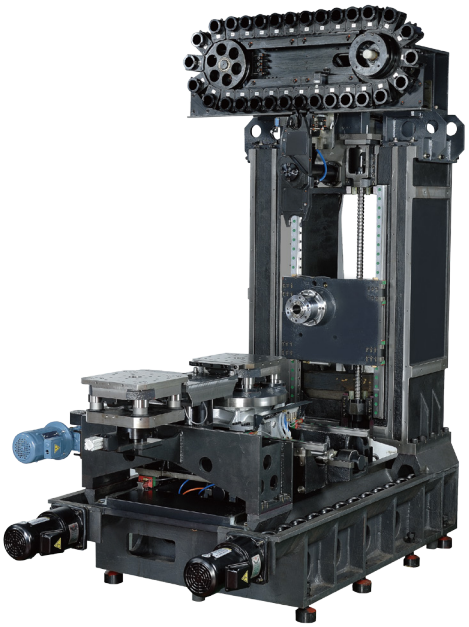
Coolant Through Spindle (Optional)

For deeper hole drilling and boring capacity, the optional coolant through spindle (CTS) feature is recommended.
With the use of the coolant through spindle and high pressure coolant, chips in the deep hole can be quickly evacuated, increasing the machining accuracy and reducing considerable machining time.

Coolant Jets Around Spindle

With the use of coolant jets around spindle, heat generated during cutting can be removed effectively.

Optimal Structure Design. The Ultimate in Structural Rigidity And Stability



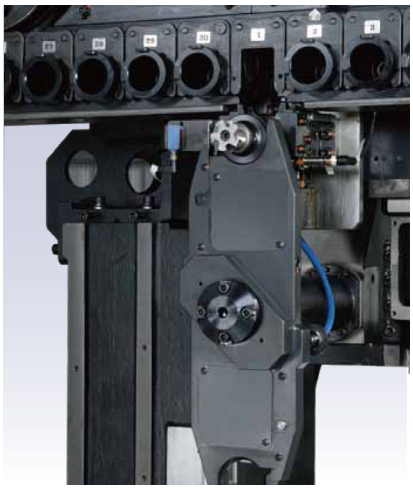
FIXED COLUMN
The fixed column design provides an increase in machine rigidity.

LOW TABLE HEIGHT
With the lower center of gravity, high stability for positioning accuracy can be achieved.

PRETENSIONED BALL SCREWS
Three axes are transmitted through pretensioned ball screws with double nuts so as to effectively suppress thermal deformation and eliminate backlash.

ROLLER TYPE LINEAR WAYS
The use of roller type linear ways on three axes permit cutting feed rate to reach 12 m/min. (472 ipm) . and rapid traverse rate of 48m/min. (1890 ipm) leading to a significant increase in machining efficiency..

EFFICIENT CHIP DISPOSAL
The design of symmetrical structure coupled with slant splash guards in the machine make chips disposal more efficient, thus effectively reducing thermal affection due to chips accumulation.



The Simplest Tool Changer

(Patented NO. 102137044)

Direct Tool Picking !
No Complicated Mechanism !

- The exclusively designed tool changer speeds up tool change cycle and minimizes the possibility of trouble during tool change.
- Once the spindle is at tool change position, the tool arm plucks the tool directly from tool pocket and swing to accomplish tool change . Unlike other ATC, the tool pocket stays stationary the whole time.

PRETENSIONED BALL SCREWS

Heavy duty roller type linear ways on X, Y, Z-axis , featuring high rigidity, low coefficient of friction and superior vibration dampening which results in improved surface finishes and accuracies.

12 m/min. (472 ipm) Cutting Feed Rate
48 m/min. (1890 ipm) Rapid Traverse Rate

The H300 is designed to reduce your cutting and non-cutting time to a minimum and hence higher productivity and profits can be obtained.
Rapid traverse rates on X, Y, Z-axis reach 48M/min.

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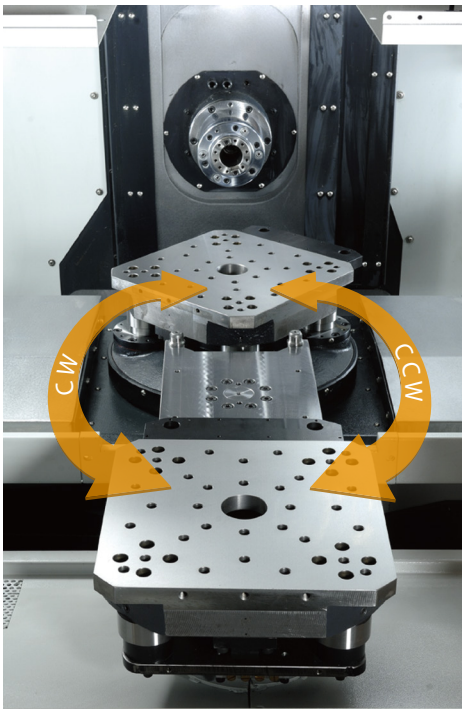
10,000 RPM Belt-Drive Spindle (Standard)

- Spindle taper CT40.
- The spindle runs in Europe-imported ceramic hybrid ball bearings with outstanding features, such as light weight, low vibration as well as low noise. As a result, improved surface finish and longer spindle life can be achieved.

20,000 RPM Direct-Drive Spindle (optional)

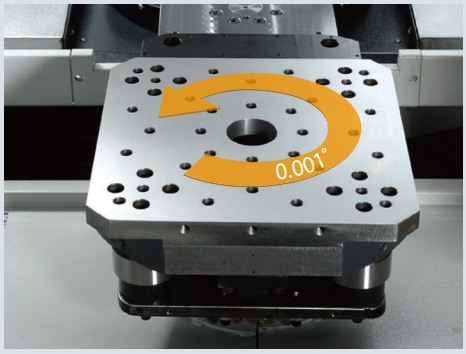


Automatic Pallet Changer

- Specially designed 180° bi-directional automatic pallet changer provides maximum stability and dependability as well as low noise operation.
- A pallet change only takes 7 seconds. If air-tightness detection routine is included in the procedure, the pallet changing time is still only 12 seconds.

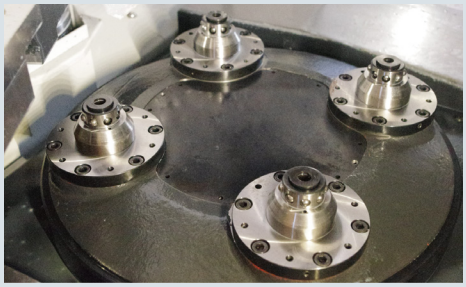
Cam Actuated Pallet Changing Motion

- Cam driven pallet changer is faster than conventional pallet changer that depend on hydraulic power.
- The entire pallet change cycle from pallet raising, pallet rotation, pallet lowering to set position are fast and smoothly performed.



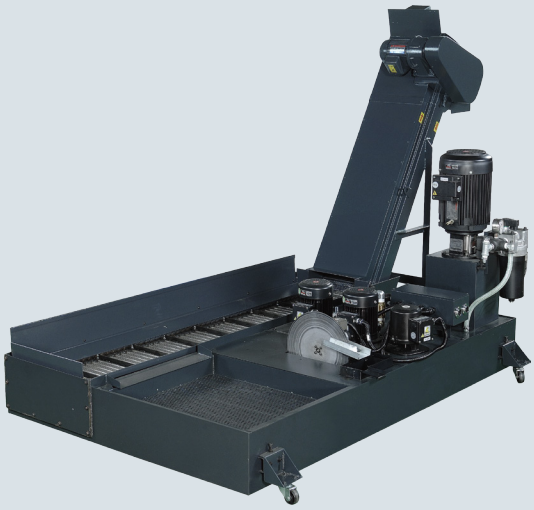
0.001° Rotary Table (B-axis)

- The rotary table is driven by a servo motor and provides 0.001° indexing capability, allowing 4-axis simultaneous control for machining complex work pieces.
- The rotary table is equipped with a heavy duty radial/axial bearing to resist cutting load in both radial and axial directions.
- Large contact surface between worm and worm gear ensures high rotating accuracy of the table, that results in excellent machining accuracy and durability.



Powerful & Accurate Table Clamping

- Main stress is only exerted on the internal and external cone surfaces instead of on the casting so no deformation on the casting will occur over many years of service.
- The major clamping force comes from spring with constant force output to ensure high clamping accuracy.
- The table design ensures hydraulic pressure variation does not affect machining accuracy.
- Powerful 1-ton clamping force on each set of clamping unit offers maximum stability of machining.



Rear-Mounted Chip Conveyor

A chain-type chip conveyor is integrated with the coolant tank and mounted at the back side of the machine to save space.

420-Liter Coolant Tank

The extra large capacity of coolant tank coupled with high coolant flow rate produces effective heat removal for even heaviest cuts.

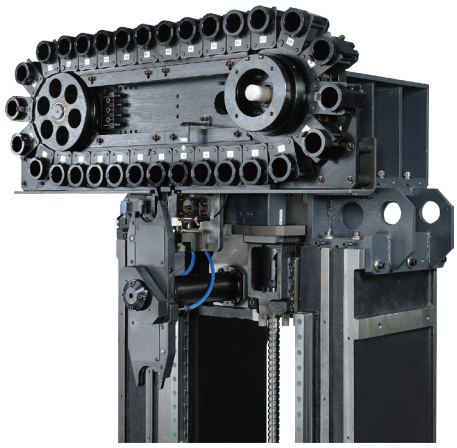
Over-flow Cotton Filtration

The use of over-flow cotton filtration increases filtering efficiency, prolongs interval between coolant changes, increases coolant cleanliness level and thus extends the pump's lifetime.

Exclusive Coolant Tank Design

(Patented NO. 102220857)

The patented coolant tank is designed with two-stage filter to effectively keep coolant free of chips.



Top-Mounted Tool Magazine

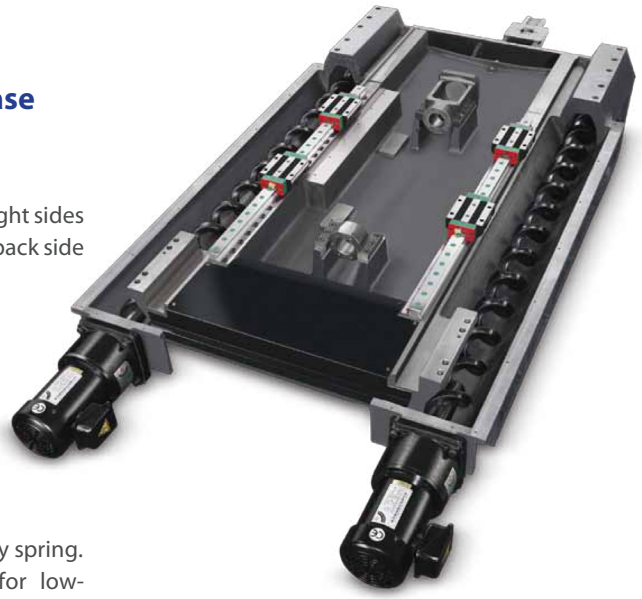
- Tool magazine mounted at the top of machine saves significant floor space.
- Fast and error-free tool selection is achieved with the use of a servo motor (standard feature).
- Tool pockets are easy to replace without having to dismantle the chain.

Tool Magazine Capacity

- 30 tools (standard)
- 40 or 50 tools (optional)

Twin Chip Augers at the Base (Standard)

Two chip augers situated at left and right sides of the base move cutting chips to he back side of the machine for disposal.



Self-locking Rotary Table

- Exclusively designed self-locking by spring.
- Unlocked by pneumatic power for low-energy consumption. No table loosening due to a failure of hydraulic pressure.
- During pallet change, coolant flush and air blow on the jointing surfaces for thoroughly cleaning taper surfaces and ensuring accuracy.
- Once pallet change finished, an air tightness detection will conduct to check clamping dependability.

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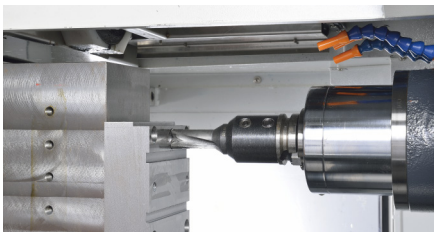
Cutting Tests

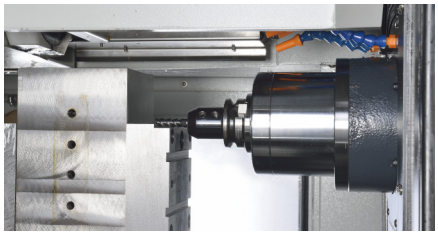
TAPPING



Workpiece material	Aluminum (A6061)
Cutting tool	M12 x 1.75 tap
Spindle speed	S 800
Depth of cut	25 mm

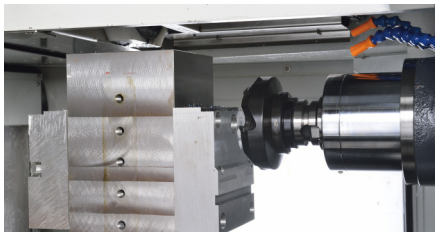
Workpiece material	Steel (S45C)
Cutting tool	M12 x 1.75 tap
Spindle speed	S 500
Depth of cut	25 mm

END MILLING



Workpiece material	Aluminum (A6061)
Cutting tool	Ø12 mm end mill
Spindle speed	S 8000
Depth of cut	25 mm
Width of cut	150 mm
Material removal rate	1500 cm³/min. (91.5 in³/min)

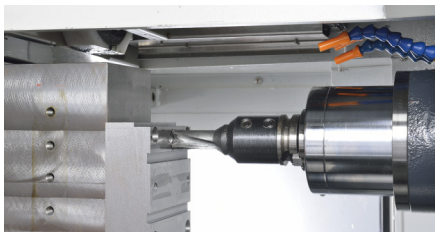
FACE MILLING



Workpiece material	Aluminum (A6061)
Cutting tool	Ø80 mm face milling cutter
Spindle speed	S 5000
Depth of cut	5 mm
Width of cut	150 mm
Material removal rate	700 cm³/min. (42.7 in³/min)

Workpiece material	Steel (S45C)
Cutting tool	Ø80 mm face milling cutter
Spindle speed	S 1200
Depth of cut	3 mm
Width of cut	150 mm
Material removal rate	150 cm³/min. (9.1 in³/min)

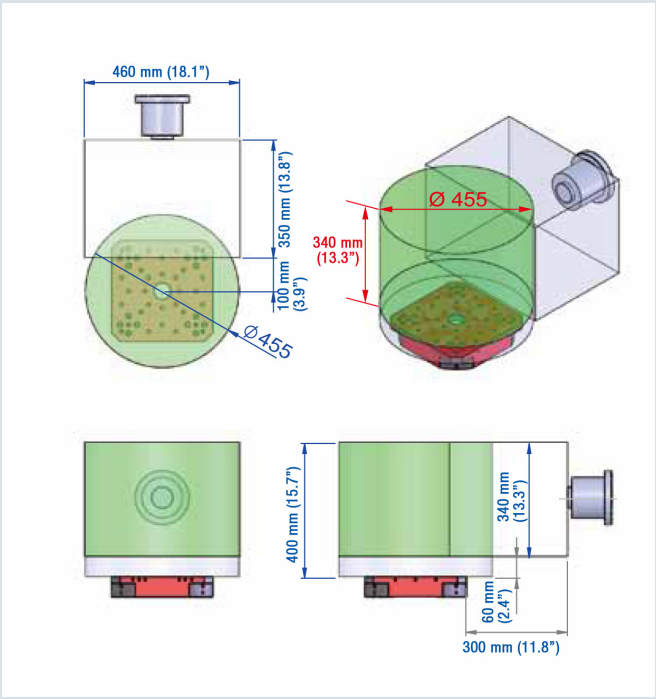
DRILLING



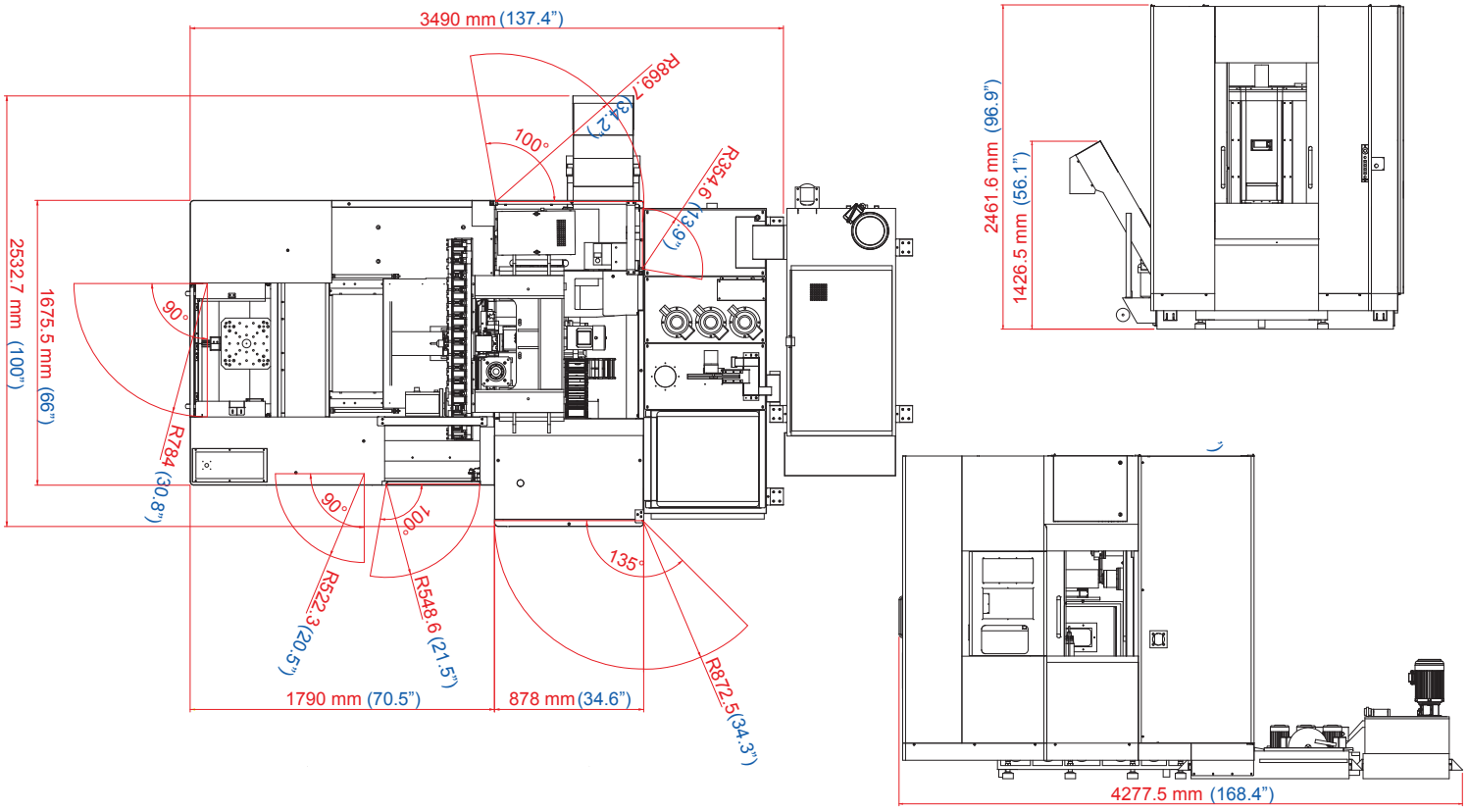
Workpiece material	Aluminum (A6061)
Cutting tool	Ø26 mm drill
Spindle speed	S 2000
Depth of cut	35 mm
Material removal rate	273 cm³/min. (16.6 in³/min)

Workpiece material	Steel (S45C)
Cutting tool	Ø26 mm drill
Spindle speed	S 1000
Depth of cut	35 mm
Material removal rate	137 cm³/min. (8.3 in³/min)

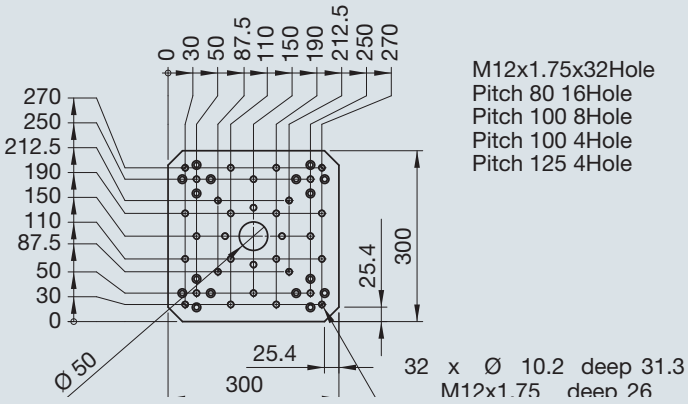
Work envelope



Dimensional Drawings of Machine

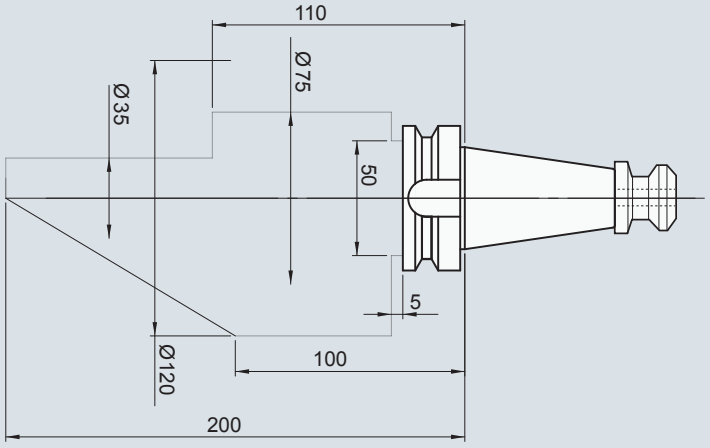


Work table



M12x1.75x32Hole
Pitch 80 16Hole
Pitch 100 8Hole
Pitch 100 4Hole
Pitch 125 4Hole

Tooling size



M12 x 1.75 x 32 Holes
Pitch 80 16 Holes
Pitch 100 8 Holes
Pitch 100 4 Holes
Pitch 125 4 Holes

SPECIFICATIONS

ITEM		H300	
TRAVEL	X-axis	460 mm	18.11”
	Y-axis	350 mm	13.77”
	Z-axis	350 mm	13.77”
	Spindle nose to table center (min.)	100 mm	3.93”
	Spindle center to surface of table (min.)	60 mm	2.36”
FEED RATE	X, Y, Z axis rapid traverse	48 m/min	1889 ipm
	Cutting feedrate	12 m/min	472 ipm
TABLE	Pallet size	300 x 300 mm	11.8”x11.8”
	Max table capacity	250 kg	551 lbs
	B-axis indexing degree	0.001°	
	Number of pallet	2	
	Pallet change method	Rotary	
	Pallet exchange time	7 sec.	
SPINDLE	Spindle speed	10000 rpm (20000 rpm optional)	
	Spindle taper	CT-40	
MOTOR	Spindle motor	7.5 kW/11kW	10 HP/15 HP
	X, Y, Z, B axis motor	1.5kW / 3.0kW / 1.5kW / 1.5kW	
A T C	Tool magazine capacity	30 (40 / 50 Opt.)	
	Time of tool change (T to T)	1.2 sec.	
	Time of tool change (C to C)	5.5 sec.	
	Max tool weight	5 kg	11 lbs
	Max tool size (dia. × length)	Ø70 x 200 mm	2.75” dia x 7.87”
	Pull stud	ISO 7388/2B	
COOLANT TANK	Coolant tank capacity	420 L	110 gallon
GENERAL INFORMATION	Machine net weight	4500 kg	9920 lbs
	Floor space required(L×W×H)	3380 × 2756 × 2440 mm	133” x 108” x 96”

AVAILABLE CONTROLS

1. FANUC 0iMD control
2. Mitsubishi M70 control

STANDARD ACCESSORIES

1. Chain-type ATC (30-tool)
2. Rotary table (B-axis)
3. Full splash guard
4. Coolant system
5. Heat exchanger in electrical cabinet
6. Spindle oil chiller unit
7. Auto lubrication system
8. Air blast through spindle
9. Circular coolant nozzle
10. Work light
11. 3-color light tower
12. Twin auger chip conveyors
13. Operation manual & parts list
14. Remote manual pulse generator
15. Leveling bolts and blocks
16. Tool box

OPTIONAL ACCESSORIES

1. Oil mist collection
2. Oil skimmer
3. Air conditioner in electrical cabinet
4. 3-axis linear scale
5. Coolant through spindle system (20 bar pressure)
6. Direct-drive spindle
7. Built-in motorized spindle
8. Auto power off
9. Automatic tool changer (40/50 tools)
10. Tool length measurement system
11. Transformer
12. Paper filter system
13. Tooling column
14. Flood coolant system
15. Link type chip conveyor
16. Air gun
17. Water gun

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