

MITSEKI



CV-1200

VERTICAL MACHINING CENTER



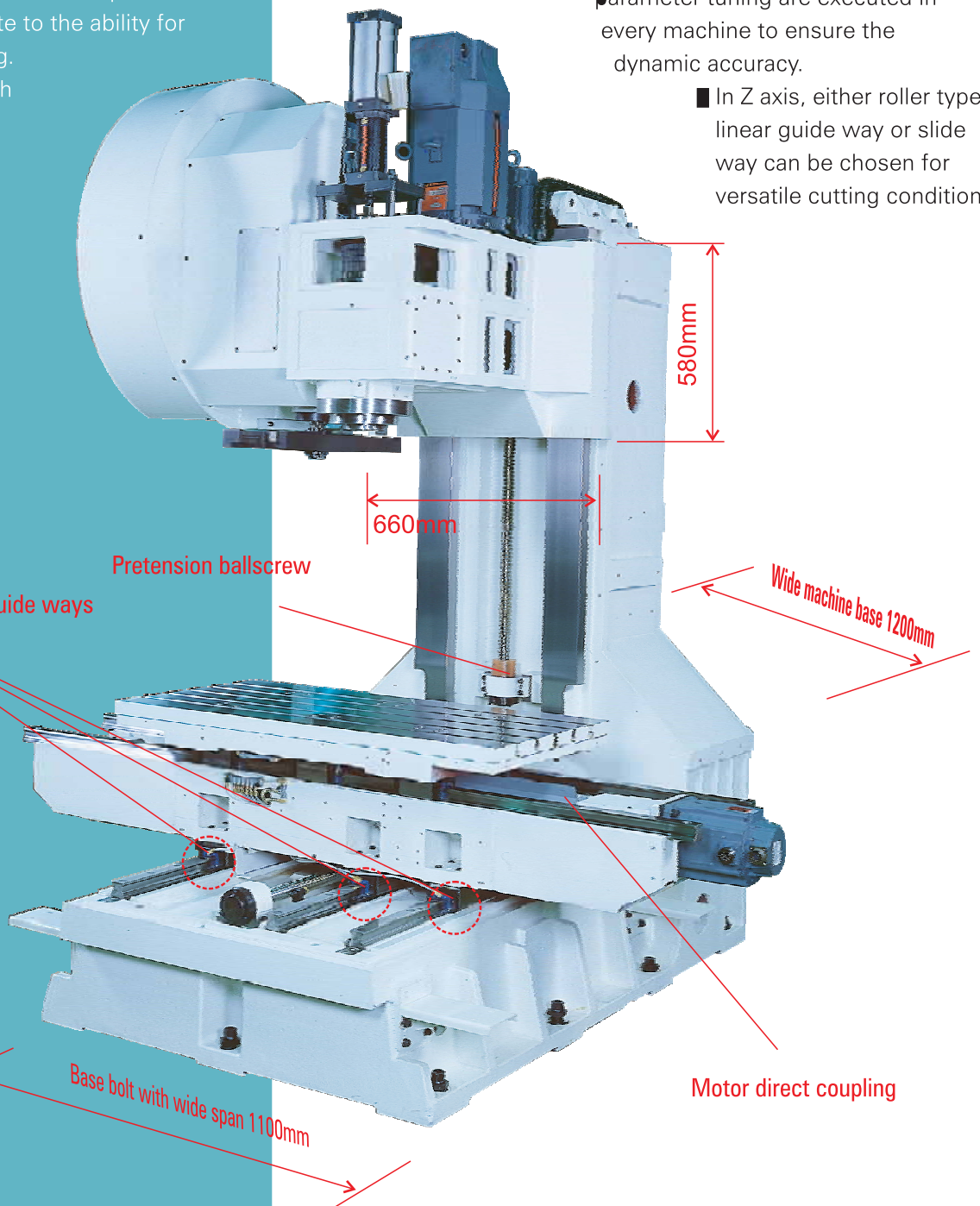
- **High Rigidity**
Robust structure design, Y-axis with 3 guide ways
- **High Speed**
Ballscrew with direct transmission, pretension as standard
- **High Accuracy**
Spindle with high precision angular contact ball bearings
- **High Efficiency**
Cam driven Arm type ATC, spindle speed 12000rpm available, Rapid speed:24m/min(X,Y), 18 m/min(Z)
- **Space Reduction**
Floor space:2.9mx2.5m,shipment by container

High Rigidity, High Accuracy construction design

- The major construction parts are based on Meehanite cast iron. They are stable and precision-proved in structure.
- The enhanced ribs in major construction parts provide the super rigidity for heavy duty cutting or for high speed cutting.
- The Y axis adopts 3 linear guide ways. It is free from loads deformation. High speed feedrate and repeatability accuracy are guaranteed.
- Wide base, box-shaped column, enhanced saddle and full supported workpiece structure all contribute to the ability for heavy duty machining.
- The reasonable length proportion is designed in between spindle center to rail and supported span at spindle head.

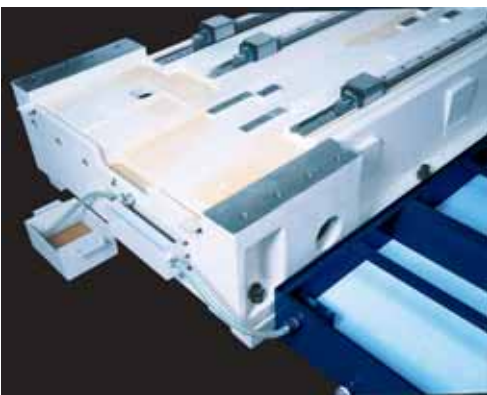
High Rigidity, High speed transmission system

- Servo motor and high precision ballscrew are directly coupled in 3 axes.
- A central rod guides the counterweight. It ensures no vibration effect for Z axis high speed feedrate and cutting accuracy.
- X/Y axis adopts heavy duty linear way. It ensures the characteristics of high rigidity, low noise and low friction. High speed feedrate and contour cutting accuracy are achieved.
- Feedrate is 24m/min in X/Y axis, 18m/min in Z axis.
- The ball bar measurement and parameter tuning are executed in every machine to ensure the dynamic accuracy.
- In Z axis, either roller type linear guide way or slide way can be chosen for versatile cutting conditions.



High efficient chips removal system

Oil-Coolant separating design



- To separate oil and coolant, the unique design effectively splits the lubrication oil and the coolant. The coolant quality will last long and the machining quality will be guaranteed.

High efficient chips removal mechanism

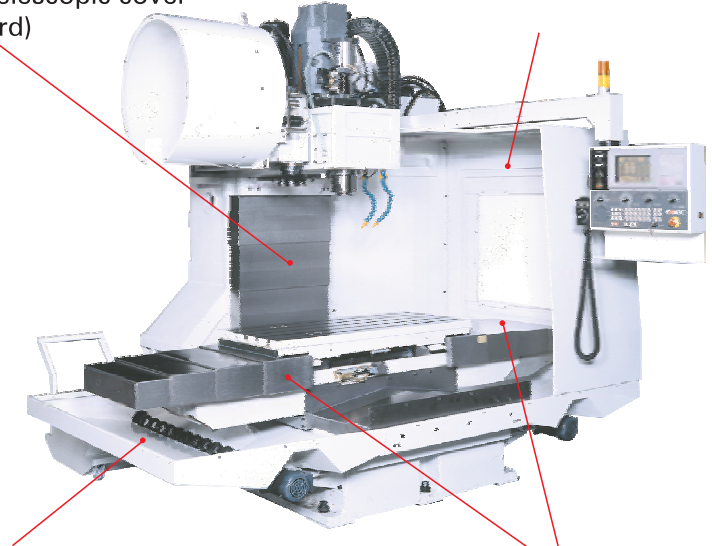


- A simple but efficient removal mechanism can easily convey the chips to the rear side of the machine. The chips cart is convenient for chips disposal.

Full enclosure cover design

Z axis telescopic cover (standard)

Full enclosure cover (standard)



Large sheet metal slope for chips flow

X/Y axis telescopic cover (standard)

Large volume design in coolant tank



- The coolant capacity is above 360 liters. The generated chips heat can be taken away quickly.
- Two coolant tanks are adopted for easy chips removal. They are located under machine to save floor space requirement.

Spindle splash ring



- Eight splash nozzles on the ring surround the spindle. The splash coolant takes away heat from tool and workpiece to increase the cutting accuracy.

Stable and reliable ATC



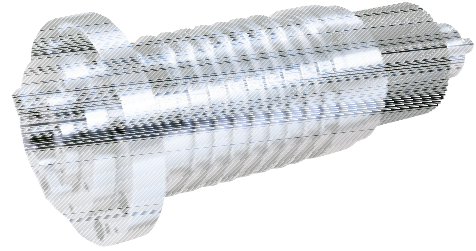
- The fast, simple and long-life automatic tool changer provides stable and reliable tool change.
- The innovative cam driven mechanism results in the unique ATC. The bi-directional tool selection is achieved by PLC software programming.
- The ATC reliability has been proved out by over one million running tests.
- The fast ATC saves non-cutting time.
- The cam driven tool magazine ensures rotation accuracy, and smooth motion while full tools loading.

Friendly machine-operator interface



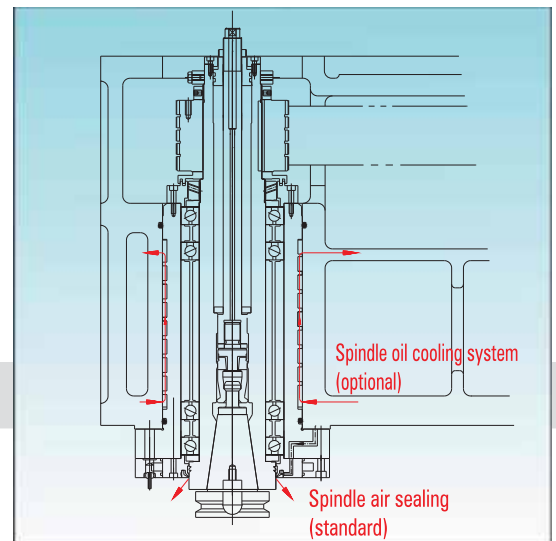
- The control panel meets the safety requirement and rotates easily for operation.
- The automatic diagnosis function displays the malfunction on screen for quick trouble shooting.
- The portable MPG is standard for easing workpiece set-up.
- The pendent arm is designed for easing control panel operation.
- The touch switch, diagram and text on screen make the operation very convenient.

High speed and high accuracy spindle

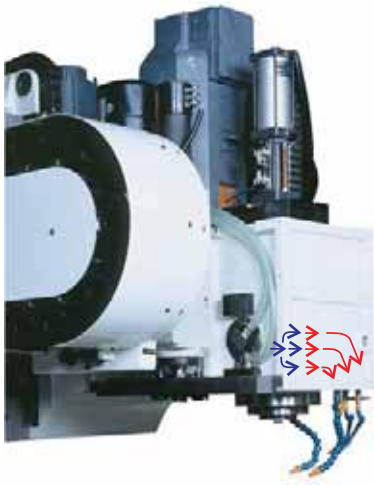


- The spindle adopts super precision angular contact ball bearings. Spindle speed 6000rpm is standard.
- The four jaws collet provides reliable tool holding force, large contact area, low wear and long service life.
- The high horse power spindle motor is selected for versatile applications. The ZF gearbox is optional for high torque output.
- The advanced high strength timing belt is applied to ensure high torque transmission, no slip and low rotation noise.
- The spindle is dynamically balanced by IRD balancing equipment permitting for field balance calibration. This fully eliminates resonance problems on the spindle while ensuring the best possible machining accuracy.

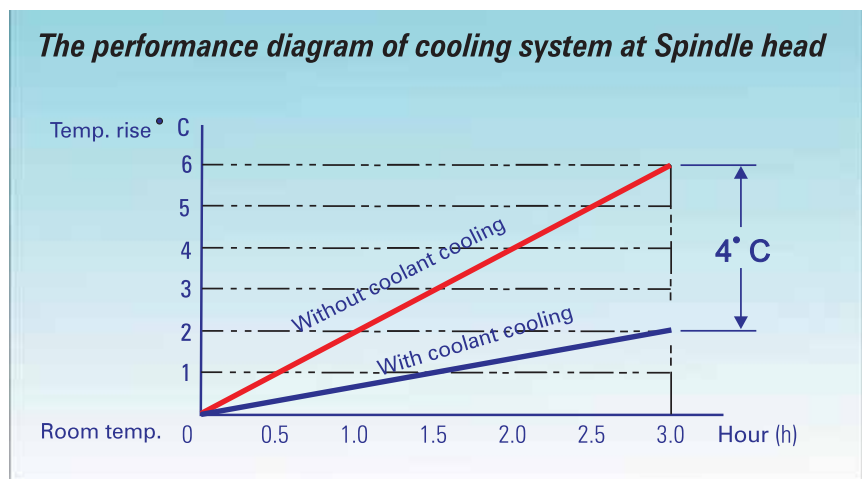
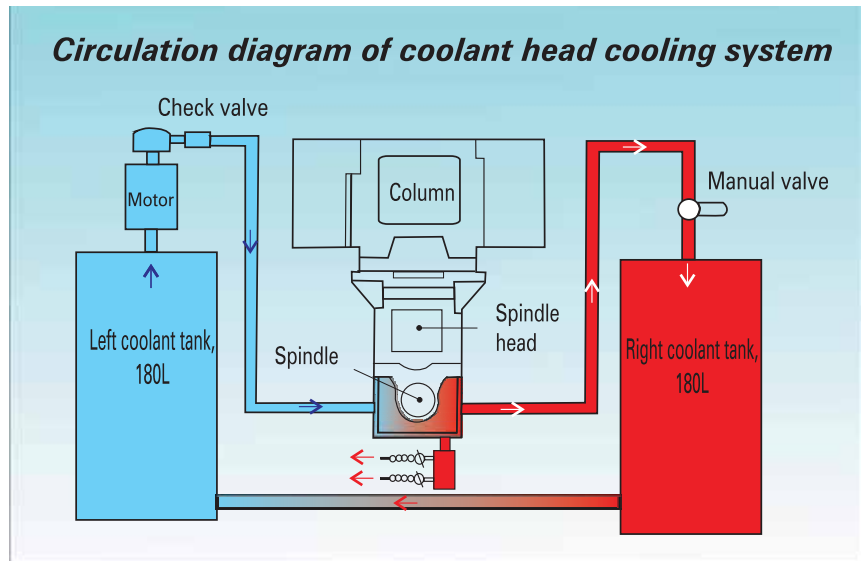
Spindle oil cooling system



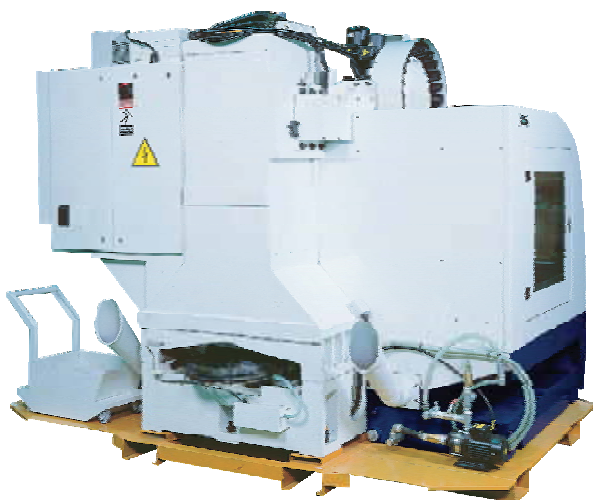
Unique Coolant cooling system for Spindle head and spindle



- The unique coolant cooling system takes away the heat generated at spindle head and spindle. It reduces the spindle head thermal deformation economically.
- This outstanding cooling system achieves superior cooling effect without the need of additional pump, filter or hydraulic oil.
- The cooling system assures spindle accuracy permanently and extends the service life of the spindle.
- In dry machining conditions, this innovative cooling system provides a circuit to maintain normal cooling performance.



Packing by steel skid and minimizing floor space requirement



- The side mounted control cabinet saves floor space.
- Space by the machine is 2935(W)x2480(D)x2770(H).
- Three machines can be loaded in a 40 feet container to reduce packing and transportation costs.
- The machine is fixed on a steel skid when shipped for convenience and safety.

High speed and high performance cutting



- Process: Mobile phone mold
- Workpiece: NAK-80

■ Cutting condition

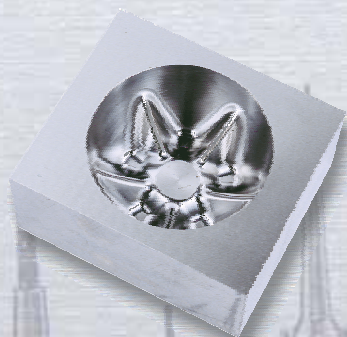
tool	spindle speed (RPM)	cutting speed (m/min)	feedrate (mm/min)	cutting depth (mm)	time (min.)
Ø12 end-mill	6000	225	2000	0.5	14
R2 ball-mill	10000	125	4000	0.2	32
R3 ball-mill	10000	188	2000	0.3	35
R3 ball-mill	10000	188	4000	0.2	10
R1.5 ball-mill	10000	94	3000	0.1	11
R1 ball-mill	10000	62	1000	0.1	20
R1 ball-mill	10000	62	2000	0.05	240



- Process: Glasses mold
- Workpiece: NAK-80

■ Cutting condition

tool	spindle speed (RPM)	cutting speed (m/min)	feedrate (mm/min)	cutting depth (mm)	time (min.)
Ø20 end-mill	2800	176	960	1	65
Ø12 end-mill	2000	75	200	1	26
R6 ball-mill	5000	94	1200	0.6	32
R4 ball-mill	6000	75	750	0.6	3
R3 ball-mill	8000	75	1200	0.6	2
R2 ball-mill	10000	62	1400	0.5	230



- Process: Bottle mold
- Workpiece: NAK-80
- Workpiece size: 109x109x53 mm
- Dry cutting

■ Cutting condition

tool	spindle speed (RPM)	cutting speed (m/min)	feedrate (mm/min)	cutting depth (mm)	time (min.)
R5 ball-mill	7000	220	1000	0.5	42
R5 ball-mill	8000	251	1000	0.3	23
R4 ball-mill	8000	201	1000	0.1	47

RENISHAW BALLBAR SYSTEM	
Circularity:	6.6 μm
Radial runout:	+1.5 μm
Taxial runout:	-2.2 μm
Machine ID:	102A.RTB
Operator:	Cheng
Machine:	LV-1100
Date:	17:11 Dec 2011
Length:	15.5 mm
Radius:	15.5 mm
Centre Off X:	
Centre Off Y:	
Speed:	31.25 mm/sec
Feed:	4000.0000 mm/min
Start End:	
Machine:	180.0° 180
Angle:	0.0°
Run:	Clockwise

Advanced inspection device and technology

Laser inspection

The full scale stroke is inspected and compensated by Laser measurement instrument. The motion accuracy can be ensured.



Spindle dynamic balancing

The IRD dynamic balancing instrument calibrates the spindle displacement, speed, and acceleration of the full speed range.

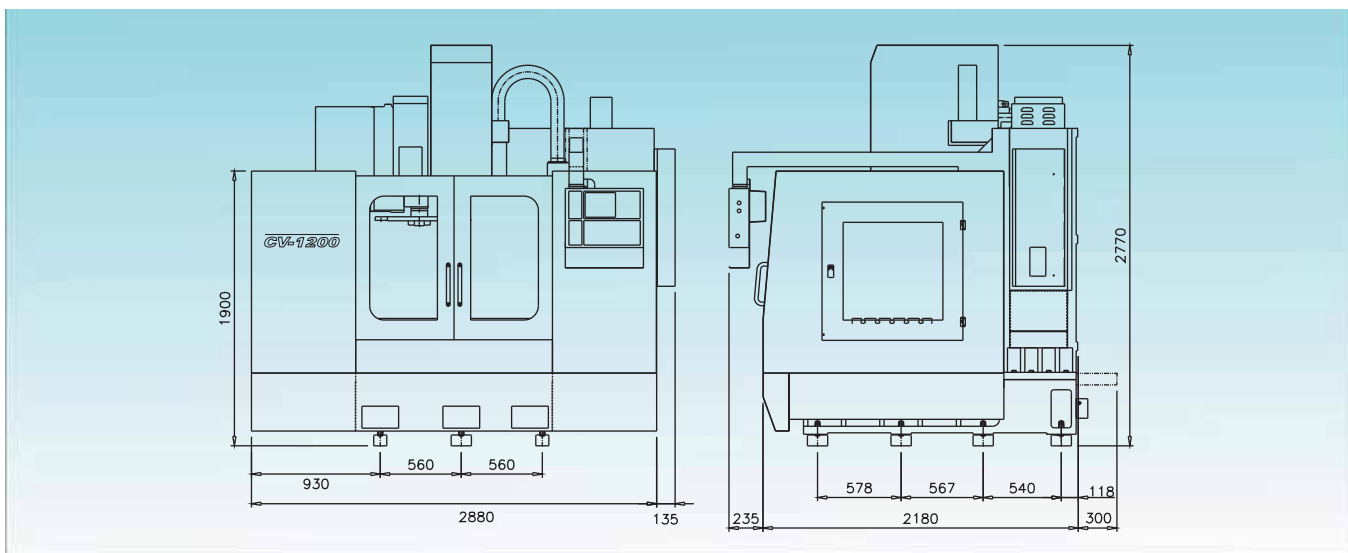


Ball bar inspection

The Renishaw ball bar instrument calibrates the circularity and the geometrical accuracy to ensure the precise three dimensional motions.



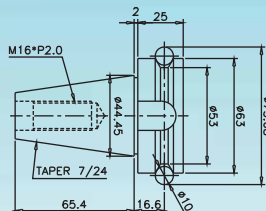
Machine dimension (mm)



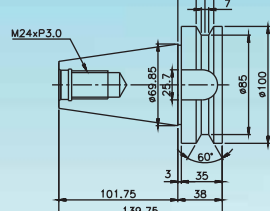
Tool shank and Pull stud

unit:mm

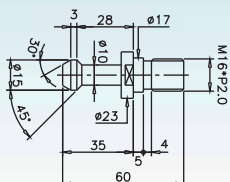
BT-40



BT-50



MAS-P40T-1



MAS-P50T-1

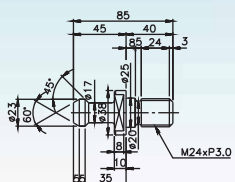
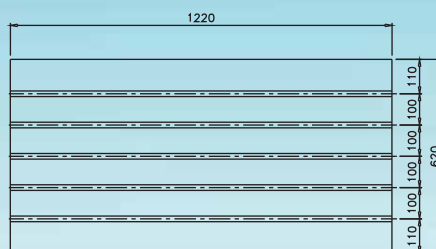
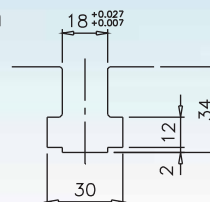


Table dimension

unit:mm



T-slot dimension



Machine Specification

MODEL		CV-1200A	CV-1200B
Travel			
X travel	mm(inch)	1200 (47.2)	1200 (47.2)
Y travel	mm(inch)	600 (23.6)	600 (23.6)
Z travel	mm(inch)	675 (26.6)	675 (26.6)
Spindle nose to table	mm(inch)	100-775 (3.9-30.5)	100-775 (3.9-30.5)
Spindle			
Spindle speed	rpm	8000	6000
Automatic tool changer			
Tool number	no.	20	24
Max tool diameter	mm(inch)	100(3.9)	240(9.4)
Max tool length	mm(inch)	305(12.0)	305(12.0)
Max tool weight	kg(lb)	7(15.4)	15(33.1)
ATC type		ARMLESS	ARM
Tool shank		BT/CAT #40	BT/CAT #50
Motor			
Spindle motor (cont./30min.rated)	kw(hp)	11/15 (15/20)	11/15 (15/20)
X/Y/Z servo motor	kw(hp)	2/2/2 (2.7/2.7/2.7)	2/2/2 (2.7/2.7/2.7)
Table			
Table size	mm(inch)	1220x620 (48.0x24.4)	1220x620 (48.0x24.4)
Max load capacity	kg(lb)	1000(2200)	1000(2200)
T-slot (No. x Width x Distance)	mm(inch)	5x18x100 (5x0.7x3.9)	5x18x100 (5x0.7x3.9)
Rapid speed			
X rapid speed	M/min(fpm)	24 (78.7)	24 (78.7)
Y rapid speed	M/min(fpm)	24 (78.7)	24 (78.7)
Z rapid speed (Box way)	M/min(fpm)	18 (59.1)	18 (59.1)
Cutting feedrate	mm/min(ipm)	1-10000 (0.04-394)	1-10000 (0.04-394)
Controller			
Mitsubishi		M64S	M64S
Miscellaneous			
Machine weight	kg(lb)	8000(17600)	9000(19800)
Power requirement	KVA	35	35
Coolant capacity	L	360	360
Air source	kg/cm ² (psi)	6 (85.3)	6 (85.3)

■ Standard accessories

- Chips auger
- Full enclosure
- Automatic lubrication system
- Spindle coolant cooling
- Base bolt and pad
- Tools box
- Work light
- Alarm light
- M30 automatic power off
- Chips cart
- Portable air gun
- Portable water gun
- Spindle air seal system
- Mechanical, electrical, operation manuals
- Rigid tapping
- Cabinet heat exchanger
- Mechanical oil-coolant separator
- Automatic tool changer
- Telescopic covers

■ Optional accessories

- Spindle programmable air blow
- Fanuc/Mitsubishi/Siemens controller
- Wash-down system
- Z axis with liner guide way (#40)
- 10000rpm/12000rpm/14000rpm spindle(#40)
- 8000rpm/10000rpm spindle(#50)
- Arm type ATC 24/32 tool stations
- Spindle oil cooling system
- Disc oil-coolant separator
- Coolant through spindle
- Coolant through ballscrew
- Tool probe system
- Touch sensor system
- Deep drill tools holder
- ZF gear box
- X/Y/Z roller guide
- Linear scale
- Z axis with brake (without counterweight)
- Spindle splash ring
- 4th axis rotary table

■ This catalogue is only for reference. The machine may differ to this specification.

■ The company reserves the rights to modify or to stop adopting the specification of this catalogue.



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Agent