ACRA®

ISO 14001 ISO 9001 CE

TV series

CNC Mill / Drill / Tapping Center

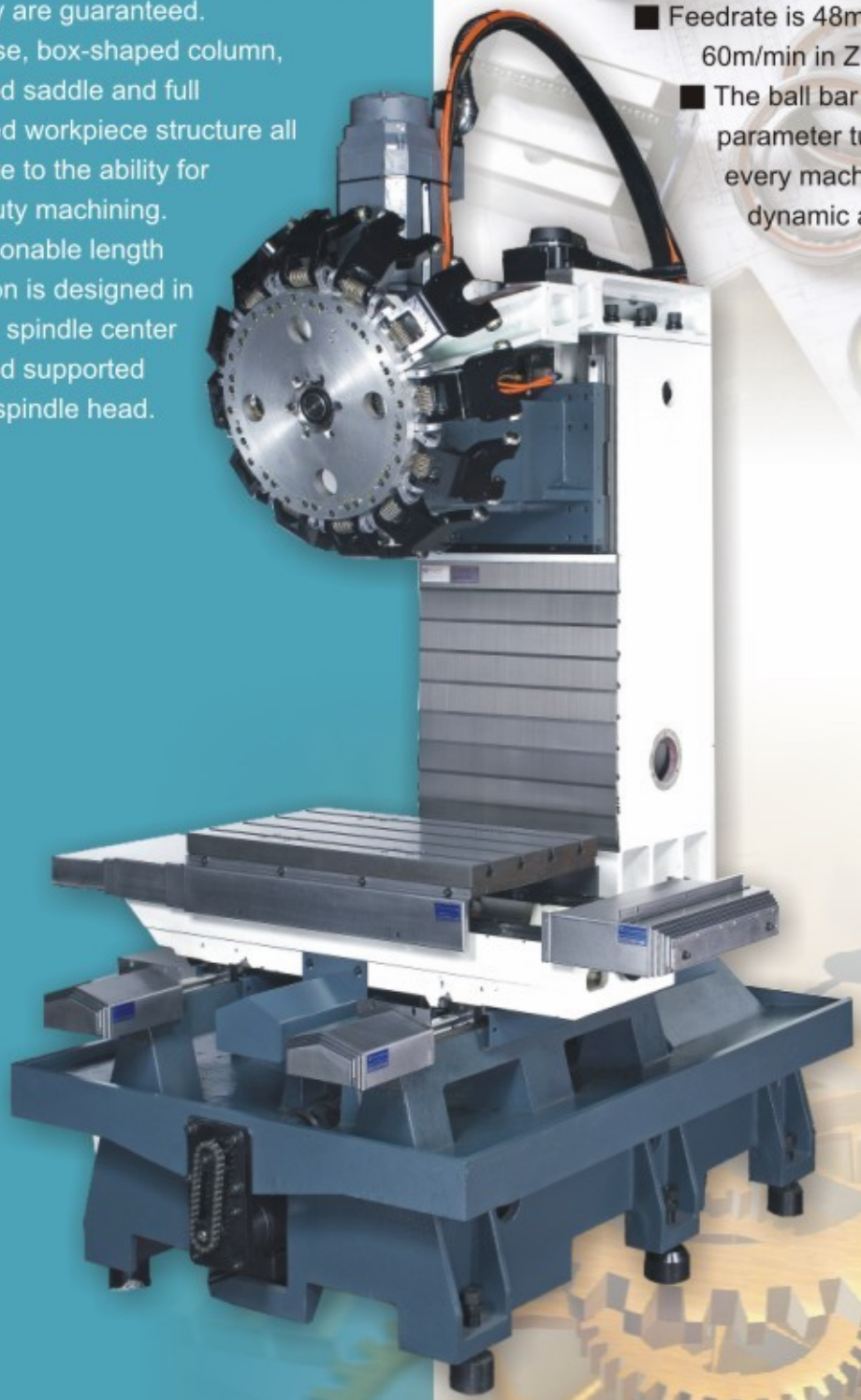
- **High Rigidity**
  Robust structure design
- **High Speed**
  Max. spindle speed: **12000/15000** rpm
  Rapid travel speed: X/Y axes **48** m/min; Z axis **60** m/min
  High speed ATC (T-T) **1.4** seconds
- **High Efficiency**
  Direct driven spindle
  Rigid tapping **4000** rpm
- **Space Reduction**
  Floor space:1.20mx2.28m, 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 linear guide way is applied in X, Y and Z axis. It is free from load 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.
- The brake type Z axis servo motor is adopted to ensure no vibration effect for Z axis high speed feedrate and to keep cutting accuracy.
- Three axes adopt heavy duty linear guide way. It ensures the characteristics of high rigidity, low noise and low friction. High speed feedrate and contour cutting accuracy are achieved.
- Feedrate is 48m/min in X/Y axis, 60m/min in Z axis.
- The ball bar measurement and parameter tuning are executed in every machine to ensure the dynamic accuracy.



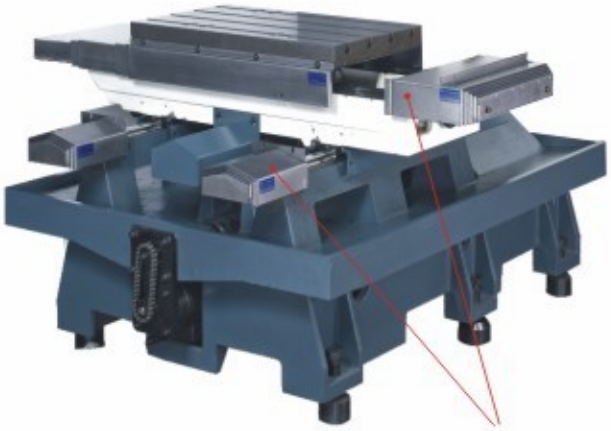
High efficient chip-removal system

Latest telescopic cover

Z axis telescopic cover (standard)

■ The latest telescopic cover reduces the motion noise and prolongs its service life.

Full enclosure cover design



X/Y axis telescopic cover (standard)

■ The fully enclosed cabin guides the coolant water to the machine base. The machine is prevented from any leakage problem.

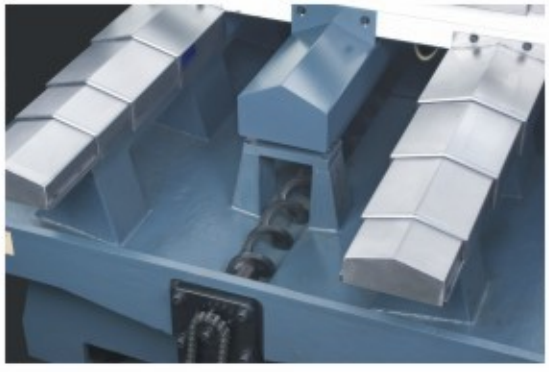
■ Due to the robust structural design, the machine accuracy is kept well even after the long distance transportation.

Large volume design in coolant tank

■ The coolant capacity is above 150 liters. The generated chips heat can be taken away quickly.

■ The coolant tank is a drawer type and it locates under machine to save floor space requirement.

High efficient chip-removal mechanism



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

■ The rails and ballscrew of Y axis are fully protected by the telescopic covers.

Amazing spindle flash

■ The splash nozzles surround the spindle and they offer large coolant water to the right cutting area. The splash coolant takes away heat from tool and workpiece to increase the cutting accuracy.

Stable and reliable ATC

DRUM Type 12T

- 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.

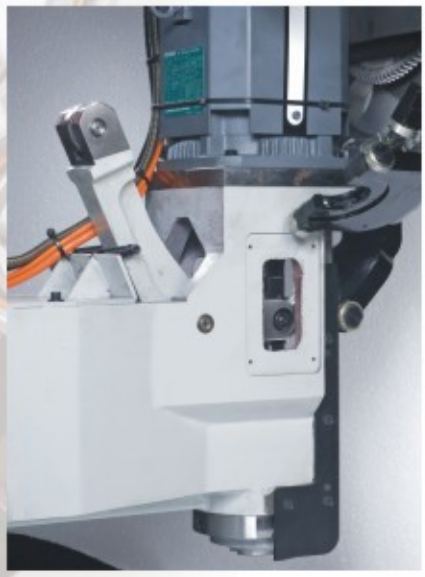
Mechanism of spindle transmission

- Spindle motor and spindle are directly coupled.
- The direct driven spindle offers high efficient power transmission.
- Due to no backlash in power transmission, the high speed rigid tapping and long tool service life are ensured..
- There is low noise at high spindle speed.

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 embedding control panel saves floor space.
- The touch switch, diagram and text on screen make the operation very convenient.

Mechanism for tool unclamping

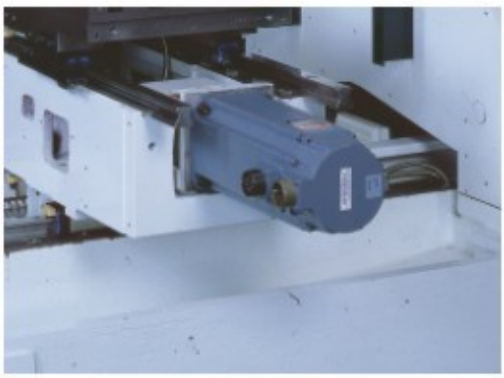


- The enlarged rolling bearing is adopted to enhance the rigidity of the tool unclamping system.
- The mechanism is reliable for long time operation.

High speed and high accuracy linear guide way

- Linear guide ways with zero backlash ensures consistent cutting surface on curve or slope cutting.
- Suitable for high speed travel and the power requirement is minimized.
- By using rolling contact in stead of sliding contact, linear guide reduces friction loss but increases positioning accuracy.
- The loading capacity is high on multiple directions. Cutting rigidity can be ensured.
- Long service life is guaranteed by its high durability.

Axis acceleration/deceleration

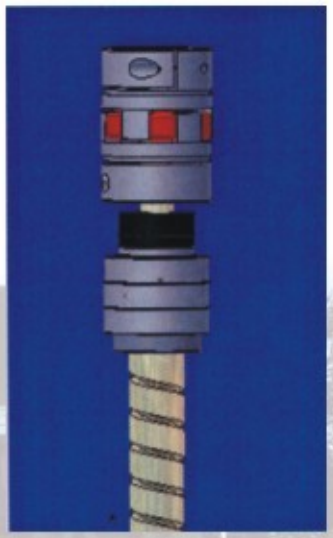


- The high torque servo motor reduces the time for axis positioning. (The acceleration/deceleration of all three axes is larger than **1G**.)
- X/Y/Z rapid travel speed is **48/48/60** m/min. The positioning efficiency is increased.

The transmission of axes

High Rigidity Coupling

- The high rigidity coupling is adopted to ensure smooth rotation of high torque transmission and high reliability.



- The Z axis servo motor is a brake type. The fixation bearing set is enhanced to increase the transmission rigidity for the quick spindle head movement up and down.

High speed and high performance cutting

Cutting capability on BT-30 tool system increasing

The TV series is capable for milling, drilling and tapping processes.

Tool diameter: 125 mm

Cutting width: 125 mm

Cutting depth: 3 mm

Spindle speed: 8000 RPM

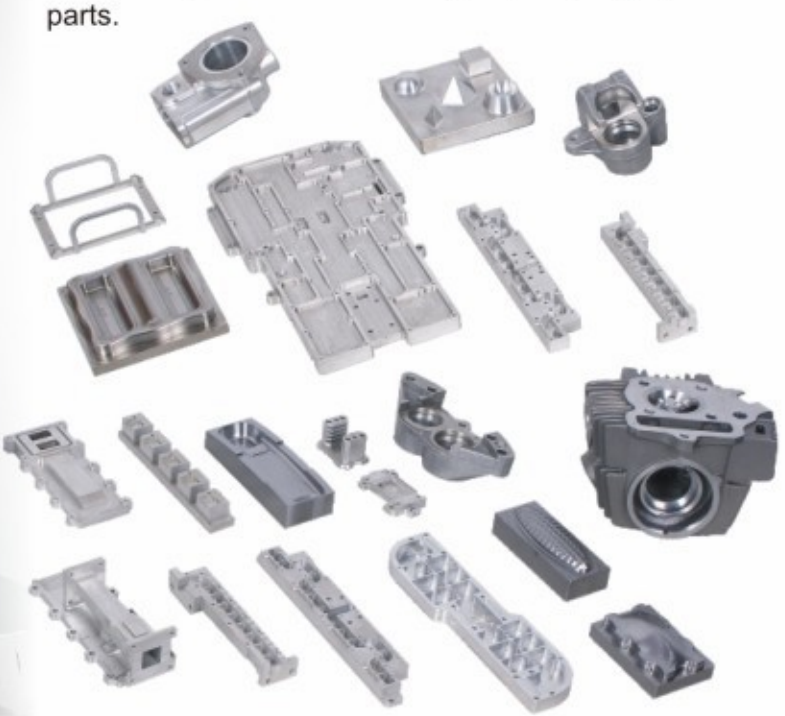
Feedrate: 4000 mm/min

Chip removal rate: 1200 cm^3/min

Surface roughness: Ra 0.171 μm (finish)

Samplings

The applicable workpieces include precise molds, 3C workpieces, Automobile/motorcycle parts, high precision parts.



Advanced accessories

OP

Coolant through spindle system

- The coolant goes through the spindle and splashes out through the tool tips.
- The high pressure coolant will take away heat and chips immediately. It is a great advantage for high quality part machining and deep hole drilling.

Auto centering system

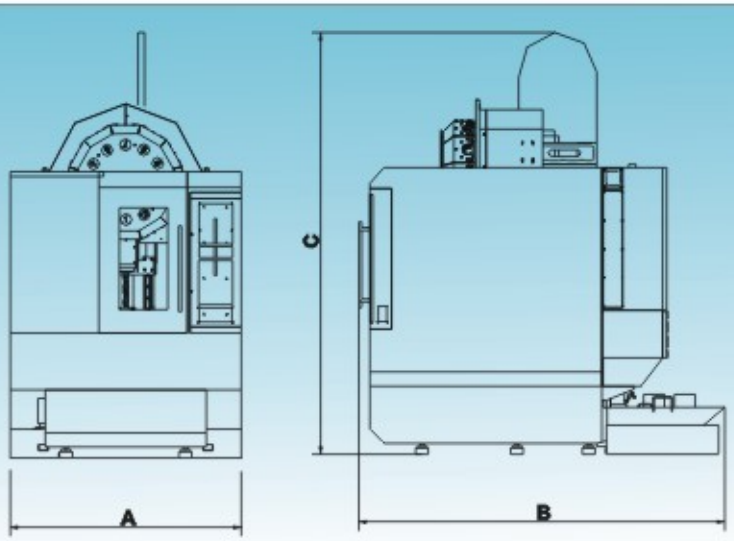
- To measure the center of an arc workpiece or the center of symmetric workpiece.

Z axis measurement system

- Thermal compensation function.
- Tool broken detection function.
- Auto tool length measurement function.

Machine dimension

Unit: mm



Model / at	A	B	C
450	1200	2282	2331
510	1650	2520	2600
600	1750	2520	2800

Tool shank and Pull stud

Unit:mm

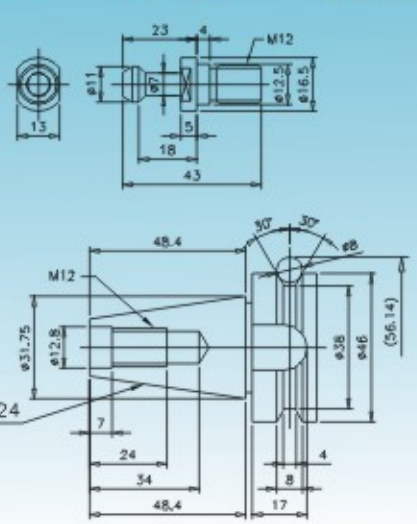
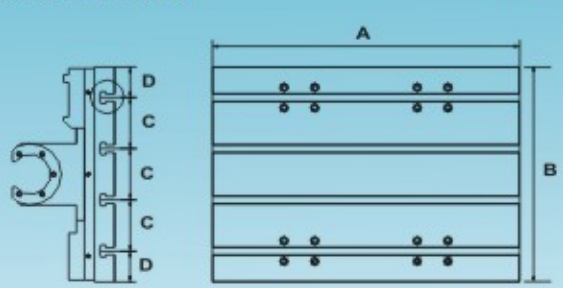


Table dimension

Unit:mm



T-slot dimension

Model / at	A	B	C	D
450	500	320	100	60
510	600	420	100	60
600	700	420	100	60

Machine specification

Model		450	510	600
Travel				
X travel	mm (inch)	450 (17.7)	510 (20.1)	600 (23.6)
Y travel	mm (inch)	300 (11.8)	400 (15.7)	400 (15.7)
Z travel	mm (inch)	300 (11.8)	350 (13.8)	350 (13.8)
Spindle nose to table	mm (inch)	175~475 (6.7~18.7)	150~500 (5.9~19.7)	150~500 (5.9~19.7)
Spindle				
Spindle speed	rpm	10000		
Automatic tool changer				
Tool number		12		
Max. tool diameter (without adjacent tool)	mm (inch)	80 (3.15)		
Max. tool length	mm (inch)	200 (7.9)		
Max. tool weight	kg (lb)	3 (6.6)		
ATC type		Drum type		
Tool shank		#30		
Motor				
Spindle motor(cont./30min.)	KW (HP)	2.2/3.7 (3/5)		
X/Y/Z servo motor	KW (HP)	1.5/1.5/3.5 (2/2/4.7)		
Table				
Table size	mm (inch)	500 x 320 (19.7 x 12.6)	600 x 420 (23.6 x 16.5)	700 x 420 (27.6 x 16.5)
Max. load capacity	kg (lb)	200 (440)	250 (550)	250 (550)
T-slot (No. x Width x Distance)	mm (inch)	3 x 14 x 100 (3 x 0.55 x 3.9)		
Rapid speed				
X rapid speed	M/min (fpm)	48 (157)		
Y rapid speed	M/min (fpm)	48 (157)		
Z rapid speed	M/min (fpm)	60 (197)		
Cutting feedrate	M/min (ipm)	1-10000 (0.04-394)		
Controller				
Mitsubishi		64ASM		
Miscellaneous				
Machine weight	kg (lb)	2100 (4630)	3200 (7050)	3300 (7280)
Power requirement	KVA	15	15	15
Coolant capacity	L	150	180	180
Air source	kg/cm^2 (psi)	6 (85)	6 (85)	6 (85)

Standard accessories

- Direct spindle driven system
- Spindle programmable air blow
- Work light
- Spindle cooling system
- Base bolt and pad
- Cabinet heat exchanger
- Chip auger device
- Automatic lubrication system
- Tool box
- Alarm light
- Color LCD screen
- Mechanical, electrical, operation manuals
- Automatic tool changer
- Rigid tapping
- M30 automatic power off

Optional accessories

- Auto door
- Transformer
- Voltage stabilizer
- Low inertial spindle motor
- Coolant through spindle system
- Tool length measurement system
- 4th axis rotary table
- Ethernet and data server
- ATC 20/24 tools
- BT-40/CAT-40 tool system
- Chip conveyor system
- Spindle speed 12000 rpm
- Spindle speed 15000 rpm

■ *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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