The TV series is designed for superb machine rigidity and performance. This series is suitable for a wide range of applications like automotive, aerospace and electronics.

The unique T-base structural design has been awarded a patent from Taiwan, China and the U.S.A. Its overhang free table movement is supported by highly rigid MEEHANITE® castings to ensure the best dynamic leveling accuracy, machining rigidity and durability.

The counterweight of Z-axis headstock is secured by guide bar to minimize machining vibration. Various spindle modules of high speed and high power output suit different kinds of machining requirements. Fast and reliable ATC system, efficient chip disposal system, humanized operation panel, and some models can work with APC for shortening the machining time thus increases efficiency. This TV series is favored and recommended by all industries.

Patent No:
Taiwan NO. 101029
U.S.A. NO. 5263800
Mainland China NO. ZL 93105466.4

The appearance of the machines will be diverse due to different model and selectivity of controllers.
The Most Eco-friendly and Floor-saving Machine Tool of Compact Splash Enclosure & Chips Disposal System

The long travel of X-axis lies on the top of the base, where the saddle moves along the full stroke; the cross Y-axis saddle supports the work table. This design virtually saves 20% ~ 30% of floor space. The T-base rigid structure full stroke support guarantees the most dynamic accuracy.

Integration of Applicable Machining Function-A.F.C. (opt.)

- When the spindle load overruns the setting value, the feedrate can be adjusted (reduced) automatically in order to reduce the spindle load, so as to extend the durability of machine and reduce tool replacement.
Fast & Reliable ATC System

- The arm type ATC system is driven by roller gear cam to increase the work efficiency. Number of tool posts in magazine can be selected for 24T/32T/40T.

Reliable Automatic Pallet Changer System

- Reliable APC system with the unique design of shuttle type mechanism successfully shortens the machining time thus increases efficiency.
- Pallet change time: 25 sec.

<table>
<thead>
<tr>
<th>TV116B+APC</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pallet Size</strong></td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>1,200</td>
</tr>
<tr>
<td></td>
<td>560</td>
</tr>
<tr>
<td><strong>Table Load Capacity</strong></td>
<td>kg</td>
</tr>
<tr>
<td></td>
<td>600</td>
</tr>
<tr>
<td><strong>Table Surface to Floor</strong></td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>965</td>
</tr>
</tbody>
</table>
**The Best Force Flow T-base Design**

- The long travel of X-axis lies on the top of the base, where the saddle moves along the full stroke; the cross Y-axis saddle supports the work table.
- The T-base rigid structure has full stroke support and do not have overhang problem guarantees the most dynamic leveling accuracy.

**Humanized Operation Panel**

- The swivel operation panel of appropriate height and clear modular switches can be operated easily.
- Clearly display the signals and alarm messages.
- Detachable MPG handwheel is installed for operational convenience.
TV Series

TV116B/TV146B/TV158B/TV188B/TV2110B/TV2610B

- Standard gearhead spindle of maximum of 6,000rpm high-speed with the maximum of 15kW/18.5kW 25HP/20HP power output and 48kg-m 347.19lb-ft torque.
- The maximum spindle power output at 15kW / 18.5kW / 22kW 20HP/24.8HP/29.5HP and torque at 57kgf-m 412 lb-ft with metal removal capacity at 600cc/min. (TV2110B/TV2610B).
- Spindle speed of up to 10,000rpm with IDD (Isolated Direct Drive) design, coupled with oil lubrication that can lower heat deviation, improve spindle accuracy and extend bearing life. Spindle power 18.5kW / 22kW 24.8HP/29.5HP without gearbox, electric speed shift with spindle motor, maximum torque of 36kgf-m. (option).
- The quill type spindle housing is with cooling system to assure the best temperature control of the spindle head, and for the best machining results.
- Deployed with precise angular contact ceramic ball bearings for extra axial and radial rigidity to fit the requirements of heavy cutting.
High Rigidity Axial Movement

- All axes are equipped with hardened and precision ground integrated square guideway with durable Turcite-B lubrication coating.
- Sophisticated scraper work guarantees the best contact and perfect surface of the components to assure flawless accuracy.
- Sufficient support areas of all guideways give the best damping capacity and gain the best cutting rigidity.
- All precise ball screws are pre-tensioned and directly coupled with powerful servo motors to reduce backlash and ensure the best accuracy.
- The counter weight of Z-axis headstock is secured by guide bar to minimize machining vibration.

**TV116B Accuracy**

<table>
<thead>
<tr>
<th></th>
<th>ISO 10791-4</th>
<th>YCM*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Axial Travel</strong></td>
<td>Full Length</td>
<td></td>
</tr>
<tr>
<td>Positioning (X/Y/Z) A</td>
<td>0.042 / 0.025 / 0.025mm</td>
<td>0.014 / 0.014 / 0.014mm</td>
</tr>
<tr>
<td></td>
<td>0.0017&quot; / 0.0010&quot; / 0.0010&quot;</td>
<td>0.0006&quot; / 0.0006&quot; / 0.0006&quot;*</td>
</tr>
<tr>
<td>Repeatability (X/Y/Z) R</td>
<td>0.020 / 0.015 / 0.015mm</td>
<td>0.010 / 0.010 / 0.010mm</td>
</tr>
<tr>
<td></td>
<td>0.0008&quot; / 0.0006&quot; / 0.0006&quot;</td>
<td>0.0004&quot; / 0.0004&quot; / 0.0004&quot;*</td>
</tr>
</tbody>
</table>

* All values shown above are measured for the machine in good air-conditioned environments.

**Axial Rapid Feedrate**

- X: 16m/min. 630ipm
- Y: 16m/min. 630ipm
- Z: 16m/min. 630ipm

**TV146B Accuracy**

<table>
<thead>
<tr>
<th></th>
<th>ISO 10791-4</th>
<th>YCM*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Axial Travel</strong></td>
<td>Full Length</td>
<td></td>
</tr>
<tr>
<td>Positioning (X/Y/Z) A</td>
<td>0.042 / 0.025 / 0.025mm</td>
<td>0.014 / 0.014 / 0.014mm</td>
</tr>
<tr>
<td></td>
<td>0.0017&quot; / 0.0010&quot; / 0.0010&quot;</td>
<td>0.0006&quot; / 0.0006&quot; / 0.0006&quot;*</td>
</tr>
<tr>
<td>Repeatability (X/Y/Z) R</td>
<td>0.020 / 0.015 / 0.015mm</td>
<td>0.010 / 0.010 / 0.010mm</td>
</tr>
<tr>
<td></td>
<td>0.0008&quot; / 0.0006&quot; / 0.0006&quot;</td>
<td>0.0004&quot; / 0.0004&quot; / 0.0004&quot;*</td>
</tr>
</tbody>
</table>

* All values shown above are measured for the machine in good air-conditioned environments.

**Axial Rapid Feedrate**

- X: 16m/min. 630ipm
- Y: 16m/min. 630ipm
- Z: 16m/min. 630ipm
High Rigidity Axial Movement

- All axes are equipped with hardened and precision ground integrated square guideway with durable Turcite-B lubrication coating.
- Sophisticated scraper work guarantees the best contact and perfect surface of the components to assure flawless accuracy.
- Sufficient support areas of all guideways give the best damping capacity and gain the best cutting rigidity.
- All precise ballscrews are pre-tensioned and directly coupled with powerful servo motors to reduce backlash and ensure the best accuracy.
- Inner-rail design on Z-axis ensures smooth movement of the headstock during heavy cutting performance. And the counter weight of Z-axis headstock is secured by guide bar to minimize machining vibration.
- The Y-axis is equipped with 4 guideways to gain the best support and forceflow.

<table>
<thead>
<tr>
<th>TV158B / 188B ACCURACY</th>
<th>ISO 10791-4</th>
<th>YCM*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial Travel</td>
<td>Full Length</td>
<td></td>
</tr>
</tbody>
</table>
| Positioning (X/Y/Z) A  | 0.042 / 0.032 / 0.025
|                       | 0.017" / 0.013" / 0.0010" |
|                       | 0.0006" / 0.0006" / 0.0006" |
| Repeatability (X/Y/Z) R| 0.020 / 0.018 / 0.015
|                       | 0.008" / 0.0007" / 0.0006" |
|                       | 0.0004" / 0.0004" / 0.0004" |

* All values shown above are measured for the machine in good air-conditioned environments.
High Rigidity Axial Movement

- X, Y, Z axis precision ball screw of JIS C3 class, with the use of precision angular contact ball bearings, adopting screw pretension way to provide the best feed accuracy and rigidity.
- Wide T-base structure design that enables X-axis travel is completely contained within the base of the slide. Overhang free while table moving that ensures stable movement during heavy cutting.
- Y-axis is equipped with 4 guideways to gain the best support and to reinforce the axial movement.
- X & Y-axis are designed with ultra heavy load IKO roller linear guideways for the max. 7,000kg 15,432 lb work load and to ensure the smoothest axial movements.
- Inner-rail design on Z-axis ensures smooth movement of the headstock during heavy cutting performance. Slide surface adopted heat treatment, with Turcite-B to reduce friction. Meanwhile, the automatic lubrication system provides lubrication of each slide surface to ensure accuracy and longevity.

High Rigidity Guideway Design

IKO roller linear guideways on X & Y-axis ensure the heaviest workload and smoothest movement.
The appearance of the machines will be diverse due to different model.

**TABLE SIZE**

**T-SLOTS**

Unit: mm inch
The appearance of the machines will be diverse due to different model.
The appearance of the machines will be diverse due to different model.
The appearance of the machines will be diverse due to different model.
**TV Series 116B + APC**

**DIMENSIONS**

**TABLE SIZE**

<table>
<thead>
<tr>
<th>Width</th>
<th>Depth</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**T-SLOTS**

<table>
<thead>
<tr>
<th>Slot Width</th>
<th>Slot Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.26</td>
<td>4.71</td>
</tr>
<tr>
<td>12.86</td>
<td>4.71</td>
</tr>
</tbody>
</table>

**PULL STUD AND TOOL SHANK**

**BT50**

- M24 x 3P
- TAPER 7/24
- 101.8 (4.01"")
- 38.1 (1.50"")

**MAS-P50T-1**

- 85.3 (3.35"")
- 15.0 (0.59"")
- 7.0 (0.28"")
- 3.0 (0.12"")

Unit: mm inch
**SPECIFICATIONS**

**SYSTEM**
- Central Automatic Lubrication
- Leveling Blocks
- APC
- Enclosure
- Chip Oil Mist Coolant System
- Automatic Power Off System
- Oil-Hole Holder Function
- Cutting Air Blast
- Coolant Gun
- Oil Skimmer
- Coolant Equipment System
- Foundation Bolts
- Gear Box
- Optical Scale
- Pilot Lamp
- Work Lamp
- Tool Kit
- T-Slots
- Floor
- Table Size (APC)
- Table Weight (APC)
- X-axis Travel
- Y-axis Travel
- Z-axis Travel
- Distance Between Spindle Nose & Table Top (APC)
- Distance Between Center & Column Front

**TRAVEL**
- X-axis Travel
- Y-axis Travel
- Z-axis Travel
- Distance Between Spindle Nose & Table Top (APC)
- Distance Between Center & Column Front

**TABLE**
- Table Size (APC)
- Load on Table (APC)
- Height From Table Top to Floor (APC)
- T-Slots
- Table Size (1,200 × 600mm)
- Table Size (1,500 × 600mm)
- Table Size (2,000 × 860mm)
- Table Size (2,300 × 1,020mm)
- Table Size (2,800 × 1,020mm)

**FEEDRATE**
- Rapid Feedrate (X/Y/Z)
- Cutting Feedrate

**ATC**
- Tool Magazine Capacity
- Max. Tool Dimensions
- Max. Tool Dimensions (opt.)
- Max. Tool Weight
- Tool Changer Method
- Tool Selection Method

**GENERAL**
- Lubrication Pump Motor
- Power Consumption (Transformer)
- Machine Weight (APC)
- Consumption: 6,000rpm ([1,000rpm])
- Spindle Torque 15/18.5kW (18.5/22kW)
- 20/25HP (25/30HP)
- Spindle Torque 15/18.5kW (18.5/22kW)
- 20/25HP (25/30HP)
- Spindle Torque 15/18.5kW (18.5/22kW)
- 20/25HP (25/30HP)

**ACCESSORIES**
- Tool Kit
- Work Lamp
- Pilot Lamp
- Optical Scale
- Gear Box
- Foundation Bolts
- Coolant Equipment System
- Oil Skimmer
- Coolant Gun
- Spindle Air Blast
- Cutting Air Blast
- Oil-Hole Holder Function
- Automatic Power Off System
- Oil Mist Coolant System
- Chip Enclosure
- APC
- Leveling Blocks
- Central Automatic Lubrication System

Note: Above specifications may vary depending on the machine and the surrounding environment. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performance of the machine without notice. The test data provided in this catalog is performed under specific test procedures and environmental conditions. Above specifications are mainly for FANUC. The data for Power Consumption (Transformer) is FANUC standard, and different spindle motor may vary from those stated here. If you have any questions about other CNC controllers, please contact YCM sales representative.
MXP-200FB+

**Communication Interface**
- RJ45 Ethernet
- RS-232C
- USB
- CompactFlash Card

**Excellent Vision Quality**
- 10.4" LCD display

**User-Friendly Design**
- Detachable keyboard (QWERTY)

---

**Fine Surface Setting Technology**

1. AICC II+, high precision and high accuracy AI contour control
2. Smooth tolerance control+
3. Machining quality level adjustment function

---

**Fast Cycle Time Technology**

1. Maximum 400 blocks of look-ahead for pre-calculating the machining program
2. Block processing time 1ms for achieving high-speed machining requirement
3. Smart rigid tapping function combined with spindle capability for high-speed machining

---

**Program Dynamic Simulation**

Manual Guide i features dynamic simulation of machining programs with full-screen display

---

**Upgraded Setting & Programming Application**

1. 2 MB program storage size
2. Built-in memory card for easy program editing
3. Directory filing structure with organized file management
4. 400 pairs of tool offset, 1,000 registrable programs, 48 pairs of workpiece coordinate system, 256 pairs of tool life management
Pre-Machining

Intelligent Tool Data Management
Comprehensive tool data management function allows operators to monitor and manage all positions in tool magazine

Workpiece Coordinate Calculation
Conversational window provides convenient and fast setup of workpiece coordinates

RENISHAW GUI System
(Conversational Graphic Operating Interface)

Tool Measurement & Measurement Calibration

Workpiece Measurement (applicable to certain models)

Program Editing

CIRCULAR HOLE PATTERN
(G120 P1) Function

RECTANGULAR HOLE PATTERN
(G120 P4) Function

GRID HOLE PATTERN
(G120 P5) Function

i_PATTERN
(1) 15 sets of machining cycle program
(2) Saving programming time and memory time
(3) Graphic interface & conversational command input

Machining

High Performance Machining Mode M300
With 5 sets of parameter settings, it's easy to find suitable and optimized machining.

High Speed Machining Mode M400
Reducing machining time for drilling and tapping process

Tool Load Management
Instant tool load monitoring with alarm function

Multi-Display Function
Displaying 4 statuses simultaneously with configurable status display

Tool Life Management
Indicating tool status of each group with tool life alarm

Smart Control Panel

iPANEL
Easy to set up and operate important functions

Intelligent Counter

Instantly providing users with periodic maintenance notifications and work-pieces counter management