

Heavy Duty Vertical Machining Center







The TV series is designed to superb machine rigidity and performance. This series is suitable for a wide range of applications like automotive, aerospace, 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 patent T-base structural design also offers the smallest machine foot print and the most efficient chip disposal system in its class.

To attain exceptional machining accuracy, the major components are reinforced through induction hardening process, precision ground and FEM analysis. All hardened and ground precision ballscrews are pre-tensioned and directly coupled to the servo motor to offer low backlash and optimal machining rigidity. The counter weight of Z-axis headstock is secured by guide bar to minimize machining vibration.

Patent No:

 Taiwan
 NO. 101029

 U.S.A.
 NO. 5263800

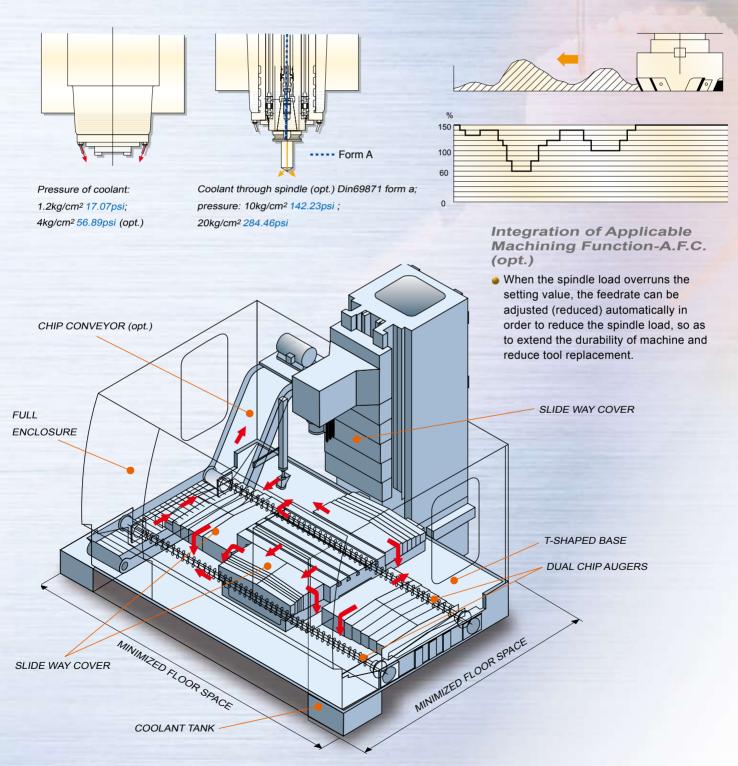
 Mainland China
 NO. ZL 93105466.4



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.





High Speed, High Precision Spindle Modules

Various spindle modules of high speed and high power output suit different kinds of machining requirements.

TV146A

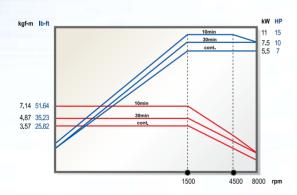
- The spindle is deployed with precise angular contact ball bearings and can reach up to 8,000rpm with maximum torque at 26.78kqf-m 193.70lb-ft.
- Powerful AC servo spindle motor is the standard equipment. Machining requirements.

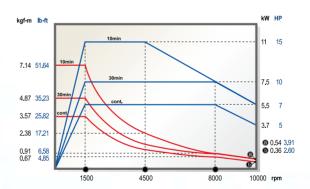
Powerful grip timing belts is used to prevent skid.

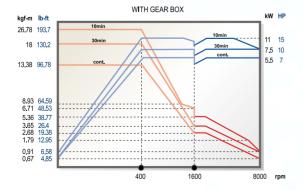
 10,000rpm spindle with precise ceramic ball bearings can be selected for higher speed. (opt.)

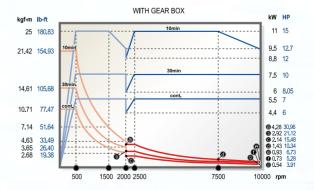








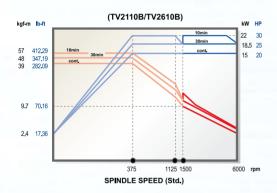


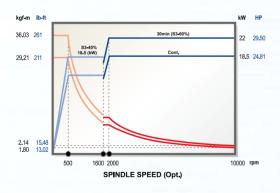


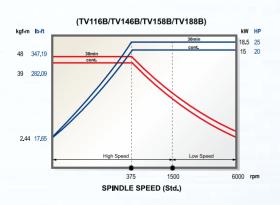
TV116B/TV146B/TV158B/TV188B/TV2110B/TV2610B

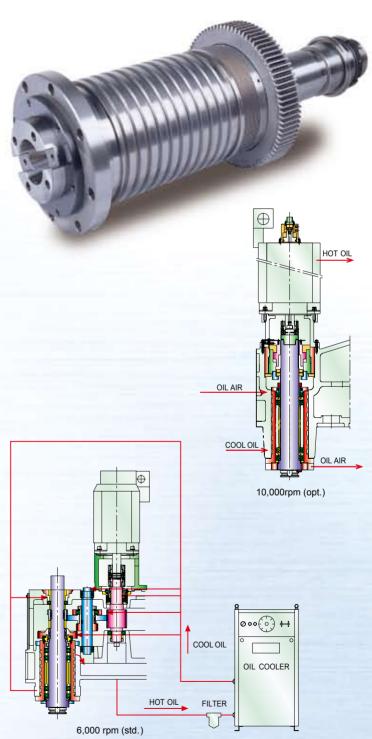
- Precision angular contact ceramic ball bearings of extra rigidity both axial- and radial-wises for very heavy cutting requirements.
- Standard gearhead spindle of maximum of 6,000rpm high speed with the max. of 18.5kW 25HP (30min.) power output and 48kg-m 347lb-ft torque.
- The max. spindle power output at 22kW 30HP (10min.) and torque at 57kgf-m 412 lb-ft with metal removal capacity at 600cc/min. (TV2110B/TV2610B)
- 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.













High Efficiency, High Performance, Fully Automated Production Equipment

Fast & Reliable ATC System

- The 20T umbrella type armless ATC system of 40# spindle machines is compact, reliable and easy to maintain.
- The arm type ATC sysstem is driven by roller gear cam to increase the work efficiency. Number of tool posts in magazine can be selected for 24T/30T(40#), or 32T(50#).



32T (50#)



24T / 30T (40#)

Reliable Automatic Pallet Changer System

 Reliable APC system with the unique design of shuttle type mechanism successfully shortens the machining time thus increases efficiency.

		TV116₿
Pallet Size	mm inch	1,200 x 560 47.24 x 22.05
Table Load Capacity	kg lb	600 1,323
Table Surface to Floor	mm inch	958 37.99



APC



9mm Depth Face Milling (50#)



Optimal Chip Removal (50#) Face Milling



Optimal Chip Removal (50#) End Milling

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.







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.
- The counter weight of Z-axis headstock is secured by guide bar to minimize machining vibration.



TV116B Structure

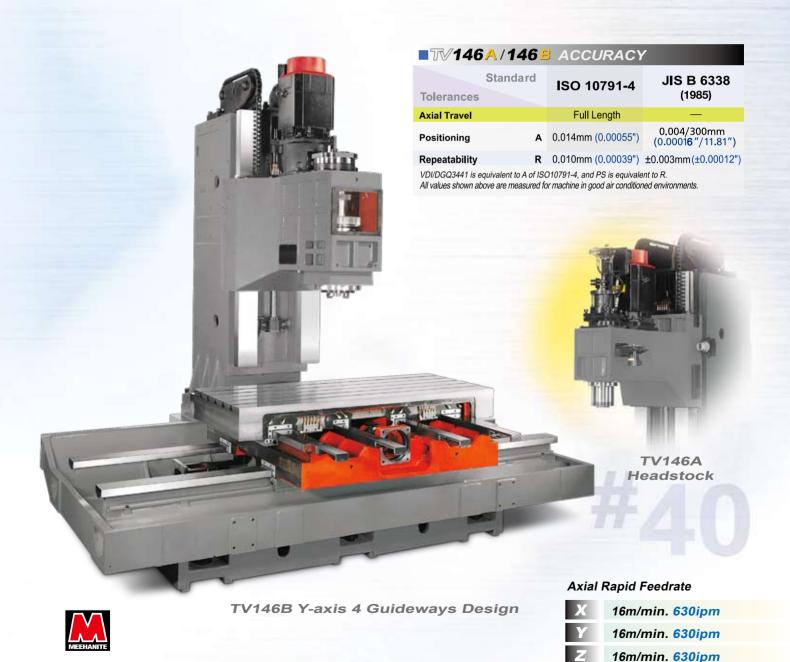
X 16m/min. 630ipm Y 16m/min. 630ipm

Z 16m/min. 630ipm



High Rigidity Axial Movement

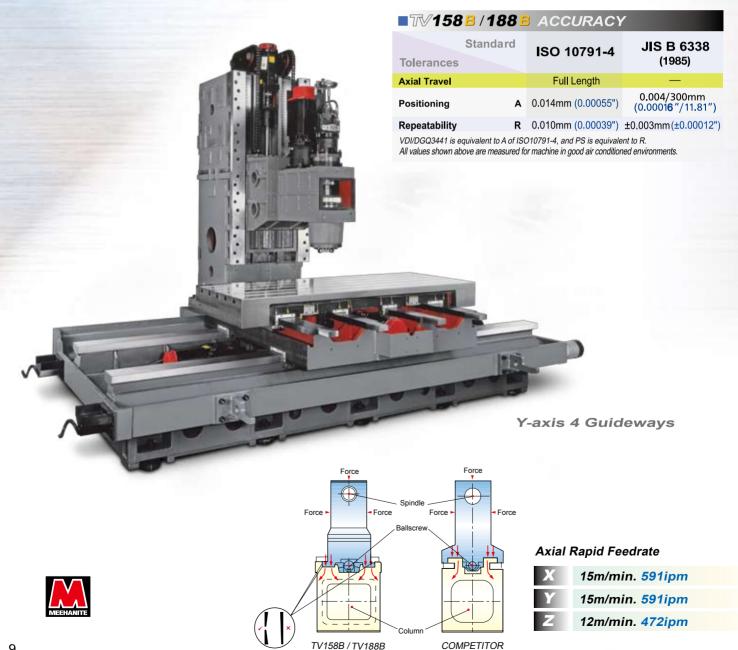
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- All precise ballscrews are pre-tensioned and directly coupled with powerful servo motors to reduce backlash and ensure the best accuracy.
- The counter weight of Z-axis headstock is secured by guide bar to minimize machining vibration.
- The Y-axis is equipped with 4 guideways to gain the best support and forceflow.





High Rigidity Axial Movement

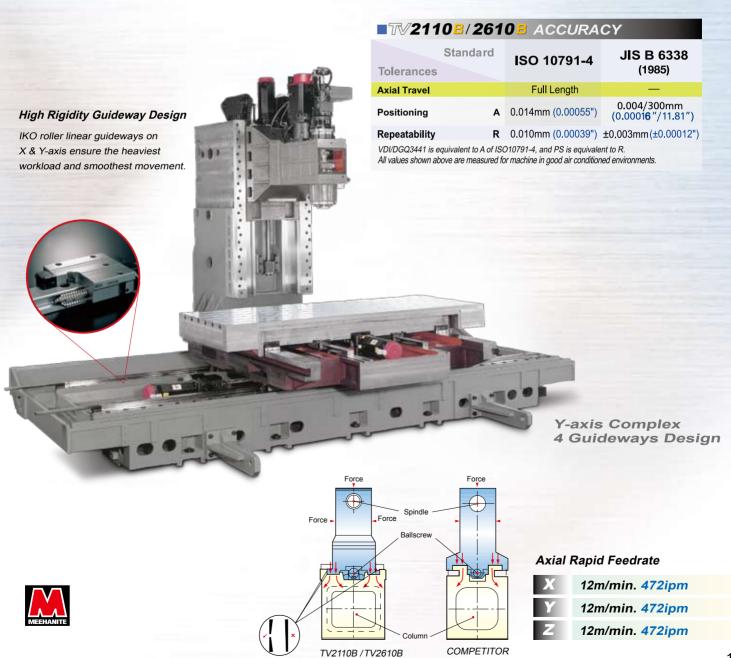
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- Sophisticated scraper work guarantees the best contact and perfect surface of the components to assure flawless accuracy.
- Sufficient support areas of all guideways give the best damping capacity and gain the best cutting rigidity.
- All precise 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.



Weries 2110B/2610B

High Rigidity Axial Movement

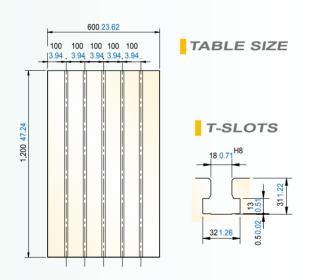
- X & Y-axis are designed with ultra heavy load IKO roller linear guideways for the max. 7,000kg 15,432 lb work load and to ensure the smoothest axial movements.
- Y-axis is equipped with 4 guideways to gain the best support and to reinforce the axial movement.
- Sufficient support areas of all guideways 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.

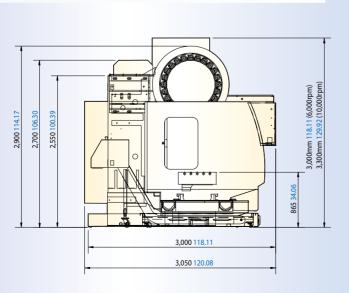


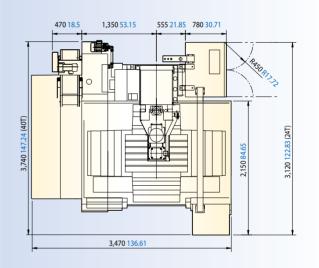


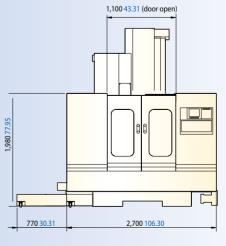


The appearance of the machines will be diverse due to different model.







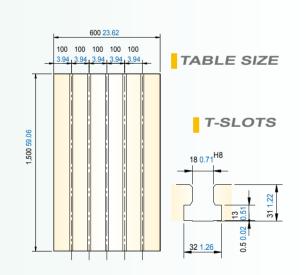


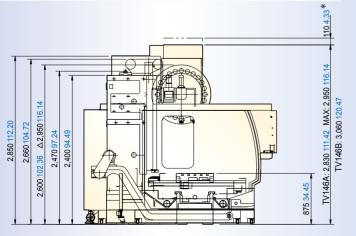
Unit: mm inch

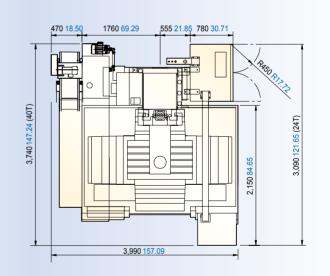


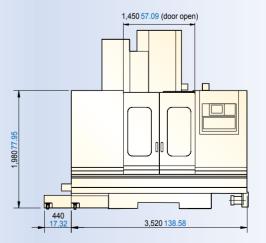


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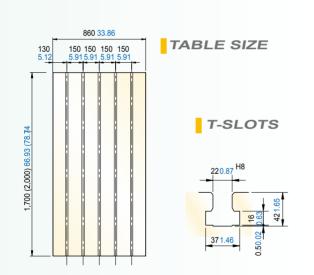


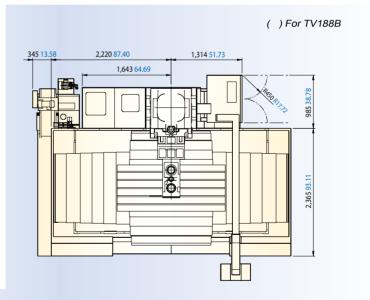


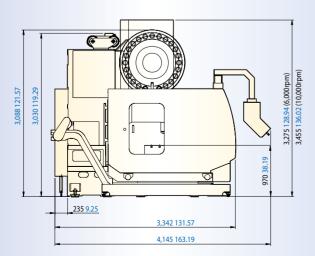


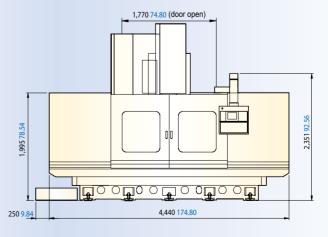


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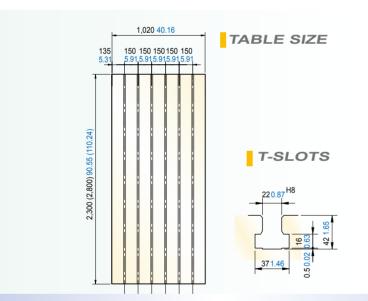


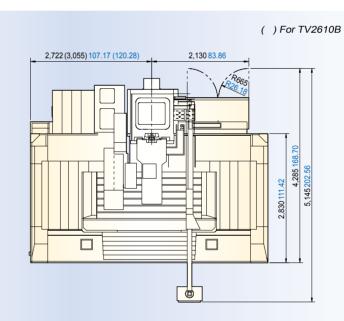


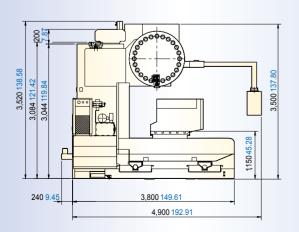
Unit: mm inch

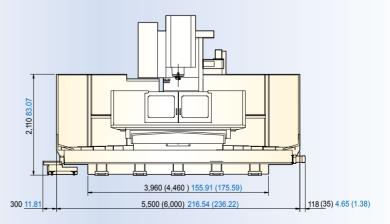
Series 2110B/2610B DIMENSIONS



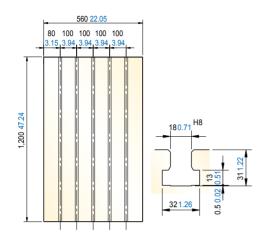


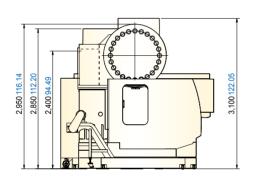


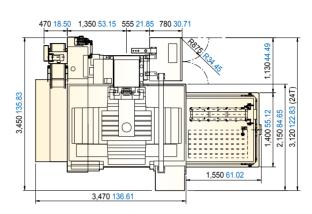


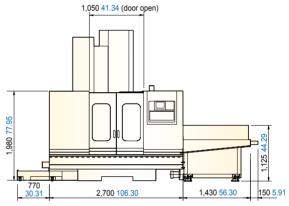




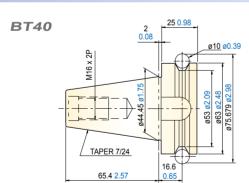


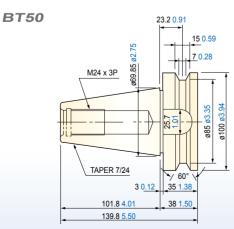


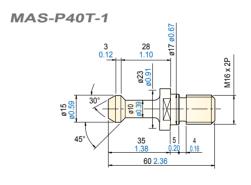




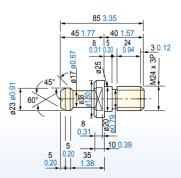
PULL STUD AND TOOL SHANK







MAS-P50T-1



Unit: mm inch

SPECIFICATIONS	T √146 A	T√116 <u></u>	T√146 <u>=</u>	TV188 =	TV1888 TV21108								
SPINDLE													
Spindle Speed (opt.)	45~8,000rpm (10,000rpm)	45~6,000rpm (10,000rpm)											
Spindle Taper	BT40	BT50(BBT50)10,000rpm											
Front Bearing Diameter	ø70mm ø2.76"	ø100mm ø3.94"											
TRAVEL													
X-axis Travel	1,400mm 55.12"	1,100mm 43.31"	1,400mm 55.12"	1,500mm 59.06"	1,800mm 70.87"	2,100mm 82.68"	2,600mm 102.3						
Y-axis Travel	620mm 24.41"	600mm 23.62"	620mm 24.41"	860mm 33.86"	860mm 33.86"	1,020mm 40.16"	1,020mm 40.16						
Z-axis Travel	630mm 24.8"	630mm 24.8"	630mm 24.8"	750mm 29.53"	750mm 29.53"	762mm 30"	762mm 30"						
Distance Between Spindle Nose & Table Top (APC)	142~772mm 5.59"~30.39"	168~798mm (75~705mm) 6.6"~34.4" (2.95"~27.8")	153~783mm 6.02"~30.83"	150~900mm 5.91"~35.43"	150~900mm 5.91"~35.43"	200~962mm 7.87"~37.87"	200~962mm 7.87"~37.87"						
Distance Between Center & Column Front	615mm 24.21"	615mm 24.21"	615mm 24.21"	920mm 36.22" 920mm 36.22"		1,070mm 42.13"	1,070mm 42.13"						
TABLE													
Table size (APC)	1,500 × 600mm 59.06" × 23.62"	1,200 × 600mm (1,200 × 560mm) 47.24" × 23.62" (47.24" × 22.05")	1,500 × 600mm 59.06" × 23.62"	1,700 × 860mm 66.93" × 33.86"	2,000 × 860mm 78.74" × 33.86"	2,300 × 1,020mm 90.55" × 40.16"	2,800 × 1,020mm 110.24" × 40.16"						
Max. Load on Table (APC)	1,500kg 3,307 lb	1,200kg (600kg) 2,646 lb (1,543 lb)	1,500kg 3,307 lb	2,000kg 4,409 lb	2,000kg 4,409 lb	7,000kg 15,432 lb	7,000kg 15,432 l						
The Height From Table Top to Floor (APC)	875mm 34.45"	865mm (958mm) 34.06" (37.72")	875mm 34.45"	970mm 38.22"	970mm 38.22"	1.150mm 45.28"	1.150mm 45.28						
T-Slots × Size × Pitch	5 × 18mm × 10	00mm 5 × 0.71" × 3.94"	5 × 22mm × 150mm 5 × 0.87" × 5.91" 6 × 22mm × 150mm 6 × 0.87" × 5.9										
FEEDRATE													
Rapid Feedrate	16/16/16 m/min. 630/630/630ipm 15/15/12 m/min. 591/591/472ipm 12/12/12 m/min. 4												
Cutting Feedrate	1~5,000mm/min. 0.04~196.9ipm												
ATC													
Tool Magazine Capacity	20T (24/30/40T)			24T (32	/40T)								
Max. Tool Dimensions	ø95 x 300mm (ø95/ø76/ø76 x 300mm) ø3.74" x 11.81" (ø3.54"/ø2.99"/ ø2.99" x 11.81")	n)											
Max.Tool Dimensions (Without adjacent tools)	ø125mm (ø140/ø150/ø125mm) ø4.92" (ø5.51"/ø5.91"/ø4.92")												
Max. Tool Weight	6kg/pc 13 lb/pc 20kg/pc 44 lb/pc												
Tool Changer Method	Armless (Arm Type)												
Tool Selection Method	Sequence (Random) Random												
GENERAL													
Spindle Power	5.5/7.5/11kW (7.5/11/15kW) 7/10/15HP (10/15/20HP)		V (18.5/22kW) P (25/30HP)										
Lubrication Pump Motor			75	W									
Pneumatic Supplier			5.5kg/cm ²	² 78.2psi									
Power Consumption	27kVA (30kVA)	48kVA (65k	(VA)	55kVA	(65kVA)	57kVA (65kVA)							
Machine Weight (APC)	12,000kg 26,455 lb	11,200kg (12,460kg) 24,692 lb (27,469 lb)	12,300kg 27,117 lb	18,000kg 39.683 lb	20,500kg 45,194 lb	25,500kg 56,217 lb	26,000kg 57,320 lb						

ACCESSORIE	ACCESSORIES							•:	Standa	rd (): Opt	ion -	-: None		
ITEMS	146 <u>A</u>	116 <u>B</u>	146 <u>B</u>	158 <u>B</u>	188 <u>B</u>	2110 <u>B</u>	2610B	ITEMS	146 <u>A</u>	1168	146 <u>B</u>	158 <u>B</u>	188 <u>B</u>	2110 <u>B</u>	2610
Tool Kit		•	•	•	•	•	•	4th Axis Rotary Table	0	0	0	0	0	0	0
Work Lamp								Leveling Blocks and Bolts	0						
Pilot Lamp			•			•	•	Guideway Cover (X,Y,Z)							
Optical Scale	0	0	0	0	0	0	0	Rigid Tapping							
Gear Box	0					•	•	Hydraulic System	0						
Foundation Bolts	0	_	_	_	_	_	_	Chip Auger							
Coolant Equipment System	•	•	•	•	•	•	•	A.F.C. Adaptive Feedrate Control	0	0	0	0	0	0	0
Oil Skimmer Splash Guard	0	0	0	_	_	•		Mechanical, Electrical & Operating Manuals	•	•		•	•		•
Coolant Gun	•				•	•	•	Heat Exchanger for Electrical Cabinet	•	•	•	•	•	•	•
Spindle Air Blast								A/C. Cooler for Electrical							
Cutting Air Blast							•	Cabinet	0	0	0	0	0	0	0
Oil Hole Holder Function	0	0	0	0	0	0	0	Chip Conveyor	0	0	0	0	0	0	0
Automatic Power Off Device	0	0	0	0	0	0	0	Circular Coolant Nozzle		0	0				
Oil-mist Coolant System	0	0	0	0	0	0	0	Heavy Duty Coolant Pump	0	0	0	0	0	0	0
Chip Enclosure(with Top Cover)							•	Full Chip Enclosure	0	0	0	0	0	0	0
Chip Enclosure(without Top Cover)	0	0	0	0	0	0	0	Workpiece Measurement System (RENISHAW OMP60)	0	0	0	0	0	0	0
Automatic Pallet Changer (APC)	_	0	-	_	_	_	_	Auto Tool Length							
Central Lubrication System	•	•	•	•	•			Measurement System (METROL T24E-04-08)	0	0	0	0	0	0	0
Spindle Cooling System	0						•	CNC Control: YEONG CHIN							
Coolant Through Spindle System	0	0	0	0	0	0	0	FANUC MXP-200FB							

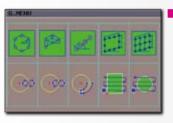
ES 03 08

MXP-200 FB/FC

YCM CONTROL

by FANUC

- High Performance AC Digital Servo & Spindle Drives with Super Precision Absolute Positioning Encoders
- Al NANO CNC Controller for High Precision Operation in Nanometers and Acknowledged HRV Control
- AICC II High Speed High Accuracy JERK Function & Auto Switching on/off Machining Control Function
- High Speed High Accuracy Rigid Tapping, Helical Interpolation, Custom Marco B, and Tool Path Graphics
- Manual Guide i with Big & Double Screen Display (MXP-200FC, opt.)
- Program File Management for Easy Program Classifying
- USB Drive Port for Easy Parameters & CNC Programs Transfer
- Large Program Capacity with 1,280 Meters of Memory
- High Speed Positioning Function (MXP-200FC, opt.)
- Memory Card Program Edit & Operation (opt.)
- 3D Interference Check (opt.)
- NANO Smooth (opt.)



G-menu Function

User-friendly G-menu function provides multiple machining cycles that greatly simplifies programming steps



Easy Shop-floor Programming Manual Guide i

Easy to use conversational software offers convenience of part programming right on the shop-floor with 3D graphical display and full simulation function



Intelligent Tool Data Management

Comprehensive tool data management function allows operators to monitor and manage all positions in tool magazine



Pop-up Alarm Display

Detailed troubleshooting procedures will be automatically displayed when machine alarm occurs that allows users to restore machine status and minimize down time



Automatic Tool Length Measurement

Pre-set macros and graphical procedure are provided for automatic tool length measurement function



Calculator Function

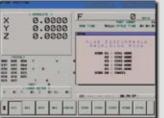
Convenient calculator function provides fast calculation and setting of workpiece offsets



Counter Function

Allows user to easily keep track on number of workpieces with:

- Main Counter
- Periodical Counter
- Daily Counter
- Over Cycle Alarm



High Speed Machining Mode: M400

Combined with artificial intelligence, M400 provides users more convenient and easier ways of operation and achieves fast cycle time for the best machining result.



Intelligent Maintenance Reminder

Pre-set maintenance schedules are programmed to remind operators to inspect periodically prolonging machine life



Manual Tool Length Measurement

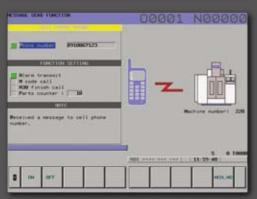
Easy setup of tool length measurement provides convenient setting of tool offsets data from one tool to another

- 1. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc. to improve the performance of the machine without notice. All the specifications shown above are just for reference.
- 2. The functions of the controllers will be distinct due to different model and selectivity.









Multi-function Display

Easily select multiple windows from the following list of display for your monitoring needs.

- G-code Status
- M-code Status
- Spindle Status
- **Controller Running Hours**
- Feedrate
- Tool Data
- Work Coordination
- Spindle Load
- Parts Count
- Machining Hours
- Date and Time
- Function Display

High Speed Machining Mode: M400

Artificially intelligent machining function that is developed from accumulation of all YCM knowledge and experience on high speed to achieve the fastest cycle time with best machining results. Machining efficiency improved by 25% without sacrificing machining accuracy.

Wireless Message Notification (opt.)

Integrating GSM communication and CNC technology, YCM developed the WMN system for wireless notification of machine and work status report.



VMC

FP Serfles High Precision High Performance Die Mold Vertical Machining Center / High Precision Graphite Vertical Machining Center

FP55LX, FP66A, FP100A / FP66G

FV Series High Speed High Performance Vertical Machining Center / High Speed High Performance Drilling & Tapping Center FV56T, FV56A, FV85A, FV102A, FV125A / FV50T

XV Serfles High Performance Vertical Machining Center

XV560A, XV1020A, XV1250A

NXV Serijes High Precision Vertical Machining Center

NXV1020A/AM

TV Seriles Heavy Duty Vertical Machining Center TV116B, TV146A/B, TV158B, TV188B, TV2110B, TV2610B

NTV Seriles High Efficiency T-base Vertical Machining Center

NTV158A/B

MV Series High Performance High Rigidity Vertical Machining Center MV66A, MV76A, MV86A, MV106A

WV Semies Ultra Wide High Performance Vertical Machining Center WV108A/B

FX Seriles High Performance 5-axis Vertical Machining Center FX380

NSV Serriles Ultra High Performance Vertical Machining Center

NSV66A, NSV85A, NSV102A, NSV156A

NDV Seriles High Precision Die Mold Vertical Machining Center

NDV66A, NDV85A, NDV102A

NBX Serfles High Performance Swivel Head 5-axis Vertical Machining Center NBX102

TCV Seriles High Performance Traveling Column Vertical Machining Center

TCV2000A, TCV3000A, TCV3000A-5AF, TCV3000A-5AX

DCV Seriles Advanced Double Column Vertical Machining Center

DCV2012A/B, DCV3016B, DCV4016B, DCV3021B, DCV4021B, DCV5021B, DCV6021B, DCV3025B, DCV4025B, DCV5025B, DCV4030B, DCV5030B, DCV5030B, DCV5035B, DCV5035B, DCV6035B, DCV4030B-5AX, DCV5030B-5AX, DCV6030B-5AX, DCV5030B-5AX, DCV5030B

NDC Seriles High Performance Double Column Vertical Machining Center NDC2016B, NDC3016B, NDC4016B

HMC

H Serries High Production Horizontal Machining Center H500A/B, H630B, H800B, H2612B

NH Serfles High Speed High Precision Horizontal Machining Center NH450A, NH630B, NH800B

HBM

BMP Seriles High Accuracy Heavy Duty Boring Machine BMP1416B

CNC LATHES

NT Seriles High Performance Mill-axis Mill/Turn Center NT-2000Y/SY, NT-2500Y/SY

GT Series High Performance Geo Turning Center

GT-200A/B/MA, GT-250A/B/MA/MB, GT-300A/B/LA/LB/MA/MB/LMA/LMB, GT-380A/B/LA/LB

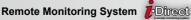
TC Seriles High Performance High Precision CNC Lathe

TC-16A/B/LA/LB/MA/MB/LMA/LMB, TC-26, TC-26L, TC-36, TC-36W, TC-46, TC-46M

INTEGRATION AND SOLUTIONS Integrated Operation Control System I OPERATION IN THE PROPERTY OF THE PROPERT



Spindle Thermal Compensation System STGPLUS







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