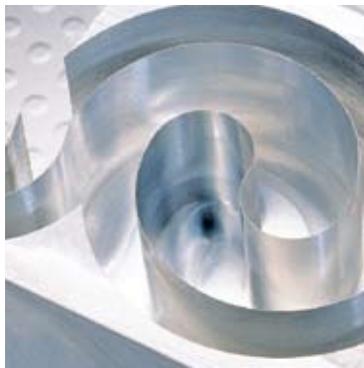
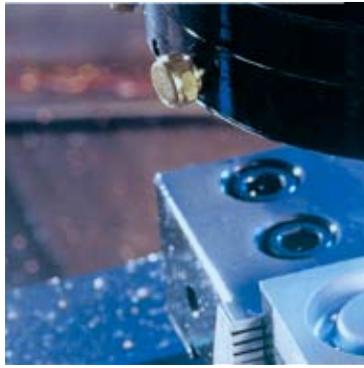
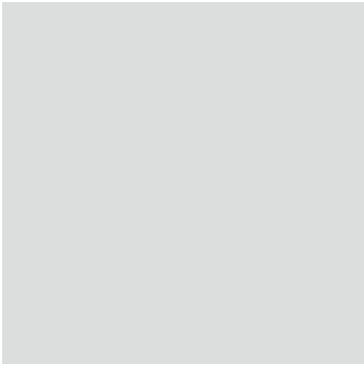


# FV Series

*HIGH SPEED HIGH PERFORMANCE MACHINING VERTICAL CENTER*





Micro-drill



Series

# HIGH SPEED HIGH PERFORMANCE MACHINING VERTICAL CENTER

## The YEONG CHIN FV-Series

High-Speed, High-Power Vertical Machining Centers are specially designed for industries that demand high precision, high productivity application such as automotive, aerospace, electronic, and job shop industries.

### With our unique IDD (Isolated Direct Drive)

Spindle Design and our ultra-wide, ultra-rigid internally ribbed construction, our FV-Series delivers exceptional cutting finish and accuracy.

With the addition of ATC system that changes tool-to-tool in 1 second for 30# spindle, and 3.5 seconds for 40# spindle, the newly developed NR type linear motion guide ways from THK, and the FANUC high responsive AC servo units, our FV-Series will more than pay for its value in no time, and we will bring you success.





Pipe-joint

Telephone (M)

Telephone (F)

Shoe Mold

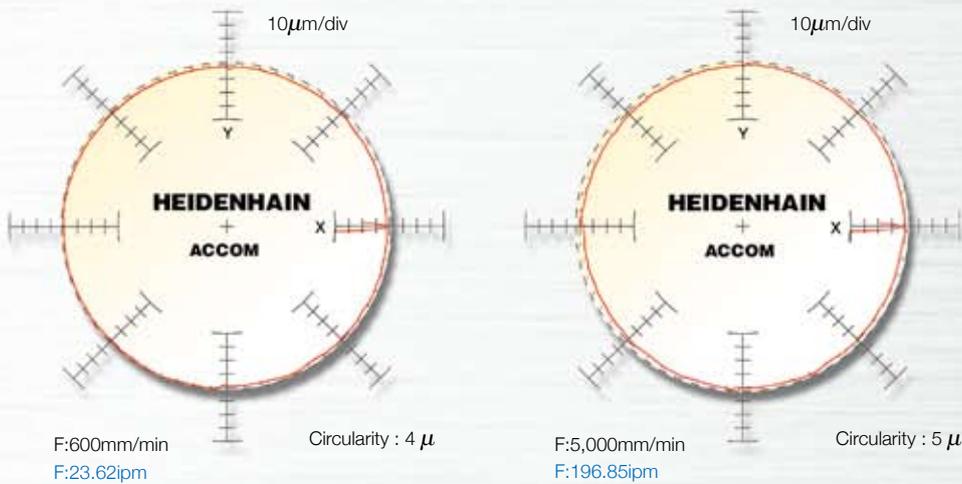
Perfume Lid

\* Optional functions under FANUC 18MC or 18 i-MB control system.

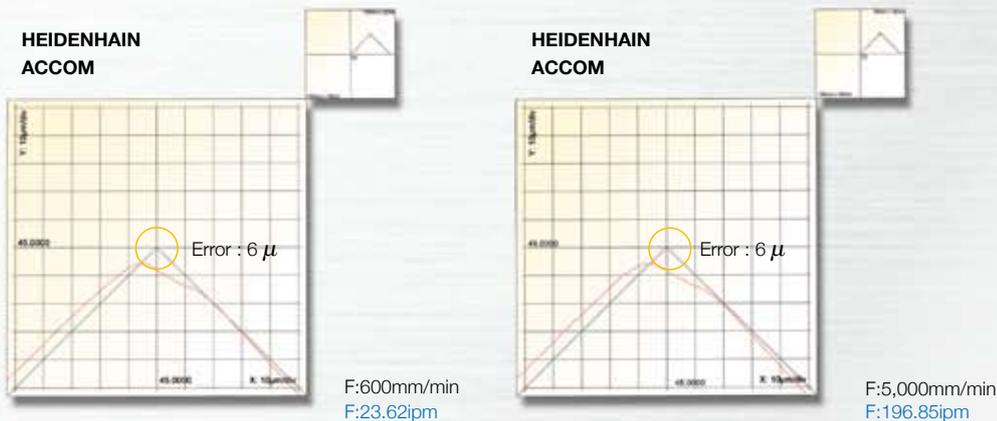
**The most cost-effective solution in high-speed, high-precision mold & die machining.**

0.1 $\mu$ m High Resolution Modular (HRM)\* + Simultaneously Differential Feedrate Control (SDFC)\*  
 Take a YCM FV-Series Vertical Machining Center with the HRM and SDFC functions, conduct tests and then check by Heidenhain Grid Encoder with the following results, which prove HRM and SDFC not only enhance the feed rate control but also keep good accuracy.

1. Conduct  $R = 40\text{mm } 1.58''$  circular interpolation on XY plane with  $600\text{mm/min } 23.62\text{ipm}$  and  $5,000\text{mm/min } 196.85\text{ipm}$  cutting feed respectively.



2. Conduct  $45\text{mm } 1.77''$  linear interpolation on XY plane with  $600\text{mm/min } 23.62\text{ipm}$  and  $5000\text{mm/min } 196.85\text{ipm}$  cutting feed respectively.

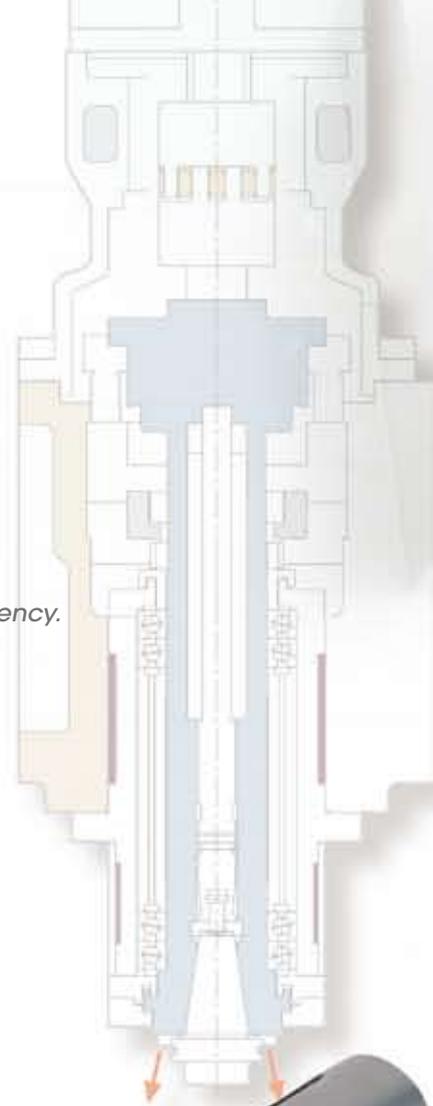




Series

## Unique Spindle IDD Design

Unique direct coupled spindle design could isolate heat source, reduce the thermal deformation, increase the spindle precision and prolong spindle life. Isolated polyurethane flexible coupling is used between motor and spindle. Optional spindle cooling system could achieve better accuracy control. Direct power transfer from spindle shaft to the cutting edge, ensures the power efficiency. Detecting the spindle speed from the build-in encoder of spindle ensures the best performance of rigid tapping.



### Hi-Speed, Hi-Power Spindle Design

#### FV56T (30#)

- Ceramic bearings are applied on 15000rpm spindle, with features of lighter weight, low centrifugal force, high rigidity, low coefficient of heat expansion, so as to achieve better accuracy and spindle life.
- High horse power design, maximum output for acceleration can achieve 20kW 27HP.
- High torque, low inertia - from 0 to 6000rpm takes only 0.3 sec to reach. Excellent in mass drilling and tapping works.
- The high precision spindle bearing system, with ID. 45mm, is to match the small & precise mold making requirements.
- Max. rigid tapping speed: 6,000rpm.

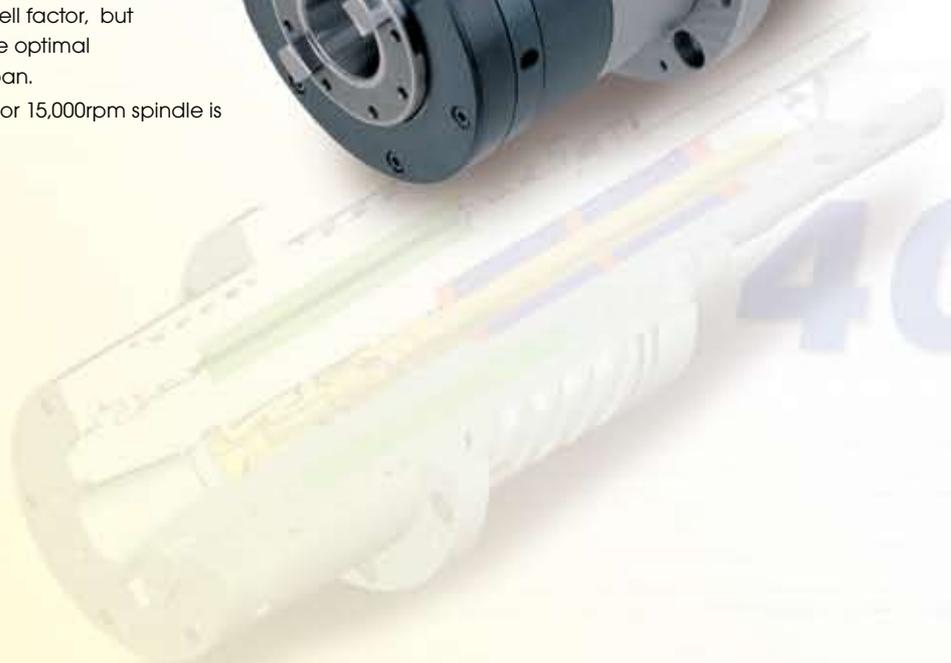
#### FV56A/85A/102A/125A (40#)

- The 10000rpm spindle deploys precision ceramic ball bearings of light mass, low centrifugal force, low swell factor, but high rigidity, which assure the optimal accuracy and spindle life span.
- Oil-Air lubrication 12,000rpm or 15,000rpm spindle is available for option.

30#



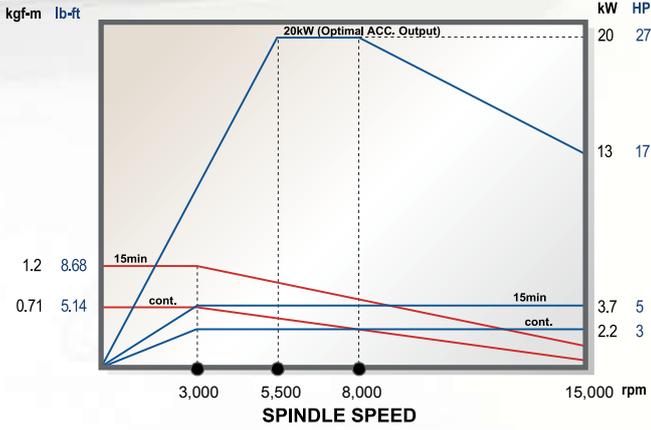
40#



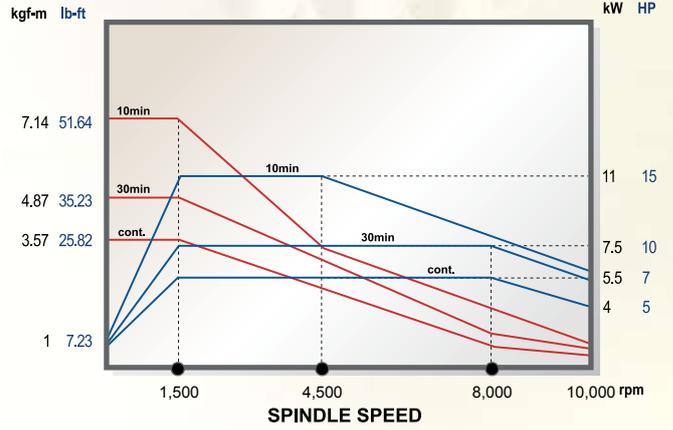
# Various High-Speed Spindle Options for Selection to Meet the Utmost Machining Requirements.

**POWER TORQUE**

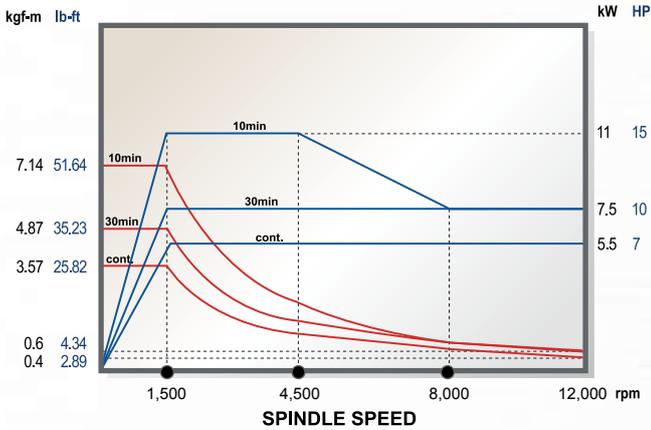
FOR : FV56T - 15,000rpm



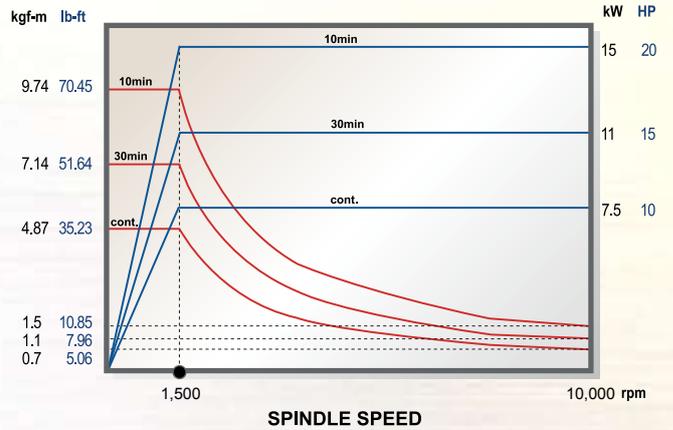
FOR : FV56A / FV85A / FV102A  
10,000rpm (std.)



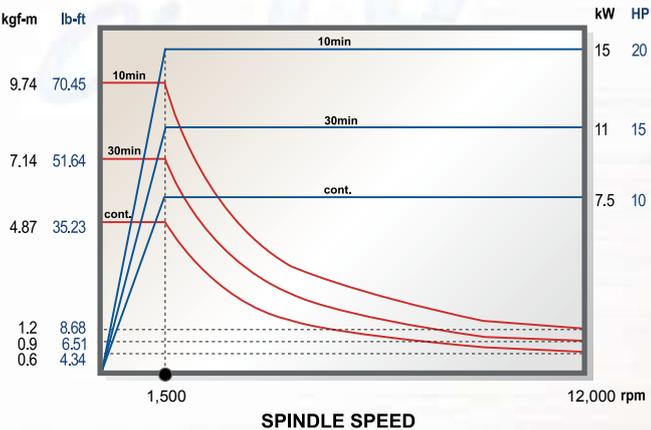
FOR : FV56A / FV85A / FV102A  
12,000rpm (opt.)



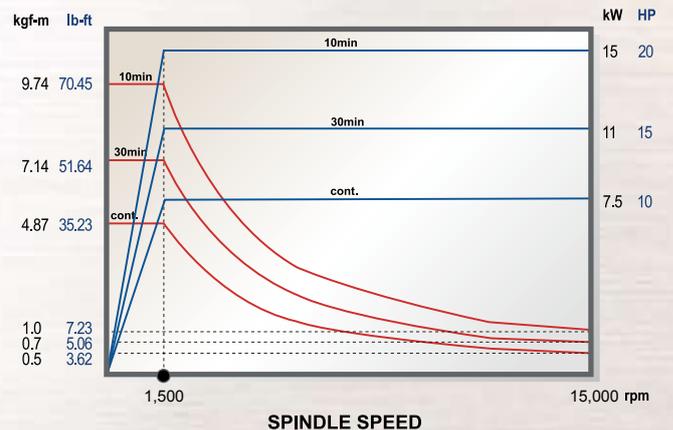
FOR : FV85A / FV102A (opt.)  
FV125A(std.) -10,000rpm



FOR : FV85A / FV102A / FV125A  
12,000rpm (opt.)



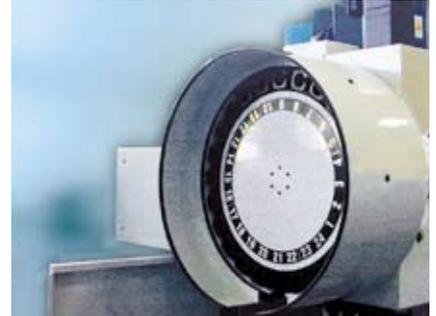
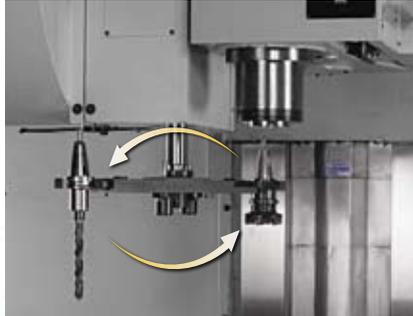
FOR : FV85A / FV102A / FV125A  
15,000rpm (opt.)



# High Efficiency Utmost performance Integration, Solution & Automation

## Reliable ATC Unit

- Fast and reliable roller gear cam ATC allows ATC time in 1 second (for FV56T), and 3.5 seconds (for FV56A/FV85A/FV102A/FV125A), lowers the idle time and enhances the machining efficiency.
- The ATC units were running tested more than million times before their mass production to ensure high reliability.



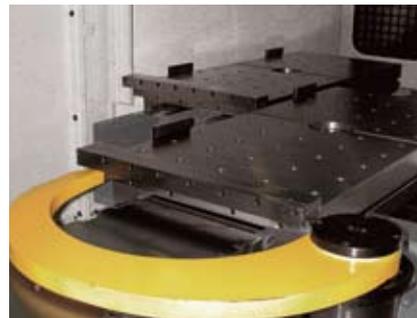
## Complete chips disposal system

- Ensure the cleanness of machining environment. Optional flush coolant can be used to prove the chips disposal efficiently.
- Screw type chip conveyor makes the chips disposal more easily & efficiently. (FV85A / FV102A)
- Complete set of the Y-axis back side plate well protects the guide-way for durable operation.



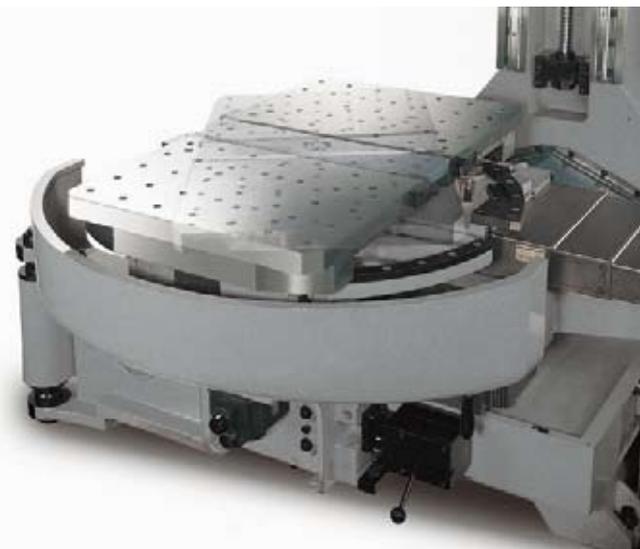
## Shuttle Type Automatic Pallet Changer (FV102A, Option)

- APC's swivel arm is driven by X-axis servo motor with unique rack transmission design, features fast and accurate pallet change mechanism.
- APC time is around 15 seconds.
- Over sized taper pins are applied to ensure backlash-free positioning and rigid clamping on the pallet.
- APC feed rate is adjustable to appropriate speed for different work pieces' demand.



## Advanced APC Design (FV56T/A, Option)

- Hi-speed rotary auto-pallet changer.
- APC time takes 9 seconds only.
- Reliable rotary mechanism driven by servo motor reducer achieves quick APC speed.
- Rotary speed is adjustable to ensure better stability when heavy loading on the pallet.
- Shot flush coolant could clean the positioning block automatically.
- The minimum floor space required, saving floor space and saving money.



# FV Series 56T / 56A

## Super-Accuracy & Rigidity Construction for High Speed Epoch

- Tough and durable MEEHANITE castings deliver exceptional cutting stability and consistent accuracy - the massive, rigid internally ribbed construction reduces damping effect for superb part finishing.
- The extra wide column base and machine base maximize the cutting rigidity, and enhance machine stability during heavy-duty machining.
- Hardened & ground ballscrews are precisely pre-tensioned at both ends, supported by angular contact thrust bearings, and directly coupled with high responsive AC servomotors of backlash-free for outstanding positioning repeatability and accuracy during long machining cycles.
- All axes utilize the newly developed NR type linear motion guide ways from THK of its superior rigidity, low friction, low noise, thus to assure much smoother movement in high-speed traverse.
- All linear motion guide ways are mounted on the very fine surface for maximum surface contact and exceptional cutting rigidity and stability.



**FV56T  
Headstock**

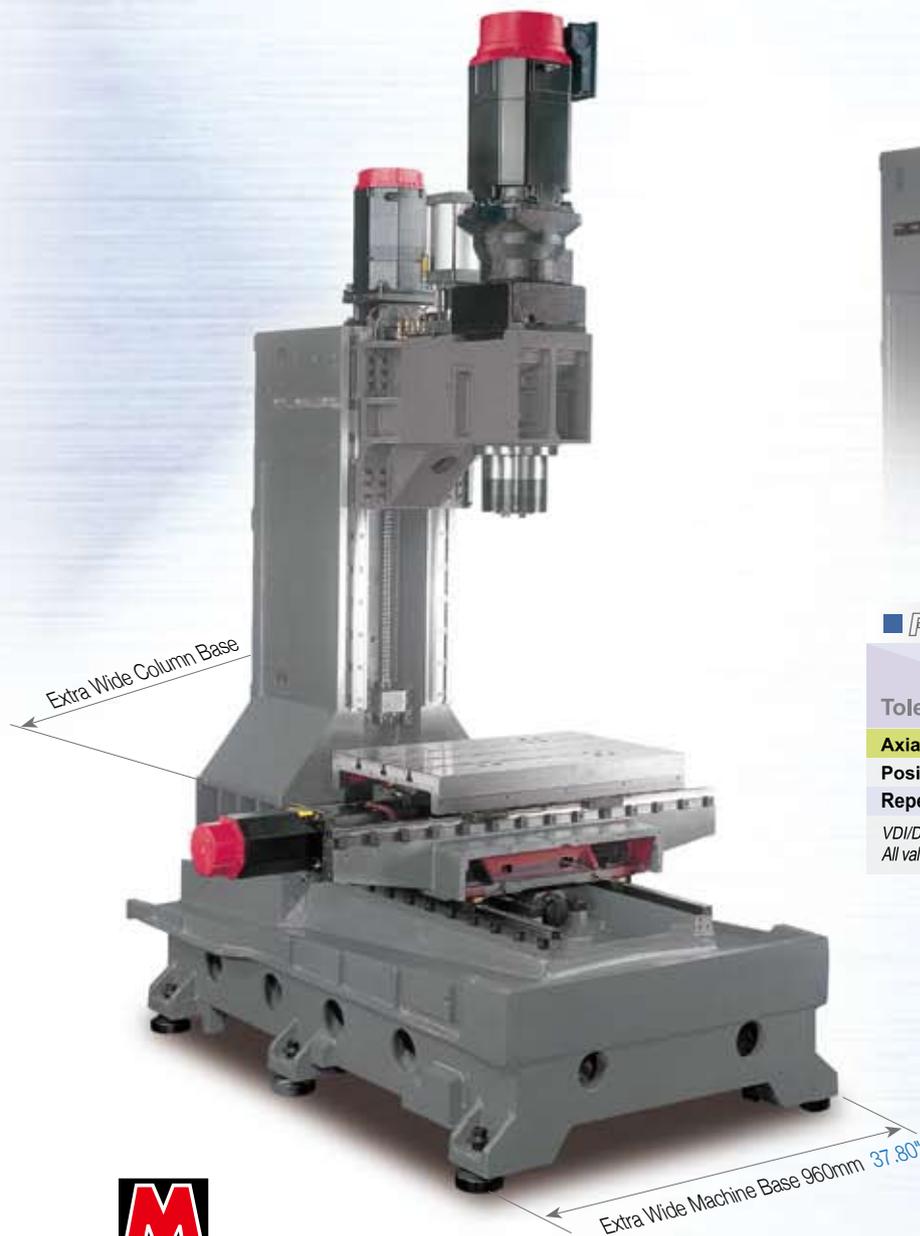
### FV56T / FV56A ACCURACY

	Standard	ISO 10791-4	JIS B 6338 (1985)
<b>Tolerances</b>			
<b>Axial Travel</b>		Full Length	—
<b>Positioning</b>	A	0.010mm (0.00039")	0.003/300mm(0.00012"/12)
<b>Repeatability</b>	R	0.007mm (0.00028")	±0.002mm(±0.00008")

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for machine in good air conditioned environments.

### Axial Rapid Feed Rate (opt.)

X	36 (48) m/min	1,417 (1,890) ipm
Y	36 (48) m/min	1,417 (1,890) ipm
Z	24 (48) m/min	945 (1,890) ipm



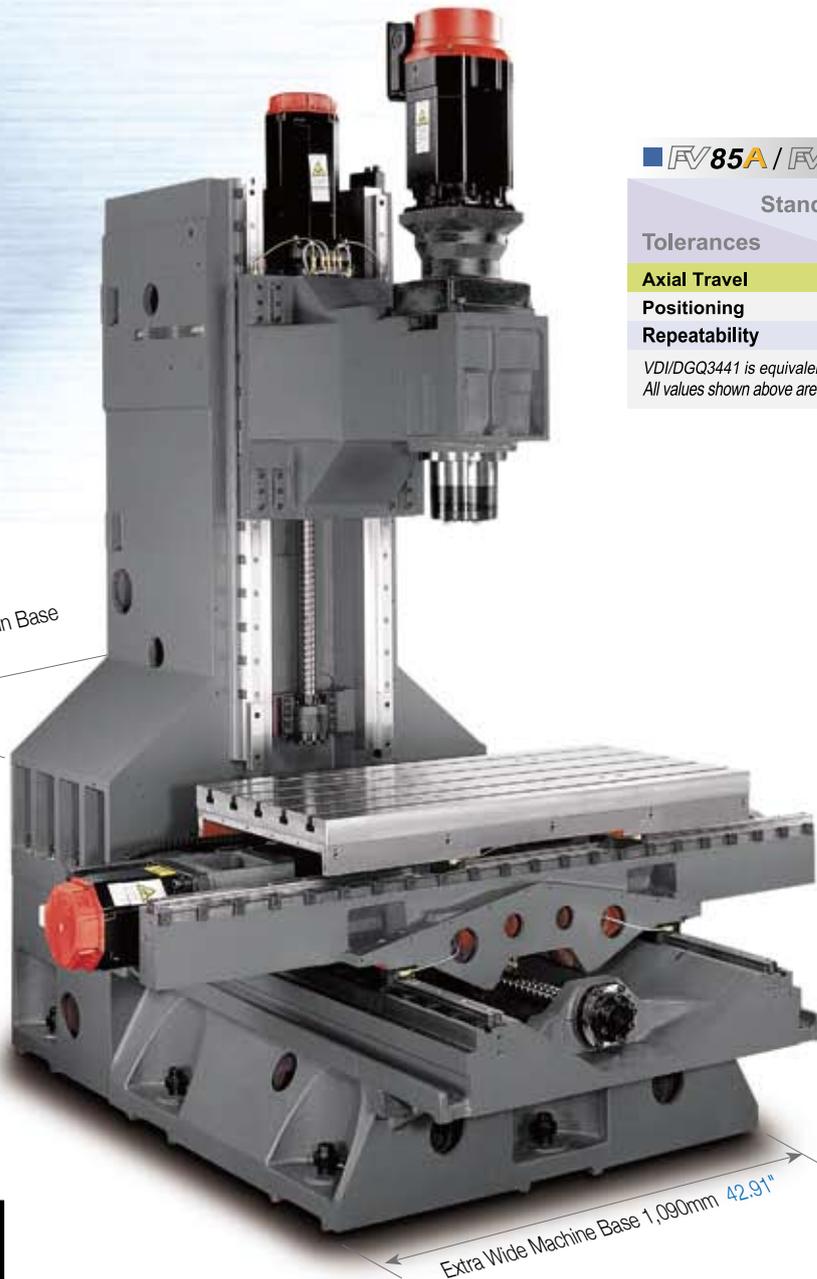


Series

85A / 102A

### Super-Accuracy & Rigidity Construction for High Speed Epoch

- Tough and durable MEEHANITE castings deliver exceptional cutting stability and consistent accuracy - the massive, rigid internally ribbed construction reduces damping effect for superb part finishing.
- The extra wide column base and machine base maximize the cutting rigidity, and enhance machine stability during heavy-duty machining.
- Hardened & ground ballscrews are precisely pre-tensioned at both ends, supported by angular contact thrust bearings, and directly coupled with high responsive AC servomotors of backlash-free for outstanding positioning repeatability and accuracy during long machining cycles.
- All axes utilize the newly developed NR type linear motion guide ways from THK of its superior rigidity, low friction, low noise, thus to assure much smoother movement in high-speed traverse.
- All linear motion guide ways are mounted on the very fine surface for maximum surface contact and exceptional cutting rigidity and stability.



#### FV85A / FV102A ACCURACY

Standard	ISO 10791-4	JIS B 6338 (1985)
<b>Tolerances</b>		
<b>Axial Travel</b>	Full Length	—
<b>Positioning</b>	A 0.010mm (0.00039")	0.003/300mm(0.00012"/12)
<b>Repeatability</b>	R 0.007mm (0.00028")	±0.002mm(±0.00008")

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for machine in good air conditioned environments.

#### Axial Rapid Feed Rate

X	36 m/min 1,417ipm
Y	36 m/min 1,417ipm
Z	24 m/min 945ipm



# FV Series 125A

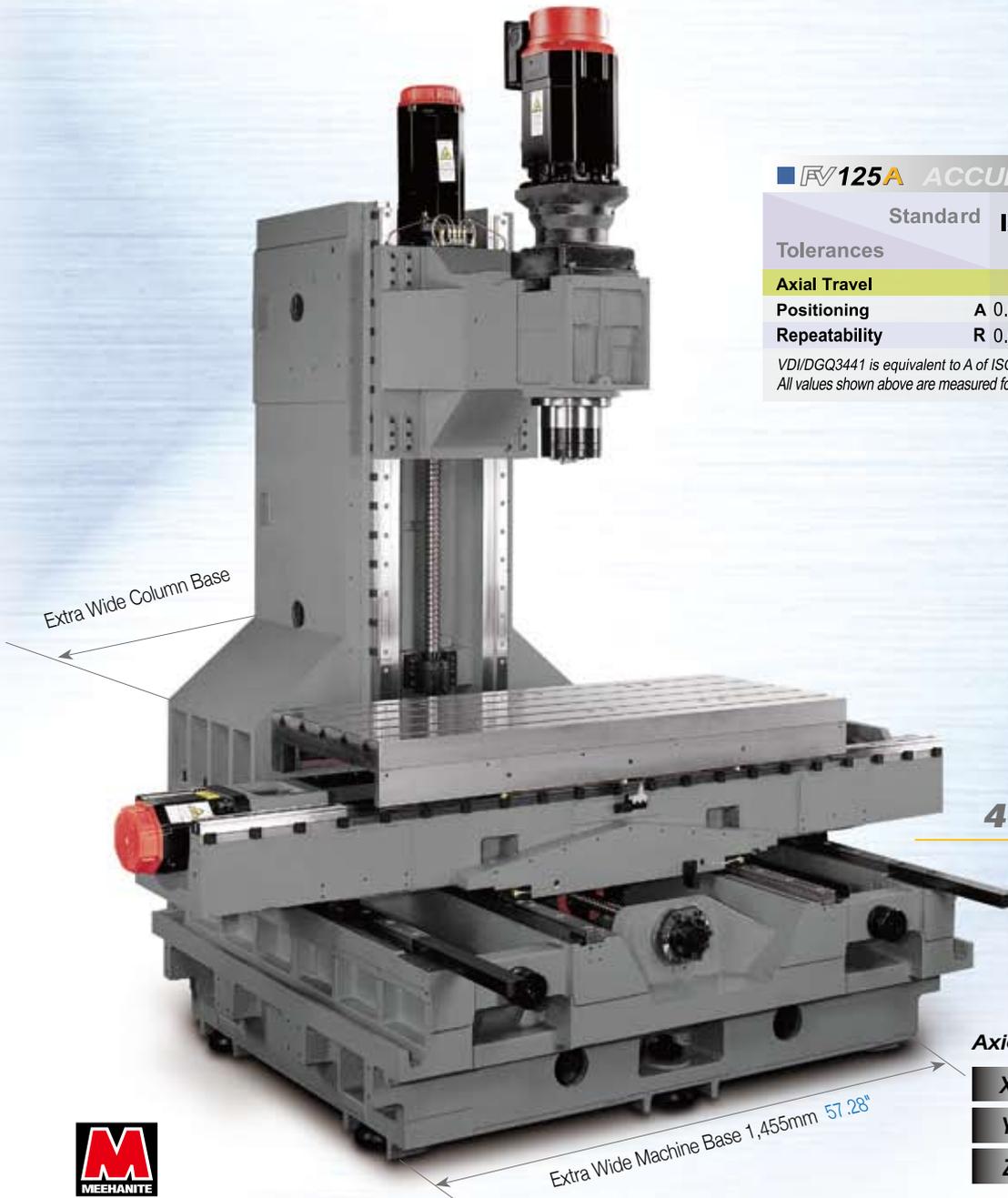
## Super-Accuracy & Rigidity Construction for High Speed Epoch

- Tough and durable MEEHANITE castings deliver exceptional cutting stability and consistent accuracy - the massive, rigid internally ribbed construction reduces damping effect for superb part finishing.
- The extra wide column base and machine base maximize the cutting rigidity, and enhance machine stability during heavy-duty machining.
- Hardened & ground ballscrews are precisely pre-tensioned at both ends, supported by angular contact thrust bearings, and directly coupled with high responsive AC servomotors of backlash-free for outstanding positioning repeatability and accuracy during long machining cycles.
- All axes utilize the newly developed NR type linear motion guide ways from THK of its superior rigidity, low friction, low noise, thus to assure much smoother movement in high-speed traverse.
- All linear motion guide ways are mounted on the very fine surface for maximum surface contact and exceptional cutting rigidity and stability.

### FV125A ACCURACY

	Standard	ISO 10791-4	JIS B 6338 (1985)
<b>Tolerances</b>			
<b>Axial Travel</b>		Full Length	—
<b>Positioning</b>	A	0.010mm (0.00039")	0.003/300mm(0.00012"/12)
<b>Repeatability</b>	R	0.007mm (0.00028")	±0.002mm(±0.00008")

VDI/DGQ3441 is equivalent to A of ISO10791-4, and PS is equivalent to R.  
All values shown above are measured for machine in good air conditioned environments.



## Y-Axis 4-Slideshow Design

### Axial Rapid Feed Rate

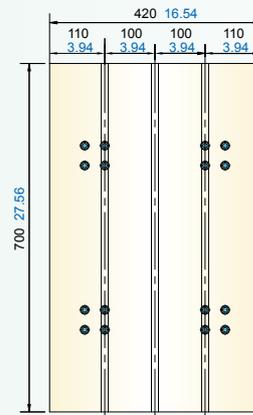
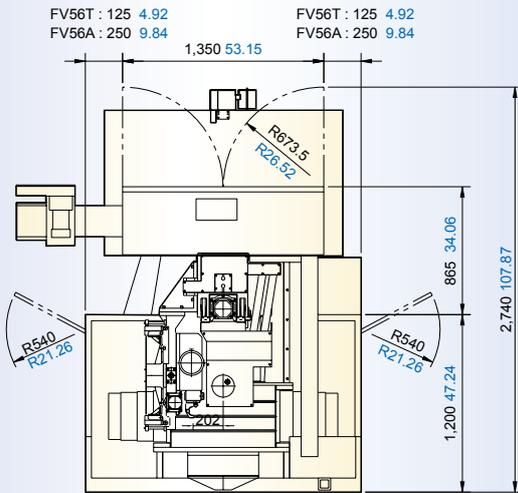
X	24 m/min	945ipm
Y	24 m/min	945ipm
Z	24 m/min	945ipm





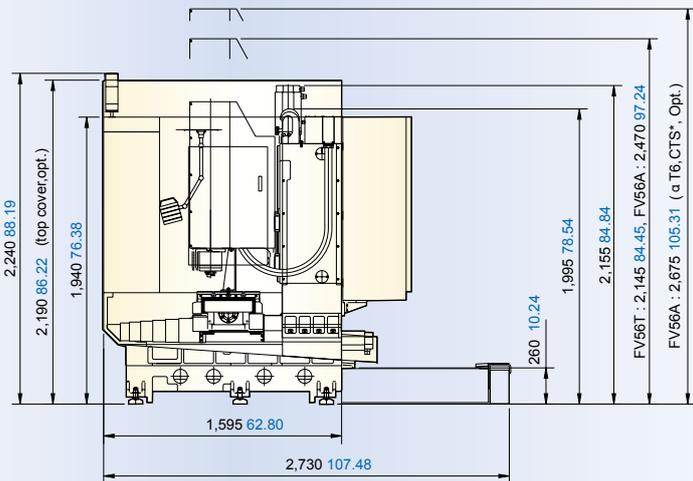
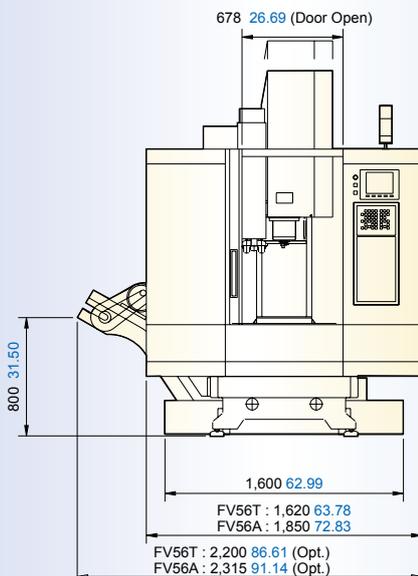
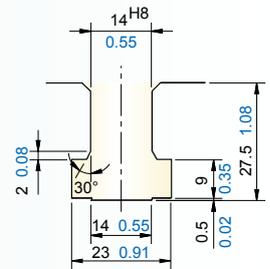
Series

# 56T / 56A DIMENSIONS



## TABLE SIZE

## T-SLOTS



Unit : mm inch



Series

85A / 102A

DIMENSIONS

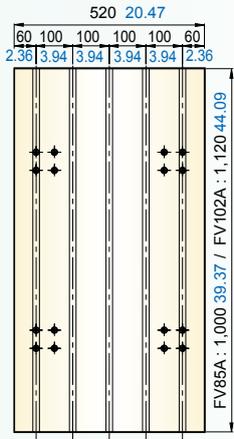
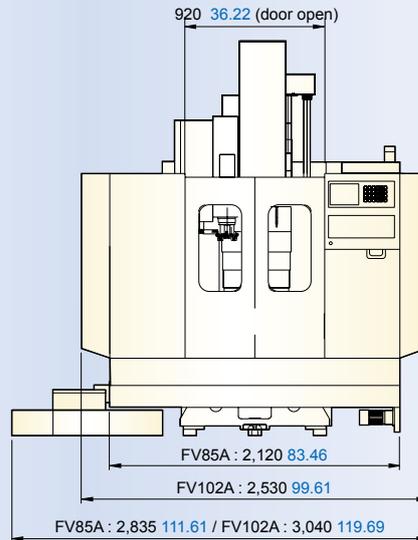
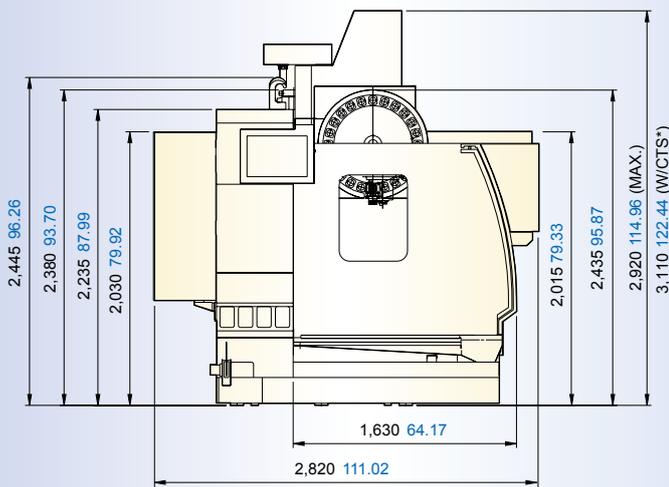
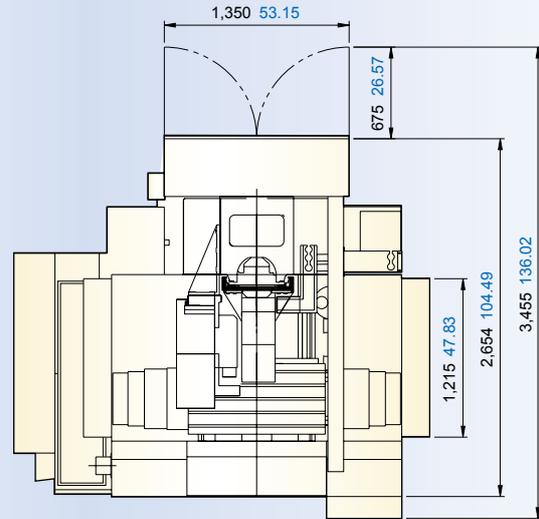
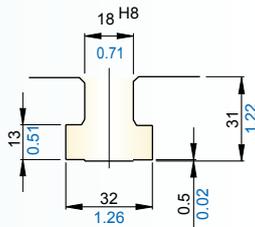


TABLE SIZE

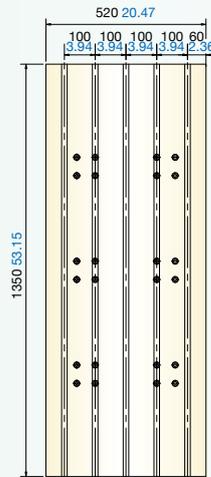
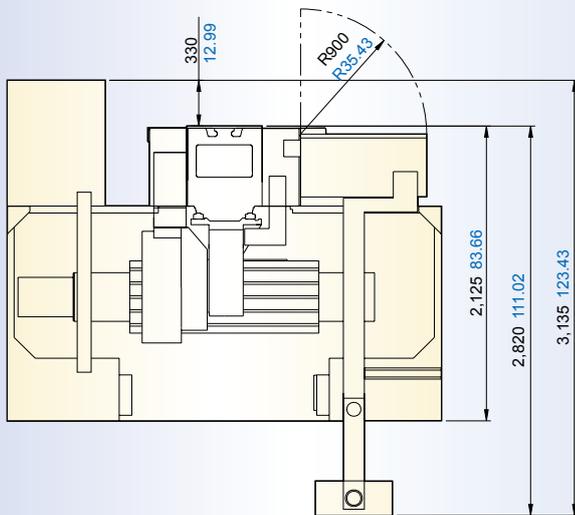
T-SLOTS



Unit : mm inch

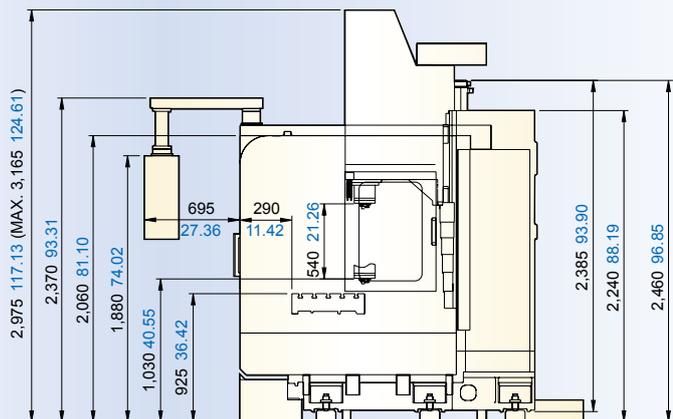
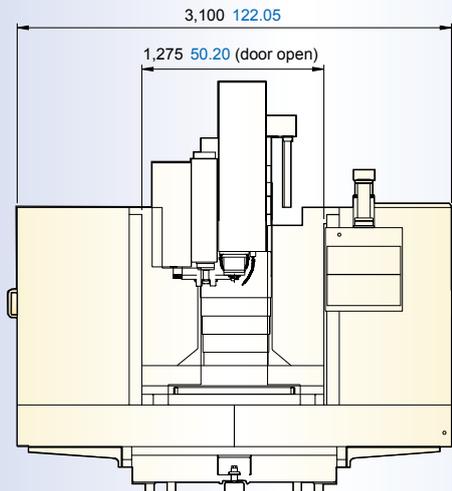
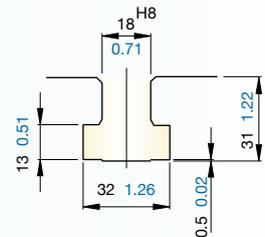


# Series 125A DIMENSIONS



**TABLE SIZE**

**T-SLOTS**





Series

# 56T / 56A APC

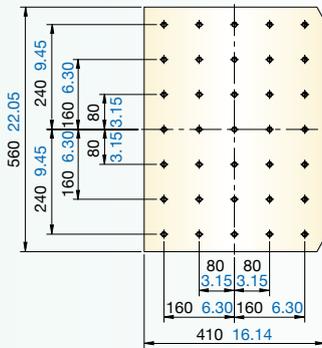
## DIMENSIONS



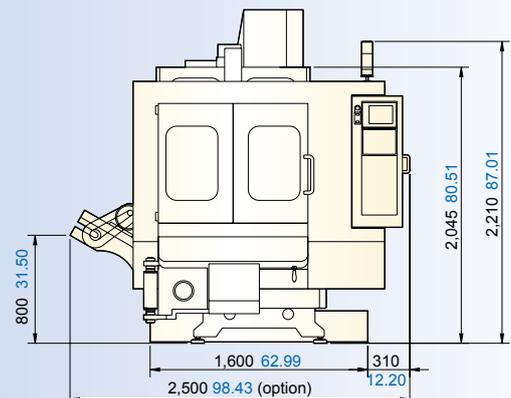
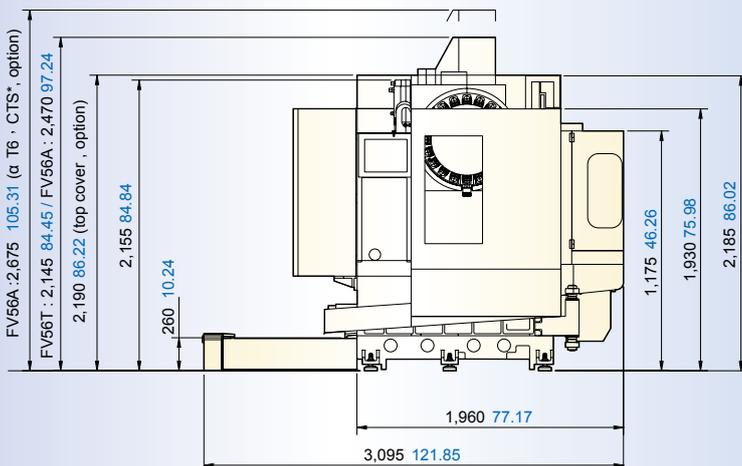
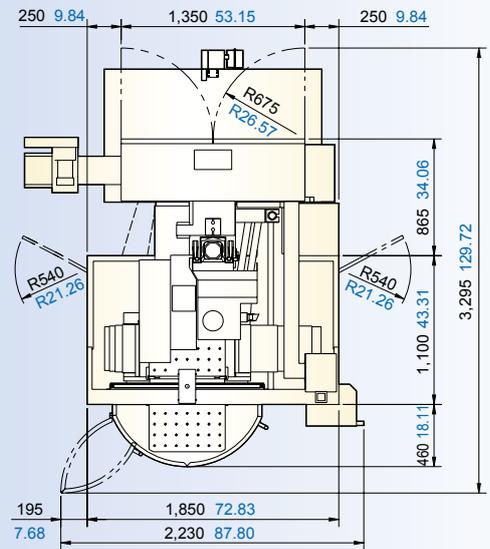
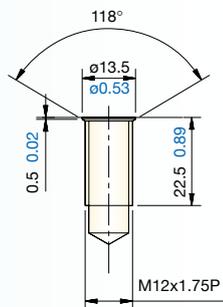
### Relevant Specifications of APC (Option)

Model		FV56T	FV56A
Pallet Size	mm inch	560 x 410	22.05 x 16.14
Table Load Capacity	kg lb	120	265
Distance Between Spindle Nose and Table Top	mm inch	25 ~ 475	0.98 ~ 18.70
Axial Rapid Feed Rate (X / Y / Z)	m/min ipm	36 / 36 / 24	1,417 / 1,417 / 945
Machine Weight	kg lb	3,630 8,003	3,850 8,488

### APC TABLE SIZE



### SCREW HOLE DIMENSIONS





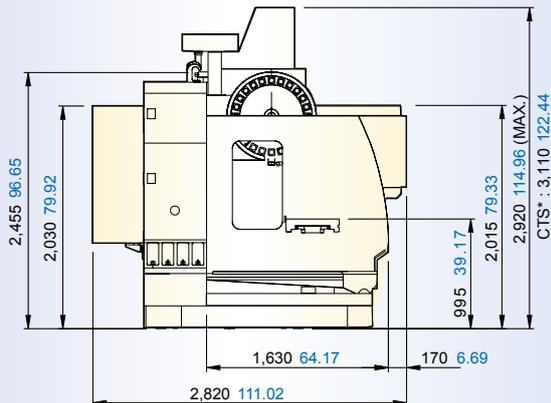
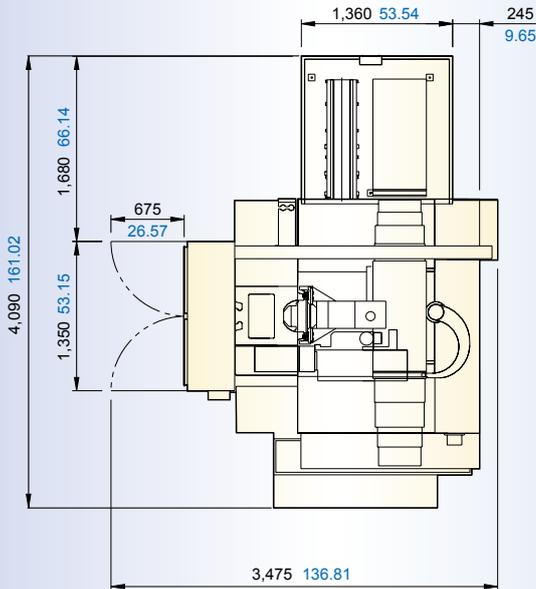
# Series 102A APC

## DIMENSIONS



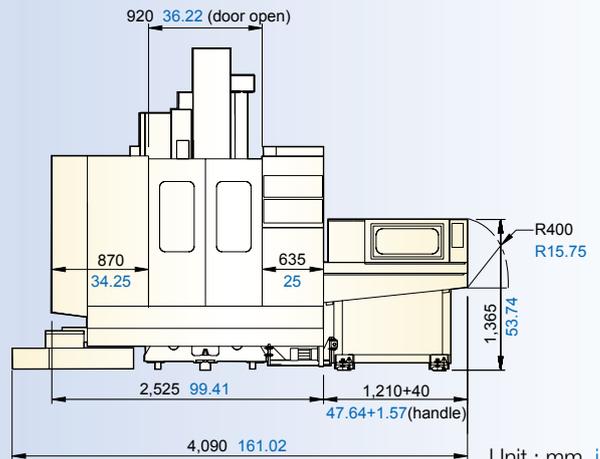
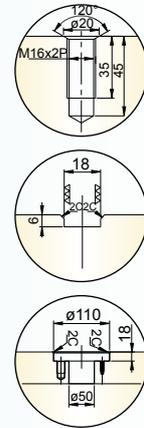
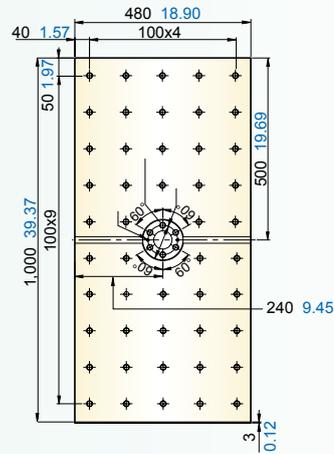
### Relevant Specifications of APC (Option)

Model	FV102A	
Pallet Size	mm inch	1,000 x 480 39.37 x 18.90
Table Load Capacity	kg lb	400 882
Distance Between Spindle	mm inch	30 ~ 570
Nose and Table Top		1.18 ~ 22.44
Axial Rapid Feed Rate	m/min	24 / 24 / 24
(X / Y / Z)	ipm	945 / 945 / 945
Machine Weight	kg lb	6,360 14,021



### TABLE SIZE

### SCREW HOLE DIMENSIONS

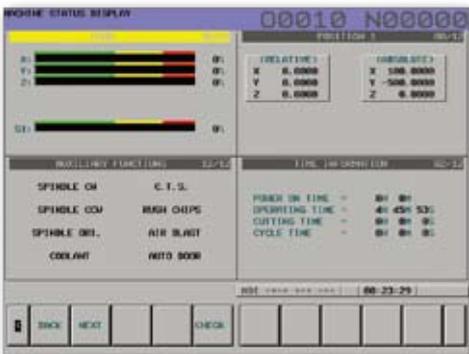


Unit : mm inch



# i OPERATION *Plus*

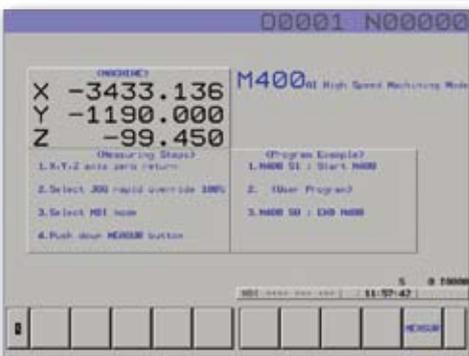
Software Enhancement Exclusively from YCM



## Multi-function Display

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

- G-Modal Status
- Tool Data
- Date and Time
- M-Code Status
- Work Coordination
- Controller Running Hours
- Spindle Status
- Parts Count
- Spindle Load
- Feed Rate
- Machining Hours
- Function Display



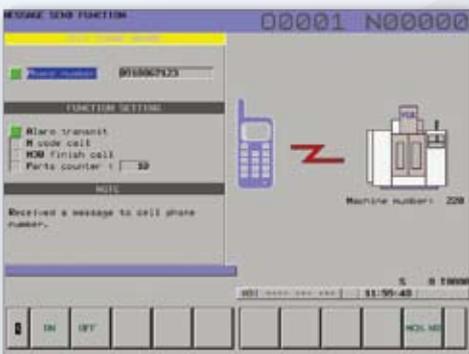
## High Speed Machining Mode (M400)

Artificially intelligent machining function that is developed from accumulation of all YCM knowledge and experience on high speed die mold machining to achieve the fastest cycle time with best machining results.

Machining efficiency improved by 25+% without sacrificing machining accuracy.

Efficiency Increased by:

# +25%



## Wireless Message Notification (Optional)

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



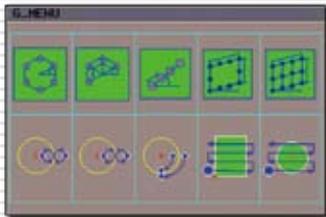
# MXP-200i

YCM CONTROL  
by FANUC

- High Performance AC Digital Servo & Spindle Drives
- High Responsive Vector Drives Technology for High Precision Machining
- Powerful Servo Motors with Super Precision Absolute Positioning Encoders
- High-Resolution 10.4" LCD Color Monitor with Dynamic Graphic Display
- Manual Guide i Conversational Function Greatly Reduces Programming and Setup Time
- Built-in AI NANO Contour Control and High-Speed JERK Function
- High Speed Rigid Tapping, Helical Interpolation, Custom Macro B, and Tool Path Graphics
- Large Program Capacity with 1,280 Meters of Memory
- Full Alphanumeric Keyboard Allows Easy Program Editing
- PCMCIA Slot for Easy File Transfer and Memory Expansion
- RS-232C Interface Ready for Fast Program Transfer
- Combined Uses of Many High Performance Microprocessors, High-Speed Memory and the Adoption of Multi-CPU System for Super High Speed Control Processing
- The Most Reliable CNC Control in The World, with Failure Rate of Under 0.01 Per Unit Per Month

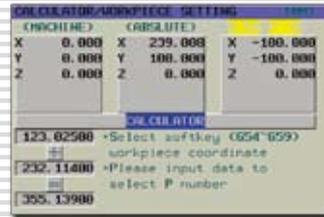


**i OPERATION** *Plus*  
Software Enhancement Exclusively from YCM



## G-Menu

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



## Calculator Function

Convenient calculator function provides fast calculation and setting of workpiece offsets.



## Easy Shop-floor Programming Manual Guide i

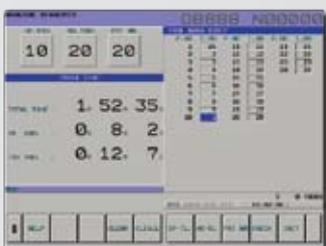
Easy to use conversational software offers convenience of part programming right on the shop-floor with 3-D graphical display and full simulation function.



## Counter Function

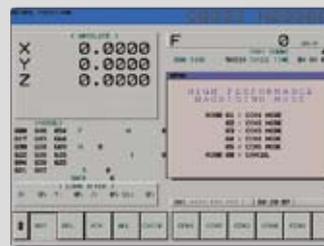
Allows user to easily keep track on number of work pieces with:

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



## Intelligent Tool Data Management

Comprehensive tool data management function that allows operators to conveniently monitor and efficiently manage all position in tool magazine.



## High Performance Machining Mode - M300

High performance mode with 5 settings that allows user to select for the best machining results.



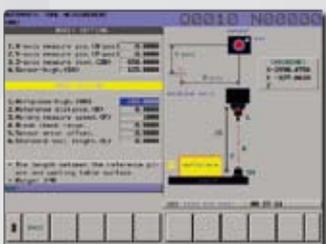
## Pop-Up Alarm Display

Detailed troubleshooting procedures are automatically displayed when machine alarm occurs that allows users to quickly restore machine status to minimize downtime.



## Intelligent Maintenance Reminder

Pre-set maintenance schedules are programmed to remind operators to periodically inspect and maintain to prolong machine life.



## Automatic Tool Length Measurement

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



## Manual Tool Length Measurement

Easy setup of tool length measurement, provides convenient setting of tool offsets data from one tool to the other.



# VMC

## Vertical Machining Center

**FP Series** High Precision High Performance Die Mold Vertical Machining Center  
**FP55A, FP66A, FP100A**

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

**XV Series** High Performance Vertical Machining Center  
**XV560A, XV1020A, XV1250A**

**EV Series** High Efficiency Vertical Machining Center  
**EV1020A**

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

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

**WV Series** Ultra Wide High Performance Vertical Machining Center  
**WV108A/B**

**FX Series** 5-axis Vertical Machining Center  
**FX380A**

**NSV Series** Ultra High Performance Vertical Machining Center  
**NSV66A, NSV85A, NSV102A, NSV156A**

**NDV Series** High Precision Die Mold Vertical Machining Center  
**NDV66A, NDV85A, NDV102A**

**DCV Series** Advanced Double Column Vertical Machining Center  
**DCV2012A/B, DCV3016B, DCV4016B, DCV4025B**

**TCV Series** High Performance Traveling Column Vertical Machining Center  
**TCV2000A**



# HMC

## Horizontal Machining Center

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



# CNC LATHES

## CNC Turning Center

**NT Series** High Performance Mill-turn Multi-tasking Center  
**NT-2000Y/SY, NT-2500Y/SY**

**GT Series** High Performance Geo Turning Center  
**GT-200A/B/MA, GT-250A/B/MA, GT-300A/B/MA/LB, GT-380A/B/LA/LB**

**TC Series** High Performance High Precision CNC Lathe  
**TC-26, TC-26L, TC-36, TC-36W, TC-46**



INTEGRATION AND SOLUTIONS

Integrated Operation Control System **iOPERATION**  
 Spindle Thermal Compensation System **STC SUPER**

Automation Solutions



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