

XV Series

HIGH PERFORMANCE VERTICAL MACHINING CENTER

YCM
XV1020A



YCM FANUC

MXP-100FA

ACTUAL POSITION (ABSOLUTE) 04882 N04882

X	20.000
Y	10.000
Z	10.000



HIGH PERFORMANCE VERTICAL MACHINING CENTER

at an **Affordable Price**

The XV series is built with state-of-the-art technology in mind and packed with features at price you can afford. With all the features loaded on the new XV series, it will help diversify your machining capabilities and keep your manufacturing costs down. It will be one of the most valuable investments you've ever made.

FEATURES

- Powerful & unique IDD spindle
- AC digital servo & spindle drives
- 10,000rpm max. spindle speed
- AICC with 40 blocks look ahead
- Servo motors with absolute encoder
- High speed rigid tapping
- Custom macro B
- Tool path graphics
- Helical interpolation & 1,280 meters of memory
- 8.4" TFT color display
- PCMCIA slot for flash memory & modem card
- Handheld remote manual pulse generator
- RS-232C interface
- High speed swing-arm ATC system
- Random access & bi-directional tool magazine
- THK linear guideways
- Servo motors directly coupled to ball screws
- Pre-tensioned ball screws
- Handheld coolant & air gun
- Spindle air seal
- Cutting air blast
- Lubrication system
- Heat exchanger for electrical cabinet
- High efficiency coolant equipment system
- Oil skimmer
- Rugged MEEHANITE® castings

XV1020A



■ XV560A / XV1020A / XV1250A ACCURACY			
Standard	ISO 10791-4		JIS B 6338 (1985)
Tolerances			
Axial Travel	Full Length		—
Positioning A	0.010mm (0.00039")	0.003/300mm (0.00012"/12")	
Repeatability 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.

Unique IDD Spindle Design

Isolated Direct Drive

1 Direct Coupling

The spindle motor is directly coupled to the spindle. This unique IDD spindle design successfully reduces noises, backlash, and vibration which are found normally from the spindles driven by belt or gears.

2 Powerful Spindle Motor

The spindle is driven by FANUC high torque Vector Drive AC spindle motor.

3 Symmetrical Headstock

The wall of the headstock is symmetrically designed, which allows the entire headstock to homogeneously absorb the thermal expansion and avoids thermal deformation.

4 Unclamping Cushion

Unclamping cushion protects the spindle bearings from the tool unclamping force, which extends the spindle life.

5 Higher Precision Spindle Encoding Feedback

CNC control receives the feedback of spindle speed which can ensure the best performance of rigid tapping.

6 Larger Spindle Diameter

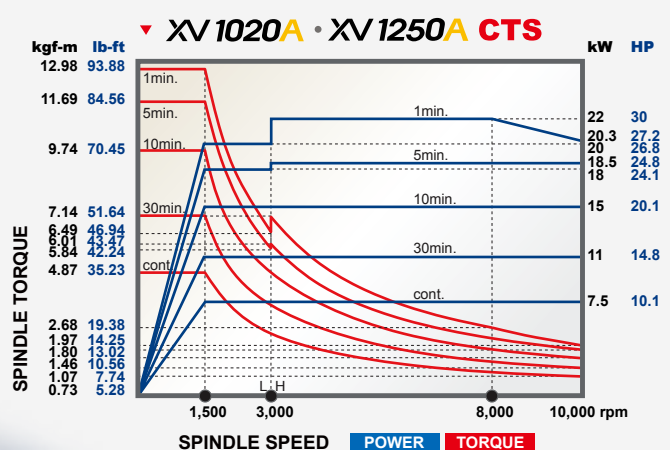
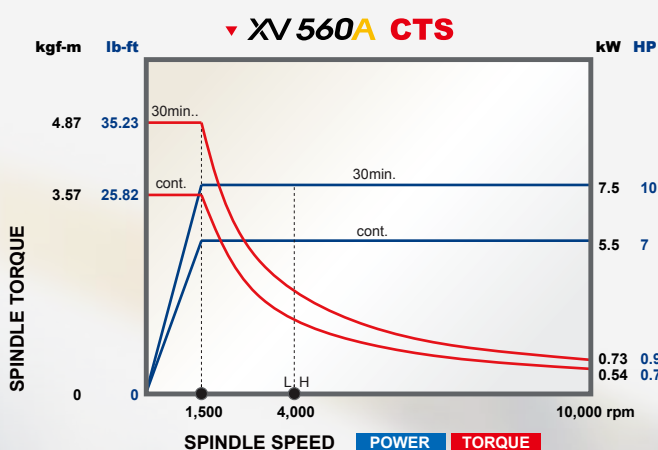
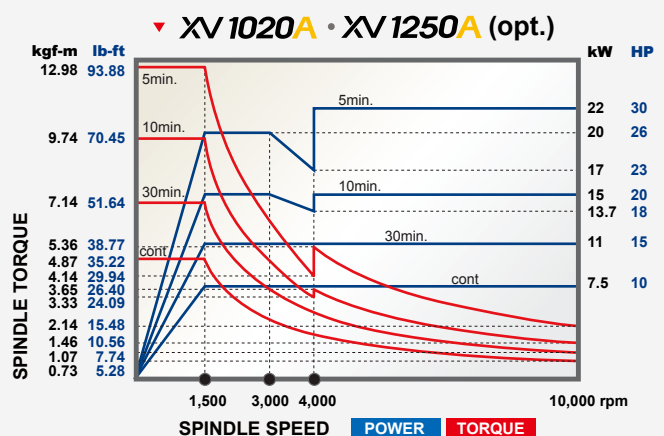
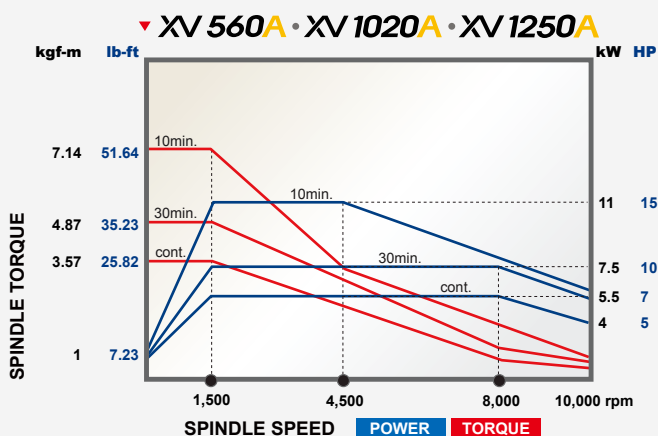
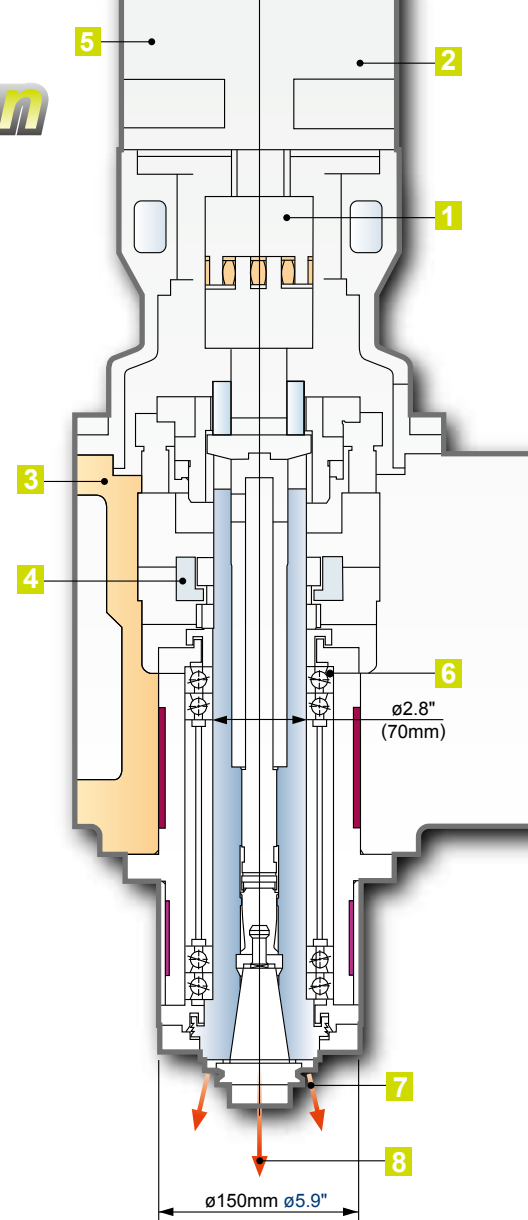
To enhance spindle cutting rigidity, this machine offers large spindle diameter of 70mm and up to 12mm thickness of spindle wall.

7 Spindle Air Curtain

Newly developed technology with positive air flow prevents the spindle bearings from being contaminated by coolant mist and fine chips during high speed cutting.

8 Spindle Air Blast

Every time the machine changes its tool, the standard accessory of spindle air blast will automatically clean the spindle taper.



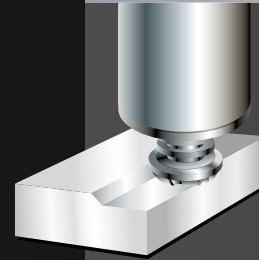
■ Exceptional Accuracy

- The XV series is built to handle the tight-tolerance work on a 24/7 basis. This is accomplished by using high quality components and no shortcuts are taken through our manufacturing process.
- Every XV machine passes the tests of ball-bar and laser calibration to ensure the highest standard in the industry.

XV560A Cutting Tests

FACE MILL

S45C Steel



Depth of Cut

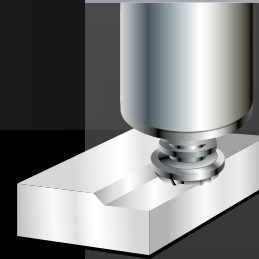
3.5mm

0.12"

Tool Blade $\varnothing 80\text{mm}$ ($\varnothing 3.15"$)
5
Spindle speed 650rpm
Feedrate 325mm/min.
(12.8ipm)
Width of cut 65mm (2.56")
Depth of cut 3.5mm (1.4")

FACE MILL

S45C Steel



Material Removal Rate

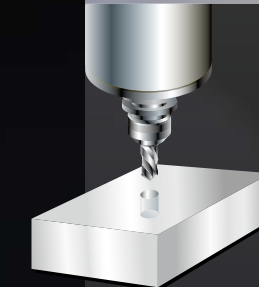
273cc

16.6 in³/min.

Tool Blade $\varnothing 63\text{mm}$ ($\varnothing 2.48"$)
6
Spindle speed 1,515rpm
Feedrate 2,273mm/min.
(89.5ipm)
Width of cut 60mm (2.36")
Depth of cut 2mm (0.08")

DRILL

S45C Steel



Drill

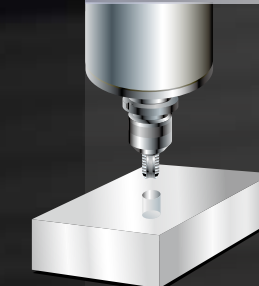
$\varnothing 29\text{mm}$

$\varnothing 1.14"$

Tool Flute $\varnothing 29\text{mm}$ ($\varnothing 1.14"$)
2
Spindle speed 1,317rpm
Feedrate 263mm/min.
(10.35ipm)

TAP

S45C Steel



TAP

M20

Tool M20, 2.5 Pitch
Spindle speed 80rpm
Feedrate 200mm/min.
(7.87ipm)

Rapid Feedrate XV560A

X 36 m/min. 1,417 ipm

Y 36 m/min. 1,417 ipm

Z 24 m/min. 945 ipm

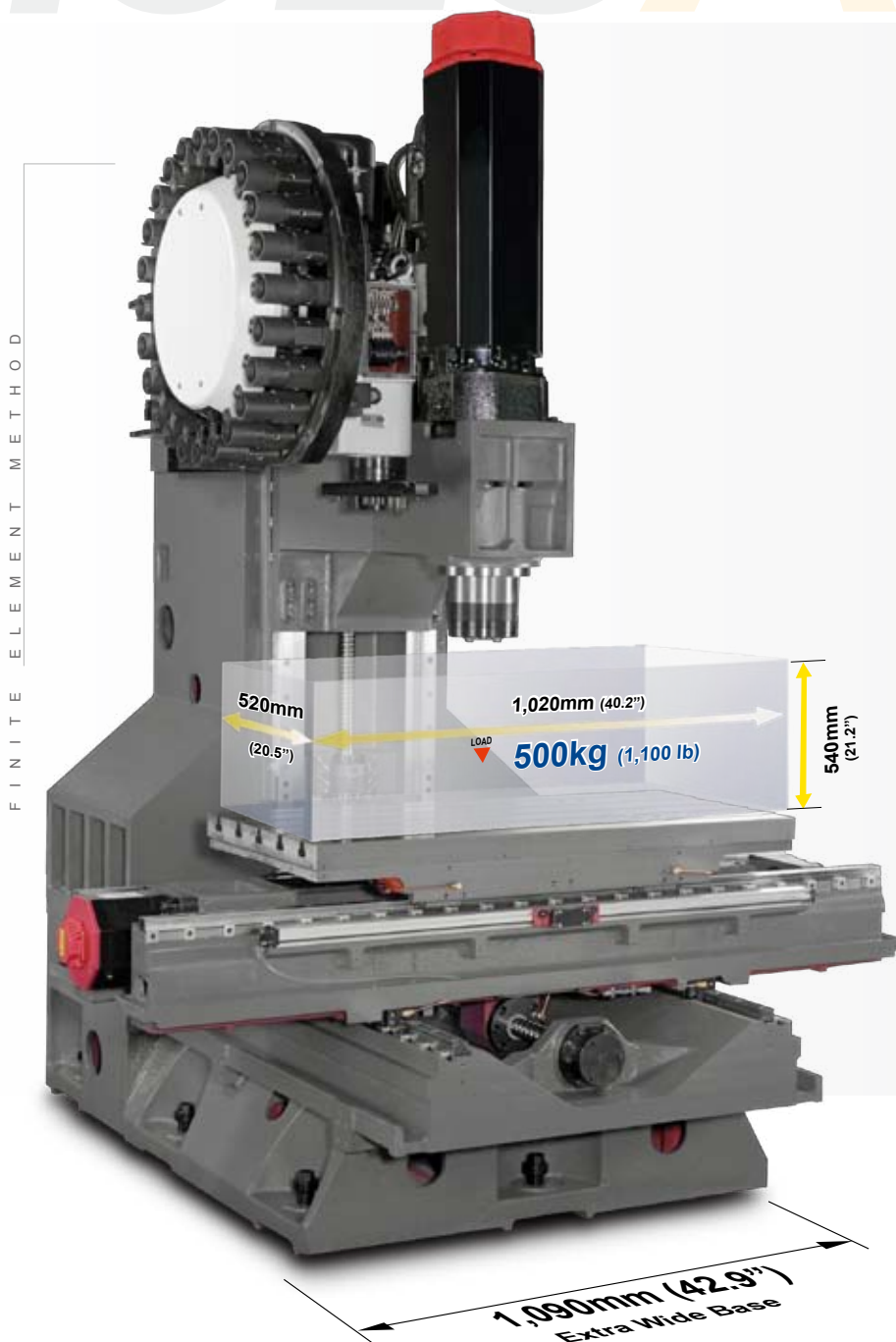
Machine weight: **3,000kg (6,614 lb)**

P R E C I S I O N



□ Optimum Rigidity

- The body structure of the XV series offers the best precision and rigidity.
- FEM analysis is adopted to simulate the structural deformation of the body under various conditions. This analysis ensures the suitable mass arrangement and rib construction of the machine for constant stability under the intensive load of heavy-duty cutting.



XV1020A/XV1250A Cutting Tests

FACE MILL

S45C Steel

Depth of Cut

8mm

0.31"

Tool Blade $\phi 80\text{mm}$ ($\phi 3.15"$)
5
Spindle speed 600rpm
Feedrate 300mm/min. (59.1ipm)
Width of cut 65mm (2.6")
Depth of cut 8mm (0.31")

FACE MILL

S45C Steel

Material Removal Rate

712cc

43.4 in³/min.

Tool Blade $\phi 63\text{mm}$ ($\phi 2.48"$)
6
Spindle speed 1,500rpm
Feedrate 3,600mm/min. (141.7ipm)
Width of cut 60mm (2.36")
Depth of cut 3.3mm (0.13")

DRILL

S45C Steel

Drill

$\phi 44\text{mm}$

1.73"

Tool Flute $\phi 44\text{mm}$ ($\phi 1.73"$)
2
Spindle speed 1,207rpm
Feedrate 241mm/min. (9.5ipm)

TAP

S45C Steel

TAP

M30

Tool M30, 3.5 Pitch
Spindle speed 50rpm
Feedrate 175mm/min. (6.9ipm)

Rapid Feedrate

XV1020A

X 36 m/min. 1,417 ipm

Y 36 m/min. 1,417 ipm

Z 24 m/min. 945 ipm



Machine weight: **5,350kg (11,795 lb)**

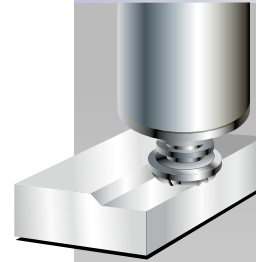
□ Superb Versatility

- The XV series offers high speed, great accuracy, strong rigidity and added value of multi-application.
- The XV series is designed to meet today's the highest machining requirements.
- The XV series is perfect for automotive, job shops, aerospace, electronics, medical and mold making industries.

XV1020A / XV1250A Cutting Tests (opt.)

FACE MILL

S45C Steel



Depth of Cut

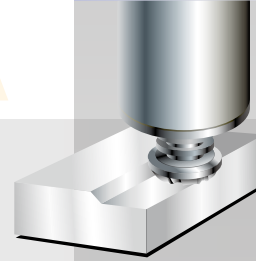
8mm

0.31"

Tool Blade 5
Spindle speed 600rpm
Feedrate 300mm/min. (59.1ipm)
Width of cut 65mm (2.6")
Depth of cut 8mm (0.31")

FACE MILL

S45C Steel



Material Removal Rate

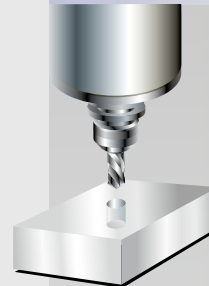
712cc

43.4 in³/min.

Tool Blade 6
Spindle speed 1,500rpm
Feedrate 3,600mm/min. (141.7ipm)
Width of cut 60mm (2.36")
Depth of cut 3.3mm (0.13")

DRILL

S45C Steel



Drill

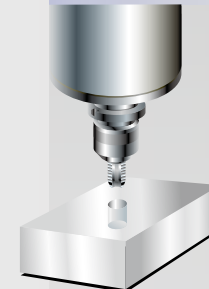
Ø44mm

1.73"

Tool Flute 2
Spindle speed 1,207rpm
Feedrate 241mm/min. (9.5ipm)

TAP

S45C Steel



TAP

M30

Tool M30, 3.5 Pitch
Spindle speed 50rpm
Feedrate 175mm/min. (6.9ipm)

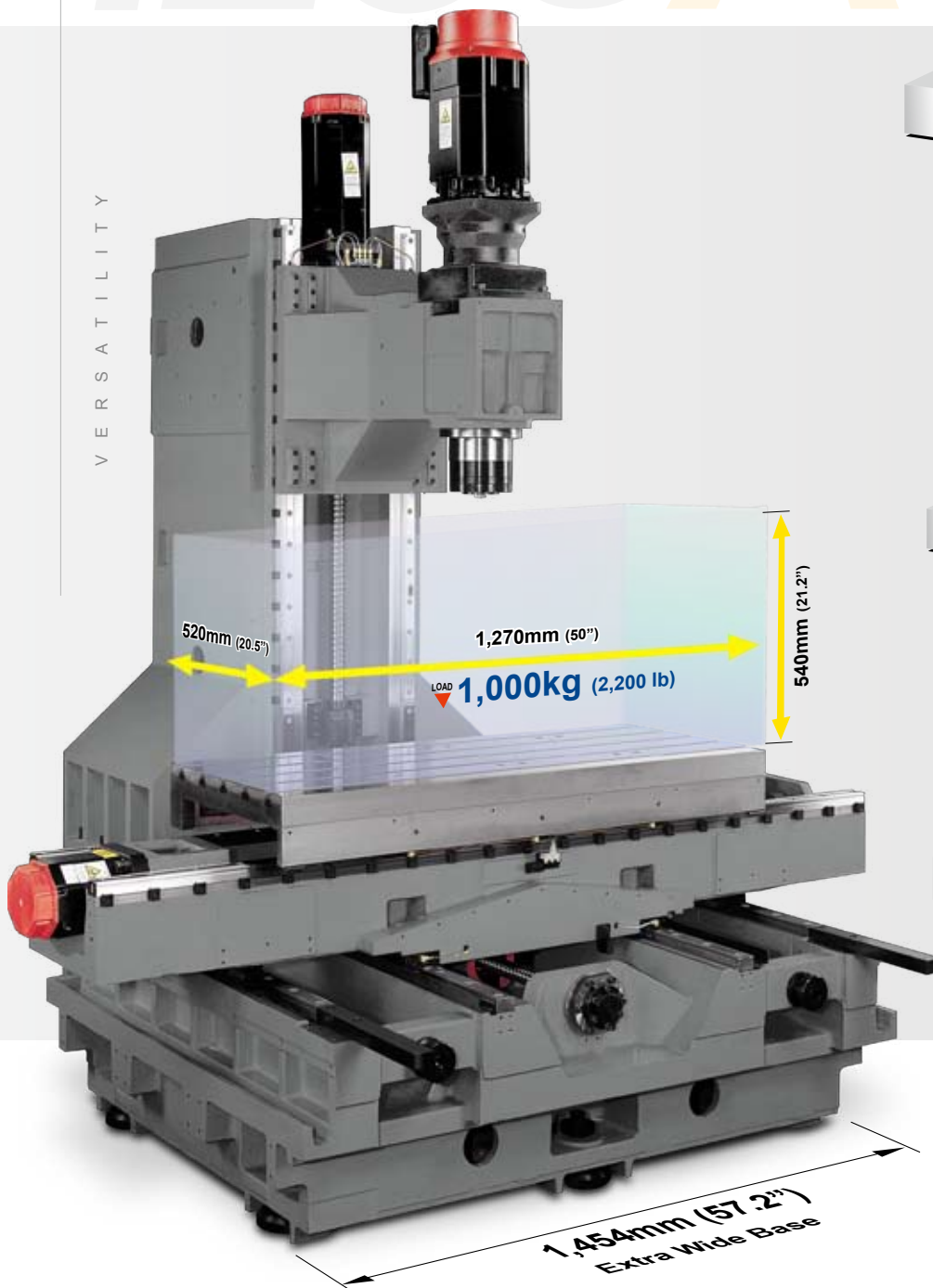
Rapid Feedrate

XV1250A

X 24 m/min. 945 ipm

Y 24 m/min. 945 ipm

Z 24 m/min. 945 ipm



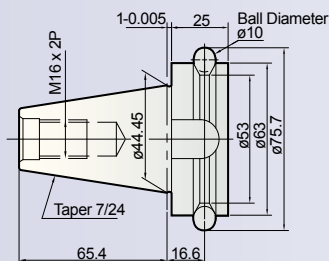
Machine weight: **6,700kg (14,770 lb)**



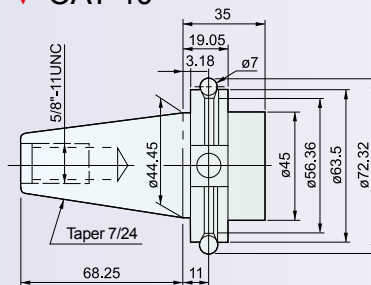
The side-mounted tool magazine holds up to 24 tools; tool selection is bi-directional and takes the shortest random path.

- Dual-arm type ATC

▼ BBT40

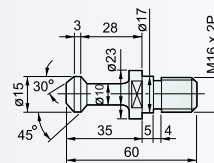


▼ CAT-40

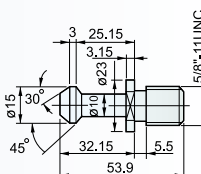


UNIT: mm

▼ MAS-P40-1



▼ SPECIAL



UNIT: mm

CONTROL BY **FANUC**

With YCM Enhanced i-Operation Plus Software



- PCMCIA interface for future expansion

To compliment the rigid construction of the XV series, the advanced MXP-100FA control is integrated to boost up even higher performance of machining capability. The control is packed with the latest and greatest technology, a user-friendly interface, and high productivity arrays of features:

- 8.4" TFT color display
- AICC with 40 blocks look ahead
- 4ms block processing time
- AICC II with 200 blocks look ahead (opt.)
- 2ms block processing time (opt.)
- Jerk control (opt.)
- Helical interpolation
- Rigid tapping
- Custom macro B
- 1,280m program storage length
- 400 pairs tool offset
- 400 total registered programs
- 48 pairs of workpieces coordinate system
- HRV control
- Extended parts program editing (cut, copy, and paste)
- G-menu functions
- Tool data table for easy tool position setup
- Extensive alarm description & troubleshoot instructions
- Calculator function & workpiece coordinate offset setting and more...



- G-menu



- Pop-up alarm display



- High speed machining mode



- Calculator function

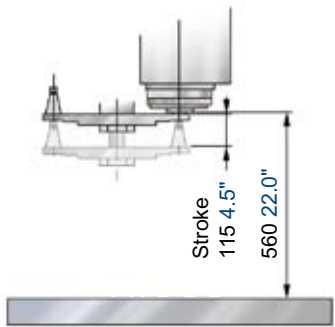
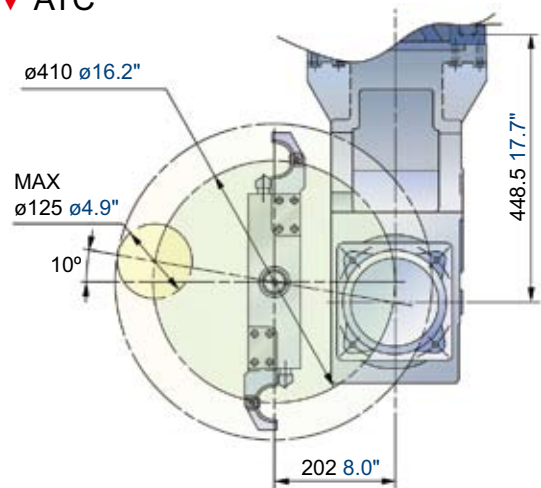


- High performance machining mode

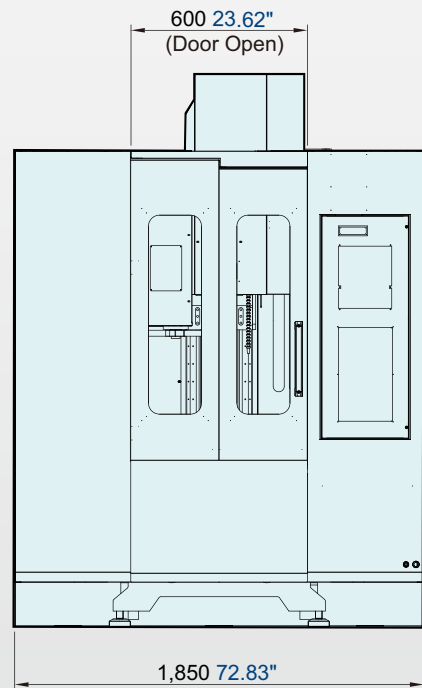
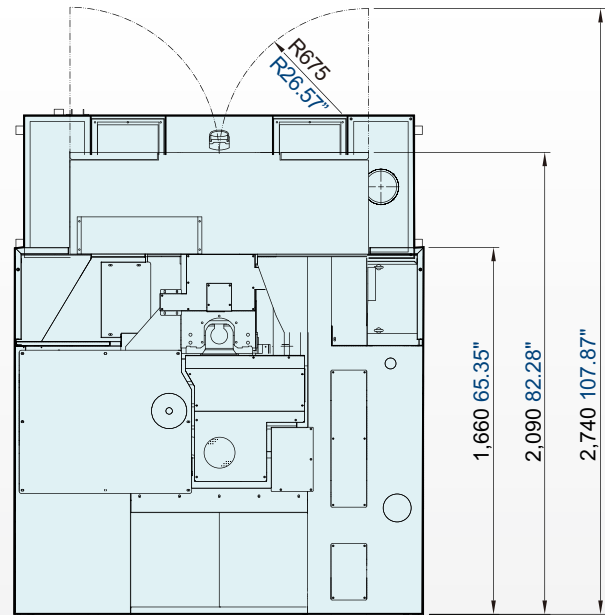


- Solid graphic simulation

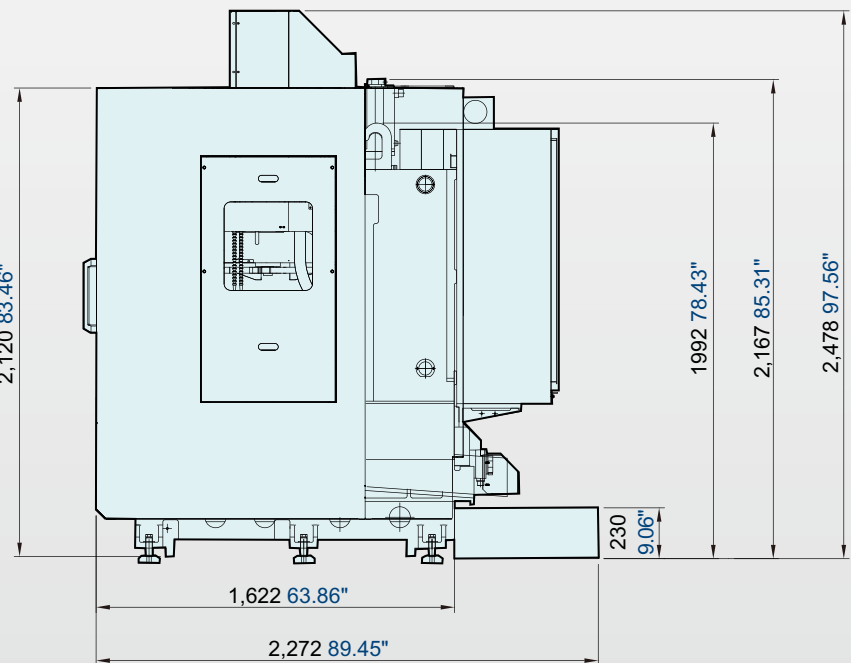
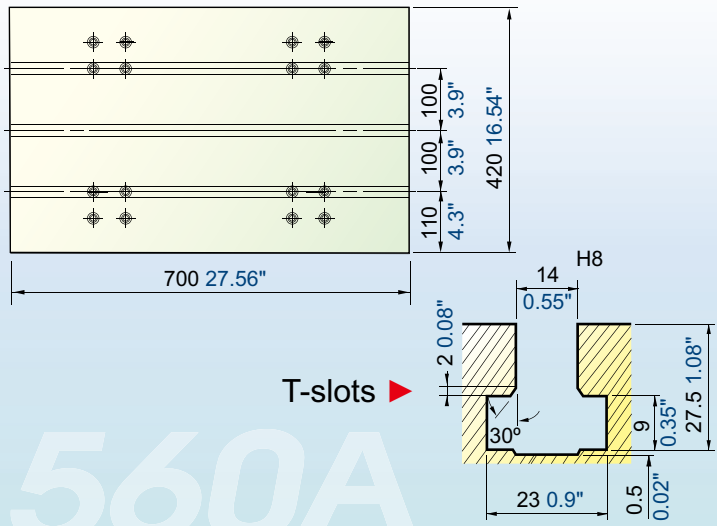
▼ ATC



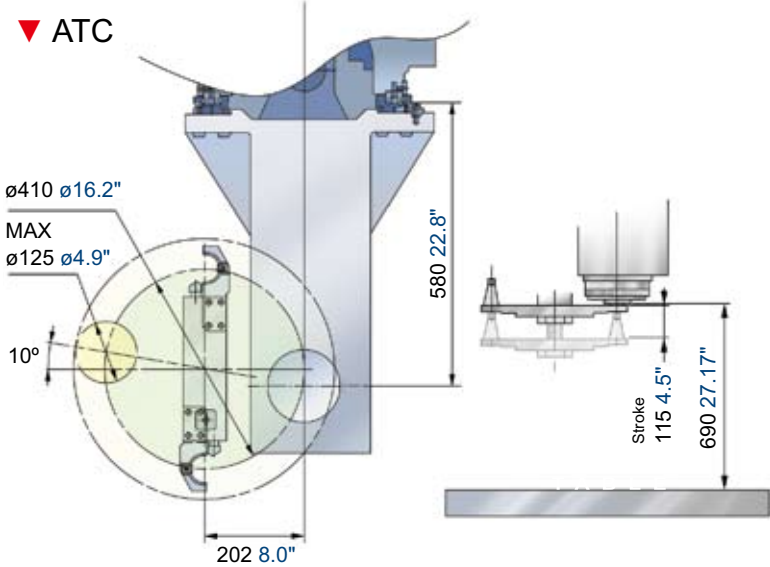
The appearance of the machines will be diverse due to different model and selectivity of controllers.



▼ Table size

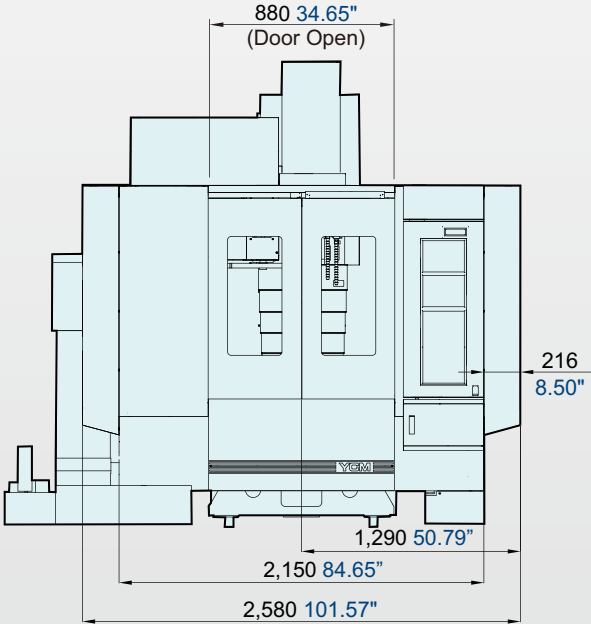
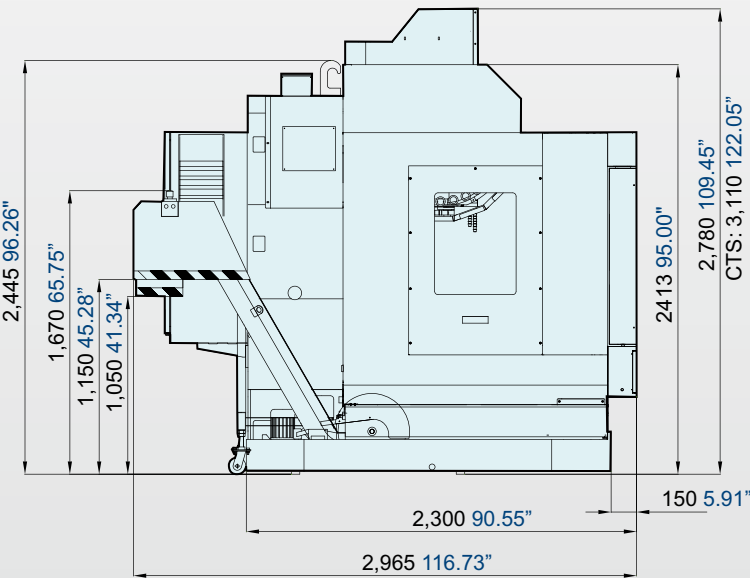
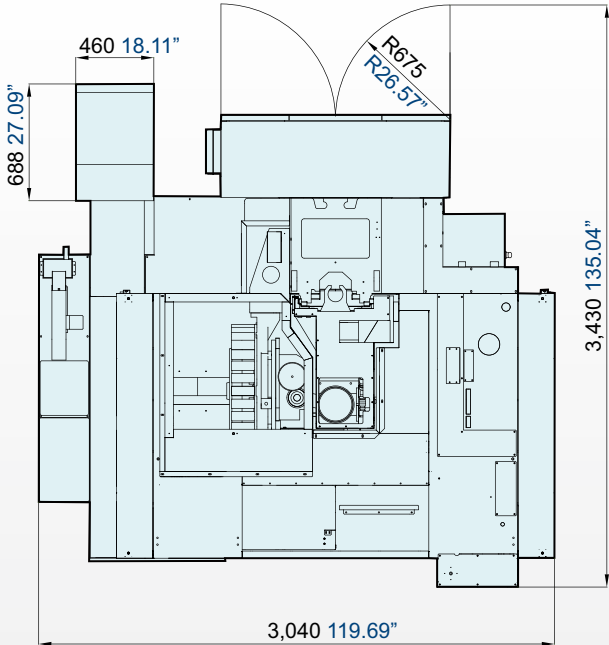
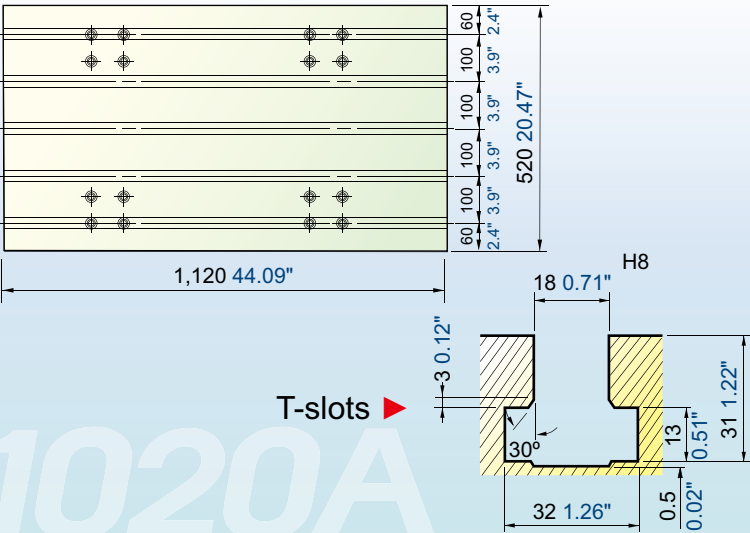


▼ ATC



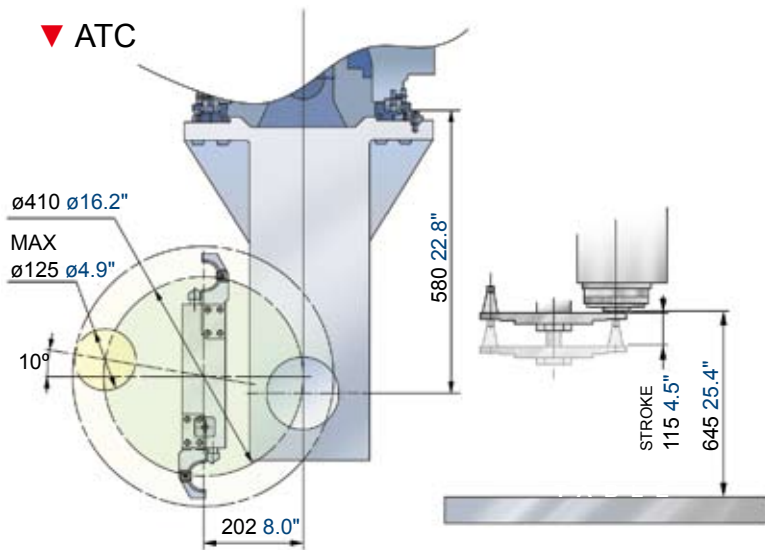
The appearance of the machines will be diverse due to different model and selectivity of controllers.

▼ Table size



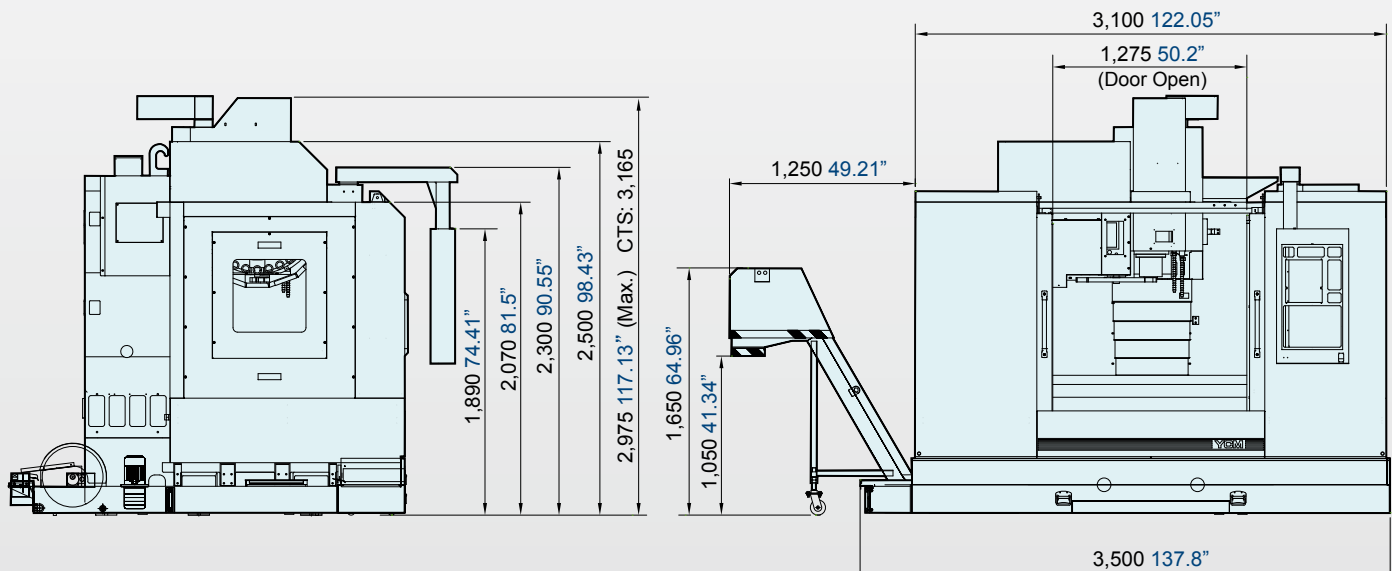
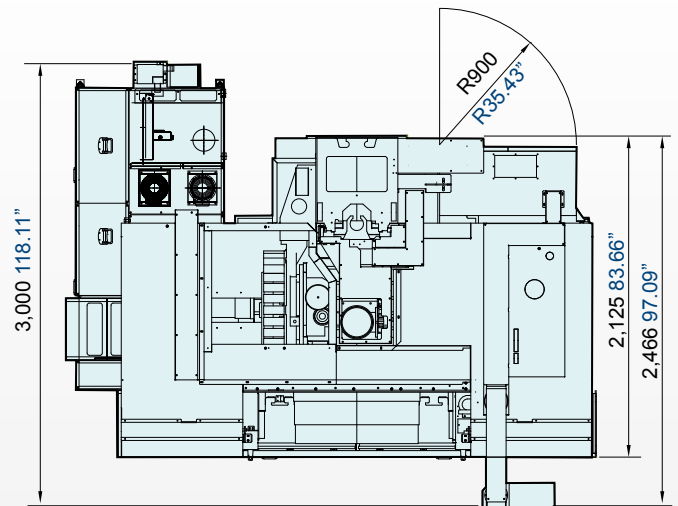
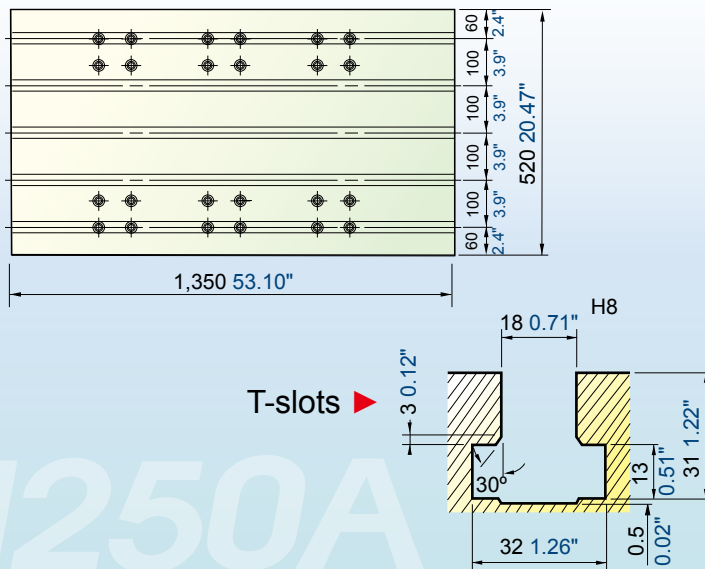
DIMENSIONS UNIT: mm inch

▼ ATC



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

▼ Table size



SPECIFICATIONS

XV560A		XV1020A		XV1250A	
SPINDLE					
Spindle Speed	45~10,000rpm				
Spindle Power (std.)	5.5/7.5/11kW 7.4/10/15HP (cont./30min./10min.)	5.5/7.5/11kW 7.4/10/15HP (cont./30min./10min.)			
Spindle Power (opt.)	-	7.5/11/15/22kW 10/15/20/30HP (cont./30min./10min./5min.)			
Spindle Taper	BBT40				
TRAVEL					
X-axis Travel	560mm 22.0"	1,020mm 40.2"	1,270mm 50.0"		
Y-axis Travel	410mm 16.1"	520mm 20.5"			
Z-axis Travel	450mm 17.7"	540mm 21.3"			
Distance Between Spindle Nose & Table Top	110~560mm 4.3"~22.0"	150~690mm 5.9"~27.2"	105~645mm 4.1"~25.4"		
TABLE					
Table Size	700 x 420mm 27.6" x 16.5"	1,120 x 520mm 44.1" x 20.5"	1,350 x 520mm 53.1" x 20.5"		
No. T-slots x Size x Pitch	3 x 14mm x 100mm 3 x 0.55" x 3.9"	5 x 18mm x 100mm 5 x 0.7" x 3.9"			
Max. Load on Table	300kg 660 lb	500kg 1,100 lb	1,000kg 2,200 lb		
FEEDRATE					
Rapid Feedrate (X/Y/Z)	36/36/24m/min. 1,417/1,417/945ipm			24/24/24m/min. 945/945/945ipm	
Cutting Feedrate	1~10,000mm/min. 0.04~394ipm				
ATC					
Tool Magazine Capacity (opt.)	20T	24 (30T)			
Max. Tool Weight (Per Piece)	6kg 13.2 lb				
Max. Tool Dimensions (opt.)	ø90 x 250mm ø3.54" x 9.84"	ø90 x 300mm (ø76 x 300mm) ø3.54" x 11.81" (ø2.99" x 11.81")			
ACCURACY (Linear)					
ISO 10791-4 JIS B 6338 (1985)					
Positioning A	0.010mm 0.00039"		0.003/300mm 0.00012"/12"		
Repeatability R	0.007mm 0.00028"		±0.002mm ±0.00008"		
GENERAL					
Pneumatic Supplier	5.5kg/cm² 78.2psi				
Power Consumption (Transformer)	24kVA (30kVA)	27.4kVA (30kVA)			
Machine Weight	3,000kg 6,614 lb	5,350kg 11,795 lb	6,700kg 14,770 lb		

Note: 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.

ACCESSORIES

● std. ○ opt. — none

	560A	1020A	1250A		560A	1020A	1250A
Tool Kit	●	●	●	Mechanical, Electrical, and Operating Manuals	●	●	●
Work Lamp	●	●	●	Heat Exchanger for Electrical Cabinet	●	●	●
Pilot Lamp	●	●	●	Single Chip Auger	—	●	—
Oil Skimmer	●	●	●	Dual Chip Augers	—	○	—
Heavy Duty Coolant Pump	○	○	○	Safety Door	●	●	●
Circular Coolant Nozzle	○	○	○	CE	○	○	○
Full Chip Enclosure	●	●	●	Coolant Through Spindle System	○	○	○
Coolant Gun	●	●	●	Chip Conveyor	—	○	○
Air Gun	●	●	●	Spindle Cooling System	○	○	○
Spindle Air Blast	●	●	●	4th Axis Rotary Table	○	○	○
Cutting Air Blast	●	●	●	Automatic Power Off Device	○	○	○
Spindle Air Seal	●	●	●	Auto Tool Length Measurement System	○	○	○
Central Lubrication System	●	●	●	Data Server	○	○	○
Guideway Cover (X/Y/Z)	●	●	●	CNC Control: FANUC MXP-100FA	●	●	●
Oil-mist Collector	○	○	○				
Leveling Blocks and Bolts	●	●	●				



■ M.P.G. Handwheel



■ Spindle Air Seal



■ Cutting Air Blast



■ Air Gun & Coolant Gun



■ Oil Skimmer



■ Spindle Cooling System (opt.)

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

NTV Series High Efficiency T-base Vertical Machining Center

NTV158A/B

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 High Performance 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

NBX Series High Performance Swivel Head 5-axis Vertical Machining Center

NBX102A

TCV Series High Performance Traveling Column Vertical Machining Center

TCV2000A, TCV3000A, TCV3000A-5AF

DCV Series Advanced Double Column Vertical Machining Center

DCV2012A/B, DCV3016B, DCV4016B, DCV3021B, DCV4021B, DCV3025B, DCV4025B, DCV4035B, DCV4035B-5AX

HMC

Horizontal Machining Center

H Series High Production Horizontal Machining Center

H500A/B, H630B, H800B, H2612B

HBM

Horizontal Boring Milling Machining Center

BMP Series High Accuracy Heavy Duty Boring Machine

BMP1416B

CNC LATHES

CNC Turning Center

NT Series 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 Series High Performance High Precision CNC Lathe

TC-16A/B/LA/LB, TC-26, TC-26L, TC-36, TC-36W, TC-46/1000/1650/2300/3200

Integrated Operation Control System **iOPERATION** Software Enhancement Exclusively from YCM

Spindle Thermal Compensation System **STC-PLUS**

Remote Monitoring System **iDirect** Advanced monitoring system

Automation Solutions

INTEGRATION
AND SOLUTIONS

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