

XV Series

560A · 1020A · 1250A

HIGH PERFORMANCE VERTICAL MACHINING CENTER



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 investment you've ever made.

FEATURES

- Powerful & unique IDD spindle up to 30HP
- AC digital servo & spindle drives
- 10,000rpm maximum spindle speed
- AI NANO CC with 80 blocks look ahead
- Servo motors with absolute encoder
- High speed rigid tapping
- Custom macro B
- Tool path graphics
- Helical interpolation & 1,280 meters memory
- 8.4" TFT color display
- PCMCIA slot for flash memory & modem card
- Handheld remote manual pulse generator
- RS232C interface
- High speed swing-arm ATC system
- Random access & bi-directional tool magazine
- THK[®] NRS type linear motion guides
- Servo motors direct-coupled to ballscrews
- Pre-tensioned hardened & ground ballscrews
- Handheld coolant & air gun
- Spindle air seal
- Cutting air blast
- Automatic central lubrication system
- Heat exchanger for electrical cabinets
- High efficiency coolant 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 design isolates noise, backlash, vibration that are normally found on the spindle driven by belt or gears.

2 Powerful Spindle Motor

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

3 Symmetrical Head Stock

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

4 Unclamping Cushion

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

5 Higher Precision Spindle Encoding Feedback

The CNC controller receives exact feedback of spindle speed to ensure the best performance of rigid tapping.

6 Larger Spindle Diameter

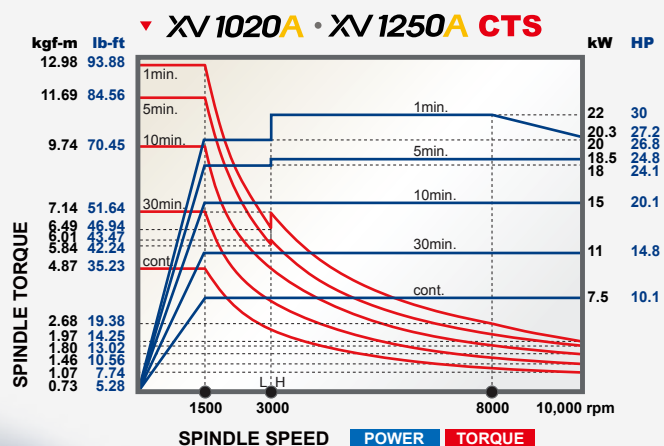
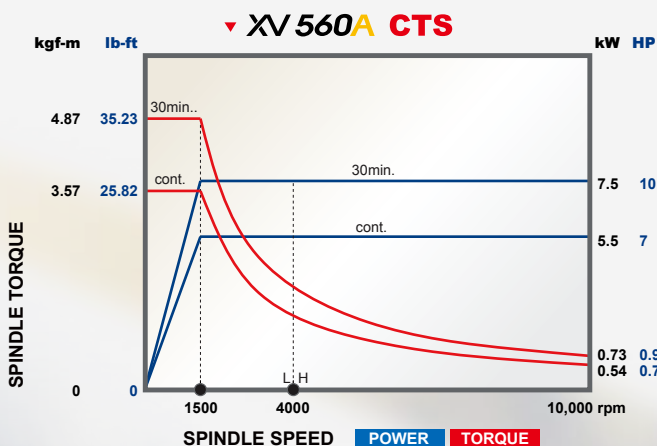
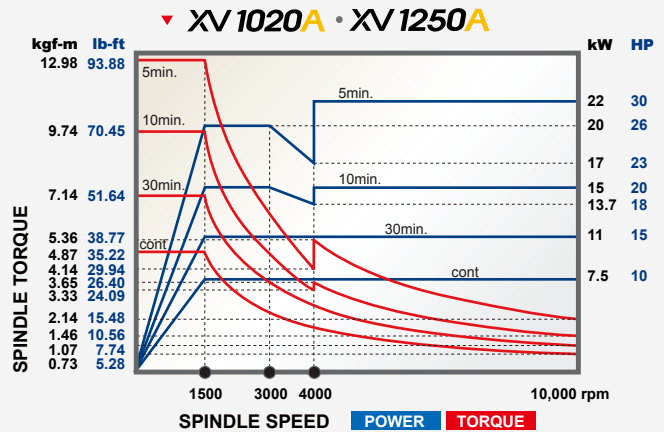
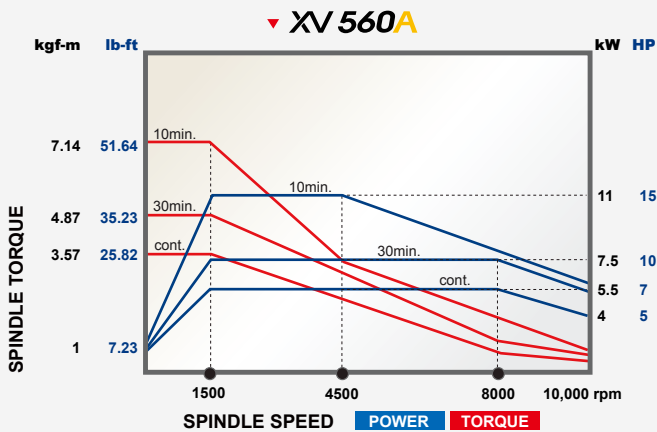
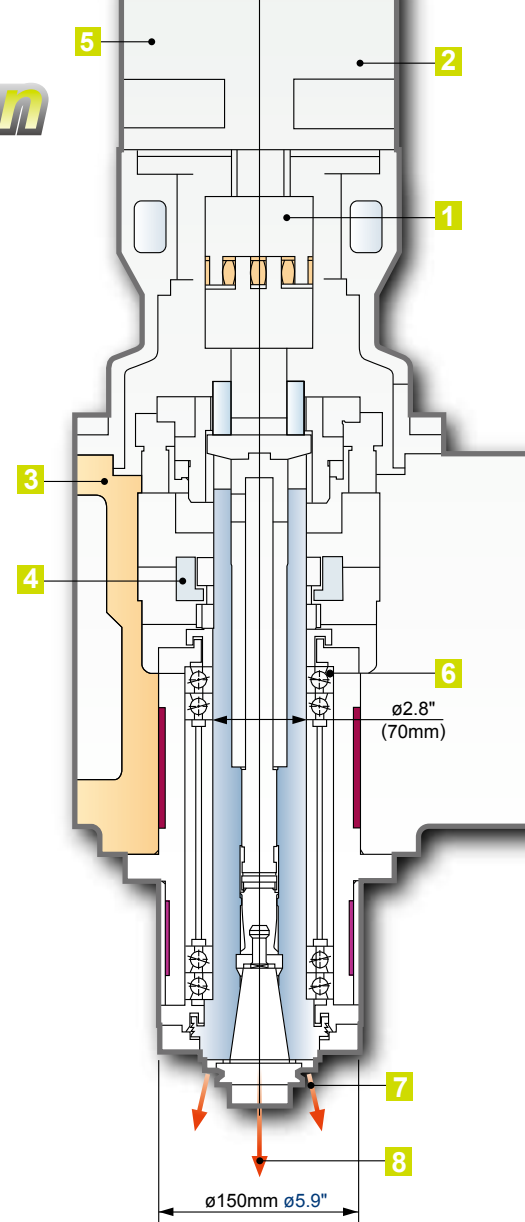
To enhance spindle cutting rigidity, the large spindle is 70mm in diameter and the spindle wall is 12mm in thickness.

7 Spindle Air Curtain

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

8 Spindle Air Blast

Automatic air blast through the spindle is standard to clean the spindle taper on every tool change.



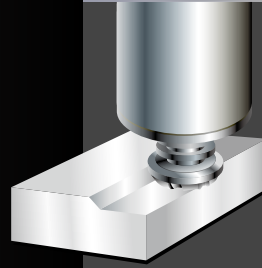
□ Exceptional Accuracy

In machine tool industry, “rigidity” and “accuracy” have always been the vital criteria of every machines. 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 short cuts are taken through our manufacturing process. Every XV machine is ball-bar tested and laser calibrated to meet the highest standard in the industry.

P
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FACE MILL XV560 S45C Steel



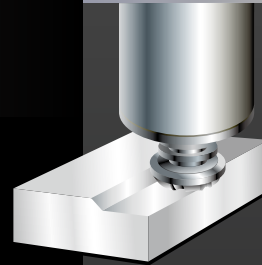
Material Removal Rate

225_{CC}

13.7 in³/min.

Tool	Ø50mm (Ø2.0")
Blade	5
Spindle speed	1,500rpm
Feed-rate	1,875 mm/min. (73.8ipm)
Width of cut	40mm (1.6")
Depth of cut	3mm (0.1")
Spindle load	130%

FACE MILL S45C Steel



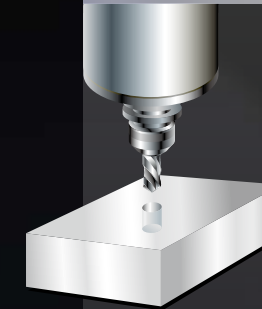
Material Removal Rate

86_{CC}

5.2 in³/min.

Tool	Ø50mm (Ø2.0")
Blade	5
Spindle speed	955rpm
Feed-rate	478 mm/min. (18.8ipm)
Width of cut	40mm (1.6")
Depth of cut	4.5mm (0.2")
Spindle load	110%

DRILL S45C Steel



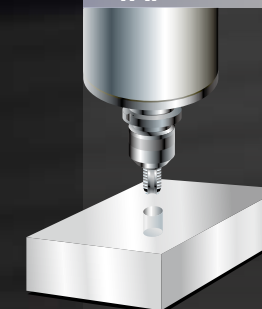
Material Removal Rate

30_{CC}

1.8 in³/min.

Tool	Ø20mm (Ø0.8")
Flute	2
Spindle speed	400rpm
Feed-rate	96 mm/min. (3.8ipm)
Spindle load	96%

TAP S45C Steel



TAP

M16

Tool	M16, 3.5 Pitch
Spindle speed	140rpm
Feed-rate	280 mm/min. (11.0ipm)
Spindle load	61%

Rapid feed-rate XV560A

X 36 m/min. 1417 ipm

Y 36 m/min. 1417 ipm

Z 24 m/min. 945 ipm

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



Optimum Rigidity

The rigid body construction of XV series makes for uncompromising precision and rigidity. Finite Element Method (FEM) analysis is adopted to simulate the structural deformation of the body under various condition.

This helps to ensure the best mass arrangement and rib construction of the machine for constant stability under the intensive load of heavy-duty cutting.

1020A

FINITE ELEMENT METHOD



FACE MILL XV1020A **S45C Steel**

Material Removal Rate
293cc
17.9 in³/min.

Tool Blade \varnothing 80mm (3.1")
5
Spindle speed 1,500rpm
Feed-rate 1,500 mm/min. (59.1ipm)
Width of cut 65mm (2.6")
Depth of cut 3mm (0.1")
Spindle load 136%

FACE MILL **S45C Steel**

Material Removal Rate
97.5cc
6 in³/min.

Tool Blade \varnothing 80mm (3.1")
5
Spindle speed 600rpm
Feed-rate 300 mm/min. (11.8ipm)
Width of cut 65mm (2.6")
Depth of cut 5mm (0.2")
Spindle load 130%

DRILL **S45C Steel**

Material Removal Rate
43.5cc
2.7 in³/min.

Tool Flute \varnothing 29.3mm (1.2")
2
Spindle speed 272rpm
Feed-rate 65 mm/min. (2.6ipm)
Spindle load 99%

TAP **S45C Steel**

TAP
M30

Tool M30, 3.5 Pitch
Spindle speed 50rpm
Feed-rate 175mm (6.9ipm)
Spindle load 130%

Rapid feed-rate XV1020A

X	36 m/min.	1417 ipm
Y	36 m/min.	1417 ipm
Z	24 m/min.	945 ipm

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



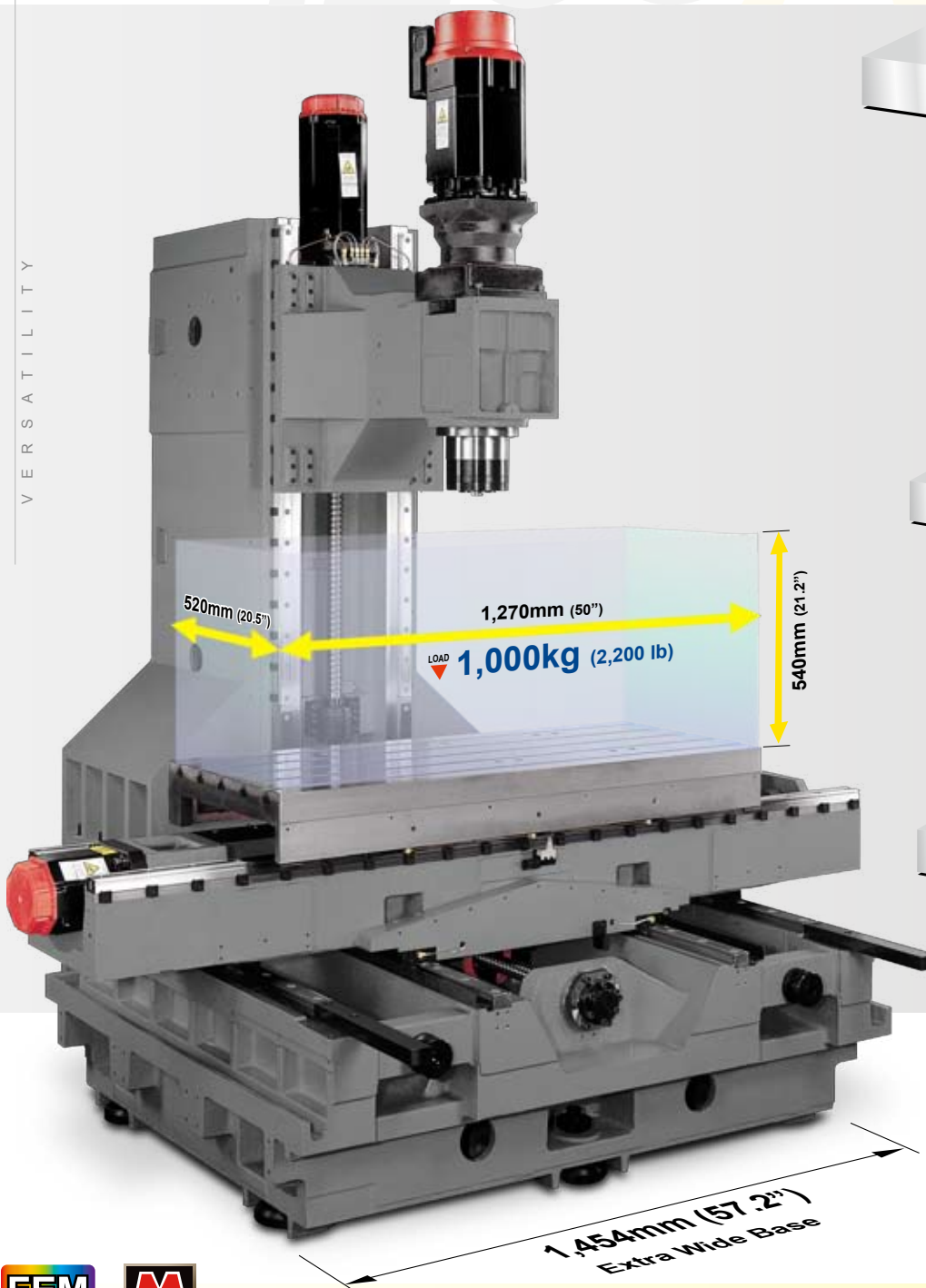
□ Superb Versatility

High speed, pinpoint accuracy, solid rigidity and super value control packages- the XV series is designed to meet today's highest machining conditions. There is no other machine with better value on the market.

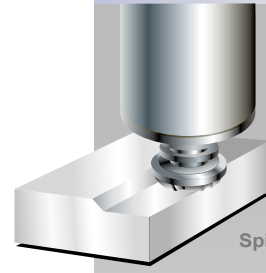
The XV series perfect for automotive, job shops, aerospace, electronics, medical, and even mold making industries.

1250A

VERSATILITY



FACE MILL XV1250A



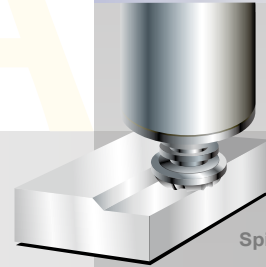
Material Removal Rate

293cc

17.9 in³/min.

Tool Blade $\varnothing 80\text{mm}$ ($\varnothing 3.1''$)
 Spindle speed **1,500rpm**
 Feed-rate **1,500 mm/min.**
 (59.1ipm)
 Width of cut **65mm** (2.6")
 Depth of cut **3mm** (0.1")
 Spindle load **136%**

FACE MILL



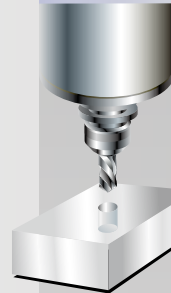
Material Removal Rate

97.5cc

6 in³/min.

Tool Blade $\varnothing 80\text{mm}$ ($\varnothing 3.1''$)
 Spindle speed **600rpm**
 Feed-rate **300 mm/min.**
 (11.8ipm)
 Width of cut **65mm** (2.6")
 Depth of cut **5mm** (0.2")
 Spindle load **130%**

DRILL



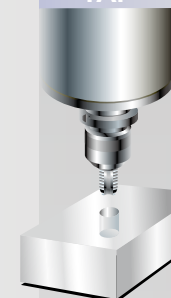
Material Removal Rate

43.5cc

2.7 in³/min.

Tool Flute $\varnothing 29.3\text{mm}$ ($\varnothing 1.2''$)
 Spindle speed **272rpm**
 Feed-rate **65 mm/min.**
 (2.6ipm)
 Spindle load **99%**

TAP



TAP

M30

Tool **M30, 3.5 Pitch**
 Spindle speed **50rpm**
 Feed-rate **175mm**
 (6.9ipm)
 Spindle load **130%**

Rapid feed-rate XV1250A

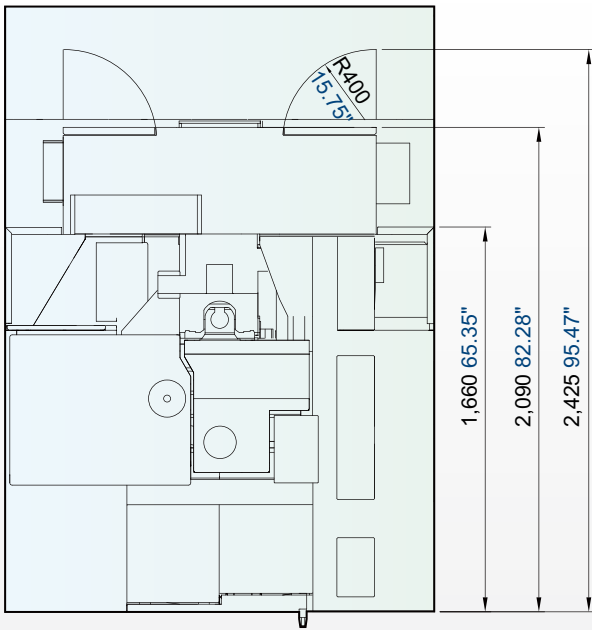
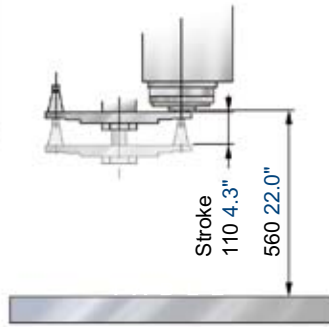
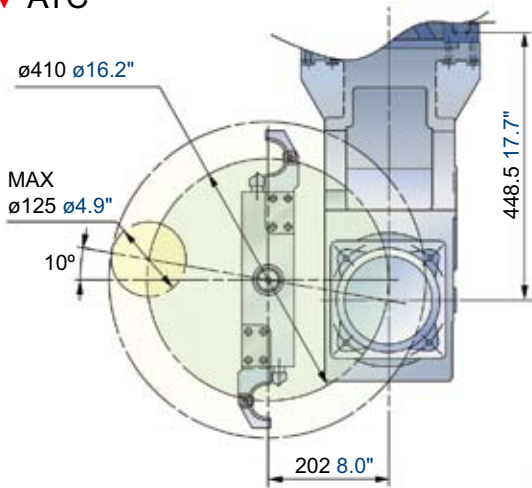
X 24 m/min. **945** ipm

Y 24 m/min. **945** ipm

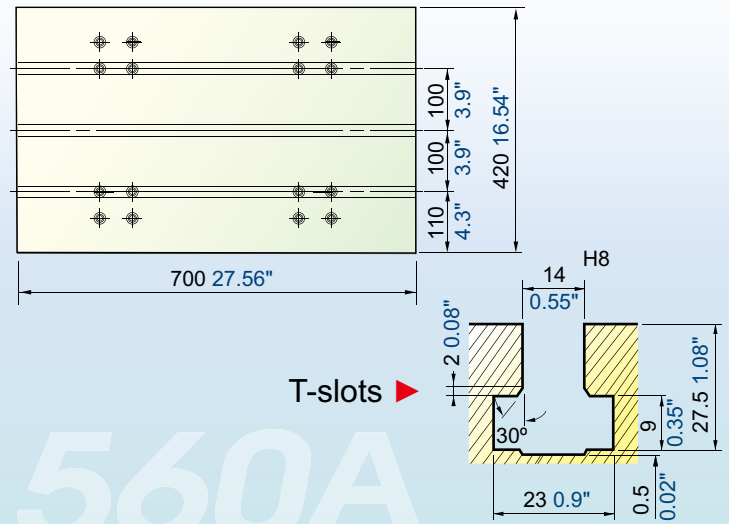
Z 24 m/min. **945** ipm

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

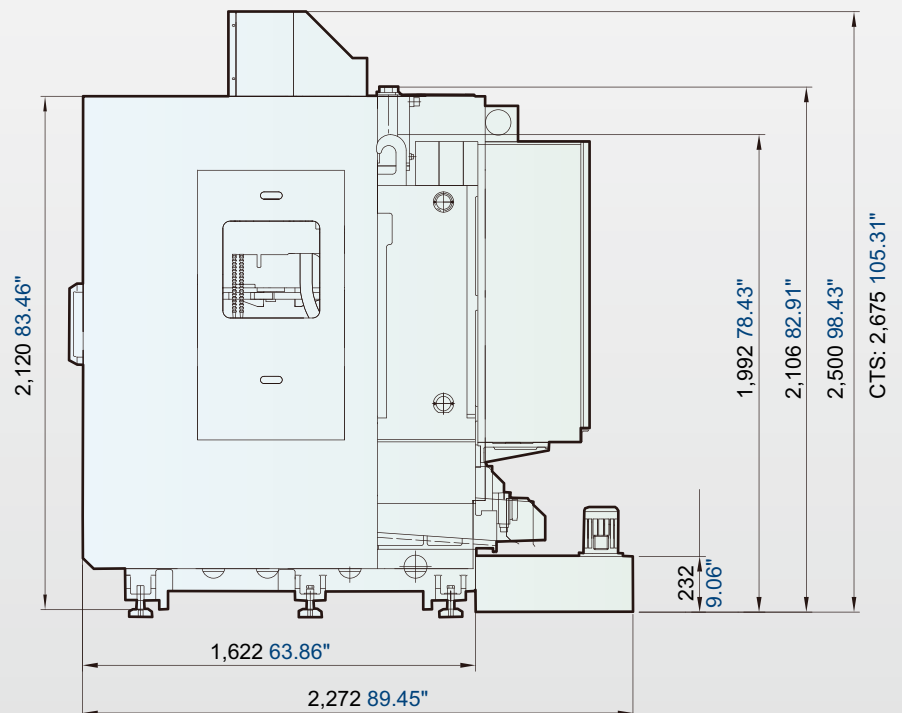
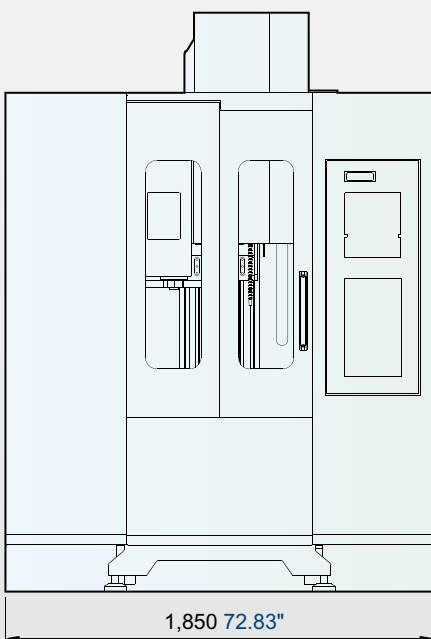
▼ ATC



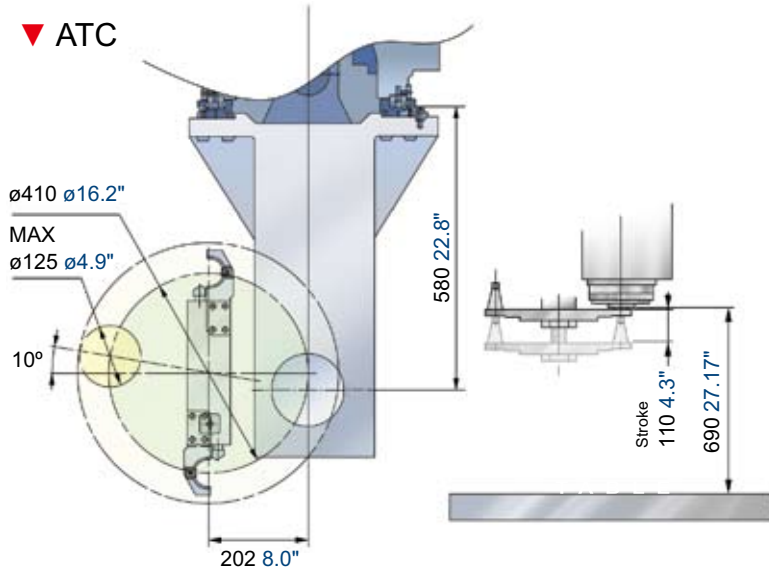
▼ Table size



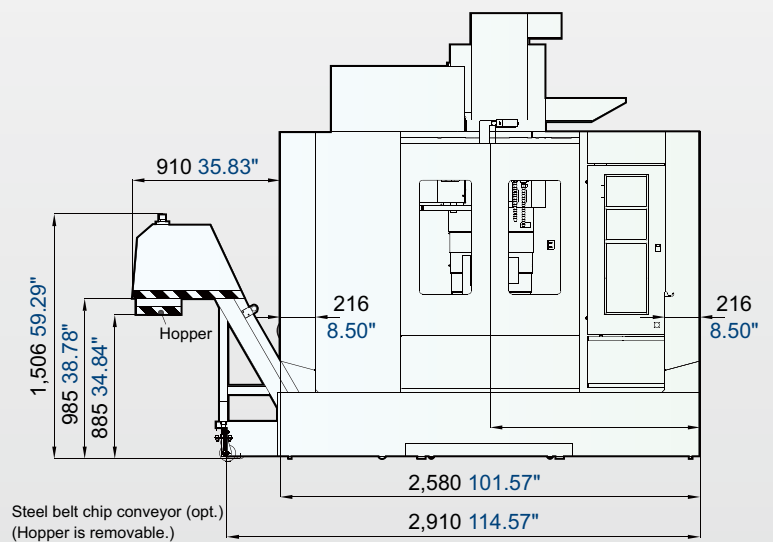
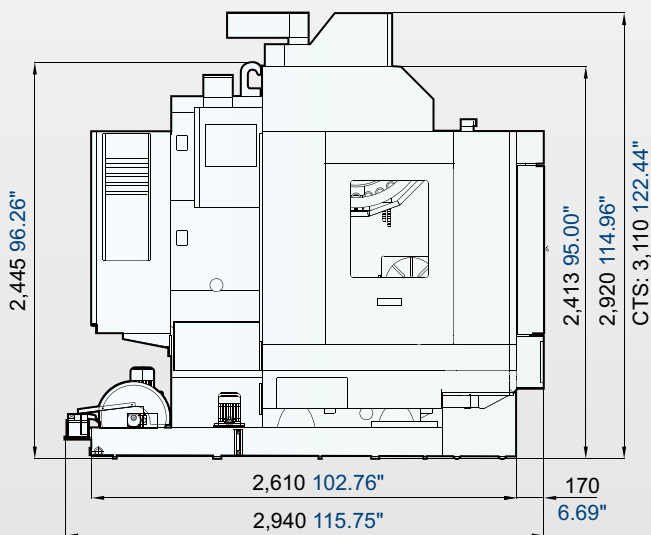
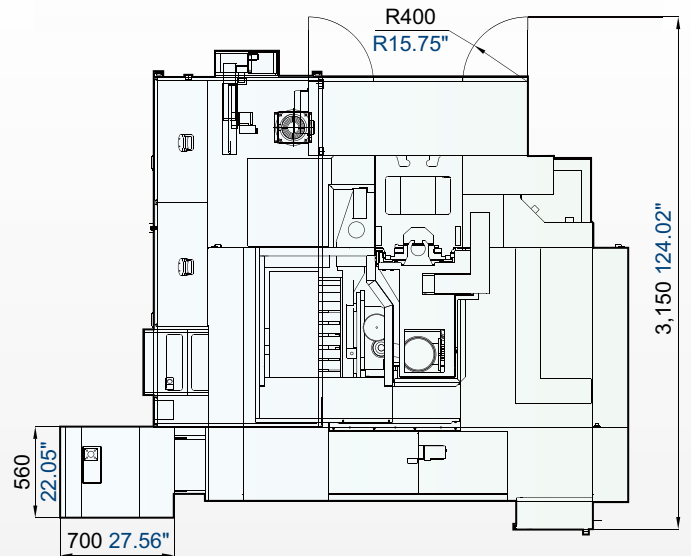
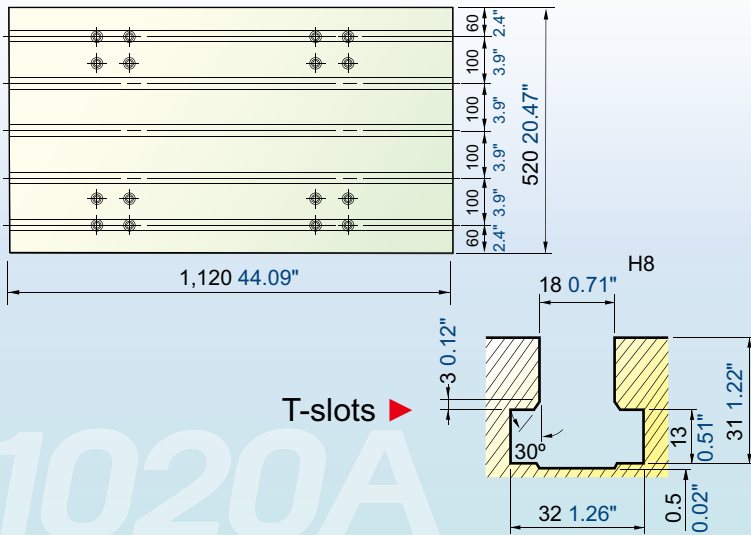
560A



▼ ATC

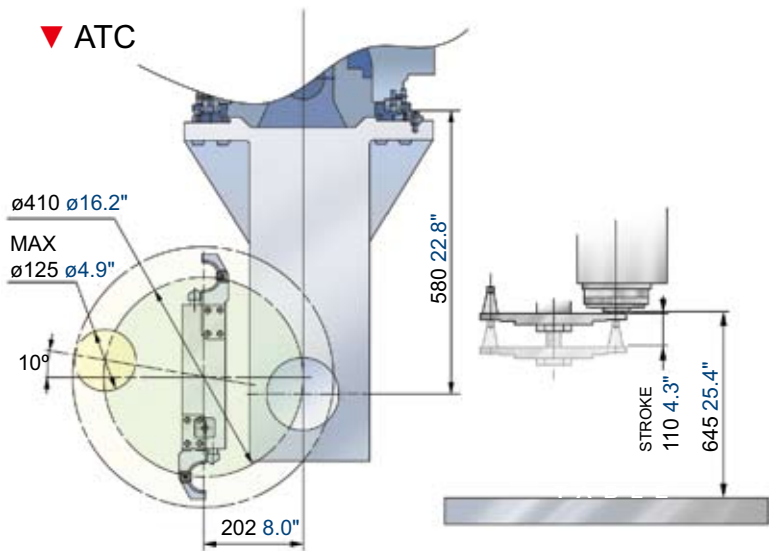


▼ Table size

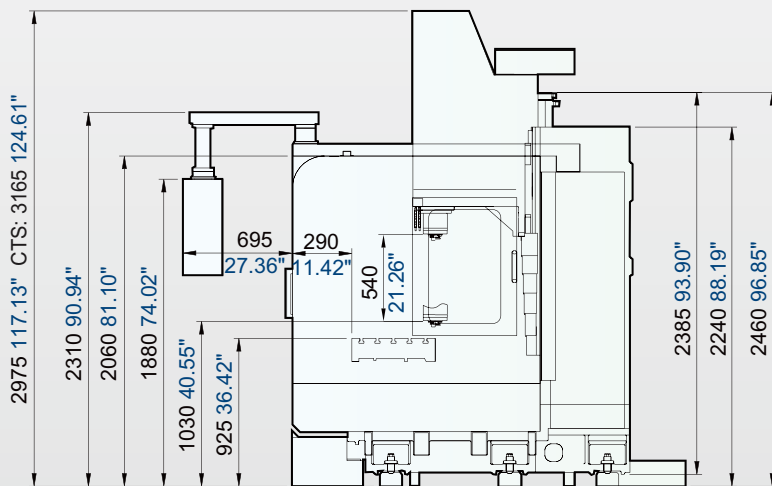
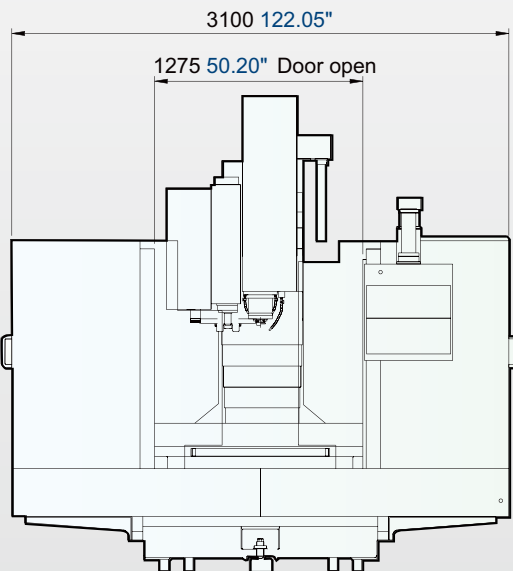
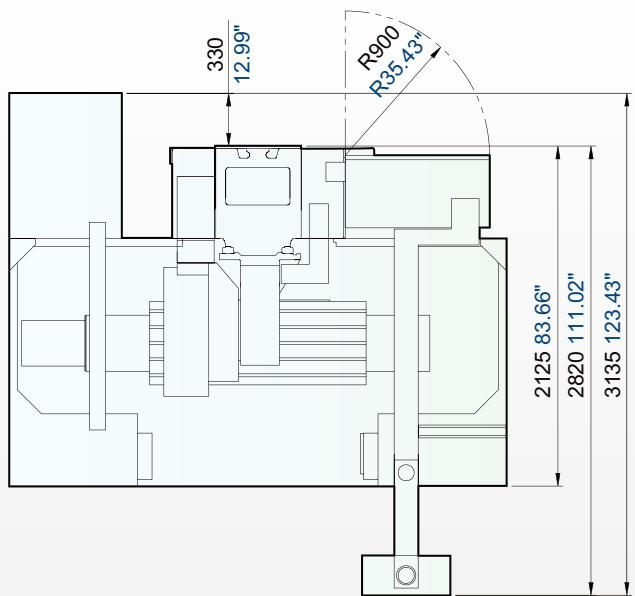
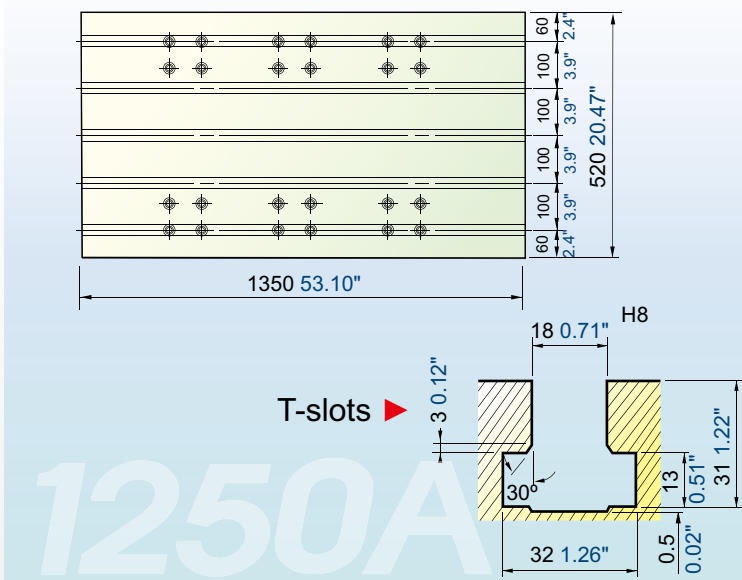


1020A

▼ ATC



▼ Table size



SPECIFICATIONS

	XV560A	XV1020A	XV1250A
SPINDLE			
Spindle Speed	45~10,000rpm		
Spindle Power	5.5/7.5/11kW 7.4/10/15HP	7.5/11/15/22kW 10/15/20/30HP	
Spindle Taper	BT40		
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
FEED			
Rapid Feed-rate	36/36/24m/min. 1,417/1,417/945ipm		24/24/24m/min. 945/945/945ipm
Cutting Feed-rate	1~10,000mm/min. 0.04~394ipm		
ATC			
Tool Magazine Capacity (opt.)	20T	24 (30T)	24T
Max. Tool Weight (Per Piece)	6kg 13.2 lb		
Max. Tool Length (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")	ø80 x 300mm ø3.15" x 11.81"
ACCURACY (Linear)	ISO 10791-4		JIS B 6338 (300mm)
Positioning A	0.010mm 0.00039"		0.003mm 0.00012"
Repeatability R	0.007mm 0.00028"		±0.002mm ±0.00008"
GENERAL			
Pneumatic Supplier	5.5kg/cm ² 78.2psi		
Power Consumption	21kVA	27kVA	
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	●	●	●	Leveling Blocks and Bolts	●	●	●
Work Lamp	●	●	●	Mechanical, Electrical, and Operating Manuals	●	●	●
Pilot Lamp	●	●	●	Heat Exchanger in Control Cabinet	●	●	●
Oil Skimmer	●	●	●	Screw Type Chip Conveyor	—	●	—
Heavy Duty Coolant System	●	●	●	CNC Controller: FANUC MXP 100i	●	●	●
Circular Coolant Nozzle	●	●	●	Safety Door	○	○	○
Full Chip Enclosure	○	●	○	CE	○	○	○
Hand-held Coolant Gun	●	●	●	Coolant through Spindle System from A/20bar	○	○	○
Hand-held Air Gun	●	●	●	Chip Conveyor	—	○	—
Spindle Air Blast	●	●	●	Spindle Cooling System	○	○	○
Cutting Air Blast	●	●	●	4th Axis Rotary Table	—	○	—
Spindle Air Seal	●	●	●	Automatic Power Off System	—	○	—
Central Lubrication System	●	●	●	Auto Tool Length Measurement System	—	○	—
Guide way Cover on X/Y/Z	●	●	●	Data Server	—	○	—



■ M.P.G. Handwhell



■ 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

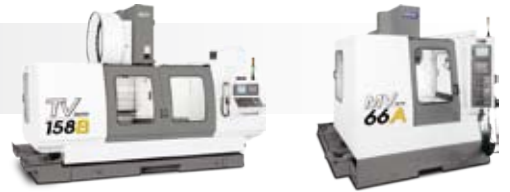


FV Series High Speed High Performance Vertical Machining Center
 / High Speed High Performance Drilling & Tapping Center
FV56T, FV56A, FV85A, FV102A, FV125A / FV50T



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

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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