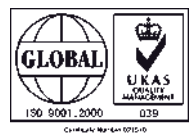




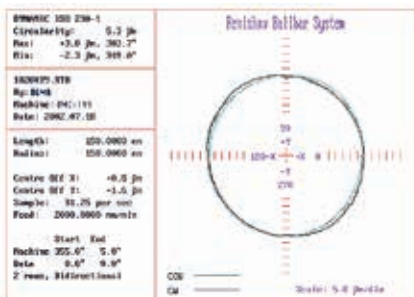
VMC-1910/2210
VERTICAL MACHINING CENTER



VMC-1910

VERTICAL MACHINING CENTER

- AGMA hardened-way machines are designed for rigidity and heavy-duty cutting. The machine structures are exclusively made to absorb and dampen cutting-induced vibrations; yet the machine's agility is better than most linear-way type machines on the market. In order to support our customers' needs, AGMA has built a support network specifically in special material cutting applications. This allows us to offer our clientele the best solution to their applications. Customer satisfaction is always AGMA's first priority.
- **High-Rigidity Structure**
All three axes have a hardened box-way design. In addition, the spindle headstock, column, saddle, base, and table are all made of high-quality Meehanite cast iron.



X/Y/Z : 1,900/1,000/800mm
(74.80"/39.37"/31.50")

32 Tools Magazine (BT-50/CAT-50)

8,000RPM/6,000RPM (Belt/Gear Driven)

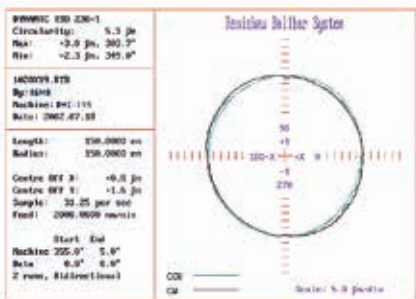


With Optional Accessories

VMC-2210

VERTICAL MACHINING CENTER

- AGMA hardened-way machines are designed for rigidity and heavy-duty cutting. The machine structures are exclusively made to absorb and dampen cutting-induced vibrations; yet the machine's agility is better than most linear-way type machines on the market. In order to support our customers' needs, AGMA has built a support network specifically in special material cutting applications. This allows us to offer our clientele the best solution to their applications. Customer satisfaction is always AGMA's first priority.
- **High-Rigidity Structure**
All three axes have a hardened box-way design. In addition, the spindle headstock, column, saddle, base, and table are all made of high-quality Meehanite cast iron.



X/Y/Z : 2,200/1,000/800mm
(86.61"/39.37"/31.50")

32 Tools Magazine (BT-50/CAT-50)

8,000RPM/6,000RPM (Belt/Gear Driven)



With Optional Accessories

VMC-2210/1910

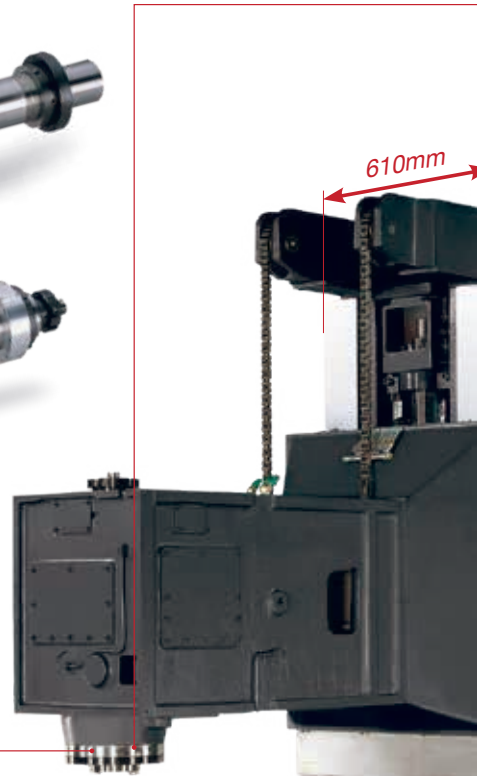
HIGH-RIGIDITY STRUCTURE

Pulley-Driven Spindle

Three spindle alternatives of spindle are available. An enhanced headstock design allows the spindles to run up to 10,000 RPM. All spindles and pulley assemblies are dynamically balanced. A non-slip timing belt ensures the spindle will run smoothly, even at maximum speed.

Design of High Horse Power Spindle for Heavy-Duty Cutting

The gear-driven cartridge spindle is capable of reaching speeds of 6,000 RPM. There is a dramatic increase in spindle rigidity due to increased spindle bearing support. This along with a high horsepower spindle motor dramatically enhances the machine's cutting performance. In addition, each gear-driven spindle has a spindle oil cooler used to lower bearing temperature and prolong the spindle life.



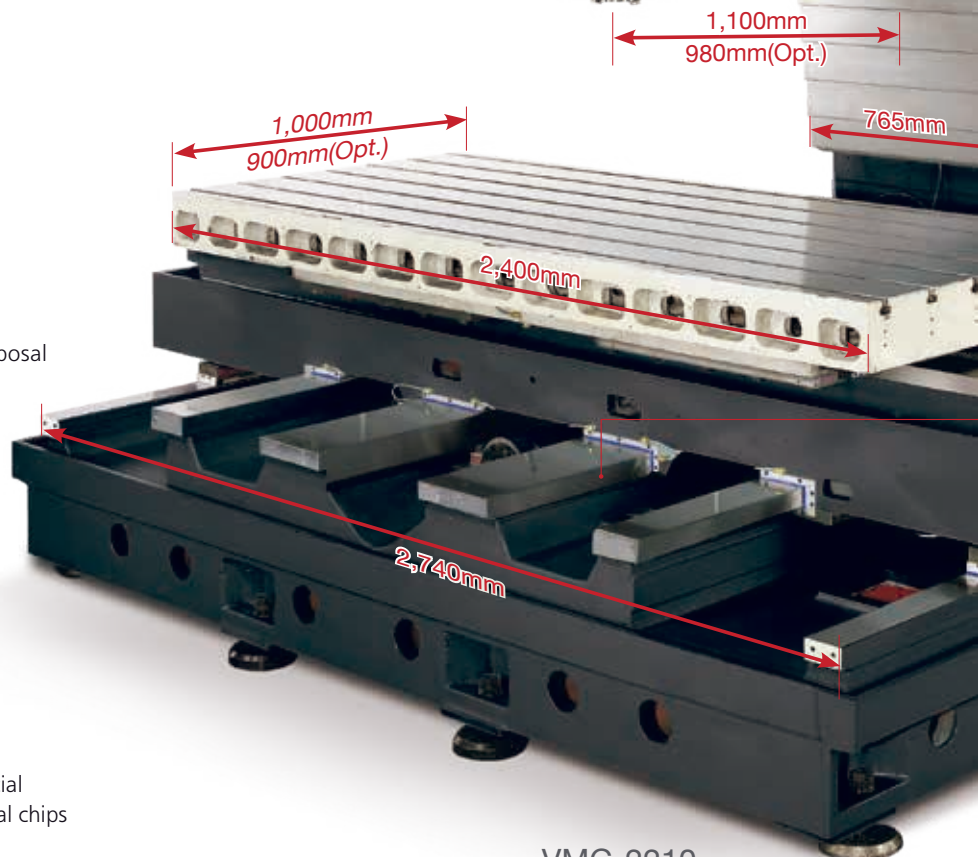
X-Axis Chip Auger

The chip auger design provides optimal chip disposal and maximizes table cleanliness.



Three Chip Auger Design

Instead of using a costly chip conveyor, the special three chip auger system efficiently removes metal chips which produced during machining.



VMC-2210



Belt-Driven Spindle

The spindle headstock has increased rigidity due to the wide stance design of the z-axis ways and the long surface contact between the headstock and way bars.



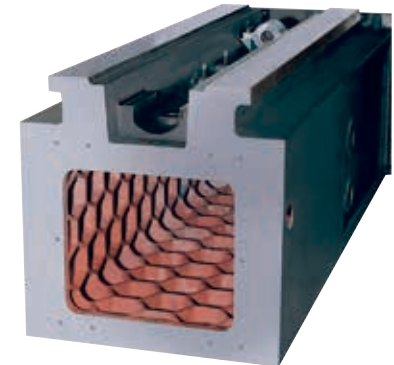
Gear-Driven Spindle Transmission

The two-speed gear transmission allows full power utilization. All gears are made of Chrome Molybdenum alloy steel, heat treated, and precisely ground to ensure the spindle runs quietly and smoothly. Furthermore, the design of the floating tool release mechanism minimizes any pressure exerted on the spindle bearings.



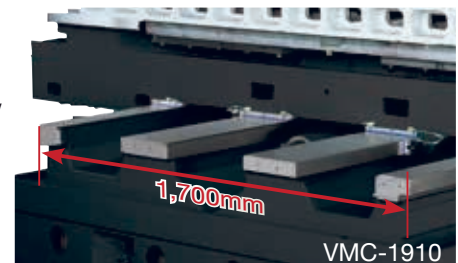
Column with Honeycomb Shape Structure

The exclusive honeycomb shape structure design is utilized on the Column of VMC-2210. This design reinforces the headstock support and also enhances the stiffness of the structure. A high stiffness to weight ratio allows excellent dynamic performance during cutting.



Enhanced Base Design

The base of VMC-1910 has 4-hardened ways that allow greater stability. Therefore, the saddle and table are fully supported along the entire X and Y-axes travels.

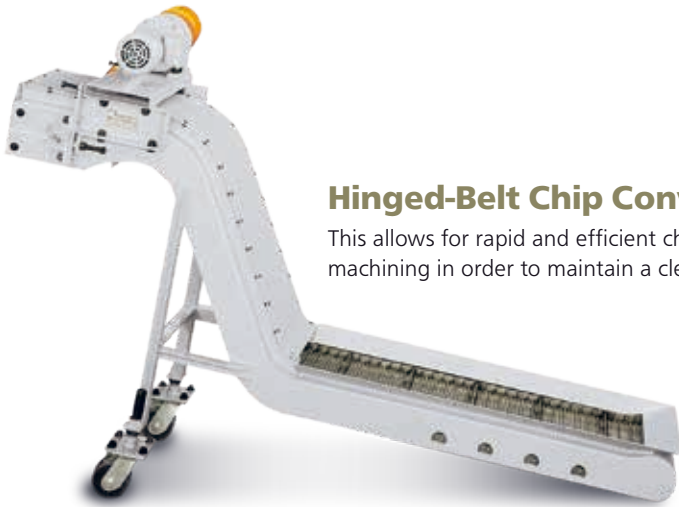


Pressurized Oil Distributor

Lubricating oil is evenly distributed to the sliding surfaces of the machine by using Showa oil distributors along with hard-plumbed, low maintenance oil lines.



VERTICAL MACHINING CENTER



Hinged-Belt Chip Conveyor (Option)

This allows for rapid and efficient chip removal during machining in order to maintain a clean machine.



Double Stoppers Design

To prevent the deviation of servo motor housings and bearing housing, two stoppers are equipped for each axis to guarantee absolute axial alignment.



Coolant Thru The Spindle (C.T.S)(Option)

Spindle options include coolant through spindle with standard maximum pressure of 20 bar (280 psi). Higher-pressure ratings are also available.

Calibration with Laser Interferometer was Performed and Certified by PMC

All of our machines are calibrated according to the "VDI 3441 3D" standard. Calibration is performed for full travel length for each axis. Each measurement is taken six times to ensure the most consistent and accurate readings.



Electrical Cabinet

All electrical components are in compliance with all safety rules and regulations.

All components inside the cabinets are clearly labeled and identified for ease of troubleshooting.



Fluorescent Light (Option)

This option is installed with the fully enclosed splash guard. The work lights are located on the upper right hand corner and left front side, providing a well-lit table area.



Metal Steps (Option)

Metal steps allow the operator to load and unload work pieces easily. This feature is designed for easy operator access into the machine.



Stiff Ballscrew Design for Greater Axial Support

All three axes use ISO Class C3 precision ground pre-loaded ballscrews with pre-tensioned supports on both ends to minimize backlash and compensate the thermal induced error.



Rigid Box Shape Double Deck Table

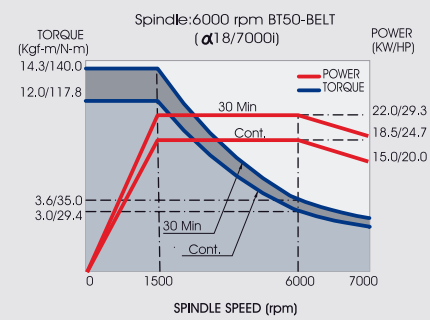
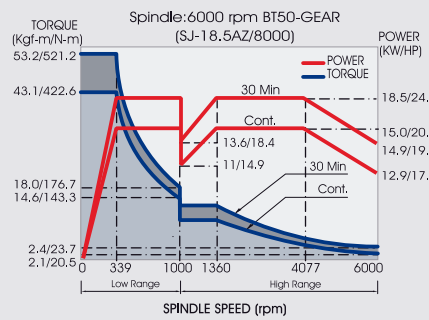
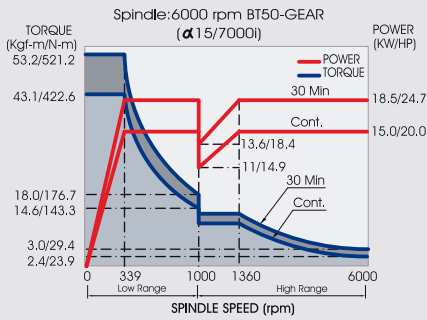
Unique AGMA designed double deck table. This unique design increases the load capacity of worktable for more variety applications, and also minimizes the deformation induced during heat treatment process.



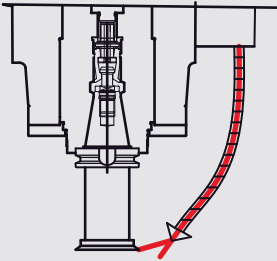
Hand Scraping

To ensure consistent high quality, each slide way is hand-scraped. Each axis saddle has Turcite material on it and a special "*" design is used along with a "Z" pattern for efficient oil through. There is an excellent distribution of oil to all axes, so setting time after rapid movements is eliminated, and stick-slip during cutting is minimized.

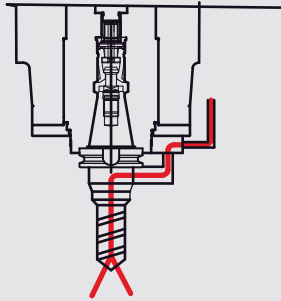
VERTICAL MACHINING CENTER



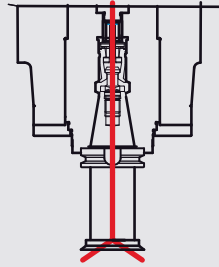
Std.-Directional Pipe
Purpose-General



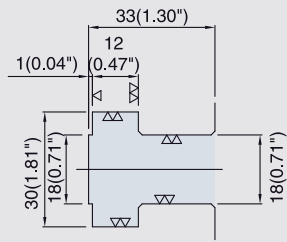
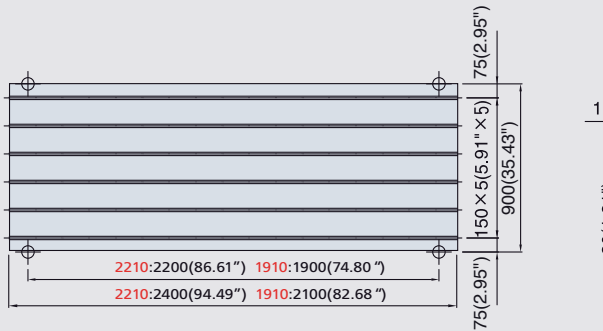
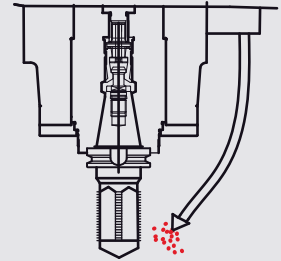
Opt.-Oil Hole Holder
Purpose-Drilling, Boring, etc.



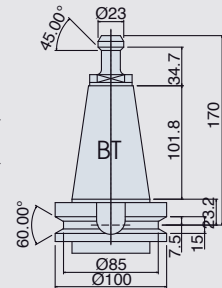
Opt.-Coolant Through Spindle(C.T.S.)
Purpose-Drilling, Boring, etc.



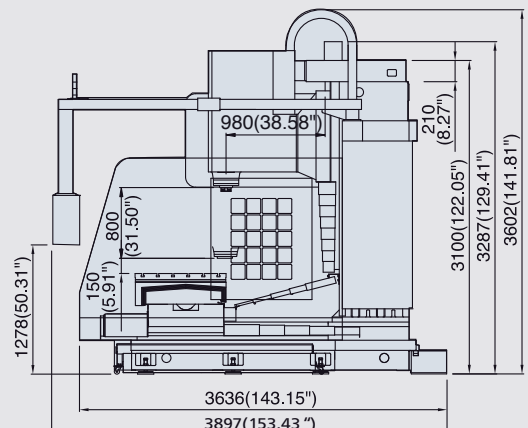
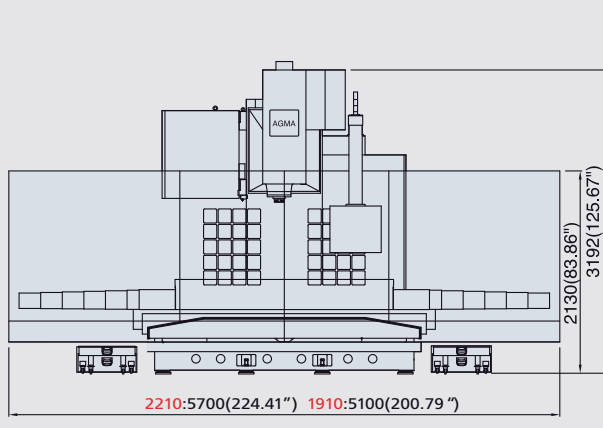
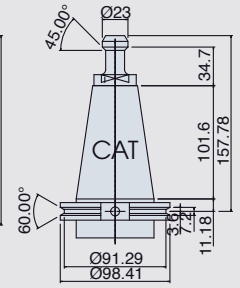
Opt.- Oil Mist
Purpose-Tapping, Reaming, etc.



BT-50



CAT-50



Model	VMC-1910	VMC-2210
Spindle		
Spindle Taper	NO.50	
Transmission	Belt/Gear	
Spindle Speed	8,000/6,000 r.p.m.	
Table		
Table Size	2,100mm x 1,000mm (82.68" x 39.37")Std. 2,100mm x 900mm (82.68" x 35.43")Opt.	2,400mm x 1,000mm (94.49" x 39.37")Std. 2,400mm x 900mm (94.49" x 35.43")Opt.
T-Slot Size	18mm x 7 x 150mm (0.71" x 7 x 5.91")Std. 18mm x 6 x 150mm (0.71" x 6 x 5.91")Opt.	
Work Area	1,900mm x 1,000mm (74.80" x 39.37")Std. 1,900mm x 900mm (74.80" x 35.43")Opt.	2,200mm x 1,000mm (86.61" x 39.37")Std. 2,200mm x 900mm (86.61" x 35.43")Opt.
Max. Table Load	3,000kgs (6,600 lbs)	4,000kgs (8,800 lbs)
Travel & Feedrate		
X Axis	1,900mm (74.80")	2,200mm (86.61")
Y Axis	1,000mm (39.37")Std./900mm (35.43")Opt.	
Z Axis	800mm (31.50")	
Distance from Spindle Nose to Table	150~950mm (5.91"~37.40")	
Distance from Spindle Center to Column Ways	1,100mm (43.31")Std./980mm (38.58")Opt.	
Rapid Traverse	X, Y =12 M/Min (590 IPM) Z=10 M/Min (393 IPM)	
Cutting Feedrate	X, Y, Z: 1~10,000mm /min (393 IPM)	
ATC		
Tool Shank	BT/CAT 50	
Pull Stud	MAS P50T-1 (45°)	
Magazine Capacity	32 Tools	
Max. Tool Diameter (with Adjacent Pocket Empty)	ø250mm (9.84")	
Max. Tool Diameter (Full Storage)	ø125mm (4.92")	
Max. Tool Length	300mm (11.81")	
Max. Tool Weight	15kgs (33 lbs)	
ATC Type	Cam Driven Arm Type	
Motor		
Spindle (Cont./30min.)	18.5/22Kw (25/30 HP) Belt 15/18.5Kw (20/25 HP) Gear	
X/Y/Z Axes (Fanuc)	7Kw (9.33 HP)	
Lubrication Pump	0.025Kw (0.033 HP)	
Coolant Pump	0.49Kw (0.66 HP)	
Machine Height	3,600mm (142")	
Floor Space	5,100mm x 3,900mm (201"x154")	5,700mm x 3,900mm (225"x154")
Machine Weight	18,000kgs (39,600 lbs)	20,000kgs (44,000 lbs)
Control	Control Fanuc 0iMF	

• Specification is subject to change without further notice.

Standard Accessories :

1. Control Fanuc 0iMF
2. Arm Type 32 Tools ATC
3. Fully Splash Guard
4. Spindle Air Blast
5. Oil Circulating Coolant System for Spindle
6. Cutting Coolant Equipment
7. Three-color Indicator Light
8. Quartz Work Lamp
9. Automatic Lubrication Equipment
10. Three Axes Slideways Protector
11. Heat Exchanger for Electric Cabinet
12. Tool Box w/Leveling Bolt
13. One Year Warranty for Machine
14. Auto Power Off
15. RS-232 Interface
16. Rigid Tapping
17. Operation Manual
18. Remote Manual Pulse Generator (M.P.G.)
19. X Axis (Back Side 1 PC)+Y Axis (2 pcs) Screw Type Chip Auger
20. Transformer (Exclude for India, USA and Canada)
21. Hydraulic Unit (Gear Type Only)
22. Lubrication System for Gear Box (Gear Type Only)
23. CE/CSA Electrical System (For European/Canada Country Only)
24. AI Contour Control

Optional Accessories :

1. Fanuc 31iMB
2. BT-50 Belt Driven Spindle 10,000RPM (Belt Type Only)
3. Semi-Splash Guard
4. 900mm Y Axis Travel
5. Arm Type 40 Tools ATC
6. Chip Conveyor
7. Coolant Through Spindle A Type 20 Bars or 70 Bars
8. Coolant Through Tool
9. Data Server
10. AI Contour Control II
11. High Speed Processing (31iMB only)
12. 4th Axis Preparation
13. Rotary Table
14. Renishaw TS-27R Tool Setup Probe (Tool Setter)
15. Renishaw Tool Machining Probe OMP-60



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