

Mazak

VC SERIES

[300A | 300A/5X | 500C | 500A/5X | 500A/2PC | 500A/5X-2PC]



VC SERIES



VC-300A

Quality, Innovation and Value Without Sacrificing Performance

The Kentucky-built VC Series of Vertical Machining Centers combines high-quality, innovation and extreme cost-effectiveness without sacrificing machine performance. Then, to ensure full customer satisfaction, Mazak backs these machines with the industry's most acclaimed and comprehensive service and support program.

Machine Configurations:

- VC-300A
- VC-300A/5X
- VC-500C
- VC-500A/5X
- VC-500A/2PC
- VC-500A/5X-2PC

High Productivity

The VC Series provides the perfect balance of advanced technology and minimized operational costs. The machines feature several new and innovative technologies that deliver increased productivity, precision, performance and value to today's shops.

Top 10 Technological Advantages of the VC Series

1. **Innovative small footprint** conserves valuable shop floor space and allows for fast and easy machine installation.
2. **Extremely rigid base** for stability and vibration damping.
3. **Robust high-performance spindles** offered in various speed/torque configurations.
4. **Mazak MX Hybrid Roller Guide System** delivers durability, reliability and long-term accuracy.
5. **Mazak MAZATROL Smooth CNCs** provide fast and easy MAZATROL conversational and EIA/ISO programming.
6. **Affordable 5-axis capability** for contoured part machining and five-face machining
7. **Two-pallet changer** further boosts machine utilization and efficiency.
8. **Large-capacity tool magazines with automatic tool changers** extend uninterrupted, continuous machine operation.
9. **Simple and efficient chip management** helps reduce downtime.
10. **Seamless automation integration options** increases uptime and lights-out production.



VC-500A/5X



VC-500C



VC-500A/2PC



VC-300A/5X

Machine Design

The Mazak Kentucky factory uses a production-on-demand approach for manufacturing agility to quickly react to current market trends, which means machines are all built to incorporate the latest, most innovative technology.

The VC Series machines easily fit into most shops and can be up and running quickly and with very little initial setup effort. Most vertical machining centers require large amounts of floor space, even if the parts they are cutting are relatively small; the VC Series machines handle the same range of part sizes while conserving valuable shop floor real estate and boosting a shop's productivity.

Extremely rigid and stable cast iron base components – with a design verified by FEA analysis results – yield superior base casting for VC model machines. The series encompasses two machine configurations: 3-axis table and 5-axis rotary/tilt table, both of which are available with 2-pallet changers.

The VC Series **3-axis machine configuration** is ideal for basic workpiece geometries and provides effective part processing with quick, simple job setups. The Series also offers various X-axis stroke size options.

The VC Series models with a **5-axis rotary/tilt table** provide affordable full simultaneous 5-axis machining and five-face machining capability to cost-effectively process complex parts.

2-pallet changers on VC Series machines increase spindle utilization and enable continuous uninterrupted production. As a form of simple and efficient automation, turntable-style pallet changing capability enhances productivity by allowing operators to load, unload and inspect parts on one pallet while the machine continues to work uninterrupted on parts fixtured on the other pallet.



VC-500C

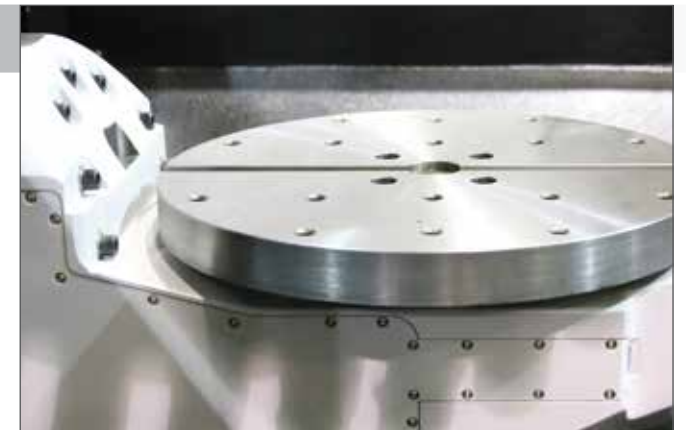


TRUNNION TABLES

The VC-500A/5X and VC-500A/5X-2PC full simultaneous 5-axis machines feature a trunnion-style tilt/rotary table that delivers fast and accurate positioning. The table uses high-precision roller gears that further enhance speed, strength and reliability.

Key specifications for the trunnion-style table include:

- Rotation range of +110/-110 degrees in the B axis and 360 degrees in the C axis
- Maximum workpiece sizes up to 19.68" (500 mm) in diameter and 12" (305 mm) high and weighing as much 441 lb (200 kg)
- Indexing accuracy of ± 4 seconds in B and C axes
- Repeatability of ± 1 second in B and C axes
- Positioning speeds up to 50 min⁻¹ (300 deg/sec) in the B axis and 40 min⁻¹ (240 deg/sec) in C



ROLLER GUIDE SYSTEM

The Mazak MX Hybrid Roller Guide System featured on the VC Series machines allows for faster speeds and higher accuracy, leading to improvements in overall machine productivity and profitability. When compared with traditional ball guides and boxways, the advantages of the Mazak MX Hybrid Roller Guide System are clear:

- More surface contact for large load capacities and better dampening
- Better distribution load points via an X-shaped design that allows load to be applied in four directions
- Higher positioning accuracy than boxways due to no stick and slip
- Faster and greener than boxways with nearly twice the rapid traverse rate and less risk of contamination in the machine's coolant system



EFFICIENT CHIP MANAGEMENT

Chip conveyor systems on the VC Series machines provide fast, low-maintenance chip management, while flood coolant evacuates chips quickly and efficiently from machine work envelopes. Complete chip systems fit within each machine's footprint.

Machine Design

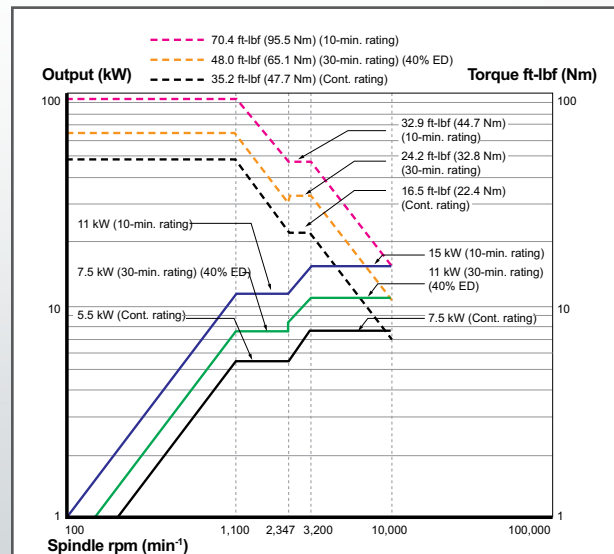
SPINDLE POWER AND SPEEDS

With powerful, rigid spindles, VC Series machines let shops achieve high productivity and maintain exceptional accuracy. Standard machine spindles deliver unbeatable metal removal rates for all common materials, including steels, aluminums and cast irons. Mazak also offers other maximum spindle speeds so that shops can effectively match spindle performance to specific part-machining needs.

Spindle Options

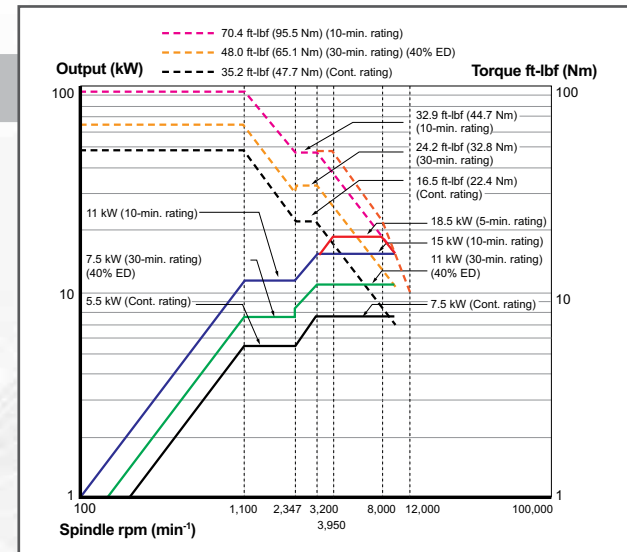
- 10,000 rpm (standard on VC-300A, 300A/5X, 500C and 500A/2PC)
- 12,000 rpm (standard on VC-500A/5X and 500A/5X-2PC)
- 15,000 rpm
- 20,000 rpm

Output-torque diagram 40-10,000 min⁻¹



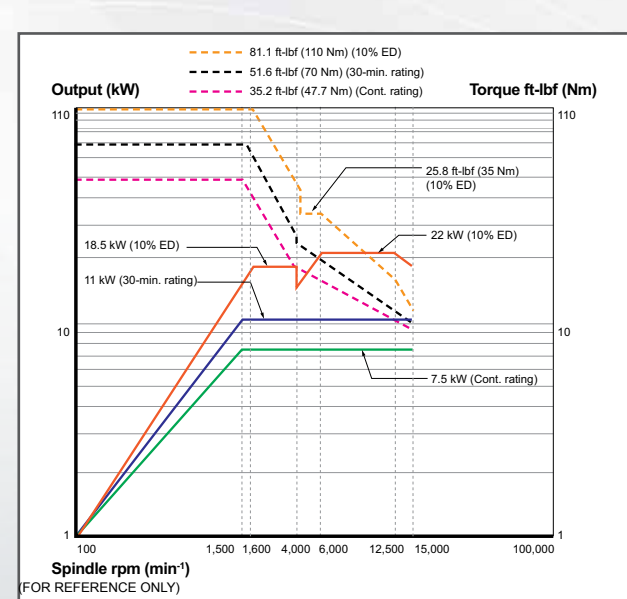
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Output-torque diagram 40-12,000 min⁻¹



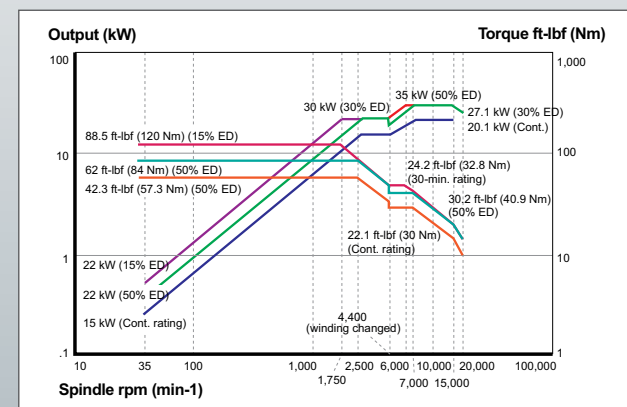
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Output-torque diagram 40-15,000 min⁻¹



(FOR REFERENCE ONLY)

Output-torque diagram 40-20,000 min⁻¹



(FOR REFERENCE ONLY)

AUTOMATIC TOOL CHANGERS AND TOOL STORAGE

For part-production versatility, VC Series machines feature servo-driven automatic tool changers (ATC) that significantly reduce non-cut time by quickly exchanging tools and getting back in the cut in the shortest times possible.

- 18-tool ATC standard on VC-300A and 300A/5X
- 20-tool ATC standard on VC-500C
- 30-tool ATC standard on VC-500A/5X, 500A/2PC and 500A/5X-2PC
- 24, 30, 40 and 60-tool ATC options (depending on model)

TURRET-STYLE 60-TOOL MAGAZINE OPTION

Mazak's unique turret-style tool magazine incorporates 15 four-position tool units for a 60-tool storage capacity. The ample capacity allows for continuous production, helps reduce setup time and ensures enough tooling to process complex workpieces or stock redundant tooling.



Optional 60-Tool Magazine



Optional Tool Probe

High Accuracy

Mazak's rigid machine base structure, advanced spindle/motor design and MAZATROL Smooth CNC submicron machine movement gives VC Series machines extremely high part-accuracy and surface-finish capabilities. As with all the machines built at the Mazak Kentucky iSMART Factory™, Mazak closely monitors the manufacture and assembly of each and every VC Series machine to guarantee their consistent precision and performance.

To further ensure the highest precision possible over extended hours of operation, Intelligent Machine functions minimize detrimental vibration and heat when machining.

ACTIVE VIBRATION CONTROL

Axis acceleration/deceleration can cause machine vibration. Mazak's ACTIVE VIBRATION CONTROL function effectively reduces vibration for high-accuracy positioning in all axes and shorter machining cycle times. It also curbs the effects such vibration has on the cutting tool for longer tool life and exceptional part surface finishes.

INTELLIGENT THERMAL SHIELD

Mazak designs its machine tools to create the least amount of heat possible. The THERMAL SHIELD FUNCTION was designed to account for any thermal change within the machine or any ambient changes within the manufacturing environment that could influence the machine.

Mazak iSMART Factory

The Mazak iSMART Factory encompasses the complete digital integration of the factory with state-of-the-art equipment, automation and advanced manufacturing practices. It hinges on the free flow and sharing of data in terms of process control and operation monitoring to ensure the highest quality standards and the utmost production consistency from one machine to the next.



Ergonomics

DESIGNED FOR UNSURPASSED EASE OF OPERATION

OUTSTANDING ACCESSIBILITY

Operators have excellent access to the table from the front of the machine thanks to large door openings that enable convenient workpiece loading/unloading and machine setup.

WELL-LIT WORKING ENVIRONMENT

Multi-LED lighting deployed strategically throughout the work envelope allows operators to easily see the entirety of the cutting area.

EASE OF MAINTENANCE

The single external maintenance panel for the VC Series machines is easy to access, and cables are easy to identify by color, which reduces time required for maintenance.

SIMPLE ATC LOADING

The high-capacity tool magazines used in the automatic tool changer (ATC) feature a carousel design to put every tool pocket well within the operator's reach for fast, easy loading.

MAZATROL SmoothC Control

Mazak’s MAZATROL SmoothC CNC technology is simple but innovative and sports several features that enhance cutting capabilities. The MAZATROL SmoothC makes it easy for operators to generate programs for basic milling, drilling and tapping operations.

For VC Series 3-axis and 4-axis machines, the control incorporates a wide variety of advanced programming functions that allow it to offer complete ease of use and ensure high-speed, high-accuracy machining performance.

MAZATROL SmoothC functions include:

- **Rapid Overlap** uses an arcing motion between programmed stopping points to shorten cycle times.
- **SMOOTH CAM RS** simulates SMOOTH controls on a remote PC.
- **Intelligent Pocket Milling** engages a high-efficiency toolpath when milling part cavities.
- **SMOOTH CORNER CONTROL** makes cutter path adjustments to help shorten cycle times.
- **SMOOTH Monitor** provides equipment monitoring and utilization analysis.
- **EIA/ISO and conversational programming capabilities**



	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 4 axes	
Least input increment	0.00001 inch, 0.0001 mm, 0.0001°	
High-speed, high-precision control	Shape error designation, SMOOTH CORNER CONTROL, Rapid traverse overlap, Rotary axis shape compensation	Shape error designation, SMOOTH CORNER CONTROL, Rapid traverse overlap, Rotary axis shape compensation, High-speed machining mode, High-speed smoothing control function
Interpolation	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Synchronized milling spindle tapping*	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Cylindrical coordinate interpolation*, Fine spline interpolation*, NURBS interpolation*, Polar coordinate interpolation*, Synchronized milling spindle tapping*
Feed rate	Rapid traverse, Cutting feed, Cutting feed (per minute), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Variable acceleration/deceleration control	Rapid traverse, Cutting feed, Cutting feed (per minute), Inverse time feed, Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Time constant changing for G1, Variable acceleration/deceleration control
Program registration	Max. number of programs: 960, Program storage: 2MB, Program storage expansion: 8MB*, Program storage expansion: 32MB*	
Control display	Display: 10.4", Display Resolution: VGA	
Spindle functions	S code output, Spindle speed clamp, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Max. speed control for spindle	
Tool functions	Tool offset pairs: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)	Tool offset pairs: 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces)
Miscellaneous functions	Mcode output, Simultaneous output of multiple Mcodes	
Tool offset functions	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool wear offset	
Tool offset pairs	128	
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, Additional work coordinates (300 set)	
Machine compensation	G0/G1 independent backlash compensation, Pitch error compensation	
Protection functions	Emergency stop, Interlock, Stroke check before travelling, Retraction function for the vertical axis	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, EtherNet operation*
Automatic operation control	Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Machine lock	Optional block skip, Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring functions	Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine	Tool length and tip teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine
Automatic measuring functions	WPC coordinate measurement, Auto tool length measurement, Sensor calibration, Tool eye auto tool measurement, Tool breakage detection, External tool breakage detection*	Auto tool length measurement, Sensor calibration, Tool breakage detection, External tool breakage detection*
MDI measurement	Partial auto tool length measurement, Auto tool length measurement, Coordinate measurement	
Interface	PROFIBUS-DP*, EtherNet I/P*, CC-Link*, USB	
Card interface	SD card interface	
EtherNet	10M/100M/1Gbps	

* Option

MAZATROL SmoothX Control

For highly advanced programming, the MAZATROL SmoothX CNC is the most progressive control available and significantly reduces cycle times, especially in fine-increment programs for full simultaneous 5-axis machining on applicable VC Series machines.

Features and functions of the MAZATROL SmoothX include:

- **VARIABLE ACCELERATION CONTROL** calculates optimal acceleration for a combination of axes.
- **Virtual Machining** allows an operator to verify part programs prior to initiating cutting.
- **SMOOTH Monitor** for equipment monitoring and utilization analysis.
- **Quick EIA** plots toolpaths prior to running programs and checks for any interferences in those paths.
- **Quick MAZATROL** allows for the direct importation of 3D CAD models into the CNC and extracts coordinates from the model to simplify machine programming.
- **3D Assist** lets operators import workpiece coordinate data from 3D CAD data to a MAZATROL program without having to input coordinate values to reduce errors and time spent checking programs.
- **High-Gain Feed Forward Control** boosts machining speed and accuracy.
- **Rapid Overlap** uses arcing motion between programmed stopping points to shorten cycle times.
- **SMOOTH CAM RS** simulates SMOOTH controls on a remote PC.
- **INTELLIGENT POCKET MILLING** engages a high-efficiency toolpath when milling part cavities.
- **SMOOTH CORNER CONTROL** makes cutter path adjustments to help shorten cycle times.
- **EIA/ISO and conversational programming capabilities.**



SmoothX CONTROL SPECIFICATIONS

	MAZATROL	EIA
Number of controlled axes	Simultaneous 2 ~ 4 axes	2 ~ 4 axes, Simultaneous 5 axes ¹
Least input increment	0.00001 inch, 0.0001 mm, 0.0001°	
High-speed, high-precision control	Shape error designation, SMOOTH CORNER CONTROL, Rapid traverse overlap, Rotary axis shape compensation	Shape error designation, SMOOTH CORNER CONTROL, Rapid traverse overlap, Rotary axis shape compensation, High-speed machining mode, High-speed smoothing control function, 5-axis spline ¹
Interpolation	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Cylindrical coordinate interpolation, Polar coordinate interpolation, Equal pitch threading ² , Re-threading ^{1,2} , Override threading ^{1,2} , Override variable threading ^{1,2} , Synchronized milling spindle tapping ¹	Positioning (Linear interpolation), Positioning (Independent interpolation), Linear interpolation, Circular interpolation, Spiral interpolation, Helical interpolation, Equal pitch threading ² , Variable pitch threading ² , Threading (C-axis interpolation type) ² , Cylindrical coordinate interpolation ¹ , Fine spline interpolation ¹ , NURBS interpolation ¹ , Polar coordinate interpolation*, Re-threading ^{1,2} , Override threading ^{1,2} , Override variable threading ^{1,2} , Synchronized milling spindle tapping ¹
Feed rate	Rapid traverse, Cutting feed, Cutting feed (per minute), Dwell (specified time, specified number of rotation), Rapid Cutting feed (per revolution), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feed rate clamp, Variable acceleration/deceleration control, Constant control for G0 tilting ¹	Rapid traverse, Cutting feed, Cutting feed (per minute), Cutting feed (per revolution), Inverse time feed, Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feed rate clamp, Time constant changing for G1, Variable acceleration/deceleration control, Constant control for G0 tilting ¹
Program registration	Max. number of programs: 960, Program storage: 2MB, Program storage expansion ¹ : 8MB	
Control display	Display: 19" touch panel, Resolution: SXGA	
Spindle functions	S code output, Spindle speed clamp, Spindle speed override, Spindle speed reaching detection, Multiple position orient, Constant surface speed, Spindle speed command with decimal digits, Synchronized spindle control, Max. speed control for spindle	
Tool functions	Tool offset pairs: 4000, T code output for tool number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) ²	Tool offset pairs: 4000, T code output for tool number, T code output for group number, Tool life monitoring (time), Tool life monitoring (number of machined workpieces) ²
Miscellaneous functions	M code output, Simultaneous output of multiple M codes	
Tool offset functions	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool nose shape offset ² , Tool wear offset, Fixed amount offset ² , Simple wear offset ²	Tool position offset, Tool length offset, Tool diameter/tool nose R offset, Tool wear offset, Fixed amount offset ² , Simple wear offset ²
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, Additional work coordinates (300 set)	
Machine functions	—	Rotary axis pre-filter, Angled surface cutting, Hobbing ¹ , S shaping function ¹ , Dynamic compensation II ¹ , Tool nose point control ¹ , Tool diameter compensation for 5-axis machining ¹ , Workpiece positioning error compensation ¹
Machine compensation	G0/G1 independent backlash compensation, Pitch error compensation, Geometric deviation compensation, Volumetric compensation ¹	
Protection functions	Emergency stop, Interlock, Stroke check before travelling, Retraction function for the vertical axis, INTELLIGENT SAFETY SHIELD (manual mode), INTELLIGENT SAFETY SHIELD (automatic mode), MAZAK VOICE ADVISER	
Automatic operation mode	Memory operation	Memory operation, Tape operation, MDI operation, EtherNet operation ¹
Automatic operation mode	Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Machine lock	Optional block skip, Optional stop, Dry run, Automatic handle control, MDI control, TPS, Restart, Restart 2, Collation stop, Machine lock
Manual measuring functions	Tool length and tip teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine, Tool eye measurement ²	Tool length and tip teach, Tool offset teach, Touch sensor coordinates measurement, Workpiece offset measurement, WPC coordinate measurement, Measurement on machine, Tool eye measurement ²
Automatic measuring functions	WPC coordinate measurement, Automatic tool length measurement, Workpiece measurement ² , Sensor calibration, Tool eye auto tool measurement ² , Tool breakage detection, External tool breakage detection ¹	Automatic tool length measurement, Workpiece measurement ² , Sensor calibration, Tool eye auto tool measurement ² , Tool breakage detection, External tool breakage detection ¹
MDI measurement	Partial auto tool length measurement, Auto tool length measurement, Coordinate measurement	
Interface	PROFIBUS-DP ¹ , EtherNet I/P ¹ , CC-Link ¹ , USB	
Card interface	SD card interface	
EtherNet	10 M/100M/1Gbps	

¹ Option ² Machines with turning only

Fast, Easy and Efficient Programming

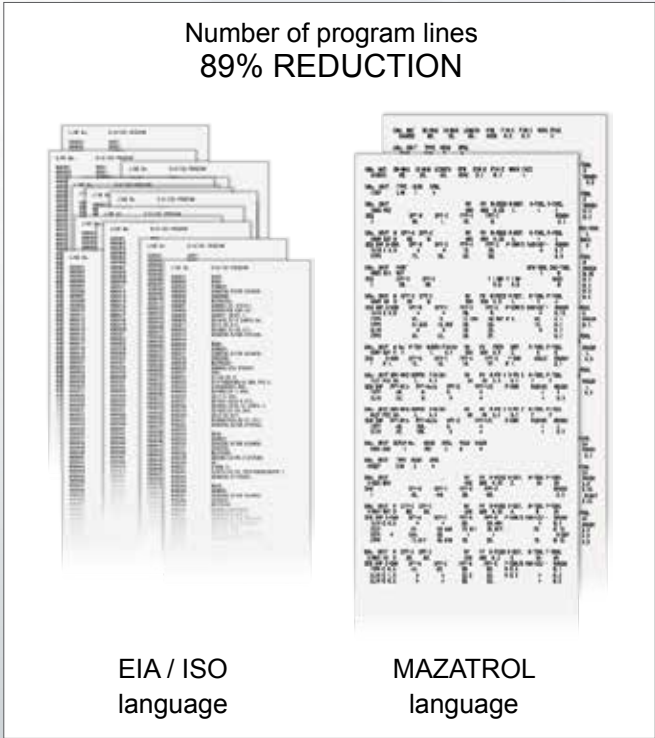
The continuously innovative Mazak MAZATROL Smooth controls make programing VC Series machines easy, fast and efficient. The highly versatile controls allow for both EIA/ISO and conversational programming, while other features and capabilities boost power and functionality.

EIA/ISO COMPATIBILITY

MAZATROL Smooth control G-codes are the same as those used in conventional EIA CNC machines. This allows VC Series machine users to run programs made for other different machine brands.

CONVERSATIONAL PROGRAMMING

MAZATROL conversational programming, part of the Smooth control platform, makes it possible for inexperienced operators to quickly and easily develop programs for VC Series machines. Operators answer conversationally displayed questions concerning the intended workpiece. These include queries about material type, workpiece dimensions and part lengths, among others. Then, according to the input data, MAZATROL Smooth CNCs automatically calculate intersection coordinates and tool index positioning in addition to optimized cutting conditions and machining processes.



PROCESS HOME SCREENS

MAZATROL Smooth CNCs streamline data entry and minimize the number of displays to reduce programming times for VC Series machines. Five different home process screens each display the appropriate data in an easy-to-understand manner. Operators can quickly navigate to additional screen displays.

Process home screens include:

- Programming
- Tool data
- Setup
- Machining
- Maintenance



SmoothX Programming Screen



SmoothX Tool Data Screen



SmoothX Setup Screen



SmoothX Machining Screen



SmoothX Maintenance Screen

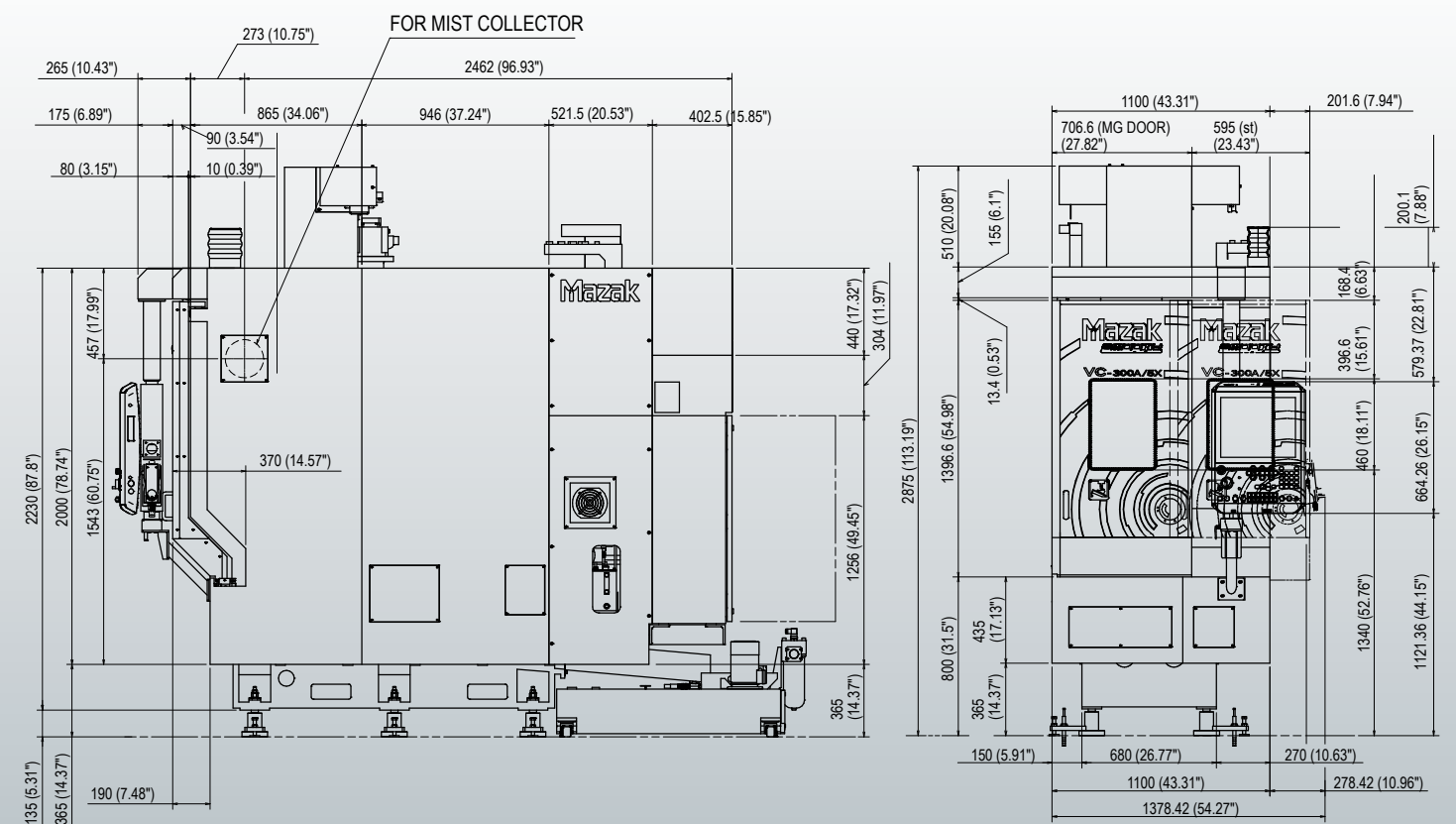


SmoothC Maintenance Screen



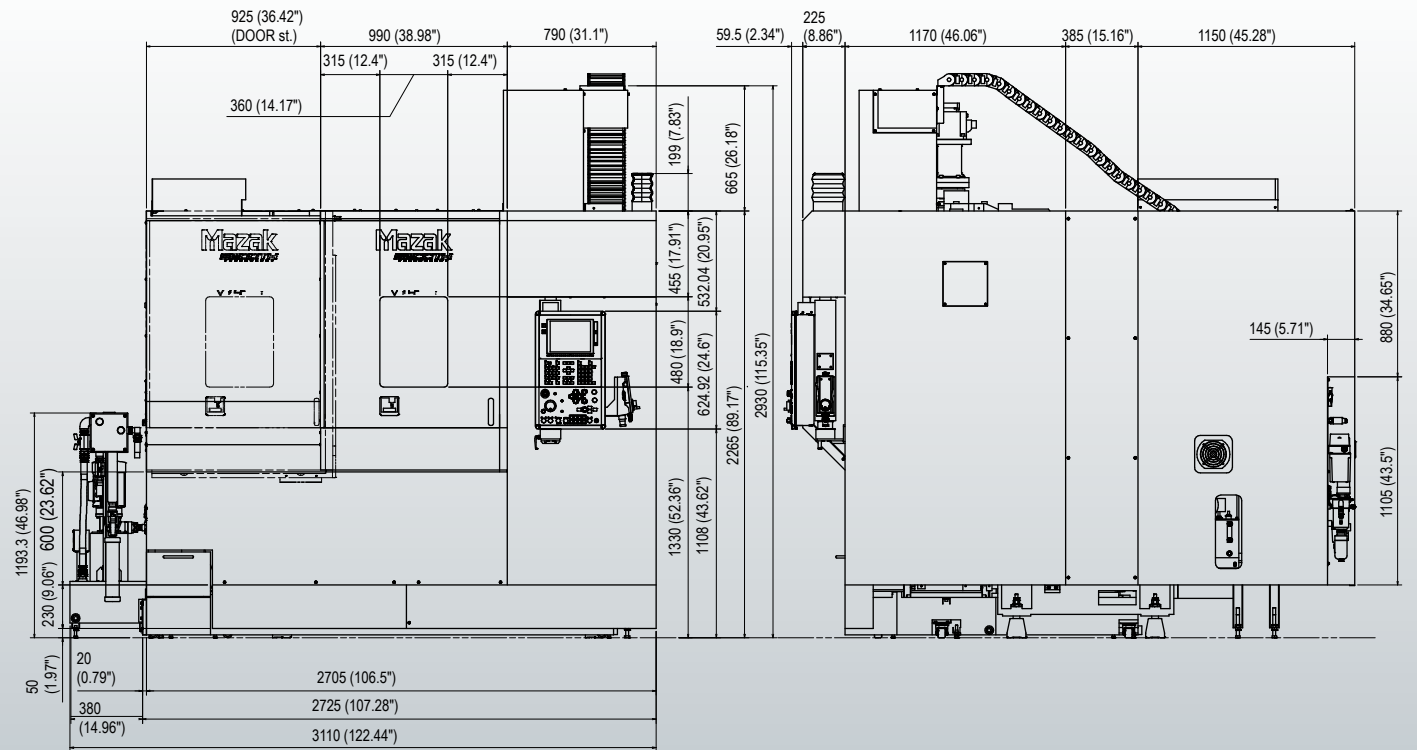
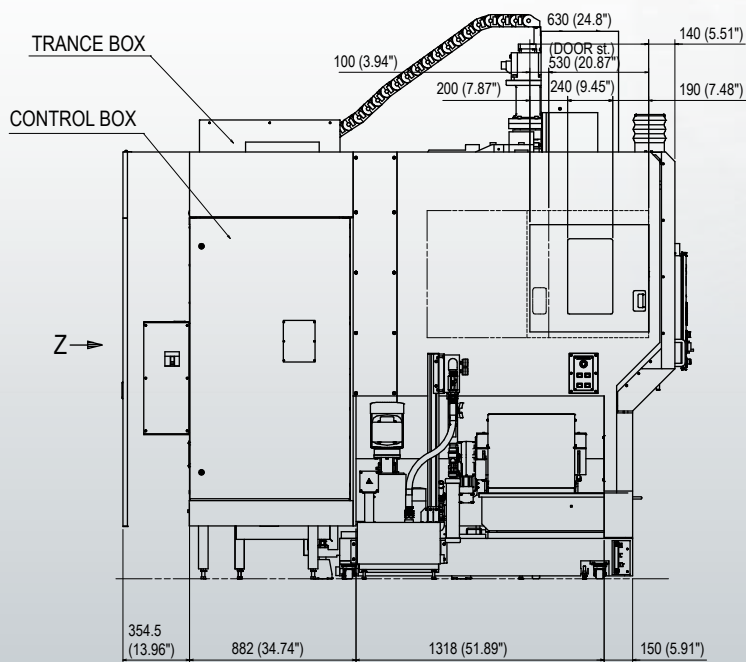
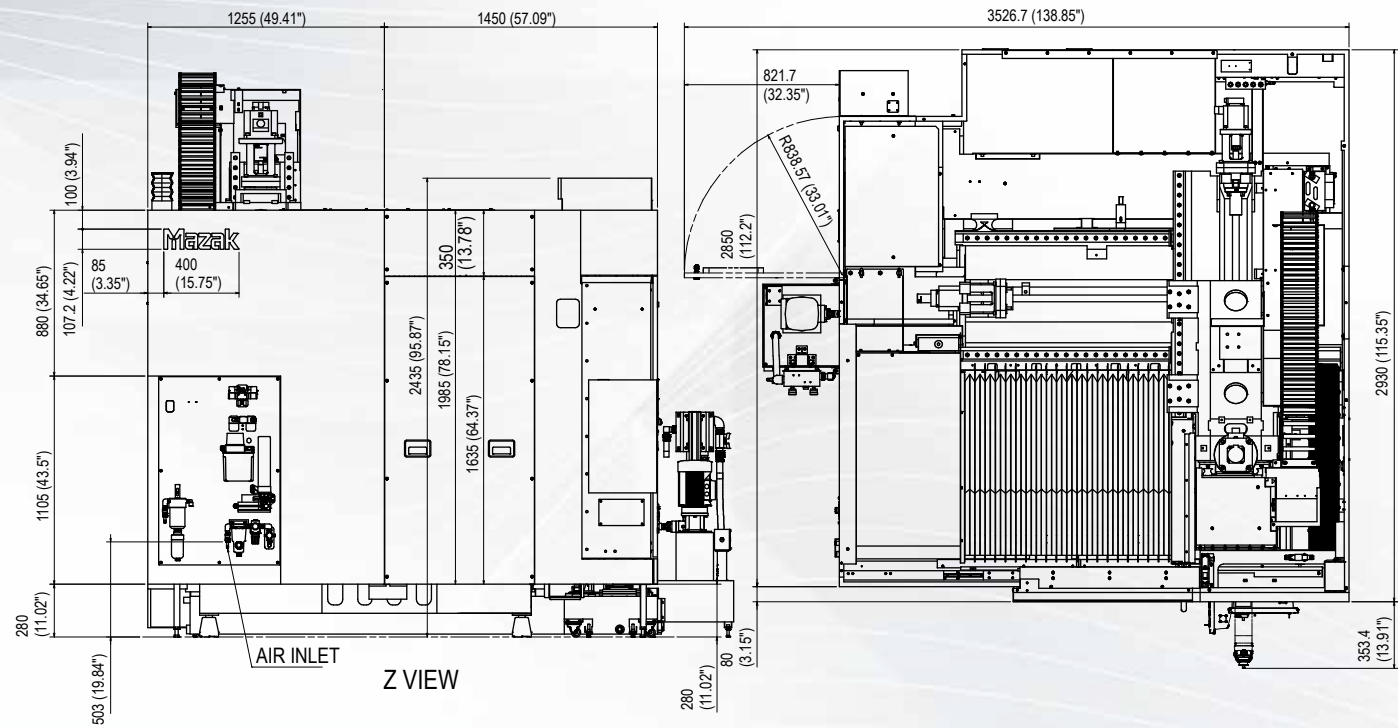
SmoothC Programming Screen

Unit: mm (inch)



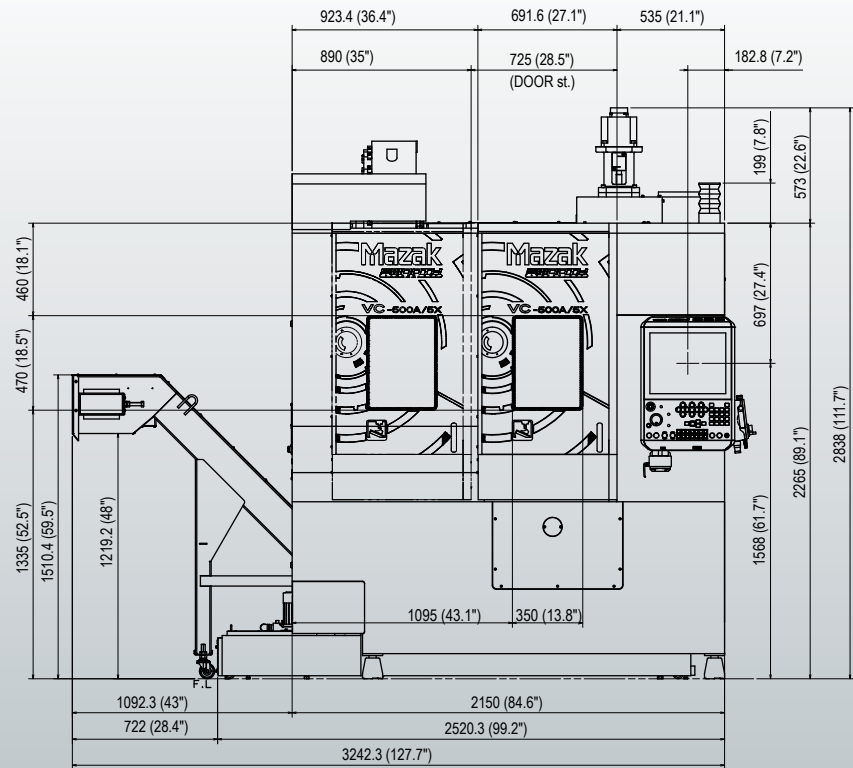
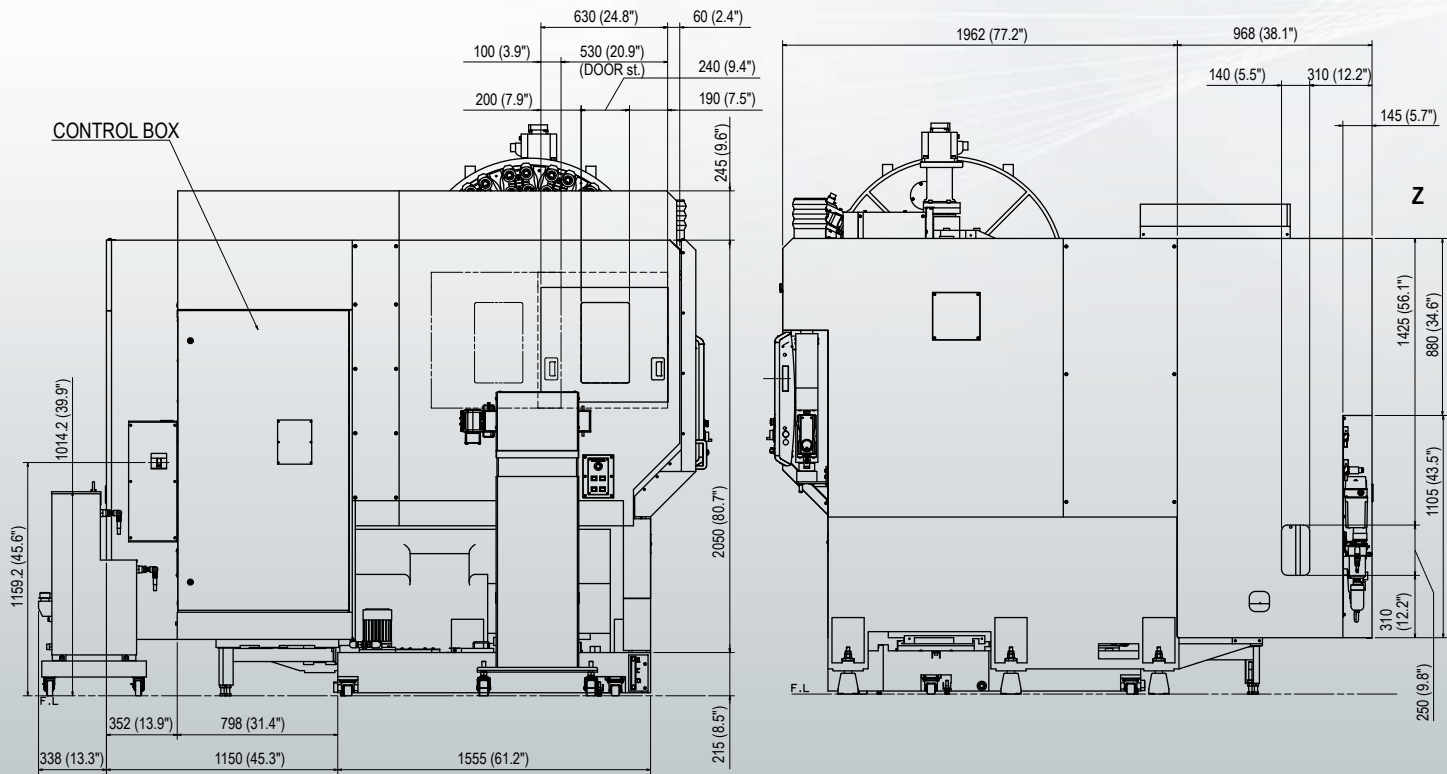
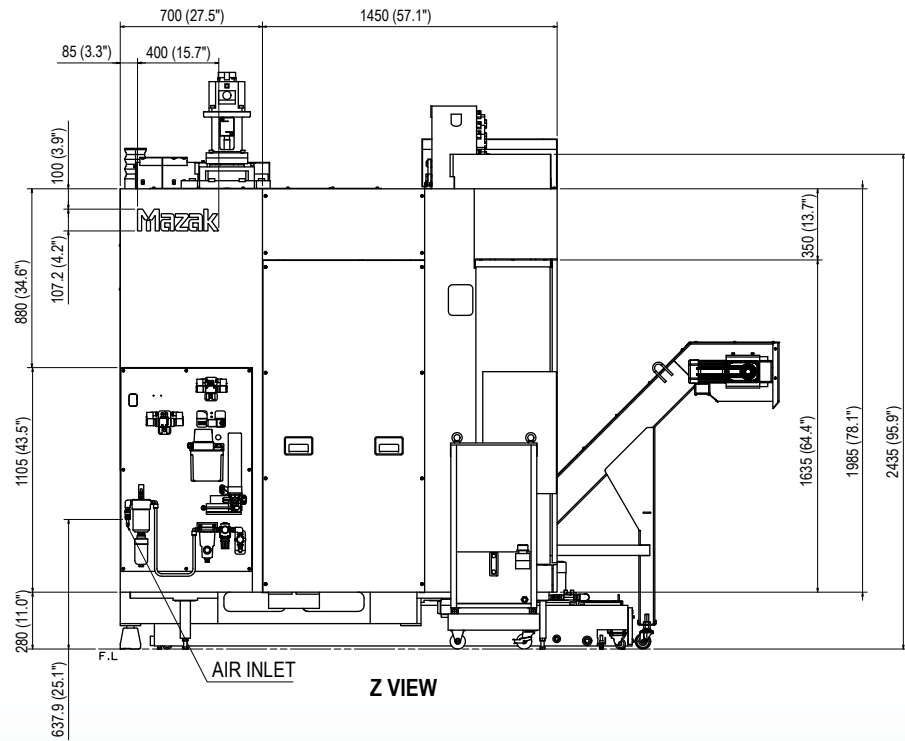
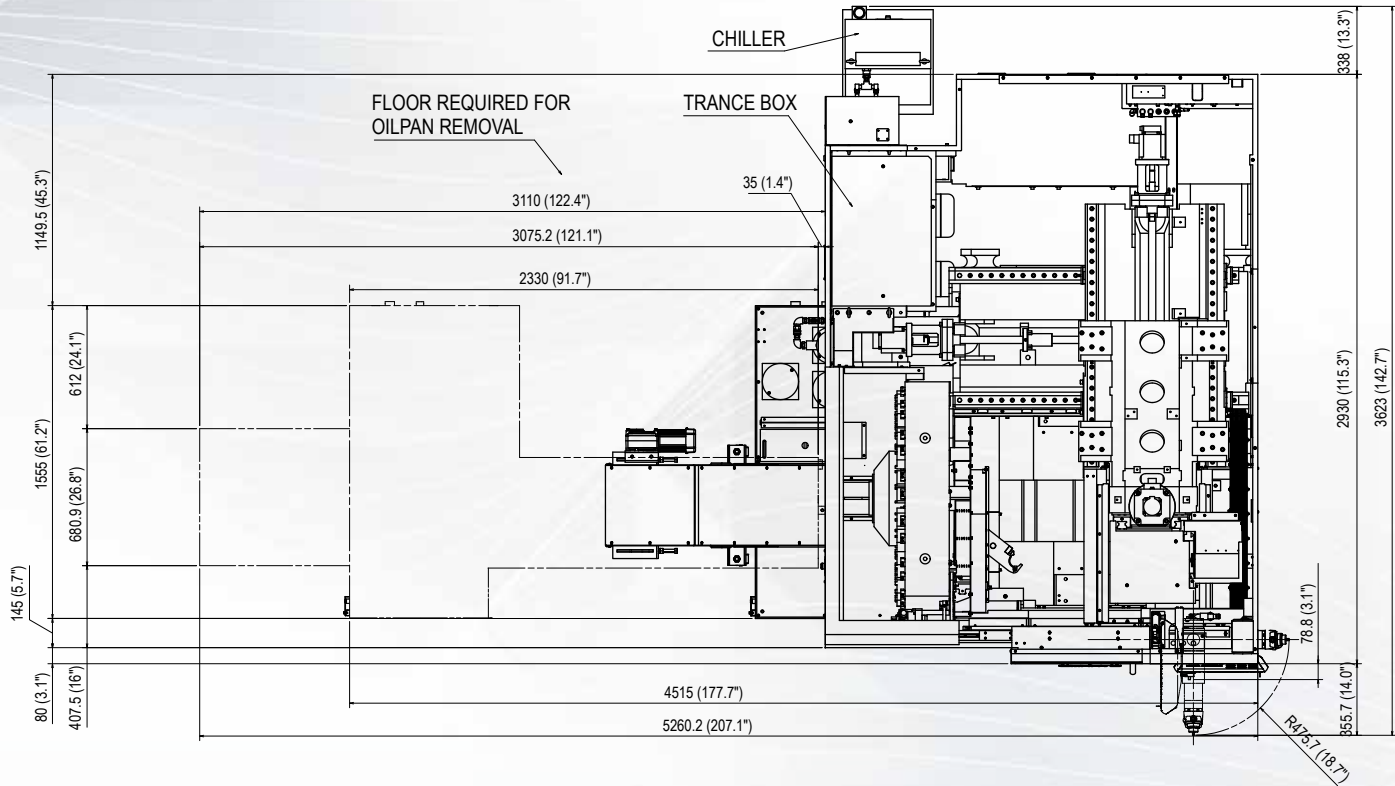
Machine Layout – VC-500C

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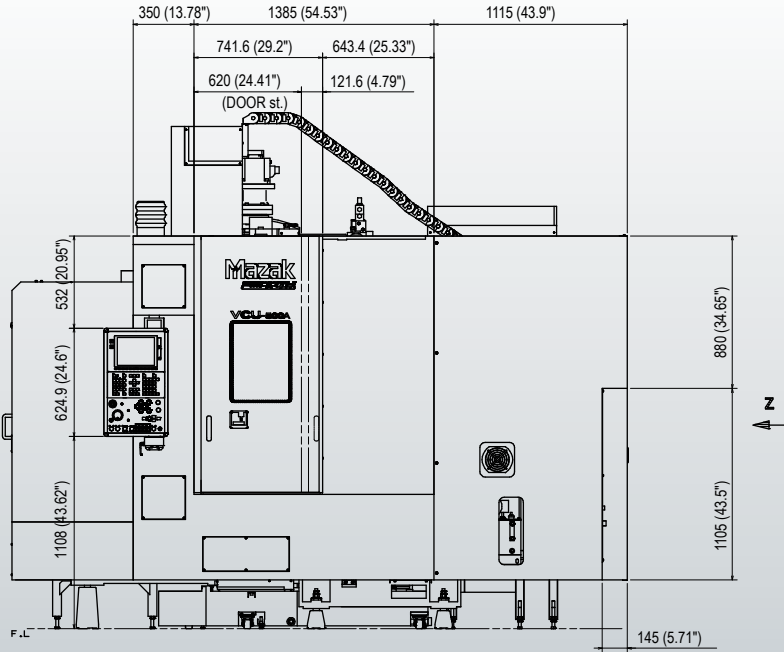
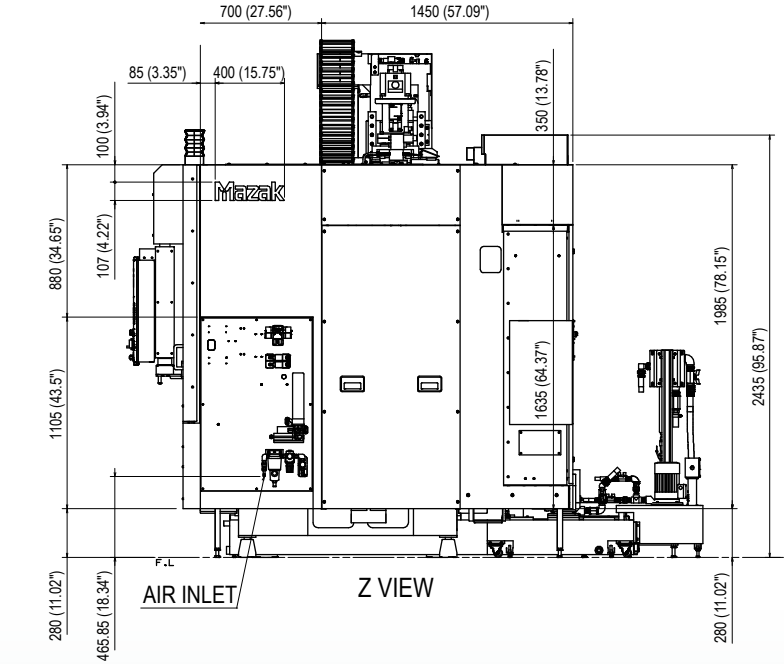
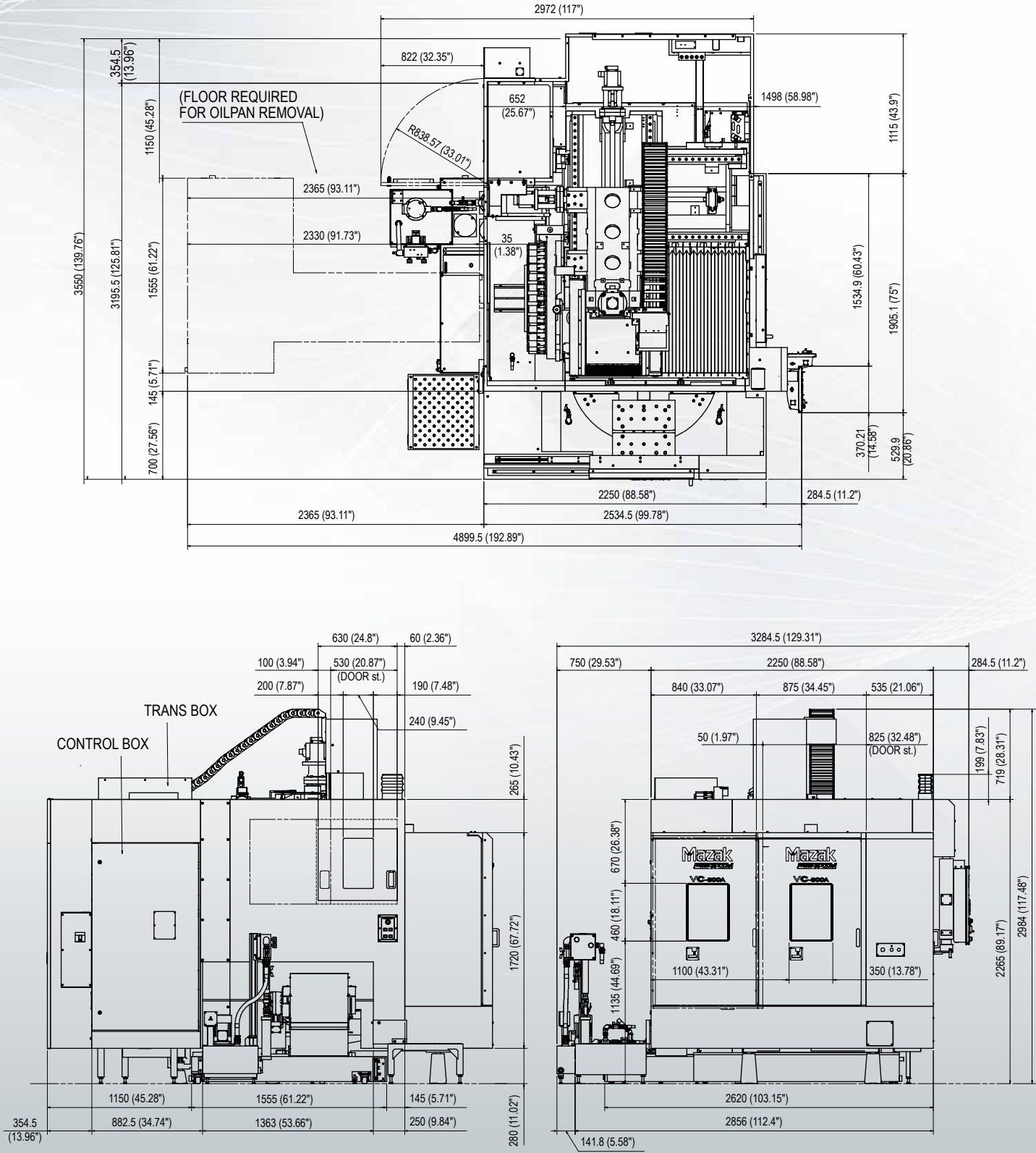


Machine Layout – VC-500A/5X

(FOR REFERENCE ONLY)



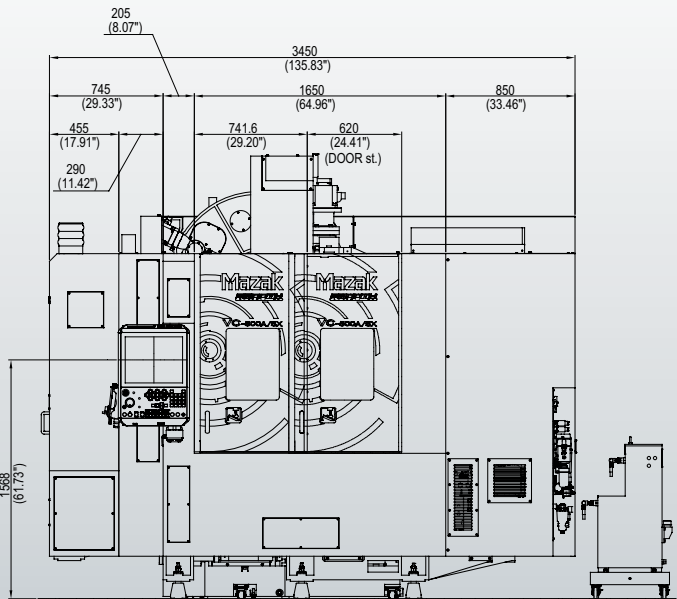
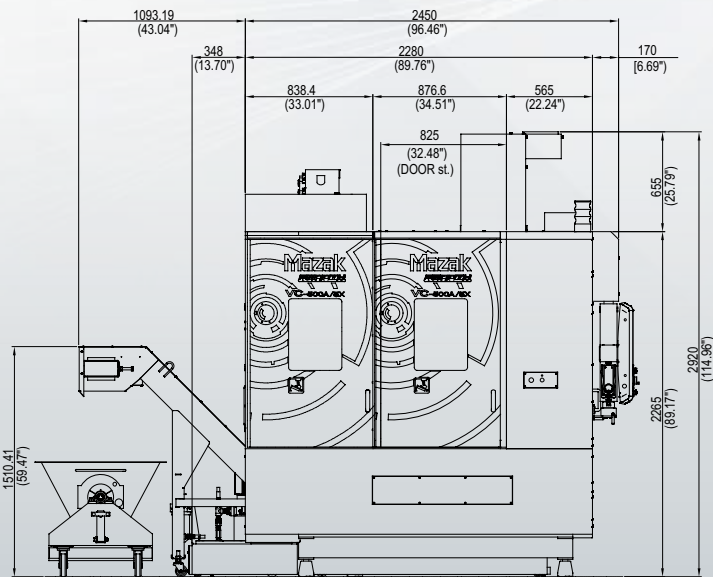
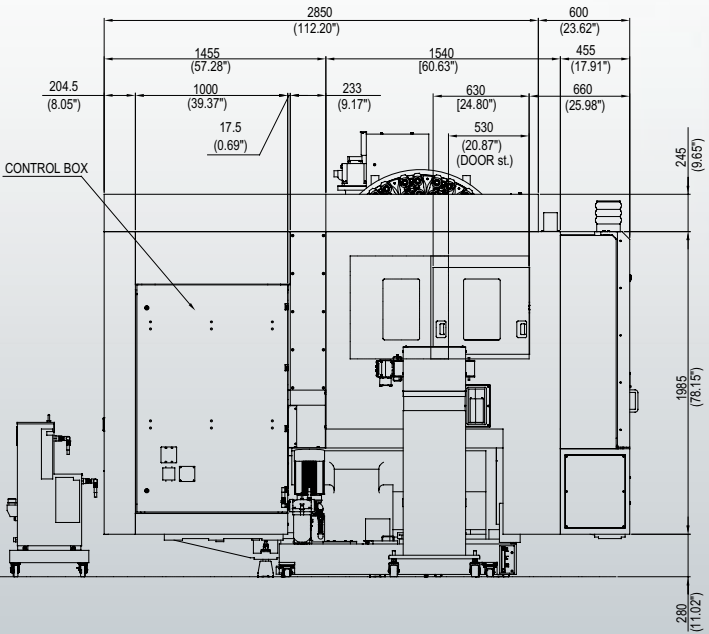
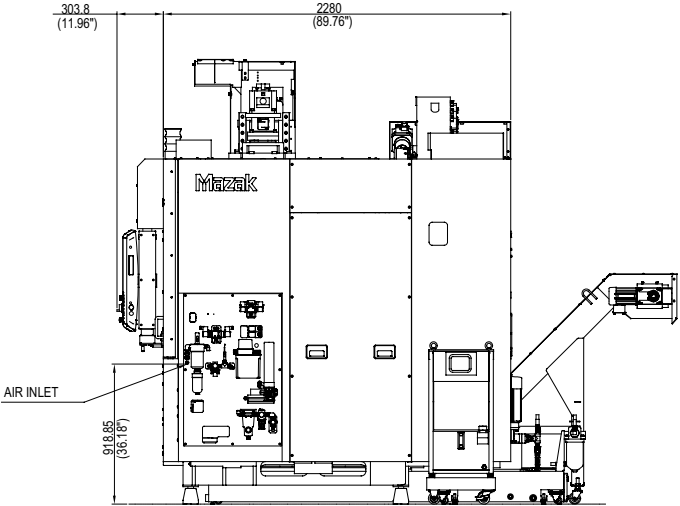
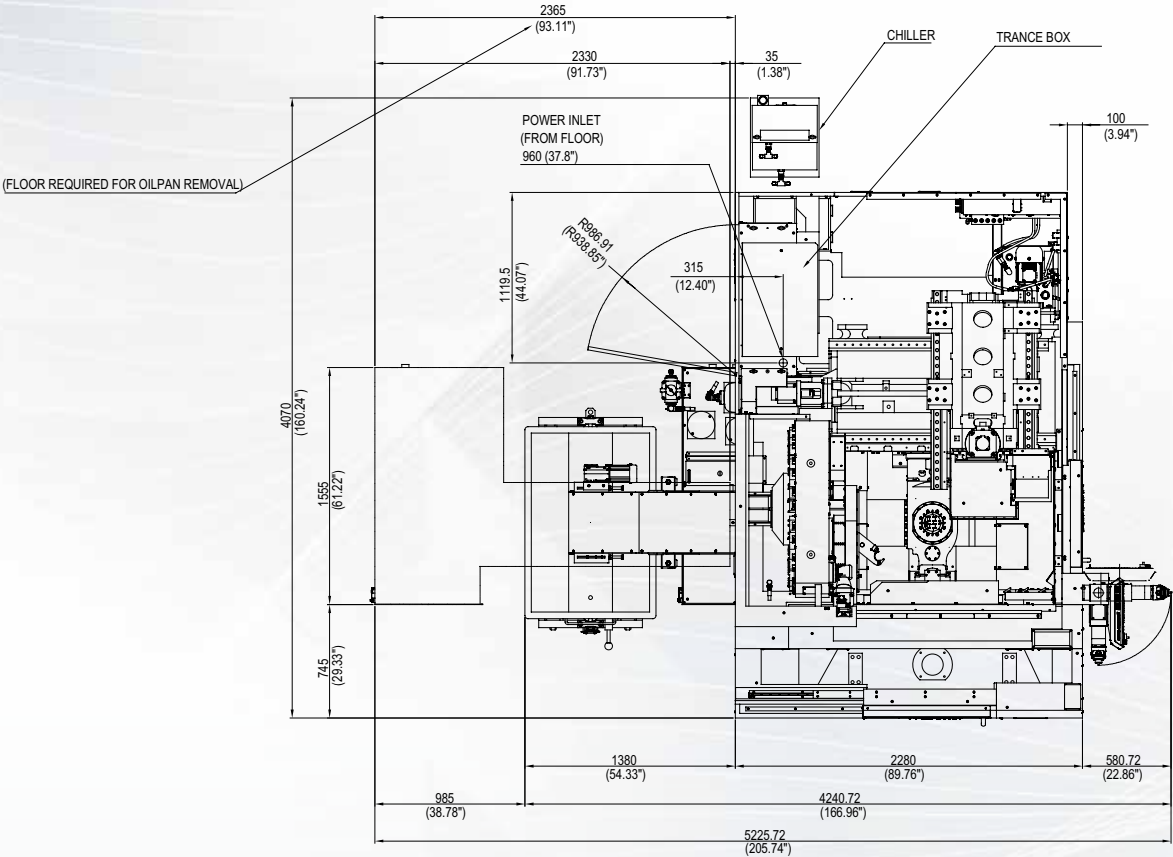
Machine Layout – VC-500A/2PC
(FOR REFERENCE ONLY)



Machine Layout – VC-500A/5X-2PC

(FOR REFERENCE ONLY)

Unit: mm (inch)



Machine Specifications - VC Series

				VC-300A	VC-300A/5X	VC-500C
Travel	X-axis travel		in (mm)	11.81 (300)	11.81 (300)	39.37 (1,000)
	Y-axis travel		in (mm)	11.81 (300)	11.81 (300)	19.88 (505)
	Z-axis travel		in (mm)	20.078 (510)	20.078 (510)	20.07 (510)
	B-axis travel		degree	—	+20~-120	—
	C-axis travel		degree	—	±360	—
Table	Spindle nose to table top	Min.	in (mm)	4.52 (115)	4.52 (115)	1.57 (40)
		Max.	in (mm)	24.60 (625)	24.60 (625)	21.65 (550)
	Pallet size		in (mm)	15.748 x 11.81 (400 x 300)	ø100 mm	19.69 x 41.33 (500 x 1,050)
	Max. workpiece size		in (mm)	13.77 x 11.81 x 12 (350 x 300 x 305)	ø3.9 x 6.1 (ø100 x 155)	19.69 x 39.37 x 20.07 (500 x 1,000 x 510)
	Max. workpiece weight		lb (kg)	440 (200)	341.7 (155)	1300 (600)
	Table surface height (From the surface of machine base)		in (mm)	31.496 (800)	32 (820)	29.92 (760)
Spindle	Spindle taper bore			CAT 40	CAT 40	CAT 40
	Spindle speed standard		min	10,000	10,000	10,000
	Spindle motor output	30-min. rating	hp (kW)	10 (7.5)	10 (7.5)	15 (11)
		Cont. rating	hp (kW)	10 (7.5)	10 (7.5)	10 (7.5)
	Option 12,000 rpm	30-min. rating	hp (kW)	10 (7.5)	10 (7.5)	15 (11)
		Cont. rating	hp (kW)	10 (7.5)	10 (7.5)	10 (7.5)
	Spindle speed option		min	12,000	12,000	12,000/15,000/20,000
Rapid traverse	X/Y/Z		ipm (m/min)	945 (24)	945 (24)	1181 (30)
	A/C		min	—	50 (62.5)	—
ATC & magazine	Magazine capacity	Standard	tool	18	18	20
		Optional	tool	24	24	30
	Max. tool diameter	With adjacent pockets occupied	in (mm)	3.15 (80)	3.15 (80)	3.15 (80)
		With adjacent pockets empty	in (mm)	3.94 (100)	3.94 (100)	4.92 (125)
	Max. tool length (from the taper reference edge)		in (mm)	10.23 (260)	10.23 (260)	10.23 (260)
Machine size	W x L x H		in (mm)	38.58 x 96.46 x 104.33 (980 x 2,450 x 2,650)	38.58 x 96.46 x 104.33 (980 x 2,450 x 2,650)	108.27 x 125 x 131.81 (2,750 x 3,175 x 3,348)
	PC		sec	—	—	—

				VC-500A/5X	VC-500A/2PC	VC-500A/5X-2PC
Travel	X-axis travel		in (mm)	21.85 (555)	19.88 (505)	21.85 (555)
	Y-axis travel		in (mm)	19.88 (505)	19.88 (505)	19.88 (505)
	Z-axis travel		in (mm)	20.07 (510)	20.07 (510)	20.07 (510)
	B-axis travel		degree	+110~-110	—	+110~-110
	C-axis travel		degree	±360	—	±360
Table	Spindle nose to table top	Min.	in (mm)	4.53 (115) to 24.61 (625)	4.53 (115)	4.53 (115) to 24.61 (625)
		Max.	in (mm)	19.69 (500)	24.61 (625)	19.69 (500)
	Pallet size		in (mm)	ø19.69 (500)	19.69 x 19.69 (500 x 500)	ø19.69 (500)
	Max. workpiece size		in (mm)	ø19.69 x 12 (ø500 x 305)	19.69 x 19.69 x 12 (500 x 500 x 305)	ø11.8 x 9.8 (ø300 x 250)
	Max. workpiece weight		lb (kg)	441 (200)	661 (300)	396.8 (180)
	Table surface height (From the surface of machine base)		in (mm)	26.97 (685)	31.49 (800)	26.97 (685)
Spindle	Spindle taper bore			CAT 40	CAT 40	CAT 40
	Spindle speed standard		min	10,000	10,000	10,000
	Spindle motor output	30-min. rating	hp (kW)	15 (11)	15 (11)	15 (11)
		Cont. rating	hp (kW)	10 (7.5)	10 (7.5)	10 (7.5)
	Option 12,000 rpm	30-min. rating	hp (kW)	15 (11)	15 (11)	15 (11)
		Cont. rating	hp (kW)	10 (7.5)	10 (7.5)	10 (7.5)
	Spindle speed option		min	12,000/15,000/20,000	12,000/15,000/20,000	12,000/15,000/20,000
Rapid traverse	X/Y/Z		ipm (m/min)	1,181 (30)	1,181 (30)	1,181 (30)
	A/C		min	—	—	—
ATC & magazine	Magazine capacity	Standard	tool	30	30	30
		Optional	tool	40, 60	40	40, 60
	Max. tool diameter	With adjacent pockets occupied	in (mm)	3.15 (80)	3.15 (80)	3.15 (80)
		With adjacent pockets empty	in (mm)	4.92 (125)	4.92 (125)	4.92 (125)
	Max. tool length (from the taper reference edge)		in (mm)	10.23 (260)	10.23 (260)	10.23 (260)
Machine size	W x L x H		in (mm)	99.2 x 118.45 x 118.11 (2,620 x 3,008 x 3,000)	97.04 x 139.76 x 125.03 (2,465 x 3,550 x 3,176)	99.2 x 118.45 x 118.11 (2,620 x 3,008 x 3,000)
	PC		sec	—	3	12

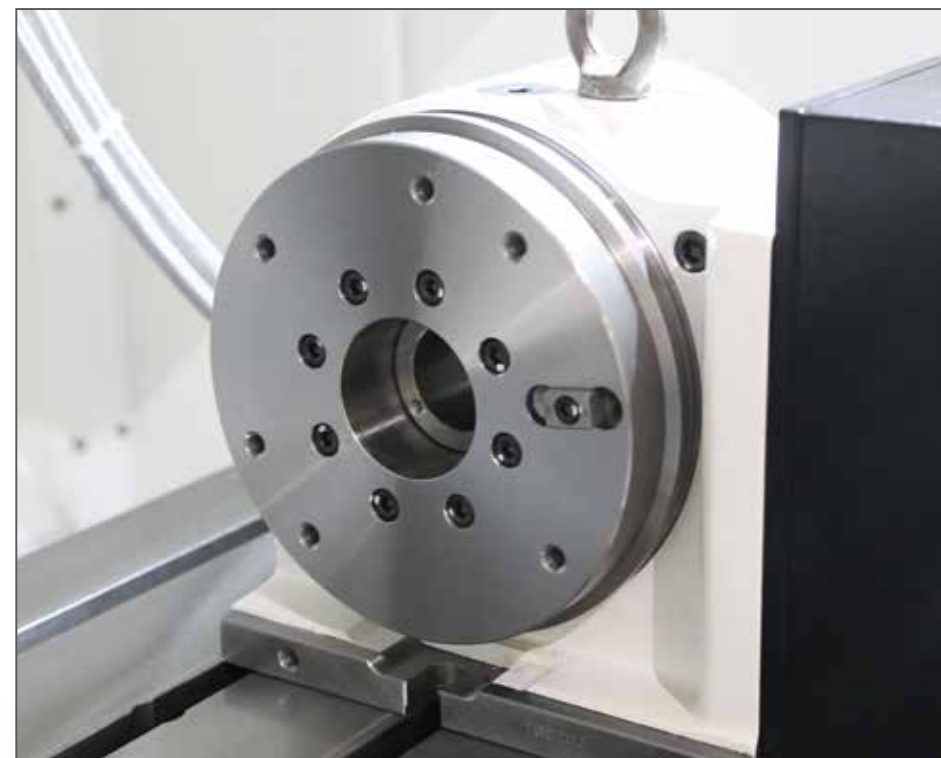
Optional Equipment

Mazak offers a wide array of options from which to choose for the VC Series that further enhance machine performance, increase uptime and boost overall operational efficiency.

- **Chip conveyors** are available for a wide variety of workpiece materials.
- **Rotary table units** provide a 4th axis for a wide variety of workpiece processing strategies.
- **Through-pallet hydraulics** ensure fixture integration.
- **T-slot pallets** on 5-axis machine models increase workholding versatility.
- **Part and tool probe packages** provide in-process workpiece measurement and automatically measure tool tip positions as well as detect wear/damage.
- **High-power coolant** delivers efficient chip evacuation for longer tool life.
- **Mist collector** ensure that any mist made within the machine is removed to maintain a safe work environment.



High-power coolant



Fourth-axis rotary table



Chip conveyor



Mist collector



Part probe



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