

HC SERIES

4000 | 5000

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HC SERIES

HIGH PERFORMANCE, OUTSTANDING VALUE

Mazak builds their HC Series machines with the same proven designs and technologies long incorporated into its line up of world-class horizontal machining centers. [Designed and built in Kentucky](#), the fully-equipped, yet extremely cost-effective, [HC Horizontal Machining Centers](#) deliver unsurpassed reliability, productivity and ease of operation. Get the capabilities and high performance of a larger Mazak horizontal machining center but on a space-saving, smaller-footprint machine platform for low, medium and high-volume production environments.

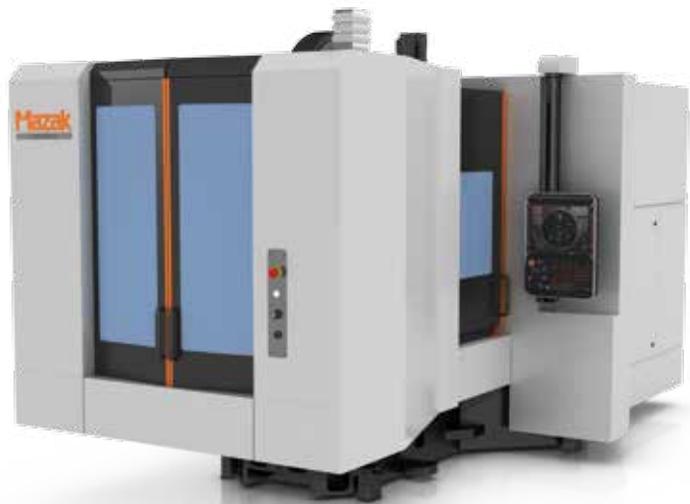
As with all its machines, Mazak backs those in the HC Series with the industry's most acclaimed and comprehensive service and support program.

MACHINE CONFIGURATIONS:

- [HC-4000](#)
- [HC-5000](#)



HC-4000



HC-5000

OPTIMUM PLUS SERVICE AND SUPPORT

MAZAK OPTIMUM PLUS

To maximize machine tool investments, the [Mazak Optimum Plus](#) program represents a company-wide commitment to provide the best possible, most comprehensive support.

The Optimum Plus program encompasses Five Pillars — distinct, yet interrelated areas:

- Single-source service
- Technical support — machine and CNC
- Parts support
- Progressive Learning
- Spindle and unit rebuild

Single-source service

Mazak is a single point of contact for any Mazak-related service need, whether it involves a machine, control, accessory or automation solution. This effective service approach helps customers maintain the highest possible level of productivity.

Benefits of [Mazak's single-source approach](#) include:

- Free technical phone support and software upgrades for the life of a Mazak machine
- Software support that provides instantaneous diagnostic services via remote real-time systems
- Guaranteed phone response to any technical question within one hour via a 24/7 technical phone support system
- More than 350 factory-trained Mazak service representatives and certified distributor personnel that can be at a customer's site within 24 hours under most circumstances
- Wide variety of services, including laser calibration to ISO, ANSI and JIS standards; ball bar qualification and analysis; preventive maintenance plans and programs; and vibration analysis and benchmarking

Technical support — machine and CNC

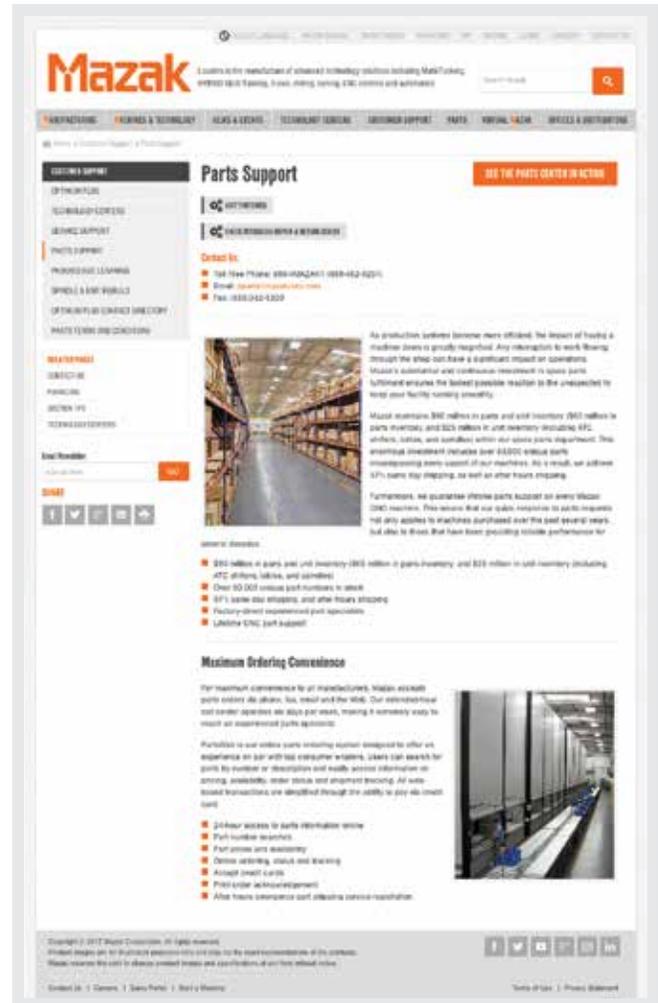
Comprehensive warranties on every Mazak machine tool component, including a two-year part warranty on CNC control components.

[Technical support](#) for machines and CNCs also includes:

- Additional warranty coverage (available upon request)

Mazak OPTIMUMplus

TOTAL SUPPORT FOR MAZAK CUSTOMERS



THE MAZAK OPTIMUM PLUS PROGRAM ENABLES CUSTOMERS TO MAXIMIZE THE VALUE OF THEIR MAZAK PURCHASE.

Parts support

Mazak's spare parts fulfillment ensures the fastest possible reaction time. The state-of-the-art Mazak North American Parts Center uses the latest AS/RS fully automated warehouse storage system technology and maintains a \$65 million parts inventory.

Benefits of the North American Parts Center include:

- Average 97% same day parts shipment and after hours shipping
- 60,000 part numbers in stock
- Call center open Monday-Saturday
- Convenient web-based parts ordering
- Experienced part specialists
- Lifetime CNC parts support

[Click here for more information on parts support.](#)



FULLY AUTOMATED WAREHOUSE STORAGE SYSTEMS ENSURE THE FASTEST DELIVERY OF MAZAK SPARE PARTS.

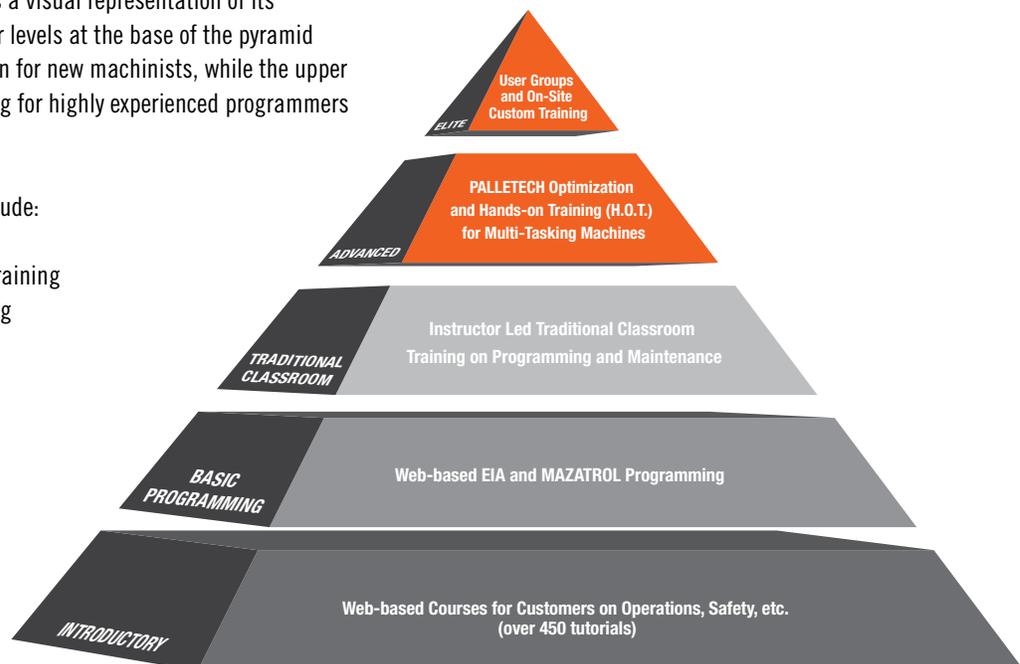
Progressive Learning

[Mazak's Progressive Learning](#) represents a unique, phased approach to education and training for customers, combining hands-on training, web-based instruction and real-world examples. The program's tiers of offerings — Pyramid of Learning — range from self-paced coursework to highly advanced classes. Every Mazak machine includes three years of programming training at no charge to customers.

[Mazak's Pyramid of Learning](#) is a visual representation of its approach to training. The lower levels at the base of the pyramid represent basic skills education for new machinists, while the upper levels signify advanced training for highly experienced programmers and operators.

Pyramid of Learning levels include:

- Simple online training
- Introductory programming training
- Traditional hands-on training
- Advanced training
- Customized training



TOP 10 ADVANTAGES OF THE HC SERIES

HC Series machines feature several new and innovative technologies to help job shops boost speed, performance and precision in a wide variety of metalworking applications. The series brings advanced technology, value and productivity to part-processing operations.

1. **Full fourth-axis** as standard.
2. **Extremely rigid bases and columns** built for stability and vibration dampening.
3. **Robust high-performance spindles** offered in various maximum speeds.
4. **1G axis acceleration** provides high speed machining and superior accuracy.
5. **Automatic tool changer and large 84-tool drum-style magazines** provide twice the storage capacity as standard.
6. **Standard two-pallet changer** further boosts machine utilization.
7. **Mazak MX Hybrid Roller Guide System** delivers durability, reliability and long-term accuracy.
8. **Mazak MAZATROL SmoothG CNC** offers fast and easy EIA/ISO and conversational programming.
9. **Simple and efficient chip management** helps reduce downtime.
10. **Space-saving innovative small machine footprint and easy-to-access maintenance panels.**



HIGH ACCURACY

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

To further ensure the highest precision possible over extended hours of operation, Active Vibration Control and Thermal Shield 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 units to generate the least amount of heat possible during operation to minimize displacement. But when ambient shop temperatures fluctuate, the Thermal Shield function automatically compensates via exhaust ducts that channel generated heat out and away from the machine and any machines adjacent to it.

MAZAK iSMART FACTORY

The Mazak iSMART Factory encompasses the complete digital integration of the factory with state-of-the-art manufacturing 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.



MACHINE DESIGN

The HC Series combines high quality, innovation and extreme cost-effectiveness without sacrificing machine performance, and because Mazak engineers and builds the series in Kentucky, the company can ensure the shortest delivery time possible. The Mazak factory uses a Production-On-Demand approach for extreme manufacturing agility to quickly react to current market trends, which means machines coming off the line all incorporate the latest, most innovative technology.

MACHINE CONFIGURATIONS

HC Series machines are 4-axis horizontal machining centers with traveling columns and full fourth-axis NC rotary tables as standard. While smaller in size, the machines accommodate large and heavy workpieces as well as offer, as standard, built-in two-pallet changing capability.

BASE AND COLUMN

New reinforced cast-iron bases and columns ensure high-rigidity and thermal control as well as ample part capacity.

Because smaller-size machines are more likely to be moved around a shop, Mazak equips the HC Series machine bases with its highly effective **3-point support systems**. The system simplifies foundation preparation for faster machine installations and easier machine-leveling adjustments.

FULL FOURTH-AXIS ROTARY TABLES

The HC Series rotary tables deliver speed and precision that help shorten part cycle times, while high-accuracy encoders ensure exceptional repeatability.



HC-5000

SERVO DRIVE SYSTEM

HC Series machines use the latest servo drive system with 1G axis acceleration for high machining speeds and superior accuracy. A ballscrew core cooling system ensures stable machining accuracy over extended periods for high-speed operation.

ROLLER GUIDE SYSTEM

The Mazak MX Hybrid Roller Guide System featured on HC Series machines allows for faster speeds and boosts accuracy, leading to a comprehensive improvement 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 of load points via an X-design that allows load to be applied to 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 contamination in machine coolant system

SENSORS

Advanced sensor technology incorporated into HC Series machines allows for optimum stability and condition control. Sensors monitor heat and vibration along with other machine functions to ensure consistent high-precision machining over extended hours of operation.

EASE OF MAINTENANCE

The single maintenance panel for oil and air units on HC Series machines is easy to access, and cables are easy to identify by color, which reduces time required for maintenance.

EFFICIENT CHIP MANAGEMENT

Chip conveyor systems on HC 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 the footprints of the machines.



PALLETS AND TWO-PALLET CHANGERS

Built-in, standalone rotary-style two-pallet changers on HC Series machines increase spindle utilization and allow for continuous uninterrupted production. As a form of simple and efficient automation, the turntable 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.

Number of pallets: 2

Changing system: rotary

Change time: 7 sec (HC-4000), 8 sec (HC-5000)

TAPER CONE PALLET CLAMPING SYSTEM

Four fixed taper cones on HC Series machine pallets clamp with more force and strength than do existing center-clamping systems. With each taper cone clamping with 4,114 ft-lb (18.3 kN) of force, the system delivers overall pallet holding power of 16,456 ft-lb (73.2 kN). This stronger holding force allows for a higher Z-axis allowable thrust height of 19.68" (500 mm) as well as an increased allowable thrust level of 8,487 ft-lb (11.5 kN) at the maximum height for aggressive machining of bigger parts.

For efficient and interference-free operation, HC Series machines accommodate, as optional, overhead hydraulic systems. Up to six ports can supply either hydraulics or pneumatics from the top of machine pallet changers to the upper ends of fixtures.



SPINDLE POWER AND SPEEDS

HC Series available machine spindles range from standard to high-speed versions, all of which feature hybrid ceramic ball bearings and cooling jackets for precision performance and long life. With such a wide offering, spindle speed and power are matched perfectly to intended part applications, whether machining aluminum, cast iron or nickel-based alloys.

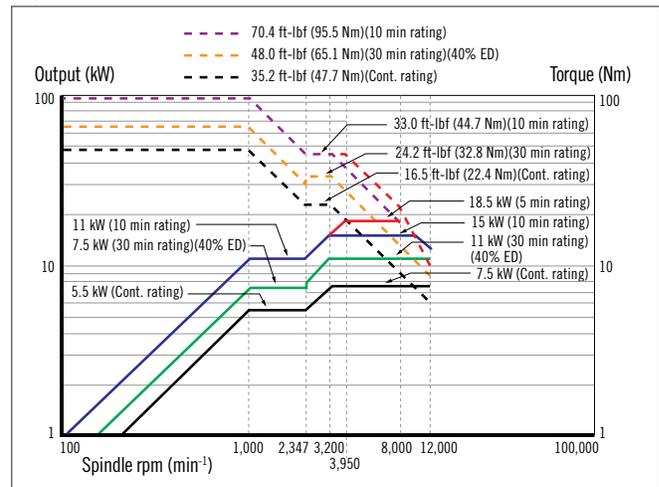
- 12,000 rpm/40 taper or BigPlus 40 (standard)
- 15,000 rpm/40 taper or BigPlus 40 (optional)
- 20,000 rpm/40 taper or BigPlus 40 (optional)

AUTOMATIC TOOL CHANGING AND STORAGE

With double the capacity, HC Series machine tool magazines — as standard — accommodate 84 tools. The rotary drum-type storage system features Mazak's innovative space-saving double pocket design where each tool position actually has two tool pockets situated at 60 degree angles from one another. This allows HC Series machines to store twice the amount of tooling within the same space as 42-tool magazine for extended periods of unmanned operation.

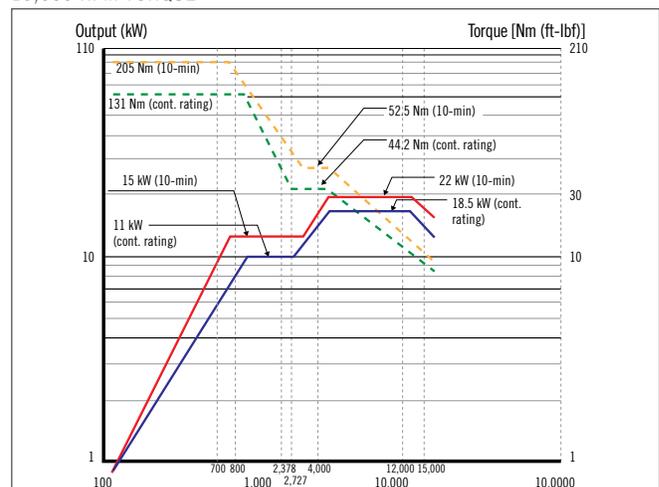
The **high-speed automatic toolchangers (ATCs)** work in tandem with the double-pocket tool magazines, and because the changer always takes the quickest route to the next needed tool position, tool changes are extremely fast and help reduce non-cut times. With cam-driven technology, the changing system delivers strong, dependable and consistent performance.

12,000 RPM TORQUE



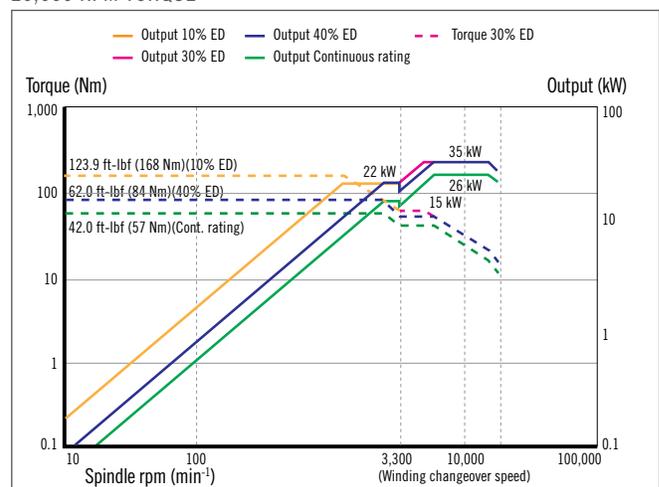
(FOR REFERENCE ONLY)

15,000 RPM TORQUE



(FOR REFERENCE ONLY)

20,000 RPM TORQUE



(FOR REFERENCE ONLY)

FAST, EASY AND EFFICIENT PROGRAMMING

The continuously innovative Mazak MAZATROL SMOOTH CNC controls make programming HC 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 STANDARD

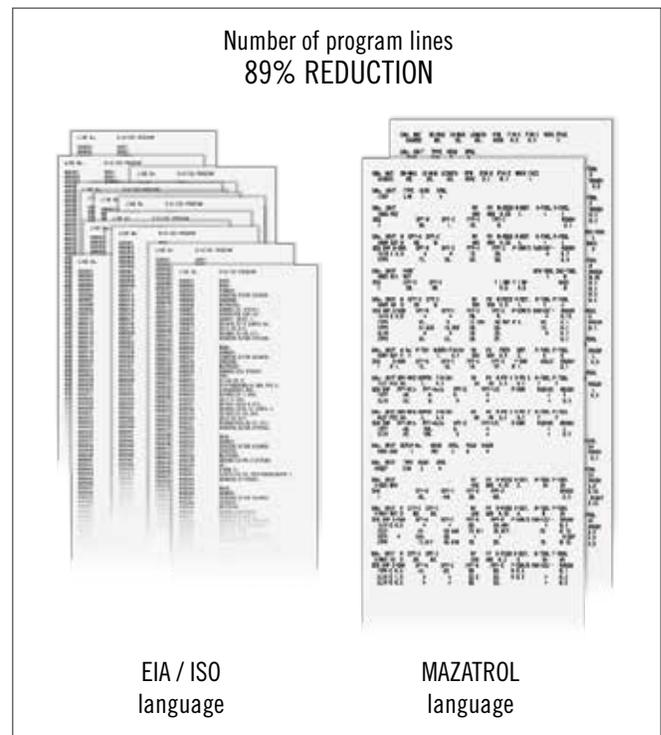
MAZATROL G-codes are the same as those used in conventional EIA CNC machines. This allows HC Series machine users to run programs made for other machine brands by simply editing M codes and confirming axis strokes along with cutting conditions.

CONVERSATIONAL PROGRAMMING

The industry standard MAZATROL conversational programming makes it possible for inexperienced operators to quickly and easily develop machining programs for HC Series machines. Operators answer conversationally displayed questions concerning the intended workpiece. These queries include type of material, OD/ID dimensions, part lengths and several others. Then, according to the input data, the MAZATROL control automatically calculates intersection coordinates and tool index positioning in addition to optimized cutting conditions and machining processes.



SMOOTHG CONTROL SCREEN

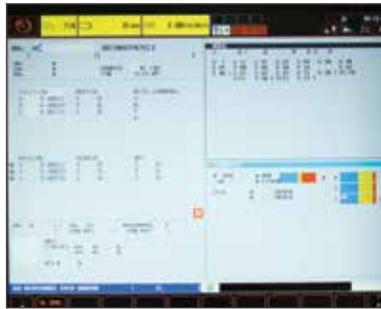


PROCESS HOME SCREENS

Innovative touch operation of the MAZATROL SmoothG control streamlines data entry and minimizes the number of displays to reduce programming times for HC Series machines. Five different home process screens each display their appropriate data in an easy to understand manner. Operators can touch icons to quickly navigate to additional screen displays.

Process home screens include:

- Programming
- Tool data
- Setup
- Machining
- Maintenance



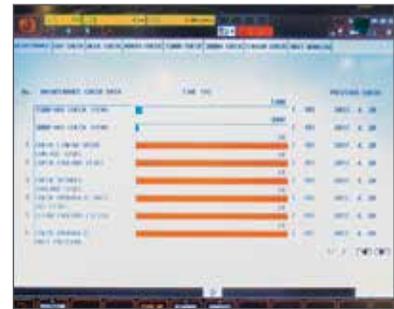
SMOOTHG PROGRAMMING SCREEN



SMOOTHG TOOL DATA SCREEN



SMOOTHG MACHINING SCREEN



SMOOTHG MAINTENANCE SCREEN

MAZATROL SmoothG CONTROL

The [MAZATROL SmoothG CNC](#) optimizes programming and makes it easy to generate programs for processing complex parts through off-centerline machining as well as angled drilling, milling and tapping. 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.

Features and functions of the MAZATROL SmoothG control include:

- **Virtual Machining** allows operators to perfect part programs prior to initiating cutting
- **High Gain Feed Forward Control** boosts machining speed and accuracy
- **Fast Rotary Axis Speeds** optimize gear skiving and rotary axis threading
- **Variable Acceleration Control** calculates optimal acceleration for a combination of axes
- **Position-Controlled Hobbing** provides fast, convenient hobbing and skiving operations
- **Real Time Tuning** ensures optimal machining balance as workpiece weight changes
- **Quick MAZATROL** makes it possible to directly import 3D CAD models into the control and automatically extract coordinates from it to simply machine programming
- **Quick EIA** plots toolpaths prior to running programs and checks for any interferences in those paths



MAZATROL SmoothG SPECIFICATIONS

	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, Cylindrical coordinate interpolation, Polar coordinate 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), Cutting feed (per revolution), Dwell (specified time, specified number of rotation), Rapid traverse override, Cutting feed override, G0 speed variable control, Feedrate clamp, Variable acceleration/deceleration control, Constant control for G0 tilting*	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, Feedrate clamp, Time constant changing for G1, Variable acceleration/deceleration control, Constant control for G0 tilting*
Program registration	Max. number of programs: 960, Program storage: 2 MB, Program storage expansion: 8 MB*, Program storage expansion: 32 MB*	
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)	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	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 wear offset	
Coordinate system	Machine coordinate system, Work coordinate system, Local coordinate system, Additional work coordinates (300 set)	
Machine functions	—	Hobbing*, Shaping function*, Dynamic compensation II*
Machine compensation	G0/G1 independent backlash compensation, Pitch error compensation, Volumetric compensation*	
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*
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*	
Card interface	SD card interface, USB	
EtherNet	10 M / 100 M / 1 G bps	

* Option

OPTIONAL EQUIPMENT

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

- **High-pressure coolant** maximizes chip evacuation and contributes to longer cutting tool life
- **SUPERFLOW® coolant** allows for increased cutting speeds, extends tool life and makes for efficient chip evacuation
- **Mist collector** helps reduce maintenance costs and ensures a clean, safe work environment
- **Automatic tool length measurement and tool breakage detection** allows for fast, non-contact tool setting and tool breakage detection to significantly reduce overall part set-up time
- **Mazak monitoring system B (OMP-60)** touch sensor tool mounted in machine spindle to automatically align workpieces via shifting coordinate values
- **Chip conveyor** designs for a wide variety of chip shapes and material types such as aluminum, steel and cast iron
- **Work air blast** removes sticking chips from chuck and workpiece



CHIP CONVEYOR



MIST COLLECTOR



SUPERFLOW T8/1000

MAZAK AUTOMATION SYSTEMS

Mazak automation further increases the productivity, throughput and part quality of HC Series machines. Standard and customized [Mazak automation solutions](#) paired with extensive and ongoing support ensure the best fit for individual production needs and that output goals are achieved.



STANDARD AUTOMATION



TWO-PALLET CHANGER

STANDARD TWO-PALLET CHANGERS

Standard two-pallet changers enhance productivity by allowing part loading and unloading while the machine continues to work uninterrupted.

ENGINEERED SOLUTIONS



ARTICULATED ROBOT

ARTICULATED ROBOTS

[Articulated robots](#) automate part transfers and peripheral operations. They also eliminate the challenges associated with handling large, heavy or cumbersome parts. Robot configurations range from two jointed to seven jointed to meet the needs of various applications.

MAZAK DIGITAL SOLUTIONS

For the HC Series and all its machines, Mazak offers digital solutions for fully integrated, data-driven smart manufacturing. These progressive solutions include [SMOOTH TECHNOLOGY](#), [MTConnect®](#), [Mazak SMOOTH Link](#) and the [Mazak SmartBox](#).

SMOOTH TECHNOLOGY

Spanning the entire part-production landscape, Mazak's SMOOTH TECHNOLOGY platform significantly boosts productivity at every stage of the metal cutting process — from programming and setup to actual metal removal operations to automation to monitoring/ data collection and transfer.

Features and benefits of SMOOTH TECHNOLOGY:

- All-encompassing continuously evolving process-performance technology platform
- Combines advanced capabilities of machine tools and leading-edge CNC processing and software technologies
- Makes machine tools easy to use
- Boosts machining speed and performance accuracy

MTCONNECT

As an open-source, royalty-free manufacturing protocol, MTConnect easily connects devices and systems from different suppliers to capture and share information in a common format such as XML. It then gives manufacturers the means to gather valuable data from machines and automated systems for use in process improvement and increased equipment utilization.

With MTConnect, manufacturers can:

- Gain real-time data sharing throughout a manufacturing facility
- Calculate overall equipment efficiency
- Monitor all equipment from one system
- Reduce production losses
- Identify lean manufacturing strategies

Mazak builds all its machines, including those in the HC Series, to be MTConnect compliant and offers affordable adapters for existing Mazak machines in the field.



MAZAK SMOOTH LINK

Perfect for both large and small shops, Mazak SMOOTH Link makes it possible to sync machine tools with mobile devices to monitor and manage status at any time from a smartphone, tablet or laptop computer. This digital tool captures real-time information from the control and securely transfers the information to a mobile device via Wi-Fi.

Features and benefits of Mazak SMOOTH Link:

- Machine monitoring gives instant operational status of a machine and the workpiece in production
- Displays tool layouts and data of each tool changer pocket/position for effective tool management
- Programming application screen quickly shows all saved EIA programs and machine's remaining storage capacity
- Simple to set up and does not require Internet access, a server PC or server license



Mazak SMOOTH Link

MAZAK SMARTBOX

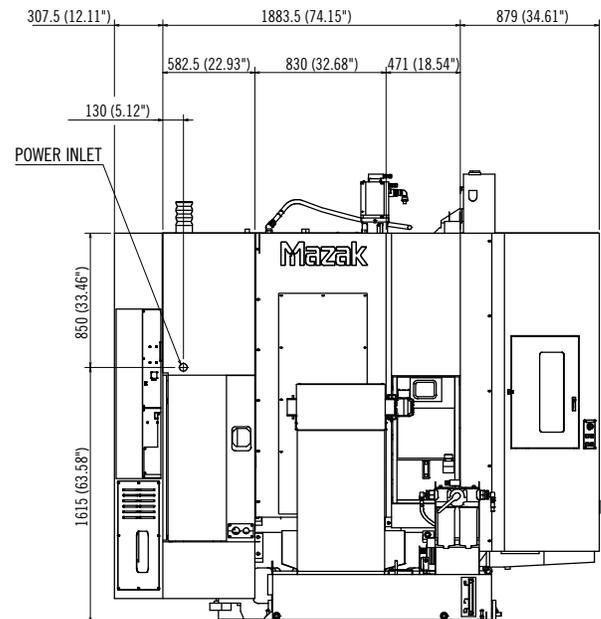
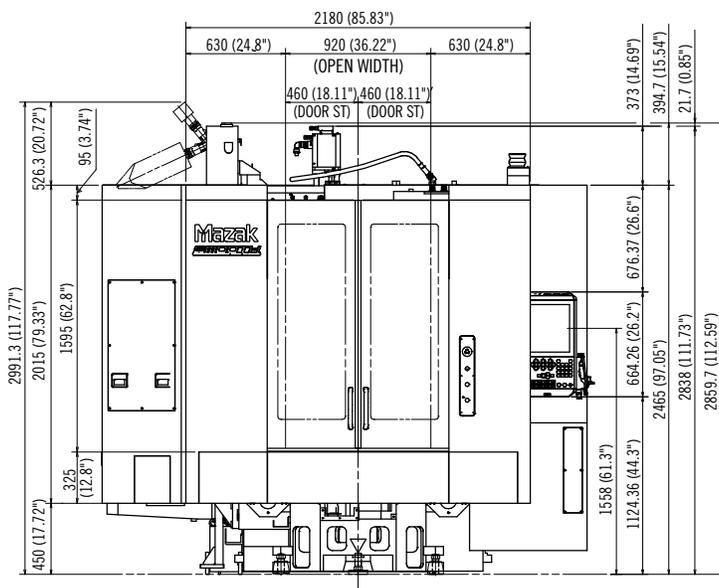
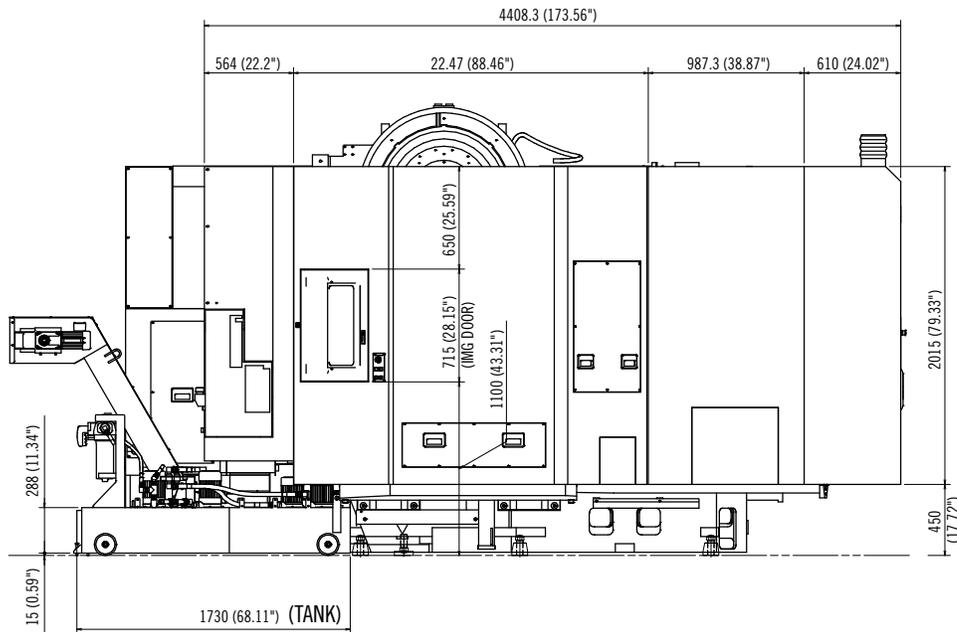
Secure the “big data” that comes from connecting machines to the Industrial Internet of Things (IIoT). Mazak SmartBox is a launch platform for easy and highly secure entrance into the IIoT. As a scalable, end-to-end solution, SmartBox connects manufacturing equipment, including machines, software and other devices, to a factory's network and allows the free flow of information to management systems via MTConnect.

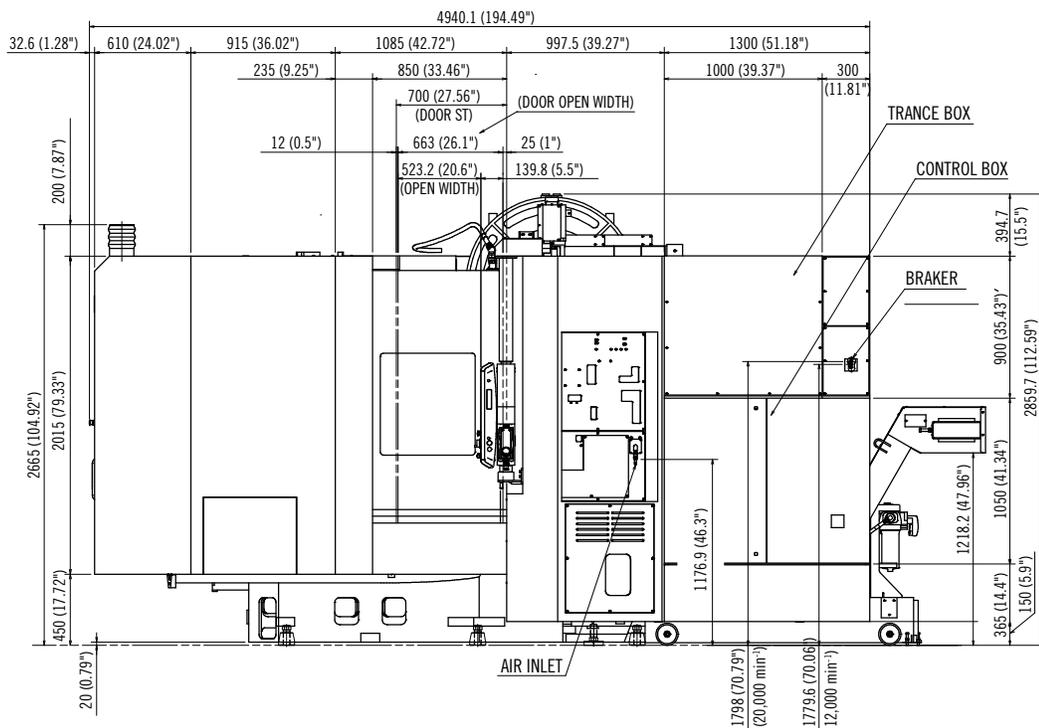
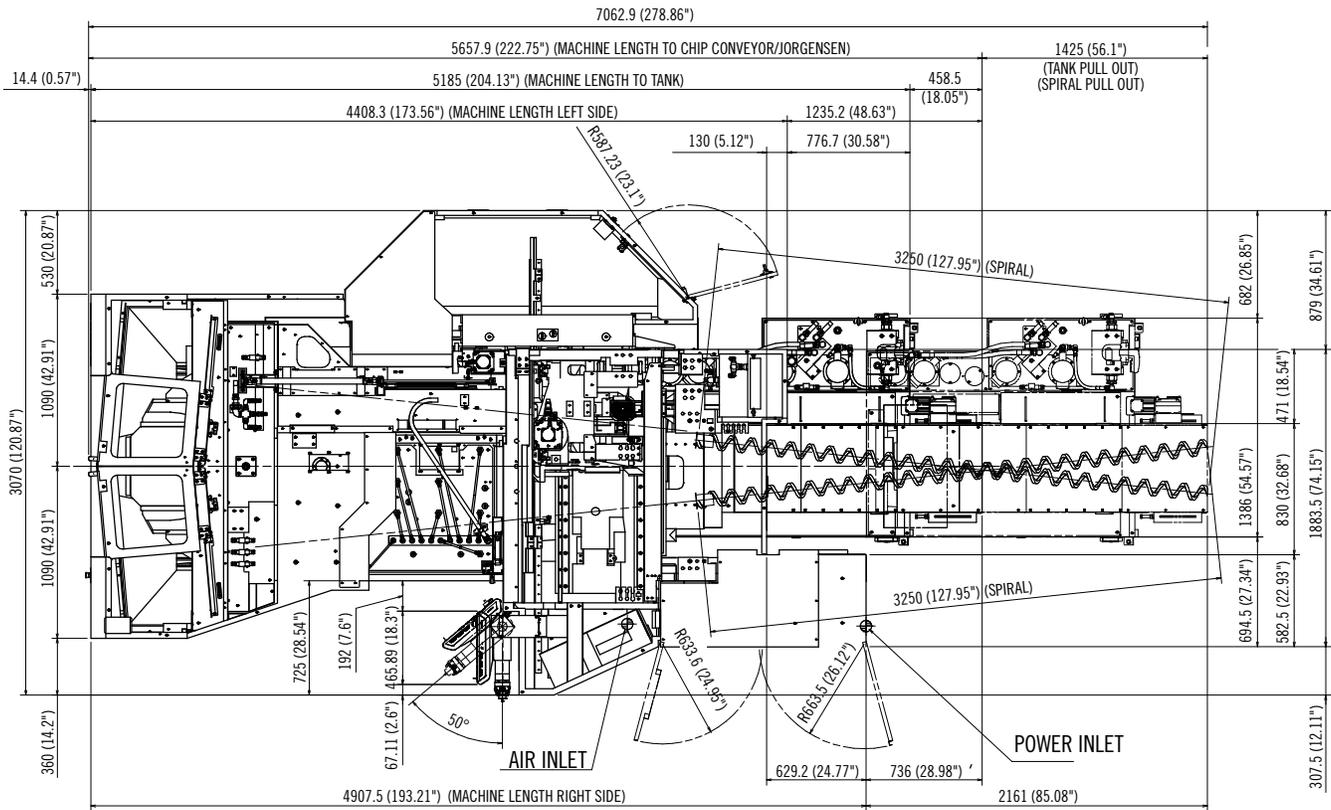
Features and benefits of Mazak SmartBox:

- Advanced cyber security protection gives IT departments confidence to digitally integrate manufacturing operations
- Completely open architecture and works with all popular third-party analytical software platforms
- Monitor any machine regardless of make, model or age



EXTERNAL DIMENSIONS – HC-4000/HC-5000 (FOR REFERENCE ONLY)





MACHINE SPECIFICATIONS – HC SERIES

				HC-4000	HC-5000
Travel	X-axis column right/left	X axis	in (mm)	22.05 (560)	28.74 (730)
	Y-axis spindle up/down	Y axis	in (mm)	25.20 (640)	28.74 (730)
	Z-axis table back/forth	Z axis	in (mm)	25.20 (640)	31.50 (800)
	Distance between table top to spindle nose		in (mm)	2.76–27.95 (70–710)	2.76–34.25 (70–870)
	Distance between pallet to spindle center		in (mm)	3.54–28.74 (90–730)	3.94–32.68 (100–830)
Table	Table size		in (mm)	15.75 x 15.75 (400 x 400)	19.69 x 19.69 (500 x 500)
	Max. workpiece dimensions		in (mm)	∅24.8 x 35.43 (∅630 x 900)	∅31.5 x 39.37 (∅800 x 1,000)
	Pallet load (evenly loaded)		lb (kg)	881.85 (400)	1,102.31 (500)
	Pallet top surface			5/8–11 UNC tapped holes 25 places 3.15" (80 mm) pitch	5/8–11 UNC tapped holes 25 places 3.94" (100 mm) pitch
	Minimum indexing angle increment		deg	0.0001°	0.0001°
	Indexing time		sec	1.0 s/90°, 1.3 s/180°	1.2 s/90°, 1.5 s/180°
Spindle	Spindle speed		min ⁻¹	40 to 12,000	40 to 12,000
	Spindle speed range			2 speeds (electric)	2 speeds (electric)
	Spindle taper			#40	#40
	I.D. of spindle bearing		in (mm)	2.76 (70)	2.76 (70)
Feed rate	Rapid traverse rate (X, Y, Z axes)		ipm (m/min)	2,362.20 (60,000)	2,362.20 (60,000)
	Cutting feed rate (X, Y, and Z axes)		ipm (m/min)	0.04 ~ 2,362 (1 ~ 60,000)	0.04 ~ 2,362 (1 ~ 60,000)
	Axis acceleration/deceleration			1.0 G	1.0 G
Automatic tool changer	Tool shank			#40	#40
	Tool storage capacity			84	84
	Max. tool diameter/ length (from gauge line)/weight			∅3.74"/16.54"/26 lbs (∅95 mm/420 mm/12 kg) [max. moment: 4.35 ft-lbs (5.9 Nm)]	∅3.74"/16.54"/26 lbs (∅95 mm/420 mm/12 kg) [max. moment: 4.35 ft-lbs (5.9 Nm)]
	Max. tool diameter with adjacent pockets empty		in (mm)	∅6.69" (∅170 mm)	∅6.69" (∅170 mm)
	Tool selection method			Random selection/shortest path	Random selection/shortest path
Automatic pallet changer	Number of pallets			2	2
	Changing system			Rotary	Rotary
	Pallet change time		sec	7	8
Motors	Spindle motor (40% ED (30 min. rating)/ cont. rating)		hp (kW)	14/10 (11/7.5)	14/10 (11/7.5)
	Flood coolant pump motor		Hz (W)	50/60 (730/1,210)	50/60 (730/1,210)
Power requirement	Electrical power supply (cont./40% ED)			23.7/28.8 kVA @ 50/60 Hz	23.7/28.8 kVA @ 50/60 Hz
	Air supply			0.5 ~ 0.9 MPa (70 ~ 130 PSI)/ 80 L/min (2.82 ft ³ /min)	0.5 ~ 0.9 MPa (70 ~ 130 PSI)/ 80 L/min (2.82 ft ³ /min)
Machine size	Machine height		in (mm)	112.56 (2,859)	112.56 (2,859)
	Floor space requirement		in (mm)	120.87 x 193.23 (3,070 x 4,908)	120.87 x 193.23 (3,070 x 4,908)
	Machine weight		lbs (kg)	26,565 (12,050)	26,675 (12,100)

STANDARD AND OPTIONAL EQUIPMENT		HC-4000	HC-5000
Spindle	12,000 rpm #40	Standard	Standard
	12,000 rpm BBT-40	Optional	Optional
	15,000 rpm #40/BBT-40	Optional	Optional
	20,000 rpm #40/BBT-40	Optional	Optional
Pallet changer	2PC	Standard	Standard
Set up	Automatic tool length measurement & tool breakage detection	Optional	Optional
	Mazak monitoring system B (OMP60)	Optional	Optional
	Manual pulse generator	Optional	Optional
Coolant chip disposal	Flood coolant	Standard	Standard
	Cover coolant	Standard	Standard
	Coolant through spindle with flood 71 psi	Optional	Optional
	High-press coolant thru spindle with flood 213 psi	Optional	Optional
	Hand held coolant nozzle (for workpiece washing on pallet changer)	Optional	Optional
	Oil skimmer (RB-200)	Optional	Optional
	Magnetic separator for cast iron	Optional	Optional
High accuracy	Ball screw core cooling (X, Y, Z axes)	Standard	Standard
	Chiller unit	Standard	Standard
	Hydraulic unit temperature control	Optional	Optional
	Coolant temperature control	Optional	Optional
	Scale feedback (X, Y, Z axes)	Optional	Optional

SPINDLE AND UNIT REBUILD

Spindle rebuild

[Mazak's spindle exchange and rebuild program](#) provides the option to purchase a brand new spindle, have an existing spindle repaired or acquire a Mazak rebuilt spindle.

Benefits of Mazak's spindle and unit rebuild service include:

- More than 900 different spindle variations for all types of turning centers, vertical and horizontal machining centers as well as Multi-Tasking machines.
- Over 300 available rebuilt spindles for a cost-effective spindle solution delivered in as little as two or three days.
- Spindle repairs are processed in a clean room environment and overseen by quality control teams with ISO: 9001:2008 certification.
- Spindle repairs/rebuilds occur within five days of receipt and include 12 hours of test stand runoff.
- A seven-month parts and labor warranty on rebuilt spindles with Mazak installation.
- Free technical support regarding replacement options and processes.



SPINDLE REPAIR



BEFORE



AFTER

FINANCING AND RESOURCES

MAZAK CREDIT GROUP

As a wholly owned subsidiary of Mazak Corporation, MCC Credit Group is the preferred one-stop choice for manufacturers throughout the United States and Canada who want fast, hassle-free, low-cost financing on an HC Series machine or any other piece of Mazak equipment. With a complete knowledge of Mazak's product portfolio, MCC Credit Group provides factory terms that can work to customer advantages. Plus, its direct access to machine specifications, delivery schedules and installation dates eliminates any additional paperwork or a delay in the approval or shipment process.

Advantages of working with MCC Credit Group:

- Approval of up to \$350,000 with a simple online credit application (subject to credit approval)
- Quick turnarounds on highly competitive leases and loans with no blanket liens
- Waive security deposits
- Apply machine deposits directly toward advanced rents, fees or monthly rental payments
- Offer three to five years financing on all Mazak equipment
- Preserve bank credit lines for working capital and your company's growth
- Structure true leases for off-balance sheet accounting treatment and maximum cash flow



[Click here for more information on financing options.](#)

NORTH AMERICAN SERVICE RESOURCES

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Assistant North American Service Manager

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North American Parts Manager

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AFTER HOURS SERVICE: 800-231-1456

AFTER HOURS PART SUPPORT:

[Click here to register for after hours parts support.](#)

MAZAK TECHNOLOGY + TECHNICAL CENTERS

MAZAK TECHNOLOGY AND TECHNICAL CENTERS

As a key component of Mazak's comprehensive customer support, its network of eight Technology Centers and a Technical Center strategically located across North America put component machining demonstrations, experienced applications engineers and training in close proximity to customers. These centers also provide a channel for customer input to Mazak manufacturing for the development of new machine tool technology.

Technology and Technical Centers offer advanced application support, education and training, new technology and manufacturing systems along with on-site training and technology seminars.

[Click here for more information on Mazak Technology Centers.](#)

Advanced application support

- Expert applications engineers help customers optimize part-production processes and create effective manufacturing solutions
- Mazak-certified cutting tool, workholding and automation partners collaborate to develop optimized turnkey manufacturing solutions
- Test cuts of customer parts run on the latest, most advanced machine tools
- Secure applications development and complete design privacy of each customer's individual manufacturing system

Education and training

- Education, training and seminar events in cooperation with Mazak technology partners
- Free access to the most advanced machine tools
- Industry-focused education



New technology and manufacturing systems

- The latest, most advanced manufacturing systems that can optimize the processing of industry-specific components
- Productivity experts help customers select the best new machine tool technology for their particular businesses

On-Site Training and Technology Seminars

- Hands-on applications and operator development courses
- Technical seminars held in conjunction with our Value Inspired Partners (VIPs)
- Regularly scheduled market-focused events that provide valuable industry insight



NATIONAL TECHNOLOGY CENTER

8025 Production Drive
 Florence, Kentucky 41042
 (800) 331-9151



MIDWEST TECHNOLOGY CENTER

300 East Commerce Drive
 Schaumburg, Illinois 60173
 (847) 885-8311



SOUTHWEST TECHNOLOGY CENTER

10950 Greenbend Blvd.
 Houston, Texas 77067
 (281) 931-7770



SOUTHEAST TECHNOLOGY CENTER

1075 Northbrook Parkway
 Suwanee, Georgia 30024
 (678) 985-4800



WESTERN TECHNOLOGY CENTER

1333 West 190th Street
 Gardena, California 90248
 (310) 327-7172



NORTHEAST TECHNOLOGY CENTER

700 Old County Circle
 Windsor Locks, Connecticut 06096
 (860) 292-4400



DALLAS TECHNICAL CENTER

935 South Kimball, Suite 151,
 Southlake, Texas 76092
 (817) 329-6290



CANADA TECHNOLOGY CENTRE

50 Commerce Court
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[Click here for more information on Mazak Technology Centers.](#)

Mazak

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HC SERIES