

The background of the entire page is a grayscale image of a microchip mounted on a printed circuit board (PCB). The chip is a square component with a grid of small circular solder pads on its surface. The PCB is covered with a complex network of white conductive traces and circular vias. The image is slightly blurred, giving it a high-tech, futuristic feel. The text is overlaid on this background.

**ADVANCED MANUFACTURING
SOLUTIONS FOR**

HIGH-TECH INDUSTRIES

Mazak

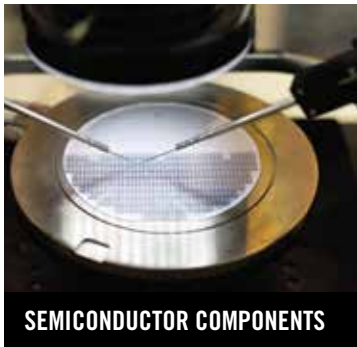


The High-Tech Future Has Arrived.

NOW BUILD IT.

“High-tech” is a constantly moving target. Whether it’s semiconductor component manufacturers, consumer electronic companies or the creators of the latest unmanned aerial vehicles (UAVs) and spacecraft, the production of state-of-the-art technologies that enable our modern lives requires that we keep up with the breakneck pace of technical innovation. This is why so many manufacturers throughout these industries rely on Mazak.

Our technologically-advanced machining solutions, as well as comprehensive process engineering and application support services, ensure that you have a partner you can rely on when it comes to meeting your needs in a high-velocity business environment. With Mazak, you can be sure you’ll stay under budget and ahead of schedule despite the increasing costs of working in some of the most competitive markets and locations in the world.



SEMICONDUCTOR COMPONENTS



CONSUMER ELECTRONICS



UAVS



SPACECRAFT

INNOVATIVE Manufacturing Solutions

We've been working with companies across the broad high-tech sector for decades, making a Mazak machine the perfect choice regardless of whether you're building a smartphone case or a UAV frame. Our machines have the features and capabilities you need to create the products of tomorrow, including:

- Multi-Tasking and HYBRID Multi-Tasking machines that offer the unsurpassed flexibility, accuracy and efficiency of our **DONE IN ONE®** and multi-process production
- Full 5-axis machining solutions with high-speed, high-horsepower spindles for the toughest materials and highest precision
- **Automation solutions** ranging from gantry loader robots and two-pallet changers to full Multi-Pallet Pool and **PALLETECH** systems for continuous unattended machining
- Advanced CNC controls and CAM software that provide fast processing times and easy integration into larger production cells



ADVANCED Applications Support

With eight regional Technology Centers and a Technical Center, as well as a worldwide network of machine service technicians and same-day shipping for 97% of spare parts, we have truly comprehensive support services.

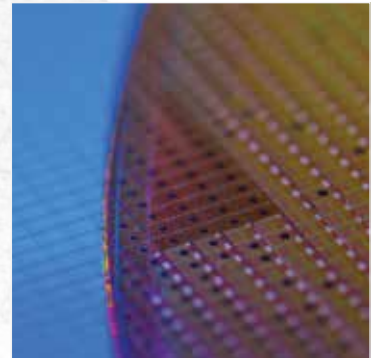
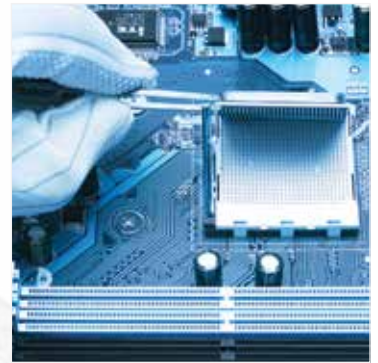
- Technology Centers strategically placed to meet the needs of customers across North America, including the Silicon Valley Technical Center in Milpitas, California
- Unparalleled CAM technology expertise that we draw upon to help customers design fully optimized Multi-Tasking and 5-axis programs
- Three to five-day turnaround for spindle and unit rebuilds at Mazak's Florence, Kentucky-based Spindle Rebuild Department
- The **Optimum Plus** total support program, which encompasses our single-source support, progressive learning, technical/parts support and other programs to keep your shop running at peak performance

SEMICONDUCTOR

Once a revolutionary material concept, semiconductors are now incredibly common, and their manufacturers depend on the OEMs that produce the components used in their creation. These OEMs depend on Mazak for the machines that can keep up with the high volume of large parts required by the industry.

Parts & Applications

- Medium to large part sizes
- High-throughput production
- Aluminum billets
- Shower heads
- Valves and seals
- Vacuum chambers and components





Machine Recommendations:



VCN Series

Vertical machining centers that bring versatility, high-positioning accuracy and repeatability to high-speed and heavy-torque machining applications.



VARIAXIS i Series

Multi-Tasking machines that deliver full simultaneous 5-axis machining for DONE IN ONE processing of long workpieces and those requiring precision-machined complex curved surfaces.



VTC Series

Vertical machining centers with a full traveling column design and fixed tables for machining extremely long and heavy workpieces. An optional table center partition can divide the envelope into two separate work areas to allow work on one side and loading/unloading on the other.



HCN Series

These world-class horizontal machining centers combine outstanding value with high-performance spindle features that allow for maximum productivity when working with challenging materials. Features wide ranges of pallet sizes and tool storage capacities to ensure continuous machining and extreme versatility.

Machine Recommendations:



INTEGREX i Series

Multi-Tasking machines with full simultaneous 5-axis capabilities and a milling spindle with the same level of power as found in a machining center. Offering fast, reliable and accurate performance, these machines achieve high-speed, high-power milling and heavy-duty facing.



INTEGREX e Series

The perfect fusion of a CNC turning center and a full 5-axis machining center for the DONE IN ONE processing of large parts with complex geometries. These Multi-Tasking machines offer incredible productivity and efficiency gains to those working with these types of components.



VC-300A/5X

A simple but innovative Vertical Machining Center with a 5-axis rotary/tilt table that brings advanced technology and production value to high-precision small parts processing for a variety of industries.



QUICK TURN NEXUS Series

These powerful Multi-Tasking turning centers bring unmatched productivity and reduced cycle times for the production of long, large-diameter shaft-type parts. Machines come in a variety of configurations, including the MSY models for Multi-Tasking operations with an off-centerline Y axis and second spindle.



MEGA TURN Series

Versatile vertical turning centers that excel in heavy-duty cutting of large, tough-to-machine workpieces. With machine configurations that include rotary tool capability, they can combine turning and secondary machining operations to increase accuracy and productivity with Multi-Tasking capability.



VORTEX Series

Vertical machining centers that deliver high productivity through full simultaneous 5-axis machining as well as multiple surface machining capabilities. The series features larger machines for processing big complex workpieces.



MULTIPLEX Series

CNC turning centers that provide Multi-Tasking capability with dual-spindle/dual-turret machine configurations for mid-sized lot production. Both spindles can be used to efficiently machine the front and back sides of parts, including milling, for DONE IN ONE, single-setup production. Both turning spindles are identical in performance and can also be used to simultaneously cut two parts at one time. Their synchronized rotation delivers high-accuracy for operations like shaft work.



VTC-800 FSW

A HYBRID Multi-Tasking vertical traveling column machine featuring friction stir welding (FSW), a perfect technique for chamber component processing that uses low frictional heat and precise forging pressure to produce virtually defect-free full-penetration welded joints. The machine is available with an optional table center partition for additional part-processing flexibility.

CONSUMER ELECTRONICS

A sector that encompasses a huge variety of products we use every day, consumer electronics require high-precision, high-accuracy machining as well as the ability to quickly shift to new products and processes.

Parts & Applications:

- Small and intricate parts with flawless surface finishes
- Prototypes and new product development runs
- Aluminum billets and ceramics
- Components for smartphones, computers, tablets, flat panel displays
- Batteries for electronic devices, hybrid and all-electric vehicles
- Micrometer-level precision molds



Machine Recommendations:



VTC Series

Vertical machining centers with a full traveling-column design and fixed tables for machining extremely long and heavy workpieces. An optional table partition can divide the envelope into two separate work areas to allow work on one side and loading/unloading on the other.



VARIAXIS i Series

Multi-Tasking machines that deliver full simultaneous 5-axis machining for DONE IN ONE processing of long workpieces and those requiring precision-machined complex curved surfaces.



UD-400/5X

A high-speed, high-accuracy 5-axis machining center that specializes in micro-precision machining. Features a rigid machine base for vibration dampening and heat management systems in its column, spindle and ballscrew core.



INTEGREX i Series

Multi-Tasking machines with full simultaneous 5-axis capabilities and a milling spindle with the same level of power as found in a machining center. Offering fast, reliable and accurate performance, these machines achieve high-speed, high-power milling and heavy-duty facing.



INTEGREX e Series

The perfect fusion of a CNC turning center and a full 5-axis machining center for the DONE IN ONE processing of large parts with complex geometries. These Multi-Tasking machines offer incredible productivity and efficiency gains to those working with these types of components.



VC Series

These highly versatile Vertical Machining Centers bring advanced technology and value to high precision small-parts machining. Available in 3-axis fixed table and 5-axis rotary/tilt table configurations, all VC models share the same space-saving footprint, allowing them to fit into virtually any manufacturing facility.



VC AM Series

The HYBRID VC AM Series combines our most advanced Multi-Tasking technology with additive manufacturing to create highly innovative turnkey solutions. The additive capabilities of these machines allow users to easily generate near-net-shape component features and then quickly complete them via high-precision finish machining operations.

ROCKETS, SATELLITES & UAVS

With the rise of commercial spaceflight, miniaturized satellites and delivery drones, the new race to dominate the upper atmosphere is on. We're here to provide the 5-axis, Multi-Tasking machines capable of producing the incredibly precise parts necessary for these spacecraft and unmanned aerial vehicles at unmatched speeds.

Parts & Applications:

- Prototypes and new development runs
- High-precision, complex components
- Challenging materials
- Drones and UAVs
- Private space programs
- Telecommunications satellites





Machine Recommendations:



VARIAXIS i Series

Multi-Tasking machines that deliver full simultaneous 5-axis machining for DONE IN ONE processing of long workpieces and those requiring precision-machined complex curved surfaces.



INTEGREX i Series

Multi-Tasking machines with full simultaneous 5-axis capabilities and a milling spindle with the same level of power as found in a machining center. Offering fast, reliable and accurate performance, these machines achieve high-speed, high-power milling and heavy-duty facing.

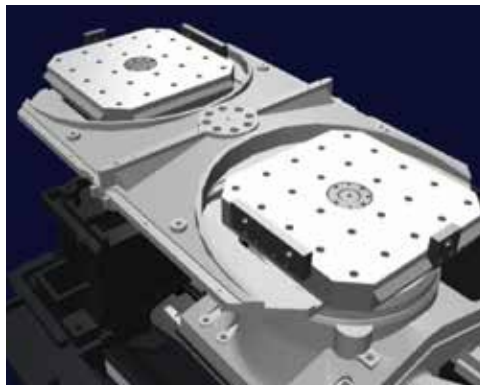
AUTOMATION

Our innovative automation solutions allow you to boost your machine tool utilization and gain a significant competitive advantage. Through our own internal capabilities and strategic partnerships, we can provide you with a standard or custom automation system that offers immediate benefits for increased productivity along with higher levels of consistent part quality.



GANTRY LOADER

Gantry loaders provide fast, high-production loading and unloading. They bring more versatility, flexibility and productivity when managing chuck and shaft work by offering a variety of loading stations and robotic hands. Gantry loader systems are easy to install and operate, providing a quick turnkey system that results in immediate increases in productivity.



TWO-PALLET CHANGER

Two-pallet changers increase the spindle utilization on our horizontal machining centers and Multi-Tasking solutions, allowing for continuous, uninterrupted production. This simple and efficient automation feature 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.



MULTI-PALLET POOL (MPP)

The MPP (Multi-Pallet Pool) System is a compact multiple-pallet stocker system ideal for manufacturers who require basic automation to increase productivity and/or have limited floor space that prevents installation of a system with a linear horizontal pallet stocker. As an expandable system, the MPP offers optimal flexibility by allowing shops to initially incorporate the stocker with a few pallets and grow the system as production needs change.



PALLETECH SYSTEM

Our pre-engineered, modular [PALLETECH System](#) makes fully automated, unattended production possible on a wide range of our horizontal machining centers and Multi-Tasking solutions. Available in single, double and triple-level pallet stocker configurations, the system's modular construction allows it to grow its capabilities as workpiece complexity and job volumes increase. PALLETECH accommodates up to 16 machines, 6 to 240 pallets and as many as 8 loading stations.



CAM SYSTEMS

CAM software, which generates part-machining programs for CNC machine tools, is essential for the quick and accurate processing of parts with complex geometries. However, with the wide variety of CAM software available today, it can be difficult to differentiate between the intricacies of each one as they relate to your application requirements.

At Mazak, we have proficiency in all of the leading CAM systems, which enables us to help you optimize your Multi-Tasking and 5-axis programs no matter what system you are running inside your shop.



OUR EXTENSIVE CAM SOFTWARE EXPERIENCE can assist you in tasks that include:

- Determining the best possible CAM system for your needs
- Programming every machine tool in your shop in a uniform manner
- Reading any type of electronic data and manipulating it for machining efficiency
- Generating efficient tool paths for a variety of complex geometries quickly and easily
- Simulating the machining process in a virtual environment to ensure program accuracy
- Producing clear, easy-to-understand process setup documentation for the shop floor

CONTROLS & SOFTWARE

Whether performing a simple operation or a complex 5-axis Multi-Tasking program, we will exceed your specific part requirements with advanced control technology that perfectly complements our machine tools and systems.

MAZATROL SmoothG CNC

Highly-optimized programming for complex workpiece geometries

- HCN Series
- MEGA TURN Series
- MULTIPLEX Series
- QUICK TURN Series
- VCN Series
- VTC Series

The **MAZATROL SmoothG CNC** simplifies operations when processing parts through off-centerline machining as well as angled drilling, milling and tapping. Advanced hardware, such as a tilting CNC panel and intuitive, multi-touch control screen, allows for complete ease of use, while an SD card stores up to 32GB of program data. Networking software like SMOOTH Link and SMOOTH Monitor enables real-time remote performance monitoring and data collection.

A variety of innovative programming, performance and monitoring functions allow it to provide high-speed, high-accuracy machining. Available SMOOTH TECHNOLOGY solutions range from advanced programming applications like SMOOTH Engraving to powerful measurement and inspection tools like SMOOTH Set & Inspect or SMOOTH Volumetric Compensation.



MAZATROL SmoothX CNC

Revolutionary programming for highly complex workpiece geometries

- INTEGREX **i** Series
- INTEGREX **e** Series
- VORTEX Series
- VARIAXIS **i** Series
- VC AM Series
- VC Series

The fastest, most progressive CNC on the market, the **MAZATROL SmoothX** ensures the shortest possible machining cycle times, especially in fine increment programs for simultaneous 5-axis operations. Advanced hardware such as a tilting CNC panel and intuitive, multi-touch control screen allows for complete ease of use, while an SD card stores up to 32GB of program data. Networking software like SMOOTH Link and SMOOTH Monitor enables real-time remote performance monitoring and data collection.

Innovative software functions include Smooth Corner Control, Variable Acceleration Control and Super High-Speed Mode, all of which bring maximum productivity to highly complex parts production. Available SMOOTH TECHNOLOGY solutions range from advanced programming applications like SMOOTH Engraving to powerful measurement and inspection tools like SMOOTH Set & Inspect or SMOOTH Volumetric Compensation.



UNBEATABLE SERVICE AND SUPPORT

We believe in working closely with each of our customers to increase their productivity, efficiency and equipment utilization and are able to do so through our Technology Centers and Optimum Plus total support program.

Technology and Technical Centers

Our eight Technology Centers and a Technical Center are spread across North America to provide easy access to the latest, most advanced manufacturing systems for optimizing your part-production processes. You can also take advantage of each location's industry expertise, training programs and application resources to achieve improved throughput, shorter production lead times and increased profitability.

Mazak Technology Centers specializing in high-tech applications include:

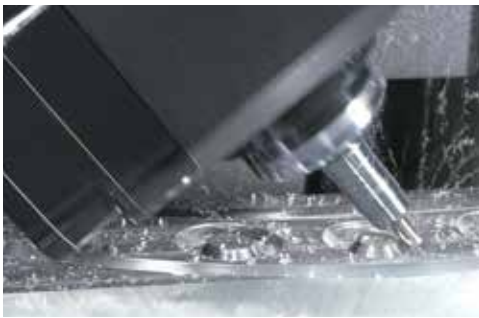
- San Francisco/Silicon Valley Technical Center, Milpitas, CA
- Western Technology Center, Gardena, CA
- Northeast Technology Center, Windsor Locks, CT



Optimum Plus

This total support program represents our company-wide commitment to helping you maximize the value of your Mazak purchase, achieve the best possible competitive advantage and keep your equipment running smoothly at all times.

The program encompasses five distinct areas to ensure complete customer care:



SINGLE-SOURCE SERVICE

We are your single point of contact for any Mazak-related service need, whether it involves a machine, control, accessory or automation solution.



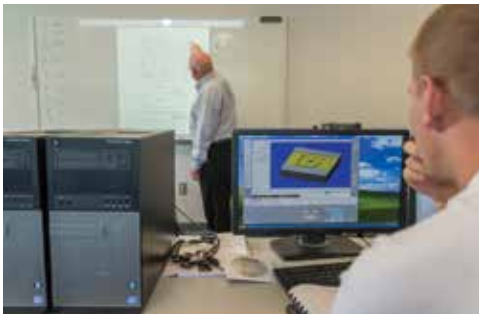
MACHINE & CNC SUPPORT

Every Mazak machine comes with a comprehensive warranty, free technical phone support and software upgrades for the entire life of the product.



SPINDLE & UNIT REBUILD

With a capacity of up to 100 spindles per month, our industry-leading exchange and rebuild program offers new and remanufactured spindles, index tables, ATC shifters and milling turrets for 24-hour shipment. All rebuilt spindles receive a 1-year or 4,000-hour warranty with Mazak-certified installation.



PROGRESSIVE LEARNING

We partner with our customers to train them to achieve the highest levels of productivity and profitability.



PARTS SUPPORT

We have the industry's largest inventory of spare parts, ensuring 97% same-day shipping on part orders. [Click here to register for after hours parts support.](#)

GLOBAL SUPPORT NETWORK

MAZAK PROVIDES TOTAL BEFORE AND AFTER SALES AND SUPPORT

FAST SPARE PARTS DELIVERY

To consistently achieve high machine uptime and maximum performance, it is imperative that spare parts are available as quickly as possible when they are needed. The World Parts Center is designed to supply spare parts worldwide 24 hours a day, 365 days a year and works closely with our regional parts centers all over the world to ensure that they are properly stocked to support the installed base of machines in each region.



TECHNOLOGY AND TECHNICAL CENTERS

Yamazaki Mazak has established more than 38 Technology Centers and 40 Technical Centers in more than 20 countries. In addition to providing machine demonstrations and introductions to advanced technology and concepts, our Technology and Technical Centers have been established to provide opportunities for our customers to learn how to improve productivity with their machine tools after they have been purchased and installed.

The Technology and Technical Centers are the local bases for our team of highly skilled service engineers that provide support to customers wherever their manufacturing facilities are located.



WORLDWIDE R&D CENTERS

Yamazaki Mazak has established strong R&D Centers in all of its manufacturing plants so that product development can consistently reflect local customer requirements as quickly as possible.



MAZAK GLOBAL SUPPORT NETWORK

The worldwide production base and the worldwide network of Technology Centers and Technical Centers provides technical support for higher productivity and timely service.



EUROPE
Yamazaki Mazak U.K. Ltd.



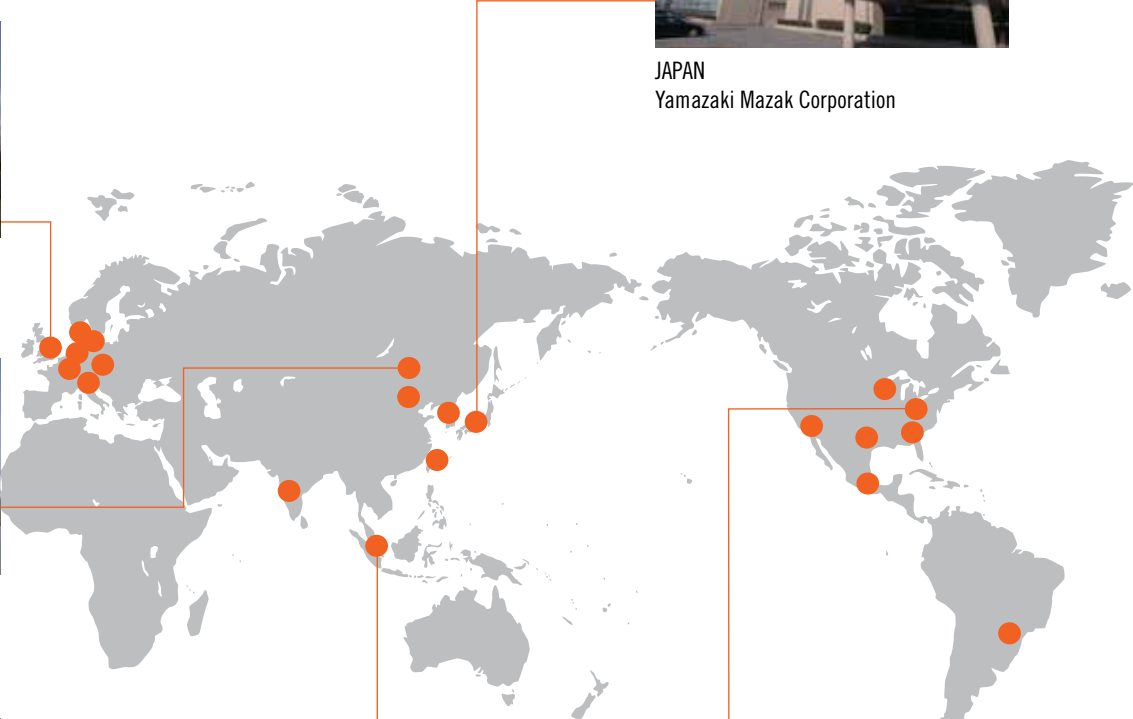
CHINA
Ningxia Little Giant Machine Tool Co., Ltd.



SOUTHEAST ASIA, INDIA AND OCEANIA
Yamazaki Mazak Singapore Pte., Ltd.



JAPAN
Yamazaki Mazak Corporation



NORTH, CENTRAL AND SOUTH AMERICA
Mazak Corporation



JAPAN
Yamazaki Mazak Minokamo Corporation
Minokamo Plant 1



JAPAN
Yamazaki Mazak Minokamo Corporation
Minokamo Plant 2



JAPAN
Yamazaki Mazak Seiko Corporation



JAPAN
Yamazaki Mazak Optonics Corporation



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