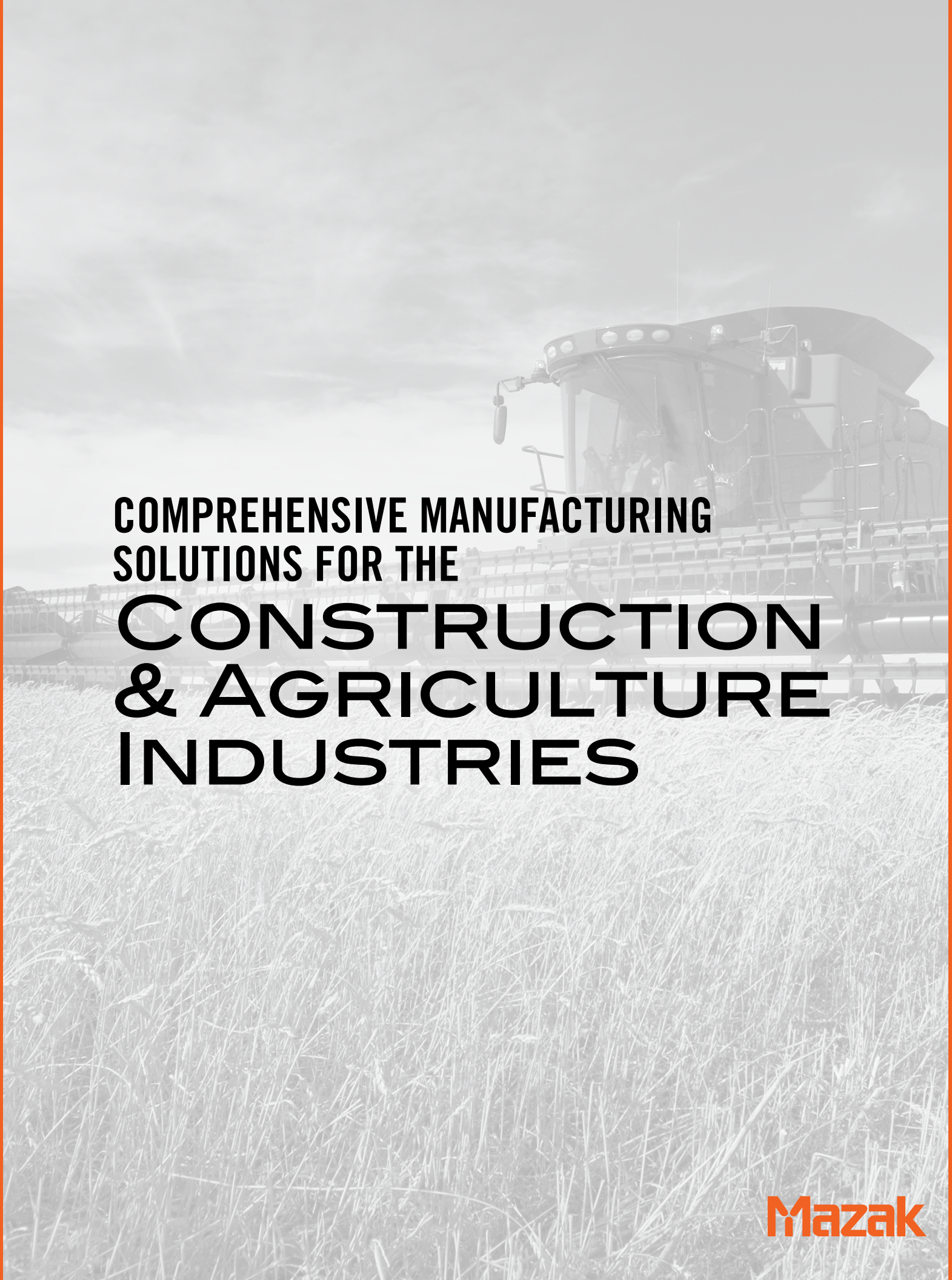


COMPREHENSIVE MANUFACTURING SOLUTIONS FOR THE

Construction & Agriculture Industries

Mazak

Time for HEAVY-DUTY PRODUCTIVITY

The construction and agriculture industries depend on equipment that must reliably perform day after day in some of the harshest conditions.

To meet the distinctive needs of two of the largest industries in the world, Mazak offers hundreds of manufacturing solutions that feature multi-axis machining capability, high-horsepower and high-speed spindles and automated pallet and tool storage systems, all backed by the industry's most comprehensive service and applications support.

Whether you're producing vehicle frame components, cylinders, axles or engine components from hard metals, aluminum or cast iron, we can deliver the best total manufacturing solution to help you drive profitability and meet production goals – all at the lowest possible cost per part.

FARMING

FORESTRY

CONSTRUCTION

MINING

INNOVATIVE Manufacturing Solutions

We've been working with companies in the farming, forestry, construction and mining industries for decades, so we understand the consequences of downtime. Our machines have the features and capabilities you need to deliver the parts necessary to keep heavy-duty equipment operating at its fullest potential, including:

- Quick setups to improve productivity, especially during small production runs of legacy parts
- Ample machine tool storage capacities to increase part-production versatility and extend uninterrupted, continuous machine operation
- Vertical and horizontal milling solutions to meet any application requirement for big or small parts in high or low-production environments
- Turning solutions to boost productivity in the heavy-duty cutting of large, long shaft workpieces
- Multi-Tasking machines that offer the unsurpassed flexibility, accuracy and efficiency of DONE IN ONE® part processing
- Multi-axis machining solutions with high-speed, high-horsepower spindles for the toughest materials and highest precision
- Deep-hole boring capabilities for extremely productive and flexible machining
- Rugged machine construction assuring part accuracy and machine uptime

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.

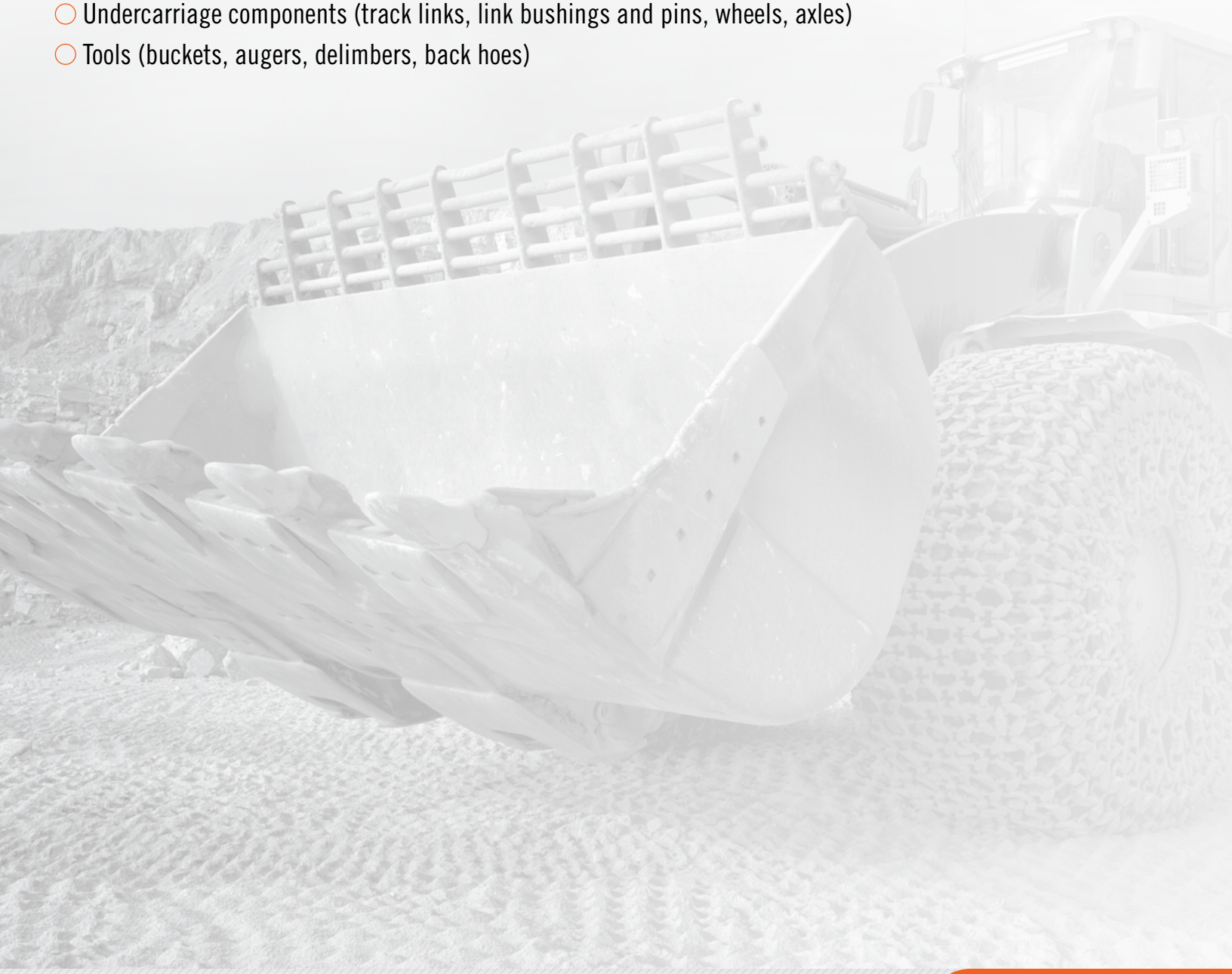
- Technology Centers strategically placed to meet the needs of customers across North America, including the Midwest Regional Headquarters and Technology Center in Schaumburg, Illinois, and Mexico Technology Center in Monterrey, Mexico
- Unparalleled CAM technology expertise that we draw upon to help 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 that encompasses our single-source support, progressive learning, technical/parts support and other programs to keep your shop running at peak performance

PARTS & APPLICATIONS

The construction and agriculture industries depend on reliable parts that meet stringent quality guidelines and can withstand heavy use and harsh conditions. Our heavy-duty machine tools tackle the world's toughest materials with speed, power and precision.

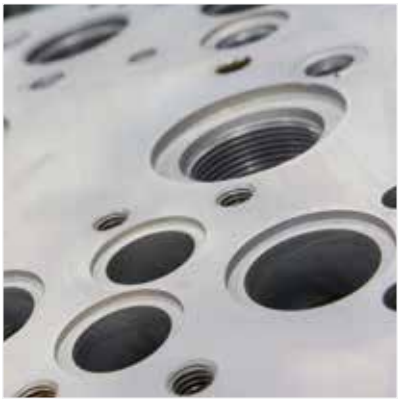
Parts:

- Hydraulic components (manifolds, pump bodies, cylinders)
- Transmission components (planet carriers, clutch housing, gears, housings, shafts, axles)
- Large tractor/truck/grader/earthmoving components (wheels, frames)
- Engine components (blocks, manifolds, cylinder liners, injectors)
- Undercarriage components (track links, link bushings and pins, wheels, axles)
- Tools (buckets, augers, delimbers, back hoes)



Materials:

- ☐ Ductile cast iron
- ☐ Stainless/carbon/high-strength low-alloy (HSLA) steel
- ☐ Bronze
- ☐ Aluminum
- ☐ Copper



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FRAMES

The efficient processing of vehicle frame components requires powerful machining centers that can handle challenging materials as well as large and complex parts – all while reducing cycle time, producing precision parts and achieving increased productivity.

Machine Recommendations:

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.

INTEGREX e-V Series

Perfect for the DONE IN ONE machining of large valves and other complex parts, these advanced Multi-Tasking machines with vertical turning can productively perform milling, turning, drilling and more in single setups. These extremely efficient machines include 150° B-axis tilt milling spindles and C-axis turning spindle tables.

AXLES

Axles used in heavy-duty construction and agriculture equipment are large and require tight tolerances. We have one of the broadest, most powerful selections of machine tools for the production of accurate axle components in any size.

Machine Recommendations:

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.

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.

HQR Series

Machines in this series are designed for high-volume productivity, featuring simultaneous first and second operations or balanced cutting/milling through first/second spindles and upper/lower turrets. Machine configurations directly result in part-processing versatility and reduced cycle times for operations ranging from chuck work to the machining of large-diameter bar stock.

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TRANSMISSION AND BLOWER COMPONENTS

Transmission and blower components must work flawlessly. We offer world-class solutions that deliver the high performance and superior part finishes required when machining such parts as planet carriers, clutch housings, gears, shafts, axles and more.

Machine Recommendations:

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.

INTEGREX i Series

Multi-Tasking machines with full simultaneous 5-axis capabilities and milling spindles with the same levels 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.

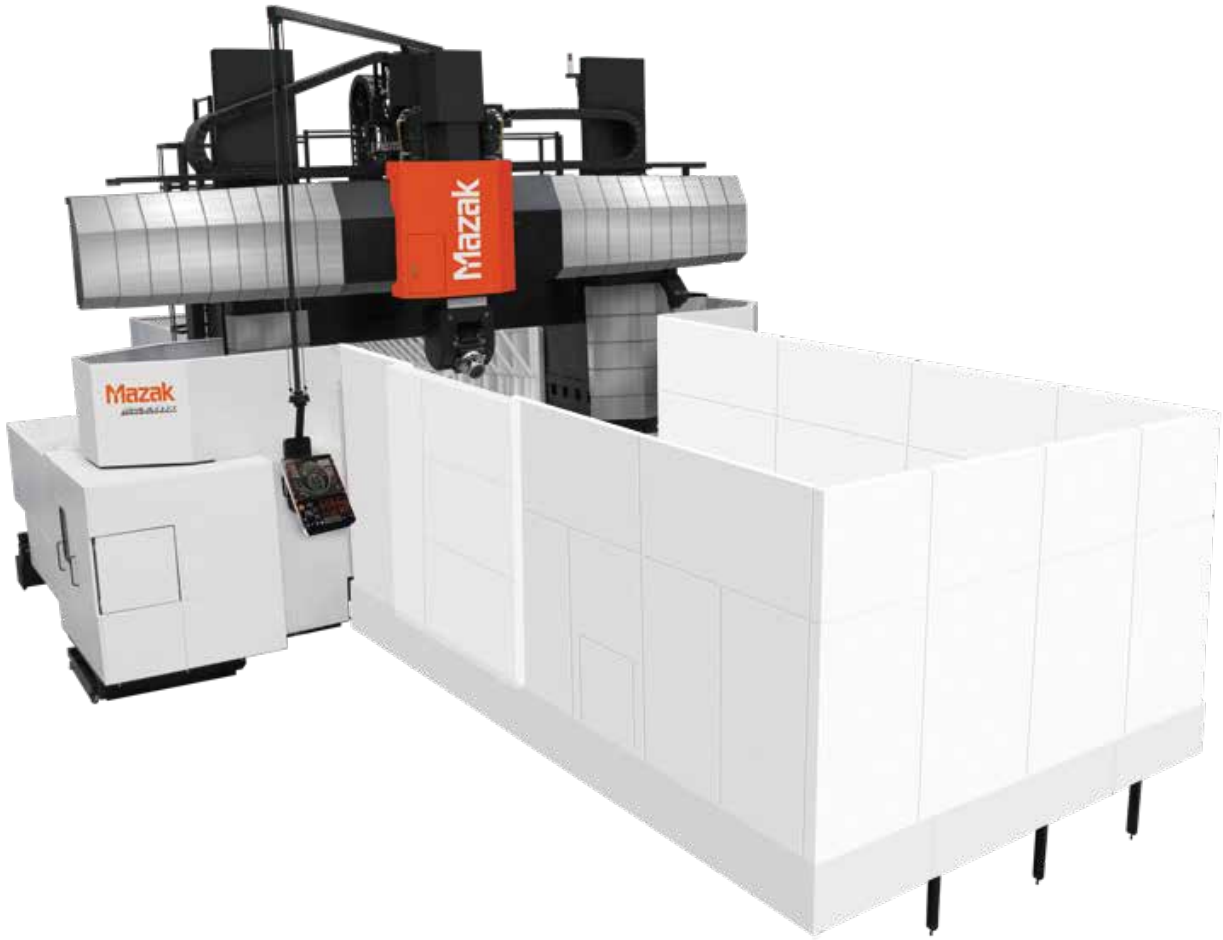
HCN Series

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.

WELDMENTS

Weldments can be difficult to machine due to protruding features and complex angles. That's why we offer a series of machining centers that can reach multiple surfaces just by changing the position of the spindle head through program commands.

Machine Recommendations:



VERSATECH Series

Multiple-surface 5-axis double-column machining centers feature spindle heads that can position to the vertical and horizontal positions and any angle in between to provide unsurpassed productivity in the machining of complex and very large workpieces. Two built-in table changers enable super-heavy parts to be automatically changed reducing setup time.

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PLANET CARRIERS

Planet carriers can be extremely complex and require tremendous precision. Manufacturers depend on highly versatile Mazak machines for the cost-effective machining of accurate carriers that can withstand high heat and high torque from the gears they contain.

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 e-V Series
Perfect for the DONE IN ONE machining of large, complex parts, these advanced Multi-Tasking machines with vertical turning can productively perform milling, turning, drilling and more in single setups. These extremely efficient machines include 150-degree B-axis tilt milling spindles and C-axis turning spindle tables.

BIG MACHINES FOR BIGGER PARTS

For processing large parts, we offer a wide variety of precision-focused machines with several productivity-enhancing features that can reduce your part cycle time and machine non-cut times, ultimately providing you with extremely high production levels and a low cost of ownership.

Machine Recommendations:

INTEGREX i-800V

For part diameters up to 66.9", this Multi-Tasking machine delivers 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-1850V

This Multi-Tasking machine combines full 5-axis machining, vertical turning operations and pallet-changing capabilities to productively process large, highly complex parts weighing up to 33,000 lbs. from a variety of workpiece materials in single setups.

VERSATECH V-140

This multiple-surface 5-axis double-column machining center features spindle heads that can position to the vertical and horizontal positions and any angle in between to provide unsurpassed productivity in the machining of very large workpieces up to 122" in height.

HCN-16000Q

This double-column Horizontal Machining Center performs the operations of both an HMC and a traditional boring machine to significantly improve its part-processing flexibility and reduce part setups. Its 21.6" W-axis quill feed stroke efficiently handles long-reach milling and boring operations.

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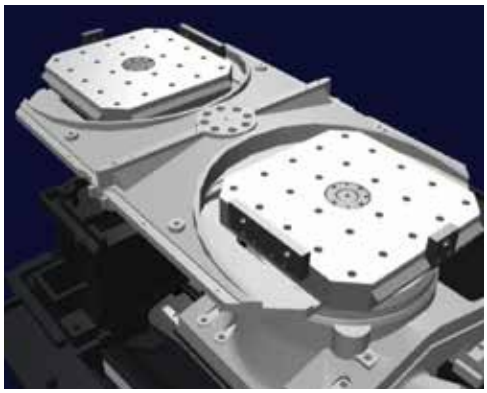
AUTOMATION

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 CHANGERS

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.

TOOL STORAGE SYSTEMS

Mazak offers a comprehensive range of tool storage solutions for continuous machine operation. In addition to standard chain magazines, rack-style tool magazines are available with capacities ranging from 180 to 360 tools. The Tool Hive horizontal rack system can accommodate more tools and spindle types, while the TOOLTECH vertical rack system provides high capacity in a space-saving design.

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. It can be paired with our Smooth PMC operation scheduling software to predict necessary tools and production output according to the production schedule.

STEADY RESTS

As many as four automated steady rests provide support for massive cylindrical components up to eight meters in length.

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CAM SYSTEMS

CAM software that 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 programming regardless of the system you run in 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

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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
- HQR 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.

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MAZATROL SmoothX CNC

Revolutionary programming for highly-complex workpiece geometries

- INTEGREX e Series
- INTEGREX i Series
- INTEGREX e-V Series
- VARIAXIS i Series
- VERSATECH 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.

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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.

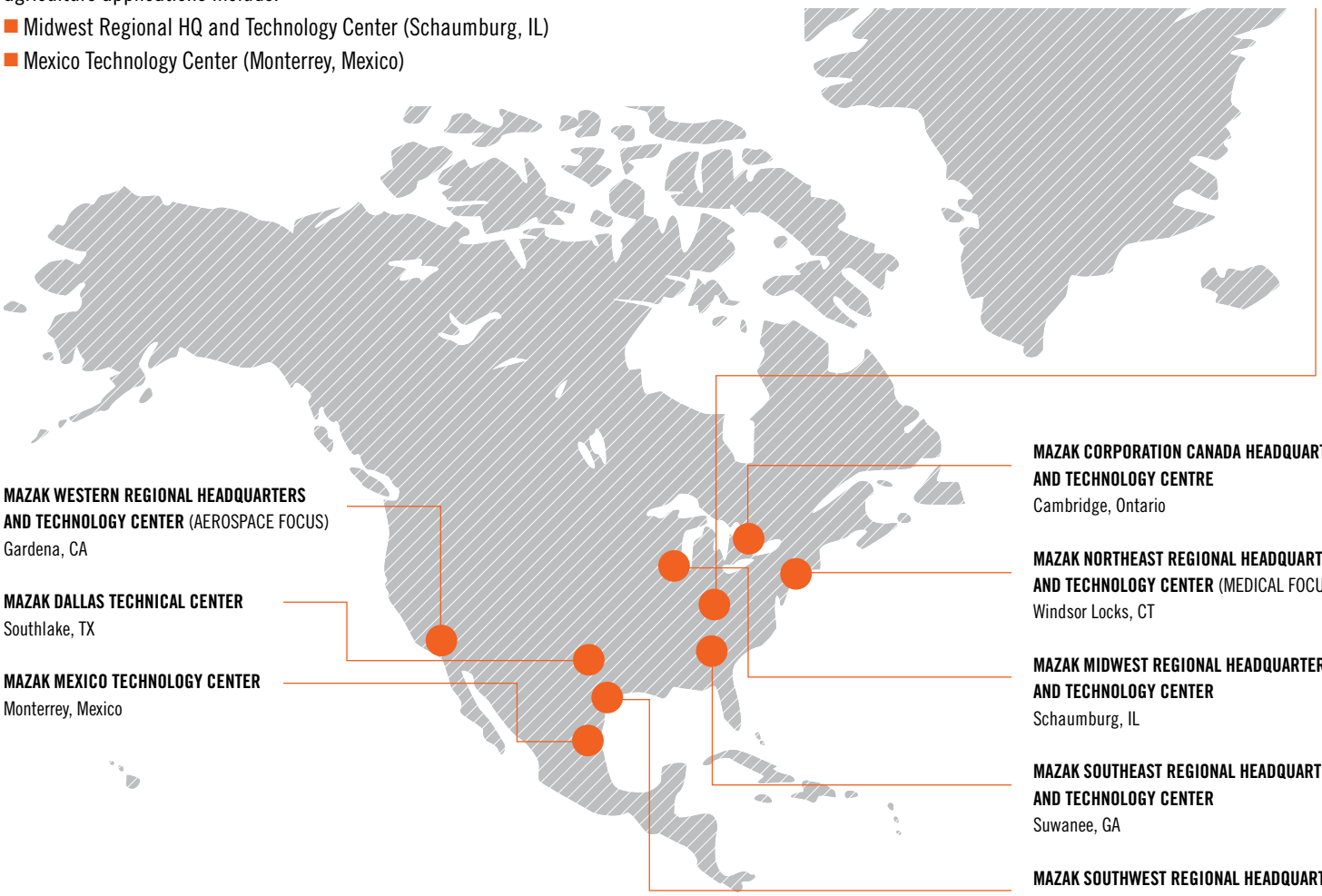
Technology and Technical Centers

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 construction and agriculture applications include:

- Midwest Regional HQ and Technology Center (Schaumburg, IL)
- Mexico Technology Center (Monterrey, Mexico)

MAZAK NATIONAL TECHNOLOGY CENTER & CENTER FOR MULTI-TASKING AND MANUFACTURING EXCELLENCE
Florence, KY



MAZAK WESTERN REGIONAL HEADQUARTERS AND TECHNOLOGY CENTER (AEROSPACE FOCUS)
Gardena, CA

MAZAK DALLAS TECHNICAL CENTER
Southlake, TX

MAZAK MEXICO TECHNOLOGY CENTER
Monterrey, Mexico

MAZAK CORPORATION CANADA HEADQUARTERS AND TECHNOLOGY CENTRE
Cambridge, Ontario

MAZAK NORTHEAST REGIONAL HEADQUARTERS AND TECHNOLOGY CENTER (MEDICAL FOCUS)
Windsor Locks, CT

MAZAK MIDWEST REGIONAL HEADQUARTERS AND TECHNOLOGY CENTER
Schaumburg, IL

MAZAK SOUTHEAST REGIONAL HEADQUARTERS AND TECHNOLOGY CENTER
Suwanee, GA

MAZAK SOUTHWEST REGIONAL HEADQUARTERS AND TECHNOLOGY CENTER (ENERGY FOCUS)
Houston, TX

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

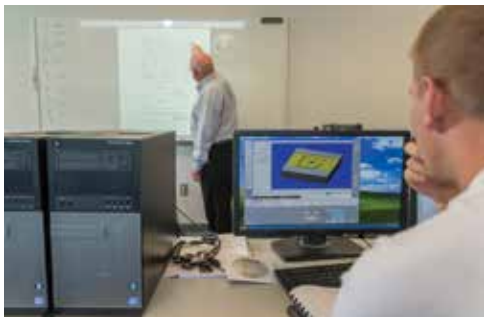
We are your single point of contact for any Mazak-related service need, whether it involves a machine, control, accessory or automation solution.

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

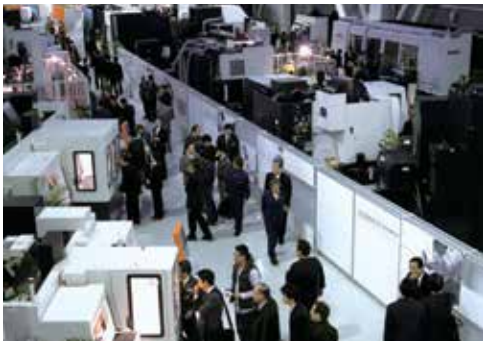
FAST SPARE PARTS DELIVERY

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

Comprehensive Manufacturing Solutions for the Construction and Agriculture Industries

Mazak

www.MazakUSA.com

MAZAK CORPORATION
NORTH AMERICAN MANUFACTURING HEADQUARTERS
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