



Mazak FIVE LEVELS OF
**Multi-
Tasking**



MAZAK'S FIVE LEVELS OF MULTI-TASKING

Selection Guide



Mazak

Your Partner for Innovation

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A MULTI-TASKING SOLUTION FOR EVERY APPLICATION

LEVEL 1

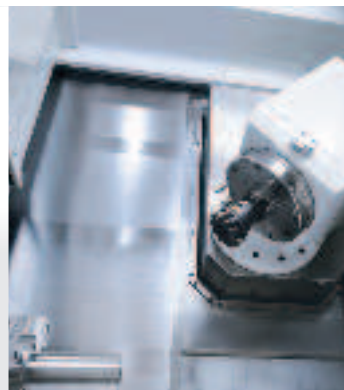
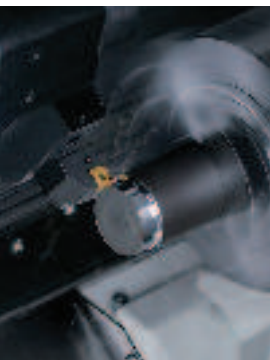
With simple turning, milling, drilling and tapping operations, Level 1 is perfectly suited to producing rounded parts with minimal complexity. Machines typically offer a single turning spindle and a drum-style turret with rotating-tool capabilities. The following Mazak series offer machines that fall into the Level 1 category.

Multi-Tasking machines are becoming more widely used throughout the market across a variety of industries. Manufacturers need solutions that help cut costs and lead times, but it is becoming increasingly difficult to identify the best technology to optimally align with their production processes. To help manufacturers identify the best level of technology for their operations, Mazak created the Five Levels of Multi-Tasking.

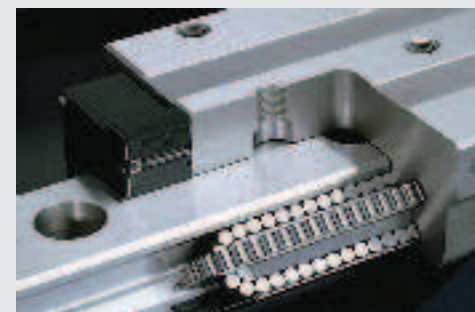
In recent years, Multi-Tasking technology has evolved and been implemented in nearly every industry. Mazak's Five Levels of Multi-Tasking selection guide outlines our offering of revolutionary machines by category to help companies' decision processes by narrowing down the selection of Multi-Tasking technology.

Whether producing small parts with unit cycle times of under a minute or enormous, complex components that require a full week of machining, Mazak offers a Multi-Tasking solution that can boost efficiency, flexibility and productivity. By pursuing complete machining with fewer machines, manufacturers ensure greater reliability in product quality and precision, while also reducing labor cost per part and maximizing equipment utilization.

In the global market, manufacturers benefit from every possible competitive advantage. Identifying the right level of technology for your operations is a vital starting point. Mazak's Five Levels of Multi-Tasking can help.



MAZAK MX HYBRID ROLLER GUIDE SYSTEM



Mazak Corporation has unveiled the MX Hybrid Roller Guide System, which has been uniquely developed by Mazak for integration with our machines.

As Mazak's Next Generation of Integrated Machine Guide Technology, the MX Hybrid Roller Guide System delivers levels of durability and reliability that result in long-term accuracy. By year end of 2010, all Mazak machine tools will ride on MX Hybrid Roller Guide technology.

The MX Hybrid Roller Guide System incorporates a special "X-Design" that efficiently distributes load in four directions – radial (clockwise and counterclockwise), reverse radial and lateral. For the best combination of consistent performance, accuracy and rigidity, the X-Design reduces reversal errors for unmatched cornering and provides more surface contact than balls, yet with less friction than slides.

Durability of the MX Hybrid Roller Guide System comes from the fact that it offers an unparalleled level of vibration dampening capability, resulting in extended tool life. The system also handles heavy load capacities because there is less elastic deformation with rollers, consumes minimal amounts of oil for "Greener" operation and allows better coolant life. It also extends machine life considerably and is practically maintenance free.



QUICK TURN SMART

Offering affordability and high productivity, the QUICK TURN SMART Series delivers fast axis feed rates and incorporates the user-friendly CNC SMART control. The new Mazak MX Hybrid Roller Guide System on the X- and Z-axes ensures high rigidity and smooth cutting, while X-axis ball screw pretension provides high accuracy.

SLANT TURN NEXUS

Designed for heavy-duty applications, the SLANT TURN NEXUS Series offers tremendous value to energy, aerospace and off-road equipment manufacturers working with large, long shaft workpieces.



SUPER QUADREX

With an upper turret containing milling tools and lower turret with turning tools only, the SUPER QUADREX Series is equipped to greatly shorten cycle times for shaft workpieces.

INVERTED VERTICAL SPINDLE TURNING CENTER

Ideal for high-volume production, such as manufacturing of automotive components, multiple INVERTED VERTICAL SPINDLE CNC turning centers with rotating-tool capabilities can be arranged in a line with a conveyor to allow for unattended operation.



MEGATURN NEXUS

The MEGATURN NEXUS Series excels at heavy-duty cutting of large cast iron and steel workpieces common to manufacturers of construction machinery, industrial machinery and jet engines. The MEGATURN NEXUS is optionally equipped with a two-pallet changer to increase spindle utilization.

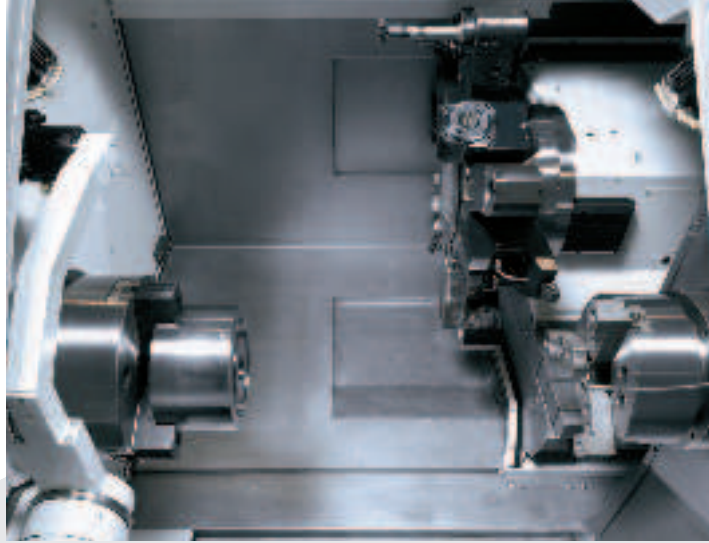
LEVEL 2

The inclusion of Y-axis functionality for the machine's drum turret increases the range of part geometries that can be attained with Level 2. Machines at this level provide machining off the center-line and perform Done-In-One machining through use of two spindles with a milling turret or two spindles with two-turret configuration, thus achieving higher productivity than Level 1.



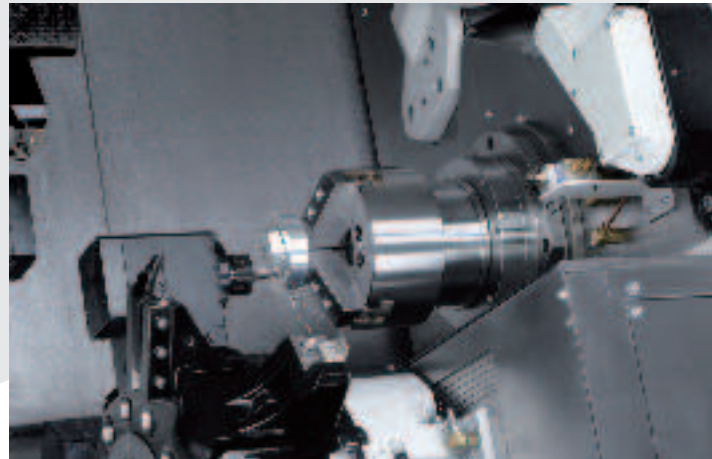
QUICK TURN NEXUS

Combining advanced technology, high productivity and uncompromised performance, the QUICK TURN NEXUS Series offers a wide variety of options that actually allow it to straddle both Level 1 and Level 2. All machines in the series contain the Mazak MX Hybrid Roller Guide System to increase vibration dampening, achieve quicker acceleration and deceleration and require less maintenance and oil consumption.



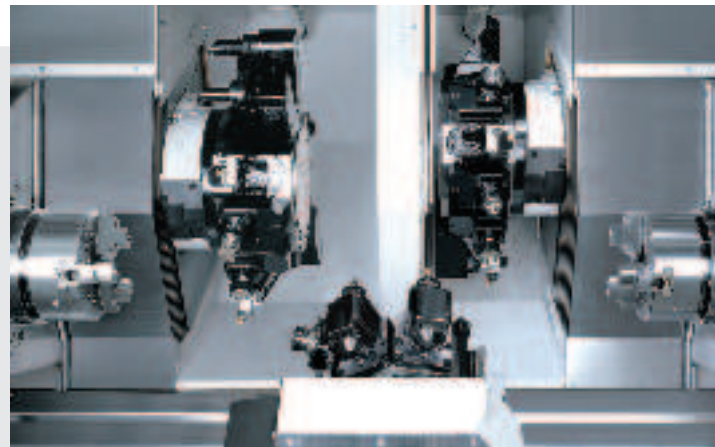
HYPER QUADREX

The HYPER QUADREX Series of two-turret CNC turning centers includes models that feature twin high-performance spindles for maximum productivity. Through enhanced Done-In-One processing, the HYPER QUADREX Series offers complete machining from slug material in a single setup.



MULTIPLEX

With twin spindles and twin turrets, the MULTIPLEX Series of CNC turning centers offers excellent productivity for mid-size lot production.



LEVEL 3

At Level 3, Multi-Tasking capabilities are further enhanced through an independent milling spindle headstock with B-axis indexing. Y-axis travel motion is increased and a tool magazine increases tooling capacity. The machines at this level offer ideal efficiency for applications requiring up to 4.5-axis Multi-Tasking operations. With the launch of the new j-Series, Mazak provides affordable Multi-Tasking technology, which delivers higher versatility of machining and improved productivity for most small parts applications requiring secondary operations.



INTEGREX j-SERIES

The newest Multi-Tasking machines introduced in the Mazak family, the j-Series eases setups for Multi-Tasking applications. This robust line of machines performs 4-axis simultaneous machining and 5-axis tool tip positioning, achieving significant advantages in productivity, accuracy and flexibility when machining complicated workpieces. In lieu of a drum turret, the j-Series integrates a tool magazine, increasing versatility in part production.



LEVEL 4

With an emphasis on automation and tackling large or highly complex parts, Level 5 Multi-Tasking encompasses full, simultaneous 5-axis machining. Mazak's INTEGREX *i*-Series and *e*-Horizontal machines reside in this category and can be combined with robots, while our *e*-Vertical machines can be combined with our PALLETECH system to achieve fully automated, unattended production. Representing the evolution of the highly successful MARK IV Series, the INTEGREX *i*-Series is Mazak's latest addition to Level 4.



INTEGREX *i*-SERIES

Building off the incredible success of Mazak's MARK IV Series of Multi-Tasking machines, the *i*-Series features a milling spindle of the same power as found in a machining center. With fast, reliable and accurate performance, the *i*-Series achieves high-speed, high-power milling and heavy-duty facing.



INTEGREX *e*-HORIZONTAL SERIES

The INTEGREX *e*-Horizontal Series represents a true fusion of a CNC turning center and full 5-axis machining center. Comprehensive Done-In-One production can be achieved on large parts with complicated geometries, providing incredible productivity and efficiency gains for manufacturers working with these types of components.



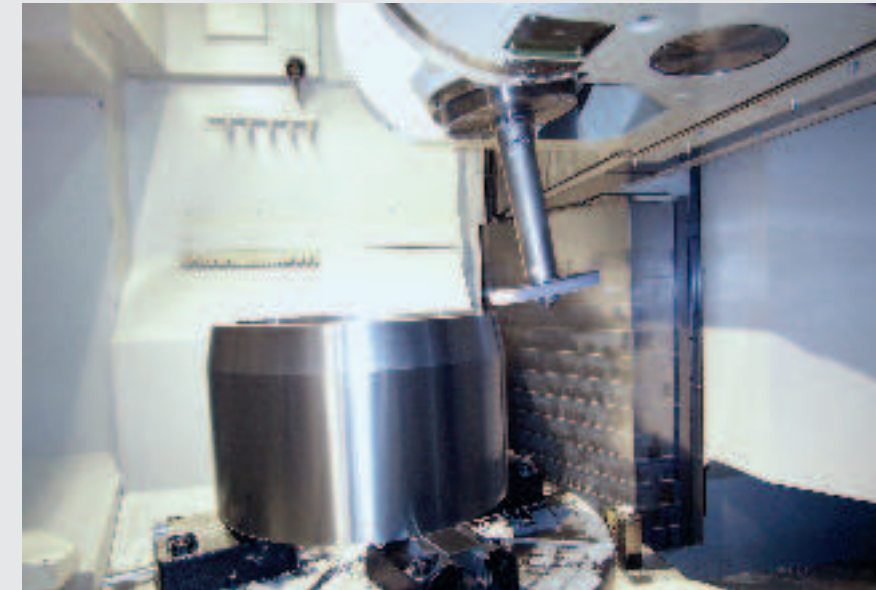
INTEGREX *e*-VERTICAL SERIES

The INTEGREX *e*-Vertical Series offers robust turning capabilities, in addition to machining capabilities for multiple faces. Simultaneous 5-Axis machining allows for the production of parts with highly complex geometries and the series excels across a broad range of aerospace, energy and automotive applications.



LEVEL 5

As the next step in the evolution of Multi-Tasking, Level 5 capabilities are the result of Ultra-Tasking, a concept whereby Level 4 machines incorporate specialized machining tasks, such as gear cutting, honing, grinding and polishing. With Ultra-Tasking, even the most demanding and complex parts will be machined to completion in a single setup.



APPLICATION CATEGORIES	LEVEL 1	LEVEL 2
GENERAL MACHINE TRAITS	Turning, Drilling, Tapping, Milling Key-Ways on Center Line	Turning, Drilling, Tapping, Milling, Off-Center Line Done-In-One *
EQUIPMENT SPECIFICATIONS	Turning Spindle with C-Axis Drum Turret with Rotating Tools Tailstock	Turning Spindle with C-Axis Second Turning Spindle with C-Axis * Y-Axis Travel Drum Turret with Rotating Tools
AUTOMATION OPTIONS	Bar feeder	Bar Feeder Gantry Loader
PRODUCT FAMILY	QUICK TURN SMART - M Models SLANT TURN NEXUS - M Models MEGA TURN NEXUS - M Models IVS TURNING CENTER - M Models SUPER QUADREX	QUICK TURN NEXUS - MY, MS, MSY Models HYPER QUADREX MULTIPLY
PROTOTYPING APPLICATIONS	QUICK TURN SMART - M Models	QUICK TURN NEXUS - MY, MS, MSY Models
PROTOTYPING APPLICATIONS Mid to High-Volume	SUPER QUADREX	MULTIPLY HYPER QUADREX
WORKPIECE SIZE Small, Light	QUICK TURN SMART - M Models	QUICK TURN NEXUS - MY, MS, MSY Models
WORKPIECE SIZE Mid-Size, Mid-Weight	QUICK TURN SMART - M Models	MULTIPLY HYPER QUADREX
WORKPIECE SIZE Large, Heavy	MEGA TURN NEXUS - M Models SLANT TURN NEXUS - M Models	QUICK TURN NEXUS - MY, MS, MSY Models
PROCESSING REQUIRED Simple	QUICK TURN SMART - M Models MEGA TURN NEXUS - M Models SLANT TURN NEXUS - M Models SUPER QUADREX	QUICK TURN NEXUS - MY, MS, MSY Models MULTIPLY HYPER QUADREX
PROCESSING REQUIRED Complex		QUICK TURN NEXUS - MY, MS, MSY Models MULTIPLY HYPER QUADREX
PROCESSING REQUIRED Highly Complex		

* Done-In-One is performed with second turning spindle configuration.

** Second spindle offered with i-Series and e-Horizontal Series.

*** Pallet changer offered with e-Vertical Series only.

LEVEL 3	LEVEL 4	LEVEL 5
Turning, Drilling, Tapping, Milling, Off-Center Line Angle Drilling, Tapping, Milling	Turning, Drilling, Tapping, Milling, Off-Center Line Done-In-One Contouring, Full 5-Axis, Simultaneous	Turning, Drilling, Tapping, Milling, Off-Center Line Done-In-One Contouring, Full 5-Axis, Simultaneous Gear Cutting, Honing, Grinding and/or Polishing
Turning Spindle with C-Axis Tailstock Y-Axis Travel Milling Headstock with B-Axis Indexing Tool Magazine, Automatic Tool Changer	Turning Spindle with C-Axis Second Turning Spindle with C-Axis ** Y-Axis Travel Milling Headstock with B-Axis Indexing Tool Magazine Pallet Changer ***	
Bar Feeder Gantry Loader	Bar Feeder Gantry Loader Robot Palletech System	
INTEGREX j-Series	INTEGREX i-Series ** INTEGREX e-Horizontal Series ** INTEGREX e-Vertical Series ***	
INTEGREX j-Series	INTEGREX i-Series INTEGREX e-Horizontal Series	
INTEGREX j-Series	INTEGREX i-Series	
	INTEGREX i-150	
INTEGREX j-Series	INTEGREX i-Series INTEGREX e-Horizontal Series INTEGREX e-Vertical Series	
INTEGREX j-Series	INTEGREX i-Series INTEGREX e-Horizontal Series INTEGREX e-Vertical Series	INTEGREX i-Series INTEGREX e-Horizontal Series INTEGREX e-Vertical Series
	INTEGREX i-Series INTEGREX e-Horizontal Series INTEGREX e-Vertical Series	INTEGREX i-Series INTEGREX e-Horizontal Series INTEGREX e-Vertical Series

**MAZAK NATIONAL TECHNOLOGY CENTER &
CENTER FOR MULTI-TASKING AND MANUFACTURING EXCELLENCE**

8025 Production Drive, Florence, KY 41042
Tel: (859) 342-1700 Fax: (859) 342-1865

**MAZAK SOUTHEAST REGIONAL HEADQUARTERS
AND TECHNOLOGY CENTER**

1075 Northbrook Parkway, Suwanee, GA 30024
Tel: (678) 985-4800 Fax: (678) 985-4801

**MAZAK NORTHEAST REGIONAL HEADQUARTERS
AND TECHNOLOGY CENTER**

700 Old County Circle, Windsor Locks, CT 06096
Tel: (860) 292-4400 Fax: (860) 654-0752

**MAZAK SOUTHWEST REGIONAL HEADQUARTERS
AND TECHNOLOGY CENTER (Energy Focus)**

10950 Greenbend Blvd., Houston, TX 77067
Tel: (281) 931-7770 Fax: (281) 931-6191

**MAZAK WESTERN REGIONAL HEADQUARTERS
AND TECHNOLOGY CENTER (Aerospace Focus)**

1333 West 190th Street, Gardena, CA 90248
Tel: (310) 327-7172 Fax: (310) 538-4087

**MAZAK MIDWEST REGIONAL HEADQUARTERS
AND TECHNOLOGY CENTER**

300 East Commerce Drive, Schaumburg, IL 60173
Tel: (847) 885-8311 Fax: (847) 885-9565

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1497 N. Milpitas Blvd., Milpitas, CA 95035
Tel: (408) 941-2240 Fax: (408) 946-7381

MAZAK MID-ATLANTIC SALES OFFICE

1275 Glenlivet Drive, Allentown, PA 18106
Tel: (800) 436-8900 Fax: (610) 481-0851

**MAZAK CORPORATION CANADA HEADQUARTERS
AND TECHNOLOGY CENTRE**

50 Commerce Court, Cambridge, Ontario N3C 4P7
Tel: (800) 668-5449

MAZAK MEXICO S.A. de C.V.

Calle Spectrum No. 100
Parque Industrial FINSA Monterrey
Apodaca, Nuevo Leon C.P., Mexico 66600
Tel: +52-818-221-0910 Fax: +52-818-221-0919

MAZAK CORPORATION, NORTH AMERICAN HEADQUARTERS

8025 Production Drive, Florence, KY 41042
Tel: (859) 342-1700 Fax: (859) 342-1865

www.mazakusa.com

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