DISCOVER THE BEST

5-AXIS MACHINING
AND MULTI-TASKING

SOLUTION FOR YOUR APPLICATION

MACHINE SELECTION GUIDE FOR COMPLEX PART PROCESSING
Mazak offers the industry’s most advanced and comprehensive selection of 5-axis and Multi-Tasking machine configurations to give you the best cost of ownership as well as endless part-processing possibilities. However, it’s important that you only invest in the technology and capabilities that apply to your specific applications.

To help you identify the most relevant and cost-effective Mazak manufacturing solution for your capital investment, we developed the Four Quadrant Machine Selection Guide, which makes it easy to decide what equipment is going to make you the most competitive and profitable.

**Selecting the Right Technology Means Everything**

**What Is Best Cost of Ownership?**

A manufacturing system with the best cost of ownership is one that offers the highest possible performance for your exact needs at the lowest possible operating and downtime costs — all while being backed by the best support and engineering resources available.
THE FOUR QUADRANTS

Whether you need a single-table machine, pallet changing or Multi-Tasking technology, the Four Quadrant Machine Selection Guide will help you choose the best possible solution to boost your productivity and shorten your lead times. Each Quadrant represents a different machine capability level, from traditional simultaneous 5-axis machining to more complex 5-axis operations involving turning and automation.

THINGS TO THINK ABOUT

Before reviewing the Four Quadrant Machine Selection Guide, you will want to consider several key decision-making factors, including but not limited to how different 5-axis and Multi-Tasking platforms will play into your current and future part-processing requirements as well as overall business growth plan.

- **ARE YOU PROCESSING** complex parts and require a machine pallet size between 630 mm and 1,000 mm?
- **CONSIDER THE SIZE** of your facility. Is workspace an issue?
- **WOULD MULTI-TASKING** capability allow you to increase your part-processing versatility and shorten your cycle times? Or do you need to keep these operations separate?
- **DO YOU NEED** to reduce part inaccuracies that result from moving parts across multiple workstations?
- **WOULD A PALLET CHANGER** potentially improve your part cycle times?
- **DO YOU REQUIRE** periodic access to your workpiece and a pallet changer would make this difficult?
- **DO YOUR PART SIZES** affect the viability of adding a pallet changer to your process?
- **ARE YOU PRODUCING** large volumes of parts and require increased spindle utilization?
- **IS COMPLETELY AUTOMATED** manufacturing a goal for your business?
**QUADRANTS 1 & 2**

**SIMULTANEOUS 5-AXIS MACHINES WITHOUT TURNING CAPABILITIES**

Quadrants 1 and 2 feature VORTEX 5-axis vertical machining centers without turning capabilities, making them a lower initial investment for shops and a better fit for parts with less complex geometries, when compared to machines with turning.

The single-table machines in Quadrant 1 are less of an investment than those in Quadrant 2 with automation. However, adding a two-pallet changer or PALLETECH System to your operations greatly increases equipment utilization and allows for off cycle part setup and unattended operation.

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**5-AXIS MACHINING WITHOUT TURNING FOR PARTS WITH LESS COMPLEX GEOMETRIES**

**1**

**CAPABILITIES**

- Lower Initial Investment
- Increased Work Area Access
- Larger Machining Zones

**MACHINES**

- VORTEX 630V/6S
- VORTEX 1060V/8S
- VORTEX 1550V/10S

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**2**

**CAPABILITIES**

- Two-Pallet Changer or PALLETECH System
- Increased Machine Utilization
- Off Cycle Part Setup
- Unattended Operations
- High-Volume Part Production

**MACHINES**

- VORTEX 630V/6
- VORTEX 1060V/8
- VORTEX 1550V/10

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**TWO-PALLET CHANGER**

Two-pallet changers increase spindle utilization and make 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 fixture on the other pallet.

**PALLETECH SYSTEM**

A pre-engineered solution that offers fully automated unattended production. 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.
## QUADRANTS 3 & 4
### SIMULTANEOUS 5-AXIS MACHINES WITH TURNING CAPABILITIES

Quadrants 3 and 4 feature INTEGREX i and e V-Series machines that are complete fusions of a 5-axis machining centers and vertical turning centers, allowing for Multi-Tasking operations. These machines result in fewer setups, more complex part-processing versatility and improved throughput, when compared to machines without turning.

The single-table machines in Quadrant 3 are less of an investment than those in Quadrant 4 with automation. However, adding a two-pallet changer or PALLETECH System to your operations greatly increases equipment utilization and allows for off cycle part setup and unattended operation.

### 5-AXIS MACHINING WITH TURNING: MULTI-TASKING FOR PARTS WITH MORE COMPLEX GEOMETRIES

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Capabilities</th>
<th>Machines</th>
</tr>
</thead>
</table>
| 3        | - Increased Work Area Access  
- Larger Machining Zones  
- Fewer Setups  
- Elimination of Stacked Tolerances  
- Consolidate Milling and Turning Processes | - INTEGREX i-630V/6S  
- INTEGREX e-1060V/8S  
- INTEGREX e-1550V/10S |
| 4        | - Two-Pallet Changer or PALLETECH System  
- Increased Machine Utilization  
- Off Cycle Part Setup  
- Unattended Operations  
- High-Volume Part Production  
- Consolidate Milling and Turning Processes | - INTEGREX i-630V/6  
- INTEGREX e-1060V/8  
- INTEGREX e-1550V/10 |

### CONTACT YOUR MAZAK REPRESENTATIVE

Now that you’ve identified the type of technology and capabilities that best fit your application and business needs, you’re ready to contact your local Mazak representative.

Visit [MAZAKUSA.COM/DISTRIBUTORS](http://MAZAKUSA.COM/DISTRIBUTORS) to identify your representative today.

FOR COMPLEX PART PROCESSING
### SINGLE TABLE WITHOUT TURNING

- Lower Initial Investment (No Added Cost for Automation)
- Larger Work Area Access for Easier Part Checking
- Increased Machining Zone

| QUADRANT 1 |  
| --- | --- |
| **VORTEX 630V/6S** | **VORTEX 1060V/8S** | **VORTEX 1550V/10S** |
| Max. Workpiece Dimensions | Ø49.21” x 39.37” | Ø59.1” x 57.1” | Ø86.61” x 57.09” |
| Pallet Size | 24.8” x 24.8” or Ø31.5” | 31.5” x 39.37” or Ø39.37” | 39.4” x 39.4” or Ø55.12” |
| Travel X/Y/Z/B/C | 56.1” / 41.34” / 41.34” / 150° / 360° | 66.73” / 41.73” / 52.95” / 150° / 360° | 66.73” / 61.02” / 52.95” / 150° / 360° |
| Spindle (30 Min. Rating) | 10,000 rpm, 50 hp | 10,000 rpm, 40 hp (standard) | 10,000 rpm, 50 hp |
| 5,000 rpm (optional) | 10,000 rpm, 50 hp |  |  |
| Rapid Traverse Rate (X/Y/Z) | 2,047 IPM | 1,654 IPM | 1,653 IPM |
| Tool Shank | CAT-50 BIG PLUS (standard) | CAT-50 (standard) CAPTO C8 and BIG-PLUS #50 (optional) | CAT-50 BIG PLUS (standard) |
| Tool Storage Capacity | 43 (standard) 80, 120 and 160 (optional) | 40 (standard) 80, 120 and 160 (optional) | 40 (standard) 80, 120 and 160 (optional) |
| Floor Space Requirement | 211.1” x 274.72” | 220.67” x 263.78” | 251.36” x 306.69” |

Products and specifications subject to change without notice.
**VORTEX 630V/6 VORTEX 1060V/8 VORTEX 1550V/10**

<table>
<thead>
<tr>
<th>Max. Workpiece Dimensions</th>
<th>Ø41.34&quot; x 39.37&quot;</th>
<th>Ø49.21&quot; x 49.21&quot;</th>
<th>Ø78.74&quot; x 56.69&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pallet Size</td>
<td>24.8&quot; x 24.8&quot; or Ø31.5&quot;</td>
<td>31.5&quot; x 39.37&quot; or 39.37&quot;</td>
<td>39.4&quot; x 39.4&quot; or Ø55.12&quot;</td>
</tr>
<tr>
<td>Travel X/Y/Z/B/C</td>
<td>56.1&quot; / 41.34&quot; / 41.34&quot; / 150° / 360°</td>
<td>73.82&quot;/41.73&quot;/52.95&quot;/150°/360°</td>
<td>73.82&quot;/61.02&quot;/52.95&quot;/150°/360°</td>
</tr>
<tr>
<td>Spindle (30 Min. Rating)</td>
<td>10,000 rpm, 50 hp</td>
<td>10,000 rpm, 40 hp (standard)</td>
<td>10,000 rpm, 50 hp (standard)</td>
</tr>
<tr>
<td>Rapid Traverse Rate (X/Y/Z)</td>
<td>2,047 IPM</td>
<td>1,654 IPM</td>
<td>1,653 IPM</td>
</tr>
<tr>
<td>Tool Shank</td>
<td>AT-50 BIG PLUS (standard) CAPTO C8 (optional)</td>
<td>CAT-50 (standard) CAPTO C8 and BIG-PLUS #50 (optional)</td>
<td>CAT-50 (standard) CAPTO C8 and BIG PLUS #50 (optional)</td>
</tr>
<tr>
<td>Tool Storage Capacity</td>
<td>43 (standard) 80, 120 and 160 (optional)</td>
<td>40 (standard) 80, 120 and 160 (optional)</td>
<td>40 (standard) 80, 120 and 160 (optional)</td>
</tr>
<tr>
<td>Floor Space Requirement</td>
<td>195.28&quot; x 291.34&quot;</td>
<td>220.67&quot; x 308.07&quot;</td>
<td>278.27&quot; x 375.98&quot;</td>
</tr>
</tbody>
</table>

**2-PALLET CHANGER/PALLETECH WITHOUT TURNING**

- Two-Pallet or PALLETECH System
- Increased Machine Utilization
- High-Volume Part Production
- Off Cycle Part Setup
- Unattended Operations

*Products and specifications subject to change without notice.*
### SINGLE TABLE WITH TURNING

- Lower Initial Investment (No Added Costs for Automation)
- Larger Work Area Access for Easier Part Checking
- Increased Machining Zone
- No Added Cost for Automation

<table>
<thead>
<tr>
<th>Quadrant 3</th>
<th>INTEGREX i-630V/6S</th>
<th>INTEGREX e-1060V/8S</th>
<th>INTEGREX e-1550V/10S</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Workpiece Dimensions</strong></td>
<td>Ø49.21&quot; x 39.37&quot;</td>
<td>Ø59.06&quot; x 57.09&quot;</td>
<td>Ø66.61&quot; x 57.09&quot;</td>
</tr>
<tr>
<td><strong>Pallet Size</strong></td>
<td>24.8&quot; x 24.8&quot; x Ø31.5&quot;</td>
<td>31.5&quot; x 31.5&quot; or 39.4&quot; x 39.4&quot; or Ø39.4&quot;</td>
<td>35.4&quot; x 35.4&quot; or Ø55.12&quot;</td>
</tr>
<tr>
<td><strong>Travel X/Y/Z/B/C</strong></td>
<td>56.1&quot; / 41.34&quot; / 41.34&quot; / 150° / 360°</td>
<td>66.73&quot;/41.73&quot;/52.95&quot;/150°/360°</td>
<td>66.73&quot; / 61.02&quot; / 52.95&quot; / 150° / 360°</td>
</tr>
<tr>
<td><strong>Turning Spindle (30 Min. Rating)</strong></td>
<td>550 rpm, 50 hp</td>
<td>500 rpm, 40 hp (standard)</td>
<td>300 rpm, 40 hp</td>
</tr>
<tr>
<td><strong>Milling Spindle (30 Min. Rating)</strong></td>
<td>10,000 rpm, 40 hp (standard) 15,000 (optional)</td>
<td>10,000 rpm, 40 hp (standard) 5,000 rpm (optional)</td>
<td>10,000 rpm, 40 hp (standard) 5,000 (optional)</td>
</tr>
<tr>
<td><strong>Rapid Traverse Rate</strong></td>
<td>2,047 IPM</td>
<td>1,653 IPM</td>
<td>1,653 IPM</td>
</tr>
<tr>
<td><strong>Tool Shank</strong></td>
<td>CAT-50 (standard) HSK A100 (optional)</td>
<td>CAT-50 (standard) CAPTO C8 and BIG PLUS #50 (optional)</td>
<td>CAT-50 (standard) CAPTO C8 and BIG PLUS #50 (optional)</td>
</tr>
<tr>
<td><strong>Tool Storage Capacity</strong></td>
<td>43 (standard) 80, 120 and 160 (optional)</td>
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</tr>
<tr>
<td><strong>Floor Space Requirement</strong></td>
<td>211.1&quot; x 274.2&quot;</td>
<td>220.67&quot; x 263.78&quot;</td>
<td>251.36&quot; x 306.69&quot;</td>
</tr>
</tbody>
</table>

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## 2-PALLET CHANGER/PALLETECH WITH TURNING

- Two-Pallet or PALLETECH System
- Increased Machine Utilization
- High-Volume Part Production
- Off Cycle Part Setup
- Unattended Operations

### INTEGREx i-630V/6
- **Maximum Workpiece Dimensions**: Ø41.34" x 39.37"
- **Pallet Size**: 24.8" x 24.8" or Ø31.5"
- **Travel X/Y/Z/B/C**: 56.1" / 41.34" / 41.34" / 150° / 360°
- **Turning Spindle (30 Min. Rating)**: 550 rpm, 50 hp
- **Milling Spindle (30 Min. Rating)**: 10,000 rpm, 40 hp (standard), 5,000 rpm (optional)
- **Rapid Traverse Rate**: 2,047 IPM
- **Tool Shank**: CAT-50 (standard), HSK A100 (optional)
- **Tool Storage Capacity**: 43 (standard), 80, 120 and 160 (optional)
- **Floor Space Requirement**: 211.1" x 303.3"

### INTEGREx e-1060V/8
- **Maximum Workpiece Dimensions**: Ø49.21" x 49.21"
- **Pallet Size**: 31.5" x 31.5" or 39.4" x 39.4" or Ø39.4"
- **Travel X/Y/Z/B/C**: 73.82" / 41.73" / 52.95" / 150° / 360°
- **Turning Spindle (30 Min. Rating)**: 500 rpm, 40 hp (standard), 300 rpm (optional)
- **Milling Spindle (30 Min. Rating)**: 10,000 rpm, 40 hp (standard), 5,000 rpm (optional)
- **Rapid Traverse Rate**: 1,653 IPM
- **Tool Shank**: CAT-50 (standard), CAPTO C8 and BIG PLUS #50 (optional)
- **Tool Storage Capacity**: 40 (standard), 80, 120 and 160 (optional)
- **Floor Space Requirement**: 209" x 299"

### INTEGREx e-1550V/10
- **Maximum Workpiece Dimensions**: Ø78.74" x 56.69"
- **Pallet Size**: 39.4" x 39.4" or Ø55.12"
- **Travel X/Y/Z/B/C**: 73.82" / 61.02" / 52.95" / 150° / 360°
- **Turning Spindle (30 Min. Rating)**: 300 rpm, 40 hp
- **Milling Spindle (30 Min. Rating)**: 10,000 rpm, 40 hp (standard), 5,000 rpm (optional)
- **Rapid Traverse Rate**: 1,653 IPM
- **Tool Shank**: CAT-50 (standard), CAT-50 (standard), CAPTO C8 and BIG PLUS #50 (optional)
- **Tool Storage Capacity**: 40 (standard), 80, 120 and 160 (optional)
- **Floor Space Requirement**: 278.27" x 375.98"

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

ADVANCED TECHNOLOGY NETWORK
Our eight Technology Centers throughout North America provide you with 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.
COMPLETE CUSTOMER SUPPORT

Through our Optimum Plus program, we offer the best, most comprehensive customer service in the industry, from machine and CNC control technical support to fast spare parts fulfillment to progressive learning courses.

SINGLE-SOURCE SERVICE

Our machines come with a comprehensive warranty, free technical phone support and software upgrades for the entire life of the product.

PARTS CENTER

We have one of the industry’s largest inventories of spare parts, ensuring 97% same-day shipping on orders.

PROGRESSIVE LEARNING

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