Innovative CNC Machines & Controls for Production & Toolroom

Designed, built and supported by American craftsmen

Serving Industry Worldwide Since 1973

1400 Mill Lane  Waconia, MN  USA  |  952.442.1410  |  952.442.6457 FAX  |  www.milltronics.net

Designed, built and supported by American craftsmen
Our People Make the Difference

The foundation of a great company is its people. Our diverse family of employees has enjoyed working together for over 30 years, continuously striving to provide the best customer service and value in our industry. Few companies are blessed with the number of 10, 20, and 30 year employees who understand their responsibility and take it seriously.

Milltronics has become a legend in the machine tool business, flourishing when others have failed. Many of our early customers have stayed with us and grew, recognizing our commitment to them and our honest and truthful values. Today our machines deserve comparison to those costing twice as much. With millions of dollars invested in capital equipment, years of engineering and product development, and a modern facility, nothing ensures our future and the value of our products more than our employees and our family commitment to our business along with the thousands of loyal Milltronics users.

We invite you to take a few moments and review our many products. If you do not already own a Milltronics machine, we look forward to serving you. If you are already a user, we will surprise you with our new innovative products, and we thank you for your loyalty and your contribution to our success.
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About Milltronics

“Our People Make the Difference”

We invite you to visit our factory before you buy a machine tool. After visiting we are certain you will understand why all machines have the name of every employee attached to the machine upon its completion.

All machine have the name of every employee attached to the machine upon its completion.

We invite you to visit our factory before you buy a machine tool. After visiting we are certain you will understand why "Minnesota Nice". Our company philosophy is "Our People Make the Difference" and our front door is always open. Director of Operations, Benji Rashleger, welcomes a call from any of our 10,000+ customers and invites everyone to visit the facility. Today's machines must meet the new demands for higher speeds, tighter tolerances, tremendous reliability, low maintenance, quick delivery, and incredible value. Seeing the products firsthand and how they are manufactured is recommended before you buy, so come experience Minnesota Nice. See why we offer unsurpassed value today, and why yesterday's machines have among the highest trade values in the industry.

QUALITY - We Take it Seriously

The process of designing and building a GREAT machine begins with dedicated engineers and reliable components, and ends with consistent assembly procedures and inspection techniques. We use Milltronics machines in our shop for manufacturing as well as testing of new ideas. Critical surfaces where rails or bearing blocks are mounted are precision ground for flatness to ensure machine integrity.

Every purchased part is carefully selected and all parts are thoroughly inspected.

Every machine built in our facility is tested for over 20 hours. Each builder oversees his machine up to the quality control process. Once in the quality control area, each machine is checked from top to bottom. Using laser ball screw compensation and ballbar testing, every machine is checked for circularity, three axes squareness, and positioning. All of the machine's parameters are verified and archived to our network. This enables us to email a back-up file to the customer's parameters in the event they are lost. Milltronics believes in our product enough to offer a standard TWO YEAR parts warranty on all of our machines.

All machine have the name of every employee attached to the machine upon its completion.

We invite you to visit our factory before you buy a machine tool. After visiting we are certain you will understand why "Our People Make the Difference".
Front Panels Designed For The Operator

An operator will spend thousands of hours working with the front panel of any CNC. This is why Milltronics designed our front panels around an oversized high resolution LCD color screen and careful key placement.

Machine function buttons such as Flood, Mist and Spindle illuminate when selected. In fact, buttons that require operator response, such as Cycle Start, flash as needed to prompt the operator through the task at hand.

The Milltronics CNC operator panel features a bright 12” color flat panel display with specially designed keys for hundreds of hours of hard use. Exact key force and stroke were designed into this new front panel. Touch screen and mouse technology were deliberately foregone for ease of use. Milltronics, unlike other control builders, does not overpopulate its front panel with keys, leaving the operator wondering what to push.

The entire CPU assembly is mounted directly to the rear side of the operator station. Though unlikely, if the CPU assembly should fail, exchanging it is extremely simple and can be accomplished by the end user directly or by a certified Milltronics distributor.

Multi Processor Control Utilizes Latest Computer Technology

Our controls are PC based. They use the onboard PC processor to run the operator interface and build the program pipeline. Motion control is handled by a proprietary motion control card running a powerful microprocessor. While the motion control card and the PC communicate through a shared RAM interface, the motion control card is a self-contained subsystem, guaranteeing control integrity.

Because our control is PC-based, data storage, networking, and memory are expandable. The open PC architecture permits service and upgrades to be performed well into the future and at substantially less cost than dedicated systems.

What really separates our control is its ease of programming and set-up. For years we have listened to our customers who offer creative ideas to make the control more intuitive and less susceptible to programming errors. These features include handwheel controlled program execution and look-ahead graphics that are unique. This should be no surprise since Milltronics has been building controls since 1973. While the control is uniquely easy to use, it is also 100% compatible with standard M and G code format.
Milltronics VM Series of machines offer the best in machining technology, holding every machine to the highest industry standards. Cable routing, chip control, component reliability, and overall serviceability are carefully scrutinized to ensure years of reliable operations and a minimal amount of future repair costs.

All VM models are designed using the latest Solid Modeling techniques and further undergo Finite Element Analysis (FEA) for cost efficiency while maintaining structural integrity. Multiple inspections during machine construction, including a comprehensive final inspection with ballbar and laser certification, ensure high value, quality machining centers.

Milltronics offers a wide variety of linear ball way or linear roller way machining centers to satisfy the simplest to the most demanding applications. While travels, spindle RPM, horsepower, and accessories vary, certain key features are constant throughout the entire VM line, regardless of size, weight, or price. All VM's are proudly built in America with high quality components to guarantee our foremost commitment to reliability. You select accessories to match your application.

Heavy Duty, 60 mm, 8000 rpm, Five Bearing Spindle Cartridge; or 15K with Ceramic Bearings. Premier Pkg offers 70 mm Cartridge. Inline Spindles and Integral HSK63 Spindles Available to 30,000 RPM

Air Purged Spindle with Labyrinth Seal Prevents Contamination

Automatic Tool Changers From 16 Pocket Carousel to 40 Pocket Double Arm Type

Six Nozzle Variable Height Flood Coolant with Through Head Cooling

Sealed NEMA Standard Electrical Box Prevents Contamination

Wash Down, Air Blast Hose and Work Lamp

Speed Rated Metal Way Covers for Soft Accel/Decel

35 or 45 mm linear ball ways with upgrade to roller ways in Premier Pkg

Oversize Precision Ground Table with Extra "T" Slots

Heavy Duty Metal Enclosure

Structurally Designed for Superior Dampening

Large Pull Out Coolant Tank with 1/4 HP Pump

Air/Oil System for Milling Abrasives

Inverted Rail Design Centers Spindle Over Table Bearing Blocks At All Times - Offers Superior Table Support

Patent Pending Thermal Growth Compensation

Matched AC Digital Axis Drives and Motors Provide 1000 IPM Rapids; Premier Package offers 1600 IPM Rapids

Large Side Access Doors For Oversized Workpieces

Spindle Taper Blowout with Positive Tool Ejection

High Torque Closed Loop Vector Spindle Drive with Full Regen System

700 PSI Coolant Through Spindle

Air Regulator and Low Air Switch

User Friendly PC-based CNC

Chip Drawer, Chip Auger, or Conveyor and Wash Down

Metered Auto Lube with Low Lube Fault (Except VM15)

Electronic Spindle Orient

Rigid Tapping

Optional 4th or 5th Axis

Swivel Pendant Station

Precision Ground Double Anchored Ball Screws

Protected Wiring Throughout

All Critical Mating Surfaces Are Precision Ground

CE Certification Available

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The Milltronics unique inverted rail between the table and the saddle takes more time to assemble, but it offers superb performance and rigidity over other designs. Bearing blocks always remain centered under the spindle as the table traverses. Every surface where linear ways and bearing blocks are mounted is precision ground.

Spindles up to 15,000 rpm on 60 and 70 mm direct belt drive or inline spindles, and 8000 rpm 50 taper spindles offer superior rigidity and performance. Lower rpm spindles utilize a heavy duty triplex bearing design; higher rpm spindles use a ceramic duplex design. All designs use a labyrinth seal with air purge to keep contaminants out of the cartridge.

This true Thermal Compensation System (TCS) measures ball screw length continuously and dynamically compensates for thermal growth. Competitors’ methods often measure temperature and guess at the growth. Our system is extremely effective, reliable and economical, and when combined with a head chiller system, does an excellent job in controlling accuracy in all applications.

Milltronics’ coolant through spindle system uses a premier Deublin rotational coupling that can be run wet or dry. The pump system is rated for 1000 psi or 700 psi at the tool. Competitors often use a friction type coupling with no more than 300 psi of pressure. Our system can also be adapted to an air through tool system and is available on #40 or #50 spindles, belt or inline, and any RPM.

Electrical enclosures are NEMA standard and sealed to keep contamination out. Cooling is accomplished by routing air under a sealed subpanel. UL electrical compliance is available.

Every machine is subjected to stringent ballbar tests and laser calibration. Compensation tables are automatically loaded into the control. These reports are sent along with the machine and archives to our network.
**REASONS TO CONSIDER MILLTRONICS VMs**

<table>
<thead>
<tr>
<th>OURS</th>
<th>THEIRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Heavily ribbed cast iron castings</td>
<td>• Low cost castings with very little ribbing</td>
</tr>
<tr>
<td>• Capacity for heavy table loads</td>
<td>• Heavy loads can damage machine</td>
</tr>
<tr>
<td>• Inverted saddle to table rail design</td>
<td>• Bearing blocks go off center</td>
</tr>
<tr>
<td>• All rails and ways are mounted on ground surfaces</td>
<td>• Mounted on machined surfaces, not ground</td>
</tr>
<tr>
<td>• Table surface ground with extra T slots</td>
<td>• Table not ground or too narrow</td>
</tr>
<tr>
<td>• Swivel control station with keyboard storage option</td>
<td>• No provision for full keyboard</td>
</tr>
<tr>
<td>• Removable side doors allow for large parts</td>
<td>• Small doors in wrong location</td>
</tr>
<tr>
<td>• Chip drawer, auger, or conveyor</td>
<td>• Limited choices for chip removal</td>
</tr>
<tr>
<td>• Metal high speed way covers</td>
<td>• Light gauge or fabric covers</td>
</tr>
<tr>
<td>• Autolube on most models</td>
<td>• Grease only</td>
</tr>
<tr>
<td>• Air/oil lube system for machining abrasives</td>
<td>• No special lube system for machining abrasives</td>
</tr>
<tr>
<td>• Roller way option</td>
<td>• Ball ways only</td>
</tr>
<tr>
<td>• High quality precision ground ball screws</td>
<td>• Ball screws with low quality rolled threads</td>
</tr>
<tr>
<td>• Patent pending Thermal Compensation System (TCS) measures true ball screw growth</td>
<td>• Less accurate thermal compensation system measures temperature and guesses at growth</td>
</tr>
<tr>
<td>• 1600 ipm high performance upgrade</td>
<td>• 800 or 1000 ipm typical</td>
</tr>
<tr>
<td>• Optional inline spindle configuration with chiller</td>
<td>• Offer belted spindles only</td>
</tr>
<tr>
<td>• Spindle has labyrinth air purge seal, top &amp; bottom</td>
<td>• No seals allowing spindle bearing contamination</td>
</tr>
<tr>
<td>• All electrical cabinets sealed from the environment</td>
<td>• Dirty shop air blown into electrical boxes</td>
</tr>
<tr>
<td>• Meticulous attention to wire routing details</td>
<td>• Cables/wiring exposed to chips and coolant</td>
</tr>
<tr>
<td>• 70 mm optional spindle for high side loads</td>
<td>• Only 60 or 65 mm spindle available</td>
</tr>
<tr>
<td>• 50 taper spindle machines standard with rollerways and dampening block</td>
<td>• With 50 taper spindle still use ballways and no dampening blocks</td>
</tr>
<tr>
<td>• High torque delta/wye spindle motor options</td>
<td>• Single speed motors only</td>
</tr>
<tr>
<td>• High torque or rpm spindles driven with a Trac belt</td>
<td>• Spindles driven by &quot;V&quot; belts that slip</td>
</tr>
<tr>
<td>• AC brushless type axes (direct coupled) and spindle motors</td>
<td>• DC or industrial motors</td>
</tr>
<tr>
<td>• Closed loop servo spindle motors critically balanced</td>
<td>• Inexpensive non-servo type induction motors</td>
</tr>
<tr>
<td>• Coolant routed through head to six spigots</td>
<td>• Single or two spigots without head chilling</td>
</tr>
<tr>
<td>• Spindle deceleration regen energy returned to power line</td>
<td>• Energy dumped into resistors</td>
</tr>
<tr>
<td>• 700 psi coolant or air through spindle, Deublin coupling</td>
<td>• Belted spindle only</td>
</tr>
<tr>
<td>• User-friendly PC-based conversational control and G/M code compatible</td>
<td>• 300 psi system with pancake coupling</td>
</tr>
<tr>
<td>• 3-D color graphics with cutting path preview</td>
<td>• Requires off-line CAD/CAM programming with no conversational prompting</td>
</tr>
<tr>
<td>• Countless powerful features are standard</td>
<td>• Limited graphics, non-color, limited use</td>
</tr>
<tr>
<td>• Full two year warranty with extension options</td>
<td>• Missing many features or expensive options</td>
</tr>
<tr>
<td>• Designed and <strong>built in America!</strong></td>
<td>• Six month or one year warranty</td>
</tr>
<tr>
<td></td>
<td>• Many are imported</td>
</tr>
</tbody>
</table>

**YOU BUILD IT YOUR WAY**

- Choose a 60 or 70 mm spindle
- Choose 8000, 15,000, 20,000 or higher RPM spindles
- Choose #40 or #50 spindle
- Choose HP, single or dual speed
- Choose inline spindle configuration featuring "BIG-PLUS" technology

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**WHAT WE DO NOT DO**

- Operate belted steel bearing spindles above 8000 rpm
- Offer coolant through systems without real coolant couplings
- Mismatch spindle motors and servo drive systems
- Mount linear ways or bearing blocks on machined only (non ground) surfaces
- Blow shop air directly into electrical cabinets
- Specify product performance with "peak" or "instantaneous" ratings

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**MILLTRONICS — THE COMPANY**

- Financially strong
- 35+ year history
- Homespun values
- Family owned

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**COMPONENT COST WILL ALWAYS BE SECONDARY TO COMPONENT RELIABILITY AND QUALITY.**
More weight than most competitors with a surprisingly low price

- **Compare Weight** – Over 8000 lbs
- **Compare Price** – Our standards are often their options
- **Compare Performance** – Heavily ribbed castings provide superior dampening for high speed machining and aggressive milling
- **Compare Control** – No other CNC offers the combination of user friendliness and performance
- **Compare Companies** – Call us, visit us, count on us
- **Compare Quality** – Designed and manufactured in America, and serviced by Americans
- **Compare Accessories** – Build it your way
- **COMPARE!** When you evaluate our products against any competitor you’ll determine how much value we offer!

It’s Your ATC Choice – Carousel or Arm, 16 or 24 Pocket

All VM models are available in a variety of configurations to fit your needs:

- 4th axis rotary table
- High RPM spindles
- Heavy duty 70 mm spindle
- Chip auger or conveyor
- 1600 ipm rapid (40m/min)
- Inline spindle with "BIG-PLUS"
- 700 psi coolant through spindle
- Part probing
- Digitizing
- Increased horsepower
- Tool setter
- Roller linear ways
- ATC style and size
- Optional five axes with trunnion table

You never need to purchase what you do not need.

<table>
<thead>
<tr>
<th>VM15 &amp; VM15XT</th>
<th>VM16 &amp; VM16XT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table Size</strong></td>
<td><strong>Table Size</strong></td>
</tr>
<tr>
<td>40 x 16&quot;</td>
<td>45 x 16&quot;</td>
</tr>
<tr>
<td>1015 x 405 mm</td>
<td>1150 x 405 mm</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td><strong>Travel</strong></td>
</tr>
<tr>
<td>25 x 16 x 20&quot;</td>
<td>30 x 16 x 20&quot;</td>
</tr>
<tr>
<td>635 x 405 x 510 mm</td>
<td>760 x 405 x 510 mm</td>
</tr>
<tr>
<td><strong>Optional Travel</strong></td>
<td><strong>Optional Travel</strong></td>
</tr>
<tr>
<td>30 x 16 x 20&quot;</td>
<td>30 x 16 x 26&quot;</td>
</tr>
<tr>
<td>760 x 405 x 510 mm</td>
<td>760 x 405 x 660 mm</td>
</tr>
<tr>
<td><strong>Horsepower</strong></td>
<td><strong>Horsepower</strong></td>
</tr>
<tr>
<td>12/10 HP</td>
<td>18/12 HP</td>
</tr>
<tr>
<td>9/7.5 kw</td>
<td>13/9 kw</td>
</tr>
<tr>
<td><strong>Optional HP</strong></td>
<td><strong>Optional HP</strong></td>
</tr>
<tr>
<td>18/12 HP</td>
<td>24/15 HP</td>
</tr>
<tr>
<td>13/9 kw</td>
<td>18/11 kw</td>
</tr>
<tr>
<td><strong>ATC</strong></td>
<td><strong>ATC</strong></td>
</tr>
<tr>
<td>16 Carousel</td>
<td></td>
</tr>
<tr>
<td><strong>Optional ATC</strong></td>
<td><strong>Optional ATC</strong></td>
</tr>
<tr>
<td>24 Carousel or 16 or 24 Arm</td>
<td>24 Carousel, 16 or 24 Arm</td>
</tr>
</tbody>
</table>

Travels of 30x16x20”
Available with 26” of extended Z travel to accommodate long tools or large parts with 30” of table travel
Look inside for a full appreciation of our designs

Heavy Duty Designs

Our construction includes a wide casting footprint, massive table, true servo type spindle drive, heavy gauge metal enclosure, automatic lubrication, and much, much more.

Designed and manufactured in the U.S.A.
The VM22, VM25, VM25XT, VM30, and VM30XT were all designed with heavyweight, oversize columns and bases with massive ribbing. These models can accommodate large heavy workpieces with ease. Saddles travel up to 30" and tables travel to 60". All VMs can be configured with riser blocks if you need even more room under the spindle. You must see them in person in order to really appreciate the mass of these machines.

<table>
<thead>
<tr>
<th></th>
<th>VM22</th>
<th>VM25 &amp; VM25XT</th>
<th>VM30 &amp; VM30XT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>45 x 24&quot;</td>
<td>56 x 24&quot;</td>
<td>56 x 24&quot;</td>
</tr>
<tr>
<td>XT Table Size</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Travel</td>
<td>40 x 22 x 26&quot;</td>
<td>50 x 25 x 24&quot;</td>
<td>50 x 30 x 24&quot;</td>
</tr>
<tr>
<td>XT Travel</td>
<td>N/A</td>
<td>60 x 25 x 24&quot;</td>
<td>60 x 30 x 24&quot;</td>
</tr>
<tr>
<td>Horsepower</td>
<td>24/15 HP, 18/11 kw</td>
<td>2 Speed 24/15 HP, 18/11 kw</td>
<td>2 Speed 24/15 HP, 18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 24/15 HP, 18/11 kw</td>
<td>2 Speed 35/25 HP, 26/18 kw</td>
<td>2 Speed 35/25 HP, 26/18 kw</td>
</tr>
<tr>
<td>ATC</td>
<td>24 Pocket Carousel</td>
<td>24 Pocket Carousel</td>
<td>24 Pocket Carousel</td>
</tr>
<tr>
<td>Optional ATC</td>
<td>24 Pocket Arm</td>
<td>24 or 40 Pocket Double Arm</td>
<td>24 or 40 Pocket Double Arm</td>
</tr>
<tr>
<td>Weight</td>
<td>16,000 lbs</td>
<td>19,000 lbs</td>
<td>20,000 lbs</td>
</tr>
</tbody>
</table>

Pictured above: VM25
Designed for Heavy Duty Milling

#50 Taper Models Handle The Toughest Jobs

STANDARD XP EXTRAS

• Heavy duty linear roller ways
• Dampening blocks between head and column
• 90 mm #50 spindle
• 32 pocket arm ATC
• Large two speed spindle drive
• Optional gear box
• Available with extended travels, coolant through spindle and other popular accessories

VM30XP CONSTRUCTED WITH 45 MM ROLLER STYLE LINEAR RAILS

Only the highest quality machine tool manufacturers are building machines using roller style linear rails.

Roller ways have more surface contact between the rail and roller than typical ball ways. This increased surface contact adds 44% more rigidity to the machine tool.

Technologically Advanced Roller Style Linear Rail

Conventional Ball Style Linear Rail

VM XP MODELS — HEAVY DUTY 50 TAPER SPINDLE DESIGNS

VM22XP VM25XP VM30XP

50 TAPER • 8000 RPM • OPTIONAL TWO SPEED GEAR BOX

1000 ft/lbs of low RPM torque in three ranges is achieved by combining an optional two range gear box and two speed motor for optimal cutting torque at any RPM. An 8000 RPM spindle offers high speed machining capabilities for flexibility to handle any jobs that come through your door.

Unmatched performance from any machine in its class!

SERIOUS POWER • SERIOUS PERFORMANCE
SERIOUS RIGIDITY • SERIOUS PRODUCTIVITY

<table>
<thead>
<tr>
<th></th>
<th>VM22XP</th>
<th>VM25XP (XT)</th>
<th>VM30XP (XT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>45 x 24&quot;</td>
<td>1150 x 610 mm</td>
<td>56 x 24&quot;</td>
</tr>
<tr>
<td>XT Table Size</td>
<td>N/A</td>
<td>66 x 26&quot;</td>
<td>1680 x 660 mm</td>
</tr>
<tr>
<td>Travel</td>
<td>40 x 22 x 26&quot;</td>
<td>1015 x 560 x 660 mm</td>
<td>50 x 25 x 24&quot;</td>
</tr>
<tr>
<td>XT Travel</td>
<td>N/A</td>
<td>60 x 25 x 24&quot;</td>
<td>1524 x 635 x 610 mm</td>
</tr>
<tr>
<td>Horsepower</td>
<td>2 Speed 24/15 HP</td>
<td>2 Speed 24/15 HP</td>
<td>2 Speed 2 Speed 2 Speed 2 Speed 2 Speed 2 Speed</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 2 Speed 2 Speed 2 Speed 2 Speed</td>
</tr>
<tr>
<td>Gearbox</td>
<td>N/A</td>
<td>N/A</td>
<td>Optional</td>
</tr>
<tr>
<td>ATC</td>
<td>32 Pocket #50 Double Arm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>18,000 lbs</td>
<td>8100 kg</td>
<td>21,000 lbs</td>
</tr>
</tbody>
</table>
Inline spindles matched with high speed machine design features offer extremely high performance.

All inline spindles feature "BIG-PLUS" technology

Most VM machining centers and BR bridge mill models and all TT models are available with an inline spindle. These spindles remain a cartridge type spindle for easy maintenance. Inline spindles are available in either 10,000 or 15,000 RPM with coolant through as an option. The spindles may be powered by either a 24/15 HP (18/11 kw) or a 35/25 HP (26/18 kw) motor.

Inline spindles offer improved performance at higher RPM's by eliminating pulleys and belts. This design reduces inertia, vibration and head heating thereby improving part finish, tolerances and ramping time.

The VMs and BRs that incorporate inline spindles are packaged to include accessories for optimal high speed performance. For this reason VMIL and BRIL machines with inline spindles have their own separate price and specification sheets. These machines are referred to as the Inline and include the VM16IL, VM20IL, VM25IL and VM30IL, as well as the BR50IL, BR60IL and BR80IL which are also available with extended travel options. All IL models incorporate superior roller ways as a standard or optional feature and spindle chiller to optimize high speed performance.

Other models including TT Twin Table Machining Centers come standard with inline spindle technology.

All inline spindles feature the "BIG-PLUS" spindle nose as a standard feature. This offers superior stiffness when tools have high sideloads or are long in length.
While linear way machines offer many advantages over solid way construction, smaller, lighter weight machines can benefit from the dampening that solid box way construction offers. Milltronics offers two compact box way machining centers designed to take advantage of this added dampening yet offer all the same control features as our VM linear way machining centers.

**Compact Yet Robust**

- The RW machining centers offer incredible performance for their weight and envelope size
- Standard carousel ATC on RW15, double arm style ATC standard on RW20
- Single phase power available
- Heavily dampened with box way construction
- Accessories available to match your application

<table>
<thead>
<tr>
<th></th>
<th>RW15</th>
<th>RW20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table Size</strong></td>
<td>30 x 14&quot;</td>
<td>30 x 18&quot;</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td>25 x 15 x 20.5&quot;</td>
<td>25 x 20 x 20.5&quot;</td>
</tr>
<tr>
<td><strong>Horsepower</strong></td>
<td>12/10 HP 9/7.5 kw</td>
<td>12/10 HP 9/7.5 kw</td>
</tr>
<tr>
<td><strong>Optional HP</strong></td>
<td>18/12 HP 13/9 kw</td>
<td>18/12 HP 13/9 kw</td>
</tr>
<tr>
<td><strong>ATC</strong></td>
<td>16 Pocket Carousel</td>
<td>16 Pocket Arm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6500 lbs 2950 kw</td>
<td>8500 lbs 3860 kg</td>
</tr>
</tbody>
</table>
Huge travels and table surfaces put this machine right between the lightweight routers and heavyweight cast bridge machines

STANDARD FEATURES
• Linear ball way construction with linear roller way option
• Precision ground ball screws
• 24/15 (18/11 kw) closed loop spindle drive and motor with full line regen
• 8000 rpm #40 spindle cartridge
• Electronic spindle orient
• High torque AC digital servos
• Metal way covers
• Same powerful CNC control
• Manufactured in the U.S.A.

OPTIONS
• Extended table travel to 150"
• 24 Pocket carousel ATC
• Flood coolant system with six nozzles and coolant trough around table perimeter
• Riser block
• 15K spindle
• Inline spindle with "BIG-PLUS"
• Dual augers
• Y and Z roller ways
• Side door enclosure
• 300 psi coolant through spindle

These are perfect machines for large fabricated parts, plates, aluminum molds and wood patterns.

• 50, 60 or 80" between columns with 100 or 150" table travel
• Can handle large parts with 28" Z travel and over 2' under the column (risers also available)

Need something different? Call us.

<table>
<thead>
<tr>
<th>Table Size</th>
<th>BR50 &amp; BR50IL*</th>
<th>BR60 &amp; BR60IL*</th>
<th>BR80 &amp; BR80IL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Travel</td>
<td>150 x 60&quot;</td>
<td>150 x 60&quot;</td>
<td>150 x 60&quot;</td>
</tr>
<tr>
<td>Optional Travel</td>
<td>150 x 50 x 28&quot;</td>
<td>150 x 50 x 28&quot;</td>
<td>150 x 50 x 28&quot;</td>
</tr>
<tr>
<td>Horsepower</td>
<td>24/15 HP</td>
<td>24/15 HP</td>
<td>24/15 HP</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 24/15 or 35/25 HP</td>
<td>2 Speed 18/11 or 26/18 kw</td>
<td>2 Speed 24/15 or 35/25 HP</td>
</tr>
<tr>
<td>ATC Option</td>
<td>24 Pocket Carousel</td>
<td>24 Pocket Carousel</td>
<td>24 Pocket Carousel</td>
</tr>
<tr>
<td>Weight</td>
<td>13,000 lbs</td>
<td>14,000 lbs</td>
<td>16,000 lbs</td>
</tr>
</tbody>
</table>

*NOTE: IL designates inline spindle. See page 11 for inline spindle details.
Imagine – A Machine That Never Stops!
Standard with Inline Spindle
Featuring "BIG-PLUS" Technology

New concept machine designed to keep your CNC operator busy every moment
• No leaning into the machine!
• No doors to open and close!
• No time lost changing parts!
• Accurate time management
• Superior chip and coolant control
• Inline "BIG-PLUS" spindle standard
• Designed by American craftsmen

<table>
<thead>
<tr>
<th>Feature</th>
<th>TT24</th>
<th>TT40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>24 x 24&quot;</td>
<td>40 x 43&quot;</td>
</tr>
<tr>
<td>Travel</td>
<td>23 x 25 x 20&quot;</td>
<td>42 x 40 x 29&quot;</td>
</tr>
<tr>
<td>Horsepower</td>
<td>2 Speed 24/15 HP</td>
<td>2 Speed 24/15 HP</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 35/25 HP</td>
</tr>
<tr>
<td>ATC</td>
<td>24 Pocket Arm</td>
<td>40 Pocket Arm</td>
</tr>
<tr>
<td>Weight</td>
<td>16,000 lbs</td>
<td>40,000 lbs</td>
</tr>
<tr>
<td>Spindle Type</td>
<td>#40 — 10,000 or 15,000 RPM</td>
<td>#40 — 10,000 or 15,000 RPM</td>
</tr>
<tr>
<td>Optional Spindle</td>
<td>N/A</td>
<td>#50 — 8000 RPM</td>
</tr>
</tbody>
</table>
Key Features of our Twin Table Machines

Run the same job, different job, or even setup while running

Ergonomics
- Maximum operator efficiency
- No lost time on part reloading
- Easy to clean and maintain
- Safe with operator loading and unloading outside the work area
- Easy setup
- No bending into the machine
- No doors to open and close
- No crane restrictions
- No multiple machine timing issues

Features
- Inline spindle design incorporates "BIG-PLUS" technology
- Superior bridge construction
- High rapid speeds
- Spindle RPM's to 15,000
- Can incorporate rotary tables
- Efficient floor space use

Advantages Over Pallet Changers
- Integrated design
- No impact on geometry
- No issues of chip control
- No loss of spindle clearance
- Lower cost
- Less maintenance

Twin Table Large Envelope Medium Duty Bridges

Large Parts Take Even Longer to Load and Unload

Affordable Medium Duty Large Envelope Twin Table
- 60x60" or 60x80" twin tables
- Customized for your application with: spindle RPM's up to 15,000, 24 or 35 HP, coolant through, enclosure, dual auger, risers, 24 pocket ATC

<table>
<thead>
<tr>
<th>Table Size</th>
<th>TT60</th>
<th>TT80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>56 x 60&quot;</td>
<td>1420 x 1524 mm</td>
</tr>
<tr>
<td>Travel</td>
<td>60 x 60 x 28&quot;</td>
<td>1524 x 1524 x 711 mm</td>
</tr>
<tr>
<td>Horsepower</td>
<td>2 Speed 24/15 HP</td>
<td>2 Speed 18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 26/18 kw</td>
</tr>
<tr>
<td>ATC</td>
<td>24 Pocket Carousel</td>
<td>24 Pocket Carousel</td>
</tr>
<tr>
<td>Weight</td>
<td>17,000 lbs</td>
<td>7700 kg</td>
</tr>
<tr>
<td>Spindle Type</td>
<td>#40 — 10,000 or 15,000 RPM</td>
<td>#40 — 10,000 or 15,000 RPM</td>
</tr>
</tbody>
</table>
Some Things Are Just Done Better Horizontally

Why Horizontal

• Chip relief in deep hole drilling and cavity milling
• Multiside machining with indexer or rotary with one setup
• Certain parts just fit better
• Milling on complex surfaces with full rotary table
• Heavy duty milling unlike rotary type pallet changers

Machining Four Sides in One Setup Has Huge Benefits

• Better part integrity
• Better operator utilization
• Enormous time savings

Heavier milling performance than rotary type pallet changer machines

<table>
<thead>
<tr>
<th></th>
<th>HM20</th>
<th>HM35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>34 x 20&quot;</td>
<td>59 x 26&quot;</td>
</tr>
<tr>
<td>Travel X, Y, Z</td>
<td>30 x 34 x 20&quot;</td>
<td>51 x 35 x 25&quot;</td>
</tr>
<tr>
<td>Optional Table</td>
<td>45 x 20&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>Optional Travel</td>
<td>40 x 34 x 20&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>Horsepower</td>
<td>2 Speed 24/15 HP</td>
<td>24/15 HP</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 24/15 or 35/25 HP</td>
</tr>
<tr>
<td>ATC</td>
<td>24 Pocket Arm</td>
<td>30 Pocket Arm</td>
</tr>
<tr>
<td>Weight</td>
<td>10,000 lbs</td>
<td>24,000 lbs</td>
</tr>
<tr>
<td>Spindle</td>
<td>Inline #40 — 10,000 or 15,000 RPM</td>
<td>#40 — 8,000 or 15,000 RPM</td>
</tr>
</tbody>
</table>

Pictured above: HM20
Linear roller ways, 24 pocket retractable arm ATC

Pictured above: HM35
Heavier milling performance than rotary type pallet changer machines

Pictured above: Retractable tool changer
Removes ATC from work envelope
**MLs Deliver on High Performance at Low Cost**

The Milltronics ML16, ML18, ML22 and ML26 are designed for toolroom or heavy production incorporating large double box ways with Turcite, and a variety of spindle configurations and conveyor chip removal systems. Our large swing lathes are naturally geared toward production environments but all ML models incorporate manual operation, handwheel teach, conversational programming, or Fanuc compatibility so one piece or 10,000 pieces can be run efficiently. All ML lathes have a chuck guard and door safety switches with interlocks.

**Combination lathes operate in Manual, Teach, Conversation, or G/M Code For Toolroom or Production Applications**

- Supports both manual tooling or 8 position automatic turret
- Optional steady rest and follow rest
- Full enclosure with safety switch and door interlocks
- Large chip drawer
- High torque full line regen vector spindle drive system
- **AC digital servos**
- Supports an 8” or 10” chuck
- Automatic lubrication with low lube fault
- Ergonomic design for easy access

**Production Options**

- Hydraulic chuck with up to 2” bar capacity
- Barfeeder system with spindle orient
- Optional steady rest and follow rest
- Optional conveyor
- Optional automatic turrets

**ML16**
- 17” Swing, 40” Bed, 2” Bore
- High Torque, Gearless Spindle Drive Systems Standard

**ML18**
- 19” Swing, 60” Bed, 2.5” Bore

These lathes are not your typical lightweight "V" way lathes. With large box ways and Turcite, these lathes can run high production day in and day out.

See [www.partnermachines.net](http://www.partnermachines.net) for simple CNC & manual lathes.
Unique World Class Design

The most unique toolroom/production lathe in the world. We started with a fresh piece of paper.

- Manual, Teach, Conversational, or G/M code programming
- Powerful CNC control with color graphics
- Large box ways with Turcite deliver maximum wear and excellent dampening for high production and toolroom applications alike.
- 8 or 12 position automatic turrets, conveyors and hydraulic chuck options available
- Optional live tooling and hydraulic tail stock
- ML26 available with rear mount chuck option
- High torque spindle motors with two speed option
- No gears, no oil pump in the head stock eliminating gearbox vibration, heating, and wear

You decide how to equip your ML:

- Toolrooms will want manual chucks, chip drawers, and tool posts.
- Production applications might want hydraulic chucks, automatic turrets, live tooling turrets, barfeeders, rear chucks, conveyors, and more.

23 and 27" Swings Bed Lengths to 160"

Pictured above: ML22/60
An optional hydraulic quill is available for the tail stock. It can be operated either manually, by using a footswitch or through the CNC by programming with an M function code.

A high pressure gear type coolant pump and high quality metered autolube system with low lube fault is standard.

For production and heavy cutting applications an optional belt style chip conveyor with a chip wash down system is available for machines with bed lengths of 60" or greater.

Oversize box ways with Turcite and gap bed are designed for easy chip flow into chip drawers or optional conveyor. Chuck guards and machine guarding are standard.

An optional front mounted Super Dorian or Quadra tool post can be added. Sizes range from ¾" tool post on smaller lathes to 1½" on larger.

For simpler lathe applications an optional front mounted Super Dorian or Quadra tool post can be added. Sizes range from ¾" tool post on smaller lathes to 1½" on larger.

Tail stock & enclosure are standard

Big Bore and Bigger Bore!

<table>
<thead>
<tr>
<th>Swing</th>
<th>Spindle Bore</th>
<th>Horsepower</th>
<th>Optional HP</th>
<th>Max RPM</th>
<th>Bed Length</th>
<th>Spindle Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML22/60</td>
<td>23&quot; 580 mm 3.22&quot; 82 mm</td>
<td>24/15 18/11 kw</td>
<td>2 Speed 24/15 2 Speed 18/11 kw</td>
<td>2000</td>
<td>60&quot; 1.5m</td>
<td>A1-8</td>
<td>10,000 lbs 4500 kg</td>
</tr>
<tr>
<td>ML26/40</td>
<td>27&quot; 685 mm 3.22&quot; 82 mm</td>
<td>24/15 18/11 kw</td>
<td>2 Speed 24/15 2 Speed 18/11 kw</td>
<td>1600</td>
<td>40&quot; 1m</td>
<td>A1-8</td>
<td>9500 lbs 4300 kg</td>
</tr>
<tr>
<td>ML26/80</td>
<td>27&quot; 685 mm 4.17&quot; 106mm</td>
<td>24/15 18/11 kw</td>
<td>2 Speed 24/15 2 Speed 18/11 kw</td>
<td>1600</td>
<td>80&quot; 2m</td>
<td>A1-11</td>
<td>11,500 lbs 5200 kg</td>
</tr>
<tr>
<td>ML26/120</td>
<td>27&quot; 685 mm 6&quot; 153 mm</td>
<td>24/15 18/11 kw</td>
<td>2 Speed 24/15 2 Speed 18/11 kw</td>
<td>1600</td>
<td>120&quot; 3m</td>
<td>A2-11</td>
<td>13,200 lbs 6000 kg</td>
</tr>
<tr>
<td>ML26/160</td>
<td>27&quot; 685 mm 6&quot; 153 mm</td>
<td>24/15 18/11 kw</td>
<td>2 Speed 24/15 2 Speed 18/11 kw</td>
<td>1600</td>
<td>160&quot; 4m</td>
<td>A2-11</td>
<td>17,200 lbs 7800 kg</td>
</tr>
</tbody>
</table>

*RPM may be limited due to chuck size and workpiece
Big Swing Heavy Duty Lathes

ATTENTION Oil Field & Mold Shops
Need a 14" bore or 240" bed?

The head stock is rigid and well balanced for high speed running & huge loading capacity. An automatic speed changing system through a gear box reduces noise in the head stock. Standard spindle bore is 4", available with 6", 10", and 14".

A two-step gear box provides high torque spindle power. Smooth and fast speed changing time ensures fast running times.

The oversized chuck guard with interlock accommodates large chucks and work holding fixtures while the traveling chip door attaches to the carriage and ensures safe and easy operation with maximum possible door opening for long workpieces.

Oversize chuck guards with interlock accommodate front and rear mounted chucks or workholding fixtures. The traveling enclosure door attaches to the saddle for safe operation and maximum door opening for long workpieces.

<table>
<thead>
<tr>
<th>Swing</th>
<th>Spindle Bore</th>
<th>Horsepower</th>
<th>Optional HP</th>
<th>RPM*</th>
<th>Bed Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML35</td>
<td>36&quot; 920 mm</td>
<td>4.17&quot; up to 14&quot; 106 mm up to 355 mm</td>
<td>35/25 26/18 kw</td>
<td>44/30 33/22 kw</td>
<td>10-375 to 10-1480, 2 ranges</td>
</tr>
<tr>
<td>ML40</td>
<td>39.7&quot; 1010 mm</td>
<td>4.17&quot; up to 14&quot; 106 mm up to 355 mm</td>
<td>35/25 26/18 kw</td>
<td>44/30 33/22 kw</td>
<td>10-375 to 10-1480, 2 ranges</td>
</tr>
</tbody>
</table>

*RPM may be limited due to chuck size and workpiece. RPMs specified are for 4" bore machines.
The heavily ribbed carriage is designed for maximum support of the cross slide. Turcite surfaces eliminate excessive wear and increase positioning accuracy. The large box way bed design offers added rigidity for heavy workpieces and heavy cutting. The deep bed design allows for oversized openings in the bed for easy chip removal into chip drawers, or an optional chip conveyor, while still maintaining the accuracy of the bed.

The oversized cross slide offers flexibility in tooling the lathe. Select from an optional front mounted single tool post, an automatic turret that can be either front or rear mounted without diminished turning capacity.

The uniquely designed tail stock has an oversized quill that allows full Z axis cutting length between centers. The optional tail stock lock mechanism allows the tail stock to be positioned by the carriage for convenient positioning. Some models are available with an optional hydraulic quill.

The machines are equipped with a metered, automatic lubrication system that is easy to monitor and integrated into the CNC control system and offers on-screen low lube warnings. The oversized coolant tanks ensure proper flood coolant volume during extended cutting operations. Chip drawers mounted on rails above the flood coolant tanks offer easy chip removal and cleaning. A chip conveyor is optional on most models. A heavy duty flood pump offers a high volume of flood coolant for any type of tooling or application.
Long life linear way construction on a massive cast iron base for maximum rigidity and dampening.

Our CNC turning controls offers full graphics with conversational programming as well as M and G Code compatibility.

- Hydraulic chuck
- Hydraulic tail stock
- Options include: chip conveyor, parts catcher, tool probe, barfeeder
- Programmable tail stock

30° slant with four angular spindle bearings with 1000 IPM rapids

Linear rail construction on a massive cast iron base for maximum rigidity and dampening qualities

Spindle has large bore, yet still offers high rpm. Tool touch probe provides quick and easy set-up.

Tail stock is hydraulically driven and is standard equipment. Optional programmable tail stock is available.

<table>
<thead>
<tr>
<th>SL6</th>
<th>SL10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turning Diameter</td>
<td>12.25&quot; 310 mm</td>
</tr>
<tr>
<td>Bar Capacity</td>
<td>1.65&quot; 42 mm</td>
</tr>
<tr>
<td>Turning Length</td>
<td>21&quot; 530 mm</td>
</tr>
<tr>
<td>Spindle Nose</td>
<td>A2-5</td>
</tr>
<tr>
<td>Spindle Speed</td>
<td>50 - 6000</td>
</tr>
<tr>
<td>Optional HP</td>
<td>12/10 9/7.5 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>18/12 13/9 kw</td>
</tr>
<tr>
<td>Chuck Size</td>
<td>6&quot; 152 mm</td>
</tr>
<tr>
<td>Rapid Velocity</td>
<td>1000 ipm 25.4 m/m</td>
</tr>
<tr>
<td>Machine Weight</td>
<td>7000 lbs 3180 kg</td>
</tr>
</tbody>
</table>

Some features may be optional.

Designed for high production

Hydraulic 3-jaw chuck with parts catcher (includes hard & soft jaws) driven with full regen spindle drive.
SL HEAVY DUTY TURNING CENTER

SL12  SL12XT

Fast, Rugged, Economical

Pictured above: SL12

FAST TURRET INDEX
Equipped with eight position 1¼" bidirectional turret

PROGRAMMABLE TAIL STOCK
Quill is activated with a foot pedal
Optional tail stock positioning available

OPTIONAL PARTS CATCHER
Greatly increases productivity when combined with a barfeeder

<table>
<thead>
<tr>
<th></th>
<th>SL12</th>
<th>SL12XT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turning Diameter</td>
<td>17.7&quot; 450 mm</td>
<td>17.7&quot; 450 mm</td>
</tr>
<tr>
<td>Turning Length</td>
<td>29.5&quot; 750 mm</td>
<td>49.2&quot; 1250 mm</td>
</tr>
<tr>
<td>Bar Capacity</td>
<td>3.58&quot; 91 mm</td>
<td>3.58&quot; 91 mm</td>
</tr>
<tr>
<td>Spindle Nose</td>
<td>A2-8</td>
<td></td>
</tr>
<tr>
<td>Spindle Speed</td>
<td>Low 25-750 RPM — High 750-2,500 RPM</td>
<td></td>
</tr>
<tr>
<td>Horsepower</td>
<td>2 Speed 24/15 HP — 2 Speed 18/11 kw</td>
<td></td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP — 2 Speed 26/18 kw</td>
<td></td>
</tr>
<tr>
<td>Chuck Size</td>
<td>12&quot; 305 mm</td>
<td>12&quot; 305 mm</td>
</tr>
<tr>
<td>Rapid Velocity</td>
<td>800 ipm 20m/m</td>
<td></td>
</tr>
<tr>
<td>Machine Weight</td>
<td>13,250 lbs 6000 kg</td>
<td>18,750 lbs 8500 kg</td>
</tr>
</tbody>
</table>

• Large 3.5" bar capacity
• Hydraulic chuck and tail stock
• Programmable tail stock
• High pressure coolant system
• Accessories: barfeeder, tool setter, parts catcher
• One piece 45º bed
• Heavy duty solid box way construction
• Large bar capacity
• Optional programmable tail stock

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**HM70**

**FEATURES**
- Built-in 1° indexing rotary table
- 3000 RPM #50 spindle
- Quill diameter 4.3" 110 mm
- Huge travels & table loads
- C3 precision screws
- Chip removal system
- Two speed geared head
- 60 pocket arm style ATC
- 50,000 lbs
- Unbelievable price!

<table>
<thead>
<tr>
<th>HM70</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table</strong></td>
<td>47 x 59&quot;</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td>86 x 63 x 61 x 20&quot;</td>
</tr>
<tr>
<td><strong>Spindle</strong></td>
<td>#50 — 3000 PM</td>
</tr>
<tr>
<td><strong>Quill</strong></td>
<td>4.3&quot;</td>
</tr>
<tr>
<td><strong>Rotary</strong></td>
<td>1° Indexing</td>
</tr>
<tr>
<td><strong>ATC</strong></td>
<td>60 Pocket Arm</td>
</tr>
<tr>
<td><strong>HP</strong></td>
<td>35/25 HP</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>50,000 lbs</td>
</tr>
</tbody>
</table>

**ACCESSORIES**
- 90° angle plate
- Universal milling head
- 90° milling head
- Spindle extension sleeve
- Face milling attachments
- 300 PSI coolant through
- Table guard
- Full rotary table
- Features our easy to use Milltronics CNC

**Need large capacity with rotary indexer and 60 pocket ATC?**

Pictured above: HM70
Quill Head for Toolroom Application

The MB is a Bed Type Toolroom Milling Machine with a quill head. This very flexible machine is ideal for low volume and toolroom applications. #40 spindles can accommodate CT, BT, or NST 40 tooling. Rigid tapping is offered as an accessory. The MB20 travels match the RH20 model with accessories that change accordingly. We feature our SLS Skill Level Select software on the MB20. Besides the generous 40 x 20” travel the MB20 can be equipped with rigid tap, table guard, dual handwheels, and much more. The MB20 utilizes the same servo systems, electrics, and control technology as the higher end machining centers, offering superior reliability and performance.

BUILD IT YOUR WAY

FEATURES
• ±45° head
• 6” of manual quill travel
• #40 spindle
• Optional spindle safety ring for #40 tooling
• Optional power drawbar
• Optional quill position readout for easy tool setting
• Back gear for high torque machining
• XY rapid 500 ipm, Z rapid 300 ipm
• No reeves drive
• Extra wide table with 5 “T” Slots
• Precision ground double anchored ball screws
• Metal way covers
• Fully metered lubrication
• Programmable spindle RPM
• Large ground ways with Turcite
• Features our powerful Milltronics CNC

ACCESSORIES
• Rigid tap
• Table guard
• Dual handwheel teach
• Quill readout
• Riser block
• Splash guards with drip pan and programable flood system

<table>
<thead>
<tr>
<th></th>
<th>MB20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table</td>
<td>54 x 16&quot;</td>
</tr>
<tr>
<td>Travel</td>
<td>40 x 20 x 24&quot;</td>
</tr>
<tr>
<td>Spindle</td>
<td>#40</td>
</tr>
<tr>
<td>Quill Diameter</td>
<td>4.125&quot;</td>
</tr>
<tr>
<td>Quill Travel</td>
<td>6&quot;</td>
</tr>
<tr>
<td>RPM</td>
<td>60-500 RPM in low range, 500-4000 in high range</td>
</tr>
<tr>
<td>HP</td>
<td>10/7.5 HP</td>
</tr>
<tr>
<td>Weight</td>
<td>7000 lbs</td>
</tr>
</tbody>
</table>

30 Taper Tooling? No Problem.
Rh20 Toolroom rigid head milling machines have become very popular and are produced in many sizes and configurations, i.e. table guards, no tool changer or 16 or 24 pocket ATCs, handwheels with SLS Skill Level Select teach software or full conventional CNC software, and a variety of RPMs and HPs. The RH rigid head machines offer large travels at very low prices. Because they are heavily dampened, they are very forgiving with less than ideal tooling. Milltronics is clearly the technological leader and by far the largest supplier of this machine type.

**Features**
- 60 mm or optional 70 mm spindle with air purge
- Matched AC digital Yaskawa® axes drives and motors
- 16 or 24 pocket ATC
- Heavy duty cable track
- Programmable flood coolant
- Metered auto lubrication with low lube fault on all axes and ball screws
- Metal way covers
- Oversize saddles for added rigidity
- Large precision ground ways with Turcite
- Rigid tapping
- Air regulator with low air switch
- Drip pan and rear splash guards
- Precision ground double anchored ball screws
- Programmable RPM, vector spindle drive
- Oversize ground table surface with five T slots
- Dual electronic handwheels, optional 4th axis or table guard
- Extremely easy to learn and use CNC

**Options**
- 16 or 24 pocket carousel ATC
- Table guard, with ATC’s, electronic orient, 15,000 RPM spindles, optional 4th axis, networking
- Single phase available
- Built your way
TOOLROOM BED MILLS

RH30, RH33, and RH33XP

- Features a #40 70 mm, air purge, 5 bearing spindle in either 8000 or 15,000 RPM configuration or #50 8000 RPM on RH33XP
- Single or dual speed spindle drives up to 35 HP
- Available with 16 or 24 pocket carousel type ATC (#50 spindle is 20 pocket)
- Many accessories are available, including dual handwheel, table guard, optional 4th axis, tool probes, networking, and much more
- Features the easy to use Milltronics CNC control

RH30, RH33, and RH33XP

<table>
<thead>
<tr>
<th></th>
<th>RH30</th>
<th>RH33</th>
<th>RH33XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Size</td>
<td>73 x 24&quot;</td>
<td>86 x 32&quot;</td>
<td>86 x 32&quot;</td>
</tr>
<tr>
<td></td>
<td>1850 x 610 mm</td>
<td>2185 x 810 mm</td>
<td>2185 x 810 mm</td>
</tr>
<tr>
<td>Travel</td>
<td>60 x 30 x 28&quot;</td>
<td>78 x 33 x 28&quot;</td>
<td>78 x 33 x 28&quot;</td>
</tr>
<tr>
<td></td>
<td>1525 x 760 x 710 mm</td>
<td>2000 x 840 x 710 mm</td>
<td>2000 x 840 x 710 mm</td>
</tr>
<tr>
<td>Spindle</td>
<td>#40 Spindle 8000 or 15,000 RPM</td>
<td>#50 Spindle 8000 RPM</td>
<td></td>
</tr>
<tr>
<td>Horsepower</td>
<td>24/15 HP</td>
<td>24/15 HP</td>
<td>24/15 HP</td>
</tr>
<tr>
<td></td>
<td>18/11 kw</td>
<td>18/11 kw</td>
<td>18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 24/15</td>
<td>2 Speed 24/15</td>
<td>2 Speed 24/15</td>
</tr>
<tr>
<td></td>
<td>2 Speed 18/11 kw</td>
<td>2 Speed 18/11 kw</td>
<td>2 Speed 18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>N/A</td>
<td>2 Speed 35/25</td>
<td>2 Speed 26/18 kw</td>
</tr>
<tr>
<td>Optional ATC</td>
<td>16 or 24 Pocket Carousel</td>
<td>20 Pocket ATC</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>11,000 lbs</td>
<td>15,000 lbs</td>
<td>15,000 lbs</td>
</tr>
<tr>
<td></td>
<td>5000 kg</td>
<td>6800 kg</td>
<td>6800 kg</td>
</tr>
</tbody>
</table>
Giant 120 x 35 x 30" travel and weighs over 40,000 lbs!

FEATURES
- All cast iron construction
- Box way bed design on all axes
- **Base design has 6 box ways** for superior saddle support
- 40 taper spindle 8000 or 15,000 RPM on RH35
- 50 taper spindle 8000 with optional gearbox on RH35XP
- Arm style ATC's with full enclosures for production applications
- Coolant system designed with through head cooling & 6 spigots
- Optional drip pan, rear splash guards, or full enclosure

The RH35 with 120" of table travel and 35" of saddle travel is available with either a #40 or #50 taper spindle, several horsepower and RPM options, a variety of tool changer options, full enclosure, and many other options that allow this machine to be configured for optimum productivity for many applications.

The challenge in designing a large travel machine like the RH35 is to maximize table load capacity while minimizing table rock. A table load capacity of 5000 lbs is achieved by utilizing a mammoth base casting with 6 box ways and a huge saddle covering the entire 120" of travel. A 3" ball screw on X and Y and a huge AC digital servo motor system (5500 watt with 2:1 ratio on Y axis and 7500 watt on X/Z axes) ensure maximum thrust with the heaviest workpieces.

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>RH35</th>
<th>RH35XP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table</td>
<td>126 x 32&quot;</td>
<td>126 x 32&quot;</td>
</tr>
<tr>
<td>Travel</td>
<td>120 x 35 x 30&quot;</td>
<td>120 x 35 x 30&quot;</td>
</tr>
<tr>
<td>Spindle</td>
<td>#40 Spindle</td>
<td>#50 Spindle</td>
</tr>
<tr>
<td>Horsepower</td>
<td>24/15 HP</td>
<td>24/15 HP</td>
</tr>
<tr>
<td></td>
<td>18/11 kw</td>
<td>18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 24/15 HP</td>
<td>2 Speed 24/15 HP</td>
</tr>
<tr>
<td></td>
<td>2 Speed 18/11 kw</td>
<td>2 Speed 18/11 kw</td>
</tr>
<tr>
<td>Optional HP</td>
<td>2 Speed 35/25 HP</td>
<td>2 Speed 35/25 HP</td>
</tr>
<tr>
<td></td>
<td>2 Speed 26/18 kw</td>
<td>2 Speed 26/18 kw</td>
</tr>
<tr>
<td>Optional ATC</td>
<td>16 or 24 Pocket Carousel or</td>
<td>20 Pocket Carousel or</td>
</tr>
<tr>
<td></td>
<td>24 Pocket Arm or Carousel with Full Enclosure</td>
<td>32 Pocket Arm or Carousel with Full Enclosure</td>
</tr>
<tr>
<td>Weight</td>
<td>40,000 lbs</td>
<td>40,000 lbs</td>
</tr>
<tr>
<td></td>
<td>18,150 kg</td>
<td>18,150 kg</td>
</tr>
</tbody>
</table>
The Partner MM18 offers a lot of travel and performance on a very small budget.

Large Travel, Simple Design for Lower Budgets

Milltronics understands that not every application requires a heavy duty machine. The MM is a simple machining center with a very low price tag. If you don't need heavy duty or are on a limited budget, check out the MM18 from Milltronics.

### Features
- Heavily ribbed 7000 lb machine
- Full metal way covers
- AC digital servo motors and spindle drive
- Oversized table
- Precision ball screws
- Linear ways with auto lube

### Accessories
- Programmable flood coolant with splash guards and drip pan
- 16 pocket ATC
- Table guard
- Rigid tap
- Networking
- Increased horsepower
- 4th axes rotary table
- Dual handwheel teach
- Single phase power

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Travel</th>
<th>Table Size</th>
<th>Horsepower</th>
<th>Optional HP</th>
<th>ATC</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM18</td>
<td>30 x 18 x 18&quot;</td>
<td>35 x 16&quot;</td>
<td>12/10 HP</td>
<td>18/12 HP</td>
<td>Optional 16 Pocket</td>
<td>7000 lbs</td>
</tr>
<tr>
<td></td>
<td>760 x 460&quot; x 460 mm</td>
<td>890 x 405 mm</td>
<td>9/7.5 kw</td>
<td>13/9 kw</td>
<td>3180 kg</td>
<td></td>
</tr>
</tbody>
</table>
Toolroom Friendly
Combination Lathe

- Standard manual tail stock
- Dual electronic handwheels for teach, manual, and automatic operation
- Chuck guard and safety switch
- Door interlock safety switch
- Constant surface speed
- Solid cast iron bed construction with hardened and ground way surfaces for maximum cutting performance

Single phase power? NO PROBLEM

- Sealed NEMA standard electrical cabinet prevents contamination
- Precision ground ball screws
- Programmable on/off flood coolant system with large coolant tank
- Automatic metered lubrication with low lube fault
- Optional tool post or 8 station automatic turret

```
<table>
<thead>
<tr>
<th>Swing</th>
<th>Spindle Bore</th>
<th>Horsepower</th>
<th>Spindle Type</th>
<th>Max RPM*</th>
<th>Bed Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL14</td>
<td>14&quot; 355 mm</td>
<td>1.65&quot; 42 mm</td>
<td>12/10 HP 9/ 7.5 kw</td>
<td>Camlock D1-5 MT #4</td>
<td>3000 3000</td>
<td>40&quot; 1000 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Optional 18/12 HP Optional 13/9 kw</td>
<td>Single speed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

*RPM may be limited due to chuck size and workpiece. RPMs specified are for 4" bore machines.

See separate literature or www.partnermachines.net for more details.
2 Axes CNC Knee Mills

The Very Best User Friendly CNC Control

VK & VKM Features
- Power Drawbar
- Spray Mist
- Work Lamp
- Quill Position RO

Priced Better Than Many Manual Mills

Features
- 5 HP vector spindle drive
- Back gear
- 1.25” precision ground ball screws
- Manual handwheels plus CNC
- Automatic lubrication
- Precision ground table
- Meehanite castings
- Full NEMA electrics
- Yaskawa® AC servo drives

Accessories
- Programmable flood & mist
- Rear splash guards
- Quill readout
- Power drawbar

<table>
<thead>
<tr>
<th></th>
<th>Table Size</th>
<th>Travels</th>
<th>Spindle Taper</th>
<th>Horsepower</th>
<th>RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>VK1</td>
<td>49 x 9&quot; 1245 x 230</td>
<td>30 x 11 x 5&quot;</td>
<td>R8 or #30</td>
<td>5 HP</td>
<td>60-4000</td>
</tr>
<tr>
<td></td>
<td>1350 x 250 mm</td>
<td>760 x 280 x 125</td>
<td></td>
<td>3.7 kw</td>
<td>Inverter Drive</td>
</tr>
<tr>
<td>VK2</td>
<td>53 x 10&quot; 1350 x 250</td>
<td>30 x 15 x 5&quot;</td>
<td>R8 or #30</td>
<td>5 HP</td>
<td>60-4000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>760 x 380 x 125</td>
<td></td>
<td>3.7 kw</td>
<td>Inverter Drive</td>
</tr>
</tbody>
</table>

Pictured above: VK2
Shown with accessory packages A & B
Simply Stated,  
The Most Unique Knee Mill in the World!

3 Axes  
CNC Knee Mill

• Driven with AC Servos, not DC  
• Single phase available

Patented MillSlide©

Features
• Oversize Table  
• SLS “Skill Level Select” Toolroom Software that adds functions as the operator’s skill improves or the job requires more  
• Fully programmable spindle and coolant

Accessories
• Rigid Tap  
• 4th Axis  
• Manual or Electronic Handwheels

The only mill with the patented MillSlide© offers a fully programmable Z axis with 5.25” of CNC travel and yet retains all manual quill features for the utmost flexibility

Simply the BEST, because no one else offers so many features in the standard price, no one offers the MillSlide®, and no one pairs these features with the powerful MILLTRONICS CNC with SLS “Skill Level Select” software designed for the toolroom.

<table>
<thead>
<tr>
<th>VKM4</th>
<th>Table size</th>
<th>53 x 12”</th>
<th>1350 x 305 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Travel</td>
<td>30 x 15 x 5.25”</td>
<td>760 x 380 x 130 mm</td>
</tr>
<tr>
<td>Horsepower</td>
<td>7.5 / 5 HP</td>
<td>5.5 / 3.7 kw</td>
<td></td>
</tr>
<tr>
<td>RPM</td>
<td>Low 60 - 500, High 500 - 4000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle</td>
<td>R8, #30, CT40, BT40, or NST40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quill Diameter</td>
<td>4.125”</td>
<td>105 mm</td>
<td></td>
</tr>
<tr>
<td>Quill Travel</td>
<td>6”</td>
<td>152 mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>4600 lbs</td>
<td>2100 kg</td>
<td></td>
</tr>
</tbody>
</table>
PARTNER VERTICAL MANUAL MILLS

VMM3012  VMM3612  VMM3417  VMM3917

Four Rugged Models In Popular Configurations

A Better Manual Mill

Pictured above: VMM3917

Features
• Induction hardened spline spindle
• AC digital spindle amplifier (except 3012)
• 8:1 backgear for high torque
• Micrometer quill depth stop
• Halogen work lamp

• Precision ground table
• Automatic lubrication
• Conveniently located Operators control
• Some items includes in packages

Table Size | Travels | Spindle Taper | Horsepower | RPM
---|---|---|---|---
VMM3012 42 x 9” | 30 x 12 x 5” | R8 | 3 HP | 60 - 4000 Reeves Drive
1065 x 225 mm | 760 x 305 x 125 mm | 2 kw |
VMM3612 49 x 9” | 36 x 12 x 5” | R8 | 3 HP | 60 - 4000 Inverter Drive
1245 x 225 mm | 910 x 305 x 125 mm | 2 kw |
VMM3417 54 x 10” | 34 x 17 x 5” | R8 | 3 HP | 60 - 4000 Inverter Drive
1370 x 255mm | 860 x 430 x 125 mm | 2 kw |
VMM3917 59 x 12” | 39 x 17 x 6” | #40 | 5 HP | 60 - 4000 Inverter Drive
1500 x 305 mm | 990 x 430 x 150 mm | 3.7 kw |

Spindles are driven by Yaskawa spindle amplifiers.

Popular Accessories

- Newall C80 DRO
- Quill Scale RO
- Spray Mist Unit
- Power Feed Unit
Three Rugged Models In Popular Configurations

HML1640 & HML2060 offer a 2-Speed Manual Shifting Head Stock with an AC Spindle Inverter for Variable RPMs

HML1660 & HML2060 offer a 2-Speed Manual Shifting Head Stock with an AC Spindle Inverter for Variable RPMs

Heavy Duty Spindle Assembly with Large Bore
HML16 2.06" - HML20 3.15"

HML1640
- 16"
- 405 mm
- 40" 1000 mm
- 2.06" 52 mm
- 5 HP
- 8 Step Geared 75 - 1800 RPM
- Camlock D1-6

HML1660
- 16"
- 405 mm
- 59" 1500 mm
- 2.06" 52 mm
- 5 HP
- 2 Range 20 - 2500 RPM AC Inverter
- Camlock D1-6

HML2060
- 20"
- 508 mm
- 57" 1445 mm
- 3.15" 80 mm
- 7.5 HP
- 2 Range 20 - 1800 RPM AC Inverter
- Camlock D1-6

Spindle motors driven by Yaskawa amplifiers

Popular Accessories
- Steady Rest
- Micro Carriage Stop
- Taper Attachment
- Follow Rest
The Heart of Our Success

The heart of our success is our long history of control development. Amazingly, we may very well have engineered the finest, most operator-friendly CNC in the world. While that may be a daring statement, thousands of our customers will support it.

Our ingenious approach to connecting the operator to our control is recognized as a model in the industry. Though many have tried to emulate our conversational system, no one has really succeeded. This is because most other designs are developed by engineers without customer input. We keep our engineers connected to customers where we learn exactly what is really wanted. Yet we realize the control must still fit into a shop with G/M code programmers and CAD CAM systems, where conventional protocol is required. We fulfill this need while offering high speed performance, huge memory size, large program editing, and trig help. In fact, our conversational input actually develops a G/M code program which we run from and can be viewed. Even our graphics are unique showing the tool path and tool far ahead of the actual machine, so you can see where you’re going.

Control development is a never-ending challenge as motion control algorithms, enhanced graphics, higher speeds, and management information continue to develop. But productivity gains through quick setup, utilization of lower skilled operators, and power programming shortcuts are still paramount in our design decisions. Have your distributor give you a demonstration.
The other half of a CNC machine is its control. The Milltronics CNC Control meets any challenge. We’ve been writing and building our own software and hardware since 1973.

A Front Panel Designed For The Operator
An operator will spend thousands of hours working with the front panel of any CNC. This is why we have designed our front panel around an oversized high resolution LCD color screen, rather than the tiny monochrome monitor often found on other CNC’s. The operator panel is offered in two configuration, a simple economical panel with tactile keys or an enhanced panel with larger display and enhanced keys. Be assured, however, that regardless of your preference, you will find no equal to the power and simplicity of the Milltronics CNC based control.

Full Color Graphics
Full color graphics allow verification of tool path and part profile prior to program execution. Zoom in/out, rotate or window on detail for a clearer view. Unlike graphic systems on other CNC controls, the Milltronics CNC Control graphics are intertwined with the motion control system of the machine. This provides synchronized display between the graphics and machine movement and guarantees that there will be no discrepancy between what is seen on screen and what the machine actually does. In fact, the tool on graphics is ahead of the machine so you can actually see where you are going. Solid modeling graphics are available on the 8000 Series CNC.

Conversational Programming
Conversational programming is not only quick and easy, it is extremely powerful. A menu based question and answer format prompts the operator through program creation. In most applications there is no need to memorize complex G and M codes. In fact, many operations available with conversational programming are nearly impossible to duplicate with G and M code programming. For instance, the simple task of incrementing a tool to depth with G and M codes usually involves complex looping of subprograms or many redundant commands. With conversational programming this task is reduced to a simple event where only the cut increment and depths need to be entered.

“SLS” Skill Level Select for Toolroom Machines
This innovative feature allows the CNC control to be configured to match the skills of the CNC operator. We have worked with a significant number of first-time CNC operators and have recognized that the more features, screens and selections a CNC control has, the more intimidating it is for the operator. Often these selections overwhelm a new operator, undermining confidence and lengthening the learning curve. Skill Level Select solves this by allowing the operator to enable/disable features to a comfortable level. SLS software incorporates “on-line help” which will pull down illustrations by the push of a button. Illustrations show all relevant parameters required to conversationally program the selected feature.

Advanced Trigonometry Assist
This feature is much more than the scientific calculator found on other CNC controls. “Trig Help” as we call it, is a concept where we use the CNC’s computing power to calculate arc start and end points without the need for trigonometry. The programmer only needs to estimate the end point of the line or arc and the CNC connects the geometry to the nearest intersection on its own. On most other CNC controls intersection points need to be exactly calculated in order for the program to run.
Irregular Cavity Clear With Islands
The Milltronics CNC software contains a powerful feature which will intelligently clear out cavities that contain islands by using defined parameters and depth increments. This feature can save hundreds of hours of programming.

Concurrent Programming And More....
Maximize productivity by programming while the machine is in operation. Create new programs, modify existing programs, even edit the program in operation, all while the machine is cutting. Concurrent features do not stop with programming. Editing of tool and fixture offsets, copying of programs to/from floppy disk and sending programs through the RS232 port are allowed as well.

Text Programming / Compatibility
All Milltronics CNC controls accept the G and M codes recognized as industry standard. If you currently program in code, utilize a CAD CAM system, or are considering adding a CAD CAM system in the future, you can rest assured that compatibility will not be an issue. A full word processor style editor is utilized on all Milltronics CNC controls and offers helpful features such as search, search and replace, cut, copy and move. Programs as large as 9 MB can be edited concurrent to program execution.

Macro Programming
Powerful macro programming is available on all Milltronics CNC controls. Macro programming allows you to take full advantage of the CNC's capabilities and opens new doors to tool management and more.

Unique Graphics-Based Mid Program Start Feature
Starting in the middle of a program is often one of the more challenging tasks facing a CNC operator. Although this would seem to be a simple task, the fundamental nature of CNCs make it anything but. Milltronics has solved this problem with a unique process where an operator can verify a program graphically up to the desired start point and then simply switch over to the Run mode. Not only is this easier and quicker than sorting through difficult machine code, it also ensures that modal codes are executed completely and in sequence.

The Milltronics Graphics Advantage
Powerful graphics of the Milltronics CNC control show the programmer the part geometry as it will look when completed. The graphics screen shown below shows the operator exactly where the tool is relative to the workpiece at all times. This user-friendly screen shows the tool path (green), workpiece (yellow), rapid traverse (red) and the diameter of the active tool (blue). The graphic verify features show the operator the entire machining operation either in real time or in a dry run, each posting estimated runtimes including tool changes.

Handwheel Controlled Program Execution — Handwheel Run Verify
This useful feature allows an operator to take total control of machine movement and run a program with confidence. With this feature enabled, program movement only occurs while the handwheel is being turned. If the operator stops turning the handwheel, machine movement stops immediately. The faster the handwheel is turned the faster the feedrate.

Increased Data Storage
While the Milltronics CNC comes standard with a very large memory for program storage, expansion to over 250 MB is an option.
Large Program Execution
Programs under 10 MB can be executed conventionally without the need for DNC. This large program execution capability not only frees you from restrictive DNC methods, it also permits subprogram calls, greatly enhancing multiple cavity work.

High Speed Control
All Milltronics CNC Controls have addressed the complex dynamics required for a CNC to truly be categorized as high speed. The end result is that Milltronics CNC controls offer performance equal to the most sophisticated controls. Many Milltronics customers are mold makers for whom high speed performance is an absolute requirement. Our new 8000 Series CNC incorporates many new features for high speed milling.

Processor Speed
There are thousands of calculations required for each and every axis movement. When trying to machine complex geometry, often the microprocessor of the control creates a bottleneck restricting the attainable feedrate. To minimize processing bottlenecks, Milltronics CNC Controls utilize two processors. With these two processors working together, over 1200 blocks per second with the 7000 Series CNC's and over 2000 blocks per second with the 8000 Series CNC are attainable.

Multi Processor Control Utilizes Latest Computer Technology
Milltronics CNC Controls take advantage of the multiple processors by sharing the calculations between them for maximum throughput. A high speed PC processor is used to handle the operator interface and a robust 32 bit Motorola® processor to handle the motion control.

Feed Forward and Look-Ahead
Controlling how an axis decelerates and accelerates is one of the most crucial factors relating to machine speed. Understanding that it is impossible for a servo motor to stop and start a heavy machine slide anywhere close to 1000 times per second leaves the only hope of achieving speed through greater intelligence of the acceleration and deceleration slopes. All Milltronics CNC Controls search ahead into a program to determine the directional changes that lay ahead. Once these directional changes are known, the CNC dynamically adjusts the deceleration and acceleration slopes to minimize stopping and starting.

Accuracy
Milltronics CNC Controls utilize a complex “Feed Forward” error correction algorithm that reduces inaccuracy without compromising speed. Until now feed forward error correction has been found only on a handful of the world’s most expensive CNC controls and should in no way be confused with inferior error correction systems that rely on slowing feedrates to maintain accuracy.

Thermal Compensation
Rather than simply measuring ball screw temperature, a patent pending feature unique to Milltronics measures actual ball screw expansion and contraction using a non-contact LVDT device. This measurement is constantly updating the control to compensate for positioning change. This is a very important feature for machines requiring consistently high accuracy combined with many rapid moves or continuous contouring.

Flexible Communications
Anyone who has struggled transferring programs to a CNC will appreciate the floppy disk drive and RS232 communications port standard on Milltronics CNC controls. An optional multi format flash memory drive allows transfer from several different types of flash memory, including: CF-I, CF-II, Smart Media™, Memory Stick™, Micro Drive™, Multimedia™ Card and Secure Digital™ Card. A USB port is incorporated in the 8000 Series CNC.
Networking
With the Milltronics CNC control's PC-based architecture it is possible to connect to a Local Area Network (LAN) taking full advantage of the ability to connect computers in network environments for high speed data transfers and file sharing. Networking offers numerous advantages over RS232 communications as it provides a transparent transfer of data at extremely high speeds - more than 100 times faster than typical RS232 communications. The Milltronics control is fully compatible with all current network technologies.

Off-line Software
FastCAM and LatheCAM, our off-line software that emulates the CNC control on your desktop, allows programs to be created and graphically verified the same as they are at the machine. The software also serves as a storage library for part programs and supports communication with the CNC. An additional feature allows import of DXF or CDL CAD files which expands difficult part programming capabilities.

Software Macros for Tool Setter Accessories
The Milltronics CNC incorporates software macros which operate with either a touch tool setter or laser tool setter. These tool setters automatically load tool diameter and tool length into the tool table as well as check for tool breakage.

Software Macros for Part Probe Accessories
A family of software macros work with the probe which can be parked in the ATC. These macros can locate edges, centers, do part verification, and much more.

Digiscan: Digitizing Probe Accessory
The Digiscan option permits quick, easy and cost effective duplication of parts with unattended operation. In lathe applications a digitized 2D part profile ready to run at the CNC with no additional processing. In milling applications both 2D part profiles and complex 3D surfaces can be captured. With the use of the off-line Digiscan software a digitized file can be inverted (male to female), cutter compensated, scaled, rotated, mirror imaged and more. Digiscan can also translate the file into a DXF or CDL format for input into popular CAD CAM systems.

WARRANTY & TERMS

LIMITED WARRANTY ON ALL NEW MILLTRONICS MANUFACTURING COMPANY MACHINES

Milltronics Manufacturing Company ("Milltronics" or "Company") warrants all of their CNC machines ("Machines") and the Centurion CNC systems supplied with these Machines shall be free from defects in workmanship and materials under normal use and service for a period of two years or 4200 hours, whichever is shorter, from the date of delivery. This warranty is limited to all factory-supplied parts and accessories as indicated on the original purchase order as accepted by Milltronics and any parts necessary to repair such defects. Milltronics' liability for breach of warranty shall arise only upon the return of the defective or part at Buyer's expense after notice to the Company of such defect or claim. Milltronics' sole obligation in connection with any claim arising under any of said warranties shall be to replace or repair, at its factory, any of said articles which shall be returned to Milltronics' factory of origin, transportation charge prepaid, and which are, after examination, disclosed to Milltronics' satisfaction to be defective. Notice to Milltronics of claimed defects discoverable by inspection must be given within ten (10) days after receipt of shipment. This warranty shall not apply to any of such articles which shall have been repaired or altered, except by Milltronics, or which shall have been subjected to misuse, negligence, or accident. The warranties of the Company shall not extend the original warranty period of any articles which have either been repaired or replaced by Milltronics. This warranty applies to the original purchaser only and the original end user is the equipment financed by a third party. During the first six months the two-year warranty also includes all travel expenses incurred by a Milltronics factory representative if a problem occurs which is not repairable by the local distributor or in a part exchange. For the second six months of the warranty, any travel expenses incurred to the local distributor for the local distributor to repair the problem will be covered. This warranty includes parts and labor. Milltronics will also cover any standard UPS freight charges for parts and repairs shipped from our facility. After the first year there will be a shipping and handling charge for parts and repairs shipped from Milltronics. Incoming freight for warranty items is not covered under this warranty, and Milltronics will not pay incoming freight charges unless pre-approved in writing.

United States and Canada Shipments

Neither the Machine nor the Centurion CNC warranty will cover parts that are damaged or have failed due to abuse, improper operation, weather, act of God, terrorism or shipping. No Milltronics warranty covers damage to fixtures, tools, or parts, or the cause of this damage. Accessories not supplied by Milltronics and those delivered on consignment are not covered under this warranty, and any alterations to the Machine or CNC control done by other than Milltronics' authorized personnel, unless approved by Milltronics' personnel in writing, shall void any warranties. EXCEPT AS SET FORTH IN ABOVE, THE COMPANY MAKES NO EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE MACHINE OR CENTURION CNC CONTROL, OR THEIR CONDITION, MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR USE BY CUSTOMER. THE COMPANY FURNISHES THE ABOVE WARRANTIES IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

MILLTRONICS SHALL NOT BE LIABLE FOR ANY: (A) SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS, ARISING FROM OR RELATED TO THIS WARRANTY, THE BREACH OR ANY AGREEMENT OR WARRANTY OR THE OPERATION OR USE OF THE MACHINE OR CENTURION CNC CONTROL, INCLUDING WITHOUT LIMITATION, DAMAGES ARISING FROM DEFECTIVE MATERIALS, INSTRUMENTS, TOOLS, PARTS OR MATERIALS, LOSS OF DATA OR PROGRAMMING, DIRECT OR INDIRECT LOSS CAUSED BY THE DISTRIBUTOR OR DEALER REPRESENTATIVE, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS OR OTHER BENEFITS, DAMAGE TO EQUIPMENT, FINANCING OR INTEREST CHARGES, AND CLAIMS AGAINST CUSTOMER BY ANY THIRD PERSON, EVEN IF ADVISED OF THE POSSIBILITY THEREOF; OR (B) CLAIMS MADE AGAINST THE COMPANY FOR ANY CAUSE BY ANY PERSON OR ENTITY BASED ON ANY SUCH CAUSE OF ACTION FIRST AROSE.

The validity, construction and performance of this Warranty and any sale made by Milltronics shall be governed by the laws of the State of Minnesota, without resort to conflicts of laws provisions of any jurisdiction and any action related in any way to any alleged or actual offer, acceptance or sale by Milltronics or any claim related to performance or agreement or warranty by Buyer or Milltronics shall be waived in federal or state district court in Hennepin County, Minnesota. MILLTRONICS MANUFACTURING COMPANY

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952-442-1411
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This warranty is invalid unless the customer has signed off on and returned to Milltronics or its distributor the factory-provided installation forms and Milltronics is funded in full for the equipment.

November, 2007 S:\FORMS\WARRANTIES\Warranty MMC 9-07.DOC
MILLTRONICS 7200 SERIES TURNING CNC

Manual Operation
The Milltronics CNC Control fills the void between manual engine lathes and difficult to use CNC turning centers. Operation in full manual, simple MDI and fully automatic operation is standard. For full manual operation a conveniently located remote panel places the necessary controls at the operator's fingertips. Operations that cannot be made by simply turning handwheels, such as tapers, radii and threading, can be made quickly and easily with conversationally prompted MDI screens.

Teach Mode Programming
Teach mode programming allows an operator to construct a program through a combination of manual and MDI commands. Other teach systems only allow manual machine movements to be entered into a program. These systems are highly restrictive in that it is impossible to cut threads, radii and tapers by simply turning a handwheel. The Milltronics CNC Control allows not only manual moves to be entered directly into a program, but also a series of conversationally prompted MDI events including threading, tapers and arcs.

Automatic Operation
Like the other Milltronics CNC Controls, the Milltronics Turning CNC Control has all of the advanced features you could ask for. Conversational programming, Trig Help, Graphics and more are all standard. Virtually any part can be programmed quickly and easily with conversational programming.

Chasing Threads
The Milltronics CNC Control allows the operator to manually pickup a straight or tapered thread and chase it. This unique and powerful feature refurbishes damaged threads.

Handwheel Controlled Program Execution
Ask any experienced CNC operator if they have ever crashed a machine and the answer most likely will be yes. The usual cause is that the operator simply could not react fast enough to the situation at hand. An operator can avoid crashes and safely work near rotating lathe chucks or expensive fixtures by using the handwheel controlled program execution feature. This unique feature allows the operator to crank through the program. Complete CNC motion is controlled by the speed of the electronic handwheel.
Our Foundation and Future

Over the past 35 years, Milltronics was built by serving thousands of companies with affordable, reliable machines and controls. We have tremendous respect for our customer’s decision to invest in Milltronics’ equipment whether it’s part of an advanced production line or their first toolroom machine.

Our history of innovation began in the early 1970’s with the development of an industrial CNC control that incorporated features like single command full circle arcs, and trig assist programming that were decades ahead of other CNC control manufacturers. In the 1980’s, at a time when US machine tool manufacturers were failing faster than machines could be built, Milltronics was introducing the “Partner 1”; the first low cost, compact, linear way machining center manufactured in the U.S.A.

Our industry leadership continues into the future with our commitment to produce machines that meet customer demands for higher speeds, tighter tolerances, tremendous reliability, and quick delivery with incredible value.

When you work with Milltronics you know you’re getting a quality machine from people who care about what they build. Our core values of trust, respect, cooperation, fairness and truthfulness are the basis for how we conduct our business.

In keeping with these values, we present torques, horsepower, and other specifications fairly in our documentation. Our “Truth in Specifications” defines our process for determining specifications.

UNDERSTANDING TRUTH IN SPECIFICATIONS

A great deal of caution is needed when comparing specifications. Use of terms like "peak" or "instantaneous peak rating" when specifying torque, forces, or HP and use of terms like "as much as" or "up to" when specifying feedrates or tolerances are all warning signals the specification will not perform as advertised.

Any rating should be available for at least one minute in order to be useful in machine tool applications. Milltronics specifies in what is referred to as "MACHINE TOOL DUTY". This is approximately a 200% rating above a 30 minute rating for axis specifications. For spindle ratings we publish both one minute and 30 minute ratings. Typically a one minute rating is 150% above the 30 minute rating for spindle specifications, rather than as much as the 300% that we see some builders publishing.

The "machine tool duty" is a rating that considers axis rest time, part load/unload time, lighter load times, and is generally typical to most applications. "Peak" is an overstated term and typically defines specifications, which define acceleration or deceleration terms and may be available for only seconds.

Regarding feedrates and tolerances, Milltronics specifies these ratings specific to an axis. Some builders may specify an 800 ipm rapid in X or Y as an 1100 ipm on a 45° angle, or they publish rapids with a 240 VAC line. Milltronics’ feedrates are always constant regardless of the angle or plane and are obtainable on any standard power line.

Milltronics believes you have a right to know what you purchase, so all original motor labels on servos and spindle motors are left in place. Why would any builder remove these labels? Why would any builder significantly overstate specifications? We invite you to call Milltronics for additional details about specifications. We welcome the opportunity to discuss our policy on these issues or how any of our specifications and tolerances are impacted by environment, power, loads, or any other conditions.

Every effort has been made to represent our products fairly and correctly. However, Milltronics reserves the right to amend or change any part of this catalog without notice and without incurring obligation. Milltronics proudly incorporates all products, pricing, specifications, outline drawings, HP curves and much more information on our web site.

Visit our web site for more details: www.milltronics.net.
ABOUT US
Milltronics has designed and manufactured quality CNC machines for the metal cutting industry for over 30 years. Milltronics markets its 60+ diverse product models under three divisions: Milltronics CNC Machines, Partner Machines, and International Machine Tools. We are a growing, family owned and operated company based in Minnesota, and a Liberty Diversified Industries company. Call or visit your local distributor listed on our web site. You are always welcome to visit our factory and see firsthand why we can be trusted with your next machine investment.

Distributed By:

World Headquarters
1400 Mill Lane, Waconia, MN 55387 USA
952.442.1410  952.442.6457 FAX

Western Region Sales & Service Center
847 South Wanamaker Avenue, Ontario, CA 91761 USA

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