

# XP Series – Extra Power

Milltronics USA



Waconia, Minnesota

# Milltronics USA



Headquarters in Waconia, Minnesota

Founded in 1973 with over 45 years building machines and controls

- 14,000 machines installed worldwide

Member of Hurco Machine Tool Group

- Publicly traded company on NASDAQ
- About 800 employees (250 in USA)
- Plants in Indiana, Minnesota, Italy and Taiwan

Minnesota team includes machine design, software, controls, electrical and mechanical engineering

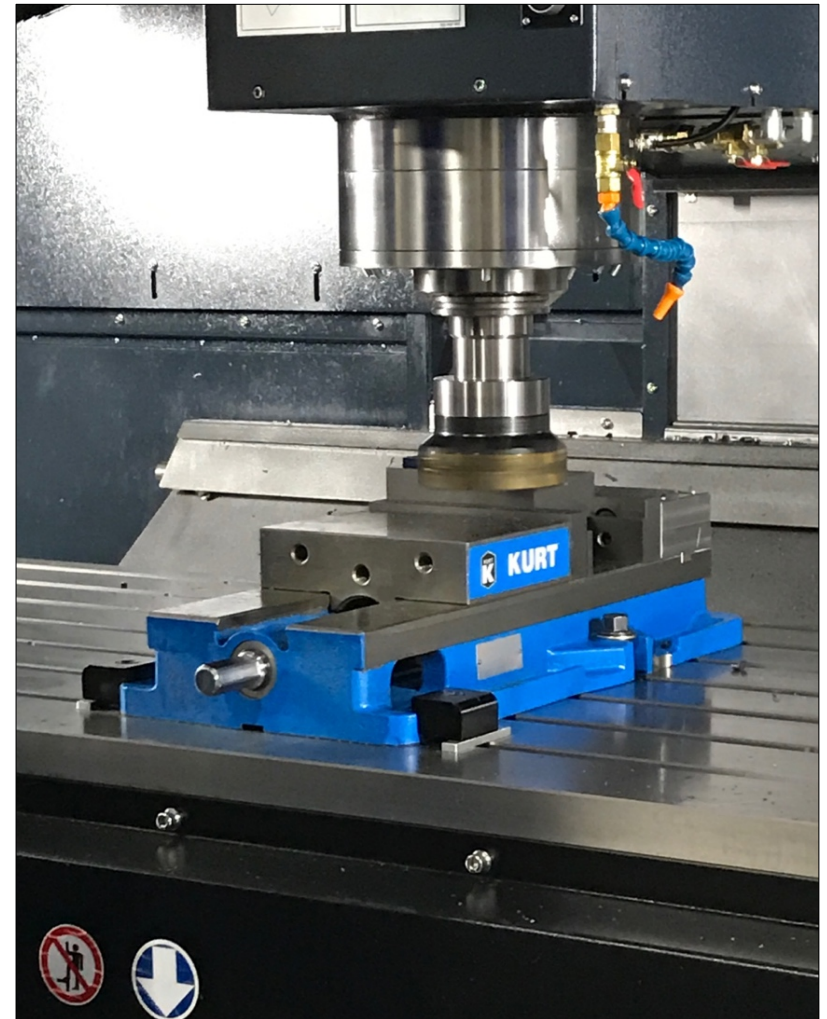
- Also manufacturing, assembly, finance, sales, service, training and applications

# XP Extra Power

For the Tough Stuff

## XP Series

- XP Series machines are heavy duty #50 taper performance vertical machining centers designed for cutting a variety of difficult to machine materials
- Available in four different sizes:
  - VR4325XP
  - VM5025XP
  - VM6030XP
  - VM8434XP
- All feature the Milltronics 9000 Series control





## VR4325XP – Spec Summary

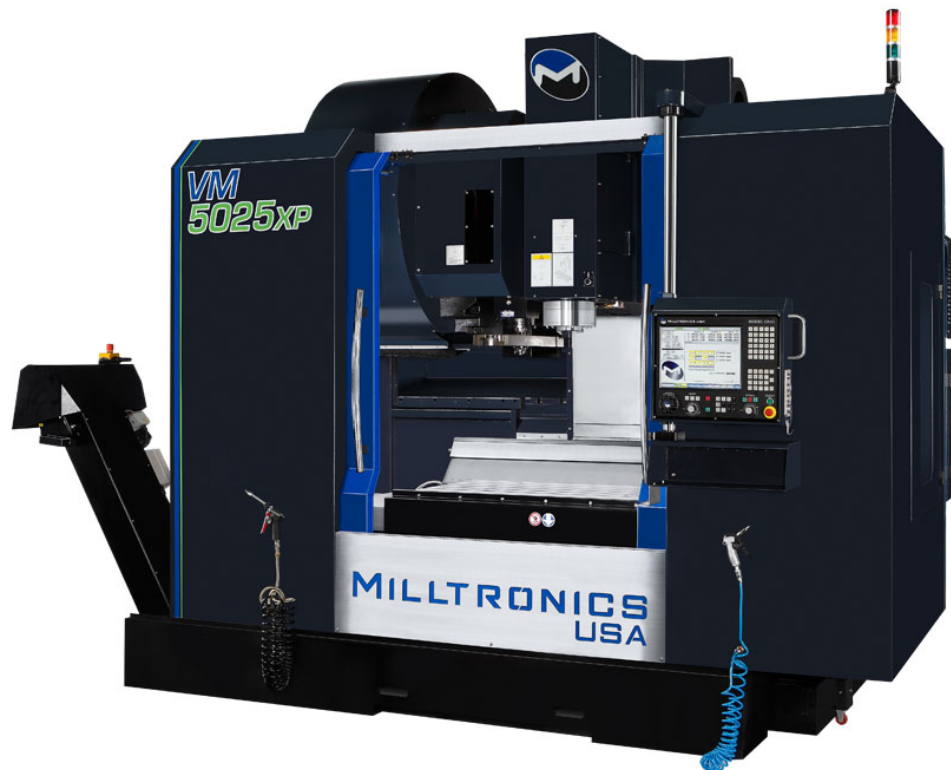
- 43" x 25.5" x 23.6" travels
- 51" x 25.5" table, 2,500 lbs. capacity
- 35 hp (peak) – 1,177 ft lbs torque
- 6,000 rpm two-speed gearbox
- #50 taper
- 800 ipm rapid traverse (X,Y), 550 ipm (Z)
- Up to 500 ipm feed rates
- Hardened and ground box ways
- Direct-coupled ballscrews
- 24 station swing arm ATC
- Coolant manifold with (4) loc-lines, washdown system and chip auger standard
- LED worklight, coolant gun and air gun
- +/- .00039" positioning accuracy
- Weighs 20,000 lbs.
- Shop floor conversational or offline programming (G-code) with Milltronics 9000 control (includes remote jog)



*Machine shown with options*

## VM5025XP– Spec Summary

- 50" x 25" x 24" travels
- 54" x 25" table, 3,000 lbs. capacity
- 24 hp (peak) – 255 ft lbs torque
- Optional 35 hp (peak) – 365 ft lbs torque
- 8,000 rpm #50 taper spindle
- 1,000 ipm rapid traverse (X,Y), 787 ipm (Z)
- Up to 500 ipm feed rates
- Linear motion roller guideways
- Direct-coupled ballscrews
- 30 station swing arm ATC
- Coolant ring, washdown system and chip conveyor standard
- Dual LED worklights, coolant gun and air gun
- +/- .0001" positioning accuracy
- Weighs 20,100 lbs.
- Shop floor conversational or offline programming (G-code) with Milltronics 9000 control (includes remote jog)



*Machine shown with options*

## VM6030XP – Spec Summary

- 60" x 30" x 24" travels
- 66" x 30" table, 3,000 lbs. capacity
- 24 hp (peak) – 255 ft lbs torque
- Optional 35 hp (peak) – 365 ft lbs torque
- 8,000 rpm #50 taper spindle
- 1,000 ipm rapid traverse (X,Y), 787 ipm (Z)
- Up to 500 ipm feed rates
- Linear motion roller guideways
- Direct-coupled ballscrews
- 30 station swing arm ATC
- Coolant ring, washdown system and chip conveyor standard
- Dual LED worklights, coolant gun and air gun
- +/- .0001" positioning accuracy
- Weighs 21,826 lbs
- Shop floor conversational or offline programming (G-code) with Milltronics 9000 control (includes remote jog)



*Machine shown with options*

## VM8434XP – Spec Summary

- 84" x 34" x 30" travels
- 86" x 34" table, 5,000 lbs. capacity
- 30 hp (peak) – 260 ft lbs torque
- 8,000 rpm #50 taper spindle
- 709 ipm rapid traverse (X,Y), 530 ipm (Z)
- Up to 500 ipm feed rates
- Box ways in Z, LMG rollers in X/Y
- Direct-coupled ballscrews
- 32 station swing arm ATC
- Coolant ring, washdown system and chip conveyor standard
- Dual LED worklights, coolant gun and air gun
- +/- .0002" positioning accuracy
- Weighs 37,260 lbs
- Shop floor conversational or offline programming (G-code) with Milltronics 9000 control (includes remote jog)



*Machine shown with options*

# Options

## Accessories

## Options and Accessories

- Coolant thru spindle system (300 psi)
- Programmable spray mist
- Programmable air blast
- BT tooling
- Spindle chiller
- Rotary tables
- Tool and part probes
- Auxiliary keyboard
- Offline software



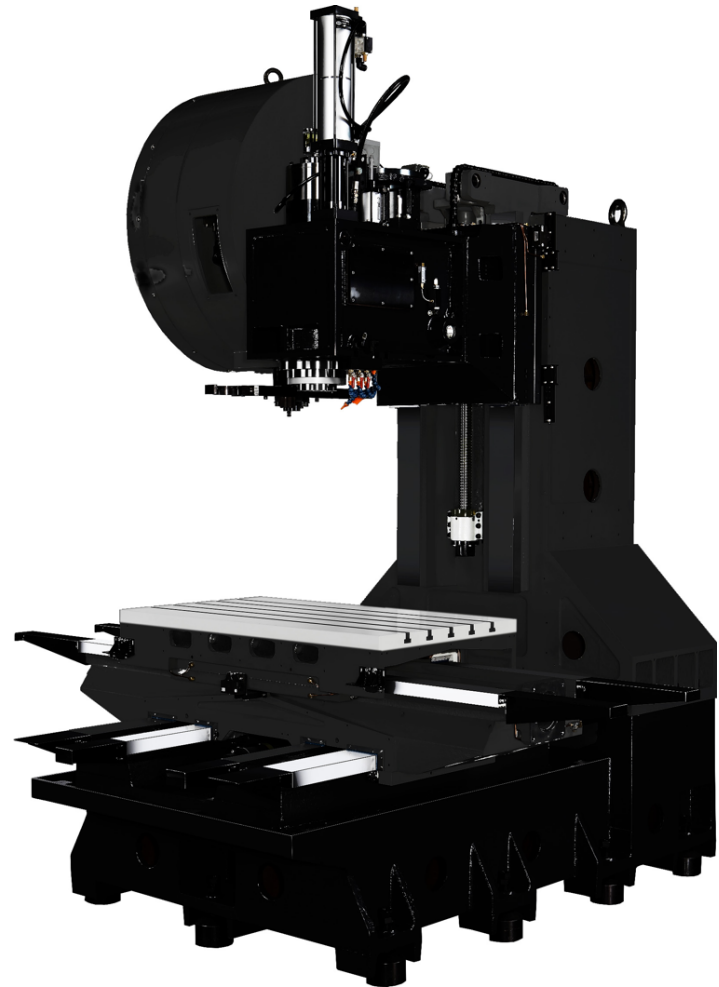


# XP Extra Power

Made Right

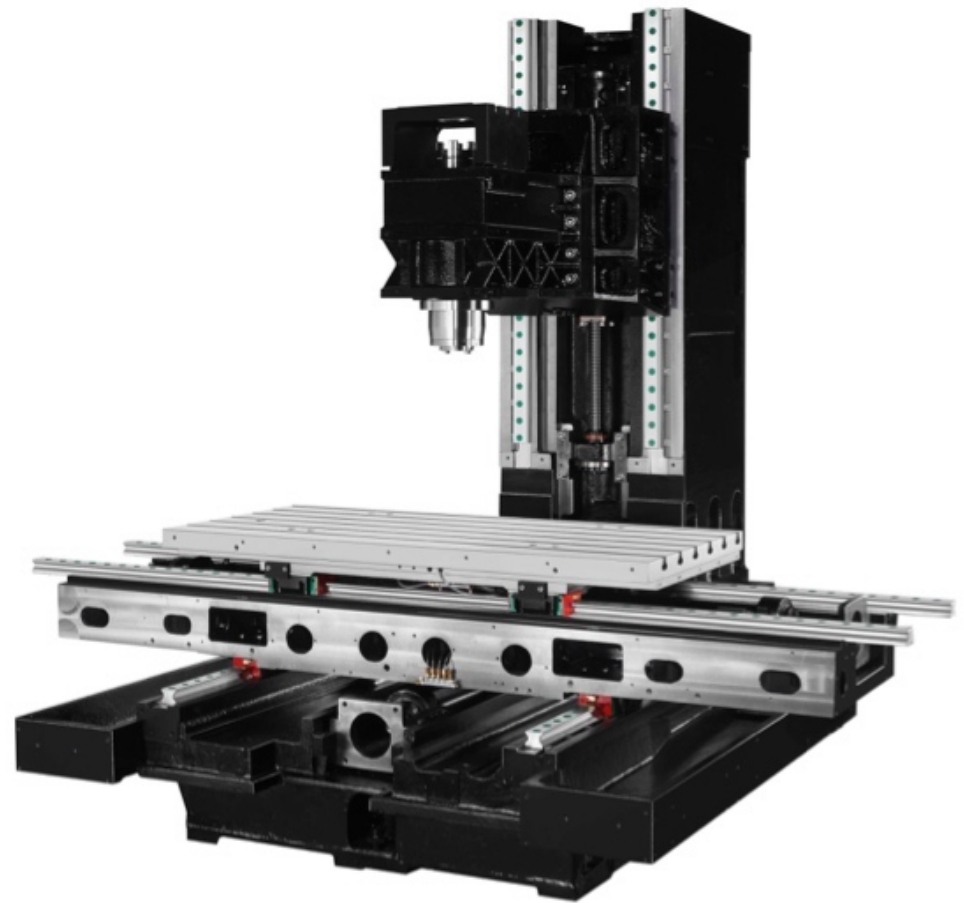
## Made Right – VR4325XP

- High-grade cast iron frame optimized with Finite Element Analysis (FEA)
- Square box ways with Turcite on all axes
- Critical mating surfaces including column, base, saddle and gibs are hand scraped
- Two-speed geared head CAT #50
- Dual-wound Yasakawa AC spindle motor
- Cartridge spindle
- Brushless Yaskawa digital AC servos
- Hiwin® pre-tensioned ballscrews doublenut pre-loaded and anchored at both ends
- Direct coupled 45 mm ballscrews (X/Y/Z)
- Electronic spindle orient (encoder)
- Electric swing arm ATC



## Made Right – VM5025XP

- High-grade cast iron frame optimized with Finite Element Analysis (FEA)
- Brushless Yaskawa digital AC servos
- Direct drive Z axis – no counterbalance
- Hiwin® pre-tensioned ballscrews doublenut pre-loaded and anchored at both ends
- Direct coupled 45 mm ballscrews (X/Y/Z)
- 45 mm Hiwin® roller linear motion guideways (X/Y/Z) – two trucks per rail
- Distance between X axis ways 15.75"
- Distance between Y axis ways 39.37"
- Distance between Z axis ways 16.93"
- Dual wound Yaskawa AC spindle motor
- Cartridge spindle
- Spindle air purge and blast
- Electronic spindle orient (encoder)
- Electric swing arm ATC



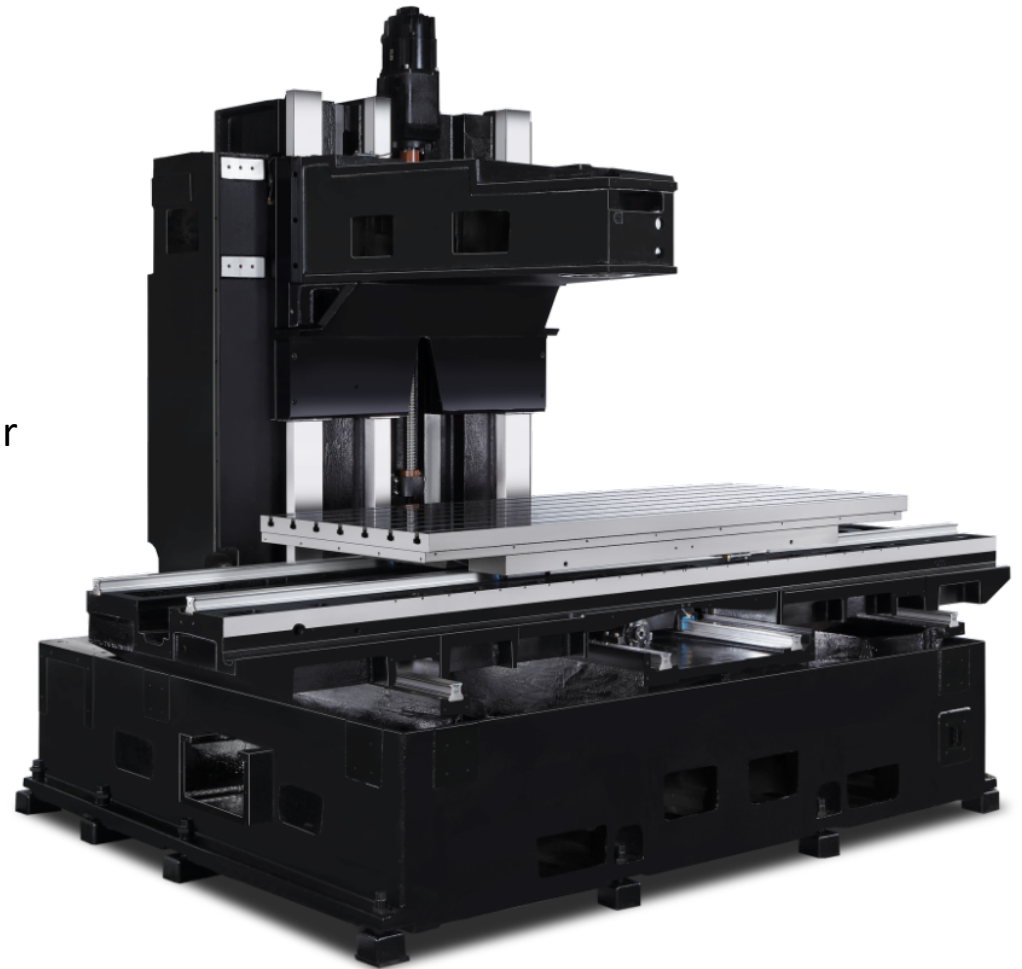
## Made Right – VM6030XP

- High-grade cast iron frame optimized with Finite Element Analysis (FEA)
- Brushless Yaskawa digital AC servos
- Direct drive Z axis – no counterbalance
- Hiwin® pre-tensioned ballscrews doublenut pre-loaded and anchored at both ends
- Direct coupled 45 mm ballscrews (X/Y/Z)
- 45 mm Hiwin® roller linear motion guideways (X/Y/Z) – three trucks per rail (X), two trucks per rail (Y/Z)
- Distance between X axis ways 15.75"
- Distance between Y axis ways 39.37"
- Distance between Z axis ways 16.93"
- Dual wound Yaskawa AC spindle motor
- Cartridge spindle
- Spindle air purge and blast
- Electronic spindle orient (encoder)
- Electric swing arm ATC



## Made Right – VM8434XP

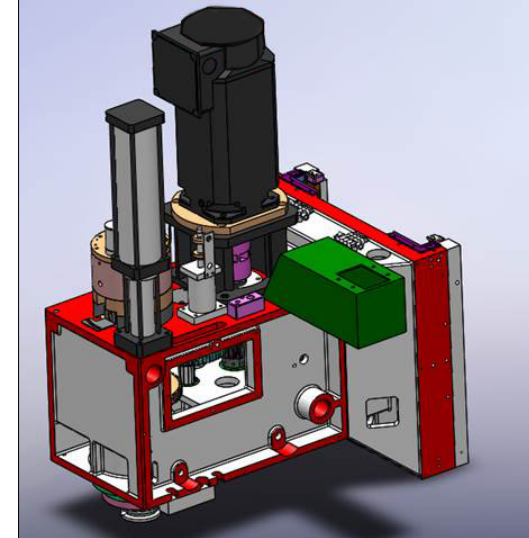
- High-grade cast iron frame optimized with Finite Element Analysis (FEA)
- Brushless Yaskawa digital AC servos
- Direct drive Z axis – no counterbalance
- Hiwin® ballscrews doublenut anchored at both ends
  - 55 mm (X), 50 mm (Y/Z)
- Triple box ways (Z), Hiwin 55 mm LMG roller ways (X/Y) - four rails in Y-axis
- Distance between ways (centers)
  - X-axis 22"
  - Y-axis 23.7" – also outboard set at 89"
  - Z-axis 45"
- Dual-wound Yaskawa AC spindle motor
- Cartridge spindle
- Spindle air purge and blast
- Electronic spindle orient (encoder)
- Electric swing arm ATC



# Heavy-Duty Spindles

## VR4325XP Spindle

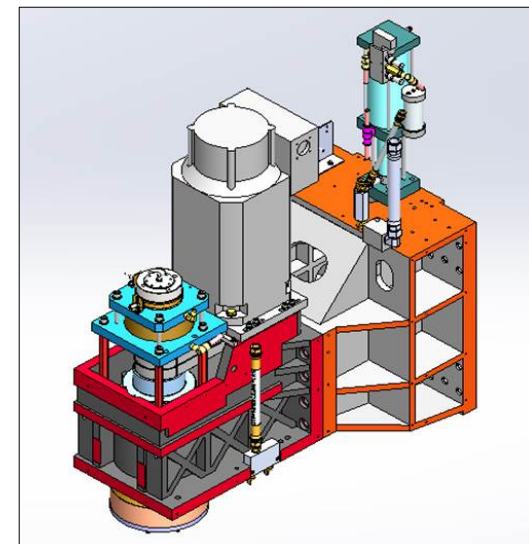
- Two (2) speed gearbox with dual wound spindle to offer maximum cutting power
- Larger diameter spindle for rigidity
- Made of chrome-moly alloy for longer wear & corrosion prevention
- ABEC 7 precision class angular contact bearings
- Top bearings bathed in oil and chilled
- Bottom bearings permanently grease packed
- Precision balanced for long life



VR-XP geared-head design

## VM5025XP, VM6030XP & VM8434XP Spindle

- Heavy duty belt drive with dual wound spindle motor for power and flexibility
- Larger diameter spindle for rigidity
- Made of chrome-moly alloy for longer wear & corrosion prevention
- ABEC 7 precision class angular contact bearings
- Permanently grease packed
- Air purged top & bottom to prevent contamination
- Precision balanced for long life



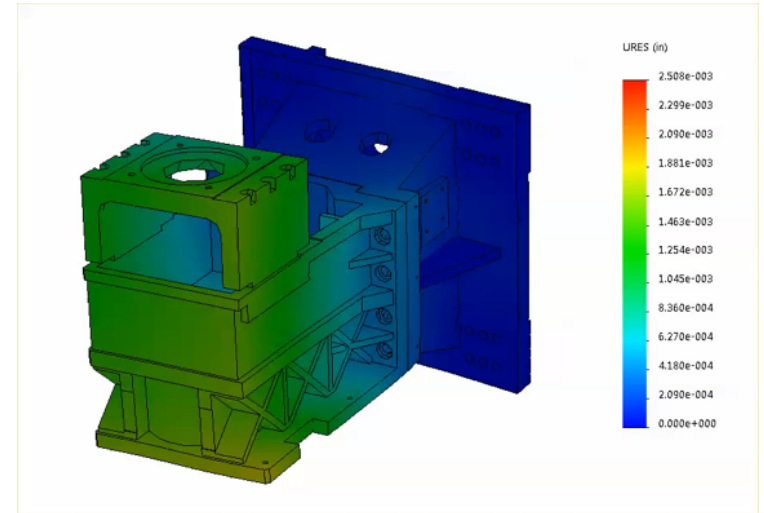
VM-XP heavy duty belt design



## Finite Element Analysis

Finite Element Analysis (FEA) is used to evaluate structural rigidity, torsional stiffness, thermal characteristics and natural frequency to achieve the best frame design

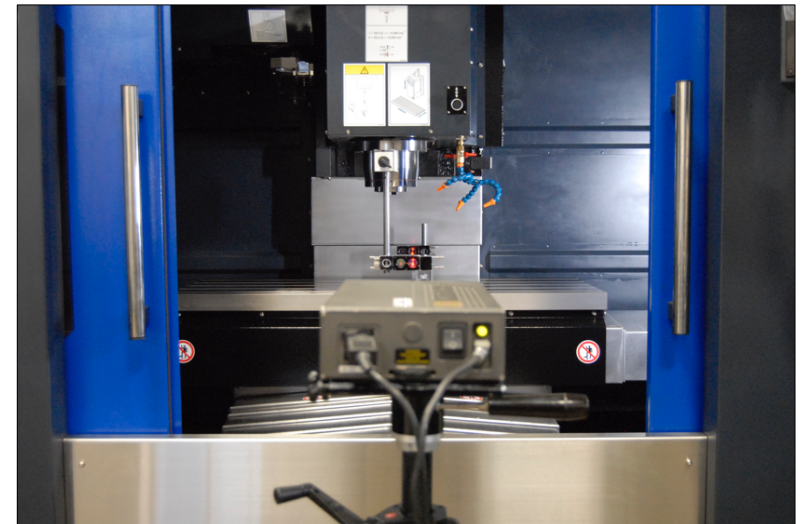
- Critical with today's high velocities and accelerations - machine performance must be carefully optimized in order to maintain part quality



## Laser Interferometer

After assembly, Milltronics XP machines are tested – including the use of a laser interferometer:

- The laser interferometer provides comprehensive accuracy assessment of machine alignment and any roll-pitch-yaw errors in machine



## Ballscrews and Linear Guides

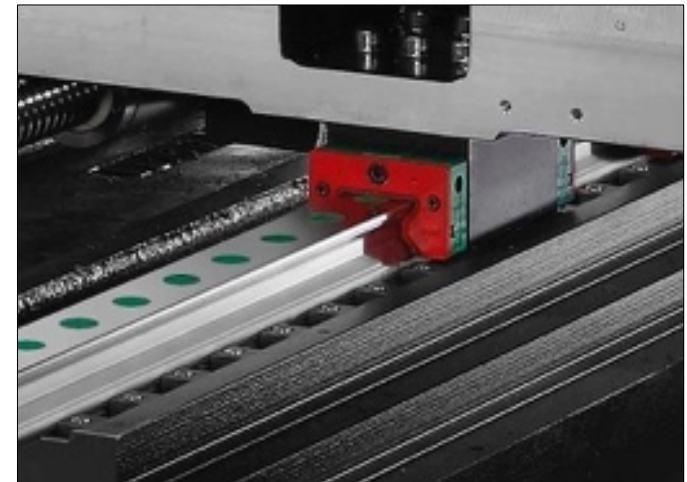
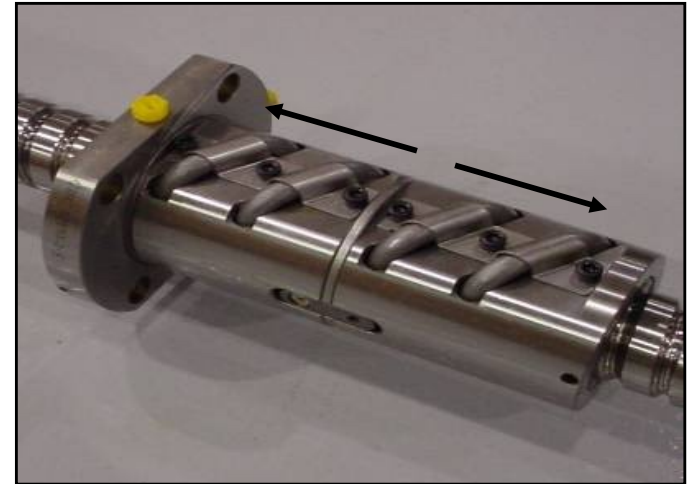
Hiwin® pre-tensioned double-nut pre-loaded ballscrews anchored at both ends:

- Pre-tensioning mitigates thermal growth
- Double-nut presents pressure in opposite directions to the ballscrew
  - Keeps the nut under tension and prevents backlash

Hiwin® linear motion roller guides (VM5025XP, VM6030XP & VM8434XP).

Provide excellent rigidity during heavy cutting with very low friction:

- Roller ways have more surface contact between the rail and roller than typical ball ways – this increased surface contact adds 40% more rigidity to the machine tool
- Milltronics castings are machined with slot and shoulder for rail - rail is then wedge-locked to ensure straightness and rigidity



## Yaskawa

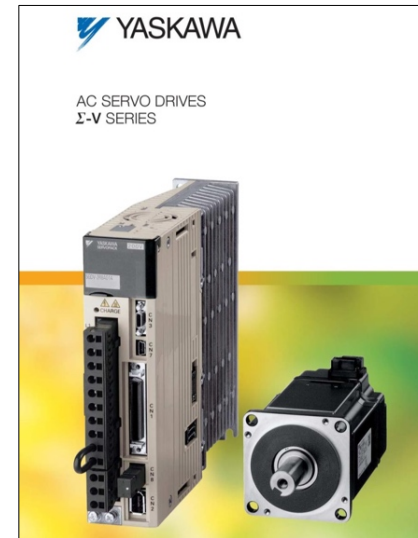
Milltronics uses state-of-the-art premium servos and drives from Yaskawa, the world's largest manufacturer of motors and drives

- Yaskawa Sigma V digital drives .625 millisecond velocity loop frequency response time (1.6 kHz)
- Encoders: 1,048,576 pulses per revolution
- Enhanced vibration suppression – delivers 5G resistance
- Higher speed acceleration and deceleration

## ITX Technology

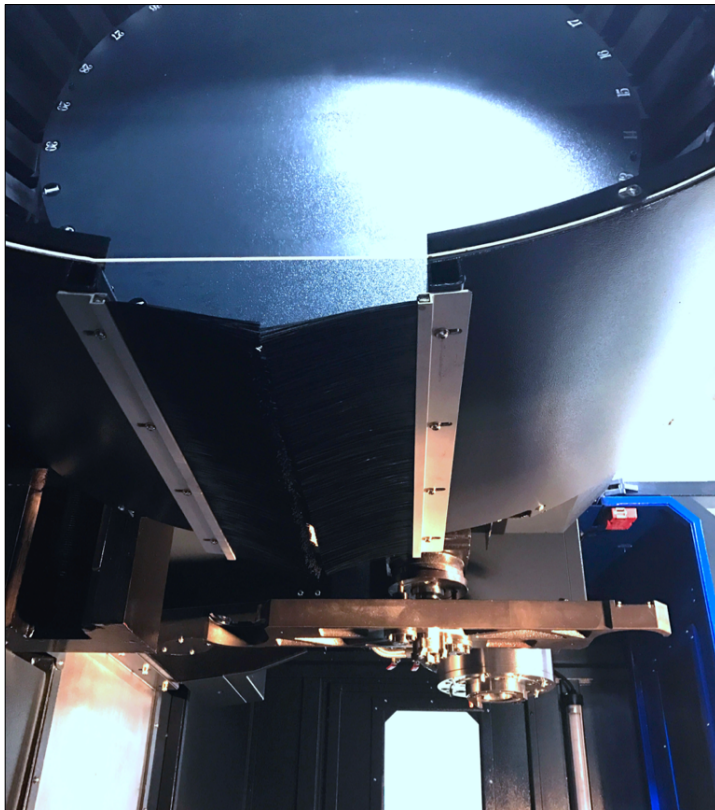
Modular design minimizes downtime as the one-piece control module can quickly and easily be swapped out in the field:

- Eliminated more than 200 plug in connections and over 100 board level parts = higher reliability



## Swing Arm ATC

- Milltronics uses side mounted, random pot, bi- directional electric swing arm ATC's on the XP Series



	VR4325XP	VM5025XP	VM6030XP	VM8434XP
Number of tools	24	30	30	32
Tool to tool time	5 sec	5 sec	5 sec	4 sec
Chip to chip time*	11 sec	8 sec	8 sec	13 sec
Max tool diameter	4"	4.9"	4.9"	4.9"
Max w/ adjacent empty	7.8"	8.7"	8.7"	8.6"
Max tool weight	33 lbs	33 lbs	33 lbs	33 lbs

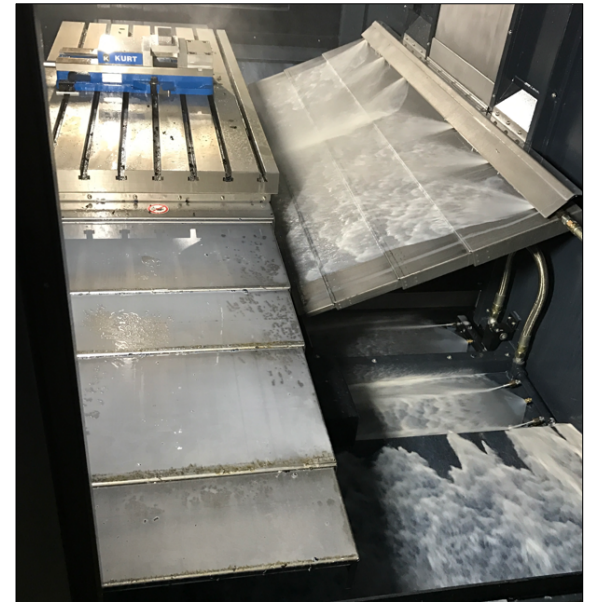
\*2,000 rpm, 16" of Z travel



## Chip Management

Milltronics XP Series machines come standard with a coolant ring, lift-up chip conveyor and washdown system

- Separate Grundfos pumps for cutting coolant and washdown
- Generous coolant tank with sight levels



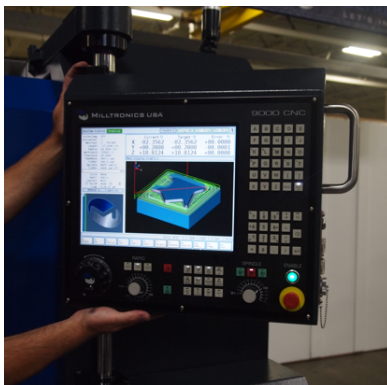
# Series 9000

Conversational or G-code





*New 9000 control is Windows-based and features a 15" color LCD touch screen*



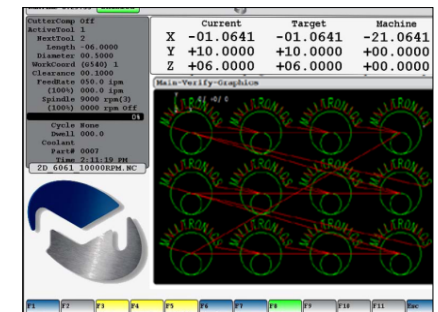
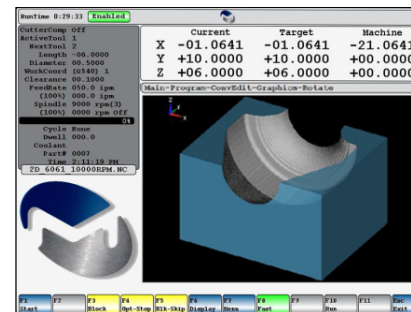
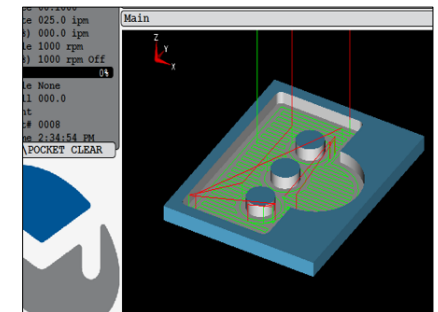
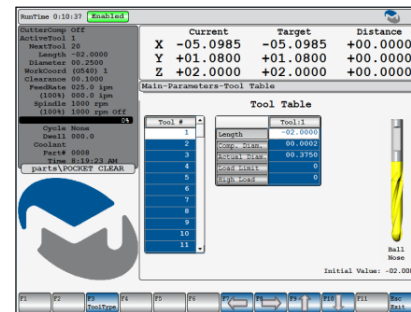
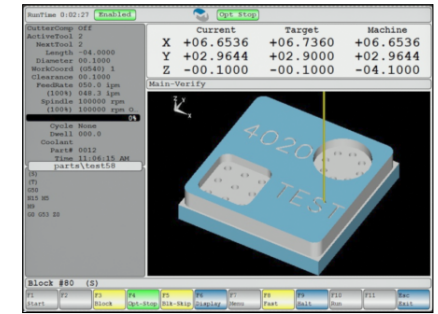
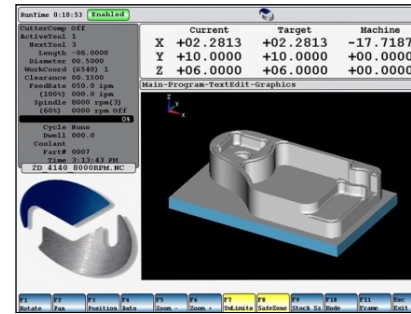
## New 9000 Series

The 9000 Series CNC is our newest and upgraded control offered on VM milling machines

- Windows®-based platform that offers all the user-friendly features that Milltronics controls are known for
- Intel® Dual Core i5-3610ME processor (64 bit)
- 4GB memory, 120 GB disk storage, 2 USB ports, mid-travel tactile keys and an enlarged 15" LCD touch screen
- Control swivels and features height adjustment
- Remote jog standard

# Milltronics Software

- Easy navigation function keys
- Solid model graphics
- Auto trig help
- 3D pocket/sweep
- DXF import
- Pockets and islands
- Tool tables
- Help screens
- Prompted tool setting routine
- Mid-program restart
- Handwheel run
- Scaling, mirror image, rotate
- Canned cycles – drilling, boring, tapping, facing, threading, bolt hole pattern, text/engraving, tangent/circle generate

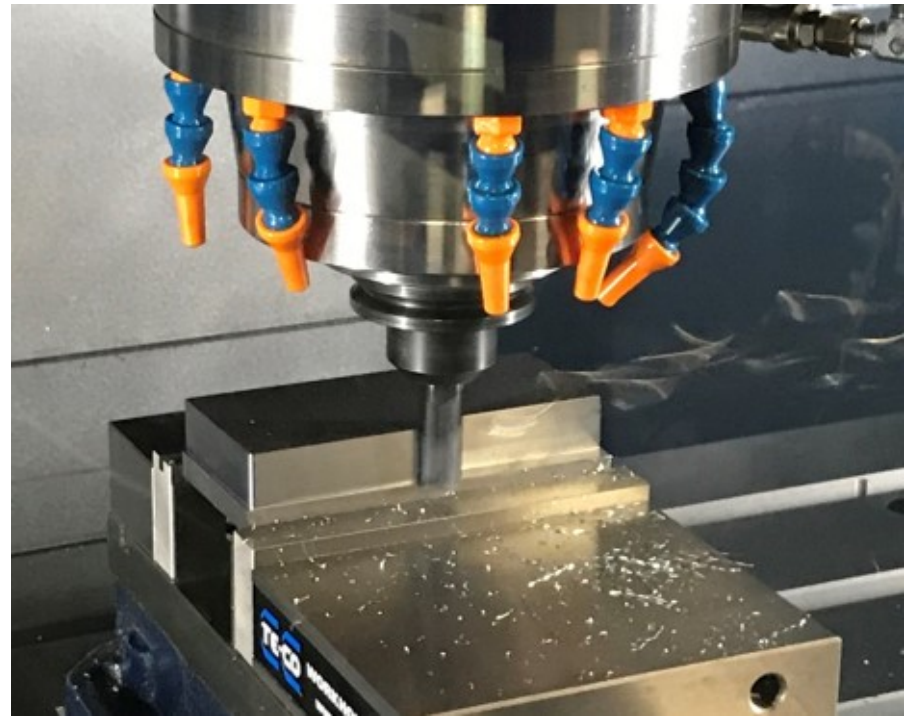


Watch control demo [here](#)

# ChipBoss™ Software (option)

New optional software from Milltronics uses proprietary algorithms to calculate toolpaths and control the maximum allowable cutter engagement resulting in:

- Faster cycle times
- Better tool life
- More accurate parts
- Cycle times can be reduced by as much as 50% (or more) and 3-5 times better tool life



Part accuracy can improve through reduction in tool deflection

# ChipBoss™ Software (option)



Automatically controls the chip load, keeping it constant and creating the optimal chip

Watch video [here](#)

ChipBoss™ uses trochoidal milling strategies with deeper depths of cut and smaller step overs:

- Feed rates can be much higher than what conversational users are used to experiencing
- Reduces the number of times a machine needs to accelerate and decelerate – “less wear and tear”
- Includes “Rest Roughing” – automatically calculates the areas to be machined and uses a smaller cutter to get just those areas that can’t be cut with larger tool, saving even more time



# Why Milltronics? 10 Reasons

## 1. Easy to Use Control

The Milltronics control is straightforward and easy-to-use. Chose between conversational, G-code or use a CAM system – whatever is the most efficient way to program the part.



## 2. Made Right

Using a machine design process that is ISO 9001 certified, Milltronics starts with FEA analysis and designs accurate, rigid and reliable machines built to last. No shortcuts here.



## 3. Superior Components

Milltronics partners with top suppliers such as Yaskawa, Kenturn, Hiwin® and Grundfos. You can judge a machine tool builder by the company it keeps.



## 4. Upgradeable

Milltronics controls are designed, built and supported by Milltronics – and are designed to be upgradeable. You don't have to miss out on new software or hardware advancements as time marches on.



## 5. Availability

We recognize that sometimes you need a machine *fast*. We work hard to make sure we have our most popular models in stock for quick shipment.



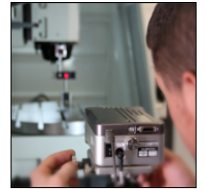
## 6. Fastest Learning Curve

Because Milltronics machines are so easy to learn and use, you'll be making chips quicker. And don't confuse easy with simple – the 9000 is packed with advanced features and capabilities.



## 7. Service Network

According to customer surveys, Milltronics and our distributor network offer the best service and support in the industry. We do what it takes!



## 8. Complete Solution

A complete line – 50 different models of tool room mills and lathes, general purpose and performance VMC, CNC lathes, bridges and boring mills.



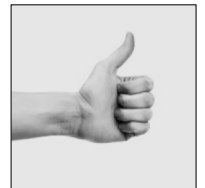
## 9. Global American Company

Milltronics is part of the Hurco Companies Machine Tool Group. Publically traded with solid financials, we're in it for the long haul.



## 10. More for Your Money

Finally, Milltronics offers better built machines with more standard features for the price. Period.



# MOMENTUM



*Thank you!*