

VK Series CNC Knee Mill

Milltronics USA



Waconia, Minnesota



130,000 sq ft headquarters in Waconia, Minn

Milltronics USA

Founded in 1973 with over 40 years building machines and controls

- 14,000 machines installed worldwide

A member of the Hurco Companies 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

New VK Series

Best CNC Knee Mill

New VK Series

- For many years, Milltronics offered the VK Series of CNC knee mills
- Very popular in tool rooms, prototype, R & D and job shops as offered with true 3-axis control and unique MillSlide™ Z axis
- Milltronics installed more than 1,500 CNC knee mills by the time production was suspended in 2013
- Features the Milltronics Series 8200-B control



VK Series = Flexibility



- Full three-axis 8200-B CNC control (same as on VMC's)
 - Conversational, G-code or CAM system
 - Yaskawa servos and drives
- Unique Milltronics MillSlide™ provides greater rigidity and more spindle nose to table top
- Can be run as full CNC, semi-CNC (manual quill) or full manual
- Head tilts +/- 90 degrees
- Ram travel +/- 11.5" (from centerline)
- Ram swivels +/- 90 degrees
- Standard handwheels are directly coupled to ballscrews and provide feedback to operator

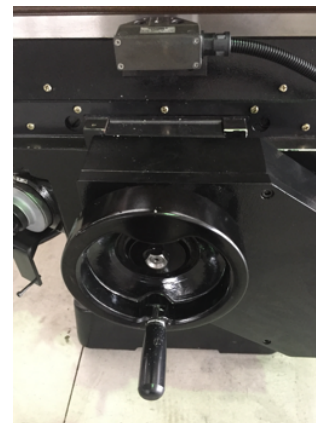
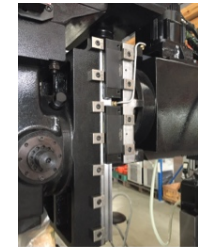
VK4II – Spec Summary

- 33" (X) by 14.25" (Y) by 5.25" MillSlide™ (Z) with 16.5" (knee) with 5.9" quill (manual)
- Max distance between spindle nose and table: 22.25" (knee all the way down and MillSlide™ all the way up)
- 54" x 12" table, 1,500 lbs. capacity
- 7.5 hp (peak) – 200 ft lbs torque
- 4,000 rpm two-speed (70-500 low range, 500-4,000 high range) – back geared 8:1
- #40 taper spindle
- 400 ipm rapids, up to 200 ipm feed rates
- Options include: flood coolant with drip pan, worklight, power draw bar, table guard and power knee
- .0004" positioning/.0002" repeatability
- Weighs 4,400 lbs.
- Shop floor conversational or offline programming (G-code) with Milltronics 8200-B control



Made Right – VK Series

- Meehanite® cast iron frame
- Dovetail X way, hardened and ground box Y way with wedge-locked LMG rails (Millslide™)
- Securely anchored pre-loaded ballscrews 32 mm (X/Y), 25 mm (Z)
- Critical mating surfaces are hand scraped
- Two-speed backgeared 8:1 spindle
- #40 taper spindle (4" diameter quill)
- Positive displacement electric pump auto lube system (2 liters)
- Brushless Yaskawa digital AC servos
- Standard handwheels with feedback



Way Covers



- Accordion style way covers front of Y-axis
- Rubber way cover on back of Y-axis

Options

Accessories

Options and Accessories

- Flood coolant with chip pan (7.5 gallon with 1/8 hp pump)
- Adjustable high-intensity halogen worklight
- Power drawbar system
- Quill scale
- Removable table guard
- Power assist knee
- Programmable spray mist
- Programmable air blast
- BT tooling
- Milltronics M-170 (6.7") rotary table also chuck and tailstock
- Auxiliary keyboard
- Offline DGI software
- Factory start-up and on-site training (USA only)
- Training at Milltronics (Waconia, MN)
- Printed Manuals (Electronic format standard)
- Windows[®] control upgrade with aux keyboard
- Milltronics logo floor mat
- 2nd year extended parts warranty
- Milltronics Shop View (MSV) - requires Windows[®] upgrade
- ChipBoss[™] Trochoidal Milling Software

Series 8200-B

Conversational or G-code

Milltronics 8200-B

- Shops can choose either Conversational or G-code programming, whatever is most efficient to produce the required part
- 8200-B Series is the standard high-speed milling and turning control
 - PC-based control with advanced processing speeds that are imperative for high speed and multi-axis machining
 - 1GB memory, 2GB disk storage, a 12" LCD screen and membrane keys



Series 8200-B control is Linux-based and features a 12" color LCD screen

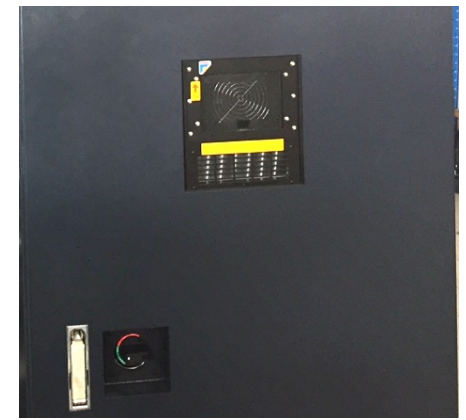
Series 8200-B Control

Specifications

Operating System and Hardware	RT Linux – B&R PC
User Interface	Milltronics Software with Solids
Machine Control	Milltronics Hardware
Logic Control IO	Milltronics Software
Motors & Drives	Yaskawa
Processor	Pentium CPU
Memory	1 Gigabyte
Storage	2 Gigabytes
Screen	12" Color LCD
Keys	Membrane
USB	2 (1 required if keyboard)



Well organized cabinet with coded, labeled connectors and components from suppliers such as Yaskawa, Eaton, Schneider Electric, etc.



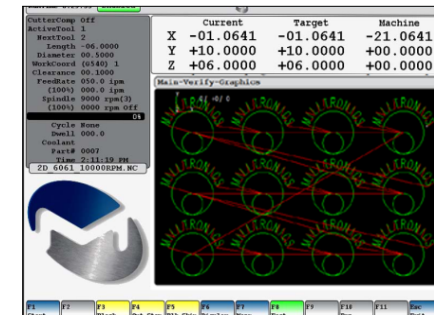
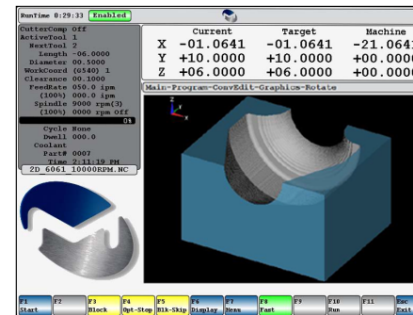
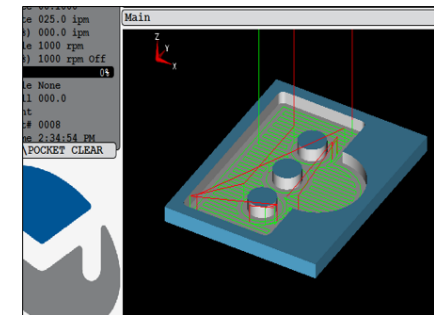
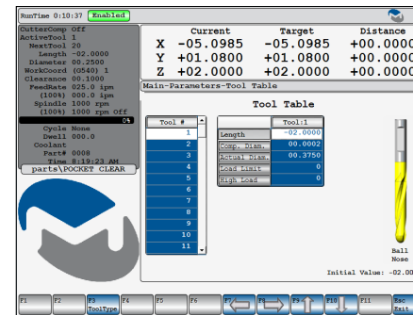
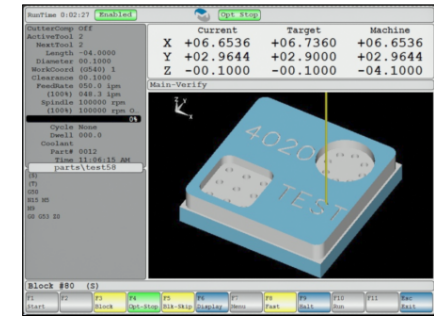
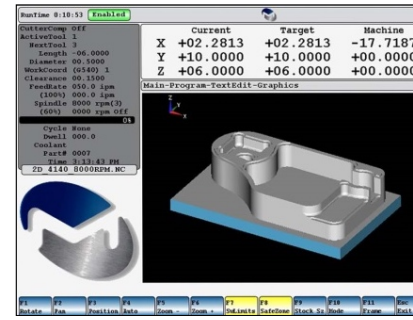
Electrical cabinet is sealed with power interlock and standard heat exchanger



Hour meter

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

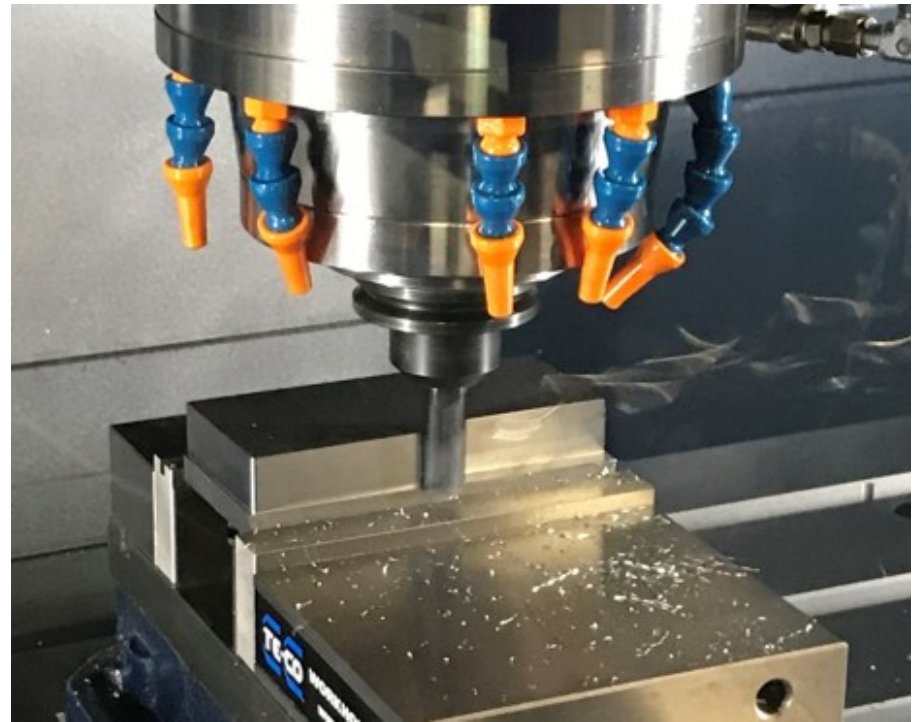


Watch control demo [here](#)

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. Choose 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.



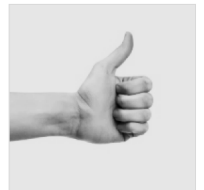
9. Global American Company

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!

Comparisons

Versus Other Milltronics Products

VK4II vs MB20

	VK4-II	MB20
Travels (X,Y,Z)	33" x 14.25" x 5.9" with 5.9" manual quill	40" x 20" x 24" with 6" manual quill
Construction	Knee mill with dovetail/box ways on X/Y and LMG on Z MillSlide™	Bed mill with box ways Y/Z and dovetail X
Knee	16.5" (power optional)	NA
Movement	Head tilts +/- 90 degrees/ram travel +/-12", ram swivels +/- 90 degrees	None
Table/capacity	54" x 12," 1,500 lbs.	54" x 16," 2,500 lbs.
Horsepower/torque	7.5 hp/200 ft lbs	10 hp/300 ft lbs torque
Spindle RPM	4,000 rpm	4,000 rpm
Taper/clamping	#40/optional power drawbar	#40 standard power drawbar
Max rapids/feedrate	400 ipm/200 ipm	500 (X/Y), 300 (Z)/300 ipm
Positioning/repeatability	.0004"/.0002"	+/- .00039"/.0002"
Weight	4,400 lbs.	7,000 lbs.
Control	Milltronics 8200-B	Milltronics 8200-B
Features/options	Flood coolant w/ drip pan, worklight, power draw bar, table guard and power knee are all options	Rigid tap, quill scale, flood coolant w/ drip pan and rear splash guards & table guard, worklight, power draw bar, metal way covers and status light are all standard
MSRP	\$39,900	\$56,700

New VK4II vs Previous VK4

	New VK4II (2017)	Previous VK4 (2012)
Travels (X,Y,Z)	33" x 14.25" x 5.25" with 5.9" manual quill	30" x 15" x 5.25" with 6" manual quill
Construction	Knee mill with dovetail/box ways on X/Y and LMG on Z MillSlide™	Knee mill with dovetail/box ways on X/Y and LMG on Z MillSlide™
Knee	16.5" (power optional)	18" (power optional)
Movement	Head tilts +/- 90 degrees/ram travel +/- 12", ram swivels +/- 90 degrees	Head tilt - none/ram travel 12"
Table/capacity	54" x 12," 1,500 lbs.	54" x 12," 1,500 lbs.
Horsepower/torque	7.5 hp/200 ft lbs	7.5 hp/200 ft lbs torque
Spindle RPM	4,000 rpm	4,000 rpm
Taper/clamping	#40/optional power drawbar	#40/optional power drawbar
Max rapids/feedrate	400 ipm/200 ipm	400 ipm/200 ipm
Positioning/repeatability	.0004"/.0002"	.0004"/.0002"
Weight	4,400 lbs.	4,600 lbs.
Control	Milltronics 8200-B	Milltronics 7200 (\$5k option for 8200)
Features/options	Networking standard. Flood coolant w/ drip pan, worklight, power draw bar, table guard and power knee are all options	Rigid tap, networking, flood coolant w/ drip pan, worklight, power draw bar, table guard and power knee were all options
MSRP	\$39,900	\$34,900