

VK4II

3-Axis CNC Knee Mill



Machine shown with options

FEATURES

- Milltronics 8200-B Series CNC Control
- Program Conversationally or G-Code
- 12" LCD Color Display
- Solid Model Graphic Display
- 1 GB RAM, 2 GB Program Storage
- Retractable Handwheels with Feedback
- 5.9" Manual Quill Travel
- Quill Scale w/ CNC Feedback (option)
- Programmable RPM Spindle
- 7.5 HP Spindle Motor
- High Torque 8:1 Back Gear
- CAT #40 taper
- Power Drawbar (option)
- $\pm 90^\circ$ Head Tilt
- Ram Travel +/- 12" (from centerline)
- Ram Swivels +/- 90 Degrees
- Dovetail Way with Turcite X-axis
- Hardened and Ground Way Y-axis
- Unique MillSlide™ Z-axis
- Auto Lubrication
- DXF File Import
- One Year Parts Warranty

SPECIFICATIONS

CAPACITY:

X axis travel	33" (840 mm)
Y axis travel	14.25" (362 mm)
Quill travel	5.9" (150 mm)
Knee travel	16.5" (420 mm)
Millslide™ travel	5.25" (133 mm)
Table size	54" x 12" (1370 mm x 305 mm)
Allowable table load	1500 lbs. (680 kg)
T-Slot size	3 x .63" (16 mm)

SPINDLE:

Spindle nose to table min/max	6"/30" (152/762 mm)
Column to spindle center	34.55" max/10.71" min (877.5 max /272 mm min)
Quill Diameter	4" (100 mm)
Spindle taper	ISO No. 40
Spindle speed (Low gear)	70-500 RPM
Spindle speed (High gear)	500-4000 RPM
AC spindle motor	7.5 HP (5.5 kW)
Torque	200 ft lbs. (271 Nm)

MOTION:

X/Y, Z axis rapid traverse rate	400 IPM (10.16 m/min)
Max. cutting feed rate X,Y / Z	150/200 IPM (3.81 m/min)
Positioning accuracy	0.0004" (+/- 0.010 mm)
Repeatability	0.0002" (0.005 mm)
Axis thrust force X/Y/Z (peak)	1,921 lbs. (8.5kN)

GENERAL:

Machine Height	100.79" (2560 mm)
Machine Width x Depth	117.95" x 85" (2996 x 2160 mm)
Machine Weight	4400 lbs. (2000 kg)
Power required	11 KVA (29 amps)
Voltage required	208-240 Volts / 3 Phase

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*** BASE, COLUMN AND SADDLE:**

The base, column, and saddle are composed of Meehanite cast iron, which includes very high dampening characteristics. The one piece base casting and column are stress relieved to ensure machine geometry is maintained throughout the life. Spacing of the solid box ways ensure optimal support for the table and saddle in full travel of each axis. Heavily ribbed castings provide superior dampening for high speed machining and aggressive milling. The mating surface of the base and column are hand scraped to optimize fit and machine geometry. The 54"x12" machine table is fully ground and hardened.

*** WAY SURFACES:**

The Y axis is hardened and ground square box ways with Turcite. The X-axis is dovetail. The ways are widely spaced to eliminate table pitch and deformation. The way surfaces on the Y and X axes utilize gibs with easy adjustment to maximize rigidity and maintain geometry throughout the life of the machine tool.

*** MILLSLIDE™:**

The unique MillSlide provides programmable Z axis travel by traversing the entire head up and down. This is not only more robust than competitors quill-driven solutions but it also allows for full manual functionality of the head and quill.

*** SPINDLE:**

The oversized 4" quill comes standard with CT40. The quill has 5.9" of travel for manual operations. The spindle is belt driven using an inverter control AC spindle motor. The spindle rpm is fully programmable using the CNC control. A 8:1 manually shifted back gear allows for applications requiring high torque. Tools are secured in the spindle using a drawbar. There is an optional power drawbar. The head is capable of tilting ± 90 degrees for additional flexibility. An optional quill mounted scale allows feedback to the CNC to update tool length offsets. Retention knobs are not required.

*** BALL SCREWS AND AXIS DRIVES:**

Each axis is driven using a high precision, fully ground ball screw. Axis ball screws are fully supported using angular contact thrust bearings and are perfectly centered between the way surfaces. The axis ball screws are belt driven with AC servo type drive motors.

*** RAM:**

The heavy-duty Ram has +/- 11.5" (295 mm) travel and can be swiveled +/-90 degrees. This flexibility provides big-machine capacity at a modest price.

*** LUBRICATION:**

Automatic lubrication is provided to the way surfaces and ball screws with oil to eliminate wear. Way oil is delivered by metered valves, which precisely control the volume. A low oil-level alarm warns the user preventing possible damage to the way surfaces and ball screws.

*** REMOVABLE TABLE CHIP GUARD (OPTION):**

The table chip guard is conveniently designed to allow the operator to easily remove the guarding. This convenience offers the best solution to chip and coolant containment in normal working conditions, and when an oversized work piece needs machining the guarding is easily removed allowing oversized parts to hang over the table.

STANDARD FEATURES/OPTIONS

- Milltronics 8200-B CNC
- 12" Color LCD Display
- Ethernet Connection
- USB Port
- Auxiliary Keyboard Jack (for optional Keyboard)
- DXF File Import Software
- User Definable Custom Macros
- Feedrate and Spindle Speed Overrides
- Spindle Load Meter
- Edit Key Lock-out Switch
- LCD Hour Meter
- Tri-Color End of Cycle Light
- Single Spare "M" Function with CNC Wait Channel
- 7.5 HP (5.5 kW) Spindle Motor
- Programmable RPM Spindle
- $\pm 90^\circ$ Head Tilt
- 5.9" Manual Quill Travel
- 16.5" Knee Travel (Power Knee Optional)
- Ram Travel +/-12" from Centerline
- Dual Retractable Handwheels with Feedback
- 8:1 Back Gear
- CT40
- One Piece Meehanite™ Cast Iron Base
- Fully Ground 54" x 12" Table
- Fully Ground Box Ways on Y axis, Dovetail on X, MillSlide™ on Z
- AC Servo Motors Belt Driven to Oversized Ball Screws on all Axes
- 32 mm Ball Screw on X/Y, 25 mm Ball Screws on Z Axis
- 400 IPM Rapid Traverse Rate
- Matched AC Servo Amplifiers on all Axes
- Automatic Metered Way Oil Lubrication
- Programmable Flood Coolant and Drip Pan (Option)
- Instruction Manual, Parts List, and Electrical Drawings
- Operator and Maintenance Manuals

PRICE FOR MACHINE AS DESCRIBED ABOVE

VK4II with 8200-B Series CNC Control

PRICE IS F.C.A. Waconia, MN USA

Machine Accessories:

VK-900	Flood Coolant with Drip Pan
VK-927	Worklamp
VK-936	Power Drawbar System
VK-955	Removable Table Guard
VK-818	Power Knee

Rotary Tables:

MB-662	Milltronics M-170 (6.7") Rotary Table including the servo motor, servo amplifier and cables
VM-810	Milltronics TS-A135 Tail Stock – <i>For M-170 Rotary Table</i>
VM-840	7" Manual 3-Jaw chuck with adaptor mounting plate – <i>For M-170 and M-200 Rotary Tables – Use with Milltronics rotary tables only</i>
MB-650	4 th Axis electrics package including a 1 kW servo motor, amplifier and cables
MB-652	4 th & 5 th Axis electrics package including 1 kW servo motors, amplifiers and cables

Additional Machine Accessories:

VK-253	Programmable Spray Mist
VK-250	Programmable Air Blast
8908-4	Spare "M" Functions – <i>Block of 4</i>
9999-410	Printed programming manual
9999-329	Printed machine manual
9999-424	Offline FastCAM Software for Programming and Training
9377-12	BT Tooling
9361-3	NMTB Tooling

Training:

9999-257	Factory machine installation including on-site training U.S. Only - <i>Includes airfare and all expenses</i>
9999-256	Training at Milltronics

Export Packaging:

9999-395	Required for machines shipping outside of North America
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Milltronics 8200-B Series CNC Control Features

- 12" LCD color display
- 2000 blocks/second high speed processor
- Conversational programming
- Fanuc based G&M Code programming
- Inch/Metric Conversion / programming
- Auto routines
- User definable macros with trig assist
- Custom Macro B
- Irregular pocket clearing
- Auto DXF file import
- 3D part and wire frame tool path graphics
- Solid Model Graphic Display
- Optional four and five axis simultaneous interpolation software and interface
- Onboard diagnostics
- Spindle load meter
- Part counter display
- 1 GB parts program memory
- Networking
- USB Port
- Manual pulse generator
- Coordinate rotating
- Scaling
- Mirror image
- Helical interpolation
- Feedrate and Spindle Override
- Tool diameter and length offsets (199 total)
- Tool Load Monitoring
- 60 Work Coordinates (G540-G599)
- G92 Coordinate system setting
- Backlash Compensation
- Ball screw pitch error compensation
- Canned cycles including:
 - Drilling
 - Boring
 - Tapping
 - Facing
 - Pocketing with or without islands
 - Threading
 - Bolt hole pattern
 - 3D Pocket/Sweep
 - Text/Engraving
 - Tangent/Circle Generate
- Subprogram Call-50 nested programs maximum
- MDI
- Background Editing
- Program/Parameter protect

LIMITED WARRANTY

Subject to the terms of this Limited Warranty, Milltronics USA, Inc. ("**Milltronics**") warrants to the End User that the Milltronics Machine Tool, Replacement Part or Accessory (each, a "**Product**") for which this Limited Warranty is issued will be free from any Covered Defect during the Warranty Period for the Product.

Milltronics will replace or repair, at its option, a Product with a Covered Defect at no expense to its End User, except that:

(1) End User must pay for all shipping costs (including freight charges, taxes, and insurance), except shipping costs for repaired parts and components or a Replacement Part shipped under this Limited Warranty by Milltronics to End User or an Authorized Distributor.

End User must report to Milltronics in writing any Covered Defect as soon as practicable upon its discovery and in all events prior to the expiration of the Warranty Period for the Product. Milltronics shall have no responsibility with respect to any Covered Defect which is not reported to Milltronics by written notice prior to the expiration of the Warranty Period for the Product. End User must allow Milltronics or an Authorized Distributor to inspect and test the Product during business hours to determine if there is a Covered Defect. At the option of Milltronics, a Product with a Covered Defect will be repaired at End User's location, and should not be returned to Milltronics except upon inspection and testing by Milltronics or, with prior approval of Milltronics, an Authorized Distributor. Upon request, End User must return for repair or replacement, with shipping costs paid by End User, the Product or part(s) or component(s) of a Product with a Covered Defect to Milltronics at the following address: Milltronics USA, Inc., 1400 Mill Lane, Waconia, Minnesota 55387. All parts, components and Products replaced by Milltronics shall become the property of Milltronics.

This Limited Warranty is effective and valid only if the Authorized Distributor from which the Product is purchased (or Milltronics, if it is the seller) is paid in full for the Product, and the End User for that Product executes Milltronics-provided installation acknowledgments and forms upon completion of installation of the Product.

As used in this Limited Warranty:

(a) "**Accessory**" means a new accessory, kit or optional equipment supplied and installed on a Milltronics Machine Tool by Milltronics or an Authorized Distributor at any time *after* the initial installation of that Milltronics Machine Tool.

(b) "**Authorized Distributor**" means a Person authorized by Milltronics to sell and service Milltronics Machine Tools.

(c) "**Covered Defect**" means a failure of a Product during the Warranty Period to conform in any substantial way during normal use with the performance specifications and standards established by Milltronics for that Product; *provided that* such failure is not caused by or resulting from any of the following: (i) normal wear and tear or deterioration; (ii) inadequate or improper maintenance, such as End User's failure to clean, lubricate, replenish or replace oil, fluids, coolants, lamps, fuses, belts, filters and similar items; (iii) accident, negligence, theft, weather, electrical surges or lightning, fire or any other peril, misuse, abuse, programming error, improper operation or failure to follow fully maintenance and operation instructions provided by Milltronics or a Milltronics technical specialist to End User; (iv) mishandling, improper packaging or any other act which occurs during or in connection with shipment of the Product, or during or in connection with its rigging or installation, unless caused by Milltronics or an Authorized Distributor; and (v) any repair, replacement, modification or alteration of the Product which is not authorized by Milltronics.

(d) "**End User**" means the Person who purchases for its own use directly from Milltronics or an Authorized Distributor the Product for which this Limited Warranty is issued, and, so long as any relocating and reinstallation of the Product is performed by an Authorized Distributor or Milltronics, also any Person who purchases the Product from its initial End User prior to expiration of the Warranty Period for the Product. The term does not include any Person who purchases the Product for resale, lease or other transfer to, or use by, another Person.

(e) "**Milltronics Machine Tool**" means a machine tool manufactured by or for Milltronics, bearing the name "Milltronics" and a "Milltronics" trademark and serial number, and purchased by an End User new directly from Milltronics or an Authorized Distributor, together with any accessory, component, kit or optional equipment installed on that Milltronics Machine Tool by Milltronics or an Authorized Distributor prior to or at the time of initial installation of that Milltronics Machine Tool.

(f) "**Person**" means and includes an individual, partnership, joint venture, corporation, limited liability company, trust or other legal entity.

(g) "**Replacement Part**" means a new or rebuilt genuine part or component bearing a "Milltronics" trademark provided by Milltronics or an Authorized Distributor under this Limited Warranty in replacement of a part or component of a Product.

(h) "**Warranty Period**" means:

(i) for a Milltronics Machine Tool (other than a Tool Room Milltronics Machine Tool), unless a different warranty period is expressly stated in the quotation issued by Milltronics for that Product, a period of One (1) Year Parts and Labor, and for a Milltronics Tool Room Machine Tool, unless a different warranty period is expressly stated in the quotation issued by Milltronics for that Product, a period of One (1) Year Parts, Six (6) Months Labor. These periods begin on the earlier of: (1) the date of the first use of the Milltronics Machine Tool by its initial End User; and (2) the date which is 30 days after shipment by or for Milltronics of the Milltronics Machine Tool to an Authorized Distributor or the End User. (The warranty period may be extended, on exception basis, by a separate warranty extension issued in writing by Milltronics to the End User for a Milltronics Machine Tool);

(ii) for a Replacement Part, a period which is the longer of: (i) the 90 days after the date of its shipment by or for Milltronics to an Authorized Distributor or the End User; and (ii) expiration of the Warranty Period for the Milltronics Machine Tool on which that Replacement Part is installed; and

(iii) for an Accessory, a period which is the longer of: (i) the 90 days after the date of its shipment by or for Milltronics to an Authorized Distributor or the End User; and (ii) expiration of the Warranty Period for the Milltronics Machine Tool on which the Accessory is installed.

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MILLTRONICS USA RESERVATIONS AND MACHINE SHUT DOWN DEVICE ADVISORY

Milltronics USA reserves the right to incorporate any modifications or improvements in machines and machine specifications that it considers necessary, but are not documented within this quotation. Milltronics USA may install on any machine a CNC shut-down timer which requires a password to reactivate the Machine, will cause a machining or turning center to shut down. All purchasers are advised and at purchase shall be deemed to have consented to the installation of a shut-down timer, understanding that Milltronics USA or Authorized Distributor may have or obtain access to the required password to reactivate the machine should this be required in the event of payment default. Milltronics USA is not responsible for misprints or typographical errors in this Proposal. Proposal is valid for 30 days after presentation.

For questions regarding this Limited Warranty, please contact the Authorized Distributor or:

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