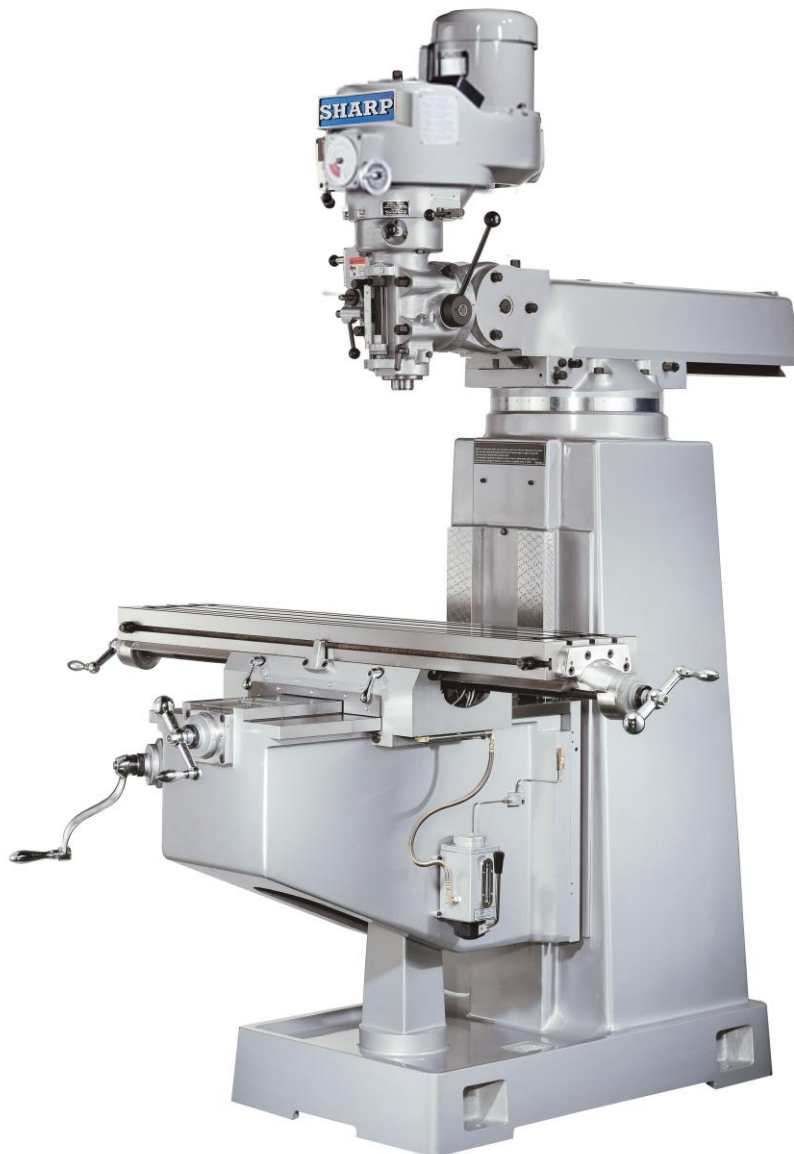


Sharp Precision Machine Tools Proposal

Milling Machine



TMV

TMV Vari-Speed Head Vertical Knee Mill

List Price: \$19,800.00

Shipping Point: F.O.B. Gardena, CA 90248

For all Payments made via wire transfer or other digital payment methods, please get in touch with Sharp Industries' accounting department personnel at 310-370-5990 for specific payment instruction details and verification.

STANDARD EQUIPMENT:

- ◆ Manual Draw Bar
- ◆ Hard-Chromed Ways
- ◆ Front & Rear Rubber Way Covers
- ◆ One-shot Lube System
- ◆ Wired 220V or 440V. Please Specify
- ◆ Tool Kit:
Machine Manual, Half-Nut Wrench, Wrench 17 mm, 19 mm, Set of 6 Allen Wrenches, Philip Screwdriver, Flat Head, Screwdriver, Oil Can, Grease Gun, Rear Way Cover Bracket, Pin for Indicator, and Can of Paint.

FEATURES:

- ◆ Hardened & Ground Box ways on Column & Saddle for Maximum Rigidity
- ◆ 3 HP Motor, variable speed head
- ◆ R-8 Spindle
- ◆ Knuckle joints using bolts & circular T-slot design; allowing head to swivel left & right, up & down.
- ◆ Dual fan head cooling System
- ◆ Double-nut backlash Eliminator
- ◆ Internal Lubricated Vari-Disc Design
- ◆ The motor shaft end is supported by a bearing.

SPECIFICATIONS:

- ✓ Table
 - ◆ Working Surface 10" x 54"
 - ◆ T-Slots Number and Size 3 Slots, 5/8"
 - ◆ 26" Wide Saddle

✓ Capacity		
◆ Travels (X & Y)		39" x 16.3"
◆ Quill Travel		5"
◆ Ram Travel		18.5"
◆ Knee Travel		15.3"
◆ Throat Distance		9.8" - 28.3"
◆ Spindle Gage line to Tabletop		5.375"-16.9"
✓ Spindle		
◆ Spindle Motor		3 HP
◆ Wiring Voltage		220V/440V
◆ Spindle Nose Taper		R-8
◆ Spindle Variable Speed Drive		60-4,500 Rpm
◆ Quill diameter		3-3/8"
◆ Quill Feed 3 Speed (IPR)		0.0015, 0.003, 0.005
◆ Accuracy		0.0002" TIR
◆ Head Tilt (Rt.. to Left)		90°
◆ Head Tilt (Up and down)		45°
✓ Dimensions and Weight		
◆ Floor Area (W x D x H)		70"x 75" x 91.78"
◆ Weight		3,000 Lbs.
✓ Total Power Consumption		
◆ 220V		3 KVA/8 amps
◆ 440V		3 KVA/4 amps

OPTIONAL ACCESSORIES:

• 6" "Kurt" Vise with Swivel Base (DX6 vise & D50-4-SA swivel base)	5000-2126 A	\$ 1,558.00
• Auto lube pump	Auto Lube2	\$ 1,028.00
• Right Angle Milling Attachment with Arbor	ACC-10TMV-NT30	\$ 2,936.00
• Right Angle Milling Attachment with Arbor	ACC-10TMV-R8	\$ 2,406.00
• "Sharp" Power Table Feed with Safety Handle (X-Axis)	* SP-250A (see notes)	\$ 981.00
• X Axis Installation		\$ 185.00 NET
• "Sharp" Power Cross Feed with Safety Handle (Y-Axis)	SP-250B	\$ 981.00

• Y Y-Axis installation		\$ 300.00 NET
• “Sharp” Power Knee Feed with Safety Handle (Z-Axis)	SP-250D	\$ 981.00
Z Axis Installation		\$ 450.00 NET
* NOTES: SP-250A installation may reduce X-axis travel.		
• Drill Chuck & Drill Arbor	TMV-D/A	\$ 594.00
• 6” Riser Block	ACC-06	\$ 1,325.00
Riser Block Installation		\$ 210.00 Net
• Coolant System with Chip Pan at Base (pump included)	C311/TMV	\$ 1,028.00
• “Maxi Torque Rite” Power Draw Bar	TR-100	\$ 1,175.00
Factory Installation		\$ 215.00 Net
• R-8 Collet (Set of 11) - 1/8”-3/4” BY 1/16”	ACC-R8	\$ 297.00
• Clamping Kit (52 pcs/Steel Rack)	CK-104	\$ 286.00
• Halogen Work light	WL-110V55W-L	\$ 297.00
• CE mark	net	\$ 1,839.00
• 380V and 575 V transformer	440T4	\$ 1,230.00 Net
• UL (to meet the state of California)		
components upgrade with electrical box (factory order)	LMV-UL	\$ 4,282.00 NET
• UL compliance certificate under the State of California		\$ 5,008.00 NET
• Fowler Mill Head Attachment		\$ 408.00
Factory Installation		\$ 100.00 Net

DIGITAL READOUT SYSTEMS:

Fagor DRO

2-Axis X&Y (Fagor 20i)	FG-TMV	\$ 2,141.00
3-Axis X&Y on Quill (Z) (Fagor 30i)	FG-TMV-3AQ	\$ 3,339.00
3-Axis X&Y on Knee (Z) (Fagor 30i)	FG-TMV-3AK	\$ 3,562.00
2 Axis D.R.O. Installation		\$ 660.00 NET
3 Axis D.R.O. Installation		\$ 850.00 NET

Acu-Rite 200S DRO

2-Axes X & Y	AR-TMV	\$ 3,994.00
3-Axes X & Y on Quill (Z)	AR-TMV-3AQ	\$ 4,454.00
3-Axes X & Y on Knee (Z)	AR-TMV-3AK	\$ 5,270.00
2 Axis D.R.O. Installation		\$ 660.00 NET
3 Axis D.R.O. Installation		\$ 850.00 NET

Newall NMS 800 DRO

2-Axis X & Y	NWN-TMV	\$ 2,300.00
3-Axis X & Y on Quill (Z)	NWN-TMV-3AQ	\$ 3,175.00
Axis X & Y on Knee (Z)	NWN-TMV-3AK	\$ 3,175.00

2 Axis D.R.O. Installation
3 Axis D.R.O. Installation

\$ 660.00 NET
\$ 850.00 NET

**Note: All prices and specifications are subject to change without notice. Please verify.
A 30 % deposit is required, and payment is subject to our standard terms and conditions.**

Features, Function, & Benefits:

ISO 9002 Certified:

Quality Up to World Industry Standards.

Meehanite Casting:

Highest Grade of Casting Possible.

A Pair of High Output Fans:

Keeps Head And 3 HP Motor Cool to Run Jobs for Extended Periods Without Damaging the Motor, Belts, and Bearing.

A Pair of Precision Abec-7 Angular Contact Bearings to Support Spindle. The Quill Is Ground and Chromed to Fit the Housing:

This ensures a Spindle Runout Of .0002" T.I.R.

Motor Shaft and Vari drive Pulleys Are Dynamically Balanced, Then Chromed for A Flawless Fit, Ground Ribs on Inside Diameter:

For Smooth Speed Changes.

Motor Shaft Has an Oil Channel in The Center That Is Fed by A Grease Fitting on The Lower End:

To Keep Vari-Drive Pulley Moving Smoothly on The Shaft.

The Mill Uses a Roller Bearing for The Lower Support of The Shaft: It Ensures Proper Loading, Support, and Alignment. It Also Prevents the Shaft from Being Distorted by The Tension of The Belt:

For Quiet, Accurate Operation at Any Speed for Years and Years.

One Shot Lubrication System:

For Lubrication of Ways and Lead Screws. (X, Y, And Z Axis)

Hand-Scraped Saddle and Knee:

For Better Oil Retention. It Avoids Having Chips and Dirt Embedded in The Knee and Damage The Sliding Surface.

Oil Groove Are Milled:

For Maximum Lubrication in All Wear Areas.

Table And Saddle Backlash Is Controlled by Double Nut Design:

Always Keeps Lead Screw in Contact with Bronze Nuts to Keep Backlash At 0.008" Within 20".

Table And Saddle Are Mounted with Thrust Bearings That Are Pre-Loaded:

Eliminating End Play for Precisely Controlled Lateral Movement.

Patented Knuckle Design Uses 6 T-Bolts, 3 Per Side, Securing Them from The Outside:

This Method Locks the Head Securely, Resulting in Better Accuracy and Performance.

- General Notes:** Equipment, specifications, and materials are subject to change until Sharp Industries accepts the order. The pricing is valid for 30 days.
- Delivery:** If not in stock, the factory will verify delivery times after receiving your written, firm purchase order. The lead time is approximately 60 days.
- F.O.B.:** Gardena, CA. U.S.A.
Sharp Industries' responsibility ceases when delivery is made to the carrier. Any claim for loss and/or damages must be made by the purchaser against the carrier.
- Terms:** Sharp Industries Standard Terms & Conditions will apply.
All factory special order machines require the following: End user purchase order to be issued to Sharp Industries as the *Seller*.
- 30 Percent (30%) down payment with your purchase order.
 - Balance before shipment from the factory.
- Warranty:** The Sharp Industries **Limited Warranty** will apply.

Prices and specifications are subject to change without notice.

Sharp Industries Inc. Limited Warranty

Sharp Industries warrants to the original purchaser, other than a purchaser for resale (the "Purchaser") that Sharp Industries machine tools shall be free of defects in materials and workmanship. For one (1) year from completion of installation, or twelve (12) months from the date of shipment, whichever is earlier, Sharp Industries will, at its sole and exclusive discretion, either replace or repair any machine or part thereof defective in workmanship or material, at no charge to the Purchaser.

All warranty repairs must either be performed by or authorized by a Sharp Industries Authorized Service Organization. To obtain a warranty service, the Purchaser must contact their local Sharp Industries Authorized Service Organization. The purchaser must verify the date of delivery/installation when requesting warranty service (dated installation report). Ground freight charges (UPS regular or common carrier truck) for all warranty replacement parts are paid by Sharp Industries. If the machine is not operational, Sharp Industries will pay next-day air shipment charges for necessary parts weighing 100 lbs. or less. Materials or parts alleged to be defective should be returned to Sharp Industries at Sharp Industries' request, and transportation charges should be prepaid. After the warranty repair or replacement of a defective part, Sharp Industries' warranty for such part shall continue for ninety (90) days or the remainder of the original Limited Warranty, whichever is longer.

WARRANTY LIMITATIONS

This warranty shall remain in effect only if the machine is used and maintained by all operating and maintenance instructions outlined in the manuals and instruction sheets furnished by Sharp Industries. Sharp Industries shall have no liability to repair or replace defective parts until the Purchaser has fulfilled its payment obligations. No allowance will be made for repairs or alterations made without Sharp Industries' prior written consent or approval. The limited warranty provided by Sharp Industries excludes the following:

1. Damage, malfunction, or failure caused by or resulting from improper maintenance, misuse, neglect, accident, or any other cause beyond the control of Sharp Industries.

2. Damage, malfunction, or failure caused by modification of the machine (mechanical or electrical) without written authorization by Sharp Industries.
3. Damage, malfunction, or failure caused by the installation or use of accessories or peripherals not purchased through or authorized in writing by Sharp Industries.
4. Paint, batteries, filters, fluids, fuses, light bulbs, or any commonly expendable item.
5. Damage to machines and/or components while being transported from Sharp Industries' warehouse or facility to their destination.
6. Accessories or peripherals not manufactured by Sharp Industries shall be subject only to whatever warranty is supplied by the manufacturer of such a product.

No person, agent, distributor, dealer, or company is authorized to change, modify, or amend the terms of this Limited Warranty in any manner. Sharp Industries makes no warranties, guarantees, or representations, express or implied, concerning the machine tool or parts thereof, except to the extent such warranty is set forth herein. The equipment covered does not necessarily comply with any code or standards unless specifically quoted, ordered, and so accepted.

THIS WARRANTY IS INSTEAD OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. SHARP INDUSTRIES' LIABILITY UNDER THIS WARRANTY IS EXPRESSLY LIMITED TO ITS PROMISE TO REPAIR OR REPLACE DEFECTIVE GOODS. SHARP INDUSTRIES SHALL HAVE NO FURTHER LIABILITY IN CONTRACT OR NEGLIGENCE OR UNDER ANY OTHER THEORY OF LAW OR EQUITY FOR ANY DAMAGES, DIRECT OR INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL, OR ANY DELAY RESULTING FROM THE DEFECT.