MACHINERY SOLUTIONS, INC.

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Phone: (310) 537-2522
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1654DCM-RH w/ optional Tool Changer shown   2473DCM shown

MACHINE SPECIFICATIONS

Victor Digital Control Mill

- Multiple Function 3-Axis CNC Mill
  1. Manual Handwheel Operation
  2. Machine Guidance Operation
  3. Teach-in / Playback CNC Operation
  4. Automatic CNC G-Code Operation

	1654DCM-CH (Conv. Head)	1654DCM-RH (Rigid Head)	2063DCM (Rigid Head)	2473DCM (Rigid Head)	3090DCM (Rigid Head)
Table Size	16" x 54"	16" x 54"	20" x 63"	24" x 73"	30" x 92"
Machine Travels (X" x Y" x Z")	38" x 20" x 24"	38" x 20" x 24"	50" x 25" x 24"	60"x 30" x 28"	79"x 35" x 29"
Quill Travel	6"	Rigid Head	Rigid Head	Rigid Head	Rigid Head
Spindle to Column	21"		25.5"	30.5"	35"
Spindle to Table	4.5" ~ 28.5"	3" ~ 27"	3" ~ 27"	3" ~ 31"	3" ~ 32"
Spindle Taper	NMTB40	CT40 (BT40)	CT40 (BT40)	CT40 (BT40)	CT40 (BT40)
Spindle Motor	5.0 HP	7.5 HP	10 HP	10 HP	15 HP
Machine Weight	5,500 lbs.	6,000 lbs.	9,000 lbs.	10,000 lbs.	N/A

- The main machine body is made from Meehanite casting – excellent vibration damping
- Double wall working table & rigid saddle structure provides unsurpassed rigidity
- Both side of the saddle are coated with TURCITE B for smooth operation
- The saddle, slideway, and table are hardened and ground to ensure long life
- Automatic lubrication system for all ballscrews and sliding ways to keep high precision of the machine: X-Y axis 20 lube points and Z axis 13 lube points
- Y-axis slideway and ballscrew protected by telescoping steel shield to keep chips out
- Z-axis ballscrew covered by telescoping spring guard to protect against chips and dust
- High accuracy C-5 grade ballscrew for X / Y / Z axis ($\varnothing$32 / $\varnothing$40 / $\varnothing$40mm diameter)
- High rigidity one-piece CNC spindle head. (Quilled head available on 1654DCM.)

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MACHINE SPECIFICATIONS (continued)

- Spindle speeds:

Conventional Quilled Head:	Rigid CNC Head:
Low Gear = 0 ~ 560 RPM	Main Gear = 0 ~ 6,000 RPM
High Gear = 561 ~ 4,500 RPM	

- Air Power Draw bar standard – optional ATC System
- Vector Frequency Drive for spindle motor – excellent torque characteristics at all speeds
- Complete FANUC system with Fanuc AC brushless servo motors & drives
- Four electronic handwheels for manual and automatic turning operations
- Hardware overtravel limit switch for all travel directions
- Feed rates: 0.01 ~ 200.0 in/min variable by program input
- Rapid traverse: X-axis = 400 in/min, Y-axis = 400 in/min, Z-axis = 300 in/min
- Automatic spindle jog during gear changes makes gear shifts easy
- Halogen work light – Fully integrated to allow for CNC control of on/off function
- Coolant System – Fully integrated to allow for CNC control of on/off function
- Table guard w/ front sliding doors
- Dual rear splash guards
- Bottom chip and coolant drip pan
- Set of leveling pads, screws, and nuts
- Set of wrenches for operating machine
- Set of Programming, Operation, and Maintenance manuals
- Full one year parts & labor warranty on machine
- One year warranty on Fanuc 20-FA CNC

CONTROL SPECIFICATIONS

- Fanuc 20-FA Industry Standard CNC
- 9" monochrome monitor & 44 key keypad
- 3-axis (X ,Y, & Z) digital readout screen
- Simultaneous 3-axis interpolation
- Manual operation via four (4) handwheels
- Machine guidance operation via handwheels
- Conversational graphics programming
- Teach-in / Playback operation: manually run 1st part, then Playback for automatic operation
- Automatic generation of G-code from Geometry data during teach in operation
- Full CNC G-code, M-code, T-code, and S-code Functions
- Simultaneous multiple M-code processing (Up to 3 M-codes)
- 6 CNC Modes: MEM, EDIT, MDI, Machine Guidance, Manual/handwheel, Ref Return
- 8 Auxiliary CNC Modes: Dry Run, Single Block, Optional Blk Skip, Z-Axis Cancel, Aux. Function Lock, X-Axis Mirror Image, Y-Axis Mirror Image, Manual Handle Interrupt
- Manual Interrupt of automatic operations: Handwheel Interrupt and Spindle Interrupt
- Diameter / Radius programming
- Absolute and incremental programming

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CONTROL SPECIFICATIONS (continued)

- Inch / Metric input and display
- On-line calculator function to aid in data input
- On-line help pages to aid you in the CNC operation
- On screen tool path graphics to verify part program
- User programmable "Software Travel limits" to limit the travel for X , Y& Z axes
- Intelligent hardware travel limits – only stops movement in the over-traveled direction
- Inch / Metric feed rate input: inch/min or mm/min
- Gear indicator lights on status panel
- Auto spindle jog during gear changes
- Spindle load meter: 0% - 180% of rated load
- Supervisor key lock switch for disabling parameter and program modification
- Conveniently mounted machine Control Panel - E-Stop, Playback, Start, Stop
- Aux. Functions on Control Panel: work lamp and coolant
- Spindle control on Control Panel: forward, reverse, stop, & speed dial
- User selectable Jog / Feedrate override profiles: Linear or Exponential
- Auto/Jog feedrate override: 0% to 200%
- Spindle override: 50% to 150%
- Rapid Traverse override: 12.5%, 25%, 50%, & 100%
- Incremental / continuous jog for X, Y, & Z axes
- Intelligent Bi-directional home search for X ,Y, & Z axes
- Four electronic handwheels for manual and automatic turning operations
- Multiplier switch for handwheel sensitivity: 0.0001", 0.001", & 0.01"
- CNC **"RUN VERIFY"** by Joystick or handwheel for all automatic operations
- Easy one touch X, Y, & Z Part Coordinate System setting
- Full CNC control of coolant on-off functions via M-codes
- Full CNC control of work light on-off functions via M-codes
- Three coordinate systems: Machine, Absolute, & Relative
- Program storage 63 part program storage
- Scaling, Rotation, and Mirror functions
- Run-Timer / Parts Counter function
- Backlash error compensation
- Ballscrew pitch error compensation (for Laser Calibration)
- Single direction positioning (optional)
- Helical interpolation (optional)
- Background Program Editing (optional)
- Rigid Tapping (Available on CNC rigid head only) (optional)
- Spindle Orientation (optional)
- Custom Macro B programming language (optional)
- Built-in RS-232 port for loading/unloading of part programs and other CNC data
- 32 Tool length offsets & diameter offset data locations (64 offset data locations optional)
- Self diagnostics with error messages on screen