



CNC MASTERS

Azusa, California USA

The CNC Jr. Table Top Milling Machine

\$5,423.00



The CNC Jr. delivers quality and accuracy for LESS! Why spend thousands on a manual-milling machine when you can let automation technology do the work for you? **IT'S TURNKEY, EASY TO LEARN, AND EASY TO OPERATE!**

The CNC Jr. machine and controller are built to order and stock in-house in California, USA. We do not buy and re-sell our CNC Driving System. So we'll never bounce you to a third-party vendor for limited support to either their controller or another vendor's machine. **WE SUPPORT THE COMPLETE CNC Jr. MILLING CENTER INCLUDING ITS OPERATIONAL SOFTWARE BY PHONE OR EMAIL FOR AS LONG AS YOU OWN THE MACHINE.**

The CNC Jr. Table Top Mill is a versatile bench top mid-size CNC mill made for primary or secondary CNC machining applications. The Jr. is intended for the user who needs the ability and performance of a CNC Bridgeport-type size machine without taking up floor space like larger CNC machinery. The CNC Jr. Table Top Mill is a great purchase for machine shops, research institutions, colleges, universities, high schools, engineers who need to quickly prototype 3D parts, and one-man operations who need to mass produce hundreds of the same single part in their home garage-turned-shop. **The CNC Jr. Mill makes a great investment tool for business owners who would rather save money by machining their own parts instead of contracting the order out.** Because of its size, the CNC Jr. can fit in areas where space is limited, yet can machine just about any application within 19" and 7". **SAVE YOUR BUDGET, TIME, AND BEGIN CUTTING PARTS THE SAME DAY!** The CNC Jr. is made in the USA combining parts made in the USA and abroad allowing us to bring the savings to you. **THE CNC Jr. IS TESTED FOR QUALITY AND PERFORMANCE IN-HOUSE IN AZUSA, CA USA.**

The CNC Jr. Features:

- Works on operating systems: WINDOWS VISTA AND XP on USB.
- Powerful X, Y, and Z-axis micro-stepper motors are size 34 with 1200 in/oz. of torque. Stronger torque coupled with micro-stepping motion allows the CNC Jr. to perform accurately without losing steps. The minimum possible motion is .0001" with a minimum speed of 0.5" per minute. The maximum speed is 50" per minute.
- Full 3 Axis or optional 4 Axis coordinated motion control on bipolar motors--far superior over unipolar technology when it comes to torque and power. True Interpolation!

CNC Masters • 738 N. Loren Ave., Unit 1 • Azusa, CA 91702
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- Hand-Wheels on each axis for manual option machining with motor disengage feature to retain spindle speed control (applies to the CNC Jr. with variable spindle speed control).
- X & Y Axes Zero Backlash Ball Screws with pre-loaded ball nuts to eliminate play on the table and saddle travel, and provides precision machining. These custom-made precision ball screws allow for precision conventional and climb milling operations and accurate circular and contour cuts without time consuming setups.
- Z Axis pre-loaded arrangement to eliminate backlash on the up/down travel.
- X & Y Direct Drives--no timing belts to adjust. This results in smoother operations and ensures accuracy unlike pulley and belt drive methods which can cause the belt to buckle causing inaccurate results. This unique design of direct drive keeps the user without having the need to change the belt or adjust as it wears down.
- Home Reference Sensors on the X, Y, & Z which saves your home/zero position as the first line of your program. This feature allows you to quickly return to the home position on any program without having to manually zero your three axes again.
- Limit Switches on all extreme ends of X, Y, & Z travel allowing you to confidently test your program without having to worry about an axis travel to its end and causing damage to machine.
- Tool Height Compensation with Automatic Quill Retraction for easy R8 collet tool change
- Tool Cutter Radius Offset Compensation
- Run your tool path from any line on your program
- Easy to Use Jogging Features and Feed Control by pc mouse or keyboard.
- Jog-Input Command automatically writes each line of your tool path as you manually jog each axis by pc mouse, keyboard, or the optional hand held remote control joystick to save as a program for repeat use.
- Software Power Feed capabilities on X, Y, Z, and W with one click of the pc mouse for exact relative driving distance.
- Hooks up to your PC, comes pre-built from the factory, and is completely tested before shipping out.
- Runs files from popular CAD-CAM softwares that produce standard G-Codes such as Mastercam, Surfcam, etc to machine and engrave intricate and detailed parts.
- Load DXF files from graphic programs such as CorelDRAW into CAM softwares to machine or engrave detailed parts from scanned images.
- Easily build a file of commands to machine simple parts such as drilling operations without the need to learn to use a CAD-CAM program.
- Digital Read Out Display of your X, Y, Z, (and optional W) counters on your computer screen in INCHES or MILLIMETERS using your PC mouse, keyboard, or our optional Hand Held Remote Control Joystick.
- Can add fourth axis, engraving attachment, coolant, quick tool change, and splash guard shield from our line of accessories to the CNC Jr. Mill.
- Optional CNC Jr. PLUS Computer Controlled Variable Spindle Speed. Save time without having to change the belt, and program your spindle's speed in the Master Software through G-codes, simple conversational commands, or on/off with your pc mouse.

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- User-friendly setup for any beginner or experienced machinist. Easy to learn and operate.
- A 3" U Type Angle Vise, JT6 Drill Chuck with Key and Arbor, Carbide Tipped Surface Cutter come standard with every Jr. Mill.
- Backed up by our CNC MASTERS ONE YEAR WARRANTY or extend it for two more years.
- Unlimited "life-long" operational Tech Support step-by-step trouble shooting and walk-through process by email or phone support Monday-Friday PST during normal business hours for as long as your company owns the machine.
- Easy to repair, replace parts, and maintain unlike costly servo systems that need to be serviced by a trained technician.
- Free Master Operating Software Updates for as long as the hardware can support it.
- Discounted Prices for Existing Customers of CNC MASTERS. Check out our CNC Jr. Package Prices on our website: www.cncmasters.com.

With my Industrial Design business I have many years of experience creating 3D CAD models of original designs but no experience with CNC machining. Although I still have much to learn about CNC programs and running parts, I have been pleased with my results in the first two month of owning the CNC Jr. Table Top machine. I attribute much of that to the help you have provided over the phone and the ease of using the CNC Jr. I would recommend the CNC Table Top Machine to anyone that needs industrial shop results. Enclosed are a few pictures of CNC parts that the machine has produced. Thank you again for providing excellent service. – John Loftus of Laguna Beach, CA



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**CNC MASTERS****Azusa, California USA****The CNC Jr. Specifications:**

X Axis: Left/Right table travel	19" 485mm
Y Axis: Forward/Back table travel	7" 175mm
Z Axis: (Quill) Spindle Up/Down travel	5" 127mm
Spindle nose to table (maximum)	18" 480mm
Motor power	2 HP
Overall height (w/o stand)	43-1/2" 1100mm
Machine Stand Height	30" 760mm
Drilling capacity	1-1/4" 32mm
End mill capacity	3/4" 20mm
Swing	15-7/8" 405mm
Spindle taper	R-8
Diameter of Spindle sleeve	3" 75mm
Head Swivel	360 degrees
Diameter of column	4-1/2" 115mm
Overall length (end of table to end of X motor handle)	39-1/4"
Overall width (back of spindle motor to Y motor handle)	39-3/4"
Spindle speed	12 speed (120-3000rpm)
Working area of table	28-3/4 x 8-1/4"
Net/gross weight	700 lbs.

The CNC Jr. Tolerances:

Accuracy	+/- 0.003" in 12" (+/- 0.00025 per inch)
Repeatability	0.0005"
Resolution	0.0002"



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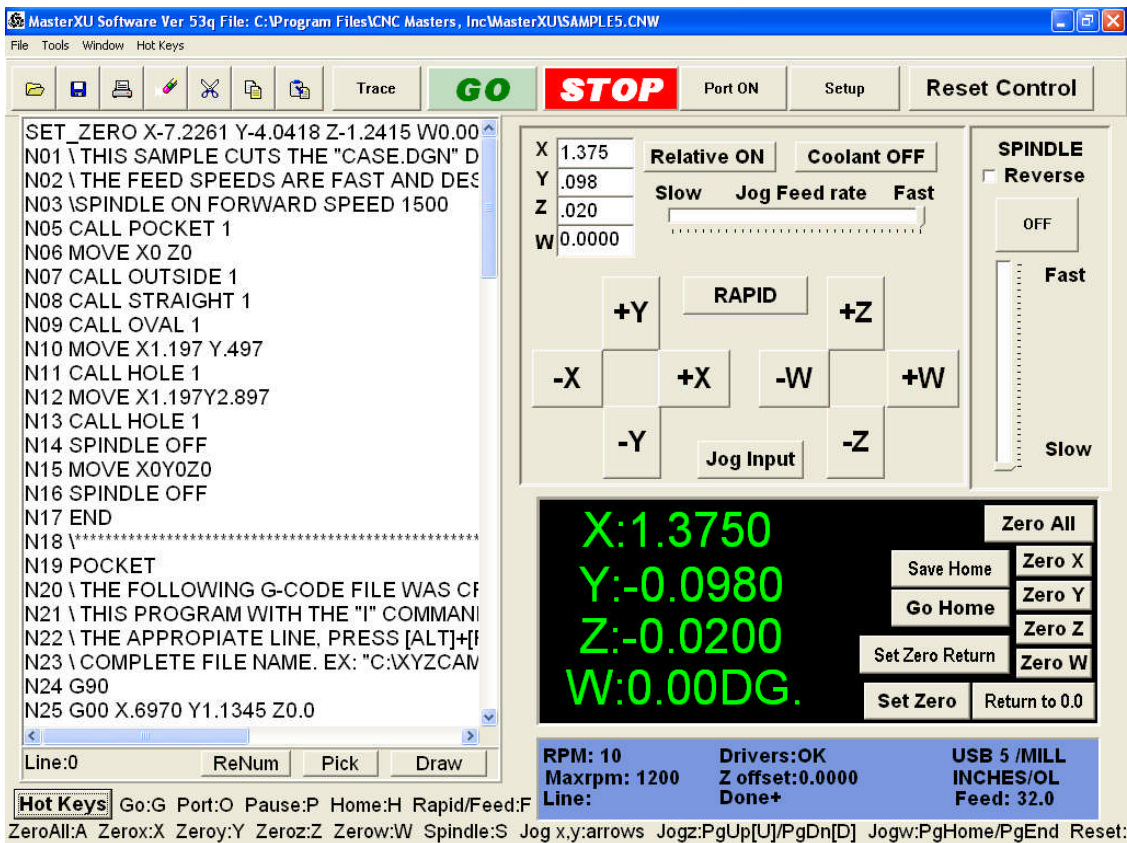
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The CNC Jr. Control Unit:

The CNC Control Unit is a microcomputer based micro-stepper motor driver with 4D interpolation capabilities. It accepts motion commands from your host computer through a standard USB port, making it easier for the user to connect to his computer in the industry. The Control Unit can drive up to 4 motors. The Control Unit is mounted directly on the back of your CNC Jr. Mill out of your workspace unlike other models that require a separate stand. Other optional outputs are the coolant, and spindle controls. The power requirement is 5 amperes at 115VAC. Upon request for international orders, we will convert the VAC on the Control Unit to meet 220-240VAC standards at no extra charge!

The CNC Jr. Master Software:

The CNC MASTERS Control Unit is controlled by the user friendly MASTER software, which runs on any IBM-AT compatible computer with at least 500Mhz and Windows VISTA and XP (min 32 bit). It communicates with the CNC Control Unit through USB port the standard in computer communication. The MASTER software features a main windows panel interface that will allow the novice user to easily control the program and the machining of parts.





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The Master software runs standard G-code files from other CAD-CAM software such as SmartCam, SurfCam, etc. The Master software also features its own programming language. It uses plain English words, like “Move, Absolute, Incremental, Repeat, Rapid, Feed, Spindle on, etc.,” which are all self-explanatory. These commands are conveniently picked from the pull-down menus and placed on the main screen editor ready for the user to complete. You can easily build a file of commands to machine simple parts without the need to learn or use a CAD-CAM program! For example, you need a number of steel pieces drilled with 100 holes, each of 1/2” dia. by 1” deep at 0.600 centers. With a simple program, the CNC Jr. can do this operation with minimal supervision. The program will look like this:

PROGRAM SAMPLE:

```
001 ABSOLUTE
002 MOVE X0 Y0 Z0
003 SPINDLE ON FORWARD SPEED 400 RPM
004 COOLANT ON
005 INCREMENTAL
006 CALL ROW 10 TIMES
007 SPINDLE OFF
008 COOLANT OFF
009 MOVE X0 Y0 Z0
010 END /MAIN PROGRAM
011 ROW /BEGIN SUBPROGRAM
011 MOVE Y-0.6
012 CALL DRILL_COLUMN 10 TIMES
013 END /ROW SUBPROGRAM
014 DRILL_COLUMN /BEGIN SUBPROGRAM
015 MOVE X.6
016 FEED 1.0 /INCHES PER MINUTE
017 MOVE Z-1.1
018 RAPID
019 MOVE Z1.1
020 END /DRILL CALL
```

The ability of the MASTER software to run and repeat “subprograms” with a single command line is a very powerful feature that will save the user considerable manual input and easily program custom “canned cycles” such as large DRILLING REPEATABLE FILES that can be written with just a few lines. Verifying a new program can be easily done with the “trace” facility. In this mode you can step a program one line at a time and check the XYZ position counters, which serves as your DRO, against the blueprint of the part, or you can activate the “Draw file” command to see a graphic display of your file before you machine the part.



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The CNC Jr. Master Software Features:

- Relative driving of any precise distance with one click +/- on the chosen axis
- Tool Height Compensation with Auto Quill Retraction for easy R8 collet change out
- Tool Radius Offsets
- Go From Line Command--allows the user to start his tool path from any line on his program
- Beep End Program--a beeping sound from the computer to notify the user that the job is done
- Peck Drilling Cycle
- Save Home/Go Home – Save a home position of your axes separate from your program zero's position
- Return to 0.0 --recounts its steps back to your program zero position
- Intuitive Interface with axis jog buttons placed in the viewpoint of the cutter to avoid confusion of direction
- DRO display of all three and optional four axes.

With the included G-CODES FILE INTERPRETER, the MASTER software can run files generated by many advanced CAM software packages, like the BOBCAD-CAM or VISUAL MILL which uses solids and surface machining technology. Or, use others like MASTERCAM, SURFCAM, RHINO, ARTCAM etc. All you need to do is setup your post-processor to match the CNC Jr. and you will be able to machine the most complex surface program that your machining requires. The maximum file size will be controlled by the storage space available on the hard drive of the host computer. With the MASTER editor you can create, edit, load, or mix G-codes with the MASTER conversational commands.

Standard FANUC G-Codes and M-codes Supported:

G00 = Position (Fast speed)

G01 = Linear interpolation (Feed speed)

G02 = Circular interpolation (CW)

G03 = Circular interpolation (CCW)

Format: X__Y__I__J__ I,J are relative distance from start to center. Incremental Z can be added for helical designs.

G17 = Cancels G60 Command

G40 = Tool Radius compensation off

G41 = Tool Radius compensation left

G42 = Tool Radius compensation right

G60 = Switch data from Y to W * radius factor

G70 = Input in inches

G71 = Input in millimeters

G80 = Cancel Peck Drilling Cycle

G83 = Peck Drilling Cycle, Format: X__Y__Z__R__Q__P__F__

G90 = Absolute move (Modal)

G91 = Relative move (Modal)

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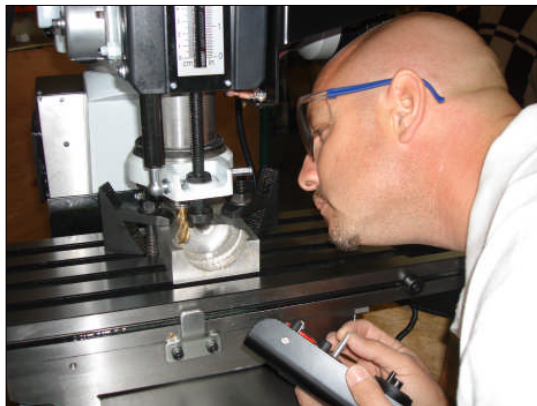
M00 = Stop
M02 = End routine
M03 = Spindle on
M04 = Spindle off
M06 = Spindle reverse
M08 = Coolant on
M09 = Coolant off
M30 = End program

One-Year Warranty and On-Going Support

All components and accessories on the CNC Jr. Mill are individually tested and the entire milling center is tested for quality assurance before shipment. The CNC Jr. Milling Center is backed up by our **ONE YEAR LIMITED WARRANTY!** Tech Support by email at sales@cncmasters.com or phone (626) 812-8300 is available during normal business hours Monday through Friday, PST. From setup to any questions you may have, tech support is available free of charge for as long as your company owns the CNC Jr. Mill. The CNC Jr. and all other products that CNC Masters sells will be backed by our one year limited warranty, which covers defects in electronic components, materials, and workmanship. For tech support, we can be reached at (626) 812-8300 during working hours PST, or email us: sales@cncmasters.com. Tech Support by email or phone will ensure you a step-by-step troubleshooting process to solve your tech issues. Please see our Terms and Conditions of Sale before placing an order at www.cncmasters.com.

The CNC Jr. Accessories:

Check out our accessories at www.cncmasters.com to maximize the many uses of the CNC Jr. Table Top Mill especially our very own **Hand Held Remote Control Joystick**--our hottest selling accessory for the



CNC Jr., which jogs your three/four axes with the touch of a joystick. Now you can keep your eye on the part as you micro-step your axes into position for your cutter. Machine simple slots, pockets, and profiles, or drill holes without even turning on your computer or having to hand crank the axes. Adjust feed and speed with the dials.

Zero out your counters, press Go, and even activate an E-Stop conveniently located at the palm of your hand.

For sales, call us at 877-262-8895 or email us at sales@cncmasters.com.

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