



The LittleMachineShop.com model 3501 CNC Milling Machine is a complete CNC solution. It's not a conversion or adaptation; this machine is designed and built by the factory as a CNC machine.

Until now, hobby CNC has required that you make or buy a conversion of a manual milling machine. You had to integrate the mill, ball screws, stepper motors, drivers, power supplies, and breakout boards. Most people don't know what those things are, much less how to integrate them into a working CNC machine.

The LittleMachineShop.com model 3501 is the perfect mill for the bench top machinist who wants to create parts and not just build a CNC machine. The power supplies and controllers are built into the mill. No extra cabinets, cables, or connectors are required. Add the optional model 3616 computer and you have a complete CAD/CAM/CNC package with fully-licensed software. The model 3501 CNC milling machine even includes a 4th axis driver so you can add a 4th axis rotary table by simply plugging it in.

With powerful NEMA 23 hybrid stepper motors connected by zero backlash jaw couplings to precision-ground ball screws, the model 3501 can achieve positioning accuracy to 0.0005". Not many hobby-grade machines can make a claim like that. It will machine at up to 20 inches per minute and rapid traverse at up to 80 inches per minute.

A 2/3 horsepower closed loop brushless DC spindle motor and synchronized belt drive takes the spindle from 100 to 7000 RPM under full CNC control. A one-shot oiler with flexible shielded lube distribution tubing takes care of daily lubrication with a single pull of a handle.

With a work envelope of 10.2" (X-axis) × 4.3" (Y-axis) × 7.1" (Z-axis) the model 3501 has large capabilities in a small machine. And at 190 pounds, you know it is not a toy. The mill table is 15" × 5.38", giving you plenty of room to mount your work and fixtures.

The coolant catch tray on the table and the pan under the machine make the use of flood coolant practical. A software controlled receptacle on the back of the machine provides CNC control of the optional coolant pump.

And we haven't forgotten your safety. The model 3501 carries the CE marking, the European counterpart to UL listing. A safety E-stop button right on the front and the interlocked spindle shield shut down the mill instantly.



MODEL 3501 SPECIFICATIONS

End Milling Capacity	0.4" (10 mm)
Face Milling Capacity	0.8" (20 mm)
Drilling Capacity	0.4" (10 mm)
Table Size	15" × 5.38" (384 mm × 137 mm)
T-slots	3 slots 0.31" (8 mm) wide
X- Axis Travel	10.2" (260 mm)
Y-Axis Travel	4.3" (110 mm)
Z-Axis Travel	7.1" (180 mm)
Throat	5.1" (130 mm)
Ball Screws	12 mm (0.47 in) dia. × 4 mm pitch class 5 ground
X-Axis & Y-Axis motors	NEMA 23 12 lb-in (1.35 Nm) torque
Z-Axis motor	NEMA 23 19.5 lb-in (2.2 Nm) torque
Positioning Accuracy	0.0005" (0.01 mm)
Spindle Taper	2 Morse taper
Drawbar Thread	3/8"-16
Spindle Motor	0.67 hp (500 W) brushless DC
Spindle Speed	100-7000 RPM
Spindle Torque @ 1500 RPM	16 lb-in (1.8 Nm)
Spindle Bearings	ABEC 5 angular contact
Power Requirements	120 V 60 Hz 6.3 Amps
Coolant Pump Receptacle	120 V 60 Hz 5 Amps CNC Controlled
Feed Speed Maximum	20 in/min (500 mm/min)
Rapid Travel Maximum	80 in/min (2000 mm/min)
Machine Weight	190 lb (86.4 kg)
Overall Dimensions (W × D × H)	24.8" × 24.8" × 24.8" (630 mm × 630 mm × 630 mm)
Shipping Weight	264 lb (120 kg)
Shipping Dimensions (W × D × H)	29.5" × 30" × 31.5" (745 mm × 760 mm × 800 mm)

FEATURES

- 10.2" × 4.3" × 7.1" work envelope
- Class 5 precision hardened and ground ball screws
- Direct drive NEMA 23 hybrid stepper motors
- Zero backlash jaw couplings
- Three stepper drivers for X,Y, and Z axes
- Extra stepper driver for 4th axis pre-wired with external socket
- Variable spindle speed under full CNC control
- Synchronous belt spindle drive (no gears)
- Limit switches and homing on all three axes
- Parallel interface board optically isolates the machine from the computer
- Fully covered ways and ball screws
- Emergency e-stop switch and chuck guard switch
- CE marking (comparable to UL listing)
- CNC controlled coolant pump receptacle
- Coolant catch tray on the table and coolant catch pan under machine
- Power supply and control system are integral to the machine
- One-shot oiler with flexible shielded lube distribution tubing
- Industrial grade ABEC 5 angular contact spindle bearings
- Dovetail slides with adjustable gibs



OPTIONS

- **3657 Pentium 4 Computer**
Includes computer, 17" flat screen monitor, keyboard, and mouse.
- **3519 4th Axis Rotary Table**
Plugs right into the model 3501 CNC milling machine, which includes the 4th axis driver.

LittleMachineShop
The premier source of tooling, parts,
and accessories for bench top machinists.

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396 W. Washington Blvd. #500 • Pasadena, California 91103 • (800)981-9663 • (626)797-7850