

# Does Your Model Shop Need More Tools?

---

A CASE FOR A VERY USEFUL SHOP TOOL

A solid green horizontal bar at the bottom of the slide.

# What Every Model Shop May/Should Have

---

Posit: Every modeler's shop needs basic power tools to achieve the precision and quality we all strive for

In addition to modeler's hand tools one can usually find the basics:

- Table top or model saw
- Drill Press
- Band Saw
- Sander, Disc and/or Drum

**A lathe and mill are a leap forward**

Beyond that CNC machining is the ultimate capability

# I Chose A Mill

---

## Why not a Laser or CNC routing machine?

- Home laser based systems have some machining limitations such as:
  - Machining material types
  - Machining material thickness
  - Precision machining
  - Only perpendicular machining possible without creative jigs
- Router based systems have other limitations but come closest to a milling machine. However fall away when metal is the medium

## Why not a drill press with an X/Y table you ask?

- For wood a decent alternative
- Speed limitations
- Spindle side loading a concern
- Spindle downward force control/limit concern

# What Drove The Final Decision?

---

Had some exposure to a table top mill in the 1990's

A Grizzly, that I played with, but used infrequently

- Had a gear problem, they were nylon or some such material
- Made some simple parts with it.
- Sold it when I moved

This past summer had to return my Table Saw Zero Inserts to Jim Byrnes

- Too thick needed a thickness reduction of .005
- No tool in my shop up to the task

And recently I was stuck making the bulkwarks for the Atlantis.

- Each bulkwark required 5 scupper slots, port/starboard, about 1/8 X 1-1/4 inches long.
- Hand drilling and filing on practice pieces was a disappointment. Routing on the shop router was a formula for disaster

I borrowed Tim's mill.

# What Drove The Final Decision?

---



# So A Search Began What Mill? How Big?

---

## The Marketplace

- Many table top offerings primarily made in China. Reviews claim quality, accuracy and accessory deficiencies.
- After the Grizzly experience I wasn't going to repeat the problem again
- Customer support was an important factor and I have learned it isn't there
- And then there are the floor models. A Bridgeport would have been nice!

## Settled on "Buy American" and mini size

- Started a thread on MSW to find out what others recommended.
- Sherline highly recommended (by MSW members)
- Sherline in business since 1972
- High quality
- Strong accessory line
- **Strong customer support**
- **Progressive product line of mills (and lathes)**

# Milling Models

---

Sherline offers 3 basic models that can be configured/upgraded from manual to CNC operation:

- 5000/5010 (metric) manual mill
- 5500/5510 (metric) manual mill w/zero adjustable X/Y handwheels
- 5400/5410 (metric) manual mill same as 5500 but 2 inch larger base and headstock spacer for greater Y axis capacity
- 2000/2010 (metric) 8 Direction manual mill

# Expandable/Progressive Product Line

---

Very well thought out product line with accessories that can move upward and from mill to lathe or older models

- Digital Read Out (DRO) monitor that displays X/Y/Z position and motor speed
- CNC ready mills with stepper motor mounts (Build your own system)
- CNC functional mills, stepper motors, 4 axis driver, PC and software package (an “RTF” option)
- A Sherline lathe can be configured to operate as a mill
- Expansive accessory offerings



# The Caveat(s)

---

Unless you order an 'A' package one can do little with the machine i.e. no collets, table vise, cutters, etc.

It has been said one can spend as much on accessories than on the original mill purchase!

Base Price ranges from \$695 (5000) to \$2700 (CNC Steppers, Drivers, PC and Software)

Example of a useful accessory, the rotary table, non CNC ready, costs \$273

For this group only: a 15% discount for Seniors!

# Purchased The 5400 DRO

---

I am a rank amateur machinist

- Digital Read Out a good way to maintain more accurate positioning for repeatable operations ( dial readouts still maintained)
- Incremental indexing/control of hand wheels problematical for me

Purchased the 'A' package which provides enough parts, holders, collets, cutters to do most tasks

Also purchased the 10,000 rpm pulley set for machining of wood with router bits

Planning on purchasing the recommended the book, written by Joe Martin, "Tabletop Machining"

# The 5400 Basic Specifications

---

- Speed range 70 to 2800 RPM (electronically controlled and maintained during loading)
  - Two step pulley for more torque at high speeds
  - Sensor to support DRO readout of RPM
- 'X' Travel 8.65"
- 'Y' travel 5.00"
- 'Z' travel 6.25"
- Handwheel graduation .001"
- Headstock can be rotated to change cutter attitude to work
- Power 120 V/220V, 50/60 Hz compatible
- DC 90 Volt series motor

Head  
Rotates

X,Y,Z Position and RPM  
Readout

All 3  
handwheels  
have reset to  
zero capability



# What Can One Mill?

---

If your inclination is to build kits maybe you don't need one

If you are a kit basher or scratch builder it's a different story

Basic milling functions with superb accuracy and repeatability in metal, plastic and wood

- Surface planing
- Slot or channel cutting
- Gear cutting
- Facet cutting
- Boring and size hole up to 1.0 + size

Add the rotary table and you can make just about anything, even in the round

# A Few Words on CNC Systems

---

It is a capability only limited by your imagination

Adding stepper controlled devices it is then “just a matter of software”

- Linux based OS, an open source software
- CAD/CAM output compatible
- Write your own instructions via “G” a “user friendly” language
- After market enhancement capabilities/products

Witness and wonder on YOU TUBE

So why didn't I go that way you ask?

The answer is simple “Do you want to build models or do you want to build tools?”

Questions???????