

Project Tutorial

June Project: Mini Baseball Bat
Design by Rick Frazier

Compatible with the Current Version of

VCarve | PRO & DESKTOP



Then create the tap file for your machine using the correct post processor. Now you're ready to make your own [Mini Baseball Bat!](#)

Project material list:

- 2"x2"x21" Maple/Walnut Blank
- Various grade of sandpaper
- 1" Bristle radial disks (100,120 and 240 grit)
- Sanding Cord 120 grit
- 1" Rotary Scotchbrite disks (brown)
- Various rotary tools
- Polyurethane Clear

Project Tool List:

- 3/8" straight bit
- 1/4" dia. ball nose bit
- A rotary tool with assorted sanding wheels and bits to sand small details.

Batter up! The Baseball Season is here. To celebrate the new season, we have designed a customizable Mini Baseball bat. You can personalize it for any occasion or team. The Instructions, crv. files and videos are found on Next Wave Automation's Website www.nextwaveautomation.com

This project is aimed at the woodworker with moderate to intermediate skills. You will need access to V-Carve 9.0 with updates, and the tools listed below.

With the V-Carve software, open the project CNC files. Carefully review all the toolpaths and make necessary changes to suit your tools and machine. The toolpaths are currently set with tool, feeds and speeds that were used in designing the original project. Don't use them directly until you review them for your machine. You can edit the tools and change the settings to fit you own machine and requirements. It is very important to recalculate all toolpaths after making any changes. Once you have recalculated for your own machine and tools, reset the preview, and then preview all toolpaths again to visually verify the project outcome.

Project CNC Files:

Video Files:
Mini Bat_4.crv

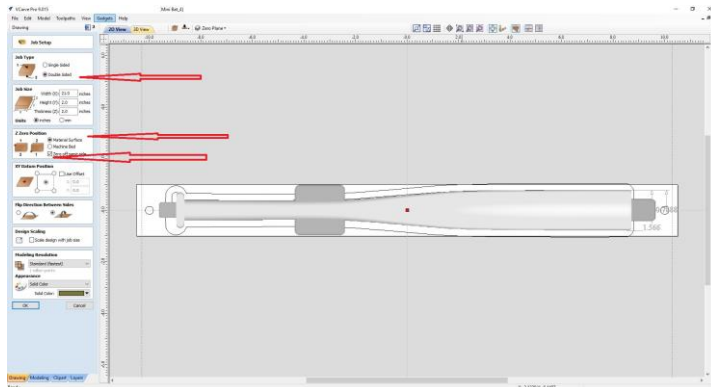
Step 1: Bat Blank Glueup



The blank glue up we have three types of wood, walnut, maple and poplar. The walnut pieces are 2" x 0.5" x 21" long and 1 inch by

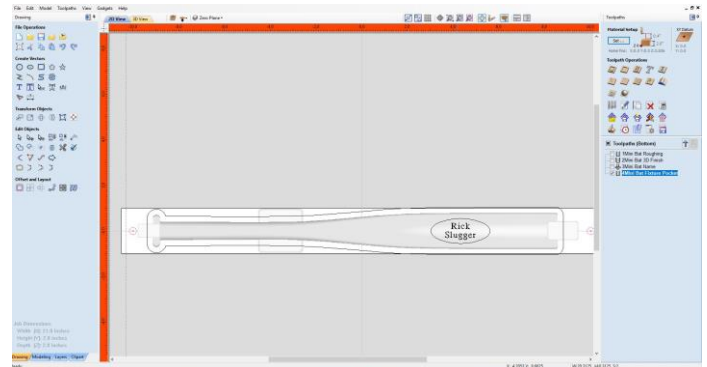
half-inch by 21 inches long. The Maple piece is 1" x 1" x 21" long. The poplar pieces are 2" x 0.75" x 21" long. The Maple piece is the core of the blank the walnut pieces are glued to the outside of the Maple piece. The poplar pieces are what I call outriggers they glue to the outside of the blank. You now should have a blank that measures 2" x 3.25 x 21". Mark the center of the length and width of the blank, mark the front of the blank, mark the top of the blank. This prevents confusion when you rotate to the other side.

Step 1: Creating Tap Files



Make sure you have the following items checked in the setup menu to get the correct results.

- Doubled sided
- Zero position, Material Surface
- Zero off the same side



The first step in creating a tap file is to open the Mini Bat_4.crv file. Carefully review all the toolpaths and make necessary changes to suit your tools and machine. When everything is suitable for your machine, go over to the tool path menu and save each of the following tool paths.

- Top_1Mini Bat Roughing
- Top_2Mini Bat Finish
- Top_3Mini Bat Pocket
- Bottom_1Mini Bat Roughing
- Bottom_2Mini Bat 3D Finish
- Bottom_3Mini Bat Name
- Bottom_4Mini Bat Fixture Pocket

Use your corresponding post processor to save the tap files. For this project you should create 7 tap files. Make sure to retain the tool path names for your tap file. Make sure you click the radio button, in the upper left corner of the Save Tool Paths menu box "add side to tool paths name" so they match the tap files that are in the instructions. For more information please watch the video on "Creation of Tap Files."

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Step 2: Machining the Top of the Bat Top Rough Cut



Mount the material with the centerline of the material are parallel to the X axis and centered upon the center of the blank. Secure in the corners with screw or clamps as in the [figure above](#). Make sure the clamps or screws do not obstruct the bit during Machining. Install a 3/8 inch" straight cut bit. Touch off the Z-axis on the "TOP of the Material" [see Reference Video](#). Load the Top Roughing tap file. "Top_1Mini Bat Roughing.tap". Run the tap file with a router speed at 12,000 to 16,000 RPM.

Top Finish Cut



Remove all burrs from the top material. Install a quarter inch diameter ball nose bit. Touch off the Z-axis on the "TOP of the Material" [see Reference Video](#)

Load the Top Finish tap file. "Top_2Mini Bat Finish.tap". Run the tap file with a router speed at 12,000 to 16,000 RPM.

Leave the quarter inch diameter ball nose bit installed then drill the alignment holes with the top alignment hole tap file. "Top_3Mini Bat Pocket.tap". Run the tap file with the router speed of 12,000 to 16,000 RPM.

Step 3: Flipping and machining the bottom of the bat.



Rough Cut 1

Clean the fixture of all debris. Install the 5/16" dowels in the alignment holes on the blank. Flip and install the blank on the spoil board with the bottom side up, securing with screws or clamps. Touch off on the "spoil board base", in order to assure all of our dimensions are measured off the top side of the blank which is now at the level of the spoil board. Load the bottom roughing tap file. "Bottom_1Mini Bat Roughing.tap." Run the tap file with a router speed at 12,000 to 16,000 RPM.

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Finish cut 1



Vacuum the top of the fixture. Install the $\frac{1}{4}$ inch ball nose bit. Touch off on the “**spoil board base**”; remember the spoil board base is on the same level as the top of the blank. Load the bottom finish program. “**Bottom_2Mini Bat 3D Finish.tap**”. Run the tap file with a router speed at 12,000 to 16,000 RPM.

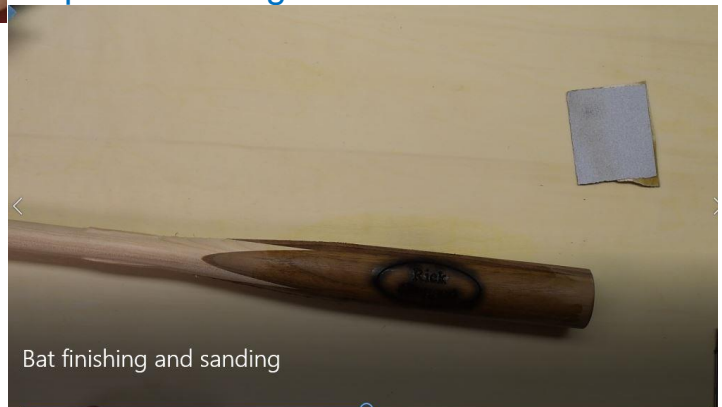
Step 5: Sanding and finishing the Mini Baseball Bat:



Cut the baseball bat free from the blank but leave one end to hold for Sanding and finishing. [See Reference video:](#)

Using the rotary tool bits and one-inch bristle disk, sand and remove any unwanted material from the detailed areas of the bat. Be careful not to overdo, it will take away features away on your bat. Sand everything down to with 240 grit sandpaper. Once you are satisfied with the Sanding and detailing of your bat we are ready for finishing.

Step 6: Finishing the mini baseball bat:



Clean and prep the bat with alcohol for finishing. I chose to brush on shellac as a sealer to close all of the pores in the logo area. Then airbrush black to give it that burnt in look. Then final stand with 240 grit sandpaper. After cleaning for the final time, I apply three coats of lacquer, lightly sanding between coats. It gives it that satiny sheen and good protection. Hope you enjoy the making of this project. Next month we are going to take on a 4th Axis project, Pens. So, get you creative juices flowing and come back next month for some cool pens. Have fun and Happy Carving!

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