Next Wave Automation

Project Tutorial

July Project: Custom Coasters

Designs by Rick Frazier

Compatible with the Current Version of

VCarve | PRO & DESKTOP

The Personalized Coasters feature an attractive design that incorporates a recessed bottom in which we will carve a phrase, a name or a favorite sports team. The sample was made using Mahogany, however, you might use woods of your own choosing. We recommend using any suitable hardwood. This is a nice project to do over a weekend and is an excellent introduction to the process of two-level machining. The finished dimensions of the coaster are approximately 3/8" x 5" x 5."

The Instructions, crv. files and videos are found on Nextwave Automation Website 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. 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 having recalculated for your own machine and tools, reset the preview, and then preview all toolpaths again to visually verify the project outcome. Then create the tap file for your machine using the correct post processor. Once satisfied with your settings, save the tool paths using the appropriate Post Processor for your machine. Check tool paths by air cutting the project or use rigid foam board from a local lumber yard to run a sample tool path. If satisfied with the outcome, now you're ready to make your own Custom Coaster!

Project material list:

3/8"x6"x16" Hardwood Blank
Various grade of sandpaper
Polyurethane Clear
Felt for bottom

Project Tool List:

¼" straight bit
¼" dia. ball nose bit
¼" Flush trim bit
A rotary tool with assorted sanding wheels and bits to sand small details.

Project CNC Files:

Custom Coaster.crv

Video Files: found on nextwaveautomation.com

Custom Coasters sanding and finishing.mp4
Custom Coasters Machining.mp4
Custom Coasters Design and tap files.mp4
Custom Coasters tab removal sealing Epoxy inlay.mp4

For more information on how to create the Custom coaster and how to modify coasters, watch the video Custom Coaster Design and tap files.

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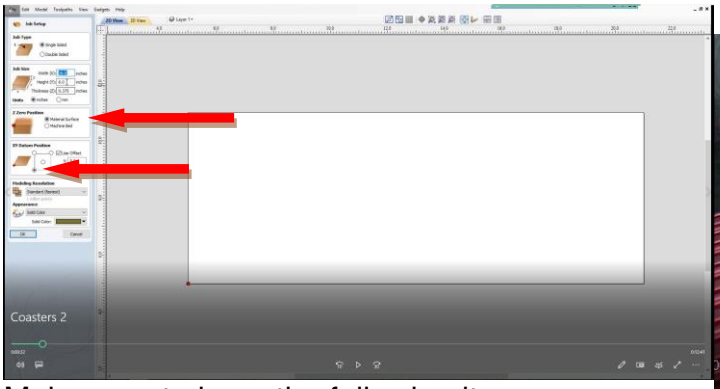
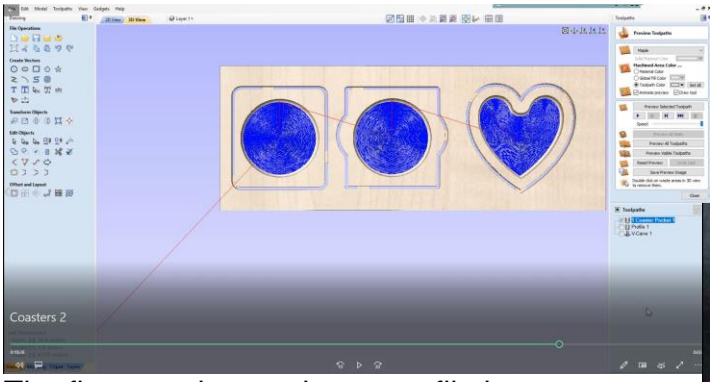
Step 1: Creating Tap Files



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

Zero posistion, Material Surface

XY Datum Position, Lower Left Corner



The first step in creating a tap file is to open the Custom Coaster.crv file. Make necessary changes for styles and personal taste. Carefully review all the toolpaths and change to suit your tools and machine. Use a the correct corresponding post processor to save the tap files. For this project you should create 3 tap files. When everything is suitable, go over to the tool path menu and save each of the following tool paths.

1 Coaster Pocket

2 Coaster V-Carve

3 Coaster Profile

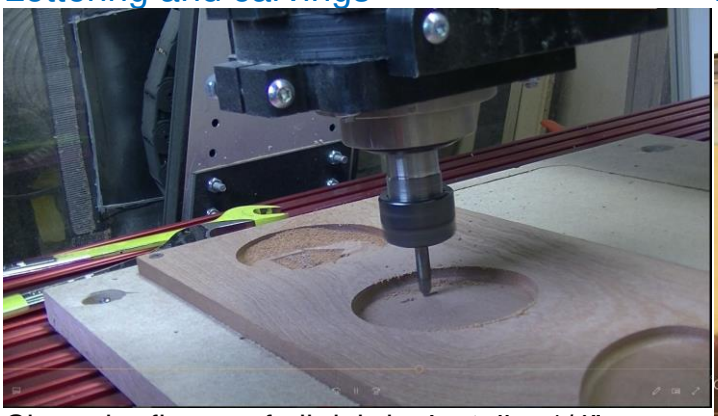
Step 2: Machining the Coaster Pockets

Mount the material so it is square with the X and Y axis. 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 1/4” round nose bit. Touch off the Z-axis on the “TOP of the Material” see Reference Video.

Load the 1 Coaster Pocket.tap file. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Coaster Pocket

Step 3: Machining the Coaster Lettering and carvings

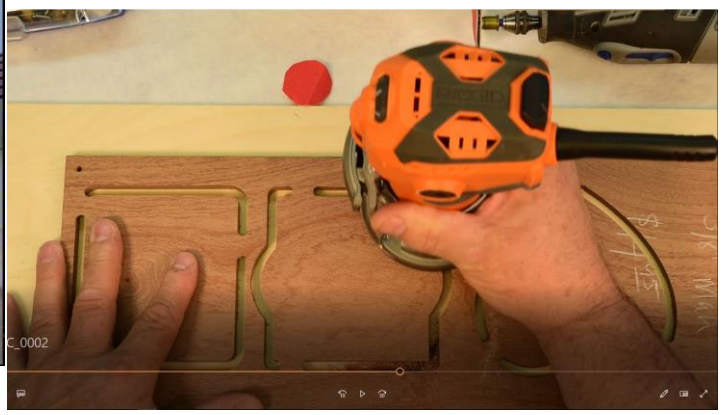


Clean the fixture of all debris. Install a 1/4" 60º V-bit bit. Touch off the Z-axis on the "TOP of the Material" see Reference Video. Load the 2 Coaster V-Carve.tap file. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Step 4: Machining the Coaster Profile

Vacuum the top of the fixture. Install the ¼ straight bit. Touch off the Z-axis on the "TOP of the Material" see Reference Video. Load the 3 Coaster Profile.tap file. Run the tap file with a router speed at 12,000 to 16,000 RPM.

Step 5: Removing the tabs, Epoxy inlay and Sanding the Coasters:



Cutting Tabs:

Cut the Coaster free from the blank using a trim router and a ¼" flush trim bit. The router bit will be a snug fit. Cut from the bottom side so the groove becomes your guide.

Epoxy Inlays:

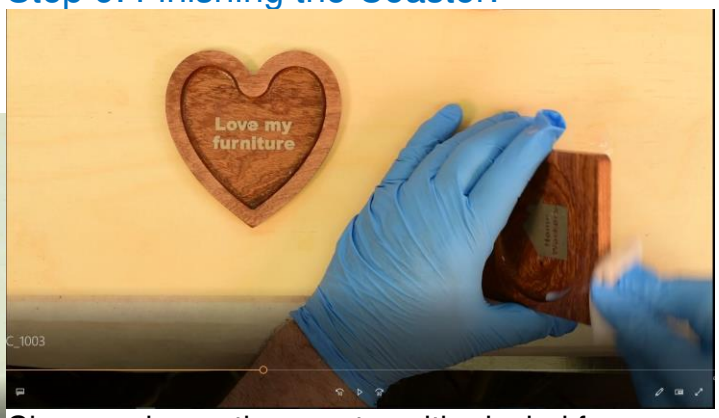
Before completing epoxy inlays, always seal the project with shellac. This is so it seals the pores of the wood and the paint or epoxy doesn't migrate. Mix the epoxy first then add the colorant. Thoroughly mix together. When applying make sure to fill all of the voids and get out all of the air bubbles. Let cure for 24

hours. Carefully sand flush with the bottom on the coaster.

Sanding:

Using the rotary tool bits and one-inch disks, sand and remove any unwanted material from the detailed areas of the coaster. Be careful not to overdo, it will take away features away on your coaster. Sand everything down to with 240 grit sandpaper. Once satisfied with the sanding and detailing, of the coaster prepare for finishing.

Step 6: Finishing the Coaster:



Clean and prep the coaster with alcohol for finishing. Wipe on 3 coats of Water based Polyurethane, lightly sanding between coats. That gives it a satiny sheen and good protection. Hope you enjoy the making of this project. So, keep your creative juices flowing and come back next month for another cool project.
Have fun and Happy Carving!

Rick Frazier