

# Project Tutorial

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## “Stone & Coral” Inlay Vase

Designed for Vetric™ by Michael Tyler

This project demonstrates how to use commonly available items to create an attractive stone and coral inlay appearance. In addition, the project files have a few “tricks” that could come in handy for your own personal projects, as well. The project was created entirely with VCarve Pro 8 and takes advantage of the new ability to directly machine 3D relief models.

The front and back panels of the vase utilized one of the included v3m clipart domes and was stretched/resized to form the convex shape. The edges of the front and back panels uses a 90° V-Bit assigned as a “profile on” to make the edges a little more interesting and shapely. Observing the files should clarify how the intended result was achieved.

The v-carve design on the front was done in the normal way, although it has a rather shallow flat depth to minimize the amount of material needed for the inlay fill.

The dimensions of the Inlay Vase are about: 5.75" W x 2.75" D x 6.75" T



Main items you will need:

**1) The Project Files (included):**

- Vase\_Front-Back.crv
- Middle\_Vase\_Parts.crv

**2) Boards with these dimensions:**

- Vase\_Front-Back: 0.75" x 7" x 16"
- Middle\_Vase\_Parts: 0.75" x 7" x 15"

**3) Zinsser Bullseye SealCoat and denatured alcohol, disposable brushes and paint rags, sandpaper 60, 80, 100, 120, 150, 220, 320 grits, unsweetened Baker’s Cocoa Powder, Corn Starch, Paprika, 6-Minute and 30-Minute Epoxy, plastic mixing cups, popsicle sticks and toothpicks, clearcoat spray**

**4) A Dremel-type rotary tool with assorted sanding wheels and bits to sand small details and speed up preparation for finishing.**



**CNC Bits used for the Sample:**

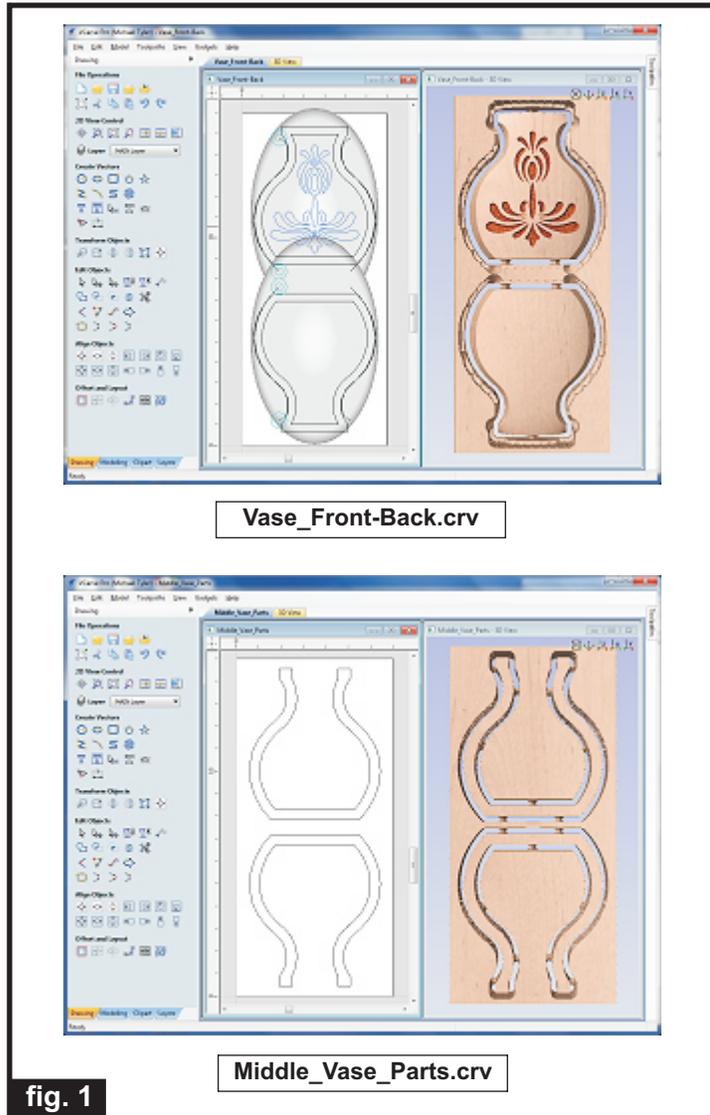
- 0.25" Down-Cut End Mill (EM)
- 0.25" Ball Nose (BN)
- 90° V-Bit (0.75" diam.)

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## STEP 1 - Open and Review the Project Files

Start your VCarve Pro or Aspire software and open the project files. (fig. 1)

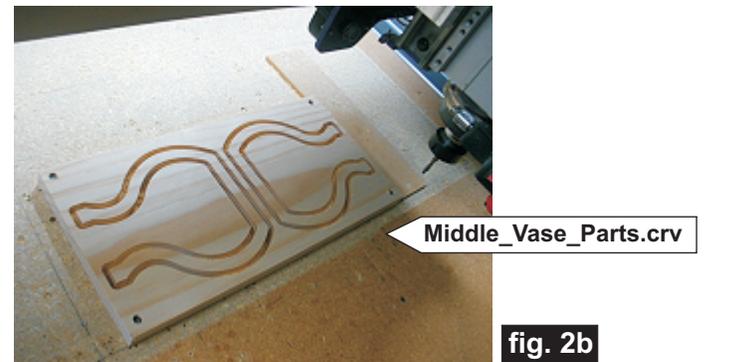
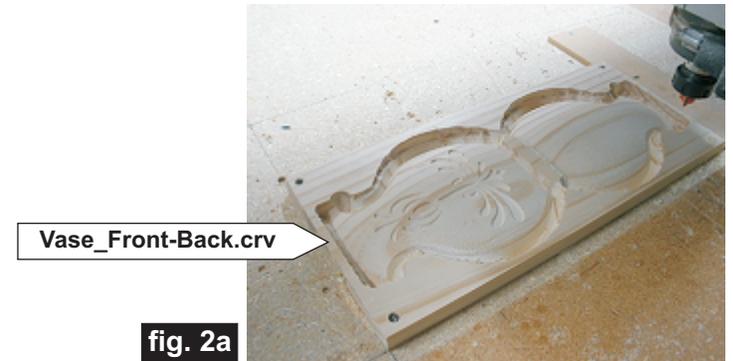


Carefully review all the toolpaths and make any necessary changes to suit your particular bits and machine. The toolpaths are currently set with feeds, speeds and pass depths that were used in creating the original sample. Please don't use them directly until you review them for your own setup.

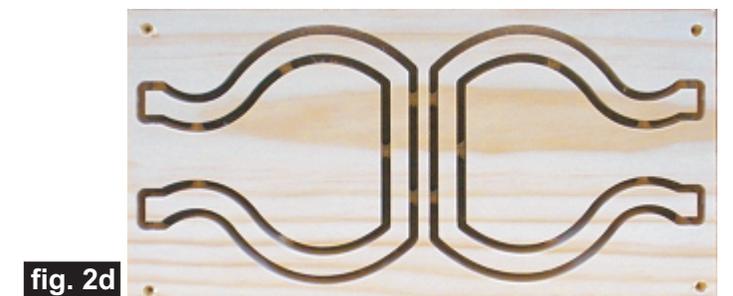
You can edit the tools and change the settings to your own preferences and requirements. **It is very important to recalculate all toolpaths after making any edits/changes.** Once you have recalculated for your own machine and bits, reset the preview, then preview all toolpaths again to visually verify the project outcome on-screen.

## STEP 2 - Run the Project

When you are satisfied with your settings, save the toolpaths to the appropriate Post Processor for your machine, place your material on your machine bed and proceed to run the files. (fig. 2a, 2b)



Your boards will look something like this: (fig. 2c, 2d)



(cont.)

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(cont.)

## STEP 3 - Separate Parts from Material and Sand

Separate the parts from the boards with a utility knife or hobby saw. Sand the components to remove the tabs and lightly sand the parts to make sure no fuzzies are present that might interfere with the glue-up. (fig. 3a, 3b, 3c)

Separate all parts from boards



fig. 3a



Sand off all tabs

fig. 3b

Lightly sand off any fuzzies. Be careful - the middle parts are fragile before glue-up.



fig. 3c

Arrange the order of the sections to make a grain pattern on the edges that looks pleasing to you. Mark the part order with a pencil. (fig. 3d, 3e)



fig. 3d



fig. 3e

## STEP 4 - Assembly and Finish Prep

Glue the sections together. Stand up the assembly on a flat surface and tape the parts in place with painter's tape. Apply clamps until dry. (fig. 4a, 4b, 4c, 4d)

Spread glue evenly on the parts' mating surfaces



fig. 4a



Stack and glue all parts together

fig. 4b

Stand up the assembly and tape the parts firmly in place



fig. 4c

Apply clamps until dry. Don't overdo the clamping pressure.



fig. 4d

(cont.)

# “Stone & Coral” Inlay Vase

## STEP 4 - Assembly and Finish Prep (cont.)

After the glue is dry, sand and blend the section edges of the assembly flush and smooth. I used a spindle sander as well as hand sanding to remove undesirable tool marks and blend the sections. Go ahead and sand the front and back, but sand the front only lightly as the final sanding will take place later on. (fig. 4e, 4f)



fig. 4e



fig. 4f

## STEP 5 - Resin Inlay Application

Before applying the inlay material, the wood should be sealed for best results. Tight-grained woods are usually easier to seal than open-grained woods. The sample was made from Select Pine and was easy to seal. The following describes the finishing steps for this project.

Apply Zinnser Bulls Eye SealCoat (thinned 50/50 with denatured alcohol), both inside and out. For the interior, I poured some sealer inside the vase, swished it around to coat and poured out the excess into a disposable bowl. I then brushed the sealer on the exterior surfaces. (fig. 5a, 5b)



fig. 5a

Brush on thinned SealCoat to exterior surfaces. Don't allow any puddling to remain inside the v-carve areas.



fig. 5b

I repeated the SealCoat application twice more, lightly sanding the exterior between coats.

If you notice any fuzzies inside the v-carve areas, they can be quickly removed using a 3M sanding disc and a rotary tool or with small sanding sticks or emery board. (fig. 5c)



fig. 5c

Spray a couple light coats of Krylon Clear Acrylic (or similar) onto the front only. Allow to dry. Sand and repeat if using an open grained wood. The idea is to seal the grain thoroughly before applying the resin inlay. (fig. 5d)



fig. 5d

(cont.)

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## STEP 5 - Resin Inlay Application (cont.)

Mix the first recipe for the “stone” inlay. Use two disposable cups - one for the dry ingredients and the other for the epoxy resin. NOTE: For this project, each “part” was 1/4 teaspoon in volume.

### Dark Stone Inlay Recipe:

- 2 parts regular clay kitty litter (crushed)
- 3 parts unsweetened baker’s cocoa powder
- 1 part A 30-minute epoxy resin
- 1 part B 30-minute epoxy hardener

Put the kitty litter in a cup and crush using a large bolt or similar item. Don’t completely pulverize the litter - just crush it into smaller granules and some “dust”. Add the cocoa powder to the litter. (fig. 5e, 5f)



fig. 5e



fig. 5f

Mix the part A and part B 30-Minute epoxy together in a separate cup. Add the dry ingredients and stir, but not too vigorously, to help minimize the formation of air bubbles. (fig.5g, 5h)



fig. 5g

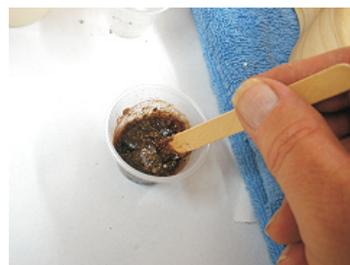


fig. 5h

You have about 10 to 15 minutes of open time before the epoxy becomes too thick to work with. Apply the mixture into the v-carve recesses right away using a popsicle stick. Overfill (dome) each recess to prevent a “concave” inlay. Apply some leftovers onto a scrap piece of wood. You can use this to gauge the hardening process to tell when you can start sanding (about 45 to 60 minutes after filling). (fig. 5i)



fig. 5i Apply the “stone” into the inlay areas you prefer, as well as a small amount to a scrap board.

Mix and apply the “coral” inlay the same way. (fig. 5j, 5k, 5l)

### Red Coral Inlay Recipe:

- 1 part red paprika
- 1 part corn starch
- 1 part A 30-minute epoxy resin
- 1 part B 30-minute epoxy hardener

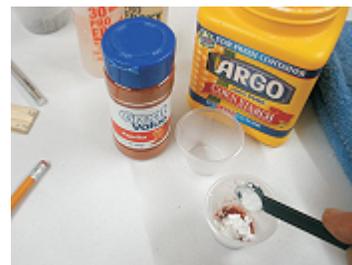


fig. 5j



fig. 5k



fig. 5l

(cont.)

# “Stone & Coral” Inlay Vase

## STEP 6 - Inlay Sanding and Finish Application

You can “test sand” the inlay you put on the scrap board after about 45 minutes. Use 60-grit sandpaper for the test, since this will be the grit you use to start with on the actual vase. If the inlay fill is too “gummy”, it will tend to ball-up and you need to wait a few more minutes and test again. Temperature and humidity can affect the epoxy setup time. Once it is sanding cleanly, you may start sanding the vase itself. I found I can start sanding between 45 and 60 minutes when using the 30-minute epoxy products. I can sand in about 15 to 20 minutes when using the 6-minute epoxy products.

The basic procedure for sanding the inlay is to start with a very coarse grit and progress through finer grits. I use 60, 80, 100, 120, 150, 220 and 320. Always use a sanding block, otherwise you will introduce “hills and valleys” to your inlay surface. I sand with hard blocks, but for a domed surface like this vase, I’ll switch to a stiff-foam sanding block when using the finer grits to conform to the domed surface whilst keeping the inlay flush with the wood surface. See the steps, as follows:

Begin sanding with 60-grit. “Ride” the top of the inlay fill while sanding. Brush away dust frequently and change sandpaper as required if it starts to load up or wear down. Switch to 80-grit when you begin to see a “ghosting” of the underlying design. Continue through the finer grits until the inlay is flush and smooth with the surface. (fig. 6a, 6b)

Start with aggressive 60-grit to remove the bulk of the excess inlay material



fig. 6a



Stop sanding with 60-grit when you see the design “ghosting” through. Switch progressively to 80, 100, 120, 150, 220, 320 until the surface is completely smooth.

fig. 6b

All of the sanding can be done by hand, but if you are careful, you can also employ power sanding. I used a small mouse sander when sanding with 120-grit (all other grits I sanded by hand). Power sanding creates friction and heat so you need to use caution so as not to soften the resin when power sanding.

Pausing every so often will prevent the resin from overheating. (fig. 6c)



fig. 6c

Once the sanding is done, inspect for pits and small holes. These are caused from air bubbles forming during the resin curing process and are normal (albeit an annoyance). **TIP:** You can help minimize bubble formation by blowing over the fresh resin during the fill process with your “own air” or with a heat gun set on LOW heat and airflow. This helps bring bubbles to the surface where they pop. Some folks wave a propane torch flame slightly above the surface, but it’s potentially too dangerous for me to recommend that.

Here’s a closeup photo of the pits I had on the inlay. (fig. 6d)



fig. 6d

The pits need to be filled. You can mix a few drops of 6-minute epoxy and drop-fill the pits using a toothpick. Normally, the plain clear epoxy will do the job just fine but you can color the epoxy if needed. Sand the epoxy droplets flush to the surface with 220 and 320 sandpaper. (fig. 6e)



fig. 6e

(cont.)

# “Stone & Coral” Inlay Vase

## STEP 6 -Inlay Sanding and Finish Application (cont)

Wipe off all the dust left from sanding and apply several coats of clear finish over the entire vase, lightly sanding between coats. (fig. 6f, 6g)



fig. 6f



fig. 6g

## IN CONCLUSION

I hope you enjoyed making your “Stone and Coral” Inlay Vase. You might want to create your own “story board” of inlay trials to see what works and what doesn’t. For example, I tried using ground mustard and turmeric to see if I could get a yellow color inlay with either of those materials. I was surprised to learn that the turmeric was almost a black color when mixed with the epoxy and the ground mustard prevented the epoxy from coming to a full cure. Live and learn! Successes were ground coffee (commonly used by others), corn starch and pearl powder to create a “pearl inlay” appearance, and aqua-colored embossing powder with kitty litter to create a turquoise inlay effect. Of course, commercial dyes are available too, but it’s rather fun to discover new coloring methods!

Happy Carving!

*Michael*

Michael Tyler



(cont.)

# Materials Source Page

- 3M Radial Bristle Discs from [www.mcmaster.com](http://www.mcmaster.com)  
(stack 3 discs at a time on your rotary tool mandrel)
  - 80-grit: part # 4494A19
  - 220-grit: part # 4494A18



## Miscellaneous Items Purchased at Home Depot™ or Lowes™

- Zinsser Bullseye SealCoat and Denatured Alcohol
- Disposable Brushes and Paint Rags
- Sandpaper 60, 80, 100, 120, 150, 220, 320 grits

## Items Purchased at WalMart™

- Unsweetened Baker's Cocoa Powder
- Corn Starch
- Paprika
- Krylon Clear Acrylic Spray
- Popsicle Sticks and Toothpicks



Krylon Clear Acrylic Spray  
from WalMart™

## Items Purchased from Amazon.com

- 6-Minute Epoxy
- 30-Minute Epoxy
- Plastic Mixing Cups



Plain Clay Kitty Litter  
from Pet Supplies Plus™

# Additional Resources

## RESOURCES...

There are numerous resources for Vectric software owners to make their experience with their products more enjoyable. The Vectric website includes video tutorials and more, to provide a good overview of the software products and how to use them. Please visit the Support page for a complete listing of available resources for you.

**Vectric Support:** <http://support.vectric.com/>

### **Vectric User Forum**

Every owner should join the Vectric User Forum (<http://www.vectric.com/forum/>) where fellow users share their experience and knowledge on a daily basis. It is a FREE service that you will surely appreciate. A handy Search Feature helps you find answers to any questions you may have. There are Gallery sections as well, where you can post and view photos of projects created with Vectric software.

**IMPORTANT:** Before outputting any toolpaths you should carefully check all part sizes and the material setup to make sure they are appropriate for your actual setup. You should also check and re-calculate all toolpaths with safe and appropriate settings for your material, CNC machine and tooling.

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