Vectric

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Project Tutorial
Featuring compatibility with nearly all CNC Machines

It is our pleasure to provide our customers with fun and useful projects to enjoy!

Compatible with:

VCarve Pro 7
(or greater)

and

Aspire 4
(or greater)

Sample Carved with:
ShopBot Buddy
PRSalpha BT48

ShopBot ®
www.shopbottools.com

"Cast Metal" Scrolled Mirror Frame
Designed for Vectric™ by Michael Tyler

The "Cast Metal" Scrolled Mirror Frame is both an attractive and functional addition to your home decor. The design harkens back to the days when metal scrollwork artisans were more commonplace and the items they created were greatly cherished. This classic 'look' of metal scrollwork continues to be enjoyed and appreciated today.

This project features 2-sided machining. Pocket cuts are performed on the back of the panel for the mirror and hanger wire.

Finished dimensions are:
0.75 " D x 17.25 " W x 32.5 " H

Main items you will need:

1) The Project Files (included):
• Scrolled_Frame_BACK.crv
• Scrolled_Frame_FRONT.crv

2) Material with these dimensions:
0.75 " x 20 " x 34 "

NOTE: A 2ft. x 4ft. sheet of MDF was used for creating the sample, but you can use any material you like.

3) 11 " x 14 " Mirror, cardboard backing, picture wire and glazier's points (or other means of attaching the mirror into the back pocketed recess)

4) Two 0.5 " wood screws, sandpaper, wood sealer, stain or paint and clearcoat

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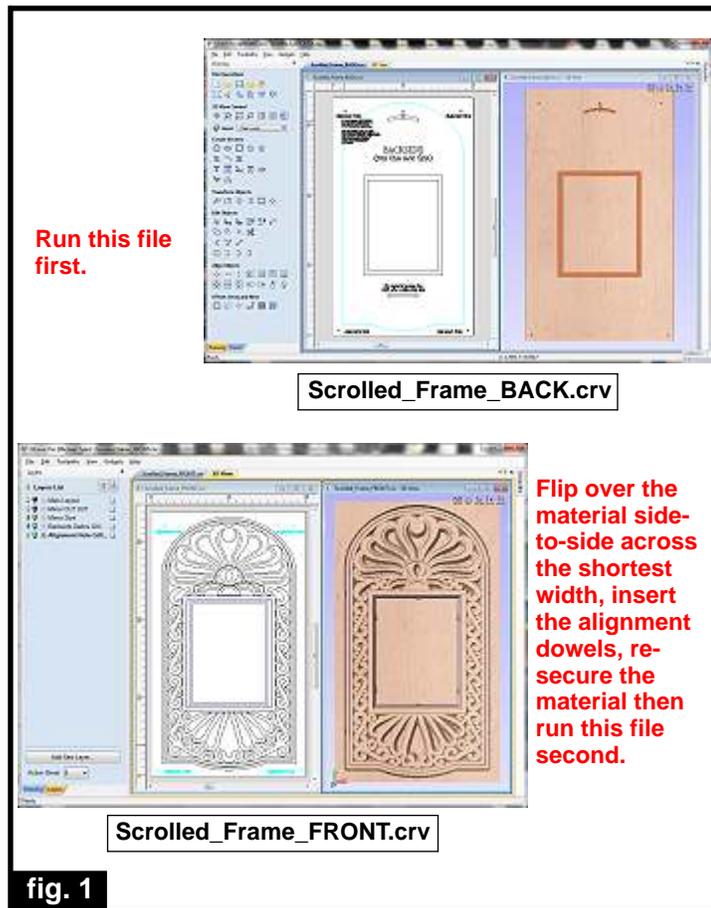

CNC Bits used for the Sample:

0.125 " EM
0.25 " BN
0.25 " Up-Cut EM
0.25 " Down-Cut EM
90° V-Bit

Designed by Michael Tyler - June 2013

STEP 1 - Open and Review the Project Files

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

Run this file first.

Scrolled_Frame_BACK.crv

Flip over the material side-to-side across the shortest width, insert the alignment dowels, re-secure the material then run this file second.

Scrolled_Frame_FRONT.crv

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. The project is designed with tabs to hold parts in place during the final part cut outs. You may delete the tabs if you use some other reliable hold-down method.
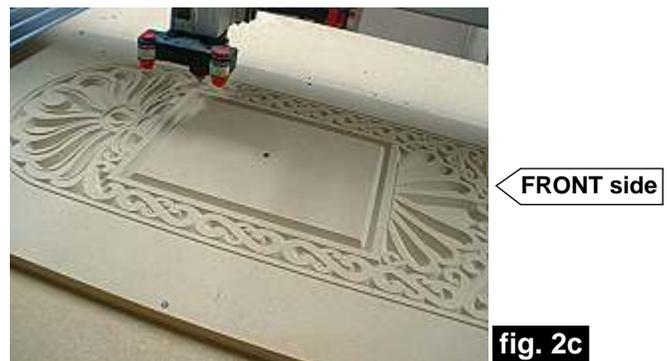
STEP 2 - Run the Project

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 in the order specified. (fig. 2a, 2b, 2c)

BACK side

fig. 2a
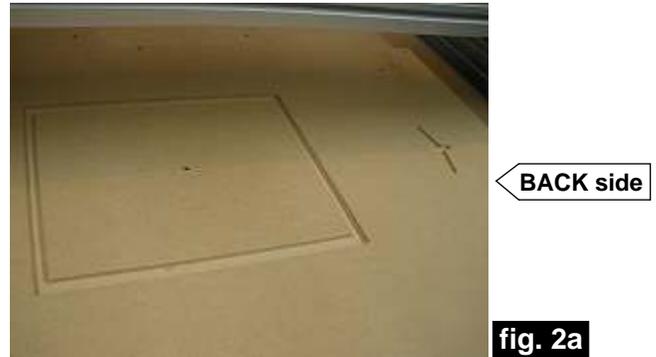
Machine the BACK file first. After machining that side, flip the board over across the (shortest) width.

Insert the alignment dowel pins into the holes in the spoilboard and replace the board onto the pins with the plain side up and re-apply your hold-down method. Run the FRONT file to complete the job.

Dowel insertion after the board was flipped over to the front side

fig. 2b

FRONT side

fig. 2c

(cont.)

STEP 2 - Run the Project (cont.)
Additional information for two-sided machining...

For the alignment holes of the sample, I set the depth of the drill toolpaths to 1.1 " when I ran the first file (i.e., the Scrolled_Frame_BACK.crv). This drilled all the way through the 0.75 "-thick material and into the spoilboard, creating four alignment holes in the spoilboard about 0.35 " deep to insert the 0.25 " dia. alignment dowels for placing the flipped board upon. (fig. 2d)

fig. 2d

Alternatively, you can set up a drilling toolpath on the first side of the material that is ~0.55 " deep. Then after completing the first side, rezero the bit to the machine bed and drill the same holes giving you a total depth of 1 "+. Using 1 "-long glue dowels, this works great.

Another consideration with this alternate technique is you don't have to maintain the same X,Y zero location. You can move the spindle to a location of your choice, rezero X and Y and then continue with drilling the holes in the spoilboard, placing the material and machining the second side at your chosen location on the spoilboard.

There is an excellent video tutorial about 2-sided machining posted on the Vectric website...

Vectric Video Tutorial D08 - Two Sided Machining
This 22-minute video describes the basic concept and tips and tricks for setup and alignment when cutting a two sided part. An example is examined to show the process for setup for two sided machining and the important steps to get a good result with this process.

Here is the link:

http://support.vectric.com/tut-vcp-2d-techniques

STEP 3 - Release Parts and Sand
Separate the parts from the material, then sand off any tab remnants and undesirable toolmarks. Only a very light sanding was required for the sample, as the carve came out quite clean and sharp. (fig. 3a, 3b, 3c, 3d)

fig. 3a

fig. 3b

fig. 3c

fig. 3d

(cont.)

STEP 4 - Finish Application

Apply your choice of finish. Here's what I used on my Scrolled Mirror Frame made from MDF material: (fig. 4a, 4b, 4c, 4d, 4e, 4f)

• Several coats of full-strength Zinnser Bulls Eye Seal Coat to seal both front AND back of panel

fig. 4a   Sealer BACK

fig. 4b   Sealer FRONT

• Painted the frame with Sculpt Nouveau products...
Brushed-on Overall - Bronze B
Highlight Flat Areas with Smooth Roller - Brass B

fig. 4c Brush-on Bronze B

fig. 4d   Rolled-on Brass B

I applied a black patina overall using thinned (50/50 Smart Stain and Smart Coat) Sculpt Nouveau Black Smart Stain via brush stippling it on, then "dabbing" it off to create variation in highlights and dark areas.

fig. 4e Stipple-on Patina

fig. 4f   Dab the Patina

• Two light coats of Sculpt Nouveau Smart Coat clear to complete the finish

STEP 5 - Install Mirror and Hanger

Cut an appropriate length of picture wire, form loops at each end and install into the pockets using two 1/2-inch long screws. (fig. 5a, 5b)

fig. 5a   Twist/Loop Wire

fig. 5b   Install with Screws

Install the mirror and cardboard backing with glazier's points or method of your choice. (fig. 5c, 5d)

fig. 5c Mirror and Backing

fig. 5d   Secure with Glazier's Points

IN CONCLUSION

Although the title and instructions for the project endorses the use of a metallic finish, there is no reason why you couldn't do this project in a natural or stained wood finish intead. A glue-up of wood boards will be all that is needed to provide the necessary dimensions for machining. I think the mirror frame will look very nice in a wood finish, too!

I hope you enjoyed the Scrolled Mirror Frame Project. Happy Carving!

Michael

Materials Source Page

• **3M Radial Bristle Discs from 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 WalMart™

• **11 " x 14 " Mirror (I scavenged the mirror and cardboard backer from the plastic frame)**

Miscellaneous Items Purchased at Home Depot™

• **Zinsser Bullseye SealCoat and Denatured Alcohol**

Miscellaneous Items Purchased at Lowes™

• **0.75-inch thick x 2ft. x 4ft. sheet of MDF**
• **1/2-inch (0.5-inch) Wood Screws**
• **Picture Wire and Glazier's Points**
• **Sandpaper**
• **Disposable Brushes, Paint Rollers and Paint Rags**

**Metallic Paint & Finishing supplies
ordered from www.sculptnouveau.com**

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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