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Vectric Project Tutorial
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Cornucopia Bread Server
Designed for Vectric™ by Michael Tyler

Compatible with
Current Version of:

Aspire

Sample Carved with:
ShopBot Buddy
PRSalpha BT48

ShopBot ®
www.shopbottools.com

This project produces a useful bread server for your dinner table. The design features a Cornucopia model carved into both end panels. The cornucopia is a symbol of abundance and will be a nice addition to your Thanksgiving holiday table or for use year 'round! The cornucopia can be replaced with any model of your choice to customize your Bread Server. Please visit www.vectorart3d.com for a wide selection of models to choose from.

The simple panel and dowel assembly makes a comfortable weekend project. You can adjust the length of the bottom panel and dowels to customize the overall length of the bread server, as you wish.

The finished dimensions of the sample Bread Server are about:
7.5 " W x 5.6 " T x 14.625 " L

Main items you will need:

1) The Project Files (included):
• Cornucopia_BACK.crv3d   } File
• Cornucopia_FRONT.crv3d   } Pair

2) Boards with these dimensions:

*BACK and FRONT: 0.75 " x 8.5 " x 15 "
 (*one board for two-sided carving)

**Base Panel: 0.5 " x 4 " x 13.5 "
(** This panel is cut with your table saw)

3) Ten 0.375 " dia. dowels cut to 13.5 " length, glue, sandpaper, clamps, stain/paint and clearcoat

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

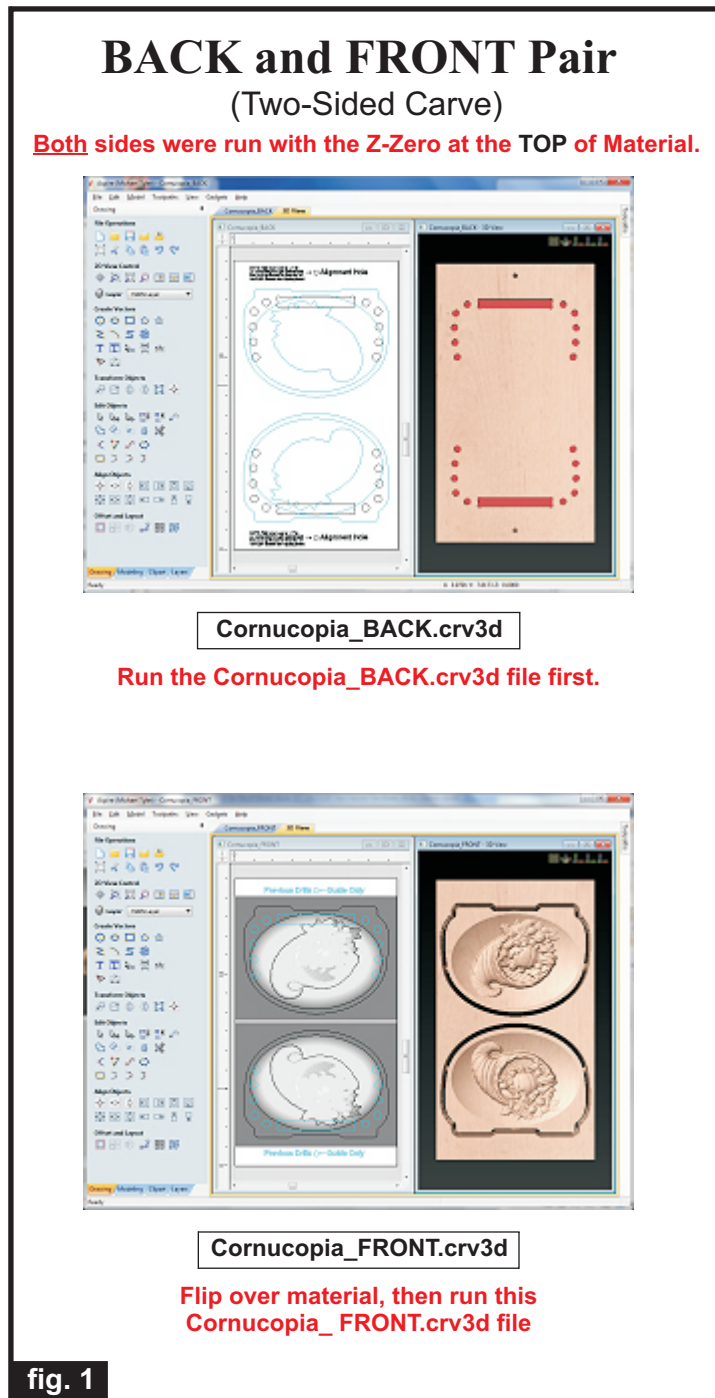### CNC Bits used for the Sample:

0.25 "	Up-Cut End Mill (EM)
0.25 "	Down-Cut End Mill (EM)
0.125 "	Ball Nose (BN)

STEP 1 - Open and Review the Project Files
Start your Aspire software and open the project files. (fig. 1)

BACK and FRONT Pair
(Two-Sided Carve)

Both sides were run with the Z-Zero at the TOP of Material.

Cornucopia_BACK.crv3d

Run the Cornucopia_BACK.crv3d file first.

Cornucopia_FRONT.crv3d

Flip over material, then run this Cornucopia_ FRONT.crv3d file

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. The two-sided file is run BACK first, then the FRONT after flipping the board over. (fig. 2a, 2b)

Cornucopia_BACK.crv3d

fig. 2a
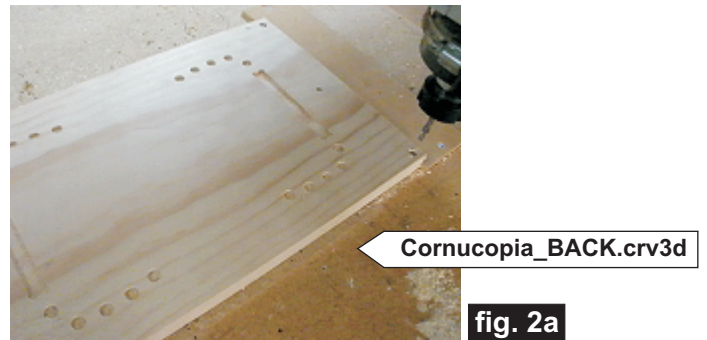
Machine the Cornucopia_BACK.crv3d file first. After machining that side, flip the board over across the (shortest) width. Insert the two alignment dowel pins into the holes in the spoilboard and replace the board onto the pins with the plain side up and re-apply your hold-down method. Run the Cornucopia_FRONT.crv3d file on the flipped side.

Cornucopia_FRONT.crv3d

fig. 2b
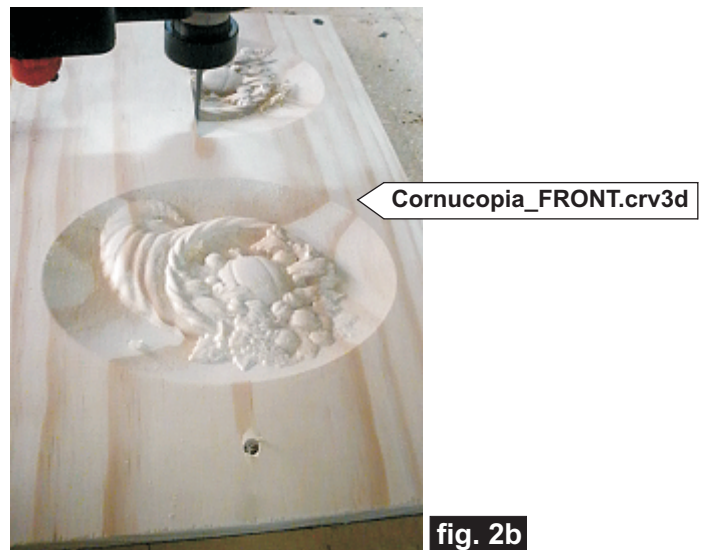
(cont.)

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

For the alignment holes of the prototype sample, I set the depth of the drill toolpaths to 1.1" when I ran the first file (i.e., the **Cornucopia_BACK.crv3d**). This drilled all the way through the 0.75"-thick material and into the spoilboard, creating the two alignment holes in the spoilboard about 0.35" deep to insert the 0.25" dia. alignment dowels for placing the flipped board upon.
(fig. 2c)

fig. 2c

Of course, I maintained the same X,Y zero location on the machine bed throughout the complete project run. Inserting a couple dowels into the holes in the spoilboard and into the material holes, yields perfect alignment between the back and front of the material.

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 different location, rezero X and Y and then continue with drilling the holes in the spoilboard, placing the material and machining the second side.

For more detailed information about 2-sided machining, visit http://support.vectric.com/ and view the "2-Sided Machining Guide Tutorial".

STEP 3 - Release Parts from Material
Separate the parts from the material. Sand off tabs and any undesirable toolmarks (fig. 3a, 3b)

fig. 3a

fig. 3b

STEP 4 - Cut Dowels and Base Panel
Cut ten 0.375" dia. dowels to 13.5" length, and cut a base panel measuring 0.5" x 4" x 13.5".
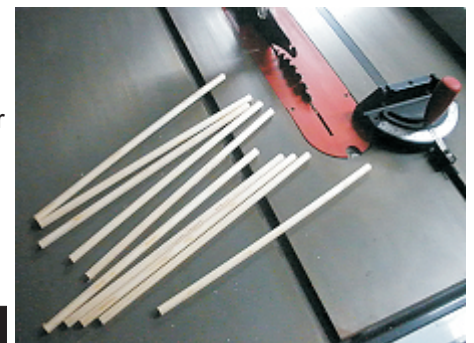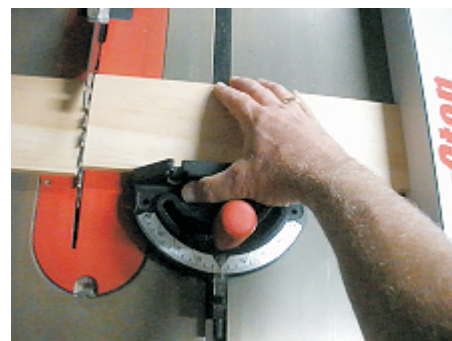(fig. 4a, 4b)

Ten 0.375" diameter dowels cut to 13.5" length

fig. 4a

fig. 4b

Cut a base panel measuring 0.5" x 4" x 13.5"

(cont.)

STEP 5 - Part Assembly

Dry-fit all the parts to test, then do final sanding overall. Soften all sharp edges. (fig. 5a)

fig. 5a

Glue the parts together and clamp until dry. I found it easiest to lay one panel flat on the table and glue the panel and dowels into that end first. Then, I applied glue into the other end panel pockets, rotated the assembly upright over the remaining end to coax the base panel and dowels into the remaining pockets. I used a rubber mallet (gently) to make sure everything was fully seated before clamping. (fig. 5b, 5c, 5d)

Glue base and dowels into one end

fig. 5b

Rotate assembly and glue base and dowels into other end

fig. 5c

Clamp until dry

fig. 5d

STEP 6 - Finish Application

Apply your choice of finish. Here's what I used on my Cornucopia Bread Server made from Select Pine (fig. 6a, 6b, 6c, 6d):

• 2 coats of thinned Bulls Eye Sealcoat, sanding between coats (50/50 sealer and denatured alcohol)

• 1 coat full-strength Bulls Eye Sealcoat

• Several coats of Krylon Crystal Clear Acrylic spray

• Light Brown acrylic craft paint on the cornucopia carving area (applied and wiped off, leaving some in the carve recesses to subtly accentuate details)

• Final coats of Krylon Crystal Clear Acrylic spray

Applied thinned SealCoat, then full-strength SealCoat

fig. 6a

Applied Krylon spray clearcoat to seal further

fig. 6b

Applied light brown acrylic craft paint to cornucopia

fig. 6c

Wiped off paint to subtly accent details

fig. 6d

(cont.)

IN CONCLUSION

Apply some self-adhesive cork or felt dots under the end panels to provide protection for the surface your Bread Server is placed upon.

Feel free to modify and customize the design. A nice weave pattern or family monogram on the end panels are possible ideas in addition to simply substituting another model (like a Turkey or Wheat motif?).

The cornucopia sample was carved with a 0.125 " Ball Nose bit. Detail can be enhanced by using a 0.0625 " Ball Nose bit instead, but will take longer to carve, of course.

The Bread Server will make a nice gift for almost any occasion. You might even want to consider modifying the layout to create a matching paper napkin holder, too!

Happy Carving!

Michael

Materials Source Page

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

Krylon Clear Gloss and Flat Acrylic
from WalMart™

Miscellaneous Items Purchased at Home Depot™ or Lowes™

• **Zinsser Bulls Eye SealCoat and Denatured Alcohol**
• **Disposable Brushes and Paint Rags**
• **0.375 " diameter dowels**
• **0.5 "-thick clear pine craft board**

Acrylic Craft Paint
from Michael's Arts & Crafts™
(Apple Barrel "Real Brown" #20529)

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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