

# Project Tutorial

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Current Version of:



or



Sample Carved with:  
**ShopBot Buddy**  
PRSalpha BT48



## Letterpress Print Block Mirror

Designed for Vetric™ by Michael Tyler

Early printing presses used wooden relief type placed into a frame called a "chase". With that idea in mind, this project simulates a random grouping of old-style print blocks in a mirror frame. The varying depths of the "blocks" gives the illusion that they are separate parts, but only two of the blocks are actually individual parts and serve to hide and strengthen the joint where the two halves of the print block panel are glued together.

The project is an interesting exercise in toolpathing techniques. There are a total of 4 bits used, and there are quite a number of bit changes/swaps during the run of the print block panels. Even so, I hope you'll

find the end result is worth the extra effort. The toolpathing order is very important, as many of the toolpaths have start depths that depend upon a previous machining to a certain depth. Some paths are "paired" too, so please don't change the toolpath order when making modifications to suit your machine speed/feeds, material and bits.



Dimensions are about 1.875" x 19" x 19"

Main items you will need:

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

- Print\_Block\_Mirror\_LEFT.crv
- Print\_Block\_Mirror\_RIGHT.crv
- Inner\_Frame.crv
- Outer\_Frame.crv

**2) Material with these dimensions:**

- LEFT and RIGHT: 0.75" x 11" x 21" (x 2)  
 Inner Frame: 0.75" x 7" x 15"  
 Outer Frame: 0.75" x 11" x 21.5"

**3) Eight 6mm x3mm neodymium magnets (.25" dia. x .125" thick), two screw eyes and picture wire**

**4) 12" x 12" mirror tile, glass cutter, wood glue, epoxy, sandpaper, wood stain and/or paint and clear finish**

**5) A Dremel-type rotary tool with assorted sanding wheels and bits**



**CNC Bits used for the Sample:**

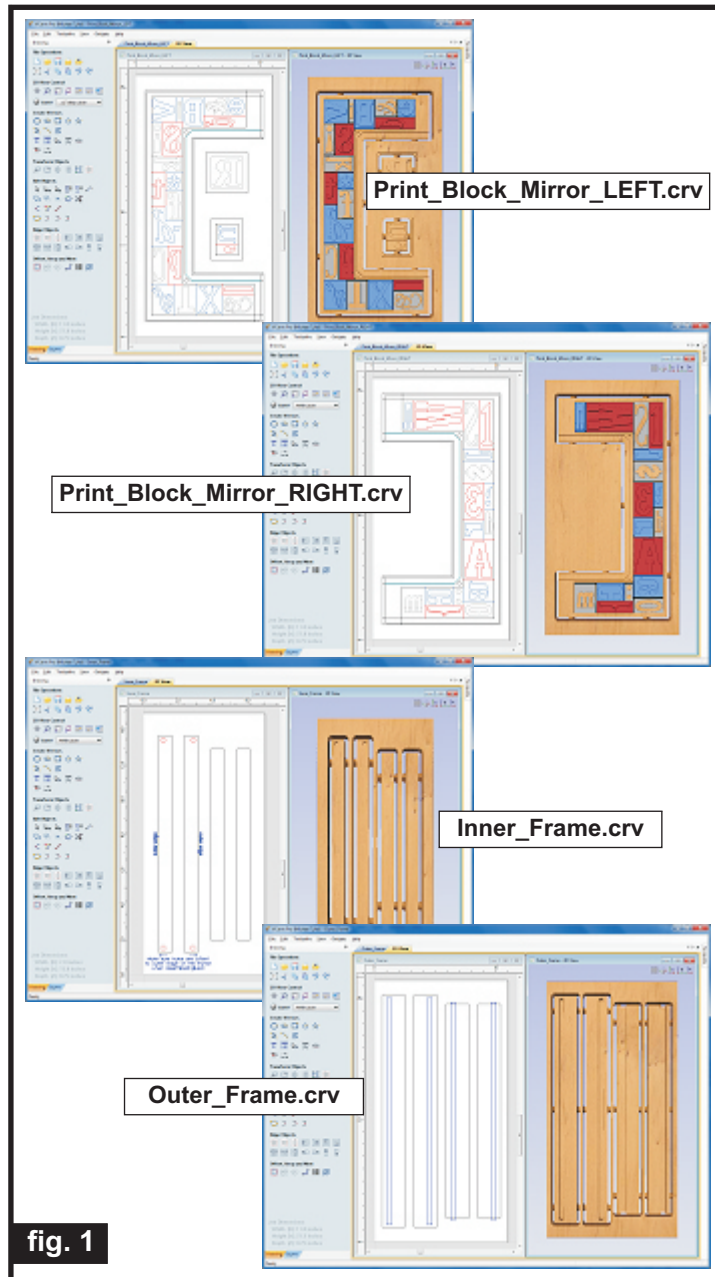
- 0.0625" Tapered Ball Nose (BN)
- 0.125" End Mill (EM)
- 0.25" Up-Cut End Mill (EM)
- 0.25" Down-Cut End Mill (EM)

# Letterpress Print Block Mirror

(cont.)

## STEP 1 - Open and Review the Project Files

Open the file(s) in your V-Carve Pro or Aspire software. (fig. 1)



## 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. **NOTE:** Pay particular attention to the bit changes, as there are quite a number of them for this project. (fig. 2a, 2b)



fig. 2a



fig. 2b

## STEP 3 - Release Parts from Material

Separate the parts from the material, then sand off any tab remnants and undesirable toolmarks. (fig. 3a, 3b,)



fig. 3a



fig. 3b

Carefully review all the toolpaths and make any necessary changes to suit your particular bits and machine. The toolpaths are currently set with ordering and 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. **It is VERY IMPORTANT to recalculate all toolpaths after making any edits/changes.** Preview all toolpaths again to visually verify the project outcome on-screen before running the files.

(cont.)

# Letterpress Print Block Mirror

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## STEP 4 - Assembly

Glue the RIGHT and LEFT print block halves together on a flat surface. Clamp until dry. (fig. 4a)



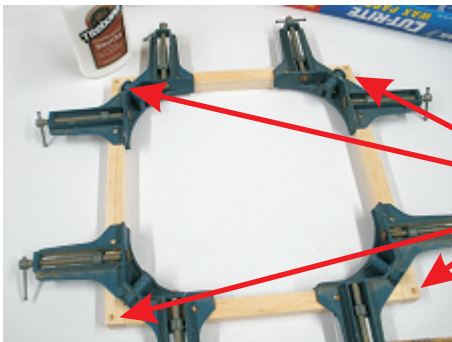
fig. 4a

Glue the two filler/bridge print blocks onto the print block panel. Allow to dry. (fig. 4b)



fig. 4b

Glue the inner frame together. Make sure all four holes are biased towards the outer edge of the frame so they will align with the recessed holes of the print block panel assembly. Allow to dry (fig. 4c, 4d)



Make sure the holes are biased towards the outer edge

fig. 4c

Dry-fit the outer and inner frame to the block panel. Sand to fit, if necessary (it was not necessary for the sample.) (fig. 4d)



fig. 4d

## STEP 5 - Finish Application

Apply your choice of finish. Try to avoid applying a finish on the part section areas that will be glued together later. Here's what I used on my Letterpress Print Block Mirror made from Select Pine. (fig. 5a, 5b, 5c, 5d, 5e, 5f, 5g):

### Inner and Outer Frame:

- Wiped on Rust-Oleum Wheat stain
- Three coats Zinsser Bulls Eye Shellac

### Print Block Panel Assembly:

- Three light coats spray Zinsser Bulls Eye Shellac (sanding between coats)
- Applied acrylic craft paint in a variety of colors to the "blocks". I thinned the paint to a "wash" consistency.
- Applied mostly black (but some red/grey/black mixtures, too) to the letter and symbol surfaces using my fingertip.
- After the paint was dry, I applied a coat of Rust-Oleum Carrington stain (it's a very dark brown color)
- I wiped off the stain with a dry rag, then again with a rag wetted with paint thinner. This achieved the effect of making the "blocks" look very old and well-used.



fig. 5c

Staining frame parts



fig. 5d

Shellac frame parts



fig. 5c

Painting the "blocks"



fig. 5d

Finger-painting the raised text



fig. 5e

Applying dark stain overall



fig. 5f

Wiping off the stain

(cont.)

# Letterpress Print Block Mirror

(cont.)

## STEP 6 - Final Assembly

After the finish is dry, glue the outer frame to the print block panel. Clamp until dry. (fig. 6a)



fig. 6a

Flip the assembly over and mark two locations for the screw eyes. Make pilot holes with an awl or small drill bit near the top of the frame. Install the screw eyes and picture wire (the wire should be taut across the back). (fig. 6b, 6c)



fig. 6b



fig. 6c

Glue four magnets into the holes of the mirror recess and four more into the inner frame. **Make sure** the magnets are oriented so the frame will be attracted to the recess and hold the mirror securely. I mark the polarity on each magnet to certain they are facing the correct way. (fig. 6d, 6e)



fig. 6d



fig. 6e

Cut the corners off a 12" x 12" mirror tile to fit the recess in the print block panel. Make a mark about .625" away from each corner, then draw a line across the marks with a straight edge and marker. Score the four corner lines with a glass cutter and snap off each corner. (fig. 6f, 6g)



fig. 6f



fig. 6g

## IN CONCLUSION

Place the mirror into the recess of the main assembly then put the magnetized inner frame over the mirror to hold everything securely. Instead of a mirror, you could opt to place a photo or small painting into the recess. I hope you enjoyed making your Letterpress Print Block Mirror!

Happy Carving!

*Michael*

# 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



Krylon Clear Gloss and Flat Acrylic from WalMart™

## Items Purchased at Home Depot™ or Lowes™

- Zinsser Bulls Eye Spray Shellac (100% wax-free clear shellac)
- 12" x 12" Mirror Tile
- Glass Cutter
- Rust-Oleum Ultimate Wood Stain (Wheat and Carrington)
- Sandpaper
- Disposable Brushes and Paint Rags



## Items Purchased at WoodCraft.com®

- 6mm x 3mm neodymium magnets (approx .25" dia. x .125" thick)  
[http://www.woodcraft.com/Product/2081312/30044/Rare-Earth-Magnet-14-x-110-\(65mm-x-25mm\)-10pcs.aspx](http://www.woodcraft.com/Product/2081312/30044/Rare-Earth-Magnet-14-x-110-(65mm-x-25mm)-10pcs.aspx)

## Other Magnet Sources:

- Arts and Craft stores and some “big box” stores
- **KJMagnetics.com**      **HUGE Variety and Selection of any kind of magnet you can imagine!**  
<http://www.kjmagnetics.com/proddetail.asp?prod=D42&cat=203>
- A good source for magnets in Europe is <http://www.first4magnets.com>

NOTE: Direct weblinks and prices were valid at time of this writing, but can change at any time. If links don't work, then try visiting the website's home page and do a Search for the item to get directed to a current/valid page.

# 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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