Mold Design
for Pewter Casting
with QuickCam 2D

Before beginning this activity you MUST have an basic understanding of the following QuickCam 2D commands.

- Billet size setup
- Setting snap and grid size
- Turning on and off snap and grid
- How to contour a bitmap images
- Using the SNAP commands
- Basic drawing tool use, circle, arc, rectangle, line, etc.
- Using the text tool and editing text
- How to move, rotate, scale and mirror objects
- Creating an offset path

You must also have a basic understanding of operation and setup of the Denford CNC Router.

- Turning on the CNC Router
- Using the emergency stop
- Clamping materials using the various hold down procedures
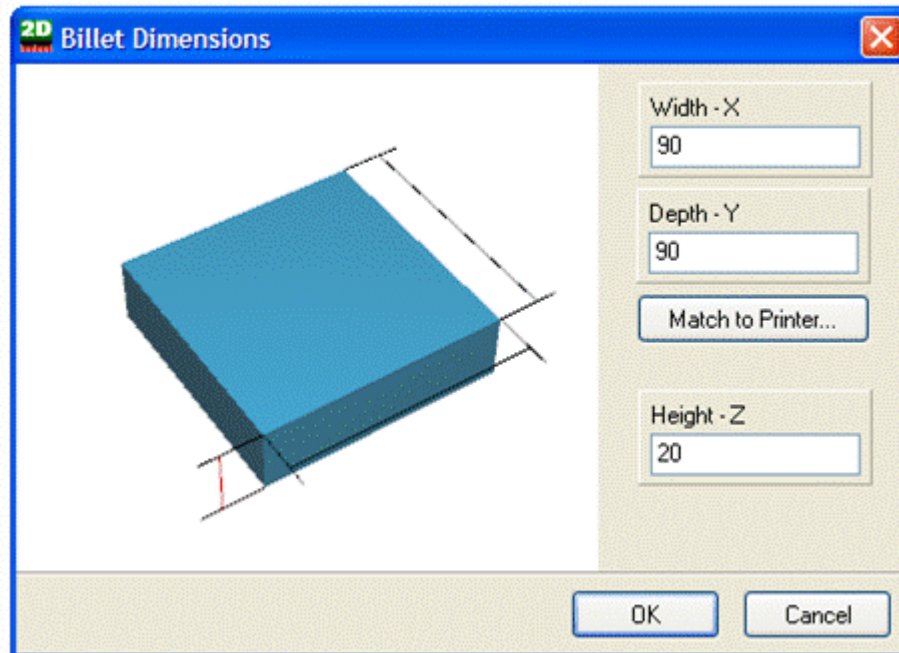- Identifying and correctly installing cutters
- Save operation

You must also have a thorough understanding the Denford CNC Router control software - - VR Milling

- Program Simulation
- Manual jog control
- Setting tool and work offsets

Boot the computer and *Start* the **QuickCam 2D** software program

Set Billet dimensions as follows … **X=90, Y=90, and Z=20**

Click on the **OK button.**

Import the graphic of your choice using the **import** (dxf, dwg, emf files) or **import image** (jpg, bmp, ico, emf, wmf files) command.
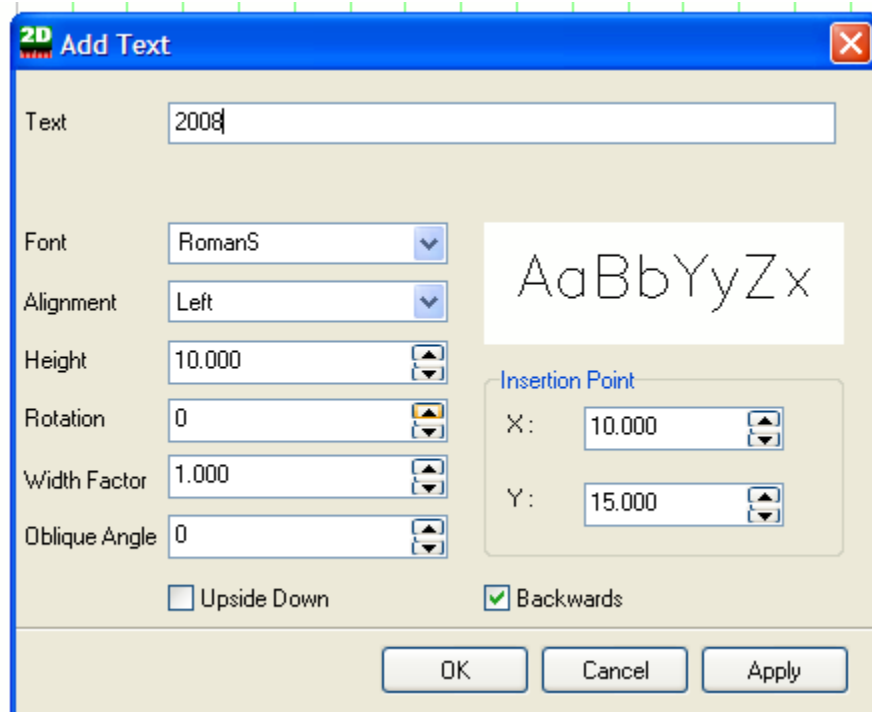
- **Note:** If you use the **import image command**, be sure to use the **contour bitmap command** to convert the image to a line drawing.

- Make sure that you have chosen and image that can be machined!

Select the **Add Text Tool** and select a start point.

Chose a font style (chose a simple font style such as RomanS for ease of machining).

Check the **Backwards Box**, this will invert the text in the machined mold allowing correct orientation of text on the finished pewter casting.
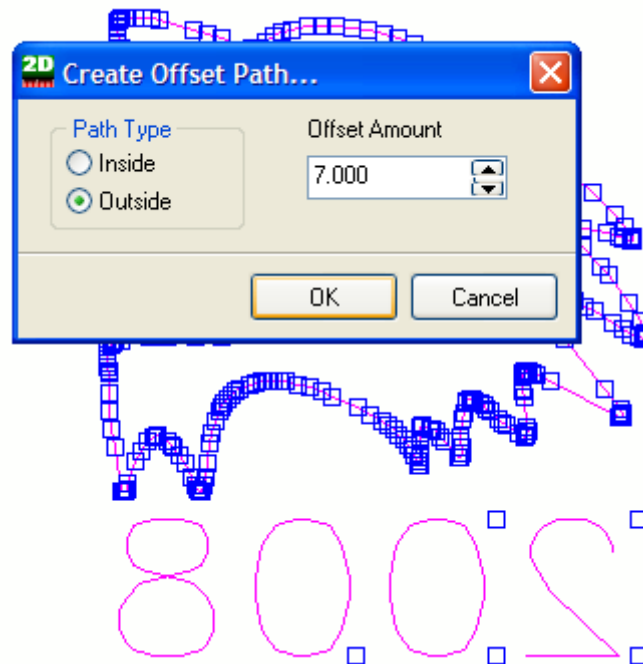

Resize and orient the text to the desired location.

It may be helpful to turn off the **Snap to Grid** command
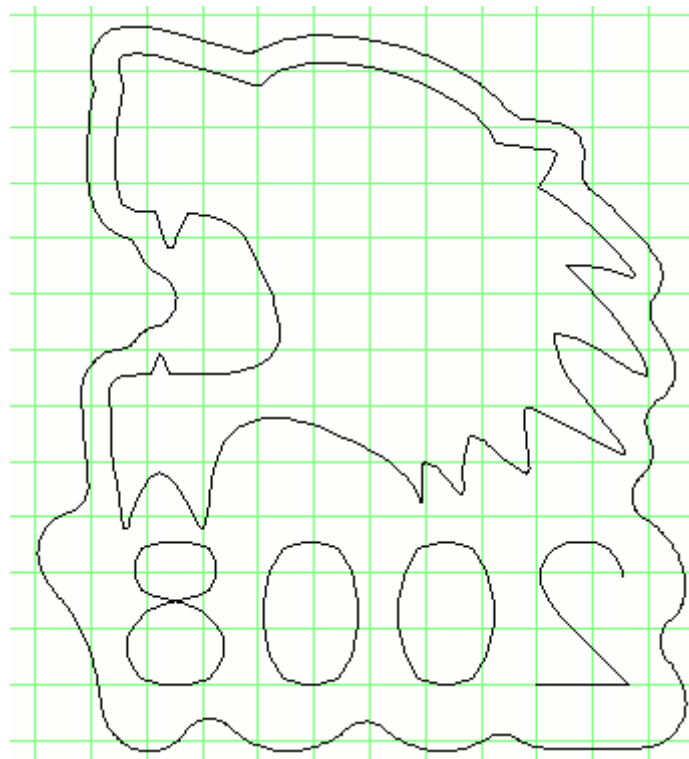
Using the **Select Tool**, select **ALL** the objects that you have created. Remember to use the **shift key** when selecting multiple items.

Select the **Create Offset Path tool**, chose **0utside** and set the offset amount to **7.00mm.**
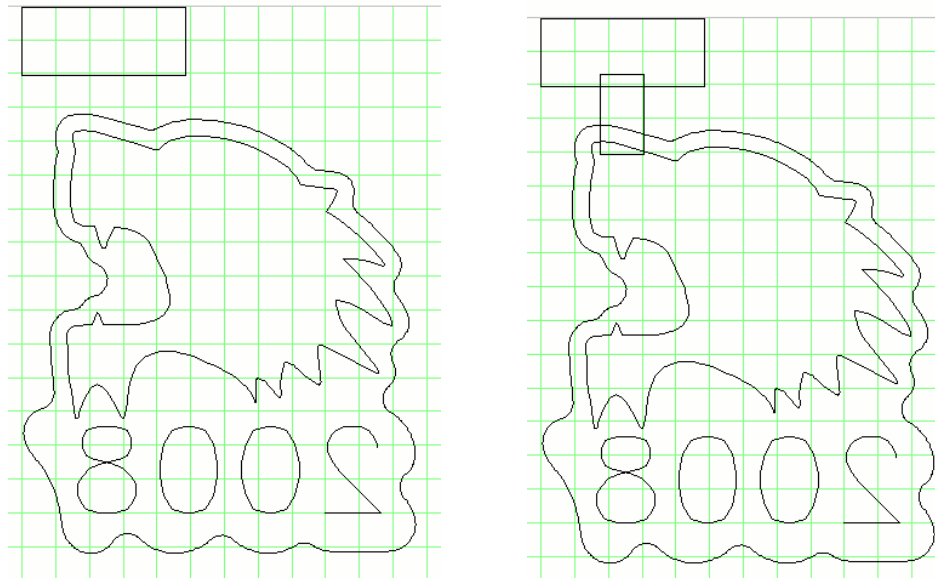

You will need to increase or decrease the offset amount to achieve the desire outcome.

Using the **Rectangle Tool,** place a 10mm X 25mm rectangle at the top of the billet.

- This will be the reservoir that the pewter will be poured into.

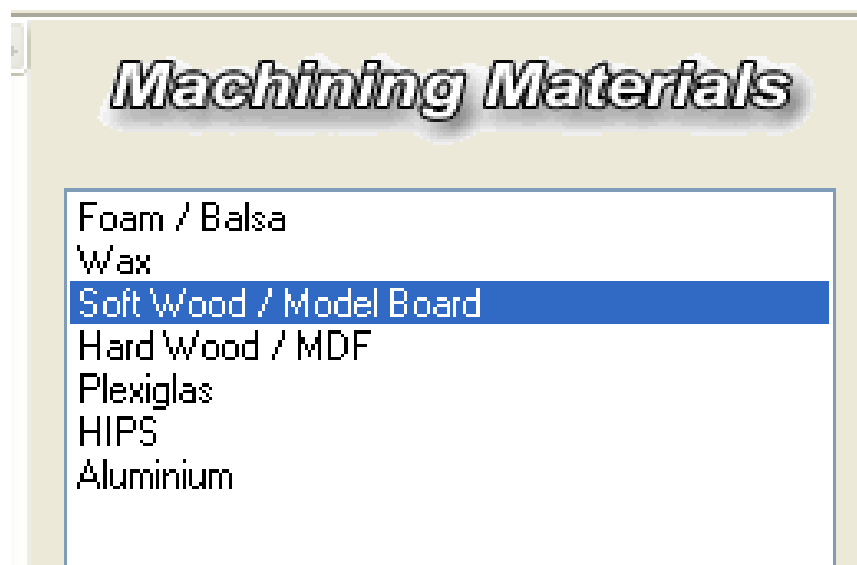- Place the reservoir over the highest point of your design to allow for proper pewter flow .

Again, using the **Rectangle Tool,** create a rectangle approximately 6-7mm wide that will be used as the sprue. It must overlap the reservoir and the high point on the mold design.

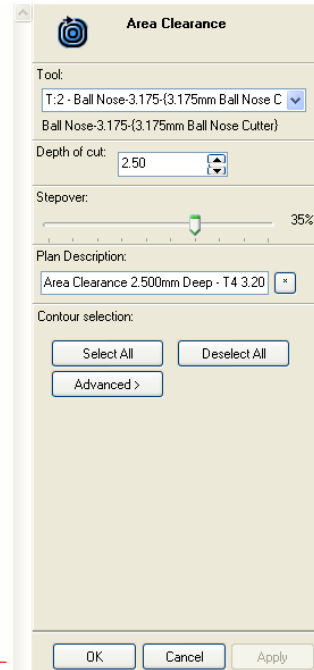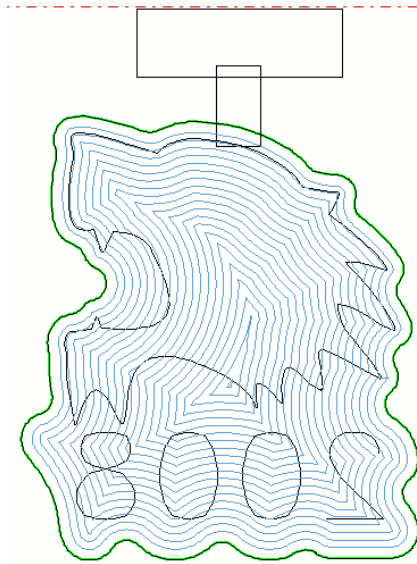Make any final design, size and/or orientation changes. **SAVE your MOLD DESIGN!**

Click on the **Generate Command** and select **CAM Wizard**.,

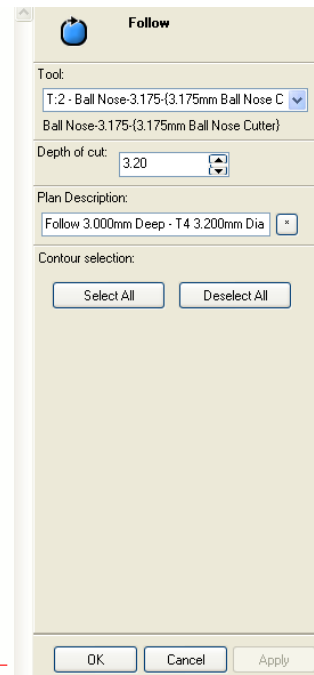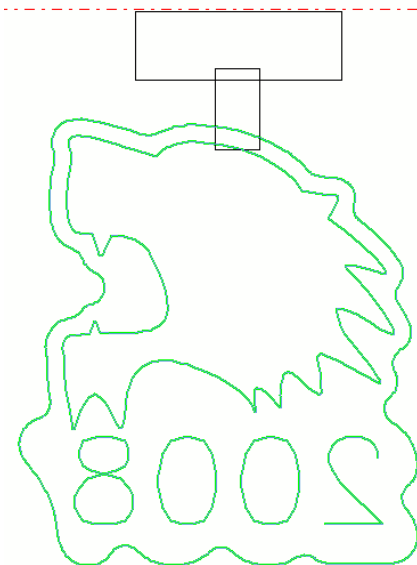Choose **Hardwood/MDF, click NEXT.**

For the first machining Plan select **area clearance**, click on the outside boundary of your design.

- Select the 3.175 Ball Nose Cutter as your tool.
- Depth of Cut as 2.5mm
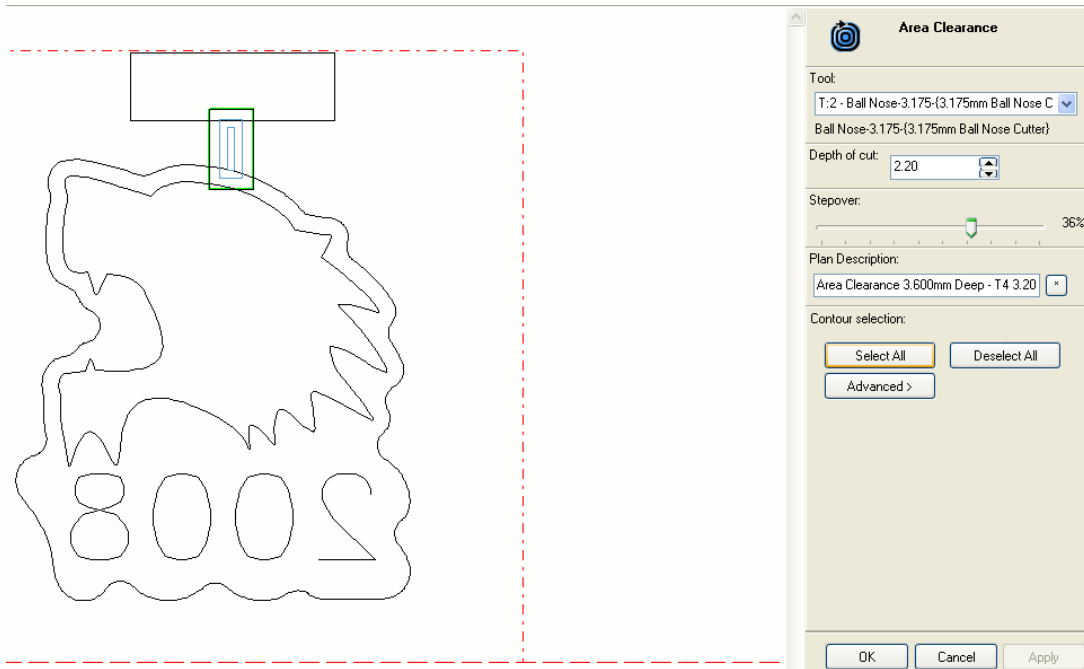- Stepover at 35%
- Select APPLY and click OK

Machining Plan #2 select **Follow**, click on the lines in your design that will be raised.
- Select the 3.175 Ball Nose Cutter as your tool.
- Depth of Cut as 3.2mm
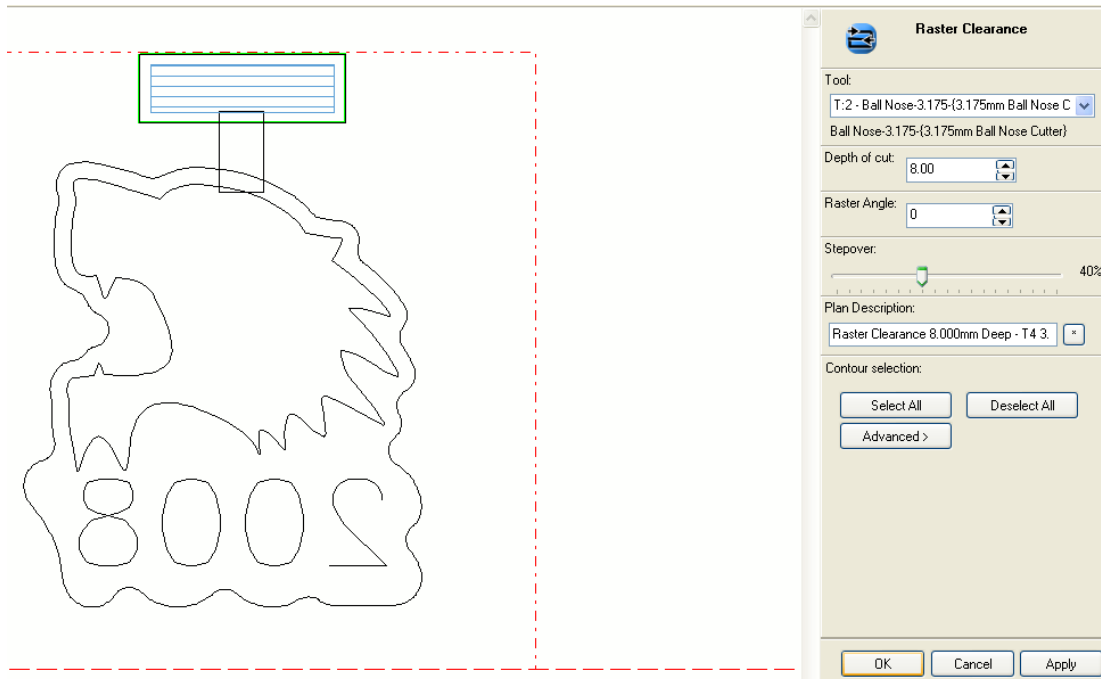- Select APPLY and click OK

Machining Plan #3 select **Area Clearance**, click on the sprue rectangle..
- Select the 3.175 Ball Nose Cutter as your tool.
- Depth of Cut as 2.2mm
- Stepover at 35%
- Select APPLY and click OK

Machining Plan #4 select **Raster Clearance**, click on the reservoir rectangle..
- Select the 3.175 Ball Nose Cutter as your tool.
- Depth of Cut as 8mm
- Raster angle is 0
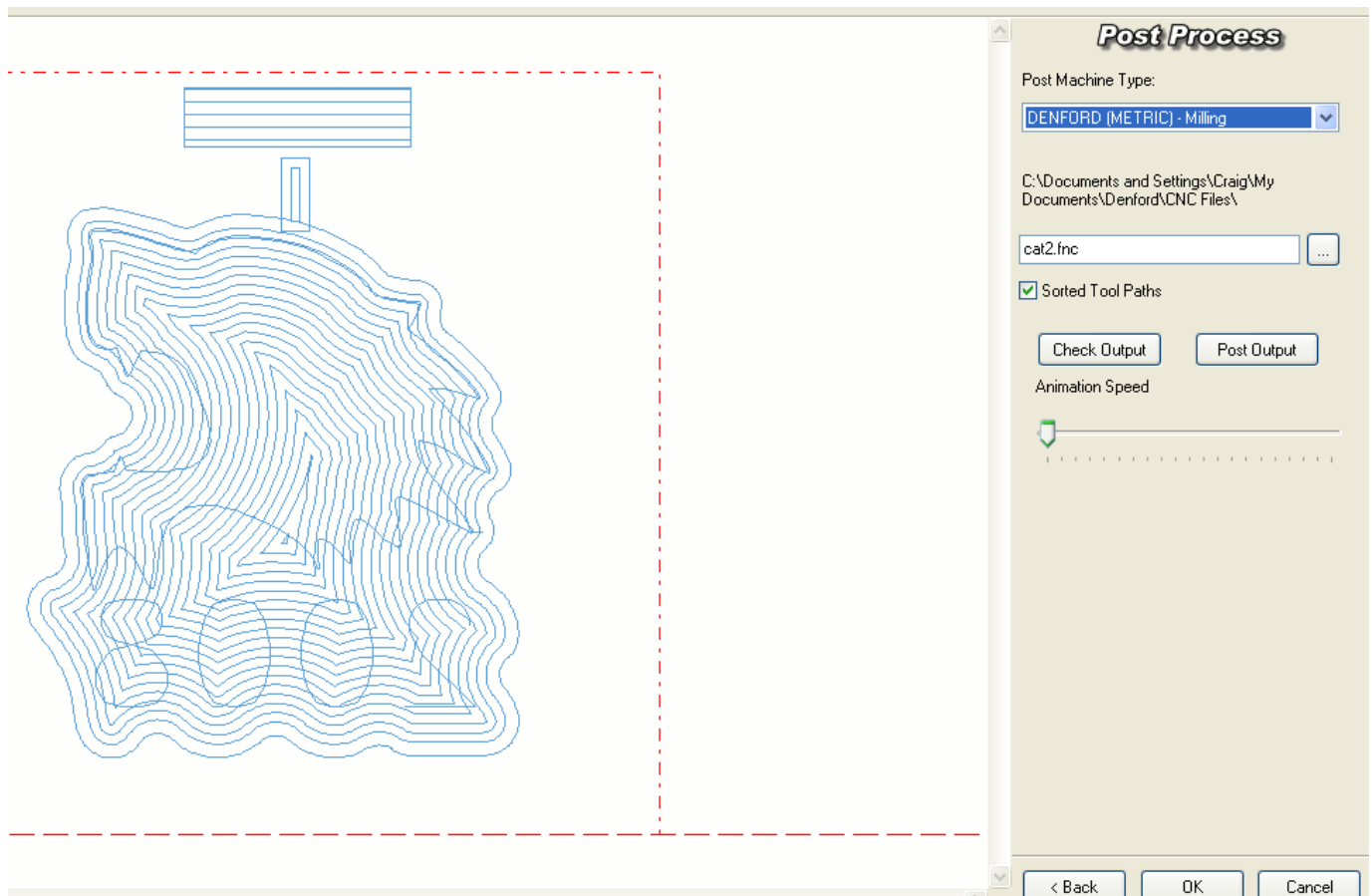- Stepover at 40%
- Select APPLY and click OK

Select NEXT

Make sure that Denford (Metric) Milling is selects as the Post Machine Type.

Enter the file name and folder location you wish to SAVE your file.

Click on Check Output to VIEW your tool path simulates.

If the file correctly simulates, click on POST OUTPUT.

You will automatically be taken to VRMilling.

SEE YOUR TEACHER FOR MACHINING INSTRUCTIONS!!!